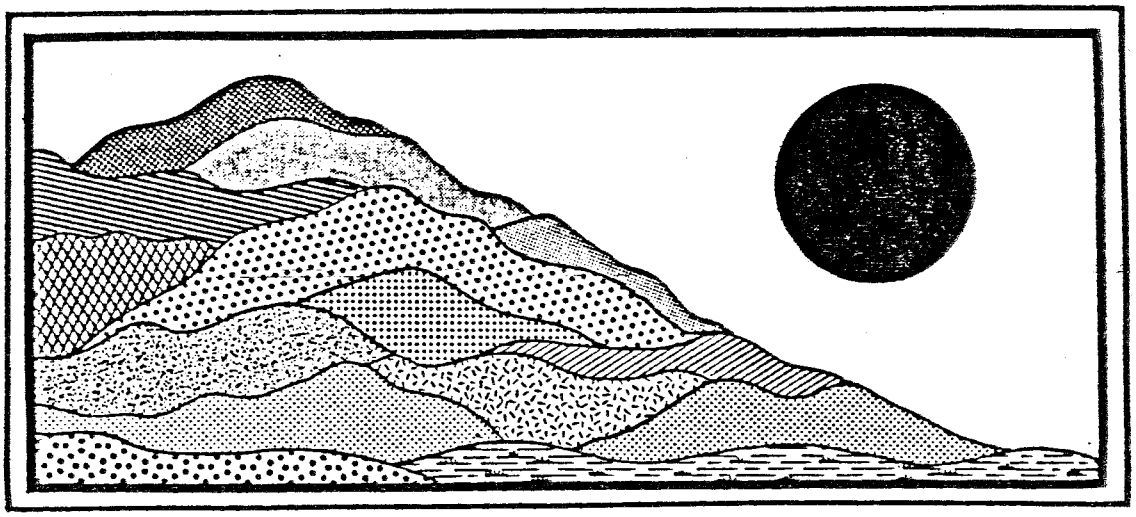
LORD'S POINT

STONINGTON, CONNECTICUT

JULY 1987



ENVIRONMENTAL REVIEW TEAM REPORT

EASTERN CONNECTICUT RESOURCE CONSERVATION AND DEVELOPMENT AREA, INC.

LORD'S POINT

STONINGTON, CONNECTICUT

Review Date: APRIL 16, 1987

Report Date: JULY 1987

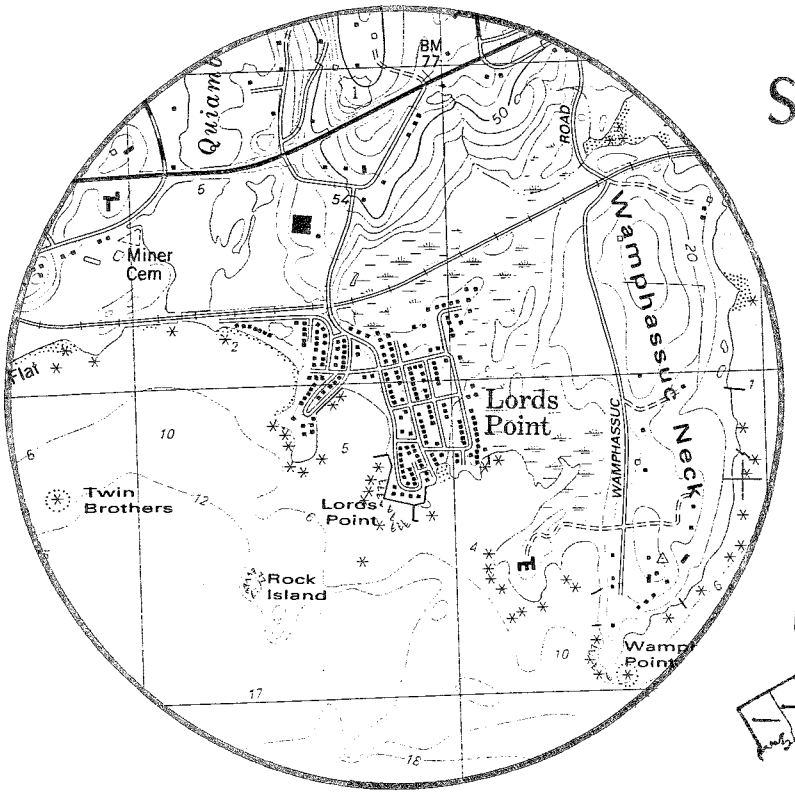
RC&D

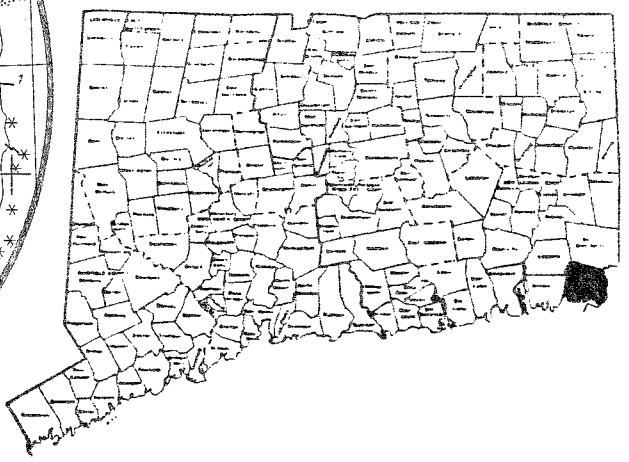
ENVIRONMENTAL REVIEW TEAM
PO BOX 198
BROOKLYN, CONNECTICUT 06234

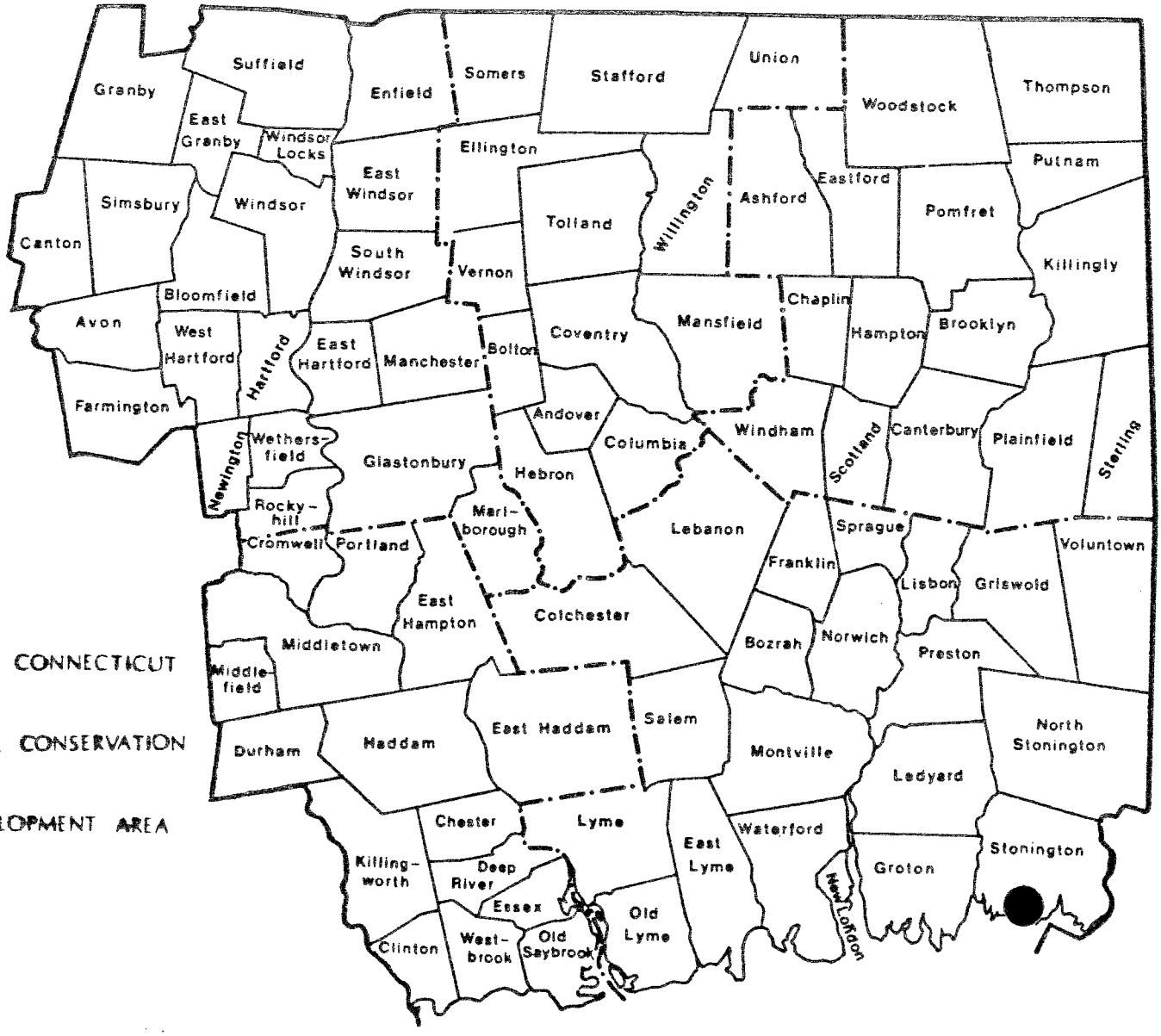
Site Location

LORD'S POINT AREA

STONINGTON, CONNECTICUT







EASTERN CONNECTICUT

RESOURCE CONSERVATION

& DEVELOPMENT AREA

ENVIRONMENTAL REVIEW TEAM REPORT
ON
LORD'S POINT
STONINGTON, CONNECTICUT

This report is an outgrowth of a request from the Stonington Inland Wetlands Commission to the New London 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 Thursday, April 16, 1987. Team members participating on this review included:

Paul Capotosto	--Mosquito and Vector Control Connecticut Department of Health Services
Barry Cavanna	--District Conservationist New London County USDA-SCS
Jacki Lappen	--Coastal Planner DEP, Planning & Coordination/ Coastal Management
Nancy Murray	--Biologist DEP, NRC Natural Diversity Data Base
Ron Rozsa	--Coastal Biologist DEP, Planning & Coordination/ Coastal Management
Charles Storrow	--Regional Planner Southeast CT Regional Planning Agency
Elaine Sych	--ERT Coordinator Eastern CT RC&D Area, Inc.
William Warzecha	--Geologist/Hydrologist DEP, Natural Resources Center
George Wisker	--Coastal Geologist DEP, Planning & Coordination/ Coastal Management

Prior to the review day, each team member received a summary of the proposed project, a list of the Town's concerns, a location map, a topographic map and a soils map. Also information reqarding applications to fill wetlands. During the field review the team members were given additional information. The Team met with, and were accompanied by the Town Planner, a member of the requesting Commission, director of the Water Pollution Control Authority and a resident requesting a fill permit. 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 this unique and sensitive area.

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

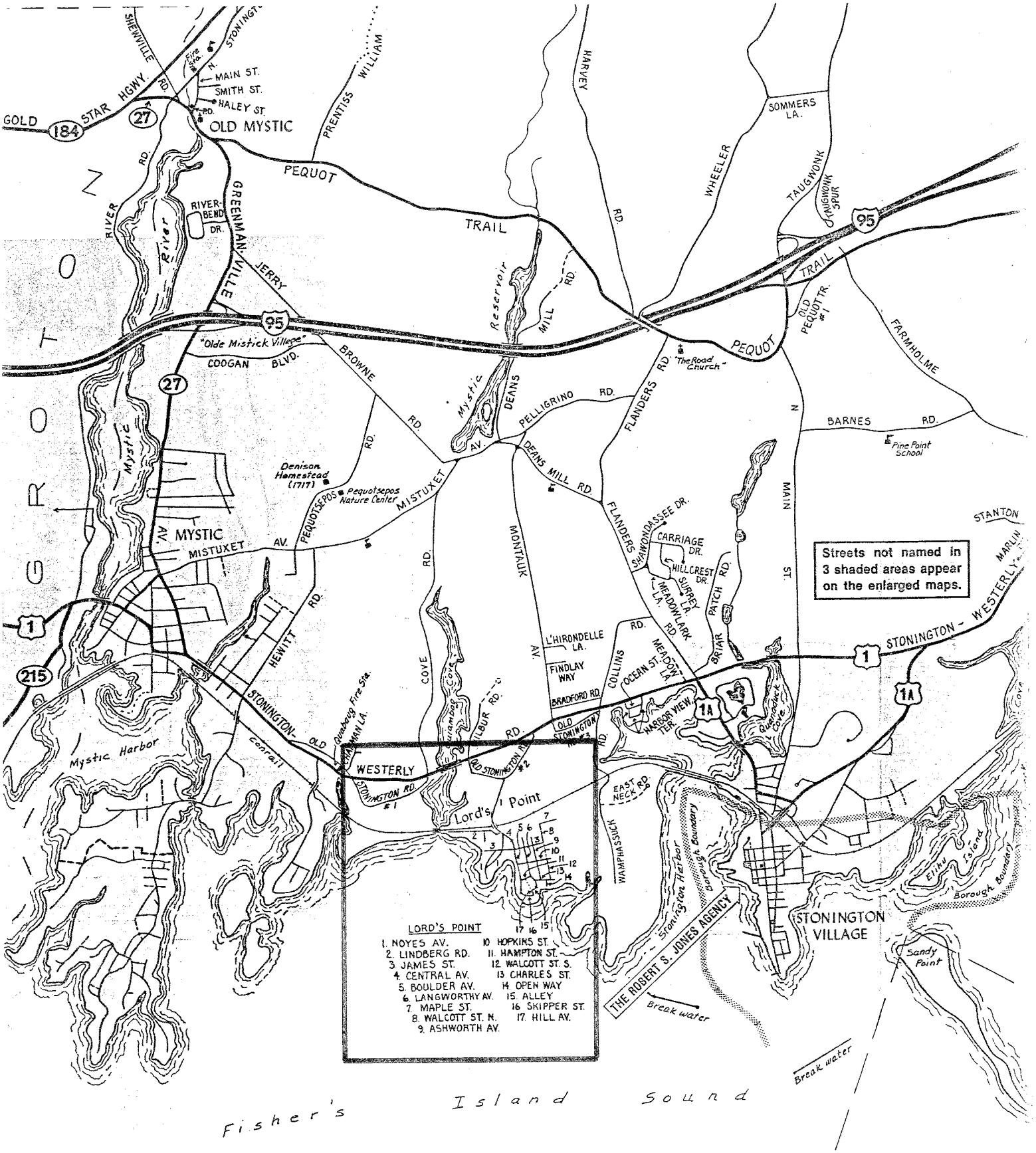
TABLE OF CONTENTS

TABLE OF CONTENTS (continued)

