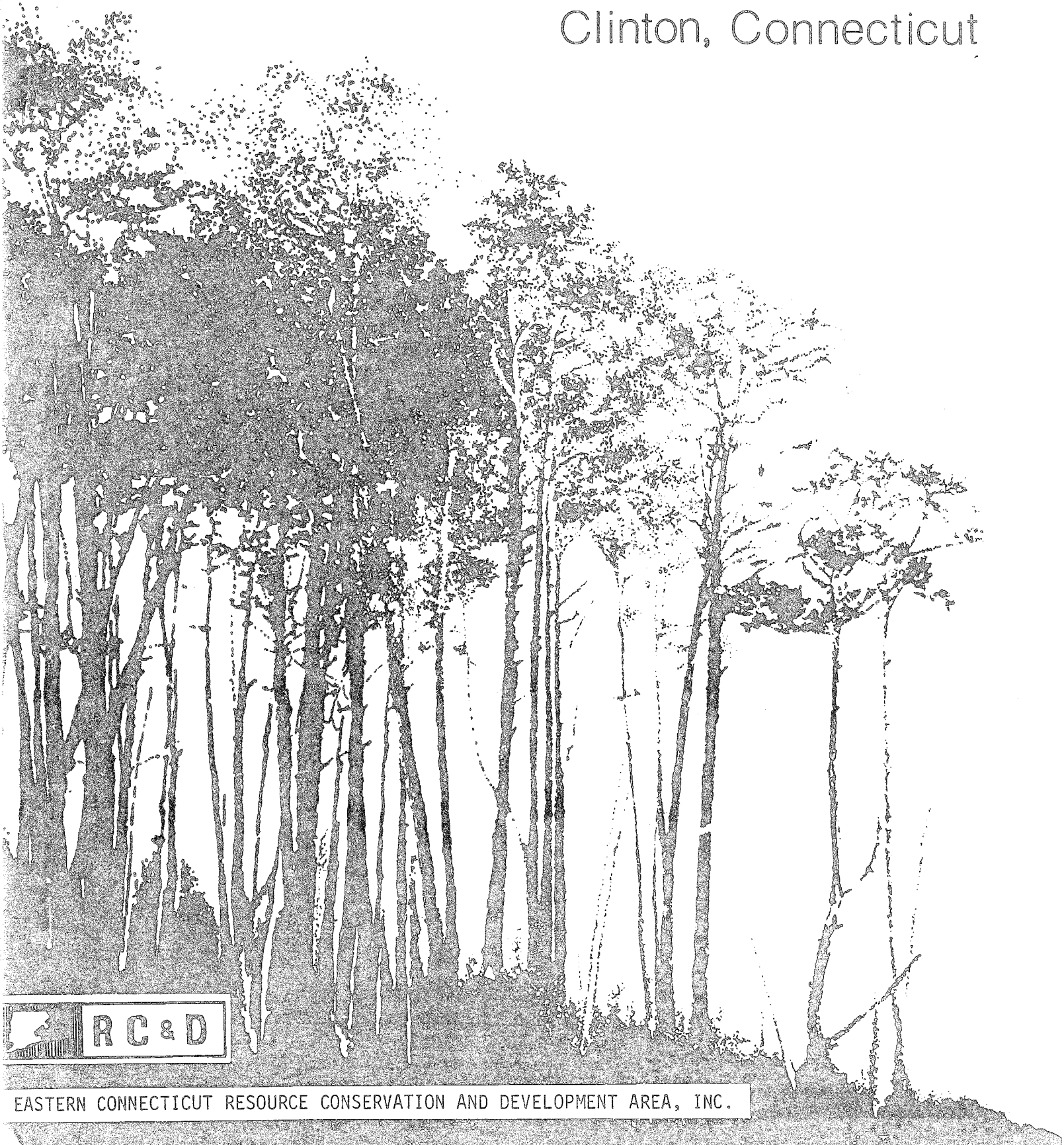


Environmental Review Team Report
Brush Hill
Clinton, Connecticut

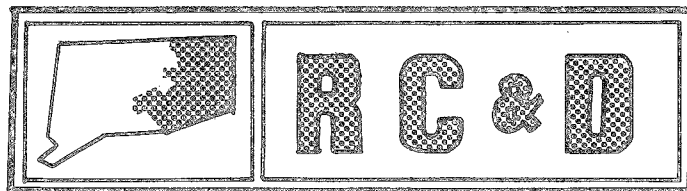


EASTERN CONNECTICUT RESOURCE CONSERVATION AND DEVELOPMENT AREA, INC.

