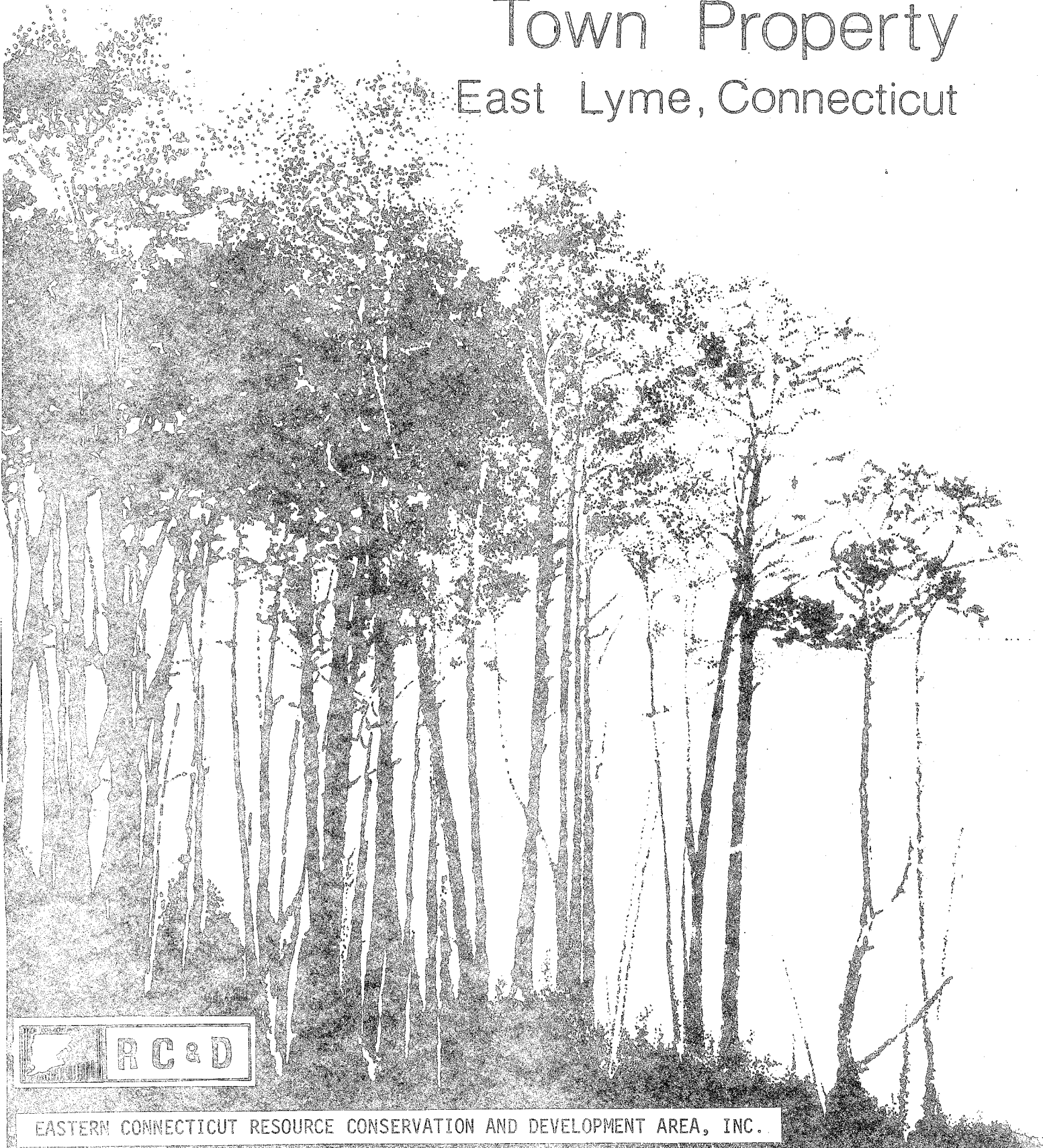


Environmental Review Team Report

Town Property East Lyme, Connecticut



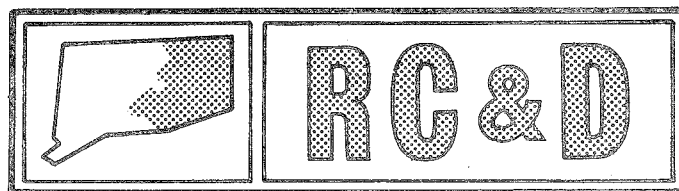
EASTERN CONNECTICUT RESOURCE CONSERVATION AND DEVELOPMENT AREA, INC.

