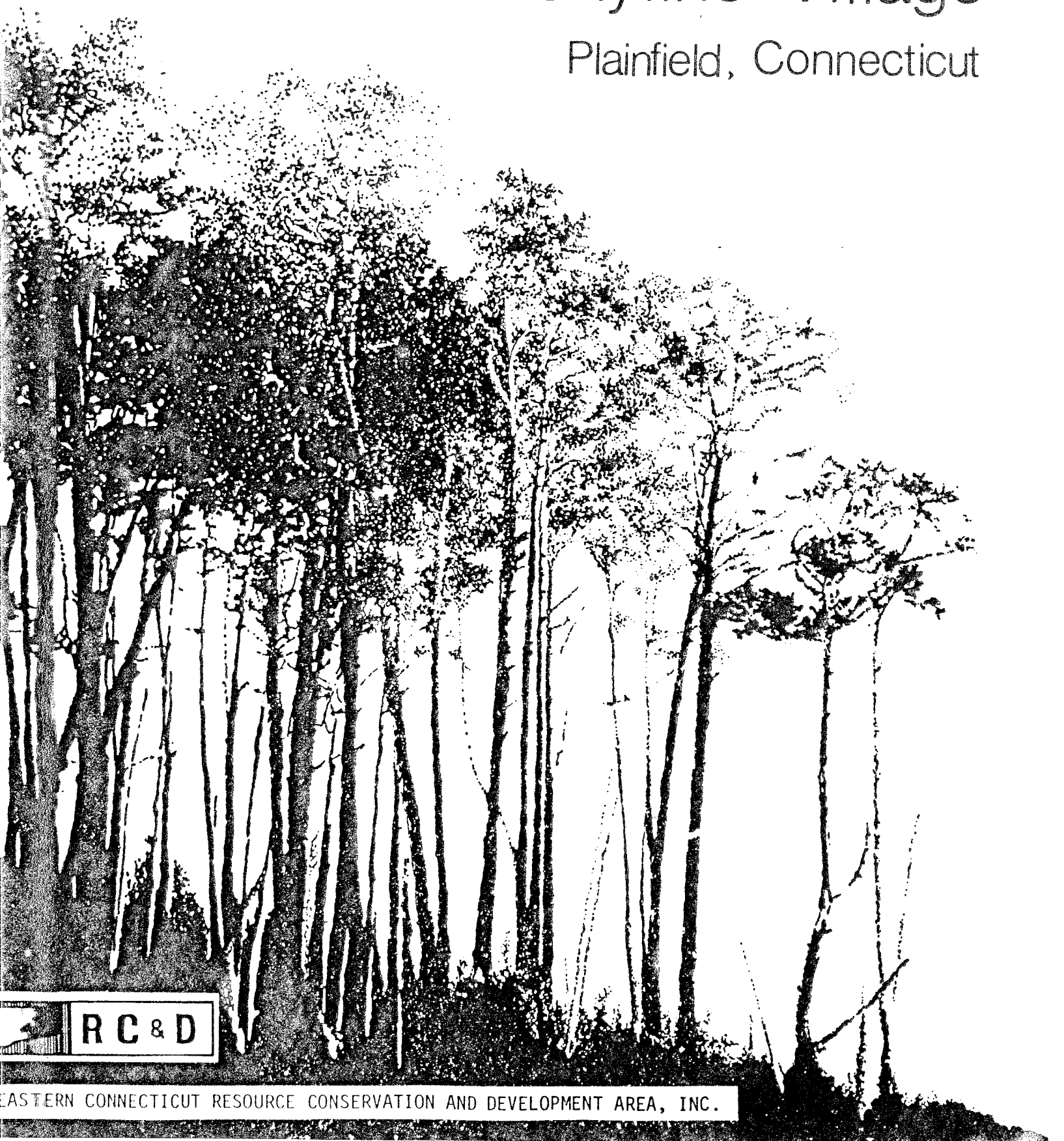
Environmental Review Team Report

Skyline Village

Plainfield, Connecticut



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EASTERN CONNECTICUT RESOURCE CONSERVATION AND DEVELOPMENT AREA, INC.

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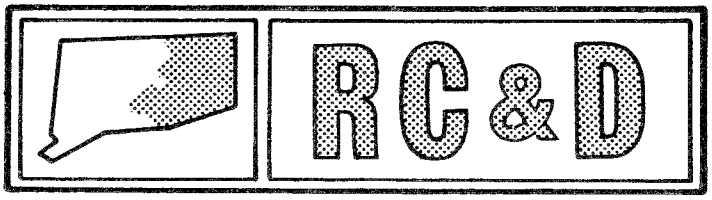
November 1984



