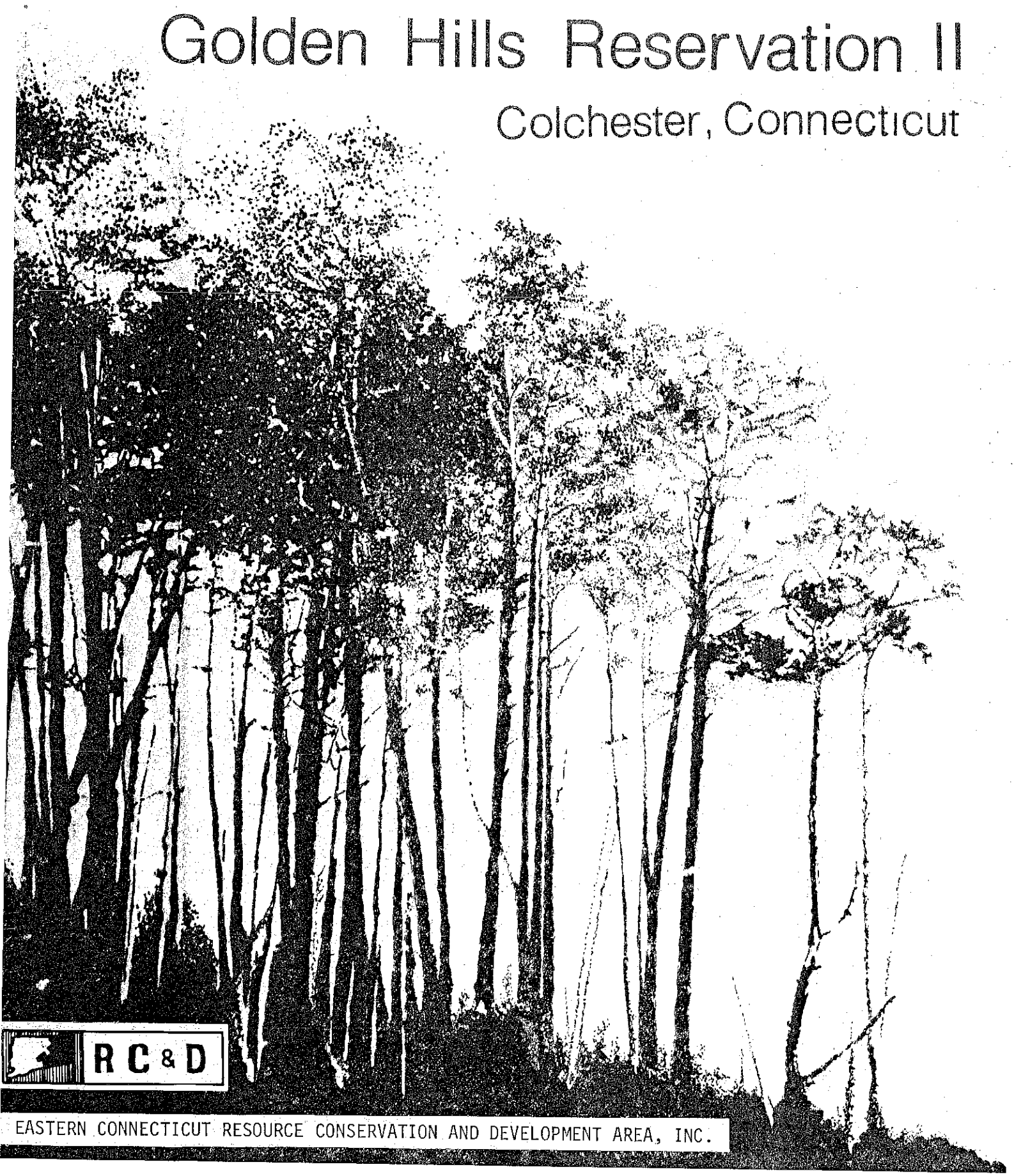
Environmental Review Team Report

Golden Hills Reservation II

Colchester, Connecticut

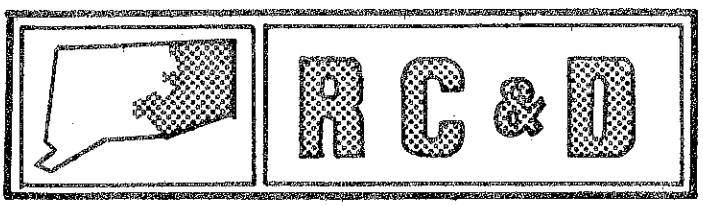


RC&D

EASTERN CONNECTICUT RESOURCE CONSERVATION AND DEVELOPMENT AREA, INC.