ILLUSTRATIONS

LIST OF TABLES

LOCATION OF STUDY AREA



DMR 3/81

INTRODUCTION

The Eastern Connecticut Environmental Review Team has been requested by the Stonington Inland Wetlands Commission to perform an environmental review of the Lord's Point Area which adresses areas of concern such as conversions of homes to year round use, filling of wetlands, house additions, fire hazard and future development and planning.

Part One of this report contains general information and recommendations concerning the existing natural resources and a section on land use and planning for future development.

Part Two contains sections on wetland plants, wetland management, coastal geology, coastal resources information and evaluations, coastal resource and use policies with recommendations and information on areas of specific concern to the Commission and a final section on mosquito and Phragmite control.

PART I.

GENERAL INFORMATION AND PLANNING

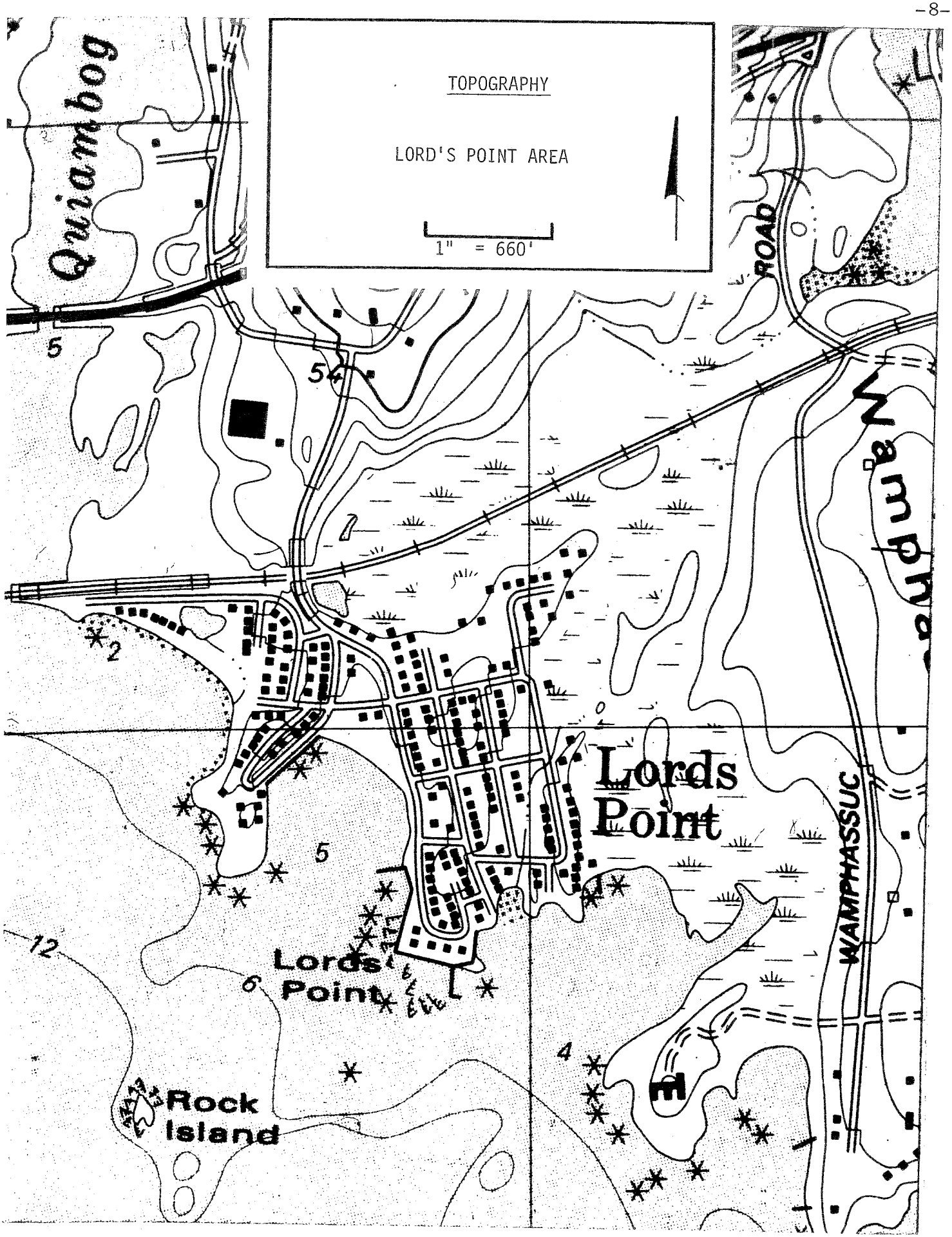
SECTION I.

GENERAL SETTING, HISTORY AND TOPOGRAPHY

The study area located in the Lord's Point section of Stonington is about 1,000 feet southeast from the outlet of Quiambog Cove. It consists of mixed seasonal and year round homes that are presently served by on-site wells and/or a seasonal community water supply and on-site septic systems.

An 1893 topographic map of the Lord's Point area revealed no residential development. However, between 1893 and 1934 residential development took place in moderate densities on the upland areas of Lord's Point. By 1949, heavy residential development had taken place on Lord's Point. This wave of development appears to have led to substantial filling of former tidal wetlands in the east central part of Lord's Point. Based on a field walk of this wetland area, filling activity, road drainage and the construction of the railroad tracks north of Lord's Point have all substantially affected the natural flow of water in the wetlands. This area, as illustrated on an 1883 Coast Geodetic Survey Map, showed tidal wetlands. These subsequent fillings and drainage modifications have changed it to a mostly fresh water wetlands. All of this activity has led to the proliferation of thick Phragmites vegetation (Common Reed) currently of concern as a fire hazard to some residents of Lord's Point.

The land surface throughout Lord's Point is controlled largely by the underlying bedrock. Numerous bedrock exposures are visible along the coastline and throughout inland parts of Lord's Point. Slopes range from flat to gently sloping.


TOPOGRAPHY
LORD'S POINT AREA
1" = 660'
Quiambog
ROAD
Wamphassuc
Lords Point
WAMPHASSUC
Lords Point
Rock Island
5
54
2
5
12
6
4

SECTION II.

BEDROCK AND SURFICIAL GEOLOGY

The Lord's Point study area is located in an area encompassed by the Ashaway topographic quadrangle. A bedrock geologic map (GQ-403, by Richard Goldsmith) and a surficial geologic map (GQ-712 by Joseph Upson) for the quadrangle has been published by the U. S. Geological Survey.

As mentioned earlier, numerous bedrock exposures are visible at Lord's Point. Goldsmith identifies two bedrock formations underlying the study area; (1) a hornblende biotite gneiss and (2) Hope Valley Alaskite Gneiss.

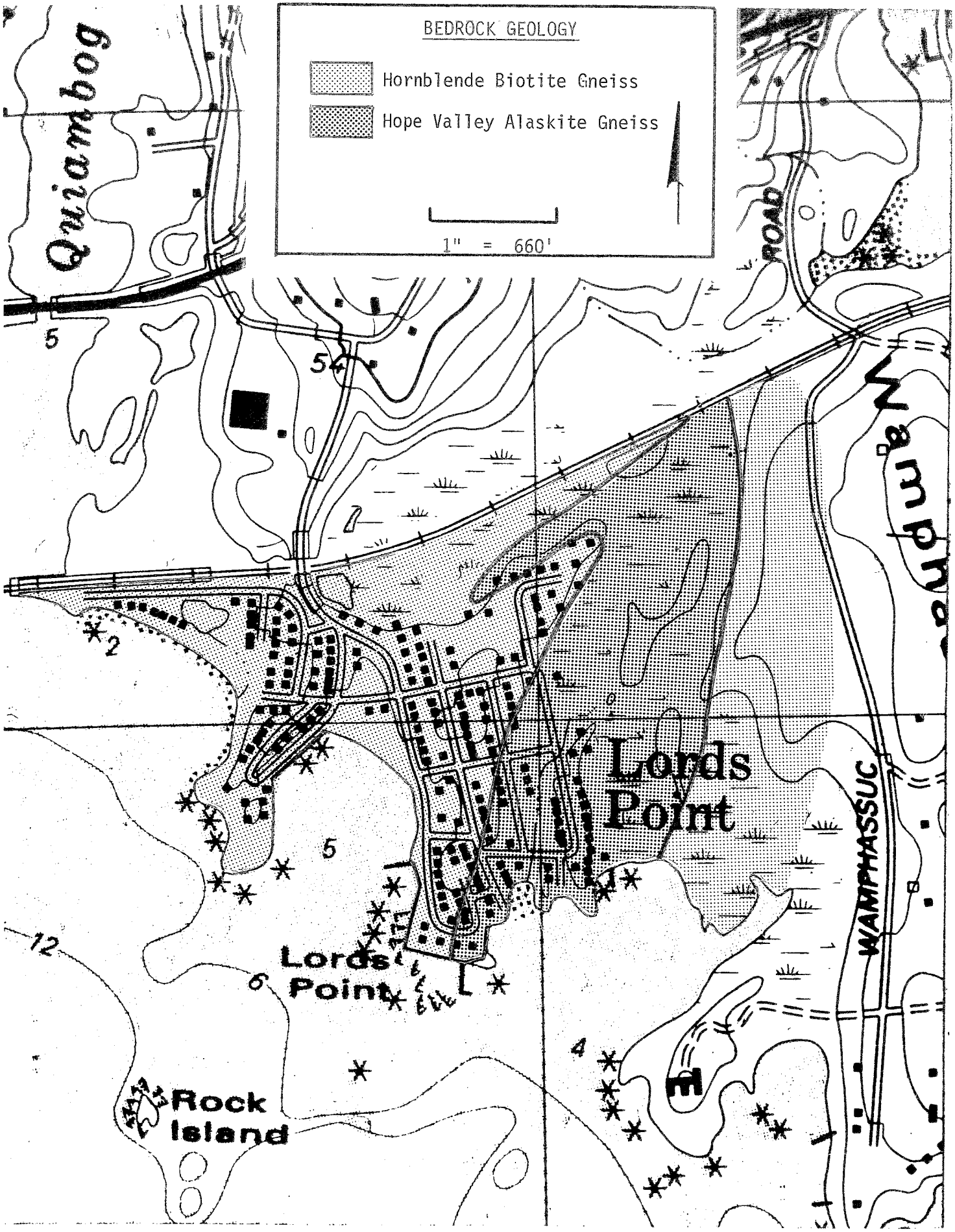
The western and central parts of Lord's Point is underlain by a gray, massive to indistinctly-layered, medium-grained gneiss composed mainly of the minerals hornblende, biotite, quartz and feldspar. The eastern parts of Lord's Point, which includes the wetland area being considered for filling, is underlain by Hope Valley Alaskite Gneiss. Goldsmith described these rocks as orange-pink to light gray, fine to medium grained granitic gneiss. It is composed mainly of the minerals quartz, feldspar and biotite. These rocks are resistant to weathering processes and as a result form massive ledges. Hope Valley Alaskite Gneiss is a source of stone for foundations and for rip-rap in the area.

