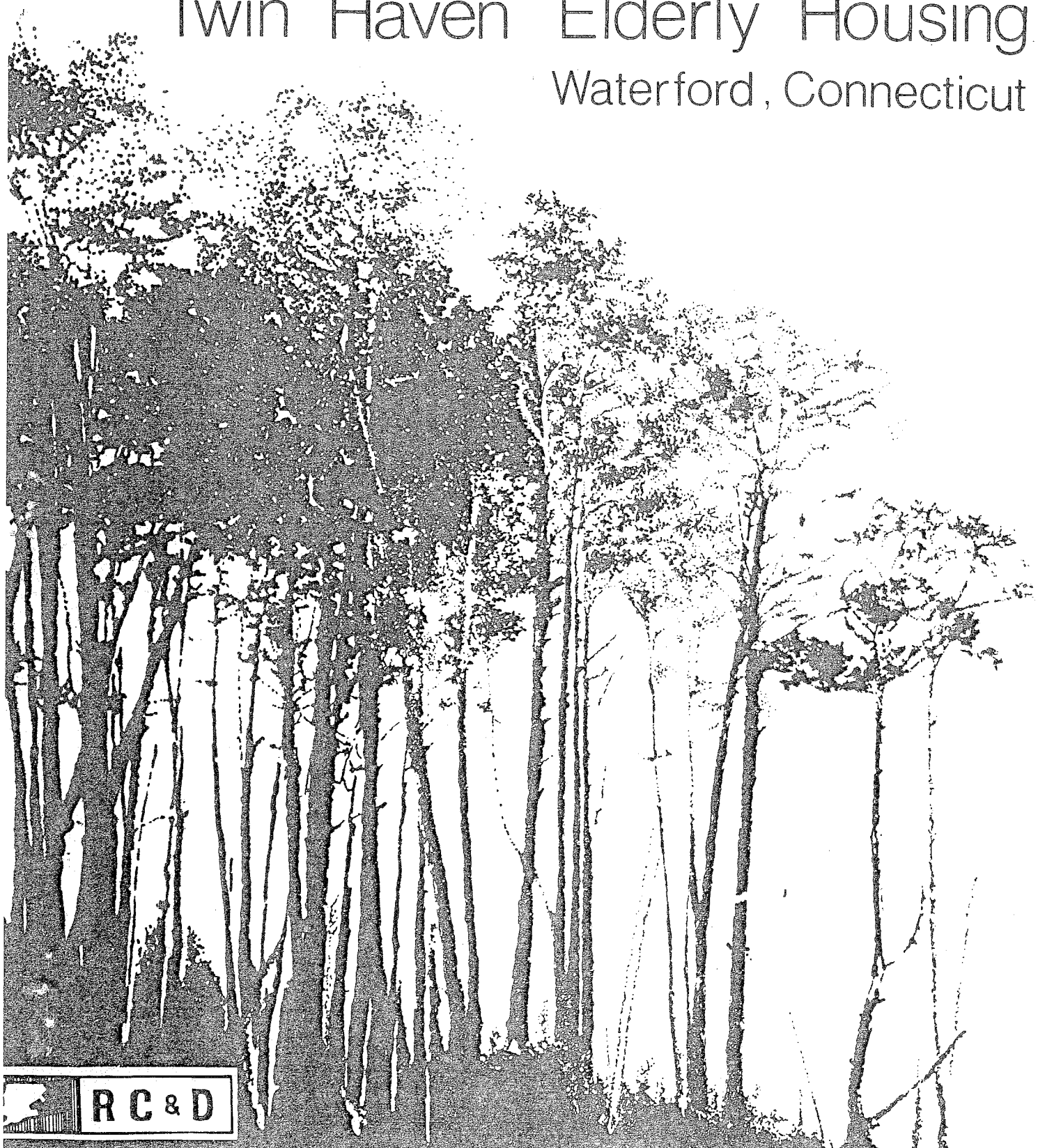
Environmental Review Team Report

Twin Haven Elderly Housing

Waterford, Connecticut

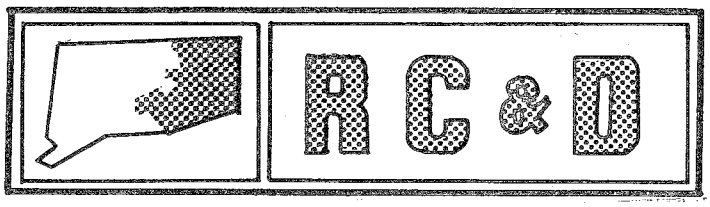


R C & D

EASTERN CONNECTICUT RESOURCE CONSERVATION AND DEVELOPMENT AREA, INC.

