

Critical Bay Area Soil Erosion Documents

There are three documents that deal with soil erosion and CICA responsibilities: (1) **Critical Area Treatment Measure Plan**; (2) **Operation and Maintenance Agreement**; and (3) **Operation and Maintenance Plan**.

A major project was undertaken in 1983 by the US Department of Agriculture Soil Conservation Service, Cecil County Commissioners, Cecil Soil Conservation District, and the Chesapeake Isle Civic Association to address problems associated with cliffside erosion of the Jacob's Nose area of Chesapeake Isle.

At the conclusion of the project, the **Critical Area Treatment Measure Plan** identified that CICA and the County would be responsible for maintenance of the improvements. The Critical Area Treatment Measure Plan was authorized by the Cecil County Commissioners, the Cecil Soil Conservation District, the Chesapeake Isle Civic Association, and the US Department of Agriculture Soil Conservation Service.

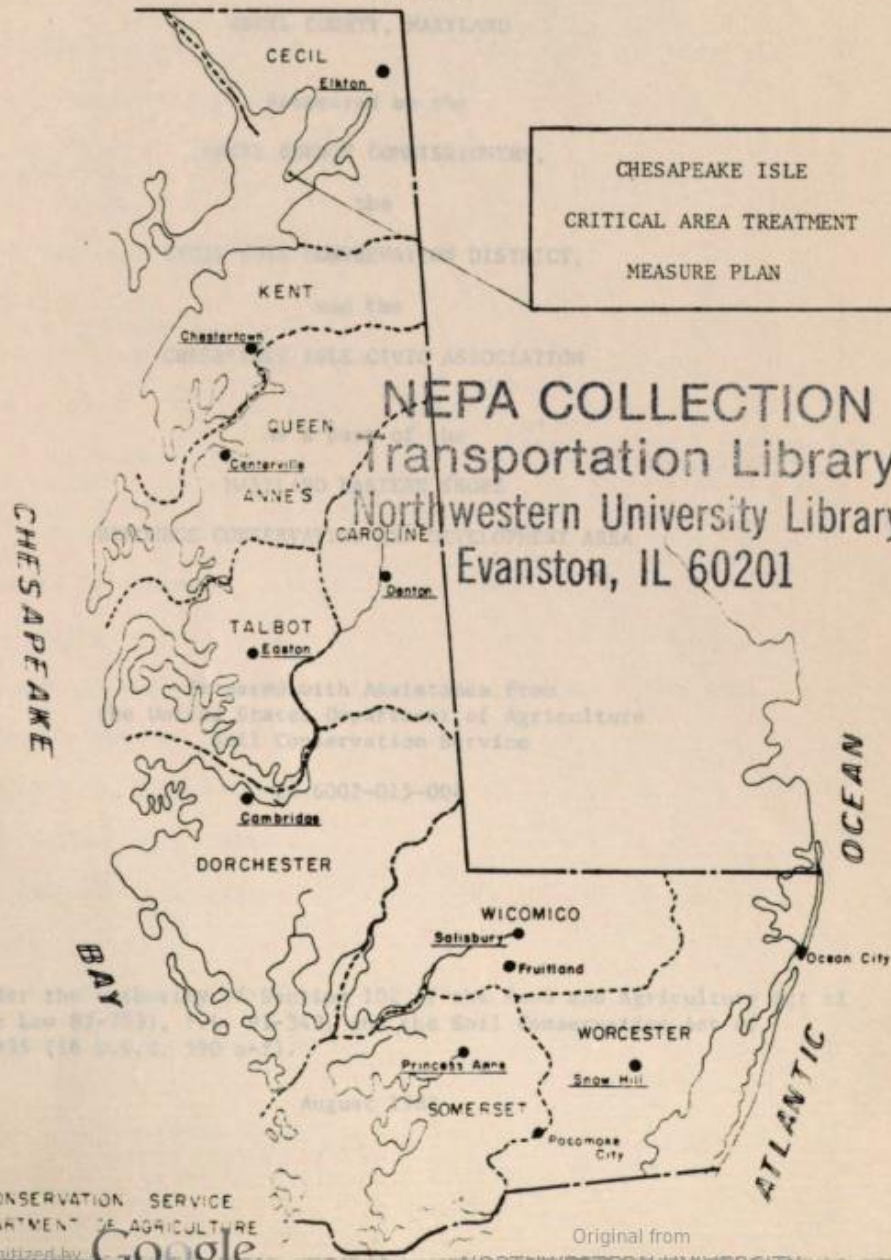
An **Operation and Maintenance Agreement** was entered between the Cecil County Commissioners, the Cecil Soil Conservation District, the Chesapeake Isle Civic Association, and the US Department of Agriculture Soil Conservation Service; an **Operation and Maintenance Plan** was developed (to supplement the Operation and Maintenance Agreement) which identified maintenance to include the riprap structure, the lined waterway, and vegetation.

These are legal documents that can only be modified by agreement of the signing parties.

SES-MD-839984-B1

MARYLAND EASTERN SHORE

RESOURCE CONSERVATION & DEVELOPMENT AREA



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CHESAPEAKE ISLE
CRITICAL AREA TREATMENT
MEASURE PLAN
CECIL COUNTY, MARYLAND

Sponsored by the
CECIL COUNTY COMMISSIONERS,
the
CECIL SOIL CONSERVATION DISTRICT,
and the
CHESAPEAKE ISLE CIVIC ASSOCIATION

As a part of the
MARYLAND EASTERN SHORE
RESOURCE CONSERVATION AND DEVELOPMENT AREA

Prepared with Assistance from
the United States Department of Agriculture
Soil Conservation Service

