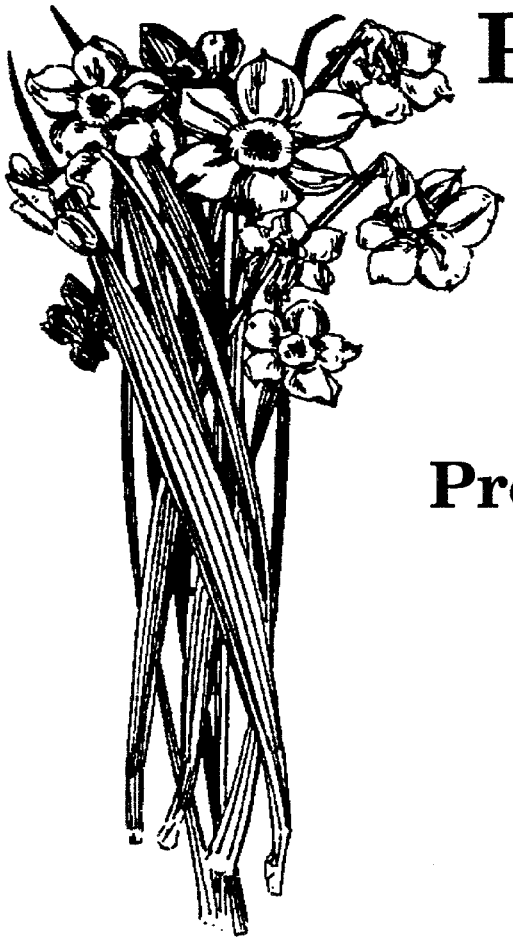


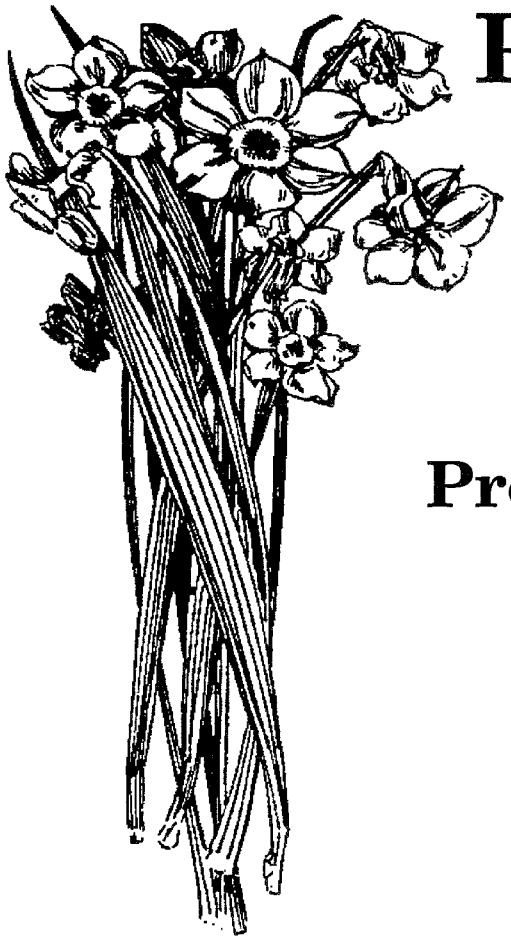
Preston Plains School Nature Trail

Preston, Connecticut

May 1990

EASTERN CONNECTICUT ENVIRONMENTAL REVIEW TEAM REPORT

Eastern Connecticut Resource Conservation and Development Area, Inc.



Preston Plains School Nature Trail

Preston, Connecticut

May 1990

EASTERN CONNECTICUT ENVIRONMENTAL REVIEW TEAM REPORT

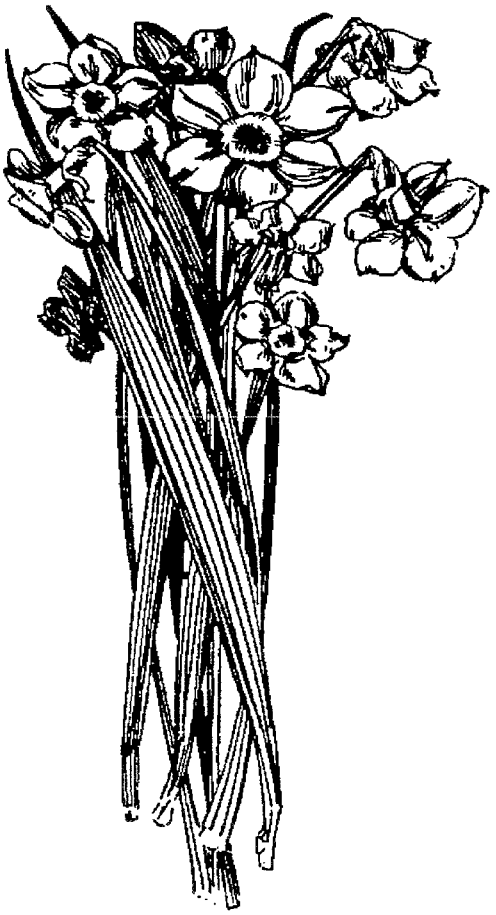
Eastern Connecticut Resource Conservation and Development Area, Inc.

Preston Plains School Nature Trail

Preston, Connecticut

Review Date: March 19, 1990

Report Date: May 1990



EASTERN CONNECTICUT ENVIRONMENTAL REVIEW TEAM

EASTERN CONNECTICUT RESOURCE CONSERVATION AND DEVELOPMENT AREA, INC.

P.O. BOX 70, ROUTE 154
HADDAM, CONNECTICUT 06438
(203) 345-3977

ENVIRONMENTAL REVIEW TEAM REPORT
ON

PRESTON PLAINS SCHOOL NATURE TRAIL
PRESTON, CONNECTICUT

This report is an outgrowth of a request from the Superintendent of Preston Plains School and the Odyssey Program teacher to the New London County Soil and Water Conservation District (SWCD). The S&WCD referred this request to the Eastern Connecticut Resource Conservation and Development (RC&D) Area Executive Council for their consideration and approval. The request was approved and the measure reviewed by the Eastern Connecticut Environmental Review Team (ERT).

The ERT met and field checked the site on Monday, March 19, 1990. Team members participating on this review included:

Nick Bellantoni	**State Archaeologist** **Connecticut Museum of Natural History**
Joe Hickey	**State Park Planner** **DEP - Bureau of Parks and Forest**
Steve Hill	**Wildlife Biologist** **DEP - Eastern District Headquarters**
Pete Merrill	**Forester** **DEP - Patchaug State Forest**
Brian Murphy	**Fisheries Biologist** **DEP - Eastern District Headquarters**
Liz Rogers	**District Conservationist** **USDA - Soil Conservation Service**
Tom Seidel	**Regional Planner** **Southeastern Connecticut Regional Planning Agency**
Elaine Sych	**Environmental Review Team Coordinator** **Eastern Connecticut RC&D Area, Inc.**
Bill Warzecha	**Geologist/Sanitarian** **DEP - Natural Resources Center**

Prior to the review day, each Team member received a summary of the proposed project, a list of the town's concerns, a location map, a topographic map, and a

soils map. During the field review the Team members were given additional information provided by the students and the teacher. The Team met with, and were accompanied by the Odyssey Program teacher Joanne Hart and her students Margaret Harnois, Robin Harris, Ethan Fermanis and Clark Woodmansee. 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 designs 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 and landowner. This report identifies the existing resource base and evaluates its significance to the proposed development, and also suggests considerations that should be of concern to the developer and 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 making your decisions on this proposed nature trail/outdoor classroom.

If you require additional information, please contact:

Elaine A. Sych
ERT Coordinator
Eastern Connecticut RC&D Area
P.O. Box 70
Haddam, Connecticut 06438
(203)345-3977

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1. SETTING, LAND-USE AND TOPOGRAPHY

The Preston Plains School site is located in the southeast corner of town, east of Shewville. It is bounded on the south by Connecticut State Highway Route 2, on the east by Connecticut State Highway Route 164, on the north by Country Squire Estates, a residential subdivision, and on the west by wooded, undeveloped land.

As shown by the site boundary map included with the pre-review packet, the land area for the Preston Plains School site, about 53 acres, was determined by using a computerized planimeter. Preston Plains School is located in the northeast corner of a large open field in the eastern parts of the site.

Land use in the area of the school consists mainly of single-family homes, agriculture and a few commercial establishments. The latter are located mainly on Route 2 near the site. The town garage and town hall/library are located in the southern and western parts of the parcel, respectively. A review of a 1934 air photo of the site and vicinity shows that land-use for the site has changed very little over the past 56 years except for the construction of the school, town garage, town hall/library. Also, a small pond which was located in the northeast corner was either drained or filled, probably due to the construction of the school, since it appears on a 1965 air photo for the site and vicinity. Land-use changes for the area include an increase in residential development, an increase in wooded land and a decrease in agricultural fields.