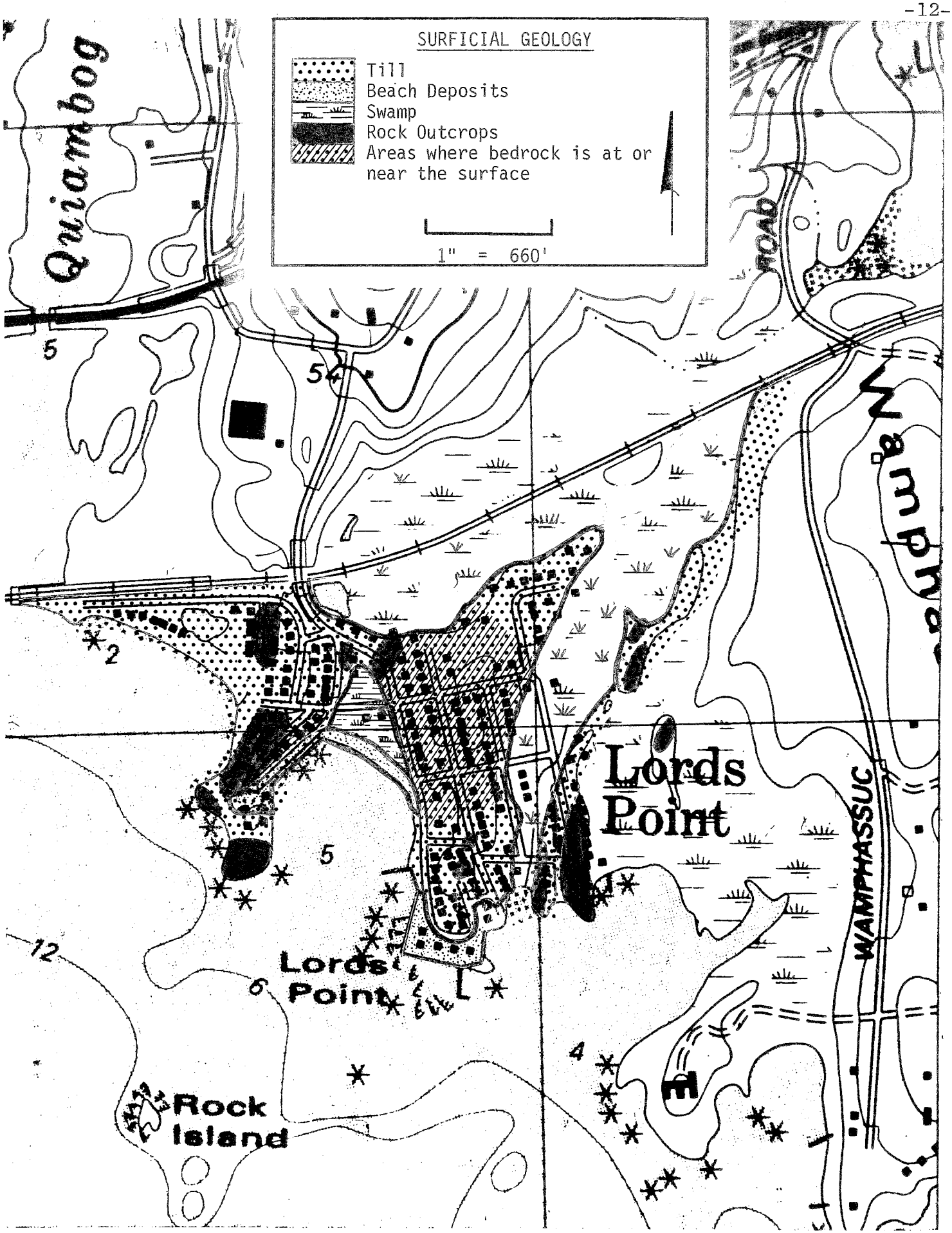
"Gneisses" are rocks which were altered under high pressure and temperature conditions and are characterized by a mineral arrangement that produces a banded appearance in the rock. The banding is due to layers of light granular minerals (quartz and feldspar) which alternate with relatively narrow bands of platy, flaky or elongate minerals (biotite) and are usually dark-colored.

Overlying bedrock throughout Lord's Point is a thin blanket of glacial sediment called till (probably not much more than eight feet). The till contains rock particles ranging in size from clay to large boulders. It is neither sorted nor stratified; the rock particles were indiscriminantly mixed and deposited directly without sorting by meltwater issuing from glacier ice.

Overlying till and/or bedrock in the eastern part of Lord's Point are swamp deposits. These post-glacial deposits consist of partly decomposed organic material mixed or interbedded with silt and sand. It is understood that some Lord's Point residents have requested to fill parts of this wetland because of the thick Phragmites growth that has taken place during the last fifteen years. As mentioned earlier in the report, prior to drainage modifications and wetland fillings in the past, this wetland was affected by daily tides and therefore, consisted of salt marsh deposits. "Salt marsh" deposits consist of partly decomposed organic material mixed or interbedded with estuarine silt, mud and sand.

The geologic conditions (shallow to bedrock soils and high water tables) present throughout Lord's Point, in addition to the conversion of seasonal homes to year round homes, small-sized lots and undersized septic systems has resulted in septic system failures. In order to eliminate this public health hazard, it is understood that the Town will be extending a municipal sewer line to Lord's Point to serve existing homes. Also, the Lord's Point seasonal community water system, as well as individual on-site wells in the area, have been plagued with poor water quality, (i.e., salt water intrusion and elevated bacteria and iron levels). As a result, efforts are presently being made to also serve Lord's Point with a public water supply line.


BEDROCK GEOLOGY
Hornblende Biotite Gneiss
Hope Valley Alaskite Gneiss
1" = 660'
Quiambog
ROAD
WAMPHASSUC
Lords Point
Lords Point
Rock Island
5
5
2
5
12
6
4


SURFICIAL GEOLOGY
Till
Beach Deposits
Swamp
Rock Outcrops
Areas where bedrock is at or near the surface
1" = 660'
Quiambog
Lords Point
Lords Point
Rock Island
WAMPHASSUC
5
54
2
5
12
6
4

SECTION III.

HYDROLOGY

The streamcourse, which flows through the wetland where filling activity has been requested receives drainage from a watershed of approximately 135 acres. A map showing the watershed boundary is included with this report and is based on natural topographic conditions. It does not take into account possible road drainage and re-routing by culvert(s). Except for the heavy residential development at Lord's Point, development in this watershed is relatively light at the present time.

According to Town officials, the Inland Wetland Commission has recently received requests from Lord's Point residents to fill areas of the mostly freshwater wetland in the eastcentral part. The purpose of the fillings is to (1) hopefully eradicate the heavy Phragmites growth in the wetland and (2) create 'dry' land on the lots for additions to existing structures.

It should be pointed out that filling and construction on wetlands can have severe environmental impacts because of their importance in maintaining certain hydrologic and ecologic functions such as water quality, regulating streamflow particularly during times of heavy flow and providing habitat for wildlife and insects. To protect these values, the filling of inland wetlands in Connecticut is regulated under Chapter 440 of the Connecticut General Statutes. Any activity involving the filling of a wetland requires a permit from the Town.

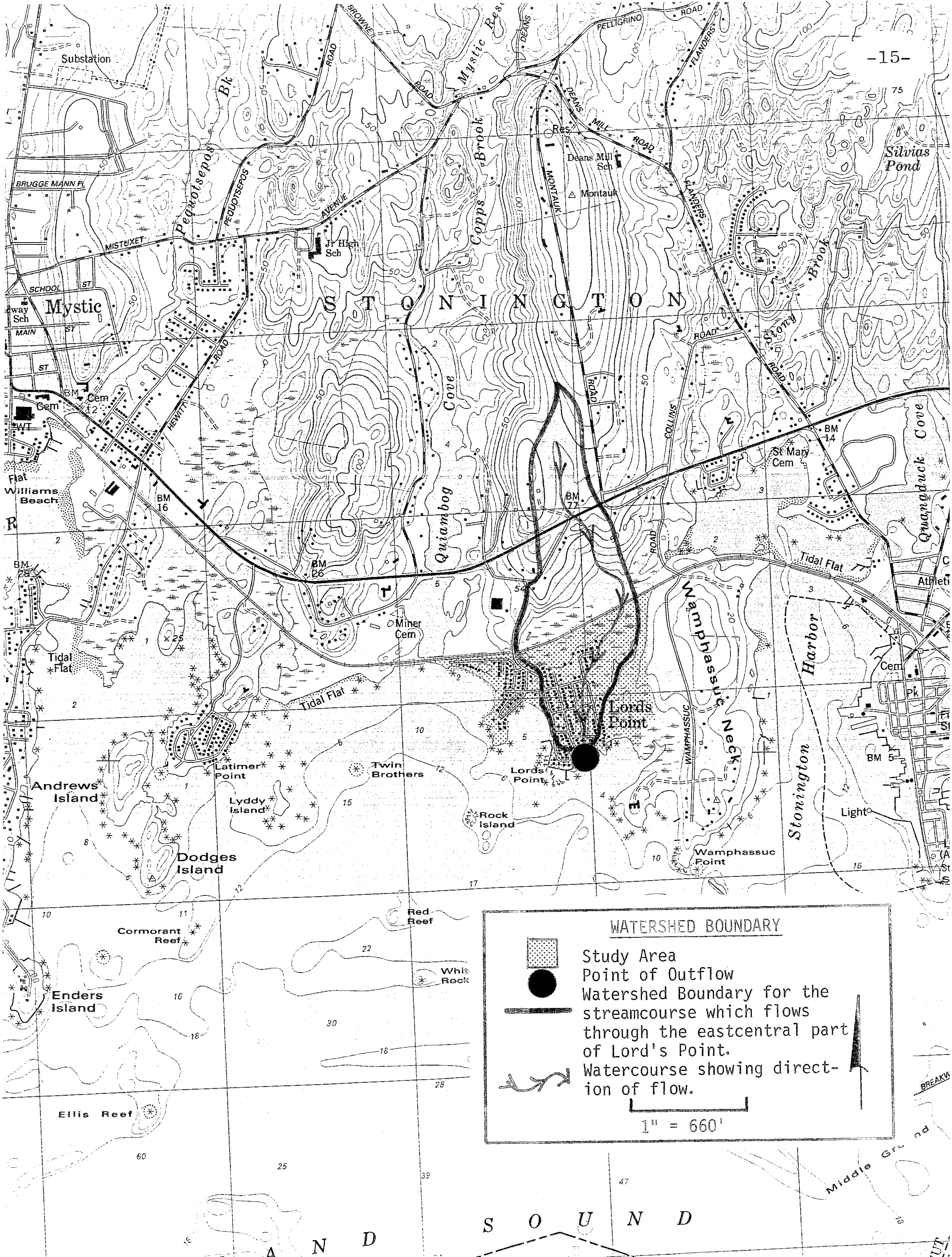
Like all wetland activity requests, the Stonington Inland Wetlands Commission needs to determine the potential impact of the proposed activity on the wetland. If the Commission determines that the wetland areas to be encroached upon serve an important hydrologic or ecologic function and that the proposed activity will be severe, they may deny the activity altogether or, at least, require measures that would minimize the impact.

In discussing the proposed activity with the Team's Biologist, experience has shown that tidal flushing to the wetlands will help to significantly reduce the Phragmites in the wetland.

It seems likely that an extensive study of the existing drainage in this part of Lord's Point would be necessary to determine if tidal flushing can be reintroduced to the wetland. Most importantly, it must be determined whether or not low-lying homes (homes constructed on wetlands in the past) would be flooded by a change in local hydrology. If this alternative to wetland fillings is considered, the feasibility study for tidal flushing in the wetland should be coincident or following extension of the public sewer and water line. This would help protect on-site septic systems and shallow wells from being affected (flooded), if there is a change in the local water table. Since the affects of tidal flushing on the Phragmites could take longer than two years, it is suggested that residents cut back the Phragmites far enough from any buildings so that it does not present a fire hazard. From an environmental standpoint, it seems likely that these alternatives outweigh the benefits of filling a wetland which is capable of performing several hydrologic or ecologic functions.

If the Town allows the filling of wetland, it should first require the applicants to evaluate and determine the importance of the wetland in terms of; (1) their ability to control floodwaters; (2) their ability to maintain water quality by filtering out pollutants before they enter a watercourse; (3) whether or not they contain soils with high percentages of organic material, which would be unsuitable for building site development; (4) the effects of wetland fillings on neighboring properties, structures, wells, septic systems, etc. and (5) whether or not they provide habitat for waterfowl, other wildlife or rare and endangered species.

For additional and more specific information regarding the wetlands please read PART II, Sections I-X.


WATERSHED BOUNDARY
Study Area
Point of Outflow
Watershed Boundary for the streamcourse which flows through the eastcentral part of Lord's Point.
Watercourse showing direction of flow.
1" = 660'
STONINGTON
Mystic
Lords Point
Quiambog Cove
Wamphassuc Neck
Stonington Harbor
Quanaduck Cove
Silvias Pond
Deans Mill Sch
Jr High Sch
Williams Beach
Latimer Point
Twin Brothers
Andrews Island
Lyddy Island
Rock Island
Dodges Island
Wamphassuc Point
Cormorant Reef
Red Reef
Enders Island
Ellis Reef
Tidal Flat
Miner Cem
St Mary Cem
SOUND

SECTION IV.

