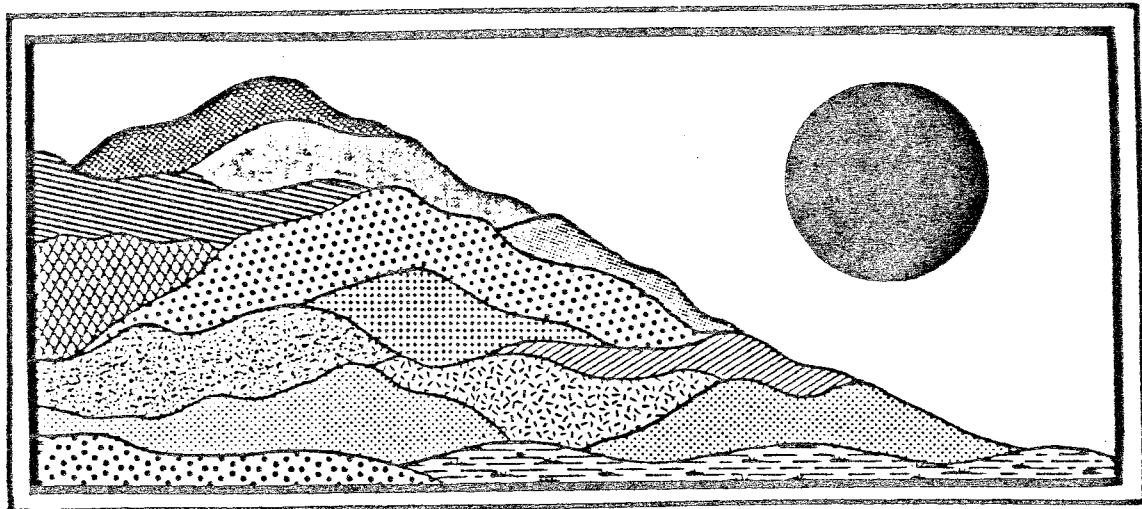


PALEY FARM SUBDIVISION

PORTLAND, CONNECTICUT

MAY 1987



ENVIRONMENTAL

REVIEW TEAM

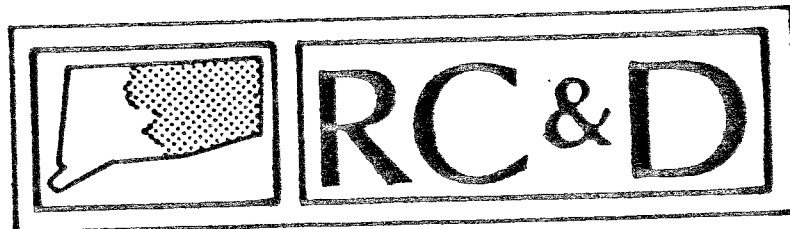
REPORT

PALEY FARM SUBDIVISION

PORTLAND, CONNECTICUT

Review Date: APRIL 8, 1987

Report Date: MAY 1987

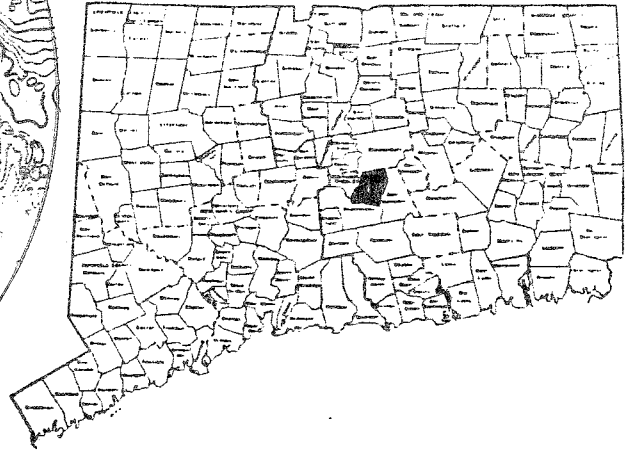


ENVIRONMENTAL REVIEW TEAM
PO BOX 198
BROOKLYN, CONNECTICUT 06234

Site Location

PALEY FARM SUBDIVISION

PORTLAND, CONNECTICUT



EASTERN CONNECTICUT

RESOURCE CONSERVATION

& DEVELOPMENT AREA

ENVIRONMENTAL REVIEW TEAM REPORT

ON

THE PALEY FARM SUBDIVISION

PORTLAND, CONNECTICUT

This report is an outgrowth of a request from the Portland Planning and Zoning to the Middlesex County Soil and Water Conservation District (S&WCD). The S&WCD referred this request to the Eastern Connecticut Resource Conservation and Development (RC&D) Area Executive Committee 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 Wednesday, April 8, 1987. Team members participating on this review included:

Don Capellaro	--Sanitarian Connecticut Department of Health
Pat Leavenworth	--District Conservationist U.S.D.A.-Soil Conservation Service
Eric Schluntz	--Fisheries Biologist DEP - Eastern District
Harry Siebert	--Transportation Planner ConnDOT - Bureau of Planning
Elaine Sych	--ERT Coordinator Eastern CT Resource Conservation and Development 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 and a soils map. During the field review the Team members were given topographic maps and site plans. The Team met with, and were accompanied by a member of the Inland Wetland Commission, the Town Planner, the land planner and engineer for the developer and their soils consultant. Following the review, reports from each Team member were submitted to the ERT Coordinator for compilation and editing into this final report.

This report represents the Team's findings. It is not meant to compete with private consultants by providing site designs or detailed solutions to development problems. The Team does not recommend what final action should be taken on a proposed project--all final decisions 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 decisions on this proposed subdivision.

