KING'S MARK
ENVIRONMENTAL REVIEW TEAM

REPORT FOR

WESTBROOK CONDOMINIUMS

ANSONIA, CONNECTICUT

WESTBROOK CONDOMINIUMS

ANSONIA, CONNECTICUT

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

Ansonia Inland Wetlands 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 Inland Wetlands Commission and the City. 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.

SEPTEMBER 1988

ACKNOWLEDGMENTS

The King's Mark Environmental Review Team Coordinator, Nancy Ferlow, would like to thank and gratefully acknowledge the following Team members whose professionalism and expertise were invaluable to the completion of this study:

* William Warzecha, Hydrogeologist
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* Patricia Leavenworth, District Conservationist
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* Robert Frey, Regional Planner
  Valley Regional Planning Agency

* Kevin O'Mara, Traffic Planner
* Valley Regional Planning Agency

I would also like to thank Susan Anderson, Secretary for the King's Mark Environmental Review Team for assisting in the completion of this report.

Finally, special thanks to William Urban, Chair, David Sosnooski, Jo-Lynn Flaherty and Earle Williams of the Ansonia Inland Wetlands Commission, Aaron Schless, owner, John Sponheimer, attorney, Otto Theall and Robert Wheway, Codespoti and Associates, Philip Barsky, ecologist, and Rachel Pierno, People's Bank, for their cooperation and assistance during this environmental review.

EXECUTIVE SUMMARY

Introduction

The Ansonia Inland Wetlands Commission has requested that an environmental review be conducted on the Westbrook Property, a site proposed for a condominium development. The 17.65-acre site is characterized by second growth, mixed hardwood forests, steep slopes, former agricultural lands and wetlands. Much of the site has a high water table and the soils appear to have a hardpan. The site is crossed by intermittent streams and is flood and erosion prone. The site is currently used by hikers.

The proposed condominium development would encompass 97 units, a clubhouse and a swimming pool. Extensive cuts and fills will be needed. Approximately 60% of the site will be disturbed by grading. Some wetland filling and creation is planned. The detention basin is proposed as a soft sedge marsh to replace the wetlands which will be lost. Site access roads will connect Jewett Street to Berkshire Road. The development would rely upon municipal sewers and water.

The City was primarily concerned with the potential impact that the proposed development would have on: (1) wetland corridors; (2) effects of erosion and sedimentation; (3) stormwater drainage; and (4) site design compatibility. Therefore the City asked the ERT to inventory on-site resources and determine their suitability for the proposed development.

The review process consisted of four phases: (1) inventory of the site's natural resources; (2) assessment of these resources; (3) identification of resource problem areas; and (4) presentation of planning and land use guidelines. Based on the review process, specific resources, areas of concern, development limitations and development opportunities were identified. The major findings of the ERT are presented below:

Setting, Land Use and Topography

The site is located in a GA zone which permits condominium development. Sewer and water lines will be extended to serve the proposed development. The site has an agricultural past. Changes in the area over time include a reduction in farmland and an increase in residential density and paved roads. The site flanks a rock-cored hill called a drumlin. Slopes on the site range from moderately steep to steep.

Geology

The bedrock is not exposed in the vicinity of the site. It is described as gray to spotted, medium to coarse grained, foliated gneiss. Since the bedrock surface appears to be deep, development should not be hindered by it. The drumlin is composed of glacial till deposits. A relatively shallow "hardpan" layer is present because of the way the till was deposited. The till on the site may be quite thick, 40 feet or so.

Geologic Development Concerns

The site is to be served by municipal water and sewer facilities. Therefore, the major hydrogeologic concerns associated with development of residences should be allayed. Concerns that remain include moderately steep to steep slopes, "hardpan" soils and regulated wetland soils.

Construction of the project on the site will require extensive cuts and fills. Deep cuts in "hardpan" soils are extremely difficult to stabilize. The seepage of groundwater along the "hardpan" can create unstable conditions and the slopes can erode. Establishment of a good vegetative cover is practically impossible. Many residential units appear to back up close to the cut slopes. If the slopes are not properly drained and stabilized, slope failure can be a threat to the to the proposed units.

The potential for seasonal high water tables and wet seeps suggest that building footing drains will be needed to keep basements dry. The water collected from the drains should be included in the stormwater management plan. All drains need to be outletted so they do not cause problems.

The wetlands and watercourses will limit the usefulness of the southern limits of the site. Plans indicate the road encroaching or traversing several wetlands and watercourses. Although undesirable, wetland crossings are feasible provided they are properly engineered. Road construction should be done during the dry time of the year and should include sediment and erosion controls. The construction of buildings in the wetlands and watercourses is of concern. Soil testing will be needed to determine the soil textures and depth to the seasonal water table. If development is allowed in these areas, the allowable loading rate for the soil is needed. Any units built here will need foundation drains. Building over wetlands and watercourses is undesirable even with the proper engineering. Disrupting the wetlands will destroy the important natural hydrological or ecological functions that they now perform.

Hydrology

The site lies within the Beaver Brook drainage area. Beaver Brook ism a tributary to the Naugatuck River. Because of the high density of the proposed development the amount of runoff from the site is expected to increase. Also the flow from the cut slopes, footing drains and curtain drains will need to be added to the stormwater management plan. The road drainage will be artificially collected and outletted to the detention basin. The detention basin is located in upland soils and should meet all the standards set in the Connecticut Guideline for Soil Erosion and Sediment Control. The City engineer should carefully review all stormwater management plans.

The protection of the watercourses on- and off-site is of concern. A comprehensive erosion and sediment control plan is essential. The detention basin could also serve a sedimentation function. Provisions for maintenance need to be considered. Silt and road sand collecting in the detention basin could deplete the runoff storage capacity of the basin.

Some sections of the main watercourse are proposed to be piped and two secondary streams are proposed to be filled. Grassed waterways are preferred for these areas which may necessitate eliminating some buildings. Outlets and inlets of pipes need to be protected from erosion. The groundwater in the area is classified as GA.

Soil Resources

The soils on the site are formed from glacial till materials with a firm dense substratum. A small area of bedrock controlled soils is found in the southern section, and an area of soils formed in sand and gravel deposits is found in the western section. Specific soil concerns include variable stoniness in the soils, a large wetland area with alluvial soils, steep slopes which will be cut and filled and variable soil substratum in the areas where the glacial till contacts the sand and gravel.

Erosion and Sediment Control Plan

The project has an erosion and sediment control plan, however it lacks certain elements needed to minimize erosion on the site. Items to consider include phasing the development, providing a diversion along the top of the cut slopes, tying roof drains and surface water swales into the stormwater system, providing details for the detention basin and plunge pool, installing silt fences carefully across the slope, clarifying the seeding and mulching specifications, locating and stabilizing the topsoil stock piles, maintaining the detention basin, catch basins and stormwater outlets, providing a stabilization plan for inclement weather shut downs, sequencing the activities and providing for changes in the plans as the City's inspector deems necessary.

Wetland Considerations

The site contains diverse vegetative and habitat environments. The wetlands include intermittent watercourses and forested swamp areas ranging from fair to excellent in quality and functional value. The functions include wildlife habitat, water renovation, sediment/pollution filtration, drainage and water conveyance, education and recreation areas, open space and aesthetic buffers. Comments and recommendations include delineating all of the wetlands and watercourses on the plans, maintaining the portion of the wetland saved as open space for its values, avoiding filling the small pocket of wetlands, not considering the "new wetland" sites as mitigation, including the silted downstream culverts in the stormwater management plans, phasing the project to minimize erosion and sedimentation, considering the need for an energy dissipater at the end of the pipes and considering a reduction in density of the project to minimize the impacts on the wetlands.

Threatened and Endangered Plant and Animal Species

According to the DEP - Natural Diversity Database there are no Federally listed Endangered Species or Connecticut "Species of Special Concern" that occur within the study area.

Planning Considerations

Surrounding land use is single-family residences and occasional multi-family residences. The proposed development is compatible with this use. The location of the units and roads on the site should be given careful consideration. The Ansonia Plan of Development recommends two and three family developments in the area. Plans appear to conform to the Plan of Development. The site is located in a GA (garden apartments) zone. This allows a minimum lot size of five acres with a maximum of 12 units per acre. The proposal

conforms to the current zoning regulations. Possible alternatives include single-family subdivision or parks/open space. The site would need to be rezoned for single-family subdivision, and the City of Ansonia would have to buy the property for a park. Site design is an important consideration in this development. The slope and high water table make construction difficult. The Commission should make sure that all erosion and sediment control measures are properly enforced.

