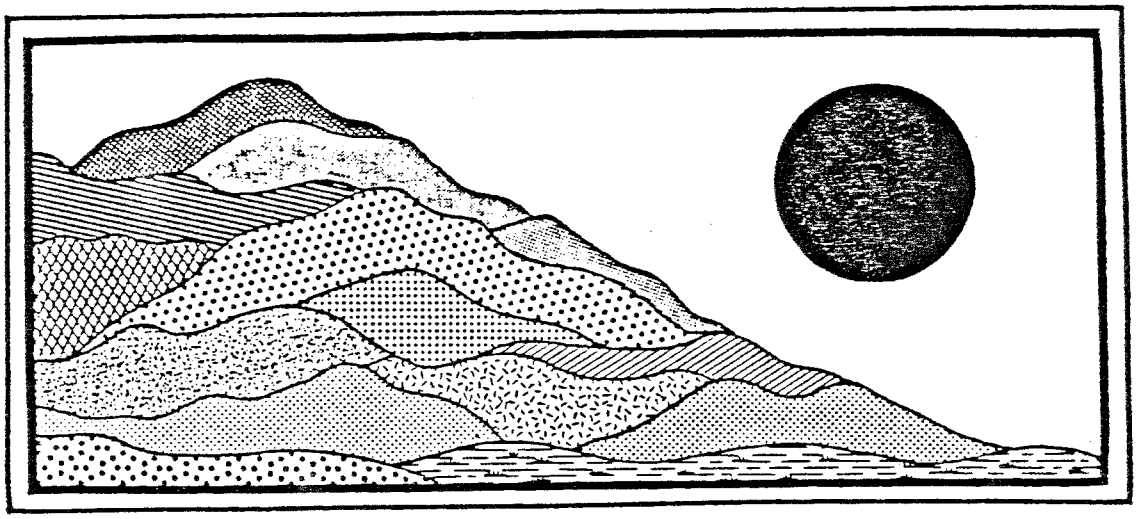
Laurel Grove

East Hampton, Connecticut

June 1988



ENVIRONMENTAL REVIEW TEAM REPORT

EASTERN CONNECTICUT RESOURCE CONSERVATION AND DEVELOPMENT AREA, INC.

Laurel Grove

East Hampton, Connecticut

Review Date: MARCH 21, 1988

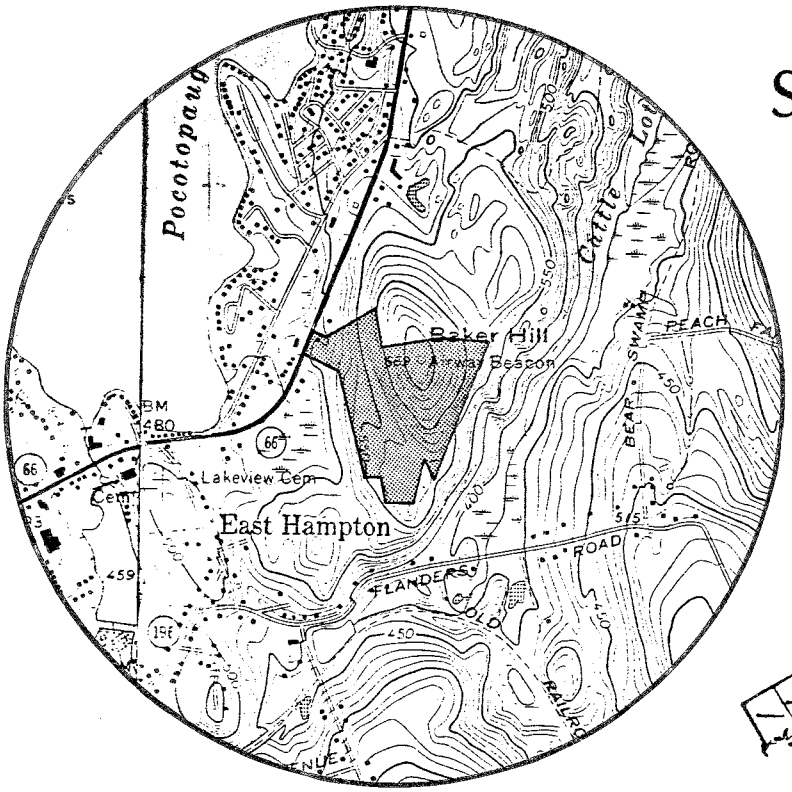
Report Date: JUNE 1, 1988

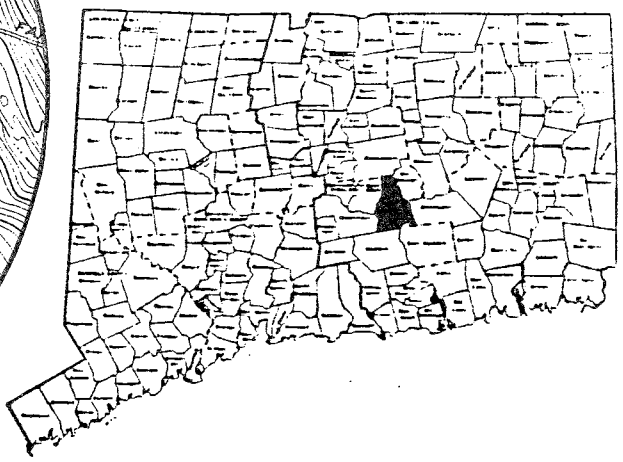
RC&D

ENVIRONMENTAL REVIEW TEAM
PO BOX 198
BROOKLYN, CONNECTICUT 06234

Site Location

LAUREL GROVE CONDOMINIUMS
EAST HAMPTON, CONNECTICUT





EASTERN CONNECTICUT

RESOURCE CONSERVATION

& DEVELOPMENT AREA

ENVIRONMENTAL REVIEW TEAM REPORT

ON

LAUREL GROVE CONDOMINIUM PROJECT

EAST HAMPTON, CONNECTICUT

This report is an outgrowth of a request from the East Hampton Planning and Zoning Commission to the Middlesex Soil and Water Conservation District (S&WCD). The S&WCD referred this request to the Eastern Connecticut Resource Conservation and Devleopment (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 Monday, March 21, 1988. Team members participating on this review included:

Nicholas Bellantoni	--State Archaeologist - The CT Museum of Natural History
Douglas Cooper	--Principal Environmental Analyst - DEP, Water Resources Unit
Carla Harvey	--Environmental Analysist - DEP, Water Resources Unit
Steve Hill	--Wildlife Biologist - DEP, Eastern District
Tom Ladny	--Acting District Conservationist - U.S.D.A., Soil Conservation Service
Chuck Lee	--Environmental Analyst - DEP, Water Compliance Unit
Brian Murphy	--Fisheries Biologist - DEP, Eastern District
Robert Rocks	--Forester - DEP, Cockaponsett Forest Headquarters
Harry Siebert	--Transportation Planner - CT Department of Transportation
Elaine Sych	--ERT Coordinator - Eastern CT RC&D Area
Bill Warzecha	--Geologist - 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, soils map, watershed boundary map and various other reports made available. During the field review the Team members were given site plans and additional information. The Team met with and were accompanied by the Acting Town Planner, the attorney for the project, the project engineer and numerous concerned citizens. 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 and conclusions 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 Committee hopes you will find this report of value and assistance in making your decision on this proposed condominium complex.

If you require any additional information, please contact:

Elaine A. Sych
ERT Coordinator
Eastern Connecticut RC&D Area
P O. Box 198
Brooklyn, CT 06234
(203) 774-1253

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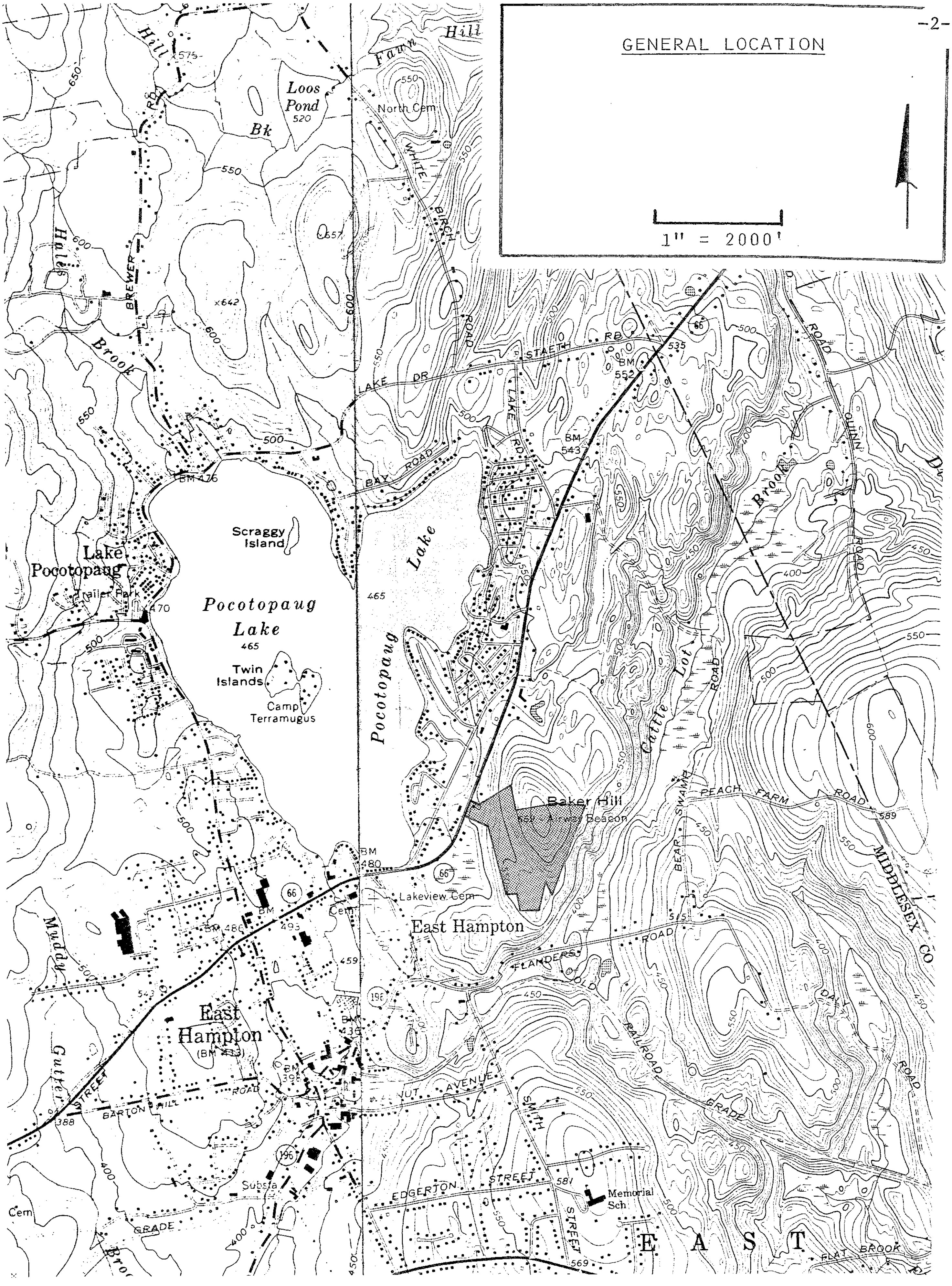
I.

INTRODUCTION

The Eastern Connecticut Environmental Review Team has reviewed the Laurel Grove Condominium Project at the request of the East Hampton Planning and Zoning Commission.

The following sections of the report contain natural resource information about the site, evaluate the the significance of those resources, highlight areas of concern, and recommend measures to improve, mitigate or alleviate potential problems. All final decisions on this project are left to the Town and the Developer.

It is suggested that this report be read in its entirety, but brief summaries or conclusions are included in some sections. Careful and thoughtful evaluation is needed by Town Officials when reviewing this project for approval so that short-term and long-term environmental quality is maintained.


GENERAL LOCATION
1" = 2000'
Loos Pond
North Cem
Hills Brook
Brewer
Lake Pocotopaug
Trailer Park
Scraggy Island
Pocotopaug Lake
465
Twin Islands
Camp Terramugus
Bay Road
Lake Dr
Staeth Rd
Lake Rd
White Birch Road
Pocotopaug Lake
Baker Hill
Airway Beacon
Cattle Lot Road
Peach Farm Road
Bear Swamp
Quinn Road
Middlesex Co
Lakeview Cem
East Hampton
Flanders Road
Old Railroad Grade
Muddy Gutter
Barton Hill Road
Walnut Avenue
Smith Street
Edgerton Street
Memorial Sch
Substa
Cem
Grade
Flat Brook
East

II.

TOPOGRAPHY AND SETTING

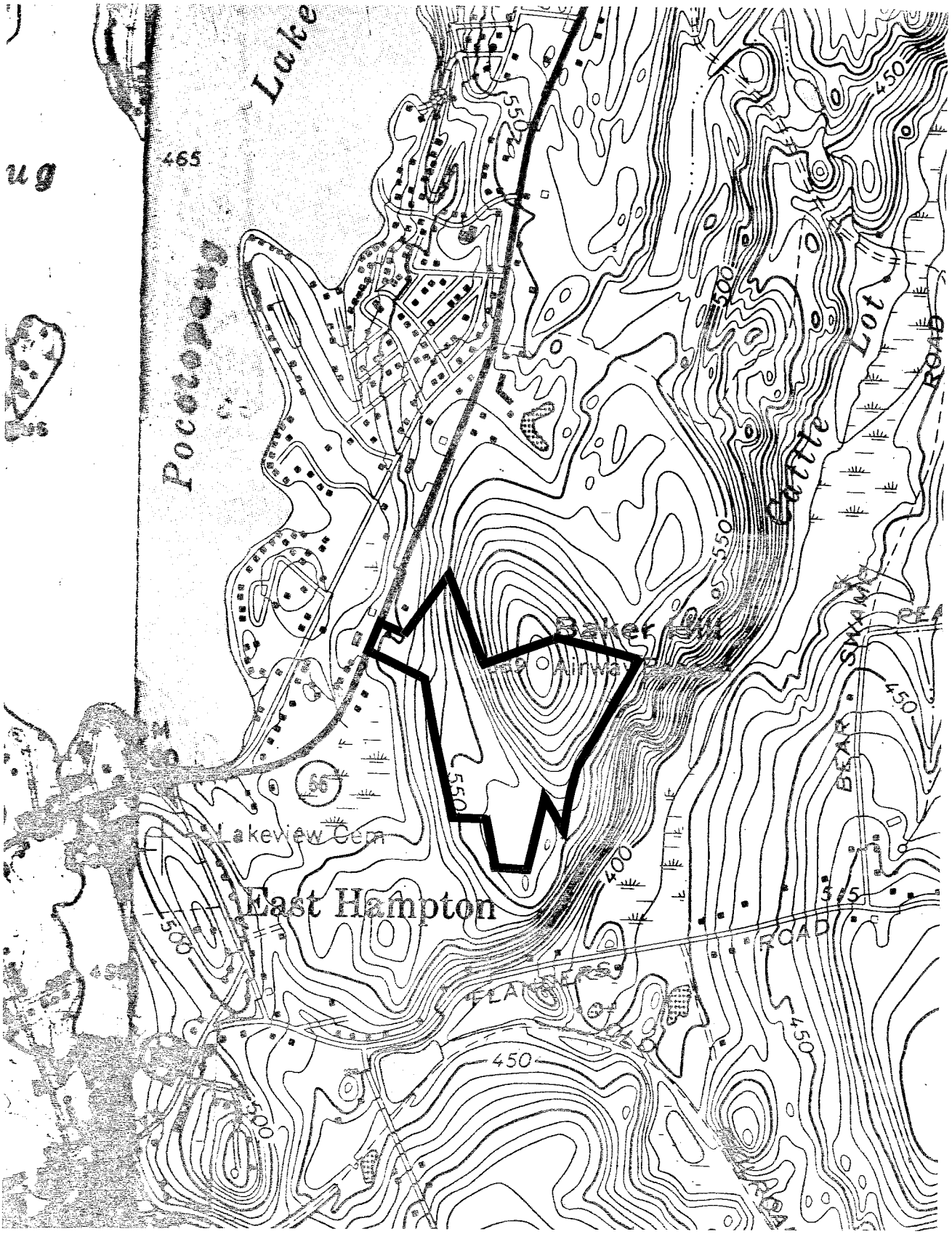
The proposed condominium site, which is 41.34 acres in size, is located about one mile east of East Hampton center on the east side of Route 66. The site abuts Route 66 at the northwest corner and this point will be the access for the project. Except for the property north of the site, which is presently being developed for condominiums, the site is bounded by undeveloped land.

A review of air photos over the past 50 years or so indicates that the parcel has been undeveloped, wooded land. Mixed residential and commercial land uses characterize the areas along Route 66 near the site. Present plans indicate that most of the site is in a PA zone which permits planned apartments at a density of 10 units per acre. The front portion of the site along Route 66 is zoned CX which permits commercial development.

The major topographical feature of the site is a northwest/southeast trending streamline hill (drumlin) locally referred to as Baker Hill.

The shape of the drumlin is derived from the smoothing action of over-riding glacier ice. The condominiums are proposed on the southern half of the hill.

Elevations range from a high of 669 feet above mean sea level at the top of Baker Hill to a low of about 500 feet above mean sea level near Route 66. It should be noted that a foundation for a former aircraft observation post is located atop Baker Hill. Slopes on the site range from gentle to very steep. The gentlest slopes occur in the southern parts of the site near the proposed community center. The steepest slopes flank the east and west side of the drumlin hill. Precipitous slopes (rock cliffs) characterize the eastern parts.



TOPOGRAPHY

APPROXIMATE SITE BOUNDARY

SCALE 1"=1000'

III.

