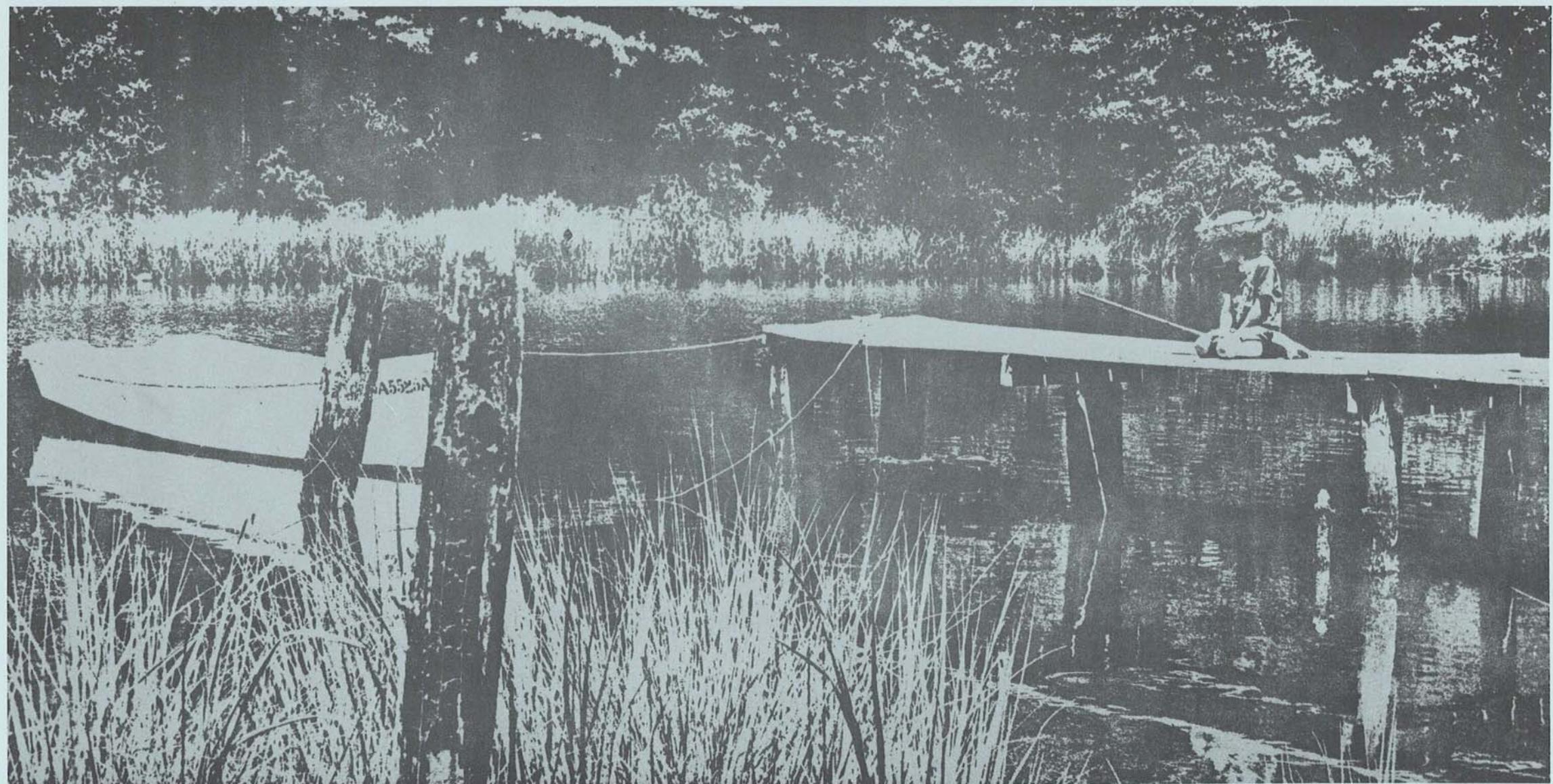


Shoreline Situation Report
RICHMOND COUNTY



Prepared and Published With Funds Provided to the Commonwealth by the Office of Coastal Zone Management,
National Oceanic and Atmospheric Administration, Grant Nos. 04-8-MO1-309 and 03-4-043-357

Special Report In Applied Marine Science and Ocean Engineering Number 164 of the

VIRGINIA INSTITUTE OF MARINE SCIENCE

Gloucester Point, Virginia 23062

1979

Shoreline Situation Report RICHMOND COUNTY

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CHAPTER 1

Introduction

CHAPTER 1

INTRODUCTION

1.1 PURPOSES AND GOALS

It is the objective of this report to supply an assessment, and at least a partial integration, of those important shoreland parameters and characteristics which will aid the planners and the managers of the shorelands in making the best decisions for the utilization of this limited and very valuable resource. The report gives particular attention to the problem of shore erosion and to recommendations concerning the alleviation of the impact of this problem. In addition, we have tried to include in our assessment a discussion of those factors which might significantly limit development of the shoreline and, in some instances, a discussion of some of the potential or alternate uses of the shoreline, particularly with respect to recreational use, since such information could aid potential users in the perception of a segment of the shoreline.

The basic advocacy of the authors in the preparation of the report is that the use of shorelands should be planned rather than haphazardly developed in response to the short term pressures and interests. Careful planning could reduce the conflicts which may be expected to arise between competing interests. Shoreland utilization in many areas of the country, and indeed in some places in Virginia, has proceeded in a manner such that the very elements which attracted people to the shore have been destroyed by the lack of planning and forethought.

The major man-induced uses of the shorelands are:

- Residential, commercial, or industrial development
- Recreation
- Transportation
- Waste disposal
- Extraction of living and non-living resources

Aside from the above uses, the shorelands serve various ecological functions.

The role of planners and managers is to optimize the utilization of the shorelands and to minimize the conflicts arising from competing demands. Furthermore, once a particular use has been decided upon for a given segment of shoreland, both the planners and the users want that selected use to operate in the most effective manner. A park planner, for example, wants the allotted space to fulfill the design most efficiently. We hope that the results of our work are useful to the planner in designing the beach by pointing out the technical feasibility of altering or enhancing the present configuration of the shore zone. Alternately, if the use were a residential development, we would hope our work would be useful in specifying the shore erosion problem and by indicating defenses likely to succeed in containing the erosion. In summary our objective is to provide a useful tool for enlightened utilization of a limited resource, the shorelands of the Commonwealth.

Shorelands planning occurs, either formally or informally, at all levels from the private owner of shoreland property to county governments, to planning districts and to the state and federal agency level. We feel our results will be useful at all these levels. Since the most basic level of comprehensive planning and zoning is at the county or city level, we have executed our report on that level although we realize some of the information may be most useful at a higher governmental level. The Commonwealth of Virginia has traditionally chosen to place as much as possible, the regulatory decision processes at the county level. The Virginia Wetlands Act of 1972 (Chapter 2.1, Title 62.1, Code of Virginia), for example, provides for the establishment of County Boards to act on applications for alterations of wetlands. Thus, our focus at the county level is intended to interface with and to support the existing or pending county regulatory mechanisms concerning activities in the shorelands zone.

1.2 ACKNOWLEDGEMENTS

This report has been prepared and published with funds provided to the Commonwealth by the Office of Coastal Zone Management, National Oceanic and Atmospheric Administration, grant number 04-7-158-44041. The Shoreline Situation Report series was originally developed in the Wetlands/Edges Program of the Chesapeake Research Consortium, Inc., as supported by the Research Applied to National Needs (RANN) program of the National Science Foundation. The completion of this report would have been impossible without the expert services of Beth Marshall, who typed several drafts of the manuscript, Bill Jenkins and Ken Thornberry, who prepared the photographs, and Sam White, who piloted the aircraft on the many photo acquisition and reconnaissance flights. Also we thank the numerous other persons who, through their direct aid, criticisms, and suggestions, have assisted our work.

CHAPTER 2

Approach Used and Elements Considered

CHAPTER 2

APPROACH USED AND ELEMENTS CONSIDERED

2.1 APPROACH TO THE PROBLEM

In the preparation of this report the authors utilized existing information wherever possible. For example, for such elements as water quality characteristics, zoning regulations, or flood hazard, we reviewed relevant reports by local, state, or federal agencies. Much of the desired information, particularly with respect to erosional characteristics, shoreland types, and use was not available, so we performed the field work and developed classification schemes. In order to analyze successfully the shoreline behavior we placed heavy reliance on low altitude, oblique, color, 35 mm photography. We photographed the entire shoreline of each county and cataloged the slides for easy access at VIMS, where they remain available for use. We then analyzed these photographic materials, along with existing conventional aerial photography and topographic and hydrographic maps, for the desired elements. We conducted field inspection over much of the shoreline, particularly at those locations where office analysis left questions unanswered. In some cases we took additional photographs along with the field visits to document the effectiveness of shoreline defenses.

The basic shoreline unit considered is called a subsegment, which may range from a few hundred feet to several thousand feet in length. The end points of the subsegments were generally chosen on physiographic consideration such as changes in the character of erosion or deposition. In those cases where a radical change in land use occurred, the point of change was taken as a boundary point of the subsegment. Segments are groups of sub-segments. The boundaries for segments also were selected on physiographic units such as necks or peninsulas between major tidal creeks. Finally, the county itself is considered as a sum of shoreline segments.

The format of presentation in the report follows a sequence from general summary statements for the county (Chapter 3) to tabular segment summaries and finally detailed descriptions and maps for each subsegment (Chapter 4). The purpose in choosing this format was to allow selective use

of the report since some users' needs will adequately be met with the summary overview of the county while others will require the detailed discussion of particular subsegments.

2.2 CHARACTERISTICS OF THE SHORELANDS INCLUDED IN THE STUDY

The characteristics which are included in this report are listed below followed by a discussion of our treatment of each.

- a) Shorelands physiographic classification
- b) Shorelands use classification
- c) Shorelands ownership classification
- d) Zoning
- e) Water quality
- f) Shore erosion and shoreline defenses
- g) Limitations to shore use and potential or alternate shore uses
- h) Distribution of marshes
- i) Flood hazard levels
- j) Shellfish leases and public shellfish grounds
- k) Beach quality
- a) Shorelands Physiographic Classification

The shorelands of the Chesapeake Bay System may be considered as being composed of three interacting physiographic elements: the fastlands, the shore and the nearshore. A graphic classification based on these three elements has been devised so that the types for each of the three elements portrayed side by side on a map may provide the opportunity to examine joint relationships among the elements. As an example, the application of the system permits the user to determine miles of high bluff shoreland interfacing with marsh in the shore zone.

For each subsegment there are two length measurements, the shore-nearshore interface or shoreline, and the fastland-shore interface. The two interface lengths differ most when the shore zone is embayed or extensive marsh. On the subsegment maps, a dotted line represents the fastland-shore interface when it differs from the shoreline. The fastland-shore interface length is the base for the fastland statistics.

Definitions:

Shore Zone

This is the zone of beaches and marshes. It is a buffer zone between the water body and the fastland. The seaward limit of the shore zone is the break in slope between the relatively steeper shoreface and the less steep nearshore zone. The approximate landward limit is a contour line representing one and a half times the mean tide range above mean low water (refer to Figure 1). In operation with topographic maps the inner fringe of the marsh symbols is taken as the landward limit.

The physiographic character of the marshes has also been separated into three types (see Figure 2). Fringe marsh is that which is less than 400 feet in width and which runs in a band parallel to the shore. Extensive marsh is that which has extensive acreage projecting into an estuary or river. An embayed marsh is a marsh which occupies a reentrant or drowned creek valley. The purpose in delineating these marsh types is that the effectiveness of the various functions of the marsh will, in part, be determined by type of exposure to the estuarine system. A fringe marsh may, for example, have maximum value as a buffer to wave erosion of the fastland. An extensive marsh, on the other hand, is likely a more efficient transporter of detritus and other food chain materials due to its greater drainage density than an embayed marsh. The central point is that planners, in the light of ongoing and future research, will desire to weight various functions of marshes and the physiographic delineation aids their decision making by denoting where the various types exist. The classification used is:

Beach
Marsh

Fringe marsh, < 400 ft. (122 m) in width
along shores
Extensive marsh
Embayed marsh, occupying a drowned valley
or reentrant
Artificially stabilized

Fastland Zone

The zone extending from the landward limit of the shore zone is termed the fastland. The fastland is relatively stable and is the site of most material development or construction. The

physiographic classification of the fastland is based upon the average slope of the land within 400 feet (122 m) of the fastland - shore boundary. The general classification is:

- Low shore, 20 ft. (6 m) or less of relief; with or without cliff
- Moderately low shore, 20-40 ft. (6-12 m) of relief; with or without cliff
- Moderately high shore, 40-60 ft. (12-18 m) of relief; with or without cliff
- High shore, 60 ft. (18 m) or more of relief; with or without cliff.

Two specially classified exceptions are sand dunes and areas of artificial fill.

Nearshore Zone

The nearshore zone extends from the shore zone to the 12-foot (MLW datum) contour. In the smaller tidal rivers the 6-foot depth is taken as the reference depth. The 12-foot depth is probably the maximum depth of significant sand transport by waves in the Chesapeake Bay area. Also, the distinct drop-off into the river channels begins roughly at the 12-foot depth. The nearshore zone includes any tidal flats.

The class limits for the nearshore zone classifications were chosen following a simple statistical study. The distance to the 12-foot underwater contour (isobath) was measured on the appropriate charts at one-mile intervals along the shorelines of Chesapeake Bay and the James, York, Rappahannock, and Potomac Rivers. Means and standard deviations for each of the separate regions and for the entire combined system were calculated and compared. Although the distributions were non-normal, they were generally comparable, allowing the data for the entire combined system to determine the class limits.

The calculated mean was 919 yards with a standard deviation of 1,003 yards. As our aim was to determine general, serviceable class limits, these calculated numbers were rounded to 900 and 1,000 yards respectively. The class limits were set at half the standard deviation (500 yards) each side of the mean. Using this procedure a narrow nearshore zone is one 0-400 yards in width, intermediate 400-1,400, and wide greater than 1,400.

The following definitions have no legal significance and were constructed for our classification

purposes:

- Narrow, 12-ft. (3.7 m) isobath located < 400 yards from shore
- Intermediate, 12-ft. (3.7 m) isobath 400-1,400 yards from shore
- Wide, 12-ft. (3.7 m) isobath > 1,400 yards from shore

Subclasses: with or without bars
with or without tidal flats
with or without submerged vegetation

b) Shorelands Use Classification

Fastland Zone

Residential

Includes all forms of residential use with the exception of farms and other isolated dwellings. In general, a residential area consists of four or more residential buildings adjacent to one another. Schools, churches, and isolated businesses may be included in a residential area.

Commercial

Includes buildings, parking areas, and other land directly related to retail and wholesale trade and business. This category includes small industry and other anomalous areas within the general commercial context. Marinas are considered commercial shore use.

Industrial

Includes all industrial and associated areas. Examples: warehouses, refineries, shipyards, power plants, railyards.

Governmental

Includes lands whose usage is specifically controlled, restricted, or regulated by governmental organizations: e.g., Camp Peary, Fort Story. Where applicable, the Governmental use category is modified to indicate the specific character of the use, e.g., residential, direct military, and so forth.

Recreational and Other Public Open Spaces

Includes designated outdoor recreation lands and miscellaneous open spaces. Examples: golf courses, tennis clubs, amusement parks, public beaches, race tracks, cemeteries, parks.

Preserved

Includes lands preserved or regulated for

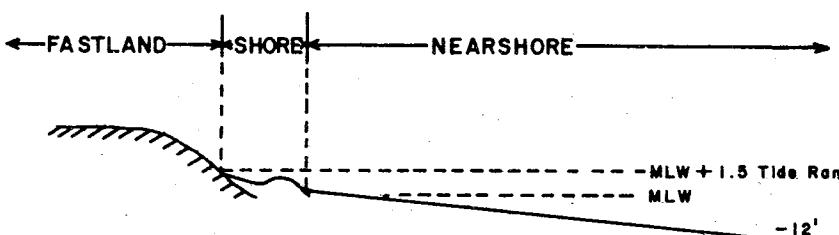


Figure 1

A profile of the three shorelands types.

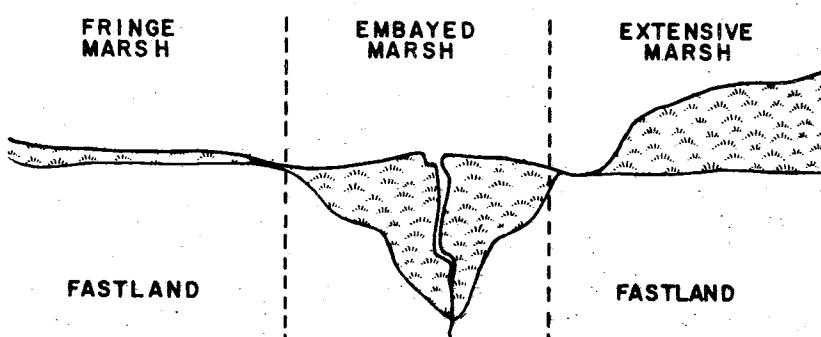


Figure 2

A plan view of the three marsh types.

environmental reasons, such as wildlife or wild-fowl sanctuaries, fish and shellfish conservation grounds, or other uses that would preclude development.

Agricultural

Includes fields, pastures, croplands, and other agricultural areas.

Unmanaged

Includes all open or wooded lands not included in other classifications:

- a) Open: brush land, dune areas, wastelands; less than 40% tree cover.
- b) Wooded: more than 40% tree cover.

The shoreland use classification applies to the general usage of the fastland area to an arbitrary distance of half mile from the shore or beach zone or to some less distant, logical barrier. In multi-use areas one must make a subjective selection as to the primary or controlling type of usage. For simplicity and convenience, managed woodlands are classified as "unmanaged, wooded" areas.

Shore Zone

Bathing
Boat launching
Bird watching
Waterfowl hunting

Nearshore Zone

Pound net fishing
Shellfishing
Sport fishing
Extraction of non-living resources
Boating
Water sports

c) Shorelands Ownership Classification

The shorelands ownership classification used has two main subdivisions, private and governmental, with the governmental further divided into

federal, state, county, and town or city. Application of the classification is restricted to fastlands alone since the Virginia fastlands ownership extends to mean low water. All bottoms below mean low water are in State ownership.

d) Water Quality

The water quality sections of this report are based upon data abstracted from Virginia State Water Control Board's publication Water Quality Standards (November, 1974) and Water Quality Inventory (305 (b) Report) (April, 1976).

Additionally, where applicable, Virginia Bureau of Shellfish Sanitation data is used to assign ratings of satisfactory, intermediate, or unsatisfactory. These ratings are defined primarily in regard to number of coliform bacteria. For a rating of satisfactory the maximum limit is an MPN (Most Probable Number) of 70 per 100 ml. The upper limit for fecal coliforms is an MPN of 23. Usually any count above these limits results in an unsatisfactory rating, and, from the Bureau's standpoint, results in restricting the waters from the taking of shellfish for direct sale to the consumer.

There are instances however, when the total coliform MPN may exceed 70, although the fecal MPN does not exceed 23, and other conditions are acceptable. In these cases an intermediate rating may be assigned temporarily, and the area will be permitted to remain open pending an improvement in conditions.

Although the shellfish standards are somewhat more stringent than most of the other water quality standards, they are included because of the economic and ecological impacts of shellfish ground closures. Special care should be taken not to endanger the water quality in existing "satisfactory" areas.

e) Zoning

In cases where zoning regulations have been established the existing information pertaining to the shorelands has been included in the report.

f) Shore Erosion and Shoreline Defenses

The following ratings are used for shore erosion:

- slight or none - less than 1 foot per year
- moderate - - - 1 to 3 feet per year
- severe - - - greater than 3 feet per year

The locations with moderate and severe ratings are further specified as being critical or non-critical. The erosion is considered critical if buildings, roads, or other such structures are endangered.

The degree of erosion was determined by several means. In most locations the long term trend was determined using map comparisons of shoreline positions between the 1850's and the 1940's. In addition, aerial photographs of the late 1930's and recent years were utilized for an assessment of more recent conditions. Finally, in those areas experiencing severe erosion field inspections and interviews were held with local inhabitants.

The existing shoreline defenses were evaluated as to their effectiveness. In some cases repetitive visits were made to monitor the effectiveness of recent installations. In instances where existing structures are inadequate, we have given recommendations for alternate approaches. Furthermore, recommendations are given for defenses in those areas where none currently exist. The primary emphasis is placed on expected effectiveness with secondary consideration to cost.

g) Limitations to Shore Use and Potential or Alternate Shore Uses

In this section we point out specific factors which may impose significant limits on the type or extent of shoreline development. This may result in a restatement of other factors from elsewhere in the report, e.g., flood hazard or erosion, or this may be a discussion of some other factor pertaining to the particular area.

Also we have placed particular attention on the recreational potential of the shore zone. The possible development of artificial beach, erosion protection, etc., influence the evaluation of an area's potential. Similarly, potential alternate shore uses are occasionally noted.

h) Distribution of Marshes

The acreage and physiographic type of the marshes in each subsegment is listed. These estimates of acreages were obtained from topographic maps and should be considered only as approximations. Detailed county inventories of the wetlands are being conducted by the Virginia Institute of Marine Science under the authorization of the Virginia Wetlands Act of 1972 (Code of Virginia 62.1-13.4). These surveys include detailed acreages of the grass species composition within individual marsh systems. In Shoreline Situation Reports of counties that have had marsh inventories, the marsh number is indicated, thus allowing the user of the Shoreline Situation Report to key back to the formal marsh inventory for additional data. The independent material in this report is provided to indicate the physiographic type of marsh land and to serve as a rough guide to marsh distribution, pending a formal inventory. Additional information on wetlands characteristics may be found in Coastal Wetlands of Virginia: Interim Report No. 3, by G.M. Silberhorn, G.M. Dawes, and T.A. Barnard, Jr., SRAMSOE No. 46, 1974, and in other VIMS publications.

i) Flood Hazard Levels

The assessment of tidal flooding hazard for the whole of the Virginia tidal shoreland is still incomplete. However, the United States Army Corps of Engineers has prepared reports for a number of localities which were used in this report. Two tidal flood levels are customarily used to portray the hazard. The Intermediate Regional Flood is that flood with an average recurrence time of about 100 years. An analysis of past tidal floods indicates it to have an elevation of approximately 8 feet above mean water level in the Chesapeake Bay area. The Standard Project Flood level is established for land planning purposes which is placed at the highest probable flood level.

j) Shellfish Leases and Public Grounds

The data in this report show the leased and public shellfish grounds as portrayed in the Virginia State Water Control Board publication "Shellfish growing areas in the Commonwealth of Virginia: Public, leased and condemned,"

November, 1971, and as periodically updated in other similar reports. Since the condemnation areas change with time they are not to be taken as definitive. However, some insight to the conditions at the date of the report are available by a comparison between the shellfish grounds maps and the water quality maps for which water quality standards for shellfish were used.

k) Beach Quality

Beach quality is a subjective judgment based upon considerations such as the nature of the beach material, the length and width of the beach area, and the general aesthetic appeal of the beach setting.

CHAPTER 3

Present Shorelands Situation

CHAPTER 3

PRESENT SHORELINE SITUATION OF RICHMOND COUNTY

3.1 THE SHORELANDS OF RICHMOND COUNTY

Richmond County is located along the north bank of the Rappahannock River approximately 37 miles above the river mouth. It is bounded by Lancaster County to the east, Westmoreland County to the west and the Rappahannock River to the south. The several large tributary creeks in Richmond include Totuskey, Cat Point, Richardson, Farnham, and Mornattico Creeks. The county has 141.9 measured miles of shoreline and 178.5 measured miles of fastland. Approximately twenty-two percent of the shoreline borders on the river, the remaining shoreline being located on the various tributary creeks.