Environmental Review Team Report on Twin Haven Elderly Housing Complex Waterford, Connecticut

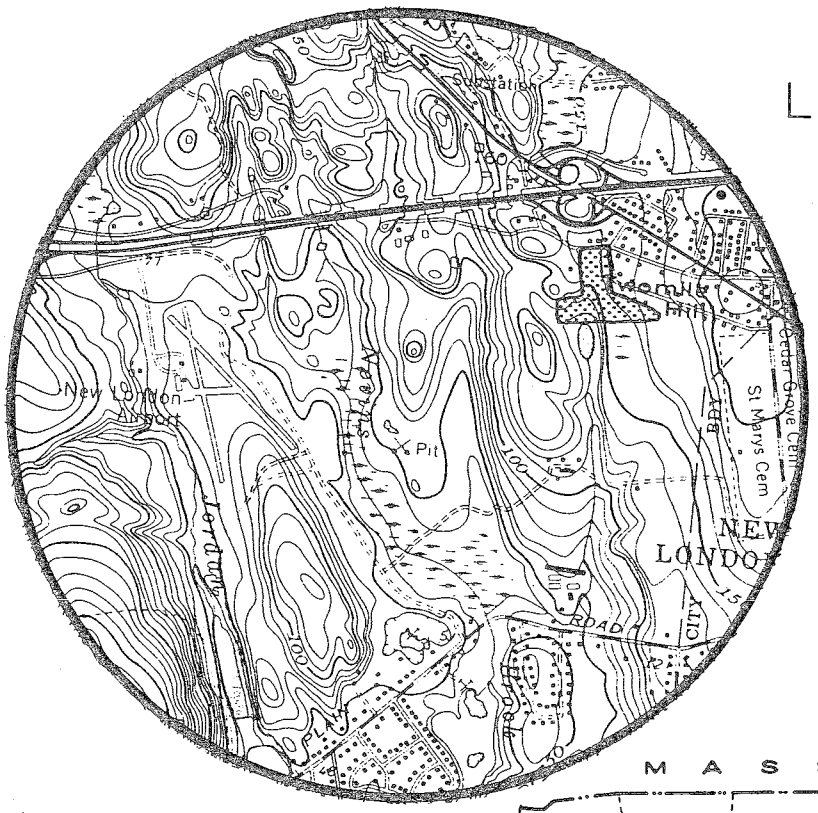
February, 1982



eastern connecticut resource conservation & development area

environmental review team
139 boswell avenue
norwich, connecticut 06360

Location of Study Site



TWIN HAVEN ELDERLY HOUSING COMPLEX
WATERFORD, CONNECTICUT

EASTERN CONNECTICUT
RESOURCE CONSERVATION AND DEVELOPMENT PROJECT

ENVIRONMENTAL REVIEW TEAM REPORT
ON
TWIN HAVEN ELDERLY HOUSING COMPLEX
WATERFORD, CONNECTICUT

This report is an outgrowth of a request from the Waterford Conservation 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); Pete Merrill, Forester, (DEP); Tom Seidel, Regional Planner, Southeastern Connecticut Regional Planning Agency; and Jeanne Shelburn, ERT Coordinator, Eastern Connecticut RC&D Area.

