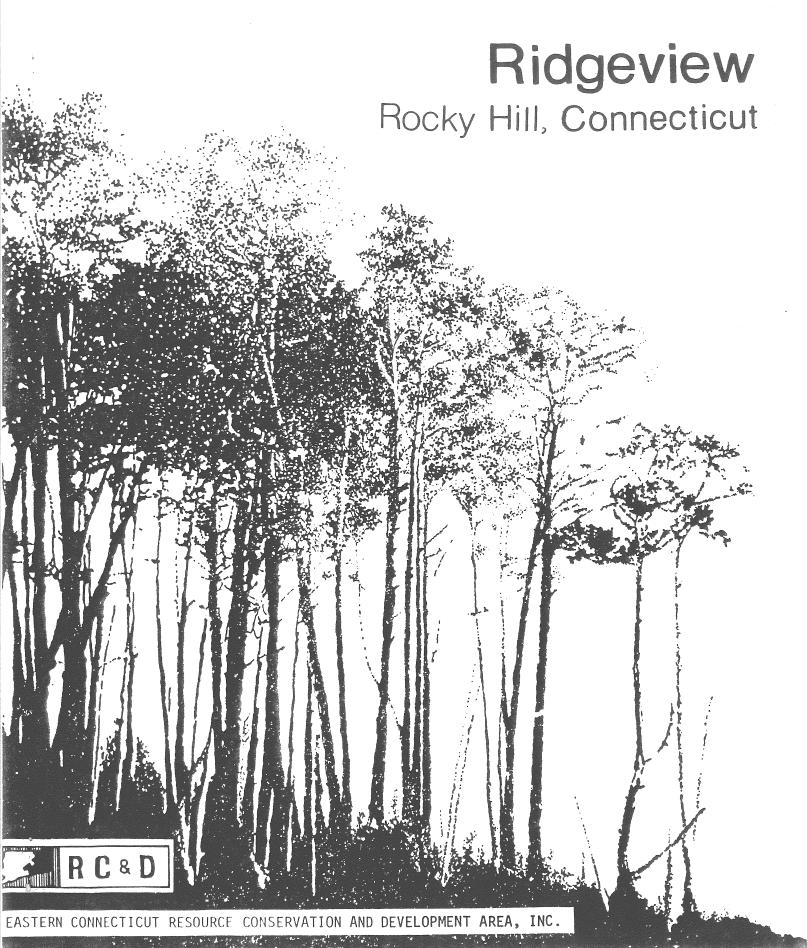
Environmental Review Team Report

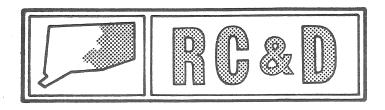


Environmental Review Team Report

Ridgeview

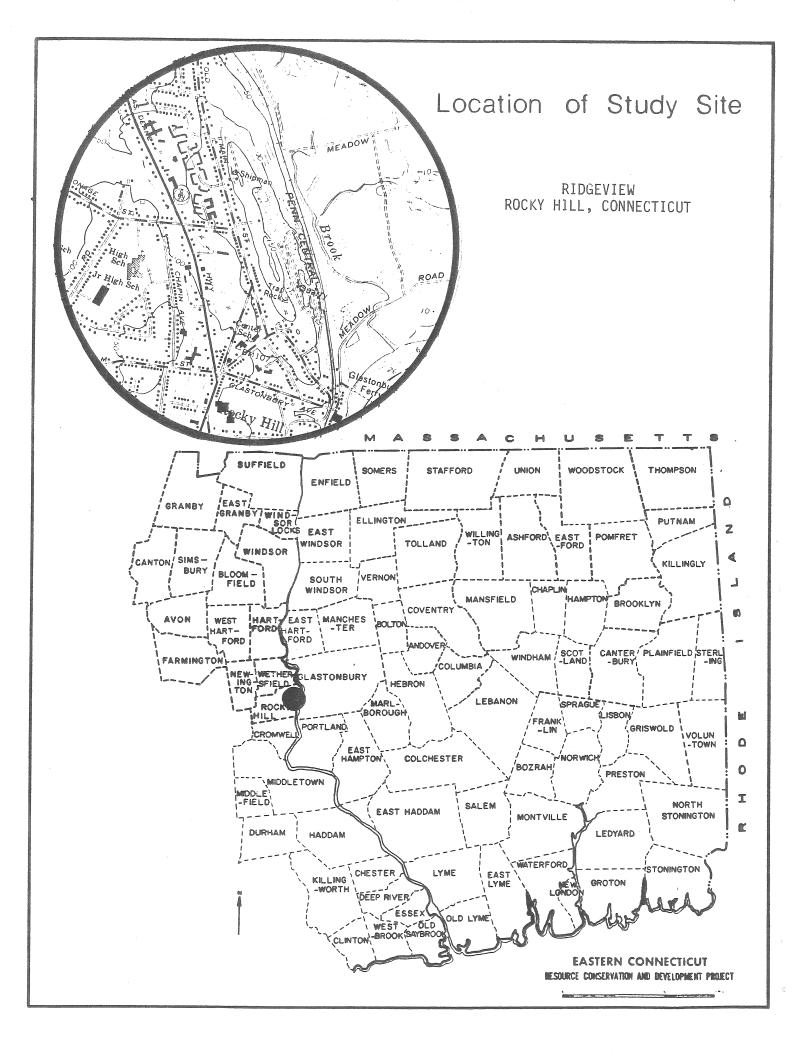
Rocky Hill, Connecticut

June 1984



Eastern Connecticut Resource Conservation & Development Area

Environmental Review Team
PO Box 198
Brooklyn, Connecticut 06234



ENVIRONMENTAL REVIEW TEAM REPORT ON RIDGEVIEW ROCKY HILL, CONNECTICUT

This report is an outgrowth of a request from the Rocky Hill Planning and Zoning Commission to the Hartford 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 as a project measure. The request was approved and the measure reviewed by the Eastern Connecticut Environmental Review Team (ERT).

The soils of the site were mapped by a soil scientist of the United States Department of Agriculture (USDA), Soil Conservation Service (SCS). Reproductions of the soil survey map as well as a topographic map of the site were distributed to all ERT participants prior to their field review of the site.

The ERT that field-checked the site consisted of the following personnel: Bill Warzecha, Geologist, State Department of Environmental Protection (DEP); Rob Cochran, Soil Conservationist, SCS; Amy Parker, District Manager, Hartford County SWCD; Bill Taylor, Transportation Planner, CRCOG; and Jeanne Shelburn, ERT Coordinator, Eastern Connecticut RC&D Area.