Environmental Review Team Report
on

Golden Hills Reservation II
Colchester, Connecticut
September 1979

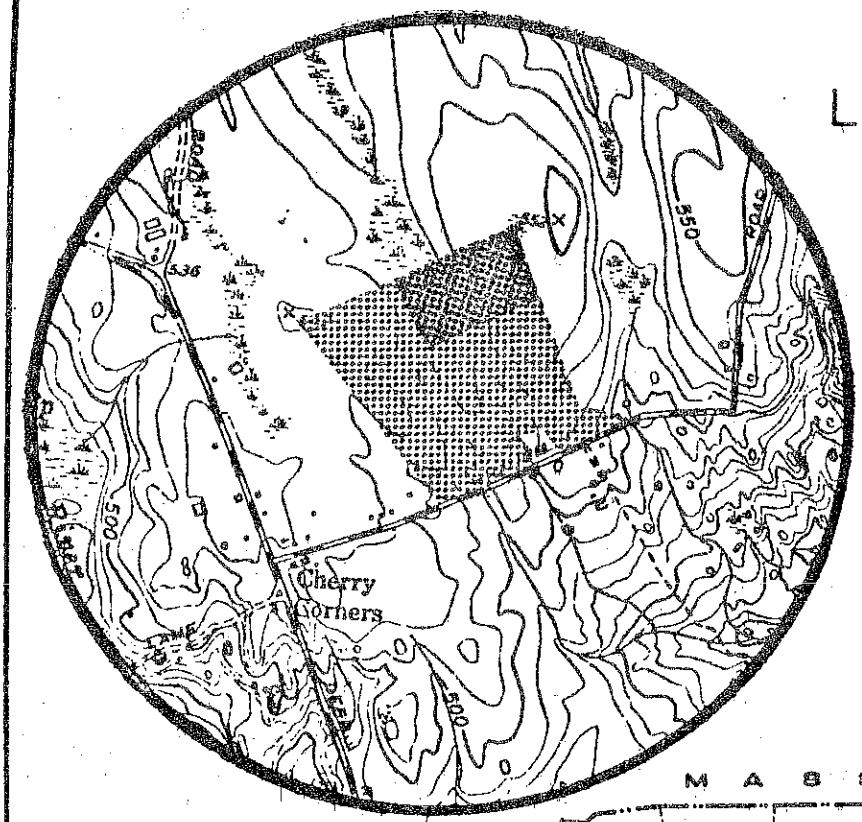


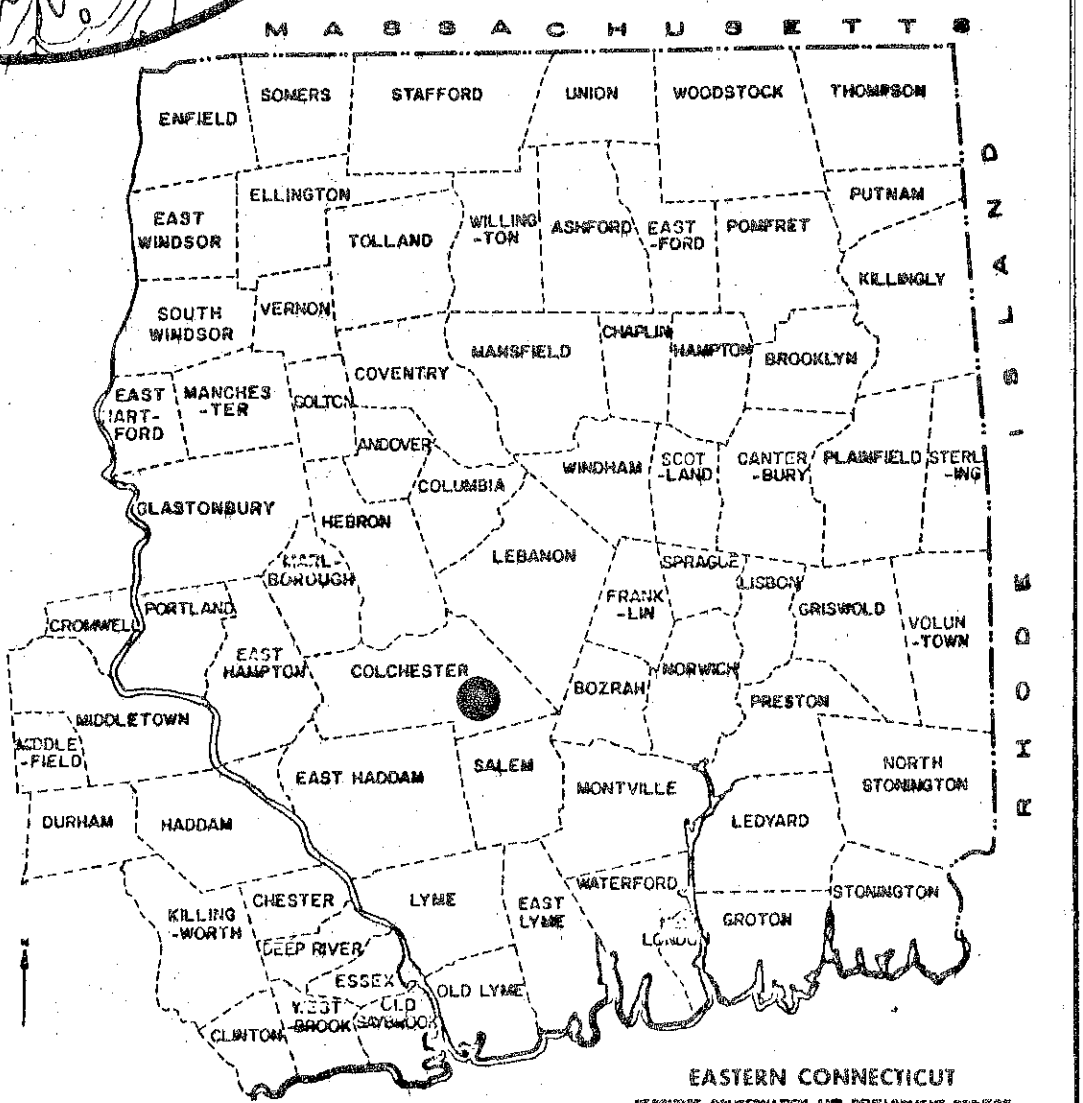
eastern connecticut resource conservation & development area

environmental review team
139 boswell avenue
norwich, connecticut 06360

Location of Study Site

GOLDEN HILLS RESERVATION, II
COLCHESTER, CONNECTICUT





ENVIRONMENTAL REVIEW TEAM REPORT
ON
GOLDEN HILLS PAUGUSSETT INDIAN RESERVATION, SECTION II
COLCHESTER, CONNECTICUT

This report is the outgrowth of a request from the Indian Affairs Concil of the Connecticut Department of Environmental Protection (DEP), to the New London County Soil and Water Conservation District (S&WCD). The Eastern Connecticut Resource Conservation and Development (RC&D) Project Executive Council also approved the request as a project measure which was subsequently reviewed by the 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 the property boundaries were forwarded to all members of the Team prior to their review of the site.

