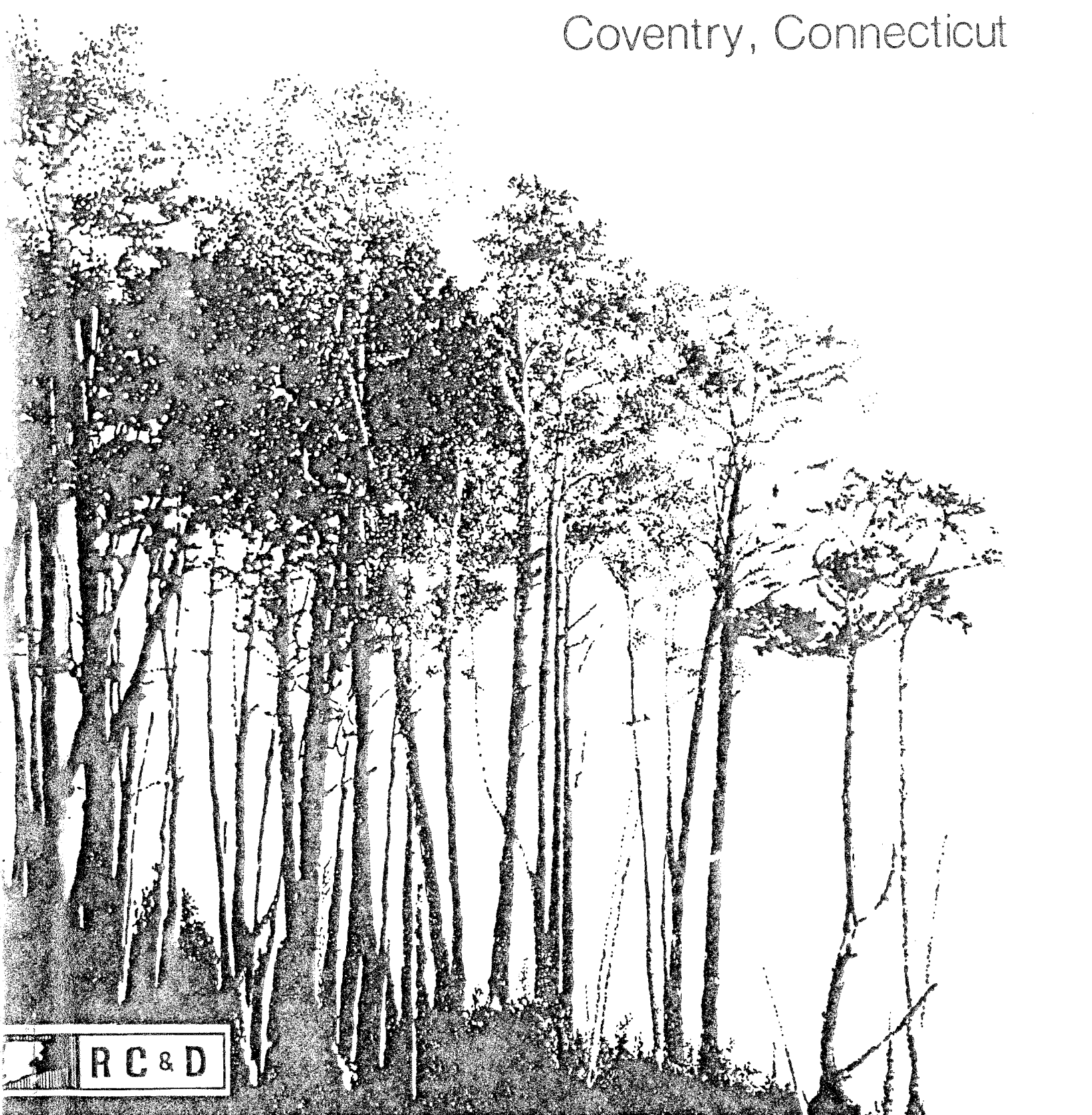


Environmental Review Team Report
Poulos Subdivision
Coventry, Connecticut

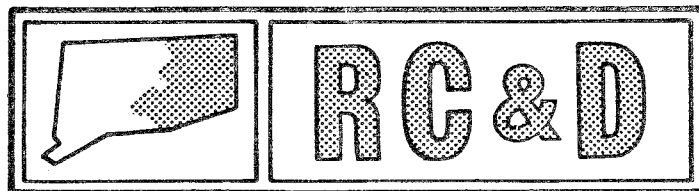


EASTERN CONNECTICUT RESOURCE CONSERVATION AND DEVELOPMENT AREA, INC.

Environmental Review Team
Report

Poulos Subdivision
Coventry, Connecticut

December 1984

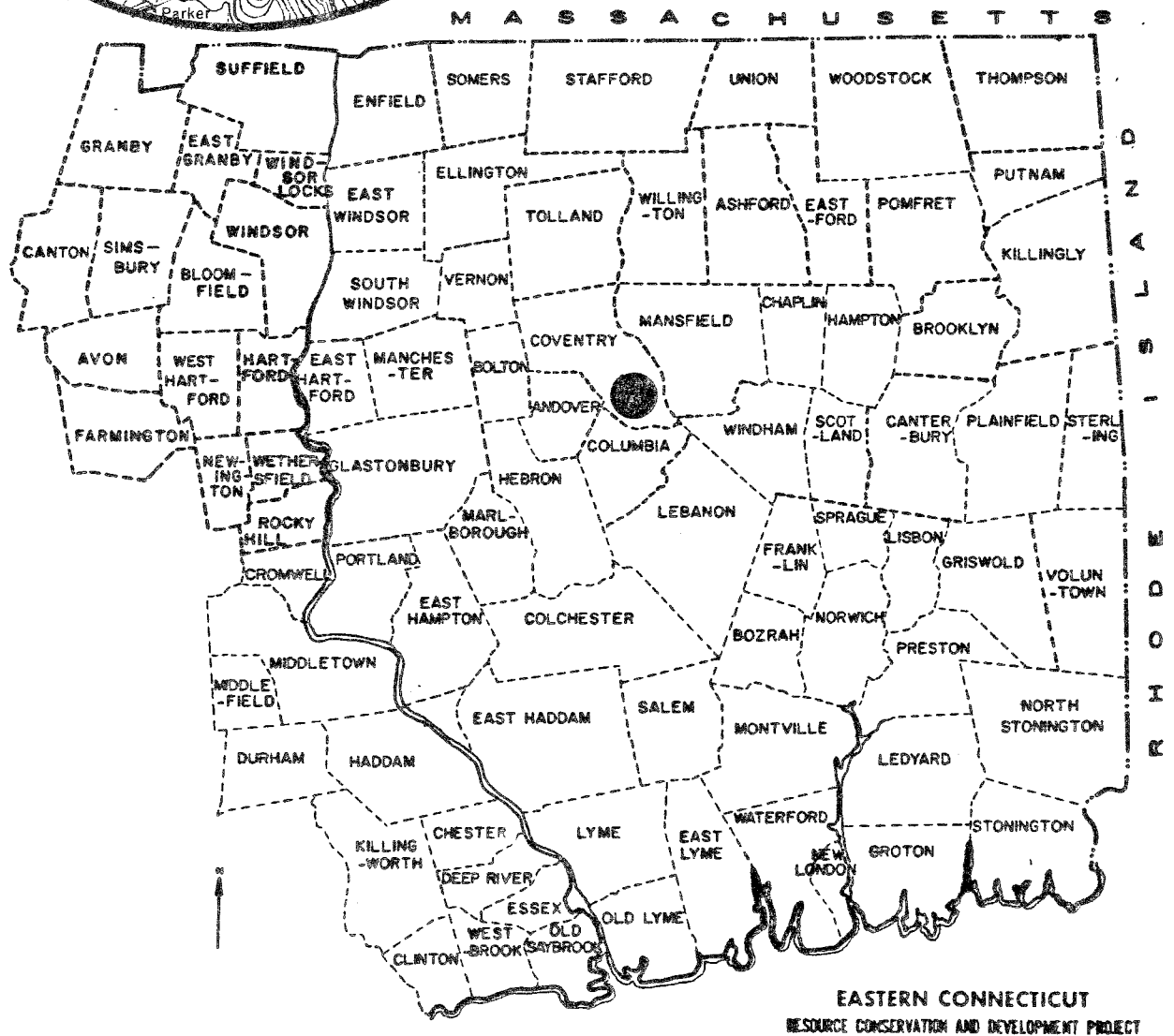
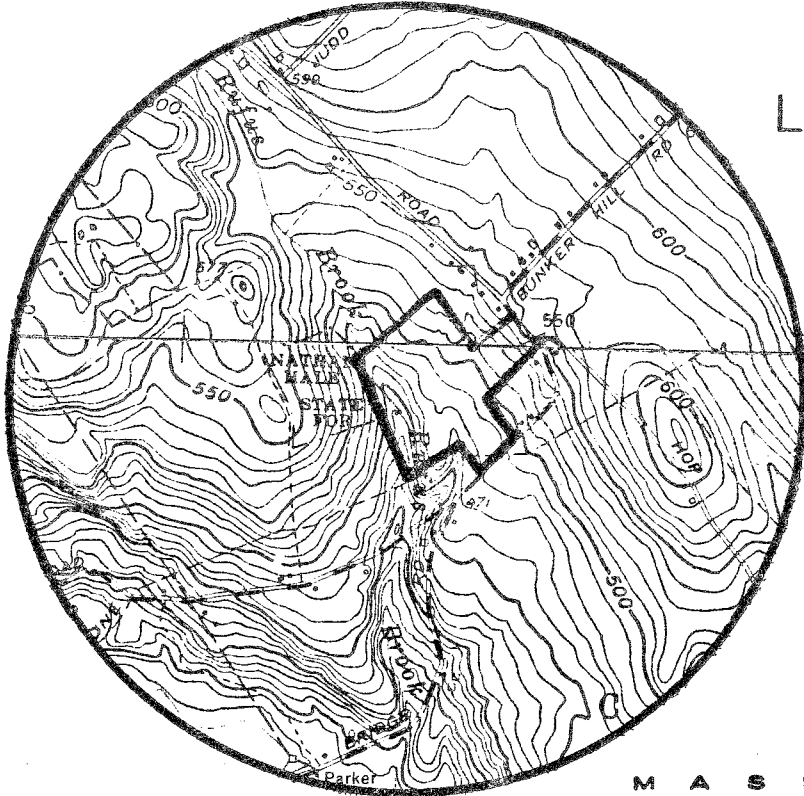


