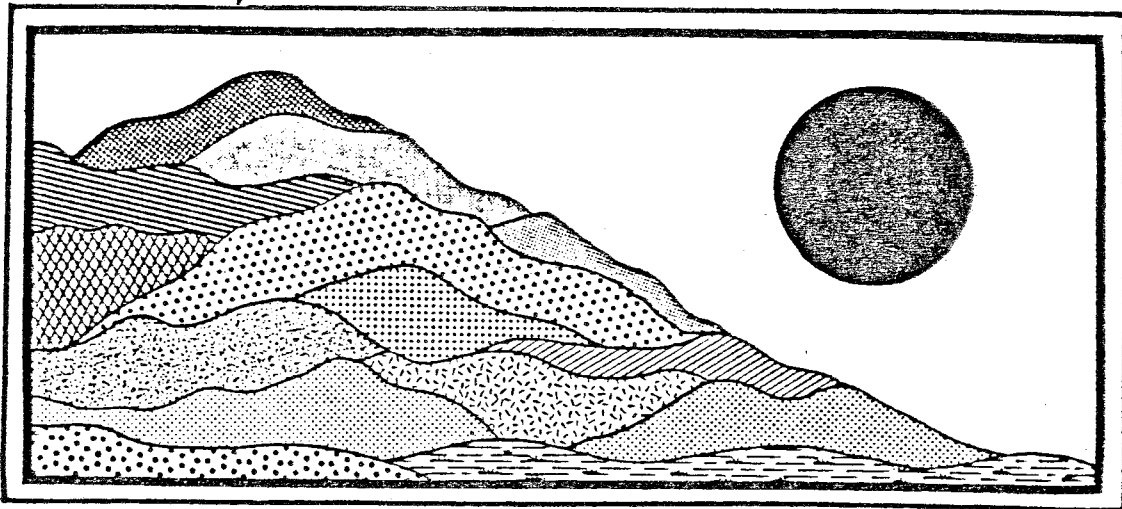


Gilead Heights Section III, Warner Property, &

Tall Oaks

Hebron, Connecticut



August 1987

ENVIRONMENTAL

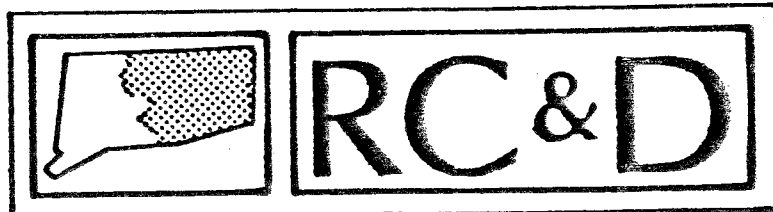
REVIEW TEAM

REPORT

Gilead Heights Section III,
Warner Property,
&
Tall Oaks
Hebron, Connecticut

Review Date: JULY 21, 1987

Report Date: AUGUST 1987

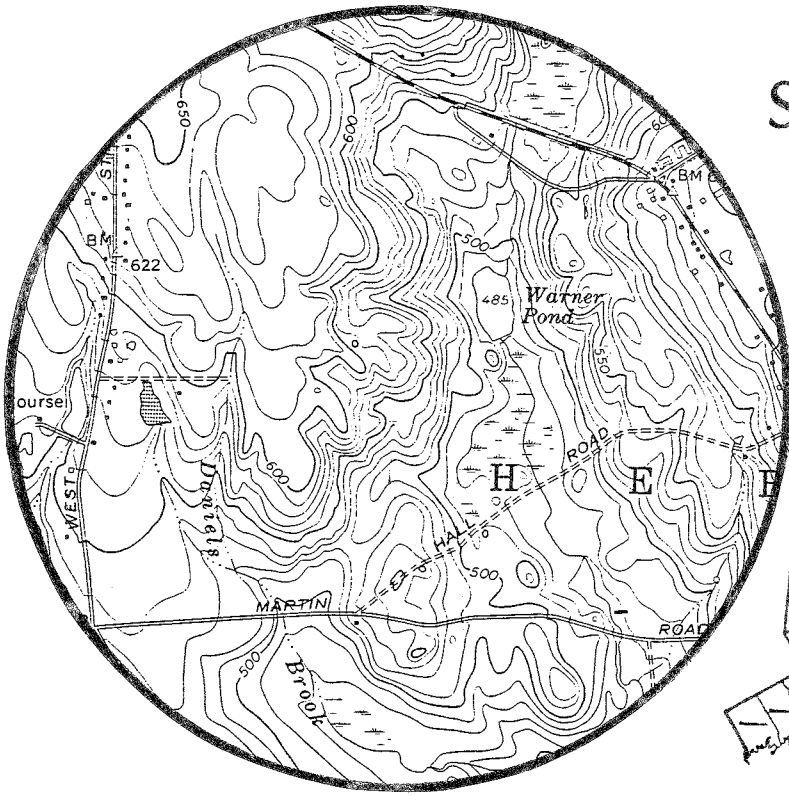


ENVIRONMENTAL REVIEW TEAM
PO BOX 198
BROOKLYN, CONNECTICUT 06234

Site Location

GILEAD HEIGHTS SECTION III,
WARNER PROPERTY AND
TALL OAKS

HEBRON, CONNECTICUT



EASTERN CONNECTICUT
RESOURCE CONSERVATION
& DEVELOPMENT AREA

ENVIRONMENTAL REVIEW TEAM REPORT
 ON
 GILEAD HEIGHTS SECTION III, WARNER PROPERTY
 AND
 TALL OAKS SUBDIVISION
 HEBRON, CONNECTICUT

THIS REPORT IS AN OUTGROWTH OF A REQUEST FROM THE HEBRON INLAND WETLANDS AND CONSERVATION COMMISSION AND THE PLANNING AND ZONING COMMISSION TO THE TOLLAND COUNTY SOIL AND WATER CONSERVATION DISTRICT (S&WCD). THE S&WCD REFERRED THIS REQUEST TO THE EASTERN CONNECTICUT RESOURCE CONSERVATION AND DEVELOPMENT (RC&D) AREA EXECUTIVE COMMITTEE FOR THEIR CONSIDERATION AND APPROVAL. THE REQUEST WAS APPROVED AND THE MEASURE REVIEWED BY THE EASTERN CONNECTICUT ENVIRONMENTAL REVIEW TEAM (ERT).

THE ERT MET AND FIELD CHECKED THE SITE ON TUESDAY, JULY 21, 1987. TEAM MEMBERS PARTICIPATING ON THIS REVIEW INCLUDED:

- | | |
|---------------|--|
| STEVEN HILL | --WILDLIFE BIOLOGIST
DEP - EASTERN DISTRICT |
| BRIAN MURPHY | --FISHERIES BIOLOGIST
DEP - EASTERN DISTRICT |
| JOE NEAFSEY | --DISTRICT CONSERVATIONIST
U.S.D.A. - SOIL CONSERVATION SERVICE |
| JAMES PARDA | --FORESTER
DEP - EASTERN DISTRICT |
| ELAINE SYCH | --ERT COORDINATOR
EASTERN CT RC&D AREA |
| BILL WARZECHA | --GEOLOGIST
DEP - NATURAL RESOURCES CENTER |

PRIOR TO THE REVIEW DAY, EACH TEAM MEMBER RECEIVED A SUMMARY OF THE PROPOSED PROJECT, A LIST OF THE TOWN'S CONCERNS, LOCATION MAP, PARCEL MAP, TOPOGRAPHIC MAP AND A SOILS MAP. DURING THE FIELD REVIEW THE TEAM MEMBERS WERE GIVEN SUBDIVISION PLANS AND PRELIMINARY PLANS. THE TEAM MET WITH, AND WERE ACCOMPANIED BY THE TOWN PLANNER, AND THE ENGINEERS FOR THE PROJECTS. FOLLOWING THE REVIEW, REPORTS FROM EACH TEAM MEMBER WERE SUBMITTED TO THE ERT COORDINATOR FOR COMPILATION AND EDITING INTO THIS FINAL REPORT.

THIS REPORT REPRESENTS THE TEAM'S FINDINGS. IT IS NOT MEANT TO COMPETE WITH PRIVATE CONSULTANTS BY PROVIDING SITE DESIGNS OR DETAILED SOLUTIONS TO DEVELOPMENT PROBLEMS. THE TEAM DOES NOT RECOMMEND WHAT FINAL ACTION SHOULD BE TAKEN ON A PROPOSED PROJECT --- ALL FINAL DECISIONS AND CONCLUSIONS REST WITH THE TOWN AND LANDOWNER. 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. THE RESULTS OF THIS TEAM ACTION ARE ORIENTED TOWARD THE DEVELOPMENT OF BETTER ENVIRONMENTAL QUALITY AND THE LONG-TERM ECONOMICS OF LAND USE.

THE EASTERN CONNECTICUT RC&D EXECUTIVE COMMITTEE HOPES YOU WILL FIND THIS REPORT OF VALUE AND ASSISTANCE IN MAKING YOUR DECISIONS ON THESE PROPOSED SUBDIVISION.

IF YOU REQUIRE ANY ADDITIONAL INFORMATION, PLEASE CONTACT:

ELAINE A. SYCH
ERT COORDINATOR
EASTERN CONNECTICUT RC&D AREA
P. O. Box 198
BROOKLYN, CT 06234
(203) 774-1253

TABLE OF CONTENTS

	<u>PAGE</u>
INTRODUCTION.....	5
PART ONE GILEAD HEIGHTS SECTION III	
A. TOPOGRAPHY AND SETTING.....	10
B. GEOLOGY.....	10
C. SOIL RESOURCES.....	13
D. EROSION AND SEDIMENT CONTROL.....	16
E. HYDROLOGY.....	16
F. WATER SUPPLY.....	18
PART TWO WARNER PROPERTY	
A. TOPOGRAPHY AND SETTING.....	21
B. GEOLOGY.....	21
C. SOIL RESOURCES.....	22
D. EROSION AND SEDIMENT CONTROL.....	23
E. HYDROLOGY.....	23
F. WATER SUPPLY.....	24
PART THREE TALL OAKS	
A. TOPOGRAPHY AND SETTING.....	27
B. GEOLOGY.....	27
C. SOIL RESOURCES.....	28
D. EROSION AND SEDIMENT CONTROL.....	29
E. HYDROLOGY.....	29

TABLE OF CONTENTS (CONTINUED)

	<u>PAGE</u>
PART FOUR	
INFORMATION ON ALL PARCELS	
A. VEGETATION.....	31
B. WILDLIFE HABITAT.....	34
C. FISH RESOURCES.....	35

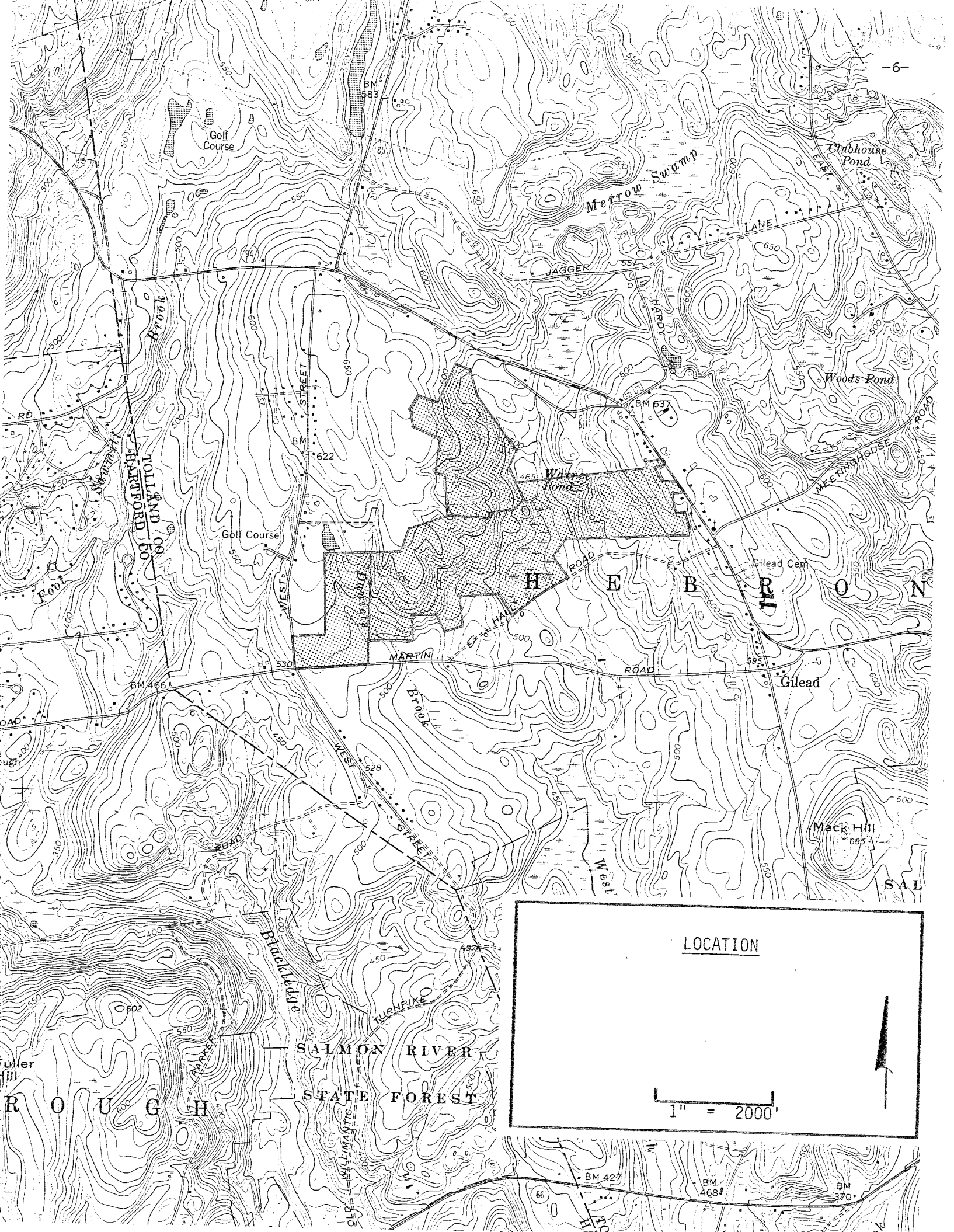
TABLE OF MAPS

LOCATION.....	6
PARCEL LOCATION.....	7
TOPOGRAPHY.....	9
BEDROCK GEOLOGY.....	11
SURFICIAL GEOLOGY.....	12
SOILS.....	14
WATERSHED BOUNDARY.....	17
VEGETATION.....	32

INTRODUCTION

THE EASTERN CONNECTICUT ENVIRONMENTAL REVIEW TEAM WAS ASKED TO REVIEW THESE THREE (3) PARCELS SO THAT THE TOWN COULD DEVELOP A MORE COMPREHENSIVE APPROACH IN EVALUATING THESE PROPOSED SUBDIVISIONS.