The shorelands physiography of Richmond County is diverse. The majority of river-fronting fast-land is low shore, however the shoreline from Smoots Landing to Brockenbrough Creek is high shore, often with bluffs. Fones Cliffs reach elevations of 150 feet. The creek shorelands often have moderately high to high elevations toward the head. The shore zone along the river is mostly beach, with some extensive marsh and artificial stabilization. Most fringe and embayed marshes are located along the creeks. In all, eighty-two percent of the shoreline is marsh.

The shorelands of Richmond County reflect the rural nature of the area. Approximately ninety-four percent of the shorelands are either used for agriculture or are woods. Five percent of the county's shorelands are used for residences, which are generally vacation homes located at Naylor's Beach, near Wellford, at Sharps, and at Simonson. Commercial use, in the form of marinas, accounts for one percent of the shoreland. Most residential and commercial use has centered along the southeastern section of the county's shorelands. (The northwestern section of the county has high bluffs along the shoreline, making access to the water difficult.) There are several public landings and boat ramps in the county.

Flooding is generally not considered to be a critical problem along the shoreline of Richmond County, as elevations generally reach 10 to 15 feet within fifty feet of shore. However, several

areas would be flooded during a particularly severe storm, causing damage to several structures along the shore. The areas of most concern are Wellford, Wilna Point, Oakley Landing, Suggetts Point, and Pearson Island. Structures at each location are threatened by flood inundation.

The water quality of this section of the Rappahannock River meets the State Water Control Board's 305(b)(1)(B) criteria. However, many sections of the river have been closed to the taking of shellfish since 1972. For specific shellfish closures, refer to Map 1D, page 17.

3.2 PRESENT SHORE EROSION SITUATION

Erosion in Richmond County, while not a critical problem in undeveloped reaches, is a problem in areas which have or will be developed. Most of the river-fronting shoreline in the county has displayed a slight to moderate erosional trend during the past 100 years and continues to erode. According to Byrne and Anderson (1977, Shoreline Erosion in Tidewater Virginia, Special Report Number 111 in Applied Marine Science and Ocean Engineering, Virginia Institute of Marine Science, 102 pages), Richmond County has lost 497 acres of shoreline in the past 100 years, an average annual erosion rate of 0.6 feet per year (5.0 acres per year). In Richmond County, the shorelands are still overwhelmingly rural, either agricultural or woods. Erosion is not a serious problem in these areas. However, with the development of several shoreline areas in the county, attempts have been made to stop the erosion.

Various protective structures have been employed along the shoreline in Richmond County. Most of the 4.4 miles of artificial stabilization is bulkhead. Concrete culverts have been used in several areas as groins and in one area they have been placed parallel to the shore as a bulkhead. Groins along several sections of shoreline have been successful in trapping fair fillets of sand. However, other groins have not been effective; some have been flanked, allowing the by-pass of sand. There has not been a joint effort in residential areas to stabilize the shoreline. Thus, there are many types of structures in the same locale which have been engineered to varying degrees of effectiveness. Individual efforts at shoreline protection can often cause increased erosion to downdrift sites. Where possible, it is best for neighboring landowners to develop a joint approach at shoreline stabilization. Not only are individual costs reduced, but the end product is usually of better quality and performance. All shoreline structures should be properly engineered and installed by professionals.

3.3 ALTERNATE SHORE USE

Any alternate land use is dependent upon the need for other services or the ability of the area to offer a site that is attractive for industrial, commercial or residential development. Richmond County, being basically rural in nature, does not need many public recreational facilities. The several existing boat ramps and public landings in the county should suffice for the near future. Upgrading of these existing facilities to include areas for picnicking is a possibility.

As there are few good roads to the shoreline and as there is no existing population center along the shore, industrial and commercial concerns will probably not locate in Richmond for the near future. The only continued development along the shoreline seems to be for residential purposes, as existing residential sections will continue to be developed and expanded. However, the rural nature of the county is not expected to be altered.



FIGURE 3



FIGURE 4

FIGURE 3: Tarpley Point, Segment 6. This area is vulnerable to flooding during periods of abnormally high water. The groins here have been emplaced in a haphazard manner, as they are not parallel to each other.

FIGURE 4: Suggetts Point, Segment 5. The structure is surrounded by extensive marsh and could be endangered by flooding. Ice is on the shoreline.



FIGURE 5

FIGURE 5: North of Wellford, Segment 3. The bulkhead in front of the houses is effective in stopping erosion. Note the erosion to the left side of the bulkhead.

FIGURE 6: Accopatough Beach, Segment 3. The bluffs are eroding due to downhill rain runoff and wave attack. The road is endangered by the continuing erosion.

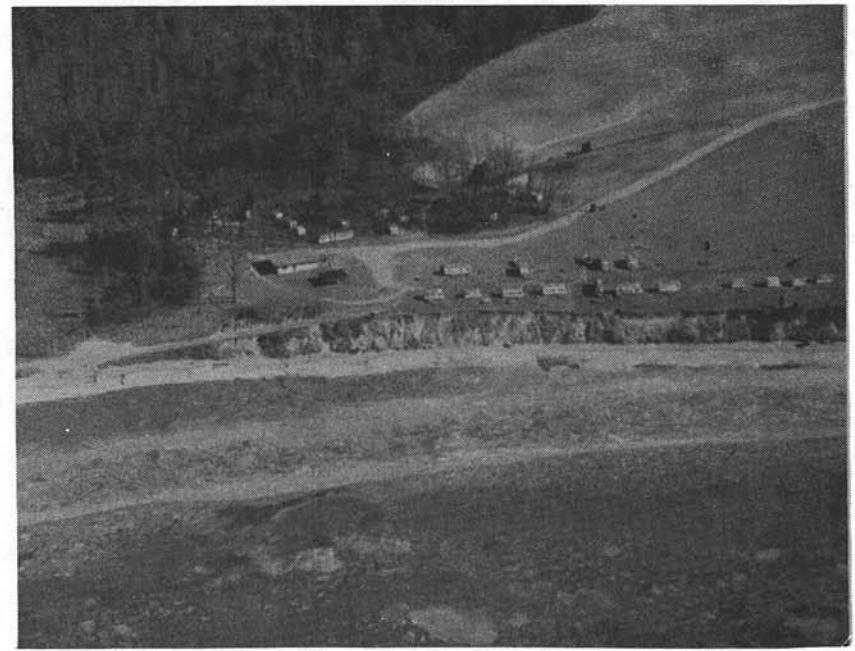


FIGURE 6

FIGURE 7: Northwest of Islington Landing, Segment 3. The agricultural lands are fronted by eroding bluffs.

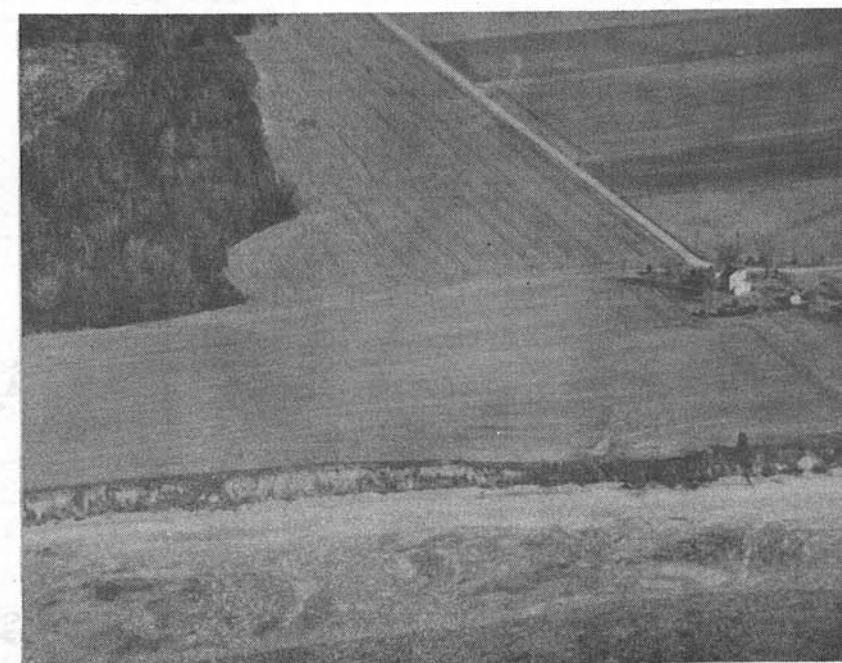


FIGURE 7

FIGURE 8: South of Route 634, Segment 3. The shoreline in front of the house has been sloped and vegetated and is artificially stabilized. Erosion is continuing on either side of the structure.

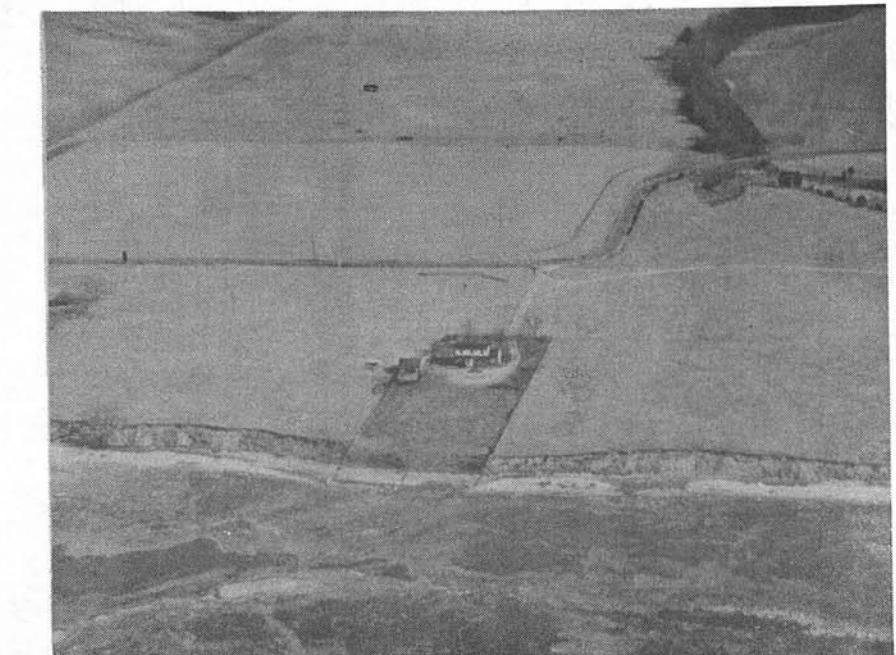


FIGURE 8



FIGURE 9

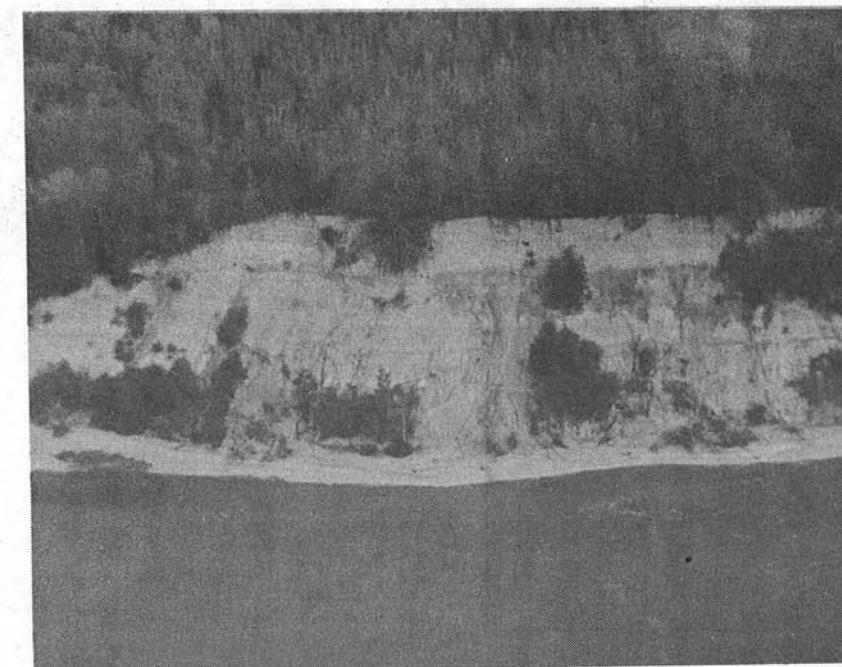


FIGURE 10

FIGURE 9: Naylors Point, Segment 1. This area has one of the few residential concentrations in the county. The houses are located in a strip bordering the shoreline. Agricultural fields are behind.

FIGURE 10: Fones Cliffs, Segment 1. These high bluffs are continuing to erode at a slight rate. The trees on the cliff face will eventually be undermined and fall.

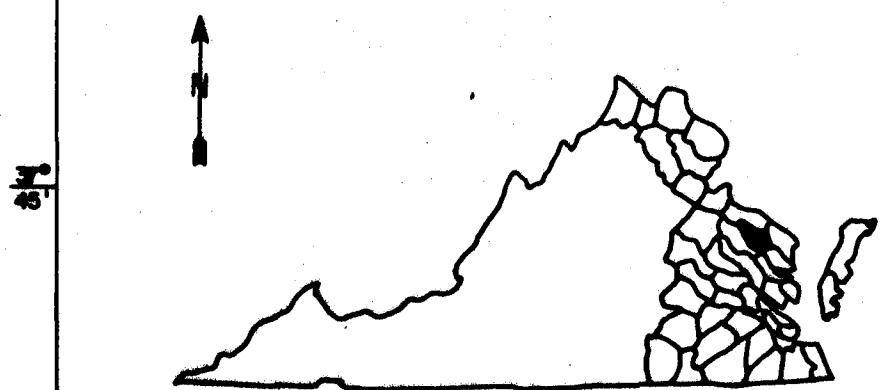
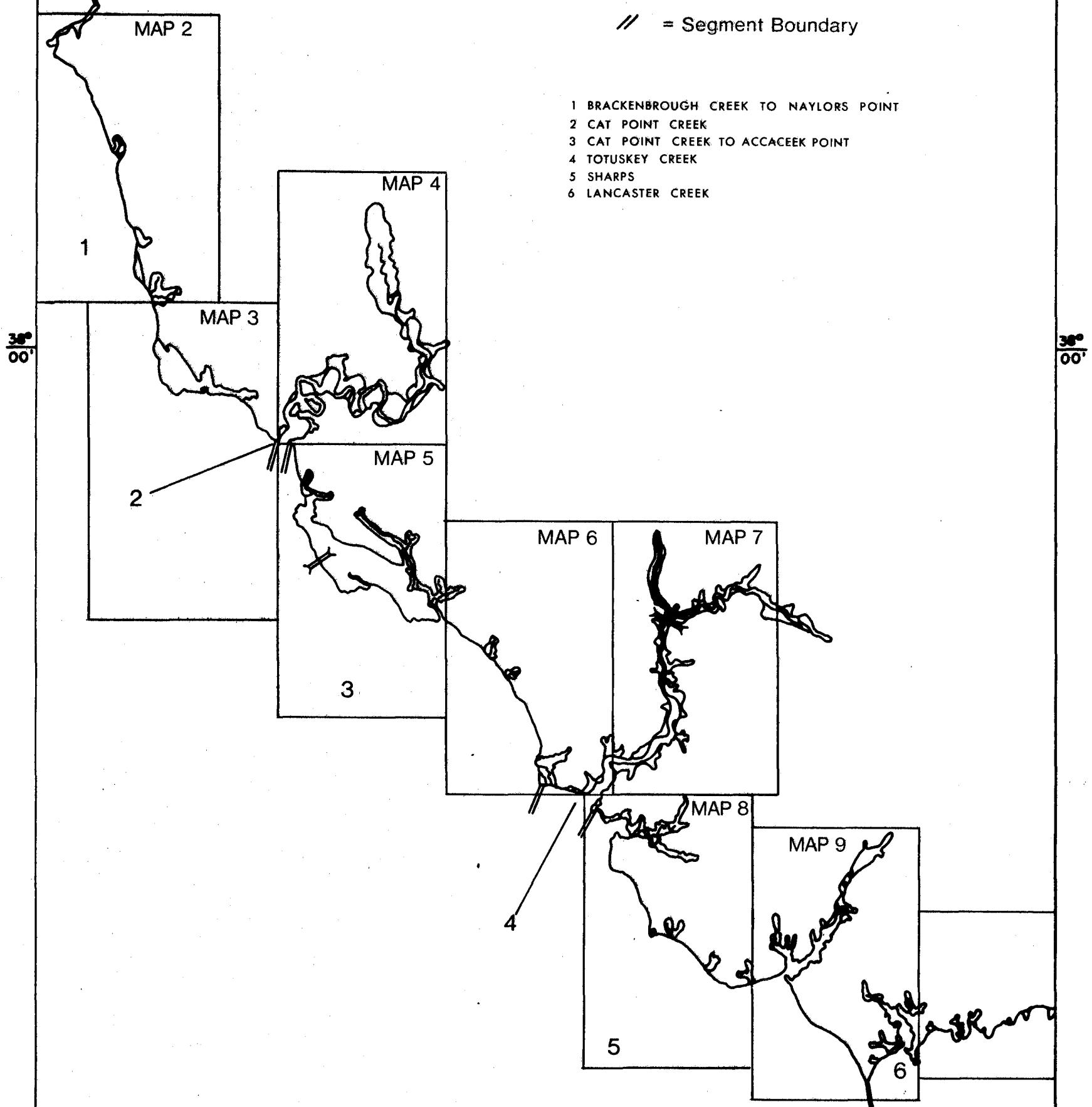
76° 45'

RICHMOND COUNTY MAP 1A

SEGMENT AND MAP LOCATIONS

// = Segment Boundary

- 1 BRACKENBROUGH CREEK TO NAYLORS POINT
- 2 CAT POINT CREEK
- 3 CAT POINT CREEK TO ACCACEEK POINT
- 4 TOTUSKEY CREEK
- 5 SHARPS
- 6 LANCASTER CREEK



SCALE IN MILES

76° 45'

76° 45'

RICHMOND COUNTY

MAP 1B

SHORELANDS TYPES

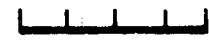
FASTLAND

Low Shore



Low Shore

with Bluff



Moderately Low Shore

Moderately Low Shore

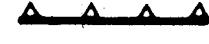
with Bluff



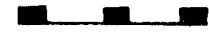
Moderately High Shore

Moderately High Shore

with Bluff



High Shore



High Shore

with Bluff



SHORE

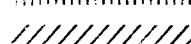
Beach



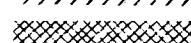
Fringe Marsh



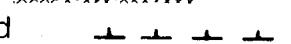
Extensive Marsh



Embayed Marsh

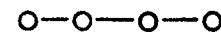


Artificially Stabilized



NEARSHORE

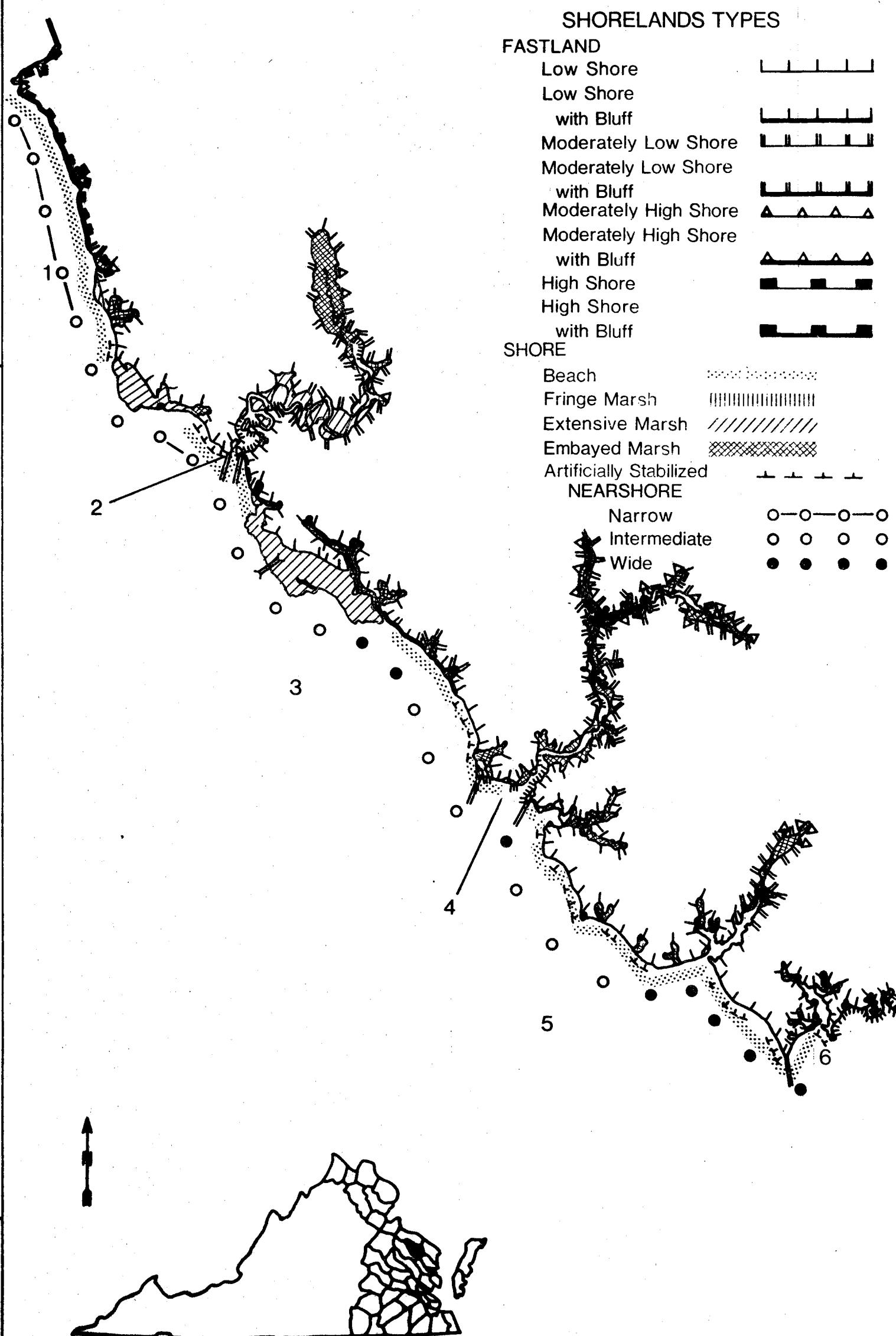
Narrow



Intermediate



Wide



76° 45'

