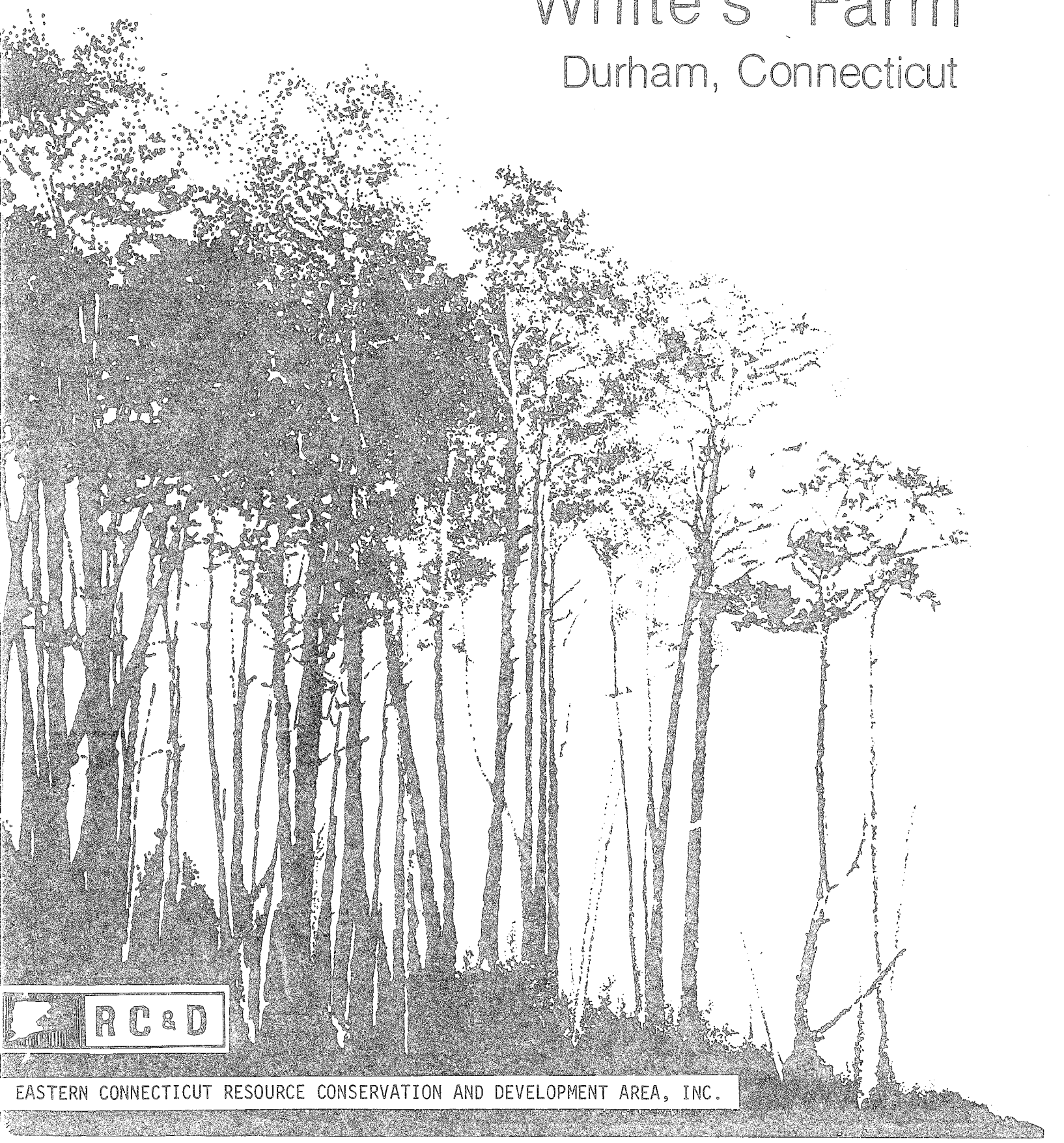
Environmental Review Team Report

White's Farm

Durham, Connecticut

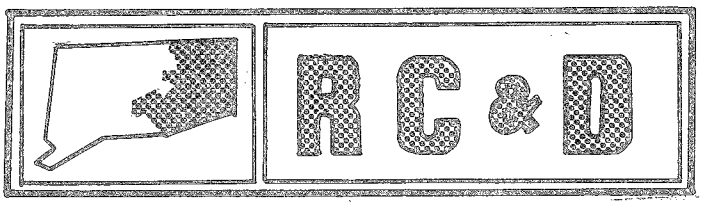


R C & D

EASTERN CONNECTICUT RESOURCE CONSERVATION AND DEVELOPMENT AREA, INC.

