

**City of Somers Point**

**Stormwater Management Plan**

**Prepared in accordance with N.J.A.C. 7:8-4.2**

## INTRODUCTION

This Stormwater Management Plan (MSWMP) documents the strategy for the City of Somers Point to address stormwater-related impacts. The creation of this plan is required by N.J.A.C. 7:14A-25 Municipal Stormwater Regulations as promulgated by the New Jersey Department of Environmental Regulations. The elements of this plan are specified by N.J.A.C. 7:8-4 Municipal Stormwater Management Planning. The plan addresses groundwater recharge, stormwater quantity, and stormwater quality impacts by incorporating stormwater design and performance standards for new development, defined as projects that disturb one or more acre of land. These standards are intended to minimize the adverse impact of stormwater runoff on water quality and water quantity. The plan describes long-term operation and maintenance measures for existing and future stormwater facilities

These regulations on a statewide basis also intend to minimize the adverse impact of development on the recharge of groundwater that provides base flow in receiving water bodies. The State regulations promote the use of open channel flow and groundwater recharge. The use of open channel flow within the City is limited as most of the developable land is already developed. However, opportunities will occur during redevelopment to provide for additional stormwater recharge and the improvement of water quality.

A build-out analysis has not been included in this plan as the only district with land that, if redeveloped, would create additional impervious surface is the recreational golf course district. The golf course district encompasses 168 Acres.

The plan also addresses the review and update of existing ordinances, the City Master Plan, and other documents to allow for project designs that include development consistent with this plan. The final component of this plan is a mitigation strategy for when a variance or exemption of the design and performance standards is sought. As part of the mitigation section of the stormwater plan, specific stormwater management measures are identified to lessen the impact of existing development.

## **GOALS**

The goals required by N.J.A.C. 7:8-2.2 requires the stormwater management plan goals as follows:

1. Reduce flood damage, including damage to life and property;
2. Minimize, to the extent practical, any increase in stormwater runoff from any new development;
3. Reduce soil erosion from any development or construction project;
4. Assure the adequacy of existing and proposed culverts and bridges, and other in-stream structures;
5. Maintain groundwater recharge;
6. Prevent, to the greatest extent feasible, an increase in nonpoint pollution;
7. Maintain the integrity of stream channels for their biological functions, as well as for drainage;
8. Minimize pollutants in stormwater runoff from new and existing development in order to restore, enhance and maintain the chemical, physical, and biological integrity of the waters of the State, to protect public health, to safeguard fish and aquatic life and scenic and ecological values, and to enhance the domestic, municipal, recreational, industrial and other uses of water; and
9. Protect public safety through the proper design and operation of stormwater management basins.

This plan outlines specific stormwater design and performance standards for new development. Additionally, the plan proposes stormwater management controls to address impacts from existing development. Preventative and corrective maintenance strategies are included in the plan to ensure long-term effectiveness of stormwater management facilities. The plan also outlines safety standards for storm water infrastructure to be implemented to protect public safety.

Development can result in the accumulation of pollutants on the land surface that runoff can mobilize and transport to the receiving waters. New impervious surfaces and disturbed areas created by development can accumulate a variety of pollutants from the atmosphere, fertilizers, hydrocarbons, pathogens, and nutrients.

In addition to increased pollutant loading, land development can also adversely affect water habitat by altering the water temperature and/or alter the natural food chain.

## **STORMWATER DISCUSSION**

Alteration of ground surface elevations and changes to the surface materials can dramatically alter the hydrologic cycle of a site and, ultimately, an entire watershed. In uplands areas with continuous unconsolidated surfaces rainfall and snow melt seep into the soil. The ground water recharge descends through the spaces between soil particles in the unsaturated zone to the water table at the start of the saturated zone. The elevation of the water table surface is sloped down hill and eventually emerges at the ground surface as a lake, stream or other surface body. Soils that conduct water and extend to the surface are called unconfined aquifers.