GEOLOGY AND LIMITATIONS TO DEVELOPMENT

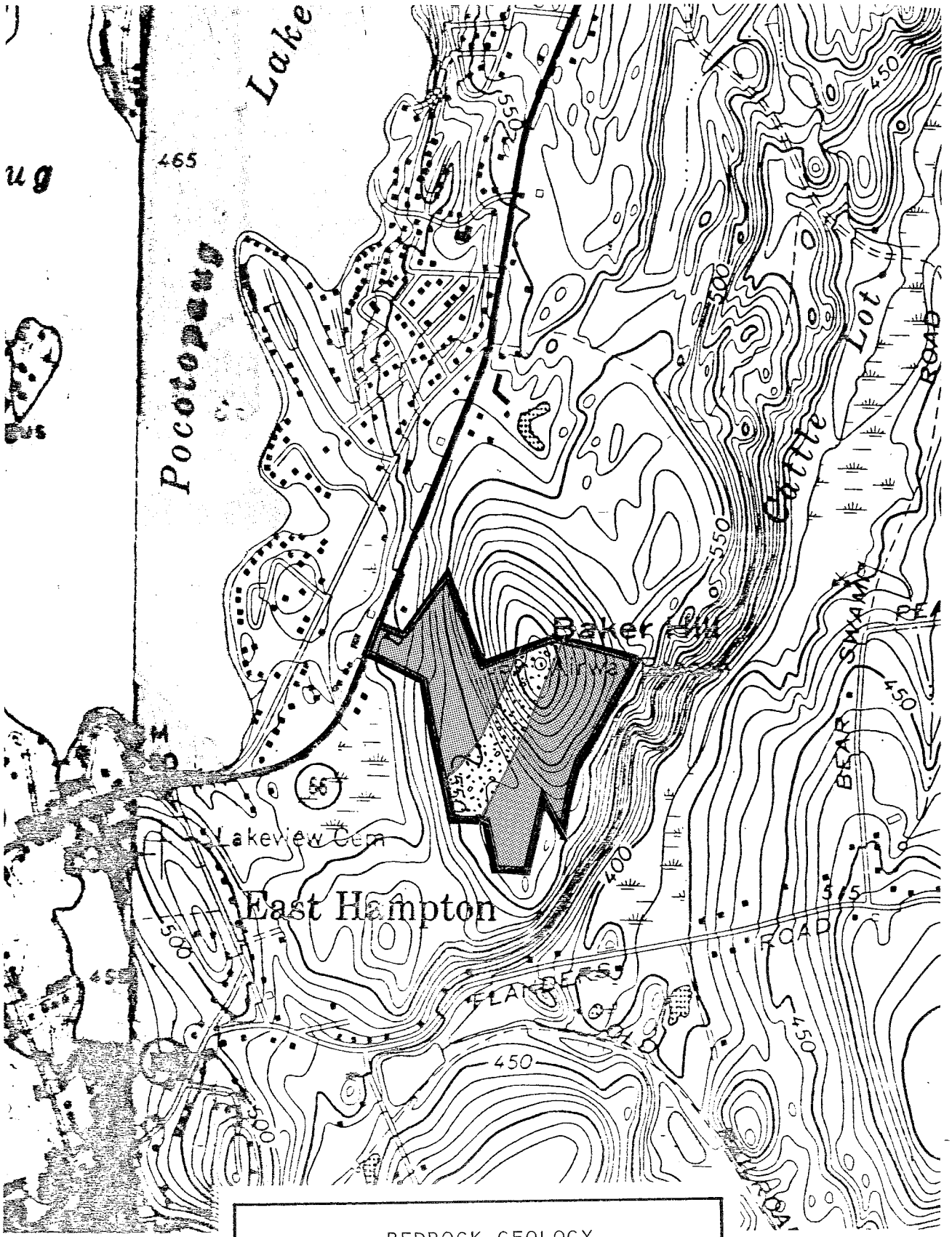
A. Bedrock Geology

As mentioned in the previous section, rocky cliffs are visible along the eastern limits of the site. The bedrock core of the hill has been mapped as Brimfield Schist and Buttress Dolerite.* Brimfield Schist, which underlies most of the site is described as a gray, rusty weathering, medium to coarse grained interlayered schist and gneiss. The Buttress Dolerite whose composition is similar to basalt intruded the Brimfield Schist as molten material at a much later geologic period, perhaps 200 million years after its (Brimfield Schist) formation. It consists of a narrow band of rock, which bisects the central parts in a N/S direction. These rocks consist of a dark-gray, brown to gray-weathering dolerite (traprock). The dolerite rock does not outcrop on the site, but was mapped from aeromagnetics conducted in the area.

The types of bedrock encountered on the site have complications with regard to the need for blasting and with regard to well water quality. The Brimfield Schist is much weaker than the Buttress Dolerite that intruded it. It is commonly referred to as "rotten rock". If the Brimfield Schist is encountered during construction, at least the upper few feet of it should probably yield easily to a backhoe. As a result, little need for blasting is foreseen in these areas. On the other hand, the Buttress Dolerite is much more competent and if encountered will probably require blasting. As to water quality, both bedrock types contain moderately high concentrations of iron and manganese bearing minerals. In fact, the Brimfield Schist has been known to cause high iron, manganese and sulfate concentrations in groundwater. This results from the dissolution of minerals that contain those elements. The applicant should, therefore, at least be prepared to treat the water with filters, although it is entirely possible that no serious mineral content problems will arise.

The presence of bedrock at shallow depths, especially in the eastern limits of the site, suggests that blasting will probably be required in order to place utilities such as electric, water and sewer lines and for road construction and septic systems. Any blasting that takes place on the site should be done very carefully and under the strict supervision of people with experience in the newest technology in blasting techniques. This will hopefully help reduce the chance for undue seismic shock and potential damage claims. In this regard, it is also wise to conduct a pre-blast survey of the area. Generally speaking, it is only when blasting is conducted without regard to seismic shock or air-blast impacts that there are problems on surrounding properties.

*Source: Bedrock Geological Map of Connecticut John Rodgers' (1985) and Bedrock Geologic Map of the Moodus Quadrangle, Connecticut, Landgren and Ashmeade, QR-27.


Lake
Pocotopaug
465
550
450
Cattle Lot
ROAD
Baker Hill
BEAR SWAMP
Lakeview Cem
East Hampton
400
500
450
FLANDERS
ROAD
BEDROCK GEOLOGY
BRIMFIELD SCHIST
BUTTRESS DOLERITE
1" = 1000'

B. Surficial Geology

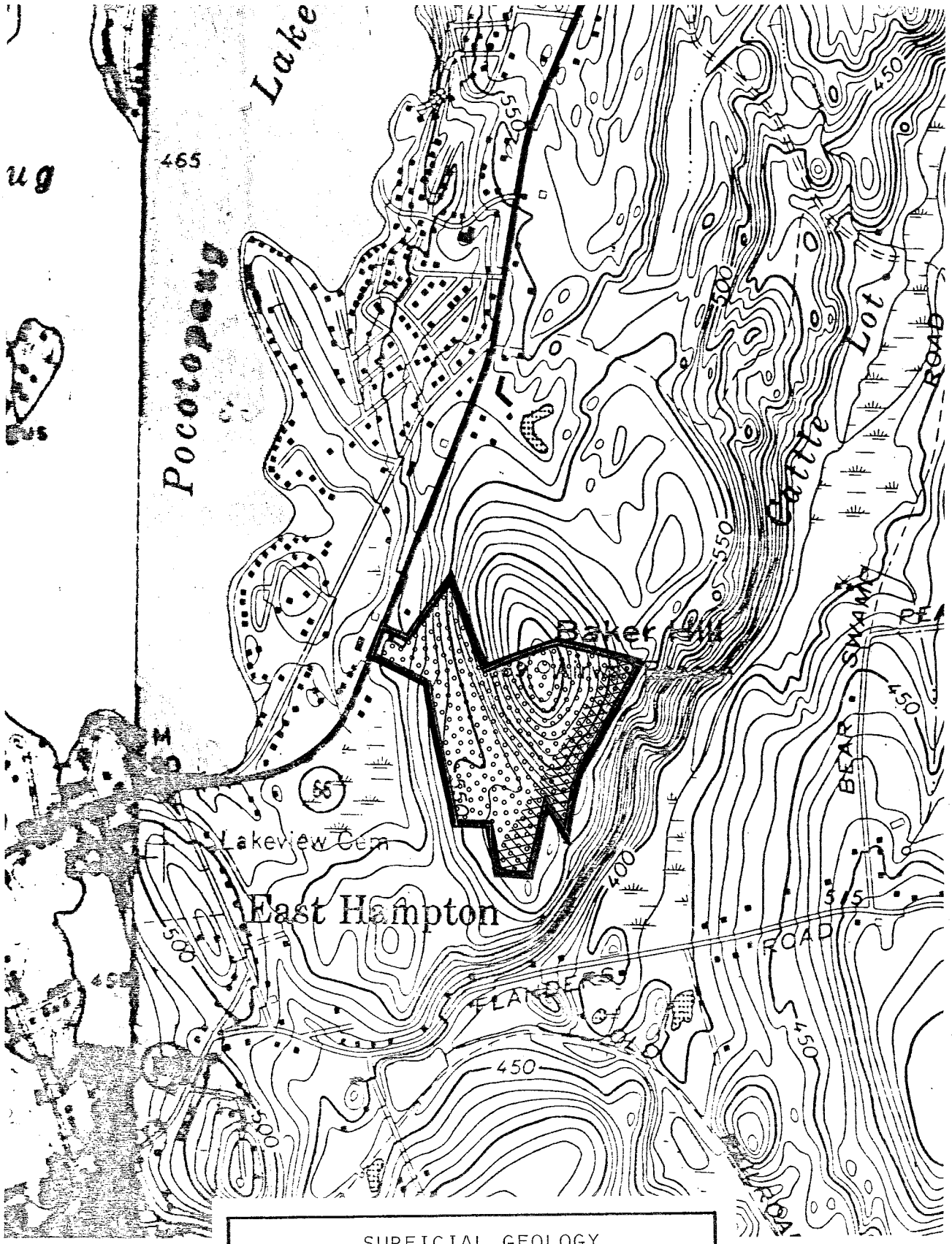
The surficial geologic materials (overburden) overlying bedrock on the entire site is till. Till is a non-sorted glacial deposit consisting of rock particles of widely varying sizes and shapes. It was plastered directly onto the bedrock surface by glacial ice without reworking by meltwater streams. As a result of this mode of deposition by glacial ice, a relatively shallow "hardpan" developed below the weathered or rooted surficial soil zone. Geologists name this type of glacial deposit as lodgement till. Because the "hardpan" layer characterizing the soils on the drumlin is quite compact, it has a low verticle permeability. During the wetter times of the year the more permeable soil zone above the "hardpan" layer often becomes saturated with groundwater resulting in a seasonally high water table. The seasonally high water table condition will be a hindrance in terms of constructing the proposed condominiums.

It should be pointed out that soil mapping data indicates that till deposits in the eastern and western limits (shallow soils) lacks the "hardpan" layer indicative of the soils in the central parts.

Overlying the till soils on the west side of the drumlin hill and paralleling an intermittent streamcourse in the area are regulated inland-wetland soils. The wetlands were delineated by Soil Science Services of Cheshire, Connecticut. According to the Soil Survey for Middlesex County, the area of regulated soils has been identified as Lg (Leicester, Ridgebury and Whitman very stony, fine sandy loams). The soils comprising this group would be expected to have seasonal high water tables and are usually associated with a watercourse. As such, these areas are subject to frequent flooding especially during the wet time of the year. The severe wetness of these areas makes construction of any type difficult. Both of these wooded, swampy areas appear to have good flood-control and sediment retention attributes. It seems likely that both areas are capable of retaining flows during storm events.

Present plans indicate that regulated activity will need to take place in areas comprised of inland-wetland soils in order to construct the condominiums. This includes the filling of wetlands for about 500 linear feet of access road in the northwest parts. It should be pointed out that the alternate route would require about 375 linear feet of wetland crossings. Because of less impact to regulated soils, the alternate route should be given consideration. (Refer to Preliminary Development Concept Revision 'B', March 1988.)

Because the soils comprising these areas are classified as inland-wetland soils in Connecticut, they are regulated under Public Act 155. Any activity which involves modification, filling, removal of soils, etc., will require a permit and ultimate approval by the Inland-Wetland Commission. In reviewing a proposal, the Commission needs to determine the impact that the proposed activity will have on the wetlands. If the Commission determines that the wetland is serving an important hydrological or ecological function and that the impact of the proposed activity will be significant, they may deny the activity altogether or, at least, require measures that would minimize the impact. Also, if more than an acre of wetland soils is affected, a permit



SURFICIAL GEOLOGY

TILL

AREAS WHERE BEDROCK IS AT OR NEAR GROUND SURFACE

1" = 1000'

from the U. S. Army Corps of Engineers may be required. Therefore, the applicant's engineer should be including the following information on the site plan: (1) quantify amount of fill to be placed on regulated soils; (2) delineate fill lines; and (3) type of fill material to be used. There is also a need to determine the relative importance of the regulated wetlands and watercourses so that a sound decision can be made by the Commission.

Prior to any decision concerning the filling of wetland soils on the site, the Town should be encouraged to require the applicant to address all potential environmental impacts to the wetland as it exists at the present time from a hydrologic and ecologic standpoint. Special attention should focus on the ability of the disturbed wetlands areas to: 1) provide flood storage; 2) trap sediment; 3) clean inflowing water; and 4) provide habitat for wildlife. Also consideration should be given to the effects of the proposed wetland fillings off-site.

IV.

SOILS

A. Soil Resources

The proposed development covers an area entirely comprised of glacial till uplands, plains and associated drainageways and depressions. In general the soils are moderately well to well drained, and have a hardpan layer which reduces drainage in the substratum to a slow or very slow rate. Perched water tables can be expected in these soils from late fall to late spring. Unlimed soils range from slightly acid to strongly acid.

Soils which have the most severe limitations for development are:

HSE - Holyoke-Rock outcrop, because of bedrock and slope.

LG - Leicester, Ridgebury and Whitman soils which are poorly drained inland wetlands.

PeD - Paxton and Montauk, due to stoniness and slope.

WzC - Woodbridge, because of stoniness and sometimes because of slope.

There are no soils on the site which are considered prime farmland or soils of secondary importance.

B. Soils Descriptions

CdC - Canton and Charlton extremely stony fine sandy loams, 3 to 15 percent slopes are gently sloping and sloping, well drained soils on hills and ridges of glacial till plains. These soils have 3 to 15 percent of the surface covered with stones and boulders. The two soils were mapped together because they have no significant differences that affect use and management.

The permeability of the two soils is moderate to moderately rapid in the surface layer and subsoil. Runoff is medium to rapid, and these soils warm up and dry out early in the spring. These soils have a moderate to severe erosion hazard, but have fair potential for community development. They are limited mainly by stoniness and slope. Quickly establishing vegetative cover, providing temporary diversions and establishing siltation basins are suitable management practices during construction.

HSE - Hollis-Rock outcrop complex, 15 to 40 percent slopes consists of moderately steep to very steep, somewhat excessively drained soils and areas of rock outcrop. The complex is glacial till uplands where the relief is affected by the underlying bedrock, and typically has a rough surface with bedrock outcrops, a few narrow, intermittent drainageways, and small, wet depressions. Hard, unweathered schist bedrock is at a depth of 14 inches or less.

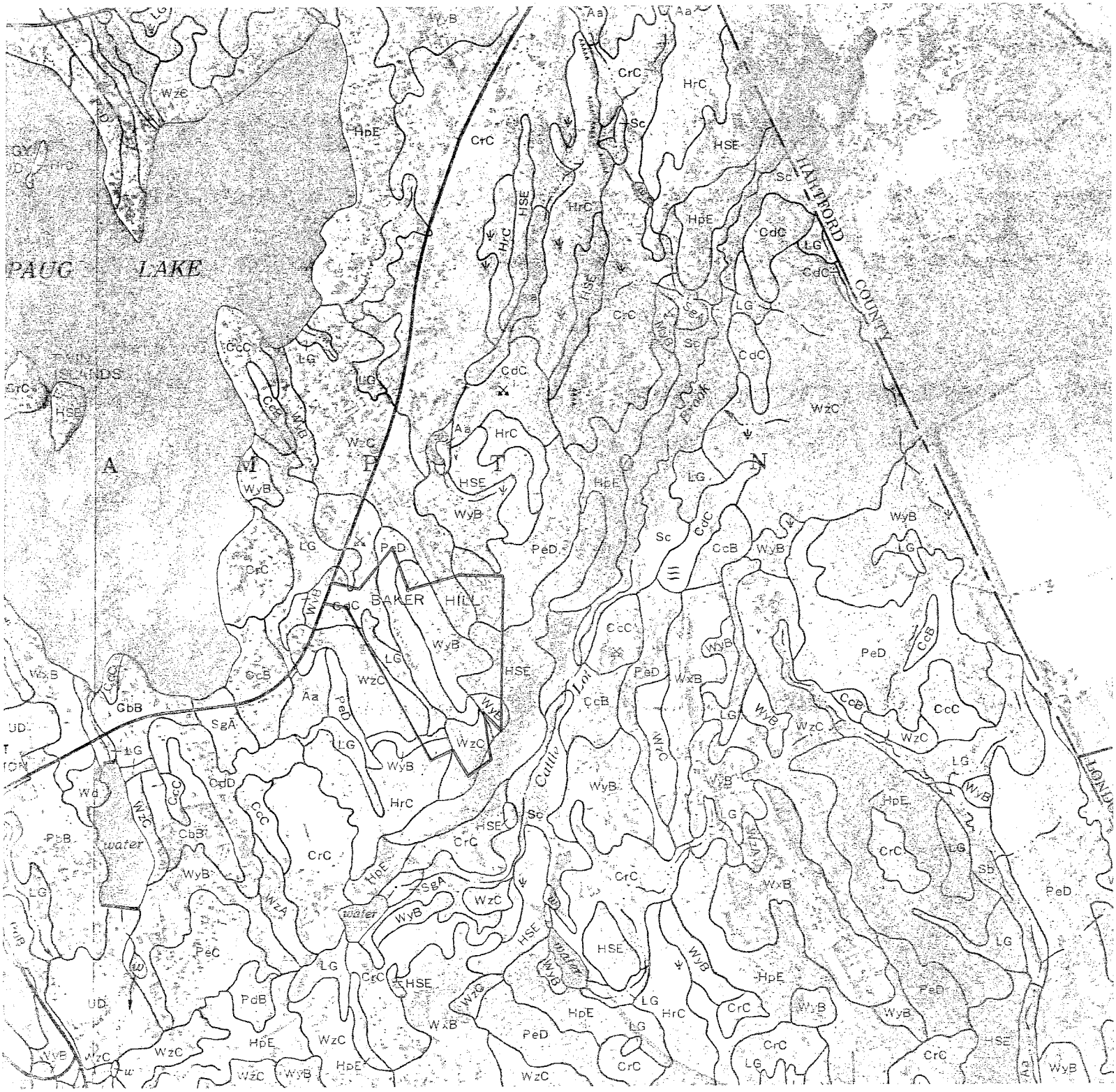
United States Department of Agriculture

Soil Conservation Service

MIDDLESEX COUNTY USDA-SCS
MIDDLESEX COUNTY EXTENSION CENTER
HADDAM, CT 06438
345-3219

SCALE 1"=1320'

——— APPROXIMATE SITE BOUNDARY



The permeability of the Hollis soils is moderate or moderately rapid above the bedrock. Runoff is rapid and very rapid in areas of rock outcrop.

This complex has poor potential for community development mainly because of shallowness to bedrock, steep slope, rock outcrop and stoniness. Excavation is difficult and blasting is usually required. Quickly establishing plant cover, providing temporary diversions and establishing siltation basins are suitable management practices during construction.

LG - Leicester, Ridgebury and Whitman extremely stony fine sandy loams consists of nearly level to gently sloping, poorly drained and very poorly drained soils in drainageways and depressions.

Runoff is slow, very slow or ponded, and unlimed areas are acidic to very acidic. Most areas of this unit are wooded.

These soils have poor potential for community development. Wetness, stoniness and the slow to very slow permeability of the substratum in the Ridgebury and Whitman soils are major limitations.

These soils are not suited to community development unless they are extensively filled.

Ped - Paxton and Montauk extremely stony fine sandy loams, 15 to 35 percent slopes are moderately steep to steep, well drained soils on hillsides of drumlines and glacial till plains of glaciated uplands. These soils were mapped together because there is no significant difference that affects their use and management.

The permeability in this mapping unit is moderate in the surface layer and subsoil and slow or very slow in the substratum. Runoff is rapid.

These soils have poor potential for community development. There are limited mainly by steep slopes, slow to very slow substratum permeability and stoniness. Steep slopes of excavations slump when saturated. In places, disposal of stones and boulders is difficult. Lawns commonly have wet spots near the base of excavated slopes. Erosion is a major concern in unprotected areas of these soils. Quickly establishing plant cover, providing temporary diversions and establishing siltation basins are suitable management practices duirng construction.

Wxb - Woodbridge very stony fine sandy loam 3 to 8 percent slope is a gently sloping, moderately well drained soil located on side slopes of drumlins and glacial till uplands.

This soil has a seasonal high water table at a depth of about 18 inches from autumn until midspring. The permeability if moderate in the surface layer and subsoil and slow to very slow in the substratum. Runoff is medium.

This soil has fair potential for community development, being limited mainly by wetness and the slow or very slow permeable substratum. Steep slopes of excavations slump when saturated. Lawns are wet and soggy from late autumn until midspring and for several days after heavy summer rains. Artificial drains and

land shaping help prevent wet lawns and basements. Quickly establishing plant cover, providing temporary diversions and establishing siltation basins are suitable management practices during construction.

