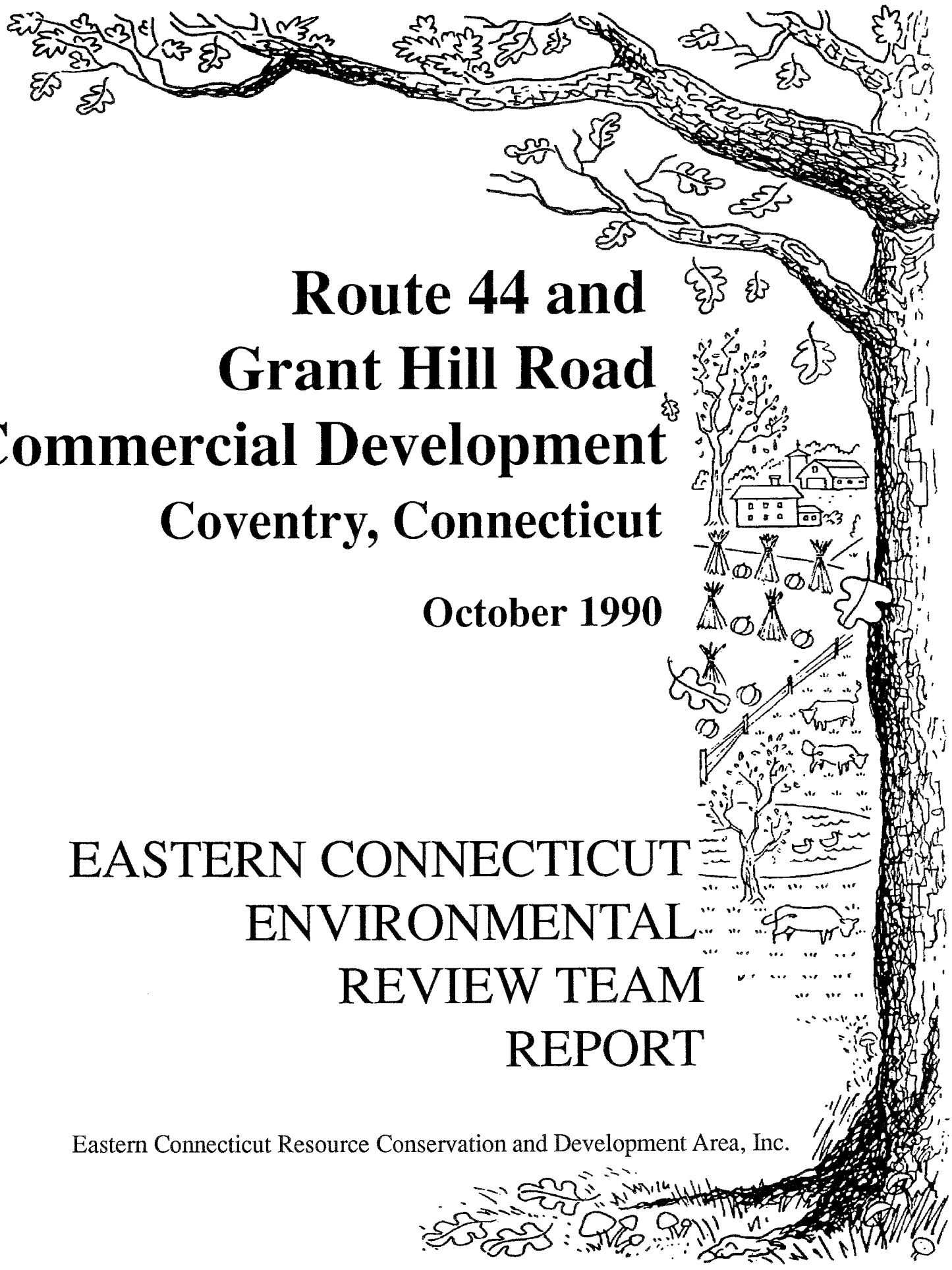


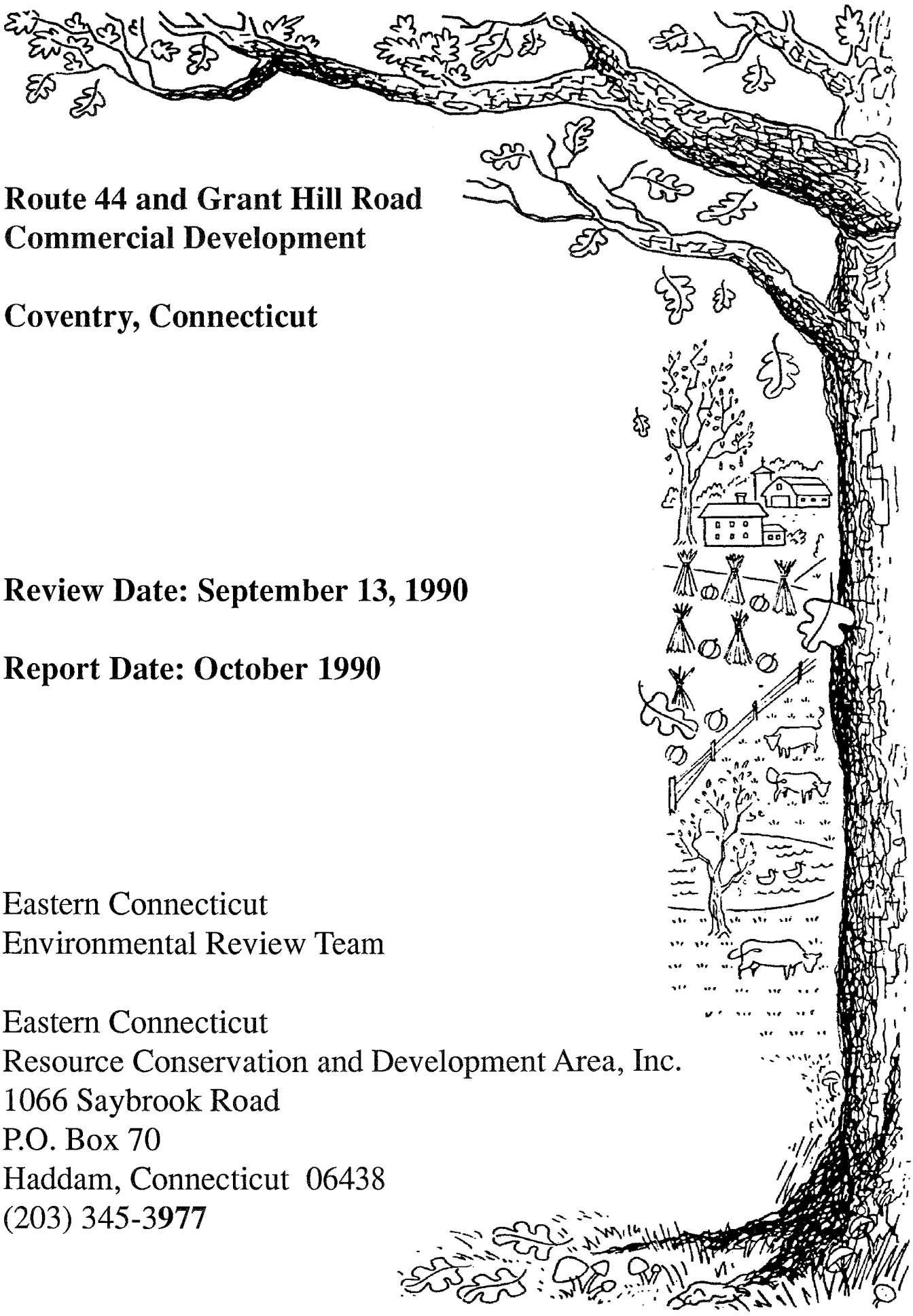
Route 44 and Grant Hill Road Commercial Development

Coventry, Connecticut

October 1990

EASTERN CONNECTICUT ENVIRONMENTAL REVIEW TEAM REPORT

Eastern Connecticut Resource Conservation and Development Area, Inc.



Route 44 and Grant Hill Road Commercial Development

Coventry, Connecticut

Review Date: September 13, 1990

Report Date: October 1990

Eastern Connecticut
Environmental Review Team

Eastern Connecticut
Resource Conservation and Development Area, Inc.
1066 Saybrook Road
P.O. Box 70
Haddam, Connecticut 06438
(203) 345-3977

ENVIRONMENTAL REVIEW TEAM REPORT

ON

Route 44 and Grant Hill Road Commercial Development Coventry, Connecticut

This report is an outgrowth of a request from Coventry Director of Planning to the Tolland County Soil and Water Conservation District (SWCD). The S&WCD referred this request to the Eastern Connecticut Resource Conservation and Development (RC&D) Area Executive Council for their consideration and approval. The request was approved and the measure reviewed by the Eastern Connecticut Environmental Review Team (ERT).