The unconfined aquifer upon which Somers Point is situated drains to the adjacent tidal bodies of the Great Egg Harbor Bay/River, Patcong Creek and Steelman Bay. The water table surface near the shoreline is held nearly constant by the Ocean's tides. The salt content of the groundwater near the shoreline and the slope of the water table downwards towards the shoreline is controlled by groundwater recharge and withdraws.

The highest water table elevations are located at the watershed boundary between the Patcong Creek and the Great Egg Harbor Bay. The approximate location of the watershed boundary has been mapped by the U.S. Geological Service as a Hydrological Unit Boundary and is shown on Figure 5.

The water levels within the stormwater flood plan areas of Somers Point are controlled by tidal events rather than rain events. This fact places water quality as more significant than quantity when evaluating the stormwater flow at the outfall of Somers Point's 125 drainage systems. The conveyance capacity of each of these drainage systems and the upstream impervious surface control the presence or absence of stormwater flooding in locations away from the shoreline.

## **BACKGROUND**

The City of Somers Point encompasses approximately 4.88 square miles (3125 acre) in Atlantic County, New Jersey. This includes 325 acres of open water and 1062 acres of land within the Flood District (wetlands). Somers Point is located within Coastal Management Zone and with the exception of the flood district is a suburban planning area. A portion of the municipality is occupied by the Garden State Parkway, which is subject of a separate stormwater permit. The Garden State Parkway occupies 259 acres of land or 9% of the land within Somers Point.

A survey of the existing land uses within Somers Point conducted in 1989 as part of the Sewage Infrastructure Improvement Act Program. That survey found 2880 acres of land within the corporate limits of Somers Point of which 37% (1062 acres) are within the Flood District. The survey at that time found only 257 acres (0.4 square Miles) of land with potential for new development. The developed land includes the Recreational Golf Course District and occupies 168 acres.

The City of Somers Point has approximately 3,723 residential properties and a census population of 11,614 individuals. An estimates of the maximum number of residential properties at upon redevelopment is 6,100 based upon 5.8 dwelling units per acre in the single family district and 12 dwelling units per acre in multifamily districts.

The municipality occupies the end of a peninsula situated between estuaries of the Great Egg Harbor Bay. The named bodies of water include Patcong Creek, Mill Creek, Drag Channel, The Great Egg Harbor Bay, Bass Harbor and Steelman's Bay. These are shown on Figure 3 of this document. The state Geographic database indicates that Steelman Bay is a class one body of water. All of which are subject to tidal flow and are saltwater bodies.

The ground surface elevations within the City are from 0 feet to 30 feet above sea level (NGVD 1929).

The United State Geological Service has established for planning purposes a divide between the Tuckahoe and Middle River water sheds. This divide is for regional planning purposes and should not be used for stormwater design, and is shown in Figure 5.

The public water supply wells within the City of Somers Point do not draw from the surface aquifer and rely upon deep to provide required separation distances.

## **DESIGN AND PERFORMANCE STANDARDS**

The City will adopt revised design and performance standards for stormwater and tidal flood management that are consistent with the goals of NJAC 7:8-4.

The recharge and runoff quantity standards will be consistent with NJAC 7:8-5.4(a)3iv. The Stormwater quality standards will be in accordance with NJAC 7:8-5.5. The design standards will include language for the maintenance of stormwater management measures consistent with the stormwater management rules at NJAC 7:8-5.8. Maintenance requirements and language for safety standards consistent with NJAC 7:8-6 Safety Standards for Stormwater Management Basins. The ordinances will be submitted to the county for review within 24 months of the effective date of the Stormwater management rules.

Municipal roadway and drainage projects implemented during the last eight years have included bicycle safe grates that conformed to the Departments standards with regards to inlet design and groundwater recharge. The incorporation in to the Developmental Standards of the design criteria used by the City in its perforated pipe systems for recharge and conveyance is recommended.