Environmental Review Team
Report

on

Town Property
East Lyme, Connecticut

September 1982



Eastern Connecticut Resource Conservation & Development Area

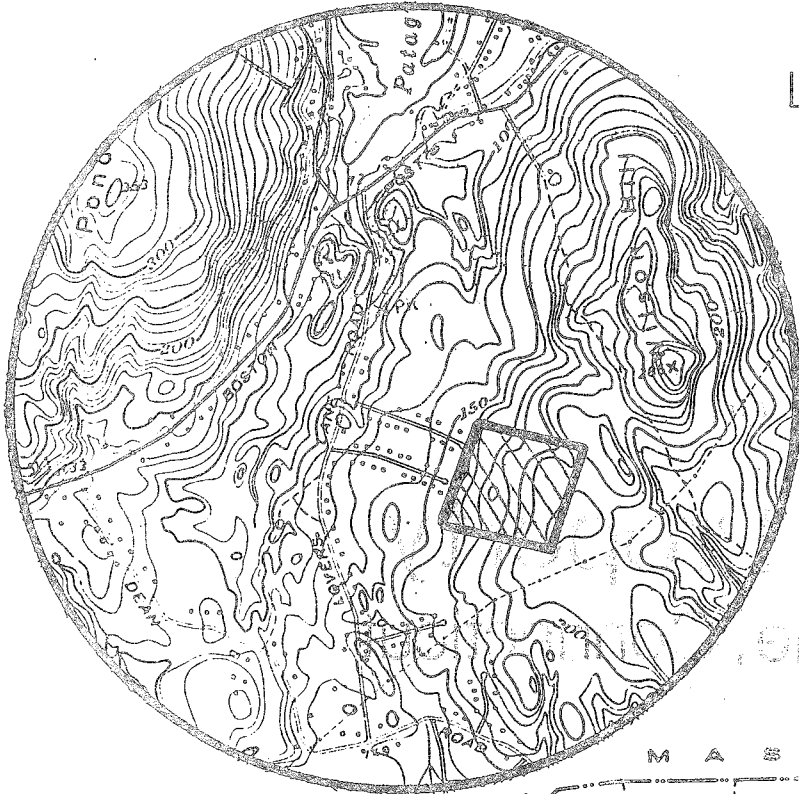
Environmental Review Team

PO Box 198

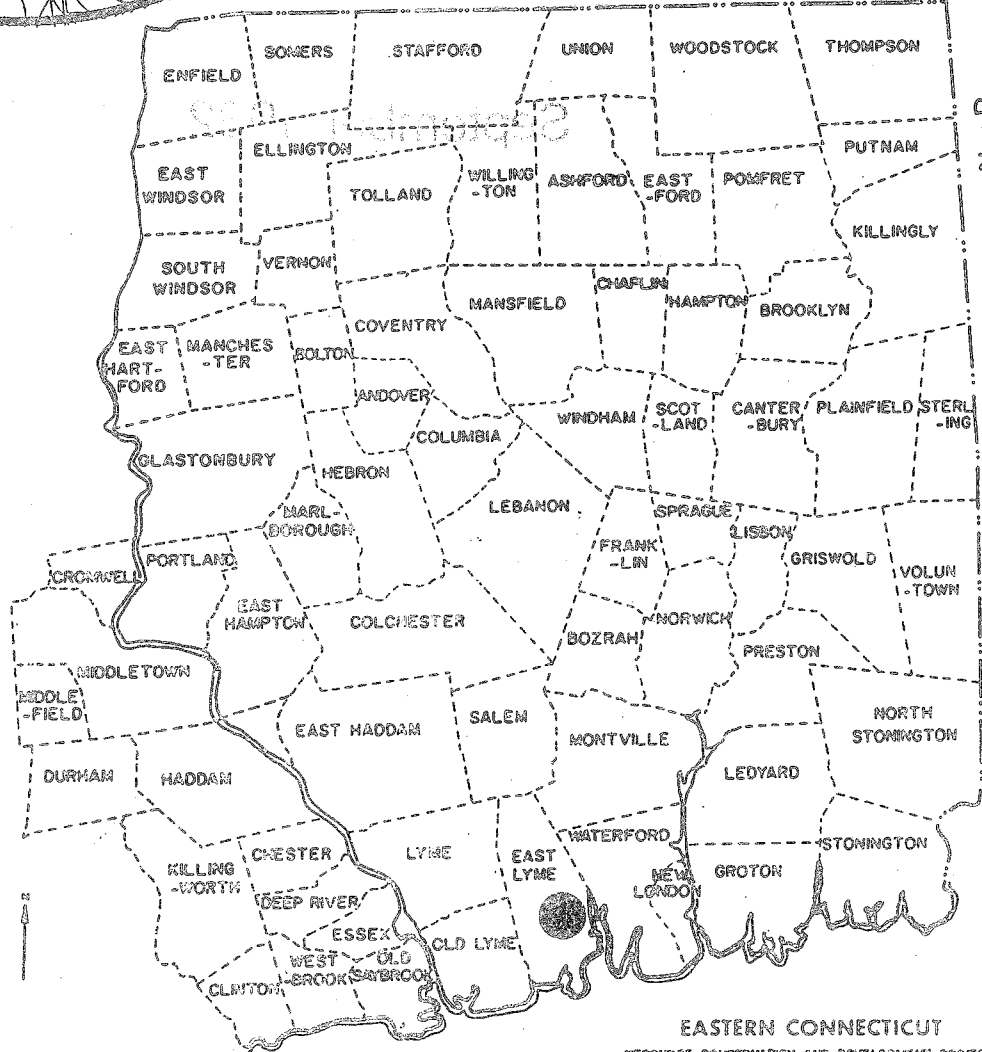
Brooklyn, Connecticut 06234

Location of Study Site

TOWN PROPERTY
EAST LYME, CONNECTICUT



M A S S A C H U S E T T S



EASTERN CONNECTICUT
RESOURCE CONSERVATION AND DEVELOPMENT PROJECT

ENVIRONMENTAL REVIEW TEAM REPORT
ON
TOWN PROPERTY
EAST LYME, CONNECTICUT

This report is an outgrowth of a request from the East Lyme Planning Commission to the New London 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 as a project measure. The request was approved and the measure reviewed by the Eastern Connecticut Environmental Review Team (ERT).

The soils of the site were mapped by a soil scientist of the United States Department of Agriculture (USDA), Soil Conservation Service (SCS). Reproductions of the soil survey map as well as a topographic map of the site were distributed to all ERT participants prior to their field review of the site.

The ERT that field checked the site consisted of the following personnel: Gary Domian, District Conservationist, Soil Conservation Service (SCS); Mike Zizka, Geologist, Department of Environmental Protection (DEP); Rob Rocks, For-ester, DEP; Gerhard Amt, Regional Planner, Southeastern Connecticut Regional Planning Agency; Don Capellaro, Sanitarian, State Department of Health; Andy Petracco, Recreation Specialist, DEP; and Jeanne Shelburn, ERT Coordinator, Eastern Connecticut RC&D Area.