Traffic Considerations

The primary access to the site is Jewett Street, a collector street, and the secondary assess is Berkshire Road, a local road. Neither Jewett Street or Berkshire Road experiences a high number of accidents. Sightlines at the Jewett Street entrance should not present a problem but the retaining wall requires careful consideration. The trip generation for the project would be less than the rate for a single-family subdivision and apartment complexes. The obvious traffic concern is the impact of Berkshire Road. This number is difficult to determine as it includes the number of cars that would use the road as a short cut to Jewett Street. A separate enclave off of Jewett Street was briefly considered as an alternative but discarded because the link between the two roads is beneficial.

In the original plans, the developer proposed a loop road system 24-feet wide. This is a reduction of the standard 32-foot width for subdivision roads. The revised plans have placed the road north of the wetlands with a small cul-de-sac to serve three units near the wetland. From a wetland preservation standpoint this is desirable, however the proposed road grades may not be acceptable.

For each unit there is a garage and a driveway. Visitor parking is provided but not necessarily near the units. Many cars may end up on the streets reducing the width of the road way. This could cause safety problems, prevent two way traffic and block the streets for emergency vehicles. The entrance drive is not differentiated from the collector streets. It is recommended that the full 30-32 foot width be restored to the roads. If the circulation drives contain no parking spaces and are separated from parking areas, the drive width may be reduced to 24-feet.

An alternative to crossing the wetlands and/or the unacceptable grades for the loop road is to develop two cul-de-sacs along the loop road alignments. This would keep the road out of the wetlands and avoid excessive grades. The steep access drive has six units proposed. Drivers backing out of the driveways may cause accidents. A traffic engineering report is recommended for these units. There are no measures to prevent sheet flow down the entrance drive. A storm grating that extends the full width of the road is recommended. There is a general discrepancy that will need to be clarified between the need to conserve as much of the natural vegetation as possible, the planned clearing of 60% of the site and the requirement for 50% of the site to be in contiguous open space.

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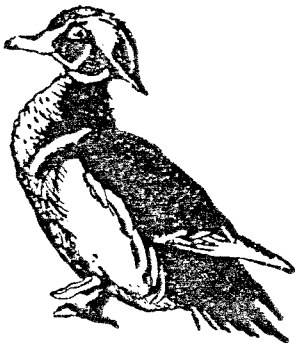


The review process consisted of four phases:

1) Inventory of the site's natural resources (collection of data);

2) Assessment of these resources (analysis of data);

3) Identification of resource problem areas; and

4) Presentation of planning and land use guidelines.

The data collection phase involved both literature and field research. The ERT field review took place on August 10, 1988. Field review and inspection of the proposed development site proved to be a most valuable component of this phase. The emphasis of the field review was on the exchange of ideas, concerns or alternatives. Mapped data or technical reports were also perused and specific information concerning the site was collected. 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. Individual Team members then prepared and submitted their reports to the ERT Coordinator for compilation into the final ERT report.

The primary goal of this ERT is to inventory and assess existing natural resources occurring on the site as well as providing planning and traffic/access information. Specific objectives include:

1) Assessment of the geological characteristics of the site, including geological development limitations and opportunities for roads and buildings;

2) Assessment of the hydrological characteristics of the site, including wetland hydrology and stormwater drainage;

Figure 1

LOCATION OF STUDY SITE

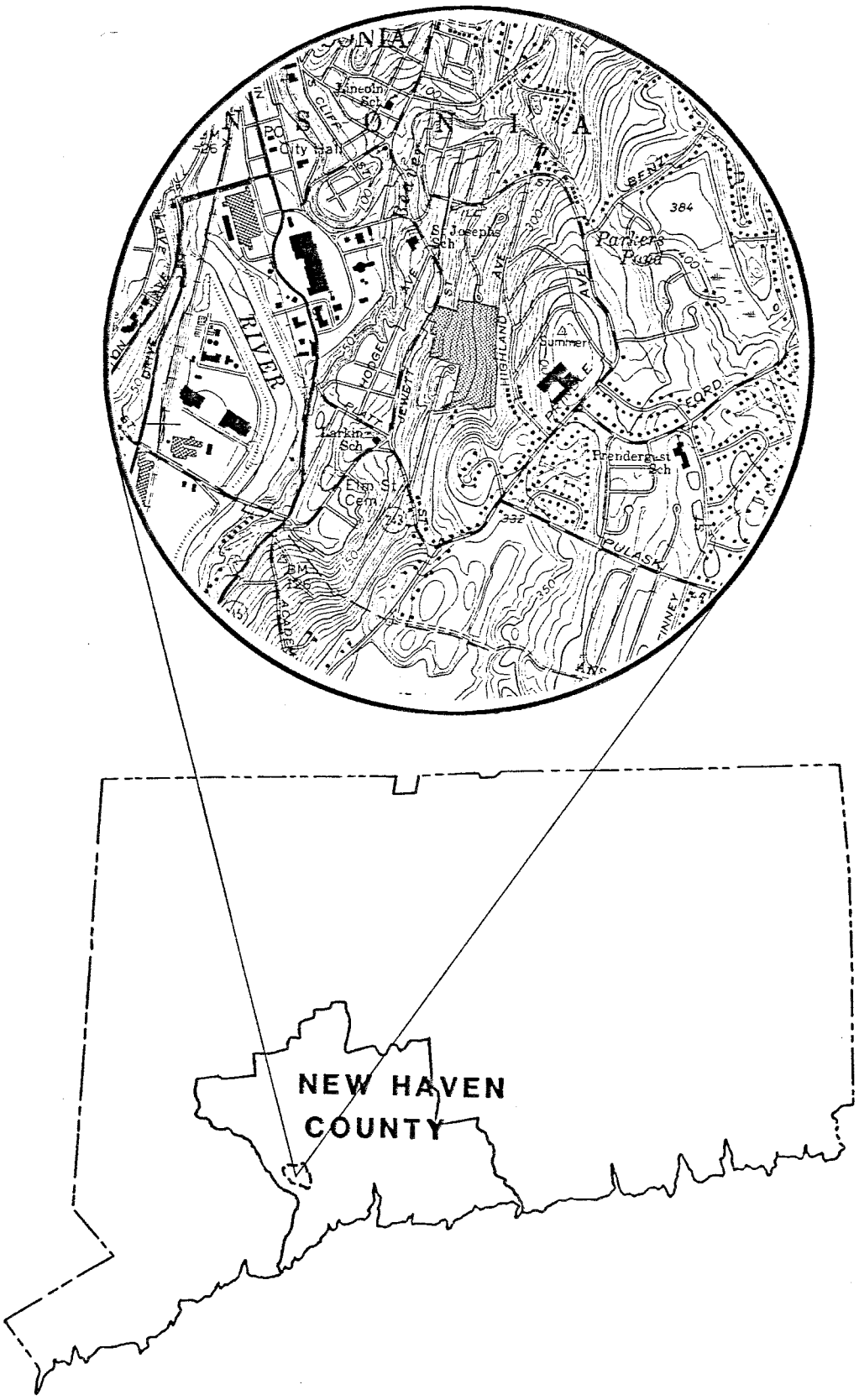
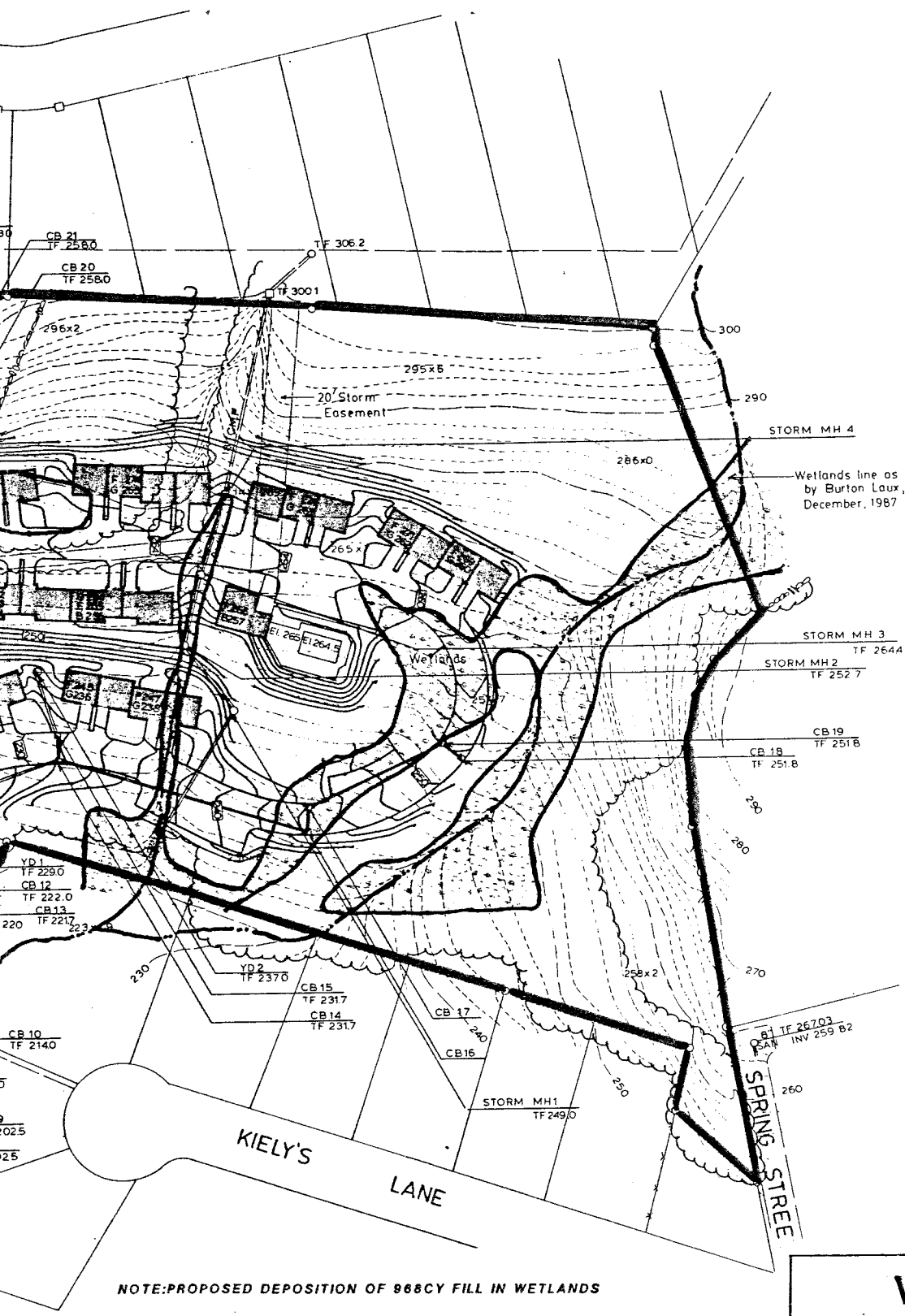