Independently, State and County agencies control 17 percent of the roadways within Somers Point. The adoption of the Department's design standards by other governmental units is beyond the control of the City. Public elementary and secondary institutions are also independent of Municipal Planning Boards controls.

## **PLAN CONSISTANCY**

The City is not located within a Regional Stormwater Management Planning (RSWMP) Area and no Total Maximum Daily Load (TMDL) requirements have been developed for waters within the City. If any RSWMPs or TMDIs are developed in the future, this Municipal Stormwater Management Plan will be reviewed for consistency. The Municipal Stormwater Management Plan will be updated to be consistent with future updates of the Residential Site Improvement Standards (RSIS) as applicable to achieve the goals of the program.

## **DEVELOPMENTAL ORDINANCE REVISIONS**

A review of the Land Development Ordinance of the City of Somers Point has identified several areas that may be revised to provide consistency between the Storm Water Regulations and the Residential Site Improvement Standards (RSIS). The topics are as follows:

- The applicability of the RSIS rules to development will be further defined in the Ordinance,
- The use of permeable parking lot surfaces for overflow parking will be reviewed and revised if deemed appropriate,
- The rules regarding stormwater runoff calculations will be reviewed by the Municipal Engineer for consistency with other regulations and the City Flood Mitigation Strategy.
- The developmental ordinance does not specify with requirements or applicability of perforated pipe systems.
- The developmental ordinance does not specify impact limitations for new development with respect to upstream and down stream alterations of the groundwater table.
- The development ordinance does not yet include reference to storm water quality standards,
- The development ordinance does not yet include provisions for stormwater mitigation in lieu of struck compliance.

## LAND USE/BUILD-OUT ANALYSIS

The City is located within two HUC-14 areas and has a total area of 3125 Acres (4.88 square miles) including open water. The Re-Development Build-Out analysis has not been performed as less than ½ square mile of undeveloped land with developmental potential exists within the City. A survey of land use performed in 1989 is summarized as provided below.

Developed Land all Districts (excluding FD)	1221 Acres
Undeveloped Land all Districts (excluding FD)	257 Acres
Garden State Parkway	259 Acres
Flood District	1062 Acres
Open Water	<u>325 Acres</u>
<b>Total Municipal Area</b>	<b>3125 Acres</b>

The as the developable lands within and subject to this plan comprise 58% of land. The maximum aggregate impervious coverage within the City is 58% of the individual site requirements. This would allow development to occur with an average 50% impervious lot coverage while achieving 30% coverage city.