THE FOLLOWING SECTIONS OF THE REPORT PERTAIN TO NATURAL RESOURCE INFORMATION AREAS OF CONCERN, AND RECOMMENDATIONS TO MITIGATE POSSIBLE NEGATIVE IMPACTS. PARTS 1-3 DEAL SPECIFICALLY WITH EACH SUBDIVISION SEPARATELY, WHILE PART 4 CONTAINS INFORMATION PERTINENT TO ALL THREE (3) PARCELS.



LOCATION

1" = 2000'



R O U G H

SALMON RIVER

STATE FOREST

SAL

TOLLAND CO
ROAD

WEST STREET

MARTIN ROAD

H E B R O N

Gilead

Mack Hill
685'

Golf Course

Golf Course

Clubhouse Pond

Woods Pond

Walker Pond

Gilead Cem

Brook

Brook

West

Merrow Swamp

SALMON RIVER

STATE FOREST

BM 427

BM 468

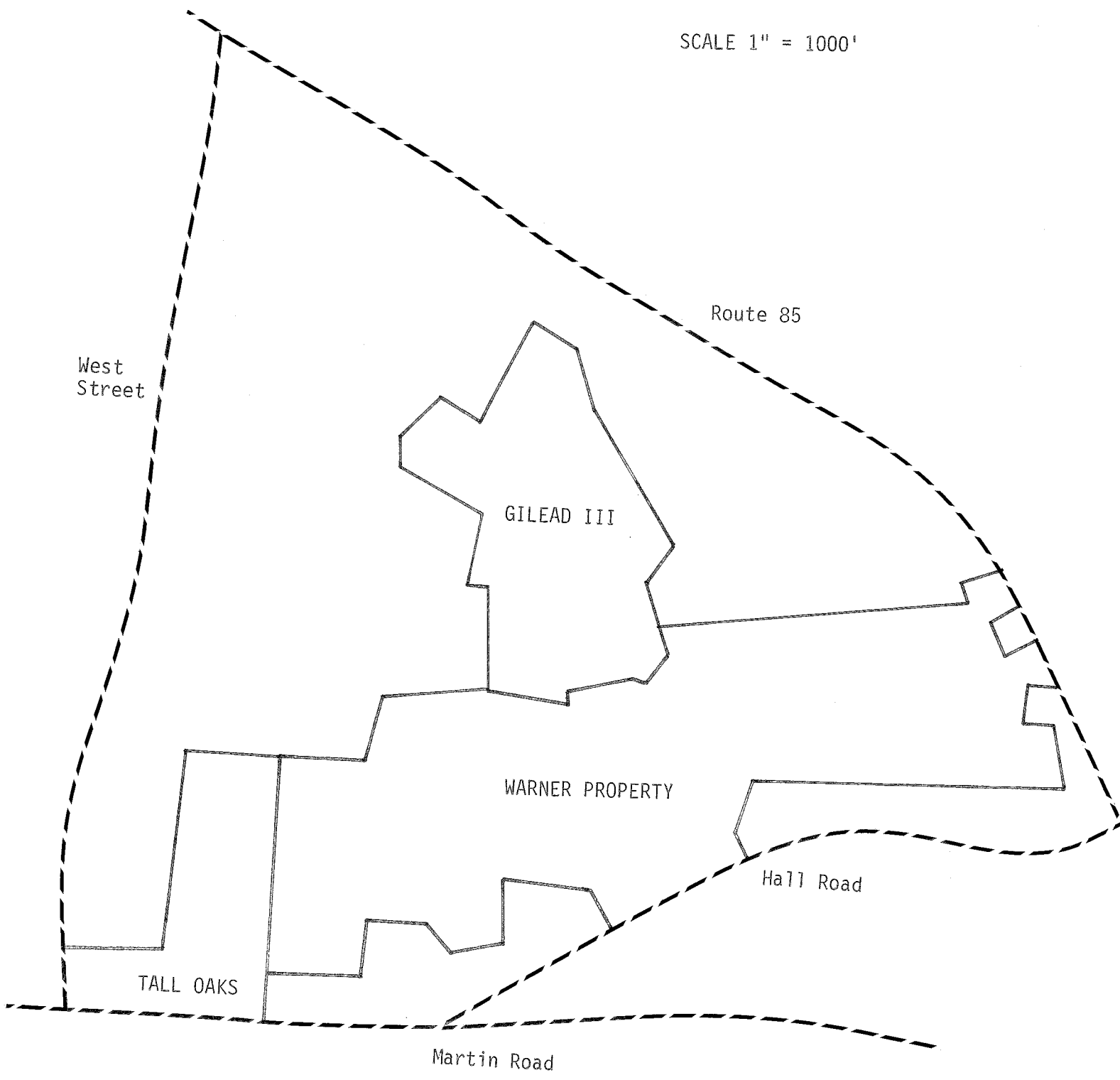
BM 370

OLD WILLIAMSON

66

7

SCALE 1" = 1000'



PART ONE

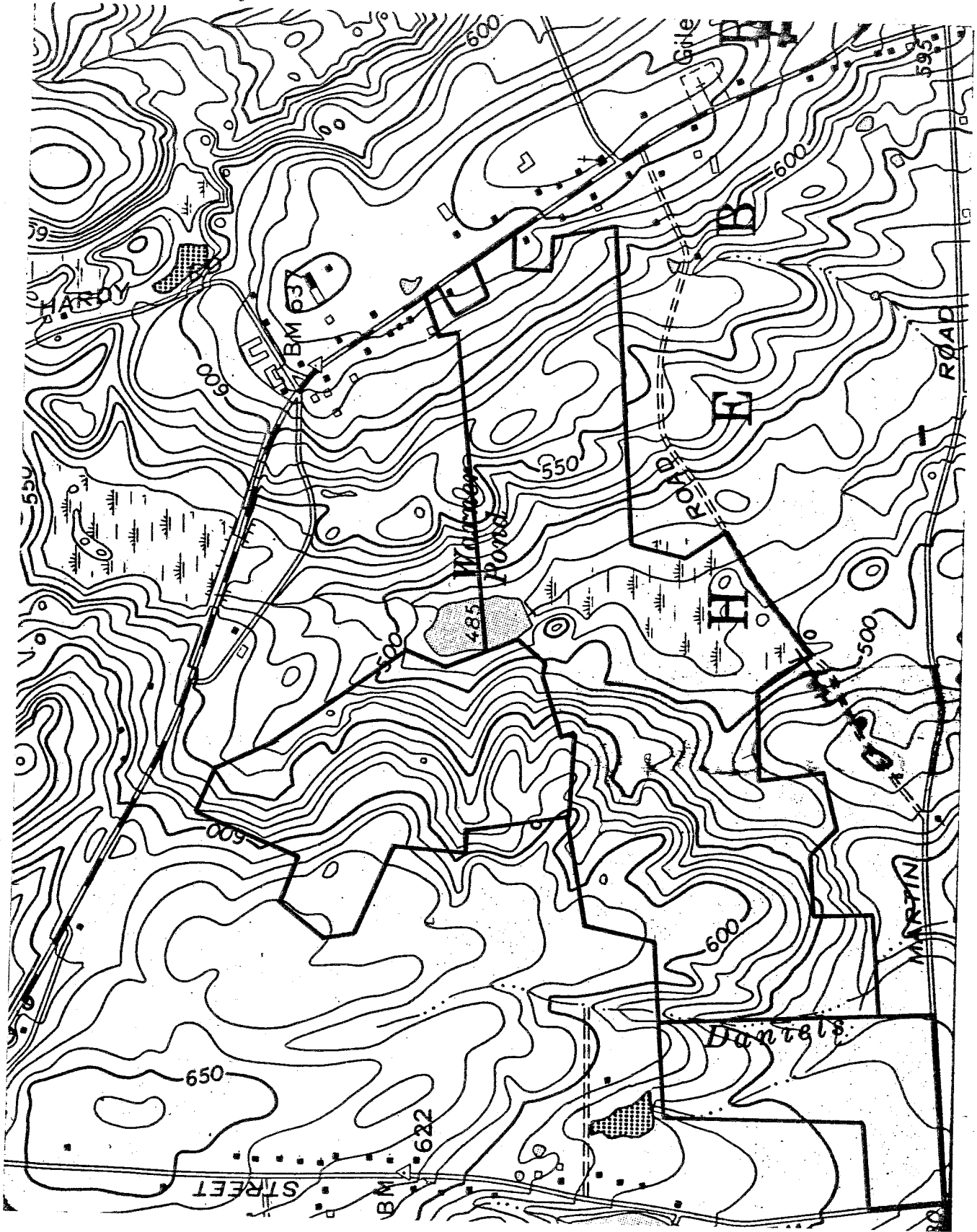
GILEAD HEIGHTS SECTION III

- A. TOPOGRAPHY AND SETTING
- B. GEOLOGY AND RELATED CONCERNS
- C. SOIL RESOURCES
- D. EROSION AND SEDIMENT CONTROL PLAN
- E. HYDROLOGY
- F. WATER SUPPLY

TOPOGRAPHY

— Approximate Site Boundaries

Scale 1" = 1000'



A. TOPOGRAPHY AND SETTING

THE GILEAD HEIGHTS SECTION III SUBDIVISION IS ABOUT 73 ACRES IN SIZE AND LOCATED IN THE WESTERN PART OF TOWN OFF ROUTE 85. IT WILL BE ACCESSED VIA CHARLES LANE FROM GILEAD HEIGHTS SECTION II.

THE SITE IS MODERATELY SLOPING, WOODED AND PRESENTLY ZONED R-1 (RESIDENTIAL) DEVELOPMENT ON 40,000 SQUARE FOOT LOTS. ON-SITE SEPTIC SYSTEMS AND WELLS WILL BE REQUIRED ON EACH OF THE PROPOSED LOTS.

B. GEOLOGY AND RELATED CONCERNS

TOPOGRAPHIC CONDITIONS AND DRAINAGE PATTERNS ON THE SITE ARE GREATLY INFLUENCED BY THE UNDERLYING BEDROCK. ACCORDING TO MAP QR-1504 (SURFICIAL GEOLOGIC MAP OF THE MARLBOROUGH QUADRANGLE BY DENNIS O'LEARY 1979), BEDROCK IS AT OR NEAR GROUND SURFACE THROUGHOUT MUCH OF THE SITE. THE ON-SITE TEST HOLE WORK HAS DEMONSTRATED THAT THE DEPTHS TO BEDROCK GENERALLY RANGED FROM ABOUT 3.0 FEET TO 7.0 FEET BELOW GROUND SURFACE.

BEDROCK UNDERLYING THE SITE HAS BEEN IDENTIFIED AS BRIMFIELD SCHIST AND CONSISTS OF A RUSTY TO SILVERY, MEDIUM TO COARSE-GRAINED ROCK COMPOSED OF THE MINERALS QUARTZ, OLIGOCLASE, BIOTITE, MUSCOVITE AND GARNET. THE TERM "SCHIST" REFERS TO A METAMORPHIC ROCK (ROCK ALTERED BY GREAT HEAT AND PRESSURE) THAT IS RECOGNIZABLE BY STRONG LAYERING OF PLATY OR ELONGATED MINERALS SUCH AS MICAS. THIS MINERAL ARRANGEMENT ALLOWS THE ROCK TO CLEAVE AND WEATHER EASILY. ACCORDING TO SOILS DATA FROM THE PROJECT ENGINEER, SEVERAL DEEP TEST HOLES ON THE SITE ENCOUNTERED DECOMPOSED BEDROCK.

IN THE CENTRAL AND SOUTHERN PARTS OF THE SITE, A GRAY TO WHITE COARSE GRAINED ROCK CALLED A 'PEGMATITE' OUTCROPS AT THE SURFACE. THIS GRANITE-LIKE ROCK IS COMPOSED LARGELY OF QUARTZ AND FELDSPAR WHICH ARE LIGHT-COLORED. THE PEGMATITES INTRUDED THE BRIMFIELD SCHIST, NOTED ABOVE AS A MOLTEN MAGMA, WHICH SUBSEQUENTLY SOLIDIFIED. BECAUSE THE PEGMATITES ARE QUITE RESISTANT TO WEATHERING PROCESSES, ESPECIALLY COMPARED TO THE WEAKER BRIMFIELD SCHIST, IT COMMONLY FORMS LEDGES.