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

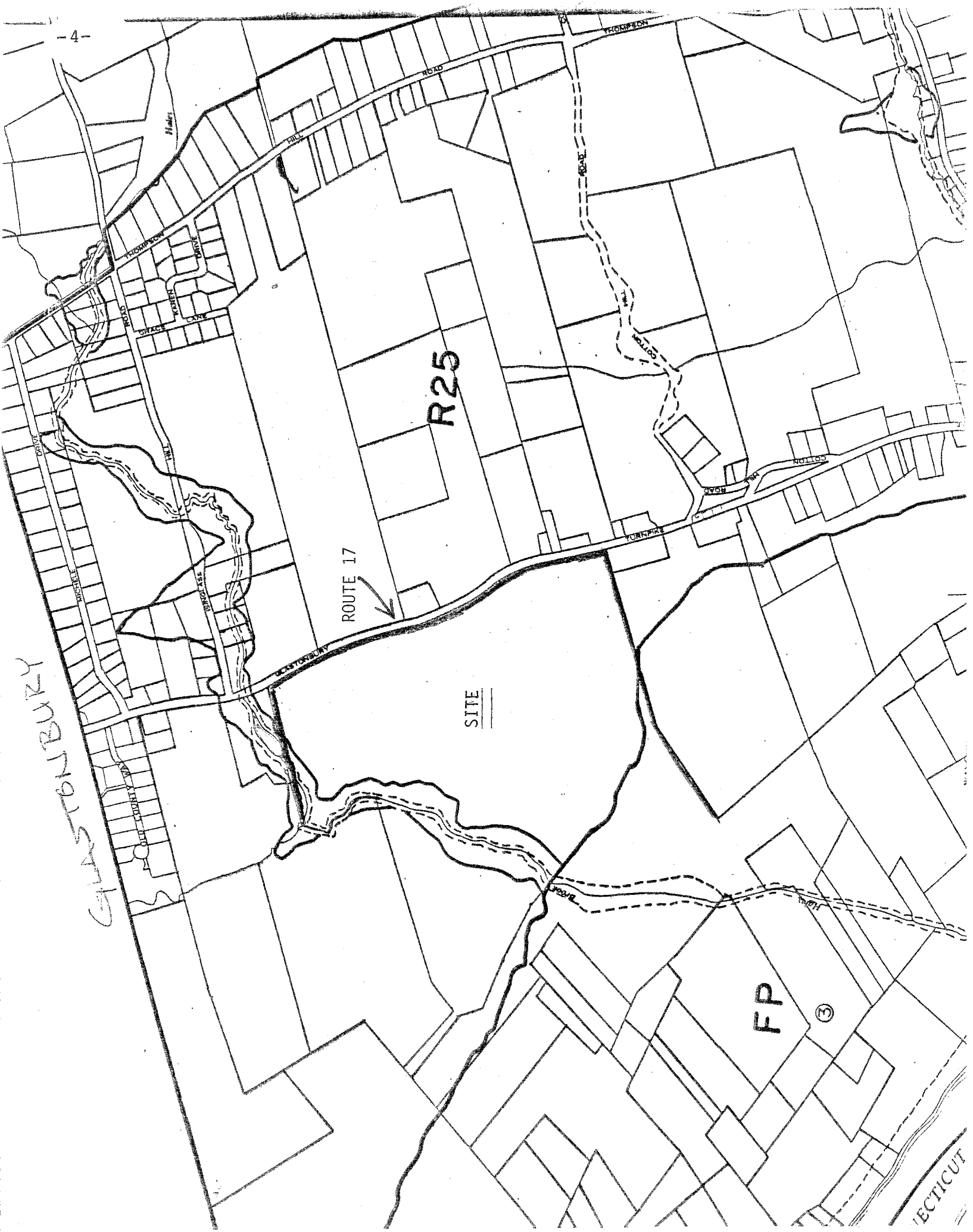
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GLASTONBURY



R25

ROUTE 17

SITE

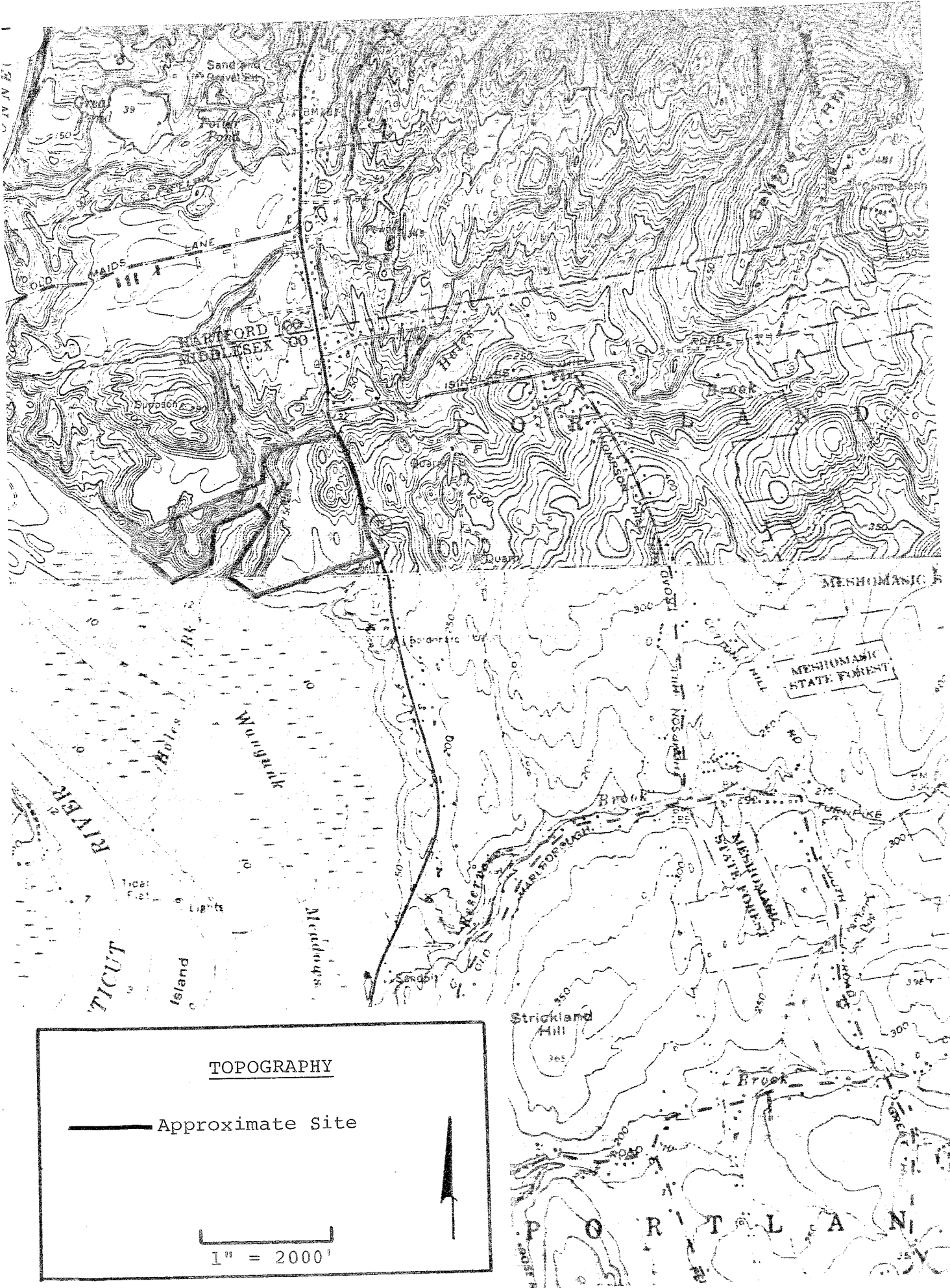
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CONNECTICUT

1. INTRODUCTION

The Eastern Connecticut Environmental Review Team has been asked to perform an environmental review of the proposed Paley Farm subdivision. The following sections of this report contain information, concerns and recommendations with regard to the various aspects of development. No summary has been provided so the reader is strongly urged to read this report in its entirety.



TOPOGRAPHY

— Approximate Site

1" = 2000'