## MITIGATION PROJECTS

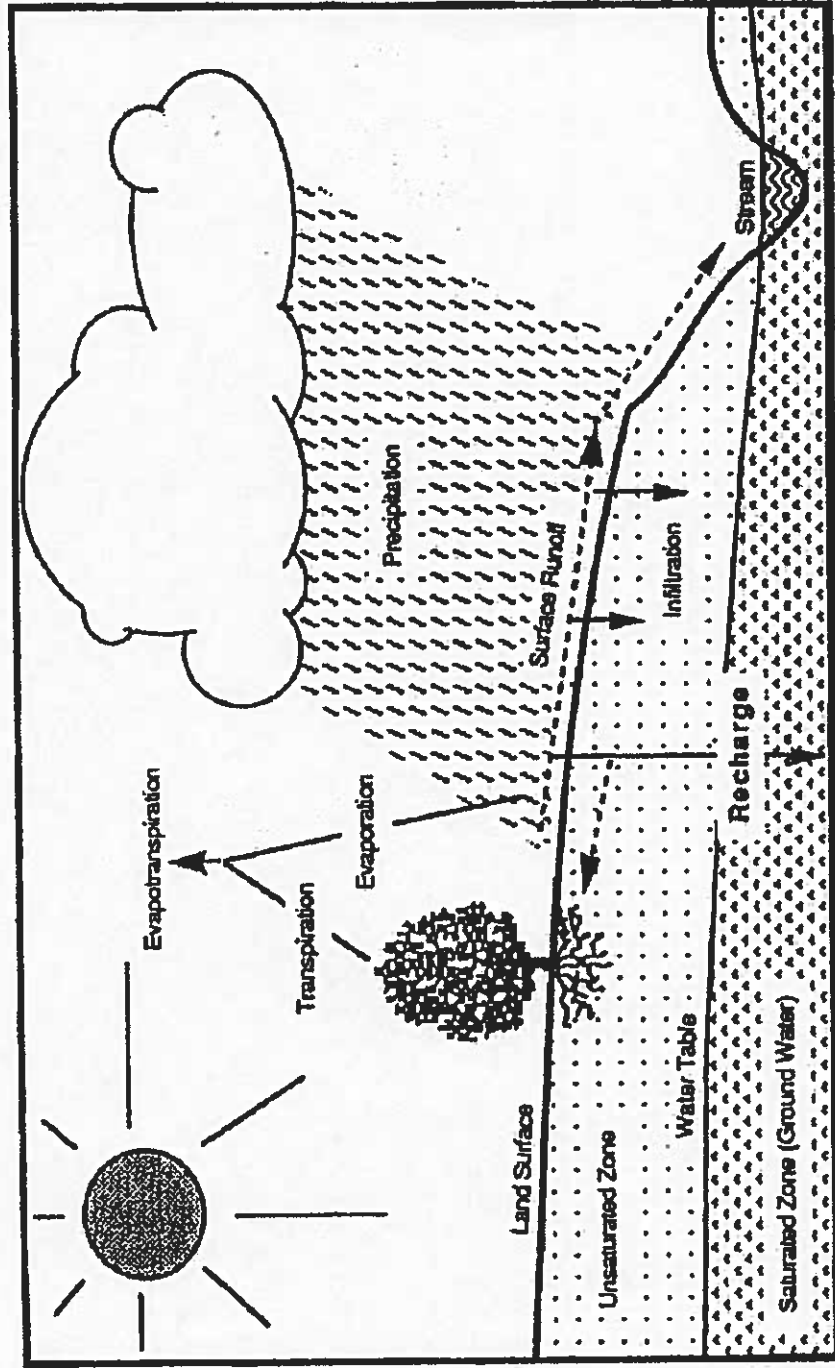
The City of Somers Point has identified several projects directly related to stormwater quantity and quality that could be undertaken as mitigation projects. These projects include:

- The construction of salt dome at the municipal public works yard.
- The construction of a covered area for drying of materials collected from storm system cleaning and street sweeping.
- The construction of a municipal vehicle wash down facility.
- The construction of Drainage Improvements at Kern Field.
- The video inspection and cleaning of municipal stormwater sewer mains.
- The video inspection of storm sewer systems within the City, to verify the absence of illegal connections.