Eastern Connecticut Resource Conservation & Development Area

Environmental Review Team
PO Box 198
Brooklyn, Connecticut 06234

Location of Study Site

POULOS SUBDIVISION
COVENTRY, CONNECTICUT



ENVIRONMENTAL REVIEW TEAM REPORT
ON
POULOS SUBDIVISION
COVENTRY, CONNECTICUT

This report is an outgrowth of a request from the Coventry Planning and Zoning Commission to the Tolland County Soil and Water Conservation District (S&WCD). The S&WCD referred this request to the Eastern Connecticut Resource Conservation and Deveopment (RC&D) Area Executive Committee for their consideration and approval. The request was approved, 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 ERT that field-checked the site consisted of the following personnel: Joseph Neafsey, District Conservationist, Soil Conservation Service (SCS); Bill Warzecha, Geologist, Connecticut Department of Environmental Protection (DEP); Jim Parda, Forester, (DEP); John Rook, Biologist, (DEP); Meg Reich, Regional Planner, Windham Regional Planning Agency; and Jeanne Shelburn, ERT Coordinator, Eastern Connecticut RC&D Area.

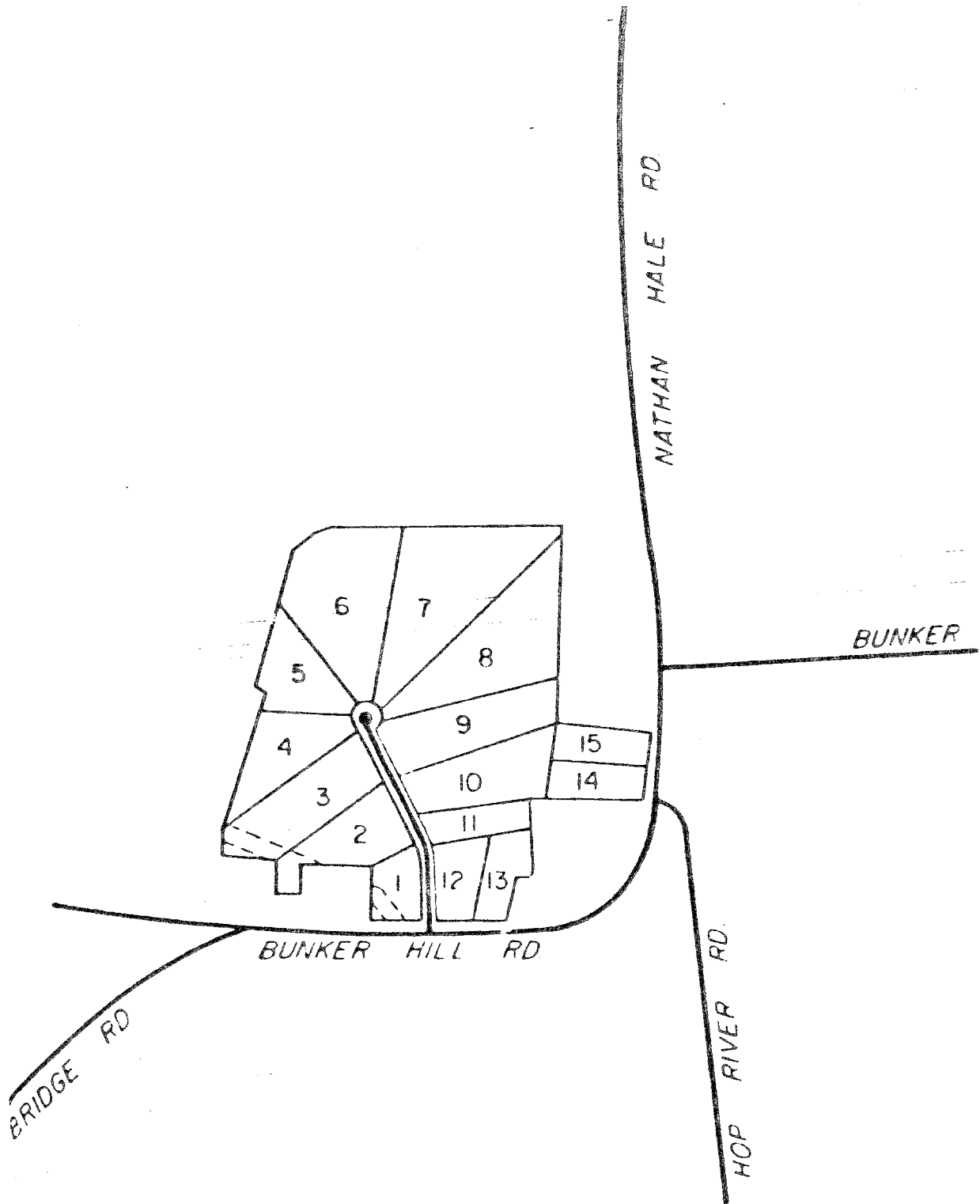
The Team met and field-checked the site on Thursday, September 6, 1984. Reports from each contributing Team member were sent to the ERT Coordinator for review and summarization for the final report.

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 Coventry. 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 that this report will be of value and assistance in making any decisions regarding this particular site.

If you require any additional information, please contact: Ms. Jeanne Shelburn, Environmental Review Team Coordinator, Eastern Connecticut RC&D Area, Route 205, Box 198, Brooklyn, CT 06234, 774-1253.