WzC - Woodbridge extemely stony fine sandy loam, 3 to 15 percent slopes is a gently sloping and sloping, moderately well drained soil located on side slopes of drumlins and glacial till uplands.

This soil has a seasonal high water table at a depth of about 18 inches. Permeability is moderate in the surface and subsoil layers and slow to very slow in the substratum. Runoff is medium.

This soil has fair potential for community development and has limitations due to wetness, slow permeability in the substratum, and stoniness. Steep slopes of excavations slump when saturated. Removal of stones and boulders is necessary to most uses. Lawns are wet and soggy from autumn until midspring and for several days following heavy rains. Artificial drains help prevent wet basements and lawns. Quickly establishing plant cover, providing temporary diversions and establishing siltation basins are suitable management practices during construction.

C. Erosion and Sediment Control

As required in Public Act 83-388, "An Act Concerning Soil Erosion and Sediment Control" which became law in July, 1983, a complete erosion and sediment control plan has to be developed and properly implemented to reduce danger from stormwater runoff, minimize nonpoint sediment pollution from land being developed and conserve and protect the land, water, air and other environmental resources of the state. Specific requirements for soil erosion control plans are detailed in Chapter 1 and 4 of the 1985 Connecticut Guidelines for Soil Erosion and Sediment Control. These requirements were in turn adopted by towns into their planning and zoning regulations and occasionally by inland wetland commissions. Additional legislation in 1987 was passed to strengthen the original law and to provide provisions for better enforcement by the towns. Model regulations for this recent legislation have been developed by DEP, and many towns have since included the new provisions into their regulations.

Three requirements of the original law are that:

1. Soil erosion and sediment control plans be submitted with each development application;
2. Certification of such plans by the review authority to assure compliance with local erosion and sediment control regulations; and
3. Inspection of control measures during construction.

Prior to the date of the site inspection by the Environmental Review Team, a site development plan presented to the town's Inland Wetlands Commission had to be radically changed. A revised set of plans needs to be submitted to the

Planning and Zoning Commission and the first two requirements of the erosion and sediment control law need to be applied: submission of the erosion and sediment control plan and review and certification of the plan. If approved, inspection and enforcement during construction is recommended. The Inland Wetlands Commission should also be given the opportunity to review and discuss the revised plans.

There are several general recommendations that can be made to address concerns associated with the development. They are:

1. Develop a complete erosion and sediment control plan as specified in town and state regulations by incorporating information contained within the Connecticut Guidelines for Soil Erosion and Sediment Control.

2. Recommendations given in the soils descriptions all include quick establishment of vegetative cover for erosion control. This, above all, is important for holding soil in place. An aggressive restabilization plan should be specified which will provide recommendations for temporary and permanent seeding for all disturbed areas. Inlcude application rates and recommended seeding dates, lime, fertilizer and mulch application and seed mixtures for all seedings.

3. Provisions for winter shutdown. All disturbed areas should be protected with vegetation during the early fall through late spring months. Minimal additional site disturbance (during this period) should occur.

4. Liberal use of erosion control blankets, properly installed, on slopes.

5. Phasing, to reduce the amount of open disturbed land at any one time. Usually, projects of this size are developed in 3 to 5 phases.

6. No excavations during periods when the soils are saturated. As stated in the soils descriptions, several soils are subject to slumping and erosion during these periods and excavation work should not occur.

7. Erosion and sediment controls should be properly installed where shown and be properly maintained. Sediment should be trapped at the source and not be allowed to move to a central collecting point. Sediment should be completely excluded from the wetlands and the proposed sediment detention basins should only be used as a very last resort for this purpose. Suspended fines will not filter out in these basins.

8. Drainage calculations for estimating runoff and for determining runoff hydrographs should be done by following the methods recommended in Chapter 9 --Estimating Runoff - of the Connecticut Guidelines. The Soil Conservation Service TR-55 method is commonly used in developments such as this. The town's engineer or consultant engineer should carefully review the calculations.

9. The two proposed detention basins and dikes should be reviewed by the DEP's Dam Safety Unit for correct design and safety.

10. Clearing of land should be kept to an absolute minimum, and it should be cleared just prior to construction as needed. Again, conduct temporary seedings on disturbed land after clearing.

The limits of clearing must be clearly shown on the site plans and clearly marked in the field. Also show stockpile locations and associated stabilization and erosion and sediment controls.

11. Temporary diversions are needed above slopes, work sites, roads, etc. to reduce erosion potential. All diversions should have less than a 2 percent slope and should outlet into a sediment barrier.

12. Restablization of slopes steeper than 2:1 with vegetation is difficult and not recommended. For these slopes, structural measures should be considered, such as permanent diversions, riprap, retaining walls, gabions, etc. (Please refer to the Connecticut Guidelines for Soil Erosion and Sediment Control for definitions and planning considerations).

13. A construction entrance should be constructed and properly maintained. All roads and driveways should receive their coarse binder layer as early as possible and they should all have this layer in place for the winter months. Driveways and roads can be a major source of sediment when unprotected.

14. When excavating for utilities, no more than 20 feet of open trench should be left at the end of a day. If dewatering operations are needed, water should first be pumped into a sediment basin (ring of hay bales, silt fence, etc.) before flowing into a wetland.

There are several areas of special concern which have the potential to become major sources of sediment. They are:

1. The entire road system, which involves a large amount disturbance in sensitive areas. Road construction and stabilization in sections is an alternative that could be considered in lowering this potential. Whatever method is used for installing the roads, it is important that no more area that can be reasonably managed and be stabilized be open at any one time and that the binder layer be immediately installed with curbing.

2. The steep slopes associated with the loop road at the top of the hill for Phase II. These are critical slopes that approach or exceed the recommended 2:1 slopes for revegetation. The reduction of the slopes or the use of stone riprap and/or erosion control fabric is strongly recommended. In addition, surface water should be prevented from flowing down these slopes from above by use of diversions or curbing and catch basins. Roof water management is needed to prevent erosion associated with roof runoff which would flow onto the unstable fill around the foundations of the buildings. Stone may be needed along the driplines.

A dense, erosion-resistant vegetation should be seeded/planted on these slopes at higher than recommended rates. Commonly recommended in these situations are mixtures which include crownvetch, birdsfoot trefoil, flatpea or any other ground cover suited for no-mow situations. Chapter 6 -- Vegetative Measures --

of the Connecticut Guidelines for Soil Erosion and Sediment Control makes several recommendations in the sections for Permanent Vegetation (PV), Sodding (SO) and Trees, Shrubs, Vines and Ground Cover (GC).

It is recommended that at least a double line of siltation barrier be installed below these slopes and the barriers be separated by 20 to 50 feet. This is recommended not only because of the severe erosion potential but due to the potential of rolling boulders which may roll through the first barrier. The first barrier, closest to the toe of the slope, should be silt fence, possibly reinforced with fencing. During construction of the slopes, the siltation barriers should be checked and repaired daily.

The success of the erosion and sediment control plan is largely going to be dependent upon how well the plan is implemented and the erosion control measures maintained. It can be expected that there will be unforeseen circumstances where additional measures will have to be installed. Periodic and timely inspections and enforcement are also necessary components for successful erosion and sediment control. With careful construction and much prevention, especially through reseeding and stabilization in a timely manner, erosion and sedimentation control can be effective.

V.

HYDROLOGY

A. Drainage Areas

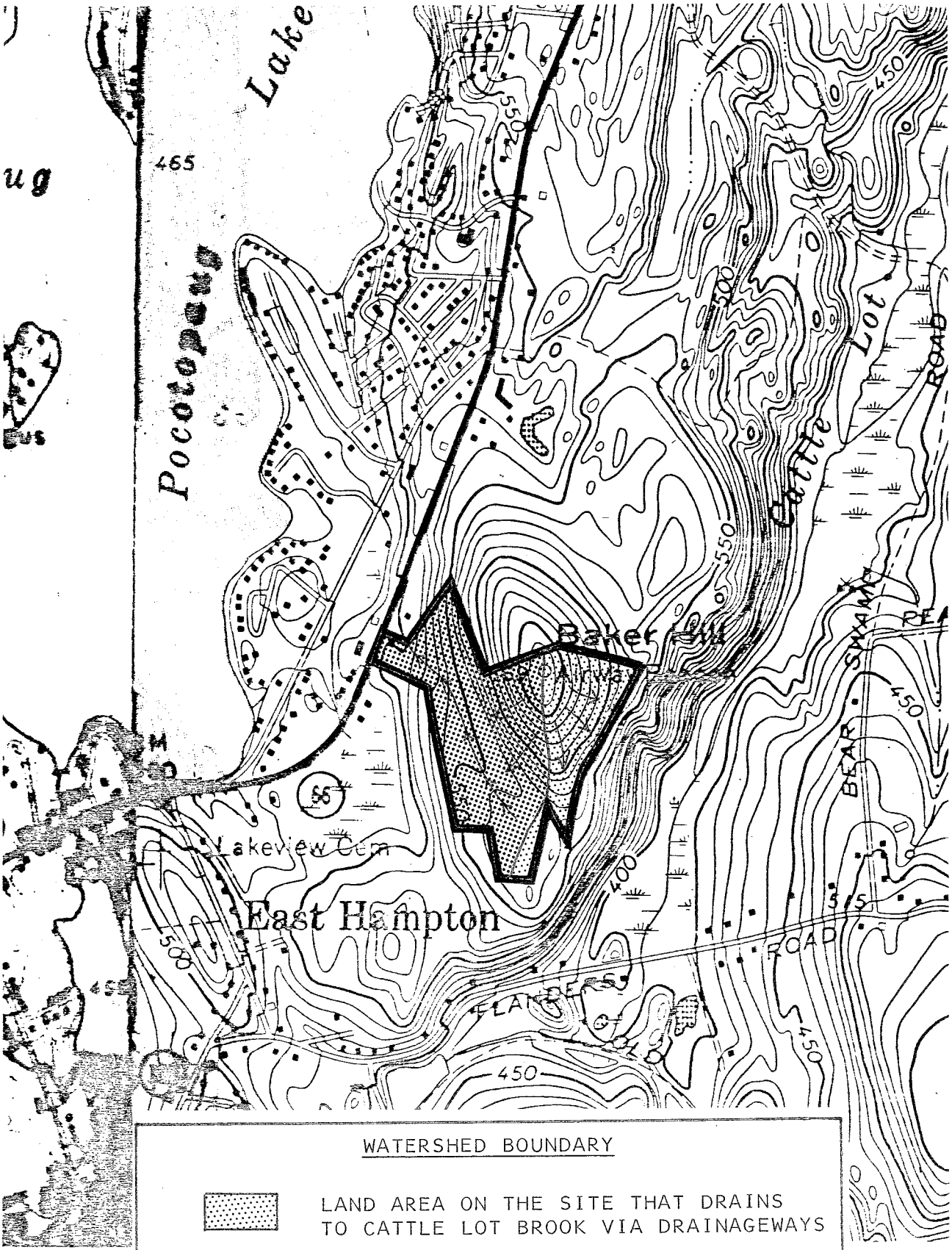
The western two-thirds of the site lies within the drainage area of an unnamed tributary to Lake Pocotopaug. Surface water from this part of the site flows to wetlands in the western part which route the water to an 18" culvert under Route 66. It is retained temporarily in a small existing pond on the westside of Route 66, and then routed under Old Marlborough Road to Lake Pocotopaug. Surface runoff from the eastern thrid of the site flows downslope to Cattle Lot Brook. Cattle Lot Brook flows northward to Dickinson Creek, a Salmon River tributary.

The quality of surface water from the site would be expected to be good since the site is wooded and undeveloped.

B. Stormwater Management

According to the project engineer's drainage calculations, development of the property as planned will lead to increases in the amount of surface runoff produced during periods of precipitation. The increases will arise primarily from the converstion of permeable soils to impermeable surfaces such as roof tops, paved roads and parking areas and the removal of vegetation. The added runoff will likely cause; (1) increased overland and stream channel erosion and/or (2) increase the peak flood flows of the streams on the property (the unnamed stream in the western part and the drainageways in the eastern part that act as conduits for surface runoff to Cattle Lot Brook).

The project engineer has addressed storm drainage in a plan that was made available to Team members during the field review. The storm drainage proposal for the project indicates that surface runoff created by impervious surfaces (i.e., roof tops, paved surfaces, etc.) will be artificially collected and outletted. It appears that runoff from the back half of roof tops from the units at the eastern limits will not be collected in the storm drainage system but will discharge to the surface of the ground at the rear portion of the units. This runoff, which would presumably be collected and discharged through roof gutter systems should not pose any problems. It will ultimately be routed to natural drainageways that will transport it to Cattle Lot Brook. The outlet points for this water should be properly protected so that they do not create erosion problems. The roof drainage from this area would not be expected to pose flooding problems. Stormwater emanating from the remainder of the site, which includes roof top drainage, will be artifically collected and outletted to one of the two detention basins proposed for the project. The purpose of the detention basins is to regulate the rate and amount of runoff from the site during and after construction operations. Without detention it is likely that flooding problems (over topping) may occur on Route 66 following the development because of increased runoff. The project engineer's drainage calculations, which help to ensure that pipes are properly sized, verify the



WATERSHED BOUNDARY

LAND AREA ON THE SITE THAT DRAINS TO CATTLE LOT BROOK VIA DRAINAGEWAYS

LAND AREA ON THE SITE THAT DRAINS TO THE 18" CULVERT UNDER RT.66 AND ULTIMATELY ROUTED TO LAKE POCOTOPAUG

SURFACE RUNOFF SHOWING DIRECTION OF FLOW

1" = 1000'

post-development increases. One detention basin will be located on upland soils while the other is proposed to be located on regulated soils. Construction of the latter detention area will require a permit from the Town's inland-wetland agency. Since the wetland areas already have some natural ability to detain stormwater flows, it would be desirable to keep detention basins on upland soils. (Also see **Section VI, Wetland Review** for further comment on this.) The detention basins may also be designed to function as a sediment basin. This should be given consideration so that sediment problems do not arise to streams on and off site as well as Lake Pocotopaug. Maintenance measures should be included in the stormwater management plan in case a significant buildup of sediments occurs during construction or from road sand accumulation following the construction period.

From a design standpoint, if the primary purpose of the detention basin is to minimize erosion and sedimentation, the peak discharge from the 2 and 10 year storm frequency should be analyzed. If the primary purpose of the detention basin is to minimize flooding, the peak discharge from the 2, 10, and 100 year storm frequency should be analyzed. The project engineer is encouraged to reference the publication Connecticut's Guidelines For Soil Erosion And Sediment Control for the design of the stormwater management plan.

VI.

WETLAND REVIEW

A. Site Description

The proposed Development is located on a 41.34 acre parcel of land adjacent to Route 66 in East Hampton, Connecticut. Included on this property are approximately nine (9) acres of wetlands constituting 19 percent of the total acreage of the property. The wetland system consists of the poorly drained and very poorly drained Leicester, Ridgebury and Whitman soil types (LG) and exists as a narrow finger extending north to south on the western end of the property. The topography consists of a steeply sloping hill located on the northeastern corner of the properly which sharply levels off into the wetlands to the west.

The wetlands on the property are classified as follows by the National Wetlands Inventory:

1. PFO1E - Palustrine, scrub/shrub wetland swamp dominated by broad-leaved deciduous vegetation, seasonally saturated; and
2. PSS1E - Palustrine, scrub/shrub wetland swamp dominated by broad-leaved deciduous vegetation, seasonally saturated.

The former classification encompasses the majority of the wetland system with the exception being previously cleared pockets that support a dense layer of shrub vegetation which fall into the latter category. An intermittent stream was observed which runs from the northern boundary of the wetland through a culvert under Route 66 and into a small pond on the western side of Route 66.

B. Wetland Values

The wetlands in association with the adjacent uplands and intermittent stream are considered to be of high quality with respect to wildlife habitat. The dense understory vegetation together with extensive ground and canopy cover provides many ecological niches which can be utilized by a diverse array of both plant and animal species for feeding, shelter, cover, and reproductive purposes. (For a complete list of species identified, please refer to the Ecologist report submitted by Soil Science Service, dated May 14, 1987).

C. Wetland Impacts

In the most current proposal, it is clear that the applicant has made considerable efforts to avoid, as much as possible, unnecessary wetland disturbances. However, there are still several areas of concern that should be carefully examined prior to the granting of an inland wetland permit. They are enumerated as follows:

1. The greatest impact to this wetland is the road crossing at the north end of the property. This crossing bisects the wetland, leaving an area north of the crossing isolated from the remaining system. This will substantially diminish the utilization of the isolated wetland pocket by wildlife, as the roadway will serve as a barrier, limiting access to this portion of the wetland. We suggest that the commission evaluate the alternative of adjusting the roadway alignment to accommodate a wildlife corridor.

2. Filling on the eastern border of the wetland to accommodate the roadway is also of some concern. An access road along the roadway is also of some concern. An access road along this path has been excavated and has resulted in sediment accumulation along the wetland border. Proper precautions must be taken to insure that the sedimentation does not continue to enter the wetland upon construction of the road. This includes the proper installation, monitoring and maintenance of a silt fence along the border of the wetland during road construction to prevent excess sediment from entering the wetland. Seeding along the road embankment will serve to bind the soil and prevent excess sediment from eroding into the wetland. Allowing additional sediment to accumulate in this wetland will substantially diminish its functional capabilities.

3. Also proposed in this wetland area is the excavation of a stormwater detention basin. Excavation within a wetland for activity of this nature alters the ecological character of the wetland and is discouraged. Altering the natural storage function of a wetland, by the excavation of a detention basin, is counterproductive. Thus, it is suggested instead that the alternative of constructing the detention basin outside of the wetland boundary be considered.

4. It is suggested that filtering plants, such as cattails, be planted in the detention basins to provide additional filtration of fine sediments before they enter the pond across the street and subsequently Lake Pocotopaug.

D. Conclusion

The approximately nine acres of wetlands on this property provide high quality habitat to numerous species of plants and animals. This is facilitated by its relatively large area, dense vegetative growth and water regime. Of critical importance is the function of this wetland in stormwater management, and its contribution to the water quality in Lake Pocotopaug. Maintenance of this wetland and others located within the Lake's watershed is essential to protect the Lake from siltation and pollution that results from development activities. Although the proposal has been modified to significantly reduce disturbances to the wetlands on the property, several aspects of this project (outlined above) should be evaluated carefully to insure that all possible alternatives (such potential alternatives as listed in numbers 1 and 3 above) have been exhausted.

VII.

LAKE AND WATERSHED MANAGEMENT

A. Lake and Watershed Description

The majority of the proposed Laurel Grove condominium development project is within the Lake Pocotopaug watershed. Lake Pocotopaug is classified as a mesotrophic lake by The Trophic Classification of Seventy Connectiuct Lakes Connecticut Department of Environmental Protection 1982. It is 511.7 acres, with a maximum depth of 38 feet and a mean depth of 11.3 feet. The watershed is 24000 acres, approximately 50% wooded, 15% low density residential, and 35% miscellaneous. Although Laurel Grove is only a small portion of the watershed, proper management is essential to protect the water quality of Lake Pocotopaug both during construction and post-development phases.

