

Environmental Review Team Report

Harvey's Beach Old Saybrook, Connecticut

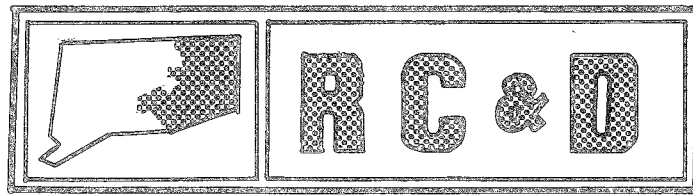


EASTERN CONNECTICUT RESOURCE CONSERVATION AND DEVELOPMENT AREA, INC.

Environmental Review Team
Report
on

Harvey's Beach
Old Saybrook, Connecticut

May, 1982

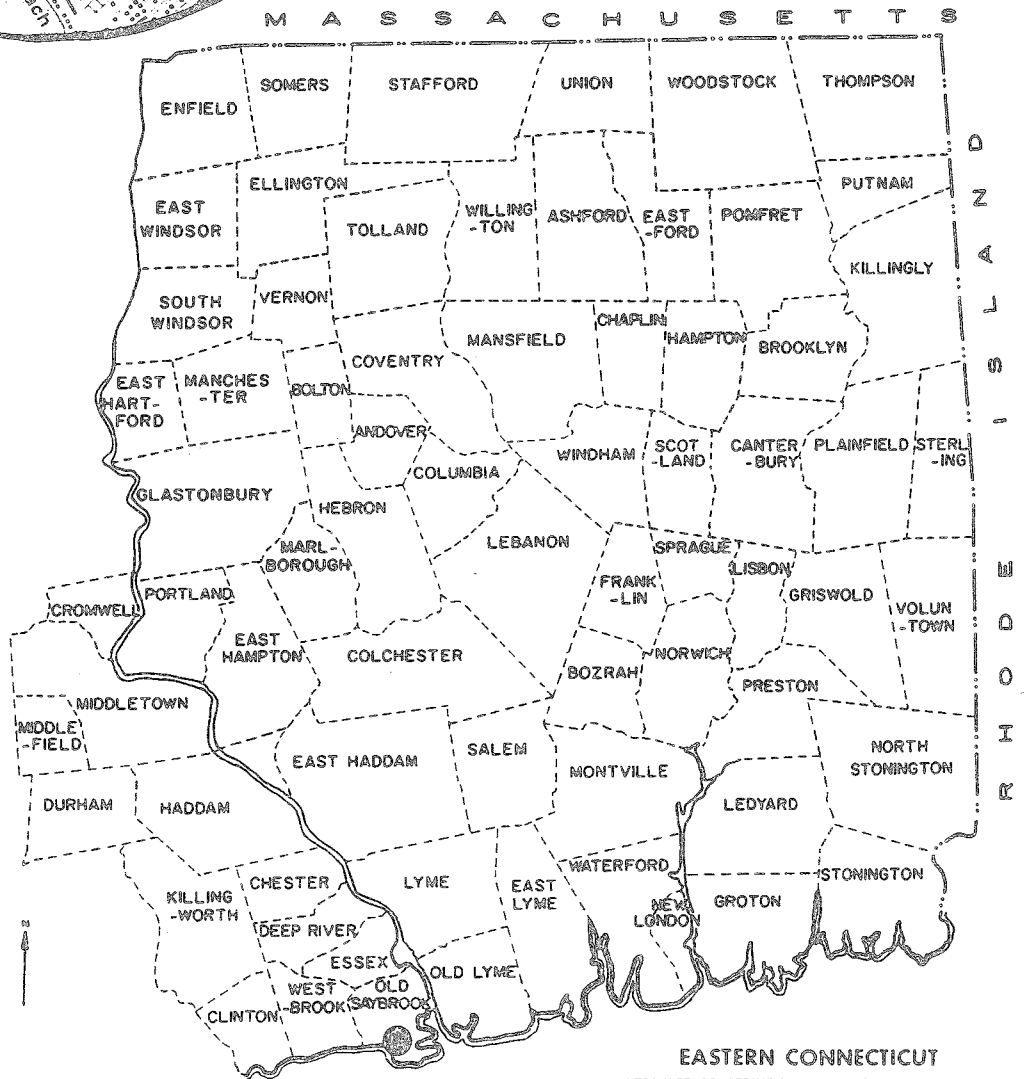
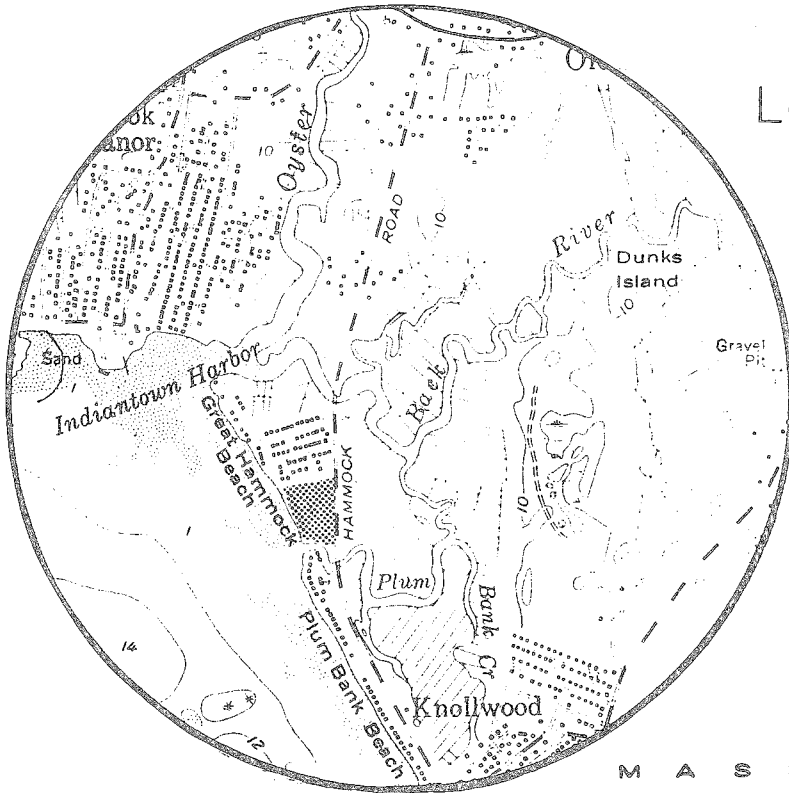


eastern connecticut resource conservation & development area

environmental review team
139 boswell avenue
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Location of Study Site