# MUNICIPAL STORMWATER MANAGEMENT PLAN

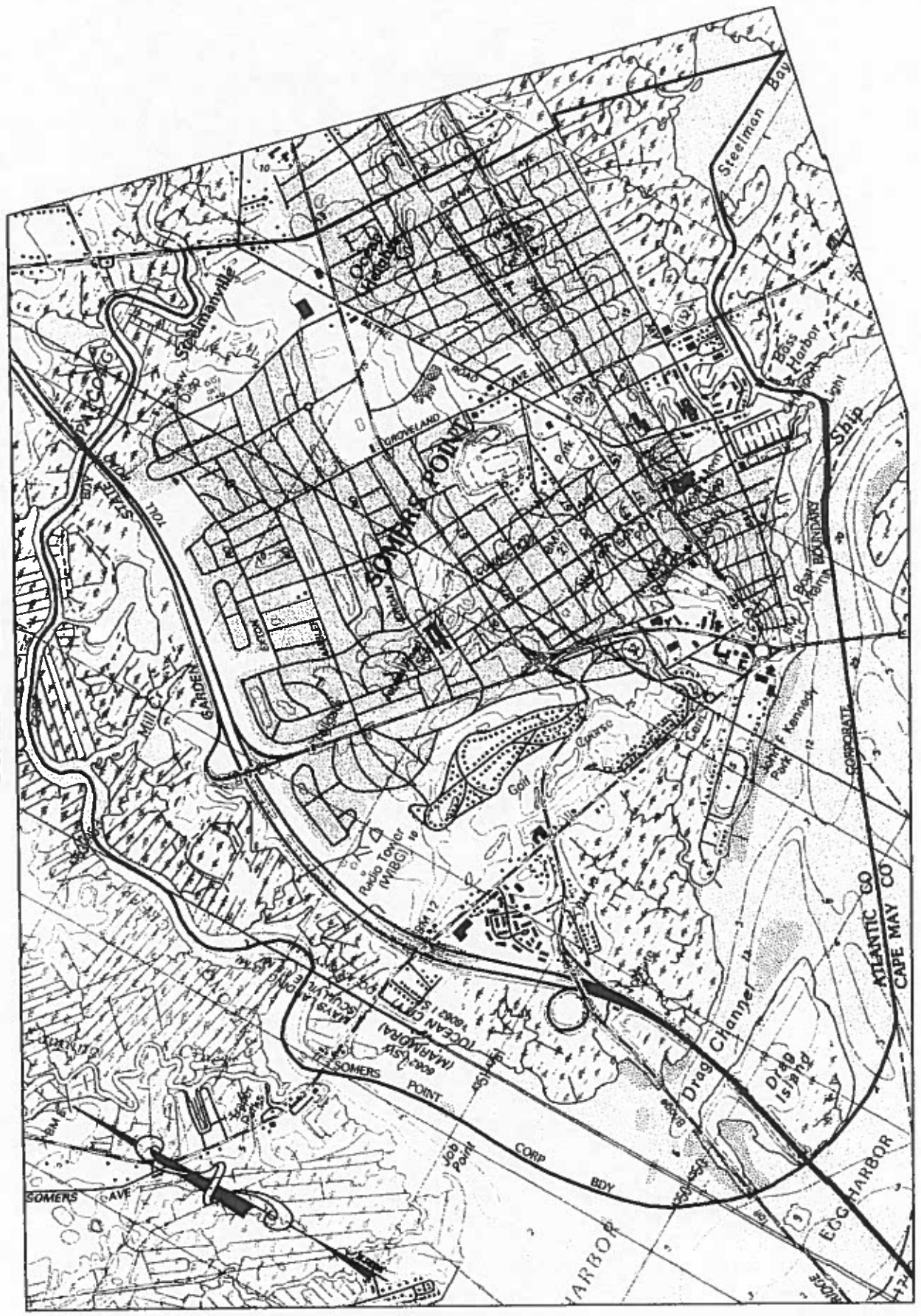
## FIGURE 1 – INTRODUCTION - WATER CYCLE



Source: New Jersey Geological Survey Report GSR-32.