Figure 2



NOTE:PROPOSED DEPOSITION OF 968CY FILL IN WETLANDS

LEGEND

VERTICAL DATUM = MEAN SEA LEVEL

- UTILITY POLE
- 2' CONTOURS
- 10' CONTOURS
- TREE LINE
- STONE WALL
- CHAIN LINK FENCE
- STOCKADE FENCE
- 215x0 SPOT ELEVATION
- 244 PROPOSED CONTOUR
- PROPOSED STORM SEWER
- PROPOSED CATCH BASIN / YARD DRAIN
- PROPOSED STORM MANHOLE

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ORIGINAL SITE PLAN

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Information from Codespoti & Associates
Site Plan

Figure 3

Information from Codespoti & Associates
Site Plan

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REVISED ROAD PLAN

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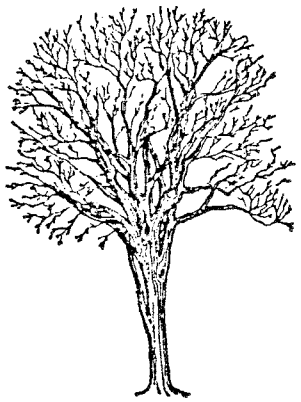
3) Determination of the suitability of existing soils to support the proposed development;

4) Discussion of soil erosion and sedimentation concerns;

5) Assessment of the impact of the development on the wetlands; and

6) Assessment of planning and land use issues, including traffic and access.

PHYSICAL CHARACTERISTICS



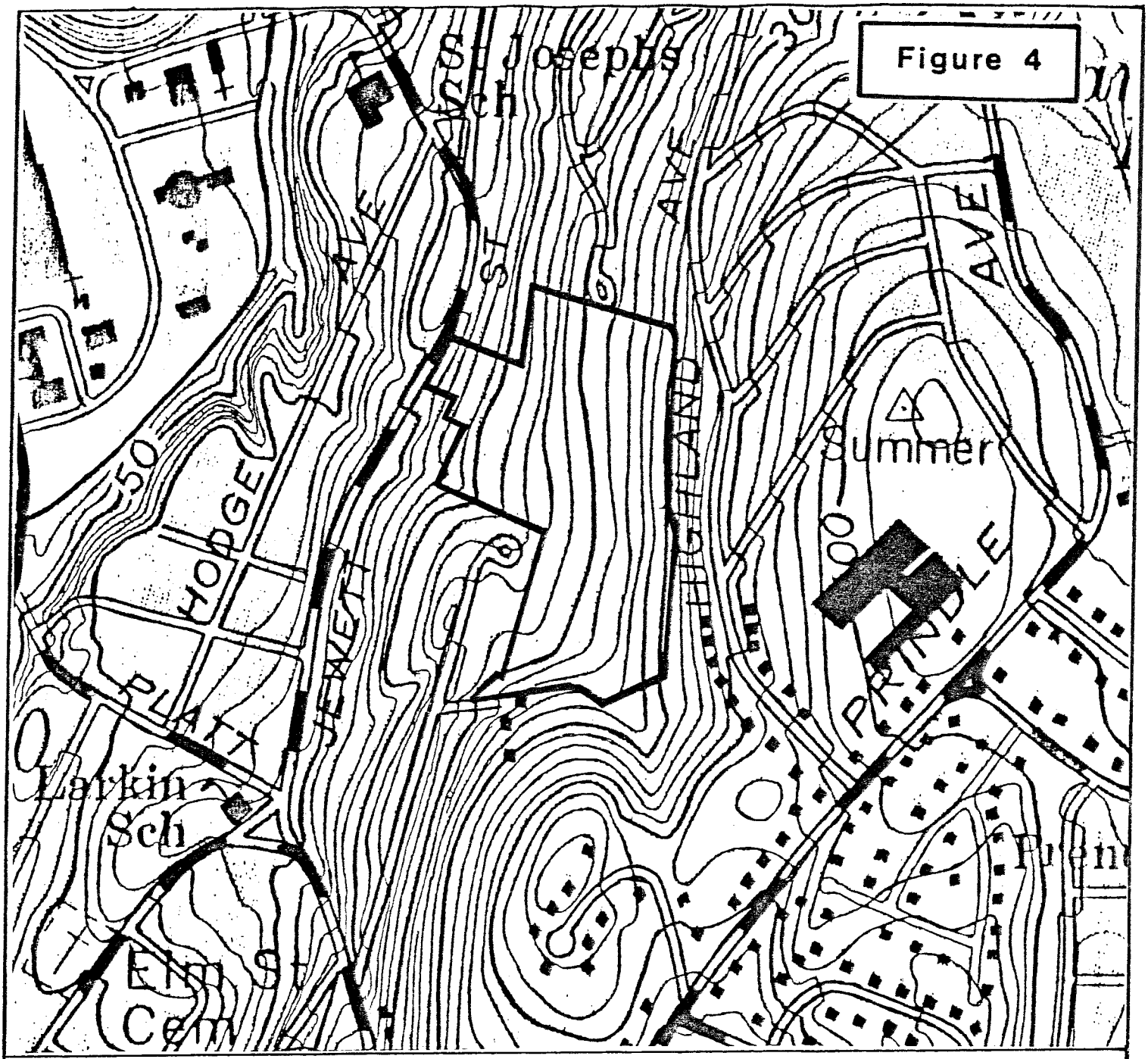
GEOLOGY

The site flanks the west side of an elongate or streamlined hill, called a drumlin. Bedrock was not observed on the site during the field review and, according to geologic maps, is not exposed in the immediate vicinity of the site. The prospective contractor for the site indicated on the review day that he witnessed 18 deep test holes, none of which encountered the bedrock surface. Bedrock underlying the site is described as a gray to spotted, medium to coarse grained, foliated (having leaflike layers) gneiss (see Figure 5).

Since the bedrock surface appears to be relatively deep, the underlying bedrock should not pose a major difficulty in terms of developing the site. The availability of municipal water and sewer to the site should preclude some geological concerns.

The drumlin is composed predominantly of a glacial deposits called till (see Figure 6). The hill takes the shape of an inverted teaspoon. The till consists of ground up rock fragments and particles which were plastered by moving glacial ice onto the underlying crystalline bedrock. Because of this mode of deposition, a relatively shallow "hardpan" (compacted) layer is present from 1.5 to 2.5 feet below ground surface. The "hardpan" zone is located beneath the weathered and rooted surficial soil zone. The till on the site is probably quite thick, perhaps forty (40) feet or more.

According to the site plans made available to Team members, regulated wetland soils have been flagged on the site by a certified soil scientist and the boundaries superimposed onto the subdivision plan. These soils occur mainly in the southern parts of the site. Regulated wetland soils on the site will be impacted by the construction of the interior road system and construction of residential units.