SOILS

Before the Commission considers any application for filling wetlands the applicant should provide a detailed analysis of the affects of filling on the water and flood elevations of surrounding properties.

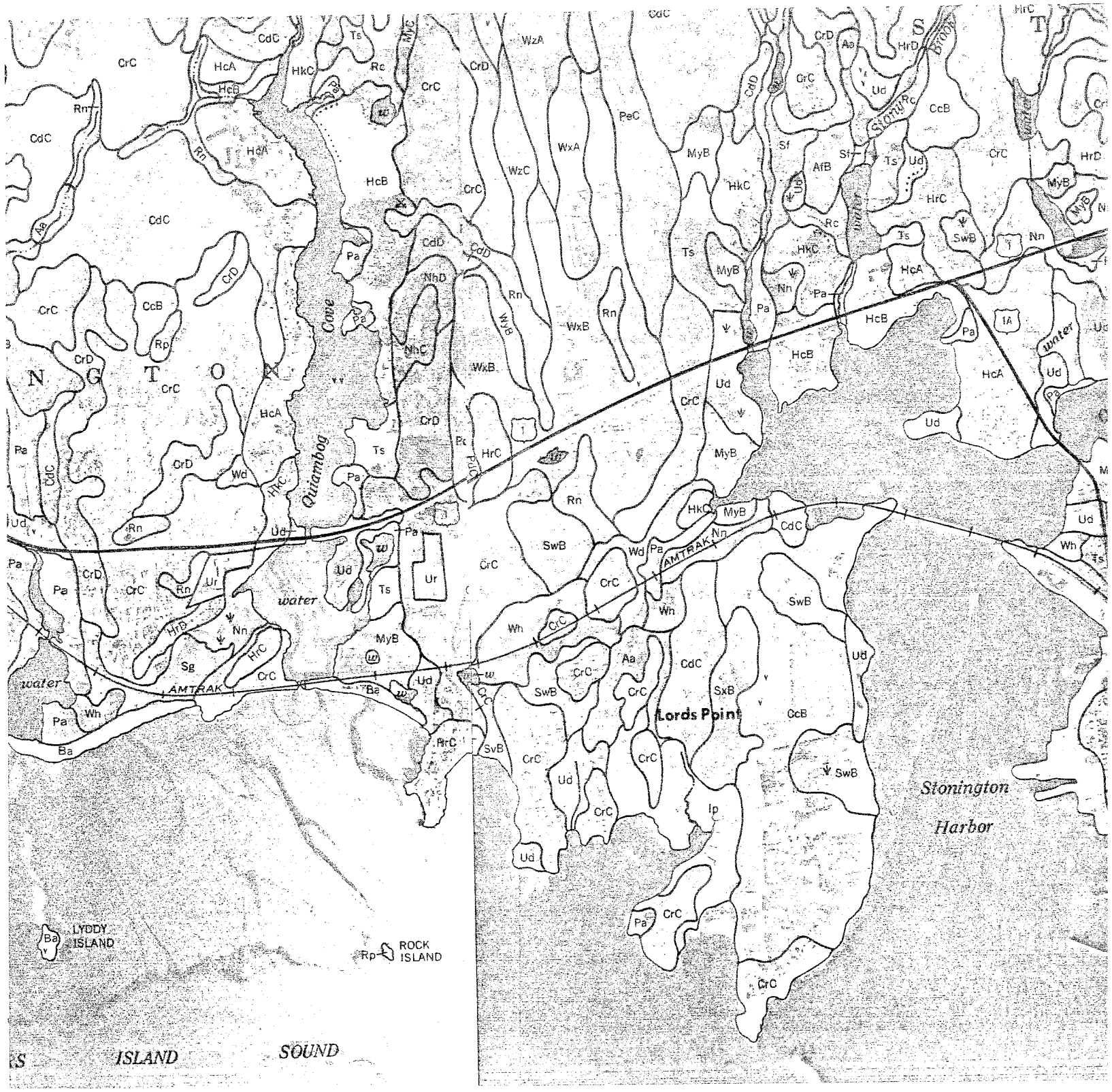
The Soil Conservation Service working through the New London County Soil and Water Conservation District is available to review Erosion and Sediment Control Plans at the Town's request. (887-4163)

United States Department of Agriculture

Soil Conservation Service

New London County USDA-SCS
562 New Lodnon Turnpike
Norwich, CT 06360
887-4163

Scale 1"=1320' Soil Survey Sheets #82, #83



SOIL LEGEND

The first letter, always a capital, is the initial letter of the soil name. The lower case letter that follows separates map units having names that begin with the same letter, except that it does not separate sloping phases. The third letter, always a capital, A, B, C, or D indicates the slope. Most symbols without a slope letter are those of nearly level soils; however, some are for soils that have a considerable range of slope but have similar use interpretations.

SYMBOL	NAME
Aa	Adrian and Palms mucks
AfA	Agawam fine sandy loam, 0 to 3 percent slopes
AfB	Agawam fine sandy loam, 3 to 8 percent slopes
Be	Beaches
BrB	Broadbrook silt loam, 3 to 8 percent slopes
CbB	Canton and Charlton fine sandy loams, 3 to 8 percent slopes
CbC	Canton and Charlton fine sandy loams, 8 to 15 percent slopes
CbD	Canton and Charlton fine sandy loams, 15 to 25 percent slopes
CcB	Canton and Charlton very stony fine sandy loams, 3 to 8 percent slopes
CcC	Canton and Charlton very stony fine sandy loams, 8 to 15 percent slopes
CdC	Canton and Charlton extremely stony fine sandy loams, 3 to 15 percent slopes
CdD	Canton and Charlton extremely stony fine sandy loams, 15 to 35 percent slopes
Ce	Carlisle muck
CrC	Charlton-Hollis fine sandy loams, very rocky, 3 to 15 percent slopes
CrD	Charlton-Hollis fine sandy loams, very rocky, 15 to 45 percent slopes
Du	Dumps
HcA	Haven silt loam, 0 to 3 percent slopes
HcB	Haven silt loam, 3 to 8 percent slopes
HkA	Hinckley gravelly sandy loam, 0 to 3 percent slopes
HkC	Hinckley gravelly sandy loam, 3 to 15 percent slopes
HkD	Hinckley gravelly sandy loam, 15 to 35 percent slopes
HrC	Hollis-Charlton-Rock outcrop complex, 3 to 15 percent slopes
HrD	Hollis-Charlton-Rock outcrop complex, 15 to 45 percent slopes
Ip	Ipswich mucky peat
Ln	Limerick Variant silt loam
MyA	Merrimac sandy loam, 0 to 3 percent slopes
MyB	Merrimac sandy loam, 3 to 8 percent slopes
MyC	Merrimac sandy loam, 8 to 15 percent slopes
NaB	Narragansett silt loam, 3 to 8 percent slopes
NgB	Narragansett very stony silt loam, 3 to 8 percent slopes
NhC	Narragansett extremely stony silt loam, 3 to 15 percent slopes
NhD	Narragansett extremely stony silt loam, 15 to 25 percent slopes
NlC	Narragansett-Hollis complex, very rocky, 3 to 15 percent slopes
Nn	Ninigret fine sandy loam
Pa	Pawcatuck mucky peat
PbB	Paxton and Montauk fine sandy loams, 3 to 8 percent slopes
PbC	Paxton and Montauk fine sandy loams, 8 to 15 percent slopes
PbD	Paxton and Montauk fine sandy loams, 15 to 25 percent slopes
PdB	Paxton and Montauk very stony fine sandy loams, 3 to 8 percent slopes
PdC	Paxton and Montauk very stony fine sandy loams, 8 to 15 percent slopes
PeC	Paxton and Montauk extremely stony fine sandy loams, 3 to 15 percent slopes
PeD	Paxton and Montauk extremely stony fine sandy loams, 15 to 35 percent slopes
Ps	Pootatuck Variant fine sandy loam
RaA	Rainbow silt loam, 0 to 3 percent slopes
RaB	Rainbow silt loam, 3 to 8 percent slopes
RbB	Rainbow very stony silt loam, 0 to 8 percent slopes
Rc	Raypol silt loam
Rd	Ridgebury fine sandy loam
Rn	Ridgebury, Leicester, and Whitman extremely stony fine sandy loams
Ro	Rippowam fine sandy loam
Rp	Rock outcrop-Hollis complex
Sf	Scarboro mucky fine sandy loam
Sg	Sudbury sandy loam
SvA	Sutton fine sandy loam, 0 to 3 percent slopes
SvB	Sutton fine sandy loam, 3 to 8 percent slopes
SwB	Sutton very stony fine sandy loam, 0 to 8 percent slopes
SxB	Sutton extremely stony fine sandy loam, 0 to 8 percent slopes
Ts	Tisbury silt loam
Ub	Udorthents-Pits complex, gravelly
Ud	Udorthents-Urban land complex
Ur	Urban land
Wd	Walpole fine sandy loam
We	Westbrook mucky peat
Wh	Westbrook mucky peat, low salt
WvA	Windsor loamy sand, 0 to 3 percent slopes
WvB	Windsor loamy sand, 3 to 8 percent slopes
WxA	Woodbridge fine sandy loam, 0 to 3 percent slopes
WxB	Woodbridge fine sandy loam, 3 to 8 percent slopes
WxC	Woodbridge fine sandy loam, 8 to 15 percent slopes
WyB	Woodbridge very stony fine sandy loam, 0 to 8 percent slopes
WyC	Woodbridge very stony fine sandy loam, 8 to 15 percent slopes
WzA	Woodbridge and Rainbow extremely stony soils, 0 to 3 percent slopes
WzC	Woodbridge and Rainbow extremely stony soils, 3 to 15 percent slopes

SECTION V.

NATURAL DIVERSITY DATA BASE

The Natural Diversity Data Base maps and files regarding the Lord's Point area have been reviewed. According to their information, there are no known extant populations of Federally Endangered and Threatened species or Connecticut "Species of Special Concern" occurring in this area.

However, the records indicate that in 1975 a "Species of Special Concern" was suspected nesting in the norther portion of the marsh. There is currently no updated information regarding this location. This species is classified as declining in Connecticut, "It's present scarcity here and in other portions of its range has been attributed to habitat destruction and perhaps other factors." (Dowhan and Craig-Rare & Endangered Species of CT & Their Habitats, 1976)

The Natural Diversity Data Base contains the most current biologic data available at the time of the request. Ongoing research continues to locate additional populations of species and locations of habitats of concern, as well as, update existing information.

If the NRC Natural Diversity Data Base can be of further assistance, do not hesitate to call 566-3540.

SECTION VI.

LAND USE AND PLANNING

Lord's Point is a comparatively intensively developed area of shorefront single-family houses. Originally those houses were mostly summer cottages, but many conversions to year-round use have occurred. The initial subdivision of land into building lots took place in 1909. Most lots are of 5,000 square feet, but some properties do consist of more than one lot. At the present, there are about two hundred houses in the area, and about half have been converted to year-round use. The summertime population is about 675 people and drops to about 250 in the winter.* Problems have been caused by the fact that most houses in the area have been built on soils that are shallow-to-bedrock. This coupled with the small lot sizes and the fact that sewage disposal systems were originally intended for seasonal use has resulted in many failed systems and problems of pollution. Much filling of wetlands in the area has also occurred over the years, which has compounded the problems. There is a Lord's Point community water supply system, but according to the Lord's Point Sanitary Survey cited above, it is not generally used for drinking water but only for watering lawns and similar purposes. Most houses have individual wells, but apparently many of these are also having difficulty with pollution problems.

The Lord's Point area is in the RM-20 Zoning District, which permits single-family houses on lots of 20,000 square feet. Thus, even though this is one of the Town's comparatively high-density districts, the Lord's Point properties are generally non-conforming with respect to lot area. The areas surrounding Lord's Point, such as Wamphassuc Point to the east and the Quiambog Cove area to the west, are zoned for much lower densities, and actual development is far less dense. In fact, Lord's Point can be thought of as a pocket of intensive development in a generally low-density part of the Town.

---

* Information in this paragraph is from the: Lord's Point Sanitary Survey, January, 1987. Town of Stonington Water Pollution Control Authority, Cummings and Lafayette, Engineers.

Discussions with Town officials indicate that the policies to deal with the pollution problems at Lord's Point can be summarized as follows: First, it is intended to make public water and sewer service available to existing houses, so that they will not continue to cause the water pollution problems that now exist. Second, it is intended to limit future development in the area as much as is reasonably possible, so that new pollution sources will not be created and so that there will be no further impact on the remaining wetlands.

With respect to the sewage system, the necessary sanitary survey has already been completed, and a commitment for a grant for design and construction of the system has been obtained from the state. A condition of this grant is that only existing houses will be connected to the system. Construction of the water supply system is also expected to be funded by the state. This system will be managed by the Lord's Point Association, which owns the present community system.

If no new houses are to be connected to the utility systems, then it seems logical that the zoning regulations should require a lot size that would enable an on-site sewage disposal system and water supply well to function properly. This normally means a minimum lot size of 40,000 square feet, based on requirements of the Public Health Code. It seems that the minimum lot size at the Lord's Point could logically be increased to at least this figure. The zoning regulations then could clearly state the purpose of this requirement which would be to prevent additional pollution, since no new utility tie-ins are to be available. This would not preclude the assembly of lots to obtain a buildable property.