The Team met and field-checked the site on Thursday, April 19, 1984. Reports from each Team member were sent to the ERT Coordinator for review and summarization for the final report.

This report is not meant to compete with private consultants by supplying site designs or detailed solutions to development problems. This report identifies the existing resource base and evaluates its significance to the proposed development and also suggests considerations that should be of concern to the developer and the Town of Rocky Hill. The results of this Team action are oriented toward the development of a better environmental quality and the long-term economics of the land use.

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

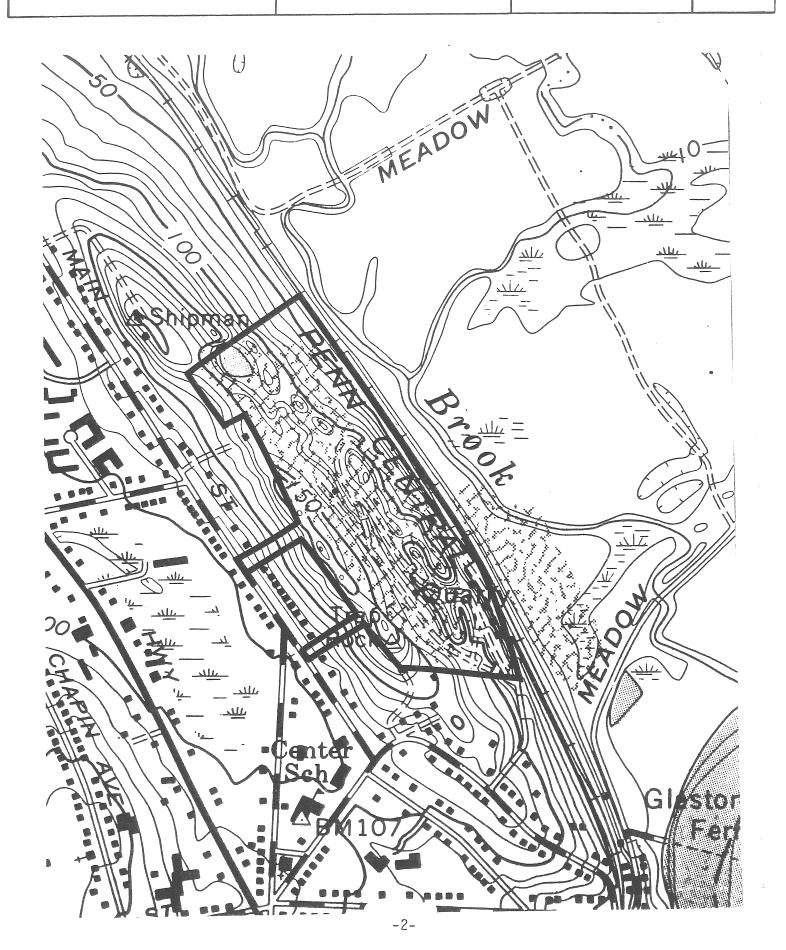
If you require any additional information, please contact: Ms. Jeanne Shelburn, Environmental Review Team Coordinator, Eastern Connecticut RC&D Area, P.O. Box 198, Brooklyn, Connecticut 06234, 774-1253.

Topography

Site Boundary



A



INTRODUCTION

The Eastern Connecticut Environmental Review Team was asked to prepare an environmental assessment for a proposed high density residential development in the Town of Rocky Hill. The development, known as Ridgeview, is located on Old Main Street, south of the Wethersfield town line. The site is approximately 70 acres in size and is owned and will be developed by Donald Demar. Russell and Dawson Associates has prepared preliminary plans for the proposal.