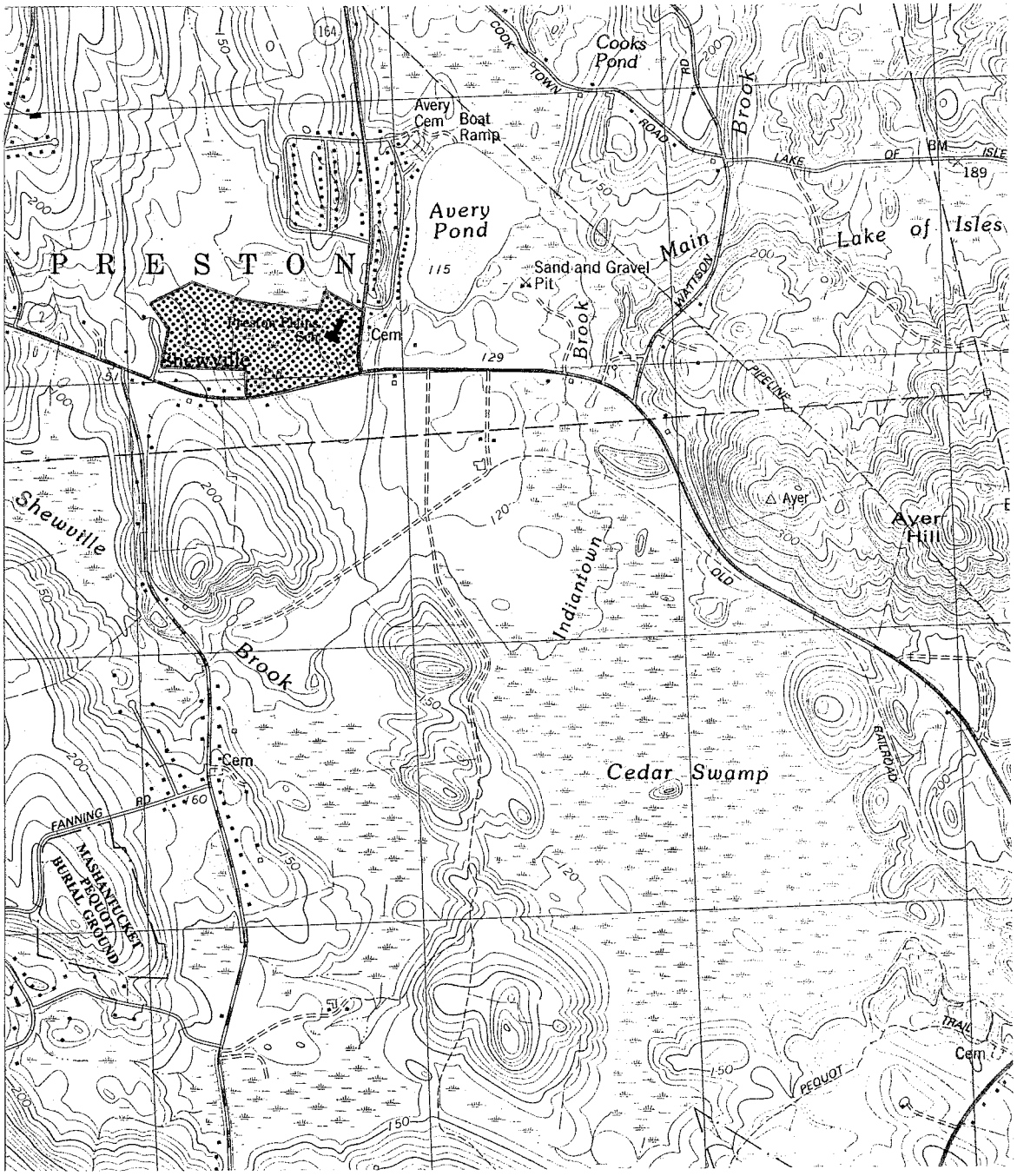
The site can be divided into three major sections; **(1)** the broad, flat to gently sloping plain (hence, Preston Plains) which encompasses the school and playing fields in the eastern parts and which extends south and east; **(2)** a $\pm$30 acre wetland, consisting largely of muck organic deposits in the central parts; and **(3)** a gently sloping, wooded upland in the western parts. Maximum and minimum elevations are 150 feet above mean sea level and 120 feet above mean sea level, respectively. The lowest topographic point on the site is represented by the swamp in the central parts, while the highest point is represented by the western property boundary (near the Town Hall). The difference in elevation

between these two points is about 30 feet. The stream flowing through the wetland in the central parts is unnamed and is tributary to Shewville/Indian Town Brook.

LOCATION MAP

Scale 1" = 2000'

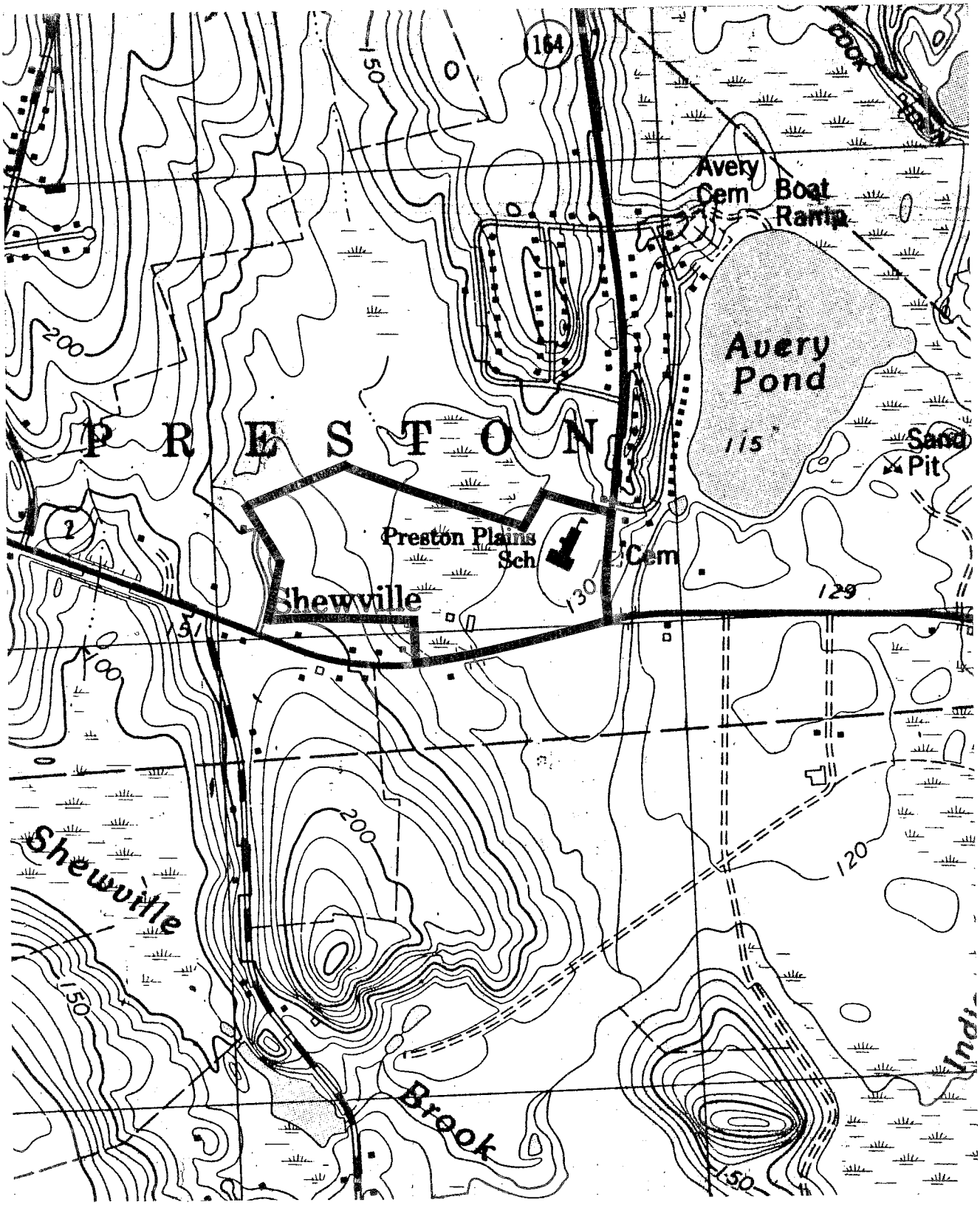
Approximate Site



TOPOGRAPHIC MAP

Scale 1" = 1000'

Approximate Site Boundary



2. GEOLOGY

The site lies entirely in the Old Mystic topographic quadrangle. A bedrock geologic map (map I - 1524 by Richard Goldsmith, 1985) for the quadrangle has been published by the U.S. Geological Survey. No surficial geologic map for the quadrangle has been published to date. Nevertheless, the Team's geologist utilized the Soil Survey of New London County, Connecticut, a Master's thesis report entitled "Glacial Geology of the Old Mystic Quadrangle, New London County, Connecticut" by Joseph W. Gaffney, 1966, and the unpublished Surficial Materials Map of Connecticut, Janet Stone et. al. 1985.

Surficial Geology

As mentioned earlier, the site consists of three major sections; the wooded, sloping uplands in the western parts, the swamp in the central parts and the open field in the eastern parts. The upland area in the western parts is covered by till, a glacial sediment that was deposited directly from an ice sheet. Till consists of a non-sorted, 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.

The two hills north of the site are probably drumlins. Drumlins are thick till deposits (40 feet or more) that were molded into streamline form by overriding glacial ice. The long axes of the drumlins point in the direction of ice movement; here, the movement was south-southeast.

The upper 2 feet of the till in the western parts is probably sandy, stony, and loose. The remainder of the deposit is more likely to be finer-grained, less stony, and tightly compact. Seasonally high groundwater levels may be experienced in the till-based soils. These limitations (compact till, high groundwater) may be a hindrance, though not a severe one, to certain types of active recreational development such as playing fields, but they are unlikely to pose difficult problems for most types of passive recreation i.e., hiking trails, etc.

The eastern third of the site, which includes the school and playing fields and western edge of the swamp in the central parts is covered by a glacial sediment called stratified drift. Also, the swamp in the central parts appears to be underlain by stratified drift deposits, sand and gravel are the main components of stratified drift. Stratified drift consists of layered, relatively well sorted rock materials that were washed from stagnant, melting glacier ice masses during a period of glacial retreat.

Because the stratified drift was deposited by glacial meltwater, it tends to exhibit at least some degree of sorting. Sandy or gravelly layers are most common in the upper parts of the deposits, but silty, fine sand, or clayey layers are often present as well. The texture of any given portion of a stratified drift deposit may be explained by the energy of the meltwater which ultimately deposited it. High energy streams, for instance, would have allowed only the coarser, heavier particles (sand and gravel) to drop out, while ponded or sluggish streams would have allowed deposition of fine particles.

There are a couple of active sand and gravel pits east of the school that mine the stratified drift deposits for aggregate and fill. These deposits are part of the same sequence of stratified drift deposits that occur in the eastern parts of the school site. A thin layer of glacial till separates the stratified drift and the underlying bedrock.

According to Stone et. al. (1985), the texture of stratified drift covering the site consists of sand and gravel but becomes finer with depth (sand to fine sand). A review of the well completion report for the school's well corresponds similarly to the textural composition of the stratified drift on the site as reported by Stone et. al. (1985). According to the well driller's log there is about 10 feet of coarse gravel, 6 feet of fine sand, 38 feet of clay then bedrock. The exact depth of the stratified drift covering the site is unknown but it is probably deepest, (perhaps exceeding 60 feet) in the southeast corner of the parcel.

As mentioned above, stratified drift and a thin layer of till probably underlie the swamp in the central parts, but the surficial materials of the swamp consist of muck, silt, and organic debris. This material may be 15 feet or more in the middle of the swamp. The swamp formed from a continuous growth, settling,

and decay of plants in a pre-existing glacial pond.

The surficial geology of the property is primarily a product of glaciation. Ice overrode the area one or more times in the last million years, covering most of the rocky uplands with a blanket of till. During its final retreat more than twelve thousand years ago, the ice stagnated at the margins of active glaciers or in isolated masses in some lowland regions. The meltwater carried the rock debris away from the dead ice, depositing it in huge quantities in the major stream valleys. Dead ice partly filled the valleys during this depositional phase; sand, silt, and gravel were laid down around and over the ice. When the ice finally melted, the glacial sediments collapsed to form wet or dry basins. The swamp in the central parts was one such basin, a wet one. Over time, this relatively large glacial pond filled with sediments and vegetation, leading to its present state.

Bedrock Geology

Except for a few isolated areas of solid and continuous outcrops of bedrock that occur north of the school, bedrock ledges are not well exposed on the site. According to Goldsmith's map two rock formations underlie the school property; the Tatnic Hill Formation and Quinebaug Formation, both of which are part of the Putnam Group. The term 'Formation' used in the preceding sentence refers to the primary unit of formal mapping or description. They possess certain distinctive or combinations of distinctive rock features, i.e., mineralogy, texture, etc. 'Formations" may be combined into groups; hence, Putnam Group.