However, it would also be important to grant zoning variances and permits for filling wetlands with utmost caution.

PART II.

COASTAL AREA MANAGEMENT

SECTION I.

WETLAND PLANT COMMUNITIES

Forested Wetlands

1. On the southwest corner of the fill located south of Maple Street, there is a small forested wetland. Water ponds here in part due to the placement of fill. The dominant tree is Red Maple (Acer rubrum). In the understory, the following plants are found: Sweet Pepperbush (Clethra alnifolia), Swamp Rose (Rosa palustris), Skunk Cabbage (Sympolocarpus foetidus), Sphagnum moss and Moss (Aulocomnium palustre). Duck Weed (Lemna minor) occurs as a floating aquatic plant in the pond.

2. To the east of Maple Street there is a forested wetland that is dotted by small woodland pools. The tree species include Red Maple and Pin Oak (Quercus palustris). Understory plants include the following: Highbush Blueberry (Vaccinium corymbosum), Catbrier (Smilax rotundifolia), Cinnamon Fern (Osmunda cinnamonmea), Blue Flag Iris (Iris versicolor), Sedge (Carex sp.) and Violet (Viola sp.). In the pools Duck Weed occurs.

Emergent Wetlands

1. South of the railroad embankment is an extensive freshwater emergent wetland complex. The dominant plant is Broadleaved Cat-tail (Typha latifolia). It occurs in areas where the water table is at or above the soil surface. Associated plants include Highbush Blueberry, Swamp Rose, Tussock Sedge (Carex stricta), Rush (Juncus sp.), Sphagnum Moss and Aulocomnium moss.

This is a productive wetland complex from a wildlife standpoint. Birds noted during the survey include Great Blue Heron, Mallard, Black Duck and Red-winged Blackbird.

Along the upland border of this wetland is frequently found a zone that is variable in width and dominated by the tall grass called Common Reed (Phragmites australis).

2. North of Charles Street is a degraded wetland dominated by Common Reed that was formerly a tidal wetland. The area of tidal wetland was reduced by filling activities. Reduction and ultimate elimination of tidal flows has caused the degradation of the remaining wetland. Vector Control gave permission for the channel which connected the wetland to the Sound, located south of Charles Street, to be replaced by a culvert. It appears that a flapper gate was added to this pipe (perhaps without the appropriate permit approvals) which reduced or eliminated tidal flows to the tidal wetlands. The marsh was drained, the soil became dry and Common Reed displaced the typical grasses of the tidal wetland.

Not only did this change the value and productivity of the wetland, but accumulations of Common Reed shoots and leaves created a fire hazard.

3. Tidal wetlands are located behind White Beach and to the east of Walcott Street. The dominant zone in these marshes is the high marsh zone. This is the zone located between the upland and the mean high water mark. The cominant plants are short grasses generally referred to as Salt marsh hays. These include Salt-meadow Cord-grass (Spartina patens), Spike Grass (Distichlis spicata), and Black Grass (Juncus gerardii).

Along the edges of tidal creeks and ditches is the low marsh zone. Between the mean tide level and mean high water grows the coarse grass known as Salt-water Cord-grass (Spartina alterniflora).

SECTION II.

WETLAND MANAGEMENT STRATEGIES

The freshwater emergent wetland and forested wetlands areas are more or less healthy and productive. Wetlands such as these serve a variety of functions including but not limited to, flood storage, water quality purification, production of biomass for consumption by herbivores, production of detritus to supply aquatic food chains and wildlife habitat. The freshwater wetlands merit protection and in general, no activities should be allowed in these wetlands unless it can be demonstrated that the activity is unavoidable and necessary.

Although the former tidal wetland no longer supports typical tidal wetland species, it is still a wetland of fact that continues to provide certain functions such as flood storage. Filling of the Common Reed dominated areas may exacerbate local flooding problems. Any proposal to fill such an area should demonstrate that the filling will not exacerbate existing or create new flooding problems.

Filling has been proposed to eliminate an existing fire hazard. There are at least three alternatives that would preserve the wetland and eliminate or reduce the fire hazard. The first includes mowing of a fire break between the wetland and existing structures. A second alternative requires the restoration of tidal flows to the marsh. This alternative would require study to determine what if any flooding problems would result from the restoration of tidal flushing. The third approach and the one which requires minimal maintenance or investigation, involves the excavation of the soil to a lower elevation to make the soils wetter. Cat-tail is the dominant plants on the wettest soils. The appropriate elevation can be determined by examining the relationship between the water table and soil surface in nearby colonies of Cat-tail. Excavated fill should not be disposed of in wetlands.

Since there are a variety of alternatives that would eliminate or reduce the fire hazard associated with the wetlands dominant by Phragmites, filling should not be permitted for the purpose of reducing fire hazards.

SECTION III.

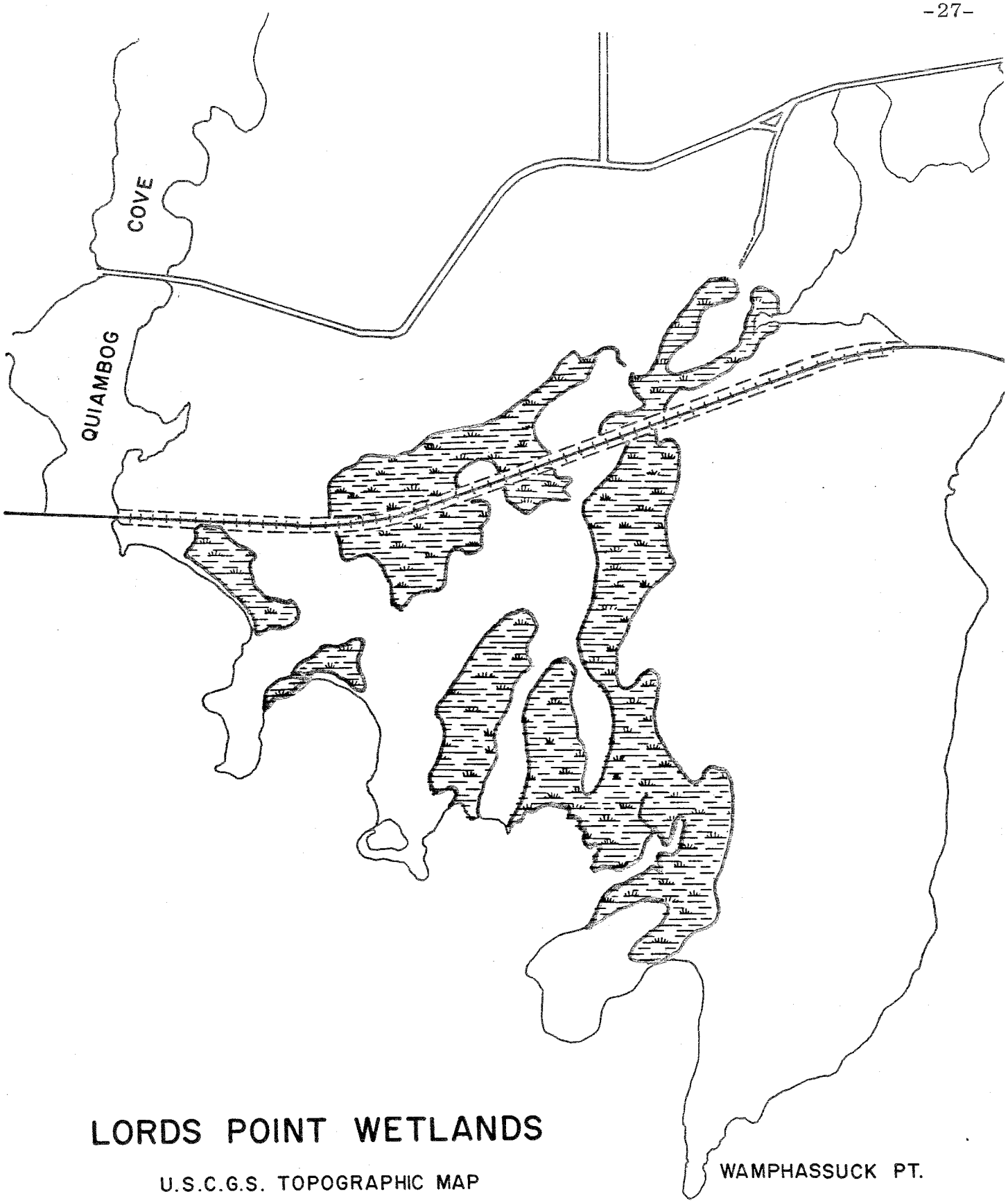
COASTAL GEOLOGIC HISTORY

When the great Pleistocene glaciers advanced over the landscape of New England, the ice sculpted the existing topography and produced a mixture of old and new river and stream valleys. Existing valleys were deepened by glacial scour, then partially filled by glacial till and outwash. Generally the depth of fill was deepest in the valleys and thinnest on the tops of ridges and hills.

During the maximum extent of the last Ice Age, the Wisconsin Glaciation, tremendous volumes of water from the oceans were locked up in the great ice sheets. At that time, about 18,000 years ago, sea level stood over 400 feet lower than at present. As the glaciers began to recede, meltwater returned to the seas and they began to rise. From 7,000 to 3,000 years ago, sea level rose at a rate of 0.6 feet per century. During the last 3,000 years, the average rate of rise has been 0.3 feet per century. Presently, sea level is still rising at a rate of at least 1 foot per century. Scientific studies suggest that the rate of rise may increase further in the future.

As sea level rose it drowned many river and stream valleys such as Quiambog and Wequetequock Coves. Tidal action and marine waters were extended considerable distances inland. Wave action eroded the shore of till-covered headlands. Wave and tidal and current action transported sand from the headland into adjacent embayments where beaches were formed. One of these beaches is a 1,000 feet long barrier beach known as White Beach which encloses a small salt pond located just east of the entrance to Quiambog Cove.

Salt marshes were rare in Connecticut's coastal areas until the rate of sea level rise slowed about 3,000 years ago. The vertical growth of tidal wetlands could not keep pace with sea level rise prior to that time. Marshes grew after the rate of sea level rise had slowed to the point that wetlands could grow and maintain themselves. By the mid-to-late 1800's a large portion of the Lord's Point area was covered by tidal and freshwater wetlands (Figure 1).



LORDS POINT WETLANDS

U.S.C.G.S. TOPOGRAPHIC MAP
1883

1000'

Figure 1

SECTION IV.

COASTAL RESOURCES

The coastal resources most sensitive to development pressures are the Tidal Wetlands, Freshwater Wetlands and the Beaches and Dunes. Much of Lord's Point is a Coastal Flood Hazard Area. Rocky Shorefronts, modified Bluffs and Escarpments, and modified Beaches and Dunes are also present. Figure 2 shows the location of coastal resources at Lord's Point.

Tidal Wetlands

Tidal Wetlands form in the intertidal zone between the mean tide level and the highest spring tides. The soils are called peats and are composed of both organic matter and fine textured sediment, especially silt and clay. Since the soils are constantly wet and anaerobic, the remains of wetland plants decompose very slowly and accumulate over time. In the 1880's Lord's Point had over 70 acres of healthy tidal wetlands, while in 1986 approximately 36 acres remained.