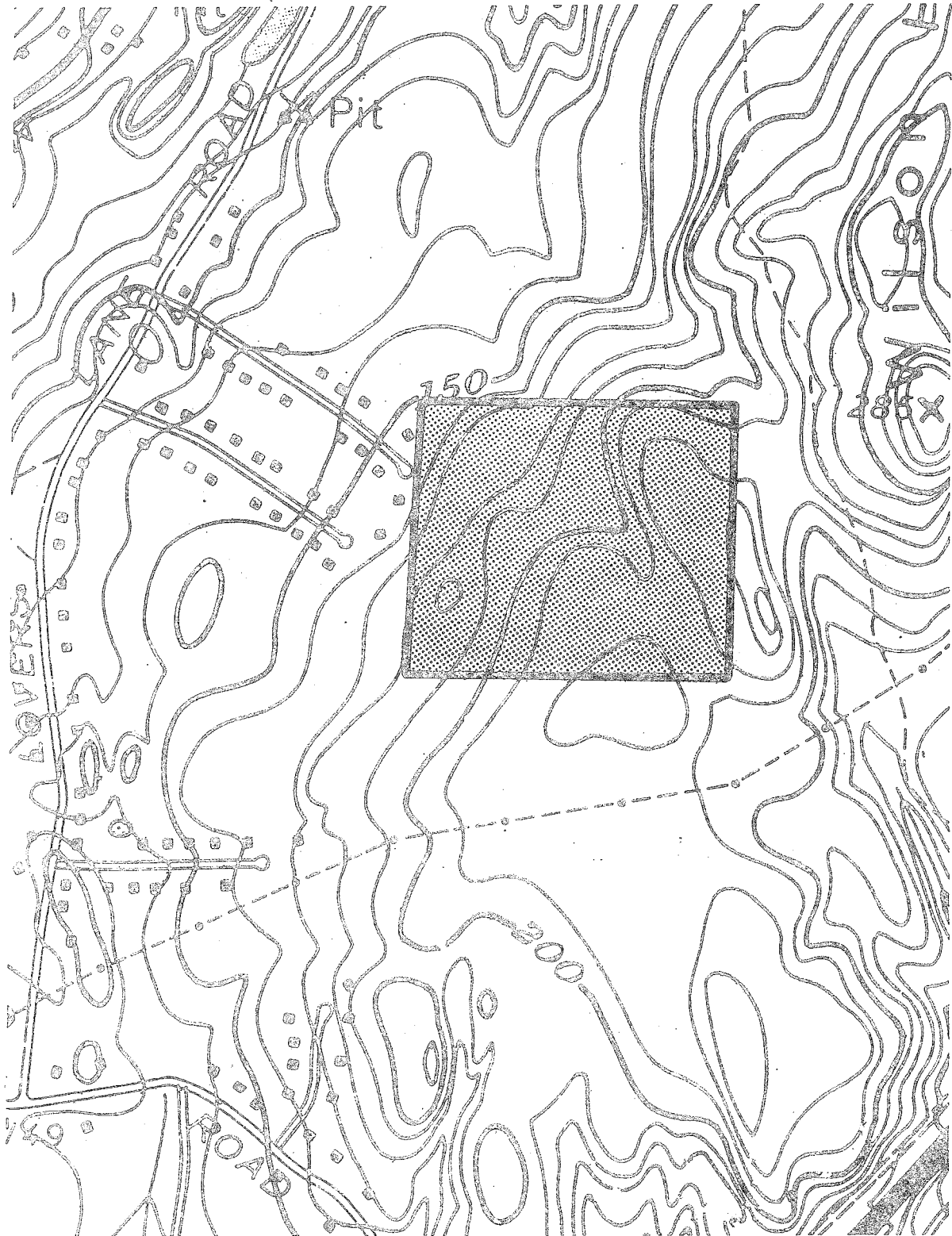
The Team met and field checked the site on Thursday, July 15, 1982. Reports from each Team member were sent to the ERT Coordinator for review and summarization for the final report.

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 Lyme. The results of this Team action are oriented toward the development of a better environmental quality and the longterm economics of the land use.

The Eastern Connecticut RC&D Project Committee hopes you will find this report of value and assistance in making your decisions on this particular site.

If you require any additional information, please contact: Ms. Jeanne Shelburn, Environmental Review Team Coordinator, Eastern Connecticut RC&D Area, Box 198, Brooklyn, Connecticut 06234, 774-1253.

Topography



INTRODUCTION

The Eastern Connecticut Environmental Review Team was asked to prepare a natural resource inventory and evaluation of a 36+ acre parcel of town owned land in East Lyme. The site is located at the cut-de-sacs on Marion and Maplewood Drives.

The Planning Commission is seeking a base of information from which it can make a land use recommendation to the Board of Selectmen. At present no plan has been prepared for the property, however there has been some consideration given to passive or active recreation for the site, development of an elderly housing project or potential sale to commercial interests.

Presently, the site is entirely wooded, although there is some evidence of fire, as well as, limited fuel wood harvesting. Soils on the site range from the Charlton series to the Sutton series, however most soils on site are well drained. Topography ranges from several steep rocky knobs to a gently sloping terrain. Two small "ponds" were also found on the property.

The following sections of this report present information about the resource base of this site and provide an evaluation of potential land uses for the property. In general the Team has found the site to be suitable for a number of development alternatives, however, given its location in a residential area, the site would be well suited to limited recreational activities. Elderly housing does not seem suitable here, due to the remoteness of the site from shopping and other service areas.