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TOPOGRAPHY

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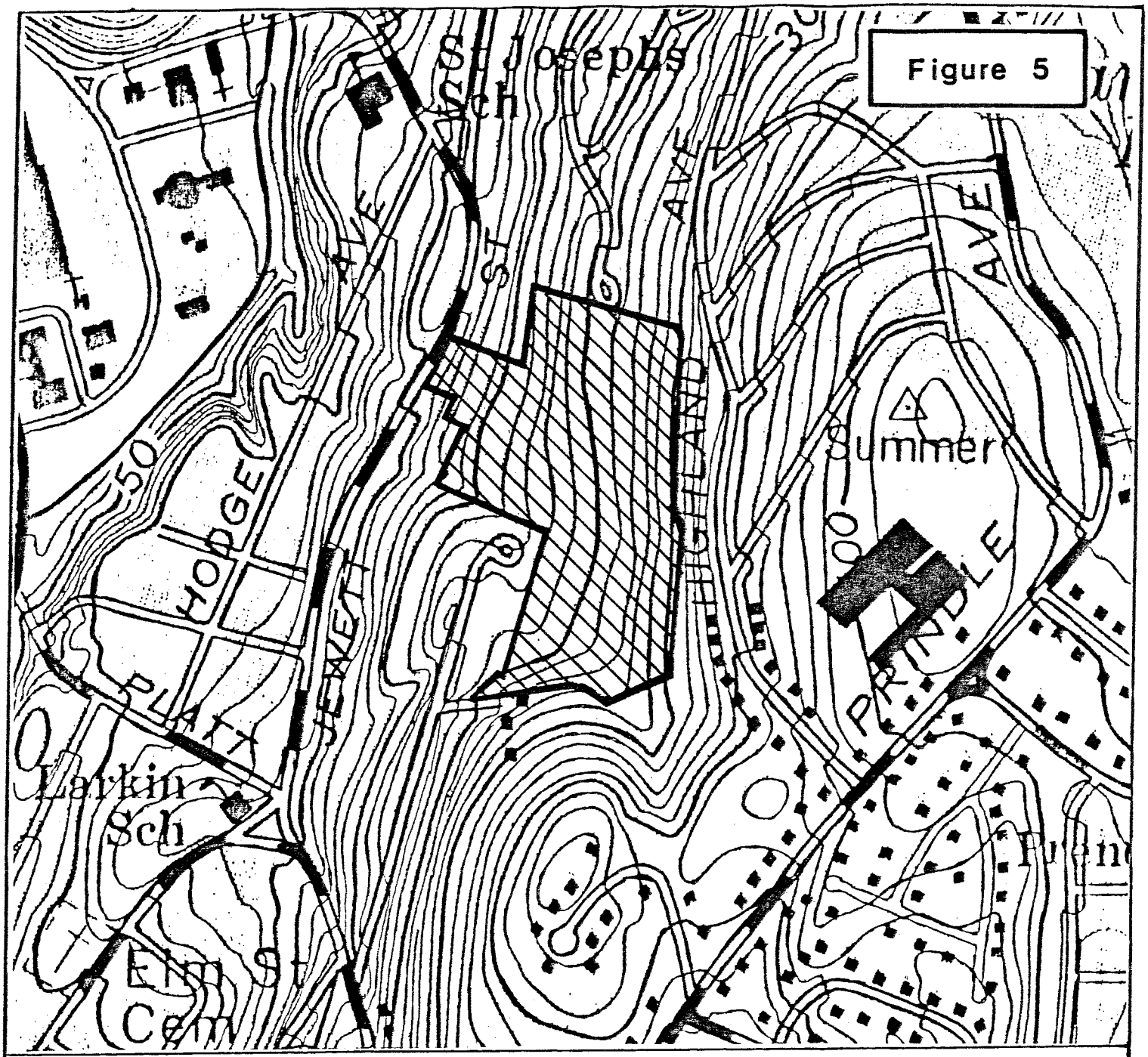
Information from USGS Topographic sheet
Ansonia Quadrangle



Gray to spotted, medium to coarse grained, foliated gneiss

WESTBROOK CONDOMINIUMS

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BEDROCK GEOLOGY

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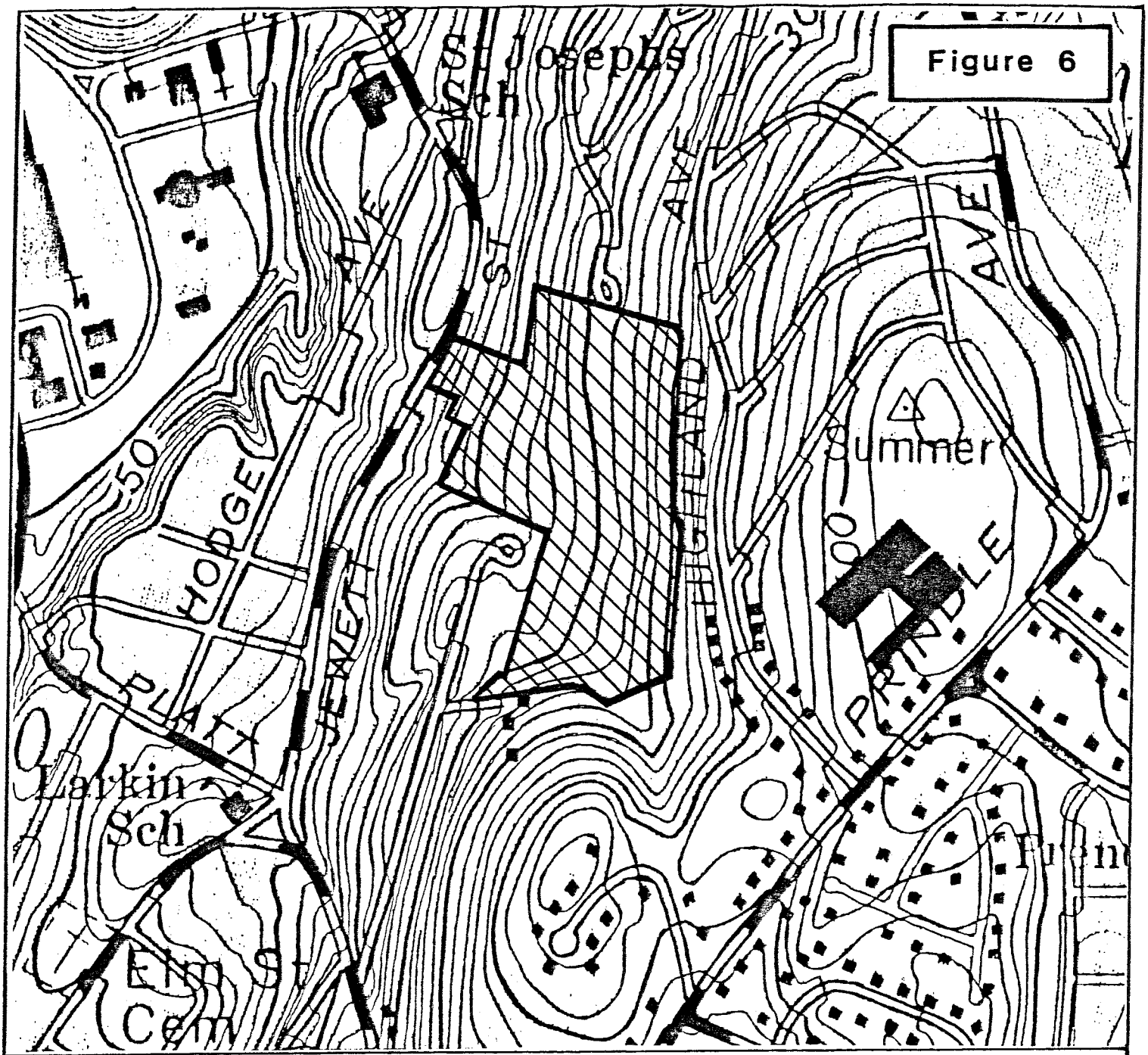
Information from USGS Topographic sheet
Ansonia Quadrangle



Till

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ANSONIA, CONNECTICUT

SURFICIAL GEOLOGY

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Information from USGS Topographic sheet
Ansonia Quadrangle

GEOLOGICAL DEVELOPMENT CONCERNS

The site, which is proposed for intense development, will be served by public water and sewer lines. The availability of these utilities should alleviate many of the principal hydrogeologic concerns commonly associated with residential development. Nevertheless, the presence of moderately steep to steep slopes, "hardpan" soils and regulated wetland soils will need to be properly addressed by the applicant's technical staff.

Construction of the proposed residential units and road network over most of the site will require extensive cuts and fills on the hillside. Deep cuts or excavation in "hardpan" soils are extremely difficult to stabilize due to seepage of groundwater over the restrictive layer about 1.5 to 2.5 feet below ground surface. This water may create an unstable condition just below the seepage line. The weight of the unstable soil causes the soil to flow downslope. Once this begins, the slope is very difficult to stabilize. The establishment of a good vegetative cover is practically impossible on these eroding slopes. Besides the unsightly condition, the eroded soil must be removed from the base of the slope. It appears many residential units will back up close to steeply cut areas. If these areas are not properly drained and stabilized, slope failure could be a potential threat to the building units. In this regard, it might be wise to acquire the services of a geotechnical person to investigate this potential condition.