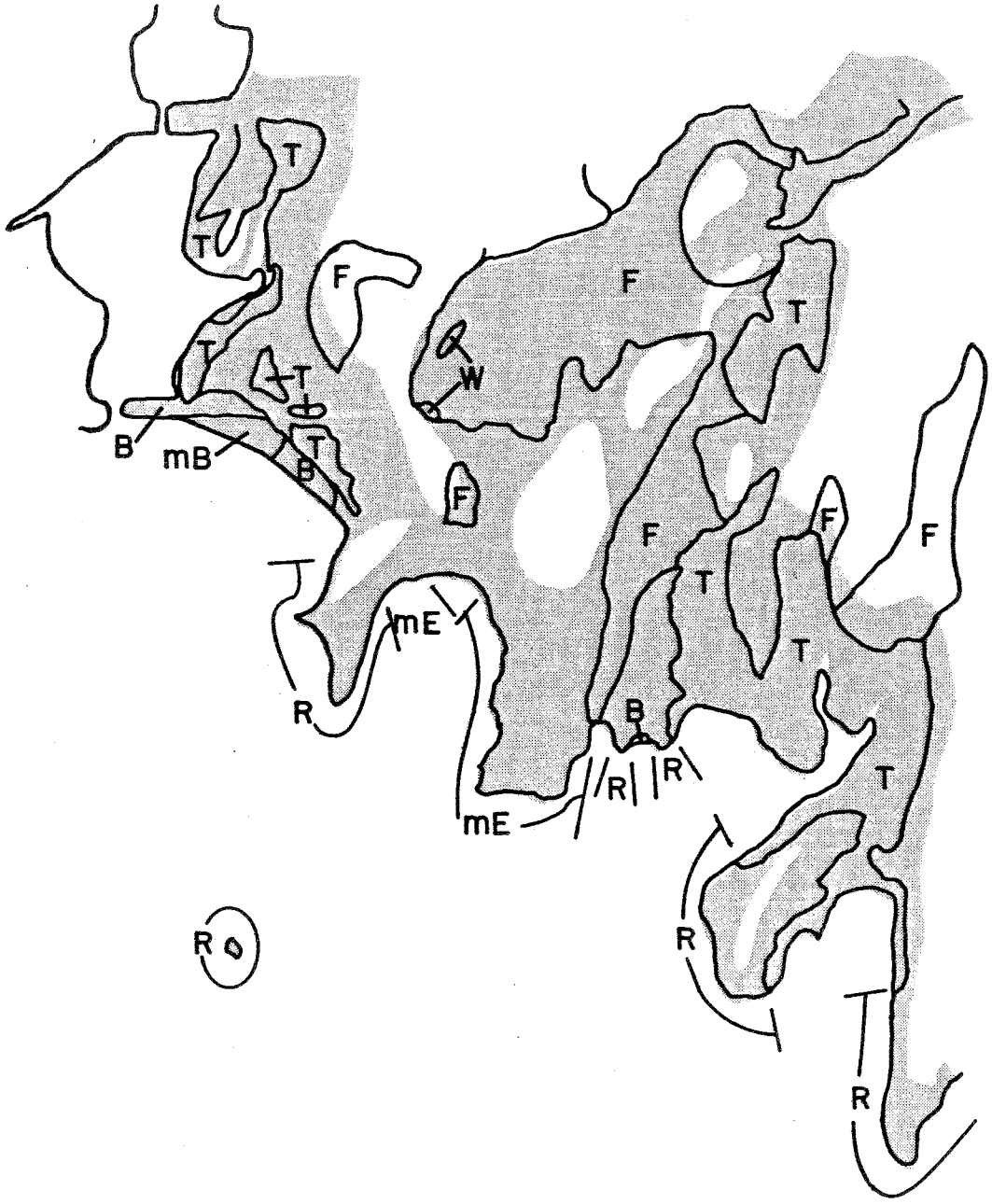
In the area behind White Beach between the barrier and the railroad causeway is a tidal pond and a small area of tidal wetland. The wetland is predominantly Salt-Meadow Cord-grass (Spartina patens) with Salt marsh Cord-grass (Spartina alterniflora) fringing the pond. The tidal connection between the pond and Long Island Sound is maintained through a ditch and culvert located under the eastern end of the beach.

East of Ashworth Avenue is an area designated as freshwater wetland on the coastal resources map (Figure 2). Comparison of the resource map with the historical topographic map (Figure 1) reveals that this freshwater wetland was originally much larger in extent and was tidal in nature.

The largest expanse of tidal wetland in the Lord's Point area is situated further to the east and separated from the previous wetland by a low lying ridge, and extends a considerable distance along the west side of Wamphassuck Neck.

Figure 2

COASTAL RESOURCES



mE modified BLUFFS and ESCARPMENTS

B BEACHES and DUNES

mB modified BEACHES and DUNES

R ROCKY SHOREFRONTS

COASTAL 'FLOOD' HAZARD AREA

F FRESHWATER WETLANDS

T REGULATED TIDAL WETLANDS

In the northeast part of Lord's Point the railroad embankment divides a tidal wetland into two sections with a culvert passing under the embankment to provide a hydraulic connection between the two sections.

Beaches and Dunes

At Lord's Point, there is a single coastal barrier beach located just east of the inlet to Quiambog Cove. This beach is called a barrier beach because it forms a barrier between a cove and Fishers Island Sound. The Cove in this case is the small salt pond and tidal wetland located north of the beach. The beach also functions as a physical barrier which reduces flooding during coastal storms. Landforms associated with this barrier are beach, sand dune and modified sand dune (those areas where a seawall has built between the beach and the dune). Figure 3 shows the spatial distribution of these features on and about the barrier.

The beach is the zone of unconsolidated sediment that extends from the seaweed limit of the dune to the low tide mark. It can be subdivided into the backshore which extends from the normal high tide to the landward limit of the beach and the foreshore (the intertidal zone of the beach).

Landward of the beach are sand dunes. Sand dune formation is dependent upon the existence of an adequate supply of dry, coarse to medium-textured sand, and the occupancy of winds of sufficient velocity to transport this sand. The threshold velocity needed to transport sand is nine mph and the principal sand source is the beach. The sand grains are transported by the wind across the beach to a point where storm debris or vegetation reduces the wind velocity below the threshold level. At these low velocities, sand is deposited. Vegetation not only traps the sand, but also acts as a binder so that wind erosion and dune destruction are prevented. As sand is trapped by the vegetation, there is a progressive increase in dune height and width. The dune grows towards the direction of sand supply, namely the beach. The inland reach of average winter storm tides usually corresponds to the seaward extent of the dune.

As a rule, dunes in Connecticut are low in height with width of the dune controlled in part by the width of the adjacent beach. Narrow beaches, which provide a smaller sand supply than wide beaches, produce low dunes.

The eastern and undeveloped section of White Beach supports dunes from 3 to 4 feet in height. In the western section the dunes have been graded for residential construction. In these graded areas, the dunes can no longer function to protect these homes from storm wave and flood damage.

It has been proposed to relocate the culvert in order to provide a more direct connection between the salt pond and Long Island Sound than the current circuitous route. This will reduce the current maintenance problems associated with the existing pipe and the channel which is sandwiched between fill and the coastal barrier. While clogging may continue to be a problem, the proposed drainage pipe should prove easier to clean out than the existing pipe, reducing the chance that a stagnation problem will develop in the pond.

Coastal Barrier

In order to wisely manage a coastal resource such as the White Beach barrier, it is necessary to understand the basic coastal processes that create and maintain it. The development and continued existence of this small barrier is the result of a complex balance between sediment supply, littoral (nearshore) transport, sea level rise, and storm wave overwash. A change in any of these factors will cause the barrier to shift to a new equilibrium.

An adequate supply of sand-sized sediment is needed to create and maintain a barrier beach. Historically, erosion of the till-covered headland just east of the barrier probably supplied the majority of the sand for the barrier.

Littoral transport is the process whereby sediments in the nearshore zone are transported by waves and currents. There are two components to this process; longshore transport (transport parallel to the shore), and onshore-offshore transport (transport perpendicular to the shore).

Longshore transport is a result of the suspension of sediment by a breaking wave and the movement of this sediment along the shore. The direction of longshore transport is directly related to the direction of wave approach, with the rate of longshore transport dependent on the angle of wave approach and the wave energy (i.e. size of the wave).

Although the longshore transport direction can vary from day to day, a net transport in one direction is usually apparent. On this small barrier it is from east to west. The accreting sand on the railroad causeway and erosion near the headland are indicative of the net transport to the west.

Onshore-offshore transport is the movement of sediment between the beach and shallow subtidal waters. The direction of movement is a function of wave steepness, sediment size, and beach slope. In general, high steep waves move sediment offshore, while low, long period swells move sediment onshore.

Storm Wave Overwash and Barrier Migration

As sea level rises, the zone of wave attack is shifted upwards and landward across the beach. During major coastal storms, elevated floodwaters allow waves to wash across the dune and/or penetrate through gaps (pedestrian trails or excavated areas). Sometimes, if the flow of water is strong enough, an inlet will be cut through the barrier. Preservation of a dune system reduces the potential for inlet formation and the destruction of man-made structures. As the waves wash over the dunes and through the gaps, they carry sand from the front of the barrier to the back of the barrier. There it builds low flat aprons of sand known as overwash fans. Figure 4 illustrates this process. The overwash process allows the barrier to maintain its width and height above sea level as sea level rises (Figure 5). In the absence of overwash, the beach would disappear through erosion of submergence. Overwash then is a "beach recycling" process that ensures the barrier's survival through vertical and landward migration.

COASTAL LANDFORMS

WHITE BEACH BARRIER

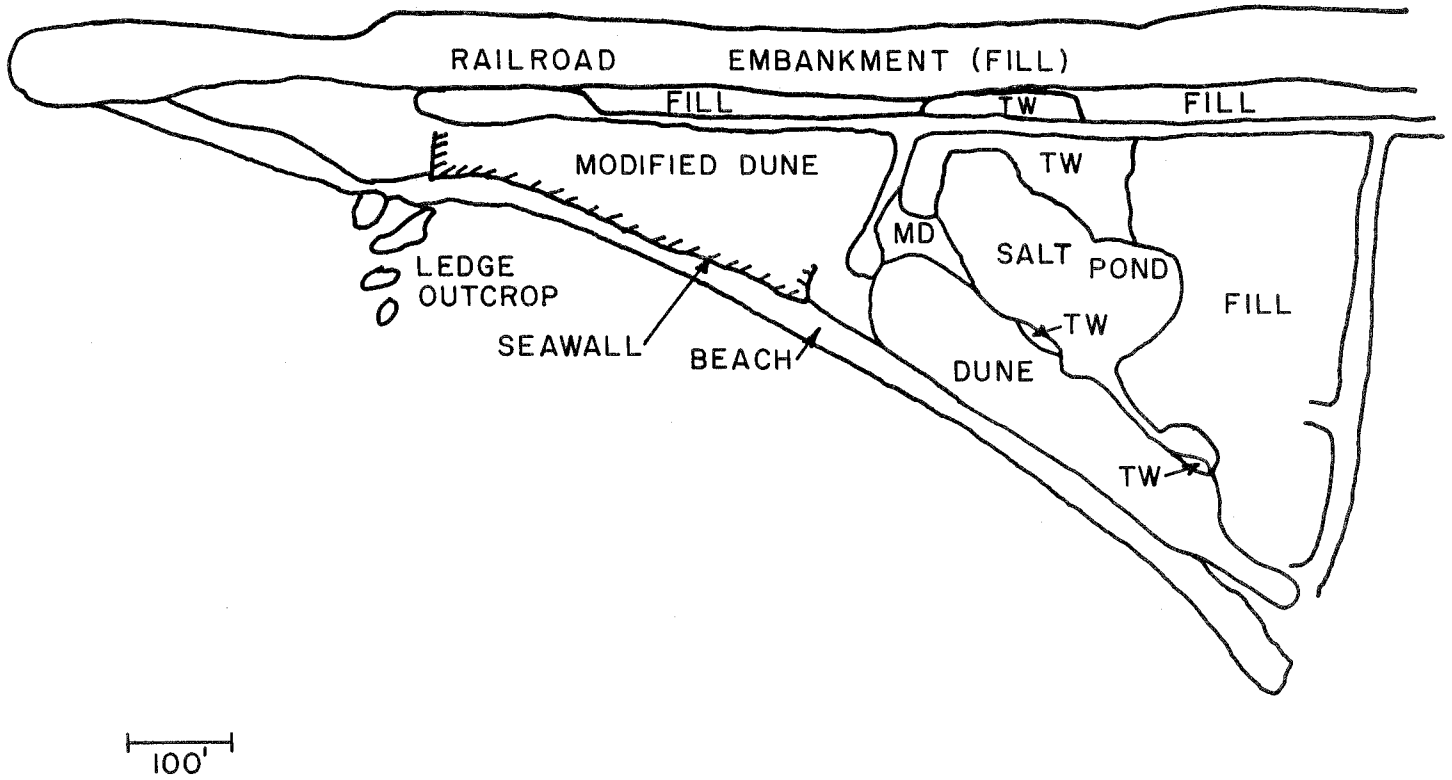
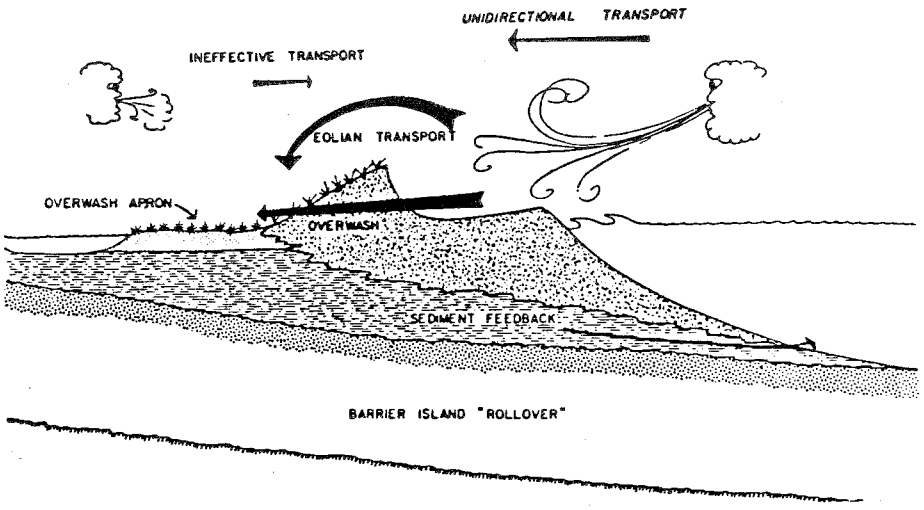


Figure 3

Figure 4.