RICHMOND COUNTY
MAP 1C

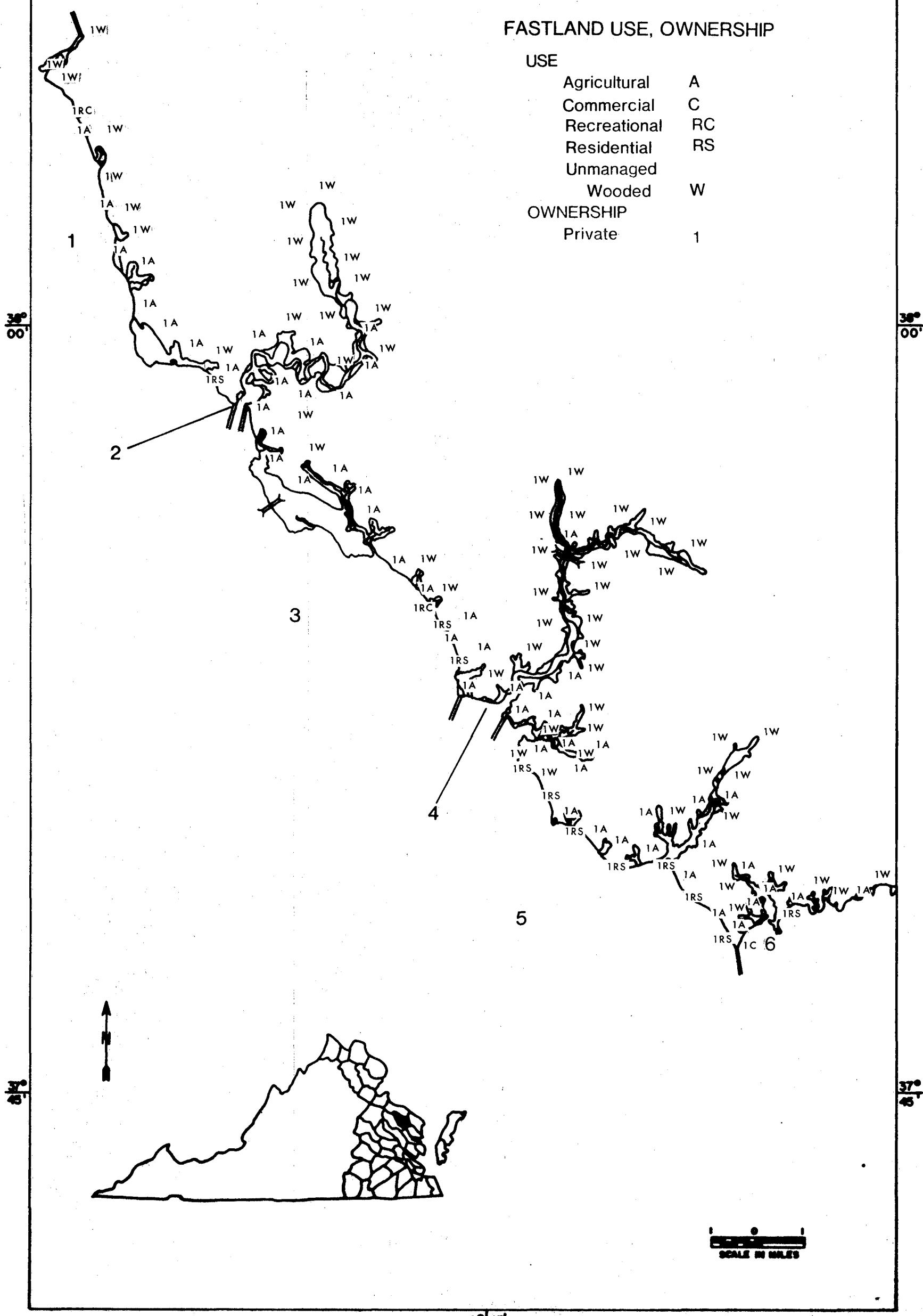
FASTLAND USE, OWNERSHIP

USE

Agricultural	A
Commercial	C
Recreational	RC
Residential	RS
Unmanaged	
Wooded	W

OWNERSHIP

Private	1
---------	---



76° 45'
RICHMOND COUNTY
MAP 1D
SHELLFISH GROWING AREAS

Dotted pattern Leased
Horizontal lines Public
Diagonal lines Condemned

Boat Ramp
Marina

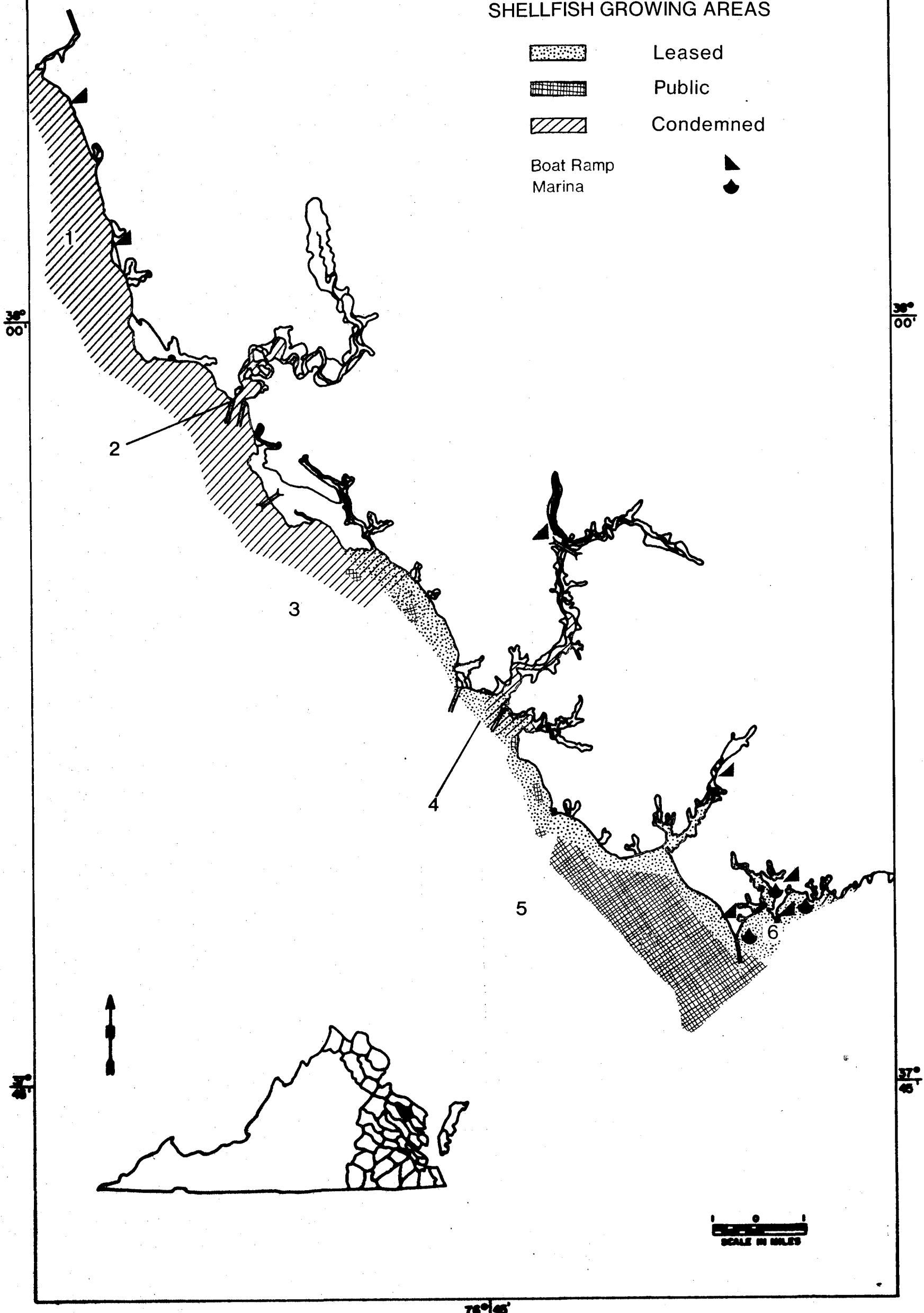


TABLE 1. RICHMOND COUNTY, VIRGINIA SHORELANDS PHYSIOGRAPHY, FASTLANDS USE, OWNERSHIP (STATUTE MILES)

Physiographic, use, and ownership classification	SHORELANDS PHYSIOGRAPHY												FASTLAND USE				OWNERSHIP	TOTAL MILES											
	FASTLAND						SHORE				NEARSHORE		AGRICULTURAL		COMMERCIAL		RECREATIONAL		RESIDENTIAL		UNMANAGED, UNWOODED								
	ARTIFICIAL FILL	LOW SHORE	LOW SHORE WITH BLUFF	MODERATELY LOW SHORE	MODERATELY LOW SHORE WITH BLUFF	MODERATELY HIGH SHORE WITH BLUFF	HIGH SHORE	HIGH SHORE WITH BLUFF	ARTIFICIALLY STABILIZED	BEACH	EMBAYED MARSH	EXTENSIVE MARSH	FRINGE MARSH	NARROW	INTERMEDIATE	WIDE	AGRICULTURAL	COMMERCIAL	RECREATIONAL	RESIDENTIAL	UNMANAGED, UNWOODED	UNMANAGED, WOODED	PRIVATE						
Segment	1	0.1	10.3	1.0	0.5	0.1	3.3	2.7	0.9	9.7	1.5	0.7	0.3	5.6	4.6	7.7	0.1	1.3	8.8	17.9	13.2	17.9	SHORELINE	FASTLAND					
	2		12.8	12.6		2.5		0.5			7.6	11.6	7.5	CREEK			9.6	0.2	0.3	18.4	28.4	26.7	28.4						
	3		23.7	1.7	1.7	0.2			0.8	4.0	5.9	10.6	1.5		9.0	1.1	19.4	0.1	0.3	0.9	0.2	6.4	27.3	22.8	27.3				
	4		20.2		13.8		5.5		0.8		0.3	23.4	0.2	8.1		1.2		5.6	0.2			34.5	40.3	32.0	40.3				
	5		32.6		6.4		1.6		2.4		5.6	12.3	1.8	8.0		4.6	4.1	18.4	0.3		3.9	18.0	40.6	30.1	40.6				
	6		18.9		3.2		1.5		0.3		0.3	1.4	5.4		10.0	CREEK		9.9	0.6		2.0	0.2	11.2	24.0	17.1	24.0			
TOTAL MILES		0.1	118.5	1.7	38.7	0.2	11.6	0.1	4.9	2.7	4.4	21.0	56.1	24.9	35.4	5.6	19.4	5.2	70.6	1.4	0.4	8.4	0.4	97.3	178.5	141.9	178.5		
% OF FASTLAND		1%	66%	1%	22%	1%	6%	1%	3%	2%									40%	1%	1%	5%	1%	54%	100%	100%			
% OF SHORELINE											3%	15%	39%	18%	25%	4%	14%	4%							100%				

CHAPTER 4

- 4.1 Table of Subsegment Summaries**
- 4.2 Segment and Subsegment Descriptions**
- 4.3 Segment and Subsegment Maps**

TABLE 2. SUBSEGMENT SUMMARIES FOR RICHMOND COUNTY, VIRGINIA

SEGMENT	SHORELANDS TYPE	SHORELANDS USE	OWNERSHIP	FLOOD HAZARD	WATER QUALITY	BEACH QUALITY	SHORE EROSION SITUATION	ALTERNATE SHORE USE
1 BRACKENBROUGH CREEK TO NAYLORS POINT 13.2 miles (17.9 miles of fastland)	FASTLAND: Artificial fill 1%, low shore 57%, moderately low shore 6%, moderately high shore 3%, moderately high shore with bluff 1%, high shore 18%, and high shore with bluff 15%. SHORE: Artificially stabilized 7%, beach 74%, fringe marsh 2%, embayed marsh 11%, and extensive marsh 5%. NEARSHORE: Narrow 42% and intermediate 35%.	FASTLAND: Agricultural 43%, recreational 1%, residential 7%, and unmanaged, wooded 49%. SHORE: Waterfowl hunting in the marshes, access to the water at Naylors Beach. NEARSHORE: Some commercial traffic, sport boating and fishing.	Private.	Low to moderate, noncritical. Some areas around Smoots and Jones Landings are susceptible to flooding, although no structures are endangered.	Satisfactory. Though the segment meets the 305(b)(1)(B) criteria, this part of the Rappahannock is closed to the taking of shellfish.	Fair. There are only narrow, strip beaches in this segment.	Slight or no change to moderate, noncritical. The average historical erosion rate for this segment is up to 1.6 feet per year. Several areas are accreting. There are approximately 4,900 feet of artificially stabilized shoreline in the segment, most of which appears to be effective.	Low. There appears to be no demand for public recreational facilities in this area. Any development would be at the sacrifice of the agricultural lands.
2 CAT POINT CREEK 26.7 miles (28.4 miles of fastland)	FASTLAND: Low shore 45%, moderately low shore 44%, moderately high shore 9%, and high shore 2%. SHORE: Fringe marsh 28%, embayed marsh 28%, and extensive marsh 44%. CREEK: Several sections of Cat Point Creek have depths up to 20 feet.	FASTLAND: Agricultural 34%, commercial 1%, residential 1%, and unmanaged, wooded 64%. SHORE: Waterfowl hunting in the marshes. CREEK: Sport boating and fishing.	Private.	Low to moderate, noncritical. Several areas near the mouth of the creek are susceptible to flooding, although no structures are endangered.	Satisfactory. The creek meets 305(b)(1)(B) criteria, though it is closed to the taking of shellfish.	There are no beaches in this segment.	No data. The area appears to be stable. The only probable erosion would be from downhill rain runoff. There are no endangered or shore protective structures.	Low. There seems to be little demand for residential development of the county, except for a limited number of second or vacation homes.
3 CAT POINT CREEK TO ACCACEEK POINT 22.8 miles (27.3 miles of fastland)	FASTLAND: Low shore 87%, low shore with bluff 6%, moderately low shore 6%, and moderately low shore with bluff 1%. SHORE: Artificially stabilized 3%, beach 18%, fringe marsh 6%, embayed marsh 26%, and extensive marsh 47%. NEARSHORE: Intermediate 39% and wide 5%.	FASTLAND: Agricultural 71%, commercial 1%, recreational 1%, residential 3%, unmanaged, wooded 23%, and unmanaged, unwooded 1%. SHORE: Mostly unused. NEARSHORE: Some commercial traffic, sport boating and fishing.	Private.	Low to moderate, noncritical, except for several structures at Wellford which could be inundated during abnormally high water.	Satisfactory. The Rappahannock River above Jugs Creek was closed in 1972 to the taking of shellfish.	Poor to fair. Accopatough Beach has a fairly wide beach. The remainder of the segment has only narrow, strip beaches.	Moderate to severe, critical. Most of the segment has an average historical erosion rate of 1.4 to 3.2 feet per year. A section of road at Accopatough Beach is endangered by the erosion. There are approximately 4,000 feet of artificially stabilized shoreline in the segment, as well as several groin fields. All structures appear to be effective.	Moderate. The Accopatough Beach - Wellford area will probably expand for second or vacation homes. A public recreational park for this area is possible.
4 TOTUSKEY CREEK 32.0 miles (40.3 miles of fastland)	FASTLAND: Low shore 50%, moderately low shore 34%, moderately high shore 14%, and high shore 2%. SHORE: Beach 1%, fringe marsh 25%, embayed marsh 73%, and extensive marsh 1%. CREEK: Intermediate 4%. Totuskey Creek has depths of 6 feet for several miles upstream.	FASTLAND: Agricultural 14%, commercial 1%, and unmanaged, wooded 86%. SHORE: Some waterfowl hunting in the marshes, but mostly unused. CREEK: Sport boating and fishing.	Private.	Low, noncritical. The majority of the shoreline has elevations of at least 10 feet and is not subject to flooding.	Satisfactory. The creek meets the 305(b)(1)(B) criteria. However, it is closed to the taking of shellfish.	Poor. There are several small, strip beaches in the segment.	No data. The area appears to be stable. There is one small area of bulkhead in the segment, which is for cosmetic purposes rather than erosion control.	Low. There seems to be little demand for shoreline development in this part of the county.
5 SHARPS 30.1 miles (40.6 miles of fastland)	FASTLAND: Low shore 80%, moderately low shore 16%, and moderately high shore 4%. SHORE: Artificially stabilized 8%, beach 19%, fringe marsh 26%, embayed marsh 41%, and extensive marsh 6%. NEARSHORE: Intermediate 15% and wide 14%.	FASTLAND: Agricultural 45%, commercial 1%, residential 10%, and unmanaged, wooded 44%. SHORE: Some private recreational use, but mostly unused. NEARSHORE: Commercial and sport boating and fishing.	Private.	Moderate, critical. Several structures at Wilna Point and Oakley Landing could be damaged or destroyed during periods of abnormally high water.	Satisfactory. The segment meets the 305(b)(1)(B) criteria. Farnham Creek was closed to the taking of shellfish in 1972.	Poor to fair. Neals Point has a fairly wide beach. The remainder of the beaches are narrow fringes bordering the fastland.	Slight or no change to moderate, noncritical. Most of the river-fronting shoreline has an average historical erosion rate of 1.5 to 2.6 feet per year. There are approximately 12,900 feet of artificially stabilized shoreline in the segment, most of which appears to be effective.	Low. Much of the river-fronting shoreline has been developed for second or vacation homes.
6 LANCASTER CREEK 17.1 miles (24.0 miles of fastland)	FASTLAND: Low shore 79%, moderately low shore 13%, moderately high shore 6%, and high shore 1%. SHORE: Artificially stabilized 2%, beach 8%, fringe marsh 59%, and embayed marsh 31%. CREEK: Lancaster Creek is too narrow and shallow for classification.	FASTLAND: Agricultural 41%, commercial 2%, residential 8%, unmanaged, wooded 47%, and unmanaged, unwooded 1%. SHORE: Waterfowl hunting in the marshes, and access to the water. CREEK: Sport boating and fishing.	Private.	Moderate, noncritical for most of the segment. Several structures at the mouth of Morattico Creek would be damaged or destroyed during periods of abnormally high water.	Satisfactory. The creek meets the 305(b)(1)(B) criteria. The upper section of Lancaster Creek is closed to the taking of shellfish.	Poor. There are only narrow, strip beaches in the segment.	No data for Lancaster Creek. The river-fronting portion of Pearson Island has an average historical erosion rate of 3.7 feet per year. There are approximately 1,600 feet of bulkhead in the segment. All structures appear to be effective.	Low. Although some further development is possible along sections of the shoreline, there seems to be little demand for any buildup at the present time.

SEGMENT 1

BRACKENBROUGH CREEK TO NAYLORS POINT

Maps 2 and 3

EXTENT: 69,600 feet (13.2 mi.) of shoreline from the Richmond-Westmoreland county line on Brackenbrough Creek along the Rappahannock River to Naylors Point. The segment includes 94,600 feet (17.9 mi.) of fastland.

SHORELANDS TYPE

FASTLAND: Artificial fill 1% (0.1 mi.), low shore 57% (10.3 mi.), moderately low shore 6% (1.0 mi.), moderately high shore 3% (0.5 mi.), moderately high shore with bluff 1% (0.1 mi.), high shore 18% (3.3 mi.), and high shore with bluff 15% (2.7 mi.).

SHORE: Artificially stabilized 7% (0.9 mi.), shore 74% (9.7 mi.), fringe marsh 2% (0.3 mi.), embayed marsh 11% (1.5 mi.), and extensive marsh 5% (0.7 mi.).

NEARSHORE: Narrow 42% and intermediate 35%. The rest of the shoreline borders narrow and shallow tidal creeks.

SHORELANDS USE

FASTLAND: Agricultural 43% (7.7 mi.), recreational 1% (0.1 mi.), residential 7% (1.3 mi.), and unmanaged, wooded 49% (8.8 mi.).

SHORE: Waterfowl hunting in the marshes; access to the water at Naylors Beach.

NEARSHORE: Sport boating and fishing; some commercial shipping to Fredericksburg.

WIND AND SEA EXPOSURE: The shoreline trends basically NNW - SSE from Brackenbrough Creek to Mulberry Point, then NW - SE for the rest of the segment. Fetches at Naylors Point are SSE - 3.8 nautical miles, W - 2.7 nautical miles, and S - 2.2 nautical miles. The fetch at Carters Wharf is SSE - 6 nautical miles.

OWNERSHIP: Private.

FLOOD HAZARD: Low to moderate, noncritical. Although fifty-seven percent of the fastland is low shore, most elevations are 10 to 15 feet. Several low-lying areas around Smoots and Jones Landings are susceptible to some flooding, though no structures are endangered.

WATER QUALITY: Satisfactory. The Rappahannock River generally has good water quality and meets the 305(b)(1)(B) criteria. This section of the river was closed to the taking of shellfish in 1972.

BEACH QUALITY: Fair. Most beach areas in this segment are narrow strips fronting the fastland.

PRESENT SHORE EROSION SITUATION

EROSION RATE: Slight or no change to moderate, noncritical. The average historical erosion rate for this segment ranges up to 1.6 feet per year, with several areas of accretion. Recent field investigations indicate that the high cliffs north of Smoots Landing have been eroding due to downhill rain runoff. Several other areas, mainly bordering agricultural lands, have also been eroding.

ENDANGERED STRUCTURES: None.

SHORE PROTECTIVE STRUCTURES: There are 4,900 feet of artificially stabilized shoreline in the segment, most of which is bulkhead located at Naylors Beach. There are also several groin fields in the segment, some of which were constructed using concrete culverts. All structures appear to be effective.

OTHER SHORE STRUCTURES: There are numerous piers and several boat ramps at Naylors Beach. A covered boat shed is located in a dredged canal at Smoots Landing. There are public landings at Carters Wharf and at Jones Landing.

SHORE USE LIMITATIONS: One-third of the shorelands in this segment are classified as high shore, with elevations near the shoreline ranging to 140 feet at Fones Cliffs. These areas are unsuitable for any water-related development, as access to the water is almost impossible. Naylors Beach is already developed as a residential section. The remaining shorelands are mostly used for agriculture.

ALTERNATE SHORE USE: Low. Since Richmond County is basically rural, there seems to be no necessity for any public recreational facilities here. Any other shore use would probably be at the loss of the agriculture.

MAPS: USGS, 7.5 Min.Ser. (Topo.), CHAMPLAIN Quadr., 1968, pr. 1973;

USGS, 7.5 Min.Ser. (Topo.), MOUNT LANDING Quadr., 1968, pr. 1973;
USGS, 7.5 Min.Ser. (Topo.), TAPPAHANNOCK Quadr., 1968.
NOS# 12237 (605-SC), 1:40,000 scale,
RAPPAHANNOCK RIVER, Corrotoman River to
Fredericksburg, VA, 12th ed., 1975.

PHOTOS: Aerial-VIMS 23Jan76 RM-1/143-221.

SEGMENT 2

CAT POINT CREEK

Map 4

EXTENT: 141,100 feet (26.7 mi.) of shoreline along Cat Point Creek, from Naylor's Point on the western bank to the bridge on the eastern bank. The segment includes 150,100 feet (28.4 mi.) of fastland.

SHORELANDS TYPE

FASTLAND: Low shore 45% (12.8 mi.), moderately low shore 44% (12.6 mi.), moderately high shore 9% (2.5 mi.), and high shore 2% (0.5 mi.).

SHORE: Fringe marsh 28% (7.5 mi.), embayed marsh 28% (7.6 mi.), and extensive marsh 44% (11.6 mi.).

CREEK: Cat Point Creek is too narrow and shallow for classification. In several sections of the creek, depths are greater than 20 feet.

SHORELANDS USE

FASTLAND: Agricultural 34% (9.6 mi.), commercial 1% (0.2 mi.), residential 1% (0.3 mi.), and unmanaged, wooded 64% (18.4 mi.).

SHORE: Waterfowl hunting in the marshes.

CREEK: Some sport boating near the marina at the mouth of the creek; sport fishing in the creek.

WIND AND SEA EXPOSURE: Cat Point Creek trends first NNW - SSE then ENE - WSW from the head to the mouth. No significant fetches affect the creek.

OWNERSHIP: Private.

FLOOD HAZARD: Low to moderate, noncritical. Most of the shorelands have elevations greater than 10 feet and are not susceptible to floods. Several areas near the mouth of the creek would be flooded during the "100-year storm", but no structures are endangered.

WATER QUALITY: Satisfactory. There are no discharges into Cat Point Creek. The creek meets both state water quality standards and the 305 (b)(1)(B) criteria. The creek was closed to the taking of shellfish in 1972.

BEACH QUALITY: There are no beaches in the segment.