Preliminary Plan



INTRODUCTION

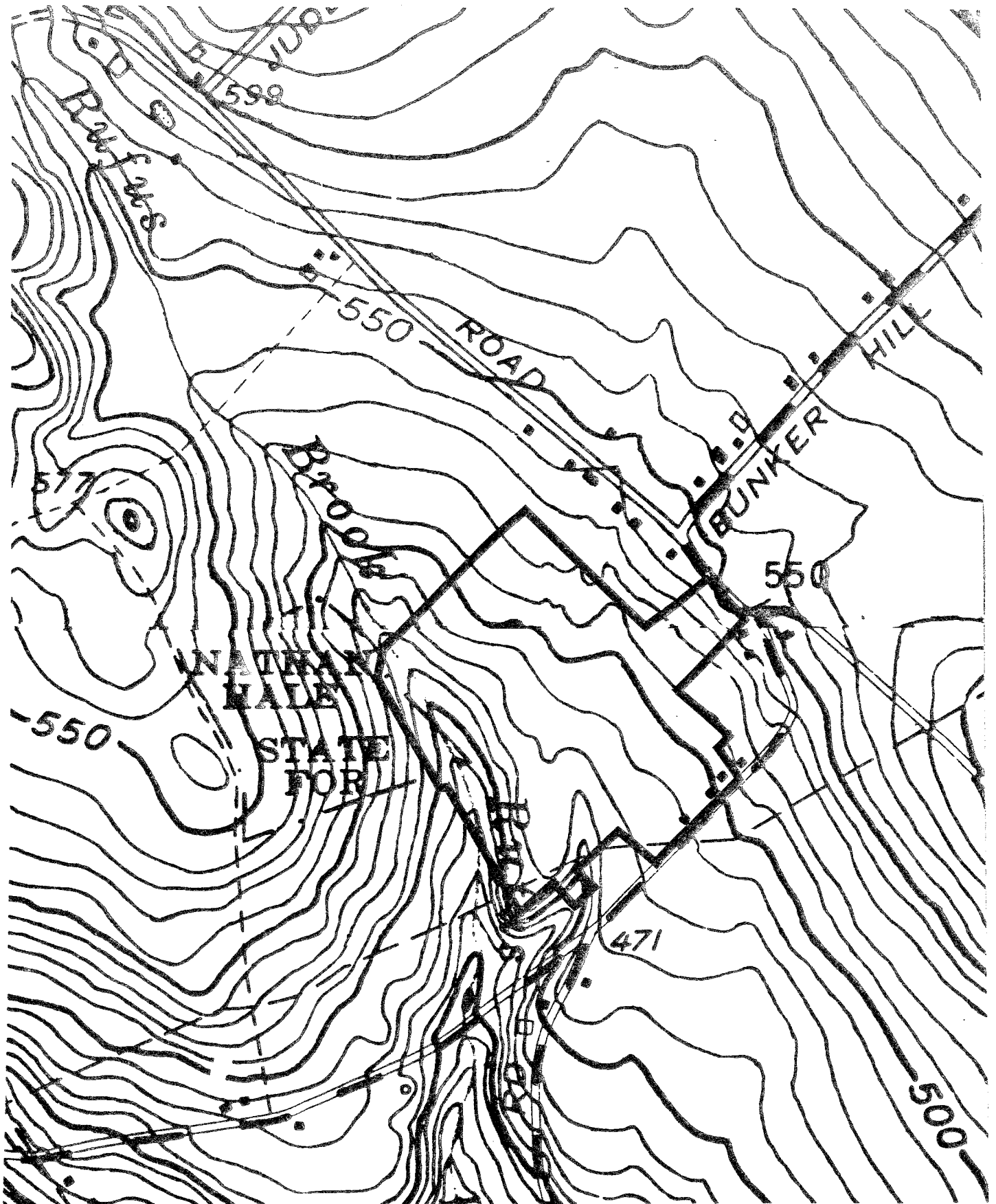
The Eastern Connecticut Environmental Review Team was asked to prepare an environmental assessment for a proposed subdivision in the Town of Coventry. The site is approximately 55 acres in size and is located on the west side of Bunker Hill Road, north of its intersection with Parker Bridge Road. The property is presently owned by John Poulos. Close, Jensen, and Miller have prepared preliminary development plans for the proposal.

Preliminary plans show 15 lots of 1.39 acres or greater, each. A single road, ending in a cul-de-sac, extends into the site from Bunker Hill Road, providing access to interior lots. Each lot will be served by on-site wells and on-site septic systems. Four bands of wetland soils extend across the site in an east-west direction. The proposed road will cross two of these wetland areas.

The Team is concerned with the effect of this proposal on the natural resource base of this site. Although many severe limitations to development can be overcome by proper engineering methods, these measures can become costly, making a project financially unfeasible for a developer. The presence and location of inland wetland soils on this site present the most severe limitation to development of the parcel. Location of the intermittent stream courses, coupled with the Coventry setback requirements for septic systems from stream courses, may result in a reduction of lots in this development. These issues and other Team concerns are discussed in detail in the following sections of this report.

Topography

— Site Boundary



ENVIRONMENTAL ASSESSMENT

TOPOGRAPHY

The +55 acre "Poulos Subdivision" site is located on the west side of Bunker Hill Road, north of its intersection with Parker Bridge Road.

The topography of the tract slopes southwestward towards Rufus Brook. Slopes within the parcel range from gentle to moderately steep. Steepest slopes are found in the western limits of the property and run generally parallel to Rufus Brook.

Rufus Brook traverses the western boundary of the parcel in a southern direction enroute to Hop River. Several intermittent watercourses and their accompanying wetlands traverse the site in an east-west direction.

Maximum and minimum elevations on the property are +550 feet and +430 feet above mean sea level.

Most of the parcel is located within the Columbia topographic quadrangle. Approximately 6 acres of the site in the northern section are located within the South Coventry topographic quadrangle.

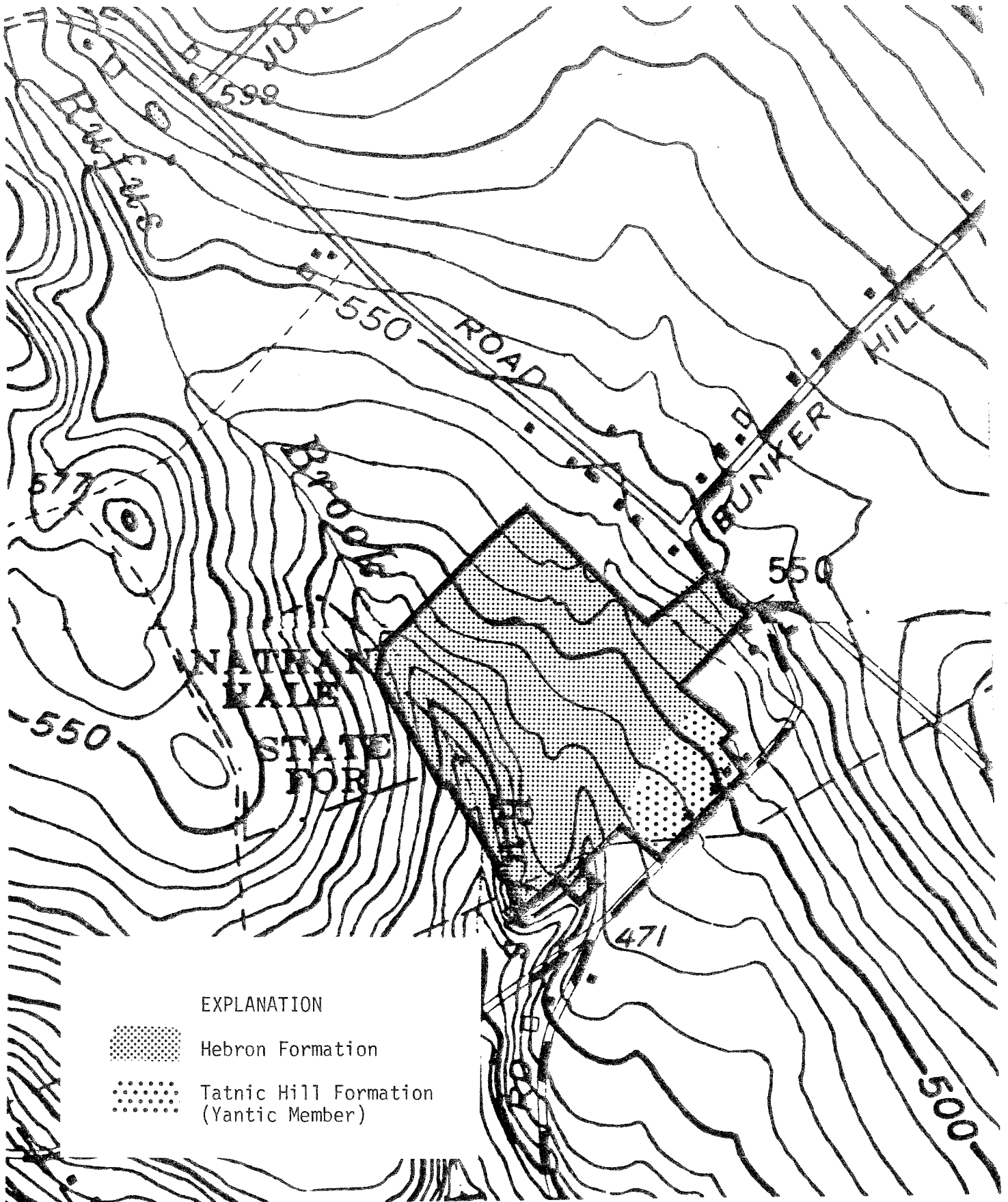
There is not presently published surficial geologic maps for both the Columbia and South Coventry quadrangles. Also, there is not a bedrock geologic map published for the South Coventry quadrangle. Preliminary data for these maps are on file at the Department of Environmental Protection's Natural Resource Center in Hartford and are available for review purposes. A bedrock geologic map (GQ-592 by George Snyder) for the Columbia quadrangle has been published by the Connecticut Geological and Natural History Survey.

