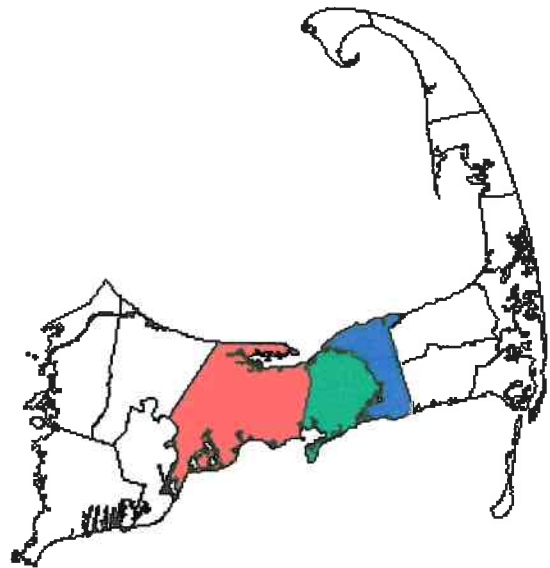


*Massachusetts Coastal Infrastructure
Inventory and Assessment Project
Massachusetts Department of Conservation and Recreation
Office of Waterways*

Middle Cape Cod

Barnstable
Yarmouth
Dennis



July 6, 2009

Prepared for:

**Massachusetts Department of
Conservation and Recreation
Hingham, Massachusetts**

Presented by:

**Bourne Consulting Engineering
Franklin, Massachusetts**

In Association With:

Applied Coastal Research & Engineering



Middle Cape Cod

TABLE OF CONTENTS

Section I – Coastal Hazards Infrastructure and Assessment Program

INTRODUCTION

PURPOSE

DEVELOPMENT OF MassGIS DATABASE ATTRIBUTES

DEVELOPMENT OF REPAIR / RECONSTRUCTION COSTS

Section II – Barnstable

Part A - Community Findings

- COMMUNITY DESCRIPTION
- STRUCTURE INVENTORY
- SUMMARY OF FINDINGS

Part B - Structure Assessment Reports

Part C - Structure Photographs

Part D - Structure Documents

- TOWN DOCUMENT LIST
 - Document Table
- MA DCR – DOCUMENT LIST
 - Document Table
- MA DEP – CH 91 DOCUMENT LIST
 - Document Table
 - Copies of License Documents
- USACE – PERMIT DOCUMENT LIST
 - Document Table
 - Copies of Permit Documents

MASSACHUSETTS COASTAL INFRASTRUCTURE INVENTORY AND ASSESSMENT PROJECT

Middle Cape Cod

Section III – Yarmouth

Part A - Community Findings

- COMMUNITY DESCRIPTION
- STRUCTURE INVENTORY
- SUMMARY OF FINDINGS

Part B - Structure Assessment Reports

Part C - Structure Photographs

Part D - Structure Documents

- TOWN DOCUMENT LIST
 - Document Table
- MA DCR – DOCUMENT LIST
 - Document Table
- MA DEP – CH 91 DOCUMENT LIST
 - Document Table
 - Copies of License Documents
- USACE – PERMIT DOCUMENT LIST
 - Document Table
 - Copies of Permit Documents

Section IV – Dennis

Part A - Community Findings

- COMMUNITY DESCRIPTION
- STRUCTURE INVENTORY
- SUMMARY OF FINDINGS

Part B - Structure Assessment Reports

Part C - Structure Photographs

Middle Cape Cod

Part D - Structure Documents

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Section I

Coastal Hazards Infrastructure and Assessment Program

INTRODUCTION

PURPOSE

DEVELOPMENT OF MassGIS DATABASE ATTRIBUTES

DEVELOPMENT OF REPAIR / RECONSTRUCTION COSTS

***Massachusetts Coastal Infrastructure
Inventory and Assessment Project
Coastal Hazards Commission***

Section I – Coastal Hazards Infrastructure and Assessment Program

INTRODUCTION

The Project and Client

The Commonwealth of Massachusetts has initiated a Coastal Hazards Commission (CHC) to identify the vulnerability of the state to coastal hazards. As one of five working groups working under the CHC, the 20-Yr Infrastructure Plan was to establish a prioritization for the repair of coastal structures. The focus areas of the Working Group include:

- Publicly owned infrastructure
- Infrastructure for which State is responsible
- Inventory of public hazards infrastructure
- Evaluation on conditions
- Development for a prioritization of work
- Estimation of capital and maintenance costs

The 20-Yr Infrastructure Working Group is led by Representative Frank Hynes with CZM as the lead State Agency overseeing the management of the project. The Massachusetts coastline has been broken up into 4 major regions consisting of the North Shore, Boston, South Coast, and the Cape and Islands. The South Shore (the Towns of Hull, Cohasset, Seekonk, Hingham, Plymouth, Kingston, Scituate and Duxbury) was previously evaluated by Bourne Consulting Engineering as a demonstration project in 2006.

Consultant Team

The consultant team that performed the demonstration project was led by Bourne Consulting Engineering (*BCE*) of Franklin, MA who was responsible for overall project management, specified areas of field assessments, and research. Assisting *BCE* was Applied Coastal Research and Engineering Inc. of Mashpee, MA, Childs Engineering Corporation, of Medfield, MA., and Waterfront Engineer LLC of Stratham, NH.

PURPOSE

Study Purpose

CZM seeks to identify the capacity of Massachusetts coastal structures to resist major coastal storms and prevent storm damage. In working toward this goal, CZM has initiated a program to perform an assessment of Commonwealth owned and/or maintained coastal structures. The first phase of this program was the performance of a demonstration project for coastal structures located on the South Shore. The demonstration project identified existing structures, their general conditions, ability to provide coastal protection and the probable cost for repairs. The information collected and developed has been incorporated into the MassGIS system to allow use for developing a 20 Year Coastal Infrastructure Plan.

The demonstration project served as a basis for the current statewide inventory assessment of all Commonwealth coastal structures and the needs for their maintenance and/or repair.

Goals of Study

The goals of the Massachusetts Coastal Infrastructure Inventory and Assessment Project include:

- To identify all the coastal structures the state either owns or has responsibility to maintain for the 4 regions included within the study
- Of the structures identified, determine the structure location and characteristics, the structure condition relative to providing coastal protection and the structure importance in relation to what it is protecting.
- To the degree possible, identify the structure elevation and the FIRM mapping flood elevation and category.
- To the degree possible, identify structure owner and available documents from local, state and federal agencies.
- To establish an estimated cost to rehabilitate the coastal structures to provide the level of project established in the structure's original design.
- Provide the information in a format compatible for incorporation into the MassGIS system

Limit of Study

Due to the time constraints and the amount of effort necessary to collect, process and compile the information, the following are identified as limitations of the information presented:

- All property ownership was taken as presumed. No legal investigation of ownership was performed during the project. Property ownership is based on town assessor maps. Where structures were located outshore of assessor map defined property lines, it was assumed to be Town land unless other information indicated otherwise. Where structures were located outshore of Mean Low Water, property is assumed to be State owned.
- The structure ownership was based on assessor maps and research at the local, state and federal levels. Where there was indication of public work on a structure on Town land or on private property, the structure was presumed to be Town owned. Where the structure was on state property, the structure was presumed to be state owned. Where ownership of the structure was not clear but was located on private property, the structure ownership was defined as unknown.
- The study included town and state owned structures as it was assumed that most town owned structures received state funding at some level for construction and/or maintenance.
 - Structures that were determined to be private were not included.
 - Undocumented structures considered to be on private land, but having the potential to have been publicly built and/or maintained, were identified as having an "unknown ownership".
- The prioritizing of structures was based primarily on risk to general infrastructure and density of housing. Infrastructure included was buildings. The study did not consider all infrastructure issues including:
 - No consideration on utility impacts – water, electrical, sewer, gas
 - No consideration of roadway and bridge protection
 - Evacuation routes were not considered within the investigation
 - Location of Emergency Shelters were not included in priority assessments
- Research was performed at the local, state and federal levels. The local research was limited to location and documenting available coastal structure contract drawings. Research at DCR was restricted to available historic construction plans for coastal structures at the MA-DCR Waterways office in Hingham, MA, and MA-DCR Division of Urban Parks and Recreation in

Boston, MA. No investigation of state archives was performed. Research at MA DEP Chapter 91 and USACE was limited to recorded permits and licenses found in their files. No investigation was performed at the Registry of Deeds.

DEVELOPMENT OF MassGIS DATABASE ATTRIBUTES

The specific attributes that would be incorporated into the MassGIS system were developed based on the scope of work and the goals to be achieved. The following was established to standardize the data collection and presentation and to allow total flexibility for sorting by attributes in the final GIS database. The attributes identified below were input into a MS Access database which was used to manage the data from all eight communities within a single file.

Database Attributes

- Attribute Descriptions/Definitions

Structure Number: A unique structure number was given to each coastal structure. The number was based on existing numbering systems that include the State Department of Environmental Protection community number followed by the local community assessor's parcel numbering system. The last three digits of the number represent the structure within the parcel. Where structures extend over several parcels, the structure is referenced to a parcel that is approximately in the center of the structure. Where Town assessor's references include letters, those are also included within the structure number. Some communities have block numbering within their numbering system and these are included. Communities without block numbering still have the block numbering included but these are illustrated as all zeros for that specific segment.

Structures that are on Town property, which would otherwise not have a parcel number, are referenced to a parcel that is in the immediate vicinity of the coastal structure.

On this basis, the following is the general numbering convention:

CCC-MMM-BBB-PPP-SSS

Where:	CCC	DEP Community Number
	MMM	Community Map Number
	BBB	Block Number (000 if no block numbering system)
	PPP	Community Parcel Number
	SSS	Structure Number

Property Ownership: All property ownership was on a "presumed" basis as no legal verification of ownership was performed. The ownership of the property was classified under four basic areas which were private ownership (Private), Town ownership (Local), Commonwealth of Massachusetts ownership (State), federal government ownership (Federal) or unknown. Property ownership was based on Town assessor's maps. Where the location was located above Mean Low Water, and not within a defined parcel, the property ownership was presumed to be the Town unless documentation was found to indicate otherwise. Where a structure was located offshore of Mean Low Water, the property ownership was presumed to be federal.

Structure Ownership: The ownership of all structures is presumed as no verification of ownership was performed. Ownership of the structure was determined by research into historic state and federal

permits and the entity indicated on the permits as the applicant. Where no other information was found, the following was utilized:

- Structures located on private land but appearing to be significant structures were identified as owned by the Town or as "Unknown". Unknown was used where there was a question of local or private ownership.
- Structures on Town property were assumed to be owned by the Town
- Structures that were located off-shore were presumed to be federally owned
- Structures that were identified as being privately owned were eliminated from the database

Basis of Ownership: The basis of structure ownership was provided to give rationale to the structure ownership and identified the research resource that identified the ownership or the methodology otherwise used. The responses utilized were limited to the following:

- DPW – DPW Employee Interview
- DCR - Contract Drawings
- DEP – Ch 91 License
- USACE – Permits
- Property Ownership
- Offshore Structure

Structure Owner's Name: Ownerships names reflect the presumed owner of publicly owned structures. As this was for public structures only, the ownership was restricted to the community name, the state agency or the federal agency.

Earliest Structure Record: The year of the oldest document located for the structure. The information is determined from the document research performed on the structure from local, state and federal agencies. If no documents could be found than this entry is denoted as "Unknown". Where documentation of the structure could be found, the date from the oldest document was utilized.

Primary Structure / Secondary Structure: Many of the coastal structures consisted of combined structures which were rated separately. It was typically found that one structure was significantly more predominant (Ex. Bulkhead/Seawall) and was therefore identified as the Primary Structure while a smaller structure might exist in front (ex. Revetment) of it. The type, height and material of each structure are identified separately. The condition of each structure was based on the Primary Structure. Where there was no secondary structure, the fields were left blank.

Structure Type: The structure type was categorized into five basic coastal structure categories which were Bulkhead/Seawall, Revetment, Coastal Beach, Coastal Dune, and Jetty/Groin.

Structure Material: The identification of the coastal structure's material of construction was performed and represents the primary material. Stone structures consisted of both mortared and non-mortared conditions.

Structure Height: Each type of structure was categorized by its visible height in feet which was broken into four specific ranges which are:

< 5 feet 5 to 10 feet 10 to 15 feet >15 feet

Structure Condition: A preliminary assessment of the condition for each structure was performed by the field teams. This was by visual observation only and no detailed investigation was performed. The condition assessments were based on a predefined five level rating system that ranged from Rating A for Excellent Condition to Rating F for Critical Condition. A detailed listing of the conditions and their definitions can be seen in Exhibit A.

Priority Rating: In order to account for the need for protection at any one site, a five level priority rating system was established. This allowed for consideration of public infrastructure protection, density of residential housing for development of structure overall importance for coastal protection. The ratings range from Level 1 for no infrastructure or residence protection to Level 5 for critical inshore infrastructure protection and/or high density residential. The detailed listing and definitions for the priority categories can be seen in Exhibit B.

Structure Repair / Reconstruction Cost: A preliminary estimation of construction costs to maintain or repair structures was made based on the preliminary field assessment of the structures. A Repair Cost Matrix was developed based on structure type, condition, height and material and can be seen in Exhibit C. Once each structure's type, height, and material classifications were determined, the cost per foot for the structure was determine from the Repair Cost Matrix and multiplied by the length of the structure to obtain the estimated repair/restoration cost. The cost matrix repair costs include a 20 percent construction cost contingency as well as 10 percent costs for engineering and permitting.

Structure Length: The length of each structure is provided and utilized in the development of the repair/reconstruction costs. The lengths are given to the nearest foot and taken as the linear distance along the structure, as determined by the GPS location, which takes into account structure angles and curvature.

Structure Elevation: The elevation of structures was determined in feet from existing information where available. The datum used is NAVD 88 and elevations are to the nearest foot. From a previous study much of the south shore coastal structures had elevations defined based on LIDAR mapping data. Where available structure documentation with elevations was found, in areas with no LIDAR data, the information was included within the structure information. Where there was no LIDAR information or existing documentation, the item has been left blank.

LIDAR (Light Detection and Ranging) is technology that is currently being used for high-resolution topographic mapping by mounting a LIDAR sensor, integrated with Global Positioning System (GPS) and inertial measurement unit (IMU) technology, to the bottom of aircraft and measuring the pulse return rate to determine surface elevations.

FEMA Zone and Elevation: For each structure the FEMA Flood Insurance Rate Maps (FIRM) were researched for their Flood Zone designation and their Base Flood Elevation from the most recent FIRM maps for the specific Town. The elevations are provided in feet on the same datum as the FIRM maps (NGVD) with no adjustments or conversions.

Structure Comments: The engineering team provided a brief description and comment on the structure at the time of the field assessments which is provided in support of the condition rating that was given for the structure.

Pictures: At the time of the field assessments, digital photographs were taken to provide a general overview of the structure. The number of pictures was limited to a maximum of six. The first photograph for each structure is shown on the Structure Assessment Form. The list of all photographs is provided on the form.

Town Documents: Town documents represent the structure information that could be found in the Town's DPW/Engineering Department records. Where particular records could be found, a table of document information was developed and included within the database with limited descriptions.

MA - DCR Documents: MA-DCR documents represent the structure information that could be found within DCR – Waterways office in Hingham Where particular records could be found, a table of document information was developed and included within the database with limited descriptions.

MA - DEP Chp. 91 Licenses: MA-DEP Chapter 91 license documents represent the structure information that could be found within MA-DEP Chp 91 records in Boston. Where particular records could be found, they were scanned as pdf files and attached to the structure through the GIS database information. In addition, a table of license document information was developed and included within the database with limited descriptions

USACE Permits: USACE Permits represent the structure information that could be found within the Army Corp of Engineers regulatory office in Concord, MA. Where particular records could be found, they were scanned as pdf files and attached to the structure through the GIS database information. In addition, a table of license document information was developed and included within the database with limited descriptions.

DEVELOPMENT OF REPAIR / RECONSTRUCTION COSTS

A matrix to be used within the database has been developed to assess likely rehabilitation/repair costs to restore the coastal structures to their original design condition. No attempt was made to assess the level of exposure and associated level of protection that might be required to meet current design standards for these structures. These costs are only an estimation to bring these structures back to their original design intent based on 2006 construction costs.

The development of the cost matrix is based on the following:

Structure Condition Ratings – The condition of the coastal structures was determined in the field by the survey crew which was led by an engineer with waterfront structure assessment and design experience. The definitions of the rating criteria utilized for the assessments are presented elsewhere.

The cost implications for each rating condition are as follows:

- **A Rating** Structures not requiring any maintenance, repair or rehabilitation cost and would not be expected to experience damage if subject to a major coastal storm event
- **B Rating** Structures requiring limited or no repair and would be expected to experience only minor damage if subject to a major coastal storm event. The value of these maintenance costs is assumed to be 10 percent of the construction cost.
- **C Rating** Structures requiring moderate to significant level of repair or reconstruction and would be expected to experience significant damage if subject to a major coastal storm event. The structure is presumed to be effective under a major storm event. The value of the repair costs is assumed to be 50 percent of the construction cost.
- **D Rating** Structures requiring significant level of rehabilitation or total reconstruction and would be expected to experience significant damage or possibly fail if subject to a major coastal storm event. The value of the repair costs is assumed to be 100 percent of the construction cost.

- **F Rating** Structures requiring complete reconstruction and would expect to provide little or no protection from a major coastal storm event. The value of the repair costs is assumed to be 100 percent of the construction cost plus a cost for removal/disposal of the original structure.

Height of Structure – Height of a structure is a major factor in the structure cost and therefore was identified as a significant factor in assessing rehabilitation/repair construction costs. The structures were broken down into four major categories which were:

< 5'	Structures that were less than five feet in height
5'-10'	Structures five to 10 feet in height
10'-15'	Structures over 10 feet to 15 feet in height
> 15'	Structures greater than 15 feet in height – assumed 20 feet typical

Length of Structure – Length is based on field GPS location with measurements rounded to the nearest foot.

Bulkhead / Seawall Structures – These structures are assumed to be constructed out of concrete, steel, stone or wood with each having its own criteria for establishing costs. For each structure type the following was assumed:

- **Concrete Seawalls** – These walls were assumed to be gravity structures with the volume of concrete used based on the bottom width being one-half of the structure height. Costs of construction were based on a per cubic yard estimate that varied from \$350 to \$630 per cubic yard depending on the structure height. Values for excavation and demolition of existing structure were also included.
- **Stone Seawalls** - These walls were treated the same as concrete seawalls and assumed to be gravity structures with the volume of the structure based on the bottom width being one-half of the structure height. Costs of construction were based on a per cubic yard estimate that varied from \$350 to \$630 per cubic yard depending on the structure height. Values for excavation and demolition of existing structure were also included.
- **Steel Bulkheads** – Steel bulkheads were presumed to be constructed with steel sheet piling. Tie back systems were presumed for structures 10 feet or greater in height. Shorter walls were assumed to have a cantilever design. The total depth of sheeting was presumed to be two times the exposed height. The cost for construction varied from \$40 per square foot to \$60 per square foot plus the cost of excavation and demolition.
- **Timber Bulkheads** – Timber bulkheads were presumed to be constructed with timber piles at eight foot on center, horizontal wales and vertical four inch sheathing. The unit costs for installed materials used were \$1,500 per pile and \$7.50 per bfm.

Revetment Structures – Revetment structures were presumed to be constructed of dry placed (no concrete) stone with a two on one slope and a horizontal toe and crown equal to the thickness layer established for each height condition. The total thickness of the revetment layers varied from six to ten feet with the cost of armor and under-layer stone assumed to be \$50 per ton and the crushed stone base to be \$15 per ton.

**MASSACHUSETTS COASTAL INFRASTRUCTURE
INVENTORY AND ASSESSMENT DEMONSTRATION PROJECT**

Groins and Jetties – Groins and jetties were assumed to be the same materials and construction as the revetment structures but would have two sides and therefore double the quantities.

Coastal Beaches – Costs for restoration of Coastal beaches presumed the placement of beach renourishment sands at a 1-on-20 slope over the existing beach conditions. The cost for deposition of sand assumed relatively close source of material and utilized \$20 per cubic yard for the material installed.

Coastal Dunes – Restoration of coastal dunes assumed a cross section of renourished sand with a one-on-four slope on one side of a 25 foot width at the defined dune height. The cost for deposition of sand assumed relatively close source of material and utilized \$20 per cubic yard for the material installed.

Contingency – A contingency of 20 percent was added to all costs to reflect the unknowns associated with this level of rehabilitation/repair estimating.

Engineering and Regulatory Approvals – A ten percent increase to the cost matrix prices was assessed to represent the engineering design and regulatory approval requirements for the restoration of these structures.

EXHIBIT A

Structure Condition Table – 5 Level Rating System

Preliminary Condition Assessment		Definition Based Upon Perceived Immediacy of Action and Potential to Cause Damage if Not Corrected	Level of Action Required
A	Excellent	Like new condition. Structure expected to withstand major coastal storm without damage. Stable landform (beach, dune or bank). Adequate system exists to provide protection from major coastal storm	None
B	Good	Structure observed to exhibit very minor problems, superficial in nature. Minor erosion to landform is present. Structure / landform adequate to provide protection from a major coastal storm with no damage. Actions taken to prevent / limit future deterioration and extend life of structure	Minor
C	Fair	Structure is sound but may exhibit minor deterioration, section loss, cracking, spalling, undermining, and/or scour. Structure adequate to withstand major coastal storm with little to moderate damage. Actions taken to reinforce structure to provide full protection from major coastal storm and for extending life of structure. Moderate wind or wave damage to landform exists. Landform may not be sufficient to fully protect shoreline during a major coastal storm. Actions taken to provide additional material for full protection and extended life	Moderate
D	Poor	Structure exhibits advanced levels of deterioration, section loss, cracking, spalling, undermining, and/or scour. Structure has strong risk of significant damage and possible failure during a major coastal storm Structure should be monitored until repairs/reconstruction can be initiated. Actions taken to reconstruct structure to regain full capacity to resist a major coastal storm. Landform eroded, stability threatened. Landform not adequate to provide protection during major coastal storm. Actions taken to recreate landform to adequate limits for full protection from a major coastal storm.	Major
F	Critical	Conditions of structure/landform may warrant emergency stabilization as failure may result in potential loss of property and/or life. Landform eroded, loss of integrity Structure exhibits critical levels of deterioration, section loss, cracking, spalling, undermining, and/or scour. Structure provides little or no protection from a major coastal storm. Actions taken to totally reconstruct structure to regain full capacity. Landform stability is severely compromised, rate of erosion/material loss may be increasing, and landform does not provide adequate protection from a major coastal storm. Actions taken to recreate landform to adequate limits for full protection from a major coastal storm.	Immediate

EXHIBIT B

Priority Rating System - 5 Level Rating System

Preliminary Priority Level Assessment		Level Based Upon Perceived Immediacy of Action and Presence of Potential Risk to Inshore Structures if Not Corrected	Level of Action Required
I	None	No Inshore Structures or Residential Dwelling Units Present	Long Term Planning Considerations
II	Low Priority	Inshore Structures Present with Limited potential for Significant Infrastructure Damage	Future Project Consideration
III	Moderate Priority	Inshore Structures with potential for Infrastructure Damage and/or Limited Residential Dwellings (<1 dwelling impacted / 100 feet of shoreline)	Consider for Active Project Improvement Listing
IV	High Priority	High Value Inshore Structures with Potential for Infrastructure Damage and/or Moderate Density Residential Dwellings (1-10 dwellings impacted / 100 feet of shoreline)	Consider for Next Project Construction Listing
V	Immediate / Highest Priority	Critical Inshore Structures Present with Potential for Infrastructure Damage and/or High Density Residential Dwellings Conditions of structure may warrant emergency stabilization as failure may result in potential loss of property and/or life. (>10 dwellings impacted / 100 feet of shoreline)	Consider For Immediate Action Due to Public Safety and Welfare Issues

**MASSACHUSETTS COASTAL INFRASTRUCTURE
INVENTORY AND ASSESSMENT DEMONSTRATION PROJECT**

CZM SOUTH SHORE COASTAL INFRASTRUCTURE INVENTORY AND ASSESMENT PROJECT

EXHIBIT C

September 14, 2006

REPAIR / REHABILITATION COSTING DATA

Cost per linear foot of structure

STRUCTURE TYPE	STRUCTURE MATERIALS	STRUCTURE HEIGHT	STRUCTURE CONDITION RATING				
			A	B	C	D	F
BULKHEAD/ SEAWALL	CONCRETE	Under 5 Feet	\$0	\$84	\$425	\$850	\$983
		5 To 10 Feet	\$0	\$152	\$759	\$1,518	\$1,782
		10 To 15 Feet	\$0	\$251	\$1,254	\$2,508	\$2,970
		Over 15 Feet	\$0	\$396	\$1,980	\$3,960	\$4,752
	STEEL	Under 5 Feet	\$0	\$54	\$273	\$546	\$680
		5 To 10 Feet	\$0	\$165	\$825	\$1,650	\$1,848
		10 To 15 Feet	\$0	\$251	\$1,254	\$2,508	\$2,772
		Over 15 Feet	\$0	\$343	\$1,716	\$3,432	\$3,795
	STONE	Under 5 Feet	\$0	\$84	\$425	\$850	\$983
		5 To 10 Feet	\$0	\$152	\$759	\$1,518	\$1,782
		10 To 15 Feet	\$0	\$251	\$1,254	\$2,508	\$2,970
		Over 15 Feet	\$0	\$396	\$1,980	\$3,960	\$4,752
	WOOD	Under 5 Feet	\$0	\$86	\$431	\$862	\$994
		5 To 10 Feet	\$0	\$127	\$632	\$1,265	\$1,463
		10 To 15 Feet	\$0	\$161	\$804	\$1,608	\$1,872
		Over 15 Feet	\$0	\$202	\$1,008	\$2,017	\$2,380
COASTAL BEACH	SAND	Under 5 Feet	\$0	\$26	\$132	\$264	\$264
		5 To 10 Feet	\$0	\$127	\$634	\$1,267	\$1,267
		10 To 15 Feet	\$0	\$224	\$1,122	\$2,244	\$2,244
		Over 15 Feet	\$0	\$396	\$1,980	\$3,960	\$3,960
COASTAL DUNE	SAND	Under 5 Feet	\$0	\$18	\$93	\$186	\$186
		5 To 10 Feet	\$0	\$48	\$238	\$476	\$476
		10 To 15 Feet	\$0	\$79	\$395	\$790	\$790
		Over 15 Feet	\$0	\$132	\$660	\$1,320	\$1,320
REVETMENT	STONE	Under 5 Feet	\$0	\$66	\$333	\$664	\$730
		5 To 10 Feet	\$0	\$120	\$601	\$1,201	\$1,300
		10 To 15 Feet	\$0	\$157	\$781	\$1,564	\$1,696
		Over 15 Feet	\$0	\$247	\$1,234	\$2,468	\$2,666
GROIN	STONE	Under 5 Feet	\$0	\$132	\$664	\$1,328	\$1,460
		5 To 10 Feet	\$0	\$240	\$1,201	\$2,402	\$2,600
		10 To 15 Feet	\$0	\$314	\$1,564	\$3,128	\$3,392
		Over 15 Feet	\$0	\$494	\$2,468	\$4,937	\$5,333

NOTE: Repair / Rehabilitation Costs include 10% for engineering and regulatory approvals and 20 % construction contingency.

Section II

Barnstable

Section II – Community Findings – Town of Barnstable

COMMUNITY DESCRIPTION

The Town of Barnstable consists of a land area of 60.05 square miles out of a total area of 76.26 square miles and had a population of 47,821 in the 2000 census. The Town is located on Cape Cod of Massachusetts and its location can be seen on this report's cover. The estimated length of shoreline is 24 miles that are directly exposed to open ocean. The Town is protected from major coastal storms by both natural and man-made shoreline structures that require maintenance to insure the long term protection of its coastline. The man-made and publicly owned structures that protect the Town were investigated for their ability to provide adequate protection from major coastal storms. Structures have been identified as publicly owned, including coastal dunes and beaches, based on evidence of investment of public funds made to create/enhance/maintain these structures. The assessment did not include floating or pile supported structures as they are assumed not to provide any significant coastal protection from major storm events.

STRUCTURE INVENTORY

Within the Town of Barnstable, there were 21 structures which had public or unknown ownership which provide significant coastal protection. The location of the structures can be seen in Sheets 1 through Sheet 9 in Section II-B of this report. The structures were categorized by their type and by their structural condition based on a preliminary field assessment. The distribution of structures by type and condition can be seen in the following table:

STRUCTURE TYPE AND QUANTITY - Town of Barnstable

Primary Structure (1)	Total Structures	Structure Condition Rating					Total Length
		A	B	C	D	F	
Bulkhead / Seawall	7		1	4	1	1	2760
Revetment	5		2	3			1220
Breakwater							
Groin / Jetty	9			6	3		3435
Coastal Dune							
Coastal Beach							
	21		3	13	4	1	7415

Within the above table, the total length of each type of structure is also provided. The structures are listed by the type which is providing the primary coastal protection. Many sites have multiple structure types at the same location (i.e. revetment in front of seawall). These secondary structures, although not identified within these tables, are included in the development of repair/rehabilitation costs.

The development of repair costs has been included by structure type and by condition. In the Town of Barnstable's case there are a total of 21 structures which would require approximately \$ 7.9 million to bring all the coastal structures to "A" Rating. Most critical will be the structures in the "D" and "F" classifications as those are assumed to undergo some level of damage or failure during the next major coastal storm event. To reconstruct these structures, identified in the preliminary survey as being in poor condition, an estimated \$ 2.7 million would be required to upgrade the Town's coastal protection.

STRUCTURE REPAIR / RECONSTRUCTION COST - Town of Barnstable

Primary Structure (1)	Total Structures	Structure Condition Rating				F	Total Cost
		A	B	C	D		
Bulkhead / Seawall	7	\$	37,950	\$ 1,720,593	\$ 97,759	\$758,063	\$ 2,614,365
Revetment	5	\$	21,008	\$ 499,884			\$ 520,892
Breakwater							\$ -
Groin / Jetty	9			\$ 2,805,135	\$ 1,964,292		\$ 4,769,427
Coastal Dune							\$ -
Coastal Beach							\$ -
	21	\$ -	\$ 58,958	\$ 5,025,612	\$ 2,062,051	\$ 758,063	\$ 7,904,684

Based on the limited research within the scope of this project research, the presumed ownership of the structures was established on an initial basis and would be subject to more intense review in future tasks. Structures identified as being owned privately were excluded from further consideration. Although ownership of the land on which the structure was located was a factor, the structure ownership was treated as a separate issue from land ownership. For the Town of Barnstable, the breakdown of structures by assumed ownership is as follows:

STRUCTURE OWNERSHIP / REPAIR COST - Town of Barnstable

Primary Structure (1)	Total Structures	Structure Condition Rating				F	Total Cost
		A	B	C	D		
Town Owned	21	\$	58,958	\$ 5,025,612	\$ 2,062,051	\$ 758,063	\$ 7,904,684
Commonwealth of Massachusetts							\$ -
Federal Government Owned							\$ -
Unknown Ownership							\$ -
	21	\$ -	\$ 58,958	\$ 5,025,612	\$ 2,062,051	\$ 758,063	\$ 7,904,684

The identification of presumed ownership was not based on the investigation of legal documents but relied on property ownership and from construction and regulatory documents that were found. A more detailed investigation of legal documents and agreements would be required where structure ownership is disputed. A more detailed identification of structure type, length, condition and location can be found in Section II-B which contains Structure Assessment Reports for each individual structure found.

SUMMARY

The enclosed reports and associated documents reflects the Town of Barnstable's coastal structure information that will eventually be input into a state-wide GIS database and will be accessible through MassGIS. This data, when compiled state-wide, will be critical in the development of both short term and long term planning for maintaining and improving Massachusetts coastal protection.

This database will also provide relatively quick access to identify available documentation for these structures as well as the ability to be updated as coastal structure improvements are made.

Section II - Barnstable

Part B

Structure Assessment Reports

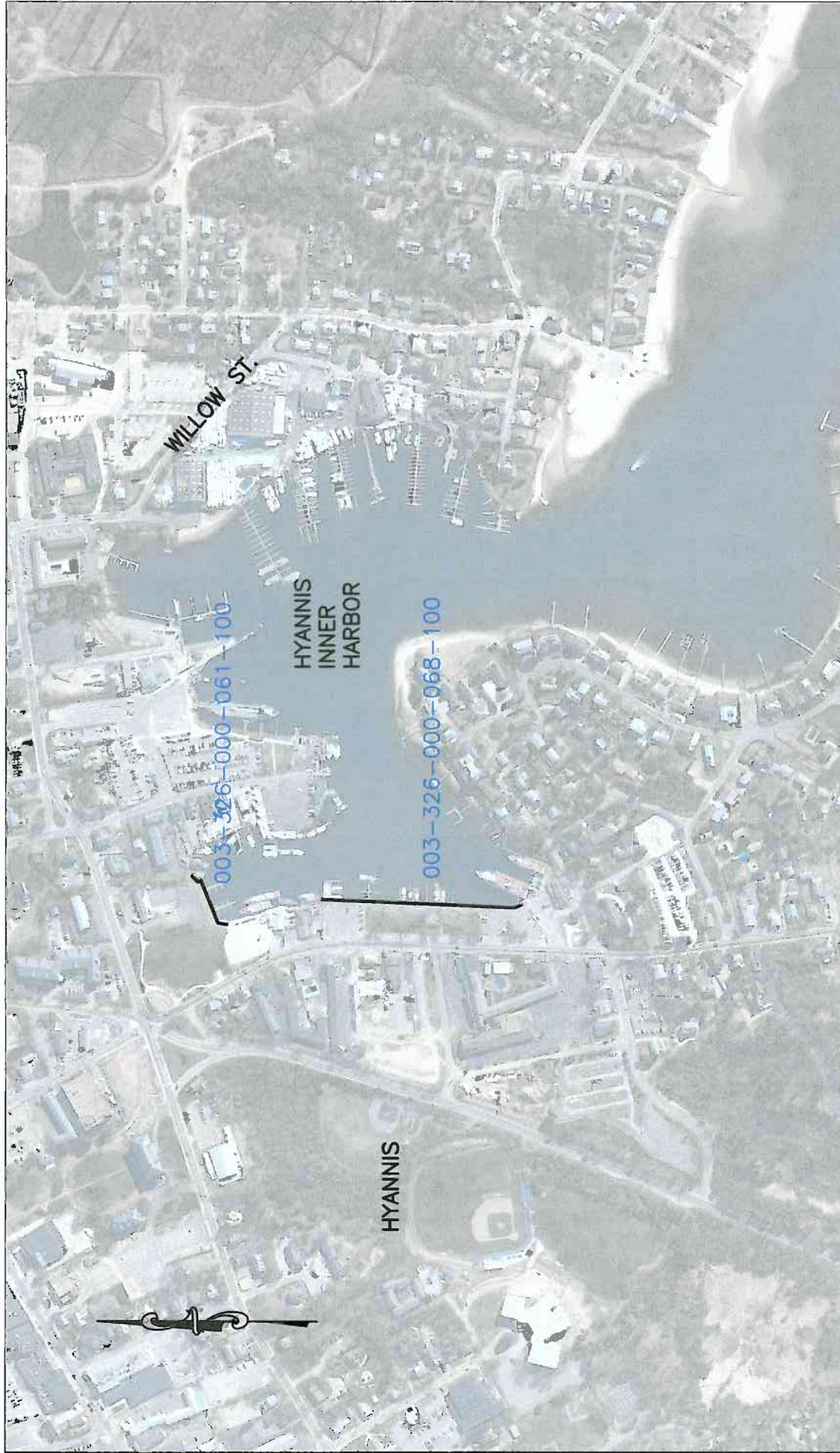


COASTAL STRUCTURE LOCATION PLAN

TOWN OF BARNSTABLE
COASTAL INFRASTRUCTURE INVENTORY
AND ASSESSMENT PROJECT
DECEMBER 2007

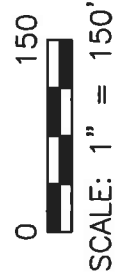
0 150
SCALE: 1" = 150'



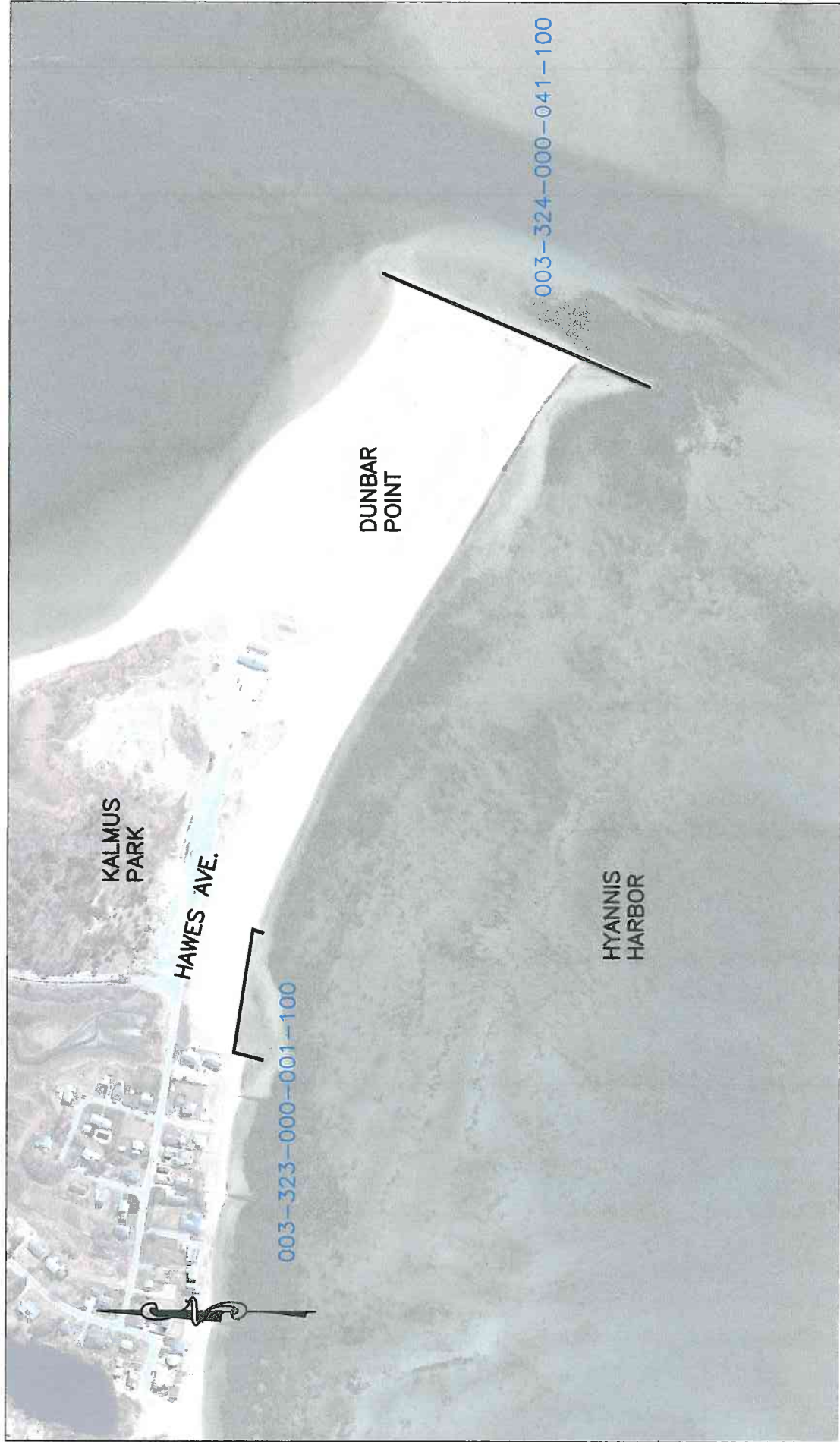


COASTAL STRUCTURE LOCATION PLAN

TOWN OF BARNSTABLE
COASTAL INFRASTRUCTURE INVENTORY
AND ASSESSMENT PROJECT
DECEMBER 2007



BCE *Bourne Consulting Engineering*
2nd Floor
100 State Street
Barnstable, MA 02532
TEL: (508) 533-4000 FAX: (508) 533-4000



COASTAL STRUCTURE LOCATION PLAN

TOWN OF BARNSTABLE
COASTAL INFRASTRUCTURE INVENTORY
AND ASSESSMENT PROJECT
DECEMBER 2007



**BCE**

Bourne Consulting Engineering
2007
Professional Seal
P.E. (MA) 000-0000 P.E. (MA) 000-0000



File: X:\27652-\27667\Cape Cod\CI-3\Barnstable\dwg\Barnstable.dwg

COASTAL STRUCTURE LOCATION PLAN

TOWN OF BARNSTABLE
COASTAL INFRASTRUCTURE INVENTORY
AND ASSESSMENT PROJECT
DECEMBER 2007



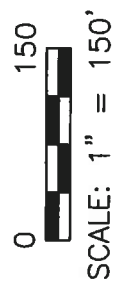
SCALE: 1" = 150'

	Bourne Consulting Engineering 30 West Street Barnstable, MA 02532 TEL: (508) 552-0000 FAX: (508) 552-0000
	SHEET 5

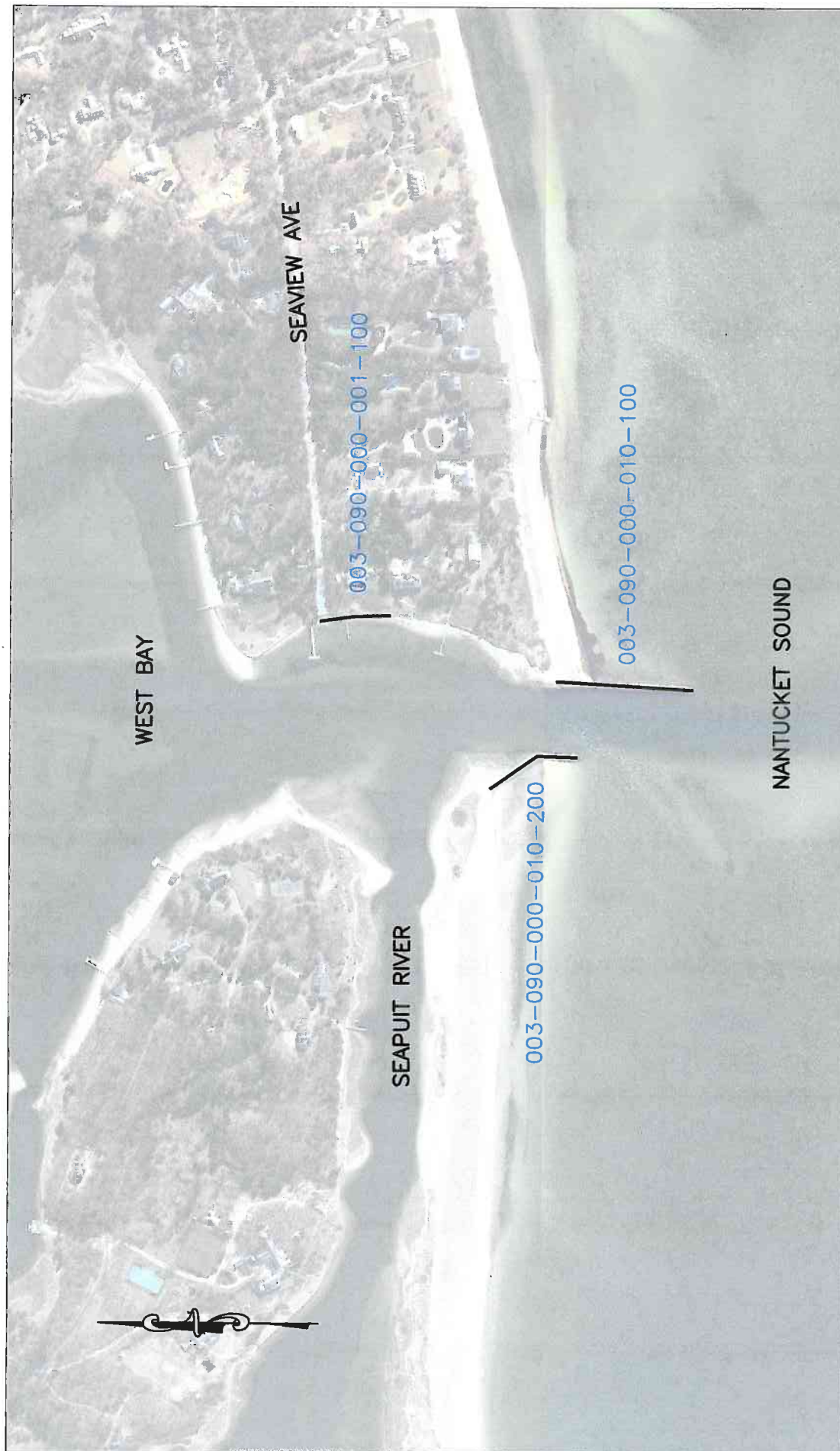


COASTAL STRUCTURE LOCATION PLAN

TOWN OF BARNSTABLE
COASTAL INFRASTRUCTURE INVENTORY
AND ASSESSMENT PROJECT
DECEMBER 2007

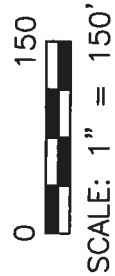


**Bourne Consulting Engineering**
300 West Street
Barnstable, MA 02532
TEL: (508) 535-0000 FAX: (508) 535-0000



COASTAL STRUCTURE LOCATION PLAN

TOWN OF BARNSTABLE
COASTAL INFRASTRUCTURE INVENTORY
AND ASSESSMENT PROJECT
DECEMBER 2007



**BCE**

Bourne Consulting Engineering
2nd Floor
Framingham, MA 01901
TEL: (508) 833-0000 FAX: (508) 833-0000



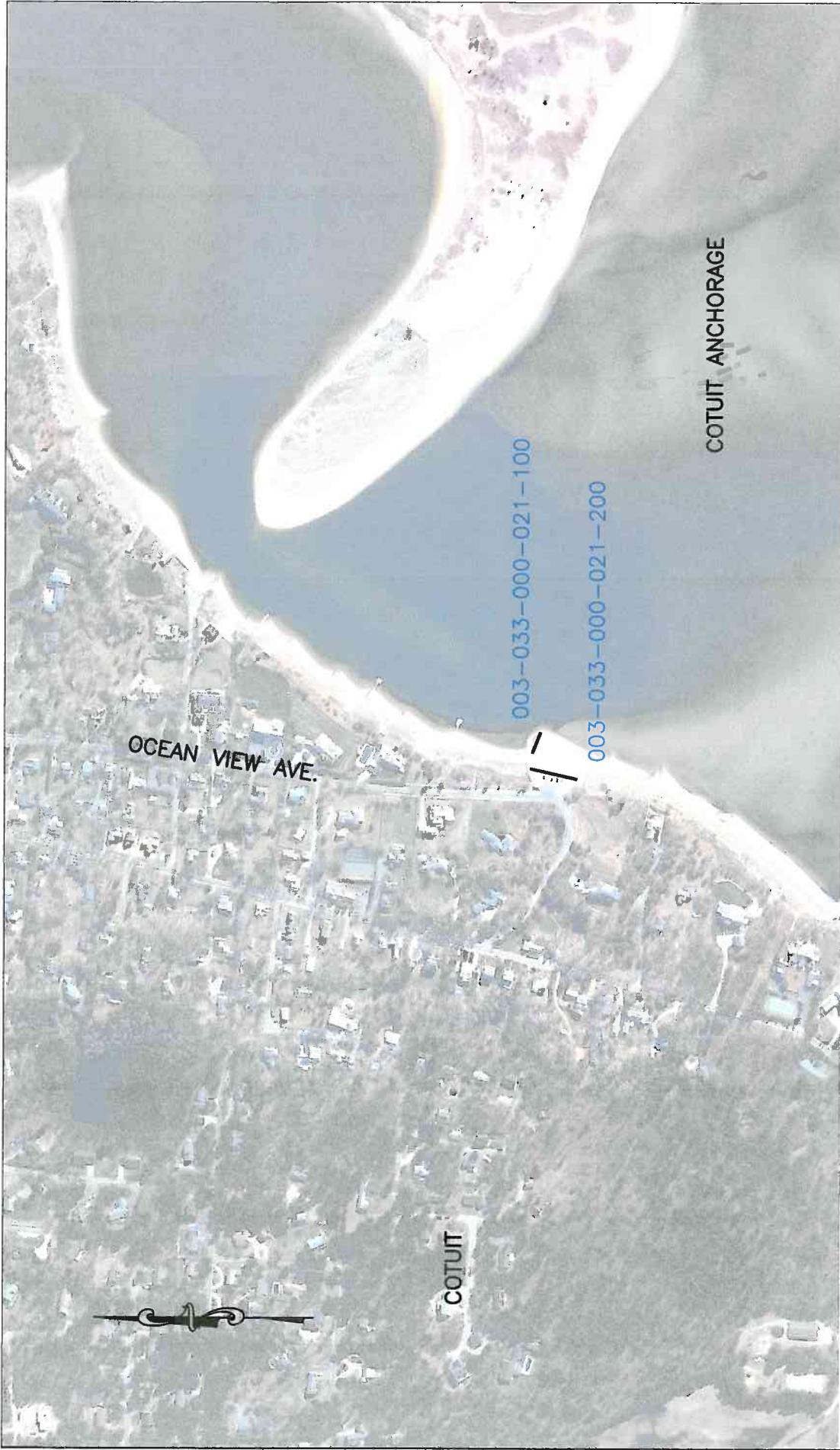
File: X:\27652-\27667\Cape Cod\CI-3\Barnstable\dwg\Barnstable.dwg

COASTAL STRUCTURE LOCATION PLAN

TOWN OF BARNSTABLE
COASTAL INFRASTRUCTURE INVENTORY
AND ASSESSMENT PROJECT
DECEMBER 2007



**Bourne Consulting Engineering**
200 West Street
Plymouth, MA 01959
TEL: (508) 833-0000 FAX: (508) 833-0000



COASTAL STRUCTURE LOCATION PLAN

TOWN OF BARNSTABLE
COASTAL INFRASTRUCTURE INVENTORY
AND ASSESSMENT PROJECT
DECEMBER 2007



SCALE: 1" = 150'



Bourne Consulting Engineering
1000 Main Street
Barnstable, MA 02532
TEL: (508) 533-0000 FAX: (508) 533-0000

Structure Assessment FormStructure ID: **003-033-000-021-100**

Key: community-map-block-parcel-structure

Property Owner:

Local

Location:

Ocean View Avenue

Date:

10/31/2007

Presumed Structure Owner:

Local

Based On Comment:

Owner Name:

Barnstable

Earliest Structure Record:

1937

Estimated Reconstruction/Repair Cost:

\$53,120.00

Length:

80

Feet

Top Elevation:

Feet NAVD 88

FIRM Map Zone:

V11

FIRM Map Elevation:

19

Feet NGVD

Primary Type:

Groin/ Jetty

Primary Material:

Stone

Primary Height:

Under 5 Feet

Secondary Type:

Secondary Material:

Secondary Height:

**Structure Summary :**

This structure is a groin at Ocean View Avenue beach. The armor stone is becoming unraveled with the side slopes coming away from the crest. The groin is very low profile and is partially buried.

*Condition***C***Rating***Fair***Level of Action***Moderate***Description*

Structure is sound but may exhibit minor deterioration, section loss, cracking, spalling, undermining, and/or scour. Structure adequate to withstand major coastal storm with little to moderate damage. Actions taken to reinforce structure to provide full protection from major coastal storm and for extending life of structure. Moderate wind or wave damage to landform exists. Landform may not be sufficient to fully protect shoreline during a major coastal storm. Actions taken to provide addition material for full protection and extended life.

*Priority***III***Rating***Moderate Priority***Action*

Consider for Active Project Improvement Listing

Description

Inshore Structures with potential for Infrastructure Damage and/or Limited Residential Dwellings (<1 dwelling impacted / 100 feet of shoreline)

Structure Images:**003-033-000-021-100-PHO1A.jpg****Structure Documents:****USACE****May 1949****Proposed Groin****003-033-000-021-100-COE1A****MA-DCR****November 1****Proposed Concrete****003-033-000-021-100-DCR1A**

Structure Assessment FormStructure ID: **003-033-000-021-200**

Key: community-map-block-parcel-structure

Property Owner:

Local

Location:

Ocean View Avenue

Date:

10/31/2007

Presumed Structure Owner:

Local

Based On Comment:

Owner Name:

Barnstable

Earliest Structure Record:

1937

Estimated Reconstruction/Repair Cost:

\$68,006.00

Length:

160

Feet

Top Elevation:

Feet NAVD 88

FIRM Map Zone:

V11

FIRM Map Elevation:

19

Feet NGVD

Primary Type:

Bulkhead/ Seawall

Primary Material:

Concrete

Primary Height:

Under 5 Feet

Secondary Type:

Secondary Material:

Secondary Height:



Structure Summary :

This structure is a concrete seawall at Ocean View Avenue beach. It has a recurved front with a vertical cap on top. The wall is weathered, cracked, and spalling but still solid.

*Condition***C***Rating***Fair***Level of Action***Moderate***Description*

Structure is sound but may exhibit minor deterioration, section loss, cracking, spalling, undermining, and/or scour. Structure adequate to withstand major coastal storm with little to moderate damage. Actions taken to reinforce structure to provide full protection from major coastal storm and for extending life of structure. Moderate wind or wave damage to landform exists. Landform may not be sufficient to fully protect shoreline during a major coastal storm. Actions taken to provide addition material for full protection and extended life.

*Priority***III***Rating***Moderate Priority***Action*

Consider for Active Project Improvement Listing

Description

Inshore Structures with potential for Infrastructure Damage and/or Limited Residential Dwellings (<1 dwelling impacted / 100 feet of shoreline)

Structure Images:

003-033-000-021-200-PHO2A.jpg

Structure Documents:

MA-DCR**November 1****Proposed Concrete****003-033-000-021-200-DCR2A****MA-DCR****October 194****Proposed Shore****003-033-000-021-200-DCR2B**

Structure Assessment FormStructure ID: **003-035-000-072-100**

Key: community-map-block-parcel-structure

Property Owner:

Local

Location:

Old Shore Road

Date:

10/31/2007

Presumed Structure Owner:

Local

Based On Comment:

Owner Name:

Barnstable

Earliest Structure Record:

Unknown

Estimated Reconstruction/Repair Cost:

\$97,759.00

Length:

115

Feet

Top Elevation:

Feet NAVD 88

FIRM Map Zone:

V11

FIRM Map Elevation:

19

Feet NGVD

Primary Type:

Bulkhead/ Seawall

Primary Material:

Concrete

Primary Height:

Under 5 Feet

Secondary Type:

Secondary Material:

Secondary Height:



Structure Summary :

This structure is a concrete seawall at Old Shore Road adjacent to the boat ramp. The face and crest are cracked and spalled. The wall is especially degraded at the northern end.

*Condition***D***Rating***Poor***Level of Action***Major***Description*

Structure exhibits advanced levels of deterioration, section loss, cracking, spalling, undermining, and/or scour. Structure has strong risk of significant damage and possible failure during a major coastal storm. Structure should be monitored until repairs/reconstruction can be initiated. Actions taken to reconstruct structure to regain full capacity to resist a major coastal storm. Landform eroded, stability threatened. Landform not adequate to provide protection during major coastal storm. Actions taken to recreate landform to adequate limits for full protection from a major coastal storm.

*Priority***II***Rating***Low Priority***Action***Future Project Consideration***Description*

Inshore Structures Present with Limited potential for Significant Infrastructure Damage

Structure Images:

003-035-000-072-100-PHO1A.jpg**003-035-000-072-100-PHO1B.jpg**

Structure Documents:

Structure Assessment Form

Town: **Barnstable**

Structure ID: 003-090-000-001-100

Key: community-map-block-parcel-structure

Property Owner:

Local

Location:

Sea View Avenue

Date:

10/31/2007

Presumed Structure Owner:

Local

Based On Comment:

Owner Name:

Barnstable

Earliest Structure Record:

Unknown

Estimated Reconstruction/Repair Cost:

\$144,144.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
240		V17	14
Feet	Feet NAVD 88		Feet NGVD

Primary Type:

Revetment

Primary Material:

Stone

Primary Height:

5 to 10 Feet

Secondary Type:

Secondary Material:

Secondary Height:



Structure Summary :

This structure is a revetment at the terminus of Sea View Ave. It is generally in good condition but is coming unraveled at the south end. There is a gap developing between the crest and side slopes.

Condition

C

Rating

Fair

Level of Action

Moderate

Description

Structure is sound but may exhibit minor deterioration, section loss, cracking, spalling, undermining, and/or scour. Structure adequate to withstand major coastal storm with little to moderate damage. Actions taken to reinforce structure to provide full protection from major coastal storm and for extending life of structure. Moderate wind or wave damage to landform exists. Landform may not be sufficient to fully protect shoreline during a major coastal storm. Actions taken to provide addition material for full protection and extended life.

Priority

II

Rating

Low Priority

Action

Future Project Consideration

Description

Inshore Structures Present with Limited potential for Significant Infrastructure Damage

Structure Images:

003-090-000-001-100-PHO1A.jpg

Structure Documents:

Structure Assessment Form

Town: **Barnstable**Structure ID: **003-090-000-010-100**

Key: community-map-block-parcel-structure

Property Owner:

Local

Location:

Dead Neck

Date:

10/31/2007

Presumed Structure Owner:

Local

Based On Comment:

Owner Name:

Barnstable

Earliest Structure Record:

1947

Estimated Reconstruction/Repair Cost:

\$1,105,104.00

Length: Top Elevation: FIRM Map Zone: FIRM Map Elevation:

460

V17

16

Feet

Feet NAVD 88

Feet NGVD

Primary Type:

Groin/ Jetty

Primary Material:

Stone

Primary Height:

5 to 10 Feet

Secondary Type:

Secondary Material:

Secondary Height:



Structure Summary :

This structure is the east jetty at Dead Neck. There are multiple areas where the side slopes are falling away from the crest and the crest has lost elevation. Some of the armor stones are cracked.

Condition

D

Rating

Poor

Level of Action

Major

Description

Structure exhibits advanced levels of deterioration, section loss, cracking, spalling, undermining, and/or scour. Structure has strong risk of significant damage and possible failure during a major coastal storm. Structure should be monitored until repairs/reconstruction can be initiated. Actions taken to reconstruct structure to regain full capacity to resist a major coastal storm. Landform eroded, stability threatened. Landform not adequate to provide protection during major coastal storm. Actions taken to recreate landform to adequate limits for full protection from a major coastal storm.

Priority

III

Rating

Moderate Priority

Action

Consider for Active Project Improvement Listing

Description

Inshore Structures with potential for Infrastructure Damage and/or Limited Residential Dwellings (<1 dwelling impacted / 100 feet of shoreline)

Structure Images:

003-090-000-010-100-PHO1A.jpg

Structure Documents:

USACE	May 1953	Proposed Jetty	003-090-000-010-100-COE1A
MA-DCR	February 19	Proposed Shore	003-090-000-010-100-DCR1A
MA-DCR	April 1953	Proposed	003-090-000-010-100-DCR1B
MA-DCR	December 1	Proposed Shore	003-090-000-010-100-DCR1C

Structure Assessment FormStructure ID: **003-090-000-010-200**

Key: community-map-block-parcel-structure

Property Owner:

Local

Location:

Dead Neck

Date:

10/31/2007

Presumed Structure Owner:

Local

Based On Comment:

Owner Name:

Barnstable

Earliest Structure Record:

1953

Estimated Reconstruction/Repair Cost:

\$792,792.00

Length:

330

Feet

Top Elevation:

Feet NAVD 88

FIRM Map Zone:

V17

FIRM Map Elevation:

16

Feet NGVD

Primary Type:

Groin/ Jetty

Primary Material:

Stone

Primary Height:

5 to 10 Feet

Secondary Type:

Secondary Material:

Secondary Height:



Structure Summary :

This structure is the west jetty at Dead Neck. The landward portion is in fair condition, with straight crest and side slopes. The outer section is unraveled and slumped considerably.

*Condition***D***Rating***Poor***Level of Action***Major***Description*

Structure exhibits advanced levels of deterioration, section loss, cracking, spalling, undermining, and/or scour. Structure has strong risk of significant damage and possible failure during a major coastal storm. Structure should be monitored until repairs/reconstruction can be initiated. Actions taken to reconstruct structure to regain full capacity to resist a major coastal storm. Landform eroded, stability threatened. Landform not adequate to provide protection during major coastal storm. Actions taken to recreate landform to adequate limits for full protection from a major coastal storm.

*Priority***III***Rating***Moderate Priority***Action*

Consider for Active Project Improvement Listing

Description

Inshore Structures with potential for Infrastructure Damage and/or Limited Residential Dwellings (<1 dwelling impacted / 100 feet of shoreline)

Structure Images:**003-090-000-010-200-PHO2A.jpg****003-090-000-010-200-PHO2B.jpg****003-090-000-010-200-PHO2C.jpg****Structure Documents:****MA-DCR****April 1953****Proposed****003-090-000-010-200-DCR2A****MA-DCR****December 1****Proposed Shore****003-090-000-010-200-DCR2B**

Structure Assessment Form

Town: **Barnstable**Structure ID: **003-162-000-028-100**

Key: community-map-block-parcel-structure

Property Owner:

Local

Location:

Wianno Avenue

Date:

10/31/2007

Presumed Structure Owner:

Local

Based On Comment:

Owner Name:

Barnstable

Earliest Structure Record:

1955

Estimated Reconstruction/Repair Cost:

\$7,808.00

Length:

65

Feet

Top Elevation:

Feet NAVD 88

FIRM Map Zone:

V11

FIRM Map Elevation:

18

Feet NGVD

Primary Type:

Revetment

Primary Material:

Stone

Primary Height:

5 to 10 Feet

Secondary Type:

Secondary Material:

Secondary Height:



Structure Summary :

This structure is a stone revetment at the end of Wianno Avenue. The crest and side slopes are in good condition. The crest is vegetated and the structure toe is buried.

*Condition***B***Rating***Good***Level of Action***Minor***Description*

Structure observed to exhibit very minor problems, superficial in nature. Minor erosion to landform is present. Structure / landform adequate to provide protection from a major coastal storm with no damage. Actions taken to prevent / limit future deterioration and extend life of structure.

*Priority***II***Rating***Low Priority***Action***Future Project Consideration***Description*

Inshore Structures Present with Limited potential for Significant Infrastructure Damage

Structure Images:

003-162-000-028-100-PHO1A.jpg

Structure Documents:

MA-DCR**June 1955****Proposed Shore****003-162-000-028-100-DCR1A**

Structure Assessment FormStructure ID: **003-163-000-013-100**

Key: community-map-block-parcel-structure

Property Owner:

Local

Location:

Dowses Beach

Date:

10/31/2007

Presumed Structure Owner:

Local

Based On Comment:

Owner Name:

Barnstable

Earliest Structure Record:

1948

Estimated Reconstruction/Repair Cost:

\$858,715.00

Length: Top Elevation: FIRM Map Zone: FIRM Map Elevation:

715**V16****15**

Feet

Feet NAVD 88

Feet NGVD

Primary Type:

Groin/ Jetty

Primary Material:

Stone

Primary Height:

5 to 10 Feet

Secondary Type:

Secondary Material:

Secondary Height:

**Structure Summary :**

This structure is the west jetty at Dowses Beach. The crest and sideslopes are generally in good condition. There is some slumping and loss of crest elevation in the center section.

*Condition***C***Rating***Fair***Level of Action***Moderate***Description*

Structure is sound but may exhibit minor deterioration, section loss, cracking, spalling, undermining, and/or scour. Structure adequate to withstand major coastal storm with little to moderate damage. Actions taken to reinforce structure to provide full protection from major coastal storm and for extending life of structure. Moderate wind or wave damage to landform exists. Landform may not be sufficient to fully protect shoreline during a major coastal storm. Actions taken to provide addition material for full protection and extended life.

*Priority***III***Rating***Moderate Priority***Action*

Consider for Active Project Improvement Listing

Description

Inshore Structures with potential for Infrastructure Damage and/or Limited Residential Dwellings (<1 dwelling impacted / 100 feet of shoreline)

Structure Images:**003-163-000-013-100-PHO1A.jpg****003-163-000-013-100-PHO1B.jpg****Structure Documents:****USACE****December 1****Proposed Jetty****003-163-000-013-100-COE1A****MA-DCR****October 194****Proposed Shore****003-163-000-013-100-DCR1A****MA-DCR****November 1****Proposed Jetty****003-163-000-013-100-DCR1B****DEP****September 1****Plans Accompanying****003-163-000-013-100-LIC1A**

Structure Assessment Form

Town: **Barnstable**Structure ID: **003-163-000-013-200**

Key: community-map-block-parcel-structure

Property Owner:

Local

Location:

Dowses Beach

Date:

10/31/2007

Presumed Structure Owner:

Local

Based On Comment:

Owner Name:

Barnstable

Earliest Structure Record:

Unknown

Estimated Reconstruction/Repair Cost:

\$13,200.00

Length:

200

Feet

Top Elevation:

Feet NAVD 88

FIRM Map Zone:

A13

FIRM Map Elevation:

12

Feet NGVD

Primary Type:

Revetment

Primary Material:

Stone

Primary Height:

Under 5 Feet

Secondary Type:

Secondary Material:

Secondary Height:



Structure Summary :

This structure is riprap protection along the road crossing to Dowses Beach. The crest and side slopes are in good condition. The crest area is vegetated and the structure is fronted by a low-tide beach and marsh grass.

*Condition***B***Rating***Good***Level of Action***Minor***Description*

Structure observed to exhibit very minor problems, superficial in nature. Minor erosion to landform is present. Structure / landform adequate to provide protection from a major coastal storm with no damage. Actions taken to prevent / limit future deterioration and extend life of structure.

*Priority***III***Rating***Moderate Priority***Action*

Consider for Active Project Improvement Listing

Description

Inshore Structures with potential for Infrastructure Damage and/or Limited Residential Dwellings (<1 dwelling impacted / 100 feet of shoreline)

Structure Images:

003-163-000-013-200-PHO2A.jpg

Structure Documents:

Structure Assessment Form

Town: **Barnstable**Structure ID: **003-300-000-022-100**

Key: community-map-block-parcel-structure

Property Owner:

Local

Location:

Barnstable Marina

Date:

10/31/2007

Presumed Structure Owner:

Local

Based On Comment:

Owner Name:

Barnstable

Earliest Structure Record:

1949

Estimated Reconstruction/Repair Cost:

\$463,980.00

Length:

370

Feet

Top Elevation:

Feet NAVD 88

FIRM Map Zone:

V4

FIRM Map Elevation:

15

Feet NGVD

Primary Type:

Bulkhead/ Seawall

Primary Material:

Steel

Primary Height:

10 to 15 Feet

Secondary Type:

Secondary Material:

Secondary Height:



Structure Summary :

This structure is a bulkhead at the Barnstable Marina parking lot. The steel sheet pile is rusted but solid. The timber caps are splintered in sections.

Condition

C

Rating

Fair

Level of Action

Moderate

Description

Structure is sound but may exhibit minor deterioration, section loss, cracking, spalling, undermining, and/or scour. Structure adequate to withstand major coastal storm with little to moderate damage. Actions taken to reinforce structure to provide full protection from major coastal storm and for extending life of structure. Moderate wind or wave damage to landform exists. Landform may not be sufficient to fully protect shoreline during a major coastal storm. Actions taken to provide additional material for full protection and extended life.

Priority

III

Rating

Moderate Priority

Action

Consider for Active Project Improvement Listing

Description

Inshore Structures with potential for Infrastructure Damage and/or Limited Residential Dwellings (<1 dwelling impacted / 100 feet of shoreline)

Structure Images:

003-300-000-022-100-PHO1A.jpg

Structure Documents:

USACE	January 195	Proposed Timber	003-300-000-022-100-COE1A
MA-DCR	December 1	Proposed Timber	003-300-000-022-100-DCR1A
DEP	November 1	Plan Accompanying	003-300-000-022-100-LIC1A
DEP	October 198	Plan Accompanying	003-300-000-022-100-LIC1B

Structure Assessment Form

Town: **Barnstable**Structure ID: **003-300-000-022-200**

Key: community-map-block-parcel-structure

Property Owner:

Local

Location:

Barnstable Marina

Date:

10/31/2007

Presumed Structure Owner:

Local

Based On Comment:

Owner Name:

Barnstable

Earliest Structure Record:

1949

Estimated Reconstruction/Repair Cost:

\$758,063.00

Length: Top Elevation:

405

FIRM Map Zone:

V4

FIRM Map Elevation:

15

Feet

Feet NAVD 88

Feet NGVD

Primary Type:

Bulkhead/ Seawall

Primary Material:

Wood

Primary Height:

10 to 15 Feet

Secondary Type:

Secondary Material:

Secondary Height:



Structure Summary :

This structure is a wooden bulkhead at the southern end of Barnstable Marina. The timber cap and piles are splintered and damaged. There is evidence of fill loss from behind the wall.

Condition

F

Rating

Critical

Level of Action

Immediate

Description

Conditions of structure/landform may warrant emergency stabilization as failure may result in potential loss of property and/or life. Landform eroded, loss of integrity. Structure exhibits critical levels of deterioration, section loss, cracking, spalling, undermining, and/or scour. Structure provides little or no protection from a major coastal storm. Actions taken to totally reconstruct structure to regain full capacity. Landform stability is severely compromised, rate of erosion/material loss may be increasing, and landform does not provide adequate protection from a major coastal storm. Actions taken to recreate landform to adequate limits for full protection from a major coastal storm.

Priority

III

Rating

Moderate Priority

Action

Consider for Active Project Improvement Listing

Description

Inshore Structures with potential for Infrastructure Damage and/or Limited Residential Dwellings (<1 dwelling impacted / 100 feet of shoreline)

Structure Images:

003-300-000-022-200-PHO2A.jpg

Structure Documents:

USACE

March 1954

Proposed Harbor

003-300-000-022-200-COE2A

MA-DCR

December 1

Proposed Timber

003-300-000-022-200-DCR2A

Structure Assessment Form

Town: **Barnstable**Structure ID: **003-300-000-022-300**

Key: community-map-block-parcel-structure

Property Owner:

Local

Location:

Barnstable Marina

Date:

10/31/2007

Presumed Structure Owner:

Local

Based On Comment:

Owner Name:

Barnstable

Earliest Structure Record:

1949

Estimated Reconstruction/Repair Cost:

\$264,264.00

Length:

440

Feet

Top Elevation:

Feet NAVD 88

FIRM Map Zone:

V4

FIRM Map Elevation:

15

Feet NGVD

Primary Type:

Revetment

Primary Material:

Stone

Primary Height:

5 to 10 Feet

Secondary Type:

Secondary Material:

Secondary Height:



Structure Summary :

This structure is a revetment along the west side of Barnstable Harbor. The structure generally has a clean side slope. The crest is obscured by vegetation, making inspection difficult. Some of the armor stones in sections of the side slopes are slumped and there is loss of elevation.

Condition

C

Rating

Fair

Level of Action

Moderate

Description

Structure is sound but may exhibit minor deterioration, section loss, cracking, spalling, undermining, and/or scour. Structure adequate to withstand major coastal storm with little to moderate damage. Actions taken to reinforce structure to provide full protection from major coastal storm and for extending life of structure. Moderate wind or wave damage to landform exists. Landform may not be sufficient to fully protect shoreline during a major coastal storm. Actions taken to provide addition material for full protection and extended life.

Priority

III

Rating

Moderate Priority

Action

Consider for Active Project Improvement Listing

Description

Inshore Structures with potential for Infrastructure Damage and/or Limited Residential Dwellings (<1 dwelling impacted / 100 feet of shoreline)

Structure Images:

003-300-000-022-300-PHO3A.jpg

Structure Documents:

USACE	March 1954	Proposed Harbor	003-300-000-022-300-COE3A
USACE	June 1977	Plan to Accompany	003-300-000-022-300-COE3B
MA-DCR	December 1	Proposed Timber	003-300-000-022-300-DCR3A
DEP	August 1977	Plan to Accompany	003-300-000-022-300-LIC3A

Structure Assessment FormStructure ID: **003-301-000-009-100**

Key: community-map-block-parcel-structure

Property Owner:

Local

Location:

Millway Road

Date:

10/31/2007

Presumed Structure Owner:

Local

Based On Comment:

Owner Name:

Barnstable

Earliest Structure Record:

1956

Estimated Reconstruction/Repair Cost:

\$91,476.00

Length: Top Elevation: FIRM Map Zone: FIRM Map Elevation:

275**V4****15**

Feet

Feet NAVD 88

Feet NGVD

Primary Type:

Revetment

Primary Material:

Stone

Primary Height:

Under 5 Feet

Secondary Type:

Secondary Material:

Secondary Height:



Structure Summary :

This structure is the stone revetment at the end of Millway Road. There is some armor unraveled and some loss of crest elevation. The structure crest is vegetated and the toe is buried.

*Condition***C***Rating***Fair***Level of Action***Moderate***Description*

Structure is sound but may exhibit minor deterioration, section loss, cracking, spalling, undermining, and/or scour. Structure adequate to withstand major coastal storm with little to moderate damage. Actions taken to reinforce structure to provide full protection from major coastal storm and for extending life of structure. Moderate wind or wave damage to landform exists. Landform may not be sufficient to fully protect shoreline during a major coastal storm. Actions taken to provide addition material for full protection and extended life.

*Priority***III***Rating***Moderate Priority***Action*

Consider for Active Project Improvement Listing

Description

Inshore Structures with potential for Infrastructure Damage and/or Limited Residential Dwellings (<1 dwelling impacted / 100 feet of shoreline)

Structure Images:

003-301-000-009-100-PHO1A.jpg

Structure Documents:

MA-DCR**May 1956****Proposed Shore****003-301-000-009-100-DCR1A**

Structure Assessment FormStructure ID: **003-305-000-001-100**

Key: community-map-block-parcel-structure

Property Owner:

Local

Location:

Ocean Avenue at Stewarts Creek

Date:

10/31/2007

Presumed Structure Owner:

Local

Based On Comment:

Owner Name:

Barnstable

Earliest Structure Record:

1956

Estimated Reconstruction/Repair Cost:

\$378,315.00

Length:

315

Feet

Top Elevation:

Feet NAVD 88

FIRM Map Zone:

V16

FIRM Map Elevation:

15

Feet NGVD

Primary Type:

Groin/ Jetty

Primary Material:

Stone

Primary Height:

5 to 10 Feet

Secondary Type:

Secondary Material:

Secondary Height:



Structure Summary :

This structure is a jetty for flow from Stewarts Creek under Ocean Avenue. The outer section along the beach is in good condition. The trunk section closer to the culvert is unraveled and the crest has slumped.

*Condition***C***Rating***Fair***Level of Action***Moderate***Description*

Structure is sound but may exhibit minor deterioration, section loss, cracking, spalling, undermining, and/or scour. Structure adequate to withstand major coastal storm with little to moderate damage. Actions taken to reinforce structure to provide full protection from major coastal storm and for extending life of structure. Moderate wind or wave damage to landform exists. Landform may not be sufficient to fully protect shoreline during a major coastal storm. Actions taken to provide addition material for full protection and extended life.

*Priority***III***Rating***Moderate Priority***Action*

Consider for Active Project Improvement Listing

Description

Inshore Structures with potential for Infrastructure Damage and/or Limited Residential Dwellings (<1 dwelling impacted / 100 feet of shoreline)

Structure Images:

003-305-000-001-100-PHO1A.jpg**003-305-000-001-100-PHO1B.jpg**

Structure Documents:

MA-DCR**November 1****Proposed Beach****003-305-000-001-100-DCR1A**

Structure Assessment Form

Town: **Barnstable**Structure ID: **003-305-000-001-200**

Key: community-map-block-parcel-structure

Property Owner:

Local

Location:

Stewarts Creek at Ocean Avenue

Date:

10/31/2007

Presumed Structure Owner:

Local

Based On Comment:

Owner Name:

Barnstable

Earliest Structure Record:

Unknown

Estimated Reconstruction/Repair Cost:

\$66,396.00

Length:

50

Feet

Top Elevation:

Feet NAVD 88

FIRM Map Zone:

V16

FIRM Map Elevation:

15

Feet NGVD

Primary Type:

Groin/ Jetty

Primary Material:

Stone

Primary Height:

Under 5 Feet

Secondary Type:

Secondary Material:

Secondary Height:



Structure Summary :

This structure is a small stone groin at Stewarts Creek. There are no appreciable side slopes observed. The groin is very low profile and is submerged at high tide.

Condition

D

Rating

Poor

Level of Action

Major

Description

Structure exhibits advanced levels of deterioration, section loss, cracking, spalling, undermining, and/or scour. Structure has strong risk of significant damage and possible failure during a major coastal storm. Structure should be monitored until repairs/reconstruction can be initiated. Actions taken to reconstruct structure to regain full capacity to resist a major coastal storm. Landform eroded, stability threatened. Landform not adequate to provide protection during major coastal storm. Actions taken to recreate landform to adequate limits for full protection from a major coastal storm.

Priority

I

Rating

None

Action

Long Term Planning Considerations

Description

No Inshore Structures or Residential Dwelling Units Present

Structure Images:

003-305-000-001-200-PHO2A.jpg

Structure Documents:

Structure Assessment Form

Town: Barnstable

Structure ID: 003-323-000-001-100

Key: community-map-block-parcel-structure

Property Owner:

Local

Location:

Kalmus Beach

Date:

10/31/2007

Presumed Structure Owner:

Local

Based On Comment:

Owner Name:

Barnstable

Earliest Structure Record:

1950

Estimated Reconstruction/Repair Cost:

\$139,440.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
210		V15	15
Feet	Feet NAVD 88		Feet NGVD

Primary Type:

Groin/ Jetty

Primary Material:

Stone

Primary Height:

Under 5 Feet

Secondary Type:

Secondary Material:

Secondary Height:



Structure Summary :

This structure is a pair of groins at Kalmus Beach. The western groin is longer and abuts a seawall for a private residence. Both groins are becoming partially unraveled.

Condition

C

Rating

Fair

Level of Action

Moderate

Description

Structure is sound but may exhibit minor deterioration, section loss, cracking, spalling, undermining, and/or scour. Structure adequate to withstand major coastal storm with little to moderate damage. Actions taken to reinforce structure to provide full protection from major coastal storm and for extending life of structure. Moderate wind or wave damage to landform exists. Landform may not be sufficient to fully protect shoreline during a major coastal storm. Actions taken to provide addition material for full protection and extended life.

Priority

I

Rating

None

Action

Long Term Planning Considerations

Description

No Inshore Structures or Residential Dwelling Units Present

Structure Images:

003-323-000-001-100-PHO1A.jpg

003-323-000-001-100-PHO1B.jpg

Structure Documents:

USACE

September 1

Proposed Stone

003-323-000-001-100-COE1A

MA-DCR

September 1

Proposed Shore

003-323-000-001-100-DCR1A

DEP

July 1986

Plan Accompanying

003-323-000-001-100-LIC1A

Structure Assessment Form

Structure ID: 003-324-000-038-100

Key: community-map-block-parcel-structure

Property Owner:

Local

Location:

Veteran's Memorial Beach

Date:

10/31/2007

Presumed Structure Owner:

Local

Based On Comment:

Owner Name:

Barnstable

Earliest Structure Record:

1954

Estimated Reconstruction/Repair Cost:

\$192,560.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
290		V15	15
Feet	Feet NAVD 88		Feet NGVD

Primary Type:

Groin/ Jetty

Primary Material:

Stone

Primary Height:

Under 5 Feet

Secondary Type:

Secondary Material:

Secondary Height:

**Structure Summary :**

This structure is a small jetty at Veteran's Memorial Beach. There is some slumping of the crest and evidence of erosion behind the jetty. Some of the armor stones have broken. Sand is leaking through the outer end.

Condition

C

Rating

Fair

Level of Action

Moderate

Description

Structure is sound but may exhibit minor deterioration, section loss, cracking, spalling, undermining, and/or scour. Structure adequate to withstand major coastal storm with little to moderate damage. Actions taken to reinforce structure to provide full protection from major coastal storm and for extending life of structure. Moderate wind or wave damage to landform exists. Landform may not be sufficient to fully protect shoreline during a major coastal storm. Actions taken to provide addition material for full protection and extended life.

Priority

II

Rating

Low Priority

Action

Future Project Consideration

Description

Inshore Structures Present with Limited potential for Significant Infrastructure Damage

Structure Images:

003-324-000-038-100-PHO1A.jpg

Structure Documents:

USACE	July 1954	Proposed Seawall	003-324-000-038-100-COE1A
MA-DCR	June 1954	Proposed Seawall	003-324-000-038-100-DCR1A
MA-DCR	September 1	Proposed Shore	003-324-000-038-100-DCR1B

Structure Assessment FormStructure ID: **003-324-000-038-200**

Key: community-map-block-parcel-structure

Property Owner:

Local

Location:

Veteran's Memorial Beach

Date:

10/31/2007

Presumed Structure Owner:

Local

Based On Comment:

Owner Name:

Barnstable

Earliest Structure Record:

1954

Estimated Reconstruction/Repair Cost:

\$342,157.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
805		V15	15
Feet	Feet NAVD 88		Feet NGVD

Primary Type:

Bulkhead/ Seawall

Primary Material:

Concrete

Primary Height:

Under 5 Feet

Secondary Type:

Secondary Material:

Secondary Height:

**Structure Summary :**

This structure is the concrete seawall frongint the parking lot at Veteran's Memorial Beach. The wall is mostly submerged by the beach. The top is weathered and there is some cracking and spalling evident.

*Condition***C***Rating***Fair***Level of Action***Moderate***Description*

Structure is sound but may exhibit minor deterioration, section loss, cracking, spalling, undermining, and/or scour. Structure adequate to withstand major coastal storm with little to moderate damage. Actions taken to reinforce structure to provide full protection from major coastal storm and for extending life of structure. Moderate wind or wave damage to landform exists. Landform may not be sufficient to fully protect shoreline during a major coastal storm. Actions taken to provide addition material for full protection and extended life.

*Priority***III***Rating***Moderate Priority***Action*

Consider for Active Project Improvement Listing

Description

Inshore Structures with potential for Infrastructure Damage and/or Limited Residential Dwellings (<1 dwelling impacted / 100 feet of shoreline)

Structure Images:**003-324-000-038-200-PHO2A.jpg****Structure Documents:**

USACE	July 1954	Proposed Seawall	003-324-000-038-200-COE2A
MA-DCR	June 1954	Proposed Seawall	003-324-000-038-200-DCR2A
MA-DCR	September 1	Proposed Shore	003-324-000-038-200-DCR2B

Structure Assessment Form

Town: **Barnstable**Structure ID: **003-324-000-041-100**

Key: community-map-block-parcel-structure

Property Owner:

Local

Location:

Kalmus Beach

Date:

10/31/2007

Presumed Structure Owner:

Local

Based On Comment:

Owner Name:

Barnstable

Earliest Structure Record:

1951

Estimated Reconstruction/Repair Cost:

\$1,182,985.00

Length: Top Elevation: FIRM Map Zone: FIRM Map Elevation:

985

V15

15

Feet

Feet NAVD 88

Feet NGVD

Primary Type:

Groin/ Jetty

Primary Material:

Stone

Primary Height:

5 to 10 Feet

Secondary Type:

Secondary Material:

Secondary Height:



Structure Summary :

This structure is the jetty at Kalmus Beach. The structure is generally in good condition with clear lines on the crest and sideslopes. There is minor slumping of the crest in the mid section.

Condition

C

Rating

Fair

Level of Action

Moderate

Description

Structure is sound but may exhibit minor deterioration, section loss, cracking, spalling, undermining, and/or scour. Structure adequate to withstand major coastal storm with little to moderate damage. Actions taken to reinforce structure to provide full protection from major coastal storm and for extending life of structure. Moderate wind or wave damage to landform exists. Landform may not be sufficient to fully protect shoreline during a major coastal storm. Actions taken to provide addition material for full protection and extended life.

Priority

IV

Rating

High Priority

Action

Consider for Next Project Construction Listing

Description

High Value Inshore Structures with Potential for Infrastructure Damage and/or Moderate Density Residential Dwellings (1-10 dwellings impacted / 100 feet of shoreline)

Structure Images:

003-324-000-041-100-PHO1A.jpg

Structure Documents:

USACE

November 1

Proposed Stone

003-324-000-041-100-COE1A

MA-DCR

October 195

Proposed Stone

003-324-000-041-100-DCR1A

Structure Assessment Form

Town: **Barnstable**Structure ID: **003-326-000-061-100**

Key: community-map-block-parcel-structure

Property Owner:

Local

Location:

Hyannis Inner Harbor

Date:

10/31/2007

Presumed Structure Owner:

Local

Based On Comment:

Owner Name:

Barnstable

Earliest Structure Record:

Unknown

Estimated Reconstruction/Repair Cost:

\$37,950.00

Length: Top Elevation: FIRM Map Zone: FIRM Map Elevation:

230

A9

10

Feet

Feet NAVD 88

Feet NGVD

Primary Type:

Bulkhead/ Seawall

Primary Material:

Steel

Primary Height:

5 to 10 Feet

Secondary Type:

Secondary Material:

Secondary Height:



Structure Summary :

This structure is a sheetpile seawall with a concrete cap at the northwest corner of Hyannis Inner Harbor. The concrete cap is in good condition. The timber whaling in front is weathered but solid.

Condition

B

Rating

Good

Level of Action

Minor

Description

Structure observed to exhibit very minor problems, superficial in nature. Minor erosion to landform is present. Structure / landform adequate to provide protection from a major coastal storm with no damage. Actions taken to prevent / limit future deterioration and extend life of structure.

Priority

III

Rating

Moderate Priority

Action

Consider for Active Project Improvement Listing

Description

Inshore Structures with potential for Infrastructure Damage and/or Limited Residential Dwellings (<1 dwelling impacted / 100 feet of shoreline)

Structure Images:

003-326-000-061-100-PHO1A.jpg

Structure Documents:

DEP	September 1	Plans Accompanying	003-326-000-061-100-LIC1A
DEP	June 1997	Plans Accompanying	003-326-000-061-100-LIC1B
DEP	November 1	Plan Accompanying	003-326-000-061-100-LIC1C

Structure Assessment Form

Town: **Barnstable**Structure ID: **003-326-000-068-100**

Key: community-map-block-parcel-structure

Property Owner:

Local

Location:

Hyannis Inner Harbor

Date:

10/31/2007

Presumed Structure Owner:

Local

Based On Comment:

Owner Name:

Barnstable

Earliest Structure Record:

1962

Estimated Reconstruction/Repair Cost:

\$846,450.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
675		A9	10
Feet	Feet NAVD 88		Feet NGVD

Primary Type:

Bulkhead/ Seawall

Primary Material:

Steel

Primary Height:

10 to 15 Feet

Secondary Type:

I

Secondary Material:

Secondary Height:



Structure Summary :

This structure is a steel sheetpile bulkhead with a concrete cap along the western side of Hyannis Inner Harbor. The sheetpile appears rusted in sections. The timber whaling are weathered but solid. The concrete cap is in good condition.

Condition

C

Rating

Fair

Level of Action

Moderate

Description

Structure is sound but may exhibit minor deterioration, section loss, cracking, spalling, undermining, and/or scour. Structure adequate to withstand major coastal storm with little to moderate damage. Actions taken to reinforce structure to provide full protection from major coastal storm and for extending life of structure. Moderate wind or wave damage to landform exists. Landform may not be sufficient to fully protect shoreline during a major coastal storm. Actions taken to provide addition material for full protection and extended life.

Priority

IV

Rating

High Priority

Action

Consider for Next Project Construction Listing

Description

High Value Inshore Structures with Potential for Infrastructure Damage and/or Moderate Density Residential Dwellings (1-10 dwellings impacted / 100 feet of shoreline)

Structure Images:

003-326-000-068-100-PHO1A.jpg

003-326-000-068-100-PHO1B.jpg

Structure Documents:

USACE

January 196

Proposed Steel

003-326-000-068-100-COE1A

DEP

November 1

Plan Accompanying

003-326-000-068-100-LIC1A

Section II - Barnstable

Part C

Structure Photographs

BCE Structure No	Document No	Contract/ Drawing Number	Entity	Municipality	Date	Title	Sheets	Location	Description
003-033-000-021-100	003-033-000-021-100-PHO1A.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
003-033-000-021-200	003-033-000-021-200-PHO2A.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
003-035-000-072-100	003-035-000-072-100-PHO1A.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
003-035-000-072-100	003-035-000-072-100-PHO1B.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
003-090-000-001-100	003-090-000-001-100-PHO1A.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
003-090-000-010-100	003-090-000-010-100-PHO1A.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
003-090-000-010-200	003-090-000-010-200-PHO2A.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
003-090-000-010-200	003-090-000-010-200-PHO2B.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
003-090-000-010-200	003-090-000-010-200-PHO2C.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
003-162-000-028-100	003-162-000-028-100-PHO1A.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
003-163-000-013-100	003-163-000-013-100-PHO1A.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
003-163-000-013-100	003-163-000-013-100-PHO1B.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
003-163-000-013-200	003-163-000-013-200-PHO2A.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
003-300-000-022-100	003-300-000-022-100-PHO1A.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
003-300-000-022-200	003-300-000-022-200-PHO2A.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
003-300-000-022-300	003-300-000-022-300-PHO3A.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
003-301-000-009-100	003-301-000-009-100-PHO1A.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
003-305-000-001-100	003-305-000-001-100-PHO1A.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
003-305-000-001-100	003-305-000-001-100-PHO1B.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
003-305-000-001-200	003-305-000-001-200-PHO2A.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
003-323-000-001-100	003-323-000-001-100-PHO1A.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
003-323-000-001-100	003-323-000-001-100-PHO1B.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey

TOWN: Barnstable
 SOURCE: ACE - FIELD PHOTOGRAPHS
 LOCATION: Bourne Consulting Engineering
 DATE OF RESEARCH: AUGUST 2007

BCE Structure No	Document No	Contract/ Drawing Number	Entity	Municipality	Date	Title	Sheets	Location	Description
003-324-000-038-100	003-324-000-038-100-PHO1A.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
003-324-000-038-200	003-324-000-038-200-PHO2A.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
003-324-000-041-100	003-324-000-041-100-PHO1A.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
003-326-000-061-100	003-326-000-061-100-PHO1A.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
003-326-000-068-100	003-326-000-068-100-PHO1A.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
003-326-000-068-100	003-326-000-068-100-PHO1B.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey

Massachusetts Coastal Infrastructure and Assessment



003-033-000-021-100-PHO1A



003-033-000-021-200-PHO2A



003-035-000-072-100-PHO1A



003-035-000-072-100-PHO1B



003-090-000-001-100-PHO1A



003-090-000-010-100-PHO1A



003-090-000-010-200-PHO2A



003-090-000-010-200-PHO2B



003-090-000-010-200-PHO2C

Massachusetts Coastal Infrastructure and Assessment



003-162-000-028-100-PHO1A



003-163-000-013-100-PHO1A



003-163-000-013-100-PHO1B



003-163-000-013-200-PHO2A



003-300-000-022-100-PHO1A



003-300-000-022-200-PHO2A



003-300-000-022-300-PHO3A



003-301-000-009-100-PHO1A



003-305-000-001-100-PHO1A

Massachusetts Coastal Infrastructure and Assessment



003-305-000-001-100-PHO1B



003-305-000-001-200-PHO2A



003-323-000-001-100-PHO1A



003-323-000-001-100-PHO1B



003-324-000-038-100-PHO1A



003-324-000-038-200-PHO2A



003-324-000-041-100-PHO1A



003-326-000-061-100-PHO1A



003-326-000-068-100-PHO1A



003-326-000-068-100-PHO1B

Section II - Barnstable

Part D

Structure Documents

TOWN DOCUMENT LIST

MA DCR - DOCUMENT LIST

MA DEP – Ch 91 DOCUMENT LIST

- Copies of License Documents

USACE – PERMIT DOCUMENT LIST

- Copies of Permit Documents

TOWN: BARNSTABLE
SOURCE: Town of Barnstable
LOCATION: TOWN
DATE OF RESEARCH: JULY 2007

No Town Documents for the Town of Barnstable

BCE Structure No	Document No	Contract/ Drawing Number	Entity	Municipality	Date	Title	Sheets	Location	Description
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BCE Structure No	Document No	Contract/ Drawing Number	Entity	Municipality	Date	Title	Sheets	Location	Description
003-033-000-021-100	003-033-000-021-100-DCR1A	518	MA-DCR	Barnstable	November 1937	Proposed Concrete Seawall and Stone Jetty - Cotuit, Barnstable - Prepared for the DPW of Massachusetts - Division of Waterways	1	Ocean View Avenue	Concrete Seawall and Stone Jetty
003-033-000-021-200	003-033-000-021-200-DCR2A	518	MA-DCR	Barnstable	November 1937	Proposed Concrete Seawall and Stone Jetty - Cotuit, Barnstable - Prepared for the DPW of Massachusetts - Division of Waterways	1	Ocean View Avenue	Concrete Seawall and Stone Jetty
003-033-000-021-200	003-033-000-021-200-DCR2B	949	MA-DCR	Barnstable	October 1946	Proposed Shore Protection on Westerly Shore of Cotuit Harbor - Barnstable - Prepared for the DPW of Massachusetts - Division of Waterways	1	Ocean View Avenue	Groins
003-090-000-010-100	003-090-000-010-100-DCR1A	988	MA-DCR	Barnstable	February 1947	Proposed Shore Protection - Wiammo Beach - Barnstable - Prepared for the DPW of Massachusetts - Division of Waterways	1	Sea View Avenue	Jetty
003-090-000-010-100	003-090-000-010-100-DCR1B	1318	MA-DCR	Barnstable	April 1953	Proposed Reconstruction and Extension of Easterly Jetty at Entrance to West Bay - Barnstable, Massachusetts - Prepared for the DPW of Massachusetts - Division of Waterways	1	Entrance to West Bay	Jetty
003-090-000-010-100	003-090-000-010-100-DCR1C	2768	MA-DCR	Barnstable	December 1972	Proposed Shore Protection - Jetty Extension and Repair - West Bay - Barnstable	1	Entrance to West Bay	Jetty
003-090-000-010-200	003-090-000-010-200-DCR2A	1318	MA-DCR	Barnstable	April 1953	Proposed Reconstruction and Extension of Easterly Jetty at Entrance to West Bay - Barnstable, Massachusetts - Prepared for the DPW of Massachusetts - Division of Waterways	1	Entrance to West Bay	Jetty
003-090-000-010-200	003-090-000-010-200-DCR2B	2768	MA-DCR	Barnstable	December 1972	Proposed Shore Protection - Jetty Extension and Repair - West Bay - Barnstable	1	West Bay Entrance	Jetty
003-162-000-028-100	003-162-000-028-100-DCR1A	1525	MA-DCR	Barnstable	June 1955	Proposed Shore Protection - Repairs to Stone Mound, Groins, Beach and Bank Restoration - Wiammo Shore - Barnstable, Massachusetts - Prepared for the DPW of Massachusetts - Division of Waterways	6	Wiammo Shores	Stone Mound and Groins
003-163-000-013-100	003-163-000-013-100-DCR1A	1067	MA-DCR	Barnstable	October 1948	Proposed Shore Protection - Dowses Point, Barnstable - Prepared for the DPW of Massachusetts - Division of Waterways	1	Dowses Point	Groins and Riprap
003-163-000-013-100	003-163-000-013-100-DCR1B	1555	MA-DCR	Barnstable	November 1955	Proposed Jetty Extension - Entrance to East Bay - Dowses Point - Barnstable - Prepared for the DPW of Massachusetts - Division of Waterways	1	Entrance to East Bay	Jetty Extension
003-300-000-022-100	003-300-000-022-100-DCR1A	1125	MA-DCR	Barnstable	December 1949	Proposed Timber Bulkhead and Excavation - Maraspin Creek - Barnstable Harbor - Barnstable - Prepared for the DPW of Massachusetts - Division of Waterways	2	Maraspin Creek	Bulkhead
003-300-000-022-200	003-300-000-022-200-DCR2A	1125	MA-DCR	Barnstable	December 1949	Proposed Timber Bulkhead and Excavation - Maraspin Creek - Barnstable Harbor - Barnstable - Prepared for the DPW of Massachusetts - Division of Waterways	2	Maraspin Creek	Bulkhead
003-300-000-022-300	003-300-000-022-300-DCR3A	1125	MA-DCR	Barnstable	December 1949	Proposed Timber Bulkhead and Excavation - Maraspin Creek - Barnstable Harbor - Barnstable - Prepared for the DPW of Massachusetts - Division of Waterways	2	Maraspin Creek	Bulkhead
003-301-000-009-100	003-301-000-009-100-DCR1A	1610	MA-DCR	Barnstable	May 1956	Proposed Shore Protection - In Vicinity of Mill Way Road - Barnstable - Prepared for the DPW of Massachusetts - Division of Waterways	1	Mill Way Road	Stone Mound
003-305-000-001-100	003-305-000-001-100-DCR1A	1690	MA-DCR	Barnstable	November 1956	Proposed Beach Improvements - Stone Groin and Sand Fill - Sea Street - Hyannis - Barnstable - Prepared for the DPW of Massachusetts - Division of Waterways	1	Sea Street	Groin and Sand Fill
003-323-000-001-100	003-323-000-001-100-DCR1A	1148	MA-DCR	Barnstable	September 1950	Proposed Shore Protection - Kalmus Park - Hyannis - Barnstable - Prepared for the DPW of Massachusetts - Division of Waterways	1	Kalmus Park - Ocean Street	Groins

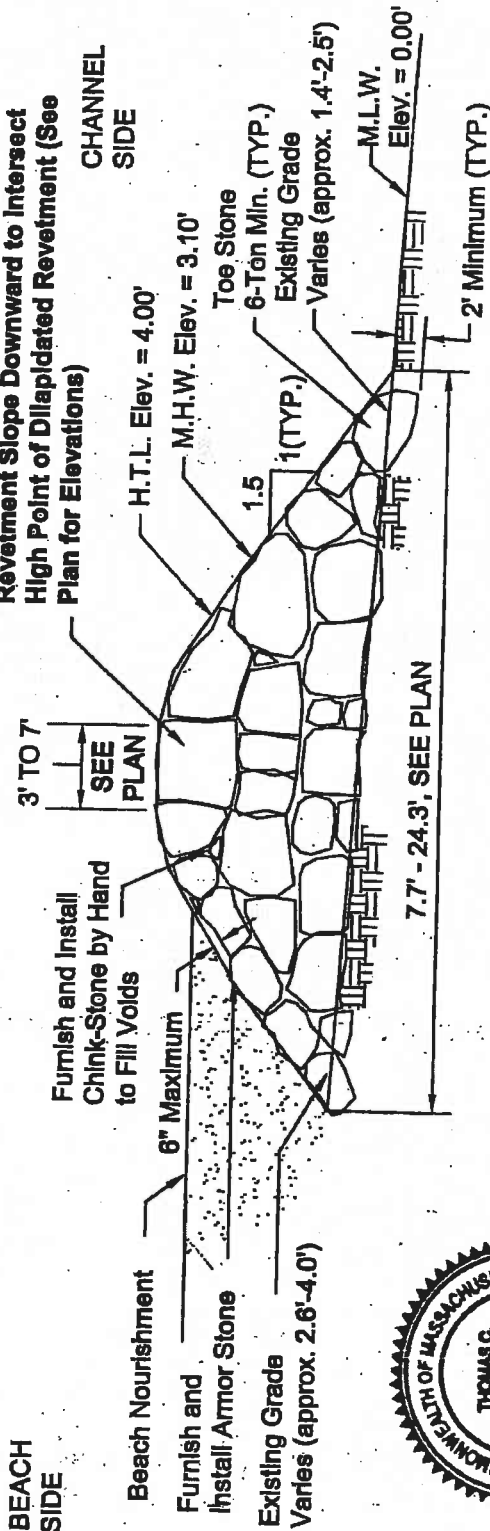
TOWN: BARNSTABLE
 SOURCE: MA-DCR
 LOCATION: MA-DCR BOSTON and HINGHAM, MA
 DATE OF RESEARCH: JULY 2007

003-324-000-038-100	003-324-000-038-100-DCR1A	1399	MA-DCR	Barnstable	June 1954	Proposed Seawall and Jetty Construction - Veteran Memorial Park - Lewis Bay - Barnstable, Massachusetts - Division of Waterways	1	Ocean Street	Seawall and Jetty
003-324-000-038-100	003-324-000-038-100-DCR1B	2156	MA-DCR	Barnstable	September 1960	Proposed Shore Protection - Stone Groin and Concrete Seawall - Veterans Memorial Park - Hyannis - Barnstable - Prepared for the DPW of Massachusetts - Division of Waterways	1	Veterans Memorial Park	Groin and Concrete Seawall
003-324-000-038-200	003-324-000-038-200-DCR2A	1399	MA-DCR	Barnstable	June 1954	Proposed Seawall and Jetty Construction - Veterans Memorial Park - Lewis Bay - Barnstable, Massachusetts - Prepared for the DPW of Massachusetts - Division of Waterways	1	Ocean Street	Seawall and Jetty
003-324-000-038-200	003-324-000-038-200-DCR2B	2156	MA-DCR	Barnstable	September 1960	Proposed Shore Protection - Stone Groin and Concrete Seawall - Veterans Memorial Park - Hyannis - Barnstable - Prepared for the DPW of Massachusetts - Division of Waterways	1	Veterans Memorial Park	Jetty and Concrete Seawall
003-324-000-041-100	003-324-000-041-100-DCR1A	1185	MA-DCR	Barnstable	October 1951	Proposed Stone Jetty - Dunbars Point - Hyannis Harbor - Barnstable - Prepared for the DPW of Massachusetts - Division of Waterways	1	Dunbars Point by Ocean Street	Jetty

TOWN: BARNSTABLE
 SOURCE: DEP
 LOCATION: BOSTON, MA
 DATE OF RESEARCH: JULY 2007

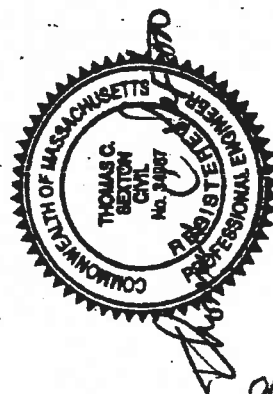
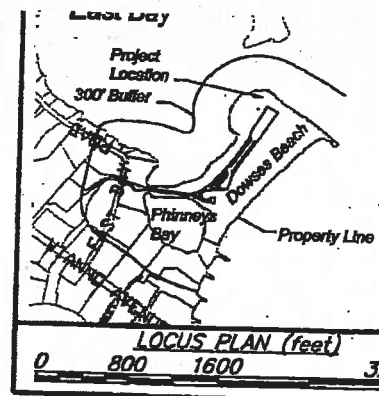
BCE Structure No	Document No	Contract/ Drawing Number	Entity	Municipality	Date	Title	Sheets	Location	Description
003-163-000-013-100	003-163-000-013-100-LIC1A	8578	DEP	Barnstable	September 10, 1999	Plans Accompanying Petition of Town of Barnstable Department of Public Works, Dowses Beach, Osterville, MA	3	Dowses Beach	Revetment
003-300-000-022-100	003-300-000-022-100-LIC1A	1669	DEP	Barnstable	November 1986	Plan Accompanying Petition of Town of Barnstable to Replace Bulkhead, Platforms, Gangways and Anchor Piles in Maraspin Creek - Barnstable, Massachusetts	2	Maraspin Creek	Bulkhead Replacements
003-300-000-022-100	003-300-000-022-100-LIC1B	1669	DEP	Barnstable	October 1987	Plan Accompanying Petition of Town of Barnstable to Replace Bulkhead, Platforms, Gangways and Anchor Piles in Maraspin Creek, Barnstable, MA	2	Millway Road	Bulkhead
003-300-000-022-300	003-300-000-022-300-LIC3A	355	DEP	Barnstable	August 1977	Plan to Accompany Petition of Town of Barnstable, MA to Build and Maintain a Boat Ramp and Riprap in Maraspin Creek, Village of Barnstable, MA	1	Millway Road	Riprap
003-323-000-001-100	003-323-000-001-100-LIC1A	1494	DEP	Barnstable	July 1986	Plan Accompanying Petition of Town of Barnstable to Construct and Maintain Culvert in the Hyannis Harbor, Barnstable, MA	2	Hewes Avenue	Riprap
003-326-000-061-100	003-326-000-061-100-LIC1A	6994	DEP	Barnstable	September 1997	Plans Accompanying the Petition of Town of Barnstable for Reconstructing Bulkhead, Maintaining Existing Floats and For Dredging in Hyannis Inner Harbor	6	Aselton Park	Bulkhead
003-326-000-061-100	003-326-000-061-100-LIC1B	6342	DEP	Barnstable	June 1997	Plans Accompanying the Petition of Town of Barnstable for Maintaining a Steel Bulkhead, Dredging and Replacing Timber Piers and Piles in Hyannis Inner Harbor, Barnstable, Massachusetts	5	Hyannis Inner Harbor	Steel Bulkhead
003-326-000-061-100	003-326-000-061-100-LIC1C	1858	DEP	Barnstable	November 1988	Plan Accompanying Petition of Town of Barnstable to Maintain a Steel Bulkhead, to Construct Timber Piers and to Place Piles in Hyannis Inner Harbor, Barnstable, Massachusetts	3	Hyannis Inner Harbor	Steel Bulkhead
003-326-000-068-100	003-326-000-068-100-LIC1A	1858	DEP	Barnstable	November 1988	Plan Accompanying Petition of Town of Barnstable to Maintain a Steel Bulkhead, to Construct Timber Piers and to Place Piles in Hyannis Inner Harbor - Barnstable, Massachusetts	3	Hyannis Inner Harbor	Steel Bulkhead

Install Cap Stone at Same Elevation to Meet Top of Existing Revetment (El. 7.7'), From Existing Revetment Slope Downward to Intersect High Point of Dilapidated Revetment (See Plan for Elevations)



Typical Revetment Section A-A

Not to Scale



"Plans accompanying Petition of Town of Barnstable Department of Public Works, Dowses Beach, Osterville, MA"

PREPARED BY: Horsley and Witten, Inc.

Date: September 10, 1999

Sheet: 1 of 3

LICENSE PLAN NO. 8578

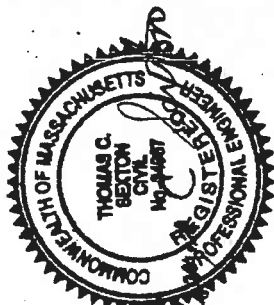
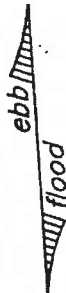
Approved by Department of Environmental Protection of Massachusetts

Evelyn A. Koukouras

FEB 28 2000

NOTE:
1. THE ENTIRE PROJECT IS LOCATED
WITHIN THE FLOOD PLAIN BOUNDARY.

Last Bay Inlet



MATCH LINE 1-1
(SHEET 3)

Historic Mean
Low Water (1938)

EL. = 6.

EDGE OF BEACH NOURISHMENT

Historic Mean
High Water (1846)

Mean Low Water
Elev. 0.0 ft. (TYP.)

Mean High Water
Elev. 3.1 ft. (TYP.)

Proposed
Beach Grass

Sand

Rosa Rugosa
& Beach Grass

Sand

Pavement Edge

MATCH LINE 1-1
(SHEET 3)

PLAN-PROPOSED

0 10 20 40 80 FEET

SCALE 1" = 40'

003-163-000-013-100

LICENSE PLAN NO. 8578

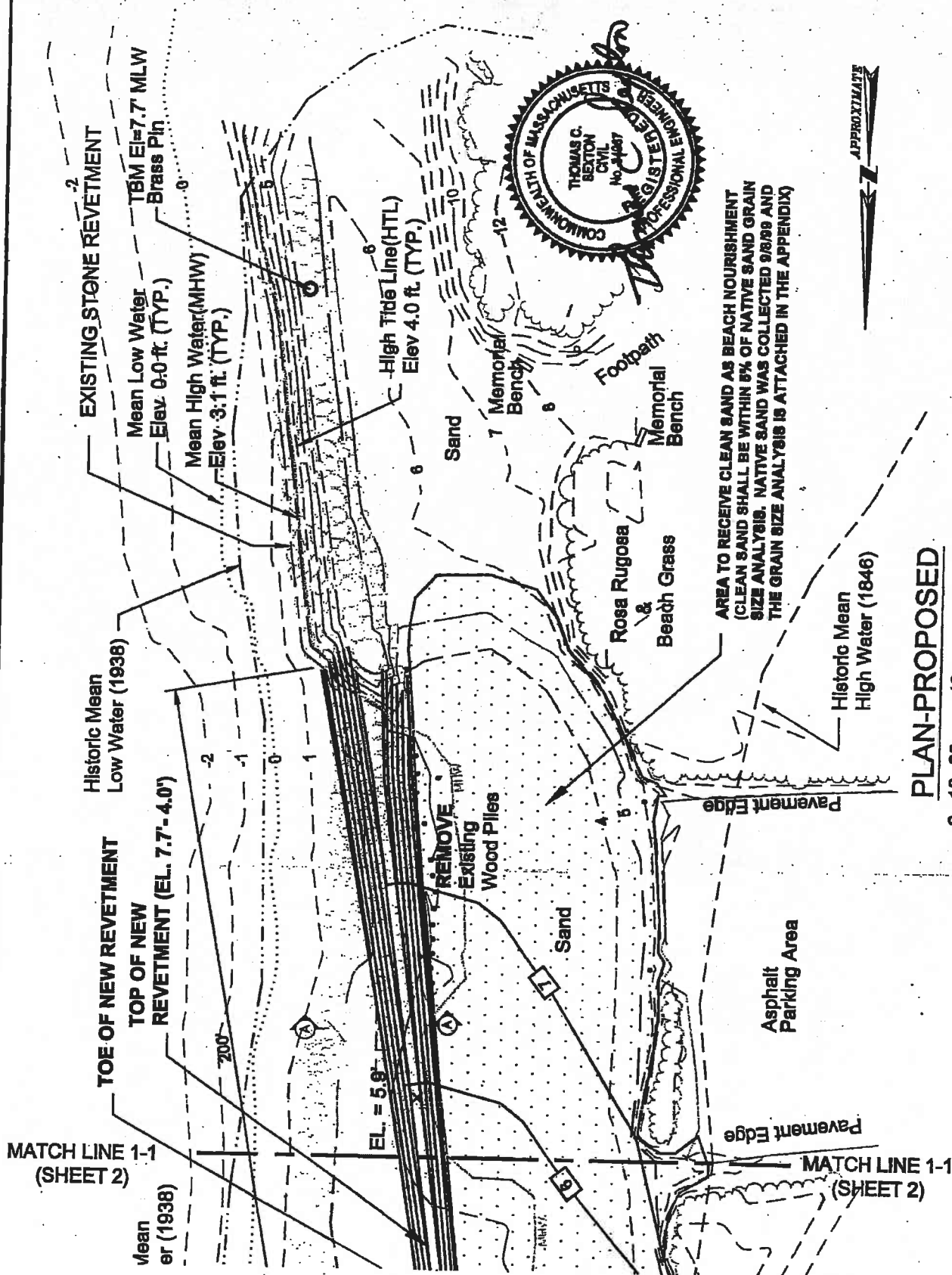
Approved by Department of Environmental Protection

Date FEB 28 2000

PREPARED BY: Horsley and Witten, Inc.

Date: September 10, 1999

Sheet: 2 of 3



PREPARED BY: Horsley and Witten, Inc.

Date: September 10, 1999

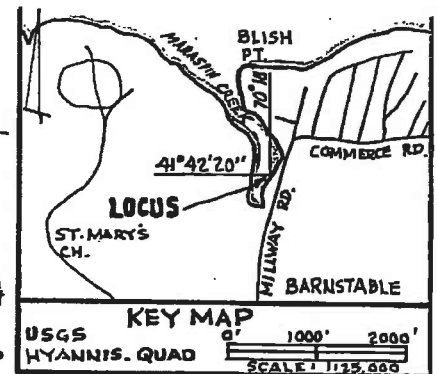
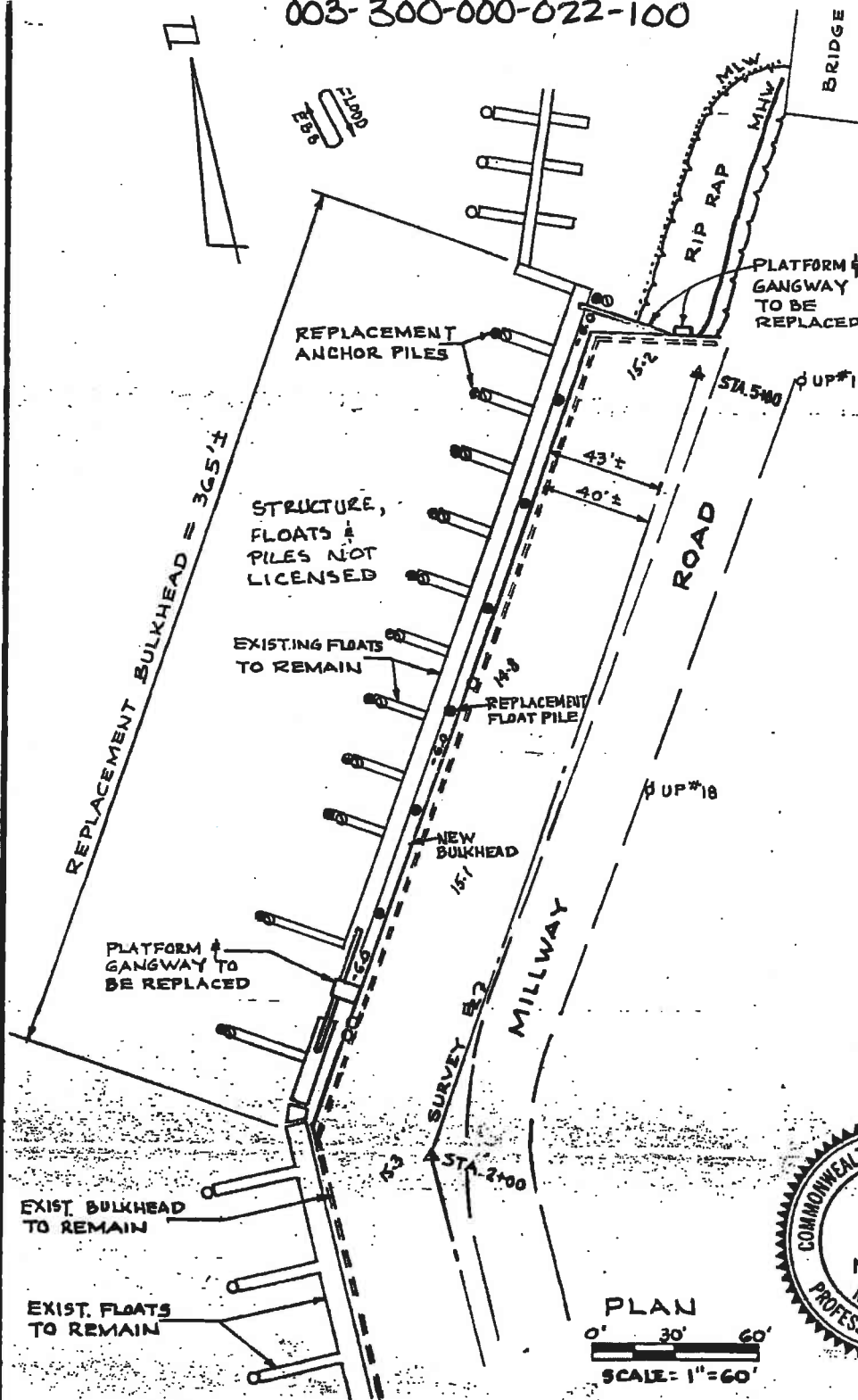
Sheet: 3 of 3

003-163-000-013-100

LICENSE PLAN NO. 8578

Approved by Department of Environmental Protection
Date: FEB 28 2000

003-300-000-022-100



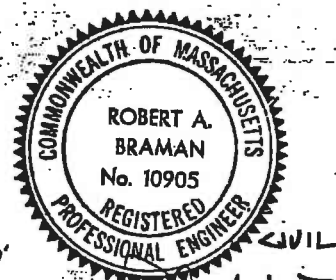
NOTES:
ELEVATIONS ARE SHOWN IN FEET AND TENTHS BASED ON THE PLANE OF MLW. MINUS FIGURES REPRESENT DEPTHS BELOW THAT PLANE.

BULKHEAD ORIGINALLY BUILT IN 1949 BY MASS. DPW, DIVISION OF WATERWAYS.

BENCH MARK: SPIKE SET IN UP #18 EL. 15.77

- REPLACEMENT OR NEW PILE
 - PILE TO BE REPLACED
 - EXISTING PILE TO REMAIN
- EXISTING STRUCTURE BUILT BY MASS. DPW DIVISION OF WATERWAYS IN 1949. NOT LICENSED

WESTERLY ABUTTER
BARNSTABLE MARINE SERVICE
FREEZA ROAD
BARNSTABLE, MA. 02630



Robert A. Braman

87W-022

PLAN ACCOMPANYING PETITION OF
TOWN OF BARNSTABLE
TO REPLACE BULKHEAD, PLATFORMS,
GANGWAYS AND ANCHOR PILES IN
MARASPIN CREEK
BARNSTABLE, MASS.

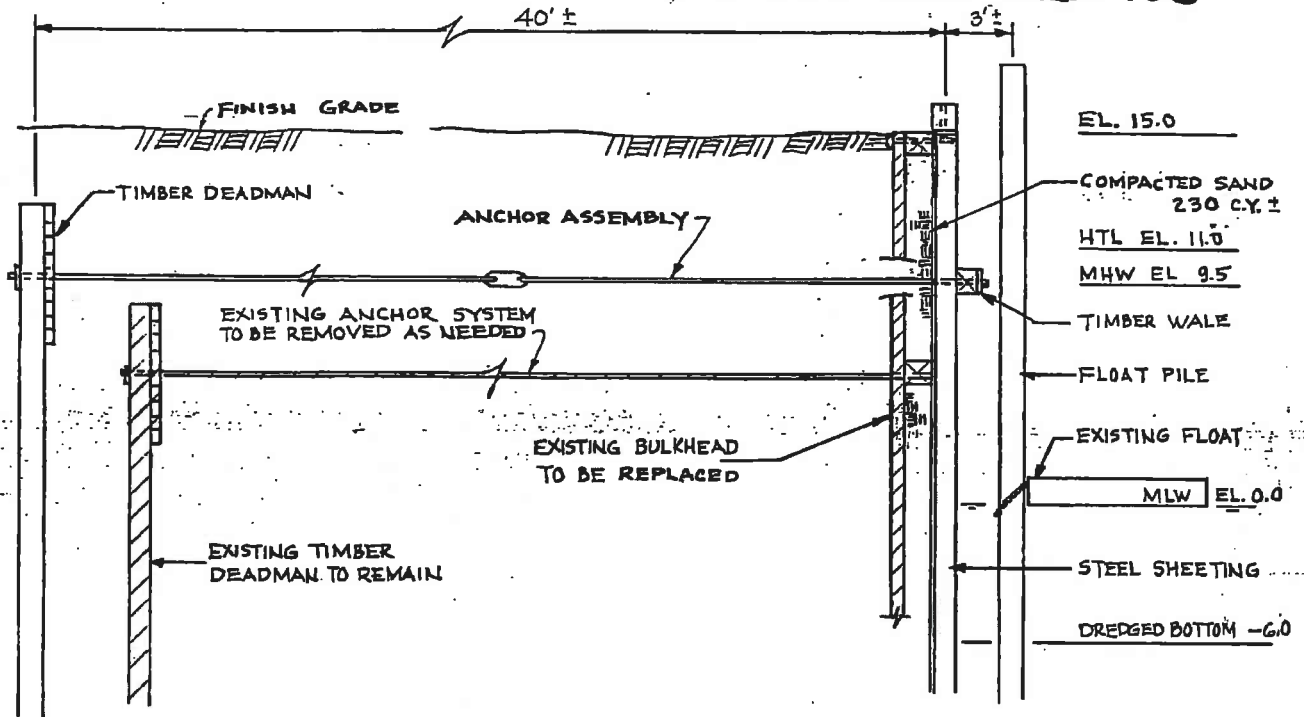
NOV. 11, 1986

SHEET 1 OF 2

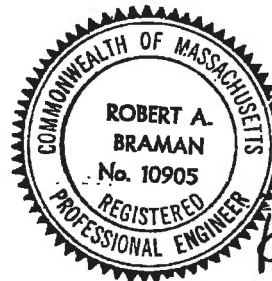
BRAMAN ENGINEERING COMPANY
CIVIL ENGINEERS & SURVEYORS
258 MAIN ST. BUZZARDS BAY, MA.

LICENSE PLAN NO. 1669
Approved by Department of Environmental Quality Engineering
of Massachusetts
Charles R. Claffy COMMISSIONER
Charles R. Claffy DIVISION DIRECTOR
Charles R. Claffy SECTION CHIEF
DATE

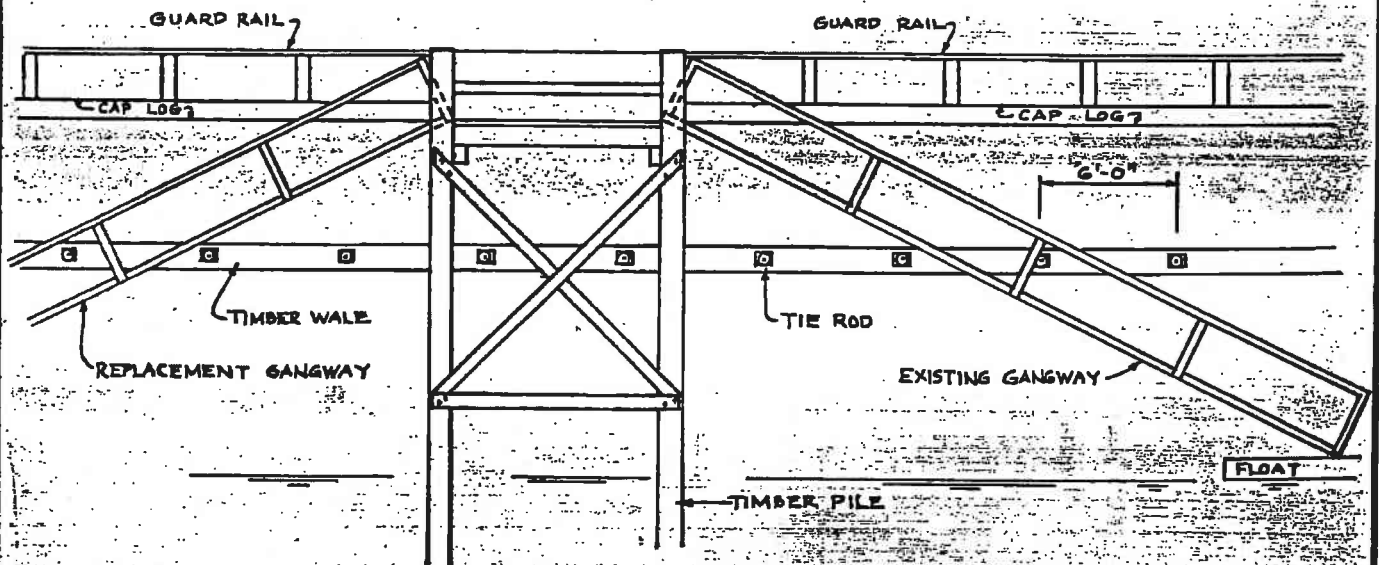
003-300-000-022-100



TYPICAL BULKHEAD SECTION
SCALE: $\frac{1}{8}" = 1'-0"$



Robert A. Braman



TYPICAL REPLACEMENT PLATFORM ELEVATION
SCALE: $\frac{1}{8}" = 1'-0"$

LICENSE PLAN NO. 1669

Approved by Department of Environmental Quality Engineering

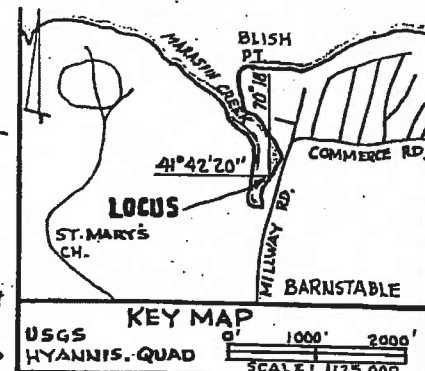
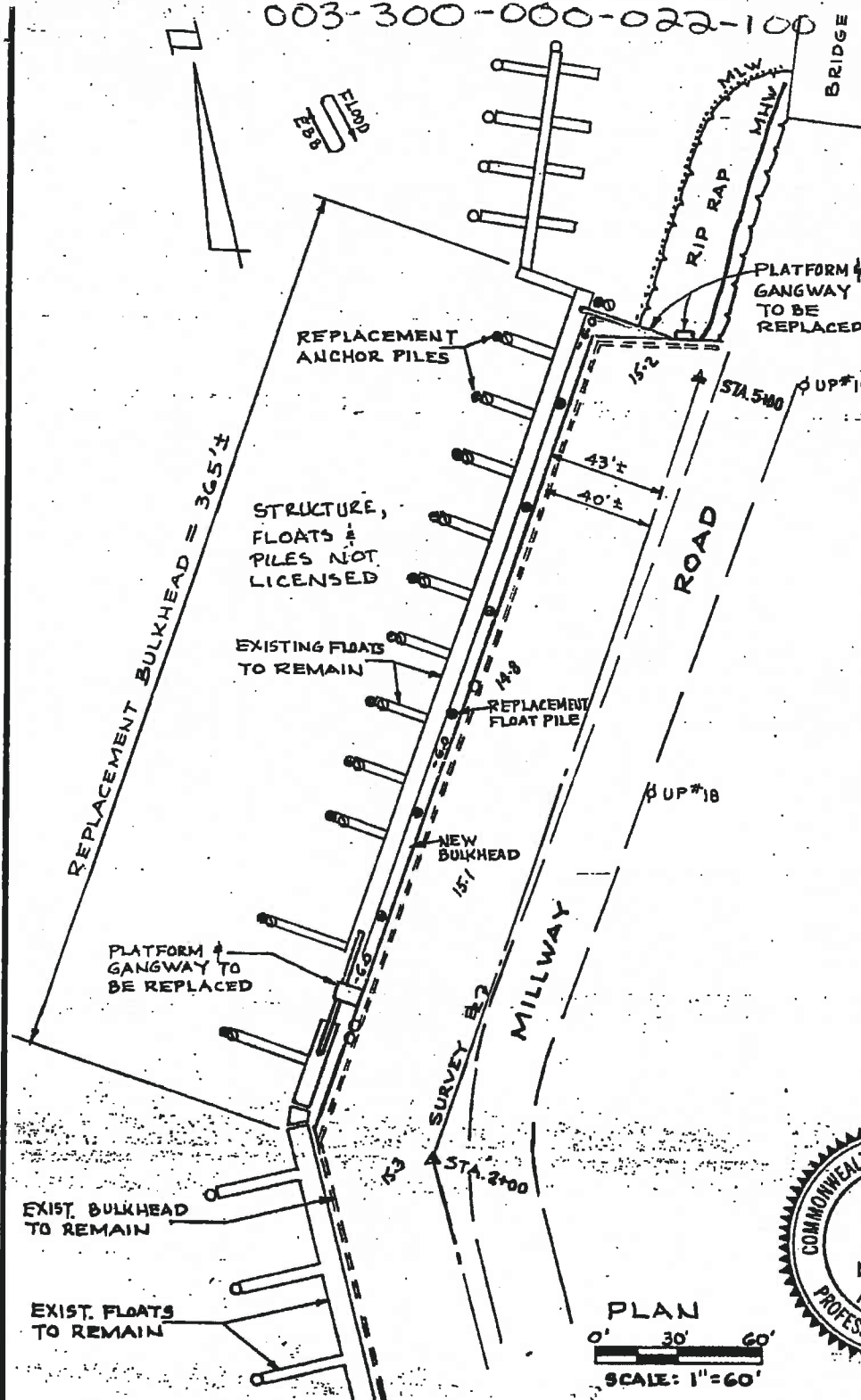
DATE: OCT 10 1997

TOWN OF DARTMOUTH

NOV 11 1996

SHEET 2 OF 2

003-300-000-022-100



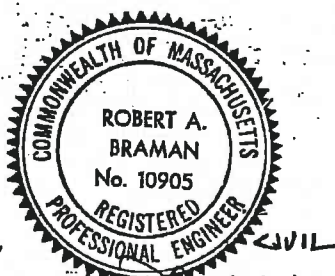
NOTES:
ELEVATIONS ARE SHOWN IN FEET AND TENTHS BASED ON THE PLANE OF MLW. MINUS FIGURES REPRESENT DEPTHS BELOW THAT PLANE.

BULKHEAD ORIGINALLY BUILT IN 1949 BY MASS. DPW, DIVISION OF WATERWAYS.

BENCH MARK: SPIKE SET IN UP#18 EL. 15.77

- REPLACEMENT OR NEW PILE
 - PILE TO BE REPLACED
 - EXISTING PILE TO REMAIN
- EXISTING STRUCTURE...
BUILT BY MASS. DPW, DIVISION OF WATERWAYS IN 1949. NOT LICENSED

WESTERLY ABUTTER
BARNSTABLE MARINE SERVICE
FREEZA ROAD
BARNSTABLE, MA. 02630



Robert A. Braman

87W-022

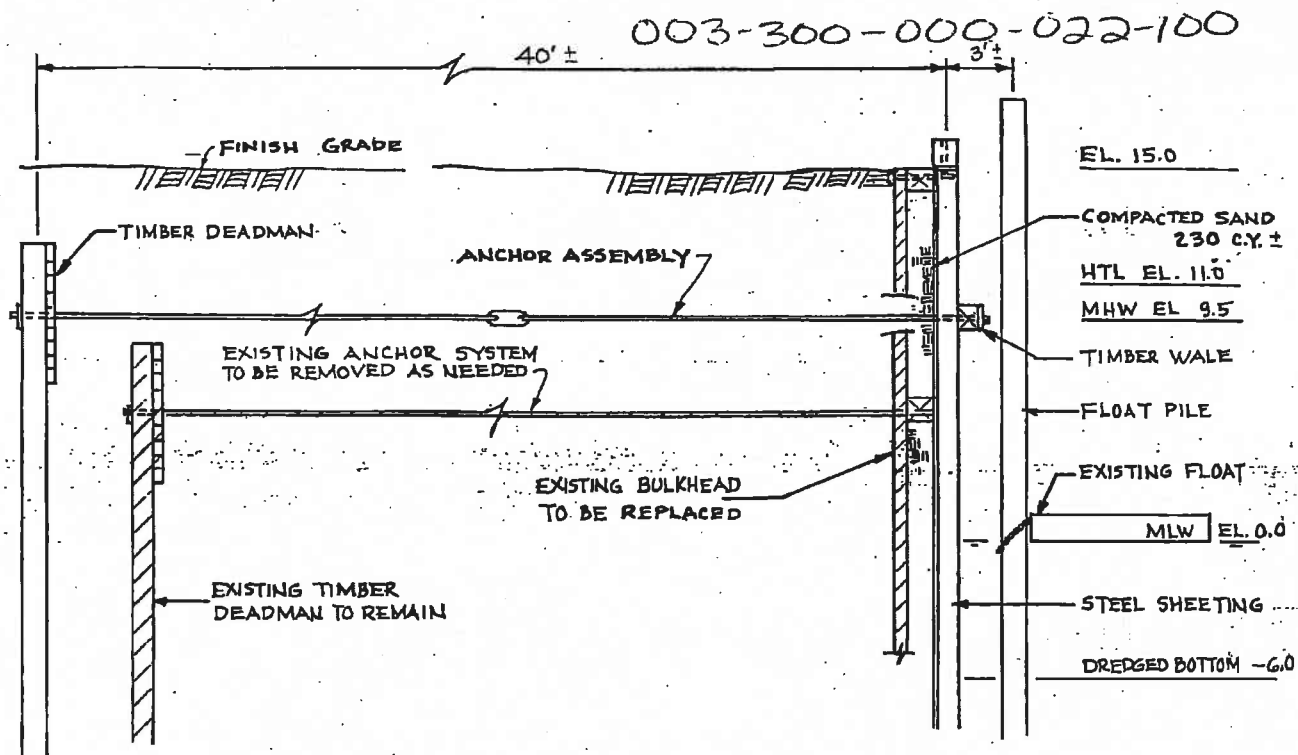
PLAN ACCOMPANYING PETITION OF
TOWN OF BARNSTABLE
TO REPLACE BULKHEAD, PLATFORMS,
GANGWAYS AND ANCHOR PILES IN
MARASPIN CREEK
BARNSTABLE, MASS.

NOV. 11, 1986

SHEET 1 OF 2

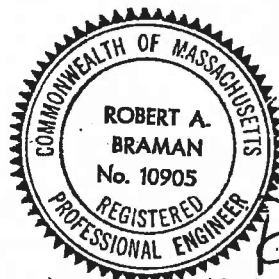
BRAMAN ENGINEERING COMPANY
CIVIL ENGINEERS & SURVEYORS
258 MAIN ST, BUZZARDS BAY, MA.