Barrier island roll-over. Onshore winds and waves move sediment from the front to the back of the island so that it rolls over itself. Offshore winds do little to move sediment the other direction. Source: Larry McCormick and Margurite Toscano "Origin of the Barrier System of Long Island, N.Y.," Northeastern Geology, 1981, volume 3, pages 230-34.

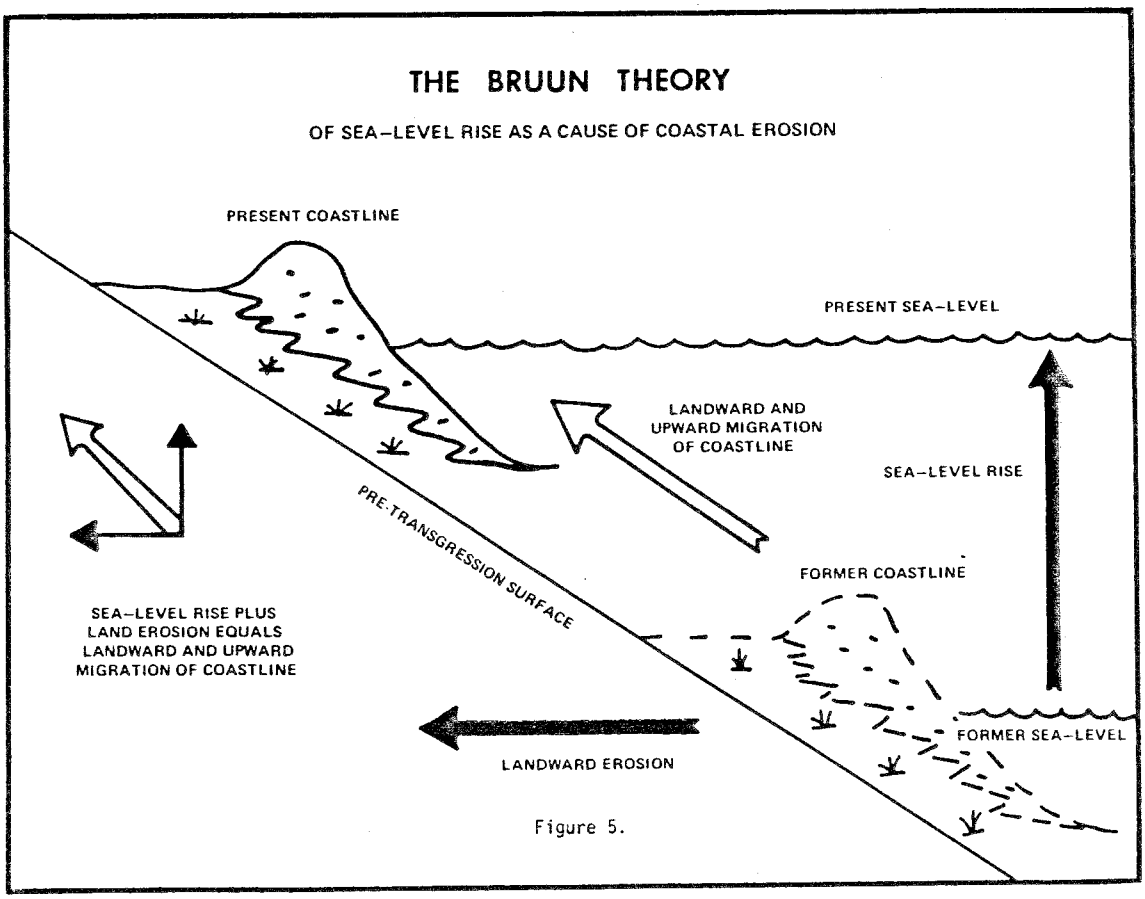


Figure 5.

TABLE 1

DIFFERENTIATION OF WATERS BASED ON HALINITY

Water Type	Halinity
Fresh	0.5 parts per thousand
mixohaline (brackish)	
oligohaline	0.5-5 parts per thousand
mesohaline	5.0-18 parts per thousand
polyhaline	18.0-30 parts per thousand
euhaline	30.0-40 parts per thousand

The waters of Long Island Sound are brackish and are usually in the polyhaline range. The halinity measured in Long Island Sound at Lord's Point was 28 parts per thousand (ppt). Halinity of the marsh just north of Charles Street measured 0.5 to 1.0 ppt. Further north, the waters in the creek were fresh.

One consequence of the reduction in wetland filling and tidal flushing has been the proliferation of the tall grass called Common Reed (Phragmites australis). This plant prospers in disturbed tidal wetlands where fill has been placed or the soil made drier and less halinity values less than 15 ppt. Phragmites can grow up to 15 feet tall and form a dense, almost impenetrable stand. This dense growth severely restricts scenic vistas and greatly reduces the habitat diversity compared to a healthy tidal wetland. Dense stands of Phragmites also represent a significant fire hazard when the grass becomes dormant in the fall and the plant stalks dry out.

In addition, stagnant water caused by the lack of tidal flushing and vegetation-choked drainage channels provides breeding habitat for freshwater mosquitos, causing a nuisance to area residents.

Beach and Dune Degradation

As described previously, barriers are dynamic landforms that must maintain the ability to migrate in response to changes in sediment

supply, rising sea level and storm events. Construction of residences on the western half of White Beach resulted in the dunes being leveled for construction sites. Dunes are a buffer to coastal storms. During a storm, the beach and dune erode. The eroded sand is carried offshore where a sand bar forms. The bar in turn causes waves to break offshore thereby reducing the amount of wave energy expended on the beach. When the storm dissipates, waves return this sand to the beach.

A proposal currently exists to construct a concrete block seawall above the mean high water line distance of 375 feet west of Midway Ridge. This wall will interfere with natural barrier dynamics in several ways:

1. The wall will cause erosion of the beach. This wall will reflect storm waves which will remove sand in front of the wall. This will cause a loss of public trust beach as well as private beach.

2. The deepening of the waters seaward of the wall will allow high waves to move closer to shore and to expend their energy directly upon the wall.

During a major coastal storm, the wall will be either destroyed because of direct wave attack or the complete erosion of sediment in front of the wall will remove the support for the wall and the wall will fall seaward.

3. Storm wave overwash will be reduced, preventing the barrier from becoming wider and higher. In time the barrier will succumb to drowning.

4. The wall will interrupt the movement of wind-blown sand from the beach into the dunes. This will inhibit their growth and ability to repair breaches, reducing the dune line's natural coastal flood protection capabilities.

The end results of interfering with the barrier migration process will be increased coastal flooding, accelerated erosion of the beach, and catastrophic erosion when the seawall is eventually undermined and fails. The erosion that will follow when the seawall is destroyed will be more catastrophic than that associated with a natural beach and dune system.

SECTION V.

RESOURCE DEGRADATION

Wetland Degradation

In 1883, according to historic maps, there were approximately 70 acres of tidal wetlands and 25 acres of freshwater wetlands in the Lord's Point area. These figures include the wetlands north of the railroad embankment that were isolated when the embankment was constructed. As of 1986, only 36 acres of tidal wetland and 23 acres of freshwater wetland remain. The freshwater acreage includes 5 acres of tidal wetland that were converted to freshwater wetland by the elimination of tidal flows.

Destruction of wetlands has occurred due to filling activities for the railroad right-of-way and residential development. In addition, the tidal wetland located north of Charles Street and east of Ashworth Avenue has become degraded due to a loss of tidal flushing. Undersized drainage culverts, debris-clogged channels, and a one-way flapper gate on the outlet pipe in Long Island Sound have combined to eliminate tidal flushing. This in turn has resulted in a great reduction of the salt content in the marsh waters.

The measurement of the total amount of dissolved solids in the water is termed salinity. One of the major constituents of seawater is chlorine, and since the ratio of chlorine to total salt content remains constant this is the element most commonly used to determine salinity. To differentiate between inland salts and ocean salts, the term halinity is used in the marine environment. Waters can be sub-divided into several parts based upon halinity (Table 1).

SECTION VI.

CONNECTICUT'S COASTAL MANAGEMENT PROGRAM

The Connecticut Coastal Management Act (CCMA), adopted January 1, 1980, established goals and policies for the use, development and protection of Connecticut's coastal resources. The CCMA protects sensitive coastal resources, while encouraging sound economic development in appropriate areas where the development is matched to the resource's capability to support the use. Where development along the waterfront is appropriate, strong priority and preference is to be given to water-dependent uses.

At the municipal level, the policies and goals of the CCMA are implemented primarily through two mechanisms:

1. Municipal Coastal Programs

Under the CCMA, a municipality may develop a Municipal Coastal Program (MCP) which amends the municipality's plan of development to reflect coastal policies and goals. These amendments are adopted in local zoning and other regulations and ordinances affecting the coastal area.

2. Coastal Site Plan Review

Individual projects proposed in the coastal boundary must receive local coastal site plan review (CSPR) approval. This process is implemented through the local planning and zoning bodies of a municipality in conjunction with other permit requirements.

Stonington's Municipal Coastal Program

Stonington completed its municipal coastal program (MCP) in October, 1983. The MCP emphasized protection of natural resources, particularly tidal wetlands, preservation of scenic views and significant landscape features, and expansion of marina facilities. Of special relevance to Lord's Point, the MCP made the following points:

1. that coastal resources in the Lord's Point area are in poor condition, particularly the tidal wetlands which were degraded through filling;

2. that Lord's Point is one of the most intensively developed sections of the Stonington coastline. Many homes were built as summer cottages on small lots of filled marsh, and were subsequently converted to year-round homes.

3. that fragile lands, such as tidal marsh and flood hazard areas, were designated as "coastal lands" through the 1978 plan of development and are so identified on the Town's proposed land use map. All areas of Lord's Point, except those currently developed as residential, are designated as "coastal lands". The POD emphasized that nonessential development should be restricted on coastal lands, and detailed design and performance criteria and analysis be required during the permit process.

4. that tidal wetlands must be protected from further degradation without unduly infringing upon private property rights. The MCP designated all tidal wetland areas, including those on Lord's Point, as resource protection areas, which are shown on the Town's viewshed and resource area map.

Coastal Site Plan Review

Sections 22a-105 and 22a-109 of the CCMA require municipal coastal site plan review for all development proposals within the coastal boundary. During coastal site plan review, proposals are evaluated for consistency with the coastal policies contained in section 22a-92 of the CCMA. It must also be determined whether there are any adverse impacts on coastal resources or on future water-dependent use opportunities. Although coastal site plan reviews are done by the planning and zoning commission and the zoning board of appeals, the Coastal Management Unit of the DEP provides technical planning assistance.

Lord's Point is located entirely within the coastal boundary. Therefore, except for those activities exempted under section 7.71G of the zoning regulations, all proposed structures, uses and activities would need to undergo municipal coastal site plan review.

SECTION VII.

COASTAL RESOURCE AND USE POLICIES

Based upon the coastal resources present on Lord's Point, and the present and future use of the area, we have identified the following CCMA policies as being applicable to Lord's Point:

RESOURCE POLICIES

General Resources

1. To preserve and enhance coastal resources in accordance with the policies established by chapters 439, 440, 447, 473, 474, 474a and 477. C.G.S. Sec. 22a-92(a)(2)

Beaches and Dunes

1. To preserve the dynamic form and integrity of natural beach systems in order to provide critical wildlife habitats, a reservoir for sand supply, a buffer for coastal flooding and erosion, and valuable recreational opportunities. C.G.S. Sec. 22a-92b(2)(C)

2. To insure that coastal uses are compatible with the capabilities of the system and do not unreasonably interfere with natural processes of erosion and sedimentation. C.G.S. Sec. 22a-92(b)(2)(C)

Bluffs and Escarpments

1. To manage coastal bluffs and escarpments so as to preserve their slope and toe. C.G.S. Sec. 22a-92(b)(2)(A)

2. To discourage uses which do not permit continued natural rates of erosion. C.G.S. Sec. 22a-92(b)(2)(A)

3. To disapprove uses that accelerate slope erosion and alter essential patterns and supply of sediments to the littoral transport system. C.G.S. Sec. 22a-92(b)(2)(A)

Coastal Hazard Areas

1. To manage coastal hazard areas so as to insure that development proceeds in such a manner that hazards to life and property are minimized. C.G.S. Sec. 22a-92(b)(2)(F)

2. To promote nonstructural solutions to flood and erosion problems except in those instances where structural alternatives prove unavoidable and necessary to protect existing inhabited structures, infrastructural facilities or water-dependent uses. C.G.S. Sec. 22a-92(b)(2)(F)

3. To maintain the natural relationship between eroding and depositional coastal landforms. C.G.S. Sec. 22a-92(b)(2)(J)

4. Structural solutions are permissible when necessary and unavoidable for the protection of infrastructural facilities, water-dependent uses, or existing inhabited structures, and where there is no feasible, less environmentally damaging alternative and where all reasonable mitigation measures and techniques have been provided to minimize adverse environmental impacts. C.G.S. Sec. 22a-92(b)(2)(J)