The Team's Geologist has referred to John Rodger's Preliminary Bedrock Geological Map for Connecticut and the soil survey for Tolland County for the purpose of his report.

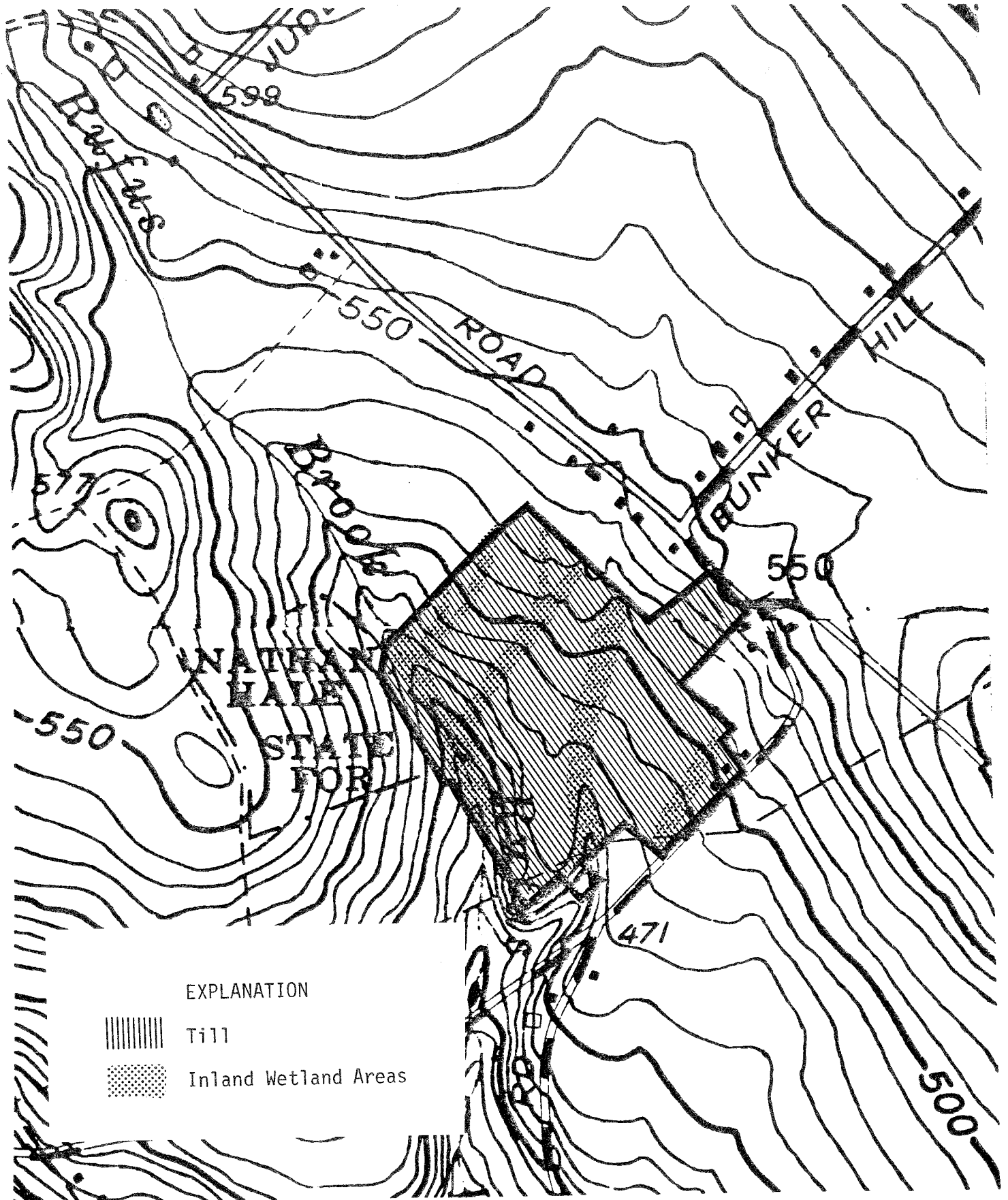
No bedrock outcrops were observed on the parcel during the field review. Bedrock underlying most of the property is classified as Hebron Formation. This rock formation consists of interlayered, dark-gray, medium to coarse grained schist composed of the minerals andesine, quartz, biotite, and locally potassium feldspar and a greenish-gray, fine to medium grained calcsilicate gneiss. Underlying the eastern limit of the property is a gray to dark gray fine to medium grained schist which is classified as the Yantic Member of the Tatnic Hill Formation. It is composed mainly of the minerals quartz, oligoclase, biotite and muscovite.

A 'schist' is a structurally layered crystalline rock while a 'gneiss' is a banded or streaked crystalline rock. Both gneisses and schists are metamorphic rocks (rocks that have been geologically altered due to great heat and pressure within the earth's crust).

Bedrock Geology



Surficial Geology



EXPLANATION



Till



Inland Wetland Areas

Approximately 34 deep test holes were excavated throughout the site by a backhoe during exploration for subsurface sewage disposal systems for the proposed lots. According to the logs of these test holes, bedrock was not encountered in any holes. Most holes were excavated to a depth of about 84" (7 feet).

The unconsolidated material overlying bedrock on the site is till. Till is a glacial sediment which was deposited directly by glacier ice, without subsequent reworking by meltwater streams. Because of its mode of deposition, the till consists of round to angular rock fragments of widely varying shapes and sizes. The texture of till also varies greatly from place to place. Generally speaking, it is commonly sand, stony and loose in the upper portions but at depth it usually becomes less stony, finer grained and more compact. Based on test hole information, the till covering most of the site fits the above mentioned description. However, the till encountered in deep test pits on lots 3 and 4 has a sandy texture to a depth of 84 inches and is not densely compacted.

Overlying till throughout the property are bands of seasonally wet areas. These areas carry water during rainy periods and/or during the wet time of year. They are delineated by the symbol Lg (Ridgebury, Leicester, Whitman series) and are regulated inland-wetland soils (P.A. 155).

