Environmental Review Team Report

Quanaduck Cove

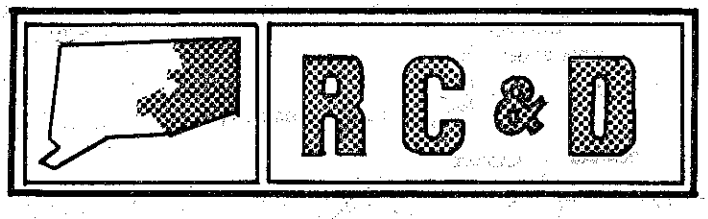
Stonington, Connecticut

RC&D

EASTERN CONNECTICUT RESOURCE CONSERVATION AND DEVELOPMENT AREA, INC.

Environmental Review Team Report on Quanaduck Cove Stonington, Connecticut

July 1980

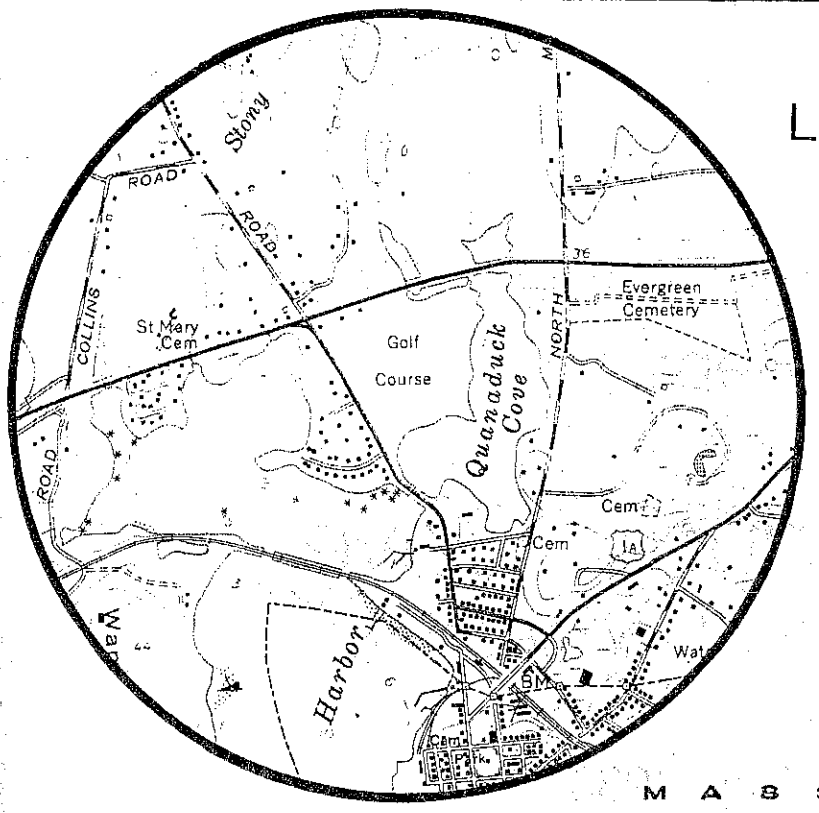


eastern connecticut resource conservation & development area

environmental review team
139 boswell avenue
norwich, connecticut 06360

Location of Study Site

QUANADUCK COVE
STONINGTON, CONNECTICUT



EASTERN CONNECTICUT
RESOURCE CONSERVATION AND DEVELOPMENT PROJECT

ENVIRONMENTAL REVIEW TEAM REPORT
ON
QUANADUCK COVE
STONINGTON, CONNECTICUT

This report is an outgrowth of a request from the Stonington Planning & Zoning 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 as a project measure. The request was approved and the measure reviewed by the Eastern Connecticut Environmental Review Team (ERT).

The soils of the site were mapped by a soil scientist of the United States Department of Agriculture (USDA), Soil Conservation Service (SCS). Reproductions of the soil survey map as well as a topographic map of the site were distributed to all ERT participants prior to their field review of the site.

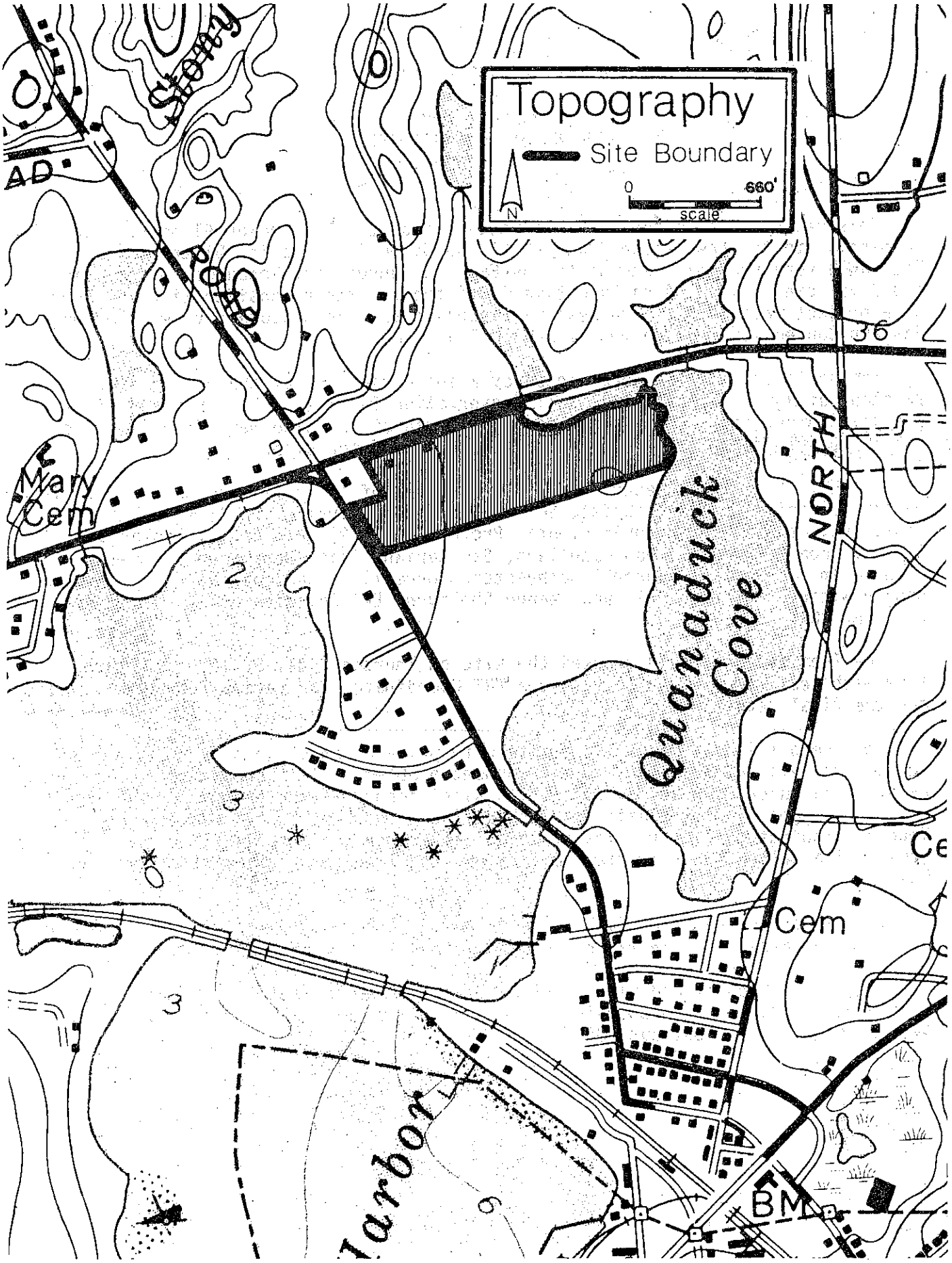
The ERT that field checked the site consisted of the following personnel: Gary Domian, District Conservationist, Soil Conservation Service (SCS); Mike Zizka, Geologist, Department of Environmental Protection (DEP); Ron Rozsa, Ecologist, Coastal Area Management; Don Capellaro, Sanitarian, State Department of Health; Gerhard Amt, Regional Planner, Southeastern Connecticut Regional Planning Agency; Bob Knowlton, Engineer, DEP, and Jeanne Shelburn, ERT Coordinator, Eastern Connecticut RC&D Area.