The potential for seasonally high water tables and wet seeps on the site suggests that building footing drains be installed for units with basements. This should reduce the chance for wet basements. It seems likely that subsurface water collected in building footing drains, curtain drains and roof

gutters will need to be included in the stormwater management plan. All drains need to be properly outletted so they do not cause drainage problems to neighboring units or properties.

The presence of wetland soils and seasonal watercourses will limit the usefulness of the site's southern limits for development purposes. Present plans indicate that the road network will need to traverse or encroach wetlands/seasonal watercourses in several areas. Also, residential units are proposed over seasonal watercourses in several areas.

Although undesirable, wetland road crossings are feasible provided they are properly engineered. These roads need to be constructed adequately above the surface elevation of the wetland. This will permit better drainage of the road and also decrease the frost heaving potential. Road bed preparation needs to include removal of all organic material before the fill material is placed. In cut areas, underdrains should be installed on either side of the road. Road construction through wetlands should be done during the dry time of the year and should include provisions for effective erosion and sediment control. Culverts should be properly sized and located to prevent altering the water levels in the wetland and flooding.

The construction of building units over the seasonal watercourses or in close proximity to wetlands at the southern limits also presents a potential concern. The water table in these areas is probably at or near ground surface for at least 6 months during the year (November to May). It should be noted that water was at or near ground level in at least one area on the review day.

This seasonal water table is a pertinent engineering concern in terms of constructing homes in the area. Soil testing, including detailed soil borings, needs to be conducted throughout these critical areas to determine soil textures and depth to the water table. Ideally, this testing should be done

during the wet time of the year. If development is allowed in these areas, soil testing to determine the allowable loading rate is needed. As mentioned earlier, it seems likely that all units constructed in these areas will need foundation drainage. All foundations should have both exterior footing drains and an interior underdrain system. Also, because of the wet conditions, water stops should be placed between walls and footings. This should keep residential units and their basements dry. An alternative would be to construct houses without basements. Any drainage work that takes place should be monitored through a wet season to ensure that it is effective.

Even with the engineering measures mentioned above, the construction of buildings over seasonal watercourses and bordering wetland soils is highly undesirable. Disrupting the wetlands via draining and filling will destroy the important natural hydrological or ecological functions that they presently perform.

HYDROLOGY

The site lies entirely within the Beaver Brook drainage area (see Figure 7). Beaver Brook is a tributary to the Naugatuck River. At its point of outflow to the Naugatuck River, Beaver Brook drains an area of 3.47 square miles or 2,221 acres. Surface and groundwater on the site flows generally downslope toward local discharge areas such as seasonal watercourses and wetland areas. The water is then routed under Jewett Street and Hodge Avenue and ultimately discharges into Beaver Brook.

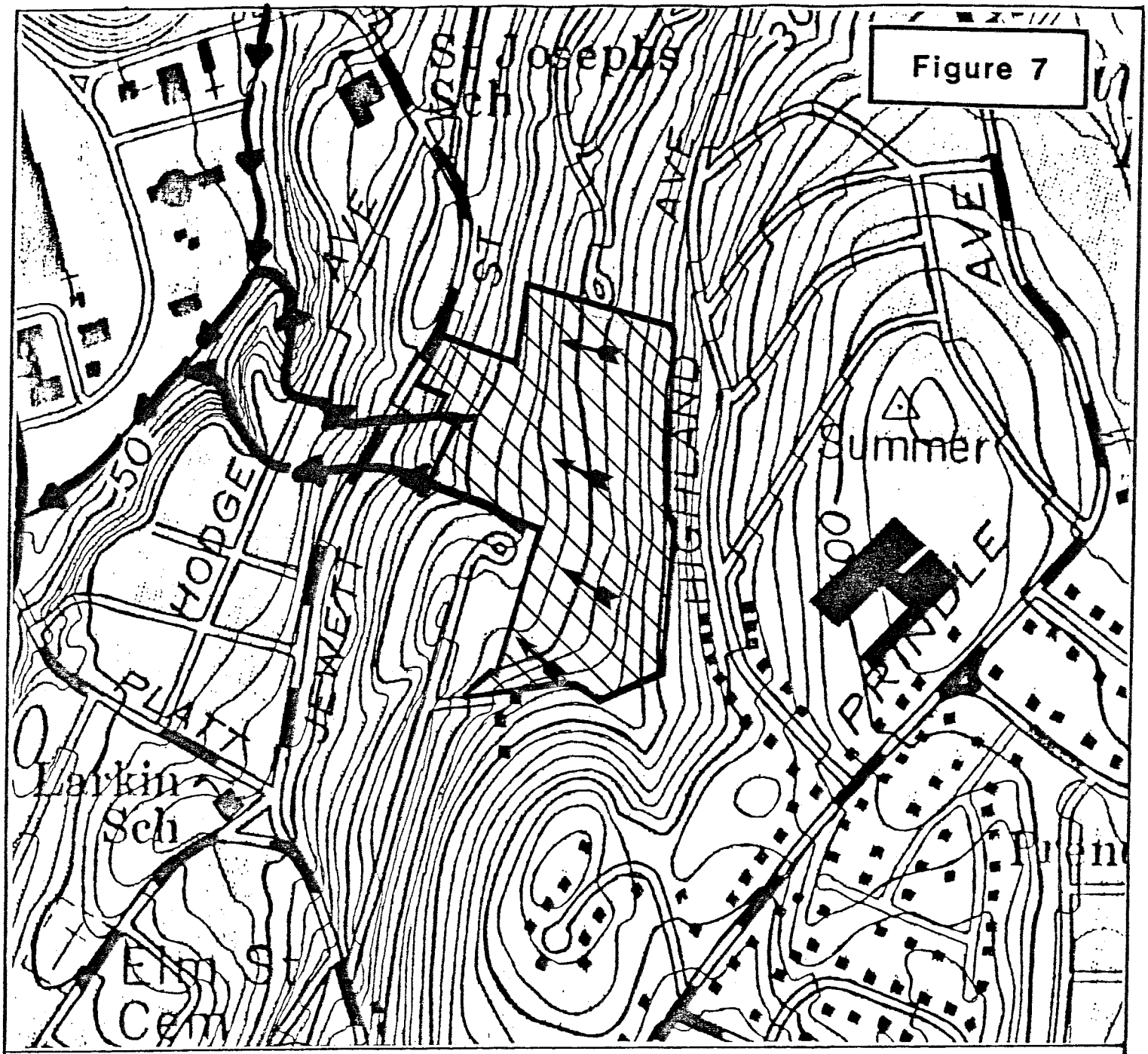
Because of the high density of residential units presently proposed, development of the approximately 18-acre site would be expected to increase the amount of runoff during periods of rainfall. These increases would arise

mainly from soil compaction, removal of vegetation and placement of impervious surfaces (roof tops, driveways, etc.) over permeable soils. In addition, because of the seasonally high water tables associated with the hardpan soils, groundwater intercepted in cut areas and collected by curtain/building footing drains will need to be accounted for and properly handled in the stormwater management plan. It is understood that most road drainage emanating from the new roads will be artificially collected and outletted to a proposed detention basin. Also, roof leaders should be tied into the stormwater system.

The detention pond is proposed on upland soils in the central parts to handle post-development flows from this site. The detention pond must meet all design criteria and standards found in the Connecticut Guideline for Soil Erosion and Sediment Control (1985). It is strongly recommended that the City engineer carefully review the final stormwater management plans. Also, careful examination of all downstream culverts is warranted.

The protection of watercourses on- and off-site from silt and road sand is a major concern. In this regard, a comprehensive erosion and sediment control plan is essential to the assessment of the development, particularly in view of the moderately steep slopes, silty soils and seasonal seeps that characterize the site. It seems likely that the detention basin could serve a sediment-retention function also. Provisions for maintenance and access to the basin need to be considered. Regular maintenance of the sediment/detention basin is important. If sediment and road sand accumulates in the basin, it could seriously deplete the runoff storage capacity.

Based on present plans, the applicant wishes to pipe certain sections of the main seasonal watercourse and fill in two secondary watercourses. This can result in drainage problems and will require a permit from the Inland Wetlands Commission. Water that normally drains to these watercourses will need to be



Portion of site that drains to the unnamed Beaver Brook tributary

Watercourses showing direction of flow

Direction of surface flow

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WATERSHED HYDROLOGY

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Information from USGS Topographic sheet
Ansonia Quadrangle

3) Because of the type of development proposed, large areas of cut and fill slopes are planned. Steep cut slopes in dense till material can be difficult to stabilize with vegetation, and seepage makes slumping a problem. An appropriately designed diversion and drained system at the top of the slope may be needed. A drainage system in the cut slopes may also be needed.