PRESENT SHORE EROSION SITUATION

EROSION RATE: No data. The shorelands of Cat Point Creek appear to be stable. The only erosive activity would be downhill rain runoff.

ENDANGERED STRUCTURES: None.

SHORE PROTECTIVE STRUCTURES: None.

OTHER SHORE STRUCTURES: There are several bridges which span the creek and two boat sheds at the mouth of the creek.

SHORE USE LIMITATIONS: While the mouth of Cat Point Creek has some development, the majority of shorelands along the creek are wooded or agricultural lands. Most of the area has no roads close to the shore, which also limits development.

ALTERNATE SHORE USE: Low. There seems to be little demand for a residential or other buildup in the county. Any development, however, would probably locate on the river shoreline rather than the creek.

MAPS: USGS, 7.5 Min.Ser. (Topo.), TAPPAHANNOCK Quadr., 1968;
USGS, 7.5 Min.Ser. (Topo.), MONTROSS Quadr., 1968.
NOS# 12237 (605-SC), 1:40,000 scale,
RAPPAHANNOCK RIVER, Corrotoman River to
Fredericksburg, VA, 12th ed., 1975.

PHOTOS: Aerial-VIMS 23Jan76 RM-2/141-142.

SEGMENT 3

CAT POINT CREEK TO ACCACEEK POINT

Maps 4, 5 and 6

EXTENT: 120,400 feet (22.8 mi.) of shoreline along the Rappahannock River from the mouth of Cat Point Creek to Accaceek Point, including Little Carter and McGuire Creeks, and numerous smaller creeks. The segment also includes 144,100 feet (27.3 mi.) of fastland.

SHORELANDS TYPE

FASTLAND: Low shore 87% (23.7 mi.), low shore with bluff 6% (1.7 mi.), moderately low shore 6% (1.7 mi.), and moderately low shore with bluff 1% (0.2 mi.).

SHORE: Artificially stabilized 3% (0.8 mi.), beach 18% (4.0 mi.), fringe marsh 6% (1.5 mi.), embayed marsh 26% (5.9 mi.), and extensive marsh 47% (10.6 mi.).

NEARSHORE: Intermediate 39% and wide 5%. The numerous creeks are too narrow and shallow for classification.

SHORELANDS USE

FASTLAND: Agricultural 71% (19.4 mi.), commercial 1% (0.1 mi.), recreational 1% (0.3 mi.), residential 3% (0.9 mi.), unmanaged, unwooded 1% (0.2 mi.), and unmanaged, wooded 23% (6.4 mi.).

SHORE: Mostly unused; some recreational use at Accopatough Beach and the residential section towards Wellford.

NEARSHORE: Commercial shipping to Fredericksburg, sport boating and fishing.

WIND AND SEA EXPOSURE: The shoreline trends basically NW - SE in this segment. The fetch at the marsh near McGuire Creek is SE - 9.9 nautical miles. Since the river here averages only 1.3 to 1.9 miles in width, no significant fetch can develop across river.

OWNERSHIP: Private.

FLOOD HAZARD: Low to moderate, noncritical, except for several structures at Wellford which are below 5-foot elevations and would be endangered during the "100-year storm".

WATER QUALITY: Satisfactory. The Rappahannock River in this segment meets the State Water

Control Board's 305(b)(1)(B) criteria. However, the river above Jugs Creek was closed to the taking of shellfish in 1972.

BEACH QUALITY: Poor to fair. The beaches in this segment are generally narrow fringes fronting the eroding fastland. The beach at Accopatough Beach is of fair width.

PRESENT SHORE EROSION SITUATION

EROSION RATE: Moderate to severe, critical. Most of the segment has experienced an average historical erosion rate ranging from 1.4 to 3.2 feet per year. Most of the river-fronting shoreline is continuing to erode at rates comparable to those experienced historically.

ENDANGERED STRUCTURES: A section of road at Accopatough Beach is very near the edge of an eroding bluff. Continued erosion threatens to undermine the road.

SHORE PROTECTIVE STRUCTURES: There are approximately 4,000 feet of artificially stabilized shoreline in the segment, most of which is bulkhead located between Accopatough Beach and Wellford. There are also several groin fields in the segment, which appear to be moderately effective in trapping sand.

OTHER SHORE STRUCTURES: There are numerous piers, several boat sheds, and several boat ramps in the segment. The Thomas Downing Bridge to Tapahannock is located in this segment.

SHORE USE LIMITATIONS: Most of the shorelands in this segment are located along Cat Point Creek. These lands are largely fronted by embayed marshes, which makes access to the water difficult. The creek shorelands are currently used for agriculture or are unused woods. The river-fronting shorelands are basically low bluff areas which are very vulnerable to erosion. Much of these lands are fronted by an extensive marsh system.

ALTERNATE SHORE USE: Moderate. The Accopatough Beach-Wellford area is already used for second or vacation homes. Continued residential development in this area is probable. There is also a campground north of Ferry Point. Other recreational uses for parts of this segment are possible, as the heavily used Route 360 passes near this area.

MAPS: USGS, 7.5 Min.Ser. (Topo.), TAPPAHANNOCK Quadr., 1968;
USGS, 7.5 Min.Ser. (Topo.), MONTROSS Quadr., 1968.

NOS#12237 (605-SC), 1:40,000 scale,
RAPPAHANNOCK RIVER, Corrotoman River to
Fredericksburg, VA, 12th ed., 1975.

PHOTOS: Aerial-VIMS 23Jan76 RM-3/81-140.

SEGMENT 4

TOTUSKEY CREEK

Maps 6, 7 and 8

EXTENT: 169,100 feet (32.0 mi.) of shoreline along Totuskey Creek from Accaceek Point to Waverly Point. The segment includes 212,700 feet (40.3 mi.) of fastland.

SHORELANDS TYPE

FASTLAND: Low shore 50% (20.2 mi.), moderately low shore 34% (13.8 mi.), moderately high shore 14% (5.5 mi.), and high shore 2% (0.8 mi.).

SHORE: Beach 1% (0.3 mi.), fringe marsh 25% (8.1 mi.), embayed marsh 73% (23.4 mi.), and extensive marsh 1% (0.2 mi.).

CREEK: Intermediate 4% at the creek mouth. The rest of the creek has at least 6-foot depths for several miles upstream.

SHORELANDS USE

FASTLAND: Agricultural 14% (5.6 mi.), commercial 1% (0.2 mi.), and unmanaged, wooded 86% (34.5 mi.).

SHORE: Mostly unused. Some waterfowl hunting in the marshes.

CREEK: Sport boating, fishing, and other water sports.

WIND AND SEA EXPOSURE: Totuskey Creek trends first N - S, then NE - SW from the head to the mouth. There are no significant fetches which affect the creek shoreline.

OWNERSHIP: Private.

FLOOD HAZARD: Low, noncritical. The shorelands reach elevations of at least 10 feet within 20 to 50 feet of the shoreline. No structures are located below 10-foot elevations.

WATER QUALITY: Satisfactory. Though the creek meets applicable water quality standards and 305 (b)(1)(B) criteria, it experiences high bacteriological counts which is a cause for concern. Totuskey Creek was closed to the taking of shellfish in 1972.

BEACH QUALITY: Poor. There are several small strip beaches in the segment.

PRESENT SHORE EROSION SITUATION

EROSION RATE: No data for Totuskey Creek. The area appears to be stable.

ENDANGERED STRUCTURES: None.

SHORE PROTECTIVE STRUCTURES: There is one small area of bulkhead on the west bank of the creek near Totuskey Bridge. However, this structure is for cosmetic purposes rather than for erosion control.

OTHER SHORE STRUCTURES: There are several bridges crossing Totuskey Creek. A public landing and boat ramp is located at the Route 3 bridge.

SHORE USE LIMITATIONS: As seen in the land use statistics, the entire segment is either used for agriculture or is wooded. There is little inland access to the shorelands, and embayed marshes front much of the land.

ALTERNATE SHORE USE: Low. There seems to be little demand for shoreline development in this part of the county. Also, there is an abundance of river-fronting shoreland which would probably be used before the creek shorelands.

MAPS: USGS, 7.5 Min.Ser. (Topo.), HAYNESVILLE Quadr., 1968;
USGS, 7.5 Min.Ser. (Topo.), TAPPAHANNOCK Quadr., 1968;
USGS, 7.5 Min.Ser. (Topo.), MORATTICO Quadr., 1968.
NOS# 12237 (605-SC), 1:40,000 scale,
RAPPAHANNOCK RIVER, Corrotoman River to
Fredericksburg, VA, 12th ed., 1975.

PHOTOS: Aerial-VIMS 23Jan76 RM-4/72-80.

SEGMENT 5

SHARPS

Maps 8 and 9

EXTENT: 158,900 feet (30.1 mi.) of shoreline along the Rappahannock River from Waverly Point to Tarpley Point, including Richardson and Farnham Creeks and numerous other creeks. The segment includes 214,500 feet (40.6 mi.) of fastland.

SHORELANDS TYPE

FASTLAND: Low shore 80% (32.6 mi.), moderately low shore 16% (6.4 mi.), and moderately high shore 4% (1.6 mi.).

SHORE: Artificially stabilized 8% (2.4 mi.), beach 19% (5.6 mi.), fringe marsh 26% (8.0 mi.), embayed marsh 41% (12.3 mi.), and extensive marsh 6% (1.8 mi.).

NEARSHORE: Intermediate 15% and wide 14%. The remainder of the shoreline is located along the several creeks in the segment, which are too narrow and shallow for classification.

SHORELANDS USE

FASTLAND: Agricultural 45% (18.4 mi.), commercial 1% (0.3 mi.), residential 10% (3.9 mi.), and unmanaged, wooded 44% (18.0 mi.).

SHORE: Private recreational use on the beaches; waterfowl hunting in the marshes. Most of the shore is unused.

NEARSHORE: Commercial shipping to Fredericksburg, some commercial fishing; sport boating, fishing, and other water sports in the river and creeks.

WIND AND SEA EXPOSURE: The shoreline trends basically NW - SE in this segment. Fetches at Sharps are SE - 5.5 nautical miles and WNW - 3.3 nautical miles; fetches at Tarpley Point are SE - 8.8 nautical miles and WNW - 4.9 nautical miles.

OWNERSHIP: Private.

FLOOD HAZARD: Moderate, critical. Most shoreline structures have been built at elevations of 10 or more feet. However, several structures at Wilna Point and Oakley Landing, and one house at Suggetts Point could be damaged or destroyed during a particularly severe storm.

WATER QUALITY: Satisfactory. The segment meets

state water quality standards and the 305(b)(1) (B) criteria. However, Farnham and Richardson Creeks and their tributaries were closed to the taking of shellfish in 1972.

PHOTOS: Aerial-VIMS 23Jan76 RM-5/7-71.

BEACH QUALITY: Poor to fair. Most of the beaches in this segment are narrow fringes bordering the fastland. There are several fair beaches, the best one being east of Neals Point.

PRESENT SHORE EROSION SITUATION

EROSION RATE: Slight or no change to moderate, noncritical. Most of the river-fronting shoreline has experienced an average historical erosion rate of from 1.5 to 2.6 feet per year. There are several areas of no erosion and several small areas of accretion. Though some areas are now artificially stabilized, recent field investigations show that erosion is continuing along most of the shoreline.

ENDANGERED STRUCTURES: None.

SHORE PROTECTIVE STRUCTURES: There are approximately 12,900 feet of artificially stabilized shoreline in the segment, most of which is bulkhead or groins or a combination of the two. While most of the structures are wooden, numerous groins and one area of bulkhead have been constructed of concrete filled culverts.

OTHER SHORE STRUCTURES: There are numerous piers and several boat ramps in the segment. A public landing is located at the Route 608 bridge over Farnham Creek.

SHORE USE LIMITATIONS: Much of the river-fronting shoreline in this segment has been developed for residential purposes. This segment has a history of active erosion. Also, many areas near the shoreline would be inundated during a severe storm.

ALTERNATE SHORE USE: Low. Much of the available river-fronting shoreland has been developed for residences, mainly for second or summer homes. While it is assumed that future development will continue to center on this area, care should be taken to ensure that no pollutants enter the river.

MAPS: USGS, 7.5 Min.Ser. (Topo.), MORATTICO Quadr., 1968.
NOS# 12237 (605-SC), 1:40,000 scale,
RAPPAHANNOCK RIVER, Corrotoman River to
Fredericksburg, VA, 12th ed., 1975.

SEGMENT 6

LANCASTER CREEK

Maps 9 and 10

EXTENT: 90,500 feet (17.1 mi.) of shoreline along Lancaster Creek from Tarpley Point to just south of the Route 3 bridge, including Morattico and Perch Creeks. The segment includes 126,600 feet (24.0 mi.) of fastland.

SHORELANDS TYPE

FASTLAND: Low shore 79% (18.9 mi.), moderately low shore 13% (3.2 mi.), moderately high shore 6% (1.5 mi.), and high shore 1% (0.3 mi.).

SHORE: Artificially stabilized 2% (0.3 mi.), beach 8% (1.4 mi.), fringe marsh 59% (10.0 mi.), and embayed marsh 31% (5.4 mi.).

CREEK: Lancaster Creek is too narrow and shallow for classification.

SHORELANDS USE

FASTLAND: Agricultural 41% (9.9 mi.), commercial 2% (0.6 mi.), residential 8% (2.0 mi.), unmanaged, unwooded 1% (0.2 mi.), and unmanaged, woodded 47% (11.2 mi.).

SHORE: Waterfowl hunting in the marshes; access to the water at the mouth of the creek.

CREEK: Sport boating, fishing, and other water sports.

WIND AND SEA EXPOSURE: Lancaster Creek trends basically NE - SW. The fetch at Tarpley Point is SE - 8.8 nautical miles, and at Pearson Island SW - 3.3 nautical miles (across the Rappahannock River).

OWNERSHIP: Private.

FLOOD HAZARD: Moderate, noncritical for most of the segment. Several structures at the mouth of Morattico Creek would be damaged or destroyed during the "100-year storm", as they are directly on the shoreline at elevations of less than 5 feet.

WATER QUALITY: Satisfactory. The creek meets the 305(b)(1)(B) criteria. However, the upper section of Lancaster Creek was closed to the taking of shellfish in 1972.

BEACH QUALITY: Poor. There are several areas of thin strip beach at the mouth of the creek.

PRESENT SHORE EROSION SITUATION

EROSION RATE: No data for Lancaster Creek. The river-fronting portion of Pearson Island has an average historical erosion rate of 3.7 feet per year. One section of shoreline near Tarpley Point has been eroding at an average historical rate of 1.8 feet per year. The rest of the segment has been mostly stable.

ENDANGERED STRUCTURES: None at the present time. Several structures on Pearson Island will be endangered at a future time if erosion continues at rates comparable to those experienced historically and there is no effort at artificially stabilizing the area.

SHORE PROTECTIVE STRUCTURES: There are approximately 1,600 feet of artificially stabilized shoreline in the segment, all of which is bulkhead. One section of bulkhead is located at a marina north of Tarpley Point and is for boat wake protection and to ease access to boats. The other sections of bulkhead are on Pearson Island and at the mouth of Morattico Creek. These structures are for erosion protection and appear to be effective.

OTHER SHORE STRUCTURES: There are numerous piers, a public boat ramp, a marine railway and a marina in the segment.

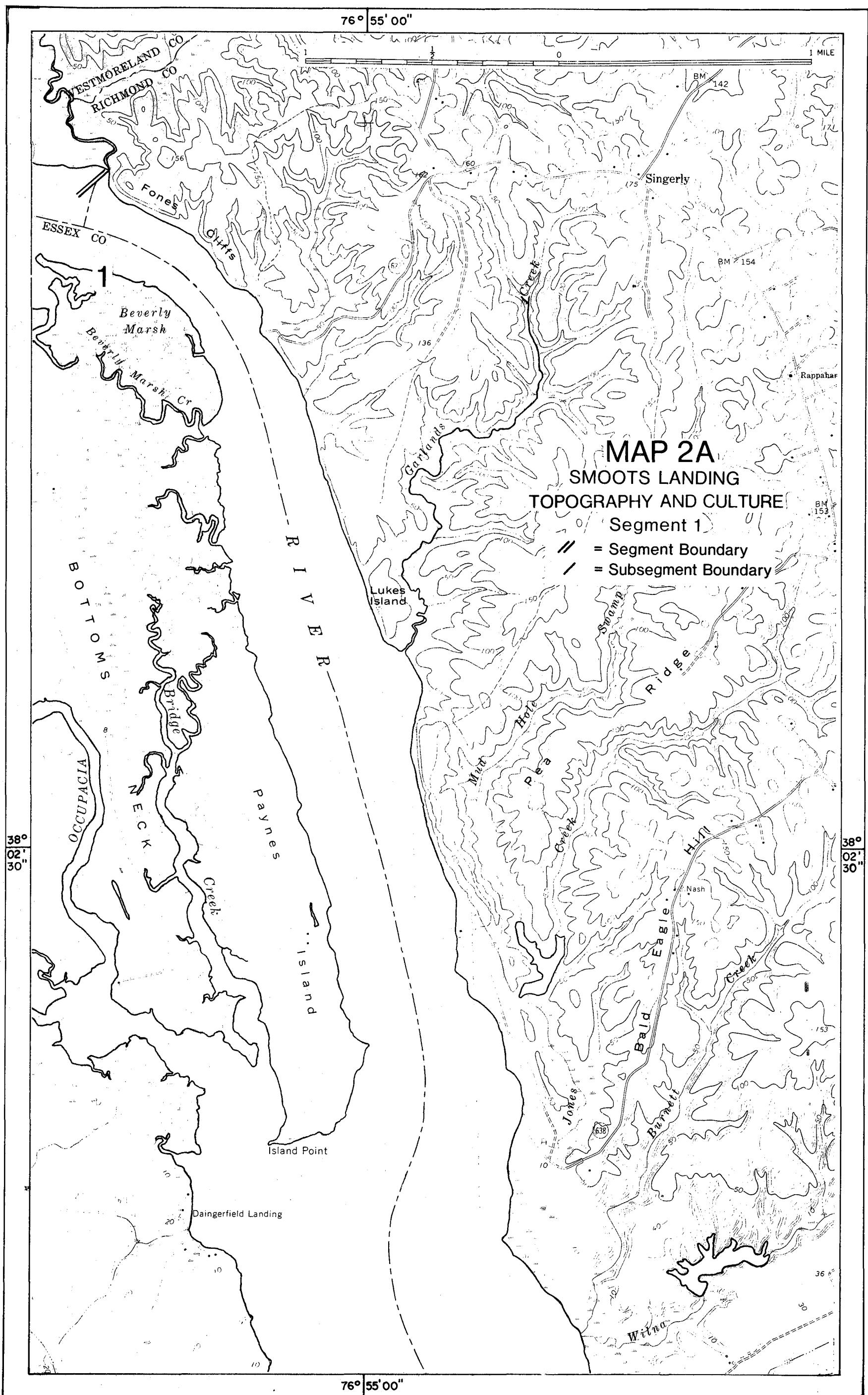
SHORE USE LIMITATIONS: The shorelands of Lancaster and Morattico Creeks are mostly either unused or are used for agriculture. The only developed shoreline in the segment is at the mouth of the creeks. Pearson Island and Simonson are already developed as a residential section, as has Tarpley Point. Much of the rest of the segment located on the river is too low to be safely developed for residences. Also, much of this shoreline is susceptible to erosion.

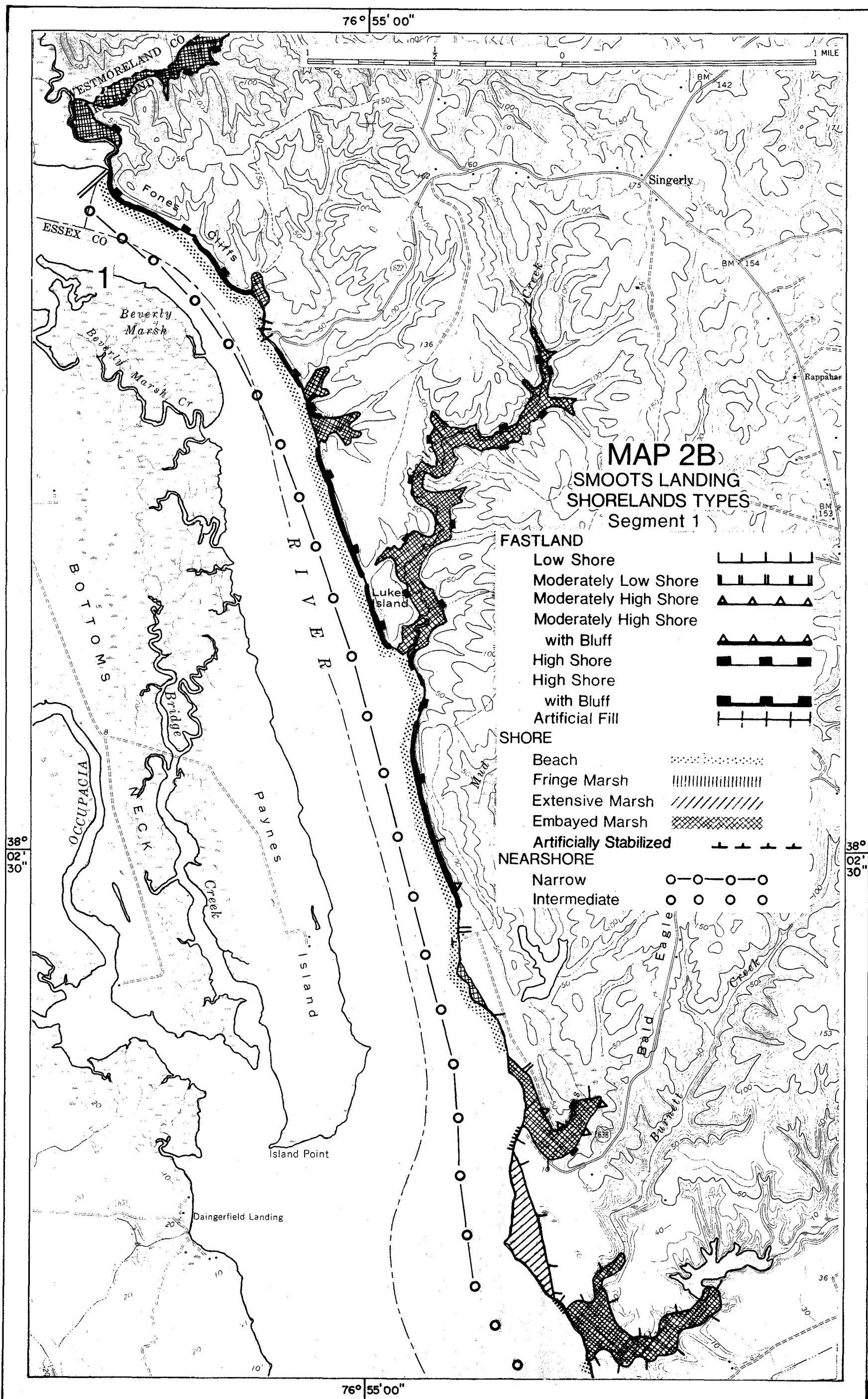
ALTERNATE SHORE USE: Low. Although some further development is possible along sections of this shoreline, little change in the use statistics seems warranted for the present time.