The ERT met and field checked the site on Thursday, September 13, 1990. Team members participating on this review included:

Nick Bellantoni	**State Archaeologist** **CT Museum of Natural History**
Barbara Buddington	**Senior Planner** **Windham Regional Planning Agency**
Nancy Murray	**Senior Environmental Analyst** **DEP-NRC, Natural Diversity Data Base**
David Poirier	**Archaeologist** **State Historical Commission**
Joyce Purcell	**District Conservationist** **USDA - Soil Conservation Service**
Elaine Sych	**ERT Coordinator** **Eastern Connecticut RC&D Area, Inc.**
Bill Warzecha	**Geologist/Sanitarian** **DEP - Natural Resources Center**

Prior to the review day, each Team member received a summary of the proposed project, a list of the town's concerns, a location map, a topographic map, and a soils map. During the field review the Team members were given literature on new planning ideas. The Team met with, and were

accompanied by the Director of Planning, the Town Manager, a member of the Conservation Commission and the engineer and design consultant. Following the review, reports from each Team member were submitted to the ERT Coordinator for compilation and editing into this final report.

This report represents the Team's findings. It is not meant to compete with private consultants by providing site designs or detailed solutions to development problems. The Team does not recommend what final action should be taken on a proposed project -- all final decisions rest with the Town and landowner. 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. The results of this Team action are oriented toward the development of better environmental quality and the long-term economics of land use.

The Eastern Connecticut RC&D Executive Council hopes you will find this report of value and assistance in making your decisions on this proposed commercial and residential development.

If you require additional information, please contact:

Elaine A. Sych
ERT Coordinator
Eastern Connecticut RC&D Area
P.O. Box 70
Haddam, Connecticut 06438
(203)345-3977

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1. Location, Zoning, and Land Use

The site, about 90 acres, is located in the northwest corner of Coventry (North Coventry). It is bordered on the south by the Boston Turnpike and Stage Road (a.k.a. Routes 31 and 44a), on the east by Grant Hill Road and on the north and west by wooded, undeveloped land. Olsons Brook, a southeast flowing perennial streamcourse, bisects the southwest corner of the site.

The site can be divided into four (4) privately owned parcels that range in size from about 1 acre to 40 acres. All of the parcels are encompassed by an R-40 zone, which would allow single family homes on lots of 40,000 square feet or larger. Team members were informed on the review day that the Town may consider a zone change for the 4 parcels which would allow a cluster type development that includes commercial, residential, office and retail land uses as well as open space. The purpose of the new zone is to provide flexibility in site design for the 4 parcels of land and to preserve the environmentally sensitive areas within the site.

Present land uses for the site and vicinity mainly include residential and agricultural, but also includes some commercial land on the south side of Routes 44a and 31. A medium density residential subdivision known as Pilgrim Hill occurs west of the property. Based on review of air photos for the site and vicinity that date back 56 years, the site was comprised of active farm fields. Stone walls give testimony to the agricultural past of the property. Except for a few of the open field areas which are probably mowed for hay, transition of land use for the site from the past to the present has resulted in a decrease in actively farmed land and an increase in wooded land.

LOCATION MAP

Scale 1" = 2000'

——— Approximate Site Boundary

10/24/90

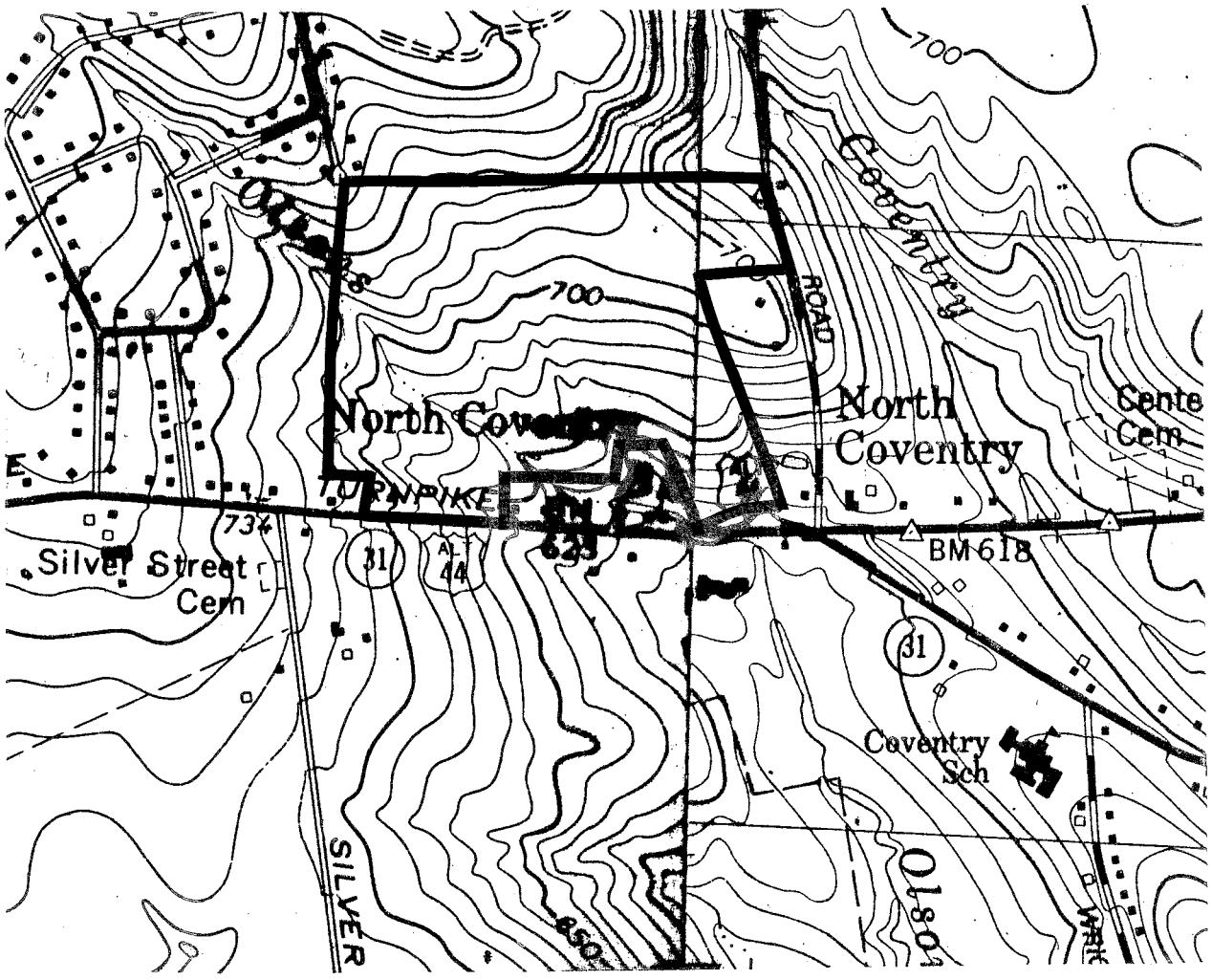
2. Topography

The sites topography consists generally of gentle to moderate slopes. From the northern parts of the site, the land surface slopes towards Rt 44a & 31. Additionally, there are some isolated areas of flat and steep slopes. Maximum and minimum elevations on the site are about 770 feet above mean sea level and 600 feet above mean sea level, respectively. A potential access road for the site that extends from Rts. 44a & 31 on the southwest corner to Grant Hill Road at the northwest corner could be designed to cross slopes and contours which will help minimize the need for the amount of cuts and fills. The site design should avoid the steeply sloping areas that occur on the site. This will reduce development costs and the chance for erosion and sediment control problems. Clustering of retail, office, commercial and residential buildings on the site provides flexibility for avoiding difficult areas such as steep slopes.

TOPOGRAPHIC MAP

Scale 1" = 1000'

Approximate Site Boundary



3. Geology

Except for the eastern limits of the site which lie in the Coventry topographic quadrangle, the site is encompassed by the Rockville topographic quadrangle. Only a bedrock geologic map (QR-6, by Janet Aitken) has been published for the Rockville quadrangle. No surficial geologic map has been produced for the quadrangle to date. Also, there are no published geologic maps for the Coventry quadrangle to date. For the geology section of the report, the Team's geologist referenced the Bedrock Geological Map of Connecticut, Rodgers (1985) and the Soil Survey - Tolland County Connecticut.

