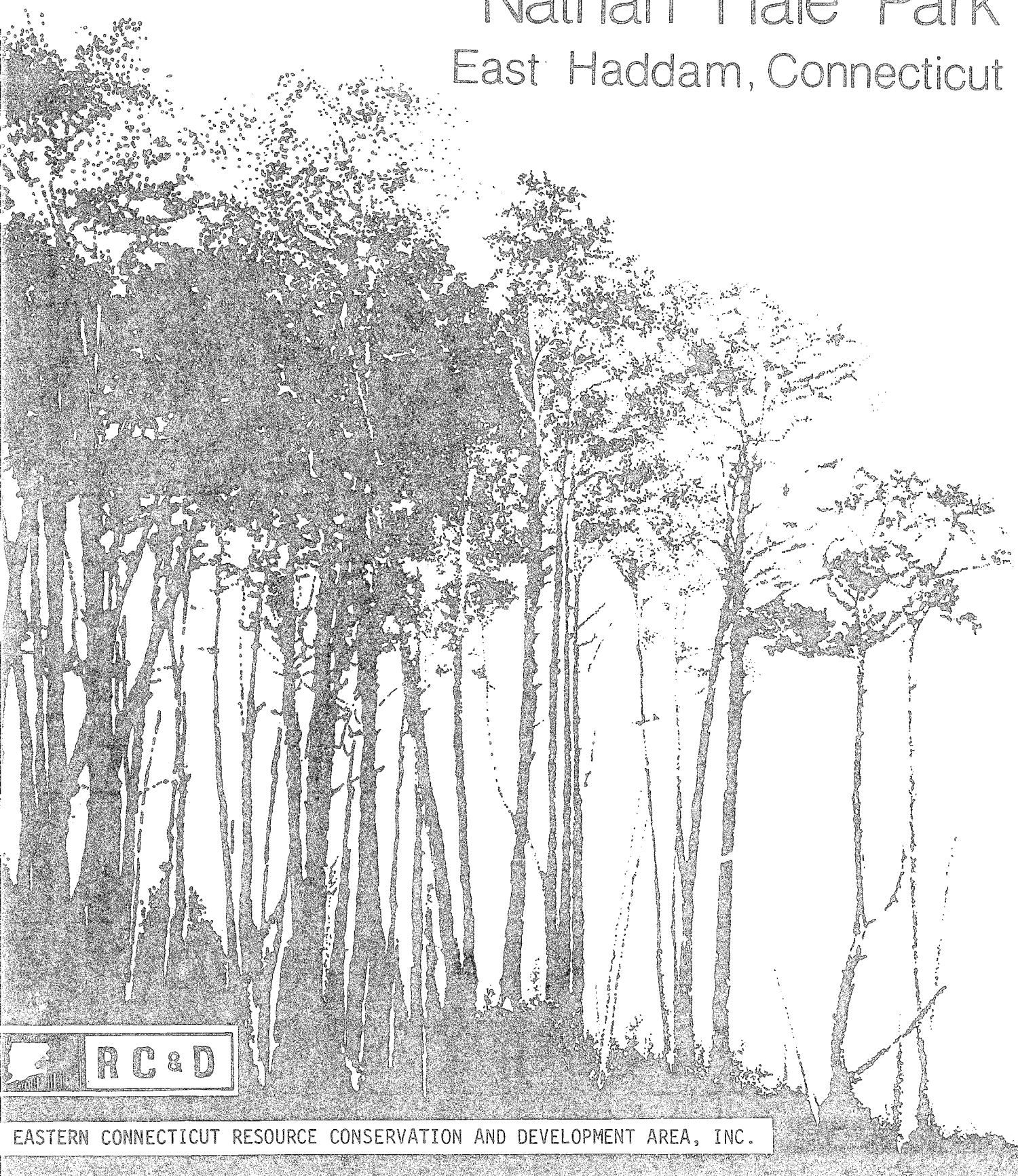
Environmental Review Team Report

Nathan Hale Park

East Haddam, Connecticut



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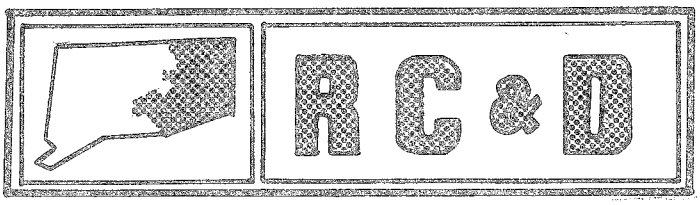
EASTERN CONNECTICUT RESOURCE CONSERVATION AND DEVELOPMENT AREA, INC.