Preliminary plans show a total of 990 units proposed for the site. Sections I and II, currently under consideration for permit, show a total of 360 units. Public water supply and sewer service will be available to the site. Access to the site will be provided from Old Main Street. Phase I is shown to have 102 units with eight to ten units per building. Phase II will have 258 units with four to ten units per building and Phase II shows 630 units planned for nine buildings, with 70 units to a building. Two pools, six deck tennis courts, three standard tennis courts, two shuffleboard courts and 2,490 parking spaces are also planned for this site. Team comments in the following sections of this report will deal specifically with Sections I and II (360 units) of this proposal.

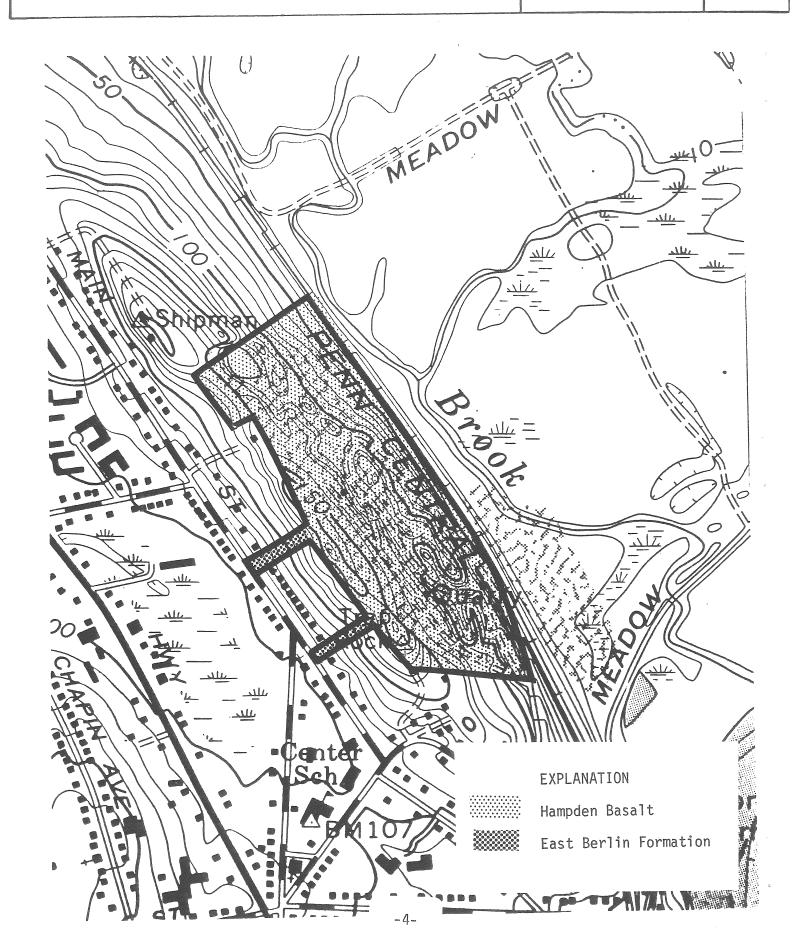
The study site has a steep, rugged topography resulting from its former use as a "trap rock" quarry. A number of terraces and steep scarps exist, the highest scarp being approximately 60 to 70 feet. Scrub vegetation exists over much of the site. Several small ponds are also on the property. The Connecticut River and a former landfill are to the east of the site.

The Team is concerned with the impact of this proposed development on the natural resource base of this site. Although many severe limitations to development can be overcome with proper engineering techniques, these measures can often become costly, making a project financially unfeasible for a developer. This may be particularly true in the case of this site, as site limitations will escalate site preparation costs. The Team has identified a number of concerns which are discussed in detail in the following sections of this report, and should be considered by the Rocky Hill Planning and Zoning Commission when preparing the conditions for granting this permit.

Althouth this site is <u>severely limited</u> for residential development of the density proposed, the Team cannot recommend denial of a permit on any environmental or planning grounds covered in this study.

Bedrock Geology





ENVIRONMENTAL ASSESSMENT

TOPOGRAPHY

The proposed "Ridgeview" residential development site consists of an irregularly shaped parcel of land ±70 acres in size, which is located in the northeast part of town. The parcel lies between Old Main Street and the presently inactive rail-road right-of-way (Con Rail), just south of the Wethersfield town line. Access to the parcel is provided by Esther Road on the north and by Old Main Street, Matteson Avenue and Meadow Road on the west.

According to the topographic map (Hartford South Quadrangle, USGS), land surface elevations on the parcel range between ±40 above mean sea level along the old railroad bed and ±220 feet above mean sea level in the western limits. Nearly thirty percent of the parcel in the western and central portions is the location of a former traprock quarry operation. Because much of the mined area has not been regraded, this part of the parcel is characterized by a rugged topography, where bedrock is at or near ground surface throughout. Steep scarps, which probably resulted from the quarrying operation, form the western boundary of the parcel (excluding the access points from the property to Old Main Street). It appears that the steepest cliffs, probably between 50 to 60 feet, occur on the northern end. Land surface east of the mined areas is characterized primarily by a moderate to steep relief.

