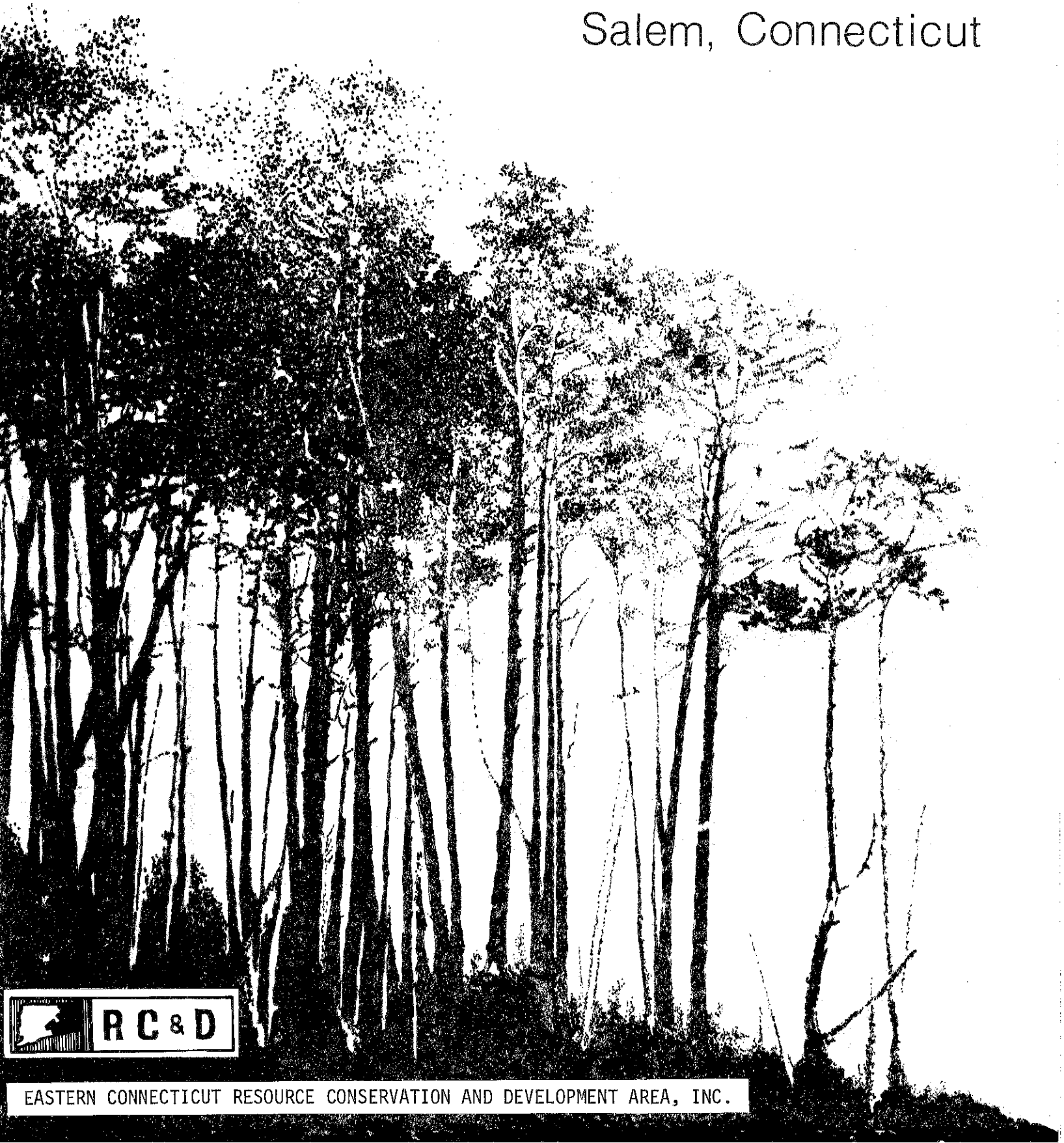
Environmental Review Team Report

Len Property

Salem, Connecticut



RC&D

EASTERN CONNECTICUT RESOURCE CONSERVATION AND DEVELOPMENT AREA, INC.