The central and western parts of the site are underlain by the Tatnic Hill Formation. In general, these rocks may be described as gray to dark gray, medium-grained gneisses or schists. Because of the presence of iron-bearing minerals such as biotite and garnet, these rocks turn rusty when exposed to the weather for considerable periods of time. The Quinebaug Formation rocks, which underlie the eastern parts of the site, consist of gray to dark gray medium-grained, well-layered gneisses.

The term "schist" used above indicates that the rock is metamorphic (rock that has been altered by tremendous heat and pressure within the earth's crust) and that its platy, flaky or elongate minerals have become aligned to form surfaces of relatively

easy parting. Muscovite, a silvery, flaky mineral, commonly gives these surfaces a lustrous sheen. "Gneiss" is another metamorphic rock found on the site. It contains alternating bands of light and dark colored minerals. In places, the Tatnic Hill Formation rocks were intruded by molten rock that has formed lenses of coarse-grained granitic rocks. These lenses are very rich in light colored minerals such as quartz, potassium, feldspar, and mica.

A review of geologic publications concerning the region and its geologic history indicates that the bedrock underlying the site originated as oceanic sediment and volcanic deposits in an ancient ocean known as the Iapetos Ocean. Goldsmith (1985) indicates the gneisses of the Quinebaug Formation which underlie the eastern parts probably originated from volcanic lava with a few interbeds of shale (mudstones) and thin limestone. One of these limestones deposits near Cooktown Road was mined for lime production in early Connecticut history. The Tatnic Hill Formation originally consisted of ocean sediments (silts and clays). The dating of radioactive minerals by a technique known as radiometric age dating has allowed geologists to ascribe an age of 440 million years or older to the Tatnic Hill and Quinebaug formations. Since any fossils that may have been present in the rocks beneath the site were obliterated by 2 or 3 metamorphic events that effected the region, the rocks cannot be dated like the rocks that occur in the Grand Canyon.

The Honey Hill Fault is an ancient fault zone which is not known to be active today. It should be pointed out that the Honey Hill Fault (Honey Hill, for which the fault is named, is located on the Lyme-East Haddam town line), a major east-west trending structural feature in eastern Connecticut, passes just south of the town property. In this approximately ±1 mile wide fault zone, the rocks were sheared and milled down into a fine-grained almost glassy-looking rock called mylonite near the school property. Later faulting that occurred as the rocks of the fault zone were uplifted to colder levels of the earth's crust caused brittle fractures or cracks of the mylonites in places.

The Honey Hill Fault separates rocks of the Iapetos Ocean (Tatnic Hill/Quinebaug formations) terrane to the north from those of the Avalonian terrane to the south. The latter rocks are largely granitic and are believed to have been part of a small ancient continent known as Avalonia. Avalonia was located between North America and the Euroafrican land masses. The 'Fault' marks the place where rocks of two very

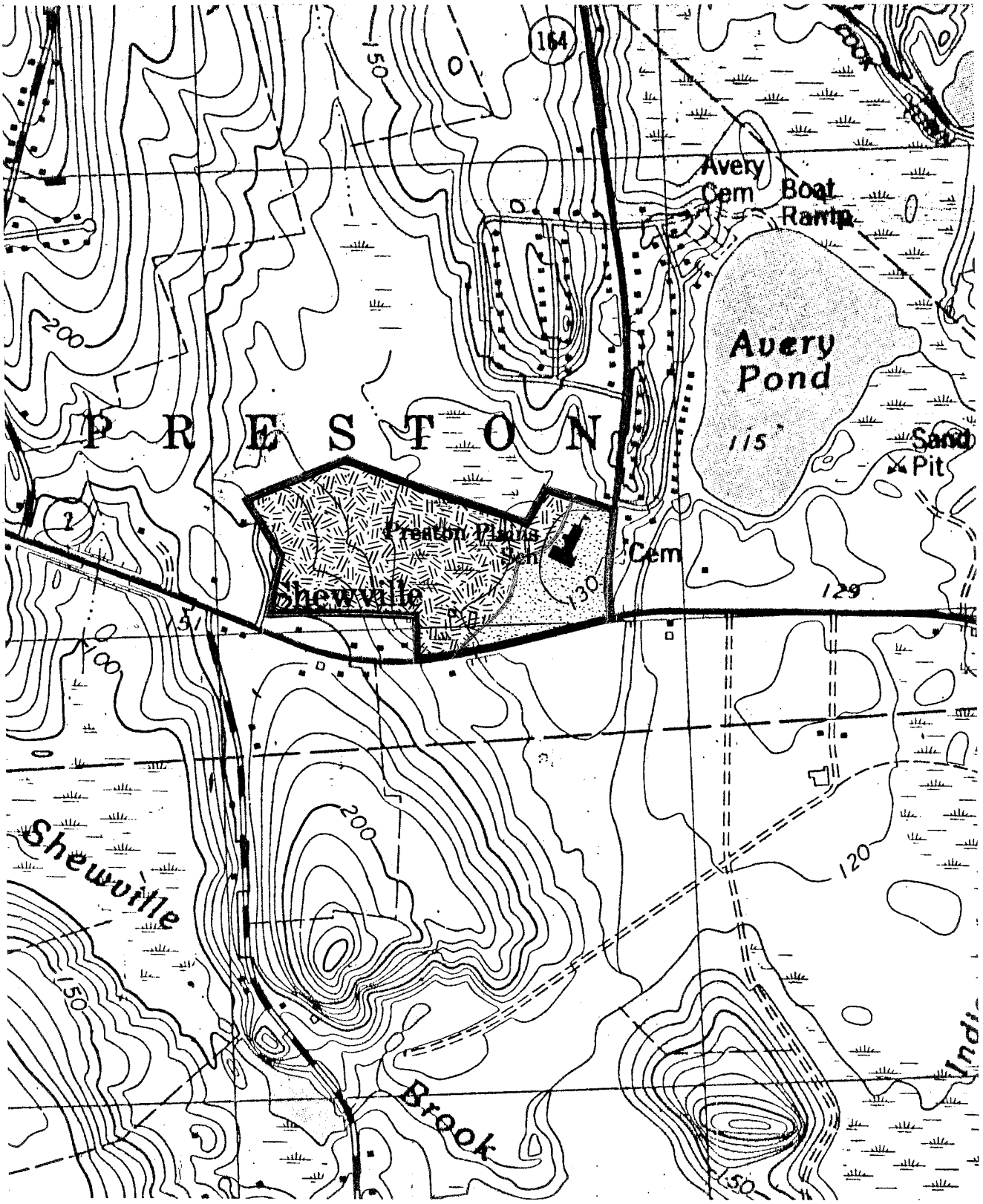
different origins were pushed together by plate movements that began about 360 million years ago or earlier and continued until about 250 million years ago. As such, the rocks are markedly different in their appearance, mineral composition, and texture.

The underlying bedrock is a source of water for Preston Plains School as well as domestic water for most homes in Preston (see Water Supply section).

BEDROCK GEOLOGIC MAP

Scale 1" = 1000'

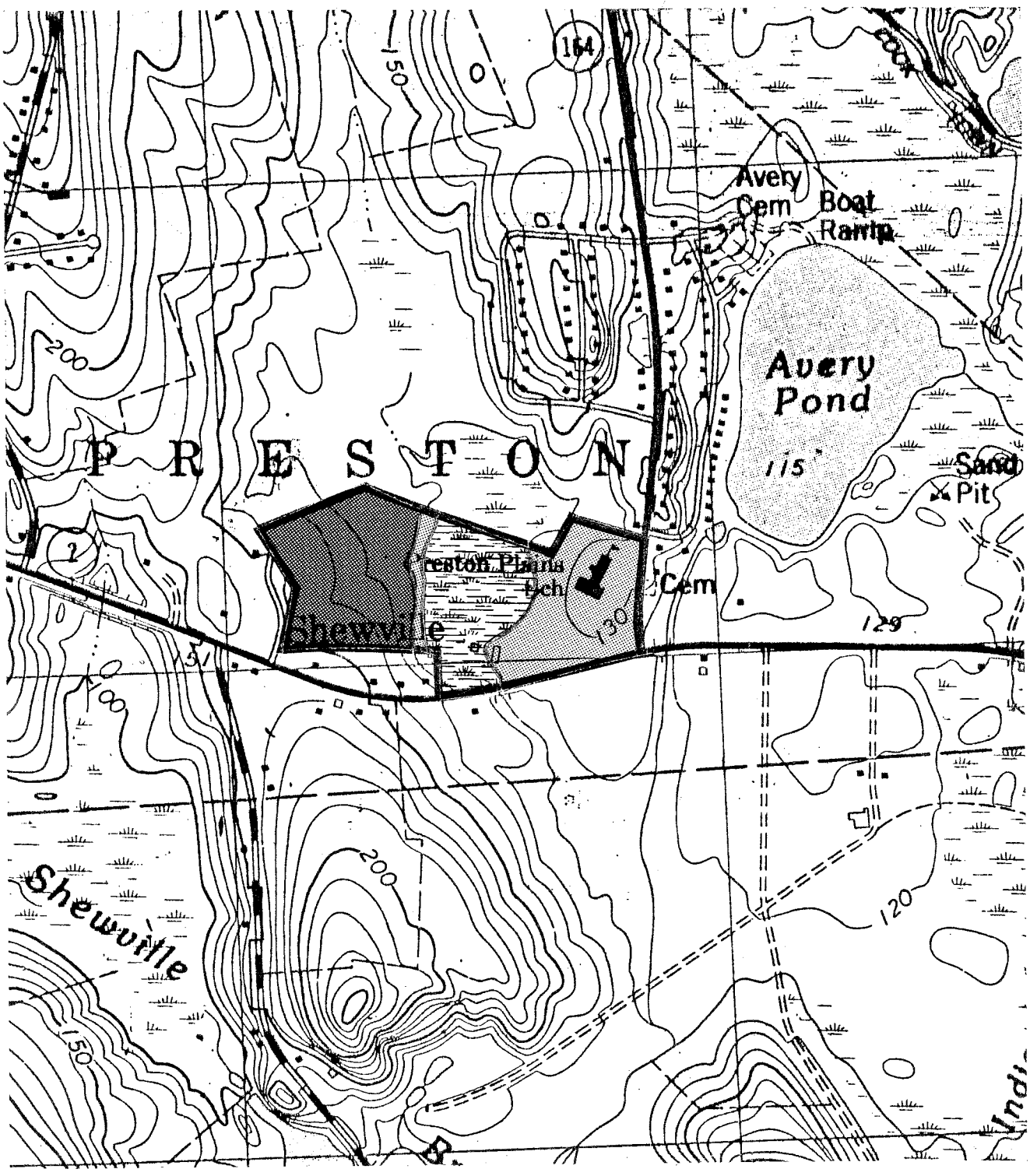
Tatnic Hill Formation
Quinebaug Formation



SURFICIAL GEOLOGIC MAP

Scale 1" = 1000'

Swamp Deposits
Till
Stratified Drift (sand and gravel)



3. SOILS DESCRIPTIONS

***** Ce - Carlisle muck**

This nearly level, very poorly drained soil is in pockets and depressions of flood plains, stream terraces, outwash plains, and glacial till uplands. The Carlisle soil has a high water table near or above the surface for most of the year. Permeability is moderately rapid. The available water capacity is high. Runoff is slow. The soil is strongly acid through slightly acid. This soil is not suited to cultivated crops. This soil is poorly suited to trees. Windthrow is common because of the shallow rooting depth above the high water table. This soil is generally not suited to community development.