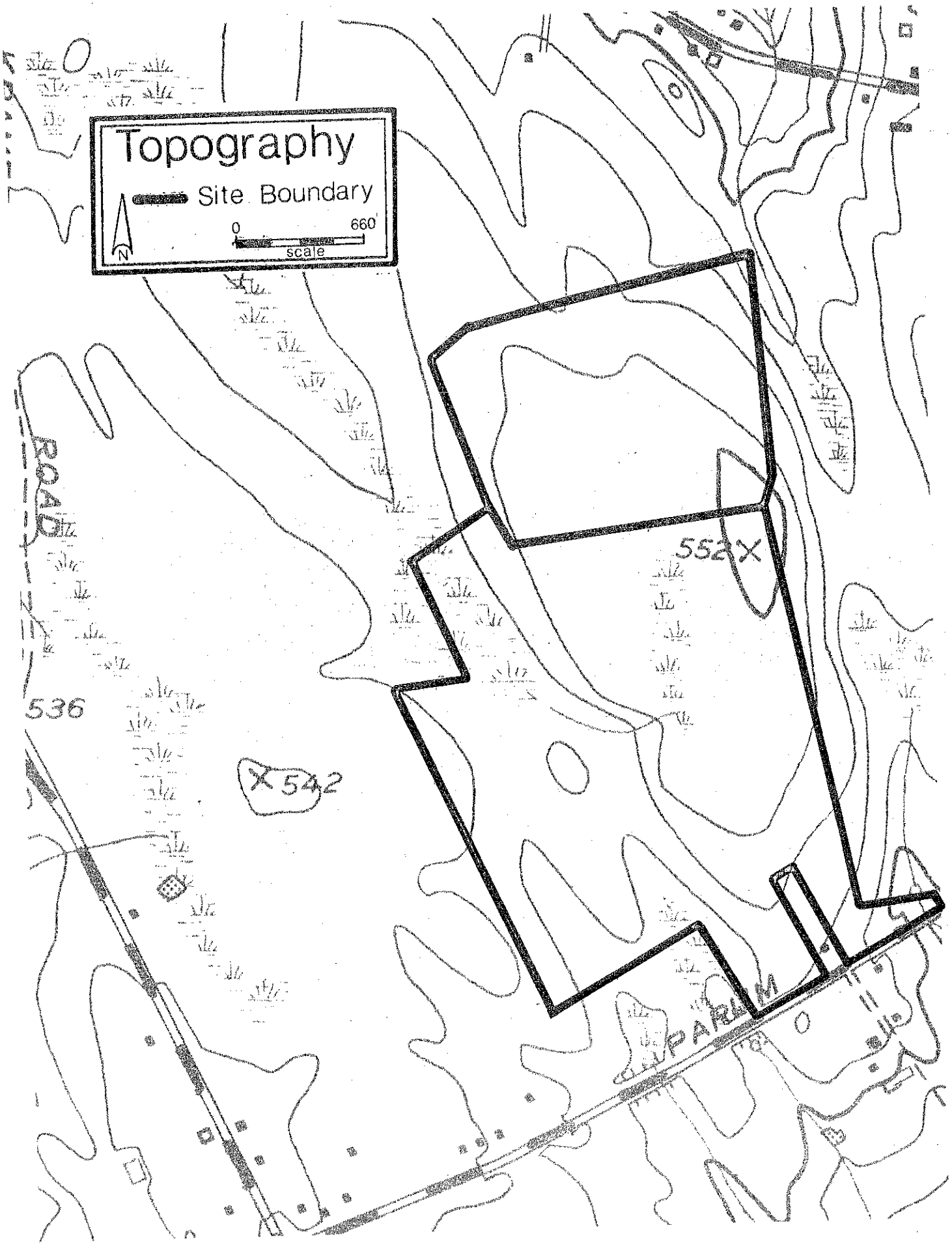
The Environmental Review Team that field-checked the property consisted of the following personnel: Gary Domian, District Conservationist, SCS; Michael Zizka, Geologist, DEP; Rob Rocks, Forester, DEP; Kevin McBride, Robert Gradie, Archeologists, University of Connecticut; Donald Capellaro, Sanitarian, Connecticut Department of Health; Andy Petracco, Recreation Specialist, DEP; Gerhard Amt, Regional Planner, Southeastern Connecticut Regional Planning Agency; and Jeanne Shelburn, ERT Coordinator, Eastern Connecticut RC&D Area.

The Team met and reviewed the site on Thursday, August 9, 1979. Reports from each Team member were sent to the ERT Coordinator for review and summarization for this 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 developers, the Indian Affairs Council, and the Golden Hills Tribal Members. The results of this Team action are oriented toward the development of a better environmental quality and the long-term economics of the land use.

The Eastern Connecticut RC&D Project Committee hopes you will find this report of value and assistance in making your decisions on this particular site.

If you require any additional information, please contact: Ms. Jeanne Shelburn, Environmental Review Team Coordinator, Eastern Connecticut RC&D Project, 139 Boswell Avenue, Norwich, Connecticut 06360, 889-2324.


Topography
Site Boundary
0
660'
scale
N
552X
536
X542
ROAD
PARK

DESCRIPTION OF THE PROPOSAL

The Eastern Connecticut Environmental Review Team was requested to produce an environmental assessment for the proposed Golden Hills Indian Reservation development in the Town of Colchester. The Golden Hills Development Corporation, which represents the tribe, is applying for HUD (U.S. Department of Housing and Urban Development) Community Block Grant funding for acquisition of this parcel. The tribe currently owns 1/4 acre in the Town of Trumbull and a 60± acre parcel adjacent to the study site. They would like to purchase this additional 40± acre tract for expansion of their reservation relocation.

The parcel in question is located north of Parum Road approximately 3,000 feet east of route 354 and is in private ownership. The site adjoins the rear of a parcel of land already owned by the tribe that fronts on Parum road. It is located in the eastern corner of the Town of Colchester. The land is level to gently sloping. The property is about one mile from the Deep River Reservoir, the water supply for the City of Norwich, but the drainage is not in the direction of the reservoir. The area is zoned Rural Residential, which is basically a low intensity residential zone, requiring at least 60,000 square feet per lot.

The site is entirely wooded at present. There is an old dirt roadway leading into the property near an existing house on Parum Road. The land along most of this roadway and for a distance towards the east-northeast rises somewhat in elevation and is relatively flat across its width. There is also an apparent dirt roadway parallel to and just beyond the east boundary line. The terrain beyond this line slopes off more rapidly, going to a wetland with a defined watercourse that flows toward Parum Road and to the reservoir. The northern portion of the acquired property as well as a section of the property under investigation also contains wetlands. The drainage from this area flows north, ultimately passing under both Chestnut Hill Road and Route 2 and entering Sherman Brook. Sherman Brook flows into Deep River downstream from the reservoir.