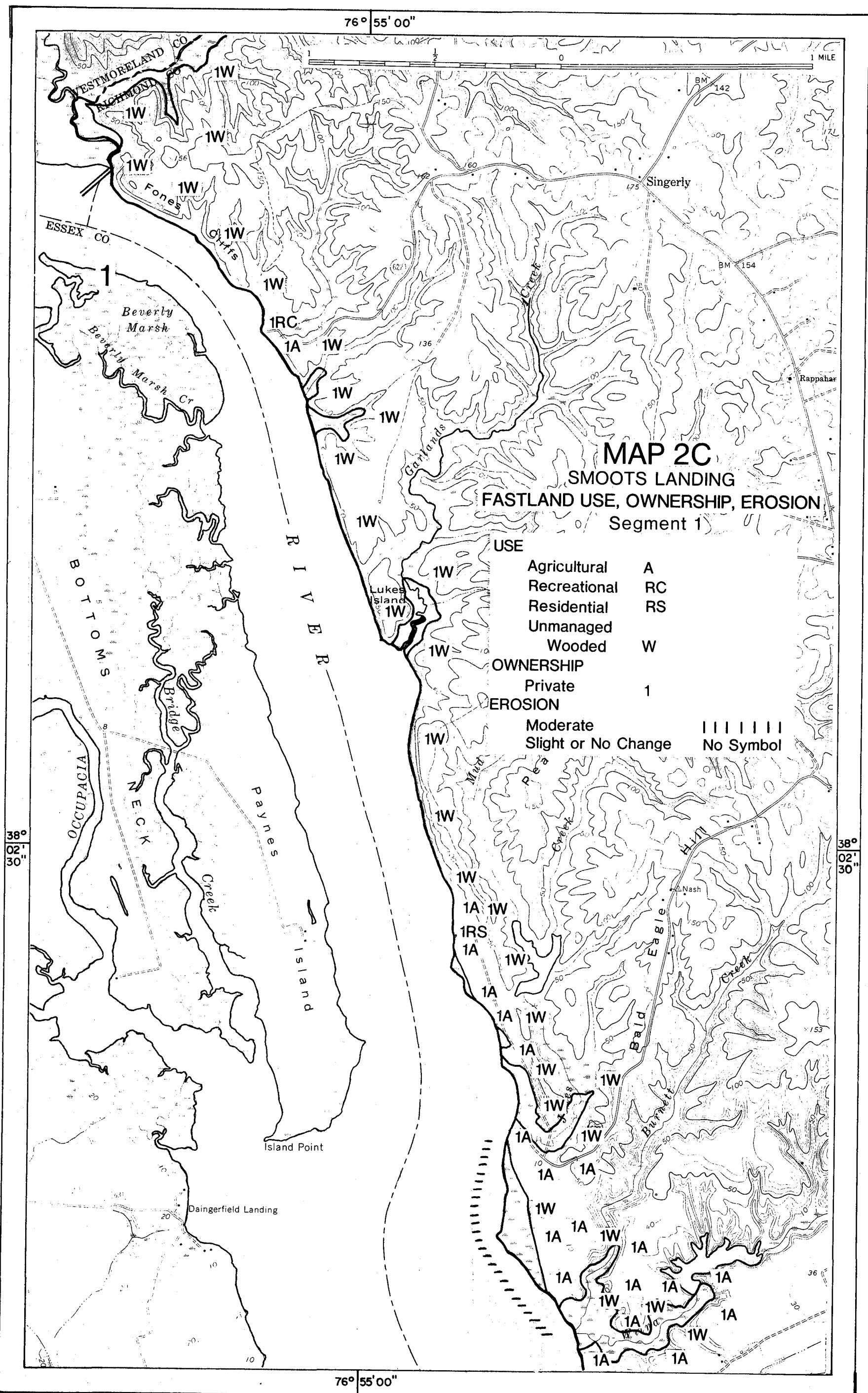
MAPS: USGS, 7.5 Min.Ser. (Topo.), MORATTICO Quadr., 1968;
USGS, 7.5 Min.Ser. (Topo.), LIVELY Quadr., 1968.

NOS# 12237 (605-SC), 1:40,000 scale,
RAPPAHANNOCK RIVER, Corrotoman River to
Fredericksburg, VA, 12th ed., 1975.

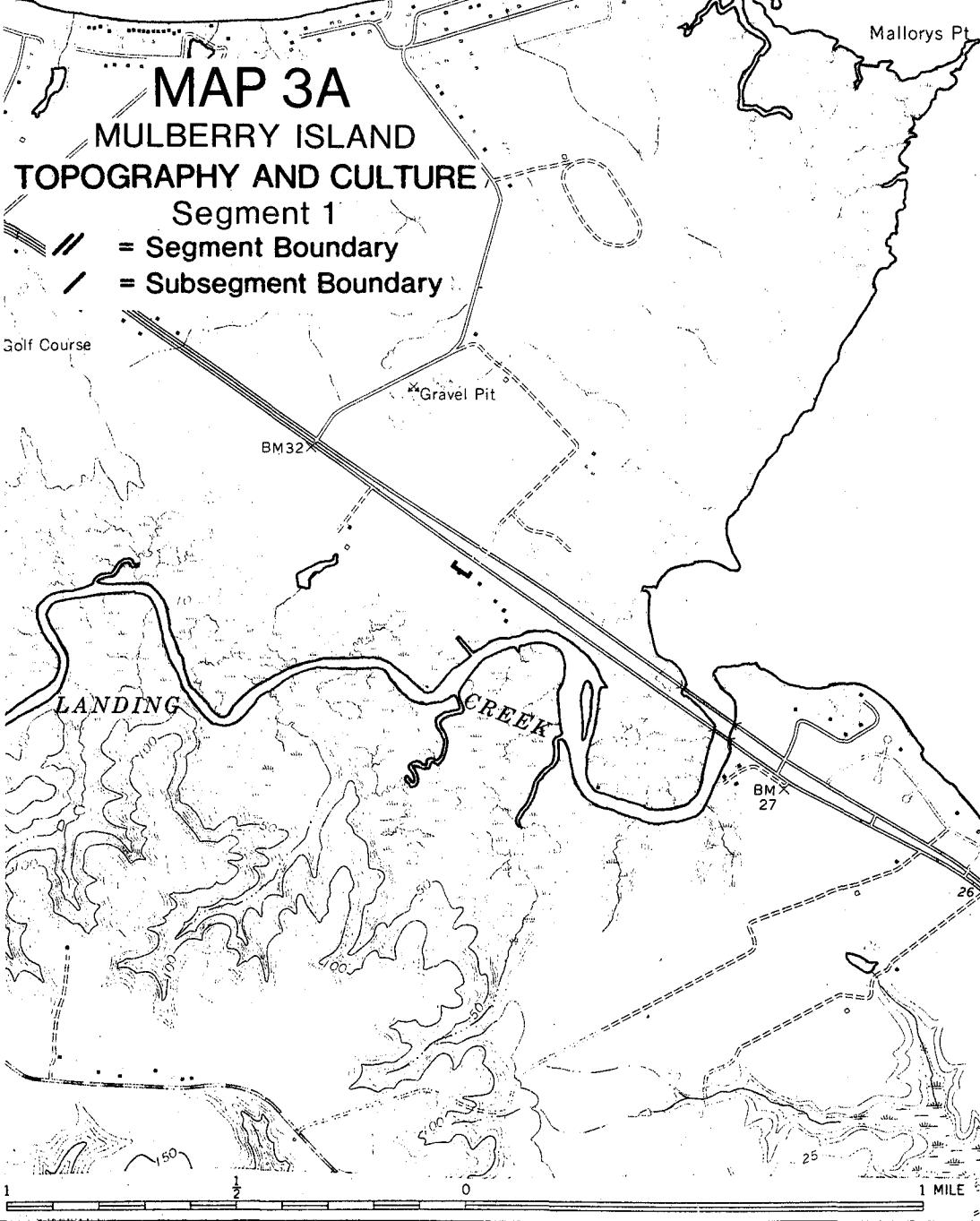
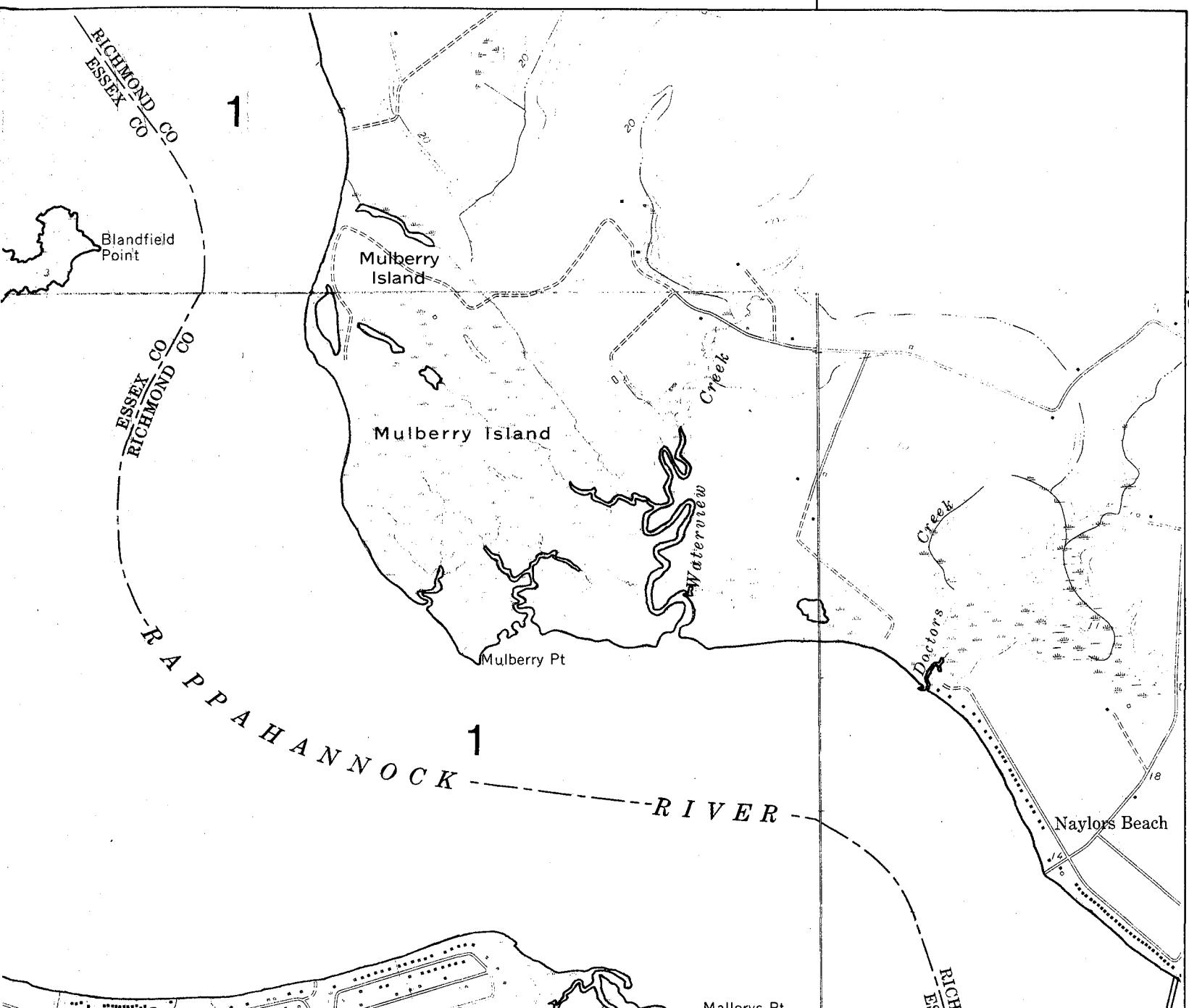
PHOTOS: Aerial-VIMS 23Jan76 RM-6/1-6.





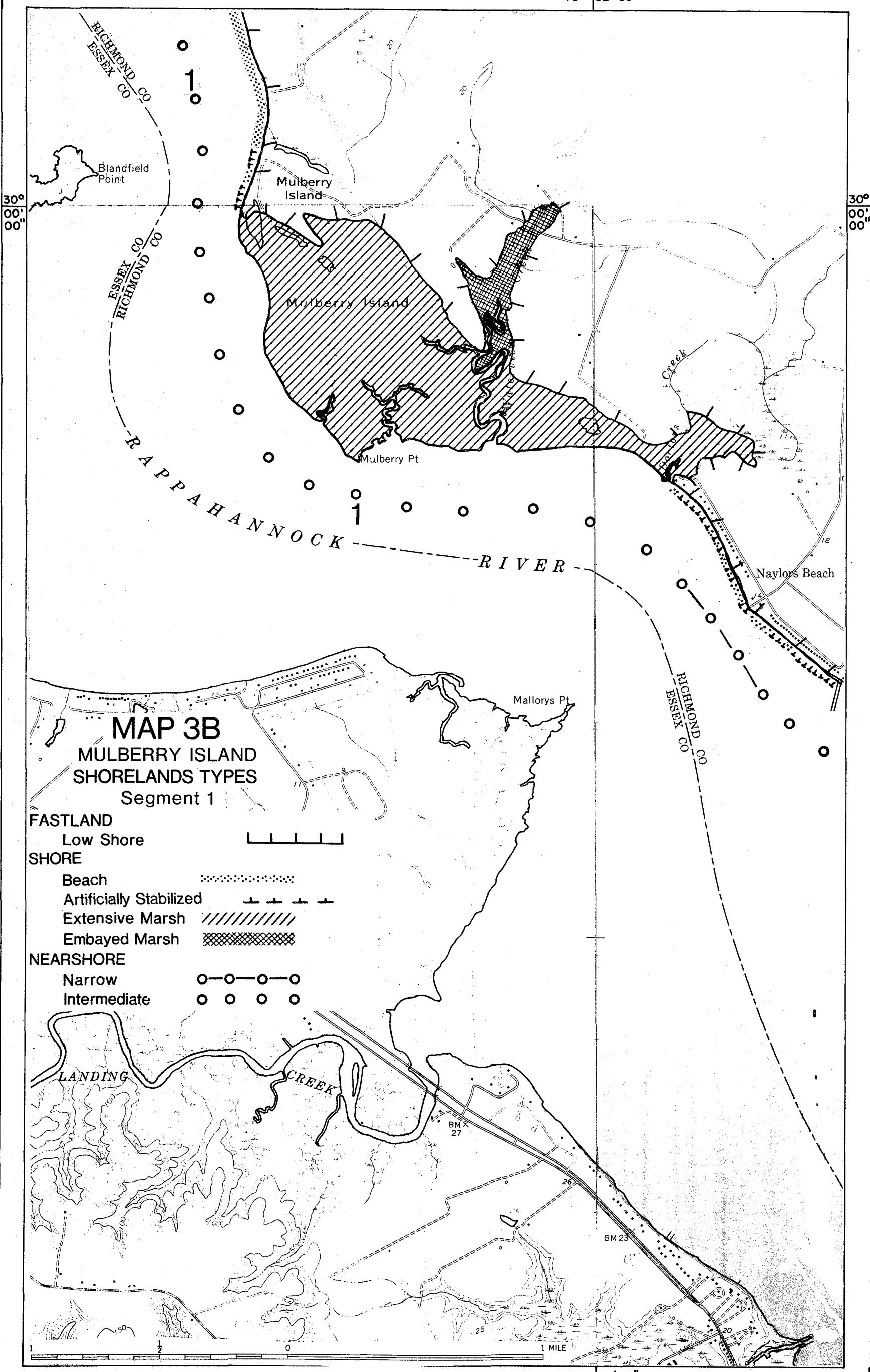


76° 52' 30"