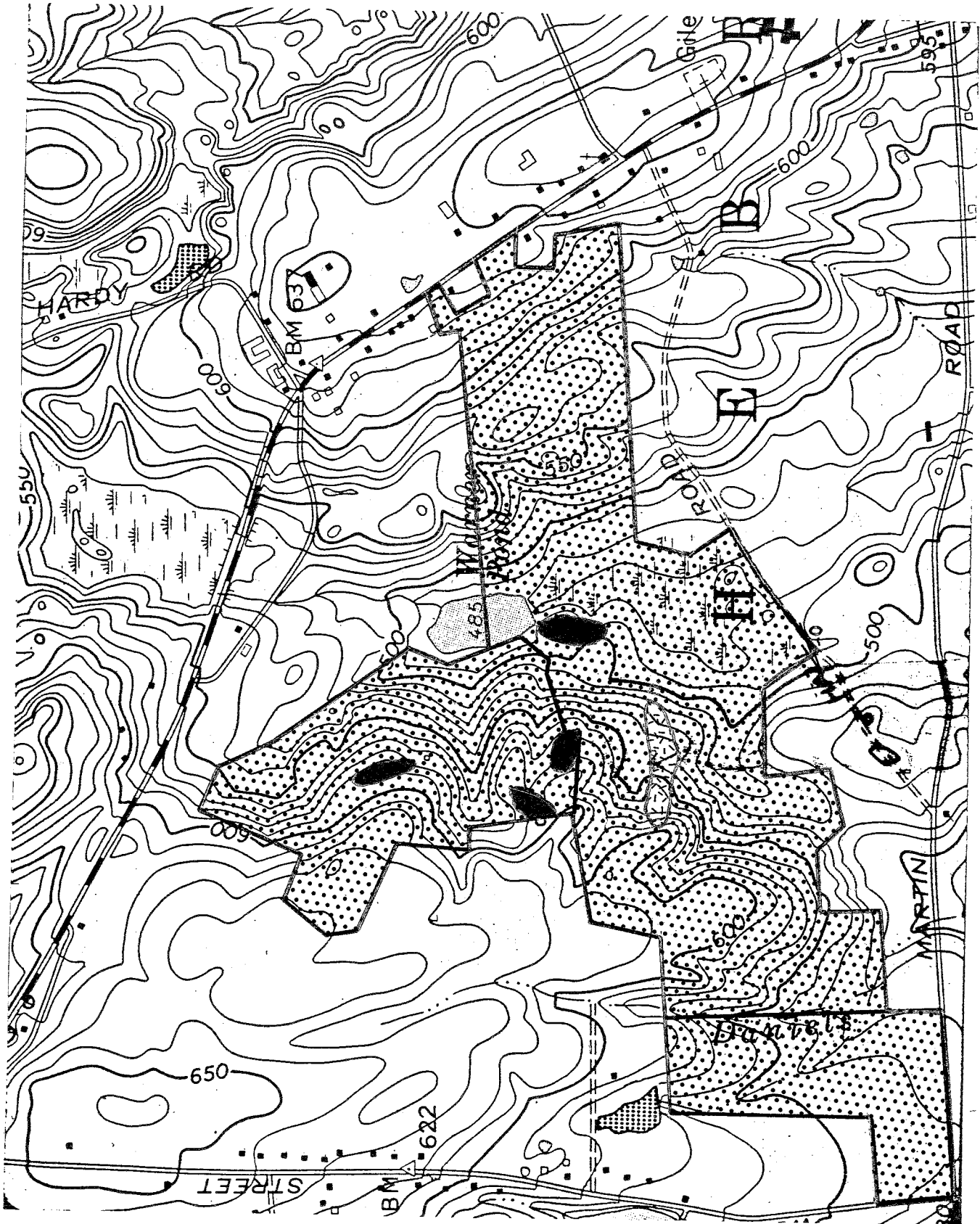
THE GILEAD HEIGHTS SECTION III IS COVERED ENTIRELY BY TILL. TILL IS A GLACIAL SEDIMENT THAT WAS DEPOSITED DIRECTLY FROM GLACIAL ICE. THE SEDIMENT CONSISTS OF VARYING PORTIONS OF SAND, SILT, GRAVEL, CLAY AND BOULDERS. PARTICLES OF DIFFERENT SIZES ARE GENERALLY MIXED TOGETHER IN A COMPLEX FASHION. THE TEXTURE OF THE TILL ON THE SITE IS SANDY, STONEY AND LOOSE TO MODERATELY LOOSE.

BEDROCK GEOLOGY



- Brimfield Schist
mica schist
- Brimfield Schist
Subunit
amphibolite
- Pegmatites

Scale 1"=1000'



SURFICIAL GEOLOGY



Till

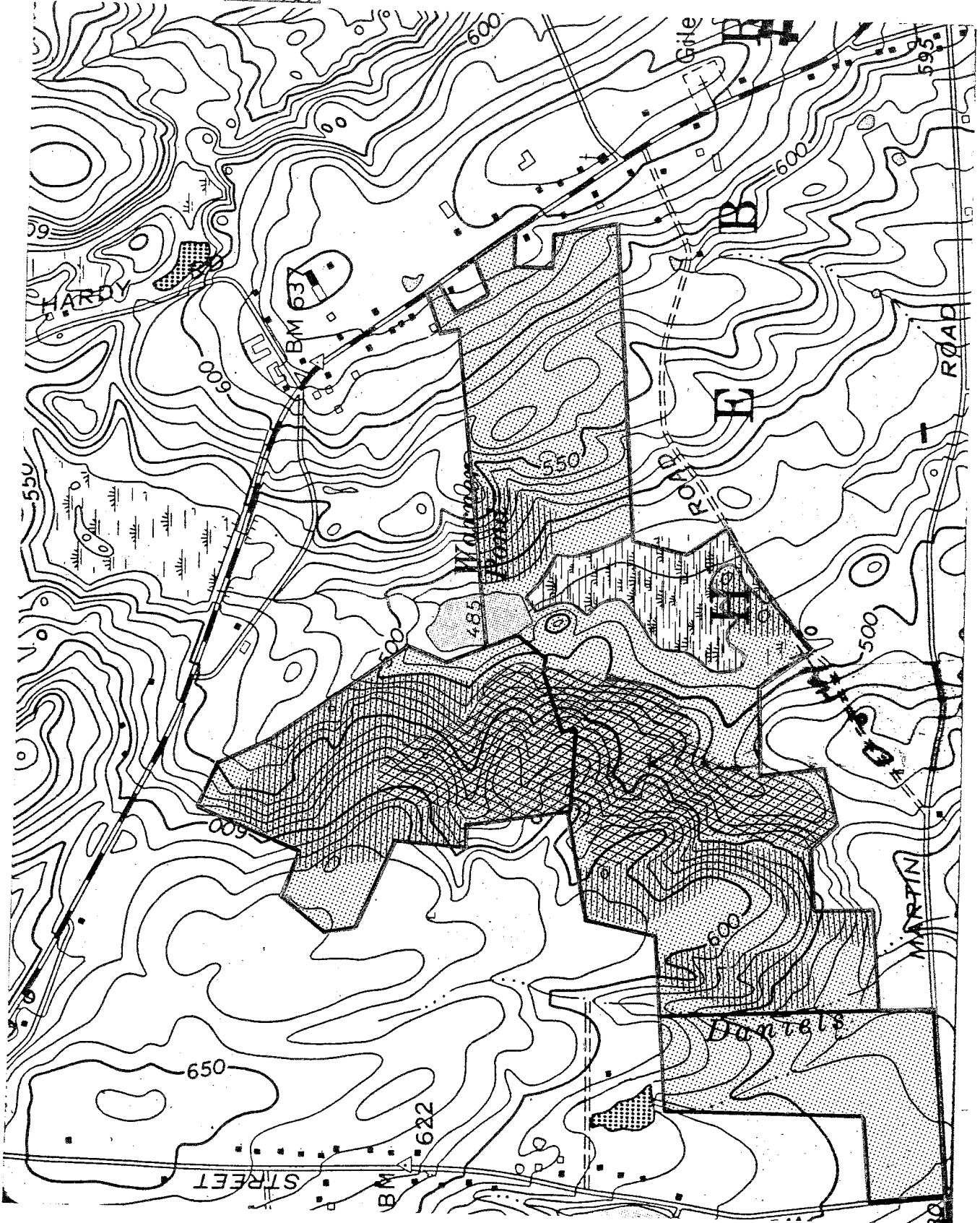
Swamp Sediments

Shallow Till*

Areas of Scattered Outcrops

* Generally less than 9' thick

Scale 1"=1000'



MARTIN

Don't's

STREET

HARDY

Gile

B

E

H

A

600

485

550

500

650

622

BM

BM 63

595

ROAD

500

600

600

REGULATED WETLAND SOILS ON THE SITE GENERALLY PARALLEL THE DRAINAGEWAYS ON THE SITE.

THE MAJOR GEOLOGIC LIMITATIONS OF THIS SITE INCLUDE (1) SHALLOW SOILS; (2) TILL BASED SOILS, WITH SEASONALLY HIGH WATER TABLES AND LOW PERMEABILITIES; AND (3) MODERATE SLOPING LAND. THESE LIMITATIONS WILL WEIGH HEAVIEST ON THE ABILITY TO PROVIDE ADEQUATE SUBSURFACE SEWAGE DISPOSAL SYSTEMS. THEY WILL ALSO BE A HINDRANCE IN TERMS OF PLACEMENT OF ROADS AND FOUNDATIONS. THE PRESENCE OF SHALLOW SOILS WILL UNDOUBTEDLY REQUIRE SOME BLASTING. (SEE HYDROLOGY SECTION)

BASED ON DEEP TEST HOLE DATA FOR SUBSURFACE SEWAGE DISPOSAL EXPLORATION SUPPLIED BY THE PROJECT ENGINEER, SUBSURFACE CONDITIONS ON EACH LOT ARE SUITABLE FOR ON-SITE SEPTIC SYSTEMS BUT THAT ENGINEERED SYSTEMS WOULD BE REQUIRED. IT SEEMS LIKELY THAT MOST SYSTEMS WILL NEED TO BE FILLED AND RAISED IN ORDER TO MAINTAIN THE NECESSARY SEPARATING DISTANCES BETWEEN SEASONALLY HIGH WATER TABLES AND/OR LEDGE ROCK. BECAUSE OF THE GEOLOGIC LIMITATIONS MENTIONED ABOVE, ENGINEERING SUPERVISION OF SEPTIC SYSTEM INSTALLATION ON EACH LOT IS SUGGESTED TO ASSURE SATISFACTORY PERFORMANCE.

C. SOIL RESOURCES

GENERAL SOILS INFORMATION

THE INFORMATION CONTAINED IN THE SOIL SURVEY OF TOLLAND COUNTY, CT APPEARS TO BE ADEQUATE FOR PLANNING PURPOSES. IF THE COMMISSION REQUIRES ADDITIONAL INFORMATION IT IS SUGGESTED THAT THE APPLICANT RETAIN THE SERVICES OF A QUALIFIED PRIVATE SOIL SCIENTIST TO REVIEW THE INFORMATION CONTAINED IN THE SOIL SURVEY OF TOLLAND COUNTY, CT, EXAMINE CONDITIONS IN THE FIELD AND PROVIDE THE COMMISSION WITH A VERIFIED MAP AND UP-TO-DATE INTERPRETIVE INFORMATION FOR THE SITE.

WETLAND BOUNDARY INFORMATION

WETLANDS ON THIS SITE WERE IDENTIFIED IN THE FIELD BY A SOIL SCIENTIST AND LOCATED ON THE PLOT PLAN SEVERAL YEARS AGO. BECAUSE MANY OF THE BOUNDARY FLAGS ARE MISSING IT WAS NOT POSSIBLE TO VERIFY THIS INFORMATION. ON FUTURE SUBMITTALS IT IS SUGGESTED THAT THE COMMISSION REQUIRE THAT THE APPLICANT HAVE A QUALIFIED PRIVATE SOIL SCIENTIST DELINEATE WETLAND BOUNDARIES IN THE FIELD. THE BOUNDARIES SHOULD BE FLAGGED AND NUMBERED SEQUENTIALLY. THIS INFORMATION SHOULD THEN BE SURVEYED ONTO THE PLAN MAP. THE SOIL SCIENTIST SHOULD THEN REVIEW AND SIGN A STATEMENT ON THE MAP(S) CERTIFYING THAT THE INFORMATION IS SUBSTANTIALLY CORRECT. THE CERTIFICATION STATEMENT SHOULD BE SIMILAR TO THE FOLLOWING: "THE WETLAND SOILS ON THIS SITE WERE IDENTIFIED IN THE FIELD USING THE CRITERIA REQUIRED BY CONNECTICUT P.A. 72-155 AS AMENDED BY CONNECTICUT P.A. 73-571, CONNECTICUT P.A. 87-338 AND P.A. 87-533. THE BOUNDARIES OF THESE SOILS AND OF IDENTIFIED WATERCOURSES ARE ACCURATELY



United States
Department of
Agriculture

Soil
Conservation
Service

Tolland County USDA-SCS
24 Hyde Avenue
Rockville, CT 06066
875-3881



SCALE 1"=1320'

— Site Boundaries



TOLLAND COUNTY SOIL AND WATER CONSERVATION DISTRICT

-15-

AGRICULTURAL CENTER
24 HYDE AVENUE
VERNON, CONNECTICUT 06066-4503
875-3881

TO: Mr. Richard Allen, Chm.
Hebron Conservation Commission
Town Office Building
15 Gilead Street
Hebron, CT 06428

FROM: Stan Zaremba, District Manager

SUBJECT: Gilead Heights, Section III
Prepared for Ernest J. Reed
by Megson and Heagle
Dated: 2-16-87

DATE: June 8, 1987

As requested we have reviewed the above plan for adequacy of:
XX Erosion and Sediment Control Plan
XX Wetland Boundaries

Please note the following comments:

1. The soil erosion and sediment control plan was reviewed and found to be inadequate for the site. The major deficiency is that it is too general. A site specific plan should be developed including details of measures proposed. The plan should also specifically address protection of the stream system that discharges into Warner Pond.
2. Wetland boundaries should be flagged in the field by a consulting soil scientist and numbered sequentially. This information should then be transferred to the plan map. This makes the verification process easier. The plans did not contain information that the wetlands boundaries were delineated by a professional soil scientist. The plan should contain a statement that the wetland soils on the site were identified in the field using the criteria required by Connecticut P.A. 72-155 as amended by P.A. 73-571 and are accurately represented on the plot plan. This statement should be signed and dated by the professional soil scientist who performed the field work. The District cannot verify wetland boundaries without this information.
3. The roadway right of way crosses a wetland and stream system at two points. These areas were examined during the field review. The stream which drains into Warner Pond has been protected by installation of siltation barrier at the toe of the roadway slope. If the sloping areas above these barriers are to remain disturbed for longer than 30 days, then it is recommended that a temporary vegetative cover be established on the rough graded road. Several water bars may also be needed to control runoff on the slopes.

If you have any questions or need further assistance please do not hesitate to call. The District would appreciate the opportunity to review revised plans for adequacy prior to final approval.

Plan reviewed by: Joe Neafsey

cc: Megson and Heagle

REPRESENTED ON THE PLOT PLAN." THIS STATEMENT SHOULD BE SIGNED BY THE SOIL SCIENTIST WHO PERFORMED THE FIELD WORK.

IF THIS PROCEDURE IS FOLLOWED AND DISCREPANCIES ARE FOUND, THE TOLLAND COUNTY SOIL AND WATER CONSERVATION DISTRICT CAN ON REQUEST REVIEW THE SUBMITTED INFORMATION FOR ADEQUACY.