The Regional Development Plan for Southeastern Connecticut recommends low density uses in this area, consisting of scattered residential uses at greater than one acre per unit; agricultural, conservation, recreation, and water supply uses.

Colchester's population increased from 6,603 to an estimated 7,900 in 1978.* SCRPA projects a population of 8,300 by 1980 and 9,500 by 1990. The population is predominantly white, with 200 persons, or about 3% of the population indicated as non-white by the 1970 Census of Population. Although the Borough of Colchester contains a small commercial center and there are small businesses scattered throughout the Town, many wage-earners residing in Colchester find employment in the major urban areas of Hartford, Norwich and New London, all of which are accessible over excellent highways.

As outlined in the "Needs Assessment and Strategy Statement", the tribe intends to purchase this property for the purpose of reservation expansion and tribe reunification. At present, 96% of the tribe population resides in low income, substandard, and overcrowded housing off the reservation lands. Purchase of this property will be the first step in alleviating these problems.

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* Connecticut Department of Health.

After purchase of the property, the tribe intends to seek assistance for establishment of 15 housing units on the site. The third step in development of the reservation lands will include establishment of an additional 15 housing units, community gardens, stables, a goat-raising program, a hog-raising program, and a trading post/crafts cooperative/multi-service center. Agricultural activities are planned to help the tribe become self-sufficient and provide some income from the site.

ENVIRONMENTAL IMPACT

TOPOGRAPHY

The parcel is situated on a flat to very gently sloping upland area between the valleys of Sherman Brook and Deep River (headwater streams of Yantic River). Shallow linear swales oriented principally north-northwest collect runoff from the higher parts of the site, forming wetlands or seasonal brooks. It appears that this parcel lies entirely within the watershed of Sherman Brook.

GEOLOGY

No rock outcrops were observed on the site; however, bedrock underlying the property has been mapped and described in The Bedrock Geology of the Moodus and Colchester Quadrangles, Connecticut Geological and Natural History Survey Quadrangle Report No. 27, by Lawrence Lundgren, Jr., Lawrence Ashmead, and George L. Snyder (1971). Almost all of the bedrock is part of a unit known as the Brimfield Schist, a gray or rust-stained, garnetiferous, biotite-muscovite schist, with subordinate sillimanitic schist, garnetiferous quartz-biotite schist, garnetiferous calc-silicate granofels, and amphibolite. Scattered boulders of pegmatite are found on the site, suggesting the presence of lenses or layers of similar bedrock below the surface. Pegmatite is a coarse-grained, pink or white, granitic rock generally consisting of quartz, oligoclase or albite, microcline, muscovite, and biotite.

The bedrock is covered by a blanket of glacial till, a deposit consisting of rock particles of varied shapes and sizes. Although the upper few feet of the till may be rather granular and loose in some places, deeper parts are usually very tightly compact, a result of both the mode of deposition (beneath glacier ice) and the rotten-weathering characteristic of the parent rocks (which resulted in a high percentage of fine materials). Groundwater movement through the compact till is extremely slow, a condition which no doubt has helped to produce the wetland areas on the site.

HYDROLOGY

Development of this property would produce some changes in surface-water flow characteristics. Without a detailed site plan, the nature and extent of the changes are difficult to predict. The establishment of residential and small commercial structures would generate additional runoff for a given amount of precipitation. Technical Release No. 55 of the Soil Conservation Service provides a method to estimate these runoff changes.

A previous environmental review of the original Golden Hills Tribal acquisition, a parcel of land immediately south of the present tract, employed certain assumptions of the type and extent of development that would occur in order to estimate runoff changes resulting from the expected uses of the site. These changes proved to be comparable to the changes that would result from a one-acre residential development throughout the original parcel. Assuming a similar development intensity on the present parcel, an 85-percent runoff increase would occur on the site for a 2-inch rainfall, a 50-percent increase for a 3-inch rainfall, and a 30-percent increase for a 5-inch rainfall. In Colchester, a 5-inch rainfall is approximately what would be expected during a 25-year-recurrence, 24-hour-duration storm (source: Weiss, L.A., 1975, Flood Flow Formulas for Urbanized and Nonurbanized Areas of Connecticut, Water Management symposium, ASCE Irrigation and Drainage Division, Logan, Utah).

The runoff increase for the 5-inch rainfall may be expected to produce moderate peak flow increases in the seasonal streams flowing northward from the site. On the average, this increase would be approximately 15 percent. Smaller peak flow increases would be anticipated for larger storms; a 6.5-inch rainfall (approximately representing a 100-year, 24-hour storm) following development would generate peak flows about 11 percent higher than under present conditions.

It must be remembered that the figures given here are based on certain assumptions, some of which may not be valid under the final development scheme. A less intense development would lead to smaller runoff and peak flow increases. The wetlands north of and within the site will also help to mitigate the effects of the increases. Nevertheless, the increases are substantial enough to warrant careful consideration of sediment-and-erosion-control measures.