The Team met and field checked the site on Thursday, May 8, 1980. Reports from each Team member were sent to the ERT Coordinator for review and summarization for the final report.

This report is not meant to compete with private consultants by supplying site designs or detailed solutions to development problems. This report identifies the existing resource base and evaluates its significance to the proposed development and also suggests consideration that should be of concern to the developer and the Town of Stonington. The results of this Team action are oriented toward the development of a better environmental quality and the long-term economics of the land use.

The Eastern Connecticut RC&D Project Committee hopes you will find this report of value and assistance in making your decisions on this particular site.

If you require any additional information, please contact: Ms. Jeanne Shelburn, Environmental Review Team Coordinator, Eastern Connecticut RC&D Area, 139 Boswell Avenue, Norwich, Connecticut 06360, 889-2324.


Topography
Site Boundary
0
660'
scale
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Rd
AD
36
Mt
Mary
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NORTH
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BM

INTRODUCTION

The Eastern Connecticut Environmental Review Team was asked to prepare an environmental assessment of the proposed Stonington Landing Company development at Quanaduck Cove. The developers propose to construct a commercial/office building structure, 54 condominium units, parking facilities, garages and sidewalks on this 10± acre parcel. The site is located on the southern side of U.S. Route 1 and east of North Water Street (U.S. Route 1-A). All units will be served by public water and municipal sewer line. However, these services are contingent upon (1) the extension of the existing municipal line by an adjoining property owner (2) approval of the septic facilities design by DEP and (3) a permit for a sanitary discharge into a municipal sewer line by DEP.

Geologically, the site is mostly a loamy to sandy outwash plain with an undulatory surface. There is one principal outcrop of bedrock in additional to a series of exposures along the eastern shoreline. This indicates that bedrock is at or near the surface in the eastern quadrant and may present limitations to the construction of basements.

Paralleling and adjacent to Route I-A is an elongate tidal cove. Historically this and the pond north of Route I-A were one continuous cove with direct and unobstructive tidal connection to Quanaduck Cove.

Construction of a dam or causeway across the mouth of the tidal cove predated the 1934 air photo and presumably culminated in the transformation from a tidal, saline cove to a freshwater pond. Neglect, coupled with storm tides have contributed to the erosion of a section of causeway thereby partially restoring tidal circulation. Today the cove is fringed once again by natural tidal wetland vegetation. Through the pond contains some marine organisms, the causeway is yet a formidable physical barrier to many larger invertebrates and vertebrates. It would indeed be beneficial to the tidal cove system to remove at least a section of the causeway in order to enhance tidal circulation and permit unobstructed access by marine organisms. Construction of a short, raised wooden bridge on piling across the mouth of the cove would preserve pedestrian access and tidal circulation.

Ninigret and Haven series are the two principal soils in the eastern and western sections respectively. Ninigret contains a seasonally high water table, at or below 20", and frost action and wetness are potential limitations to roads and basements respectively. Tidal wetlands soils belong to the Pawcatuck series, characterized by organic peat overlying a sandy substrate.

Activities in tidal wetlands are regulated by the Water Resources Unit in DEP. Wetland boundaries that appear on the official state wetland map and the development plans which have been presented are not compatible. In accordance with the "tidal wetlands" act, interior boundaries are established by multiple factors, of which vegetation is only one. Unlike inland wetlands, soil series and extent are not a criterion. A field inspection by the Water Resources Unit would establish the actual tidal wetland boundary on the ground.

The Team is concerned with the effect of this proposed development on the natural resource base of the site. Although many severe site limitations can be overcome with proper engineering techniques, these measures can become costly, making a project economically unfeasible for a developer. In examining the proposal from the Stonington Landing Company, several serious concerns were raised by the Team members. The site is located within the 100 year flood hazard zone as defined by the U.S. Department of Housing and Urban Development, Federal Insurance Administration. A section of the site is also within the 10 year flood hazard zone. Groundwater is also close to the surface (within 4 feet) over most of the site. These natural constraints will cause problems with foundation/basement installation, as well as presenting the potential for flooding and cracking. Basements presently planned for these condominums will be below the flood hazard level and groundwater level. Drainage during storms may also present significant problems, if systems are not properly designed (see hydrology section of this report.) Sewer lines and water supply lines for this development will have to be properly constructed to prevent infiltration of floodwaters or groundwater. The proposal will also have a significant impact on traffic in the immediate area. The Team Planner estimated that the development will generate an average of 772 vehicle trips in the vicinity of the site.

As the site is within the Coastal Zone this proposal is subject to the regulations of the Coastal Zone Management Act. A separate section of this report is devoted to the impact of this proposal on the Coastal Zone and suggests matters to be included in the permit.