This soil is in capability subclass VIw.

*** HcA - Haven silt loam, 0 - 3 percent slopes**

This nearly level, well drained soil is on stream terraces and outwash plains. Permeability of the Haven soil is moderate in the surface layer and subsoil and very rapid in the substratum. The available water capacity is high. Runoff is slow. Haven soil warms up and dries out rapidly in the spring. Unless limed, it is strongly acid or medium acid. This soil is well suited to cultivated crops. The hazard of erosion is slight. This soil is suited to trees.

This soil is in capability class I.

PdB - Paxton and Montauk very stony fine sandy loams, 3 - 8 percent slopes

These gently sloping, well drained soils are on drumloidal, glacial till, upland landforms. Stones and boulders cover 1 - 8 percent of the surface. Permeability of the Paxton soil is moderate in the surface layer and subsoil and slow or very slow in the substratum. Permeability of the Montauk soil is moderate or moderately rapid in the surface layer and subsoil and slow or moderately slow in the substratum. The available water capacity of these soils is moderate. Runoff is medium. These soils warm up and dry out rapidly in the

spring. Unless limed, they are strongly acid or medium acid. These soils are not suited to cultivated crops. The hazard of erosion is moderate. These soils are suited to trees. The major limiting factor for community development is very slow, slow, and moderately slow permeability in the substratum.

These soils are in capability subclass VIs.

Ud - Udorthents-Urban land complex

This complex consists of excessively drained to moderately well drained soils that have been disturbed by cutting or filling, and areas that are covered by buildings or pavement. Urban land consists mainly of areas of houses, small commercial buildings, schools, streets, parking lots, roads, and highways. Permeability of the Udorthents is slow to very rapid. The available water capacity and runoff are variable.

This complex is not assigned to a capability subclass.

****/***** **Wd - Walpole fine sandy loam**

This nearly level, poorly drained soil is on stream terraces and outwash plains. The Walpole soil has a seasonal high water table at a depth of about 6 inches. Permeability is moderately rapid in the surface layer and subsoil and rapid or very rapid in the substratum. The available water capacity is moderate. Runoff is slow. Walpole soil warms up and dries out slowly in the spring. It is very strongly acid or medium acid. This soil is suited to cultivated crops. The hazard of erosion is slight. This soil is suited to trees. Windthrow is common because of the shallow rooting depth above the high water table. The major limiting factor for community development is the seasonal high water table.

This soil is in capability subclass IIIw.

WyB - Woodbridge very stony fine sandy loam, 0 - 8 percent slopes

This nearly level to gently sloping, moderately well drained soil is on drumloidal, glacial till, upland landforms. Stones and boulders cover 1 - 8 percent of the surface. The Woodbridge soil has a seasonal high water table at a depth of about 18 inches. Permeability is moderate in the surface layer and

subsoil and slow or very slow in the substratum. The available water capacity is moderate. Runoff is medium. This Woodbridge soil warms up and dries out slowly in the spring. It is strongly acid or medium acid in the surface layer and subsoil and strongly acid through slightly acid in the substratum. This soil is not suited to cultivated crops. The hazard of erosion is moderate. This soil is suited to trees. The major limiting factors for community development are the seasonal high water table and the slow or very slow permeability in the substratum.

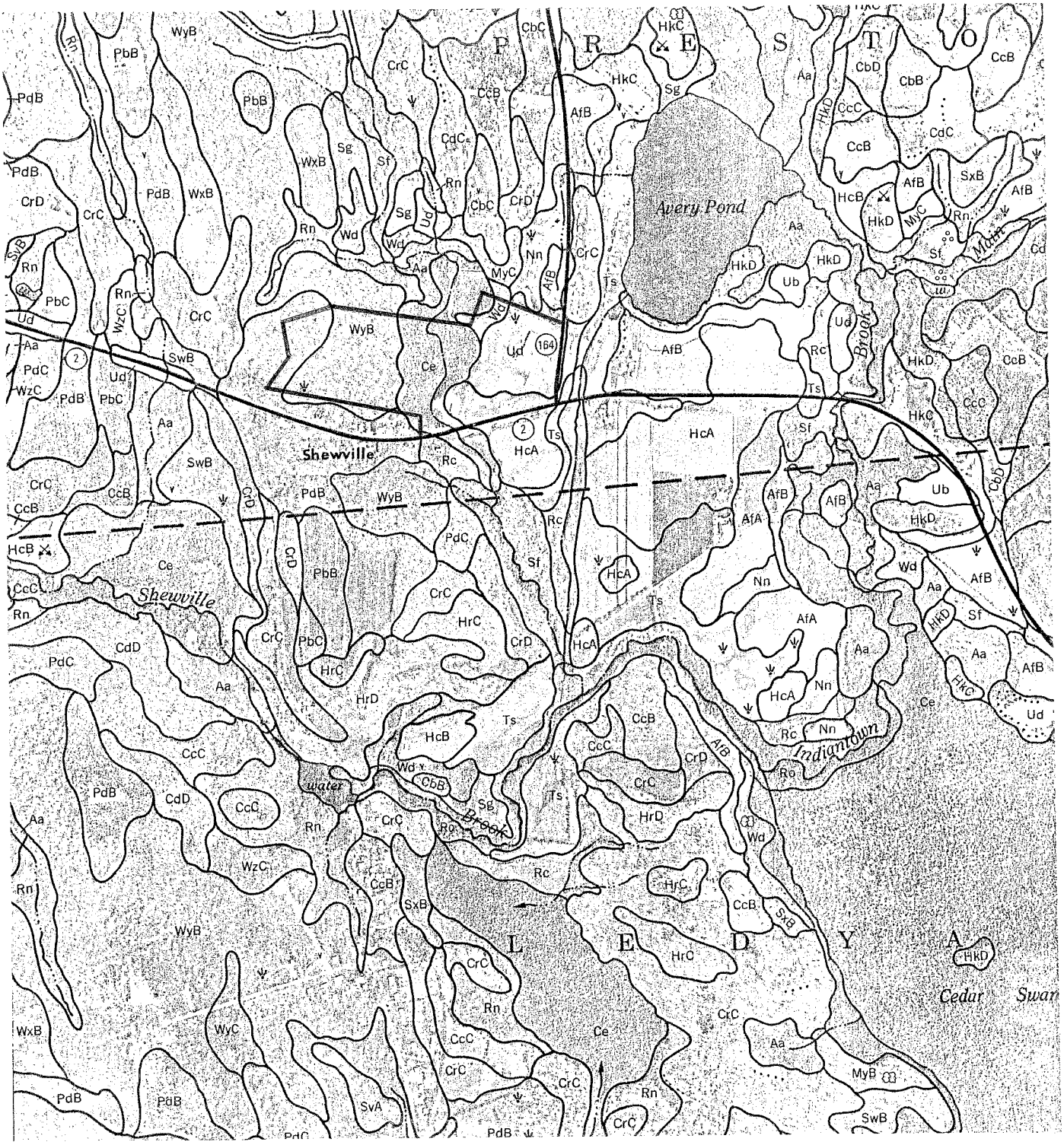
This soil is in capability subclass VIs.

*** - Prime Agricultural Farmland**
**** - Farmland of Statewide Importance**
***** - Wetlands**

SOILS MAP

Scale 1" = 1320'

Approximate Site Boundary



4. HYDROLOGY

The principal streamcourse on the site is the unnamed streamcourse that flows through the wetlands in the central parts. It originates in a small pond about 1,000 feet above Ross Road, which is north of the site. Except for about 2.6 acres of the site in the southeast corner, the school/town property drains to the unnamed streamcourse that flows through the wetland. The southeast corner of the site drains to the outlet stream for Avery Pond. At its point of outflow to the outlet stream for Avery Pond, about 2,500 feet south from its intersection with Route 2, the unnamed streamcourse flowing through the wetlands in the central parts drains an area of ±612 acres or almost 1 square mile.

The unnamed streamcourse flowing through wetland in the centrals parts is classified by the Connecticut Department of Environmental Protection as "B/A". This means that currently the water quality is known or inferred to be degraded. The major water pollution sources in the drainage area include the town's landfill near Ross Road and the town's road salt storage facility near the town garage. "B/A" resources are generally suitable for recreational, agricultural or certain industrial uses such as process or cooling water. The Department of Environmental Protection's goal is to improve the streamcourse to a Class "A" water resource. Class "A" water resources may be suitable for drinking, recreational or other uses and may be subject to absolute restrictions on the discharge of pollutants although certain discharges may be allowed.

The swamp, because of its size (approximately 30 acres) has considerable hydrologic importance. It serves as a natural detention basin during periods of heavy runoff. This regulates 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 residential developments to the north. In addition to its hydrological value, the swamp may also have considerable ecological and wildlife importance.

WATERSHED BOUNDARY MAP

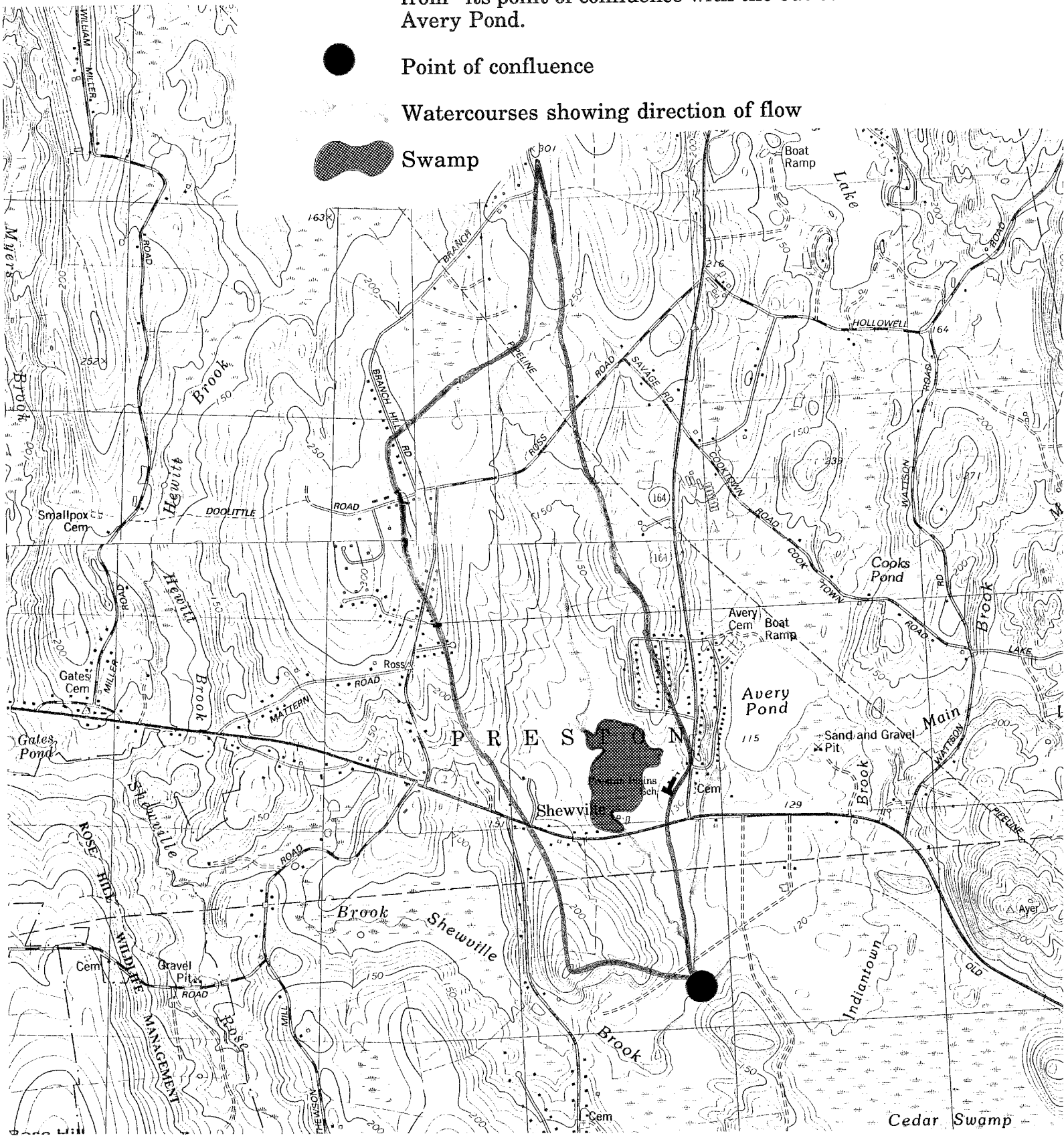
Scale 1" = 1000'