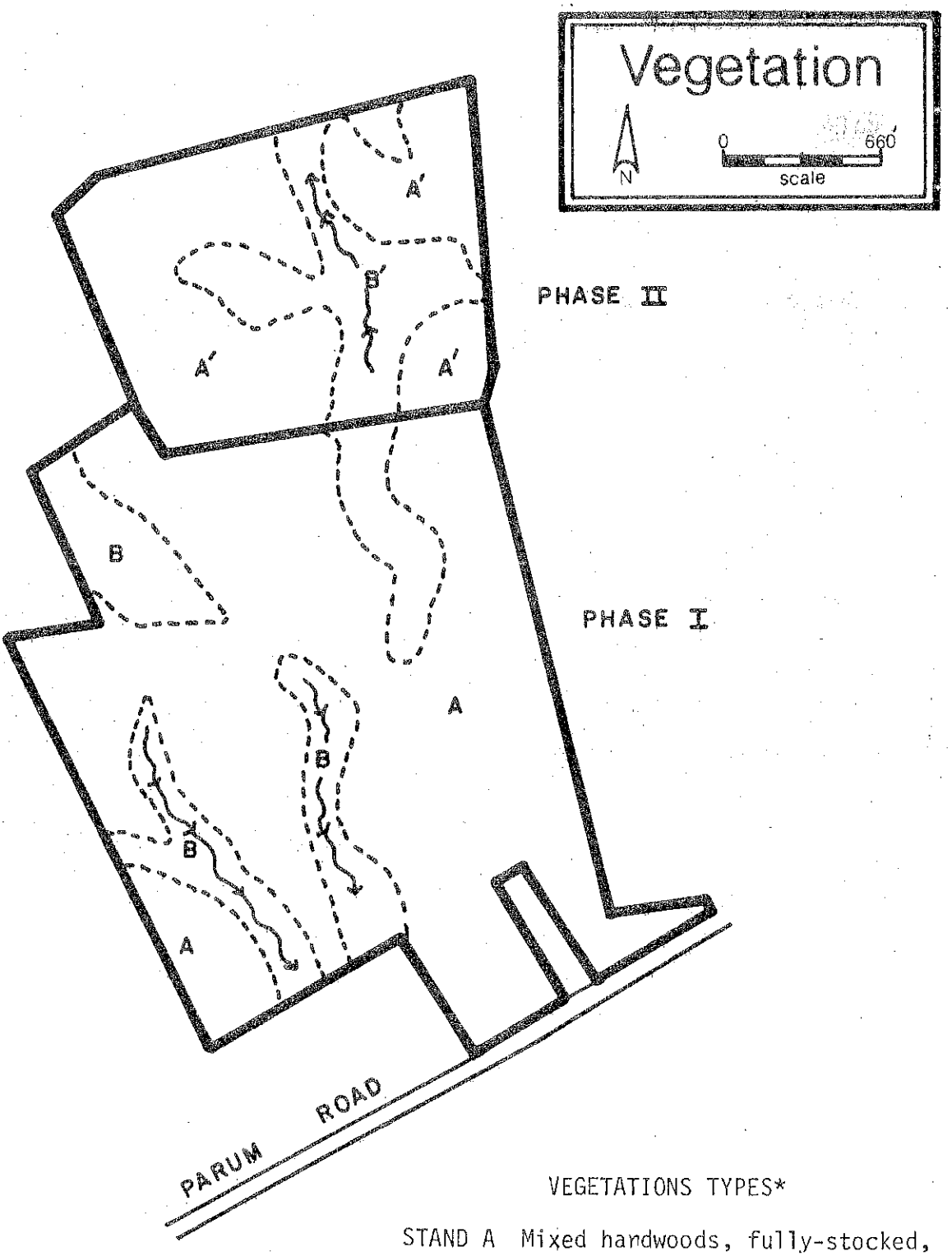
VEGETATION

The 40± acre tract, which is currently being considered for acquisition by the Golden Hills Indian Tribe is completely forested. Two distinct forest types are present; they are mixed hardwood and hardwood swamp (See vegetation type map).

Vegetation Type Descriptions

Stand A. (Mixed Hardwoods). This 30 acre stand is made up of pole size white oak, black oak, scarlet oak, pine oak, hickory, red maple, black birch, yellow birch, tulip-tree and big-tooth aspen. Stocking levels have been reduced by a recent harvest which has removed most of the merchantable sawlog-size trees. Tops from harvested sawlogs, which still remain in the woods should be salvaged for fuelwood before they are no longer useable for burning. An understory composed of hardwood tree seedlings, highbush blueberry, blue-beech, mapleleaf viburnum and azalea has become very dense in areas of this stand that are under-stocked and only moderately dense where the stand is fully-stocked. Huckleberry, Christmas fern and clubmoss form the ground cover in this area.

Stand B. (Hardwood Swamp). Poor quality pole to sawlog size red maple, yellow birch, black gum and red oak are present but not fully occupying this 10 acre stand. Suitable sawlog-size trees have been removed, leaving large openings in the canopy. Sweet pepperbush has taken advantage of the increased sunlight reaching the forest floor and become exceptionally dense and wide spread. Ground cover species include sphagnum moss, skunk cabbage, cinnamon fern and bracken fern. The already high windthrow hazard in this stand has been increased in some places by the recent harvest.



LEGEND

- Road
- Property Boundary
- Stand Boundary
- Stream

VEGETATIONS TYPES*

STAND A Mixed hardwoods, fully-stocked, pole to sawlog size.

STAND A' Mixed hardwoods, under-stocked to fully stocked, pole-size.

STAND B Hardwood swamp, fully-stocked, pole to sawlog-size.

STAND B' Hardwood swamp, under-stocked, pole-sized to sawlog-size.

* Pole size = trees 5-11 inches in diameter at breast height.

Prior to the turn of the century, the more level sections of the mixed hardwood stand were in agricultural use. Stone walls and the mounds produced as plow lines are still present.

The vegetation in the surrounding area is characterized by a continuation of the mixed hardwood forests and hardwood swamps found on the site with the addition of pasture land.

The low density single family residences in conjunction with the pasture land and woodland along Parum Road generate a rural atmosphere in this part of town.

SOILS

A detailed soils map of this site and detailed soils descriptions are included in the Appendix to this report, accompanied by a chart which indicates soil limitations for various urban uses. As the soil map is an enlargement from the original 1,320'/inch scale to 660'/inch, the soil boundary lines should not be viewed as absolute boundaries, but as guidelines to the distribution of soil types on the site. The soil limitation chart indicates the probably limitations of each of the soils for on-site sewage disposal, buildings with basements, streets and parking, and landscaping. However, limitations, even though severe, do not preclude the use of the land for development. If economics permit large expenditures for land development and the intended objective is consistent with the objectives of local and regional development, many soils and sites with difficult problems can be used. The soils map, with the publication, New London County Interim Soil Survey Report, can aid in the identification and interpretation of soils and their uses on this site. "Know Your Land: Natural Soil Groups for Connecticut" can also give insight to the development potentials of the soils and their relationship to the surficial geology of the site.