D. EROSION AND SEDIMENT CONTROL PLAN

A DETAILED SOIL EROSION AND SEDIMENT CONTROL PLAN SHOULD BE DEVELOPED AND IMPLEMENTED FOR THIS SITE. THE PLAN SHOULD BE DEVELOPED USING THE CRITERIA CONTAINED IN THE CONNECTICUT GUIDELINES FOR SOIL EROSION AND SEDIMENT CONTROL (1985). THE TOLLAND COUNTY SOIL AND WATER CONSERVATION DISTRICT WOULD APPRECIATE THE OPPORTUNITY TO REVIEW THIS PLAN PRIOR TO FINAL APPROVAL.

A COPY OF PREVIOUS CORRESPONDENCE WITH THE CONSERVATION COMMISSION IS ATTACHED FOR YOUR INFORMATION.

E. HYDROLOGY

THE ENTIRE SITE LIES WITHIN THE SALMON RIVER WATERSHED. SURFACE DRAINAGE WITHIN THE SITE FLOWS TOWARDS DISCHARGE POINTS SUCH AS DRAINAGEWAYS WHICH ROUTE THE WATER TO WARNER POND OR ITS OUTLET STREAM.

THE SUBDIVISION AS PROPOSED, FOLLOWED BY THE CONSTRUCTION OF FORTY-ONE (41) NEW HOMES, DRIVEWAYS AND ROADS WOULD BE EXPECTED TO LEAD TO INCREASES IN RUNOFF FROM THE SITE. AS MENTIONED EARLIER, SURFACE RUNOFF FROM THE SITE DRAINS EITHER TO WARNER POND OR THE LARGE WETLAND THROUGH WHICH THE POND'S OUTLET STREAM FLOWS. BECAUSE OF THEIR SIZE AND NATURAL ABILITY TO CONTROL RUNOFF, THE EFFECTS OF POST-DEVELOPMENT RUNOFF WILL BE MINIMAL. NEVERTHELESS, THE TOWN'S ENGINEER SHOULD CAREFULLY REVIEW THE STORMWATER MANAGEMENT PLAN AND HYDROLOGIC CALCULATION SUBMITTED BY THE PROJECT ENGINEER. ALSO, IT IS SUGGESTED THAT THE CULVERT PASSING UNDER HALL ROAD BE CAREFULLY EXAMINED.

ANOTHER CONCERN ASSOCIATED WITH INCREASES IN RUNOFF IS THE CHANCE FOR STREAM-BANK EROSION AND GULLYING. CONNECTICUT'S SOIL EROSION AND SEDIMENT CONTROL ACT (P.A. NUMBER 83-388) REQUIRES THAT THE APPLICANT DEVISE A THOROUGH EROSION SEDIMENT CONTROL PLAN. BECAUSE OF THE MODERATE SLOPES PRESENT ON THE SITE AND THE EXCELLENT AQUATIC HABITAT IN DOWNSTREAM WATERCOURSES, THE CONCERN FOR POTENTIAL EROSION BECOMES A SIGNIFICANT ONE. A WELL RUN ACTIVITY WILL NEED TO TAKE ALL NECESSARY MEASURES TO CONTAIN AND FILTER DISTURBED WATER SO THAT IT DOES NOT CAUSE ENVIRONMENTAL DAMAGE. THE BEST SOLUTION FOR EROSION SEDIMENT CONTROL IS TO KEEP DISTURBED AREAS TO A MINIMAL.

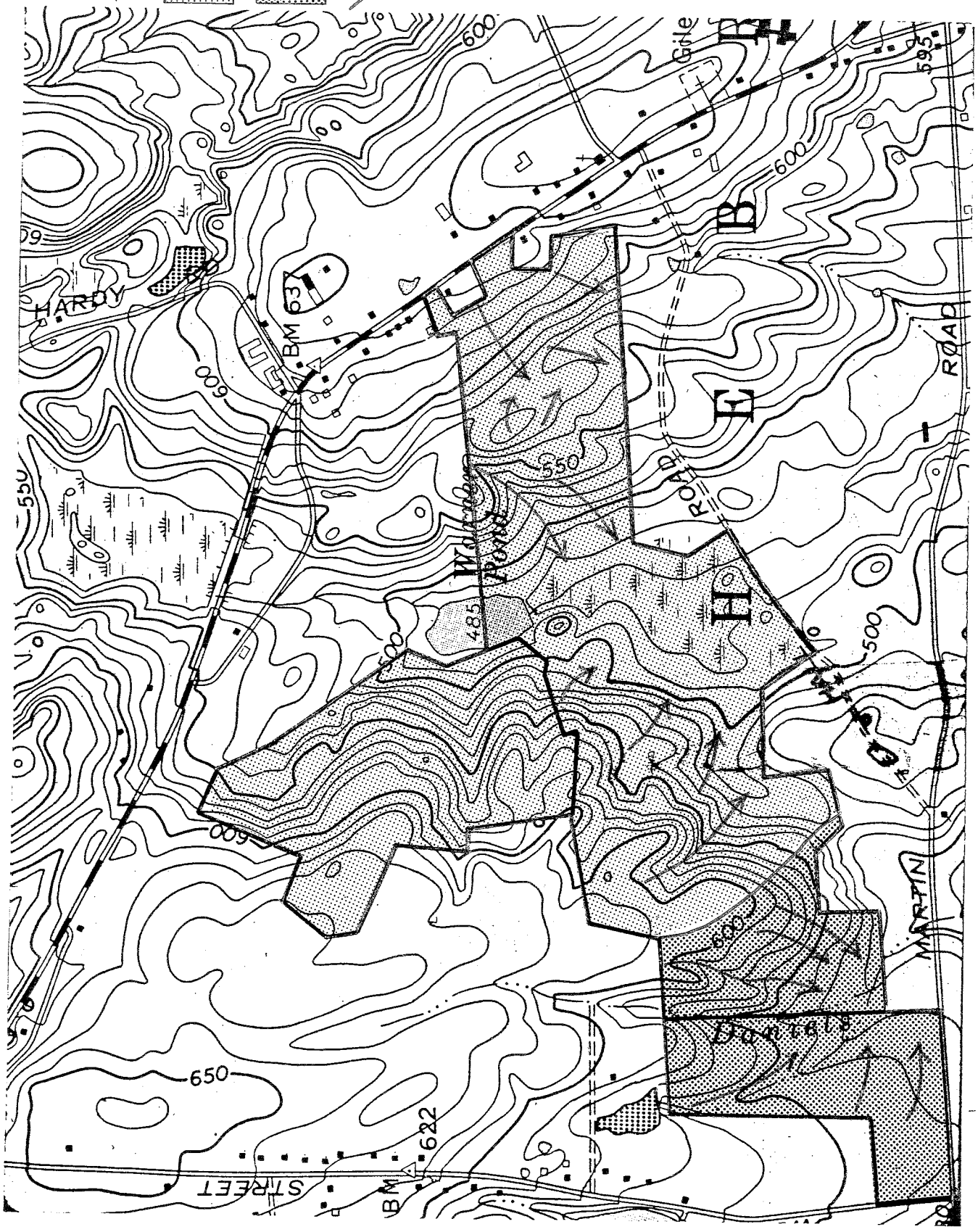
WATERSHED BOUNDARY

Land area which drains to West Branch Fawn Brook

Land area which drains to Daniels Brook

Direction of surface flow

Scale 1"=1000'



BESIDES PROVIDING NATURAL DETENTION, WARNER POND AND THE LARGE WETLAND TO THE SOUTH WILL PROVIDE A SEDIMENT RETENTION FUNCTION. IF UNCONTROLLED DEVELOPMENT TAKES PLACE IN THE WARNER POND WATERSHED, SEDIMENT MAY BUILD UP IN THE POND, THEREBY DIMINISHING ITS CAPACITY TO STORE STORMWATER DURING STORM PERIODS. AS SUCH, THERE MAY BE A NEED TO MAINTAIN THE POND BY PERIODICALLY REMOVING UNWANTED SEDIMENT. IN REGARD TO THE LATTER, EACH DEVELOPER IN THE WATERSHED, AND FOR THAT MATTER, THE TOWN SHOULD DO THEIR PART IN CONTROLLING RUNOFF FROM EACH DEVELOPMENT.

AS LONG AS ROADS ARE SWEEPED REGULARLY AND CATCH BASINS CLEANED, THE MOST CRUCIAL TIME WITH REGARD TO EROSION AND SEDIMENTATION CONTROL WOULD BE DURING PROJECT CONSTRUCTION. IF CONSTRUCTION IS LIMITED TO THE DRY TIMES OF THE YEAR, AND EROSION SEDIMENT CONTROL MEASURES ARE PROPERLY APPLIED, EROSION AND SEDIMENTATION WILL BE KEPT TO A MINIMUM AND WARNER POND AND THE WETLAND TO THE SOUTH SHOULD NOT BE SIGNIFICANTLY IMPACTED BY THE DEVELOPMENT. ALSO, AS A PRECAUTIONARY MEASURE IT MIGHT BE WISE FOR THE TOWN TO REQUEST AN INSPECTION OF THE WARNER POND DAM BY DEP DAM SAFETY UNIT (566-7245).

AS MENTIONED PREVIOUSLY, THERE CERTAINLY APPEARS TO BE A CHANCE FOR BLASTING. THE BRIMFIELD SCHIST, AS NOTED IN THE GEOLOGY SECTION CONTAINS IRON AND POSSIBLY IRON SULPHIDE BEARING MINERALS. IF THE BLASTED ROCK IS PLACED IN OR NEAR WATER, THE MINERALS MENTIONED IN THE PRECEDING SENTENCE MAY BE LEACHED OUT. THIS COULD RESULT IN A CHANGE IN PH OF THE WATER AS WELL AS ITS APPEARANCE. BOTH COULD ADVERSELY AFFECT AQUATIC LIFE IN RECEIVING BODIES OF WATER. IF BLASTING IS NECESSARY AND IF THE BLASTED MATERIAL IS USED FOR FILL, IT SHOULD NOT BE PLACED IN AREAS WHERE IT WILL BE IN CONTACT WITH SURFACE WATER BODIES, STREAM-COURSES, ETC.

F. WATER SUPPLY

BEDROCK IS LIKELY TO BE THE BEST SOURCE OF WATER FOR RESIDENTIAL WELLS IN THE SUBDIVISION. WELLS DRILLED 100-200 FEET INTO BEDROCK ARE GENERALLY CAPABLE OF SUPPLYING SMALL BUT RELIABLE YIELDS OF GROUNDWATER. APPROXIMATELY 90 PERCENT OF THE 314 BEDROCK WELLS SURVEYED FOR CONNECTICUT WATER RESOURCES BULLETIN No. 31, (LOWER CONNECTICUT RIVER BASIN, WHICH THE SITE LIES WITHIN) YIELDED JUST UNDER 2 GALLONS PER MINUTE. IF PUMPED CONTINUOUSLY, A WELL PRODUCING 1.8 GALLONS PER MINUTE WOULD YIELD 2,592 GALLONS OF WATER PER DAY. ASSUMING 75 GALLONS PER PERSON PER DAY OR ABOUT 300 GALLONS PER DAY FOR A FAMILY OF FOUR, A YIELD OF 2 GALLONS PER MINUTE OR MORE SHOULD ADEQUATELY SERVE MOST RESIDENTIAL NEEDS.

THE QUALITY OF THE GROUNDWATER SHOULD BE GOOD EXCEPT THAT THE BRIMFIELD SCHIST CONTAINS IRON COMPOUNDS THAT ARE EASILY DISSOLVED IN WATER, PARTICULARLY IF ITS ACIDIC. IN ITS OXIDIZED FORM, IRON COMES OUT OF SOLUTION AND FORMS RUST-COLORED PARTICLES, THAT CAN CAUSE DISCOLORED LAUNDRY, KITCHEN UTENSILS, OR PLUMBING FIXTURES. IT ALSO IMPARTS A METALLIC TASTE TO WATER AND IF IRON-SULFIDES ARE PRESENT, IT GIVES OFF A ROTTEN EGG ODOR.

WATER SUPPLIES WITH ELEVATED IRON LEVELS, METALLIC TASTE OR ROTTEN EGG ODORS MAY REQUIRE SOME TYPE OF FILTRATION. COMMON CORRECTIVE METHODS FOR THE ABOVE INCLUDE OXIDATION/FILTRATION, CHLORINATION, AERATION AND/OR ACTIVATED CARBON FILTER CHLORINATION.

PART TWO

WARNER PROPERTY

- A. TOPOGRAPHY AND SETTING
- B. GEOLOGY AND RELATED CONCERNS
- C. SOIL RESOURCES
- D. EROSION AND SEDIMENT CONTROL PLAN
- E. HYDROLOGY
- F. WATER SUPPLY

A. TOPOGRAPHY AND SETTING

THE ± 194 ACRE WARNER PROPERTY SITE ADJOINS THE GILEAD HEIGHTS III SUB-DIVISION ON THE SOUTH. ACCESS IS PROVIDED VIA ROUTE 85 TO THE EAST AND HALL ROAD TO THE SOUTH.

IT CONSISTS MAINLY OF ACTIVE AGRICULTURAL LAND IN THE EASTERN PART AND WOODED IN THE CENTRAL AND WESTERN PARTS. THE LAND SURFACE ON THE SITE RANGES FROM GENTLE TO MODERATE. THE ROUGHEST TERRAIN, MOST OF WHICH IS FOUND IN THE CENTRAL PART IS CHARACTERIZED BY SHALLOW SOILS WHERE NUMEROUS BEDROCK EXPOSURES OCCUR. WEST BRANCH FAWN BROOK, THE OUTLET STREAM FOR WARNER POND AND ITS ACCOMPANYING WETLANDS BISECTS THE PROPERTY. DANIELS BROOK, ANOTHER MAJOR WATERCOURSE ON THE SITE FLOWS IN A SOUTHERLY DIRECTION ALONG THE WESTERN PROPERTY LINE. THE TOPOGRAPHIC SWALES THROUGHOUT THE PROPERTY ACT AS DISCHARGE POINTS FOR SURFACE WATER, ESPECIALLY DURING THE WET SPRING MONTHS.

B. GEOLOGY

THE ENTIRE WARNER PROPERTY SITE IS UNDERLAIN BY BRIMFIELD SCHIST, A TWO MICA SCHIST, (SEE GILEAD HEIGHTS III REPORT GEOLOGY SECTION FOR COMPLETE DESCRIPTION). A SUBUNIT OF BRIMFIELD SCHIST OUTCROPS IN THE WEST CENTRAL PART OF THE SITE. IT IS DESCRIBED AS GREENISH COLORED MEDIUM-GRAINED AMPHIBOLITE. "AMPHIBOLITE" ARE METAMORPHIC ROCKS (ROCKS GEOLOGICALLY ALTERED BY GREAT HEAT AND PRESSURE) MADE UP OF DENSELY PACKED DARK-COLORED MINERALS SUCH AS HORNBLende, LABRADORITE AND ANDESINE. THE ROCK ALSO CONTAINS KNOTS OF RED GARNET.

