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Environmental Review Team Report

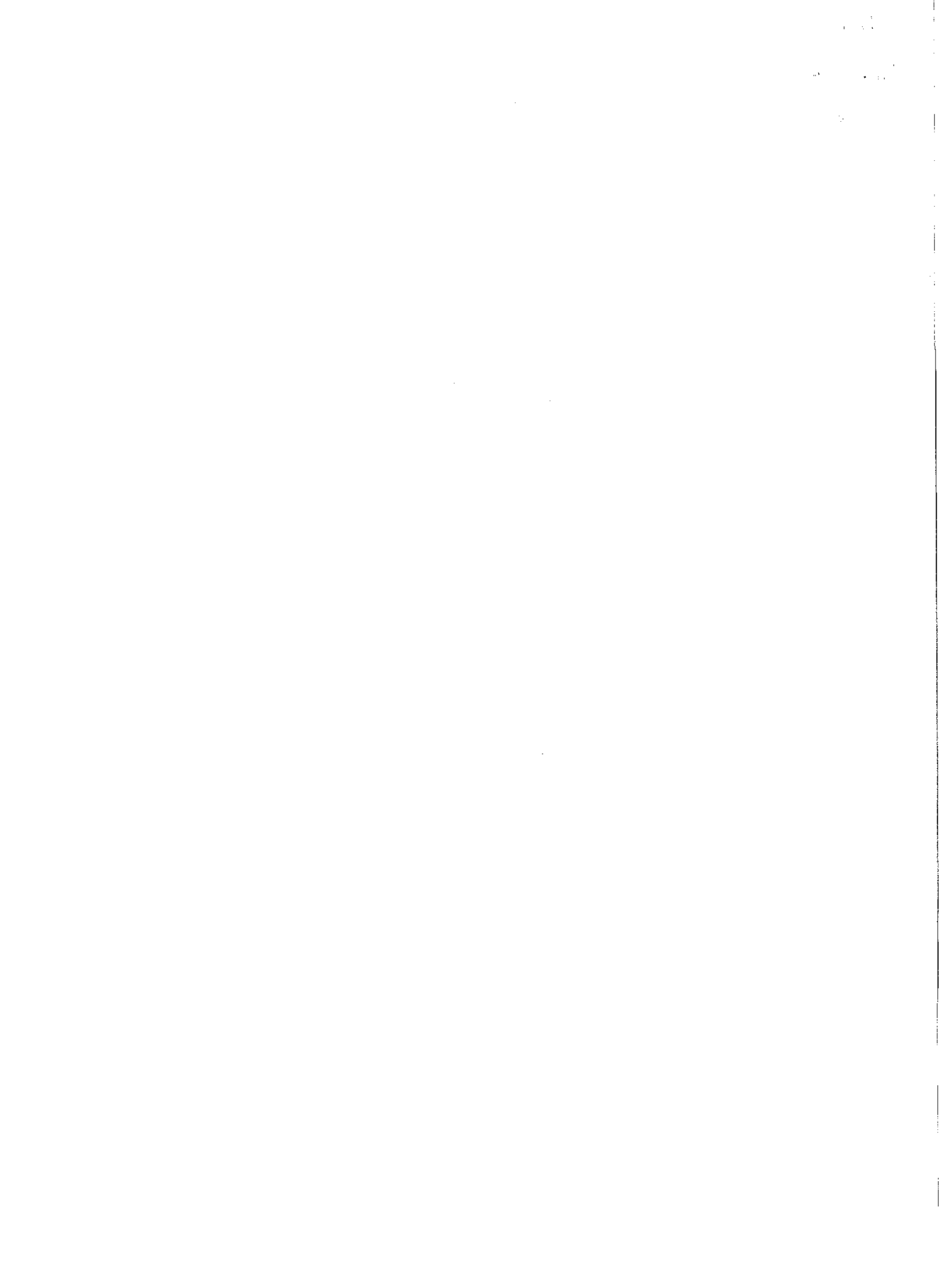
Haftel Gravel Excavation

Cromwell, Connecticut



RC & D

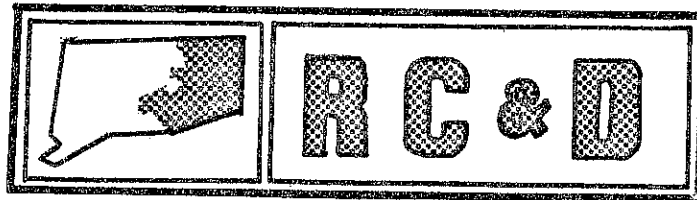
EASTERN CONNECTICUT RESOURCE CONSERVATION AND DEVELOPMENT AREA, INC.



Environmental Review Team
Report
on

Haftel Gravel Excavation
Cromwell, Connecticut

December 1978



eastern connecticut resource conservation & development area
environmental review team
139 boswell avenue
norwich, connecticut 06360

ENVIRONMENTAL REVIEW TEAM REPORT
ON
HAFTTEL GRAVEL EXCAVATION
CROMWELL, CONNECTICUT

This report is an outgrowth of a request from the Cromwell Planning and Zoning Commission 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 for the RC&D Executive Committee by David Syme, Committee President, and the measure was reviewed by the Eastern Connecticut Environmental Review Team (ERT).

The soils of the site were mapped by a soil scientist from the United States Department of Agriculture, Soil Conservation Service (SCS). Reproductions of the soil survey map, a table of soils limitations for certain land uses and a topographic map showing property boundaries were distributed to all Team members prior to their review of the site.

The ERT that field-checked the site consisted of the following personnel: Barry Cavanna, District Conservationist, Soil Conservation Service (SCS); Joe Neafsey, Soil Conservationist (SCS); Mike Zizka, Geologist, Connecticut Department of Environmental Protection (DEP); Gerhard Amt, Regional Planner, Southeastern Connecticut Regional Planning Agency; and Jeanne Shelburn, ERT Coordinator, Eastern Connecticut RC&D Area.

The Team met and field checked the site on Thursday, October 12, 1978. Reports from each contributing 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 Cromwell. 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.