Mineral soils occupy an elongated gently sloping hill, which is oriented in a northwesterly direction. Depressional areas are found along the western edge and within the eastern section of this hill, with smaller depressions found on the hill.

The gently sloping hill is dominant by Woodbridge fine sandy loam and Woodbridge very stony fine sandy loam and are denoted on the map in the Appendix by the symbols 31B and 31XB respectively. The Woodbridge fine sandy loam has a slope of 3 to 8 percent, and Woodbridge very stony fine sandy loam has a slope of 0 to 8 percent. The soils are formed in compact glacial till. The soils are moderately well drained and have a seasonal highwater table at 18 to 24". Woodbridge soils have moderate permeability in the surface layer and subsoil, and slow to very slow permeability in the substratum.

Well drained Paxton fine sandy loam 35B, and Paxton very stony fine sandy loam 35XB are found along the east edge of the property and in the south section of the property. Paxton soils are similar to Woodbridge soils except they are better drained. The slopes for both soils are 3 to 8 percent. The soils are formed in compact glacial till. Paxton soils have moderate permeability in the surface layer and subsoil and slow permeability in the substratum.

The depressional areas in the landscape are occupied by Ridgebury, Leicester and Whitman, and are denoted on the soil map with the symbol 43M. The soils are nearly level and are poorly drained, except for Whitman which is very poorly

drained. These soils are combined because they form a complex pattern on the landscape and are very similar in soil characteristics and in various land use limitations.

The limitations to most uses on this site depend on the depth of the seasonal high water table, but the degree of limitation will depend on the particular proposed use. Proposed uses of the additional land are single family housing, a tribal gathering place, and agricultural uses that include livestock and gardening. Agriculture is planned to become a means of helping the tribe become more self sufficient and to derive some income from the site.

Use of the soils for housing will be limited due to the seasonal high water table. Drainage around home sites and underground drainage around foundations are usual practices necessary to overcome such limitations. Onsite sewage disposal is severely limited on all the soils, primarily due to seasonal wetness and the presence of a slowly permeable substratum. Housing and the installation of septic systems should not be attempted in the poorly and very poorly drained soils due to severe limitations that are extremely difficult to overcome.

Agriculture shares many of the same limitations, due to a seasonal high water table and a slowly permeable substratum. However, limitations to agricultural uses are more easily overcome when properly planned. The well drained and moderately well drained soils respond well to artificial drainage when it is needed. The poorly and very poorly drained soils should be left in a natural state because they perform valuable functions as storm water storage areas, drainage outlets and provide natural wildlife and recreational habitat.

Sediment and erosion control are concerns on all sites being proposed for development. Even though the soils are gently sloping, they are erodible, particularly after vegetation is removed. Simple erosion control measures, such as haybales across drainage ways to prevent sedimentation, seeding newly constructed areas as soon after construction as possible, and mulching exposed soils should be planned and applied.

WATER SUPPLY

Water would be supplied to residents of this site by individual on-site wells. Because no large sand-and-gravel deposits exist and because till is generally a poor water-supply source, it is likely that the wells would tap the bedrock aquifer. Although an adequate yield from a bedrock-based well cannot be assured, 90 percent of the bedrock wells that were surveyed for Connecticut Water Resources Bulletin No. 15 (herafter Bulletin 15) provided at least 3 gallons per minute, the minimum ordinarily needed for an average-sized family of four or five.

Unfortunately, the bedrock that would be tapped in this case is the Brimfield Schist, which is notorious in the town of Colchester for producing groundwater with high iron and manganese concentrations. According to Bulletin 15, approximately 50 to 75 percent of the wells drilled into the Brimfield Schist in eastern Connecticut yield water with concentrations of iron and manganese that require treatment before the water can be used for domestic purposes. Possible treatment methods include water softeners (which can ordinarily remove concentrations of 2 to 3 parts per million effectively), chlorination-filtration units (which also kill bacteria), and manganese-greensand filters.

WASTE DISPOSAL

The wooded terrain on this site is quite similar to the adjacent parcel now owned by the Tribe. Wetlands with intermittent stream(s) are also found here. The higher land, according to soil survey data, consists of Paxton and Woodbridge type soils both of which are underlain with compact material (fragipan) below the subsoil. Woodbridge in particular is subject to a high seasonal water table. The noted difference in this smaller parcel is that all or the major portion of the land is on a drainage pattern which takes it off the watershed area of the Deep River public water supply reservoir. For this reason alone, it would make the location more favorable for locating various planned activities which by their nature could contribute waste or other materials which may have some effect on the watershed. This does not imply that precautions should not be taken to protect the other wetlands and watercourse(s) off the reservoir watershed, but that given regulations are generally less stringent for such areas as the need for protecting the public health is not as acute.

Subsurface sewage disposal should be directed to those areas (Paxton type soil) having the most suitable soil and site conditions. Major limitations of the soils on site would be with the high seasonal water level and slow percolation rate beneath the upper layers. For these reasons it would be imperative to have systems elevated and shallow. It would be recommended the sanitary systems be designed and layed out by a competent and knowledgeable engineering firm. Close supervision and inspection should also take place while systems are being installed.

CULTURAL/HISTORICAL RESOURCES

The search for cultural resources generally involves several stages of examination. These include investigation of written records, documents, contact with local informants, surficial walkovers, and a program of subsurface testing. Feasibility studies such as this project generally precludes such intensive examination of the archaeological record. Consequently, study of cultural resources was limited to a surficial examination of the proposed site of the Golden Hill Reservation.

A critical aspect of any investigation of cultural resources must be the assessment of the overall environmental setting in terms of aboriginal subsistence and settlement. Such information can provide a framework within which the occupational desirability of a given region or locale may be predicted.

