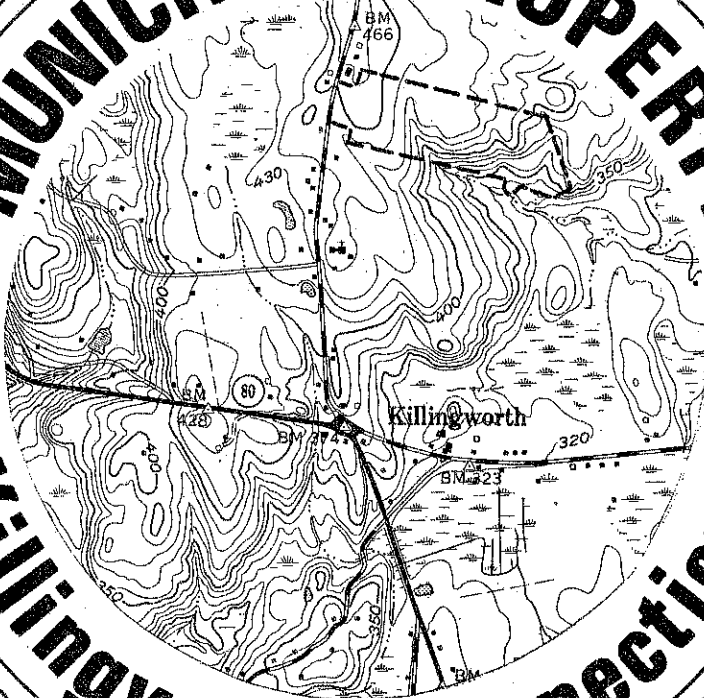


Environmental review team report

MUNICIPAL PROPERTY

Killingworth, Connecticut



RC & D

**EASTERN CONNECTICUT
RESOURCE CONSERVATION AND DEVELOPMENT PROJECT**

**ASSISTED BY: U.S. DEPARTMENT OF AGRICULTURE,
SOIL CONSERVATION SERVICE AND COOPERATING AGENCIES**

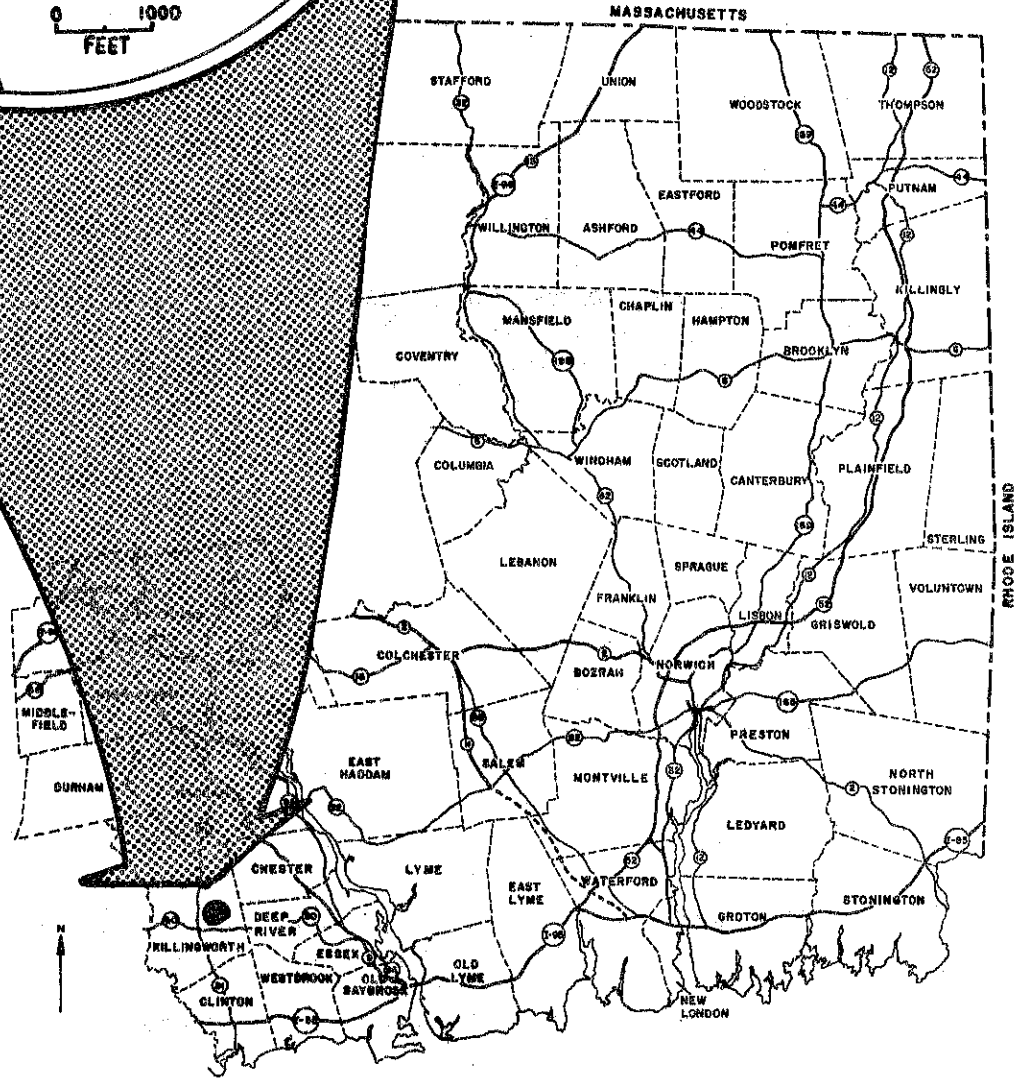