Environmental Review Team Report on Len Property Salem, Connecticut

February 1978

RC&D

eastern connecticut resource conservation & development area

environmental review team
139 boswell avenue
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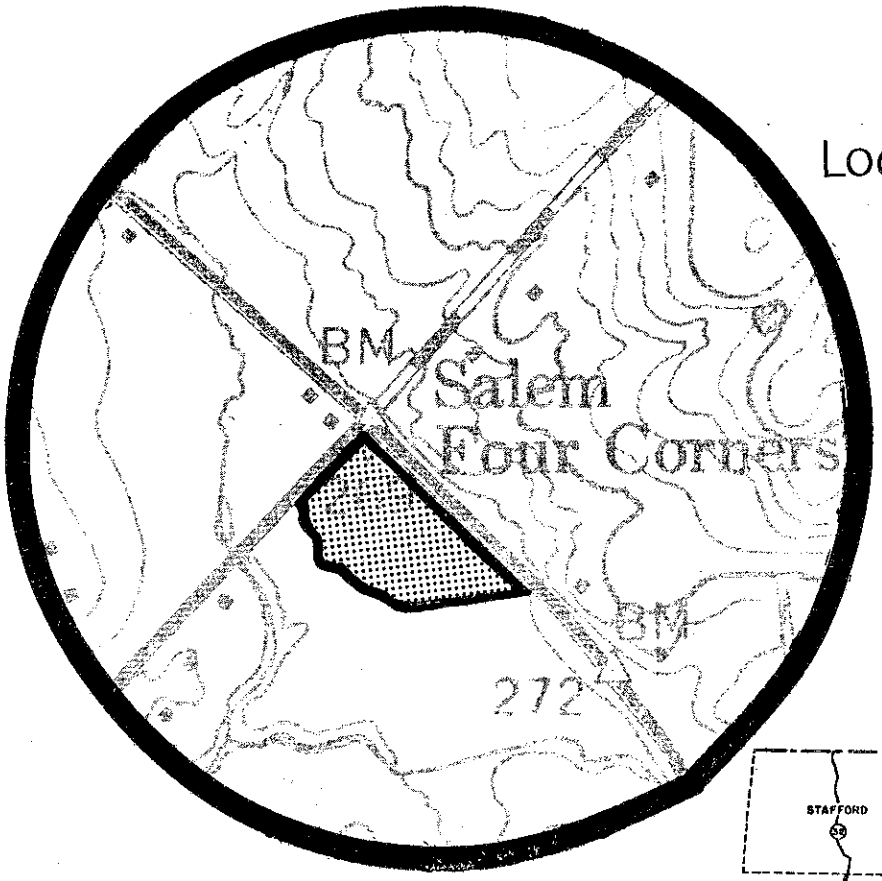
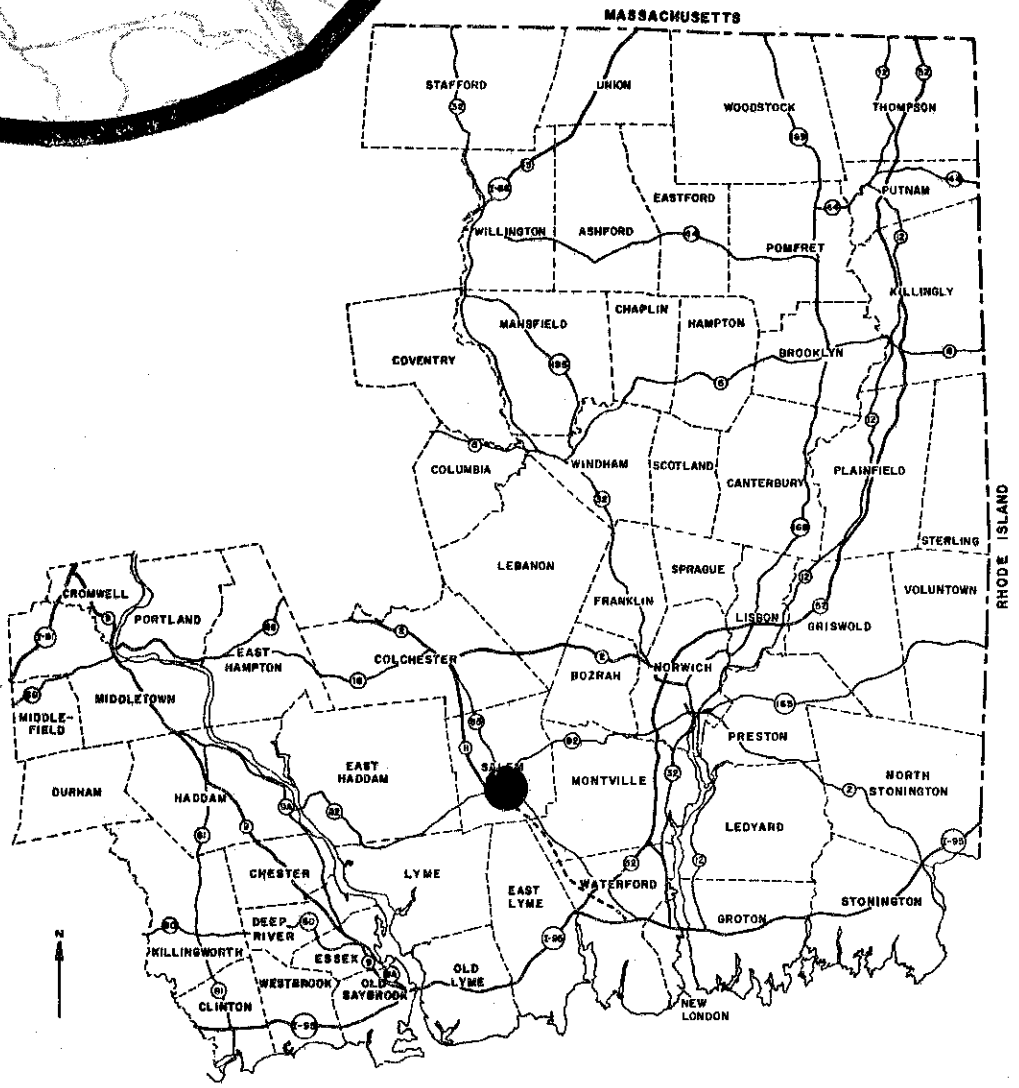