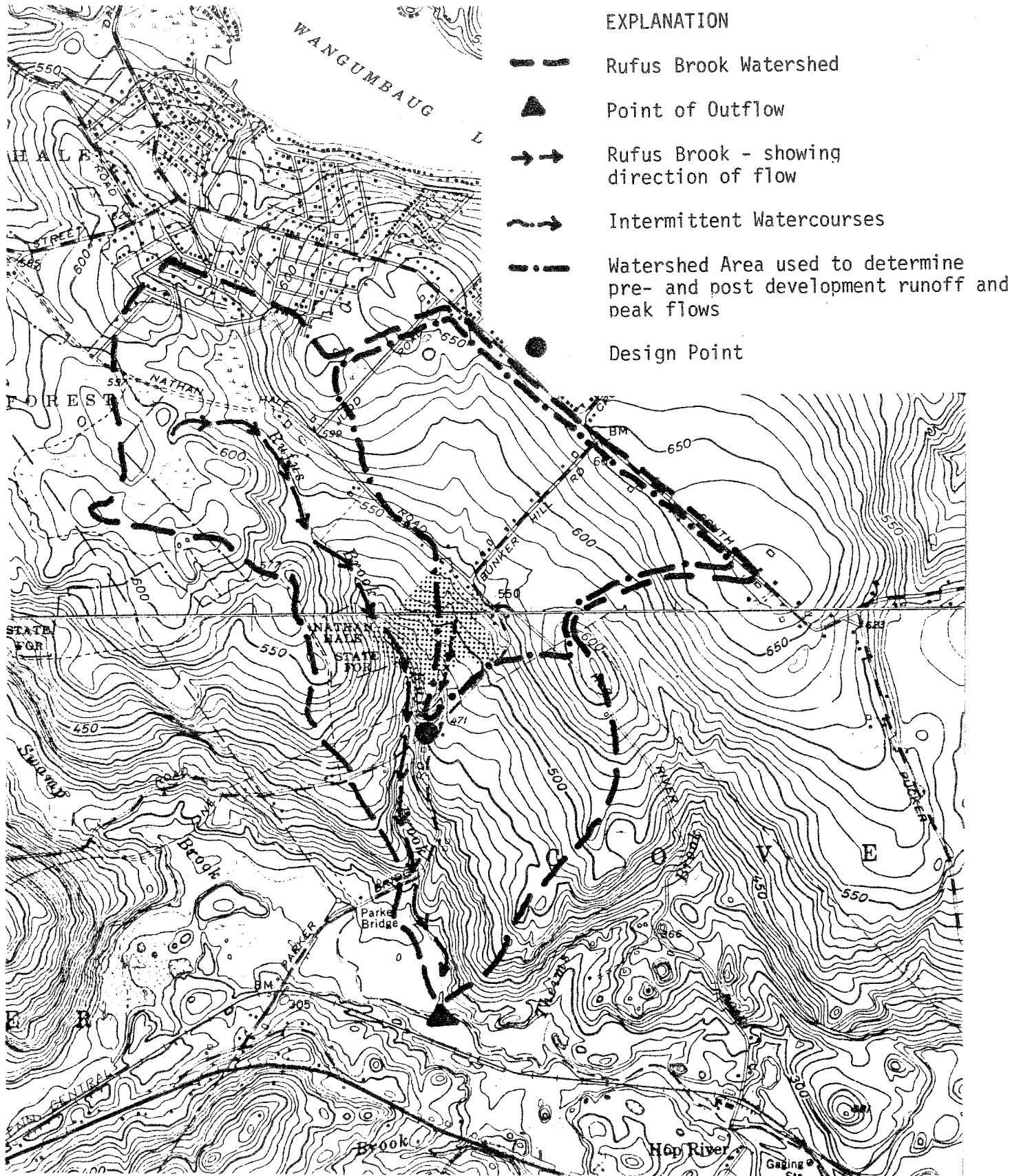
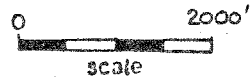
Based on site plans distributed to Team members on the review day, the project calls for two wetland crossings of +95 feet and +36 feet. Wetland road crossings are feasible, provided they are properly engineered. Provisions should be made for removing unstable material beneath the roadbed, if necessary, backfilling with a permeable road base fill material, and installing culverts as necessary. When crossing any wetlands, the roads should be adequately located above the surface elevation of wetlands. This will allow for better drainage of the roads. It will also decrease the frost heaving potential of the road. Road construction through wetlands should preferably be done during the dry time of the year and should include provisions for effective erosion and sediment control.

HYDROLOGY







As shown on the accompanying Drainage Area Map, surface runoff from nearly all of the site flows generally southwestward towards Rufus Brook by sheet flow and via the small intermittent streams traversing the parcel. Rufus Brook, whose watershed is approximately 1,100 acres, flows in a southward direction through the western sections of the parcel enroute to the Hop River. The subject parcel represents only 5 percent of the Rufus Brook watershed.

Development, as proposed, will generate an increase in runoff from the site for a given rainfall amount, and thereby increase the peak flows to nearby streams. Some major factors which will affect the amounts of increase include: 1) the modification in land use which includes the removal of vegetation and the construction of impermeable surfaces such as roof tops, paved driveways,

Drainage Areas



EXPLANATION

-  Rufus Brook Watershed
-  Point of Outflow
-  Rufus Brook - showing direction of flow
-  Intermittent Watercourses
-  Watershed Area used to determine pre- and post development runoff and peak flows
-  Design Point

access roads, etc.; 2) the design of storm sewerage in the subdivision; and 3) the timing of development on each lot.

Based on information supplied to Team members on the day of the field review, it is possible to estimate the runoff change and the peak flow discharge to Rufus Brook likely to occur as a result of the land use modification.

Technical Release No. 55 of the Soil Conservation Service provides a technique which may be used in formulating runoff estimates. This method involves the determination of runoff curve numbers, which relate the amount of precipitation to amounts of runoff. Because nearly 75 percent of the proposed homes to be constructed in the subdivision, as well as access road, lie within the watershed which drains the eastern half of the parcel, the following runoff estimates and peak flows shown in the accompanying table refer only to this portion of the site. The construction of residential homes on lots 4, 5, 6, and 7 should have little or no effect on increasing peak flows of Rufus Brook or streams which drain their respective watershed. It should be pointed out, however, that future development in the watershed could affect the peak flows of the stream. Most of the undeveloped land lies northeast of Nathan Hale Road in the watershed. It is recommended, therefore, that each developer do his part in controlling stormwater from potential developments within the watershed.

It is estimated that development in the eastern half of the site would increase the curve number under Technical Release #55 by less than 1. The accompanying table shows the estimated pre- and post-peak flows for a point on Rufus Brook for the 10 year, 25 year, 50 year and 100 year storm frequencies. These storms have a 10, 4, 2 and 1 percent chance, respectively, of occurring during any given year and each would have a duration of 24 hours.

The peak flows listed below are merely estimates, designed more to indicate the probable magnitude of the effects of development in the eastern half of the parcel than to predict any actual flow rate.

TABLE 1

Estimated present and future peak flows in the feeder stream traversing the eastern part of the site at the discharge point shown by the Drainage Area Map. All flows are given in cubic feet per second.

Present peak flows	10 Year storm event	25 Year storm event	50 Year storm event	100 Year storm event
Present peak flows	273	353	440	530
Future peak flows	284	367	458	551
Percent increase	4 percent	4 percent	4 percent	4 percent

Shown by the accompanying table, peak flow increases at the design point (point of outflow on Rufus Brook) would increase about 4 percent for all storm events. Although these increases are not that high, the increases may cause some additional streambank erosion. It is not expected, however, that the increases would create flooding problems to downstream areas. Since the Town of Coventry requires that post-development flows be maintained at present levels, the applicant's engineer should prepare a stormwater management plan which analyzes pre- and post-development runoff as well as peak flows to Rufus Brook. The plan should be located with the final subdivision proposal so that town officials may review it.

Where slopes are steep, the potential for erosion problems exist, unless adequate precautions are taken. For this reason, it is recommended a comprehensive erosion and sediment control plan be formulated for the project.

SOILS

The soils on this site range from well drained to poorly drained with many wetlands and small watercourses interspersed throughout most of the northern two-thirds of the site. Interpretive information is not included in this report due to the complex and highly variable nature of the soils on the site. Careful examination is required to identify the most suitable areas for home sites.