Eastern Connecticut Resource Conservation & Development Area

Environmental Review Team
PO Box 198
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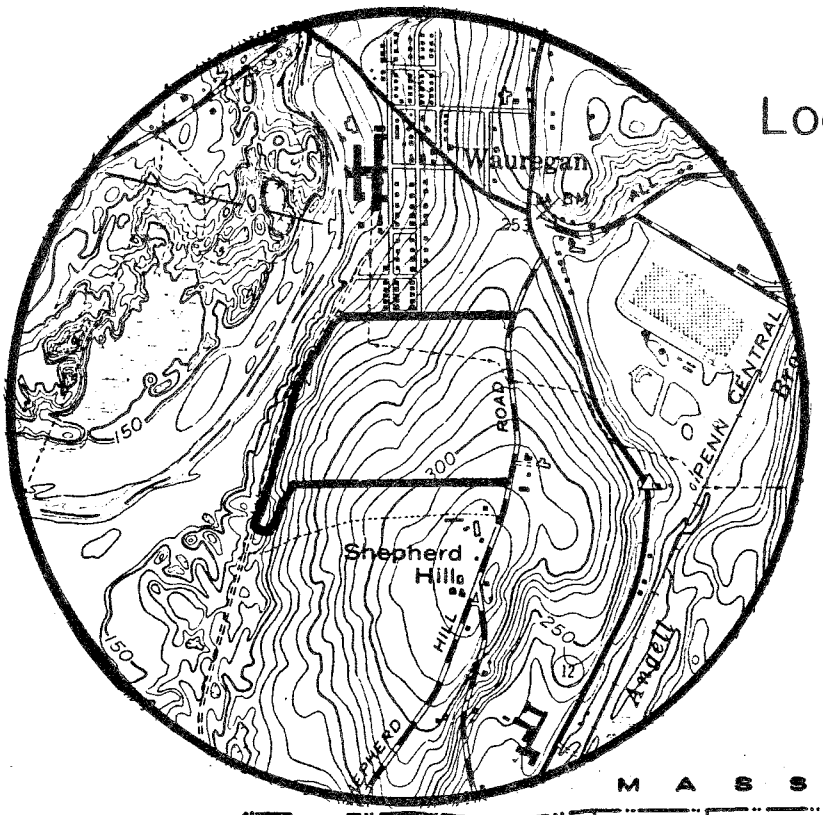
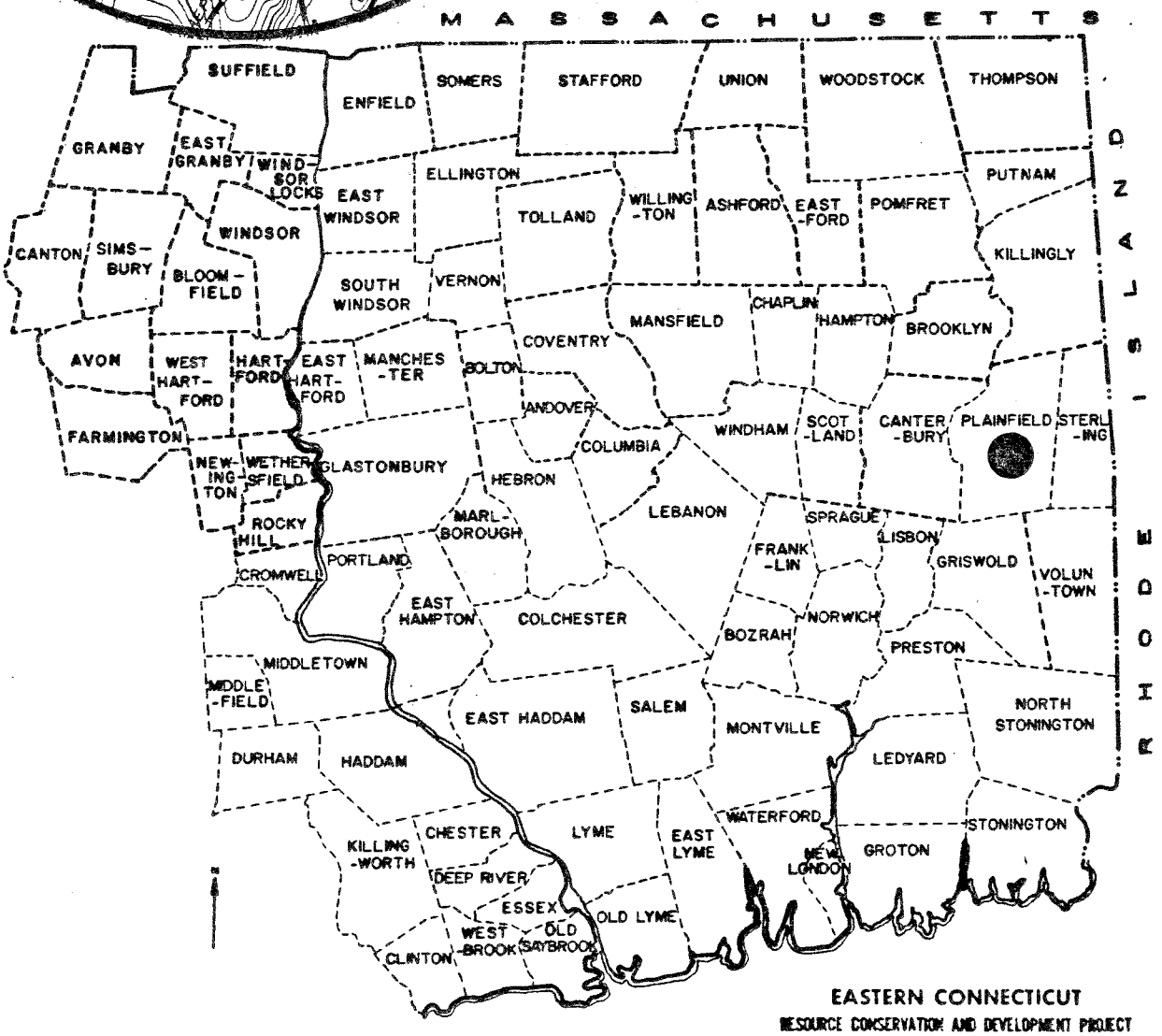
Location of Study Site

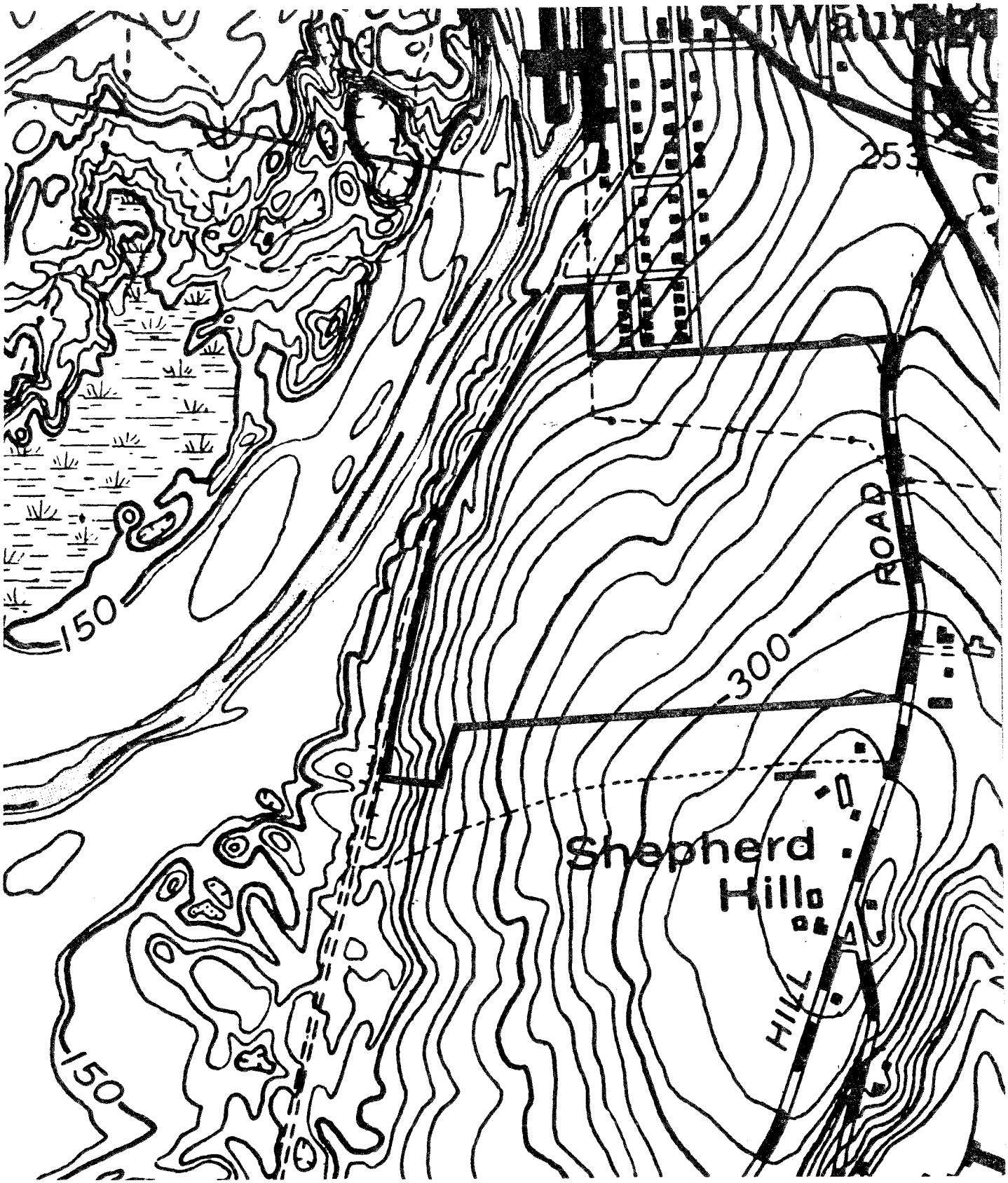
SKYLINE VILLAGE
PLAINFIELD, CONNECTICUT





EASTERN CONNECTICUT
RESOURCE CONSERVATION AND DEVELOPMENT PROJECT

Topography	Site Boundary	0 660' scale	N



INTRODUCTION

The Eastern Connecticut Environmental Review Team was asked to prepare an environmental assessment for a proposed subdivision/single family home development in the Town of Plainfield. The property is approximately 87 acres in size and is located on the west side of Sheppard Hill Road. The site will be developed by Robert Quintal. Preliminary subdivision plans have been prepared by King and Mullen, Land Surveyors.