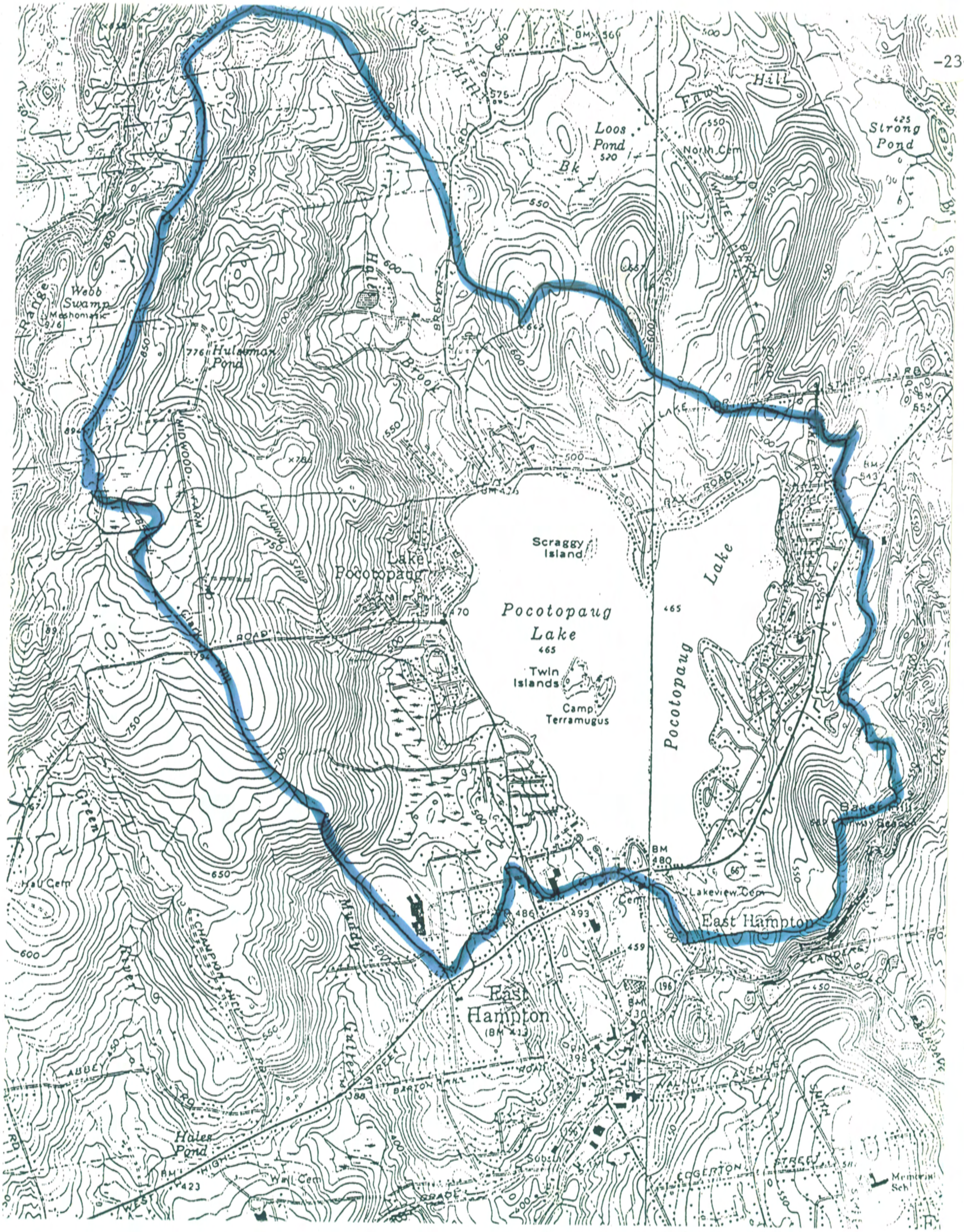
B. Lake Eutrophication

There are two types of pollutants which could increase with this change in land use, from wooded, undeveloped to condominium complex those being nutrients and chemical compounds. Nutrient loading occurs when soils are disturbed, lawn and garden fertilizers are not applied properly, and vegetation decomposes in areas close to the lake and near water courses draining into the lake. Once nutrients enter a lake they become available for weed and algae growth. Increased productivity can impair recreational use of the lake and cause oxygen depletion when the vegetation decomposes. This process is called eutrophication when it occurs naturally, if it is induced by human activities it is called cultural eutrophication. Chemical pollution includes such compounds as hydrocarbons from petroleum products, heavy metals, and salts from road runoff. These compounds can cause oil sheens on the surface of the lake, impair lake biota, decrease dissolved oxygen and accumulate in fish tissues.

C. Development Recommendations

During construction soils are most susceptible to erosion. Tree removal and heavy equipment moving should follow the DEP publication entitled Logging and Water Quality In Connecticut. (See **Appendix**) Although this booklet is not designed for development projects, it can provide information on removing trees that may be applicable to this project.

The site plans provided by the applicant make no provisions to minimize soil loss by avoiding wet periods during the year. In early spring and late fall when ground cover is at a minimum, the potential for erosion is greatest.



WATERSHED BOUNDARY

SCALE 1" = 2000'

herefore, certain phases of construction such as tree removal, landscape grading and excessive movement of heavy equipment should not be planned for seasonally wet times of the year.

Once the construction is completed the condominium association will need to address water quality management as part of their overall plan. This should include lawn and street maintenance. Lawn maintenance should be practiced to minimize nutrient loading to the lake. Detailed information on this subject can be obtained from the USDA Soil Conservation Service's office in Haddam, Connecticut. Road maintenance should include cleaning of the silt traps at all catch basins and points of discharge. Street sweeping on a regular basis during the early spring will also help eliminate road runoff problems.

Much of the road runoff and sediments will drain into a pond on the opposite side of Route 66. This is an advantageous arrangement for Lake Pocotopaug. The pond will act as a sedimentation pond for Lake Pocotopaug. Silt and other material will settle to the bottom of this pond before the water is discharged into the lake. However, this arrangement could seriously degrade this pond. The owner of this pond should be made aware of the potential problems that may develop as a result of the proposed drainage plan.

As a result of the increase in development this watershed is experiencing, water quality in Lake Pocotopaug may deteriorate from the multitude of land use changes and not from a single section being developed. With this in mind it may be to the entire lake using community's advantage to develop a monitoring program that can be used to indicate water quality changes over the years. A program like this would include sampling for phosphorous, nitrogen, dissolved oxygen and visibility. More information on this subject can be found at the DEP's Water Compliance Unit, Lake Management Section 566-2588.

VIII.

WATER SUPPLY

It is understood that a public water supply line is not available to the site. As a result, the applicant is proposing on-site bedrock well(s), bedrock being the principal aquifer on the site to service the project.

Yields from bedrock floored wells are very difficult to predict; they depend upon the number and site of water bearing fractures intersected, the geographic and topographic locations of the wells, and the texture of the bedrock. A survey of 314 bedrock (crystalline rock) wells in the Lower Connecticut River (Connecticut Water Resources Bulletin, No. 31) which the site lies within, showed that 90 percent yielded just under 2 gallons per minute or more, 50 percent yielded about 6 gallons per minute or more and only 6 percent yielded 30 gallons per minute or more.

It seems likely that a well or wells capable of producing 31 gallons of water per minute would be required for a 148-unit condominium project. This assumes all units are two bedrooms and a maximum of three persons per unit. Consumption rates were estimated at 75 gallons per day per person. Based on the above figures, it is calculated that 33,300 gallons of water would be required for the condominiums. This does not include water for fire protection, landscape irrigation and the community pool. In order to meet a water demand of 33,300 gallons of water per day, the well must produce 31 gallons of water per minute (based on an 18-hour pumping period). As noted in the preceding paragraph, only 6 percent of the bedrock wells tapping crystalline rock in lower Connecticut River basin produced 30 gallons per minute or more. Based on this information, it seems likely that a few and possibly several wells would be needed to meet the water demand for a 148 unit-2 bedroom condominium project.

Present plans show four possible locations for the proposed wells. They flank the central portions of the west side of the hill. The wells are located in a relatively straight line and have separating distances of about 150 feet between each well site.

A water related concern, which will need to be addressed, is whether or not the proposed drilled wells will interfere with one another during pumping periods, particularly since they will be so close together. This situation may cause a yield of a particular well or wells to be seriously depleted.

According to Connectciut Resources Bulletin No. 15, a "rough rule of thumb" is that the distances between bedrock wells should be at least twice the thickness of the aquifer. Experience has shown that the water-bearing part of the bedrock is ordinarily 150 feet thick. This suggests a minimum

of separation of 300 feet between wells if they penetrate average bedrock or if evidence to the contrary is lacking.

In view of the above discussion, it seems that a great deal of additional technical information, which should include test wells, would have to be provided to the Town before the plan is approved. A detailed study of the underlying bedrock aquifer by a qualified hydrogeologist is warranted in order to determine such things as (1) the impacts of several wells in a concentrated area on the bedrock aquifer, particularly during pumping periods; (2) the potential impacts on neighboring wells; (3) zones of influence for the wells and the resulting cummulative effects during pumping periods; (4) the long term adequacy of the community water supply; (5) conducting water quality testing; and (6) plans for water storage, treatment, if necessary, and distribution. With regard to the latter, the applicant should contact the local and State Department of Health Services and the Department of Public Utility Control as soon as possible.

Consideration should be given in advance to providing for proper operation and maintenance of the community water supply system, i.e., establishment of a homeowner's association or takeover by a private or municipal water supply company.

According to DEP, groundwater beneath the site is classified as GA. This means that it is suitable for private drinking water supplies without treatment. As a result, the quality of the groundwater would be expected to be generally good. As noted earlier the water may possibly have a too high iron and/or manganese concentration, which has occurred in many areas underlain by Brimfield Schist. Ample precautions should be taken to keep wells safe from road drainage and salt contamination. Such precautions would include placement of wells uphill from salt storage area, direct road runoff away from well sites and maintain conservative separating distances.

IX.

VEGETATION

A. Introduction

The 41 acre tract which is proposed for developing into the Laurel Grove Condominium Complex may be divided into three vegetation types. (Please see the vegetation type map). These vegetation types include three mixed hardwood stands which total approximately 32 acres; a hardwood swamp which totals ±8 acres, and once acre that has been completely cleared of all vegetation. The majority of this property was harvested of most of its merchantable sawtimber size trees between 15 and 20 years ago. Only a few large healthy trees scattered throughout the property remain today.

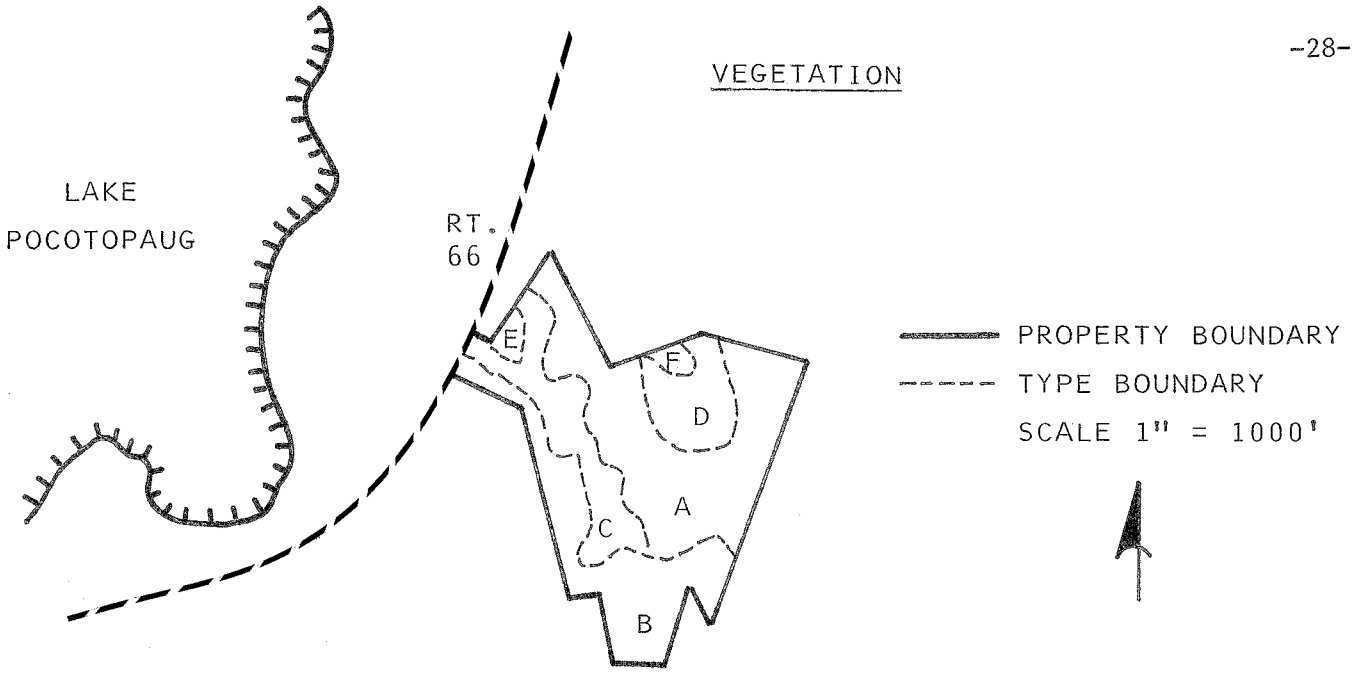
B. Vegetation Type Description

STAND A: Mixed hardwoods. This ±17 acre two aged stand is fully stocked with sapling to pole size black birch, red maple, black oak, scarlet oak, white oak, hemlock, shagbark hickory and American beech. A few healthy scarlet oak, white oak, black oak and sugar maple are also present. These larger trees have high aesthetic value and should be considered for retention. The moderately dense understory consists of hardwood tree seedlings, maple leaf viburnum, blue beech, witch hazel, highbush blueberry and scattered mountain laurel. Ground cover and herbaceous vegetation is made up of poison ivy, grapevines, Christmas fern and brambles.

STAND B: Mixed Hardwoods. Pole size chestnut oak, black birch, red maple, black oak, scarlet oak, white oak, red oak and sassafrass are present and becoming overcrowded in this stand which totals approximately 9 acres. A majority of the trees in this stand are growing extremely slowly due to the poor site conditions and overcrowding. The black birch have almost all been damaged by nectria canker. The understory is dominated by a dense growth of mountain laurel with occassional highbush blueberry, sweet pepper bush and witch hazel intermixed. Club mosses and sedge were the only ground dover observed.

STAND C: Hardwood Swamp. Approximately 8 acres of wetland are present within this tract. Crowded pole size red maple dominate with scattered black gum, white ash, and occasional tulip tree found where the wetland meets other vegetation types. The condition of the trees in terms of health and vigor vary greatly within this stand. Understory vegetation is made up of sweet pepper bush, highbush blueberry, mountain laurel and poison sumac. Herbaceous ground dover and vines include sphagnum moss, skunk cabbage, sensitive fern, Christmas fern, cinnamon fern, poison ivy, green brier, grape vines and club moss.

VEGETATION



VEGETATION TYPE DESCRIPTIONS

AREA A: MIXED HARDWOODS, 17 ACRES
TWO AGED, SAPLING TO POLE SIZE WITH OCCASIONAL SAWTIMBER SIZE TREES, FULLY STOCKED

AREA B: MIXED HARDWOODS, 9 ACRES
POLE-SIZE, OVERSTOCKED

AREA C: HARDWOOD SWAMP, 8 ACRES
PREDOMINATELY POLE SIZE, VARIABLY STOCKED

AREA D: MIXED HARDWOODS, 5 ACRES
TWO AGED, POLE TO SAWTIMBER SIZE, UNDERSTOCKED

AREA E: MIXED HARDWOODS, 1 ACRE
SAPLING WITH OCCASIONAL POLE TO TIMBER SIZE TREES
FULLY STOCKED

AREA F: CLEARED LAND, 1 ACRE

SEEDLING-SIZE = TREES LESS THAN 1 INCH IN DIAMETER AT 4½ FEET ABOVE THE GROUND (DBH)

SAPLING-SIZE = TREES 1 TO 5 INCHES IN DBH

POLE-SIZE = TREES 5 TO 11 INCHES IN DBH

SAWTIMBER-SIZE = TREES 11 INCHES AND GREATER IN DBH

STAND D: Mixed Hardwoods. This two aged stand is made up of pole to sawtimber size red maple, black birch, American beech, black cherry and occasional white ash. Many of these trees are in very poor condition and declining in health and vigor as a result of ice storm and hurricane damage. The understory is dominated by hardwood tree seedlings which include black birch, red maple, American beech and sassafras. Blue beech, maple leaf viburnum, arrowwood and witch hazel are also present. Grape vines, greenbrier, poison ivy, raspberry, Christmas fern, Pennsylvania sedge and club moss form the herbaceous and ground cover vegetation in this area.

STAND E: Mixed Hardwoods. Seedling and sapling size black birch, black oak, red oak and red maple dominate this one acre stand. A few pole and sawtimber size red and black oak are also present. Due to the high density of seedling and sapling size trees, little herbaceous ground cover has become established.

STAND F: Cleared Land. This area, which totals approximately one acre, was recently cleared of all its vegetation. Grass, weeds and raspberry have begun to become established around its edges.

C. Aesthetic Considerations

As a result of past harvesting practices, few large healthy trees remain within this tract. Those that do remain are scattered throughout Stand A. These trees have high aesthetic value and should be selected for retention and worked into the final site plan for the proposed development. Flowering shrubs such as the mountain laurel which is present in Stands B and C also have high aesthetic value and should be retained, and where feasible released to stimulate flowering Care should be taken during the construction period not to disturb the trees and shrubs that are to be retained. Where feasible, trees and shrubs should be retained in groups or "islands". This practice lowers the possibility of soil disturbance and mechanical injury. Individual trees and "islands" of trees and shrubs should be temporarily, but clearly marked, so they may be avoided during construction.

As much as 50% of this tract may be cleared of all vegetation for the construction of the proposed development. Development practices near trees such as excavation, filling and grading for construction of roadways and condominium units especially with the steep slopes which are present may disturb the balance between soil aeration, soil moisture level and soil composition. These disturbances may cause a decline in tree health and vigor, potentially resulting in tree mortality within three to five years. Mechanical injury to trees may cause the same results. Dead trees reduce the aesthetic quality of an area and may become hazardous and expensive to remove if near roadways, buildings or utility lines.

D. Limiting Conditions and Potential Hazards

A majority of the trees which are present in Stand D (mixed hardwoods) are very low in quality. Broken tops, split seams and partial windthrow from hurricane Gloria are characteristic of the trees in this area. As a portion of this area is proposed for a passive recreation, these damaged trees will represent a potential hazard if any are not removed prior to development.

Windthrow is a potential hazard in Stand C (hardwood swamp). Tree root depth is restricted by saturated soils in this area. Under these conditions trees are unable to become securely anchored and are susceptible to windthrow. Trees which are crowded and rely on each other for stability have an even greater potential for windthrow problems and top breakage. These conditions may be intensified if linear openings which allow wind and clearings in and along side these wetland areas should be avoided if at all possible. Undisturbed buffer zones at least 25 feet deep around the wetlands should help to reduce the windthrow potential.

E. Management Considerations

Trees which are unhealthy and not growing vigorously due to crowded conditions are most susceptible to further degradation for environmental stresses brought about by development, disease, insect infestation and adverse weather conditions. Improvement thinnings, which remove undesirable trees and reduce competition for space, sunlight, nutrients and water between the high quality residual trees will, over time, allow trees to improve in health, vigor and stability. These thinnings when implemented properly can improve the aesthetic value of an area, improve wildlife conditions and provide wood products.

The trees which are present in vegetation Stand B are declining in health and vigor as a result of their crowded conditions. Under these circumstances the trees are under stress conditions. Under these circumstances the trees are under stress and major disturbances in their environment such as changes in soil conditions and mechanical injury caused by construction in this area, may rapidly lower their health. A fuelwood thinning in this stand, following the "crop tree selection method" would help to reduce the crowded condition and improve tree health and vigor. Under the "crop tree selection method", 100 of the highest quality trees in each acre should be identified (trees spaced about 20' x 20' will equal 100 trees per acre), and one, two, or three trees that are in direct competition with each of those identified should be removed. The 100 trees per acre that are selected as crop trees should be healthy, large crowned, and show little or no signs of damage. This thinning, if implemented, will provide between 4 and 5 cords of fuelwood per acre. This thinning will only be feasible if a fuelwood market exists.