Bedrock is not widely exposed on the site. It is visible in a small area in the southeast corner of the site and also is in areas along Grant Hill Road (the eastern limits of the site). Rodgers (1985) identifies the bedrock underlying the site as Hebron Gneiss. It is described as an interlayered dark gray schist and greenish-gray fine to medium-grained calc-silicate gneiss. Schists and gneisses are crystalline rocks that have been geologically altered by great heat and pressure (metamorphosed) within the earths crust. Metamorphism caused the alignment of platy, flaky or elongate mineral into thin sheets or bands. Where the alignment has resulted in a slabby rock (i.e., rock that parts relatively easily along the surface of mineral alignment or foliation planes) the rock is termed a schist. Where the alignment has resulted in a banded but massive rock, the rock is termed gneiss.

Depth to the bedrock surface is probably 10 feet or more across the site. There is always a chance, particularly where deep excavations may be required for foundations or to achieve desired road and parking lot grades, that bedrock will be encountered and necessitate blasting. If required this work would undoubtedly raise site development and engineering costs.

The underlying bedrock will be the principal source of water to wells drilled on the site, since public water mains are not presently available to the site. See Water Supply section of report for further details.

A glacial sediment called till covers the entire site. Till consists of sediments that range in size from clay to large boulders, but is predominantly composed of fine sand and silt. These sediments were transported and deposited by glacial ice as it advanced through the region. The texture of the till varies across the site but is generally sandy, stony to very stony and loose. In the southwest corner of the site, the till is fine grained composed of fine sands and silt, less stoney and characterized by a compact soil zone that occurs about 15" - 24" below the ground surface. The presence of a compact soil zone close to the surface usually results in a seasonally high water table condition. This condition will be a hindrance for on-site sewage disposal. Also, buildings

constructed in this area should be protected by building foot drains which will hopefully keep basements dry.

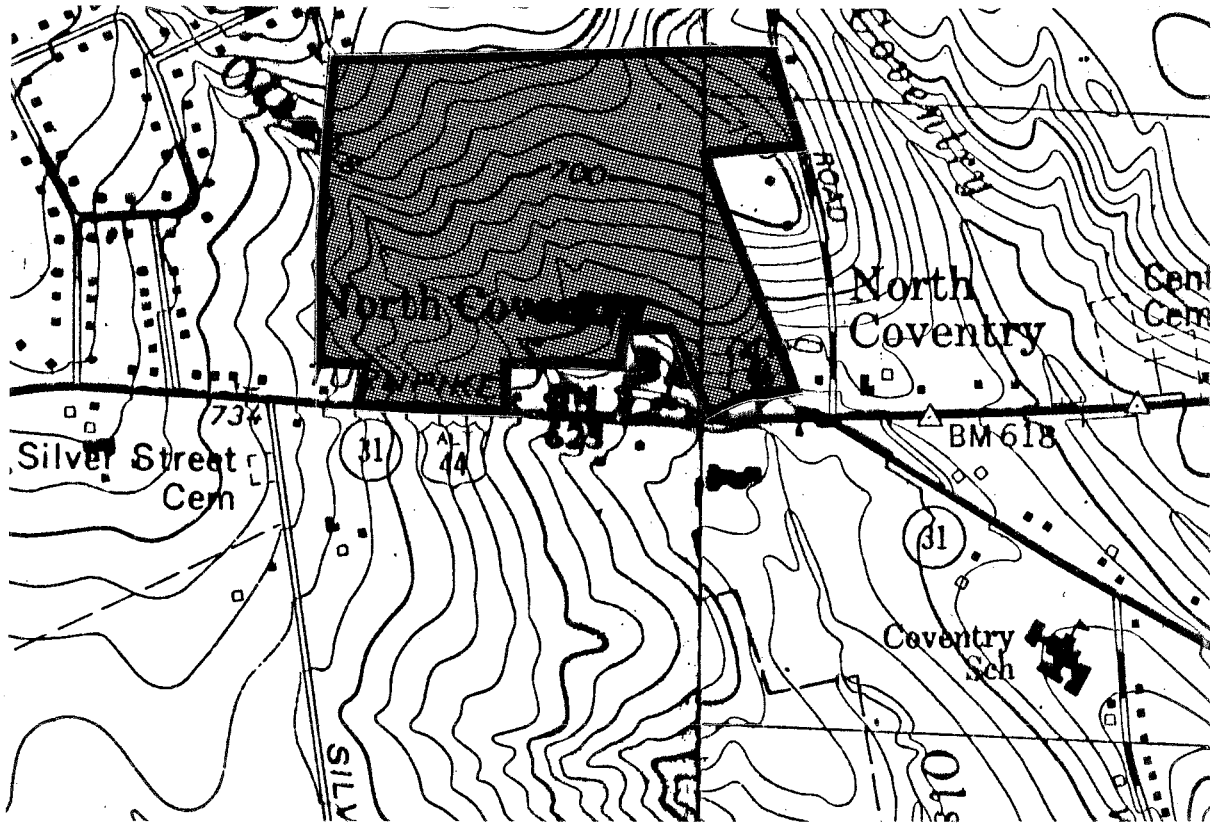
Based on the Soil Survey Tolland County, Connecticut and visual observations made during the field walk, wetland soils principally occur as narrow bands along Olsons Brook and other unnamed streamcourses and drainageways on the site. The wetlands should be delineated based on the presence of poorly drained, very poorly drained and alluvial soils by a certified solid scientist prior to the project design. Based on wetland information from the Soil Survey and orientation of streamcourses and drainage ways on the site, it seems likely that wetland impacts such as a wetland road crossing or grading for roads near wetland areas are inevitable in order to access the major parts of the site. Consideration should be given to a project design that has no significant impact to wetlands or other sensitive natural areas. The "cluster" design concept should help provide the developer with added flexibility to minimize wetland impacts.

GEOLOGICAL MAP

Scale 1" = 1000'

*Entire site is underlain by Hebron Gneiss

Till



4. Soil Resources

General Soils Information

The information contained in the Soil Survey of Tolland County, CT appears to be adequate for planning purposes. Basic interpretive information for the following map units are included for inclusion into the report (see Appendix). If the commission requires additional information it is suggested that the applicant retain the services of a qualified private soil scientist to review the information contained in the Soil Survey of Tolland County, CT, examine conditions in the field and provide the Commission with a verified map and more detailed interpretive information for the site. Map units within the site boundaries are: CaB, CaC, ChB, GeC, Lc, Lg, SvA, SxB, WxB, WyB, and Wd.

Wetland Boundary Information

The District suggests that the Commission require the applicant to provide for review a plan map with the field delineated boundaries and station numbers shown. The soil scientist who performed the field work should then review and sign a statement on the map(s) certifying that the information is substantially correct. The certification statement should be similar to the following:

> The wetland soils on this site were identified in the field using criteria required by Connecticut P.A. 72-155 as amended by Conn. P.A. 73-571, Conn. P.A. 87-338 and P.A. 87-533. The boundaries of these soils and of identified watercourses are accurately represented on the plot plan.

The Commission and/or appropriate staff should then arrange to meet with the applicant and the soil scientist to review these boundaries in the field and compare field conditions to the information submitted, especially in areas where alterations to the wetlands, road crossings, or stormwater discharges are proposed. Ask the soil scientist to explain any discrepancies between the SCS soil map and the more detailed soil survey of the site. If this procedure is followed and discrepancies cannot be resolved, the Tolland County Soil and Water Conservation District can on request review submitted information for adequacy and provide comments and/or on-site technical assistance.

Soil Erosion and Sediment Control Plan

Soils on this site are subject to erosion. The potential for off-site damages from sediment is high and downstream areas adjacent to the stream are subject to severe bank erosion from increased runoff. A detailed soil erosion and sediment control plan should be developed using the criteria contained in the Connecticut Guidelines for Soil Erosion and Sediment Control (1985). The Tolland County Soil and Water Conservation District would appreciate the opportunity to review this plan prior to final approval. A checklist should also be developed for the site based on the detailed narrative. The Commission may also want to require the following (or similar) statements on the plan which relate to implementation and inspection of the soil erosion and sediment control plan:

1. The contractor shall secure the services of a certified professional soil erosion and sediment control specialist or professional engineer who shall verify in the field that the controls required by this plan are properly installed, shall make inspection of such facilities not less frequently than weekly and within forty-eight (48) hours of any significant rainfall, and shall by written report, inform the owner or his agent not less frequently than weekly and the Town Planning and Zoning Commission not less frequently than monthly of observations, maintenance, and corrective activities undertaken. An approved checklist may be used to document the inspection findings.

2. There shall be a pre-construction meeting with the Town soil erosion and sediment control agent, the Town wetlands agent, the contractor and the contractor's professional soil erosion and sediment control specialist to discuss the plan and inspection and report requirements.