LICENSE PLAN NO. 1669
Approved by Department of Environmental Quality Engineering
of Massachusetts
Charles J. Nadeau COMMISSIONER
DIVISION DIRECTOR
SECTION CHIEF
(NOTED) DATE

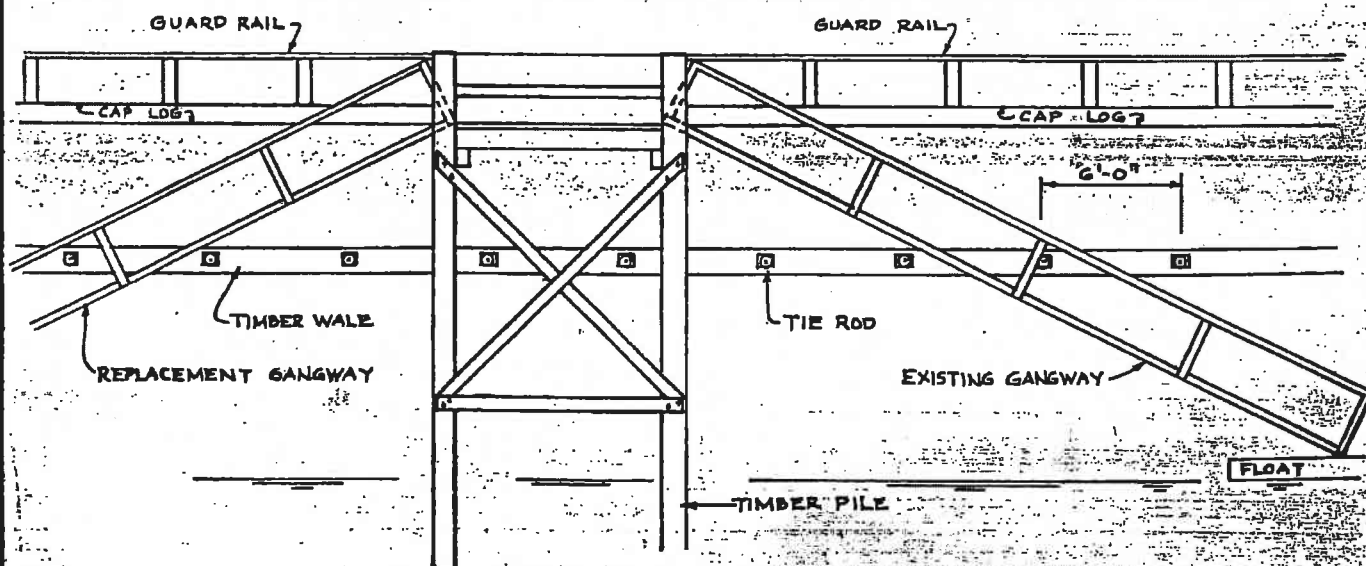


TYPICAL BULKHEAD SECTION

SCALE: $\frac{1}{8}" = 1'-0"$



CIVIL
Robert A. Braman



TYPICAL REPLACEMENT PLATFORM ELEVATION

SCALE: $\frac{1}{8}" = 1'-0"$

LICENSE PLAN NO. 1669

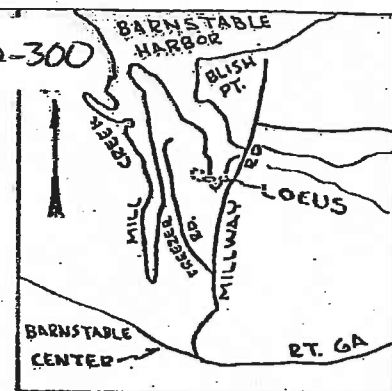
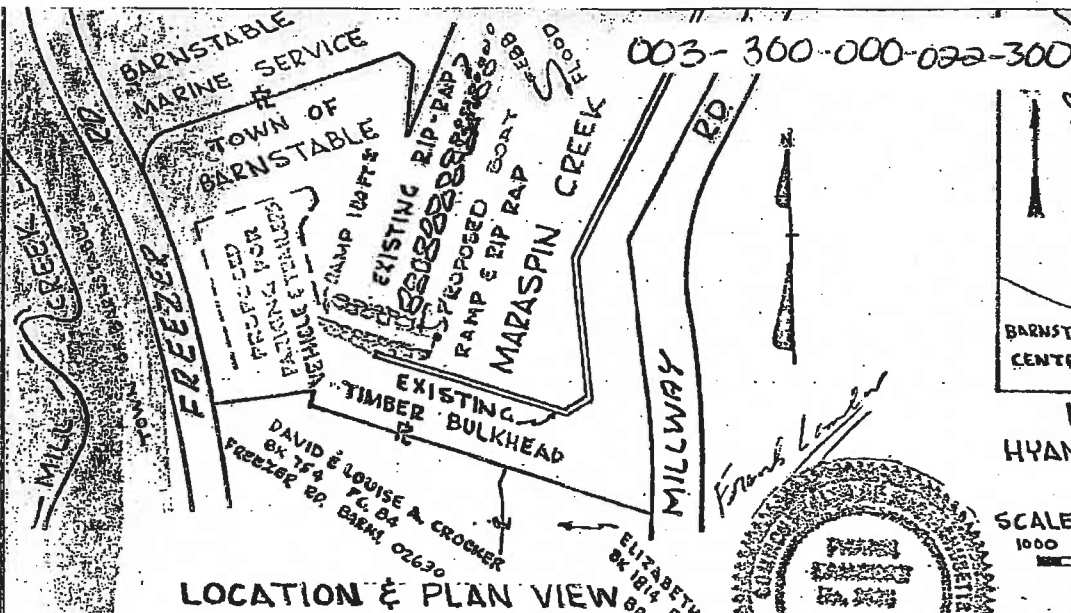
Approved by Department of Environmental Quality Engineering

DATE: OCT 09 1987

TOWN OF BARNSTABLE

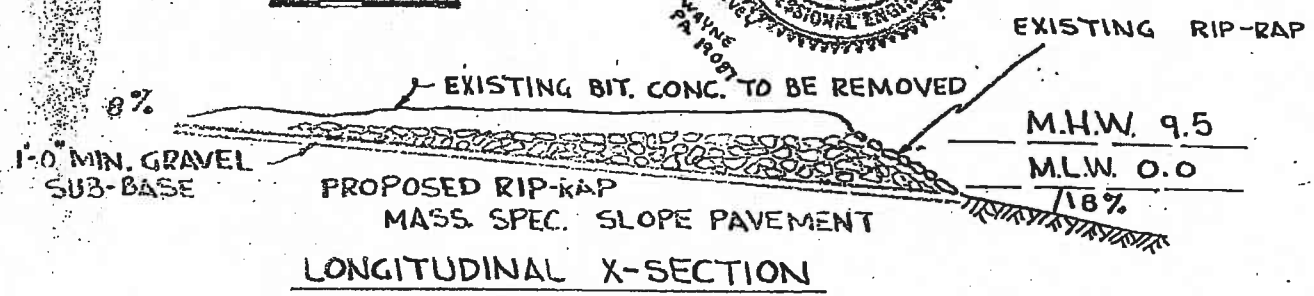
NOV 11 1986

SHEET 2 OF 2



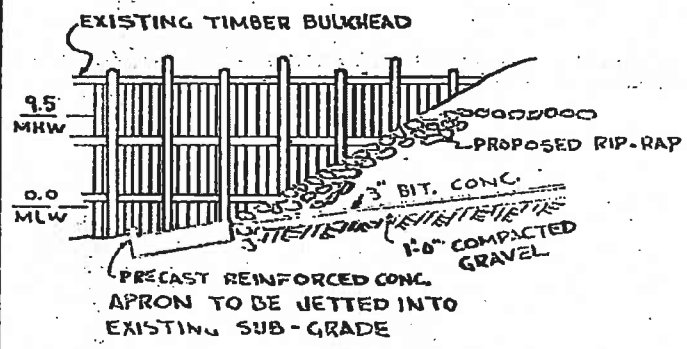
LOCATION & PLAN VIEW

SCALE: 1 IN. = 200 FT.
0 50 100 200



LONGITUDINAL X-SECTION

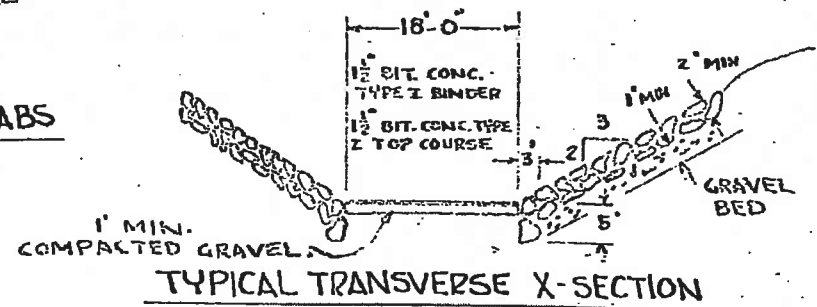
SCALE 1 IN. = 40 FT.
0 10 20 30 40



DET.-PRECAST CONCRETE END SLABS

SCALE: 1 IN. = 20 FT.
0 5 10 20

NOTE
ELEVATIONS ARE IN FEET
0.0 REFERS TO A PLANE OF MLW.
ALL EXCAVATED & SPOILED MATERIAL TO BE REMOVED FROM SITE

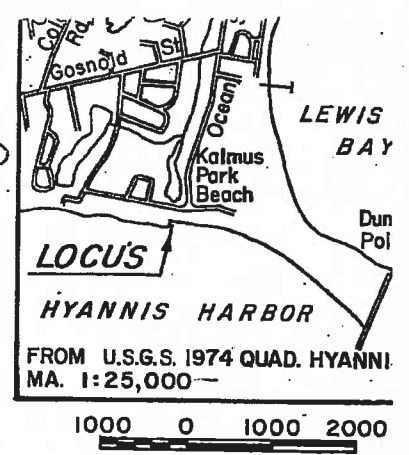
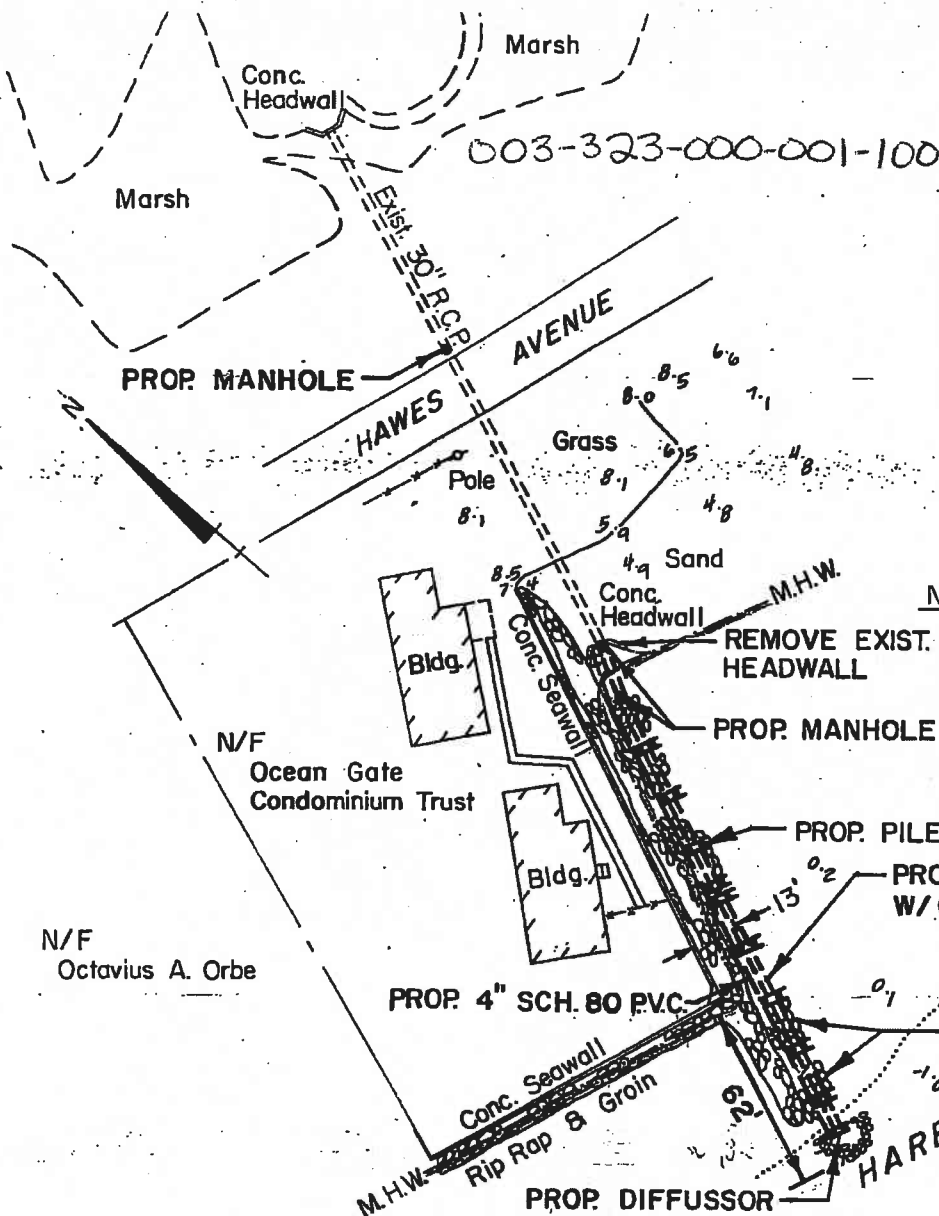


TYPICAL TRANSVERSE X-SECTION

SCALE: 1 IN. = 20 FT.
0 5 10 20

PLAN TO ACCOMPANY PETITION OF
TOWN OF BARNSTABLE, MASS.
TO BUILD AND MAINTAIN A BOAT RAMP
AND RIP-RAP IN
MARASPIN CREEK
VILLAGE OF BARNSTABLE, MASS.
SCALE: AS NOTED JUNE 17, 1977
TOWN OF BARNSTABLE ENGINEERING DEPT.
397 MAIN ST. HYANNIS, MASS.

LOCUS PLAN NO. 355
Approved by Department of Environmental Quality Engineering
August 8, 1977
C. J. Langer
Professional Engineer



NOTES:
 Elevations and soundings are in feet and tenths and refer to the Datum of Mean Low Water.
 This plan is prepared for license purposes only, not for construction.

REMOVE EXIST. HEADWALL

PROP. MANHOLE

PROP. PILE BENT (TYP)

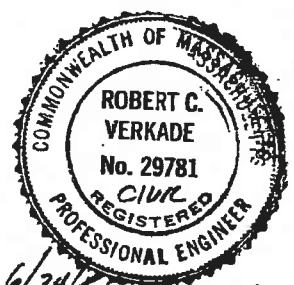
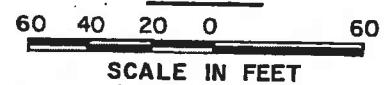
PROP. 176' - 30" D.I.C.L. PIPE W/ (LOK - TYTE) JOINTS

PROP. 4" SCH. 80 PVC

PROP. RIPRAP

PROP. DIFFUSSOR NOZZLE

PLAN



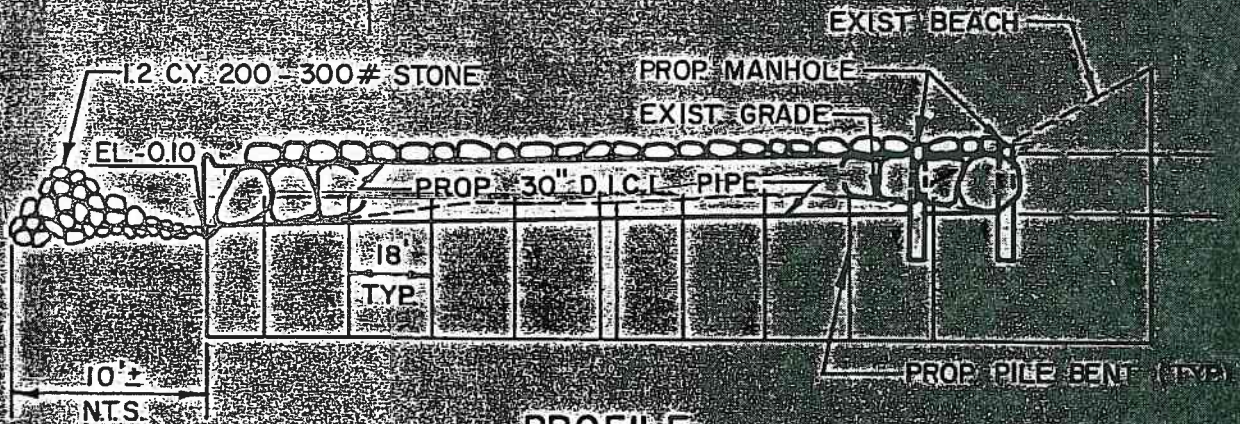
6/24/85
Robert C. Verkaide

PLAN ACCOMPANYING PETITION OF TOWN OF BARNSTABLE TO CONSTRUCT & MAINTAIN CULVERT IN THE HYANNIS HARBOR BARNSTABLE, MA. DATE: JUNE 1985

TIBBETTS ENGINEERING CORP NEW BEDFORD, MA.

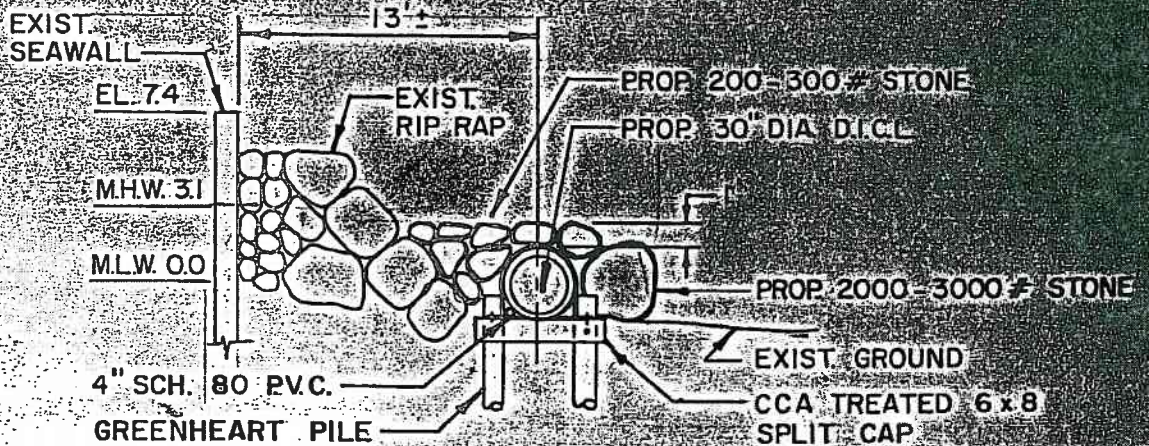
1494
Sam R. Clayton
 JULY 16, 1985

003-323-000-001-100



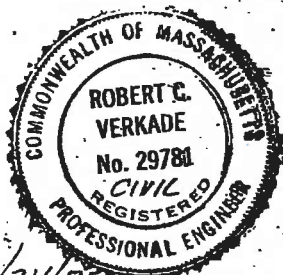
PROFILE

SCALE 1" = 40' HORIZ
 1" = 8' VERT



CROSS SECTION

SCALE: 1/8" = 1'-0"



6/24/85
 Robert C. Verkaide

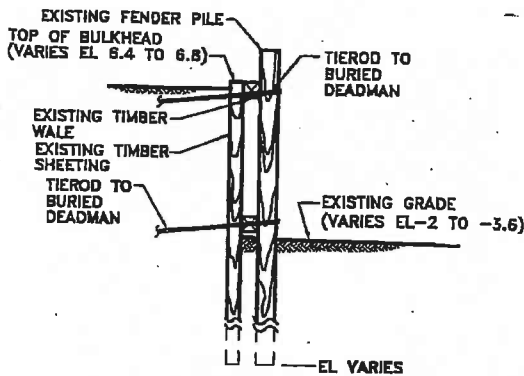
LICENSE PLAN NO. 1494

Approved by Department of Environmental Quality Engineering

Date: **JULY 16, 1986**

PLAN ACCOMPANYING PETITION OF
 TOWN OF BARNSTABLE
 BARNSTABLE, MA. DATE: JUNE 1985

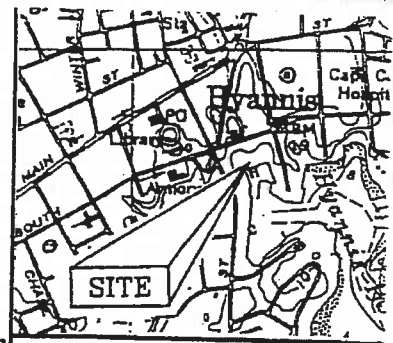
85W-170



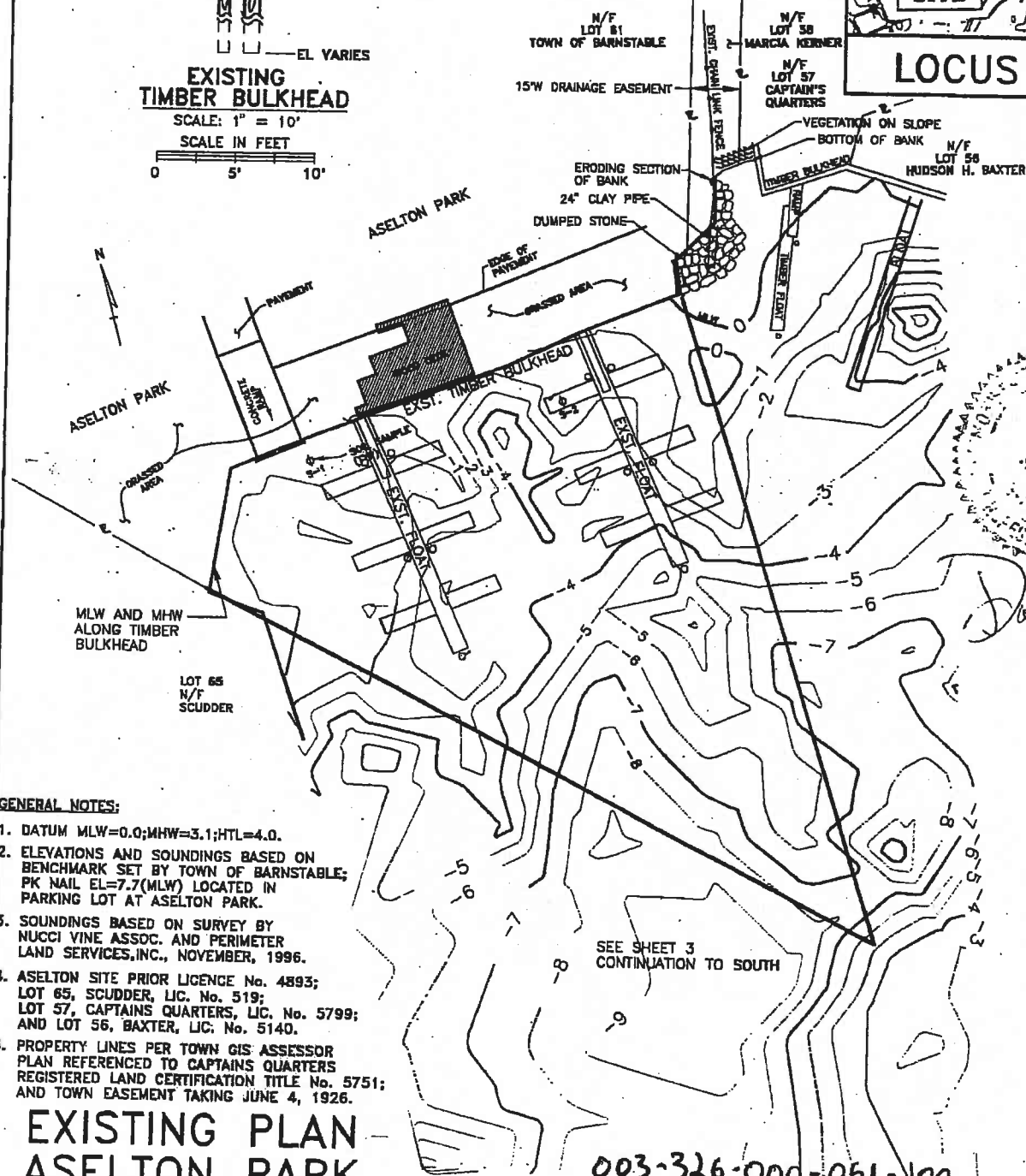
EXISTING TIMBER BULKHEAD

SCALE: 1" = 10'

SCALE IN FEET



LOCUS PLAN



GENERAL NOTES:

1. DATUM MLW=0.0; MHW=3.1; HTL=4.0.
2. ELEVATIONS AND SOUNDINGS BASED ON BENCHMARK SET BY TOWN OF BARNSTABLE; PK NAIL EL=7.7 (MLW) LOCATED IN PARKING LOT AT ASELTON PARK.
3. SOUNDINGS BASED ON SURVEY BY NUCCI VINE ASSOC. AND PERIMETER LAND SERVICES, INC., NOVEMBER, 1996.
4. ASELTON SITE PRIOR LICENCE No. 4893; LOT 65, SCUDDER, LIC. No. 519; LOT 57, CAPTAINS QUARTERS, LIC. No. 5799; AND LOT 56, BAXTER, LIC. No. 5140.
5. PROPERTY LINES PER TOWN GIS ASSESSOR PLAN REFERENCED TO CAPTAINS QUARTERS REGISTERED LAND CERTIFICATION TITLE No. 5751; AND TOWN EASEMENT TAKING JUNE 4, 1926.

EXISTING PLAN ASELTON PARK

1" = 50'
SCALE IN FEET



PLANS ACCOMPANYING THE PETITION
OF TOWN OF BARNSTABLE
FOR RECONSTRUCTING BULKHEAD,
MAINTAINING EXISTING FLOATS,
AND FOR DREDGING IN
HYANNIS INNER HARBOR,
HYANNIS, MASSACHUSETTS

003-326-000-061-100

MAY 1997

SHEET 1 OF

LICENSE PLAN NO. 6894

Approved by Department of Environmental Protection
of Massachusetts

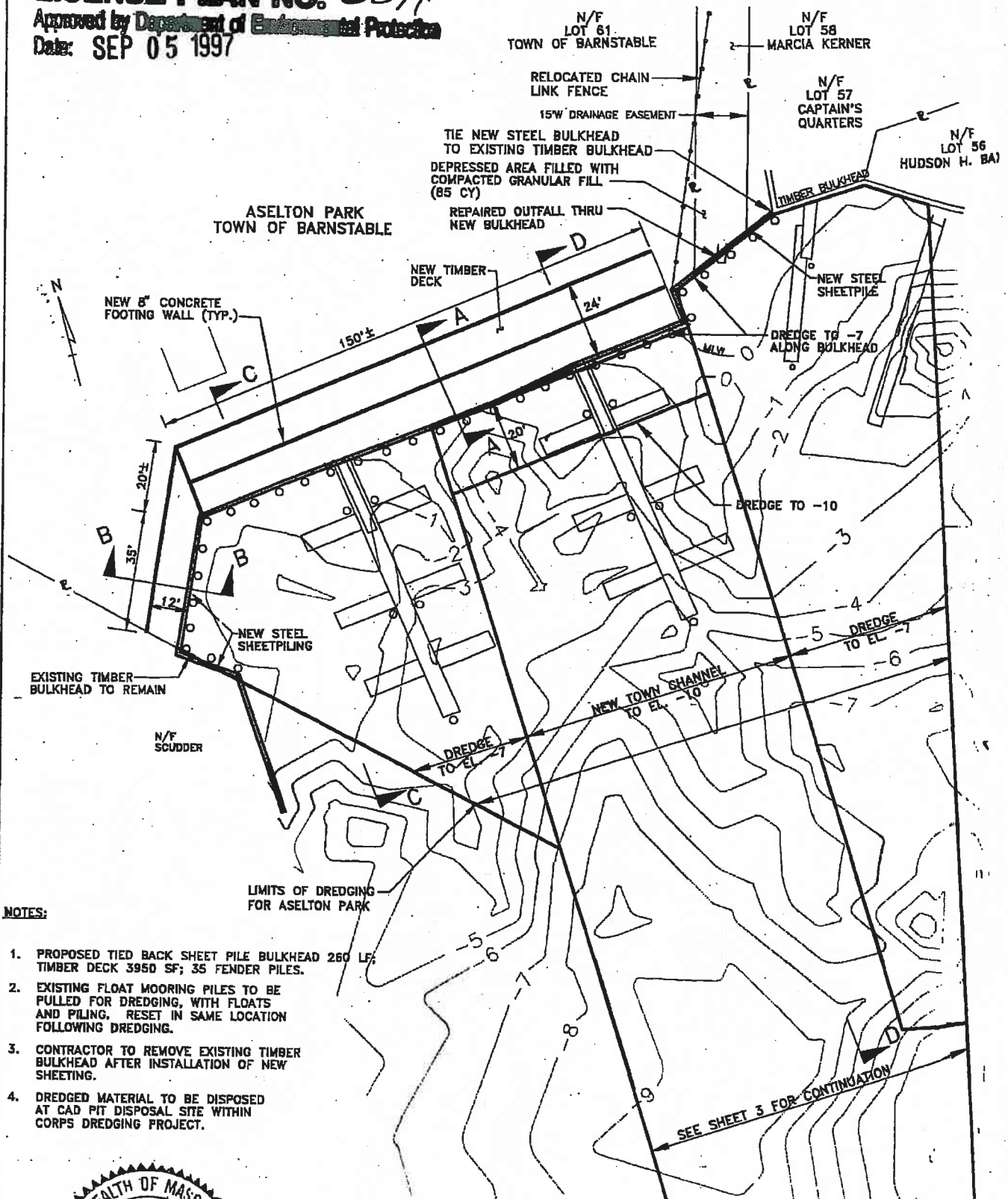
Elizabeth J. Kavonius

SEP 05 1997

LICENSE PLAN NO. 6894

Approved by Department of Environmental Protection

Date: SEP 05 1997



NOTES:

1. PROPOSED TIED BACK SHEET PILE BULKHEAD 280 LF; TIMBER DECK 3950 SF; 35 FENDER PILES.
2. EXISTING FLOAT MOORING PILES TO BE PULLED FOR DREDGING, WITH FLOATS AND PILING, RESET IN SAME LOCATION FOLLOWING DREDGING.
3. CONTRACTOR TO REMOVE EXISTING TIMBER BULKHEAD AFTER INSTALLATION OF NEW SHEETING.
4. DREDGED MATERIAL TO BE DISPOSED AT CAD PIT DISPOSAL SITE WITHIN CORPS DREDGING PROJECT.



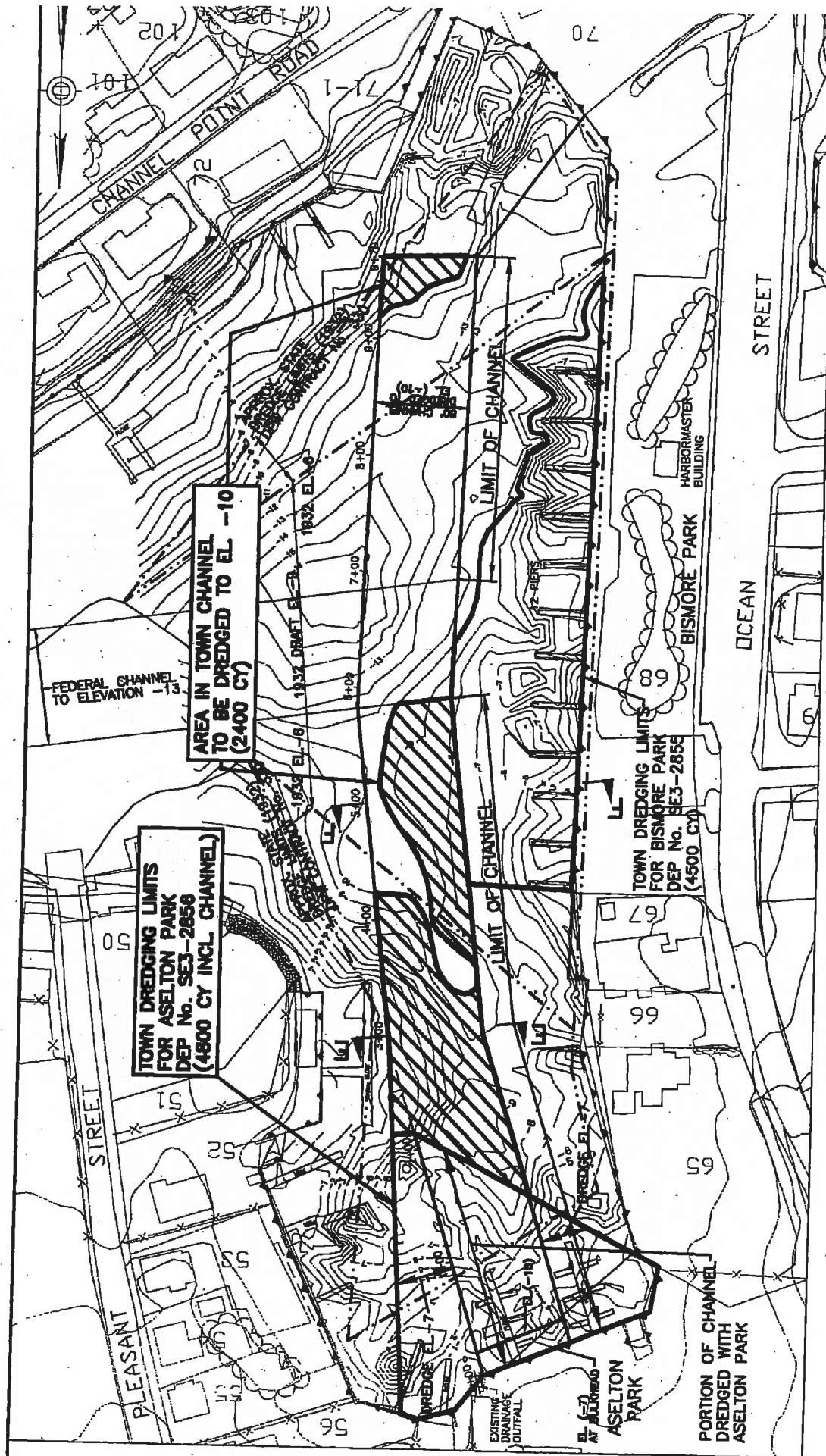
David B. Vine

003-326-000-061-100

PROPOSED WORK ASELTON PARK

1" = 40'
SCALE IN FEET
0 20' 40'

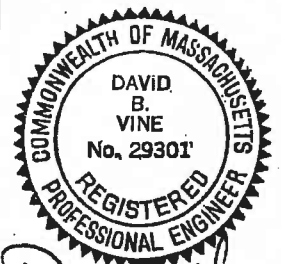
APRIL 1997
SHEET 2 OF 1



DREDGING SITE PLAN 003-326-000-061-100
NEW TOWN CHANNEL
AND ASELETON PARK

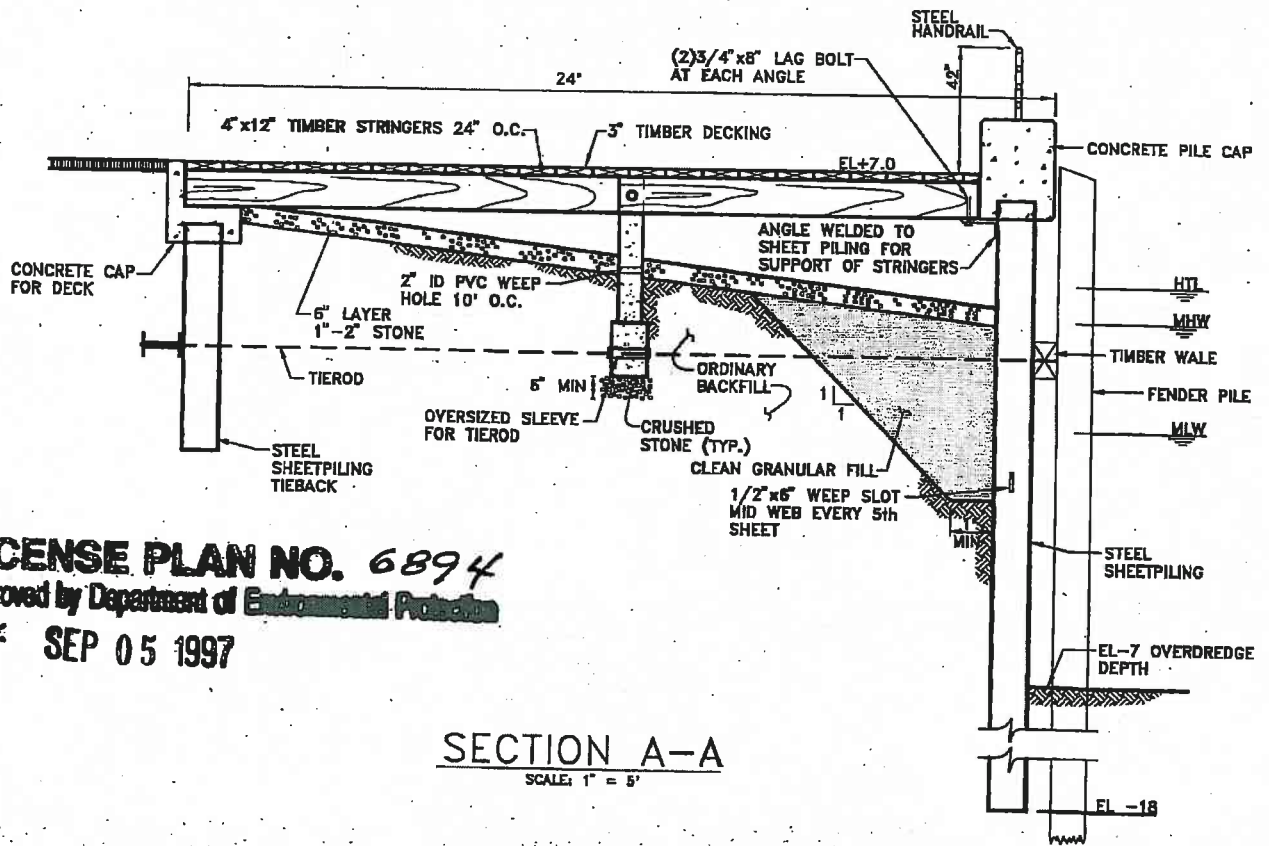
NOTES:

1. TOTAL DREDGE VOLUME TOWN CHANNEL AND PARK AREA = 7200 CY.
2. DREDGED SEDIMENT TO BE DISPOSED OF AT ABANDONED CHANNEL CAD PIT.
3. PRIOR STATE DPW CONTRACT No. 330-1932 PERFORMED DREDGING TO THE LIMITS INDICATED.



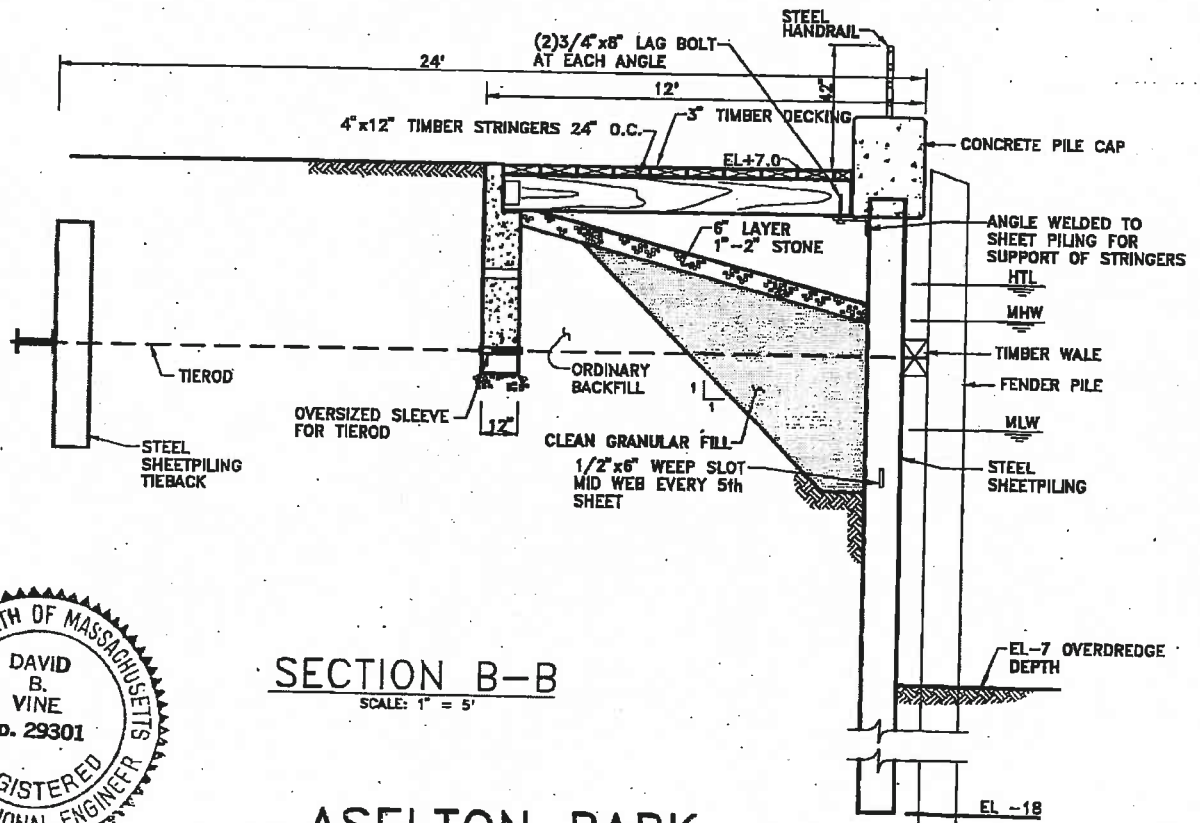
David B. Vine

LICENSE PLAN NO. 6894
 Approved by Department of Environmental Protection
 Date: SEP 05 1997



LICENSE PLAN NO. 6894
 Approved by Department of Environmental Protection
 Date: **SEP 05 1997**

SECTION A-A
 SCALE: 1" = 5'



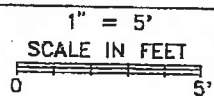
SECTION B-B
 SCALE: 1" = 5'

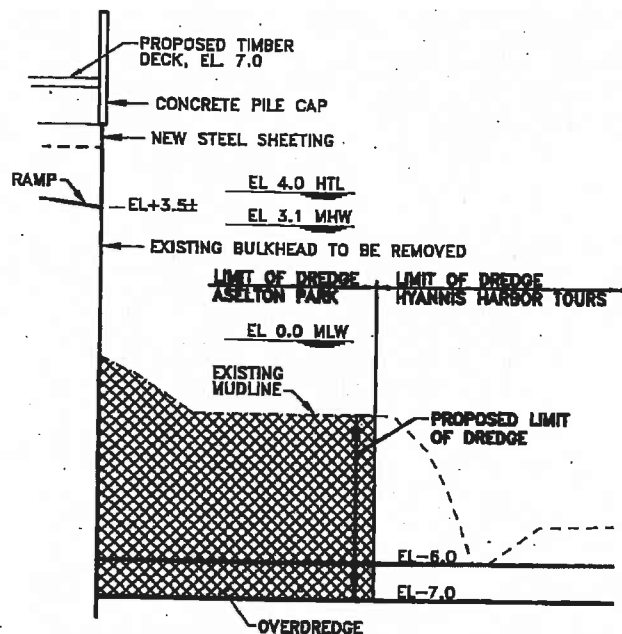


David B. Vine

**ASELTON PARK
 PROPOSED BULKHEAD
 AND DECK SECTIONS**

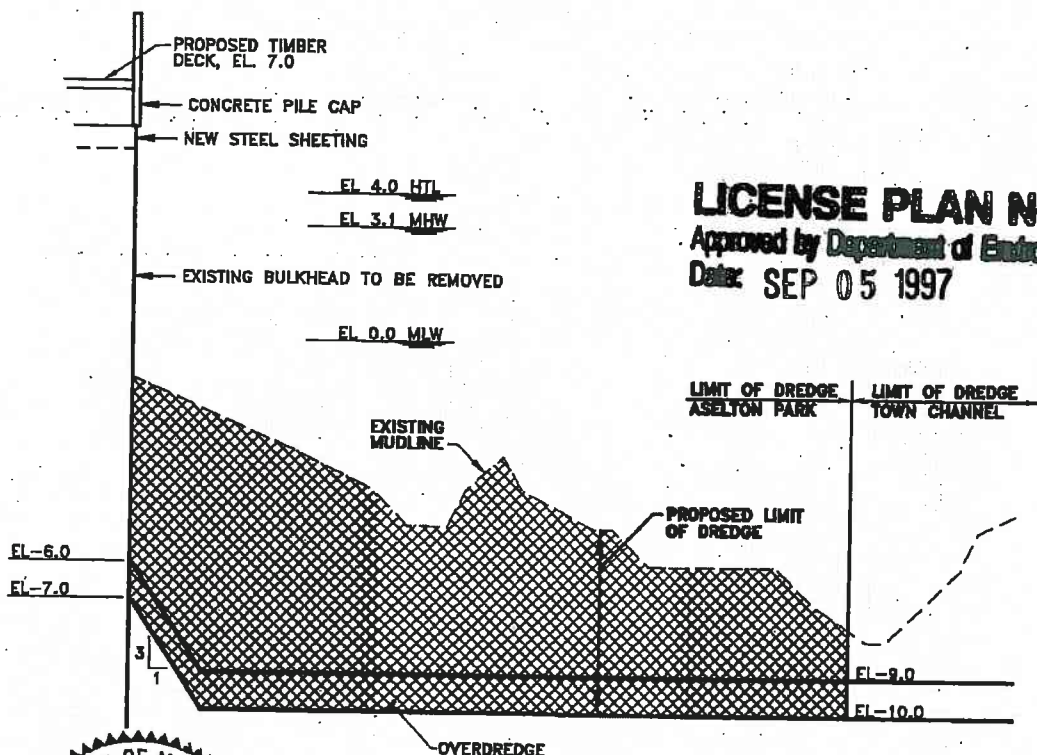
003-326-000-061-100





SECTION C-C

SCALE: 1" = 50' HOR.
1" = 5' VERT.



LICENSE PLAN NO. 6894
Approved by Department of Environmental Protection
Date: SEP 05 1997



David B. Vine

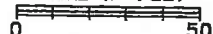
SECTION D-D

SCALE: 1" = 50' HOR.
1" = 5' VERT.

PROPOSED DREDGING ASELTON PARK

1" = 50' HOR.
1" = 5' VERT.

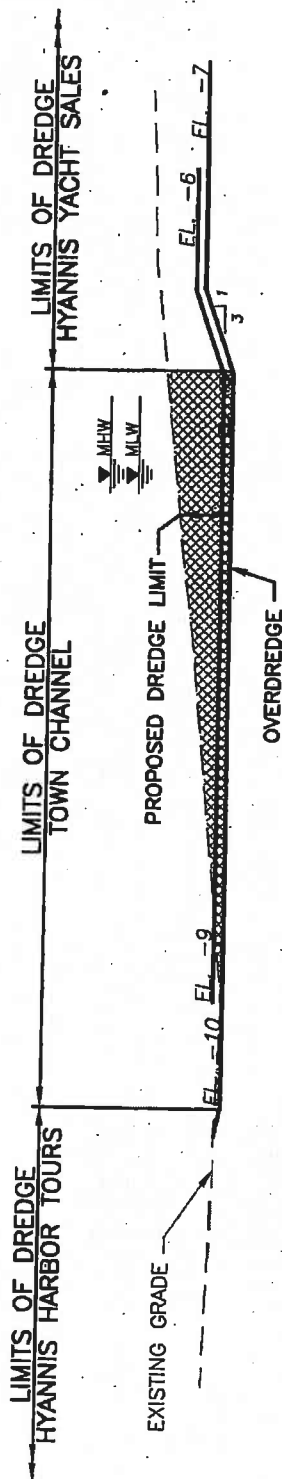
SCALE IN FEET



003-326-000-061-100

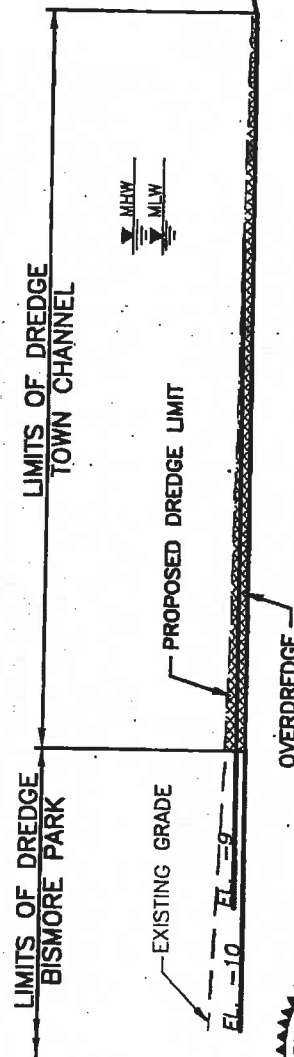
NOTE:

1. DATUM MLW=0.0; MHW=3.1; HTL=4.0.
2. DREDGE VOLUME ASELTON PARK 4800 CY, TO CAD PIT DISPOSAL.



SECTION E-E

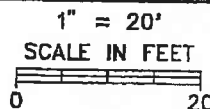
1" = 20'



SECTION F-F

1" = 20'

PROPOSED DREDGING TOWN CHANNEL



NOTES:

1. DATUM MLW=0.0; MHW=3.1; HTL=4.0.
2. DREDGE VOLUME TOWN CHANNEL 2400 CY, TO OAD PIT DISPOSAL.

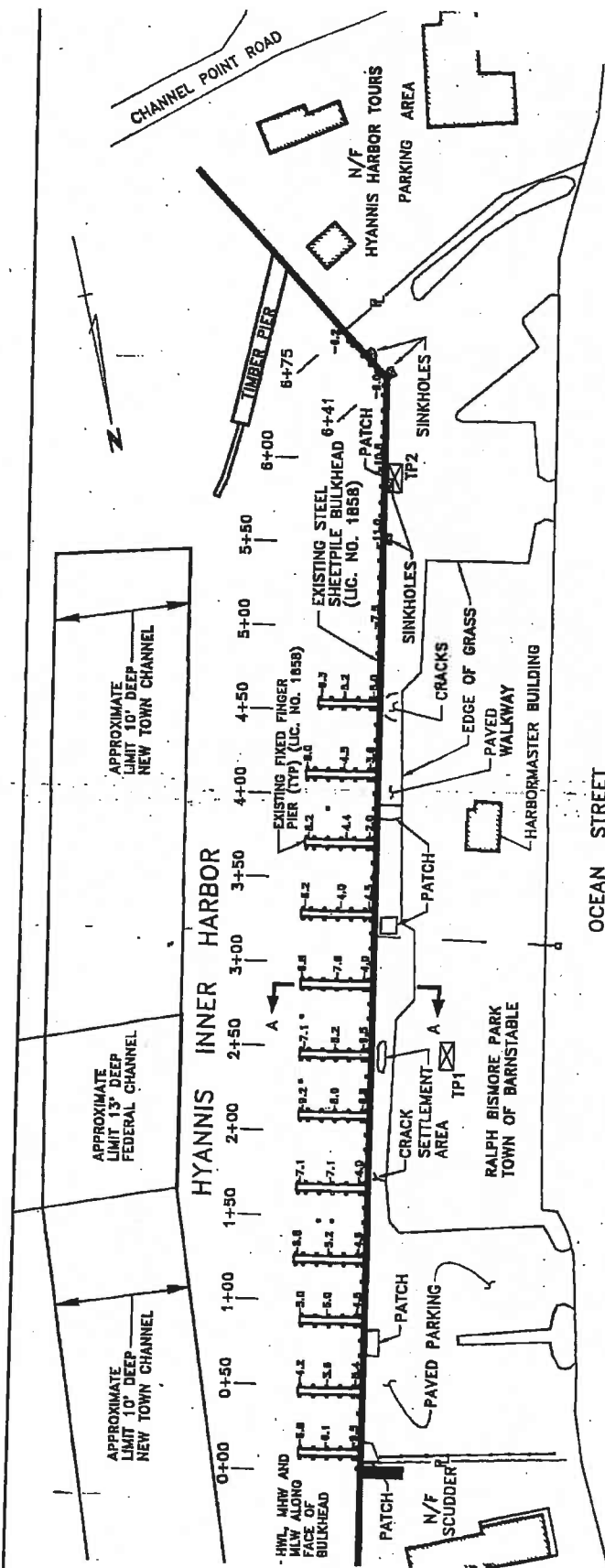


David B. Vine

003-326-000-061

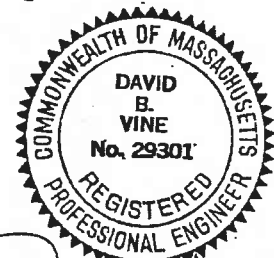
APRIL 1997
SHEET 6 OF 6

LICENSE PLAN NO. 6894
Approved by Department of Environmental Protection
Date: SEP 05 1997



RALPH BISMORE PARK EXISTING SITE PLAN

SCALE: 1" = 100'
SCALE IN FEET



David B. Vine

NOTE:
EXISTING STEEL BULKHEAD AND TWELVE (12) TIME
PIERS LICENSED UNDER DEP NO. 1858 (1988).

003-326-000-068-100

EXISTING SITE PLAN

FEBRUARY 1997

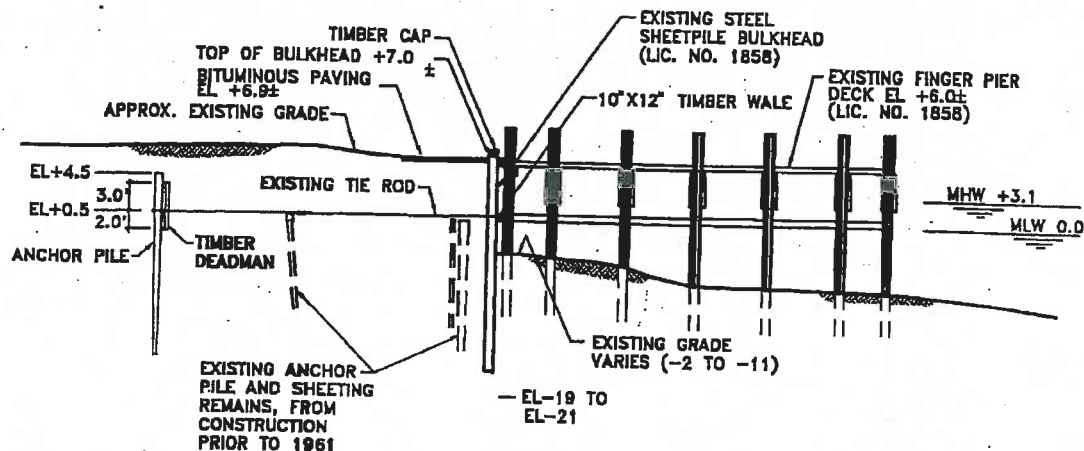
SHEET 1 OF

LICENSE PLAN NO. 6342

Approved by Department of Environmental Protection
of Massachusetts

Elizabeth A. Kordosheras
David B. Vine

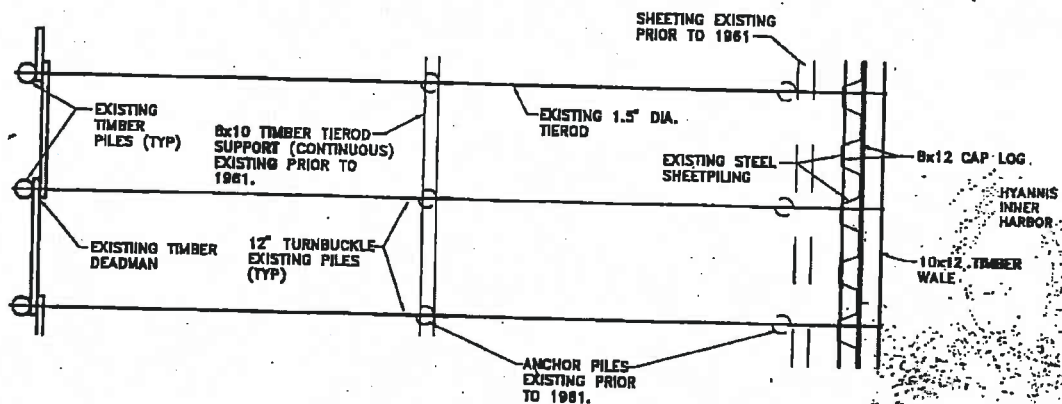
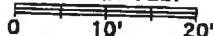
JUN 05 1997



SECTION A-A

SCALE: 1" = 20'

SCALE IN FEET

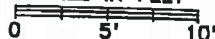


PLAN VIEW

EXISTING TIEROD AND DEADMAN SYSTEM

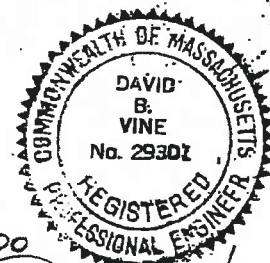
SCALE: 1" = 10'

SCALE IN FEET



EXISTING CONDITIONS

003-326-000-068-100



LICENSE PLAN NO. 6342

Approved by Department of Environmental Protection

Date: JUN 05 1997

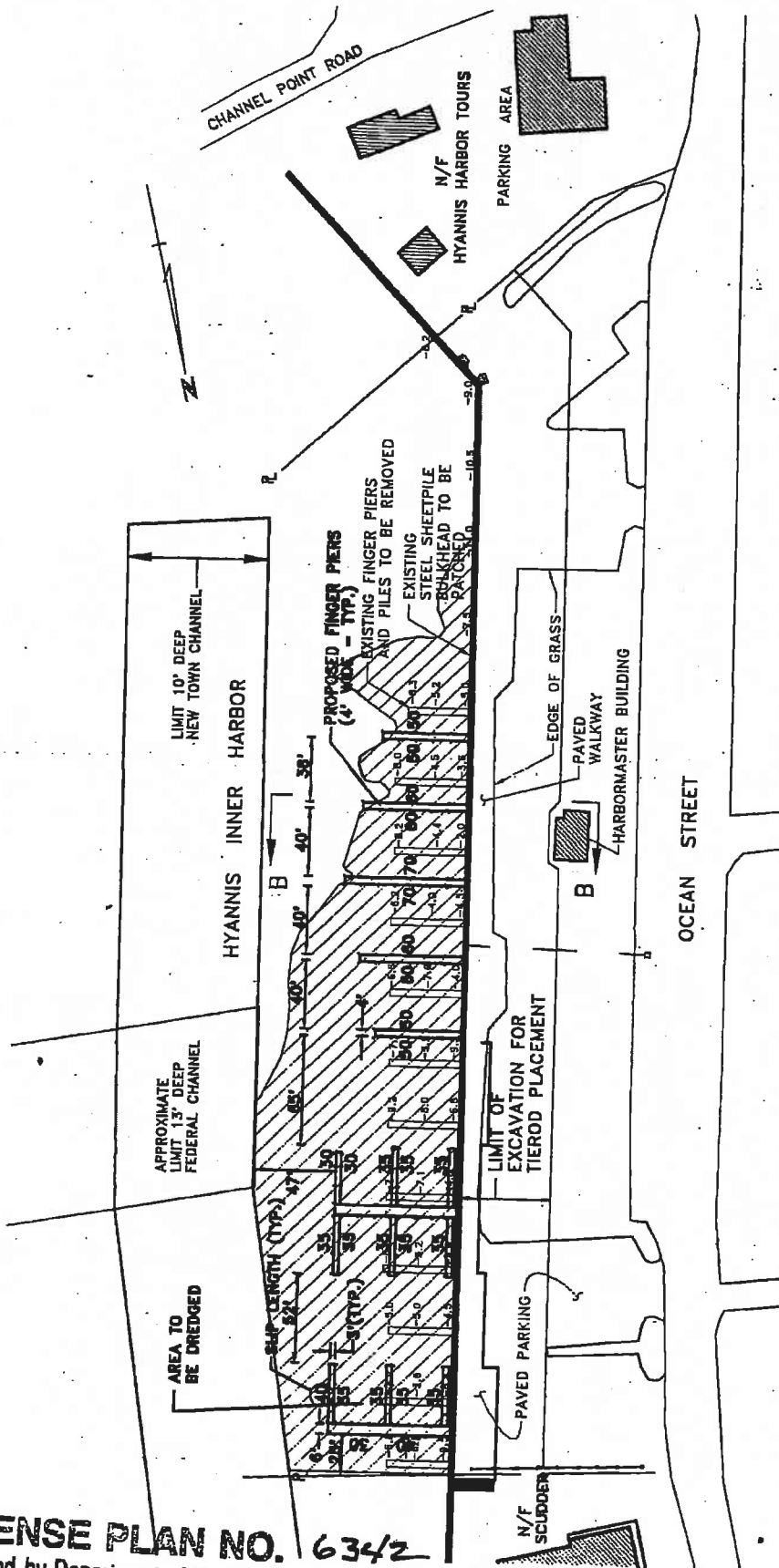
APRIL 1996
SHEET 2 OF 5

LICENSE PLAN NO. 6342

Approved by Department of Environmental Protection

Date: JUN 03 1997

PROPOSED WORK PLAN



NOTES:

1. PROPOSED DREDGING WITHIN 20' OF BULKHEAD DREDGE TO EL. -6 (WITH 1 FT. OVERDREDGE TO -7). BEYOND TO EL. -9 (WITH 1' OVERDREDGE TO EL. -10). AREA=41,000 SF; VOLUME=4500 CY.
2. DREDGED MATERIAL TO BE DEPOSITED AT CAD PIT WITH CORPS DREDGING PROJECT.
3. AREA OF PROPOSED FINGER PIERS IS 2950 SF. PIERS TO UTILIZE 172-12" DIA. TIMBER PILES. EXISTING FINGER PIERS TO BE REPLACED AND/OR RELOCATED AS REQUIRED.
4. VOLUME OF FILL BELOW MHW = 50± CY.
5. NUMBER OF SLIPS = 27.

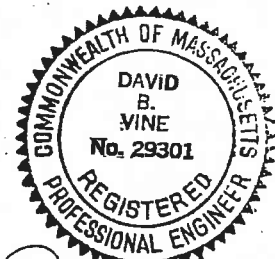
RALPH BISMORE PARK

PROPOSED WORK PLAN

SCALE: 1" = 100'

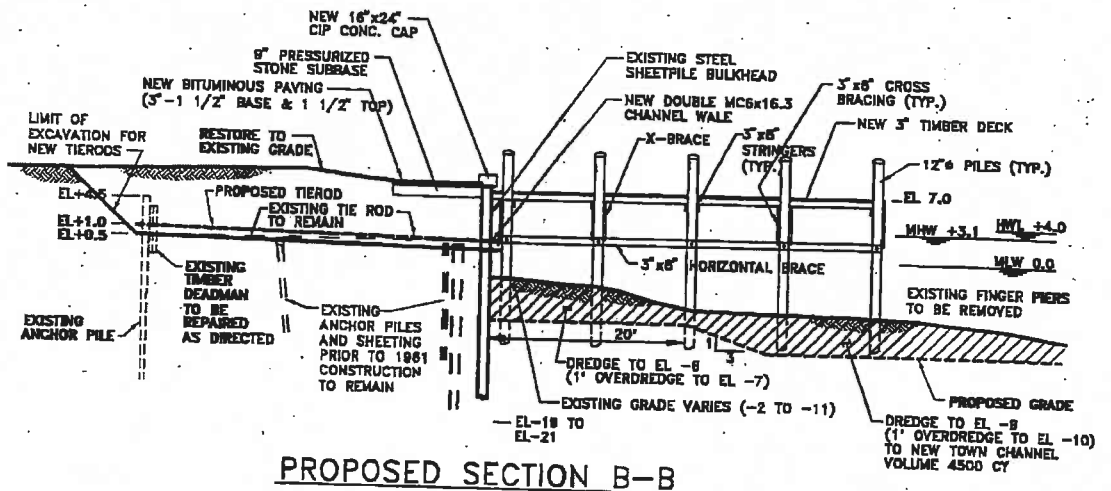
SCALE IN FEET

0 100'



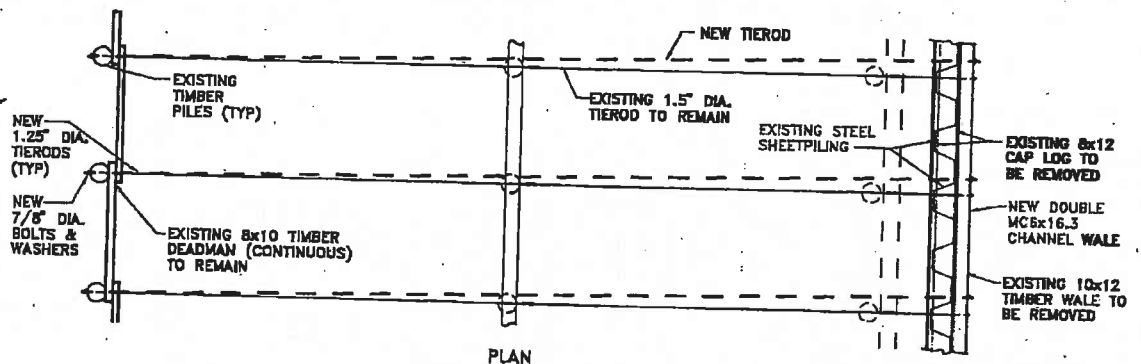
David B. Vine

003-326-000-068-100



PROPOSED SECTION B-B

SCALE: 1" = 20'
SCALE IN FEET
0 20'

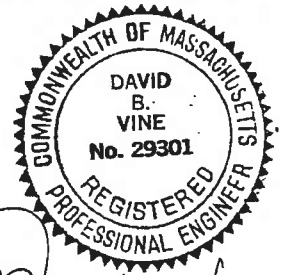


PROPOSED TIEROD REPLACEMENT

SCALE: 1" = 10'
SCALE IN FEET
0 5' 10'

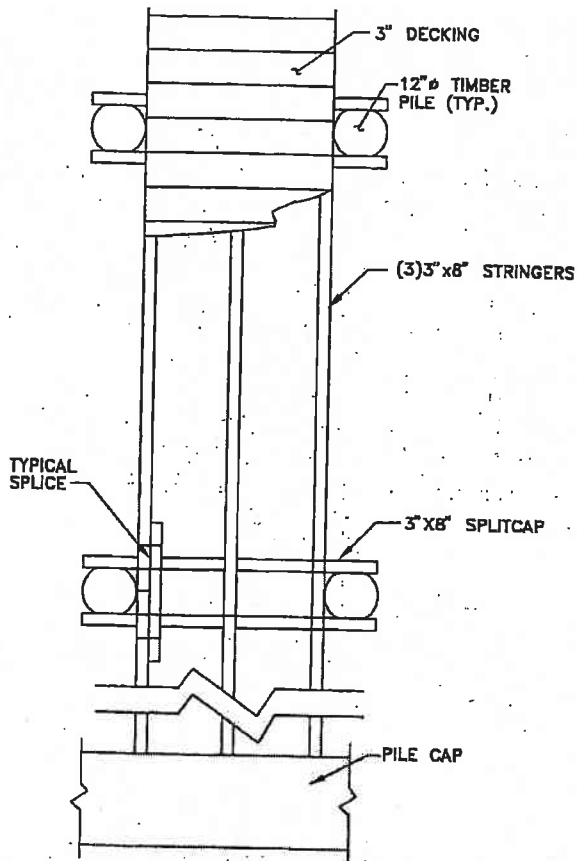
PROPOSED BULKHEAD RECONSTRUCTION

003-326-000-068-100

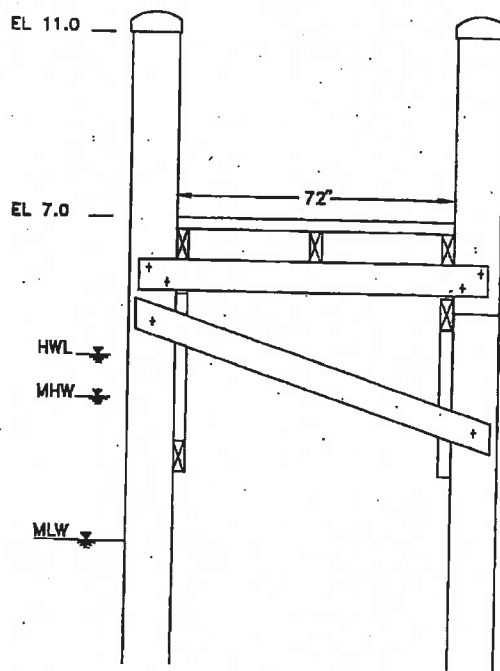


PLAN NO. 6342
Approved by Department of Environmental Protection
Date: JUN 05 1997

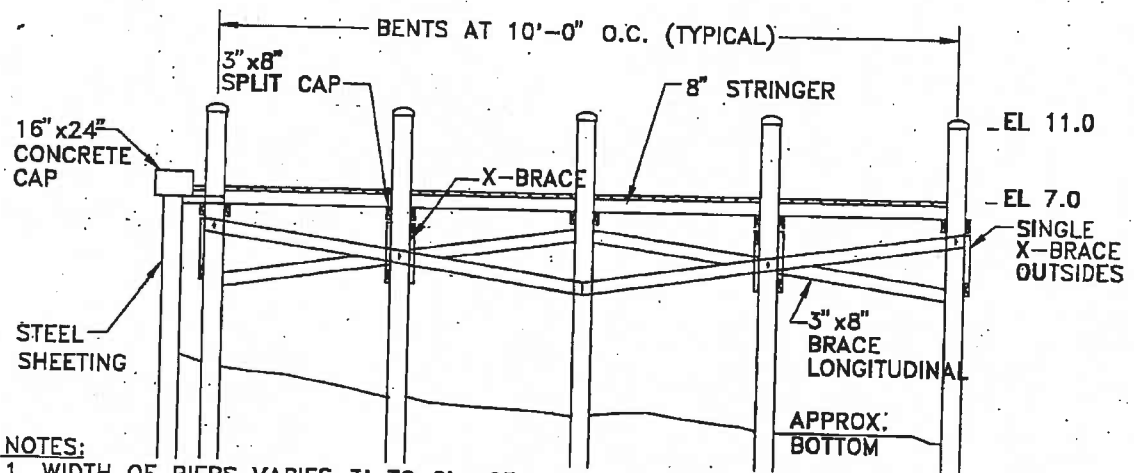
FEBRUARY 1997
SHEET 4 OF 5



TYPICAL
PIER PLAN VIEW
SCALE: 1" = 4'
SCALE IN FEET



MAIN PIER, PARTIAL DETAIL
CROSS SECTION
SCALE: 1" = 4'
SCALE IN FEET



NOTES:

1. WIDTH OF PIERS VARIES 3' TO 6' - SEE SHEET 3.
2. LENGTH OF PIERS VARIES 50' TO 70' - SEE SHEET 3.

TYPICAL
FINGER PIER PROFILE

SCALE: 1" = 10'
SCALE IN FEET

0 5' 10'

LICENSE PLAN NO. 6342

Approved by Department of Environmental Protection

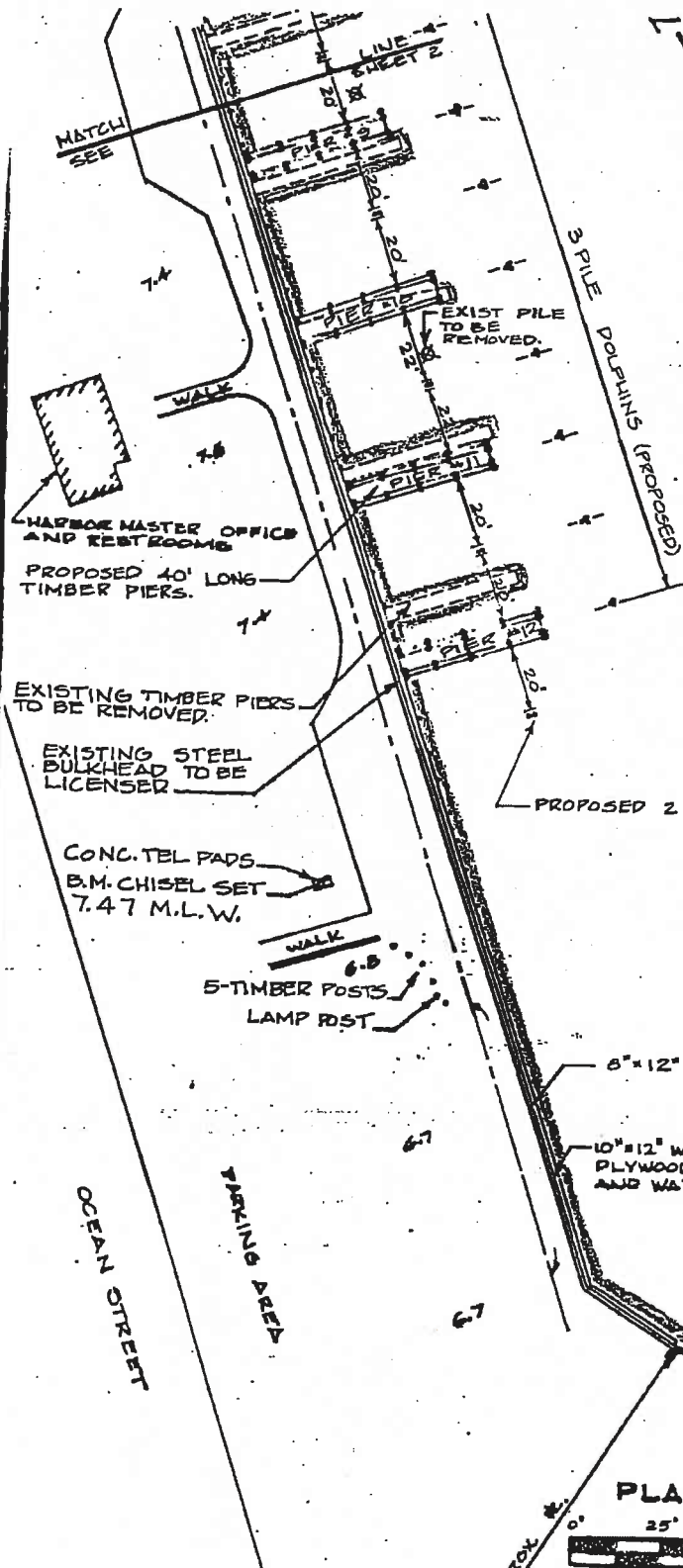
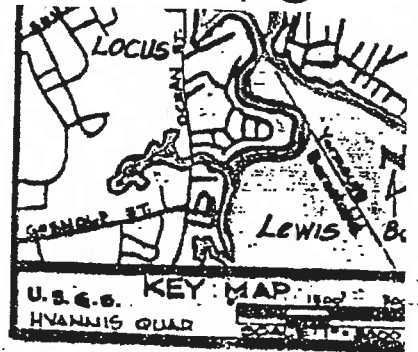
Date: JUN 05 1997

003-326-006-068.100
PROPOSED FINGER PIERS



David B. Vine

003-326-000-068-100



FLOOD
EBB

HYANNIS INNER HARBOR

NOTE:

ELEVATIONS ARE IN FEET AND TENTHS ABOVE THE PLANE OF MEAN LOW WATER. MINUS FIGURES INDICATE DEPTHS BELOW THAT SAME PLANE.

EXISTING STEEL BULKHEAD CONSTRUCTED BY THE COMM. OF MASS. REFER TO DPW CONTRACT NO. 2317.

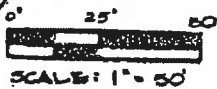
PROPOSED 2 PILE DOLPHINS

EXISTING DOLPHIN PILES

LEGEND:

- EXIST. PIERS TO BE REMOVED
- EXIST. PILES TO BE REMOVED
- PROP. PIERS.
- PROP. 3 PILE DOLPHIN
- PROP. 2 PILE DOLPHIN

PLAN



PLAN ACCOMPANYING PETITION OF TOWN OF BARNSTABLE TO MAINTAIN A STEEL BULKHEAD, TO CONSTRUCT TIMBER PIERS AND TO PLACE PILES IN HYANNIS INNER HARBOR BARNSTABLE, MASS. DECEMBER 17, 1986. SHEET 1 OF 3



BRAMAN ENGINEERING COMPANY
CIVIL ENGINEERS & SURVEYORS
250 MAIN ST., BUZZARDS BAY, MA.

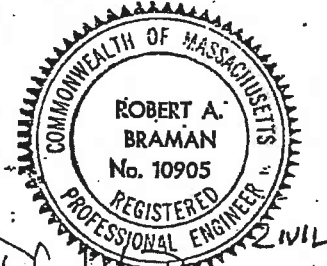
87W-036

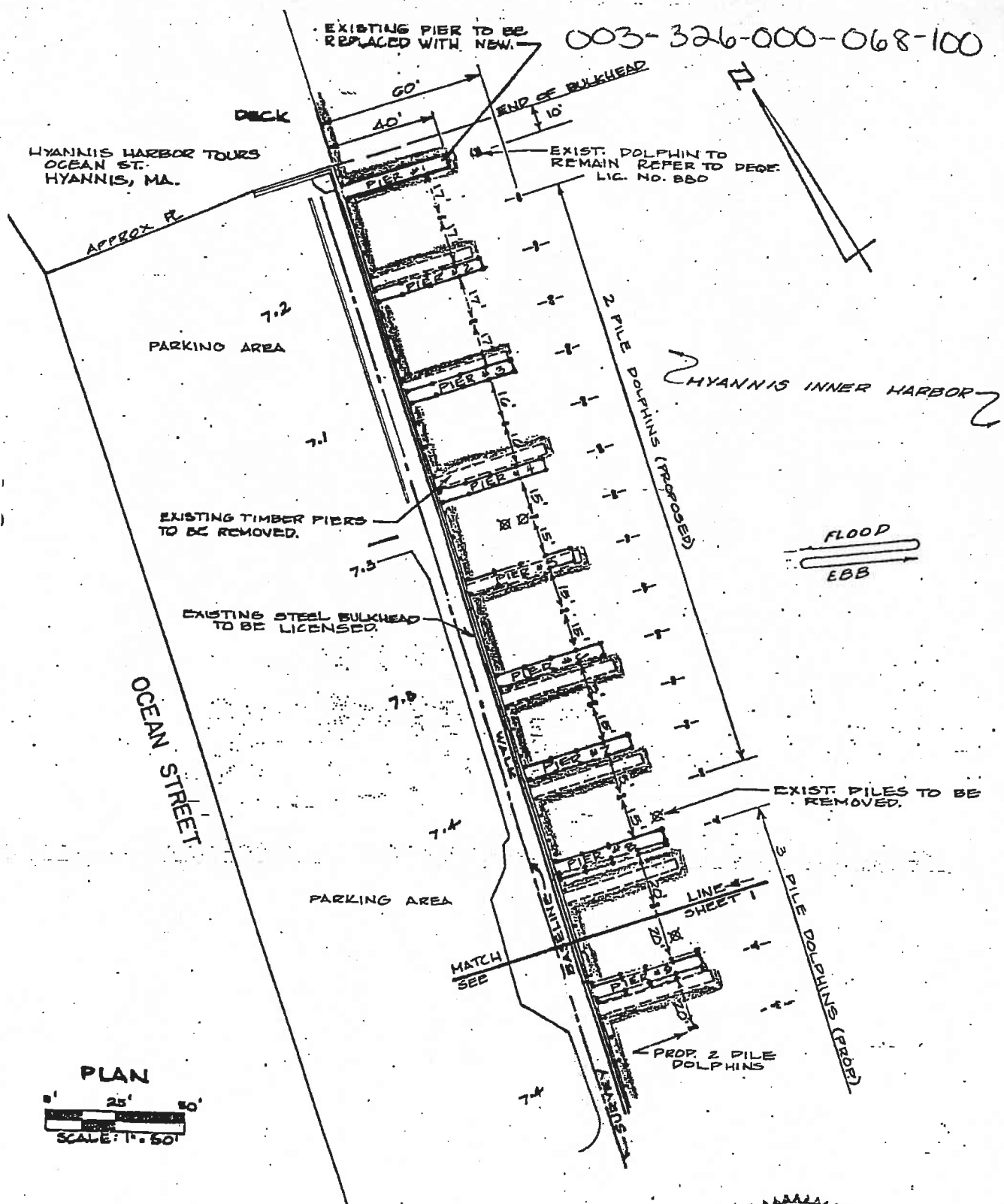
LICENSE PLAN NO. 1858

Approved by Department of Environmental Quality Engineering of Massachusetts

Signature of Gary R. Clayton
GARY R. CLAYTON
NOV 14 1988

COMMISSIONER
DIVISION DIRECTOR
SECTION CHIEF
DATE



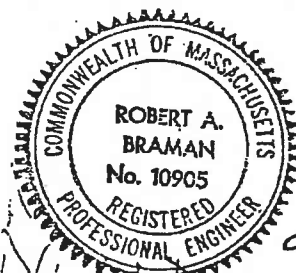


LICENSE PLAN NO. 1858

Approved by Department of Environmental Quality Engineering

Date: NOV 14 1988

87W-036

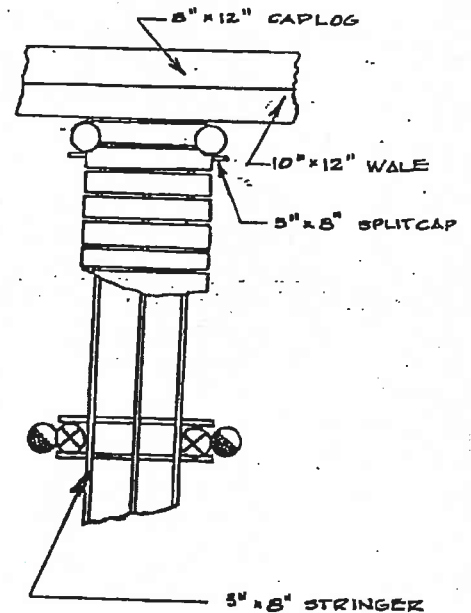
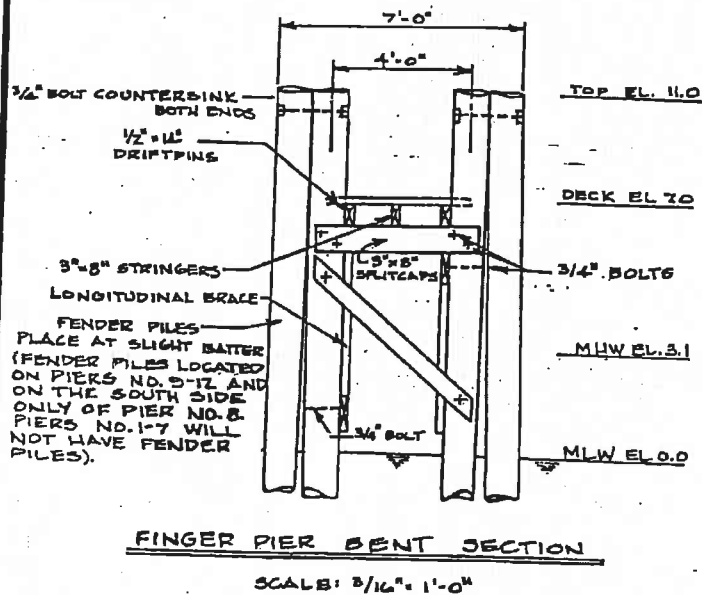
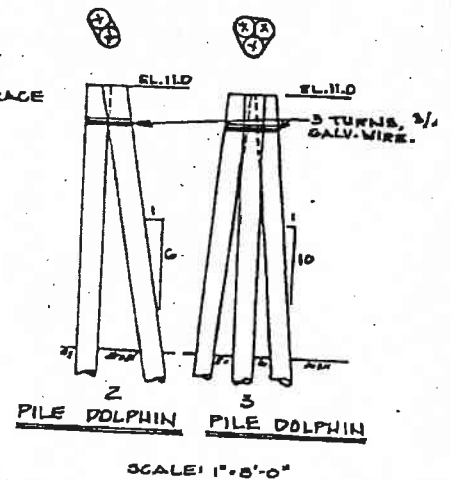
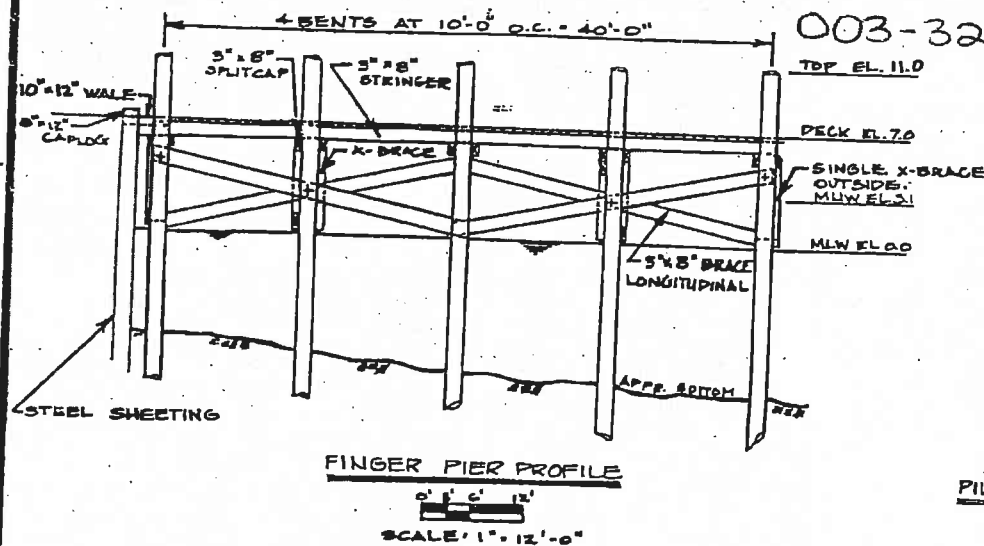


Robert A. Braman

TOWN OF BARNSTABLE

DECEMBER 17, 1986

SHEET 2 OF 3

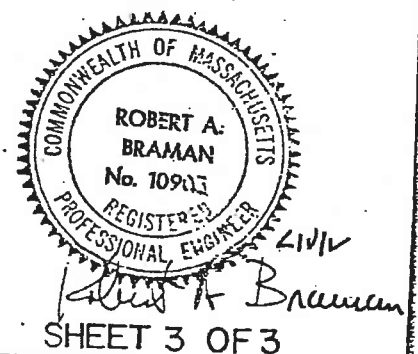


LICENSE PLAN NO. 1858

Approved by Department of Environmental Quality Engineering

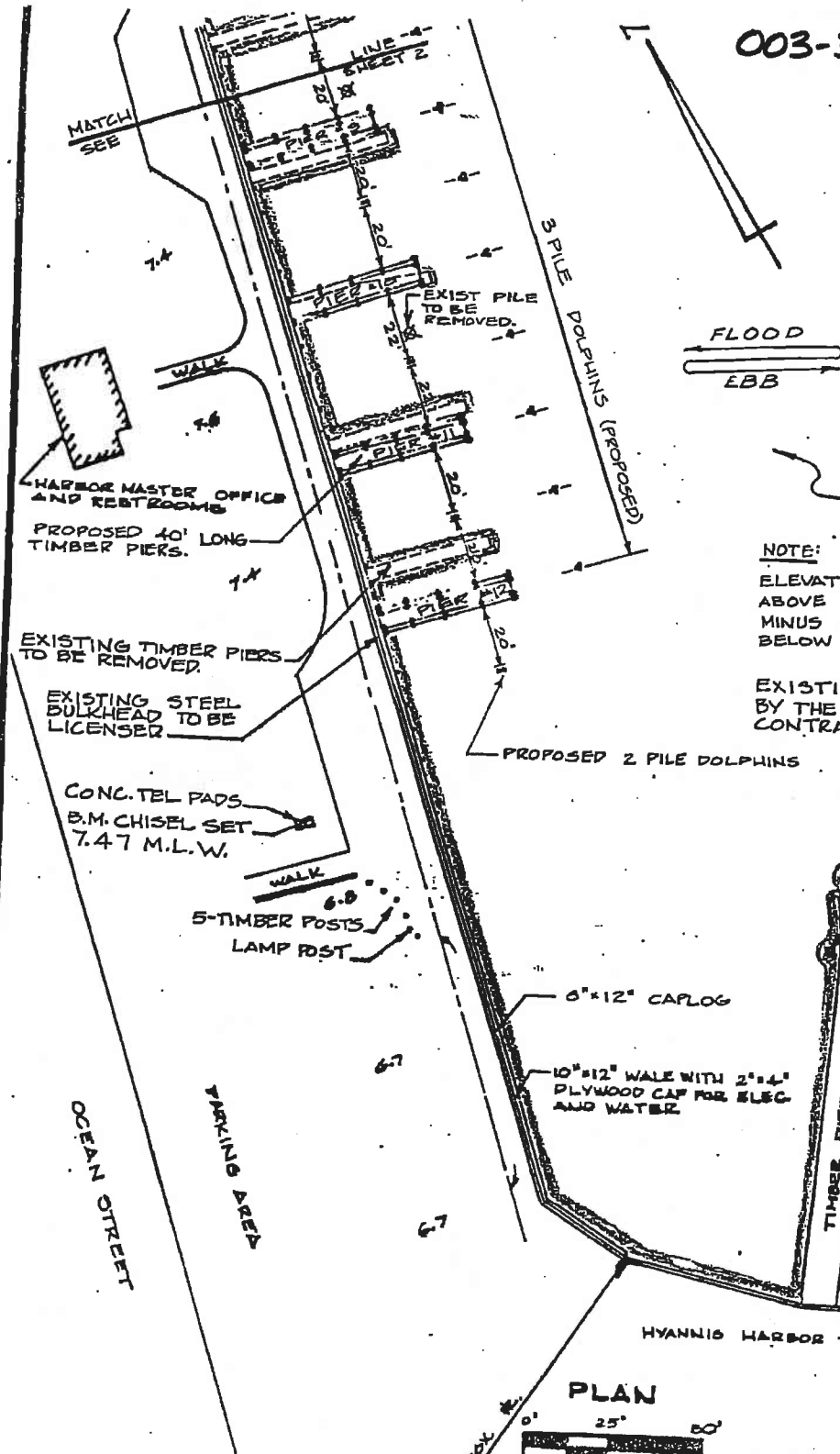
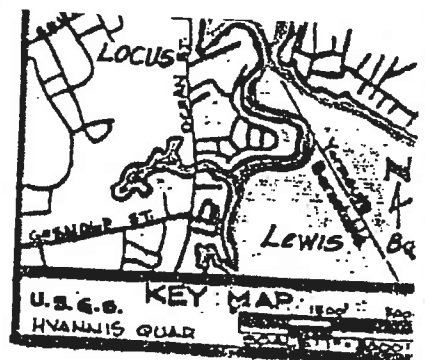
Date NOV 14 1988

87W-036



TOWN OF BARNSTABLE DECEMBER 17, 1986

003-326-000-068-100



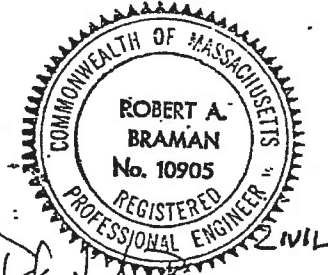
NOTE:

ELEVATIONS ARE IN FEET AND TENTHS ABOVE THE PLANE OF MEAN LOW WATER. MINUS FIGURES INDICATE DEPTHS BELOW THAT SAME PLANE.

EXISTING STEEL BULKHEAD CONSTRUCTED BY THE COMM. OF MASS. REFER TO DPW CONTRACT NO. 2317.

LEGEND:

- EXIST. PIERS TO BE REMOVED
- EXIST. PILES TO BE REMOVED
- PROP. PIERS.
- PROP. 3 PILE DOLPHIN
- PROP. 2 PILE DOLPHIN



PLAN ACCOMPANYING PETITION OF TOWN OF BARNSTABLE TO MAINTAIN A STEEL BULKHEAD, TO CONSTRUCT TIMBER PIERS AND TO PLACE PILES IN HYANNIS INNER HARBOR BARNSTABLE, MASS.
DECEMBER 17, 1986 SHEET 1 OF 3

BRAMAN ENGINEERING COMPANY
CIVIL ENGINEERS & SURVEYORS
258 MAIN ST., BUZZARDS BAY, MA.

87W-036

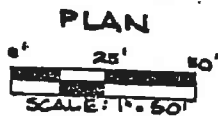
LICENSE PLAN NO. 1858

Approved by Department of Environmental Quality Engineering of Massachusetts

GARY R. CLAYTON
COMMISSIONER
DIVISION DIRECTOR
SECTION CHIEF
DATE

NOV 14 1988

HYANNIS HARBOR TOURS
OCEAN ST.
HYANNIS, MA.



Approved by Department of Environmental Quality Engineering
Date: NOV 14 1988

Date: NOV 14 1988

COMMONWEALTH OF MASSACHUSETTS
 ROBERT A. BRAMAN
 No. 10905
 REGISTERED PROFESSIONAL ENGINEER
 CIVIL

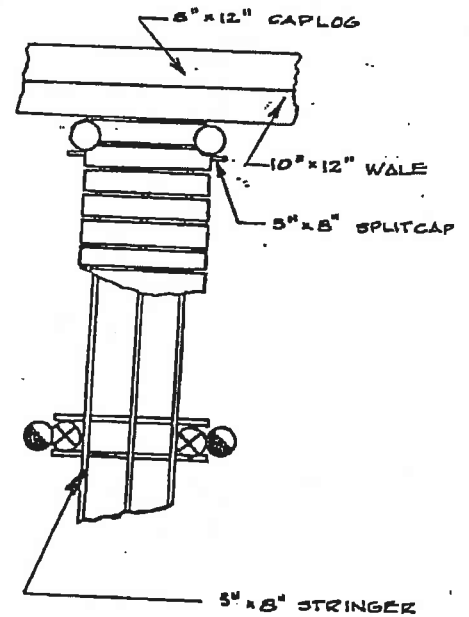
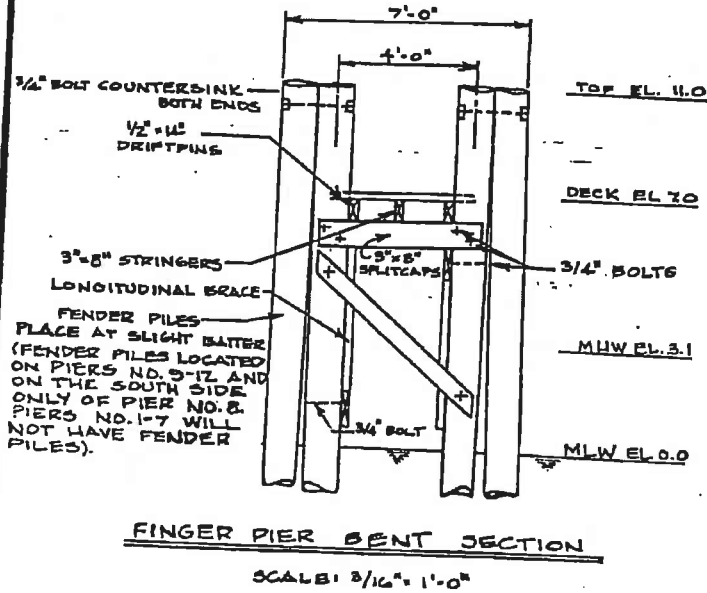
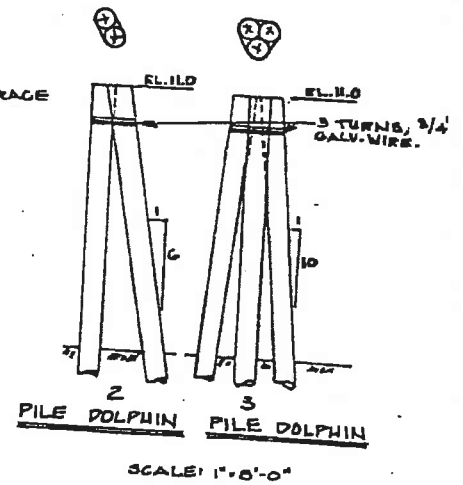
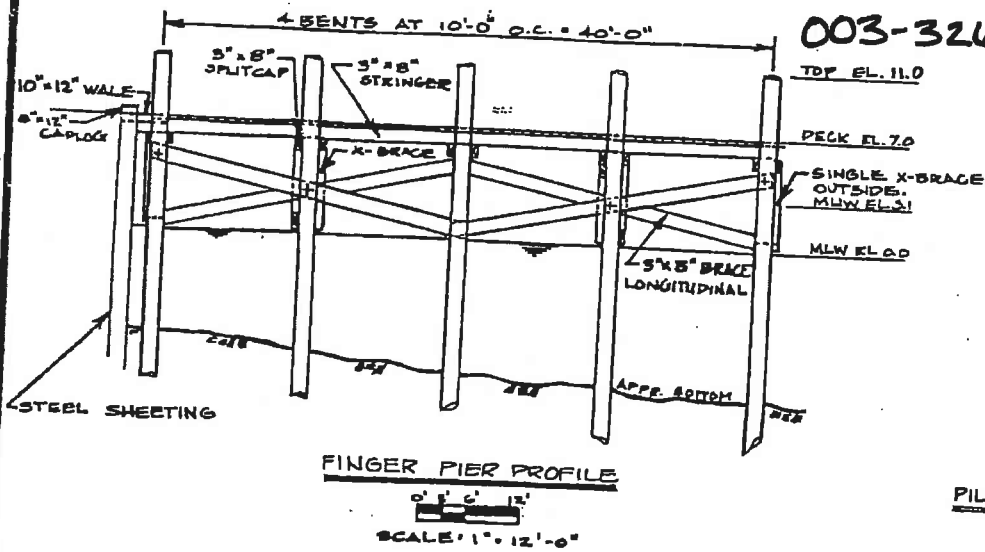
Robert A. Braman

TOWN OF BARNSTABLE

DECEMBER 17, 1986

SHEET 2 OF 3

003-326-000-068-100



LICENSE PLAN NO. 1858

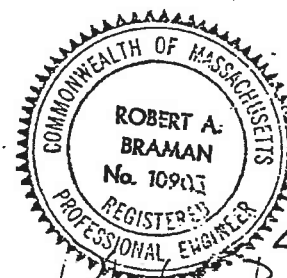
Approved by Department of Environmental Quality Engineering

Date: NOV 14 1988

87W-036

TOWN OF BARNSTABLE

DECEMBER 17, 1986



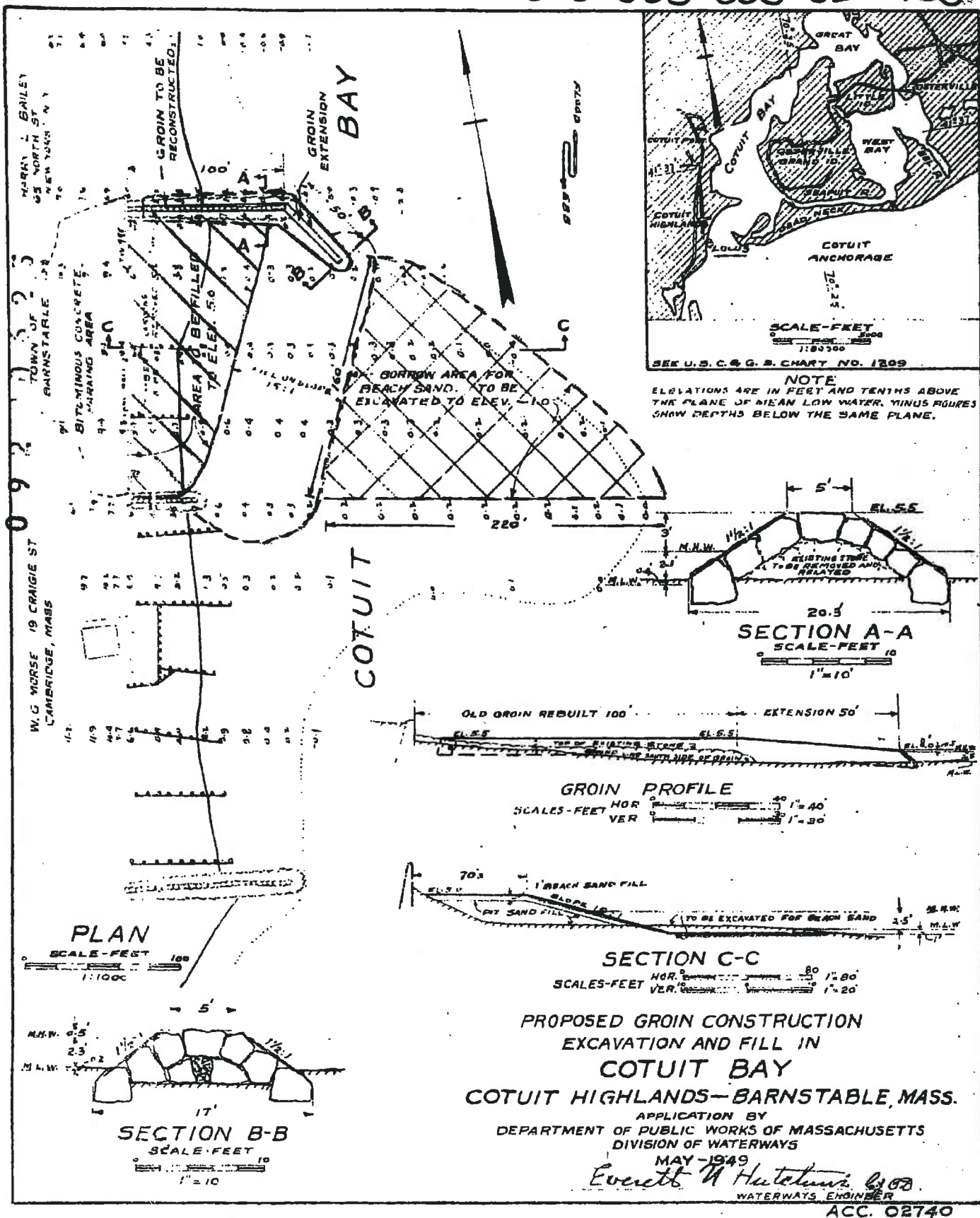
SHEET 3 OF 3

TOWN: BARNSTABLE
 SOURCE: US ACOE
 LOCATION: CONCORD, MA
 DATE OF RESEARCH: AUGUST 2007

BCE Structure No	Document No	Contract/ Drawing Number	Entity	Municipality	Date	Title	Sheets	Location	Description
003-033-000-021-100	003-033-000-021-100-COE1A	49-105	USACE	Barnstable	May 1949	Proposed Groin Construction, Excavation and Fill in Coluit Bay - Coluit Highlands - Barnstable, Mass. - Application by DPW of Massachusetts - Division of Waterways	1	Coluit Bay	Groin
003-090-000-010-100	003-090-000-010-100-COE1A	53-112	USACE	Barnstable	May 1953	Proposed Jetty Construction - West Bay Entrance - Barnstable, Massachusetts - Application by DPW of Massachusetts - Division of Waterways	1	West Bay Entrance	Jetty
003-163-000-013-100	003-163-000-013-100-COE1A	56-2	USACE	Barnstable	December 1955	Proposed Jetty Extension - Dowses Point - Nantucket Sound - Barnstable, Massachusetts - Application by DPW of Massachusetts - Division of Waterways	1	Dowses Point	Jetty Extension
003-300-000-022-100	003-300-000-022-100-COE1A	50-20	USACE	Barnstable	January 1950	Proposed Timber Bulkhead and Excavation - Maraspin Creek - Barnstable Harbor - Barnstable, Massachusetts - Application by DPW of Massachusetts - Division of Waterways	2	Maraspin Harbor	Timber Bulkhead
003-300-000-022-200	003-300-000-022-200-COE2A	54-78	USACE	Barnstable	March 1954	Proposed Harbor Improvements - Timber Piles, Excavation and Riprap - Maraspin Creek - Barnstable Creek - Barnstable, Massachusetts - Application by DPW of Massachusetts - Division of Waterways	2	Maraspin Creek	Riprap
003-300-000-022-300	003-300-000-022-300-COE3A	54-78	USACE	Barnstable	March 1954	Proposed Harbor Improvements - Timber Piles, Excavation and Riprap - Maraspin Creek - Barnstable Creek - Barnstable, Massachusetts - Application by DPW of Massachusetts - Division of Waterways	2	Maraspin Creek	Riprap
003-300-000-022-300	003-300-000-022-300-COE3B	78-287	USACE	Barnstable	June 1977	Plan to Accompany Petition of Town of Barnstable, Massachusetts to Build and Maintain a Boat Ramp and Riprap in Maraspin Creek - Village of Barnstable, Barnstable County, Massachusetts	1	Maraspin Creek	Riprap
003-323-000-001-100	003-323-000-001-100-COE1A	50-201	USACE	Barnstable	September 1950	Proposed Stone Jetties and Sand Fill at Kalmus Park - Hyannis - Barnstable, Massachusetts - Application by DPW of Massachusetts - Division of Waterways	2	Kalmus Park	Jetties
003-324-000-038-100	003-324-000-038-100-COE1A	54-189	USACE	Barnstable	July 1954	Proposed Seawall and Jetty Construction - Veterans Memorial Park - Lewis Bay - Barnstable, Massachusetts - Application by DPW of Massachusetts - Division of Waterways	1	Veterans Memorial Park	Seawall and Jetty
003-324-000-038-200	003-324-000-038-200-COE2A	54-189	USACE	Barnstable	July 1954	Proposed Seawall and Jetty Construction - Veterans Memorial Park - Lewis Bay - Barnstable, Massachusetts - Application by DPW of Massachusetts - Division of Waterways	1	Veterans Memorial Park	Seawall and Jetty
003-324-000-041-100	003-324-000-041-100-COE1A	51-201	USACE	Barnstable	November 1951	Proposed Stone Jetty - Dunbar's Point - Hyannis Harbor - Barnstable, Massachusetts - Proposed Seawall and Jetty Construction - Veterans Memorial Park - Lewis Bay - Barnstable, Massachusetts - Application by DPW of Massachusetts - Division of Waterways	1	Dunbars Point	Jetty
003-326-000-068-100	003-326-000-068-100-COE1A	62-239	USACE	Barnstable	January 1962	Proposed Steel Bulkhead and Finger Pier Extension - Hyannis Harbor (Inner) - Barnstable, Massachusetts - Application by the DPW of Massachusetts - Division of Waterways	2	Ralph Blamore Park	Steel Bulkhead

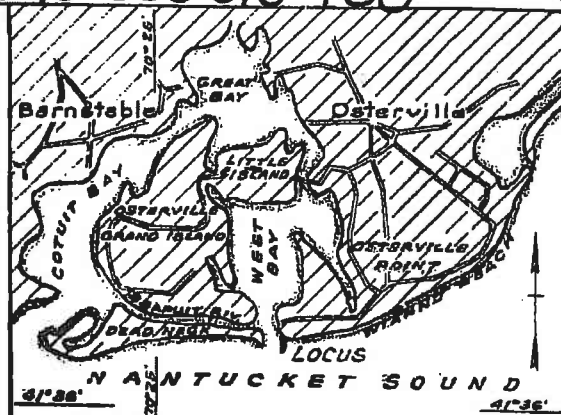
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003-033-000-021-100



0921845

003-090-000-010-100

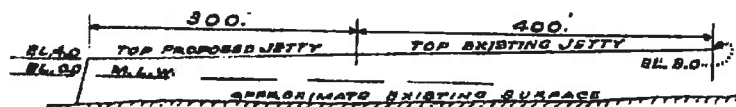


LOCATION PLAN

SCALE - FEET
0 200 400 600 800
1" = 200'

SEE U.S.C&G.S. CHART 1209

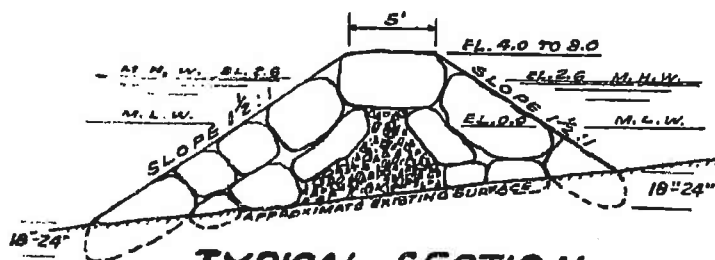
Wianno



PROFILE OF PROPOSED JETTY

SCALE - FEET

HOR. 0 50 100 200 300 1" = 200'
VER. 0 10 20 30 40 50 1" = 40'



TYPICAL SECTION

SCALE - FEET

0 5 10 15 1" = 10'

PLAN

SCALE - FEET
0 50 100 200 300 400
1" = 500'

NOTE

ALL DIMENSIONS ARE IN FEET AND TENTHS AND SHOW DEPTHS BELOW THE PLANE OF MEAN LOW WATER
WORK TO BE DONE SHOWN IN RED.

PROPOSED JETTY CONSTRUCTION WEST BAY ENTRANCE BARNSTABLE, MASS.

APPLICATION BY
DEPARTMENT OF PUBLIC WORKS OF MASSACHUSETTS
DIVISION OF WATERWAYS

MAY 1953

SCALES SHOWN

John A. Bradford
ACTING DISTRICT WATERWAYS ENGINEER

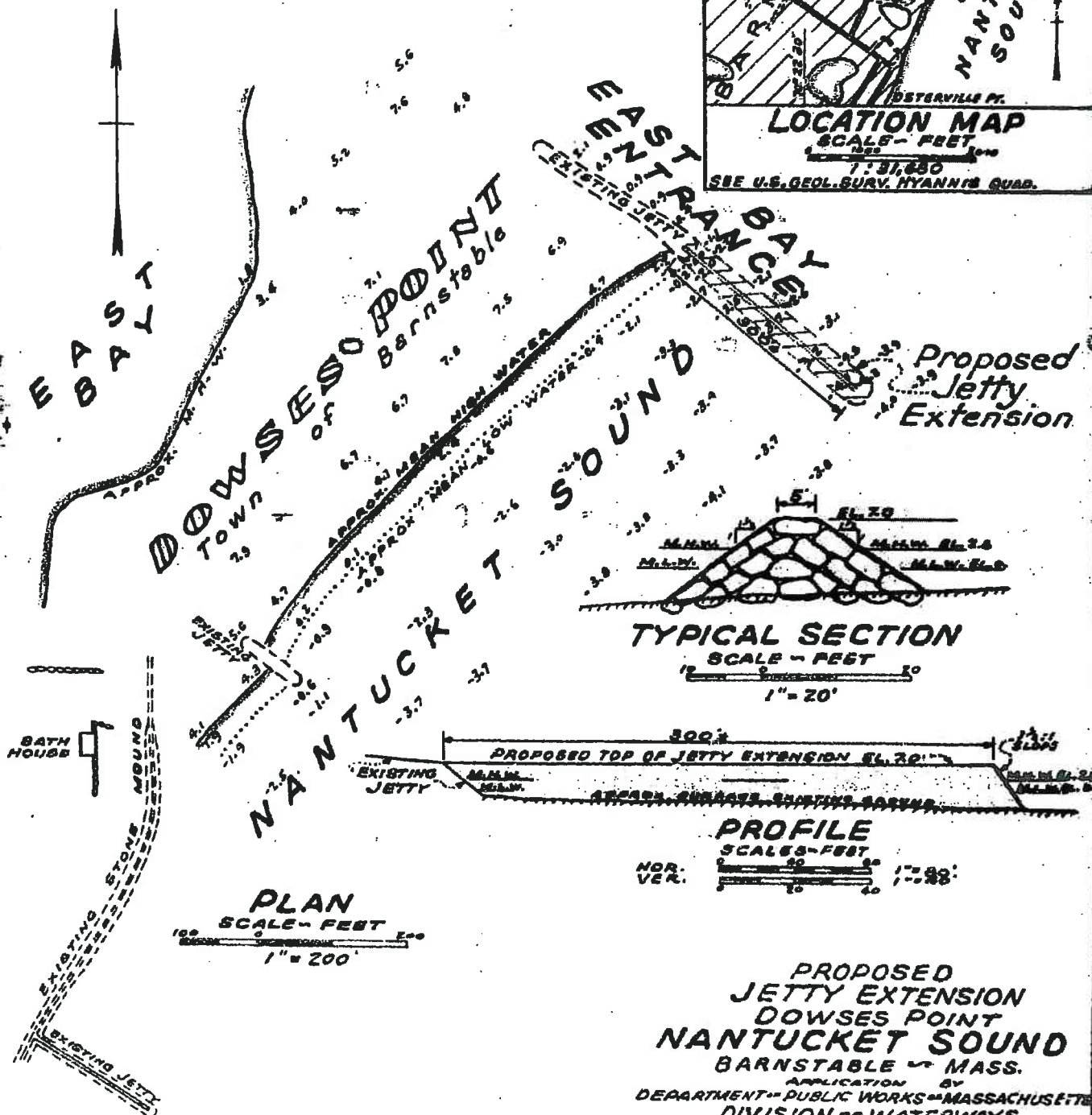
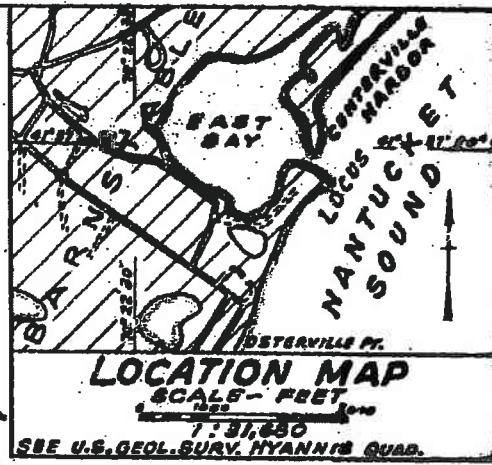
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DEC 71 1955

003-163-000-013-100

NOTE

ELEVATIONS ARE IN FEET AND TENTHS ABOVE THE PLANE OF MEAN LOW WATER. MINUS FIGURES SHOW DEPTHS BELOW THE SAME PLANE. LOCATION OF PROPOSED WORK SHOWN IN RED.



**PROPOSED JETTY EXTENSION
DOWSES POINT
NANTUCKET SOUND
BARNSTABLE - MASS.**
APPLICATION BY
DEPARTMENT OF PUBLIC WORKS - MASSACHUSETTS
DIVISION OF WATERWAYS
DECEMBER 1955
Robert B. MacKinnon

003-300-000-022-100

SHEET 1 OF 2

0960138

EDWIN J. OFGANT, MILTON, MASS.

Property Line

TOWN OF BARNSTABLE

12.4

12.4

12.4

12.4

12.4

DISPOSAL AREA

10.7 10.5 10.3 7.8 6.1 6.4 6.9 7.3 8.1 8.9 10.1 10.9 12.9

10.7 10.5 10.3 7.8 6.1 6.4 6.9 7.3 8.1 8.9 10.1 10.9 12.9

10.7 10.5 10.3 7.8 6.1 6.4 6.9 7.3 8.1 8.9 10.1 10.9 12.9

10.7 10.5 10.3 7.8 6.1 6.4 6.9 7.3 8.1 8.9 10.1 10.9 12.9

10.7 10.5 10.3 7.8 6.1 6.4 6.9 7.3 8.1 8.9 10.1 10.9 12.9

10.7 10.5 10.3 7.8 6.1 6.4 6.9 7.3 8.1 8.9 10.1 10.9 12.9

10.7 10.5 10.3 7.8 6.1 6.4 6.9 7.3 8.1 8.9 10.1 10.9 12.9

10.7 10.5 10.3 7.8 6.1 6.4 6.9 7.3 8.1 8.9 10.1 10.9 12.9

2.6 BASIN TO BE EXCAVATED

1.4 TO 6 FT AT 2.9 M.L.W.

1.4 TO 6 FT AT 2.9 M.L.W.

5.0 3.00' 6.4 A 5.0

5.0 3.00' 6.4 A 5.0

5.0 3.00' 6.4 A 5.0

5.0 3.00' 6.4 A 5.0

ROAD

ROAD

ROAD

ROAD

ROAD

SCALE - FEET

SCALE - FEET

SCALE - FEET

SCALE - FEET

SCALE - FEET

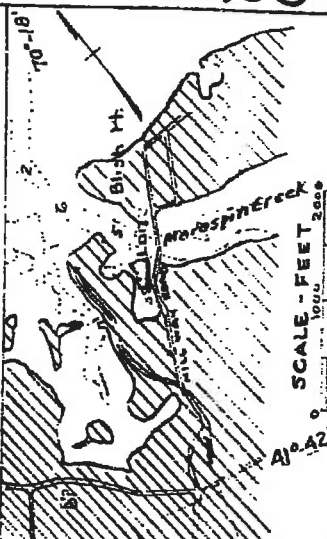
1:1000

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1:1000



NOTE

ELEVATIONS ARE IN FEET & TENTHS ABOVE THE PLANE OF M.L.W. MINUS FIGURES SHOWN DEPTHS BELOW THE SAME. AREA OUTLINED IN RED TO BE EXCAVATED TO A DEPTH OF 6 FT. AT M.L.W. EXCAVATED MATERIAL TO BE DISPOSED OF IN DISPOSAL AREA SHOWN HATCHED IN RED, ALSO IN BACK OF PROPOSED BULKHEAD UP TO ELEV. 15.0

PROPOSED TIMBER BULKHEAD & EXCAVATION
MARASPIN CREEK-BARNSTABLE HARBOR
BARNSTABLE, MASS.

APPLICATION BY
DEPARTMENT OF PUBLIC WORKS OF MASSACHUSETTS
DIVISION OF WATERWAYS

JANUARY 1950

Ernest A. Hurd
WATERWAYS ENGINEER

SEE US & G. S. CHART NO. 339

ACC. 02798-A

Jan 13 9 02 AM '50

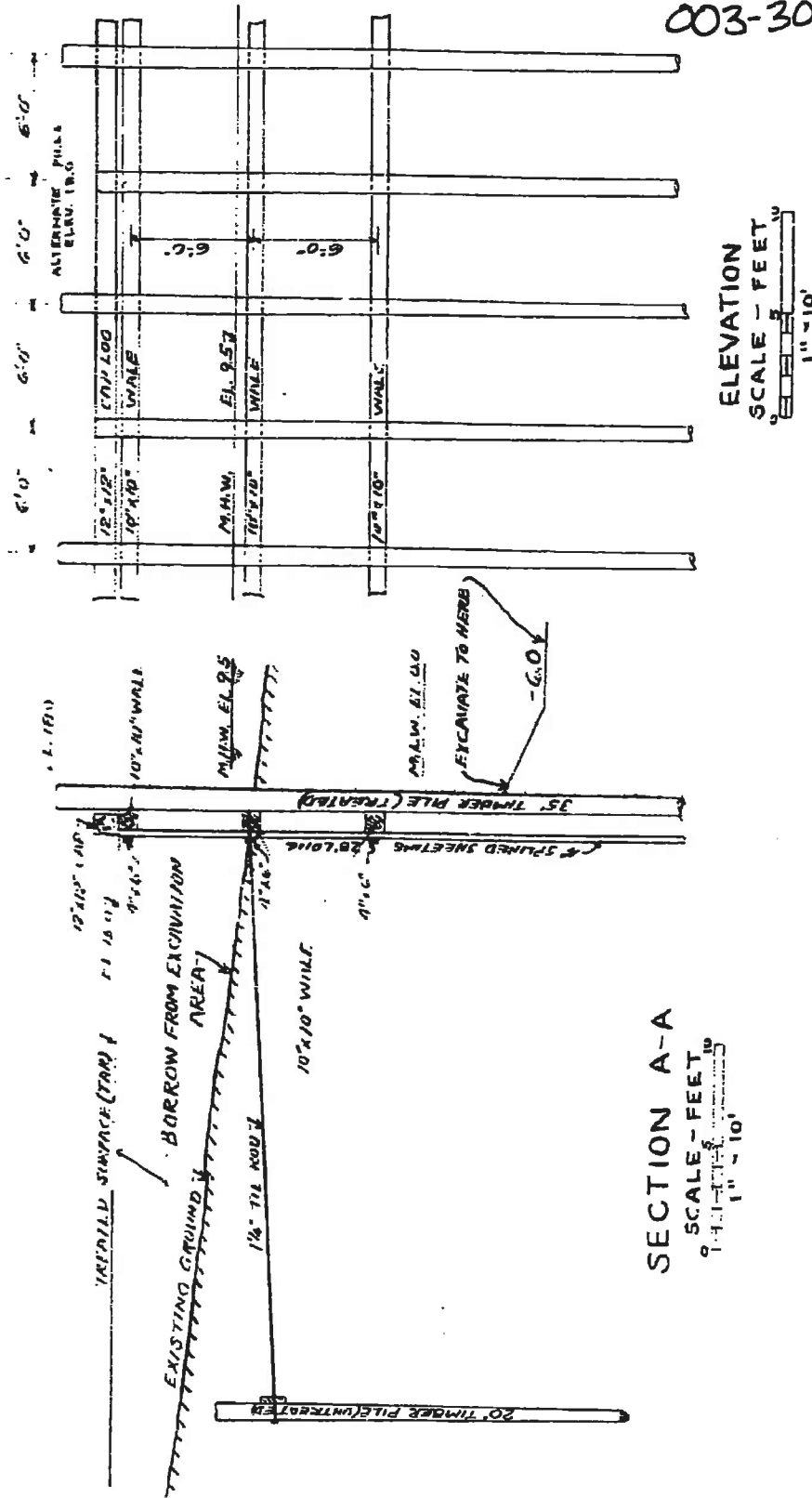
BOSTON, MASS.

003-300-000-022-100

ACC. 02798-B

SHEET 2 OF 2

0960138



PROPOSED TIMBER BULKHEAD
& EXCAVATION
MARASPIN CREEK - BARNSTABLE HARBOR
BARNSTABLE MASS.
APPLICATION BY
DEPARTMENT OF PUBLIC WORKS OF MASSACHUSETTS
DIVISION OF WATERWAYS

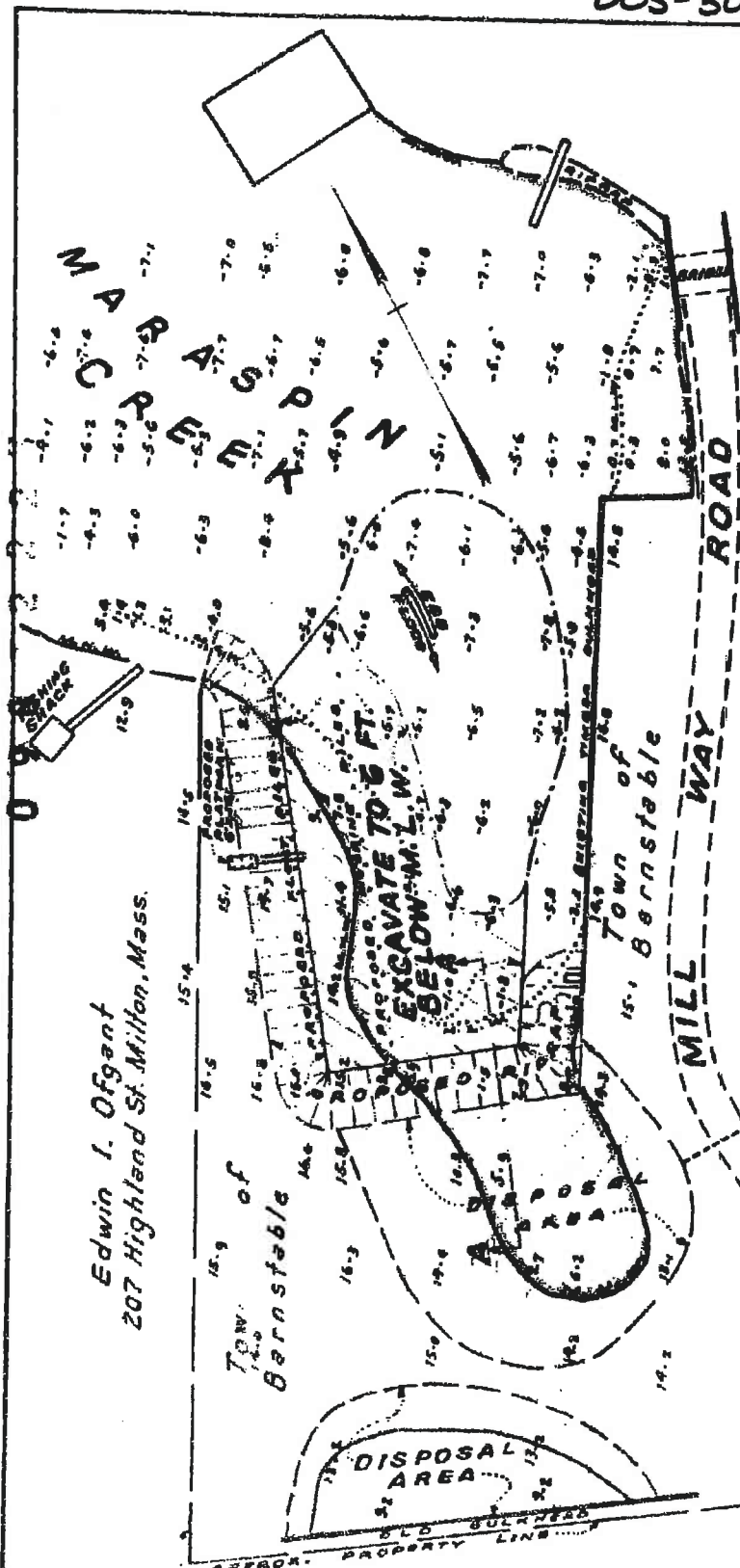
1 JANUARY 1950

Enrico S. Gattuso

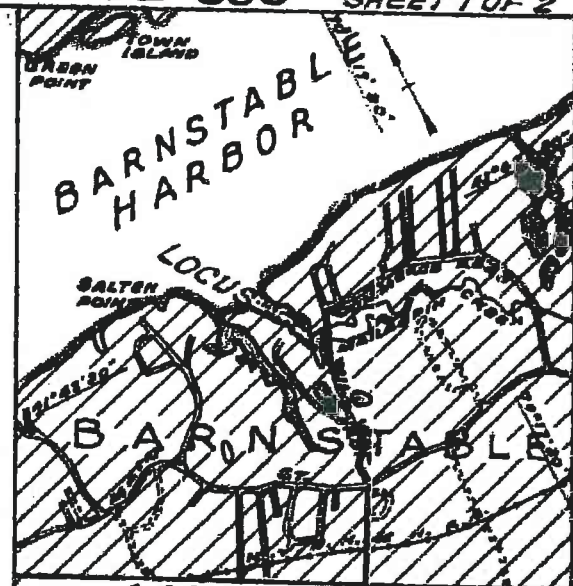
091 225

003-300-000-022-200
003-300-000-022-300

SHEET 1 OF 2



Edwin I. Ofgant
207 Highland St. Milton, Mass.



LOCATION PLAN
SCALE - FEET

SEE U.S. GEOL. SURV. HYANNIS QUAD.

NOTE

ELEVATIONS ARE IN FEET AND TENTHS
ABOVE PLANE OF MEAN LOW WATER.
MINUS FIGURES SHOW DEPTHS BELOW
SAME PLANE.
PROPOSED WORK SHOWN IN RED.
MATERIAL EXCAVATED, APPROX. 7200
CUBIC YARDS, TO BE DEPOSITED IN
LOCATIONS SHOWN.

PROPOSED HARBOR IMPROVEMENTS
TIMBER PILES, EXCAVATION & RIPRAP
MARASPIN CREEK
BARNSTABLE HARBOR
BARNSTABLE, MASS.

APPLICATION BY
DEPARTMENT OF PUBLIC WORKS - MASSACHUSETTS
DIVISION OF WATERWAYS

MARCH 1954

P. L. R. M. V.

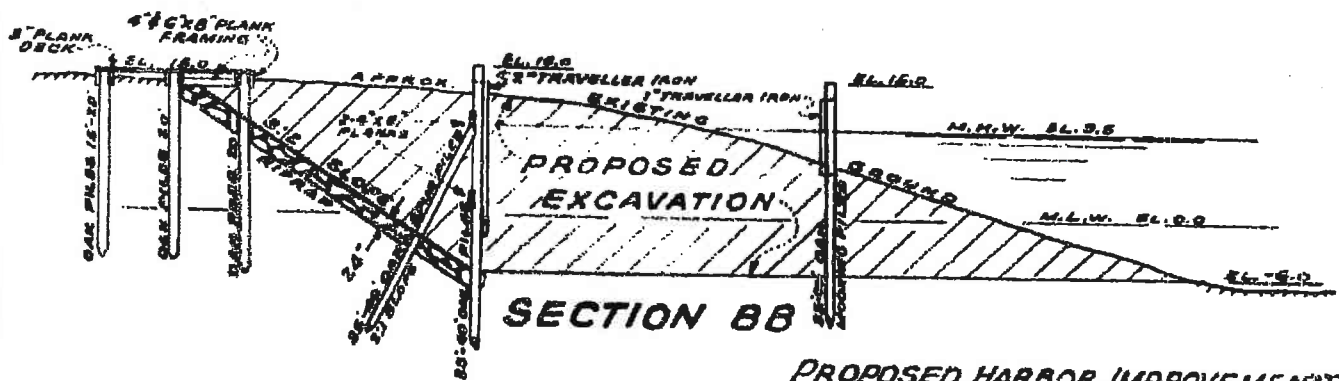
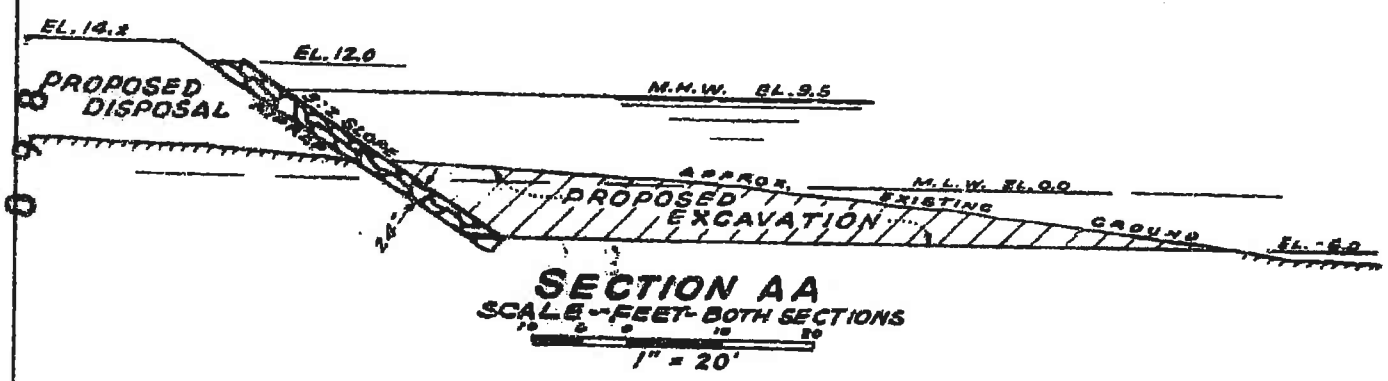
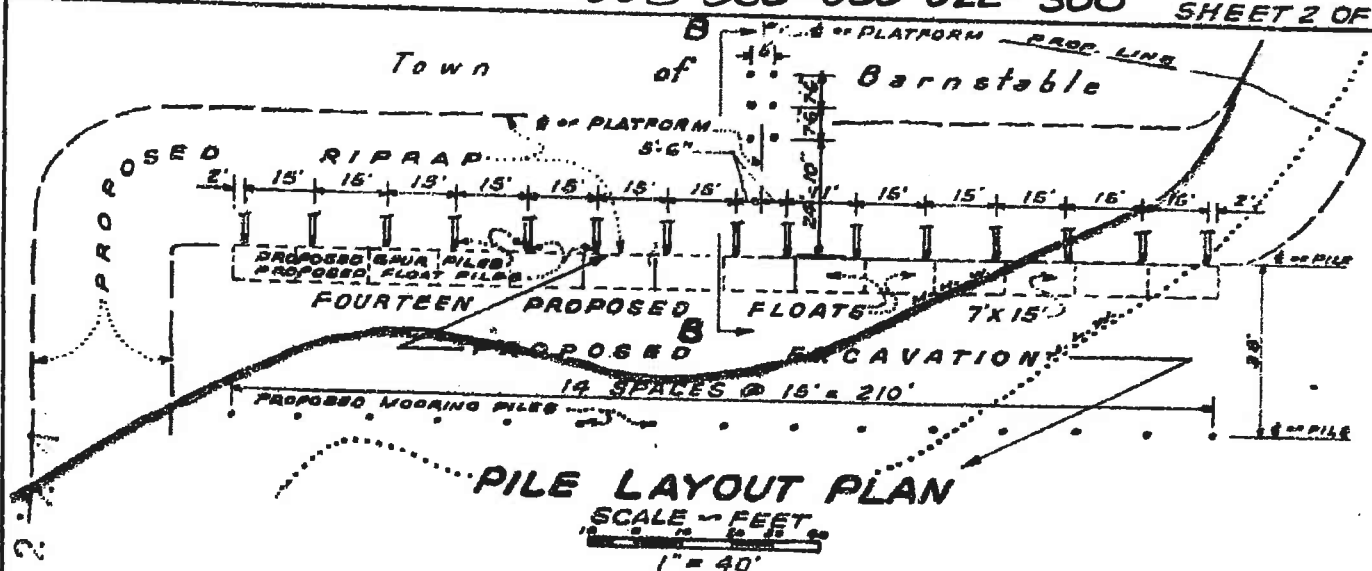
PLAN
SCALE - FEET

0 9 1 2 2 6

003-300-000-022-200

003-300-000-022-300

SHEET 2 OF 2

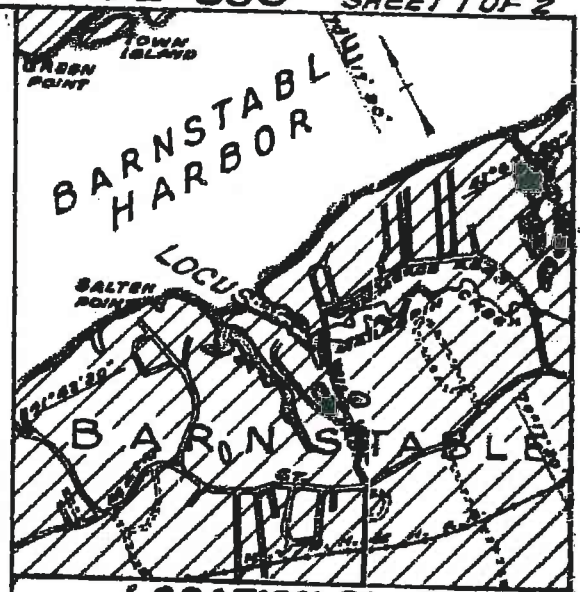
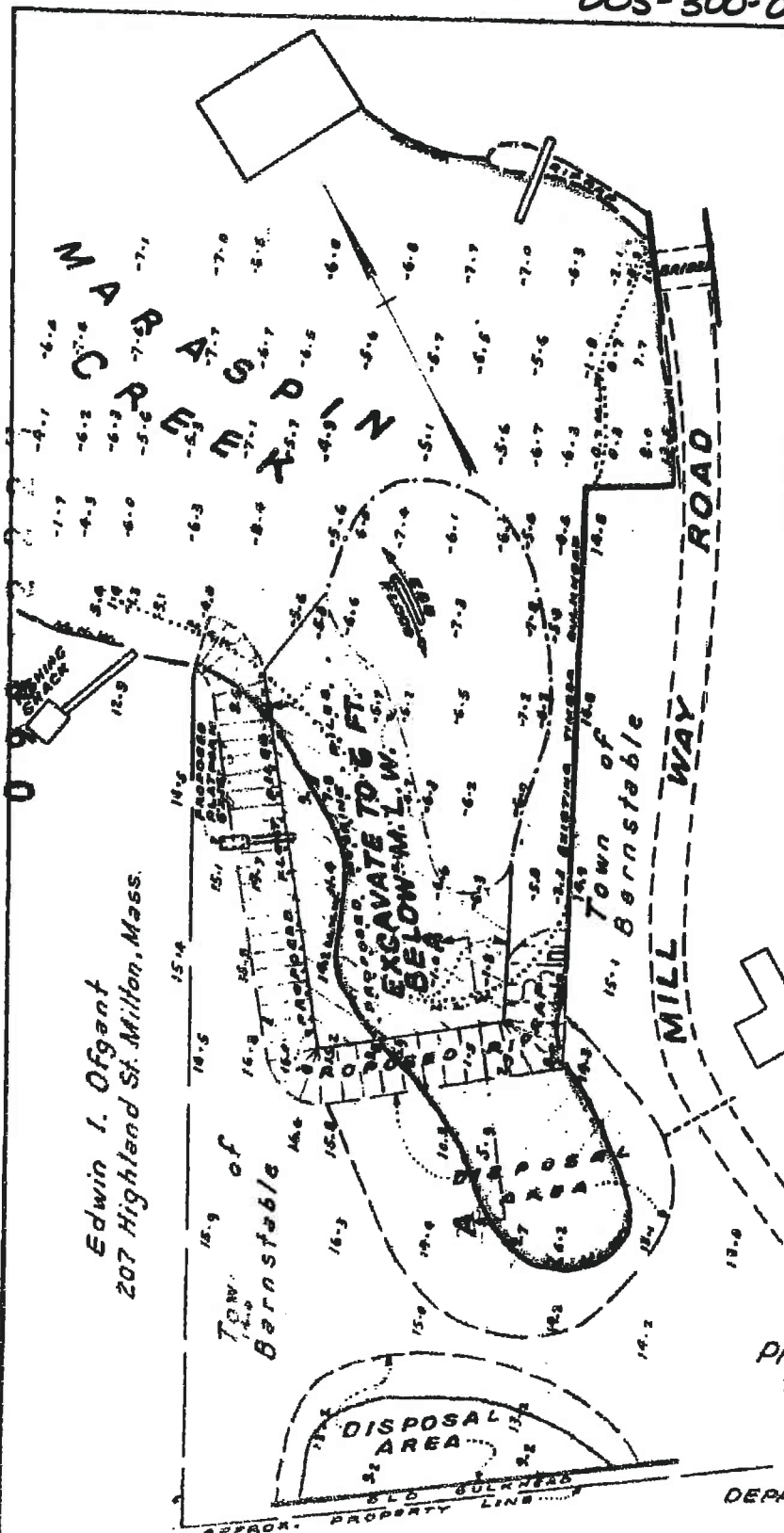


PROPOSED HARBOR IMPROVEMENTS
 TIMBER PILES, EXCAVATION & RIPRAP
MARASPIN CREEK
 BARNSTABLE HARBOR
 BARNSTABLE, MASS.
 APPLICATION BY
 DEPARTMENT OF PUBLIC WORKS - MASSACHUSETTS
 DIVISION OF WATERWAYS
 MARCH 1954
Robert B. McKinnon
 DISTRICT WATERWAYS ENGINEER

091 225

003-300-000-022-200
003-300-000-022-300

SHEET 1 OF 2



LOCATION PLAN
SCALE - FEET

SEE U.S. GEOL. SURV. HYANNIS QUAD.

NOTE

ELEVATIONS ARE IN FEET AND TENTHS ABOVE PLANE OF MEAN LOW WATER. MINUS FIGURES SHOW DEPTHS BELOW SAME PLANE. PROPOSED WORK SHOWN IN RED. MATERIAL EXCAVATED, APPROX. 7200 CUBIC YARDS, TO BE DEPOSITED IN LOCATIONS SHOWN.

Edwin I. Ofgent
207 Highland St. Milton, Mass.

TOW. OF
Barnstable

MILL WAY
TOWN OF
Barnstable

PROPOSED HARBOR IMPROVEMENTS
TIMBER PILES, EXCAVATION & RIPRAP
MARASPIN CREEK
BARNSTABLE HARBOR
BARNSTABLE, MASS.

