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HARFORD COUNTY

COASTAL ZONE MANAGEMENT PROGRAM

DEC 1989

FY 89 FINAL REPORT

* [Natural Features Overlay Mapping in Harford County, Maryland: Areal Distribution within the Piedmont Upland and the Coastal Plain

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Harford County Department of Planning

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Task 4: NATURAL FEATURES OVERLAY MAPPING

Introduction:

This year's efforts toward mapping of the County's natural features into overlay form extended beyond the development envelope, where mapping efforts were undertaken in FY 88, into projected future growth areas (see Appendix A). These areas of growth are based on the 1988 revision of the Harford County Land Use Plan, which was applied as a guidance document. From this effort, a set of overlays covering 24 tax maps, in areal extent, were created.

The overlay maps produced will be especially useful within the County's Development Review process. The overlay maps will also be incorporated with the FY 88 and the Chesapeake Bay Critical Area overlays to create a Comprehensive Natural Resources Inventory for the County. With the FY 88 and FY 89 delineations, the same detail and features mapped for the Critical Area have been expanded into other parts of the County.

The expansion of mapping efforts will increase the ability of the County to regulate and make recommendations concerning project review and land use. Due to the clarity of the overlays, there will no longer be a need to check each soil type within a parcel to see if it is limiting. As soon as the overlay is in place the user will immediately know if there is a constraint on the property. If a constraint is found, the user will also be able to immediately determine its identity. This will increase efficiency, reduce mistakes and help staff within Subdivision Review who do not have as complete a technical background. In addition to in-house use, the development community will benefit, with respect to site plan preparation, through the advance knowledge of areas where soil limitations exist.

Methodology:

The FY 89 Resource Inventory mapping consisted of the production of 1" = 600' scale reproducible mylar overlays which indicate soils with development constraints. These maps can be directly overlain onto the Harford County tax maps, (also 1" = 600'), and specific soil limitations can immediately be located within a respective geographical region.

As with the Critical Area mapping, the first step in Resource Inventory mapping was to review the Harford County Soil Survey and supplemental information provided by the Soil Conservation Service. Next, the data were converted into tabular format and used to identify areas with slope and soil

constraints, (see Appendix B). Thirdly, these constraints were located on the County's 1" = 600' scale soil maps and the proper soil polygons, which represented specific constraints, were then transferred to a reproducible mylar. Along with soils, watercourses (both perennial and intermittent) and prominent man-made geographic features were also transferred.

Included within each constraint polygon, an alphabetic code indicating the type of limitation or combination of limitations was included for reference. Attached to this final report are blueprint copies which delineate all of the resource information which was mapped this year and a legend explaining the alphabetic codes (see Appendix C).

Findings/Conclusions:

The Resource Inventory mapping, for both FY 88 and FY 89, indicates certain development limitations within the County. These limitations are hydric soils, highly erodible soils and steep slopes. Non-tidal wetlands are included as a function of mapping hydric soil polygons since one feature usually indicates the presence of the other. The development limitations used in the County Natural Resources Inventory are defined below:

Hydric Soils- Soils that have a water table that is at or within one foot of the surface for extended periods during the growing season. These soils are "gleyed" or have a characteristic which reflects anaerobic, oxygen deficient, conditions. Potentially hydric refers to soils that may or may not contain inclusions of hydric soil(s).

Highly Erodible Soils- Soils with a K factor, erodibility factor used in the Universal Soil Loss Equation, of .37 and a slope greater than five percent (5%). Also, soils with a K factor of .32, a slope greater than five percent (5%) and a Muwathel factor of 1 as defined by the Harford County Department of Planning and Zoning and the Harford County Soil Conservation District.

Steep Slopes- Soils whose slope characteristics ranged 15% and greater were noted as potentially steep slope areas for which on-site analysis will be needed. When a proposed development is submitted, more detailed topographical information is usually required from which more precise identification of steep slope areas can be made.

Trends, at the macro level, show differences in location and areal distribution of soil based on the two physiographic regions within the County. These differences reflect a regional distribution of limitations, applicable to this report, throughout the State.