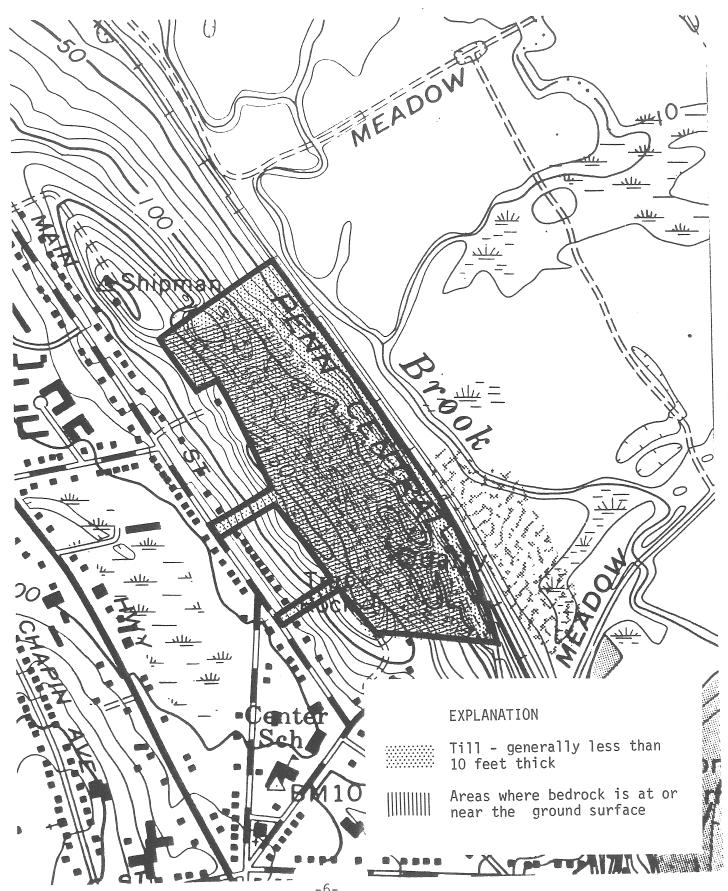
GEOLOGY

As previously noted, the proposed residential development site is located in an area that is encompassed by the Hartford (South) topographic quadrangle. The surficial geologic map for quadrangle, mapped by R. E. Deane is published in Quadrangle Report #20, published by the Connecticut Geological and Natural History Survey. The bedrock geologic map of the quadrangle has not been completed to date, however, there is preliminary information on file, which is available for review purposes at the Department of Environmental Protection, Natural Resource Center. For the purpose of this report, the Team's geologist also referred to John Rodger's "Preliminary Bedrock Geological Map of Connecticut."

The bedrock underlying or cropping out on the "Ridgeview" site is primarily composed of Hampden Basalt, which consists of a fine-grained dark gray, brown weathering volcanic (igneous) rock, rich in iron and magnesium-bearing minerals, as well as calcic plagioclase. "Basalt" is commonly referred to as "trap rock." When freshly exposed, basalt is commonly dark gray, however, when subjected to weathering processes, its surface turns a reddish brown. This is caused mainly by the iron and magnesium minerals contained in the rock. Because of its resistence to weathering and toughness, traprock is an excellent material for

Surficial Geology





several types of construction. After the rock is quarried and processed, it is used for building roads, stabilizing streambeds (riprap) and steep slopes. Also, it can be crushed and mixed with sand for use in concrete.

Bedrock underlying or cropping out on the portion of the property which extends to Old Main Street (in the western limits) are sedimentary rocks (rocks formed by sediments near the earth's surface, generally in layers). These rocks consist of thinly bedded, medium gray to reddish-brown arkosic (feldspar-rich) silty shales (East Berlin Formation). This rock unit is more easily eroded than the basalt rock.

Except for where bedrock is exposed, the site is covered by a thin blanket of a non-sorted glacial sediment referred to as till. Till, which was deposited directly from the glacial ice, contains a variable mixture of clay, silt, sand, gravel and boulders. The texture of till may be sandy and loose, silty and compact, stony, non-stony or otherwise. It also varies from place to place. Typically, the upper three to five feet of a till deposit will be sandy, stony and loose. However, at depth of five feet or more and occasionally at shallower depths, the loose till may give way to a more compact, slightly finer grained till. Thickness of the till to bedrock is probably no greater than 10 feet throughout the site.

Along the bottom of the rock scarp that forms the western boundary is another type of surficial (overlying bedrock) deposit referred to as "talus." The term "talus" refers to rock blocks that have fallen from the scarp mainly because of weathering and the force of gravity.

Based on visual inspection of the property, there appear to be some seasonally wet areas, which formed in topographic low-depressions or along intermittent drainage channels mainly as a result of the former quarrying operation. These areas consist of sediments composed of decayed vegetative material, intermixed with layers of sand, silt and clay.