APPLICATION BY
DEPARTMENT OF PUBLIC WORKS - MASSACHUSETTS
DIVISION OF WATERWAYS

MARCH 1954

P. L. R. M. V.

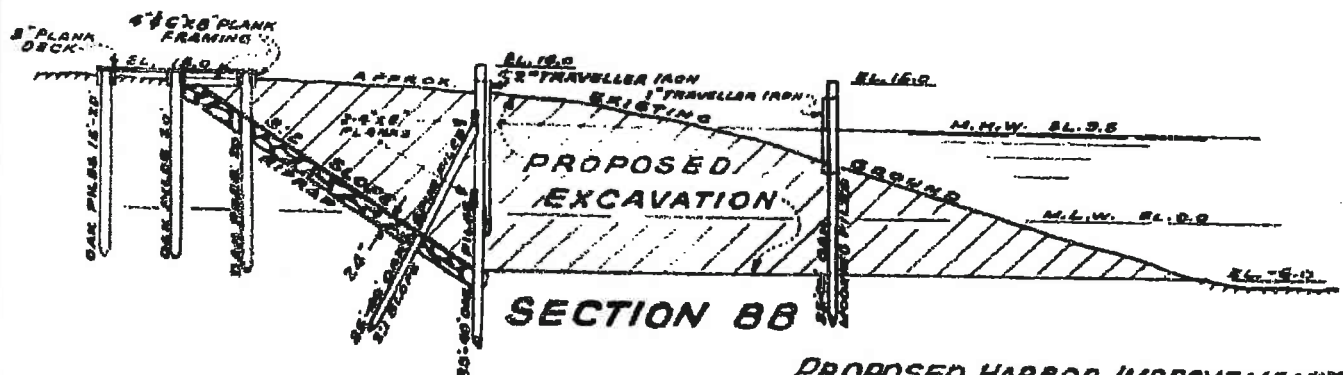
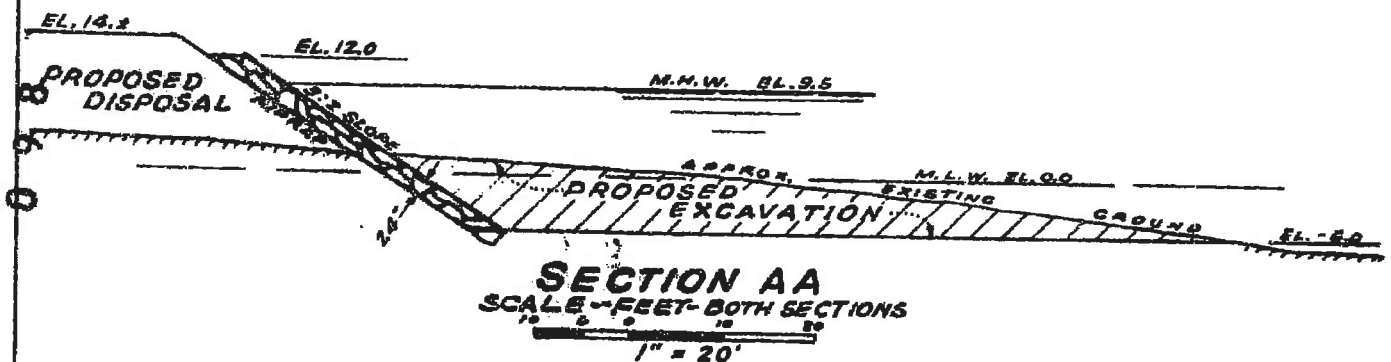
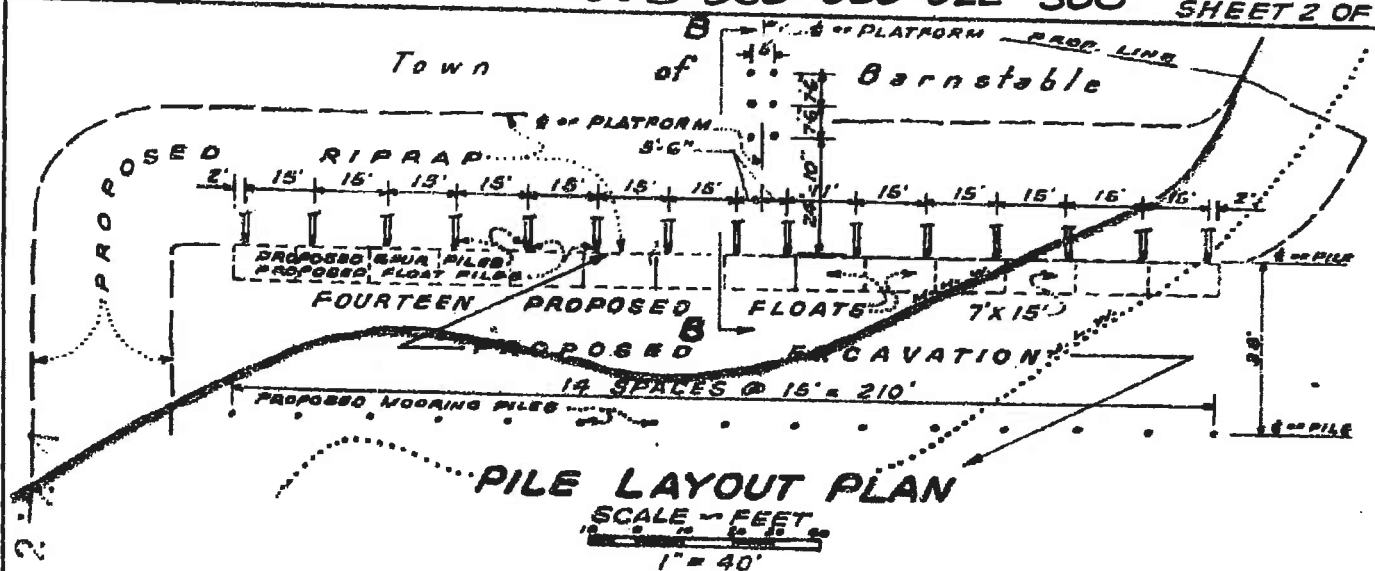
PLAN
SCALE - FEET

091 226

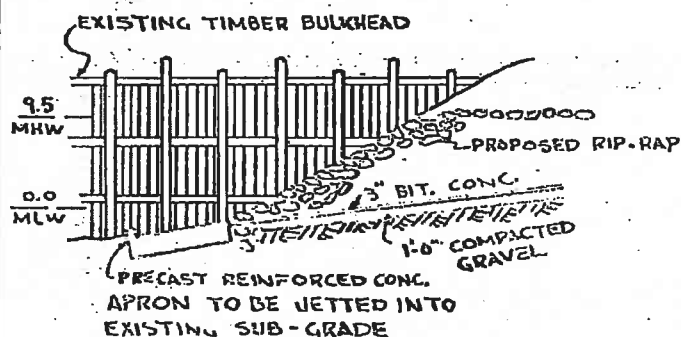
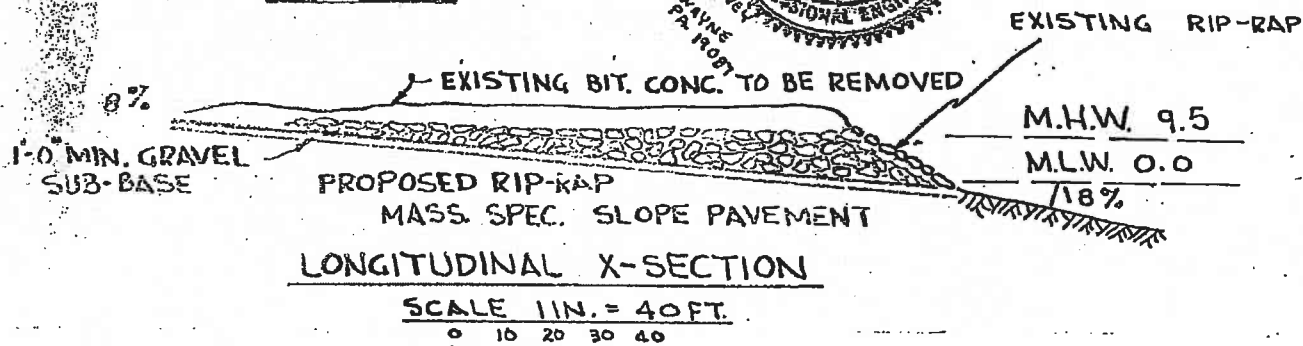
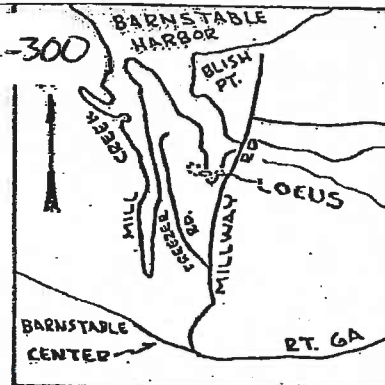
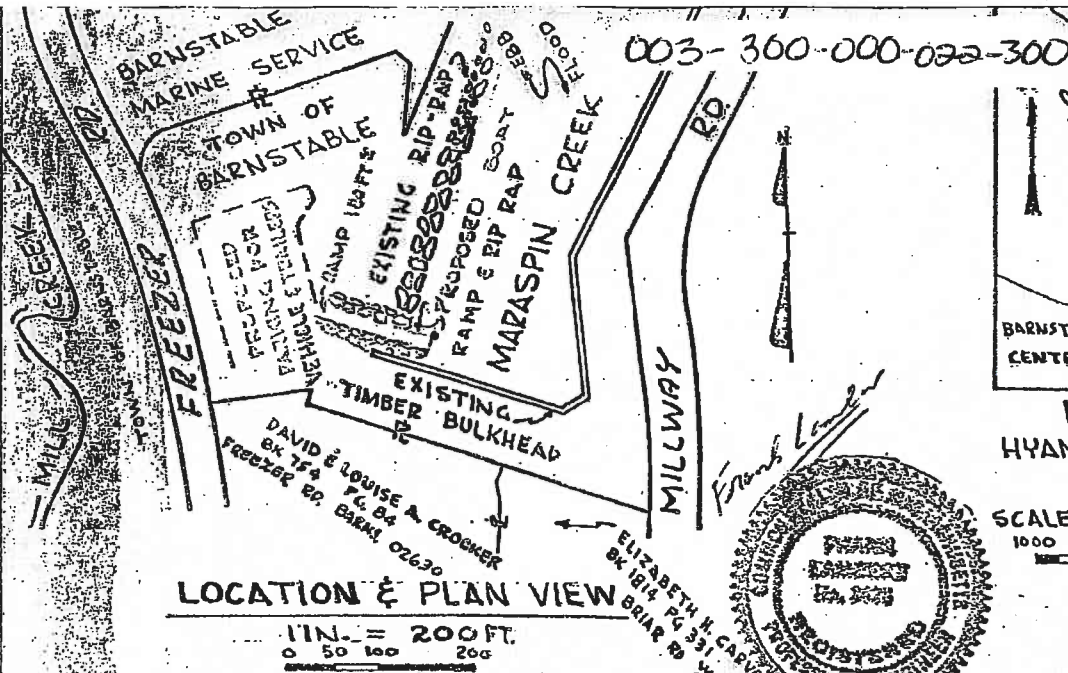
003-300-000-022-200

003-300-000-022-300

SHEET 2 OF 2



PROPOSED HARBOR IMPROVEMENTS
TIMBER PILES, EXCAVATION & RIPRAP
MARASPIN CREEK
BARNSTABLE HARBOR
BARNSTABLE, MASS.
APPLICATION BY
DEPARTMENT OF PUBLIC WORKS - MASSACHUSETTS
DIVISION OF WATERWAYS
MARCH 1954
Robert B. MacKinnon
DISTRICT WATERWAYS ENGINEER



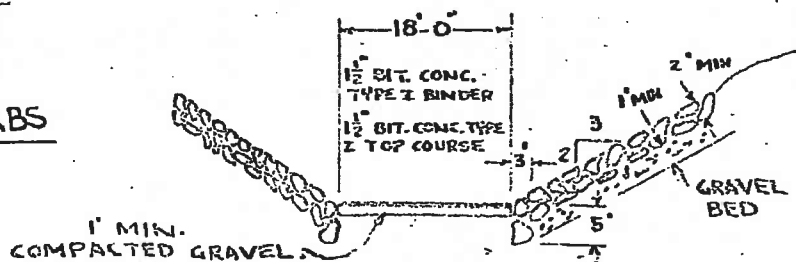
DET. - PRECAST CONCRETE END SLABS

SCALE: 1 IN. = 20 FT

0 5 10 20

NOTE
ELEVATIONS ARE IN FEET
0.0 REFERS TO A PLANE OF MLW.

ALL EXCAVATED & SPOILED
MATERIAL TO BE REMOVED FROM
SITE



TYPICAL TRANSVERSE X-SECTION

SCALE: 1 IN. = 20 FT.

0 5 10 20

PLAN TO ACCOMPANY PETITION OF
TOWN OF BARNSTABLE, MASS.

TO BUILD AND MAINTAIN A BOAT RAMP
AND RIP-RAP IN
MARASPIN CREEK

VILLAGE OF BARNSTABLE, MASS.

SCALE: AS NOTED JUNE 17, 1977

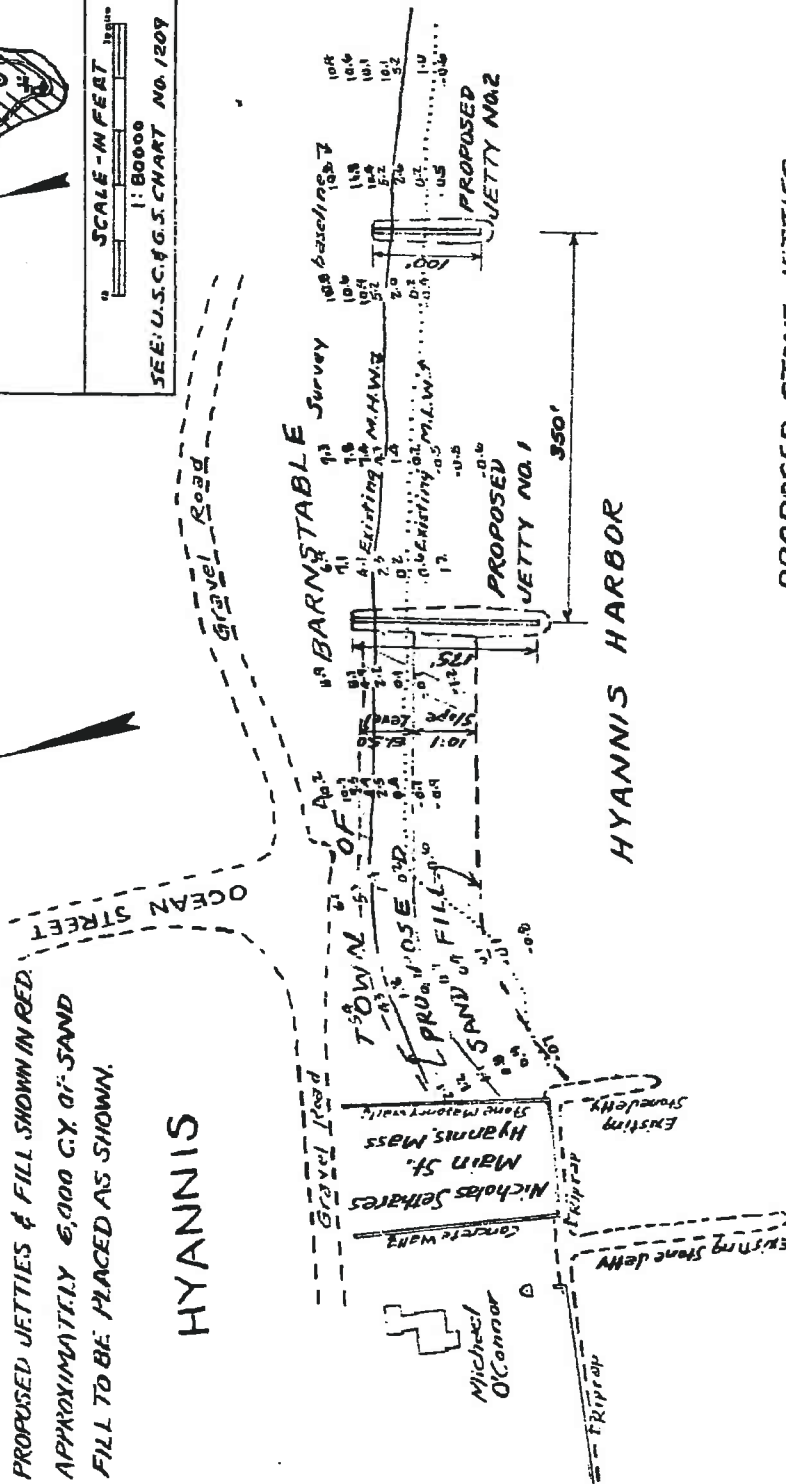
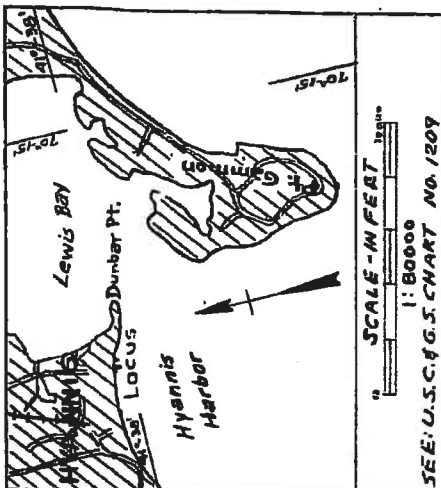
TOWN OF BARNSTABLE ENGINEERING DEPT.
397 MAIN ST. HYANNIS, MASS.

355
August 8, 1977
COMMISSIONER
J. J. [Signature]

NOTE

ELEVATIONS ARE IN FEET & TENTHS ABOVE THE PLANE OF MEAN LOW WATER. MINUS FIGURES SHOW DEPTHS BELOW THE SAME PLANE.
 PROPOSED JETTIES & FILL SHOWN IN RED.
 APPROXIMATELY 6,000 CY OF SAND FILL TO BE PLACED AS SHOWN.

HYANNIS



PROPOSED STONE JETTIES & SAND FILL

KALMUS PARK-HYANNIS
 BARNSTABLE, MASS.

APPLICATION BY
 DEPARTMENT OF PUBLIC WORKS OF MASSACHUSETTS
 DIVISION OF WATERWAYS
 SEPTEMBER 1950

Edward J. Hynes
 DISTRICT WATERWAYS ENGINEER

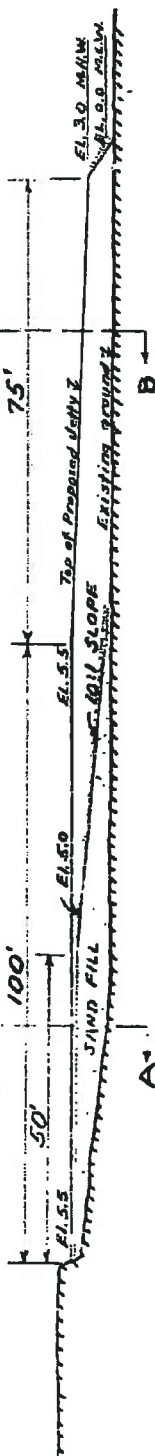
PLAN

SCALE - IN FEET
 1" = 2000'

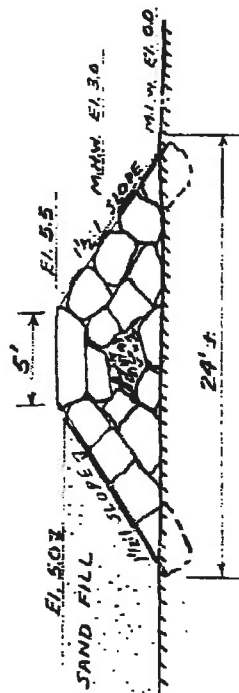
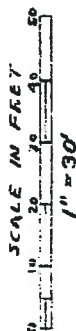
003-323-000-001-100

SHEET 2 OF 2

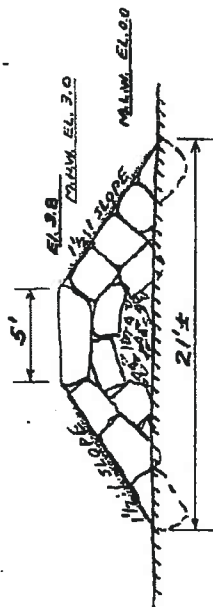
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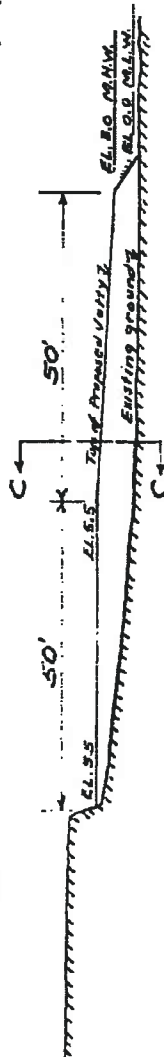
PROFILE ON ϕ OF JETTY NO. 1



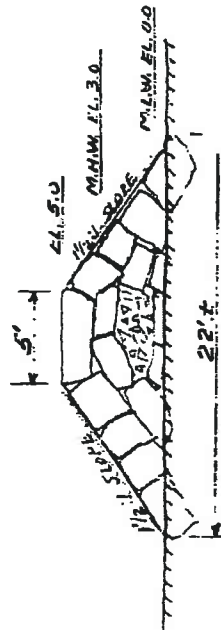
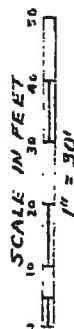
SECTION A-A
SCALE IN FEET
1" = 10'



SECTION B-B
SCALE IN FEET
1" = 10'



PROFILE ON ϕ OF JETTY NO. 2



SECTION C-C
SCALE IN FEET
1" = 10'

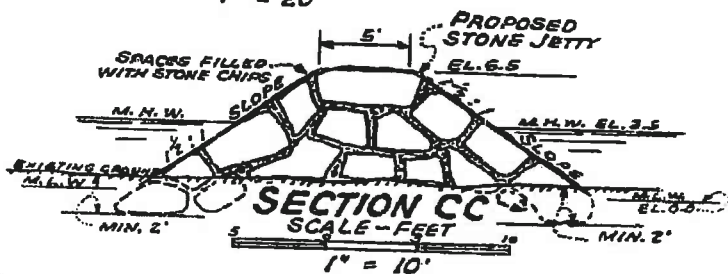
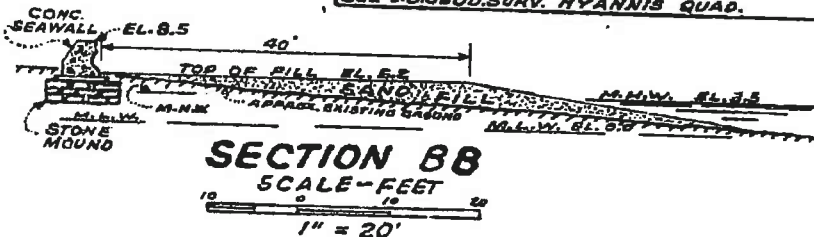
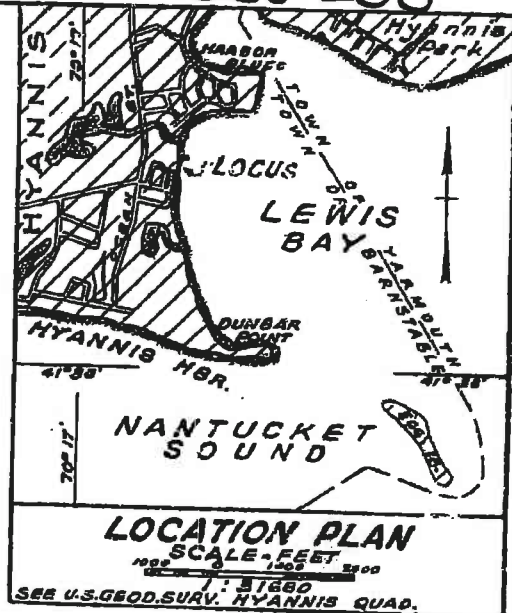
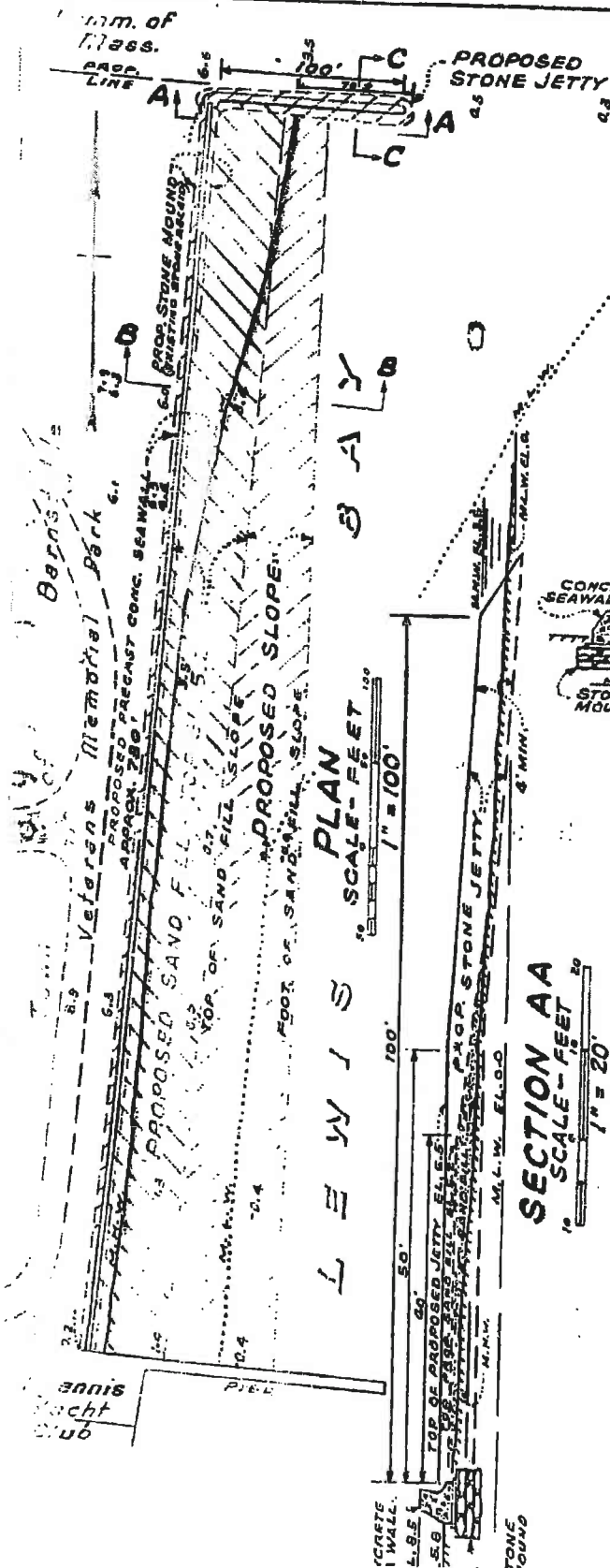
PROPOSED STONE JETTIES
SAND FILL
AT
KALMUS PARK-HYANNIS
BARNSTABLE, MASS.

APPLICATION BY
DEPARTMENT OF PUBLIC WORKS OF MASSACHUSETTS
DIVISION OF WATERWAYS
SEPTEMBER 1950

Forrest D. Haskins
DISTRICT WATERWAYS ENGINEER

092022454
BOSTON, MASS.

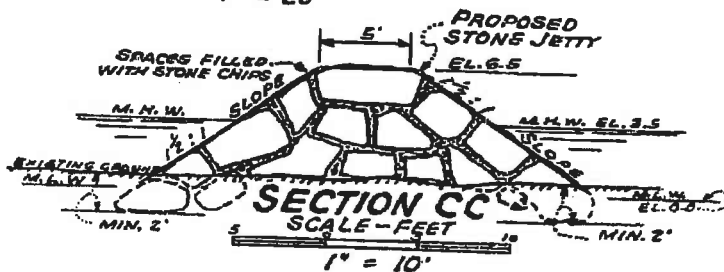
003-324-000-038-100
003-324-000-038-200



NOTE
ELEVATIONS ARE IN FEET AND TENTHS ABOVE THE PLANE OF MEAN LOW WATER AND MINUS FIGURE SHOW DEPTHS BELOW THE SAME PLANE. LOCATION OF WORK TO BE DONE IS SHOWN IN RED.

PROPOSED
SEAWALL AND JETTY CONSTRUCTION
Veterans Memorial Park
LEWIS BAY
BARNSTABLE - MASS.
APPLICATION BY
DEPARTMENT OF PUBLIC WORKS & MASSACHUSETTS
DIVISION OF WATERWAYS
JULY 1954
SCALES SHOWN
FROM IV

003-324-000-038-100
003-324-000-038-200



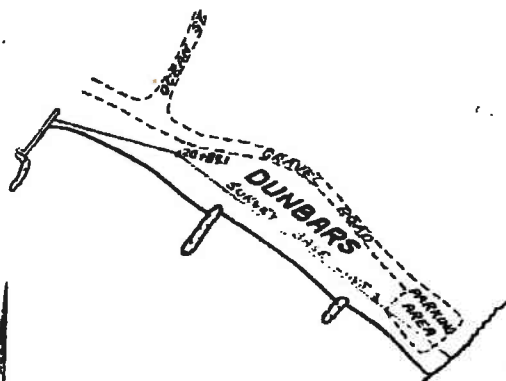
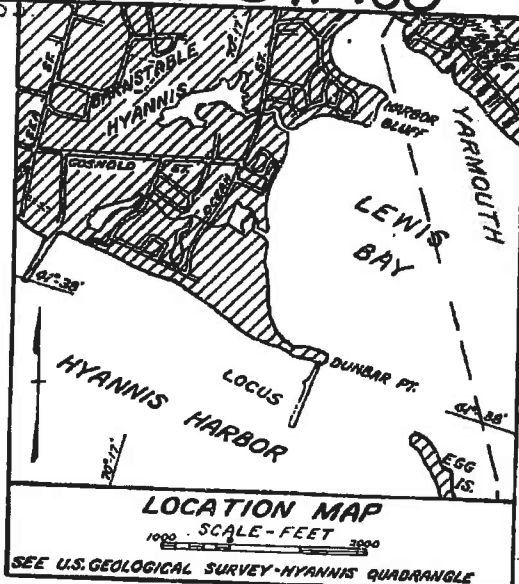
ELEVATIONS ARE IN FEET AND TENTHS ABOVE THE PLANE OF MEAN LOW WATER AND MINUS FIGURE SHOW DEPTHS BELOW THE SAME PLANE. LOCATION OF WORK TO BE DONE IS SHOWN IN RED.

MASS.
APPLICATION BY
DEPARTMENT OF PUBLIC WORKS & MASSACHUSETTS
DIVISION OF WATERWAYS
JULY 1954
SCALES SHOWN
P. 1011

0951650

NEW ENGLAND DIV

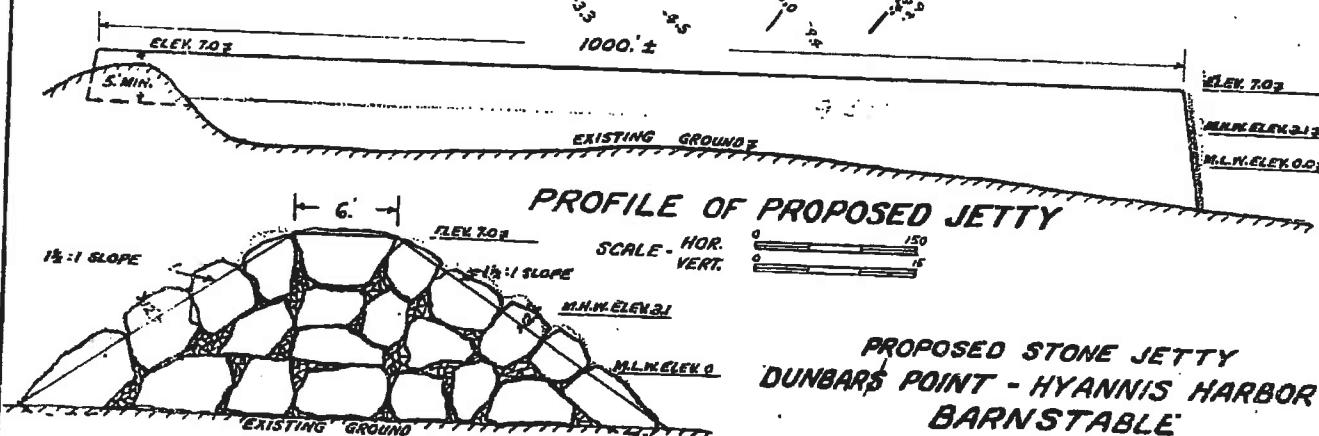
003-324-000-041-100



NOTE

PROPOSED WORK SHOWN IN RED.
ELEVATION ARE IN FEET AND TENTHS AND SHOW HEIGHTS ABOVE THE PLANE OF MEAN LOW WATER, MINUS FIGURES SHOW DEPTHS BELOW THE SAME PLANE.
TOE STONES (BOTH SIDES OF JETTY) TO BE IMBEDDED 18" TO 24" BELOW EXISTING GROUND FROM THE INNER END OF JETTY TO MEAN LOW WATER.

PROFILE OF PROPOSED JETTY



SECTION A-A

SCALE - FEET
1" = 10'

**PROPOSED STONE JETTY
DUNBAR'S POINT - HYANNIS HARBOR
BARNSTABLE**

APPLICATION BY
DEPARTMENT OF PUBLIC WORKS - MASSACHUSETTS
DIVISION OF WATERWAYS
NOVEMBER, 1951
Edward Whitcomb
DISTRICT WATERWAYS ENGINEER

APP. 02010

003-326-000-068-100

SHEET 1 OF 2



LOCATION MAP

SCALE - FEET
1" = 31,250
SEE U.S. SURVEY - HYANNIS QUAD.

OCEAN STREET

HYANNIS HARBOR (INNER)

PLAN
SCALE - FEET
1" = 100'

NOTE

ELEVATIONS ARE IN FEET AND TENTHS
AND REFER TO PLANE OF MEAN LOW
WATER. MINUS FIGURES SHOW DEPTHS
BELOW THE SAME PLANE.
LOCATION OF PROPOSED WORK IS
SHOWN IN RED.
SEE SHEET 2 FOR BULKHEAD ANCHORAGE
DETAILS.

PROPOSED STEEL BULKHEAD
W/ FINGER PIER EXTENSIONS
HYANNIS HARBOR (INNER)

BARNSTABLE & MAZS,
APPLICATION BY
DEPARTMENT OF PUBLIC WORKS OF MASSACHUSETTS
DIVISION OF WATERWAYS
JANUARY - 1962 (REVISED 3/27/62)

Robert B. McLaughlin
CHIEF WATERWAYS ENGINEER

H
(B)
Y
A
R
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S
T
A
N



DETAIL
ENLARGEMENT

REVISION DETAIL
JUN 1962

HYANNIS HARBOR
125 OCEAN STREET
BARNSTABLE, MASS.

078 1104

SHEET 2 OF 2

003-326-000-068-100

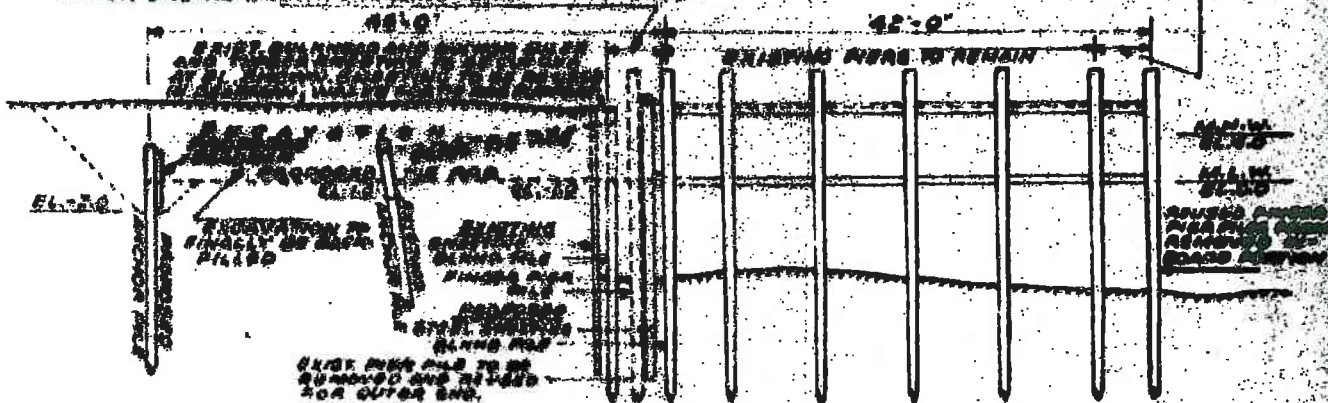


PILING PLAN

THE POSITION OF ALL EXISTING PILING TO BE REMOVED IS SHOWN ON THIS PLAN. THE POSITION OF ALL NEW PILING TO BE PROVIDED IS SHOWN ON THIS PLAN.

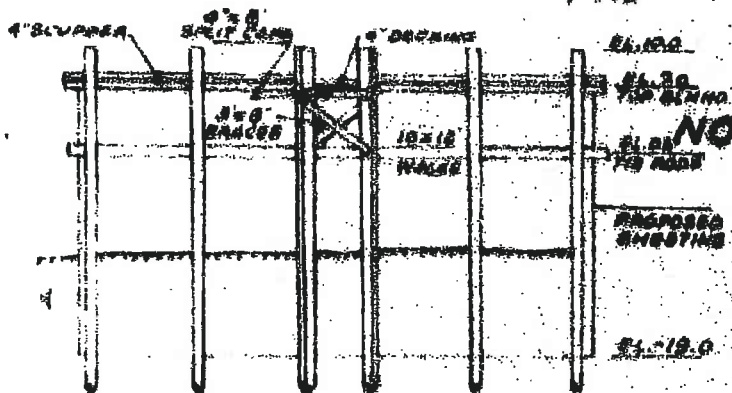
SCALE - FEET
1" = 100'

EXTENSION TO BE PROVIDED WHERE SHOWN ON PILING PLAN.



PROFILE (TYPICAL)

SCALE - FEET
1" = 10'



ELEVATION

SCALE - FEET
1" = 16'

NOTE
ELEVATIONS IN FEET AND TENTHS ARE TO PLANS OF MEAN LOW WATER, APPROX. EXISTING GROUND THUS FORM. FASTENING HARDWARE SUCH AS CHOCKS AND OTHER SUBORDINATE TIMBERS NOT SHOWN ARE TO BE FURNISHED IN PLACE. SHEET PILING FOR BULKHEAD IS TO BE INTERLOCKING B-PYLS 27 LB./36 FT. DRIVEN TO EL. -120 OR AS REQUIRED. WOODEN PILES 20 TO 30 FT. LONG AND TREATED OR NOT AS REQUIRED ARE TO BE USED. ALL THE ABOVE MATERIALS AND CONSTRUCTION TO BE STANDARD.

**PROPOSED STEEL BULKHEAD
W/ FINGER PIER EXTENSIONS
HYANNIS HARBOR (INNER)
BARNSTABLE - MASS.
APPLICATION BY
DEPARTMENT OF PUBLIC WORKS OF MASSACHUSETTS
DIVISION OF WATERWAYS
JANUARY - 1962**

Robert B. DeLong
CHIEF WATERWAYS ENGINEER

Section III

Yarmouth

Section III – Community Findings – Town of Yarmouth

COMMUNITY DESCRIPTION

The Town of Yarmouth consists of a land area of 24.25 square miles out of a total area of 28.22 square miles and had a population of 24,807 in the 2000 census. The Town is located on Cape Cod of Massachusetts and its location can be seen on this report's cover. The estimated length of shoreline is 9 miles that are directly exposed to open ocean. The Town is protected from major coastal storms by both natural and man-made shoreline structures that require maintenance to insure the long term protection of its coastline. The man-made and publicly owned structures that protect the Town were investigated for their ability to provide adequate protection from major coastal storms. Structures have been identified as publicly owned, including coastal dunes and beaches, based on evidence of investment of public funds made to create/enhance/maintain these structures. The assessment did not include floating or pile supported structures as they are assumed not to provide any significant coastal protection from major storm events.

STRUCTURE INVENTORY

Within the Town of Yarmouth, there were 21 structures which had public or unknown ownership which provide significant coastal protection. The location of the structures can be seen in Sheets 1 through Sheet 10 in Section III-B of this report. The structures were categorized by their type and by their structural condition based on a preliminary field assessment. The distribution of structures by type and condition can be seen in the following table:

STRUCTURE TYPE AND QUANTITY - Town of Yarmouth

Primary Structure (1)	Total Structures	Structure Condition Rating					Total Length
		A	B	C	D	F	
Bulkhead / Seawall	1				1		30
Revetment	14		3	10		1	3020
Breakwater	1			1			310
Groin / Jetty	5			3	2		1745
Coastal Dune							
Coastal Beach							
	21		3	14	3	1	5105

Within the above table, the total length of each type of structure is also provided. The structures are listed by the type which is providing the primary coastal protection. Many sites have multiple structure types at the same location (i.e. revetment in front of seawall). These secondary structures, although not identified within these tables, are included in the development of repair/rehabilitation costs.

The development of repair costs has been included by structure type and by condition. In the Town of Yarmouth's case there are a total of 21 structures which would require approximately \$ 3.8 million to bring all the coastal structures to "A" Rating. Most critical will be the structures in the "D" and "F" classifications as those are assumed to undergo some level of damage or failure during the next major coastal storm event. To reconstruct these structures, identified in the preliminary survey as being in poor condition, an estimated \$ 660,000 would be required to upgrade the Town's coastal protection.

STRUCTURE REPAIR / RECONSTRUCTION COST - Town of Yarmouth

Primary Structure (1)	Total Structures	Structure Condition Rating				F	Total Cost
		A	B	C	D		
Bulkhead / Seawall	1				\$ 75,240		\$ 75,240
Revetment	14	\$ 55,255		\$ 1,320,442		\$ 91,245	\$ 1,466,942
Breakwater	1			\$ 205,840			\$ 205,840
Groin / Jetty	5			\$ 1,548,710	\$ 497,970		\$ 2,046,680
Coastal Dune							\$ -
Coastal Beach							\$ -
	21	\$ -	\$ 55,255	\$ 3,074,992	\$ 573,210	\$ 91,245	\$ 3,794,702

Based on the limited research within the scope of this project research, the presumed ownership of the structures was established on an initial basis and would be subject to more intense review in future tasks. Structures identified as being owned privately were excluded from further consideration. Although ownership of the land on which the structure was located was a factor, the structure ownership was treated as a separate issue from land ownership. For the Town of Yarmouth, the breakdown of structures by assumed ownership is as follows:

STRUCTURE OWNERSHIP / REPAIR COST - Town of Yarmouth

Primary Structure (1)	Total Structures	Structure Condition Rating				F	Total Cost
		A	B	C	D		
Town Owned	20	\$ 55,255		\$ 2,789,707	\$ 573,210	\$ 91,245	\$ 3,509,417
Commonwealth of Massachusetts	1			\$ 285,285			\$ 285,285
Federal Government Owned							\$ -
Unknown Ownership							\$ -
	21	\$ -	\$ 55,255	\$ 3,074,992	\$ 573,210	\$ 91,245	\$ 3,794,702

The identification of presumed ownership was not based on the investigation of legal documents but relied on property ownership and from construction and regulatory documents that were found. A more detailed investigation of legal documents and agreements would be required where structure ownership is disputed. A more detailed identification of structure type, length, condition and location can be found in Section III-B which contains Structure Assessment Reports for each individual structure found.

SUMMARY

The enclosed reports and associated documents reflects the Town of Yarmouth's coastal structure information that will eventually be input into a state-wide GIS database and will be accessible through MassGIS. This data, when compiled state-wide, will be critical in the development of both short term and long term planning for maintaining and improving Massachusetts coastal protection.

This database will also provide relatively quick access to identify available documentation for these structures as well as the ability to be updated as coastal structure improvements are made.

Section III - Yarmouth

Part B

Structure Assessment Reports



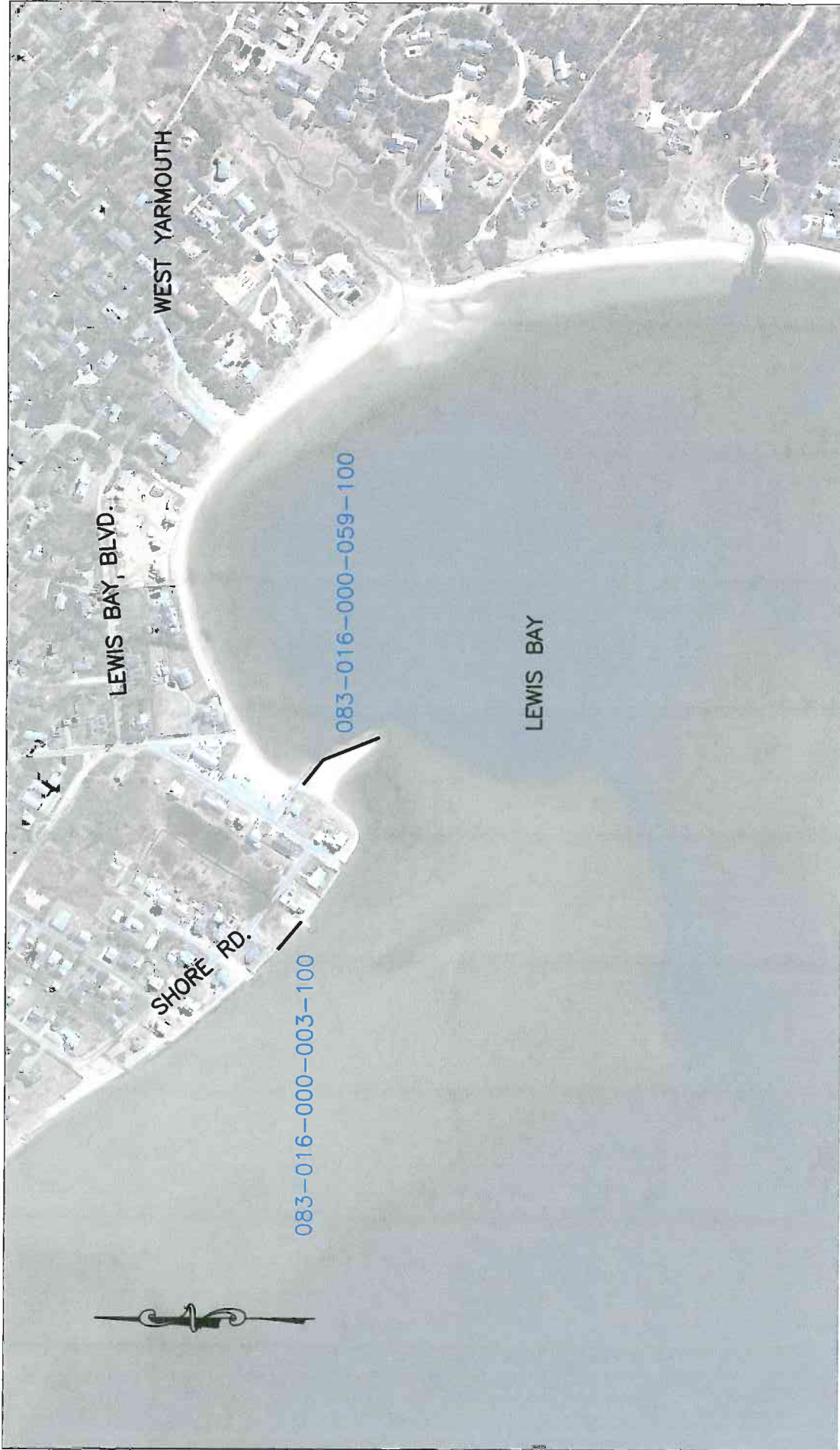
COASTAL STRUCTURE LOCATION PLAN

TOWN OF YARMOUTH
COASTAL INFRASTRUCTURE INVENTORY
AND ASSESSMENT PROJECT
DECEMBER 2007

0 150
SCALE: 1" = 150'



SHEET 1



COASTAL STRUCTURE LOCATION PLAN

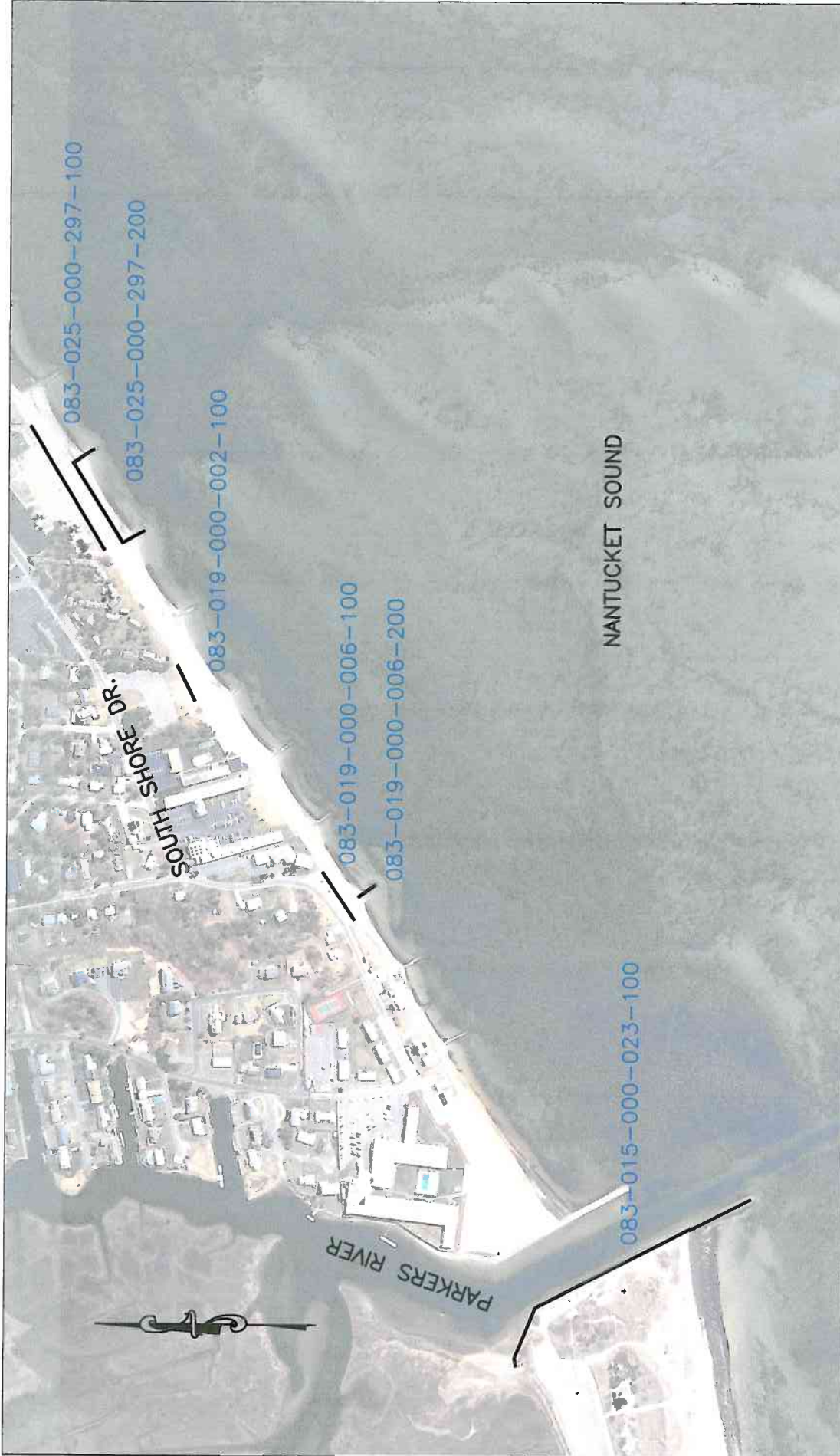
TOWN OF YARMOUTH
COASTAL INFRASTRUCTURE INVENTORY
AND ASSESSMENT PROJECT
NOVEMBER 2007



SCALE: 1" = 150'

**BCE**

Bourne Consulting Engineering
4 West Street
Yarmouth, NS, Canada
TEL (902) 533-4000 FAX (902) 533-4000



COASTAL STRUCTURE LOCATION PLAN

TOWN OF YARMOUTH
COASTAL INFRASTRUCTURE INVENTORY
AND ASSESSMENT PROJECT
DECEMBER 2007



SCALE: 1" = 150'



File: X:\27652-\27667\Cape Cod\CI-2\Yarmouth\dwg\Yarmouth.dwg

COASTAL STRUCTURE LOCATION PLAN

TOWN OF YARMOUTH
COASTAL INFRASTRUCTURE INVENTORY
AND ASSESSMENT PROJECT
DECEMBER 2007

0 150
SCALE: 1" = 150'



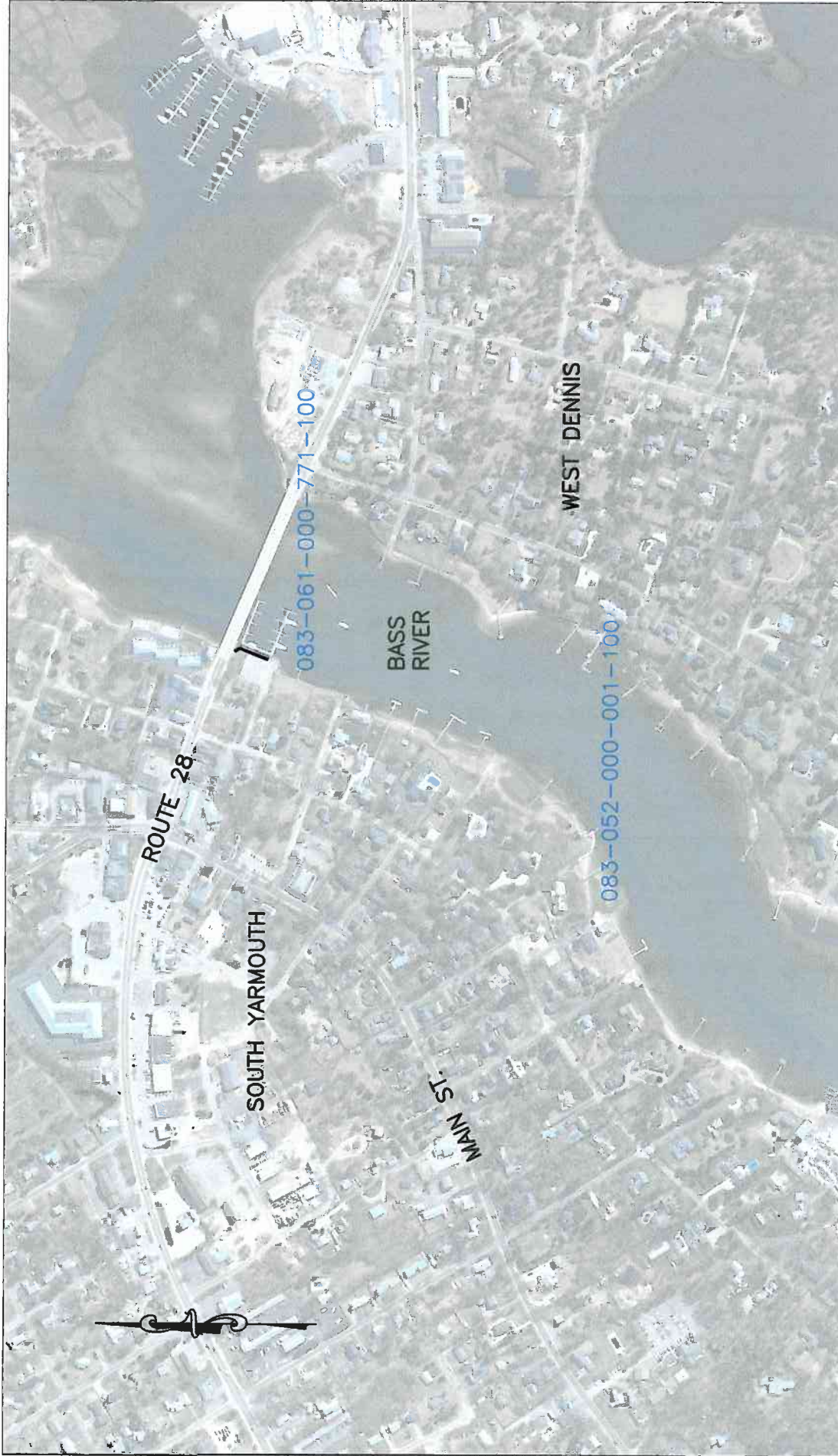


COASTAL STRUCTURE LOCATION PLAN

TOWN OF YARMOUTH
COASTAL INFRASTRUCTURE INVENTORY
AND ASSESSMENT PROJECT
DECEMBER 2007



BCE Bourne Consulting Engineering
100 Main Street
Bourne, MA 01939
TEL: (508) 532-0000 FAX: (508) 532-0000



COASTAL STRUCTURE LOCATION PLAN

TOWN OF YARMOUTH
COASTAL INFRASTRUCTURE INVENTORY
AND ASSESSMENT PROJECT
DECEMBER 2007

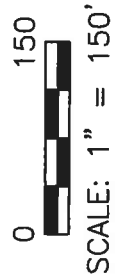
0 150
SCALE: 1" = 150'

BCE Bourne Consulting Engineering
115 (401) 552-4000 FAX (401) 552-4000

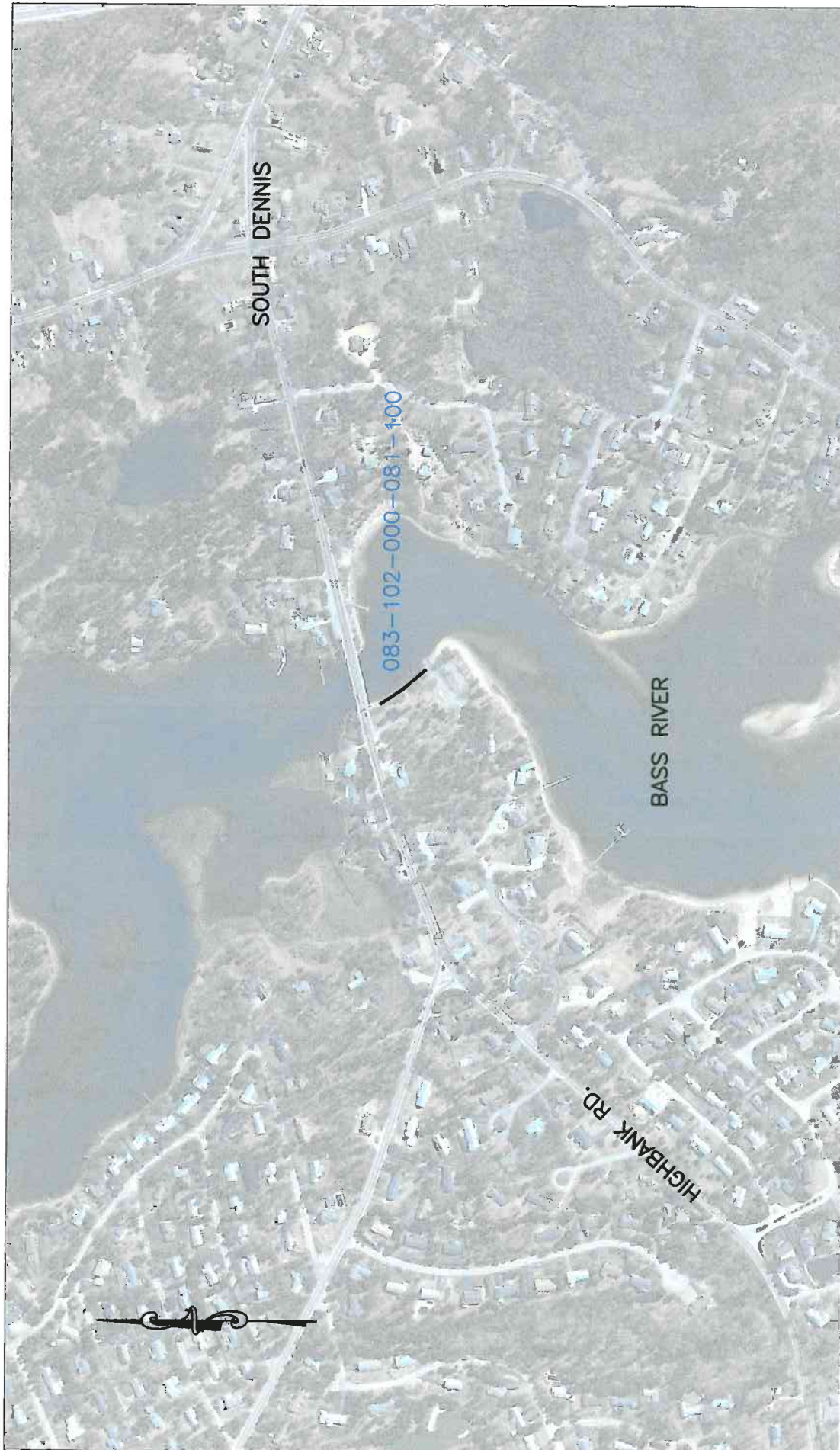


COASTAL STRUCTURE LOCATION PLAN

TOWN OF YARMOUTH
COASTAL INFRASTRUCTURE INVENTORY
AND ASSESSMENT PROJECT
DECEMBER 2007

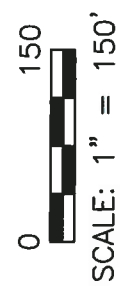




COASTAL STRUCTURE LOCATION PLAN

TOWN OF YARMOUTH
COASTAL INFRASTRUCTURE INVENTORY
AND ASSESSMENT PROJECT
DECEMBER 2007




Bourne Consulting Engineering
2000 Main Street
Bourne, MA 01939
TEL: (508) 669-0000 FAX: (508) 669-0001

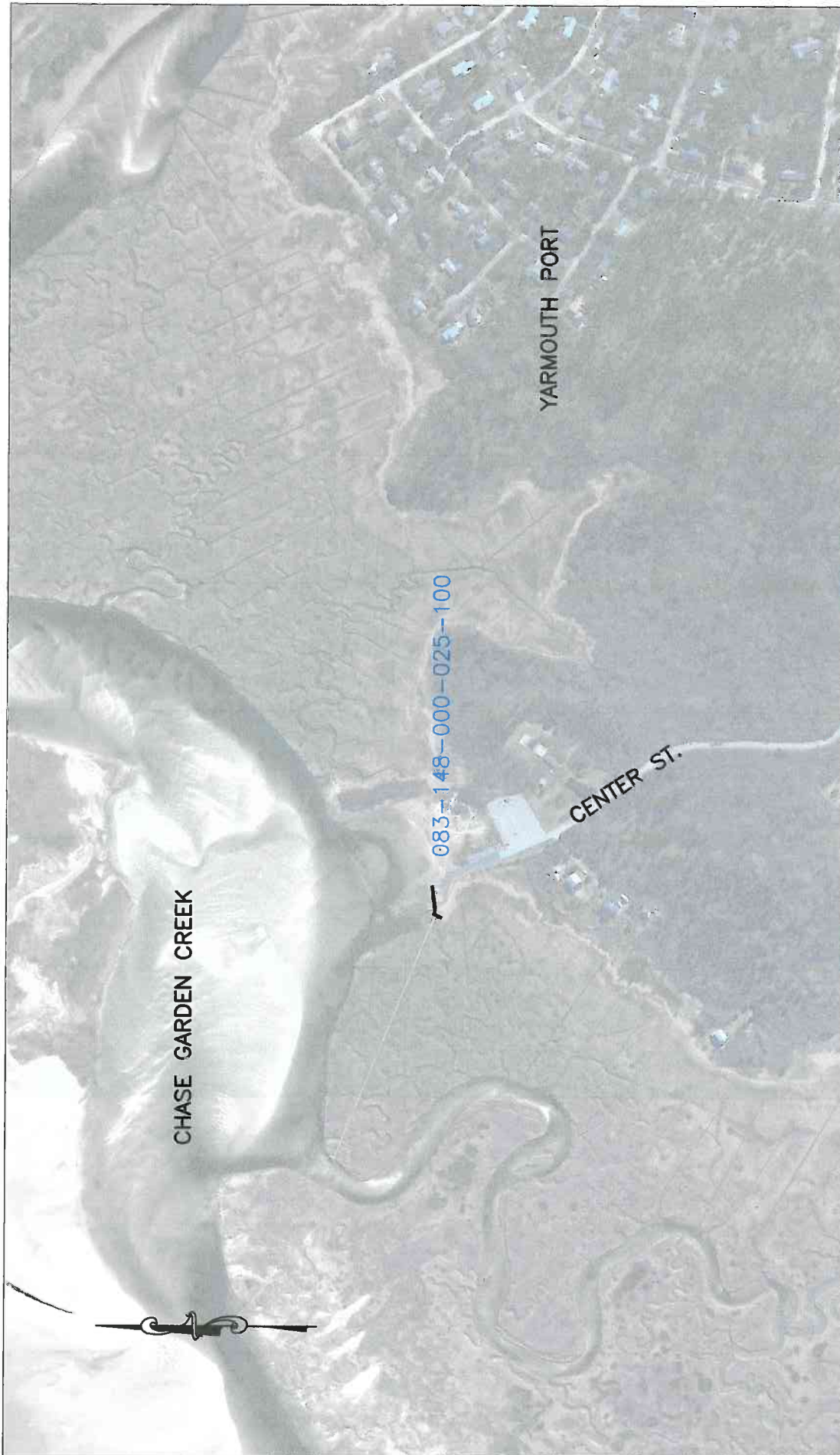


COASTAL STRUCTURE LOCATION PLAN

TOWN OF YARMOUTH
COASTAL INFRASTRUCTURE INVENTORY
AND ASSESSMENT PROJECT
DECEMBER 2007

0 150
SCALE: 1" = 150'

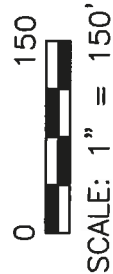




File: X:\27652-27667\Cape Cod\CI-2\Yarmouth\dwg\Yarmouth.dwg

COASTAL STRUCTURE LOCATION PLAN

TOWN OF YARMOUTH
COASTAL INFRASTRUCTURE INVENTORY
AND ASSESSMENT PROJECT
DECEMBER 2007



Structure Assessment Form

Town: YarmouthStructure ID: 083-015-000-023-100

Key: community-map-block-parcel-structure

Property Owner:

Local

Location:

Parker's River

Date:

10/26/2007

Presumed Structure Owner:

Local

Based On Comment:

Owner Name:

Yarmouth

Earliest Structure Record:

1951

Estimated Reconstruction/Repair Cost:

\$1,225,020.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
<u>1020</u>		<u>V15</u>	<u>16</u>
Feet	Feet NAVD 88		Feet NGVD

Primary Type:

Groin/ Jetty

Primary Material:

Stone

Primary Height:

5 to 10 Feet

Secondary Type:

Secondary Material:

Secondary Height:



Structure Summary :

This structure is the West jetty at Parker's River. The side slopes and crest are generally in good condition. There is some slumping evident in a small area in the central section of the jetty

*Condition*C*Rating*Fair*Level of Action*Moderate*Description*

Structure is sound but may exhibit minor deterioration, section loss, cracking, spalling, undermining, and/or scour. Structure adequate to withstand major coastal storm with little to moderate damage. Actions taken to reinforce structure to provide full protection from major coastal storm and for extending life of structure. Moderate wind or wave damage to landform exists. Landform may not be sufficient to fully protect shoreline during a major coastal storm. Actions taken to provide addition material for full protection and extended life.

*Priority*III*Rating*Moderate Priority*Action*

Consider for Active Project Improvement Listing

Description

Inshore Structures with potential for Infrastructure Damage and/or Limited Residential Dwellings (<1 dwelling impacted / 100 feet of shoreline)

Structure Images:

083-015-000-023-100-PHO1A.jpg

Structure Documents:

<u>USACE</u>	<u>October 195</u>	<u>Proposed Stone</u>	<u>083-015-000-023-100-COE1A</u>
<u>USACE</u>	<u>February 19</u>	<u>Proposed Excavation</u>	<u>083-015-000-023-100-COE1B</u>
<u>MA-DCR</u>	<u>November 1</u>	<u>Proposed Shore</u>	<u>083-015-000-023-100-DCR1A</u>
<u>MA-DCR</u>	<u>October 195</u>	<u>Proposed Excavation</u>	<u>083-015-000-023-100-DCR1B</u>
<u>MA-DCR</u>	<u>August 1961</u>	<u>Proposed Shore</u>	<u>083-015-000-023-100-DCR1C</u>

Structure Assessment Form

Town: **Yarmouth**Structure ID: **083-016-000-003-100**

Key: community-map-block-parcel-structure

Property Owner:

Local

Location:

Webster Street

Date:

10/26/2007

Presumed Structure Owner:

Local

Based On Comment:

Owner Name:

Yarmouth

Earliest Structure Record:

Unknown

Estimated Reconstruction/Repair Cost:

\$91,245.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
125		V15	16
Feet	Feet NAVD 88		Feet NGVD

Primary Type:

Revetment

Primary Material:

Stone

Primary Height:

Under 5 Feet

Secondary Type:

Secondary Material:

Secondary Height:



Structure Summary :

This structure is the dumped stone revetment at conservation property along Webster Street. There is no interlocking of stones. they are simply placed side by side in a line. The crest is severely depressed at center of structure.

*Condition***F***Rating***Critical***Level of Action***Immediate***Description*

Conditions of structure/landform may warrant emergency stabilization as failure may result in potential loss of property and/or life. Landform eroded, loss of integrity. Structure exhibits critical levels of deterioration, section loss, cracking, spalling, undermining, and/or scour. Structure provides little or no protection from a major coastal storm. Actions taken to totally reconstruct structure to regain full capacity. Landform stability is severely compromised, rate of erosion/material loss may be increasing, and landform does not provide adequate protection from a major coastal storm. Actions taken to recreate landform to adequate limits for full protection from a major coastal storm.

*Priority***II***Rating***Low Priority***Action***Future Project Consideration***Description*

Inshore Structures Present with Limited potential for Significant Infrastructure Damage

Structure Images:

083-016-000-003-100-PHO1A.jpg

Structure Documents:

DEP**May 21, 200****Plan Accompanying****083-016-000-003-100-LIC1A**

Structure Assessment Form

Town: **Yarmouth**Structure ID: **083-016-000-059-100**

Key: community-map-block-parcel-structure

Property Owner:

Local

Location:

Englewood beach

Date:

10/26/2007

Presumed Structure Owner:

Local

Based On Comment:

Owner Name:

Yarmouth

Earliest Structure Record:

1956

Estimated Reconstruction/Repair Cost:

\$205,840.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
310		V15	13
Feet	Feet NAVD 88		Feet NGVD

Primary Type:

Breakwater

Primary Material:

Stone

Primary Height:

Under 5 Feet

Secondary Type:

Secondary Material:

Secondary Height:



Structure Summary :

This structure is a breakwater which is impounding sand at Englewood beach. The stones at the toe have slumped and become unlocked from the stones above. The structure crest is in fair condition.

*Condition***C***Rating***Fair***Level of Action***Moderate***Description*

Structure is sound but may exhibit minor deterioration, section loss, cracking, spalling, undermining, and/or scour. Structure adequate to withstand major coastal storm with little to moderate damage. Actions taken to reinforce structure to provide full protection from major coastal storm and for extending life of structure. Moderate wind or wave damage to landform exists. Landform may not be sufficient to fully protect shoreline during a major coastal storm. Actions taken to provide addition material for full protection and extended life.

*Priority***III***Rating***Moderate Priority***Action*

Consider for Active Project Improvement Listing

Description

Inshore Structures with potential for Infrastructure Damage and/or Limited Residential Dwellings (<1 dwelling impacted / 100 feet of shoreline)

Structure Images:

083-016-000-059-100-PHO1A.jpg

Structure Documents:

USACE	January 195	Proposed Stone	083-016-000-059-100-COE1A
USACE	December 1	Proposed Groins and	083-016-000-059-100-COE1B
USACE	June 1963	Proposed Pier - In	083-016-000-059-100-COE1C
USACE	June 1979	Plan Accompanying	083-016-000-059-100-COE1D
USACE	July 1982	Proposed Boat Ramp	083-016-000-059-100-COE1E
DEP	June 1963	Plan Accompanying	083-016-000-059-100-LIC1A
DEP	August 1970	Plan Accompanying	083-016-000-059-100-LIC1B
DEP	April 1992	Plan Accompanying	083-016-000-059-100-LIC1C
DEP	September 1	Plan Accompanying	083-016-000-059-100-LIC1D
DEP	September 2	Plan Accompanying	083-016-000-059-100-LIC1E

Structure Assessment Form

Town: **Yarmouth**

Structure ID: **083-016-000-059-100**

Key: community-map-block-parcel-structure

DEP

December 2

Plan Accompanying

083-016-000-059-100-LIC1F

Structure Assessment Form

Town: **Yarmouth**Structure ID: **083-019-000-002-100**

Key: community-map-block-parcel-structure

Property Owner:

Local

Location:

Seaview Beach

Date:

10/26/2007

Presumed Structure Owner:

Local

Based On Comment:

Owner Name:

Yarmouth

Earliest Structure Record:

Unknown

Estimated Reconstruction/Repair Cost:

\$16,817.00

Length:

140

Feet

Top Elevation:

Feet NAVD 88

FIRM Map Zone:

V15

FIRM Map Elevation:

16

Feet NGVD

Primary Type:

Revetment

Primary Material:

Stone

Primary Height:

5 to 10 Feet

Secondary Type:

Secondary Material:

Secondary Height:



Structure Summary :

This structure is the revetment fronting the parking lot at Seaview Beach. The armor stone is grouted and the sideslopes are in good condition. Toe is buried in beach and not visible for inspection.

*Condition***B***Rating***Good***Level of Action***Minor***Description*

Structure observed to exhibit very minor problems, superficial in nature. Minor erosion to landform is present. Structure / landform adequate to provide protection from a major coastal storm with no damage. Actions taken to prevent / limit future deterioration and extend life of structure.

*Priority***III***Rating***Moderate Priority***Action*

Consider for Active Project Improvement Listing

Description

Inshore Structures with potential for Infrastructure Damage and/or Limited Residential Dwellings (<1 dwelling impacted / 100 feet of shoreline)

Structure Images:

083-019-000-002-100-PHO1A.jpg

Structure Documents:

Structure Assessment Form

Town: **Yarmouth**Structure ID: **083-019-000-006-100**

Key: community-map-block-parcel-structure

Property Owner:

Local

Location:

Thacher's Beach

Date:

10/26/2007

Presumed Structure Owner:

Local

Based On Comment:

Owner Name:

Yarmouth

Earliest Structure Record:

1956

Estimated Reconstruction/Repair Cost:

\$117,117.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
195		V15	16
Feet	Feet NAVD 88		Feet NGVD

Primary Type:

Revetment

Primary Material:

Stone

Primary Height:

5 to 10 Feet

Secondary Type:

Secondary Material:

Secondary Height:



Structure Summary :

This structure is the revetment fronting the parking lot at Thacher's Beach. The revetment is generally in good condition. The armor stone is beginning to slump at the west end.

*Condition***C***Rating***Fair***Level of Action***Moderate***Description*

Structure is sound but may exhibit minor deterioration, section loss, cracking, spalling, undermining, and/or scour. Structure adequate to withstand major coastal storm with little to moderate damage. Actions taken to reinforce structure to provide full protection from major coastal storm and for extending life of structure. Moderate wind or wave damage to landform exists. Landform may not be sufficient to fully protect shoreline during a major coastal storm. Actions taken to provide addition material for full protection and extended life.

*Priority***III***Rating***Moderate Priority***Action*

Consider for Active Project Improvement Listing

Description

Inshore Structures with potential for Infrastructure Damage and/or Limited Residential Dwellings (<1 dwelling impacted / 100 feet of shoreline)

Structure Images:

083-019-000-006-100-PHO1A.jpg

Structure Documents:

MA-DCR**January 195****Proposed Shore****083-019-000-006-100-DCR1A****DEP****September 1****Plan Accompanying****083-019-000-006-100-LIC1A**

Structure Assessment Form

Town: **Yarmouth**Structure ID: **083-019-000-006-200**

Key: community-map-block-parcel-structure

Property Owner:

Local

Location:

Thacher's Beach

Date:

10/26/2007

Presumed Structure Owner:

Local

Based On Comment:

Owner Name:

Yarmouth

Earliest Structure Record:

Unknown

Estimated Reconstruction/Repair Cost:

\$99,594.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
75		V15	16
Feet	Feet NAVD 88		Feet NGVD

Primary Type:

Groin/ Jetty

Primary Material:

Stone

Primary Height:

Under 5 Feet

Secondary Type:

Secondary Material:

Secondary Height:



Structure Summary :

This structure is a single groin at Thacher's beach. The structure shows no interlocking between stones and the groin head is unraveled.

Condition

D

Rating

Poor

Level of Action

Major

Description

Structure exhibits advanced levels of deterioration, section loss, cracking, spalling, undermining, and/or scour. Structure has strong risk of significant damage and possible failure during a major coastal storm. Structure should be monitored until repairs/reconstruction can be initiated. Actions taken to reconstruct structure to regain full capacity to resist a major coastal storm. Landform eroded, stability threatened. Landform not adequate to provide protection during major coastal storm. Actions taken to recreate landform to adequate limits for full protection from a major coastal storm.

Priority

I

Rating

None

Action

Long Term Planning Considerations

Description

No Inshore Structures or Residential Dwelling Units Present

Structure Images:

083-019-000-006-200-PHO2A.jpg

Structure Documents:

Structure Assessment Form

Town: YarmouthStructure ID: 083-021-000-049-100

Key: community-map-block-parcel-structure

Property Owner:

Local

Location:

Mill Creek

Date:

10/26/2007

Presumed Structure Owner:

Local

Based On Comment:

Owner Name:

Yarmouth

Earliest Structure Record:

1951

Estimated Reconstruction/Repair Cost:

\$134,719.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
<u>405</u>	<u></u>	<u>V15</u>	<u>16</u>
Feet	Feet NAVD 88		Feet NGVD

Primary Type:

Revetment

Primary Material:

Stone

Primary Height:

Under 5 Feet

Secondary Type:

Secondary Material:

Secondary Height:



Structure Summary :

This is the stone revetment along the east side of the entrance to Mill Creek. The structure side slopes are intact. The crest elevation is quite low and some erosion is evident behind the crest for much of the structure length.

*Condition***C***Rating*

Fair

Level of Action

Moderate

Description

Structure is sound but may exhibit minor deterioration, section loss, cracking, spalling, undermining, and/or scour. Structure adequate to withstand major coastal storm with little to moderate damage. Actions taken to reinforce structure to provide full protection from major coastal storm and for extending life of structure. Moderate wind or wave damage to landform exists. Landform may not be sufficient to fully protect shoreline during a major coastal storm. Actions taken to provide addition material for full protection and extended life.

*Priority***III***Rating*

Moderate Priority

Action

Consider for Active Project Improvement Listing

Description

Inshore Structures with potential for Infrastructure Damage and/or Limited Residential Dwellings (<1 dwelling impacted / 100 feet of shoreline)

Structure Images:

083-021-000-049-100-PHO1A.jpg

Structure Documents:

USACE	October 195	Proposed Stone	083-021-000-049-100-COE1A
MA-DCR	October 195	Proposed Shore	083-021-000-049-100-DCR1A
MA-DCR	May 1955	Proposed Shore	083-021-000-049-100-DCR1B
MA-DCR	February 19	Proposed Channel	083-021-000-049-100-DCR1C
MA-DCR	November 1	Proposed Relocation	083-021-000-049-100-DCR1D

Structure Assessment Form

Town: **Yarmouth**Structure ID: **083-025-000-287-100**

Key: community-map-block-parcel-structure

Property Owner:

Local

Location:

Beachwood Road

Date:

10/26/2007

Presumed Structure Owner:

Local

Based On Comment:

Owner Name:

Yarmouth

Earliest Structure Record:

Unknown

Estimated Reconstruction/Repair Cost:

\$398,376.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
300		V15	18
Feet	Feet NAVD 88		Feet NGVD

Primary Type:

Groin/ Jetty

Primary Material:

Stone

Primary Height:

Under 5 Feet

Secondary Type:

Secondary Material:

Secondary Height:



Structure Summary :

This is the 3 groins at the terminus of Beachwood road and eastward. There are few stones serving as side slopes. As a result there is little interlocking between adjacent stones. The groins are very low profile.

Condition

D

Rating

Poor

Level of Action

Major

Description

Structure exhibits advanced levels of deterioration, section loss, cracking, spalling, undermining, and/or scour. Structure has strong risk of significant damage and possible failure during a major coastal storm. Structure should be monitored until repairs/reconstruction can be initiated. Actions taken to reconstruct structure to regain full capacity to resist a major coastal storm. Landform eroded, stability threatened. Landform not adequate to provide protection during major coastal storm. Actions taken to recreate landform to adequate limits for full protection from a major coastal storm.

Priority

II

Rating

Low Priority

Action

Future Project Consideration

Description

Inshore Structures Present with Limited potential for Significant Infrastructure Damage

Structure Images:

083-025-000-287-100-PHO1A.jpg

Structure Documents:

USACE	December 1	Proposed Stone Jetty	083-025-000-287-100-COE1A
USACE	October 195	Proposed Stone	083-025-000-287-100-COE1B
MA-DCR	August 1935	Proposed Shore	083-025-000-287-100-DCR1A
MA-DCR	October 194	Proposed Shore	083-025-000-287-100-DCR1B
MA-DCR	December 1	Proposed Shore	083-025-000-287-100-DCR1C

Structure Assessment Form

Town: **Yarmouth**Structure ID: **083-025-000-297-100**

Key: community-map-block-parcel-structure

Property Owner:

Local

Location:

Parkers River Beach

Date:

10/26/2007

Presumed Structure Owner:

Local

Based On Comment:

Owner Name:

Yarmouth

Earliest Structure Record:

1936

Estimated Reconstruction/Repair Cost:

\$291,291.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
485		V15	16
Feet	Feet NAVD 88		Feet NGVD

Primary Type:

Revetment

Primary Material:

Stone

Primary Height:

5 to 10 Feet

Secondary Type:

Secondary Material:

Secondary Height:



Structure Summary :

This structure is the revetment fronting Parkers River Beach. The armor stone is grouted together. There is damage to the armor stone and undermining of fill at east end of structure.

*Condition***C***Rating***Fair***Level of Action***Moderate***Description*

Structure is sound but may exhibit minor deterioration, section loss, cracking, spalling, undermining, and/or scour. Structure adequate to withstand major coastal storm with little to moderate damage. Actions taken to reinforce structure to provide full protection from major coastal storm and for extending life of structure. Moderate wind or wave damage to landform exists. Landform may not be sufficient to fully protect shoreline during a major coastal storm. Actions taken to provide addition material for full protection and extended life.

*Priority***III***Rating***Moderate Priority***Action*

Consider for Active Project Improvement Listing

Description

Inshore Structures with potential for Infrastructure Damage and/or Limited Residential Dwellings (<1 dwelling impacted / 100 feet of shoreline)

Structure Images:

083-025-000-297-100-PHO1A.jpg

Structure Documents:

MA-DCR	September 1	Proposed Shore	083-025-000-297-100-DCR1A
MA-DCR	October 194	Proposed Shore	083-025-000-297-100-DCR1B
MA-DCR	February 1	Proposed Shore	083-025-000-297-100-DCR1C
MA-DCR	December 1	Proposed Shore	083-025-000-297-100-DCR1D

Structure Assessment Form

Town: **Yarmouth**Structure ID: **083-025-000-297-200**

Key: community-map-block-parcel-structure

Property Owner:

Local

Location:

Parkers River Beach

Date:

10/26/2007

Presumed Structure Owner:

Local

Based On Comment:

Owner Name:

Yarmouth

Earliest Structure Record:

1935

Estimated Reconstruction/Repair Cost:

\$119,520.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
180		V15	16
Feet	Feet NAVD 88		Feet NGVD

Primary Type:	Primary Material:	Primary Height:
Groin/ Jetty	Stone	Under 5 Feet
Secondary Type:	Secondary Material:	Secondary Height:



Structure Summary :

These are the 2 stone groins at Parkers River Beach. The side slopes are slumping away from the crest and the armor is coming unraveled. The crest elevation is very low.

*Condition***C***Rating***Fair***Level of Action***Moderate***Description*

Structure is sound but may exhibit minor deterioration, section loss, cracking, spalling, undermining, and/or scour. Structure adequate to withstand major coastal storm with little to moderate damage. Actions taken to reinforce structure to provide full protection from major coastal storm and for extending life of structure. Moderate wind or wave damage to landform exists. Landform may not be sufficient to fully protect shoreline during a major coastal storm. Actions taken to provide addition material for full protection and extended life.

*Priority***II***Rating***Low Priority***Action***Future Project Consideration***Description*

Inshore Structures Present with Limited potential for Significant Infrastructure Damage

Structure Images:

083-025-000-297-200-PHO2A.jpg

Structure Documents:

USACE	October 195	Proposed Stone	083-025-000-297-200-COE2A
MA-DCR	August 1935	Proposed Shore	083-025-000-297-200-DCR2A
MA-DCR	October 194	Proposed Shore	083-025-000-297-200-DCR2B
MA-DCR	December 1	Proposed Shore	083-025-000-297-200-DCR2C

Structure Assessment Form

Town: **Yarmouth**Structure ID: **083-026-000-116-100**

Key: community-map-block-parcel-structure

Property Owner:

Local

Location:

Bass River Beach

Date:

10/26/2007

Presumed Structure Owner:

Local

Based On Comment:

Owner Name:

Yarmouth

Earliest Structure Record:

Unknown

Estimated Reconstruction/Repair Cost:

\$249,249.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
415		V13	13
Feet	Feet NAVD 88		Feet NGVD

Primary Type:

Revetment

Primary Material:

Stone

Primary Height:

5 to 10 Feet

Secondary Type:

Secondary Material:

Secondary Height:



Structure Summary :

This structure is the revetment at Bass River Beach. The crest has settled to the point where there is little distinction between the crest stones and the side slope stones. The interlocking between armor stones is still good however.

Condition

C

Rating

Fair

Level of Action

Moderate

Description

Structure is sound but may exhibit minor deterioration, section loss, cracking, spalling, undermining, and/or scour. Structure adequate to withstand major coastal storm with little to moderate damage. Actions taken to reinforce structure to provide full protection from major coastal storm and for extending life of structure. Moderate wind or wave damage to landform exists. Landform may not be sufficient to fully protect shoreline during a major coastal storm. Actions taken to provide addition material for full protection and extended life.

Priority

III

Rating

Moderate Priority

Action

Consider for Active Project Improvement Listing

Description

Inshore Structures with potential for Infrastructure Damage and/or Limited Residential Dwellings (<1 dwelling impacted / 100 feet of shoreline)

Structure Images:

083-026-000-116-100-PHO1A.jpg

Structure Documents:

MA-DCR	June 1945	Proposed Jetty	083-026-000-116-100-DCR1A
MA-DCR	December 1	Proposed Repairs to	083-026-000-116-100-DCR1B
DEP	January 199	Plan Accompanying	083-026-000-116-100-LIC1A
DEP	August 1991	Plan Accompanying	083-026-000-116-100-LIC1B
DEP	August 8, 19	Plan Accompanying	083-026-000-116-100-LIC1C

Structure Assessment Form

Town: **Yarmouth**Structure ID: **083-026-000-116-200**

Key: community-map-block-parcel-structure

Property Owner:

Local

Location:

Bass River Beach

Date:

10/26/2007

Presumed Structure Owner:

Local

Based On Comment:

Owner Name:

Yarmouth

Earliest Structure Record:

1945

Estimated Reconstruction/Repair Cost:

\$204,170.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
170		V13	16
Feet	Feet NAVD 88		Feet NGVD

Primary Type:

Groin/ Jetty

Primary Material:

Stone

Primary Height:

5 to 10 Feet

Secondary Type:

Secondary Material:

Secondary Height:



Structure Summary :

This structure is the jetty at Bass River Beach. The side slopes have begun to slump away from the crest, creating a gap between the sides and crest. There is some evidence of erosion along the back of the jetty crest, along the beach.

Condition

C

Rating

Fair

Level of Action

Moderate

Description

Structure is sound but may exhibit minor deterioration, section loss, cracking, spalling, undermining, and/or scour. Structure adequate to withstand major coastal storm with little to moderate damage. Actions taken to reinforce structure to provide full protection from major coastal storm and for extending life of structure. Moderate wind or wave damage to landform exists. Landform may not be sufficient to fully protect shoreline during a major coastal storm. Actions taken to provide addition material for full protection and extended life.

Priority

III

Rating

Moderate Priority

Action

Consider for Active Project Improvement Listing

Description

Inshore Structures with potential for Infrastructure Damage and/or Limited Residential Dwellings (<1 dwelling impacted / 100 feet of shoreline)

Structure Images:

083-026-000-116-200-PHO2A.jpg

Structure Documents:

USACE	October 194	Proposed East Jetty	083-026-000-116-200-COE2A
MA-DCR	January 194	Proposed Jetty	083-026-000-116-200-DCR2A
MA-DCR	December 1	Proposed Repairs to	083-026-000-116-200-DCR2B
MA-DCR	September 1	Proposed East Jetty	083-026-000-116-200-DCR2C
DEP	August 1991	Plan Accompanying	083-026-000-116-200-LIC2A
DEP	August 8, 19	Plan Accompanying	083-026-000-116-200-LIC2B

Structure Assessment Form

Town: **Yarmouth**Structure ID: **083-035-000-001-100**

Key: community-map-block-parcel-structure

Property Owner:

Local

Location:

River Street

Date:

10/26/2007

Presumed Structure Owner:

Local

Based On Comment:

Owner Name:

Yarmouth

Earliest Structure Record:

1994

Estimated Reconstruction/Repair Cost:

\$78,078.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
130		V13	13
Feet	Feet NAVD 88		Feet NGVD

Primary Type:

Revetment

Primary Material:

Stone

Primary Height:

5 to 10 Feet

Secondary Type:

Secondary Material:

Secondary Height:



Structure Summary :

This structure is the revetment at the turn in River Street. The structure toe is slumping somewhat at the south end. The remainder of the structure is in good condition, with level crest and side slopes.

*Condition***C***Rating***Fair***Level of Action***Moderate***Description*

Structure is sound but may exhibit minor deterioration, section loss, cracking, spalling, undermining, and/or scour. Structure adequate to withstand major coastal storm with little to moderate damage. Actions taken to reinforce structure to provide full protection from major coastal storm and for extending life of structure. Moderate wind or wave damage to landform exists. Landform may not be sufficient to fully protect shoreline during a major coastal storm. Actions taken to provide addition material for full protection and extended life.

*Priority***IV***Rating***High Priority***Action***Consider for Next Project Construction Listing***Description*

High Value Inshore Structures with Potential for Infrastructure Damage and/or Moderate Density Residential Dwellings (1-10 dwellings impacted / 100 feet of shoreline)

Structure Images:

083-035-000-001-100-PHO1A.jpg

Structure Documents:

DEP**April 1994****Plan to Accompany****083-035-000-001-100-LIC1A****DEP****April 15, 199****Plan to Accompany****083-035-000-001-100-LIC1B**

Structure Assessment Form

Town: **Yarmouth**Structure ID: **083-043-000-042-100**

Key: community-map-block-parcel-structure

Property Owner:

Local

Location:

Willow Street

Date:

10/26/2007

Presumed Structure Owner:

Local

Based On Comment:

Owner Name:

Yarmouth

Earliest Structure Record:

Unknown

Estimated Reconstruction/Repair Cost:

\$39,039.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
65		V13	13
Feet	Feet NAVD 88		Feet NGVD

Primary Type:

Revetment

Primary Material:

Stone

Primary Height:

5 to 10 Feet

Secondary Type:

Secondary Material:

Secondary Height:



Structure Summary :

This structure is the revetment at Willow Street on Windmill Beach. The side slopes are starting to slump away from the crest, creating a gap between the crest and body of the structure. Interlocking between armor stones is decreasing. The structure toe is not buried.

Condition

C

Rating

Fair

Level of Action

Moderate

Description

Structure is sound but may exhibit minor deterioration, section loss, cracking, spalling, undermining, and/or scour. Structure adequate to withstand major coastal storm with little to moderate damage. Actions taken to reinforce structure to provide full protection from major coastal storm and for extending life of structure. Moderate wind or wave damage to landform exists. Landform may not be sufficient to fully protect shoreline during a major coastal storm. Actions taken to provide addition material for full protection and extended life.

Priority

II

Rating

Low Priority

Action

Future Project Consideration

Description

Inshore Structures Present with Limited potential for Significant Infrastructure Damage

Structure Images:

083-043-000-042-100-PHO1A.jpg

Structure Documents:

Structure Assessment FormStructure ID: **083-052-000-001-100**

Key: community-map-block-parcel-structure

Property Owner:

Local

Location:

North Cove Landing

Date:

10/26/2007

Presumed Structure Owner:

Local

Based On Comment:

Owner Name:

Yarmouth

Earliest Structure Record:

Unknown

Estimated Reconstruction/Repair Cost:

\$9,009.00

Length: **15** Feet Top Elevation: FIRM Map Zone: **A8** FIRM Map Elevation: **9** Feet NGVD
 Feet Feet NAVD 88

Primary Type:

Revetment

Primary Material:

Stone

Primary Height:

5 to 10 Feet

Secondary Type:

Secondary Material:

Secondary Height:

**Structure Summary :**

This structure is a revetment of dumped riprap at the terminus of North Cove Landing. Inspection was difficult due to vegetation overgrown across the entire structure. The riprap is quite small and appears to be loosely piled together.

*Condition***C***Rating***Fair***Level of Action***Moderate***Description*

Structure is sound but may exhibit minor deterioration, section loss, cracking, spalling, undermining, and/or scour. Structure adequate to withstand major coastal storm with little to moderate damage. Actions taken to reinforce structure to provide full protection from major coastal storm and for extending life of structure. Moderate wind or wave damage to landform exists. Landform may not be sufficient to fully protect shoreline during a major coastal storm. Actions taken to provide addition material for full protection and extended life.

*Priority***II***Rating***Low Priority***Action***Future Project Consideration***Description*

Inshore Structures Present with Limited potential for Significant Infrastructure Damage

Structure Images:**083-052-000-001-100-PHO1A.jpg****Structure Documents:**

Structure Assessment Form

Town: **Yarmouth**Structure ID: **083-061-000-771-100**

Key: community-map-block-parcel-structure

Property Owner:

Local

Location:

Off Pleasant Street at Route 28

Date:

10/26/2007

Presumed Structure Owner:

Local

Based On Comment:

Owner Name:

Yarmouth

Earliest Structure Record:

1955

Estimated Reconstruction/Repair Cost:

\$75,075.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
125		A8	9
Feet	Feet NAVD 88		Feet NGVD

Primary Type:

Revetment

Primary Material:

Stone

Primary Height:

5 to 10 Feet

Secondary Type:

Secondary Material:

Secondary Height:



Structure Summary :

This structure is the revetment fronting a parking lot immediately south of the Route 28 bridge across Bass River. There is some slumping of the toe in the central portion of the structure. There is some erosion of the fill behind the northwest corner.

*Condition***C***Rating***Fair***Level of Action***Moderate***Description*

Structure is sound but may exhibit minor deterioration, section loss, cracking, spalling, undermining, and/or scour. Structure adequate to withstand major coastal storm with little to moderate damage. Actions taken to reinforce structure to provide full protection from major coastal storm and for extending life of structure. Moderate wind or wave damage to landform exists. Landform may not be sufficient to fully protect shoreline during a major coastal storm. Actions taken to provide addition material for full protection and extended life.

*Priority***IV***Rating***High Priority***Action***Consider for Next Project Construction Listing***Description*

High Value Inshore Structures with Potential for Infrastructure Damage and/or Moderate Density Residential Dwellings (1-10 dwellings impacted / 100 feet of shoreline)

Structure Images:

083-061-000-771-100-PHO1A.jpg

Structure Documents:

USACE	April 1955	Proposed Timber	083-061-000-771-100-COE1A
USACE	February 19	Proposed Timber	083-061-000-771-100-COE1B
USACE	June 1982	To Construct a Stone	083-061-000-771-100-COE1C
DEP	May 1955	Plan Accompanying	083-061-000-771-100-LIC1A
DEP	February 19	Plan Accompanying	083-061-000-771-100-LIC1B
DEP	February 19	Plan Accompanying	083-061-000-771-100-LIC1C
DEP	938	Plans Accompanying	083-061-000-771-100-LIC1D

Structure Assessment FormStructure ID: **083-080-000-117-100**

Key: community-map-block-parcel-structure

Property Owner:

Local

Location:

Bass River Gold Course

Date:

10/26/2007

Presumed Structure Owner:

Local

Based On Comment:

Owner Name:

Yarmouth

Earliest Structure Record:

1981

Estimated Reconstruction/Repair Cost:

\$15,015.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
125		A6	8
Feet	Feet NAVD 88		Feet NGVD

Primary Type:

Revetment

Primary Material:

Stone

Primary Height:

5 to 10 Feet

Secondary Type:

Secondary Material:

Secondary Height:

**Structure Summary :**

This structure is a revetment fronting a golf course green at Bass River. The crest and side slopes are level. The structure is in good condition.

*Condition***B***Rating***Good***Level of Action***Minor***Description*

Structure observed to exhibit very minor problems, superficial in nature. Minor erosion to landform is present. Structure / landform adequate to provide protection from a major coastal storm with no damage. Actions taken to prevent / limit future deterioration and extend life of structure.

*Priority***II***Rating***Low Priority***Action***Future Project Consideration***Description*

Inshore Structures Present with Limited potential for Significant Infrastructure Damage

Structure Images:**083-080-000-117-100-PHO1A.jpg****Structure Documents:****USACE****May 1982****Plan Accompanying****083-080-000-117-100-COE1A****DEP****November 1****Plan Accompanying****083-080-000-117-100-LIC1A**

Structure Assessment FormStructure ID: **083-102-000-081-100**

Key: community-map-block-parcel-structure

Property Owner:

Local

Location:

Wilbur Park

Date:

10/26/2007

Presumed Structure Owner:

Local

Based On Comment:

Owner Name:

Yarmouth

Earliest Structure Record:

Unknown

Estimated Reconstruction/Repair Cost:

\$23,423.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
195		A5	7
Feet	Feet NAVD 88		Feet NGVD

Primary Type:

Revetment

Primary Material:

Stone

Primary Height:

5 to 10 Feet

Secondary Type:

Secondary Material:

Secondary Height:



Structure Summary :

This structure is a revetment at Wilbur Park, fronting a dirt parking lot. The crest and side slopes are level and straight. The structure is in good condition.

*Condition***B***Rating***Good***Level of Action***Minor***Description*

Structure observed to exhibit very minor problems, superficial in nature. Minor erosion to landform is present. Structure / landform adequate to provide protection from a major coastal storm with no damage. Actions taken to prevent / limit future deterioration and extend life of structure.

*Priority***II***Rating***Low Priority***Action***Future Project Consideration***Description*

Inshore Structures Present with Limited potential for Significant Infrastructure Damage

Structure Images:

083-102-000-081-100-PHO1A.jpg

Structure Documents:

Structure Assessment FormStructure ID: **083-111-000-022-100**

Key: community-map-block-parcel-structure

Property Owner:

State

Location:

Route 6 Bridge

Date:

4/21/2009

Presumed Structure Owner:

State

Based On Comment:

Owner Name:

MHD

Earliest Structure Record:

Unknown

Estimated Reconstruction/Repair Cost:

\$285,285.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
475		A4	6
Feet	Feet NAVD 88		Feet NGVD

Primary Type:

Revetment

Primary Material:

Stone

Primary Height:

5 to 10 Feet

Secondary Type:

Secondary Material:

Secondary Height:



Structure Summary :

Placed stone rip rap at the bridge abutment. Moderate stone movement and unraveling at the toe.

Condition

C

Rating

Fair

Level of Action

Moderate

Description

Structure is sound but may exhibit minor deterioration, section loss, cracking, spalling, undermining, and/or scour. Structure adequate to withstand major coastal storm with little to moderate damage. Actions taken to reinforce structure to provide full protection from major coastal storm and for extending life of structure. Moderate wind or wave damage to landform exists. Landform may not be sufficient to fully protect shoreline during a major coastal storm. Actions taken to provide addition material for full protection and extended life.

Priority

IV

Rating

High Priority

Action

Consider for Next Project Construction Listing

Description

High Value Inshore Structures with Potential for Infrastructure Damage and/or Moderate Density Residential Dwellings (1-10 dwellings impacted / 100 feet of shoreline)

Structure Images:

083-111-000-022-100-PHO1A.JPG

Structure Documents:

Structure Assessment Form

Town: **Yarmouth**Structure ID: **083-111-000-022-200**

Key: community-map-block-parcel-structure

Property Owner:

Local

Location:

Bass River

Date:

4/22/2009

Presumed Structure Owner:

Local

Based On Comment:

Owner Name:

Yarmouth

Earliest Structure Record:

Unknown

Estimated Reconstruction/Repair Cost:

\$0.00

Length: 30 Top Elevation: FIRM Map Zone: A4 FIRM Map Elevation: 6
 Feet Feet NAVD 88 Feet NGVD

Primary Type:

Bulkhead/ Seawall

Primary Material:

Stone

Primary Height:

10 to 15 Feet

Secondary Type:

Secondary Material:

Secondary Height:



Structure Summary :

Vertically stacked stone blocks that are grouted. Stone at the waterline are losing grout and show signs of movement and rotation.

Condition

D

Rating

Poor

Level of Action

Major

Description

Structure exhibits advanced levels of deterioration, section loss, cracking, spalling, undermining, and/or scour. Structure has strong risk of significant damage and possible failure during a major coastal storm. Structure should be monitored until repairs/reconstruction can be initiated. Actions taken to reconstruct structure to regain full capacity to resist a major coastal storm. Landform eroded, stability threatened. Landform not adequate to provide protection during major coastal storm. Actions taken to recreate landform to adequate limits for full protection from a major coastal storm.

Priority

II

Rating

Low Priority

Action

Future Project Consideration

Description

Inshore Structures Present with Limited potential for Significant Infrastructure Damage

Structure Images:

083-000-000-000-100-PHO1A.JPG

Structure Documents:

Structure Assessment Form

Town: **Yarmouth**Structure ID: **083-148-000-025-100**

Key: community-map-block-parcel-structure

Property Owner:

Local

Location:

Bass Hole

Date:

10/26/2007

Presumed Structure Owner:

Local

Based On Comment:

Owner Name:

Yarmouth

Earliest Structure Record:

Unknown

Estimated Reconstruction/Repair Cost:

\$41,580.00

Length:

125

Feet

Top Elevation:

Feet NAVD 88

FIRM Map Zone:

A5

FIRM Map Elevation:

13

Feet NGVD

Primary Type:

Revetment

Primary Material:

Stone

Primary Height:

Under 5 Feet

Secondary Type:

Secondary Material:

Secondary Height:



Structure Summary :

This structure is the stone revetment at the parking lot at Bass Hole. The armor stone is generally in good condition. The eastern end of the structure is becoming unraveled.

Condition

C

Rating

Fair

Level of Action

Moderate

Description

Structure is sound but may exhibit minor deterioration, section loss, cracking, spalling, undermining, and/or scour. Structure adequate to withstand major coastal storm with little to moderate damage. Actions taken to reinforce structure to provide full protection from major coastal storm and for extending life of structure. Moderate wind or wave damage to landform exists. Landform may not be sufficient to fully protect shoreline during a major coastal storm. Actions taken to provide addition material for full protection and extended life.

Priority

III

Rating

Moderate Priority

Action

Consider for Active Project Improvement Listing

Description

Inshore Structures with potential for Infrastructure Damage and/or Limited Residential Dwellings (<1 dwelling impacted / 100 feet of shoreline)

Structure Images:

083-148-000-025-100-PHO1A.jpg

Structure Documents:

Section III - Yarmouth

Part C

Structure Photographs

BCE Structure No	Document No	Contract/ Drawing Number	Entity	Municipality	Date	Title	Sheets	Location	Description
083-015-000-023-100	083-015-000-023-100-PHO1A.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
083-016-000-003-100	083-016-000-003-100-PHO1A.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
083-016-000-059-100	083-016-000-059-100-PHO1A.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
083-019-000-002-100	083-019-000-002-100-PHO1A.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
083-019-000-006-100	083-019-000-006-100-PHO1A.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
083-019-000-006-200	083-019-000-006-200-PHO2A.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
083-021-000-049-100	083-021-000-049-100-PHO1A.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
083-025-000-287-100	083-025-000-287-100-PHO1A.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
083-025-000-297-100	083-025-000-297-100-PHO1A.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
083-025-000-297-200	083-025-000-297-200-PHO2A.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
083-026-000-116-100	083-026-000-116-100-PHO1A.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
083-026-000-116-200	083-026-000-116-200-PHO2A.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
083-035-000-001-100	083-035-000-001-100-PHO1A.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
083-043-000-042-100	083-043-000-042-100-PHO1A.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
083-052-000-001-100	083-052-000-001-100-PHO1A.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
083-061-000-771-100	083-061-000-771-100-PHO1A.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
083-080-000-117-100	083-080-000-117-100-PHO1A.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
083-102-000-081-100	083-102-000-081-100-PHO1A.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
083-111-000-022-100	083-111-000-022-100-PHO1A.jpg		Bourne Consulting Engineering		April 2009	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
083-111-000-022-200	083-111-000-022-100-PHO2A.jpg		Bourne Consulting Engineering		April 2009	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
083-148-000-025-100	083-148-000-025-100-PHO1A.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey

Massachusetts Coastal Infrastructure and Assessment



083-015-000-023-100-PHO1A



083-016-000-003-100-PHO1A



083-016-000-059-100-PHO1A



083-019-000-002-100-PHO1A



083-019-000-006-100-PHO1A



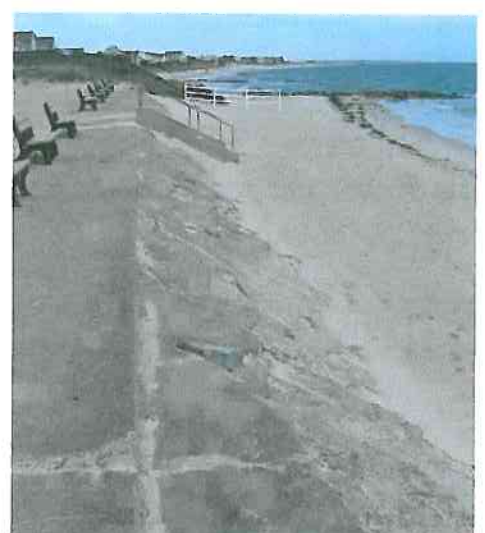
083-019-000-006-200-PHO2A



083-021-000-049-100-PHO1A



083-025-000-287-100-PHO1A



083-025-000-297-100-PHO1A

Massachusetts Coastal Infrastructure and Assessment



083-025-000-297-200-PHO2A



083-026-000-116-100-PHO1A



083-026-000-116-200-PHO2A



083-035-000-001-100-PHO1A



083-043-000-042-100-PHO1A



083-052-000-001-100-PHO1A



083-061-000-771-100-PHO1A



083-080-000-117-100-PHO1A



083-102-000-081-100-PHO1A

Massachusetts Coastal Infrastructure and Assessment



083-111-000-022-100-PHO1A



083-111-000-022-200-PHO2A



083-148-000-025-100-PHO1A

Section III - Yarmouth

Part D

Structure Documents

TOWN DOCUMENT LIST

MA DCR - DOCUMENT LIST

MA DEP – Ch 91 DOCUMENT LIST

- Copies of License Documents

USACE – PERMIT DOCUMENT LIST

- Copies of Permit Documents

TOWN: YARMOUTH
SOURCE: Town of Yarmouth
LOCATION: TOWN
DATE OF RESEARCH: JULY 2007

No Town Documents for the Town of Yarmouth

BCE Structure No	Document No	Contract/ Drawing Number	Entity	Municipality	Date	Title	Sheets	Location	Description
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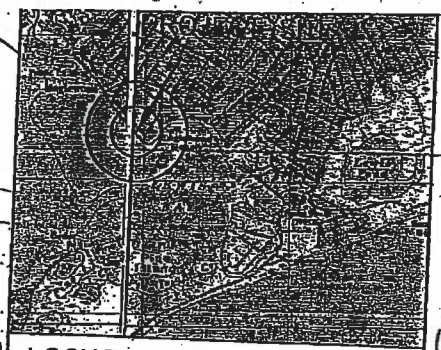
BCE Structure No	Document No	Contract/ Drawing Number	Entity	Municipality	Date	Title	Sheets	Location	Description
083-015-000-023-100	083-015-000-023-100-DCR1A	1685	MA-DCR	Yarmouth	November 1956	Proposed Shore Protection - Jetty Extension - Parkers River - Yarmouth - Prepared for the DPW of Massachusetts - Division of Waterways	1	Parkers River	Jetty Extension
083-015-000-023-100	083-015-000-023-100-DCR1B	1819	MA-DCR	Yarmouth	October 1957	Proposed Excavation and Jetty Reconstruction - Parkers River - Yarmouth, Massachusetts - Prepared for the DPW of Massachusetts - Division of Waterways	1	End of Parker River	Jetty
083-015-000-023-100	083-015-000-023-100-DCR1C	2321	MA-DCR	Yarmouth	August 1961	Proposed Shore Protection - Stone Mound and Jetty Reconstruction - Parkers River - Yarmouth - Prepared for the DPW of Massachusetts - Division of Waterways	1	Parkers River	Stone Mound and Jetty
083-019-000-006-100	083-019-000-006-100-DCR1A	1565	MA-DCR	Yarmouth	January 1956	Proposed Shore Protection - Stone Mound and Sand Fill - Public Beach No. 2 Easterly of Parkers River - Yarmouth - Prepared for the DPW of Massachusetts - Division of Waterways	1	Easterly of Parkers River	Stone Mound
083-021-000-049-100	083-021-000-049-100-DCR1A	1180	MA-DCR	Yarmouth	October 1951	Proposed Shore Protection - Yarmouth - Colonial Acres - Prepared for the DPW of Massachusetts - Division of Waterways	3	Colonial Acres	Jetty
083-021-000-049-100	083-021-000-049-100-DCR1B	1503	MA-DCR	Yarmouth	May 1955	Proposed Shore Protection - Stone Mound Construction - Mill Creek - Colonial Acres - Yarmouth - Prepared for the DPW of Massachusetts - Division of Waterways	1	Mill Creek - Colonial Acres	Stone Mound Construction
083-021-000-049-100	083-021-000-049-100-DCR1C	2369	MA-DCR	Yarmouth	February 1964	Proposed Channel Relocation - Mill Creek - Yarmouth - Prepared for the DPW of Massachusetts - Division of Waterways	1	Mill Creek Joins Lewis Harbor	Riprap Slope
083-021-000-049-100	083-021-000-049-100-DCR1D	2507	MA-DCR	Yarmouth	November 1965	Proposed Relocation of Channel, Stone Jetty and Revetment - Mill Creek - Yarmouth - Prepared for the DPW of Massachusetts - Division of Waterways	1	Mill Creek	Jetty and Revetment
083-025-000-287-100	083-025-000-287-100-DCR1A	446	MA-DCR	Yarmouth	August 1935	Proposed Shore Protection - South Yarmouth Beach - Yarmouth - Prepared for the DPW of Massachusetts - Division of Waterways	1	South Yarmouth Beach	Groins
083-025-000-287-100	083-025-000-287-100-DCR1B	697	MA-DCR	Yarmouth	October 1940	Proposed Shore Protection - South Yarmouth Beach - Yarmouth - Prepared for the DPW of Massachusetts - Division of Waterways	1	South Yarmouth Beach	Riprap and Groins
083-025-000-287-100	083-025-000-287-100-DCR1C	1079	MA-DCR	Yarmouth	December 1948	Proposed Shore Protection - Yarmouth Shore - West of Bass River - Yarmouth - Prepared for the DPW of Massachusetts - Division of Waterways	1	West of Bass River	Groins and Riprap
083-025-000-297-100	083-025-000-297-100-DCR1A	477	MA-DCR	Yarmouth	September 1936	Proposed Shore Protection - South Yarmouth Beach - Yarmouth - Prepared for the DPW of Massachusetts - Division of Waterways	1	South Yarmouth Beach	Riprap
083-025-000-297-100	083-025-000-297-100-DCR1B	697	MA-DCR	Yarmouth	October 1940	Proposed Shore Protection - South Yarmouth Beach - Yarmouth - Prepared for the DPW of Massachusetts - Division of Waterways	1	South Yarmouth Beach	Riprap and Groins
083-025-000-297-100	083-025-000-297-100-DCR1C	781	MA-DCR	Yarmouth	February 1943	Proposed Shore Protection - South Yarmouth Shore - Yarmouth - Prepared for the DPW of Massachusetts - Division of Waterways	1	South Yarmouth Shore	Riprap
083-025-000-297-100	083-025-000-297-100-DCR1D	1079	MA-DCR	Yarmouth	December 1948	Proposed Shore Protection - Yarmouth Shore - West of Bass River - Yarmouth - Prepared for the DPW of Massachusetts - Division of Waterways	1	West of Bass River	Groins and Riprap
083-025-000-297-200	083-025-000-297-200-DCR2A	446	MA-DCR	Yarmouth	August 1935	Proposed Shore Protection - South Yarmouth Beach - Yarmouth - Prepared for the DPW of Massachusetts - Division of Waterways	1	South Yarmouth Beach	Groins
083-025-000-297-200	083-025-000-297-200-DCR2B	697	MA-DCR	Yarmouth	October 1940	Proposed Shore Protection - South Yarmouth Beach - Yarmouth - Prepared for the DPW of Massachusetts - Division of Waterways	1	South Yarmouth Beach	Riprap and Groins

BCE Structure No	Document No	Contract/ Drawing Number	Entity	Municipality	Date	Title	Sheets	Location	Description
083-025-000-297-200	083-025-000-297-200-DCR2C	1079	MA-DCR	Yarmouth	December 1948	Proposed Shore Protection - Yarmouth Shore - West of Bass River - Yarmouth - Prepared for the DPW of Massachusetts - Division of Waterways	1	West of Bass River	Groins and Riprap
083-026-000-116-100	083-026-000-116-100-DCR1A	823	MA-DCR	Yarmouth	June 1945	Proposed Jetty Repairs - Bass River Entrance - Yarmouth - Prepared for the DPW of Massachusetts - Division of Waterways	1	Bass River	Jetty
083-026-000-116-100	083-026-000-116-100-DCR1B	914	MA-DCR	Yarmouth	December 1946	Proposed Repairs to Stone Jetty - Bass River - Yarmouth - Prepared for the DPW of Massachusetts - Division of Waterways	1	Bass River Entrance	Jetty
083-026-000-116-200	083-026-000-116-200-DCR2A	823	MA-DCR	Yarmouth	January 1945	Proposed Jetty Repairs - Bass River Entrance - Yarmouth - Prepared for the DPW of Massachusetts - Division of Waterways	1	Bass River Entrance	Jetty
083-026-000-116-200	083-026-000-116-200-DCR2B	914	MA-DCR	Yarmouth	December 1946	Proposed Repairs to Stone Jetty - Bass River - Yarmouth - Prepared for the DPW of Massachusetts - Division of Waterways	1	Bass River	Jetty
083-026-000-116-200	083-026-000-116-200-DCR2C	1000	MA-DCR	Yarmouth	September 1947	Proposed East Jetty Repairs and West Jetty Extension - Bass River - Dennis and Yarmouth - Prepared for the DPW of Massachusetts - Division of Waterways	1	Bass River	Jetty Extension

BCE Structure No	Document No	Contract/ Drawing Number	Entity	Municipality	Date	Title	Sheets	Location	Description
083-016-000-003-100	083-016-000-003-100-LIC1A	11786	DEP	Yarmouth	May 21, 2007	Plan Accompanying Petition of Town of Yarmouth To License Existing Stone Groin and to Replace Existing 15" Culvert to Restore Tidal Flushing to Salt March in Lewis Bay, West Yarmouth	2	Lewis Bay	Culvert, Stone Groin
083-016-000-059-100	083-016-000-059-100-LIC1A	4720	DEP	Yarmouth	June 1963	Plan Accompanying Petition of the Town of Yarmouth to Build and Maintain a Timber Pier with Float and Mainlain an Existing Concrete Boat Ramp and Stone Groin with New Concrete Cap - Lewis Bay, West Yarmouth	2	New Hampshire Avenue	Jetty with Concrete Cap
083-016-000-059-100	083-016-000-059-100-LIC1B	5855	DEP	Yarmouth	August 1970	Plan Accompanying Petition of the Town of Yarmouth to Build and Maintain a Stone Pier with a Concrete Cap and Attached Float in Lewis Bay at West Yarmouth - Town of Yarmouth, Massachusetts	2	New Hampshire Avenue	Jetty
083-016-000-059-100	083-016-000-059-100-LIC1C	2972	DEP	Yarmouth	April 1992	Plan Accompanying Petition of Town of Yarmouth to Construct and Maintain Timber Floats, Ramp and Piles - Lewis Bay - Yarmouth, Barnstable County, Massachusetts	2	New Hampshire Avenue	Jetty
083-016-000-059-100	083-016-000-059-100-LIC1D	759	DEP	Yarmouth	September 1981	Plan Accompanying Petition of the Town of Yarmouth to Maintain a Stone Pier with a Concrete Cap and Attached Floats in Lewis Bay at West Yarmouth, Town of Yarmouth, MA	3	New Hampshire Avenue	Groin with Concrete Cap
083-016-000-059-100	083-016-000-059-100-LIC1E	918	DEP	Yarmouth	September 29, 1982	Plan Accompanying Petition of Town of Yarmouth Proposed Boat Ramp and Dredging Lewis Bay Yarmouth, MA	2	Lewis Bay	Boat Ramp Dredging
083-016-000-059-100	083-016-000-059-100-LIC1F	2972	DEP	Yarmouth	December 24, 1991	Plan Accompanying Petition of Town of Yarmouth to Construct and Maintain Timber Floats, Ramp and Piles, Lewis Bay	2	Lewis Bay	Breakwater
083-019-000-006-100	083-019-000-006-100-LIC1A	2051	DEP	Yarmouth	September 1989	Plan Accompanying Petition of Department of Public Works Town of Yarmouth to Reconstruct Stone Revetment in Nantucket Sound - Yarmouth, Barnstable County, Massachusetts	2	Thatcher's Beach	Revetment
083-026-000-116-100	083-026-000-116-100-LIC1A	2217	DEP	Yarmouth	January 1990	Plan Accompanying Petition of the Town of Yarmouth to Place Floats and Float Piles and License Existing Facility in Bass River - Yarmouth, Barnstable County, Massachusetts	2	Bass River Beach	Existing Stone Riprap
083-026-000-116-100	083-026-000-116-100-LIC1B	2706	DEP	Yarmouth	August 1991	Plan Accompanying Petition of Town of Yarmouth to Construct a Handicapped Accessible Fishing Platform in Bass River - Yarmouth, Massachusetts	2	Bass River	Jetty
083-026-000-116-100	083-026-000-116-100-LIC1C	2706	DEP	Yarmouth	August 8, 1991	Plan Accompanying Petition of Town of Yarmouth to Construct a Handicapped Accessible fishing Platform in Bass River	2	Bass River	Revetment
083-026-000-116-200	083-026-000-116-200-LIC2A	2706	DEP	Yarmouth	August 1991	Plan Accompanying Petition of Town of Yarmouth to Construct a Handicapped Accessible Fishing Platform in Bass River - Yarmouth, Massachusetts	2	Bass River	Jetty
083-026-000-116-200	083-026-000-116-200-LIC2B	2706	DEP	Yarmouth	August 8, 1991	Plan Accompanying Petition of Town of Yarmouth to Construct a Handicapped Accessible Fishing Platform in Bass River	2	Bass River	Groin, Jetty
083-035-000-001-100	083-035-000-001-100-LIC1A	3760	DEP	Yarmouth	April 1994	Plan to Accompany Petition of Town of Yarmouth to Construct and Maintain a Stone Revetment in Bass River - South Yarmouth, Massachusetts - Town of Yarmouth Engineering	3	Bass River	Revetment
083-035-000-001-100	083-035-000-001-100-LIC1B	3760	DEP	Yarmouth	April 15, 1994	Plan to Accompany Petition of Town of Yarmouth to Construct and Maintain a Stone Revetment in Bass River	3	Bass River	Stone Revetment
083-061-000-771-100	083-061-000-771-100-LIC1A	3741	DEP	Yarmouth	May 1955	Plan Accompanying Petition of Town of Yarmouth to Build a Timber Bulkhead, Backfill and Dredge in Bass River - Yarmouth	1	Bass River	Bulkhead
083-061-000-771-100	083-061-000-771-100-LIC1B	75	DEP	Yarmouth	February 1972	Plan Accompanying Petition of the Town of Yarmouth - To Build and Maintain a Timber Pier, to Place Fixed Piles, to Place a Floating Pier and to Maintain Existing Timber Bulkhead in Bass River at South Yarmouth, Town of Yarmouth, Massachusetts	2	Bass River	Bulkhead
083-061-000-771-100	083-061-000-771-100-LIC1C	1364	DEP	Yarmouth	February 1986	Plan Accompanying Petition of Town of Yarmouth to Construct Floats, Ramp, Remove Piles and to Place Piles in Bass River - Yarmouth, Massachusetts	2	Bass River	Bulkhead
083-061-000-771-100	083-061-000-771-100-LIC1D	938	DEP	Yarmouth	938	Plans Accompanying Petition of Town of Yarmouth to Construct a Stone Revetment Quay Wharf, Timber Bulkhead and Piles	3	Bass River	Revetment and Bulkhead
083-080-000-117-100	083-080-000-117-100-LIC1A	858	DEP	Yarmouth	November 1981	Plan Accompanying Petition of Town of Yarmouth to Construct a Stone Mound - Bass River - Yarmouth, Massachusetts	1	Bass River Golf Club	Revetment

JOAN DOLNER
33 SHORE RD
WEST YARMOUTH, MA
02673

MAP 16 LOT 3
N/F TOWN OF
YARMOUTH



LOCUS PLAN N.T.S.
HYANNIS/DENNIS QUAD

MAP 16
N/F TOWN OF
YARMOUTH

MAP 16 LOT 2
MICHAEL FITZHUGH
SUITE 1700,
155 FEDERAL ST
BOSTON, MA
02110

APPROX. PROP. LINE

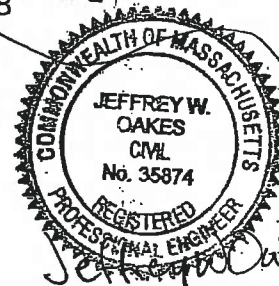
MHW & HTL
EL. 2.3
BASE OF
SEAWALL

PROPOSED 200#
STONE COVER
210 S.F. IMPACT
TO BEACH

RE-USE EXISTING
DISPLACED RIP
RAP FROM EDGE
OF GROIN AS
PIPE COVER
WHERE FEASIBLE

4" BROKEN
CAST IRON
PIPE

PROPOSED OUTLET 18"
HDPE CULVERT
INV. EL -2.0
SEE DETAIL



9/14/06

PAGE 1 OF 2, DATE: 9/14/06

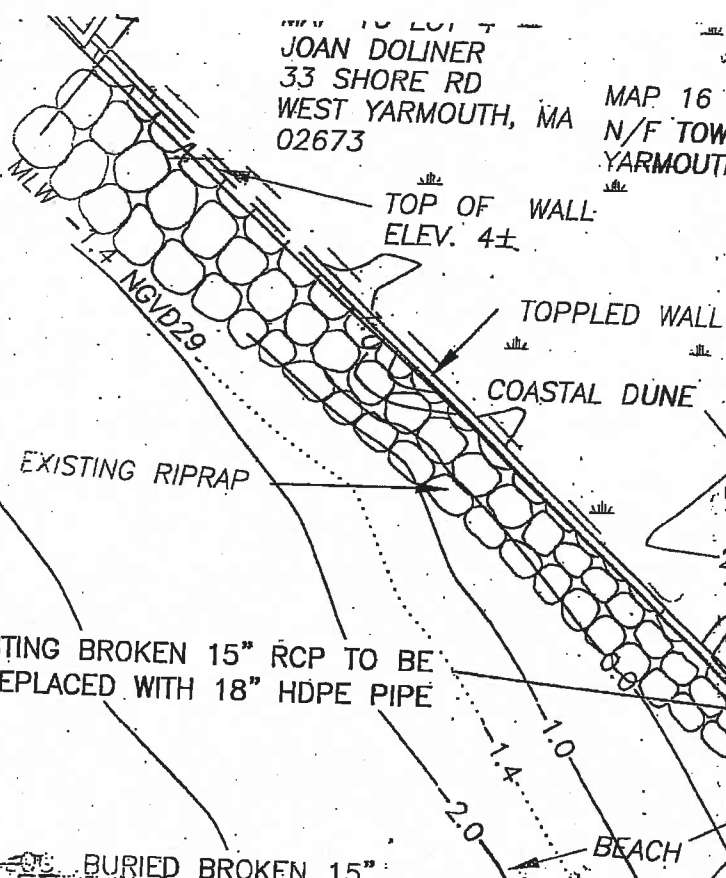
LICENSE PLAN NO. 11786

Approved by Department of Environmental Protection
of Massachusetts

Michael J. Juncosa MAY 21 2007

06-1749

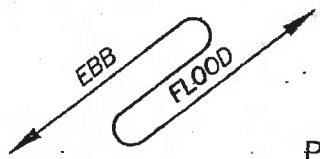
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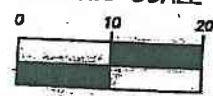
APPROX. BURIED BROKEN 15"
RCP INV. APPROX. -2.5

EXISTING STONE
GROIN TO BE LICENSED

LEWIS BAY



SITE PLAN VIEW
GRAPHIC SCALE



1 INCH=20 FEET

PLAN ACCOMPANYING PETITION OF:
TOWN OF YARMOUTH
1141 ROUTE 28
SOUTH YARMOUTH, MA 02664
TO LICENSE EXISTING STONE GROIN AND TO
REPLACE EXISTING
5" CULVERT TO RESTORE TIDAL
FLUSHING TO SALT MARSH
IN LEWIS BAY, WEST YARMOUTH, MA

PROPOSED 18" HDPE INV. -2.0
BEDDED IN ANGULAR STONE GRADED
FROM 1-1/2" TO 6"

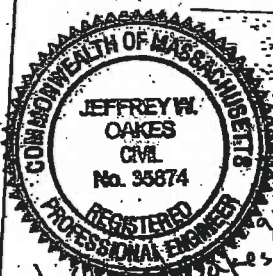
RE-USE EXISTING DISPLACED RIP RAP
FROM PERIMETER, 40± CUBIC YARDS

100 YR
FLOODPLAIN
EL 13

EXISTING STONE
GROIN TO BE
LICENSED

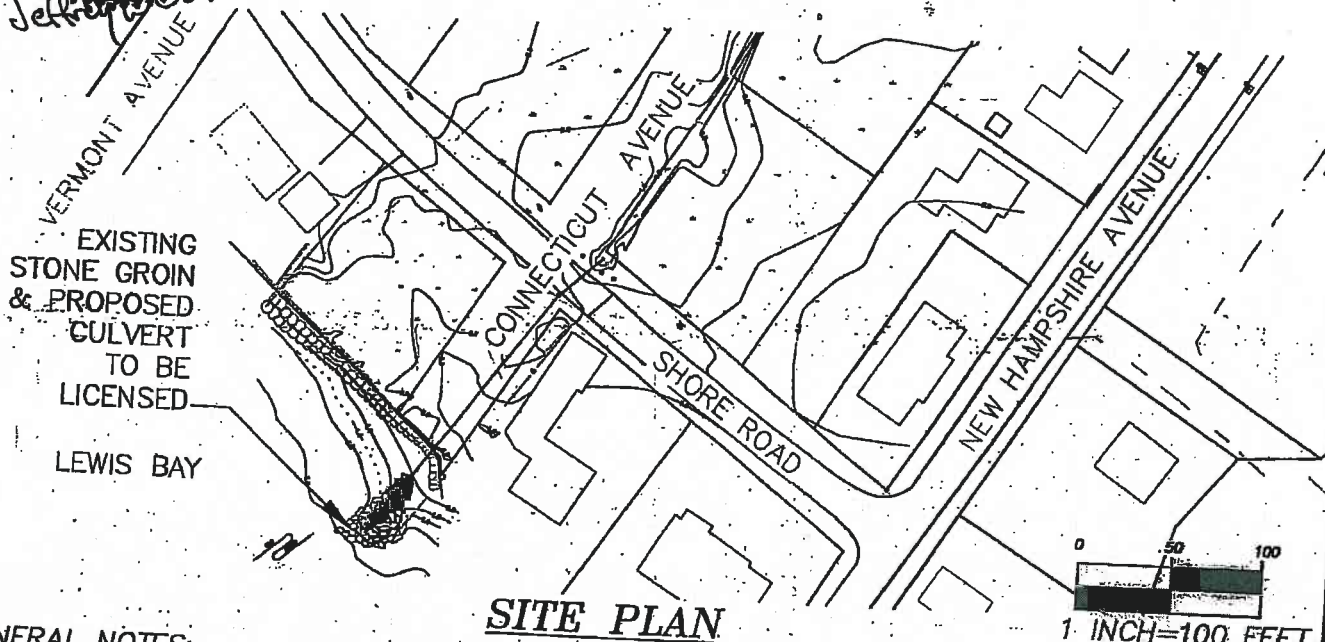
PROPOSED STONE COVER,
200 LB MINIMUM
SUPPORTED BY TRENCH
SIDEWALL STONES

2.3 MHW
0.0
-1.4 MLW
-2.0
-4.0



CULVERT OUTLET DETAIL

0 5 10
1 INCH=10 FEET



SITE PLAN

0 50 100
1 INCH=100 FEET

GENERAL NOTES:

1. RESULTS OF TOPOGRAPHIC SURVEYS DATED 08/18/04, 10/09/06 AND 04/21/06 BY THE TOWN OF YARMOUTH ENGINEERING DEPARTMENT WERE COMBINED WITH AERIAL PHOTOGRAMMETRY PRODUCED FOR THE TOWN OF YARMOUTH TO CREATE THIS PLAN.
2. ELEVATIONS ARE IN FEET AND TENTHS, AND REFER TO NGVD 29 DATUM.
3. BENCHMARK IS YARMOUTH MONUMENT #28 AT ENGLEWOOD BEACH WHICH WAS USED TO ASSIGN ELEVATION 4.85 TO THE HYDRANT TAG BOLT #624.
4. PROPERTY LINE INFORMATION FROM PLAN TITLED "TOPOGRAPHIC PLAN, WETLANDS DELINEATION AT SHORE ROAD IN SOUTH YARMOUTH" BY TOWN OF YARMOUTH ENGINEERING DEPARTMENT DATED AUGUST 18, 2004.
5. POSSESSION AND USE OF THE MATERIAL CONTAINED ON THESE DRAWINGS IS GRANTED ONLY IN CONNECTION WITH ITS USE AS IT RELATES TO THE TITLED PROJECT, ANY OTHER USE, REPRODUCTION OR DISCLOSURE OF THE INFORMATION CONTAINED HEREON IS EXPRESSLY PROHIBITED WITHOUT THE WRITTEN CONSENT OF CLE ENGINEERING INC.

PLAN ACCOMPANYING PETITION OF:
TOWN OF YARMOUTH
1146 ROUTE 28
SOUTH YARMOUTH, MA 02664
TO LICENSE EXISTING STONE GROIN AND TO
REPLACE EXISTING
15" CULVERT TO RESTORE TIDAL
FLUSHING TO SALT MARSH
IN LEWIS BAY, WEST YARMOUTH, MA
BARNSTABLE COUNTY, MA

PAGE 2 OF 2, DATE: 9/14/06

LICENSE PLAN NO. 11786

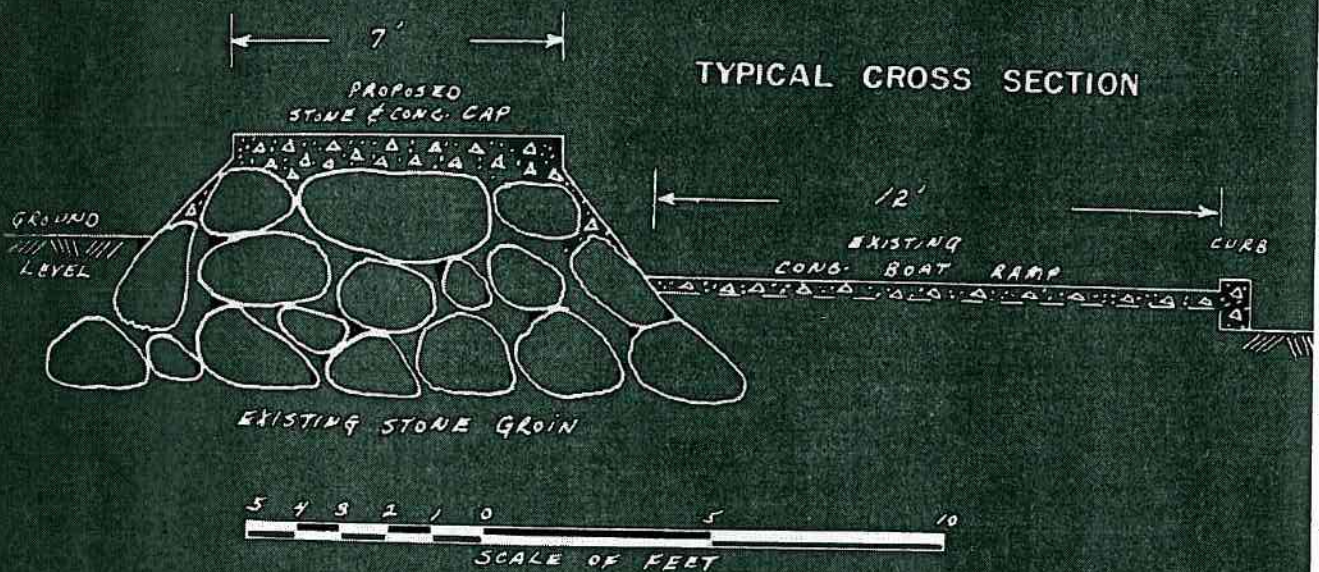
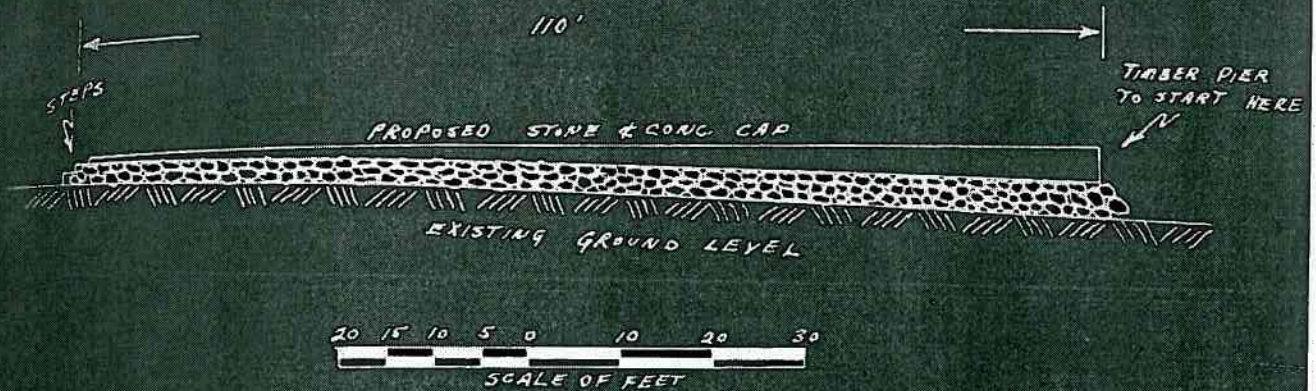
Approved by Department of Environmental Protection

Date:

MAY 21 2007

083-016-000-008-100

PROFILE OF EXISTING STONE GROIN

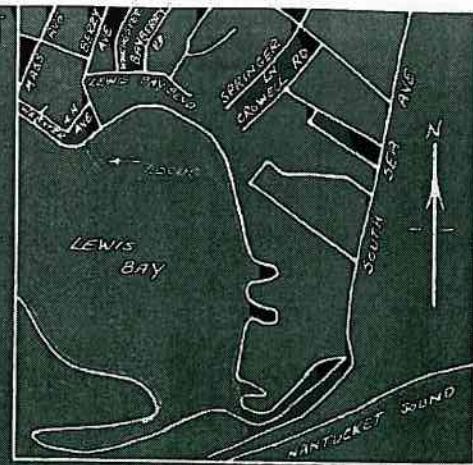


PLAN FOR THE TOWN OF
YARMOUTH TO MAINTAIN THE EXISTING CONG.
BOAT RAMP AND TO CAP AND MAINTAIN THE
EXISTING STONE GROIN IN LEWIS BAY AT
(ENGLEWOOD) WEST YARMOUTH, MASS. AND TO
BUILD A TIMBER PIER WITH FLOAT
JULY 23, 1963

SHEET 2 OF 2 SHEETS

LICENSE PLAN NO. 4720
APPROVED - AUGUST 6, 1963

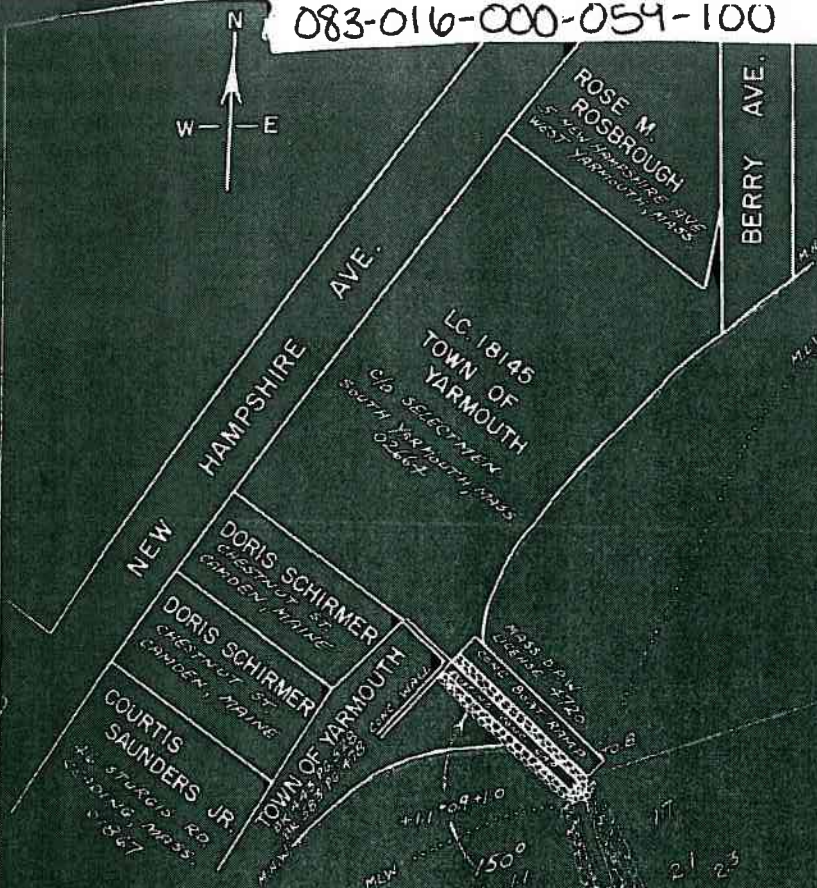
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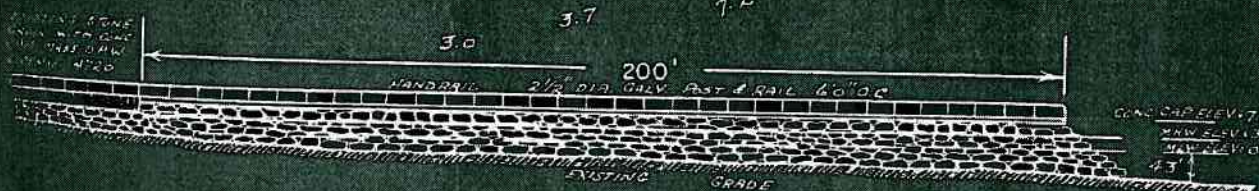
U.S.C. & G. SURVEY DENNIS QUAD.
0 1000 2000 3000 4000

SCALE IN FEET

PROPOSED WORK SHOWN IN RED
DATUM MEAN LOW WATER = 0.00
MEAN RANGE OF TIDE = 3.2'
SOUNDINGS ARE IN FEET AND
TENTHS BELOW THE PLANE
OF M.L.W. PLUS FIGURES
SHOW ELEVATIONS ABOVE
THE SAME PLANE



PLAN
50 0 50 100
SCALE IN FEET



PROFILE
20 0 20 40
SCALE IN FEET

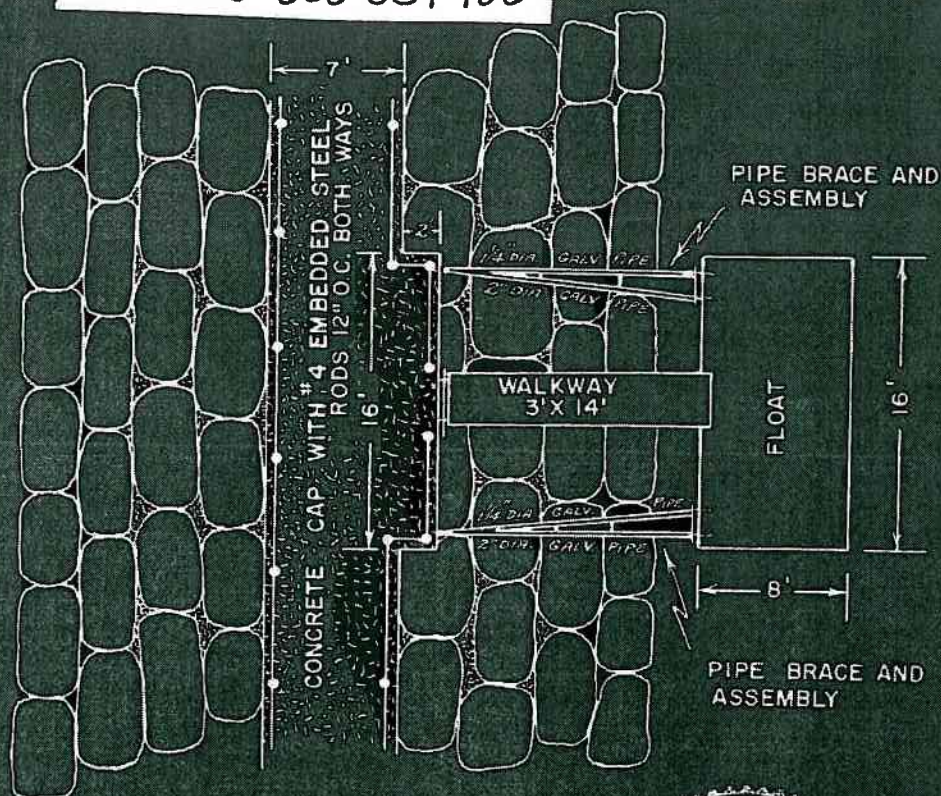
PLAN ACCOMPANYING PETITION OF
THE TOWN OF YARMOUTH
TO BUILD AND MAINTAIN A STONE PIER WITH
A CONCRETE CAP AND ATTACHED FLOAT IN
LEWIS BAY
AT WEST YARMOUTH
TOWN OF YARMOUTH
MASSACHUSETTS
SCALE AS SHOWN
AUGUST 11, 1970

LICENSE PLAN NO. 5855
APPROVED BY DEPARTMENT OF PUBLIC WORKS OF
COMMONWEALTH OF MASSACHUSETTS
APRIL 14-1971
COMMONWEALTH OF MASSACHUSETTS
DEPT. OF PUBLIC WORKS
ASSOCIATE COMMISSIONER

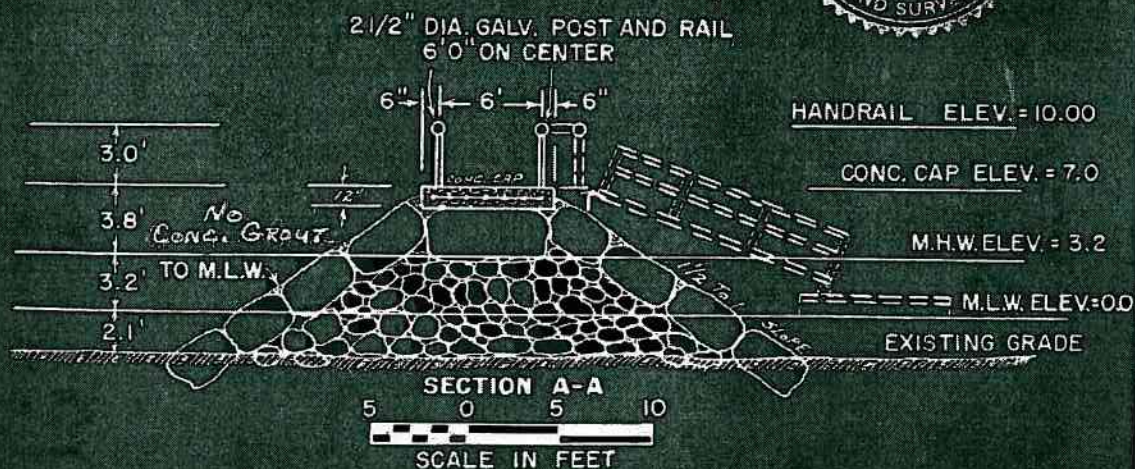
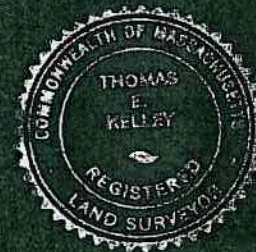
Robert B. Foster
Edw. Connelley

License No.