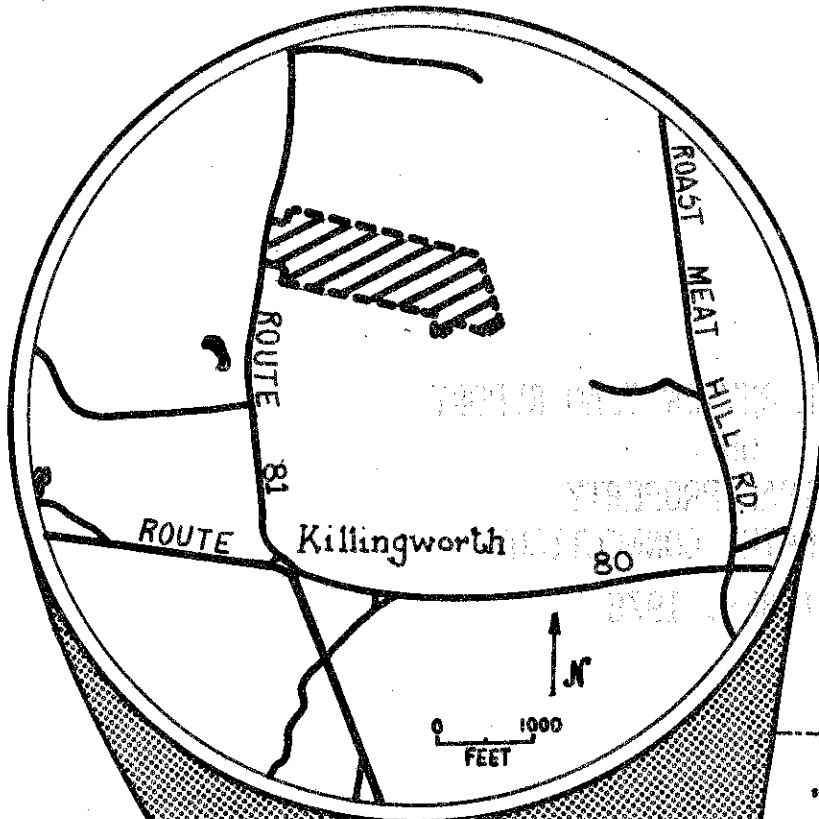
ENVIRONMENTAL REVIEW TEAM REPORT
ON
MUNICIPAL PROPERTY
KILLINGWORTH, CONNECTICUT
OCTOBER, 1976

*The preparation of this report was assisted
by a grant under Title 1, Section 107(a)4 of
the Housing and Community Development Act
of 1974, 24 CFR, Part 570, Section 570.406.*