Environmental Review Team Report
on
Nathan Hale Park
East Haddam, Connecticut

December, 1981

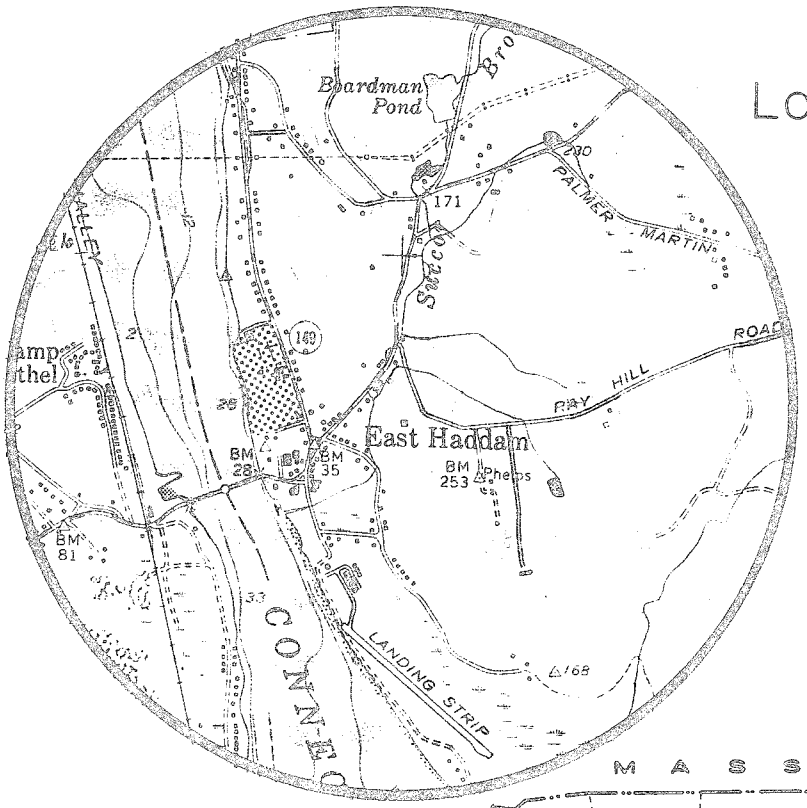


eastern connecticut resource conservation & development area

environmental review team
139 boswell avenue
norwich, connecticut 06360

Location of Study Site

NATHAN HALE MEMORIAL PARK
EAST HADDAM, CONNECTICUT



ENVIRONMENTAL REVIEW TEAM REPORT
ON
MEMORIAL PARK
EAST HADDAM, CONNECTICUT

This report is an outgrowth of a request from the First Selectman of East Haddam to the Middlesex County Soil and Water Conservation District (S&WCD). The S&WCD referred this request to the Eastern Connecticut Resource Conservation and Development (RC&D) Area Executive Committee for their consideration and approval. The request was approved by the RC&D Executive Committee and the measure was reviewed by the Eastern Connecticut Environmental Review Team (ERT).

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

The ERT that field-checked the site consisted of the following personnel: Barry Cavanna, District Conservationist (SCS); Mike Zizka, Geologist, Connecticut Department of Environmental Protection (DEP); Rob Rocks, Forester, (DEP); Don Capellaro, Sanitarian, State Department of Health; David Poirier, Architectural Historian, Connecticut Historical Commission and Jeanne Shelburn, ERT Coordinator, Eastern Connecticut RC&D Area.

The Team met and field checked the site on Tuesday, September 15, 1981. Reports from each contributing Team member were sent to the ERT Coordinator for review and summarization for the final report.

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

The Eastern Connecticut RC&D Area Committee hopes that this report will be of value and assistance in making any decisions regarding this particular site.

If you require any additional information, please contact: Ms. Jeanne Shelburn, Environmental Review Team Coordinator, Eastern Connecticut RC&D Area, 139 Boswell Avenue, Norwich, Connecticut 06360, 889-2324.

Topography

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scale

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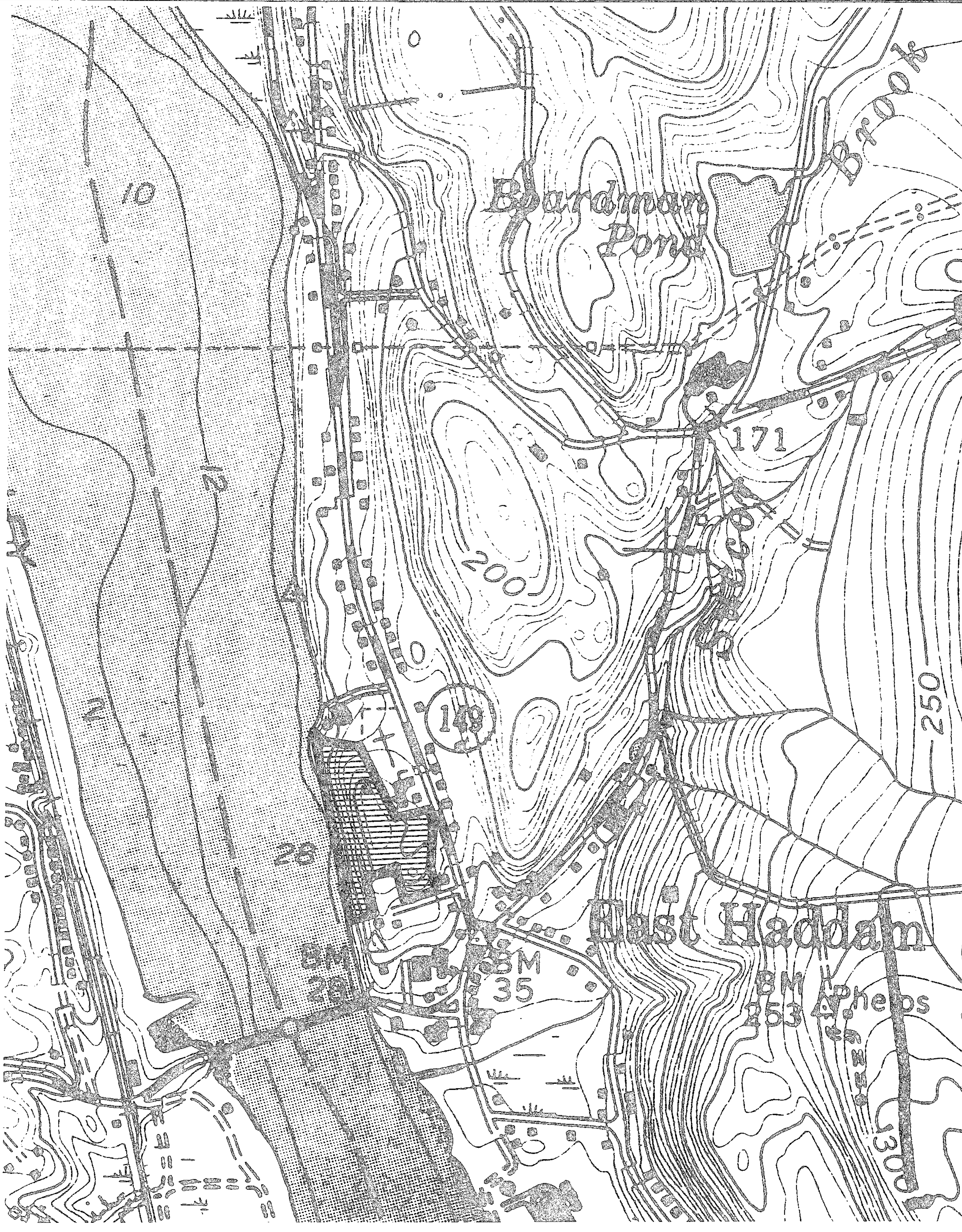

INTRODUCTION

The Eastern Connecticut Environmental Review Team was asked to prepare a natural resource inventory and memorial park plan for the Sons of the American Revolution (SAR) property in East Haddam. The 8± acre property is located on Connecticut Route 149 and overlooks the Connecticut River. It is the present site of the Nathan Hale Schoolhouse and monument to General Joseph Spencer. The SAR would like to establish a memorial park on this site and intends to use information provided by the Team for this purpose.

The site has a moderate to steeply sloping topography. Soil series typical of the property are the Hinckley series and the Charlton series, both well drained soils. Vegetation ranges from scrub tree cover, to a grassy field, to a well established red pine and hemlock stand, on the slope nearest the river.