Environmental Review Team
Report
on

Brush Hill
Clinton Connecticut

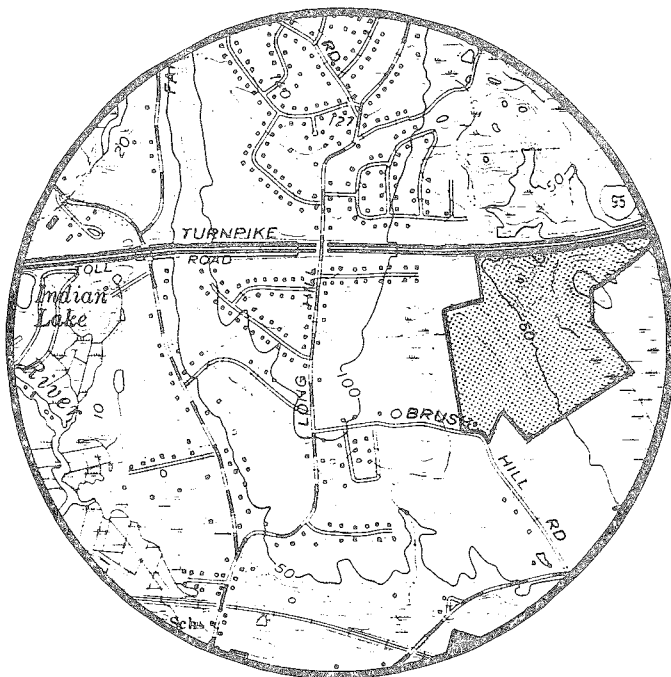
June 1982



eastern connecticut resource conservation & development area

environmental review team
139 boswell avenue
norwich, connecticut 06360

Location of Study Site



BRUSH HILL
CLINTON, CONNECTICUT



EASTERN CONNECTICUT
RESOURCE CONSERVATION AND DEVELOPMENT PROJECT

ENVIRONMENTAL REVIEW TEAM REPORT
ON
BRUSH HILL
CLINTON, CONNECTICUT

This report is an outgrowth of a request from the First Selectman of Clinton 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 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: Tom Ladny, Soil Conservationist, SCS; Mike Zizka, Geologist, Connecticut Department of Environmental Protection, DEP; Tim Hawley, Forester, DEP; Andy Petracco, Recreation Specialist, DEP; and Jeanne Shelburn, ERT Coordinator, Eastern Connecticut RC&D Area.

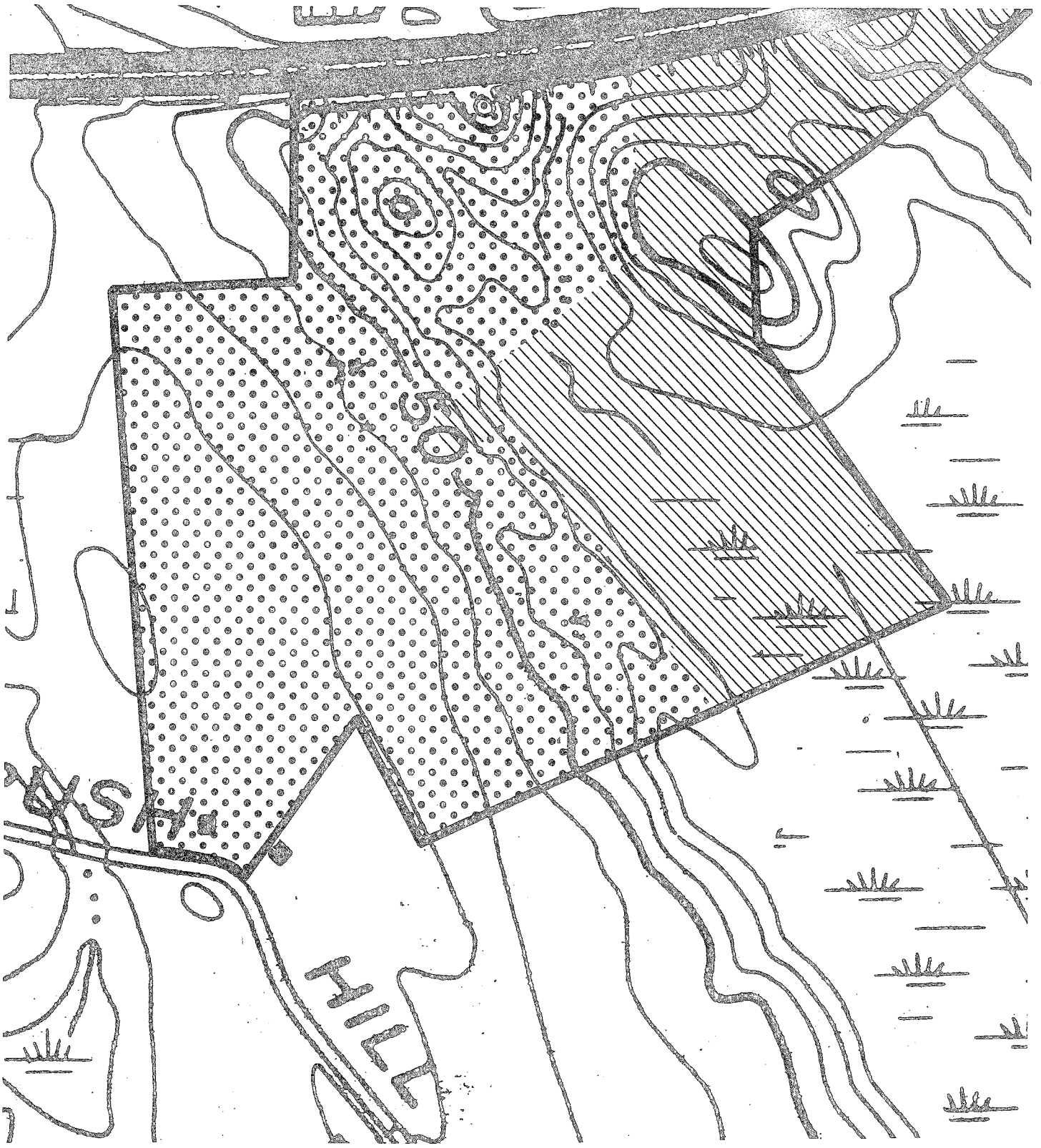
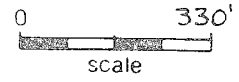
The Team met and field-checked the site on Tuesday, April 27, 1982. Reports from each Team member were sent to the ERT Coordinator for review and summarization for the final report.