Environmental Review Team Report on White's Farm Durham, Connecticut

August 1981

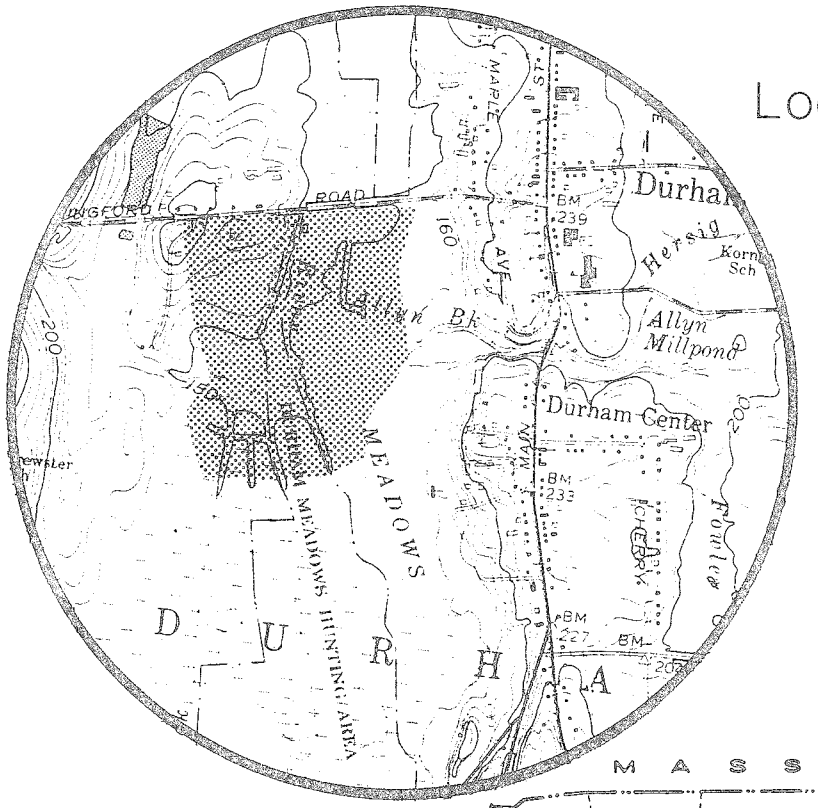


eastern connecticut resource conservation & development area

environmental review team
139 boswell avenue
norwich, connecticut 06360

Location of Study Site

WHITE'S FARM
DURHAM, CONNECTICUT



EASTERN CONNECTICUT
RESOURCE CONSERVATION AND DEVELOPMENT PROJECT

ENVIRONMENTAL REVIEW TEAM REPORT
ON
WHITE'S FARM
DURHAM, CONNECTICUT

This report is an outgrowth of a request from the First Selectman of Durham 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 by the RC&D Executive Committee 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.

The ERT that field-checked the site consisted of the following personnel: Barry Cavanna, District Conservationist (SCS); Mike Zizka, Geologist, Connecticut Department of Environmental Protection (DEP); Valerie Zampaglione, Planner, Midstate Regional Planning Agency, Dwight Southwick, Engineer, SCS; and Jeanne Shelburn, ERT Coordinator, Eastern Connecticut RC&D Area.

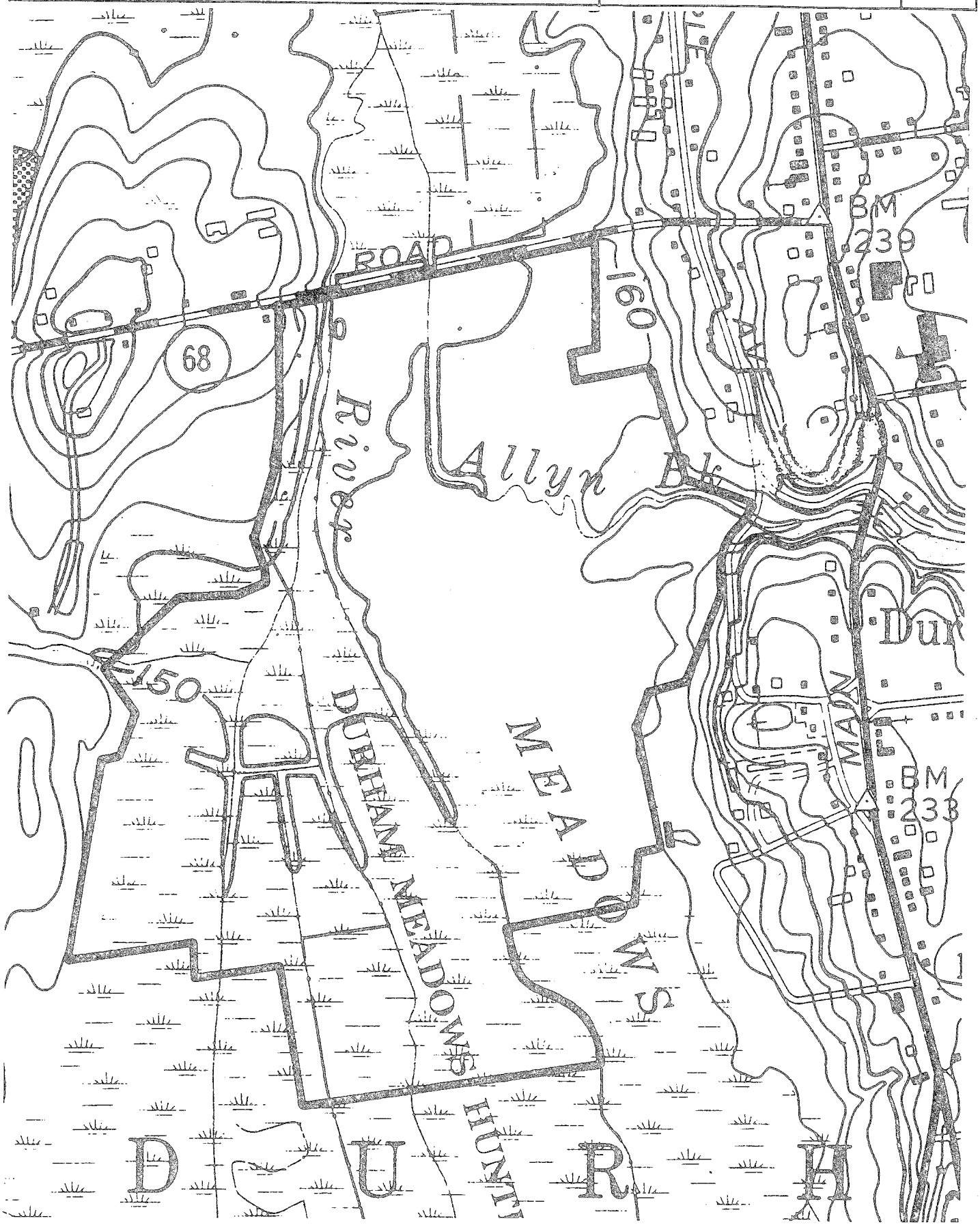
The Team met and field checked the site on Thursday, July 16, 1981. Reports from each contributing Team member were sent to the ERT Coordinator for review and summarization for the final report.