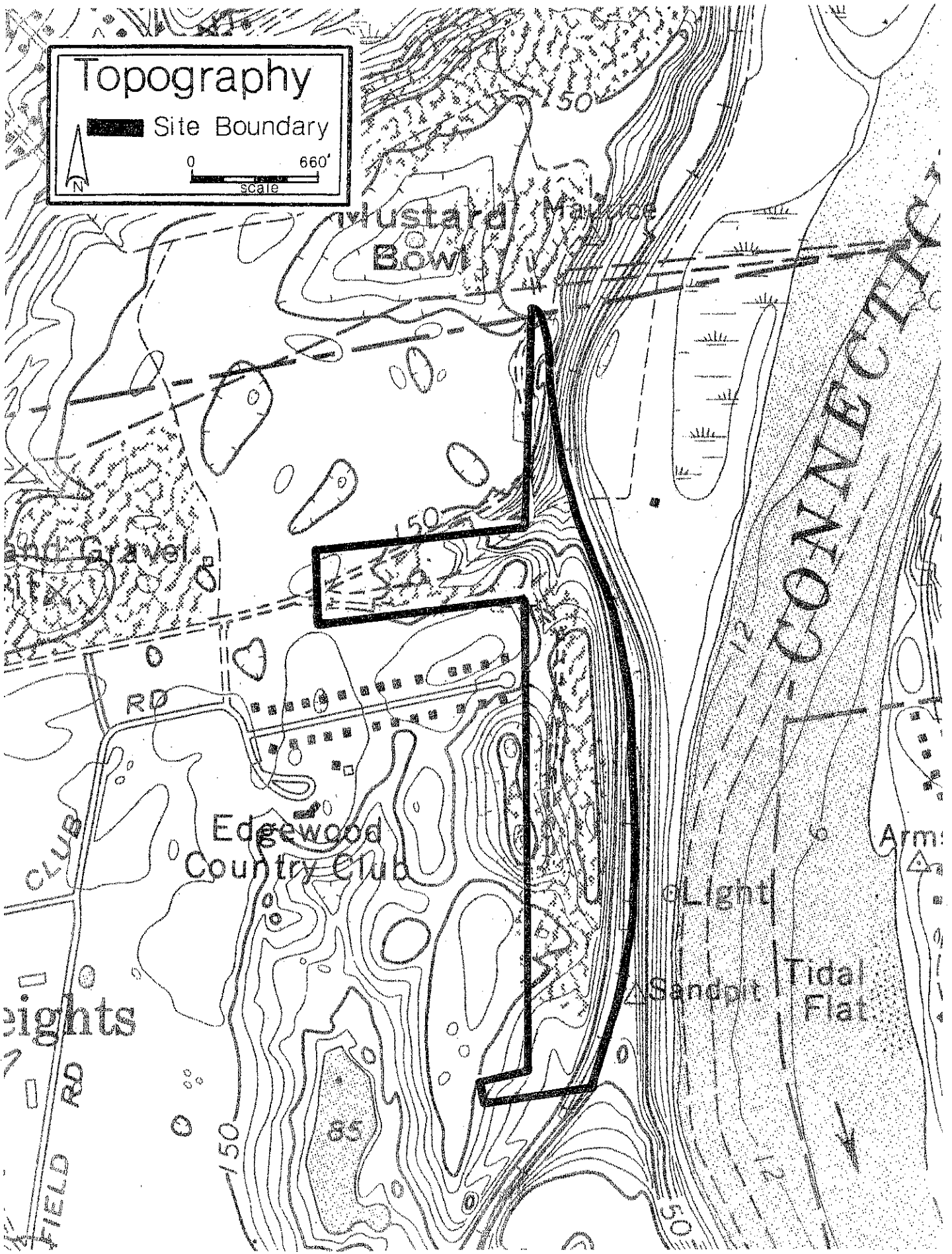
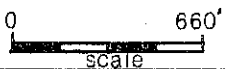
The Eastern Connecticut RC&D Area Committee hopes that this report will be of value and assistance in making any decisions regarding this particular site.

If you require any additional information, please contact: Ms. Jeanne Shelburn, Environmental Review Team Coordinator, Eastern Connecticut RC&D Area, 139 Boswell Avenue, Norwich, Connecticut 06360, 889-2324.

Topography



Site Boundary



INTRODUCTION

The Eastern Connecticut Environmental Review Team was asked to review the Haftel Gravel Excavation operation in Cromwell for environmental impact on the actual site and on adjacent areas including the Connecticut River, the Cromwell water supply wells, and a residential subdivision. Suggestions were also requested for potential land uses for the site when gravel extraction is terminated.

The site is approximately 52 acres in size and has been used for gravel excavation for the past ten years. As the gravel deposits are extensive, extraction will most likely continue for ten to twenty years in the future. Currently, very little of the site is vegetated; steep slopes and oiled roadways are visible as well as excessively eroded areas. The excavation is presently terraced to the level of the railroad right-of-way.

Generally, the continuation of the activity, in accordance with the zoning regulations and the grading plan presented, should have little adverse impact on adjacent uses and the environment. As the operation continues the three major concerns should be 1) control of runoff and related erosion and sedimentation, 2) measures that can be taken to minimize adverse impacts on adjacent properties and uses, and 3) how the property should be left when the excavation activity is completed in order to assure a viable reuse.

The Team has determined that the present excavation operation should have little or no detrimental effect on the ground water quality of the area. If, however, future land use of the site includes housing or some other use requiring on-site septic disposal, problems in water quality may arise due to the extremely rapid percolation rate of the soils on this parcel, which would reduce the effectiveness of effluent renovation. Temporary vegetative cover should be considered for the slopes on the property as erosion appears to be a considerable problem. Future potential land uses for this site include apartments or industrial use with extension of city sewers, or agricultural or recreational use with the proper site preparation.