The preliminary plans for Skyline Village show 104 lots of 30,000 square feet each. Municipal sewage disposal and water supply is available to serve each lot. Three roads are planned to extend west into the site from Sheppard Hill Road to serve interior lots. Roads "A" and "C" will connect to form a "U" shaped roadway. Road "B" is located between roads "A" and "C", and will terminate in a cul-de-sac. The development is scheduled to take place in four phases. Phase I will include lots 1 through 19 and lots 78 through 83, Phase II includes lots 21 through 40 and lots 66 through 77, Phase III includes lots 84 through 104 and Phase IV includes lots 41 through 65. Development is anticipated over several years. Approval of Phase I is sought now for development of lots 1 through 19 and 78 through 83. Approval of this phase and subsequent phases should be contingent on overall understanding and agreement by town commission members of the whole proposal since storm drainage and erosion control in one phase may affect a subsequent phase. The Team discussed the possibility of development of Phase II last since it is downhill and subject to temporary disturbance from Phases I, III, and IV. It would appear that a later development of Phase II would be a better development sequence.

The property slopes from an elevation of 320 feet (above mean sea level) at Sheppard Hill Road to approximatley 180 feet along the state-owned land near the Quinebaug River. The property lies on the northwest side of a glacial drumlin. Natural drainage from the land is toward Wauregan Village below. The only concentrated surface drainage is to a seasonal stream running around behind homes in the Village. Nearly all the property has been actively farmed at one time or another as large fields divided by walls and hedgerows show.

The Team is concerned with the impact of this proposed development on the natural resource base of this site and surrounding areas. Although many severe limitations to development can be overcome with proper engineering techniques, these measures can become costly, making a project financially unfeasible for a developer. A number of concerns have been brought to light in evaluating this proposal. These include, but are not limited to: highly erodable soils on most of the site, regulated wetland areas and numerous intermittent drainage channels, a seasonal high water table in most soils on the site, potential flooding problems in the village of Wauregan from increases in storm water runoff, proximity of this development to the State

of Connecticut Quinebaug Valley Fish Hatchery wells and potential increases in traffic generated by this proposal. These concerns are discussed in detail in the following sections of this report and should be considered by the appropriate Town Commissions when evaluating the permit application for this development.

ENVIRONMENTAL ASSESSMENT

TOPOGRAPHY

The ±87 acre Skyline Village site flanks the northwest corner of Sheppard Hill just south of the Wauregan section of Plainfield. The land is composed primarily of large open fields which slope gently to moderately toward the Quinebaug River. The western section of the property is characterized by the steepest slope and is thickly wooded. Elevations range from approximately 320 feet above mean sea level at the southeast corner of the property to approximately 180 feet along the western property line.

A north flowing intermittent drainage channel along with its accompanying wetland traverses the central part of the parcel. In the northern section of the parcel, the streamcourse veers westward through the rear yards of residences on South Walnut Street and ultimately empties into the Quinebaug River.

Evidence of several intermittent drainage channels are visible on the moderate slopes in the western section of the property. Severe gullying is visible on these slopes. This is probably a result of concentrated runoff emanating from the cultivated lands.

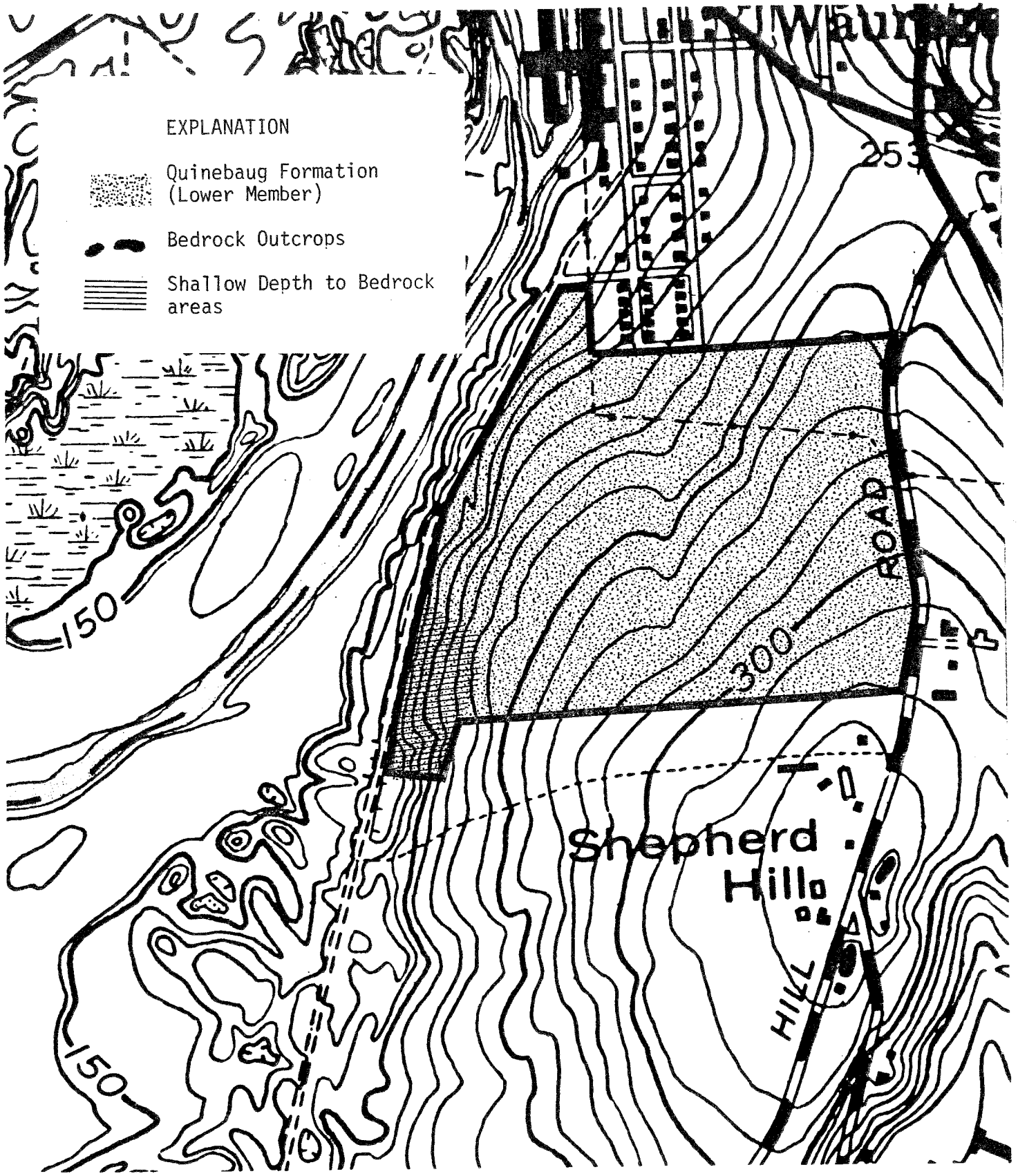
No outcrops of bedrock break the topography on the site, although bedrock is exposed at the top of Sheppard Hill.