Other

Areas of concern for soil erosion include road cuts, storm drain outlets, proposed wetland/watercourse crossings, steep road grades and stabilization of the disturbed areas from the road network and residences. Protection of discharge areas need to be considered when planning a stormwater management system. Safe, stable outlet areas need to be planned for. Wetland areas

and watercourses need to be protected from sediment damage. Sediment laden stormwater and sediment generated during road construction through or across wetland areas are primary concerns. Runoff calculations and an assessment of downstream effects and plans for control of stormwater should be developed and submitted for review.

SOILS MAP

Scale 1" = 1320'

——— Approximate Site Boundary

10/24/90

5. Hydrology

Except for about 10 acres in the northeast corner and eastern limits, the site drains to Olsons Brook which bisects the parcel in a northwest-southeast direction. Olsons Brook ultimately flows into the Skungamaug River. From its intersection with Rts.. 44a & 31, it is estimated that the brook drains an area of about 260 acres. The ±10 acres in the northeast corner and eastern limits drains to Coventry Brook, which is also Skungamaug River tributary.

According to the Water Quality Classification Map of Connecticut (Murphy, 1987), the surface watercourses on the site have not been classified by the Department of Environmental Protection (DEP) and are considered Class A water resources by default. Class A water resources are suitable for drinking water, recreational or other uses and may be subject to absolute restrictions on discharges, although certain discharges may be allowed.

Both residential and commercial/office/retail development of the site would increase the amount of runoff during periods of rainfall. These increases would result from soil compaction, removal of vegetation, and placement of impervious surfaces (roofs, and parking lots) over the soil. The runoff increases from these types of developments (office, retail, commercial) usually tend to be higher due to more impervious surface areas that are required as for parking lots and bigger buildings. As such, a thorough assessment of post-development runoff impacts i.e., flooding and surface water degradation/erosion sedimentation will need to be addressed by the applicant. This can be accomplished by a detailed stormwater management plan. The plan should include all pre and post development runoff calculations. The Connecticut Guidelines for Soil Erosion and Sediment Control, 1985 (as amended) should be used as a guide.

Close examination of the culverts passing under Rts. 44a and 31 is warranted to ensure that they can handle post development runoff increases. If detention basins are required to avoid net increases in peak flows discharging from the site, this information should also be included in the stormwater management plan.

Due to the moderate slopes, necessary grading for the new roads, parking lots and foundations and the presence of some till soils that may have a high silt and fine sand content, measures should be taken to minimize the potential adverse environmental impacts to wetlands and/or surface water as a result of erosion and sedimentation. This can be accomplished by producing a comprehensive E&S control plan to be enforced by the Town. During the construction period, control measures, including silt fences, haybales, temporary/permanent sediment basins which permit settling time for suspended solids, anti-tracking devices and minimizing land disturbance, should be used to

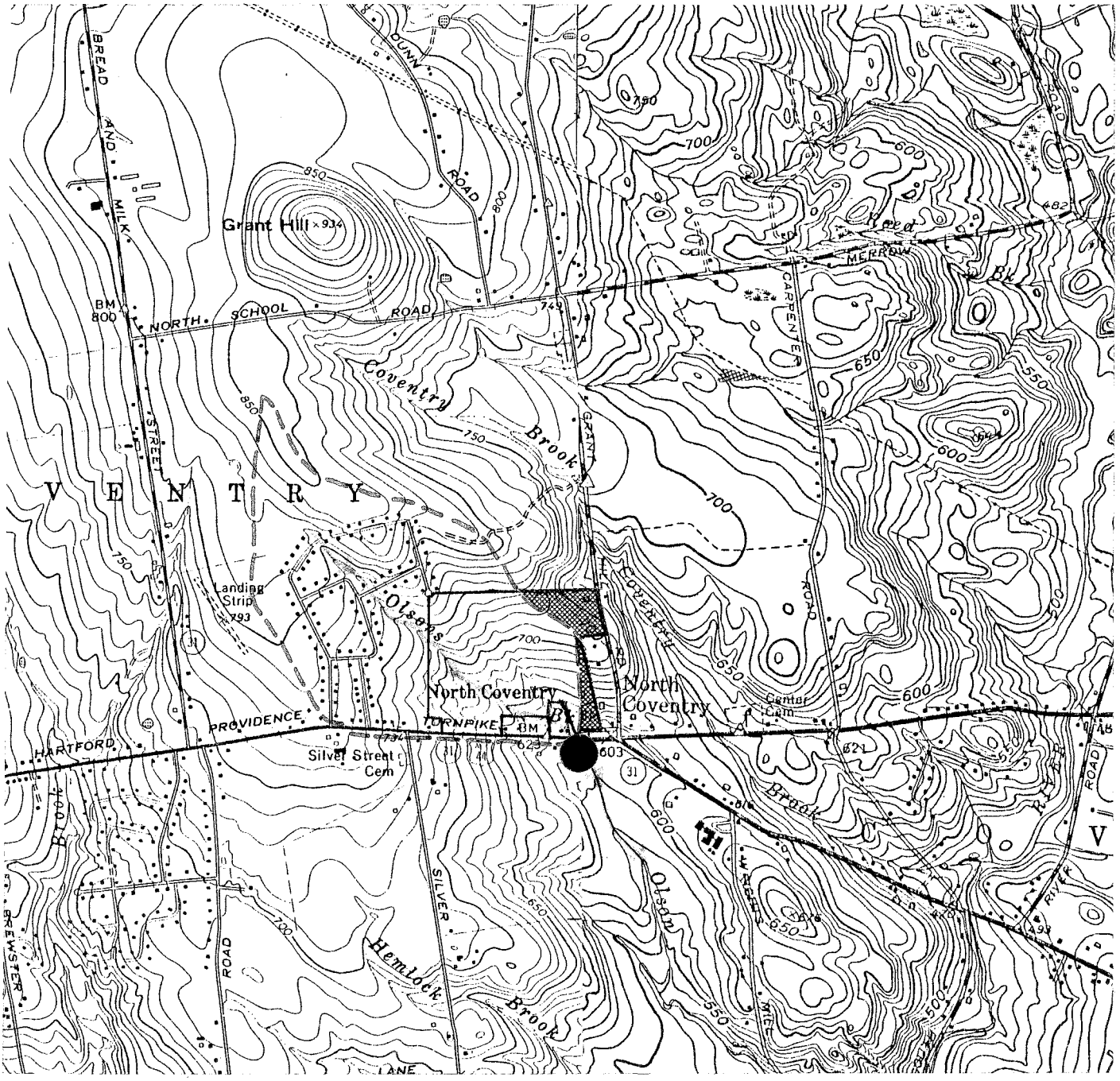
minimize the potential for environmental damage to wetland and surface waters on-and off-site.

WATERSHED BOUNDARY MAP

Scale 1" = 2000'

Watershed boundary and design point for Olsons Brook from it's intersection with Rts. 44a and 31.

Portion of the site that drains to Coventry Brook.



6.Water Supply

Unless public water facilities become available, perhaps by the extension of the Elm Water Company (Pilgrim Hills subdivision) water main, bedrock would be the only practical source of water for the site. Bedrock is commonly capable of providing small but reliable yields of groundwater to individual wells. Very few wells in bedrock can be expected to yield 20 gallons or more per minute.

A survey of bedrock wells in the Shetucket River basin, which includes the subject site (see Connecticut Water Resources Bulletin No. 11) indicates that more than 90 percent of those wells tested were drilled into a rock type similar to that found on the study site yielded 3 gallons per minute or more. The Team's geologist reviewed well completion reports for two, 6 inch drilled bedrock wells that serve the Pilgrim Hills residential subdivision (Elm Water Company) west of the site. Yields of 17 gallons per minute and 25 gallons per minute were reported for the two wells. These yields are equivalent to 18,360 gallons per day and 26,000 gallons per day, respectively. The latter is based on an 18 hour pumping period. The well advanced to depths of 250 feet (25 gallons per minute well) and 310 feet (17 gallons per minute well) below ground surface.

Groundwater moves through bedrock by way of an interconnected fracture system. Generally speaking most wells need to advance through 150 to 200 feet of bedrock to intersect enough fractures to supply at least 3 gallons per minute. There is no practical was of predicting the yield of a well or wells without drilling the well first.

Because the bedrock aquifer is not known to be a prolific aquifer it is important that the site developer evaluate available recharge and predicted water use for each of the various land uses for the project site. These calculations should show that ground water recharge is sufficient enough to meet the gross water demand of the project. Land uses requiring a substantial amount of water would probably necessitate the drilling of more than one well. On the other hand, short term daily needs for high flow rates might be met by a low yielding well in conjunction with water storage tanks.