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 Durham. 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


0
660
scale
N
ROAD
68
160
BM
239
Allyn Br
River
150
DURHAM
MEADOWS
MEADOWS
HUNTER
MAIN
BM
233
Dur
D
U
R
H

INTRODUCTION

The Eastern Connecticut Environmental Review Team was asked to assess the potential environmental impact of a proposed seasonal roadway into White's Farm. The property is presently owned by the Town of Durham and used as its fairgrounds on a yearly basis. The site of the proposed road is located between Allyn Brook and the Coginchaug River, and is south of Route 68. The entire parcel is approximately 400 acres in size.

The Town has proposed building a seasonal unpaved accessway into the property south, from Route 68. This proposed road will be approximately 1600 feet in length and will provide access to a grassy parking area used during the fair. In times of severe inundation, the parking area will not be used. Culverts are planned along the road to allow for passage of flood waters from the river or brook. Information on alternate types of culvert piping is included in the appendix to this report.

The section of the site proposed for roadway construction is relatively flat and primarily in grassy vegetation at present. The area proposed for construction near Route 68 is dominated by water tolerant shrubs and trees. Soils in this area are typical of the Rumney series which have severe limitations for development. The entire site is a portion of a massive wetland system which occupies over 500 acres in the Town of Durham. As the watershed of Allyn Brook is over five square miles, any proposed development for this area will require an Army Corps of Engineers permit.

In the Team's opinion, if the proposed roadway is constructed as planned, with adequate sediment and erosion control measures which are maintained throughout construction, the roadway should have little adverse impact on the resource base of the site. Creation of this roadway will improve air quality conditions during the scheduled fairs, as it will ease eastbound traffic congestion on Route 68.

ENVIRONMENTAL ASSESSMENT

GEOLOGY

Approximately half of the White's Farm parcel is open field and half is swamp. Several test holes drilled into the open field area show that the underlying sediments are composed primarily of fine sands. Some gravel was found in the upper eight to sixteen feet of material, and traces of gravel were found at greater depths in one hole. A 24-foot-thick section of "firm clay" was also reported for one hole. Bedrock was encountered at depths ranging from 22 feet to 66 feet. Described only as "red rock" in the test-hole logs, the bedrock is undoubtedly sedimentary and is probably sandstone.

The geology of the swampy area is probably very similar to that of the open field. Since standing water is present most of the year, the sands are probably

capped by a dark-colored mixture of silt, clay, sand, and decomposed plant materials. The thickness of the "cap" is not known, but it may exceed ten feet, particularly in the central areas of the swamp.

HYDROLOGY

White's Farm contains a portion of a massive wetland system that occupies well over 500 acres in the town of Durham. The wetland is traversed on the site by Coginchaug River; by Allyn Brook, a tributary; and by several artifically created tributaries. At Route 68, Coginchaug River drains approximately 7800 acres of land, lying within the towns of Durham, North Branford, Guilford, and Madison. Allyn Brook at Route 68 drains approximately 3600 acres of land, lying mostly within the town of Durham and partly within the town of Middletown.

Much of the open field area is only a few feet higher in elevation than the local surface-water levels. Consequently, the field may be partially flooded by a relatively small rise in those water levels. A recent federal flood insurance study for the town of Durham indicated that water levels along Coginchaug River and Allyn Brook during a 10-year frequency flood are high enough to inundate most of the site.

Floodplains are natural, temporary storage areas for surface water. The ability of a stream to utilize those areas during high-water conditions allows peak flow rates to be reduced downstream, mitigating the impact of flooding. Filling in floodplains reduces their storage potential, and, consequently, may lead to increased peak flows in local streams. In addition, structures placed on fill in floodplains may still be subject to water damage during severe storms. For these reasons, filling in floodplains is generally not desirable. In the present case, however, the amount of fill to be used is negligible with respect to the tremendous amount of storage capacity that would be left in the surrounding wetlands and floodplain area. Of course, a series of small fills over a period of time can have as dramatic an impact as a large fill done at one time. Nevertheless, the proposed road is not intended to foster commercial, industrial, or residential development of the floodplains. Even if the remainder of White's Farm alone was preserved from filling, it would seem less essential to consider the road fill as part of a possible series of fills. In addition, no structures are involved in the present proposal. Finally, the depth of fill to be used is so small (less than one foot over most of the roadway) that no noticeable change in the flooding characteristics of the area is likely to occur. At worst, Allyn Brook might produce slightly higher water elevations in the area east of the road during the more frequent, non-severe floods. From a hydrological perspective, then, the Team foresees no adverse impacts from the new roadway as long as erosion is controlled.

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 Soil Survey, Middlesex County, Connecticut, 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.

Soil series typical of this site are described as follows:

Branford silt loam (BoB), 3 to 8 percent slopes. This gently sloping, well drained soil is on outwash plains and stream terraces in the northwestern part of the county.

Typically, the surface layer is dark reddish brown silt loam six inches thick. The subsoil is seventeen inches thick. The upper eleven inches is yellowish red very fine sandy loam, and the lower six inches is reddish brown gravelly very fine sandy loam. The substratum is dark reddish brown, stratified very gravelly sand to a depth of sixty inches or more.

Included with this soil in mapping are small, intermingled areas of somewhat excessively drained Hartford soils, well drained Cheshire soils, and moderately well drained Ellington soils. Included areas make up 5 to 20 percent of this map unit.

The permeability of this soil is moderate or moderately rapid in the surface layer and subsoil and rapid or very rapid in the substratum. Available water capacity is moderate. Runoff is medium. This soil tends to dry out and warm up early in the spring. Unlimed areas are very strongly acid to medium acid.

This soil has good potential for community development. Steep slopes of excavations are unstable. In places, onsite septic systems are a pollution hazard to groundwater.

Carlisle muck (Ce). This nearly level, very poorly drained, organic soil is in low depressions of outwash terraces and glacial till plains throughout the county. Typically, this soil is dark reddish brown and black muck to a depth of sixty inches or more. Included with this soil in mapping are small, intermingled areas of very poorly drained Adrian, Scarboro, and Whitman soils and poorly drained Leicester, Ridgebury, Raypol, and Walpole soils. Also included are a few areas of soils that are more acid than this Carlisle soil. Included areas make up 5 to 20 percent of this map unit. The permeability of this soil is moderate or moderately rapid. Available water capacity is high. Runoff is very slow. This soil is wet most of the year, and water is frequently ponded on the surface from autumn to spring and after heavy rains in summer. Unlimed areas are very strongly acid to medium acid.