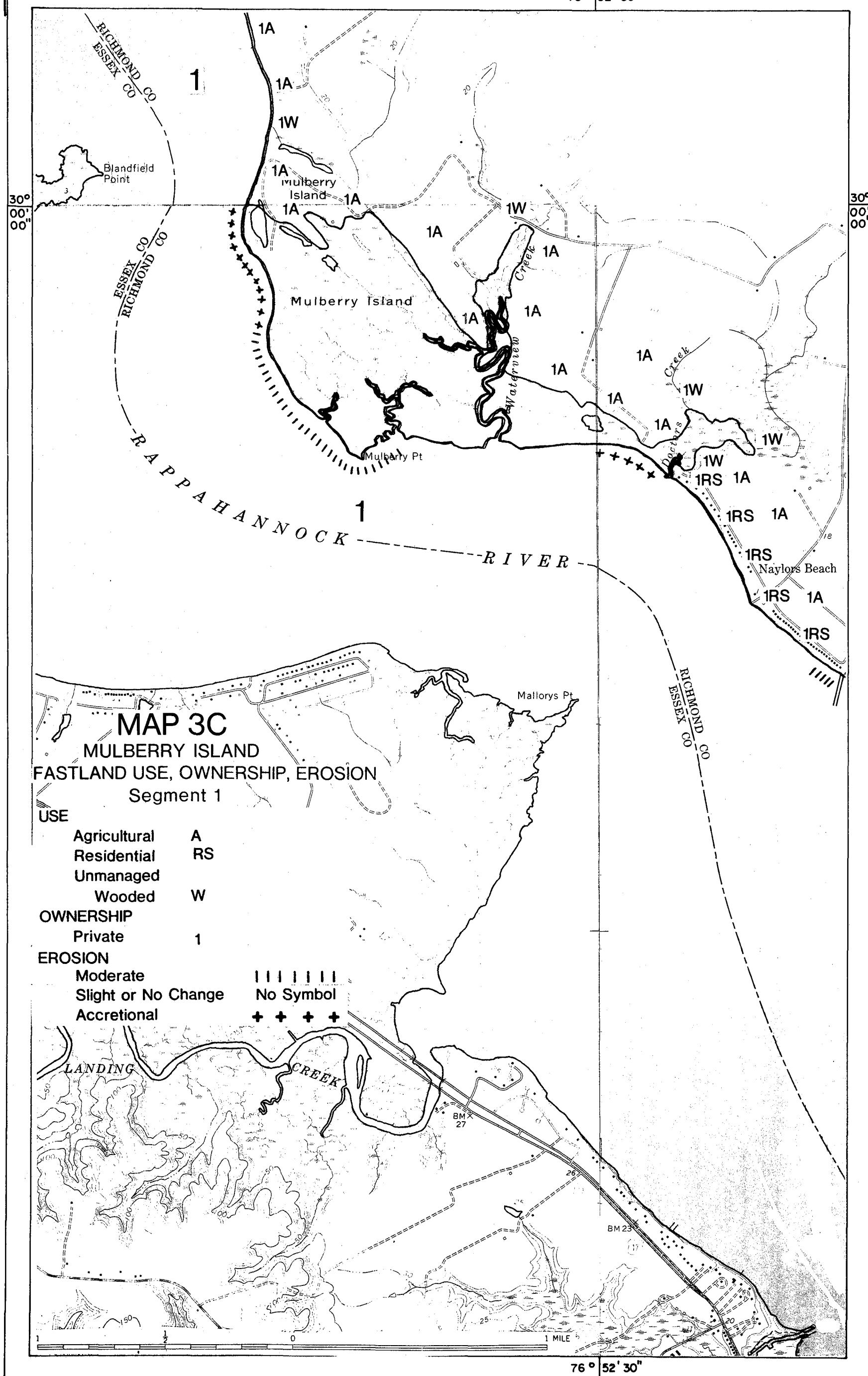


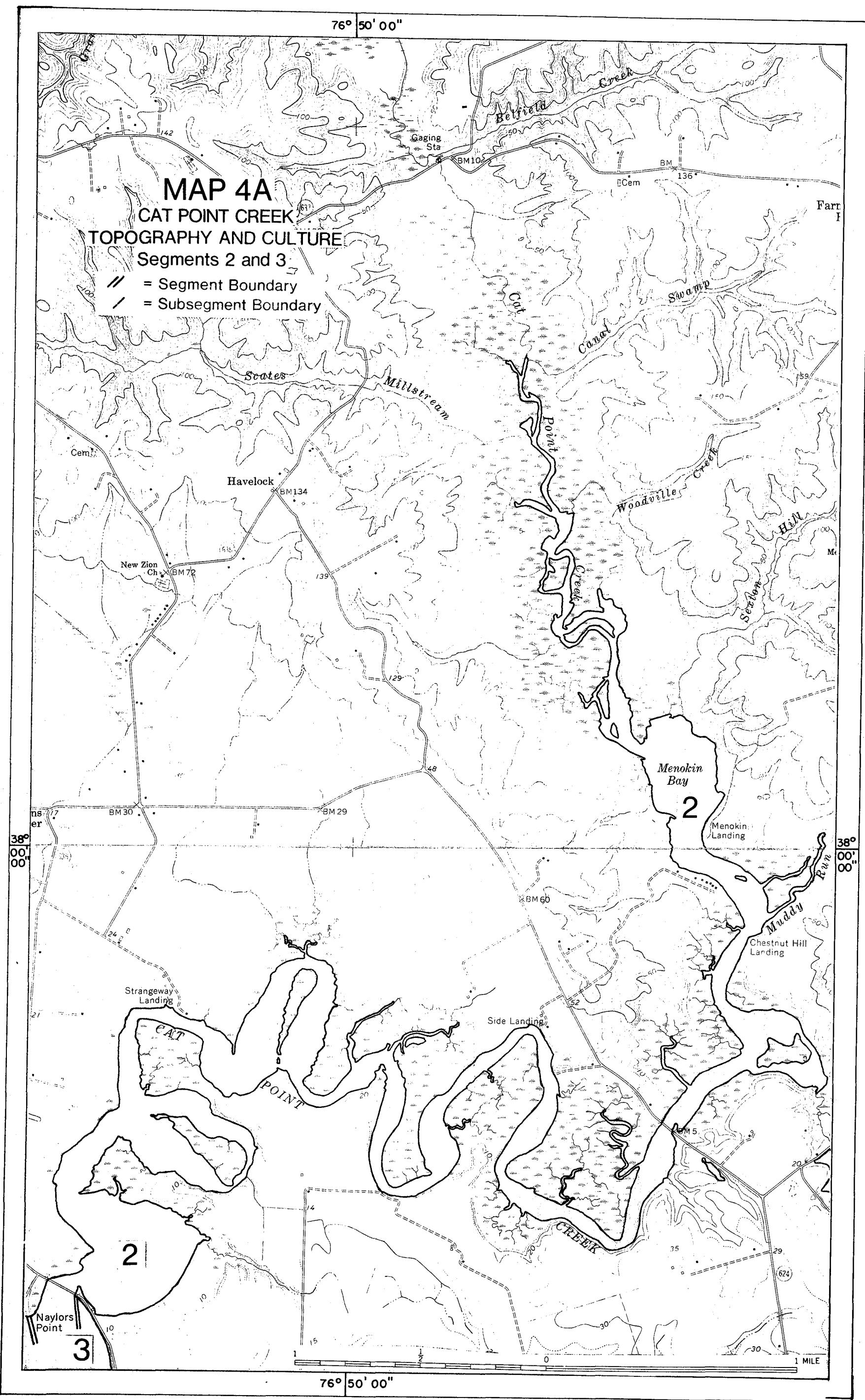
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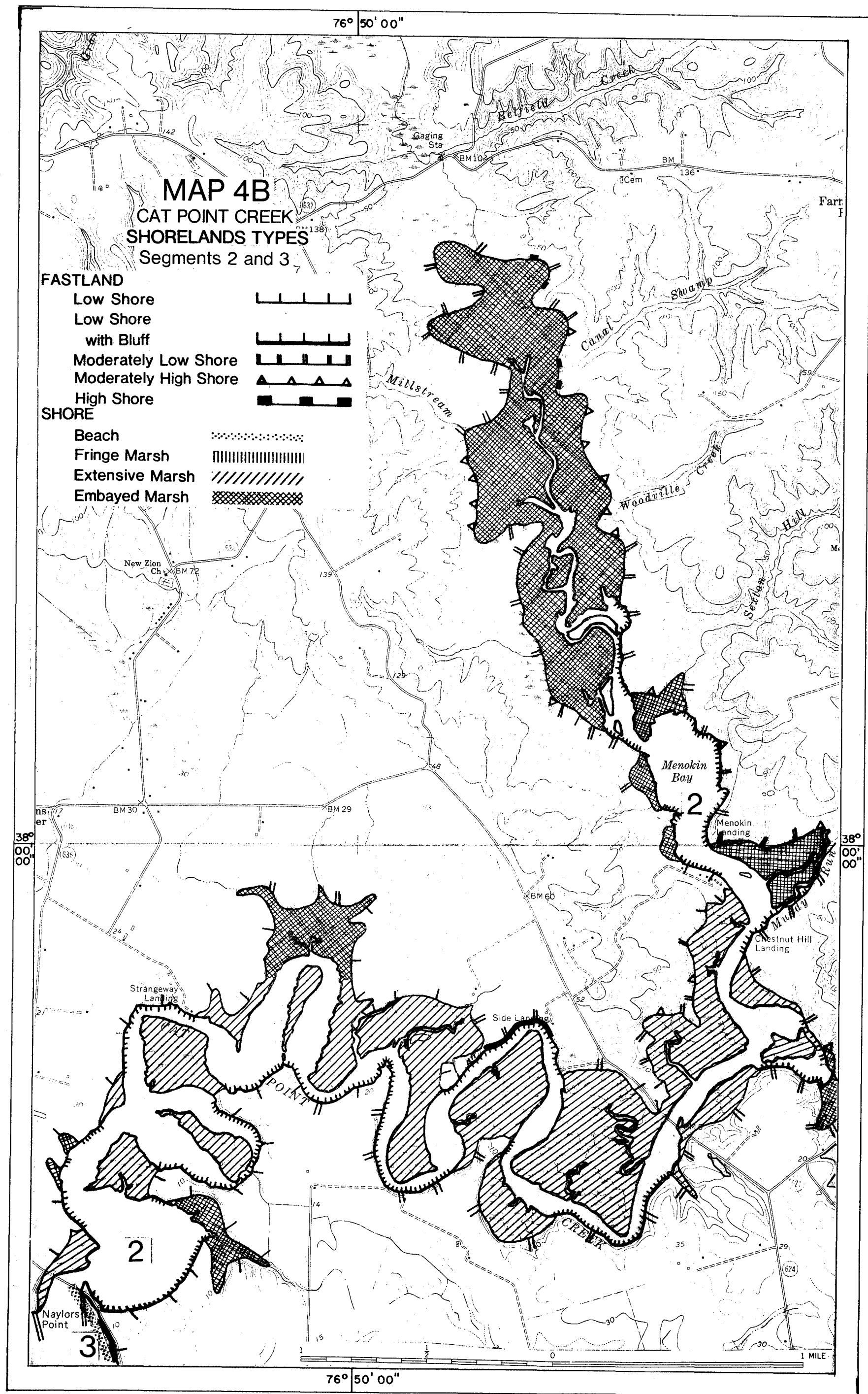
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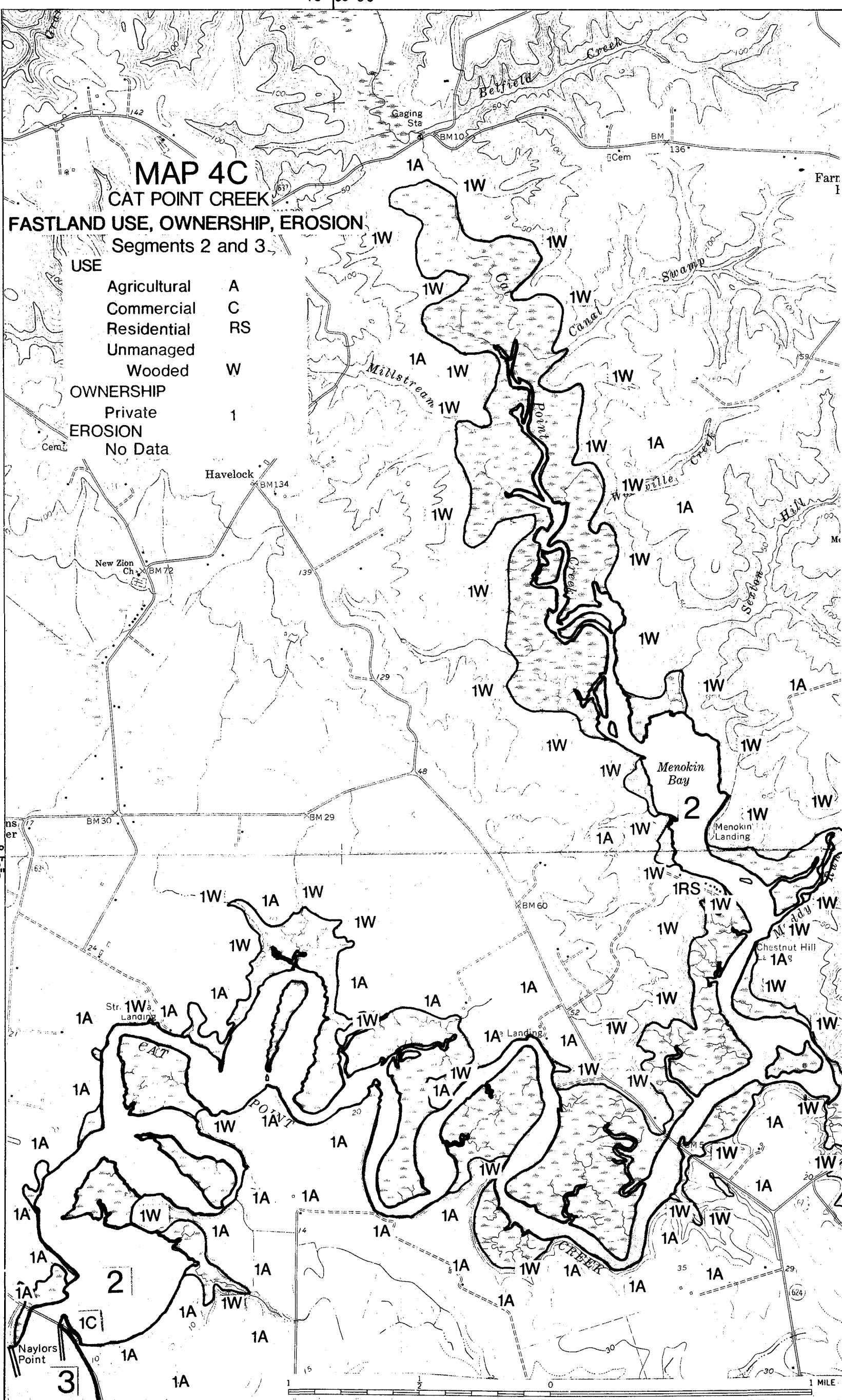
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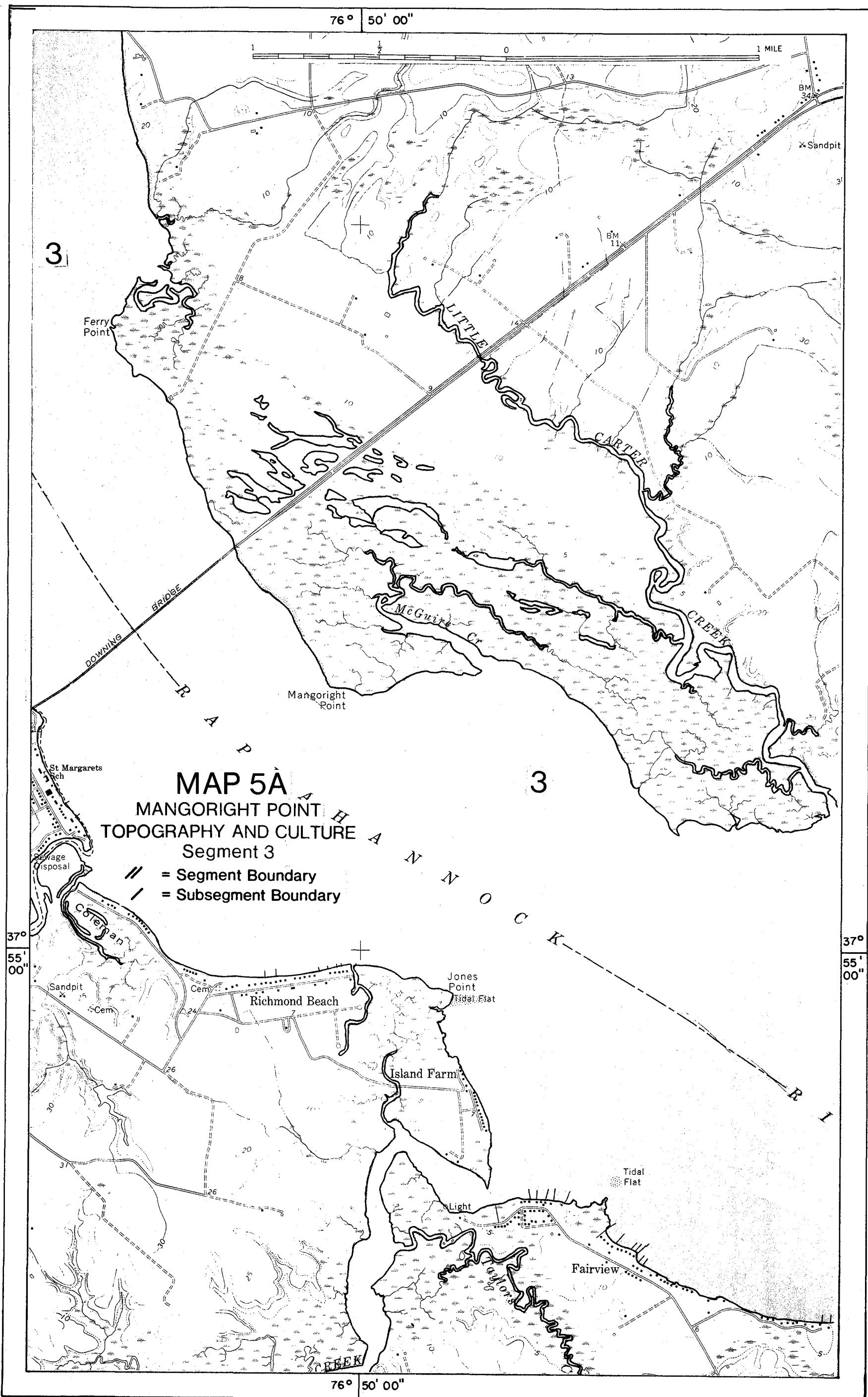


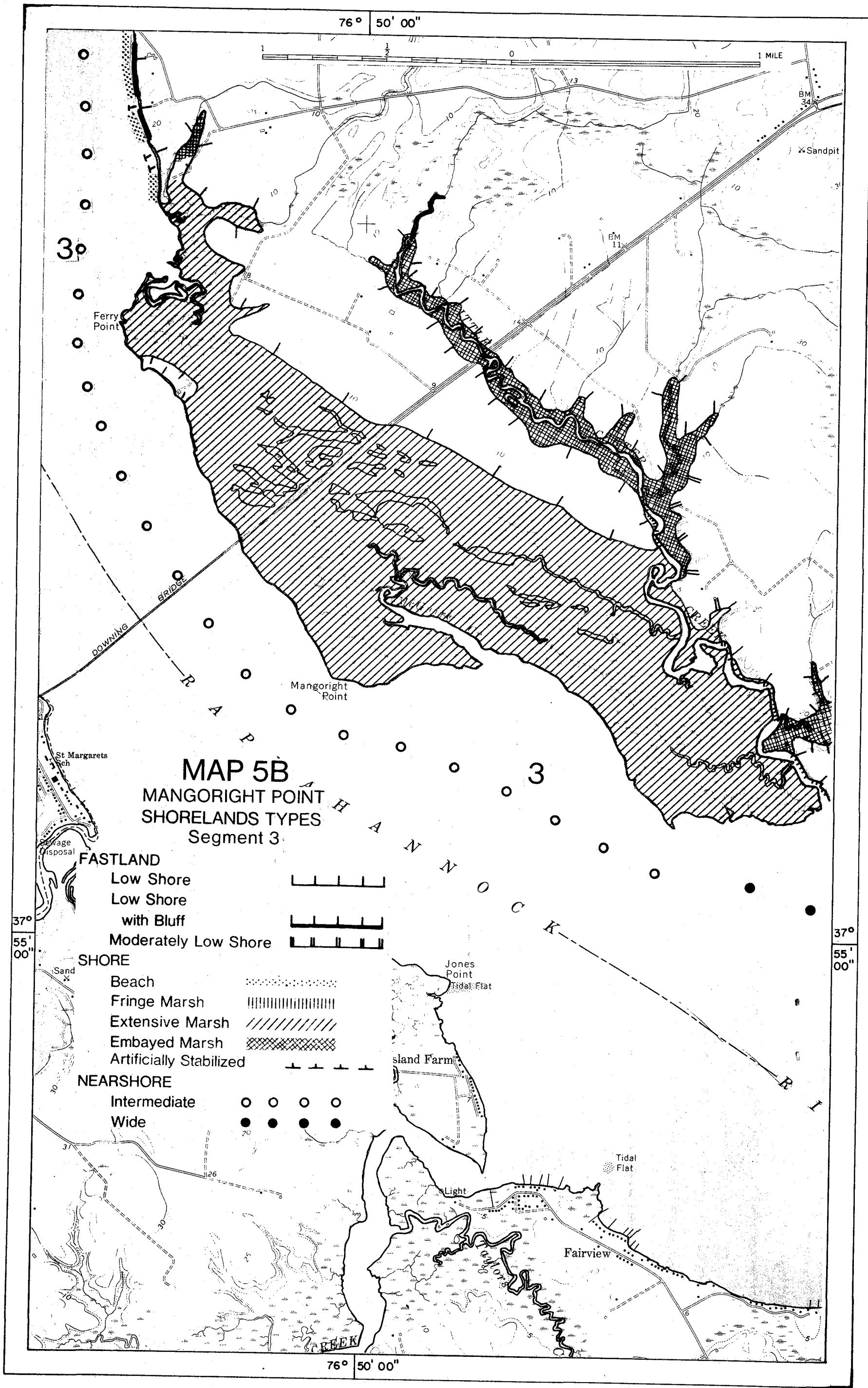


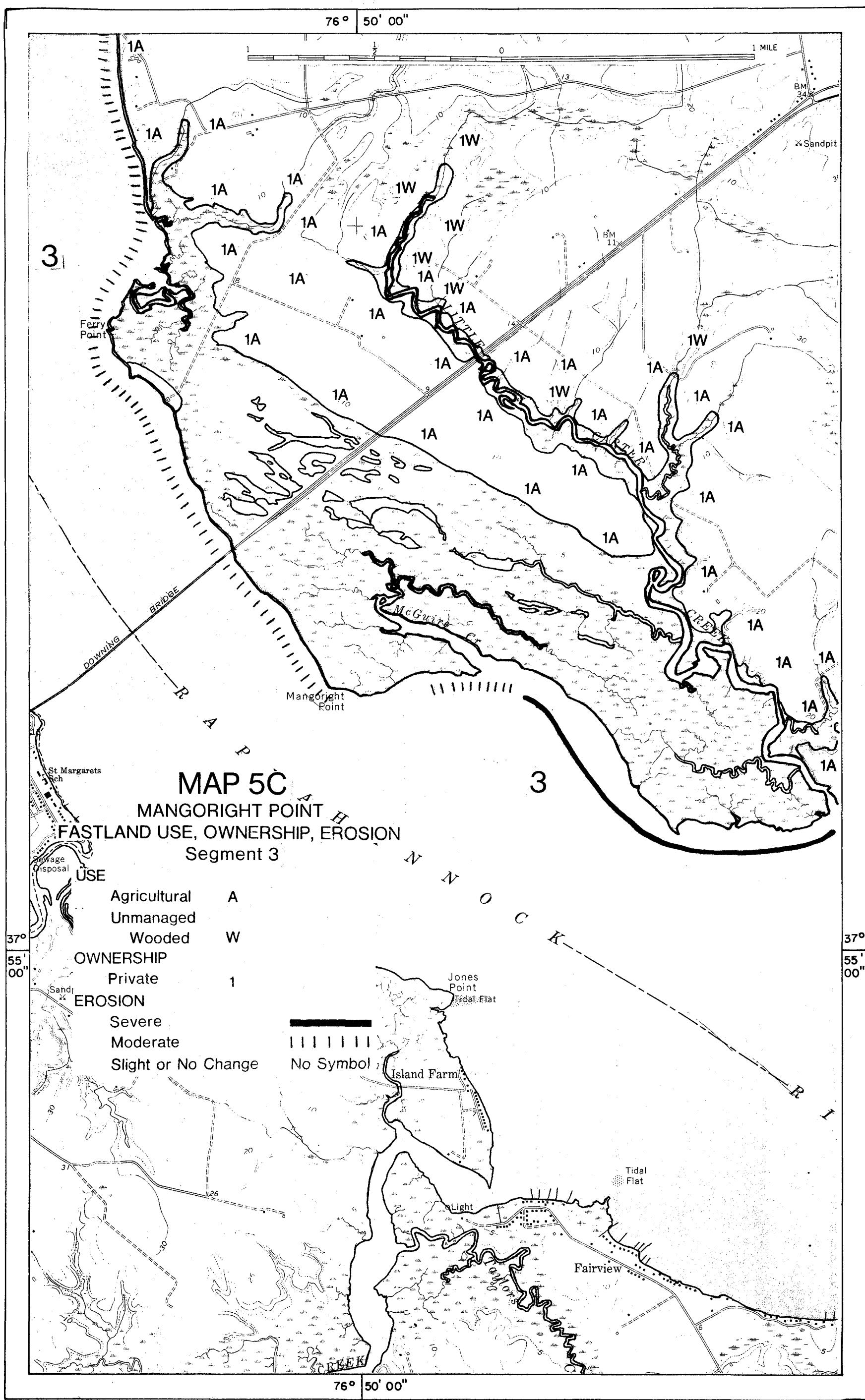
76° 50' 00"



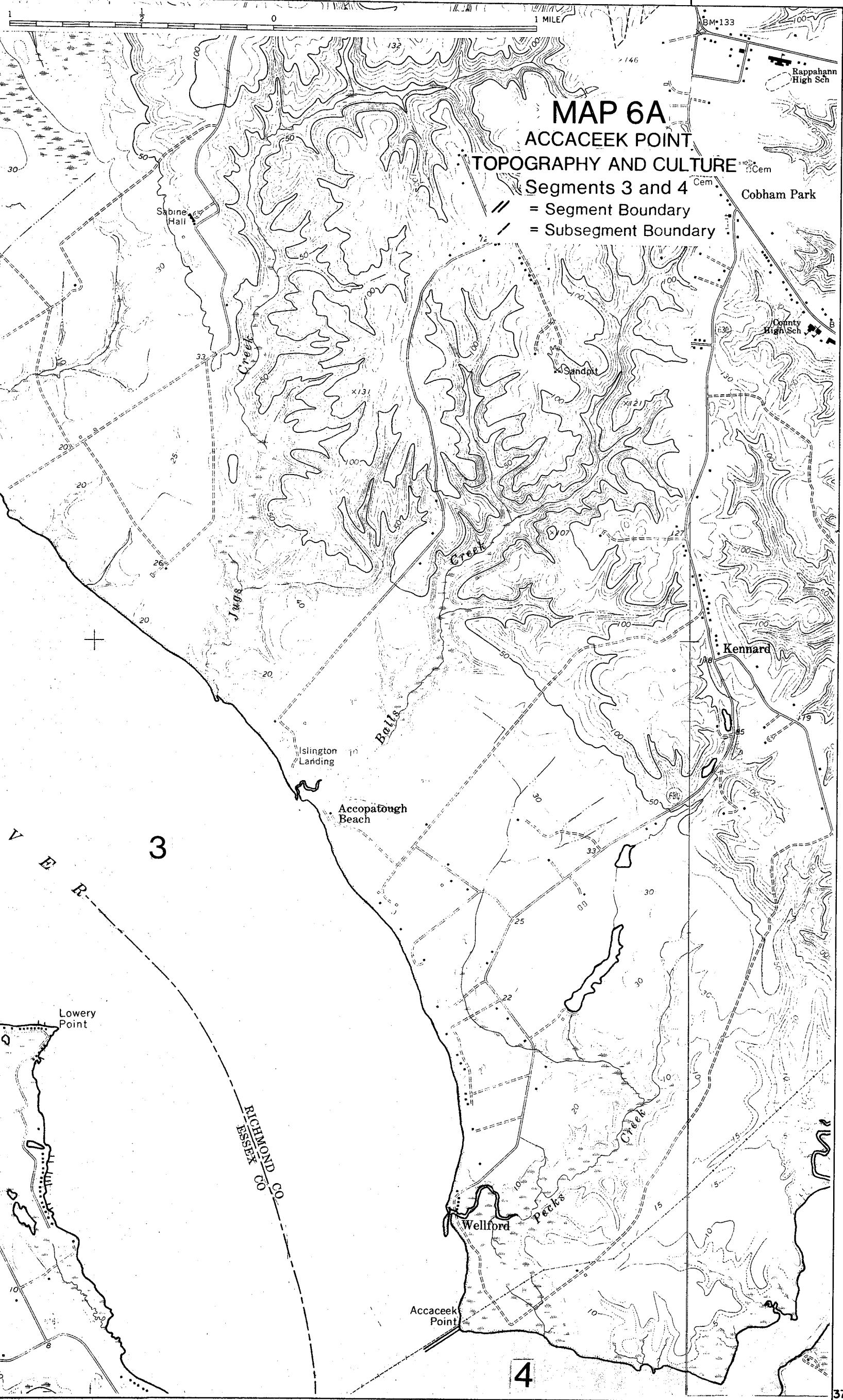
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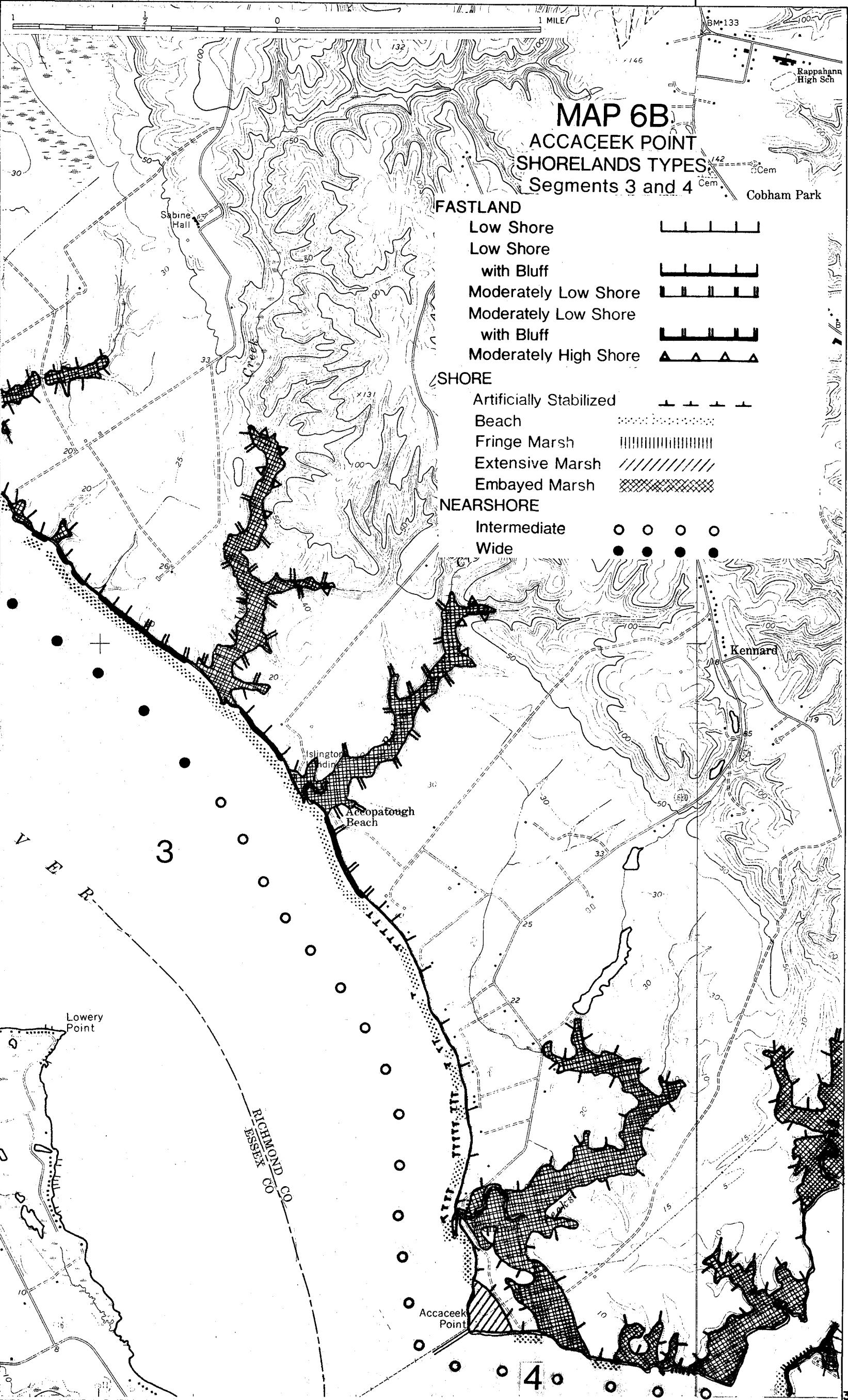




