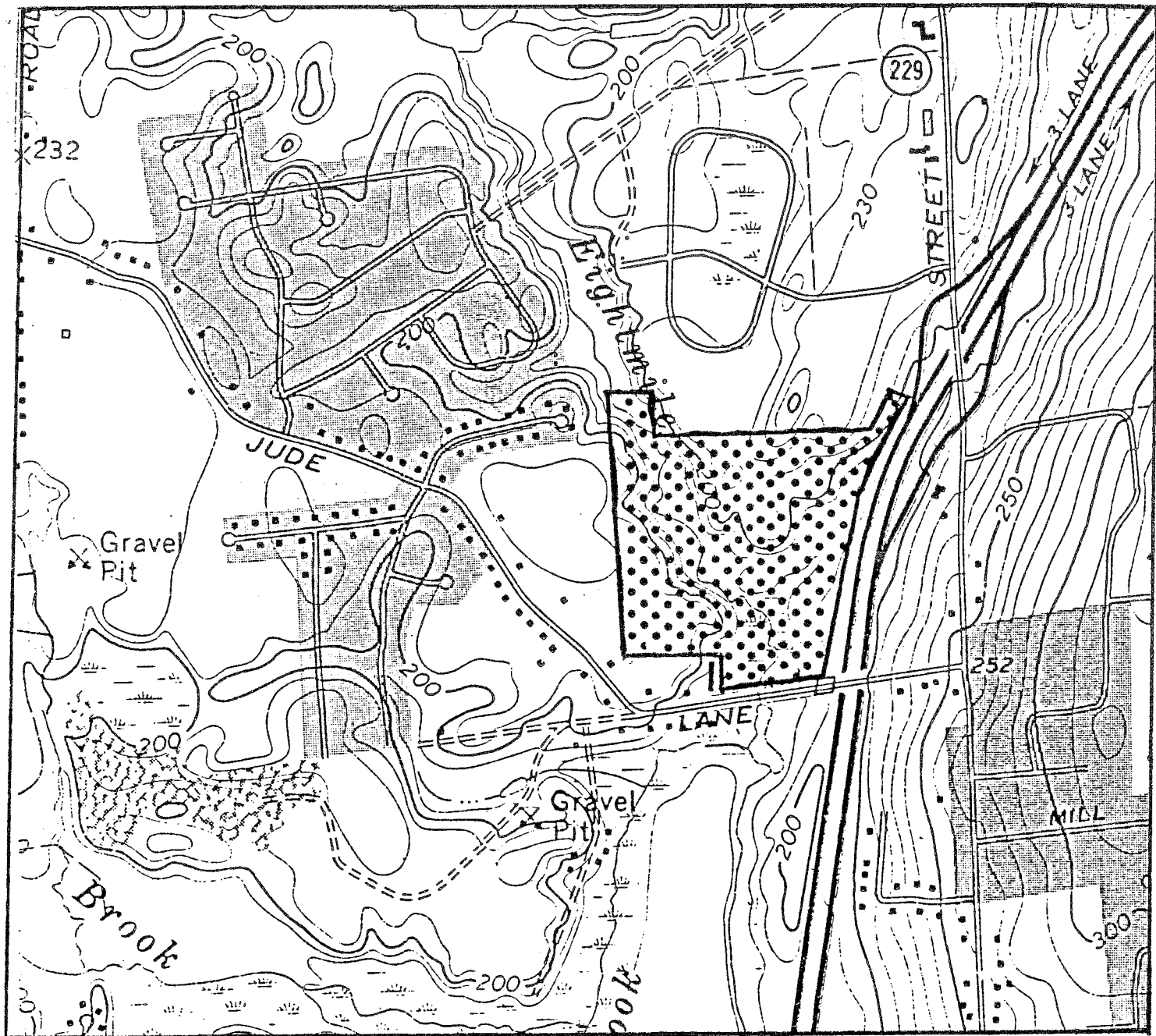


ENVIRONMENTAL REVIEW TEAM REPORT



EXECUTIVE OFFICE PARK SOUTHINGTON, CONNECTICUT



KING'S MARK RESOURCE CONSERVATION AND DEVELOPMENT AREA, INC.

EXECUTIVE OFFICE PARK SOUTHINGTON, CT

Environmental Review Team Report

Prepared by the King's Mark Environmental Review Team
of the King's Mark Resource Conservation
and Development Area, Inc.

Wallingford, Connecticut

for the

Southington Conservation Commission

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 Southington. The results of the Team action are oriented toward the development of a better environmental quality and long-term economics of the land use. The opinions contained herein are those of the individual Team members and do not necessarily represent the views of any regulatory agency with which they may be employed.

MAY 1986

ACKNOWLEDGEMENTS

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Finally, special thanks to Cynthia J. Gurrieri, Assistant Town Planner, Town of Southington and Steven N. Tuckerman, Town Planner, Town of Southington for their cooperation and assistance during this environmental review.

EXECUTIVE SUMMARY

The Southington Conservation Commission, with support from the Planning and Zoning Commission requested an environmental review on a site proposed for the development of an Executive Office Park. The proposed site is located north and east of Jude Lane, south of the Southington Executive Park, and west of Interstate 84. Access is provided off of Jude Lane.

At the time of the review, preliminary site plans had been withdrawn by the developer. These preliminary plans indicated that the Executive Office Park would encompass a number of buildings such as a conference center, office buildings, and a research center.

Therefore, since final site plans were unavailable at the time of the environmental field review, the findings, conclusions, and guidelines presented in this report are based on the preliminary site plans submitted by the developer.

The study area is approximately 54 acres in size consisting of open woodland, inland wetlands, flood plain, and streambank communities. The Eightmile River runs north to south through the property. Surrounding land uses include an office park to the north and residential neighborhoods to the south and west. Interstate 84 is directly east of the property.

The Environmental Review Team (ERT) was specifically requested to investigate the following: (1) the physical characteristics of the site; (2) the biological components of the site; and (3) the development opportunities and limitations of the site.

The review process consisted of four phases: (1) inventory of the study sites's natural resources (collection of data);

(2) assessment of these resources (analysis of data);
(3) identification of natural resource capabilities; and (4)
presentation of planning and development guidelines.

Through the inventory and assessment process, specific resources, areas of special concern, and development limitations and opportunities were identified. They fall into three broad categories: (1) physical characteristics; (2) biological resources; and (3) land use and planning considerations.

PHYSICAL CHARACTERISTICS

Geology

No bedrock outcrops were visible on the site during field inspection. Existing maps indicate that bedrock does not break ground surface on the site. However, bedrock is probably relatively close to ground surface in the northeast upland sections of the site.

The availability of water and sewer facilities should significantly decrease the likelihood of groundwater contamination, particularly in view of the permeable sands and gravels covering the site.

The principle geologic limitations on the use of the property are: (1) shallow bedrock in the northeast upland sections; (2) the presence of steep slopes along the west side of Eightmile River; and (3) the presence of inland wetland and flood plain soils. The presence of bedrock at relatively shallow depths in the northeast upland sections may necessitate blasting for building foundations, interior roads, and public utility lines.

Due to the presence of moderate slopes in this area, it is suggested that a detailed erosion and sediment control plan be formulated and closely followed, especially if there is a need for blasting.

It should be pointed out that the underlying rock is relatively soft compared to the crystalline rock west of the site. There is heavy equipment available that could probably peel the upper layers of the underlying rock without too much of a problem.

The presence of steep slopes along the west side of the River may be a hindrance to development. Since the soils comprising these steep slopes are highly erodible, it is suggested that these slopes be left undisturbed. Special attention should be directed toward protecting the slopes from erosion due to surface runoff, which could carry unwanted sediment into the Eightmile River.

Hydrology

Precipitation falling on the parcel may either: (1) percolate into the ground to become groundwater; (2) flow downslope as surface drainage directly into the Eightmile River; or (3) may be intercepted by any of the topographic swales on the site. Except for the small southeast corner of the site, surface drainage intercepted by any of the topographic swales on the site flows into the Eightmile River.

Groundwater beneath the site is classified as GB/GA. Groundwater classified as GB are known or presumed to be degraded, and therefore may not be suitable for public or private use as drinking water without treatment. On the other hand, groundwater classified as GA may be suitable for public or private drinking water use without treatment. A classification of GB/GA denotes groundwater which is currently GB but DEP policy or goal would be to restore water quality to a GA classification.

The surface water quality for the stretch of Eightmile River through the property is Bc. A Class B surface water would be suitable for bathing and other recreational purposes, agricultural uses, certain industrial processes and cooling, and fish and wildlife habitat. It also has good aesthetic value. The subscript "c" beneath the letter "B" denotes that the River is suitable for cold water fisheries.

Development of the parcel can be expected to lead to increases in runoff. The increases would result from: (1) covering permeable soils with impervious materials such as roof tops, interior roads, or parking areas; (2) from the removal of vegetation; and (3) from disturbance of uncovered soils. The magnitude of the increases would depend upon the extent to which development activities change the land. The two effects of runoff increases are usually flooding and erosion.

Southington has regulations requiring that postdevelopment flows not exceed predevelopment flows from a particular site. Thus, it is encouraged that the applicant prepare a stormwater management plan, including pre- and postdevelopment runoff calculations. It is also suggested that the applicant's engineer take a close look at all downstream culverts.

A likely solution for controlling postdevelopment flows would be the construction of detention pond(s). It is suggested that detention ponds be constructed on upland soils instead of wetland or flood plain soils since these soils have some intrinsic capacity for natural stormwater retention. Detention ponds on upland soils will minimize wetland impacts while providing the desired pond retention system.

Preliminary site plans indicated that a 750 foot section of Eightmile River is to be relocated. If the applicant wishes to relocate the Eightmile River on a future plan, this type of activity will be subject to Connecticut's Water Diversion Policy Act (P.A. 402), and will require a DEP permit. Therefore, it is encouraged that the applicant or his/her engineer first contact DEP's Water Resources Unit regarding this matter.

Flood Hazard Areas

The 100-year flood boundary generally parallels the Eightmile River through the property. It is widest in the southern portion of the property but becomes narrower in the northern part. There may be swampy or topographic depressions within the site subject to wetness and perhaps flooding during periods of heavy rain. One such area is the disturbed area in the southeastern corner of the site.

The generally flat topography in the flood plain makes this area very effective in storing water during periods of flooding. The flatness maximizes the available flood storage volume, while existing flood plain or wetland vegetation reduces flow velocities.

Soils

The Cheshire soils on the site (CsA, CsC map units) should not present any particular difficulties during construction. In some places on the CsC map unit, the shallow depth to bedrock may necessitate blasting.

The shallow depth to bedrock in the CxD (Cheshire and Holyoke soils) map unit will make construction difficult. Blasting will be needed if extensive cuts are required. The steep slopes will also increase construction costs.

The Hartford soils (HfA map unit) should not present any construction difficulties during site development.

Water will be the problem for construction within Saco soils (Ssa map unit). This area will be extremely muddy and will limit the movement of construction equipment. These flood plain soils serve to store flood waters during periods of high runoff.

The high water table associated with Watchaug and Wilbraham Variant soils (WgA and WrA map units, respectively) necessitates special design of any proposed roads or structures.

BIOLOGICAL RESOURCES

Forests

The site consists of three broad vegetative cover types: (1) mixed hardwood; (2) hardwood swamp; and (3) old field. The mixed hardwood forest community is the only area with management potential. Because of the soil type present, the establishment and

growth of softwood species would be better suited than hardwood species. This could be accomplished by releasing the established softwood growth from overtopping hardwood. The natural softwood growth could be supplemented by planting hemlock in the understory of the hardwood and white pine in openings. The value of the softwood stand would be that, once it was established, it would act as a visual screen and noise barrier to development on other portions of the property.

In a commercial sense, the value of the wood on this property is low. The only area with merchantable trees is the mixed hardwood stand in the western portion. The trees are of poor quality, and would yield only fuelwood and low value sawlogs as products. The real value of the property's woodland are the aesthetics and the water storage capacity of the area. In addition, the woodland provides a renewable resource in the form of wood growth, and a diversified wildlife habitat.

Any cutting, whether it is done for thinnings or for clearing of roadways and building sites, should be done to take advantage of high demand for all wood products. Firewood would be the main product and is highly sought after. The proper marketing of this product should be considered and planned for. A public service forester or a private forester may be of assistance in either on the ground planning or the marketing of wood products.

Inland Wetlands

Of the 54 acres covered by the development parcel, approximately 40 percent, or roughly 23 acres, are wetlands. The wetlands have developed in the flood plain of the Eightmile River.

Part of this wetland's significance is attributable to its size and extent. The wetlands have a developed understory, shrub layer, and tree canopy, which provide a variety of habitat niches. A variety of niches, in turn, can support a diversity of species.

Development of an office park in the Eightmile River flood plain and wetland areas could result in adverse environmental impacts, such as disturbance of fish and wildlife habitat, erosion and sedimentation, and a reduction in the flood storage capacity of the Eightmile River flood plain.

There are, however, a number of measures which can be implemented to minimize these impacts, such as limiting development in the floodway, maintaining natural buffers by utilizing shrubs and trees with a high wildlife value, and establishing detention basins in upland areas.

Fish and Wildlife

Several factors contribute to the Eightmile River's value for fisheries habitat. Extensive tree cover provides shade to maintain cool water temperatures. The water quality classification for the stream is Bc, which means that it is fishable and swimmable, and is

valuable for coldwater fish. The DEP has been stocking approximately 900 adult trout (i.e., predominately brown trout and some brook trout) in this general area of the Eightmile River. Public access is good. Other fish species that are likely to inhabit this area are white suckers, fallfish, common shiner, bluegill sunfish, and rockbass. The vegetated meanders of the River provide excellent forage and breeding spots for fish.

It is encouraged that any development plan for the area consider the unique balance between the stream and streambank area immediately adjacent to it. In a shallow, sandy bottom river such as this, very little in-stream cover and aquatic insect producing habitat exists. Terrestrial invertebrates are often the major source of food for the fishes inhabiting such a stream. Therefore, any significant cutting or removal of the overstory would very likely result in a loss of the majority of existing trout habitat, and a reduction in the number of fish food organisms present in the River.

There are three primary wildlife habitat types found on the study site: (1) mixed hardwood forest; (2) openland; and (3) wetland wildlife habitat.

As this area is developed there will be an immediate and potentially long-term adverse impact on wildlife. The primary potential impact is the direct loss of habitat due to access roads, buildings, parking lots, and bridges. Another potential impact is the change in habitat where forests are cleared for lawns and landscaping. A third potential impact is the increased human presence, and vehicular activity. This will drive the less tolerant species away from the site, even though there has not been any physical change in existing wildlife habitat.

Cluster development and natural landscaping concepts (i.e., limiting lawns and chemical applications) are possible development alternatives to minimize the impact on wildlife. This would lessen direct habitat loss as well as possible water pollution problems.

LAND USE AND PLANNING CONSIDERATIONS

Zoning Requirements

The site proposed for development is an Industrial Zone. Executive office parks are allowed in this zone by special permit. Section 5-01 2B of the zoning regulations outlines the conditions and safeguards applied to the construction of an Executive Office Park. The Executive Office Park, as proposed, seems to meet these conditions.

Surrounding Land Uses

The proposed Executive Office Park is bound to the east by Interstate 84. To the south of the site is a motel and a few single-family homes along Jude Lane. South of Jude Lane is primarily open forestland and wetlands. West and northwest of the site is low

density residential development (1 to 2 dwelling units per acre). The only proposed building that is in the vicinity of this residential area is the light industry/storage building. As the building is presently proposed, there is a 50 foot landscaped buffer, in addition to an approximate 100 foot yard behind the building. Although there is no designation on the preliminary site plan as to what will be done in the space behind the building, it is suggested that it remain wooded to provide additional buffering between the proposed building and the residences.

Infrastructure (Water and Sewer)

Water supply and sewage disposal is not expected to be a problem with the proposed Executive Office Park. Water lines currently exist in the area providing water to the homes west and northwest of the proposed development. These lines are capable of providing water without stressing the capacity of the lines or the water supply.

While sewage disposal is not currently available to the proposed Executive Office Park site, completion of the West Side Interceptor will provide adequate sewer service to the area. Since the existing sewage treatment facility is well below capacity, it is capable of assimilating future growth.

Traffic and Access

While the traffic from the Executive Office Park will probably not increase the traffic flow through adjacent residential areas, it will combine with the residential traffic between the proposed access road and the West Street/Jude Lane intersection. Since the typical peak flow periods for residential and office areas are the same, this overlap will probably result in traffic congestion in this area during these peak hours.

Though the proposed Executive Office Park will increase traffic in the vicinity, a number of measures can be implemented to manage traffic flow and circulation including: (1) installing a traffic signal at Jude Lane and access road operating only at evening rush hours; (2) installing a traffic signal at the West Street/Jude Lane intersection; (3) providing a right turn lane on southbound West Street; (4) providing a left turn lane on northbound West Street; and (5) widening West Street to accommodate traffic approaching or leaving the Executive Office Park.