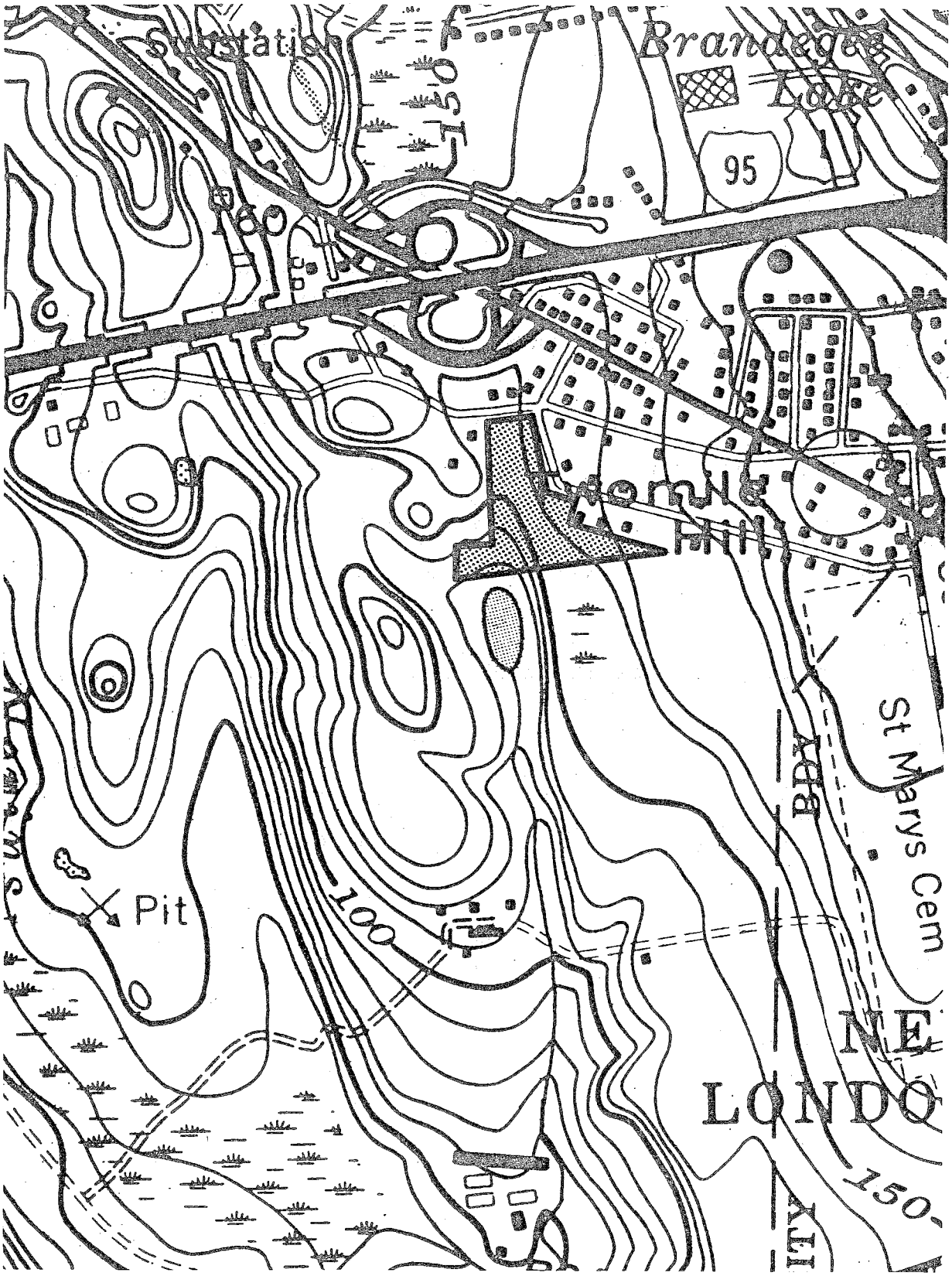
The Team met and field checked the site on Tuesday, February 9, 1982. Reports from each Team member were sent to the ERT Coordinator for review and summarization for the final report.

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

Topography	Site Boundary	0 660' scale	N



INTRODUCTION

The Eastern Connecticut Environmental Review Team was asked to prepare an environmental assessment for a proposed elderly housing complex. The site is approximately ten acres in size and is located southwest of the intersection of Gilead Road and Mary Street. The property is presently owned by the Catholic Church and is being developed by Twin Haven, Inc., with the help of the Farmers Home Administration. Preliminary plans have been prepared by Lindsey, Leibig and Roche, Architects.

Preliminary plans show forty proposed units of housing in twelve buildings. Twenty units are planned as one bedroom units, the twenty remaining units will be efficiency units. A social center is also proposed in the center of the complex. All units will be served by public water supply and public sewer. A loop road extending south from Gilead Road will provide access to the development. Sixty parking spaces are planned off this road near the planned units, to serve residents and guests.

The site has a relatively flat to gently sloping topography. It is presently vegetated with a mixed hardwoods forest. Soils typical of the site include the Ridgebury, Leicester and Whitman series, the Paxton and Montauk series, the Woodbridge series and the Canton-Charlton series. Over fifty percent of the site area is composed of regulated wetland soils (PA 155).