The well or wells serving the prospective site development would be classified as a public or community water supply system and, as such, will need to be approved by the State Department of Health Services (Public Water Supply Section) and the local health department. Information on projected needs of the project in terms of water quantity, water quality testing and plans for pumpage, storage, treatment, if necessary, and the distribution system would also be required for

a water supply serving the prospective development. The Public Water Supply section of the State Health Department (566-1251) should be contacted as early as possible regarding the water supply system.

The natural quality of the groundwater should be good. However, there is always a chance that the underlying bedrock may contain elevated levels of iron bearing minerals, but filters may be used and required to combat this problem.

Ample precaution should be taken to keep the well or wells safe from septic system contamination, fuel oil tanks, roof drainage and surface drainage. Such precautions would increase placement of wells uphill from septic system leaching fields, surface, curtain and roof drain outlets, and conservative separating distances should be maintained.

Groundwater in the area is classified by the Department of Environmental Protection as GA, which means that it is suitable for private drinking water supply without treatment.

7. Sewage Disposal

Since municipal sewers are not presently accessible to the site, any development that occurs will need to be served by a community on-site sewage disposal system or systems. Based on a review of soil mapping data and walking tour of the site, it appears that the site would probably be somewhat limited for large scale commercial or residential development. On the other hand, it does appear feasible that the site could be developed for commercial or residential purposes with the provision that it be generally small in size. For example, septic systems to accommodate the employees of a small to moderate density commercial/office/retail development should not be a serious concern, assuming that the technical requirements for such a system can be met on the site. Also, residential development will probably need to be kept on a small density scale. In order to determine the site feasibility for on-site sewage disposal, extensive soil testing will be required. Potential areas for disposal systems include the open field in the southwest corner of the site, the area north of Olsons Brook in the northwest corner of the site (an area of second growth forest), and the open field areas in the northeast corner. The remainder of the site appears to be limited by a high ground water tables, which, in places, results from a relatively shallow permeable soil layer found above a compact glacial till. The compact soil zone commonly referred to as "hardpan" impedes the downward movement of groundwater resulting in a seasonally high water table condition.

As mentioned earlier, the sewage disposal system(s) serving the potential project would probably qualify as a community "public" sewage disposal system. As such, the Department of Environmental Protection (DEP) Land Disposal section of the Water Compliance Unit would need to issue a permit for the system.

Through detailed soil testing, the applicant's sanitary engineer must demonstrate to the DEP that the sites' soils can adequately treat and disperse sewage effluent without adversely impacting nearby surface waters and the local groundwater. Therefore, the hydraulic capacity of the soils will need to be determined for the final disposal site(s). This information, taking into account certain parameters will be used in making an evaluation of the sites capabilities for handling the design flows of the project. The DEP's Land Disposal Section (566-1932) should probably be contacted as early as possible to discuss potential plans and soil testing requirements.

8. The Natural Diversity Data Base

The Natural Diversity Data Base maps and files regarding the project area have been reviewed. According to our information, there are no known extant populations of Federally Endangered and Threatened species or Connecticut "Species of Special Concern" occurring at the site in question.

Natural Diversity Data Base information includes all information regarding critical biologic resources available to us at the time of the request. This information is a compilation of data collected over the years by the Natural Resources Center's Geological and Natural History Survey and cooperating units of DEP, private conservation groups and the scientific community. This information is not necessarily the result of comprehensive or site-specific field investigations. Consultation with the Data Base should not be substituted for on-site surveys required for environmental assessments. Current research projects and new contributors continue to identify additional populations of species and locations of habitats of concern, as well as, enhance existing data. Such new information is incorporated into the Data Base as it becomes available.

Please contact Nancy Murray if you have further questions (588-3540).

9. Planning Comments

The conceptual plan for the joint development of the four parcels under consideration, totaling approximately 105 acres, was presented verbally to the ERT at the time of the review. No written plans were submitted. As described at that time, the development would consist of

1) a commercial area along Route 44, set back from the highway, and accessible from the highway at one or possibly two points.

2) a residential area consisting of several small clusters with one access road off of Grant Hill Rd.

3) a "significant" (unmeasured) buffer of preserved open space, including some fields, wooded areas, and two pine groves; walking trails would be provided both for recreation and for access to the commercial area along Route 44.

The wetlands on the property have not been delineated. Taking obvious wetlands into consideration, it was estimated that 48 homes could be built by right on the combined parcels under current zoning.

Consistency with Local, Regional, and State Plans

The parcels under consideration are currently zoned RU-40. The town's Plan of Development recognizes the need to use land along Route 44 for commercial establishments and encourages coordinated shopping areas rather than disjointed projects with multiple curb cuts. It recommends that commercial developments be separated from the highway by buffer strips for aesthetics and safety, and that care be taken in architectural design to maintain consistency with neighboring properties. It also expresses concern for containing commercial development in limited areas. While the segment of Route 44 just west of the intersection with Grant Hill Rd. is, in general, appropriate for commercial use, the plan cautions that some of the land along Route 44 is made up of wetlands soils and soils with slow percolation rates which will require particular attention in planning for development. The conceptual plan presented would not be inconsistent with the town's Plan of Development. [Note: The 1978 Plan of Development is now in the early stages of a revision process].

The State Plan of Conservation and Development designates the area surrounding the intersection of Route 44, Route 31 south, and Grant Hill Rd. as a "Rural Community Center" - an area appropriate for the clustering of "relatively higher intensity land uses of residential, shopping, employment, and public facilities and services." This plan would encourage small community systems for water supply and sewage disposal, but not large scale public services in such an area. The conceptual plan for development is consistent with this.

The map accompanying the Windham Regional Planning Agency's Regional Growth and Preservation Guide Plan shows this parcel as low density rural, reflecting the town's current zoning. Given the volumes of traffic along Routes 44 and 31, the Proposed change in zoning from RU-4 to allow mixed commercial and residential use would seem appropriate - especially in view of the lack of suitable commercial property closer to the village center on Route 31. This parcel would then, in effect, become an extension of the "local retail services area" identified by the Guide Plan in the southwest corner of the intersection of the two state highways. The suggested plan - to have commercial units fronting on or with access off of Route 44 and clustered residential on the interior of the parcel and with access off of Grant Hill Rd - could preserve the setting of the existing historic buildings (church, grange hall, library, and a single family homes) fronting on Route 44, and at the same time provide clustered residential units which are both convenient to the commercial area and at the same time buffered from it by preserved open space.

Access

Access to the proposed commercial area would be from Route 44, which serves as a major corridor for travel between the main campus of the University of Connecticut in Storrs and the Capitol Region. The 1989 Average Daily Traffic (ADT) reported for this section of Route 44 was 16,600 vehicles (including traffic in both directions), up 16% from the 14,300 estimated in 1988. It should be noted that the 1989 number represents the first actual count on this segment of road since the opening of the I-384 connector in East Hartford in 1987. Because the parcel is across Route 44 from a commercial area and near the intersection of Route 44 with Route 31, care should be taken in planning the development to minimize turning movements to and from Route 44, either with one entrance/exit or a loop road to serve all of the commercial units. Consideration should be given to the need for a left turn lane for eastbound traffic on Route 44, as well as for signalization at the entrance/exit(s).

In the course of the ERT review of the property, the possibility was raised that the developer might try to work with the Second Congregational Church on Route 44 to reconfigure its parking lot to

allow an access road through it to the planned commercial area. This lot, however, is a well used State Park-and-Ride lot and is considered by users to be relatively secure **because it is in clear view of passing traffic.** Experience has shown that park-and-ride lots which are hidden from view (parking behind the church and/or hidden by landscaping, for example) may pose security problems or cause a perception of insecurity by users. In addition, this lot was enlarged at ConnDOT's expense In 1989 and ConnDOT has a 25 year improvement lease for its use, which would require a "buy-out" of the State investment to use it for another purpose. Both security for commuters' vehicles and ConnDOT's lease are issues which need to be taken into account before planning such an access road through the lot.

Access to the clustered residential Portion would be from Grant Hill Road. While the exact location for the entrance/exit has not been proposed, it does not appear that sightline problems would be significant. Vertical sightlines may be a problem if traffic travels at excessive speeds. Adequate walkways within the parcel connecting the residential clusters with the commercial development might offer residents the opportunity to be less dependent on automobiles to reach needed services. An interior road would allow residents to reach the businesses by car without having to use Grant Hill Road or Route 44. The convenience of such a road would have to be weighed against its interference with use of the open space through which it would pass.