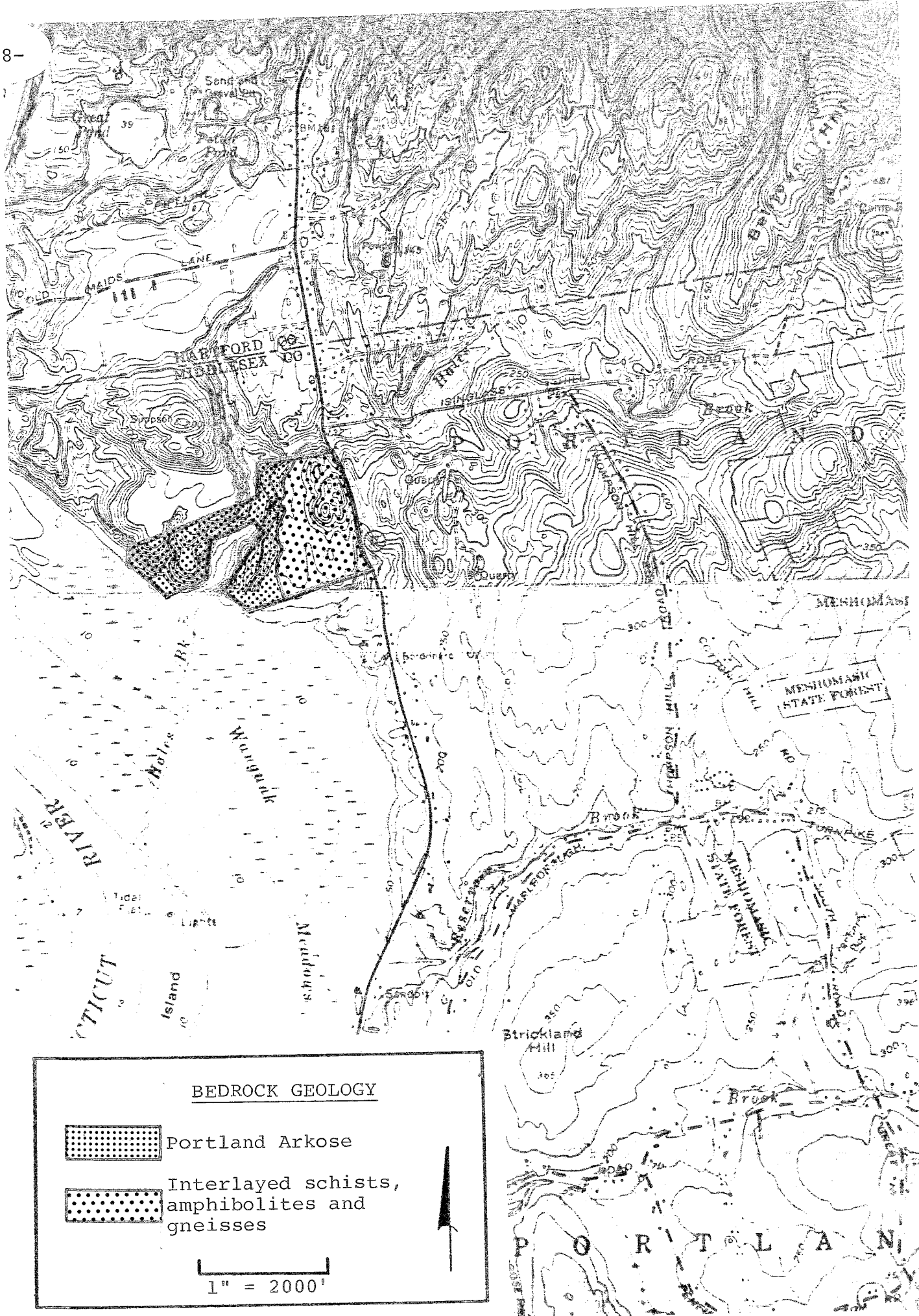
2. TOPOGRAPHY AND SETTING

The proposed ninety-five (95) lot subdivision is located on the west side of Route 17 in northern Portland. The Connecticut River and its accompanying floodplain lies about a mile west of the site. Two (2) major streamcourses, which are tributary to the Connecticut River are found on the site; (1) Hales Brook, to the north and west and (2) an unnamed streamcourse in the southern parts.

The interior sections of the site are comprised of contiguous agricultural fields. These fields represent approximately 32 acres. A smaller, isolated field in the southern parts comprises + 3 acres. Overlook Court, which includes the proposed lots 1-8 is located on the latter field. The remaining parts of the site consist of wooded land.

The agricultural fields on the site are characterized by slopes that are smooth and range from flat to gently rolling. Moderate to steeply sloping land parallels Hales Brook along the western border and the unnamed streamcourse in the southern parts. Finally, an area of rough and rugged terrain characterizes the rock-cored hill in the northern parts along the west side of Route 17.

Maximum and minimum elevation are about 230 feet and 20 feet above mean seal level, respectively.



BEDROCK GEOLOGY



Portland Arkose



Interlayered schists,
amphibolites and
gneisses

1" = 2000'