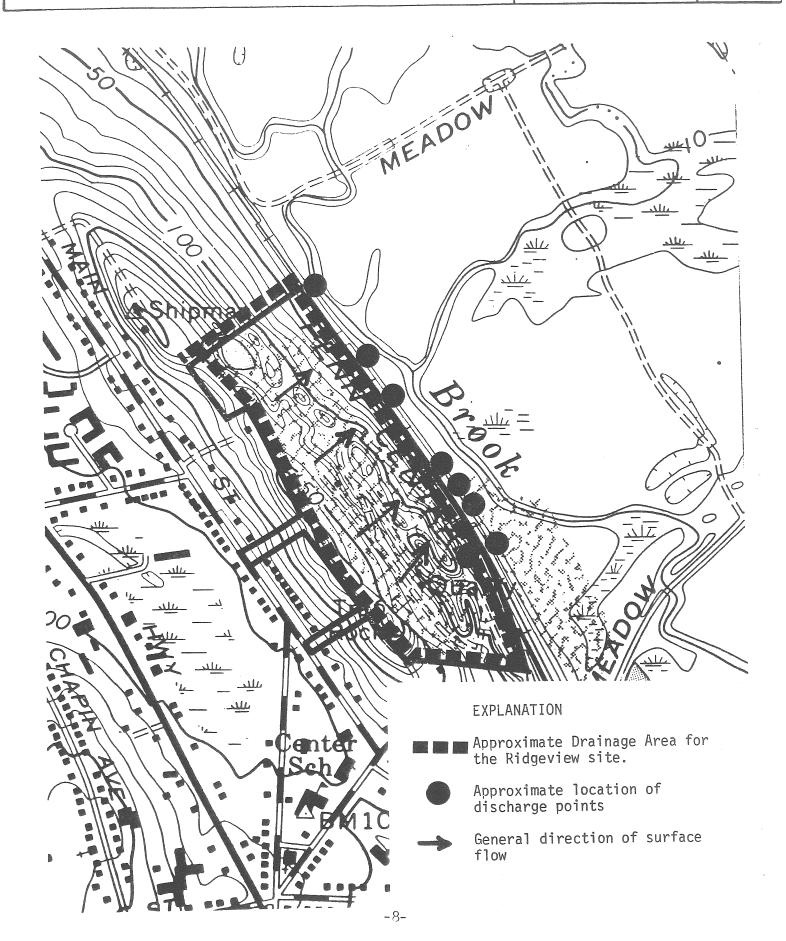
Although the proposed residential development will be served by public sewers and water supply, which eliminates the need for on-site septic systems and wells, there are some limiting geologic factors on the property that may pose problems in developing the site. The major limiting geologic factors on the site, which will need to be addressed in detail by the applicant(s) include: (1) presence of the steep scarp along western limits, which lends itself to being a potential hazard for residents of the development, especially adventurous children (e.g., injuries resulting from falls off the high cliffs); (2) the shallow to bedrock conditions throughout much of the property; (3) the rugged topography in the area of the former quarrying operation which will require substantial regrading; and (4) the presence of moderate to steep slopes throughout the site. While these geologic characteristics do represent limitations for development of the site, they are not viewed as significant enough to preclude development of the site. With very careful planning, good engineering practices and proper implementation of the proposal it seems likely that these limitations could be overcome.

In regard to the steep scarps, it is recommended that the project engineer/architect address this potential hazard in detail so that it does not become an "attractive nuisance" to residents, particularly children of the proposed development. Consideration might be given in advance to control access to this portion of the property (e.g., establishment of a homeowner's association). In addition,

Drainage Areas







it may be necessary to regrade or modify the steep scarps to some degree in order to successfully address this issue. Protective fencing along the top may also be a consideration in this regard. Designating this area as open space (i.e., passive recreation) should probably be avoided unless it can be successfully addressed.

Because bedrock is exposed at or near ground surface throughout much of the parcel, it certainly appears that blasting will be necessary whether for the construction of roads, building foundations or for the creation of trenches for public water and sewer lines. If blasting is required, it is recommended that it be carefully evaluated and planned. All necessary precautions should be taken to insure that no structural damage occurs to neighboring homes. It is presumed most residences in the vicinity of the proposed development are served by a public water line although this is not known for certain. If there are any drilled wells that tap the underlying bedrock in the area, there is a possibility that blasting could have an impact (e.g., experience changes in yields) on local wells. For this reason, it should be determined if there are any such wells in the immediate area and, if so, evaluate any potential risks to them.

In moderate to steeply sloping areas, conditions may become hazardous for heavy equipment and will probably require considerable regrading. Also, because the potential for serious erosion problems are high in these areas, particularly if blasting is required, it is recommended that a comprehensive erosion and sediment control plan be formulated and followed closely with implementation of the project.

Buildings should be conservatively setback and protected from the steep scarps and/or talus slopes, since falling rocks in this area could be a potential problem.