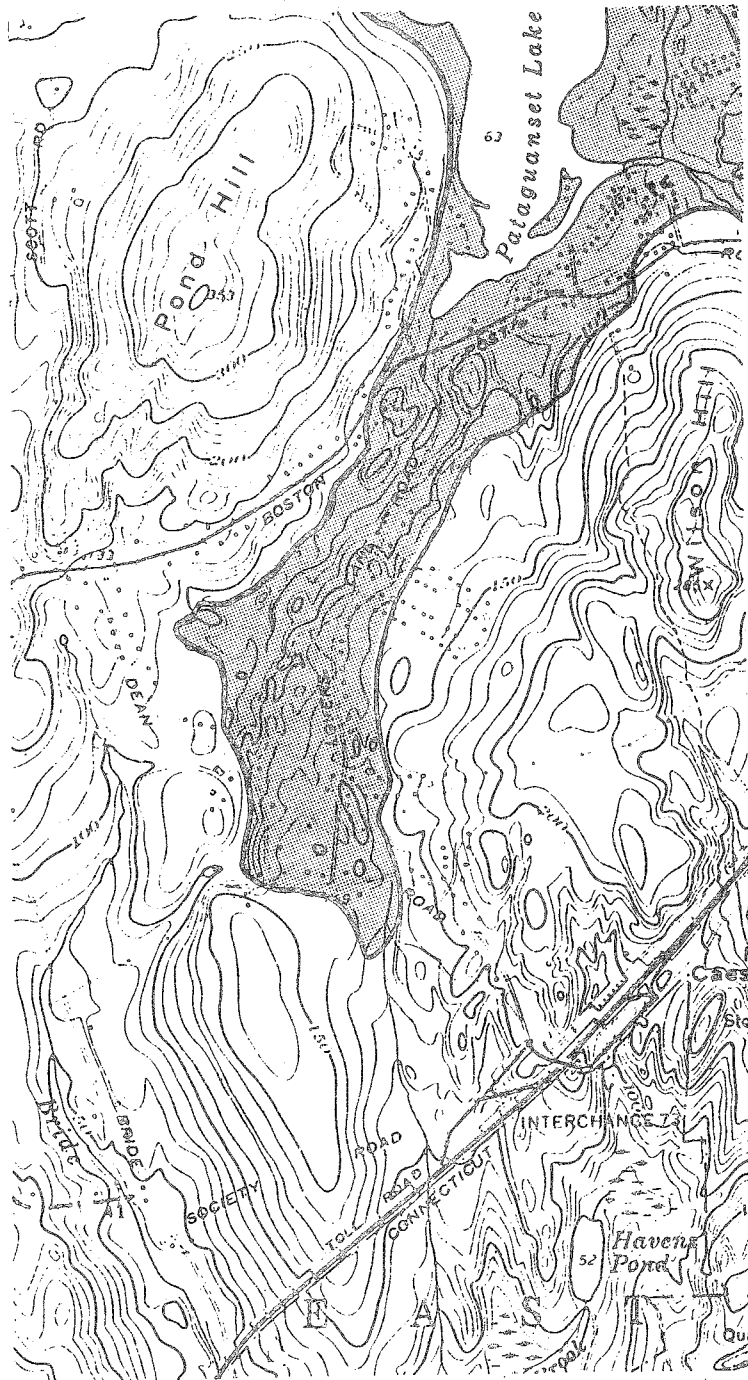
ENVIRONMENTAL ASSESSMENT

GEOLOGY

The property is located within the Niantic topographic quadrangle. The U.S. Geological Survey has published a bedrock geologic map (Map GQ-575) and a surficial geologic map (Map GQ-329) of the quadrangle. Both maps were prepared by Richard Goldsmith.

Till, a nonsorted, unconsolidated sediment that was deposited directly from glacier ice, covers almost all of the site. The till consists of a complex mixture of sand, silt, clay, gravel, and boulders. The texture of the till appears to be mostly sandy, stony, and relatively loose. U.S.G.S. Map GQ-329 indicates that the till on the site is generally thin, but that it is underlain directly by up to 10 feet of weathered, decomposed bedrock, at least in the western portion of the parcel. The weathered rock has a sandy, gravelly texture, which effectively increases the thickness of the overburden.

Surficial Geology



Area of stratified drift deposits along Lovers Lane. Deposits are continuous with deposits in the valley of the Pataguanset River, east of the map area.

The generally thin nature of the till is apparent from the knobby topography that characterizes many portions of the site. Bedrock crops out on a few knolls within and adjacent to the property. The bedrock is primarily gneissic. The term "gneissic" means that elongate or flaky minerals in the rock have become aligned to form thin bands, which alternate with bands of granular minerals. The principal mineral constituents of the rock on the site are quartz, sillimanite, biotite, feldspar, and garnet.

The principal geologic limitations on the use of the property will be the locally shallow depths to rock and the locally steep slopes. However, the Team's on-site inspection suggested that there is enough space within the parcel to avoid the areas which are most severely limited by these conditions. Active recreational development, elderly housing, commercial development, or almost any other usage, with the particular exception of large scale solid or liquid waste-disposal operations, would be consistent with the geological potential of this site. Incidental waste-disposal facilities, such as septic systems, should pose no serious problems as long as shallow-to-bedrock areas are avoided.

HYDROLOGY

The property lies within the watershed of Pataguanset Lake. Most surface runoff from the site flows westward, either by sheet flow or by intermittent streams, into an unnamed brook just west of Lovers Lane. The brook flows north into Pataguanset Lake, which is located approximately 0.6 mile due north of the parcel. The lake drains southward via Pataguanset River, which empties into Long Island Sound just west of Black Point.

The unnamed inlet stream to Pataguanset Lake is bordered by stratified drift deposits that have a least a moderate potential for groundwater-supply wells. The deposits, which consist largely of sand and gravel, were laid down by glacial melt-water streams. Since the subject parcel is within the watershed of the stratified drift deposits, the usage of the parcel may influence the quality of any groundwater withdrawn from them. However, in view of the existing residential development along Lovers Lane, including Marion and Maplewood Drives, and the existence of even higher-potential stratified drift deposits in other parts of East Lyme, such as along Pataguanset River, it seems unnecessary to preserve the subject parcel in a pristine state in order to protect future water-supply sources in the town. The town should, nevertheless, consider uses which would not place a heavy burden on the cleansing capacity of the environment. Intensive commercial, industrial, or even residential uses would probably be undesirable. On the other hand, moderate or light development of any sort could be consistent with a groundwater-protection program as long as appropriate sediment-and-erosion-control and waste-disposal practices were followed.