GEOLOGY

The property is located within the Plainfield topographic quadrangle. A bedrock geologic map (GQ-481, by H. Roberta Dixon) and surficial geologic map (GQ-1422, by Byron Stone and Allan D. Randall) of the quadrangle have been published by the United States Geological Survey. Sheppard Hill consists of a bedrock-core drumlin hill which is mantled with compact till-based soils. A "drumlin" may be defined as a glacially formed topographic feature which is shaped like an inverted teaspoon. The long axis of the hill lies parallel to the direction of flow of the former glacier. As a result of Sheppard Hill's alignment, ice movement appears to have been in a southern direction.

Bedrock underlying the site is classified as the Lower member of the Quinebaug Formation. This rock consists of a medium to dark gray, commonly greenish, medium grained well-layered gneiss. It is composed, principally, of the minerals hornblende, andesine, biotite, quartz and epidote. A "gneiss" is a crystalline metamorphic rock (rock altered by great heat and pressure)

Bedrock Geology



which is characterized by banding. The banding is due to layers of light granular minerals (quartz and feldspar) which alternate with relatively narrow bands of platy, flaky or elongate minerals (biotite and hornblende) and which are usually dark colored. Although no bedrock outcrops were observed on the site, published surficial geologic data indicates through the presence of isolated bedrock outcroppings, that rock is relatively close to ground surface at the southwestern corner of the property. The underlying bedrock should pose no major problems with regard to this development.

The unconsolidated material which covers bedrock on most of the site is till. Till is a glacial sediment that was deposited directly from a former ice sheet. Clay, silt, sand, gravel and rounded or angular boulders are mixed together in varying proportions in the till. Sand is generally the dominant component of till soils, although excessive stoniness and compact silty layers are common. The upper 2-3 feet of the till are normally loose or only moderately compact, but at greater depths the till may become siltier and tightly compact. The exact thickness of the till covering the site is not known but it probably exceeds 10 feet in most places especially in the northern portions of the parcel.

A relatively thin area along the western margin of the property contains pebble-cobble gravels and sands, which were deposited by streams of glacial meltwater. These deposits are referred to as stratified drift. Based on visual inspection of this area, it appears the sand and gravel deposits have been mined in the past. The exact thickness of the stratified drift within the parcel is unknown, but they probably do not exceed 10 feet (Source: Connecticut Water Resources Bulletin No. 8 Quinebaug River Basin).

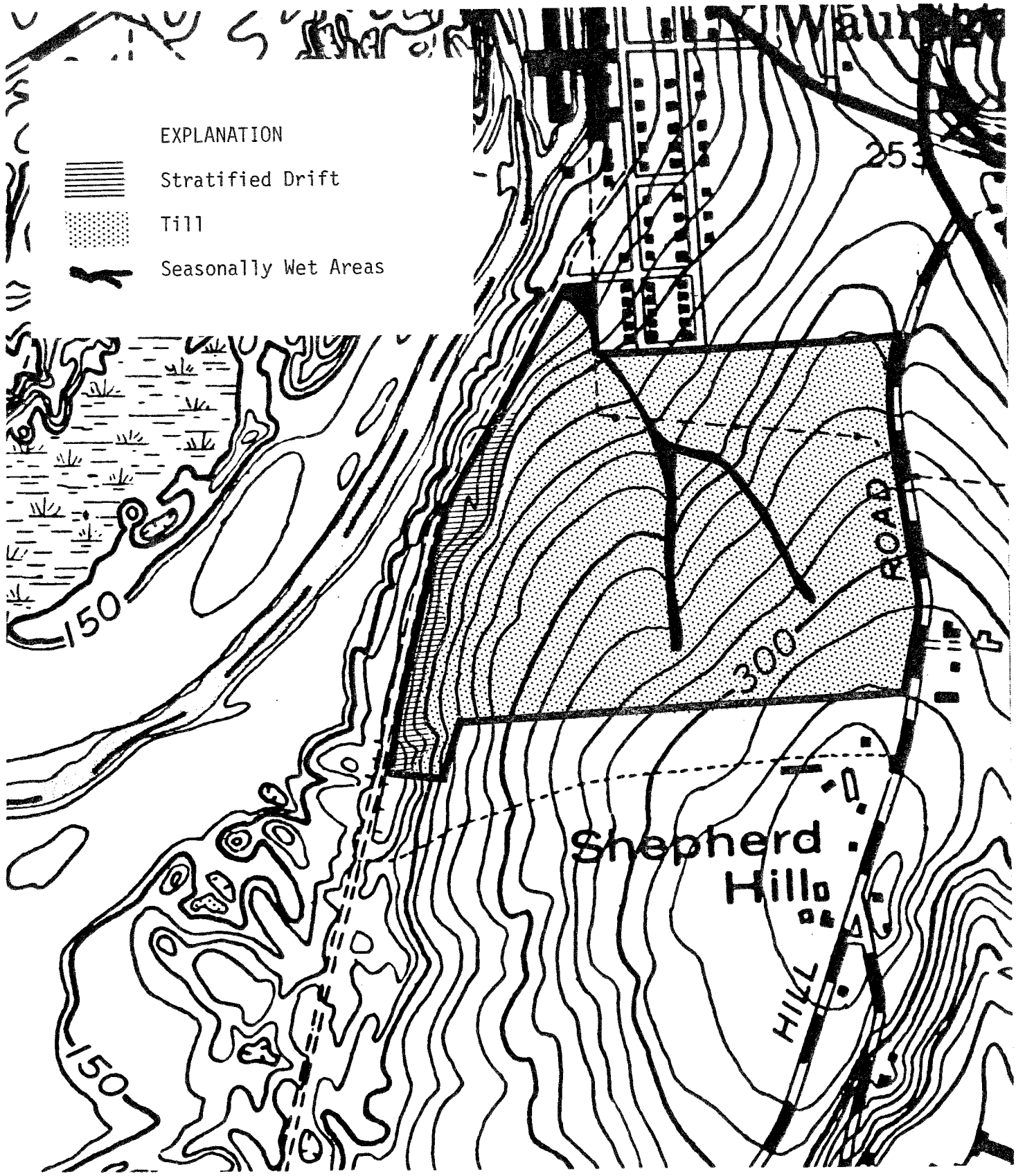
Overlying till in the central parts of the site are seasonally wet areas. These regulated inland-wetland soils are delineated by the symbol Rd (Ridgebury fine sandy loam) on the accompanying soils map. Any disturbances and/or modification of these soils will first require a permit from appropriate town officials.

In this regard, regulated inland-wetland soils on the property should be mapped by a certified soil scientist and the boundaries superimposed on the subdivision plan.