EASTERN CONNECTICUT RESOURCE CONSERVATION AND DEVELOPMENT PROJECT
Environmental Review Team
139 Boswell Avenue
Norwich, Connecticut 06360

LOCATION OF STUDY SITE

MUNICIPAL PROPERTY
KILLINGWORTH, CONNECTICUT



EASTERN CONNECTICUT
RESOURCE CONSERVATION AND DEVELOPMENT PROJECT

ENVIRONMENTAL REVIEW TEAM REPORT
ON
MUNICIPAL PROPERTY
KILLINGWORTH, CONNECTICUT

This report is an outgrowth of a request from the Killingworth Planning and Zoning Commission, with permission of the landowner, 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: Barry Cavanna, District Conservationist, SCS; Tim Dodge, Wildlife Biologist, SCS; Daniel Meade, Geologist, Connecticut Department of Environmental Protection (DEP); Stanley House, Forester, DEP; Stanley Billings, Regional Planner, Connecticut River Estuary Regional Planning Agency (CRERPA); and Linda Simkanin, ERT Coordinator, Eastern Connecticut RC&D Area.

The Team met and field-checked the site on Thursday, August 26, 1976. 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 any developer and the Town of Killingworth. 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: Miss Linda M. Simkanin, Environmental Review Team Coordinator, Eastern Connecticut RC&D Area, 139 Boswell Avenue, Norwich, Connecticut 06360, 889-2324.

INTRODUCTION

The Eastern Connecticut Environmental Review Team was asked by the Planning and Zoning Commission to review approximately 25 acres of land currently owned by Regional School District #17. The Commission is preparing a study for the Board of Selectmen on the feasibility of the property for (1) potential municipal expansion of the Town Hall (which currently is not large enough to house all the town offices), (2) a potential new school site, or, (3) other municipal uses. Although the site is now owned by the School District, the District would be willing to trade the property for another site in town, if school construction is not thought to be the best use for the property. The Team was asked to consider the above-mentioned potential uses in their review of the property.

✓ With the exception of about one acre which is the location of the Town's solid waste transfer station, the site is undeveloped with some open fields and the balance in woodland. Water retrieval and sewage disposal would have to be developed on-site.

Some aspects of the proposed development discussed by the Team involve on-site waste disposal and the need for a sediment and erosion control plan to reduce the potential hazard of siltation and possible pollution into the streams during and after any grading or construction.

The report will also describe the natural characteristics of the site including topography, geology, soils, forest cover, and wildlife habitat. Consideration will be given to the compatibility and suitability of the proposals relative to the natural resource base. Comments or recommendations made within the report are presented for consideration by the developer and the town in the preparation and review of the development plans, and should not be construed as mandatory or regulatory in nature.

TOPOGRAPHY AND GEOLOGY

The site under review in Killingworth is located, geologically, in the eastern crystalline section of Connecticut. The area is typical of the coastal section of the state in geologic, hydrologic and physiographic aspects.

Bedrock geology of the area underlying and surrounding the site has been mapped as Monson Gneiss by Lundgen and Thurrell. The rock consists of biotite, feldspar and quartz minerals with some amphiboles occurring in layers. Gneiss is a metamorphic rock that exhibits a definite structural pattern of being layered compositionally. The layering often appears as alternating light and dark colored sheets within the rock, as can be witnessed in the outcroppings present in the southeastern part of the site. Fracturing occurs mainly parallel to the structure because of inherent weakness in the structural plane. Minor fracture trends are often observed perpendicular to this.

Depth to bedrock probably does not exceed 20 feet on the site. Much of the eastern part characterized by the presence of outcrops and higher slopes will have less than 10 feet of overburden cover. (Refer to the map on the next page).

The overburden or unconsolidated material is till. Characteristic of upland regions, this material is a product of erosion, transport, and deposition by glacial ice. It is composed of angular fragments ranging from clay to boulders in size. It is generally more compact than water deposited materials and, therefore, coupled with the heterogeneous makeup (grain size) has a relative low permeability.