Location of Study Site

LEN PROPERTY
SALEM, CONNECTICUT



EASTERN CONNECTICUT
RESOURCE CONSERVATION AND DEVELOPMENT PROJECT

ENVIRONMENTAL REVIEW TEAM REPORT
ON
LEN PROPERTY
SALEM, CONNECTICUT

This report is an outgrowth of a request from the Salem Inland Wetlands 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 to David Syme, Committee President, and the measure was reviewed by the Eastern Connecticut Environmental Review Team (ERT).

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

The Team that field checked the site consisted of the following personnel: Gary Parker, District Conservationist, Soil Conservation Service (SCS), Marc Crouch, Soil Scientist, (SCS), John Gagnon, Soil Scientist, (SCS), Donald Capellaro, Sanitarian, State Department of Health, 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 Thursday, January 5, 1978. Reports from each contributing team member were sent to the ERT Coordinator for review and summarization for the final report.

This report is not intended 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 Town of Salem and the landowner. 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 Council 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 (889-2324), Environmental Review Team Coordinator, Eastern Connecticut RC&D Area, 139 Boswell Avenue, Norwich, Connecticut 06360.

INTRODUCTION

The Eastern Connecticut Environmental Review Team was asked to review a 34-acre parcel in Salem currently under the private ownership of Mr. and Mrs. Frank Len. The parcel is located at "Salem Four Corners", the intersection of Routes 82 and 85, in the southwest quadrant. The property is zoned for commercial activity, and the Lens are presently operating a small package store, country store, and snack shop on the site.

Mr. and Mrs. Len are concerned with the environmental impact of the proposed expansion of the commercial facilities on the site. Their project phasing includes an immediate relocation of the existing package store to a proposed new building parallel to and approximately fifteen (15) feet south of the existing store. This proposed new building will be 1,500 square feet, located on existing fill with a finished grade similar to that already found on the site. The septic leaching field for the subsurface sewage disposal system servicing this structure will be located on its southern side between this building and the Phase II structures.

Phase II of the proposed development would include expansion of the existing country store into the vacated package store area. This would take place subsequent to the relocation of the package store. Current food service facilities would also be revised and relocated in the existing building.

The actual time schedule for Phases III and IV has not been established at this time. Phase III includes a free standing bank located near the southern portion of the existing fill area. This location was chosen for the purposes of accessibility and visibility from Route 85. It is anticipated that this building will be approximately 1,500 square feet.