Transit

Journey-to-Work statistics from the 1980 U.S. Census showed that of the 4635 workers residing in Coventry, 2905 - just under 63% - commuted to the Capitol Region to work. The 1989 expansion of the Park-and-Ride lot at the Second Congregational Church more than doubled its capacity from 39 to 84 vehicles. While at the present time this lot is used only for ridesharing, the Windham Regional Planning Agency has been working with ConnDOT for many years to introduce commuter bus service between Coventry and Hartford, and this has been included as a priority need for the region in the Regional Transportation Plan. While the state has not yet been willing to fund such service, the increasing traffic volumes on Route 44 along with increasing development on Route 44 both to the west and east of Coventry may make it a more viable option in the near future. To the east, for example, the planned re-use of the Mansfield Training School near the of Route 32 intersection and the proposed development of the UCEPI research park/hotel complex near Route 195 may be expected to generate significant additional traffic on Route 44.

Residents of this proposed development would have convenient access to any commuter service which may be established along the Route 44 corridor.

Services

Given the large size of the parcel and the modest number of clustered residential units being considered, it is likely that adequate community water and septic systems could be provided in the residential areas. However, the water and septic requirements of the commercial units near Route 44 will vary greatly depending on the particular businesses that locate there. The restaurant/inn suggested as a possible use would place heavy demands on such systems, and it is not clear that these needs could be met.

If the Town intends to encourage more development along this portion of Route 44, and to make North Coventry a second "town center", installing sewers may be an option to consider. It appears that either a connection to the existing sewer system or the installation of a separate system serving North Coventry would require the installation of approximately four miles of sewer lines. Both the distance and topographical changes (particularly for a new system installed between the site and the Willimantic River along Route 44) would make such an installation extremely expensive. It might also encourage development in an area not otherwise suitable or desired for such a level of development.

Without sewers, the development along this segment of Route 44 will be limited by the carrying capacity of the soils. The Town needs to clarify the types and extent of commercial development that it envisions for this project and then to judge whether or not the carrying capacity of the soils is sufficient to sustain it. These limitations should be investigated early in the planning process.

Three private water companies now supply water to developments near this parcel: Twin Hills Water Company to the Twin Hills subdivision, General Water Service Company to the Northfield subdivision, and Elm Water Company to the Pilgrim Hills subdivision. The parcel under consideration almost abuts Pilgrim Hills. Any expansion of service by an existing small water company or the establishment of a new small water company requires a certificate of public convenience issued by the Departments of Public Utilities and Health Services. None of the small water companies listed above have ever been through the certification process because they have not initiated or expanded their service since the certification requirement went into effect.

The town should be aware of municipal responsibility for water systems as affected by Section 6 of PA 84-330, (CGS 8-25a) "An Act Concerning Small Water Companies and the Receivership of Water Companies." This act provides that:

> No proposal for a development using water supplied by a company incorporated on or after the effective date of this act shall be approved by a planning commission or a

combined planning and zoning commission unless such company has been issued a certificate pursuant to section I6-262m of the general statutes, as amended by section 1 of this act. **If a proposal is approved without a certificate, the municipality** in which the planning commission or the combined planning and zoning commission is located **shall be responsible for the operation of the company in the event that the company at any time is unable or unwilling to provide adequate service to its customers.**

(A small water company is a company, association, municipality, person, etc. supplying water to at least 15 and not more than 250 service connections (or to at least 25 persons and not more than 1000 persons.)

General Comments

The conceptual plan for mixed residential and commercial use of this property is consistent with the local, regional, and state plans. The primary planning concern is that the carrying capacity of the soils may not be able to sustain the amount and type of commercial development which may be envisioned along Route 44. The Town needs to realistically assess this limitation in view of its expectations for the parcel.

10. Archaeological Resources Review

The project area has the potential for prehistoric Indian campsites along portions of Olson Brook. The State of Connecticut Archaeological Site Files and Maps show no known sites on the property. However, eleven prehistoric Native American settlements have been identified in the near vicinity. One prehistoric campsite located on Grant Hill dates between three and four thousand years ago. Another near Coventry Brook along Grant Hill Road dates to the same time period. Seasonal and year round flowing brooks provided prehistoric hunters-gatherers with important environmental resources available during their seasonal subsistence migrations.

The Office of State Archaeology recommends that a reconnaissance survey be conducted on the project area along the corridor of Olson Brook. The enclosed map indicates the area of high archaeological potential. This survey should be conducted in accordance with the Connecticut Historical Commission's **Environmental Review Primer for Connecticut's Archaeological Resources.** The survey should locate and identify any cultural resources in the project area that may be effected by the proposed commercial development.

In addition, on-site inspection revealed properties of potential National Register of Historic Places significance in the immediate area: **1)** #152 Grant Hill Road is a five-bay center chimney 18th-century Colonial farmstead with associated outbuildings; and **2)** along the north side of Route 44 on both sides of its intersection with Grant Hill Road exist several structures which collectively would be eligible for the National Register as a historic district. Despite the recent shopping complex located on the south side of Route 44, these properties collectively possess a strong sense of an early 19th-century rural village.

Any development proposal should maximize the retention of significant mature tree species in order to provide a visual buffer between new construction and #152 Grant Hill Road and the potential Route 44 historic district. It is strongly recommended that any access road be along Grant Hill Road in order to minimize visual intrusion upon the Route 44 buildings.

In summary, the Office of State Archaeology recommends an archaeological survey along Olson Brook within the project area to locate and identify prehistoric cultural resources prior to any construction activity. The Connecticut Historical Commission further recommend the maintenance of mature tree species to buffer the historic ambience of Route 44 buildings.

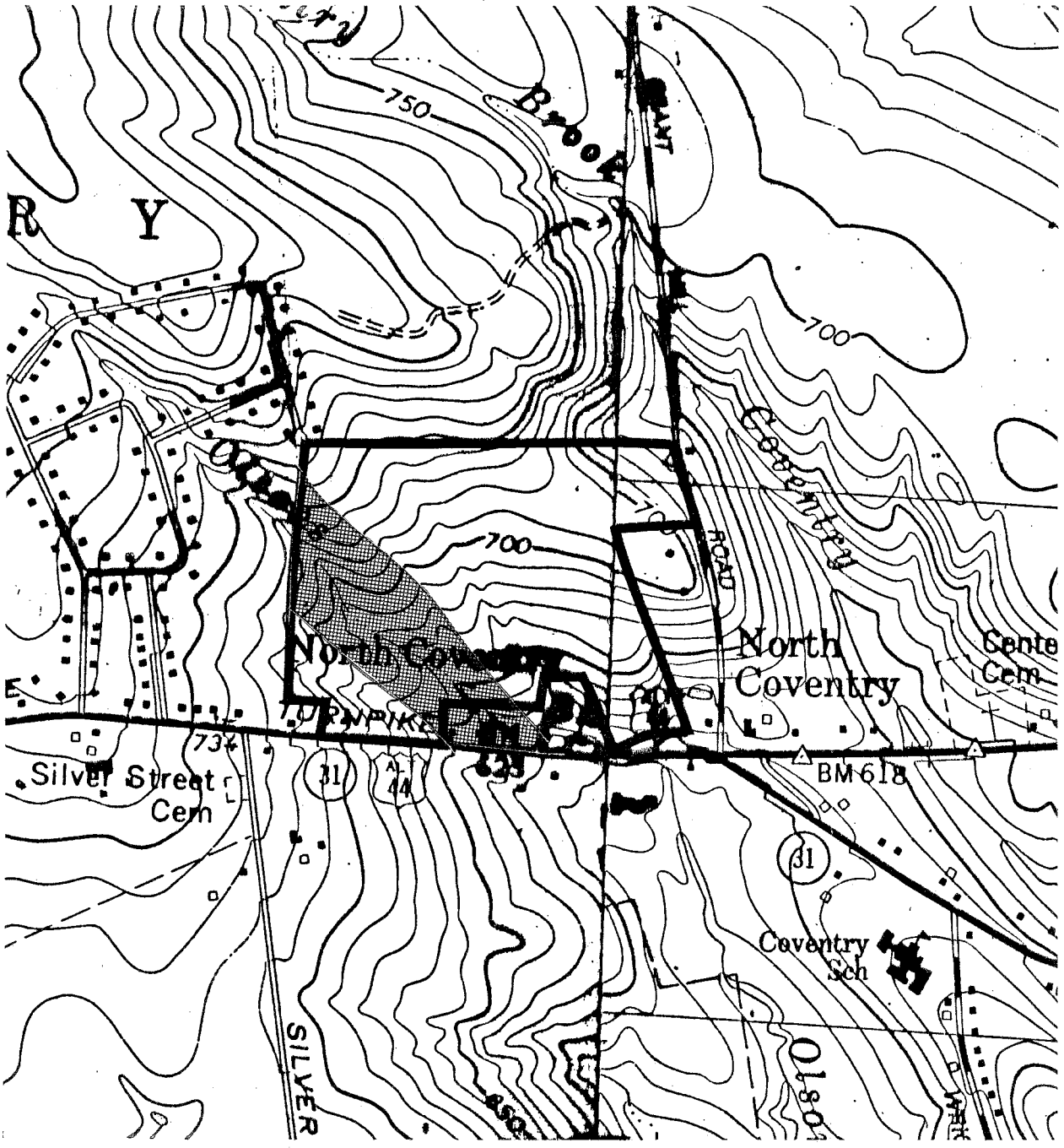
The Office of State Archaeology is prepared to offer the property owner and the Town of Coventry

any technical assistance in conducting an archaeological survey and ensure the preservation and conservation of all cultural resources in the project area.