Although the incomplete nature of this kind of investigation precludes definitive interpretations regarding the archaeological potential of an area, some general kinds of statements can be made based upon similar studies in other parts of Connecticut. The archaeological potential of an area can be assessed based upon broad topographic and physiographic criteria such as slope, drainage, distance to water, etc. Strong preference is generally expressed for site location on well-drained soils or those having only moderately impaired drainage, with slope gradients less than 10%. High site-density habitats are related to rivers, streams, and standing bodies of water. Using such criteria on the project area, those situations where Paxton and/or Woodbridge soils are found indicate some potential for human occupation. In those areas where these types of soils are found adjacent to rivers, streams, or bodies of water such as swamps or marshes, may be considered areas of potential aboriginal occupation. However, the types of swamps present in the project area do not generally provide a great amount of resources for prehistoric populations, and the potential of these areas may be considered somewhat lower.

It would be difficult to determine the actual potential of the area based upon the limited investigations in terms of prehistoric occupation. As the Paxton and Woodbridge soils would be the most heavily disturbed in the event of the location of the reservation, we suggest a more intensive investigation of those areas. Sub-surface testing would be needed in those areas considered to be desirable in terms of prehistoric occupation.

When the property under study was first taken up is not known. A 19th century map of New London County (Beers, 1868) shows two houses in the locality. Property on the south side of Parum Road which is now a horse farm was occupied at that time by C. Fargo. The house one-quarter of a mile to the east of the east boundary of the property was occupied by Norman Palmer. Based on topographical and surface evidence, a small mill, possibly saw or grist, may have stood on the Charlton-Hollis (17LC) soil in the gore at the southeast corner of the property. As this does not appear on the 19th century map it may date to the early 19th or late 18th century.

Most of the evidence for historical land use is the result of on-site inspection. During the walking survey few stone walls were observed. The most prominent wall paralleled Parum Road and the stones may have come from the right-of-way. This suggests that the land was never or rarely plowed. Plowing would have produced the necessary stones for wall construction; if the property was enclosed at all, it was with a wood fence. Evidence suggests that during the 20th century barbed wire was used.

The majority of the trees on the property appear to be approximately seventy years old or less. Numerous stumps and evidence of second growth suggest that this property was lumbered about 1910-20. This would be consistent with the general history of Connecticut's woodlands. As it generally takes between 60 and 70 years to produce commercially useable woodland in Connecticut, this would suggest that the property began to revert to woodland about 1850-60. Fruit trees, possibly apple, were observed on the property, which suggests that before the property became woodland it was an orchard. From the available evidence it seems that theproperty proposed for the Golden Hill Indian Reservation has always been considered marginal land. There is little direct evidence that the property was ever used for agricultural purposes with the possible exception of an orchard in the early 19th century. More likely is the possibility of rural industrial activity in the form of a grist mill or saw mill. Since the middle of the 19th century the property has been a woodlot. Currently, the property is part of the watershed of the Deep River Reservoir which provides water to the City of Norwich.

Given the short amount of time available, it is impossible to give a definitive assessment of the historical archaeological potential of the proposed reservation property. To adequately assess the impact of development on the archaeological potential of the property, the following procedures should be initiated:

1. A complete title search of the property from the founding of Colchester to the present. This title search should take particular note of any reference to land use or possible evidence of a mill.

2. A search of the Colchester Town Archives for such documents connected with the property such as tax records, probate records, or records of actions taken by the proprietors of the town which might have reference to the property under consideration.

3. An archaeological survey of the property, particularly the soil area designated 17LC should be conducted to determine if the remains of historical activities can be located on the property.

RECREATION POTENTIAL

The 40± acre tract being reviewed for the Golden Hills Indian Tribe is completely wooded and in a rural residential area. The prime (developable) land will undoubtedly be used for a road system, houses and other structures, and the agricultural enterprises envisioned. The land remaining will be the wet areas and possibly some relatively narrow dry land corridors. These corridors could be used for bridle trails, bicycle trails, and foot paths or jogging trails. Since it is not known exactly where the home, community, craft, and garden areas will be situated, it would be pointless to lay out a potential trail network. The perimeter of the property as well as the wetland perimeters might be available for trails. The road layout will be the primary determinant of recreation potential and the type of recreation possible. A compact road system would enhance the possibilities for trails, a ballfield, archery range, and other activities that require open-space land. Conversely, a more extensive road system uses up more land, thereby isolating smaller parcels of open space and minimizing the potential for recreation activities.

There are no severely limiting slope considerations to the establishment of open field activities (ball fields, bridle rings, etc.). The amount of open-space land remaining and soil characteristics would be some of the limiting factors. A playground for children, if being considered, would logically be located in proximity to the proposed community center.

SOURCES AND SIGNIFICANCE OF IMPACT

The soils and the commonly high groundwater levels on the site pose the major limiting factors to development of the proposed reservation. General limitations are caused by stoniness, depth to bedrock, wetness and susceptibility to frost action. Failing septic systems and wet basements are the most common problems related to these factors. Due to wetness problems in many areas engineered septic systems would no doubt be required to prevent effluent backups, effluent surfacing, plugging of tile lines, and/or surface water contamination. In order to minimize disturbance to the wetland soils and prevent sedimentation of the watercourses on site, a sediment and erosion control plan should be developed for implementation during the construction phase of this project.

Development of the site with its resultant loss of vegetation and creation of impervious roof and driveway surfaces will produce some change in surface water flow characteristics. These changes are difficult to predict without a detailed site plan. The amount of development planned should not cause significant flooding problems to the north of the site; however, the wetland water-storage volume to the south is not as extensive as that to the north and may be an area of some concern.

Water quality on this site is questionable as other wells in the area have produced water which is high in iron and manganese content.

Potential pollution problems relating to agricultural activities and their

effect on the Deep River Reservoir would not be a major concern on this site. As discussed earlier, the runoff from the additional 40± acre property flows to the northwest, away from the reservoir area. As a result, location of some of the planned agricultural uses on this site may be a desirable alternative to their location on tribe-owned lands to the south.

PLANNING CONCERNS

Non-reservoir property in this part of Colchester is mostly woodland or farmland. There are scattered residences along Parum Road, but the character is decidedly rural. Access to the site is over Parum Road, an improved town road, from State Route 354, located about a half-mile west of the property.