083-016-000-059-100



DETAIL CONCRETE CAP & FLOAT

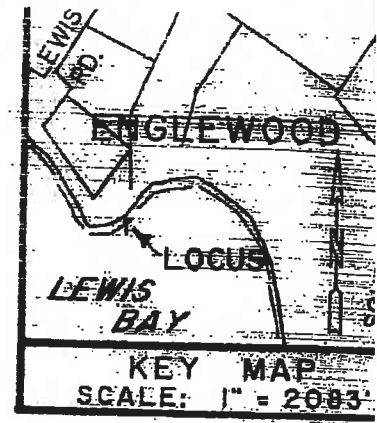
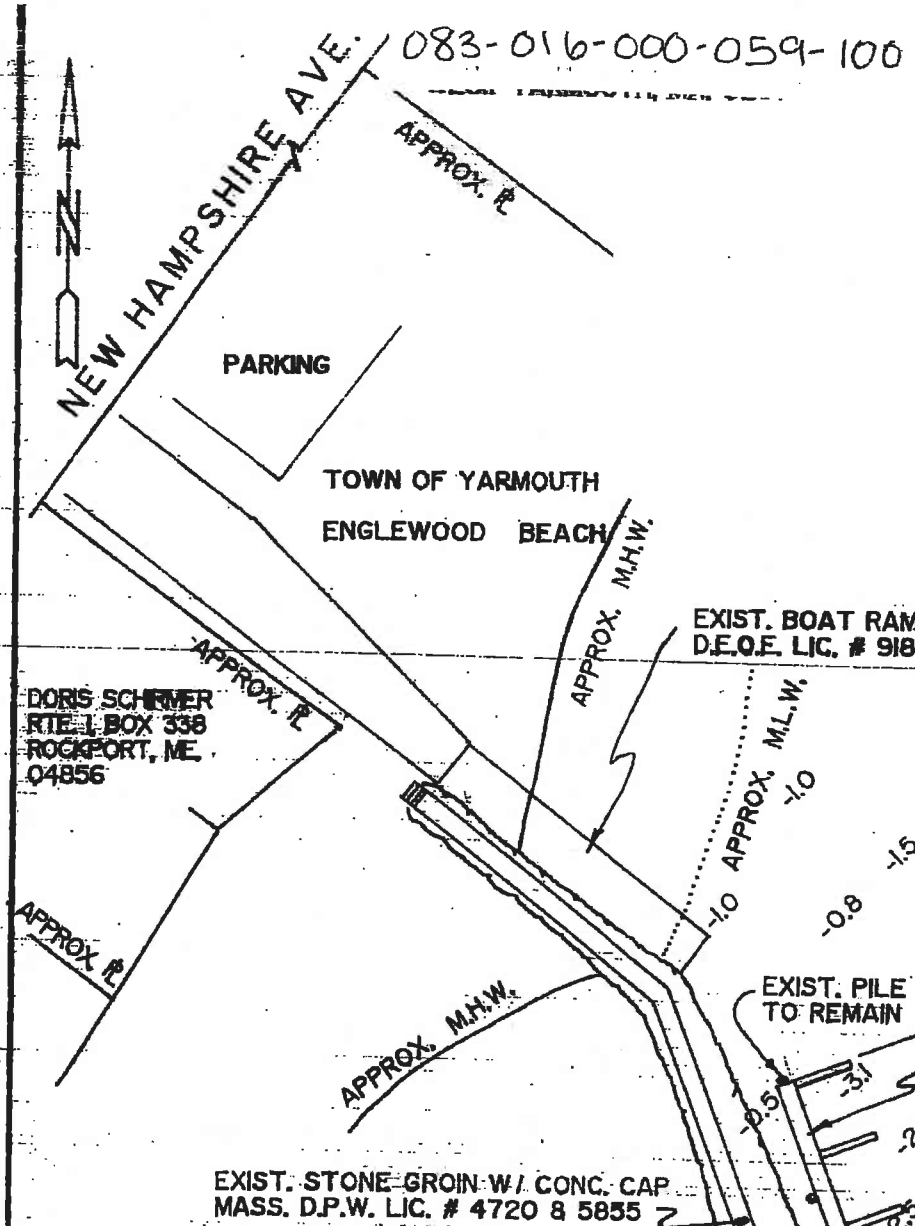


PLAN ACCOMPANYING PETITION OF
THE TOWN OF YARMOUTH
TO BUILD AND MAINTAIN A STONE PIER WITH
A CONCRETE CAP AND ATTACHED FLOAT IN
LEWIS BAY
AT WEST YARMOUTH
TOWN OF YARMOUTH
MASSACHUSETTS

SCALE AS SHOWN

AUGUST 11, 1970

LICENSE PLAN NO 5855
APPROVED BY DEPARTMENT OF PUBLIC WORKS
APRIL 16 1971



NOTES:

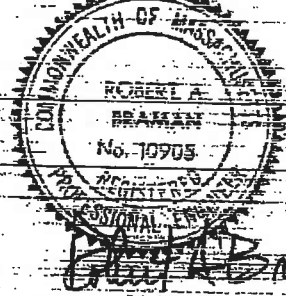
ELEVATIONS SHOWN ARE IN FEET AND TENTHS ABOVE THE PLAN OF MEAN LOW WATER. MINUS FIGURES REPRESENT ELEVATION BELOW THAT SAME PLANE.

TIMBER PILES TO BE 30' LONG & CCA TREATED @ 2 LBS. / CU FT. ALL PILES TO BE DRIVEN TOP ELEV. TO BE 12.0 M.L.W.

TIMBER FOR FLOATS TO BE CCA TREATED @ 10 LBS. / CU

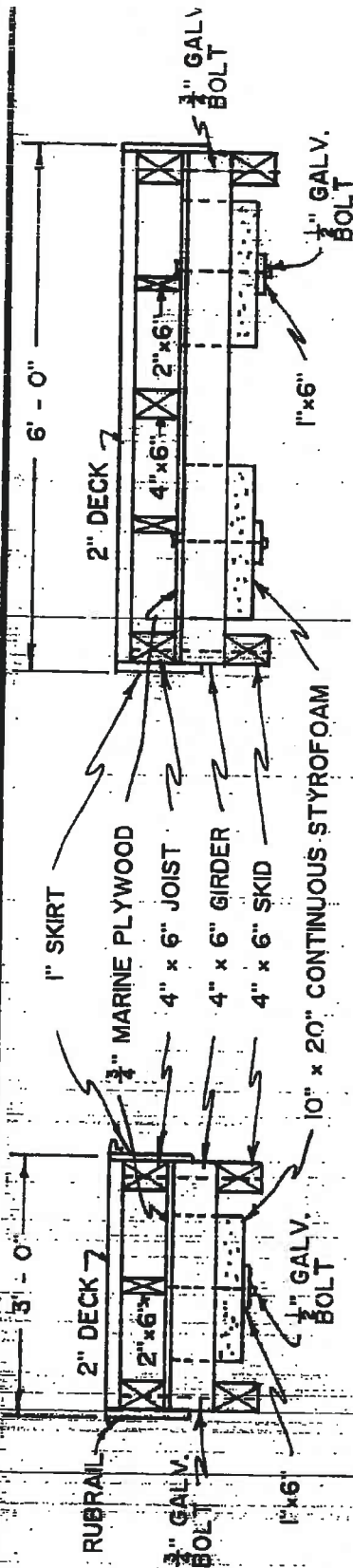
SEE SHEET 2 FOR EXISTING FLOAT LAYOUT, TO BE REMOVED.

PLAN
0' 30' 60'
SCALE 1" = 60'

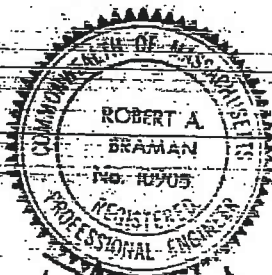


PLAN ACCOMPANYING PETITION OF
TOWN OF YARMOUTH
TO CONSTRUCT & MAINTAIN TIMBER
FLOATS, RAMP & PILES
LEWIS BAY
YARMOUTH, BARNSTABLE COUNTY, MA.
DECEMBER 24, 1991 SHEET 1 OF 2
BRAMAN ENGINEERING COMPANY, LTD.
CIVIL ENGINEERS AND SURVEYORS
259 MAIN ST. BUZZARDS BAY, MA.

LICENSE PLAN NO. 2972
Approved by Department of Environmental Protection
of Massachusetts
[Signature] COMMISSIONER
[Signature] ASST. DIR. OF
SECTION CHIEF
APR 27 1992



TIMBER FLOAT SECTIONS.



Robert A. Braman

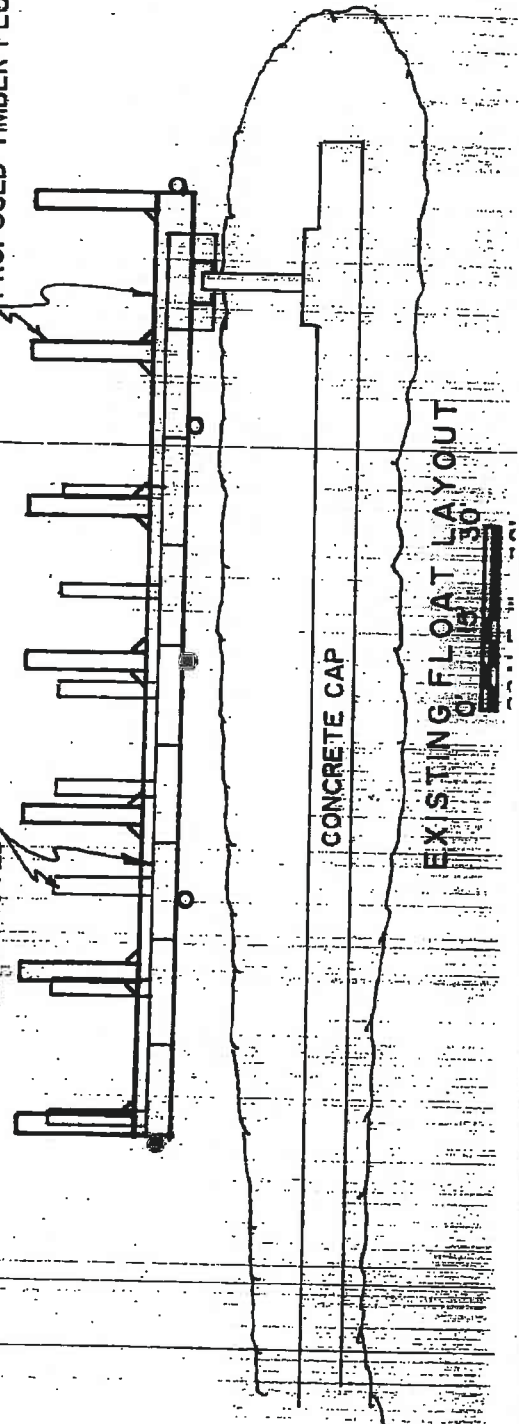
LICENSE PLAN NO. 2972

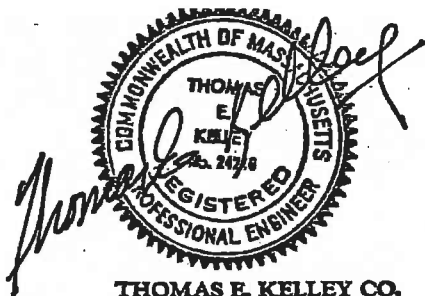
Approved by Department of Environmental Protection

Date: **APR 24 1992**

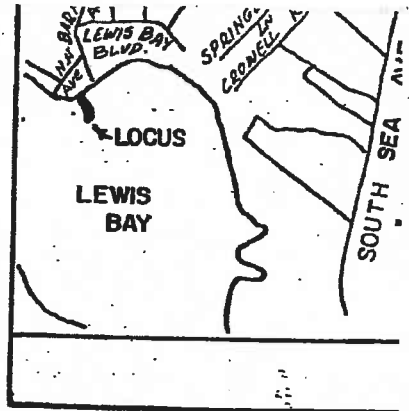
PROPOSED TIMBER FLOAT SYSTEM

EXIST. TIMBER FLOATS,
TO BE REMOVED



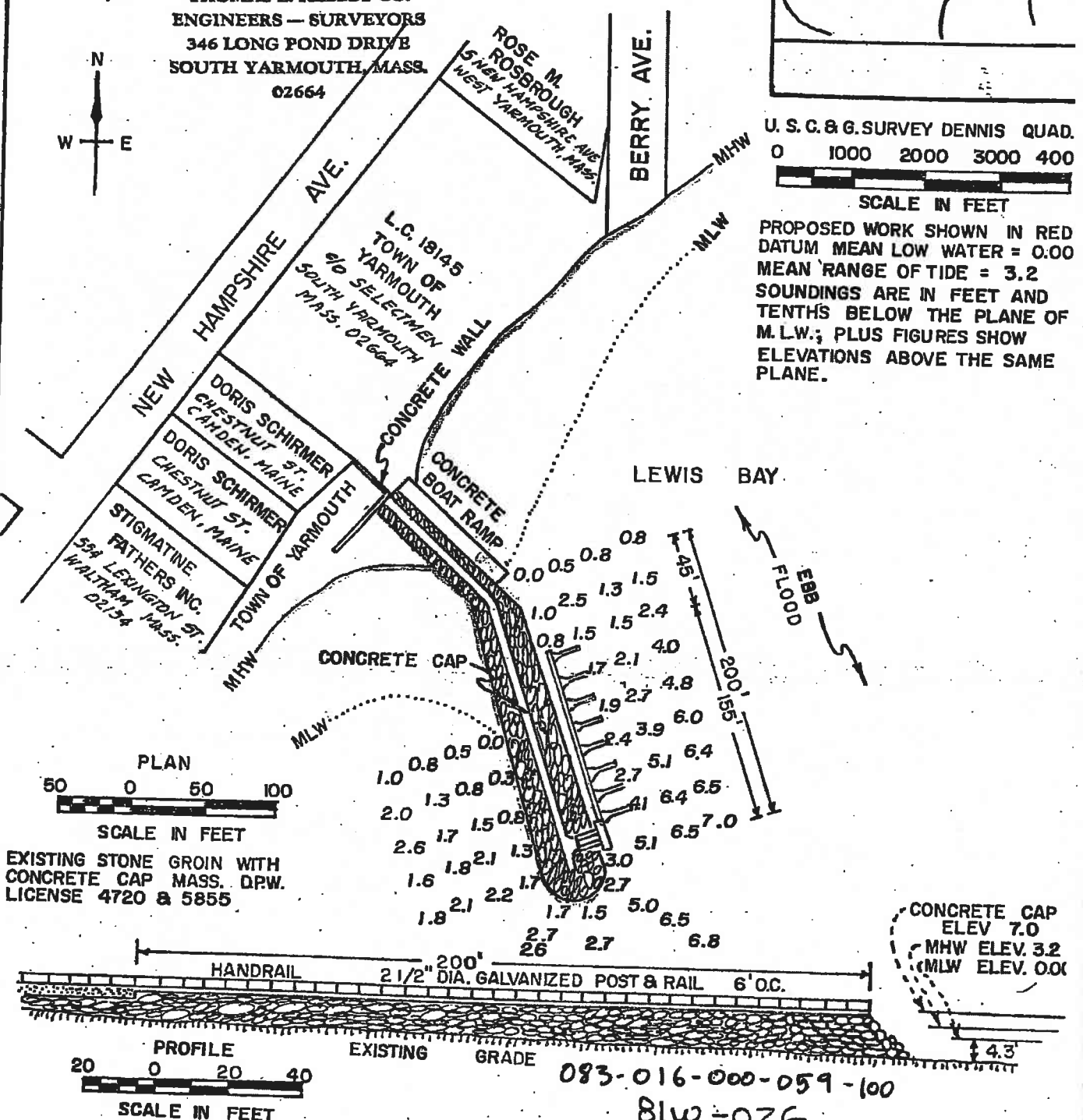


THOMAS E. KELLEY CO.
ENGINEERS - SURVEYORS
346 LONG POND DRIVE
SOUTH YARMOUTH, MASS.
02664



U. S. C. & G. SURVEY DENNIS QUAD.
0 1000 2000 3000 400
SCALE IN FEET

PROPOSED WORK SHOWN IN RED
DATUM MEAN LOW WATER = 0.00
MEAN RANGE OF TIDE = 3.2
SOUNDINGS ARE IN FEET AND
TENTHS BELOW THE PLANE OF
M.L.W.; PLUS FIGURES SHOW
ELEVATIONS ABOVE THE SAME
PLANE.

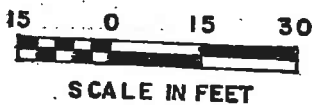
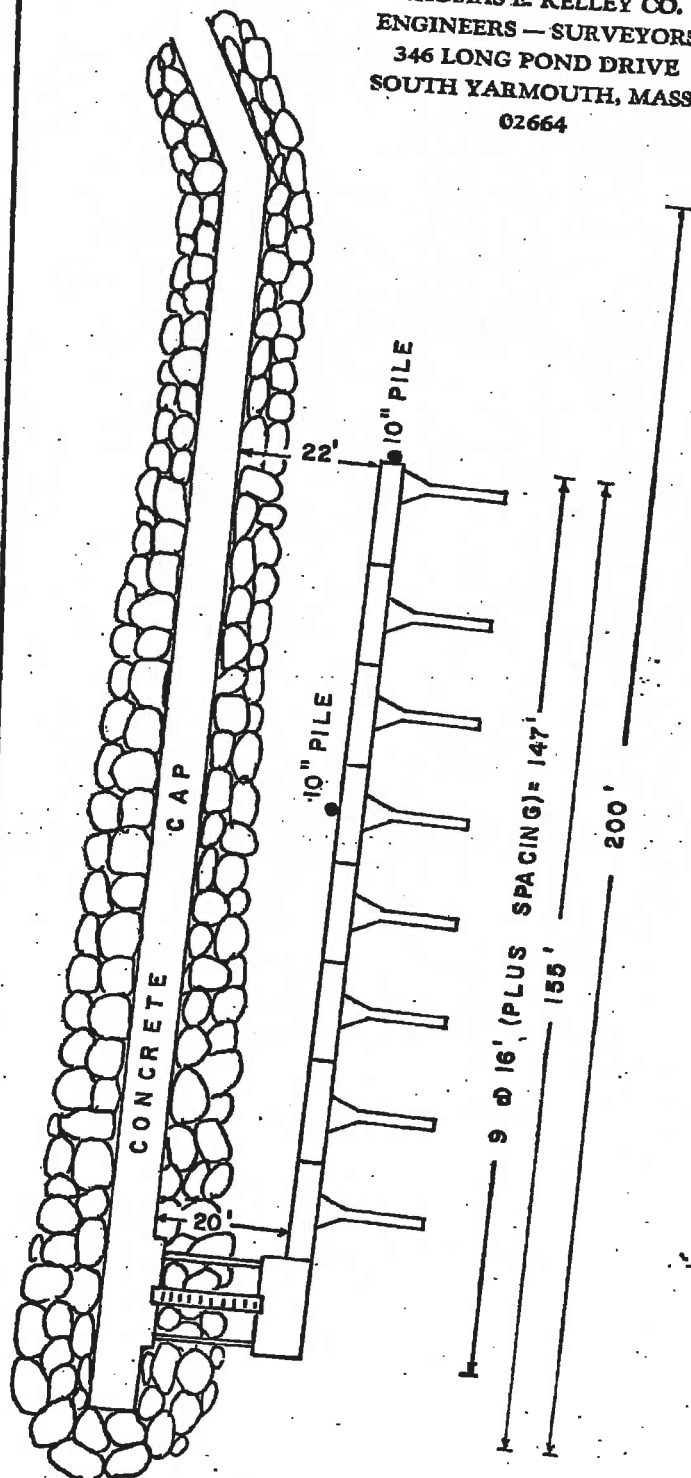


PLAN ACCOMPANYING PETITION OF
THE TOWN OF YARMOUTH
TO MAINTAIN A STONE PIER WITH
A CONCRETE CAP AND ATTACHED FLOATS IN
LEWIS BAY
AT WEST YARMOUTH
TOWN OF YARMOUTH
MASSACHUSETTS

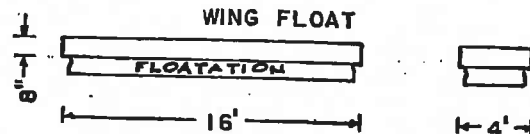
LICENSE PLAN NO. 759
Approved by Department of Environmental Quality Engineering
of Massachusetts September 4, 1981
COMMISSIONER
CHIEF ENGINEER



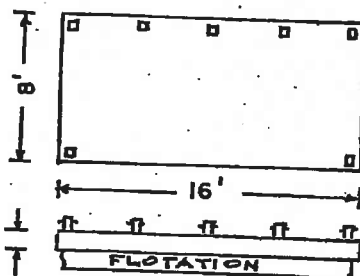
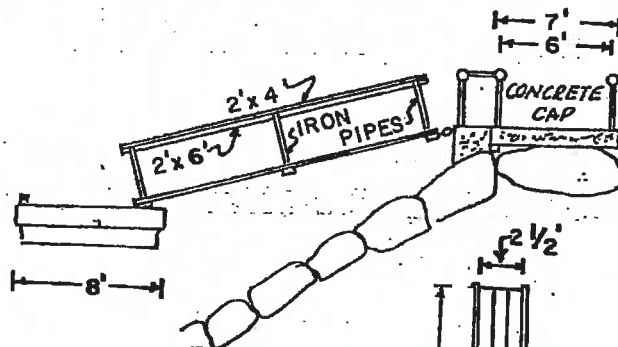
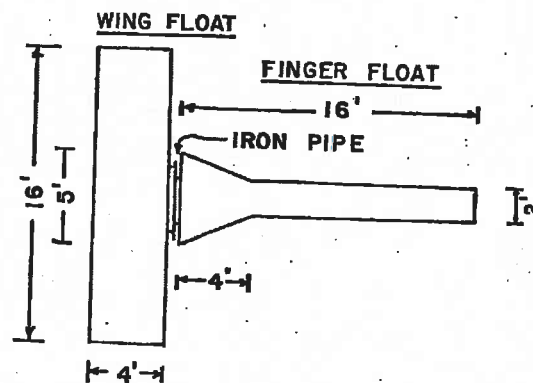
THOMAS E. KELLEY CO.
ENGINEERS - SURVEYORS
346 LONG POND DRIVE
SOUTH YARMOUTH, MASS.
02664



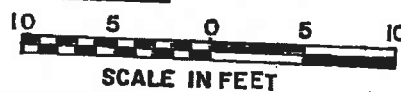
81W-026



PROFILE



MAIN FLOAT



RAMP

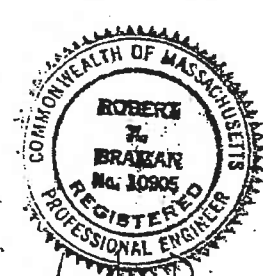
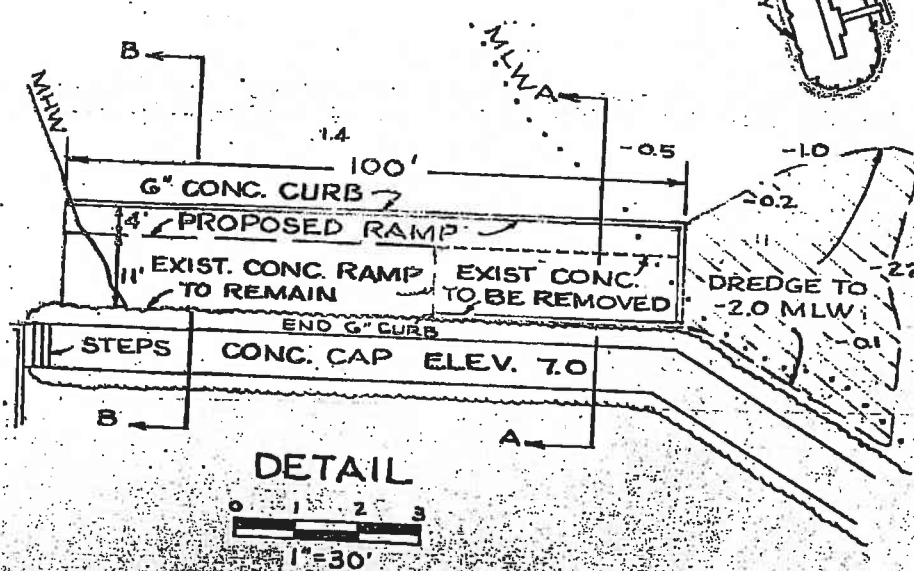
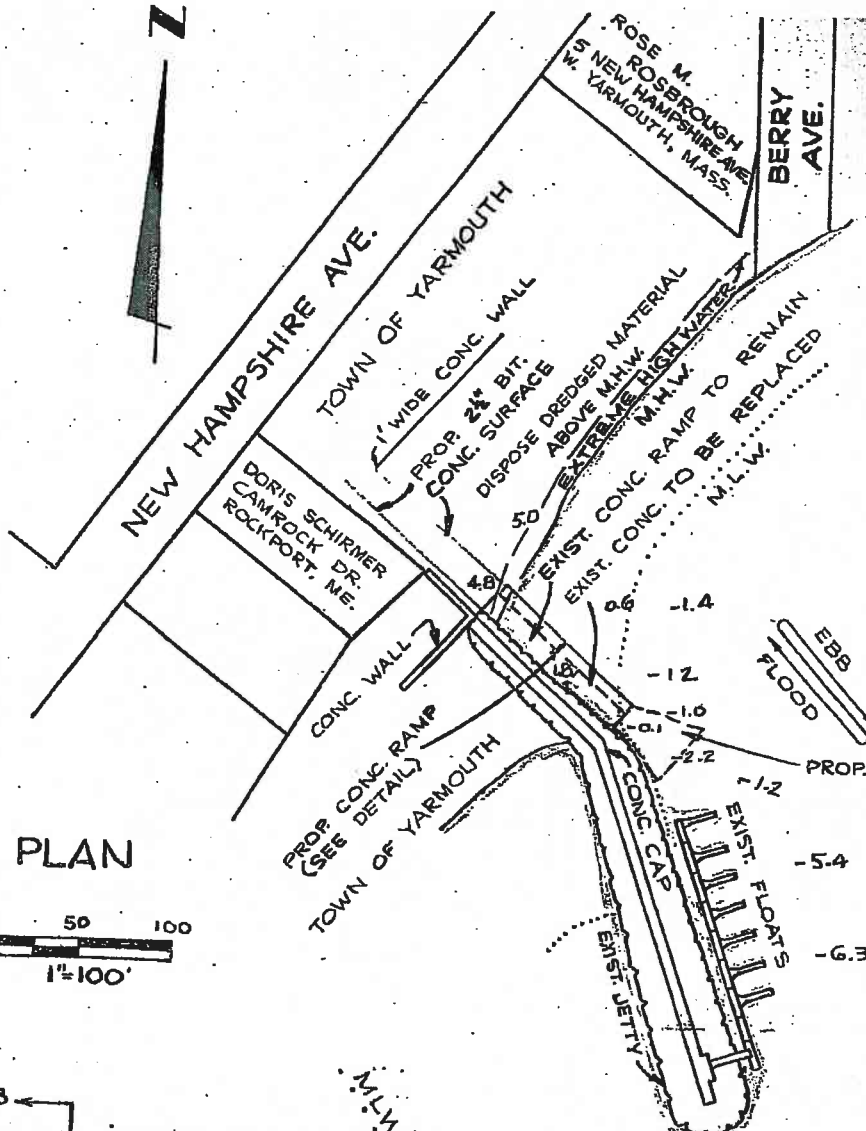
083-016-000-059-100

LICENSE PLAN NO. 759

Approved by Department of Environmental Quality Engineer
September 4, 1981

TOWN OF YARMOUTH. LEWIS RAY

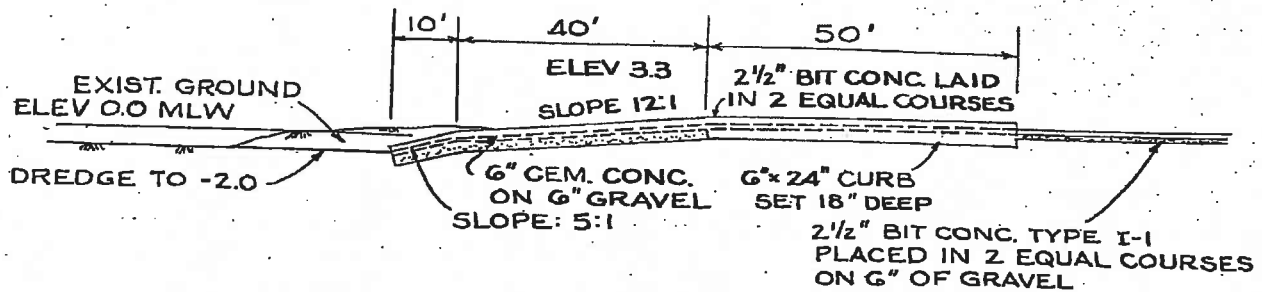
TOWN OF YARMOUTH, LEWIS BAY



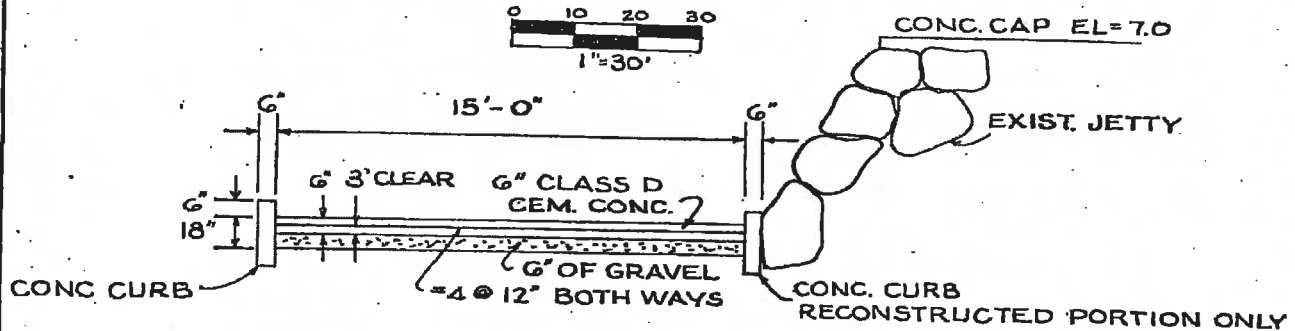
Robert A. Braman

82w-094
PLAN ACCOMPANYING PETITION OF
TOWN OF YARMOUTH
PROPOSED BOAT RAMP & DREDGING
LEWIS BAY
YARMOUTH, MASS.
JULY 28, 1982
SHEET 1 OF 2
ROBERT A. BRAMAN
CIVIL ENGINEER & SURVEYOR
WAREHAM, MASS.

083-016-000-059-100
LICENSE PLAN NO. 918
Approved by Department of Environmental Quality Engineering of Massachusetts
September 29, 1982
COMMISSIONER
CHIEF ENGINEER

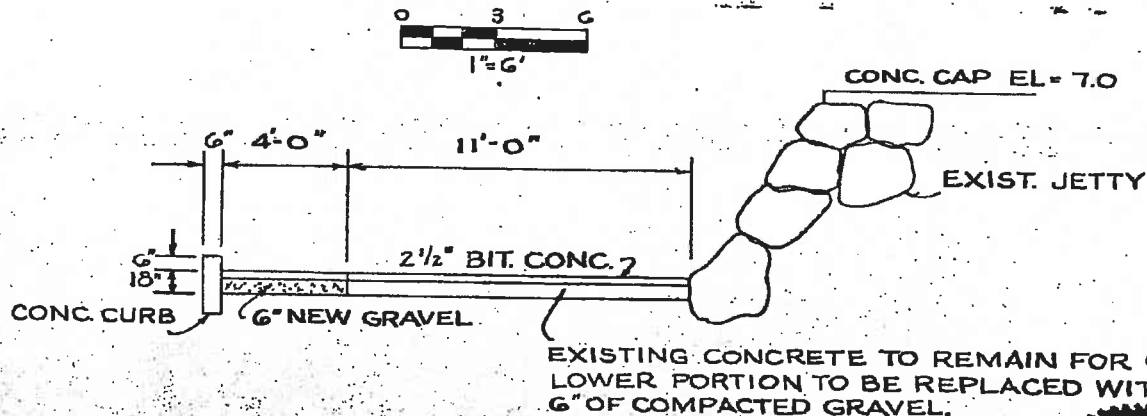


RAMP PROFILE



NOTE: PORTION OF RAMP TO REMAIN SHALL BE DRILLED TO ALLOW REINFORCEMENT STEEL MAT TO SECURE JOINT.

SECTION A-A



SECTION B-B



Robert A. Draman

083-016-000-054-100

82w-094

TOWN OF YARMOUTH

JULY 28, 1982

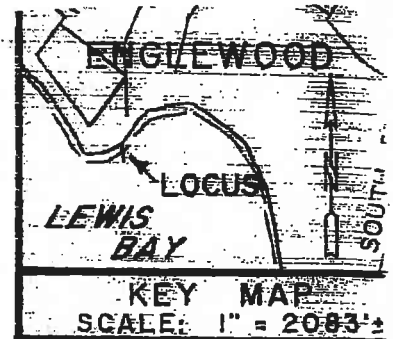
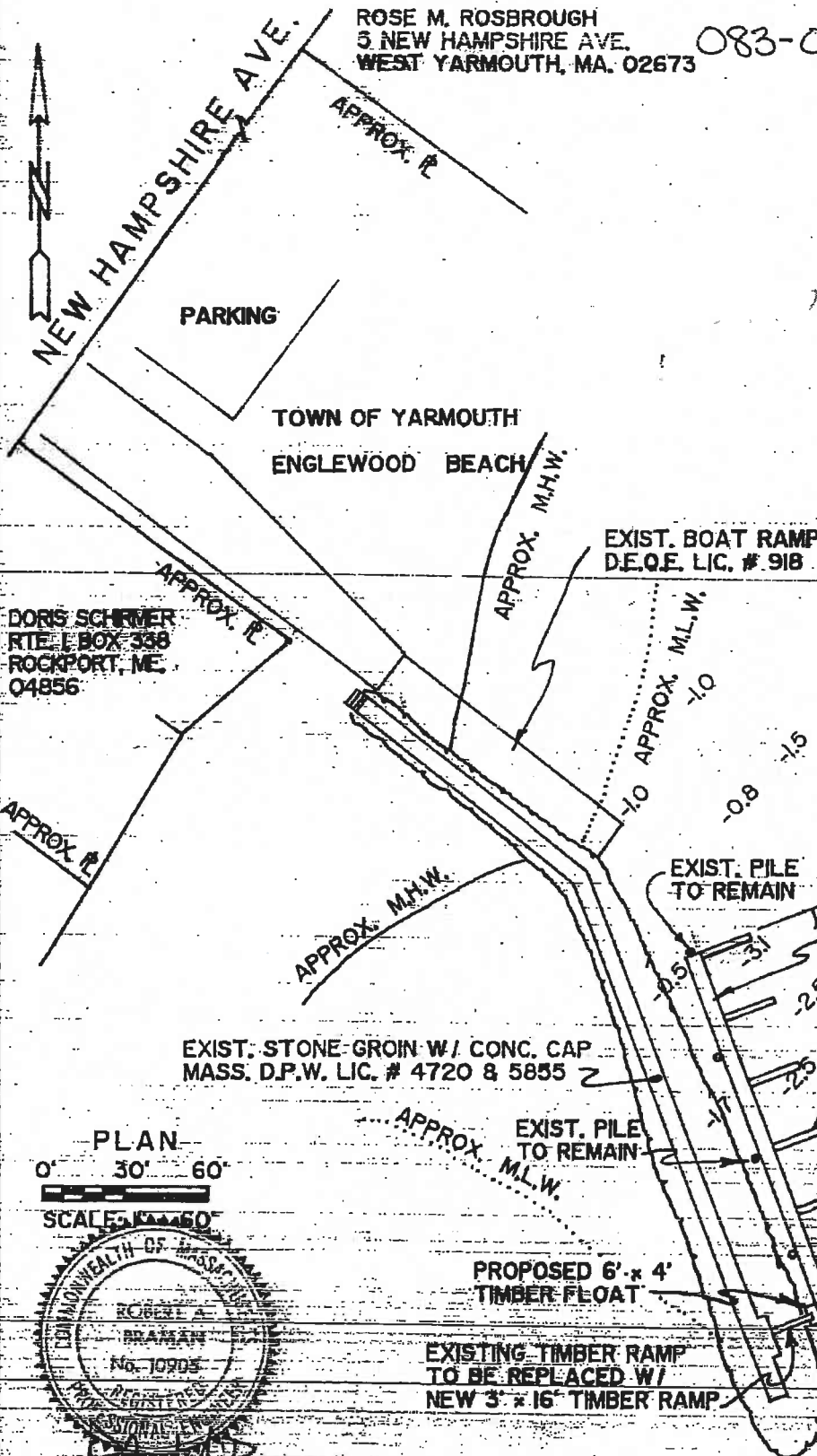
SHEET 2 OF 2

LICENSE PLAN NO. 918

Approved by Department of Environmental Quality Engineering
September 29, 1982

ROSE M. ROSBROUGH
3 NEW HAMPSHIRE AVE.
WEST YARMOUTH, MA. 02673

083-016-000-059-100



NOTES:

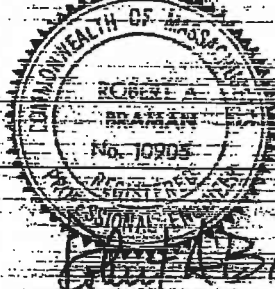
ELEVATIONS SHOWN ARE IN FEET AND TENTHS ABOVE THE PLANE OF MEAN LOW WATER MINUS FIGURES REPRESENT ELEVATION BELOW THAT SAME PLANE.

TIMBER PILES TO BE 30' LONG & CCA TREATED @ 2 LBS. / CU.FT. ALL PILES TO BE DRIVEN. TOP ELEV. TO BE 12.0 M.L.W.

TIMBER FOR FLOATS TO BE CCA TREATED @ 1.0 LBS./CU.

SEE SHEET 2 FOR EXISTING FLOAT LAYOUT, TO BE REMOVED.

PLAN
0' 30' 60'
SCALE 1" = 60'



PLAN ACCOMPANYING PETITION OF
TOWN OF YARMOUTH
TO CONSTRUCT & MAINTAIN TIMBER
FLOATS, RAMP & PILES
LEWIS BAY

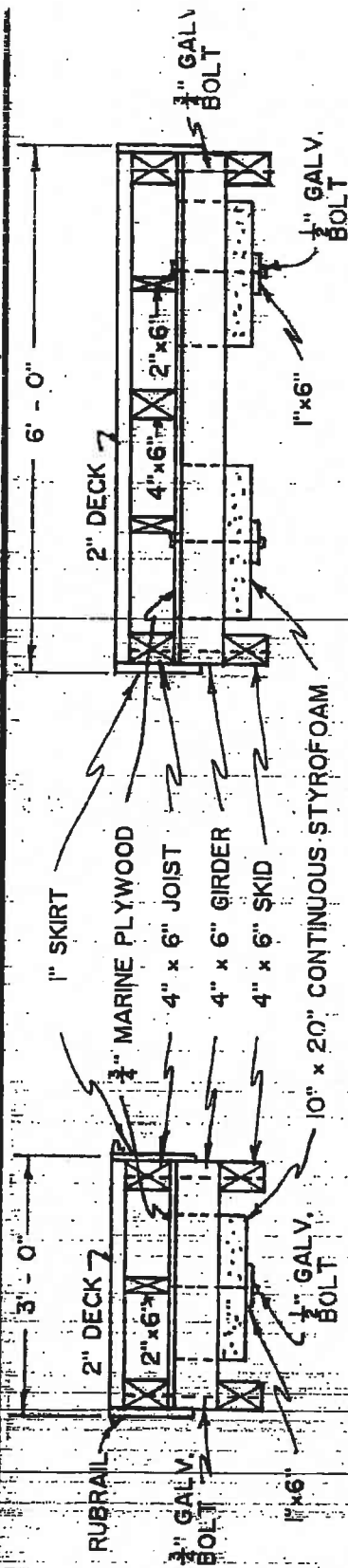
YARMOUTH, BARNSTABLE COUNTY, MA.
DECEMBER 24, 1991 SHEET 1 OF 2.
BRAMAN ENGINEERING COMPANY, LTD.
CIVIL ENGINEERS AND SURVEYORS
550 MAIN ST. BLYTHBURGH BAY, MA.

LICENSE PLAN NO. 2972

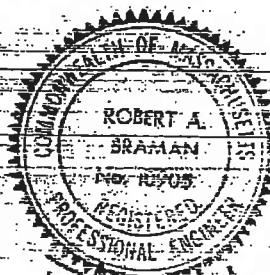
Approved by Department of Environmental Protection
of Massachusetts

[Signature] COMMISSIONER
[Signature] DIRECTOR
[Signature] SECTION CHIEF

083-016-000-059-100



TIMBER FLOAT SECTIONS.



Robert A. Braman

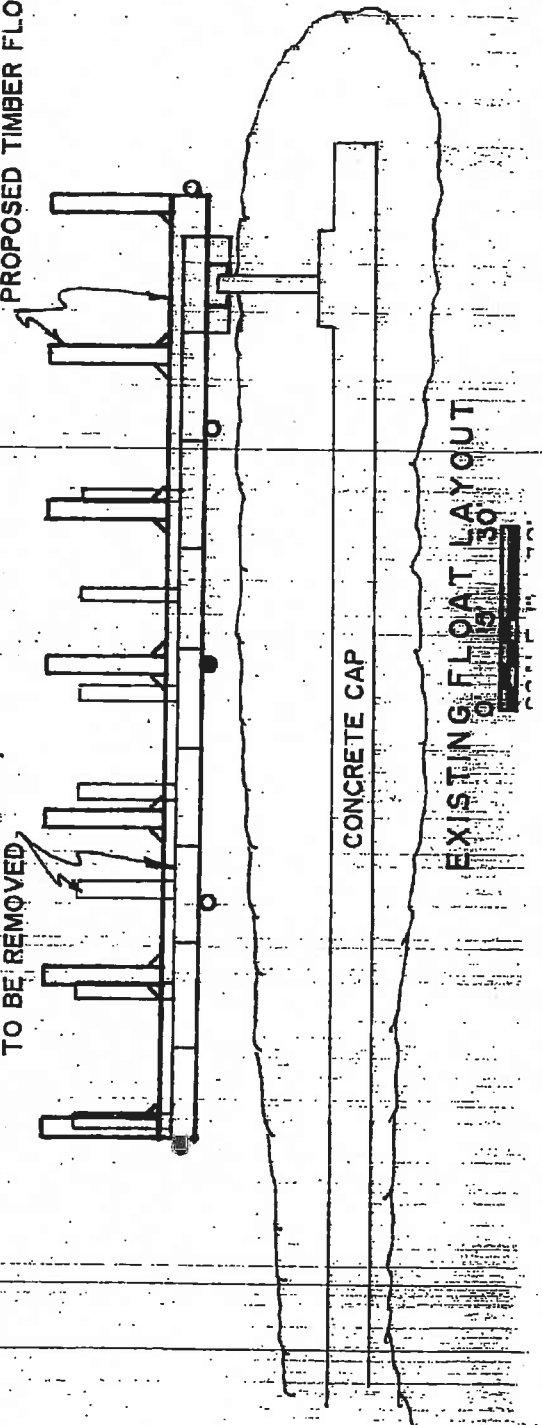
LICENSE PLAN NO. 2972

Approved by Department of Environmental Protection

Date: APR 24 1992

EXIST. TIMBER FLOATS,
TO BE REMOVED.

PROPOSED TIMBER FLOAT SYSTEM



ADD. INFO.

NOTES

083-019-000-006-100

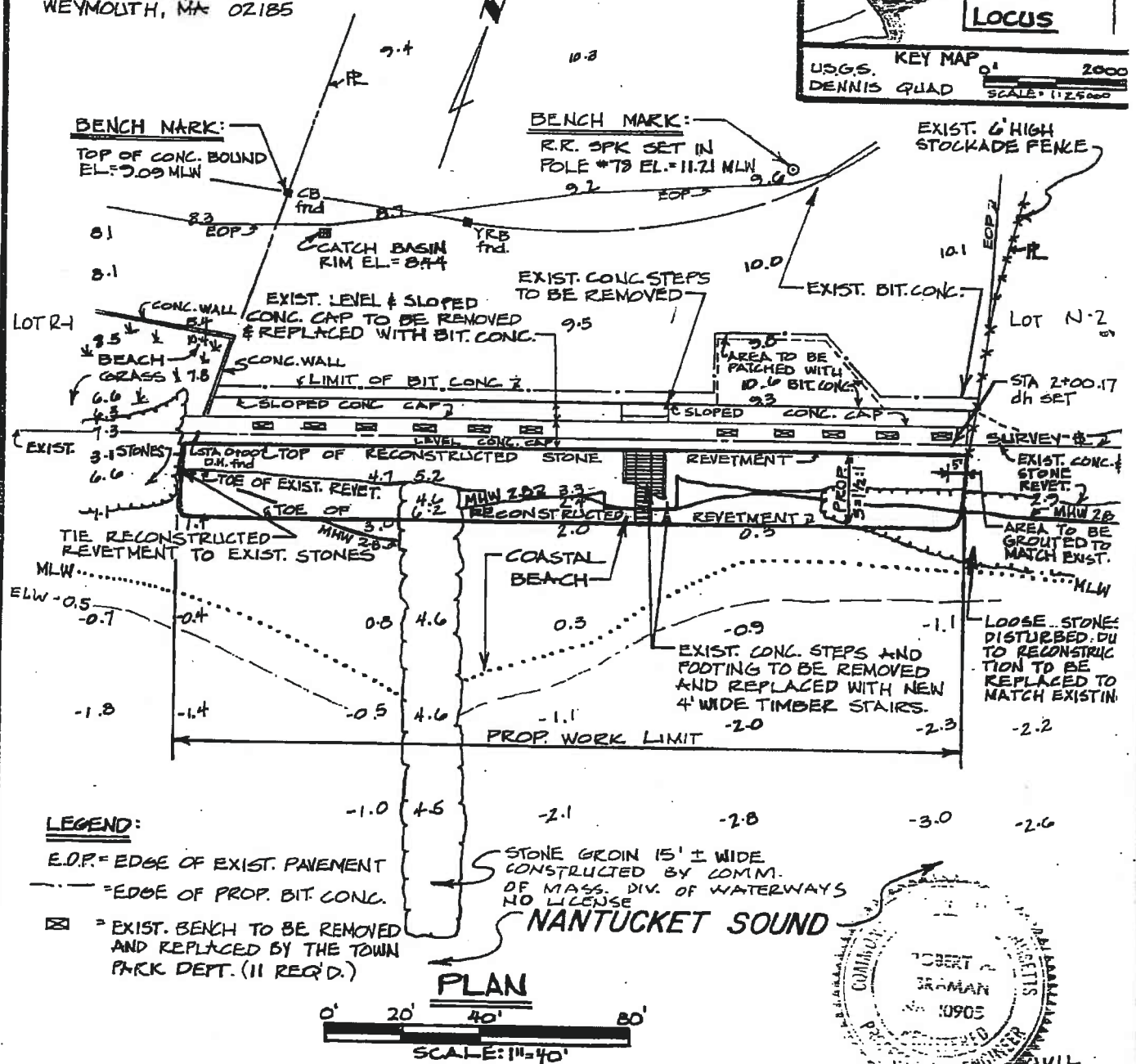
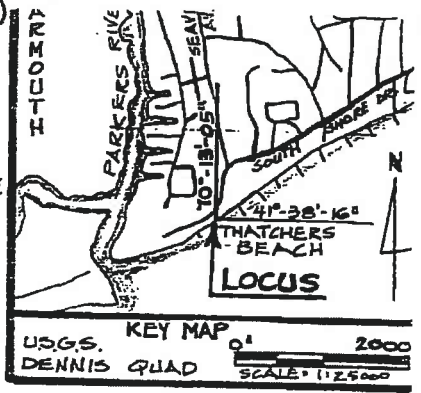
LOT N-2
DANIEL E. MURPHY ET. UX.
HELEN A. MURPHY
4 TALBOT ROAD
BRAintree, MA 02184

1- ELEVATIONS ARE IN FEET AND TENTHS
ABOVE THE PLANE OF MEAN LOW WATER.
MINUS FIGURES REPRESENT ELEVATIONS
BELOW THAT SAME PLANE.

LOT 2-1
ELIZABETH A. JOYCE
ET. UX.
135 ACADEMY AVE.
WEYMOUTH, MA 02185

2- ALL TIMBER TO BE CCA TREATED @ 10 PSF.

3- FLOOD ZONE A12 ELEV. 12 MSL



PLAN ACCOMPANYING PETITION OF
DEPARTMENT OF PUBLIC WORKS
TOWN OF YARMOUTH
TO RECONSTRUCT STONE REVETMENT IN
NANTUCKET SOUND

YARMOUTH, BARNSTABLE CO., MA

MARCH 18, 1988

SHEET 1 OF 2



BRAMAN ENGINEERING COMPANY LTD
CIVIL ENGINEERS & SURVEYORS
258 MAIN ST., BUZZARDS BAY, MA

LICENSE PLAN NO. 2051
Approved by Department of Environmental Protection
of Massachusetts

Robert A. Braman
Chief of Staff

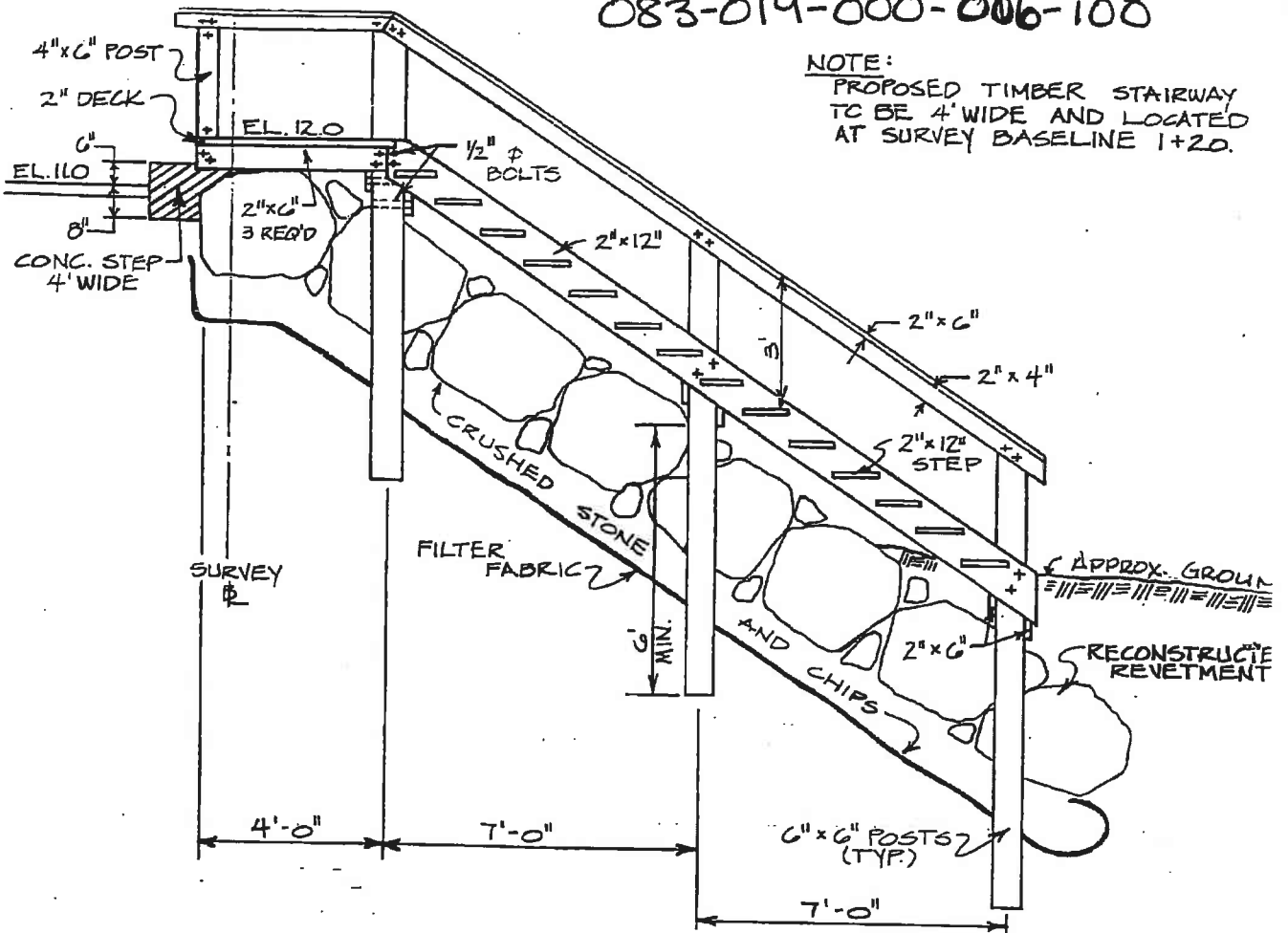
COMMISSIONER
DIVISION DIRECTOR
SECTION CHIEF
DATE

SEP 15 1988

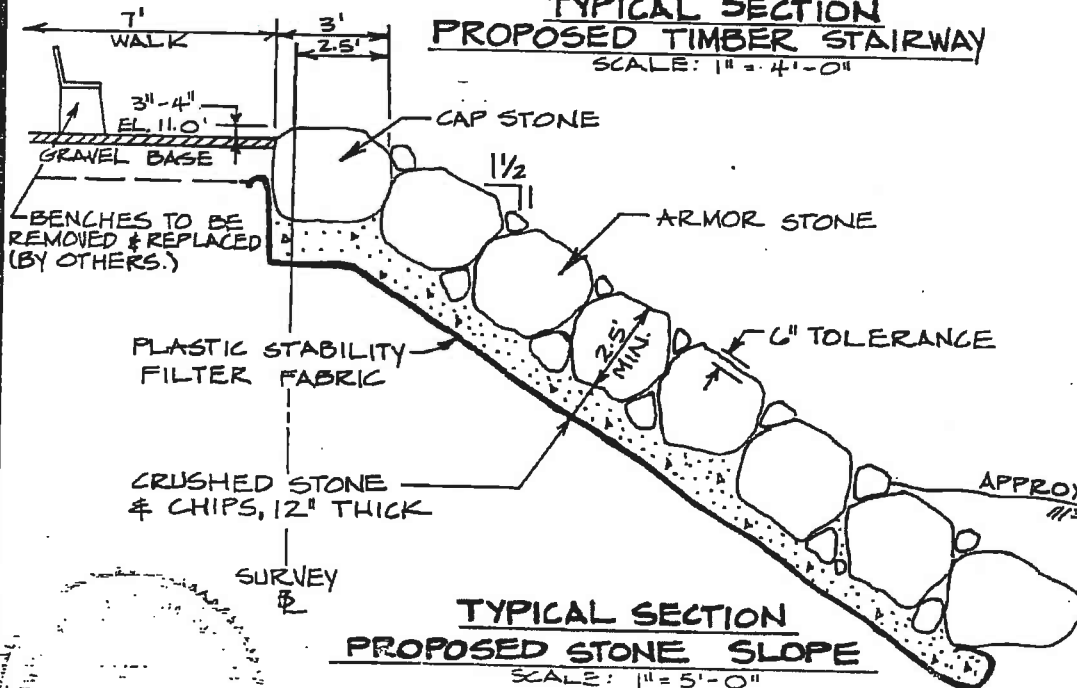
083-019-000-006-100

NOTE:

PROPOSED TIMBER STAIRWAY
TO BE 4' WIDE AND LOCATED
AT SURVEY BASELINE 1+20.



**TYPICAL SECTION
PROPOSED TIMBER STAIRWAY**
SCALE: 1" = 4'-0"



**TYPICAL SECTION
PROPOSED STONE SLOPE**
SCALE: 1" = 5'-0"

HTL EL. 34
MHW EL. 2.8

APPROX. GROUND
MLW EL. 0.0

TOE
STONE EL. -2.0

MATERIAL TO BE PLACED BELOW M.H.W

ARMOR STONE 173 c.y.
CRUSHED STONE 80 c.y.

LICENSE PLAN NO. 2051

DESIGNED BY Department of Environmental Protection

DATE: **SEP 15 1989**

MARCH 18 1992

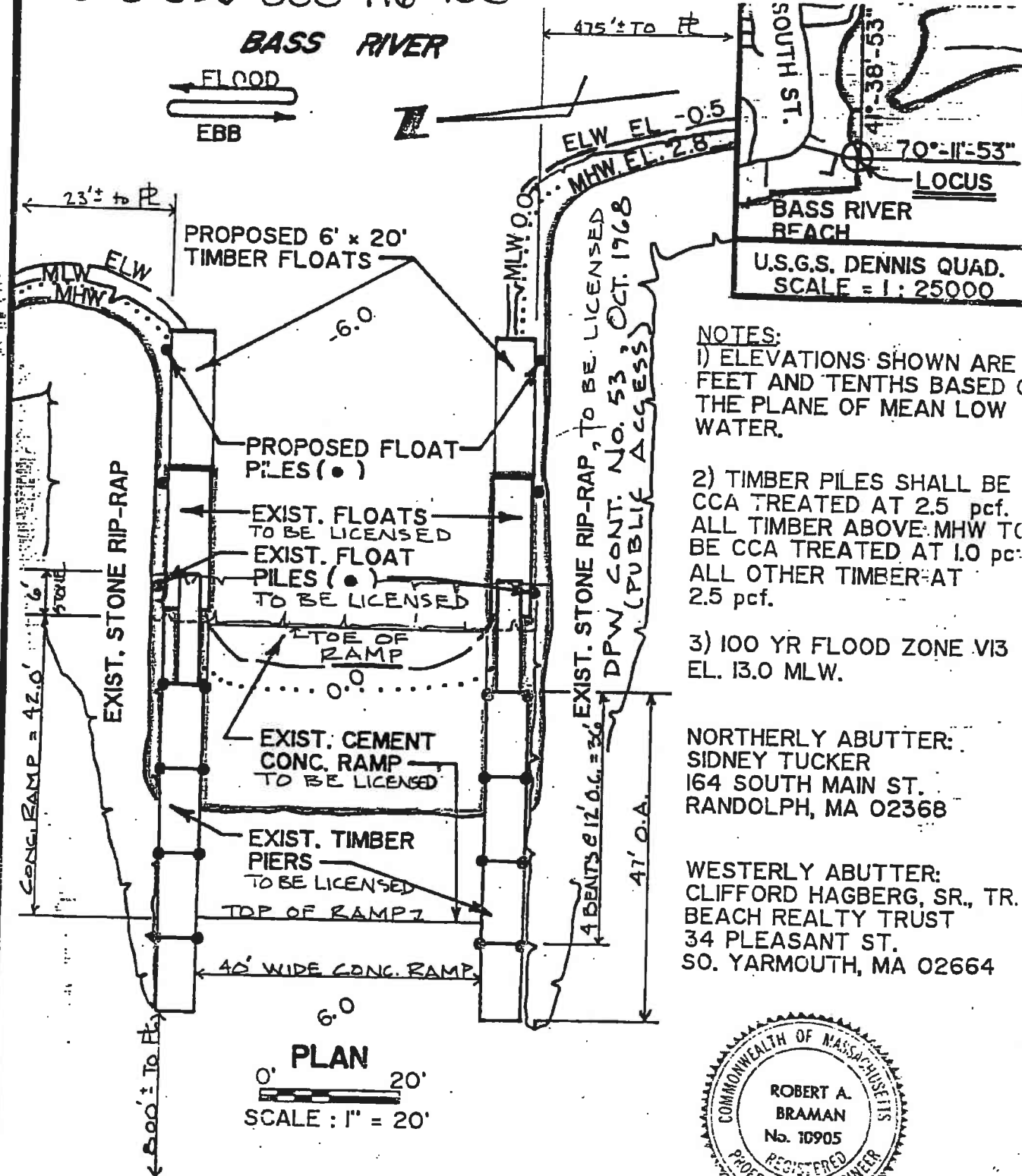
DPW - TOWN OF YARMOUTH

SHEET 2 OF 4

Robert A. Brannan

083-026-000-116-100

BASS RIVER



U.S.G.S. DENNIS QUAD.
SCALE = 1 : 25000

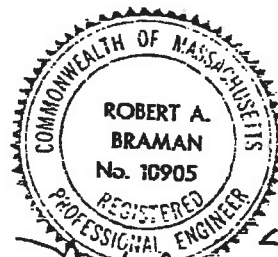
NOTES:
1) ELEVATIONS SHOWN ARE FEET AND TENTHS BASED ON THE PLANE OF MEAN LOW WATER.

2) TIMBER PILES SHALL BE CCA TREATED AT 2.5 pcf. ALL TIMBER ABOVE MHW TO BE CCA TREATED AT 1.0 pcf. ALL OTHER TIMBER AT 2.5 pcf.

3) 100 YR FLOOD ZONE V13 EL. 13.0 MLW.

NORTHERLY ABUTTER:
SIDNEY TUCKER
164 SOUTH MAIN ST.
RANDOLPH, MA 02368

WESTERLY ABUTTER:
CLIFFORD HAGBERG, SR., TR.
BEACH REALTY TRUST
34 PLEASANT ST.
SO. YARMOUTH, MA 02664



Robert A. Braman

PLAN ACCOMPANYING PETITION OF THE
TOWN OF YARMOUTH TO PLACE
FLOATS AND FLOAT PILES
AND LICENSE EXISTING FACILITY IN
BASS RIVER

YARMOUTH, BARNSTABLE CO., MA

OCTOBER 30, 1989
MARCH 10, 1989

SHEET 1 OF 2

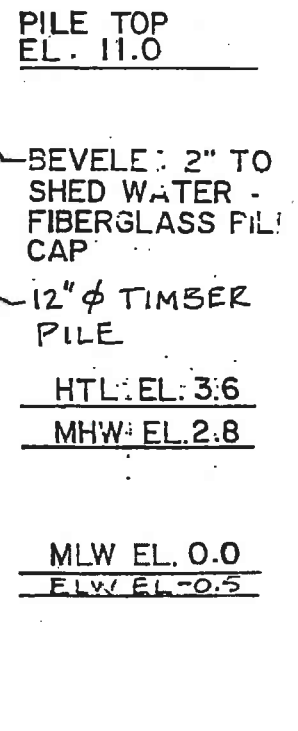
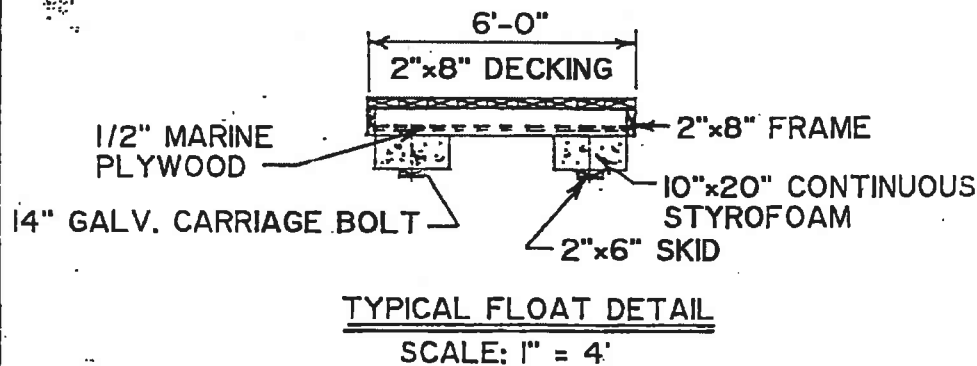
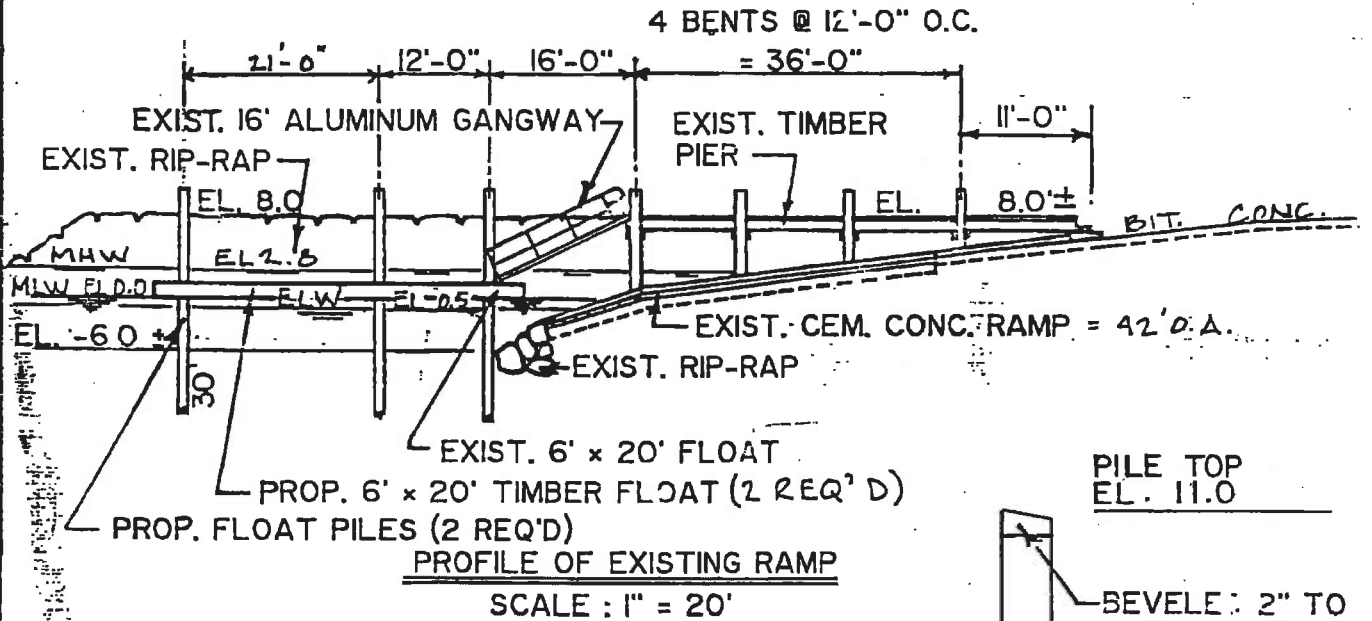
BRAMAN ENGINEERING COMPANY LTD
CIVIL ENGINEERS & SURVEYORS
258 MAIN STREET, BUZZARDS BAY, MA

LICENSE PLAN NO. 2217

Approved by Department of Environmental Protection
of Massachusetts

[Signature] COMMISSIONER
[Signature] ASST. DIR.
[Signature] SECTION CHIEF
JAN 10 1990 DATE

083-026-000-116-100



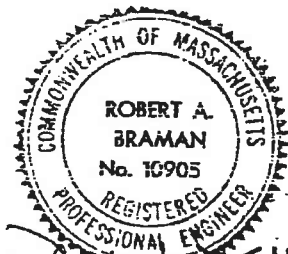
TYPICAL PILE
 SCALE: 1" = 4'

LICENSE PLAN NO. 2217

Approved by Department of Environmental Protection
 Date: JAN 10 1990

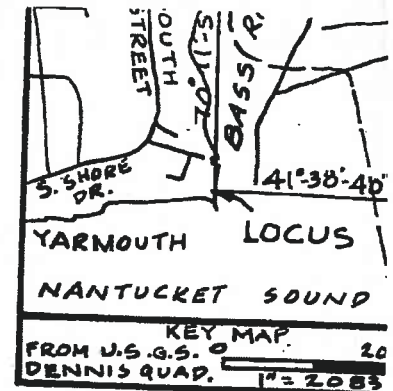
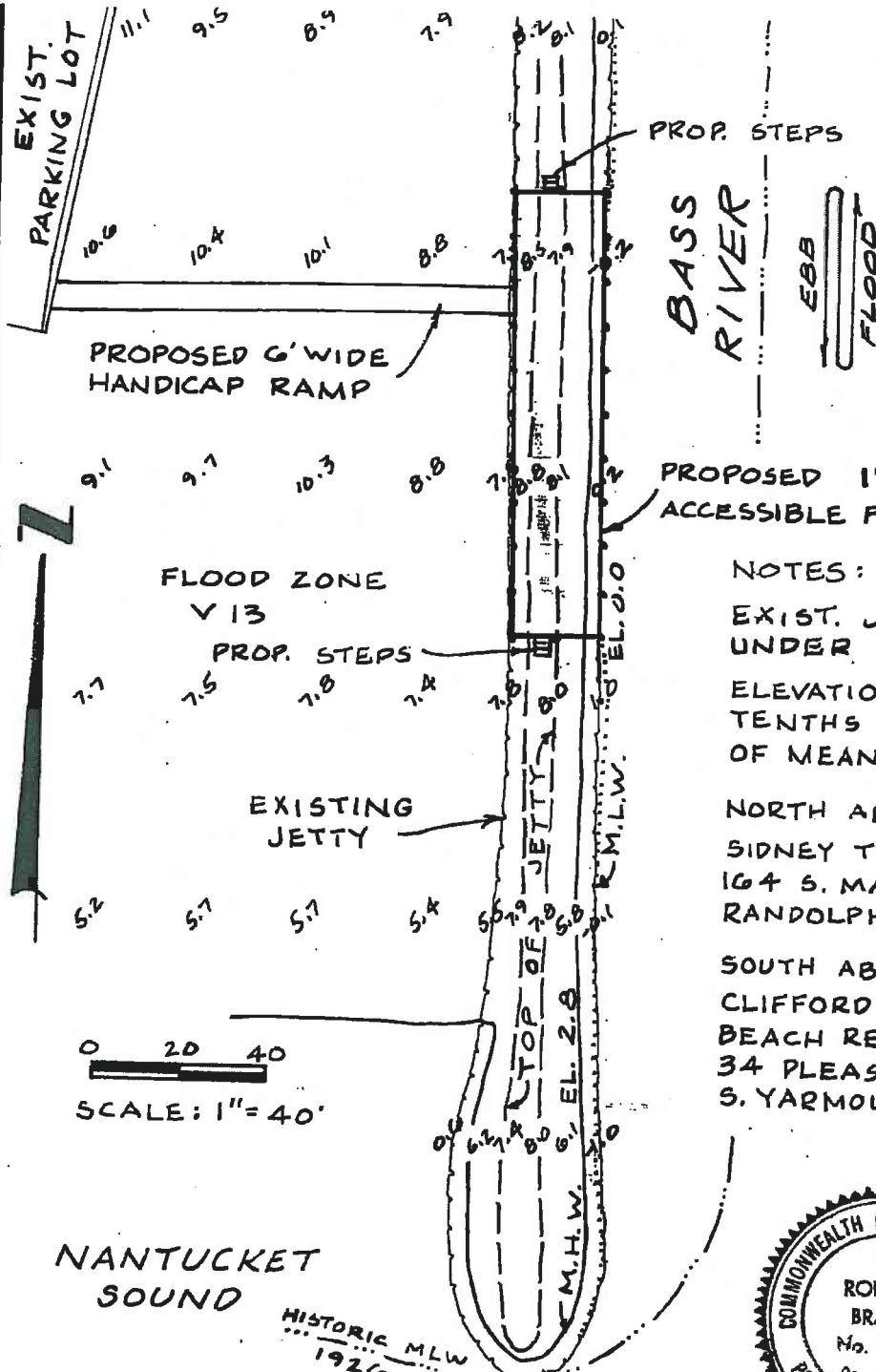
TOWN OF YARMOUTH

OCTOBER 30, 1989
 MARCH 10, 1989



CIVIL
 Robert A. Braman

SHEET 2 OF 2

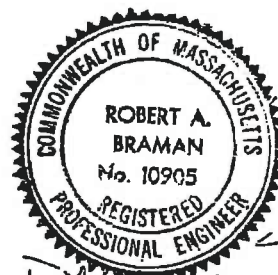


NOTES:

EXIST. JETTY CONSTRUCTED UNDER PPW CONTRACT NO. 212
 ELEVATIONS ARE IN FEET AND TENTHS BASED ON THE PLANE OF MEAN LOW WATER.

NORTH ABUTTER
 SIDNEY TUCKER
 164 S. MAIN ST.
 RANDOLPH, MA. 02368

SOUTH ABUTTER
 CLIFFORD HAGBERG SR., T.
 BEACH REALTY TRUST
 34 PLEASANT ST.
 S. YARMOUTH, MA. 0266



Robert A. Braman

083-026-000-116-100
 083-026-000-116-200

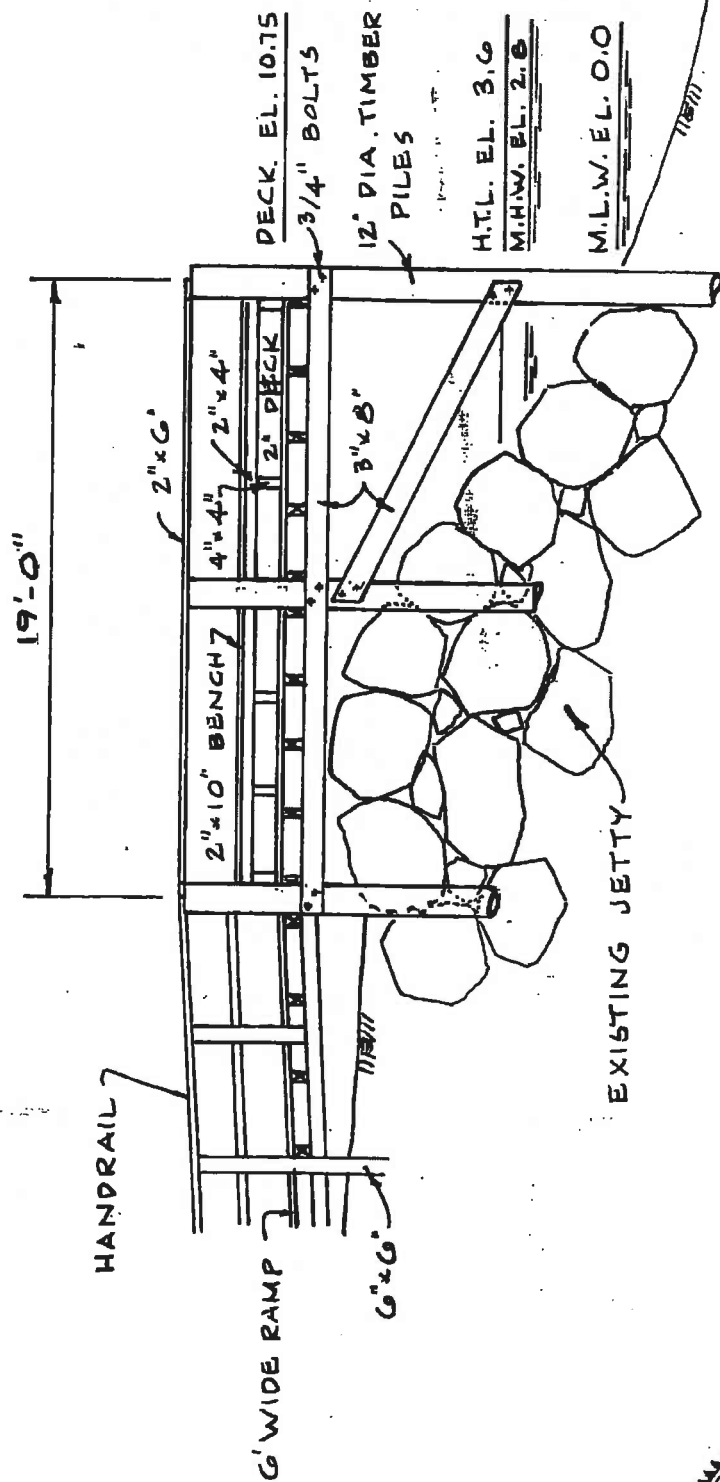
PLAN ACCOMPANYING PETITION OF
TOWN OF YARMOUTH
 TO CONSTRUCT A HANDICAPPED
 ACCESSIBLE FISHING PLATFORM IN
BASS RIVER
YARMOUTH, MA.

MARCH 6, 1991 SHEET 1 OF 2
 BRAMAN ENGINEERING COMPANY, LTD.
 CIVIL ENGINEERS & SURVEYORS
 258 MAIN ST., BUZZARDS BAY, MASS.

LICENSE PLAN NO. 2706
 Approved by Department of Environmental Protection
 of Massachusetts

[Signature] **COMMISSIONER**
[Signature] **DIVISION DIRECTOR**
[Signature] **SECTION CHIEF**

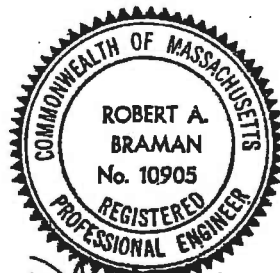
AUG 03 1991



TYPICAL SECTION
SCALE: 1" = 6'

NOTE:

TIMBER PILES TO BE CCA TREATED AT 2.5 LBS. / CU. FT. ALL OTHER TIMBER TO BE CCA TREATED AT 1.0 LBS. / CU. FT. ALL HARDWARE TO BE GALVANIZED.



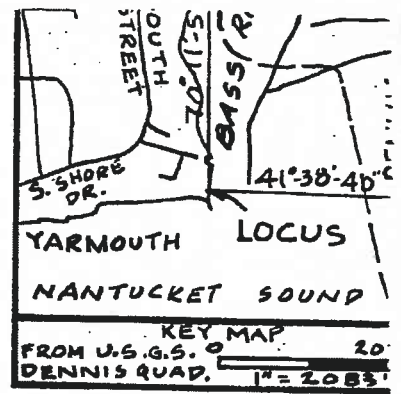
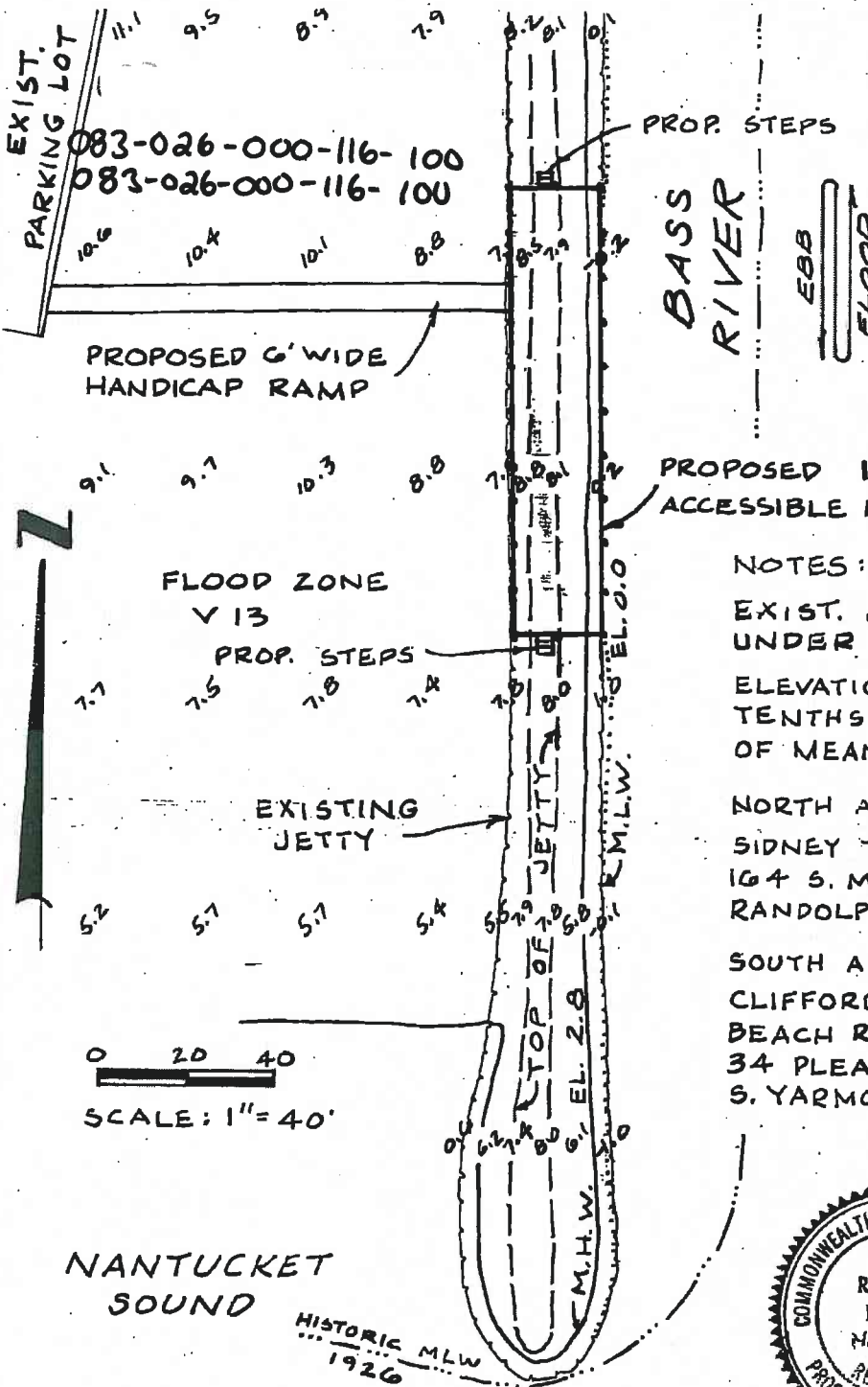
Robert A. Braman

LICENSE PLAN NO. 2706

Approved by Department of Environmental Protection

DATE AUG 08 1991

083-026-000-116-100
083-026-000-116-200

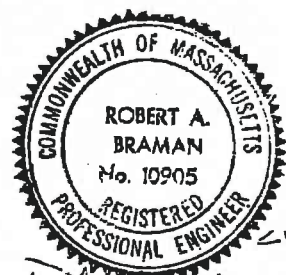


NOTES:

EXIST. JETTY CONSTRUCTED UNDER DPW CONTRACT NO. 212
ELEVATIONS ARE IN FEET AND TENTHS BASED ON THE PLANE OF MEAN LOW WATER.

NORTH ABUTTER
SIDNEY TUCKER
164 S. MAIN ST.
RANDOLPH, MA. 02368

SOUTH ABUTTER
CLIFFORD HAGBERG SR., TR.
BEACH REALTY TRUST
34 PLEASANT ST.
S. YARMOUTH, MA. 02664



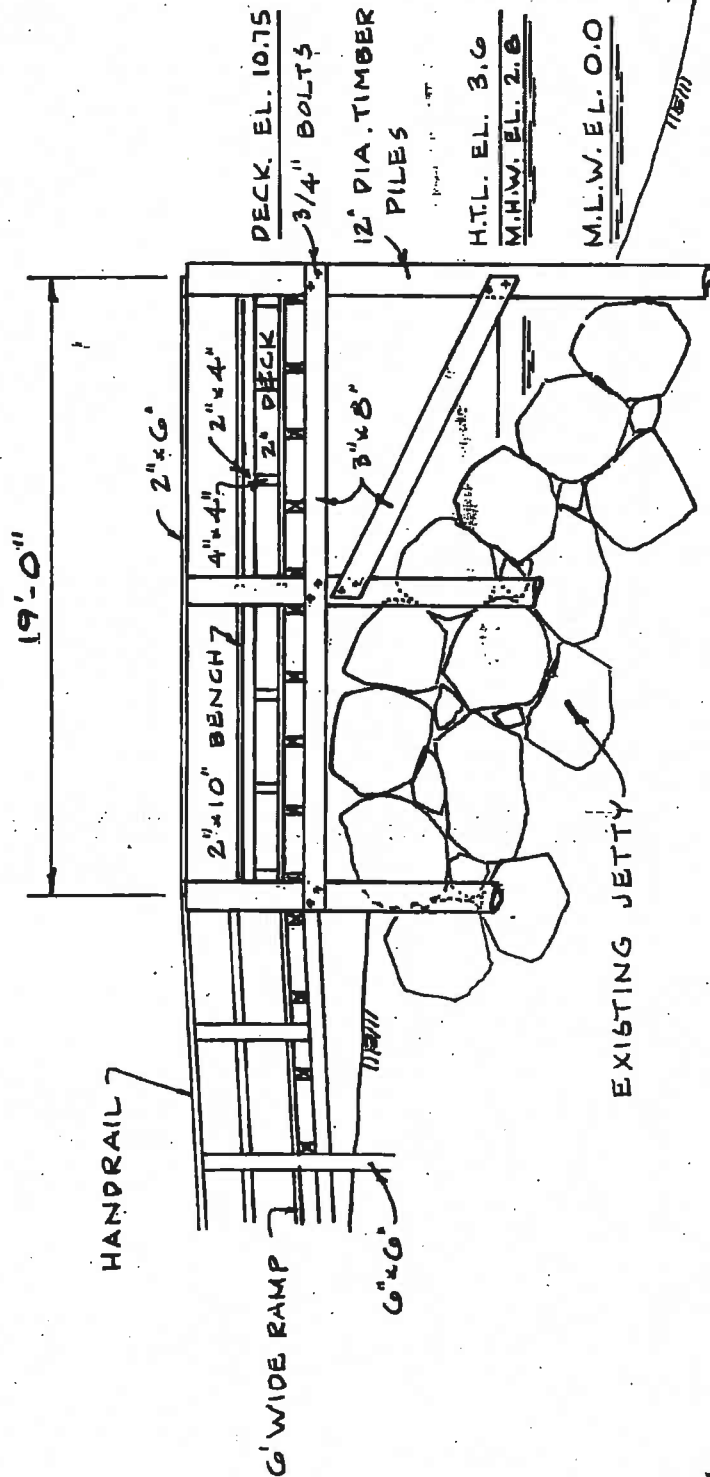
Robert A. Braman

PLAN ACCOMPANYING PETITION OF
TOWN OF YARMOUTH
TO CONSTRUCT A HANDICAPPED
ACCESSIBLE FISHING PLATFORM IN
BASS RIVER
YARMOUTH, MA.

MARCH 6, 1991 SHEET 1 OF 2
BRAMAN ENGINEERING COMPANY, LTD.
CIVIL ENGINEERS & SURVEYORS
258 MAIN ST., BUZZARDS BAY, MASS.

LICENSE PLAN NO. 2706
Approved by Department of Environmental Protection
of Massachusetts
[Signature] COMMISSIONER
[Signature] DIVISION DIRECTOR
[Signature] SECTION CHIEF
MIG 08 1991

083-026-000-116-100
083-026-000-116-200



TYPICAL SECTION
SCALE: 1" = 6'

NOTE:
TIMBER PILES TO BE CCA TREATED AT 2.5 LBS. / CU. FT. ALL OTHER TIMBER TO BE CCA TREATED AT 1.0 LBS. / CU. FT. ALL HARDWARE TO BE GALVANIZED.

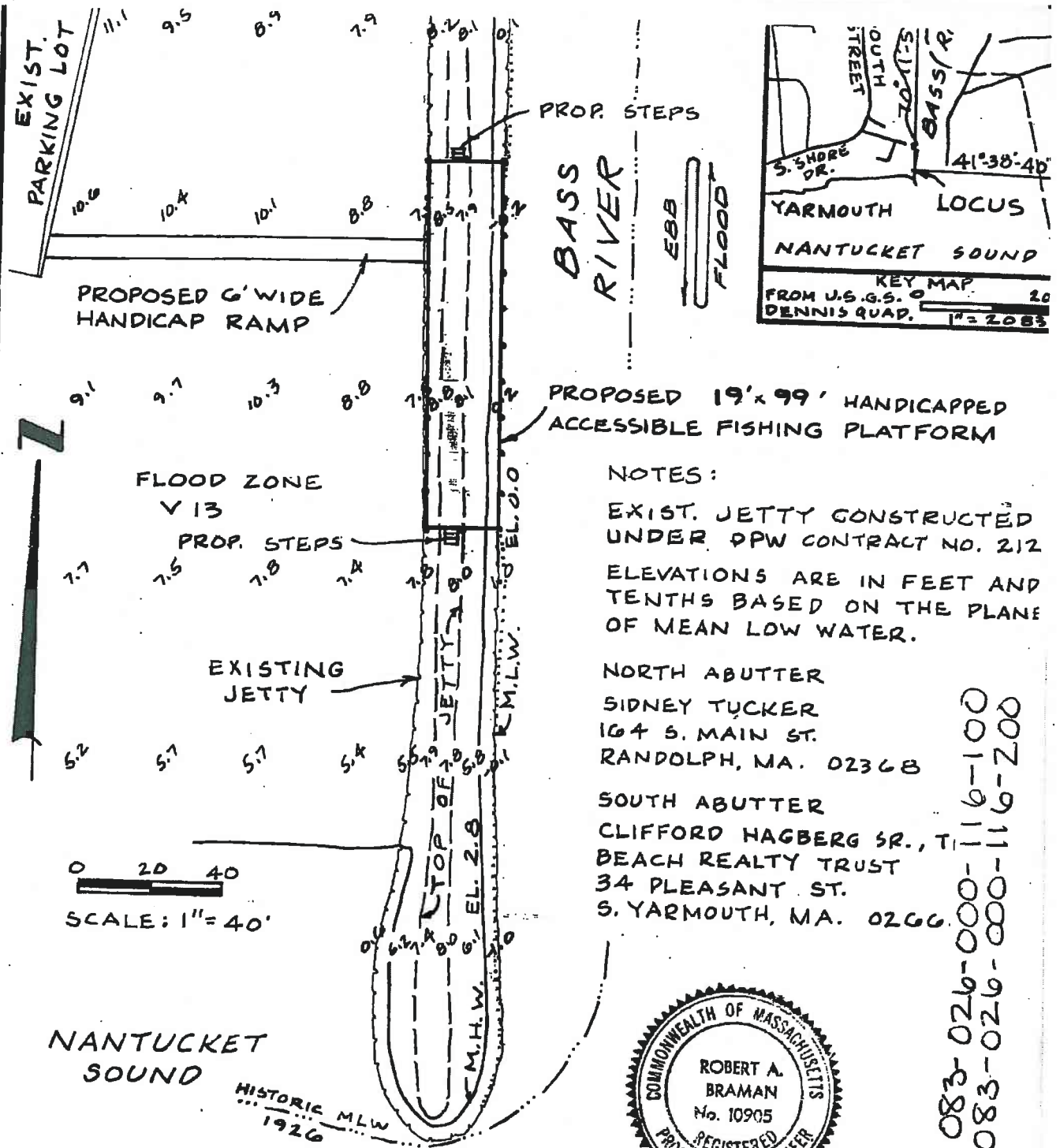


Robert A. Braman

LICENSE PLAN NO. 2706

Approved by Department of Environmental Protection

Date: **AUG 08 1991**

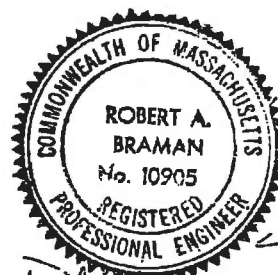


NOTES:

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NORTH ABUTTER
SIDNEY TUCKER
164 S. MAIN ST.
RANDOLPH, MA. 02368

SOUTH ABUTTER
CLIFFORD HAGBERG SR., T.
BEACH REALTY TRUST
34 PLEASANT ST.
S. YARMOUTH, MA. 02660



Robert A. Braman

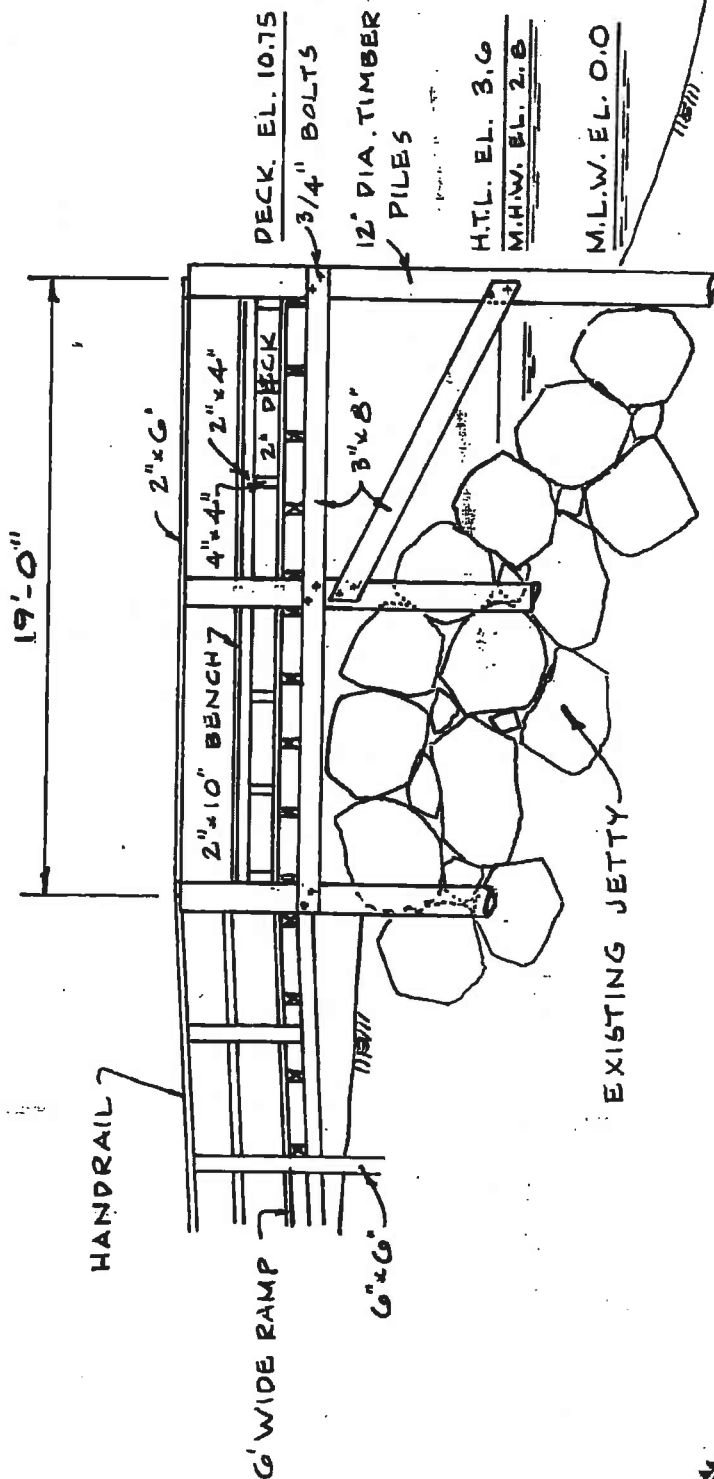
083-026-000-116-100
083-026-000-116-200

PLAN ACCOMPANYING PETITION OF
TOWN OF YARMOUTH
TO CONSTRUCT A HANDICAPPED
ACCESSIBLE FISHING PLATFORM IN
BASS RIVER

YARMOUTH, MA.

MARCH 6, 1991 SHEET 1 OF 2
BRAMAN ENGINEERING COMPANY, LTD.
CIVIL ENGINEERS & SURVEYORS
258 MAIN ST., BUZZARDS BAY, MASS.

LICENSE PLAN NO. 2706
Approved by Department of Environmental Protection
of Massachusetts
[Signature] COMMISSIONER
[Signature] DIVISION DIRECTOR
[Signature] SECTION CHIEF
AUG 03 1991

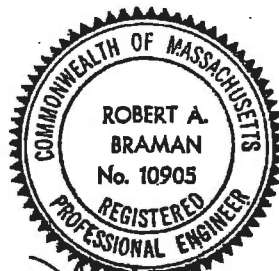


TYPICAL SECTION

SCALE: 1" = 6'

NOTE:

TIMBER PILES TO BE CCA TREATED AT 2.5 LBS. / CU.FT. ALL OTHER TIMBER TO BE CCA TREATED AT 1.0 LBS. / CU.FT. ALL HARDWARE TO BE GALVANIZED.



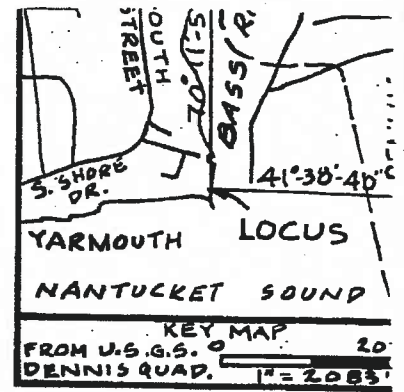
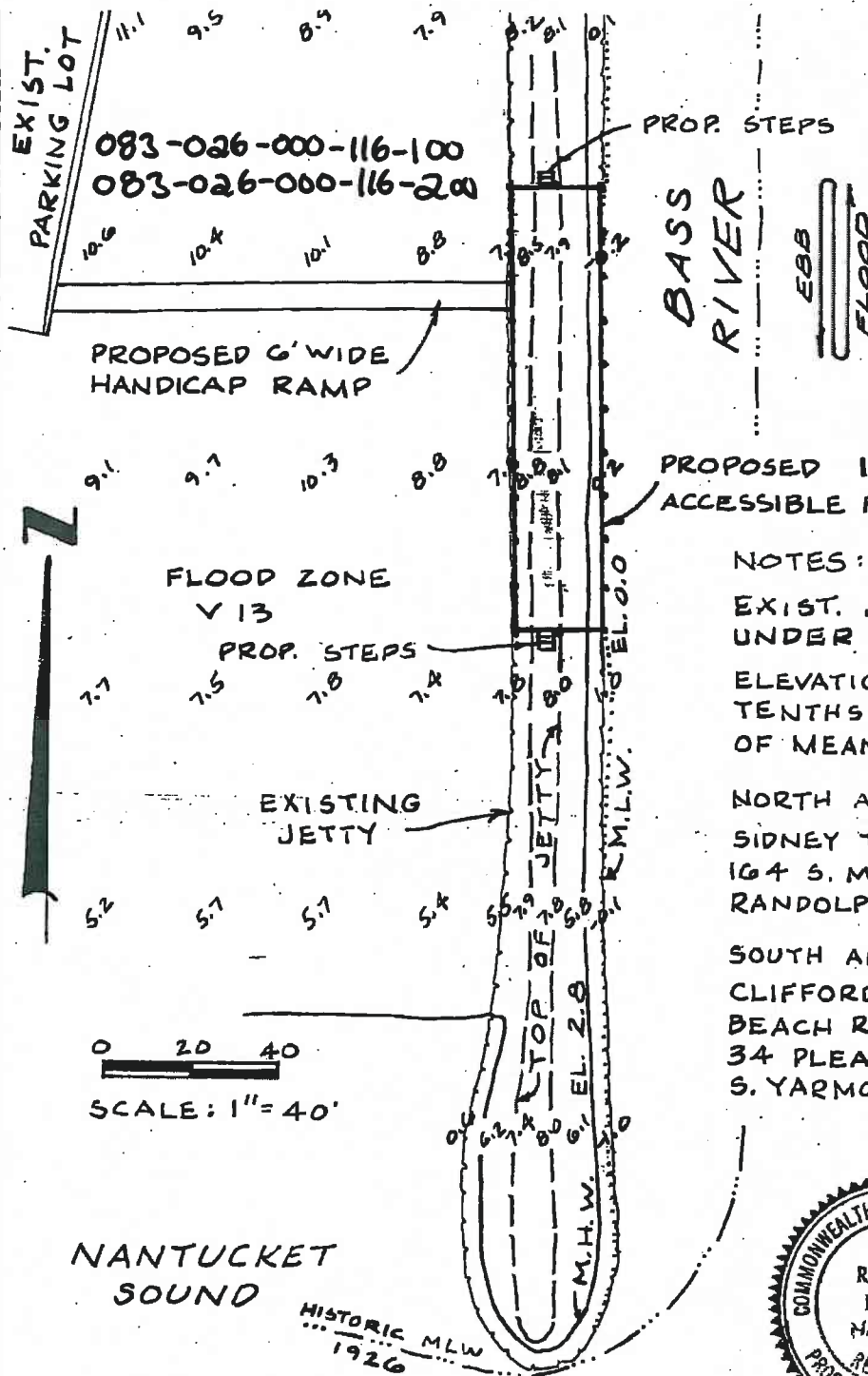
Robert A. Braman

LICENSE PLAN NO. 2706

Approved by Department of Environmental Protection

Date: **AUG 08 1991**

083-026-000-116-100
083-026-000-116-200

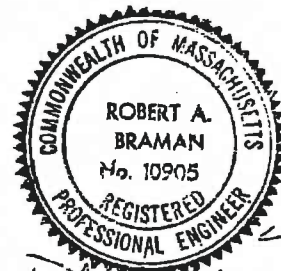


NOTES:

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ELEVATIONS ARE IN FEET AND TENTHS BASED ON THE PLANE OF MEAN LOW WATER.

NORTH ABUTTER
SIDNEY TUCKER
164 S. MAIN ST.
RANDOLPH, MA. 02368

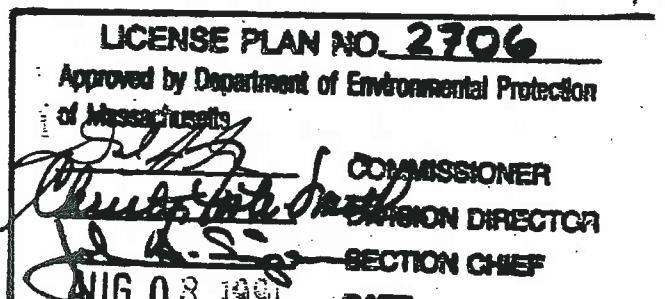
SOUTH ABUTTER
CLIFFORD HAGBERG SR., TR.
BEACH REALTY TRUST
34 PLEASANT ST.
S. YARMOUTH, MA. 02664



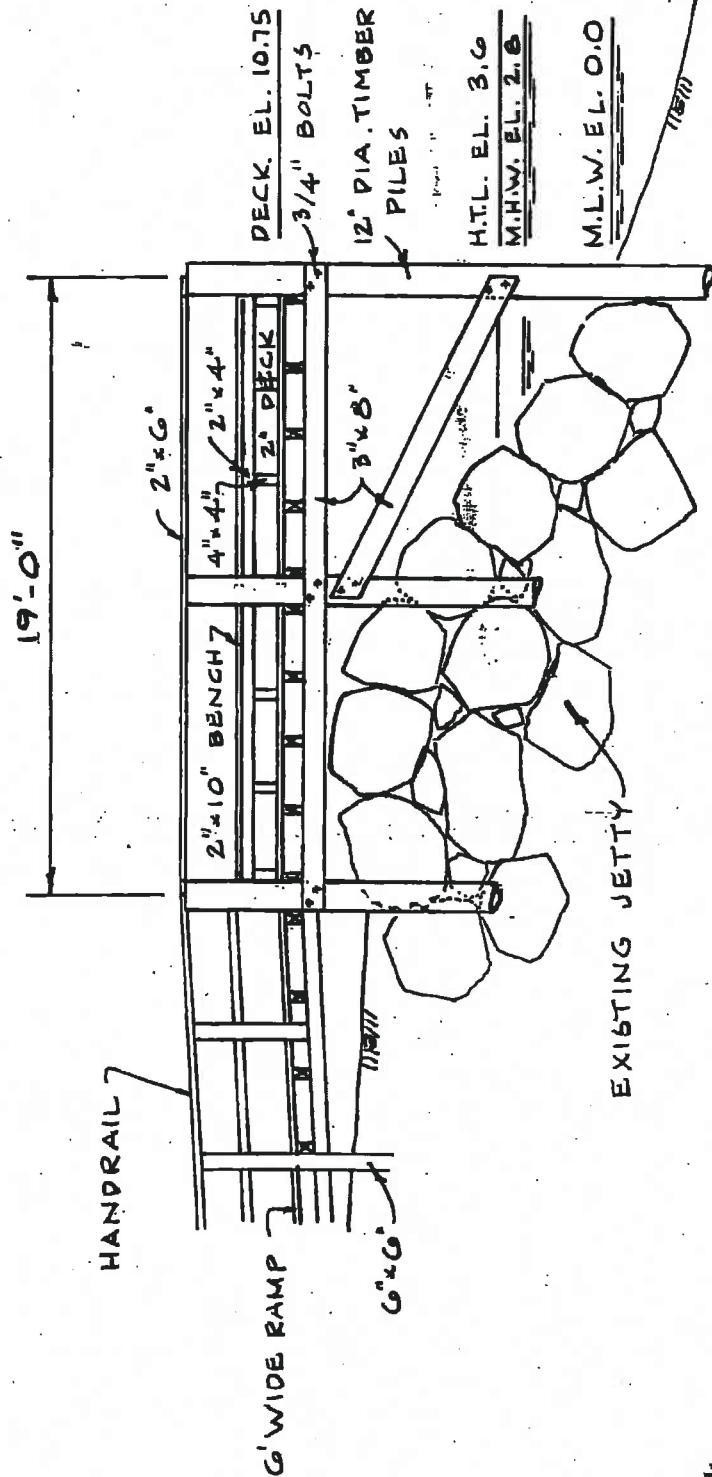
Robert A. Braman

PLAN ACCOMPANYING PETITION OF
TOWN OF YARMOUTH
TO CONSTRUCT A HANDICAPPED
ACCESSIBLE FISHING PLATFORM IN
BASS RIVER
YARMOUTH, MA.

MARCH 6, 1991 SHEET 1 OF 2
BRAMAN ENGINEERING COMPANY, LTD.
CIVIL ENGINEERS & SURVEYORS
258 MAIN ST., BUZZARDS BAY, MASS.

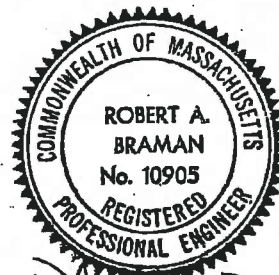


083-026-000-116-100
083-026-000-116-200



TYPICAL SECTION
SCALE: 1" = 6'

NOTE:
TIMBER PILES TO BE CCA TREATED AT
2.5 LBS. / CU. FT. ALL OTHER TIMBER
TO BE CCA TREATED AT 1.0 LBS. / CU. FT.
ALL HARDWARE TO BE GALVANIZED.



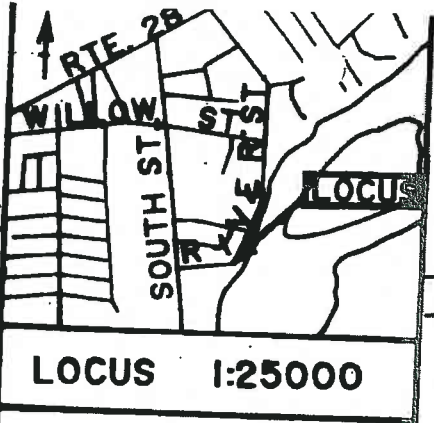
Robert A. Braman

LICENSE PLAN NO. 2706

Approved by Department of Environmental Protection

Date: **AUG 08 1991**

083-035-000-001-100



LOCUS 1:25000

LEGEND

- 10-10 EXIST. CONTOUR
- 10.0 EXIST. ELEV.
- 10.0 PROPOSED ELEV.
- MHW MEAN HIGH WTR.
- MLW MEAN LOW WTR.
- *** WOODEN FENCE
- CONCRETE BND.
- ⊕ HYDRANT
- W— EDGE OF PAVE.
- G— WATER MAIN
- G— GAS MAIN
- ⊙ UTILITY POLE

SCALE 1" = 20'



DATE 8/6/93



EXISTING RETAINING WALL TO BE REPLACED (PROPOSED CHANGES SEE SHEET 2)

TIE IN TO EXIS WALL TO REMA

EXISTING PIER LIC

AREA OF PROPOS REVETMENT (PROPOSED CHANG ON SHEETS 2 & 3)

EXISTING STAIRS TO BE REPLACED (PROPOSED CHANGES SEE SHEET 3)

TIE IN TO EXISTING WALL (TO REMAIN)

RIVER ST. 40' WIDE
PUBLIC WAY



MLW BASS DIVID

PLAN TO ACCOMPANY PETITION OF
TOWN OF YARMOUTH
TO CONSTRUCT AND MAINTAIN
A STONE REVETMENT
IN
BASS RIVER
SOUTH YARMOUTH, MASS
TOWN OF YARMOUTH ENGINEERING
1146 ROUTE 28



SHEET 1 OF 3

LICENSE PLAN NO. 3760

Approved by Department of Environmental Protection
of Massachusetts

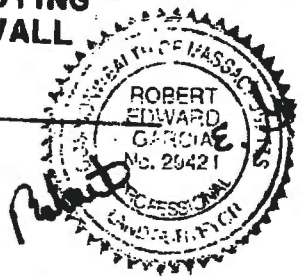
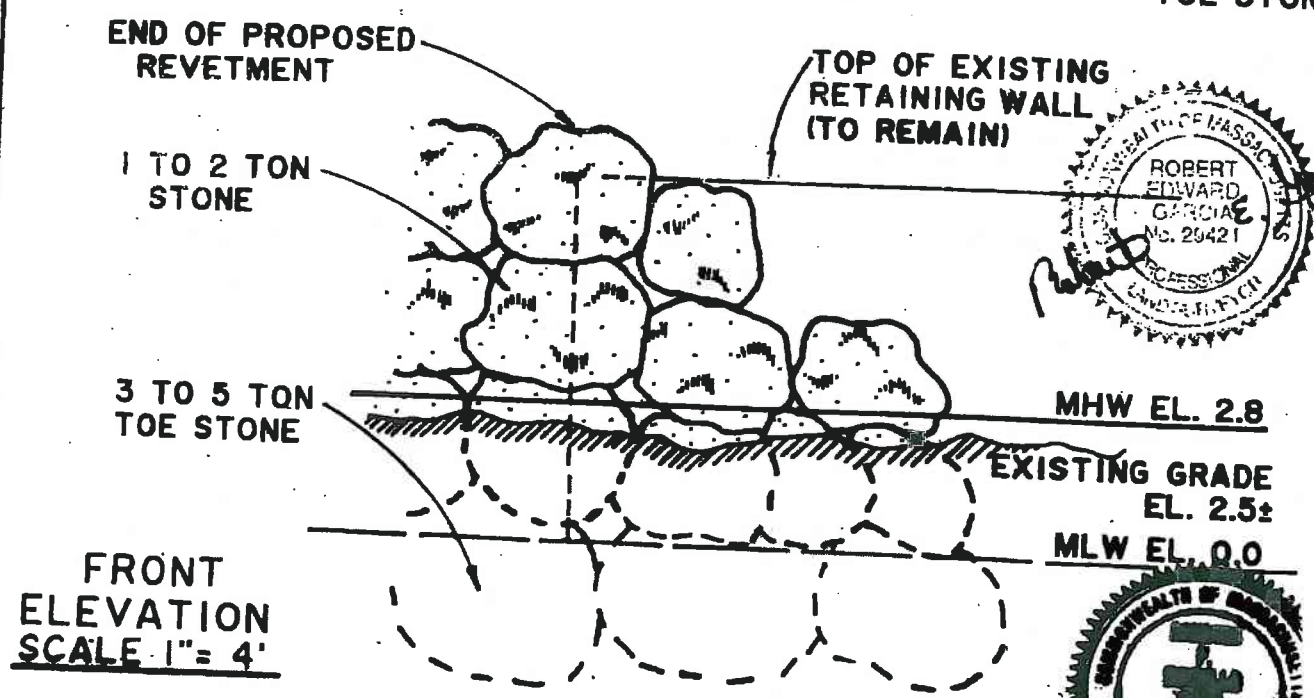
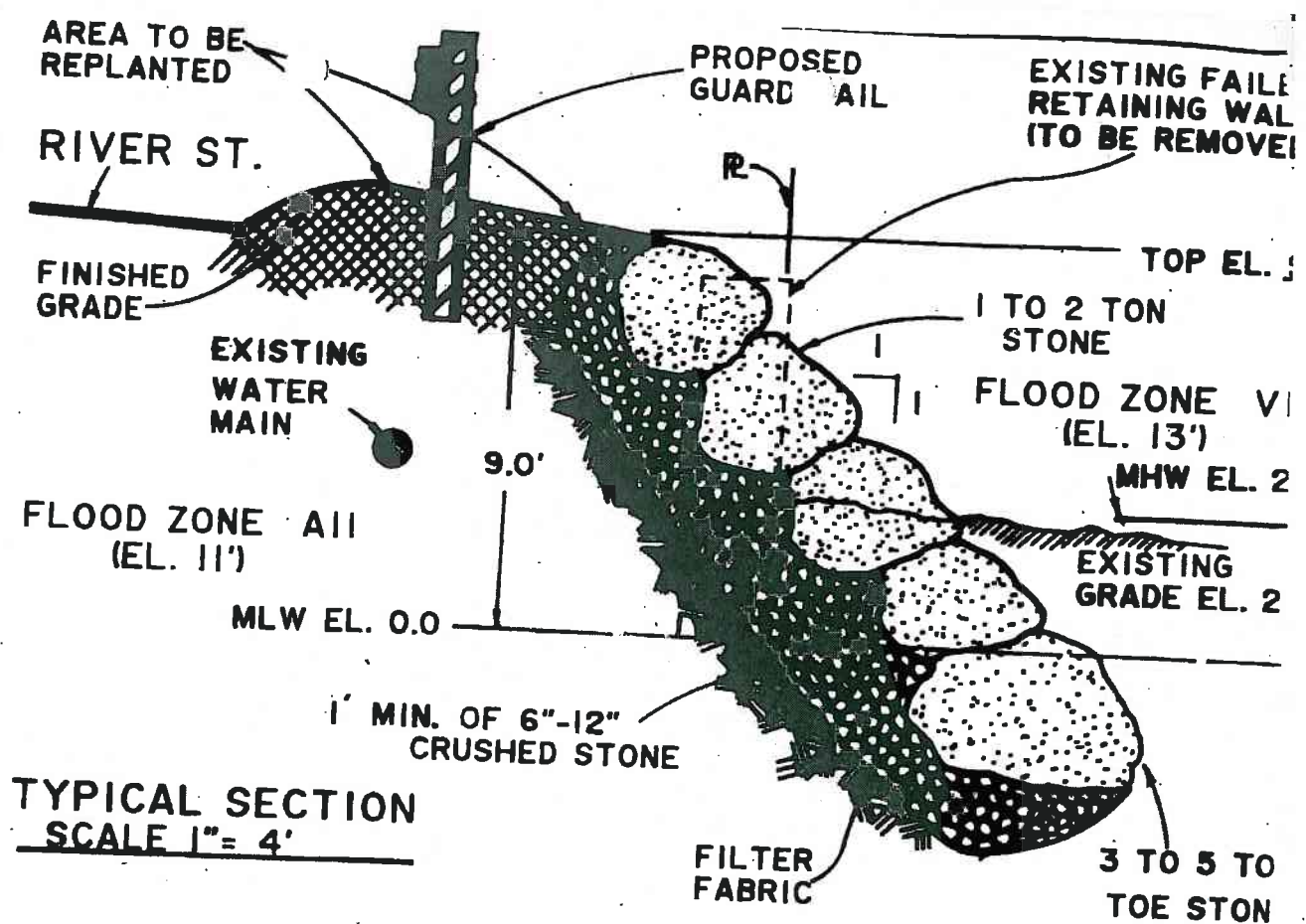
Thomas R. Puzos
Paul J. D. [Signature]
[Signature]

COMMISSIONER
DIVISION DIRECTOR
SECTION CHIEF

APR 15 1994

DATE

083-035-000-001-100



PLAN TO ACCOMPANY PETITION OF
TOWN OF YARMOUTH
TO CONSTRUCT AND MAINTAIN
A STONE REVETMENT
IN
BASS RIVER
SOUTH YARMOUTH, MASS.
TOWN OF YARMOUTH ENGINEERING
1146 ROUTE 28

SHEET 2 OF 3 *Liha*

LICENSE PLAN NO. 3760
Approved by Department of Environmental Protection
Date APR 15 1994

083-035-000-001-100

PROPOSED STAIRS
(WOODEN)

CONCRETE
SLAB

FINISHED GRADE

1 TO 2 TON
STONE

CONCRETE
FOUNDATION

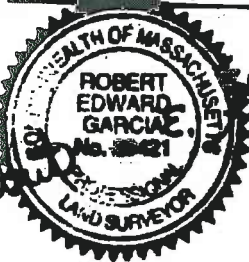
MHW
EL. 2.

EXISTING
GRADE
EL. 2.5

MLW EL. 0.0

3 TO 5 TON
TOE STONE

TYPICAL SECTION
SCALE 1"=4'



PROPOSED STAIRS
(WOODEN)

1 TO 2 TON
STONE

CONCRETE
FOUNDATION

MHW EL. 2.8

EXISTING
GRADE

3 TO 5 TON
TOE STONE

FRONT
ELEVATION
SCALE 1"=4'

PLAN TO ACCOMPANY PETITION OF
TOWN OF YARMOUTH
TO CONSTRUCT AND MAINTAIN
A STONE REVETMENT
IN

BASS RIVER
SOUTH YARMOUTH, MASS.
TOWN OF YARMOUTH ENGINEERING
1146 ROUTE 28
SOUTH YARMOUTH, MASS.

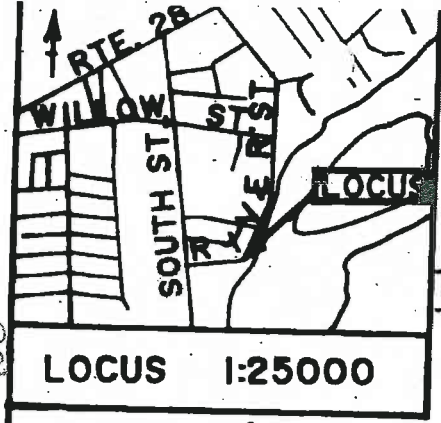
SHEET 3 OF 3

LICENSE PLAN NO. 3760

Approved by Department of Environmental Protection

Date: APR 15 1994

083-035-000-001-100



LEGEND

- 10-10 EXIST. CONTOUR
- 10.0 EXIST. ELEV.
- 10.0 PROPOSED ELEV.
- MHW MEAN HIGH WTR.
- MLW MEAN LOW WTR.
- * * * WOODEN FENCE
- CONCRETE BND.
- HYDRANT
- EDGE OF PAVE.
- W- WATER MAIN
- G- GAS MAIN
- UTILITY POLE

SCALE 1" = 20'



DATE 8/6/93



EXISTING RETAINING WALL TO BE REPLACED (PROPOSED CHANGES SEE SHEET 2)

TIE IN TO EXIST WALL TO REMAIN

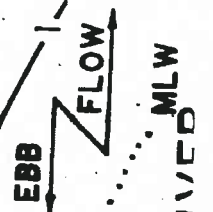
EXISTING PIER LIC

AREA OF PROPOS REVETMENT (PROPOSED CHANGES ON SHEETS 2 & 3)

EXISTING STAIRS TO BE REPLACED (PROPOSED CHANGES SEE SHEET 3)

TIE IN TO EXISTING WALL (TO REMAIN)

RIVER ST. 40' WIDE
PUBLIC WAY



PLAN TO ACCOMPANY PETITION OF
TOWN OF YARMOUTH
TO CONSTRUCT AND MAINTAIN
A STONE REVETMENT
IN

BASS RIVER
SOUTH YARMOUTH, MASS
TOWN OF YARMOUTH ENGINEERING
1146 ROUTE 28

SHEET 1 OF 3

LICENSE PLAN NO. 3760

Approved by Department of Environmental Protection
of Massachusetts

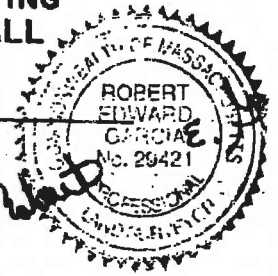
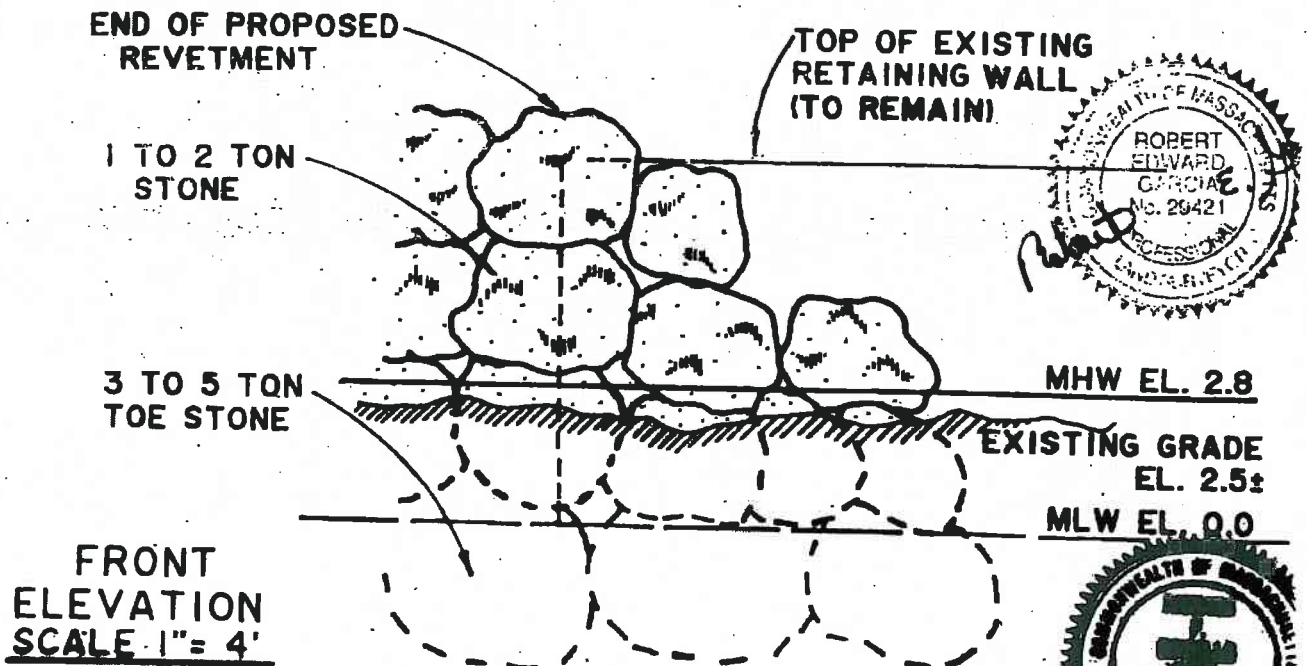
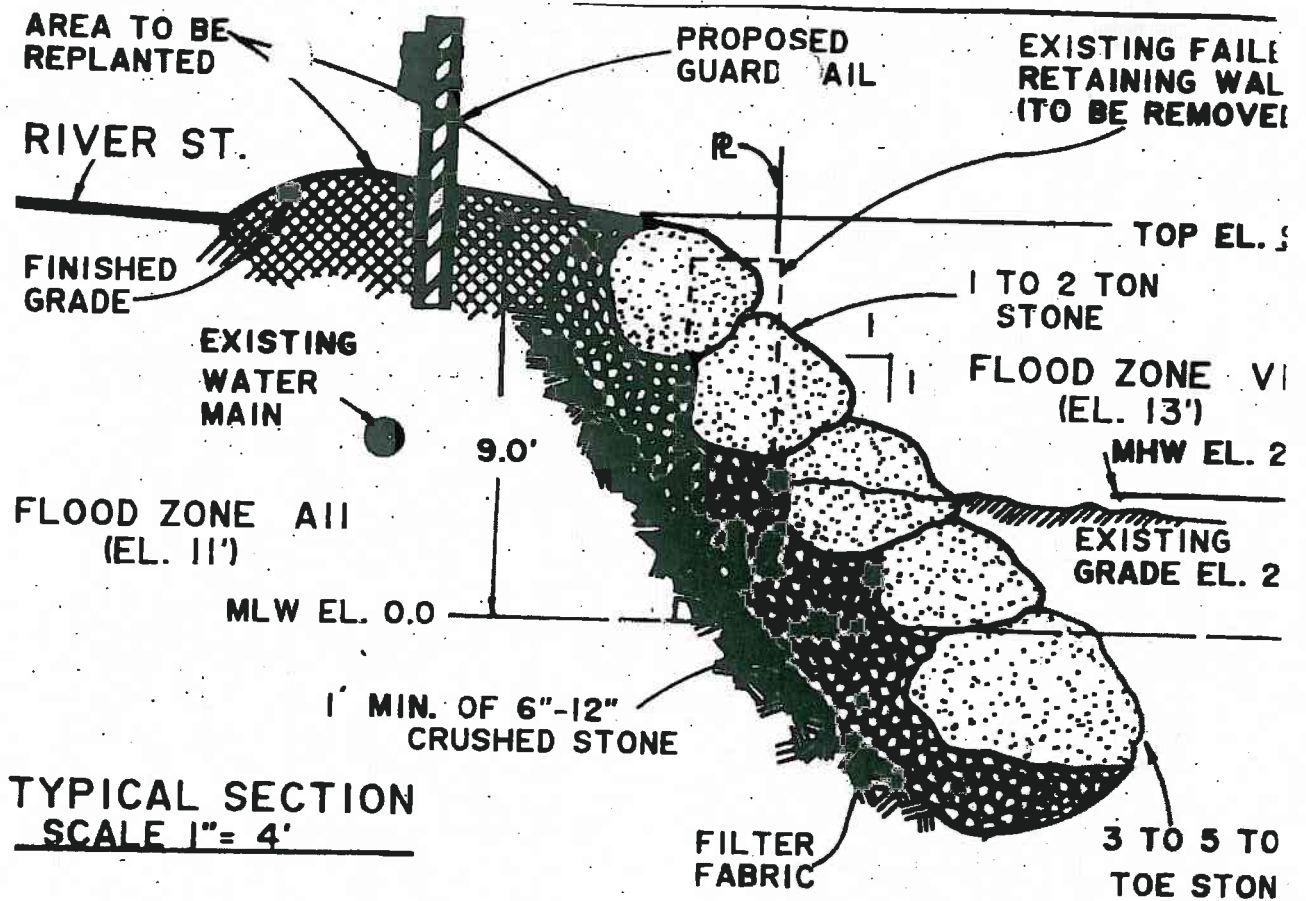
Thomas R. Purcell
Paul J. Dill
James A. Smith

COMMISSIONER
DIVISION DIRECTOR
SECTION CHIEF

APR 15 1994

DATE





PLAN TO ACCOMPANY PETITION OF
TOWN OF YARMOUTH
TO CONSTRUCT AND MAINTAIN
A STONE REVETMENT
IN
BASS RIVER
SOUTH YARMOUTH, MASS.
TOWN OF YARMOUTH ENGINEERING
1145 ROUTE 28

SHEET 2 OF 3

LICENSE PLAN NO. 3760
Approved by Department of Environmental Protection
Date APR 15 1994

PROPOSED STAIRS
(WOODEN)

CONCRETE
SLAB

FINISHED GRADE

1 TO 2 TON
STONE

CONCRETE
FOUNDATION

MHW
EL. 2.

EXISTING
GRADE
EL. 2.5

MLW EL. 0.0

3 TO 5 TON
TOE STONE

TYPICAL SECTION
SCALE 1"=4'



PROPOSED STAIRS
(WOODEN)

1 TO 2 TON
STONE

CONCRETE
FOUNDATION

MHW EL. 2.8

EXISTING
GRADE

3 TO 5 TON
TOE STONE

FRONT
ELEVATION
SCALE 1"=4'

MLW EL. 0.0

PLAN TO ACCOMPANY PETITION OF
TOWN OF YARMOUTH
TO CONSTRUCT AND MAINTAIN
A STONE REVETMENT
IN

BASS RIVER
SOUTH YARMOUTH, MASS.
TOWN OF YARMOUTH ENGINEERING
1146 ROUTE 28
SOUTH YARMOUTH, MASS

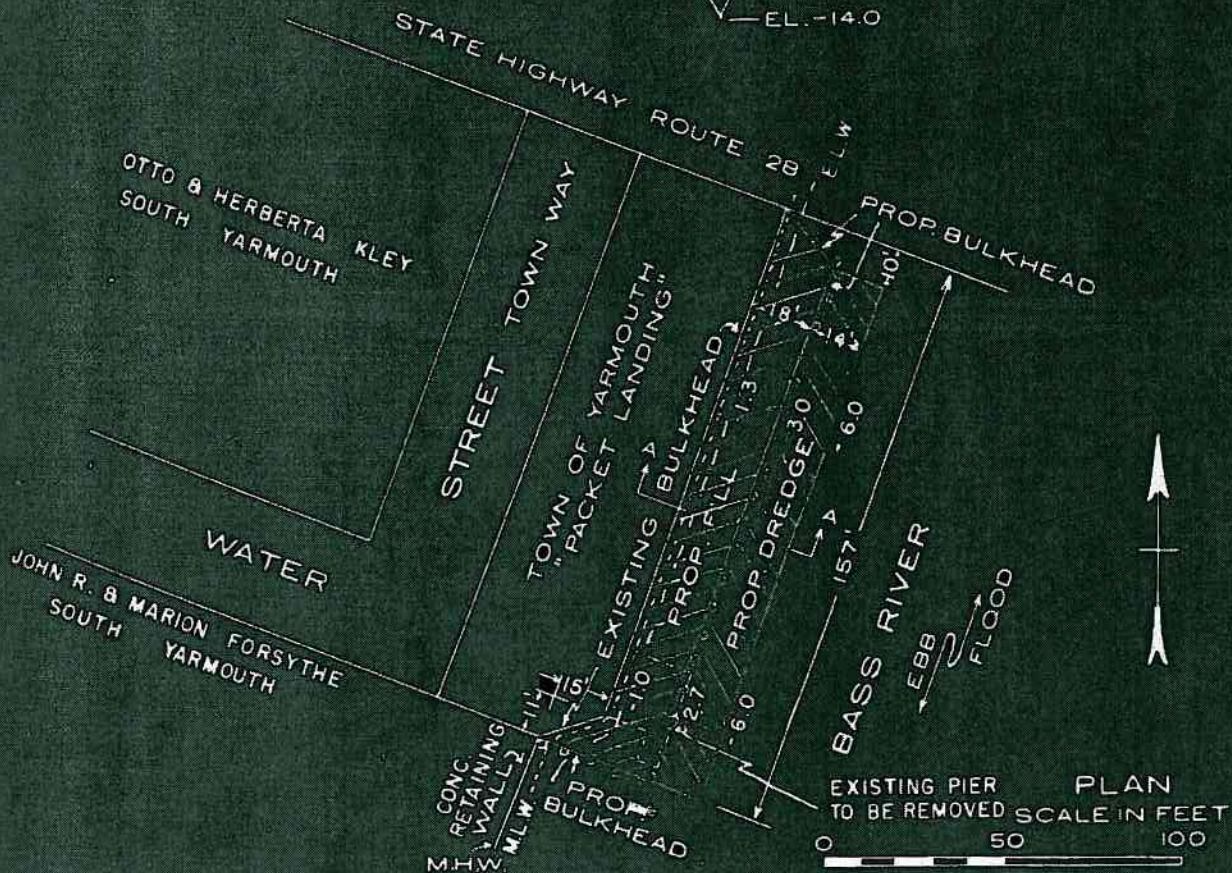
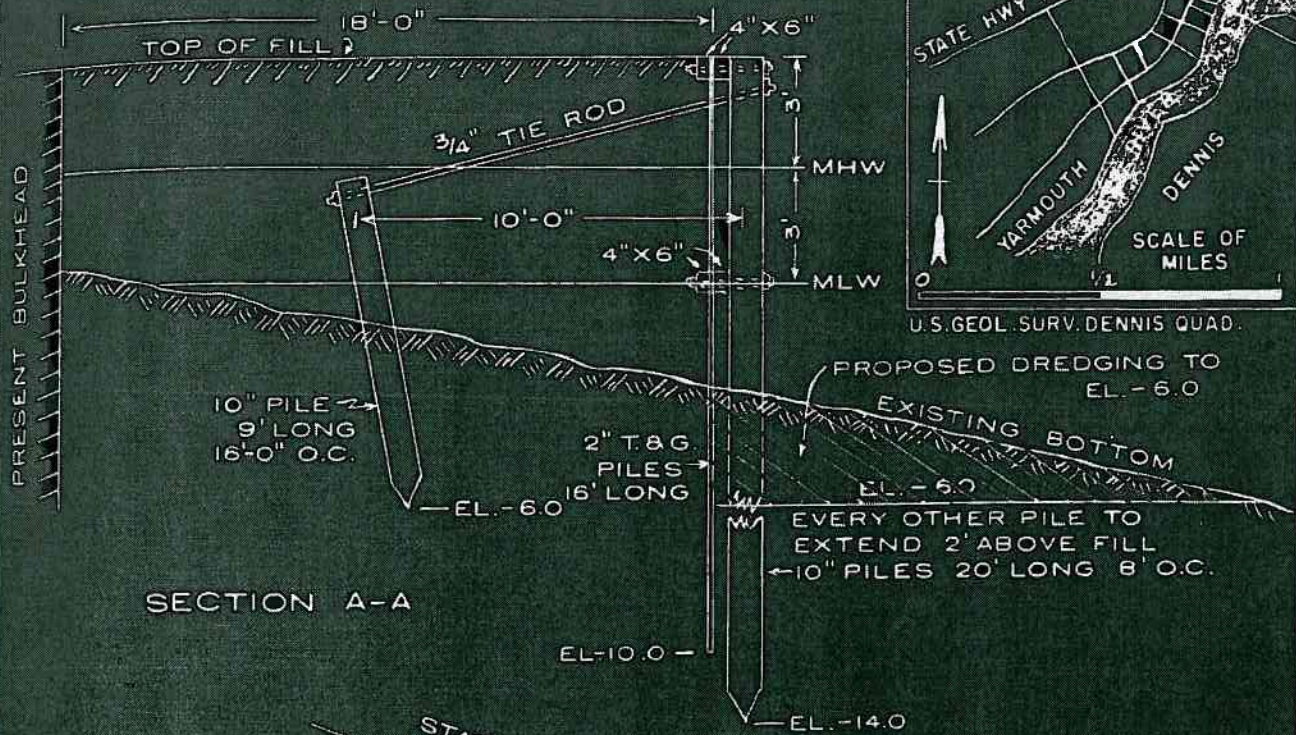
SHEET 3 OF 3

LICENSE PLAN NO. 3760

Approved by Department of Environmental Protection
Date **APR 15 1994**

SCALE OF FEET
1 0 5

083-061-000-771-100

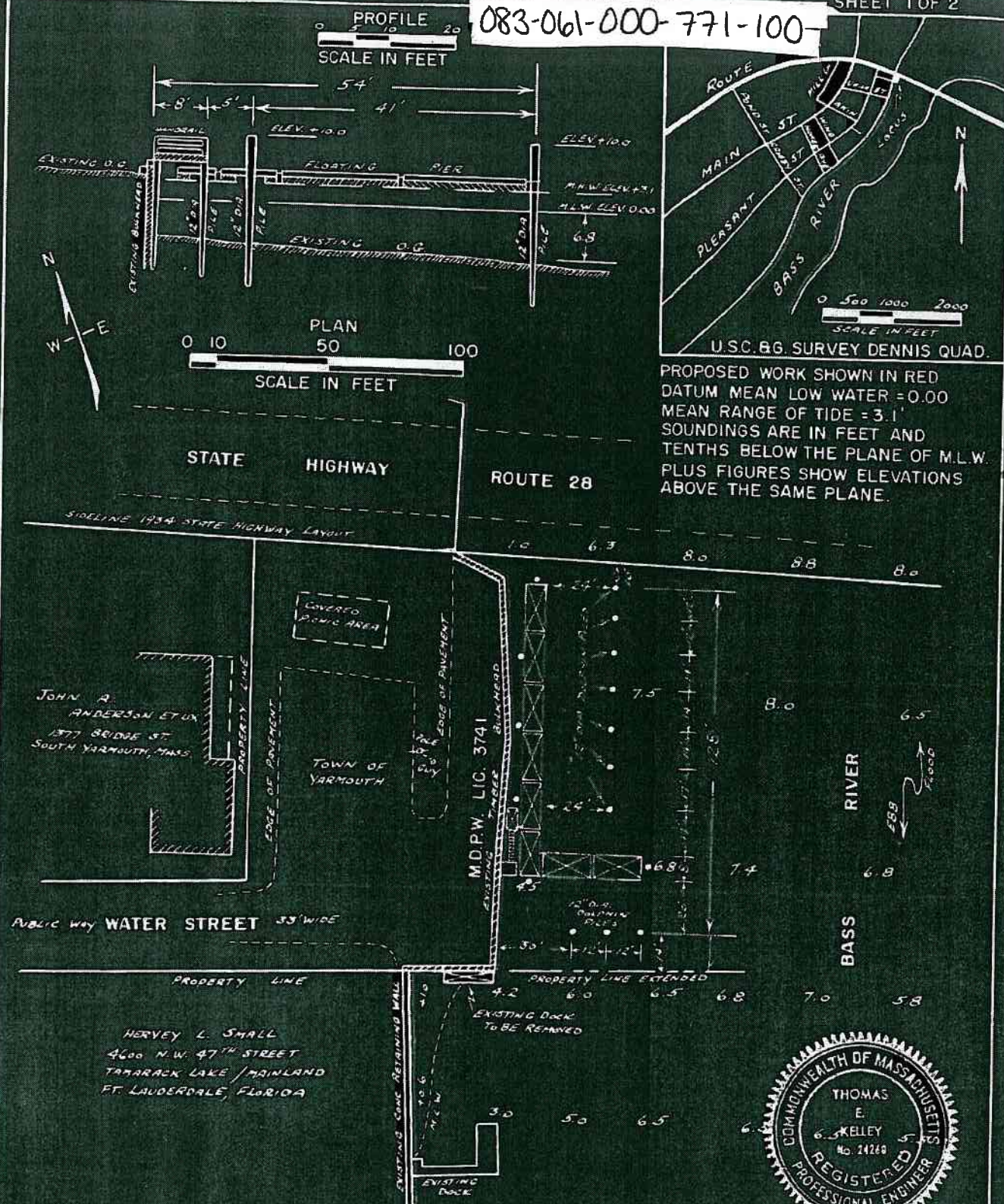


PLAN ACCOMPANYING PETITION OF
TOWN OF YARMOUTH
TO BUILD A TIMBER BULKHEAD, BACKFILL
AND DREDGE IN
BASS RIVER
YARMOUTH

NO. 3741
APPROVED BY DEPARTMENT OF PUBLIC WORKS
MAY 16, 1955

Edward B. Dale
Levin J. Fitch
COMMISSIONER OF PUBLIC WORKS
ASSOCIATE COMMISSIONERS
DIRECTOR - DIVISION OF WATERWAYS

083-061-000-771-100



PLAN ACCOMPANYING PETITION OF
THE TOWN OF YARMOUTH
TO BUILD AND MAINTAIN A TIMBER PIER,
TO PLACE FIXED PILES, TO PLACE A FLOATING
PIER AND TO MAINTAIN EXISTING TIMBER BULKHEAD
IN BASS RIVER
AT SOUTH YARMOUTH
TOWN OF YARMOUTH
MASSACHUSETTS

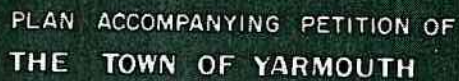
SCALE AS SHOWN

FEBRUARY 1972

LICENSE PLAN NO. 75
APPROVED BY DEPARTMENT OF ENVIRONMENTAL QUALITY ENGINEERING
OF MASSACHUSETTS
JANUARY 21, 1972
COMMISSIONER

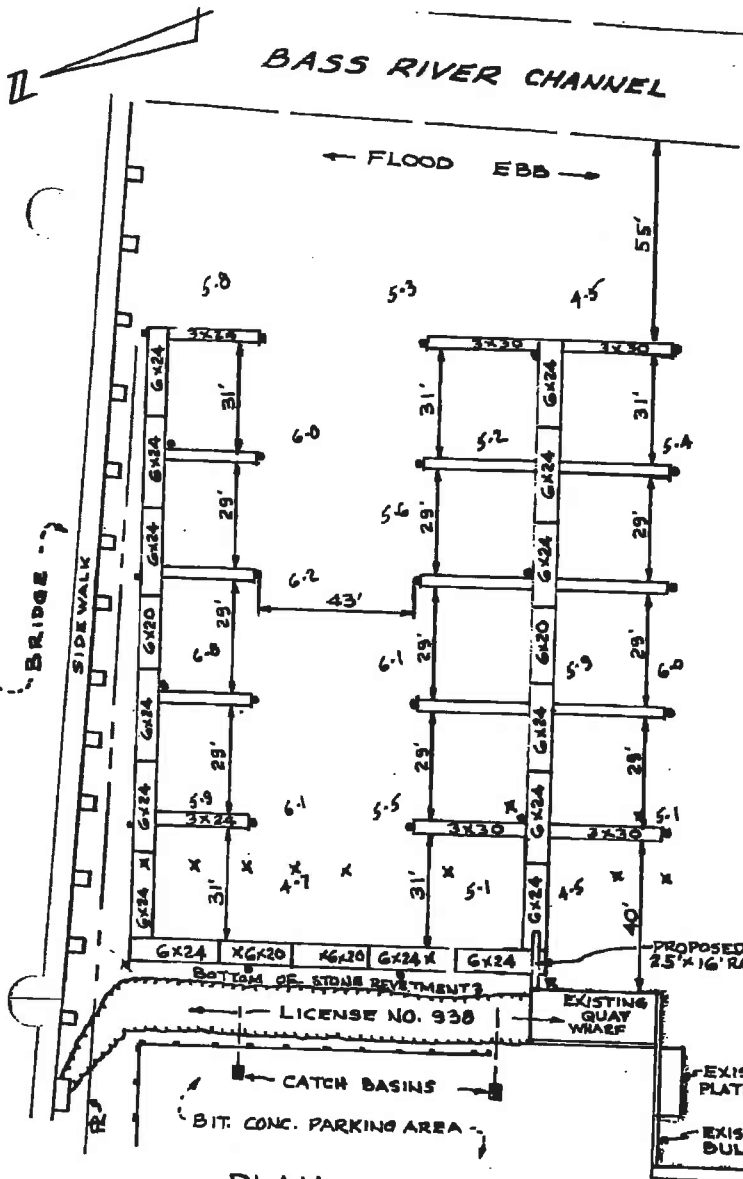


Thomas E. Kelley



SCALE AS SHOWN MASSACHUSETTS FEBRUARY 1972

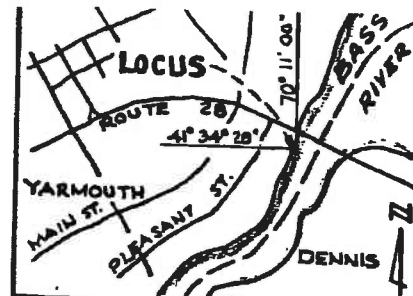
Approved by Department of Environmental Quality Engineering
JANUARY 21, 1976



PLAN
25' 50'
SCALE: 1" = 50'

LEGEND

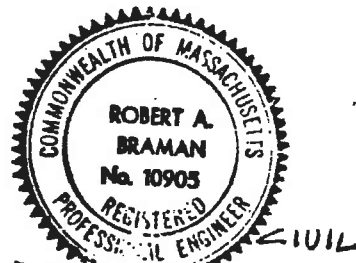
- X DENOTES EXISTING PILE TO BE REMOVED
- DENOTES PROPOSED PILE.