The Team is concerned with the effect of this proposal on the natural resource base of this site. Although severe limitations to development can be overcome with appropriate engineering techniques, these measures can become costly, making a project financially unfeasible for a developer. The most severe limitations to development of this site are the large area of wetland soils and soils with a seasonal high water table. The developer presently intends to fill a section of this area, however, some provision must be made for additional stormwater runoff caused by this development, as well as provision for the stormwater storage area which will be displaced by this development. These issues are discussed in detail in the Hydrology section of this report. Regarding general wetland policy, in the Team opinion, this parcel was a poor choice for the type of intensive development presently planned.

ENVIRONMENTAL ASSESSMENT

GEOLOGY

The site is covered entirely by till. Till is a glacial sediment that was deposited directly from a pre-existing sheet of glacier ice. It consists of rock particles that range in size from clay to large boulders. Till varies in texture, but it commonly is either sandy, very stony, and loose, or silty, less stony, and tightly compact. Test holes dug on the site indicate that the upper 1-3 feet of the till deposit are relatively fine-grained. The engineer's report

describes this portion of the deposit as "silt," "silty sand ," or "sandy silt." The next four feet, approximately, are coarser, and are described as "sandy gravel." No test hole penetrated more than seven feet of the till, but it may be presumed that a compact layer exists at greater depths. None of the holes encountered bedrock.

HYDROLOGY

Two wetland corridors lie partially within the property. One occupies the southwestern section and almost all of the northern half of the site. This wetland drains southward into a shallow pond just south of the parcel and thence into another, smaller pond about 1,000 feet further south. The second wetland corridor on the property begins near the central portion of the southern boundary of the site. This wetland also drains southward, parallel to the first wetland. The streams that ultimately emerge from the two wetlands merge approximately 1,750 feet from the site. The resulting stream continues south for about 1,300 feet, curves sharply westward just north of Fog Plain Road, and then joins Nevins Brook. Nevins Brook flows into Jordan Brook, which flows into the ocean at Jordan Cove.

The elderly housing development as presently conceived would require the filling of a substantial portion of the wetland areas on the site. Since these areas provide natural storage for runoff during periods of precipitation and/or snow melt, the filling would tend to cause increased runoff flows. In addition, the creation of the many impervious surfaces, such as roofs and pavement, will increase the actual volume of runoff leaving the site. The wetlands also serve as natural sediment traps; to the extent that the wetlands are filled, this trapping function will be eliminated. The Team was concerned that the developer had made no plans to provide for artificial runoff or sediment controls, particularly in view of the extensive wetland filling that is planned.

As a matter of wetlands policy, this parcel is a poor choice for the type of intensive development planned. Wetlands represent forty percent of the area within the required setback lines. In addition, the odd shape of the parcel effectively reduces the opportunity to build on the upland areas. These limitations should have been recognized when the parcel was acquired.