Parking Requirements

The total parking proposed is sufficient. However, the proposed light industry and storage building and 100,000 sq. ft. office building are being proposed with insufficient parking. In the case of the office building, it shares a 621 space lot with two proposed research centers. This lot is sufficiently large for all three buildings. The light industry building has insufficient parking because the lot proposed north of the building is in a residential zone, and is therefore, not permitted. Since using another building's excess parking space would be inconvenient, the largest

building that could be built at this site would be 160,500 square feet.

Not included in the proposed plan are handicapped parking spaces, the inclusion of space-saving compact car lots, and off-street loading spaces. Southington's zoning regulations state that up to 25 percent of the minimum number of required parking spaces can be designated for compact cars. These lots are smaller than standard lots and can aid in reducing the total area allocated for parking. The zoning regulations state that the lot size difference between the standard spaces and the compact spaces must be landscaped.

CONCLUSION

Although Southington does not have a Master Plan of Development, the Central Connecticut Regional Planning Agency has, in draft form, an updated plan "Regional Land Use Plan: 2000." According to this plan, the development of an executive office park at the proposed site should be encouraged. However, development guidelines made throughout this report concerning land use would result in a design for the proposed development that would agree more fully with the stated goals and objectives of the regional plan. Such objectives include preserving and minimizing adverse impacts in environmentally sensitive areas, and discouraging structural development in flood plain areas, except where found to be technically feasible and where no adverse environmental impacts are created.

While the most suitable use for this site, other than open space, is an executive office park, development should be very carefully planned considering surrounding land uses and the sensitive nature of the land.

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INTRODUCTION



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The Southington Conservation Commission, with support from the Planning and Zoning Commission requested an environmental review on a site proposed for the development of an Executive Office Park. The proposed site is located north and east of Jude Lane, south of the Southington Executive Park, and west of Interstate 84. Access is provided off of Jude Lane (Figure 1).

The study area is approximately 54 acres in size consisting of open woodland, inland wetlands, flood plain, and streambank communities. The Eightmile River runs north to south through the property. Surrounding land uses include an office park to the north and residential neighborhoods to the south and west. Interstate 84 is directly east of the property.

At the time of the review, preliminary site plans had been withdrawn by the developer. These preliminary plans indicated that the Executive Office Park would encompass a number of buildings such as a conference center, office buildings, and a research center. Approximately 1,800 parking spaces were also proposed. A number of retention ponds were proposed to be created. This would require relocating portions of the Eightmile River, and filling or altering existing flood plain and wetland communities. Public water service is available to the proposed development and a new sewer line (referred to as the West Side Interceptor) is proposed to be built through the proposed site. A bridge was also proposed to be built across the Eightmile River to provide access to the western portions of the study area.

Since final site plans were unavailable at the time of the environmental field review, the findings, conclusions, and guidelines presented in this report are based on the preliminary site plans submitted by the developer.

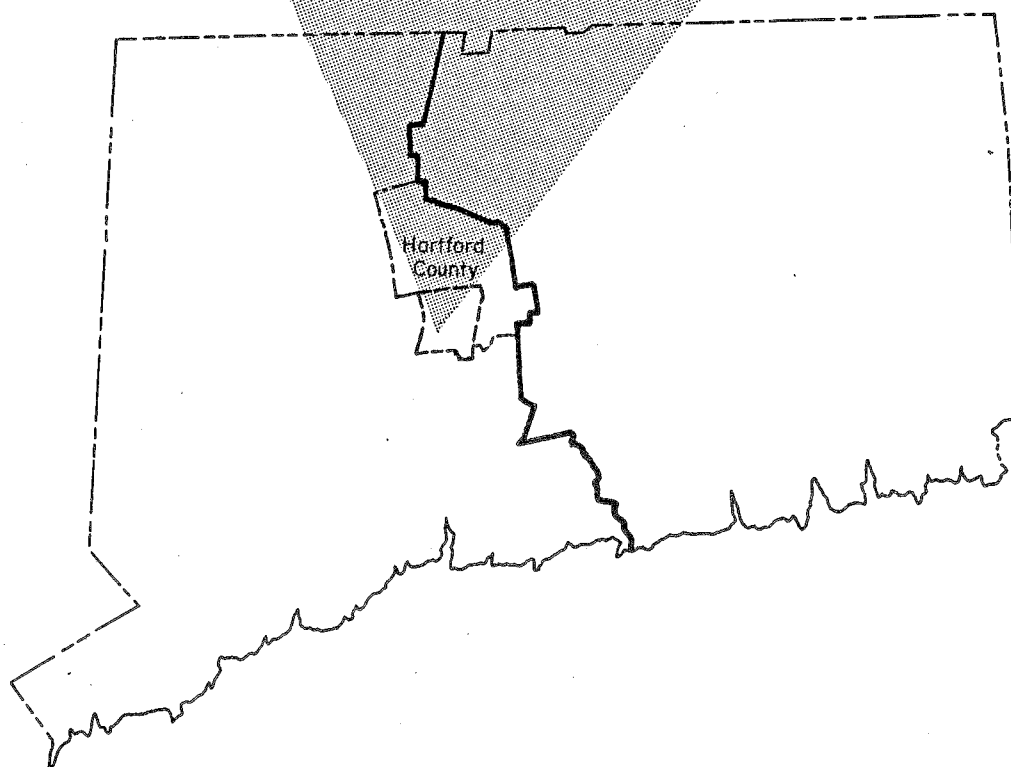
Goals and Objectives

The ERT was specifically requested to investigate the following: (1) the physical characteristics of the site (i.e., soils, geology, hydrology, topography); (2) the biological components of the site (i.e., river ecology, vegetation, fish and wildlife); and (3) the development opportunities and limitations of the site (i.e., land use, natural hazards, stormwater drainage, water supply, and traffic and access). In general, the ERT provided site specific natural resource data, and determined any possible adverse environmental impacts on existing resources and how best to mitigate those affects.

The ERT Process

Through the efforts of the Southington Conservation and the Planning and Zoning Commissions, and the King's Mark Environmental Review Team, this environmental review was conducted for the Town. This report is not intended to compete with private consultants design plans for this site. Rather, it provides a natural resource data base allowing the Town and the developer make informed decisions concerning the proposed use of the site.

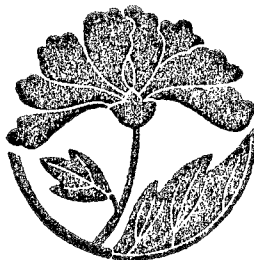
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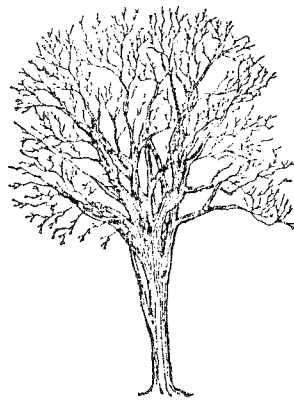
(2) assessment of these resources (analysis of data);
(3) identification of natural resource capabilities; and (4)
presentation of planning and development guidelines.

The data collection phase involved both literature and field research. Mapped data, technical reports, or town and regional plans were perused and specific information concerning the site was collected. Field review and inspection of the site proved to be a valuable component of this phase. The emphasis of the field review was on the exchange of ideas, concerns, and alternatives. Being on site also allowed Team members to check and confirm mapped information, and identify other resources.

Once the Team members had assimilated an adequate data base, it was then necessary to analyze and interpret their findings. The results of this analysis enabled the Team members to arrive at an informed assessment of the site's natural resource development opportunities and limitations.



PHYSICAL CHARACTERISTICS



PHYSICAL CHARACTERISTICS

Topography and Setting

The proposed Executive Office Park consists of an approximately 54-acre tract of land located in west-central Southington. Access to the property is proposed off of Jude Lane from the south. Interstate 84 (I-84) borders the site on the east.

The irregular shaped parcel is bisected by the Eightmile River flowing in a north-south direction, and its accompanying flood plains. Land surface in the southeast corner is relatively flat. Based on visual observations during the field review, this area has been disturbed, probably during the construction of I-84. Land surface in the northeast corner rises gently to moderately from the river to a rock-cored hill. Topographic relief on the west side of the river rises steeply from Eightmile River to a relatively flat bench in the western limits of the site. This steeply sloping area, which parallels the River to a great extent, holds little potential for development.

Elevations on the site range from a low of about 180 feet above mean sea level along Eightmile River to a high of about 240 feet above mean sea level on the rock-cored hill in the northeast corner.

A small tributary to Eightmile River flows in a southwesterly direction through the northeast corner (Figure 2).

Geology

The proposed Executive Office Park is located within the Southington topographic quadrangle area. Both the surficial and

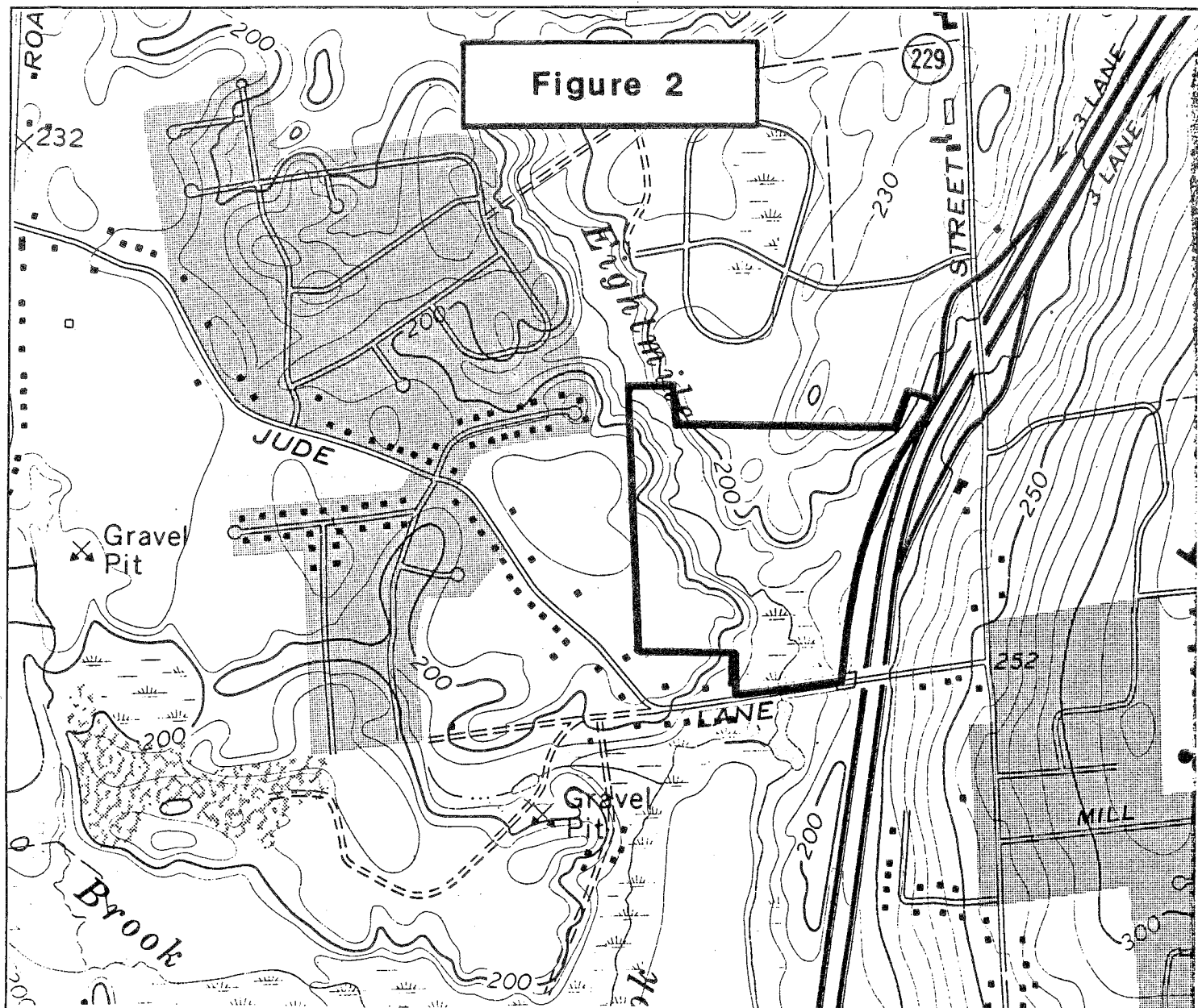
bedrock geology of the Southington quadrangle have been mapped. Publications containing these maps are, respectively, U.S. Geological Survey reports GQ-146, (A.M. La Sala, Jr., 1961), and GQ-200, (Crawford E. Fritts, 1963).

Bedrock Geology

No bedrock outcrops were visible on the site during field inspection. Existing maps indicate that bedrock does not break ground surface on the site. However, bedrock is probably relatively close to ground surface in the northeast upland sections of the site.

Fritts (1963) describes the bedrock underlying the entire parcel as New Haven Arkose (Figure 3). The rocks comprising this unit were deposited approximately 200 million years ago during the Mesozoic Geologic Period. These rocks consist of interbedded grayish-orange-pink, to very pale orange conglomeratic and grayish-red to dark reddish-brown siltstone. Arkose refers to a feldspar-rich sandstone.

According to one theory advocated by some geologists, the sediments comprising New Haven Arkose were derived from the old crystalline rocks to the east and/or west. These rock fragments and particles were deposited by erosion and weather processes, and subsequently filled a large trough that extended from central Connecticut and Massachusetts into New York and New Jersey. These sediments eventually became cemented into consolidated rock, such as New Haven Arkose. Subsequently, the trough or Mesozoic-aged Hartford Basin was uplifted or arched due to intense movement within the earth's crust. Erosion over the last 200 million years has removed the rocks. These also included layers of igneous rock (i.e.,



**EXECUTIVE OFFICE PARK
EIGHT MILE RIVER
SOUTHINGTON, CONNECTICUT**

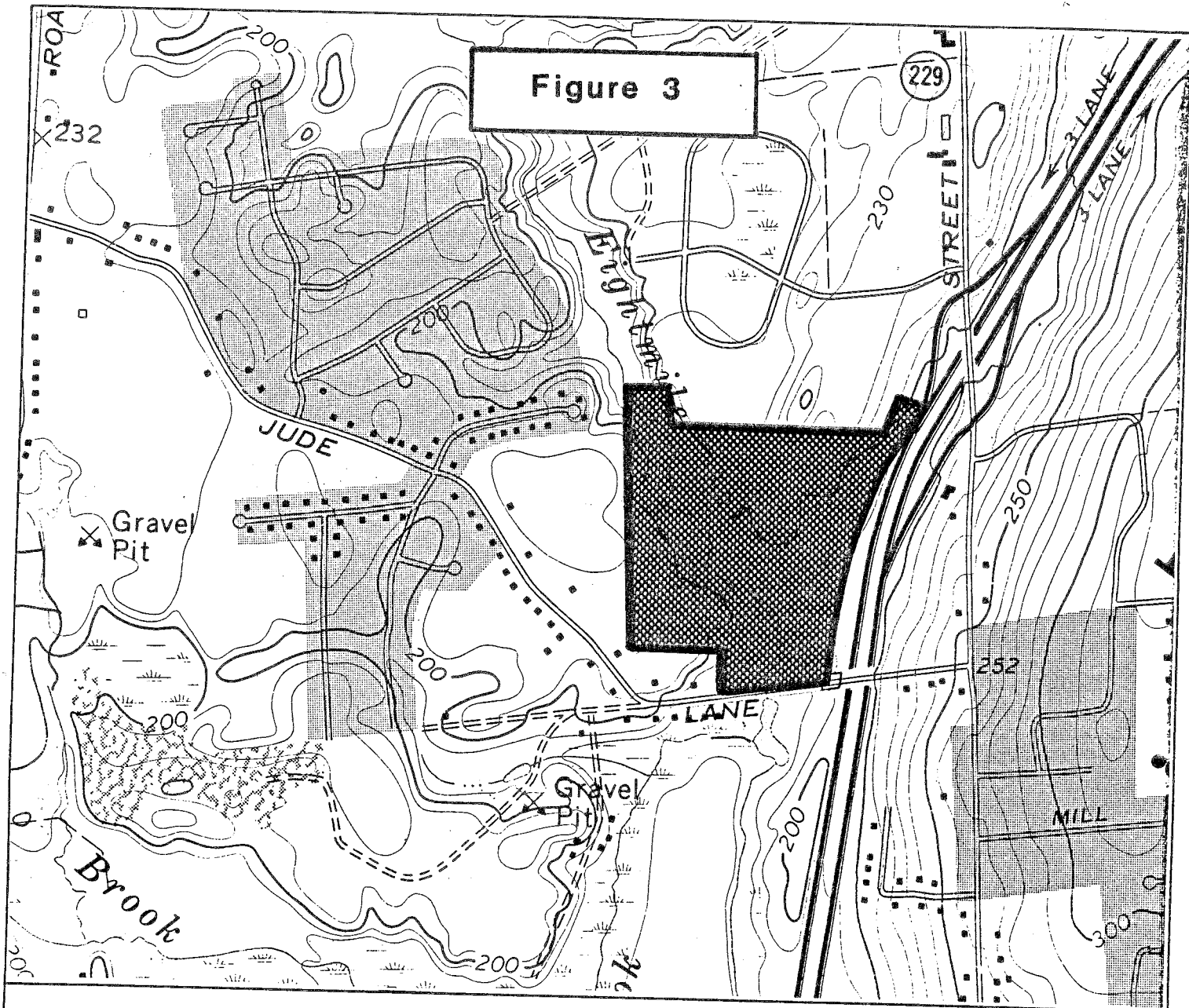
TOPOGRAPHY

King's Mark Environmental Review Team

0 1,000'



Figure 3



**EXECUTIVE OFFICE PARK
EIGHT MILE RIVER
SOUTHINGTON, CONNECTICUT**



NEW HAVEN ARKOSE

BEDROCK GEOLOGY

King's Mark Environmental Review Team

0 1,000'



rocks formed from molten magma) called basalt or traprock, from the center of the trough. In Connecticut, the rock units in the Hartford Basin were tilted gently to the east (i.e., about 15-20 degrees) as a result of the uplifting or arching. The proposed Executive Office Park is located on the western edge of the Hartford Basin, about 1.5 miles east of where the western highlands of Connecticut commences.