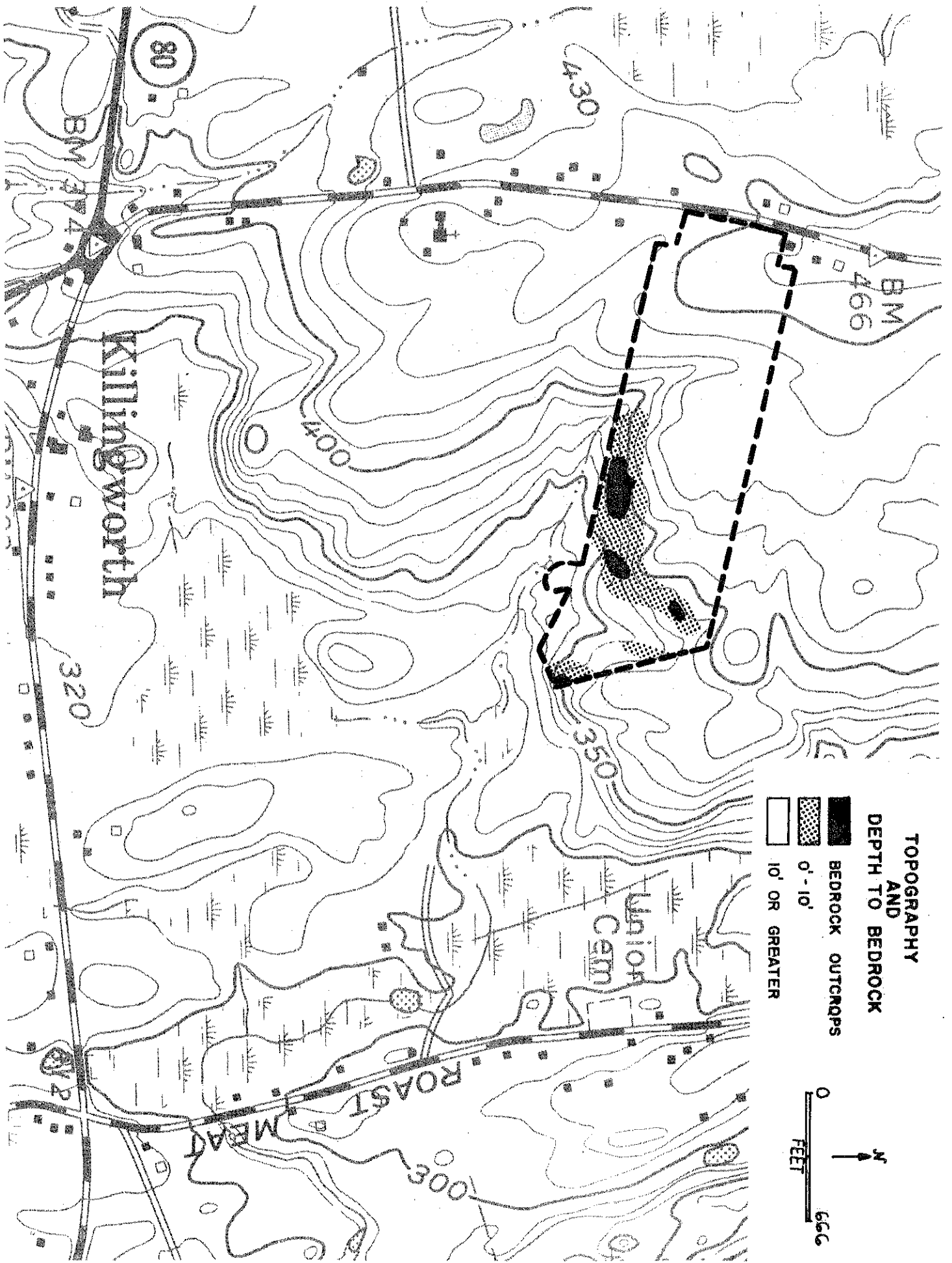
The effect of low permeability will be to discourage infiltration of water from the surface and hence give high runoff values. More important, however, is that the water in the subsurface regimen will move at a relatively slow velocity. This will have the effect of allowing only relatively small amounts of water to be disposed in or withdrawn from this deposit.

SOILS

A detailed soil map of the site is given in the Appendix of this report. As the soil map is an enlargement from the original 1,320'/inch to 660'/inch scale, the soil boundary lines shown should not be viewed as absolute boundaries but rather as guidelines to the distribution of soil types on the property. The soils map, along with the SPECIAL SOILS REPORT, Middlesex County (USDA, SCS, 1975), can serve as an educational tool regarding the identification and interpretation of soils.