This soil has poor potential for most types of community development. The soil is limited by a high water table most of the year and by ponding. The organic

layers have very low strength and will not support structures. In some places, the organic layers are too deep to be removed. If the soil is drained, the organic layers subside or shrink and lower the surface of the soil. Side slopes of excavations are very unstable and slump. Onsite septic systems are not practical in this soil.

Cheshire silt loam (CsB), 3 to 8 percent slopes. This gently sloping, well drained soil is on broad hilltops and ridgetops in the northwestern part of the county. Typically, the surface layer is dark brown silt loam eight inches thick. The subsoil is yellowish red and reddish brown silt loam eighteen inches thick. The substratum is dark reddish brown gravelly loam to a depth of sixty inches or more.

Included with this soil in mapping are small, intermingled areas of well drained Wethersfield and Yalesville soils and moderately well drained Ludlow soils. Also included are areas of soils with a fine sandy loam surface layer, a few areas with slopes of less than 3 percent, an a few small areas where as much as 3 percent of the surface is covered with stones and boulders. Included areas make up 5 to 20 percent of this map unit.

The permeability of this soil is moderate or moderately rapid. Available water capacity is moderate. Runoff is medium. This soil tends to dry out and warm up early in the spring. Unlimed areas are very strongly acid to medium acid.

This soil has good potential for community development. Onsite septic systems need careful design and installation. Quickly establishing plant cover, providing temporary diversions, and establishing siltation basins are suitable management practices during construction.

Ludlow silt loam (LpB), 3 to 8 percent slopes. This gently sloping, moderately well drained soil is on drumlins and concave slopes of glaciated uplands. Typically, the surface layer is dark brown silt loam eight inches thick. The subsoil is eighteen inches thick. The upper twelve inches is reddish brown silt loam. The lower six inches is dark reddish brown, mottled silt loam. The substratum is dark reddish brown, very firm, mottled gravelly loam to a depth of sixty inches or more.

Included with this soil in mapping are small, intermingled areas of well drained Cheshire and Wethersfield soils and poorly drained Wilbraham soils. Included areas make up 5 to 15 percent of this map unit.

The permeability of this soil is moderate in the surface layer and subsoil and slow or very slow in the substratum. Available water capacity is moderate. Runoff is medium. This soil dries out and warms up slowly in the spring. Unlimed areas are very strongly acid to medium acid in the surface layer and subsoil and very strongly acid to slightly acid in the substratum. This soil has a seasonal high water table at a depth of about twenty inches from late autumn until midspring.

This soil has fair potential for community development. The slowly permeable or very slowly permeable substratum and the seasonal high water table are the major limitations. Onsite septic systems need careful design and installation.

Artificial drains help prevent wet basements. Steep slopes of excavations tend to slump when saturated. Lawns are wet and soft in spring and autumn and for several days after heavy rains in the summer. Quickly establishing plant cover, providing temporary diversions, and establishing siltation basins are suitable management practices during construction.

Manchester gravelly sandy loam (MgC), 3 to 15 percent slopes. This gently sloping to sloping, excessively drained soil is on glacial outwash plains, stream terraces, kames, and eskers. The soil formed in water-sorted deposits of sand, gravel, and cobbles derived mainly from sandstone, shale, and basalt. Typically, the surface layer is dark brown gravelly sandy loam nine inches thick. The subsoil is reddish brown gravelly loamy sand nine inches thick. The substratum is reddish brown very gravelly sand to a depth of sixty inches or more.

Included with this soil in mapping are small, intermingled areas of excessively drained Penwood soils, somewhat excessively drained Hartford soils, well drained Branford soils, and moderately well drained Ellington soils. Included areas make up 5 to 20 percent of this map unit.

The permeability of this soil is rapid in the surface layer and subsoil and very rapid in the substratum. Available water capacity is low. Runoff is medium. Unlimed areas are very strongly acid to medium acid. This soil has good potential for community development. The soil is limited mainly by slopes and droughtiness. Onsite septic systems need careful design and installation, especially on steeper slopes. Caution is needed to prevent pollution of ground water by septic systems. Lawns, shallow-rooted trees, and shrubs need watering during the summer. Quickly establishing plant cover, providing temporary diversions, and establishing siltation basins are suitable management practices during construction.

Rumney Variant silt loam (Ru). This nearly level, poorly drained soil is on floodplains of the Coginchaug River and its tributaries. Typically, the surface layer is dark brown silt loam eleven inches thick. The subsoil is reddish brown, mottled silt loam seventeen inches thick. The substratum is reddish brown, mottled silt loam to a depth of sixty inches or more. Included with this soil in mapping are small, intermingled areas of moderately well drained Podunk soils, poorly drained Raypol soils, and very poorly drained Adrian and Saco soils. Included areas make up 5 to 15 percent of this map unit. This soil has a seasonal high water table at a depth of about ten inches from late fall until midspring. The soil is subject to frequent flooding, mostly from fall through late spring. The permeability is moderate or moderately slow. Available water capacity is high. Runoff is slow or ponded. This soil dries out and warms up slowly in the spring. Unlimed areas are strongly acid to medium acid.

This soil has poor potential for community development. The soil is limited by frequent flooding and a high water table. Steep slopes of excavations are unstable. Sediment deposited by flooding damages many kinds of landscaping. Quickly establishing plant cover, providing temporary diversions, and establishing siltation basins are suitable management practices during construction.

Saco silt loam (Sb). This nearly level, very poorly drained soil is on low floodplains adjacent to streams and rivers. Most areas are near the Connecticut River. The soils formed in silty alluvial sediments. Typically, the surface

layer is very dark grayish brown mucky silt loam six inches thick. The substratum is dark gray and very dark gray silt loam to a depth of sixty inches or more. Included with this soil in mapping are small, intermingled areas of moderately well drained Podunk soils, poorly drained Rumney and Rumney Variant soils, and very poorly drained Westbrook soils. Included areas make up about 10 percent of this map unit.