The first region is the Coastal Plain, stratigraphically consisting of alluvial deposits extending from the fall line to the Chesapeake Bay. Since this region contains little relief it has historically been an area sought for development and infrastructure. Examples include the corridors of Route 40 and Interstate 95 as well as the Amtrak and CSX rail lines, all of which connect Maryland with the Northeast Corridor.

Within this region, soil constraint distribution trends lack a pattern that conforms to any local differences in topography. This is because the Coastal Plain is predominantly an area of deposition rather than erosion due to its lack of contour. While there are some constraints that, typically, follow depressed stream channels and accompanying floodplains in this region, most of the constraints are spread in the interstitial areas between Coastal Plain streams. This pattern can be seen on soil maps 44 and 45 which reflects the fluvial processes that deposited these soils on the Coastal Plain from the Piedmont region.

On the Coastal Plain there is a noticeable lack of Steep Slope (ST) soil constraints, meaning there is little relief to this area. The lack of relief in this region also reduces the probability of Highly Erodible (HE) soils. Steep Slopes do not necessarily need to be present for a soil to be labeled Highly Erodible, but this characteristic is one of the more important variables usually associated with this constraint. The abundance of Hydric (HY) soil constraints in the Coastal Plain demonstrates the degree to which the deposited sediments display Hydric characteristics. This proportion is very reflective of the way in which this region was formed. From these maps, an overview of the region can be determined showing the areal proportion of buildable to non-buildable land.

The second region, and trend, within the County is the Piedmont Upland. Unlike the Coastal Plain, the Piedmont has a distribution of constraints that very closely follows the topography. In most instances this includes dendritic patterns of stream channels, tributaries, floodplains and adjacent low lying areas. This pattern becomes more dramatic toward the north-west portion of the county as relief increases. These patterns are represented on any of the maps north of Interstate 95.

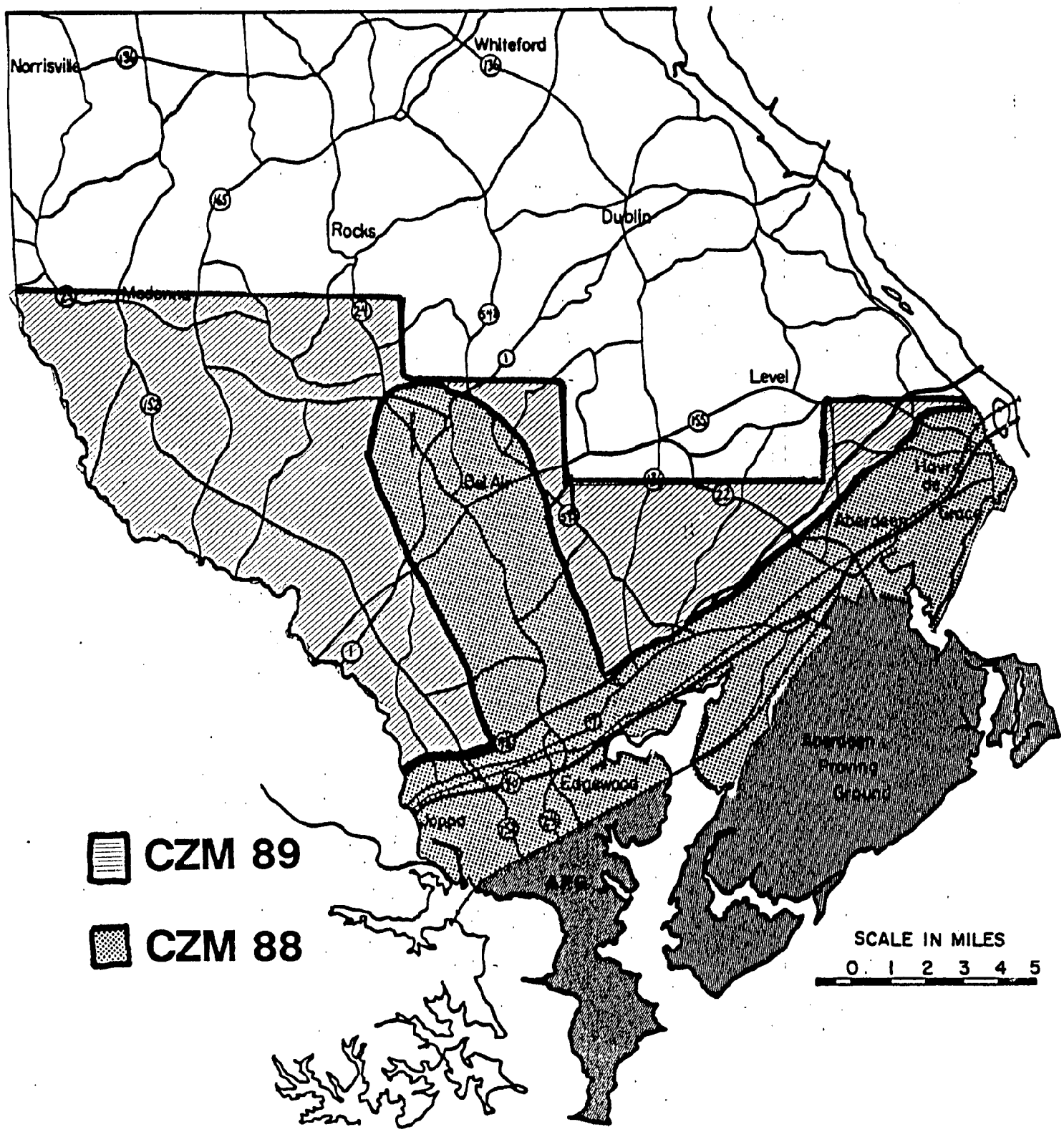
Here, constraints follow the topography more strictly toward the north and northwest part of the county. This trend