Coastal Waters and Estuarine Embayments

1. To manage estuarine embayments so as to insure that coastal uses proceed in a manner that assures sustained biological productivity, the maintenance of healthy marine populations and the maintenance of essential patterns of circulation, drainage and basin configuration. C.G.S. Sec. 22a-92(c)(2)(A)

Freshwater Wetlands and Watercourses

1. It is, therefore, the purpose of Sections 22a-36 to 22a-45, inclusive, to protect the citizens of the state by making provisions for the protection, preservation, maintenance and use of the inland wetlands and watercourses by minimizing their disturbance and pollution; maintaining and improving water quality in accordance with the highest standards set by federal, state or local authority; preventing damage from erosion, turbidity or siltation; preventing loss of fish and other beneficial aquatic organisms, wildlife and vegetation and the destruction of the natural habitats thereof; deterring and inhibiting the danger of flood and pollution; protecting the quality of wetlands and watercourses for their conservation, economic, aesthetic, recreational and other public and private

uses and values; and protecting the state's potable fresh water supplies from the dangers of drought, overdraft, pollution, misuse and mismanagement by providing an orderly process to balance the need for the economic growth of the state and the use of its land with the need to protect its environment and ecology in order to forever guarantee to the people of the state, the safety of such natural resources for their benefit and enjoyment and for the benefit and enjoyment of generations yet unborn. C.G.S. Sec. 22a-36 as referenced by C.G.S. Sec. 22a-92(a)(2)

Intertidal Flats

1. To manage intertidal flats so as to preserve their value as a nutrient source and reservoir, a healthy shellfish habitat and a valuable feeding area for invertebrates, fish and shorebirds. C.G.S. Sec. 22a-92(b)(2)(D)

Rocky Shorefronts

1. To manage rocky shorefronts so as to insure that development proceeds in a manner which does not irreparably reduce the capability of the system to support a healthy intertidal biological community; to provide feeding grounds and refuge for shorebirds and finfish and to dissipate and absorb storm and wave energies. C.G.S. Sec. 22a-92(b)(2)(B)

Shorelands

1. To regulate shoreland use and development in a manner which minimizes adverse impacts upon adjacent coastal systems and resources. C.G.S. Sec. 22a-92(b)(2)(I)

Tidal Wetlands

1. To preserve tidal wetlands and to prevent the despoliation and destruction thereof in order to maintain their vital natural functions. C.G.S. Sec. 22a-92(b)(2)(E)

2. To encourage the rehabilitation and restoration of degraded tidal wetlands. C.G.S. Sec. 22a-92(b)(2)(E)

USE POLICIES

General Development

1. To insure that the development, preservation or use of the land and water resources of the coastal area proceeds in a manner consistent with the capability of the land and water resources to support development, preservation or use without significantly disrupting either the natural environment or sound economic growth. C.G.S. Sec. 22a-92(a)(1)

Coastal Structures and Filling

1. To require that structures in tidal wetlands and coastal waters be designed, constructed and maintained to minimize adverse impacts on coastal resources, circulation and sedimentation patterns, water quality, and flooding and erosion, to reduce to the maximum extent praticable the use of fill, and to reduce conflicts with the riparian rights of adjacent landowners. C.G.S. Sec. 22a-92(b)(1)(D)

2. To disallow any filling of tidal wetlands and nearshore, offshore and intertidal waters for the purpose of creating new land from existing wetlands and coastal waters which would otherwise be undevelopable, unless it is found that the adverse impacts on coastal resources are minimal. C.G.S. Sec. 22a-92(c)(1)(B)

3. To maintain, enhance, or where feasible, restore natural patterns of water circulation and fresh and saltwater exchange in the placement or replacement of culverts, tide gates or other drainage or flood control structures. C.G.S. Sec. 22a-92(c)(2)(B)

Sewer and Water Lines

1. To locate and phase sewer and water lines, so as to encourage concentrated development in areas which are suitable for development. C.G.S. Sec. 22a-92(b)(1)(B)

2. To disapprove extension of sewer and water service into developed and undeveloped beaches, barrier beaches and tidal wetlands except that, when necessary to abate existing sources of pollution, sewers that will accommodate existing uses with limited excess capacity may be used. C.G.S. Sec. 22a-92(b)(1)(B)

Water-Dependent Uses

1. To give high priority and preference to uses and facilities which are dependent upon proximity to the water or the shorelands immediately adjacent to marine and tidal waters. C.G.S. Sec. 22a-92(a)(3)

2. To manage uses in the coastal boundary through existing municipal planning, zoning and other local regulatory authorities and through existing state structures, dredging, wetlands, and other state siting and regulatory authorities, giving highest priority and preference to water-dependent uses and facilities in shorefront areas. C.G.S. Sec. 22a-92(b)(1)(A)

SPECIFIC ISSUES

Sewer and Water Lines

Stonington is currently under order from the Commissioner of the DEP to sewer Lord's Point. This municipal improvement project will need to be undertaken in a manner consistent with Section 22a-458 of the general statutes as well as the policies and standards of the CCMA.

CCMA policies require that new sewer and water lines be located only in areas suitable for concentrated development. Additionally, new sewer and water lines cannot be extended into beach or tidal wetland areas except to abate existing sources of pollution.

Based on these policies, the sewer and water system should be carefully designed to service only the developed areas of Lord's Point. Sewer and water lines should not be extended into or designed to service the wetland areas. Moreover, extending sewer and water lines to service the eastern undeveloped section of White Beach would be inconsistent with both the sewer and water line policies, as well as the beaches and dunes and other resource policies described above, and therefore should be avoided.

The sewering of the developed areas of Lord's Point will eliminate the potential or existing water quality problems associated with failing septic systems. Consequently, pressures will most likely occur to intensify development through building on vacant lots, enlarging existing homes, and converting seasonal cottages to year-round dwellings. The Town has the opportunity

now, before sewering begins, to focus in on its long-term goals for the area and establish controls to guide future devleopment. Toward this end, we recommend that the Town undertake a special review of, and make appropriate amendments to, the plan of development, municipal coastal program, zoning designation, and regulations for Lord's Point. Within the context of this review, the Town can address the resource-related concerns that remain, such as drainage problems and protection of undeveloped wetland and beach areas.

Seasonal Conversions/House Additions

The ERT Team was specifically asked to address whether Lord's Point can tolerate seasonal conversions and additions. Under coastal management, these activities are reviewed primarily in the context of resource impacts. However, as described above, the planned extension of water and sewer lines into this area will eliminate the primary resource concern of water quality. Therefore, the questions that remain are essentially planning-based and should be addressed through local regulations. The central questions are: Does developing Lord's Point as a year-round community, rather than a seasonal one, better meet the Town's goals both for Lord's Point as well as for the entire coastal area? Will Town services, other than sewer and water, be capable of supporting intensified development?

To guide the Town, we can relate some of the ways in which other coastal communities have addressed these issues. Some towns have carefully adjusted their zoning to provide only limited opportunities for expansion. This could be achieved at Lord's Point by making the existing developed lots conforming and by allowing conversions and major additions only in developed or developable areas; expansions and conversions in sensitive resource areas could then be greatly limited either through large-lot zoning or site specific controls.

Other communities have attempted to control seasonal conversions by making the existing lots non-conforming and by specifically prohibiting expansions or additions on those lots. Section 2.1 of Stonington's regulations provides some control by disallowing the intensification or expansion of non-conforming uses and bulk. Other communities have more stringent regulations which, for example, specifically disallow seasonal conversions of, or additions to, non-conforming buildings or buildings on non-conforming lots. Some regulations identify the installation of heating facilities as one factor that defines seasonal conversion

and which therefore would be prohibited. Other communities prohibit seasonal conversions of residences on lots with an area smaller than a certain square footage. Finally, many communities' zoning regulations specifically disallow the zoning board of appeals from varying regulations relating to seasonal conversions and other changes of use.

It is important to note that "changes of use" require coastal site plan approval under section 22a-109 of the CCMA. Some communities have specifically defined seasonal conversions as changes of use. Should Stonington decide it wants to review conversions on a case-by-case basis, it could incorporate such a definition into the zoning regulations. However, coastal site plan review will offer the opportunity to address coastal issues only (resource-related);--the planning issues involved in seasonal conversions are still best addressed through zoning.

Filling of Wetlands

Lord's Point supports a network of wetlands, both productive and degraded (see section on WETLAND PLANT COMMUNITIES). CCMA policies on tidal and freshwater wetlands focus primarily on preservation. The filling of wetlands is disallowed unless it is demonstrated that the adverse impacts are minimal and the integrity and functions of the wetland are maintained. In areas such as Lord's Point where tidal wetlands are degraded, the CCMA encourages rehabilitation and restoration.

These policies are fully supported in Stonington's MCP and zoning regulations, which both emphasize preserving wetlands through such means as requiring non-infringement areas for development adjacent to wetlands.

As any development in Lord's Point would need to be consistent with the CCMA and Stonington's MCP and zoning regulations, any future filling of wetlands would be very difficult to justify. The proliferation of Common Reed (*Phragmites australis*), and the resulting fire hazard, can be rectified through the non-fill alternatives described in the section on WETLAND MANAGEMENT STRATEGIES.

Seawalls and Other Flood and Erosion Control Structures

A recent application for state and federal permits for a culvert at White Beach led to extensive discussions concerning a proposed seawall there. The DEP, Planning & Coordination/Coastal Management office gave a preliminary determination that a seawall at this site would not be consistent with the CCMA. Some of the reasons are highlighted below.

The CCMA requires the preservation of natural beach systems. This policy allows only those uses that are compatible with the capabilities of the system and do not unreasonably interfere with the natural processes of erosion and sedimentation. The seawall would not be consistent with this policy because: 1) it would interfere with the natural processes of beach drift, overwash formation, transport of sand by wind between the beach and dune, seawall would accelerate the rate of beach erosion and ultimately cause loss of the beach.

CCMA policies allow flood and erosion control structures, such as seawalls, only where unavoidable and necessary to protect existing inhabited structures, water-dependent uses or infrastructural facilities, and where there is no feasible, less environmentally damaging alternative. The CCMA also requires that coastal hazard areas be managed to insure that development proceeds in such a manner that hazards to life and property are minimized. Construction of a seawall would interrupt the natural migration of the coastal barrier and cause beach erosion seaward of the wall. The wall could collapse, thereby causing major flood and wave damage more serious than that which would occur if no wall had been built. Furthermore, since there are no existing inhabited structures on the beach to be protected, a structural solution such as the seawall would not be allowed. This is also true because a non-structural alternative would be available that would provide additional flood protection, namely the placement of sand and gravel to restore or create a dune along the low-lying portions of the beach.

SECTION VIII.

MOSQUITO AND VECTOR SECTION

The Mosquito and Vector Section of the State Department of Health Services reviewed storm water drainage, vegetation and natural hazards in the Lord's Point area.

Storm Water Drainage and Vegetation

First a little bit of history; the drainage pipes near Walcott Street Hopkins Street, and Charles Street are under the State Department of Health Services jurisdiction. In a letter dated August 15, 1972 to James M. Spellman, First Selectman of the Town of Stonington, Julius Elston, Chief of the Mosquito Section wrote, "since salt marsh on the east side of Lord's Point has been filled and eliminated, the State Department of Health can no longer assume responsibility for maintaining the remaining open ditch which has become nothing but a common open drain."

Since that time Phragmites grass has taken over the filled area, two roads were put in, Walcott and Hopkins. A 12" pipe was put under Hopkins Street but it was placed too high to drain the wet area to the northeast. Then Walcott Streetwas continued to the north, again cutting the wet area in half and no pipe is present under this road.

Natural Hazard

This area was all salt marsh before filling. Now the area is all Phragmites about 12 to 15 feet high and very dense. The blockage and fill allow the Phragmites plants to take over an area because fresh water takes the place of salt water coming in. The Phragmites die after every growing season, and becomes a fire hazard.

Possible Solutions

One possible way a homeowner could reduce this fire hazard is to mow down the Phragmites around the house to make a fire break.

Another way to reduce Phragmites and mosquitoes in this area is to increase salinity. To increase salinity to the area, the drainage ditch should be redug. The 12" pipe on Hopkins Street should be 24" or larger and placed at the right depth to allow drainage. A pipe of the same size should be installed at Walcott

Another possibility would be to connect this drainage ditch to a salt marsh east of Walcott Street, however, a study would have to be completed to see if this is feasible.

The work could be done by the State Department of Health Services Mosquito and Vector Section equipment. The Section could include Lord's Point in our Army '404' permit. It may be required to haul off fill material on the site to bring the elevation back down to the original salt marsh. The Section would call upon the services of the Town to haul materials off the site.

Replacing pipes under Hopkins Street and Walcott Street could be done with Town and State cooperation and could be installed when the sewer lines are going in.

After all this work is completed, both mosquito population and Phragmites could be reduced. The reduction will take three to seven years after the salt water is allowed to come into the area.

The present solution for mosquitoes is for the Mosquito Section to continue to apply pesticides to control salt marsh mosquitoes and the town or the association to apply pesticides to fresh water breeding sites. The Section could provide technical assistance to start such a program.

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.