HARVEY'S BEACH
OLD SAYBROOK, CONNECTICUT



EASTERN CONNECTICUT
RESOURCE CONSERVATION AND DEVELOPMENT PROJECT

ENVIRONMENTAL REVIEW TEAM REPORT
ON
HARVEY'S BEACH
OLD SAYBROOK, CONNECTICUT

This report is an outgrowth of a request from the Old Saybrook Planning and Zoning Commission to the Middlesex 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 by the RC&D Executive Committee and the measure was reviewed by the Eastern Connecticut Environmental Review Team (ERT).

The soils of the site were mapped by a soil scientist from the United States Department of Agriculture, Soil Conservation Service (SCS). Reproductions of the soil survey map, a table of soils limitations for certain land uses and a topographic map showing property boundaries were distributed to all Team members.

The ERT that field-checked the site consisted of the following personnel: Barry Cavanna, District Conservationist (SCS); Mike Zizka, Geologist, Connecticut Department of Environmental Protection (DEP); Don Capellaro, Sanitarian, State Department of Health; Ron Rozsa, Ecologist, Coastal Area Management (DEP); and Jeanne Shelburn, ERT Coordinator, Eastern Connecticut RC&D Area.

The Team met and field checked the site on Thursday, February 18, 1982. Reports from each contributing 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 considerations that should be of concern to the developer and the town of Old Saybrook. 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.

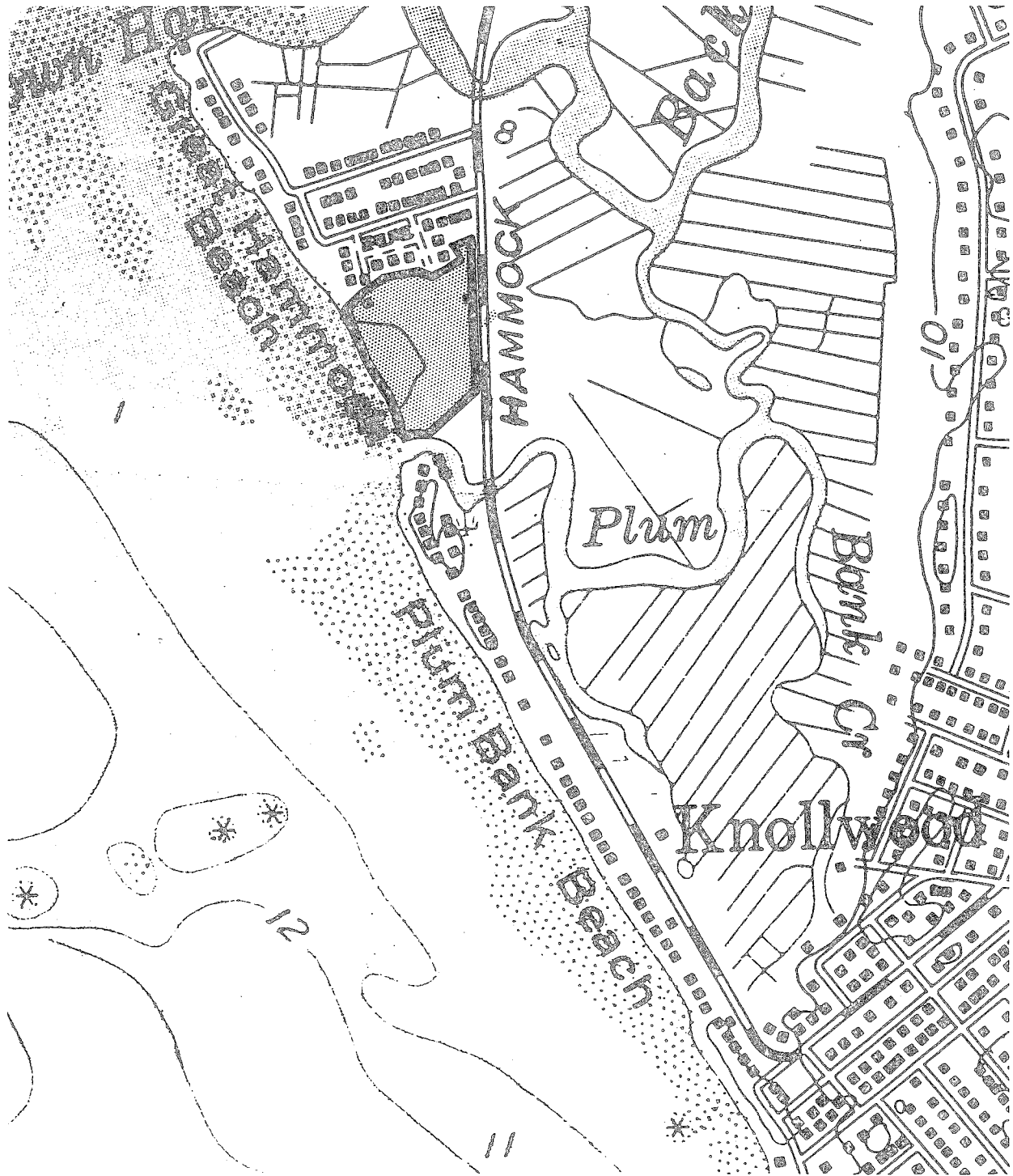
The Eastern Connecticut RC&D Area Committee hopes that this report will be of value and assistance in making any decisions regarding this particular site.