Depth to bedrock ranges from about 1 to 2 feet below ground surface in the northeast upland sections, to probably about 80 feet in the western sections of the site.

Surficial Geology

Except for the upland sections in the northeast corner, bedrock in the project area is covered by a glacial sediment called stratified drift (Figure 4). As elsewhere in the State, glacial ice covered the project area approximately 10,000 to 12,000 years ago during the Wisconsin stage of glaciation. When ice blocks situated in the Eightmile River began to melt, it created streams of meltwater, often with torrential flows. These streams were filled with rock debris collected from the ice, and the debris was redeposited in well-sorted to poorly-sorted layers. Sand and gravel were commonly deposited near the ice, while fine-grained materials such as silt and clay were washed further downstream to be deposited in glacial lakes, or into the Long Island Sound. The resulting deposits are known as stratified drift.

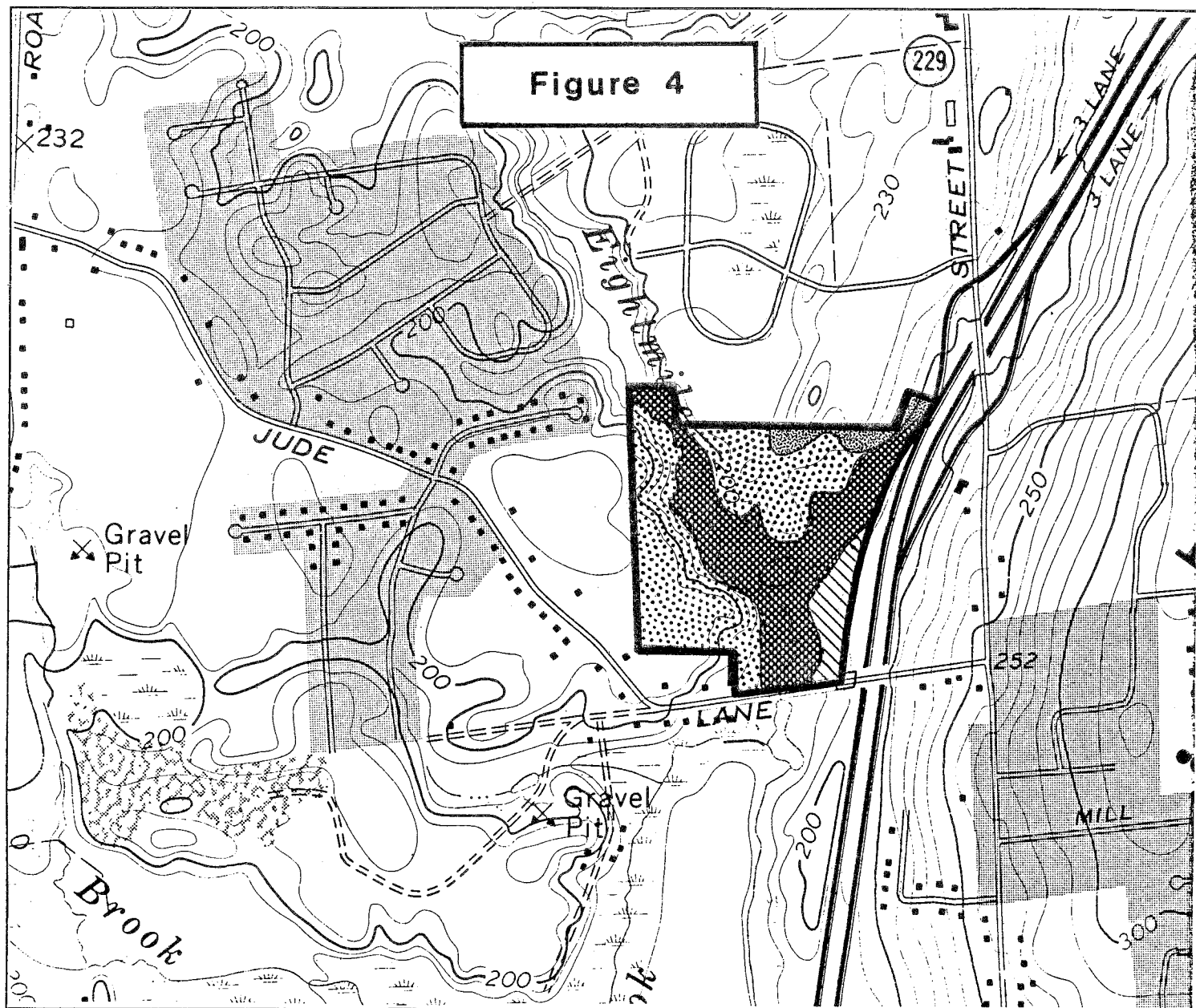
The type of stratified drift found on most of the site consists of well-sorted sand and gravel. Hence, the sediments were deposited near or in contact with glacial ice. Based on visual observations

made during the field review, the sand and gravel deposits in the southeast corner have been significantly altered due to extraction. Thickness of these deposits range from a few inches at the till/bedrock contact in the northeast corner to as much as 80 feet at western limits of the property.





Another type of glacial sediment found on the site is till (see Figure 4). Till, consisting of non-sorted, non-stratified mixture of rock particles of varying shapes and sizes, comprises a relatively thin blanket of sediment overlying bedrock in the northeast upland sections. Unlike the water-deposited sediments comprising stratified drift, till was deposited directly from glacier ice without substantial reworking by glacial meltwater streams. Thickness of the till on the site probably ranges between one foot to not much more than seven feet.

Postglacial sediments, comprising primarily of regulated inland wetland and flood plain soils overlie stratified drift or till deposits in the central and eastern portions of the site. The flood plain soils, designated as SsA, or Saco soils (see Figure 6) generally parallel the Eightmile River and its unnamed tributary in the eastern sections. Inland wetland soils, designated as WRA or Wilbraham Variant (see Figure 6) form irregular shaped pockets in the central and eastern reaches of the study site. As previously mentioned, the natural soils in the southeast corner have been disturbed. In some places, it appears that the groundwater has been intercepted by the excavations and, as a result, may have created additional inland wetland areas. It is suggested that a certified soil scientist map and flag the regulated inland wetland and flood

Figure 4



**EXECUTIVE OFFICE PARK
EIGHT MILE RIVER
SOUTHINGTON, CONNECTICUT**

-  STRATIFIED DRIFT (sand and gravel)
-  DISTURBED AREA
-  TILL-BASED SOILS
-  INLAND WETLAND SOILS
(includes alluvial soils)

**SURFICIAL
GEOLOGY**

King's Mark Environmental Review Team

0 1,000'



plain soils on the site, particularly in areas where development will take place. Once this is completed, the boundaries should be superimposed onto a site plan. If the proposed project is approved for development, the flagging of wetlands should greatly aid heavy equipment operators working on the site.

Geologic Development Concerns

According to local officials, the proposed development will be serviced by public sewer and water lines. The availability of these facilities should significantly decrease the likelihood of groundwater contamination, particularly in view of the permeable sands and gravels covering the site. Because of the highly porous nature of these sediments, any pollutants reaching the groundwater will have little opportunity to be renovated by the soil components.

The principle geologic limitations on the use of the property are: (1) shallow bedrock in the northeast upland sections; (2) the presence of steep slopes along the west side of Eightmile River; and (3) the presence of inland wetland and flood plain soils (Figure 5). The presence of bedrock at relatively shallow depths in the northeast upland sections may necessitate blasting for building foundations, interior roads, and public utility lines. Due to the presence of moderate slopes in this area, it is suggested that a detailed erosion and sediment control plan be formulated and closely followed, especially if there is a need for extensive blasting. It should be pointed out that the underlying rock (i.e., sandstone and siltstone) is relatively soft compared to the crystalline rock west of the site. There is heavy equipment available that could probably

peel the upper layers of the underlying rock without too much of a problem.

The presence of steep slopes along the west side of the River may be a hindrance to development. Since the soils comprising these steep slopes are highly erodible, it is suggested that these slopes be left undisturbed. Special attention should be directed toward protecting the fragile slopes from erosion due to surface runoff, which could carry unwanted sediment into the Eightmile River.

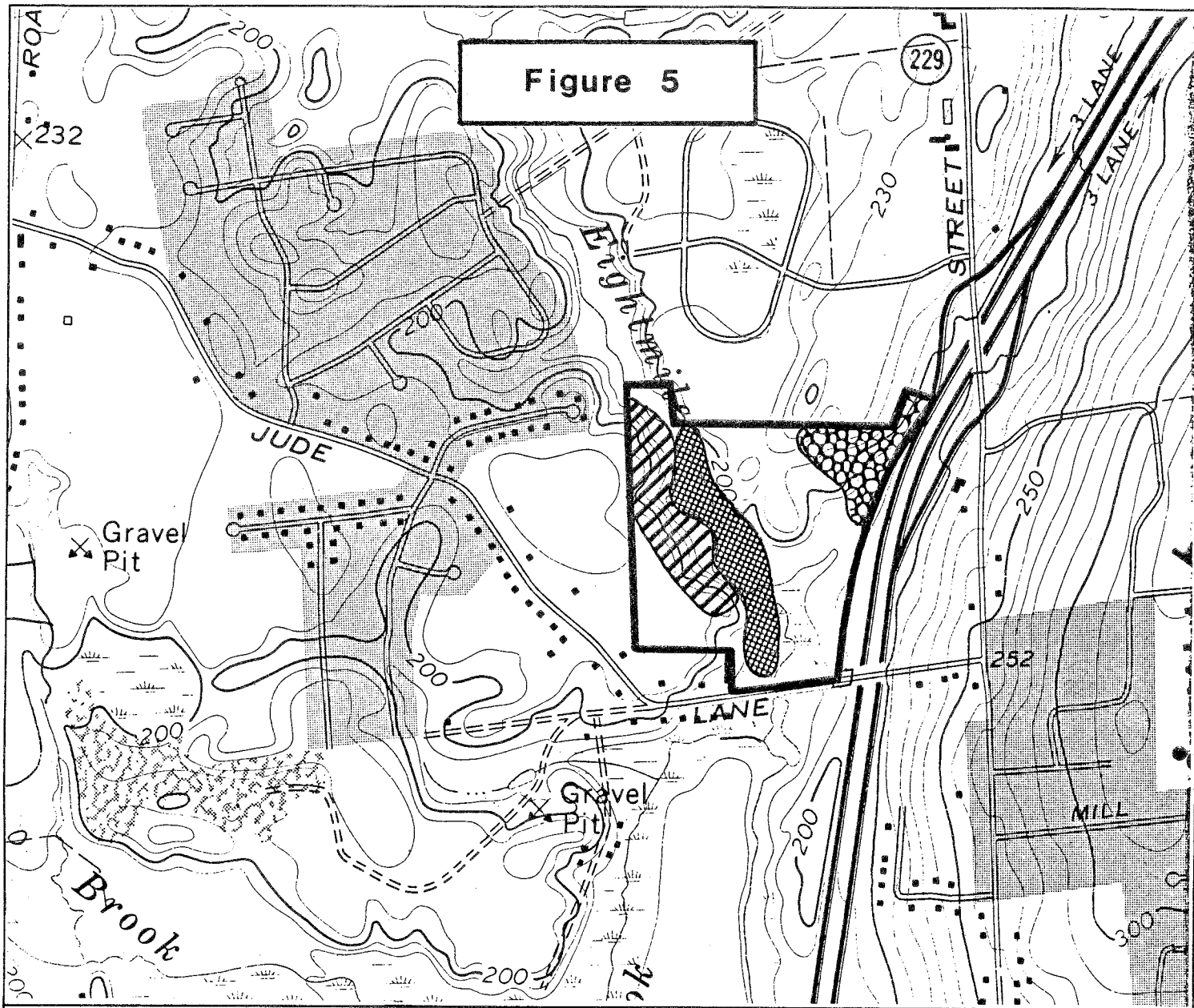
An important concern regarding the sand and gravel soils is the possibility of "cutback cave-ins" during the installation of sewers, waterlines, electric lines, and foundations. The trenches in these sandy and gravelly soils should have the pipes and conduits placed and backfilled as soon as possible after excavation. Proper shorings of sides should be accomplished in trenches over five feet deep. Running sewers across drainage ways is another area of special concern, and disturbed areas should receive protection from any running water.

Some wetland and flood plain areas perform positive hydrological functions such as:

- (1) serving as a flood and stormwater retention areas, which reduces downstream flood flows during periods of heavy rainfall;
- (2) improving surface water quality through various biochemical processes;
- (3) trapping sediments from upstream areas, and;
- (4) forming natural floodways that convey flood waters from upstream to downstream points.

For these reasons, it is encouraged that disturbance of wetland and flood plain soils be avoided, or minimized if possible.

Figure 5



EXECUTIVE OFFICE PARK EIGHT MILE RIVER

SOUTHINGTON, CONNECTICUT

GEOLOGIC LIMITATIONS



SHALLOW TO BEDROCK SOILS



INLAND WETLAND / FLOODPLAIN
SOILS



STEEP SLOPES

King's Mark Environmental Review Team

0 1,000'



Filling, modifying, or constructing in wetlands or flood plains can have adverse environmental impacts on the aforementioned hydrological values. In order to protect these values, the modification of wetlands or flood plains is regulated under P. A. 155. Any activity involving filling, modifying, or removing materials from wetlands will require a permit from the Town.

Since the application for the proposed Executive Office Park has been withdrawn, it is not known if future plans will call for wetland or flood plain modifications. If a prospective plan calls for wetland or floodplain modification on the site, the Town should require that the applicant address all of the potential environmental impacts associated with a particular wetland or flood plain modification(s) and mitigative measures that could be implemented to minimize these possible impacts.

Hydrology

Nearly all of the parcel lies within the Eightmile River watershed. A small portion of the site in the southwest corner drains to an unnamed tributary to Dayton Brook, which ultimately flows into the Eightmile River. Dayton Brook flows into the Eightmile River just south of Jude Lane. A small, unnamed stream in the eastern part flows in a northeast - southeast direction enroute to the Eightmile River. The Eightmile River ultimately drains into the Quinnipiac River to the south.