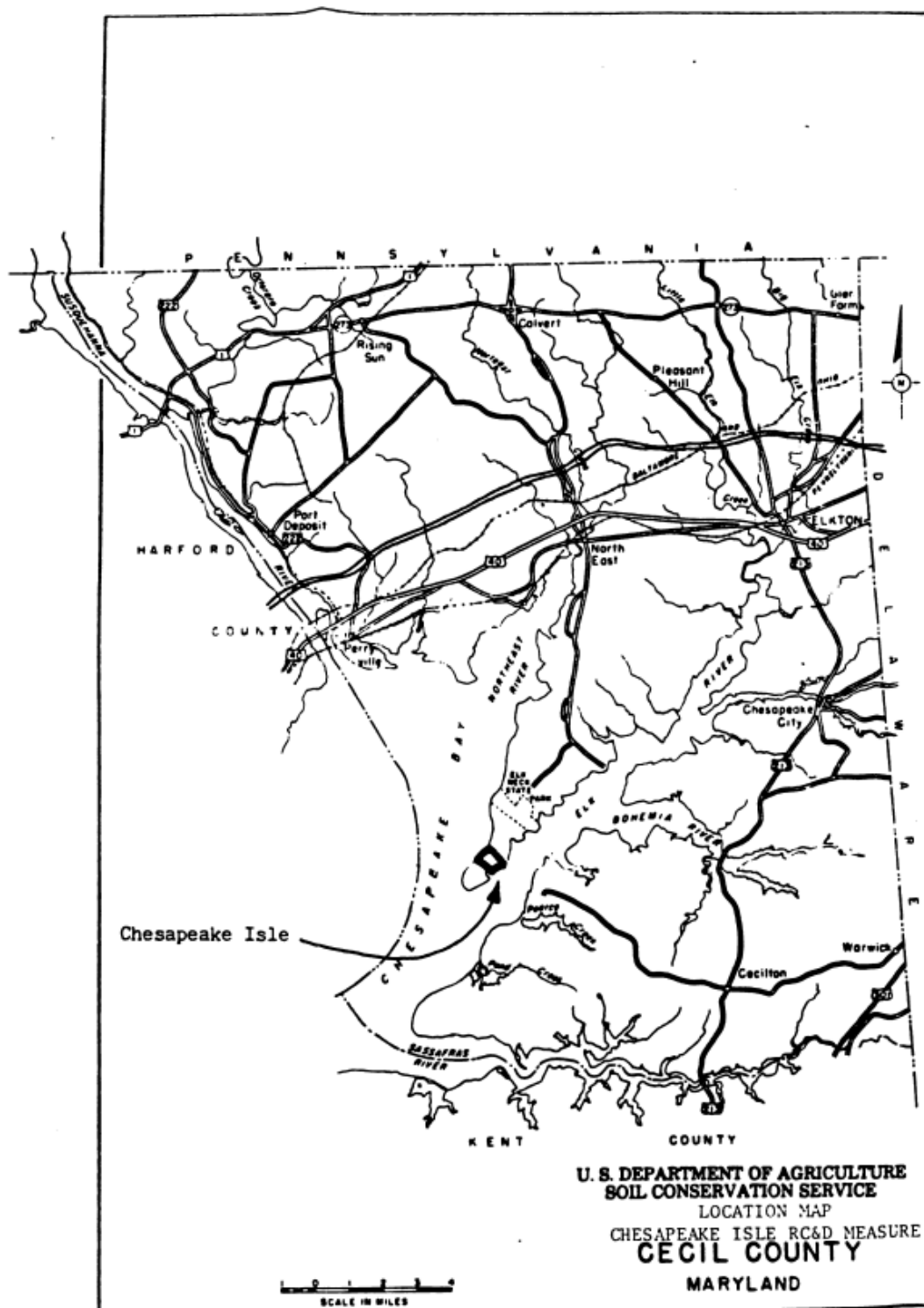
24-6002-015-004

Prepared under the authority of Section 102 of the Food and Agriculture Act of 1962 (Public Law 87-703), P.L. 91-343, and the Soil Conservation Act of April 27, 1935 (16 U.S.C. 590 a-f).

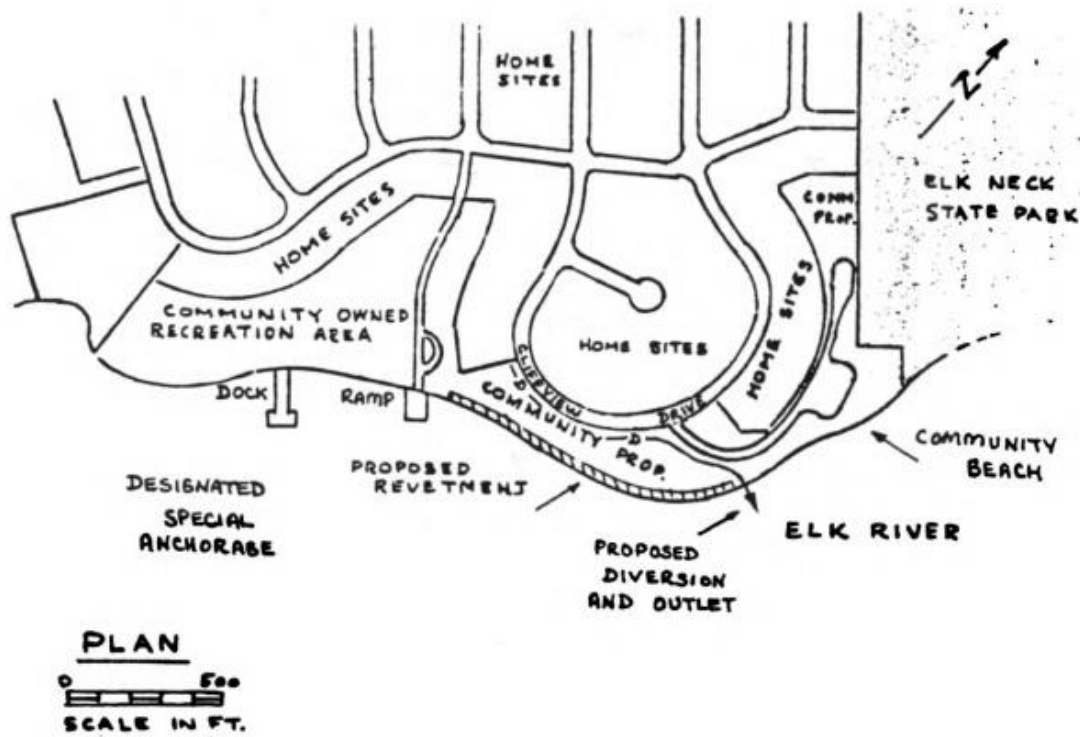
August 1983

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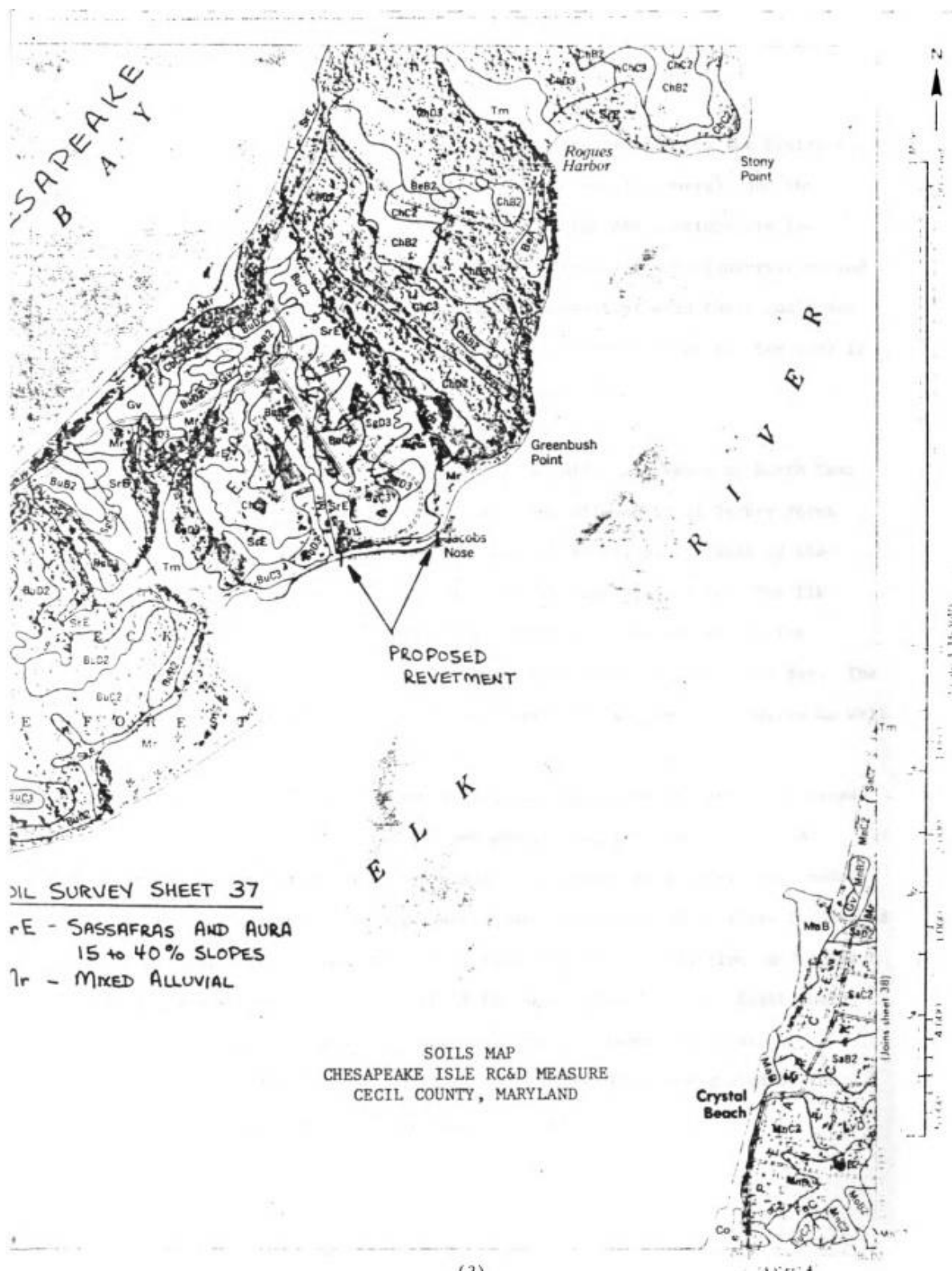
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(1)



SITE MAP
CHESAPEAKE ISLE RC&D MEASURE
CECIL COUNTY, MARYLAND



(3)

INTRODUCTION

The Cecil County Soil Conservation District (referred to as the District), the Cecil County Commissioners (referred to as the Commissioners), and the Chesapeake Isle Civic Association (referred to as the Association) are the sponsors of this measure. The Maryland Eastern Shore Resource Conservation and Development (RC&D) Council adopted it as being consistent with their goals and objectives. The USDA Soil Conservation Service (referred to as the Service) is responsible for the administration of the RC&D program.