exemplifies the increase in relief of this area and the consequent narrowing of soil constraints. Steep Slopes (ST) become more prevalent and Hydic Soils (HY) are less prominent and usually associated with stream channels. Other low lying areas within this region may also be Hydric depending on topography.

With the increase in Steep Slopes the amount of Highly Erodible soil increases also. This increase can be seen in the numerous HE and HEST constraints located within the Piedmont Upland. In most cases the Highly Erodible soils will form a band around a stream channel and may be associated with a Steep Slope constraint. This may or may not show the degree to which the stream is downcutting. This trend produces a different picture of buildable versus non-buildable land than in the Coastal Plain.

Harford County, Md.

APPENDIX A



APPENDIX B

SOIL TYPES IN HARFORD COUNTY'S CRITICAL AREA WITH
DEVELOPMENT CONSTRAINTS

Soil Type	Hydric Soils	Highly Erodible Soils	Soils w/ Severe Septic Limitations	Slopes > 15%
AdA - Aldino	1	X	X	
AdB - Aldino	1	Potential	X	
AdC - Aldino	1	X	X	
AsB - Aldino	1		X	
Av - Alluvial Land	X		X	
BaA - Baile	X		X	
BaB - Baile	X	X	X	
BeA - Beltsville	1		X	
BeB - Beltsville	1		X	
BeC - Beltsville	1	X	X	
BrC2 - Brandywine				
BcD3 - Brandywine			X	X
BrE3 - Brandywine			X	X
CcA - Chester				
CcB2 - Chester				
CcC2 - Chester		X		
CgB2 - Chester				
CgC2 - Chester				
CgD2 - Chester			X	X
ChB2 - Chillum				
CkC2 - Chillum				
CrE - Chrome			X	X
Cu - Codorus	1		X	
Cv - Comus			X	
Cx - Cut/Fill Land				Potential
DcA - Delanco	1		X	
DcB - Delanco	1	Potential	X	
EhB2 - Elioak				
EhC2 - Elioak		X		
En - Elkton	X		X	
EsA - Elsinboro				
EsB2 - Elsinboro				
EsC2 - Elsinboro		X		
EvC - Elsinboro				
Fs - Fallsington	X		X	
GcB2 - Glenelg				
GcC2 - Glenelg		X		
GcC3 - Glenelg		X		
GcD2 - Glenelg		X	X	X
GcD3 - Glenelg		X	X	X
GgB2 - Glenelg				
GgC2 - Glenelg				