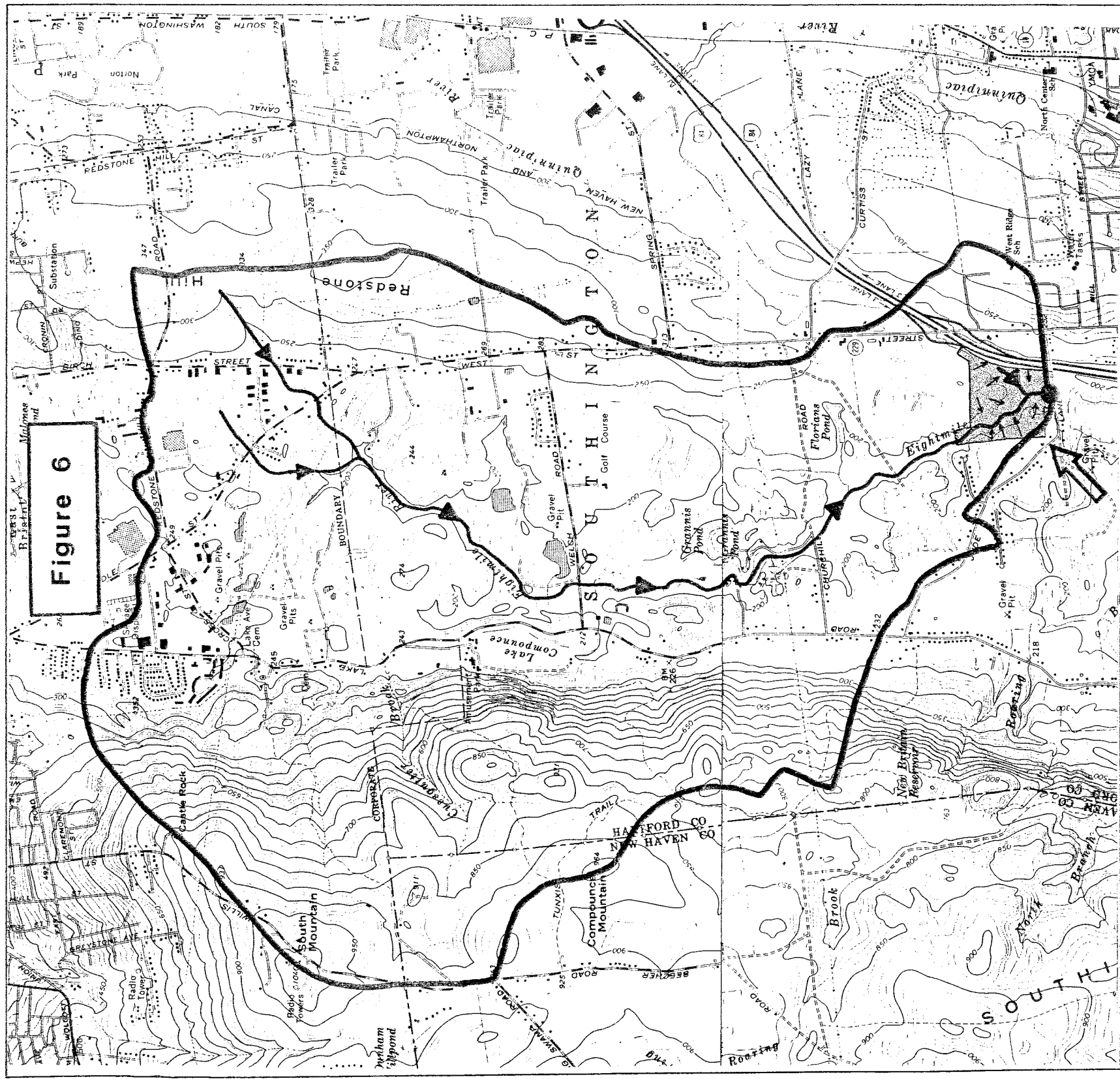
As shown in Figure 6, the drainage area for the Eightmile River to the point where it passes under Jude Lane encompasses an area of about 4,660 acres or 7.3 square miles. Based on this drainage area,

approximately 96 percent of the parcel lies within the Eightmile River watershed.

The western half of the drainage area is only lightly developed. Land use in this area appears to be mainly single-family residences, scattered along Willis Street in the Town of Bristol. Development in the western part of the watershed appears to have been hindered mainly due to geologic limitations such as severe slopes and shallow bedrock conditions.

The geologic conditions in the eastern parts of the watershed are more conducive to development. As a result, development in this part of the watershed is characterized by moderate to heavy density. Land uses appear to be mainly residential with scattered industrial and commercial uses. The latter uses are mainly in the Town of Bristol at the northern limits of the watershed. An amusement park is located at the north end of Lake Compounce in the central part of the watershed.

There were no subsurface information such as deep test pits, groundwater monitoring wells, or borings available to Team members during the field review. This information would allow for the exact determination of groundwater movement. Nevertheless, precipitation falling on the parcel may either; (1) percolate into the ground to become groundwater; (2) flow downslope as surface drainage directly to Eightmile River; or (3) may be intercepted by any of the topographic swales on the site. Except for the small southeast corner of the site, surface drainage intercepted by any of the topographic swales on the site flows into the Eightmile River.



EXECUTIVE OFFICE PARK EIGHT MILE RIVER

SOUTHINGTON, CONNECTICUT

WATERSHED BOUNDARY

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APPROXIMATE STUDY AREA



APPROXIMATE DRAINAGE AREA FOR
EIGHTMILE RIVER, TO THE POINT WHERE
THE RIVER CROSSES JUDE LANE



STREAMCOURSES



DIRECTION OF SURFACE FLOW



ARROW INDICATES PORTION OF PROPERTY
WHICH DRAINS TO DAYTON BROOK



Groundwater percolates downward through the generally porous sand and gravel soils on the site until it reaches the groundwater table or zone of saturation. Once it reaches the zone of saturation, it begins to move slowly by the force of gravity through the interconnected pore spaces in the unconsolidated materials on the site until it reaches a discharge point such as the Eightmile River, a wetland area, a spring, or stream course.

Precipitation falling on the site is also being removed through evaporation from surface water bodies, or transpired by plants into the atmosphere.

According to Connecticut Water Quality Standards and Criteria for South Central Coastal Area (1985) in which the site lies, groundwater beneath the site is classified as GB/GA. Groundwater classified as GB are known or presumed to be degraded, and therefore may not be suitable for public or private use as drinking water without treatment. On the other hand, groundwater classified as GA may be suitable for public or private drinking water use without treatment. A classification of GB/GA denotes groundwater is currently GB but DEP policy or goal would be to restore water quality in the River to a GA classification.

The same publication classifies surface waters as well. The surface water quality for the stretch of the Eightmile River through the property is Bc. A Class B surface water would be suitable for bathing and other recreational purposes, agricultural uses, certain industrial processes and cooling, fish and wildlife habitat, and has good aesthetic value. The subscript "c" beneath the letter "B" denotes that the River is suitable for cold water fisheries,

including spawning, growth, and passage.

Development of the parcel can be expected to lead to increases in runoff. The increases would result from: (1) covering permeable soils with impervious materials such as roof tops, interior roads, or parking areas; (2) from the removal of vegetation; and (3) from disturbance of uncovered soils. The magnitude of the increases would depend upon the extent to which development activities change the land. For example, based on preliminary site plans, it is estimated that nearly half of the 54-acre parcel would be covered by impervious surfaces (i.e., roads, rooftops, and parking areas). This amount of coverage is obviously substantial in terms of increased runoff from the site and peak flows to Eightmile River. Typically, commercial and industrial land uses tend to require more impervious surface area (i.e., for parking lots and bigger buildings). As a result, runoff increases from this type of use would tend to be higher than for residential development.

The two effects of runoff increases are usually: (1) flooding hazards; and (2) erosion.

The problem of increased flood hazards is most serious when a high percentage of a watershed has been intensely developed. If only a very small percentage of a drainage area is altered, there may be no noticeable change in flow rates of local streams. On the other hand, a series of such incremental developments may lead to marked flow increases. As previously mentioned, the watershed area of Eightmile River to the point where the River crosses Jude Lane, appears to be moderately developed in the eastern half, but only lightly developed in the western half. Any future developments in

the watershed would probably be restricted to the eastern portions, where geologic limitations are less of a hindrance, and public utilities (i.e., sewer and water) are available.

Since Southington has regulations that require postdevelopment flows not to exceed predevelopment flows from a particular site, each developer will need to determine the potential hydrologic effects of his/her development. As a result, it is encouraged that the applicant prepare a stormwater management plan, including pre- and postdevelopment runoff calculations. Once the plan is devised, it should be reviewed by appropriate town officials. Also, it is suggested that the applicant's engineer take a close look at all downstream culverts. Town officials stated on the review day that flooding has not been a problem in downstream areas of Eightmile River.

A likely solution for controlling postdevelopment flows would be the construction of detention pond(s). It is suggested that detention ponds be constructed on upland soils instead of wetland or flood plain soils since these soils have some intrinsic capacity for natural stormwater retention. Detention ponds on upland soils will minimize wetland impacts while providing the desired pond retention system. However, if detention ponds were placed on upland soils for the proposed development, it appears there would be a need for reducing the density of buildings and/or parking areas.

Preliminary site plans indicated that a 750 foot section of Eightmile River is to be relocated. If the applicant wishes to relocate the Eightmile River on a future plan, this type of activity will be subject to Connecticut's Water Diversion Policy Act (P.A.

402), and will require a DEP permit. Therefore, it is encouraged that the applicant or his/her engineer first contact DEP's Water Resources Unit regarding this matter.

Based on the preliminary site plan, two bridges and a road will span the river. It appears that appreciable amounts of material will need to be placed over alluvial soils and inland wetland soils. Filling and construction on the flood plain and inland wetland soils can have severe environmental impacts because of the important hydrologic as well as ecologic roles they play. Every effort should be made to reduce the impacts of the proposed construction on the flood plain through careful and judicious planning. All of the potential risks involved with permitting flood plain soils to be filled should be thoroughly assessed by the applicant. Any wetland areas disturbed by the proposed project should be properly and quickly rehabilitated. In this regard, the Town may wish to investigate possible alternate routes, which would require little or no disturbance to wetland and alluvial soils on the site. One possible alternative discussed by Team members on the review day would be to develop only in suitable areas on the east side of the River. As a result, there would be little or no disturbance to the Eightmile River, or its accompanying inland wetland and flood plain soils. This would also provide a good buffer between residences bordering the western limits of the property and developed areas on the site.

Depending upon what portion of the property is ultimately developed, and the density of development, it is suggested that a detailed erosion and sediment control plan be formulated and closely

followed during all phases of site development. Special attention will need to focus on the moderately sloping areas along the Eightmile River, and in the northeast corner of the site. Also, every effort should be made to protect the Eightmile River and any of its tributaries on the site from possible siltation due to eroding soils arising from potential site development. In this regard, it is encouraged that disturbed areas be kept to a minimum.

Flood Hazard Areas

A Flood boundary and Floodway map for the Town of Southington has been prepared by the Federal Emergency Management Agency (FEMA). The maps identify areas in Southington that are subject to flooding during the "100-year flood." A 100-year flood is a flood with a one chance in a 100 or a one percent chance that it will happen in any year. It should be pointed out that this does not mean a flood of a magnitude mentioned above will occur only once in a 100 year period. The probability of occurrences remains the same each year regardless of what happened the previous year.

According to the map, the 100-year flood boundary generally parallels the Eightmile River through the property. It is widest in the southern portion of the property but becomes narrower in the northern part.

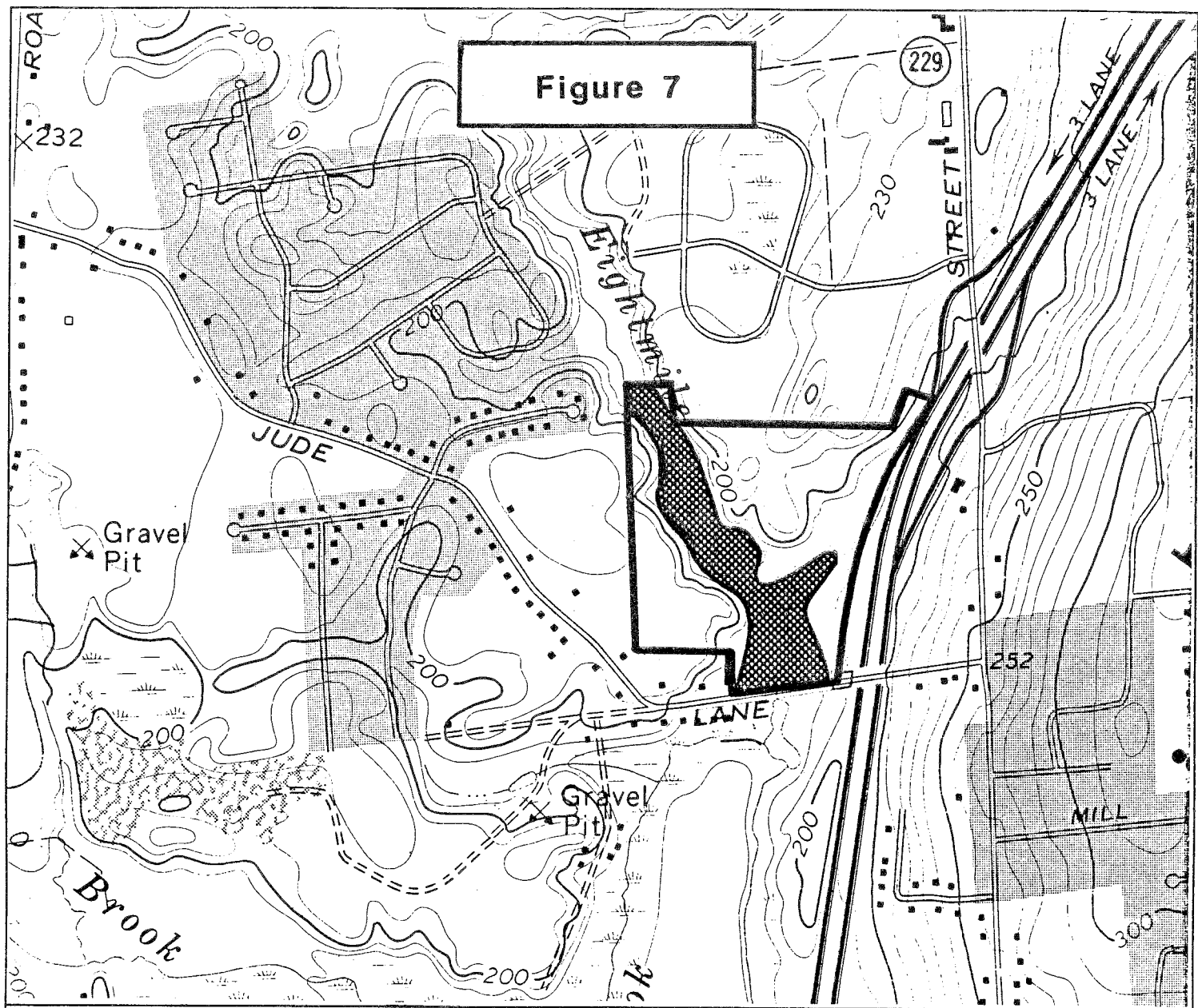
Figure 7, adapted from the FEMA map, identifies the flood prone areas within the study site.

There may be swampy or topographic depressions within the site subject to wetness and perhaps flooding during periods of particularly heavy rain. One such area is the disturbed area in

the southeastern corner of the site.

The generally flat topography in the flood plain makes this area very effective in storing water during periods of flooding. The flatness maximizes the available flood storage volume, while existing flood plain or wetland vegetation reduces flow velocities. For these reasons, filling in of flood plains or wetlands paralleling the River should be avoided if at all possible under any development scheme.

Any construction, (i.e., roads, buildings, etc.) occurring within the 100-year flood boundary will need to comply with all State and local regulations such as the State Building Code.



**EXECUTIVE OFFICE PARK
EIGHT MILE RIVER
SOUTHINGTON, CONNECTICUT**



**100 YEAR FLOOD
BOUNDARY**

**FLOOD HAZARD
AREAS**

King's Mark Environmental Review Team

0 1,000'



Soil Characteristics

Introduction

The soil map and narrative are a revision of data contained in the Soil Survey of Hartford County, Connecticut. The letter symbols on the map identify map units. Each map unit symbol has a unique composition of soils. Areas with the same symbol have the same composition.

Map Units CsA and CsC

These map units are composed primarily of Cheshire soils. Cheshire soils are very deep and well drained. They typically have fine sandy loam textures, and contain 15 to 25 percent gravels and cobbles to a depth of 60 inches or more.

Map unit CsA is on slopes of 0 to 3 percent. In some places, soil with fine sandy loam textures overlies stratified, very fine sand.

Map unit CsC is on slopes of 3 to 15 percent. In addition to the Cheshire soils, this map unit contains soils that range in depth from 30 to 60 inches (Figure 8).

The Cheshire soils should not present any particular difficulties during construction. In some places on the CsC map unit, the shallow depth to bedrock may necessitate blasting.

Map Unit CxD

This map unit is composed primarily of two soils that are so intermingled on the ground that they could not be separated on the

map. Slopes range from 15 to 30 percent. One soil is named Cheshire. Cheshire soils are very deep and well drained. They typically have fine sandy loam textures, and contain 15 to 25 percent gravels and cobbles to a depth of 60 inches or more.

The other soil is named Holyoke. Holyoke soils are shallow and well drained. These soils have fine sandy loam textures overlying Triassic sandstone at a depth of 10 to 20 inches. The Holyoke soils comprise about 25 percent of this map unit.