U.S.G.S.
DENNIS QUAD.
SCALE: 1" = 2000'

NOTES:

1. ELEVATIONS ARE IN FEET AND TENTHS ABOVE THE PLANE OF MEAN LOW WATER. MINUS FIGURES REPRESENT DEPTHS BELOW THAT SAME PLAN.
 2. PROPOSED TIMBER & PILES TO BE CCA TREATED @ 2.5 PC-F.
 3. PROPOSED PILES TO BE 35' LONG WITH THE TOP AT ELEV. 10.0 M.L.W.
 4. B.M. #1 S.E. CORNER - BOT. STEP EL. 9.33 M.L.W., B.M. #2 U.S. & C.G. BOUND EL. 6.87 M.L.W.
 5. REFER TO LIC. NO. 938 FOR EXIST. STONE REYEMENT AND QUAY WHARF
 6. ALL PILES TO HAVE PROTECTIVE CAPS.
 7. PROPOSED STRUCTURE WATER DEPENDENT USE.
 8. M.H.W. ELEV. 2.8
 9. H.T.L. ELEV. 3.4
- ABUTTERS:
- NORTH: COMMONWEALTH OF MASS.
DEPARTMENT OF PUBLIC WORKS
10 PARK PLAZA BOSTON, MA. 02116.
- SOUTH: SAMUEL & SOPHIA FERDINI
9 BEACHING ST. WORCESTER, MA 01604



Robert A. Braman

84W-138

LICENSE PLAN NO. 1384

Approved by Department of Environmental Quality Engineering
of Massachusetts

Charles N. Nadeau
Gary B. Chaffin

COMMISSIONER
CHIEF ENGINEER
DIVISION DIRECTOR

FEBRUARY 28, 1986 DATE

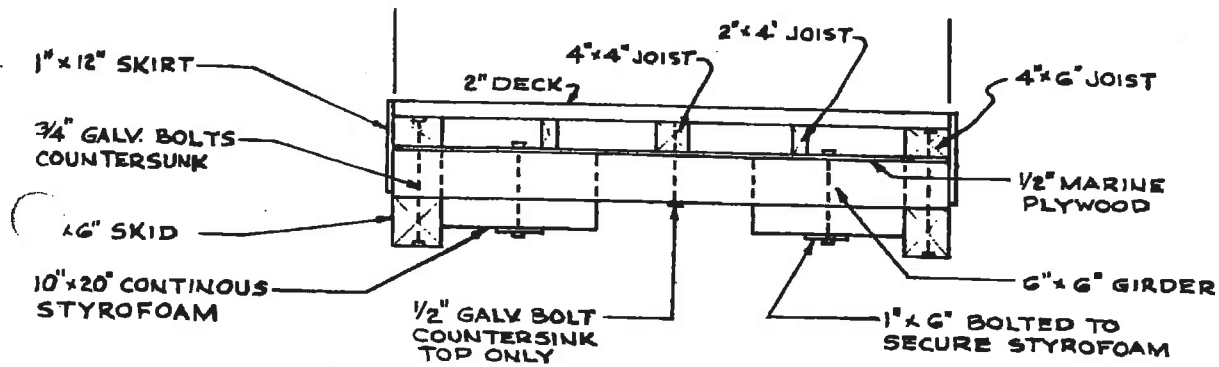
083-061-000-771-100

PLAN ACCOMPANYING PETITION OF
TOWN OF YARMOUTH
TO CONSTRUCT FLOATS, RAMP,
REMOVE PILES & TO PLACE PILES IN
BASS RIVER
YARMOUTH, MASS.

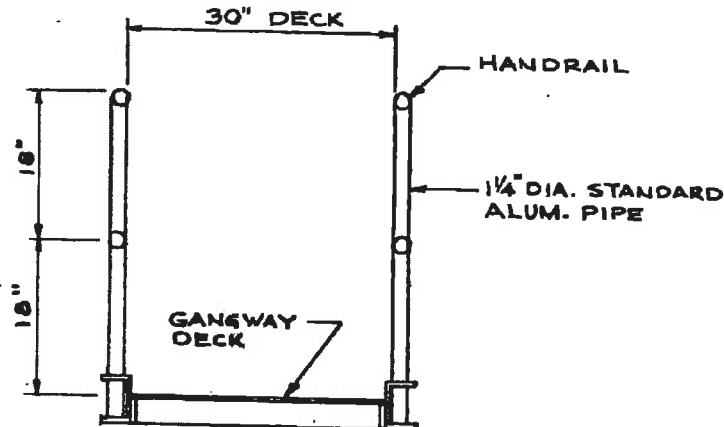
3. 8, 1984

SHEET 1 OF 2

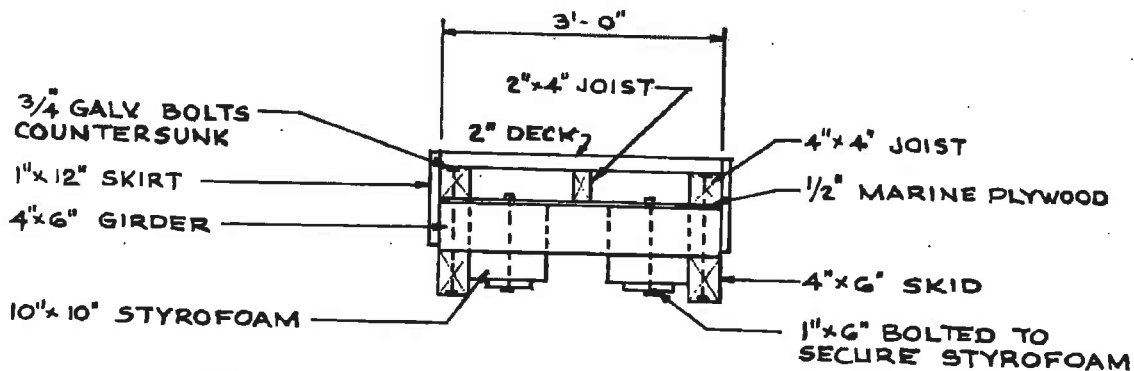
BRAMAN ENGINEERING COMPANY
CIVIL ENGINEERS & SURVEYORS
258 MAIN ST., BUZZARDS BAY, MA.



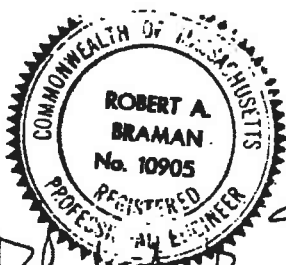
TYPICAL FLOAT SECTION 6'-0" WIDE
SCALE: 1/2" = 1'-0"



30" x 16'-0" ALUMINUM GANGWAY DETAIL
NO SCALE



TYPICAL FLOAT SECTION 3'-0" WIDE
SCALE: 1/2" = 1'-0"



Robert A. Braman

84W-138

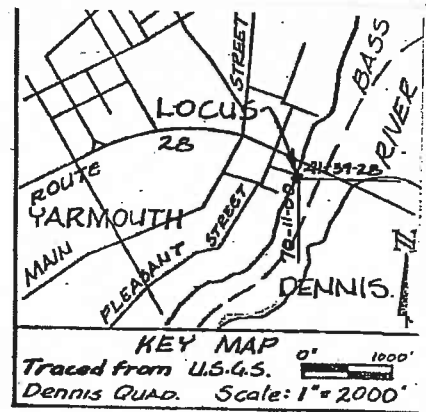
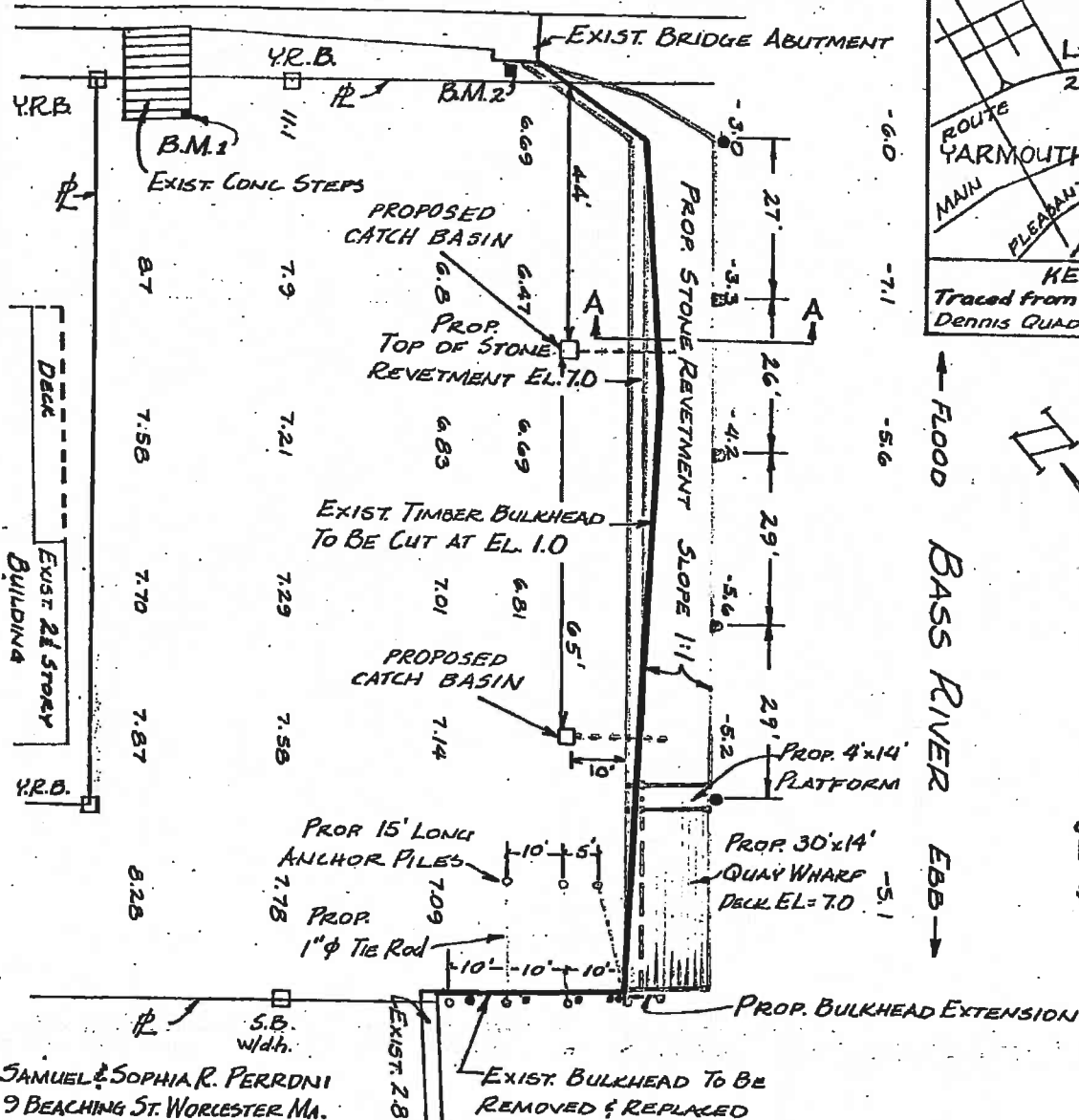
LICENSE PLAN NO. 1384

Approved by Department of Environmental Quality Engineering

February 28, 1988

083-061-000-77-120

ROUTE 28



PLAN
0 10 20 30
SCALE: 1"=30'

NOTES:

- B.M.1 - S.E. CORNER OF BOT. STEP. EL. = 9.33 M.L.W.
B.M.2 - U.S.C & G.S. BOUND EL. = 6.87 M.L.W.
DATUM - MEAN LOW WATER.
ALL TIMBER CCA TREATED WITH 2.5 #/ft.³ EXCEPT AS NOTED.
30T. 9 CY. OF REVETMENT BELOW HIGH TIDE LINE.
M.H.W. = EL. 2.8' ABOVE M.L.W.

LEGEND

- DENOTES EXIST. PILES
○ DENOTES PROP. PILES



Robert A. Braman

083-061-000-771-100

LICENSE PLAN NO. 938

Approved by Department of Environmental Quality Engineering of Massachusetts

NOVEMBER 22, 1982

COMMISSIONER
CHIEF ENGINEER

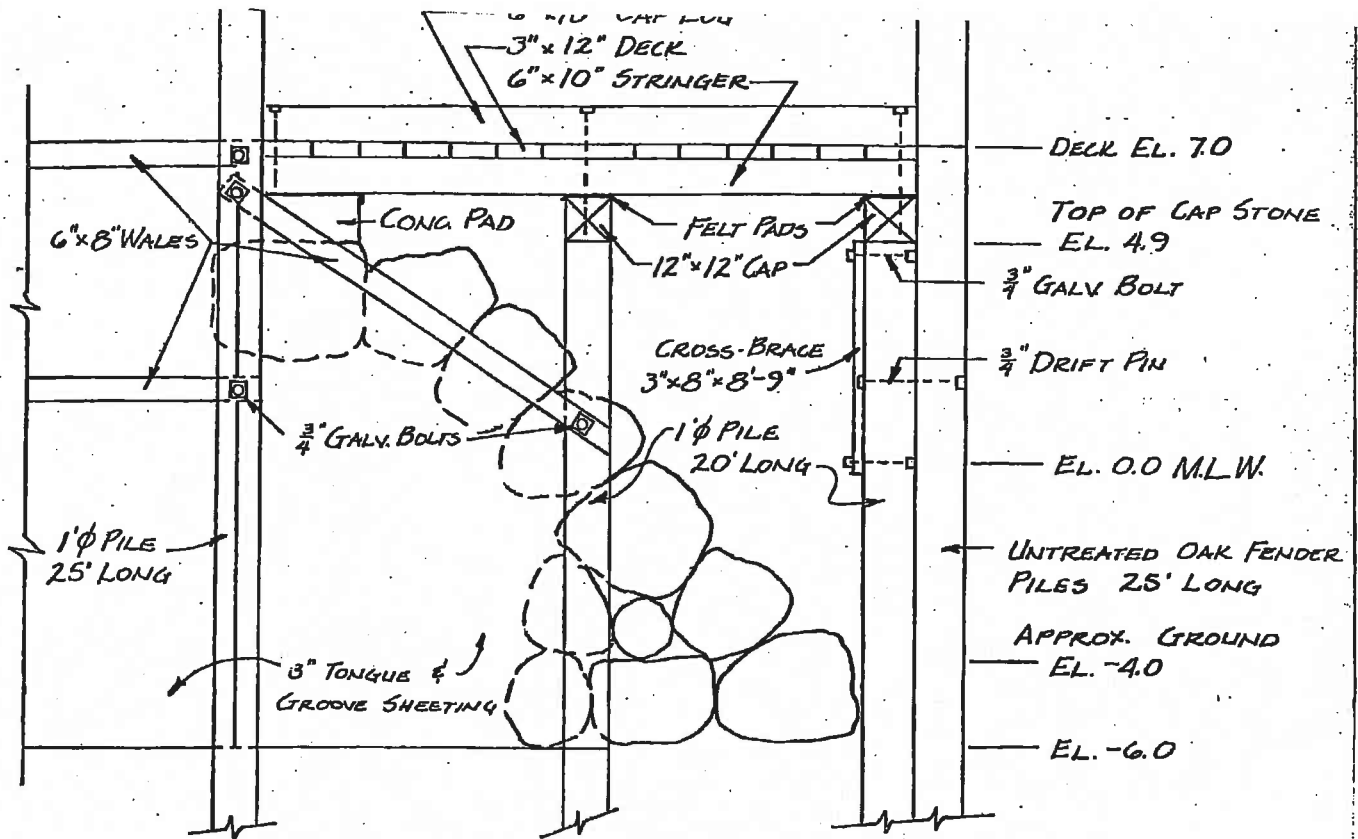
BASS RIVER
PACKET LANDING, YARMOUTH, MASS.

JUNE 9, 1982

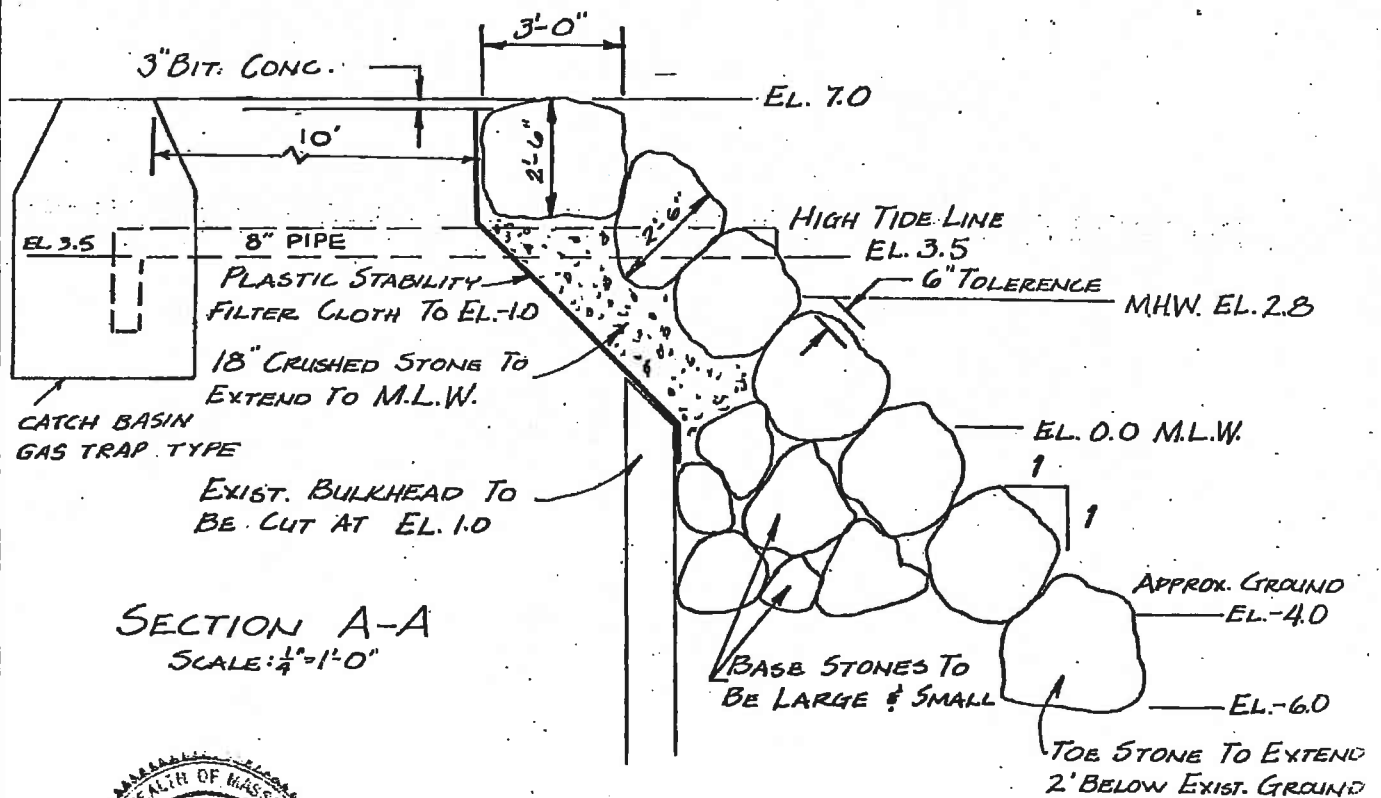
SHEET 1 OF 3

BRAMAN ENGINEERING COMPANY
CIVIL ENGINEERS, & SURVEYORS

82W-079
PLANS ACCOMPANYING PETITION OF
TOWN OF YARMOUTH
TO CONSTRUCT A STONE REVETMENT
QUAY WHARF, TIMBER BULKHEAD & PILES



PROFILE OF BULKEAD & WHARF SCALE: $\frac{1}{4}" = 1'-0"$



SECTION A-A
SCALE: $\frac{1}{4}" = 1'-0"$



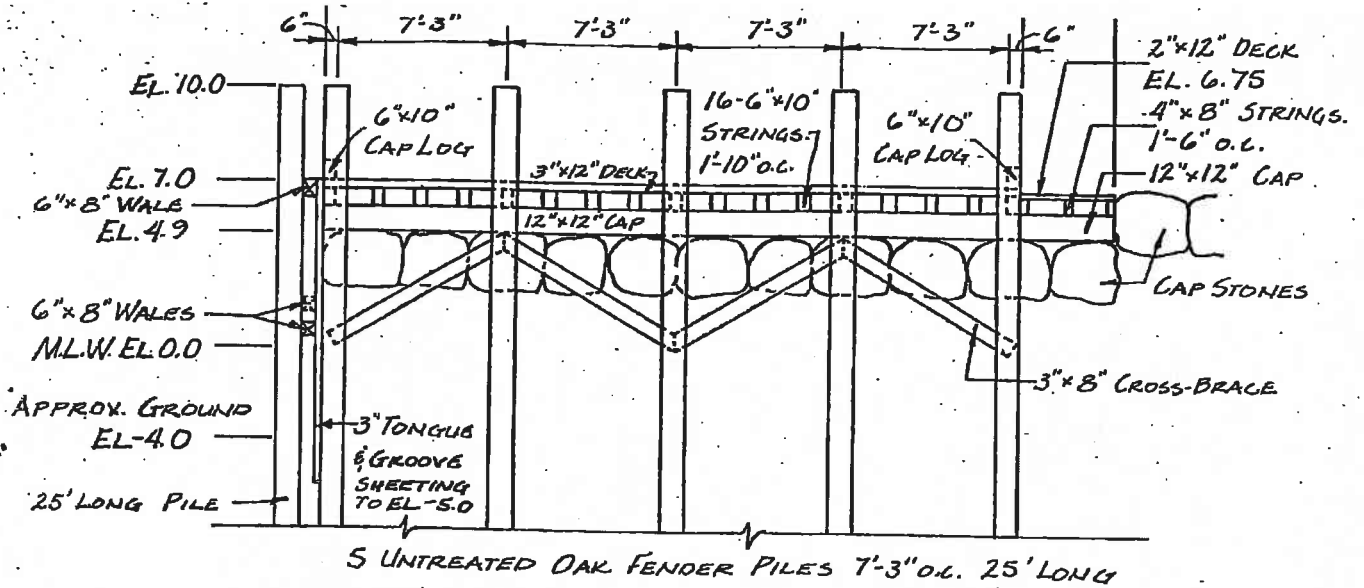
Robert A. Bluman

LICENSE PLAN NO. 938

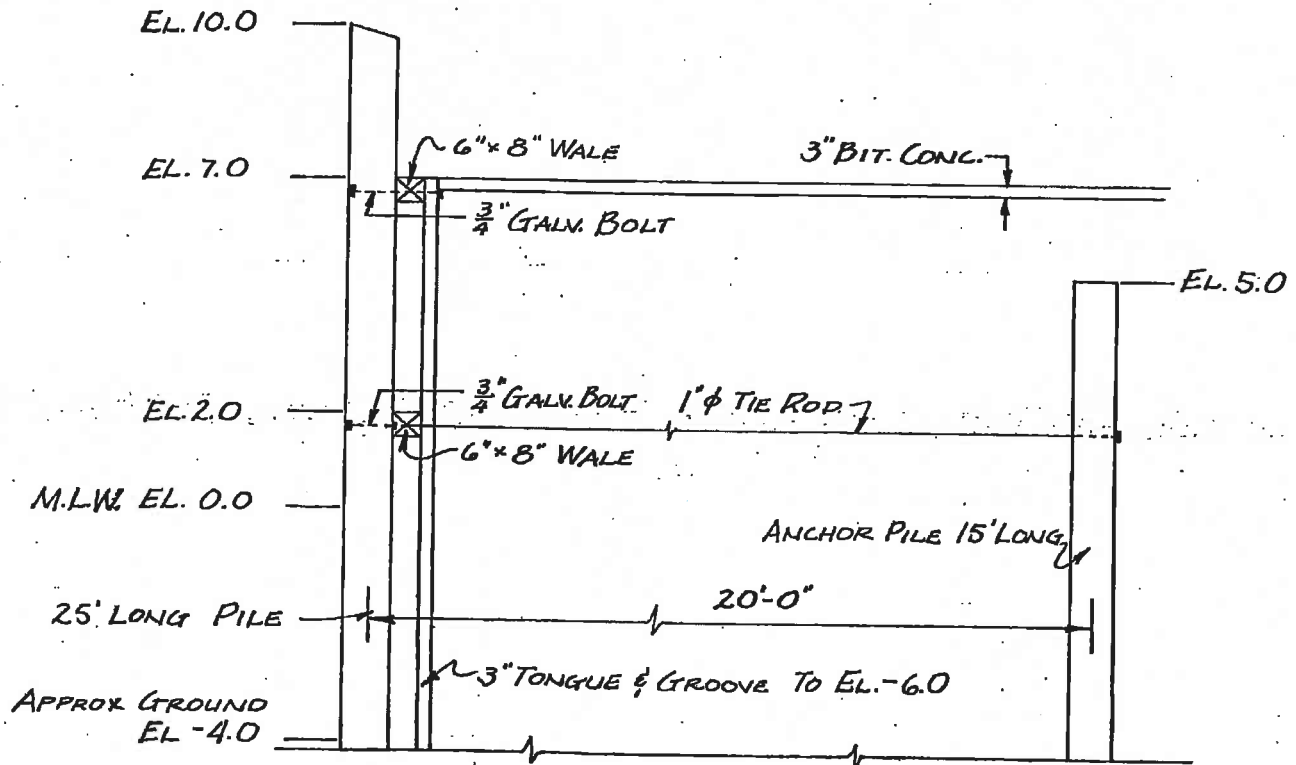
Approved by Department of Environmental Quality Engineering
NOVEMBER 22, 1982

083-061-000-771-100

82w-079



WHARF ELEVATION SCALE: $\frac{1}{8}" = 1'-0"$



DETAIL OF BULKHEAD SCALE: $\frac{1}{4}" = 1'-0"$



LICENSE PLAN NO. 938

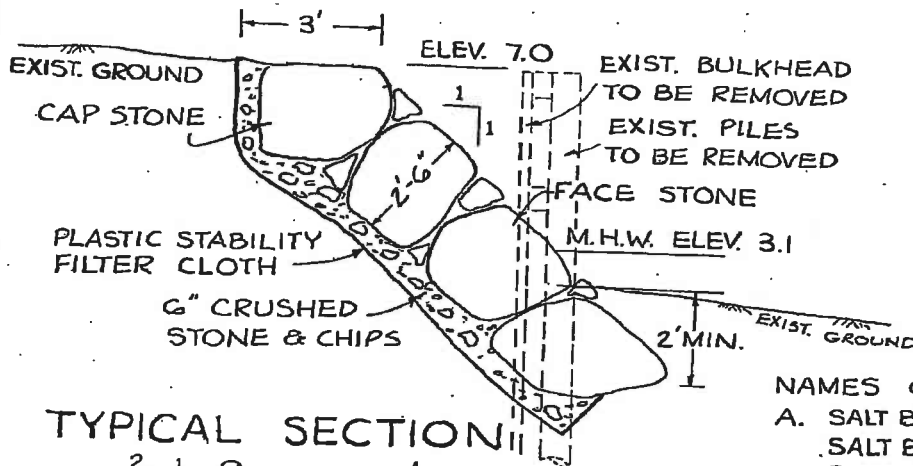
Approved by Department of Environmental Quality Engineering
NOVEMBER 22, 1982

E. Drayton

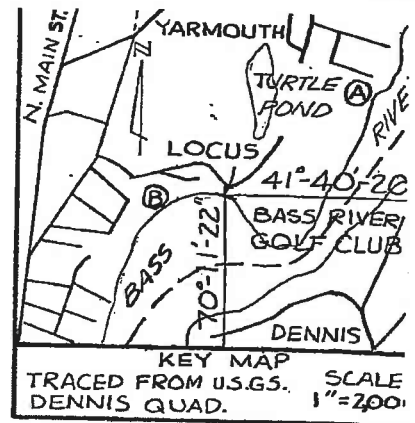
083-061-000-771-100

82w-079

083-080-000-17-100

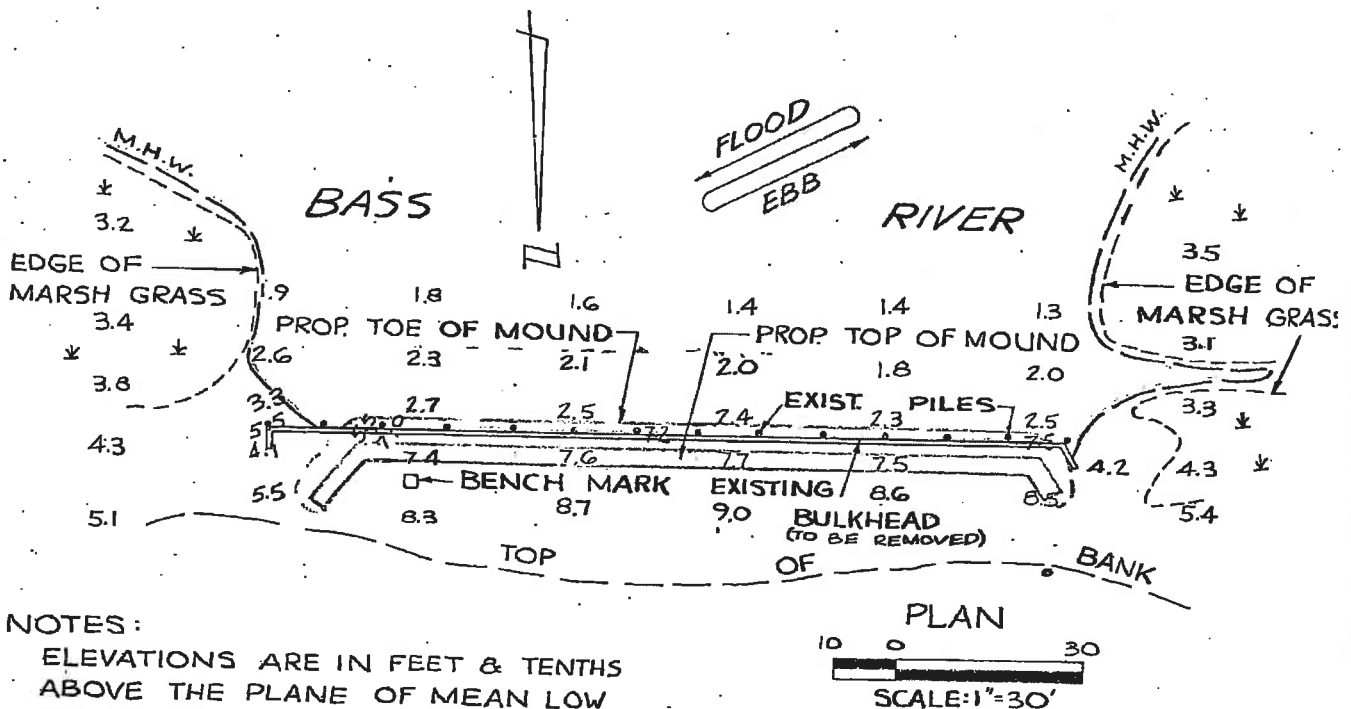


SCALE: 1"=4'



NAMES OF ABUTORS:

- A. SALT BOX ASSO., INC.
SALT BOX ROAD
S. YARMOUTH, MA.
- B. MARGARET M^cGOLDRICK KELLY
131 74TH ST. APT. 3A
BROOKLYN, N.Y.



NOTES:

ELEVATIONS ARE IN FEET & TENTHS ABOVE THE PLANE OF MEAN LOW WATER.

BENCH MARK: HIGH CORNER OF A CONTROL VALVE BOX RIM ELEV. 7.71 M.L.W.



81w-134

PLAN ACCOMPANYING PETITION OF
TOWN OF YARMOUTH
TO CONSTRUCT A STONE MOUND

BASS RIVER
YARMOUTH, MASS.

NOVEMBER 26, 1981 SHEET 1 OF 1
BRAMAN ENGINEERING COMPANY
CIVIL ENGINEERS & SURVEYORS

Robert A. Browne

LICENSE PLAN NO. 858

Approved by Department of Environmental Quality Engineers
of Massachusetts MAY 17, 1982

[Signature]

COMMISSIONER
CHIEF ENGINEER

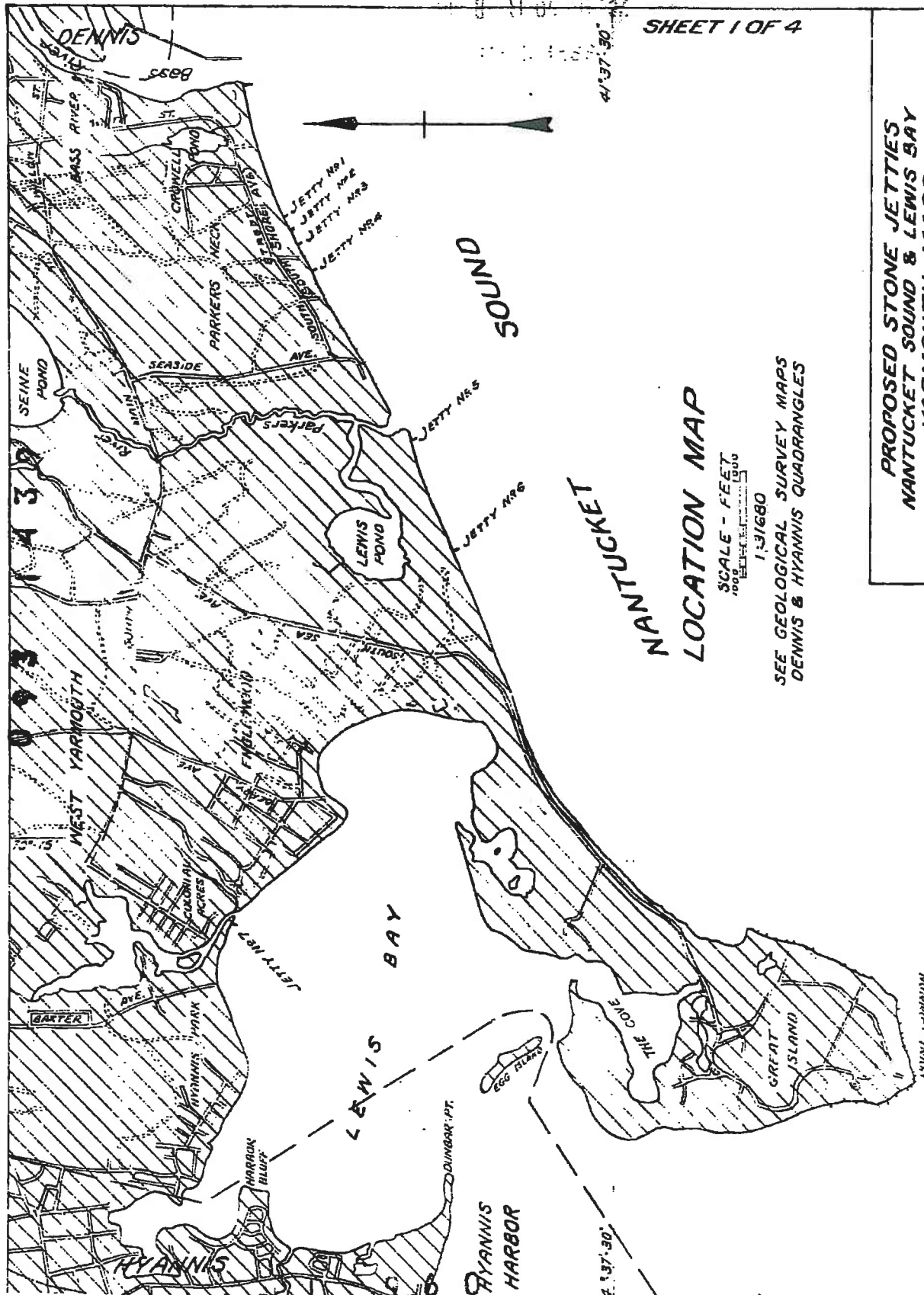
TOWN: YARMOUTH
 SOURCE: US ACOE
 LOCATION: CONCORD, MA
 DATE OF RESEARCH: AUGUST 2007

BCE Structure No	Document No	Contract/ Drawing Number	Entity	Municipality	Date	Title	Sheets	Location	Description
083-015-000-023-100	083-015-000-023-100-COE1A	52-19	USACE	Yarmouth	October 1951	Proposed Stone Jetties - Nantucket Sound and Lewis Bay - Yarmouth, Massachusetts - Division of Waterways	4	Nantucket Sound	Jetties
083-015-000-023-100	083-015-000-023-100-COE1B	59-86	USACE	Yarmouth	February 1958	Proposed Excavation and Jetty Reconstruction - Parkers River - Yarmouth, Massachusetts - Division of Waterways	1	Parkers River	Jetty
083-016-000-059-100	083-016-000-059-100-COE1A	56-19	USACE	Yarmouth	January 1956	Proposed Stone Groins and Sand Fill - Hyannis Park - Lewis Bay - Yarmouth, Massachusetts - Division of Waterways	1	Lewis Bay	Jetty
083-016-000-059-100	083-016-000-059-100-COE1B	59-124	USACE	Yarmouth	December 1958	Proposed Groins and Sand Fill - Vicinity of Englewood - Lewis Bay - Yarmouth, Massachusetts - Division of Waterways	2	Lewis Bay	Jetty
083-016-000-059-100	083-016-000-059-100-COE1C	63-198	USACE	Yarmouth	June 1963	Proposed Pier - In Lewis Bay at West Yarmouth, County of Barnstable, Massachusetts - Application by the Town of Yarmouth	1	New Hampshire Avenue	Jetty with Pier
083-016-000-059-100	083-016-000-059-100-COE1D	81-073	USACE	Yarmouth	June 1979	Plan Accompanying Petition of the Town of Yarmouth to Maintain a Stone Pier with a Concrete Cap and Attached Floats in Lewis Bay at West Yarmouth, Town of Yarmouth, Massachusetts	3	New Hampshire Avenue	Jetty with Pier
083-016-000-059-100	083-016-000-059-100-COE1E	82-392	USACE	Yarmouth	July 1982	Proposed Boat Ramp and Dredging - Lewis Bay - Yarmouth, Barnstable County, Massachusetts - Application by Town of Yarmouth	2	New Hampshire Avenue	Jetty with Pier and Floats
083-021-000-049-100	083-021-000-049-100-COE1A	52-19	USACE	Yarmouth	October 1951	Proposed Stone Jetties - Nantucket Sound and Lewis Bay - Yarmouth, Massachusetts - Division of Waterways	4	Parkers Beach	Jetties
083-025-000-287-100	083-025-000-287-100-COE1A	49-3	USACE	Yarmouth	December 1948	Proposed Stone Jetty in Nantucket Sound - Yarmouth Shore - Parkers Neck, Massachusetts - Application by DPW of Massachusetts - Division of Waterways	1	Parkers Neck	Jetty
083-025-000-287-100	083-025-000-287-100-COE1B	52-19	USACE	Yarmouth	October 1951	Proposed Stone Jetties - Nantucket Sound and Lewis Bay - Yarmouth, Massachusetts - Division of Waterways	4	Parkers Neck	Jetty
083-025-000-297-200	083-025-000-297-200-COE2A	52-19	USACE	Yarmouth	October 1951	Proposed Stone Jetties - Nantucket Sound and Lewis Bay - Yarmouth, Massachusetts - Division of Waterways	4	Parkers Beach	Jetties
083-026-000-116-200	083-026-000-116-200-COE2A	47-245	USACE	Yarmouth	October 1947	Proposed East Jetty Repairs and West Jetty Extension - Bass River - Dennis and Yarmouth, Massachusetts - Prepared for the DPW of Massachusetts - Division of Waterways	1	Bass River	Jetty Extension
083-061-000-771-100	083-061-000-771-100-COE1A	55-115	USACE	Yarmouth	April 1955	Proposed Timber Bulkhead, Backfill and Dredge in Bass River - Yarmouth, County of Barnstable, Massachusetts - Application by Town of Yarmouth	1	Bass River	Bulkhead
083-061-000-771-100	083-061-000-771-100-COE1B	75-269	USACE	Yarmouth	February 1972	Proposed Timber Pier, Float Piles for Floating Pier and Dolphin Piles in Bass River at South Yarmouth, Town of Yarmouth, County of Barnstable, Massachusetts - Application by Town of Yarmouth	2	Bass River	Existing Bulkhead
083-061-000-771-100	083-061-000-771-100-COE1C	82-383	USACE	Yarmouth	June 1982	To Construct a Stone Revetment, Quay Wharf, Timber Bulkhead and Piles - Bass River - Yarmouth, Barnstable County, Massachusetts - Application by Town of Yarmouth	3	Bass River	Bulkhead
083-080-000-117-100	083-080-000-117-100-COE1A	81W-134	USACE	Yarmouth	May 1982	Plan Accompanying Petition of Town of Yarmouth to Construct a Stone Mound - Bass River, Yarmouth, Massachusetts	1	Bass River Golf Club	Revetment

083-021-000-049-100
 083-025-000-287-100
 083-015-000-023-100
 083-025-000-297-200

ENGINEERING
 NEW ENGLAND DISTRICT

SHEET 1 OF 4



LOCATION MAP

SCALE - FEET
 1000
 1:31680

SEE GEOLOGICAL SURVEY MAPS
 DENNIS & HYANNIS QUADRANGLES

PROPOSED STONE JETTIES
 NANTUCKET SOUND & LEWIS BAY
 YARMOUTH - MASS.

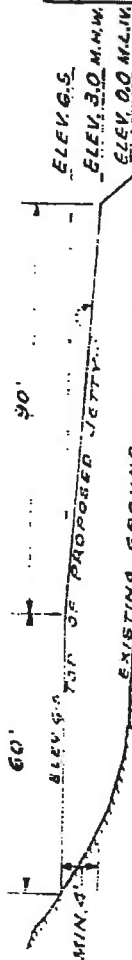
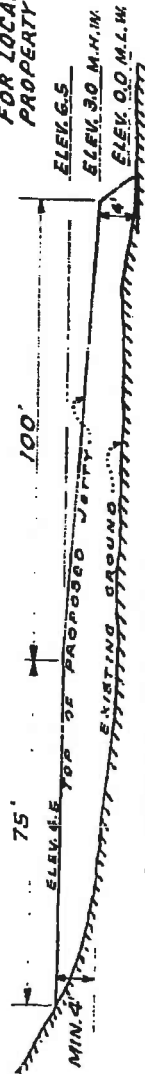
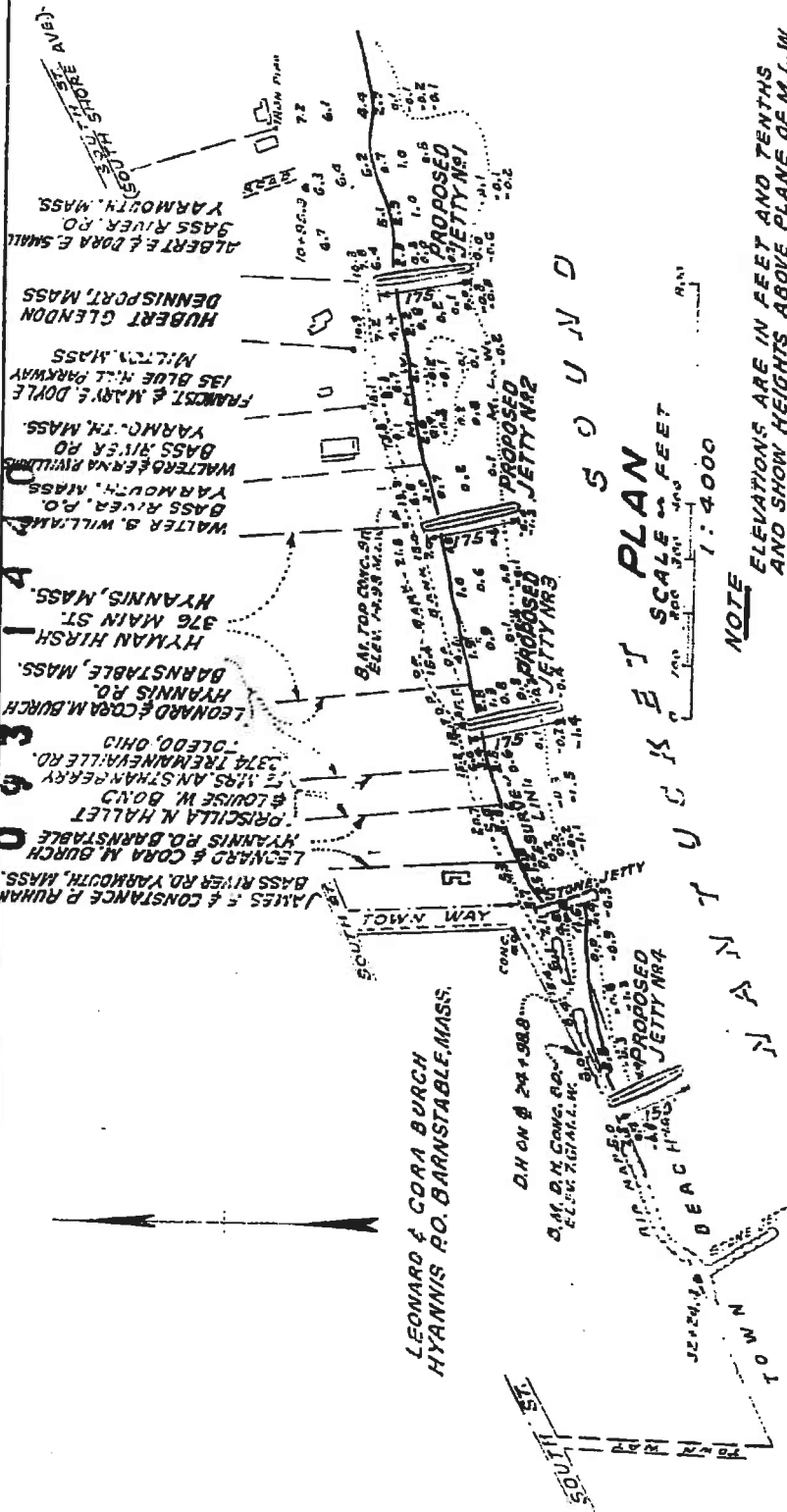
APPLICATION BY
 DIVISION OF PUBLIC WORKS OF MASSACHUSETTS
 DIVISION OF WATERWAYS
 OCTOBER 1951

Edward J. Haffey
 DISTRICT WATERWAYS ENGINEER

70° 15'

083-021-000-049-100
 083-025-000-287-100
 083-015-000-023-100
 083-025-000-297-200

SHEET 2 OF 4



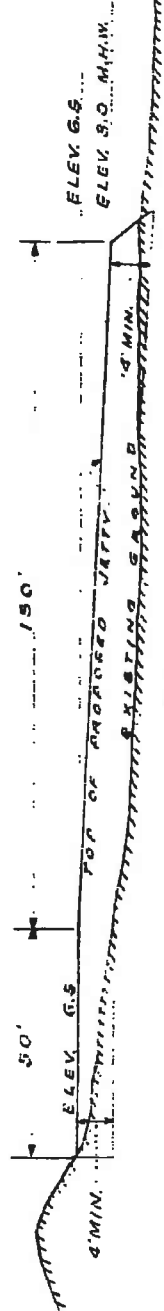
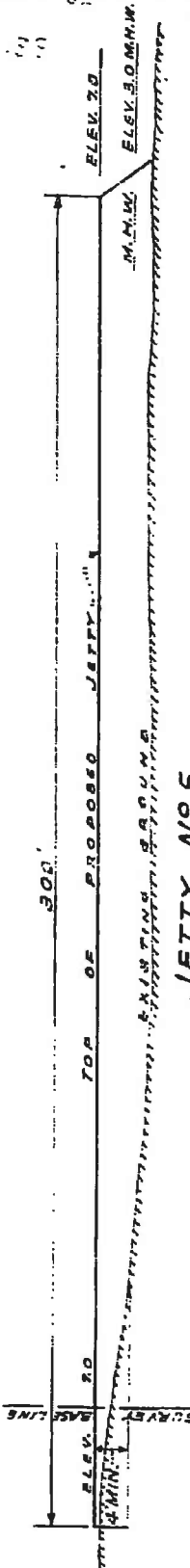
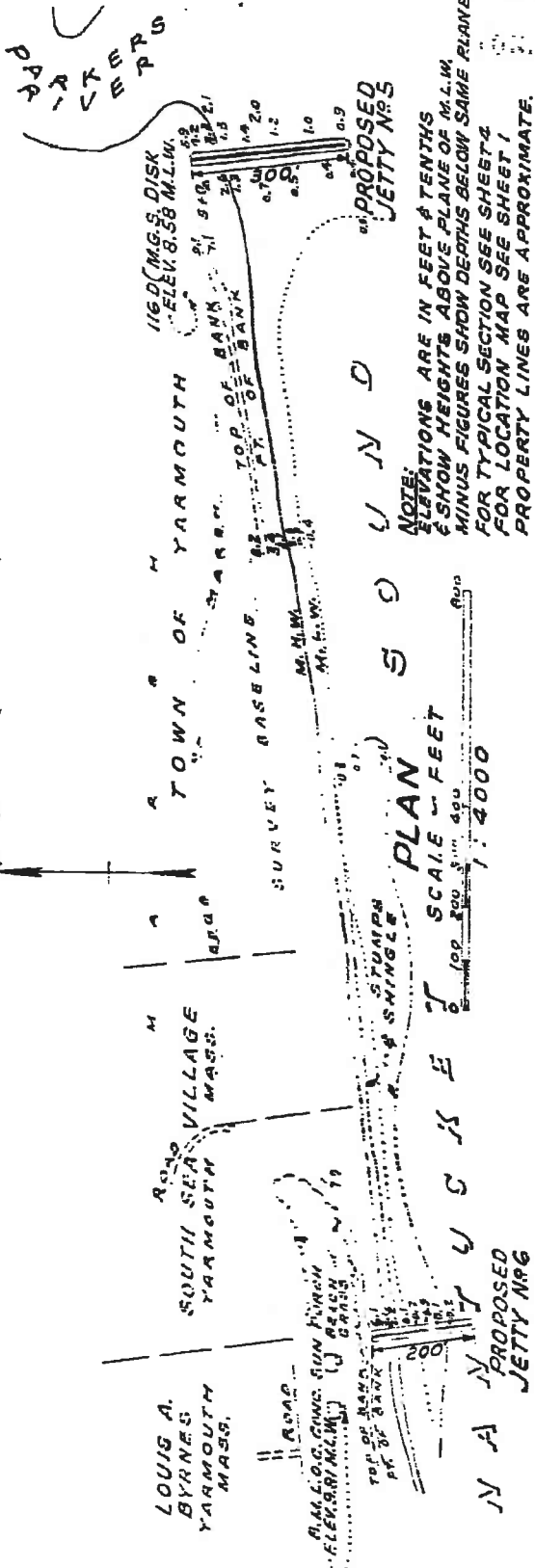
PROPOSED STONE JETTIES
 NANTUCKET SOUND & LEWIS BAY
 YARMOUTH, MASS.

APPLICATION BY
 DIVISION OF WATERWAYS
 DEPARTMENT OF PUBLIC WORKS OF MASSACHUSETTS

APPROVED
 OCTOBER 1951
 DISTRICT WATERWAYS ENGINEER

ACC. 02919-8

0931441



PROPOSED PROFILES
 HOR. 1" = 40'
 VER. 1" = 20'

PROPOSED STONE JETTIES
 NANTUCKET SOUND & LEWIS BAY
 YARMOUTH, MASS.
 APPLICATION BY
 DIVISION OF PUBLIC WORKS OF MASSACHUSETTS
 DIVISION OF WATERWAYS
 OCTOBER 1951
Edward J. [Signature]
 DISTRICT WATERWAYS ENGINEER

ACC. 02919-C

083-021-000-049-100
 083-025-000-287-100
 083-015-000-023-100
 083-025-000-297-200

ENGINE OFFICE
 NEW ENGLAND DIV.

SHEET 3 OF 4

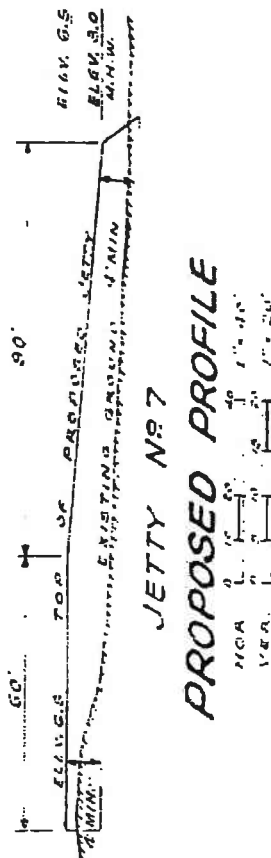
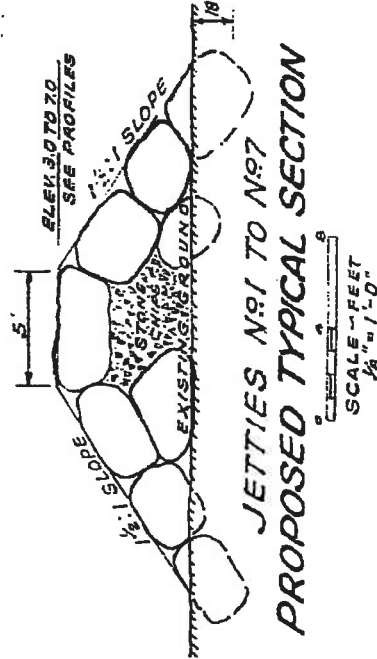
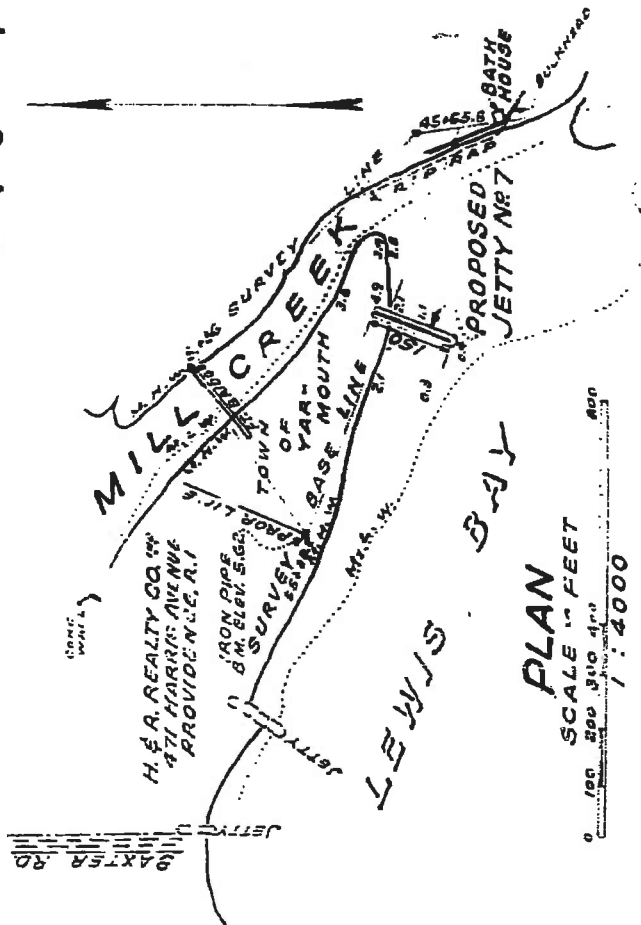
093 1442

3 ENG OFFICE
NEW ENGLAND DIV.

083-021-000-049-100
083-025-000-287-100
083-015-000-023-100
083-025-000-297-200

SHEET 4 OF 4

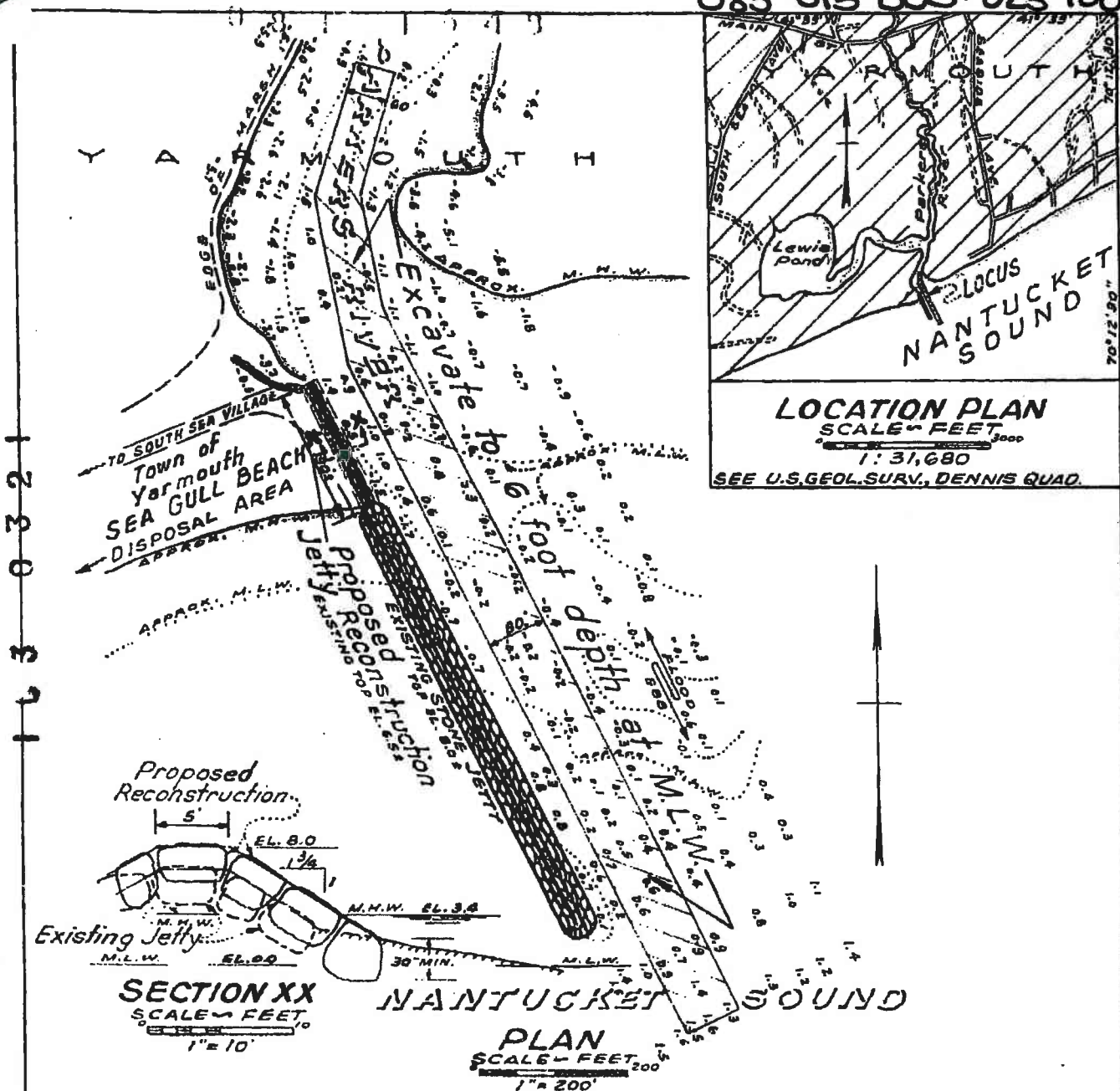
NOTE:
ELEVATIONS ARE IN FEET & TENTHS
& SHOW HEIGHTS ABOVE PLANE OF M.L.W.
FOR LOCATION MAP SEE SHEET 1.
PROPERTY LINE APPROXIMATE.



PROPOSED STONE JETTIES
NANTUCKET SOUND & LEWIS BAY
YARMOUTH, MASS.
APPLICANT
DEPARTMENT OF PUBLIC WORKS OF MASSACHUSETTS
DIVISION OF WATERWAYS
OCTOBER 1951
District Waterways Engineer

ACC. 02919-0

083-015-000-023-100



NOTE

SOUNDINGS ARE IN FEET AND TENTHS AND REFER TO PLANE OF MEAN LOW WATER. MINUS FIGURES SHOW ELEVATIONS ABOVE THE SAME PLANE. EXCAVATED MATERIAL, APPROX. 34,000 C.Y., TO BE DEPOSITED ON TOWN OF YARMOUTH BEACH AREA APPROX. 500 TO 1500 FT. WEST OF PROPOSED WORK. DEPOSIT SHALL ALL BE ABOVE M.H.W. AND THE TOP ROUGHLY GRADED NOT EXCEEDING ELEVATION 7. JETTY RECONSTRUCTION AS PER THIS PLAN AND SECTION USING EXISTING AND NEW STONE. LOCATION OF PROJECT SHOWN IN RED.

PROPOSED EXCAVATION AND JETTY RECONSTRUCTION PARKERS RIVER

YARMOUTH - MASS.
APPLICATION BY
DEPARTMENT OF PUBLIC WORKS - MASSACHUSETTS
DIVISION OF WATERWAYS
FEBRUARY 1958

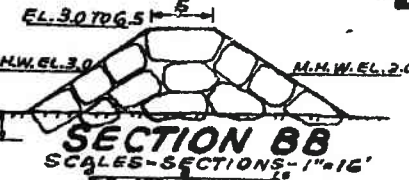
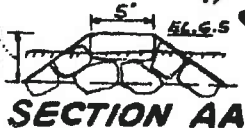
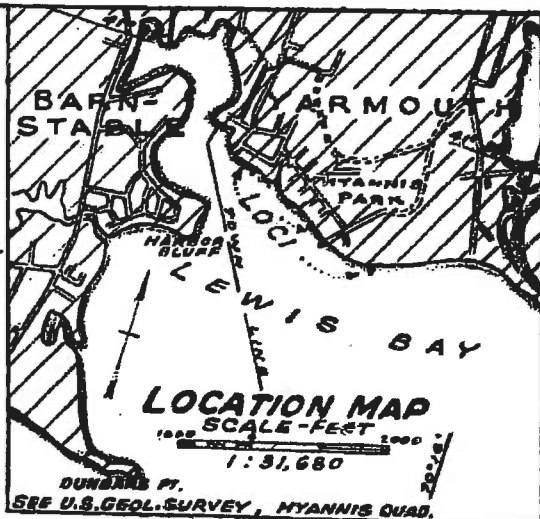
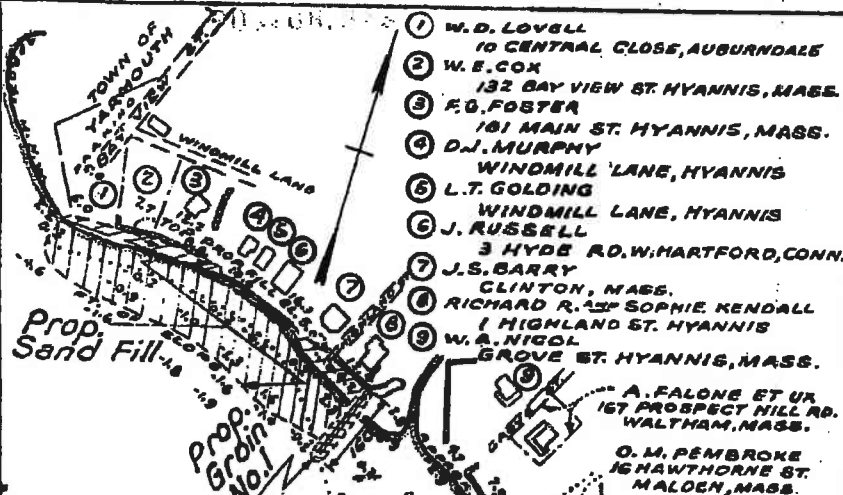
Robert B. MacKinnon
CHIEF WATERWAYS ENGINEER

ACC.03814

088 01084

Jan 19 9 43 AM '56

083-016-000-059-100



NOTE
ELEVATIONS ARE IN FEET AND TENTHS
ABOVE THE PLANE OF MEAN LOW WATER
MINUS FIGURES SHOW DEPTHS BELOW
THE SAME PLANE.
APPROX. EXISTING GROUND SHOWN THUS:
ALL GROIN SIDE AND END SLOPES 1.5 TO 1.
LOCATION OF PROPOSED WORK SHOWN IN RED.

PROPOSED
STONE GROINS AND SAND FILL
HYANNIS PARK
LEWIS BAY
YARMOUTH-MASS.
APPLICATION BY
DEPARTMENT OF PUBLIC WORKS, MASSACHUSETTS
DIVISION OF WATERWAYS
JANUARY 1956
Robert B. McKinnon

083 1277

083-016-000-059-100

SHEET 1 OF 2

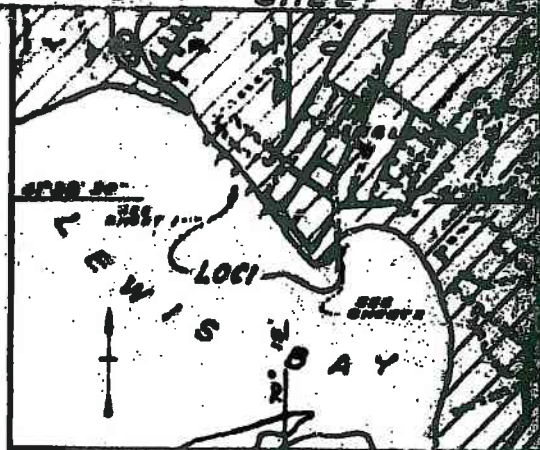
Richard Frost
124 Whitcomb Ave.
Jamaica Plain

Mary A. Conquest
20 Conant St.
W. Roxbury

John Dutton
124 Hallowell St.
Shrewsbury

Dorothy B. Wright
N. 100 W. Hyattsville

Margaret A. Sibley
W. Yarmouth



LOCATION MAP

SCALE - FEET
1" = 21,000

SEE U.S.G.S. DENNIS YARMOUTH QUADS.

2294



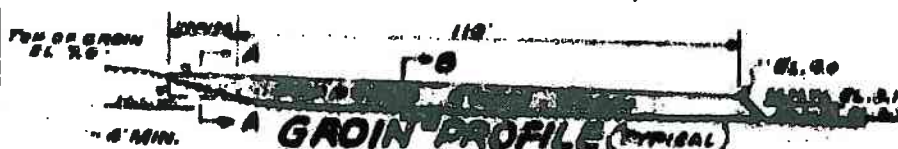
SECTION AA

SCALE - FT. - BOTH SPTS.
1" = 20



SECTION BB

PLAN
SCALE - FEET
1" = 200



GROIN PROFILE (TYPICAL)

SCALE - FEET
1" = 40

NOTE

ELEVATIONS ARE IN FEET AND TENTHS
AND REFER TO PLANE OF MEAN LOW
WATER. MINUS FIGURES SHOW DEPTHS
BELOW THE SAME PLANE.
APPROX. EXISTING GROUND THUS SHOWN
SIDE AND END SLOPES FOR GROINS ARE
ALL 1.5 TO 1.0
LOCATION OF PROPOSED WORK IN RED.
AVERAGE PROJECTION OF GROINS FROM
M.H.W. LINE INTO TIDEWATER IS APPROX-
IMATELY 110 FEET.

PROPOSED
GROINS AND SAND FILL
VICINITY 25 ENGLEWOOD
LEWIS BAY
YARMOUTH-MASS.

APPLICATION BY
DEPARTMENT OF PUBLIC WORKS OF MASSACHUSETTS
DIVISION OF WATERWAYS
DECEMBER 1958

Robert B. Macomber
CHIEF WATERWAYS ENGINEER

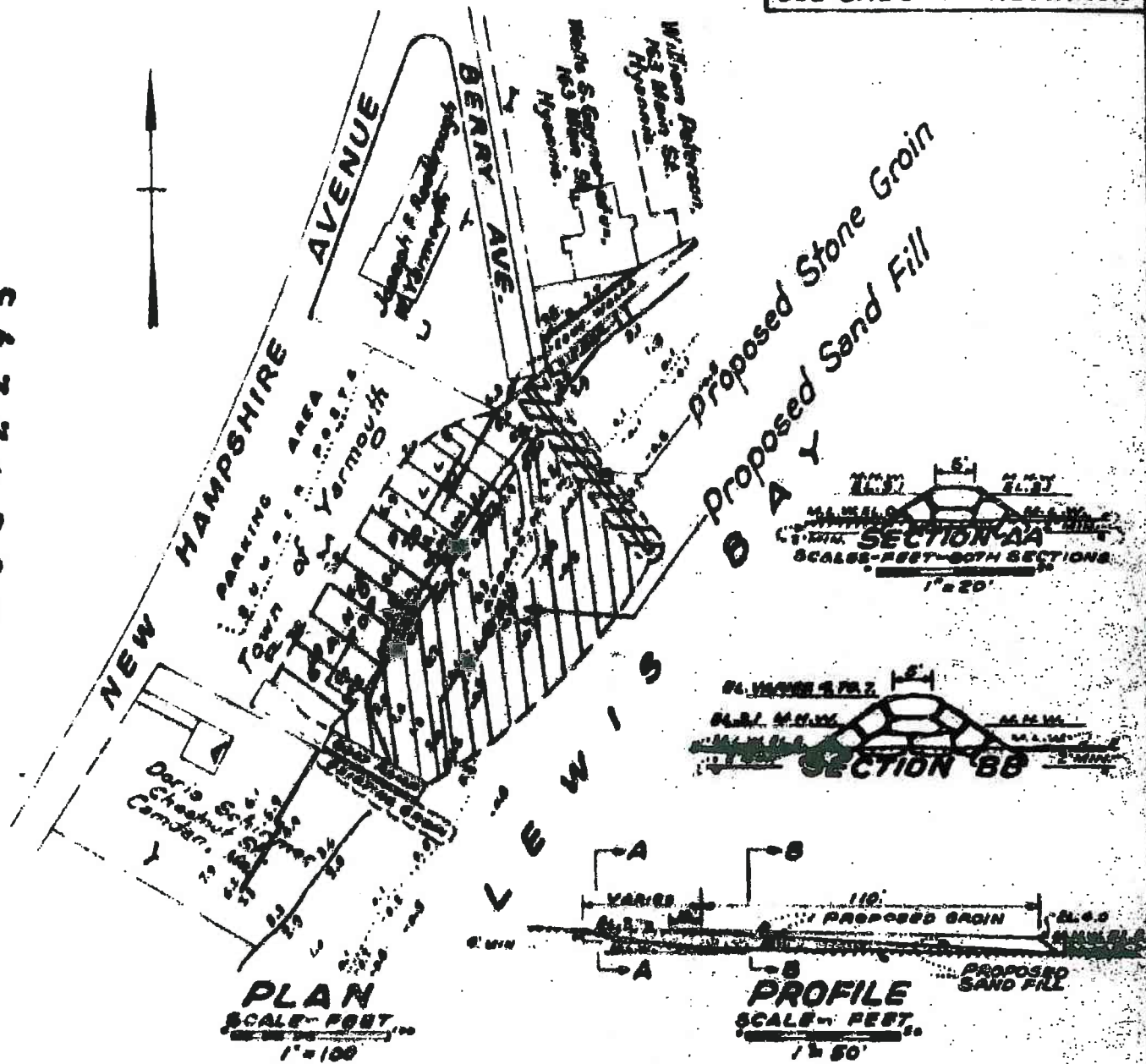
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083-016-000-059-100

SHEET 2 OF 2

SEE SHEET 1 FOR LOCATION

105 2295



NOTE
 ELEVATIONS ARE IN FEET AND TENTHS
 AND REFER TO PLANS OF MEAN LOW
 WATER. MINUS FIGURES SHOW DEPTHS
 BELOW THE SAME PLANE
 APPROX. EXISTING GROUND THUS THIRTY
 SIDE AND END SLOPES FOR GROIN 1:5 TO 1:0
 LOCATION OF PROPOSED WORK IS SHOWN
 IN RED.
 PROJECTION OF GROIN FROM M.W. LINE
 INTO TIDEWATER IS APPROXIMATELY 100
 FEET.

**PROPOSED
 GROINS AND SAND FILL
 VICINITY 22 ENGLEWOOD
 LEWIS BAY
 YARMOUTH-MASS.**

APPLICATION BY
 THE BOARD OF PUBLIC WORKS OF MASSACHUSETTS
 DIVISION OF WATERWAYS
 DECEMBER 1958

Robert A. MacKinnon
 CHIEF ENGINEER

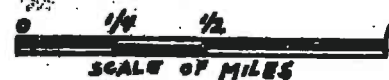
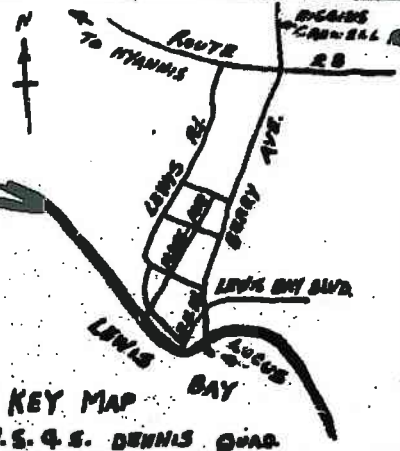
076 1658

083-016-000-059-100

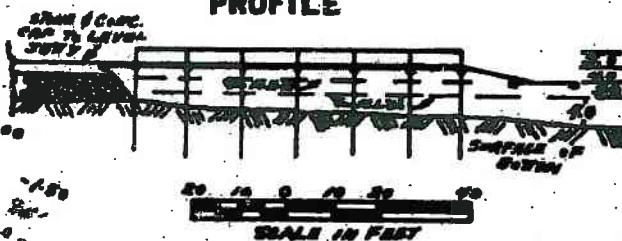
PLAN



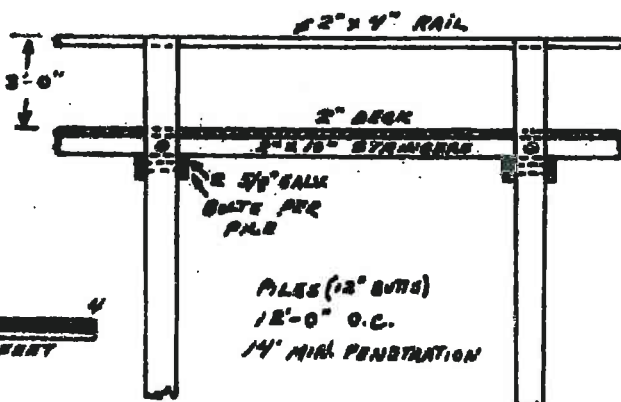
NEW HAMPSHIRE AVE.
TOWN OF YARMOUTH
BERRY AVE.
LEWIS BAY
LEWIS MILW.
DORIS SCHIRMER CANNERY ST. CANDEY, MAINE
DORIS SCHIRMER CANNERY ST. CANDEY, MAINE
ORAL E. HANNEY ET AL
197 CLEVELAND ST. BRAINTON, MASS.



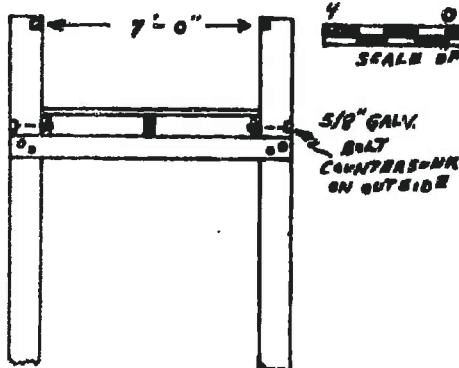
PROFILE



NOTE :-
PROPOSED WORK SHOWN IN RED.
ELEVATIONS SHOWN IN FEET AND TENTHS AND SHOW HEIGHT ABOVE THE PLANE OF MEAN LOW WATER. MINUS FIGURES ARE SOUNDINGS AND SHOW DEPTHS BELOW SAME PLANE.



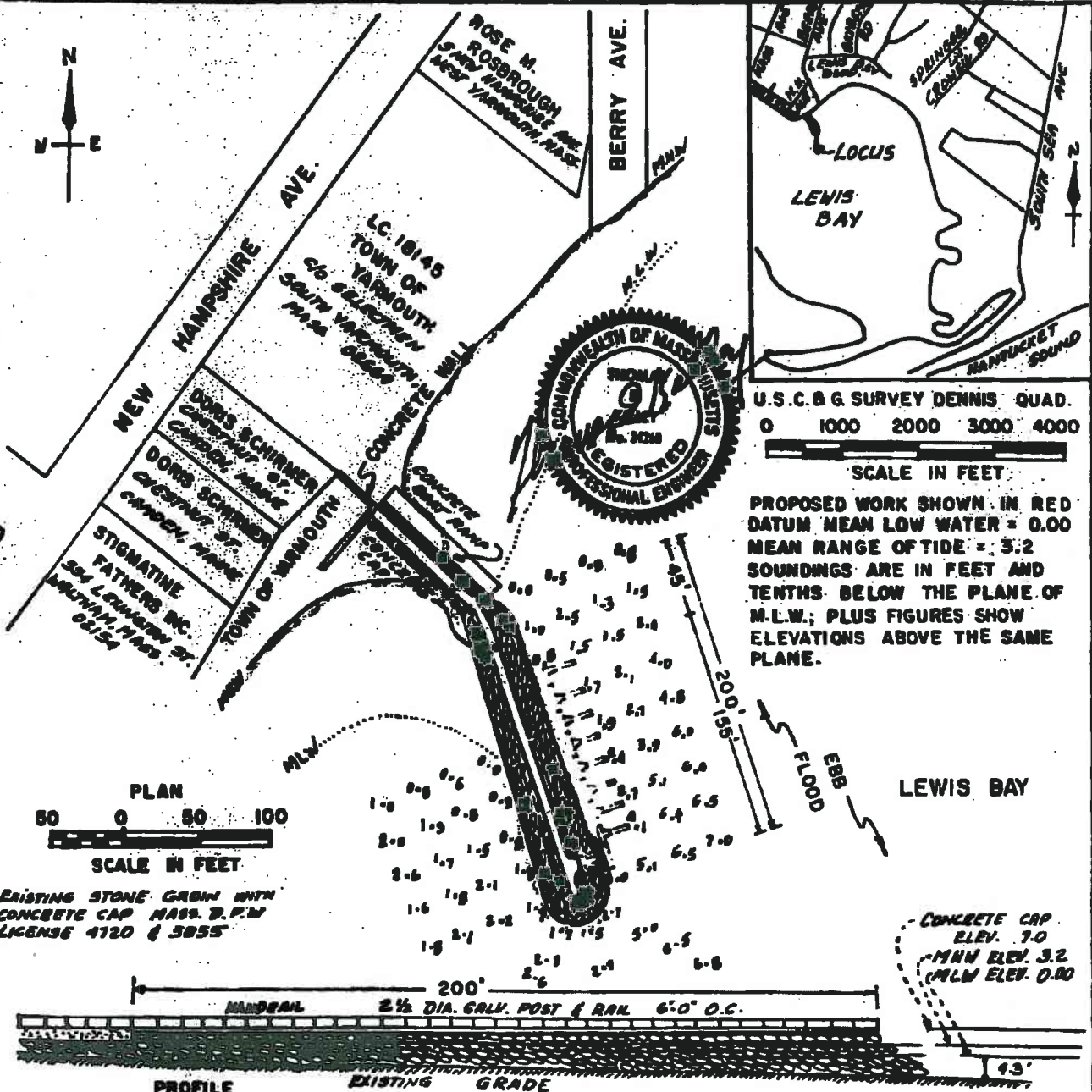
LONGITUDINAL SECTION



CROSS SECTION

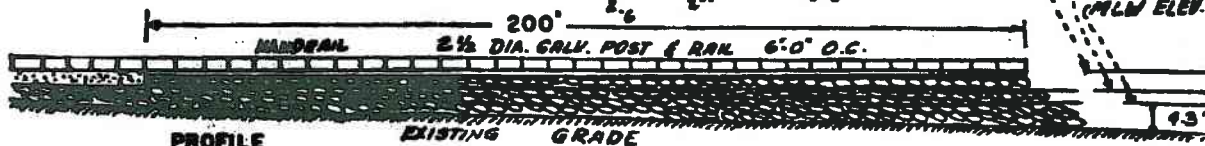
PROPOSED PIER
IN LEWIS BAY AT WEST YARMOUTH
COUNTY OF BARNSTABLE, MASS.
APPLICATION BY THE TOWN OF YARMOUTH
JUNE 4, 1963
ONE SHEET

083-016-000-059-100



PLAN
50 0 50 100
SCALE IN FEET

EXISTING STONE GROWN WITH
CONCRETE CAP MASS. D.P.W.
LICENSE 4720 & 5055

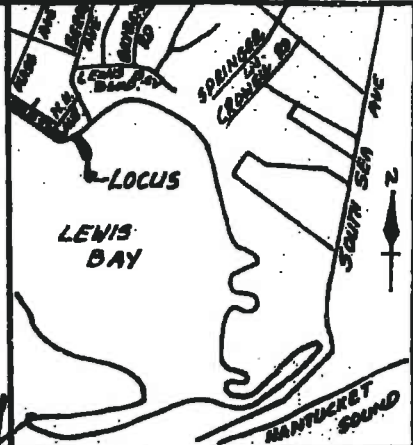


PROFILE
20 0 20 40
SCALE IN FEET

PLAN ACCOMPANYING PETITION OF
THE TOWN OF YARMOUTH
TO MAINTAIN A STONE PIER WITH
A CONCRETE CAP AND ATTACHED FLOATS IN
LEWIS BAY
AT WEST YARMOUTH
TOWN OF YARMOUTH
MASSACHUSETTS

SCALE AS SHOWN

JUNE 1979



U.S.C. & G. SURVEY DENNIS QUAD.
0 1000 2000 3000 4000
SCALE IN FEET

PROPOSED WORK SHOWN IN RED
DATUM MEAN LOW WATER = 0.00
MEAN RANGE OF TIDE = 3.2
SOUNDINGS ARE IN FEET AND
TENTHS BELOW THE PLANE OF
M.L.W.; PLUS FIGURES SHOW
ELEVATIONS ABOVE THE SAME
PLANE.

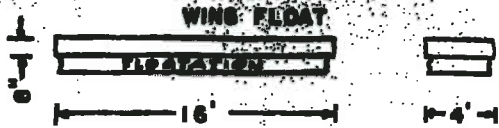
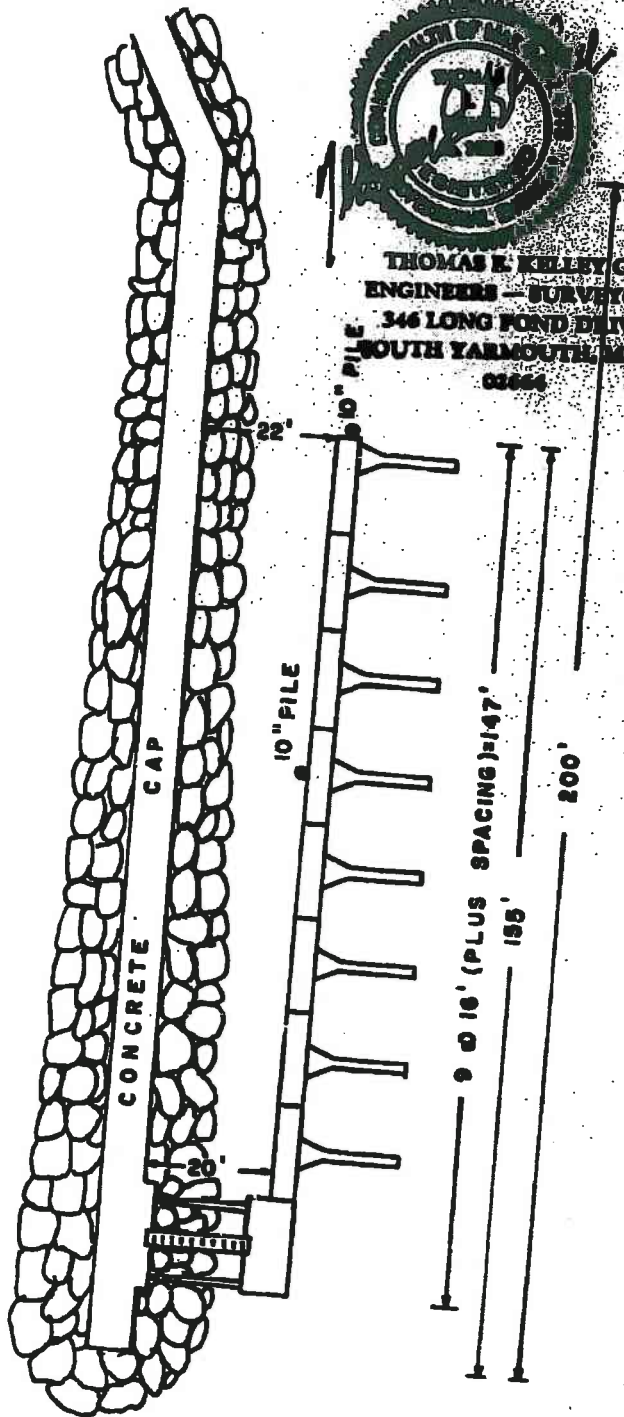
LEWIS BAY

CONCRETE CAP
ELEV. 7.0
MHW ELEV. 3.2
MLW ELEV. 0.00

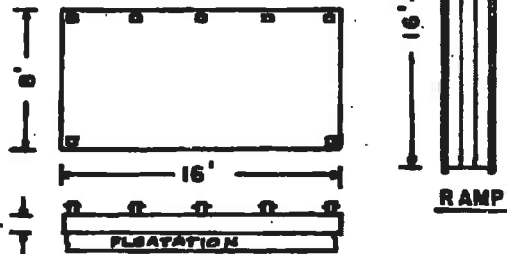
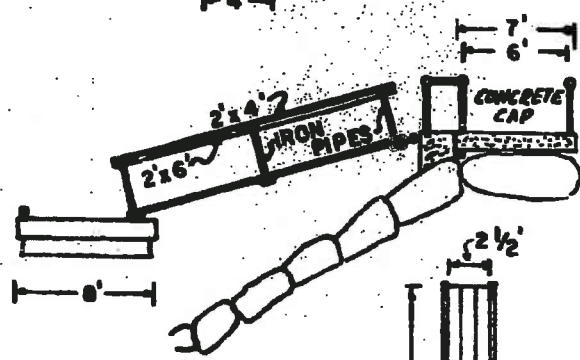
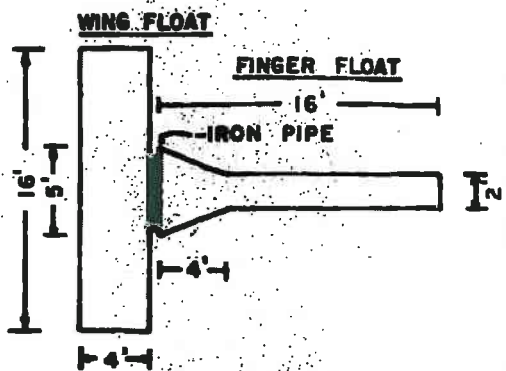
083-016-000-059-100



THOMAS E. KELLEY CO.
ENGINEERS - SURVEYORS
346 LONG FORD DRIVE
SOUTH YARMOUTH, MASS.
02566



PROFILE



TOWN OF YARMOUTH, LEWIS BAY

2001-1998

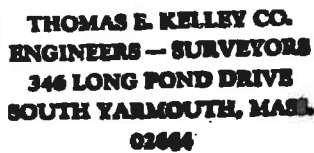


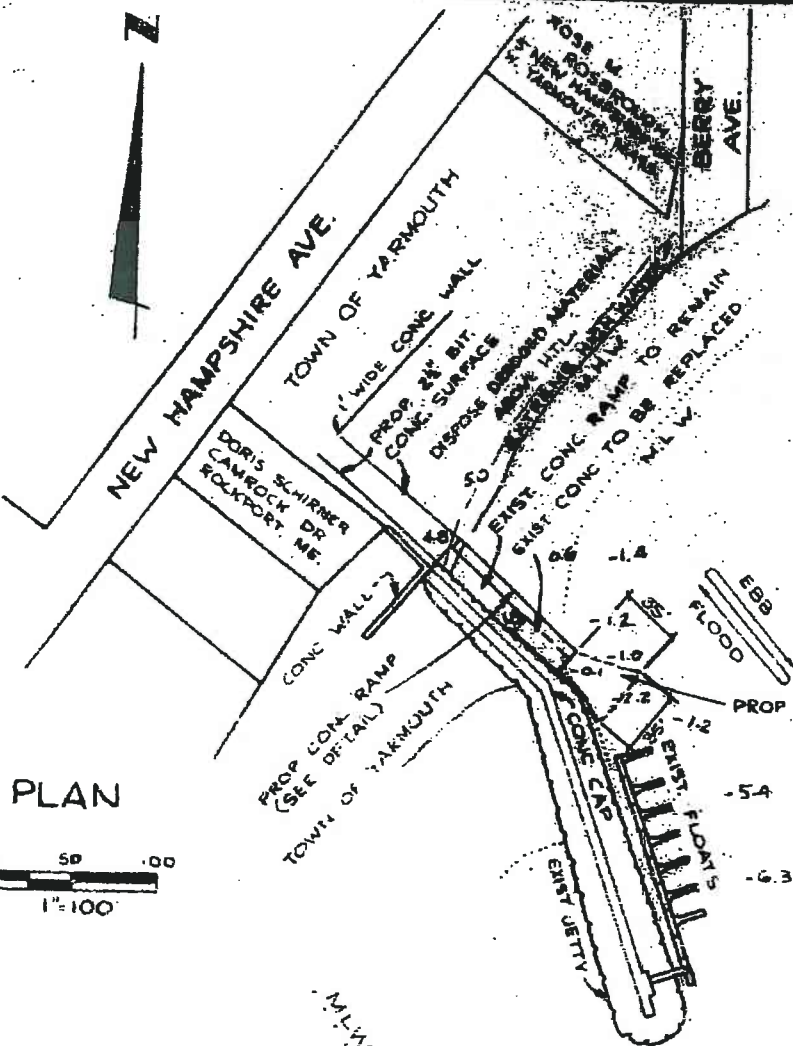
Diagram illustrating the cross-section of a manhole structure with the following elevations and dimensions:

- HANDRAIL ELEV. = 10.00**
- CONCRETE CAP ELEV. = 7.0**
- M.H.W. ELEV. = 3.2**
- M.L.W. ELEV. = 0.0'**
- EXISTING GRADE**
- Vertical Dimensions (from M.L.W. to top):** 2.1', 3.2' TO M.L.W., 3.8', 3.0'
- Horizontal Dimensions (at top):** 6", 6', 6"
- Other Labels:** CONCRETE GROUT, CONCRETE CAP, 24 IN 3 SLOPE

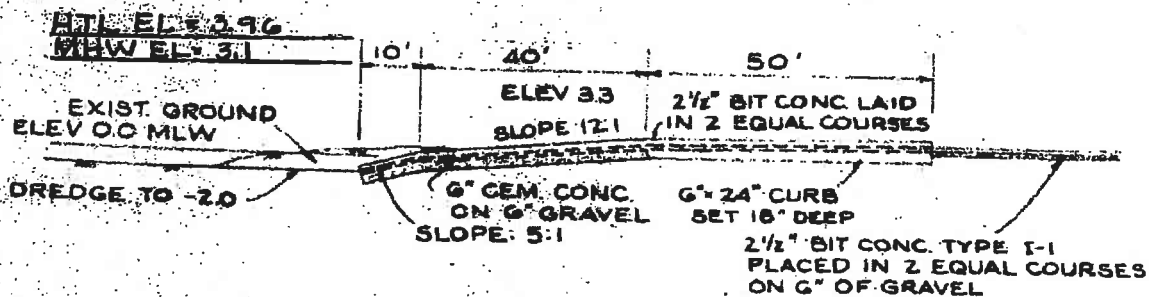
SHEET 3 OF 3

083-016-000-059-100

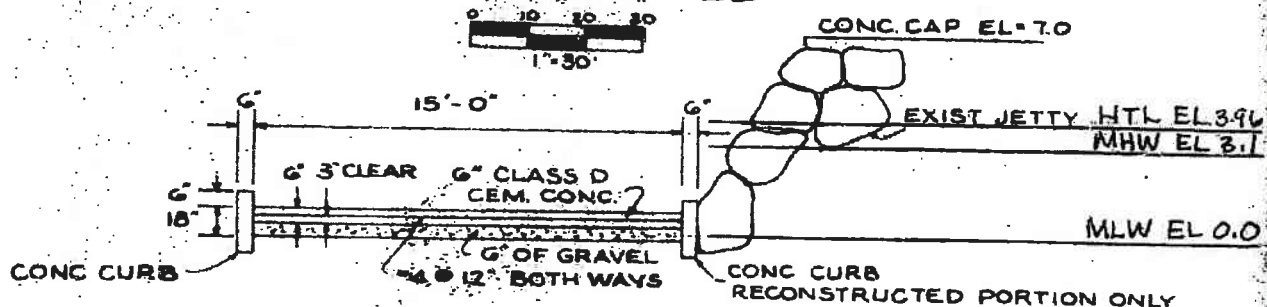
903 0486



083-016-000-059-100

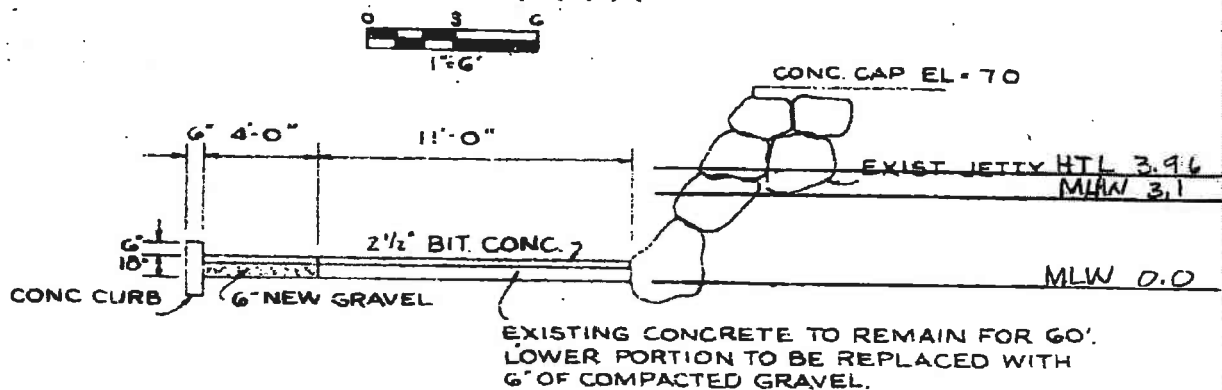


RAMP PROFILE



NOTE: PORTION OF RAMP TO REMAIN SHALL BE DRILLED TO ALLOW REINFORCEMENT STEEL MAT TO SECURE JOINT

SECTION A-A



SECTION B-B



TOWN OF YARMOUTH

JULY 28, 1982

SHEET 2 OF 2

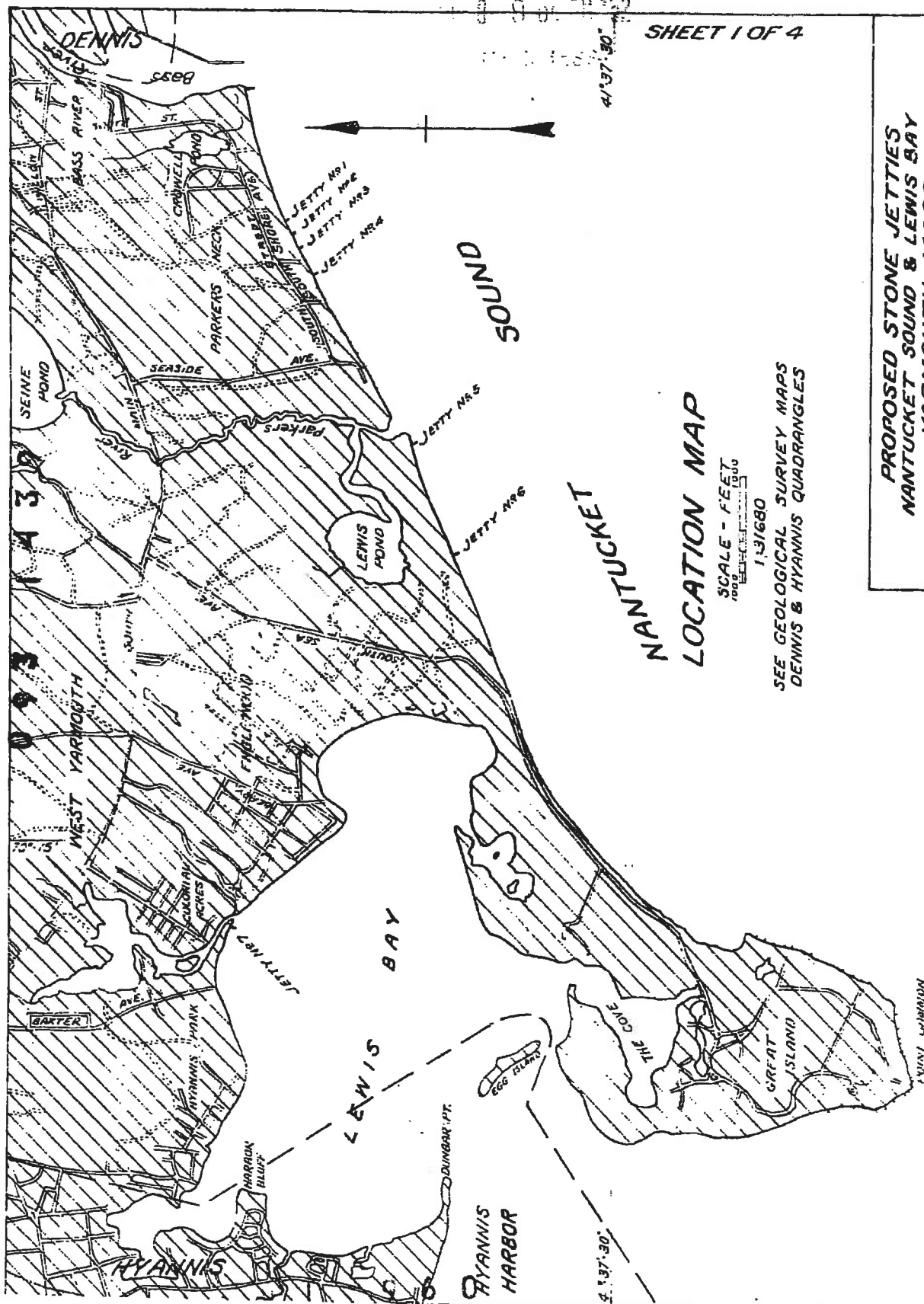
Robert A. Druman

8047

S ENG OFFICE
NEW ENGLAND DIST

083-021-000-049-100
083-025-000-287-100
083-015-000-023-100
083-025-000-297-200

SHEET 1 OF 4



PROPOSED STONE JETTIES
NANTUCKET SOUND & LEWIS BAY
YARMOUTH - MASS.
APPLICATION BY
DIVISION OF PUBLIC WORKS OF MASSACHUSETTS
OCTOBER 1951
District Waterways Engineer

70° 15'

OFFICE
NEW ENGLAND DIST.

083-021-000-049-100
083-025-000-287-100
083-015-000-023-100
083-025-000-297-100

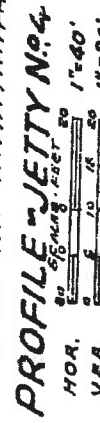
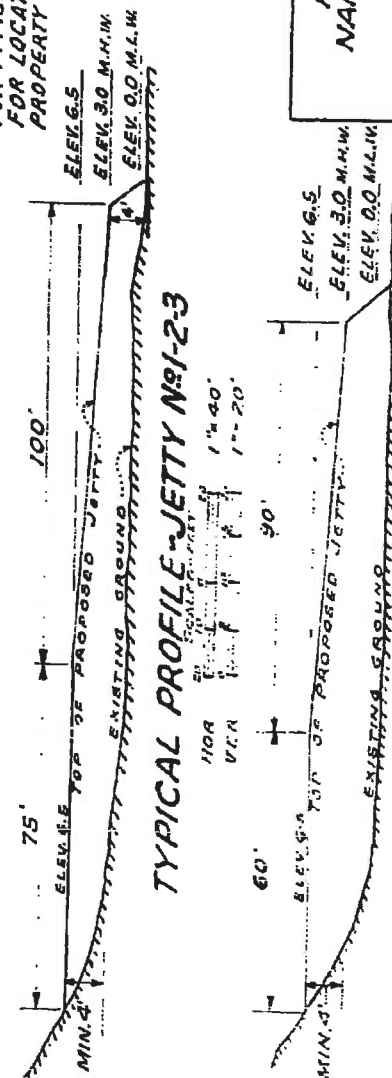
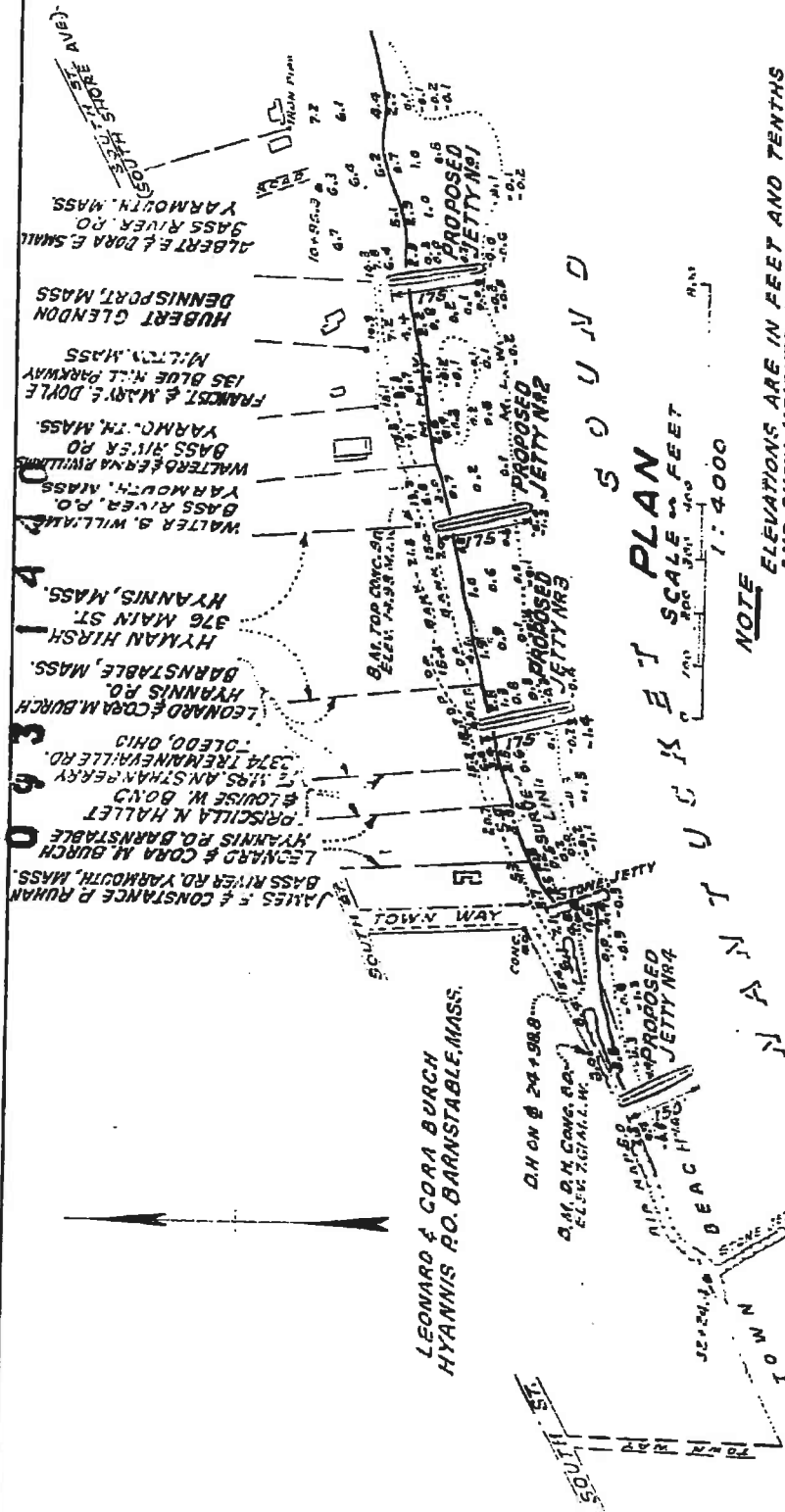
SHEET 2 OF 4

**PROPOSED STONE JETTIES
NANTUCKET SOUND & LEWIS BAY
YARMOUTH, MASS.**

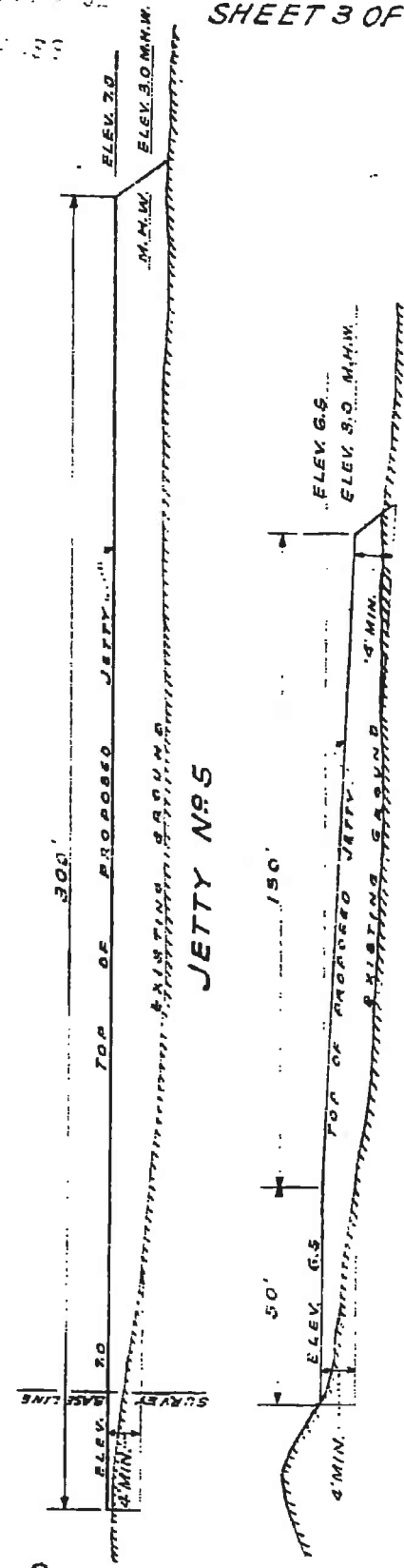
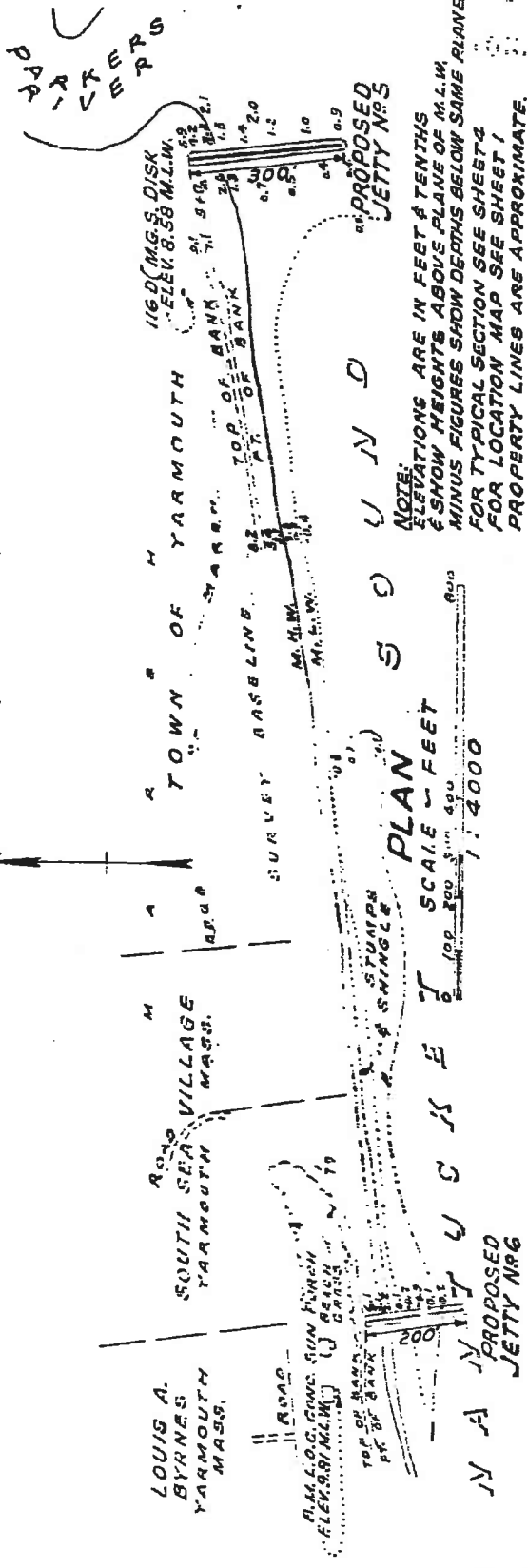
APPLICATION BY
DEPARTMENT OF PUBLIC WORKS OF MASSACHUSETTS
DIVISION OF WATERWAYS

OCTOBER 9, 1951
E. J. [Signature]
DISTRICT WATERWAYS ENGINEER

ACC. 02979-B



093 1441



JETTY NO. 6

PROPOSED PROFILES

HOR. 1" = 40'
VER. 1" = 20'

PROPOSED STONE JETTIES
NANTUCKET SOUND & LEWIS BAY
YARMOUTH, MASS.
APPLICATION BY
DIVISION OF PUBLIC WORKS OF MASSACHUSETTS
DIVISION OF WATERWAYS
OCTOBER 1951
District Waterways Engineer

ACC. 02919-C

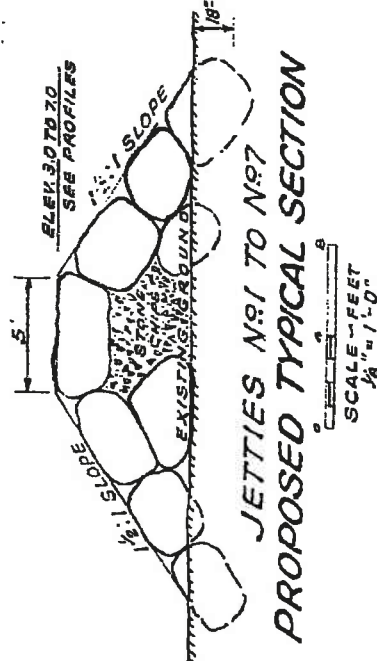
ENG. OFFICE
ENGLAND DIV.

083-021-000-049-100
083-025-000-287-100
083-015-000-023-100
083-025-000-297-200

SHEET 3 OF 4

083-021-000-049-100
083-025-000-287-100
083-015-000-023-100
083-025-000-297-200

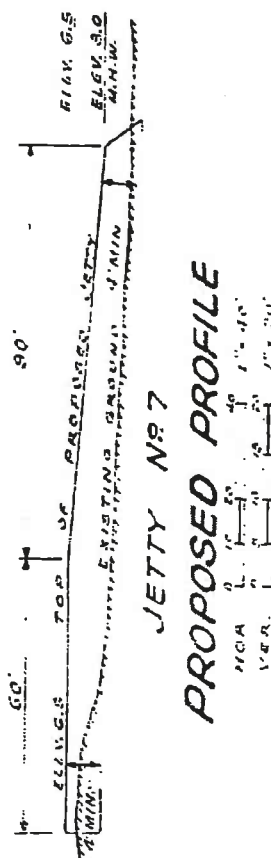
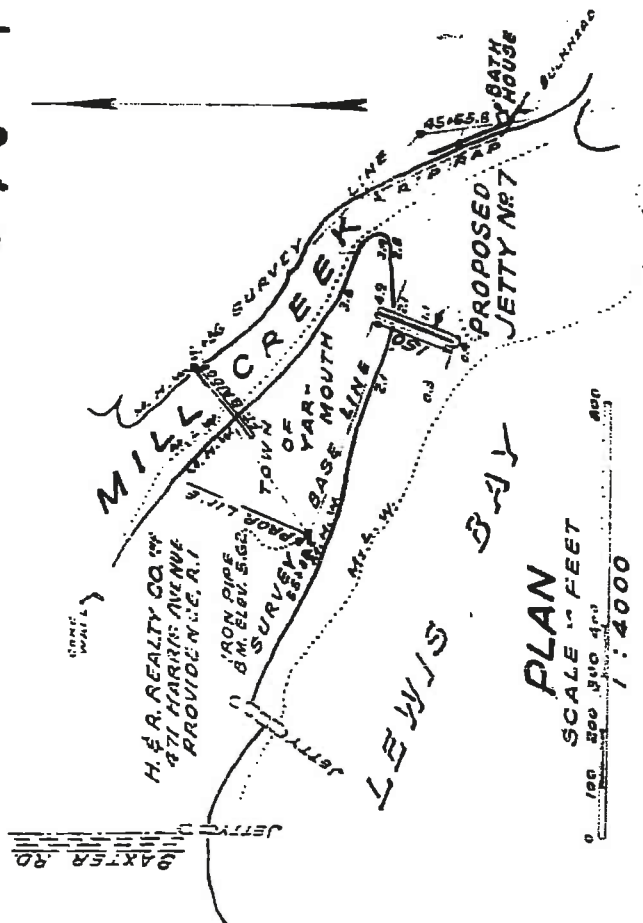
NOTE:
ELEVATIONS ARE IN FEET & TENTHS
AS SHOWN HEIGHTS ABOVE PLANE OF M.L.W.
FOR LOCATION MAP SEE SHEET 1.
PROPERTY LINE APPROXIMATE.



PROPOSED STONE JETTIES
NANTUCKET SOUND & LEWIS BAY
YARMOUTH, MASS.
APPLICATION BY
DEPARTMENT OF PUBLIC WORKS OF MASSACHUSETTS
DIVISION OF WATERWAYS

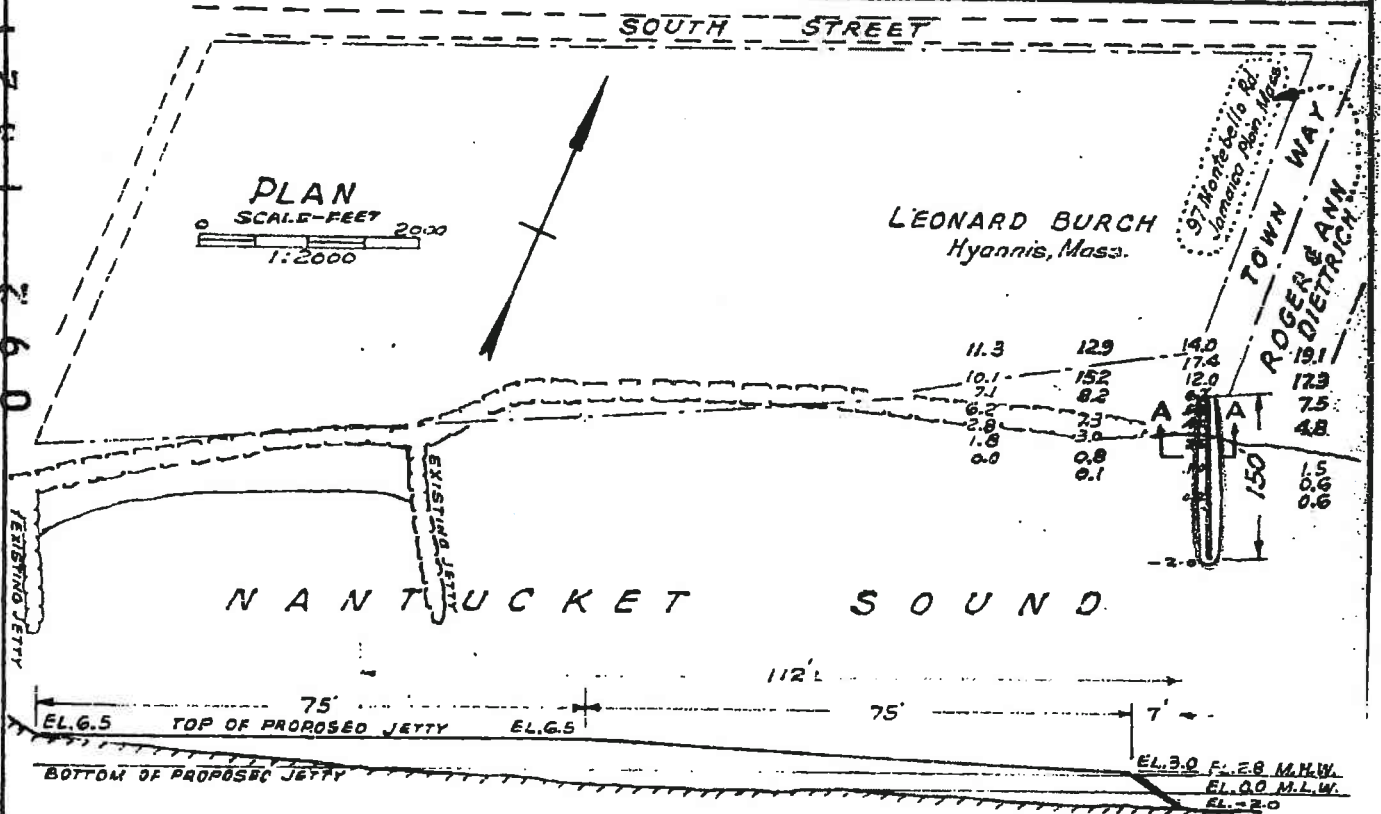
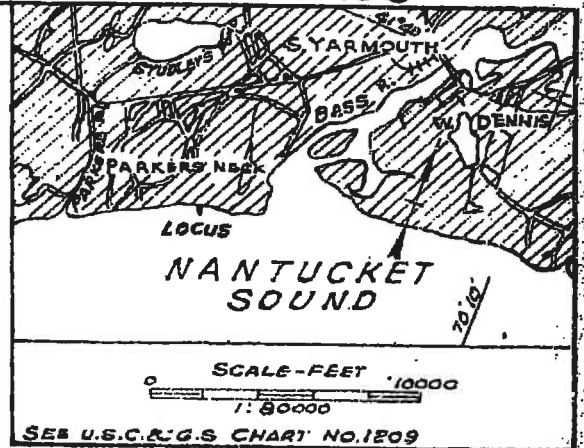
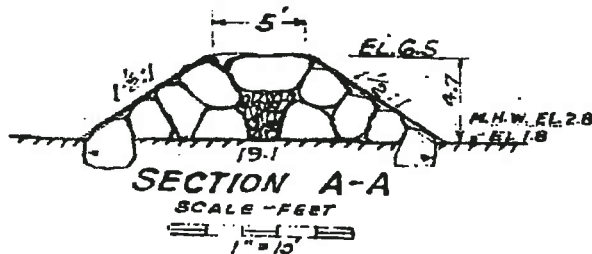
OCTOBER 1951
 Ernest W. Beck
 DISTRICT WATERWAYS ENGINEER

ACC. 02919-0



0970436

083-025-000-287-100



NOTE

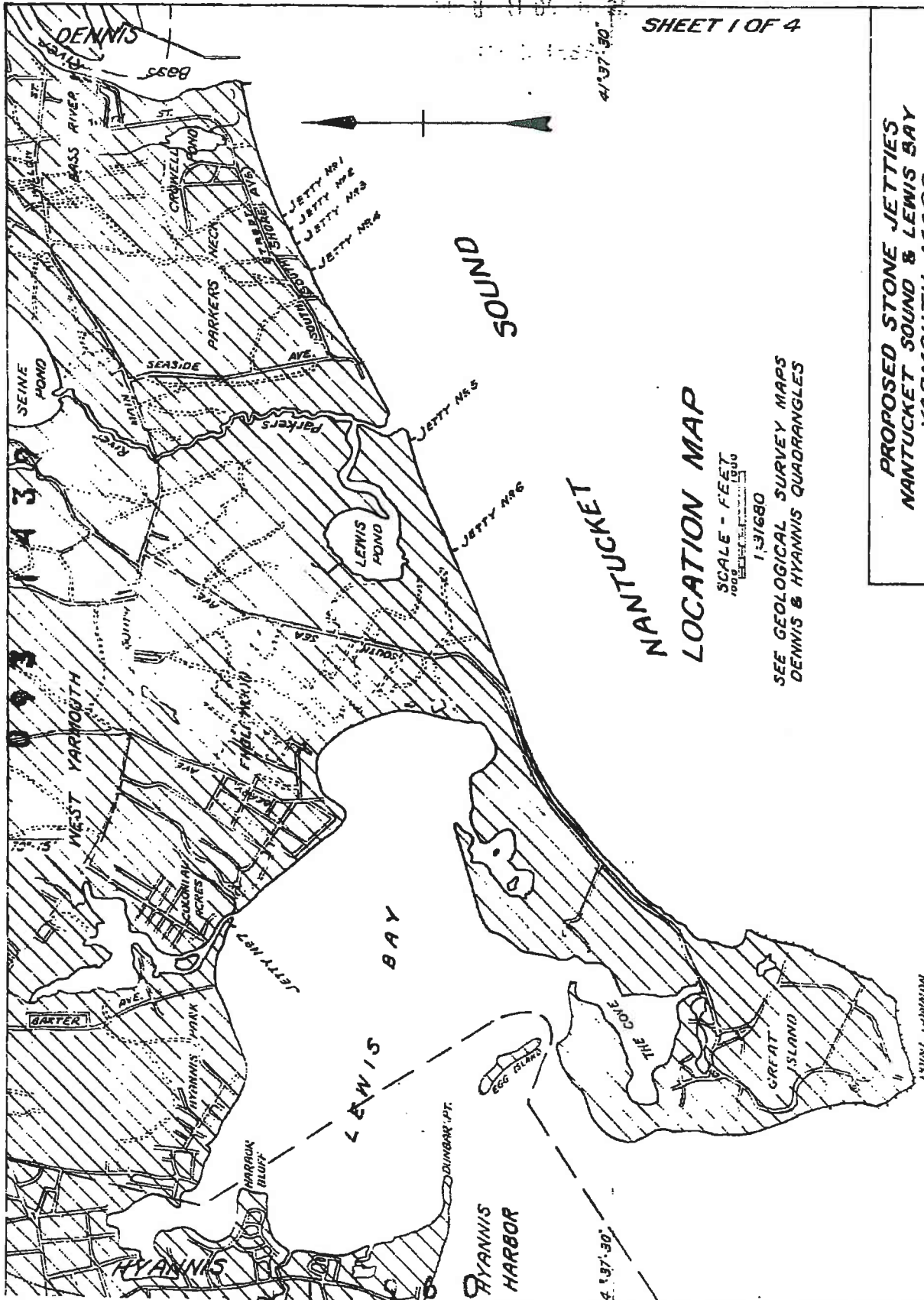
ELEVATIONS ARE IN FEET AND TENTHS ABOVE THE PLANE OF MEAN LOW WATER. MINUS FIGURES SHOW DEPTHS BELOW THE SAME PLANE.

PROPOSED STONE JETTY IN
NANTUCKET SOUND
YARMOUTH SHORE - PARKERS NECK, MASS.
APPLICATION BY
DEPARTMENT OF PUBLIC WORKS OF MASSACHUSETTS
DIVISION OF WATERWAYS
DECEMBER 1948
Eugene M. H. H. H.

083-021-000-049-100
 083-025-000-287-100
 083-015-000-023-100
 083-025-000-297-200

S. ENG. OFFICE
 NEW ENGLAND DIST.

SHEET 1 OF 4



NANTUCKET
 LOCATION MAP

SCALE - FEET
 1000
 1:31680

SEE GEOLOGICAL SURVEY MAPS
 DENNIS & HYANNIS QUADRANGLES

PROPOSED STONE JETTIES
 NANTUCKET SOUND & LEWIS BAY
 YARMOUTH - MASS.

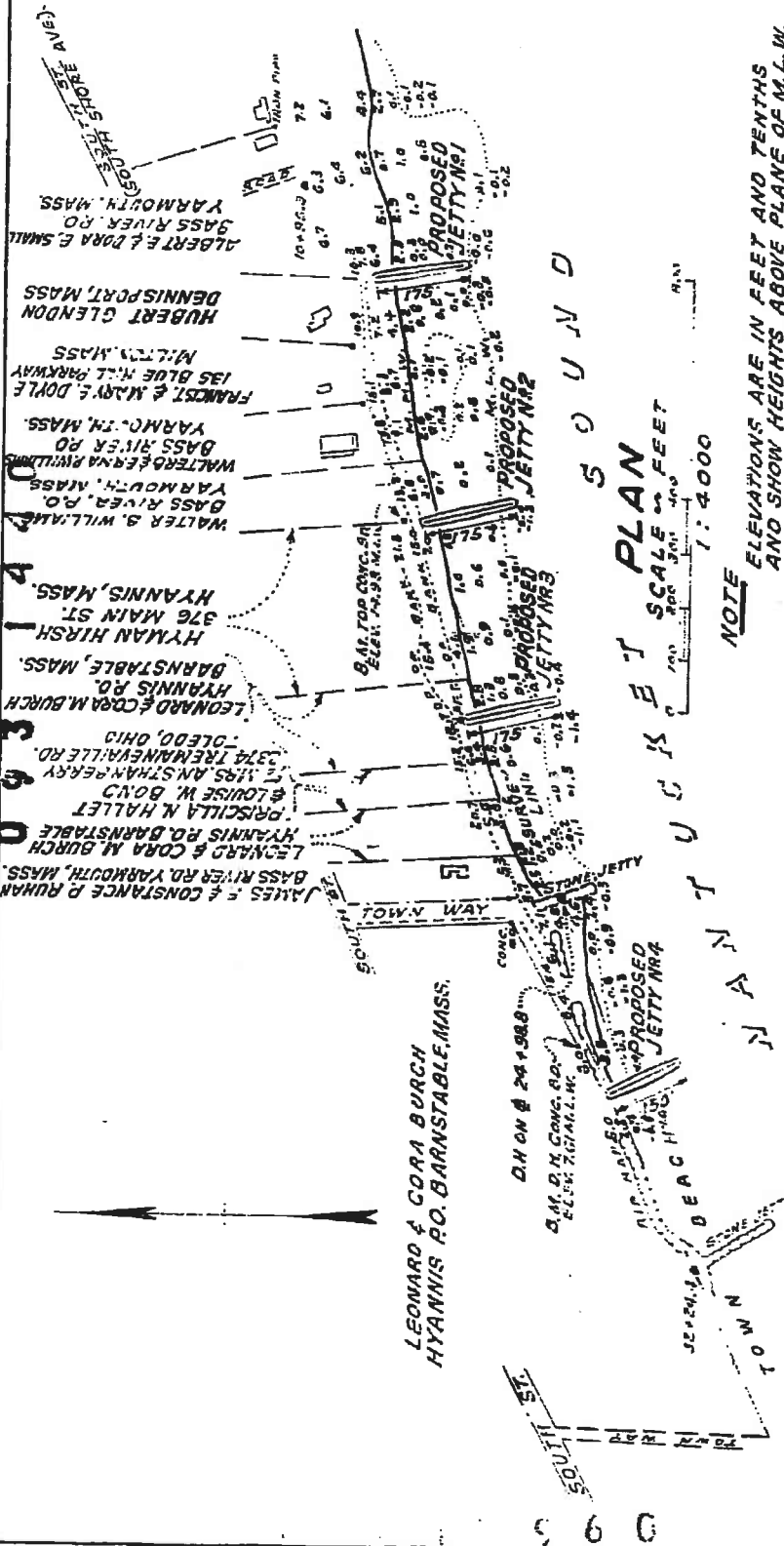
APPLICATION BY
 DIVISION OF PUBLIC WORKS OF MASSACHUSETTS
 OCTOBER 1951

Edward J. Harty
 DISTRICT WATERWAYS ENGINEER

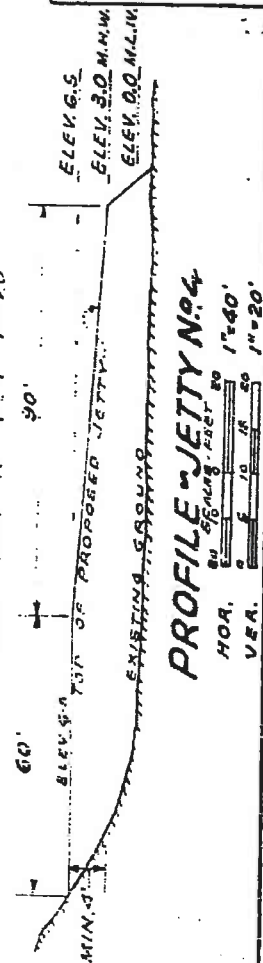
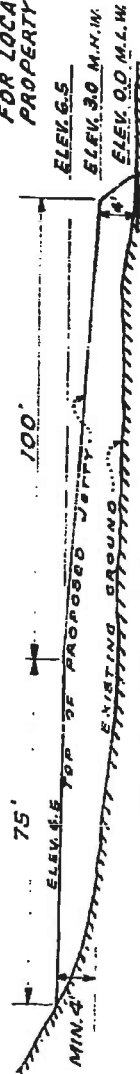
70° 15'

083-021-000-049-100
 083-025-000-287-100
 083-015-000-023-100
 083-025-000-297-100

SHEET 2 OF 4



NOTE
 ELEVATIONS ARE IN FEET AND TENTHS
 AND SHOW HEIGHTS ABOVE PLANE OF M.L.W.
 MINUS FIGURES SHOW DEPTHS BELOW THE SAME PLANE.
 FOR TYPICAL SECTION SEE SHEET 1.
 FOR LOCATION MAP SEE SHEET 1.
 PROPERTY LINES ARE APPROXIMATE.



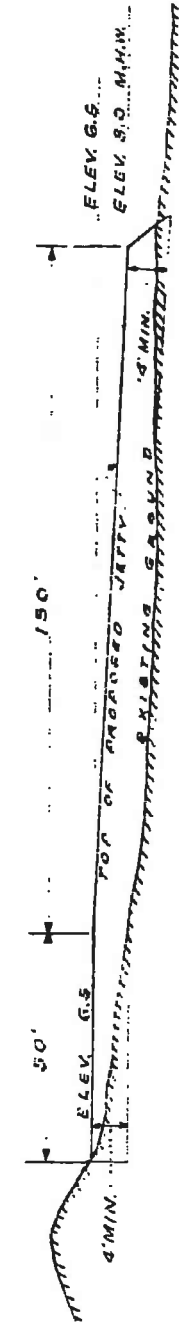
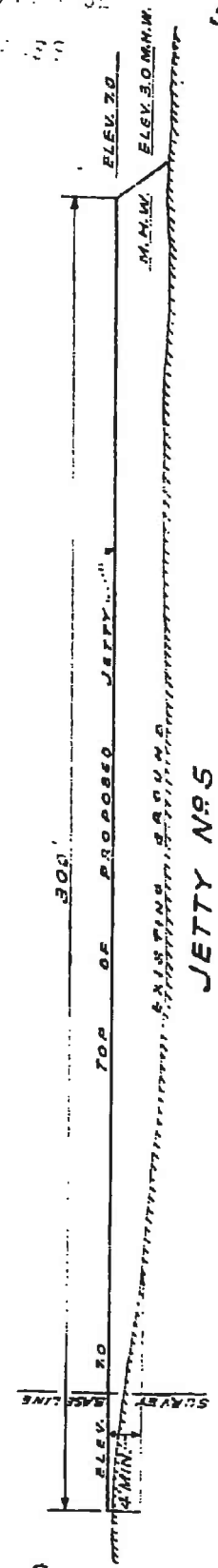
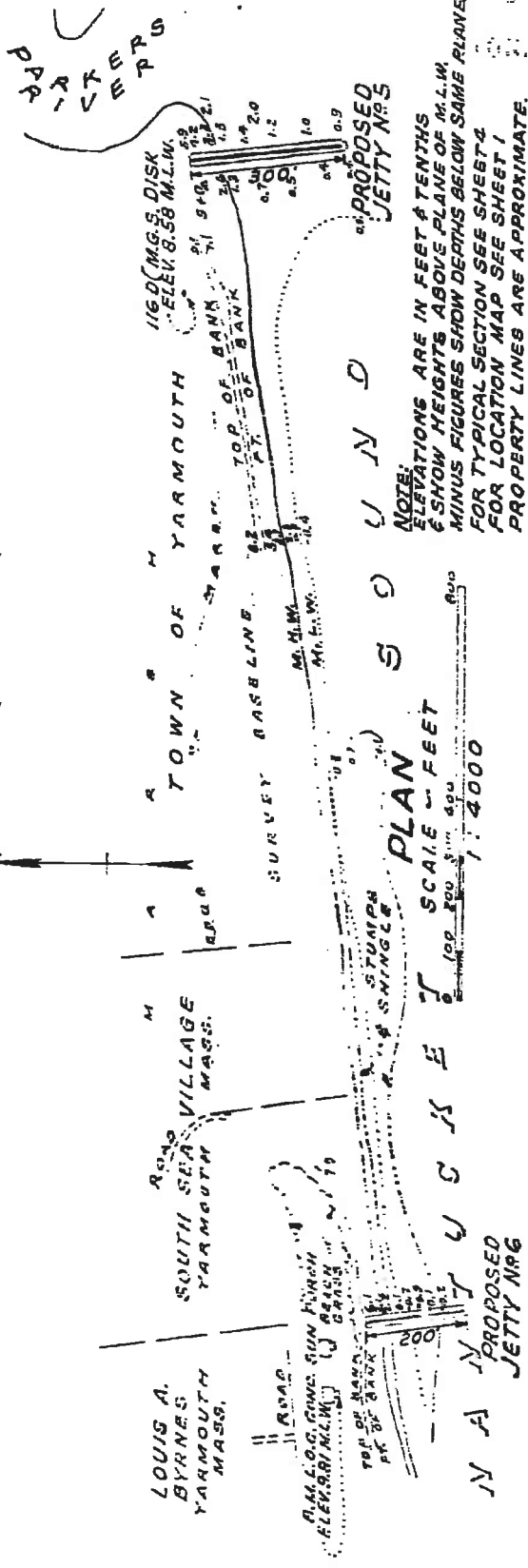
PROPOSED STONE JETTIES
 NANTUCKET SOUND & LEWIS BAY
 YARMOUTH, MASS.

APPLICATION BY
 DIVISION OF PUBLIC WORKS OF MASSACHUSETTS
 DIVISION OF WATERWAYS

OCTOBER, 1951
 DISTRICT WATERWAYS ENGINEER

ACC. 02919-8

0 9 3 1 4 4 1



PROPOSED PROFILES

HOR. 1" = 40'
VER. 1" = 20'

PROPOSED STONE JETTIES
NANTUCKET SOUND & LEWIS BAY
YARMOUTH, MASS.
APPLICATION BY
DIVISION OF PUBLIC WORKS OF MASSACHUSETTS
DIVISION OF WATERWAYS
OCTOBER 1951
District Waterways Engineer

ACC. 02919-C

ENC OFFICE
ENGLAND DIV.