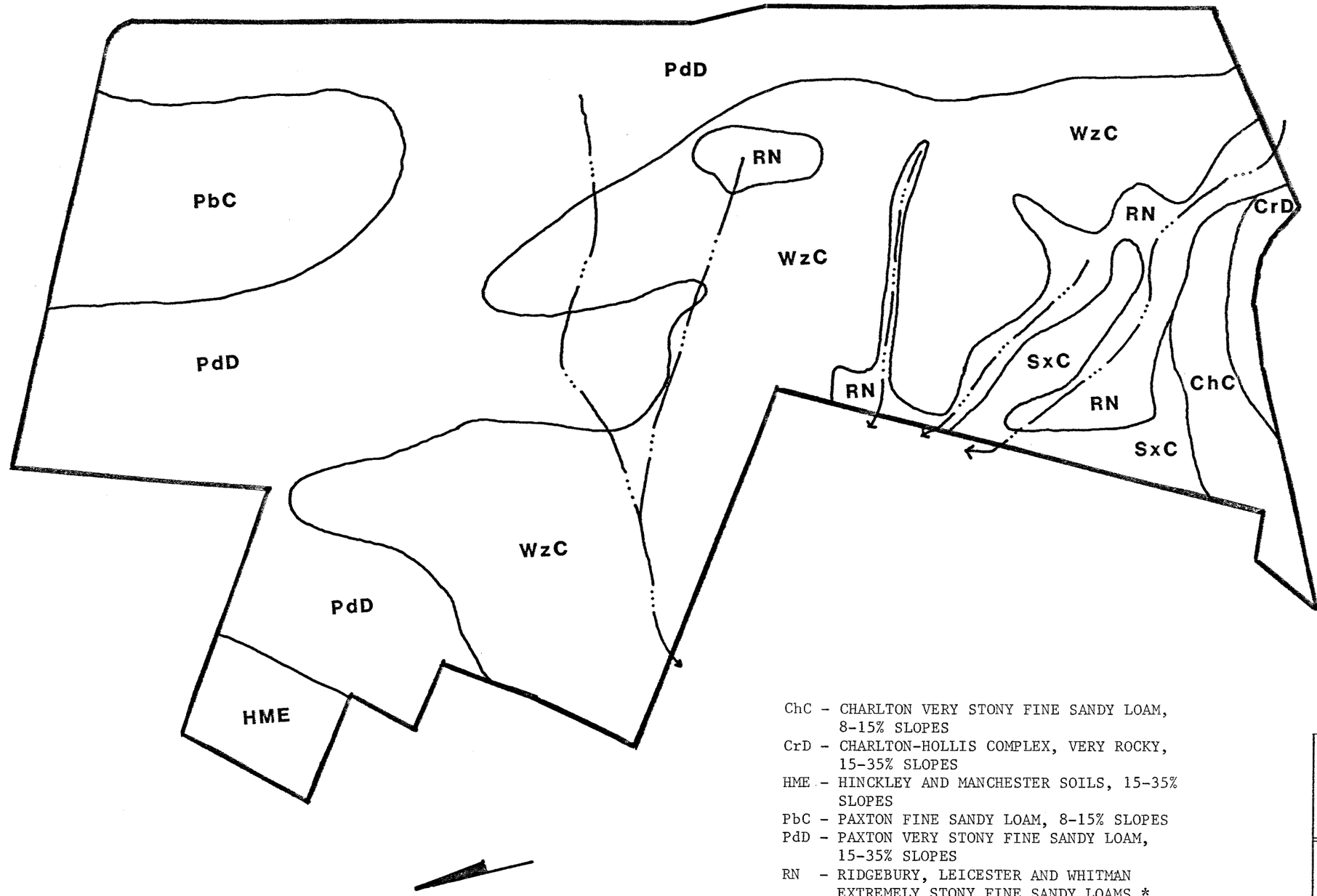
4) The contact between till and outwash materials can create highly variable soil substratum conditions with unique engineering properties. Deep test pits and/or borings in the vicinity of the proposed access to Jewett Street may be valuable.

SEDIMENT AND EROSION CONTROL

In 1983, Public Act No. 83-388, "An Act Concerning Soil Erosion and Sediment Control" was passed to "reduce the danger from storm water runoff, minimize non-point sediment pollution from land being developed, and conserve and protect the land, water, air and other environmental resources of the state." Under this law, most applications for development must have a comprehensive sediment and erosion control plan which includes a map and narrative. While the Westbook Condominiums project has a sediment and erosion control plan, it lacks certain elements which are needed to minimize erosion and sediment on a construction site. A worksheet useful as a guideline in preparation of a sediment and erosion control plan is included in Appendix B.

The Westbrook site has steep slopes, soils with seepage problems, moderately to highly erodible soils and several intermittent watercourses. All of these natural factors contribute to a very high risk of erosion on the site. Added to these factors and greatly increasing the erosion risk, is the proposal to clear and grade about 62% of the site. Extensive cuts and fills are planned and these areas are very difficult to stabilize. Erosion already

Figure 8



ChC - CHARLTON VERY STONY FINE SANDY LOAM, 8-15% SLOPES
CrD - CHARLTON-HOLLIS COMPLEX, VERY ROCKY, 15-35% SLOPES
HME - HINCKLEY AND MANCHESTER SOILS, 15-35% SLOPES
PbC - PAXTON FINE SANDY LOAM, 8-15% SLOPES
PdD - PAXTON VERY STONY FINE SANDY LOAM, 15-35% SLOPES
RN - RIDGEBURY, LEICESTER AND WHITMAN EXTREMELY STONY FINE SANDY LOAMS *
SxC - SUTTON VERY STONY FINE SANDY LOAM, 3-15% SLOPES
WzC - WOODBRIDGE EXTREMELY STONY FINE SANDY LOAM, 3-15% SLOPES

* WETLAND SOILS

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SOILS

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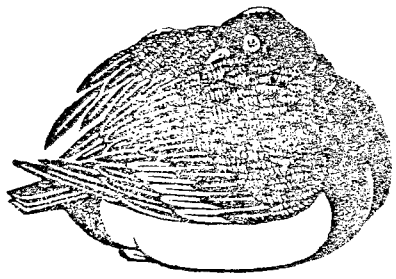
11) The City's inspector should be able to make changes in the proposed plan as site or weather conditions warrant.

BIOLOGICAL RESOURCES



3) The small pocket of Leicester, Ridgebury, Whitman (RN) soils, in the north central portion of the site, will be completely destroyed due to filling for the construction of 3 housing units and a roadway. This type of soil can present severe structural limitations which need to be taken into account. Avoidance of this wetland, and its proposed filling, appears to be well within the limits of feasible and prudent alternatives. All alternatives to this filling should be fully evaluated by the commission prior to making their final decision.

4) The areas designated as "new wetlands" or creation sites, should not be considered as mitigation for wetland damage, because the wetland impacts, which they attempt to compensate for, <u>are avoidable</u>. In addition, these sites, if created, are poorly located and would probably not be able to replace the type, quality or functions of the wetlands being destroyed or otherwise being impacted.

5) The capability of the existing stormwater systems to handle any increased flows is questionable. Inspection revealed that some of the culverts within the system (i.e. 36" culvert under Jewett Street) were substantially blocked due to sedimentation. The Commission should consider that the hydrologic analysis submitted with the application is based on culverts with full capacity. The applicant has given no indication as to whether they would repair any or all problems with the existing system to give their development suitable drainage.

6) The steepness of the site will contribute to increased risks to wetlands during and after construction. The proposed contouring includes some very steep embankments. These areas will increase the potential for sediment and erosion problems which could ultimately impact Beaver Brook. The sediment and erosion plans should include a time table indicating the timing of each stage of the project which deals with earth moving operations. This timing is very important in controlling and reducing risks of sediment and erosion problems. Additionally, earth moving work should be scheduled at a dry time of the year and be put in a specific sequence to reduce the amount and duration of soil exposure.

7) A culvert is proposed to pipe an intermittent watercourse under buildings and roadways. The velocity of the water at the outlet of this culvert is a concern. A combination of an energy dissipater and a large splash pool will be needed to prevent erosion at the outlet.

8) The density of development relative to the site capacity is very high. This can cause undue impacts to the wetlands and watercourses, as well as the site in general. A reduction in project density would reduce the impacts and allow for better site planning.

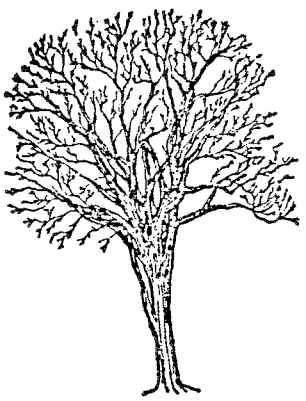
In conclusion, the Commission should consider if a project of this size and design is appropriate in light of the real and potential wetland impacts. The site contains ample space and opportunity for many alternative designs which

would allow for development while keeping wetland impacts to a minimum or avoiding them altogether. The site contains obvious environmental constraints, primarily slope, which magnify the potential for short and long term wetland impacts.