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'/inch scale to 660'/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 of each of the soils for on-site sewage disposal, buildings with 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, New London County Interim Soil Survey Report, 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 nearly level to gently sloping, extremely stony, moderately well drained areas on uplands are occupied by Sutton extremely stony fine sandy loam. This soil is designated by soil mapping unit symbol 41MB. The letter "M" denotes an extremely stony surface condition. The letter "B" denotes slopes as being 0 to 8 percent. Sutton soils formed in friable glacial till. Permeability is moderate to moderately rapid. A seasonal high water table exists at 18 to 24 inches. Surface runoff is slow to medium.

The gently sloping to sloping landforms that are bedrock controlled are occupied by Hollis-Charlton-Rock outcrop complex. The soils are designated by mapping unit symbol 17MC. The letter "M" denotes rock outcrop and the letter "C" denotes 3 to 15 percent slopes. Hollis soils formed in glacial till less than 20 inches thick over bedrock, Charlton soils formed in deep loamy glacial till, and Rock outcrop is exposed, weathered or unweathered rock. The Hollis soils have moderate permeability and the Charlton soils have moderate to moderately rapid permeability. Hollis soils have medium to very rapid surface runoff and Charlton soils have medium to rapid surface runoff.

The gently sloping to sloping well drained soils on uplands are occupied by Canton and Charlton extremely stony fine sandy loams. This soil is designated by soil mapping unit symbol 11MC. The letter "M" denotes an extremely stony surface condition. The letter "C" denotes slopes as 3 to 15 percent. Canton soils formed in a fine sandy loam mantle underlain by friable gravelly sandy glacial till. Canton soils have moderately rapid or rapid permeability. Surface runoff is medium. Charlton soils formed in friable glacial till. Charlton soils have moderate to moderately rapid permeability. Surface runoff is medium to rapid.

The sloping well drained soils on uplands are occupied by Canton and Charlton very stony fine sandy loams. This soil is designated by soil mapping unit symbol 11XC. The letter "X" denotes a very stony surface condition. The letter "C" denotes slope as 8 to 15 percent. Canton soils formed in fine sandy loam mantle underlain by friable gravelly sandy glacial till. Canton soils have moderately rapid or rapid permeability. Surface runoff is medium. Charlton soils formed in friable glacial till. Charlton soils have moderate to moderately rapid permeability. Surface runoff is medium to rapid.

The gently sloping well drained uplands are occupied by Canton and Charlton very stony fine sandy loams. This soil is designated by soil mapping unit symbol 11XB. The letter "X" denotes a very stony surface condition. The letter "B" denotes slopes as 3 to 8 percent. Canton soils formed in a fine sandy loam mantle underlain by friable gravelly sandy glacial till. Canton soils have moderately rapid or rapid permeability. Surface runoff is medium. Charlton soils formed in friable glacial till. Charlton soils have moderate to moderately rapid permeability. Surface runoff is medium to rapid.

The gently sloping to sloping land forms adjacent to the highest elevations in the landscape are occupied by Charlton-Hollis fine sandy loams, very rocky. The soil mapping unit symbol is 17LC. The letter "L" denotes very rocky, and "C" denotes a slope range of 3 to 15 percent. Both these soils are well drained. Charlton soils formed in deep, friable glacial till and the Hollis soils formed in shallow glacial till less than 20 inches deep over bedrock. Charlton soils have moderate to moderately rapid permeability and Hollis soils have moderate permeability. Surface runoff is medium to very rapid for Hollis soils and medium to rapid for Charlton soils.

The moderately steep to steep land forms adjacent to the highest elevations in the landscape are occupied by Charlton-Hollis fine sandy loams, very rocky. The soil mapping unit is 17LD. The letter "L" denotes very rocky, and "D" denotes a slope range of 15 to 45 percent. Both soils are well drained. Charlton soils formed in deep, friable glacial till, and the Hollis soils formed in shallow glacial till less than 20 inches over bedrock. Charlton soils have moderate to moderately rapid permeability and Hollis soils have moderate permeability. Surface runoff is medium to very rapid for Hollis soils and medium to rapid for Charlton soils.

The soil map indicates that a large portion of the Project tract is occupied by soils that are well drained, loose glacial till soils (Canton and Charlton series). There are limitations to the use of certain phases of these soils due to slopes in excess of 10 percent and large stones or boulders on the surface. While these limitations are rated severe, this does not mean that the land is unuseable. For example, the limitations indicate that in order to use the land for a softball field, removal of surface stones and boulders and extensive land grading will be necessary.

The soils that are shallow to bedrock (the Hollis part of the Charlton-Hollis mapping unit) are severely limited to most uses because of the bedrock. Usually these areas are best left undisturbed or as natural areas in landscaping. The cost of preparing the Hollis soils for roads, building lots, playfields, etc. is usually prohibitive. These soils will occupy the highest points in the landscape. In between the hills in nearly level drainage depressions, soils with a seasonal high water table are found. These soils (Sutton series) can be managed for most uses by installing drainage, however, these soils are an asset as wildlife habitat when left in their natural state.

The access and traffic situation will have to be well defined prior to using the site for commercial or housing uses. The land can be prepared for such uses but major land grading will be necessary to locate access roads, parking lots and buildings. A definitive plan for erosion control and stormwater control will have to be

developed as part of the overall plan. Erosion control and portions of the stormwater control will need to be in place prior to construction. The development should be planned to fit into the landscape, in doing this, problems such as erosion, stormwater runoff and deterioration of the aesthetic quality of the site can be minimized.

Development plans and sediment and erosion control plans can be reviewed by the Soil Conservation Service. The New London County Soil and Water Conservation District should be contacted for this service at 562 New London Turnpike, Norwich, 887-4163.

VEGETATION

The vegetation which is present within this 36+ acre parcel is relatively uniform. It may, however, be divided into two mixed hardwood areas which differ primarily in the understory vegetation which is present. These areas are depicted on the vegetation type map and described below. Vegetation will not limit land use options for this parcel.