Watershed boundary for the unnamed streamcourse that flows through the wetland in the central parts from its point of confluence with the outlet stream for Avery Pond.

Point of confluence

Watercourses showing direction of flow

Swamp



5. RECREATIONAL POTENTIAL FROM A GEOLOGIC VIEWPOINT

The school/town property has high potential for both active and passive recreational uses. There appears to be room for expansion and/or additional playing fields in the eastern parts. The well drained - sandy, gravelly soils and generally flat slopes are conducive to the construction of playing fields.

The swamp in the central parts and the wooded, uplands in the western parts are important natural features that offer high potential for environment educational purposes. Additionally, they can be used for passive recreational uses such as hiking, cross-country skiing, bird watching/environmental studies, and picnicking. However, the swamp and its periphery may be limited for passive recreational development due to wetness. It may be possible to construct a boardwalk system that extends part way into the swamp and that would afford visitors/students with a good view of the swamp.

6. SOIL RESOURCES and TRAIL GUIDELINES

Trail Guidelines

Paths and trails for hiking and bicycling should require little or no cutting and filling. The best soils are not wet, are firm after rains, are not dusty when dry, and are not subject to flooding more than once a year during the period of use. They have moderate slopes and few or no stones or boulders on the surface.

Hiking Trails

1. Gently rolling to moderately sloping topography prevails.
2. Soils generally moderately well or well drained.
3. Trail grades can be developed that do not exceed 15% except for short reaches of less than 65 ft. or unless switchbacks or steps are feasible to install. Slope should be at no greater grade than soils can stand without erosion.
4. No hazards or nuisances exist of which people cannot be warned or protected.

General Trail Guidelines

	Width	*Grade*	*Overhead*
Walking	2 - 4'	15% max.	10'
Snowmobile	6 - 12'		
Bicycle	4 - 8'	5% max.	10'

Maximum grades exceeded for short distances (50 - 100 feet). Trail areas should be marked for distances and designated permitted uses posted at trail heads.

These guidelines should be followed if the trails are to assessable to the handicapped.

1. 48-inch minimum width
2. 5 percent maximum grade

3. No steps or abrupt changes in level
4. Level at crossings with other walks
5. "Feathered" edges or level with ground - no drop-offs

Aesthetic Considerations for Trails

It is generally recognized that landscapes rich in variety are likely to be more appealing. Applying this principle to recreational areas would tend to indicate that areas with a variety of vegetation, topography, natural elements, and manmade features would be more appealing.

When planning trails, consideration should be given to the effect these features will have on the overall appearance of the area. Also consider what the user sees from the trail. Is it located properly so the people using the trail have a pleasant view?

Outdoor Classrooms on School Sites

An outdoor classroom supplements and stimulates the environmental conservation education program in a school. As a place for creative learning experiences, it gives depth, meaning, and new dimensions to generalization about and understandings of man's relation to his environment.

The following are examples of study projects for Outdoor Classrooms:

Identification of Grass, Shrubs and Trees

Study plants and trees that provide shade, prevent soil erosion, provide food and cover for wildlife, serve as windbreaks or mark the boundary of the property. They may act as a buffer zone to insure privacy against an adjacent populated area, demonstrate principles of plant growth, serve as a resource for ecological studies, and provide real practice in forest management. These can be labeled with names and values.

Plant Grafting

A demonstration area which provides interesting studies in genetics such as production of flowers, fruits and seed.

Animal-baiting Area

Put a salt lick and some meat in a cleared area. Place loose dirt around the baited spot, spread it, press it down with the feet, and smooth it out. Animals attracted to the area will leave their footprints, which can be observed and studied.

You can also use small soft drink cans with ends cut open. Smoke index cards with a candle and place the cards in the cans. Add small pieces of bait (peanut butter and rolled oats). Small animals will leave tracks on the smoked cards.

Provide mixed plantings and construct birdhouses, squirrel houses, feeders and birdbaths to attract a variety of birds. A nearby blind will provide an excellent lookout for observation and photographs.

Natural Succession Area

An area could be set aside in which no development would be made. It would be given complete protection and would provide a spot for the observation of ecological aspects.

Soil Erosion Demonstration Areas

This should be an area featuring good conservation practices, situated on an inclined area, and located next to a piece of land denuded of its vegetation and also located on an incline. Comparisons can then be made over a period of time to determine what happens to the quantity and quality of soil in both areas. Demonstrations can include areas having (1) no cover; (2) grass; (3) strip crops; (4) diversion terraces. Use five feet by twenty feet areas framed with boards and on sloping ground for each type of cover or practice. Provide a means of catching runoff water from each, for case studies, during particular rainstorms.

Weather Station

This is for the study of meteorology and should be located in an open area that can be fenced off and locked.

Pioneer Living Area

Social studies can be nicely tied in with such an area. Dramatize the life of the pioneer, including such things as making dyes from plants, cooking outdoors, constructing shelters, learning to identify edible plants and learning other survival practices.

Observation Platform

This platform can be used for observing birds and for studying astronomy. It should be located on the highest point of the property. It is usually an elevated wooden or stone structure where individuals and groups can gain a clearer view of the area.

Orientation Courses

The development of several courses for map and compass use would stimulate education and recreational use of the area.

Soil Profile

A profile showing the different layers of soil can be demonstrated with a pit to be dug in cross-section fashion at the side of a bank.

Water Well

To study water table changes.

Tree Stump

A sloping cut on top of a tree stump could be smoothed and waterproofed. A section of a log could be planted if a suitable stump is not available. The annual rings of growth can show effects of competition in earlier years and benefits of woodland management in recent years. Historic events could be listed on an adjacent chart with dates and a time scale placed on the stump for matching. A split-section of a log can be placed nearby to show more about tree growth and how the grain of wood is caused by annual rings.

Plant Succession

This is a demonstration area showing the various stages of plant succession, starting with a clear-cut or denuded plot of ground going all the way to the higher stages of tree growth. The important stages to be shown are:

Stage 1 - Mixed Weedy - annual and perennial weeds and grasses.
Stage 2 - Perennial Grass - bluegrass, fescue, timothy.
Stage 3 - Shrubs - sumac, gray birch, sassafras, cherry and aspen.
Stage 4 - Coniferous Woodland - fir, hemlock, pine, and spruce.
Stage 5 - Hardwoods - oak, hickory, beech, ash and maple.

Christmas Tree Plantation

Plots can be planted to Scotch pine or similar trees for Christmas trees. These areas can be managed by students to teach them elements of pruning and tree farming.

Using and Maintaining an Outdoor Classroom

Here are some examples of outdoor classwork activities listed by different subjects that are designed to involve students:

Biology - Planting trees or grass, studying flora and fauna, laying out a nature trail, studying samples or soil or water.

Chemistry - Testing soil, applying fertilizer, testing pond water for oxygen content, pH, etc.

Mathematics - Measurements of tree heights, of distance to objects; computations of irregular areas and shapes; contour mapping; and measuring slope and elevation.

Art and Crafts - Landscaping; using natural materials for decorations; drawing or painting outdoor scenes; making leaf prints; and preparing flower arrangements.

Shop - Building walls, bridges, walkways, birdhouses, feeders, signs and displays.

Home Economics - Studying pure water, source of food, nutrition, source of clothing, homes, etc.

Social Studies - The effect of resources on nations; on standards of living; how some of our resources must be protected by law; how we lose some of our freedoms by abusing our natural resources. If available, old aerial photos may show local land use changes.

Vocational Agriculture - Conservation measures, land judging, forest management, fish pond management, value of natural areas, good farming practices, etc.

Ecology - The web of life, the water cycle, all the interlocking relations of organisms with environment, effect of pollution and other man-made problems on environment.

Communications - Study animal and human non-verbal communications, study the dance of the bees, the use of antennas by ants, vocabulary building by identifying living things and objects in the outdoor classroom.

English - A study of Thoreau or other famous nature-oriented authors can be related to live situations in the outdoor classroom. Compositions and similar writing assignments can have themes based on natural resource studies.

7. WATER SUPPLY

Bedrock and stratified drift are the two principal aquifers (any geologic formation capable of yielding usable amounts of water to a well) on the school property. Also, till, the glacial sediment that covers bedrock in the western parts of the site, is sometimes used for domestic purposes i.e., dug wells. However, most till is too thin and above the water table at least part of the year (summer and fall). Consequently, it is not a dependable aquifer.

Bedrock is commonly capable of supplying small but reliable yields of groundwater to individual wells. Groundwater moves through bedrock by way of an interconnected fracture system. Most wells that penetrate 150 to 200 feet of bedrock will intersect enough fractures to supply at least 2-3 gallons per minute. It is interesting to note that the bedrock well serving the school which is 305 feet deep is capable of producing 100 gallons per minute which would be considered very high for a bedrock well. They typically yield 3-5 gallons per minute. The reason for this may be the well's proximity to the Honey Hill Fault where highly fractured rock may occur.

On the other hand, some wells fail to intersect any water bearing fractures. There is no practical way to predicting whether any particular location will be good for drilling a well.