A PEGMATITE LEDGE WITHIN THE BRIMFIELD SCHIST IS LOCATED JUST SOUTH OF THE WARNER POND DAM. AS MENTIONED IN THE GILEAD HEIGHTS III REPORT, THE PEGMATITES ARE INTRUSIVE ROCKS WHICH HAVE A GRANITIC COMPOSITION I.E., QUARTZ, FELDSPAR, AND MICA WHICH ARE LIGHT-COLORED.

THE WARNER PROPERTY IS COVERED ENTIRELY BY TILL. TILL IS A GLACIAL SEDIMENT THAT WAS DEPOSITED DIRECTLY FROM A MASS OF ICE. CLAY, SILT, SAND, GRAVEL, AND ROUNDED OR ANGULAR BOULDERS ARE MIXED TOGETHER IN VARYING PROPORTIONS IN THE TILL. SAND IS GENERALLY THE DOMINANT COMPONENT, ALTHOUGH COMPACT SILTY LAYERS OR CLUSTERS OF STONES ARE THE FEATURES THAT MAY CAPTURE ONE'S ATTENTION. THE UPPER 3-5 FEET OF THE TILL ARE NORMALLY LOOSE OR ONLY MODERATELY COMPACT, BUT AT GREATER DEPTHS THE TILL MAY BECOME SILTIER AND TIGHTLY COMPACT.

THE TILL ON THE HILLSIDE IN THE WESTERN PART OF THE TRACT IS RELATIVELY THIN. SCATTERED ROCK OUTCROPS IN THAT AREA SUGGEST THAT THE TILL IS GENERALLY LESS THAN 10 FEET THICK. THIS VARIETY OF TILL IS MOSTLY SANDY AND LOOSE. THE TILL IN THE EASTERN SECTION OF THE PARCEL MAY BE MUCH DEEPER. THIS VARIETY OF TILL CONTAINS A HIGHER PERCENTAGE OF SILT AND COMMONLY HAS A COMPACT ZONE ABOUT 1.5 TO 2.0 FEET BELOW GROUND SURFACE.

THE COMPACT VARIETY OF TILL, WHICH COMMONLY IS CHARACTERIZED BY LOW PERMEABILITY AND SEASONALLY HIGH WATER TABLES WILL LIMIT DEVELOPMENT POTENTIAL IN THE EASTERN PART. THESE LIMITATIONS WILL WEIGH MOST HEAVILY ON THE ABILITY TO PROVIDE ADEQUATE SUBSURFACE SEWAGE DISPOSAL. HOWEVER, PROPERLY ENGINEERED SYSTEMS MAY BE ABLE TO OVERCOME THESE LIMITATIONS. GENERALLY SPEAKING, FILL AND RAISED SYSTEMS ARE INSTALLED FOR THE TYPE OF SUBSURFACE CONDITIONS NOTED ABOVE. ALSO, BECAUSE OF GENTLE TO MODERATE SLOPES THROUGHOUT THE EASTERN PART AND BECAUSE OF THE COMPACT TILL, A PROPERLY DESIGNED AND CONSTRUCTED CURTAIN DRAIN, INSTALLED IN COMPLIANCE WITH PUBLIC HEALTH CODE CAN PROTECT A LEACHING SYSTEM FROM SEASONAL WATER TABLE INTERFERENCE.

FINALLY, IT IS RECOMMENDED THAT BUILDING FOOTING DRAINS BE PROVIDED ON THESE SEASONALLY WET SOILS. THIS WILL HOPEFULLY PREVENT WET BASEMENTS.

IT IS UNDERSTOOD THAT DETAILED SOIL TESTING FOR THE WESTERN PART OF THE SITE HAVE NOT BEEN CONDUCTED TO DATE. (07/21/87). SLOPE AND SHALLOW SOILS WILL BE THE MAJOR LIMITATIONS TO DEVELOPMENT IN THESE PORTIONS. LOT-BY-LOT INVESTIGATIONS WOULD BE REQUIRED, AND IT SEEMS LIKELY THAT SOME DIFFICULTIES WILL BE ENCOUNTERED IN THE STEEP, SHALLOW DEPTH BEDROCK AREAS, POSSIBLY REQUIRING RECONFIGURATION OF LOTS OR REDUCING THE DENSITY OF LOTS IN THIS AREA.

THE SWAMPY AREA IN THE CENTRAL PART OF THE SITE THROUGH WHICH THE WEST BRANCH FAWN BROOK FLOWS CONTAINS SILT, CLAY, SAND AND A HIGH PERCENTAGE OF DECAYED ORGANIC MATERIALS. STANDING WATER IS PRESENT FOR MUCH OF THE YEAR. THIS AREA IS INAPPROPRIATE FOR ANY TYPE OF DEVELOPMENT.

C. SOIL RESOURCES

GENERAL SOILS INFORMATION

THE INFORMATION CONTAINED IN THE SOIL SURVEY OF TOLLAND COUNTY, CT APPEARS TO BE ADEQUATE FOR PLANNING PURPOSES. IF THE COMMISSION REQUIRES ADDITIONAL INFORMATION IT IS SUGGESTED THAT THE APPLICANT RETAIN THE SERVICES OF A QUALIFIED PRIVATE SOIL SCIENTIST TO REVIEW THE INFORMATION CONTAINED IN THE SOIL SURVEY OF TOLLAND COUNTY, CT, EXAMINE CONDITIONS IN THE FIELD AND PROVIDE THE COMMISSION WITH A VERIFIED MAP AND UP-TO-DATE INTERPRETIVE INFORMATION FOR THE SITE.

WETLAND BOUNDARY INFORMATION

WETLANDS ON THIS SITE WERE IDENTIFIED IN THE FIELD BY A SOIL SCIENTIST AND LOCATED ON THE PLOT PLAN. BECAUSE THE BOUNDARY FLAG NUMBERS WERE NOT PLOTTED ON THE PLOT PLAN, IT WAS NOT POSSIBLE TO VERIFY THIS INFORMATION. ON FUTURE SUBMITTALS IT IS SUGGESTED THAT THE COMMISSION REQUIRE THAT THE APPLICANT HAVE A QUALIFIED PRIVATE SOIL SCIENTIST DELINEATE WETLAND BOUNDARIES IN THE FIELD. THE BOUNDARIES SHOULD BE FLAGGED AND NUMBERED SEQUENTIALLY. THIS

INFORMATION SHOULD THEN BE SURVEYED ONTO THE PLAN MAP. THE SOIL SCIENTIST SHOULD THEN REVIEW AND SIGN A STATEMENT ON THE MAP(S) CERTIFYING THAT THE INFORMATION IS SUBSTANTIALLY CORRECT. THE CERTIFICATION STATEMENT SHOULD BE SIMILAR TO THE FOLLOWING: "THE WETLAND SOILS ON THIS SITE WERE IDENTIFIED IN THE FIELD USING THE CRITERIA REQUIRED BY CONNECTICUT P.A. 72-155 AS AMENDED BY CONNECTICUT P.A. 73-571, CONNECTICUT P. A. 87-338 AND P.A. 87-533. THE BOUNDARIES OF THESE SOILS AND OF IDENTIFIED WATERCOURSES ARE ACCURATELY REPRESENTED ON THE PLOT PLAN." THIS STATEMENT SHOULD BE SIGNED BY THE SOIL SCIENTIST WHO PERFORMED THE FIELD WORK.

IF THIS PROCEDURE IS FOLLOWED AND DISCREPANCIES ARE FOUND, THE TOLLAND COUNTY SOIL AND WATER CONSERVATION DISTRICT CAN ON REQUEST REVIEW THE SUBMITTED INFORMATION FOR ADEQUACY.

D. EROSION AND SEDIMENT CONTROL PLAN

A DETAILED SOIL EROSION AND SEDIMENT CONTROL PLAN SHOULD BE DEVELOPED AND IMPLEMENTED FOR THIS SITE. THE PLAN SHOULD BE DEVELOPED USING THE CRITERIA CONTAINED IN THE CONNECTICUT GUIDELINES FOR SOIL EROSION AND SEDIMENT CONTROL (1985). THE TOLLAND COUNTY SOIL AND WATER CONSERVATION DISTRICT WOULD APPRECIATE THE OPPORTUNITY TO REVIEW THIS PLAN PRIOR TO FINAL APPROVAL.

THE PRIMARY OBJECTIVE OF THE SOIL EROSION AND SEDIMENT CONTROL PLAN SHOULD BE TO PREVENT SILTATION OF THE WETLAND PARCEL AND SCOURING OF STORMWATER OUTLETS AND DOWNSTREAM CHANNELS. IT IS SUGGESTED THAT THE APPLICANT SUBMIT INFORMATION ON PROJECTED Q'S AND V'S FOR EACH OUTLET FOR 2, 10 AND 25 YEAR STORMS AND DESIGN MEASURES ACCORDINGLY FOR INCORPORATION INTO THE PLAN.

E. HYDROLOGY

THE SITE LIES ENTIRELY WITHIN THE SALMON BROOK WATERSHED. HOWEVER, SURFACE RUNOFF AND GROUNDWATER TO A LARGE EXTENT IN THE CENTRAL AND EASTERN PARTS LIE WITHIN THE WATERSHED OF WEST BRAND FAWN BROOK, WHICH ULTIMATELY FLOWS INTO SALMON BROOK. THE WESTERN LIMITS OF THE SITE ARE DRAINED BY DANIEL BROOK, A WEST BRANCH FAWN BROOK TRIBUTARY. DEVELOPMENT OF THE SITE FOR RESIDENTIAL USE WOULD BE EXPECTED TO LEAD TO SOME INCREASES IN THE AMOUNT OF RUNOFF SHED FROM THE PARCEL. THE AMOUNT OF INCREASES WILL DEPEND UPON THE EXTENT OF DEVELOPMENT, THE IMPERVIOUS SURFACES CREATED, AND THE AMOUNT OF VEGETATION REMOVED OR PRESERVED.

TO DATE, A STORMWATER MANAGEMENT PLAN AND DRAINAGE CALCULATIONS HAVE BEEN PREPARED ONLY FOR THE 26 LOTS IN THE EASTERN PART OF THE SITE. BASED ON THESE PLANS, ROAD DRAINAGE ARISING FROM THE DEVELOPMENT WILL BE ARTIFICIALLY COLLECTED IN CATCH BASINS AND ROUTED TO EITHER WARNER POND, THE WETLAND

SOUTH OF WARNER POND, OR TO TOPOGRAPHIC SWALES AT THE REAR OF LOTS 5-13. THE LATTER DRAINAGEWAY WILL ROUTE THE WATER UNDER HALL ROAD AND INTO WEST BRANCH FAWN BROOK.

BECAUSE OF THE NATURAL RETENTATIVE CAPABILITIES OF WARNER POND AND THE WETLAND SOUTH OF THE POND, IT DOES NOT APPEAR THAT ON-SITE DETENTION WILL BE NECESSARY FOR THE PROPOSED 26 LOTS. HOWEVER, A CLOSE LOOK AT THE CULVERT PASSING UNDER HALL ROAD, WHICH DRAINS THE AREA FOR LOTS 5-13 IS WARRANTED. THERE IS VERY LITTLE NATURAL RETENTION OCCURRING ALONG THE DRAINAGEWAY.

ONCE PLANS FOR THE WESTERN PART OF THE SITE BECOMES DEFINITE, THE APPLICANT'S ENGINEER SHOULD SUBMIT A STORMWATER MANAGEMENT PLAN AND DRAINAGE CALCULATIONS FOR TOWN REVIEW.

THE OTHER CONCERNS RELATED TO INCREASES IN RUNOFF FROM THE SITE IS THE POTENTIAL FOR EROSION. THE PRESENCE OF MODERATE SLOPES ON THE SITE WARRANTS THE NEED FOR A THOROUGH EROSION AND SEDIMENT CONTROL PLAN. ALL EROSION AND SEDIMENT CONTROL MEASURE SHOULD BE SHOWN ON THE SUBDIVISION SITE PLAN. ONCE THE CONTROL DEVICES HAVE BEEN INSTALLED, TOWN OFFICIALS OR A DESIGNATED PERSON SHOULD INSPECT THEM FOR PROPER INSTALLATION AND EFFECTIVENESS, PARTICULARLY AFTER MAJOR STORM EVENTS.

BLASTING MAY BE REQUIRED IN THE WESTERN PART OF THE SITE. AS MENTIONED IN THE GILEAD HEIGHTS III REPORT, IF BLASTED ROCK IS USED FOR FILL, IT SHOULD NOT BE PLACED WHERE IT MAY COME IN CONTACT WITH SURFACE WATER. THE ROCK MAY BE CHEMICALLY ACTIVE WHEREBY IRON OR SULFUR OR BOTH MAY BE LEACHED. THIS CAN LEAD TO CHANGES IN PH AND APPEARANCE, BOTH OF WHICH CAN ADVERSELY AFFECT AQUATIC LIFE IN RECEIVING WATERCOURSES.

F. WATER SUPPLY

SINCE PUBLIC WATER FACILITIES ARE NOT AVAILABLE TO THE SITE, BEDROCK WOULD UNDOUBTEDLY BE THE PRINCIPAL, IF NOT SOLE, SOURCE OF WATER. BEDROCK IS COMMONLY CAPABLE OF SUPPLYING SMALL BUT RELIABLE YIELDS OF GROUNDWATER TO INDIVIDUAL WELLS. GROUNDWATER MOVES THROUGH BEDROCK BY WAY OF AN INTERCONNECTED FRACTURE SYSTEM. MOST WELLS THAT PENETRATE 150 TO 200 FEET OF BEDROCK WILL INTERSECT ENOUGH FRACTURES TO SUPPLY AT LEAST 2 TO 3 GALLONS PER MINUTE. SOME WELLS, HOWEVER, FAIL TO INTERSECT ANY WATERBEARING FRACTURES. THERE IS NO PRACTICAL WAY OF PREDICTING WHETHER ANY PARTICULAR LOCATION WILL BE GOOD FOR DRILLING A WELL.