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 Clinton. 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 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, 139 Boswell Avenue, Norwich, Connecticut 06360, 889-2324.

Topography



INTRODUCTION

The Eastern Connecticut Environmental Review Team was asked to prepare a natural resource inventory for the Clinton Land Trust. The parcel to be studied was located on Brush Hill Road within a small subdivision. The site was approximately 13 acres in size and situated in the northernmost section of the subdivision. It is bounded by I-95 to the north and Brush Hill Road to the south. Access to the parcel can be gained from a cul-de-sac which extends into the subdivision.

ENVIRONMENTAL ASSESSMENT

GEOLOGY

The Brush Hill parcel comprises two geologically distinct subareas. The northern subarea consists of knobby, bedrock-controlled topography, with thin glacial sediments overlying granitic rocks. The rocks are well-exposed in the northern subarea but not in the southern subarea. Nevertheless, an examination of the regional geology indicates that the entire parcel is underlain by the same type of rock. Quartz, feldspar, and biotite are the principal mineral components of the rock; hornblende is locally prominent.

The unconsolidated material (overburden) that covers the bedrock in the northern subarea is called till. The till consists of rock particles and fragments which were collected by glacier ice as it advanced through the area and which were redeposited directly from the ice. The texture of the till is commonly sandy, very stony, and loose, but in some places the till may be compact. The thickness of the till is generally less than 10 feet.