**MUNICIPAL STORMWATER MANAGEMENT PLAN**  
**FIGURE 2 - CITY BOUNDARY ON U.S.C.&G.S. QUADRANGLES**

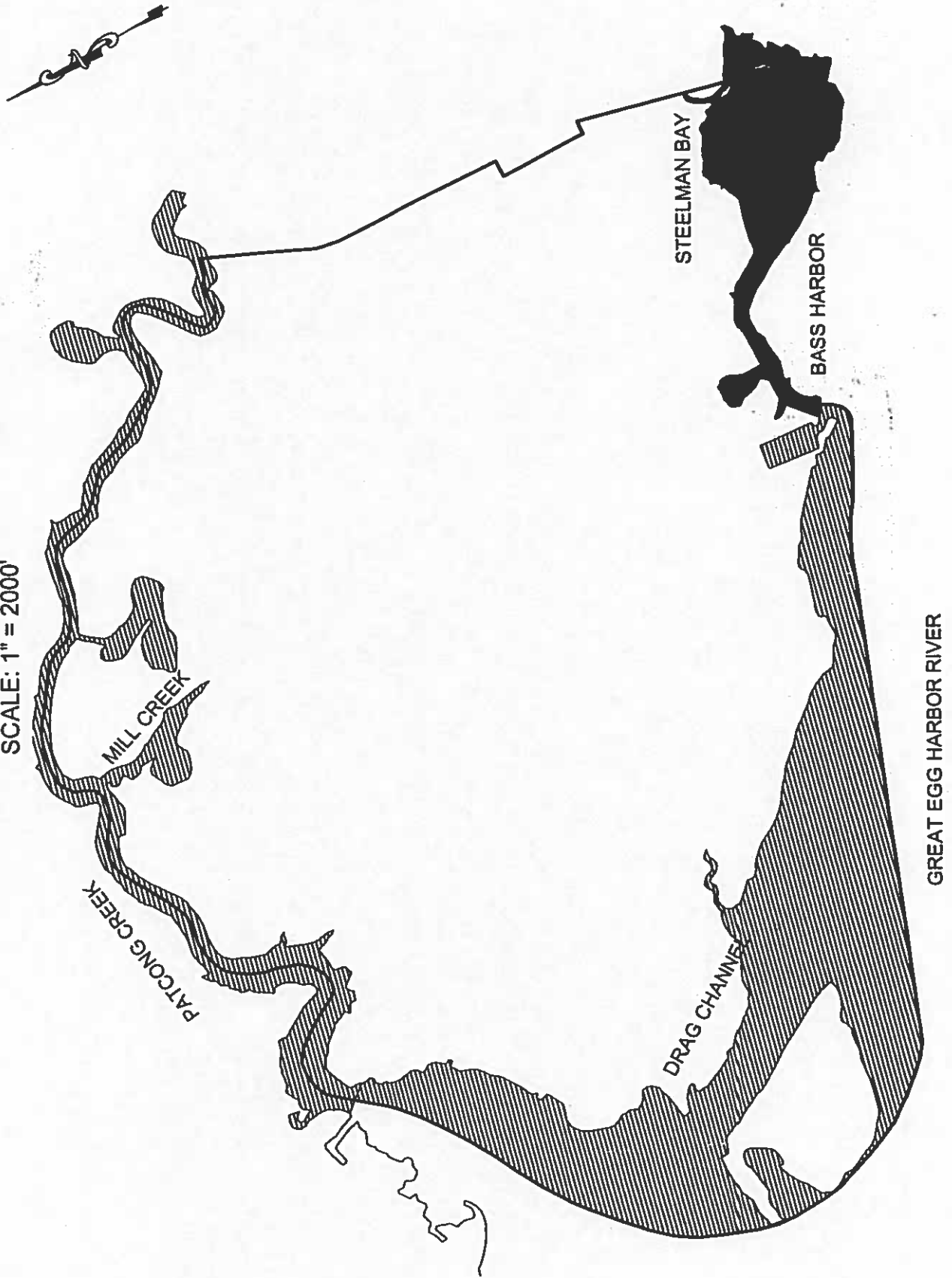
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# MUNICIPAL STORMWATER MANAGEMENT PLAN