3. BEDROCK AND SURFICIAL GEOLOGY

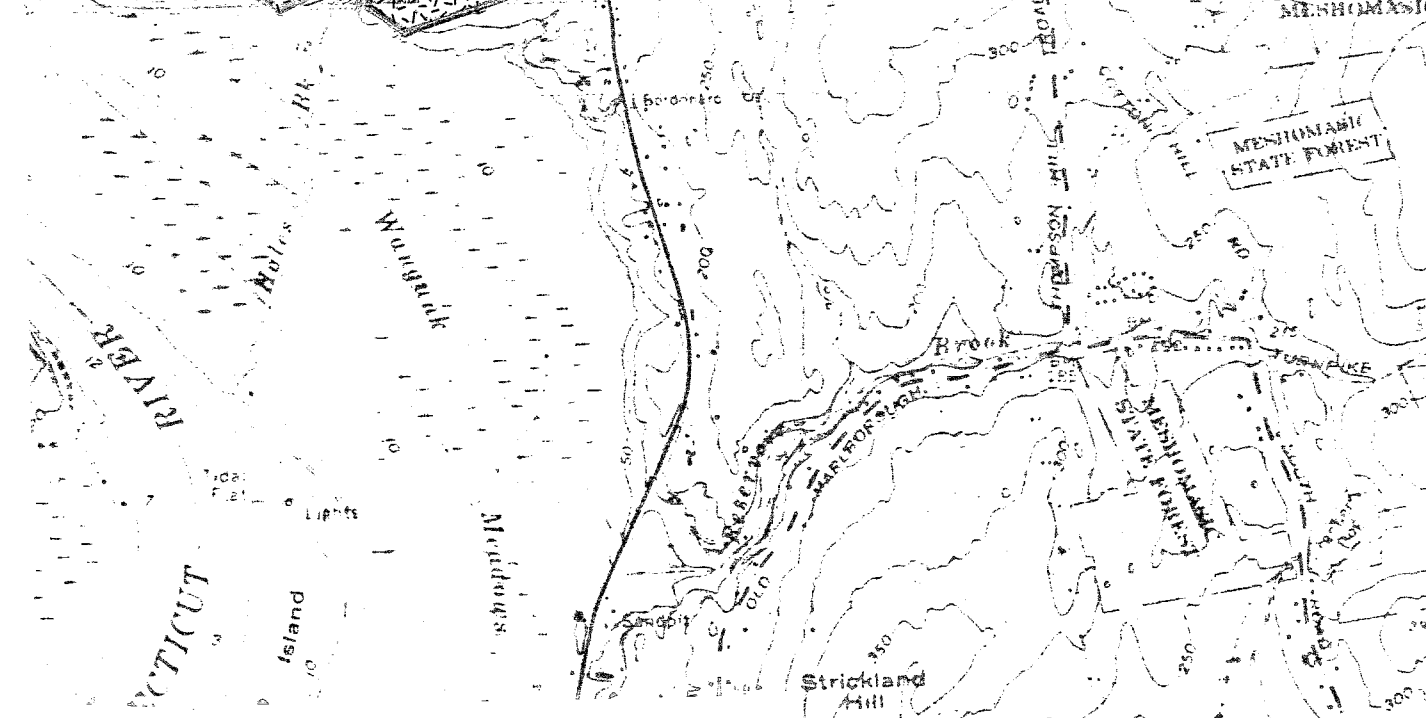
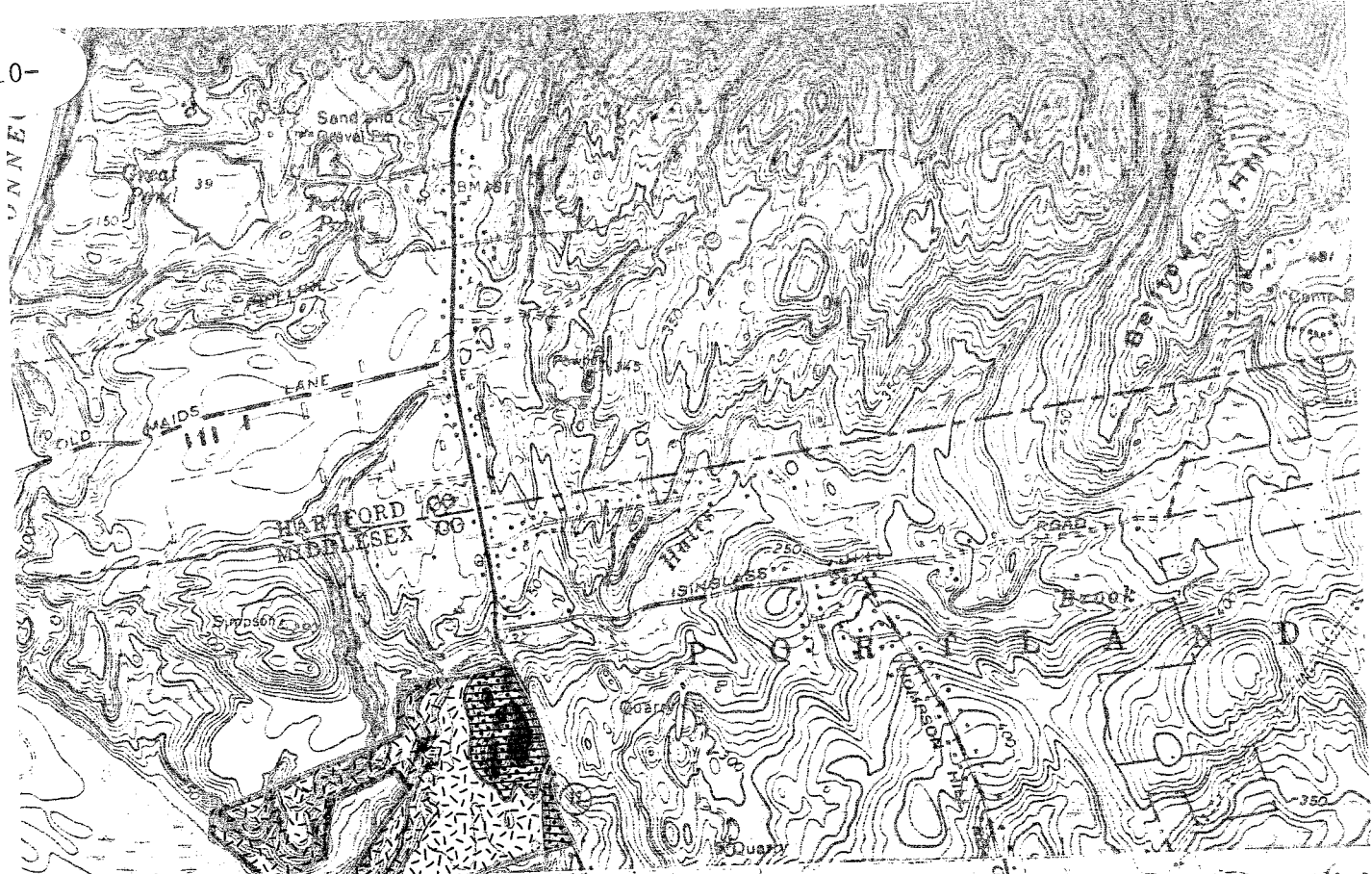
The proposed subdivision lies mostly within the Glastonbury topographic quadrangle. The southern limits are encompassed by the Middle Haddam topographic quadrangle. A bedrock geologic map (QR-5, by Norman Herz, 1955) for the Glastonbury quadrangle has been published by the Connecticut Geological and Natural History Survey. A surficial geologic map (GQ-1354, by W. L. Langer, 1977) for the Glastonbury quadrangle has been published by the U. S. Geological Survey. Neither the bedrock or the surficial geologic maps have been published for the Middle Haddam quadrangle. However, there is data for both of these maps on file at the Department of Environmental Protection's Natural Resources Center in Hartford. These maps are available for review purposes at the Natural Resources Center.

The western limits of the parcel marks a geologic boundary of two (2) different rock types. This boundary, which trends in a generally north/south direction is referred to by geologists as the Eastern Border Fault of Connecticut. The term 'fault' is given to an area where there has been movement along rock surfaces. It is a boundary which separates the easily eroded sandstones of the Connecticut Valley Lowlands from the more resistant crystalline rocks of the Eastern Highlands of Connecticut.

The western limits of the site are underlain by relatively soft rock called Portland Arkose. These rocks consist of a reddish brown arkose (another name for a sandstone). They are believed to be of the Triassic/Jurassic geologic period between 208 and 163 million years old. The Portland Arkose, also known as brownstone, was quarried in Portland for dimension/building stone.

The sandstone underlying the site does not outcrop anywhere on the property. It is estimated that the bedrock surface is buried between 70 and 100 feet in the western limits.

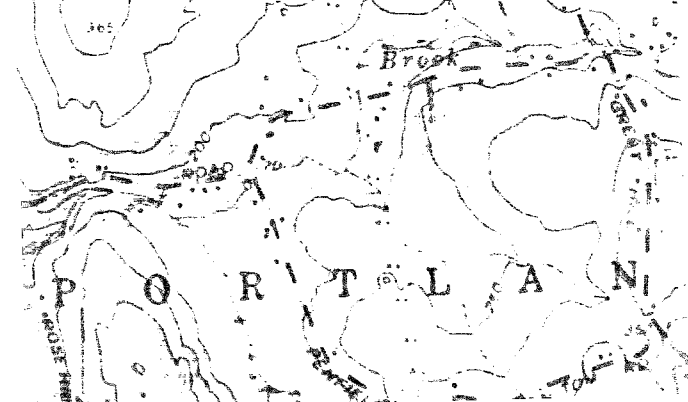
In contrast to the soft, easily eroded sandstones found in the western limits, the central and eastern parts of the parcel are underlain by crystalline, metamorphic rock (rocks geologically altered by great heat and pressure within the earth's crust). These rocks consist mainly of interlayered gneisses, schist and amphibolites. They were emplaced during the Ordovician geologic period, approximately 438 to 505 million years old. Outcroppings of these rocks are widespread on the hill in the northern parts. Also, it appears that the streamcourses in the southern parts has been eroded down to the bedrock surface.



SURFICIAL GEOLOGY

	Stratified Drift (sand and gravel)
	Till
	Outcrop
	Areas where bedrock is at or near ground surface

1" = 2000'



Except for the rock-cored hill along Route 17 in the northern portion, bedrock beneath most of the site is covered by glacial meltwater deposits known as stratified drift. These sediments consist mainly of thick (70-100 feet) deposits of light reddish brown to yellow brown sand and gravel.

The hilly section of the site as well as some areas along Route 17 in the southern parts are covered by a relatively thin deposit of glacial sediment called till.

Till is an unsorted accumulation of ground-up fragments and particles that were plastered directly onto the ground by glacial ice. The till on the site is composed of boulders, pebbles, silt, sand and clay particles that were derived from nearby bedrock (i.e., gneisses, amphibolites and schist). Because of differences in modes of deposition, the texture of the till is highly variable. It may vary from sandy, stony and relatively loose, to silty, non-stony and compact. Based on soil mapping information, the till on the site appears to contain the sandy, stony relatively looser variety.