Depending upon certain hydrogeologic characteristics i.e., texture, saturated thickness, depth, etc., of the stratified drift deposits, they may be capable of yielding large volumes of water (50-2,000 gallons per minute) to individual wells. The highest yields are generally obtained from the thick coarse-grained deposits near large bodies of water. Little is known about the potential of the stratified drift on the site for groundwater supplies. Well completion report data for the school indicates the presence of fine sand and clay, both of which are probably too fine-grained to allow the development of a high yielding well.

The quality of the groundwater would be expected to be generally good, except in the vicinity of the town garage. The bedrock underlying the site may contain a relatively high percentage of iron-bearing minerals. Some undesirably high

concentrations of iron or manganese may occur in well water drawn from bedrock on the site, but there are several types of filters available to combat this problem.

The Department of Environmental Protection has classified the groundwater beneath the site as GA, which means that it is suitable for private drinking water without treatment.

8. VEGETATION

Forest Covers

Swamp: Approximately 13 acres

This area is very wet and inaccessible much of the year. The dominant tree species is red maple, although there is some black gum (tupelo), swamp white oak and brown ash. Parts of the area are too wet to support substantial tree growth and in these areas the trees grow to a few inches in diameter and then die or blow over because of lack of firm root support. Lesser cover ranges from swamp grasses, rushes and cattails to spicebush, sweet pepperbush, speckled alder, blackberries, multiflora rose and various species of wild rose (Rosa).

Red Maple Area: Approximately 5 acres

The prime species in the overstory is red maple, but there is also a lot of red and black oak. There are a few stems of black gum, yellow birch and swamp white oak. Most of the undergrowth is sweet pepperbush with some blue beech, highbush blueberry, azalea and viburnum.

Mixed Oaks: Approximately 23 acres

This is a mature stand of red and black oaks with trees ranging up to 30 inches in diameter. Other species include pignut, mockernut and shagbark hickory, American beech, sugar and red maples, white ash and black birch. The understory in the southern half (higher) is dominated by sugar maple with a little oak, hickory and red maple. The northern half (lower) is dominated by blue beech, hornbeam, American beech and red maple. There is a good deal of mortality (dead and dying trees) among the red and black oaks due to the Gypsy moth defoliation and associated pathogens (any agent that causes disease, especially a microorganism such as a bacterium or fungus).

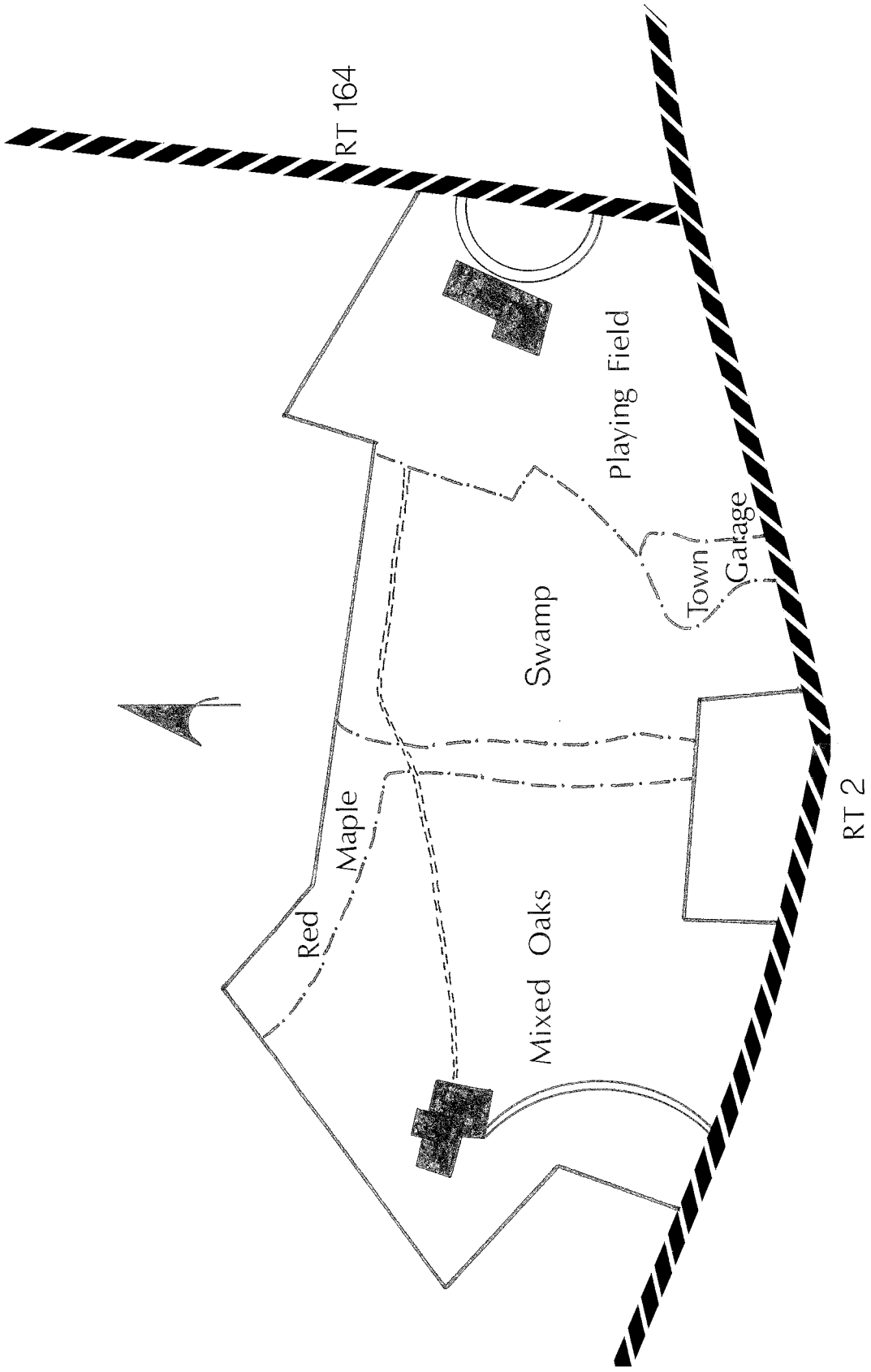
Because of this extensive mortality, this stand is not suitable for a classroom study. A stand inventory indicates that there is a sufficient volume in trees that are presently dead and those that would reasonably not be expected to survive the next five years to hold a limited timber sale. A sale carefully monitored by a forester could remove these trees with a minimal disturbance of the site. If

monies from this sale were earmarked for the development of the nature trail and outdoor classroom between the school and the town hall/library complex they could be put in place at little or no cost to the Town. The harvesting should be considered a salvage cut and be designed to leave potential "den" trees and dead trees that have little sawlog value to be used as bird sanctuaries.

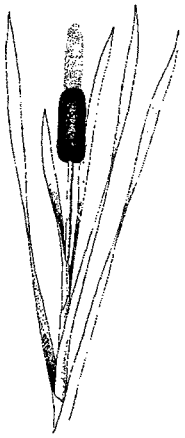
The Nature Trail

The construction could be a community project for groups like the local Scout Troops. The trail from the school to the town hall/library might be part of the trail system but it probably should have branches off the main path to pass through more of the unique areas of the site. The most difficult area to construct the trail would be the swamp where some sections would have to be supported on pilings. Personnel from the State Division of Forestry could be used to develop tree and some of the shrub identification stations. There are at least three easily identified forest tree types as well as many different tree species.

VEGETATION MAP



Common Indicator Plants of Freshwater Wetlands*



Cat-tail *Typha latifolia* L.

Habitat - Fresh marshes, shallow water, borders of ponds, and rivers.

General Characteristics - Stout upright plants up to 6 feet tall, forming dense colonies; basal leaves long and sword-like, appearing before the stems.

Blue Beech *Carpinus caroliniana* L.

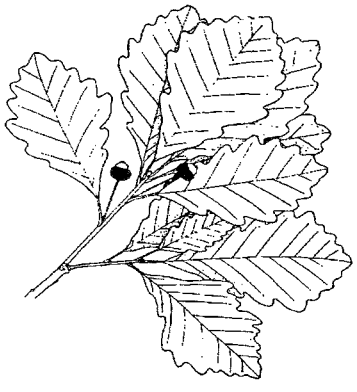
Habitat - Stram borders, low wet woods. borders of swamps.

General Characteristics - A large shrub or low spreading tree up to 30 feet tall with a trunk diameter of up to 12 inches; trunk short and somewhat crooked, fluted by means of sinewy, muscle-like ridges, bark smooth.

Speckled Alder *Alnus rugosa* (DuRoi) Spreng.

Habitat - Swamps and shrub swamps, borders of streams, rivers and ponds.

General Characteristics - A large shrub or a small tree, up to 15 feet tall, often branching from the base ; buds reddish, stalked, with two valvate scales; leaves alternate, oval, margin doubly toothed and often wavy; male and female flowers in separate dry, scaly spikes on the same plants.



Swamp- White Oak *Quercus Bicolor* Willd.

Habitat - Stream borders, wooded swamps, low wet woods.

General Characteristics - A shaggy appearing tree up to 70 feet tall with a trunk diameter of up to 2 1/2 feet; main trunk straight and continuous, twigs of medium thickness, forming a stiff, bushy spray.

Spicebush *Lindera benzoin* (L.) Blume

Habitat - Swamps and shrub swamps, borders of ponds and streams.

General Characteristics - A shrub up to 9 or 10 feet tall, buds of two kinds, often clustered above the leaf scars; leaves alternate; male and female flowers on separate plants, small, yellow; entire plant giving off a spicy aroma when crushed.

Red or Swamp Maple *Acer rubrum* L.

Habitat - Wet bottomlands, floodplains, swamps, to dry uplands.

General Characteristics - A medium-sized tree, 40 to 50 feet tall with a trunk diameter of up to 2 to 3 feet; trunks without limbs for over half its length in woodlands, and limbs extending nearly to the ground in the open; leaves turning yellow or scarlet in the autumn.

Sweet Pepperbush *Clethra alnifolia* L.

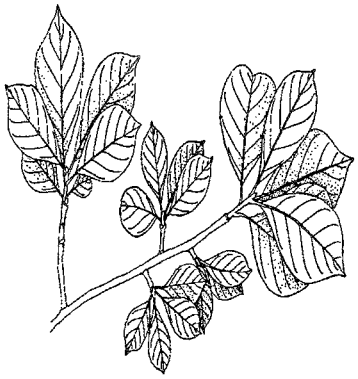
Habitat - Swamps and shrub swamps.

General Characteristics - A shrub up to 8 feet tall, the branches terminated by large buds with pointed scales; leaves alternate; flowers white, fragrant.

Swamp Azalea *Rhododendron viscosum* (L.) Torr.

Habitat - Swamps, shrub swamps, occasionally bogs.

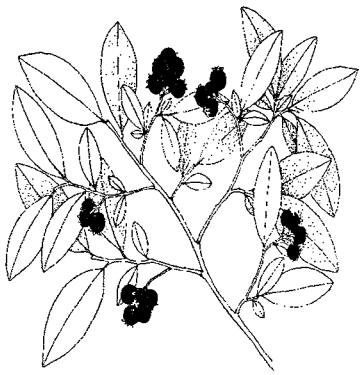
General Characteristics - A multiple-stemmed, branching shrub up to 6 or 7 feet tall with twigs in whorls; buds clustered toward the tips of the twigs; flowers white.