76° 45' 00"



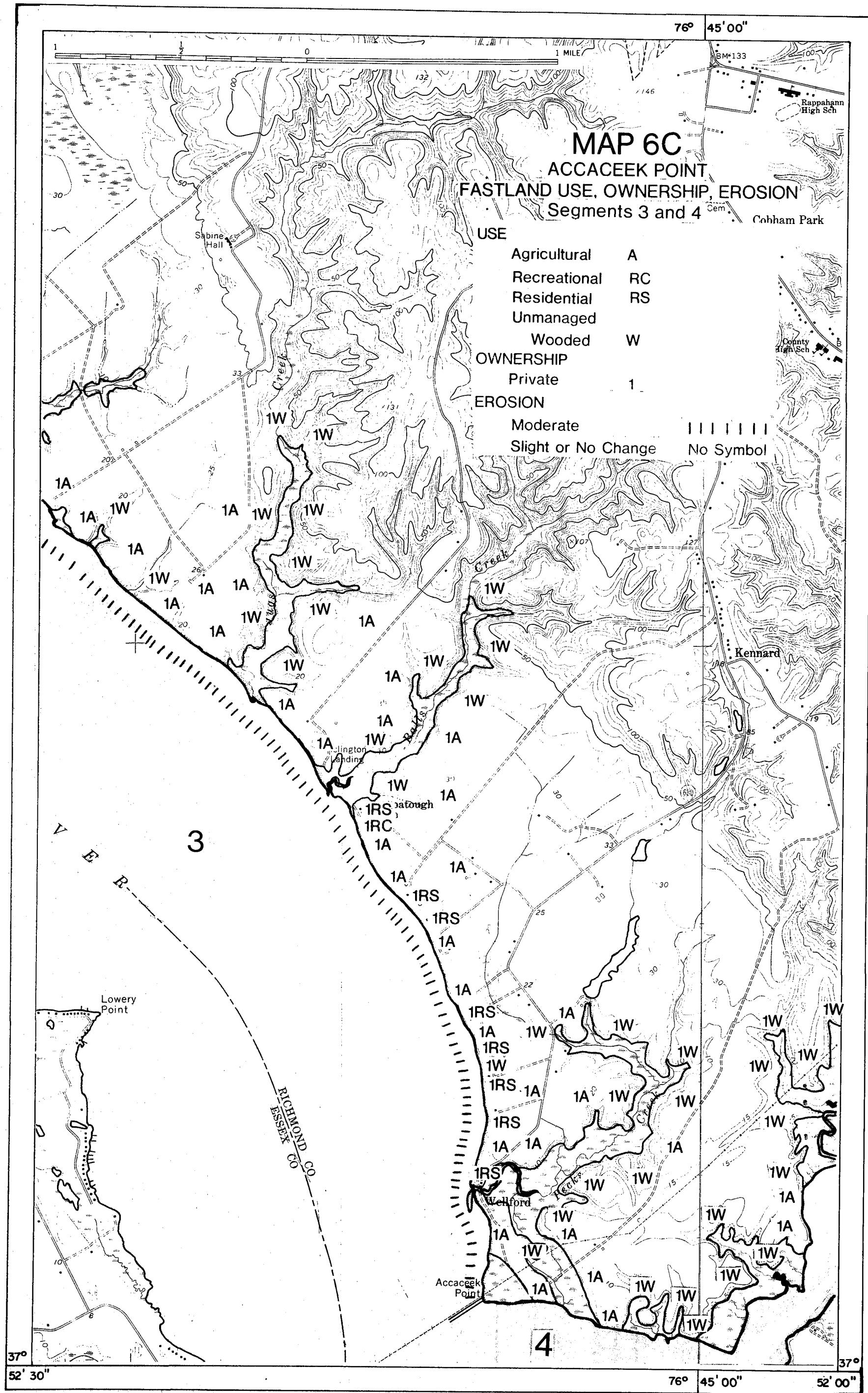
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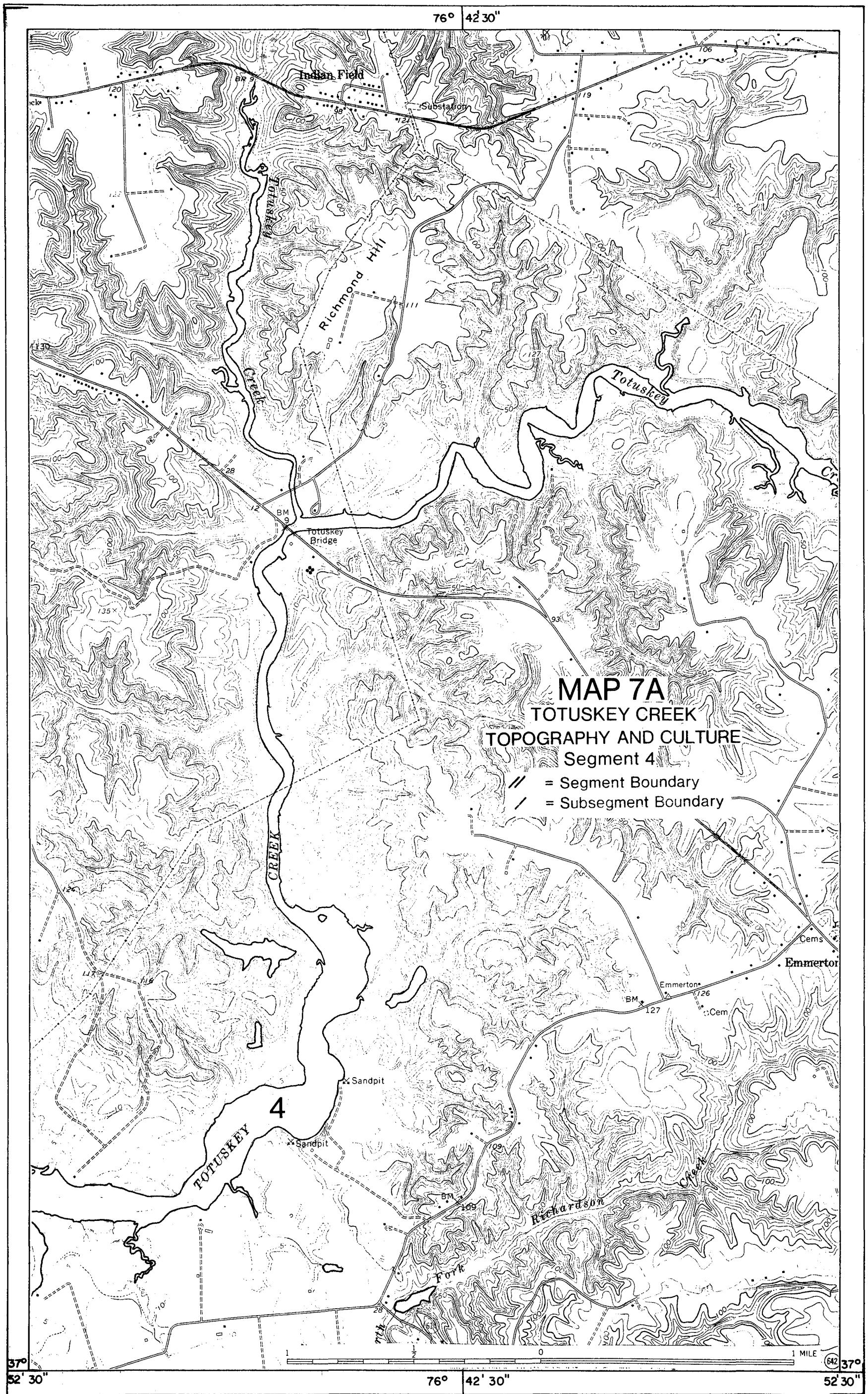


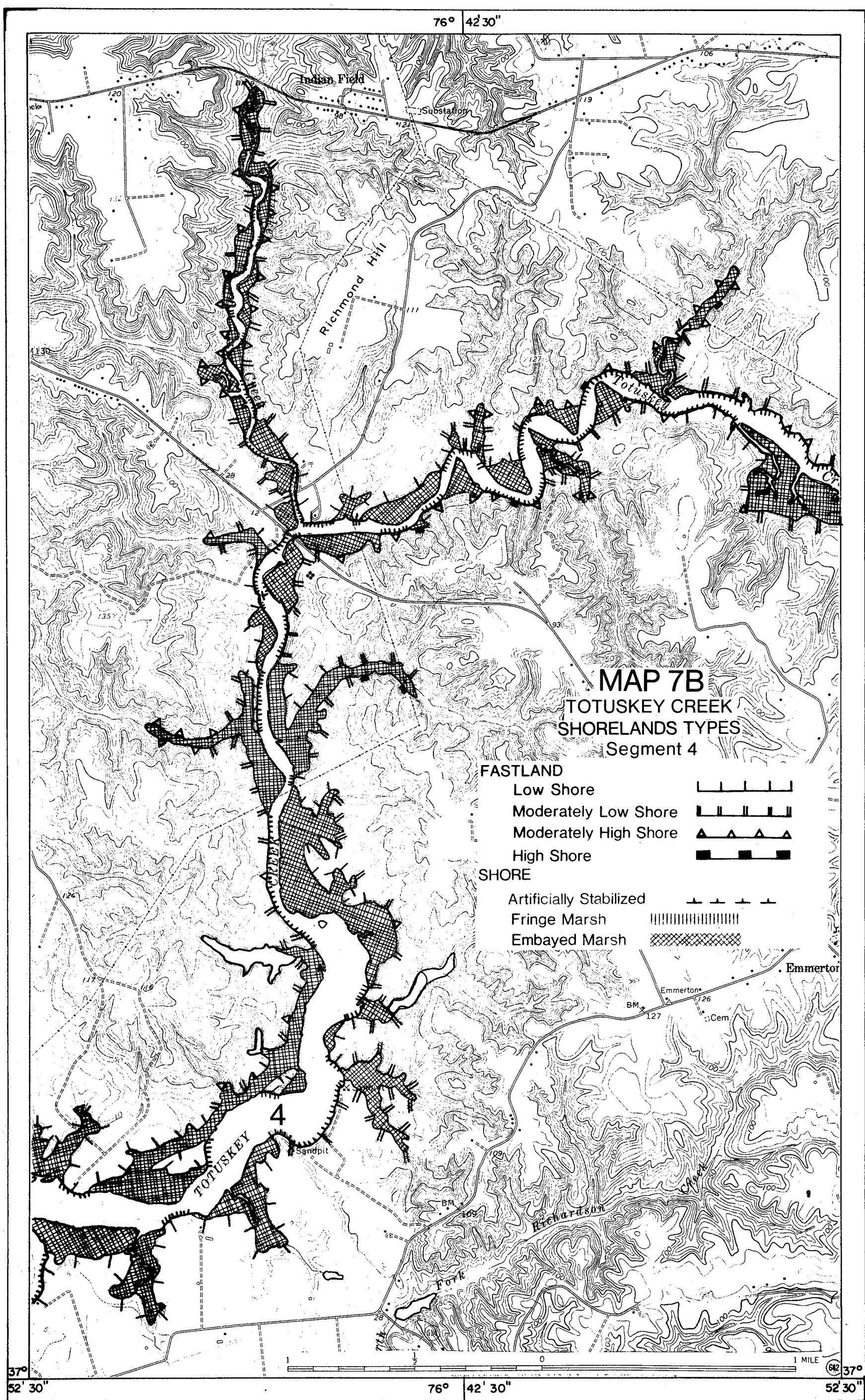
76° 45' 00"

37° 52' 30"

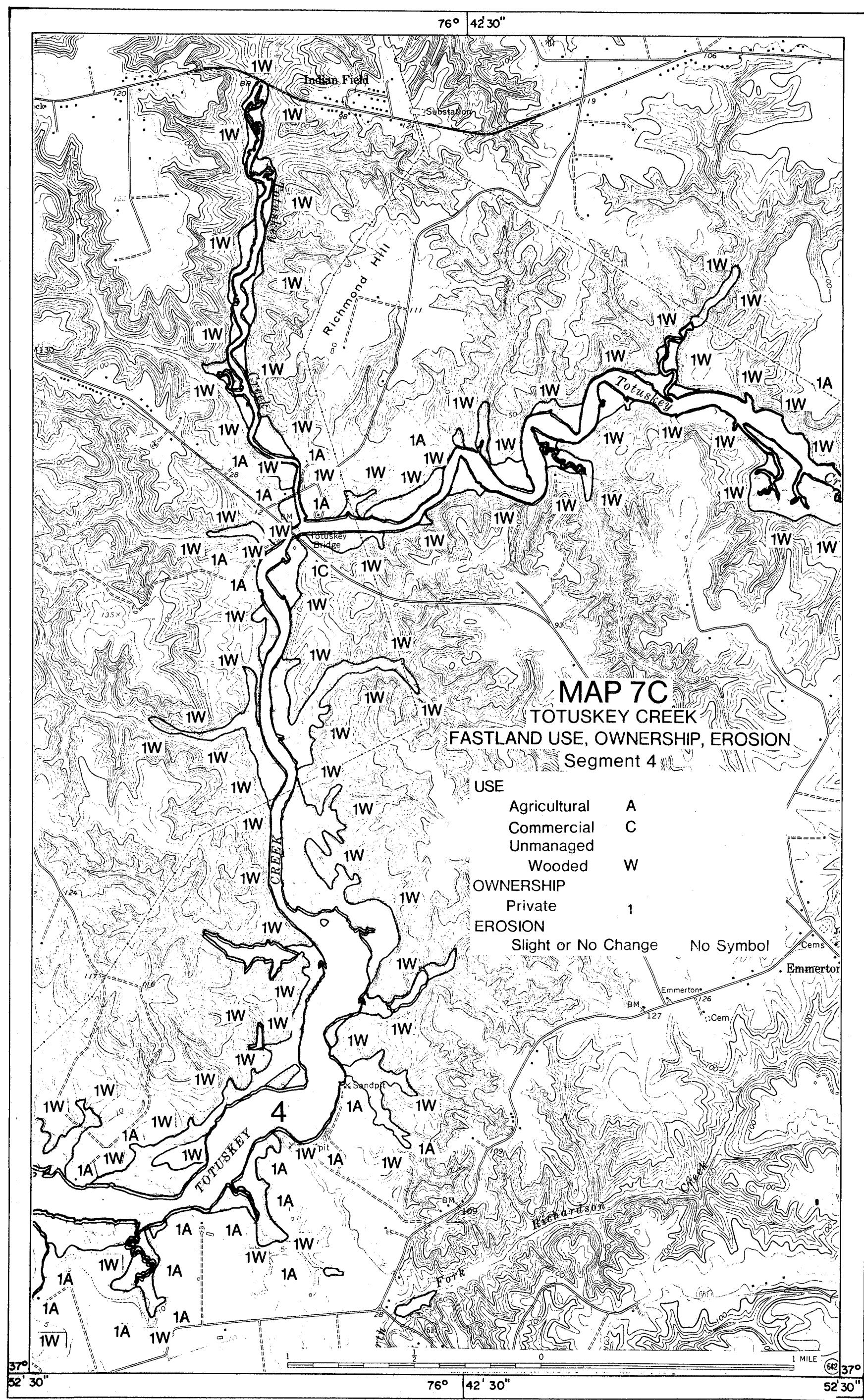
37° 52' 00"

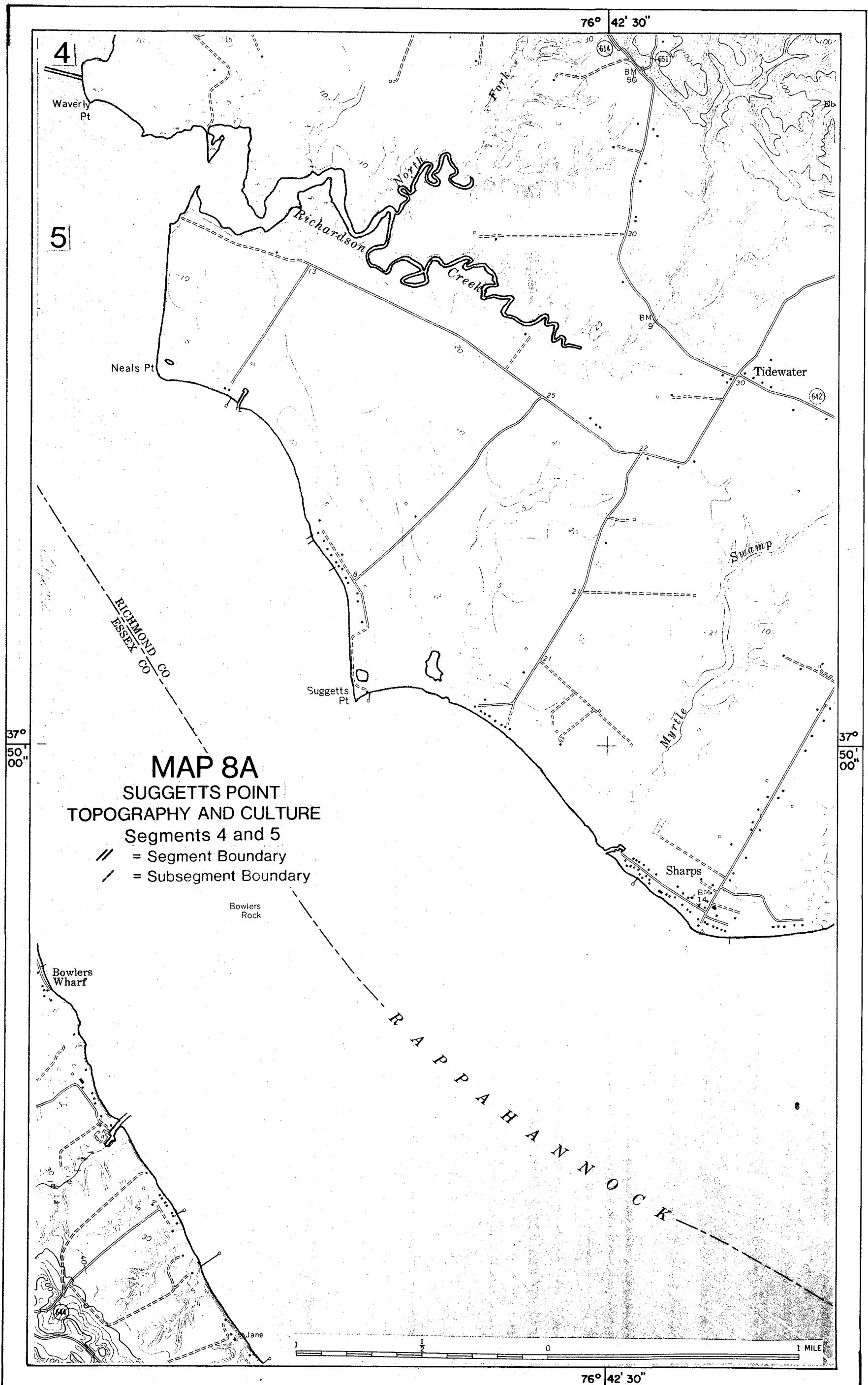






76° 42' 30"





76° 42' 30"

4

Waverly Pt

●

5

Neals Pt

●

●

●

●

RICHMOND
ESSEX
CO

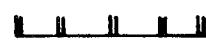
MAP 8B
SUGGETTS POINT
SHORELANDS TYPES
 Segments 4 and 5