SURFICIAL GEOLOGY

The term "surficial geology" refers to those earth materials that overlie solid bedrock but underlie the active soil zone. Surficial materials in the Haftel gravel pit and surrounding areas are included in Connecticut Geological and Natural History Survey Quadrangle Report No. 20, entitled The Surficial Geology of the Hartford South Quadrangle, by R.E. Deane (1967).

The Haftel property is part of an extensive sequence of glacial meltwater deposits that flank Connecticut River. Most of the sediments in the gravel pit itself were deposited by meltwater in contact with glacier ice. Many of the steep-sided, enclosed basins in the vicinity, such as that located west of the pit and east of the Edgewood golf course, were left when partly or wholly buried ice blocks wasted away. Such basins are known as kettles. Changes in the rate of melting of the glacier and positional shifts of the temporary glacial streams led to abrupt changes in the grain size of the material being deposited; hence, layers of sand commonly alternate with layers or lenses of gravel. Most of the deposit, however, is composed of sand. The log of a test hole drilled in the kettle west of the Haftel pit indicates that the surficial materials extend to an approximate depth of 30 feet

below sea level (source: Conn. Water Resources Bulletin No. 25). The water level in the test hole at the time of drilling was approximately 35 feet above sea level.

HYDROLOGY

Groundwater flow underneath the property is directed primarily due east toward Connecticut River. Surface runoff follows localized variations in topography, but much of this runoff probably is absorbed into the sand and gravel and transmitted to the groundwater.

The present plans call for excavation of the surficial deposits down to the elevation of the railroad bed that adjoins the pit to the east. That elevation is approximately 75 feet above sea level. Hence, the floor of the excavation should be about 40 feet higher than the groundwater level (see section on Surficial Geology).

No detrimental effects on groundwater quality seem likely in view of the nature of the operation and the substantial thickness of sediment that would remain above the groundwater table. Harmful effects would be likely only in the event of an industrial accident, such as the spillage of fuel from excavation machinery or storage tanks, or in the event of future development of the property. No measurable impact on groundwater availability is anticipated.

SOILS

A detailed soils map of this site is included in the Appendix to this report, accompanied by a chart which indicates soil limitations for various urban uses. As the soil map is an enlargement from the original 1,320 feet/inch scale to 660 feet/inch, 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 limitation chart indicates the probable limitations for each of the soils for on-site sewerage, buildings with basements, buildings without basements, streets and parking, and landscaping. 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 Special Soils Report, Connecticut River Estuary Planning Region, 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 the Haftel Gravel Pit site include the Hinckley-Manchester series, the Manshester series, and gravel deposits. These soils limit development because of their droughtiness and slope.

The Hinckley-Manchester series occur above floodplains in river and stream valleys. They consist of sandy and gravelly material on slopes steeper than 15%, and occur mainly on terrace breaks along drainage slopes. They have a low moisture-holding capacity and low natural fertility.

The Manchester series (62C) soils occur above floodplains in river and stream valleys. Water-deposited beds of sands and gravels are less than 20 inches below

the soil surface. Permeability is rapid. The shallowness to sand or gravel severely limits their water-holding capacity. Natural fertility is low.

Runoff generated on the site presently flows toward a low point on the southeastern corner of the pit. Some of the sediments are trapped at this point. A considerable amount of runoff then flows toward the north, parallel to the railroad right of way. Significant transport of sediment and erosion in this area was evident. Efforts to control runoff and sediment from this site should begin as soon as possible, with construction of a sediment basin and stormwater detention pond. Maintenance of this structure should continue while the pit is active and until the area is stabilized.

Most of the site has been disturbed and areas not being actively mined will be eventually utilized so that establishing a permanent cover is not appropriate. A temporary vegetative cover would reduce maintenance of the sediment basin. (See Appendix).