Based on the site plan, the project calls for at least three crossings of the wetlands by proposed roads. These crossings are feasible provided they are properly engineered. Provisions should be made for removing unstable material beneath the roadbed, backfilling with a permeable road base fill material, and installing culverts as necessary. Road construction through wetlands should preferably be done during the dry time of the year and should include provisions for effective erosion and sediment control.

According to present plans, the proposed subdivision will be served by a municipal sewer line. This will eliminate the need for on-site subsurface sewage disposal systems. Public water facilities are also accessible to this site.

Surficial Geology



Despite the availability of public sewer and water lines, the following geologic conditions may hinder the development potential of the property; (1) the presence of compact till soils, which commonly have seasonally high groundwater tables; (2) the presence of seasonally wet areas in the central parts of the property; and (3) the presence of moderate slopes. These limitations will weigh most heavily on the placement of house foundations and the construction of roads. However, with proper planning and engineering, it may be possible to overcome these limitations.

Because seasonally high groundwater levels are usually associated with the soils found on the site, it is recommended that groundwater control drains (footing drains) be placed around homes. If properly installed, they should hopefully reduce the possibility of wet basements.

HYDROLOGY

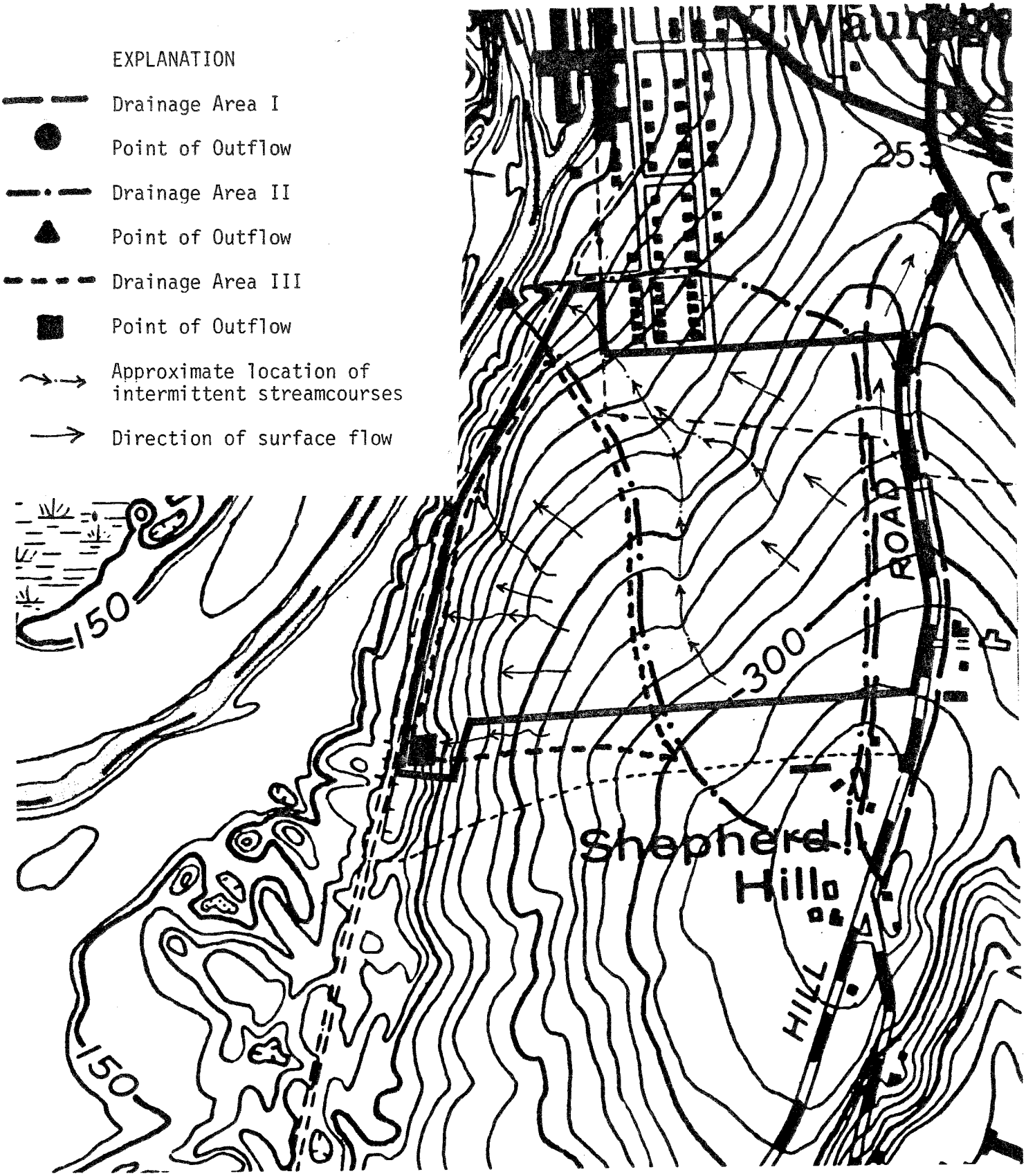
Nearly all of the parcel lies within the watershed of the Quinebaug River. Surface drainage as well as groundwater on the parcel flows generally downslope towards local land surface discharge areas. The main discharge areas on the site include the intermittent drainage channels which traverse the property, as well as the drainage ditch which parallels the dirt road along the western boundary line. Water is then transported via these intermittent drainage channels toward the Quinebaug River.

Surface drainage from approximately 8 acres in the eastern section of the property, which fronts Sheppard Hill Road, lies within the Angell Brook watershed. It appears that runoff from this portion of the property flows toward Sheppard Hill Road and is ultimately intercepted by a drainage ditch, along the west side of the road. The water is then routed northward to a culvert located near the intersection of Sheppard Hill Road and Route 12. This culvert carries the water under Route 12 and empties it into a wetland area on the east side of the road. From the wetland area, the water flows into Angell Brook, which ultimately discharges into the Moosup River.

Development of the site under present plans will lead to increases in the amount of surface runoff produced during periods of precipitation. These increases will arise primarily from the conversion of permeable soils to impermeable surfaces such as rooftops, paved roads and driveways, and from the removal of vegetation. The added runoff could cause increased overland and stream channel erosion. Evidence of these potential erosion problems (gullying) is already visible at various points on the site especially on the moderate slopes in the western section. The added runoff could also increase peak storm water flows of the stream on the property.

It is possible to estimate the magnitude of the runoff increases that would occur, if the development proceeds as shown by the site plans distributed to Team members on the day of the review. The estimates indicated by Table 1 are based on the runoff curve-number method, as outlined in the Soil Conservation Service Technical Release No. 55. TR-No. 55 contains a list of runoff curve numbers for certain soil types and land uses. These numbers relate the amount of precipitation that falls on a given area to the amount of

Drainage Areas



surface runoff that is produced. A higher curve number indicates that a greater volume of runoff would occur following a given amount of rainfall. Estimates are provided for 24 hour rainfall amounts that would be expected to occur once every ten years, once every twenty-five years, once every fifty years, and once every 100 years.