ENVIRONMENTAL ASSESSMENT

GEOLOGY

The Quanaduck Cove site is located within the Mystic topographic quadrangle. A surficial geologic map of that quadrangle has been published by the U.S. Geological Survey (Map GQ-940, by J.E. Upson, 1971). That map indicates that the property is underlain by glacial outwash deposits of moderately well-sorted silt, sand, and gravel. These deposits formed when meltwater flowing from wasting masses of glacier ice transported and later dropped rock particles that had accumulated in the ice as it moved southward. Along the edge of the cove itself, thin deposits of estuarine silt and sand mixed with decomposed organic materials form the basis of a salt marsh.

No bedrock geologic map of the Mystic quadrangle has been published to date, but a preliminary bedrock map of the State of Connecticut (Conn. Geological and Natural History Survey Bulletin No. 84, by J. Rodgers, R.M. Gates, and J.L. Rosenfeld, 1959) indicates that the surficial deposits on the site are underlain by a gray or occasionally pink, fine- to medium-grained gneiss. Gneisses are crystalline rocks in which very thin, alternating bands of elongate, usually dark-colored, minerals and rounder light-colored minerals have been produced by the combination of high pressures and temperatures within the earth. Major mineral components of the gneiss underlying the site include the light-colored quartz, microcline, and oligoclase, and the dark-colored biotite, hornblende, and magnetite. Reddish-colored garnet is also a minor mineral component.

Bedrock was observed in outcrop only in a small knoll near the southeastern corner of the site and along the edge of the cove. Depth to bedrock in other parts of the property is not known, but it probably exceeds five feet.

HYDROLOGY

The parcel is essentially flat with only a few very minor rises and swales. Most rainfall on the site probably is absorbed into the ground or is temporarily shallowly ponded, rather than running off along the surface into the cove. As a result of the lack of significant topographic relief and the proximity of the parcel to the cove and to Stonington Harbor, groundwater is generally close to the surface (within four feet) throughout the site. It is unlikely that the water table could be artifically lowered by any economically practical means.

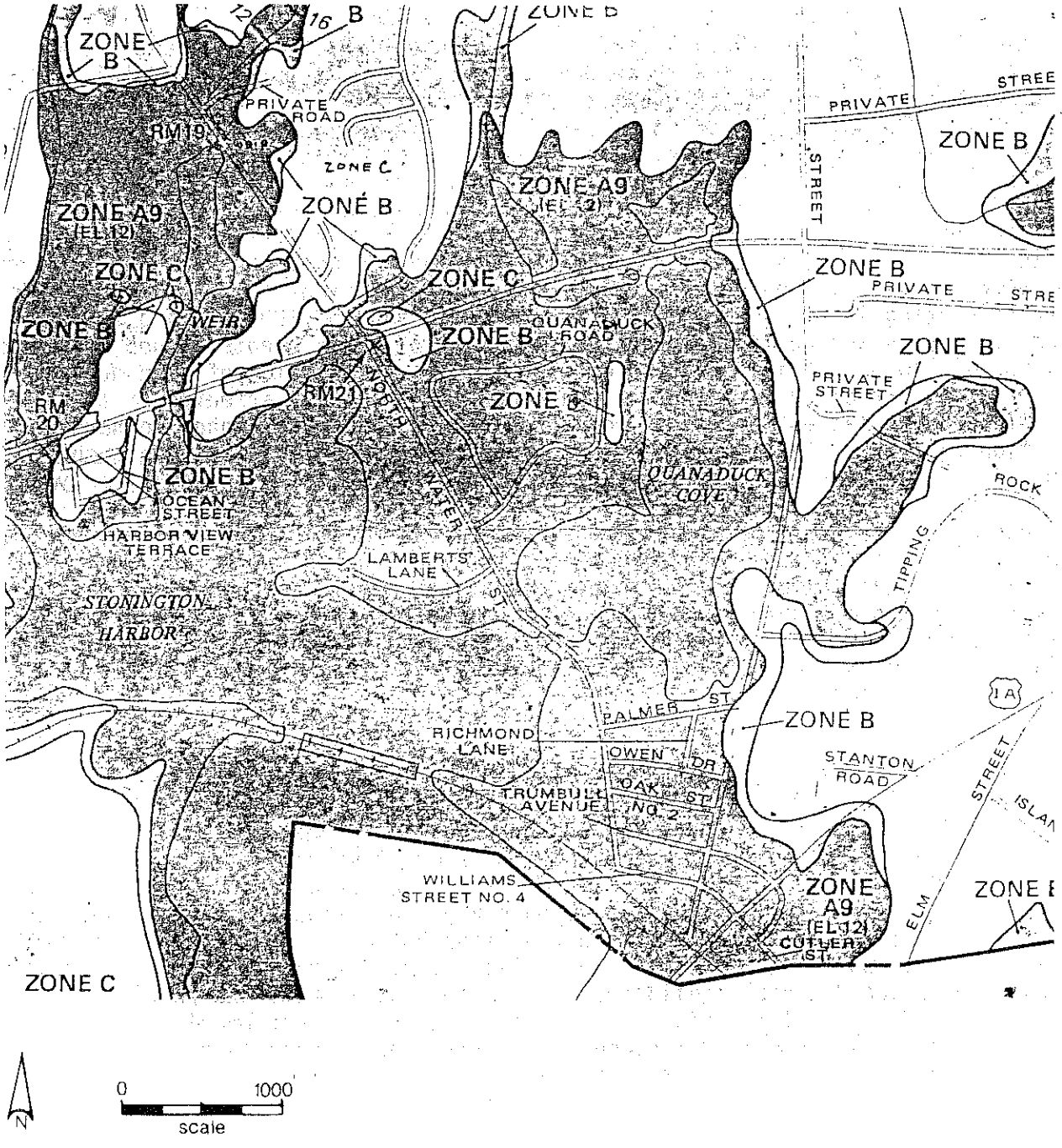
The most recent flood-hazard study of Stonington, which was released by the U.S. Department of Housing and Urban Development, Federal Insurance Administration, indicates that all but a small section in the northwestern corner of the site would be subject to inundation by the 100-year flood. The estimated flood elevation would be about 12 feet. For the 50-year and 10-year floods, water elevations are estimated at approximately 10 feet and 7 feet, respectively. The first-floor elevations of all structures presently planned are higher than any of the designated flood heights. Basement levels for all buildings are lower than any of the designated flood heights, so that structural floodproofing would be required (the high groundwater levels in themselves warrant special precautions for basements). The proposed parking lots and garage floors are lower than the 100-year and 50-year flood elevations and would therefore be inundated by those events. Much of the new road would also be flooded by these events, and a small section of road near the westernmost storm drainage outlet to Quanaduck Cove would be affected by the 10-year flood. The latter section of road probably should be replanned to have an elevation that is at least greater than the 10-year flood height, since such a flood has a significant probability of occurrence (10 percent) in any given year.