As final grades are reached, affected areas should be topsoiled, limed, and fertilized to soil-test recommendations. Vegetation should be established that provides good cover and has wildlife values. On steeper slopes, plant materials with erosion-control properties are desirable. A program of tree and wildlife shrub planting should begin after the area is stabilized. This type of revegetation program would add value to the land for wildlife, recreation or other uses.

GRADED CONDITIONS

The present grading plan should prevent runoff from doing any off-site damage. The existence of the 200-foot-wide railroad right-of-way along the eastern edge of the site provides a substantial buffer between the excavation activity and the river. As long as the finish grade of the excavation is below the track level, the right-of-way should act as a dyke to contain sediments on the site.

Slopes should be cut at their final grade. For example, if the plan calls for three to one slopes, excavation should be done on a three to one slope, rather than using a steeper undercut. This eliminates the need for regrading and the need for hauling material to rebuild the slope, a technique which in many cases will not work.

Because of the fineness of some of the layers of earth material on the site, there will be considerable on-site erosion as long as the excavation operation continues. This cannot be eliminated, but can be controlled to some extent by limiting the area of active excavation at any given time and avoiding steep, unvegetated slopes in inactive areas.

PLANNING CONSIDERATIONS

Presently there is not a great deal of intensive development nearby to be disturbed by this activity. Adverse impacts on the Ridge Road residences can be minimized by maintaining the vegetated buffer along the edge of the excavation. A raised lip along the top edge of the final slope in the area of the subdivision could help to deflect noise and would help to prevent Ridge Road runoff from causing excessive erosion in the buffer area and on the excavated slope.

Access to the excavation is over an unpaved road which, if not treated regularly to control dust, could be a nuisance for Ridge Road residents. The access road itself, however, is entirely within the IP (Industrial Park) zone, which does not permit residences and which fortunately does not have any at present. The truck traffic generated by the excavation should not be a problem to prospective uses in the IP zone.

The heavy vegetative cover in the buffer strip between the excavation and the golf course should also be maintained to reduce adverse impacts between these two incompatible uses.

POSSIBLE FUTURE USES FOR THE SITE

The possible future uses of the excavation site are numerous. At present the area is zoned A-25, which is primarily a residential district. Lot sizes range from a minimum of 25,000 square feet where sewers are available to 43,560 square feet where sewage disposal is provided on-lot. Both public sewers and public water are available in the general area and conceivably could be extended to the site.