The soils limitations chart for certain land uses which is found in the Appendix of this report, provides useful information concerning each soil type found on the site. An explanation of the numbered ratings for particular land uses is provided on the last page of the Appendix.

The majority of the site is mapped as Paxton soils 35B, 35XB, 35XC, and 35MC. In general there are well drained soils with a slowly to very slowly permeable fragipan at about two feet in depth. The fragipan restricts internal drainage. A temporary perched water table may form above the fragipan in wet seasons and after heavy rains. Seep spots occur seasonally on slopes as water moves laterally



soil rating (3) for septic system

down slope over the pan. As seen on this site, Paxton soils are on slopes ranging from gently sloping to steep. Surface stoniness varies from essentially stone free on areas where stones have been removed to extremely stony. The Paxton soils are associated with moderately well-drained Woodbridge, poorly drained Ridgebury, and very poorly drained Whitman soils. Although the Paxton soils have a severe limitation rating for subsurface sewage disposal due to the fragipan and the high water table, systems can be designed to function in these soil types. ✓

The portion of the property fronting on Route 81 and continuing back for several acres is mapped as soil type 6XB, a Charlton soil. This is a well drained upland soil developed in a very friable (easily crumbled) to firm glacial till. Surface and subsoil textures to a depth of 24 to 30 inches are normally very friable fine sandy loams with varying amounts of gravel size angular rock fragments. The underlying material is commonly gravelly fine sandy loam or sandy loam. These soils have normally moderate to moderately rapid permeability throughout, but slowly to very slowly permeable horizons may be present below 40 inches in places. Charlton soils are naturally stony and bouldery. Surface clearing of stones is common, but considerable stoniness may be encountered below the surface during excavations. Although slopes can range from gentle to steep, on this particular site the 6XB covered a fairly level portion of the property.

By avoiding the more wet soils on the northern and eastern edges of the site, specifically the Ridgebury and Whitman 43M (which is a regulated P.A. 155 inland wetland soil), and the Woodbridge 31MC (which although is not a P.A. 155 regulated soil does exhibit a high water table during much of the year), many costly development measures can be eliminated. In general, the 6XB Charlton unit of the site offers the area with least development limitations. Any development proposed for the site should have a sediment and erosion control plan developed and implemented. Components of effective sediment and erosion control include, but are not limited to, keeping much of the area under existing vegetative cover and keeping areas devoid of cover exposed for the shortest practical period of time. Permanent roads should be installed as early as possible. Temporary seeding and munching may be necessary if development becomes protracted. Sediment basins and other temporary mechanical measures may be necessary to control sediment and reduce the erosive effect of runoff water, while protecting the water quality of brooks on-site. The Haddam SCS office can provide direct assistance to the Town or developer in the preparation and implementation of this sediment and erosion control plan.

FOREST COVER

The majority of the site is in woodland. Approximately three to four acres is open field with most of that acreage devoted to grasses and approximately one acre in use as a solid waste transfer site.

Woodland species consist of mixed deciduous trees including birches, shagbark hickory, red maple, ash, beech, tulip tree, dogwood, and a small area of black gum. This range of hardwoods is mostly in the 40 to 60 year old range. There are no evergreen trees on-site. A sparse to moderately dense shrubby understory includes maple leaf viburnum, sassafras, nannyberry, and blueberry.

The hardwood trees are still about 25 years from mature harvest, but could stand some selective thinning primarily for firewood in the meantime. If a significantly large area is scheduled to be cleared for any municipal development,

many of the trees are now significantly large enough to rate as sawlogs and should be used as such.

WILDLIFE HABITAT

Present habitat quality is only fair due to a fairly dense tree canopy which blocks much of the sunlight penetration necessary for the full shrubby understory desirable for food and cover. Disturbance factors to wildlife are minimal due to the current surrounding land uses of woodland and wetland which are compatible with wildlife.