Besides Cheshire and Holyoke soils, there is a considerable percentage of soils that range in depth from 20 to 60 inches. These soils are also well drained and have fine sandy loam textures. In addition, small areas of sandstone bedrock are exposed at the ground surface.

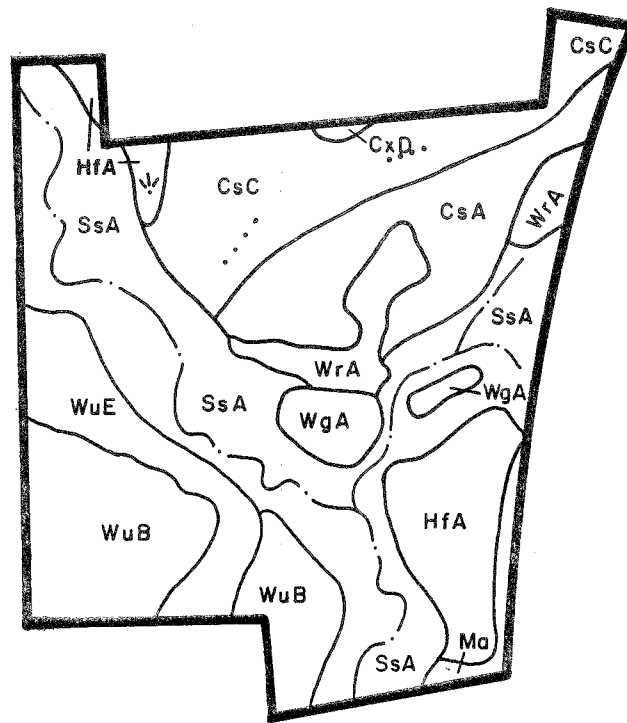
All the soils have up to 25 percent gravels and cobbles throughout their depth. These coarse fragments are rounded in shape and have crystalline minerologies (see Figure 8).

The shallow depth to bedrock in this map unit will make construction difficult. Blasting will be needed if extensive cuts are required. The steep slopes will also increase construction costs.

Map Unit HfA

This map unit is composed primarily of Hartford soils on 0 to 3 percent slopes. These soils are very deep and somewhat excessively drained. They typically have about 20 inches of fine sandy loam material overlying stratified sand and gravel. Hartford soils are greater than 60 inches deep.

Figure 8



**EXECUTIVE OFFICE PARK
EIGHT MILE RIVER
SOUTHINGTON, CONNECTICUT**

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OF SOILS**

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The area delineated as HfA on the southeast corner of the property has been disturbed. Examination of the soils was not possible because the ground was frozen; however, the degree of disturbance is believed to be minimal. This area was identified as Hartford soils based on the information contained in the published soil survey and examination of the soils in the adjacent areas (see Figure 8).

The Hartford soils should not present any construction difficulties during site development.

Map Unit WgA

This map unit is composed of Watchaug soils on 0 to 3 percent slopes. These soils are very deep and moderately well drained. Depth to the high water table is 1.5 to 3.0 feet. Typically, the Watchaug soils have fine sandy loam textures to a depth of 60 inches or more (see Figure 8).

The high water table necessitates special design of any proposed roads or structures.

Map Unit Ma

This map unit is composed of areas where the naturally occurring soils have been altered by man. This map unit encompasses the filled slopes that border the Interstate 84 and Jude Lane (see Figure 8).

Map Units WuB and WuE

These map units are composed primarily of Windsor soils. These soils are very deep and excessively drained, with 3 to 8 percent

slopes. They typically have loamy sand and loamy fine sand textures to a depth of 60 inches or more (see Figure 8).

Cutbacks of excavations are unstable and will cave-in due to the soil's sandy textures. Disturbed areas will be difficult to revegetate because of the droughty nature of the Windsor soils.

Map unit WuE is on 35 to 65 percent slopes. The extremely steep slopes will make any construction activities on these soils costly. The WuE map unit is immediately adjacent to the Eightmile River (see Figure 8). Disturbance of these soils will result in a great deal of sediment entering the River.

Map Unit SsA

This map unit is composed primarily of Saco soils on 0 to 3 percent slopes. These soils are very deep and very poorly drained. The Saco soils have a high water table within six inches of the soil surface. They are also flooded by surface water at least once every two years. Saco soils are stratified, with silt loam and very fine sandy loam textures to a depth of 60 inches or more (see Figure 8).

Water will be the problem for construction within this flood plain area. This area will be extremely muddy and will limit the movement of construction equipment.

The flood plain serves to store flood waters during periods of high runoff. Fill placed within the flood plain will decrease the amount of water that can be stored here. This in turn may aggravate any existing downstream flooding problems

Map Unit Wra


The Wra map unit is composed primarily of Wilbraham Variant soils on 0 to 3 percent slopes. These soils are very deep and poorly drained. They have a high water table within 1.5 feet of the soil surface. The Wilbraham Variant soils have fine sandy loam and loam textures to a depth of 60 inches or more (see Figure 8).

The high water table necessitates special design of any proposed roads or structures.

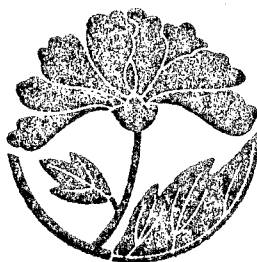
Special Symbols

These special symbols are used on the soil map. These symbols identify features that were too small to delineate on the map.

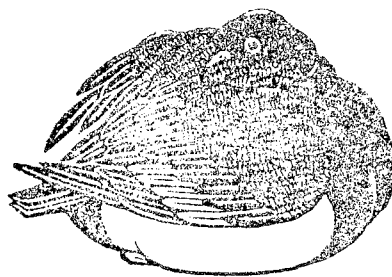
(....) This symbol is used in the CsC map unit to identify short, steep slopes of up to 25 percent.

() This symbol is used in an MyA map unit to identify a wet spot. The wet spot is characterized by soils that are poorly drained.

(_._) This symbol is used within the SsA map unit to identify the location of the perennial stream channels.



BIOLOGICAL RESOURCES



BIOLOGICAL CHARACTERISTICS

Forest Resources

Introduction

The site of the proposed Executive Office Park consists of three broad vegetative cover types. These include: (1) mixed hardwood; (2) hardwood swamp; and (3) old field (Figure 9). Each cover type is described in detail below.

In a commercial sense, the value of the wood on this property is low. The only area with merchantable trees is the mixed hardwood stand in the western portion. The trees are of poor quality, and would yield only fuelwood and low value sawlogs as products.

The real value of the property's woodland is the aesthetics and the water storage capacity of the area. In addition, the woodland provides a renewable resource in the form of wood growth, and a diversified wildlife habitat.

Vegetative Type Descriptions

Mixed Hardwoods

This area is comprised mainly of 10 to 14 inch diameter hardwood and softwood trees. Species include red oak, white oak, black oak, white pine, pitch pine, and hemlock. The understory is made up of seedlings and saplings of the same species and scattered mountain laurel and lowbush blueberry.

Hardwood Swamp

This stand has the Eightmile River flowing through it (see Figure 9). The species present are red maple and elm. The understory contains primarily spicebush.

Old Field

This area is old hayfield or pasture which is reverting back to woodland. The tree species present are red cedar, white pine, pitch pine, aspen, gray birch, black oak, red maple. The shrub species present are speckled alder, hawthorn, red stemmed dogwood, and staghorn sumac.

Limiting Conditions and Potential Hazards

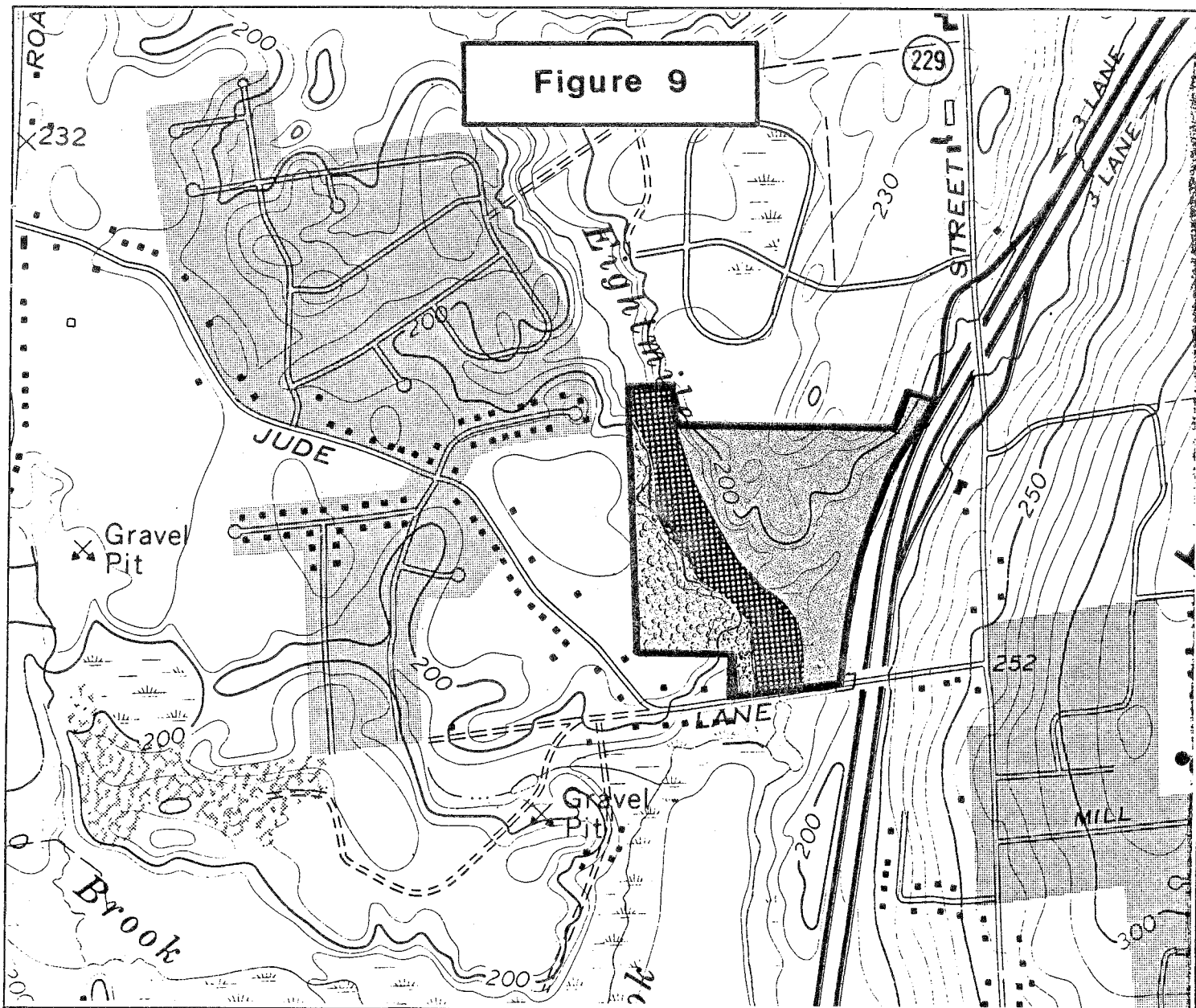
The soils in the mixed hardwood forest community are steep and excessively drained. This may limit equipment operability.

The soils in the hardwood swamp are very poorly drained and have a very high water table. This would severely restrict equipment operability, and create a high windthrow hazard if any openings were made in the stand.

Management Considerations




The mixed hardwood forest community is the only area with management potential. Because of the soil type present, the establishment and growth of softwood species would be better suited than hardwood species. This could be accomplished by releasing the

Figure 9



**EXECUTIVE OFFICE PARK
EIGHT MILE RIVER
SOUTHINGTON, CONNECTICUT**

FOREST TYPES

-  MIXED HARDWOODS
-  HARDWOOD SWAMP
-  OLD FIELD

King's Mark Environmental Review Team

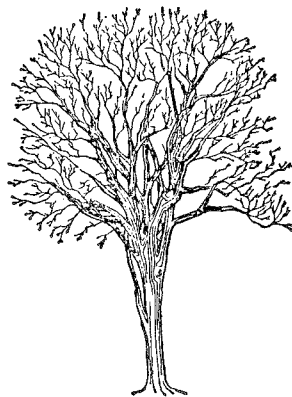
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established softwood growth from overtopping hardwood. The natural softwood growth could be supplemented by planting hemlock in the understory of the hardwood and white pine in openings. The value of the softwood stand would be that, once it was established, it would act as a visual screen and noise barrier to development on other portions of the property.

Any cutting, whether it is done for thinnings or for clearing of roadways and building sites, should be done to take advantage of the high demand for all wood products. Firewood would be the main product and is highly sought after. The proper marketing of this product should be considered and planned for.

A public service forester or a private forester may be of assistance in either on the ground planning or the marketing of wood products.



Wetland Resources and Characteristics

Description of Wetland Habitats

Of the 54 acres covered by the development parcel, approximately 40 percent, or roughly 23 acres, are wetlands. The wetlands have developed in the flood plain of the Eightmile River, which meanders from the northwest corner of the site in a southerly direction and passes under Jude Lane. A tributary brook flows in a westerly direction from the northeast portion of the site until it meets with the Eightmile River in the middle of the site. As is typical of similiar low-gradient streams, the River bends and curves in indulations which are not static, but change with stream flows and siltation patterns. In the oxbows and turns of the River, marshes, shrub swamp, and forested swamp have developed (Figure 10).

The dominant tree in the wetland canopy is red maple. White ash and pin oak are also found throughout the flood plain. A dominant species in swamps of the southern United States, black tupelo, also appears here. Speckled alder and willows dominate the shrub layer, with important appearances also made by arrowwood, maple-leaf viburnum, bayberry, silky dogwood, spicebush, and sweet pepperbush. An occasional shadbush is apparent. Two fruit-bearing vines, grape and common greenbrier, are prevalent. In the low-lying areas on either side of the River, tussock sedge forms its spongy hummocks. Also in the understory are skunk cabbage, water horehound, sphagnum moss, cinnamom fern, sensitive fern, and royal fern. Though no threatened, rare, or endangered species were observed on the site, there is a species of special concern occurring in close proximity

of the site. A population of Hartford or climbing fern is known to be extant southwest of the study area. This species is an evergreen fern found growing on moist acid soils.

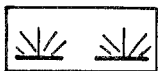
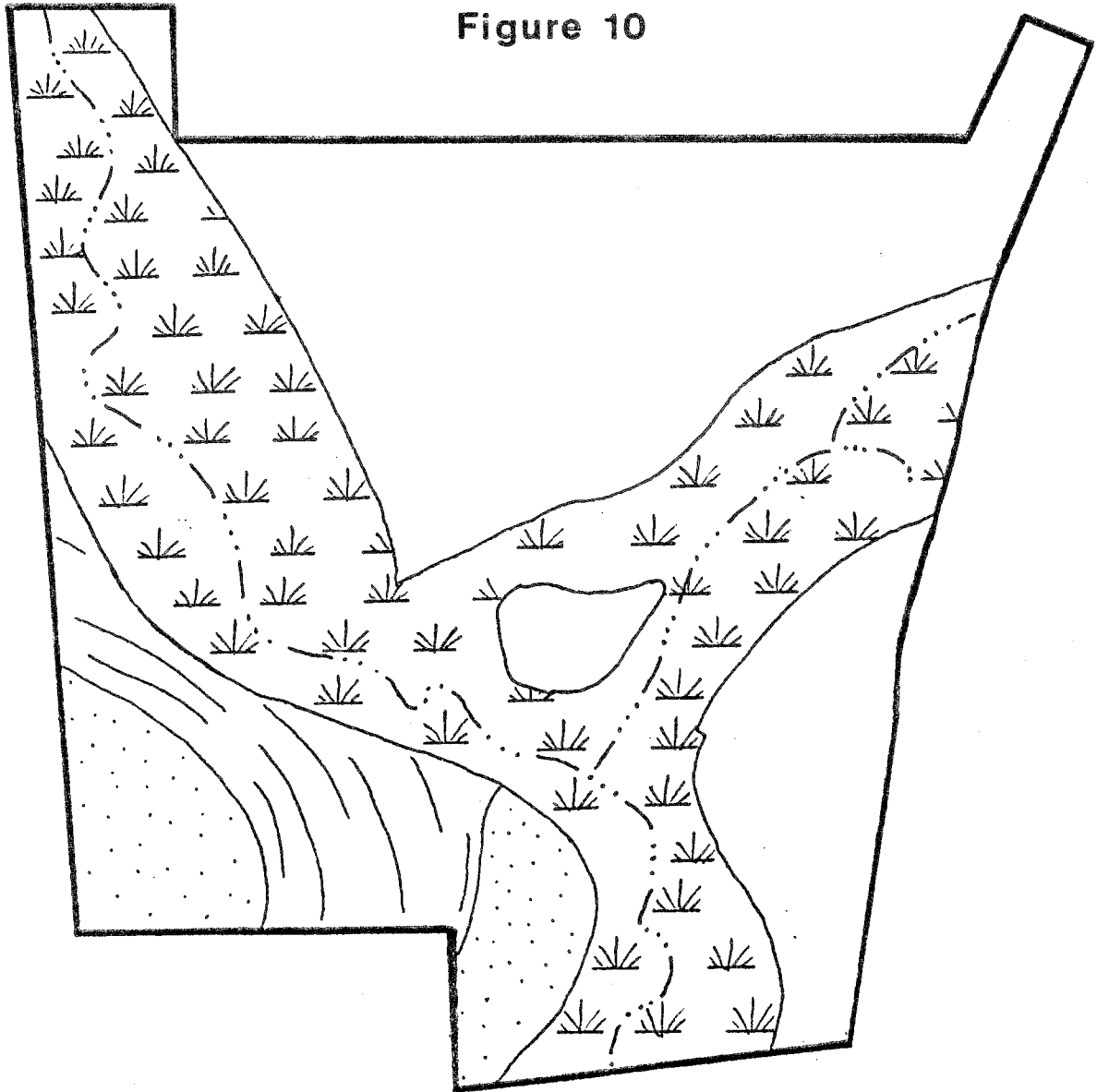
On the southwest side of the parcel is an area of terrace escarpments and glacial outwash (see Figure 10). Species which are persistent in well drained soils are found in the glacial outwash area and include quaking aspen, scrub oak, and pitch pine as well as red cedar. Bayberry, sweet fern, and sheep laurel occur in the shrub layer. Eastern hemlock and mountain laurel are able to establish themselves in rocky terrain with very little soil cover; their seeds require only a mossy bed for germination. These species are found on the terrace escarpments.