HYDROLOGY

The "Ridgeview" site lies entirely within the watershed of Goff Brook. Goff Brook, which lies east of the property, flows in a southeast direction enroute to the Connecticut River. Surface water and to a large extent, groundwater on the site, is shed eastward, mainly by sheetflow toward local discharge areas (i.e., toward intermittent stream channels), and ultimately discharged into the drainage system on the west side of the railroad bed. From this drainage system, which runs parallel to the railroad grade, water is routed via cast iron pipes passing under the railroad bed toward Goff Brook. Several cast iron pipes, which pass under the railroad bed, are visible along the eastern property line. The major watercourse on the site appears to be the outlet stream for a small pond in the southern part of the property. In addition to this small pond, there are two other surface water bodies in the northern part of the site. According to the developer, the latter two ponds (in the northern section) are proposed to be filled. All three ponds appear to have been created by the former quarrying operation. Detailed plans for the proposed pond filling should be submitted to the Town for review purposes and all necessary permits, i.e., town, state, etc., secured prior to any fillings and modifications.

Development of the site as planned can be expected to increase the amount of runoff from the site for a given rainfall, which in turn may potentially

increase the peak flows to streams and/or intermittent streams on the parcel. The potential increases in runoff will result mostly from the creation of the impervious surfaces (i.e., roof tops, driveways, access roads, parking areas, etc.) that will be placed on the property. Because of the size of the proposed development and expected runoff increases, it is recommended the applicant be required to submit detailed hydrological information prior to approval of the proposed residential development. This information should include pre- and post-development runoff from the site. All estimates should be provided for a 10, 25, 50 and 100 year design.

Based on preliminary hydraulic computations and the site plan provided by the developer, runoff would be artificially collected and discharged. Stormwater detention basin(s) are proposed to be located just west and parallel to the railroad right-of-way. Several cast iron pipes, mentioned earlier will be the outlets for the basin. The purpose of the basin(s) is to control runoff from the site so that off-site flows following the development be maintained at present levels. Detailed design specifications for all stormwater detention basins should be submitted and reviewed by the appropriate town official. In addition, it is recommended the applicant's engineer closely examine the outlet pipes (existing cast iron) for the detention basin, which passes under the railroad bed, in order to determine the effects of the proposed development on them and whether or not flooding may occur in these areas. The proposed detention basins may also serve a sediment retention function. If sediment does accumulate in the basin or basins, it will have to be removed periodically in order to assure that the runoff capacity of the pond or ponds is not seriously diminished.

The proposed project is to be serviced by public sewers. As a result, this should effectively eliminate the risk of substantial groundwater contamination.

The Town has expressed some concern in regard to the possibility of landfill decomposition gas migration from the former Caruso landfill, east of the parcel. A site plan for the landfill, which is on file at the Department of Environmental Protection's Solid Waste Unit, calls for the construction of a drainage system along the eastside of the railroad grade. According to the plan, refuse in the areas of the proposed drainage system would be removed and backfilled with granular material. In addition, existing refuse material west of the drainage pipe would be removed. Based on information supplied to the Team by representatives from the Solid Waste Unit, this drainage system was constructed and installed as planned. The drainage system should act as a vent, which allows the gas to exit east of the railroad track rather than migrating westward towards the subject parcel. As a result, the possibility of gas migration towards the site would seem unlikely.

FLOODPRONE AREAS

A Flood Insurance Rate Map for Rocky Hill has been prepared by the Federal Emergency Management Agency/Federal Insurance Administration. This study includes maps which identify areas throughout the Town that are subject to flooding during the 100 and 500 year storms. A '100' year flood is a flood within one chance in 100 or 1% chance that it will happen in any year. A '500' year flood would have a one chance in 500 or 0.2% chance of occurring in any given year. It should

be pointed out that this does not mean a flood of the magnitude mentioned will occur only once in a 100 or 500 year period. The probability of occurrence remains the same each year regardless of what happened the year before.

Based on the map, only the '500' year flood boundary infringe on the property. This boundary, which consists of a ± 50 foot band lies principally along the west side of the railroad bed on the northern end of the site. According to the map, the '100' year boundary lies east of the railroad grade and does not encroach the subject parcel.

SOILS

A detailed soils map of this site and detailed soils descriptions are included in this section of this report. The soil boundary lines should not be viewed as absolute boundaries, but as guidelines to the distribution of soil types on the site. The soil development limitations are also discussed. However, limitations, even though severe, do not preclude the use of the land for development. If economics permit large expenditures for land development and the intended objective is consistent with the objectives of local and regional development, many soils and sites with difficult problems can be used. The soils map, with the publication, Hartford County Soil Survey Report, can aid in the identification and interpretation of soils and their uses on this site. "Know Your Land: Natural Soil Groups for Connecticut" can also give insight to the development potentials of the soils and their relationship to the surficial geology of the site.

Soils typical of this site include the Broadbrook series and the Holyoke Series. These soil types are described in detail below.

BrD - Broadbrook silt loam, 15 to 25 percent slopes.