Consideration should be given to whether the catch basins are designed sufficiently to prevent surface ponding during times when the inlets to the drainage pipes are submerged. Many of the invert elevations are low enough (5.5 feet or less) to allow total submergence by coastal backwaters during a 10-year flood. The basins may then fill up with runoff unless enough hydraulic head can be achieved to allow water to pass through the drainage system faster than it is entering the catch basins.

SOILS

A detailed soils map of this site and detailed soils descriptions are included in the Appendix to this report, accompanied by a chart which indicates soil limitations for various urban uses. As the soil map is an enlargement from the original 1,320'/inch scale to 660'/inch, the soil boundary lines should not be viewed as absolute boundaries, but as guidelines to the distribution of soil types on the site. The soil limitation chart indicates the probably limitations of each of the soils for on-site sewage disposal, buildings with basements, streets and parking, and landscaping. However, limitations, even though severe, do not preclude the use of the land for development. If economics permit large expenditures for land development and the intended objective is consistent with the objectives of local

FLOOD HAZARD AREAS



and regional development, many soils and sites with difficult problems can be used. The soils map, with the publication, New London County Interim Soil Survey Report, can aid in the identification and interpretation of soils and their uses on this site. "Know Your Land: Natural Soil Groups for Connecticut" can also give insight to the development potentials of the soils and their relationship to the surficial geology of the site.

The nearly level stream terraces and outwash plains are occupied by Haven silt loam. The soils are designated by soil mapping unit symbol 63A. Haven soils formed in water sorted loamy material over stratified outwash. The soils are well drained and have moderate permeability in the surface layer and subsoil and very rapid permeability in the substratum. Surface runoff is medium.

The nearly level to gently sloping terraces or outwash plains are occupied by Ninigret fine sandy loam. The soils are designated by the soil mapping unit symbol 25A. Ninigret soils formed in water sorted outwash. The soils are moderately well drained and have moderately rapid permeability. The seasonal high-water table is at 18 to 24 inches. Surface runoff is slow to moderate.

The nearly level tidal flats are occupied by Pawcatuck mucky peat. Pawcatuck soils are designated by the soil mapping unit symbol TM-1. These soils formed in partially decomposed organic material, 16 to 51 inches thick, over sandy mineral deposits. The soils are very poorly drained and have moderate to rapid permeability in the organic layers and very rapid permeability in the substratum. Runoff is very slow.

Land areas that have been disturbed, to an extent that the natural layers are no longer recognizable are mapped as Udorthents. These soils are designated with the mapping unit symbol ML2. Interpretations and limitations are too variable to rate because natural soil horizons have been altered.

The gently sloping to sloping landforms that are bedrock controlled are occupied by Hollis-Charlton-Rock outcrop complex. The soils are designated by mapping unit symbol 17MC. Hollis soils formed in glacial till less than 20 inches thick over bedrock, Charlton soils formed in deep loamy glacial, and Rock outcrop is exposed, weathered or unweathered rock. The Hollis soils have moderate permeability and the Charlton soils have moderate to moderately rapid permeability. Hollis soils have medium to very rapid surface runoff and Charlton soils have medium to rapid surface runoff.

The following soils qualify as Prime Farmlands: Haven silt loam (63A), Ninigret fine sandy loam (25A).

Prime farmland, as defined by the U.S. Department of Agriculture, is the land that is best suited to producing food, feed, forage, fiber and oilseed crops. It has the soil quality, growing season, and moisture supply needed to economically produce a sustained high yield of crops when it is treated and managed using acceptable farming methods. Prime farmland produces the highest yields with minimal inputs of energy and economic resources, and farming it results in the least damage to the environment.

Municipal sewage and a public water supply will benefit this development by eliminating most all of the severe limitations due to seasonally high watertables, particularly in the Ninigret (25A) and Pawcatuck (TM-1) soils. If these services are not available, severe limitations to development of on-site septic disposal systems will be a major concern. There is a very small rock outcropping of ledge occuring near the southeast corner of the planned development area. The area affected by the outcrop does not appear large and will not pose a serious problem to development. The Haven soils have few limitations to this type of development, although frost heaving can be a problem with roads if a gravel base is not used.

Ninigret soils have limitations due to seasonal high water tables. Foundation drains are necessary to move the water away from buildings, particularly if the buildings have basements.

VEGETATION

Natural vegetation is restricted solely to the tidal wetlands. A few scattered trees and shrubs in an unmanicured grassy "lawn" typifies the upland vegetation. These are all residual plants from the golf course.

It is interesting but not unusual to find natural and healthy tidal wetland vegetation on the perimeter of the tidal cove despite the historic disturbances to the system. Generally, this vegetation consists of a zone of Salt-marsh Cord Grass (Spartina alterniflora) at the seaward edge and the central marsh composed of discrete patches of any of the following: Salt-meadow Cord-Grass (Spartina-patens), Spike Grass (Distichlis spicata) and Black Grass (Juncus gerardi). The uppermost and interior zone is an irregular but characteristic band of the tall Switch Grass (Panicum virgatum). In those locations where freshwater seepage from the adjoining upland dilutes the marsh soil salinity, brackish water plants especially Fresh-water Cord-Grass (Spartina pectinata) and three-square sedge (Scirpus americans). Reed (Phragmites communis) is an inconspicuous element even north of Route I-A.

Two rare or endangered plants are reported from the Quanaduck Cove area specifically. They are Lesser Sand-spurrey (Spergularia canadensis), and Salt Marsh Sand-spurrey (Spergularia marina).

PLANNING CONCERNS

The proposed project site lies within the A Zone on the Flood Insurance Rate Map. Within this area all new buildings must have their first floors, including basements, elevated above the level of the 100-year flood. The first floors of buildings proposed at the eastern end of the site appear to be well below the required elevation. Extra care must be taken to insure that water supply systems in this area are built to prevent infiltration of flood waters. Sewer lines should also be constructed to prevent pollution of flood waters. The proposed density of the development obviously argues against the use of on-site subsurface disposal for sewage. It should also be recognized that a 100-year storm would cover the proposed driveways on the site with as much as five feet of flood water.