Soil Conservation Service

Middlesex County USDA-SCS
Middlesex County Extension Center
Haddam, CT 06438
345-3219

Scale 1"=1320'

Soil Survey Sheets #2, #3



4. SOILS

The included soil map from the Middlesex County Survey Report shows the approximate area of various soil types over this parcel. These soils can be divided into two groups based on underlying geologic materials. The northeastern corner of the site has shallow to bedrock Hollis-Rock Outcrop complexes on 3 to 15 and 15 to 40 percent slopes. The remainder of the area consists of nearly level to steep excessively drained and somewhat excessively drained sandy soils found on glacial outwash plains and terraces. Of this second group, there is evidence that the soil map units do not consist entirely of Hinckley and Merrimac soils -- soils that formed in material weathered from gneiss, schist, and granite. There are "red" soils counterparts named Hartford, Branford, and Manchester which are formed mainly in material that weathered from triassic sandstone and conglomerate. Both groups have similar characteristics and would be managed in similar ways for residential development purposes.

Soils of the northeast corner:

HrC -- Hollis-Rock Outcrop complex, 3 to 15 percent slopes consisting of genety sloping and sloping, somewhat excessively drained soils and areas of rock outcrop. In most areas 3 to 25 percent of the surface is covered with stones and boulders. The complex is about 50 percent Hollis soils, 30 percent rock outcrop and 20 percent other soils.

The complex has poor potential for community development due to shallow depth to bedrock, rock outcrops, and stoniness. Excavation is difficult and blasting is required in most cases. According to the soil potential ratings for septic tank absorption fields in Middlesex County, this map unit has an extremely low potential rating due to shallow depth to bedrock. A permit to install an absorption field cannot be issued if the depth to bedrock of the naturally occurring soil is less than 24 inches.

HsE -- Hollis-Rock Outcrop complex, 15 to 40 percent slopes consisting of moderately steep to very steep somewhat excessively drained soils and areas of rock outcrop. In most areas 3 to 25 percent of the surface is covered with stones and boulders. This complex is about 50 percent Hollis soils, 30 percent rock outcrop and 20 percent other soils. This complex has the same rating as HrC for septic tank absorption fields.

Terrace soils:

BoC -- Branford silt loam, 8 to 15 percent slopes. This sloping and undulating, well drained soil is on outwash plains and stream terraces.

This soil has fair potential for community development. Slope is the main limitation, and steep slopes of excavations are unstable. On-site septic systems need careful design and installation to prevent effluent from seeping to the surface. In places, on-site septic systems are a pollution hazard to groundwater.

HfA -- Hartford sandy loam, 0 to 3 percent slopes. This nearly level, well drained soil is on glacial outwash plains and stream terraces. This soil has good potential for community development. Droughtiness is the major limitation. On-site sewage systems need careful design and installation. Steep side slopes of excavations are unstable. Lawn grasses, shallow-rooted trees, and shrubs require watering in summer.

HkC -- Hinckley gravelly sandy loam, 3 to 15 percent slopes. This excessively drained and gently sloping to sloping or undulating soil is on stream terraces, kames, and eskers. This soil has good potential for community development. The soil is limited mainly by slope and droughtiness. Steep side slopes of excavations are unstable, and on-site sewage systems need careful design and installation. Lawn grasses, shallow-rooted trees, and shrubs require watering in summer.

HME -- Hinckley and Manchester soils, 15 to 45 percent slopes. These soils are moderately steep to very steep and excessively drained. They are on kames and eskers of outwash terraces and plains. Approximately 45 percent of the total acreage of this unit is Hinckley soils, 30 percent is Manchester soils, and 25 percent is other soils.

These soils have poor potential for community development. They are limited mainly by steep slopes. Steep slopes of excavations are unstable. On-site septic systems need very careful and often special design and installation to insure that effluent does not seep to the surface. Lawns, shallow-rooted trees, and shrubs need watering in summer.

MgC -- Manchester gravelly sandy loam, 3 to 15 percent slopes. This gently sloping to sloping, excessively drained soil is on glacial outwash plains, stream terraces, kames, and eskers. This soil has good potential for community development. The soil is limited mainly by slopes and droughtiness. On-site septic systems need careful design and installation, especially on steeper slopes. Caution is needed to prevent pollution of groundwater by septic systems. Lawns, shallow-rooted trees, and shrubs need watering during the summer.