ARCHAEOLOGICAL SIGNIFICANCE MAP

Scale 1" = 1000'

Archaeologically Sensitive Area to be Surveyed



Appendix

Soils Descriptions

CaB - Canton and Charlton soils, 3 to 8 percent slopes

This unit consists of gently sloping, deep well drained soils on ridges, hills and side slopes of glacial till uplands. The areas are mostly rectangular or irregular in shape. Slopes are generally smooth and convex and 200 to 400 fee long. About 45 percent of this unit is Canton soils, 40 percent is Charlton soils, and 15 percent is other soils. Some areas of this unit consist almost entirely of Canton soils, some almost entirely of Charlton soils, and some of both. The soils were mapped together because they have no significant differences in use and management.

Typically, the Canton soils have a surface layer of very dark grayish brown fine sandy loam 2 inches thick. The subsoil is yellowish brown fine sandy loam, gravelly fine sandy loam, and gravelly loamy sand to a depth of 60 inche or more.

Typically, the Charlton soils have a surface layer of dark yellowish brown fin sandy loam 5 inches thick. The subsoil is yellowish brown fine sandy loam and sandy loam 20 inches thick. The substratum is light yellowish brown and light brownish gray sandy loam to a depth of 60 inches or more.

Included with these soils in mapping are small areas of somewhat excessively drained Gloucester and Hollis soils, well drained Paxton soils, and moderately well drained Sutton soils. Also included are a few large, nearly level areas and a few areas that have a compact substratum at a depth of 40 to 50 inches.

The water table in these Canton and Charlton soils is commonly at a depth of more than 6 feet. The permeability of the Canton soils is moderately rapid in the surface layer and subsoil and rapid in the substratum. The permeability o the Charlton soils is moderately rapid. Both soils have medium to rapid runoff, have moderate available water capacity.

Instability of some excavations in the Canton soils is the main limitation of these soils for community development.

Slope is the main limitation of these soils for community development, especially for onsite septic systems. Excavations in these soils are unstable

CaC - Canton and Charlton soils, 8 to 15 percent slopes

This mapping unit consists of sloping, deep well drained soils on ridges, hills, and side slopes of glacial till uplands. Slopes are mainly smooth and convex and less than 200 feet long. The soils of this unit are the same as those described for the Canton and Charlton soils, 3 to 8 percent slopes excep for slope gradient. Included with these soils in mapping are a few areas with slopes greater than 15 percent.

Slope is the main limitation of these soils for community development, especially for onsite septic systems. Excavations in these soils are unstable

ChB - Canton and Charlton soils, 3 to 8 percent slopes, very stony

This mapping unit consists of gently sloping well drained soils on ridges, hills, and side slopes of glacial till uplands. The areas are mostly rectangular or irregular in shape. Slopes are generally smooth and convex and less than 200 feet long. About 45 percent of this unit is Canton soils, 40 percent is Charlton soils, and 15 percent is other soils. In some areas, this unit will consist almost entirely of Canton soils or almost entirely of Charlton soils. The soils were mapped together because they have no significant differences in use and management. Stones cover 1 to 3 percent of the soil surface.

Typically, the Canton soils have a surface layer of very dark grayish brown fine sandy loam 2 inches thick. The subsoil is grayish brown fine sandy loam, gravelly fine sandy loam and gravelly sandy loam 21 inches thick. The substratus is pale brown gravelly loamy sand to a depth of 60 inches or more.

Typically, the Charlton soils have a surface layer of dark yellowish brown fin sandy loam 5 inches thick. The subsoil is yellowish brown fine sandy loam and sandy loam 20 inches thick. The substratum is light yellowish brown and light brownish gray sandy loam to a depth of 60 inches or more.

Included with these soils in mapping are small areas of somewhat excessively drained Gloucester and Hollis soils; well drained Paxton soils; and moderately well drained Sutton soils. Also included are a few areas that have a compact substratum at a depth of 40 to 50 inches.

The water table in these soils is commonly at a depth of more than six feet. The permeability of the Canton Soils is moderately rapid in the surface layer and subsoil and rapid in the substratum. The permeability of the Charlton soils is moderate or moderately rapid. Both soils have medium to rapid runoff and have moderate available water capacity.

Instability of some excavations in the Canton soils is the main limitation for community development.

GeC - Canton and Charlton soils, 3 to 15 percent slopes, extremely stony

This mapping unit consists of gently sloping to sloping, well drained soils on ridges, hills, and side slopes of glacial till uplands. The areas are oval or irregular in shape. Slopes are mostly smooth and convex and are 100 to 600 feet long. Stones cover 8 to 25 percent of the surface. About 45 percent of this unit is Canton soils, 40 percent is Charlton soils, and 15 percent is other soils. Some areas of this unit consist almost entirely of Canton soils, some almost entirely of Charlton soils, and some of both. The soils were mapped together because they have no significant differences in use and management.

Typically, the Canton soils have a surface layer of very dark grayish brown fine sandy loam 2 inches thick. The subsoil is yellowish brown fine sandy loam, gravelly fine sandy loam, and gravelly sandy loam 21 inches thick. The substratum is pale brown gravelly loamy sand to a depth of 60 inches or more.

Typically, the Charlton soils have a surface layer of dark yellowish brown fin sandy loam 5 inches thick. The subsoil is yellowish brown fine sandy loam and sandy loam 20 inches thick. The substratum is light yellowish brown and light brownish gray sandy loam to a depth of 60 inches or more.

Included with these soils in mapping are small areas of somewhat excessively drained Gloucester and Hollis soils, well drained Paxton soils, and moderately well drained Sutton soils. Also included are a few nearly level areas and a few areas that have a compact substratum at a depth of 40 to 50 inches.

The water table in these Canton and Charlton soils is commonly at a depth of more than 6 feet. The permeability of the Canton soils is moderately rapid in the surface layer and subsoil and rapid in the substratum. The permeability of the Charlton soils is moderately rapid. Both soils have moderate available water capacity and medium to rapid runoff.

Slope is the main limitation of these soils for community development, especially for onsite septic systems. Slopes of excavations in these soils are unstable. The stones on the surface hinder landscaping.

Lc - Leicester fine sandy loam

This is a nearly level, poorly drained soil in drainageways and depressions of glacial uplands. Slopes are 0 to 3 percent and are smooth and concave. They are generally 50 to 300 feet long. The areas dominantly are long and narrow or irregular in shape.

Typically, the surface layer is black fine sandy loam 6 inches thick. The subsoil is grayish brown, light grayish brown, and pale brown, mottled fine sandy loam 17 inches thick. The substratus, to a depth of 60 inches, is dark yellowish brown, mottled, friable gravelly fine sandy loam that has discontinuous firm lenses up to 4 inches thick.

Included with this soil in mapping are small intermingled areas, generally less than 1 acre in size, of moderately well drained Sutton and Woodbridge soils an poorly drained Ridgebury, Walpole, Rumney soils. Also included are areas wher the surface layer is silt loam and a few areas where up to 3 percent of the surface is covered with stones and boulders. Included areas make up 5 to 20 percent of this map unit.

This soil has a seasonal high water table at a depth of about 6 inches from late fall until mid-spring. During the summer, the water table can drop to a depth of 5 feet or more. This soil has moderate or moderately rapid permeability. It has a high available water capacity. Runoff is slow.

Most areas of this soil are idle or used for pasture. Only a small acreage is used as cropland.