It should be noted that any plans for development of this property or any plans for timber management or removal are subject to the regulations of the Connecticut River Gateway Commission. These regulations should be included in East Haddam's Planning and Zoning Regulations. Development activity on this property is also subject to approval from the local historic district commission.

ENVIRONMENTAL ASSESSMENT

GEOLOGY

The Nathan Hale Schoolhouse site is located in an area that is encompassed by the Deep River topographic quadrangle. A bedrock geologic map of the quadrangle has been published by the Connecticut Geological and Natural History Survey (Quadrangle Report No. 13, by L. Lundgren, Jr.). A surficial geologic map of the quadrangle has been published by the U.S. Geological Survey (Map GQ-1370, by D.W. O'Leary).

The site is located on a small hill overlooking Connecticut River. The eastern flank of the hill is steep to moderately steep, while the western flank is extremely steep. These slopes, in addition to the presence of bedrock outcrops near the crest of the hill, indicate that bedrock is only thinly covered by unconsolidated materials on the site. The rock is classified as Hebron Formation, a unit that consists largely of interbedded brownish gray quartz-biotite schist and greenish gray calc-silicate gneiss. The schist generally is composed of 35 to 45 percent quartz, 25 to 35 percent biotite, and 25 to 35 percent plagioclase, with accessory minerals including zircon, graphite, and microcline. The gneiss typically consists of 60 to 70 percent quartz and plagioclase, and highly variable amounts of biotite (0 to 20 percent), diopside (0 to 10 percent), and a calcium-magnesium amphibole (1 to 20 percent), with accessory sphene, graphite, microcline, and rare calcite. The bedrock has no significant economic value.

HYDROLOGY

There are no streams or ponds on the property. Surface water moves in an unchanneled fashion across the site during periods of precipitation. At present,

organic litter and established vegetation minimize the erosive effects of water flowing down the steep slopes on the parcel. If the vegetation is removed, particularly along the western flank, erosion may become a serious problem. The process of removing trees in itself may cause rutting on the western slope, a condition which would promote serious erosion and which could, in turn, lead to the undercutting and destabilization of some of the remaining trees. Since the vegetation on the western slope is aesthetically attractive and stabilizes the soil, and since the schoolhouse his already visible from the East Haddam bridge, the Team recommends that clearing be avoided on the western slope. Limited cutting of trees or brush on the eastern slope is not likely to cause erosion damage if care is used, but since the schoolhouse is already visible from Route 149, the removal of trees may have little practical value in terms of attracting visitors.

WATER SUPPLY

The site presently has no water supply and it is questionable whether there will be a need to establish one in the future. The only on-site aquifer that is capable of providing useful quantities of water is bedrock. Water is transmitted through bedrock by means of fractures. The potential yield of a well tapping bedrock depends upon the size and number of water-bearing fractures that the well intersects. Since fractures are distributed irregularly in bedrock, there is no practical way to estimate the potential yield of a well drilled on the schoolhouse site. However, most bedrock wells are capable of yielding at least 3 gallons per minute, an amount that is generally considered to be adequate to meet the domestic needs of an average family. A yield as small as 1 gallon per minute would probably be sufficient for any uses designated for the schoolhouse site.

SOILS

A detailed soils map of this site is included in the Appendix to this report, accompanied by a chart which indicates soil limitations for various urban uses. As the soil map is an enlargement from the original 1,320 feet/inch scale to 660 feet/inch, the soil boundary lines should not be viewed as absolute boundaries, but as guidelines to the distribution of soil types on the site. The soil limitation chart indicates the probable limitations for each of the soils for on-site sewerage, building with basements, buildings without basements, streets and parking, and landscaping. However, limitations, even though severe, do not preclude the use of the land for development. If economics permit large expenditures for land development and the intended objective is consistent with the objectives of local and regional development, many soils and sites with difficult problems can be used. The soils map, with the publication Soil Survey, Middlesex County, Connecticut, can aid in the identification and interpretation of soils and their uses on this site. Know Your Land: Natural Soil Groups for Connecticut can also give insight to the development potentials of the soils and their relationship to the surficial geology of the site.

The soil series typical of this site is known as Hollis-Charlton extremely stony fine sandy loam. This complex consists of moderately steep to very steep somewhat excessively drained and well drained soils on ridges where the relief

is affected by the underlying bedrock on upland glacial till plains. These soils formed in glacial till derived mostly from granite, gneiss, and schist. The areas have a rough surface with bedrock outcrops; narrow, intermittent drainageways; and small, wet depressions. In most areas, 3 to 5 percent of the surface is covered with stones and boulders. The total acreage of this complex is about 40 percent Hollis soils, 35 percent Charlton soils, and 25 percent other soils and bedrock outcrops. The soils of this complex are in such an intricate pattern that it was not practical to map them separately.

Typically, the surface layer of the Hollis soils is very dark grayish brown fine sandy loam 3 inches thick. The subsoil is friable, yellowish brown fine sandy loam 11 inches thick. Hard, unweathered schist bedrock is at a depth of 14 inches.

Typically, the surface layer of the Charlton soils is dark brown fine sandy loam 2 inches thick. The subsoil is 34 inches thick. The upper 30 inches is dark yellowish brown, and light olive brown fine sandy loam. The lower 4 inches is light yellowish brown gravelly sandy loam. The substratum is friable, brown fine sandy loam to a depth of 60 inches or more.

Included with this complex in mapping are small, intermingled areas of well drained Canton, Montauk, and Paxton soils and moderately well drained Woodbridge soils. Also included are bedrock outcrops, areas of soils with slopes of less than 15 percent, and a few nonstony areas.

The permeability of the Hollis soils is moderate or moderately rapid above the bedrock. Available water capacity is low. Runoff is rapid. Unlimed areas of the Hollis soils are very strongly acid to medium acid.

The permeability of the Charlton soils is moderate or moderately rapid. Unlimed areas of the Charlton soils are very strongly acid to medium acid.

Most areas of this complex are wooded. A few small areas are cleared and used for pasture or are idle.

This complex is not suited to cultivated crops. The steep slopes, stoniness, shallow depth to bedrock in many places, and bedrock outcrops are the main limitation. The erosion hazard is severe, and establishing permanent plant cover helps to control erosion.