MEASURE SETTING

Chesapeake Isle is located on Route 272, 10 miles southeast of North East in the southern portion of Cecil County about one mile north of Turkey Point Lighthouse. It is bounded on the east by the Elk River, on the west by the Chesapeake Bay, and on the north and south by Elk Neck State Park. The Elk River and the Chesapeake and Delaware (C&D) Canal form the portion of the Intercoastal Waterway that joins the Delaware River and the Chesapeake Bay. The Waterway is an important link to East Coast ports for waterborne commerce as well as pleasure boats.

The residential community which began to be developed in 1960 encompasses approximately 274 acres including 335 privately-owned lots and 33 acres of community-owned recreation lands and roads. The community property and roads are operated and maintained by the Association. The remaining acreage is devoted to recreational uses and includes a boat launching area, a pavilion, and a beach on the Elk River that runs the length of the development. A U.S. Coast Guard designated special anchorage is adjacent to the boat launching area.

The measure is located in hydrologic unit 02060001 as designated by the U.S. Geological Survey and the Water Resources Council.

PROBLEMS AND OPPORTUNITIES

Nearly vertical banks are found on both the Elk River and Chesapeake Bay sides of the development. The property on the Bay, however, is privately-owned and already protected by bulkheads.

The Association and County have identified that erosion is threatening roads, existing utility lines, and community property on the Elk River and is their major problem.

According to local landowners, the bank is eroding at the estimated rate of three feet or 6,343 tons per year along 1,530 feet of unprotected community-owned shoreline. The erosion is threatening to undermine utility lines and Cliffview Drive, the only access road to the community recreation area and the swimming beach. It also poses a potential threat to private property along the top of the bank. Sediment deposited in the swimming area and the designated special anchorage annually amounts to 0.8 inches or 200 tons per acre.

The bank erosion is due to a number of factors. The bank face is steep and unvegetated in some areas, and the soil is predominately sandy. Rainfall striking the bank face and runoff flowing over the top of the bank creates rills, gullies and slumps. Waves from abnormally high tides, storms, and passing ships periodically undercut the toe of the slope which causes the slope to fail and slump. The bank never stabilizes itself; even vegetated portions fail when they are undercut.

This project offers an opportunity to improve water quality by significantly reducing the sediment reaching the swimming area and anchorage from the eroding bank. The erosion rate from the site is expected to be reduced to less than 10 tons per year.

INVENTORY AND ANALYSIS OF RESOURCES

Significant Concerns

A broad range of environmental, economic, and social factors were considered during the development of the plan and an analysis was made of the significance of each impact to decision making. Results are noted below.

Factors	Type of Impact	Degree of Impact	Significant to Decision Making?
Drainage	Favorable	Minor	Yes
Erosion & Sedimentation	Favorable	Major	Yes
Land Use	Adverse	Minor	No
Prime Agricultural Lands	None	None	No
Wetlands	Adverse	Minor	No
Flood Plain	None	None	No
Ground Water	None	None	No
Wildlife	Favorable	Minor	No
Fish	None	None	No
Water Quality	Favorable	Major	Yes
Threatened or Endangered Species	None	None	No
Transportation/Utilities	Favorable	Major	Yes
Employment	None	None	No
Air Quality	None	None	No
Mineral Resources	None	None	No
Cultural Resources of National Significance	None	None	No
Recreation	Favorable	Major	Yes

Existing Resources

Soils in the project area are mapped as mixed alluvial (Mr), and Sassafras and Aura (SrE). The exposed slopes are extremely erodible loamy sand, single grain, very friable and strongly acid.

The intertidal wetlands along the toe of the slope consist of a narrow, 61,200 square foot beach (approximately 40 feet wide and 1,530 feet long), which is classified as estuarine, intertidal, beach cobble (E2BB1). The intertidal zone lies between a vertical bank and a subtidal shelf that extends into the Elk River. The subtidal wetlands are classified as estuarine, subtidal, unconsolidated bottom, sand (E1UB2). These areas are not classified as wetlands under the Circular 39 system.

Joseph M. McNamara, Archaeologist, Maryland Geological Survey, in a letter on December 5, 1982, stated that "due to appreciable amount of shoreline erosion lost since 1845, the potential for impacting archaeological remains in the project area is considered to be low."

Forecasted Changes

If left unchecked, the erosion at this site will continue accelerating at several points. The use of community property will be lost, utilities may be cut and private property will be lost.

Sedimentation in the special anchorage and swimming areas will continue at 200 tons per acre per year. The Elk River which according to U.S. Army Corps of Engineers requires annual maintenance dredging will continue to receive over 6,000 tons of sediment each year from this site.

FORMULATION OF ALTERNATIVES

Sponsors' Objectives

The Association and County objectives are to reduce erosion, to protect community-owned property and roads, and to improve the water quality at the community swimming beach and special anchorage. Protection of private property and utilities are also sponsors' objectives.

This measure plan is consistent with the Maryland Eastern Shore RC&D Area Plan Goal IVe which calls for RC&D to assist with erosion problems on existing recreational land. This measure is also consistent with the objectives

outlined in the District's Long Range Plan which are to minimize erosion of agriculture land, construction sites, streams, roadsides and shorelines.

Evaluation of Alternatives

Three alternatives were considered:

Alternative 1 would vegetatively stabilize the slope. The estimated cost is \$17,300 which includes wetlands planting at the toe of the slope and hydroseeding the remaining bank portion. In June of 1982, a wetlands planting failed due to the severity of the wave action, the southeast exposure and the 5,000 foot fetch. Vegetative stabilization of the toe of the slope is not considered a feasible alternative. Planting of vegetation is considered feasible for other portions of the bank. This alternative would not fully address the problems at the site. The erosion would continue. The sponsors' objectives would not be met.

Alternative 2 would be to construct a 1,530 foot stone revetment at the toe of the slope as noted in Figure 1. Where feasible, steep banks would be graded to a more stable slope. All disturbed areas and portions of the bank that cannot be graded would be vegetatively stabilized. A diversion and outlet would be constructed adjacent to Cliffview Drive at the top of the bank. The estimated cost of this alternative is \$232,000. This alternative would reduce the erosion problem and meet the objectives of the sponsors.

Alternative 3 considers the possibility of relocating access and utilities to the community land and private properties. This alternative would involve lengthy legal work, possible relocation of dwellings, condemnation proceedings, and extensive engineering. An alternative access route to the community beach is considered feasible; however, relocation of Cliffview Drive is considered not feasible due to the design layout of the subdivision and ownership of the lots. The estimated cost of this alternative is in excess of \$300,000. It would not solve the erosion problem or meet the sponsors' objectives.

Comparison of Alternatives

Economic, Environmental or Social Factors	Alternative 1	Alternative 2	Alternative 3
Transportation/Utilities	Adverse	Favorable	Favorable
Water Quality	Partially	Favorable	Adverse
Erosion - Sediment	Adverse	Favorable	Adverse
Recreation	Adverse	Favorable	Favorable
Meet Sponsors' Objectives	Partially	Yes	No
Cost	\$17,300	\$232,000	\$300,000+

SELECTED PLAN

The sponsors selected Alternative 2 which will be referred to as the selected plan. They considered it to be the most feasible in terms of protection, costs and benefits. It meets their objectives.