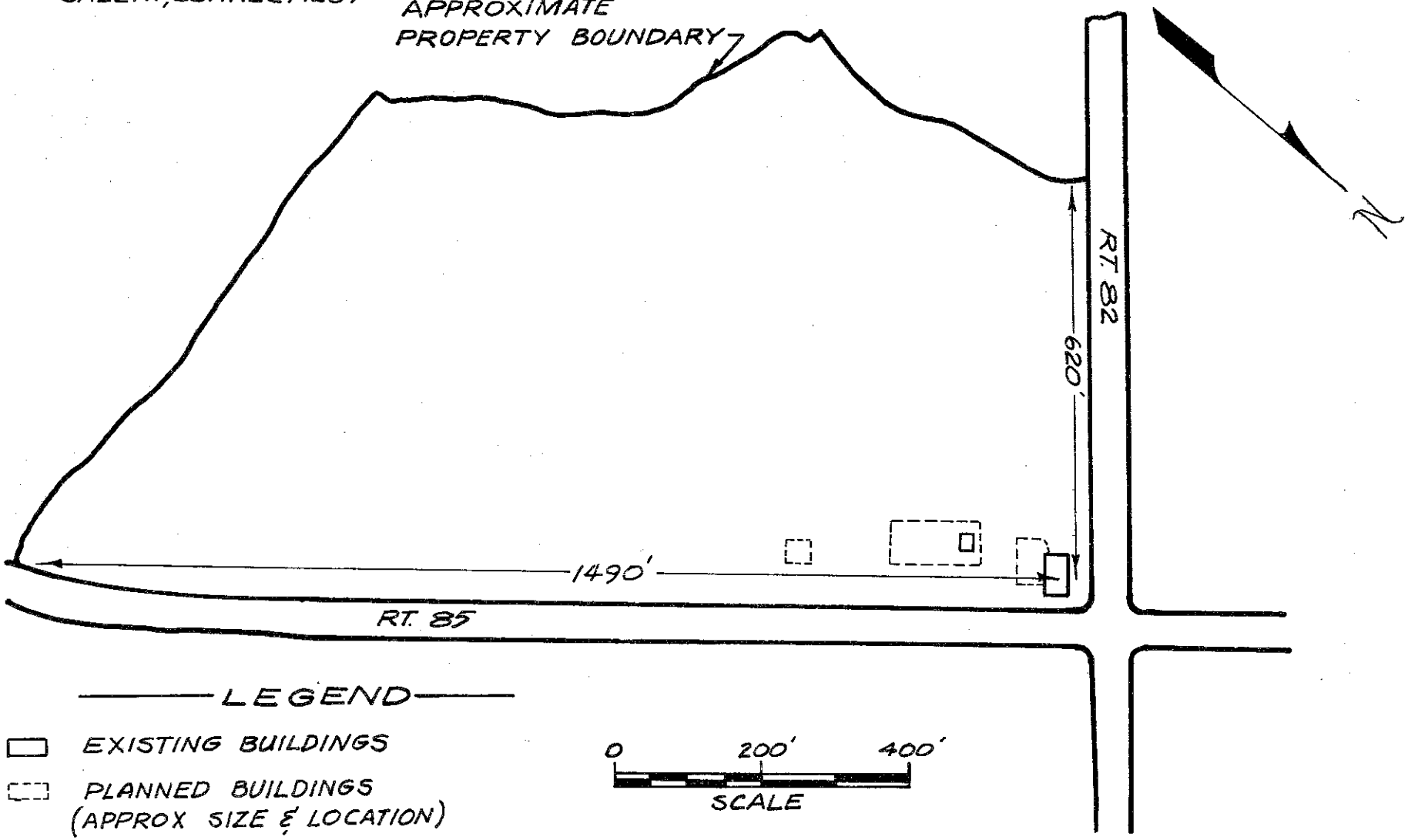
Phase IV is projected to include a grouping of four to six commercial buildings, each of approximately 1,000 square feet. This building will be approximately 50' x 120'. It will face Route 85 and will be parallel to the proposed package store and separated by a 50-foot open area from the package store building. The purpose of this open area is to maintain the existing storm water piping and to provide an access to the rear of these buildings.