APPENDIX B

Soil Type	Hydric Soils	Highly Erodible Soils	Soils w/ Severe Septic Limitations	Slopes > 15%
GgC3 - Glenelg				
GgD2 - Glenelg			X	X
GgD3 - Glenelg		X	X	X
GnA - Glenville	1		X	
GnB - Glenville	1		X	
Hb - Hatboro	X		X	
JpB - Joppa				
JpC - Joppa				
KeB - Kelly	1	Potential	X	
KeC2 - Kelly	1	X	X	
KfD - Kelly	1		X	Potential
KpA - Keyport	1		X	
KpB - Keyport	1		X	
KrA - Kinkora	X		X	
KrB - Kinkora	X	X	X	
LeB2 - Legore				
LeC2 - Legore				
LeD2 - Legore			X	X
LeE - Legore			X	X
LfC - Legore			X	
LfD - Legore			X	X
LfE - Legore			X	X
LgC3 - Legore				
LgD3 - Legore			X	X
Lr - Leonardtown	X		X	
LyB - Loamey/Clayey Land			X	
LyD - Loamey/Clayey Land		X	X	
LyE - Loamey/Clayey Land		X	X	X
MbB2 - Manor		Potential		
MbC2 - Manor		X		
MbC3 - Manor		X		
MbD2 - Manor		X	X	X
MbD3 - Manor		X	X	X
McB2 - Manor				
McC2 - Manor		X		
McC3 - Manor		X		
McD2 - Manor		X	X	X
McD3 - Manor		X	X	X
MdE - Manor		X	X	X
MfE - Manor		X	X	X
MgC - Manor				
MgD - Manor		X	X	X
MkA - Matapeake			X	
MkB - Matapeake				
MlA - Matapex	1		X	

APPENDIX B

Soil Type	Hydric Soils	Highly Erodible Soils	Soils w/ Severe Septic Limitations	Slopes > 15%
MIB - Matapex	1		X	
MsA - Montalto			X	
MsB2 - Montalto			X	
MsC2 - Montalto		X		
NeA - Neshaminy				
NeB2 - Neshaminy				
NeC2 - Neshaminy		X		
NsC - Neshaminy		X	X	
NsD - Neshaminy			X	X
NsE - Neshaminy			X	X
Ot - Othello	X		X	
Sa - Sand/Gravel	1			Potential
ShB2 - Sassafras				
ShC2 - Sassafras				
SIB2 - Sassafras				
SIC2 - Sassafras				
SsD - Sassafras				
SsE - Sassafras			X	X
St - Stony land			X	X
Sw - Swamp	X		X	
Tm - Tidal Marsh	X		X	
WaA - Watchung	X		X	
WaB - Watchung	X	X	X	
WcB - Watchung	X	X	X	
WhB - Whiteford				
WhC2 - Whiteford		X		
WoB - Woodstown	1			

NOTES:
1 - Soils of this type may contain small inclusions of soils noted as hydric soils in depressions, low areas, drainageways and seepage areas.

APPENDIX C

Key	Symbol
HYDRIC SOILS	HY
POTENTIAL HYDRIC	HYp
HIGHLY ERODIBLE SOILS	HE
POTENTIAL HIGHLY ERODIBLE	HEp
STEEP SLOPES	ST
POTENTIAL STEEP SLOPES	STp
HYDRIC/HIGHLY ERODIBLE	HYHE
POTENTIAL HYDRIC & HIGHLY ERODIBLE	HYEp
POTENTIAL HYDRIC/HIGHLY ERODIBLE	HYpE
POTENTIAL HYDRIC & STEEP SLOPES	HYSTp
HIGHLY ERODIBLE/STEEP SLOPES	HEST

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