This complex is poorly suited to trees, but it is better suited to woodland than to most other uses. The complex is limited for woodland mainly by the steep slopes, bedrock outcrops, stoniness, and shallow depth to bedrock. Tree windthrow is a concern on the Hollis soils because of the shallow rooting depth above the bedrock. Equipment is difficult to use because of stoniness, steep slopes and outcrops. Logging roads and trails need careful layout to prevent erosion.

This complex has poor potential for community development. The soils are limited mainly by the steep slopes, shallowness to bedrock, rock outcrops, and stoniness. Excavation is difficult because of the shallow depth to bedrock in many places. Onsite septic systems require very careful and often special design and installation. Many areas of this complex provide a scenic and picturesque setting for homes. The rock outcrops, stones, and boulders have aesthetic value and are sometimes left undisturbed. During construction, quickly establishing plant cover, providing temporary diversions, and establishing siltation basins

Vegetation

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scale

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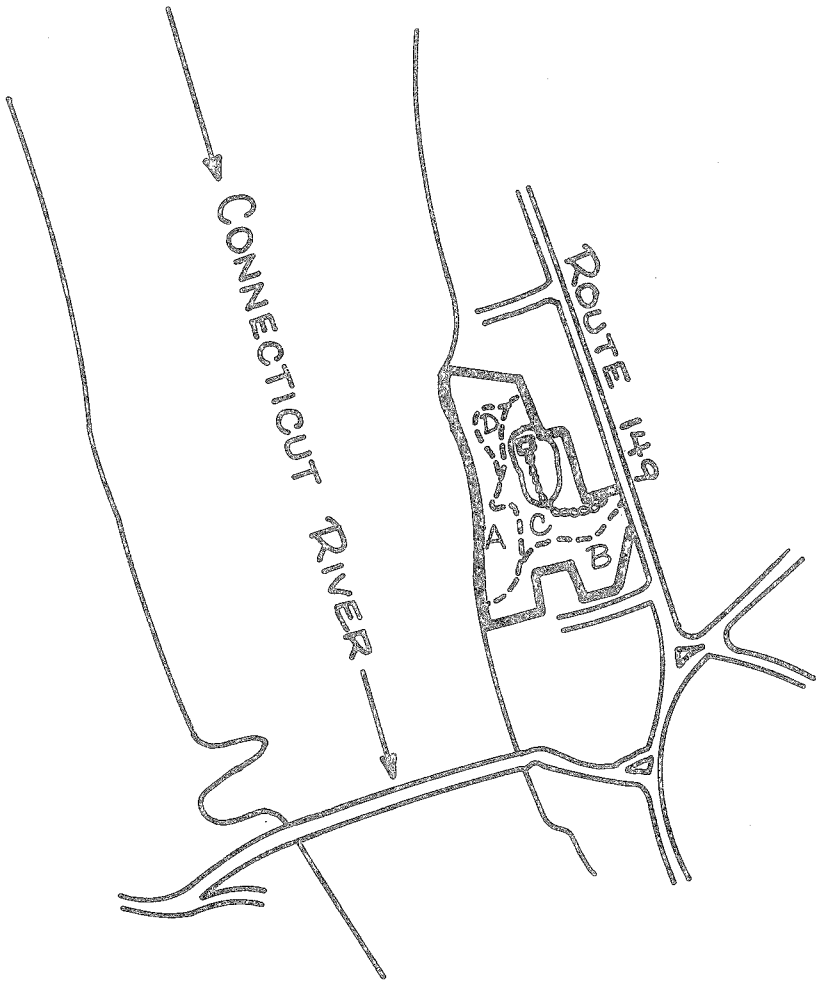

LEGEND

- Road
- Property Boundary
- Vegetation Type Boundary
- School House and Lot, 1±acre
- Access Road to School House

VEGETATION TYPE DESCRIPTIONS*

TYPE A.	Hemlock, 3±acres, over-stocked, pole to sawtimber-size.
TYPE B.	Mixed hardwoods, 2±acres, over-stocked, sapling to pole-size.
TYPE C.	Old field, 1.5±acres.
TYPE D.	Plantation, .5±acres, over-stocked, pole-size.

* Seedling-size = Trees less than 1 inch in diameter at 4 1/2 feet above the ground (d.b.h.)
Sapling-size = Trees 1 to 5 inches in d.b.h.
Pole-size = Trees 5 to 11 inches in d.b.h.
Sawtimber-size = Trees 11 inches and greater in d.b.h.

are suitable management practices.

A detailed sediment and erosion control plan should be prepared and implemented prior to any logging activity on this site. The Soil Conservation Service Field Office in Haddam can provide technical expertise in preparing such a plan.

VEGETATION

The vegetation which is present on the Nathan Hale Schoolhouse property may be divided into four distinctive types. These include a steeply sloped $3\pm$ acre hemlock area; a $2\pm$ acres mixed hardwood area; a $1.5\pm$ acre old field area and a half acre conifer plantation (see the Vegetation Type Map and Vegetation Type Description).

Because of its small size, forest management practices on Memorial Park would be effectively limited to improvement of aesthetic values.

Vegetation Type Descriptions

Type A. (Hemlock) This $3\pm$ acre stand is over-stocked with pole to sawtimber-size eastern hemlock with poor quality chestnut oak, black birch and red maple intermixed. Throughout this area are several large hemlock and chestnut oak which have high aesthetic value. The understory within this stand is primarily made up of hemlock saplings along with small patches of mountain laurel, maple-leaved viburnum and flowering dogwood. Around the perimeter of this stand white ash, sugar maple and black cherry seedlings have become established. The spotty ground cover which is present is made up of pink lady slipper, wild sarsaparilla, Virginia creeper, Pennsylvania sedge and several species of asters.

Although this stand would benefit by receiving a thinning, the steep slopes and small stand size severely limit the feasibility of commercial tree removal. Trees could, however, be cut and left in place to reduce the crowded condition and/or create scenic vistas. Hemlock seedlings and herbaceous vegetation will quickly become established in areas that are thinned or opened up.

Type B. (Mixed Hardwoods) Sapling to pole-size sugar maple, white ash, black cherry, black oak, American elm and black locust dominate this $2\pm$ acre over-stocked area. Occasional large sawtimber-size sugar maple which have high aesthetic value are present. Sugar maple seedlings and white ash seedlings are present in the understory along with maple-leaved viburnum, hop-hornbeam and scattered eastern red cedar. Ground cover consists of poison ivy, Virginia creeper, Japanese honeysuckle, barberry, Solomon's seal, false Solomon's seal, club moss and Christmas fern. The trees in this vegetation type are crowded and would benefit by receiving a thinning. Approximately one-third of the total volume or 5 to 6 cords should be removed from each acre. Only damaged, unhealthy or poor quality trees should be removed. The variety of tree species present in the residual stand should be kept as high as possible. Such a thinning will improve the aesthetic value of the area and allow residual trees to become more healthy and stable by reducing competition.