The selected plan includes construction of 1,530 feet of revetment as noted in Figure 1 at the toe of the slope. An estimated 9,549 tons of riprap and bedding material will be used in the revetment. An 800 foot diversion will be constructed adjacent to Cliffview Drive. It will outlet in a drop structure with a rock-lined controlled outlet. An estimated two acres of disturbed areas and eroding banks will be vegetatively stabilized.

Impacts of the Selected Plan

The selected plan will significantly reduce the erosion and associated sedimentation in the swimming area and the designated special anchorage. Sediment reaching the Elk River would be reduced. The threat to private property, roads and utilities would be lessened.

In accordance with the National Environmental Policy Act (NEPA), an Environmental Evaluation has been conducted and an Environmental Assessment has been completed for the Chesapeake Isle Critical Area Treatment Measure. It was determined that an environmental impact statement was not necessary. A Notice of Finding and Finding of No Significant Impact was filed in the Federal Register on July 15, 1983.

Permits Required

The Association and County will obtain all required permits prior to the signing of the Project Agreement. This includes a permit from the Army Corps of Engineers and Department of Natural Resources for the construction of the revetment and local grading permits will also be obtained.

Land and Water Rights

The Association owns the property on which the construction activities will take place. The Association and County will be responsible for any other land rights needed for the implementation of the selected plan.

Method of Financing and Cost

The Association, County and the Service will share the cost of installing the works of improvement as follows: the Association - 2.5 percent, the County - 22.5 percent, and the Service - 75 percent.

The Service will bear 100 percent of the cost for technical assistance. The Association and County will bear 100 percent of land rights and permit costs. The Association, County and the Service will each pay the administrative cost which they incur.

The estimates in this report on Table 1, page 15 are preliminary. The quantity and value of work will be determined by mutual agreement immediately prior to the signing of a fund-obligating Project Agreement and will be set

forth in the agreement. In determining the final costs to be borne by each party, the actual cost incurred in the installation of the measure will be used. The Association and County must have their share of the funds available at the time the Project Agreement is signed. The County will be responsible for all local funds and will sign the Project Agreement.

County funds for the selected plan will come from general tax revenues.

The Association funding will come from Association dues.

RC&D funds administered through the Service will be dependent on appropriations and allocations. There are no guarantees as to the availability of RC&D funds.

The District will incur no costs for installation or operation and maintenance of the selected plan.

Contracting

Contracting for the works of improvement will be done through a formal local contracting procedure administered by the County. Details of the contracting will be included in the Project Agreement.

Operation and Maintenance

The Association and County will be responsible for the maintenance of the works of improvement. An Operation and Maintenance Agreement (O&M) will be entered into between the County, Association and the Service, outlining the maintenance requirements prior to execution of the Project Agreement. The estimated annual cost of operation and maintenance is \$1,500. This includes revetment repairs due to storms or extreme tidal action. It also includes debris and trash removal and revegetation of damaged areas.

Inspections of the works of improvement will be made annually by the Association, County and the Service for a period of three years. After the third year, annual inspection reports will be submitted to the Service by

the Association and County. Upon request, the District will provide technical assistance for needed maintenance work. It is expected that this measure will be maintained for at least 20 years.

PUBLIC PARTICIPATION

The Chesapeake Isle Civic Association Board of Directors has a significant involvement in the development of this plan. The Board of Directors sent a registered letter to the 253 property owners in Chesapeake Isle explaining the proposed works of improvement. The community unanimously approved the project during the week of March 7, 1983. The County's involvement was discussed at their regular meeting on January 25, 1983.

The Department of Natural Resources, Wetland Division, the Army Corps of Engineers and the Maryland Geological Survey, as well as many landowners provided valuable information for the plan.

UNIFORM RELOCATION ASSISTANCE AND REAL PROPERTY ACQUISITION POLICY ACT

The Association and County assure comparable replacement dwellings will be available for individuals and persons displaced from dwellings, and will provide relocation assistance advisory services and relocation assistance, make the relocation payments to displaced persons, and otherwise comply with the real property acquisition policies contained in the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (Public Law 91-646, 84 Stat. 1894), effective as of January 2, 1971, and the Regulations issued by the Secretary of Agriculture pursuant thereto.

The costs of relocation payments will be shared by the County and the Service as follows:

	<u>County</u> (percent)	<u>Service</u> (percent)	<u>Estimated Relocation</u> <u>Payment Costs</u>
Relocation Payments	23.3	76.7	-0- <u>1/</u>

1/ Investigation has disclosed that under present conditions, the RC&D measures will not result in the displacement of any person, business, or farm operation. However, if relocations become necessary, relocation payments will be cost shared in accordance with the percentages shown.

MUTUALLY AGREEABLE PLAN

Through a request by the District, Association and County, and the cooperative efforts of the Association, County and the Service, this mutually agreeable RC&D measure plan has been completed. This RC&D measure has been adopted by the Maryland Eastern Shore RC&D Council and included in their Area Plan as a means to accomplish their objectives.

AGREEMENT REQUIRED TO OBLIGATE FUNDS

This is not a fund-obligating document. Financial and other assistance to be furnished by the Service in carrying out the work in this plan is contingent upon the appropriation of funds for this purpose.

The Project Agreement will be entered into between the Service, the Association and the County before either party initiates work involving funds of the other parties. Such agreement will set forth in detail the financial and working arrangements, and other conditions applicable to the specific measures to be installed.

COMPLIANCE WITH CIVIL RIGHTS ACT

The program conducted will be in compliance with all requirements respecting nondiscrimination as contained in the Civil Rights Act of 1964 and the Regulations of the Secretary of Agriculture (7 C.F.R. Sec. 15.1-15.12) which provide that no person in the United States shall, on the grounds of race, color, sex, age, or national origin, be excluded from participation in, be denied the benefits of, or be subject to discrimination under any activity receiving Federal financial assistance.

NO MEMBER OF CONGRESS TO BENEFIT

No member of or delegate to Congress, or resident commissioner shall be admitted to any share or part of this agreement, or to benefit that may arise therefrom; but this provision shall not be construed to extend to this agreement if made with a corporation for its general benefit.

This plan may be amended, revised, or terminated, by mutual agreement of the parties hereto, except for cause.

CECIL COUNTY COMMISSIONERS

By Frank D. Ragan
Title President

Authorized by a resolution of the Cecil County Commissioners at a meeting held on _____.

CECIL SOIL CONSERVATION DISTRICT

By Floyd Allred
Title Chairman

Authorized by a resolution of the Board of Supervisors of the Cecil Soil Conservation District at a meeting held on Aug. 29, 1983.

CHESAPEAKE ISLE CIVIC ASSOCIATION

By John J. Buck
Title Pres. CICA

By John B. Tice
Title Secy. CICA

Authorized by a resolution of the Board of Directors of the Chesapeake Isle Civic Association at a meeting held on July 30, 1983.