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



INTRODUCTION

The Havey's Beach site lies entirely within a coastal flood hazard area (V-zone) composed of tidal wetlands and a modified area, constructed through the placement and subsequent grading of coarse textured sand fill over a tidal wetland. The sand fill in this dynamic environment now functions as a beach system. Average fill depths are two to three feet. Combined weight of fill and vehicle traffic have contributed to some compaction of the buried organic peats. This process has lowered the elevation of the site by approximately one or two feet.

Borings on the site attest to the occurrence of buried tidal wetland peat below sandy fill material. Pockets of peat deeper than observed at the bore sites may be found locally. Peat depth will presumably diminish adjacent to Plum Bank Road due to the occurrence of glacial drift deposits in the form of an upland ridge which punctuates the otherwise wetland habitat. Natural site conditions prior to the placement of fill can be interpolated from observations of the tidal wetland to the south. West of the marsh and Harvey's Beach is an extensive intertidal sand flat which is evidence of high wave energies and an active sedimentary system. At its seaward edge, tidal wetland substrate is predominantly sand mixed with organic material. Apparently storm activity deposits sand upon the marsh thereby maintaining a sandy substrate. To the east, the marsh substrate becomes mostly organic peat. Depth of peat increases to at least eight feet in the center.

Since its construction, Harvey's Beach has functioned as a privately owned beach. Public access and parking was permitted for a nominal fee. Swimming at low tide is limited by the occurrence of adjacent sand flats. Despite this, the beach was actively used for coastal recreation including swimming, wading and sunbathing.

Current plans for this site include subdivision into six lots and two common areas (private beach access and community septic system) for the purposes of constructing residential structures. This will result in the displacement of the existing water dependent use.

ENVIRONMENTAL ASSESSMENT

GEOLOGY

Harvey's Beach is located in an area encompassed by the Essex topographic quadrangle. A surficial geologic map of the quadrangle, prepared by R.F. Flint, has been published by the Connecticut Geological and Natural History Survey (Quadrangle Report No. 31). Flint's map indicates that the northern half of Harvey's Beach, as well as the entire residential development to the immediate north, has been artificially filled. In a group of test holes dug on March 4, 1982, the depth of the fill ranged from about two feet to about seven and one-half feet. Underlying the fill are coastal marsh sediments, which consist of alternating layers of peat and sand or silty sand. Apparently, ocean-driven sand has periodically invaded the coastal marshes, mingling with the decaying vegetation.

No filling has occurred in most of the southern portion of the site; marsh sediments are at the surface in that area.

Organic sediments such as peat are structurally unstable. Loads placed on such sediments may sink as the organic matter is compressed. If a building is placed on fill over such deposits, the sinking, which may occur gradually, may be uneven, causing structural damage such as cracks in the foundation. One solution to this potential problem involves excavating the organic sediments down to a mineral base and replacing them with additional mineral material. On this site, that alternative would undoubtedly be expensive. The developer intends to use pilings to avoid the twin problems of structural settling and periodic coastal flooding. As long as the pilings are driven into the mineral material underlying the deepest organic horizon, this solution to the structural problem should be adequate.

HYDROLOGY

Harvey's Beach is generally less than six feet above mean sea level. As a result, it is subject to periodic coastal flooding. The estimated still-water elevation of the 100-year coastal flood is 11.0 feet. However, the site is presently designated as being in an area that is subject to wave action. This may increase the height of potential flood damage by several feet. This subject is considered in more detail in the Coastal Management section to this report.

The developer has indicated an intention to raise the first floor elevations of the houses to 11.0 feet. The site engineer expressed concern that raising the houses even further to avoid possible wave damage would make the houses look unattractive. He also noted that there are extensive sand flats offshore, which would tend to decrease the risk of wave action on the site. While the Team is unable to evaluate the actual effects of the sand flats, it believes that the houses should be designed in light of the best available flood estimates at the time of the design. Using present data, that would suggest a need to raise the first-floor elevations by one or more feet above the 11.0-foot still-water flood level. The developer may be able to compensate for the additional piling height by adding fill to the already filled area, but the legality of such filling under current coastal regulations needs to be more thoroughly considered.

Surface drainage from at least part of the developed area would be collected by a storm drainage system. The developer has a choice of outletting this drainage into the coastal marsh or directly into the Sound. The latter is preferable, as it would avoid the potential for scouring of marsh sediments and of local changes in marsh salinity and vegetation. If an outlet into the marsh is utilized, the drainage should be sent through one of the existing ditches.

SOILS

A detailed soils map of this site is 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 feet/inch scale to 660 feet/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 probable limitations for each of the soils for on-site

sewerage, building with basements, buildings without 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 and regional development, many soils and sites with difficult problems can be used. The soils map, with the publication Soil Survey, Middlesex County, Connecticut, 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.

Soil types typical of this site include the Beaches-Udipsamments complex and Westbrook mucky peat. These are described in detail below.

Beaches-Udipsamments complex. This complex consists of sandy and gravelly beaches on the shore of Long Island Sound and sandy, smoothed areas adjacent to the beaches. Slopes range from 0 to 15 percent, but are mainly less than 8 percent. This complex is about 45 percent Beaches, 40 percent Udipsamments, and 15 percent other soils. The soils are so intermingled that it was not practical to map them separately. Most of this complex is in the towns of Clinton, Old Saybrook, and Westbrook.

Beaches generally consist of deep sand or deposits of gravelly sand derived mainly from gneiss, schist, and granite. In this survey area, Udipsamments consist of sand and gravel. Udipsamments are at a slightly higher elevation than Beaches and are 15 to 50 percent stone fragments.

Included with this complex in mapping are small, intermingled areas of Westbrook soils, Udorthents, Urban land, and a few rock outcrops. Also included are a few filled areas and a few small beaches that are underlain by organic tidal deposits at a depth of three feet or more.

The permeability of this unit is rapid or very rapid. Beaches are inundated daily during high tide. Udipsamments are subject to flooding by storm tides. Beaches have no vegetation, and Udipsamments are sparsely vegetated, mostly with salt-tolerant and drought-resistant grasses. Beaches have poor potential for most uses except recreation, because of frequent tidal inundations. Most beaches are intensively used during summer by saltwater bathers but get little or no use during the remainder of the year.