Type C. (Old Field) This area which is approximately 1.5 acres in size is dominated by staghorn sumac and herbaceous species including grasses, raspberry,

goldenrod, Joe-pye-weed, deer tongue, ragweed, pokeweed, and morning glory. Poison ivy, fox grape, summer grape, oriental bittersweet and Virginia creeper are the vine species which are present. Scattered throughout this area are a few healthy pole to sawtimber-size white oak, pignut hickory, eastern red cedar and black locust, all of which have high aesthetic value. To maintain these trees in a healthy condition, the vine species which are supported by these trees should be removed. Any dead branches should be properly removed to reduce potential hazards.

Type D. (Plantation) Pole-size eastern hemlock, eastern white pine and red pine are over-crowded in this half acre plantation. Black birch saplings have become established along the eastern boundary of this area, where sunlight is able to penetrate. Ground cover vegetation is lacking except for raspberry, aster and grasses which are also present along this area's eastern edge. To improve tree health and vigor in this small area, one out of every three or four trees should be removed. Removal of the red pine, which is very susceptible to red pine scale will satisfy the present thinning needs. Other trees should be removed only if they are so severely damaged that they present a hazard to area users.

HISTORIC DISTRICT CONCERNS

Located in the town of East Haddam, Connecticut, the East Haddam National Register District encompasses a narrow strip of land extending for approximately 1 1/8 miles along the eastern bank of the Connecticut River. To the south, following the river's course, Long Island Sound is 16 miles distant; while, to the north, Middletown and Hartford are 14 and 32 miles away respectively.

The district's shape is determined by the interaction of several geographic and historic factors. First, the river, which defines the district's western boundary, attracted Colonial settlers because it offered an avenue to merchants engaged in local and foreign trade and because it possessed wealth in the form of large numbers of fish, particularly salmon and shad. Second, the district is unusually long because it encloses two eighteenth-century settlement areas, one at its northern and one at its southern extreme. Both the northern settlement, the Upper Landing, and its southern neighbor, the Lower Landing (also known as Chapman's and Goodspeed's Landing) developed in semi-independence as distinct commercial communities with their own stores, wharves, and shipyards, and both were served by ferries which shuttled goods and people back and forth across the river. Eventually, however, as the nineteenth century wore on and more and more houses were built on lots between the two centers, their physical and social separation disappeared, although the concentration of eighteenth and early nineteenth-century buildings around the two "landings" still testify to their former isolation. Finally, the shape of the district is influenced by the high bluffs to the east. Particularly at the northern end, the land rises very rapidly from the river, and rock outcroppings are very noticeable. Because of these bluffs, building has been concentrated close to the river; and the slope of the land explains why so many houses have partially exposed basement stories, and why their lots are terraced for lawns and gardens. At the southern end of the district, the land rises more gently to the east; and a small stream, Creamery Brook, tumbles through the mill pond, then, through a low, swampy area before reaching the river.

Taking these geographical and historical factors into consideration, the district's boundary has been drawn to include all the buildings related to the social and economic evolution of this portion of East Haddam (a large town with a number of other interior settlements) which lie between the Connecticut River to the west and the steep bluffs to the east. Wherever possible, non-contributing structures have been excluded, such as a group of uninteresting, mid-twentieth century buildings immediately to the south which are part of a small airport. Open land has been included only when it provides a direct link between historic buildings or contributes overwhelmingly to the visual coherence of the whole district. An example of the latter case is the swampy area surrounded by Lumberyard and Creamery Roads. Portions of this National Register district, it should be noted, are included within the boundaries of a local historical district. Generally, the northern borders of the two districts are the same. However, the southern boundary of the National Register district has been drawn to include considerably more land than its local counterpart. This was done primarily to enclose within the National Register district a number of industrial structures which are essential to the interpretation of this area's historical development.

Today, the northern area of the district, the Upper Landing, is entirely residential. Although the wharves and shipyard of the eighteenth and nineteenth centuries have vanished, the former multi-purpose nature of this settlement is reflected in several residences that were either built for or once served a commercial function. For example, the Counting House was originally constructed as a warehouse and office for a merchant; the David Annable House was used as a store in the eighteenth century; and the basement of the Timothy Green House housed a bank between 1833 and 1847. Architecturally, the area is dominated by the magnificent, late-Georgian General Epaphroditus Champion House built in 1794; and most of the surrounding houses are either Colonial or Federal in style.

The main thoroughfare from this area to the Lower Landing is East Haddam - Moodus Road, Route 149. Between the two settlements, both sides of this road are lined with nineteenth-century residences. Most of the Victorian architectural styles are represented, including Gothic Revival, Italianate and Second Empire, but the predominant style is Greek Revival. Also, there is an early twentieth-century building of architectural significance, namely the Colonial Revival Rathbun Memorial Library, and several noncontributing, unobtrusive modern structures: a post office, a bank, and four residences.

As Route 149 enters the Lower Landing, it is joined by another main highway from the east, Norwich Road, Route 82. From this junction, the combined road proceeds westerly through the settlement to the bridge across the Connecticut River. This portion of the district is much more functionally diversified than the areas to the north, containing small-scale commercial and manufacturing concerns besides a number of residences. The Lower Landing is dominated visually by the Goodspeed Opera House, located along the river adjacent to the highway bridge. Rescued from an uncertain future as a state warehouse, this imposing Second Empire structure was restored and reopened as an active theatre in 1963. Its renaissance has spurred other commercial development, and several nineteenth-century buildings nearby now accommodate boutiques, specialty stores and antique shops. Other commercial activities include a small engineering firm, a grocery store, an automobile dealership, and a large restaurant, the Gelston House. There are also two factory buildings which are now used for storage and other non-manufacturing purposes, several mill houses and more than twenty residences. The architectural style of the majority of the more modest houses is Greek Revival, but these structures are

overshadowed by the exuberant Italianate of the two Boardman mansions, and the Gelston House, which visually compete with the Second Empire Opera House, for the observer's attention.

This district contains 103 major structures, all of which are described in detail in the inventory accompanying the list of property owners. Eighty-nine of these structures are designated as contributing to the historical and architectural character of this district, and only fourteen are considered non-contributing. The general condition of all buildings is good. There has been a minimum of aluminum siding, and most other changes such as new roofs, new sash and modern garages, have not detrimentally affected the architectural integrity of the contributing structures. One building has been moved.