The proposed condominium grouping will visually present a higher density of development than presently exists in this area. Although such a density is permitted by the zoning, it has not occurred to date in this part of the town. The southern view from Route 1 along the northern boundary of the site will be limited by the proposed structures which will appear almost as one or two long buildings set back from the road. The elevation of the Route 1 road surface is substantially lower than the proposed site elevation.

Consideration should be given to providing more space between buildings by utilizing more land in the western part of the site.

The proposed project will have a significant impact on traffic. Sources indicate a range of 5 to 6.8 vehicle trips per day generated by apartments.* High-income apartments tend to generage a lower number of trips. Assuming 5 trips per unit per day, the proposed condominiums would produce 270 daily vehicle trips. The non-residential uses will generate even more. A drive-in bank may produce 195 trips per 1,000 square feet of gross floor area or 322 trips per drive-up window. The retail store(s) can be expected to generate 60 trips per day per 1,000 square feet of gross floor area, or, in this case, 180 trips per day. The combined uses on the site would produce a conservatively-estimated 772 vehicle trips in the vicinity of the site.

Route 1 will be able to handle the expected increase in traffic volumes. The latest traffic data published by CONNDOT indicate volumes of only 5,700 vehicles per day on Route 1 north of the site. The roadway is good along this area. Problems will occur when intersections are established for access to the site. Ideally, access should be limited to the one at the west end of the property which intersects with Route 1A (North Water Street), and that intersection should be moved as far to the south, away from the Route 1 intersection, as possible. However, the presence of the other two proposed direct accesses to Route 1 (one serving the condominiums and one the commercial building) probably will result in little use of the western access. Attractions for residences of the site are more likely to be approached over Route 1 or Flanders Road than over Route 1A to the south.

Having separate driveways from Route 1 for the residences and the commercial establishments only compounds the danger that the traffic from the site will present to Route 1. Consideration should be given to combining the access at a single location and to providing a turning lane eastbound on Route 1 approaching the access point.

* Trip Generation Study of Various Land Uses, CONNDOT, 1974, Travel Generation, National Association of County Engineers, 1972, and National Personal Transportation Study, FHWA, 1977.

WATER SUPPLY

Water for the proposed project would be provided from the public supply of the Connecticut American Water Company (Mystic Valley District). Therefore, potable water should not present any particular problem or concern.

SEWAGE DISPOSAL

The Town of Stonington, and in this particular situation, the Borough of Stonington, has a municipal sewage system. At the present time a main sewer line terminates along North Water Street near a bridge where tidal water flows in and out of Quanaduck Cove. This line is approximately 1,500 feet from the property in question. A preliminary engineering investigation has been made relative to soil suitability for the possibility of on-site sewage disposal. It is understood a community (public) type system(s) would be planned if access to the sewer line is unavailable. Deep test hole information has indicated the soil(s) to be essentially composed of well drained sand and gravel. While these soils are favorable for the rapid seepage of sewage effluent, they do not necessarily provide good filtration and renovation of such material. It is also noted that the eastern half of the property has a higher ground water table (range of 4-5 feet) and is underlain with ledge which is closer to ground surface (range of 7-8 feet). Therefore, there would be definite concern on the overall effect of having a substantial volume of wastewater discharged to a limited portion of the total property on ground and the nearby surfacewater. Systems would also need to be adequately protected from the possibility of flooding and erosion from coastal storms.

The use of the public sewerage system appears to be the most advisable method of waste disposal in view of the site location, the projected high density of the project and the proximity of an existing sewer line. In addition to the project in question it is also understood that a smaller condominium complex is planned for adjacent land south of this property. Extension of the main sewer line and/or the possible construction of a force main from the project site to the existing sewer should be fully investigated.

Coastal Management

COASTAL MANAGEMENT CONCERNS

The Stonington Landing Company has submitted an application to the town of Stonington for a special permit to construct a commercial building and 54 condominium units on a site located fully within the coastal boundary and adjacent to coastal waters. The project is therefore subject to the provisions and requirements of the Connecticut Coastal Management Act (CMA) and the preparation of a coastal site plan by the developer is required. In order for a valid municipal permit to be granted by the appropriate municipal commission, it must be demonstrated that the proposal is (1) consistent with all applicable coastal policies and (2) that adverse impacts on coastal resources and future water dependant uses are acceptable.

The coastal site plan must first include a plan showing the location and spatial relationship of all coastal resources on and adjacent to the site. These resources, depicted in the accompanying illustration, include coastal (flood) hazard area, shorelands, tidal wetlands, coastal waters (estuarine embayments) and shellfish concentration areas. For projects as complex as this, it would be most beneficial to depict these resources on the same plan illustrating the various elements of the project in order to determine the resource location of all subelements and determine their impacts on coastal resources. In addition information should be included that identifies the design, timing and methods of construction.

One of the central issues here, is the location of the condominium units and stormwater discharge pipes in regard to the tidal wetland. The tidal wetland boundary that appears on the developers' plan is strikingly dissimiliar to the official boundary that appears on state's tidal wetland maps. During the field inspection, it was apparent that the interior tidal wetland boundary on the developers plan is more or less compatible with the actual vegetation boundary. However, as noted earlier, vegetation is only one of a number or criteria used to determine the official interior wetland boundary. To resolve these differences, the developer should be required to request a field survey from the Water Resources Unit in DEP prior to any site work. This will not only determine whether or not a regulatory permit may be required due to encroachment upon the wetland by one or more activities, but will establish the interior boundary through flagging. This will facilitate and simplify the establishment of the staked hay bale erosion control line.

Identification of the applicable coastal resource and use policies ensues from the identification of coastal resources and the types of uses or activities proposed. These policies are as follows: General Resource 1A (A-C), Tidal Wetland 1F (A,B,D), Coastal (flood) Hazard 1H (A), Shorelands 1K (A), Coastal Waters (estuarine Embayments) 1M (A), General Development 2A (A), Water Dependent Use 2B (A,B), and Sewer and Water Lines 2I (A) (these policies are keyed to Planning Report 30*). To simplify the consistency evaluation and determine the acceptability of adverse impacts, refer to the resource-impact matrix that follows (table 1). Note that the project has been divided into its constituent elements and the magnitude of each impact assessed.

* Planning Report 30. Coastal Policies and Use Guidelines. 1979. Connecticut Department of Environmental Protection., Coastal Management Program.