083-021-000-049-100
083-025-000-287-100
083-015-000-023-100
083-025-000-297-200

SHEET 3 OF 4

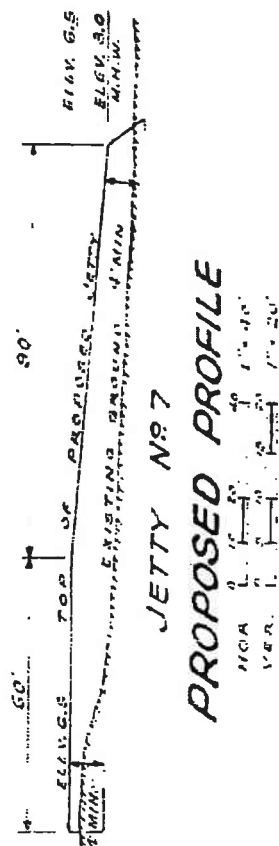
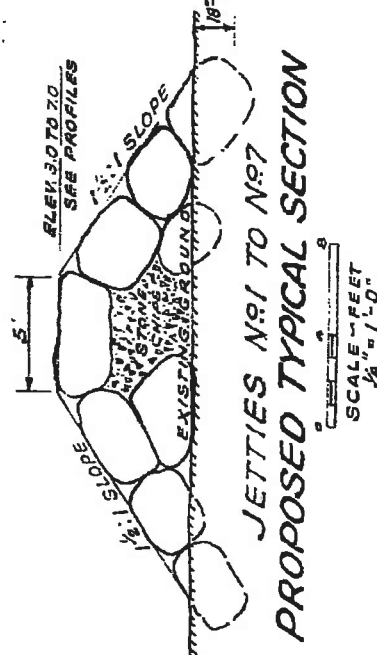
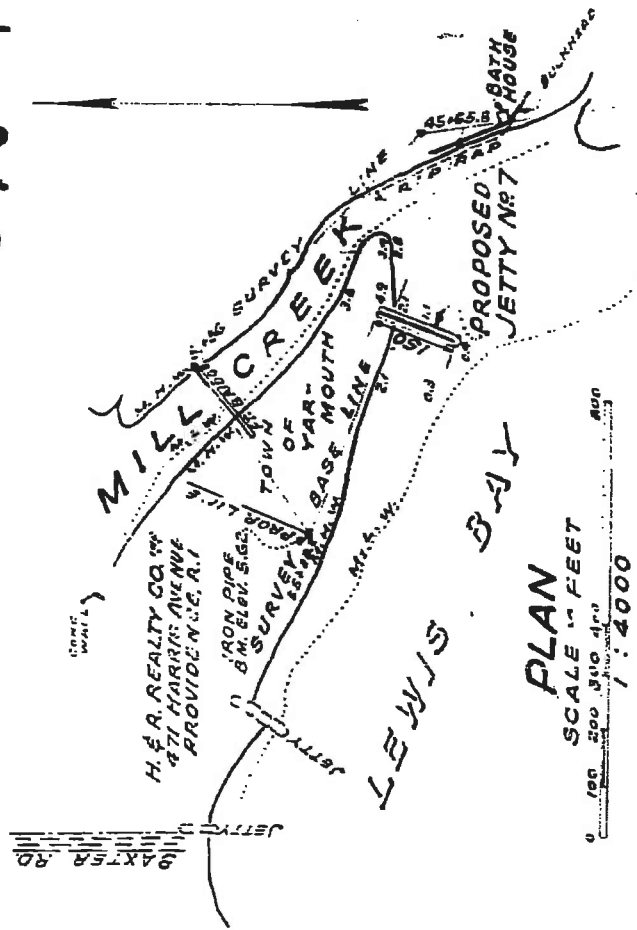
093 1442

3 ENG OFFICE
NEW ENGLAND DIV.

083-021-000-049-100
083-025-000-287-100
083-015-000-023-100
083-025-000-297-200

SHEET 4 OF 4

NOTE:
ELEVATIONS ARE IN FEET & TENTHS
SHOW HEIGHTS ABOVE PLANE OF M.L.W.
FOR LOCATION MAP SEE SHEET 1.
PROPERTY LINE APPROXIMATE.

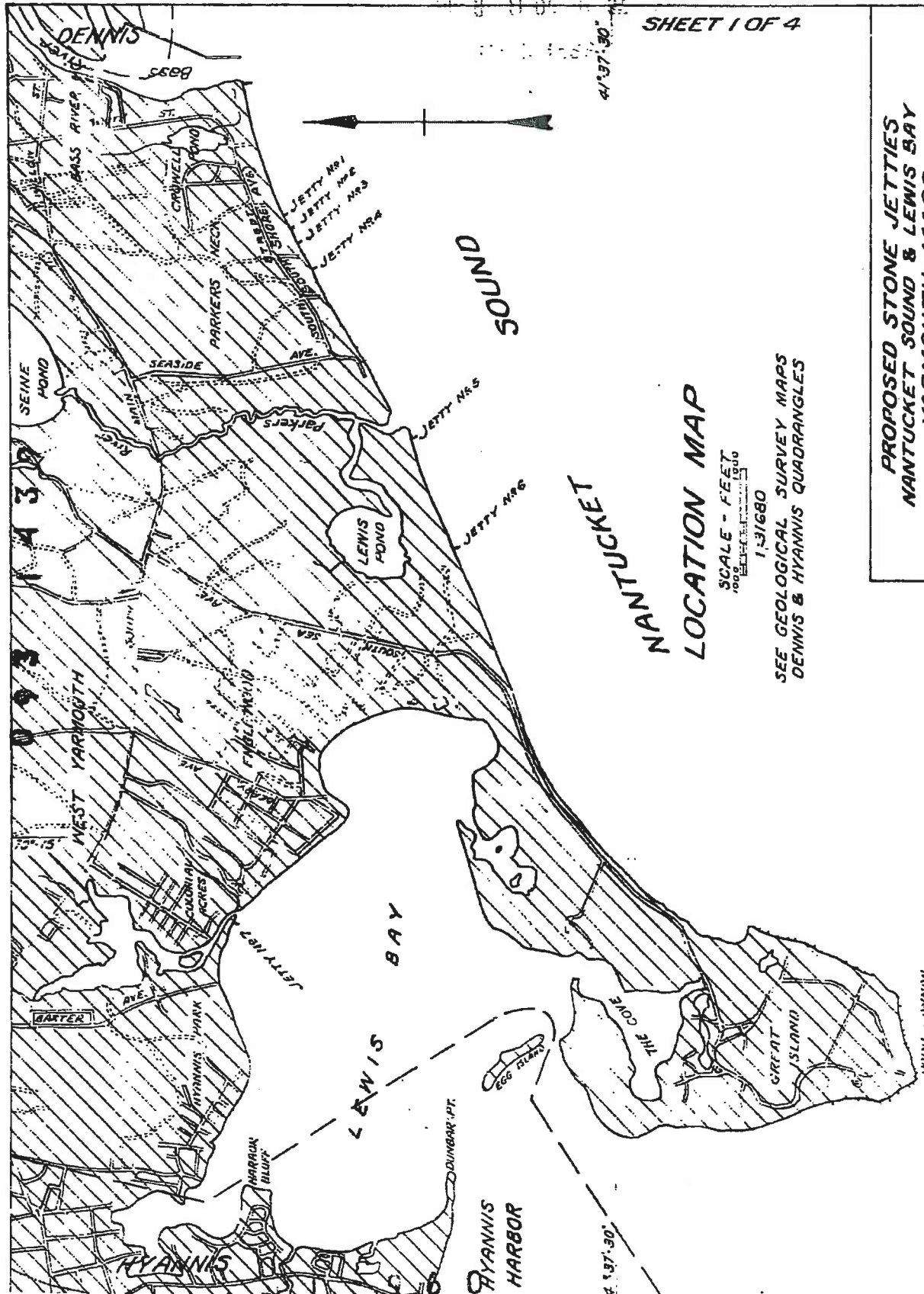


PROPOSED STONE JETTIES
NANTUCKET SOUND & LEWIS BAY
YARMOUTH, MASS.
APPLICATION BY
DEPARTMENT OF PUBLIC WORKS OF MASSACHUSETTS
DIVISION OF WATERWAYS
OCTOBER 1951
ENGINEER
ACC. 02919-0

083-021-000-049-100
 083-025-000-287-100
 083-015-000-023-100
 083-025-000-297-200

SEASIDE OFFICE
 NEW ENGLAND DIST.

SHEET 1 OF 4



PROPOSED STONE JETTIES
 NANTUCKET SOUND & LEWIS BAY
 YARMOUTH - MASS.

APPLICATION BY
 DIVISION OF PUBLIC WORKS OF MASSACHUSETTS
 OCTOBER 1951

Edward J. Harte
 DISTRICT WATERWAYS ENGINEER

70° 15'

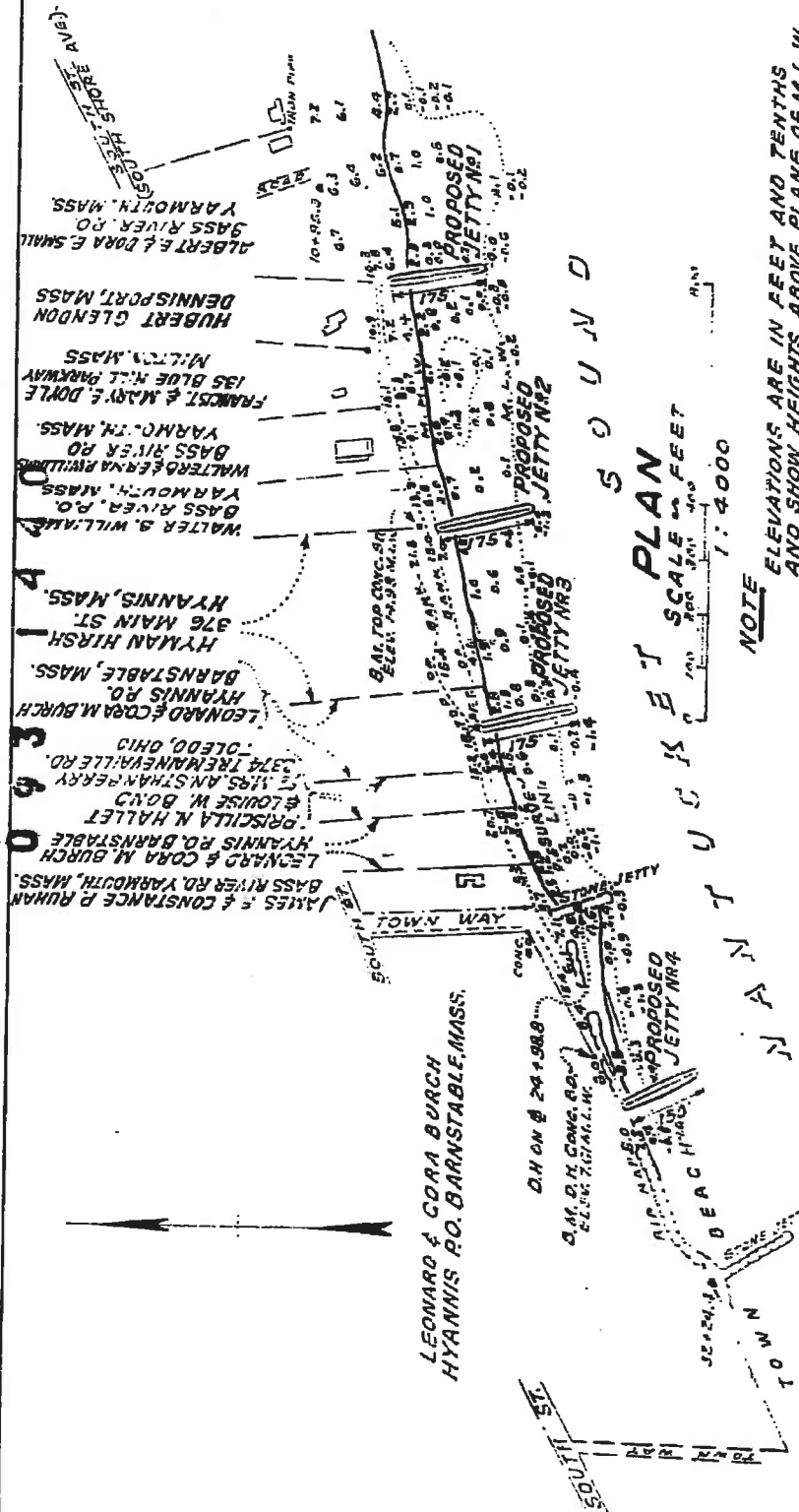
083-021-000-049-100
083-025-000-287-100
083-015-000-023-100
083-025-000-297-100

PROPOSED STONE JETTIES
NANTUCKET SOUND & LEWIS BAY
YARMOUTH, MASS.
PUBLICATION

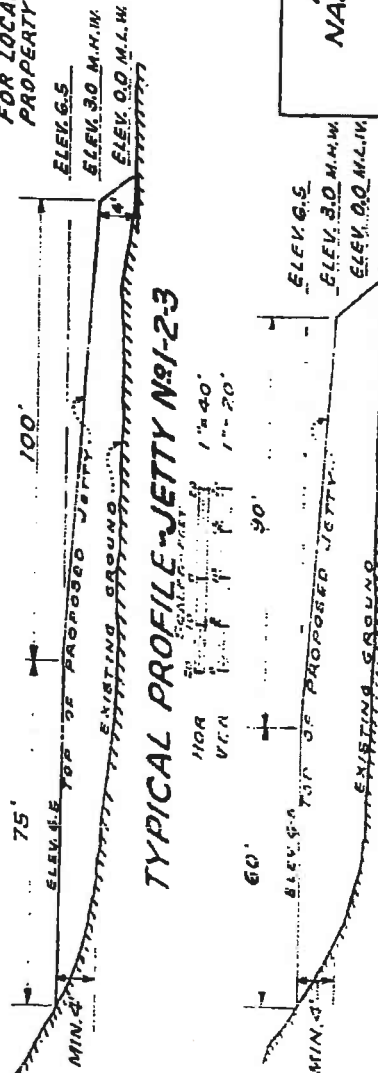
DEPARTMENT OF PUBLIC WORKS OF MASSACHUSETTS
DIVISION OF WATERWAYS

OCTOBER 1951
E. Paul T. Heston
DISTRICT WATERWAYS ENGINEER

ACC. 02919-B



NOTE
ELEVATIONS ARE IN FEET AND TENTHS
AND SHOW HEIGHTS ABOVE PLANE OF M.L.W.
MINUS FIGURES SHOW DEPTHS BELOW THE SAME PLANE.
FOR TYPICAL SECTION SEE SHEET 4.
FOR LOCATION MAP SEE SHEET 1.
PROPERTY LINES ARE APPROXIMATE.



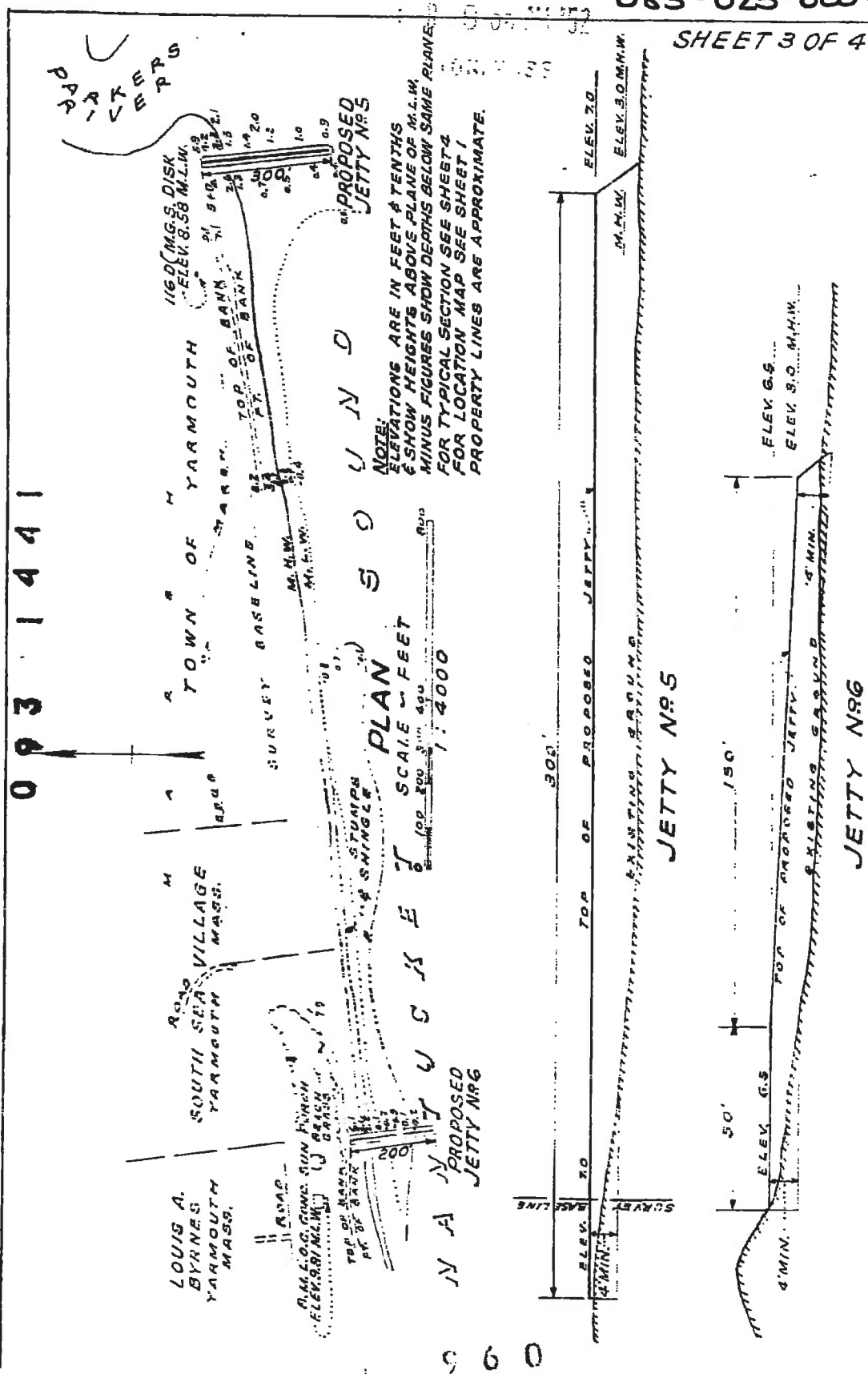
PROFILE - JETTY No. 4

HOR. $1^{\circ}=40'$
 VER. $1^{\circ}=20'$

083-021-000-049-100
083-025-000-287-100
083-015-000-023-100
083-025-000-297-200

PROPOSED STONE JETTIES
NANTUCKET SOUND & LEWIS BAY
YARMOUTH, MASS.
APPLICATION BY
DEPARTMENT OF PUBLIC WORKS OF MASSACHUSETTS
DIVISION OF WATERWAYS
OCTOBER, 1951
Ernest W. Williams
DISTRICT WATERWAYS ENGINEER
ACC. 02919-C

ACC. 02919-C



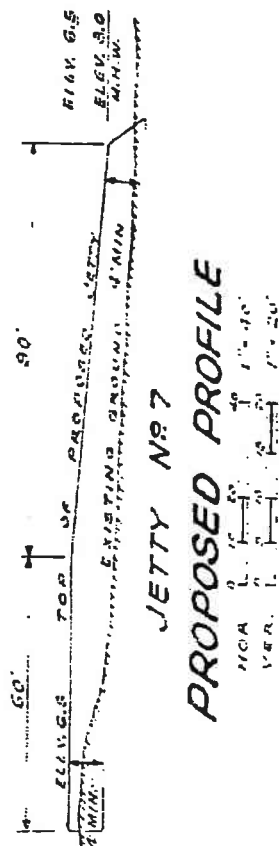
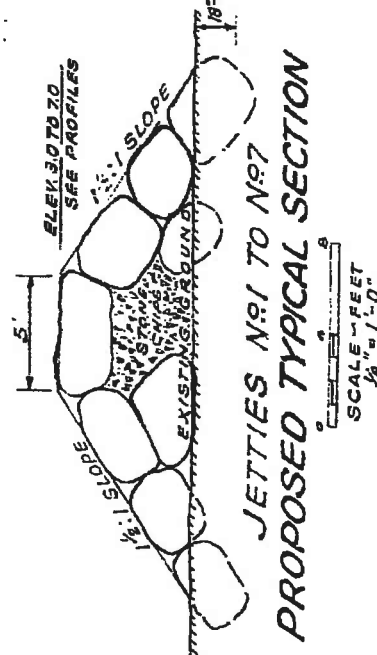
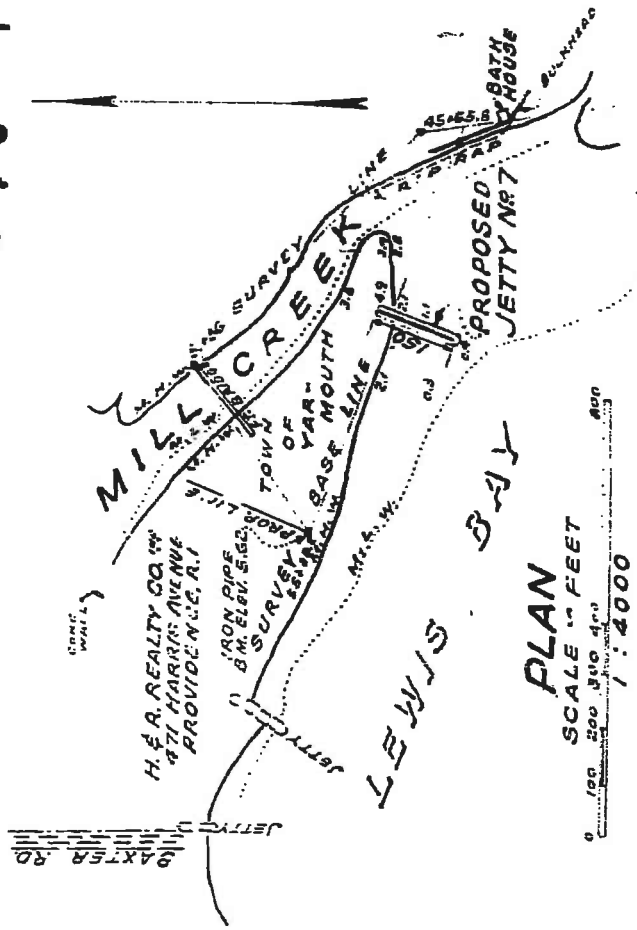
093 1442

3 ENG OFFICE
NEW ENGLAND DIV.

083-021-000-049-100
083-025-000-287-100
083-015-000-023-100
083-025-000-297-200

SHEET 4 OF 4

NOTE:
ELEVATIONS ARE IN FEET & TENTHS
SHOW HEIGHTS ABOVE PLANE OF M.L.W.
FOR LOCATION MAP SEE SHEET 1.
PROPERTY LINE APPROXIMATE.



PROPOSED STONE JETTIES
NANTUCKET SOUND & LEWIS BAY
YARMOUTH, MASS.
APPLICATION BY
DEPARTMENT OF PUBLIC WORKS OF MASSACHUSETTS
DIVISION OF WATERWAYS
OCTOBER 1951
DISTRICT WATERWAY ENGINEER
ACC. 02919-0

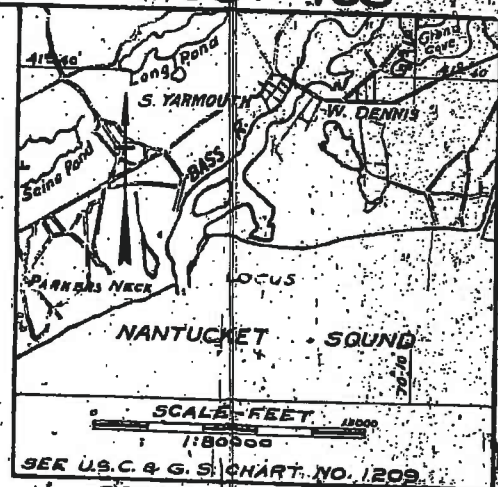
083-026-000-116-200
016-011-000-031-100

PLAN
SCALE- FEET
1:10000

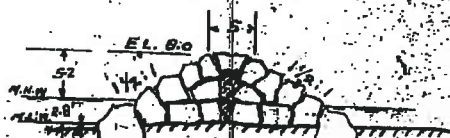
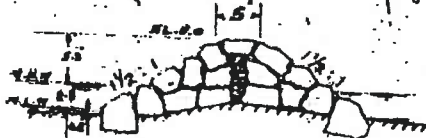
YARMOUTH

BASS RIVER

DENNIS



PROPOSED JETTY REPAIRS
REMAINS OF OLD TIMBER BULKHEAD
& CONCRETE WALL TO BE REMOVED
AND REPLACED WITH STONE JETTY.



PROPOSED JETTY EXTENSION

EXISTING JETTY

PROFILE - WEST JETTY EXTENSION

SCALE- FEET
1" = 20'



PROPOSED EAST JETTY REPAIRS
AND WEST JETTY EXTENSION

BASS RIVER

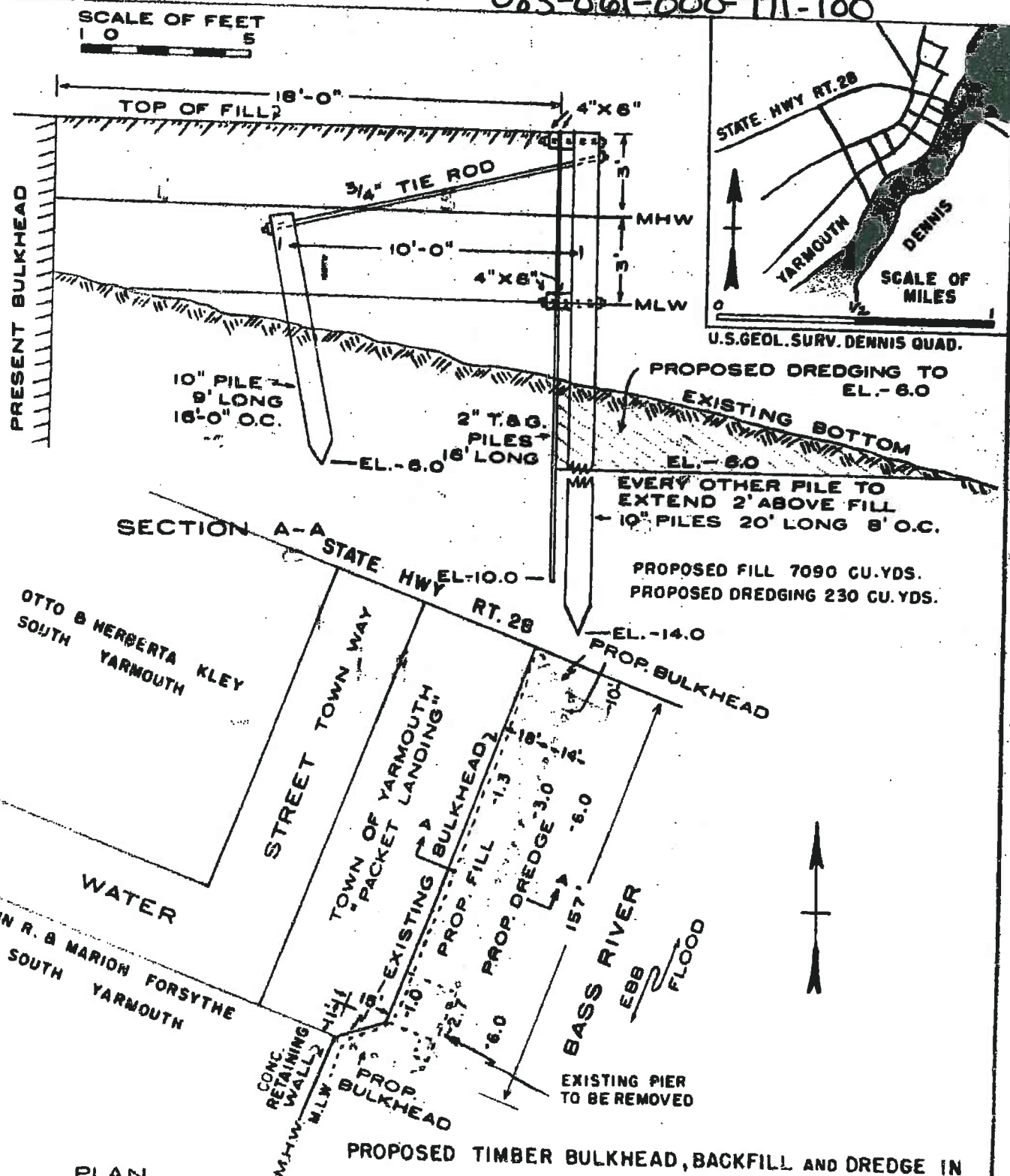
DENNIS & YARMOUTH MASS.

APPLICATION BY
DEPARTMENT OF PUBLIC WORKS OF MASSACHUSETTS
DIVISION OF WATERWAYS

1947

Frederick C. Hopkins
DISTRICT WATERWAYS ENGINEER

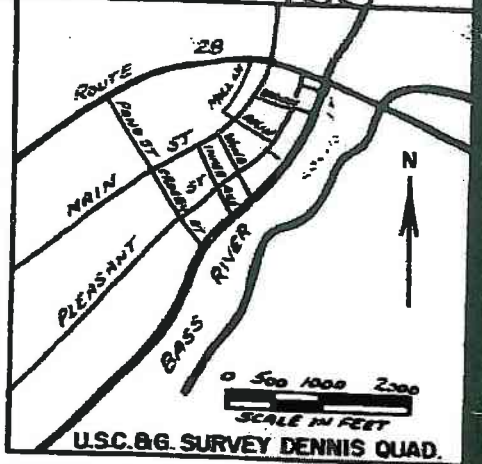
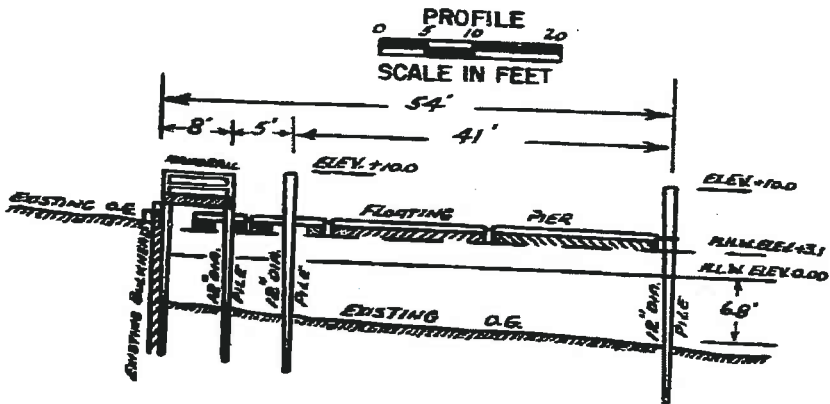
083-061-000-771-100



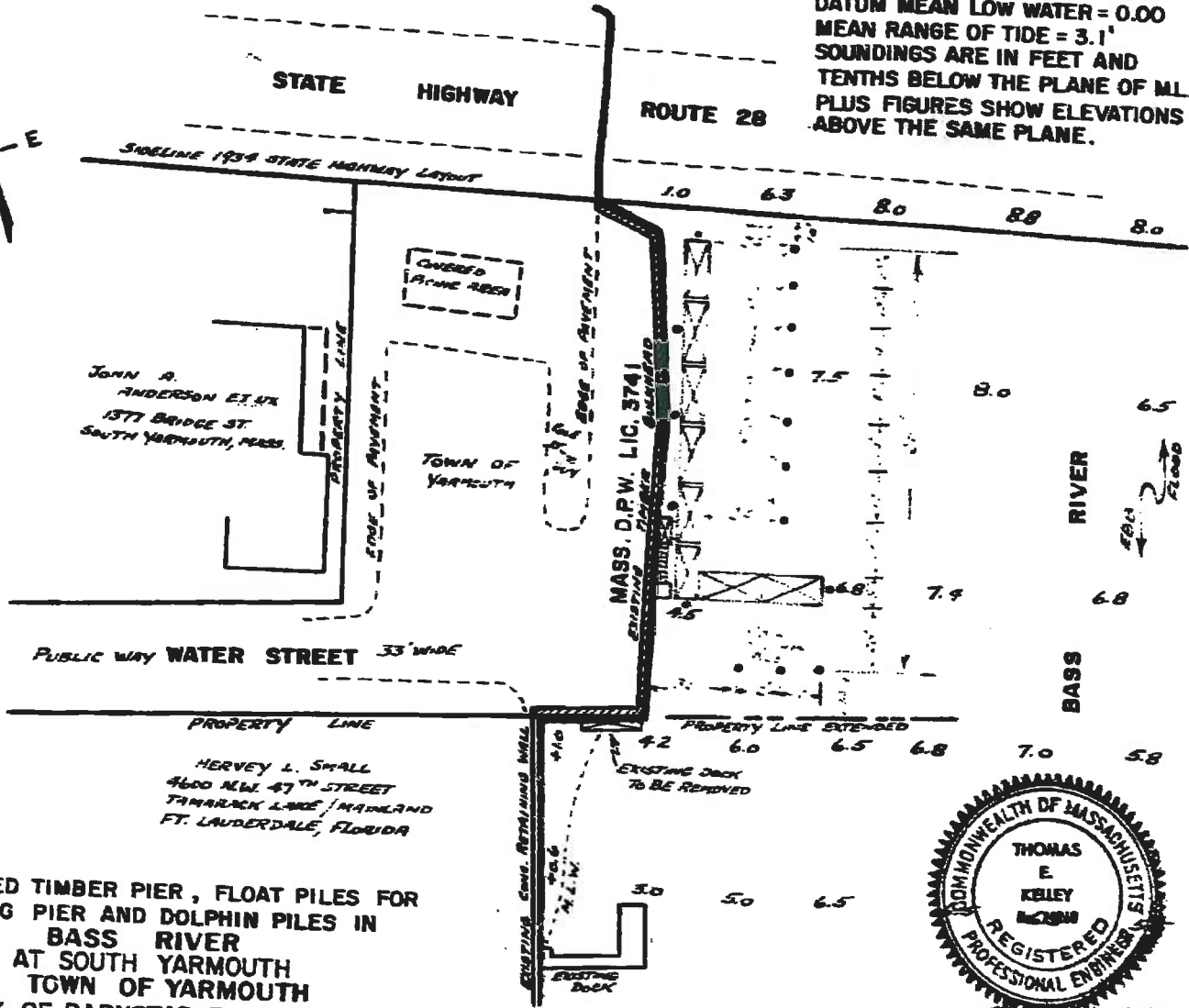
PROPOSED TIMBER BULKHEAD, BACKFILL AND DREDGE IN
BASS RIVER
YARMOUTH

COUNTY OF BARNSTABLE, MASSACHUSETTS
APPLICATION BY THE TOWN OF YARMOUTH
APRIL 20, 1955

083-061-000-771-100



PROPOSED WORK SHOWN IN RED
DATUM MEAN LOW WATER = 0.00
MEAN RANGE OF TIDE = 3.1'
SOUNDINGS ARE IN FEET AND
TENTHS BELOW THE PLANE OF M.L.W.
PLUS FIGURES SHOW ELEVATIONS
ABOVE THE SAME PLANE.



PROPOSED TIMBER PIER , FLOAT PILES FOR
FLOATING PIER AND DOLPHIN PILES IN
BASS RIVER
AT SOUTH YARMOUTH
TOWN OF YARMOUTH
COUNTY OF BARNSTABLE , MASSACHUSETTS
APPLICATION BY
THE TOWN OF YARMOUTH
SCALE AS SHOWN FEBRUARY 1972

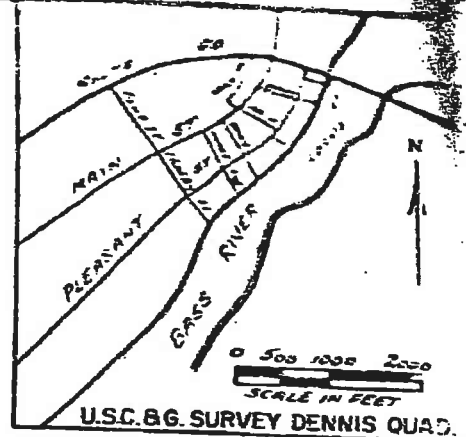
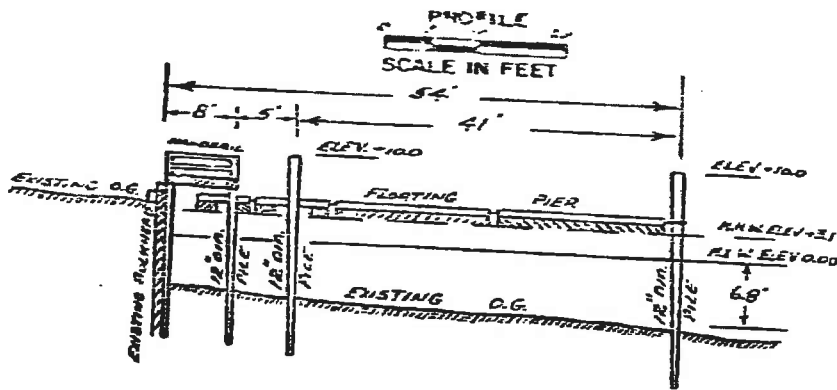


PLAN *Thomas*

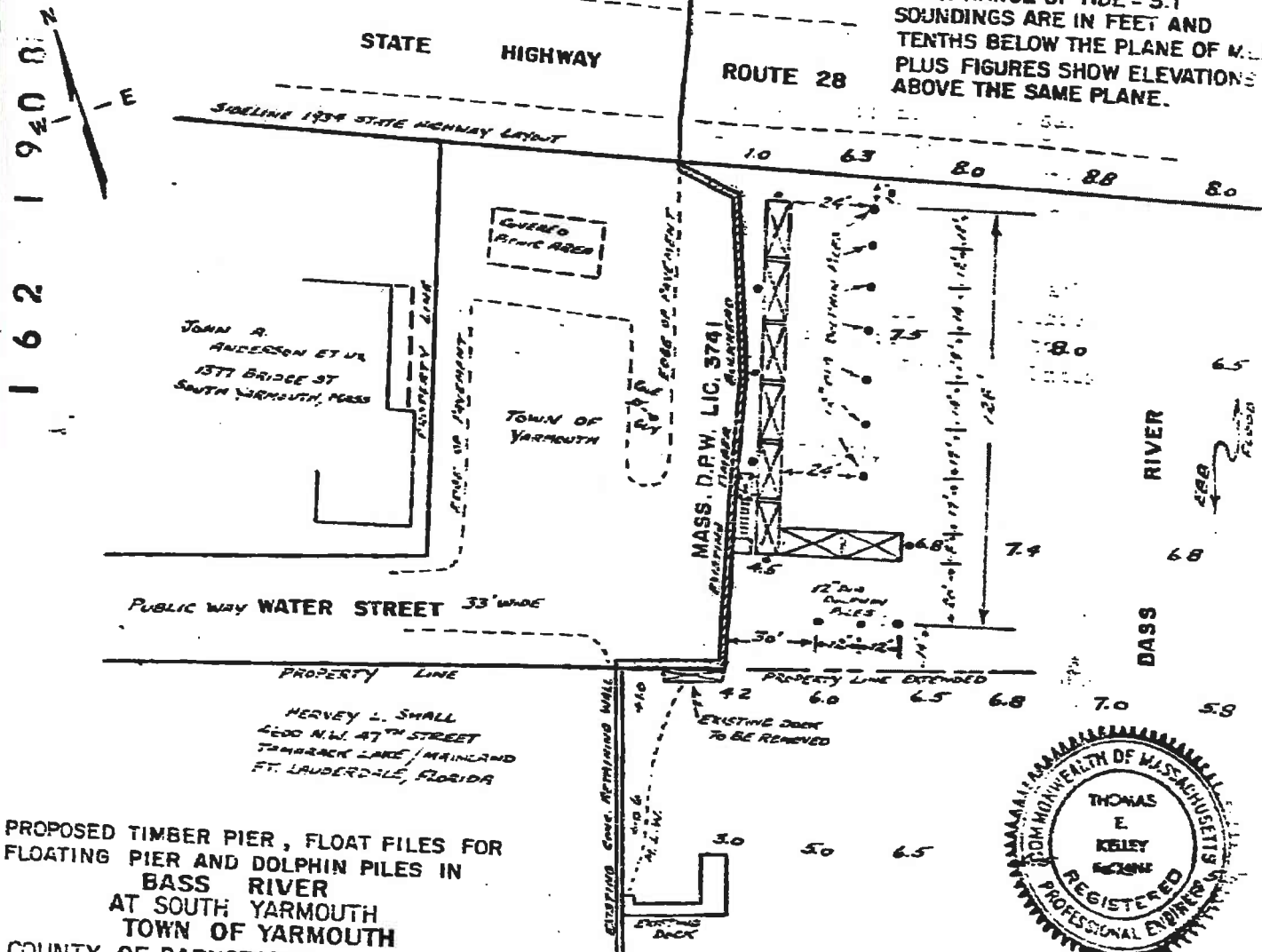
0 10 50 100

SCALE IN FEET

083-061-000-771-100



PROPOSED WORK SHOWN IN RED
DATUM MEAN LOW WATER = 0.00
MEAN RANGE OF TIDE = 3.1'
SOUNDINGS ARE IN FEET AND
TENTHS BELOW THE PLANE OF M.L.W.
PLUS FIGURES SHOW ELEVATIONS
ABOVE THE SAME PLANE.

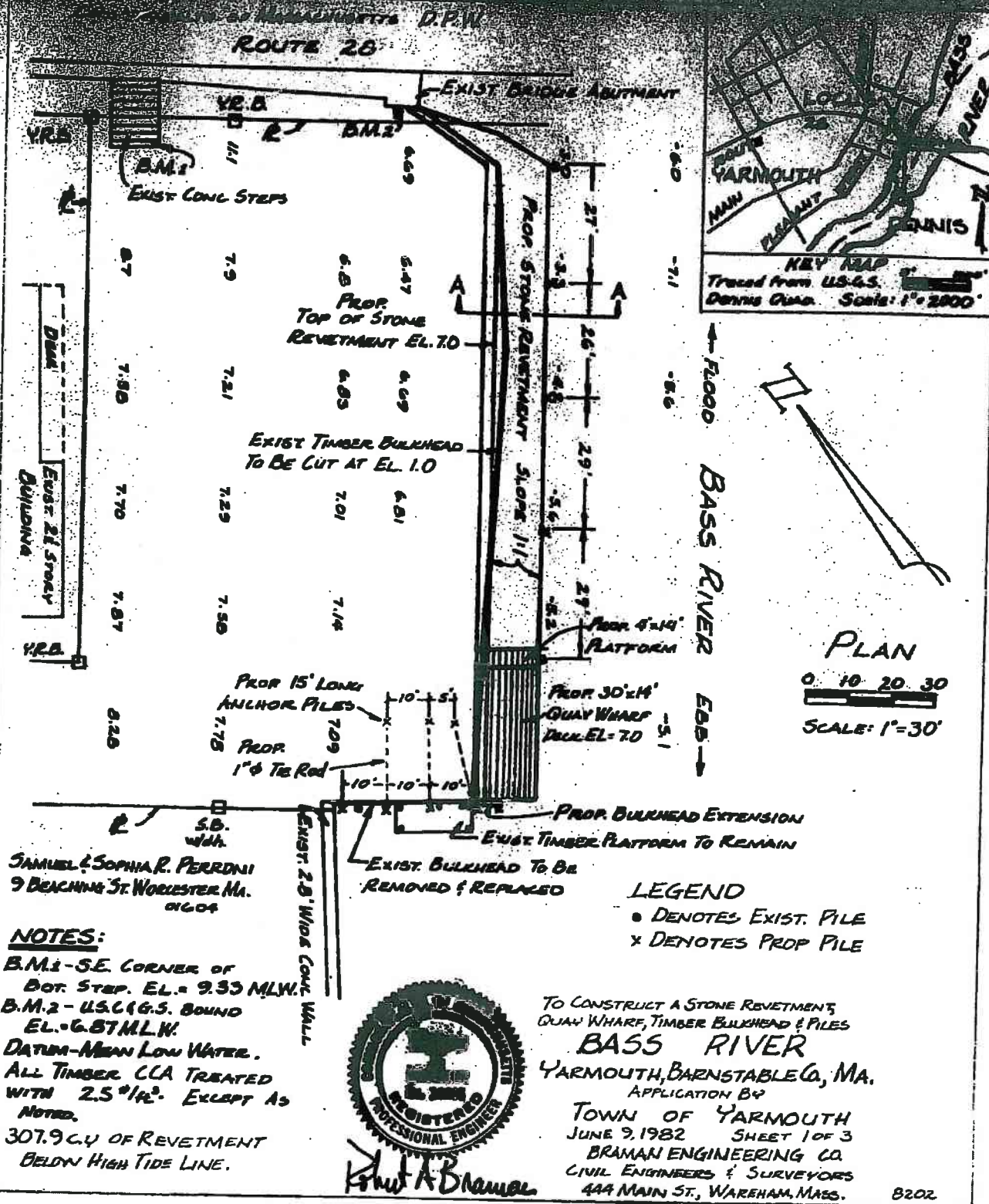


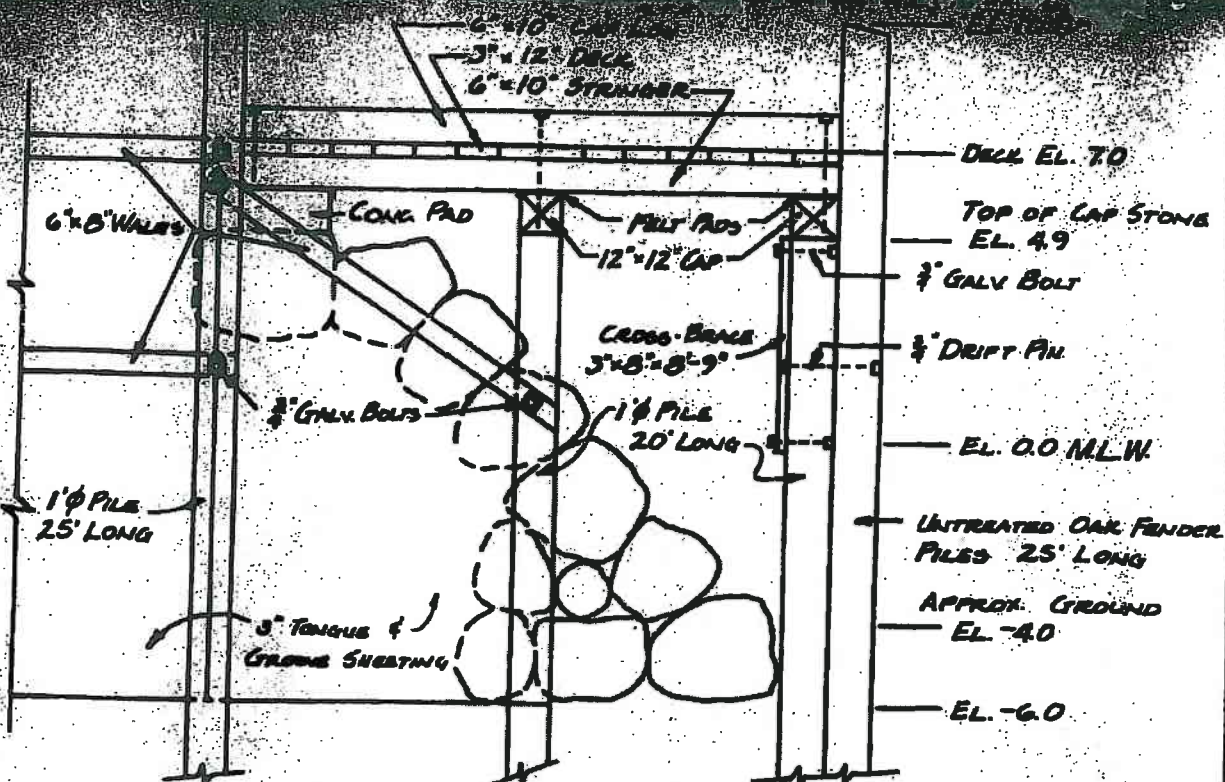
PROPOSED TIMBER PIER, FLOAT FILES FOR
FLOATING PIER AND DOLPHIN PILES IN
BASS RIVER
AT SOUTH YARMOUTH
TOWN OF YARMOUTH
COUNTY OF BARNSTABLE, MASSACHUSETTS
APPLICATION BY
THE TOWN OF YARMOUTH
SCALE AS SHOWN
FEBRUARY 1972

PLAN
0 10 50 100
SCALE IN FEET

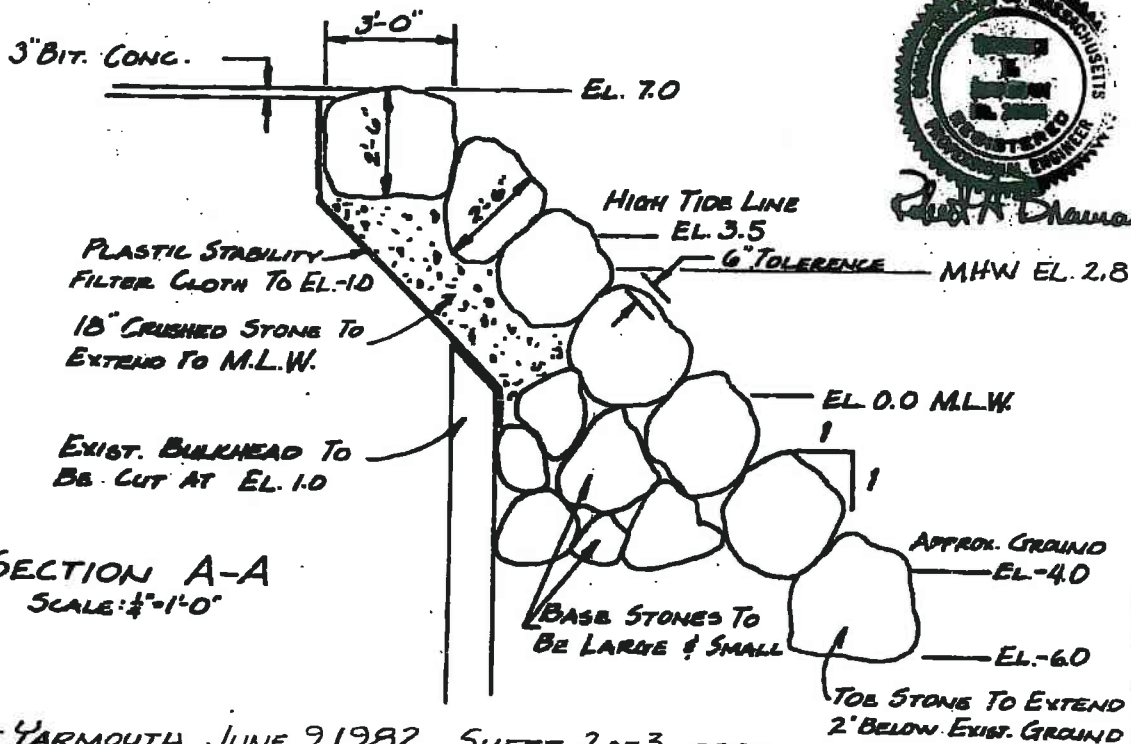
083-061-000-771-100

0981906





PROFILE OF BULKEAD & WHARF SCALE: $\frac{1}{4}" = 1'-0"$

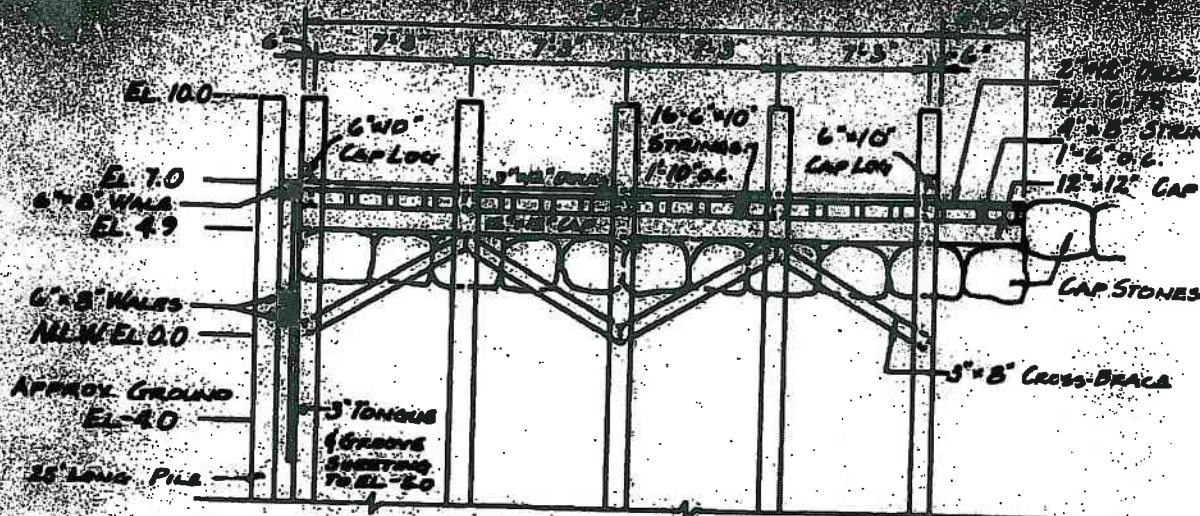


SECTION A-A
SCALE: $\frac{1}{4}" = 1'-0"$

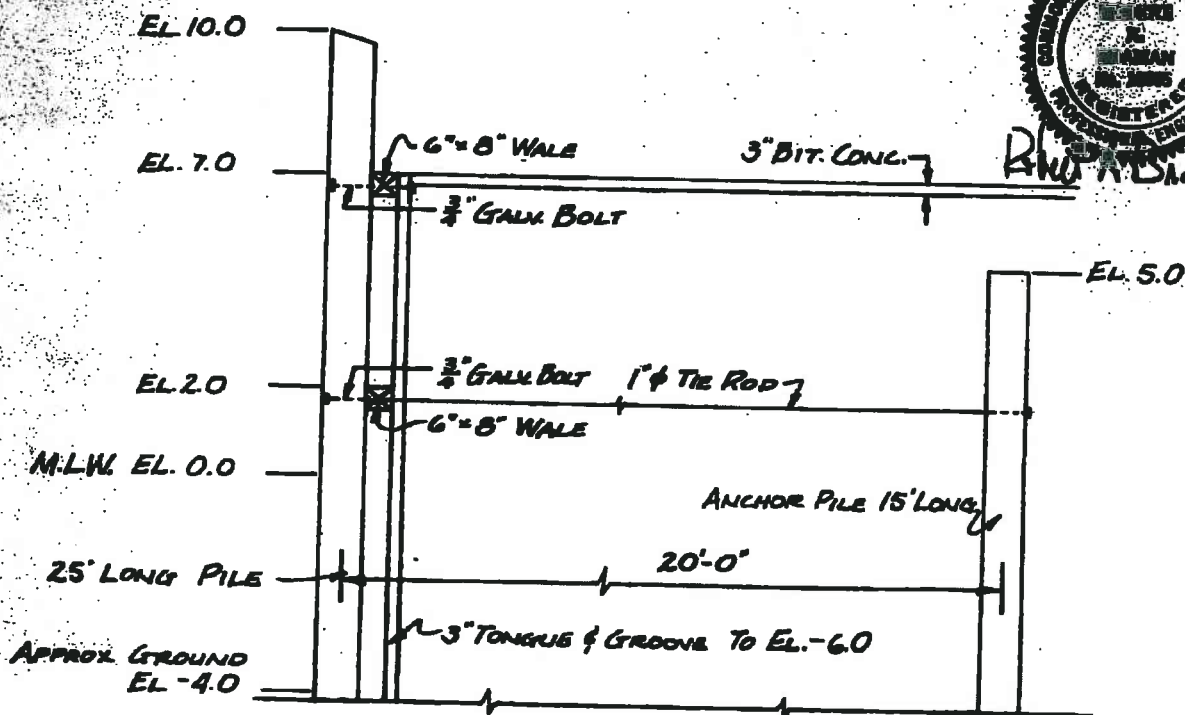


Robert A. Chamon

083-061-000-771-100

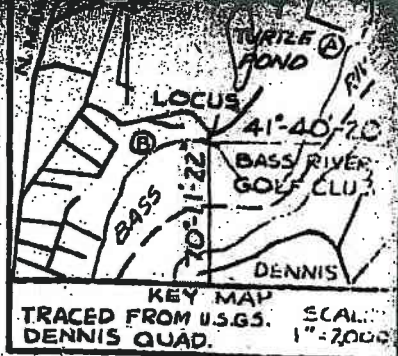
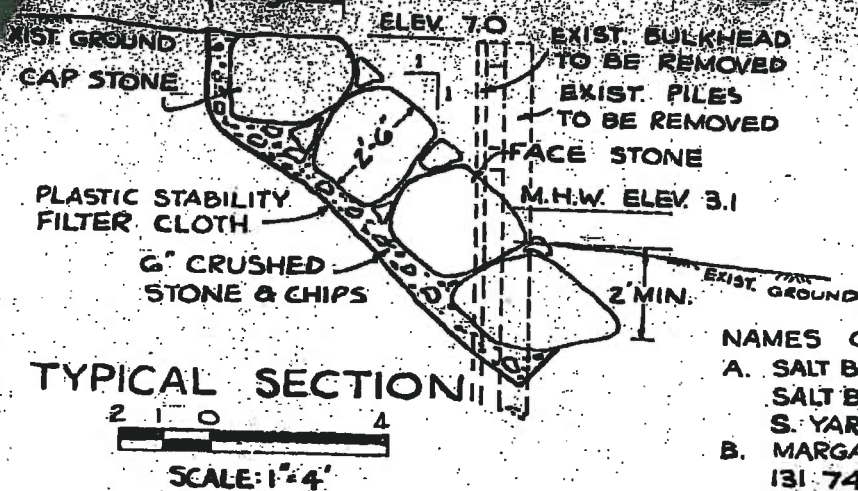


5 UNTREATED OAK FENDER PILES 7'-3" O.C. 25' LONG
WHARF ELEVATION SCALE: $\frac{1}{8}" = 1'-0"$

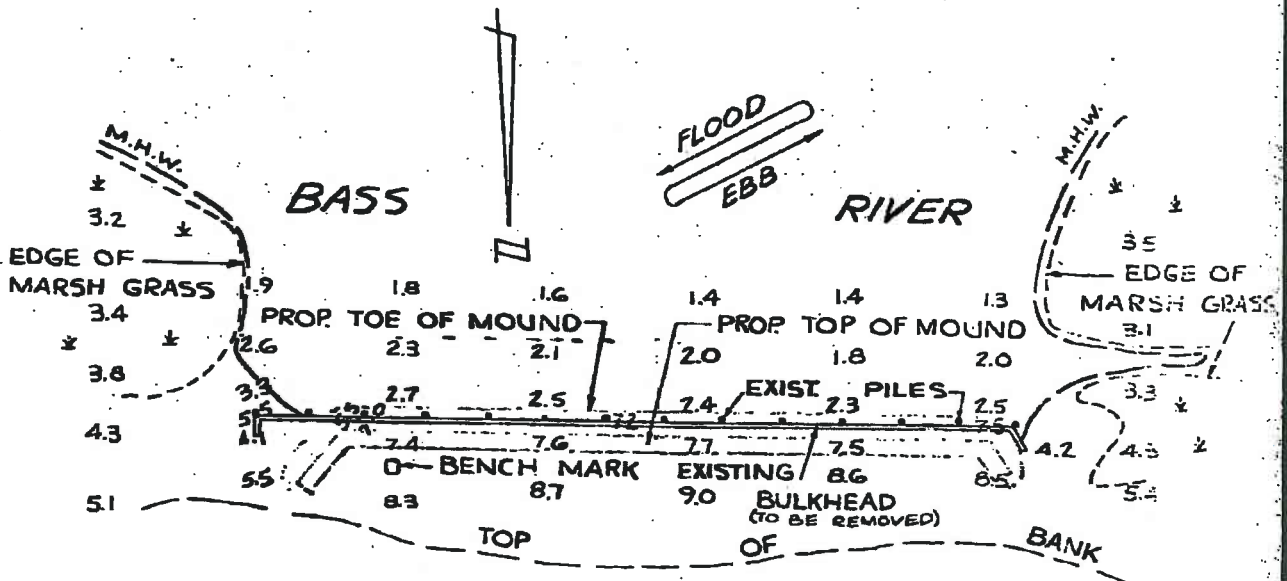


DETAIL OF BULKHEAD SCALE: $\frac{1}{4}" = 1'-0"$

083-080-000-117-100



NAMES OF ABUTORS:
 A. SALT BOX ASSO., INC.
 SALT BOX ROAD
 S. YARMOUTH, MA.
 B. MARGARET M. GOLDRICK KELLY
 131 74TH ST. APT. 3A
 BROOKLYN, N.Y.



NOTES:
 ELEVATIONS ARE IN FEET & TENTHS
 ABOVE THE PLANE OF MEAN LOW
 WATER.
 BENCH MARK: HIGH CORNER OF
 A CONTROL VALVE BOX RIM
 ELEV. 7.71 M.L.W.

PLAN
 SCALE: 1"=30'



Robert K. Brannan

PLAN ACCOMPANYING PETITION OF
 TOWN OF YARMOUTH
 TO CONSTRUCT A STONE MOUND

BASS RIVER
 YARMOUTH, MASS.

NOVEMBER 26, 1981 SHEET 1 OF 1
 BRAMAN ENGINEERING COMPANY

LICENSE PLAN NO. 858
 Received by Department of Environmental Quality Engin...
 of Massachusetts MAY 17, 1982
 COMMISSIONER
 CHIEF ENGINEER

296 1538

Section IV

Dennis

Section IV – Community Findings – Town of Dennis

COMMUNITY DESCRIPTION

The Town of Dennis consists of a land area of 20.61 square miles out of a total area of 22.24 square miles and had a population of 15,973 in the 2000 census. The Town is located on Cape Cod of Massachusetts and its location can be seen on this report's cover. The estimated length of shoreline is 14 miles that are directly exposed to open ocean. The Town is protected from major coastal storms by both natural and man-made shoreline structures that require maintenance to insure the long term protection of its coastline. The man-made and publicly owned structures that protect the Town were investigated for their ability to provide adequate protection from major coastal storms. Structures have been identified as publicly owned, including coastal dunes and beaches, based on evidence of investment of public funds made to create/enhance/maintain these structures. The assessment did not include floating or pile supported structures as they are assumed not to provide any significant coastal protection from major storm events.

STRUCTURE INVENTORY

Within the Town of Dennis, there were 49 structures which had public or unknown ownership which provide significant coastal protection. The location of the structures can be seen in Sheets 1 through Sheet 14 in Section IV-B of this report. The structures were categorized by their type and by their structural condition based on a preliminary field assessment. The distribution of structures by type and condition can be seen in the following table:

STRUCTURE TYPE AND QUANTITY - Town of Dennis

Primary Structure (1)	Total Structures	Structure Condition Rating				F	Total Length
		A	B	C	D		
Bulkhead / Seawall	13	5	1	7			6770
Revetment	24	2	10	8	4		4980
Breakwater	1				1		740
Groin / Jetty	11		3	8			6230
Coastal Dune							
Coastal Beach							
	49	7	14	23	5		18720

Within the above table, the total length of each type of structure is also provided. The structures are listed by the type which is providing the primary coastal protection. Many sites have multiple structure types at the same location (i.e. revetment in front of seawall). These secondary structures, although not identified within these tables, are included in the development of repair/rehabilitation costs.

The development of repair costs has been included by structure type and by condition. In the Town of Dennis's case there are a total of 42 structures which would require approximately \$ 13.5 million to bring all the coastal structures to "A" Rating. Most critical will be the structures in the "D" and "F" classifications as those are assumed to undergo some level of damage or failure during the next major coastal storm event. To reconstruct these structures, identified in the preliminary survey as being in poor condition, an estimated \$ 2.6 million would be required to upgrade the Town's coastal protection.

**MASSACHUSETTS COASTAL INFRASTRUCTURE
INVENTORY AND ASSESSMENT PROJECT**

STRUCTURE REPAIR / RECONSTRUCTION COST - Town of Dennis

Primary Structure (1)	Total Structures	Structure Condition Rating					Total Cost
		A	B	C	D	F	
Bulkhead / Seawall	13		\$ 24,288	\$ 2,875,755			\$ 2,900,043
Revetment	24		\$ 208,216	\$ 1,551,244	\$ 785,393		\$ 2,544,853
Breakwater	1				\$ 1,777,776		\$ 1,777,776
Groin / Jetty	11		\$ 473,980	\$ 5,829,320			\$ 6,303,300
Coastal Dune							\$ -
Coastal Beach							\$ -
	49	\$ -	\$ 706,484	\$ 10,256,319	\$ 2,563,169	\$ -	\$ 13,525,972

Based on the limited research within the scope of this project research, the presumed ownership of the structures was established on an initial basis and would be subject to more intense review in future tasks. Structures identified as being owned privately were excluded from further consideration. Although ownership of the land on which the structure was located was a factor, the structure ownership was treated as a separate issue from land ownership. For the Town of Dennis, the breakdown of structures by assumed ownership is as follows:

STRUCTURE OWNERSHIP / REPAIR COST - Town of Dennis

Primary Structure (1)	Total Structures	Structure Condition Rating					Total Cost
		A	B	C	D	F	
Town Owned	44		\$ 706,484	\$ 9,865,375	\$ 2,563,169		\$ 13,135,028
Commonwealth of Massachusetts	4			\$ 390,944			\$ 390,944
Federal Government Owned							\$ -
Unknown Ownership	1						\$ -
	49	\$ -	\$ 706,484	\$ 10,256,319	\$ 2,563,169	\$ -	\$ 13,525,972

The identification of presumed ownership was not based on the investigation of legal documents but relied on property ownership and from construction and regulatory documents that were found. A more detailed investigation of legal documents and agreements would be required where structure ownership is disputed. A more detailed identification of structure type, length, condition and location can be found in Section IV-B which contains Structure Assessment Reports for each individual structure found.

SUMMARY

The enclosed reports and associated documents reflects the Town of Dennis's coastal structure information that will eventually be input into a state-wide GIS database and will be accessible through MassGIS. This data, when compiled state-wide, will be critical in the development of both short term and long term planning for maintaining and improving Massachusetts coastal protection.

This database will also provide relatively quick access to identify available documentation for these structures as well as the ability to be updated as coastal structure improvements are made.

Section IV - Dennis

Part B

Structure Assessment Reports

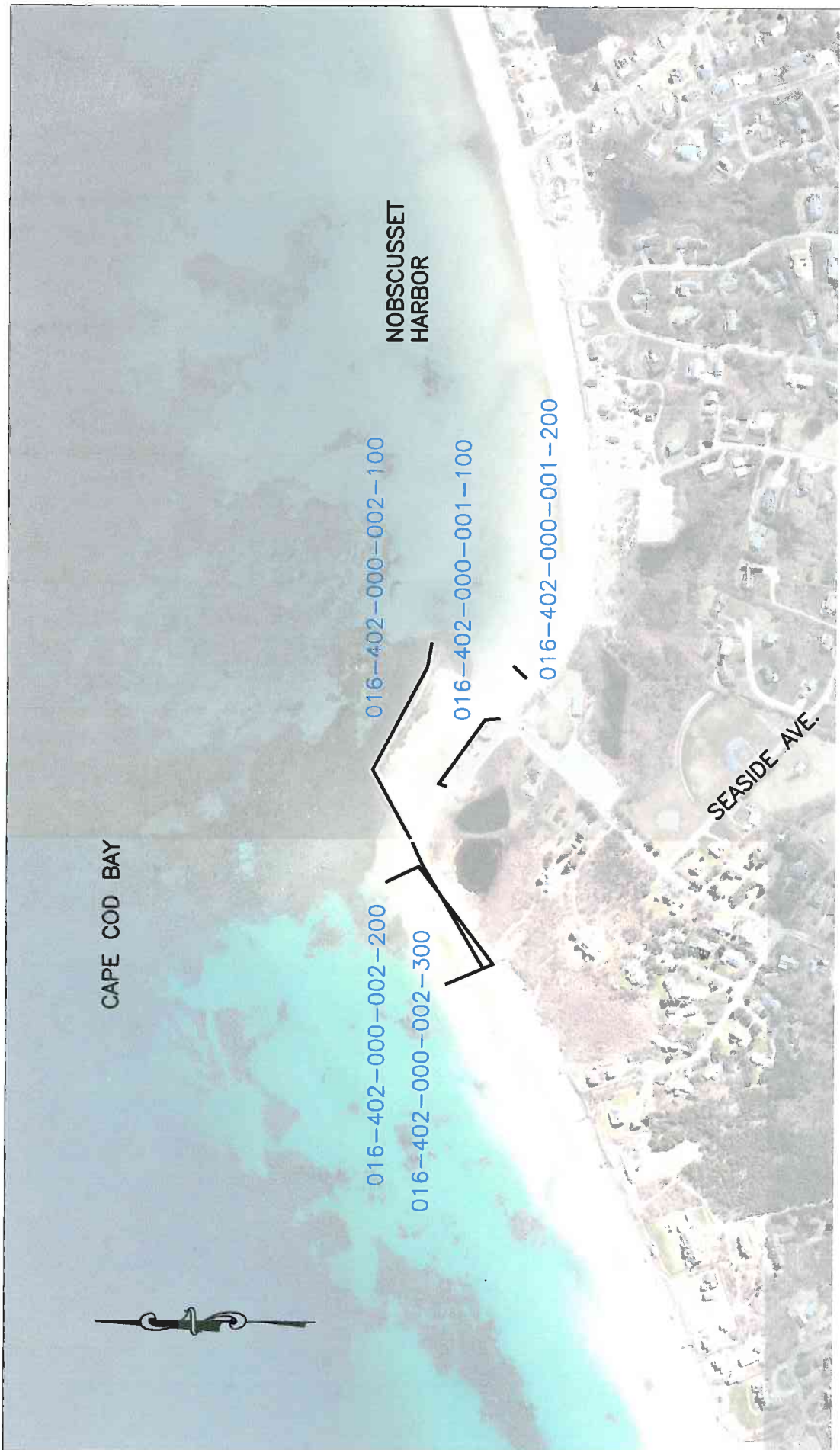


COASTAL STRUCTURE LOCATION PLAN

TOWN OF DENNIS
COASTAL INFRASTRUCTURE INVENTORY
AND ASSESSMENT PROJECT
DECEMBER 2007



**Bourne Consulting Engineering**
100 West Colonial Street
Framingham, MA 01901
TEL: (508) 888-4123 FAX: (508) 888-4077



COASTAL STRUCTURE LOCATION PLAN

TOWN OF DENNIS
COASTAL INFRASTRUCTURE INVENTORY
AND ASSESSMENT PROJECT
DECEMBER 2007



**Bourne Consulting Engineering**
114 West Central Street
Framingham, MA 01901
TEL (508) 886-4155 FAX (508) 886-0071



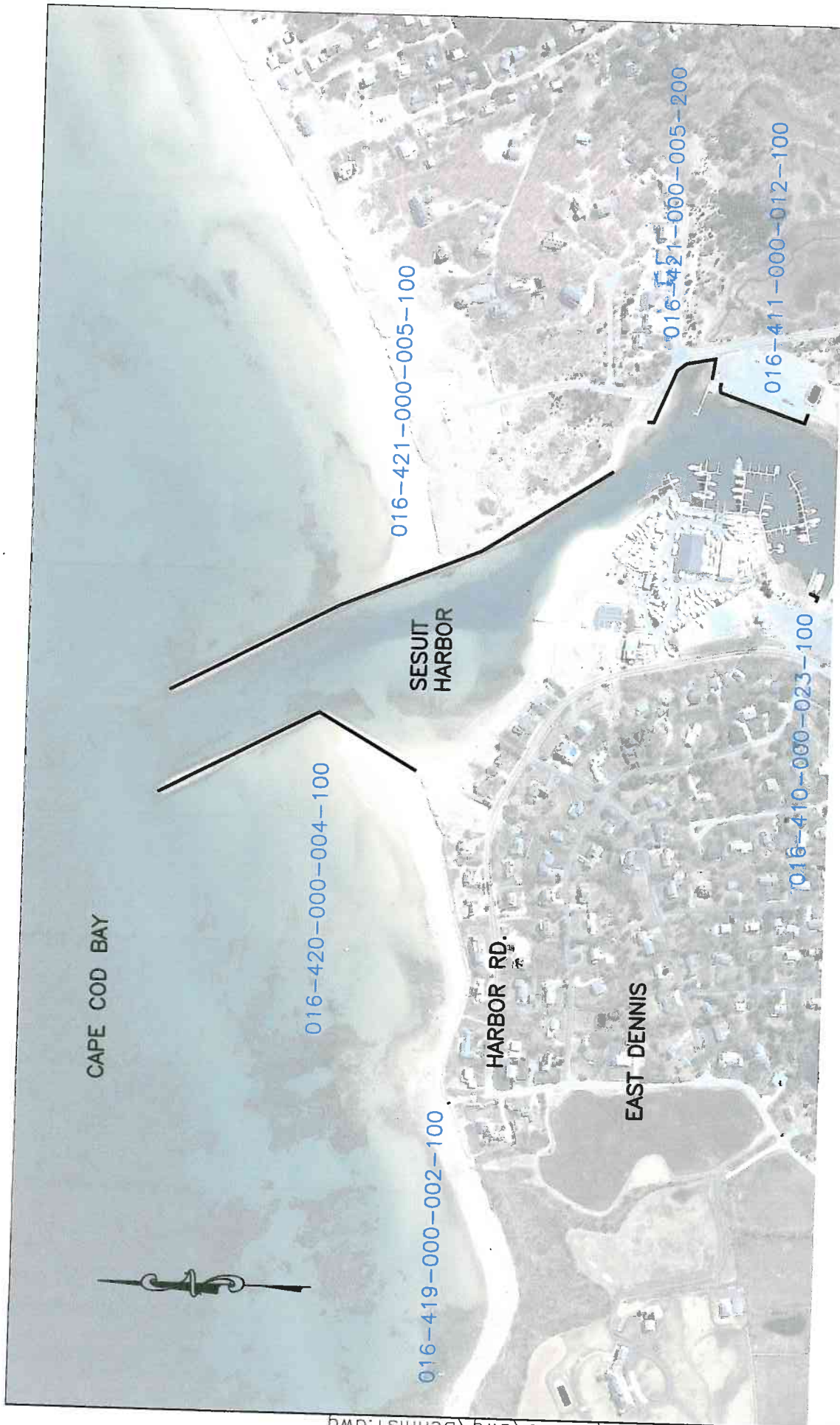
COASTAL STRUCTURE LOCATION PLAN

TOWN OF DENNIS
COASTAL INFRASTRUCTURE INVENTORY
AND ASSESSMENT PROJECT
DECEMBER 2007

0 150
SCALE: 1" = 150'



SHEET 3

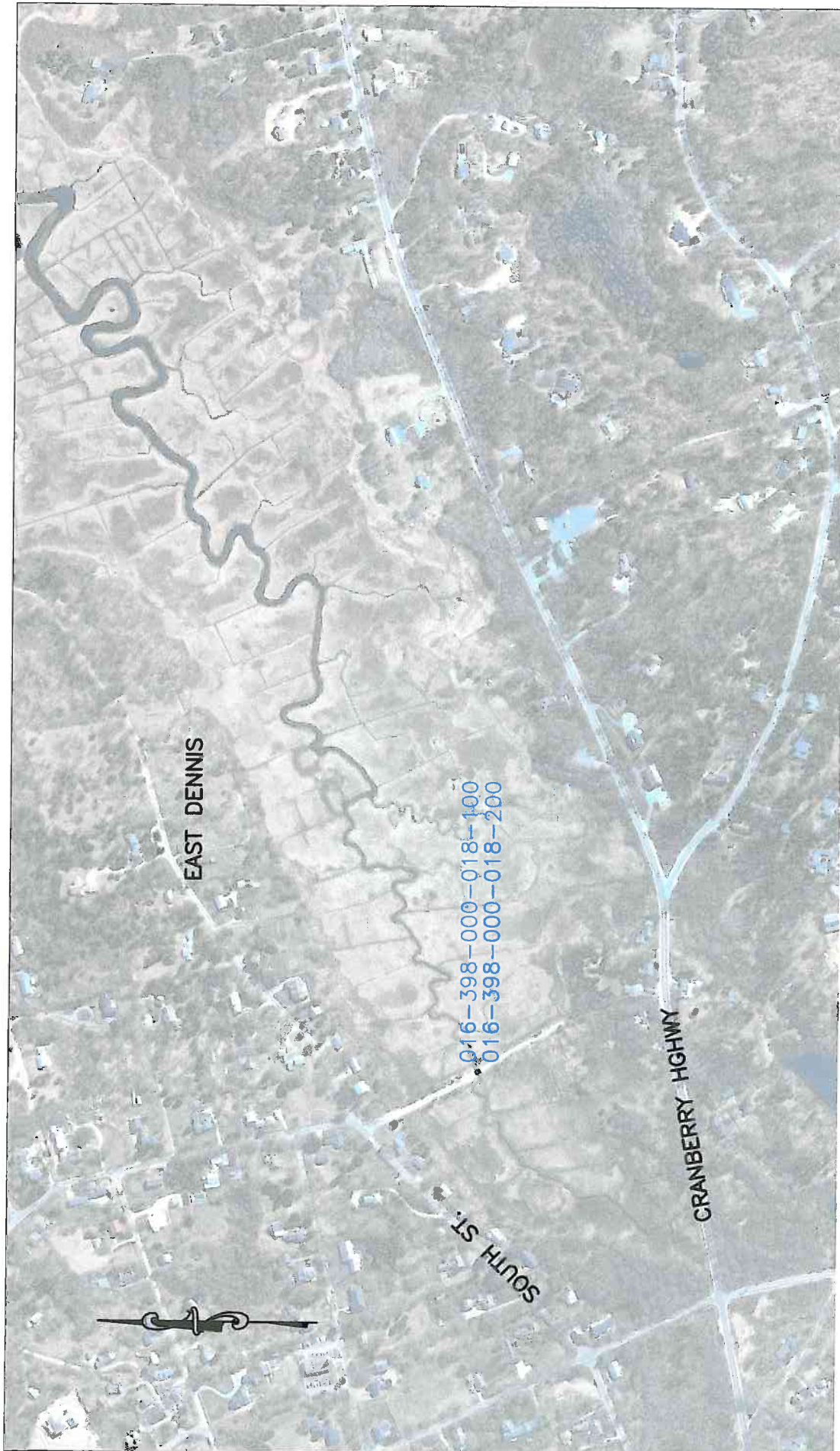


COASTAL STRUCTURE LOCATION PLAN

TOWN OF DENNIS
COASTAL INFRASTRUCTURE INVENTORY
AND ASSESSMENT PROJECT
DECEMBER 2007

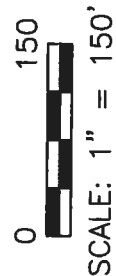


SCALE: 1" = 150'



COASTAL STRUCTURE LOCATION PLAN

TOWN OF DENNIS
 COASTAL INFRASTRUCTURE INVENTORY
 AND ASSESSMENT PROJECT
 DECEMBER 2007



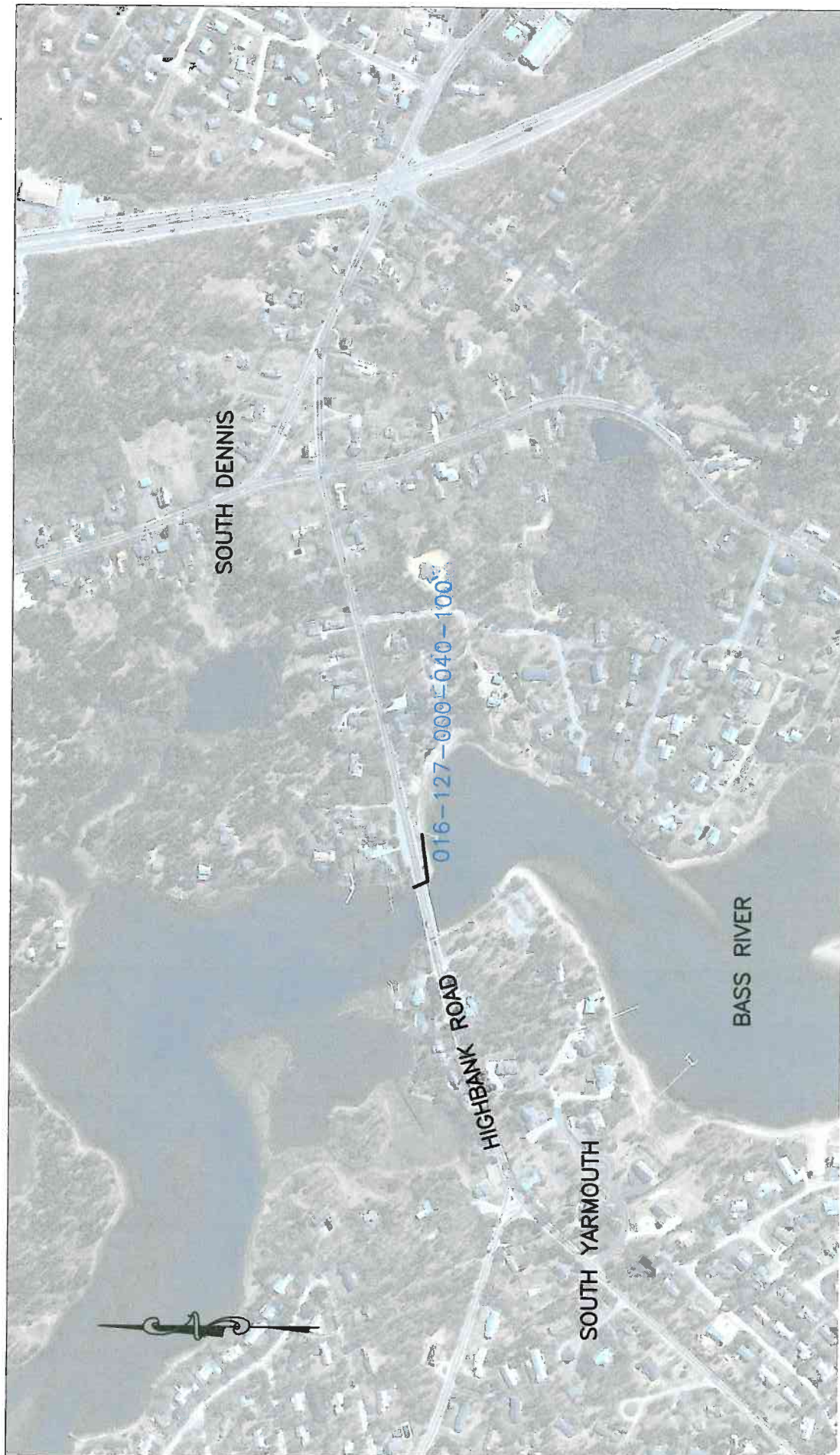


COASTAL STRUCTURE LOCATION PLAN

TOWN OF DENNIS
COASTAL INFRASTRUCTURE INVENTORY
AND ASSESSMENT PROJECT
DECEMBER 2007

0 150
SCALE: 1" = 150'

BCE *Bourne Consulting Engineering*
100 West Central Street
Provincetown, MA 01905
TEL: (508) 538-4125 FAX: (508) 538-4971

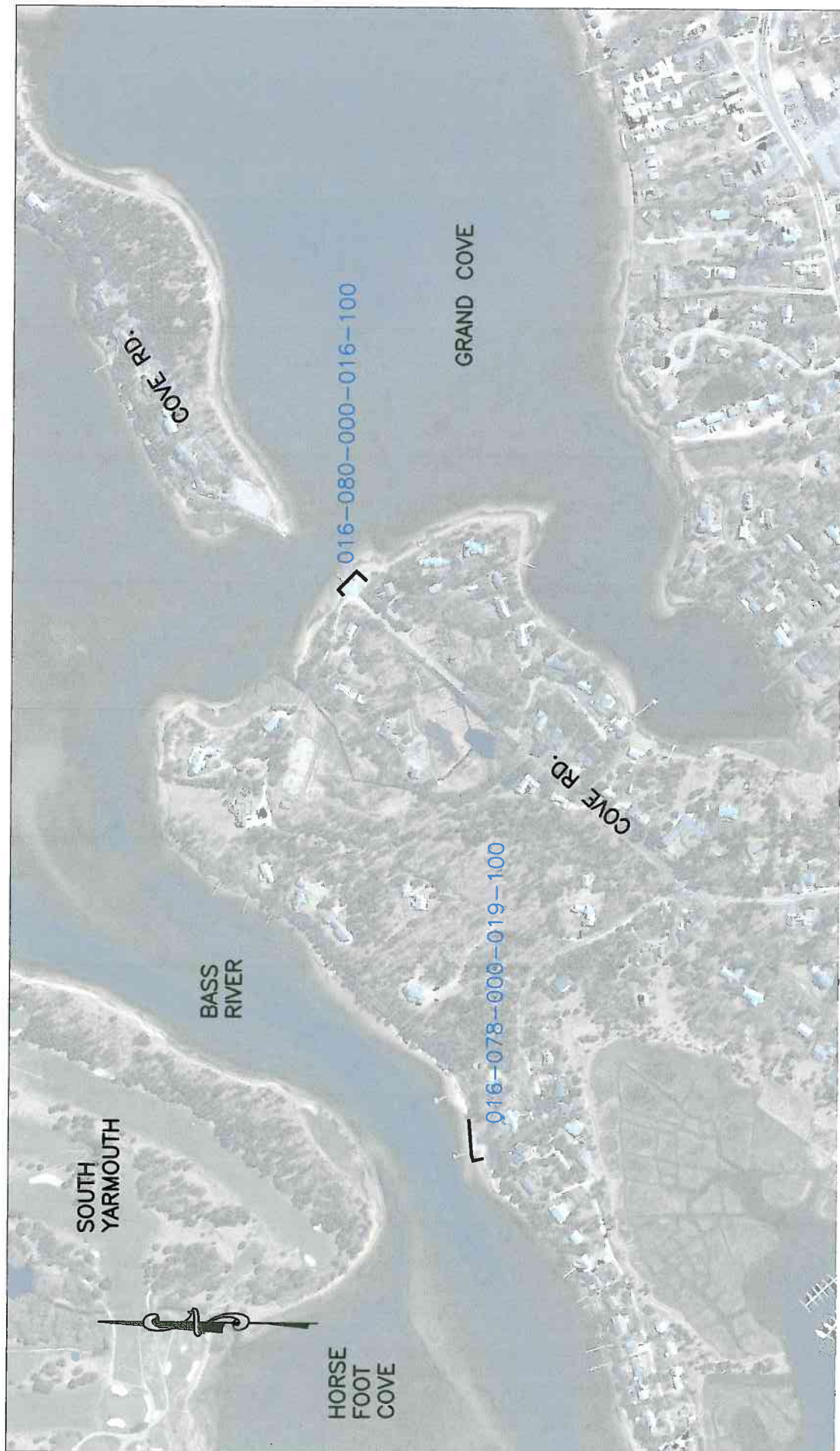


COASTAL STRUCTURE LOCATION PLAN

TOWN OF DENNIS
COASTAL INFRASTRUCTURE INVENTORY
AND ASSESSMENT PROJECT
DECEMBER 2007

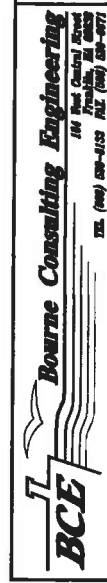
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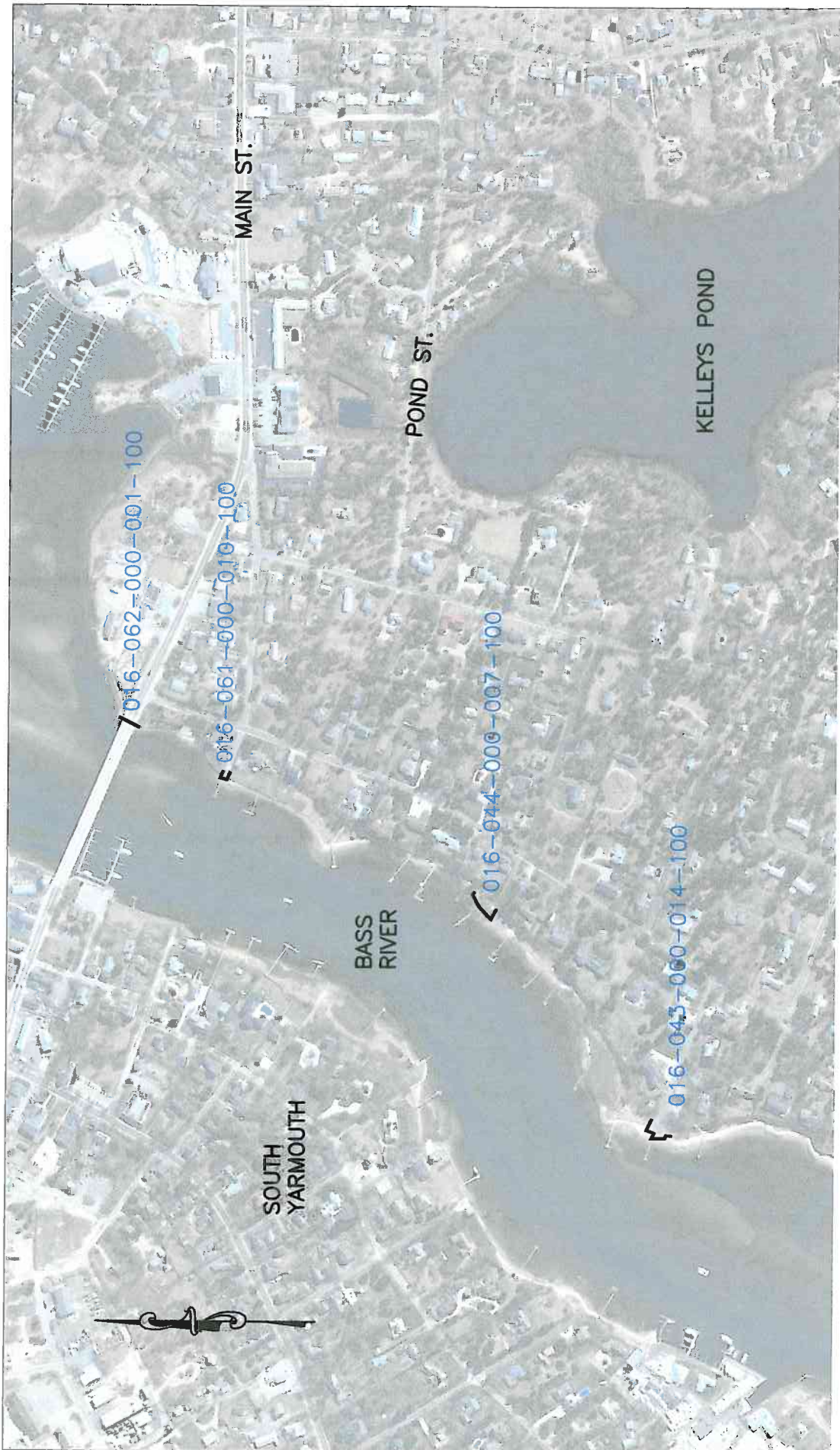




COASTAL STRUCTURE LOCATION PLAN

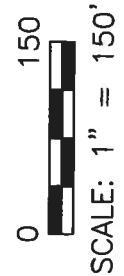
TOWN OF DENNIS
COASTAL INFRASTRUCTURE INVENTORY
AND ASSESSMENT PROJECT
DECEMBER 2007



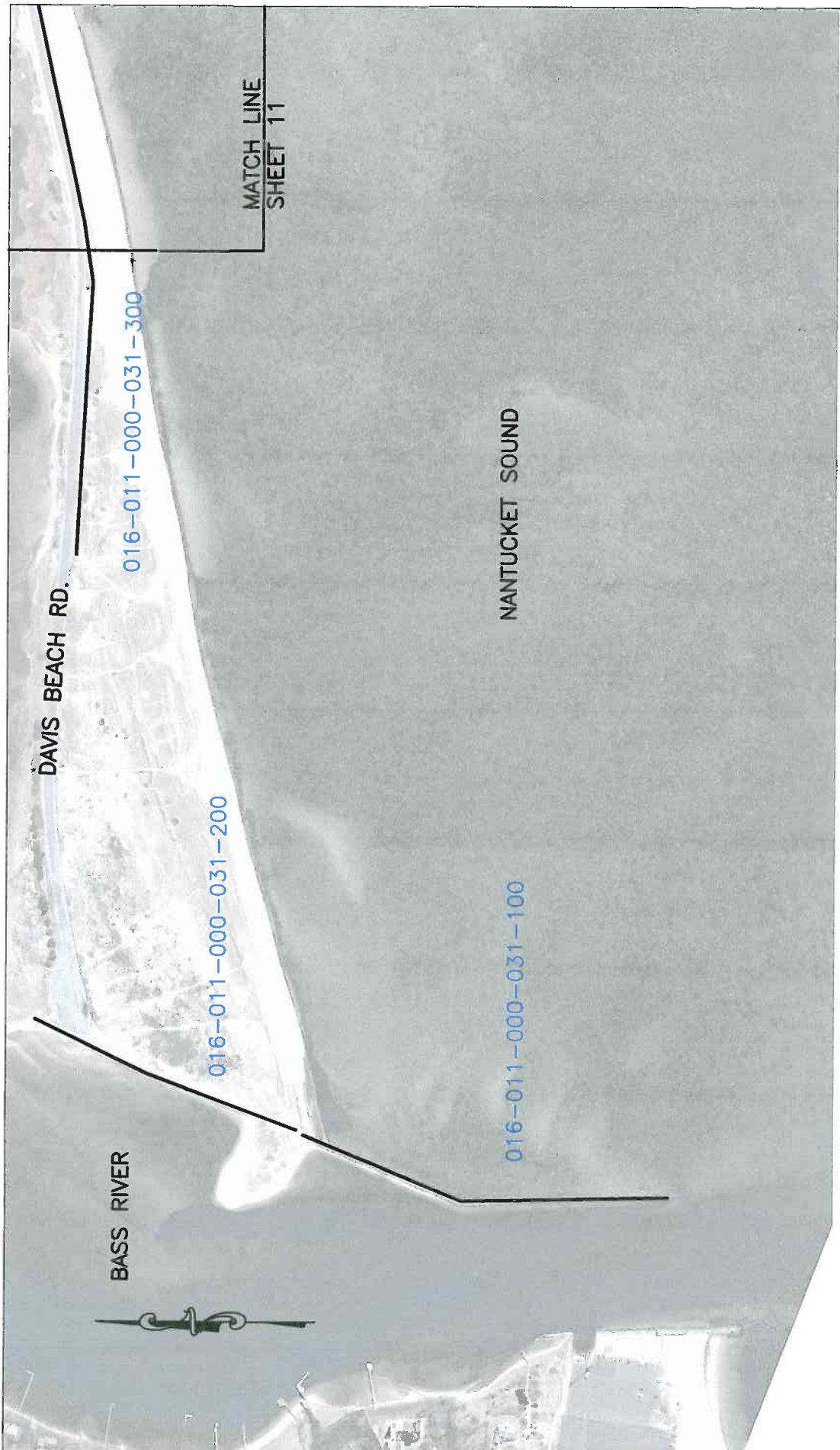


COASTAL STRUCTURE LOCATION PLAN

TOWN OF DENNIS
COASTAL INFRASTRUCTURE INVENTORY
AND ASSESSMENT PROJECT
DECEMBER 2007



BCE Bourne Consulting Engineering
100 West Colonial Road
PO Box 100
Dennis, MA 01926
TEL: (508) 558-1120 FAX: (508) 558-4971



COASTAL STRUCTURE LOCATION PLAN

TOWN OF DENNIS
COASTAL INFRASTRUCTURE INVENTORY
AND ASSESSMENT PROJECT
DECEMBER 2007



**BCE**

Bourne Consulting Engineering
104 West Central Street
Framingham, MA 01901
TEL: (508) 888-4150 FAX: (508) 888-4971

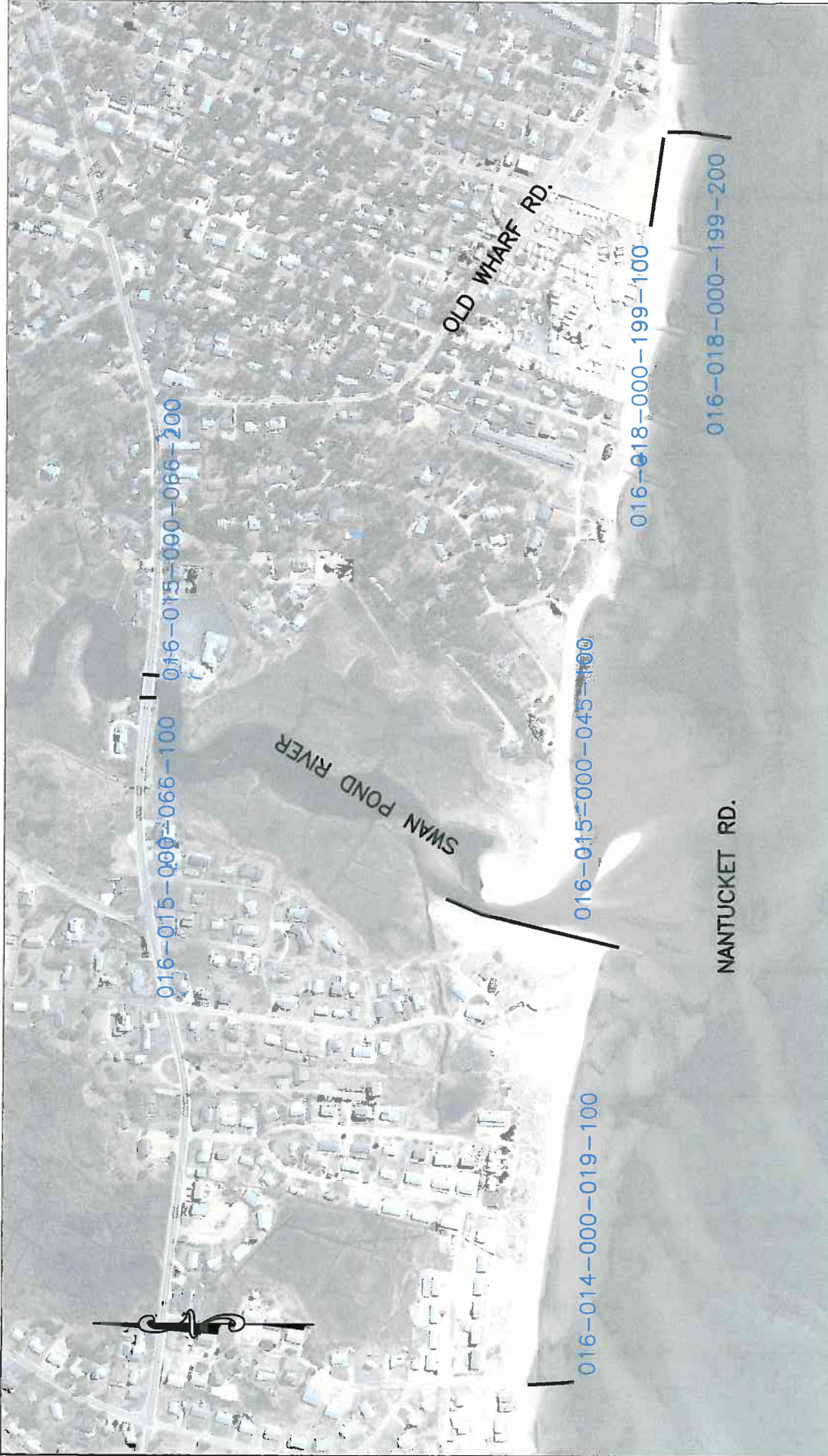


COASTAL STRUCTURE LOCATION PLAN

TOWN OF DENNIS
COASTAL INFRASTRUCTURE INVENTORY
AND ASSESSMENT PROJECT
DECEMBER 2007



BCE Bourne Consulting Engineering
100 West Colonial Street
Bourne, MA 02532
TEL: (508) 696-4133 FAX: (508) 696-4071



COASTAL STRUCTURE LOCATION PLAN

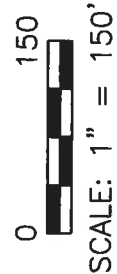
TOWN OF DENNIS
COASTAL INFRASTRUCTURE INVENTORY
AND ASSESSMENT PROJECT
DECEMBER 2007

0 150
SCALE: 1" = 150'



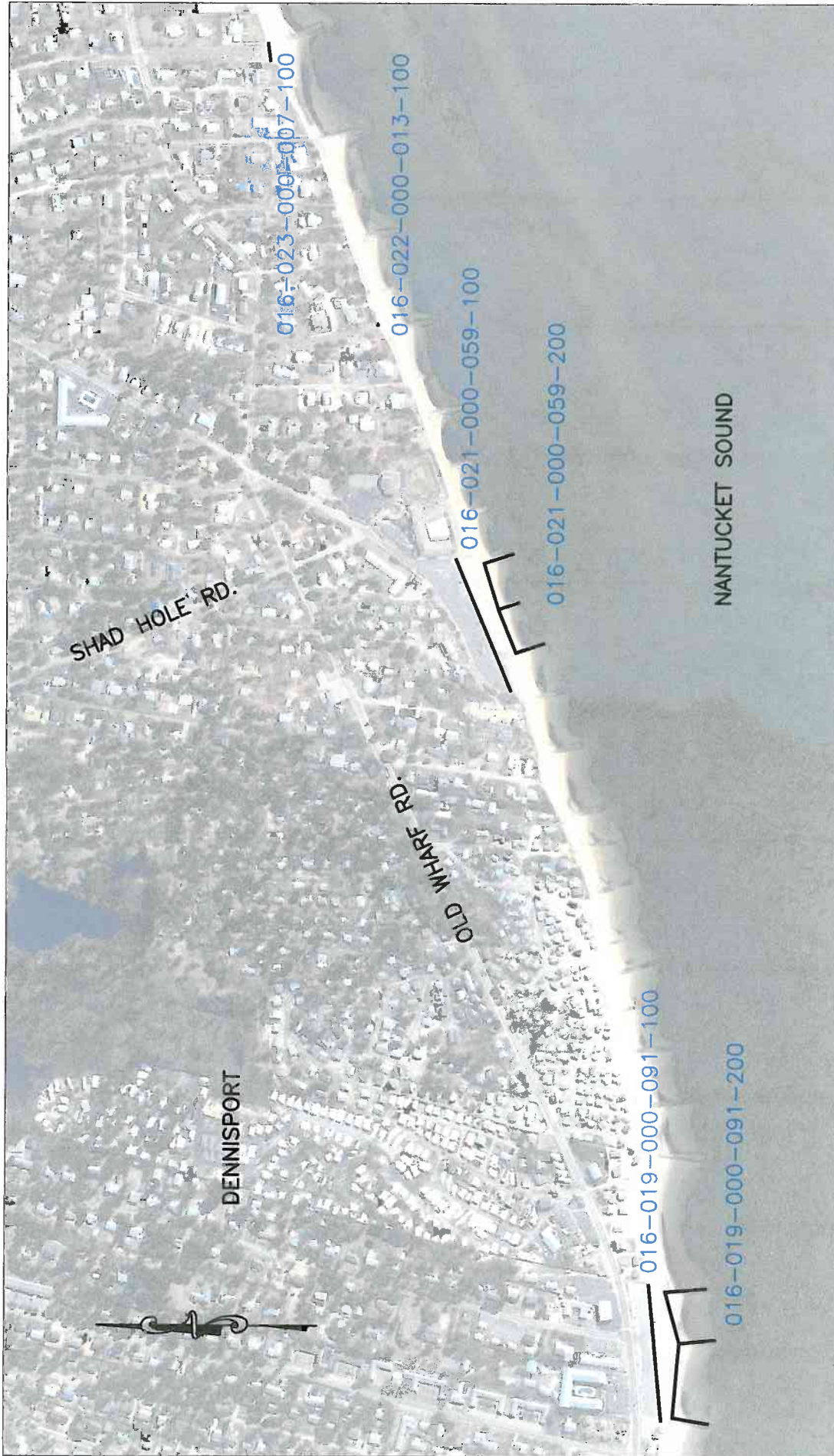
COASTAL STRUCTURE LOCATION PLAN

TOWN OF DENNIS
COASTAL INFRASTRUCTURE INVENTORY
AND ASSESSMENT PROJECT
DECEMBER 2007



**BCE**

Bourne Consulting Engineering
100 West Colonial Street
Framingham, MA 01901
TEL: (508) 886-4100 FAX: (508) 886-4077



COASTAL STRUCTURE LOCATION PLAN

TOWN OF DENNIS
COASTAL INFRASTRUCTURE INVENTORY
AND ASSESSMENT PROJECT
DECEMBER 2007



Structure Assessment Form

Town: DennisStructure ID: 016-011-000-031-100

Key: community-map-block-parcel-structure

Property Owner:

Local

Location:

West Dennis Beach

Date:

9/20/2007

Presumed Structure Owner:

Local

Based On Comment:

Owner Name:

Dennis

Earliest Structure Record:

1917

Estimated Reconstruction/Repair Cost:

\$401,920.00Length: 1280

Feet

Top Elevation:

Feet NAVD 88

FIRM Map Zone:

V13

FIRM Map Elevation:

15

Feet NGVD

Primary Type:

Groin/ Jetty

Primary Material:

Stone

Primary Height:

10 to 15 Feet

Secondary Type:

Secondary Material:

Secondary Height:



Structure Summary :

This structure is the east jetty at the Bass River. A few single armor stones are cracked. There is some minor displacement of the armor stone but the structure is generally in good condition.

Condition

B

Rating

Good

Level of Action

Minor

Description

Structure observed to exhibit very minor problems, superficial in nature. Minor erosion to landform is present. Structure / landform adequate to provide protection from a major coastal storm with no damage. Actions taken to prevent / limit future deterioration and extend life of structure.

Priority

III

Rating

Moderate Priority

Action

Consider for Active Project Improvement Listing

Description

Inshore Structures with potential for Infrastructure Damage and/or Limited Residential Dwellings (<1 dwelling impacted / 100 feet of shoreline)

Structure Images:

016-011-000-031-100-PHO1A.jpg

Structure Documents:

<u>USACE</u>	<u>October 194</u>	<u>Proposed East Jetty</u>	<u>016-011-000-031-100-COE1A</u>
<u>MA-DCR</u>	<u>June 1917</u>	<u>Commonwealth of</u>	<u>016-011-000-031-100-DCR1A</u>
<u>MA-DCR</u>	<u>December 1</u>	<u>Proposed Jetties -</u>	<u>016-011-000-031-100-DCR1B</u>
<u>MA-DCR</u>	<u>September 1</u>	<u>Proposed East Jetty</u>	<u>016-011-000-031-100-DCR1C</u>

Structure Assessment Form

Property Owner:

Local

Location:

West Dennis Beach

Date:

9/20/2007

Presumed Structure Owner:

Local

Based On Comment:

Owner Name:

Dennis

Earliest Structure Record:

Unknown

Estimated Reconstruction/Repair Cost:

\$115,315.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
960		V13	13
Feet	Feet NAVD 88		Feet NGVD

Primary Type:

Revetment

Primary Material:

Stone

Primary Height:

5 to 10 Feet

Secondary Type:

Secondary Material:

Secondary Height:



Structure Summary :

This structure is the revetment from the jetty to the front of the parking lot. There is some minor slumping and weathering of the armor stones. The structure is generally in good condition.

*Condition***B***Rating***Good***Level of Action***Minor***Description*

Structure observed to exhibit very minor problems, superficial in nature. Minor erosion to landform is present. Structure / landform adequate to provide protection from a major coastal storm with no damage. Actions taken to prevent / limit future deterioration and extend life of structure.

*Priority***III***Rating***Moderate Priority***Action*

Consider for Active Project Improvement Listing

Description

Inshore Structures with potential for Infrastructure Damage and/or Limited Residential Dwellings (<1 dwelling impacted / 100 feet of shoreline)

Structure Images:

016-011-000-031-200-PHO2A.jpg

Structure Documents:

Structure Assessment Form

Town: DennisStructure ID: 016-011-000-031-300

Key: community-map-block-parcel-structure

Property Owner:

Local

Location:

West Dennis Beach

Date:

9/20/2007

Presumed Structure Owner:

Local

Based On Comment:

Owner Name:

Dennis

Earliest Structure Record:

1958

Estimated Reconstruction/Repair Cost:

\$1,846,835.00

Length:

4285

Top Elevation:

Feet Feet NAVD 88

FIRM Map Zone:

V13

FIRM Map Elevation:

13

Feet NGVD

Primary Type:

Bulkhead/ Seawall

Primary Material:

Wood

Primary Height:

Under 5 Feet

Secondary Type:

Secondary Material:

Secondary Height:



Structure Summary :

This structure is a long bulkhead that is mostly buried by beach and partly buried by dunes. The visible portions are weathered but appear to be solid. The exact location of the start and end points are difficult to discern as much of the structure is buried.

*Condition*C*Rating*Fair*Level of Action*Moderate*Description*

Structure is sound but may exhibit minor deterioration, section loss, cracking, spalling, undermining, and/or scour. Structure adequate to withstand major coastal storm with little to moderate damage. Actions taken to reinforce structure to provide full protection from major coastal storm and for extending life of structure. Moderate wind or wave damage to landform exists. Landform may not be sufficient to fully protect shoreline during a major coastal storm. Actions taken to provide addition material for full protection and extended life.

*Priority*III*Rating*Moderate Priority*Action*

Consider for Active Project Improvement Listing

Description

Inshore Structures with potential for Infrastructure Damage and/or Limited Residential Dwellings (<1 dwelling impacted / 100 feet of shoreline)

Structure Images:

016-011-000-031-300-PHO3A.jpg

Structure Documents:

MA-DCRApril 1958Proposed Beach016-011-000-031-300-DCR3AMA-DCRAugust 1960Proposed Beach016-011-000-031-300-DCR3BMA-DCRFebruary 19Proposed Beach016-011-000-031-300-DCR3C

Structure Assessment Form

Structure ID: 016-011-000-031-400

Key: community-map-block-parcel-structure

Property Owner:

Local

Location:

West Dennis Beach

Date:

9/20/2007

Presumed Structure Owner:

Local

Based On Comment:

Owner Name:

Dennis

Earliest Structure Record:

1956

Estimated Reconstruction/Repair Cost:

\$464,726.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
735		V13	13
Feet	Feet NAVD 88		Feet NGVD

Primary Type:	Primary Material:	Primary Height:
Bulkhead/ Seawall	Wood	5 to 10 Feet
Secondary Type:	Secondary Material:	Secondary Height:

**Structure Summary :**

This structure is a bulkhead fronting the eastern-most portion of the town parking lot immediately west of the Lighthouse Inn. The cap is cracked and missing in sections and the majority of the wall is covered by beach.

Condition

C

Rating

Fair

Level of Action

Moderate

Description

Structure is sound but may exhibit minor deterioration, section loss, cracking, spalling, undermining, and/or scour. Structure adequate to withstand major coastal storm with little to moderate damage. Actions taken to reinforce structure to provide full protection from major coastal storm and for extending life of structure. Moderate wind or wave damage to landform exists. Landform may not be sufficient to fully protect shoreline during a major coastal storm. Actions taken to provide addition material for full protection and extended life.

Priority

III

Rating

Moderate Priority

Action

Consider for Active Project Improvement Listing

Description

Inshore Structures with potential for Infrastructure Damage and/or Limited Residential Dwellings (<1 dwelling impacted / 100 feet of shoreline)

Structure Images:

016-011-000-031-400-PHO4A.jpg

Structure Documents:

MA-DCR	February 19	Proposed Shore	016-011-000-031-400-DCR4A
MA-DCR	April 1958	Proposed Beach	016-011-000-031-400-DCR4B
MA-DCR	August 1960	Proposed Beach	016-011-000-031-400-DCR4C
MA-DCR	February 19	Proposed Beach	016-011-000-031-400-DCR4D

Structure Assessment Form

Town: **Dennis**Structure ID: **016-011-000-031-500**

Key: community-map-block-parcel-structure

Property Owner:

Local

Location:

Loring Avenue

Date:

9/20/2007

Presumed Structure Owner:

Local

Based On Comment:

Owner Name:

Dennis

Earliest Structure Record:

Unknown

Estimated Reconstruction/Repair Cost:

\$3,300.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
50		V13	13
Feet	Feet NAVD 88		Feet NGVD

Primary Type:

Revetment

Primary Material:

Stone

Primary Height:

Under 5 Feet

Secondary Type:

Secondary Material:

Secondary Height:



Structure Summary :

These structures are the armored abutments of the Loring Ave bridge (South Side). The abutments are riprap that is generally in good condition.

*Condition***B***Rating***Good***Level of Action***Minor***Description*

Structure observed to exhibit very minor problems, superficial in nature. Minor erosion to landform is present. Structure / landform adequate to provide protection from a major coastal storm with no damage. Actions taken to prevent / limit future deterioration and extend life of structure.

*Priority***III***Rating***Moderate Priority***Action*

Consider for Active Project Improvement Listing

Description

Inshore Structures with potential for Infrastructure Damage and/or Limited Residential Dwellings (<1 dwelling impacted / 100 feet of shoreline)

Structure Images:

016-011-000-031-500-PHO5A.jpg

Structure Documents:

Structure Assessment Form

Town: **Dennis**Structure ID: **016-011-000-031-600**

Key: community-map-block-parcel-structure

Property Owner:

Local

Location:

West Dennis Beach

Date:

9/20/2007

Presumed Structure Owner:

Local

Based On Comment:

Owner Name:

Dennis

Earliest Structure Record:

1956

Estimated Reconstruction/Repair Cost:

\$126,160.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
190		V13	15
Feet	Feet NAVD 88		Feet NGVD

Primary Type:	Primary Material:	Primary Height:
Groin/ Jetty	Stone	Under 5 Feet
Secondary Type:	Secondary Material:	Secondary Height:



Structure Summary :

This structure is a groin at the east end of West Dennis Beach. The armor stones are weathered and starting to slump. The central section of the groin is coming unraveled.

<i>Condition</i>	C	<i>Priority</i>	I
<i>Rating</i>	Fair	<i>Rating</i>	None
<i>Level of Action</i>	Moderate	<i>Action</i>	Long Term Planning Considerations
<i>Description</i>	Structure is sound but may exhibit minor deterioration, section loss, cracking, spalling, undermining, and/or scour. Structure adequate to withstand major coastal storm with little to moderate damage. Actions taken to reinforce structure to provide full protection from major coastal storm and for extending life of structure. Moderate wind or wave damage to landform exists. Landform may not be sufficient to fully protect shoreline during a major coastal storm. Actions taken to provide addition material for full protection and extended life.	<i>Description</i>	No Inshore Structures or Residential Dwelling Units Present

Structure Images:

016-011-000-031-600-PHO6A.jpg

Structure Documents:

MA-DCR**February 19****Proposed Shore****016-011-000-031-600-DCR6A**

Structure Assessment Form

Town: **Dennis**

Structure ID: 016-011-000-031-700

Key: community-map-block-parcel-structure

Property Owner:

Local

Location:

Loring Avenue

Date:

9/20/2007

Presumed Structure Owner:

Local

Based On Comment:

Owner Name:

Dennis

Earliest Structure Record:

Unknown

Estimated Reconstruction/Repair Cost:

\$3,300.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
50		V13	13
Feet	Feet NAVD 88		Feet NGVD

Primary Type:

Revetment

Primary Material:

Stone

Primary Height:

Under 5 Feet

Secondary Type:

Secondary Material:

Secondary Height:



Structure Summary :

These structures are the armored abutments of the Loring Ave bridge (North Side). The abutments are riprap that is generally in good condition.

Condition

B

Rating

Good

Level of Action

Minor

Description

Structure observed to exhibit very minor problems, superficial in nature. Minor erosion to landform is present. Structure / landform adequate to provide protection from a major coastal storm with no damage. Actions taken to prevent / limit future deterioration and extend life of structure.

Priority

III

Rating

Moderate Priority

Action

Consider for Active Project Improvement Listing

Description

Inshore Structures with potential for Infrastructure Damage and/or Limited Residential Dwellings (<1 dwelling impacted / 100 feet of shoreline)

Structure Images:

016-011-000-031-700-PHO7AB.jpg

Structure Documents:

Structure Assessment Form

Town: **Dennis**Structure ID: **016-012-000-001-100**

Key: community-map-block-parcel-structure

Property Owner:

Local

Location:

Lighthouse Road

Date:

9/20/2007

Presumed Structure Owner:

Local

Based On Comment:

Owner Name:

Dennis

Earliest Structure Record:

1994

Estimated Reconstruction/Repair Cost:

\$3,630.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
55		A11	11
Feet	Feet NAVD 88		Feet NGVD

Primary Type:

Revetment

Primary Material:

Stone

Primary Height:

Under 5 Feet

Secondary Type:

Secondary Material:

Secondary Height:



Structure Summary :

These structures are the armored abutments of the Lighthouse Road bridge (South Side). The armor stones are small and in good condition.

*Condition***B***Rating***Good***Level of Action***Minor***Description*

Structure observed to exhibit very minor problems, superficial in nature. Minor erosion to landform is present. Structure / landform adequate to provide protection from a major coastal storm with no damage. Actions taken to prevent / limit future deterioration and extend life of structure.

*Priority***II***Rating***Low Priority***Action***Future Project Consideration***Description*

Inshore Structures Present with Limited potential for Significant Infrastructure Damage

Structure Images:

016-012-000-001-100-PHO1A.jpg

Structure Documents:

DEP**February 19****Plans Accompanying****016-012-000-001-100-LIC1A****DEP****March 15, 19****Plans Accompanying****016-012-000-001-100-LIC1B**

Structure Assessment Form

Town: **Dennis**Structure ID: **016-012-000-001-200**

Key: community-map-block-parcel-structure

Property Owner:

Local

Location:

Lighthouse Road

Date:

9/20/2007

Presumed Structure Owner:

Local

Based On Comment:

Owner Name:

Dennis

Earliest Structure Record:

1994

Estimated Reconstruction/Repair Cost:

\$3,300.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
50		A11	11
Feet	Feet NAVD 88		Feet NGVD

Primary Type:

Revetment

Primary Material:

Stone

Primary Height:

Under 5 Feet

Secondary Type:

Secondary Material:

Secondary Height:



Structure Summary :

These structures are the armored abutments of the Lighthouse Road bridge (North Side). The armor stones are small and in good condition.

*Condition***B***Rating***Good***Level of Action***Minor***Description*

Structure observed to exhibit very minor problems, superficial in nature. Minor erosion to landform is present. Structure / landform adequate to provide protection from a major coastal storm with no damage. Actions taken to prevent / limit future deterioration and extend life of structure.

*Priority***II***Rating***Low Priority***Action***Future Project Consideration***Description*

Inshore Structures Present with Limited potential for Significant Infrastructure Damage

Structure Images:

016-012-000-001-200-PHO2A.jpg

Structure Documents:

DEP**February 19****Plans Accompanying****016-012-000-001-200-LIC2A****DEP****March 15, 19****plan Accompanying****016-012-000-001-200-LIC2B**

Structure Assessment Form

Property Owner:

Local

Location:

Trotting Park Road Extension

Date:

9/20/2007

Presumed Structure Owner:

Local

Based On Comment:

Owner Name:

Dennis

Earliest Structure Record:

Unknown

Estimated Reconstruction/Repair Cost:

\$20,460.00

Length: Top Elevation:

155

Feet

Feet NAVD 88

FIRM Map Zone:

V13

FIRM Map Elevation:

15

Feet NGVD

Primary Type:

Groin/ Jetty

Primary Material:

Stone

Primary Height:

Under 5 Feet

Secondary Type:

Secondary Material:

Secondary Height:



Structure Summary :

This structure is a groin at the end of the Trotting Park Road extension with unknown ownership. The groin is being flanked at high tide and the stone is in good condition.

Condition

B

Rating

Good

Level of Action

Minor

Description

Structure observed to exhibit very minor problems, superficial in nature. Minor erosion to landform is present. Structure / landform adequate to provide protection from a major coastal storm with no damage. Actions taken to prevent / limit future deterioration and extend life of structure.

Priority

I

Rating

None

Action

Long Term Planning Considerations

Description

No Inshore Structures or Residential Dwelling Units Present

Structure Images:

016-014-000-019-100-PHO1A.jpg

Structure Documents:

Structure Assessment Form

Town: **Dennis**Structure ID: **016-015-000-045-100**

Key: community-map-block-parcel-structure

Property Owner:

Local

Location:

Swan River Inlet

Date:

9/20/2007

Presumed Structure Owner:

Local

Based On Comment:

Owner Name:

Dennis

Earliest Structure Record:

1934

Estimated Reconstruction/Repair Cost:

\$720,600.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
600		V13	15
Feet	Feet NAVD 88		Feet NGVD

Primary Type:

Groin/ Jetty

Primary Material:

Stone

Primary Height:

5 to 10 Feet

Secondary Type:

Secondary Material:

Secondary Height:



Structure Summary :

This structure is the west jetty at Swan River. It has a very low profile and parts are overtopped at high tide. There is some slumping and unraveling of armor stone. The structure is clearly leaking sand at the southern end and likely along its entire length.

*Condition***C***Rating***Fair***Level of Action***Moderate***Description*

Structure is sound but may exhibit minor deterioration, section loss, cracking, spalling, undermining, and/or scour. Structure adequate to withstand major coastal storm with little to moderate damage. Actions taken to reinforce structure to provide full protection from major coastal storm and for extending life of structure. Moderate wind or wave damage to landform exists. Landform may not be sufficient to fully protect shoreline during a major coastal storm. Actions taken to provide addition material for full protection and extended life.

*Priority***III***Rating***Moderate Priority***Action*

Consider for Active Project Improvement Listing

Description

Inshore Structures with potential for Infrastructure Damage and/or Limited Residential Dwellings (<1 dwelling impacted / 100 feet of shoreline)

Structure Images:

016-015-000-045-100-PHO1A.jpg**016-015-000-045-100-PHO1B.jpg**

Structure Documents:

MA-DCR**April 1934****Proposed Stone****016-015-000-045-100-DCR1A****MA-DCR****December 1****Proposed Shore****016-015-000-045-100-DCR1B****DEP****September 1****Plan Accompanying****016-015-000-045-100-LIC1A**

Structure Assessment Form

Town: **Dennis**

Structure ID: 016-015-000-066-100

Key: community-map-block-parcel-structure

Property Owner:

Local

Location:

Lower County Road at Swan River

Date:

9/20/2007

Presumed Structure Owner:

Local

Based On Comment:

Owner Name:

Dennis

Earliest Structure Record:

Unknown

Estimated Reconstruction/Repair Cost:

\$7,207.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
60		A8	10
Feet	Feet NAVD 88		Feet NGVD

Primary Type:

Revetment

Primary Material:

Stone

Primary Height:

5 to 10 Feet

Secondary Type:

Secondary Material:

Secondary Height:



Structure Summary :

These structures are the abutments of the Lower County Road bridge that crosses the Swan River (West Side). The section looks weathered but solid.

Condition

B

Rating

Good

Level of Action

Minor

Description

Structure observed to exhibit very minor problems, superficial in nature. Minor erosion to landform is present. Structure / landform adequate to provide protection from a major coastal storm with no damage. Actions taken to prevent / limit future deterioration and extend life of structure.

Priority

III

Rating

Moderate Priority

Action

Consider for Active Project Improvement Listing

Description

Inshore Structures with potential for Infrastructure Damage and/or Limited Residential Dwellings (<1 dwelling impacted / 100 feet of shoreline)

Structure Images:

016-015-000-066-100-PHO1A.jpg

016-015-000-066-100-PHO1B.jpg

Structure Documents:

Structure Assessment Form

Town: **Dennis**

Structure ID: 016-015-000-066-200

Key: community-map-block-parcel-structure

Property Owner:

Local

Location:

Lower County Road at Swan River

Date:

9/20/2007

Presumed Structure Owner:

Local

Based On Comment:

Owner Name:

Dennis

Earliest Structure Record:

Unknown

Estimated Reconstruction/Repair Cost:

\$66,066.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
55		A8	10
Feet	Feet NAVD 88		Feet NGVD

Primary Type:

Revetment

Primary Material:

Stone

Primary Height:

5 to 10 Feet

Secondary Type:

Secondary Material:

Secondary Height:



Structure Summary :

These structures are the abutments of the Lower County Road bridge that crosses the Swan River (East Side). The eastern section is beginning to slump down with a gap forming between the riprap and the bridge foundation.

Condition

D

Rating

Poor

Level of Action

Major

Description

Structure exhibits advanced levels of deterioration, section loss, cracking, spalling, undermining, and/or scour. Structure has strong risk of significant damage and possible failure during a major coastal storm. Structure should be monitored until repairs/reconstruction can be initiated. Actions taken to reconstruct structure to regain full capacity to resist a major coastal storm. Landform eroded, stability threatened. Landform not adequate to provide protection during major coastal storm. Actions taken to recreate landform to adequate limits for full protection from a major coastal storm.

Priority

III

Rating

Moderate Priority

Action

Consider for Active Project Improvement Listing

Description

Inshore Structures with potential for Infrastructure Damage and/or Limited Residential Dwellings (<1 dwelling impacted / 100 feet of shoreline)

Structure Images:

016-015-000-066-200-PHO2A.jpg

Structure Documents:

Structure Assessment Form

Town: **Dennis**Structure ID: **016-018-000-199-100**

Key: community-map-block-parcel-structure

Property Owner:

Local

Location:

Haigis Beach

Date:

9/20/2007

Presumed Structure Owner:

Local

Based On Comment:

Owner Name:

Dennis

Earliest Structure Record:

1973

Estimated Reconstruction/Repair Cost:

\$234,432.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
300		V8	17
Feet	Feet NAVD 88		Feet NGVD

Primary Type:

Revetment

Primary Material:

Stone

Primary Height:

10 to 15 Feet

Secondary Type:

Secondary Material:

Secondary Height:



Structure Summary :

This structure is the revetment fronting the parking lot at Haigis Beach. The armor stone is heavily grouted. There is some slumping at the toe and undermining behind the crest. Portions of the toe and crest are vegetated.

*Condition***C***Rating***Fair***Level of Action***Moderate***Description*

Structure is sound but may exhibit minor deterioration, section loss, cracking, spalling, undermining, and/or scour. Structure adequate to withstand major coastal storm with little to moderate damage. Actions taken to reinforce structure to provide full protection from major coastal storm and for extending life of structure. Moderate wind or wave damage to landform exists. Landform may not be sufficient to fully protect shoreline during a major coastal storm. Actions taken to provide addition material for full protection and extended life.

*Priority***III***Rating***Moderate Priority***Action*

Consider for Active Project Improvement Listing

Description

Inshore Structures with potential for Infrastructure Damage and/or Limited Residential Dwellings (<1 dwelling impacted / 100 feet of shoreline)

Structure Images:

016-018-000-199-100-PHO1A.jpg

Structure Documents:

USACE**March 1973****Proposed Shore****016-018-000-199-100-COE1A**

Structure Assessment FormStructure ID: **016-018-000-199-200**

Key: community-map-block-parcel-structure

Property Owner:

Local

Location:

Haigis Beach

Date:

9/20/2007

Presumed Structure Owner:

Local

Based On Comment:

Owner Name:

Dennis

Earliest Structure Record:

1949

Estimated Reconstruction/Repair Cost:

\$51,600.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
215		V8	17
Feet	Feet NAVD 88		Feet NGVD

Primary Type:	Primary Material:	Primary Height:
Groin/ Jetty	Stone	5 to 10 Feet
Secondary Type:	Secondary Material:	Secondary Height:

**Structure Summary :**

This structure is the groin at the east of the of the parking lot at Haigis Beach. The crest and the side slopes are in good condition. The beach is accreted on the west side of the groin with an offset on the east side.

Condition**B****Rating****Good****Level of Action****Minor****Description**

Structure observed to exhibit very minor problems, superficial in nature. Minor erosion to landform is present. Structure / landform adequate to provide protection from a major coastal storm with no damage. Actions taken to prevent / limit future deterioration and extend life of structure.

Priority**III****Rating****Moderate Priority****Action**

Consider for Active Project Improvement Listing

Description

Inshore Structures with potential for Infrastructure Damage and/or Limited Residential Dwellings (<1 dwelling impacted / 100 feet of shoreline)

Structure Images:**016-018-000-199-200-PHO2A.jpg****Structure Documents:**

USACE	March 1973	Proposed Shore	016-018-000-199-200-COE2A
MA-DCR	September 1	Proposed Shore	016-018-000-199-200-DCR2A

Structure Assessment Form

Town: **Dennis**Structure ID: **016-019-000-091-100**

Key: community-map-block-parcel-structure

Property Owner:

Local

Location:

Glendon Road Beach

Date:

9/20/2007

Presumed Structure Owner:

Local

Based On Comment:

Owner Name:

Dennis

Earliest Structure Record:

Unknown

Estimated Reconstruction/Repair Cost:

\$198,260.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
460		V13	15
Feet	Feet NAVD 88		Feet NGVD

Primary Type:

Bulkhead/ Seawall

Primary Material:

Wood

Primary Height:

Under 5 Feet

Secondary Type:

Secondary Material:

Secondary Height:



Structure Summary :

This structure is a timber seawall fronting the parking lot at Glendon Road Beach. The timbers are weathered and the cap is cracked or missing in some sections. The majority of the structure is buried by the beach. The emergent part of the wall is approximately 2 feet high.

*Condition***C***Rating***Fair***Level of Action***Moderate***Description*

Structure is sound but may exhibit minor deterioration, section loss, cracking, spalling, undermining, and/or scour. Structure adequate to withstand major coastal storm with little to moderate damage. Actions taken to reinforce structure to provide full protection from major coastal storm and for extending life of structure. Moderate wind or wave damage to landform exists. Landform may not be sufficient to fully protect shoreline during a major coastal storm. Actions taken to provide addition material for full protection and extended life.

*Priority***II***Rating***Low Priority***Action***Future Project Consideration***Description*

Inshore Structures Present with Limited potential for Significant Infrastructure Damage

Structure Images:

016-019-000-091-100-PHO1A.jpg

Structure Documents:

Structure Assessment Form

Town: **Dennis**Structure ID: **016-019-000-091-200**

Key: community-map-block-parcel-structure

Property Owner:

Local

Location:

Glendon Road Beach

Date:

9/20/2007

Presumed Structure Owner:

Local

Based On Comment:

Owner Name:

Dennis

Earliest Structure Record:

1949

Estimated Reconstruction/Repair Cost:

\$262,280.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
395		V13	15
Feet	Feet NAVD 88		Feet NGVD

Primary Type:

Groin/ Jetty

Primary Material:

Stone

Primary Height:

Under 5 Feet

Secondary Type:

Secondary Material:

Secondary Height:



Structure Summary :

These structures are three groins at Glendon Road Beach. The crests and side slopes are becoming unraveled. The armor stones are no longer interlocking very much.

*Condition***C***Rating***Fair***Level of Action***Moderate***Description*

Structure is sound but may exhibit minor deterioration, section loss, cracking, spalling, undermining, and/or scour. Structure adequate to withstand major coastal storm with little to moderate damage. Actions taken to reinforce structure to provide full protection from major coastal storm and for extending life of structure. Moderate wind or wave damage to landform exists. Landform may not be sufficient to fully protect shoreline during a major coastal storm. Actions taken to provide addition material for full protection and extended life.

*Priority***II***Rating***Low Priority***Action***Future Project Consideration***Description*

Inshore Structures Present with Limited potential for Significant Infrastructure Damage

Structure Images:

016-019-000-091-200-PHO2A.jpg**016-019-000-091-200-PHO2B.jpg**

Structure Documents:

USACE**March 1956****Proposed Groin****016-019-000-091-200-COE2A****MA-DCR****September 1****Proposed Shore****016-019-000-091-200-DCR2A****MA-DCR****August 1950****Proposed Shore****016-019-000-091-200-DCR2B****MA-DCR****January 195****Proposed Hurricane****016-019-000-091-200-DCR2C****MA-DCR****March 1973****Proposed Shore****016-019-000-091-200-DCR2D**

Structure Assessment Form

Town: **Dennis**Structure ID: **016-021-000-059-100**

Key: community-map-block-parcel-structure

Property Owner:

Local

Location:

Sea Street Beach

Date:

9/20/2007

Presumed Structure Owner:

Local

Based On Comment:

Owner Name:

Dennis

Earliest Structure Record:

1956

Estimated Reconstruction/Repair Cost:

\$58,258.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
485		V8	20
Feet	Feet NAVD 88		Feet NGVD

Primary Type:

Revetment

Primary Material:

Stone

Primary Height:

5 to 10 Feet

Secondary Type:

Secondary Material:

Secondary Height:



Structure Summary :

This structure is a revetment fronting the parking lot at Sea Street Beach. The side slopes and crest are in good condition. The toe and crest areas of the structure are vegetated.

*Condition***B***Rating***Good***Level of Action***Minor***Description*

Structure observed to exhibit very minor problems, superficial in nature. Minor erosion to landform is present. Structure / landform adequate to provide protection from a major coastal storm with no damage. Actions taken to prevent / limit future deterioration and extend life of structure.

*Priority***III***Rating***Moderate Priority***Action*

Consider for Active Project Improvement Listing

Description

Inshore Structures with potential for Infrastructure Damage and/or Limited Residential Dwellings (<1 dwelling impacted / 100 feet of shoreline)

Structure Images:

016-021-000-059-100-PHO1A.jpg

Structure Documents:

USACE**July 1981****To Reconstruct a****016-021-000-059-100-COE1A****MA-DCR****February 19****Proposed Shore****016-021-000-059-100-DCR1A****DEP****July 1981****Plan Accompanying****016-021-000-059-100-LIC1A**

Structure Assessment Form

Town: **Dennis**Structure ID: **016-021-000-059-200**

Key: community-map-block-parcel-structure

Property Owner:

Local

Location:

Sea Street Beach

Date:

9/20/2007

Presumed Structure Owner:

Local

Based On Comment:

Owner Name:

Dennis

Earliest Structure Record:

1950

Estimated Reconstruction/Repair Cost:

\$192,560.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
290		V8	20
Feet	Feet NAVD 88		Feet NGVD

Primary Type:

Groin/ Jetty

Primary Material:

Stone

Primary Height:

Under 5 Feet

Secondary Type:

Secondary Material:

Secondary Height:



Structure Summary :

These structures are three groins at the end of Sea Street. They are generally in good condition but the heads are becoming unraveled. The central groin is shorter than the outer two structures and there is little offset in the shoreline position on either side.

*Condition***C***Rating***Fair***Level of Action***Moderate***Description*

Structure is sound but may exhibit minor deterioration, section loss, cracking, spalling, undermining, and/or scour. Structure adequate to withstand major coastal storm with little to moderate damage. Actions taken to reinforce structure to provide full protection from major coastal storm and for extending life of structure. Moderate wind or wave damage to landform exists. Landform may not be sufficient to fully protect shoreline during a major coastal storm. Actions taken to provide addition material for full protection and extended life.

*Priority***III***Rating***Moderate Priority***Action*

Consider for Active Project Improvement Listing

Description

Inshore Structures with potential for Infrastructure Damage and/or Limited Residential Dwellings (<1 dwelling impacted / 100 feet of shoreline)

Structure Images:

016-021-000-059-200-PHO2A.jpg

Structure Documents:

USACE	March 1956	Proposed Groins -	016-021-000-059-200-COE2A
USACE	July 1981	To Reconstruct a	016-021-000-059-200-COE2B
MA-DCR	November 1	Proposed Shore	016-021-000-059-200-DCR2A
MA-DCR	April 1954	Proposed Shore	016-021-000-059-200-DCR2B
MA-DCR	February 19	Proposed Shore	016-021-000-059-200-DCR2C
DEP	July 1981	Plan Accompanying	016-021-000-059-200-LIC2A

Structure Assessment Form

Property Owner:

Local

Location:

Union Wharf Road

Date:

9/20/2007

Presumed Structure Owner:

Local

Based On Comment:

Owner Name:

Dennis

Earliest Structure Record:

Unknown

Estimated Reconstruction/Repair Cost:

\$2,356.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
15		V8	20
Feet	Feet NAVD 88		Feet NGVD

Primary Type:

Revetment

Primary Material:

Stone

Primary Height:

10 to 15 Feet

Secondary Type:

Secondary Material:

Secondary Height:



Structure Summary :

This structure is a short stone revetment at the end of Union Wharf Road. The stones are all grouted. The crest and sideslopes are in good condition. The top of the structure is vegetated.

Condition

B

Rating

Good

Level of Action

Minor

Description

Structure observed to exhibit very minor problems, superficial in nature. Minor erosion to landform is present. Structure / landform adequate to provide protection from a major coastal storm with no damage. Actions taken to prevent / limit future deterioration and extend life of structure.

Priority

III

Rating

Moderate Priority

Action

Consider for Active Project Improvement Listing

Description

Inshore Structures with potential for Infrastructure Damage and/or Limited Residential Dwellings (<1 dwelling impacted / 100 feet of shoreline)

Structure Images:

016-022-000-013-100-PHO1A.jpg

Structure Documents:

Structure Assessment Form

Property Owner:

Local

Location:

Raycroft Parkway

Date:

9/20/2007

Presumed Structure Owner:

Local

Based On Comment:

Owner Name:

Dennis

Earliest Structure Record:

Unknown

Estimated Reconstruction/Repair Cost:

\$8,408.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
70		V8	20
Feet	Feet NAVD 88		Feet NGVD

Primary Type:

Revetment

Primary Material:

Stone

Primary Height:

5 to 10 Feet

Secondary Type:

Secondary Material:

Secondary Height:



Structure Summary :

This structure is a stone revetment at the end Raycroft Parkway. The armor stones have been grouted. The crest and side slopes are in good condition.

*Condition***B***Rating***Good***Level of Action***Minor***Description*

Structure observed to exhibit very minor problems, superficial in nature. Minor erosion to landform is present. Structure / landform adequate to provide protection from a major coastal storm with no damage. Actions taken to prevent / limit future deterioration and extend life of structure.

*Priority***II***Rating***Low Priority***Action***Future Project Consideration***Description*

Inshore Structures Present with Limited potential for Significant Infrastructure Damage

Structure Images:

016-023-000-007-100-PHO1A.jpg

Structure Documents:

Structure Assessment Form

Town: **Dennis**Structure ID: **016-043-000-014-100**

Key: community-map-block-parcel-structure

Property Owner:

Local

Location:

Uncle Freemans Road

Date:

9/20/2007

Presumed Structure Owner:

Local

Based On Comment:

Owner Name:

Dennis

Earliest Structure Record:

Unknown

Estimated Reconstruction/Repair Cost:

\$0.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
170		A11	11
Feet	Feet NAVD 88		Feet NGVD

Primary Type:

Bulkhead/ Seawall

Primary Material:

Wood

Primary Height:

5 to 10 Feet

Secondary Type:

Secondary Material:

Secondary Height:



Structure Summary :

This structure is a bulkhead at the end of Uncle Freemans Road. The bulkhead consists of poly sheetpile and has a timber cap. This appears to be recent construction.

*Condition***A***Rating***Excellent***Level of Action***None***Description*

Like new condition. Structure expected to withstand major coastal storm without damage. Stable landform (beach, dune or bank). Adequate system exists to provide protection from major coastal storm.

*Priority***III***Rating***Moderate Priority***Action*

Consider for Active Project Improvement Listing

Description

Inshore Structures with potential for Infrastructure Damage and/or Limited Residential Dwellings (<1 dwelling impacted / 100 feet of shoreline)

Structure Images:

016-043-000-014-100-PHO1A.jpg

Structure Documents:

DEP**May 10, 200****Plan To Accompany****016-043-000-014-100-LIC1A**

Structure Assessment FormStructure ID: **016-044-000-007-100**

Key: community-map-block-parcel-structure

Property Owner:

Local

Location:

Captain Harding Lane

Date:

9/20/2007

Presumed Structure Owner:

Local

Based On Comment:

Owner Name:

Dennis

Earliest Structure Record:

Unknown

Estimated Reconstruction/Repair Cost:

\$24,288.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
160		A8	8
Feet	Feet NAVD 88		Feet NGVD

Primary Type:

Bulkhead/ Seawall

Primary Material:

Concrete

Primary Height:

5 to 10 Feet

Secondary Type:

Secondary Material:

Secondary Height:



Structure Summary :

This structure is a concrete seawall at the end of Captain Harding Lane. The wall consists of vertical concrete columns arranged side by side. Each column has a hexagonal cross section. The structure is in good condition but there is some weathering.