The East Haddam National Register District area is also associated with a number of individuals important in national, state and local history. Undoubtedly the most famous person connected with the district is Nathan Hale, the patriot, whose exploits as a Revolutionary War spy are so well known that they do not need retelling here. As a young, unknown graduate of Yale, Hale taught school at the Lower Landing during the winter of 1773-74, and the small schoolhouse where he laboured is now preserved to his memory.

The Nathan Hale School originally stood at the junction of East Haddam - Moodus Road and Norwich Road. In 1799, it was removed to the site of St. Stephen's Church and used as a private residence for one hundred years. It was restored and moved to its present site in 1968. Built circa 1760, it is a one and one-half story frame structure with a parallel ridge gable roof. It has 12 over 12 pane sash windows and a door at either end of the main facade. A monument to Major General Joseph Spencer is also located on the site of the Nathan Hale School. This monument built in 1904, consists of a granite base with a bronze placque showing the profile of Spencer and an inscription. A tall granite column extends from this base and is topped by a granite ball and crowned with a bronze eagle. The original brownstone grave markers of General Spencer and his wife are located nearby.

The Nathan Hale School has been identified as a contributing structure to the historical and architectural character of the proposed East Haddam National Register District. Therefore, any restoration or landscaping plans should reflect the historical character of this property as well as its visual contribution to the ambiance of the proposed National Register District. In addition, the Nathan Hale School is located within the East Haddam local historic district which is a design control area in accordance with state and local statutes. As such, all plans for restoration of the exterior of this structure must be reviewed by the East Haddam Historic District Commission.

MEMORIAL PARK PLAN

The Nathan Hale Schoolhouse is situated on a bedrock defined hill, overlooking the Connecticut River. The top of this hill is fairly flat, however, the slope drops significantly towards the river. This steep slope is dominated by evergreen vegetation, primarily hemlock and pine. An old field community surrounds a mowed field where the schoolhouse is located. St. Stephen's Church is located at the bottom of the eastern side of the slope. A semi-paved driveway extends up to the open field on the site. Several large trees have been planted in this area to provide shade for picnic tables in the summer. Some scrub tree

growth occurs on the eastern side of the site between St. Stephen's Church and the schoolhouse.

The Sons of the American Revolution (SAR) who are the private owners of the Nathan Hale Schoolhouse site are interested in using the schoolhouse as the focal point for a memorial park. In discussion with Sterling Leffler, President of the local SAR chapter, several objectives for the park were expressed. These objectives were primarily concerned with the creation of views of the school from the street, from the northwest and from the bridge which extends over the Connecticut River in East Haddam. A view of the river from the school was also desirable.

In fulfilling these objectives, some problems were immediately apparent. To create the views discussed above, a massive logging operation would be necessary on the western portion of the site. Given the soil and slope conditions on site, this would result in erosion and sedimentation into the Connecticut River. Difficulty in using equipment for actual tree removal and subsequent maintenance of this slope are also major concerns. After examination of aerial photography of the site and surrounding area, it appears that this stand of evergreens (hemlock and red pine) is the only large stand of such trees in the vicinity. The trees provide a visual "backdrop" to the school property, directing one's attention to the school as opposed to the river. Should several large swaths be cut through these trees, the park visitor's attention would be drawn to the spectacular view of the river, not the Nathan Hale Schoolhouse.

This potential increase in visibility may also result in increased use of the site, demanding an extension in hours the school is open. Increased use of the site may also result in the need for increased maintenance. More people may choose to use the site for picnicking and regular trash pick-up may be necessary. Vandalism of the structures on site may also occur.

A view of the schoolhouse from the bridge over the Connecticut River may not provide the desired visibility for the site. As one proceeds over this bridge toward East Haddam, the Goodspeed Opera House dominates the view, to the right, leaving little time to spot the Nathan Hale Schoolhouse on the hill to the left. In the Team's opinion, provision of a view from this direction would not achieve the desired visibility.

After visiting the site and discussing concerns with Mr. Leffler and Team members, several options for a Memorial Park plan emerged. In the Team landscape architect's opinion, a low maintenance landscape plan would be the best choice for this site. Some of the views originally desired by the SAR can be achieved by selective cutting of existing trees on the eastern side of the property. These have been marked at the base with blue paint and are readily recognizable. In pursuing a selective cutting methodology, views of the school were considered as well as vegetation "framing" of views to direct attention to the schoolhouse. After cutting the trees which have been marked, a herbicide should be applied directly to the stumps to prohibit future tree sprout growth. This method can also be applied to "brush" growth in the old field area. Most of this "brush" appears to be sprout growth from trees which had previously been removed. It would be advisable to contact a licensed herbicide applicator for this portion of the project.

A plan which encourages use of native plants, specifically those used during the eighteenth century for dyes or medicinal purposes, could be used as an educational tool on this site. An educational program could be designed to provide a walking tour of the site with small plaques identifying each plant and its eighteenth century use at each plant "station." This could be a further use of the site when the school building is closed. A list of recommended plants, and their uses, is included in the Appendix to this report with an accompanying preliminary design.

The Team cannot advise removal of the evergreens on the western side of the site. This logging operation will inevitably create erosion problems on the slope, sedimentation problems in the river and slope maintenance problems. Removal of these trees would also create a view of the river which would compete with the view of the Nathan Hale Schoolhouse, the central theme of the memorial park. The trees presently provide a tranquil background for the view of the schoolhouse. It should also be noted that any plans for a historical property must be approved by the local historic district commission before any work may commence.