THE QUALITY OF THE GROUNDWATER WOULD BE EXPECTED TO BE GENERALLY GOOD EXCEPT FOR THE PRESENCE OF IRON BEARING MINERALS IN THE UNDERLYING BEDROCK. THE BRIMFIELD SCHIST UNDERLYING THE SITE CONTAINS A RELATIVELY HIGH PERCENTAGE OF IRON-BEARING MINERALS. AS A RESULT, SOME UNDESIRABLY HIGH

CONCENTRATIONS OF IRON OR MANGANESE MAY OCCUR IN WELL WATER DRAWN FROM THE SITE, BUT THERE ARE SEVERAL TYPES OF FILTERS AVAILABLE TO COMBAT THIS PROBLEM.

PART THREE

TALL OAKS

- A. TOPOGRAPHY AND SETTING
- B. GEOLOGY AND RELATED CONCERNS
- C. SOIL RESOURCES
- D. EROSION AND SEDIMENT CONTROL
- E. HYDRDLOGY

A. TOPOGRAPHY AND SETTING

THE TALL OAKS SUBDIVISION PROPERTY IS ABOUT 40 ACRES IN SIZE AND ADJOINS THE WARNER PROPERTON ON THE EAST. IT HAS FRONTAGE ALONG MARTIN ROAD AND WEST STREET. PRESENT PLANS ARE TO CONSTRUCT A CUL-DE-SAC INTO THE PROPERTY WHICH WOULD SERVE 11 LOTS. THE REMAINING LOTS HAVE FRONTAGE ALONG THE ABOVE NOTED STREETS.

THE LAND IS GENTLE SLOPING AND IS MOSTLY WOODED. A SMALL MAN-MADE POND BORDERS THE PARCEL ON THE NORTH. DANIELS BROOK AND TWO OF ITS SEASONAL TRIBUTARIES BISECT THE PARCEL.

B. GEOLOGY AND RELATED CONCERNS

BASED ON AVAILABLE GEOLOGIC AND SOIL MAPPING DATA, BEDROCK DOES NOT APPEAR TO BREAK THE GROUND SURFACE ON THE SITE. HOWEVER, IT IS PROBABLY LESS THAN 10 FEET THROUGHOUT THE SITE.

BEDROCK UNDERLYING THE SITE HAS BEEN IDENTIFIED AS BRIMFIELD SCHIST. DOMESTIC WELLS INSTALLED ON EACH PROPOSED LOT WILL NEED TO DERIVE THEIR WATER FROM THE BEDROCK (SEE WATER SUPPLY SECTION). THERE IS NO REASON TO BELIEVE THAT THE BEDROCK UNDERLYING THE SITE WILL NOT PROVIDE ENOUGH WATER FOR DOMESTIC PURPOSES. AS MENTIONED IN THE OTHER REPORTS, IT SHOULD BE ABLE TO PROVIDE 2-3 GALLONS PER MINUTE TO INDIVIDUAL WELLS.

U. S. GEOLOGICAL SURVEY MAP GQ-1504 INDICATES THAT THE PARCEL IS COVERED ENTIRELY BY TILL. TILL IS A GLACIAL SEDIMENT THAT WAS DEPOSITED DIRECTLY FROM AN ICE MASS. IT CONSISTS OF A NON-SORTED, GENERALLY A STRUCTURELESS MIXTURE OF SAND, SILT, CLAY, GRAVEL AND ANGULAR TO ROUNDED BOULDERS. WHILE IT IS OFTEN SANDY, VERY STONY AND MODERATELY LOOSE IN THE UPPER 3 TO 5 FEET, THE TILL AT GREATER DEPTHS COMMONLY BECOMES SLIGHTLY FINER-GRAINED, LESS STONY AND TIGHTLY COMPACT. THE TRANSITION BETWEEN THE TWO TEXTURES IS OFTEN ABRUPT.

REGULATED WETLAND SOILS FORM A NARROW BAND ALONG THE STREAMCOURSES ON THE SITE. THE WETLAND SOILS HAVE BEEN FLAGGED BY A CERTIFIED SOIL SCIENTIST AND THEIR APPROXIMATE BOUNDARIES SUPERIMPOSED ONTO A PRELIMINARY SITE PLAN.

ALTHOUGH SUBSURFACE EXPLORATION FOR SUBSURFACE SEWAGE DISPOSAL HAS BEEN CONDUCTED ON THE SITE, THE RESULTS WERE NOT MADE AVAILABLE TO TEAM MEMBERS.

BASED ON SOIL MAPPING DATA, THE MAJOR HYDROGEOLOGIC LIMITATIONS IN TERMS OF RESIDENTIAL DEVELOPMENT ON THE SITE IS A SEASONALLY HIGH WATER TABLE. THIS RESULTS FROM THE RELATIVELY LOW PERMEABILITY IN A COMPACT ZONE IN THE SOIL 2

TO 3 FEET BELOW GROUND SURFACE. IT SEEMS LIKELY THAT FILLED AND RAISED SEPTIC SYSTEMS, WHICH WILL NECESSITATE ENGINEER DESIGN WILL BE NEEDED ON MOST LOTS. CURTAIN DRAINS CAN BE HELPFUL IN LOWERING THE WATER TABLES IN THIS TYPE OF GEOLOGIC SETTING. HOWEVER, THERE NEEDS TO BE SUFFICIENT GRADE ON THE LOT TO OUTLET THE DRAIN. BECAUSE OF FLAT GRADES ON THE SITE, CURTAIN DRAINS MAY NOT BE USEFUL FOR PROTECTING SEPTIC SYSTEMS FROM SEASONAL GROUNDWATER.

ALSO, BECAUSE OF THE SEASONALLY WET CONDITIONS THROUGHOUT THE SITE, EVERY EFFORT SHOULD BE MADE TO PROVIDE BUILDING FOOTING DRAINS OR RAISED FOUNDATIONS. THIS WILL HOPEFULLY PREVENT WET BASEMENTS DURING THE WET TIME OF YEAR.

C. SOIL RESOURCES

GENERAL SOILS INFORMATION

THE INFORMATION CONTAINED IN THE SOIL SURVEY OF TOLLAND COUNTY, CT APPEARS TO BE ADEQUATE FOR PLANNING PURPOSES. IF THE COMMISSION REQUIRES ADDITIONAL INFORMATION IT IS SUGGESTED THAT THE APPLICANT RETAIN THE SERVICES OF A QUALIFIED PRIVATE SOIL SCIENTIST TO REVIEW THE INFORMATION CONTAINED IN THE SOIL SURVEY OF TOLLAND COUNTY, CT, EXAMINE CONDITIONS IN THE FIELD AND PROVIDE THE COMMISSION WITH A VERIFIED MAP AND UP-TO-DATE INTERPRETIVE INFORMATION FOR THE SITE.

WETLAND BOUNDARY INFORMATION

WETLANDS ON THIS SITE WERE IDENTIFIED IN THE FIELD BY A SOIL SCIENTIST AND LOCATED ON THE PLOT PLAN. BECAUSE THE BOUNDARY FLAG NUMBERS WERE NOT SHOWN ON THE PLOT PLAN IT WAS NOT POSSIBLE TO VERIFY THIS INFORMATION. ON FUTURE SUBMITTALS IT IS SUGGESTED THAT THE COMMISSION REQUIRE THAT THE APPLICANT HAVE A QUALIFIED PRIVATE SOIL SCIENTIST DELINEATE WETLAND BOUNDARIES IN THE FIELD. THE BOUNDARIES SHOULD BE FLAGGED AND NUMBERED SEQUENTIALLY. THIS INFORMATION SHOULD THEN BE SURVEYED ONTO THE PLAN MAP. THE SOIL SCIENTIST SHOULD THEN REVIEW AND SIGN A STATEMENT ON THE MAP(S) CERTIFYING THAT THE INFORMATION IS SUBSTANTIALLY CORRECT. THE CERTIFICATION STATEMENT SHOULD BE SIMILAR TO THE FOLLOWING: "THE WETLAND SOILS ON THIS SITE WERE IDENTIFIED IN THE FIELD USING THE CRITERIA REQUIRED BY CONNECTICUT P.A. 72-155 AS AMENDED BY CONNECTICUT P.A. 73-571, CONNECTICUT P.A. 87-338 AND P.A. 87-533. THE BOUNDARIES OF THESE SOILS AND OF IDENTIFIED WATERCOURSES ARE ACCURATELY REPRESENTED ON THE PLOT PLAN." THIS STATEMENT SHOULD BE SIGNED BY SOIL SCIENTIST WHO PERFORMED THE FIELD WORK.

IF THIS PROCEDURE IS FOLLOWED AND DISCREPANCIES ARE FOUND, THE TOLLAND COUNTY SOIL AND WATER CONSERVATION DISTRICT CAN ON REQUEST REVIEW THE SUBMITTED INFORMATION FOR ADEQUACY.

C. EROSION AND SEDIMENT CONTROL PLAN

A DETAILED SOIL EROSION AND SEDIMENT CONTROL PLAN SHOULD BE DEVELOPED AND IMPLEMENTED FOR THIS SITE. THE PLAN SHOULD BE DEVELOPED USING THE CRITERIA CONTAINED IN THE CONNECTICUT GUIDELINES FOR SOIL EROSION AND SEDIMENT CONTROL (1985). THE TOLLAND COUNTY SOIL AND WATER CONSERVATION DISTRICT WOULD APPRECIATE THE OPPORTUNITY TO REVIEW THIS PLAN PRIOR TO FINAL APPROVAL.

D. HYDROLOGY

MOST OF THE SITE LIES WITHIN THE DANIELS BROOK WATERSHED. DANIELS BROOK, A TRIBUTARY TO WEST BRANCH FAWN BROOK FLOWS IN A SOUTHERLY DIRECTION ALONG THE EASTERN BOUNDARY LINE. TWO SMALL INTERMITTENT STREAMS, TRIBUTARIES TO DANIELS BROOK FLOW IN A SOUTHEASTERLY DIRECTION THROUGH THE CENTRAL PART.

RESIDENTIAL DEVELOPMENT OF THE SITE WOULD INCREASE THE AMOUNT OF RUNOFF DURING PERIODS OF RAINFALL. HOWEVER, BECAUSE OF THE LOW-DENSITY PROPOSED, IT WOULD NOT BE EXPECTED TO BE SIGNIFICANT. AS A MATTER OF POLICY, HOWEVER, THE APPLICANT SHOULD BE REQUIRED TO SUBMIT A STORMWATER MANAGEMENT PLAN WHICH INCLUDES HYDROLOGIC COMPUTATIONS FOR PRE- AND POST-DEVELOPMENT RUNOFF.

THERE IS LITTLE NATURAL RETENTION AVAILABLE IN THE WETLANDS ON THE SITES. ON THE OTHER HAND, A LARGE WETLAND IS LOCATED \pm 2,500 FEET DOWNSTREAM FROM THE SITE. CLOSE EXAMINATION OF THE COLVERT PASSING UNDER MARTIN ROAD IS WARRANTED. FLAT TO GENTLE SLOPES WILL HELP TO SLOW RUNOFF DOWN ON THE SITE. THIS WILL ALSO HELP TO MINIMIZE POTENTIAL EROSION PROBLEMS.

ACCORDING TO PRESENT PLANS, AT LEAST ONE WETLAND ROAD CROSSING (\pm 110 FEET) AND TWO WETLAND DRIVEWAY CROSSINGS WILL BE REQUIRED. BEFORE THESE WETLAND CROSSINGS WILL BE REQUIRED. BEFORE THESE WETLAND CROSSINGS ARE APPROVED, ALL POSSIBLE ALTERNATIVES SHOULD BE INVESTIGATED.

ALL WETLAND ROAD CROSSINGS WILL NEED TO BE PROPERLY ENGINEERED. THE ROAD SHOULD BE CONSTRUCTED ADEQUATELY ABOVE THE SURFACE ELEVATION OF THE WETLANDS. THIS WILL ALLOW FOR BETTER DRAINAGE OF THE ROAD AND ALSO DECREASE THE FROST HEAVING POTENTIAL OF THE ROAD. ROAD CONSTRUCTION THROUGH WETLANDS SHOULD PREFERABLY BE DONE DURING THE DRY TIME OF THE YEAR AND SHOULD INCLUDE PROVISIONS FOR EFFECTIVE EROSION AND SEDIMENT CONTROL. FINALLY, CULVERTS SHOULD BE PROPERLY SIZED AND LOCATED SO AS NOT TO ALTER THE WATER LEVELS IN ACCOMPANYING WETLANDS AND CAUSE FLOODING PROBLEMS.

THE NATURAL QUALITY OF GROUNDWATER SHOULD BE GOOD. BECAUSE OF THE MINERALOGIC COMPOSITION OF BRIMFIELD SCHIST, WHICH UNDERLIES THE ENTIRE SITE, THERE IS A GOOD CHANCE THAT THE WELL WATER WILL BE ELEVATED IN IRON, MANGANESE AND/OR IRON SULFIDES.

PART FOUR

INFORMATION ON ALL PARCELS

- A. VEGETATION
- B. WILDLIFE HABITAT
- C. FISH RESOURCES

A. VEGETATION

THE PROPERTIES PROPOSED FOR SUBDIVISION CAN BE DIVIDED INTO SIX VEGETATION TYPES. THESE INCLUDE AGRICULTURAL FIELDS, ABANDONED OLD FIELDS, MIXED HARDWOOD FORESTS, AND WETLANDS RANGING FROM OPEN SWAMP TO HARDWOOD SWAMP. THE PREDOMINANT VEGETATIVE TYPE IS MIXED HARDWOOD FOREST FAIRLY TYPICAL OF CENTRAL CONNECTICUT. CONSTRUCTION ACTIVITY TO CLEAR LOTS, ROADS, AND CROSS STREAMS CAN ALL IMPACT THE FOREST ECOSYSTEM, HOWEVER LONG-TERM IMPACT CAN BE MINIMIZED USING PROPER TECHNIQUES.

VEGETATION TYPE DESCRIPTIONS

TYPE 1: AGRICULTURAL FIELD, 32 ACRES. THIS IS HIGHLY PRODUCTIVE LAND OCCUPIED MAINLY BY GRASSES AND MOWED YEARLY FOR HAY.