Vegetation Type Descriptions

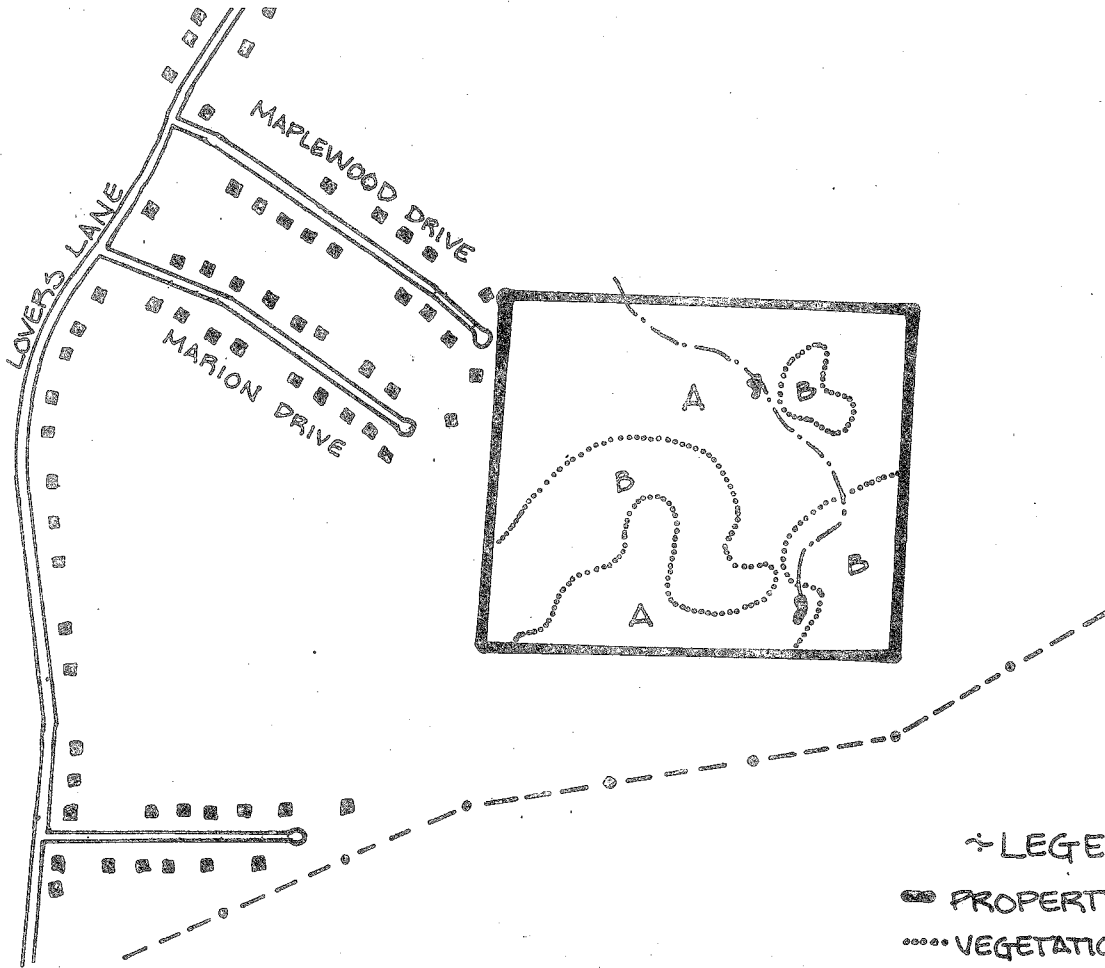
Type A - (Mixed hardwoods) This 24+ acre area is dominated by 60-80 year old pole-size black oak, red oak, white oak, mockernut hickory, shagbark hickory and black birch with occasional red maple, tuliptree, sassafras and American beech intermixed. Some sawtimber-size black oak are also present, however, these larger trees are not numerous. Many of the trees show signs of butt rot caused by past forest fires. Tree growth rates are very low due to the somewhat excessively drained soils which are present on the upper slopes and the crowded conditions which prevail. Understory vegetation consists of maple-leaved viburnum, hardwood tree seedlings, chestnut sprouts, flowering dogwood and patches of mountain laurel. Ground cover is made up of wild sarsaparilla, Canada mayflower, stripped pipsissewa, Virginia creeper, hayscented fern, New York fern, Christmas fern, bracken fern and wood aster. Lowbush blueberry and huckleberry are an important component on the droughtier knolls, while sweet pepperbush, cinnamon fern, wild geranium, Solomon's seal, false Salomon's seal and swamp dewberry are common along the intermittent stream which passes through this vegetation type.

Type B - (Mixed hardwoods) Pole-size black oak, white oak, scarlet oak, mockernut hickory, American beech and red maple are present in this fully-stocked stand which totals approximately 12 acres. Many of the trees in this area have also been damaged by past forest fires. This damage is more apparent on the droughty knoll tops where the fires burn hotter. Understory vegetation is dominated by mountain laurel with occasional maple-leaved viburnum and highbush blueberry. Ground cover is sparse due to the dense mountain laurel cover. Where ground cover is present, it consists of Canada mayflower, lowbush blueberry, huckleberry and rattlesnake plantain.

The vegetation which is present does not limit land-use options for the parcel in any great degree.

Vegetation

0 660
scale



✦ LEGEND ✦

- ▬ PROPERTY BOUNDARY
- ⋯ VEGETATION TYPE BOUNDARY
- - - INTERMITTENT STREAM
- ⊙ SMALL PONDS
- ⋯⋯ UTILITY LINE R.O.W.

VEGETATION TYPE DESCRIPTIONS

Type A : Mixed Hardwoods, fully stocked, pole size, 24 acres.

Type B : Mixed Hardwoods, low end of fully-stocked, pole size, dense mountain laurel component, 12 acres.

Seedling Size: Trees less than 1" in diameter at breast height.

Sapling Size: Trees 1" to 6" in diameter at breast height.

Pole Size: Trees 6" to 11" in diameter at breast height.

Sawtimber Size: Trees 11" and greater in diameter at breast height.