Species typical of abandoned fields are found in the northern portion of the site (see Figure 10). Particularly suggestive of an old but abandoned cow pasture are red cedar and common greenbrier, which cannot tolerate grazing but proliferate once cattle or sheep are removed. Russian olive, bayberry, common juniper, and witch hazel are also found in the upland

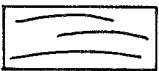
The clearing on the east side of the parcel supports cottonwood, red maple, and pin oak along its periphery. Herbaceous species observed include asters, bergamot, blue curls, pinweed, knapweed and goldenrod.

Why is the wetland significant, and what functions does it perform? Part of this wetland's significance is attributable to its size and to the extent of unfilled, unaltered wetlands. The uplands on-site provide some, although not extensive, buffer areas for wildlife. The wetlands have a developed understory, shrub layer, and

Figure 10



FLOODPLAIN
VEGETATION



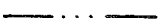
TERRACE ESCARPMENTS
VEGETATION



GLACIAL OUTWASH



UPLAND VEGETATION



STREAMBED

EXECUTIVE OFFICE PARK EIGHT MILE RIVER

SOUTHINGTON, CONNECTICUT

DISTRIBUTION OF VEGETATION

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0 330 ±



tree canopy, which give the system a variety of habitat niches. A variety of niches, in turn, can support a diversity of species. In fact, as many as forty species of songbirds breed in forested swamps such as the flood plain of the Eightmile River. The area is likely to provide good nesting and feeding sites for warblers. White-tailed deer and rabbits are also likely inhabitants of the willow and alder copse.

The alders found throughout the flood plain do more than provide forage and habitat for birds and small mammals. Alders carry on a symbiotic relationship in their root systems with nitrogen-fixing bacteria. In the nodules of alder roots, atmospheric nitrogen is converted to a form which can be utilized by the plants in the swamp, and then passed along the food chain. The swamp has its own fertilizer in the alder thicket.

Several factors contribute to the Eightmile River's value for fisheries habitat. Extensive tree cover provides shade to maintain cool water temperatures. The water quality classification for the stream is Bc, which means that it is fishable and swimmable, has good wildlife habitat value, and is valuable for coldwater fish. In fact, the DEP stocks trout there. The vegetated meanders of the River provide excellent forage and breeding spots for fish.

Recreational potential exists on-site for passive activities such as fishing and birdwatching. Access to the streambanks, however, is hampered by the marshy, soft soils of the flood plain. Difficult access also limits the site's educational potential. For the enthusiastic class, however, the site offers exposure to a number of different wetland types and wildlife habitats, e.g., stream and streambanks, tussock sedge marsh, shrub swamp, and forested swamp.

Potential Environmental Impacts

Development of an office park in the Eightmile River flood plain could result in adverse environmental impacts. Preliminary plans indicated that wetlands and the River would be affected by bridge crossings, roadway crossings (presumably with box culverts), pond excavation, relocating a stretch of the River, and by filling activities associated with parking lots and building construction. These encroachments would alter a vital and productive wetland system. The potential impacts of the types of activities contemplated by the developer are listed below.

- (1) The filling activities, river crossings, culverts, and ponds would disrupt the wildlife corridor presently associated with the stream and adversely affect prime wetland areas;
- (2) Valuable songbird, small mammal, and white-tailed deer habitat would be reduced;
- (3) Filling activities could result in sedimentation and erosion problems;
- (4) Pond excavation activities are likely to release a large volume of sediments into the water column;
- (5) Lower flow rates and altered bottom sediments in the excavated pond will result in depressed dissolved oxygen concentration. Lower water quality, in turn, would adversely affect fish populations;
- (6) Eliminating the existing tussock sedge/shrub swamp community through filling and dredging would deplete fish feeding and breeding sites;
- (7) Eliminating the tree and shrub canopy will allow more sunlight to reach the stream, with the effect of raising water temperature. This will also adversely affect fish populations;
- (8) Ponds, culverts and bridge crossings may affect the suitability of the stream for fish passage;

- (9) In major storm floods, people using facilities in the west side of the office park may be trapped. Access proposed to the west side of the site is a bridge crossing over the Eightmile River. Depending on the surface elevation of the bridge, it could be flooded out during severe storms, effectively blocking evacuation routes, unless another emergency egress could be developed. The key is to provide dry access during storm events;
- (10) Altering the flood plain and wetlands would lessen the site's educational and recreational value;
- (11) Placing fill and parking lots in the floodway would reduce the site's flood storage capacity and would subject users to flood damage; and
- (12) Runoff from road and parking lot surfaces could introduce oil, grease and silt into the water course.

Mitigating Measures

Below are guidelines to minimize the impact of the development on flood plain and wetland resources:

- (1) The development of buildings and use of fill material should be restricted in the 100-year floodway;
- (2) Eliminating the bridge crossing to the west side of the site would avoid several impacts. The wildlife corridor could be conserved, direct impacts to the tussock sedge marsh would be avoided, and the concern over evacuation routes during major storms would be eliminated;
- (3) Undisturbed vegetated buffer areas should be maintained between the 100-year floodway and any buildings or parking areas to minimize wildlife impacts;
- (4) Erosion checks should be placed at proposed toes of slopes to prevent entry of sediments into wetlands or watercourses;
- (5) It is encouraged that fill slopes be no steeper than 1:1. Embankments should be immediately seeded and mulched to prevent erosion, and staked haybales or silt fencing should be maintained until grass plantings have begun to stabilize slopes;
- (6) If detention ponds or sediment basins are necessary, they could be located outside of the flood plain. It is possible to design wildlife considerations into a detention basin. If an area of at least one-quarter acre is available, a pond can be created to support fish. The pond should have a

maximum depth of 4 to 8 feet. About one-third of the basin could be established at a depth shallow enough to support marsh plants which would provide forage area for fish. Cattails or other moisture-loving plants should be planted in the shallows and along the edge of the basin. An appropriate planting of berry producing wetland shrubs could be established landward of the marsh fringe to support songbirds. It should be noted that the type of fishery that could be accommodated in such a basin is not the coldwater fishery associated with the Eightmile River, but rather, a panfish community. If the minimum one-quarter acre is not available for pond creation, it will not be feasible to plan for a fish pond. Even in smaller basins, however, it is possible to establish a marsh fringe and plant shrubs to attract waterfowl and songbirds;

- (7) Vegetation disturbance along the existing streambank should be minimized to preserve the tree canopy;
- (8) A means of providing recreational access to the River would be the construction of pile-supported wooden walkways;
- (9) Catch basins should be hooded to minimize the entry of oil and grease from roadway runoff into wetlands or water courses;
- (10) To avoid constructing parking lots in the flood plain, it is suggested that parking facilities be concentrated in a parking garage located on upland; and
- (11) To minimize wetland impacts, foundation and buffer plantings should employ shrubs and trees with high wildlife value. A combination of deciduous and evergreen varieties should be employed. Deciduous shrubs and trees provide nesting materials and food, while evergreens provide cover during winter months. Plantings might include Japanese yew, Chinese juniper, and red cedar. Berry-producing species are essential and might include hawthorns, dogwood, cherry, highbush blueberry, bayberry, and viburnums.

Water Diversion

If the developer wants to pursue plans to relocate a portion of the River, that activity would require a diversion permit in accordance with Section 22a-368 of the Connecticut General Statutes (CGS). The relocation would require a diversion permit because it would alter the flow of the River. Diversion application materials

and instructions are available from the DEP - Water Resources Unit, Room 207, State Office Building, Hartford, CT 06106. Among other items, the application should contain a statement of need and should outline the reasons for the proposed diversion. The quantity, frequency and rate of water flow should be specified in the application. The statutes require that the applicant assess the effect of the proposed diversion on public water suppliers, water quality, flood management, wetland habitats, fish and wildlife, and low flow requirements. A more complete listing of application requirements is found in CGS Section 22a-369.



Wildlife Habitat Types

Mixed Hardwood Forest

This wildlife habitat type occurs on the upland areas, and consists of red and white oaks, maple, birch, and scattered conifers such as white pine, pitch pine, and hemlock. Understory species include mountain laurel, lowbush blueberry, barberry, and a variety of grasses and herbaceous species.

Wildlife species utilizing such habitat types include white-tailed deer, turkey, ruffed grouse, gray squirrels, flying squirrels, passerines, and a great variety of other nongame wildlife species.

Openland

This habitat type consists of reverting fields comprised of grasses, round-headed bush clover, goldenrod, ragweed, alder, cedar, sumac, hawthorn, autumn olive, and hardwood saplings such as birch and oak.

Wildlife frequenting such sites include white-tailed deer, turkey, ruffed grouse, American woodcock, meadowlarks, sparrows, cedar waxwings, mice, raccoon, rabbits, and various nongame wildlife species.

Wetlands

The wetland habitat consists of seasonally flooded mixed hardwoods dominated by red maple along with elm and birch. Understory vegetation includes spicebush, rose, barberry, alder,

dogwood, clubmoss, skunk cabbage, grasses, ferns, and various herbaceous species. Fruiting vines present are greenbrier, bittersweet, and grape. The Eightmile River runs through this wildlife habitat type.

Wildlife species utilizing such habitat are white-tailed deer, river otter, raccoon, skunk, mink, American woodcock, woodpeckers, passerines, and various amphibians and reptiles.

Discussion

Since Connecticut is a densely populated and growing state, available wildlife habitat continues to decline. It is therefore prudent to consider maintaining and enhancing existing habitat areas to protect indigenous wildlife species. The following practices will help to improve conditions within the various habitat types.

Forestland Guidelines

- (1) Create a diversity of habitat by making small, irregularly shaped (1/4 to 1 acre) openings in an east to west direction in order to maximize sunlight. This will encourage fruit producing shrubs valuable to many types of wildlife.
- (2) Pile brush along edges of openings for small mammals and birds.
- (3) If a timber harvest is planned, these practices will enhance wildlife habitat:
 - * Encourage mast producing trees (oak, hickory, beech);
 - * Leave 5 to 7 snags per acre;
 - * Encourage diversified age classes of aspen;
 - * Trees with vines (i.e., berry producers) should be encouraged;
 - * Create small, irregularly shaped openings with feathered edges;
 - * Construct brush piles along edges of fields for resting and escape cover;

- * Exceptionally tall trees (utilized by raptors for perching and nesting) should be encouraged.

Openland Guidelines

- (1) Place bluebird boxes along edges of openland to encourage eastern bluebirds to nest in the study area;
- (2) Woody vegetation should be mechanically controlled every 3 to 5 years to provide optimum conditions.
- (3) Develop access measures to control impact of off-road vehicles.

Wetland Guidelines

- (1) Leave natural buffer strip of vegetation along wetland areas to help filter and trap silt and sediments.
- (2) Culverts should have screens to lessen potential damage from beavers.
- (3) Retention ponds, if needed, should be strategically placed to benefit wildlife, particularly waterfowl.

As this area is developed, there will be an immediate and potentially long-term adverse impact on wildlife. The primary potential impact is the direct loss of habitat due to access roads, buildings, parking lots, and bridges. Another potential impact is the change in habitat where forests are cleared for lawns and landscaping. A third potential impact is the increased human presence, and vehicular activity. This will drive the less tolerant species away from the site, even though there has not been any physical change in existing wildlife habitat.

A number of the previously discussed management guidelines could be implemented in order to minimize negative impacts on wildlife from the proposed development. For example, cluster development and

natural landscaping concepts (i.e., limiting lawns and chemical applications) are possible development alternatives. This would lessen direct habitat loss as well as possible water pollution problems.

Due to existing commercial and residential development within the vicinity of the study area, and the nature of the proposed development, wildlife habitat management practices on a large-scale are not feasible. The best approach in this situation would be to encourage small-scale wildlife habitat management improvement practices, such as providing food, water, cover, and nesting areas. Table 1 indicates a number of plant species that may be considered in the development of the site.

TABLE 1

SUITABLE PLANTING MATERIALS FOR WILDLIFE FOOD AND COVER

Herbaceous/Vines	Shrubs	Small Trees
Panic grass	Sumac	Flowering Dogwood
Timothy	Dogwood	Crab apple
Trumpet creeper	Elderberry	Hawthorn
Grape	Winterberry	Cherry
Birds-foot trefoil	Autumn olive	Serviceberry
Virginia creeper	Blackberry	Cedar
Switchgrass	Raspberry	
	Honeysuckle	
	Cranberry bush	

Nesting sites can be provided for a great variety of birds with placement of artificial nest boxes (see Appendix B).

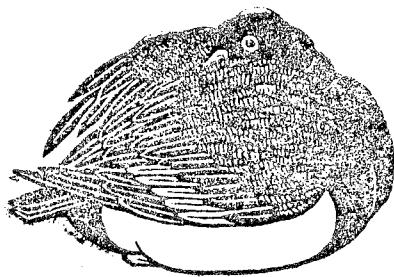
Fishery Resources of the Eightmile River

The stretch of the Eightmile River located within the proposed development area can be considered suitable trout habitat throughout. The DEP has been stocking approximately 900 adult trout (i.e., predominately brown trout and some brook trout) in this general area of the Eightmile River. Public access is very good. Other fish species that are likely to inhabit this area are white suckers, fallfish, common shiner, bluegill sunfish, and rockbass.

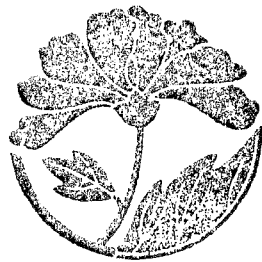
The River in this area consists primarily of long, sandy bottom pools interspersed with rocks, and a small amount of short, shallow riffles. The major source of cover providing habitat for salmonids and other species is comprised of undercut banks and root systems, and shoreline vegetation extending into the water. The existing overstory of young hardwoods and shrubbery provides shade during times of the year when solar heating could be detrimental to stream-dwelling fishes. The Southington portion of the Eightmile River is a valuable fisheries resource, and it presently provides a good quality trout fishing experience.

It is encouraged that any development plan for the area consider the fragile balance between the stream and streambank area immediately adjacent to it. In a shallow, sandy bottom river such as this, very little in-stream cover and aquatic insect producing habitat exists. Terrestrial invertebrates are often the major source of food for the fishes inhabiting such a stream. Therefore, any significant cutting or removal of the overstory would very likely result in a loss of the majority of existing trout habitat, and a severe reduction in the number of fish food organisms present in the

Eightmile River. Any ponding of the River would cause a warming of the water downstream of the impoundment. It is likely that the higher water temperatures would exceed the tolerances of cold-water species, and would thus make the Eightmile River incapable of supporting trout through the summer.



**LAND USE
AND
PLANNING CONSIDERATIONS**



LAND USE AND PLANNING CONSIDERATIONS

Industrial Zone Requirements

The property proposed for development is an Industrial Zone (Figure 11). Executive office parks are allowed in this zone by special permit. Section 5-01 2B of the zoning regulations outlines the conditions and safeguards applied to the construction of an executive office park. The Executive Office Park, as proposed, seems to meet these conditions. The following include either unmet conditions or conditions not fully stated in the preliminary site development plan:

- (1) Individual lot sizes are not stated, therefore it is unknown if individual lot sizes meet the requirements (Section 5-01.2B6).
- (2) The light industry/storage building is proposed for four stories, only three are allowed by Southington's zoning regulations (Section 5-01.2B6).
- (3) Dining facilities can be provided for a maximum of 1,080 people (Section 5-01.2B9a).