For the purpose of analyzing the anticipated runoff increases the parcel was divided into three drainage areas. These drainage areas are shown on the accompanying map. Each drainage area is based upon a certain point of outflow and shows all the land from which runoff ultimately reaches that point. It was assumed drainage area I, whose point of outflow is the inlet of the culvert near the intersection of Route 12 and Sheppard Hill Road, includes lots 1-12, drainage area II, whose point of outflow is at the Quinebaug River, includes lots 13-25, 46-62 and 70-104 and drainage area III, whose point of outflow is at the arched culvert, passing under the dirt road in the western limits includes lots 26-45 and 63-69. Also, it was assumed that surface runoff in drainage area III would flow downslope by sheetflow to the man-made ditch on the east side of the dirt road along the western limits. Once the water reaches the ditch, it would then be routed southward toward the arched-culvert. It should be pointed out that these estimates do not take into account potential drainage re-routing through man-made structures as well as other engineering measures.

As shown in Table I, the increases in runoff for drainage areas I and II would be under 7 percent following development. Runoff increases for drainage area II, however, are moderately high. Because of the moderate slopes present on the parcel and because of the large percentage of exposed soils (cornfields covering the property), even small increases could lead to severe erosion and sediment problems in some parts of the property. For this reason, it is recommended that these types of potential problems be addressed by formulating and following closely an erosion and sediment control plan for each phase of construction. Also, in this regard, it is recommended that disturbed areas be kept to a minimum and that lawns be established as soon as possible. Consideration should also be given to installing temporary sediment basins for each phase of development. This will hopefully reduce sedimentation problems to watercourses on and off the site as well as the Quinebaug River.

Prior to subdivision approval, it is recommended the applicant be required to submit detailed hydrological information on pre- and post-development runoff volumes and peak flows from the property for each phase of development. The project engineer should closely examine existing culverts, which may be affected by the proposed development. All storm drain outlets should include a designed energy dissipater to help protect areas below outlets from gullying.

According to Plainfield's Town Planner, the site lies within the Aquifer Protection district. Most of the land areas of the site provide secondary recharge to the stratified drift deposits west of the property. Depending upon the hydrogeologic characteristics and location of sand and gravel deposits (thickness, texture, and proximity to major watercourses), they may sometimes be favorable for moderate to large scale groundwater supply development.

The potential of the sand and gravel deposits in this area for developing a new well or wells is unknown.

The proposal should comply with all sections of the Town's Acquifer Protection ordinance. All necessary town officials as well as Commissions should be contacted to insure compliance with these regulations.

If there is a potential for developing a new well in the sand and gravel aquifer west of the site, it does not appear that the proposed development would have a significant impact on the well or wells. The availability of a public sewer line should help reduce the risk of contamination of the potential sand and gravel aquifer from sewage effluent. In regard to protecting the water quality of groundwater in the aquifers, sand and road salt application on interior roads should be done very carefully.

The proposed subdivision should not significantly affect the recharge of surface water to the potential sand and gravel aquifer to the west. On the other hand, certain types of land uses such as industrial and/or commercial development could have significant impacts on any potential well's cone of depression (area which is lowered around a well due to pumping), and the ability of the aquifer to supply water. For example, if the primary and secondary recharge areas were covered with impervious surfaces (big buildings and large parking lots), runoff from those surfaces would flow overland to the river instead of recharging the groundwater. As a result, the cone of depression for a potential well would have to expand in order to compensate for the loss of groundwater recharge. If there is not enough recharge area for the well, its yield may be decreased or diminished to a point where the well's usefulness is limited.

However, it seems likely that if a potential sand and gravel well was placed between the western property line and the Quinebaug River, most of the water supplied to the well would be drawn from the river.

According to preliminary plans, the applicant wishes to relocate the intermittent drainage channel traversing the central parts of the site so that it flows on lot lines rather than through the lots. If the Town allows this, the swale should be constructed with shallow slopes and grasslined.

TABLE I

Drainage Area I	10-Yr.	25-Yr.	50-Yr.	100-Yr.
Average Storm Frequency				
Runoff before development [79]	2.63"	3.24"	3.86	4.49
Runoff after development [81]	2.72"	3.34"	3.96"	4.6"
Percent Increases	@3.5*	@3.0*	@2.5*	@2.5*
Drainage Area II				
Average Storm Frequency				
Runoff before development [77]	2.45"	3.04"	3.65"	4.27"
Runoff after development [79]	2.63"	3.24"	3.86"	4.49"
Percent Increases	@ 7*	@6.5*	@ 6*	@ 5*

TABLE I (Continued)	10-Yr.	25-Yr.	50-Yr.	100-Yr.
Drainage Area III				
Average Storm Frequency				
Runoff before development [59]	1.12"	1.53"	1.97"	2.44"
Runoff after development [62]	1.32"	1.74	2.23"	2.72"
Percent Increases	@18*	@14*	@13*	@11*

Note: numbers in brackets [] = curve numbers
* = percentages
These estimates are only "ball park" figures to anticipate runoff increases for the drainage areas delineated and should not be used for engineering data.

SOILS

A soils map accompanying this report shows five different soils mapped on this property. The site's major soil, Woodbridge fine sandy loam, 3 to 8 percent slopes (WxB) is recognized as prime farmland by United States Department of Agriculture criteria. It has been and is now suitable to growing crops. This soil is highly erosive and needs to be farmed or otherwise used properly, with conservation measures, to minimize natural erosion. A 200 to 300 foot wide band of wetland soil, Ridgebury fine sandy loam (Rd), extends uphill through the center of the property. This wetland soil should not affect development of Phase I, but needs to be accounted for in Phases II, III, and IV. Even though there is to be connection to public sewers, ground and surface water will need to be intercepted and directed to avoid wet basements, soggy lawns, and road construction problems. To the west the land slopes more steeply. There is a wide band of Paxton fine sandy loam (PbC). As with the Woodbridge soil above, this soil has a hardpan layer 20 to 24 inches below the surface. It is very erodable. Gullies were observed off the edges of crop fields. The Hinckley gravelly sandy loam, 3 to 15 percent slopes (HkC) sloping along the western side of the property is well drained. Unlike the glacial-till derived soils above, this soil is composed of sands and gravel deposited by melting glacial waters years ago. This terrace soil is easily excavated. Detailed descriptions of all the soils follow.

(HkC) - Hinckley gravelly sandy loam, 3 to 15 percent slopes

This is a gently sloping to sloping, excessively drained soil on terraces of stream valleys and on glacial outwash plains. The areas of this soil are oval or irregular in shape. Slopes are convex or undulating.

Typically, the surface layer is very dark grayish brown gravelly sandy loam 2 inches thick. The subsoil is dark yellowish brown, yellowish brown, and brownish yellow gravelly sandy loam and gravelly loamy sand 16 inches thick. The substratum is pale yellow gravelly sand to a depth of 60 inches or more.

Included with this soil in mapping are small areas of excessively drained Windsor soils, somewhat excessively drained Merrimac soils, well drained Agawam soils, and moderately well drained Sudbury soils. Also included are a few areas of a soil with a surface layer of fine sandy loam and a few small areas with a few stones on the surface. Included areas make up about 15 percent of the unit.

The water table in this Hinckley soil is commonly below a depth of 6 feet. The available water capacity is low. Runoff is rapid. This soil has rapid permeability in the surface layer and subsoil and very rapid permeability in the substratum, and it is extremely acid to medium acid.

Most areas of this soil are in woodland. Some areas are in cropland, and a few large areas are in community development.