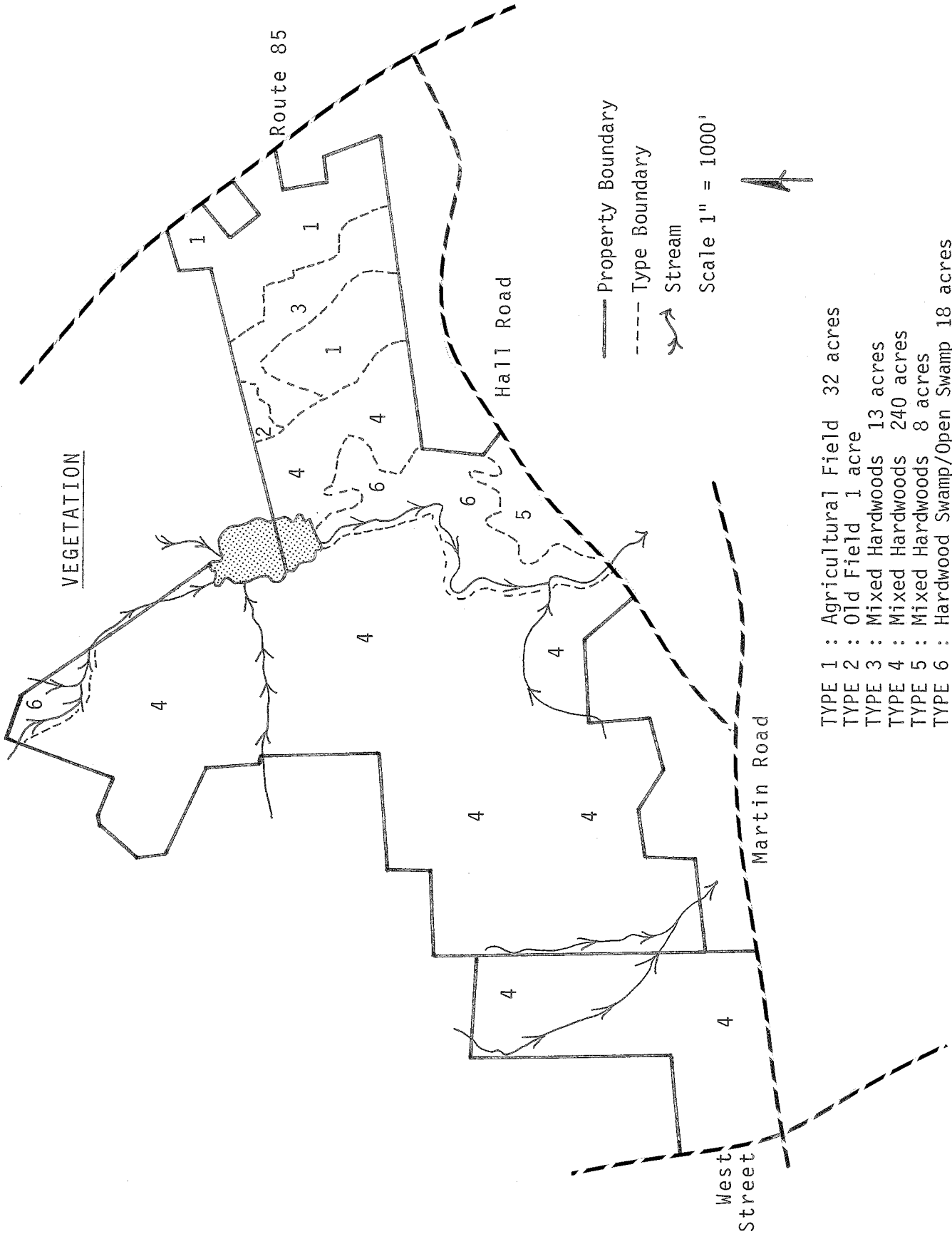
TYPE 2: OLD FIELD, 1 ACRE. THIS SMALL AREA ABANDONED SEVERAL YEARS AGO AS A PASTURE IS REVERTING TO FOREST. THE AREA IS PRIMARILY GRASSES WITH SEVERAL RED CEDAR. ALSO TYPICAL OF AN AREA LIKE THIS IS GOLDEN ROD, STEEPLE BUSH, SEEDLING HARDWOODS, BLUEBERRY AND MULTIFLORA ROSE.

TYPE 3: MIXED HARDWOODS, 13 ACRES. THIS AREA IS WETTER THAN TYPE 4 OVERALL AND IS CHARACTERIZED BY PREDOMINANTLY RED MAPLE. UNDERSTORY VEGETATION IS TYPICALLY SPICEBUSH, WITCH HAZEL, Highbush BLUEBERRY AND FERN.

TYPE 4: MIXED HARDWOODS, 240 ACRES. THIS IS BY FAR THE LARGEST VEGETATION TYPE ON THE PROPERTIES. TREE SPECIES INCLUDE BLACK OAK, WHITE OAK, SCARLET OAK, RED OAK, BLACK AND YELLOW BIRCH, RED MAPLE, HICKORY, BEECH, OCCASIONAL WHITE PINE. UNDERSTORY VEGETATION INCLUDES VIBURNUM, Highbush, BLUEBERRY, BULLBRIAR, MULTIFLORA ROSE AND WITCH HAZEL. THIS TYPE IS FULLY STOCKED WITH TREES IN THE POLETIMBER/SAWTIMBER SIZE CLASS WITH AVERAGE PRODUCTIVITY POTENTIAL THROUGHOUT THE LARGE ACREAGE.

TYPE 5: MIXED HARDWOODS, 8 ACRES. THIS TYPE IS SEPARATED FROM THE MAIN BODY OF MIXED HARDWOODS BY AN OPEN SWAMP. THE TREES REPRESENT ALL SIZE CLASSES OF TREES (SAPLING, POLETIMBER, SAWTIMBER) AND INCLUDE BLACK OAK, WHITE OAK, RED MAPLE, BIRCHES AND MATURE WHITE PINE.

TYPE 6: HARDWOOD SWAMP/OPEN SWAMP, 18 ACRES. THIS TYPE, PRIMARILY SOUTH OF WARNER POND, IS COMPOSED OF RED MAPLE, Highbush BLUEBERRY, SWAMP AZALEA, SPECKLED ALDER, GRASSES, AND SPHAGNUM. THIS TYPE HAS SOME WOODED AREAS, BUT IS 80% OPEN SWAMP.



AESTHETIC CONSIDERATIONS

MANY WHITE PINE IN VEGETATION TYPE 5 HAVE HIGH AESTHETIC VALUE BECAUSE OF THEIR LARGE SIZE. THESE TREES CAN BE SELECTED FOR RETENTION AND WORKED INTO THE FINAL SITE PLAN. DUE TO THE LOCATION OF THIS AREA THE ENTIRE TYPE COULD BE LEFT UNDISTURBED.

TREES ARE VERY SENSITIVE TO THE SOIL CONDITIONS WITHIN THE ENTIRE AREA UNDER THEIR CROWNS. DEVELOPMENT PRACTICES NEAR TREES SUCH AS LOT CLEARING AND ROAD BUILDING (WHICH INCLUDES GRADING AND FILLING) DISTURBS THE BALANCE BETWEEN SOIL AERATION, SOIL MOISTURE LEVEL AND SOIL COMPOSITION. THESE DISTURBANCES CAUSE A DECLINE IN TREE HEALTH AND VIGOR RESULTING IN TREE MORTALITY WITHIN. INJURY TO TREES CAUSED BY MACHINERY CAN HAVE THE SAME RESULTS. DEAD TREES ON A HOUSELOT REDUCE THE AESTHETIC QUALITY OF AN AREA, BECOME HAZARDS, AND EXPENSIVE TO REMOVE.

CARE SHOULD BE TAKEN DURING CONSTRUCTION NOT TO DISTURB THE TREES THAT ARE TO BE RETAINED. SPECIAL CARE SHOULD BE TAKEN NEAR WHITE PINE BECAUSE OF THEIR SHALLOW ROOT SYSTEMS. TREES LEFT IN FRONT OF HOUSES AS AN AESTHETIC BARRIER SHOULD BE CAREFULLY SELECTED AND POORER TREES THINNED OUT SO THERE IS 20-30 FEET BETWEEN TREES TO ALLOW CROWNS TO DEVELOP AND SPREAD OUT MORE THAN IN A NORMAL FOREST CONDITION. IN GENERAL, HEALTHY, HIGH VIGOR TREES SHOULD BE FAVORED FOR PROTECTION OVER UNHEALTHY TREES BECAUSE THEY ARE USUALLY MORE RESISTANT TO THE ENVIRONMENTAL STRESSES BROUGHT ABOUT BY CONSTRUCTION. WHERE FEASIBLE, RETAIN TREES IN SMALL GROUPS OR "ISLANDS". THIS PRACTICE LOWERS THE POSSIBILITY OF SOIL DISTURBANCE AND MECHANICAL INJURY.

POTENTIAL HAZARDS

WINDTHROW IS A POTENTIAL HAZARD IN THE MIXED HARDWOOD TYPES. IN WETTER AREAS TREE ROOT DEPTH IS RESTRICTED BY SATURATED SOILS AND TREES ARE UNABLE TO BECOME SECURELY ANCHORED. TREES ON THE DRIER UPLAND SITES ARE CROWDED TOGETHER AND HAVE RELIED ON EACH OTHER FOR STABILITY AS THEY HAVE GROWN. THESE TREES ARE SUSCEPTIBLE TO WINDTHROW AND CROWN BREAKAGE AS HOUSELOTS AND ROADWAYS ARE CLEARED.

ALTERATIONS IN WETLANDS WHICH PERMANENTLY RAISE OR LOWER WATERTABLES CAN HAVE A NEGATIVE IMPACT ON THE VEGETATION. RAISING A WATERTABLE BY RESTRICTING NATURAL DRAINAGE MAY DROWN ROOTS CAUSING WIDESPREAD MORTALITY. THE IMPACT ON VEGETATION CREATED BY CONSTRUCTION CAN BE MINIMIZED OVER WETLAND CROSSINGS BY USING ADEQUATELY SIZED CULVERTS PROPERLY PLACED.

FORESTS AND WATER QUALITY

HEALTHY WOODLANDS PROVIDE A PROTECTIVE INFLUENCE ON WATER QUALITY: THEY STABILIZE SOILS, REDUCE THE IMPACT OF PRECIPITATION AND RUNOFF, AND MODERATE THE EFFECTS OF ADVERSE WEATHER CONDITIONS. SWAMPS ACT AS SETTLING BASINS

AND FLOOD CONTROL AREAS DURING HIGH WATER CONDITIONS. WOODLANDS AND SWAMPS HELP TO REDUCE EROSION, SEDIMENTATION, SILTATION AND FLOODING. RESEARCH HAS SHOWN THAT SOIL PROTECTED BY THE COVER OF HUMUS ASSOCIATED WITH WOODLAND AREAS CONTRIBUTES LITTLE OR NO SEDIMENT TO STREAMS. FOREST SOILS CAN ALSO ACT AS A BUFFER TO PREVENT EROSION AND SEDIMENTATION FROM REACHING STREAMS, PONDS AND WETLANDS.

B. WILDLIFE HABITAT

THE PROPERTIES PROPOSED FOR SUBDIVISION CONSISTS OF FIVE (5) DISTINCT WILD-LIFE HABITATS. THESE INCLUDE MIXED HARDWOODS, OLD FIELD, HARDWOOD/OPEN SWAMP, AND WETLAND/RIPARIAN HABITAT.

1. MIXED HARDWOODS - CONSISTS OF VARIOUS OAK SPECIES, RED MAPLE, BEECH, HICKORY, WHITE PINE, BLACK AND YELLOW BIRCH. UNDERSTORY VEGETATION SPECIES INCLUDES VIBURNUM, WITCH HAZEL, HIGH-BUSH BLUEBERRY, GREENBRIAR, MULTIFLORA ROSE, AND SPICEBUSH.
2. OLD FIELD - THIS AREA IS REVERTING TO FOREST VEGETATION CONDITIONS CONSISTING OF HARDWOOD SEEDLINGS, RED CEDAR, SPIREA, GOLDEN ROD, AND VARIOUS GRASS SPECIES.
3. AGRICULTURAL FIELD - CONSISTS OF VARIOUS GRASS SPECIES AND IS CURRENTLY BEING MOWED YEARLY FOR HAY CROP.
4. HARDWOOD/OPEN SWAMP - CONSISTS OF RED MAPLE, HIGH-BUSH BLUEBERRY, SWAMP AZELEA, AND SPECKELED ALDER. THE AREA IS PRIMARILY OPEN SWAMP.
5. WETLAND/RIPARIAN - CONSISTS OF HABITAT CONDITIONS LOCATED ALONG STREAMS (INCLUDING INTERMITTENT) AND PONDS/SWAMPS THAT ARE HIGHLY DIVERSE IN TERMS OF VEGETATION AND WILDLIFE.

WILDLIFE SPECIES

THE AREA PROVIDES THE ELEMENTS FOR A VARIETY OF WILDLIFE SPECIES OF BIRDS AND MAMMALS SUCH AS SONGBIRDS, WHITE-TAILED DEER, RACCOON, RUFFED GROUSE, GREY SQUIRREL, BEAVER, AND MANY SPECIES OF REPTILES AND AMPHIBIANS. DURING THE FIELD REVIEW NUMEROUS WILDLIFE SPECIES WERE SIGHTED OR SIGN OBSERVED. OVERALL, THE HIGH DIVERSITY OF HABITAT AT THIS SITE PROVIDES FOR A WIDE VARIETY OF WILDLIFE SPECIES INHABITING THE AREA.

EFFECT OF PROPOSED DEVELOPMENT ACTIVITY

THE PROPOSED DEVELOPMENT WILL HAVE A NEGATIVE EFFECT ON MANY HABITAT TYPES AND WILDLIFE POPULATIONS DUE TO HABITAT ELIMINATION THROUGH CONSTRUCTION PLANS. SPECIES OF BIRDS AND MAMALS THAT ARE SENSITIVE TO URBAN DEVELOPMENT WILL NO LONGER INHABIT THIS AREA. COMMON OCCURRING WILDLIFE SPECIES THAT WILL TOLERATE LEVELS OF DISTURBANCE DUE TO URBAN DEVELOPMENT WILL OCCUPY THIS AREA AND MAY BECOME A NUISANCE TO AREA RESIDENTS.