USDA, SOIL CONSERVATION SERVICE

By Paul H. Rhea
Title State Conservationist

Date 9/8/83

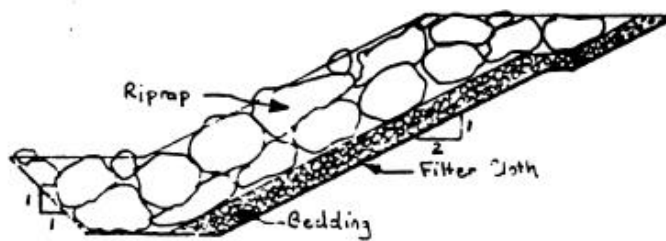
TABLE 1 - ESTIMATED INSTALLATION COST
CHESAPEAKE ISLE
CRITICAL AREA TREATMENT
MEASURE PLAN
MARYLAND EASTERN SHORE RC&D AREA
(Dollars) 1/

INSTALLATION COST ITEM	RC&D FUNDS	ASSOCIATION FUNDS	COUNTY FUNDS	TOTAL
CONSTRUCTION	\$ 174,000	\$ 5,800	\$ 52,200	\$ 232,000
ENGINEERING SERVICE	20,000	-0-	-0-	20,000
PROJECT ADMINISTRATION	30,000	6,250	3,750	40,000
LAND RIGHTS	-0-	-0-	-0-	-0-
TOTAL COSTS	\$ 224,000	\$ 12,050	\$ 55,950	\$ 292,000

1/ Price Base . July 1983

Date July 29, 1983

FIGURE 1



TYPICAL REVETMENT SECTION

Not to Scale

SCS-MD-839984-B2

Transportation Library
Northwestern University Library
Evanston, IL 60201

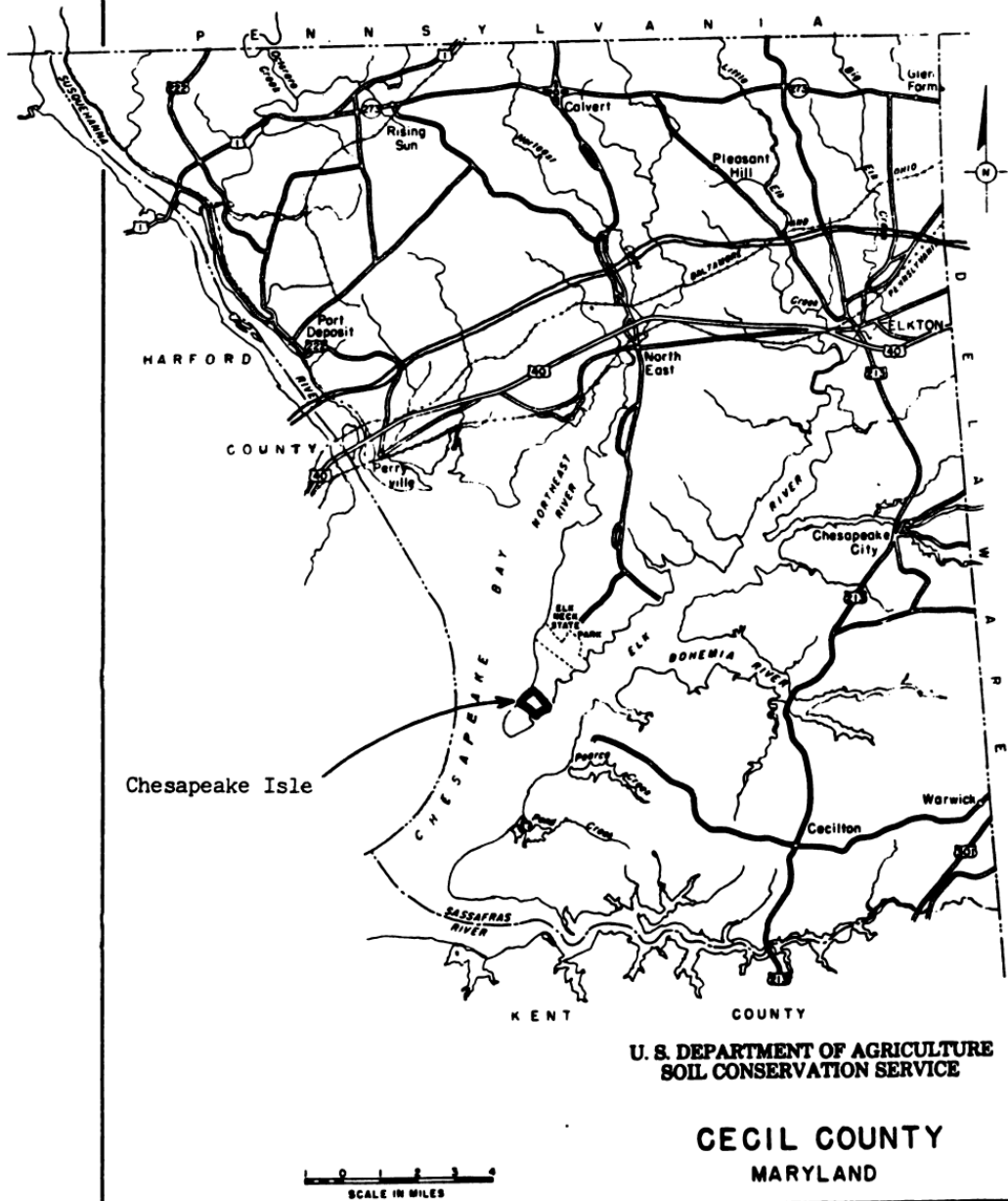
ENVIRONMENTAL ASSESSMENT
FOR THE
CRITICAL AREA TREATMENT RC&D MEASURE
FOR
CHESAPEAKE ISLE
CECIL COUNTY, MARYLAND

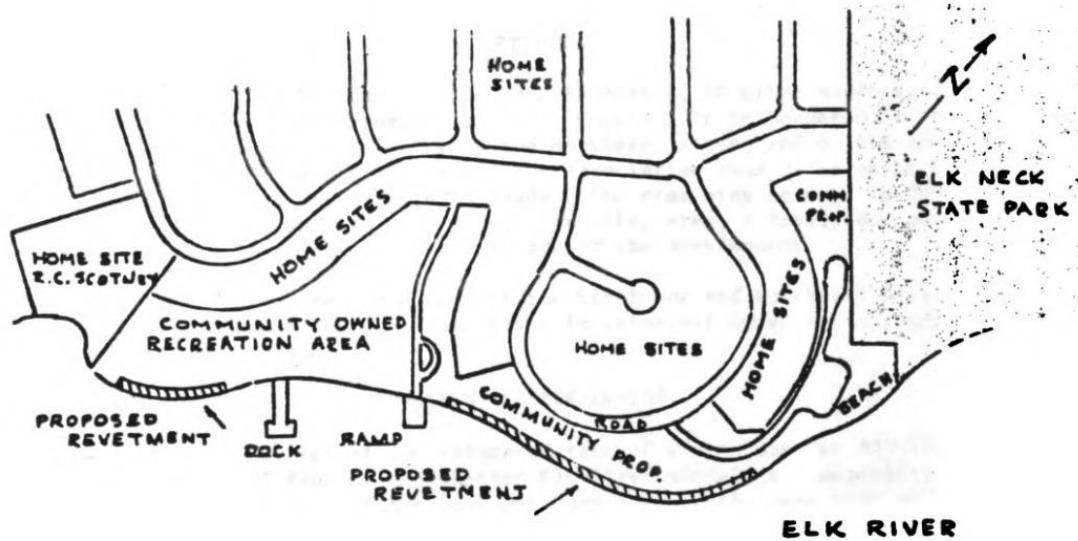
U. S. Department of Agriculture
Soil Conservation Service

June 1983

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

CECIL COUNTY
MARYLAND





PLAN
 0 500
 SCALE IN FT.

PROPOSED REVETMENT
CHESAPEAKE ISLE
Cecil Co. MD.

INTRODUCTION

Chesapeake Isle is a residential community which began its development in 1960. The community encompasses approximately 274 acres, including 335 privately owned lots and 33 acres of community owned recreation lands and roads. The community property, which is operated and maintained by the Chesapeake Isle Civic Association (Association), is exposed and eroding. The eroding bank ranges from 3 to 40 feet in height and is 1,730 feet in length. Cliffview Drive and utility lines along the top of the bank are in danger of being undermined and a nearby recreation area receives large sediment loads from the eroding bank. The proposed critical area treatment measure will involve installation of a 1,730-foot stone revetment, construction of a diversion and outlet at the top of the bank, and grading (where feasible), and vegetative stabilization of eroding areas.