This soil has poor potential for community development. It is limited mainly by the high water table during much of the year. This soil is difficult to excavate because the high water table inundates the excavations. The steep slopes of excavations tend to slump when saturated. This soil has poor potential for building foundations and basements because footings are placed below the depth of the high water table. Waste disposal systems, such as septic tank absorption fields, do not function satisfactorily without unusual

Lg - Ridgebury, Leicester and Whitman soils, extremely stony

This mapping unit consists of nearly level, poorly drained and very poorly drained soils in depressions and drainageways of glacial till uplands. The areas are mostly long and narrow or irregular in shape. Slopes range from 0 t 3 percent and are mainly 100 to 300 feet long. Stones cover 5 to 25 percent o the surface. About 40 percent of this unit are Ridgebury soils, 25 percent ar Leicester soils, 15 percent are Whitman soils and 10 percent are other soils. Some areas of this unit will consist of one these soils and other areas will consist of two or three. The soils of this unit were mapped together because they have no significant differences in use or management.

The Ridgebury soils have a seasonal high water table at a depth of about 10 inches from fall through spring. The permeability of the soils is moderate to moderately rapid in the surface layer and the subsoil and slow to very slow in the substratum. Runoff is slow The Ridgebury soils have a moderate available water capacity.

The Leicester soils have a seasonal high water table at a depth of about 10 inches from fall through spring. The permeability of the soils is moderate or moderately rapid throughout. Runoff is slow. The Leicester soils have a moderate available water capacity.

The Whitman soils have a seasonal high water table at or near the surface from fall through spring. The permeability of the soils is moderate or moderately rapid in the surface layer and subsoil and very slow in the substratum. Runof is slow. The Whitman soils have a moderate available water capacity.

The high water table and slow to very slow permeability are major limitations of the soils of these areas for community development. Steep slopes of excavations in these soils slump when saturated. The stones on the surface restrict landscaping and lawn areas are soggy most of the year.

SyA - Sutton fine sandy loam, 0 to 3 percent slopes

This nearly level, moderately well drained soil is on upland glacial till plains, hills, and ridges. Areas are dominately irregular in shape.

Typically, this Sutton soil has a very dark grayish brown, fine sandy loam surface layer 9 inches thick. The subsoil is yellowish brown, dark yellowish brown, and dark brown, mottled fine sandy loam and sandy loam 24 inches thick. The substratum is olive brown, mottled sandy loam to a depth of 60 inches or more.

Included with this soil in mapping are small areas of well drained Canton and Charlton soils; moderately well drained Woodbridge soils; and poorly drained Leicester soils. Included areas make up about 10 percent of this map unit.

The Sutton soil has a seasonal high water table at a depth of about 18 inches. Permeability is moderate or moderately rapid. The available water capacity is moderate. Runoff is medium. Sutton soil warms up and dries out slowly in the spring.

The major limiting factor for community development is the seasonal high water table. On-site septic systems need special design and installation to prevent effluent from seeping to the surface. Foundation drains help to prevent wet basements. Lawns are wet and soggy in the fall and spring. Quickly establishing a plant cover and using mulch, temporary diversions, and sediment basins are recommended measures to help control erosion during construction.

SxB - Sutton fine sandy loam, 2 to 15 percent slopes, extremely stony

This nearly level to gently sloping, moderately well drained soil is on upland glacial till plains, hills, and ridges. Stones and boulders cover 3 to 25 percent of the surface. Areas are dominantly irregular in shape.

Typically, this Sutton soil has a very dark grayish brown, fine sandy loam surface layer 4 inches thick. The subsoil is yellowish brown, dark yellowish brown, and dark brown, mottled fine sandy loam and sandy loam 29 inches thick. The substratum is olive brown, mottled sandy loam to a depth of 60 inches or more.

Included with this soil in mapping are small areas of well drained Canton and Charlton soils; moderately well drained Woodbridge soils; and poorly drained Leicester soils. Included areas make up about 10 percent of this map unit.

The Sutton soil has a seasonal high water table at a depth of about 18 inches. Permeability is moderate or moderately rapid. The available water capacity is moderate. Runoff is slow or medium. Sutton soil warms up and dries out slowl in the spring.

The major limiting factor for community development is the seasonal high water table. Onsite septic systems need special design and installation to prevent effluent from seeping to the surface. Foundation drains help to prevent wet basements. Stones and boulders need to be removed for landscaping. Quickly establishing a plant cover and using mulch, temporary diversions, and sediment basins help to control erosion during construction.

WxB - Woodbridge fine sandy loam, 3 to 8 percent slopes

This soil is gently sloping and moderately well drained. It is on the tops an lower side slopes of large drumlins and hills on glacial till uplands. The areas are mostly long and narrow.

Typically, the surface layer is very dark grayish brown fine sandy loam 8 inches thick. The subsoil is mottled, dark yellowish brown, and yellowish brown fine sandy loam 22 inches thick. The substratum is firm to very firm, olive gray fine sandy loam and gravelly fine sandy loam to a depth of 60 inche or more.

Included with this soil in mapping are small areas of well drained Paxton soils, moderately well drained Sutton soils, and poorly drained Leicester and Ridgebury soils. A few small areas have stones on the surface, and a few larg areas have a surface layer and subsoil of silt loam. Included areas make up about 15 percent of the unit.

This Woodbridge soil has a seasonal high water table at a depth of about 20 inches from fall to spring. It has moderate available water capacity. The soil has moderate permeability in the surface layer and subsoil and slow to very slow permeability in the substratum. Runoff is medium.

This soil is well suited to woodland and cultivated crops. The main limitatio for crops is the seasonal high water table, which causes the soil to dry slowl in the spring. Providing drainage helps to dry the soil earlier in the spring but even drained areas remain wet for several days after heavy rains.

This water table and the slow or very slow permeability in the substratum are the main limitations of this soil for community development, especially for on-site septic systems. Lawns on this soil are soggy in the autumn and spring and after heavy rains.

WvB - Woodbridge fine sandy loam, 2 to 6 percent slopes, very stony

This soil is nearly level to gently sloping and moderately well drained. It i on the tops and side slopes of drumlins and hills on glacial till uplands. Th areas are mostly long and narrow or irregular in shape. Stones cover 1 to 6 percent of the surface.

Typically, the surface layer is very dark grayish brown fine sandy loam 8 inches thick. The subsoil is mottled, dark yellowish brown, and yellowish brown fine sandy loam 22 inches thick. The substratum is firm to very firm, olive gray fine sandy loam, and gravelly fine sandy loam to a depth of 60 inches or more.

Included with this soil in mapping are small areas of well drained Paxton soils, moderately well drained Sutton soils, and poorly drained Leicester and Ridgebury soils. A few small areas do not have stones on the surface. Included areas make up about 10 percent of the unit.

This Woodbridge soil has a seasonal high water table at a depth of about 20 inches from fall to spring. The available water capacity is moderate. This soil has moderate permeability in the surface layer and subsoil and slow to very slow permeability in the substratum. Runoff is medium.

Most areas of this soil are in woodland. A few areas are in pasture, and a fe are in community development.

This soil generally is too stony for cultivation, but is well suited to woodland. Stone removal makes the soil well suited to cultivated crops, but i difficult. Seasonal wetness is an additional limitation of the soil for crops

The water table and the slow or very slow permeability in the substratum are the main limitations of this soil for community development, especially for on-site septic systems. Lawns on this soil are soggy in the autumn and spring and after heavy rains.

Wd - Walpole sandy loam

This soil is nearly level and poorly drained. It is in depressions and drainageways on stream terraces and outwash plains. The areas are mostly irregular in shape. Slopes range from 0 to 3 percent.

Typically, the surface layer is very dark brown sandy loam 6 inches thick. Th subsoil is mottled, dark grayish brown and grayish brown sandy loam and gravelly sandy loam 17 inches thick. The substratum is mottled, light brownis gray gravelly loamy sand and gravelly sand to a depth of 60 inches or more.

Included with this soil in mapping are small areas of moderately well drained Ninigret, Pootatuck, and Sudbury soils; poorly drained Rippowam soils; and ver poorly drained Scarboro soils. A few large areas have a surface layer of silt loam. Included areas make up about 10 percent of the unit.

ABOUT THE TEAM

The Eastern Connecticut Environmental Review Team (ERT) is a group of professionals in environmental fields drawn together from a varety of federal, state and regional agencies. Specialists on the Team include geologists, biologists, foresters, soil specialists, engineers and planners. The ERT operates with state funding under the supervision of the Eastern Connecticut Resource Conservation and Development (RC&D) Area --- an 86 town region.

The services of the Team are 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, landfills, commercial and industrial developments, sand and gravel excavations, 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 official 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 and the ERT Coordinator. A request form should be completely filled out and should include the required materials. 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 and request forms regarding the Environmental Review Team please contact the ERT Coordinator: 203-345-3977, Eastern Connecticut RC&D Area, P.O. Box 70, Haddam, Connecticut 06438.