Westbrook mucky peat. This nearly level, very poorly drained soil is in tidal marshes bordering Long Island Sound.

Typically, the surface layer of this soil is an organic layer of very dark gray and dark olive gray mucky peat 40 inches thick. The underlying material is very dark gray and dark gray silt loam to a depth of more than 60 inches. Also included are a few small areas of very poorly drained Scarboro soils, Rock outcrops, and Beaches. Included areas make up 5 to 10 percent of this map unit.

This soil is subject to tidal flooding twice daily. The permeability of this soil is moderate to rapid in the organic layer and moderate in the underlying material. Runoff is very slow. Available water capacity is high. This soil is strongly acid to neutral in its natural condition and is extremely acid if drained.

This soil generally is not suited to cultivated crops, woodland, or community development because of wetness, daily tidal flooding, and a high salt content.

If development of this site takes place, a sediment and erosion control plan should be prepared and implemented. Hay bales or a silt fence should be installed prior to any filling adjacent to the tidal wetland or adjacent to Long Island Sound. Rip-rap or other water velocity dissipaters should be installed at storm drainage outlets. The Middlesex County Soil Conservation Service field office, located in Haddam, can provide technical assistance or review for such measures.

WATER SUPPLY

Water for the proposed subdivision would be obtained from the public supply of the Connecticut Water Company which presently provides service to the general area.

WASTE DISPOSAL

As the town does not have a municipal sewerage system, sewage disposal would by necessity have to be attained by on-site disposal facilities. At the present time, Old Saybrook and other towns in the region are in the process of evaluating and developing a program for sewer avoidance.

The consulting firm is thinking in terms of a possible central subsurface sewage disposal system to serve five of the six lots. Lot 6, where there is already an existing year round house, would most likely continue with an individual system.

Other than the obvious tidal wetlands, soils consist of fill material and sand or gravelly sand. It is not known if any of the fill or natural soils overlay deposits of organic muck. The principal on-site concerns for subsurface sewage disposal would be elevation of the normal maximum water table, as well as protection against flooding and serious washouts or erosion problems. The Public Health Code requires the bottom area of any leaching system to be maintained at least 1.5 feet above the maximum ground water level. In this regard, it is probable the bottom area(s) would have to be kept to at least elevation 5-6 above mean sea level, as it is in an area adjacent to tidal waters. In order to achieve this, extensive filling and regrading would be indicated, as most of the lower terrain is only at elevation 3 or 4. For this particular location, it probably would be more feasible to locate a central leaching area, farther removed from the actual bathing waters, than attempting to locate and undertake preparation of a number of individual sites. With a central disposal area, however, pumping of the sewage effluent would be needed and in general the system would be more complex. In the event of a power failure, provisions to assure there will be no backup or overflow of sewage during such time would be necessary. Provisions for periodic inspection and routine maintenance (pumps, pumping of tanks, etc.) should be included.

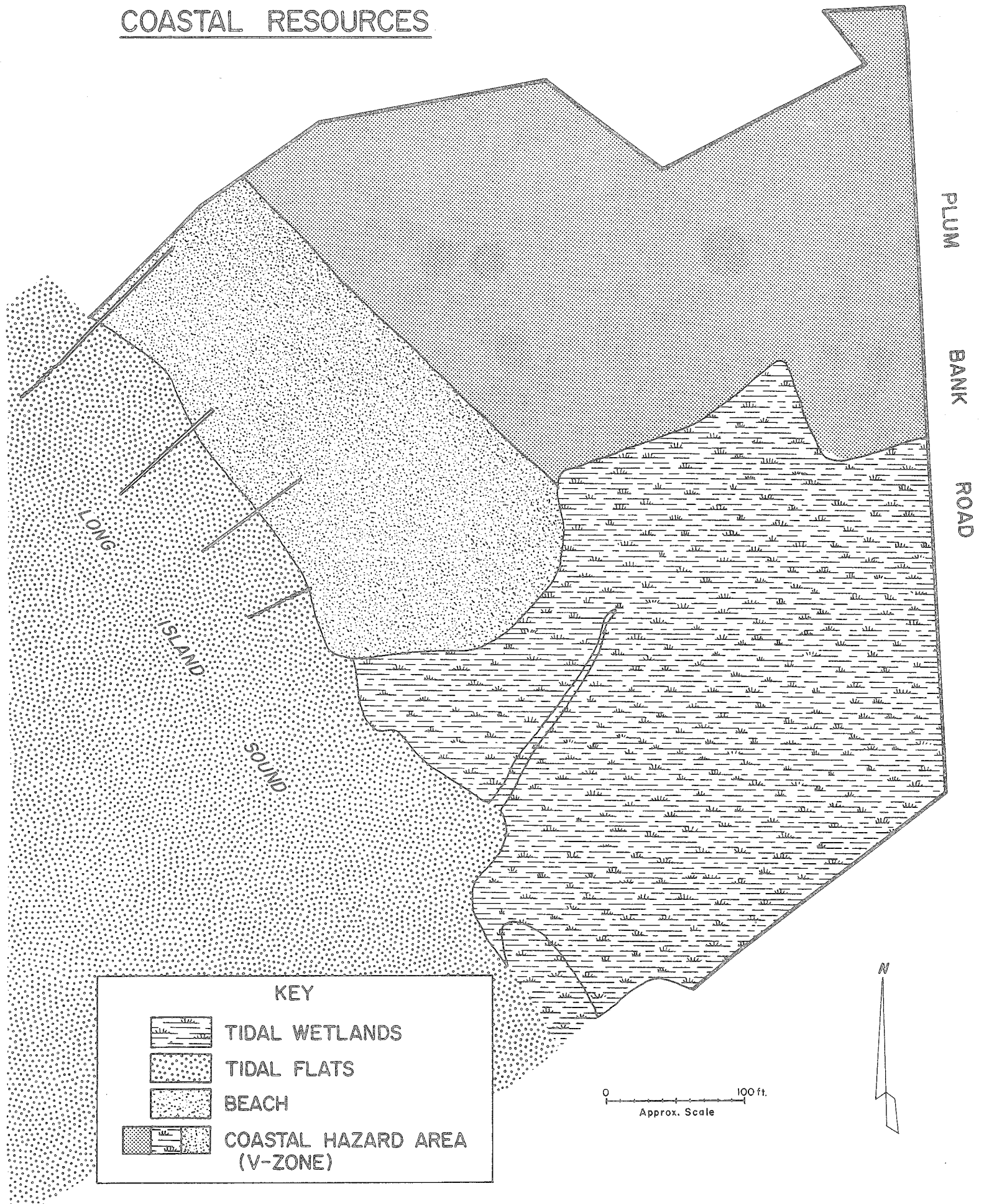
In order to properly evaluate the site and fluctuations in the ground water table, a series of deep test pits and installation of monitoring stand pipes should be placed in the area. Percolation and permeability test results along with the preparation of detailed engineering design plans would be needed.