This soil is subject to frequent flooding. Areas adjacent to the Connecticut River in the southern part of the county are subject to daily freshwater flooding caused by the tide. The permeability of this soil is moderate. Available water capacity is high. Runoff is slow or very slow, and water covers some areas from late fall through early spring. The soil is strongly acid to neutral at a depth of less than thirty inches and medium acid to neutral at a depth of more than thirty inches.

This soil has poor potential for community development. The soil is limited mainly by the high water table and frequent flooding. Use of this soil for community development is not feasible unless the soil is extensively filled.

Wethersfield loam (WkB), 3 to 8 percent slopes. This gently sloping, well drained soil is on drumlins and hilltops of glacial till uplands. Typically, the surface layer is dark brown loam eight inches thick. The subsoil is reddish brown and dark reddish brown loam eighteen inches thick. The substratum is very firm, reddish brown gravelly loam to a depth of sixty inches or more. Included with this soil in mapping are small, intermingled areas of well drained Cheshire and Yalesville soils, moderately well drained Ludlow soils, and poorly drained Wilbraham soils. Also included are small areas with a few stones and boulders on the surface and a few areas of soils that have a silt loam or fine sandy loam surface layer. Included areas make up 5 to 15 percent of this map unit.

The permeability of this soil is moderate in the surface layer and subsoil and slow or very slow in the substratum. Available water capacity is moderate. Runoff is medium. This soil is very strongly acid or strongly acid in the surface layer and subsoil and very strongly acid to medium acid in the substratum.

This soil has fair potential for community development. The soil is limited mainly by the slow or very slow permeability of the substratum. Onsite septic systems need careful design and installation. Steep slopes of excavations slump when saturated. Quickly establishing plant cover, providing temporary diversions, and establishing siltation basins are suitable management practices during construction.

Wilbraham silt loam (Wr). This nearly level to gently sloping, poorly drained soil is in drainageways and depressions of glacial till uplands. Typically, the surface layer is very dark gray silt loam four inches thick. The subsoil is dark reddish brown and reddish brown, mottled silt loam sixteen inches thick. The substratum is dark reddish brown, mottled gravelly loam to a depth of sixty inches or more.

Included with this soil in mapping are small intermingled areas of moderately well drained Ludlow soils and very poorly drained Adrian soils. Also included are a few areas where as much as 3 percent of the surface is covered with stones and boulders and a few areas of soils have a friable and moderately permeable substratum. Included areas make up 5 to 15 percent of this map unit.

This soil has a seasonal high water table at a depth of about eight inches from autumn until midspring. Permeability is moderate in the surface layer and subsoil and slow or very slow in the substratum. Available water capacity is moderate. Runoff is slow. This soil dries out and warms up slowly in the spring. Unlimed areas are very strongly acid to strongly acid in the surface layer and subsoil and very strongly acid to medium acid in the substratum.

This soil has poor potential for community development. The soil is limited mainly by the high water table and the slowly permeable or very slowly permeable substratum. Artificial drains help prevent wet basements. Onsite septic systems need very careful design and installation, and areas generally require extensive filling. Steep slopes of excavations slump when saturated. Lawns are wet and soggy in the spring and for several days after summer rains. Quickly establishing plant cover, providing temporary diversions, and establishing siltation basins are suitable management practices during construction.

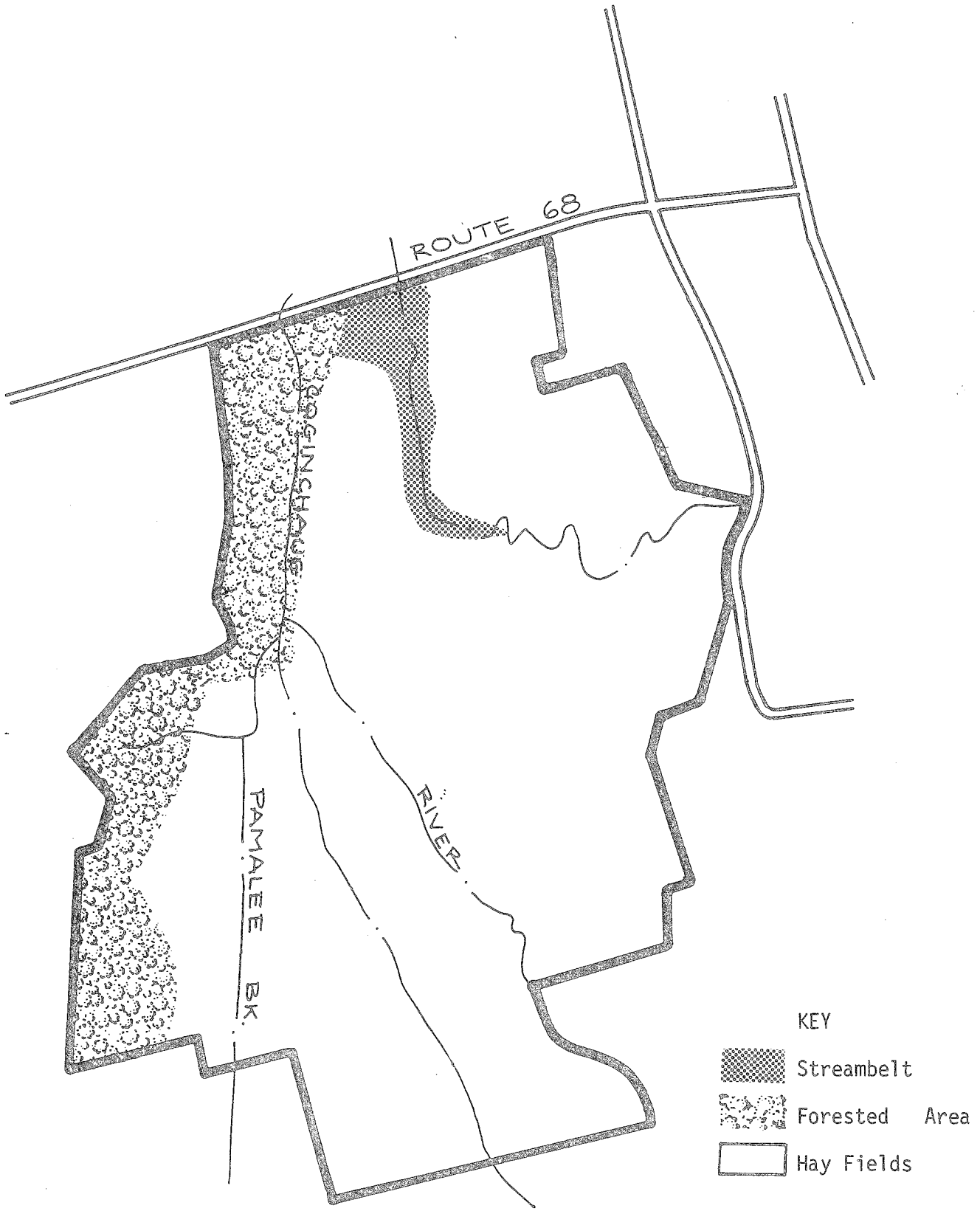
The drainage area of Allyn Brook is about 5.5 square miles. Therefore, this work would require a Corps of Engineers permit. There appears to be about 2000 cubic yards of material that will be required above normal ground for the 1600 feet of roadway.