The soils are mostly moderately well drained with loamy surfaces and subsoils overlying sandy substratums. Areas of well drained soils of similar make-up are on the high knolls scattered throughout the parcel. The poorly drained and very poorly drained soils are along the small drainageways and brooks dissecting this property. These areas, for the most part, were adequately marked and flagged in the field by the engineer hired by the developer. Adjustments were made by the Team Soils Specialist in areas that were not properly marked.

Development Concerns

1. Deep test pits and perc tests should be done in the areas where primary and reserve areas are proposed.
2. There are many areas where runoff concentrates into flow channels or watercourses or ponds. These areas should be identified on the map.
3. Rufus Brook is the major receiving stream for runoff from the site. The stream bed is extremely rocky with many shallow pools that provide good habitat for aquatic species. It is important that this unusual area be protected from siltation. Development and implementation of an adequate soil erosion and sediment control plan should be a high priority.
4. Site development as proposed will require major alterations (grading, drainage and fill placement) to overcome problems with runoff and seasonally high water tables. Given the cost of the alterations, it may be

more feasible to increase the lot sizes and reduce the number of homes and lots proposed. Areas with the most suitable soils could then be used for building sites. A thorough examination of the site by a qualified engineer and a soil scientist will reveal areas with the best potential.

VEGETATION

Vegetation Descriptions

This 55 acre tract which is proposed for subdivision is a single stand of trees called mixed hardwoods. It is composed of white ash, sugar maple, red oak, hickory, red maple, beech, tulip poplar, black birch and yellow birch. Understory vegetation is composed of hornbeam, spicebush, barberry, grape, and ferns (Christmas, hay scented, maidenhair). This stand is growing on Woodbridge and Sutton moderately well drained soils, considered among the best in Connecticut for forest production. The forest itself is an excellent mixture of species. The trees are very tall and capable of rapid growth with proper management. The excellent growing site on this property is due to abundant soil moisture and good aeration.

Aesthetic Considerations and Limiting Conditions

The forest is presently very aesthetically pleasing. Trees are tall on the property and in places where the understory is open, there is a park-like effect. Because there is a good mixture of species (ash, maples, oaks, birch, etc.), fall color is abundant and varied.

Many of the trees are large-crowned and would provide high aesthetic and shade value in a subdivision. However, trees growing in a forest are dependent on one another for side support. When opened up to the wind by clearing or linear opening from house lots or roads, the hazard of blow down increases. Also, with moist soils such as Woodbridge or Sutton, the hazard further increases during times of intensive rainfall. It should also be noted that trees are very sensitive to the condition of the soil within the entire area under their crowns. Development practices near trees such as excavation, changing grades for road and home construction, and filling areas disturbs the balance between soil aeration, soil moisture and soil composition. These disturbances may cause a decline in tree health and vigor, resulting in tree mortality within 4-7 years. Mechanical injury from heavy equipment can have the same effect. Dead trees reduce the aesthetic quality of an area and may become hazardous and expensive to remove if near roadways, buildings or utility lines.

Management Considerations

This forest is exceptionally healthy and growing well. Recent past gypsy moth caterpillar defoliation had little or no visible effect in the stand. The forest, however, is overcrowded with too many trees per acre. As each tree competes for limited water, nutrients and sunlight, the result is slower than optimum growth rates due to competition between one another. If

some trees were harvested, they would afford more room to the remaining trees and faster growth would occur, resulting in larger diameters and more valuable trees. In good forest management, the poorest trees are removed to allow the better trees to grow. Some of the defects that qualify a tree for harvest include cracks and rot on the butt of the tree, large dead branches on the trunk, lean, sweep and twist, crown dieback or breakage so that the leaf surface area is not full and well formed for good photosynthesis. This stand would benefit from a harvest to remove approximately one-third of the poorest sawtimber sized trees. This would result in a healthy forest, good aesthetics, improved growth rates and revenue for the landowners.

Harvesting forest products also benefits wildlife. The property is currently supporting deer, fox, numerous small birds and mammals (coon, squirrel, chipmunk, chick-a-dee, etc.) and pileated woodpecker. There are numerous trees for denning and some shrubs, such as spicebush for winter food. The red oak are producing a fair acorn crop this year. A harvest would increase deer food browse for winter food from tops, stumps, sprouts and new growth. Also, acorn, or mast, production is important as mast composes 80% of a deer's diet.

The Department of Environmental Protection, Forestry Bureau, offers advice to landowners concerning the implementation of suggested harvest practices and encourages landowners to manage their forest land. Property implemented management practices increase forest productivity, wildlife habitat, and can improve aesthetics with minimum negative environmental impact. A forester from the Forestry Bureau can be reached at 295-9523. Services are free of charge. Services of a more intense nature are available from private sector foresters.

WILDLIFE

Mature, mixed hardwood forest is found on this 55 acre site. A fairly thick understory consisting of spicebush, grape, and fern occurs in some sections of the forest. Snag trees (standing dead or nearly dead trees) and den trees (trees that are usually alive with their trunk and/or limbs hollowed out--may include snags) are found throughout the tract. The property is wet in many sections with brooks running through the central and western portions of the tract.

Good wildlife habitat is found in this tract. Thick understory, which provide wildlife food and cover, is found scattered throughout the tract. Mature trees such as hickory and oak produce mast (acorns and nuts) which is a valuable food source for such animals as white-tail deer, wild-turkey, squirrel, and chipmunk. Certain areas, where the trees are overcrowded, should be thinned. A thinning would allow greater sunlight penetration, therefore permitting better understory development. It would also reduce the competition for nutrients among the remaining trees, allowing for a more substantial mast crop. Some of the poorest quality trees (snag and den trees) should remain as they provide shelter (cavities) and food (insects) to many species of forest wildlife.

Developing this site would eliminate the wildlife habitat and may also effect the habitat in the adjacent forestland. The streams flowing through the property must be considered. Development may have a detrimental effect on them. The area may be too wet for development to be feasible.

WATER SUPPLY

Since there is no public water supply line available to serve the proposed subdivision, each lot in the subdivision will need to be serviced by individual on-site water wells. Due to the lack of a suitable stratified drift (sand and gravel) aquifer on-site, which, depending upon certain hydrogeologic characteristics of a particular area may produce a high yielding well, it appears wells would have to tap the underlying bedrock aquifer. Wells drilled in bedrock generally supply small but reliable yields of groundwater. However, since the yield of a given well depends upon the number and size of water bearing fractures that it intersects, and since the distribution of fractures in bedrock is irregular, there is no practical way of predicting the yield of a well drilled in a specific location. Because fractures in the rock generally occur within the first 100 to 250 feet of the surface, it has been shown that the probability of increasing the yield of a well decreases with depth below this level.

Each well should ideally be located on a relatively high portion of a lot, properly separated from the sewage disposal system or any other potential pollutant (e.g., fuel oil storage tank, etc.) and in a direction opposite the expected direction of groundwater movement. Of particular concern in some portions of the site are areas having shallow depths to bedrock and moderate to steep slopes. These adverse conditions can allow for the rapid movement and wide dispersal of sewage effluent through fractures in the bedrock without providing adequate filtration and renovation of the sewage effluent. As a result, there is a potential for wells, which may also derive their source of water from the same rock formation, to be subjected to septic effluent contamination.

In areas where a number of wells are drilled relatively close together, there is a chance of well interference (that is, the yield of one well detracting from the yield of another). As a result, it is advisable to space wells at least 250 to 300 feet apart, if possible, to minimize the risks of mutual interference. Due to the large lot sizes proposed, it seems likely that suggested separating distances could be maintained without too much difficulty.

In the Shetucket River Basin, which the site lies within, 139 wells tapping crystalline bedrock (i.e., gneisses, schists, etc.) were surveyed for Connecticut Water Resources Bulletin No. 11. Of these, approximately 90 percent yielded 3 gallons per minute (gpm) or more. A well yield of 3 gpm is generally satisfactory for most domestic uses.

The Team's geohydrologist reviewed well completion data for three wells tapping bedrock on Nathan Hale Road, Parker Road and Bunker Hill Road, all of

which are in the vicinity of the property. It is presumed these wells tap a rock unit which is the same as, or at least similar to the rock units underlying the site. These data showed that yields of wells ranged between 4 gpm and 6 gpm at depths varying from 200 feet to 400 feet.