In addition to the requirements of the local and state health departments, the project would be subject to the evaluation and provisions of approval by the Department of Environmental Protection.

While it does not seem the proposed development would have an adverse affect on the sanitary quality of the bathing water (provided the site is adequately tested and evaluated, system properly designed and carefully installed), the project would eliminate a certain amount of beach area which, in the past, was open and available to the public.

Coastal Management

COASTAL RESOURCES



COASTAL MANAGEMENT

A coastal site plan review (CSPR) application must be prepared by the applicant in order to obtain a valid planning permit for a subdivision. In order to obtain a valid municipal approval under Sections 22a-105 and 22a-106 of the Connecticut General Statutes (the Connecticut Coastal Management Act), the applicant must demonstrate and the municipal commission must find that (1) the proposal is consistent with all applicable coastal management policies, (2) adverse impacts on coastal resources and future water dependent uses are acceptable, and (3) all reasonable measures to mitigate adverse impacts have been incorporated into the project. In the event that a subdivision plan is approved, either in the proposed or a modified configuration, then additional CSPR applications must be prepared in conjunction with the applications for zoning permits for those houses, located 100 feet or less from a tidal wetland or beach.

Since two separate municipal reviews are required, the CSPR considerations for each are discussed separately.

SUBDIVISION APPLICATION

Coastal Resource Identification

A plan depicting the spatial location of coastal resources on and adjacent to the site must accompany the CSPR application. As defined in the CMA, coastal resources located on and adjacent to the site are beach, tidal wetlands, coastal hazard area, coastal waters, intertidal flats, shellfish concentration areas and, perhaps, freshwater wetlands (see figure 2). The coastal hazard area technically contains three subelements, namely, flood hazard area, wave hazard area (V zone), and areas of significant erosion.

Areas of significant erosion have been determined and mapped by the Department of Environmental Protection. The region from Cornfield Point to Indian Town Harbor represents an area of significant erosion (see CAM Planning Report #29 entitled Shoreline Erosion Analysis and Recommended Planning Process). The basis for this designation is that erosion and coastal storms in this area will culminate in serious effects on existing land use given the density of structures and their proximity to the shore.

According to Issue #9 of the Wetland Advisor (prepared by the DEP Inland Wetland program), "disturbed soils with aquatic moisture regimes qualify as wetland soils and are, therefore, considered wetlands and regulated under the Inland Wetlands and Watercourses Act." Certain areas of fill on Harvey's Beach may possess a high water table and an aquatic moisture regime and would, therefore, qualify as inland wetlands. If the town inland wetlands commission or the applicant have any questions regarding this issue, they should be directed to Steve Tesitore in the DEP Inland Wetlands Program. The importance of recognizing such wetlands should they occur on this site relates at a minimum to the placement and location of a community waste disposal system.

Coastal Policies

Identification of all applicable Coastal Resource and Use Policies* follows from the identification of coastal resources and the types of uses or activities proposed. Based upon the conceptual subdivision plan, the applicable policies are as follows:

Coastal Resource Policies

General Resource IA (A-C)
Beaches & Dunes ID (A,B)
Intertidal Flats IE (A)
Tidal Wetlands IF (A,D)
Freshwater Wetlands & Watercourses IG (A)
Coastal Hazard Area IH (A,B,D)

Coastal Use Policies

General Development IIA (A)
Water Dependent Use IIB (A,B)

A brief analysis of the consistency of this project with certain policies is discussed below. Consistency of policies not discussed is contingent upon the acceptability of adverse impacts. These are discussed together with the adverse impacts in the Analysis of Adverse Impacts Section which follows.

1. Beach and Dune Policies

The project should be designed to preserve the combined wet and dry sand beach. This can be readily accomplished by designating the beach as common area and appropriately modifying the subdivision configuration. To assure consistency with the beach policies, no grading or filling of the beach should occur at this site. Beach and dune sands are generally incapable of renovating septic discharges and, therefore, the community sanitary system should not be located on the designated beach areas. Location of the structures on the non-beach area would make the project consistent with this policy and provide an erosion buffer in light of the V-zone and erosion hazard constraints present on this site.

2. Intertidal Flats Policies

Grading and filling should not occur within the intertidal flats. Sedimentation from upland activities should be controlled. Stormwater discharges, if directed toward the flat, should be designed so as to minimize scouring.

3. Tidal Wetland Policies

No grading or filling of tidal wetlands should occur (note: any such proposed activity would require state tidal wetland permits). Appropriate sedimentation

* Planning Report No. 30. Coastal Policies and Use Guidelines. Connecticut Department of Environmental Protection.

controls should be properly positioned at the perimeter of the site to prevent sediments from entering the wetland. If haybales are utilized as necessary for this purpose, then these could be affixed to a line of snow fence which skirts the perimeter of the fill. This will form an obvious visible and physical barrier to construction equipment.

The subdivision of the tidal wetlands is not practical from either a wetland protection or development standpoint. Since filling or development is not likely to be permitted by DEP, then it may be desirable to designate as much wetland as practical to the category of common area or open space. Such practice would maximize wetland preservation and could qualify the wetland for reduced property taxes under P.A. 490.