In general, for special permit uses, the Planning and Zoning Commission (PZC) must look at the proposed development's harmony with the overall development of the area. Since this proposal involves development adjacent to residential development, the Commission must further review the proposal to assure that it is not "hazardous or inconvenient to, or incongruous with the said residential zone." Factors to be considered include site layout, traffic congestion, hazards inherent to the proposed development, and the effect of development on adjacent residential land value (Section 8-02 2, Zoning Regulations).

The special permit application must also include a site plan. While special permit approval precludes any development, it does not equate site plan approval, unless specifically stated by the Commissions. The PZC can withhold final site plan approval until all phases of the Executive Park are completed. Requirements for site plans are outlined in Section 9-03 of the zoning regulations.

In addition to the special permit uses requirement, the Executive Park is also regulated by the general industrial zone requirements. Requirements pertinent to executive parks in I-2 zoned areas are:

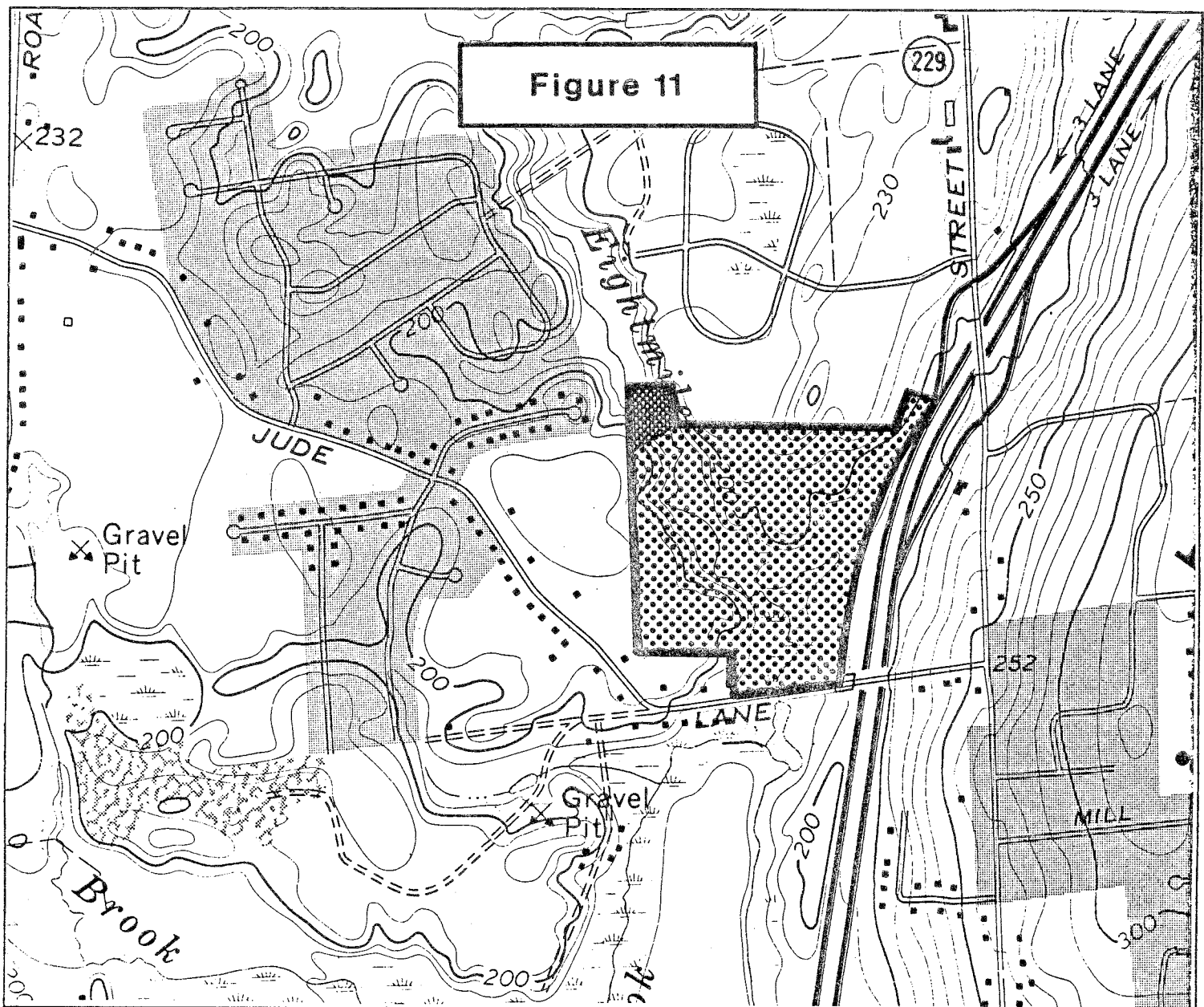
- (1) Available parking must meet the requirements of Section 12 of the zoning regulations.*
- (2) A landscaped screen not less than 50 feet wide is required.*
- (3) Offensive odors or noxious, toxic or corrosive gases or fumes cannot be emitted.*
- (4) Objectionable noises cannot be transmitted beyond the property.*
- (5) Objectionable light cannot be transmitted beyond the property.*

* (Section 5-00, Southington Zoning Regulations)

Surrounding Land Use

The site of the proposed Executive Office Park is bound to the east by Interstate 84. To the south of the site is a motel and a few single-family homes along Jude Lane. South of Jude Lane is primarily open forestland and wetlands. West and northwest of the site is low density residential development (1 to 2 dwelling units per acre).

This area is zoned R-20/25. This zone allows as permitted uses single-family dwellings and farming. The minimum lot size is 14,000



**EXECUTIVE OFFICE PARK
EIGHT MILE RIVER
SOUTHINGTON, CONNECTICUT**

CURRENT ZONING



R 20/25 (Single Family Residential
Zone and Farming)



I-2 (Industrial Zone)

King's Mark Environmental Review Team

0 1,000'



square feet or approximately a third of an acre. The area to the north is zoned I-2. This is the site of a proposed insurance park.

The only proposed building that is in the vicinity of the residential homes is the light industry/storage building. As the building is presently proposed, there is a 50-foot landscaped buffer, in addition to an approximate 100-foot yard behind the industrial building. Although there is no designation on the site plan as to what will be done in the space behind the building, it is suggested that it remain wooded to provide additional buffering between the proposed building and the residences.

Another potential problem source is traffic. The access road to the Executive Park is to enter from Jude Lane. Jude Lane's traffic is primarily from travel between West Street and the residential sections to the west and northwest of the proposed development. Potential traffic problems are discussed later in this report.

Infrastructure Needs

Water supply and sewage disposal is not expected to be a problem with the proposed Executive Office Park. Water lines currently exist in the area providing water to the homes west and northwest of the proposed development. These lines are capable of providing water without stressing the capacity of the lines or the water supply.

While sewage disposal is not currently available to the proposed Executive Park site, completion of the West Side Interceptor will provide adequate sewer service to the area (Figure 12). Since the existing sewage treatment facility is well below capacity, it is capable of assimilating future growth.

Concerning stormwater drainage and flood control measures, although these specifications have not been defined by the developer, provisions must be made in conformance with the Town of Southington's subdivision and zoning regulations. Required flood control measures are outlined in Section 6-01.24 of the zoning regulations (Development Regulations in the Flood Plain Districts). Stormwater drainage requirements are outlined in Section 7-02 of the subdivision regulations (Storm Water Management).

Traffic and Access Issues

The proposed access road for the Executive Office Park will enter from Jude Lane. Jude Lane is a small, two lane road that acts as a feeder street for a residential area of approximately 434 households to West Street. While the traffic from the Executive Office Park will probably not increase the traffic flow through the residential area, it will combine with the residential traffic between the proposed access road and the West Street/Jude Lane intersection. Since the typical peak flow periods for residential and office areas are the same, this overlap will probably result in traffic congestion in this area during these peak hours (i.e., 7:00-9:00 a.m. and 4:00-6:00 p.m. on weekdays).

At this time, no traffic signal exists at the West Street/Jude Lane intersection. In 1985, three accidents occurred at this intersection. While congestion at this intersection already exists at peak hours, no road improvement or signalization is proposed without the Executive Office Park.

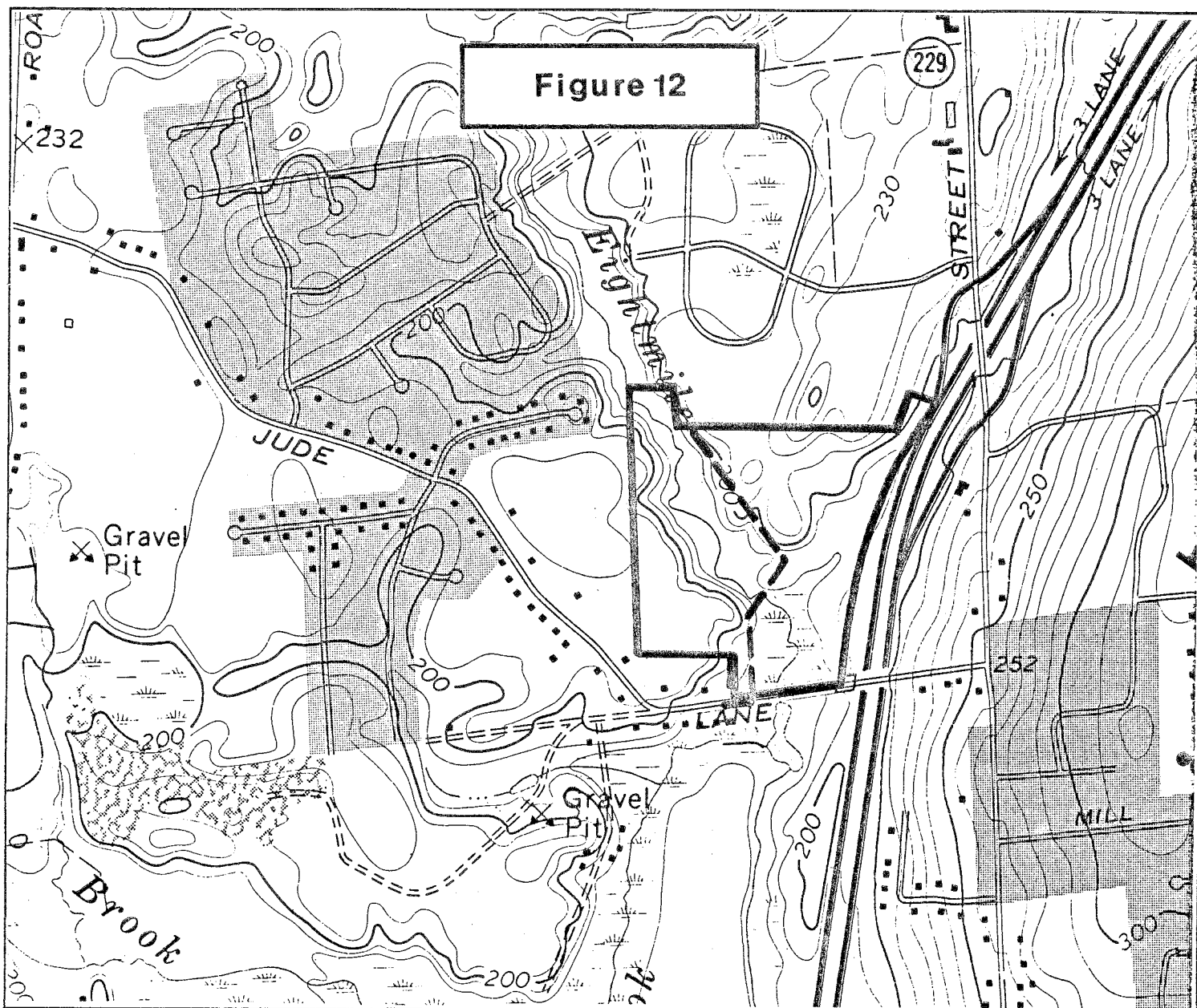


Figure 12

--- PROPOSED SEWER LINE

**EXECUTIVE OFFICE PARK
EIGHT MILE RIVER
SOUTHINGTON, CONNECTICUT**

WEST SIDE INTERCEPTOR

King's Mark Environmental Review Team

0 1,000'



The Executive Office Park is estimated to have 2,000 cars accessing it per day. Considering this additional traffic, the following guidelines should be considered:

- (1) Installation of a traffic signal at Jude Lane and access road operating only at evening rush hours.
- (2) Installation of a traffic signal at the West Street/Jude Lane intersection.
- (3) Right turn lane on southbound West Street.
- (4) Left turn lane on northbound West Street.
- (5) Widening of West Street to accommodate traffic approaching or leaving the Executive Office Park.
- (6) Improve and widen impacted section of Jude Lane.
- (7) Two turning lanes at intersection with West Street. The left lane for left turns only, and the right lane for right and left turns.
- (8) Caution sign at corner eastbound on Jude Lane west of access road to warn of signal.

Since West Street is a State road, the developer may be required to obtain a certificate from the State Traffic Commission. Certificate application review involves the review of the site plan. The Commission will then determine if any road improvements or traffic control devices must be included in the plan. The cost of these improvements and devices is borne fully by the developer. Additional information on this process can be obtained by contacting the State Traffic Commission in Wethersfield, Connecticut.

Flood Plain District Regulations

A large segment of the property proposed for the development of the Executive Office Park is designated on Southington's "Flood Plain

Hydrology" map as a Zone A Flood Plain District. This zone is defined as: "...areas of 100-year flood where base flood elevations and flood hazard factors have not been determined..." The flood plain boundaries are approximations of the 100-year flood elevation (Section 6-01.11-D1, Town of Southington zoning regulations).

The limit of the 100-year flood plain as shown on the preliminary site development plan for the proposed Executive Office Park does not coincide with the flood plain delineated on Southington's "Flood Plain Hydrology" map. A more accurate delineation of the 100-year flood plain limit would be necessary to determine if the proposed buildings are within the Flood Plain District.

According to the Town of Southington's Flood Plain Zoning regulations (zoning regulations, Section #6), the following provisions apply to development within the Flood Plain District:

- (1) The lowest floor, including basement, must be elevated one foot above the base flood elevation.
- (2) Construction must be done with materials and utility equipment resistant to flood damage, and construction methods and practices that minimize flood damage shall be used.
- (3) Sanitary sewer systems within the Flood Plain District shall be flood proofed and water tight below the base floor level.
- (4) All encroachments, including filling, new construction, and other developments within the floodway shall be prohibited.
- (5) Filling, grading, new construction, and other developments that lie partially within the flood plan shall first use the land beyond the flood plain unless waived by the Commission.
- (6) The base flood elevation and the floodway limits within the proposed development area must be defined.
- (7) All new construction must be anchored.

- (8) Any filling of the floodway fringe must be limited to 25 percent of the flood plain area under that particular ownership.

Since the Flood Plain District involves more land than was originally depicted on the preliminary site plan, it is suggested that alternative plans be investigated to determine if more efficient use of the land beyond the Flood Plain District can be made. These alternatives may include clustering buildings, combining buildings, limiting the number of parking spaces to, at, or near the number required by the Town of Southington, and taking advantage of compact car parking space to decrease the total area designated for parking. Additionally, an accurate delineation of the Flood Plain District must be made so that the percent of the flood plain to be filled for development can be calculated. If this percentage is greater than 25 percent, alternative proposals must be sought.

Inland Wetlands Regulations

Since the proposed development involves "regulated activity" (Section 2.1-k), as defined in the "Inland Wetlands and Water Courses Regulations of the Town of Southington, Connecticut", in a designated inland wetlands, a permit must be obtained from the Southington Inland Wetlands and Water Courses Agency prior to development. Considering the amount of wetlands and streambed to be altered by the preliminary plan, the Agency will probably find the development to be a "significant activity" as defined in the zoning regulations (Section 2.1-0). This will require that the developer provide additional information beyond the application to assist the Inland

Wetlands and Water Courses Agency make a decision of whether or not to permit the proposed development.

Aquifer Protection District Regulations

The section of the property proposed for development west of Eightmile River is identified as a GB/GA District on the "Ground Water Zones, Town of Southington, Connecticut" map. "GA Districts" are defined as "aquifers that are not currently being used as a source of drinking water supply, but have a potential to be developed as future sources of drinking water supply on a municipal scale. GA Districts are designated as Aquifer Protection Districts and are, therefore, governed by the corresponding zoning regulations (Section 17).