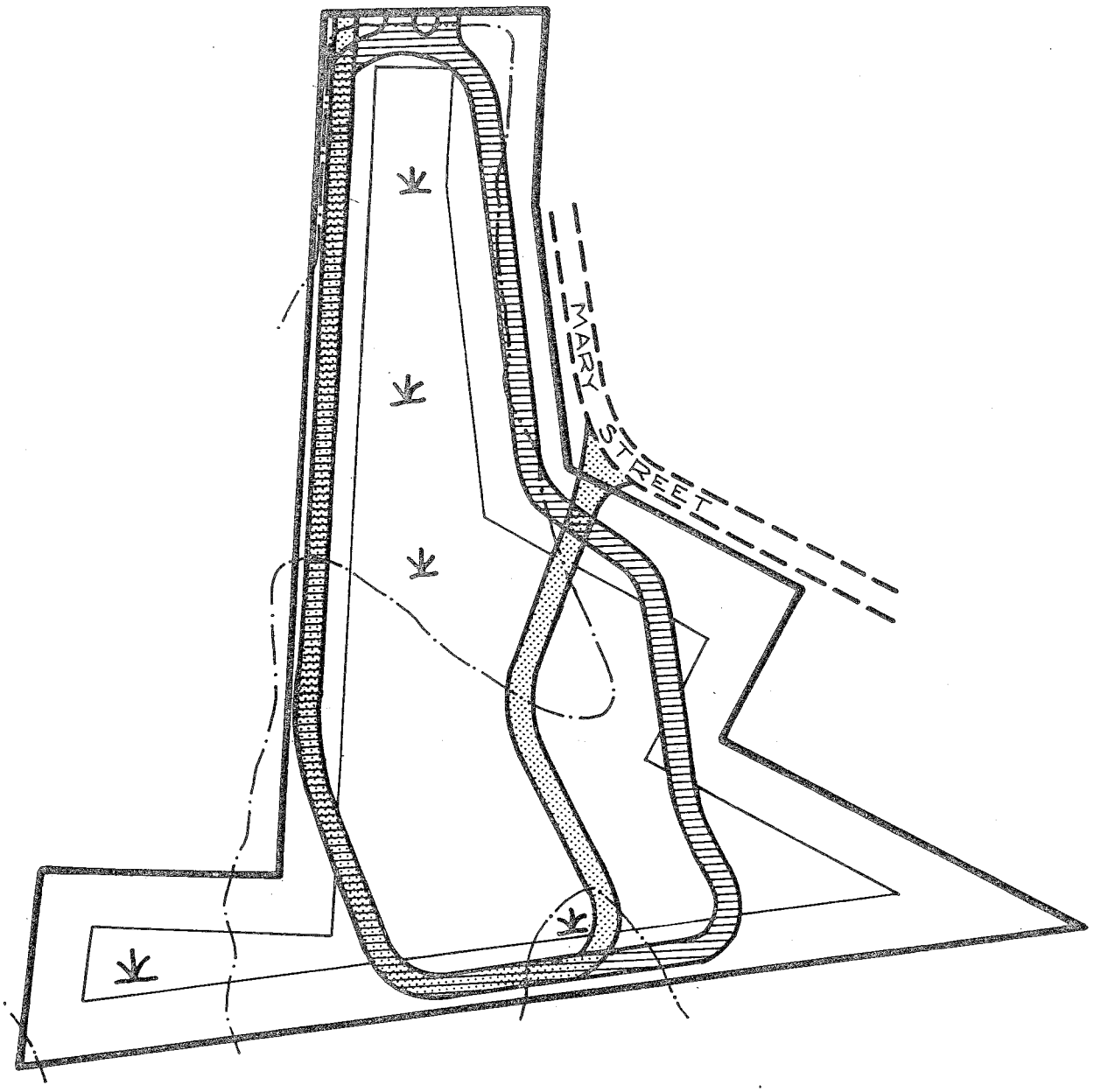
In favor of the development, it may be said that the wetlands on the site do not appear to have a high ecological (as opposed to hydrological) significance. The sewer line has already partially disrupted the wetlands. In addition, the upland area seems quite suitable for residential clusters. Finally, the availability of public sewers eliminates one of the major concerns with respect to development on wet or seasonally wet soils; namely, the ability of septic systems to operate properly.

The Team believes that the developer should make a sincere effort to reduce the amount of wetland filling that will occur. This could be accomplished by reducing the number of units, by shifting units from the wetland areas to the upland areas, or by some combination of the two. It may be possible to eliminate some of the wetland filling in the northern half of the parcel by rerouting the eastern leg of the access road to Mary Street, as suggested in the accompanying diagram. Field inspection of the land along Mary Street did not indicate that

Alternative Conceptual Plan

0 150'
scale

N



EXPLANATION

Presently Proposed Road

Suggested Alternate Road

Wetland Boundary

Wetland Area

the slope would present an insoluble problem, but the technical feasibility of the alternate access needs to be checked more carefully. It should be noted that the alternate route shown herein is meant only as a suggestion, and that it would still involve some wetland filling.

SOILS

A detailed soils map of this site and detailed soils descriptions are 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 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 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 of 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 low lying, nearly level areas along drainageways in the uplands are occupied by Ridgebury, Leicester and Whitman extremely stony fine sandy loams. The soils are designated by the mapping unit symbol 43M. The letter "M" denotes extremely stony. The Ridgebury and Whitman soils formed in compact glacial till; the Leicester soils formed in friable glacial till. The Ridgebury and Leicester soils have moderate to moderately rapid permeability in the surface layer and subsoil and slow or very slow permeability in the substratum (fragipan). The Leicester soils have moderately rapid permeability throughout. The seasonal highwater table for Ridgebury and Leicester soil is at nor near the surface 7 to 9 months of the year. The Whitman soils have high runoff potential. Runoff is slow to medium in Ridgebury soils and slow in Leicester soils. This soil is designated as a wetland soil and is regulated under Public Act 155.