SETTING

Chesapeake Isle is located on the Elk Neck Peninsula, 10 miles southeast of North East in the southern portion of Cecil County. It is bordered on the east by the Elk River, on the west by the Northeast River, and on the north and south by the Elk Neck State Park. The Association owns 33 acres of the development, one-half of which is in roads. The remaining acreage is devoted to recreational uses and includes a boat launching area, a pavillion, and a beach on the Elk River that runs the length of the development.

Nearly vertical banks are found on both the Elk River and Northeast River side. The property on the Northeast River is privately owned and already protected by bulkheads.

PROBLEM IDENTIFICATION

Bank erosion is occurring at the estimated rate of three feet (or 6343 tons) per year along 1,730 feet of unprotected Elk River shoreline. According to local landowners, 25 feet of the bank has been lost in the past nine years. The erosion is threatening to undermine utility lines and Cliffview Drive, the only access road to a community recreation site. Swimming and boat mooring areas at the recreation site receive large sediment loads from the eroding bank. Sedimentation in these areas now occurs at the rate of approximately one inch per year.

The bank erosion is due to a number of factors. The bank face is steep and unvegetated in some areas, and the soil is predominately sandy. Direct rainfall on the bank face and runoff flowing over the top of the bank creates rills and gullies on the face and concave slumps at the top. Waves from abnormally high tides, storms, and passing ships periodically undercut the toe of the slope, and prevent the bank from stabilizing itself.

FORMULATION

Four alternatives were considered:

1. Alternative 1 would vegetatively stabilize the toe of the slope. The estimated cost is \$17,300, which includes wetlands planting at the toe of the slope and hydroseeding the remaining bank area. In June of 1982, a trial planting of salt meadow cordgrass failed within two days due to the severity of the wave action, the southeast exposure and the fetch. Vegetative stabilization of the toe of the slope is not considered a feasible alternative. Planting of vegetation is feasible for other portions of the bank and is included in the other alternatives.
2. Alternative 2 involves construction of a 1,730-foot stone revetment at the toe of the slope. Where feasible, steep banks would be graded to a more stable slope and would be vegetatively stabilized with Kentucky 31 tall fescue. Eroding areas of the bank that could not be graded would receive vegetative treatment only. A diversion and outlet would be constructed adjacent to Cliffview Drive at the top of the bank. The estimated cost of the alternative is \$200,000. Implementation of this alternative would reduce the erosion problems and meet the objectives of the sponsors.
3. Alternative 3 consists of a 1,730-foot stone revetment constructed using a different design. This alternative includes the diversion and outlet as noted in Alternative 2, plus the same vegetative stabilization. The estimated cost is \$332,000. This alternative would have the same benefits and effects as Alternative 2, and would also meet the objectives of the sponsors.
4. Alternative 4 considers the possibility of relocating utilities and access to the community land and private properties. If pursued, the alternative access would involve lengthy legal work, possible relocation of dwellings, condemnation proceedings, and extensive engineering. This alternative was considered not feasible due to the layout of the subdivision and ownership of the lots. An alternative access route to the community beach is considered feasible. The estimated cost of this alternative is in excess of \$300,000. It would not solve the erosion problems or meet the sponsors' objectives.

PLAN SELECTION

The association board of directors decided to implement Alternative 2 at their January, 1983 meeting. They consider it to be the most feasible in terms of protection, cost, benefits, and adverse impacts. This alternative will be referred to as the selected plan. A comparison of alternatives and impacts considered important to the sponsors is summarized in Table 1.

Table 1. Comparison of Alternatives

Economic, Environmental or Social Factors	Selected Plan			
	Alternative 1	Alternative 2	Alternative 3	Alternative 4
Transportation/Utilities	Adverse	Favorable	Favorable	Adverse
Water Quality	Adverse	Favorable	Favorable	Adverse
Erosion-Sedimentation	Adverse	Favorable	Favorable	Adverse
Recreation	Adverse	Favorable	Favorable	Adverse

SELECTED PLAN

Structural Measures

Planned works of improvement include the following:

- Diversion - 800 feet (adjacent to Cliffview Drive and utilities at the top of the bank)
- Vegetative Critical Area Stabilization - two acres (disturbed and eroding areas) seeded to KY-31 tall fescue
- Drop Structure - 60 feet (at the outlet of the diversion)
- Stone Revetment - 1,730 feet (at the toe of the slope)

ENVIRONMENTAL IMPACTS

A broad range of environmental, economic, and social factors were considered during the environmental evaluation and an analysis made of the significance of each impact to decision making. Results are noted in Table 2.

Table 2. Analysis of Impacts - Selected Plan

Economic, Environmental and Social Factors	Type of Impact	Degree of Impact	Significant to Decision Making
Drainage	Favorable	Minor	Yes
Erosion & Sedimentation	Favorable	Major	Yes
Land Use	Adverse	Minor	No
Prime Agricultural Lands	None	None	No
Wetlands	Adverse	Minor	No
Floodplain	None	None	No
Groundwater	None	None	No
Wildlife	Favorable	Minor	No
Fish	None	None	No
Water Quality	Favorable	Major	Yes
Threatened/Endangered Species	None	None	No
Transportation/Utilities	Favorable	Major	Yes
Employment	None	None	No
Air Quality	None	None	No
Mineral Resources	None	None	No
Cultural Resources of National Significance	None	None	No
Recreation	Favorable	Major	Yes

A description of the measure factors and impacts is presented below. The descriptions are based on information and data gathered during the environmental evaluation process and planning of the measure.

DRAINAGE

Storm water which flows over the edge of the bank creates concave slumps at the top of the bank and rills and gullies on the bank face.

Impact

A diversion will be constructed along top of bank to direct runoff to a protected outlet, thus eliminating overbank flow.

EROSION AND SEDIMENTATION

An estimated 6,343 tons of soil leave the site each year due to sheet, rill and gully erosion, and undercutting of the bank by waves from storms, high tides, and ocean going vessels. The eroded material washes directly into the Elk River, where some of the sediment is deposited in shipping lanes and at the nearby boat mooring area. The eroding soils are mapped as Butlertown silt loam (BuC3), Sassafras and Aura soils (SrE), and mixed alluvial land (Mr).

Impact

Installation of the stone revetment, construction of the diversion, and grading and vegetative stabilization of eroding areas will reduce erosion to less than 0.10 percent of the current rate or six tons per year.

LAND USE

The community-owned property is used for utilities, transportation and recreation.

Impact

Where banks are low and it is feasible to grade them to create stable slopes, some of the recreation land will be lost. The diversion will take other lands. This acreage is estimated to be less than one acre. Its loss is not considered significant.

PRIME AGRICULTURAL LANDS

There are no prime agricultural soils in the project area.

Impact

None.

WETLANDS

Wetlands are limited to unvegetated intertidal and subtidal areas. These areas are not classified as wetlands under the Circular 39 system, but may be classified under the system described in Classification of Wetlands and Deepwater Habitats of the United States. The intertidal wetlands consist of a narrow, 69,500 square foot beach (approximately 40 feet wide and 1,730 feet

long), which is classified as estuarine, intertidal, beach, cobble (E2BB1). The intertidal zone lies between a vertical bank and a subtidal shelf that extends into the Elk River. The subtidal wetlands are classified as estuarine, subtidal, unconsolidated bottom, sand (E1UB2).

Impact

Approximately 35,000 square feet of intertidal zone will be covered by the stone revetment. Subtidal wetlands will not be affected.

FLOODPLAIN

Base of the bluff is within the 100-year floodplain and much work will proceed in this area.

Impact

The proposed measure will not significantly increase 100-year flood stage elevations.

GROUNDWATER

Groundwater is abundant in the area and is found in surface and subsurface aquifers.

Impact

None.

WILDLIFE

A narrow beach provides an area for shore and wading birds. Utilization of the bank for food or cover is minimal because of little or no ground cover and unstable surfaces.