The potential for maintenance, development, or improvement of woodland wildlife habitat based on soil conditions is generally good. In some areas, stones and the seasonal high water table present limitations. These problem areas could be addressed in any detailed wildlife plan prepared for the property. If properly designed, development of the site for municipal uses as a town offices addition or complex, or other facility, need not significantly limit wildlife in the area. A small park centered around the development could utilize the stone walls, and maintain some of the large trees, or stands of trees for general aesthetic reasons, while at the same time provide habitat for songbirds and small mammals. If municipal development is not undertaken at the site, a complete wildlife or passive recreation area with nature trails could be designed for the site. The Mansfield or Haddam SCS offices can assist in the design of any of proposals mentioned above.

WATER SUPPLY

As the site is not scheduled for public water supply service in either the Town or the Regional Plans of Development, and the feasibility of extending water transmission lines is remote, water supply will have to be developed on-site.

Because of the thinness and low permeability of the till, water supply on-site would have to come from a bedrock well. Yield from rock wells are generally unpredictable and may range from zero to greater than 50 gallons per minute. 50% of the rock wells in this type of material yield at least seven gallons per minute. Sufficient well test drilling should be completed and the daily needed water supply determined for the kinds of municipal development being considered before development plans for the property are finalized.

WASTE DISPOSAL

As public sewers are not scheduled to service this site in either the Town or the Regional Plan of Development, sewage disposal will have to be developed on-site. In general, any plan for the site containing a municipal facility such as a school, or town offices, etc., should have a sediment and erosion control plan as suggested in the SOILS section of this report. Any sewage disposal system should be approved by the State Health Department. The hardpan and high water table condition of the soils will probably require an engineered septic system which takes these severely limiting factors into account.

Paxton
✓

HAZARDS

In general, the presence of wetlands and steep slopes in northern and eastern portions of the site should be recognized as posing severe limitations for development. The balance of the site, specifically the Paxton soils, exhibits a hardpan and high water table condition. Steeper slopes in the eastern half of the site are also a condition which can be limiting to some kinds of development.

Regarding the suitability of the site for school development, the high water table and slope variations could make the area quite expensive to develop in terms of providing adequate drainage around buildings, and properly engineered septic systems. Depending on the site design, and specifically the type and location of needed athletic fields, the sloping nature of the area would require extensive grading which is costly and could cause siltation of the brook depending on how much area would need to be cleared and regraded for the athletic fields, etc. An erosion and sediment control plan can help to prevent much siltation as discussed earlier.

Regarding the use of the site for a town office complex, or addition to the existing structure, the portion of the property adjoining the present Town Hall is probably well-suited to this use in terms of a good central Town location, level ground conditions, and a soil type (6XB) offering a minimum of development limitations.

ROADS AND UTILITIES

The site fronts along Route 81 which is a minor arterial state highway and presently carries approximately one-third of its potential. At this time the state has no plans over the next 15 years to upgrade the road. Sight lines for entering and exiting traffic onto Route 81 are adequate.

COMPATIBILITY AND SUITABILITY OF THE SITE FOR THE PROPOSED USES

The site presents many advantages to the Town for continued public ownership of the parcel. Killingworth continues to be one of the fastest growing towns in the Estuary Region; 1976 figures of the Health Department project the Town's population will grow from 2,900 to 3,400 in 1980 and 4,200 in 1990. A major need of Killingworth will be to provide services and facilities for the additional people. The site is located in the area of town which is developing as the town center. Because of the size and location of the parcel, continued municipal ownership of the parcel could be a major benefit to the Town in the future.

The site is easily reached from most parts of town. It is located at approximately the geographic center of Killingworth and is served by two State highways. The site has about 600' of direct frontage on Route 81 and is approximately one half mile from the junction of Routes 80 and 81. The Route 81 corridor, between Routes 80 and 148, of which the site is a part, is historically identified as the town center and now contains most of the important public services in town. Within 1/4 mile of the site are the Killingworth Elementary School, the Town Office Building, a bank, a gas station and two churches. About 1/2 mile away at the junction of Routes 80 and 81 are two general stores, a gas station, a tavern, professional offices, a beauty parlor and the temporary headquarters of the public library.