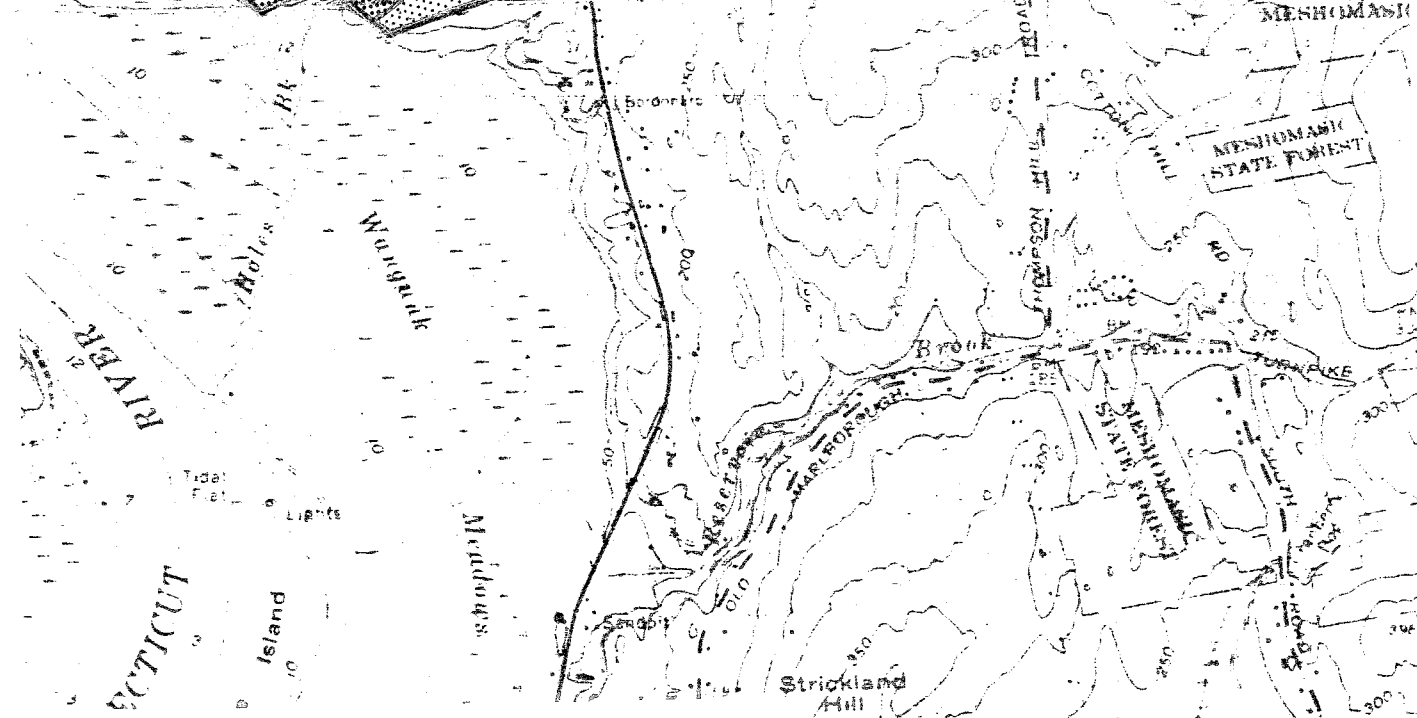
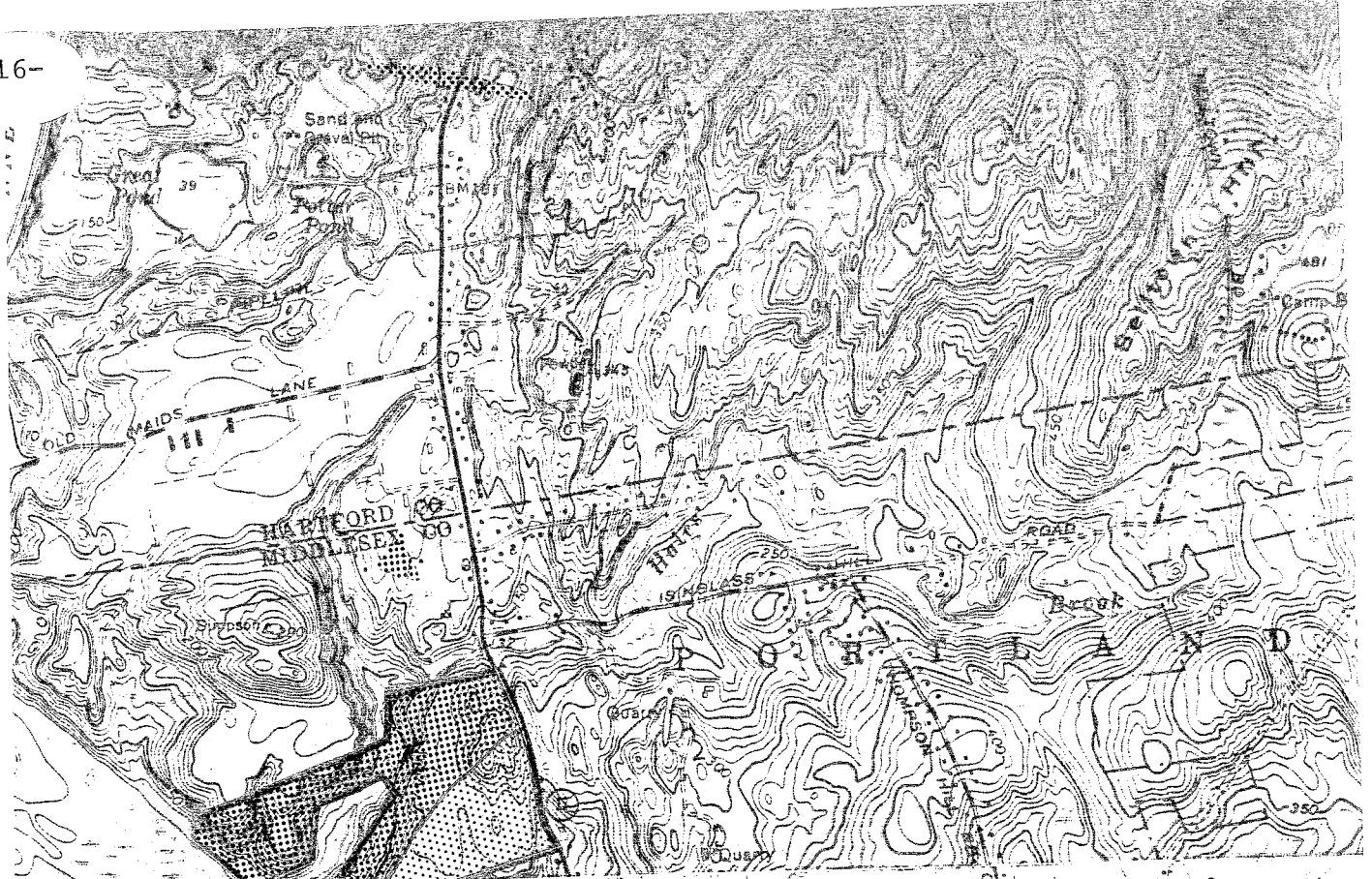
All of the above soils are identified as areas of special concern for septic tank absorption fields by state regulations due to their fast perc rates and in pertinent cases, slope. An engineer's design may be required.

In the soils report prepared for T&M Building by Erijack Associates, floodplain soils were noted. These and some areas with poor drainage on the site should be checked by a certified soil scientist. The problems associated with locating septic tank absorption fields on steep sandy slopes should be considered.


The Steep slopes in lot 20 and lots along Cedar Terrace are of special concern.


There were no perc tests results presented in the report, only speculation about results.

The Hartford sandy loam soils are Prime Farmland Soils of national importance.


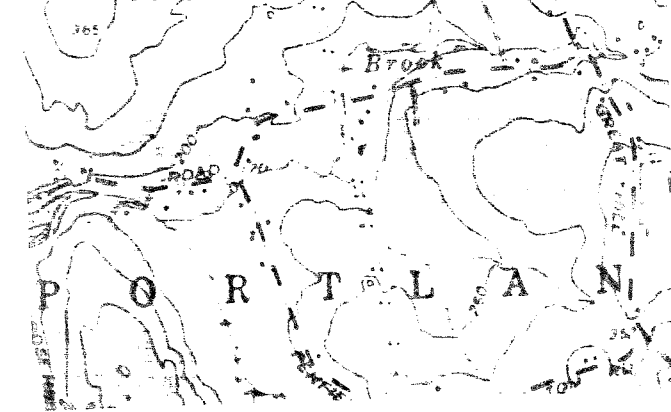


WATERSHED BOUNDARY

 Portion of property that drains to Hales Brook

 Portion of property that drains to Reservoir Brook

1" = 2000'

5. HYDROLOGY

Natural drainage within the parcel can be divided into two areas; (1) the northwest portions, which drain to Hales Brook north and west of the parcel and (2) the southeast parts, which drain to Wangunk Meadows and which ultimately routes the water to Reservoir Brook. Hales Brook and Reservoir Brook are both tributary to the Connecticut River.

Precipitation that falls onto the sandy, gravelly soils within the site will be quickly absorbed. It will percolate downwards to the groundwater table and is then pulled by the force of gravity to discharge points such as watercourses, rivers, wetlands, seeps, etc.

The subdivision of the property as planned, followed by the construction of new homes, driveways and roads will lead to some increases in runoff from the property. Ordinarily, the Team's Geologist would suggest measures that would mitigate the effects of these increases (e.g., stormwater detention basin). However, because of the site's close proximity to the Connecticut River and because of its position in the lower parts of the watershed, storm water detention does not appear to be necessary.

Besides flooding problems, increased runoff can lead to additional water-related problems such as streambank erosion and gullying. In view of the very steep slopes present on the sand and gravelly soils on the site, every effort should be made to prevent potential erosion and siltation problems. In this regard, it is encouraged that a comprehensive erosion and sediment control plan be developed covering each stage of the proposed subdivision. Disturbed areas should be kept to a minimum under such a plan and should receive protection from any running waters. The erosion and sediment control measures called for under the plan should be shown on the subdivision plan. Finally, all storm drain outlets should include provisions for energy dissipators and/or rip-rapping to reduce the chance for erosion problems.

It is advised that a detailed engineering study, which includes pre- and post-development data as well as a careful storm water management plan be developed and implemented prior to any construction or site preparation. Once plans have been completed they should be submitted to Town officials for their review and comments. A careful look at all affected existing culverts is also suggested.