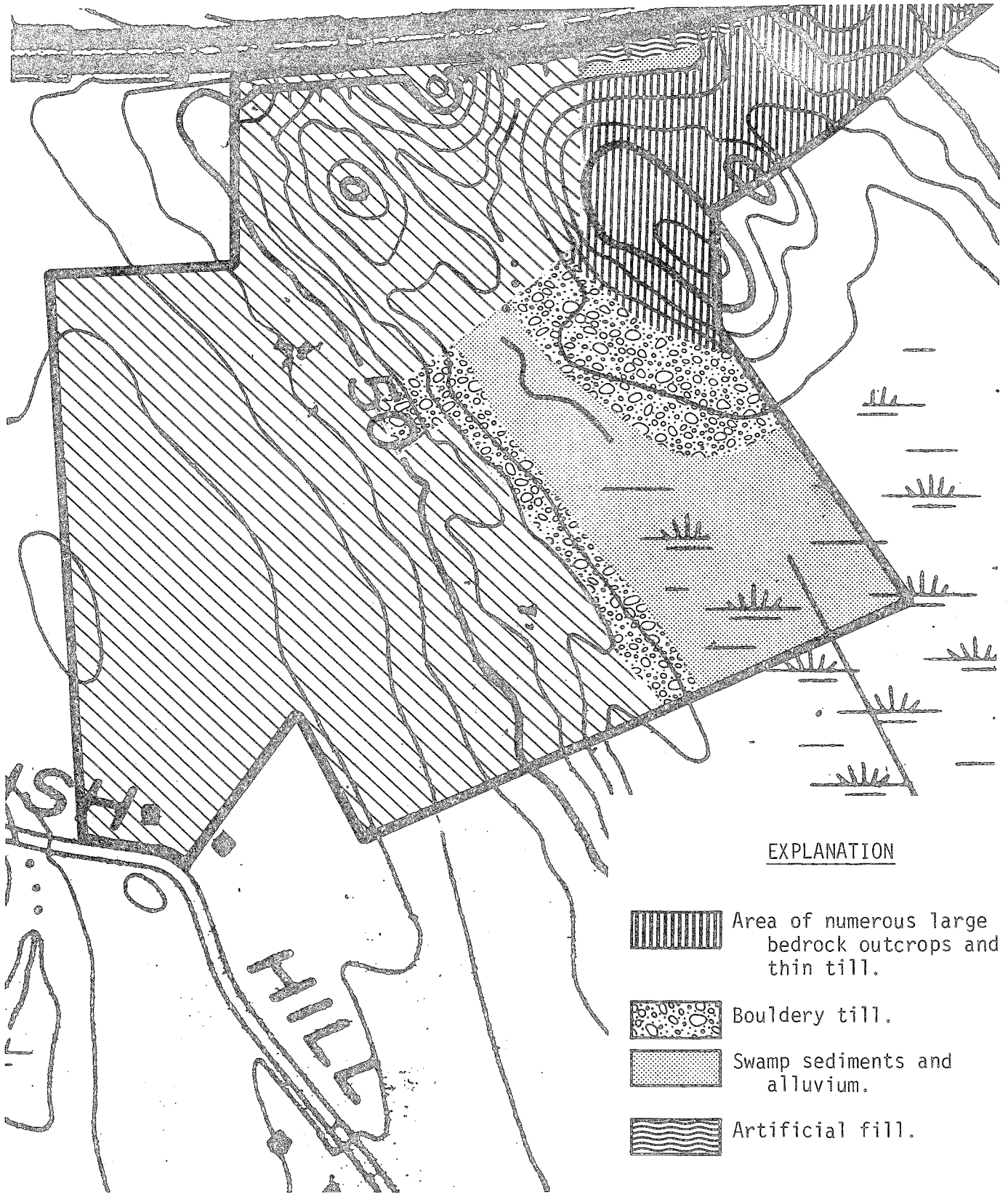
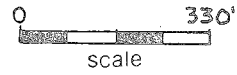
In the southern subarea, the till is overlain by thin swamp deposits or alluvium. The swamp deposits are rich in decayed organic materials, mixed with sand, silt, and clay. The alluvium (stream deposits) is composed largely of sand and silt.

HYDROLOGY

The Brush Hill parcel is drained by an unnamed, small stream that flows south into the tidal marshes along Clinton Beach. The stream enters the site through a culvert under Interstate Route 95. Approximately 155 acres of land north of the highway drains through the culvert. The wetlands flanking the stream in the southern portion of the site continue in an almost unbroken pattern to the south of the parcel. The only interruption occurs in a golf course south of Route 145, where the stream crosses a fairway, enters and exits a manmade pond, and then continues south into the tidal marshes.

The wetlands on and adjacent to the site perform several valuable functions. They regulate the flow of surface water to some extent, reducing peak flood flows and thereby reducing the risk of flood damage and erosion. They also serve as a buffer for surface waters, helping to remove sediment and dissolved

Surficial Geology



contaminants that may enter the wetlands from surrounding developed areas. The wetlands are also an important plant and wildlife habitat, as well as an essential link in the nutrient cycle of the downstream tidal marshes.

No significant groundwater-supply sources are believed to exist on the 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 330 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, buildings 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 soils on this site consist of two upland soils: Charlton-Hollis (CrC) and Hollis-Charlton (HpE). Together they cover approximately 2.8 acres. They are somewhat moderate to well drained soils and are very stony. The HpE soil complex is very steep in sections and bedrock is frequently exposed. Hollis soils typically have bedrock within fourteen inches of the surface. Trees are subject to windthrow due to shallow root systems. Both soil complexes are poorly suited to development and cultivation. The most suitable use would be as open space for recreation, wildlife and woodland.