The following uses are prohibited in Aquifer Protection Districts:

- (1) Hazardous solid waste disposal, storage, or treatment;
- (2) Road salt storage and loading areas;
- (3) Dry wells directly connected to a floor drain, wash basin, sink, or paved parking area;
- (4) Outside storage of materials that could contaminate groundwater resources, and;
- (5) Filling stations.

Underground storage of fuel is also regulated under Section 17. These regulations apply only to the light industry and storage building which is proposed in the GA District.

Water Diversion Regulations

The proposed development includes the alteration and relocation of a section of Eightmile River just north of Jude Lane. This requires that the Town of Southington notify adjacent communities and the DEP, Water Resources Unit, and the State Coordinator for the National Flood Insurance Program prior to any alteration (Zoning Regulations, Section 6-01.24H).

In addition, the proposed relocation is considered a diversion under the Connecticut Water Diversion Policy Act (Section 22a-365 to 22a-378 of the Connecticut General Statutes). Prior to any relocation, the developer is required to apply for a water diversion permit through the Water Resources Unit of the DEP.

Additional criteria for diversions requiring a permit are that it diverts more than 50,000 gallons of water in any 24-hour period or that it collects or diverts the surface runoff of an area of 100 acres or more. The proposed relocation would require a permit on both criteria. The watershed above the diversion point is clearly more than 100 acres. The 1981 "Flood Insurance Study" for the Town of Southington shows the mean discharge of Eightmile River at Jude Lane to be 1,816 cubic feet per second. This equals an approximate discharge of one billion gallons per day, quite greater than the minimum 50,000 gallons per day.

Parking Requirements

According to Table 2, the total parking proposed is sufficient. However, the proposed light industry and storage building and 100,000 sq.ft. office building are being proposed with insufficient

parking. In the case of the office building, it shares a 621 space lot with two proposed research centers. This lot is sufficiently large for all three buildings. The light industry building has insufficient parking because the lot proposed north of the building is in a residential zone, and is therefore, not permitted. Since using another building's excess parking space would be inconvenient, the largest building that could be built at this site would be 160,500 square feet.

Not included in the proposed plan are handicapped parking spaces, the inclusion of space-saving compact car lots, and off-street loading spaces. The required spaces in each category are stated in Table 2.

Southington's zoning regulations state that up to 25 percent of the minimum number of required parking spaces can be designated for compact cars. These lots are smaller than standard lots (Table 3), and can aid in reducing the total area allocated for parking. The zoning regulations state that the lot size difference between the standard spaces and the compact spaces must be landscaped.

Off-street truck loading spaces are required at businesses or industries with an aggregate floor area of 1,000 square feet or more. All of the proposed buildings at the proposed Executive Office Park are larger than this. The lot size requirements are noted in Table 3.

Planning Guidelines

While the most suitable use for this site, other than open space, is an executive office park, development should be very carefully

TABLE 2

PARKING SPACE REQUIREMENTS

	Parking Requirements	Parking Required	Parking Proposed	Handicapped* Parking Required	Compact Car Lots Required
Building #1 Conference Center	1 per rental unit and 1 per 3 employees	217	258	7	54
Building #2 Office Building	1 per 300 square feet of floor area	220	362	8	55
Building #3 Light Industry/Storage	1 per 500 square feet of floor area	430	321	8	80
Building #4 Office Building	Same as #2	334	207	7	83
Building #5 Research Center	1 per 3 employees	103	207	7	25
Building #6 Research Center	Same as #5	103	207	7	25
TOTAL		1,409	1,562	44	322

*Determined by the total number of spaces proposed for each building.

TABLE 3
PARKING SIZE REQUIREMENTS

	Length	Width	Height
	In Feet		
Standard Lot	18	9	-
Compact Car	16	8	-
Handicapped	20	15	-
Loading Space			
Single-Unit Vehicle	25	10	15
Semi- or Tractor Trailer	50	12	15

planned considering surrounding land uses and the sensitive nature of the land. The following planning suggestions, if implemented, could possibly result in a plan that is more economical for the developer, as well as more protective of the resources of the Town of Southington.

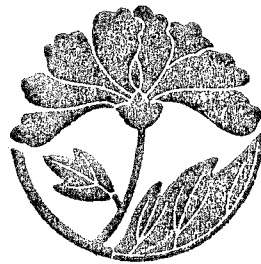
The proposed plan consists of approximately 704,000 square feet, or approximately 16.0 acres of parking space and buildings. Approximately 639,000 square feet, or approximately 14.5 acres are planned for parking space alone. This figure is approximately 27 percent of the total site (the parking area proposed north of the light industry building is not included in these calculations).

Especially considering the sensitivity of the land (flood plain, inland wetlands, and river), it is believed that this percentage should be reduced. The following are some alternatives that can serve to make better use of the land without reducing the total development:

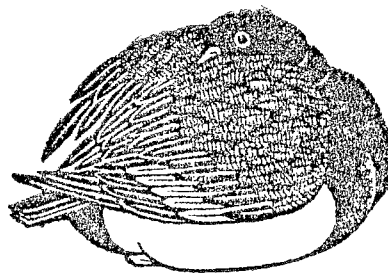
- (1) Reduce available parking area to, at, or near the amount required by Southington's regulations. The proposed plan includes 264 unrequired spaces. This does not include the lot north of the light industry building, and assumes this building is reduced to 160,500 square feet.
- (2) Utilize the maximum allowable compact car spaces.
- (3) Consider a parking deck. Since the proposed buildings are four stories, a deck would not be obtrusive. This would have the additional benefit of eliminating the southern most parking area, and therefore, eliminate the need to relocate the River.
- (4) By eliminating the River relocation, the entire River can be maintained in a natural state.
- (5) A strip of land on both sides of the River should be left undeveloped and in its natural state or near natural state. This will serve to buffer the River from encroachment, protect development from alterations in the River's present flow, and provide additional aesthetic value to the Executive Office Park.
- (6) By eliminating the River relocation, and reducing the impervious surface area, the proposed detention ponds should not be required. Ponds for aesthetic value may be included, however, they should not impede the natural flow of the River.
- (7) Buildings should be concentrated on upland areas where possible. The Flood Plain District Regulations state that development should first make use of the land beyond the flood plain. (Zoning Regulations, Section 6-01.24E).
- (8) The number of bridges crossing the River should be kept to a minimum. This will not only reduce the total development cost, but will also reduce the impact upon the River, flood plain, and wetlands. The preliminary plan includes four crossings. This could be reduced to only two, situated along the middle section of the River. Secondary access roads to individual buildings should not branch off of the primary access road until after crossing the River. In this way, only the light industry building will require access by a second crossing.
- (9) For safety and ease of traffic flow, the secondary access roads should meet the primary access road more perpendicular, rather than at an angle as they are currently proposed. It is questionable whether emergency vehicles or delivery trucks could maneuver the sharp angles such as would exist when turning from a secondary access road towards the proposed conference center.

Conclusion

Although Southington does not have a Master Plan of Development, the Central Connecticut Regional Planning Agency has, in draft form, an updated plan "Regional Land Use Plan: 2000." According to this plan, the development of an executive office park at the proposed site should be encouraged. However, development guidelines made throughout this report concerning land use would result in a design for the proposed development that would agree more fully with the stated goals and objectives of the regional plan. Such objectives include preserving and minimizing adverse impacts in environmentally sensitive areas, and discouraging structural development in flood plain areas, except where found to be technically feasible and where no adverse environmental impacts are created.



APPENDICES



APPENDIX A

VEGETATION INVENTORY

I. UPLAND, EAST SIDE OF SITE

A. Grasses and Grass-Like Species

Little Bluestem (Andropogon scoparius)
Orchard Grass (Dactylis glomerata)

B. Forbs

Starcap moss
Asters (Aster spp.)
Bergamot (Monarda sp.)
Blue curls (Trichostema dichotum)
Tall cinquefoil (Potentilla arguta)
Round-headed brush clover (Lespedeza capitata)
Grey goldenrod (Solidago nemoralis)
Horseweed (Erigeron canadensis)
Pinweed (Lechea sp.)
Yarrow (Achillea millefolium)
Deptford pink (Dianthus armeria)
False foxglove (Gerardia sp.)
Knapweed (Centaurea maculosa)

C. Shrubs and Vines

Japanese barberry (Berberis thunbergi)
Bayberry (Myrica pensylvanica)
Grape (Vitis sp.)
Common greenbrier (Smilax rotundifolia)
Witch hazel (Hamamelis virginiana)
Common juniper (Juniperus communis)
Meadowsweet (Spiraea latifolia)
Russian olive (Eleagnus angustifolia)
Winged sumac (Rhus copallina)
Smooth sumac (R. glabra)

D. Trees

Grey birch (Betula populifolia)
Red cedar (Juniperus virginiana)
Flowering dogwood (Cornus florida)
Red maple (Acer rubrum)
Pin oak (Quercus palustris)
Red oak (Q. rubra)
Cottonwood (Populus deltoides)

II. FLOODPLAIN

A. Grasses and Grass-Like Species

Little bluestem
Panic grass (Panicum clandestinum)
Switchgrass (P. virgatum)
Tussock sedge (Carex stricta)

B. Ferns and Other Primitive Plants

Cinnamon fern (Osmunda cinnamomea)
Royal fern (O. regalis)
Sensitive fern (Onoclea sensibilis)
Sphagnum moss (Sphagnum sp.)
Turkey tails (Polyporus versicolor)
Birch conk (Polyporus brumalis)
Yellow witches' butter (Tremella mesenterica)

C. Forbs

Asters
Bergamot
Blue curls
Round-headed bush clover
Grey goldenrod
Water horehound (Lycopus americanus)
Milkweed (Asclepias sp.)
Evening primrose (Oenothera biennis)
Skunk cabbage (Symplocarpus foetidus)
Climbing false buckwheat (Polygonum scandens)

D. Shrubs and Vines

Speckled alder (Alnus rugosa)
Arrowwood (Viburnum dentatum)
Maple-leaf viburnum (V. acerifolium)
Clammy azalea (Rhododendron viscosum)
Japanese barberry
Bayberry
Oriental bittersweet (Celastrus orbiculatus)
Silky dogwood (Cornus amomum)

Grape
Common greenbrier
Witch hazel
Mountain laurel (Kalmia latifolia)
Meadowsweet
Sweet pepperbush (Clethra alnifolia)
Rose (Rosa sp.)
Shadbush (Amelanchier sp.)
Winged sumac
Willow (Salix spp.)
Autumn olive
Spicebush (Lindera benzoin)

E. Trees

White ash (Fraxinus americana)
Grey birch
Red cedar
Wild black cherry (Prunus serotina)
Slippery elm (Ulmus rubra)
Eastern hemlock (Tsuga canadensis)
Red maple
Pin oak
Black tupelo (Nyssa sylvatica)

III. TERRACE ESCARPMENTS, WEST SIDE OF SITE

A. Shrubs and Vines

Arrowwood
Bayberry
Mountain laurel
Sweet pepperbush
Clammy azalea

B. Trees

White birch (Betula papyrifera)
Slippery elm
Eastern hemlock
Red oak
White oak (Quercus alba)

IV. WELL-DRAINED, GLACIAL OUTWASH AREA

A. Grasses

Little bluestem
Orchard grass

B. Ferns and Other Primitive Plants

Hay-scented fern (Dennstaedtia punctilobula)
Turkey tails

C. Forbs

Asters
Blue curls
Round-headed bush clover
Goldenrods
Indian tobacco (Lobelia inflata)
Whorled loosestrife (Lysimachia quadrifolia)

D. Shrubs and Vines

Bayberry
Highbush blueberry
Sweet fern (Myrica asplenifolia)
Sheep laurel (Kalmia angustifolia)
Catbrier (Smilax glauca)
Common greenbrier

E. Trees

Quaking aspen (Populus tremuloides)
Grey birch
Red cedar
Red maple
Pin oak
White oak
Scrub oak (Quercus ilicifolia)
Pitch pine (Pinus rigida)
Black tupelo

APPENDIX B
DIMENSIONS FOR BIRD BOXES

BIRDHOUSE POINTERS

Wood is the most suitable, all-around building material. Do not use tin cans because summer sun may kill the occupants.

Natural finishes or dull colors are better for exteriors than bright colors, except for martin houses, which should be painted white to reflect the sun.

Do not make the entrance hole too large.

Clean old nest materials out of birdhouses well ahead of the time for migrants to return in spring.

A few small holes in the nest box floor will permit drainage if rain blows in.

Ventilation gives greater comfort, and this can be accomplished with a few small holes or slits through the walls beneath the roof overhang.

Build houses so they can be easily opened for cleaning.

Remember that climbing predators, especially cats, are a threat to nesting birds. Protect the birds with metal posts or metal guards on posts.

Most birds do not need perches on the front of the box, and perches can aid predators in raiding the bird home.

Inner surfaces of the house should be rough so young birds can better cling to the sides when the time comes to leave home.

Face the entrance away from prevailing winds.

A deep woods is a poor location for most birdhouses, but the edge of the woods may be excellent.

DIMENSIONS FOR BIRD BOXES

Species	Length and width Inches	Depth of cavity Inches	From entrance to floor Inches	Diameter of entrance Inches	Height above ground Feet
Bluebird	5 × 5	8	6	1½	5-10
Chickadee	4 × 4	8-10	6-8	1½	6-15
Titmouse	4 × 4	8-10	6-8	1¼	6-15
Nuthatch	4 × 4	8-10	6-8	1¼	12-20
House wren	4 × 4	6-8	1-6	1-1¼	6-10
Bewick's wren	4 × 4	6-8	1-6	1-1¼	6-10
Carolina wren	4 × 4	6-8	1-6	1½	6-10
Violet-green swallow	5 × 5	6	1-5	1½	10-15
Tree swallow	5 × 5	6	1-5	1½	10-15

Species	Length and width Inches	Depth of cavity Inches	From entrance to floor Inches	Diameter of entrance Inches	Height above ground Feet
Purple martin	6 × 6	6	1	2½	15-20
Prothonotary warbler	6 × 6	6	4	1½	2-4
Crested flycatcher	6 × 6	8-10	6-8	2	8-20
Flicker	7 × 7	16-18	14-16	2½	6-20
Golden-fronted woodpecker	6 × 6	12-15	9-12	2	12-20
Red-headed woodpecker	6 × 6	12-15	9-12	2	12-20
Downy woodpecker	4 × 4	9-12	6-8	1¼	6-20
Hairy woodpecker	6 × 6	12-15	9-12	1½	12-20
Screech owl	8 × 8	12-15	9-12	3	10-30
Saw-whet owl	6 × 6	10-12	8-10	2½	12-20
Barn owl	10 × 18	15-18	4	6	12-18
Sparrow hawk	8 × 8	12-15	9-12	3	10-30
Wood duck	10 × 18	10-24	12-16	4	10-20

DIMENSIONS FOR OPEN PLATFORMS

Species	Dimensions	Height above ground
Robin	6" × 8"	6-15 feet
Barn swallow	6" × 6"	8-12 feet
Phoebe	6" × 6"	8-12 feet

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ABOUT THE TEAM

The King's Mark Environmental Review Team (ERT) is a group of environmental professionals drawn together from a variety of federal, state, and regional agencies. Specialists on the Team include geologists, biologists, soil scientists, foresters, climatologists, landscape architects, recreational specialists, engineers, and planners. The ERT operates with state funding under the aegis of the King's Mark Resource Conservation and Development (RC & D) Area - a 83 town area serving western Connecticut.

As a public service activity, the Team is available to serve towns and/or developers within the King's Mark RC & D Area - free of charge.

PURPOSE OF THE ENVIRONMENTAL REVIEW TEAM

The Environmental Review Team is available to assist towns and/or developers in the review of sites proposed for major land use activities. For example, the ERT has been involved in the review of a wide range of significant land use activities including subdivisions, sanitary landfills, commercial and industrial developments, and recreational/open space projects.

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 site, and highlighting opportunities and limitations for the proposed land use.

REQUESTING AN ENVIRONMENTAL REVIEW

Environmental Reviews may be requested by the chief elected official of a municipality, or the chairman of an administrative agency such as planning and zoning, conservation, or inland wetlands. Environmental Review Request Forms are available at your local Soil and Water Conservation District, and the King's Mark ERT Coordinator. This request form must include a summary of the proposed project, a location map of the project site, written permission from the landowner/developer allowing the Team to enter the property for purposes of review, and a statement identifying the specific areas of concern the Team should investigate. When this request is approved by the local Soil and Water Conservation District and King's Mark RC & D Executive Committee, the Team will undertake the review. At present, the ERT can undertake two (2) reviews per month.

For additional information regarding the Environmental Review Team, please contact your local Soil and Water Conservation District or Keane Callahan, ERT Coordinator, King's Mark Environmental Review Team, King's Mark Resource Conservation and Development Area, 322 North Main Street, Wallingford, Connecticut 06492. King's Mark ERT phone number is 265-6695.