The gently sloping well drained areas on drumlins or elongated hills of uplands are occupied by Paxton and Montauk very stony fine sandy loam. This soil is designated by soil mapping unit symbol 35XB. The letter "X" denotes a very stony surface condition. The letter "B" denotes slopes as 3 to 8 percent.

Paxton and Montauk soils formed in compact glacial till. Permeability is moderate in the surface layer and subsoil and slow in the substratum (fragipan). Surface runoff is medium to rapid.

The gently sloping drumlins and rounded or elongated hills on the uplands are occupied by Woodbridge fine sandy loam. The mapping unit symbol is 31B, the letter "B" denotes a 3 to 8 percent slope. The Woodbridge soils formed in compact glacial till. The soils are moderately well drained. They have moderate permeability in the surface layer and subsoil, slow to very slow permeability in the substratum (fragipan). The soils have a seasonal high water table at eighteen to twenty-four inches. Woodbridge soils have slow to rapid surface runoff. This soil qualifies as Prime Farmland soil in Connecticut.

Sewer systems and public water will be available to the site. This will overcome limitations for onsite sewage disposal in all the soils, especially those with a seasonal high water table, slow perc rates, and steep slopes.

Paxton and Montauk soils (35XB) have moderate limitations for shallow excavations and construction of dwellings with basements due to large surface stones. Limitations are moderate for dwellings without basements due to large surface stones and frost action.

Canton and Charlton soils (11MC) have severe limitations for shallow excavations and construction of dwellings with or without basements due to large surface stones. Building site development is severely limited in Woodbridge soils (31B) because of wetness and frost action due to a seasonal high water table. Limitations due to surface stoniness are usually overcome by proper land preparation and building siting. Wetness may be overcome by installing subsurface drainage.

Ridgebury, Leicester and Whitman (43M) soils have severe limitations for building site development due to large stones, wetness and frost action. This soil is also designated as a regulated wetland soil.

The access road located on the property is planned through wetland soils (43M). Limitations for local roads are severe due to large surface stones and wetness.

Limitations for local road construction is severe in Canton and Charlton (11MC) soils due to large stones. Limitations are severe in Woodbridge soils (31B) and moderate in Paxton and Montauk soils (35XB) due to frost action.

Surface stoniness can be overcome by proper land preparation and frost action can be overcome by preparation of a suitable road base.

The wetlands in the northern section of the property drain southwesterly off the property and eventually into Nevins Brook. Erosion and sediment control measures should be implemented to decrease sedimentation in the watercourse during construction. The Soil Conservation Service will provide technical services upon request.

VEGETATION

The tract that is proposed for the elderly housing project can be broken into three separate areas. They are all mixed hardwoods but have species which are unique to the type. The vegetation type boundaries, in general, follow the soil type boundaries and are delineated in the accompanying illustration.

Type A. (3.6 acres ±, Mixed Hardwoods/Maple Swamp) The dominate trees are eight to twelve inches in diameter and include red maple, white ash, American elm and black gum. The understory includes small red maples and a general cover of spice bush and arrowwood. There are occasional stems of red-osier dogwood. Ground cover includes some green brier and ferns. The stand is overstocked, causing some stagnation in tree growth. Because of the crowded condition, many of the trees are shallow-rooted, too tall and thin. A thinning in this stand can cause some trees to break off and others to be uprooted. Expert selection of the trees to be thinned would minimize the problem.

Type B. (3.2 acres ±, Mixed Hardwood) The overstory contains a mixture of red oak, black oak, white oak, white ash, red maple, black birch, black cherry and mockernut hickory. The understory is comprised of scattered black birch, beech and red maple seedlings and saplings, occasional dying highbush blueberry and native azaleas.

Ground cover includes patches of green brier and patches of princess pine.

This stand is located on drier soils with a much wider variation in tree size. There are many large crowned trees in this stand that will make high quality shade and landscape trees for the development. Care should be taken to damage as few trees as possible in this area of high housing density.

Type C. (3.2 acres ±, Mixed Hardwood - more moist soil conditions) There are some tulip trees in the main canopy and more Amercian beech, hop hornbeam and sassafras in the understory than Type B. Spice bush has created a low level canopy in this section. Ground cover is confined to herbaceous plants.