Any use of this tract will, however, warrant accurate and clear marking of its boundaries. This will become increasingly important should the area be developed intensely or managed for multiple uses such as recreation, wildlife, and the production of fuelwood or timber products.

Dead trees are numerous along many of the trails which crisscross through this tract. These dead trees represent a potential hazard to area users and should be removed.

All trails which are open for public use should be clearly marked to avoid user confusion. Type of trail use (vehicle and non-vehicle) should also be designated.

Several species of flowering trees and shrubs, including mountain laurel and flowering dogwood are present throughout this tract. These flowering species could be retained along the trails for their aesthetic value. The flowering and health of these species could be stimulated by allowing increased direct sunlight to reach them. This can be accomplished by removing the trees from the overstory which are blocking the sunlight.

Widespread infestation of this tract by gypsy moth was apparent at the time of the field investigation. Repeated defoliations, which stress trees, make them more susceptible to mortality caused by secondary insect, disease and fungus invasion. On a tract of this size, the best defense against mortality started by gypsy moth infestation will be to manage the trees so that they grow vigorously and become healthy.

Management Considerations

Trees which are unhealthy and not growing vigorously due to crowded conditions are most susceptible to further degradation from environmental stresses brought about by development, disease, insect infestation and adverse weather conditions. Improvement thinnings, which remove undersirable trees and reduce competition for space, sunlight, nutrients and water between the high quality residual trees will, over time, allow trees to improve in health, vigor and stability. These thinnings when implemented properly can improve the aesthetic value of an area, improve tree health and vigor, improve wildlife conditions and provide wood products.

The trees which are present in both vegetation types A and B are declining in health and vigor as a result of their crowded condition. A fuelwood thinning in these stands, following the "crop tree selection method" would help to reduce the crowded condition and improve health and vigor.

Under the "crop tree selection method", 100 of the highest quality trees in each acre should be identified (trees spaced about 20' x 20' will equal 100 trees per acre), and one, two, or three trees that are in direct competition with each of those identified should be removed. The 100 trees per acre that are selected as crop trees should be healthy, large crowned, and show little or no signs of damage. Trees which are not competing with the 100 selected trees should not be removed, unless they are severely damaged. This thinning, if implemented, will provide between 4 and 5 cords of fuelwood per acre.

If any or all of this tract is heavily developed, the trees which are to be cleared should be utilized as fuelwood.

A public service forester or private forester should be contacted to help with the implementation of the suggested thinnings. Trees that are to be removed should be marked, so that the trees that are to be retained are not removed by mistake.

WATER SUPPLY

Currently the municipal water supply services dwellings on Maplewood and Marion Drives. Therefore, due to the availability and proximity to this parcel, extension of water service appears both feasible and appropriate. Use of the public system would provide maximum protection and also afford greater flexibility when considering means for on-site waste disposal.

WASTE DISPOSAL

While the town is fortunate in having a major portion of its more densely developed land areas serviced by public water, sewage disposal throughout the community is provided by on-site subsurface sewage disposal systems. The disposal of septic tank effluent requires certain acceptable conditions, for example soil must also have sufficient porosity to be able to adequately disperse the volume of entering sewage without creating nuisance or public health problems.

Based on visual observation and soil mapping data it appears that a large area of the property should generally be capable of supporting sewage systems. However, a possible limiting factor or constraint could be depth to underlying bedrock. In order to more accurately determine and evaluate this condition, sufficient on-site testing would need to be done.

The property, although having some variation in topographical features, would seem to lend itself for recreational uses, either active or passive. Should the town decide to sell the property, a probable use, in keeping with development which has already taken place along the two drives leading to the parcel, could be for further single family housing. A potential subdivision layout, including actual lot density, should also take into account results of on-site testing. Moderate size lots would probably be feasible. Also in terms of housing, the use of some part of the upper area (towards south side) for elderly housing would seem to be an appropriate use. However, the town, at the present time, provides a housing complex for the elderly.

Regardless of future land use (s) it does not appear that water supply or sewage disposal would be major limiting factors for development, although the latter would require more investigation and evaluation.

PLANNING CONCERNS

The property lies adjacent to, and east of, the circular turn-around at the end of Maplewood Drive. Presumably the existing street could be extended to provide vehicular access to the property. A right-of-way for access is also available at the end of Marion Drive, but the physical and dimensional aspects of this approach are not as convenient as on Maplewood Drive. Both streets are about 1,200 feet in length and the abutting lots on each street contain about twenty-four well-maintained single-family residences. The half-acre lots are served by a community water supply, but sewage is disposed of by individual subsurface systems on each lot.

As far as its physical characteristics are concerned, the property appears capable of supporting a variety of uses. The land is reasonably level and the soils, as discussed elsewhere in this report, present few major obstacles to development. Public water probably could be extended from adjacent streets to serve the property.

The outstanding limitation on the use of the property is its lack of convenient public access. It is virtually surrounded by privately-owned undeveloped woodland and access by users of the land would be via the residential streets, as noted above. There is always the possibility that additional access could be acquired by the town or a prospective private developer.

The property could conceivably accommodate about 25 single-family detached residences on 40,000 square-foot lots (after deductions of area for streets and open space) according to existing zoning. This would require an extension of one or both cul-de-sac streets. The East Lyme Subdivision Regulations limit the length of such streets to 700 feet unless the Planning Commission permits a greater length, based on the likelihood that the street may be extended in the future to another outlet. Thus, the further extension of either Marion Drive or Maplewood Drive into the property would presumably require their connection with each other or with an entirely new road from another direction. Since a new road from another direction is a lesser likelihood, the extension and connection of the two existing streets appears more appropriate when discussing the access needs of development possibilities.

Due to the remoteness of the site from public and commercial facilities and services, residential development would generate significant traffic. Studies conducted in Connecticut* suggest that additional residential use of this type can be expected to produce 10.6 vehicle trips per day per dwelling unit. Thus, the estimated 25 additional dwellings would add 265 vehicle trips per day to the roads leading to them. This would be a noticeable addition of traffic on the two existing residential streets, but both appear to be built to standards that can accommodate the increase. However, the same cannot be said for Lovers Lane. The latter already serves as a collector road, channeling traffic from the residential subdivisions in the area to Route 1, I-95, and points south. It is clearly well below the standard required for such a function.