Appendix

Soils

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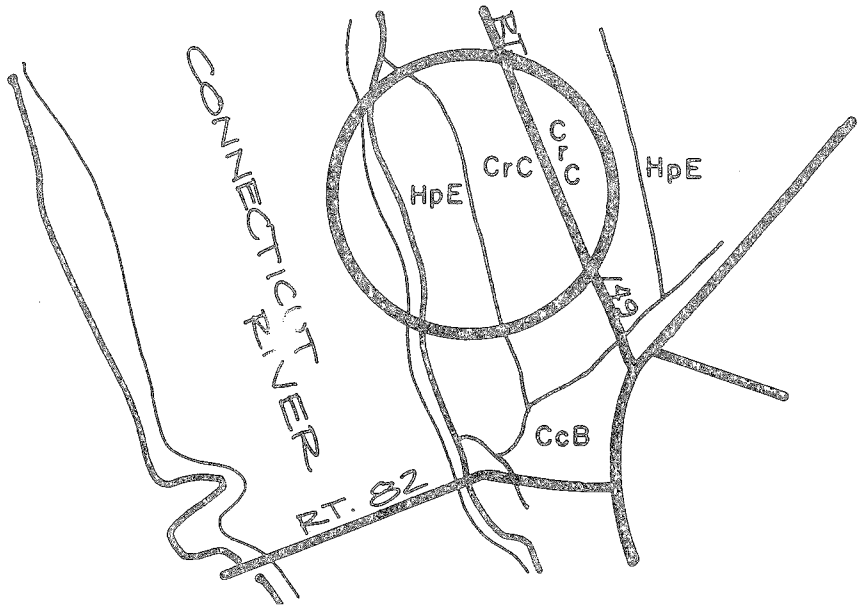


PROPORTIONAL EXTENT OF SOILS AND THEIR LIMITATIONS FOR CERTAIN LAND USES

Soil Series	Soil Symbol	Approx. Acres	Percent of Acres	Principal Limiting Factor	Urban Use Limitations*			
					On-Site Sewage	Buildings with Basements	Streets & Parking	Land-Scaping
Charlton-Hollis	CrC							
Charlton Part				Slope, large stones, depth to rock	2	2	2	2
Hollis Part					3	3	3	3
Hollis-Charlton	HpE							
Hollis Part				Slope, depth to rock, large stones	3	3	3	3
Charlton Part					3	3	3	3

* LIMITATIONS: 1=Slight; 2=Moderate; 3=Severe

SOIL INTERPRETATIONS FOR URBAN USES

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

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

Slight Limitations

Areas rated as slight have relatively few limitations in terms of soil suitability for a particular use. The degree of suitability is such that a minimum of time or cost would be needed to overcome relatively minor soil limitations.

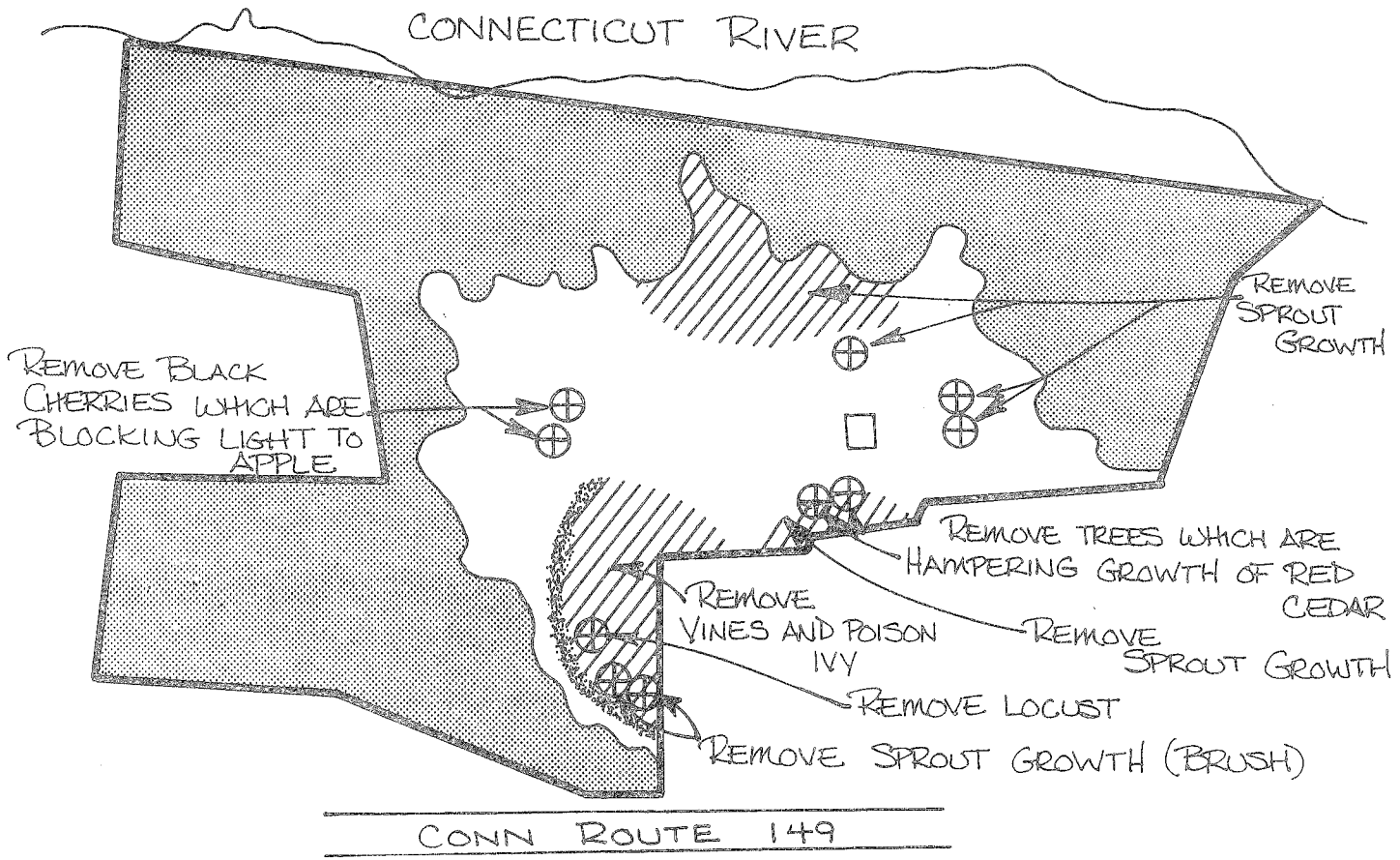
Moderate Limitations

In areas rated moderate, it is relatively more difficult and more costly to correct the natural limitations of the soil for certain uses than for soils rated as having slight limitations.

Severe Limitations

Areas designated as having severe limitations would require more extensive and more costly measures than soils rated with moderate limitations in order to overcome natural soil limitations. The soil may have more than one limiting characteristic causing it to be rated severe.