COASTAL RESOURCES

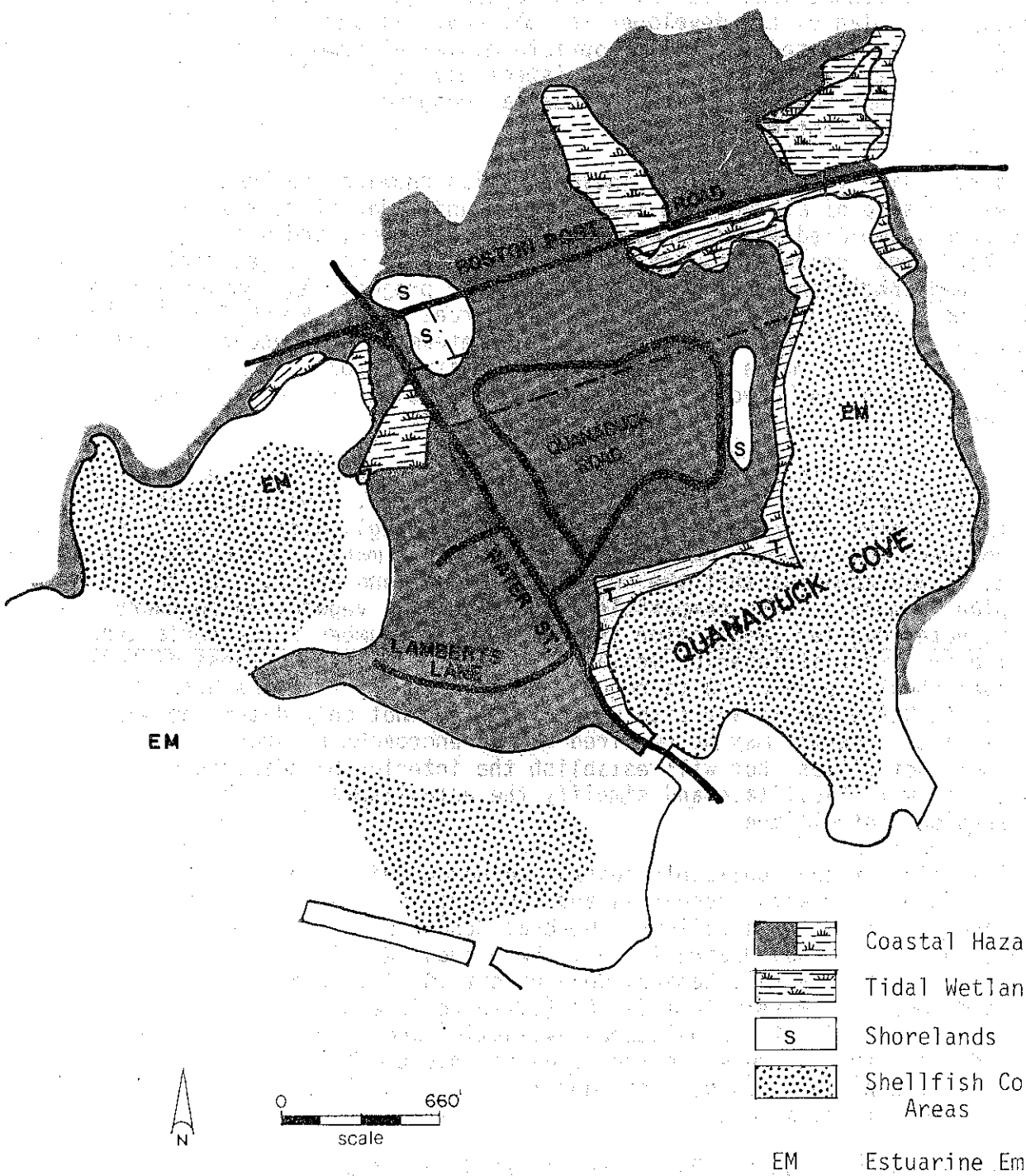


TABLE 1. COASTAL IMPACT MATRIX

ACTIVITY	COASTAL RESOURCES				
	ON-SITE			ADJACENT	
	Coastal Flood Hazard Area	Shorelands	Tidal Wetlands	Coastal Waters	Shellfish
Commercial Building	I	I			
Roads	I	I			
Parking Lots	I				
Garages	I				
Multifamily Dwellings	I	I			
Sidewalks	I				
Water Main	I				
Sanitary Main	I	I			
Stormwater Pipe					
1. Placement	I				
2. Water Quality	I		I	I	
3. Siltation	I		PS	PM	
4. Runoff water	I		PS		
Site Preparation					
1. Grading	I	I			
2. Fill	I	I			
3. Unchecked Sedimentation			PS	PS	
Construction Equipment	I	I	PS		

Impact Magnitude:
- I - insignificant
- M - moderate
- S - significant (adverse impact)
- P - this prefix signifies that the level of impact as indicated is a potential one if the proper mitigatory measures are not employed.

Aside from the tidal wetland and water dependent use policies, this project is consistent with all other applicable coastal resource and use policies. However, the project is consistent with the coastal policies and the adverse impacts on coastal waters are acceptable only if the sanitary design is approved by and a permit for a sanitary discharge into the municipal sewer line is granted by the Water Compliance Unit of DEP.

Potential adverse impacts to the tidal wetland may ensue from improper site preparation, heavy construction equipment passing over the wetland surface and the location of and volume of discharge emanating from the storm water discharge pipes. These potential impacts must be mitigated in order to assure consistency with the coastal policies for tidal wetlands. Site preparation, especially the introduction of significant quantities of fill in order to raise the effective height of the land could culminate in the significant introduction of sediments into the wetland.

Section 2.9d of the zoning regulations for the town of Stonington require a continuous line of staked hay bales to prevent sedimentation to, when filling will occur adjacent to, a significant natural habitat (i.e. marshland). Development plans indicate that hay bales will be placed 15' from the 3' contour and that no disturbance to the existing ground surface will occur within this "buffer". In critical areas, especially where fill will be placed adjacent to the wetlands two or more rows of hay bales may be necessary to adequately preclude sedimentation to the wetland. Furthermore, since the wetland boundary occasionally exceeds the 3' contour, the setback should be based on the interior wetland boundary as determined and flagged by the Water Resources Unit.