This moderately steep, deep, well drained soil is on glacial till uplands. Typically, the soil has a dark brown silt loam surface, a dark yellowish brown fine sandy loam subsoil and a firm dense sandy loam substratum at a depth ranging from 1.5 to 2.5 feet. This layer restricts downward movement of water and causes a perched water table to occur. Steep slopes of excavations slump when saturated. Depth to bedrock is usually greater than 5 feet.

HyC - Holyoke very rocky loam, 3 to 15 percent slopes.

This unit is a complex of gently sloping, and sloping somewhat excessively drained soils and areas of exposed bedrock. The complex is on uplands where the relief is affected by the underlying bedrock. This complex is about 50 percent Holyoke soils, 30 percent rock outcrop, and 20 percent other soils. Included in mapping are areas of deep well drained soils. The main limitation is the shallowness to bedrock. Excavation is difficult, and blasting is required in most places.

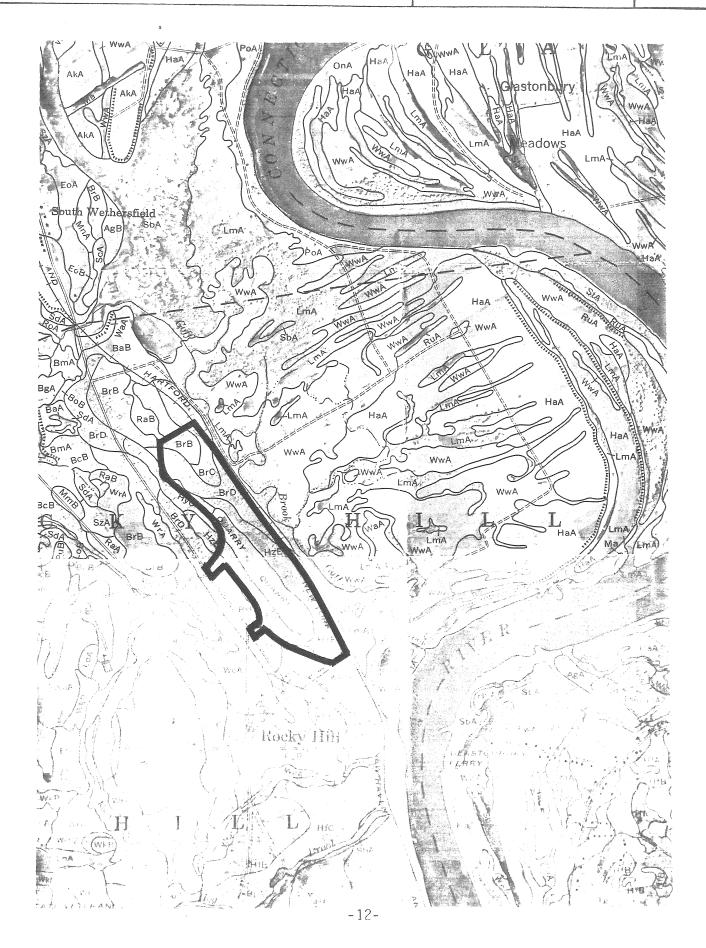
HzE - Holyoke very rocky loam, 15 to 35 percent slopes.

This complex consists of moderately steep to steep, somewhat excessively drained soils and areas of exposed bedrock. This complex is about 50 percent Holyoke soil, 30 percent rock outcrop, and 20 percent other soils. Included

Soils







in mapping are areas of deep soils, and areas with steeper slopes. The main limitations are slope and shallowness to bedrock.

Large areas of the site have been disturbed, so more detailed soils information may be needed. The <u>Hartford County Soil Survey</u> should not be used as a substitute for an on-site soils investigation.

The following additional information is needed on the final plans.

- 1. Detailed soils information should be delineated on the plans, including soil types, depth to bedrock, and exposed ledge and bedrock areas.
- 2. Existing topography beyond the property lines should be shown. This is especially important for the steep slope areas at the southwest side of the property and the land beyond the railroad tracks where stormwater outlets are proposed.
- 3. The railroad bordering the northeast side of the property should be shown.
- 4. Phase lines should be on grading and utility plans.
- 5. All sedimentation and erosion control measures should be delineated on the plans.
- 6. A detailed hydrologic study is needed to include watershed delineation and existing and future stormwater flows for 2, 10, 25, and 50 year storm flows. The detention facility should be designed for 100 year stormwater flows, and intake/outflow calculations should be provided.
- 7. Details are needed for all stormwater discharge areas.
- 8. Topsoil stockpile areas should be indicated on the plans.

The soils on this site present severe economic limitations for development. The majority of the site is either shallow Holyoke very rocky loam or exposed bedrock from the previous quarry operations. If topsoil is placed on steep slopes over bedrock, there is a good possibility downhill slippage of the topsoil will occur; especially during the wet seasons. Considerable blasting and land disturbance will be necessary to establish final proposed contours. Little topsoil is present on site, which will necessitate trucking in topsoil from another area. It was mentioned that the topsoil may be excavated from the floodplain area east of the site. An additional plan is needed to address regrading and revegetating this area.

The plans for this project propose three phases of construction. Each phase should be considered as a separate project. All stormwater management and erosion and sedimentation control systems should be completed and functioning before the start of the next phase. This will provide effective control of potential runoff and sediment damages.