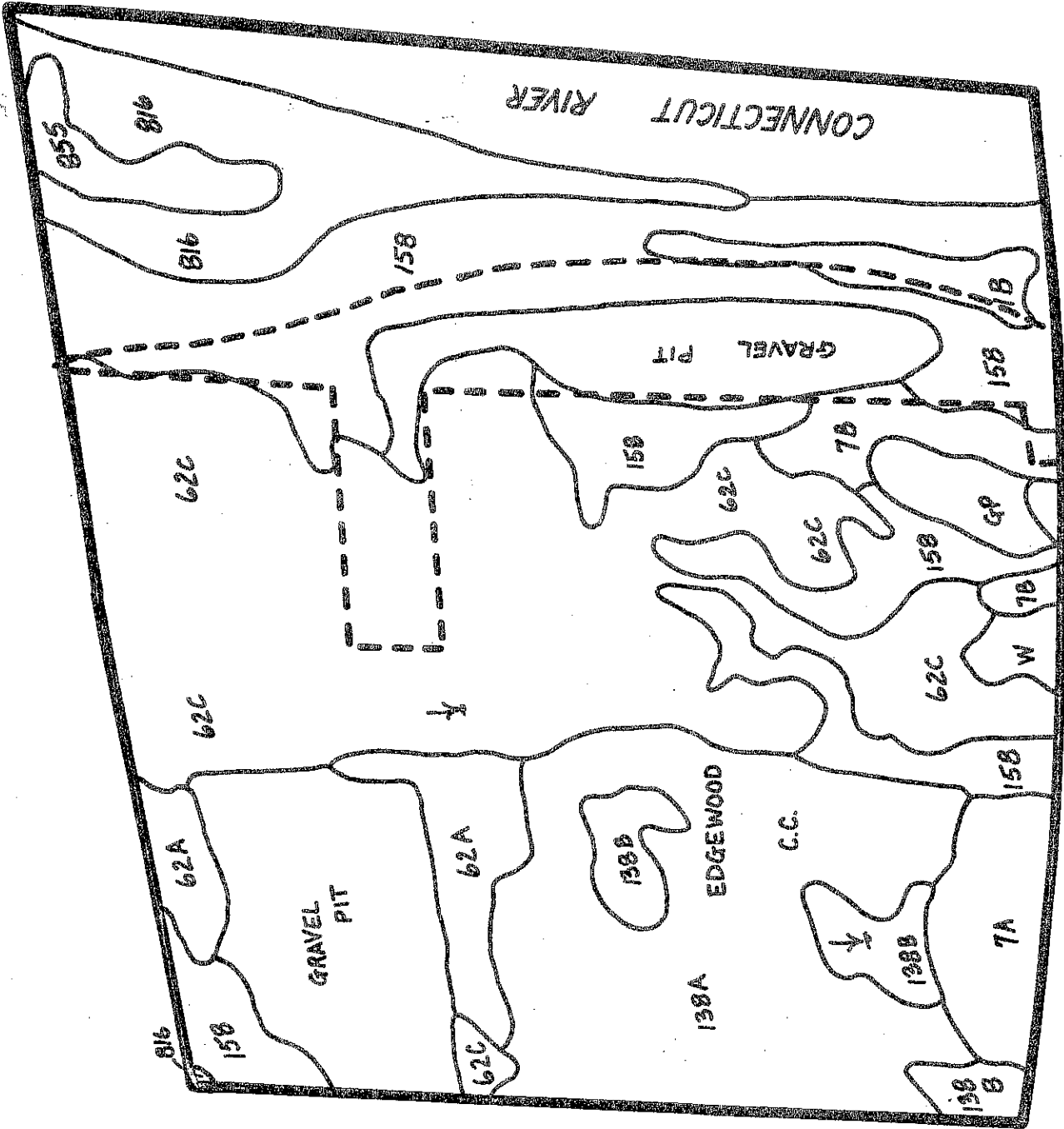
It is difficult to speculate what the permitted uses under zoning in this area will be 10 to 20 years hence, but it is likely that uses at least as intense as those presently permitted will be acceptable. This site would be especially suitable for apartments, taking advantage of the excellent access afforded by nearby Route 99 to the urban centers of Middletown and Hartford, the nearby country club, and the rare and very beautiful view from the bluff overlooking the Connecticut River and the hills beyond to the east.

Depending on the extent of development that occurs in the adjoining I-P zone, the site could also serve to enlarge the area for industrial development. Its secluded location makes it attractive for uses that might be considered objectionable in a more developed or exposed area. It should be kept in mind, however, that the present access to the site will be substantially steeper once the excavation work has been completed. This could be a problem for industrial traffic. On the other hand, the railroad right-of-way could be converted to a level access road linking the site to Field Road about 3,500 feet south of the site.

The site has potential for agricultural and recreational uses as well, if properly limed and fertilized after final grading. Assistance for this process can be obtained from the Soil Conservation Service field office in Haddam.

Appendix

Soils
 HAFTEL GRAVEL EXCAVATION
 CROMWELL, CONNECTICUT



This map is an enlargement from the original 1,320'/inch scale to 660'/inch.

--- property boundary

Information taken from: Special Soils Report, Middlesex County, Connecticut, 1974; Soil Survey Sheet No. 3685, 3687, United States Department of Agriculture, Soil Conservation Service. Advance copy, subject to change.

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.