Aesthetic Consideration

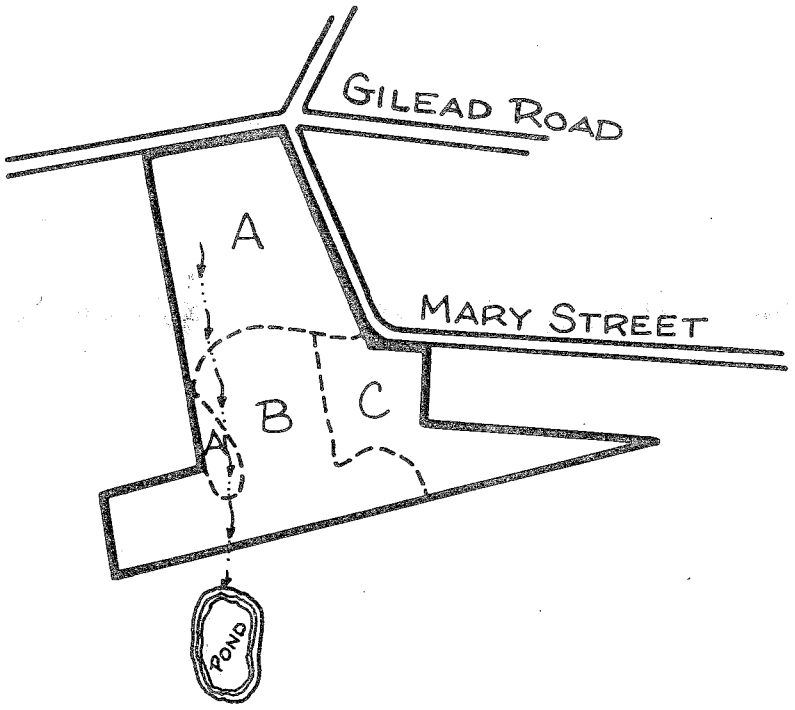
Aesthetic quality is the most important factor in considering management of the vegetation on this area. Area A will be the most difficult because any thinning or disturbance will have the potential to allow the remaining trees to blow over or break off. To minimize this, all thinning should be carried out only after the road sites and building sites have been located and cleared, and then thinning should be confined to removing only those trees that are damaged.

In Areas B and C, road locations and building locations should be laid out and cleared. In the remaining area, the desirable trees should be chosen by tree and crown vigor and size and then they should be thinned around. Care must be exercised not to change the groundwater level by filling and road construction. In areas where trees are left and fill must be added, trees should be "welled" four or more feet from the base of the tree in an effort to prevent suffocation of the trees. As little as four inches of fill can be fatal to a tree, especially when combined with root disturbance or groundwater level changes.

Vegetation

0 330'
scale

N



LEGEND

- Road
- Vegetation Type Boundary
- Property Boundary
- Stream

VEGETATION TYPE DESCRIPTIONS*

TYPE A.	Mixed hardwoods, maple swamp.
TYPE B.	Mixed hardwood, oak, ash, birch.
TYPE C.	Mixed hardwood, tulip tree, American beech, Sassafras.

* 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.

Potential Hazards

Potential hazards from the vegetational cover include poison ivy, dead hanging limbs and tall spindly trees left isolated that could break off or blow over.

Proper tree selection and yard maintenance will solve these problems. Selecting proper trees for retention can be done by a qualified landscaper, private or state forester.

PLANNING CONCERNS

Surrounding land uses are medium density residential to the east and northeast of the proposed development and undeveloped to the south and west of the proposed development. The area was recommended for natural resources in the Waterford Plan of Development. The site is recommended for mixed suburban uses on the Regional Plan of Development. The area is currently zoned for residential multi-family uses. As noted previously, a main trunk sewer interceptor extends north and south through a portion of the property and public water is available to the site. The site is fairly close to the New London malls which are about one-half mile to the east and the proposed Crystal Mall in Waterford is about one-half mile to the northwest. Hourly bus service is currently available along Jefferson Avenue in New London. The potential exists that this service could be extended to the proposed development via Mary Street. The local bus service provides opportunity for connections in New London to the Routes 12 and 32 corridor service.

A 1979 study* indicated an average of 6.1 vehicle trips per weekday generated by an apartment unit. This figure may be high for elderly units, especially if bus service were available. Even using the 6.1 figure, forty units would generate only 244 new daily trips.