Experience indicates that hay bales alone are an inadequate visual or physical barrier to construction equipment. In order to preclude accidental or purposeful vehicle traffic in the wetland, a line of snow fencing landward of the hay bales should be at least placed in strategic places. Furthermore, to ensure minimal impacts to the wetland, marsh restoration, resulting from construction impacts if necessary, should be a condition in granting the permit and the town should require the posting of a substantial bond by the developer to assure compliance. In addition, any approval should also stipulate that no construction equipment or supplies will be stored on the wetland surface at any time.

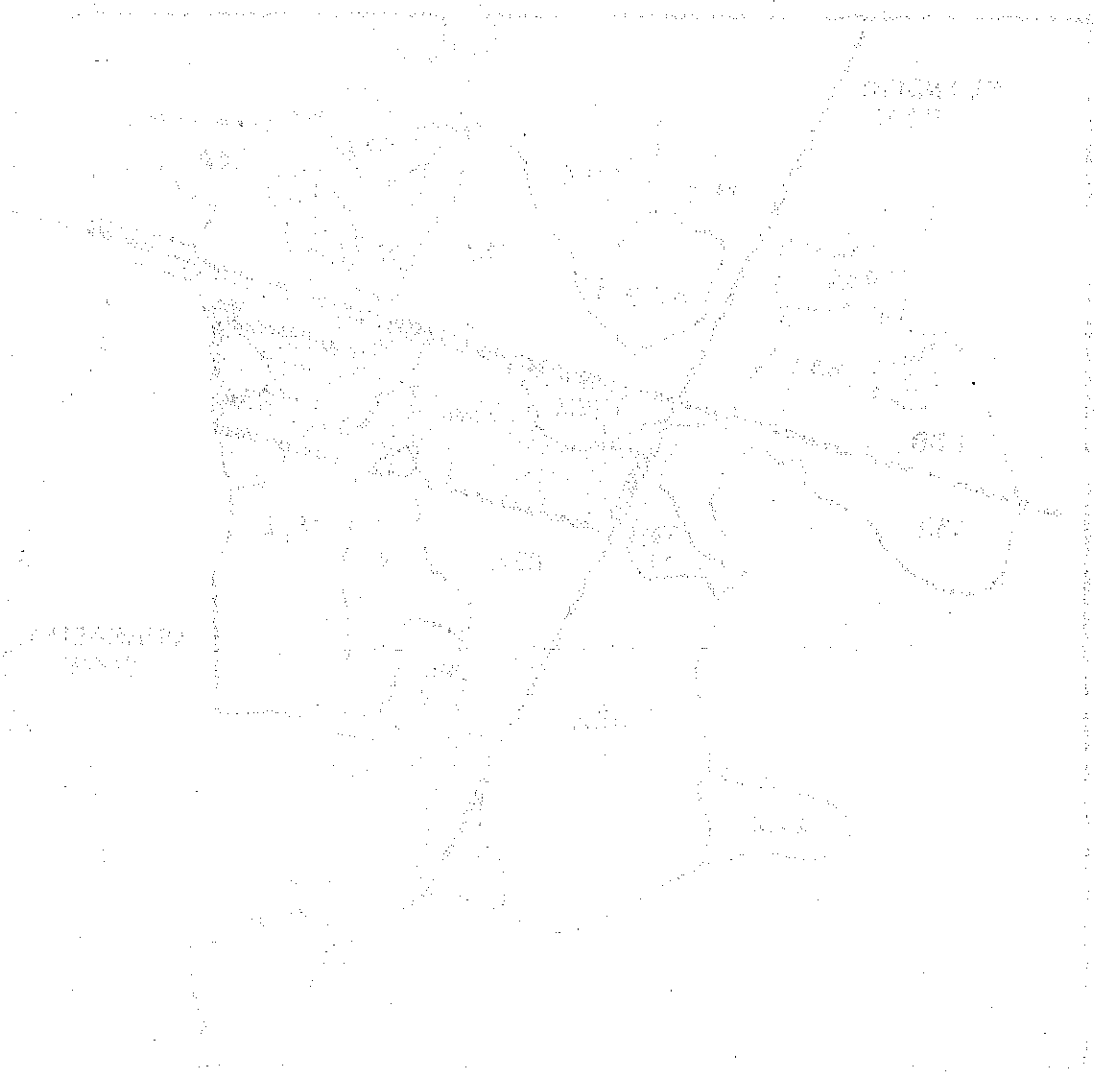
Placement of the two stormwater discharge pipes near the wetland border could create adverse impacts to the wetlands through the significant introduction of sediments scouring upland soils and the wetland surface. The design and volume of discharge for design storms should be reevaluated to ensure that these impacts will not occur. An alternate design which may mitigate these impacts is a sediment trap/energy dissipator that is oriented perpendicular to the discharge pipe.