Removal of the hazardous trees which are present in Stand D will open up this area considerably. The increased sunlight will stimulate the growth of both shrub and ground cover vegetation. If the understory vegetation is removed to improve aesthetics and recreational opportunities, then long term plans should be made to control the profuse sprouting which will probably occur. This sprouting may be controlled by periodic mechanical or chemical means.

X.

WILDLIFE HABITAT

A. Habitat Description

The site is comprised of two habitat types: Mixed hardwoods (39 acres), Hardwood swamp (9 acres).

MIXED HARDWOODS: This habitat type is primarily composed of white oak, red maple, hickory, beech, and hemlock. The understory is well developed, consisting of black birch, red maple, and mountain laurel. Wildlife frequenting such habitat include deer, fox, raccoon, grey squirrel, woodpeckers, and a diversity of songbirds.

HARDWOOD SWAMP: This habitat type is primarily composed of red maple, black birch, and elm. Understory vegetation is dominated by mountain laurel. This area appears to be seasonally wet, supporting vegetation consisting of skunk cabbage, sensitive fern, and jack-in-the-pulpit. A small seasonal stream is located in the north western section of the property and numerous seasonal wet depressions were observed in the wetland area. Wildlife frequenting such habitat include deer and a diversity of other mammal and bird species.

B. Proposed Development Impacts

The proposed development consists of 148 condominium units clustered in the upland habitat. Due to the extreme slope in this area of development all efforts should be taken to keep vegetation disturbance to a minimum. The increased runoff of stormwater may cause sedimentation problems not only to the adjacent wetland site but also to Lake Pocotopaug.

A subdivision development in an undeveloped area of forest can cause major changes in local breeding populations. Some species will decline or disappear because of habitat loss, while others will increase with the creation of new habitats. The end result often is reduced diversity of species but a larger bird density that occurred in the area before development. Nuisance species such as starlings and house sparrows sometimes contribute heavily to this density increase.

C. Recommendations

The woodland located adjacent to the proposed houses should remain as "natural" as possible. Ground cover, understory trees and shrubs, decaying and dead trees if left "natural", can support a wider variety of species of breeding

birds and other wildlife. Removal of dead and dying trees would eliminate nesting and feeding places of woodpeckers, white-breasted nuthatches and chickadees.

Landscaping can do a great deal to provide habitat and make an area attractive to wildlife. First, leave as many trees as possible around the buildings. This will not only benefit wildlife by providing food, cover and nesting sites (especially for songbirds), but will also be more aesthetically pleasing for the residents of the development.

Leave as many snag trees (standing dead trees) and den trees (trees with holes) as possible. These trees are used by insect eating birds and cavity nesting birds and mammals.

Plant trees and shrubs which are useful to wildlife and landscaping such as:

Japanese barberry (Bergeris bulgaris)
Flowering dogwood (Cornus florida)
honeysuckle (Lonicera spp.)
juniper (Juniperus spp.)
bayberry (Murica pennsylvanica)
chokecherry (Prunus virginiana)
American holly (Ilex opaca)
Maple-leaved viburnum (Viburnum acerifolium)
American mountain ash (Sorbus americana)
autumn olive (Eleaegnus umbellata)
winterberry (Ilex verticillata)
American cranberrybush (vernum trilobum)
red maple (Acer rubrum)
red-osier dogwood (Cornus stolonifera)
alternate leaf dogwood (Cornus alternifolia)

A variety of trees and shrubs should be used. Most species of wildlife need to have cover when they move from place to place. Leaving corridors of vegetation will allow wildlife to utilize the area and also have access to adjacent areas. Large expanses of lawn with no trees or shrubs present should be discouraged. These factors will allow wildlife to better utilize the area and thus make it more attractive to wildlife.

A planned development, if properly managed, can provide good wildlife habitat for breeding birds and other wildlife species. In addition, these developments, because of their aesthetic and ecological benefits, have an increased marketing value.

XI.

FISH RESOURCES

A. Site Description

The proposed Laurel Grove condominium development will be located on the southern portion of Baker Hill in East Hampton. The primary aquatic habitat of fisheries concern in the area is the 512 acre Lake Pocotopaug. Water drainage from this property naturally drains off of Baker Hill and flows under Route 66 through a culverted pipe into a small pond. From the pond, water is outletted to a small watercourse that flow through wetlands before emptying into O'Neils Cove of Lake Pocotopaug. The pond and watercourse within the wetland area have been severely damaged by siltation due to heavy erosion from the Baker Hill Condominium complex which is presently being constructed on the northern portion of Baker Hill. Consequently, heavy sedimentation has occurred in O'Neils Cove of Lake Pocotopaug. This damage has resulted in a net habitat loss for resident fish.

B. Fish Population

Lake Pocotopaug contains a diverse and healthy freshwater fish population. Fish that currently inhabit this lake are smallmouth bass, largemouth bass, white perch, chain pickerel, yellow perch, black crappie, brown bullhead, bluegill sunfish, redbrest sunfish, pumpkinseed sunfish, and golden shiner. The lake is best known for its excellent smallmouth bass fishery.

Over the years, the lake has been annually stocked by the DEP Bureau of Fisheries with more than 1,500 adult (9-12") brown and rainbow trout. Past salmonid introductions have included lake trout and landlocked salmon.

Surface waters of Lake Pocotopaug are classified by the Department of Environmental Protection (DEP) as "Class B/A". Designated uses for this classification are: fish and wildlife habitat; recreational use; agricultural and industry supply, and other legitimate uses. Future goals are to upgrade this water quality classification to "Class A", where it could be used for a potential drinking water supply.

C. Impacts

The following impacts of the Laurel Grove Condominium development on Lake Pocotopaug can be expected if proper mitigation measures are not implemented:

1. Construction site soil erosion and sedimentation of the lake through increased runoff from unvegetated areas - approximately 40% of this site will be completely cleared of vegetation. Devegetation along with construction of condominiums on slopes greater than 35% presents a situation which is very conducive to the development of serious erosion problems. A prime example of serious erosion can be seen on the other side of Baker Hill at the existent condominium development. This development despite mitigation attempts, continues to contribute silt to Lake Pocotopaug on a daily basis. Erosion and sedimentation due to clustered residential housing construction has long been regarded as a major stimulus in the lake eutrophication or aging process. Silt is a serious pollutant. Accelerated lake fertilization brought on by development can seriously impact resident fishes, water quality, and overall lake recreational value. In particular, siltation of the Lake Pocotopaug will:

° Reduce the amount of usable fish habitat used for spawning purposes -- preferred substrate that becomes compacted with silt is no longer available for spawning. Fish will be forced to disperse to other areas of the lake not affected by siltation.

° Reduce fish egg survival -- water free of sediment particles is required for egg respiration (biological process of extracting oxygen from water) and successful hatching. Silt deposits will smother eggs.

° Reduce aquatic insect production - sediment-free water is also required for successful aquatic insect egg respiration and hatching. Aquatic insects are the primary food source of young and adult fishes. Reduced insect levels will adversely affect fish growth and survival.

° Reduce water depth within O'Neils Cove - this occurrence will result in a further reduction of usable fish habitat.

° Contribute to the depletion of oxygen - organic matter associated with soil particles is decomposed by micro organisms contributing to the depletion of oxygen in waters overlying sediments.

° Adversely affect "gill" function and impair feeding activities - studies have documented that high sediment concentrations and turbidity will disturb fish respiration and gill function.

° Encourage the growth and survival of rooted aquatic plants and precipitate dense "algae blooms" - eroded soils contain plant nutrients such as nitrates and phosphates. Although algae and aquatic plants require these nutrients for growth, most ponds contain very limited amounts. Consequently, these nutrients act as fertilizers once the are introduced into a pond resulting in accelerated plant growth. Extensive algae blooms may turn the water a pea-soup or soupy brown color. Fish kills due to oxygen depletion in the summer called "summerkill" may occur when algae populations die. Dead algae are rapidly decomposed by bacteria in the

summer sometimes causing low oxygen levels. Unfortunately, summer lake dissolved oxygen levels are naturally at their lowest and the introduction of nutrients can only serve to make a bad situation critical.

2. Aquatic habitat degradation due to the influx of stormwater drainage - surface drainage from roads may allow salt, sand, nutrient-enriched sediment, gasoline and oil to enter the lake. Two detention basins are proposed for this development. Stormwater drainage will directly outlet to the lake via wetlands. Detention basins if properly designed and placed can trap most of the coarse, heavy particulate matter; however, fine particles, especially clays, cannot be effectively removed from stormwaters since they remain in suspension. Stormwater runoff containing salts and fine sediments can result in increased fertility of lake waters in turn encouraging the growth of rooted aquatic plants and stimulating algae blooms.

3. Degradation of wetland habitat - wetlands are beneficial in several ways. Wetlands serve to: (1) control flood waters by acting as a water storage basin, (2) trap sediments from natural and man-made sources of erosion, and (3) help filter out pollutants from runoff. The wetland area and watercourse that drains in the lake has already been damaged by the Baker Hill Condominium Development. Its ability to function as a "wetland" and properly filter out and trap sediments has been drastically reduced. Further damage to these and the other wetland regions on the property can be expected if severe erosion occurs.

4. Transport of lawn fertilizers and chemicals to the lake - Runoff and leaching of nutrients from fertilizers placed on condominium lawns can stimulate nuisance aquatic weed growth and help precipitate algae blooms. The introduction of nutrients will accelerate the lake eutrophication process. Introduction of lawn chemicals may result in fish kills and water quality degradation.

D. Recommendations

The wide ranging impacts on Lake Pocotopaug may be reduced by implementing the following recommendations:

1. Install and maintain proper erosion and sedimentation controls during site construction activities - this includes such mitigative measures as silt fences and staked hay bales. Only small areas of soil should be exposed at one time and these areas should be reseeded as soon as possible (See **Soils Section** for specific recommendations). Complete mitigation of silt runoff will be difficult to achieve at this development location. Some siltation should be expected, although the severity is difficult to predict. The fact that surface water drainage from the proposed development will be outletted to Lake Pocotopaug via the damaged wetland area will present a severe problem. Sediment that has already been deposited within the wetland area by the other development on Baker Hill will be picked up and carried downstream to the lake. This impact cannot be mitigated. If this development is approved, the Town of East Hampton should have an appointed official that would be responsible for inspecting this development on a daily basis to ensure that contractors have complied with all stipulated mitigation devices. Past lake and stream siltation disturbances in Connecticut associated with residential housing developments have occurred

when individual contractors either improperly deployed mitigation devices or failed to maintain these devices on a regular basis. The town must be willing to immediately issue a cease and desist order if proper compliance with recommended measures is not being met.

2. Maintain at the **minimum** a **100 foot** open space **buffer zone** along the boundary of the nine acre wetland - no construction and alteration of habitat should be allowed this zone. Research has shown that 100 foot buffer zones help prevent damage to wetlands. These buffers also absorb surface runoff and other pollutants before they can enter wetland habitat.

3. Properly design, locate, and maintain detention ponds to ensure the proper management of stormwaters - maintenance is very critical. The Town of East Hampton should regularly maintain stormwater drainage facilities. The town should ensure that the proposed detention ponds will provide adequate stormwater protection. The detention ponds will only trap heavy, coarse sediment in stormwaters. Waters that contain pollutants such as salt, gasoline, and oil can be introduced into the lake and cause water quality and aquatic habitat degradation. Fine silts in stormwaters will remain in suspension for prolonged periods of time; thus, the release of stormwaters will cause further siltation in the lake. As previously mentioned, the release of water from this development, regardless of its purity, will pick up sediment already deposited in the damaged wetland and quickly carry this pollutant into the lake. This impact cannot be prevented. The feasibility of possibly outletting stormwaters down Route 66 and into Pocotopaug Creek should be investigated. If feasible, this drainage scheme would alleviate direct stormwater impacts to Lake Pocotopaug.

4. Limit liming, fertilization, and the introduction of chemicals to condominium lawns - this will help abate the amount of additional nutrients to the Lake Pocotopaug. Non-phosphorus lawn fertilizers are currently available from various lawn care distribution centers.

E. Summary

Complete mitigation of all environmental impacts at this sensitive development location will be difficult, if not impossible, to achieve. There is no doubt that further damage to Lake Pocotopaug will occur if this parcel of land is developed. Unfortunately, the existent Baker Hill Condominium development has already damaged wetlands and the lake. Impacts will be observed from years to come as the recreational value of Lake Pocotopaug is negatively affected and water quality is degraded. Town officials and residents have a very critical decision to make. They must weigh the value of an irreplaceable aquatic resource such as Lake Pocotopaug versus the need for further lakeside residential development.

XII.

TRAFFIC CONCERNS

The traffic study provided by the developer appears to address the traffic concerns with the provision of a bypass lane. Factoring the counts to the summer would be appropriate due to seasonal variations.

The average daily traffic as counted by ConnDOT (ADT) in the vicinity of the project is:

	Route 196	East of Route 196	West of Route 196	East of Browning Road
1983	3,800	10,200	9,800	8,700
1986	2,800	10,400	11,000	9,700

The entrance to the development will require modifications to Route 66 to provide a bypass lane. The development road intersection with Route 66 should have positive drainage to provide an all-weather improvement.

Potential conflicting traffic operations between the "garden center" opposite the development must be reviewed to insure the appropriate traffic control is included in the final design.

XIII

HISTORIC AND ARCHAEOLOGICAL REVIEW

A. Belltown Historic District

The State Historic Preservation Office notes that the proposed condominium development along Baker Hill is located in immediate proximity to the Belltown Historic District, which is listed on the National Register of Historic Places. The National Register inventory--nomination form describes the historic and architectural significance of this historic area. (See **Appendix**) Moreover, the inventory-nomination form includes a USGS map which has been highlighted to show the boundaries of the historic district.

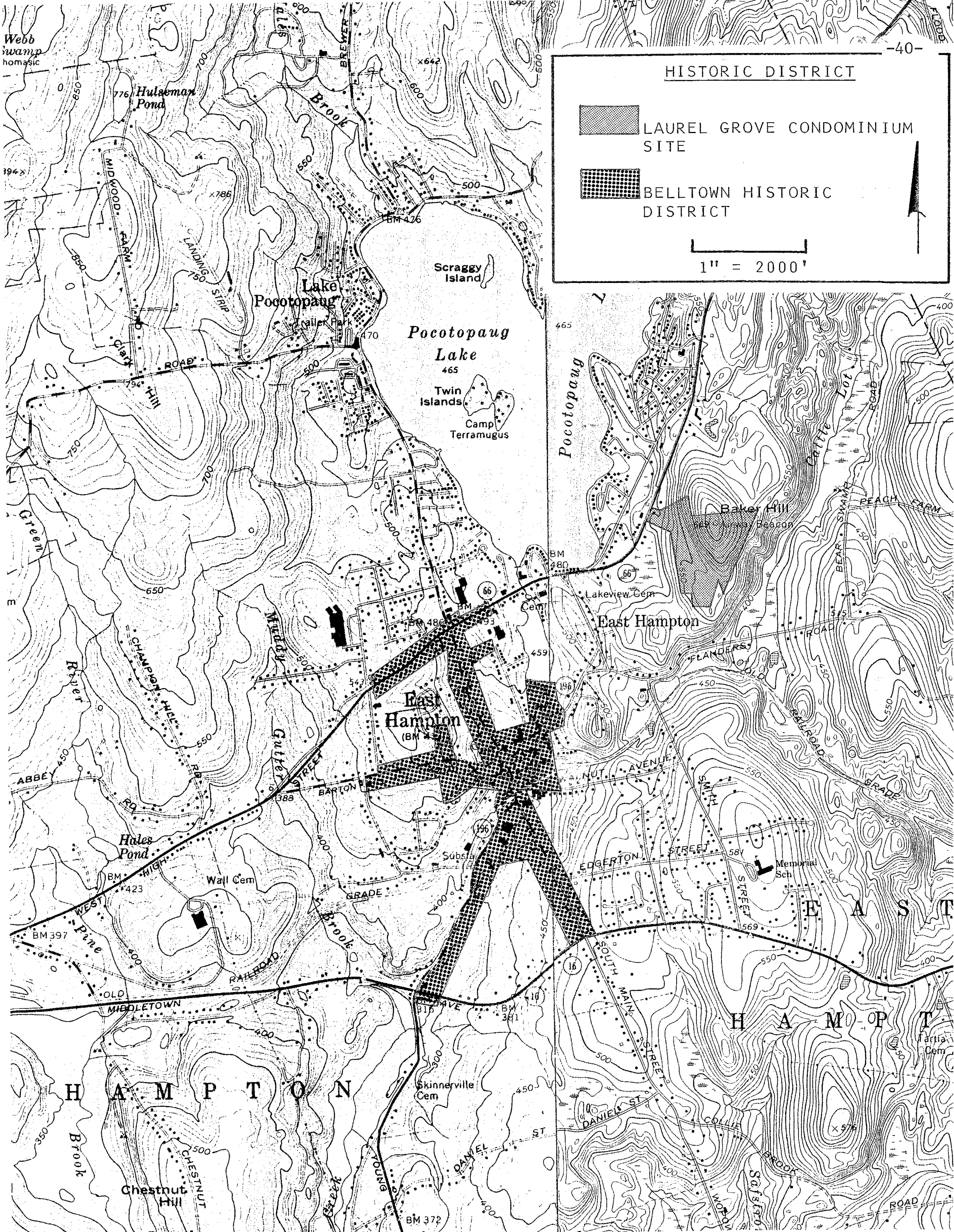
It is recommended that any proposed new construction in the project area take into consideration its potential visual effect upon the Belltown National Register Historic District. In this regard, we encourage the retention of all mature tree species wheresoever feasible as a natural buffer. Likewise, we recommend that maximum building height take into consideration the viewscape from various locations within the Belltown National Register Historic District.

B. Prehistoric and Historic Significance

A review of the State of Connecticut's Archaeological Site Files and Maps show no prehistoric occupations within the boundaries of the proposed project area. However, a number of archaeological sites have been located along the borders of Pocotopaug Lake. In addition, many historical accounts, including East Hampton Town Records, make mention of Native American use of the Baker Hill area. Historic references specify land use by the Wangunk and Mattabessett Indians, and, suggest that a village and burial site may be located in the project area.

In addition to Indian use of Baker Hill, historical archaeological sites may include the possibility of discovering remains for the hilltop's function as a "beacon site".

On-site inspection located no above-ground structures. However, this survey method is extremely limited and subsurface testing may very well reveal evidence of prehistoric and historic occupations. The proposed development project would adversely impact such cultural resources. Based on predictive models of archaeological site surveys conducted in Connecticut, the impact area is regarded as having a high potential for Native American habitation, especially on this most prominent hilltop adjacent to the lake.


HISTORIC DISTRICT
LAUREL GROVE CONDOMINIUM SITE
BELLTOWN HISTORIC DISTRICT
1" = 2000'
Webb Swamp
Hulseman Pond
Lake Pocotopaug
Trailer Park
Pocotopaug Lake
465
Scraggy Island
Twin Islands
Camp Terramugus
Brewer
Brook
Midwood Farm
Landing Strip
Clark Hill Road
Baker Hill
Airway Beacon
Cattle Lot
Peach Farm
Bear Swamp Road
Lakeview Cem
East Hampton
Flanders Road
Old Railroad Grade
Muddy Gutter
Champion Hill Rd
Abbey Rd
Barton
Street
Walnut Avenue
Smith Street
Edgerton Street
Memorial Sch
Hales Pond
West High
Wall Cem
Pine Brook
Railroad
Old Middletown Ave
Substa
Grade
South Main Street
EAST HAMPTON
Skinnerville Cem
Daniel St
Collie Brook
Tartia Cem
Chestnut Hill
Chestnut
Young
Safstrom
Road
BM 476
BM 480
BM 397
BM 423
BM 381
BM 372

A professional archaeological reconnaissance survey is strongly recommended in order to locate and identify all prehistoric and historic resources which might exist in the project area. All archaeological studies should be undertaken in accordance with the Connecticut Historical Commission's Environmental Review Primer for Connecticut's Archaeological Resources.