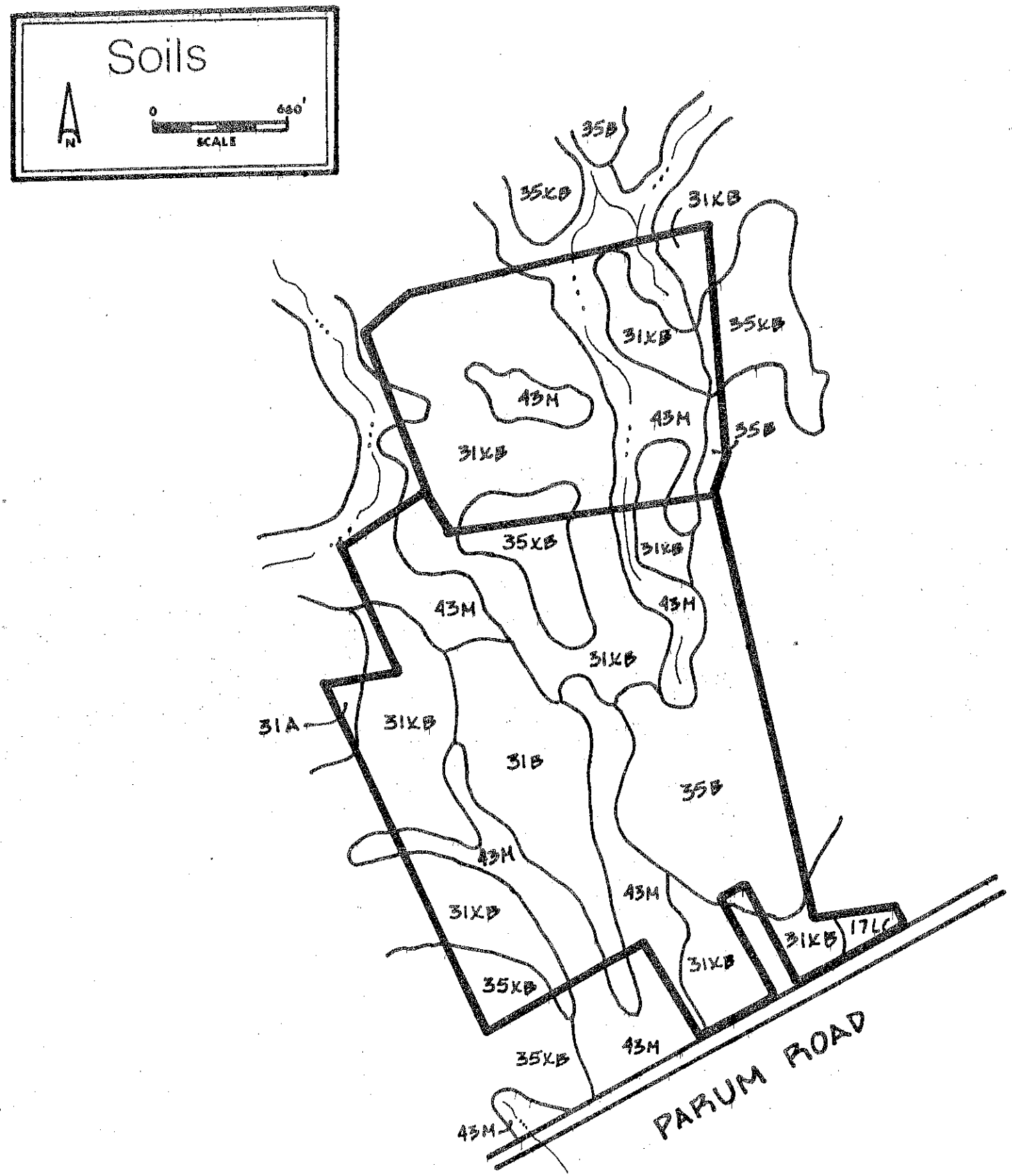
Because of the scattered pattern of existing development in this part of the town, relatively few existing residents would be directly affected by the proposed use. However, the concentration of possibly 30 homes in this relatively remote part of the Town could lead to problems concerning the provision of essential services such as police and fire protection. Public water and sewer systems neither exist nor are planned for this part of Colchester.

ALTERNATIVES TO THE PROPOSED ACTION

Management of this tract for timber production and wildlife habitat would be the most desirable alternative to the proposed action, because it would have the least negative environmental impact. Planned thinnings and intermediate harvests would not only provide income for the owner, but would, in time, increase the health, vigor and stability of the residual trees.

Another alternative would be to reduce the magnitude of the proposed development to between 3 and 5 family housing units. This would bring the desire of self-sufficiency into reach. The amount of land being removed from timber or fuelwood production would be in this case significantly lowered. The mixed hardwood stand is capable of producing between 1/2 and 1 cord of fuelwood per acre per year. This would be enough to meet the heating and cooking needs of 3 to 5 families, even after several acres have been cleared for gardens and pastures.

Appendix



Information taken from: Interim Soil Survey Report, New London County, Connecticut, 1978; soil survey sheets Nos. 1386, 2760; prepared by the United States Department of Agriculture, Soil Conservation Service. Advance copy, subject to change.

GOLDEN HILLS RESERVATION - SECTION II
COLCHESTER, CONNECTICUT

PROPORTIONAL EXTENT OF SOILS AND THEIR LIMITATIONS FOR CERTAIN LAND USES

Soil Series	Soil Symbol	Approx. Acres	Percent of Acres	Principal Limiting Factor	Urban Use Limitations*			
					On-Site Sewage	Buildings with Basements	Streets & Parking	Land-Scaping
Paxton	35B	1	1	Scope, Frost Action	3	1	2	1
Paxton	35XB	3	7	Frost Action, Large Stones	3	2	2	2
Ridgebury, Leicester Whitman	43M	11	25	Large Stones, Wetness, Frost Action	3	3	3	3
Woodbridge	31XB	29	66	Wetness, Frost Action	3	3	3	2

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.

About the Team

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

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

PURPOSE OF THE TEAM

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

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

REQUESTING A REVIEW

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

For additional information regarding the Environmental Review Team, please contact Jeanne Shelburn (889-2324), Environmental Review Team Coordinator, Eastern Connecticut RC&D Area, 139 Boswell Avenue, Norwich, Connecticut 06360.