HAFTEL GRAVEL PIT
CROMWELL, CONNECTICUT

PROPORTIONAL EXTENT OF SOILS AND THEIR LIMITATIONS FOR CERTAIN LAND USES

Soil Series	Soil Symbol	Approx. Acres	Principal Limiting Factor	Urban Use Limitations*			
				On-Site Sewage	Buildings with Basements	Streets & Parking	Land-Scaping
Penwood	1B	9	Droughtiness	1	1	1	1
Hartford	7A	10	Droughtiness	1	1	1	2
Hartford	7B	9	Droughtiness	1	1	1	2
Manchester	62A	17	Droughtiness	1	1	1	1
Manchester	62C	98	Droughtiness, Slope	2	2	3	3
Branford	138A	51	Droughtiness	1	1	2	2
Branford	138B	11	Droughtiness, Slope	1	1	2	2
Hinckley-Manchester	158	64	Slope	3	3	3	3
Podunk	816	25	Flood Hazard	3	3	3	3
Rumney	855	7	High Water Table, Flooding	3	3	3	3
Gravel Pit	GP	103		Limitations Determined on Site			

Limitations: 1 = slight, 2 = moderate, 3 = severe.

GUIDELINES FOR REVEGETATING SURFACE DISTURBED LAND *

TEMPORARY VEGETATIVE COVER

Definition

Stabilize potential sediment producing areas and severely eroded areas by establishing temporary annual grasses or small grains.

Purpose

To provide short-term rapid vegetative cover for the control of soil erosion and reduce sediment damages, protect environmental quality, and improve the appearance of the landscape until permanent vegetation or other stabilization practices can be established.

Conditions Where Measure Applies

On all unprotected areas that produce sediment, areas where final grading has not been completed, and the estimated period of exposure less than 12 months. Examples are construction sites, actively eroding areas within urban and industrial areas, topsoil stock piles, and certain cut and fill slopes.

Application and Materials

1. Site Preparation --
 - a. Install needed surface water control measures such as diversions, berms, and waterways.
 - b. Remove loose rock, stone, and construction debris from area to be seeded.
 - c. Apply lime according to soil test or at a rate of one ton of ground dolomitic limestone per acre (50 lbs. per 100 square feet).
 - d. Apply fertilizer according to soil test or at the rate of 300 lbs. of 10-10-10 per acre (7 lbs. per 1,000 square feet) and second application at 200 lbs. of 10-10-10 (5 lbs. per 1,000 square feet) when grass is four to six inches high. Apply only when grass is dry.
 - e. Unless hydroseeded, work in lime and fertilizer to a depth of four inches using a disk or any suitable equipment.
 - f. Tillage should achieve a reasonably uniform, loose seedbed, work on contour if site is sloping.

* Reprinted from:
Erosion and Sediment Control Handbook Connecticut, USDA-SCS
Revised 1976

2. Establishment --

- a. Select adapted species from following table. Note rates and seeding dates.
- b. Apply seed uniformly according to the rate indicated in the table by broadcasting, drilling, or hydraulic application.
- c. Unless hydroseeded, cover ryegrass seeds with not more than 1/4 inch of soil with suitable equipment. Cover sudangrass and small grains with 1/2 inch of soil.
- d. Mulch will be applied immediately after seeding on unfavorable soil sites. Refer to the mulch measures.

Seedings For Temporary Cover

<u>Species</u>	<u>Seeding Rates in lbs.</u>		<u>Recommended Seeding Dates</u>
	<u>1000 Sq. Ft.</u>	<u>Acre</u>	
Annual Ryegrass or Perennial Ryegrass	1 1/2	60	Mar. 15 to June 15 Aug. 15 to Oct. 15
Sudangrass <u>1/</u> or Millet	1	40	May 15 to Aug. 15
Winter Rye or Oats	3	120	Aug. 15 to Oct. 15

1/ This is a tall grass and may be undesirable in some locations.

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 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, 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 (889-2324), Environmental Review Team Coordinator, Eastern Connecticut RC&D Area, 139 Boswell Avenue, Norwich, Connecticut 06360.