FASTLAND

Low Shore



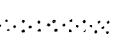
Moderately Low Shore

**SHORE**

Artificially Stabilized



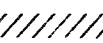
Beach



Fringe Marsh



Extensive Marsh



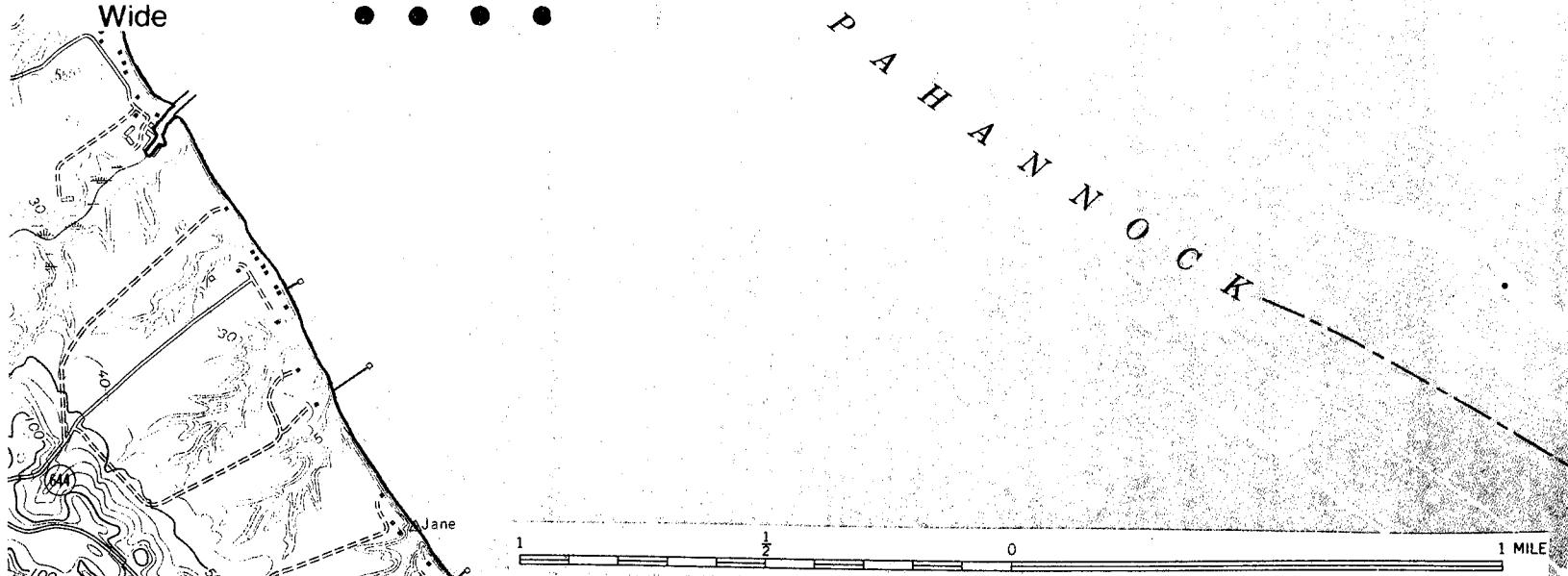
Embayed Marsh

**NEARSHORE**

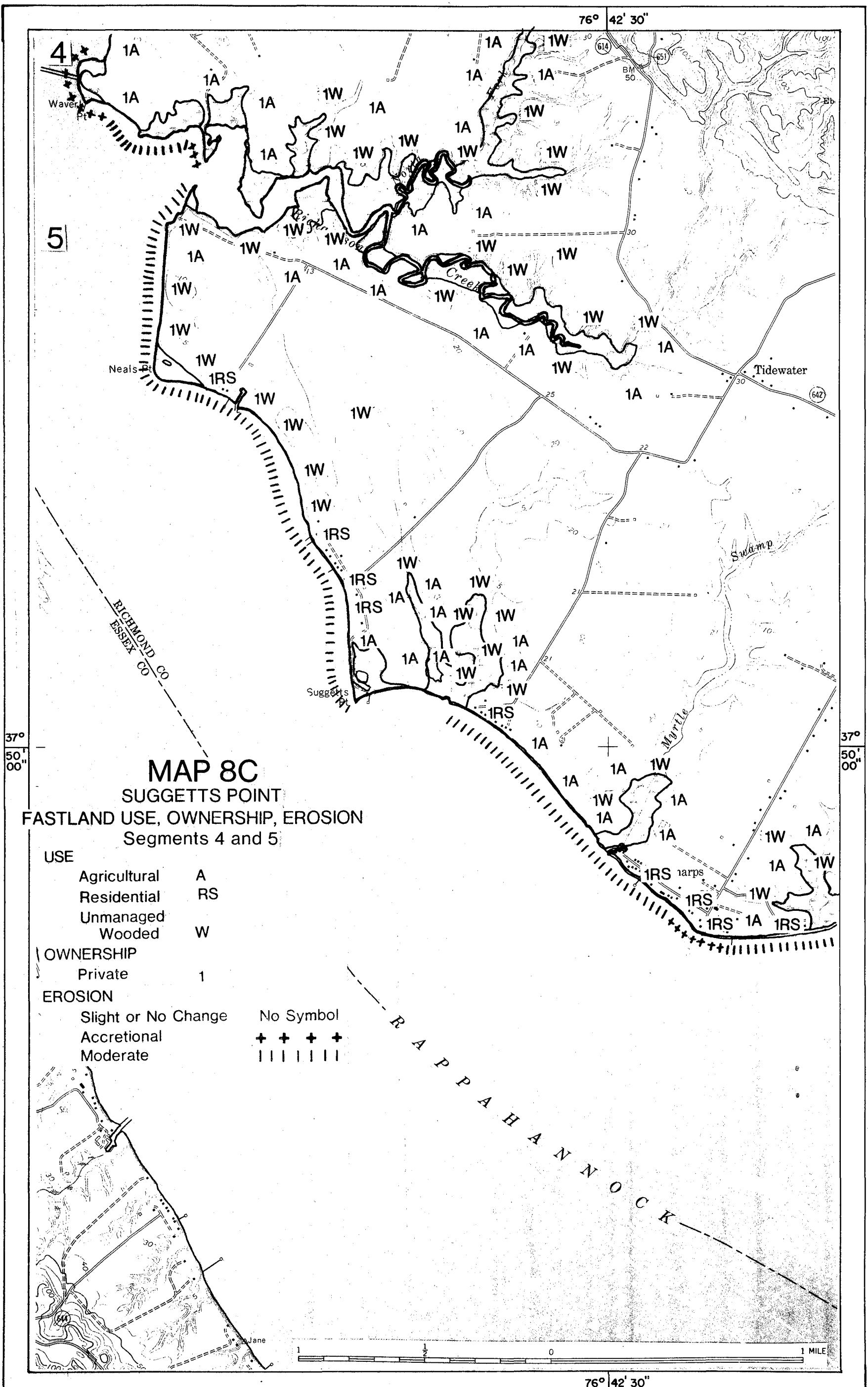
Intermediate

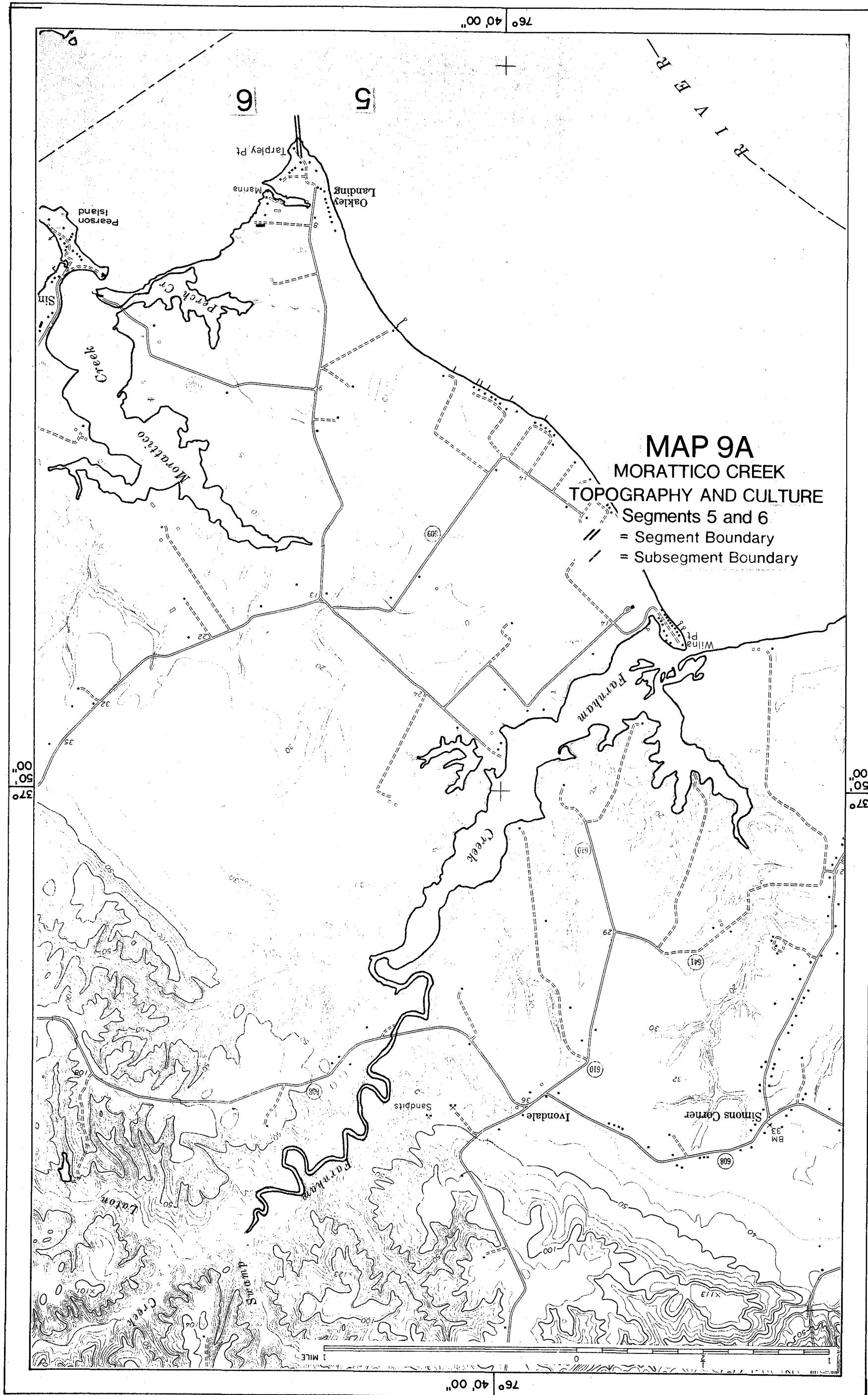


Wide

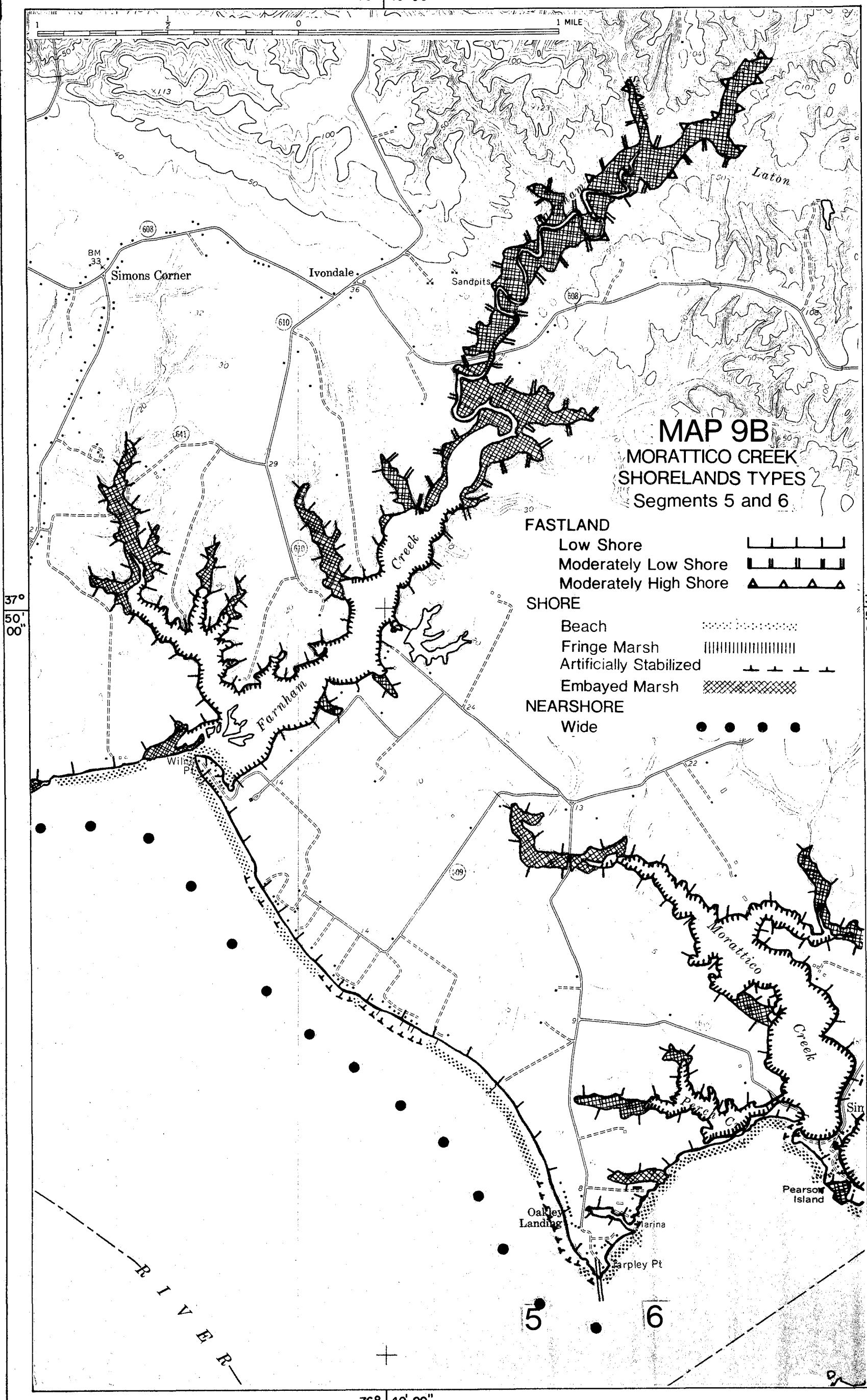


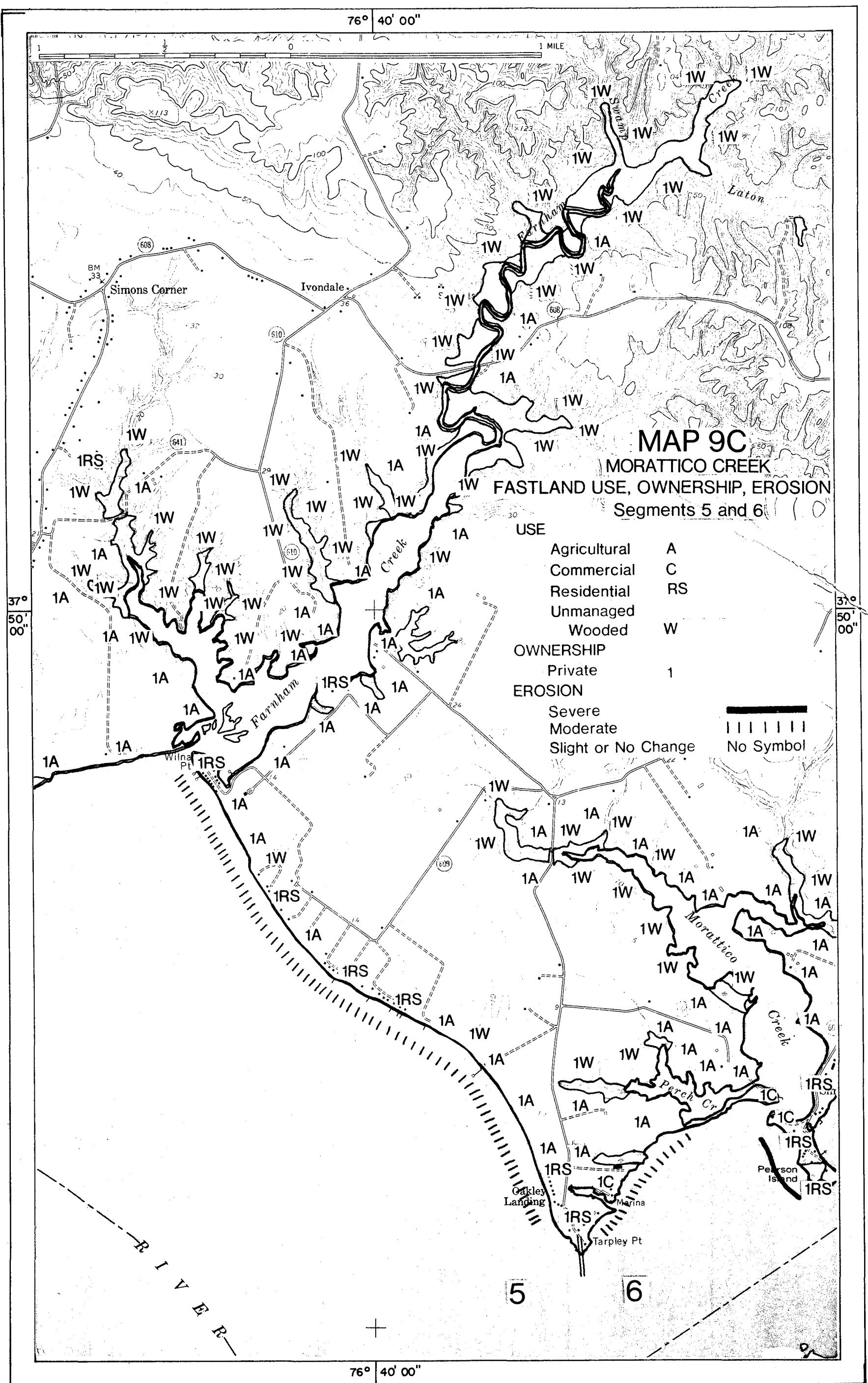
76° 42' 30"





76° 40' 00"





76° 37' 30"

Downings

Fairplay

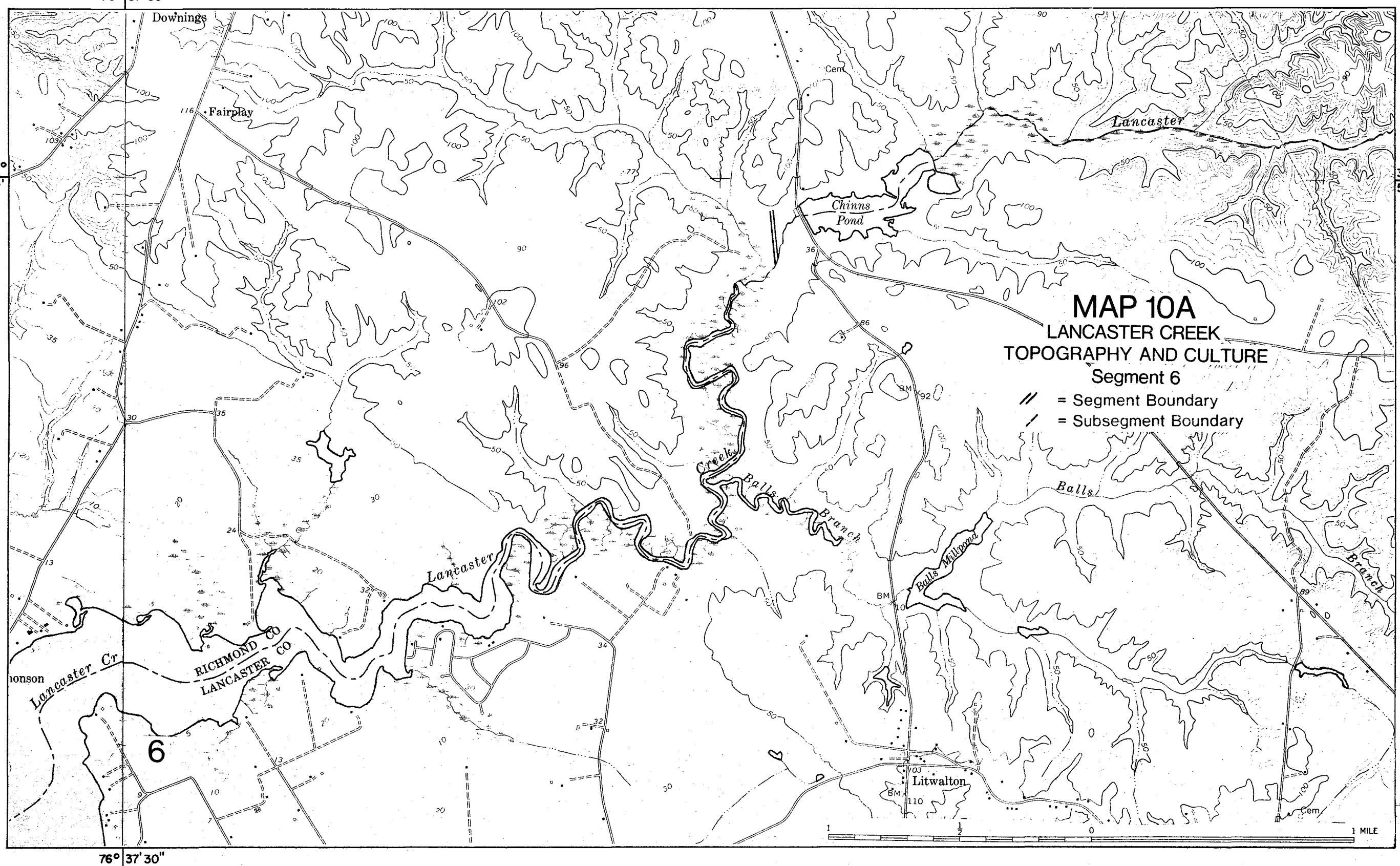
37°
50'

37°
50'

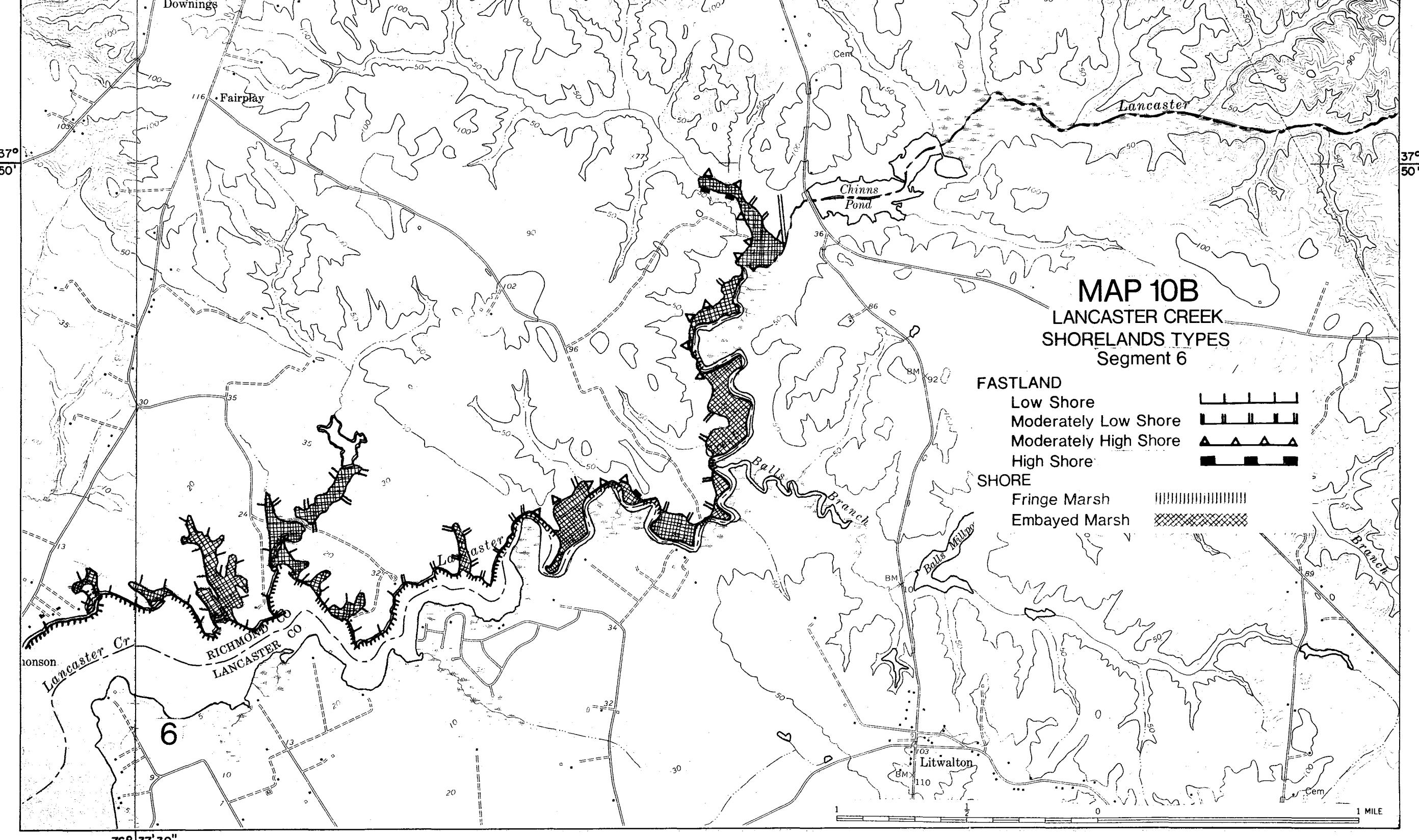
MAP 10A
LANCASTER CREEK
TOPOGRAPHY AND CULTURE

Segment 6

- Segment Boundary
- Subsegment Boundary



76° 37' 30"



76° 37' 30"