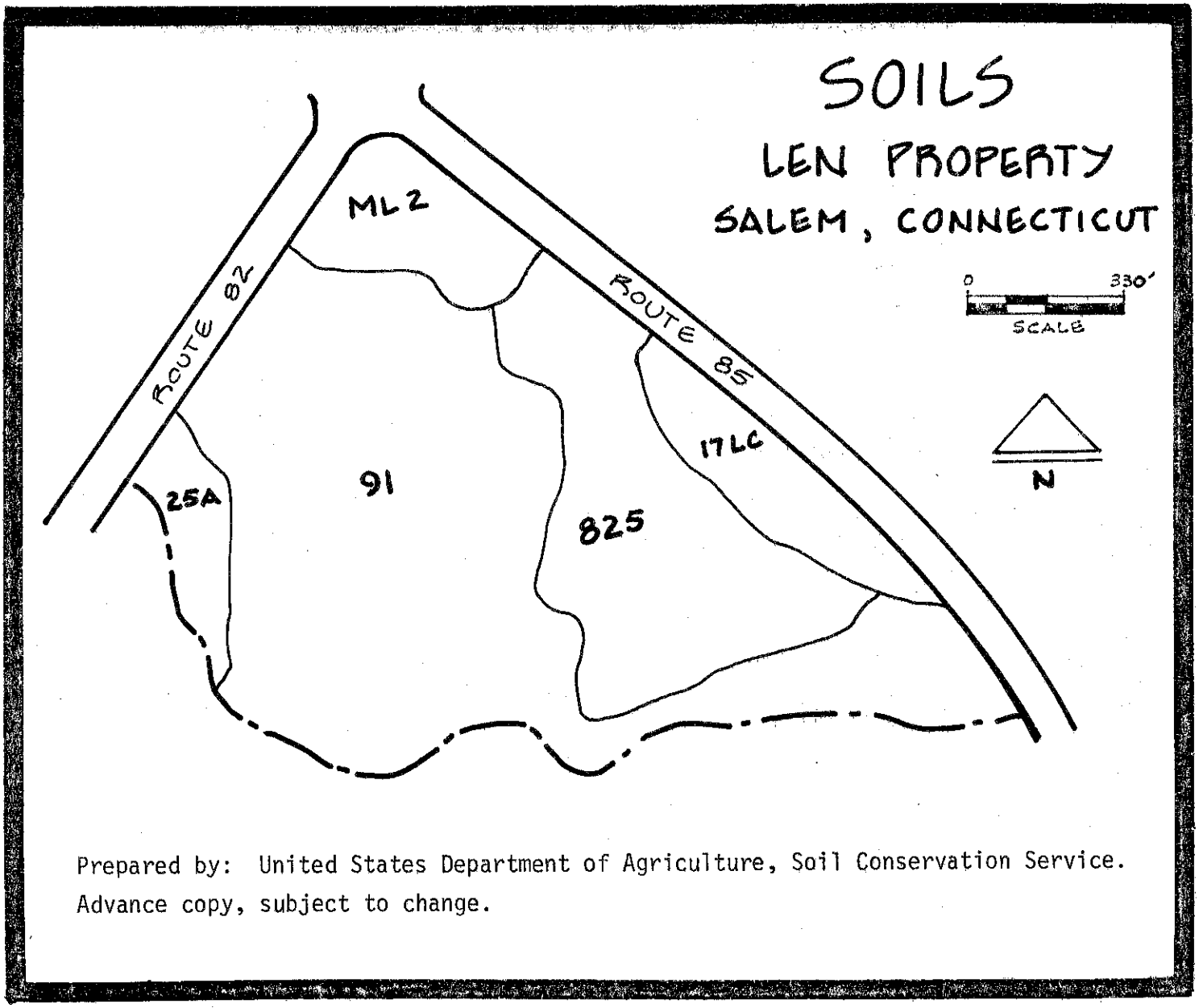
All proposed construction will be of the slab-on-grade type foundation. The finished floor height is proposed to be 1.5 feet above the center line grade of Route 85. Rear access and employee parking is accommodated by a 75-foot wide area behind the proposed development, paved in gravel with no impervious surface layer. The water supply will be from an existing well, and waste-water disposal would be by septic tank and leach field.

The most notable feature of the 34-acre site consists of the large portion of swampy terrain produced by the confluence of Harris, Fraser and Shingle Mill Brooks. A portion of this wetland has been filled to provide for the existing commercial development. The portions of the wetland which are not filled are vegetated by scrub tree growth and some low-growing herbaceous cover.

This report will describe the natural characteristics of the site, including data on topography and soils. 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 landowner and the Town in the preparation and review of the development plans and should not be construed as mandatory or regulatory in nature.

LEN PROPERTY
SALEM, CONNECTICUT





Prepared by: United States Department of Agriculture, Soil Conservation Service.
Advance copy, subject to change.

ENVIRONMENTAL ASSESSMENT

SOILS

A detailed soils map of this property is shown above. As the soil map is an enlargement from the original 1,320'/inch scale to 330'/inch, the soil boundary lines should not be viewed as absolute boundaries but as guidelines to the distribution of soil types on the property. A chart which indicates the soil limitations for various urban and recreational uses is included in the Appendix. The soils limitation chart indicates the probable limitations for each of the soils for camp areas, picnic areas, playgrounds, trails, streets and parking lots, landscaping, athletic fields and service buildings without basements. 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 Special Soils Report: Southeastern Connecticut Region, can aid in the identification and interpretation of soils and their

relationship to the surficial geology of the site.