4. Freshwater Wetlands and Watercourses Policies

As noted earlier, if there are soil areas on the site containing an aquatic moisture regime, these should be classified as inland wetlands and freshwater wetlands and regulated under the Inland Wetlands Program and CSPR respectively. Here, the primary concern is the influence of wetland soils upon the functioning of a community sanitary waste disposal system and its ability to renovate sanitary discharges without degrading coastal waters.

5. Coastal Hazard Area Policies

Subdivision of this site for the purposes of residential uses increases the hazard to life and property since 1) vehicle access to or from the site would be precluded during a 100-year coastal storm event, 2) the activity is to be located in a coastal high hazard area (V-zone), 3) this development within an area of significant erosion increases the number of structures threatened by erosion, and 4) two lots are located on the beach in direct proximity to the shore without the incorporation of substantial enough setbacks to reduce the threat of destruction by coastal storms. For the reasons listed above, the project would appear to be inconsistent with policy IH (A).

In accordance with the basic required regulations for a V-zone, the community sanitary system must be flood proofed to prevent infiltration of flood waters during coastal storms.

Potential Adverse Impacts

The applicant must demonstrate to the satisfaction of the Planning Commission that any adverse impacts generated by the activity are acceptable. The following adverse impact considerations (as defined in Section 22a-93 of the Connecticut Coastal Management Act) may be of concern with respect to this project and should be addressed in the CSPR application.

- degrading water quality through the significant introduction into either coastal waters or groundwater supplies of suspended solids, nutrients...or through the significant alteration of temperature, pH, dissolved oxygen or salinity
- degrading existing circulation patterns of coastal waters through the significant alteration of patterns of tidal exchange or flushing rates, fresh-water input, or...

- degrading or destroying...shellfish habitat
- degrading tidal wetlands, beaches...through significant alteration of their natural characteristics or functions
- creating unacceptable impacts to future water dependent activities

With respect to adverse impact requirements, the CSPR application must (1) identify all potential adverse impacts, (2) explain why an impact will not occur (for example, no construction activities proposed in the wetland), and (3) if an impact will occur, explain what mitigation technique is proposed to eliminate or ameliorate the impact (for example, erosion/sedimentation controls used to prevent sediments from entering the wetland). Based upon the preliminary plans, the following general impact matrix has been constructed to facilitate identification of all potential adverse impacts.

TABLE I

	TW	B&D	CHA	CW	H2O Depend.	Shellfish
Subdivision Configuration	X	X			X	
Grading	X	?	X	?		
Erosion	?	?	?			
Sedimentation	X	X	X	X		X
Stormwater						
Pipe Placement	?	?	X			
Discharge	?	?(E.Q.)		?(E.Q.)		?
Sanitary System						
Placement			X			
Discharge	?(Q)			?(Q)	?(Q)	?(Q)
Roads			X			
Excavation		?	X			

LEGEND

Resource Categories:

TW - Tidal Wetland
 B&D - Beaches & Dunes
 CHA - Coastal Hazard (Flood & Wave) Area
 CW - Coastal Waters
 H2O - Depend - Water Dependency Considerations

Impact Categories:

X - identifies an impact
 ? - identifies a possible impact
 E - erosion or scouring
 Q - effect on water quality

Analysis of Adverse Impacts

An analysis of significant adverse impacts which may or will be generated by this project is presented below. The primary concerns are (1) impacts to tidal wetlands from grading, filling, uncontrolled sedimentation, stormwater discharge (scouring and localized reduction in salinity), (2) degradation of coastal water quality due to leachate from the community sanitary system and its effects on shellfish beds, wetlands and coastal recreation, and (3) impacts of the subdivision and its intended use for residential development upon future water dependent activities, especially since the previous activity on the site was clearly water dependent.

1. Impacts to Tidal Wetlands

Based upon the conceptual subdivision plan, it is difficult to determine which activities will be located on or near the tidal wetlands and the intensity of those impacts. First, any construction activity including a storm water discharge pipe located within the boundaries of the tidal wetland, will require a state tidal wetland permit. Generally, no activity including grading, filling and the operation or storage of construction equipment should occur in the wetland. As necessary, proper erosion/sedimentation devices such as haybales or silt screens should be positioned so as to prevent sediments from entering the wetland.

Snow fencing can be effectively utilized to secure haybales in place and also act as a physical/visual barrier to construction equipment. This should preclude construction equipment from inadvertently entering the wetland thereby creating ruts, depressions and destroying vegetation.

In general, stormwater discharges should not be located in or directed to the tidal wetland. In the absence of a dissapater, the discharge may cause local erosion of the wetland. Also, the freshwater discharge may reduce soil salinities and alter the composition of the vegetation. The least desirable change is to increase the abundance of Reed (*Phragmites australis*). However, should it be necessary to position a storm water discharge in the wetland, then location of the outfall near a mosquito ditch may minimize wetland impacts.

2. Degradation of Coastal Water Quality from Leachates

The placement of a community septic system as close as 40 or 60 feet from coastal waters has the potential to degrade coastal water quality, affect the harvestability of shellfish and, in extreme instances, preclude bathing by swimmers if not properly designed. An assessment of the impacts upon coastal water quality must be addressed. Also, this activity will require approval by the Water Compliance Unit of DEP.

3. Water Dependency Considerations

The Connecticut Coastal Management Act specifically encourages the location of water dependent uses at Waterfront sites. Within the CSPR process, projects for waterfront sites, such as this, must be evaluated in terms of the water dependent provisions of the Act. Section 22a-93 (16) of the CCMA defines water dependent uses as "those uses and facilities which require direct access to, and location in, marine or tidal waters and which therefore cannot be located inland...and uses which provide general public access to marine or tidal waters."

When the coastal site plan review is being conducted for an activity proposed on a waterfront location, among the applicable policies that must be considered are the Water Dependent Use Policies IIB [(A & B) as per Planning Report #30]. The first policy requires municipal boards and commissions, in discharging their regulatory responsibilities, to give highest priority and preference to water dependent uses in shorefront areas. This policy in conjunction with Sections 22a-105 and 22a-106, also authorizes or allows a commission to reject a non-water dependent project if it can be demonstrated that the site is uniquely suited for a water dependent use and there is a reasonable expectation of demand for a water dependent use for which the site is uniquely suited.