Black Gum or Black Tupelo *Nyssa sylvatica* Marsh.

Habitat - Swmps and damp lowlands, borders of ponds and flowing water.

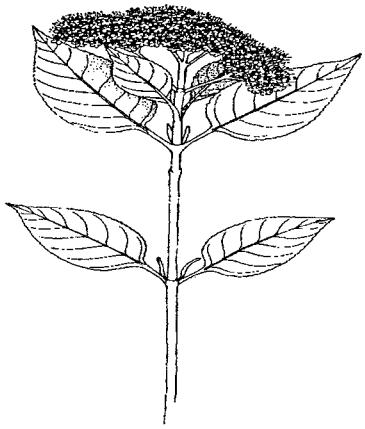
General Characteristics - A medium-sized tree up to 30 or 40 feet tall with a trunk diameter of 1 to 2 feet tall and numerous short, horizontal, crooked branches; twigs numerous, short, and spur-like, forming a flat spray.



Highbush Blueberry *Vaccinium corymbosum* L.

Habitat - Swamps and shrub swamps, borders of ponds, to dry lands.

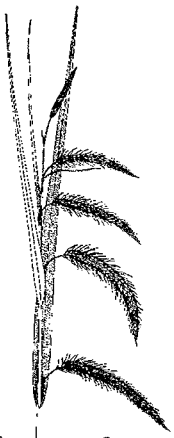
General Characteristics - A bushy much-branced shrub up to 10 feet tall, often growing in clumps; buds of two kinds; leaves alternate, elliptic; flowers white, in dense terminal clusters; its fruit is a blue-black berry up to 1/2 inch in diameter with a whitish bloom.



Viburnum *Viburnum cassinoides* L.

Habitat - Shrub swamps, wooded swamps, low wet woods, and stream margins.

General Characteristics - A shrub up to 10 feet tall bearing slender twigs towards the ends of the major branches, some of these developing only as short shoots; flowers small, white, numerous, in stalked, somewhat flat-topped clusters at the tips of the twigs.



Sedge *Carex crinita* Lam.

Habitat - Marshes, wet meadows, edges of pools and ponds.

General Characteristics - Plants up to 4 1/2 feet tall, in small to large groups; stems bearing several leaves having rough margins; male and female flowers in separate spikes.

***Illustrations and text taken from, 'Freshwater Wetlands, A guide to Common Indicator Plants of the Northeast", by Dennis W. Magee and drawings by Abigail Rorer.**

9. WILDLIFE RESOURCES

Habitat Type Descriptions

The habitat types on this property consists of mixed hardwoods and wetland shrub swamp. A list of species potentially inhabiting the habitat types is included at the end of this section.

Mixed Hardwood Forest

This habitat consists of a variety of hardwood species including red maple, beech, red oak, elm, hickory, white oak and scattered white pine and cedar. Understory vegetation includes witchhazel, elderberry, multiflora rose, grape, blackberry and hardwood regeneration.

Wildlife frequenting such habitat types (dependent upon age mix of stand) include deer, fox, raccoon, gray squirrel, woodpeckers (pileated, hairy and downy), ovenbirds, scarlet tanangers, black-throated blue and green warblers, barred owls, broad-winged hawks and various non-game species such as shrews, voles and snakes.

Wetland/Riparian Zone

This habitat type consists of a wooded swamp. Associated vegetation includes red maple, birch, alder, cattails, dogwood, jewel-weed, spicebush, sweet pepper bush, skunk cabbage, false helbore, duckweed and various grasses and sedges. The area contains a small brook. Beaver had occupied the area in the past, the potential for re-occupancy is good due to abundant food sources present. Many snags (dead trees) with cavities are present providing excellent habitat.

Wildlife using such sites include deer, fox, raccoon, skunk, muskrat, mink, swallows, red-winged blackbirds, grackles, kingbirds, cedar waxwings, hooded and wilson's warblers, titmice, woodpeckers, wood ducks and numerous amphibians and reptiles including water and garter snakes, salamanders, newts and spotted and painted turtles. Wetlands support a high diversity of

wildlife due to the complexity of the vegetative structure, high productivity and abundant food supply which allow for a high carrying capacity (Brown et. al. 1978). There are many species that require access to streams or water body margins for survival even though they may spend much of their time in other habitats (Milligan and Raedeke 1986). Part of the food supply for many vertebrates is the high abundance and diversity of insect populations that are typical of wetland ecosystems (Brown et al. 1978).

Wetlands presently provide important habitat for a variety of wildlife species and function as areas for absorption of natural runoff. Any planned diversion of stormwater into wetlands will increase water flow, sedimentation and pollution. This will alter the present ecological structure of the wetland and reduce species diversity. Even though stormwater retention and filtration plans may alleviate some of these problems, the long term effects of stormwater diversion into wetlands tend to be negative. Retention and filtration systems may still allow fine silt and pollutants to enter.

Not only are wetlands important to wildlife, they are also important to humans. Various functions of wetlands include flood control, ecological integrity, fish and wildlife habitat, nutrient and sedimentation trappings, educational potential, visual/esthetic quality, recreation, groundwater use potential and botanical sites.

Natural History Education/Trails

Trails are the key to bringing people and wildlife together. They should be located to take advantage of terrain and existing habitat and conform to existing landscape textures. Effective trail planning and layout can enhance the learning and aesthetic aspects of outdoor recreation by providing easy access to varied habitats. A nature trail which includes informational signs provides insight into the ecology of an area. The information provided helps the general public appreciate a particular animal, plant or habitat and its ecological value.

Some guidelines to follow when developing a trail system:

Know the characteristics of the property and plan the layout so that the trail passes by or through a variety of habitat types.

Make sure the trail is safe as well as exciting. If feasible, a portion of the trail system should be made accessible to the handicapped.

Follow a closed-loop design, beginning and ending at the same point.

Avoid long, straight stretches. Trails with curves and bends are longer, add an element of surprise and anticipation, and seem more natural. Straight stretches should not exceed 100 feet.

The trail system should be well marked and accompanied by an informational pamphlet. This will allow interested individuals, not just organized groups, to have an educational opportunity. If management practices are conducted (i.e. plantings, bluebird and woodduck boxes) they should be discussed. The major wildlife topics to emphasize should be the value to wildlife of vegetation types/succession and wetland areas.

Species List

REPTILES

Common Snapping Turtle
Painted Turtle
Spotted Turtle
Wood Turtle
Eastern Box Turtle
Eastern Worm Snake
Eastern Ribbon Snake
Northern Black Racer
Northern Ringneck Snake
Black Rat Snake
Eastern Milk Snake
Eastern Smooth Green Snake
Northern Redbelly Snake
Eastern Garter Snake

AMPHIBIANS

Jefferson's Salamander
Spotted Salamander
Marbled Salamander
Northern Dusky Salamander
Northern Two-lined Salamander
Northern Spring Salamander
Four-toed Salamander
Redback Salamander
Red-spotted newt
Eastern American Toad
Northern Spring Peeper
Gray Tree Frog
Bullfrog
Green Frog
Pickerel Frog
Northern Leopard Frog

Slimy Salamander
Mudpuppy
Wood Frog

MAMMALS

Opossum
Masked Shrew
Water Shrew
Smoky Shrew
Short-tailed Shrew
Least Shrew
Hairy-tailed Mole
Eastern Mole
Star-nosed Mole
Little Brown Bat
Keen's Myotis
Silver-haired Bat
Eastern Pipistrelle
Big Brown Bat
Red Bat
Hoary Bat
Eastern Cottontail
Eastern Chipmunk
Woodchuck
Gray Squirrel
Red Squirrel
Southern Flying Squirrel
White-tailed Deer
Beaver
Deer Mouse
White-footed Mouse
Boreal Red-backed Vole
Meadow Vole
Woodland Vole
Muskrat
Southern Bog Lemming
Norway Rat
House Mouse
Meadow Jumping Mouse
Woodland Jumping Mouse
Porcupine
Coyote
Red Fox
Gray Fox
Raccoon
Short-tailed Weasel
Long tailed Weasel
Mink
Striped Skunk
River Otter

BIRDS

Northern Goshawk
Broad-winged Hawk
Rough-legged Hawk
American Kestrel
Ring-necked Pheasant
Wild Turkey

Killdeer
Mourning Dove
Yellow-billed Cuckoo
Eastern Screech Owl
Barred Owl
Short eared Owl
Common Nighthawk
Whip poor-will
Ruby-throated Hummingbird
Red-headed Woodpecker
Yellow bellied Sapsucker
Hairy Woodpecker
Pileated Woodpecker
Eastern Wood-Pewee
Acadian Flycatcher
Willow Flycatcher
Eastern Phoebe
Red-shouldered Hawk
Red-tailed Hawk
Sharp-shinned hawk

Ruffed Grouse
Northern Bobwhite
American Woodcock

Common Barn-Owl
Great Horned Owl
Long-eared Owl
Northern Saw-whet Owl
Chuck will's-widow
Chimney Swift
Belted Kingfisher
Red bellied Woodpecker
Downy Woodpecker
Northern Flicker
Olive-sided Flycatcher
Yellow-bellied Flycatcher
Alder Flycatcher
Least Flycatcher
Great Crested Flycatcher

Eastern Kingbird
Purple Martin
Northern Rough-winged Swallow
Cliff Swallow
American Crow
Black capped Chickadee
Red-breasted Nuthatch
Brown Creeper
House Wren
Marsh Wren
Northern Mockingbird
Eastern Bluebird
Gray cheeked Thrush
Hermit Thrush
American Robin
Ruby crowned Kinglet
Cedar Waxwing
Loggerhead Shrike
White-eyed Vireo
Yellow-throated Vireo
Philadelphia Vireo
Blue-winged Warbler
Tennessee Warbler
Nashville Warbler
Yellow Warbler
Yellow-rumped Warbler
Magnolia Warbler
Black-throated Blue Warbler
Pine Warbler
Palm Warbler
Blackpoll Warbler
Black and White Warbler
Prothonotary Warbler
Ovenbird
Louisana Waterthrush
Connecticut Warbler
Common Yellowthroat
Wilson's Warbler
Yellow-breasted Chat
Northern Cardinal
Indigo Bunting
Rufous-sided Towhee
Chipped Sparrow
Vesper Sparrow
Fox Sparrow
Lincoln's Sparrow
White throated Sparrow
Dark-eyed Junco
Red-winged Blackbird
Rusty Blackbird
Brown-headed Cowbird
Northern Oriole
Purple Finch
Red Crossbill

Horned Lark
Tree Swallow
Bank Swallow
Blue Jay
Fish Crow
Tufted Titmouse
White-breasted Nuthatch
Carolina Wren
Winter Wren
Gray Catbird
Brown Thrasher
Veery
Swainson's Thrush
Wood Thrush
Golden-crowned Kinglet
Blue-gray Gnatcatcher
Northern Shrike
European Starling
Solitary Vireo
Warbling Vireo
Red-eyed Vireo
Golden-winged Warbler
Orange-crowned Warbler
Northern Parula
Chestnut-sided Warbler
Black-throated GreenWarbler
Cape May Warbler
Blackburnian Warbler
Prairie Warbler
Bay-breasted Warbler
Cerulean Warbler
American Redstart
Worm-eating Warbler
Northern Waterthrush
Kentucky Warbler
Mourning Warbler
Hooded Warbler
Canada Warbler
Scarlet Tanager
Rose-breasted Grosbeak
Dickcissel
American Tree Sparrow
Field Sparrow
Sharp-tailed Sparrow
Song Sparrow
Swamp Sparrow
White-crowned Sparrow
Bobolink
Eastern Meadowlark
Common Grackle
Orchard Oriole
Pine Grosbeak
House Finch
White-winged Crossbill

Common Redpoll
American Goldfinch
House Sparrow
Pine Siskin
Evening Grosbeak

Species potentially inhabiting habitats of study area.