The Len property consists of several natural soil groups, ranging from Group A-terrace soils over sands and gravels, to Group E-soils with high water table during most of the year. The majority of soils on the site are poorly drained soils formed by alluvial sedimentation and decaying organic matter. The Birdsall, Adrian-Palms, Ninigret and Charleton-Hollis Soil Series are most representative of this site.

The Birdsall Series (E-3b) are poorly and very poorly drained soils on terrace drainage ways. Generally these soils have 6 to 16 inches of silty layers over coarse sands or coarse sands and gravels. The surface horizons are dark-colored, and the underlying horizons are predominantly gray with mottled tones. These soils are flooded occasionally and have a fluctuating water table which is at or near the surface from late fall to early spring.

The Adrian-Palms Series (A-3b) are deposits of plant material exceeding 36 inches in depth found in very poorly drained areas. They are the remains of reeds and sedges, sphagnum moss, or trees and shrubs which grow in wet areas. Mucks are peat materials which have decomposed and can no longer be identified as to the type of plant from which they are derived. Some deposits have high organic matter content, others are mixed with inorganic sand, silt and clay.

The Ninigret Series (A-2) are moderately well drained soils on terraces, developed over deep sands and loamy sands. The soils are mottled at 14 to 20 inches, indicating waterlogging in wet seasons. Surface and upper subsoil textures range from sandy loam to fine sandy loam, grading into sands or loamy sands at 18 to 30 inches in depth. Ninigret soils are on nearly level to very gently undulating or sloping topography.

The Charlton-Hollis Complex (D-1) consists of approximately 50% shallow well drained loamy soils over bedrock and approximately 25% moderately deep well drained loamy soils. The shallow loamy soils over bedrock are mostly hollis fine sandy loam. The moderately deep loamy soils over bedrock are presently an unnamed soil, 20 to 40 inches to bedrock, and the deep loamy soils are Charlton fine sandy loam. Surface stoniness ranges from stony to extremely stony on the deep and moderately deep soils and from rocky to very rocky on the shallow soils. The topography is characterized by undulating to rolling upland ridges and depressions, with the shallow to bedrock soils occurring on the ridge tops. The moderately deep to bedrock soils occur between the ridge and depression and the deep soils are in the depressions. Complex slopes range from nearly level up to approximately 15%.

Borrow or fill land is not classified into a natural soil group. It is variable in nature and on site investigation is required for determining suitability or limitations for any planned use.

The site of the proposed commercial development is essentially an organic swamp with 16 to 51 inches of Adrian Muck over mineral soil bordered by Birdsall very poorly drained silt loam paralleling Route 85. Some of the proposed construction would be done on existing fill material and additional filling of wetland soils would be required for parking and buildings proposed in Phases II, III and IV.

The major concerns at this site are wet and unstable soils. This may greatly complicate building construction as uneven settlement of fill material could create severe structural problems. Muck soils are unstable and particularly susceptible

to frost heaving. Precautions must be taken in installation of foundations and filling to overcome settling problems in Adrian and Birdsall soils. Uneven settling of the fill is very likely and could cause severe structural problems.

The high water table at or near the surface during ten to twelve months of the year and seasonal flooding in the Adrian and Birdsall soils present severe limitations for on-site septic systems and buildings with basements. This was shown to be the case in the recent winter storm which resulted in flooding the basement of the existing commercial building on this site, damaging its oil burner and electrical system.

WATER SUPPLY

Water supply for commercial activities on the site would be and is from an existing drilled well located at the rear and to the side of the present building. The yield of the existing well is apparently adequate for the existing usages. Unless a distance greater than the 75' minimum required between the well and any other known source of pollution is maintained, the well is to be pumped at a rate under ten gallons per minute. In order to exceed this rate and be in compliance with the Public Health Code, a distance of at least 150 feet should be provided. Peak demand periods can be met by providing adequate water storage facilities.

A recent analysis of the well water indicated the quality to be satisfactory for potable water. However, it was noted that the concentrations of iron and manganese were elevated. These minerals have an influence on the color and turbidity of the water as well as causing staining problems. They may also impart a metallic taste to the water or beverages made with the water. Treatment for iron and manganese removal would be recommended.

SEWAGE DISPOSAL

Sewage disposal for the potential commercial development would be by means of an on-site subsurface septic tank system, as there are no municipal sewerage facilities available or planned for the future. Visual observations and soil mapping data show a number of adverse conditions (high ground water, shallow rock and/or poor underlying soil) for sewage disposal. These severe limitations would restrict the disposal of septic effluent. It is apparent that considerable site improvements would be needed in order to possibly accommodate a system or systems which would meet present day code requirements.