*Condition***B***Rating***Good***Level of Action***Minor***Description*

Structure observed to exhibit very minor problems, superficial in nature. Minor erosion to landform is present. Structure / landform adequate to provide protection from a major coastal storm with no damage. Actions taken to prevent / limit future deterioration and extend life of structure.

*Priority***I***Rating***None***Action***Long Term Planning Considerations***Description*

No Inshore Structures or Residential Dwelling Units Present

Structure Images:

016-044-000-007-100-PHO1A.jpg

Structure Documents:

Structure Assessment FormStructure ID: **016-061-000-010-100**

Key: community-map-block-parcel-structure

Property Owner:

Local

Location:

Ferry Street landing

Date:

9/20/2007

Presumed Structure Owner:

Local

Based On Comment:

Owner Name:

Dennis

Earliest Structure Record:

Unknown

Estimated Reconstruction/Repair Cost:

\$0.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
80		A8	8
Feet	Feet NAVD 88		Feet NGVD

Primary Type:

Bulkhead/ Seawall

Primary Material:

Wood

Primary Height:

5 to 10 Feet

Secondary Type:

Secondary Material:

Secondary Height:



Structure Summary :

This structure is a wooden bulkhead at the Ferry Street landing. The timbers are clear and in good condition. The structure is fronted by stacked granite blocks.

*Condition***A***Rating***Excellent***Level of Action***None***Description*

Like new condition. Structure expected to withstand major coastal storm without damage. Stable landform (beach, dune or bank). Adequate system exists to provide protection from major coastal storm.

*Priority***II***Rating***Low Priority***Action***Future Project Consideration***Description*

Inshore Structures Present with Limited potential for Significant Infrastructure Damage

Structure Images:

016-061-000-010-100-PHO1A.jpg

Structure Documents:

Structure Assessment Form

Town: **Dennis**

Structure ID: 016-062-000-001-100

Key: community-map-block-parcel-structure

Property Owner:

State

Location:

Route 28 at Bass River

Date:

9/20/2007

Presumed Structure Owner:

State

Based On Comment:

Owner Name:

Unknown

Earliest Structure Record:

Unknown

Estimated Reconstruction/Repair Cost:

\$48,048.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
80		A7	9
Feet	Feet NAVD 88		Feet NGVD

Primary Type:

Revetment

Primary Material:

Stone

Primary Height:

5 to 10 Feet

Secondary Type:

Secondary Material:

Secondary Height:



Structure Summary :

This structure is the stone abutment at the Route 28 bridge over Bass River. The armor is discolored and becoming unraveled along the north side.

Condition

C

Rating

Fair

Level of Action

Moderate

Description

Structure is sound but may exhibit minor deterioration, section loss, cracking, spalling, undermining, and/or scour. Structure adequate to withstand major coastal storm with little to moderate damage. Actions taken to reinforce structure to provide full protection from major coastal storm and for extending life of structure. Moderate wind or wave damage to landform exists. Landform may not be sufficient to fully protect shoreline during a major coastal storm. Actions taken to provide addition material for full protection and extended life.

Priority

IV

Rating

High Priority

Action

Consider for Next Project Construction Listing

Description

High Value Inshore Structures with Potential for Infrastructure Damage and/or Moderate Density Residential Dwellings (1-10 dwellings impacted / 100 feet of shoreline)

Structure Images:

016-062-000-001-100-PHO1A.jpg

016-062-000-001-100-PHO1B.jpg

Structure Documents:

Structure Assessment Form

Town: **Dennis**Structure ID: **016-070-000-105-100**

Key: community-map-block-parcel-structure

Property Owner:

State

Location:

Route 28 at Swan River

Date:

9/20/2007

Presumed Structure Owner:

State

Based On Comment:

Owner Name:

Unknown

Earliest Structure Record:

Unknown

Estimated Reconstruction/Repair Cost:

\$18,295.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
55		A8	10
Feet	Feet NAVD 88		Feet NGVD

Primary Type:

Revetment

Primary Material:

Stone

Primary Height:

Under 5 Feet

Secondary Type:

Secondary Material:

Secondary Height:



Structure Summary :

These structures are the abutments at the Route 28 bridge over Swan River (West Side). The armor stone is becoming unraveled. There is little interlocking between stones at the waterline.

Condition

C

Rating

Fair

Level of Action

Moderate

Description

Structure is sound but may exhibit minor deterioration, section loss, cracking, spalling, undermining, and/or scour. Structure adequate to withstand major coastal storm with little to moderate damage. Actions taken to reinforce structure to provide full protection from major coastal storm and for extending life of structure. Moderate wind or wave damage to landform exists. Landform may not be sufficient to fully protect shoreline during a major coastal storm. Actions taken to provide addition material for full protection and extended life.

Priority

III

Rating

Moderate Priority

Action

Consider for Active Project Improvement Listing

Description

Inshore Structures with potential for Infrastructure Damage and/or Limited Residential Dwellings (<1 dwelling impacted / 100 feet of shoreline)

Structure Images:

016-070-000-105-100-PHO1A.jpg

Structure Documents:

Structure Assessment Form

Town: **Dennis**Structure ID: **016-070-000-105-200**

Key: community-map-block-parcel-structure

Property Owner:

Location:

Date:

State

Route 28 at Swan River

9/20/2007

Presumed Structure Owner:

Based On Comment:

State

Owner Name:

Earliest Structure Record:

Estimated Reconstruction/Repair Cost:

Unknown

Unknown

\$18,295.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
55		A8	10
Feet	Feet NAVD 88		Feet NGVD

Primary Type:

Primary Material:

Primary Height:

Revetment

Stone

Under 5 Feet

Secondary Type:

Secondary Material:

Secondary Height:



Structure Summary :

These structures are the abutments at the Route 28 bridge over Swan River (East Side). The armor stone is becoming unraveled and there is little interlocking between the armor at the water line.

Condition

C

Rating

Fair

Level of Action

Moderate

Description

Structure is sound but may exhibit minor deterioration, section loss, cracking, spalling, undermining, and/or scour. Structure adequate to withstand major coastal storm with little to moderate damage. Actions taken to reinforce structure to provide full protection from major coastal storm and for extending life of structure. Moderate wind or wave damage to landform exists. Landform may not be sufficient to fully protect shoreline during a major coastal storm. Actions taken to provide addition material for full protection and extended life.

Priority

III

Rating

Moderate Priority

Action

Consider for Active Project Improvement Listing

Description

Inshore Structures with potential for Infrastructure Damage and/or Limited Residential Dwellings (<1 dwelling impacted / 100 feet of shoreline)

Structure Images:

016-070-000-105-200-PHO2A.jpg

Structure Documents:

Structure Assessment FormStructure ID: **016-078-000-019-100**

Key: community-map-block-parcel-structure

Property Owner:

Local

Location:

Aunt Julia Anns Road

Date:

9/20/2007

Presumed Structure Owner:

Local

Based On Comment:

Owner Name:

Dennis

Earliest Structure Record:

Unknown

Estimated Reconstruction/Repair Cost:

\$110,649.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
175		A6	8
Feet	Feet NAVD 88		Feet NGVD

Primary Type:

Bulkhead/ Seawall

Primary Material:

Wood

Primary Height:

5 to 10 Feet

Secondary Type:

Secondary Material:

Secondary Height:

**Structure Summary :**

This structure is the wooden bulkhead fronting the dirt parking lot at the end of Aunt Julia Ann's Road. It is solid but weathered and some of the timbers on the cap are splintering. The structure is fronted by a small sand beach at low tide.

*Condition***C***Rating***Fair***Level of Action***Moderate***Description*

Structure is sound but may exhibit minor deterioration, section loss, cracking, spalling, undermining, and/or scour. Structure adequate to withstand major coastal storm with little to moderate damage. Actions taken to reinforce structure to provide full protection from major coastal storm and for extending life of structure. Moderate wind or wave damage to landform exists. Landform may not be sufficient to fully protect shoreline during a major coastal storm. Actions taken to provide addition material for full protection and extended life.

*Priority***I***Rating***None***Action***Long Term Planning Considerations***Description***No Inshore Structures or Residential Dwelling Units Present****Structure Images:****016-078-000-019-100-PHO1A.jpg****Structure Documents:**

Structure Assessment Form

Town: **Dennis**Structure ID: **016-080-000-016-100**

Key: community-map-block-parcel-structure

Property Owner:

Local

Location:

Cove Road

Date:

9/20/2007

Presumed Structure Owner:

Local

Based On Comment:

Owner Name:

Dennis

Earliest Structure Record:

Unknown

Estimated Reconstruction/Repair Cost:

\$0.00

Length: **160** Top Elevation: **A6** FIRM Map Zone: **7** FIRM Map Elevation:
 Feet Feet NAVD 88 Feet NGVD

Primary Type:

Bulkhead/ Seawall

Primary Material:

Wood

Primary Height:

5 to 10 Feet

Secondary Type:

Secondary Material:

Secondary Height:



Structure Summary :

This structure is a timber bulkhead with a poly sheetpile at the landing off Cove Road. The structure is in excellent condition. The structure is fronted by a small sand beach at low tide.

*Condition***A***Rating***Excellent***Level of Action***None***Description*

Like new condition. Structure expected to withstand major coastal storm without damage. Stable landform (beach, dune or bank). Adequate system exists to provide protection from major coastal storm.

*Priority***II***Rating***Low Priority***Action***Future Project Consideration***Description*

Inshore Structures Present with Limited potential for Significant Infrastructure Damage

Structure Images:

016-080-000-016-100-PHO1A.jpg

Structure Documents:

Structure Assessment Form

Town: DennisStructure ID: 016-127-000-040-100

Key: community-map-block-parcel-structure

Property Owner:

Local

Location:

Highbank Road at Bass River

Date:

9/20/2007

Presumed Structure Owner:

Local

Based On Comment:

Owner Name:

Dennis

Earliest Structure Record:

Unknown

Estimated Reconstruction/Repair Cost:

\$142,751.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
<u>215</u>	<u></u>	<u>A5</u>	<u>7</u>
Feet	Feet NAVD 88		Feet NGVD

Primary Type:

Revetment

Primary Material:

Stone

Primary Height:

Under 5 Feet

Secondary Type:

Secondary Material:

Secondary Height:



Structure Summary :

This structure is the abutment at the Highbank Road bridge over the Bass River. The structure essentially consists of dumped stone blocks at the base of the bank. There is no sideslope constructed and no interlocking between armor stones.

*Condition***D***Rating***Poor***Level of Action***Major***Description*

Structure exhibits advanced levels of deterioration, section loss, cracking, spalling, undermining, and/or scour. Structure has strong risk of significant damage and possible failure during a major coastal storm. Structure should be monitored until repairs/reconstruction can be initiated. Actions taken to reconstruct structure to regain full capacity to resist a major coastal storm. Landform eroded, stability threatened. Landform not adequate to provide protection during major coastal storm. Actions taken to recreate landform to adequate limits for full protection from a major coastal storm.

*Priority***III***Rating***Moderate Priority***Action*

Consider for Active Project Improvement Listing

Description

Inshore Structures with potential for Infrastructure Damage and/or Limited Residential Dwellings (<1 dwelling impacted / 100 feet of shoreline)

Structure Images:

016-127-000-040-100-PHO1A.jpg016-127-000-040-100-PHO1B.jpg

Structure Documents:

Structure Assessment Form

Town: **Dennis**Structure ID: **016-148-000-010-100**

Key: community-map-block-parcel-structure

Property Owner:

State

Location:

Route 6 at Bass River

Date:

9/20/2007

Presumed Structure Owner:

State

Based On Comment:

Owner Name:

Unknown

Earliest Structure Record:

Unknown

Estimated Reconstruction/Repair Cost:

\$306,306.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
510		A4	6
Feet	Feet NAVD 88		Feet NGVD

Primary Type:	Primary Material:	Primary Height:
Revetment	Stone	5 to 10 Feet
Secondary Type:	Secondary Material:	Secondary Height:



Structure Summary :

These structures are the Route 6 bridge abutments over the Bass River. They are generally in good condition but the armor is partially unraveled at the water line. The toe section appears to be partially slumping.

<i>Condition</i>	C
<i>Rating</i>	Fair
<i>Level of Action</i>	Moderate
<i>Description</i>	Structure is sound but may exhibit minor deterioration, section loss, cracking, spalling, undermining, and/or scour. Structure adequate to withstand major coastal storm with little to moderate damage. Actions taken to reinforce structure to provide full protection from major coastal storm and for extending life of structure. Moderate wind or wave damage to landform exists. Landform may not be sufficient to fully protect shoreline during a major coastal storm. Actions taken to provide addition material for full protection and extended life.

<i>Priority</i>	IV
<i>Rating</i>	High Priority
<i>Action</i>	Consider for Next Project Construction Listing
<i>Description</i>	High Value Inshore Structures with Potential for Infrastructure Damage and/or Moderate Density Residential Dwellings (1-10 dwellings impacted / 100 feet of shoreline)

Structure Images:

016-148-000-010-100-PHO1A.jpg

Structure Documents:

Structure Assessment FormStructure ID: **016-148-000-010-200**

Key: community-map-block-parcel-structure

Property Owner:

Local

Location:

Bass River - South of Route 6

Date:

9/20/2007

Presumed Structure Owner:

Local

Based On Comment:

Owner Name:

Dennis

Earliest Structure Record:

Unknown

Estimated Reconstruction/Repair Cost:

\$43,890.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
35		A4	6
Feet	Feet NAVD 88		Feet NGVD

Primary Type:

Bulkhead/ Seawall

Primary Material:

Stone

Primary Height:

10 to 15 Feet

Secondary Type:

Secondary Material:

Secondary Height:

**Structure Summary :**

These structures are the stone abutments for the abandoned railroad across Bass River. The structure consists of vertically stacked stone blocks with grout between. They are solid but the grout between the stones near the water line is becoming removed.

*Condition***C***Rating***Fair***Level of Action***Moderate***Description*

Structure is sound but may exhibit minor deterioration, section loss, cracking, spalling, undermining, and/or scour. Structure adequate to withstand major coastal storm with little to moderate damage. Actions taken to reinforce structure to provide full protection from major coastal storm and for extending life of structure. Moderate wind or wave damage to landform exists. Landform may not be sufficient to fully protect shoreline during a major coastal storm. Actions taken to provide addition material for full protection and extended life.

*Priority***II***Rating***Low Priority***Action***Future Project Consideration***Description*

Inshore Structures Present with Limited potential for Significant Infrastructure Damage

Structure Images:**016-148-000-010-200-PHO2A.jpg****016-148-000-010-200-PHO2B.jpg****Structure Documents:**

Structure Assessment Form

Town: **Dennis**Structure ID: **016-296-000-001-100**

Key: community-map-block-parcel-structure

Property Owner:

Local

Location:

Chapin Beach

Date:

9/20/2007

Presumed Structure Owner:

Local

Based On Comment:

Owner Name:

Dennis

Earliest Structure Record:

Unknown

Estimated Reconstruction/Repair Cost:

\$54,054.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
45		V4	15
Feet	Feet NAVD 88		Feet NGVD

Primary Type:

Revetment

Primary Material:

Stone

Primary Height:

5 to 10 Feet

Secondary Type:

Secondary Material:

Secondary Height:



Structure Summary :

This structure is a short revetment fronting a ramp to Chapin Beach at the end of Judah's Creek Road. The armor is slumped, the toe is exposed, and there is no fronting beach.

*Condition***D***Rating***Poor***Level of Action***Major***Description*

Structure exhibits advanced levels of deterioration, section loss, cracking, spalling, undermining, and/or scour. Structure has strong risk of significant damage and possible failure during a major coastal storm. Structure should be monitored until repairs/reconstruction can be initiated. Actions taken to reconstruct structure to regain full capacity to resist a major coastal storm. Landform eroded, stability threatened. Landform not adequate to provide protection during major coastal storm. Actions taken to recreate landform to adequate limits for full protection from a major coastal storm.

*Priority***III***Rating***Moderate Priority***Action*

Consider for Active Project Improvement Listing

Description

Inshore Structures with potential for Infrastructure Damage and/or Limited Residential Dwellings (<1 dwelling impacted / 100 feet of shoreline)

Structure Images:

016-296-000-001-100-PHO1A.jpg

Structure Documents:

Structure Assessment Form

Town: DennisStructure ID: 016-321-000-001-100

Key: community-map-block-parcel-structure

Property Owner:

Local

Location:

Dr. Bottero Road

Date:

9/20/2007

Presumed Structure Owner:

Local

Based On Comment:

Owner Name:

Dennis

Earliest Structure Record:

Unknown

Estimated Reconstruction/Repair Cost:

\$406,349.00

Length:

520

Feet

Top Elevation:

Feet NAVD 88

FIRM Map Zone:

V4

FIRM Map Elevation:

15

Feet NGVD

Primary Type:

Revetment

Primary Material:

Stone

Primary Height:

10 to 15 Feet

Secondary Type:

Secondary Material:

Secondary Height:



Structure Summary :

This structure is a stone revetment fronting Doctor Bottero Road. There are multiple sections where the side slope and crest has started to slump.

*Condition***C***Rating*

Fair

Level of Action

Moderate

Description

Structure is sound but may exhibit minor deterioration, section loss, cracking, spalling, undermining, and/or scour. Structure adequate to withstand major coastal storm with little to moderate damage. Actions taken to reinforce structure to provide full protection from major coastal storm and for extending life of structure. Moderate wind or wave damage to landform exists. Landform may not be sufficient to fully protect shoreline during a major coastal storm. Actions taken to provide addition material for full protection and extended life.

*Priority***IV***Rating*

High Priority

Action

Consider for Next Project Construction Listing

Description

High Value Inshore Structures with Potential for Infrastructure Damage and/or Moderate Density Residential Dwellings (1-10 dwellings impacted / 100 feet of shoreline)

Structure Images:

016-321-000-001-100-PHO1A.jpg016-321-000-001-100-PHO1B.jpg

Structure Documents:

Structure Assessment Form

Structure ID: 016-393-000-011-100

Key: community-map-block-parcel-structure

Property Owner:

Local

Location:

Bridge Street

Date:

9/20/2007

Presumed Structure Owner:

Local

Based On Comment:

Owner Name:

Dennis

Earliest Structure Record:

Unkown

Estimated Reconstruction/Repair Cost:

\$0.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
30		A3	11
Feet	Feet NAVD 88		Feet NGVD

Primary Type:

Bulkhead/ Seawall

Primary Material:

Wood

Primary Height:

5 to 10 Feet

Secondary Type:

Secondary Material:

Secondary Height:

**Structure Summary :**

These structures are the timber abutments leading to the culvert at Bridge Street (West Side). Both sides were entirely submerged at the time of inspection. There is recent construction and the visible portions look brand new.

Condition

A

Priority

III

Rating

Excellent

Rating

Moderate Priority

Level of Action

None

Action

Consider for Active Project Improvement Listing

Description

Like new condition. Structure expected to withstand major coastal storm without damage. Stable landform (beach, dune or bank). Adequate system exists to provide protection from major coastal storm.

Description

Inshore Structures with potential for Infrastructure Damage and/or Limited Residential Dwellings (<1 dwelling impacted / 100 feet of shoreline)

Structure Images:

016-393-000-011-100-PHO1A.jpg

Structure Documents:

Structure Assessment Form

Town: **Dennis**

Structure ID: 016-393-000-011-200

Key: community-map-block-parcel-structure

Property Owner:

Local

Location:

Bridge Street

Date:

9/20/2007

Presumed Structure Owner:

Local

Based On Comment:

Owner Name:

Dennis

Earliest Structure Record:

Unknown

Estimated Reconstruction/Repair Cost:

\$0.00

Length:

85

Feet

Top Elevation:

Feet NAVD 88

FIRM Map Zone:

A3

FIRM Map Elevation:

11

Feet NGVD

Primary Type:

Bulkhead/ Seawall

Primary Material:

Wood

Primary Height:

5 to 10 Feet

Secondary Type:

Secondary Material:

Secondary Height:



Structure Summary :

These structures are the timber abutments leading to the culvert at Bridge Street (East Side). Both sides were entirely submerged at the time of inspection. There is recent construction and the visible portions look brand new.

Condition

A

Rating

Excellent

Level of Action

None

Description

Like new condition. Structure expected to withstand major coastal storm without damage. Stable landform (beach, dune or bank). Adequate system exists to provide protection from major coastal storm.

Priority

III

Rating

Moderate Priority

Action

Consider for Active Project Improvement Listing

Description

Inshore Structures with potential for Infrastructure Damage and/or Limited Residential Dwellings (<1 dwelling impacted / 100 feet of shoreline)

Structure Images:

016-393-000-011-200-PHO2A.jpg

Structure Documents:

Structure Assessment Form

Town: **Dennis**Structure ID: **016-398-000-018-100**

Key: community-map-block-parcel-structure

Property Owner:

Local

Location:

Sea Street

Date:

9/20/2007

Presumed Structure Owner:

Local

Based On Comment:

Owner Name:

Dennis

Earliest Structure Record:

Unkown

Estimated Reconstruction/Repair Cost:

\$0.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
15		A3	11
Feet	Feet NAVD 88		Feet NGVD

Primary Type:

Revetment

Primary Material:

Stone

Primary Height:

Under 5 Feet

Secondary Type:

Secondary Material:

Secondary Height:



Structure Summary :

These structures are the abutments at Sea Street (north side). There are new concrete abutments at the footpath over the creek. The concrete and riprap are in good condition.

*Condition***A***Rating***Excellent***Level of Action***None***Description*

Like new condition. Structure expected to withstand major coastal storm without damage. Stable landform (beach, dune or bank). Adequate system exists to provide protection from major coastal storm.

*Priority***I***Rating***None***Action***Long Term Planning Considerations***Description***No Inshore Structures or Residential Dwelling Units Present**

Structure Images:

016-398-000-018-100-PHO1A.jpg

Structure Documents:

Structure Assessment Form

Town: **Dennis**Structure ID: **016-398-000-018-200**

Key: community-map-block-parcel-structure

Property Owner:

Local

Location:

Sea Street

Date:

9/20/2007

Presumed Structure Owner:

Local

Based On Comment:

Owner Name:

Dennis

Earliest Structure Record:

Unknown

Estimated Reconstruction/Repair Cost:

\$0.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
15		A3	11
Feet	Feet NAVD 88		Feet NGVD

Primary Type:

Revetment

Primary Material:

Stone

Primary Height:

Under 5 Feet

Secondary Type:

Secondary Material:

Secondary Height:



Structure Summary :

These structures are the abutments at Sea Street (south side). There are new concrete abutments at the footpath over the creek. The concrete and riprap are in good condition.

Condition

A

Rating

Excellent

Level of Action

None

Description

Like new condition. Structure expected to withstand major coastal storm without damage. Stable landform (beach, dune or bank). Adequate system exists to provide protection from major coastal storm.

Priority

I

Rating

None

Action

Long Term Planning Considerations

Description

No Inshore Structures or Residential Dwelling Units Present

Structure Images:

016-398-000-018-200-PHO2A.jpg

Structure Documents:

Structure Assessment Form

Town: **Dennis**

Structure ID: 016-402-000-001-100

Key: community-map-block-parcel-structure

Property Owner:

Local

Location:

Nobscussett Harbor

Date:

9/20/2007

Presumed Structure Owner:

Local

Based On Comment:

Owner Name:

Dennis

Earliest Structure Record:

Unknown

Estimated Reconstruction/Repair Cost:

\$148,695.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
345		V4	15
Feet	Feet NAVD 88		Feet NGVD

Primary Type:

Bulkhead/ Seawall

Primary Material:

Wood

Primary Height:

Under 5 Feet

Secondary Type:

Secondary Material:

Secondary Height:



Structure Summary :

This structure is a wooden bulkhead fronting the parking lot at Nobscussett Harbor. The timbers on the face and caps are weathered but sturdy. A majority of the structure is buried in the beach.

Condition

C

Rating

Fair

Level of Action

Moderate

Description

Structure is sound but may exhibit minor deterioration, section loss, cracking, spalling, undermining, and/or scour. Structure adequate to withstand major coastal storm with little to moderate damage. Actions taken to reinforce structure to provide full protection from major coastal storm and for extending life of structure. Moderate wind or wave damage to landform exists. Landform may not be sufficient to fully protect shoreline during a major coastal storm. Actions taken to provide addition material for full protection and extended life.

Priority

II

Rating

Low Priority

Action

Future Project Consideration

Description

Inshore Structures Present with Limited potential for Significant Infrastructure Damage

Structure Images:

016-402-000-001-100-PHO1A.jpg

Structure Documents:

Structure Assessment Form

Town: **Dennis**Structure ID: **016-402-000-001-200**

Key: community-map-block-parcel-structure

Property Owner:

Local

Location:

Nobscusett Harbor

Date:

9/20/2007

Presumed Structure Owner:

Local

Based On Comment:

Owner Name:

Dennis

Earliest Structure Record:

Unknown

Estimated Reconstruction/Repair Cost:

\$43,160.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
65		V4	16
Feet	Feet NAVD 88		Feet NGVD

Primary Type:

Groin/ Jetty

Primary Material:

Stone

Primary Height:

Under 5 Feet

Secondary Type:

Secondary Material:

Secondary Height:



Structure Summary :

This structure is a stone groin in the lee of the Nobscusett breakwater. The armor stones are completely unraveled and the structure is not serving much purpose.

*Condition***C***Rating***Fair***Level of Action***Moderate***Description*

Structure is sound but may exhibit minor deterioration, section loss, cracking, spalling, undermining, and/or scour. Structure adequate to withstand major coastal storm with little to moderate damage. Actions taken to reinforce structure to provide full protection from major coastal storm and for extending life of structure. Moderate wind or wave damage to landform exists. Landform may not be sufficient to fully protect shoreline during a major coastal storm. Actions taken to provide addition material for full protection and extended life.

*Priority***I***Rating***None***Action***Long Term Planning Considerations***Description***No Inshore Structures or Residential Dwelling Units Present**

Structure Images:

016-402-000-001-200-PHO2A.jpg

Structure Documents:

Structure Assessment Form

Town: **Dennis**

Structure ID: 016-402-000-002-100

Key: community-map-block-parcel-structure

Property Owner:

Local

Location:

Nobscussett Harbor

Date:

9/20/2007

Presumed Structure Owner:

Local

Based On Comment:

Owner Name:

Dennis

Earliest Structure Record:

Unknown

Estimated Reconstruction/Repair Cost:

\$1,777,776.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
740		V4	17
Feet	Feet NAVD 88		Feet NGVD

Primary Type:

Breakwater

Primary Material:

Stone

Primary Height:

5 to 10 Feet

Secondary Type:

Secondary Material:

Secondary Height:



Structure Summary :

This structure is a stone breakwater at Nobscussett Harbor. The armor at the west end and on the sides is becoming unraveled. The crest elevation along the outer portion is markedly lower than the body of the structure. The stones at the outer end show no interlocking.

Condition

D

Rating

Poor

Level of Action

Major

Description

Structure exhibits advanced levels of deterioration, section loss, cracking, spalling, undermining, and/or scour. Structure has strong risk of significant damage and possible failure during a major coastal storm. Structure should be monitored until repairs/reconstruction can be initiated. Actions taken to reconstruct structure to regain full capacity to resist a major coastal storm. Landform eroded, stability threatened. Landform not adequate to provide protection during major coastal storm. Actions taken to recreate landform to adequate limits for full protection from a major coastal storm.

Priority

I

Rating

None

Action

Long Term Planning Considerations

Description

No Inshore Structures or Residential Dwelling Units Present

Structure Images:

016-402-000-002-100-PHO1A.jpg

Structure Documents:

Structure Assessment Form

Town: DennisStructure ID: 016-402-000-002-200

Key: community-map-block-parcel-structure

Property Owner:

Local

Location:

Nobscussett Harbor

Date:

9/20/2007

Presumed Structure Owner:

Local

Based On Comment:

Owner Name:

Dennis

Earliest Structure Record:

1933

Estimated Reconstruction/Repair Cost:

\$199,200.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
<u>300</u>		<u>V4</u>	<u>16</u>
Feet	Feet NAVD 88		Feet NGVD

Primary Type:

Groin/ Jetty

Primary Material:

Stone

Primary Height:

Under 5 Feet

Secondary Type:

Secondary Material:

Secondary Height:



Structure Summary :

This structure is the two spurs off the back of the Nobscussett Harbor breakwater. They are unraveled and were mostly submerged at inspection. The structures are not serving much purpose.

*Condition*C*Rating*Fair*Level of Action*Moderate*Description*

Structure is sound but may exhibit minor deterioration, section loss, cracking, spalling, undermining, and/or scour. Structure adequate to withstand major coastal storm with little to moderate damage. Actions taken to reinforce structure to provide full protection from major coastal storm and for extending life of structure. Moderate wind or wave damage to landform exists. Landform may not be sufficient to fully protect shoreline during a major coastal storm. Actions taken to provide addition material for full protection and extended life.

*Priority*I*Rating*None*Action*Long Term Planning Considerations*Description*

No Inshore Structures or Residential Dwelling Units Present

Structure Images:

016-402-000-002-200-PHO2A.jpg016-402-000-002-200-PHO2B.jpg

Structure Documents:

MA-DCRAugust 1933Proposed Stone016-402-000-002-200-DCR2AMA-DCRNovember 1Proposed Stone016-402-000-002-200-DCR2B

Structure Assessment Form

Town: **Dennis**Structure ID: **016-402-000-002-300**

Key: community-map-block-parcel-structure

Property Owner:

Local

Location:

Nobscussett Harbor

Date:

2/20/2007

Presumed Structure Owner:

Local

Based On Comment:

Owner Name:

Dennis

Earliest Structure Record:

1951

Estimated Reconstruction/Repair Cost:

\$291,291.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
485		V4	16
Feet	Feet NAVD 88		Feet NGVD

Primary Type:

Revetment

Primary Material:

Stone

Primary Height:

5 to 10 Feet

Secondary Type:

Secondary Material:

Secondary Height:



Structure Summary :

This structure is a revetment that leads to the Nobscussett Harbor breakwater. The crest and side slopes have slumped and there is erosion evident behind the structure. The armor still appears to be interlocking well.

*Condition***C***Rating***Fair***Level of Action***Moderate***Description*

Structure is sound but may exhibit minor deterioration, section loss, cracking, spalling, undermining, and/or scour. Structure adequate to withstand major coastal storm with little to moderate damage. Actions taken to reinforce structure to provide full protection from major coastal storm and for extending life of structure. Moderate wind or wave damage to landform exists. Landform may not be sufficient to fully protect shoreline during a major coastal storm. Actions taken to provide addition material for full protection and extended life.

*Priority***I***Rating***None***Action***Long Term Planning Considerations***Description*

No Inshore Structures or Residential Dwelling Units Present

Structure Images:

016-402-000-002-300-PHO3A.jpg

Structure Documents:

MA-DCR**January 195****Proposed Shore****016-402-000-002-300-DCR3A**

Structure Assessment Form

Town: **Dennis**Structure ID: **016-410-000-023-100**

Key: community-map-block-parcel-structure

Property Owner:

Local

Location:

Sesuit Harbor

Date:

9/20/2007

Presumed Structure Owner:

Local

Based On Comment:

Owner Name:

Dennis

Earliest Structure Record:

1961

Estimated Reconstruction/Repair Cost:

\$62,700.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
50		A3	11
Feet	Feet NAVD 88		Feet NGVD

Primary Type:

Bulkhead/ Seawall

Primary Material:

Steel

Primary Height:

10 to 15 Feet

Secondary Type:

Secondary Material:

Secondary Height:



Structure Summary :

This structure is a bulkhead at the town landing inside Sesuit Harbor. The front and cap are rusted and weathered. There is a small amount of erosion of the fill behind the southeast corner.

*Condition***C***Rating***Fair***Level of Action***Moderate***Description*

Structure is sound but may exhibit minor deterioration, section loss, cracking, spalling, undermining, and/or scour. Structure adequate to withstand major coastal storm with little to moderate damage. Actions taken to reinforce structure to provide full protection from major coastal storm and for extending life of structure. Moderate wind or wave damage to landform exists. Landform may not be sufficient to fully protect shoreline during a major coastal storm. Actions taken to provide addition material for full protection and extended life.

*Priority***III***Rating***Moderate Priority***Action*

Consider for Active Project Improvement Listing

Description

Inshore Structures with potential for Infrastructure Damage and/or Limited Residential Dwellings (<1 dwelling impacted / 100 feet of shoreline)

Structure Images:

016-410-000-023-100-PHO1A.jpg

Structure Documents:

USACE	March 1985	Proposed Bulkhead	016-410-000-023-100-COE1A
MA-DCR	October 196	Proposed Harbor	016-410-000-023-100-DCR1A
DEP	November 1	Plan Accompanying	016-410-000-023-100-LIC1A

Structure Assessment Form

Town: DennisStructure ID: 016-411-000-012-100

Key: community-map-block-parcel-structure

Property Owner:

Local

Location:

Sesuit Harbor

Date:

9/20/2007

Presumed Structure Owner:

Local

Based On Comment:

Owner Name:

Dennis

Earliest Structure Record:

1968

Estimated Reconstruction/Repair Cost:

\$228,228.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
<u>380</u>		<u>A4</u>	<u>12</u>
Feet	Feet NAVD 88		Feet NGVD

Primary Type:

Revetment

Primary Material:

Stone

Primary Height:

5 to 10 Feet

Secondary Type:

Secondary Material:

Secondary Height:



Structure Summary :

This structure is a bulkhead on the east side of Sesuit Harbor fronted by a stone revetment. The wooden bulkhead is weathered and deteriorating and the revetment appears to be in good condition.

*Condition***C***Rating***Fair***Level of Action***Moderate***Description*

Structure is sound but may exhibit minor deterioration, section loss, cracking, spalling, undermining, and/or scour. Structure adequate to withstand major coastal storm with little to moderate damage. Actions taken to reinforce structure to provide full protection from major coastal storm and for extending life of structure. Moderate wind or wave damage to landform exists. Landform may not be sufficient to fully protect shoreline during a major coastal storm. Actions taken to provide addition material for full protection and extended life.

*Priority***III***Rating***Moderate Priority***Action*

Consider for Active Project Improvement Listing

Description

Inshore Structures with potential for Infrastructure Damage and/or Limited Residential Dwellings (<1 dwelling impacted / 100 feet of shoreline)

Structure Images:

016-411-000-012-100-PHO1A.jpg

Structure Documents:

USACENovember 1Proposed Access016-411-000-012-100-COE1A

Structure Assessment Form

Town: DennisStructure ID: 016-419-000-002-100

Key: community-map-block-parcel-structure

Property Owner:

Local

Location:

Stephen Phillip Road

Date:

9/20/2007

Presumed Structure Owner:

Local

Based On Comment:

Owner Name:

Dennis

Earliest Structure Record:

1958

Estimated Reconstruction/Repair Cost:

\$3,142.00

Length:

20

Feet

Top Elevation:

Feet NAVD 88

FIRM Map Zone:

V4

FIRM Map Elevation:

16

Feet NGVD

Primary Type:

Revetment

Primary Material:

Stone

Primary Height:

10 to 15 Feet

Secondary Type:

Secondary Material:

Secondary Height:



Structure Summary :

This structure is a stairway with a stone revetment at the end of Stephen Phillip Road. The side slopes and crest are in good condition. The stone shows some minor discoloration from weathering.

*Condition***B***Rating***Good***Level of Action***Minor***Description*

Structure observed to exhibit very minor problems, superficial in nature. Minor erosion to landform is present. Structure / landform adequate to provide protection from a major coastal storm with no damage. Actions taken to prevent / limit future deterioration and extend life of structure.

*Priority***I***Rating***None***Action***Long Term Planning Considerations***Description***No Inshore Structures or Residential Dwelling Units Present**

Structure Images:

016-419-000-002-100-PHO1A.jpg

Structure Documents:

MA-DCRFebruary 19Proposed Harbor016-419-000-002-100-DCR1A

Structure Assessment Form

Town: **Dennis**Structure ID: **016-420-000-004-100**

Key: community-map-block-parcel-structure

Property Owner:

Local

Location:

Sesuit Harbor

Date:

9/20/2007

Presumed Structure Owner:

Local

Based On Comment:

Owner Name:

Dennis

Earliest Structure Record:

1937

Estimated Reconstruction/Repair Cost:

\$1,595,280.00

Length:

1020

Feet

Top Elevation:

Feet NAVD 88

FIRM Map Zone:

V4

FIRM Map Elevation:

17

Feet NGVD

Primary Type:

Groin/ Jetty

Primary Material:

Stone

Primary Height:

10 to 15 Feet

Secondary Type:

Secondary Material:

Secondary Height:



Structure Summary :

This structure is the west jetty at Sesuit Harbor. The jetty is generally in good condition. There are some displaced armor stones and small sections of the crest and side slopes are slumped.

*Condition***C***Rating***Fair***Level of Action***Moderate***Description*

Structure is sound but may exhibit minor deterioration, section loss, cracking, spalling, undermining, and/or scour. Structure adequate to withstand major coastal storm with little to moderate damage. Actions taken to reinforce structure to provide full protection from major coastal storm and for extending life of structure. Moderate wind or wave damage to landform exists. Landform may not be sufficient to fully protect shoreline during a major coastal storm. Actions taken to provide addition material for full protection and extended life.

*Priority***IV***Rating***High Priority***Action***Consider for Next Project Construction Listing***Description*

High Value Inshore Structures with Potential for Infrastructure Damage and/or Moderate Density Residential Dwellings (1-10 dwellings impacted / 100 feet of shoreline)

Structure Images:

016-420-000-004-100-PHO1A.jpg**016-420-000-004-100-PHO1B.jpg**

Structure Documents:

USACE	June 1954	Proposed Jetty and	016-420-000-004-100-COE1A
USACE	May 1958	Proposed Jetty	016-420-000-004-100-COE1B
MA-DCR	August 1937	Proposed Shore	016-420-000-004-100-DCR1A
MA-DCR	October 194	Proposed Dredging	016-420-000-004-100-DCR1B
MA-DCR	July 1949	Proposed Stone	016-420-000-004-100-DCR1C
MA-DCR	May 1952	Proposed Dredging	016-420-000-004-100-DCR1D
MA-DCR	May 1954	Proposed Harbor and	016-420-000-004-100-DCR1E

Structure Assessment Form

Town: **Dennis**Structure ID: **016-421-000-005-100**

Key: community-map-block-parcel-structure

Property Owner:

Local

Location:

Sesuit Harbor

Date:

9/20/2007

Presumed Structure Owner:

Local

Based On Comment:

Owner Name:

Dennis

Earliest Structure Record:

1937

Estimated Reconstruction/Repair Cost:

\$2,690,080.00

Length: **1720** Top Elevation: **V4** FIRM Map Zone: **15** FIRM Map Elevation:
 Feet Feet NAVD 88 Feet NGVD

Primary Type:

Groin/ Jetty

Primary Material:

Stone

Primary Height:

10 to 15 Feet

Secondary Type:

Secondary Material:

Secondary Height:



Structure Summary :

This structure is the east jetty at Sesuit Harbor. The jetty is generally in good condition. There is some slumping of the armor stone. Some erosion is evident behind the landward end.

*Condition***C***Rating***Fair***Level of Action***Moderate***Description*

Structure is sound but may exhibit minor deterioration, section loss, cracking, spalling, undermining, and/or scour. Structure adequate to withstand major coastal storm with little to moderate damage. Actions taken to reinforce structure to provide full protection from major coastal storm and for extending life of structure. Moderate wind or wave damage to landform exists. Landform may not be sufficient to fully protect shoreline during a major coastal storm. Actions taken to provide addition material for full protection and extended life.

*Priority***III***Rating***Moderate Priority***Action*

Consider for Active Project Improvement Listing

Description

Inshore Structures with potential for Infrastructure Damage and/or Limited Residential Dwellings (<1 dwelling impacted / 100 feet of shoreline)

Structure Images:

016-421-000-005-100-PHO1A.jpg**016-421-000-005-100-PHO1B.jpg**

Structure Documents:

USACE	June 1954	Proposed Jetty and	016-421-000-005-100-COE1A
USACE	May 1958	Proposed Jetty	016-421-000-005-100-COE1B
MA-DCR	August 1937	Proposed Shore	016-421-000-005-100-DCR1A
MA-DCR	October 194	Proposed Dredging	016-421-000-005-100-DCR1B
MA-DCR	July 1949	Proposed Stone	016-421-000-005-100-DCR1C
MA-DCR	May 1952	Proposed Dredging	016-421-000-005-100-DCR1D
MA-DCR	May 1954	Proposed Harbor and	016-421-000-005-100-DCR1E

Structure Assessment Form

Town: DennisStructure ID: 016-421-000-005-200

Key: community-map-block-parcel-structure

Property Owner:

Local

Location:

Sesuit Harbor

Date:

9/20/2007

Presumed Structure Owner:

Local

Based On Comment:

Owner Name:

Dennis

Earliest Structure Record:

1968

Estimated Reconstruction/Repair Cost:

\$522,522.00

Length:

435

Top Elevation:

Feet

Feet NAVD 88

FIRM Map Zone:

A4

FIRM Map Elevation:

12

Feet NGVD

Primary Type:

Revetment

Primary Material:

Stone

Primary Height:

5 to 10 Feet

Secondary Type:

Secondary Material:

Secondary Height:



Structure Summary :

This structure is a loosely constructed revetment along the interior of the northeast side of Sesuit Harbor. Most of the stones are just dumped and there is some concrete rubble at the end. There is no appreciable interlocking or side slopes to the structure. The crest elevation varies along the length of the structure.

*Condition*D*Rating*Poor*Level of Action*Major*Description*

Structure exhibits advanced levels of deterioration, section loss, cracking, spalling, undermining, and/or scour. Structure has strong risk of significant damage and possible failure during a major coastal storm. Structure should be monitored until repairs/reconstruction can be initiated. Actions taken to reconstruct structure to regain full capacity to resist a major coastal storm. Landform eroded, stability threatened. Landform not adequate to provide protection during major coastal storm. Actions taken to recreate landform to adequate limits for full protection from a major coastal storm.

*Priority*II*Rating*Low Priority*Action*Future Project Consideration*Description*

Inshore Structures Present with Limited potential for Significant Infrastructure Damage

Structure Images:

016-421-000-005-200-PHO2A.jpg

Structure Documents:

USACENovember 1Proposed Access016-421-000-005-200-COE2A

Section IV - Dennis

Part C

Structure Photographs

BCE Structure No	Document No	Contract/ Drawing Number	Entity	Municipality	Date	Title	Sheets	Location	Description
016-011-000-031-100	016-011-000-031-100-PHO1A.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
016-011-000-031-200	016-011-000-031-200-PHO2A.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
016-011-000-031-300	016-011-000-031-300-PHO3A.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
016-011-000-031-400	016-011-000-031-400-PHO4A.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
016-011-000-031-500	016-011-000-031-500-PHO5A.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
016-011-000-031-600	016-011-000-031-600-PHO6A.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
016-011-000-031-700	016-011-000-031-700-PHO7A.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
016-012-000-001-100	016-012-000-001-100-PHO1A.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
016-012-000-001-200	016-012-000-001-200-PHO2A.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
016-014-000-019-100	016-014-000-019-100-PHO1A.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
016-015-000-045-100	016-015-000-045-100-PHO1A.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
016-015-000-045-100	016-015-000-045-100-PHO1B.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
016-015-000-066-100	016-015-000-066-100-PHO1A.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
016-015-000-066-100	016-015-000-066-100-PHO1B.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
016-015-000-066-200	016-015-000-066-200-PHO2A.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
016-018-000-199-100	016-018-000-199-100-PHO1A.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
016-018-000-199-200	016-018-000-199-200-PHO2A.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
016-019-000-091-100	016-019-000-091-100-PHO1A.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
016-019-000-091-200	016-019-000-091-200-PHO2A.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
016-019-000-091-200	016-019-000-091-200-PHO2B.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
016-021-000-059-100	016-021-000-059-100-PHO1A.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
016-021-000-059-200	016-021-000-059-200-PHO2A.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey

BCE Structure No	Document No	Contract/ Drawing Number	Entity	Municipality	Date	Title	Sheets	Location	Description
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016-080-000-016-100	016-080-000-016-100-PHO1A.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
016-127-000-040-100	016-127-000-040-100-PHO1A.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey
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BCE Structure No	Document No	Contract/ Drawing Number	Entity	Municipality	Date	Title	Sheets	Location	Description
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016-421-000-005-200	016-421-000-005-200-PHO2A.jpg		Bourne Consulting Engineering		October 2007	DIGITAL IMAGE	1	Structure Location	Structure Condition Photo at Time of Survey

Massachusetts Coastal Infrastructure and Assessment



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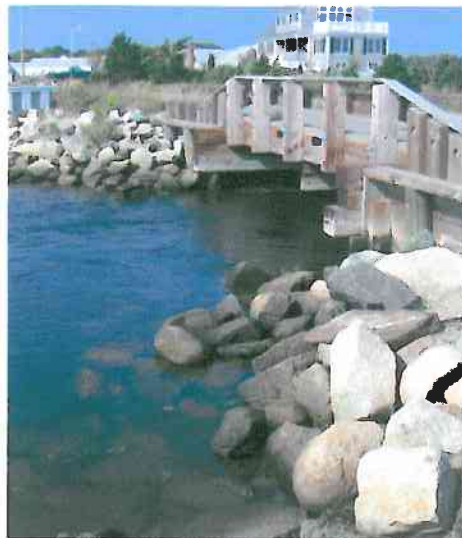
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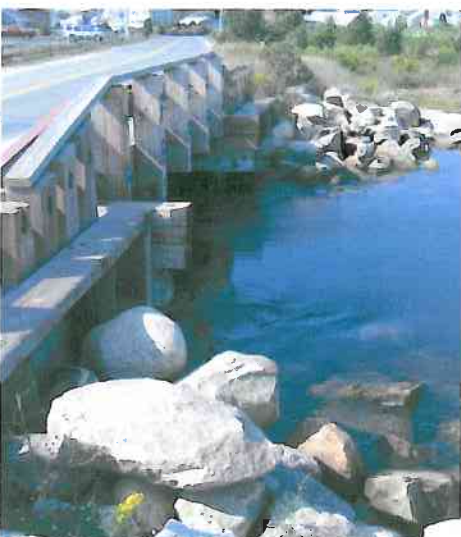
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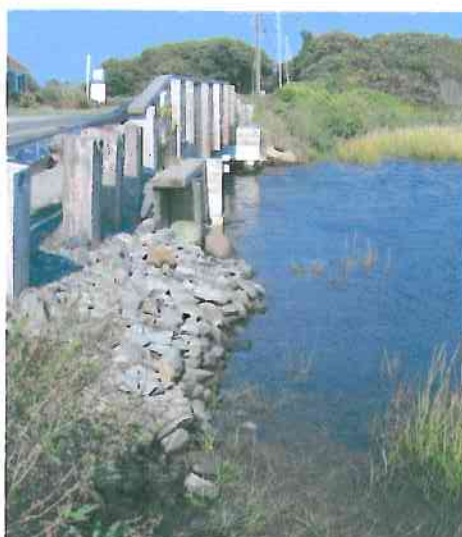
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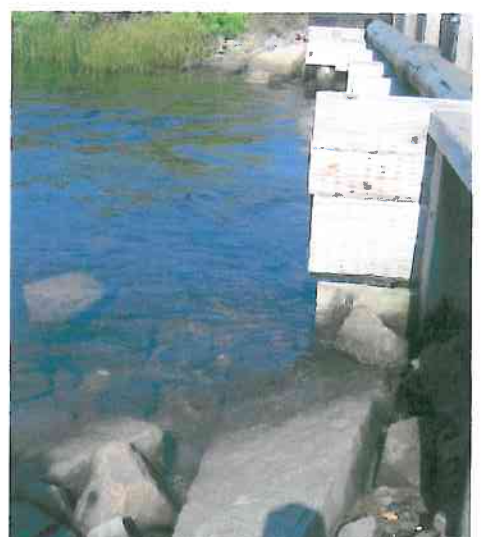
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Massachusetts Coastal Infrastructure and Assessment



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016-015-000-045-100-PHO1A



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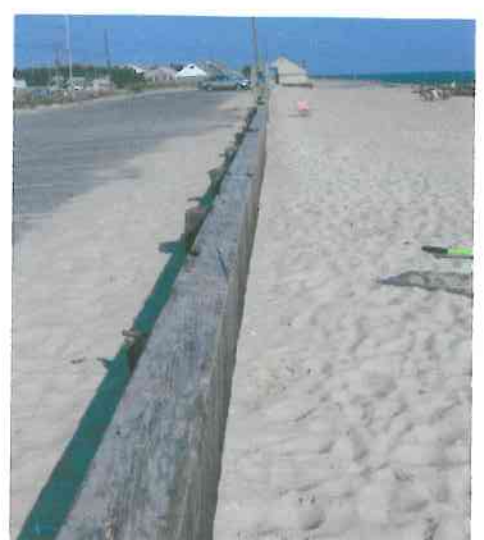
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016-021-000-059-200-PHO2A



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Massachusetts Coastal Infrastructure and Assessment



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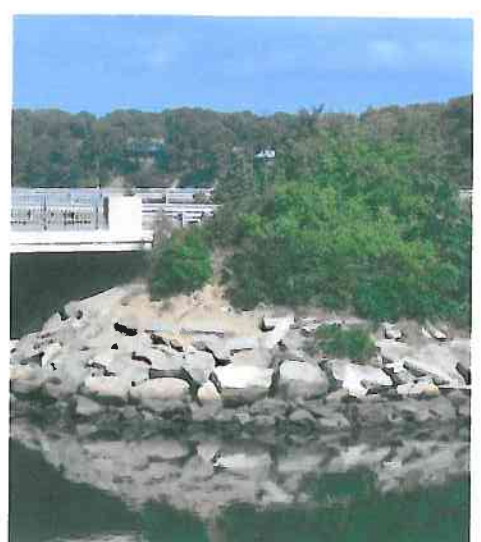
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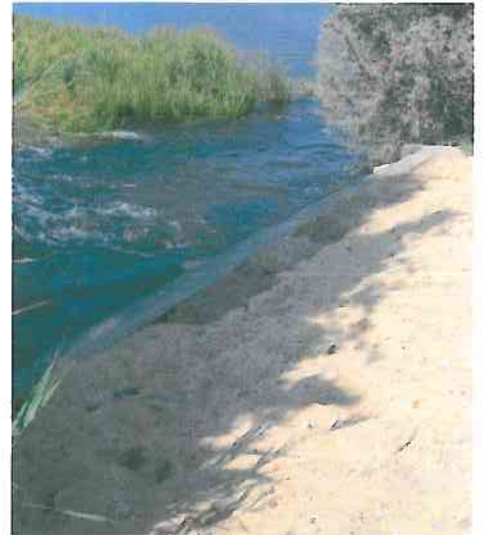
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Massachusetts Coastal Infrastructure and Assessment



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016-402-000-002-200-PHO2A



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016-419-000-002-100-PHO1A

Massachusetts Coastal Infrastructure and Assessment



016-420-000-004-100-PHO1A



016-420-000-004-100-PHO1B



016-421-000-005-100-PHO1A



016-421-000-005-100-PHO1B



016-421-000-005-200-PHO2A

Section IV - Dennis

Part D

Structure Documents

TOWN DOCUMENT LIST

MA DCR - DOCUMENT LIST

MA DEP – Ch 91 DOCUMENT LIST

- Copies of License Documents

USACE – PERMIT DOCUMENT LIST

- Copies of Permit Documents

TOWN: DENNIS
SOURCE: Town of Dennis
LOCATION: TOWN
DATE OF RESEARCH: JULY 2007

No Town Documents for the Town of Dennis

BCE Structure No	Document No	Contract/ Drawing Number	Entity	Municipality	Date	Title	Sheets	Location	Description
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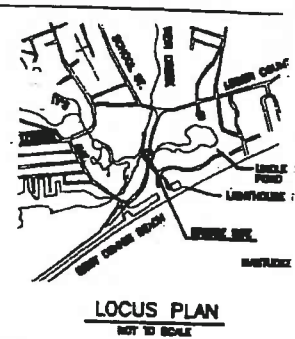
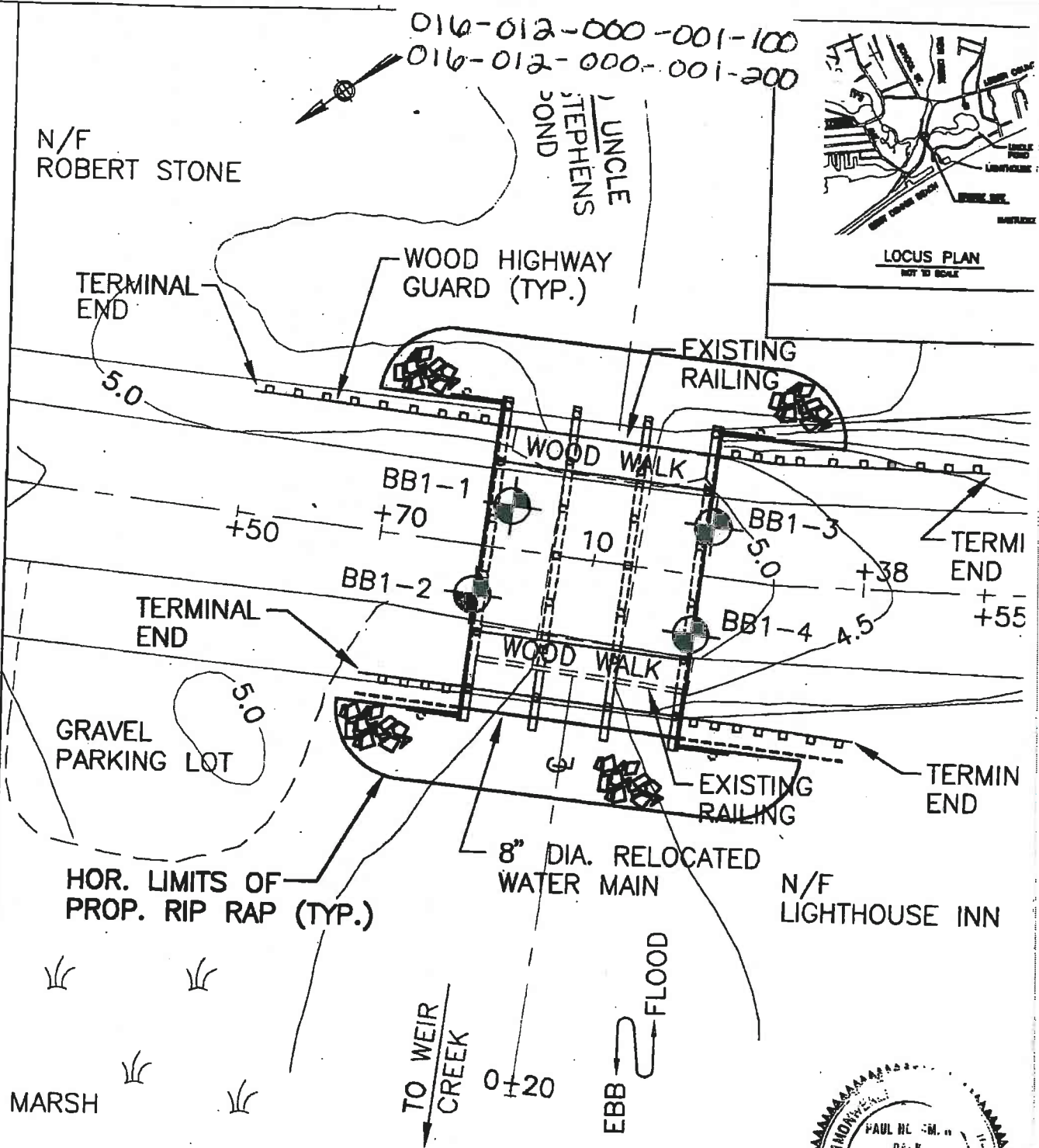
BCE Structure No	Document No	Contract/ Drawing Number	Entity	Municipality	Date	Title	Sheets	Location	Description
016-011-000-031-100	016-011-000-031-100-DCR1A	19	MA-DCR	Dennis	June 1917	Commonwealth of Massachusetts - Commission of Waterways and Public Land - Repairs to East Jetty - Bass River - Dennis and Yarmouth	1	Bass River	East Jetty
016-011-000-031-100	016-011-000-031-100-DCR1B	884	MA-DCR	Dennis	December 1945	Proposed Jetties - Vicinity of Lighthouse Inn - Division of Waterways	1	Lighthouse Inn Road	Groins
016-011-000-031-100	016-011-000-031-100-DCR1C	1000	MA-DCR	Dennis	September 1947	Proposed East Jetty Repairs and West Jetty Extension - Bass River - Dennis and Yarmouth - Prepared for the DPW of Massachusetts - Division of Waterways	1	Bass River	Jetty Repairs
016-011-000-031-300	016-011-000-031-300-DCR3A	1890	MA-DCR	Dennis	April 1958	Proposed Beach Protection - Timber Bulkhead - West Dennis Beach - Dennis - Prepared for the DPW of Massachusetts - Division of Waterways	1	West Dennis Beach	Timber Bulkhead
016-011-000-031-300	016-011-000-031-300-DCR3B	2138	MA-DCR	Dennis	August 1960	Proposed Beach Protection - Extension of Timber Bulkhead - West Dennis Beach - Prepared for the DPW of Massachusetts - Division of Waterways	1	West Dennis Beach	Timber Bulkhead
016-011-000-031-300	016-011-000-031-300-DCR3C	2256	MA-DCR	Dennis	February 1961	Proposed Beach Protection - Timber Bulkhead - West Dennis Beach - Dennis - Prepared for the DPW of Massachusetts - Division of Waterways	1	West Dennis Beach	Timber Bulkhead
016-011-000-031-400	016-011-000-031-400-DCR4A	1588	MA-DCR	Dennis	February 1956	Proposed Shore Protection - Timber Bulkhead and Groin Repairs - West Dennis Beach - Vicinity of Lighthouse Road - Dennis - Prepared for the DPW of Massachusetts - Division of Waterways	3	West Dennis Beach - Lighthouse Road	Bulkhead and Groin
016-011-000-031-400	016-011-000-031-400-DCR4B	1890	MA-DCR	Dennis	April 1959	Proposed Beach Protection - Timber Bulkhead - West Dennis Beach - Dennis - Prepared for the DPW of Massachusetts - Division of Waterways	1	West Dennis Beach	Timber Bulkhead
016-011-000-031-400	016-011-000-031-400-DCR4C	2138	MA-DCR	Dennis	August 1960	Proposed Beach Protection - Extension of Timber Bulkhead - West Dennis Beach - Prepared for the DPW of Massachusetts - Division of Waterways	1	West Dennis Beach	Timber Bulkhead
016-011-000-031-400	016-011-000-031-400-DCR4D	2256	MA-DCR	Dennis	February 1961	Proposed Beach Protection - Timber Bulkhead - West Dennis Beach - Dennis - Prepared for the DPW of Massachusetts - Division of Waterways	1	West Dennis Beach	Timber Bulkhead
016-011-000-031-600	016-011-000-031-600-DCR6A	1588	MA-DCR	Dennis	February 1956	Proposed Shore Protection - Timber Bulkhead and Groin Repairs - West Dennis Beach - Vicinity of Lighthouse Road - Dennis - Prepared for the DPW of Massachusetts - Division of Waterways	3	West Dennis Beach - Lighthouse Road	Bulkhead and Groins
016-015-000-045-100	016-015-000-045-100-DCR1A	408	MA-DCR	Dennis	April 1934	Proposed Stone Jetties - Swan Pond River - Division of Waterways	1	Swan Pond River	Jetties
016-015-000-045-100	016-015-000-045-100-DCR1B	2745	MA-DCR	Dennis	December 1971	Proposed Shore Protection - Stone Jetty Extension - Vicinity of Swan Pond Entrance - Swan Pond River - Dennis	1	Swan Pond River	Jetty
016-018-000-199-200	016-018-000-199-200-DCR2A	1104	MA-DCR	Dennis	September 1949	Proposed Shore Protection - Dennisport Shore - Division of Waterways	1	Old Wharf Road	Groins
016-019-000-091-200	016-019-000-091-200-DCR2A	1104	MA-DCR	Dennis	September 1949	Proposed Shore Protection - Dennisport Shore - Division of Waterways	1	Old Wharf Road	Groins
016-019-000-091-200	016-019-000-091-200-DCR2B	1146	MA-DCR	Dennis	August 1950	Proposed Shore Protection - Dennisport Shore - Division of Waterways	1	Glendon Road	Groins

016-019-000-091-200	016-019-000-091-200-DCR2C	1463	MA-DCR	Dennis	January 1955	Proposed Hurricane Repairs - Reconstruction of Stone Groin - Glendon Road Beach - Dennis - Prepared for the DPW of Massachusetts - Division of Waterways	1	Glendon Road Beach	Stone Groins
016-019-000-091-200	016-019-000-091-200-DCR2D	2770	MA-DCR	Dennis	March 1973	Proposed Shore Protection - Groin Reconstruction and Sand Fill - Hails Beach - Prepared for the DPW of Massachusetts - Division of Waterways	1	West of Glendon Road	Groin Reconstruction
016-021-000-059-100	016-021-000-059-100-DCR1A	1584	MA-DCR	Dennis	February 1956	Proposed Shore Protection - Stone Revetment - Raycroft Beach - Dennis - Prepared for the DPW of Massachusetts - Division of Waterways	2	Raycroft Beach and Sea Street Beach	Stone Revetment and Groin
016-021-000-059-200	016-021-000-059-200-DCR2A	1160	MA-DCR	Dennis	November 1950	Proposed Shore Protection - Dennisport Shore - Dennis - Prepared for the DPW of Massachusetts - Division of Waterways	1	Oak Street	Jetty
016-021-000-059-200	016-021-000-059-200-DCR2B	1379	MA-DCR	Dennis	April 1954	Proposed Shore Protection - Stone Groin Construction - Dennisport Shore - Vicinities of Oak Street and Inman Road - Dennis - Prepared for the DPW of Massachusetts - Division of Waterways	2	Oak Street	Groin Construction
016-021-000-059-200	016-021-000-059-200-DCR2C	1584	MA-DCR	Dennis	February 1956	Proposed Shore Protection - Stone Revetment - Raycroft Beach - Dennis - Prepared for the DPW of Massachusetts - Division of Waterways	2	Raycroft Beach and Sea Street Beach	Stone Revetment and Groin
016-402-000-002-200	016-402-000-002-200-DCR2A	380	MA-DCR	Dennis	August 1933	Proposed Stone Jetties - Nobscusset - Dennis - Prepared for the DPW of Massachusetts - Division of Waterways	1	Nobscusset Harbor	Jetties
016-402-000-002-200	016-402-000-002-200-DCR2B	1281	MA-DCR	Dennis	November 1952	Proposed Stone Mound Repair - Nobscusset - Dennis - Prepared for the DPW of Massachusetts - Division of Waterways	1	Nobscusset Harbor	Groins
016-402-000-002-300	016-402-000-002-300-DCR3A	1163	MA-DCR	Dennis	January 1951	Proposed Shore Protection - Nobscusset - Dennis - Prepared for the DPW of Massachusetts - Division of Waterways	1	Nobscusset Harbor	Riprap
016-410-000-023-100	016-410-000-023-100-DCR1A	2326	MA-DCR	Dennis	October 1961	Proposed Harbor Improvements - Docking Facilities - Sesuit Harbor - Dennis - Prepared for the DPW of Massachusetts - Division of Waterways	2	Sesuit Neck Road	Bulkhead and Walkway
016-419-000-002-100	016-419-000-002-100-DCR1A	1869	MA-DCR	Dennis	February 1958	Proposed Harbor Development - Jetty Construction and Stone Revetment - Sesuit Harbor - Dennis, Massachusetts - Prepared for the DPW of Massachusetts - Division of Waterways	2	Harbor Road	Stone Revetment
016-420-000-004-100	016-420-000-004-100-DCR1A	507	MA-DCR	Dennis	August 1937	Proposed Shore Protection - Dennis - Prepared for the DPW of Massachusetts - Division of Waterways	1	Sesuit Harbor	Jetty
016-420-000-004-100	016-420-000-004-100-DCR1B	860	MA-DCR	Dennis	October 1945	Proposed Dredging and Jetty Repairs - Sesuit Harbor - Dennis - Prepared for the DPW of Massachusetts - Division of Waterways	1	Sesuit Harbor	Jetty
016-420-000-004-100	016-420-000-004-100-DCR1C	1100	MA-DCR	Dennis	July 1949	Proposed Stone Jetty - Sesuit River Dennis - Prepared for the DPW of Massachusetts - Division of Waterways	1	Sesuit River	Jetty
016-420-000-004-100	016-420-000-004-100-DCR1D	1224	MA-DCR	Dennis	May 1952	Proposed Dredging and Jetty Construction - Sesuit Harbor - Dennis, Massachusetts - Prepared for the DPW of Massachusetts - Division of Waterways	1	Sesuit Harbor	Jetty
016-420-000-004-100	016-420-000-004-100-DCR1E	1383	MA-DCR	Dennis	May 1954	Proposed Harbor and Shore Protection - Jetty and Groin Construction - Sesuit Harbor - Dennis - Prepared for the DPW of Massachusetts - Division of Waterways	2	Sesuit Harbor	Jetty and Groin Construction
016-421-000-005-100	016-421-000-005-100-DCR1A	507	MA-DCR	Dennis	August 1937	Proposed Shore Protection - Dennis - Prepared for the DPW of Massachusetts - Division of Waterways	1	Sesuit Harbor	Jetty
016-421-000-005-100	016-421-000-005-100-DCR1B	860	MA-DCR	Dennis	October 1945	Proposed Dredging and Jetty Repairs - Sesuit River - Dennis - Prepared for the DPW of Massachusetts - Division of Waterways	1	Sesuit Harbor	Jetty Repairs

016-421-000-005-100	016-421-000-005-100-DCR1C	1100	MA-DCR	Dennis	July 1949	Proposed Stone Jetty - Sesuit River - Dennis - Prepared for the DPW of Massachusetts - Division of Waterways	1	Sesuit River	Stone Jetty
016-421-000-005-100	016-421-000-005-100-DCR1D	1224	MA-DCR	Dennis	May 1952	Proposed Dredging and Jetty Construction - Sesuit Harbor - Dennis, Massachusetts - Prepared for the DPW of Massachusetts - Division of Waterways	1	Sesuit Harbor	Jetty
016-421-000-005-100	016-421-000-005-100-DCR1E	1383	MA-DCR	Dennis	May 1954	Proposed Harbor and Shore Protection - Jetty and Groin Construction - Sesuit Harbor - Dennis - Prepared for the DPW of Massachusetts - Division of Waterways	2	Sesuit Harbor	Jetty and Groin Construction

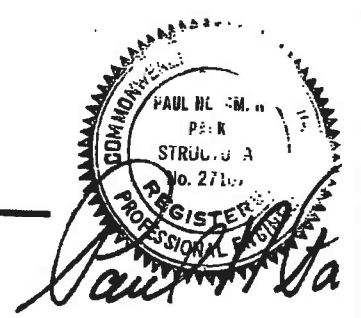
TOWN: DENNIS
 SOURCE: DEP
 LOCATION: BOSTON, MA
 DATE OF RESEARCH: JULY 2007

BCE Structure No	Document No	Contract/ Drawing Number	Entity	Municipality	Date	Title	Sheets	Location	Description
016-012-000-001-100	016-012-000-001-100-LIC1A	3694	DEP	Dennis	February 1994	Plans Accompanying Petition of Town of Dennis for Bridge Over Weir Creek Tributary, Lighthouse Road, Town of Dennis, Barnstable County, Massachusetts	3	Weir Creek	Riprap Abutments
016-012-000-001-100	016-012-000-001-100-LIC1B	7866	DEP	Dennis	March 15, 1999	Plans Accompanying Petition of Town of Dennis for Bridge Over Weir Creek Loring Avenue, Town of Dennis, Barnstable County, Massachusetts	3	Weir Creek, Loring Avenue	Stone Revetment
016-012-000-001-200	016-012-000-001-200-LIC2A	3694	DEP	Dennis	February 1994	Plans Accompanying Petition of Town of Dennis for Bridge Over Weir Creek Tributary, Lighthouse Road, Town of Dennis, Barnstable County, Massachusetts	3	Weir Creek	Riprap Abutment
016-012-000-001-200	016-012-000-001-200-LIC2B	7866	DEP	Dennis	March 15, 1999	Plans Accompanying Petition of Town of Dennis for Bridge Over Weir Creek, Loring Avenue, Town of Dennis, Barnstable County, Massachusetts	3	Weir Creek, Loring Avenue	Stone Revetment
016-015-000-045-100	016-015-000-045-100-LIC1A	2423	DEP	Dennis	September 19, 1990	Plan Accompanying Petition of Town of Dennis to Construct A Stone Revetment, Channel Excavation, and Timber Lauing Ramp	3	Swan Pond River/ Swan Pond River Road	Stone Groin/Jetty
016-021-000-059-100	016-021-000-059-100-LIC1A	770	DEP	Dennis	July 1981	Plan Accompanying Petition of Town of Dennis to Reconstruct an Existing Groin and Portion of Beach - Nantucket Sound - Dennis, Massachusetts	2	Sea Street Beach	Groin and Revetment
016-021-000-059-200	016-021-000-059-200-LIC2A	770	DEP	Dennis	July 1981	Plan Accompanying Petition of Town of Dennis to Reconstruct an Existing Groin and Portion of Beach - Nantucket Sound - Dennis, Massachusetts	2	Sea Street Beach	Groin and Revetment
016-043-000-014-100	016-043-000-014-100-LIC1A	9270	DEP	Dennis	May 10, 2002	Plan To Accompany Petition of Town of Dennis to License, Reconstruct and Maintain an Existing Boat Launch Facility In Bass River	5	Bass River, Uncle Freeman's Road	Wood Bulkhead/Seawall
016-410-000-023-100	016-410-000-023-100-LIC1A	1347	DEP	Dennis	November 1985	Plan Accompanying Petition of the Town of Dennis to Construct and Maintain a Bulkhead at Sesuit Harbor, West Side - East Dennis, County of Barnstable, Massachusetts	1	Sesuit Harbor	Bulkhead



KEY PLAN

SCALE: 1" = 20'-0"



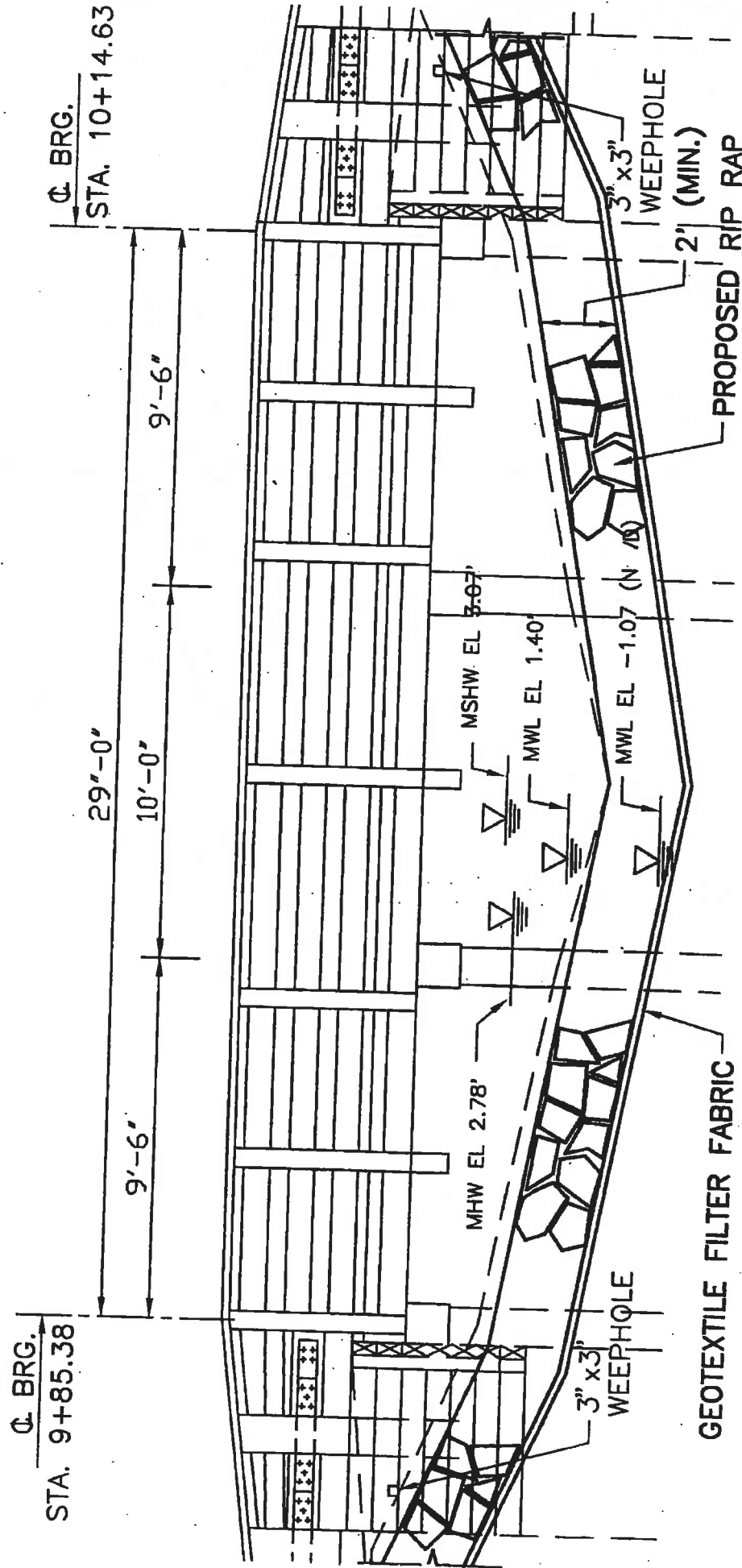
PLANS ACCOMPANYING
 PETITION OF TOWN OF
 DENNIS FOR BRIDGE
 OVER WEIR CREEK TRIBUTARY,
 LIGHTHOUSE ROAD,
 TOWN OF DENNIS,
 BARNSTABLE COUNTY,
 MASSACHUSETTS

SHEET 1 OF

3694

Paul H. Smith
217.244.1234
John A. Smith
 FEB 22 2001

016-012-000-001-100
016-012-000-001-200



ELEVATION

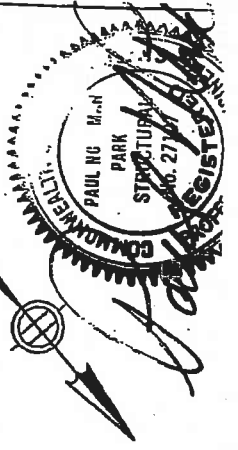
SCALE: 1/4" = 1'-0"

RIDGE OVER WEIR CREEK TRIBUTARY
LIGHTHOUSE ROAD
TOWN OF DENNIS
WENSTABLE COUNTY, MASSACHUSETTS
SEPTEMBER 1993

LICENSE PLAN NO. 3694

Approved by Department of Environmental Protection

Date: FEB 23 1994



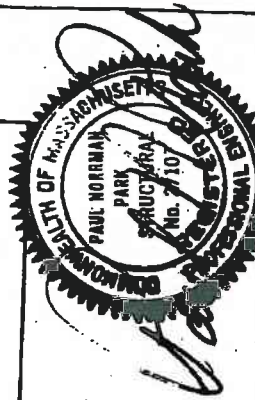
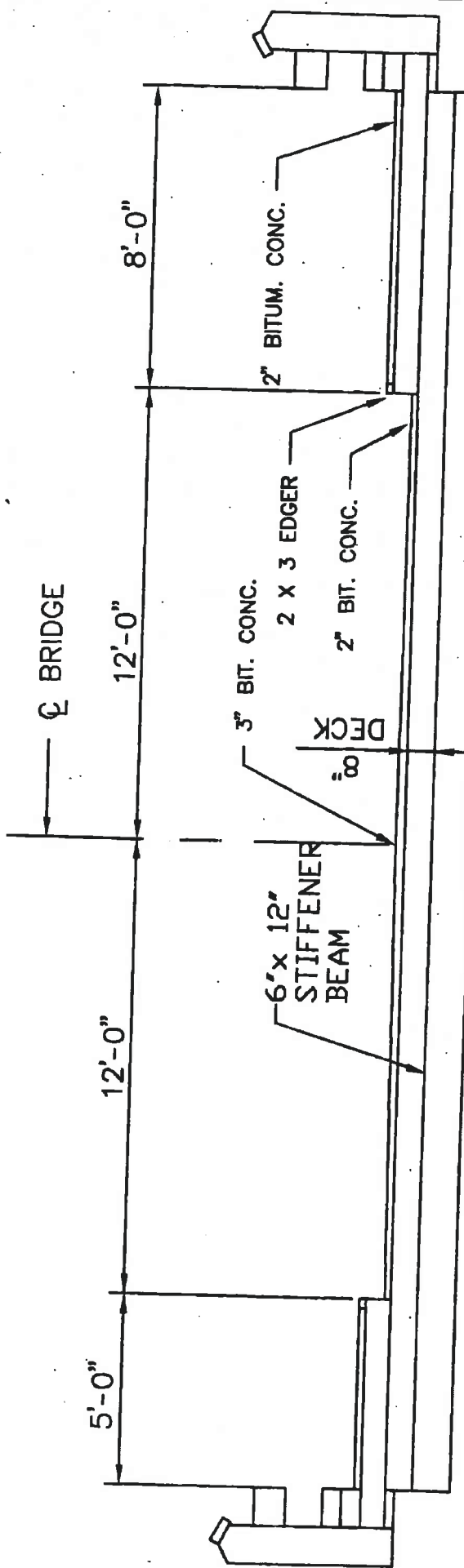
016-012-000-001-100
016-012-000-001-200

SHEET 3 OF 3

3694

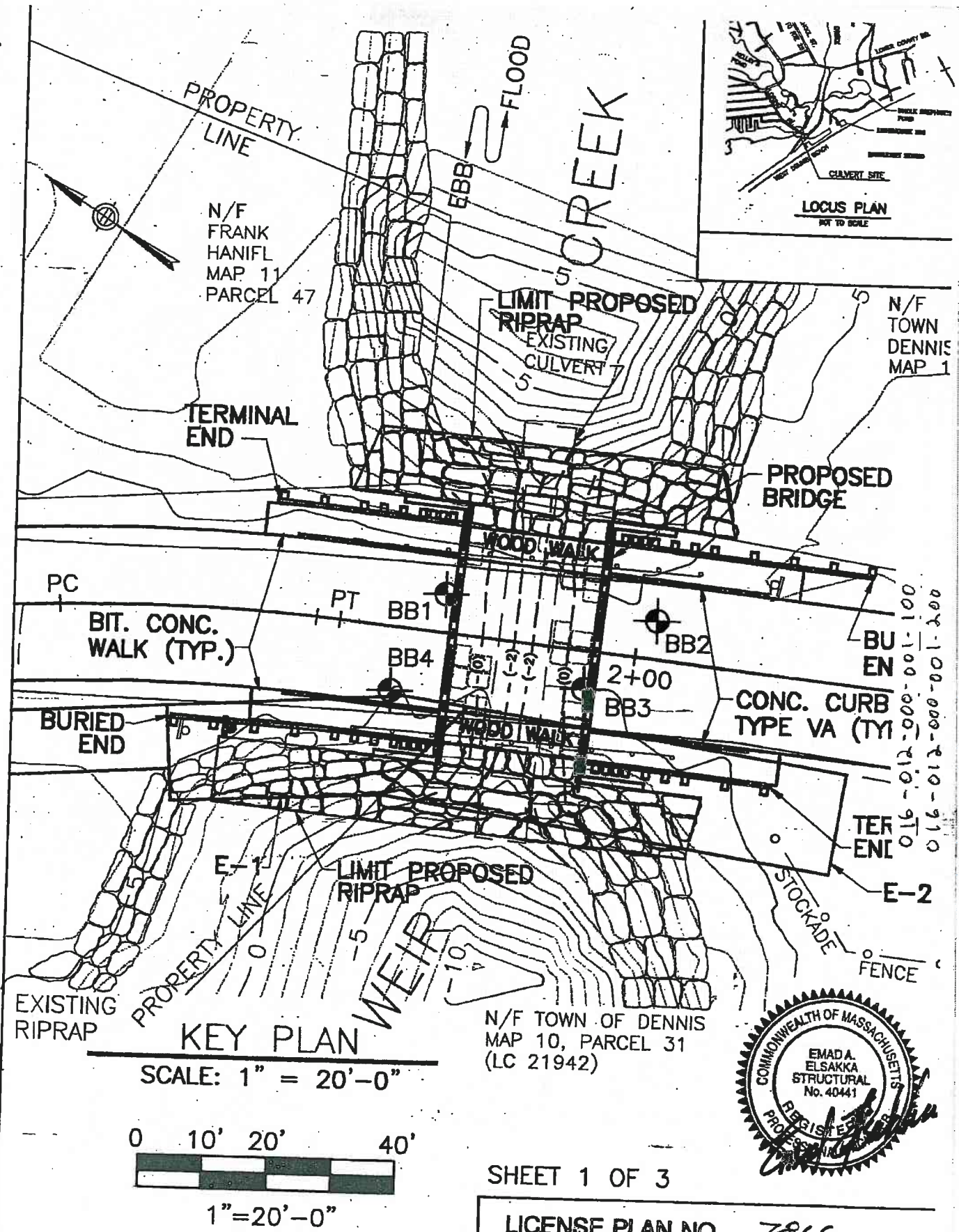
FEB 23 1994

BRIDGE OVER WEIR CREEK TRIBUTARY
LIGHTHOUSE ROAD
TOWN OF DENNIS
BARNSTABLE COUNTY, MASSACHUSETTS
SEPTEMBER 1993



TYPICAL BRIDGE SECTION AT STIFFENER BEAM

SCALE: 1/4" = 1'-0"



PLANS ACCOMPANYING PETITION OF TOWN OF DENNIS FOR BRIDGE OVER WEIR CREEK, LORING AVENUE, TOWN OF DENNIS, BARNSTABLE COUNTY, MASSACHUSETTS. OCTOBER 1998

LICENSE PLAN NO. 7866

Approved by Department of Environmental Protection of Massachusetts

Elizabeth J. Kaulosheras
Edward P. Vance

MAR 15 1999

SHEET 2 OF 3

LICENSE PLAN NO. 7866

Approved by Department of Environmental Protection

Date: MAR 15 1999

4 BRG:

STA. 1+71.44

BRG.

STA. 1+93.94

22-61

21'-6" CLEAR

APPROX.
EXISTING
GROUND

10 YR STORM
EL 5.3 NGVD

2.75

GEOTEXTILE FILTER FABRIC

GEU/EX/ILE: FILE
016-012-000-001-100
016-012-000-001-100

EXISTING CULVERT

PROPOSED RIPRAP:

PILE TIP
EL. -37.13
(TYPICAL)

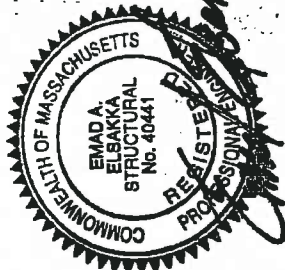
BRIDGE OVER WEIR CREEK
LORING AVENUE
TOWN OF DENNIS
BARNSTABLE COUNTY, MASSACHUSETTS
OCTOBER, 1998

ELEVATION

SCALE: 1/4" = 1'-0"

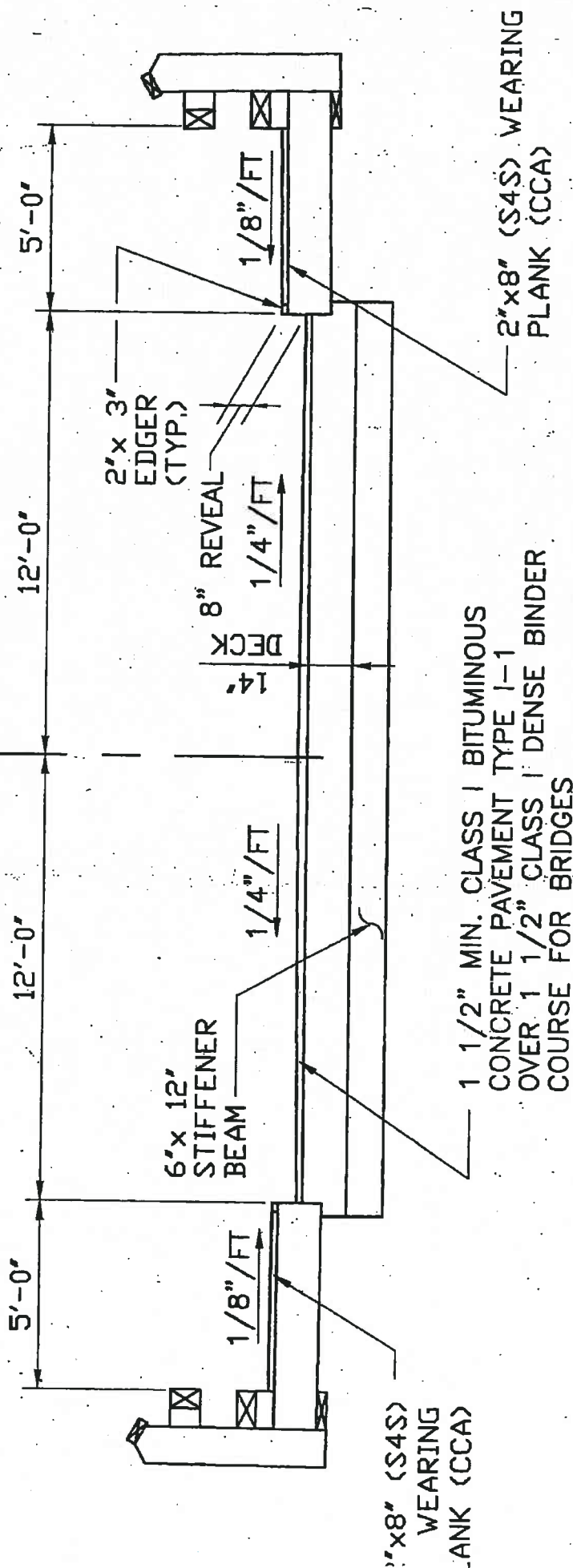
SHEET 3 OF 3

BRIDGE OVER WEIR CREEK
LORING AVENUE
TOWN OF DENNIS
BARNSTABLE COUNTY, MASSACHUSETTS
OCTOBER, 1998



LICENSE PLAN NO. 7866
Approved by Department of Environmental Protection
Date: MAR 15 1999

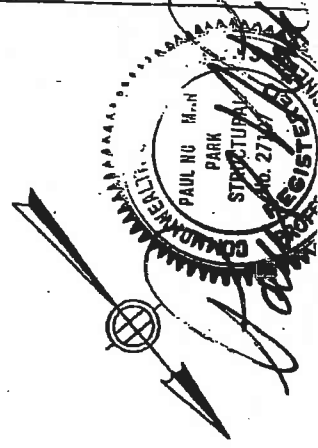
— C ROADWAY



TYPICAL BRIDGE SECTION AT STIFFENER BEAM

016-012-000-001-100
016-012-000-001-200
SCALE: 1/4" = 1'-0"
4' 0' 4' 8'

BRIDGE OVER WEIR CREEK TRIBUTARY
LIGHTHOUSE ROAD
TOWN OF DENNIS
WENSTABLE COUNTY, MASSACHUSETTS
SEPTEMBER 1993



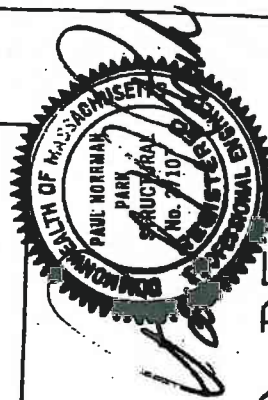
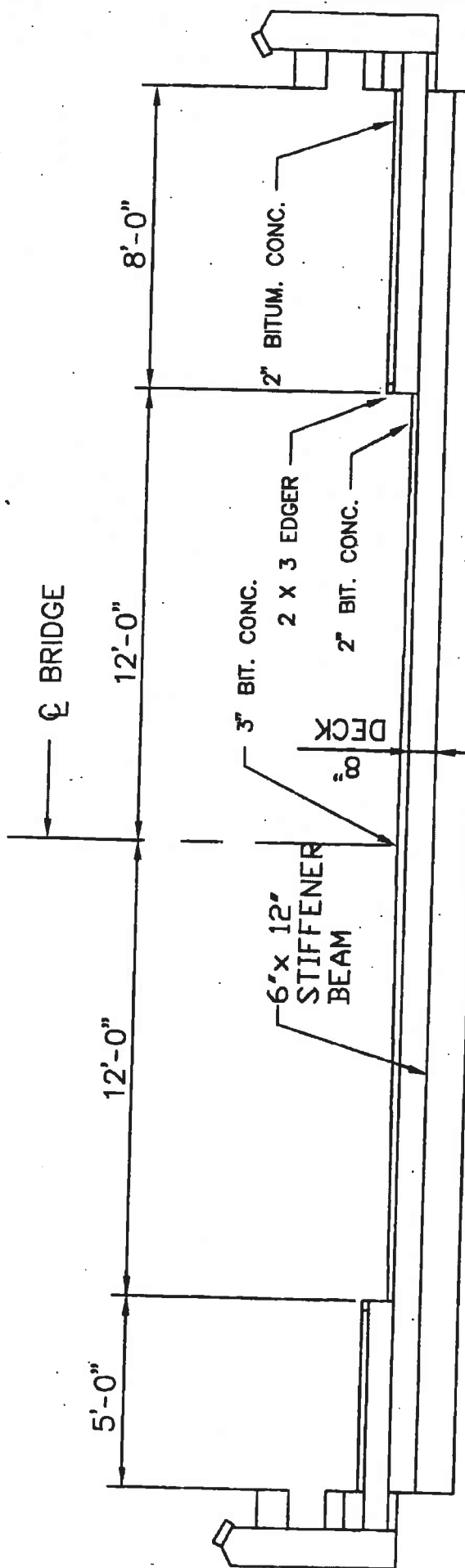
016-012-000-001-100
016-012-000-001-200

SHEET 3 OF 3

3694

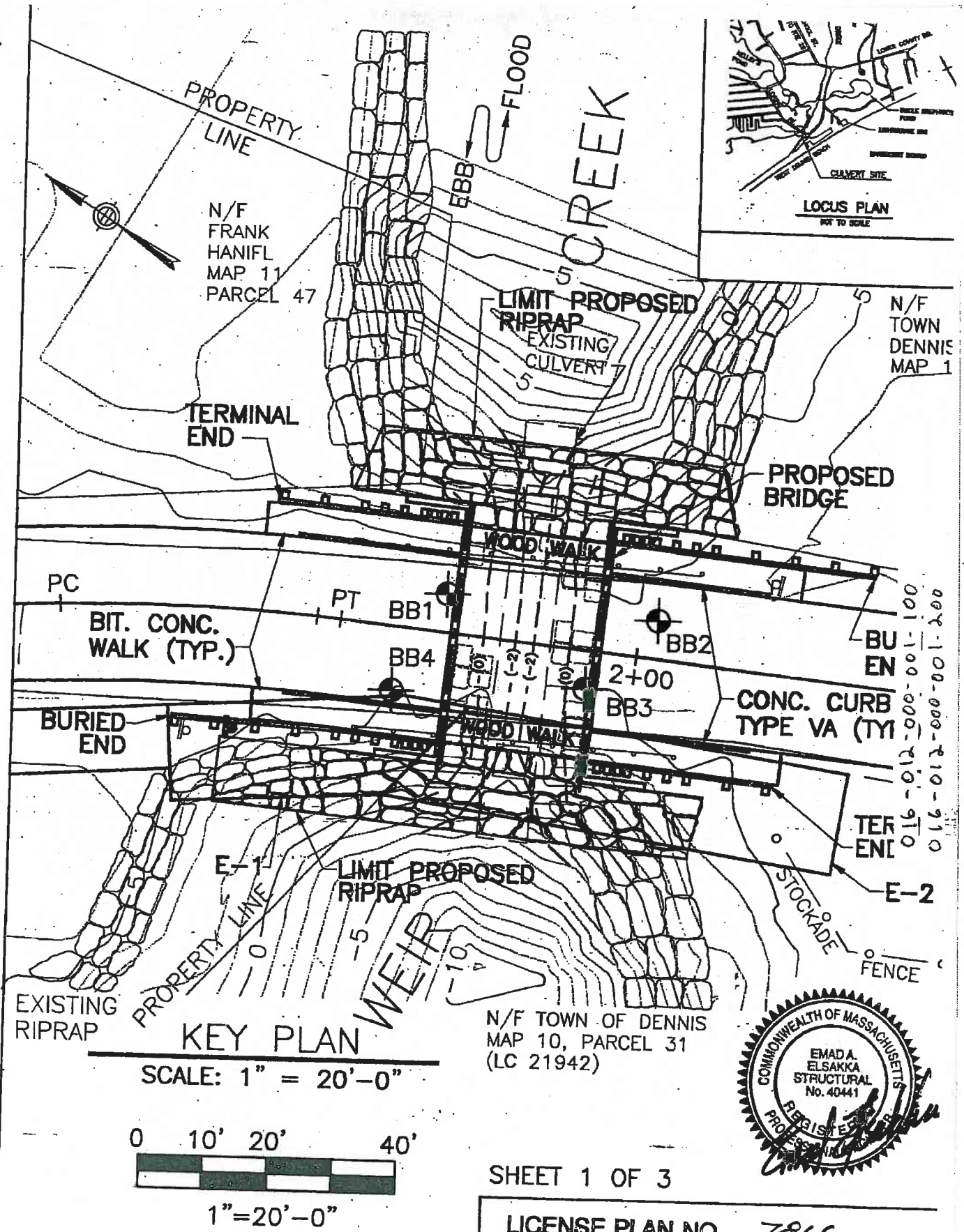
FEB 23 1994

BRIDGE OVER WEIR CREEK TRIBUTARY
LIGHTHOUSE ROAD
TOWN OF DENNIS
BARNSTABLE COUNTY, MASSACHUSETTS
SEPTEMBER 1993



TYPICAL BRIDGE SECTION AT STIFFENER BEAM

SCALE: 1/4" = 1'-0"



PLANS ACCOMPANYING PETITION OF TOWN OF DENNIS FOR BRIDGE OVER WEIR CREEK, LORING AVENUE, TOWN OF DENNIS, BARNSTABLE COUNTY, MASSACHUSETTS. OCTOBER 1998

LICENSE PLAN NO. 7866

Approved by Department of Environmental Protection of Massachusetts

Elizabeth J. Kaulosheras
Edward P. Vance
MAR 15 1999

SHEET 2 OF 3

7 BRG.

STA. 1+71.44

LICENSE PLAN NO. 7866

Approved by Department of Environmental Protection

Date: MAR 15 1999

BRG.

STA. 1+93.94

22-6'

21'-6" CLEAR

APPROX. -
EXISTING
GROUND

10 YR STORM
EL 5.3 NGVD

2

N

2.75

MHW
NGVD

1.71

MILW NGVD

1

55



GEOTEXTILE FILTER FABRIC

016-011-000-001-100
016-012-000-001-100

EXISTING CULVERT

PROPOSED RIPRAP 2-6" (MIN.)

PILE TIP

EL. -37.13

(TYPICAL)

BRIDGE OVER WEIR CREEK
LORING AVENUE
TOWN OF DENNIS
BARNSTABLE COUNTY, MASSACHUSETTS
OCTOBER, 1998

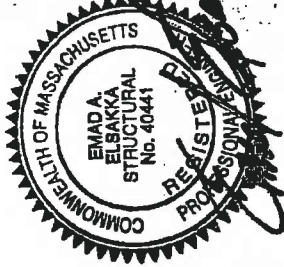
ELEVATION

SCALE: 1/4" = 1'-0"

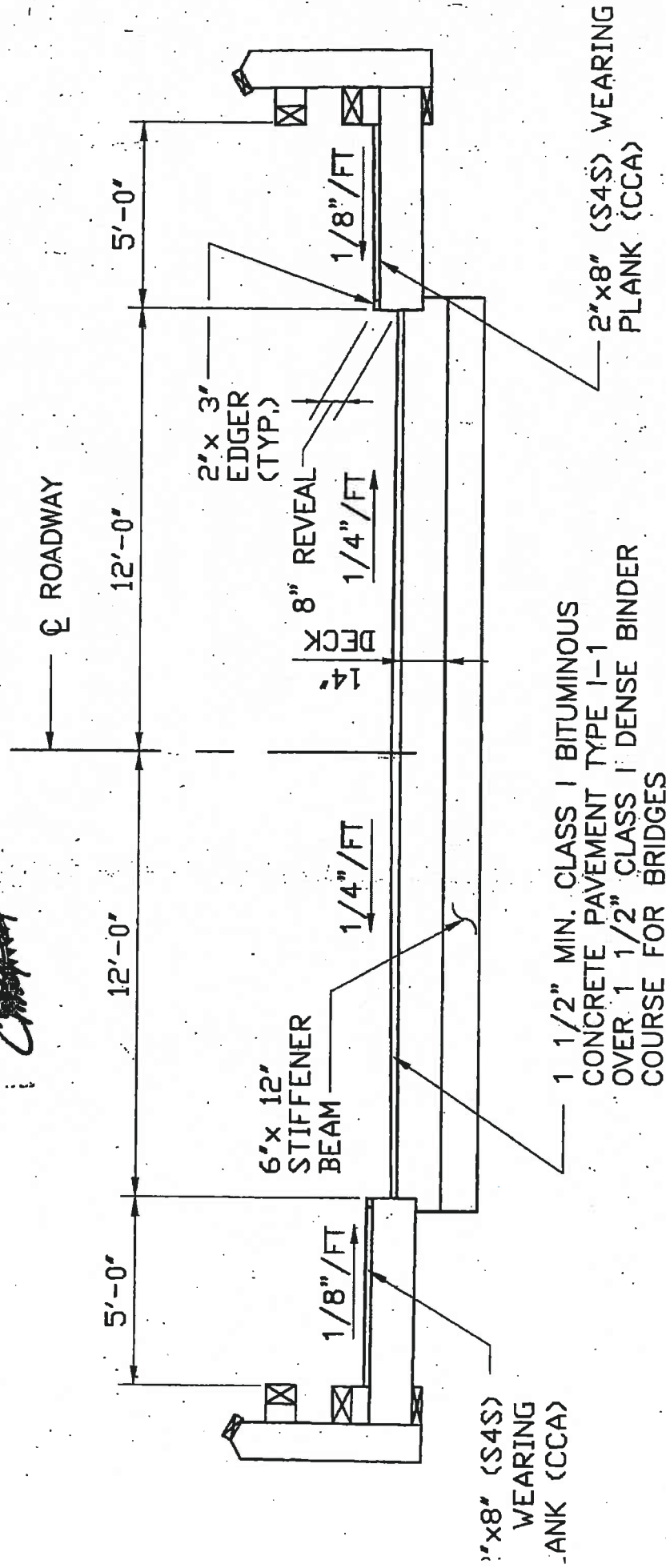
$$1/4'' = 1'-0''$$


SHEET 3 OF 3

BRIDGE OVER WEIR CREEK
LORING AVENUE
TOWN OF DENNIS
BARNSTABLE COUNTY, MASSACHUSETTS
OCTOBER, 1998



LICENSE PLAN NO. 7866
Approved by Department of Environmental Protection
Date: **MAR 15 1998**

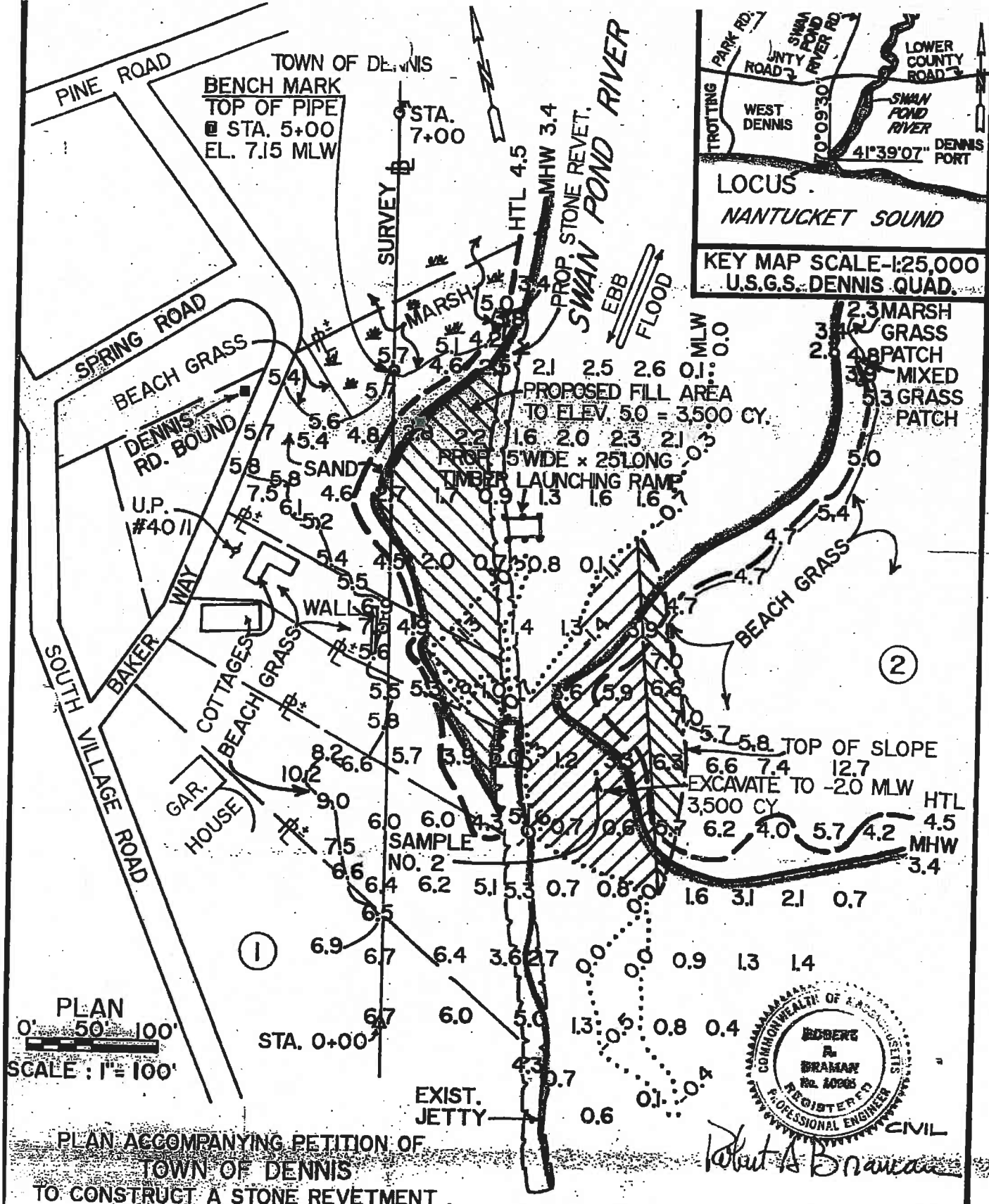


TYPICAL BRIDGE SECTION AT STIFFENER BEAM

016-012-000-001-100
016-012-000-001-200

SCALE: 1/4" = 1'-0"

4' 0' 4' 8'



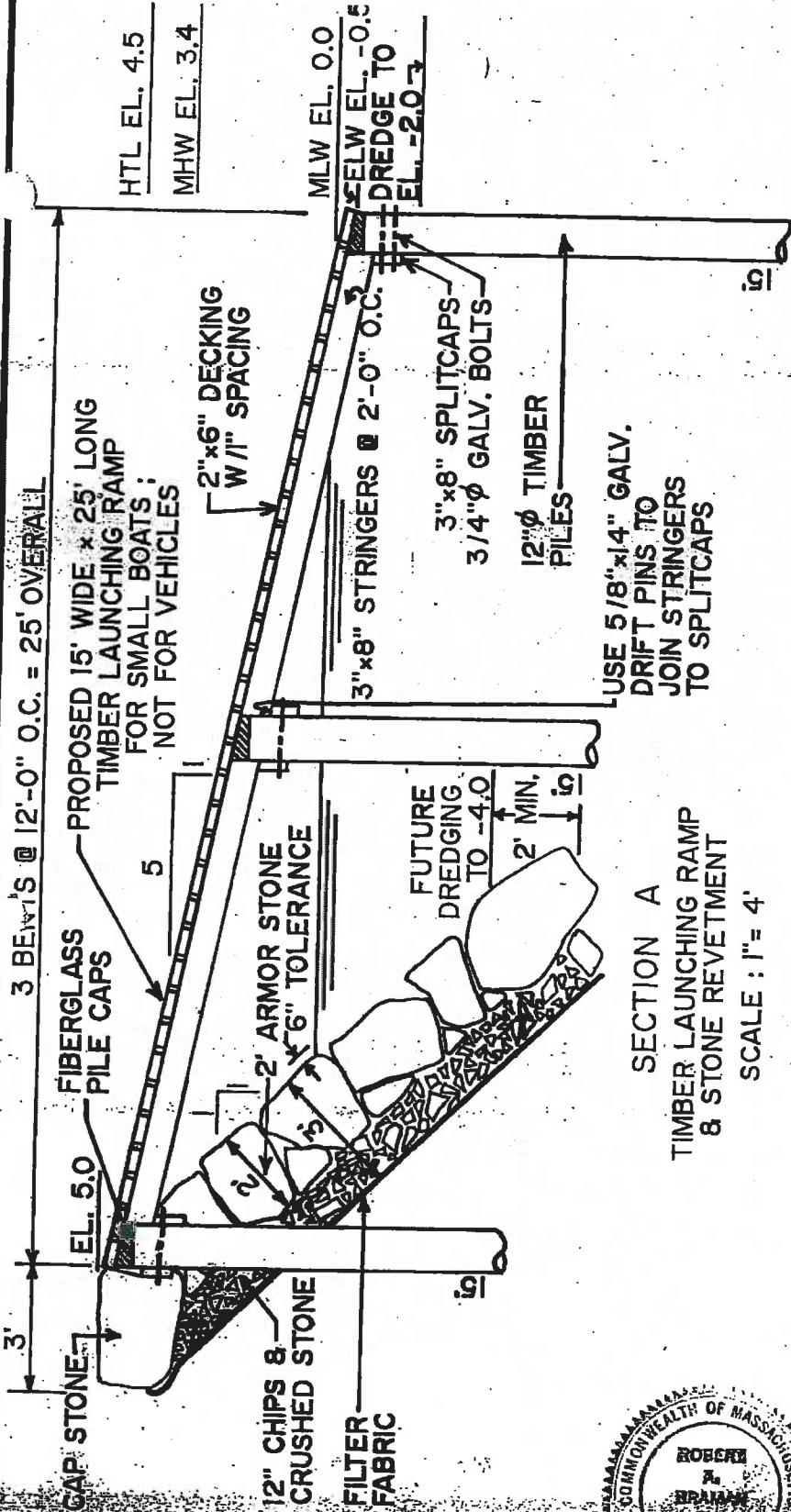
PLAN ACCOMPANYING PETITION OF
 TOWN OF DENNIS
 TO CONSTRUCT A STONE REVETMENT,
 CHANNEL EXCAVATION, &
 TIMBER LAUNCHING RAMP

SWAN POND RIVER
 WEST DENNIS, BARNSTABLE CO., MA.
 AUGUST 1, 1989 SHEET 1 OF 3
 BRAMAN ENGINEERING COMPANY, LTD.
 CIVIL ENGINEERS AND SURVEYORS
 259 MAIN ST. BLYTHWOOD BAY, MA

LICENSE PLAN NO. 2423
 Approved by Department of Environmental Protection
 of Massachusetts
COMMISSIONER
IN DIRECTOR
SECTION CHIEF
 SEP 10 1990

016-015-006-045-100

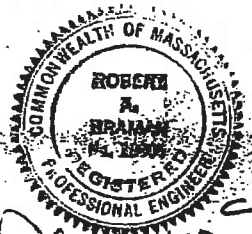
90-0501
 2423



SECTION A
TIMBER LAUNCHING RAMP
& STONE REVETMENT
SCALE: 1" = 4'

ABUTTERS

- ① ROLAND FORTIN
BOX 86 B
BROCKTON, MA. 02401
- ② FRANKS OF BROCKTON, INC.
265 NORTH PEARL ST.
BROCKTON, MA. 02401



Robert A. Braman

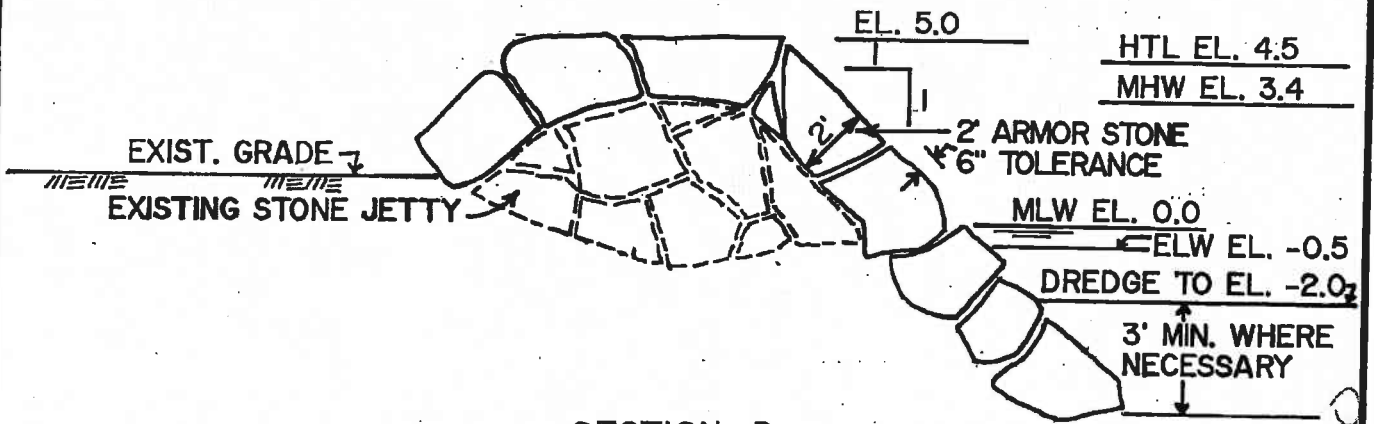
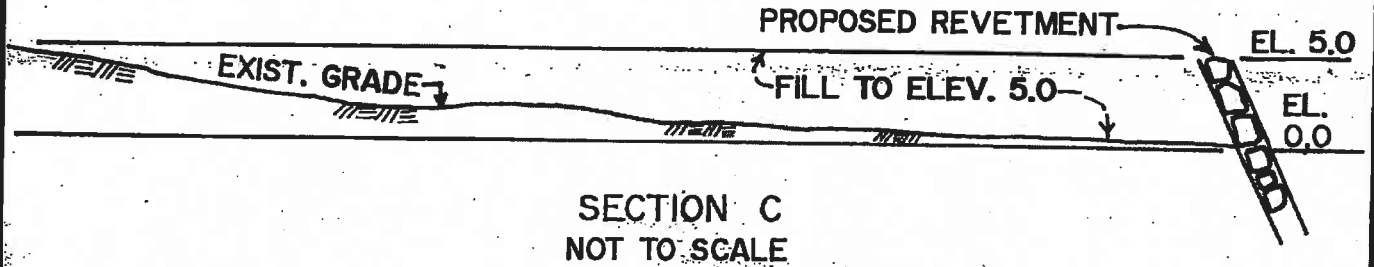
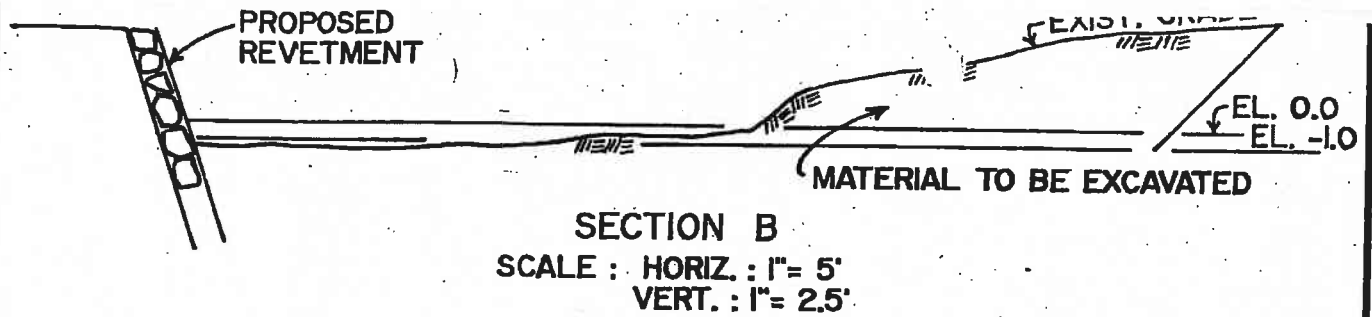
LICENSE PLAN NO. 2423

Approved by Department of Environmental Protection

Date: **SEP 19 1990**

016-015-000-045-100

1050-06



NOTES

1. ELEVATIONS SHOWN ARE IN FEET AND TENTHS ABOVE THE PLANE OF MEAN LOW WATER. MINUS FIGURES REPRESENT ELEVATIONS BELOW THAT SAME PLANE.
2. TIMBER PILES TO BE CCA TREATED AT 2.5 PCF. ALL OTHER TIMBERS TO BE CCA TREATED AT 1.0 PCF.
3. ALL HARDWARE TO BE GALVANIZED.
4. FOR COMMERCIAL USE.

LICENSE PLAN NO. 2423

Approved by Department of Environmental Protection

Date: **SEP 19 1990**

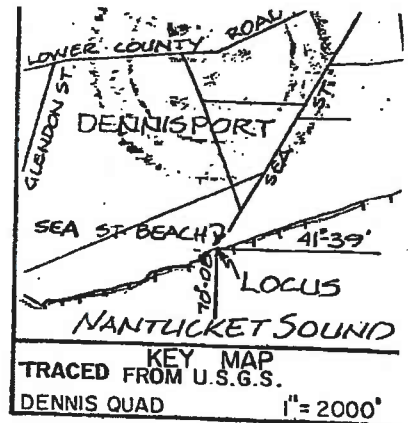


Robert A. Braman

016-015-000-045-100

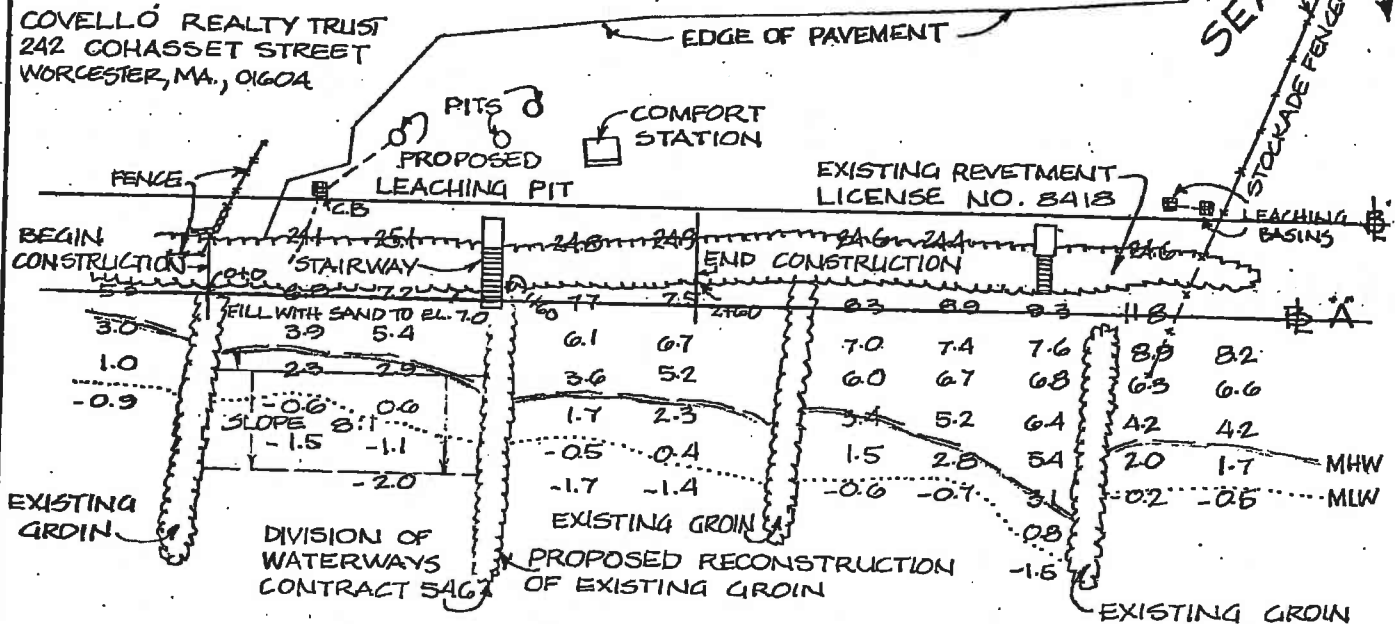
10-0501

016-021-000-059-100
016-021-000-059-200



NOTE:
ELEVATIONS ARE IN FEET AND TENTHS
ON THE PLANE OF MEAN LOW WATER
MINUS FIGURES REPRESENT ELEVATIONS
BELOW THAT PLANE.

LOT 29
JOHN E. MARQUES et al
62 KEEL CAPE DRIVE
SOUTH YARMOUTH



NANTUCKET SOUND PLAN SCALE: 1" = 100'

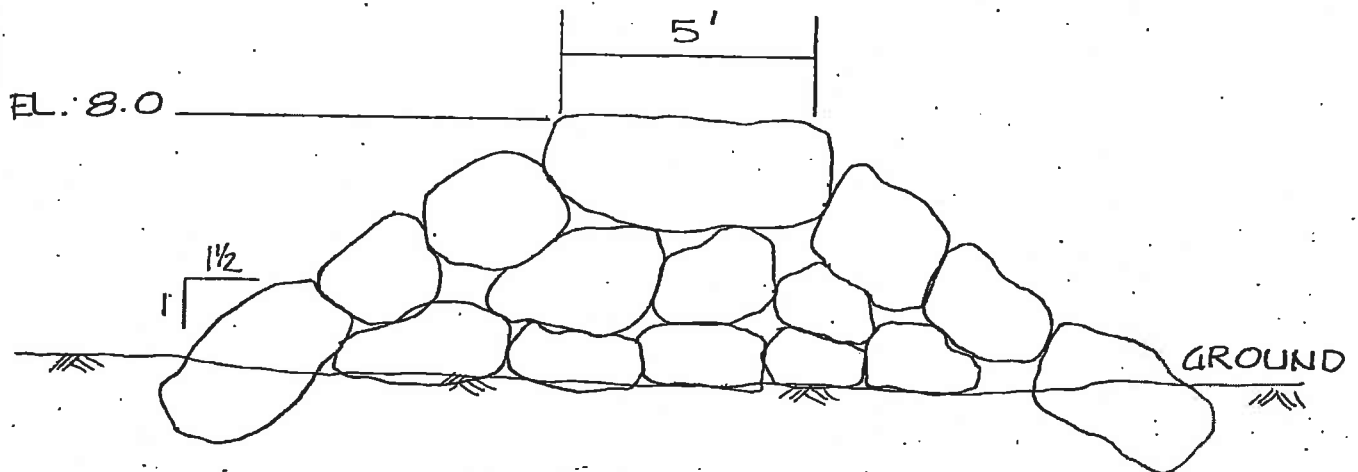
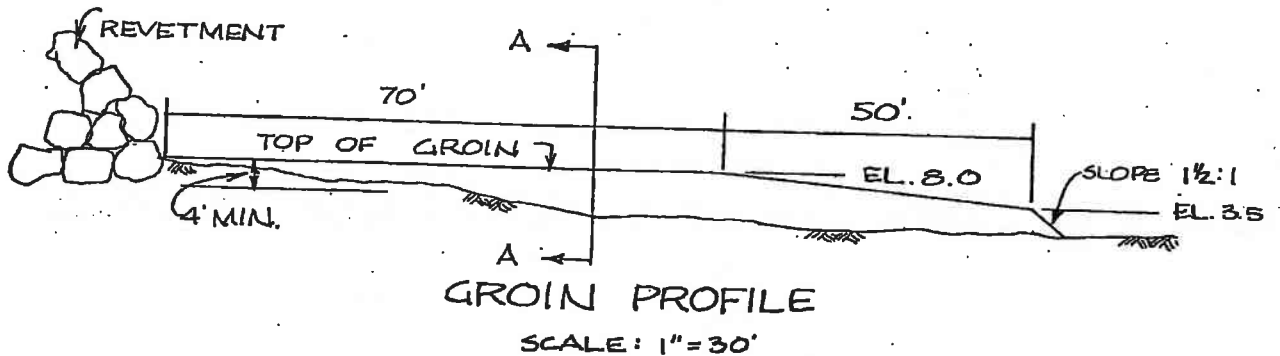
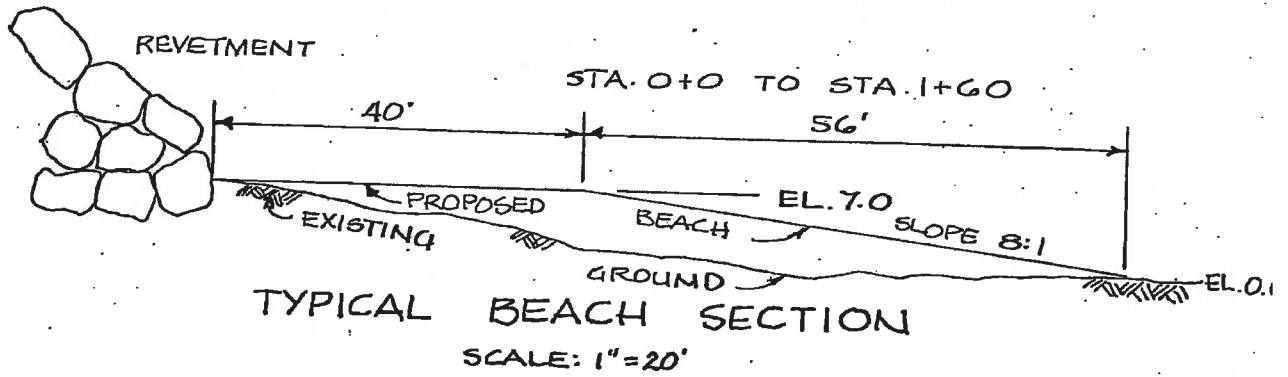


Robert A. Braman
81W-085

PLAN ACCOMPANYING PETITION OF
TOWN OF DENNIS
TO RECONSTRUCT AN EXISTING
GROIN & PORTION OF BEACH
NANTUCKET SOUND
DENNIS, MASS.
JULY 14, 1981 SHEET 1 OF 2
ROBERT A. BRAMAN
CIVIL ENGINEER & SURVEYOR

LICENSE PLAN NO. 770
Approved by Department of Environmental Quality Engineering
of Massachusetts
SEPTEMBER 25, 1981
COMMISSIONER
CHIEF ENGINEER

016-021-000-059-100
016-021-000-059-200



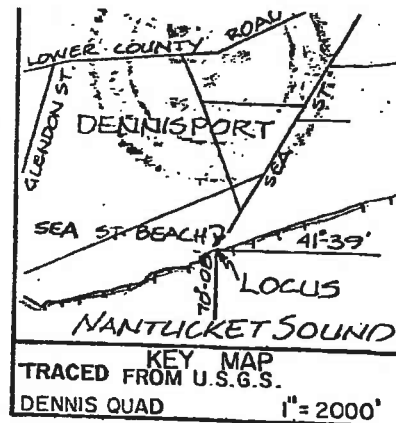
LICENSE PLAN NO. 770
Approved by Department of Environmental Quality Engineering
SEPTEMBER 25, 1981



HW-085

Robert A. Braman

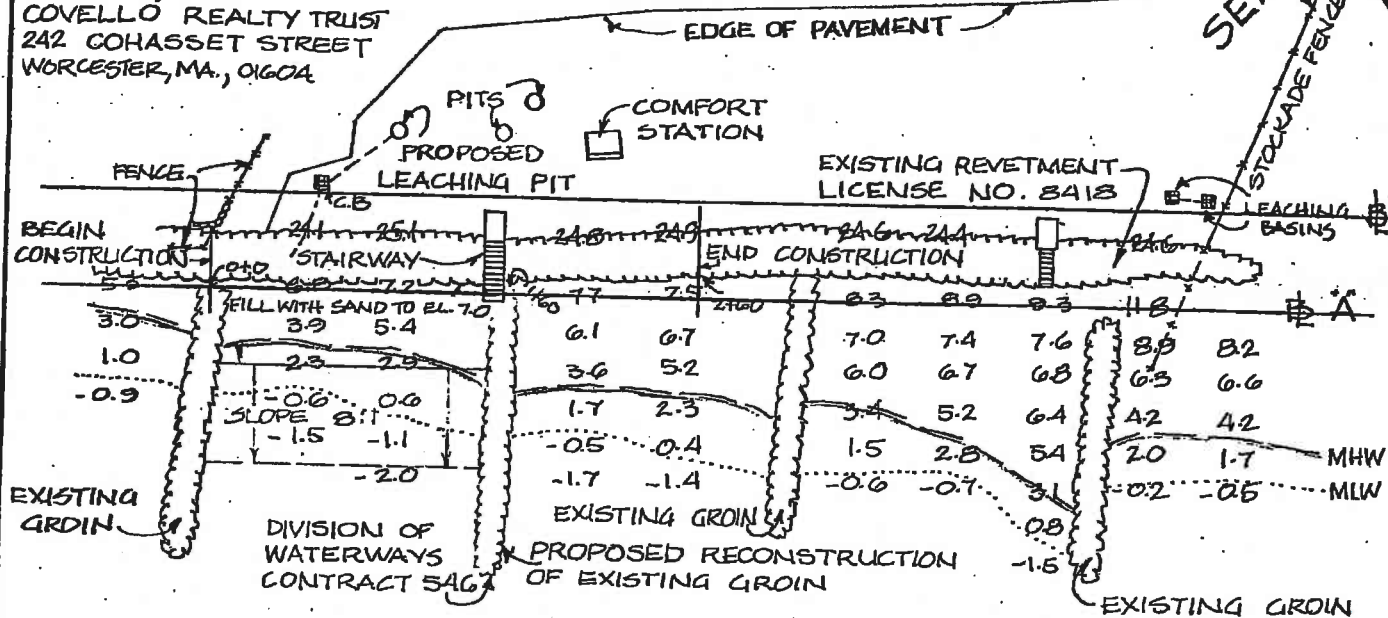
016-021-000-059-100
016-021-000-059-200



NOTE:
ELEVATIONS ARE IN FEET AND TENTHS
ON THE PLANE OF MEAN LOW WATER
MINUS FIGURES REPRESENT ELEVATIONS
BELOW THAT PLANE.

LOT 29
JOHN E MARQUES et al
62 KEEL CAPE DRIVE
SOUTH YARMOUTH

COVELLO REALTY TRUST
242 COHASSET STREET
WORCESTER, MA., 01604



NANTUCKET SOUND PLAN SCALE: 1" = 100'

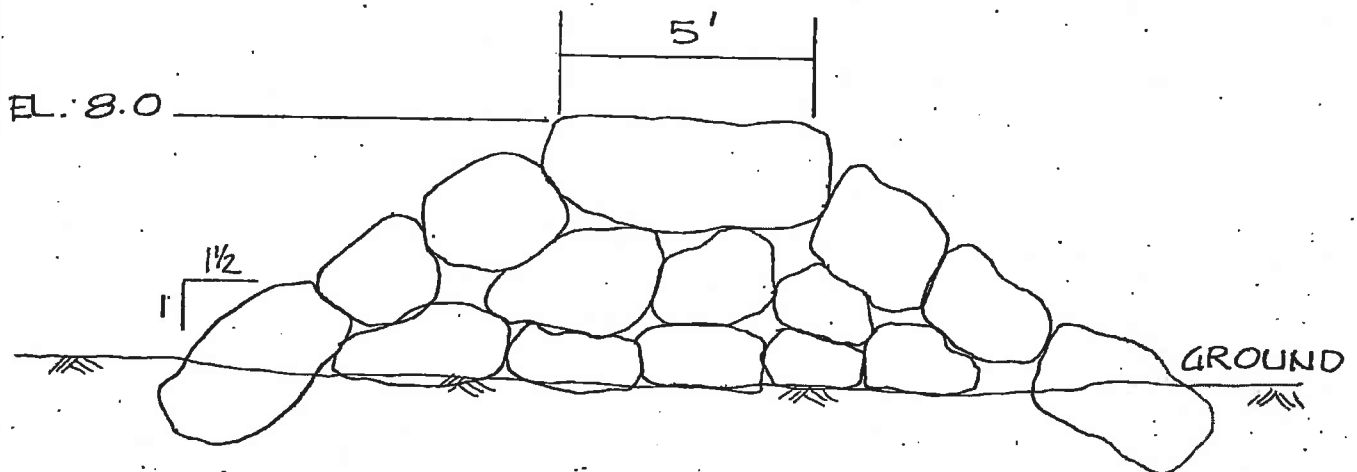
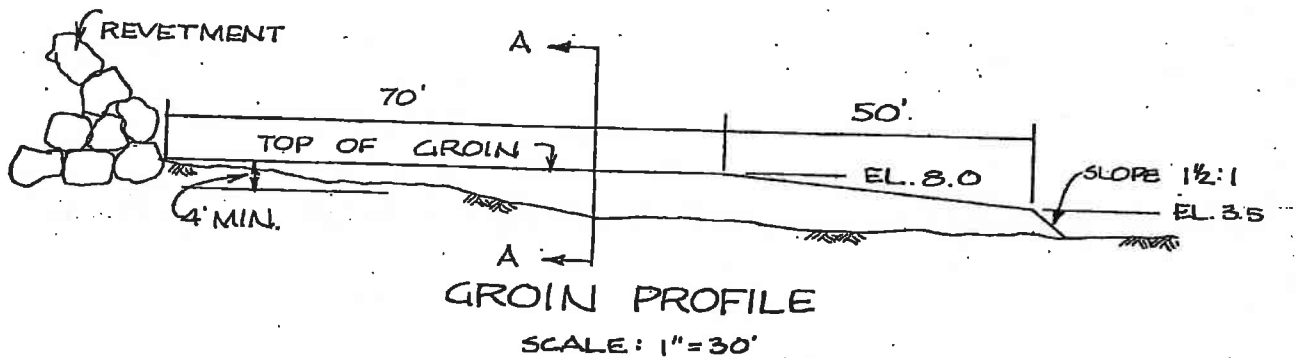
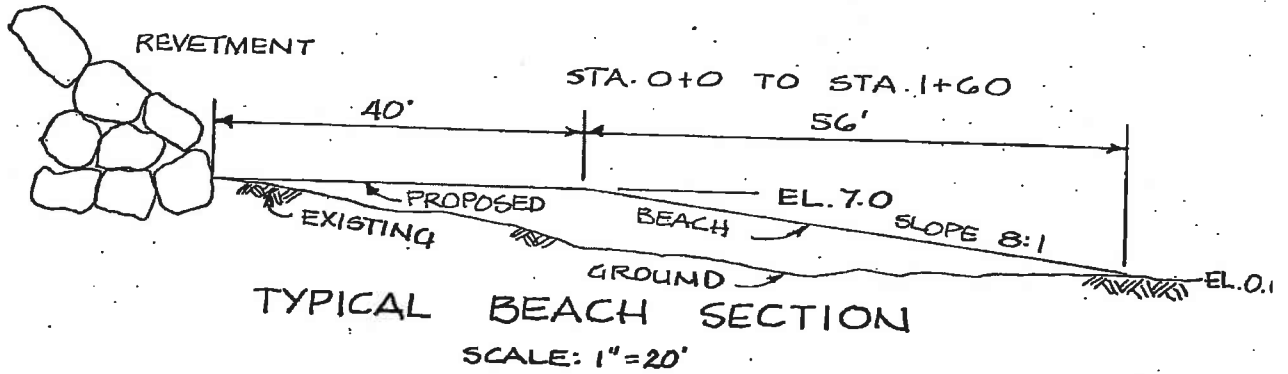


Robert A. Braman
81W-085

PLAN ACCOMPANYING PETITION OF
TOWN OF DENNIS
TO RECONSTRUCT AN EXISTING
GROIN & PORTION OF BEACH
NANTUCKET SOUND
DENNIS, MASS.
JULY 14, 1981
SHEET 1 OF 2
ROBERT A. BRAMAN
CIVIL ENGINEER & SURVEYOR

LICENSE PLAN NO. 770
Approved by Department of Environmental Quality Engineering
of Massachusetts
SEPTEMBER 25, 1981
COMMISSIONER
CHIEF ENGINEER

016-021-000-059-100
016-021-000-059-200



SECTION A-A
GROIN SECTION - TYPICAL
SCALE: 1"=4'

LICENSE PLAN NO. 770

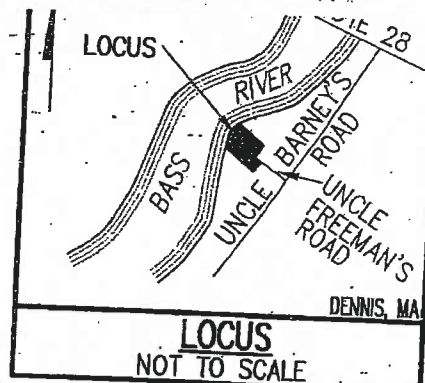
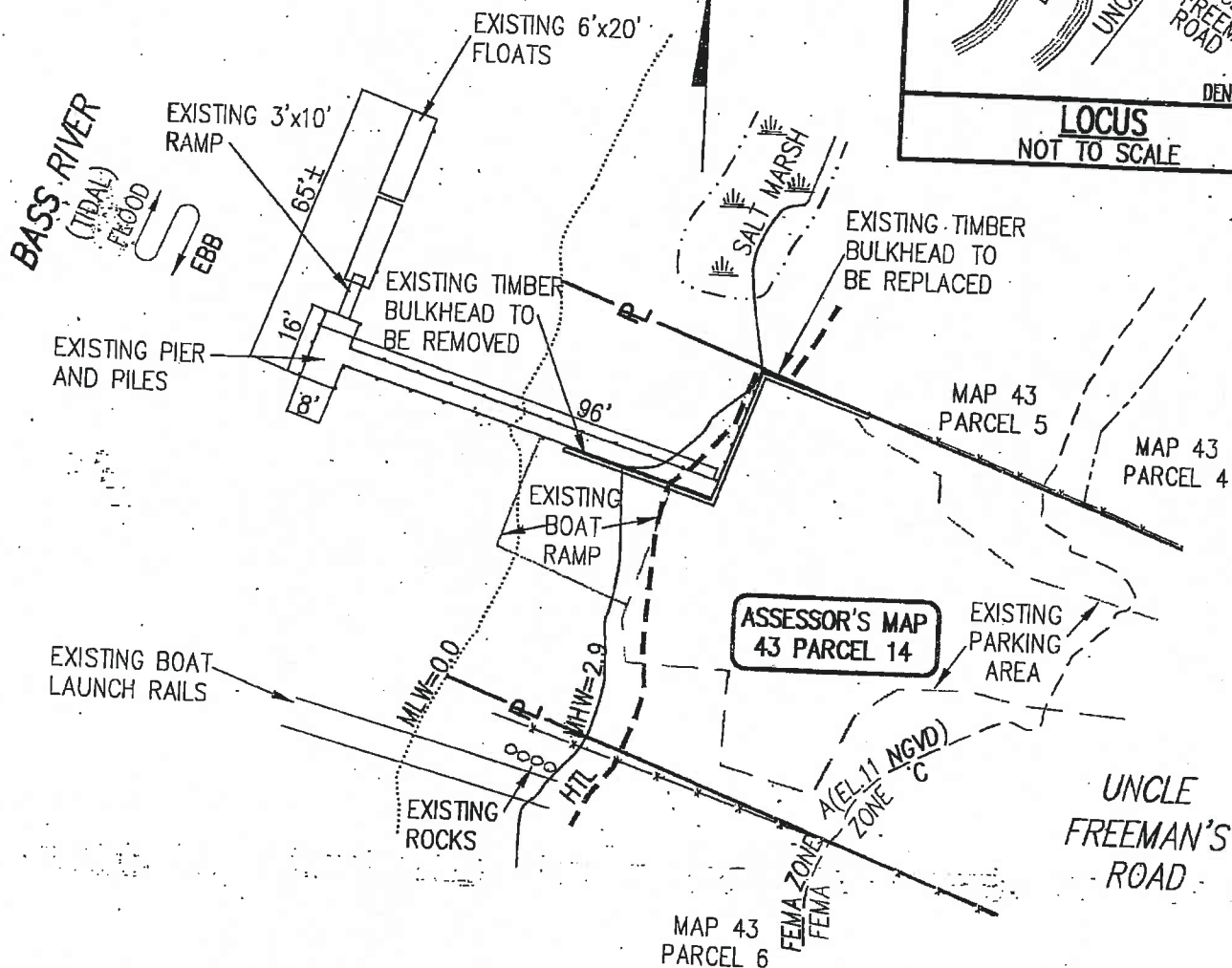
Approved by Department of Environmental Quality Engineering

SEPTEMBER 25, 1981

HW-085

Robert A. Brown





REFERENCE DATUM IS MEAN LOW WATER=0.0
FEMA DATUM IS N.G.V.D.

REF: DENNIS ASSESSOR'S MAP 43, PARCEL 14

PLAN TO ACCOMPANY PETITION OF
TOWN OF DENNIS
TO LICENSE, RECONSTRUCT AND MAINTAIN
AN EXISTING BOAT LAUNCHING FACILITY
IN BASS RIVER,
DENNIS, BARNSTABLE COUNTY, MA

PREPARED BY
COASTAL ENGINEERING CO., INC.
260 CRANBERRY HIGHWAY
ORLEANS, MA 02653

PLAN

0 10 20 40
SCALE 1" = 40'



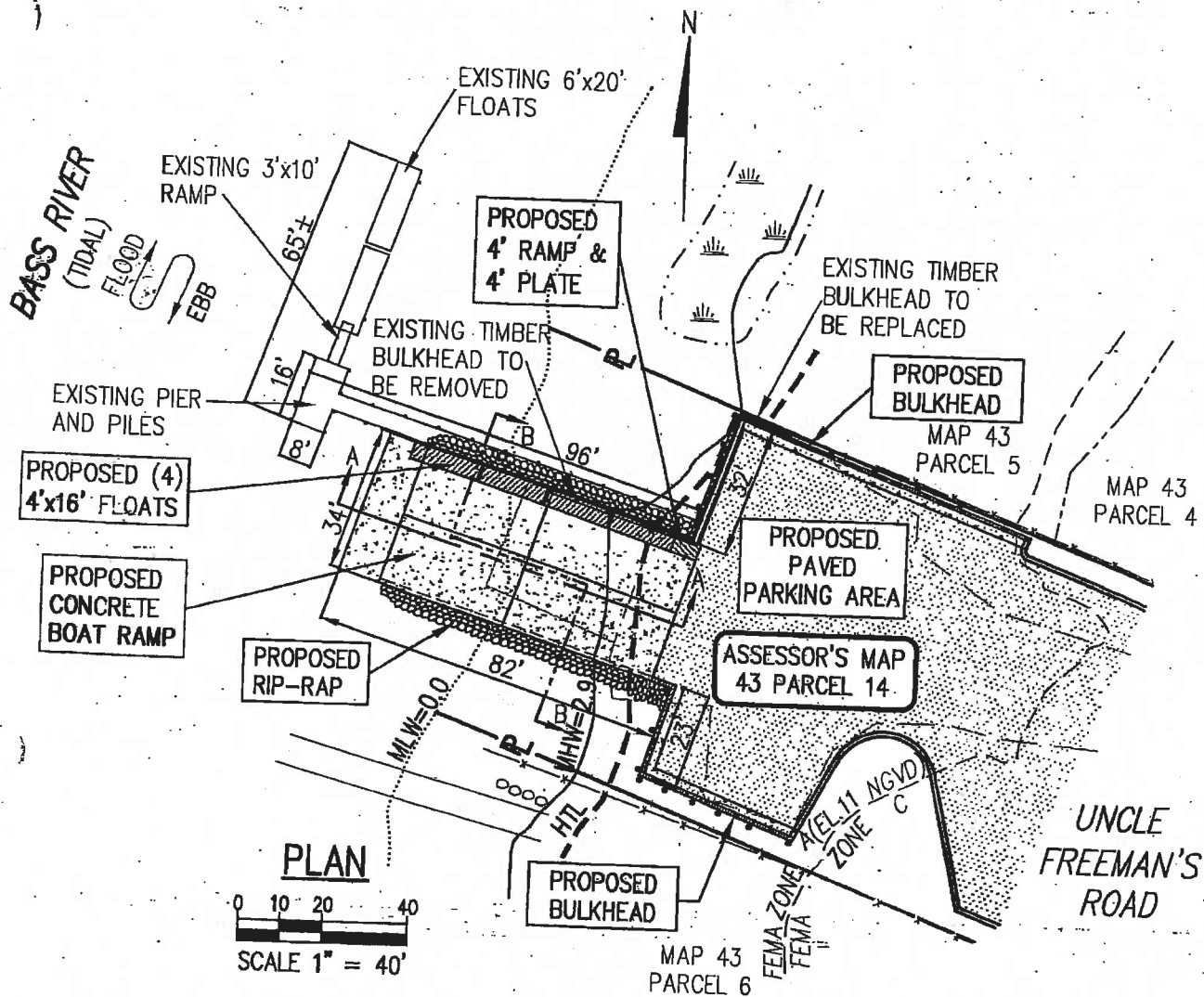
016-043-000-014-100

LICENSE PLAN NO. 9270

Approved by Department of Environmental Protection
of Massachusetts

Mitch Zencina

James D. A.