Impact

About 50 percent or 35,000 square feet of this beach area will be covered by works of improvement. However, the stone revetment will provide more surface for the attachment of various organisms and will provide a type of habitat which is not presently available. The bank will be vegetatively stabilized providing more wildlife food and cover than presently available.

FISH

No significant fisheries habitat exists within limits of work. The Elk River adjacent to the site is a valuable fisheries resource.

Impact

Works of improvement are not expected to have any major effect on the fisheries.

WATER QUALITY

Shoreline erosion is reducing water quality at the community swimming beach and boat mooring area. Sedimentation at these sites occurs at the rate of approximately one inch per year.

Impact

There will be a slight increase in sedimentation during construction. After the project has been installed, erosion and sedimentation will be significantly reduced.

THREATENED OR ENDANGERED SPECIES

The project is within the range of the bald eagle, a federally listed endangered species, which inhabits the Chesapeake Bay area. The property does not provide critical habitat for this species, nor does it contain critical habitat for other threatened or endangered species on state and federal lists and study lists..

Impact

None.

TRANSPORTATION/UTILITIES

Erosion is threatening to undermine utility lines and Cliffview Drive, which is the only access road to recreation areas and nine private lots.

Impact

The road and utilities will be protected by the proposed measure.

EMPLOYMENT

Unemployment rates in the area are slightly above national averages.

Impact

Construction of the proposed project will create some temporary employment at the time of construction. It is not, however, considered significant.

MINERAL RESOURCES

No significant mineral resources occur in the project area.

Impact

None.

CULTURAL RESOURCES OF NATIONAL SIGNIFICANCE

There are no known cultural resources in the project area.

Impact

Joseph M. McNamara, Archeologist, Maryland Geological Survey, in a letter of December 5, 1982, stated that, "Due to appreciable amount of shoreline erosion lost since 1845, the potential for impacting archeological remains in the project area is considered to be low."

RECREATION

Erosion is threatening to undermine the only access road to community recreation property and utilities to that facility. An adjacent swimming beach and boat mooring area receive large sediment loads from the eroding bank.

Impact

The works of improvement will protect the utilities and access to the recreation area. The amount of sediment reaching the swimming area and boat mooring area from the eroding bank will decrease.

COMMITMENT OF RESOURCES

The labor and capital resources used in installing, operating and maintaining the works of improvement will be irreversibly committed.

PERMITS

The sponsors are in the process of obtaining the necessary permits from the Maryland Department of Natural Resources, the U. S. Army Corp of Engineers (404 permit), and from the local government.

CONSULTATION

Comments were solicited from the following agencies:

Chesapeake Isle Civic Association
U. S. Army Corps of Engineers
Maryland Department of Natural Resources, Wetlands Division
Maryland Department of Natural Resources, Shore Erosion Control
Maryland Department of Natural Resources, Geological Survey

CONCLUSIONS

Based on an evaluation of environmental, social, and economic factors, it is the judgement of the assessment team that implementation of the proposed measure will not cause significant adverse impacts to the human environment.

LIST OF PREPARERS AND QUALIFICATIONS

Name	Present Title (Time in Job - Yrs.)	Education	Past Experience Titles & Time
<u>SCS STAFF</u>			
Michael P. Sigris	RC&D Coordinator 3 yrs.	B.S. - Agronomy	District Conserv. Soil Conserv. 7 yrs. 2 yrs.
David Wilson	District Conservationist 12 yrs.	B.S. - Agronomy	Soil Conserv. 3 yrs.
Anne Lynn	State Biologist	B.A. - Zoology M. Env. Science	Environmental Scientist 2 yrs. Environmental Planner 1 yr.
<u>NON SCS STAFF</u>			
John B. Tepe	Director of Chesapeake Isle Civic Association 9 yrs.	Ph.D. - Engineering	Director, Petrochemicals Plant Design, DuPont Co. Director, Corporate Engineering Research, DuPont Co.
Jeanie Lewis	Cecil Kent Soil Conser- vationist	B.S. - Agronomy	



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FINDING OF NO SIGNIFICANT IMPACT

Chesapeake Isle

Critical Area Treatment Measure

Maryland Eastern Shore RC&D Area, Maryland

NEPA COLLECTION
Transportation Library
Northwestern University Library
Evanston, IL 60201

Introduction

The Chesapeake Isle Critical Area Treatment Measure to be installed in the Maryland Eastern Shore RC&D Area is a federally assisted action authorized under Public Law 91-343 and Section 102 of the Food and Agriculture Act of 1962 (Public Law 87-703). An environmental evaluation was conducted in consultation with local, state, and federal agencies as well as interested organizations and individuals.

Based on the environmental assessment, there will be no significant adverse impacts on the quality of the human environment.

Planned Action

The measure concerns a plan to control erosion along 1,730 feet of shoreline on Elk Neck Peninsula. The planned works of improvement include installation of 1,730-foot stone revetment at the toe of the slope, construction of a diversion and outlet at the top of the bank to control overbank flow, and grading (where feasible) and vegetative stabilization of eroding areas.

Environmental Impacts

The project will favorably affect erosion, drainage, transportation and utilities, water quality, recreation, and wildlife habitat.

- Installation of the revetment, diversion, and permanent vegetative cover will reduce soil erosion from the current estimated rate of three feet (or 6,343 tons) per year to approximately six tons per year.
- The diversion at the top of the bank will direct water to a protected outlet, thus eliminating present overbank flow and the resulting rill and gully erosion.
- The planned measure will protect a road and utility lines, located at the top of the bank, which are in danger of being undermined by the rapid erosion. The road is the only access to community recreation property located nearby.
- Water quality at a swimming beach and boat mooring area will be improved by the reduction of sedimentation. Sediment deposition in these areas now occurs at the rate of one inch per year.
- Construction of the stone revetment at the toe of the slope and vegetative stabilization of the remainder of the site will slightly improve wildlife habitat. Diversity of food and cover will be increased in an area which presently lacks vegetation and stable surfaces.

The project will adversely affect land use and wetlands.

- Construction of the diversion and stone revetment, and grading of the bank, will result in the loss of less than one acre of community-owned property.

- The stone revetment will cover approximately 35,000 square feet of intertidal wetlands (unvegetated cobble/gravel beach) and the associated intertidal community.

None of these adverse effects are considered to be significant, however, and no other resources will be significantly affected by the planned measure.

Alternatives

The sponsors considered and tested an alternative involving only vegetative stabilization of the eroding slope. In June of 1982, salt meadow cordgrass was planted at the toe of the slope. This planting failed within two days due to the severity of wave action, the southeast exposure, and the fetch. Planting of vegetation was considered feasible for other portions of the bank, and was included in the other alternatives and the selected plan.

Another alternative proposed construction of a 1,730-foot stone revetment using a different design. This alternative included the same diversion and vegetative stabilization as the selected plan, and would provide the same level of erosion protection. It was not chosen, however, because of its higher cost.

A third alternative concerned the possibility of relocating utility lines and the access road to community land and private properties. This alternative would require extensive legal work, possible relocation of dwellings, and extensive engineering. It was considered not feasible due to the layout of the subdivision and

ownership of the lots. An alternative access route to the community beach was considered feasible, but was rejected because it was more costly than the selected plan and would not solve all of the problems at the site.

Commitment of Resources

Labor, capital resources, and energy used in installing and maintaining this planned measure will be irreversibly committed.

Permits

The sponsors are in the process of obtaining the necessary permits from the Maryland Department of Natural Resources, the U. S. Army Corps of Engineers (404 permit), and from the local government.

Conclusion

I have reviewed the Environmental Assessment and have determined that this critical area treatment measure will not result in significant adverse impact on the human environment. I conclude that an Environmental Impact Statement is not necessary. The Environmental Assessment file is available for public inspection through the office of Gerald R. Calhoun, State Conservationist, 4321 Hartwick Road, College Park, Maryland 20740.