In the course of reviewing the property, an apparent sewage discharge into the wet terrain was in evidence off the lower south side of the free-standing garage. Indications imply that the sewage originates with the existing store. This being the case, it will be necessary to have this code violation eliminated and corrected in a manner which would be acceptable to the proper authorities. This condition would warrant a detailed engineering investigation, including soil testing and the preparation of plans.

As to the possible phases of commercial expansion, the Team seriously questions whether this is the type of land which, in the long-term, will be suitable. The possible implementation of the first two phases would seem to be more favorable as overall usage, including a stabilization of the amount of waste water generation by

limiting the scope of the food services offered. These phases could probably be considered while planning for a proper sewage disposal system to correct the active problem. Additional buildings and activities, as indicated in Phases III and IV, which will generate a higher density of people and a larger volume of waste water, at this time, must be regarded as questionable due to the adverse site conditions.

SURROUNDING LAND USES

In the immediate vicinity of the site, commercial land uses are located on the eastern side of Route 85, and abandoned commercial uses are located on the northern side of Route 82. The remainder of the area is presently undeveloped. The proposed commercial development will be compatible with the present surrounding land uses.

ALTERNATIVE LAND USES

The site is centrally located in Salem, with the Town Hall about one to one and one-half miles to the north and the fire department about two to two and one-half miles to the north along Route 85. The proposed commercial development is located on a narrow strip of filled land between Route 85 and a wetland to the west in which Harris, Fraser and Shingle Mill Brooks join to drain eventually into East Branch Brook. The site is too close to Route 85 and the wetland for any desirable residential use and is too small, without extensive wetland filling, to be used industrially. It has no potential for future agricultural or sand and gravel use. The site's only other potential use is as open space.

The adopted Salem Town Plan recommends that the intersection of Routes 82 and 85 be used as a commercial area; it is now zoned for commercial activity. The Plan hopes to stimulate commercial activity intended to provide for the day-to-day needs of the residential population rather than any inter-town consumers. The proposed development will most likely fall into this local-service category, as the completion of Route 11 will eliminate most of the through traffic on Route 85.

DEVELOPMENT CONSIDERATIONS

The exact location and functioning condition of storm drains serving Route 85 should be determined before construction begins, in order that any potential problems could be corrected. Should filling of the wetland area to the west be necessary for construction of the four to six shop complex, there may also be a need for the storm drainage system to be extended for proper drainage into the wetland area.

The final design drawings should adhere to the State Health Code and the Town of Salem Zoning Regulations. The State Health Code does not permit drainage from roads to discharge into or within 25 feet of any portion of a subsurface disposal system. The State Health Code also requires the leaching system of a subsurface sewage disposal system to be a minimum of 25 feet from the building served. The Town of Salem Zoning Regulations (Section 3.9.2) require that no portion of a subsurface sewage disposal system be located within 50 feet of any wetland.

As commercial development expands south from the traffic light along Route 85, it would be in the interest of safety and good design practices to limit the number of exits and entrances onto Route 85. Curbing and inlands could control this problem, decreasing the chance of accidents and improving the traffic flow. Should all four phases of this project be constructed, the project will result in 9,000 square feet of additional commercial space. Section 10 of the Town of Salem Zoning Regulations requires that this additional floor space be accommodated by 35± parking spaces, depending on the final use of each shop in the complex. These regulations also require the use of bituminous concrete for any parking area accommodating more than 15 cars. Any commercial use is a special exception under the zoning regulations and must meet the requirements of Section 11.

It would be very useful if all four phases could be examined as a unit in this process, in order that concerns such as parking, circulation and sewage disposal could be coordinated rather than considered on a building by building basis. Both the developer and town commissions could benefit by consulting Commercial Sites: Design and Review prepared in 1973 by the Southeastern Connecticut Regional Planning Agency.

Appendix

LEN PROPERTY

SALEM, CONNECTICUT

PROPORTIONAL EXTENT OF SOILS AND THEIR LIMITATIONS FOR CERTAIN LAND USES

Soil Series	Natural Soil Group	Soil Symbol	Approx. Acres	Percent of Acres	Principal Limiting Factor	Urban Use Limitations*			
						On-Site Sewage	Buildings with Basements	Streets & Parking	Land-Scaping
Made Soil		M1-2	2.75	8	Variable	Variable	Variable	Variable	Variable
Ninigret	A-2	25-A	1.50	4	Seasonal high water table	3	2	2	2
Unnamed Soil "S"	E-3b	825	7.70	23	Flood hazard, high water table	3	3	3	3
Hollis-Charleton	D-1	17LB-C	2.70	8	Shallow to bedrock slope	3	3	3	3
Peat-Muck	A-3b	91	19.125	57	High water table organic material	3	3	3	3