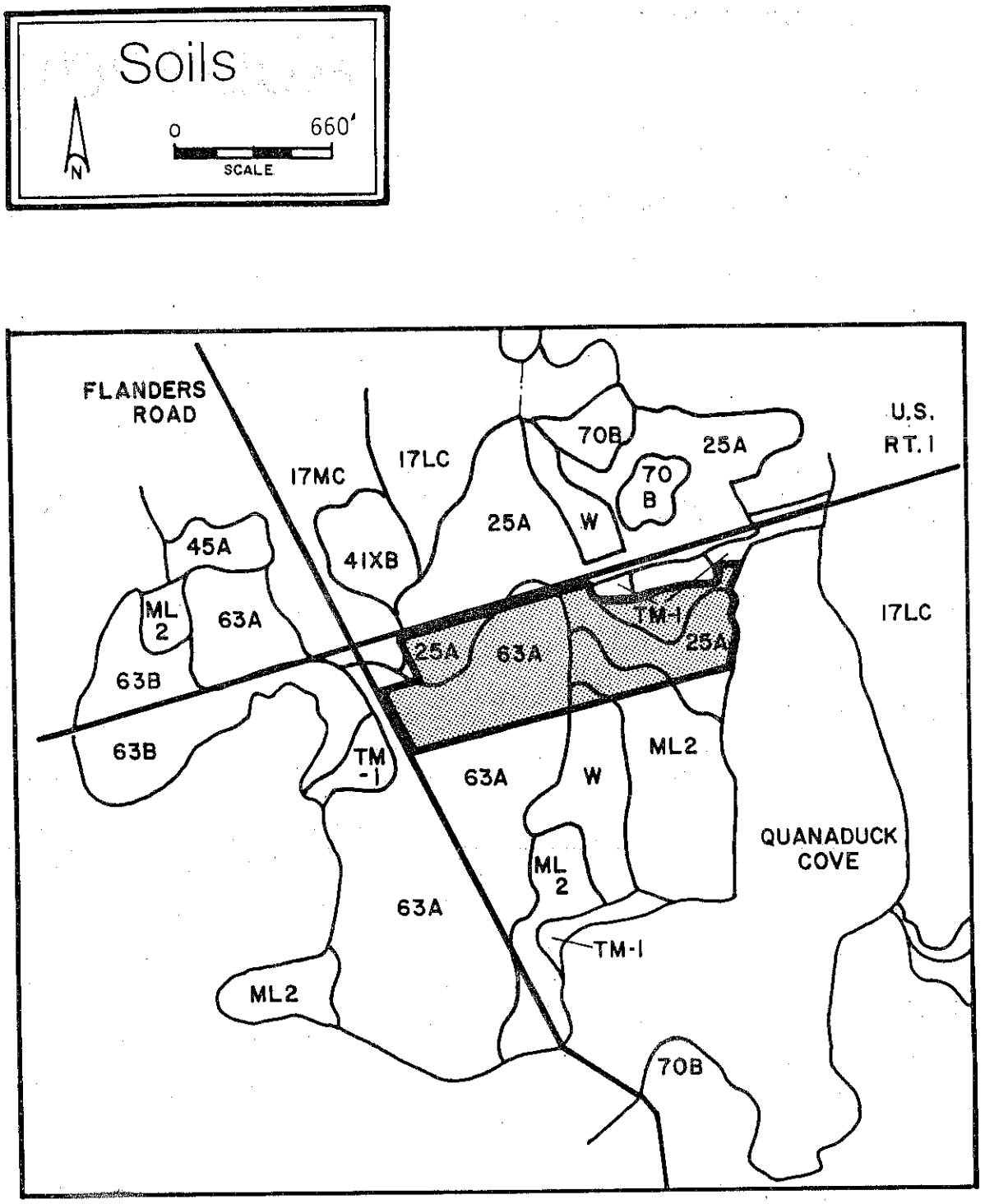
An evaluation of the potential adverse impacts of this project upon future water dependent uses and consistency with the water dependent use policies must also be addressed in the coastal site plan by virtue of the site location adjacent to coastal waters. The CMA specifically requires that highest priorities be given to the siting of water dependent activities on shorefront property and that the municipal board or commission reviewing the coastal site plan find that the adverse impacts on future water dependent development opportunties are acceptable. As proposed, there are no water dependent elements associated with this project. However, as water depths in Quanaduck Cove are too shallow to permit conventional uses such as boating and marinas, and subtidal areas too silty, in addition to the absence of a sandy beach to permit swimming and associated uses, then this particular site is not uniquely suited for most water dependent uses with the noteable exception of general public access for passive recreation such as fishing, crabbing, or wildlife observation.

Apparently, most of the Quanaduck Cove shoreline is utilized during the summer months in particular for fishing and crabbing by small numbers of people. It must be noted that the shoreline here, almost wholly wetland, has been and will be impacted, by pedestrian traffic (if permitted). The organic nature of the wetland soils make them sensitive to continuous pedestrian traffic which compacts the soil and produce well defined trails. Unlike dunes, it may take years or a decade for the marsh to restore itself. In light of the impact however, providing the intensity of use does not increase significantly, from past recreational uses then the impact of pedestrian traffic is likely to be minor. The wetland is too narrow to make it feasible to construct an elevated boardwalk and thereby remove the im-

pact of pedestrian traffic. The local commission reviewing this application will need to weigh and evaluate the benefits of preserving public access along this shoreline with the impacts to the wetland. Incorporation of a public access provision by the developer, in accordance with the statutory definition of water dependent uses in Section 3 (16) of the Coastal Management Act would undeniably make the project consistent with the water dependent use policies and result in the project receiving higher priority in terms of this site location.

Appendix

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17LC
ML2
QUANADUCK COVE
70B

QUANADUCK COVE
STONINGTON, CONNECTICUT

PROPORTIONAL EXTENT OF SOILS AND THEIR LIMITATIONS FOR CERTAIN LAND USES

Soil Series	Soil Symbol	Approx. Acres	Percent of Acres	Principal Limiting Factor	Urban Use Limitations*			
					On-Site Sewage	Buildings with Basements	Streets & Parking	Land-Scaping
Haven	63A	5.0	45	Frost action	1	1	2	1
Hollis-rock outcrop	17MC	0.1	1	Depth to rock	3	3	3	3
Ninigret	25A	4.0	36	Wetness	3	3	2	1
Pawcatuck**	TM-1	1.0	9	Wetness, floods excess humus	3	3	3	3
Udorthents	ML2	1.0	9	Limitations determined on site				
		11.1	100					

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

** Regulated wetland under P.A. 155.

SOIL INTERPRETATIONS FOR URBAN USES

The ratings of the soils for elements of community and recreational development uses consist of three degrees of "limitations:" slight or no limitations; moderate limitations; and severe limitations. In the interpretive scheme various physical properties are weighed before judging their relative severity of limitations.

The user is cautioned that the suitability ratings, degree of limitations and other interpretations are based on the typical soil in each mapping unit. At any given point the actual conditions may differ from the information presented here because of the inclusion of other soils which were impractical to map separately at the scale of mapping used. On-site investigations are suggested where the proposed soil use involves heavy loads, deep excavations, or high cost. Limitations, even though severe, do not always preclude the use of land for development. If economics permit greater expenditures for land development and the intended land use is consistent with the objectives of local or regional development, many soils and sites with difficult problems can be used.

Slight Limitations

Areas rated as slight have relatively few limitations in terms of soil suitability for a particular use. The degree of suitability is such that a minimum of time or cost would be needed to overcome relatively minor soil limitations.

Moderate Limitations

In areas rated moderate, it is relatively more difficult and more costly to correct the natural limitations of the soil for certain uses than for soils rated as having slight limitations.

Severe Limitations

Areas designated as having severe limitations would require more extensive and more costly measures than soils rated with moderate limitations in order to overcome natural soil limitations. The soil may have more than one limiting characteristic causing it to be rated severe.

About the Team

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

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

PURPOSE OF THE TEAM

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

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

REQUESTING A REVIEW

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

For additional information regarding the Environmental Review Team, please contact Jeanne Shelburn (889-2324), Environmental Review Team Coordinator, Eastern Connecticut RC&D Area, 139 Boswell Avenue, Norwich, Connecticut 06360.