Gerald R. Calhoun, State Conservationist

7/6/83



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OPERATION AND MAINTENANCE AGREEMENT

THIS AGREEMENT made on January 30, 1984, is between the Soil Conservation Service, United States Department of Agriculture, hereinafter referred to as the Service, and the following organization, hereinafter referred to as the Sponsor:

CECIL COUNTY COMMISSIONERS

CECIL SOIL CONSERVATION DISTRICT

CHESAPEAKE ISLE CIVIC ASSOCIATION

The Sponsor and the SCS agree to carry out the terms of this agreement for the operation and maintenance of the practices in the State of Maryland. The practices covered by this agreement are identified as follows:

Critical Area Treatment, including placement of Rock Riprap and vegetative treatment at Chesapeake Isle, located at the mouth of the Elk River, Cecil County, Maryland.

I. GENERAL

A. The Sponsor will:

1. Be responsible for operating and performing or having performed all needed maintenance of practices, as determined by either SCS or the sponsor, without cost to SCS.
2. Obtain prior SCS approval of all plans, designs, and specifications for maintenance work deviating from the O&M plan and of plans and specifications for any alteration to the structural practices.
3. Be responsible for the replacement of parts or portions of the practices which have a physical life of less duration than the evaluated life of the practices.
4. Prohibit the installation of any structure or facility that will interfere with the operation or maintenance of the practices.
5. Notify SCS of any agreement to be entered into with other parties for the operation and maintenance of all or any part of the project practices, and provide SCS with a copy of the agreement after it has been signed by the Sponsor and the other party.
6. Comply with the PROPERTY MANAGEMENT STANDARDS set forth in 7 CFR 3015.160-3015.175, and all applicable Federal, State and local laws.
7. Provide SCS personnel the right of free access to the project practices at any reasonable time for the purposes of carrying out the terms of the agreement.

B. SCS will:

1. Upon request of the sponsor and to the extent that its resources permit, provide consultive assistance in the operation, maintenance, and replacement of practices.

II. OPERATION AND MAINTENANCE PLAN (O&M PLAN)

An O&M plan for each practice included in this agreement is attached to and becomes a part of this agreement.

III. INSPECTIONS AND REPORTS

A. The Sponsor will inspect the practices as specified in the O&M plan.

B. SCS or Federal land-administering agency may inspect the practices at any reasonable time during the period covered by this agreement. At the discretion of the State Conservationist, Service personnel may assist the Sponsor in inspections.

C. A written report will be made of each inspection and provided to others as outlined in the O&M plan.

IV. TIME OF RESPONSIBILITY

The Sponsor's responsibility for operation and maintenance begins when a practice is partially done or completed and accepted or is determined complete by SCS. This responsibility shall continue until the expiration of the evaluated life of all the installed project practices. This does not relieve the Sponsor's liability which continues throughout the life of the measure or until the measure is modified to remove potential loss of life or property.

V. RECORDS

The Sponsor will maintain in a centralized location a record of all inspections and significant actions taken, cost of performance and completion date with respect to operation and maintenance. SCS may inspect these records at any reasonable time during the term of the agreement.

Name of Sponsor: Cecil County Commissioners

By: Frank D. Ragan Title: Pres. Cecil Co. Commissioners

This action was authorized at an official meeting of the Sponsor named immediately above on Dec. 20, 1983, at Cecil Co.

Attest: David J. Pile Title: Administrative Assistant

Name of Sponsor: Cecil Soil Conservation District

By: Floyd Allert Jr. Title: Chairman

Name of Sponsor: Chesapeake Isle Civic Association

By: James H. Whallon Title: President

Soil Conservation Service, United States Department of Agriculture.

By: David P. Donsachy Title: State Conservationist

CHESAPEAKE ISLE C.A.T. RC&D MEASURE

OPERATION AND MAINTENANCE PLAN

GENERAL

This is the Operation and Maintenance (O&M) Plan for Chesapeake Isle Critical Area Treatment RC&D measure, which supplements the O&M Agreement. The County Commissioners of Cecil and Chesapeake Isle Civic Association are responsible for all works of improvement in the O&M Plan.

OPERATING PLAN

Operation includes the administration, management, and performance of non-maintenance actions needed to keep the completed improvements safe and functioning as planned. The County Commissioners of Cecil and Chesapeake Isle Civic Association should operate installed improvements in:

- 1) compliance with applicable Federal, state and local laws, regulations and ordinances;
- 2) a manner that will result in the least adverse impact on the environment and that will permit the improvements to serve the purpose for which it was installed. Operation and maintenance shall be done in a manner that will not disturb or adversely impact the adjacent wetlands; and
- 3) keeping with the commitments established in an O&M Agreement signed on December 20, 1983. *

Sponsors will appropriate funds for O&M on an annual basis.

MAINTENANCE

Maintenance includes performance of work and the application of practices, preventing the deterioration of works of improvement, and repairing damage or replacement of the works of improvement if one or more of its components fail. This includes both the routine and recurring needs such as fertilization and/or planting of vegetation and replacement of riprap. Repair of damages to completed improvements caused by normal deterioration, excessive tides or vandalism is considered maintenance

* Date of C.A.T. signature

regardless of whether it occurs immediately after or several years after the improvements are installed or reestablished.

The items requiring maintenance as identified in the measure plan are repairs to the riprap structure due to storms or extreme tidal action and/or reestablishing vegetation and repairs to the waterway. The estimated annual maintenance cost is \$1,500. The County Commissioners of Cecil and Chesapeake Isle Civic Association are responsible for operation and maintenance for the works of improvement once they are accepted and determined complete by the Soil Conservation Service. This responsibility shall continue until the expiration of the expected life of 20 years of the installed improvements.

PERFORMING O&M

The responsibility for O&M requires the County Commissioners of Cecil and Chesapeake Isle Civic Association to: (1) provide for or retain the personnel necessary to operate and maintain the improvements properly; (2) provide or obtain the facilities, equipment, and supplies needed for O&M; and (3) establish any regulations necessary to protect the structure.

Items requiring O&M include:

1) Rock Riprap Structures

The rock riprap structure should be maintained to its original design cross-section. Storms, tidal action, or vandalism may necessitate replacement or rebuilding of sections of the structure.

2) Lined Waterway

Concrete, turf and soil reinforcement grids shall be maintained to the original design cross-section. Excessive water flow or vandalism may require replacement or rebuilding of sections of the waterway.

3) Vegetation

Established vegetation will be maintained. A fertilization program will be started to maintain a vigorous stand. Poor stands or areas damaged by wave action and erosion will be replanted and/or fertilized. Vegetation will be mowed as needed to maintain a vigorous stand.

INSPECTION AND REPORTS

Inspections of the installed works of improvements are necessary to insure that they are safe and functioning properly. The County Commissioners of Cecil and Chesapeake Isle Civic Association are responsible for the inspections or will have inspections made. The Soil Conservation Service shall assist with the annual inspections for at least the first three years.

An inspection will be made annually in June and after major storm events. The County Commissioners of Cecil and Chesapeake Isle Civic Association are to: (1) make periodic and special inspections of the improvements throughout the year; (2) make and maintain a written record of special and annual inspections identifying the major features of the improvements that were examined, the condition observed, the O&M work needed and when the work should be accomplished, and other information pertinent to the continued functioning of the improvements; (3) furnish others, when appropriate, a copy of the inspection reports; and (4) perform the necessary O&M work listed in the inspection reports within the time frame established for each item of work.

In addition, the County Commissioners of Cecil and Chesapeake Isle Civic Association will make and maintain a written record of work performed that is required by the inspection reports and a record of other significant O&M activities. The record will identify the item of work, cost of

performance, and date completed. A copy of the completion report shall be furnished to the Soil Conservation Service, except records of minor, routine maintenance items which need not be submitted.

VIOLATION

If the County Commissioners of Cecil and Chesapeake Isle Civic Association fail to live up to the provisions of the O&M Agreement, further Soil Conservation Service assistance may be withheld, financial reimbursement may be required or other legal actions may be pursued.