C. SUMMARY

In summary, the project area is located in a critical area of importance to prehistoric and historic Indian lifeways as well as in immediate proximity to the Belltown National Register Historic District. It is strongly recommended that all feasible efforts be undertaken to identify and ensure the preservation and conservation of the cultural resources in the area.

XIV.

APPENDIX

A. Logging and Water Quality in CT

B. Belltown Historic District

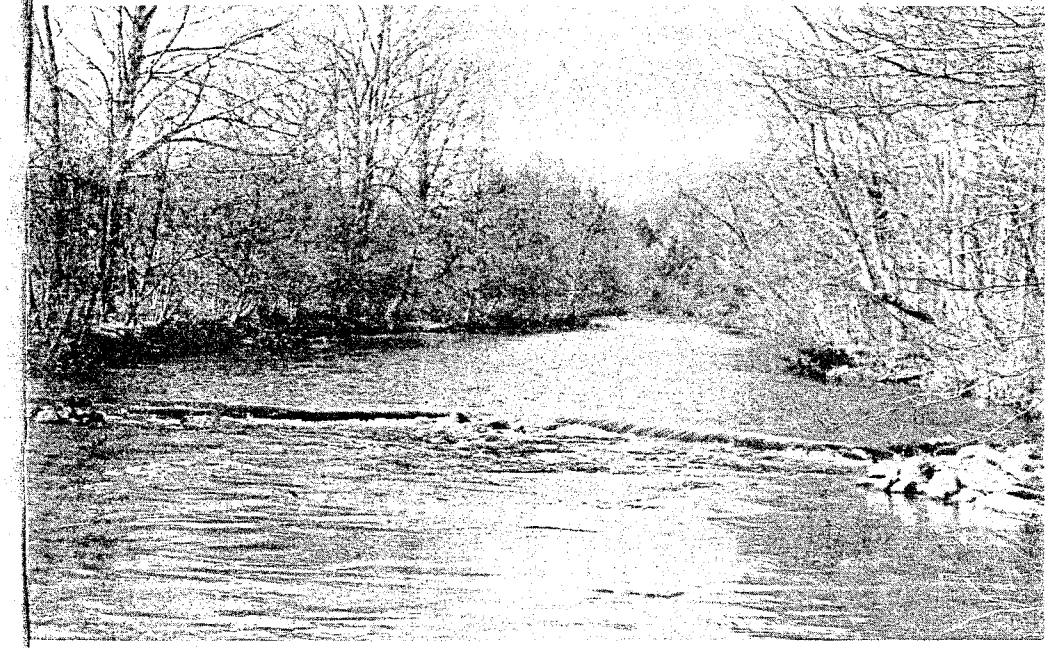
A. Logging and Water Quality in CT

TREES ARE A CONNECTICUT
RENEWABLE RESOURCE

Managing a woodland improves the forest, provides better wildlife habitat, helps local industry, is a source of fuelwood, provides income to the landowner and is an important investment in the future.

Printed as a service to the public by the
Connecticut Forest and Park Association, Inc.,
1010 Main Street, P.O. Box 8537,
East Hartford, CT 06108.

LOGGING AND WATER QUALITY IN CONNECTICUT

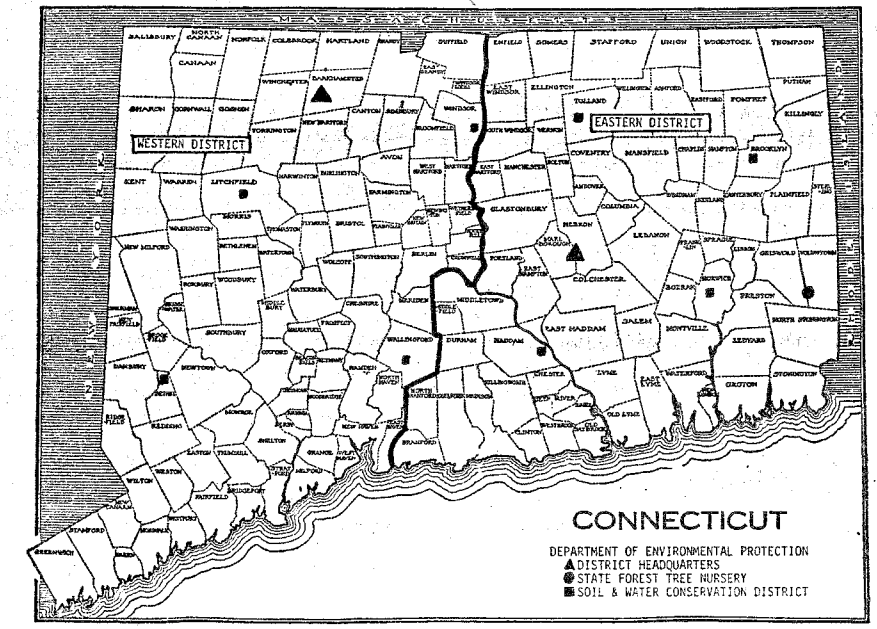


A Practical Guide For Protecting Water Quality
While Harvesting Forest Products

Developed by the Connecticut 208
Forestry Advisory Committee, 1982.

Third Printing, June 1984

During the past few years, the importance of protecting water resources from pollution has been recognized at national, state and local levels of government. New plans and programs directed toward the control of water pollution are being formulated and implemented. Clearly, cooperation between the private sector and responsible government agencies, under the guidance of regulatory monitoring where necessary, is central to the attainment of clean water planning goals.



This document has been financed in part through a grant from the Environmental Protection Agency under the provisions of Section 208 of the Federal Water Pollution Control Act, Amendments of 1972, and was developed under the direction of the Department of Environmental Protection, State of Connecticut.

TABLE OF CONTENTS

INTRODUCTION

While some pollutants are easy to identify and control, others, particularly those associated with agriculture and forest management activities, are more difficult to address. In particular, soil loss from logging operations is now perceived by the public as a source of pollution in our rivers and streams. Loggers, foresters and landowners can expect increasing pressure from the public to do a better job of protecting forest soils and of minimizing the impact of harvesting activity on water resources.

In short, those involved with cutting sawtimber, cordwood or other forest products will have to do a better job of protecting natural resources voluntarily or the public will impose controls through state and local regulation!

In 1979, a field study and analysis of some eighty Connecticut logging operations was conducted. Detailed results of that survey are available at the State Forestry Unit, 165 Capitol Avenue, Hartford, CT, 06115 (566-5348). In brief, the study found no serious water quality degradation associated with forest management activities in Connecticut. It did point out, however, that site-specific problems could occur, particularly with sedimentation.

The recommendations presented in this pamphlet were developed by a statewide committee of interested citizens representing many natural resource interests, including the Wood Producers Association of Connecticut. The Committee, formed under the auspices of Section 208 of the Federal Water Pollution Control Act of 1972, suggests that these Best Management Practices (BMP's) are effective, are practical, but do require planning, and, most important of all, require cooperation of loggers, landowners and foresters.

Unusual situations may arise or pollution control measures other than those recommended here may be found. Common sense is most often the best guide to what is needed. Readers should realize that other forest management practices, such as use of pesticides or fertilizer, and forest fires can also lead to water quality problems but are not included in this publication.

Robert L. Garrepy
State Forester

DEFINITIONS

Terms used in this pamphlet are defined as follows:

1. Access Road: generally a gravel surfaced or improved haul road upon which forest products are transported by truck or trailer. Skidding of logs along the road surface rarely occurs.

2. Skid Trail: roads or trails upon which logs are skidded from the stump to a processing area or landing. Skid trails may be used for only a few to a great many logs. Trail surfaces are rough and often subject to erosion.

3. Landing: loading area where logs are gathered, cut to length, sorted and loaded on trucks for transport to a mill.

4. BMP: best management practice -- a practical, economical and effective management or control practice which will reduce or prevent the generation of pollution.

5. Water Pollution: any condition which leads to poorer water quality. In forestry, pollutants may be sediment, logging debris, chemicals and soil nutrients or increased water temperature.

6. Erosion: the movement of soil by running water.

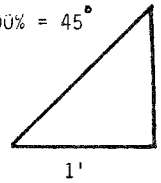
7. Sedimentation: soil and organic material deposited in low areas and water bodies by flowing water. There must be erosion to have sedimentation. Because sediment is material introduced into a water body or wetland, it is considered to be a pollutant.

8. Conservation Seed Mix: commercially available seed mixtures used to revegetate skid roads, loading areas, etc.. Plant species included germinate quickly, grow rapidly and are often attractive as food for a variety of wildlife. Additional information is available at the local County Soil and Water Conservation District Offices.

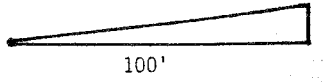
9. Slope Percent: the angle of a hill slope expressed in terms of "degrees" or "percent". A vertical rise of one foot in a horizontal distance of one foot equals a 100 percent or 45 degree slope.

$$\text{Slope percent} = \frac{\text{vertical rise (ft.)}}{\text{horizontal distance (ft.)}} \times 100$$

Slope = 100% = 45°



Slope = 10% = 9°



EROSION

The most common pollution problem associated with logging is erosion, the process by which the ground surface is worn away by water. The eroded material often finds its way into streams and water bodies as sediment. Most erosion comes from logging roads, skid trails, and landings. It almost always looks bad, may result in public complaints, and can lead to difficult operating conditions. Resulting sedimentation can create serious water quality problems.

1. Virtually all erosion caused by timber harvesting in Connecticut occurs during logging operations or during the year following logging.

2. Effective erosion control measures do not require specialized equipment or knowledge. Regular logging equipment and common sense is all that is necessary.

3. In most cases, control of erosion enables more efficient operations and most certainly provides for improved public relations.

WATER PROBLEMS

Water that moves rapidly and water that does not move at all creates problems. The key to erosion control and efficient harvesting is keeping water from concentrating in confined areas on logging roads, skid trails and landing areas.

1. Confined, rapidly-flowing water causes erosion and gullying.

2. Confined, non-flowing water creates mud holes and may lead to serious rutting, but does not cause erosion.

3. Deterioration of logging roads, skid trails and landings causes difficult working conditions, increased costs of operations and criticism from landowners and the public.

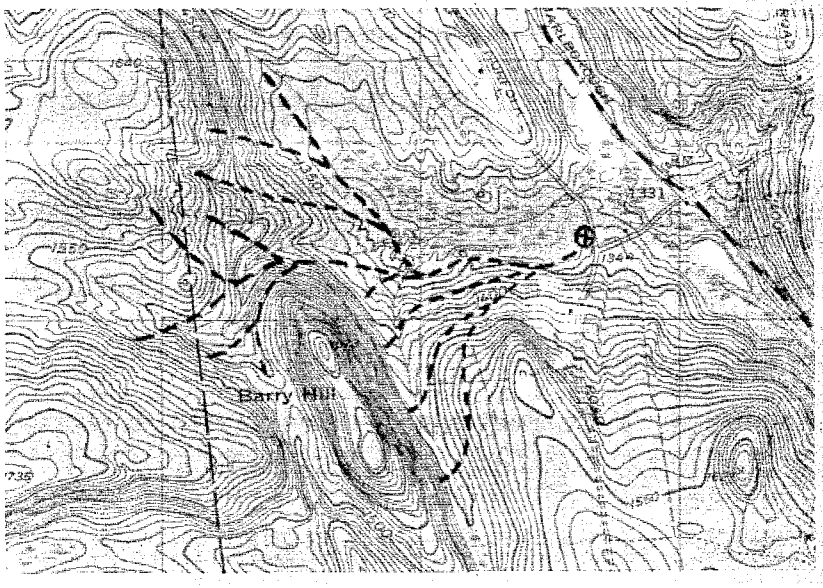
Control of water should be a major consideration during the entire harvesting operation:

1. During the planning process (and every job should be planned).

2. During logging.

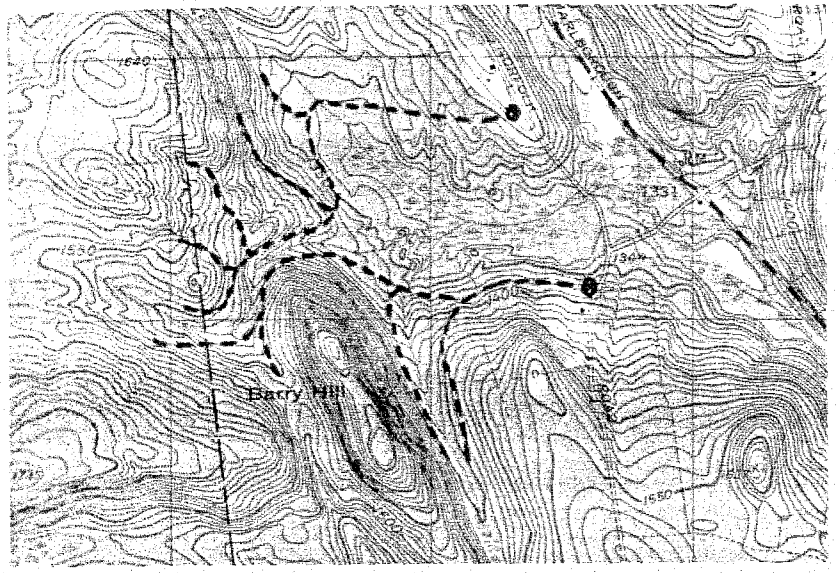
3. After logging is completed.

Typical logging layout - unplanned



Note skid trails going straight up and down hills and crossing brook and the location of the landing adjacent to a swampy area -- many potential water problems.

Layout planned prior to logging

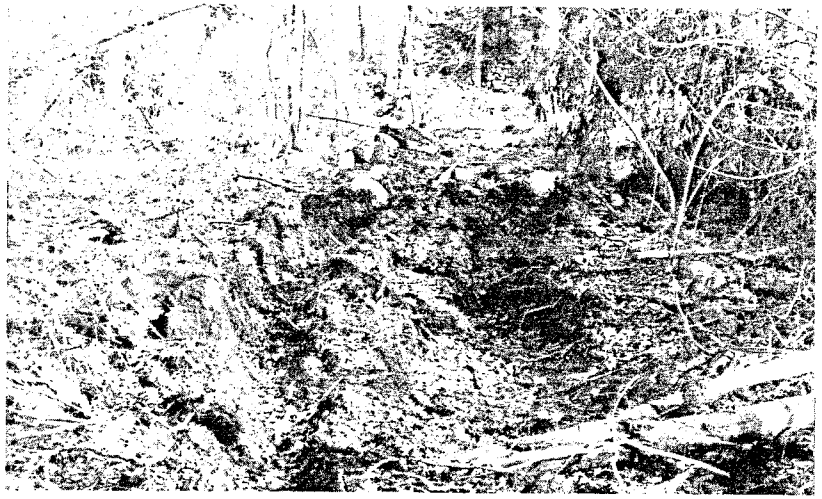


Planning eliminated stream crossings, reduced the steepness of skid trails and, by utilizing two landings, skidding distances were greatly reduced.

LAYOUT OF SKID TRAILS

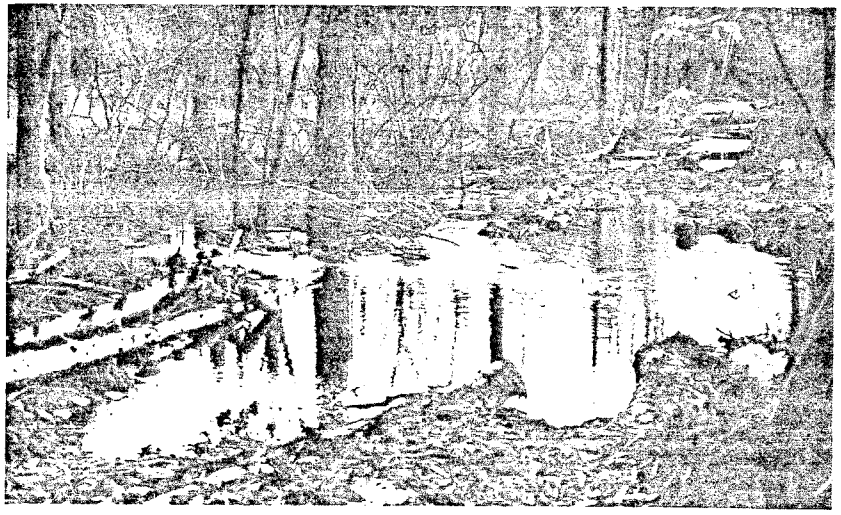
Proper placement of logging roads, skid trails and landings is the most effective method of controlling water problems and erosion associated with forest products harvesting. Before beginning an operation, a harvest plan should be made. A plan may be as simple as a walk through the woodlot to identify potential problem areas, or as detailed as a proposal complete with maps and specific instructions. In any instance, the time spent in planning will pay for itself in more efficient operations.

STEEP SLOPES



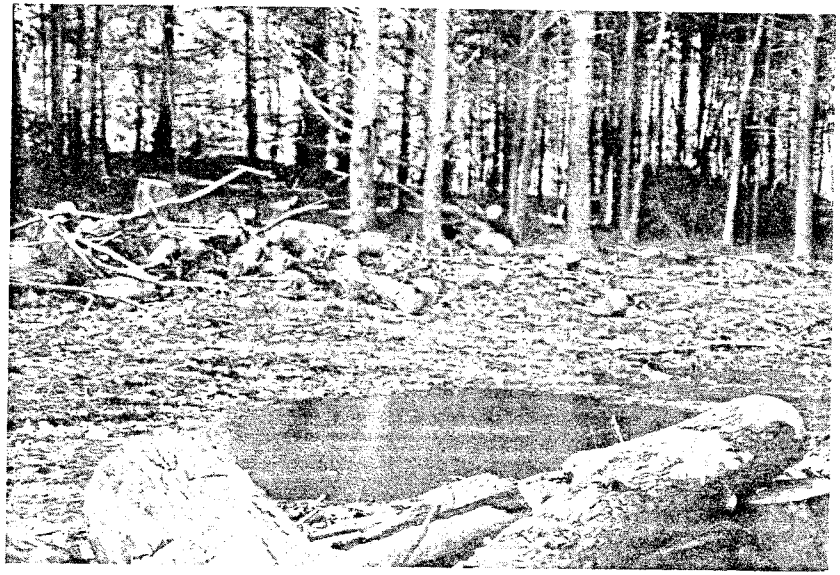
Skid trails and logging roads should avoid slopes exceeding twenty percent, except for short distances. (A skidder will coast on slopes of five - ten percent; logs will roll on slopes steeper than fifteen percent.

FLATS OR NO SLOPE



Avoid wet flats (less than two percent slope), swales, benches or other areas where water cannot be drained away, or log these sections when frozen or dry. Side hill locations with slope sufficient for controlled drainage are preferred for skid trail routes.