The seasonal gravel road that has been proposed for a more rapid egress and ingress to the parking area for Durham Fair has been evaluated from an engineering standpoint by the Town Engineer, Mr. Magnotta. The Team concurs with Mr. Magnotta on his evaluation of the flooding characteristics of Allyn Brook and the Coginchaug River. To be more specific on the erosion control measures, the Team engineer recommends that rock riprap - 18 inches thick - be placed at all culvert inlets and outlets. Some of the topsoil that is removed for the construction of the road should be brought back onto the roadfill side slopes so that a vigorous growth of grass can be established quickly. The construction should be accomplished during the dry season with low stream flows and proceed from beginning to end of construction taking the least amount of time possible. The end of construction should be planned so that the sides could be limed, fertilized, seeded, and mulched between the dates April 15 - June 15, or August 15 - September 30.

VEGETATION

Vegetation on the site can be divided into two characteristic zones, the haying field and the streambelt. These areas and the general extent of these zones are shown on the accompanying Vegetation map. Species typical of the area used as a haying field include Timothy and Orchard grasses. The streambelt area has a far more diverse speciation including overstory, understory and groundcover vegetation. Trees and shrubs found in this zone include hickory, red maple, black cherry, black oak, dogwood, willow, white ash, birch, buttonbush, and elderberry. Groundcover species include blue vervain, iron weed, multiflora rose, spirea, joe-pye weed, goldenrod, milkweed, Timothy grass, fox grape, catnip, phragmites, cat-tail, nettle, jewelweed, sensitive fern, skunk cabbage, Virginia creeper, orchard grass and Reed's canary grass. No rare or endangered species were identified during the field review.

Vegetation


0
660'
SCALE
N
ROUTE 68
GOSHINCHAUG
PAMALEE BK.
RIVER
KEY
Streambelt
Forested Area
Hay Fields

Construction of the proposed roadway will cause minor disruption to the vegetation on the site. The streambelt zone will be slightly impacted near Route 68 as fill will be needed in order to construct the intersection of the access road with Route 68. The major part of the construction will take place in the haying field.

FISH RESOURCES

The proposed construction of a gravel roadway connecting Route 68 and White's Farm in the Durham Meadows, would divide the floodplain between Allyn Brook and the Coginchaug River. Both streams provide recreational fishing and are presently stocked by the state with trout.

Allyn Brook is a small stream (width 4 to 8 feet) providing good fish habitat due to an abundance of streamside vegetation and deep pools, in which trout, dace, suckers, common shiners, fallfish, sunfish, and largemouth bass, were all observed. The Coginchaug River is a larger, slower moving and more turbid, body of water also with abundant vegetation and deep pools. Both streams have a substrate consisting primarily of sand and silt with intermittent stretches of gravel.

The meadow between the watercourses often floods during high water periods. The road construction as proposed at nearly ground level, with culverts at appropriate drainage points, should not adversely affect either stream. Care should be taken during construction not to disturb vegetation on or near stream banks in order to maintain the brook's tree canopy.

TRANSPORTATION PLANNING CONCERNS

In the past five years, the attendance at the Durham Fair has risen dramatically and the traffic congestion due to the Fair has gotten much worse. In 1980, 165,000 people attended the fair. If the weather is good this year, as many or more may attend.

The Durham Fair's Traffic Coordinator, Hank Robinson, has worked out a very detailed traffic plan for the weekend of the fair. A very important part of the plan involves detours, enforced by State Troopers and Constables, which will eliminate through traffic from the Durham Center area. Much of the through traffic is headed to and from the Connecticut Shore. Notification of the detours will appear in area newspapers and will be broadcast on area radio stations. Large signs will be posted at the turning point of all detours.

Reservists, National Guard, Constables, or State Troopers will be stationed at each critical intersection. Parking attendants will be at each parking area directing the traffic to parking spaces, and in and out of the lot. The entire effort will be coordinated by Hank Robinson who will be in contact will all key personnel by radio.