Another use suggested for the property is elderly housing. The site is generally suitable for such use in all respects except its location. It is remote from those areas of the town that should be easily accessible to the elderly, namely, shopping, restaurants, professional offices and leisure-time facilities. This would not seem to serve the best interests of the elderly.

The property presently serves as a passive recreation area, primarily for the residents of Maplewood and Marion Drives. Considerable residential growth has occurred within a mile radius of the property over the last decade and vacant land for more development is plentiful within this distance. Continued growth should generate an increased need for both passive and active recreation facilities in this part of town. The property in question is well located to serve this need. Again, access poses a problem. When parts of the property are converted to active use, convenient access and vehicle parking must be provided at the same time. One approach to achieving better access is to lay out a system of rights-of-way through adjacent undeveloped land that could be dedicated to the town as that land is subdivided. An alternative is the public acquisition of a right-of-way to and over the road known as the Ancient Highway, to the northeast of the site. Development of the site for active recreation uses that will attract large numbers of users should not occur, if the route of access depends exclusively on Lovers Lane and Maplewood and Marion Drives.

* "Trip Generation Studies of Various Land Uses", Connecticut Department of Transportation, 1974.

RECREATIONAL POTENTIAL

The site has good recreational development potential. Access is not ideal, but is certainly adequate to meet the amount of increased traffic generated by this type of development.

A network of trails is found throughout the property. These could be used for hiking, jogging, and nature study. Routes could also be expanded to include foot access to new activity areas. Although the size of the parcel (36+ acres) does not permit the layout of an extensive trail network, it would be adequate to provide opportunities for short walks, bird watching and nature study, jogging paths and very limited snow-shoeing and cross country skiing runs. The land surrounding the tract is in open space, enhancing the opportunities for establishing perimeter trails, within the parcel's boundary, in a comparatively natural wooded setting. Development of surrounding lands by respective landowners may alter this setting in time. The addition of interior loops or side trails could maximize trail length. Trail development potential will be determined partially by the types of activities planned for the site.

The recreational needs of the town should be assessed in light of this parcel's ability to meet those needs. As additional ballfields have been cited as being a priority by the town's Parks and Recreation Department, this site with its moderate slopes and easily developable areas, may be able to fulfill a portion of that need. Uses suitable to the site, other than those mentioned on the date of the field review include camping by youth groups such as the scouts, 4-H or church groups, and use as an outdoor classroom for studies in the natural sciences. A trail system can be developed through the area that would take people to wooded or grassy picnic sites or to natural areas where there are wildlife ponds, flowers, trees and shrubs. The educational value of this property could be increased tremendously to the East Lyme schools and special interest groups. The trails should be effective and safe, and not for motorized vehicles. Erosion control is absolutely necessary on the trails.

The key items to be concerned about in the design and planning of trails and walkways are as follows:

- 1.) Visual Resources - Pay special attention to trees, animal shelters, wildlife food areas, scenic value, etc.
- 2.) Grade - Grades will not exceed 10 percent.
- 3.) Width - Tread width will be 4 feet.
- 4.) Side Slopes - Cut and fill slopes shall be stabilized.
- 5.) Drainage - Adequate drainage shall be provided.
- 6.) Erosion Control - Plans for erosion control will be part of the over all plan.
- 7.) Bridges - Will be designed for safety.
- 8.) Surfacing - Trail surfaces should be firm and can consist of bank run gravel, concrete, asphalt, or other material.
- 9.) Safety and Maintenance - Warning signs, handrails, bridges, culverts, etc., shall be maintained for safety purposes.

A complete conservation plan for the area can be developed for the site by the Soil Conservation Service. The New London County Soil and Water Conservation District should be contacted for this service at 562 New London Turnpike, Norwich, Ct. 06360.

The careful design of facility location can help to minimize the degree of site disruption. Ball fields, for example, require clear flat areas. Locating these facilities in areas which have these characteristics or in areas that would not require extensive alteration can help to reduce the cost of land development. In seeking maximum, but diverse utilization of a limited area, "zones of use" could help in formulating the proposed layout. For example, if nature trails are to be included, these would be established in the comparatively undisrupted, wooded portion of the tract, away from a ball field or tennis court. Clustering of group activities such as tennis, baseball or basketball will eliminate the need for numerous cleared areas for their establishment. A toilet building and parking area could be conveniently located to service these heavy use facilities. Picnicking could be in the woodland adjacent to this open area.

Sanitary facilities would have to be provided according to the design capacity of the property. Ball fields and picnic areas can draw large crowds. Public water is available near the property which could be utilized as a water source for drinking and for flush toilets. The location of the toilet building will determine the length of feed line needed to tie into the water supply. Also, the closer the parking area(s) and major use facilities are to the access point, the less distance to extend the access road, power lines and other utilities.

The west and south portions of the property appear suitable for active recreational development. If so developed, the north and east portions of the site would thereby remain for more passive uses.

Appendix

NATURAL RESOURCE INVENTORY
EAST LYME, CONNECTICUT

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
Canton-Charlton	11XB	1	3%	Large stones	2	2	2	2
Canton-Charlton	11XC	6	15%	Slope, large stones	2	2	2	2
Canton-Charlton	11MC	4	10%	Large stones, slope	3	3	3	3
Charlton-Hollis	17LC	21	54%	Slope, depth to rock				
Charlton Part Hollis Part					2	2	2	2
					3	3	3	3
Charlton-Hollis	17LD	5	13%	Slope, depth to rock	3	3	3	3
Sutton	41MB	2	5%	Large stones, frost action, wetness	3	3	2	3
		39	100%					

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 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.

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 (774-1253), Environmental Review Team Coordinator, Eastern Connecticut RC&D Area, P.O. Box 198, Brooklyn, Connecticut 06234.