The two remaining soils in the area are Carlisle (Ce) and Leicester, Ridgebury, Whitman complex (Lg). Together, the size of these soils is approximately 3.0 acres. They are wetland soils. The Lg complex is nearly level to sloping, poorly drained soils in drainage ways and depressions of glacial till uplands. The Ce soil is a nearly level, very poorly drained, organic soil located in low depressions of outwash terraces or glacial till plains. These two soil types are poorly suited to development and cultivation. The Ce is poorly suited for woodland except for red maple, ash and alder. Other common types of vegetation include spicebush, sweet pepperbush, blueberry, viburnum, cinnamon fern and royal fern. Trees in this soil, like Hollis, are also subject to windthrow.

WILDLIFE

The Hollis soil in both CrC and HpE are poorly to very poorly suited for all types of wildlife habitat development with the exception of growth of wild herbaceous plants. Charlton, on the other hand, has good potential for growth of wild herbaceous plants, coniferous plants and trees, and all hardwoods. It has fair to good potential for woodland wildlife habitat development.

The two wetland soil types (Ce and Lg) are best suited for habitat for wetland wildlife. Shallow water areas are easily developed and wetland plants flourish. These areas have fair potential for growing hardwoods and coniferous and herbaceous plants. This open space area has good potential for both woodland and wetland wildlife habitat development. It will primarily be attractive to upland wildlife such as ruffed grouse, woodcock, songbirds, thrushes, woodpeckers, squirrels, raccoons and deer. Ruffed grouse are already present, indicating proper habitat conditions. Hemlock and pine planting would greatly enhance the habitat. Additional beneficial species are: autumn olive, gray and silky dogwood, highbush cranberry, blueberry, Norway spruce, white spruce, and cedar. Presently, these are a good hardwood mix consisting of red and white oaks, red maples, blue beech, dogwoods, hickory, ironwood, highbush and lowbush blueberry, tulip poplar and spice bush.

In addition to plantings, this area holds great potential for developing shallow water areas. A low dike would cause shallow (1-2') water ponding, which not only would be attractive to wildlife already identified, but it would be utilized by amphibians, reptiles and songbirds to a larger degree.

PLANT COMMUNITIES

The 13.2 acre Brush Hill site is located between Brush Hill Road and the Connecticut Turnpike in Clinton, Connecticut. The Environmental Review Team was asked to provide recommendations for recreational uses, and also a resource inventory. The parcel is located in the Eastern Coastal ecoregion. A list of plant species found on this site is included in the Appendix to this report.

Because the site contains moderate slopes and a wetland, it would appear that structures of any kind would be difficult to build. The site would best serve as an open space, perhaps with a trail for hiking or nature study. Wild flowers are plentiful and interesting for those botanically inclined, and birders would find this a good site for the spring warbler migration, and also in the summer for nesting woodland birds.