Irrigated areas of this soil are well suited to cultivated crops; non-irrigated areas are fairly suited. The soil dries and warms early in the spring and is easy to till. Minimum tillage and cover crops help to minimize the moderate erosion hazard in cultivated areas.

Droughtiness makes this soil poorly suited to use as woodland; it increases seedling mortality.

This soil generally is suited to community development, but the rapid permeability imposes a hazard of groundwater pollution in areas used for septic tanks. The slopes in some excavated areas are unstable.

(PbC) - Paxton fine sandy loam, 8 to 15 percent slopes.

This soil is sloping and well drained. It is on side slopes of drumlins and hills of glacial till uplands. The areas are mostly oval or long and narrow.

Typically, the surface layer is dark brown fine sandy loam 7 inches thick. The subsoil is yellowish brown and dark yellowish brown fine sandy loam 18 inches thick. The substratum is very firm to firm, olive brown fine sandy loam to a depth of 60 inches or more.

Included with this soil in mapping are small areas of somewhat excessively drained Hollis soils, well drained Charlton soils, moderately well drained Woodbridge soils, and poorly drained Ridgebury soils. A few small areas have stones on the surface, and a few large areas have a substratum of loamy sand . Included areas make up about 10 percent of the unit.

This Paxton soil has a seasonal high water table perched at a depth of about 2 feet for several weeks in the spring. The available water capacity of the soil is moderate. This soil has moderate permeability in the surface layer and subsoil and slow to very slow permeability in the substratum. Runoff is rapid. The soil is very strongly acid to slightly acid.

This soil is mostly used for corn for silage, hay and pasture, and a few vegetables. A few areas are in fruit orchards or woodland, and a few are used for community development or recreation.

This soil is well suited to woodland and cultivated crops. Minimum tillage, stripcropping, cover crops, and diversions and grassed waterways help to control a severe erosion hazard in cultivated areas.

Slope and the slow or very slow permeability of the substratum limit this soil for community development, especially for onsite septic systems. Steep slopes of excavations in this soil slump when saturated. Lawns are commonly soggy in autumn and spring.

(Rd) - Ridgebury fine sandy loam.

This soil is nearly level and poorly drained. It is on concave slopes, in depressions, and in small drainageways of glacial till uplands. The areas are irregular in shape. This soil has slopes of 0 to 3 percent.

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

Included with this soil in mapping are small areas of moderately well drained Sutton and Woodbridge soils, poorly drained Leicester soils, and very poorly drained Whitman soils. Also included are a few small areas that have stones on the surface and a few large areas that have a friable substratum. Included areas make up about 10 percent of the unit.

This Ridgebury soil has a seasonal high water table at a depth of about 10 inches from fall to spring. This soil has moderate or moderately rapid permeability in the surface layer and subsoil and slow to very slow permeability in the substratum. Runoff is slow. The soil has moderate available water capacity and is very strongly acid to medium acid.

This soil is mostly in woodland. Some areas are used for pasture or hay, and a few areas are used for corn for silage.

Drained areas of this soil are suited to cultivated crops. The seasonal high water table causes the soil to dry and warm slowly in the spring, which sometimes delays planting and makes undrained areas poorly suited to most crops. The use of cover crops in cultivated areas helps to maintain the tilth of the soil.

The seasonal high water table makes this soil poorly suited to woodland. The water table causes a high rate of seedling mortality and hinders the use of some types of harvesting equipment. The shallow rooting zone above the water table causes a hazard of uprooting during windy periods.

The seasonal water table and the slow to very slow permeability of the substratum are major limitations of this soil for community development, especially for onsite septic systems. Steep slopes of excavations in this soil slump when saturated. Lawns are commonly soggy in fall and spring and after heavy rains during the summer.

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

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

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

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

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

This soil is mostly used for corn for silage and hay and pasture. A few areas are used for fruit orchards or vegetables, a few are in woodland, and some are in community development.

This soil is well suited to woodland and cultivated crops. The main limitation for crops is the seasonal high water table, which causes the soil to dry slowly in the spring. Providing drainage helps to dry the soil earlier in the spring, but even drained areas remain wet for several days after heavy rains. Minimum tillage and cover crops and diversions control runoff and a moderate erosion hazard in cultivated areas.

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

(WxC) - Woodbridge fine sandy loam, 8 to 15 percent slopes.

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

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

Included with this soil in mapping are small areas of well drained Paxton soils, moderately well drained Sutton soils, and poorly drained Ridgebury soils. A few small areas have stones on the surface. Included areas make up about 10 percent of the unit.

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

This soil is mostly used for corn for silage and hay and pasture. A few areas are used for fruit orchards or vegetables, a few areas are in woodland, and some are in community development.

This soil is fairly suited to cultivated crops. The slope and wetness are the main limitations. This soil dries out slowly in the spring. Even when drained, it remains wet for several days after heavy summer rains. This soil has a severe erosion hazard. Minimum tillage, cover crops, stripcropping, and using diversions and waterways are suitable management practices to control runoff and erosion.

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

Resource Concerns

Phase I As with all phases of this proposed development due to sloping erodable land and expected disturbance and exposure of soil during development, erosion control will be important during development of the road and first 25 houses. Rooftops, driveways, and exposed ground will cause rainfall to run off downslope more quickly. It would be wise to disturb as little soil as possible around each home when it is built, and get a lawn established as quickly as possible following construction. Leaving undisturbed widths of cropland (hopefully having winter rye cover) or idle land below house sites will filter and slow uphill runoff. It is recommended that the Planning and Zoning Commission ask for an erosion control plan which would detail limits of disturbance, final grading around new homes, and most important--revegetation scheduling. A temporary late fall seeding or mulching is necessary if a sloping yard cannot be planted before September 15th if soil erosion is to be avoided over winter.

The proposed road calls for 3 sets of catch basins with connecticut 15" RCP drainage. It is suggested that perforated drainage tubing also be used immediately above the road to intercept groundwater, and protect the road surface from frost heaves and deterioration. Installed just uphill of the RCP, tubing running parallel to the entire length of the roads could outlet into the catch basins. The minor expense for this measure compared to the overall project, will be worth it over the years to minimize town road maintenance.

Before the road drainage is allowed to outlet at the proposed flared end outfall, the stream channel now running through two backyards in the Village below should be adequately excavated and redirected to flow behind the yards. (The engineer for the project agreed that this was a good idea during the field review.) The channel size should be supported by design data based on runoff from Phase I, and future phases directing runoff here. A new channel should be properly stabilized by vegetation and/or riprap if velocities are great enough. Mulching or jute netting would be necessary to get grass established.

Future Phases

It will be important to require erosion and sediment, and runoff/drainage control. Effective July 1, 1985 this will be mandatory. Requirements of Public Act 83-388 will give the Town a means of control to minimize erosion and potential landowner complaints.

Subsurface drainage tubing to intercept groundwater near roads and around foundation footings should be considered. Such drainage can outlet into storm drainage when installed.

Disturbed areas should be kept to a minimum. Cuts and fills, especially on steeper downhill (west) areas should be stabilized. Development of house lots in Phase II will be more difficult because of steeper slopes.

It is likely that storm drainage installed for Phase II will be receiving drainage from above phases. It will need to be sized adequately. It may be possible to retain some increased runoff from future phases on site. It is suggested a total stormwater drainage plan be designed as soon as possible to learn where runoff will be directed.