The current site plan shows an extensive road network which only serves forty units. It might be possible to reduce this road area by employing a two lane road south along the sewer interceptor to the central portion of the property. This road could end here as a cul-de-sac, or if the Planning and Zoning Commission desired, a second entrance could loop back into Mary Street. This would also mean that the wetland at the northern end of the property would not have to be filled along its eastern boundary line.

* Trip Generation, Institute of Traffic Engineers, 1979.

Appendix

Soils

330'
scale

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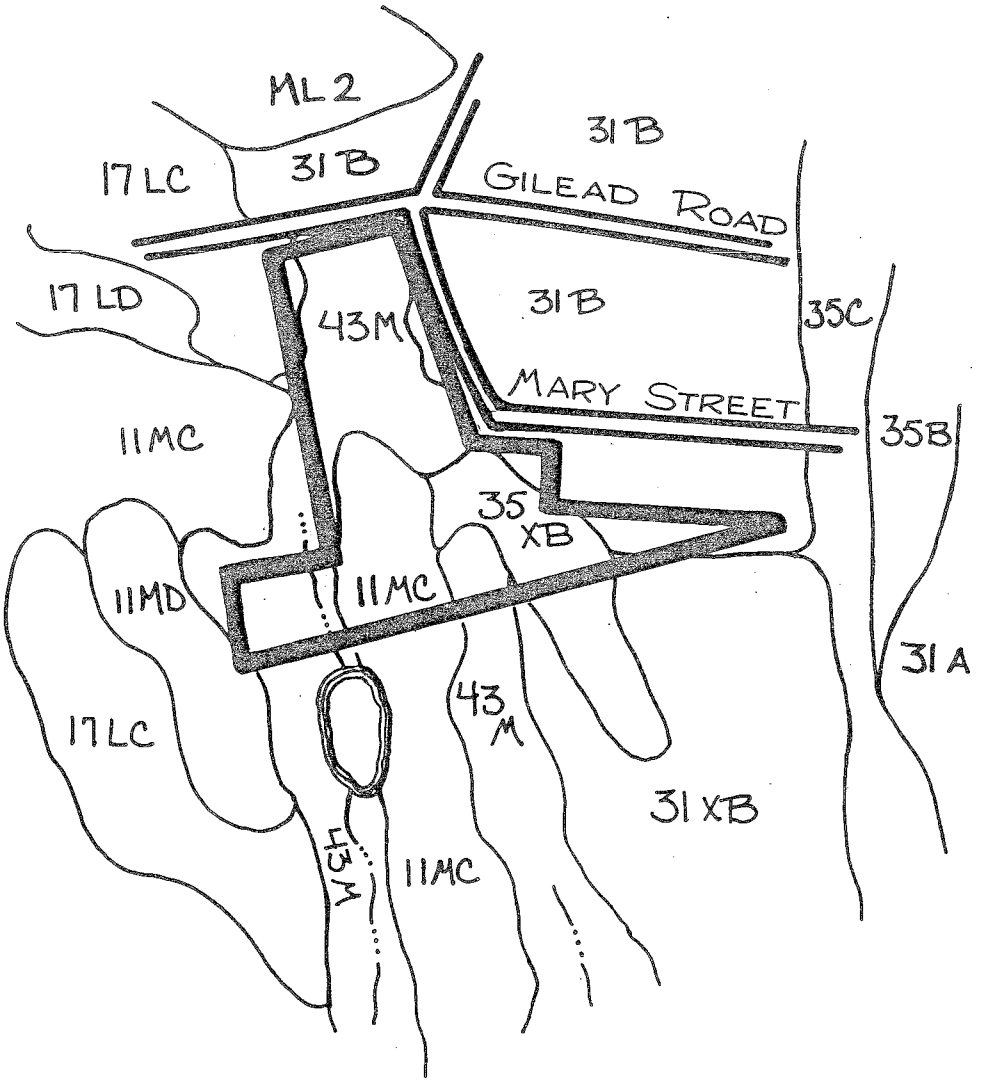

TWIN HAVEN ELDERLY HOUSING
WATERFORD, CONNECTICUT

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	11MC	2.5	22	Slope, large stones	3	3	3	3
Paxton	35XB	2	18	Slope, large stones	2	2	2	2
Ridgebury, Leicester, and Whitman	43M	5.5	51	Wetness, frost action, large stones	3	3	3	3
Woodbridge	31B	1	9	Frost action	3	3	3	1
		11	100%					

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.

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.