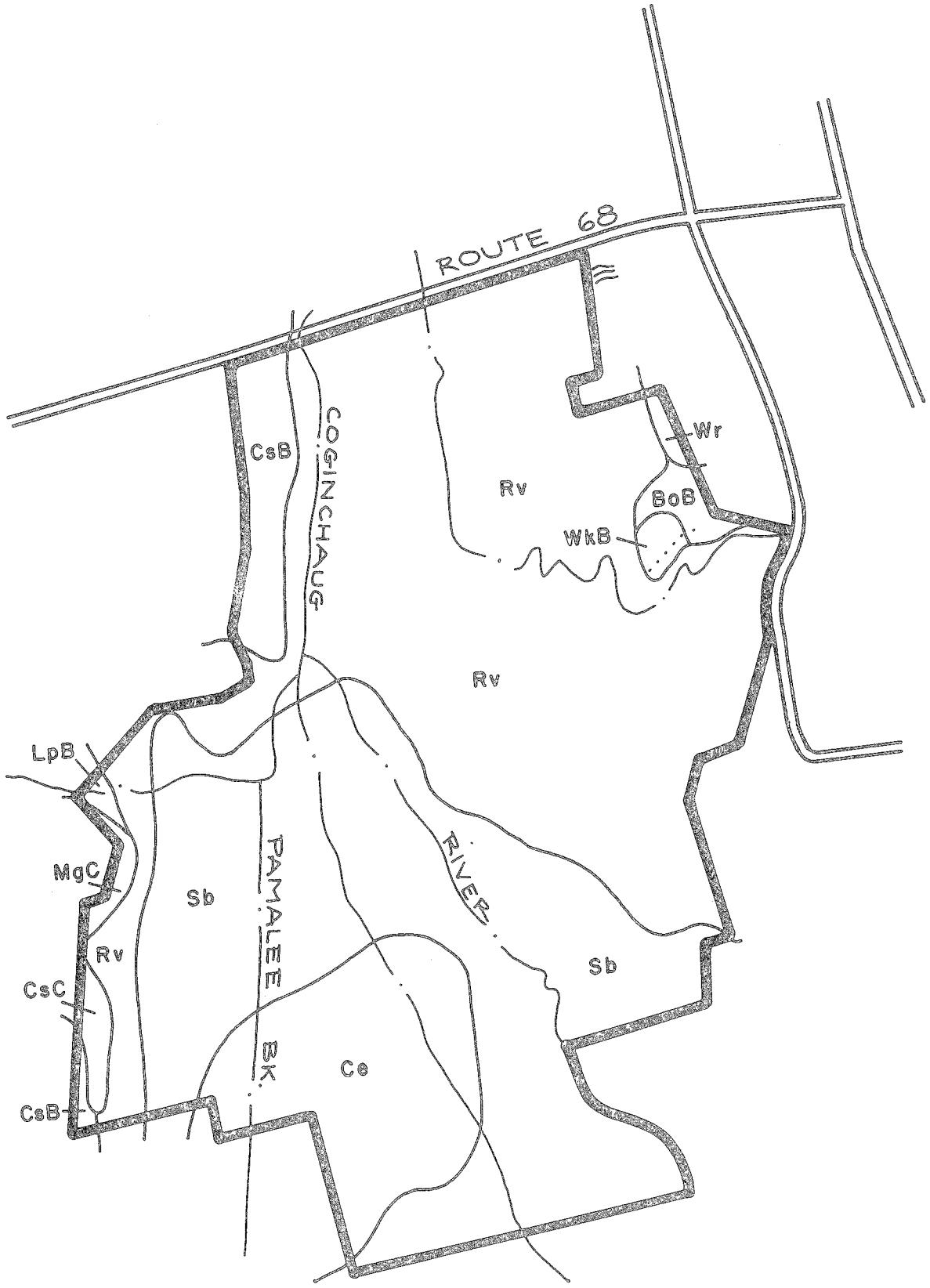
The north, south, and westbound traffic will be encouraged to take advantage of the parking and frequent shuttle buses at the high school grounds. When the two main lots at the Fair Grounds are full, the overflow will be sent to the high school grounds.

While the proposed road will not solve the congestion problem in itself, it will perform a very important function. The congestion at the intersection of Route 68 and Maple Avenue will be eased because the proposed road will accept the Route 68 eastbound traffic before it reaches the intersection, and when conditions are suitable, the proposed road will accept some overflow from the Route 68 and Maple Avenue intersection. The road will be used during some off peak hours as the fair is set up and dismantled, therefore, it is important to note that the sight distance in both directions is more than adequate.

If it rains prior to the fair, the field may be too wet for parking, and if so, the road will not be used. That will put a strain on the parking and traffic situation, but the other factors of the traffic plan will help to somewhat reduce the intolerable congestion of previous years.

Appendix

Soils


0
660'
SCALE
N
ROUTE 68
COGINCHAUG
PAMALEE
RIVER
Bk.
CsB
Wr
Rv
BoB
WkB
Rv
LpB
MgC
Sb
Rv
CsC
Sb
Ce
CsB

WHITE'S FARM
DURHAM, CONNECTICUT
PROPORTIONAL EXTENT OF SOILS AND THEIR LIMITATIONS FOR CERTAIN LAND USES

Soil Series	Soil Symbol	Approx. Acres	Percent of Acres	Principal Limiting Factor	Urban Use Limitations*			
					On-Site Sewage	Buildings with Basements	Streets & Parking	Land-Scaping
Branford	BoB	3	2%	Frost action	1	1	2	1
**Carlisle	Ce	24	10%	Floods, wetness	3	3	3	3
Cheshire	CsB	16	7%		1	1	1	1
Cheshire	CsC	2	1%	Slope	2	2	2	2
Ludlow	LpB	1	1%	Percs slowly, frost	3	3	3	1
Manchester	MgC	1	1%	Slope, droughtiness	2	2	2	3
**Rumney	Rv	94	44%	Floods, wetness	3	3	3	3
**Saco	Sb	69	32%	Floods, wetness	3	3	3	3
Wethersfield	WkB	2	1%	Percs slowly, frost	3	1	2	1
**Wilbraham	Wr	1	1%	Percs slowly, frost	3	3	3	3
		213	100%					

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

** Regulated Wetland soil under P.A. 155.

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.