THREATENED AND ENDANGERED PLANT AND ANIMAL SPECIES

According to the DEP - Natural Diversity Database there are no Federally listed Endangered Species or Connecticut "Species of Special Concern" that occur within the study area. The Natural Diversity Data Base contains the most current biologic data concerning endangered or threatened plant or animal species. On-going research continues to locate additional populations of species or locations of habitats of concern as well as updating existing data.

LAND USE AND PLANNING CONSIDERATIONS



PLANNING CONSIDERATIONS

Land Use

The proposed development is surrounded primarily by single-family residences. Condominium development borders the southeast corner of the property at Lindgren Terrace. Along Jewett Street (west side), there are some multi-family structures scattered among single-family dwellings. The construction of condominium units on the property would be a compatible use of the land, given the variety of housing structures in the area. However, the actual location and arrangement of the units and roadways on the property should be given careful consideration. Building units directly over wetlands or watercourses should be avoided if possible. Erosion could create serious problems both during and after construction if drainage matters are not handled properly.

Plan of Development

Ansonia's Comprehensive Development Plan recommends two and three family residences in the area. The property is located on a transition zone of housing structures, and development becomes increasingly single-family as one travels east and uphill. Therefore, the proposed multi-family structures follow the Comprehensive Development Plan.

Zoning and Subdivisions

The development site is located in a "GA" (Garden Apartments) district. According to the zoning regulations of the City of Ansonia, minimum GA lot size is 5 acres with a maximum of 12 dwelling units per acre. The Westbrook proposal calls for 97 units on 17.65 acres of land, or about 5.5 dwelling units per acre. Therefore, the proposal adequately conforms to the current zoning regulations.

Site Design Compatibility

The proposed development is in harmony with the character of land uses of the surrounding neighborhood. Possible alternative development measures include single-family houses or parks/open space. The property had previous approval for a single-family subdivision, but the parcel would have to be re-zoned, since GA does not permit single-family residences. A park or recreation area would also be possible on parts of the site, but the City of Ansonia would have to purchase the property. Site design is an important consideration in the development of this property. The slope and high water table make construction difficult and expensive. The commission should make sure that all the proper measures of erosion control are taken, especially in regard to cuts and fills, the placement of buildings and off-site improvements.

TRAFFIC CONSIDERATIONS

Project Description

The proposed project entails a development of 97 multi-family housing units on 17.65 acres of land in Ansonia. The site is located on the east side of Jewett Street, west of Highland Avenue, between the ends of Berkshire Road and Kiely's Lane.

The primary access is proposed off of Jewett Street, which is classified as a collector street in the City's functional classification. Berkshire Road, a local road, is proposed to serve as secondary access.

Traffic Accident Record

For the period from January 1, 1983 to June 30, 1986 on Jewett Street between North Spring Street and Vine Street, there were a total of seven vehicular accidents. Of the seven accidents, there were zero killed, one

A-type injury, two B-type injuries, three C-type injuries, and two accidents without injuries. Four of the seven accidents involved collision with a fixed object. Based on this information, this section of Jewett Street does not experience a high number of accidents. For the same time period, there were no vehicular accidents listed for Berkshire Road.

Sightlines at the Jewett Street access did not appear problematic. However, the retaining wall south of the proposed access off of Jewett Street requires careful consideration.

Trip Generation

The rate for projected trip ends, (i.e., trips entering or leaving) would be substantially below the rate for single-family dwellings (approximately 10 trip ends per dwelling unit). The level of trip generation would also partly depend on the level of ownership of the units. Average trip generation for a low-rise apartment development would be about 640 average weekday trip ends and 68 vehicle trip ends during the evening peak. The following table defines projected traffic generation for condominiums and apartments.

Westbrook - Projected Traffic Generation

		Residential Condo. Dwelling Unit		Apartment Dwelling Unit	
		Average Trip Rate	Trip Ends @ 97 Units	Average Trip Rate	Trip Ends @ 97 Units
Average Weekday Vehicle Trip Ends		5.2	504	6.6	640
A.M.	Enter	0.07	6	0.1	12
	Exit	0.37	34	0.4	46
	Total	0.41	40	0.6	58
P.M.	Enter	0.37	33	0.4	45
	Exit	0.18	16	0.2	23
	Total	0.51	49	0.7	68

Perhaps the most obvious traffic concern with this proposal is the impact of the project traffic on Berkshire Road. Berkshire Road is approximately a quarter of a mile long and leads onto Hill Street. The number of cars that would utilize Berkshire Road is difficult to determine. A reasonable guess is as many cars would utilize Berkshire Road as those cars from Berkshire Road that would use the proposed project road system onto Jewett Street.

The alternative of a separate enclave with access off Jewett Street, and only emergency access off Berkshire Road was briefly considered. This alternative was dropped because the opportunity for linkages with the City street system at both locations would be more beneficial.

Street System Description

In the original plans, the developer proposes a private street system to serve the proposed 97 multi-family housing units. The primary access would be off Jewett Street via a 760-foot entrance drive. Six housing units are proposed to be situated off the entrance drive.

The bulk of the housing units (68) are indicated to be double-loaded off a proposed loop road. The loop road is over 2,000 feet in length, looping around a "squashed oval" piece of land about 860 feet long by 160 feet wide.

In addition to the loop road, there is a connecting road 240 feet long which connects the loop road with Berkshire Road to the north. The connector road has eight housing units on it. Also, there is a cul-de-sac road off the loop road system which provides access to 15 housing units.

Each of the above private roads is proposed to be 24 feet wide, approximately eight feet narrower than the City standard.

The following table summarizes the description:

Westbrook - Road and Housing Unit Location

Road	Length	Width	Housing Units
Access Drive	760 ft.	24 ft.	6
Loop Road	2020 ft.	24 ft.	68
Connecting Road	240 ft.	24 ft.	8
Cul-de-sac	340 ft.	24 ft.	15
Total	3360 ft.	24 ft.	97

The latest revision shows the southern part of the loop road north of the wetland with a small cul-de-sac to serve the three units near the wetland. From a wetland preservation standpoint, this is desirable. However, the proposed road is steep and may not be acceptable to the Planning and Zoning Commission.

Analysis

The developer is proposing to construct over a half mile of roadway, only 24 feet wide, to serve 97 multi-family housing units. Most of the housing units are double-loaded in pairs off the road system. For each housing unit, there is a private driveway to accommodate access to a parking space in a private garage. The private driveway serves as a potential second parking space for the housing unit. The private garage is a definite selling point for the project. The garage not only shelters the auto, but also reduces its visibility.

The developer's proposal for residents' off-street parking is essentially a private system. Outside of the 42 visitor parking spaces, there is no shared system of parking spaces beyond the individual housing unit. Many of the visitor parking spaces are indicated in locations not easily accessible to the housing units. This means that if company calls or if vehicles need to be set

out so vehicles in the garages can become accessible, many of the visiting or resident vehicles are going to end up on the main drives, effectively reducing road width to about 16 feet. If vehicles are parked on opposite sides, only 8 feet would remain for a travel lane.

In an outdoor parking lot arrangement, shared parking spaces can be used on an interchangeable basis. In the proposed off-street parking scheme, only the visitor parking is truly interchangeable between housing units.

It is true that townhouses have lower trip generation rates than single-family detached homes. However, the scale of this development, the extensive reliance on backing out parking maneuvers onto the 24-foot wide drives and the private system of off-street parking, enhance the probability that vehicles are going to end up on the drives just as they do in single-family subdivisions.

The risk is not only that the proposed parking scheme will result in queuing of vehicles, but also that a reduced travelled way will become a safety problem, prevent two-way traffic and result in blockage of the street for emergency vehicles.

To serve the proposed housing units, the developer is providing, in effect, an elongated driveway, but one not separated from parking areas by curbing or other means. Except for certain portions of the entrance drive, the developer has not differentiated his private road system.

In a single-family subdivision, the developer must set aside a 50-foot right-of-way within which he must develop a travelled way 30-32 feet in width. The parking space is provided off-street. Setbacks are measured from their street right-of-way. In the application at hand, the developer is not adhering to City street specifications, either in width of travelled way, or in setbacks or right-of-ways.

Visits to Shelton's Sunwood Condominiums, Derby's Maplewood Condominiums and Derbyshire confirmed that entrance drives in those locations extended to serve a series of collector drives, each of which in turn serve a cluster of housing units with their individual parking spaces. The function of the collector drives is to separate the entrance drive from the individual parking spaces. In the Westbrook Condominiums proposal, this has not occurred, partly due to the grades encountered.