Sections 22a-106 (a & e) require the commission to determine whether or not any adverse impacts on future water dependent development opportunities or activities resulting from the project are acceptable. A rejection of a non-water dependent use is required under these sections of the act if the commission finds the adverse impacts to be unacceptable. For example, a rejection of a non-water dependent use because of unacceptable adverse impacts would be required in instances where a viable water dependent use was being displaced, the site was uniquely suited for a water dependent use for which there was a clear, expressed demand, or where existing public access was being reduced or inhibited. The commission must insure that all reasonable measures which would mitigate adverse impacts of a project on future water dependent development activities have been incorporated in an approved project.

As presented, the subdivision configuration is not sensitive to the water dependency considerations of the CCMA. The intended use, namely residential structures, do not qualify as a water dependent use. Furthermore, the proposed use is displacing a water dependent use and public access for which the site is suited and for which there is an expressed demand. This project as proposed raises significant concerns regarding the acceptability of adverse impacts on future water dependent development opportunities.

The incorporation of certain modifications into the project could (1) change the proposed use from a non-water dependent to water dependent use, (2) result in a higher priority siting preference that is afforded to water dependent uses, and (3) mitigate the adverse impacts upon future water dependent activities. Listed below are a few alternatives, which, if incorporated into the design, would create a project that is more consistent with the CCMA:

Subdivision Configuration - The current configuration preserves approximately one-third of the beach through the common area designation. It is impossible to judge what percentage of the remaining beach would be modified by filling or grading and development. As noted earlier, it is most practical to maintain the entire beach as common area and thereby reduce the impacts upon future water dependent opportunities. While this would alter the subdivision configuration, it would provide a natural buffer to erosion.

The concept of a planned residential development (PRD) should be considered as a practical alternative to the subdivision, but only at a very low density. This would allow preservation of a greater proportion of the beach site as common area, and perhaps provide a practical setback from the shore in order to afford the structures some additional protection against coastal storms. Unfortunately, a PRD suffers from the same environmental constraints as a subdivision, namely, lack of dry access during major storms, and development in a V-zone and an area of significant erosion.

Public Access - As noted above, the project could qualify as a water-dependent use if it included provisions for general public access to the shorefront. Because this project would be displacing a bona-fide water dependent use, public access opportunities would need to be substantial in order to adequately offset the adverse impacts created by this displacement. It is recommended that the project provide public access to both the wet and dry sand beach areas. In addition, options to provide at least some parking for automobiles and/or bicycles should also be considered.

In providing access to the beach, passage via the tidal wetlands is not recommended because of the fragile nature and sensitivity of that resource. Encouraging public access through a wetland culminates in wetland degradation including compaction of peat and destruction of vegetation. Such impacts may not be reversed by natural processes for decades. Alternatively, public access should be provided to the beach and shorefront area across the upland thus protecting the sensitive tidal wetland resources on the site.

CONSTRUCTION OF SINGLE FAMILY RESIDENCES

A separate CSPR application must be prepared and submitted to the Zoning Commission for the construction of each single family residence which is located wholly or partially within 100 feet of a tidal wetland or beach. Under the current subdivision configuration, this would require individual applications to be prepared for Lots 1 through 4 and perhaps Lot 6. The following analysis is based upon the configuration as currently proposed. In general, the identified resources and policies listed in the subdivision review are applicable here although these considerations must be tailored to the specific site conditions on or adjacent to each lot. Note that the water dependency considerations should be adequately addressed and resolved to the satisfaction of the town during the subdivision review. With that issue resolved, water dependency and public access considerations would not be a major issue in the CSPR applications for zoning permits.

Coastal Resources

The coastal resources on and adjacent to the site have been identified in the CSPR section for a subdivision. This information would need to be tailored for each application for a particular lot.

Coastal Policies

The coastal resource and use policies identified in the subdivision section apply in whole or part as a function of the location of each lot and its associated resources. There are, however, certain different and distinct policy issues insofar as construction of residential dwellings which are enumerated below.

1. Beach Policies

Filling or grading of the beach for the purpose of constructing residential structures on Lots 3 and 4 should be avoided. The final location of these structures should incorporate the maximum possible buffer in order to provide an adequate safety margin against the destructive forces of coastal storms.

2. Tidal Wetland Policies

As noted previously, the concern here is tidal wetland preservation and, therefore, no activities including grading, filling, and access by or storage of construction equipment should occur inside the wetland boundaries. As necessary, sedimentation devices should be utilized, to the fullest extent necessary, to prevent sediment from entering the wetland.

3. Coastal Hazard Policy

All of the issues raised in the subdivision section are applicable here. The only specific concerns here are floodproofing the structures in accordance with all applicable V-zone regulations and provisions of erosion buffers for Lots 3 and 4.

In accordance with the town's flood insurance requirements, the residential structures must be flood proofed and constructed on pilings since fill cannot be used as the means of structural support. According to Section 743.5 (structural requirements in coastal high hazard areas) of the revised State of Connecticut Building Code (which supersedes local regulation unless more stringent criteria are in place), "The maximum basic wind speed shall be one hundred miles per hour. Structures shall be designed and constructed to withstand velocity waters and hurricane wave wash. Waves shall be assumed to be at least three (3) feet high." Therefore, the lowest portion of the superstructure must be constructed at or above 14 feet NGVD. Also, this section of the code requires that "the lowest portion of the superstructure... shall be clear and above the one hundred (100) year flood elevation plus the maximum wave height." Based upon the general equation for wave height and site elevations, these wave heights are at least as follows:

Lot 1	-	14.0'
Lot 2	-	14.9'
Lot 3	-	14.9'
Lot 4	-	14.9'
Lot 5	-	14.9' to 15.4'
Lot 6	-	14.0'

Adverse Impact Considerations

The primary adverse impact considerations, assuming the water dependency issues are adequately resolved during the subdivision review, are adverse impacts to tidal wetlands and beaches. These issues have been identified in the policy section.