All roadbanks and other steep slopes should be vegetated as soon as possible. Erosion control netting and mulch applied with tacking compounds will be needed. Slopes steeper than 2:1 will be very difficult to stabilize and vegetate. Grass

alone will not be sufficient; shrubs and trees specialized for erosion control will be needed. Some suggestions are: bristly locust, crownvetch, flatpea, birdsfoot trefoil, small-leaved cotoneaster, deertongue, blue rug juniper, emerald seashore juniper, fragrant sumac and sweetfern. For additional information on seed mixes, contact the Hartford County Soil and Water Conservation District Office.

Special attention should be given to the talus slopes and outcrop areas at the western edge of the site. Provisions should be made to prevent this material from falling into the building areas. Where slopes are very steep near the buildings, additional retaining walls are suggested.

Sediment basins should be constructed to keep sediment on site. These basins should be the first structures built on the site.

Grading behind the west side of the proposed buildings indicates low areas where runoff could collect. A more desirable layout would be to: (1) install lawn inlets at the low areas, or (2) create a swale system which would direct the runoff around either end of the buildings.

The three existing culverts at the northeast side of the property should be replaced or eliminated according to drainage study findings. Field inspection indicated them to be deteriorated and/or filled with sediment and functioning below capacity.

The landfill area east of the railroad tracks should be avoided entirely with respect to drainage facilities and all other utilities for the development.

Some suggested alternatives to consider would be:

- 1. Plan a less intensive building development which would avoid critical slope and bedrock areas.
- 2. Rather than have a detention area in three sections as shown, one large pond would be more feasible. The pond could be designed to support a fish population. It should be at least siven feet deep over 40 percent of its area. Side slopes should not be steeper than 3:1, and should be vegetated with 25 lbs/acre Kentucky 31 tall fescue, 25 lbs/acre creeping red fescue. Two tons/acre of lime should be applied before seeding. Five hundred lbs/acre 10-10-10 fertilizer should be applied with the grass seed.

A safe type of emergency spillway system will need to be designed and detailed plans for the detention area and outlet pipe system will be needed. Energy dissipators and a riprap channel will be necessary for the outlets to the floodplain area.

The Connecticut Erosion and Sediment Control Handbook should be used to develop final plans for the project.

PLANNING CONCERNS

The proposed residential development known as Ridgeview, Phases I and II will consit of 360 apartments. Based on trip generation studies from around the country (1), a development of this type and size can be expected to generate between 1800 and 3300 vehicle trips per day, averaging 2400 vehicle trips per day. (A typical journey from home to work to home is considered to be two trips.)

Of the 2400 trips generated each weekday, about 250 of those trips can be expected to be made during the afternoon peak hour, the highest hour of the day. Approximately two-thirds of these trips will enter Ridgeview and about one-third will exit.

Access to the site will be provided by two drives onto Old Main Street. The northern drive, Granite Street, will intersect Old Main Street opposite Marshall Road. The southern drive, Quarry Road, will intersect Old Main Street approximately 200 feet south of Parsonage Street. Due to the internal configuration of the access drives, about 60% of the site generated traffic will enter or exit via Granite Street and the remaining 40% will gain access via Quarry Road.

Using the 1980 Census Journey-to-Work information now available, about 70% of the traffic generated by the proposed development is expected to be oriented toward the north, 15% toward the west, and 15% toward the south. Using these orientations, the 2400 trips are expected to affect the surrounding local streets as shown in Table 1. Although a large percentage increase in traffic can be expected on some streets, none of these streets would suffer from an unsatisfactory level of service.

TABLE 1

STREET SEGMENT	EXISTING ADT [YR.]	SITE GENERATED TRAFFIC	INCREASE	SOURCE
Old Main Street Between Marshall & Parsonage	.3000 ('83) 430	14%	1
Old Main betw. Quarry Rd. & Church St.	3250 ('83	710	22%	1
Marshall Rd. betw. Rte. 99 & Robbins La.	1350 ('80) 1010	75%	2
Marshall Rd. betw. Robbins & Old Main St.	800 ('80) 1010	126%	2
Parsonage St. betw. Rte. 99 & Old Main St.	1900 ('80) 670	35%	2
Church Street	2000 ('80) 710	36%	2
Rte. 99 vic. of Marshall Rd.	20,200 ('83) 1680	8%	1

Sources:

1. Supplied by Thomas Hooper, Town Planner

^{2.} C. E. Maguire, Inc., <u>Traffic Study for Ridgeview-Rocky Hill, Connecticut</u>, July, 1980.

Based on turning movement counts taken in 1980 (2), all of the intersections in the vicinity should continue to function well, at or above levels-of-service normally accepted for design purposes for planned Phases I and II.

REFERENCES

- (1) Institute of Transportation Engineers, <u>Trip Generation-Third Edition</u>, Washington, D.C., 1983.
- (2) C. E. Maguire, Inc., <u>Traffic Study for Ridgeview-Rocky Hill, Connecticut</u>, July, 1980.

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.