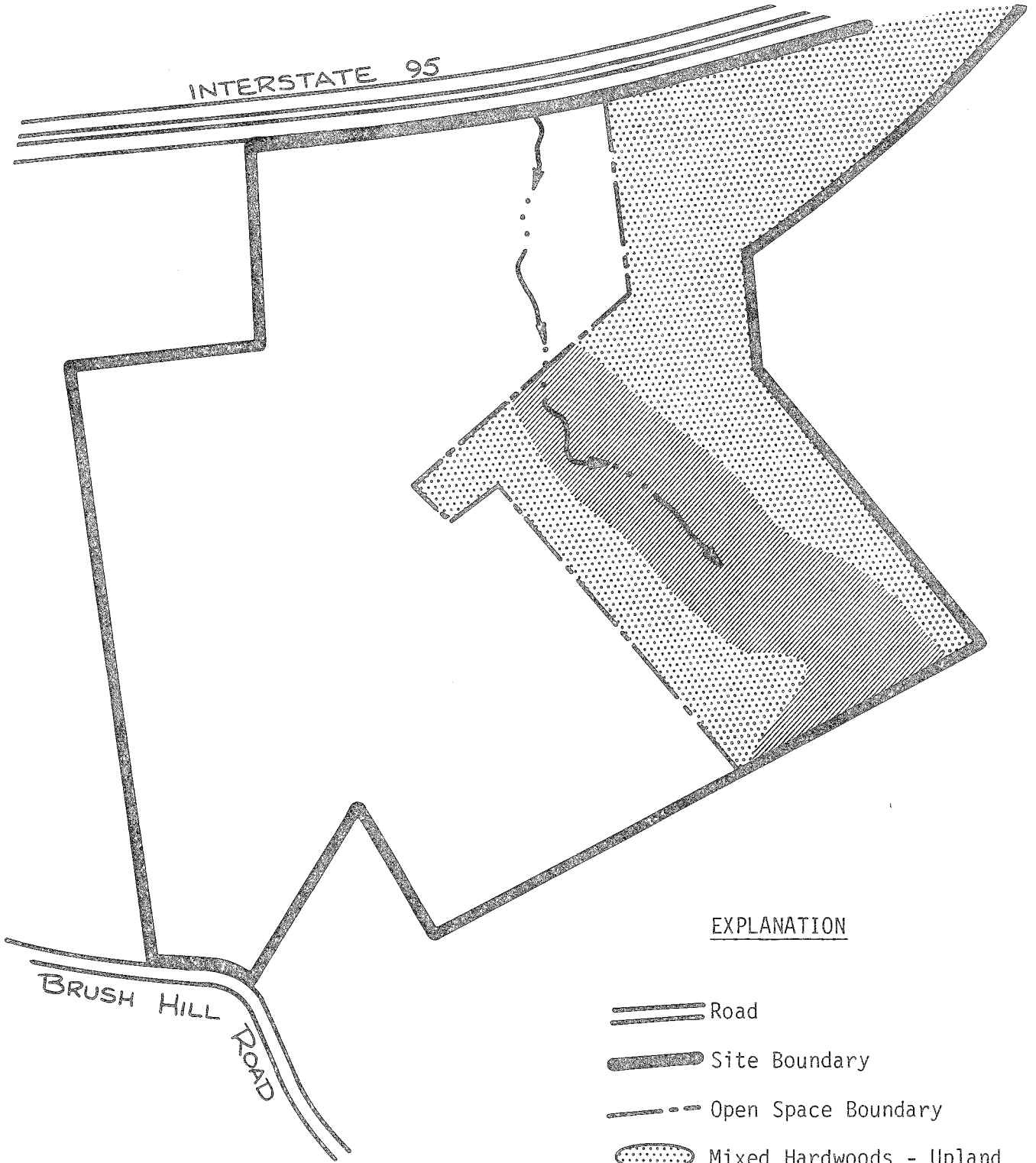
FOREST RESOURCES

The hardwood swamp (6 acres) consists mainly of poorly-formed trees four to sixteen inches in diameter. Red maple is the principle species. Black birch, yellow birch, black gum, and tulip are also present. The understory is dominated by hornbeam and spice bush. False-hellbore, wildflowers, two species of club moss and four species of ferns are common.


Tree density is highly variable, ranging between 70 and 250 stems per acre. About 80% of the trees are suitable only for firewood and 20% have potential for sawtimber. Total volume per acre is about 1,500 board feet plus twenty-two cords.

The upland hardwoods (7 acres) consists of a mixture of red oak, black oak, white oak, black birch, tulip, and pignut hickory. Hornbeam and flowering dogwood are scattered throughout the understory. There are patches of club moss, green brier and grass.

Vegetation



EXPLANATION

-  Road
-  Site Boundary
-  Open Space Boundary
-  Mixed Hardwoods - Upland
-  Hardwood Swamp

Of the 200 trees per acre, over 90% are five to eleven inches in diameter (pole-size), and three-fourths of these are black birch. Ten percent of the trees are over eleven inches in diameter, and these have high aesthetic value due to their size. Most of the large trees are oak, and their seed crops are beneficial to wildlife. Total volume per acre is about 2,000 board feet and twenty cords.

Over 50% of the pole-size trees have been attacked by Nectria fungus, which disfigures and weakens the trees. The larger trees are more healthy but declining in vigor due to competition.

The diverse species and sizes of trees in both forest types, and the open understory and rolling topography of the upland enhance the scenic quality of the property. Evergreen cover is sparse.

Management of the area is severely limited by lack of an access road. The steep slope resulting from construction of the turn-around on Christopher Lane and the wetland make access difficult except by motorcycle. Forest fires are likely in areas such as this, due to the proximity of I-95 and houses. Forest management will be difficult or impossible without better access.

A right-of-way suitable for at least emergency vehicles should be established. The least expensive way is probably to obtain a "breach of right-of-way" permit from the Department of Transportation to enter the property from I-95.

Evergreens, such as white pine, Norway spruce, or hemlock should be planted at a 10 x 10 foot spacing in clusters of about fifty trees.

The plantings should be established on the highest elevations and around the edges of all green brier thickets. The evergreens will improve diversity, enhancing food and cover for wildlife. The trees will add to the scenic value of the property and limit expansion of the green briers.