It appears that there may be a need to cross "wetland areas" with the proposed access road and/or driveways, depending on ultimate location. All wetland road crossings will need to be properly engineered. The road should be constructed adequately above the surface elevation of the wetlands. This will allow for better drainage of the road and also decrease the frost heaving potential of the road. Road construction through wetlands should preferably be done during the dry time of the year and should include provisions for effective erosion and sediment control. Finally, culverts should be properly sized and located so as not to alter the water levels in accompanying wetlands and cause flooding problems.

6. WATER SUPPLY

The need to supply the proposed subdivision site with public water is important due to (1) low-yielding bedrock wells in the area, (the proposed house lots would need to rely on bedrock wells if public water was not made available to the site); (2) the need to penetrate thick deposits of sand and gravel on parts of the site before reaching the bedrock aquifer, which would be costly; (3) the high percentage of sand and gravel soils that cover the site which have rapid permeability and relatively poor filters for septic effluent; (4) small lot sizes, which will require on-site septic systems and (5) past agricultural use of most of the site which may have contaminated the underlying aquifer with nitrates, fertilizers, pesticides or other chemicals commonly used in farming practices.

7. SEWAGE DISPOSAL

Public sewers are some three (3) miles from this property, therefore, the proposed development is to be served by private on-site subsurface sewage disposal systems.

Based on visual observations, soil mapping data and review of engineering (Erijač Associates) soil test results, most of the area is composed of well drained sand and sandy, gravelly soils, although some may tend to be highly permeable. In such cases, leaching systems installed in these soils may not receive good filtration and undergo renovation before reaching ground or surface water. Considerable care and judgment will be needed for those proposed lots which have considerable slope in the areas that may be utilized for sewage disposal in order to insure that sewage effluent does not seep out to ground surface. One area in particular would be the lots along Cedar Terrace located at the lower west side of the subdivision. Lots on the uphill side of this roadway may be subject to surface and groundwater working its way down the steep embankment at the rear. It was also noted in the engineer's soil test data that several of the lots had extremely slow percolation rates indicating relatively impervious soil which would not be satisfactory for sewage leach systems. Further testing and investigation should be made in this general area. Placement of houses (set backs) and possible installation of footing drains should be considered in order to provide sufficient front area for sewage leaching systems. While deep, permeable soils are more conducive to the installation of deep leaching pits or galleries, these facilities should not be used unless groundwater is deep, sufficiently below bottom leach areas. Also, when dealing with highly permeable soils it is better to have leaching systems elevated as much as possible in order to reduce the potential for pollution. Of course, in order to have a shallow, spread out type of system, more land area is necessary to accommodate the facility. Another questionable lot would be #20 at the junction of proposed Paley Farm and Hartfield Roads. This lot is presently subject to considerable surface runoff from the field area and the existing grade falls off sharply. In its present condition, such a lot would be unsuitable for sewage disposal purposes. However, it may be possible to make the site suitable if surface storm water is controlled and diverted and a sufficient portion of the area is filled and regraded with acceptable material. The improved site should be tested and re-evaluated in order to determine suitability.

The upper wooded area between the open field and Route 17 is of concern due to the presence of rock outcrops and/or shallow underlying ledge rock. Although this area would have some of the

larger lots (about 1 acre) in the subdivision, it would be very important that a sufficient number of observation pits be made in order to determine the depth to ledge rock in locations which might be considered satisfactory for sewage disposal. In order for ledge rock not to interfere with sewage leaching systems, it would need to be at least four feet below the bottom area of systems. While some fill may be necessary in order to accommodate sewage facilities it is recommended there be at least four feet of existing soil over ledge in order for lots to be considered approved building sites. Areas surrounding sewage leach facilities, particularly those downslope from the systems, should also have a sufficient depth of soil to disperse and prevent sewage effluent from premature breakout resulting in nuisance conditions or detrimental effect on ground or surface water. In general, many of the lots which contain areas with steep slopes would require careful siting of houses, water service lines, storm and footing drains and sewage systems. (Also see 8. GEOLOGIC LIMITATIONS TO DEVELOPMENT for additional information on sewage disposal)

8. GEOLOGIC LIMITATIONS TO DEVELOPMENT

In terms of the proposed subdivision, it appears that the major geological limitation on the site include the following; (1) the rock-cored hill in the northeast corner which is festooned with rock outcrops and shallow soils; (2) the moderate to very steep slopes associated with the rock-cored hill in the northeast corner, and the sand and gravel escarpment along the western and southern limits; and (3) areas of wetness in the form of seeps located along the toe of slopes on lots 33-38.

The above limitations will weigh most heavily on the ability to provide adequate subsurface sewage disposal. They will also pose problems in terms of road construction and placement of house foundations.

It seems likely that significant blasting will be required throughout the northeast corner in order to install water mains, construct roads and house foundations. Any blasting that is required on the site should be conducted under the supervision of qualified personnel familiar with state of the art blasting techniques. This will help to minimize undue seismic shock and potential damage claims. In this regard, it is recommended that a pre-blast survey of nearby properties be conducted to minimize the chances for unwarranted damage claims. Because the areas that need blasting contain steep slopes, it is important to develop a sound erosion sediment control plan. Blasting will undoubtedly mobilize fine particles which may cause siltation to nearby ponds, watercourses, etc.

The presence of seasonal weeps in the area of Lots 33-42, will probably require surface and subsurface drainage work for installation of on-site septic systems and also to maintain dry basements. Because many of the proposed lots in this area are small (25,000 square feet +) and because septic systems are more likely to require shallow leaching trenches that are spread out over a relatively wide area, it appears likely that some lots may be too limited in size to accommodate drainage, water main, septic systems, houses, etc. Depending upon the final outcome of drainage and sanitary design, it may be necessary to increase the lot sizes in this area in order to comply with the State Public Health Code or any other regulations.

Because of the steep to very steep slopes associated with the sand and gravel escarpments on the site, the chance for severe erosion problems (gullies) is apparent. Every effort should be taken to keep flowing water, e.g. stormwater, house gutter drains, etc.) away from these areas. In this regard, it might be wise to discharge house gutters to pre-fabricated leaching pits.

Another critical concern for the installation of septic systems, waterlines and electrical lines is the possibility of "cutback caveins" in the sandy and gravelly soils. The trenches in these sandy and gravelly soils should have the pipes and conduits placed and backfilled as soon as possible after excavation. Proper shorings of sides should be accomplished in trenches over five (5) feet deep.

Because of the rapid subsurface drainage commonly associated with the sand and gravel soils on the site, groundwater contamination by septic effluent is a potential concern, particularly when the development needs to rely on on-site wells. However, since a municipal water line will serve the proposed development, the risk of possible groundwater contamination to wells on the site will be eliminated. Since some neighboring homes may rely on private on-site wells, the project engineer should keep this in mind when designing septic systems on lots, particularly those in close proximity to neighboring wells. It should be pointed out that if a percolation rate is faster than one minute/inch, the separating distance from any portion of a septic system to a private well which has a withdrawal rate of under ten (10) gallons per minute or less would be 150 feet. If the withdrawal rate is ten (10) gallons per minute or greater, the separating distance would need to be even greater.

It appears that at least two (2) lots (4 and 20) will require substantial filling in order to make it suitable for development. Careful planning with respect to proper compaction, type of fill material used, and the need for shorings are imperative on these lots. Detailed plans regarding the filling should be submitted to Town officials for their review. This filling would be separate from the filling that will undoubtedly be required for septic system areas located on the rocky hill in the northeast corner. Every effort should be made to use the natural soils on lots 4 and 20 for the location of proposed septic systems.