Both the Connecticut Plan of Conservation and Development and the Regional Plan of CRERPA identify the Route 81 corridor as suitable for limited development-- that is, areas which can absorb growth, but only at densities which can be served effectively by on-site sewer and water systems. The Killingworth Plan of Development (1969) designates the site as suitable for an educational park or civic center for town facilities. However, since 1969, the firehouse and public library have located elsewhere in town, although the library is already considering a larger facility. Killingworth has entered into a regional school district agreement with Haddam. School Board officials indicate the new Regional Middle and High School plus the new elementary school will satisfy all grade levels in Killingworth for the next ten years. For recreation purposes, Killingworth presently has one satisfactory facility containing two ball fields at the Irene Sheldon Memorial Field on Route 80.

The Connecticut River Estuary Region Water Supply System Study (1973) indicates the site is within the Menunketesuck Drainage System and feeds the Kelseytown Reservoir on the Clinton-Killingworth border. The well serves Clinton, Westbrook and Old Saybrook. In 1972, it was classified as an A Standard Well. The reservoir is about 2 1/2 miles south of the site. Limited development such as most of the municipal uses proposed would be compatible with drainage function of this site.

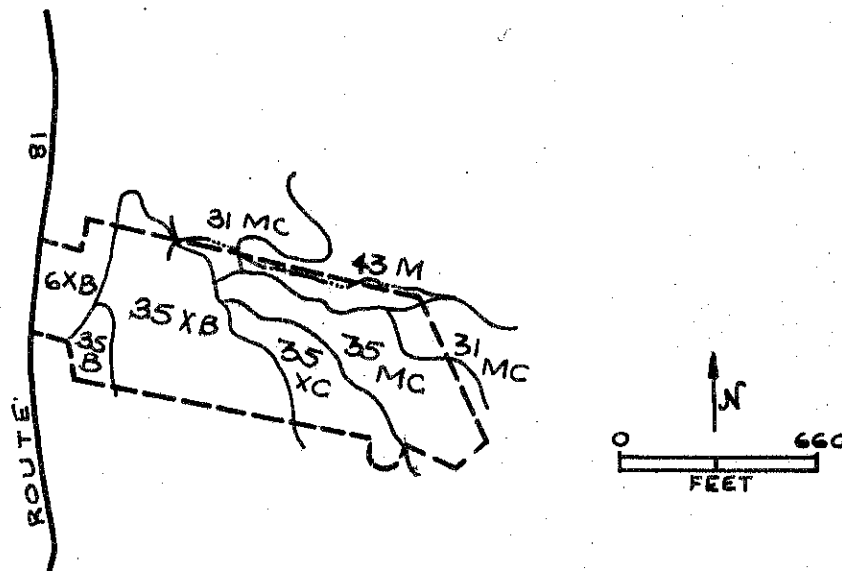
It appears from the Team site investigation that the site should be retained by a town agency for the purpose of helping to meet the demand for facilities in the future. A town garage, a town office building and probably a library represent immediate Town needs, and in ten years a school site, recreation area or elderly housing may be required to serve the town's growing population. Location, size and adequate terrain make this site a suitable base for many facilities.

Board
select in
member
releases
only
five
years

1950
1951
1952

APPENDIX

SOIL MAP
MUNICIPAL PROPERTY
KILLINGWORTH, CONNECTICUT



The map is an enlargement from the original 1,320'/inch scale to 660'/inch.

Prepared by: UNITED STATES DEPARTMENT OF AGRICULTURE, Soil Conservation Service.

Advance Copy, Subject To Change.

1976

KILLINGWORTH MUNICIPAL PROPERTY

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	Athletic Fields
Charlton	6XB	2.2	9.6	Stony	2	2	1	2	2
Woodbridge	31MC	1.8	7.8	Wet, stony	3	3	3	3	3
Paxton	35B	1.5	6.5	Slow perc	3	2	2	1	2
Paxton	35MC	6.2	27.0	Slope, stony	3	3	3	3	3
Paxton	35XB	6.2	27.0	Stony	3	2	2	2	2
Paxton	35XC	3.9	16.9	Slope, stony	3	2	2	2	3
Ridgebury & Whitman	43M	1.2	5.2	Wet, stony	3	3	3	3	3
TOTAL:		23.0	100.0						

* Urban Use Limitations: 1 = slight; 2 = moderate; 3 = severe (see back of this page for a further explanation of limitation classifications).

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.