One-third of the trees should be harvested for firewood now. Where many poor-quality trees occur, openings should be cleared to encourage planted evergreens or natural hardwood regeneration. Over-crowded areas with adequate stocking of acceptable trees should be thinned, and areas not over-crowded should be left to grow. A forester should be retained to mark the trees, and supervise the harvest. Selling the wood will be very difficult without better access.

Boundaries of the property should be marked with paint on the trees. Nails used to attach signs should be aluminum, and should not be driven fully in.

RECREATION POTENTIAL

The Brush Hill parcel is accessible from a cul-de-sac where homes have recently been built. The open space portion of the subdivision bounds Route I-95 on the north. It is irregular in shape, wooded and contains wetland at its south end and gentle hills on its north end, with a stream feeding in from the north via a culvert under I-95. There is an old woods road traversing the northern portion which can be traveled by 4-WD vehicles. Motorcycles have established a network of paths which, in part, make use of the woods road.

The property is suitable for passive recreational uses such as nature walks which could include bird-watching, plant and flower identification and appreciation in the contrasting wet and dry zones and the viewing of other wildlife. Berry picking and mushroom collection could also be undertaken. Limited parking could be provided in or adjacent to the cul-de-sac terminus. Residents of the nearby homes would probably not be enthused about any recreation proposals in this open space which would accommodate other than small numbers of people. Limited use is proposed in any event.

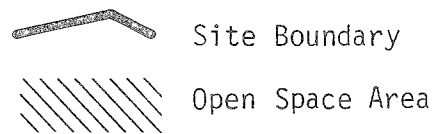
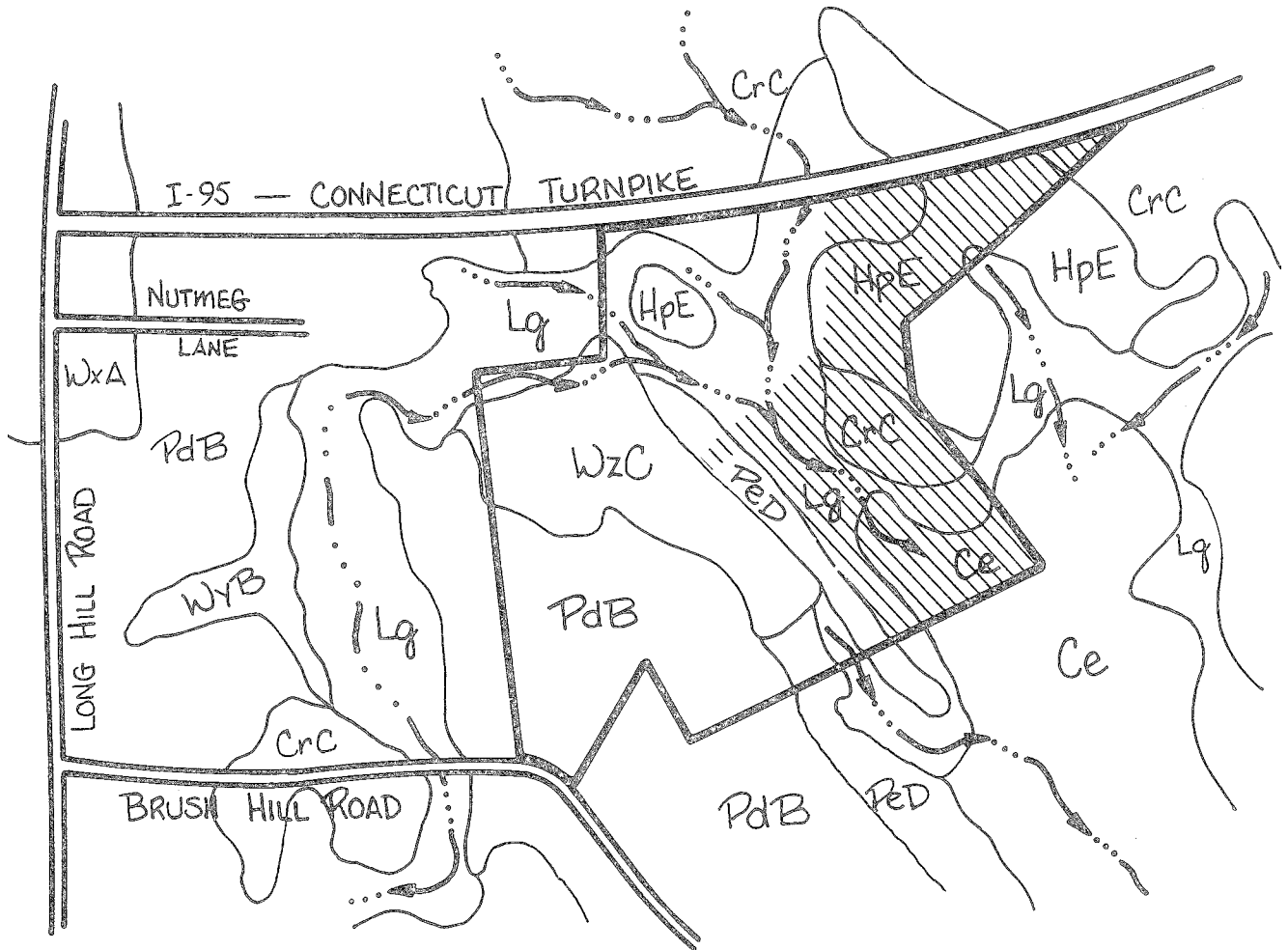
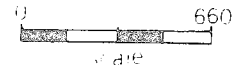
Trail walkers would, at times, have to be willing to share trail use with motorcyclists unless a concerted enforcement effort is sustained to restrict this activity. Educating the public by posting and other means would probably help in limiting this activity, but without enforcement action there would probably still be some motorcycle use of the area.