Although only 85 acres are currently subject to development, Team members are informed by the project manager that the remaining + 65 acres of the site would probably be developed for 5 or 6 house lots. It should be noted that much of the remaining land is not favorable for development due to very steep slopes. Detailed soil testing and significant regrading will undoubtedly be required for lots developed in these areas. There would also be significant danger to operators working with heavy equipment on these slopes.

According to a report made available to Team members entitled Report on Subsurface Investigations for T & M Building Company Sub-division, Portland Connecticut, December, 1986 by Erijac Associates, Lots #33-42, 80 and 98 contain a soil series referred to as Rumney. It should be pointed out that this soil series is no longer used in Connecticut. It now falls within a soils series called Rippowan.

Rippowam soils are poorly drained soils and as such are regulated as wetland soils under Chapter 440 of the Connecticut General Statutes. Any proposed activity that impacts a regulated area must be approved by the Portland Inland Wetlands 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. The report mentioned above indicates that the Rumney soil has good potential for community development. It should be pointed out on the other hand, that the Rippowam soil is poorly suited to community development because of flooding and the seasonal high water table. This may be the reason for the excessively slow percolation rates encountered on Lots #37 and #47. Septic systems constructed on Rippowam soils require special design and installations. It is suggested that the applicant's soil scientist delineate the Rippowam soils in this area and superimpose the boundaries on the subdivision plan before any building occurs in this area. Careful examination of soils and drainage is imperative throughout this area.

9. SEDIMENT AND EROSION CONTROL

Due to the droughty soils on the site, it is extremely critical that all seedings be performed within recommended seeding dates, the areas mulched, and, in some cases, irrigated to establish grass cover. Liming, fertilizing, seeding and mulching specifications and seeding dates should be provided directly on the plans to be used by the contractor. Temporary measures should also be specified for when the time of year or weather prohibit establishment of permanent vegetative cover.

The location of the site tracking pad should be shown on the plans, as well as the name and phone number of the person responsible for implementing and maintaining sediment and erosion control measures.

The measure listed in Note number 14 of the sediment and erosion control plan should be changed to state that wetlands will not be disturbed without a permit from the Portland Inland Wetlands Commission. Note 12 is incomplete. Copies of selected sediment and erosion control measures specifications from the 1985 Connecticut Guidelines for Soil Erosion and Sediment Control should be provided to the contractor, since many contractors do not have copies of the Guidelines with them on construction jobs.

The steep terrace escarpment is currently stable; however, even slight increases in runoff could create serious erosion problems. Old escarpment gullies such as the one between lots 45 and 46 are showing signs of instability.

Roof drains should be tied into a storm sewer system and storm drainage outlets should be carefully located and protected. For example, the Paley Farm Road-Hartfield Road drainage outlet should be changed as indicated by the site engineer on the day of this review. It should outlet at the level of the stream bed and the outlet should be adequately protected against erosion.

The capacity of existing channels on and off the site to safely handle increased flows should be evaluated. The very steep drop in elevation in this area and the erodibility of the escarpments could contribute to serious erosion if significantly increased flows and volumes are introduced to the system.

Soils information should be included on the plans presented. Watercourses through lots 9, 10, 11, 12 and 13 are not clearly shown. Whether or not the "seasonal wet area" is the same as wetlands, it should be checked. If this area is wetlands, the name of the consultant soil scientist who performed the mapping of the area should be provided.

10. FISH RESOURCES

Two streams are located in the proposed subdivision. The larger stream, Hales Brook, located to the north supports an abundant population of wild brook trout. This brook is bordered by heavily vegetated wetland areas. The second unnamed stream is smaller in size, but would likely support brook trout in its lower reaches.

The fish production in the brooks is directly related to summer minimum flows and water quality. The preservation of wetlands within the watershed is vital to the maintenance to current water quality, flow rates and sediment control to protect the excellent fish habitat. Sedimentation reduces the holding areas for larger trout (>6") and reduces the production of aquatic invertebrates, their primary food source.

The primary impact of subdivision is the sedimentation caused during construction. Proper erosion and sedimentation control structures must be installed and maintained to prevent the degradation of the brooks. Establishing a 100 foot buffer corridor along the streams would preserve stream banks and the shade necessary to keep water temperatures cool during summer months.

11. CT DEPARTMENT OF TRANSPORTATION CONCERNS

A review of the proposed subdivision presents the following concerns:

Drainage

1. Any new drainage that connects to an existing ConnDOT drainage facility should be closed when on the property of others. Grading to drain or an open drainage ditch is not appropriate in a residential subdivision.
2. All development road drainage should be designed to contain runoff within the development where practicable.
3. Drainage at the intersections of Paley Farm Road and Rockwood Drive should be designed to intercept runoff before and after the intersection.
4. After sight line improvements are made on Route 17 by rock cutting, drainage should be installed to manage the runoff. A ditch is not considered a viable solution.
5. The addition of drainage at the intersection of Overlook Court and Route 17 should be considered.

Traffic Operations

1. If possible, eliminate the Rockwood Drive and allow traffic to circulate by way of Paley Farm Road. Sight distance at the intersection of Rockwood Drive and Route 17 is minimal based on the grade of Route 17 to the south.
2. It would be prudent to develop access to lots 9-13 from an interior road.
3. The existing unpaved road between lots 8 and 9 should be discontinued.

Other

1. Any drilling and blasting near Route 17 should be inspected before, during and after by a third party knowledgeable in the use of explosives and applicable state laws and regulations.
2. Though not a transportation concern, it would be prudent to analyze the subsurface water flow of the proposed development due to the unconsolidated granular material underlying much of the site.

Subsurface water conditions along Cedar Terrace, lots 33-42 could be impacted by upper portions of the development.

3. The use of excavated rock to grade lots with steep slopes would be appropriate.

All work impacting Route 17 must conform to the Connecticut Department of Transportation, "Highway Encroachment Permit Regulations". The approval of the proposed development by the Town will then require the developer to submit the appropriate documents to obtain a State Traffic Commission Certificate. Coordination with the appropriate Connecticut Department of Transportation offices should be made to avoid delays in the review process.

12. CT NATURAL DIVERSITY DATA BASE

Wangunk Meadows, south of the proposed subdivision, has been identified as a Natural Areas Inventory site. In 1972, the Connecticut Forest and Park Association, Inc. prepared a Natural Areas Inventory of 459 sites. These were nominated as significant areas on the basis of one or more of the following attributes: geologic, hydrologic, biologic, archeologic, aesthetic, cultural, research/educational. A site receives no legal standing or protection from inclusion on the inventory.

Wangunk Meadows was designated due to its biologic significance. A 1981 Natural Area report describes the area as "an extensive mixture of wooded and open cattail marsh, floodplain forest and agricultural lands..., it is undisturbed and a prime habitat for breeding waterfowl and migratory birds."

A number of Connecticut bird "Species of Special Concern" are known from here. Additionally, floodplain forest is a critical habitat type in Connecticut.

This information is provided so that you may be aware of the proximity of a significant biologic area to the proposed project. The sensitivity of the area should be given consideration in subsequent development plans.

The Natural Diversity Data Base contains the most current biologic data available to us at the time of the request. Ongoing research continues to locate additional populations of species and locations of habitats of concern, as well as, update existing information.

Thank you for contacting the Data Base. If we may be of further assistance, please call 566-3540.

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.