Urban Use 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

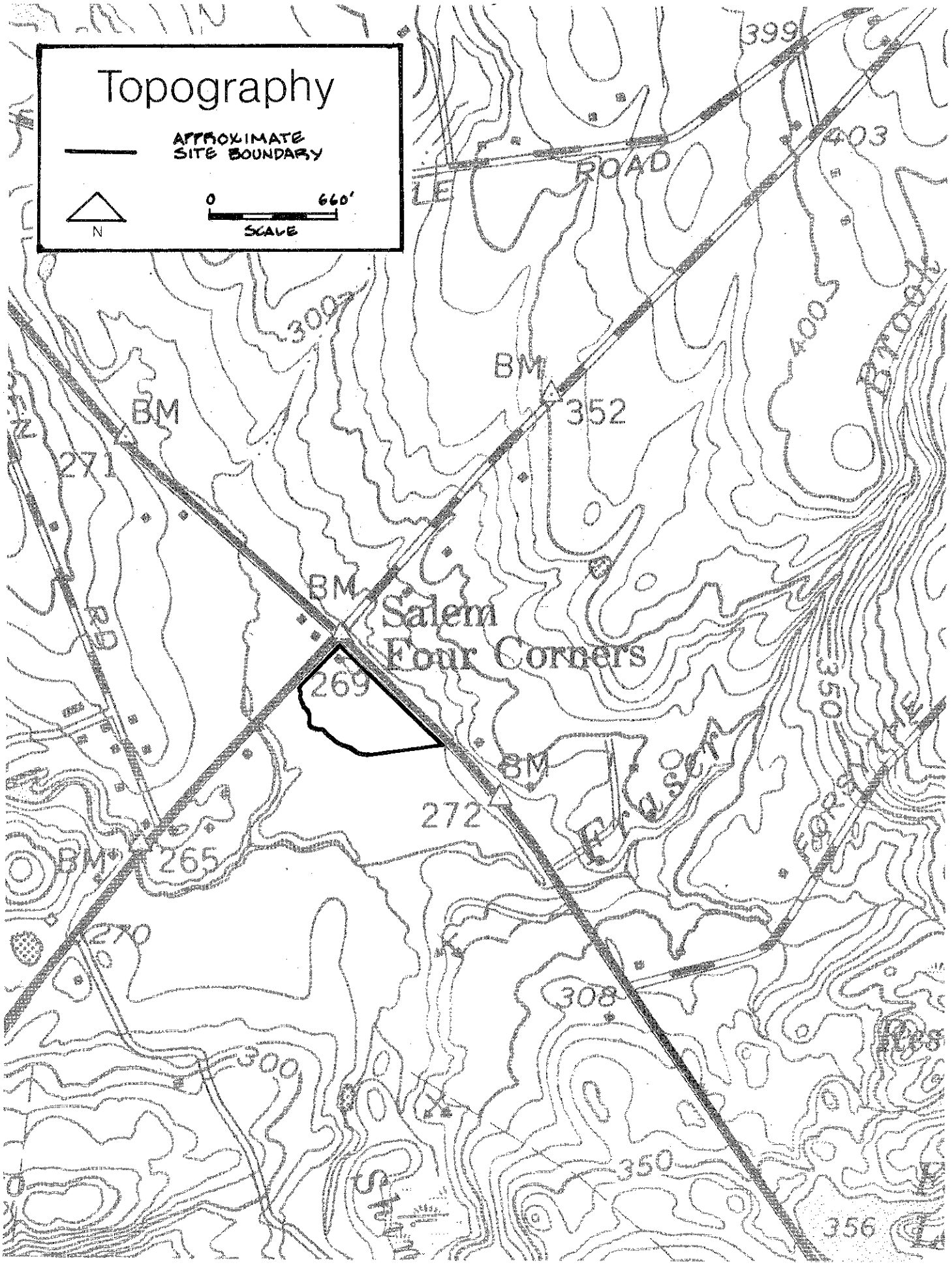
Areas rated as slight have relatively few limitations in terms of soil suitability for a particular use. The degree of suitability is such that a minimum of time or cost would be needed to overcome relatively minor soil limitations.

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.


Topography
APPROXIMATE SITE BOUNDARY
N
0
660'
SCALE
Salem Four Corners
LE ROAD
399
403
300
400
BM
352
271
269
272
265
270
308
350
356