WET LANDINGS

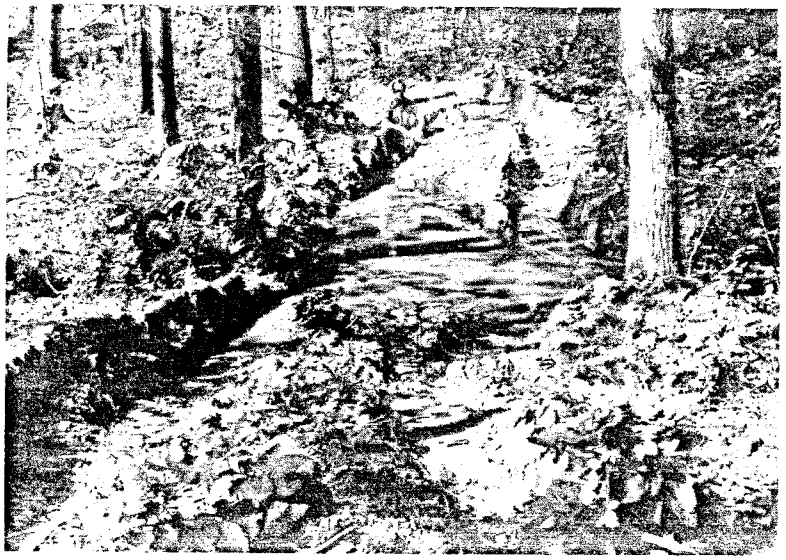


Landings should be located on well-drained soils, with a slight slope away from the access road. Wood chips, bark or sawdust can improve operating conditions, but should not be used as a substitute for a proper location.

STREAM CROSSINGS

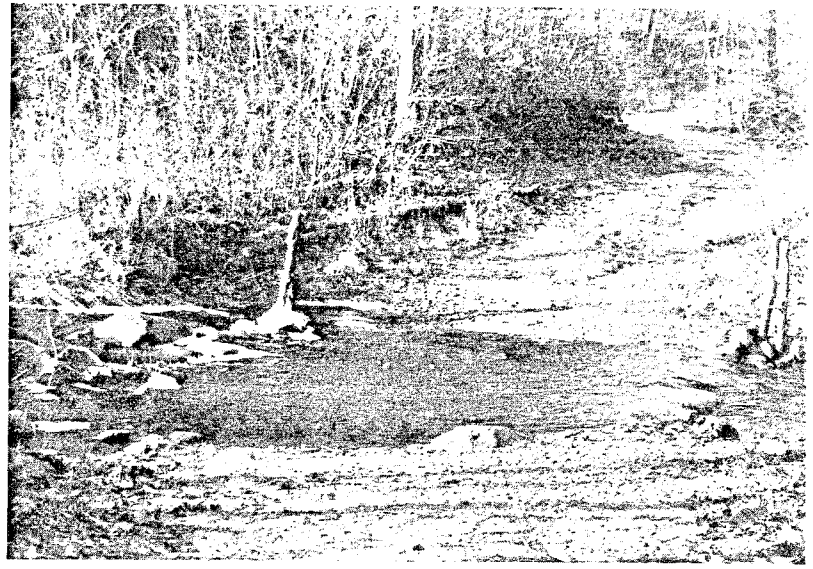
Avoid crossing brooks and streams when practical. However, there are so many water courses that some crossings are inevitable. Locate crossings at right angles to stream flow and avoid steep approaches to the stream bed. If possible, a sediment-catching pool, either natural or man-made, should be located immediately downstream from a skid trail crossing.

POOR LOCATION



This poorly-located crossing will continue to cause water quality problems long after the logging is completed.

GOOD LOCATION

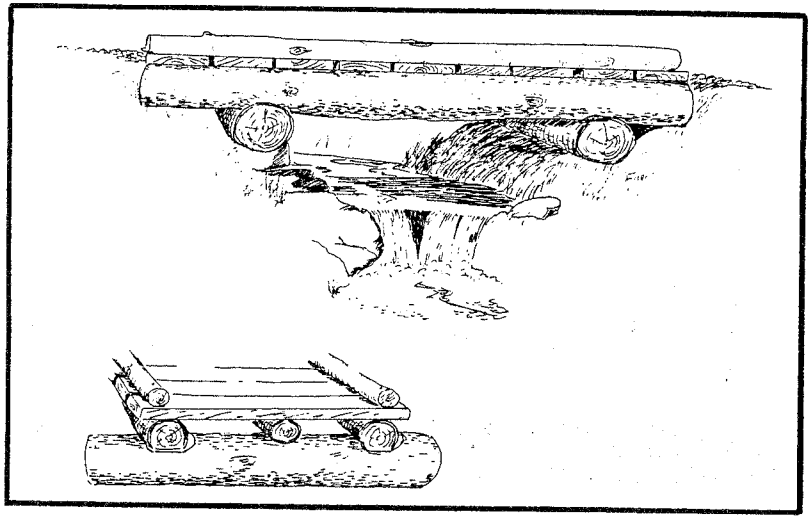


Hard stream bottom minimizes bed disturbance. Gentle approach slopes lessen bank erosion. Rock taken from old stone fences can improve crossing sites so long as the stream channel is neither altered or dammed. At completion of operations, stream banks and approaches should be graded to approximate natural conditions.

BRIDGING

If a suitable stream crossing site cannot be located, a simple log bridge should be used. Log corduroy (crossing on logs piled in stream channel) is not usually recommended because of the potential for damming water and subsequent uncontrolled washout. Culvert installation may require a permit for depositing fill in a wetland area. Streams too large to bridge probably should not be crossed at all. All temporary structures used in stream crossing must be removed at completion of operation.

SIMPLE BRIDGE



Bridge must be wide enough to accept the largest turn to be skidded over it. Bumper logs may aid in keeping material from slipping off bridge. Plank deck is relatively inexpensive, safe and helps prevent shifting of support logs.

BUFFER STRIPS

To protect water courses further, buffer strips of undisturbed land should be left between the water and skid trails, roads and landings. Depending on slope, buffer strips should be from 30 to 100 feet in width. Eroded material will settle out on these areas before reaching the water course. Some cutting may be allowed in a buffer strip, but the use of a skidder or tractor in the area should be avoided.

II. HARVESTING OPERATIONS

During active harvesting operations, the potential for damage to logging roads, skid trails and landings from water erosion is greatest. Continual soil disturbance by logging equipment creates a condition where even light rain can cause erosion. Control measures must minimize the amount of soil disturbance and erosion and prevent soil that is eroded from entering water courses as sediment.

HAUL ROADS

Most roads in Connecticut are publicly maintained. Loggers who must construct access roads to landings should be sure that there is adequate side drainage, that sufficient gravel is used to provide a firm travel surface, and that there is enough crown to prevent standing water. Sediment basins should be constructed where roadside ditches approach water courses.

SKID TRAILS

Since skid trail surfaces are subject to constant disturbance, construction of water control measures on them is usually not practical.

The keys to skid trail maintenance are:

1. Minimize the amount of water reaching the trail, and
2. get water off the trail as quickly as possible.

The best methods for controlling water on skid trails are:

1. proper location of the trails in the planning process,
2. keeping natural drains open, and
3. improving drainage where necessary.

NATURAL DRAIN - INCORRECT

The area shown above could have been improved greatly if the natural drain pattern was kept open. Unless water is removed, a mud hole will only get worse.

NATURAL DRAIN - CORRECT

Periodic cleaning of debris and mud kept this natural drain open and prevented the development of impassable conditions.

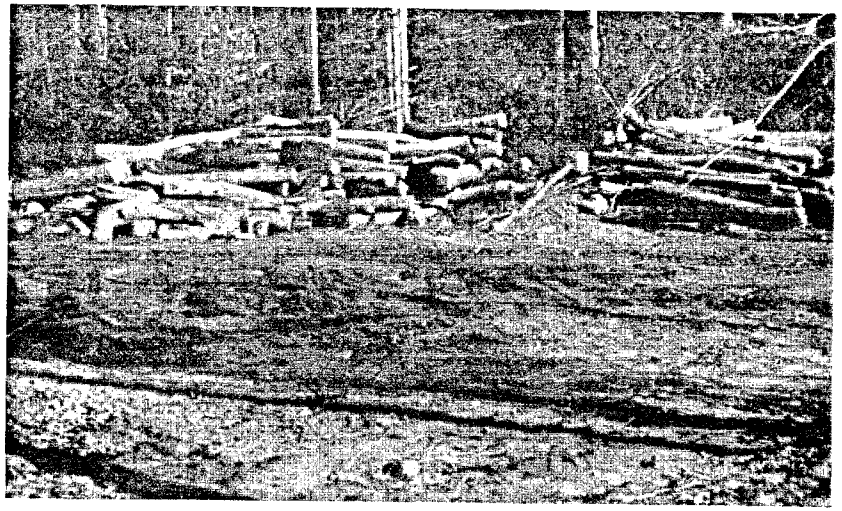
WATER BARS

A water bar is a ridge of soil and stone, often reinforced with a log, constructed at an angle to the slope of a skid trail, which makes water run off the side of a trail rather than running down it.

To be effective, a water bar must be correctly angled, be high enough to prevent overtopping by water flow and be broad enough to sustain some traffic use.

Water bars are easy to install with a blade of a skidder or tractor. Spacing of water bars depends on the steepness of slope. While there are several formulas for determining spacing, common sense dictates that diversion is necessary whenever there is an uninterrupted grade of 80 - 100 feet in length. However, traffic on a main skid trail will destroy water bars quickly, so other drainage systems are preferable during operation.

WELL-MANAGED LANDING



Note there is adequate space to drop a turn of logs, to buck and sort and to load a truck. The surface area is dry and uncluttered.

III: COMPLETING THE JOB

Like the planning phase of logging operations, closing down a logging job requires time and effort that does not make money and may, in fact, cost some. However, the condition and appearance of a woodlot after cutting makes the reputation of the logger. When someone leaves a mess, the word gets out quickly. Conscientious loggers rarely have trouble finding woodlots.

Any harvest operation creates disturbance, but the area should be left in a condition that insures no continuing effects after the loggers have gone. Water, of course, is still the major concern. A skidder rut can become a gully. Tree tops in streams may cause channel bank erosion. Sediment from landings may damage streams and ponds.

After the logging operation is completed, begin immediately to install erosion control measures. Skid trails, roads not suited to continued use, and landings should be "put to bed":

1. Back-blade major skid trails to fill in ruts and smooth the surface. It takes little time and does much to soothe the landowners feelings.

2. Install water bars where necessary and clean out drainage dips and natural drain areas. It is better to have more drainage than not enough.

3. Place brush and slash in the skidway, in ditches or in eroded areas to slow water flow and retain sediment.

4. Culverts, bridges or other temporary structures placed in water courses should be removed.

5. Grade approaches to stream crossings to approximate original conditions.

6. Clean-up and grade landings. No logging debris or trash should be left and the landing surface should be graded so water flows away from the access road.

7. Lime and seed the landing, approaches to stream crossings and steep skid trail sections. Annual rye or a commercial mix of conservation plant species gives excellent, quick cover, providing additional erosion protection and making the area look more attractive. Wood chips, sawdust and old hay make excellent cover material for critical areas, providing protection from erosion until natural vegetation becomes established.

   Conservation plant mixes, available at farm supply stores, also provide food for and cover for wildlife -- the landing them becomes a resource benefit.

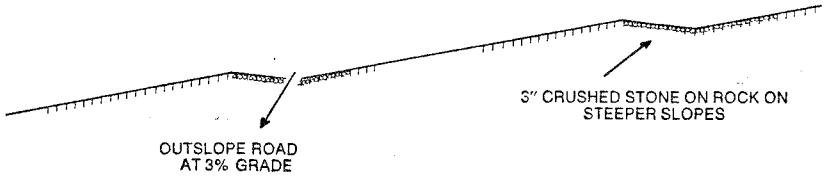
8. PREVENT CONTINUING ACCESS unless part of the skid trail system is to be used on a regular basis. Heavy use by motorcycles and horses can have an effect more detrimental than the original logging. An effective barrier is a medium-sized tree felled so the top is in the skid trail and the butt is still partially connected to the stump. The tree cannot be moved without additional cutting and stays partially alive for a long period. Because of potential hazard liability, chains and cables are not recommended for gates.

REMEMBER: a small amount of extra effort at the end of the harvesting operation can go a long way in protecting the soil and water and in maintaining good landowner and public relations.

DRAINAGE DIPS

A drainage dip is a depression created in a skid trail for the specific purpose of slowly diverting the flow of water. The dip may be 20 - 40 feet in length, with gradual slopes and the deepest point approximately one foot below the average grade line. Constructed with the blade of a skidder or tractor, a dip does not interrupt traffic, wears at the same rate as the rest of the trail and, if the runoff end is kept clear, will serve as an effective and long-lasting drain.

DRAINAGE DIP DESIGN



Spacing Between Drainage Dips

Road Grade (Percent)	*Approximate Distance Needed Between Dips (feet)*
1	500
2	300
5	180
10	140

Drainage dips will not work on a steep slope because water runs over the low side, but they do work well at the foot of a slope.

IMPORTANT: Proper location of skid trails minimizes the need for water control structures during the operation.

RECOMMENDED PRACTICES

The best skidder operation in the world will create unnecessary disturbance if the trees cut are not readily accessible. The timber faller must be familiar with the skidder capabilities. Both faller and skidder operator should know the cutting area layout and plan for harvesting. A forester involved with timber marking should know the extraction problems faced by harvesting crews. To minimize unnecessary disturbance, the following suggestions are offered:

1. Trees marked for harvesting must be accessible. Enough stems must be removed to allow the faller to get trees down and the skidder to remove them. Cutting an additional tree is usually preferable to requiring an additional skid trail.

2. Avoid wet areas. No tree is worth getting stuck. Work in an alternate area until wet locations dry out in the summer or freeze in the winter.

3. Take special care in buffer zones near water bodies. Trees should be felled away from water. Any that fall into water courses should be removed, tops and all.

4. Use the winch! While winching may require more time than driving a skidder to each log, site disturbance, particularly in buffer zones and wetlands is minimized with judicious winch use.

5. Avoid driving up steep slopes. While a skidder may well traverse a 30-degree incline, spinning wheels and repeated trips create ruts which lead to erosion.

6. Stick to established skid trails. Too often a wet spot develops and the skid trail is moved a few feet to the side to go around the problem. Water then fills in the new trail and another move is made, eventually resulting in major disturbance. Locate original skid road to avoid wet areas and, if necessary, relocate the trail far enough from the problem location to avoid "multiple-lane" situations.

LANDINGS

Inadequate landing facilities are often the "bottleneck" that restricts a harvesting operation. Landing areas should be:

1. Of adequate size: use two landings if one is not large enough.

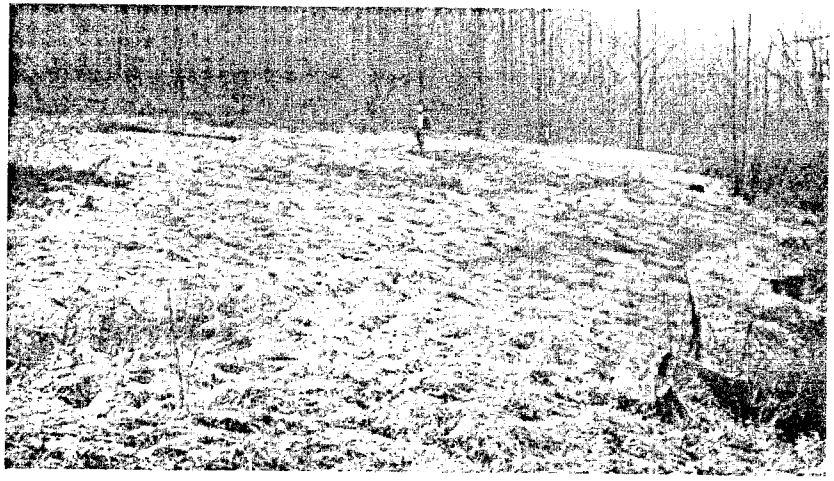
2. Set back from public roads: a screen of uncut forest will minimize complaints.

3. Well-drained: building a short access road to a suitable site is less expensive in the long run than fighting a wet area closer to a public road.

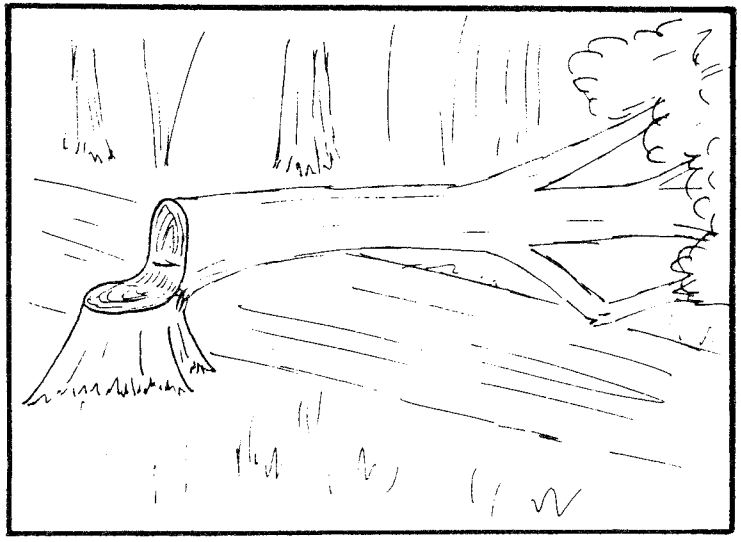
4. Clean: short blocks, branches, oil cans, excess scrap metal and tires can take over a landing. Clean up trash and push back sawdust and blocks on a regular basis. A clean landing is a better work area and provides a more attractive appearance for the public.

5. Free of oil dumps: crankcase drainings and hydraulic oil spills can pollute nearby water for years. Be careful of spills. Dispose of old lubricants in an approved manner. Store in leakproof metal drums and return to a collection point (service station or auto repair shop) for recycling.

LANDING: "PUT TO REST"



TREE-TOP TRAIL BARRIER



ACKNOWLEDGEMENT

This guide was developed through the cooperative efforts of the Connecticut 208 Forestry Advisory Committee. Group members represent public and private resource management agencies, conservation groups, industry, private landowners and the public at large. The intent of the publication is to promote better harvesting practices in Connecticut woodlands.

Guidelines do not solve problems -- people do. However, it is hoped that by accepting and adhering to these recommendations, foresters, loggers and landowners, working together, can avoid situations that create a need for local regulation of the industry.

Additional technical advice and information on best management practices or other aspects of forest products harvesting may be obtained from:

State Forester's Office
165 Capitol Avenue
Hartford, CT 06106
tel. 566-5348

Eastern District Hdqrs., DEP
209 Hebron Road
Marlborough, CT 06447
tel. 295-9523

Western District Hdqrs., DEP
Plymouth Road
RFD #4
Harwinton, CT 06791
tel. 485-0226

State Forest Tree Nursery
RFD #1, Box 23A
Voluntown, CT 06384
tel. 376-2513

RC&D/Extension Forester
Box U-87
University of Connecticut
Storrs, CT 06268
tel. 486-2839

Assistance and advice concerning soils, erosion control, drainage systems, and construction of roads and ponds may be obtained from the Soil and Water Conservation District in your county:

Fairfield County S&WCD
Route 6, Stony Hill
Bethel, CT 06801
tel. 743-5453

Litchfield County S&WCD
Agricultural Center
Litchfield, CT 06759
tel. 567-8288

New Haven County S&WCD
Agricultural Center
322 North Main Street
Wallingford, CT 06492
tel. 269-7509

Hartford County S&WCD
340 Broad Street
Windsor, CT 06095
tel. 688-4946

Middlesex County S&WCD
Extension Center
Haddam, CT 06438
tel. 345-4511

New London County S&WCD
562 New London Turnpike
Norwich, CT 06360
tel. 887-4163

Windham County S&WCD
Agricultural Center
P.O. Box 112
Brooklyn, CT 06234
tel. 774-0224

Tolland County S&WCD
Tolland Agricultural Center
24 Hyde Avenue
Vernon, CT 06066
tel. 875-3881

USDA Soil Conservation Service
Mansfield Professional Park
Route 44A
Storrs, CT 06268
tel. 429-9361

NOTES

B. Belltown Historic District

7. Description

Condition		Check one	Check one
_x_ excellent	___ deteriorated	_x_ unaltered	_x_ original site
_x_ good	___ ruins	_x_ altered	___ moved date _____
_x_ fair	___ unexposed		

Describe the present and original (if known) physical appearance

The Belltown Historic District is located in the center of East Hampton, a town in central Connecticut. It contains an exceptionally large concentration of contributing historic buildings: 147 of the 176 buildings in the district (84%). Although settlement in this area dates from the early eighteenth century, ninety-four percent of the contributing historic buildings were built after 1800, the period associated with the industrial development of the town as a bell-manufacturing center. Seventy-four percent of this latter group were built in the nineteenth century, which includes the majority of the domestic, industrial, institutional, and commercial architecture in the district. Two historic sites, functioning stone dams, also dating from the nineteenth century, are also located in the district. One is part of a historic mill complex; the other is associated with a small number of industrial archaeological sites in the southwestern portion of the district.