The woods road traversing the Brush Hill property is wet in two areas and could be made more passable to vehicles (if, for example, fuelwood extraction is undertaken) by installing culverts and elevating the road at these points.

Realistically, only limited passive recreation is envisioned for this tract. Activities related to foot trail use are all that is proposed.

Appendix

Soils



BRUSH HILL OPEN SPACE
CLINTON, 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
Charlton-Hollis	CrC	1.25	7%	Slope, stones	2	2	2	2
Carlisle	Ce	1.0	6%	Wetness	3	3	3	3
Hollis-Charlton	HpE	2.0	12%	Slope, depth to rock	3	3	3	3
Leicester, Ridgebury, Whitman	Lg	4.25	25%	Wetness	3	3	3	3
Paxton-Montauk	PdB	3.75	22%	Slow perc, Large stones	3	2	2	2
Paxton-Montauk	PeD	1.5	10%	Stone, large stones	3	3	3	3
Woodbridge	WzC	<u>3.0</u>	<u>18%</u>	Seasonal wetness	3	3	3	3
		<u>16.75</u>	<u>100%</u>					

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.

PLANT INVENTORYFERNS AND FERN ALLIES

Lycopodium flabeliform	Ground-Pine
Lycopodium lucidulum	Shining Clubmoss
Lycopodium obscurum	Tree Clubmoss
Osmunda cinnamomea	Cinnamon Fern
Athrium felix-femina	Lady-Fern
Dennstaedtia punctilobula	Hay-Scented Fern
Dryopteris marginalis	Marginal Sheild-Fern
Onoclea sensibilis	Sensitive Fern
Polypodium virginianum	Polypody
Polystichum acrostichoides	Christmas Fern

HERBS

Chimaphila maculata	Spotted Wintergreen
Chimaphila umbellata	Pipsissewa
Pyrola rotundifolia	Round-leaved Pyrola
Houstonia caerulea	Bluets
Mitchella repens	Partridge-berry
Veratrum viride	False Hellebore
Smilacina racemosa	False Solomon's-seal
Allium tricoccum	Wild Leek
Maianthemum canadense	Wild Lily-of-the-Valley
Anemone quinquefolia	Wood Anemone
Thalictrum sp.	Meadow-Rue
Symplocarpus foetidus	Skunk-cabbage
Geranium maculatum	Wild Geranium
Viola cucullata	Marsh Blue Violet
Goodyeara pubescens	Rattlesnake-plantain

SHRUBS AND VINES

Smilax rotundifolia	Common Greenbrier
Sambucus canadensis	Common Elderberry
Clethra alnifolia	Sweet Pepperbush
Toxicodendron radicans	Poison Ivy
Lindera benzoin	Spice Bush
Amelanchier canadensis	Common Juneberry
Lonicera japonica	Japanese Honeysuckle
Kalmia latifolia	Mountain Laurel

TREES

Quercus alba	White Oak
Quercus sp.	Red/Black Oak
Ostrya virginiana	Hop-Hornbeam
Betula lenta	Black Birch
Carpinus caroliniana	Ironwood

TREES, continued

Fagus grandifolia
Acer rubrum
Juniperus virginiana
Cornus florida

Beech
Red Maple
Red Cedar
Flowering Dogwood

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.