The natural quality of groundwater should be satisfactory. In some rock units, there may be sufficient amounts of iron and/or manganese minerals to lower the overall quality. If elevated iron and/or manganese levels are present in the water, it may be necessary to provide suitable treatment filters.

WASTE DISPOSAL

From a geological standpoint, the site's major limitation which may pose problems with regard to the proposed subdivision include; (1) areas of moderately steep slopes, particularly on lots 4 and 5 in the western section of the site; (2) bands of inland-wetland soils which traverse the site in an east or west direction; and (3) the presence of some till based soils on the site which appear to contain numerous surface boulders and/or have seasonally high groundwater levels. These limitations will weigh heaviest on the installation of subsurface sewage disposal systems, foundation placement, and road/driveway construction. With good engineering and planning, many of these limitations can be surmounted.

Based on the site plan, lots 5, 6, 9 and 10 have a moderately high percentage of inland-wetland soils on them. The presence of these soils in addition to the steep, i.e., slopes on these lots, will greatly limit the area for placement of house and/or septic systems. Development in areas designated as wetland soils on the accompanying Surficial Geology Map should be avoided. Furthermore team members were advised at the field review that the Town of Coventry requires a 150 foot setback from all watercourses, which would include the intermittent streams traversing the parcel. Because of this requirement, it may be necessary to rearrange the present configuration of lots and/or reduce the number of lots in order to comply with all state and local regulations. The presence of intermittent stream channels observed on or near lots 4 and 5 on the date of the field review preclude the installation of subsurface sewage disposal systems in the areas presently depicted on the site plan. The Town sanitarian should place close attention to these intermittent drainage channels and wetland soils when locating septic systems. It should be pointed out that the majority of deep test pits were not excavated in the proposed primary and reserve leaching areas for each lot as required by the Public Health Code. Because above and below ground conditions, i.e., groundwater tables, soil conditions, can be different over a generally short distance, deep test pits are required to be located in the proposed primary and reserve leaching areas.

Deep test hole information revealed a relatively high groundwater table on several lots. Where slope and/or storm drainage permit, it is recommended that building footing drains be installed around homes. This should hopefully minimize the chances of wet basements.

PLANNING CONCERNS

Relation to Plans

State Plan of Conservation and Development

The state plan places this area in the rural development category of land use characterized by single family housing with on-lot water supply and waste disposal and remote from existing urban areas. The proposed large lot single family home development would seem to be in compliance with the state plan. Adjacent areas in active agricultural use are classified as areas to be conserved.

Regional Growth and Preservation Guide Plan

The Windham Region's Land Use Element recommends the area proposed for this subdivision for Low-Density Rural land use. Uses recommended include low density residential development with two acre building lots being the minimum and prevailing lot size. Very light density development and open space preservation techniques should be used to protect areas along streams.

The development proposes fifteen lots, nine large lots of two or more acres and six lots of less than two acres. The larger lots meet the recommendations of the regional plan, but the smaller lots do not. All the lots, however, meet the minimum lot size requirement of the Town's zoning.

Areas to the east of Rufus Brook, adjacent to the Nathan Hale Forest, are recommended for Historic/Land Preserve as additions to the forest.

The transportation element of the regional plan makes recommendations regarding roads in the area of this subdivision.

Bunker Hill Road is recommended to be widened and realigned due to the sharp curves in the vicinity of the proposed subdivision.

The regional plan also states:

With the development of the Route 6 expressway, the town's long-range priorities will focus on those town roads providing access to the limited access highway. The "trumpet" interchange planned for the Parker Bridge Road area will, at a minimum, require improvements to Bunker Hill Road and Lake Street and to a lesser degree South Street and Cross Street. The State's Concept Plan for the use of I-84 funds calls for upgrading and/or relocation of Route 275 from Route 32 to the new Route 6 expressway. This proposed improvement would allow for the Route 275 designation to be extended to those local roads from Route 31 to the new highway if this is deemed necessary because of additional traffic.

State Master Transportation Plan

The Connecticut Department of Transportation's plan schedules construction of the new Route 6 expressway (formerly I-84) in the vicinity of this subdivision for between 1987 and 1994 (see p. A-79, state project number 01-90), the section which begins 300' west of Parker Bridge Road and extends easterly to the existing Route 84 interchange with Routes 6 and 66. Plans on file with the Town Clerk for this section of Route 6 expressway indicate a "trumpet" interchange to Bunker Hill Road. A connector road from the expressway to Bunker Hill Road is planned. The plans indicate the connector road will intersect with Bunker Hill Road and about 600 feet north of the intersection of Bunker Hill Road and Parker Bridge Road. The connector road thus appears to be aligned opposite of lot 1 in this proposed subdivision.

Coventry Plan of Development

The town's plan of development map recommends the area of the proposed subdivision for Rural Density Residential use. The adjacent Rufus Brook area and Nathan Hale State Forest are recommended for open space use.

A physical capabilities approach to residential development is recommended, as follows:

A site's physical capabilities should be the prime determinant in setting residential densities in non-sewered areas. In most areas of town, desired residential objectives can be obtained if the acreage of watercourses, wetlands, severe sloped areas and areas subject to flooding are not considered in the determination of a 40,000 square foot requirement for conventional subdivision lots.

In regard to the impact of the proposed highway (formerly I-84 now called relocated Route 6), the plan states the following:

In reviewing residential density standards throughout the town, a comment must be made regarding the proposed I-84 route through Coventry. A review of the Town's environmental resource factors and other development factors, especially road and drainage considerations, indicates that the areas adjacent to the proposed Parker Bridge Road and Swamp Road interchanges are not particularly suited for higher density development. For this reason, special density provisions should not be made for these areas.

It can be assumed that properties near the proposed interchanges will face direct development pressure due to improved accessibility. Such pressures will put a heavy strain on the ability of existing roadways to support development. If State and Federal money is not available to the Town to make roadway improvements, the Town might minimize the strain by recommending that one of the proposed interchanges be eliminated. A Parker Bridge Road interchange will provide direct service to the lake and village areas and will relieve pressure from Route 31 and 44A. Even without an interchange, the areas

adjacent to Swamp Road will retain acceptable access to the west through State Highways 6 and 44A.

It is important to note that I-84 will facilitate access to the Hartford Labor Market area to which approximately 65% of Coventry's workers commute. It will also relieve some pressure on Route 44A, which will remain the major arterial road to and from the Hartford Labor Market area for northern and central Coventry.

In regard to open space and natural resource preservation, the Town's priority is to protect the lakes, rivers, streams, wetlands and aquifers of the Town. Rufus Brook is one of the tributary watercourses.

The plan recommends options for the Planning and Zoning Commission to pursue in protecting such areas. The plan notes the following:

In addition to delineating selected open space areas on the Plan of Development map, promulgating zoning and subdivision regulations to protect environmentally sensitive areas and utilizing natural resource information in reviewing land use proposals, the Planning and Zoning Commission has two additional roles regarding open space preservation. The first involves the Commission's policy of preserving as open space an appropriate portion of proposed subdivisions. The selected open space area can be preserved in a number of ways ranging from public ownership to private ownership with no public access and deed restrictions taking away development rights. Other options include land trust ownership, homeowner association ownership and private ownership with easement rights to allow such activities as hiking, cross country skiing and fishing. The second role involves the Commission's ability to comment and recommend a course of action through referrals from the Town Council (under Section 8-24 of the State Statutes) on proposed purchases or sale of Town property. In both of these roles, the Planning and Zoning Commission must carefully review the open space opportunity and the preservation options with respect to the character and importance of the site, surrounding land uses and natural resource attributes. It should be noted that Town Council policies regarding the Town's ability to finance maintenance and liability costs and any purchase costs are also important. All open space acquisitions by the Town must be approved by the Town Council.