Recommendation

Due to the lack of separation from individual drives and parking areas, the developer does not appear to have warranted lessening of City standards in the width of the roadway serving the units. It is recommended that the the full width of City street specifications be required in order to provide for public health and safety.

In multi-family developments of 20 families or more, the recommended width of the drives is at least 32 feet and should be constructed to City standards for grade and alignment and to City specifications. However, when circulation driveways contain no parking spaces and are separated from parking areas and access aisles by means of curbs and/or islands, the driveway width may be reduced to 24 feet.

Additional Findings

1) The first problem foreseen was the proposed crossing of wetlands. In this case, the developer has proposed constructing a roadway through a substantial part of the wetlands. A road plan which would skirt the wetlands was prepared for the field review. This alternative appears to contain unacceptable grades.

   It is suggested that the developer consider development of two cul-de-sacs instead of a "loop drive" system. The eastern cul-de-sac could begin approximately 240 feet south of Berkshire Road and extend along the proposed easterly alignment of the "loop drive." This means the "loop drive" would cul-de-sac on the east prior to the watercourse which extends from east to west. The western cul-de-sac would extend from the end of the entrance drive southerly along the westerly alignment of the "loop drive."

2) On the steep access drive down to Jewett Street, six housing units are proposed. Drivers backing out from these driveways onto Jewett Street run the risk of being rear-ended by vehicles coming down the hill from the loop drive. Sight distances here appear to be far short of the need.

   Prior to any approval of housing units along the access drive, a traffic engineering report should indicate: a) proposed sightlines; b) stopping distances in relation to anticipated speeds; and c) proposed site modifications, if any.

3) There are no measures indicated to prevent the sheet flow of stormwater onto Jewett Street near the temporary mud tracking pad to be located at the beginning of the entrance drive off of Jewett Street.

   It is suggested that the developer consider the need for a storm drain with grating which extends across the full width of the drive entrance beginning off Jewett Street.

General Comments

The proposal makes use of a highly intensive development, both to provide access to the site from Jewett Street and to provide access to proposed units. With respect to open space, inland wetlands and watercourses, it is suggested that the developer clarify the apparent discrepancy between the following:

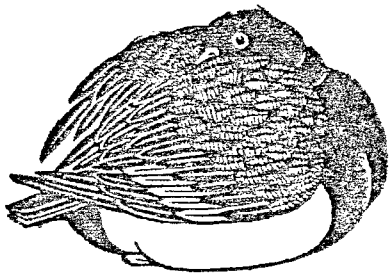
1) The Planning and Zoning Commission's need to find that the site plan is designed to conserve as much of the natural terrain and vegetation as possible (Zoning Ordinance Section 510.5.3).

2) The developer's proposal to excavate about 60% of the site.

3) The GA Zone requirement that 50% of the lot area be in contiguous non-vehicular open space. This open space requirement (minimum requirement #9) is further defined by reference to Note F: contiguous non-vehicular open space refers to an open land area either developed for recreational purposes or undeveloped.

Due to the extent of excavation proposed, the developer may need a temporary special exception for excavation, landfilling, grading or removal (see Section 610 of the Zoning Regulations). A zoning waiver may be needed for Section 610.5.7 regarding excavation within 50 feet of an abutting property line.

APPENDICES



Appendix A: Soils Limitation Chart

MAP UNIT NAME *	GENERAL SOIL PROPERTIES	DRAINAGE CLASS AND DEPTH TO SEASONAL HIGH WATER TABLE	MAJOR LIMITATIONS TO THE DEVELOPMENT OF: HOMES WITH BASEMENTS	ROADS AND STREETS
ChC - Charlton very stony fine sandy loam, 8-15% slopes	Glacial till soils formed in loose loamy materials	Well drained >4.0 ft.	None	Slope
CrD - Charlton-Hollis Complex, very rocky, 15-35% slopes	Complex of glacial till soils from deep to shallow over bedrock, formed in loamy materials	Well drained to excessively drained >4.0 ft.	Variable depth to bedrock, slope	Variable depth to bedrock, slope
HME - Hinckley and Manchester soils, 15-35% slopes	Glacial outwash soils formed in sand and gravel	Excessively drained >6.0 ft.	Slope	Slope
PbC - Paxton fine sandy loam, 8-15% slopes	Glacial till soils formed in dense loamy materials	Well drained 1.5-2.5 ft.	Seasonal wetness	Slope
PdD - Paxton very stony fine sandy loam, 15-35% slopes	Glacial till soils formed in dense loamy materials	Well drained 1.5-2.5 ft.	Seasonal wetness	Slope
RN - Ridgebury, Leicester and Whitman extremely stony fine sandy loams	Undifferentiated unit of glacial till soils formed in loose to dense loamy materials	Poorly to very poorly drained 0-1.5 ft.	Wetness	Wetness, subject to frost action
SxC - Sutton very stony fine sandy loam, 3-15% slopes	Glacial till soils formed in loose loamy materials	Moderately well drained 1.5-2.5 ft.	Wetness	Subject to frost action, slope if >8%
WzC - Woodbridge extremely stony fine sandy loam, 3-15% slopes	Glacial till soils formed in dense loamy materials	Moderately well drained 1.5-2.5 ft.	Wetness	Subject to frost action, slope if >8%

* Some of the map unit names and symbols used in this report are unique and may differ from the New Haven Soil Survey Report (1979) legend and text.

Appendix B: Erosion and Sediment Control Plan Worksheet

NEW HAVEN COUNTY SOIL AND WATER CONSERVATION DISTRICT
EROSION AND SEDIMENT CONTROL PLAN WORKSHEET

This is a guide for the development and review of erosion and sediment control plans. Local commissions should be consulted for regulatory requirements concerning erosion and sediment planning.

Checked ( ) items are those that have been provided on the current erosion and sediment control plan. Items identified with a star (*) should be incorporated into final plans.

Name of development_____
Materials received_____
_____
_____
_____
Total Area_____Location_____
Engineer_____
Date Received_____Site Visit_____Reviewed by_____
Submitted by_____

NARRATIVE SECTION DESCRIBING:

_____ The development
_____ Major land uses of adjoining areas
_____ The number of total acres and acres to be disturbed in the project
_____ The schedule of grading and construction activities including:
-Start and completion dates.
_____ Application sequence of all E & S control measures
_____ The design criteria for all proposed E&S control measures
_____ Construction details and installation procedures for all proposed E&S control measures
_____ The operations and maintenance program for all proposed E&S control measures
_____ The name of the person or organization that will be responsible for the installation and maintenance of the E&S control measures
_____ Organization or person responsible for maintenance of permanent measures when project is completed. Measures include:_____
_____
_____

==========

A SITE PLAN AT A SUFFICIENT SCALE SHOWING:

Natural Features

_____Existing topography
_____Existing vegetation
_____Soils information, including test pit data if available
_____Identification of wetlands, watercourses, major drainageways and water bodies on the site
_____Name of soil scientist who performed wetlands delineations and flag numbers
_____Rock outcrop areas
_____Seeps, springs
_____Major aquifers
_____Floodplains (100 yr.) and floodways
_____Channel encroachment line (DEP permit required)
_____Coastal zone boundary
_____Public water supply watershed boundaries
_____Possible Army Corps Sec. 404 or Sec. 10 Permit Areas (Contact Corps @ 1-800-343-4789).

Project Features

_____The location of the proposed development
_____A plan legend
_____Adjacent properties
_____Property lines
_____Lot lines and setback lines
_____Lot and/or building numbers
_____Planned and existing roads
_____Proposed structures
_____Location of existing and planned utilities
_____Location of wells and septic systems
_____Proposed topography
_____North arrow

Clearing, Grading, Vegetative Stabilization

_____The sequence of grading, construction, and sediment and erosion control activities
_____The location of and construction details for all proposed E&S control measures
Recommended measures include_____
_____
_____

_____Limits of disturbed areas
_____Extent of areas to be graded
_____Disposal procedure for cleared material
_____Location of stockpiled topsoil and subsoil
_____Temporary erosion protection for stockpiles
_____Areas to be vegetatively stabilized
_____Temporary erosion control in disturbed areas
_____Method for protection of disturbed areas when time of year or weathe
prohibit establishment of permanent vegetative cover
_____Seedbed preparation (including topsoiling specifications)
_____Seeding mixture, rates, and seeding dates
_____Fertilizer and lime application rates
_____Mulch application rate
_____Mulch anchoring measures

Drainage System

_____Existing and planned drainage pattern
_____Drainage areas used in design of stormwater management system
_____Size and location of culverts and storm sewers
_____Drainage calculations for review by town engineer
_____Stormwater management measures and construction details
_____Groundwater control measures (footing drains, curtain drains
_____Planned water diversions and dams (DEP permit may be required)

House Site Development

_____Sediment and erosion control measures for individual lot development

Additional Comments

NOTES

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 Nancy Ferlow, 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.