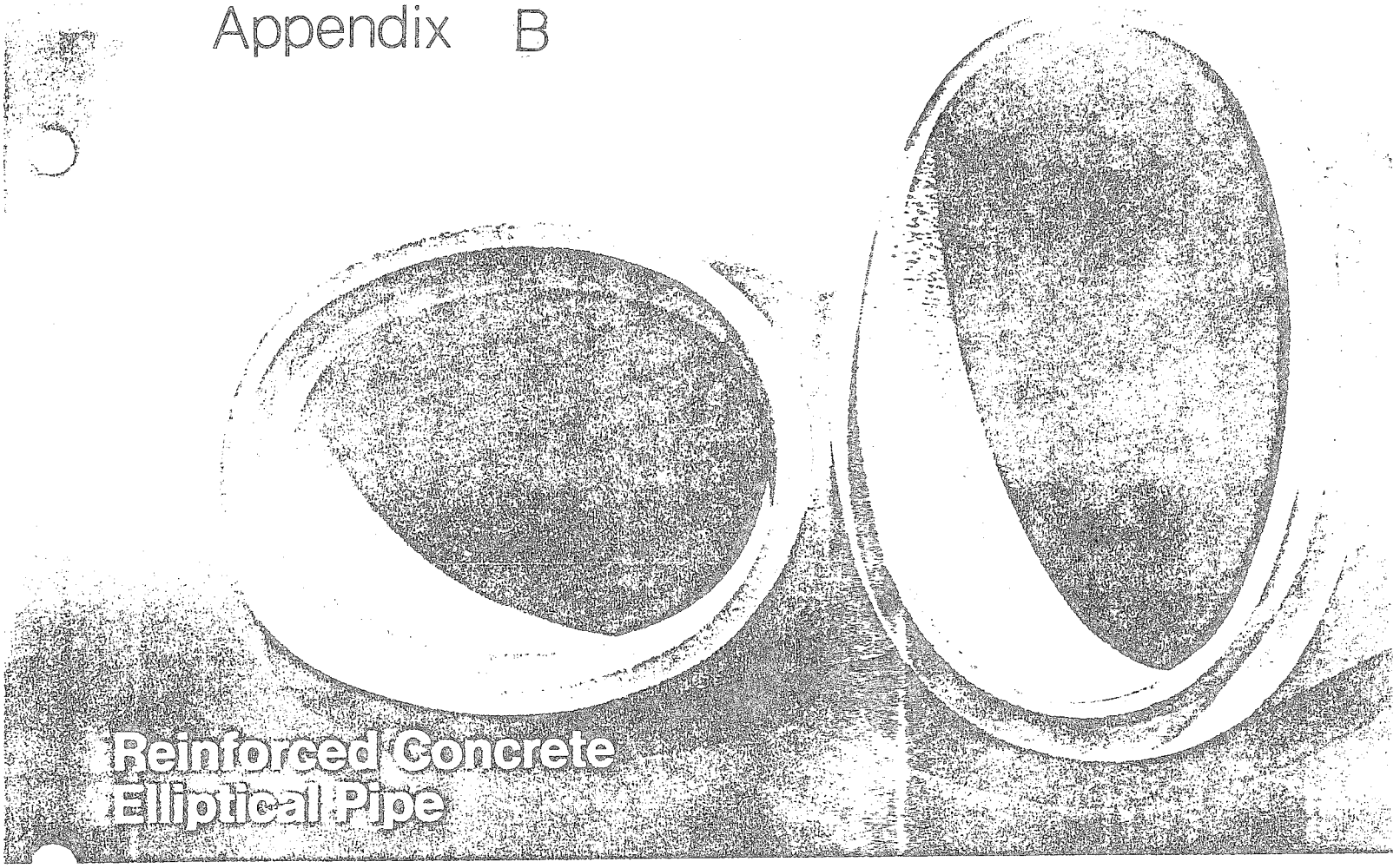
Moderate Limitations

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.

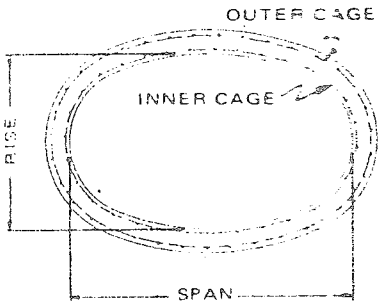
Appendix B

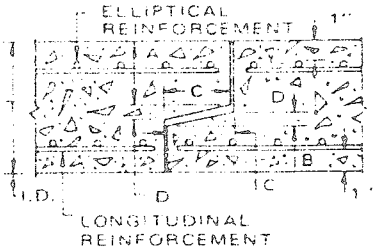


Reinforced Concrete Elliptical Pipe

the concrete solution for limited headroom trenches

Reinforced Concrete Elliptical Pipe is used where dimensional limitations prevent the use of round pipe. It is normally used in applications where there is limited headroom and where only shallow trenches are permitted. Or Elliptical pipe can be used on its side where laying conditions require an unusually narrow trench. In both applications, the elliptical shape of the pipe provides a volume of flow larger than a round pipe of similar outside dimension. Leonard elliptical pipe is made to meet the requirements of ASTM C507 and AASHO M-207. It has excellent hydraulic characteristics, providing maximum flow without turbulence.





ID of Equiv. Round Pipe	Nominal Inside		Wall	Nominal Outside		Nominal Length	Minimum Nominal End Area (Sq. Ft.)	Approx. Weight (lbs. per ft.)
	Height	Width	T	Height	Width			
18"	14"	23"	2-3/4"	19-1/2"	28-1/2"	8'	1.8	195
24"	19"	30"	3-1/4"	25-1/2"	36-1/2"	8'	3.3	300
30"	24"	38"	3-3/4"	31-1/2"	45-1/2"	8'	5.1	430
36"	29"	45"	4-1/2"	38"	54"	8'	7.4	625
42"	34"	53"	5"	44"	63"	8'	10.2	815
48"	38"	60"	5-1/2"	49"	71"	8'	12.9	1000
54"	43"	68"	6"	55"	80"	8'	16.6	1235
60"	48"	76"	6-1/2"	61"	89"	8'	20.5	1475
66"	53"	83"	7"	67"	97"	8'	24.8	1745
72"	58"	98"	8"	73"	106"	8'	29.5	2040

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.