In form and appearance the Belltown district is typical of many small New England mill towns and it appears today much as it did at the end of the nineteenth century. The central focus of the district is its nineteenth-century institutional and commercial core, located in a small valley surrounded by hills that crest 100-200 feet above the town center. Principal residential streets include Main Street, the north-south spine of the district, Barton Hill and Crescent streets on the slope of Barton Hill to the west, West High and East High streets, which form the northern border of the district, and Skinner and Watrous streets. Industrial activity is concentrated along Summit Street, a steeply sloping street which extends to the northeast up from the center of town, and Bevin Boulevard and Bevin Court, offshoots of this street to the north. The mill buildings clustered in this area historically utilized the waterpower of Pocotopaug Creek, the outflow from Pocotopaug Lake, which is dammed in several places as it flows in a southwesterly direction through the district, dropping 150 feet from the lake. Other historic mills are located below the center of town on the west bank of this stream.

The surviving historic architecture includes all the principal components of an industrial community. In addition to a large body of domestic architecture (120), the district also contains a number of representative examples of other types of buildings which still retain their historic function. Fifteen brick- and wood-framed mill buildings are located in four separate mill complexes.* Eleven commercial buildings, mostly of wood construction, four wood-framed churches, two schools, and two libraries are also included in the district. Only one of the library buildings, one church, and one school no longer serve their original purpose.

Although the mill buildings, as well as three of the churches and one school, are relatively large in scale, the remainder of the buildings, both domestic and commercial, are similar in size and style. A major exception is the Belleville Store/Carrier Block in the center at 80 Main Street, a three-story mansard-roofed, wood-framed building. This uniformity is intensified by their similarity of form and materials. The majority of the domestic and commercial buildings present their gable ends to the street. Virtually all of this group are constructed of wood--either post-and-beam or balloon-framed--and are two-and-one-half stories in height. (The exceptions are Inventory #85 and 116.) Rarely does the setback vary, which gives a pleasing uniformity to the streetscapes. Only along the west side of Main Street, along a steeply sloping area between the commercial area and West High Street, are the houses set back a distance from the street. These hill sites, however, provide an appropriate setting for the late nineteenth-century houses located there.

*Mill complexes, regardless of the number of buildings, are listed as one item on the inventory.

Modern intrusion in the district is quite limited, adding to its cohesiveness. Three of the non-contributors are modern public or public service buildings, built in relatively unobtrusive locations (Inventory #1, 2, 101). Quite a few of the other post-1935 buildings blend with the district because of their compatible function and form. Some of these are clustered on Barton Hill (Inventory #9-11); the rest are scattered along Main Street.

Although a few well-preserved eighteenth-century domestic buildings remain in the district, the majority of historic residential buildings were constructed in the nineteenth century. Generally they are vernacular buildings which exhibit influences of the Federal, Greek Revival, Italianate, and Queen Anne styles. Several "high-style" examples from the late Victorian period are also included in the district, which were built in the late nineteenth or early twentieth century.

An exceptionally large group of well-preserved, vernacular Greek Revival-style buildings remain in the district. Houses were built in this style for fifty years (1840-1880). While no two are exactly alike, all but one of these buildings utilize the gable-to-street temple form. They are distinguished by the variety of window forms in the pediment, ranging from the rectangular to triangular, to finally in the later examples, the paired, narrow windows of the Victorian period. Numerous examples of this style are clustered on upper Main Street and again on Barton Hill. (For the better representative examples, see Inventory #28, Photograph #3; and Inventory #72, Photograph #10.)

The Italianate style developed in almost the same time period (after 1850) and utilized the same gable-to-street form. It can only be distinguished from the Greek Revival style by the type of architectural detail and its more vertical appearance. A typical example can be found at 22 West High Street (Inventory #159; Photograph #19). Only a few of these houses were built in the cube, or cruciform plan, with low-pitched hip roofs. One of the better examples of this latter type is located on Niles Avenue (Inventory #131). The oldest school in the district was also built in this style. It is distinguished by brackets, and window and door hoods (Inventory #92; Photograph #14).

Three houses stand out from their neighbors as fully realized and for East Hampton very individualistic examples of their architectural style. Two were built in the last quarter of the nineteenth century. One of them is the Philo Bevin House, the only example of the French Empire style in the district (Inventory #13; Photograph #2). Three stories in height, fully bracketed bays and cornices, a dormered slate roof with a cupola, and an exceptional portico with a two-story addition on the north side distinguish this building. It occupies a commanding position at the crest of Barton Hill. The other exceptional house is also on an elevated site overlooking Main Street from the west side (Inventory #77; Photograph #12). A much more elaborate Italianate-style house, it is two-and-one-half stories in height, with a three-story facade tower. Scrolled bargeboards with pendant drops, and projecting bracketed eaves, distinguish the projecting bays of this elaborately detailed house. A fully detailed carriage house is located to the southwest. The third example of exceptional merit is the early twentieth-century Mayo Purple House at 142 Main Street (Inventory #119; Photograph #16). Colonial Revival style in form with a broad gambrel roof facing the street, it also exhibits Queen Anne-style influence with an octagonal tower in the southeast corner. A double-columned veranda extends across the facade and the north elevation.

A complete inventory of the buildings and sites in the district is included below and located by inventory number on the district map.

8. Significance

Period	Areas of Significance—Check and justify below				
___ prehistoric	___ archeology-prehistoric	___ community planning	___ landscape architecture	___ religion	
___ 1400–1499	___ archeology-historic	___ conservation	___ law	___ science	
___ 1500–1599	___ agriculture	X economics	___ literature	___ sculpture	
___ 1600–1699	X architecture	___ education	___ military	X social/ humanitarian	
___ 1700–1799	___ art	___ engineering	___ music	___ theater	
X 1800–1899	___ commerce	___ exploration/settlement	___ philosophy	___ transportation	
X 1900–	___ communications	X industry	___ politics/government	___ other (specify)	
		___ invention			

Criteria A, C

Specific dates 1800–1935 **Builder/Architect** Unknown

Statement of Significance (in one paragraph)

The Belltown Historic District, which encompasses the industrial center of East Hampton, Connecticut, is historically significant as the only mill town in the nation known to be exclusively devoted to bell making, a highly specialized industry which prospered for over 100 years (Criterion A). A significant cohesive and distinguishable entity, the district contains a full range of historic resources which illustrate in their diversity of scale, function, or level of architectural style the social and economic development of the town. Exceptionally well-preserved buildings of all types dating from 1748 to 1935 can be found in the district (Criterion C). Examples of most of the major nineteenth-century architectural styles are represented, including a large group of late Greek Revival-style residential buildings. Several outstanding examples of Second Empire, Italianate, and Colonial Revival styles date from the late nineteenth and early twentieth centuries, the most prosperous period in the town's distinguished industrial history.

Industrial History

The catalyst for early industrial development was an outsider, William Barton. A native of Wintonbury (Bloomfield), Connecticut, Barton had been a munitions maker at the Springfield Armory during the Revolution. He came to East Hampton in 1807, arriving at a crucial period in the town's history. Land shortages created by a century of sustained population growth, combined with the decline of shipbuilding and trade at East Hampton's river port of Middle Haddam, had brought the town's economy to a standstill. Many farmers and their sons had already left town for upstate New York.

Barton, the first of three generations of bell makers in town, only remained in East Hampton for eighteen years, but he had a major impact on the future direction of the town. Not only did he have a specialized knowledge of brass metallurgy, which he shared with others through the apprentice system, but a process for making a specialized product. He is credited with inventing a one-piece, sand-mould casting process for brass bells which remained the basic method used by the industry for the rest of the century.

The early years of the bell industry had little impact on the appearance of the town. Because the early bell-making process was more of a craft than an industry, farmer-mechanics could easily set up shop in an outbuilding on the family farm. Hand tools were used exclusively; even the large bellows used to maintain the charcoal fire were operated by hand or foot treadles. Barton's first shop (no longer standing) was a small foundry near his gambrel-roofed house at 25 Barton Hill Street (Inventory #12; Photograph #1). His sons, along with several of the Bevin brothers, who later were to become the largest bell manufacturers in town, received their training there. The Bevin brothers were the first to utilize water power to make bells. Their extensive bell factory complex (Inventory #34; Photograph #7), which is still in operation, includes a small one-and-one-half-story wood-framed mill building dating from about 1830, their first shop on Pocotopaug Creek. It was moved to its present site when the Bevins' mill pond was enlarged and the factory was relocated to the present dam site.

The scale of production increased dramatically in the decade between 1840 and 1850 when other firms followed the lead of the Bevins and set up small factories on the creek, often

utilizing earlier grist or saw mill sites. Production increased fifteen-fold in this period, only limited by access to markets. Bells were still sold by peddlers, which limited the size of the product. Small, cast sleigh and hand bells of brass and iron were manufactured almost exclusively. Several firms also made coffin trimmings, a popular sideline which made use of scrap metal. Access to raw material, however, was not a problem. East Hampton factory owners had worked out a mutually beneficial arrangement with the Portland brownstone quarry companies. Raw material, principally copper, zinc, and iron, was brought up the Connecticut River as ballast on the return voyages of the quarry ships and transported by wagon on the Middle Haddam-Hebron turnpike. It ran from the Connecticut River landing directly to East Hampton center.

Despite the early success of the bell industry, East Hampton, like many rural New England villages, continued to espouse eighteenth-century values and traditions well into the nineteenth century. This essential conservatism is most evident in the domestic architecture built in this period. The Greek Revival style remained popular for forty years after it became unfashionable in more urban centers. More importantly, domestic architecture continued to reflect a society apparently largely undifferentiated by class, an eighteenth-century phenomenon in central Connecticut. Although several of the owners of the water-powered shops, such as Chauncey Bevin and Stuart Parmelee (Niles and Parmelee Company: Inventory #S-2), were the first to build houses in the Greek Revival style (Inventory #28, 72), similar houses were built by handymen, mechanics, and clerks who worked in the bell factories (Inventory #20, 69). At least one was built in this style by a factory owner as rental property for his employees (Inventory #68).

By the Civil War the bell industry was well established and a stratified society was in place. Twenty-three men were listed in the 1860 census as bell manufacturers; they owned one-third of the taxable wealth of the town. Farming still remained the principal occupation, but half of the work force in town were employed in the bell factories, both men and women. Many of the laborers were Irish immigrants. They began arriving in East Hampton around 1860 and were later to become a significant presence in the town. St. Patrick's Church (Inventory #175; Photograph #21) was their second and permanent church home. A servant class, all women, emerged in this period--employed by the bell manufacturers in their homes, and also at Buell's Hotel (Inventory #43).

Predictably enough, in the last quarter of the nineteenth century, industrial competition was intense. With an overcrowded field, trade secrets were no longer shared with competitors, but jealously guarded (the first patents were taken out at this time); smaller undercapitalized firms went out of business. The companies that emerged as leaders included the Bevin Brothers, Veazey and White, and East Hampton Bell. These long-established firms made cast bells of various types. The Gong Bell Company, a relative newcomer to the field, the first to specialize in belled toys, was another major firm. The factory built by Veazey and White on Summit Street in 1860 is the earliest brick mill remaining in town (Inventory #159; Photograph #20). Hiram Veazey's career pattern was quite typical. The son of a farmer, he learned the bell trade in one of the early water-powered shops in the 1830s before going into business for himself. His partner, Alfred White, was the first to successfully cast larger brass bells used in churches and schools.

The older established firms had a clear advantage because they controlled the best dam sites on Pocotopaug Creek. Their willingness to take risks, however, and experiment with new technologies and improved production or marketing methods, was a major factor in their success. Chauncey Bevin, for example, brought a Scottish immigrant, John Hodge, to East Hampton to set a new process for smelting brass. The Hodge pit furnace revolutionized the industry because it was an efficient producer of fine-grade brass from lower-grade metals. The process not only increased the Bevin company's production but it was a vital factor in the continued growth of industry as a whole as other companies soon adopted the process. Casting was only the first step in the process. Finishing and polishing of the raw castings, done completely by hand in the early years, eventually was partially mechanized. Jason Barton, a grandson of William, invented a process for tumbling small bells in barrels to remove the burrs from the castings. Water turbines were introduced in Belltown mills at this time. (Only one company ever converted from water to steam power, and not until the twentieth century.) "Runners," outside salesmen, took orders for a wide range of bells of all types, including chimes and sleigh bells, cow bells, and belled, wheeled toys, which were shipped to the retailers by rail after 1873.

Norman N. Hill is credited with developing mass-production techniques that revolutionized the industry. Hill, who began as a finisher and salesman for the Barton Company, was the second member of his family to be involved in the bell industry; his father was a wood turner who made handles for hand bells. N. N. Hill perfected a process for stamping bells from sheet metal, increasing his production dramatically. Two men could make 25,000 bells a day by stamping, as opposed to 500 with the earlier casting process. Cast bells continued to be made on a limited basis until 1979 at the Bevin Brothers Company using their nineteenth-century pit furnaces, but stamped bells were the major product in the twentieth century.[2] Hill's first factory, a wood-framed building, burned to the ground below the dam near Skinner Street (Inventory #S-177), but further upstream he built a large brick factory, believed to be the largest in the world devoted exclusively to bell production (Inventory #134; Photograph #27). Standing ruins of several bell factories (possibly including Hill's first building), and the remains of their water turbine system, exist in the area below the dam (Inventory #S-2 through S-5).

The competitive spirit among the leaders of the bell industry in the late nineteenth century is evident in the houses they built in this period. Philo Bevin, the youngest brother, now president of the family firm, was one of the first to break away from the traditional pattern of architectural conservatism. His lavish Second Empire-style house on Barton Hill, the first in town to have central heating, confirmed his status as the wealthiest bell manufacturer. Horatio Abbe, a founder of the Gong Bell Company, was one of his major competitors. Soon after becoming president of the firm he radically altered his Greek Revival-style house, built just six years earlier, in a self-conscious attempt to be more up-to-date.

These stylish houses were exceptional. Most people, including the working class, still lived in solid, middle-class housing. There seemed to be little need for workers' housing per se. Although Crescent Street was laid out and developed about 1900, the smaller Victorian cottages built there were owned by skilled workmen such as engravers or pattern makers (Inventory #36; Photograph #9). Most of the unskilled laborers and their families rented existing older houses remodeled by the bell companies for boarding houses or multiple-family use (Inventory #144).

Architectural Significance

The mill buildings that define the town are still the dominant architectural element. They are generally well-preserved, distinctive examples of late nineteenth-century brick mills. The best preserved is one of the earliest, the Veazey and White foundry (Inventory #139; Photograph #18). Although some of the later buildings have stair towers, and a limited amount of corbelling, this utilitarian building could have served as a model for most of the remaining industrial architecture. It retains all of its essential features: the low gable roof with exposed rafter ends, and segmental-arched windows separated by plain brick pilasters.

The small, late nineteenth-century, wood-framed commercial buildings which are clustered in the town center are also quite functional. Generally well preserved, their gable-to-street facades have retained their brackets or decorative shingles. One recently restored example is exceptionally notable for its dormered mansard roof (Inventory #86; Photograph #13). A small masonry commercial block (two buildings) and the present brick library (originally a store) do provide some contrast. Although compatible in scale, they are architecturally modest buildings (Inventory #83, 87).

A wider range of styles can be found in the institutional architecture of the district. The most distinguished of the churches is a wood-framed building constructed in the Gothic Revival style (Inventory #175; Photograph #21). Judging by its relatively high degree of architectural sophistication, this church may have been architect-designed. Well preserved and fully elaborated, it utilizes most of the features more commonly found in masonry churches of this style: lancet-arched windows, pseudo-buttresses, and an elaborate, pinnacled spire. A much smaller church in the south end of the district is by contrast a rather simple building, a small shingled, country-builder's version of the Stick style. It is distinguished by diamond-shaped windows and a unique open, one-stage bell tower (Inventory #99). The original district school built in 1866 is another well-preserved institutional building of the Italianate style. Distinguished by an unusual degree of decorative detail, pilastered and bracketed entrance-ways, as well as scrolled brackets under the eaves, it has served the town for over 100 years, first as a school, and then sixty years as the town hall.

The craftsmanship of the district's residential architecture is exceptional. These generally simplified vernacular versions of standard eighteenth- and nineteenth-century styles utilize simple forms and straightforward post-and-beam construction.

Although most of the domestic architecture dates from the nineteenth century, several well-preserved houses remain from the colonial period. One of the best examples is the exceptionally well-preserved 1748 saltbox built by William Bevin, an early settler of East Hampton and the progenitor of this distinguished family (Inventory #30; Photograph #5). His four great grandsons, all born in this house, established the Bevin Brothers Bell Company.

The country builders of the early to mid-nineteenth century began to demonstrate some understanding of classical form and proportion. These qualities are most evident in the large number of well-preserved vernacular Greek Revival-style houses in the district. Very little

applied detail is employed, but an understanding of the classical mode is clearly stated in the fully pedimented temple forms with plain-board entablatures. Two of the more notable examples are Inventory #29, Photograph 3; and Inventory #72, Photograph #10. A greater degree of sophistication is present in the Italianate-style house built for Hiram Veazey (Inventory #159; Photograph #20). This well-preserved example demonstrates how easily carpenter-builders could make the transition to this style by applying detailing to the same gable-fronted form.

More stylish expressions of popular taste were built after the Civil War. Exceptional, locally distinguished examples of several Victorian styles demonstrate a level of craftsmanship not previously displayed in the district. Two of the better examples are the Second Empire-style Philo Bevin House (1872) on Barton Hill (Inventory #13; Photograph #2) and the Italianate-style Sears-Hill House (1876) on Main Street (Inventory #77; Photograph #12). While certainly not designed in the most up-to-date style, these buildings, nevertheless, are the most architecturally significant houses in East Hampton. The Bevin House is particularly distinguished for its wealth of hand-carved detail and excellent state of preservation.

Notes

1. This nomination is based primarily on the original research for the architectural survey of East Hampton completed in 1980. The research files are located at the Greater Middletown Preservation Trust. The survey forms and the publication based on the survey are deposited with the archives of the Connecticut Historical Commission at the University of Connecticut at Storrs, Connecticut.

2. The nineteenth-century pit-furnace process was videotaped as part of the Brass Workers' History Project before the Bevins modernized their plant. Matthew Roth, Connecticut: An Inventory of Historic Engineering and Industrial Sites, 1981, p. 145.

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--an 86 town 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, a statement identifying the specific areas of concern the Team should address, and the time available for completion of the ERT study. 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 Elaine A. Sych (774-1253), Environmental Review Team Coordinator, Eastern Connecticut RC&D Area, P.O. Box 198, Brooklyn, Connecticut 06234.