SELECTIVE PLANT REMOVAL



⊕ TREES / SPROUT GROWTH TO BE REMOVED (MARKED WITH BLUE PAINT)

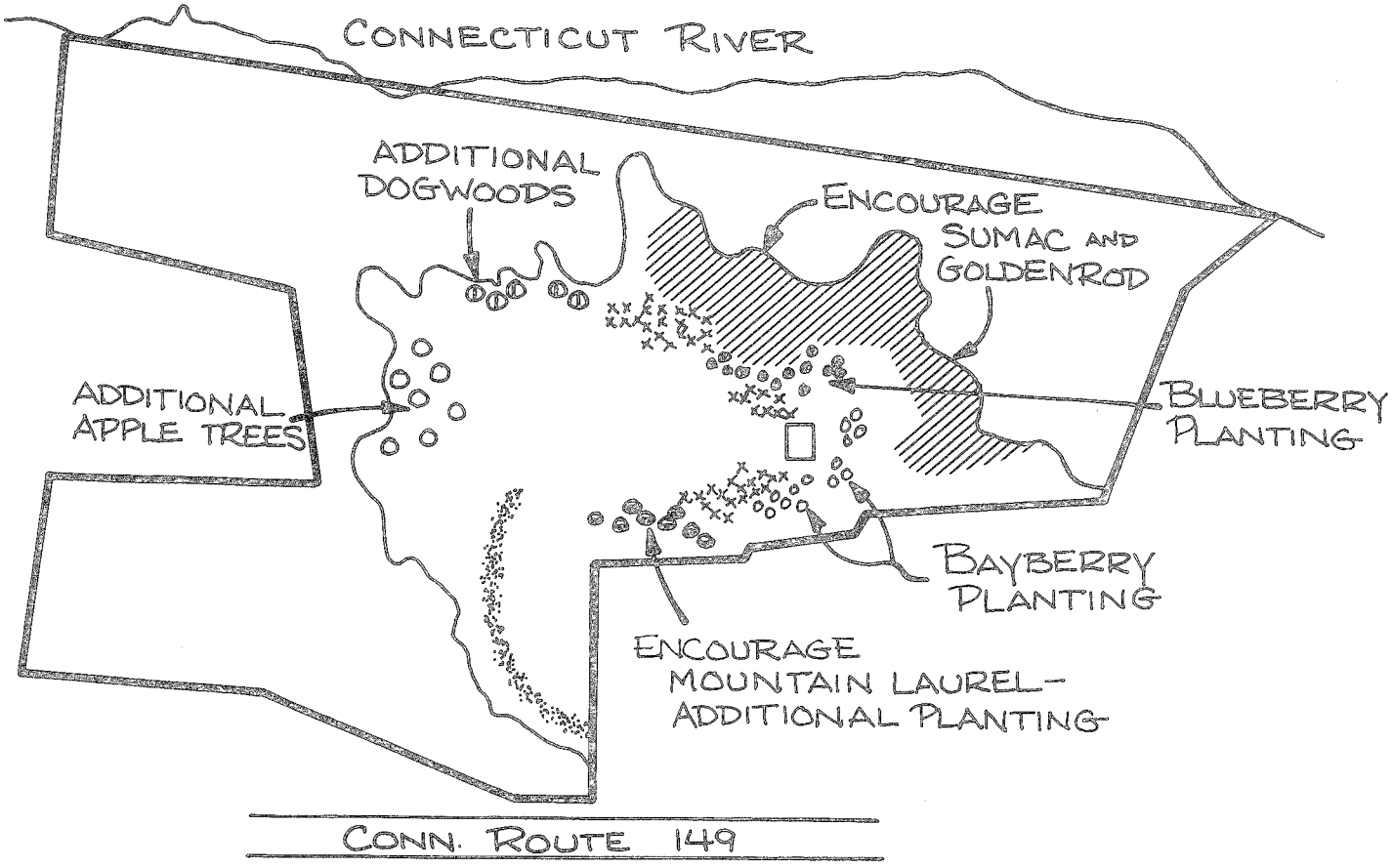
//// AREAS FOR SPROUT GROWTH & VINE REMOVAL

DIRT ROAD

FORESTED AREA

1"=150'

SCHEMATIC PLANTING PLAN



- ADDITIONAL PLANTINGS OF HERBS FROM ACCOMPANYING LISTS
- AREAS FOR ENCOURAGING SUMAC & GOLDENROD
- BLUEBERRY PLANTING
- BAYBERRY PLANTING
- MOUNTAIN LAUREL PLANTING
- ADDITIONAL APPLE TREES
- ADDITIONAL FLOWERING DOGWOODS

* PLANTINGS SHOWN ARE NOT TO SCALE

1" = 150'

The vegetation found on site is described in the vegetation section of this report. Of those species listed, the following species should be encouraged as noted on the proposed plan. Those which have clonal growth patterns, such as sumac, blueberry and bayberry, will form thick plant groupings that will prevent other plant species (i.e. trees) from becoming established in their midst.

flowering dogwood
mountain laurel
Solomon's Seal
False Solomon's seal
Staghorn sumac
raspberry
goldenrod
Joe-Pye weed
bayberry

Vine species such as those listed below, although important, can prove to be high maintenance plants in the long run. They often climb, strangle and shade-out tree species.

fox grape
summer grape
oriental bittersweet
Virginia creeper
poison ivy

Supplementary plantings of trees, shrubs and herbs used during the 18th century can be worked into an educational program for the park property if desired. These have been catagorized into gardens for specific purposes and are listed below.

DYE GARDEN

indigo
bloodroot
dyer's camomile
dyer's greenweed
goldenrod
madder
safflower
juniper

CANDLE MAKING

bayberry
flannel mullein
coltsfoot
mugwort
hyssop
savory
thyme
mint

} suspended in paraffin for fragrance

BEE GARDEN

thyme
goldenrod
mullein
meadow saffron
catnip
beebalm
mint
hyssop
basil
sage
lemon balm
chives

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, climatologists, soil scientists, landscape architects, archeologists, recreation specialists, engineers and planners. The ERT operates with state funding under the supervision of the Eastern Connecticut Resource Conservation and Development (RC&D) Area.

The Team is 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, sanitary landfills, commercial and industrial developments, sand and gravel operations, 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 officials 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. This request letter should include a summary of the proposed project, a location map of the project site, written permission from the landowner allowing the Team to enter the property for purposes of review, and a statement identifying the specific areas of concern the Team should address. When this request is approved by the local Soil and Water Conservation District and the Eastern Connecticut RC&D Executive Council, the Team will undertake the review on a priority basis.

For additional information regarding the Environmental Review Team, please contact Jeanne Shelburn (889-2324), Environmental Review Team Coordinator, Eastern Connecticut RC&D Area, 139 Boswell Avenue, Norwich, Connecticut 06360.