CONCLUSION

In summary, there are two major planning issues regarding the subdivision and development of Harvey's Beach as proposed. The first is the displacement of a water dependent use by a non-water dependent use and the unacceptable impacts upon future water dependent uses. This report has presented a few alternatives which, if incorporated into the project, would provide a higher priority siting preference and reduce the adverse impacts upon future water dependent activities.

The second and major planning issue is the suitability of the site for a subdivision of this density or a PRD of equal density given the following constraints:

(1) lack of dry access during a 100-year coastal storm, (2) location of the site within a coastal high hazard zone (V-zone), (3) location of the site within an area of significant shoreline erosion, and (4) the considerable expanse of beach and tidal wetland resources at the site, two of Connecticut's most sensitive coastal resources.

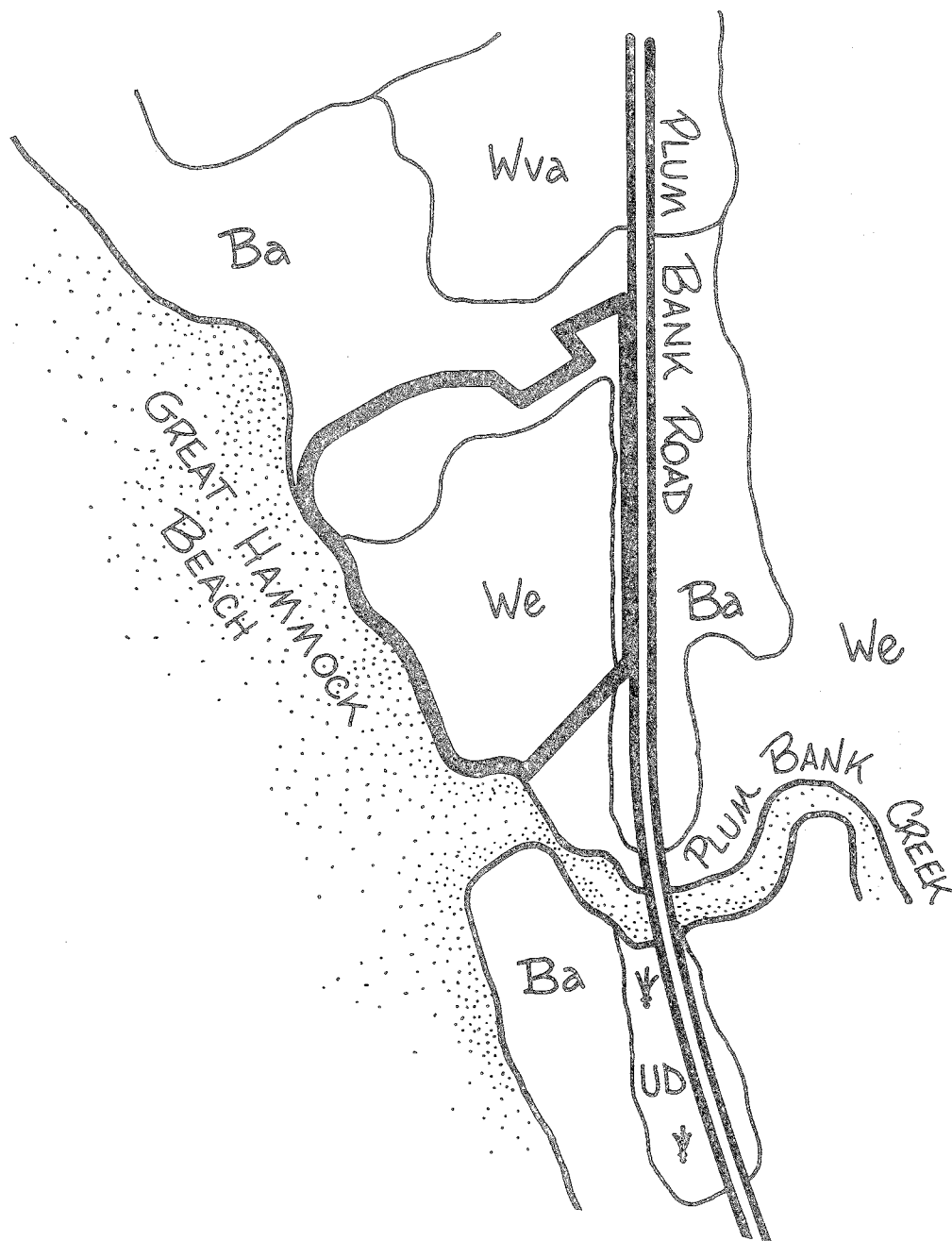
Given these significant issues and site constraints, the following modifications to this proposal are recommended to mitigate adverse impacts on coastal resources and water-dependent development opportunities, and to make the proposal consistent with the coastal policies in the Connecticut Coastal Management Act.

1. Reduce the density of proposed development at the site to between one to four dwelling units in total.
2. Confine the buildings and related development activity to the "upland" portions of the site outside of the beach and tidal wetland areas.
3. Consider options for "clustering" proposed single family residential units or for allowing a PRD-type development of comparable density (one-four units) on the upland portions of the site.
4. Provide public access to the wet and dry sand beach area via a dedicated easement or other form of permanent right-of-way from Plum Bank Road across the upland portion of the site.
5. Explore options for including some public parking for automobiles and/or bicycles.
6. Strictly adhere to the revised state building code requirements (Section 743.5) for building construction in coastal high hazard areas (V-zones).
7. Provide adequate building setbacks from the water, beach, and tidal wetlands to provide a buffer from sensitive coastal resources and to provide better protection to buildings from coastal flooding and erosion hazards.

Appendix

Soils

0 330'
scale



HARVEY BEACH SUBDIVISION
OLD SAYBROOK, 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
Beaches	Ba	3	30%	LIMITATIONS DETERMINED ON-SITE.				
Westbrook	We	7	70%	Wetness, low strength, floods	3	3	3	3
		10	100%					

LIMITATIONS: 1=Slight; 2=Moderate; 3=Severe.

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.