REFERENCE DATUM IS MEAN. LOW WATER=0.0.
FEMA DATUM IS N.G.V.D.

REF: DENNIS ASSESSOR'S MAP 43, PARCEL 14

PLAN TO ACCOMPANY PETITION OF
TOWN OF DENNIS
TO LICENSE, RECONSTRUCT AND MAINTAIN
AN EXISTING BOAT LAUNCHING FACILITY
IN BASS RIVER,
DENNIS, BARNSTABLE COUNTY, MA
LICENSE PLAN NO. **9270**

Approved by Department of Environmental Protection
Date: **MAY 10 2002**

PREPARED BY
COASTAL ENGINEERING CO., INC.
260 CRANBERRY HIGHWAY
ORLEANS, MA 02653

016-043-000-014-100

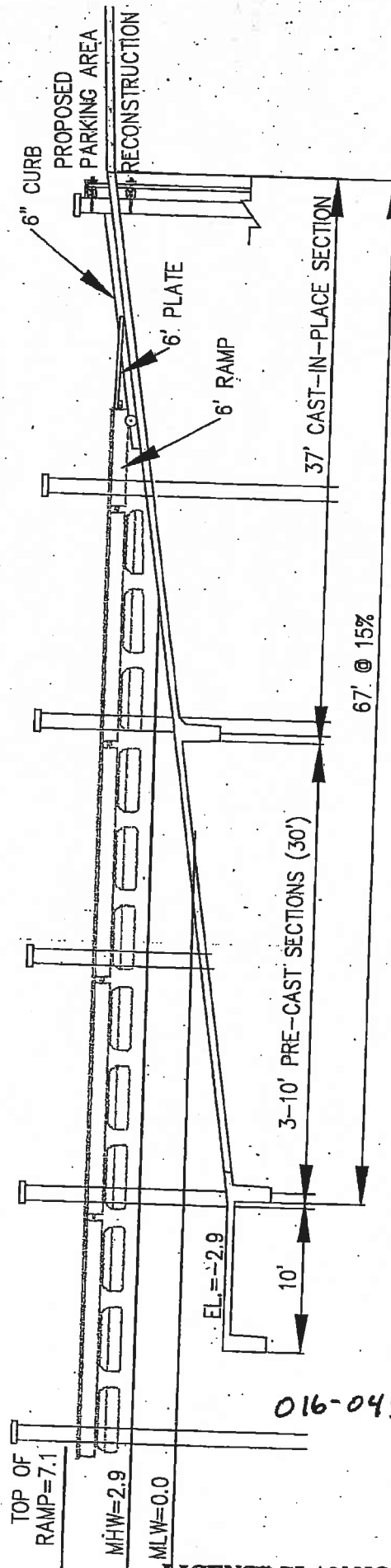




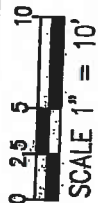
PLAN TO ACCOMPANY PETITION OF
TOWN OF DENNIS
TO LICENSE, RECONSTRUCT AND MAINTAIN
AN EXISTING BOAT LAUNCHING FACILITY
IN BASS RIVER,
DENNIS, BARNSTABLE COUNTY, MA

PREPARED BY
COASTAL ENGINEERING CO., INC.
260 CRANBERRY HIGHWAY
ORLEANS, MA 02653

REFERENCE DATUM IS MEAN LOW WATER = 0.0



PROPOSED RAMP PROFILE



LICENSE PLAN NO. 9270
Approved by Department of Environmental Protection
Date: MAY 10 2002

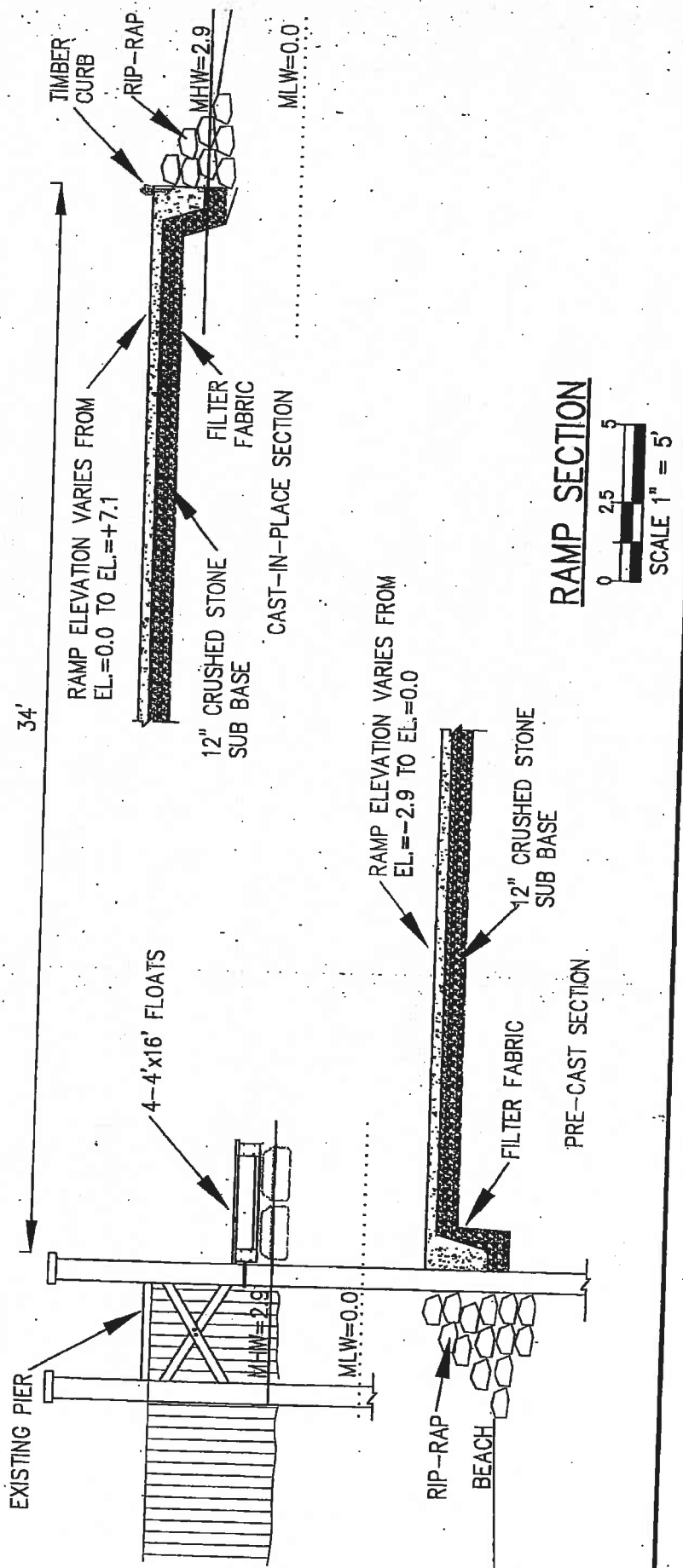


PLAN TO ACCOMPANY PETITION OF
TOWN OF DENNIS
TO LICENSE, RECONSTRUCT AND MAINTAIN
AN EXISTING BOAT LAUNCHING FACILITY
IN BASS RIVER,
DENNIS, BARNSTABLE COUNTY, MA

PREPARED BY
COASTAL ENGINEERING CO., INC.
260 CRANBERRY HIGHWAY
ORLEANS, MA 02653

SHEET 4 OF 5 JULY 31, 2001 C15144-C91.DWG

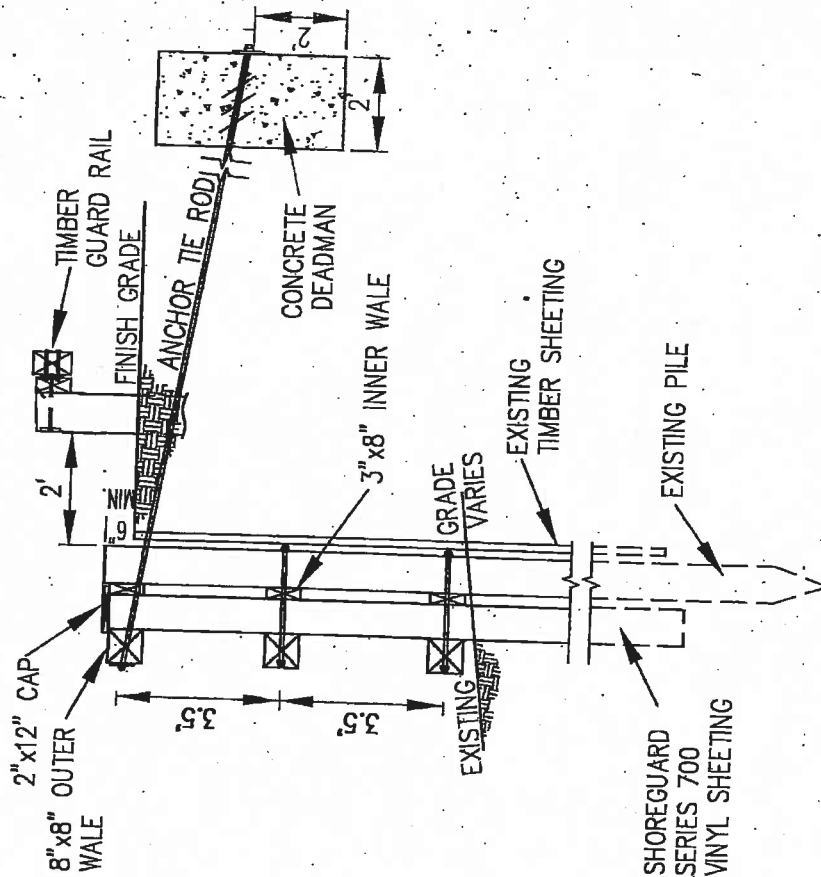
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016-043-000-014-100
LICENSE PLAN NO. 9270

Approved by Department of Environmental Protection
Date: MAY 10 2002

REFERENCE DATUM IS MEAN LOW WATER = 0.0

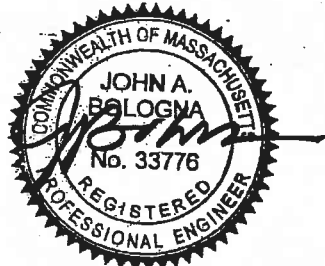


BULKHEAD-SECTION

LICENSE PLAN NO. 9270

Approved by Department of Environmental Protection

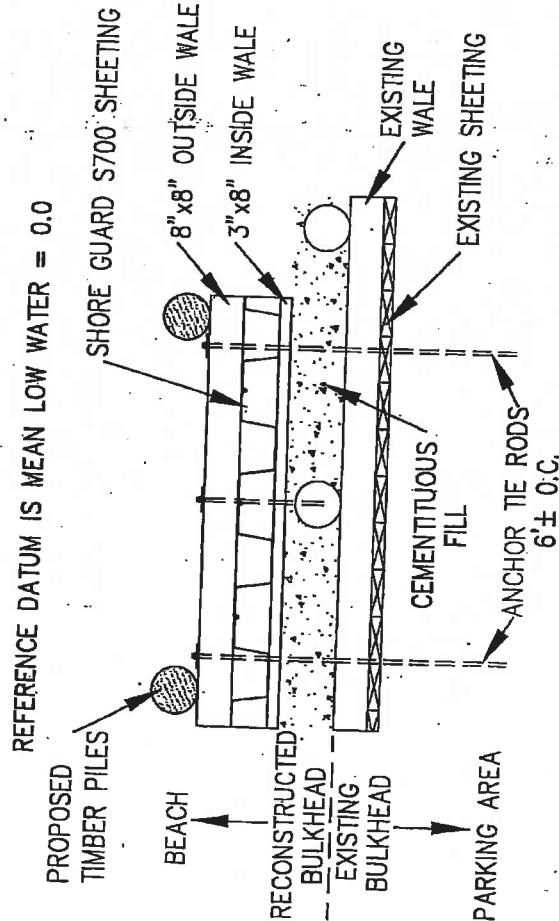
Date: MAY 10 2002



016-043-000-014-100

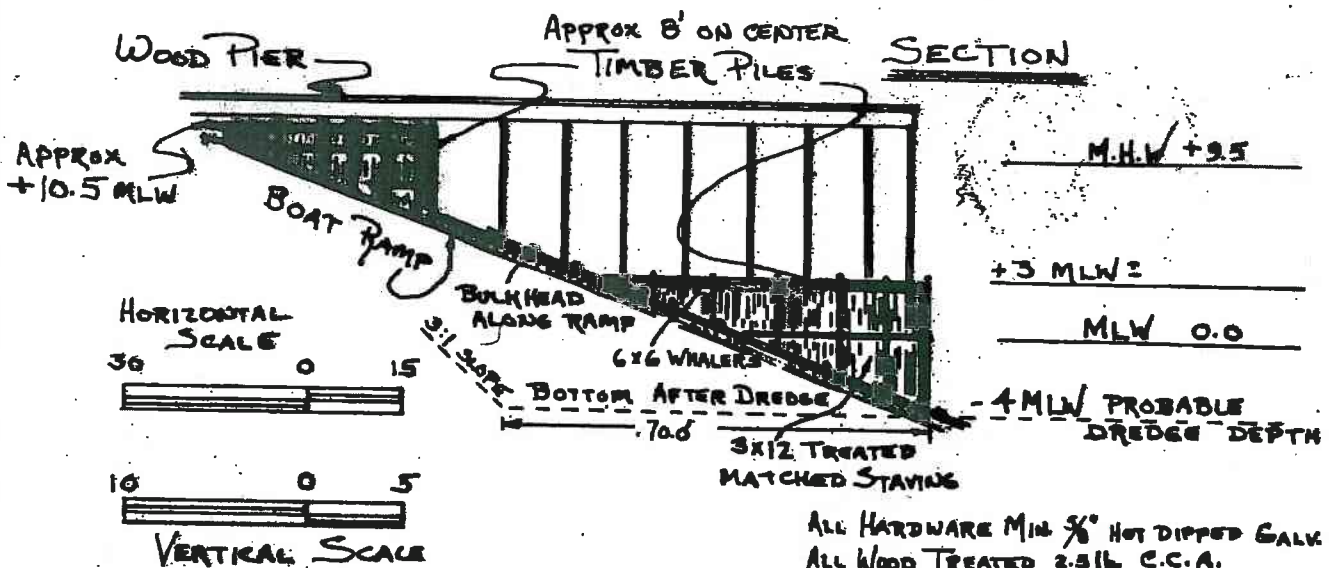
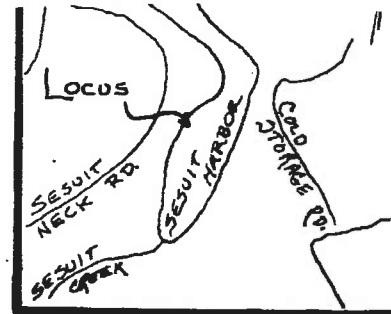
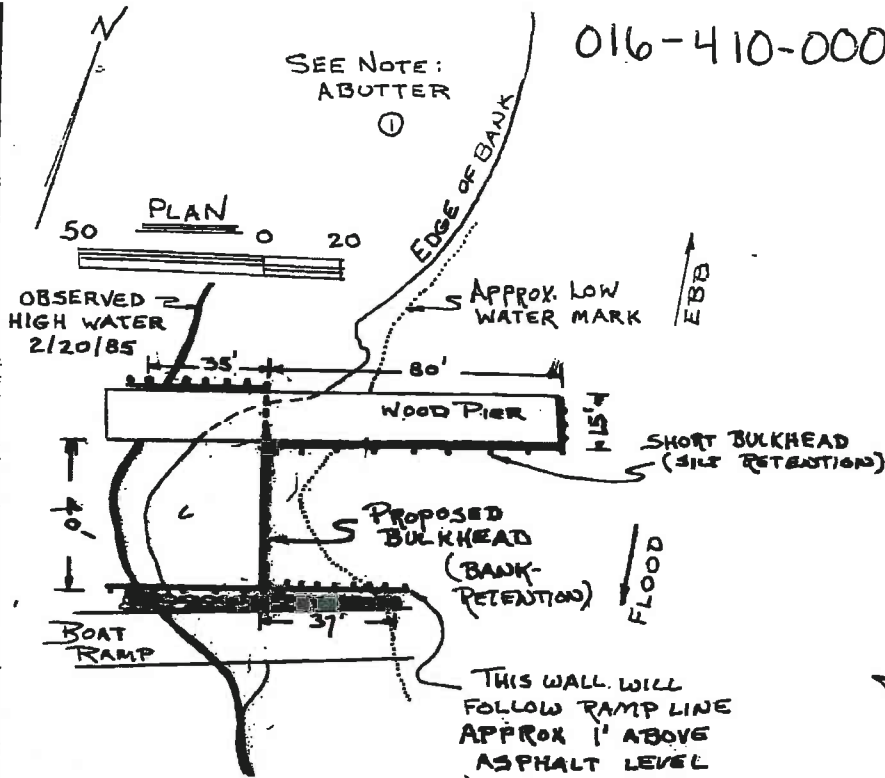
PLAN TO ACCOMPANY PETITION OF
TOWN OF DENNIS
TO LICENSE, RECONSTRUCT AND MAINTAIN
AN EXISTING BOAT LAUNCHING FACILITY
IN BASS RIVER,
DENNIS, BARNSTABLE COUNTY, MA

PREPARED BY
COASTAL ENGINEERING CO., INC.
260 CRANBERRY HIGHWAY
ORLEANS, MA 02653



BULKHEAD-PLAN VIEW

016-410-000-023-100



ALL HARDWARE MIN 3/8" HOT DIPPED GALV.
ALL WOOD TREATED 2-5LB C.C.A.

APPROX 250 CY. OF DREDGE MATERIAL
TO -4' M.L.W.

FIELD VARIATIONS ALLOWABLE WITH OK.
BY TOWN AUTHORITY.

ANY DREDGE MATERIAL TO BE
PLACED IN DENNIS LANDFILL

PURPOSE: TO KEEP DOCKING FACILITY
FROM SILTING & BANK AROUND PIER
FROM ERODING

DATUM: OBSERVED

① SESUIT MARINE SERVICES INC.
(ABUTTER)

PLAN ACCOMPANYING PETITION OF
THE TOWN OF DENNIS
TO CONSTRUCT & MAINTAIN A BULKHEAD
AT SESUIT HARBOR, WEST SIDE, E. DENNIS,
COUNTY OF BARNSTABLE, MASS.

85W-108

TOWN OF DENNIS: RICHARD P. WHEATLEY
R.L.S.; P.E.

LICENSE PLAN NO. 1347

Approved by Department of Environmental Quality Engineering
of Massachusetts

Therrell Hyl
Charles N. Nataraj
Gary R. Clayton

COMMISSIONER
CHIEF ENGINEER
DIVISION DIRECTOR

November 18, 1985 DATE

SHEET 1 OF 1.

TOWN: DENNIS
 SOURCE: US ACOE
 LOCATION: CONCORD, MA
 DATE OF RESEARCH: AUGUST 2007

BCE Structure No	Document No	Contract/ Drawing Number	Entity	Municipality	Date	Title	Sheets	Location	Description
016-011-000-031-100	016-011-000-031-100-COE1A	47-245	USACE	Dennis	October 1947	Proposed East Jetty Repairs and West Jetty Extension - Bass River - Dennis and Yarmouth, Massachusetts - Prepared for the DPW of Massachusetts - Division of Waterways	1	Bass River	Jetty Repairs
016-018-000-199-100	016-018-000-199-100-COE1A	74-91	USACE	Dennis	March 1973	Proposed Shore Protection - Groin Reconstruction and Sand Fill - Haislis Beach - Nantucket Sound - Dennis, Massachusetts - Prepared for the DPW of Massachusetts - Division of Waterways	2	Haislis Beach	Groin and Revetment
016-018-000-199-200	016-018-000-199-200-COE2A	74-91	USACE	Dennis	March 1973	Proposed Shore Protection - Groin Reconstruction and Sand Fill - Haislis Beach - Nantucket Sound - Dennis, Massachusetts - Prepared for the DPW of Massachusetts - Division of Waterways	2	Haislis Beach	Groin and Revetment
016-019-000-091-200	016-019-000-091-200-COE2A	56-78	USACE	Dennis	March 1956	Proposed Groin Relocation - Glendon Road - Dennisport Shore - Nantucket Sound - Dennis, Massachusetts - Prepared for the DPW of Massachusetts - Division of Waterways	1	Glendon Road	Groin Relocation
016-021-000-059-100	016-021-000-059-100-COE1A	81-413	USACE	Dennis	July 1981	To Reconstruct a Groin and Portion of Beach - Nantucket Sound - Dennis, Barnstable County, Massachusetts - Application by Town of Dennis	2	Sea Street Beach	Groin and Revetment
016-021-000-059-200	016-021-000-059-200-COE2A	56-64	USACE	Dennis	March 1956	Proposed Groins - Sea Street Beach - Dennisport Shore - Nantucket Sound - Dennis, Massachusetts - Prepared for the DPW of Massachusetts - Division of Waterways	1	Sea Street Beach	Groins
016-021-000-059-200	016-021-000-059-200-COE2B	81-413	USACE	Dennis	July 1981	To Reconstruct a Groin and Portion of Beach - Nantucket Sound - Dennis, Barnstable County, Massachusetts - Application by the Town of Dennis	2	Sea Street Beach	Groins and Revetment
016-410-000-023-100	016-410-000-023-100-COE1A	86-257	USACE	Dennis	March 1985	Proposed Bulkhead at Sesuit Harbor in East Dennis, Massachusetts, County of Barnstable - Application by Town of Dennis	1	Sesuit Harbor	Bulkhead
016-411-000-012-100	016-411-000-012-100-COE1A	69-4	USACE	Dennis	November 1968	Proposed Access Ramp and Facilities - Sesuit Harbor - Dennis, Massachusetts - Prepared for the DPW of Massachusetts - Division of Waterways	2	Sesuit Harbor	Timber Bulkhead
016-420-000-004-100	016-420-000-004-100-COE1A	54-144	USACE	Dennis	June 1954	Proposed Jetty and Groin Construction - Sesuit Harbor - Dennis, Massachusetts - Application by the DPW of Massachusetts - Division of Waterways	2	Sesuit Harbor	Jetties
016-420-000-004-100	016-420-000-004-100-COE1B	58-174	USACE	Dennis	May 1958	Proposed Jetty Extensions - Revetment and Dredging - Sesuit Harbor - Dennis, Massachusetts - Prepared for the DPW of Massachusetts - Division of Waterways	2	Sesuit harbor	Jetty Extension
016-421-000-005-100	016-421-000-005-100-COE1A	54-144	USACE	Dennis	June 1954	Proposed Jetty and Groin Construction - Sesuit Harbor - Dennis, Massachusetts - Application by the DPW of Massachusetts - Division of Waterways	2	Sesuit Harbor	Jetties
016-421-000-005-100	016-421-000-005-100-COE1B	58-174	USACE	Dennis	May 1958	Proposed Jetty Extensions, Revetment and Dredging - Sesuit Harbor - Dennis, Massachusetts - Prepared for the DPW of Massachusetts - Division of Waterways	2	Sesuit Harbor	Jetty Extension
016-421-000-005-200	016-421-000-005-200-COE2A	69-4	USACE	Dennis	November 1968	Proposed Access Ramp and Facilities - Sesuit Harbor - Dennis, Massachusetts - Prepared for the DPW of Massachusetts - Division of Waterways	2	Sesuit Harbor	Riprap

083-026-000-116-200
016-011-000-031-100

PLAN
SCALE- FEET
1:10000

YARMOUTH

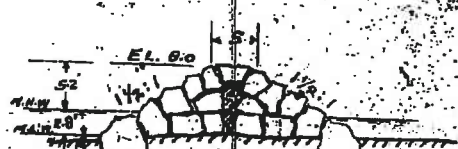
BASS RIVER
TOWN
LINE

DENNIS

PROPOSED JETTY REPAIRS
REMAINS OF OLD TIMBER BULKHEAD
& CONCRETE WALL TO BE REMOVED
AND REPLACED WITH STONE JETTY.

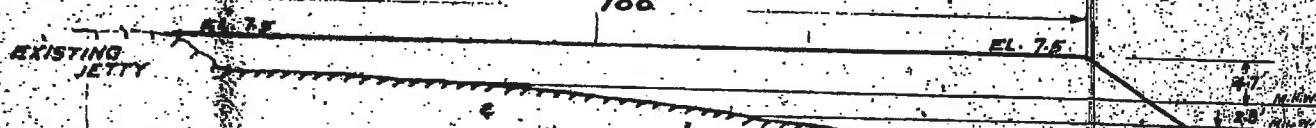


SECTION A-A
SCALE- FEET
1" = 20'



SECTION B-B
SCALE- FEET
1" = 20'

PROPOSED JETTY EXTENSION



PROFILE - WEST JETTY EXTENSION
SCALE- FEET
1" = 20'



SECTION C-C
SCALE- FEET
1" = 20'

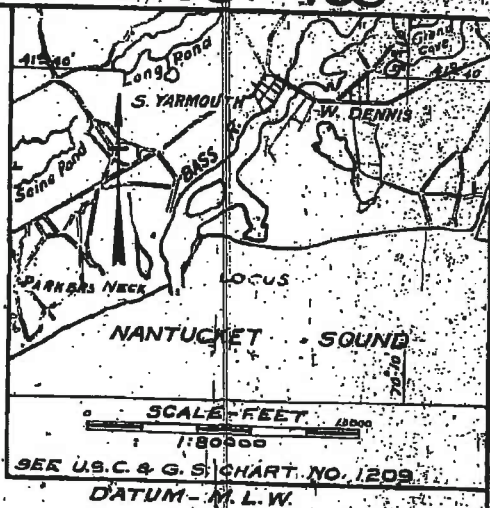
PROPOSED EAST JETTY REPAIRS
AND WEST JETTY EXTENSION

BASS RIVER

DENNIS & YARMOUTH MASS.

APPLICATION BY
DEPARTMENT OF PUBLIC WORKS OF MASSACHUSETTS
DIVISION OF WATERWAYS

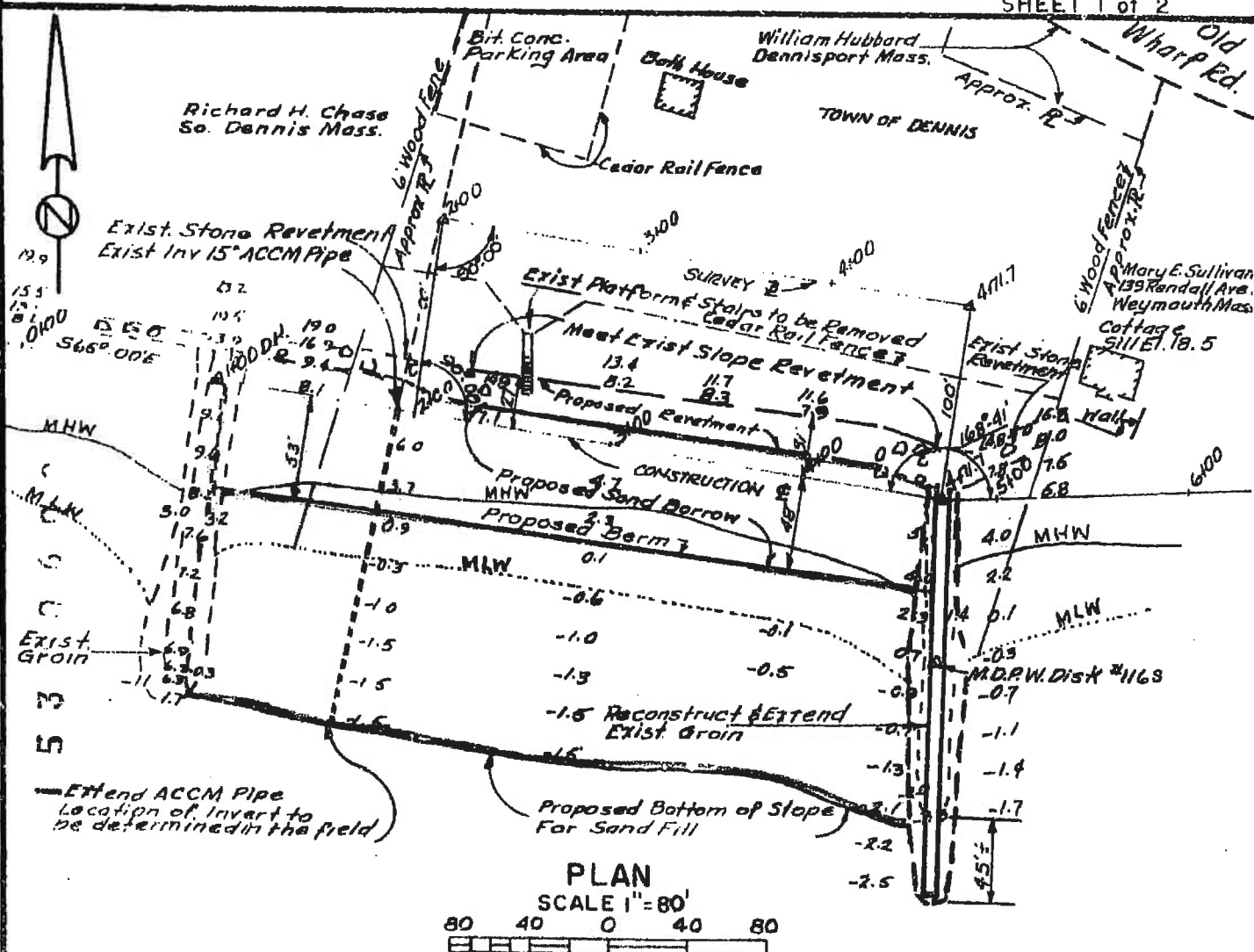
1947
Edward J. Hubert
DISTRICT WATERWAYS ENGINEER



0 3 2 0 5 4 4

016-018-000-199-100
016-018-000-199-200

SHEET 1 of 2



NANTUCKET SOUND

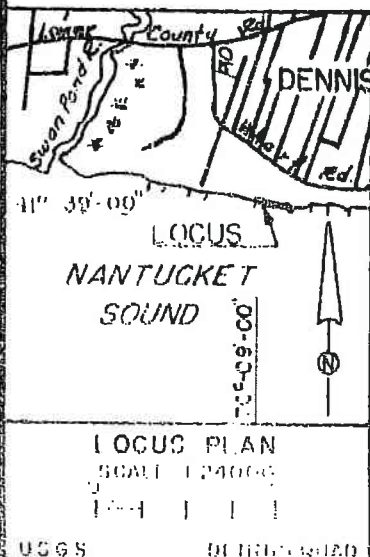
NOTE: Elevations are in feet and tenths and refer to the plane of Mean Low Water, minus figures denote depths below that plane.
TBM Elev. 15.17 MLW iron collar oil fill pipe of bath house.
Date of Survey April 1972

LOCATION OF PROPOSED WORK SHOWN IN RED
APPROXIMATELY 11,000 CUBIC YARDS OF SAND FILL

PROPOSED SHORE PROTECTION
GROIN RE-CONSTRUCTION and SAND FILL
**HAIGIS BEACH
NANTUCKET SOUND
DENNIS MASS.**

APPLICATION BY
DEPARTMENT OF PUBLIC WORKS OF MASSACHUSETTS
DIVISION OF WATERWAYS
MARCH 1973

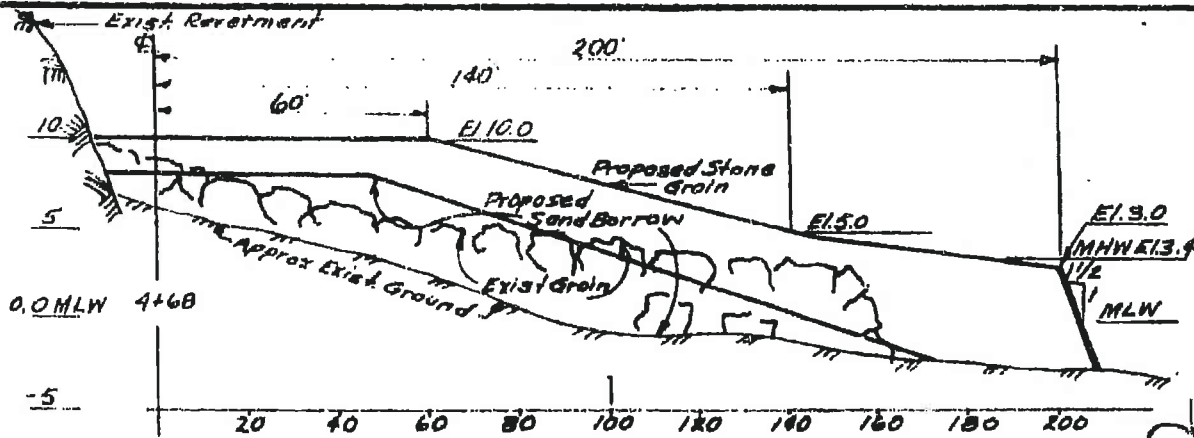
Fred. C. Schueler
DEPUTY CHIEF ENGINEER - WATERWAYS
ACC. NO. 04975-A



0 3 2 0 5 4 5

016-018-000-199-100

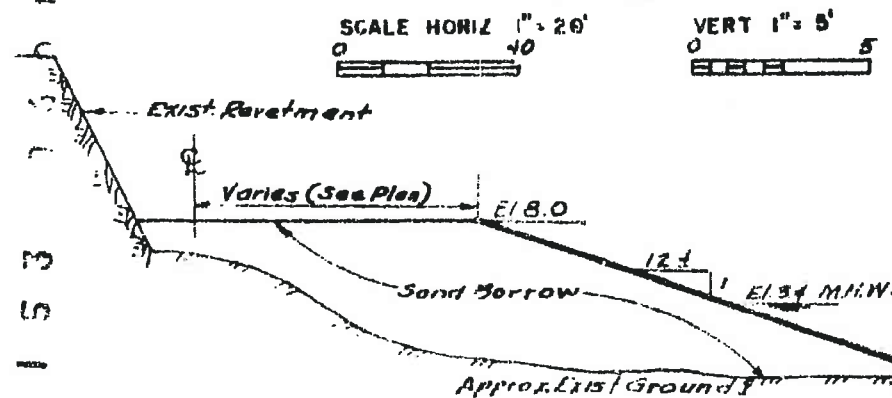
016-018-000-199-200 SHEET 2 of 2



E PROFILE OF RECONSTRUCTED GROIN

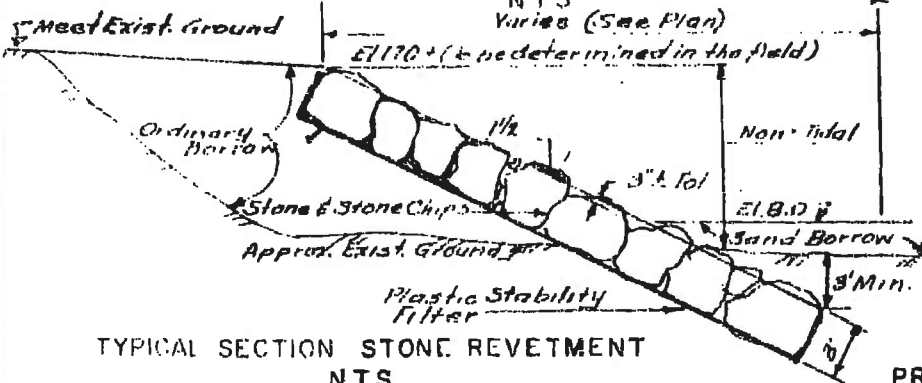
SCALE HORIZ 1" = 20'

VERT 1" = 5'



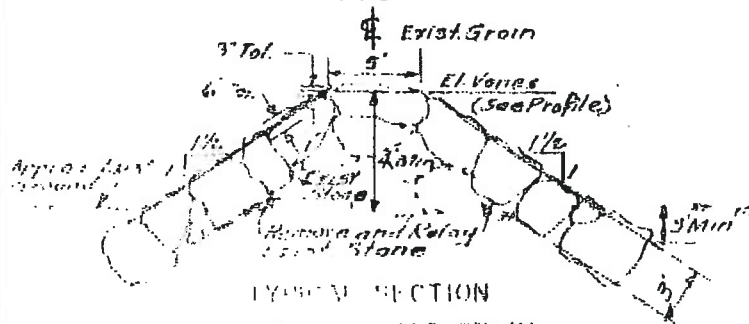
TYPICAL SECTION - SAND FILL

NTS
Varies (See Plan)

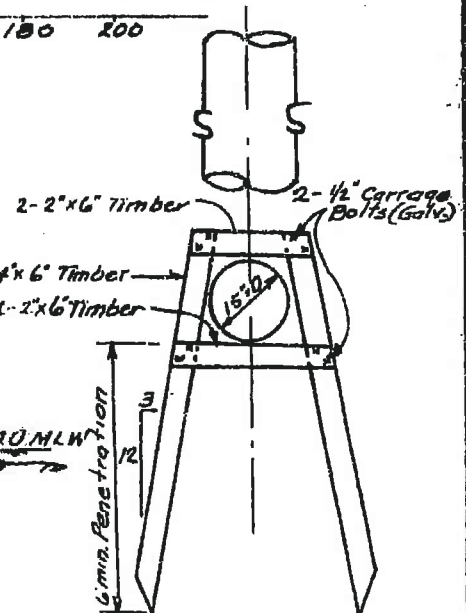


TYPICAL SECTION STONE REVETMENT

NTS



TYPICAL SECTION
RECONSTRUCTED GROIN



TIMBER ANCHOR
NTS

PROPOSED SHORE PROTECTION
GROIN RE-CONSTRUCTION and SAND FILL

HAIGIS BEACH
NANTUCKET SOUND
DENNIS MASS.

APPLICATION BY

DEPARTMENT OF PUBLIC WORKS OF MASSACHUSETTS
DIVISION OF WATERWAYS

MARCH 1973

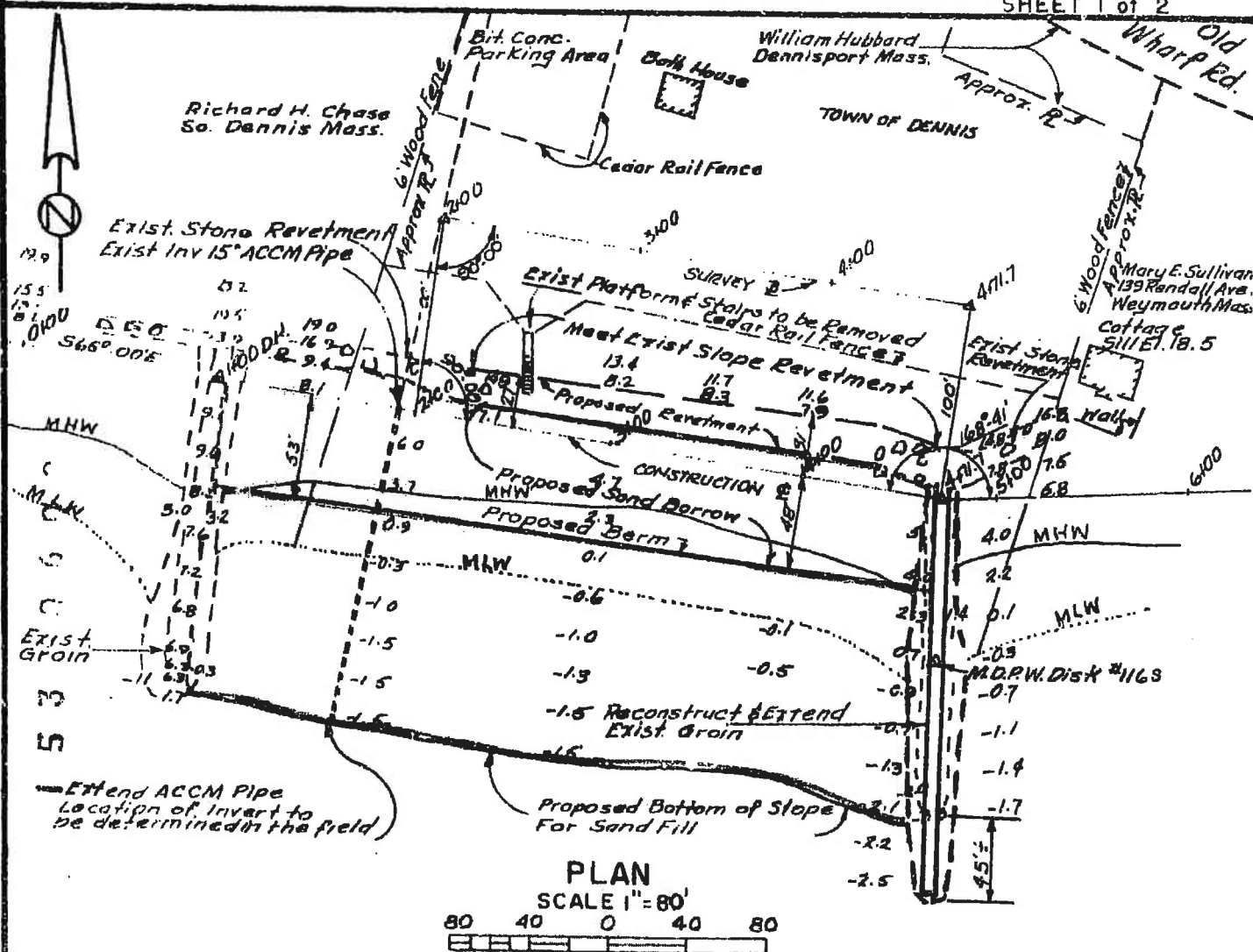
Fred C. Schwelb
DEPUTY CHIEF ENGINEER - WATERWAYS

ACC NO 04975-B

032 0544

016-018-000-199-100
016-018-000-199-200

SHEET 1 of 2



NANTUCKET SOUND

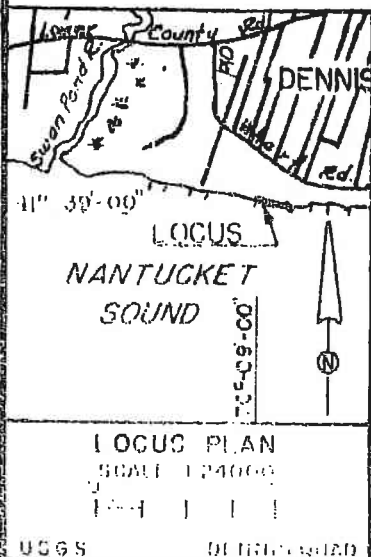
NOTE: Elevations are in feet and tenths and refer to the plane of Mean Low Water, minus figures denote depths below that plane.
TBM Elev. 15.17 MLW iron collar all fill pipe of bath house.
Date of Survey April 1972

LOCATION OF PROPOSED WORK SHOWN IN RED
APPROXIMATELY 11,000 CUBIC YARDS OF SAND FILL

PROPOSED SHORE PROTECTION
GROIN RE-CONSTRUCTION and SAND FILL
HAIGIS BEACH
NANTUCKET SOUND
DENNIS MASS.

APPLICATION BY
DEPARTMENT OF PUBLIC WORKS OF MASSACHUSETTS
DIVISION OF WATERWAYS
MARCH 1973

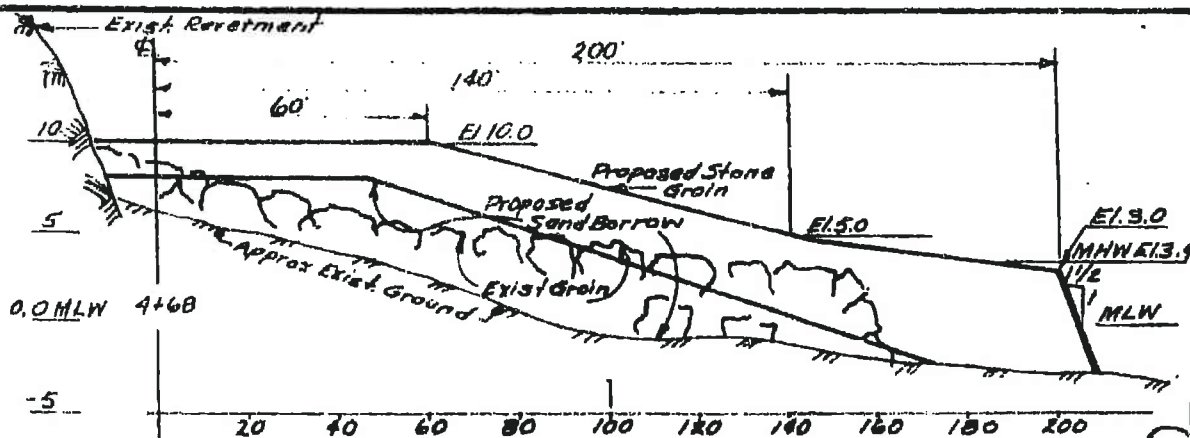
Fred C. Schwelb
DEPUTY CHIEF ENGINEER - WATERWAYS
ACC. NO. 04975-A



0 3 2 0 5 4 5

016-018-000-199-100
016-018-000-199-200

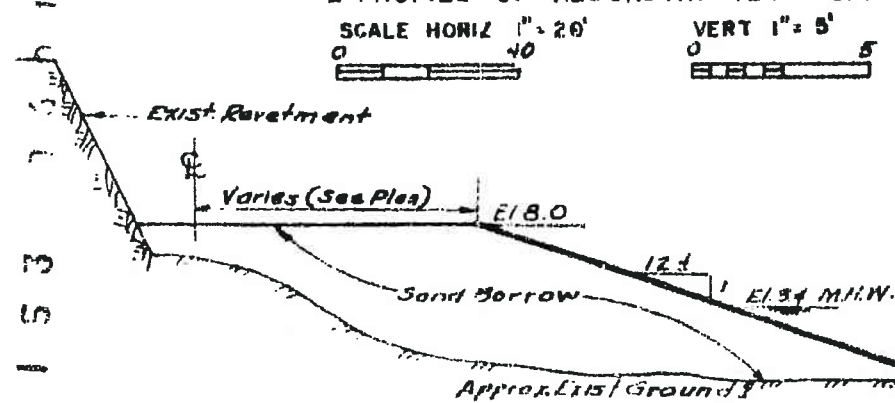
SHEET 2 of 2



E PROFILE OF RECONSTRUCTED GROIN

SCALE HORIZ 1" = 20'

VERT 1" = 5'

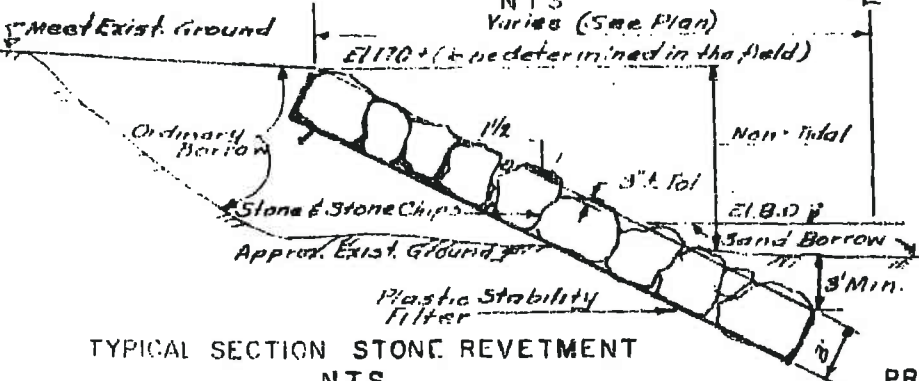


TYPICAL SECTION - SAND FILL

NTS

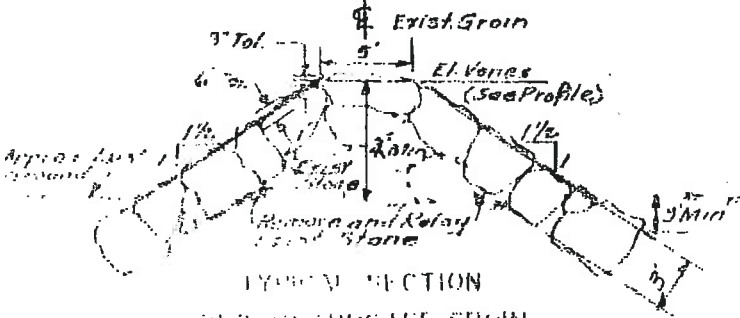
Varies (See Plan)

E1.70+ (to be determined in the field)



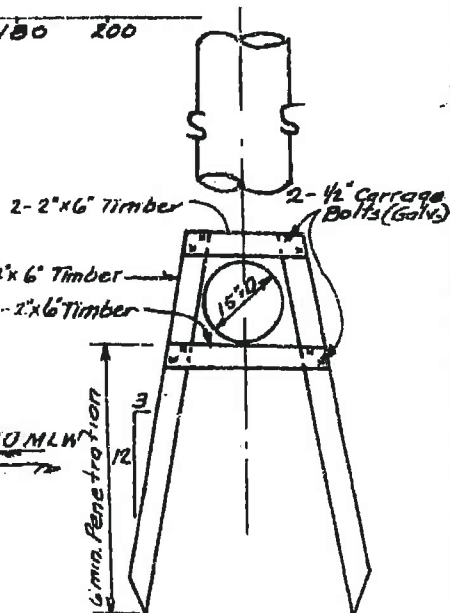
TYPICAL SECTION STONE REVETMENT

NTS



TYPICAL SECTION RECONSTRUCTED GROIN

NTS



TIMBER ANCHOR

NTS

PROPOSED SHORE PROTECTION
GROIN RE-CONSTRUCTION and SAND FILL

HAIGIS BEACH
NANTUCKET SOUND
DENNIS MASS.

APPLICATION BY
DEPARTMENT OF PUBLIC WORKS OF MASSACHUSETTS
DIVISION OF WATERWAYS

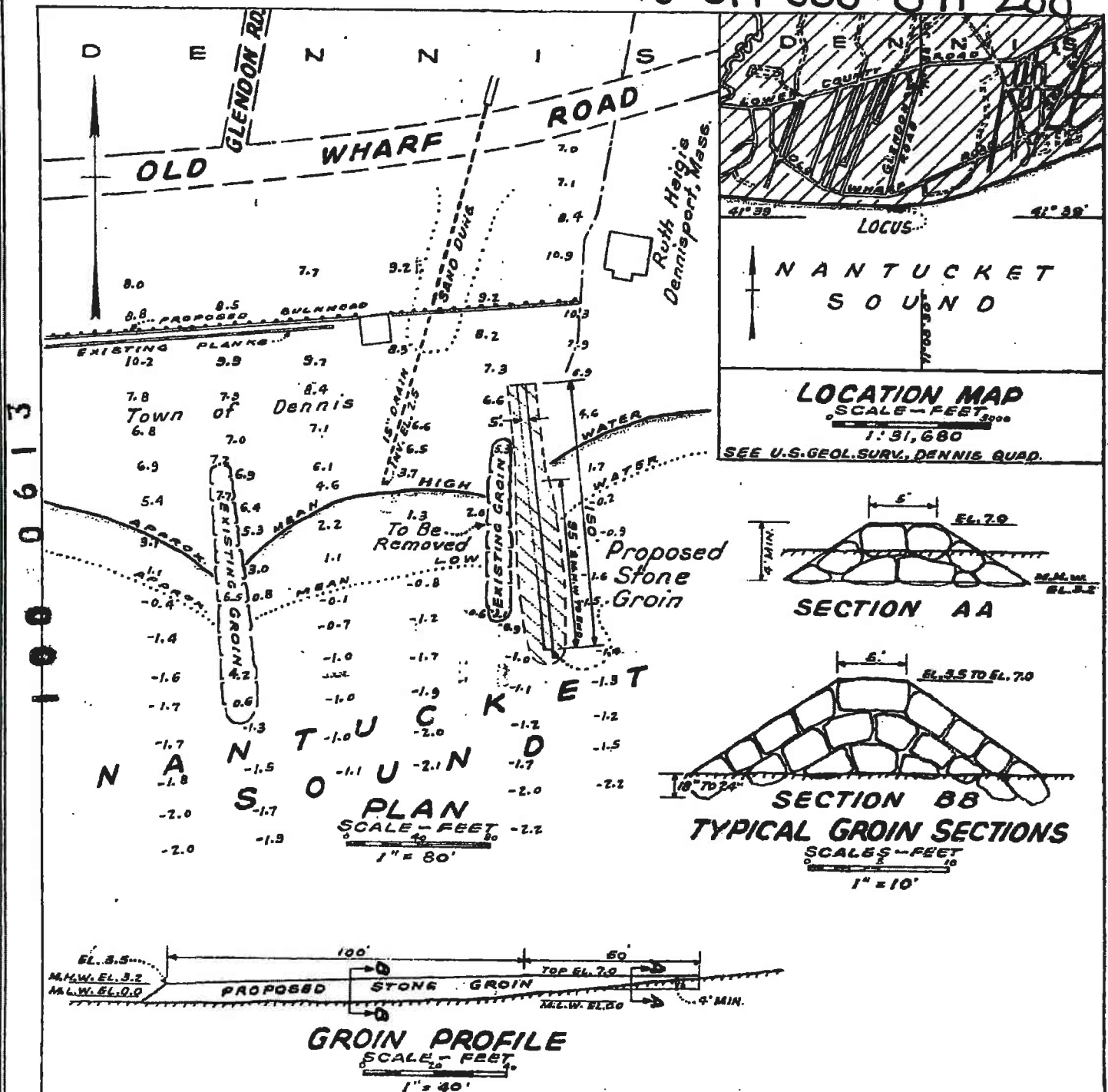
MARCH 1973

Fred. C. Schwelb
DEPUTY CHIEF ENGINEER - WATERWAYS

ACC NO 04975-B

088 1586

016-019-000-091-200



NOTE

ELEVATIONS ARE IN FEET AND TENTHS ABOVE PLANE OF MEAN LOW WATER. MINUS FIGURES SHOW DEPTHS BELOW THE SAME PLANE.
APPROX. EXISTING GROUND SHOWN THUS TTTT
LOCATION OF PROPOSED WORK IS SHOWN IN RED.
ALL SIDE AND END SLOPES FOR GROIN ARE 1 1/2:1

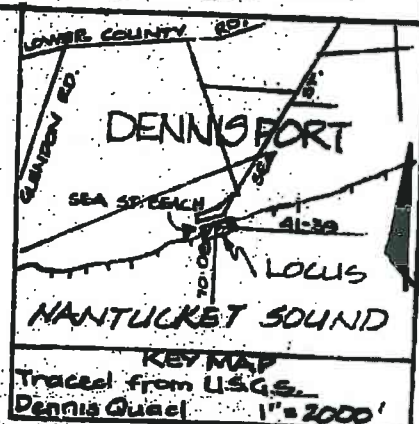
PROPOSED GROIN RELOCATION GLENDON RD., DENNISPORT SHORE NANTUCKET SOUND DENNIS - MASS.

APPLICATION BY
DEPARTMENT OF PUBLIC WORKS - MASSACHUSETTS
DIVISION OF WATERWAYS

MARCH 1956

John D. Bradford
(ACTING) DISTRICT WATERWAYS ENGINEER

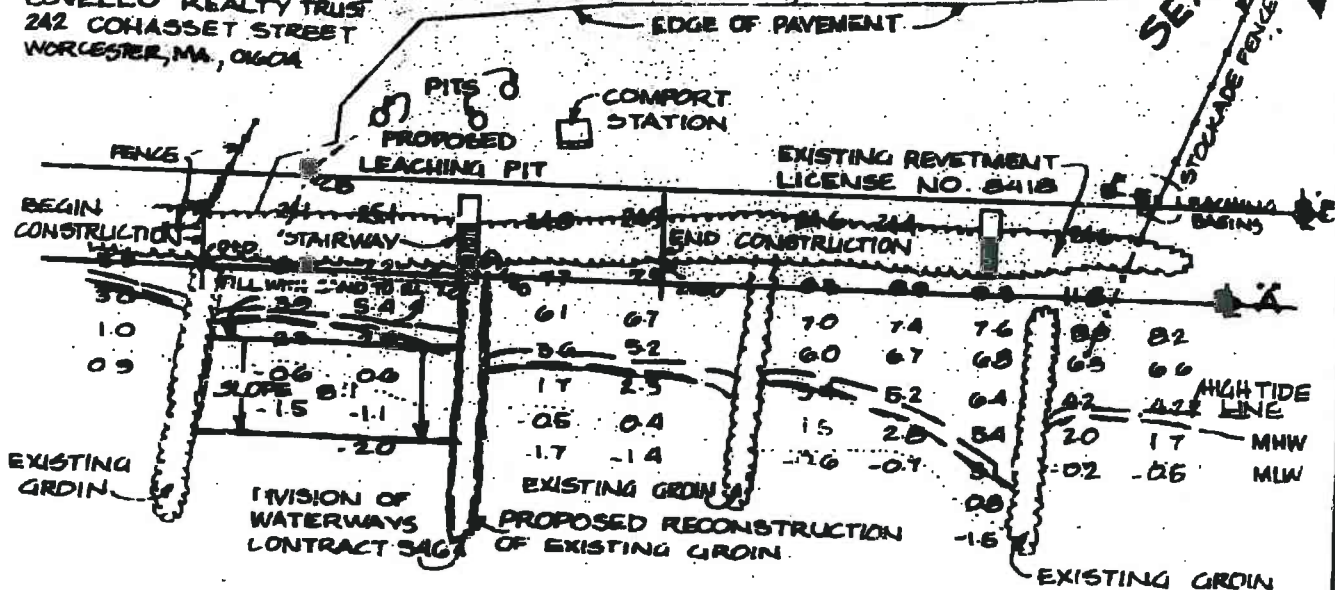
016-021-000-059-100
016-021-000-059-200



NOTE
ELEVATIONS ARE IN FEET AND TENTHS
ON THE PLANE OF MEAN LOW WATER.
MINUS FIGURES REPRESENT ELEVATIONS
BELOW THAT PLANE.
700 CY. OF SAND BELOW HIGHTIDE LINE.
200 CY. OF CRUSHED STONE BELOW HIGHTIDE LINE.

COVELLO REALTY TRUST
242 CONHASSET STREET
WORCESTER, MA, 01604

LOT 29
JOHN E. MARQUES et al
62 KEEL CAVE DRIVE
SOUTH YARMOUTH



NANTUCKET SOUND PLAN SCALE: 1" = 100'

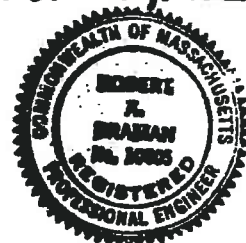
Robert A. Braman

TO RECONSTRUCT A GROIN & PORTION OF BEACH
NANTUCKET SOUND
DENNIS, BARNSTABLE COUNTY, MASS.
APPLICATION BY
TOWN OF DENNIS

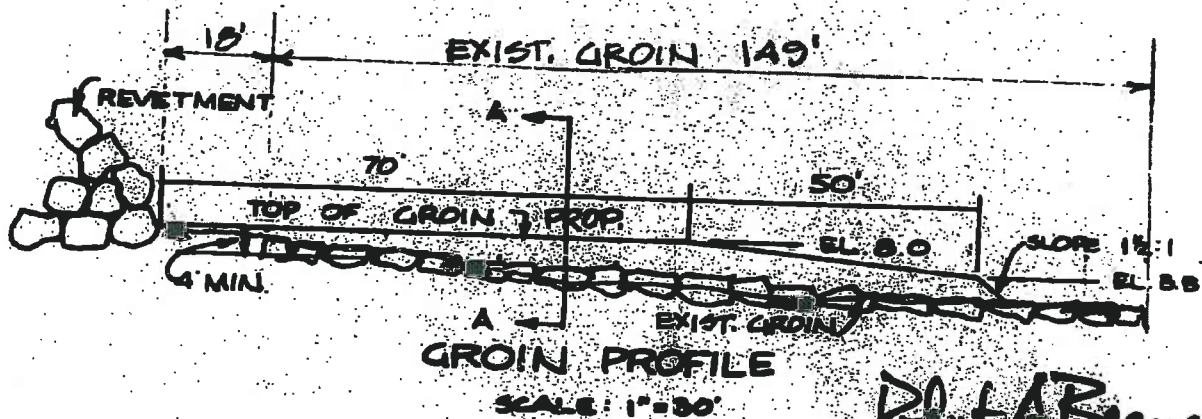
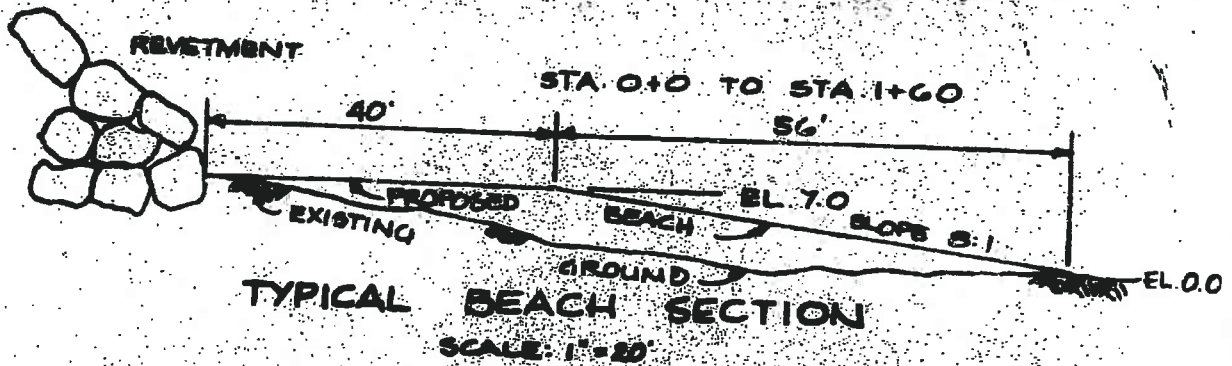
JULY 14, 1981

ROBERT A. BRAMAN
CIVIL ENGINEER & SURVEYOR
444 MAIN STREET
WAREHAM, MASS.

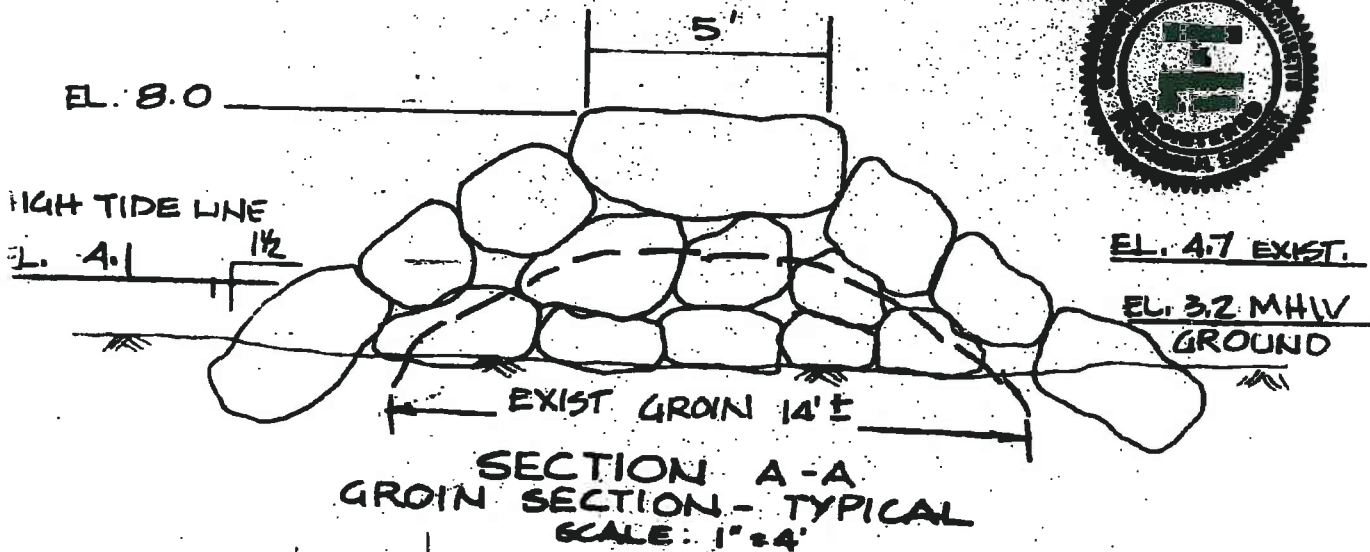
SHEET 1 OF 2



016-021-000-059-100
016-021-000-059-200



Blair Braman



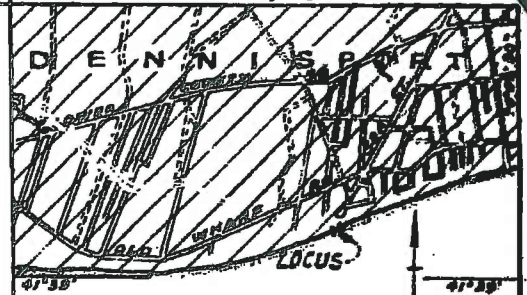
088 75

016-021-000-059-200

D E N N I S P O R T

SEA ST.

Anthony Botsey
Dennisport, Mass.

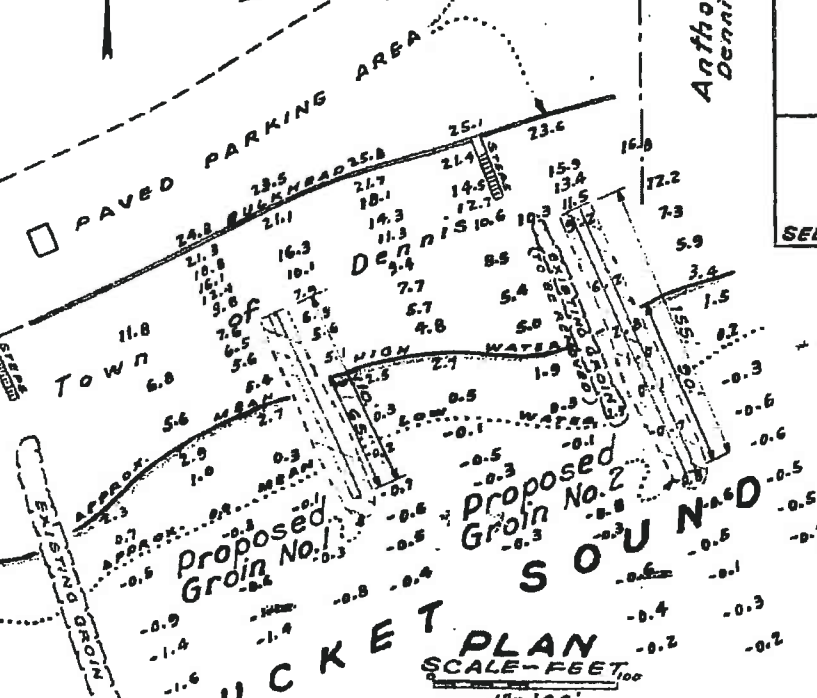


NANTUCKET
SOUND

LOCATION PLAN

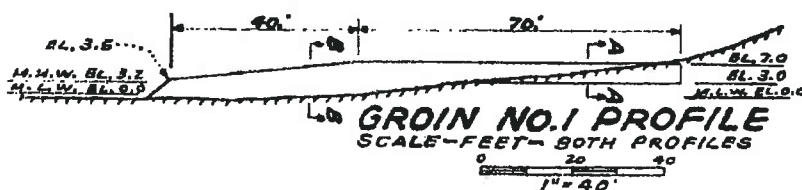
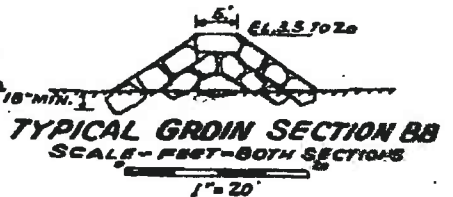
SCALE - FEET
1" = 31,680

SEE U.S. GEOL. SURV. DENNIS QUAD.



NANTUCKET

PLAN
SCALE - FEET
1" = 100'



NOTE

ELEVATIONS ARE IN FEET AND TENTHS ABOVE THE PLANE OF MEAN LOW WATER, MINUS FIGURES SHOW DEPTHS BELOW THE SAME PLANE. SIDE AND END SLOPES OF GROINS ARE 1 1/2:1 APPROX. EXISTING GROUND SHOWN THUS. LOCATION OF PROPOSED WORK SHOWN IN RED.

PROPOSED GROINS
SEA STREET BEACH, DENNISPORT SHORE
NANTUCKET SOUND

DENNIS MASS.
APPLICATION BY

DEPARTMENT OF PUBLIC WORKS - MASSACHUSETTS
DIVISION OF WATERWAYS

MARCH 1956

Robert B. MacKenzie
DISTRICT WATERWAYS ENGINEER

DE



COVELLO REALTY TRUST
242 CONASSET STREET
WORCESTER, MA, 01604

[illegible]

SCALE: 1" = 100'

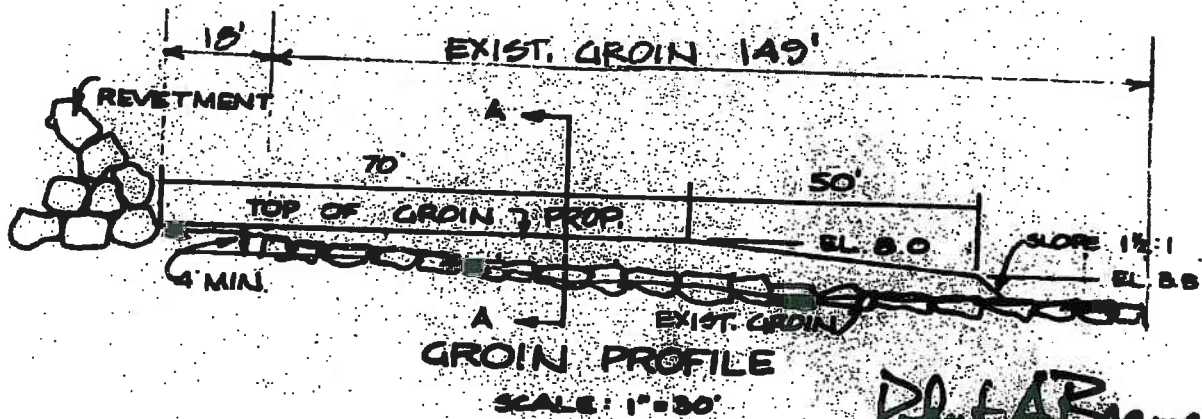
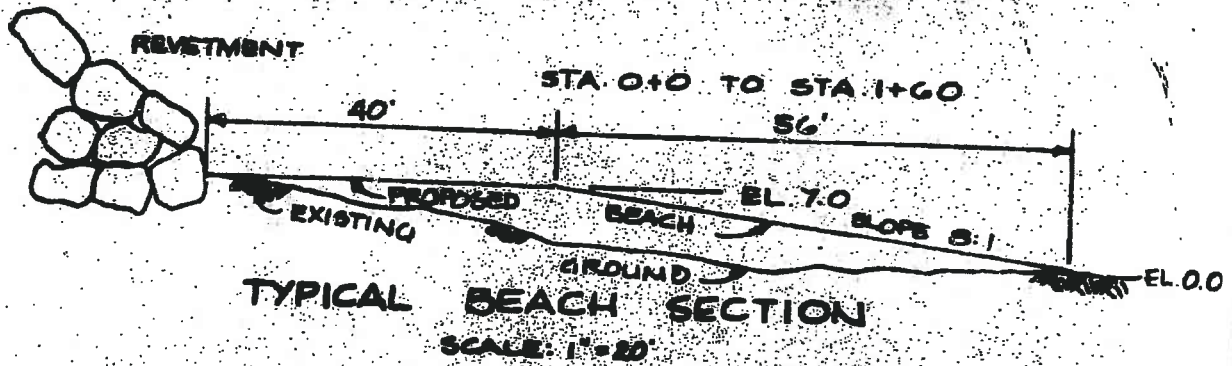
Robert B. Berman



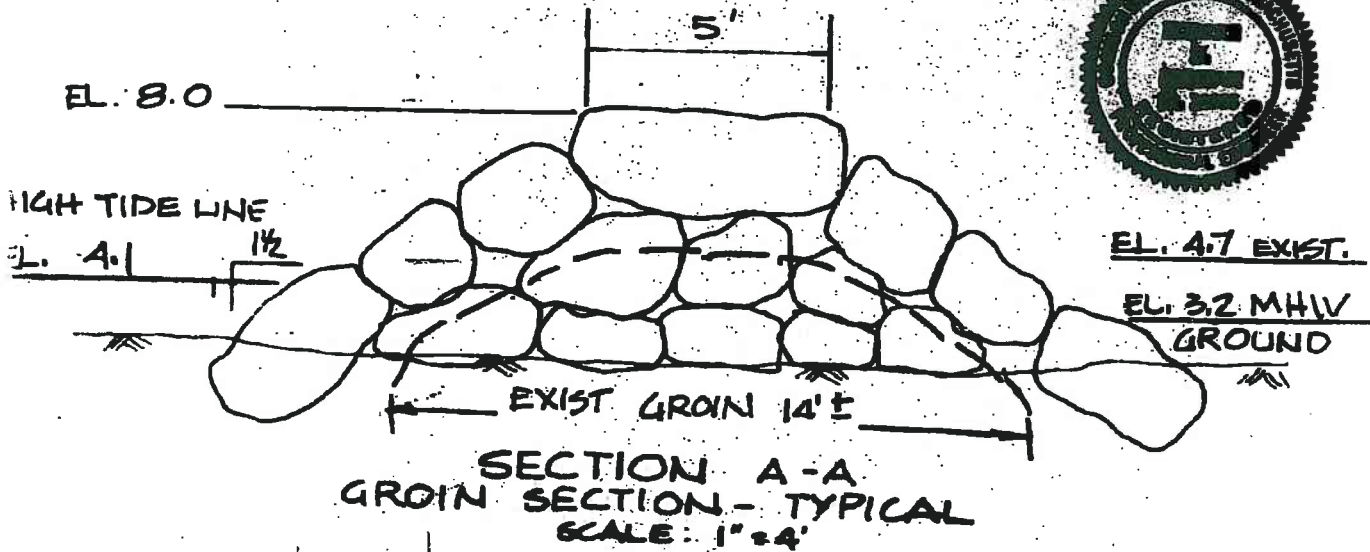
ROBERT A. BRAMAN
CIVIL ENGINEER & SURVEYOR
444 MAIN STREET
WAREHAM, MASS.

SHEET 1 OF 2

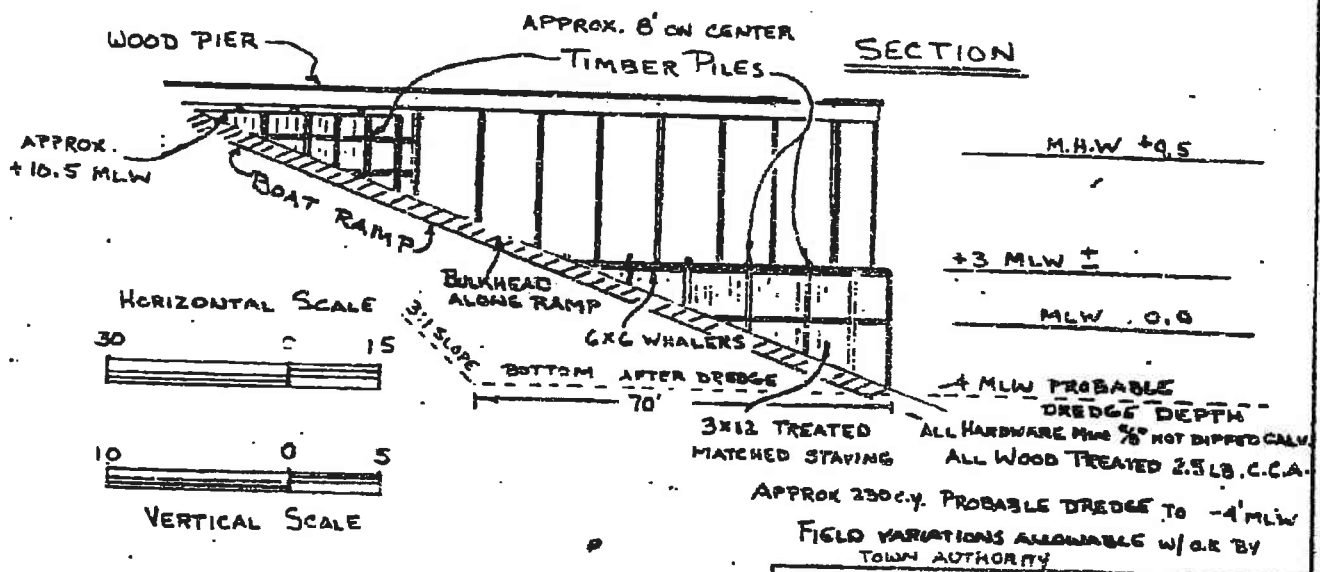
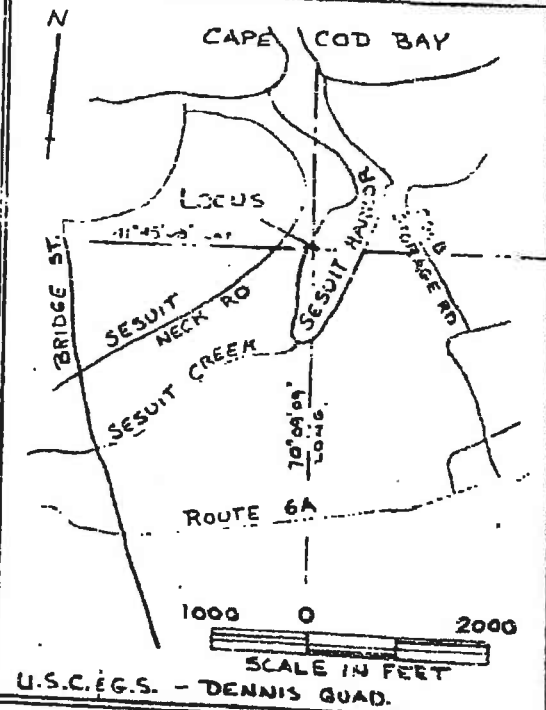
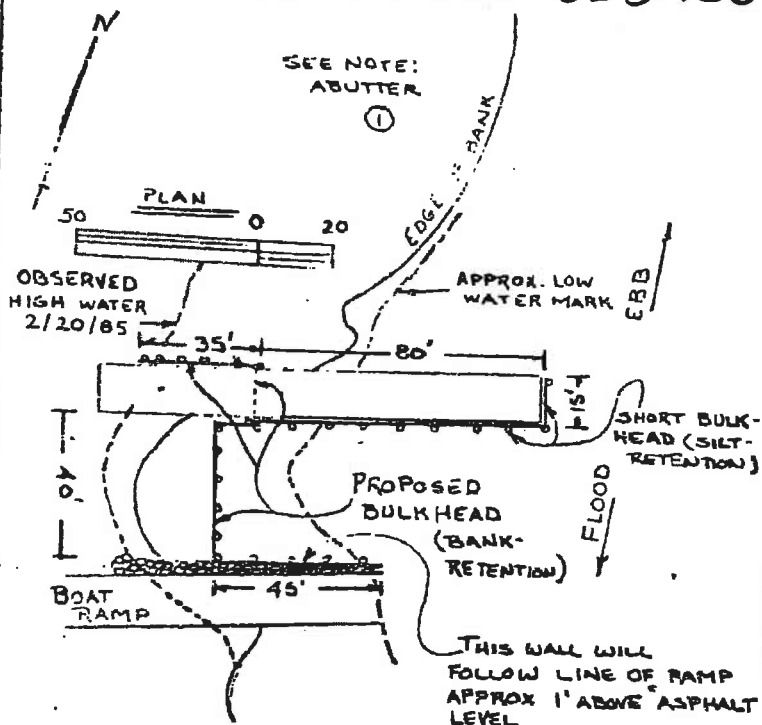
016-021-000-059-100
016-021-000-059-200



Blair A. Branan



016-410-000-023-100



PURPOSE: TO KEEP DOCKING FACILITY FROM SILTING & BANK AROUND PIER FROM ERODING.

DATUM: OBSERVED

ANY DREDGE MATERIAL TO BE PLACED IN DENNIS LANDFILL.

① SESUIT MARINE SERVICES INC. (ABUTTER)

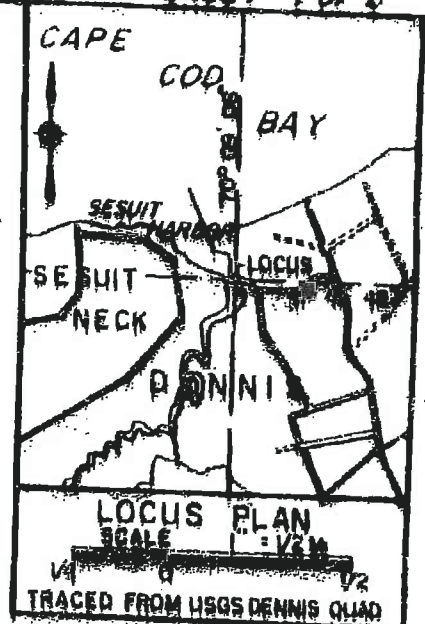
PROPOSED BULKHEAD
AT SESUIT HARBOR
IN E. DENNIS, MA.
COUNTY OF BARNSTABLE
APPLICATION BY TOWN OF DENNIS

SHEET 1 OF 1

3/7/85

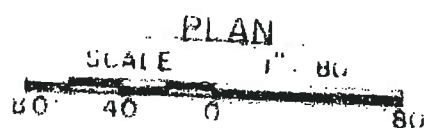
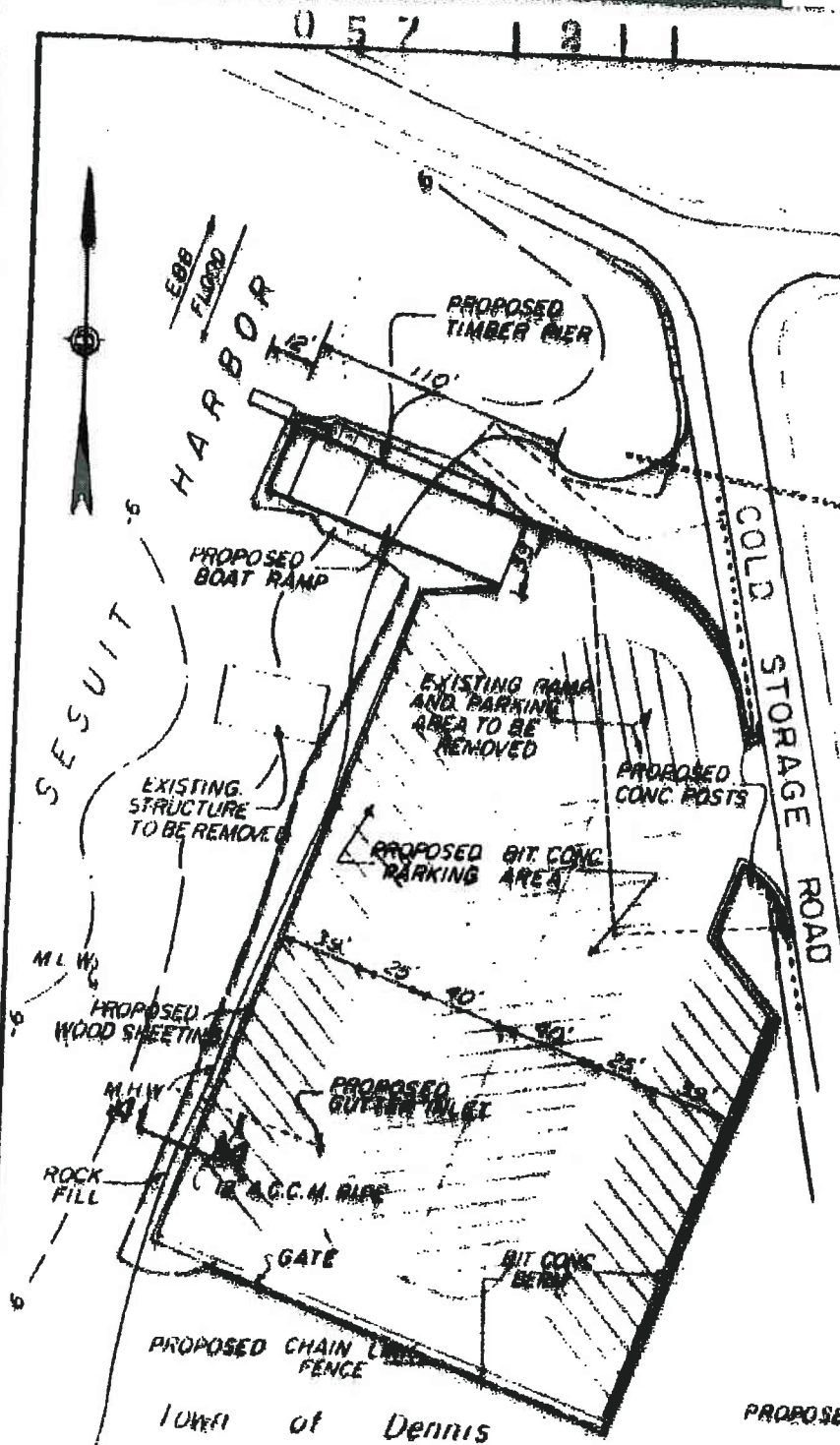
016-411-000-012-100
016-421-000-005-200

SHEET 1 OF 2



LOCATION OF
PROPOSED WORK
SHOWN IN RED

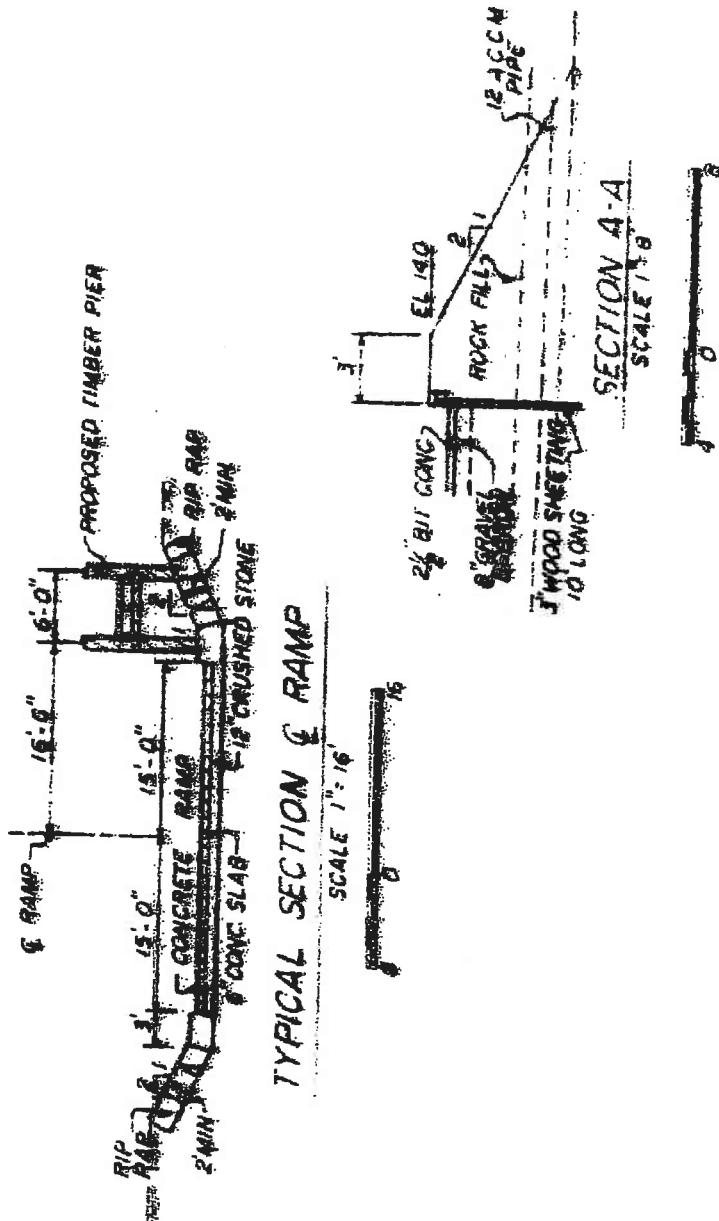
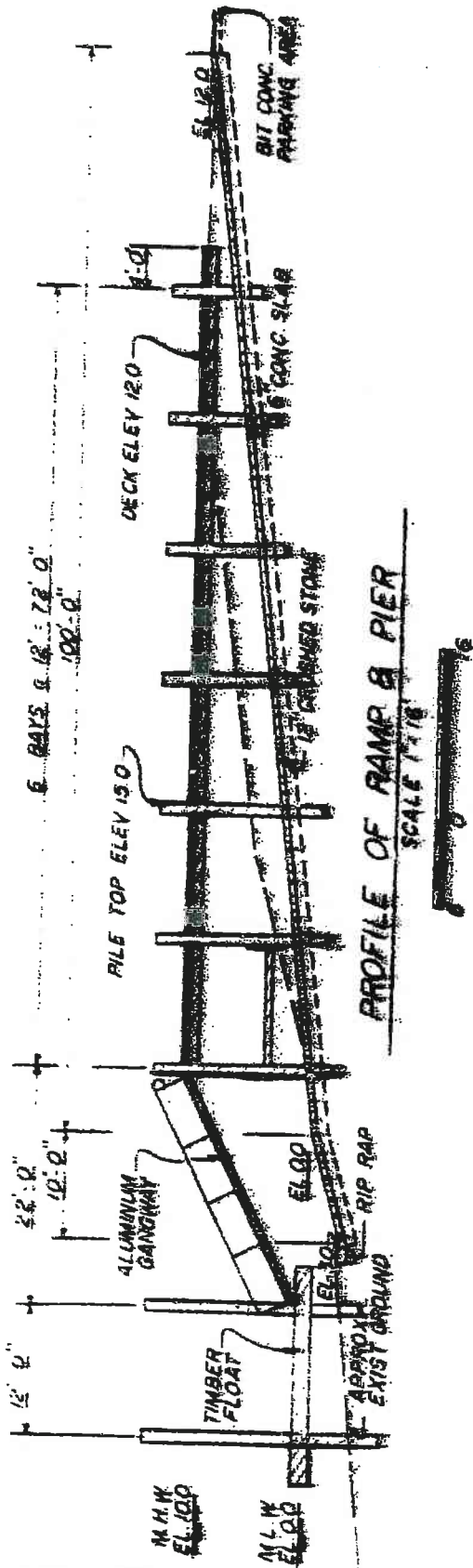
NOTE
ELEVATIONS ARE IN FEET
AND TENTHS AND REFER TO
THE PLANE OF MEAN LOW
WATER MINUS FIGURES
DENOTE ELEVATIONS BELOW
THAT SAME PLANE



PROPOSED ACCESS RAMP AND FACILITIES
SESUIT HARBOR
DENNIS, MASS.
APPLICATION BY
DEPARTMENT OF PUBLIC WORKS OF MASSACHUSETTS
DIVISION OF WATERWAYS
NOVEMBER 1968

Shirley J. [Signature]
DEPUTY CHIEF ENGINEER FOR WATERWAYS

016-411-000-D12-100 SHEET 2 OF 2
016-421-000-005-200



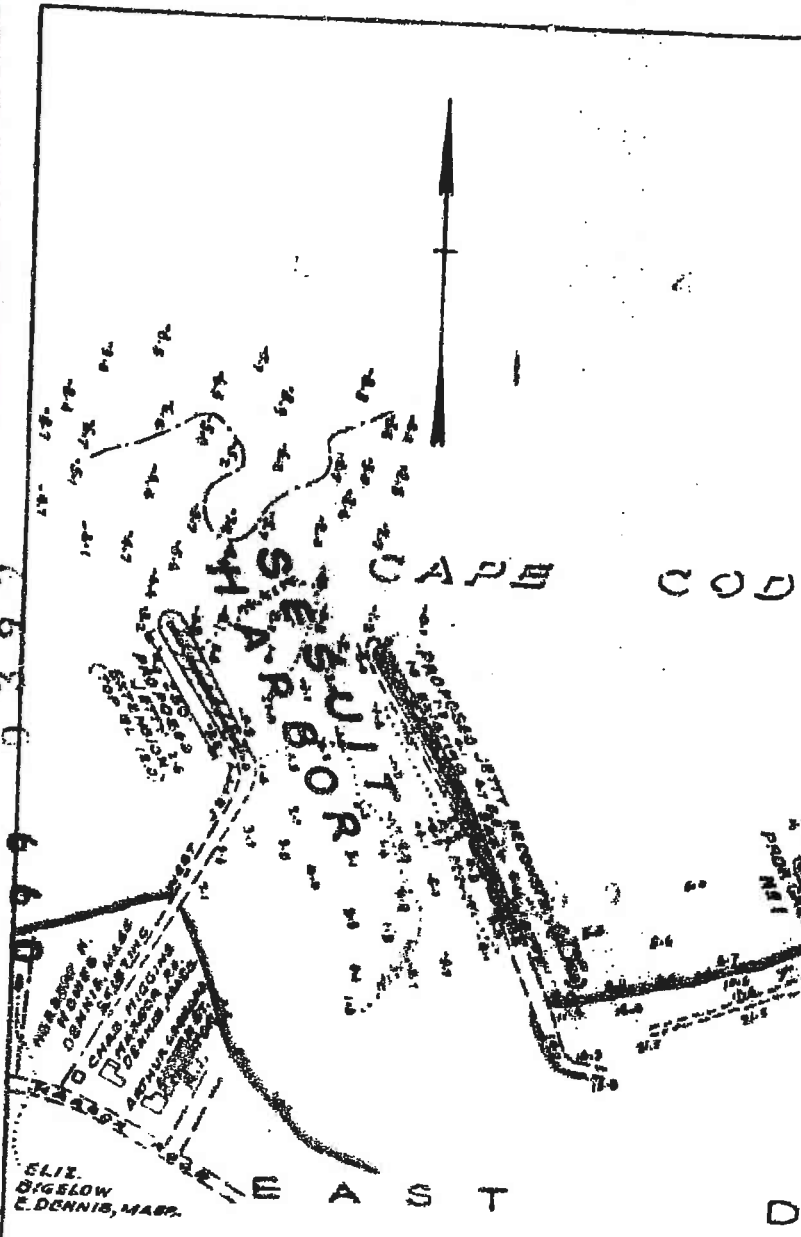
PROPOSED ACCESS RAMP AND FACILITIES
SESUIT HARBOR
DENNIS, MASS.
APPLICATION BY
DEPARTMENT OF PUBLIC WORKS OF MASSACHUSETTS
DIVISION OF WATERWAYS
NOVEMBER 1968

[Signature]
DEPUTY CHIEF ENGINEER FOR WATERWAYS

ACC. NO. 04737 - 2

016-421-000-005-100

CAPE COD BAY



D E N N I S

PLAN
SCALE - FEET
1:4000

ELEVATIONS ARE IN FEET AND TENTHS ABOVE THE PLANE OF MEAN LOW WATER. MINUS FIGURES SHOW DEPTHS BELOW SAME PLANE. LOCATIONS OF PROPOSED WORK ARE SHOWN IN RED.

PROPOSED JETTY AND GROIN CONSTRUCTION
SESUIT HARBOR
DENNIS - MASS.
APPLICATION BY
DEPARTMENT OF PUBLIC WORKS - MASSACHUSETTS
DIVISION OF WATERWAYS
JUNE 1954
SCALES SHOWN

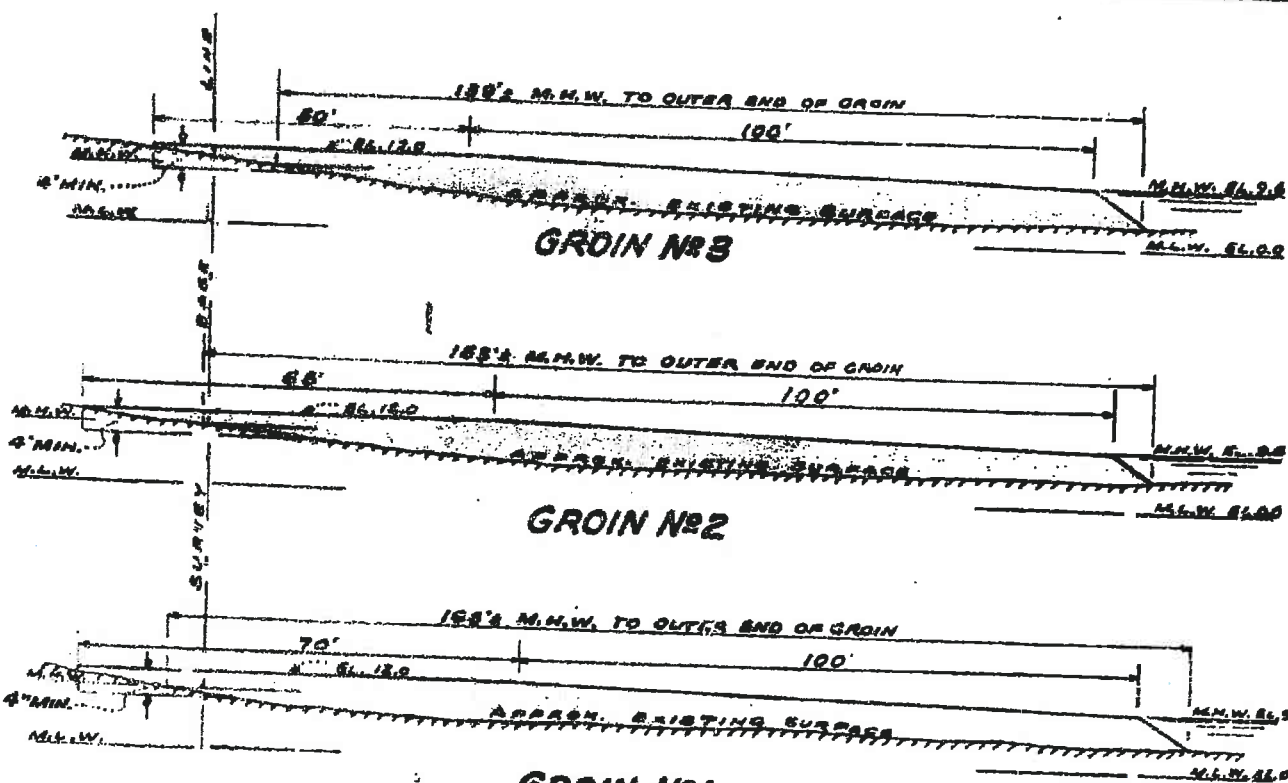
R.B. MacLennan
DISTRICT WATERWAYS ENGINEER

NEW ENGLAND DIV.
 0 9 1 8 2 5
 JUN 12 1954

016-420-000-004-100

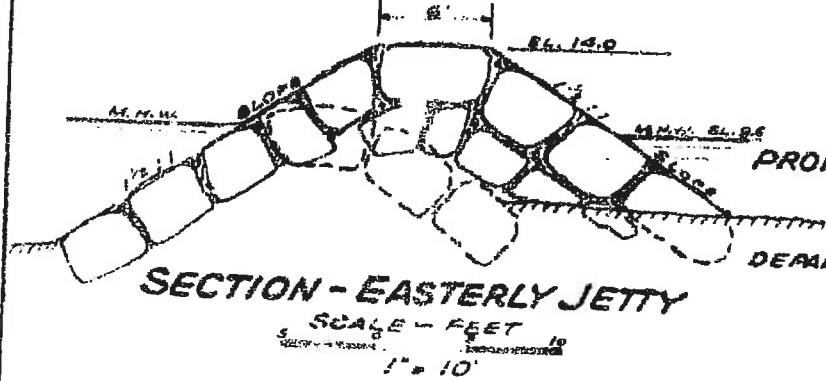
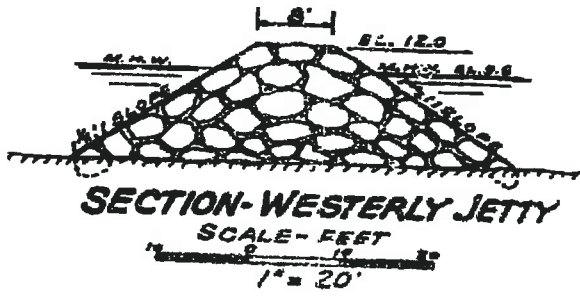
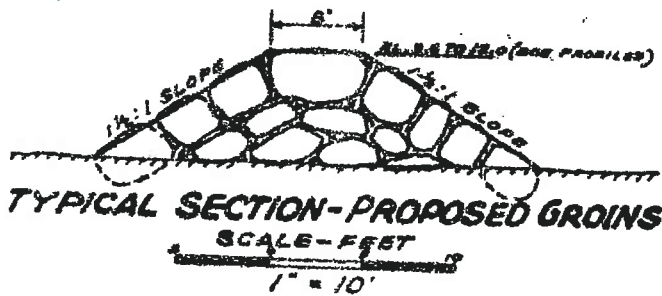
016-421-000-005-100

SHEET 2 OF 2



GROIN No 1
PROFILES-PROPOSED GROINS

SCALE- FEET
 1" = 30'



PROPOSED JETTY AND GROIN CONSTRUCTION
SESUIT HARBOR
 DENNIS, MASS.
 APPLICATION BY
 DEPARTMENT OF PUBLIC WORKS OF MASSACHUSETTS
 DIVISION OF WATERWAYS
 JUNE 1954
 SCALES SHOWN

W. B. McInnis
 DISTRICT WATERWAYS ENGINEER

085 0420

016-420-000-004-100

016-421-000-005-100

SHEET 1 OF 2

CAPE COD BAY
SESUIT HARBOR

Proposed
Jetty Extensions

Proposed
Stone Revetment

CAPE COD BAY

SESUIT HARBOR

LOCATION MAP

SCALE - FEET

1:31,680

SEE U.S. GEOL. SURV. DENNIS QUAD.

TOWN OF DENNIS
DISPOSAL AREA

SESUIT NECK RD.

SHORE RD.

PLAN

SCALE - FEET
1" = 500'

NOTE

SOUNDINGS ARE IN FEET AND TENTHS
AND REFER TO PLANE OF MEAN LOW
WATER. MINUS FIGURES SHOW ELEVATIONS
ABOVE THE SAME PLANE.
HYDRAULICALLY DREDGED MATERIAL
APPROX. 870,000 CU. YDS. TO BE DISPOSED
OF ON ADJACENT TOWN OF DENNIS PROP.
BART IN SUCH MANNER THAT IT WILL
NOT RE-ENTER TIDEWATER AND WITH
THE FINAL TOP AREA NEATLY GRADED
TO AN ELEVATION NOT EXCEEDING 16 FT.
ABOVE MEAN LOW WATER.
LOCATION PROPOSED DREDGING IN REG.
SEE SHEET 2 FOR JETTY EXTENSION AND
REVEMENT DETAILS.

PROPOSED
JETTY EXTENSIONS
REVEMENT AND DREDGING
SESUIT HARBOR

DENNIS - MASS.

APPLICATION BY
DEPARTMENT OF PUBLIC WORKS OF MASSACHUSETTS
DIVISION OF WATERWAYS
MAY - 1958

Robert M. Kinnon

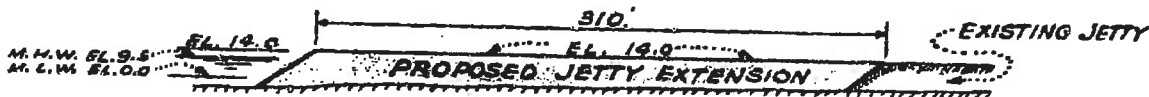
CHIEF WATERWAYS ENGINEER

1031139

0 8 5 0 4 2 1

016-420-000-004-100
016-421-000-005-100

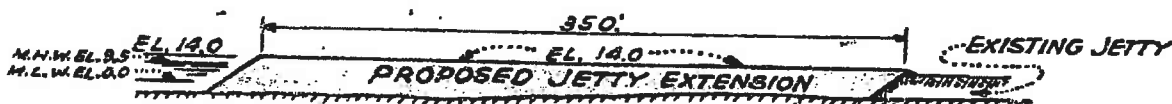
SHEET 2 OF 2



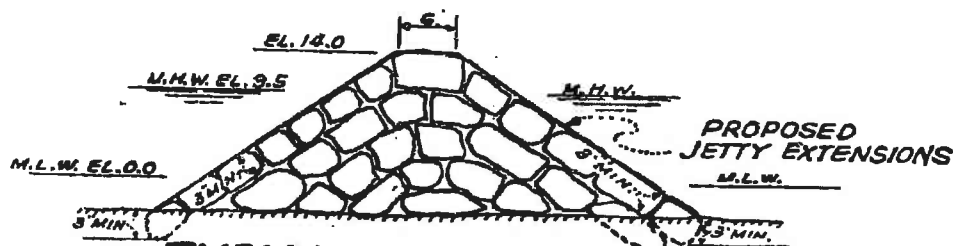
PROFILE EAST JETTY

SCALES - FEET - BOTH PROFILES

1" = 100'



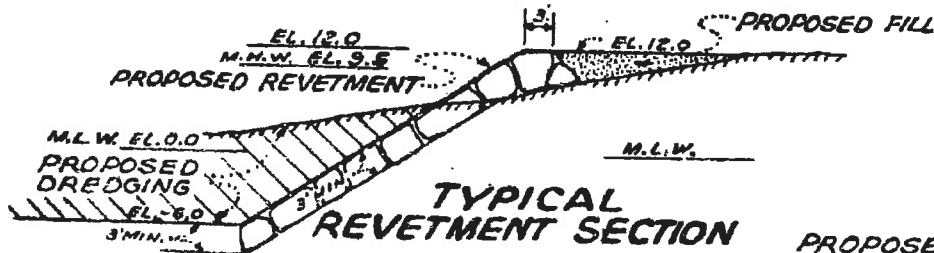
PROFILE WEST JETTY



TYPICAL JETTY SECTION

SCALES - FEET - BOTH SECTIONS

1" = 20'



TYPICAL REVETMENT SECTION

NOTE

ELEVATIONS ARE IN FEET AND TENTHS
AND REFER TO PLANE OF MEAN LOW WATER
APPROX. EXISTING GROUND SHOWN THUS
ALL SIDE AND END SLOPES 1.5 TO 1, EXCEPT
INNER FACE OF REVETMENT IS 1.0 TO 1.0

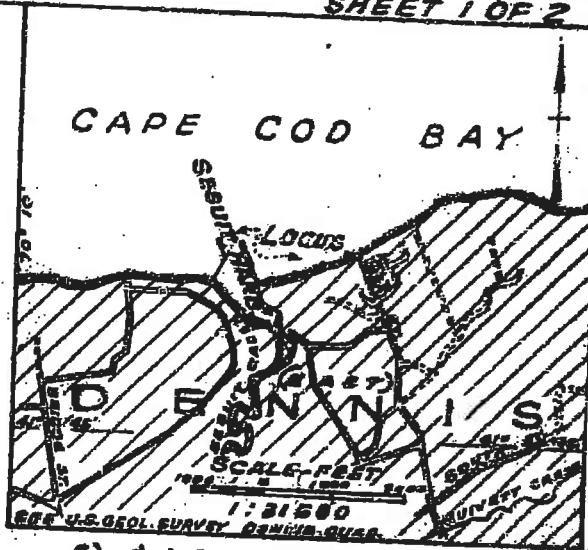
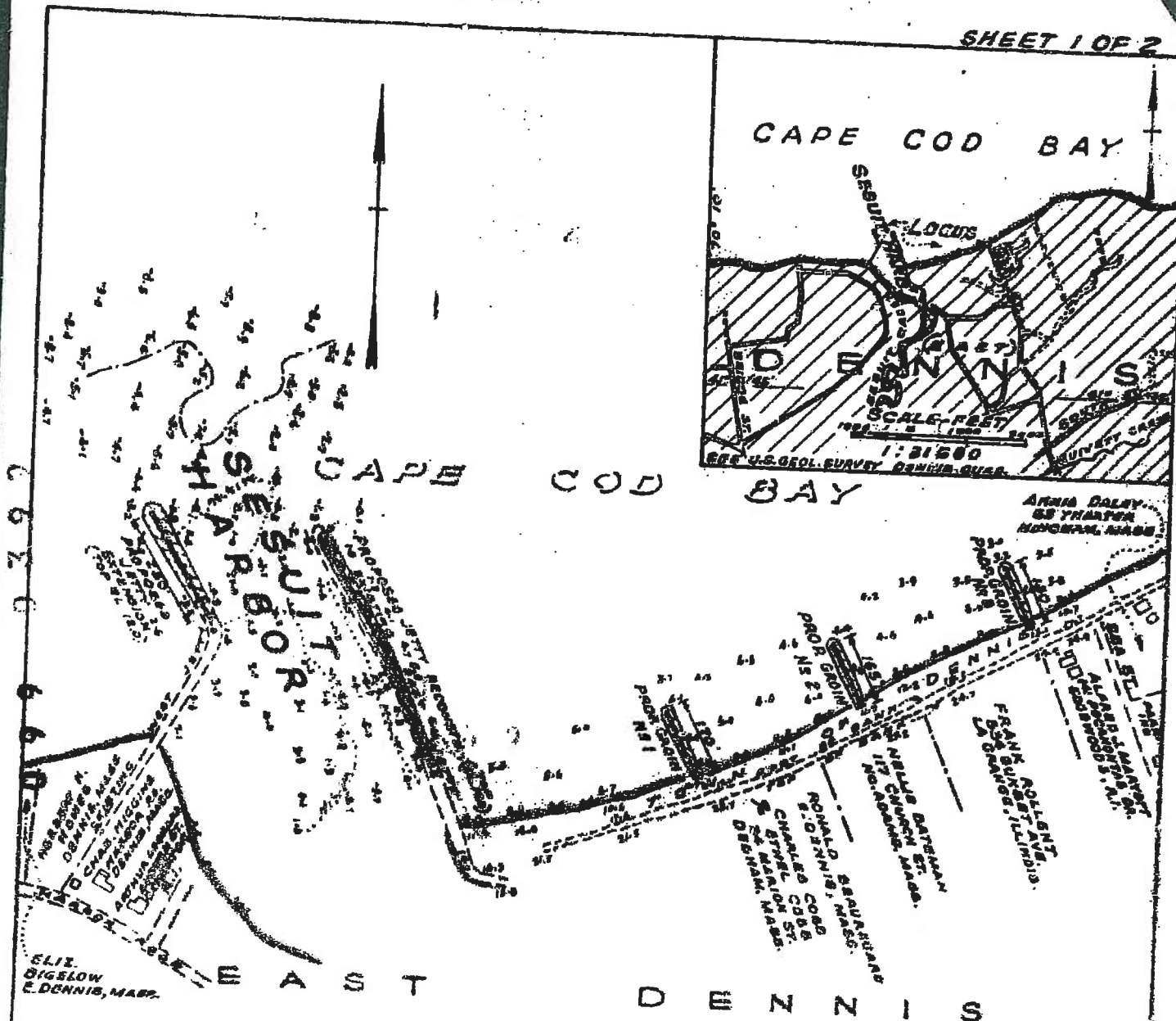
PROPOSED
JETTY EXTENSIONS
REVETMENT AND DREDGING
SESUIT HARBOR

DENNIS - MASS.
APPLICATION BY
DEPARTMENT OF PUBLIC WORKS OF MASSACHUSETTS
DIVISION OF WATERWAYS
MAY - 1958

Robert MacKinnon

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016-421-000-005-100

SHEET 1 OF 2



PLAN
SCALE - FEET
1:4000

NOTE
ELEVATIONS ARE IN FEET AND TENTHS ABOVE
THE PLANE OF MEAN LOW WATER. MINUS
FIGURES SHOW DEPTHS BELOW SAME PLANE.
LOCATIONS OF PROPOSED WORK ARE SHOWN
IN RED

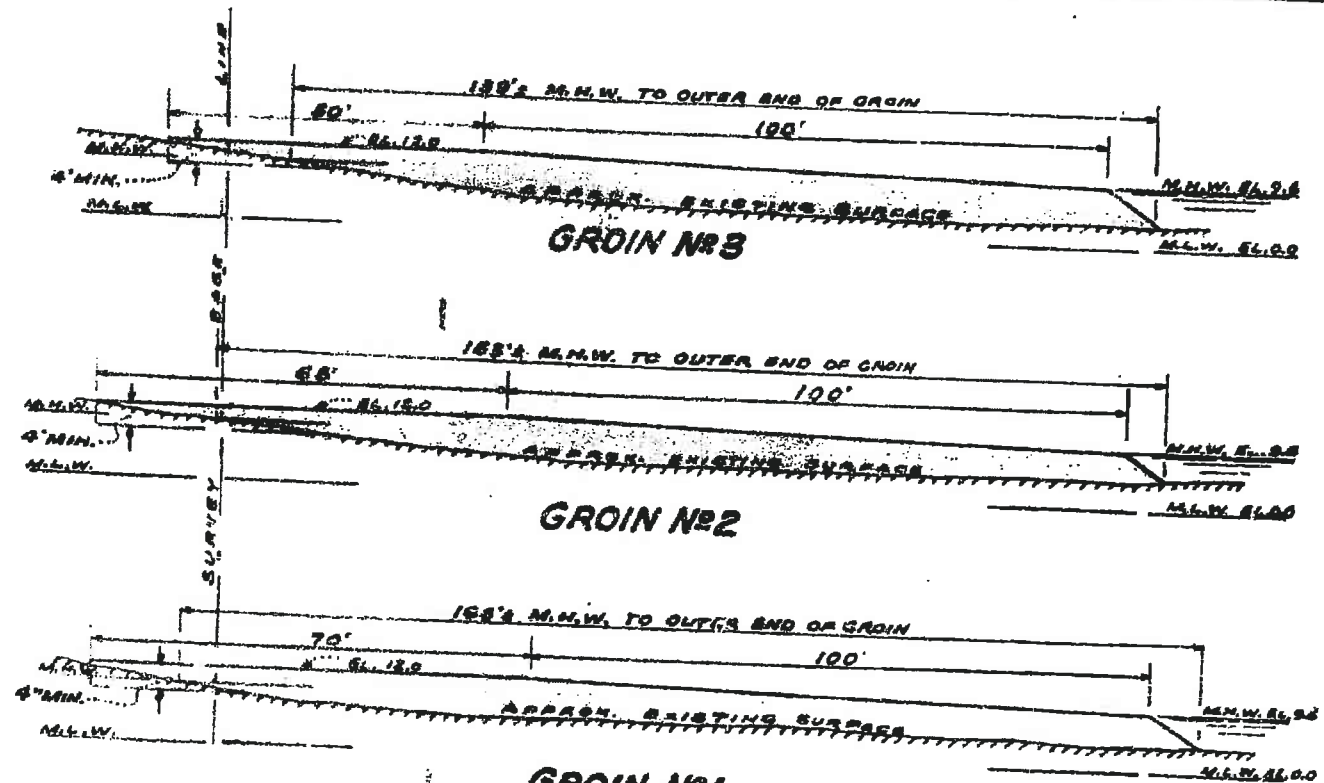
**PROPOSED JETTY AND GROIN CONSTRUCTION
SESUIT HARBOR
DENNIS - MASS.**
APPLICATION BY
DEPARTMENT OF PUBLIC WORKS - MASSACHUSETTS
DIVISION OF WATERWAYS
JUNE 1954
SCALES SHOWN

Robt MacKinnon
DISTRICT WATERWAYS ENGINEER

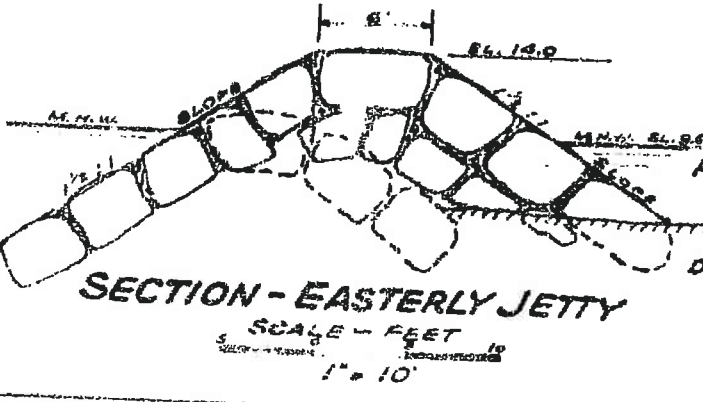
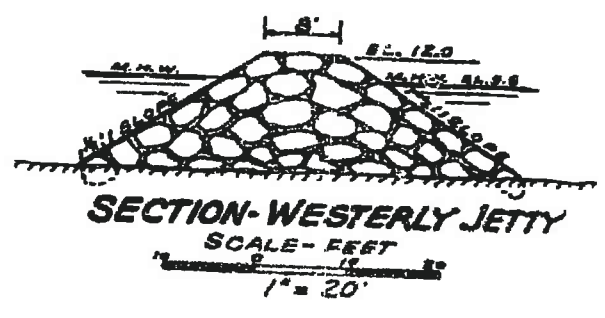
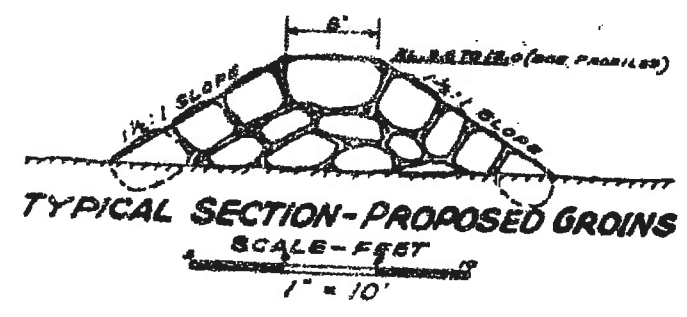
NEW ENGLAND DIV.
 0 9 1 1 8 2 5
 JUN 12 1954

016-420-000-004-100
 016-421-000-005-100

SHEET 2 OF 2



PROFILES-PROPOSED GROINS
 SCALES- FEET
 1" = 30'



**PROPOSED JETTY AND GROIN CONSTRUCTION
 SESUIT HARBOR
 DENNIS, MASS.
 APPLICATION BY
 DEPARTMENT OF PUBLIC WORKS, MASSACHUSETTS
 DIVISION OF WATERWAYS
 JUNE 1954
 SCALES SHOWN**

W. B. McInnis
 DISTRICT WATERWAYS ENGINEER

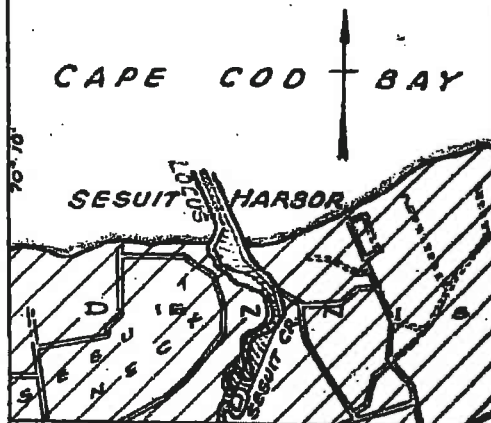
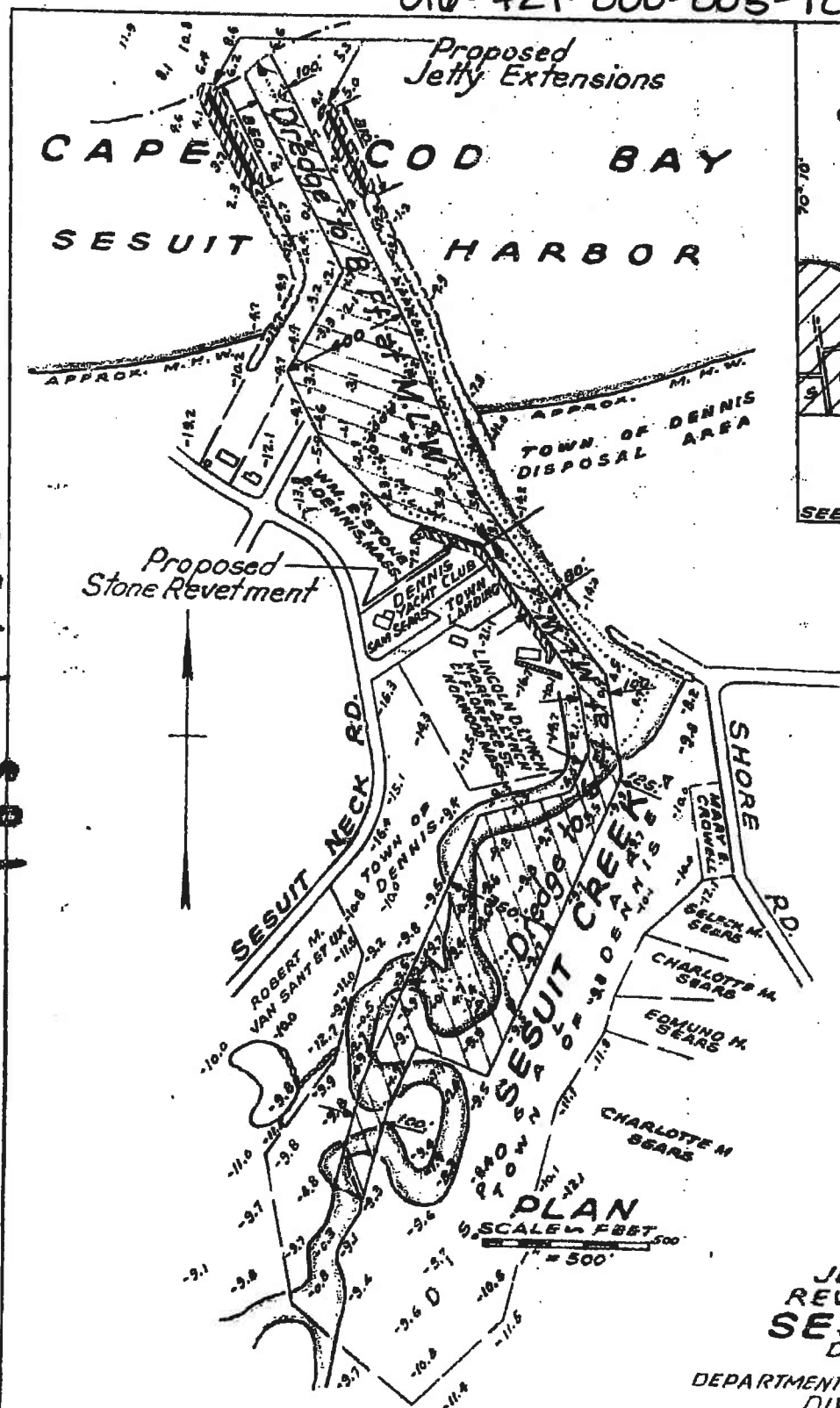
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016-421-000-005-100

SHEET 1 OF 2



LOCATION MAP
SCALE - FEET
1" = 31,680
SEE U.S. GEOL. SURV. DENNIS QUAD.

NOTE
SOUNDINGS ARE IN FEET AND TENTHS AND REFER TO PLANE OF MEAN LOW WATER, MINUS FIGURES SHOW ELEVATIONS ABOVE THE SAME PLANE.
HYDRAULICALLY DREDGED MATERIAL APPROX. 870,000 CUBIC YDS TO BE DISPOSED OF ON ADJACENT TOWN OF DENNIS PROPT. IN SUCH MANNER THAT IT WILL NOT RE-ENTER TIDEWATER AND WITH THE FINAL TOP AREA NEATLY GRADED TO AN ELEVATION NOT EXCEEDING 16 FT. ABOVE MEAN LOW WATER.
LOCATION PROPOSED DREDGING IN REG. SEE SHEET 2 FOR JETTY EXTENSION AND REVENMENT DETAILS.

**PROPOSED
JETTY EXTENSIONS
REVENMENT AND DREDGING
SESUIT HARBOR**

DENNIS - MASS.
APPLICATION BY
DEPARTMENT OF PUBLIC WORKS - MASSACHUSETTS
DIVISION OF WATERWAYS
MAY - 1958

Robert M. Van Sant
CHIEF WATERWAYS ENGINEER

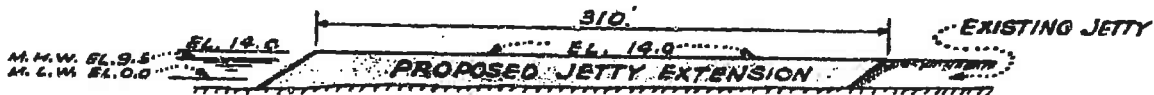
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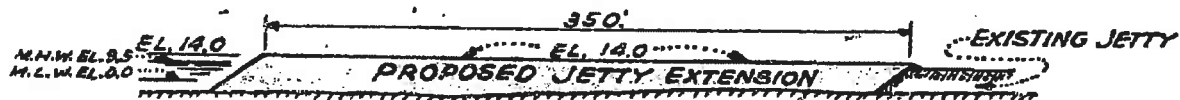
SHEET 2 OF 2



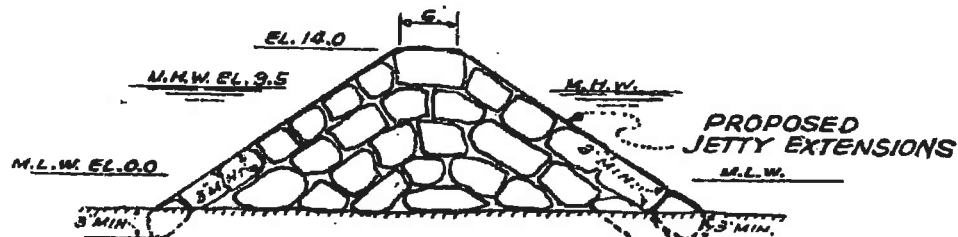
PROFILE EAST JETTY

SCALES - FEET - BOTH PROFILES

1" = 100'



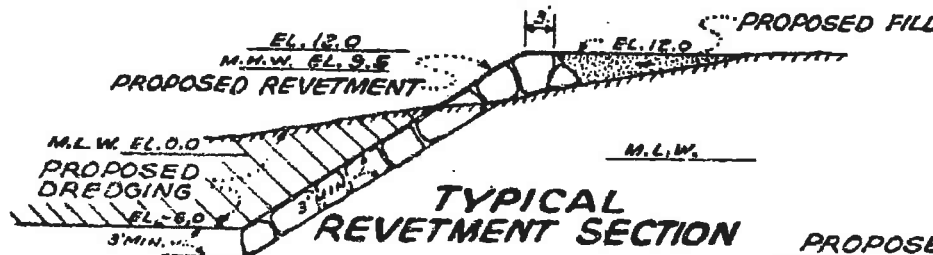
PROFILE WEST JETTY



TYPICAL JETTY SECTION

SCALES - FEET - BOTH SECTIONS

1" = 20'



TYPICAL REVETMENT SECTION

NOTE

ELEVATIONS ARE IN FEET AND TENTHS
AND REFER TO PLANE OF MEAN LOW WATER
APPROX. EXISTING GROUND SHOWN THUS
ALL SIDE AND END SLOPES 1.5 TO 1, EXCEPT
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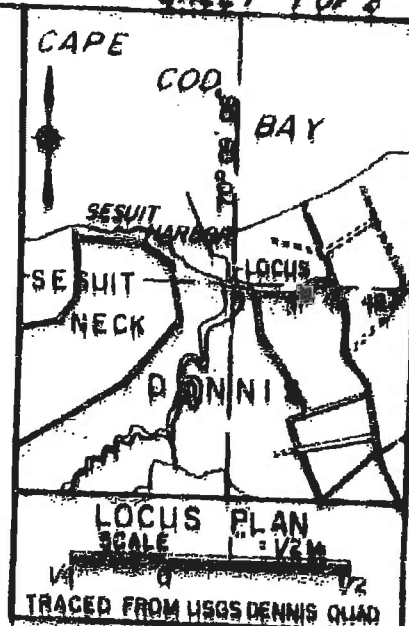
PROPOSED
JETTY EXTENSIONS
REVETMENT AND DREDGING
SESUIT HARBOR
DENNIS - MASS.
APPLICATION BY
DEPARTMENT OF PUBLIC WORKS OF MASSACHUSETTS
DIVISION OF WATERWAYS
MAY - 1958

Robert MacKinnon

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016-421-000-005-200

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SHEET 1 OF 2



LOCATION OF
PROPOSED WORK
SHOWN IN RED

NOTE

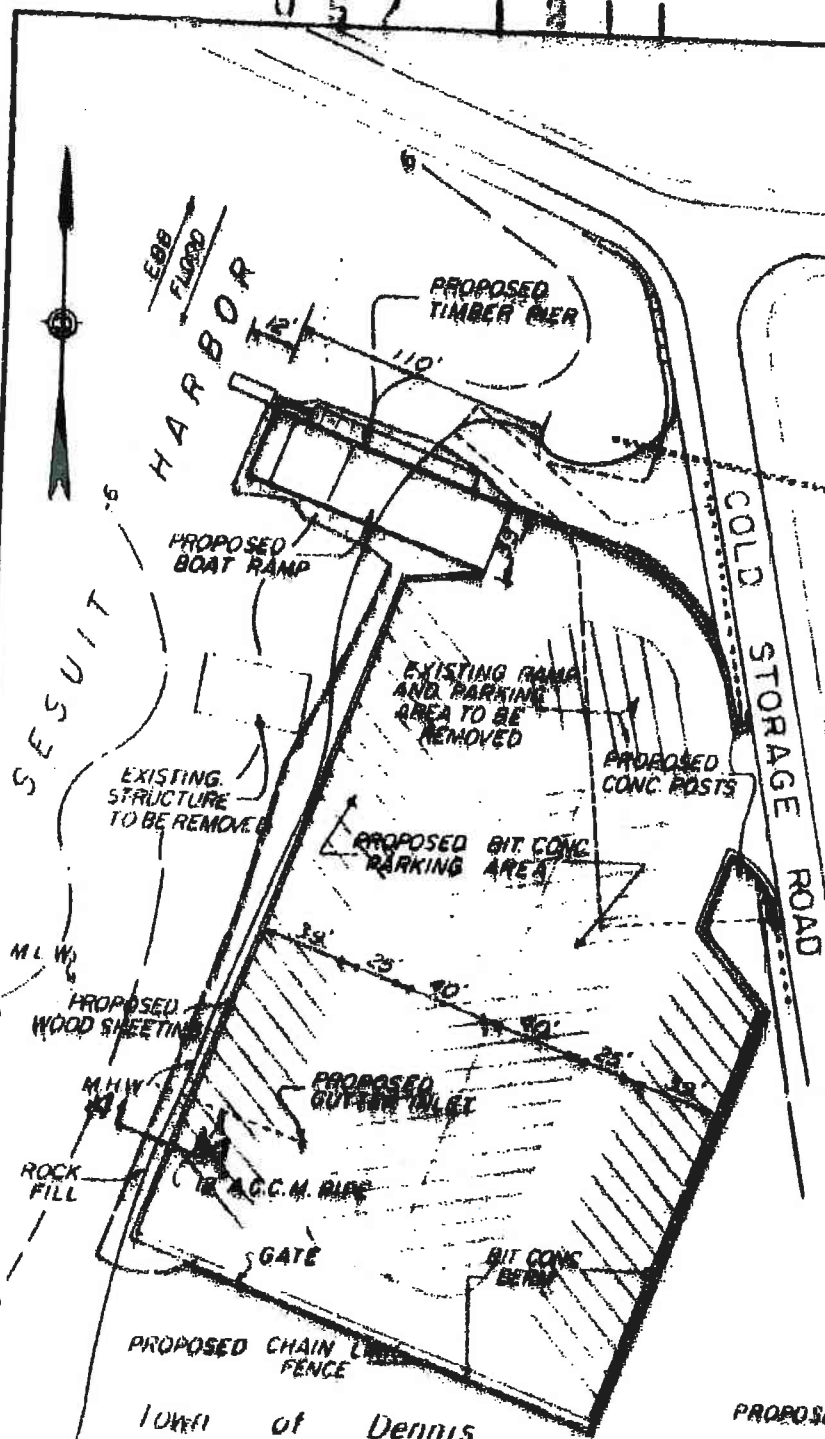
ELEVATIONS ARE IN FEET
AND TENTHS AND REFER TO
THE PLANE OF MEAN LOW
WATER. MINUS FIGURES
DENOTE ELEVATIONS BELOW
THAT SAME PLANE

PROPOSED ACCESS RAMP AND FACILITIES
SESUIT HARBOR
DENNIS, MASS.

APPLICATION BY
DEPARTMENT OF PUBLIC WORKS OF MASSACHUSETTS
DIVISION OF WATERWAYS

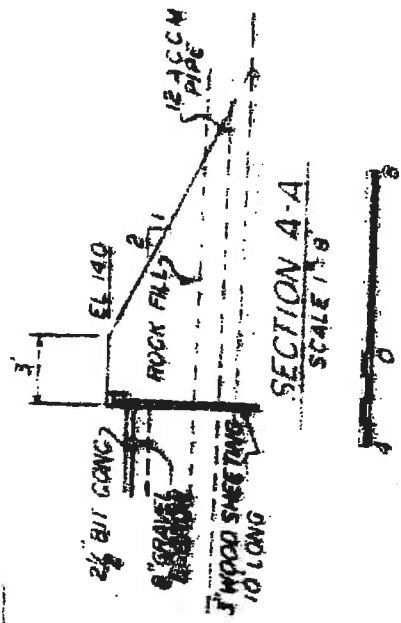
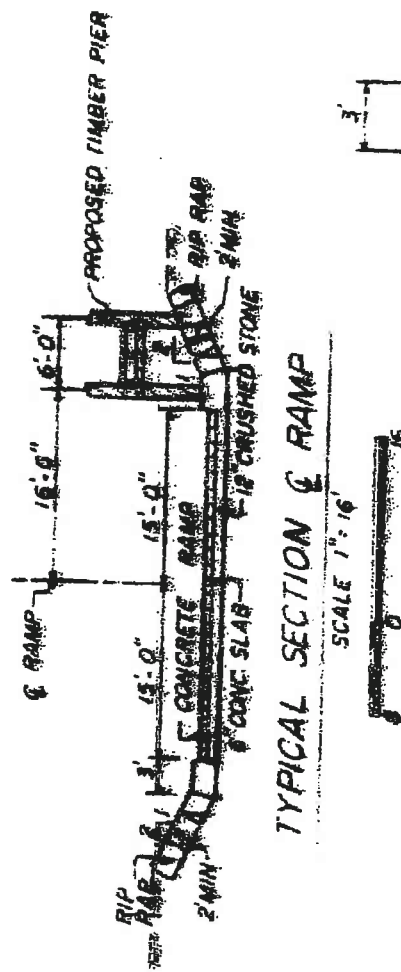
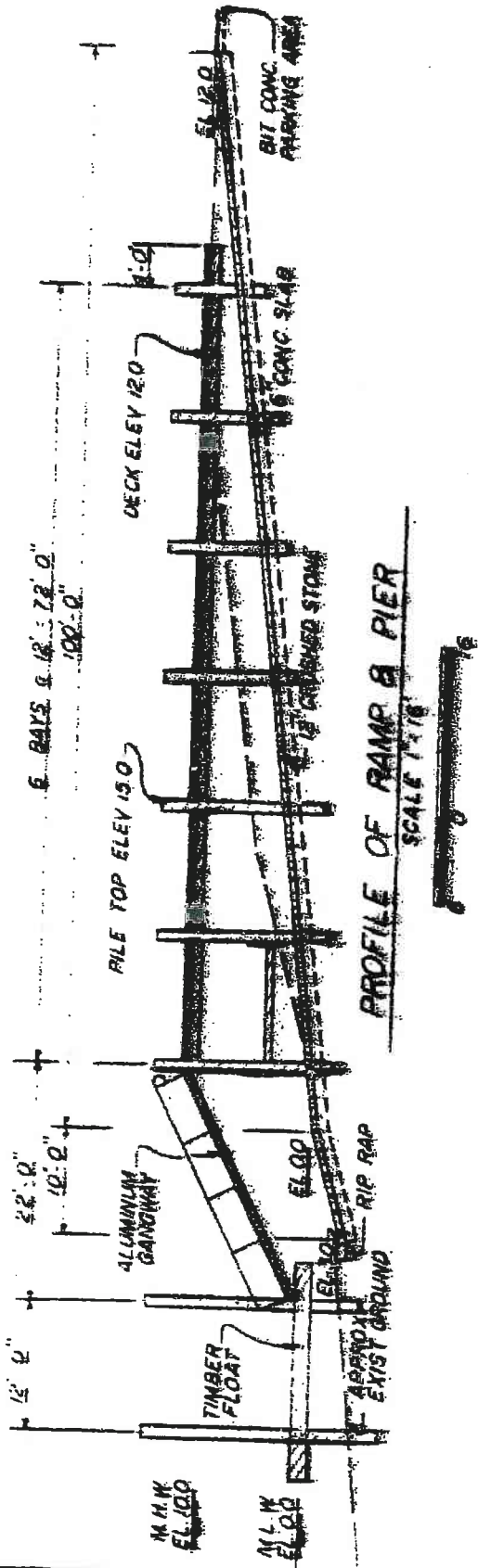
NOVEMBER 1968

Shirley J. [Signature]
DEPUTY CHIEF ENGINEER FOR WATERWAYS



PLAN
SCALE 1" = 80'
60' 40' 0' 80'

016-411-000-D12-100 SHEET 2 OF 2
016-421-000-005-200



PROPOSED ACCESS RAMP AND FACILITIES
SESUIT HARBOR
DENNIS, MASS.
APPLICATION BY
DEPARTMENT OF PUBLIC WORKS OF MASSACHUSETTS
DIVISION OF WATERWAYS
NOVEMBER 1968

[Signature]
DEPUTY CHIEF ENGINEER FOR WATERWAYS
ACC NO. 04737 - 2