* Connecticut Wildlife checklist of birds, mammals, reptiles and amphibians.

10. FISH RESOURCES

Site Description

A small unnamed tributary of Shewville Brook (also known as Indiantown Brook) flows southerly through the property under consideration for the development of a nature trail system. The stream is best characterized as a small headwater stream or a stream in the uppermost section of a watershed. One of the more important functions of a headwater stream is to provide clean and unpolluted waters to downstream areas of a watershed which contain an increased diversity of aquatic organisms. Indiantown Brook flows westerly through the towns of Preston and Ledyard before emptying into Poquetanuck Cove of the Thames River.

Aquatic Resources

The unnamed tributary (north of Route 2) does not contain instream habitat suitable for the yearlong survival of resident stream fishes. Stream fishes may utilize this area on a seasonal basis especially during periods of high stream flows in the spring and fall. Low stream flows which typically occur in the summer limit the growth and ultimate survival of Connecticut stream fishes. A field survey of streambed substrate revealed that a variety of freshwater aquatic organisms inhabit this section of the stream. In particular, aquatic invertebrates (animals that do not have a backbone) most abundant were: caddisfly larvae, water scuds, true fly larvae, and snails. These organisms live in stream riffles or areas of fast moving turbulent water that provide high levels of dissolved oxygen. A good source of information regarding the life histories of aquatic invertebrates can be found in a book entitled **"Freshwater Invertebrates of America"** by Robert W. Pennak. Another good source is **"A Guide To The Study Of Freshwater Biology"** by James G. Needham. The team's fisheries biologist is willing to loan these references to the school if students are interested. Please contact the team's fisheries biologist at 295-9523.

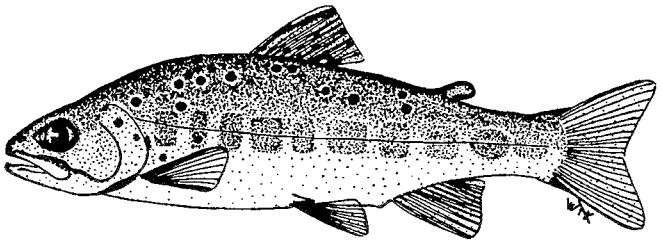
Fish habitat suitable for year-round survival exists south of Route 2. Stream fishes which can be expected to inhabit this section of the stream are: white

sucker, fallfish, blacknose dace, and possibly native brook trout. Indiantown Brook is annually stocked with more than 3,900 adult (9-12") brook, brown, and rainbow trout by the DEP - Inland Fisheries Division. To learn more about fishes that live in Connecticut waters, the following publications may be of interest: **"Freshwater Fishes of Connecticut"** by Walter R. Whitworth and **"Saltwater Fishes of Connecticut"** by Keith Thomson. These publications can be purchased for a nominal fee from the DEP - Natural Resources publication unit; call 566-3540 for more information.

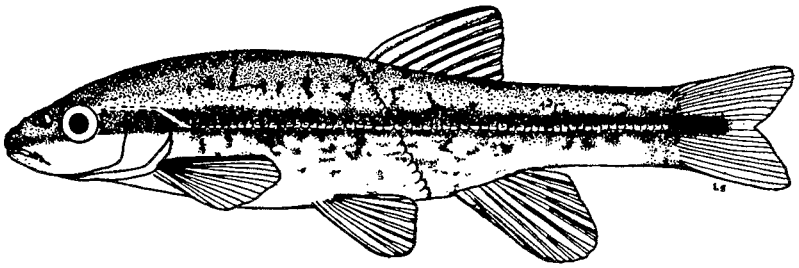
Recommendation

The unnamed stream and its surrounding wetland could serve as valuable ecological study areas for students and the general public as well. To avoid disturbance to wetlands and to prevent erosion and sedimentation, the trail system should be a raised boardwalk. The raised boardwalk should: **1)** follow a closed-loop, that is, begin and end at the same point, **2)** be well marked, and **3)** pass through a variety of habitat types.

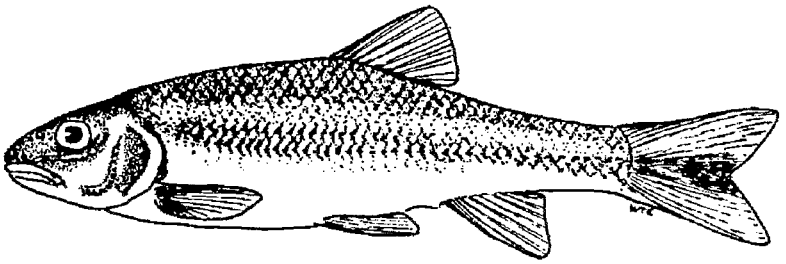
Stream Fishes*



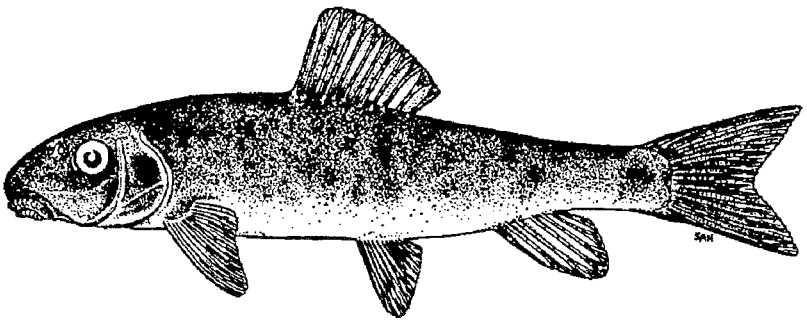
Brook Trout
(Adults reach lengths up to 2 feet)



Blacknose Dase
(Adults reach lengths up to 3 inches)



Fallfish
(Adults reach lengths up to 18 inches)



White Sucker
(Adults reach lengths up to 18 inches)

*Illustrations taken from, "Freshwater Fishes of Connecticut", by Walter R. Whitworth, Peter L. Berrien and Walter T. Keller, State Geological and Natural History Survey of Connecticut, DEP, Bulletin 101, Reprinted 1988.

11. PLANNING COMMENTS

Regional Planner Review

Most likely the site of the Preston Plains School was used for farming and agricultural fields before the school was constructed in the late 1960's. A background report prepared for the updating of the Plan of Development in 1971 indicates that the Town garage adjacent to the school was built as a potato shed around 1940. In 1967 the shed was purchased along with land for the school. The area is recommended for low and very low density residential uses and a natural resource protection area in the Preston Plan of Development. The area is zoned residentially with 60,000 square foot lot sizes.

The stream which flows north to south across the property is a tributary to Shewville Brook. This streambelt and associated wetlands, with the flora and fauna form the natural resource or conservation area which the school nature trail/outdoor classroom would explore and examine. Any crossings of the wet part of the site most likely should be on piers or pilings to avoid the impact and damming effect that filling would have on the wetlands and stream. It would also be possible to construct short trails into only the edges of the wetter areas from the school on the east and the town hall and library on the west rather than one continual crossing. It might also be possible to cross along the northern and southern edges of the property. An analysis should be conducted to determine what route would be easiest to construct with the least amount of impact on the wetlands. It would be desirable to provide a connection to the subdivision immediately to the north of the school as it appears that a trail or cleared pathway already exists in this area leading to the school.

Once designed, the trail would be a good construction project for local service groups such as the Boy Scouts, Lions, Recreation Commission, etc. The trail does not have to be constructed all at once. It could be divided into stages and built over time. For instance, Odyssey students could add one or two displays or features each year or could extend the trail. These groups could also be responsible for maintenance of the trail to address such items as annual pruning, trash removal, sign or display repairs, etc.

State Park Planner Review

It is the opinion of the State Park Planner after doing a map review of the site that the site has serious physical limitations because of the extent of muck soil, most of it the deep Carlisle muck soil. Therefore access into much of the site and especially to the dryer upland west of the wetland will not be feasible without development of boardwalks with associated development and maintenance costs. Thus the best hope appears to be a trail skirting the eastern edge of the wetland on ground high and dry enough that continued use does not turn it into a quagmire.

It may also be desirable and feasible to provide some access into the shallower muck areas edging the wetland through use of inexpensive "bog bridges" or "puncheon" as well as "corduroy" hiking trails. This option should be explored to provide variety as well as interest to the trail.

The upland area around the school basically seems to be disturbed soil. Perhaps some tree and shrub planting near the wetland edge should be considered to add more vegetative variety to the trail corridor.

The State Park Planner sees no realistic potential to include the western upland portion of the property in the nature trail because it is isolated by the wetland. Therefore its role will simply be to serve as a buffer for the wetland.

12. ARCHAEOLOGICAL REVIEW

A review of the State of Connecticut Archaeological Site Files and Maps show no prehistoric Indian sites on the proposed project area. However, an on-site review of the proposed educational nature trail area noted several standing structures of historic and architectural interest located in the immediate vicinity. Nonetheless, any proposed alteration of the existing natural area around the Preston Plains School to facilitate the development of the nature trail/outdoor classroom would certainly not have nay effect on the overall ambience of the Route 2/Route 164 intersection area.

The Preston Plains School is located immediately north of the original Mashantucket Pequot Indian Reservation and therefore, may possess low to moderate prehistoric archaeological sensitivity. Construction-related activities for the Preston Plains School and the nearby town garage complex may have altered the integrity of the project area.

The Office of State Archaeology recommends that the Town of Preston contact Dr. Kevin McBride (486-4264), Public Archaeology Survey Team, Inc., because of his extensive Mashantucket Pequot-related research. The Office of State Archaeology (486-5248) is prepared to offer the Town of Preston technical assistance in providing for this review.

In summary, the project area has a moderate probability for prehistoric archaeological sensitivity. However, Dr. Kevin McBride, who conducts archaeological investigations on the Mashantucket Pequot Reservation should be contacted for information on historic Indian use of the Shewville area.

ABOUT THE TEAM

The Eastern Connecticut Environmental Review Team (ERT) is a group of professionals in environmental fields drawn together from a varety 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.

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.

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: 203-345-3977, Eastern Connecticut RC&D Area, P.O. Box 70, Haddam, Connecticut 06438.