RECOMMENDATIONS FOR MITIGATION

THE IMPACT OF RESIDENTIAL DEVELOPMENT ON WILDLIFE POPULATIONS CAN BE MINIMIZED BY IMPLEMENTING THE FOLLOWING MEASURES:

1. PROVIDE A 100 FOOT BUFFER ZONE ALONG ALL WETLAND AREAS.
2. SET ASIDE OPEN SPACE AREAS CONTIGUOUS TO BUFFER ZONES.
3. SELECT OPEN SPACE AREAS THAT ENCOMPASS OTHER AREAS OF VEGETATION SO AS NOT TO CREATE SMALL ISOLATED ISLANDS.
4. LANDSCAPING - SELECT SHRUB SPECIES THAT PROVIDE FOOD AND COVER FOR WILDLIFE.

C. FISH RESOURCES

SITE DESCRIPTION

A WIDE VARIETY OF AQUATIC HABITATS EXIST WITHIN OR ABUT THE THREE PROPOSED SUBDIVISIONS CURRENTLY UNDER REVIEW. MAJOR DEVELOPMENT WILL OCCUR ALONG DANIELS BROOK, WARNER POND, AND WEST BRANCH FAWN BROOK. ALL WATER BODIES LIE WITHIN THE SALMON RIVER WATERSHED.

DANIELS BROOK AND ITS ONE TRIBUTARY ARE INTERMITTENT WATERCOURSES THAT FLOW SOUTHERLY THROUGH MOST OF THE TALL OAKS SUBDIVISION AND A SMALLER SECTION OF THE WARNER PROPERTY. DANIELS BROOK JOINS WITH WEST BRANCH FAWN BROOK APPROXIMATELY 1.5 MILES FROM ITS ORIGINATION. WATERCOURSE GRADIENT IS MODERATE. A WELL-DEFINED CANOPY OF VEGETATION EXISTS ALONG THE BROOK PROVIDING BENEFICIAL SHADING AND COOLING OF BROOK WATERS. BROOK WIDTH RANGES FROM 5 TO 7 FEET AND BOTTOM SUBSTRATE IS COMPRISED MATERIALS. NO WATER WAS OBSERVED WITHIN THESE WATERCOURSES DURING THE TIME OF THE REVIEW.

WARNER POND, APPROXIMATELY 5 ACRES IN SIZE, IS A SHALLOW AND NUTRIENT ENRICHED MAN-MADE POND CONSTRUCTED ON WEST BRANCH FAWN BROOK. THE GILEAD III AND WARNER PROPERTY SUBDIVISIONS WILL SURROUND THE POND WHICH PRESENTLY CONTAINS ONE PERMANENT RESIDENCE ON ITS EASTERN SHORE. WATER LILY AND PICKEREL WEED ARE PREVALENT ALONG THE SHORELINE. THE SOUTHERN SECTION OF THE POND CONTAINS AN EXTENSIVE REGION OF DUCKWEED, A FREE FLOATING AQUATIC PLANT. POND WATERS ARE CLOUDY AND BROWNISH DUE TO UNICELLULAR ALGAE BLOOMS. THE AFOREMENTIONED CONDITIONS SUGGEST THAT WARNER POND IS AN ADVANCED STAGE OF AGING OR EUTROPHICATION.

WEST BRANCH FAWN BROOK BISECTS THE WARNER PROPERTY FLOWING SOUTHERLY THROUGH A LARGE SWAMP AND WETLAND REGION BELOW WARNER POND. UPPER BROOK REACHES 4 TO 6 FEET IN WIDTH AND CONTAINS A WELL-DEVELOPED VEGETATIVE CANOPY. BOTTOM SUBSTRATE IS COMPRISED OF SMALL ROCKS AND COBBLE INTERMIXED AMONG FINE SANDS AND GRAVEL. STREAM FLOWS WERE REDUCED AT THE TIME OF THE REVIEW.

STREAM CHARACTER CHANGES IN THE SOUTHERN REACH. IN THIS SECTION, THE MAIN STREAM CHANNEL IS NOT WELL-DEFINED AS WATER SPREADS OUT THROUGH OPEN SWAMP HABITAT.

FISH POPULATION

DANIELS BROOK DOES NOT SUPPORT A PERMANENT FISH POPULATION. NATIVE BROOK TROUT MAY SEASONALLY DISPERSE INTO THE BROOK DURING TIMES OF INCREASED STREAM FLOWS. WARNER POND SUPPORTS A WARMWATER FISH POPULATION COMPRISED OF LARGEMOUTH BASS, PUMPKINSEED SUNFISH, AND BLUEGILL SUNFISH. WEST BRANCH FAWN BROOK IS ANNUALLY STOCKED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION (DEP) WITH OVER 150 ADULT (9-12") BROOK AND BROWN TROUT IN DOWNSTREAM AREAS NEAR THE TOWN OF MARLBOROUGH. IT ALSO CONTAINS A NATIVE BROOK TROUT FISHERY.

MORE IMPORTANTLY, SINCE FAWN BROOK IS PART OF THE SALMON RIVER WATERSHED, IT SERVES AS A PRIMARY NURSERY STREAM FOR ATLANTIC SALMON. RECENT SURVEYS HAVE DOCUMENTED THAT USEABLE SALMON HABITAT BEGINS IN DOWNSTREAM AREAS NEAR THE SLOCUM ROAD MILES FROM THE PROPOSED DEVELOPMENTS. WEST BRANCH FAWN BROOK IS ANNUALLY STOCKED BY DEP PERSONNEL WITH MORE THAN 24,000 JUVENILE SALMON. ADDITIONALLY, IT HAS SUPPORTED A WILD (FERAL) POPULATION OF JUVENILE SALMON SINCE 1984. THIS STREAM REMAINS AN INTEGRAL PART OF THE ATLANTIC SALMON RESTORATION PROGRAM.

IMPACTS

THE FOLLOWING IMPACTS OF DEVELOPMENT CAN BE EXPECTED:

1. CONSTRUCTION SITE SOIL EROSION AND SEDIMENTATION OF WATERCOURSES AND WARNER POND THROUGH INCREASED RUNOFF FROM UNVEGETATED AREAS. EROSION AND SEDIMENTATION DUE TO CONSTRUCTION HAS LONG BEEN REGARDED AS A MAJOR CAUSE OF STREAM DEGRADATION AND POND EUTROPHICATION. IN PARTICULAR, SILT DEPOSITION WILL:

*REDUCE FISH EGG SURVIVAL. ADEQUATE WATER FLOW, FREE OF SEDIMENT PARTICLES IS REQUIRED FOR EGG RESPIRATION AND SUCCESSFUL HATCHING.

*REDUCE AQUATIC INSECT PRODUCTION. SEDIMENT-FREE WATER IS ALSO REQUIRED FOR SUCCESSFUL AQUATIC INSECT EGG RESPIRATION AND HATCHING. AQUATIC INSECTS ARE IMPORTANT FOOD ITEMS IN FISH DIETS. REDUCED INSECT LEVELS WILL ADVERSELY EFFECT FISH GROWTH AND SURVIVAL.

* REDUCE POND AND STREAM WATER DEPTH.

*ENCOURAGE THE GROWTH OF ROOTED AQUATIC PLANTS AND PRECIPITATE DENSE ALGAE BLOOMS IN POND ENVIRONMENTS AND PROMOTE FILAMENTOUS ALGAE GROWTH IN STREAMS. ERODED SOILS CONTAIN PLANT NUTRIENTS SUCH AS NITRATES AND PHOSPHATES. ALTHOUGH ALGAE AND AQUATIC PLANTS REQUIRE THESE NUTRIENTS FOR GROWTH, MOST AQUATIC ECOSYSTEMS CONTAIN VERY LIMITED AMOUNTS. CONSEQUENTLY, THESE NUTRIENTS ACT AS FERTILIZERS ONCE THEY ARE INTRODUCED INTO AQUATIC HABITATS RESULTING IN ACCELERATED PLANT GROWTH.

*CONTRIBUTE TO THE DEPLETION OF OXYGEN. ORGANIC MATTER ASSOCIATED WITH SOIL PARTICLES IS DECOMPOSED BY MICRO ORGANISMS CONTRIBUTING TO THE DEPLETION OF OXYGEN IN WATERS OVERLYING SEDIMENTS.

2. PERCOLATION OF SEPTIC SYSTEM LEACHATE INTO WARNER POND AND WATERCOURSES. THE INTRODUCTION OF SEPTIC EFFLUENT WOULD NOT ONLY ACCELERATE EUTROPHICATION BUT COULD RESULT IN A MAJOR THREAT TO FISH AND PUBLIC HEALTH.

3. TRANSPORT OF LAWN FERTILIZER TO AQUATIC ECOSYSTEMS. RUNOFF AND LEACHING OF NUTRIENTS FROM FERTILIZERS COULD PROVIDE ADDED NUTRIENTS FURTHER STIMULATING EUTROPHICATION.

4. WATER QUALITY DEGRADATION. ANY WATER QUALITY PROBLEMS THAT DEVELOP ALONG THESE SUBDIVISIONS WILL ULTIMATELY BE PASSED ON TO DOWNSTREAM AREAS. THIS SCENARIO COULD SERIOUSLY EFFECT SENSITIVE JUVENILE ATLANTIC SALMON HABITAT IN WEST BRANCH FAWN BROOK.

IF REALIZED, THE AFOREMENTIONED IMPACTS WOULD HAVE A SEVERE, ADVERSE EFFECT UPON THE SALMON RIVER WATERSHED. DEGRADATION OF WATER QUALITY AND FISH HABITAT COULD RENDER WARNER POND UNDESIRABLE FOR RECREATIONAL ACTIVITIES AND JEOPARDIZE ATLANTIC SALMON RESTORATION EFFORTS.

RECOMMENDATIONS

THE IMPACT OF RESIDENTIAL DEVELOPMENT ON AQUATIC RESOURCES CAN BE MINIMIZED BY IMPLEMENTING THE FOLLOWING PRECAUTIONARY MEASURES:

1. PROVIDE A MINIMUM 100 FOOT BUFFER ZONE/CONSERVATION EASEMENT ALONG ALL WATERCOURSES, WARNER POND, AND EXISTING WETLANDS. THIS PROTECTIVE STRIP WILL PREVENT EROSION AND SEDIMENTATION EVENTS AND MAINTAIN AQUATIC ECOSYSTEM INTEGRITY.

2. INSTALL AND MAINTAIN PROPER EROSION AND SEDIMENTATION CONTROLS DURING CONSTRUCTION SUCH AS SILT FENCES, HAY BALES, AND CATCH BASINS. DIRECT ALL RUNOFF AWAY FROM AQUATIC HABITATS AND REGULARLY MAINTAIN CATCH BASINS.

3. PREVENT "DIRECT" STREAM CROSSINGS DURING CONSTRUCTION. THIS WILL REQUIRE THE CONSTRUCTION OF BRIDGES OR CAREFUL CONTROL OF TRAFFIC TO ONE CROSSING BY BRIDGE.

4. DISALLOW LIMING AND FERTILIZATION OF SUBDIVISION LAWNS CLOSE TO AQUATIC HABITATS. STRESS THE USE OF LOW PHOSPHATE LAUNDRY DETERGENTS. THESE STEPS WILL PARTIALLY MITIGATE THE ADDITION OF NUTRIENTS TO ALL WATERS.

5. PROTECT AND PRESERVE THE LARGE EXISTING SWAMP HABITAT BELOW WARNER POND. WETLANDS ARE CRITICAL TO THE MAINTENANCE OF NUTRIENT LOADS, WATER QUALITY, AND FOOD PRODUCTION IN DOWNSTREAM REACHES OF WEST BRANCH FAWN BROOK.

6. ENCOURAGE SUBDIVISION RESIDENTS TO CREATE A LOCAL ENVIRONMENTAL ASSOCIATION IN ORDER TO EDUCATE ALL LANDOWNERS CONCERNING RESPONSIBLE LAND MANAGEMENT PRACTICES NEAR SENSITIVE AQUATIC HABITATS. TECHNICAL ASSISTANCE REGARDING THESE MATTERS CAN BE OBTAINED FROM DEP PROFESSIONALS.

SUMMARY

AS PROPOSED, THESE DEVELOPMENTS HAVE THE POTENTIAL TO NEGATIVELY IMPACT SENSITIVE AQUATIC HABITATS. CAREFUL AND CONSCIENTIOUS PLANNING MUST BE EXERCISED BY PRIVATE DEVELOPERS AND THE TOWN OF HEBRON TO MITIGATE A MYRIAD OF POTENTIAL IMPACTS. IF IMPLEMENTED, PROPER MITIGATION MEASURES WILL PRESERVE EXISTING WATER QUALITY AND FISH HABITAT CONDITIONS.

About The Team

The Eastern Connecticut Environmental Review Team (ERT) is a group of professionals in environmental fields drawn together from a variety of federal, state, and regional agencies. Specialists on the Team include geologists, biologists, foresters, climatologists, soil scientists, landscape architects, archeologists, recreation specialists, engineers and planners. The ERT operates with state funding under the supervision of the Eastern Connecticut Resource Conservation and Development (RC&D) Area--an 86 town area.

The Team is available as a public service at no cost to Connecticut towns.

PURPOSE OF THE TEAM

The Environmental Review Team is available to help towns and developers in the review of sites proposed for major land use activities. To date, the ERT has been involved in reviewing a wide range of projects including subdivisions, sanitary landfills, commercial and industrial developments, sand and gravel operations, elderly housing, recreation/open space projects, watershed studies and resource inventories.

Reviews are conducted in the interest of providing information and analysis that will assist towns and developers in environmentally sound decision-making. This is done through identifying the natural resource base of the project site and highlighting opportunities and limitations for the proposed land use.

REQUESTING A REVIEW

Environmental reviews may be requested by the chief elected officials of a municipality or the chairman of town commissions such as planning and zoning, conservation, inland wetlands, parks and recreation or economic development. Requests should be directed to the Chairman of your local Soil and Water Conservation District. This request letter should include a summary of the proposed project, a location map of the project site, written permission from the landowner allowing the Team to enter the property for purposes of review, a statement identifying the specific areas of concern the Team should address, and the time available for completion of the ERT study. When this request is approved by the local Soil and Water Conservation District and the Eastern Connecticut RC&D Executive Council, the Team will undertake the review on a priority basis.

For additional information regarding the Environmental Review Team, please contact Elaine A. Sych (774-1253), Environmental Review Team Coordinator, Eastern Connecticut RC&D Area, P.O. Box 198, Brooklyn, Connecticut 06234.