Specific open spaces and natural resource recommendations which relate to this proposed subdivision include:

- The Commission should protect watercourses and wetland systems by requiring appropriate setbacks between sanitary waste disposal systems and watercourses and wetland systems. Consideration should be given to the implementation of a streambelt zone based on Soil and Water Conservation Service guidelines.
- To minimize impacts on environmentally sensitive areas, the Commission should encourage cluster subdivisions and planned residential developments.

The Commission should encourage the State Department of Environmental Protection to expand the Nathan Hale State Forest as land becomes available and to develop marked multi-purpose trails.

Transportation

A. The Bunker Hill Road Connector to the Route 6 expressway is currently planned to intersect Bunker Hill Road directly across from lot 1 in the Poulos subdivision. Lexington Drive, the proposed cul-de-sac, is proposed to be aligned about two hundred feet northeasterly along Bunker Hill Road from Route 6 expressway connector.

Adequate space must be provided for turning movements involving vehicles using these two new roads.

Coventry's subdivision regulations require a minimum of 200 feet between intersections, measured from the center lines of the street (Chapter VI, Section 2 (e)). National standards recommend a minimum of 250 feet spacing.

The proposed Bunker Hill Road connector for Route 6 should be indicated on the subdivision map and consideration should be given to increasing the distance between the connector and proposed Lexington Drive to a minimum of 250 feet.

B. The proposed road into the subdivision--Lexington Drive--is a cul-de-sac of approximately 1000 feet in length with twelve of the fifteen proposed lots having frontage on the cul-de-sac.

Coventry's subdivision standards specify cul-de-sac streets "shall generally not exceed six hundred fifty (650) feet in length" (Chapter VI, Section 2 (g)).

A cul-de-sac of 650 feet would terminate in the wetland area that crosses the property. This would be an inappropriate location to place the turning circle of a cul-de-sac.

The Institute of Transportation Engineers* recommends maximum cul-de-sac length for low density developments of 1000 feet. It recommends the average daily traffic (ADT) for short residential streets or cul-de-sacs to be designed for ADT's up to 200. Since a typical home in a single family subdivision generates about 10 trips per day, a 200 ADT is equivalent to 20 homes. Twelve homes are proposed to have access off Lexington Drive, thereby generating ADT of 120 vehicles, or within the recommended maximum of 200 vehicles.

* Recommended Guidelines for Subdivision Streets. Institute of Transportation Engineers, 1984.

The potential hazard of temporary roadway blockages must also be considered. Vehicular accidents, utility break, falling tree or pole and pavement repairs can affect access to homes by emergency, police, fire, and ambulance equipment. In order to mitigate such a hazard, the entire street right-of-way should be cleared and graded in such a manner that emergency vehicles could use this space to gain access to homes at the end of the cul-de-sac if the road were blocked by some hazard.

Lot Arrangement

This development is proposed under the Modified Cluster Development provisions of Coventry's Zoning Regulations (Section 10.5) which allows reduced lot frontages to encourage conservation and preservation of natural resources and allow relatively compact development while maintaining the density allowed under conventional development techniques.

This type of development is appropriate with the wetlands found on the site. The proposed house sites generally avoid wetland disturbance. The proposed lots seem to meet the frontage and setback requirements of the modified cluster regulations.

Some house locations may need to be rearranged, however, to meet setback requirements from wetlands. An intermittent watercourse seems to be present between lots 4 and 5. Section 6.19 of Coventry's Zoning Regulations requires waste disposal systems to be installed 150 feet from the edge of a watercourse and 50 feet from poorly drained soils. These requirements may also affect the proposed house locations for lots 2, 3, 5, 6, 7, 9, 10, 12, and 13 as well as lots 4 and 5.

State statutes on zoning (CGS section 8-2) and subdivision (CGS 8-25(b)) provide for the use of solar techniques in developments. The generally large lot size should allow the use of solar energy by homebuilders wishing to do so.

Open Space

Coventry's subdivision regulations provide for an open space and recreation dedication of between 10 and 20% dependent upon conditions in Chapter VIII. No open space dedication is proposed in the subdivision plan at the time of review. The Planning and Zoning Commission should review the Town's Open Space Plan to determine if open space should be required in this subdivision.

Surrounding Land Use and Compatability

The surrounding land uses include low density residential development, Undeveloped wooded land, a section of the Nathan Hale Forest, and active agricultural land across from lots 14 and 15. Running through lots 1, 2, 3, and 4 is an Algonquin Gas transmission line. As previously noted, the connector ramp from the planned Route 6 expressway (formerly I-84) to Bunker Hill Road is planned to intersect Bunker Hill Road about 600 feet northeasterly of the Parker Bridge Road/Bunker Hill intersection, or directly across from lot 1 of the proposed Poulos subdivision.

The proposed subdivision will not be incompatible with surrounding land uses, although the proposed connector road may generate significant amounts of traffic and the proximity of Lexington Drive to the connector road may cause traffic problems.

Services to Support Development

The proposed subdivision of 15 house lots may be expected to house 15 families, or about 50 people based on an average family size of 3.34 persons per family (Coventry average family size; 1980 U.S. Census).

An average of 1.4 school aged children can be anticipated per three to four bedroom single family home,* or twenty-one students. This subdivision alone will not have significant impacts on the ability of Coventry's schools to accommodate these students.

Coventry provides local police services. Fire protection is provided by volunteer fire departments and mutual aid pact with adjacent towns. Recreational opportunities are available at two town beach sites on Wangumbaug Lake, active recreation space at the schools, and Laidlaw Park. The Nathan Hale State Forest and two private golf courses in Coventry provide additional opportunities.

Alternative Land Use

This property is suitable for limited residential development. Due to presence of extensive wetlands and watercourses, setback requirements for waste disposal systems from those wetlands, and design constraints imposed by the gas transmission line, areas of steep slopes and limited frontage along an existing road for access to the interior of the parcel, the proposed density of development (15 lots) may be reaching the limit available for single family dwellings. Fewer lots may be necessary to work within these limits.

Multi-family housing is not recommended and industrial or commercial use would be incompatible for this area. Open space use, perhaps as an addition to the Nathan Hale Forest could be appropriate.

Future actions to realign Bunker Hill Road to remove the curve between Hop River Road and this subdivision may affect lots in this subdivision as could plans to extend Route 275 from Route 31 to the Bunker Hill Road connector for the Route 6 expressway.

*New Jersey County & Municipal Government Study Commission. Housing Suburbs, Fiscal & Social Impact of Multi-family Development.

About the Team

The Eastern Connecticut Environmental Review Team (ERT) is a group of professionals in environmental fields drawn together from a variety of federal, state, and regional agencies. Specialists on the Team include geologists, biologists, foresters, climatologists, soil scientists, landscape architects, archeologists, recreation specialists, engineers and planners. The ERT operates with state funding under the supervision of the Eastern Connecticut Resource Conservation and Development (RC&D) Area.

The Team is available as a public service at no cost to Connecticut towns.

PURPOSE OF THE TEAM

The Environmental Review Team is available to help towns and developers in the review of sites proposed for major land use activities. To date, the ERT has been involved in reviewing a wide range of projects including subdivisions, sanitary landfills, commercial and industrial developments, sand and gravel operations, elderly housing, recreation/open space projects, watershed studies and resource inventories.

Reviews are conducted in the interest of providing information and analysis that will assist towns and developers in environmentally sound decision-making. This is done through identifying the natural resource base of the project site and highlighting opportunities and limitations for the proposed land use.

REQUESTING A REVIEW

Environmental reviews may be requested by the chief elected officials of a municipality or the chairman of town commissions such as planning and zoning, conservation, inland wetlands, parks and recreation or economic development. Requests should be directed to the Chairman of your local Soil and Water Conservation District. This request letter should include a summary of the proposed project, a location map of the project site, written permission from the landowner allowing the Team to enter the property for purposes of review, and a statement identifying the specific areas of concern the Team should address. When this request is approved by the local Soil and Water Conservation District and the Eastern Connecticut RC&D Executive Council, the Team will undertake the review on a priority basis.

For additional information regarding the Environmental Review Team, please contact Jeanne Shelburn (774-1253), Environmental Review Team Coordinator, Eastern Connecticut RC&D Area, P.O. Box 198, Brooklyn, Connecticut 06234.