FISHERIES CONCERNS

When the development proposal was reviewed by the Team Fisheries Biologist, there was standing water resulting from a rain which had occurred five days previously. The impermeable Woodbridge soils appear to contribute to a sheet runoff effect from the existing agricultural fields leading to substantial gully erosion on the slopes leading to the Quinebaug River floodplain. From the development proposal it appears that this situation will be exascerbated due to increased runoff and inattention to erosion and sedimentation controls.

The development as proposed presents a severe erosion, sedimentation and siltation threat to the Quinebaug River and the Quinebaug Valley Hatchery well system. The hatchery currently is supplied by seven gravel-packed wells which could be reduced in capacity througy clogging of the gravel by silt.

Appendix

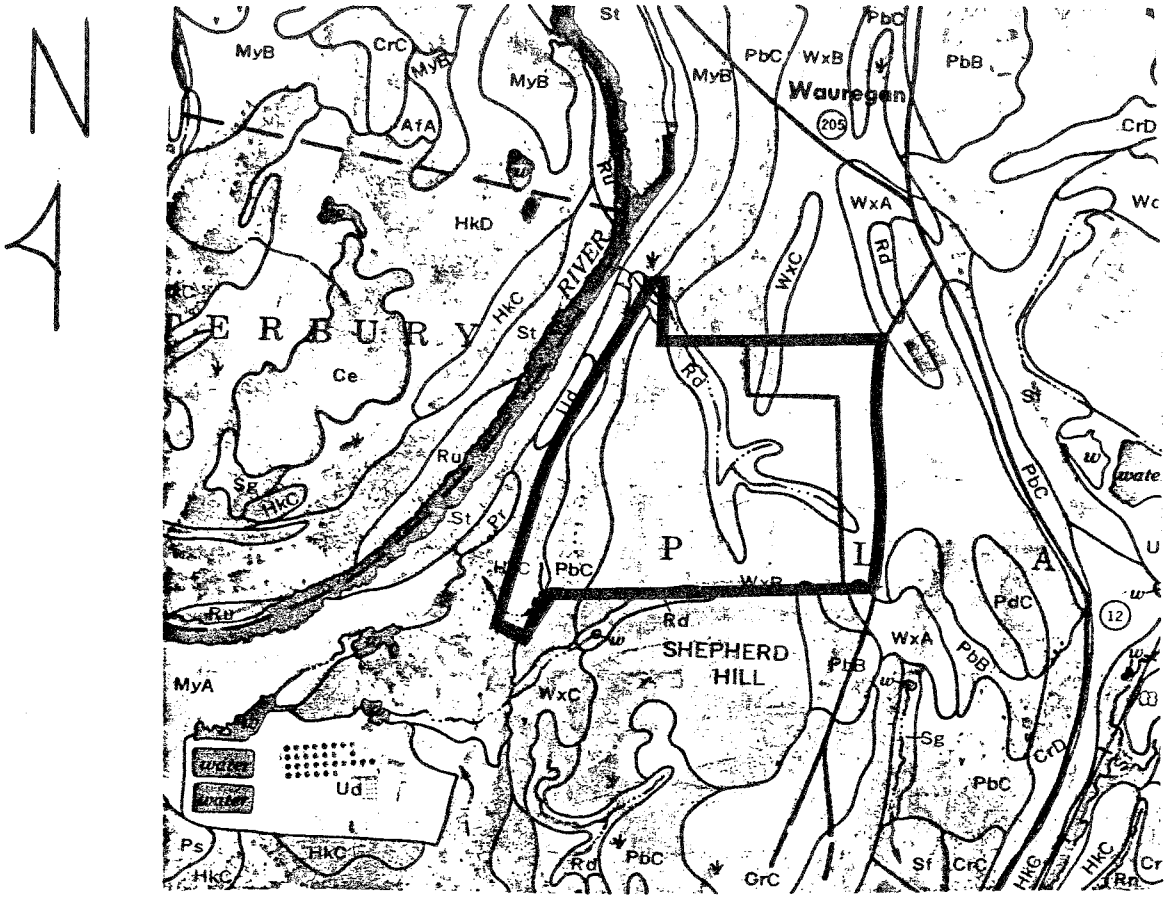
SOIL MAP

Owner _____ Operator _____

County Windham State Connecticut

Soil survey sheet (s) or code nos. Atlas Sheet #50 Approximate scale 1"=1320'

Prepared by U. S. Department of Agriculture, Soil Conservation Service cooperating with Windham County Soil and Water Conservation District



SOILS

HkC - Hinckley gravelly sandy loam, 3 to 15 percent slopes.

PbC - Paxton fine sandy loam, 8 to 15 percent slopes.

*Rd - Ridgebury fine sandy loam.

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

WxC - Woodbridge fine sandy loam, 8 to 15 percent slopes.

* Designated wetland soil by P.A. 155

\# Prime farmland

SKYLINE VILLAGE SUBDIVISION
SHEPERD HILL
WAUREGAN, CONN.

Principal Limitations and Ratings of Soils for: Residential Development

SOIL MAP SYMBOL AND SOIL NAME	DWELLINGS WITH BASEMENTS	LAWNS AND LANDSCAPING	LOCAL ROADS AND STREETS	SHALLOW EXCAVATIONS	DRAINAGE
HkC - Hinckley	Moderate-slope	Severe-droughty	Moderate-slope	Severe-cutbanks cave	Deep to water
PbC - Paxton	Moderate-wetness, slope	Moderate-slope	Moderate-wetness, slope, frost action	Moderate-dense layer	Deep to water
*Rd - Ridgebury	Severe-wetness	Severe-wetness	Severe-wetness, frost action	Severe-wetness	Wetness-percs slowly,
#WxB- Woodbridge	Severe-wetness	Moderate-wetness	Severe-frost action	Severe-wetness	Percs slowly-frost action, slope
WxC - Woodbridge	Severe-wetness	Moderate-wetness, slope	Severe-frost action	Severe-wetness	Percs slowly,slope, frost action

* Designated wetland soil by Public Act 155

Prime farmland

SOIL INTERPRETATIONS FOR URBAN USES

The ratings of the soils for elements of community and recreational development uses consist of three degrees of "limitations:" slight or no limitations; moderate limitations; and severe limitations. In the interpretive scheme various physical properties are weighed before judging their relative severity of limitations.

The user is cautioned that the suitability ratings, degree of limitations and other interpretations are based on the typical soil in each mapping unit. At any given point the actual conditions may differ from the information presented here because of the inclusion of other soils which were impractical to map separately at the scale of mapping used. On-site investigations are suggested where the proposed soil use involves heavy loads, deep excavations, or high cost. Limitations, even though severe, do not always preclude the use of land for development. If economics permit greater expenditures for land development and the intended land use is consistent with the objectives of local or regional development, many soils and sites with difficult problems can be used.

Slight Limitations

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

Moderate Limitations

In areas rated moderate, it is relatively more difficult and more costly to correct the natural limitations of the soil for certain uses than for soils rated as having slight limitations.

Severe Limitations

Areas designated as having severe limitations would require more extensive and more costly measures than soils rated with moderate limitations in order to overcome natural soil limitations. The soil may have more than one limiting characteristic causing it to be rated severe.

About the Team

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

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

PURPOSE OF THE TEAM

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

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

REQUESTING A REVIEW

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

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