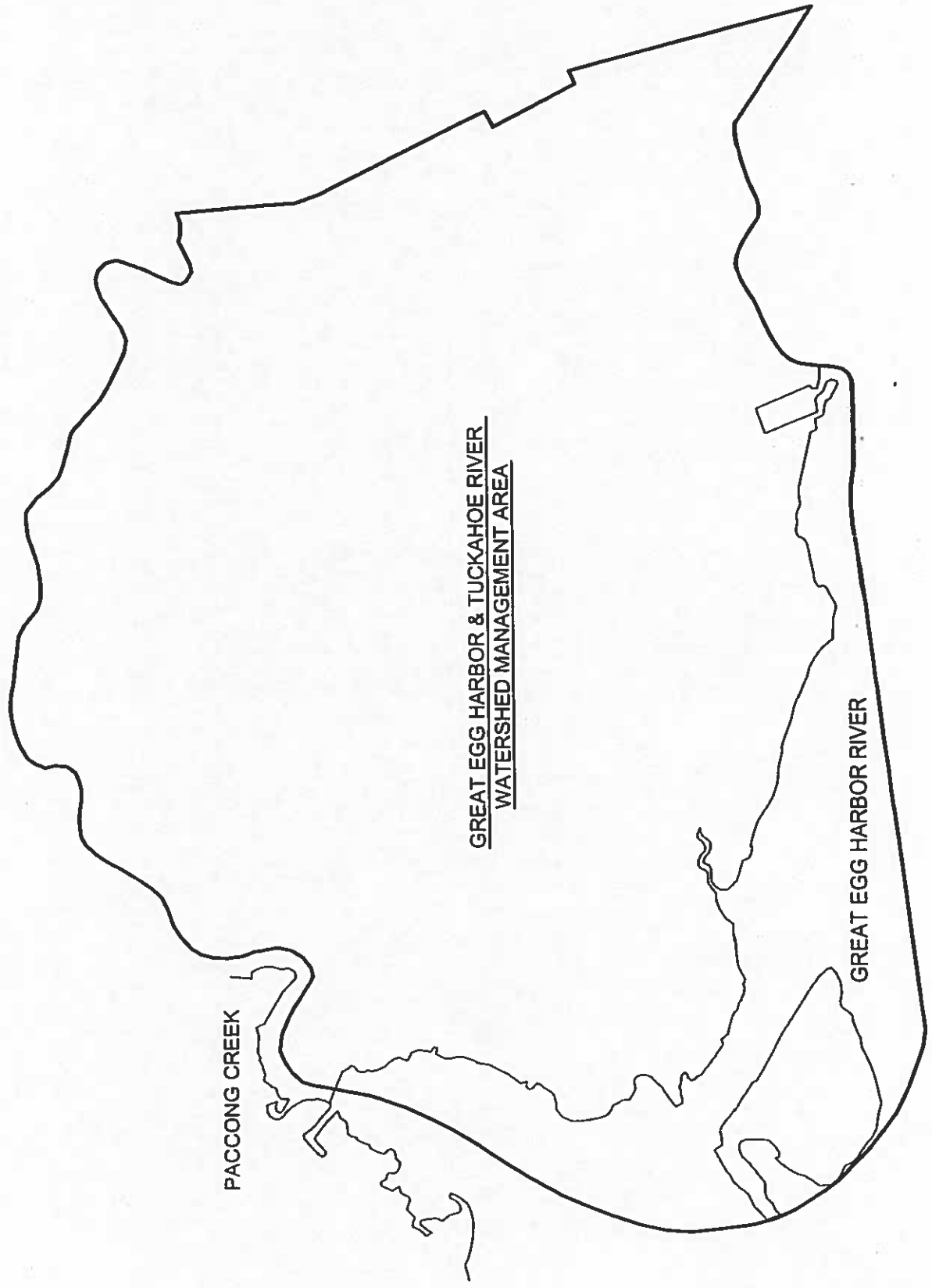
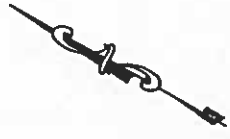
## FIGURE 3 - WATERWAYS

SCALE: 1" = 2000'



MUNICIPAL STORMWATER MANAGEMENT PLAN  
FIGURE 4 - WATERSHED MANAGEMENT AREA

SCALE: 1" = 2000'



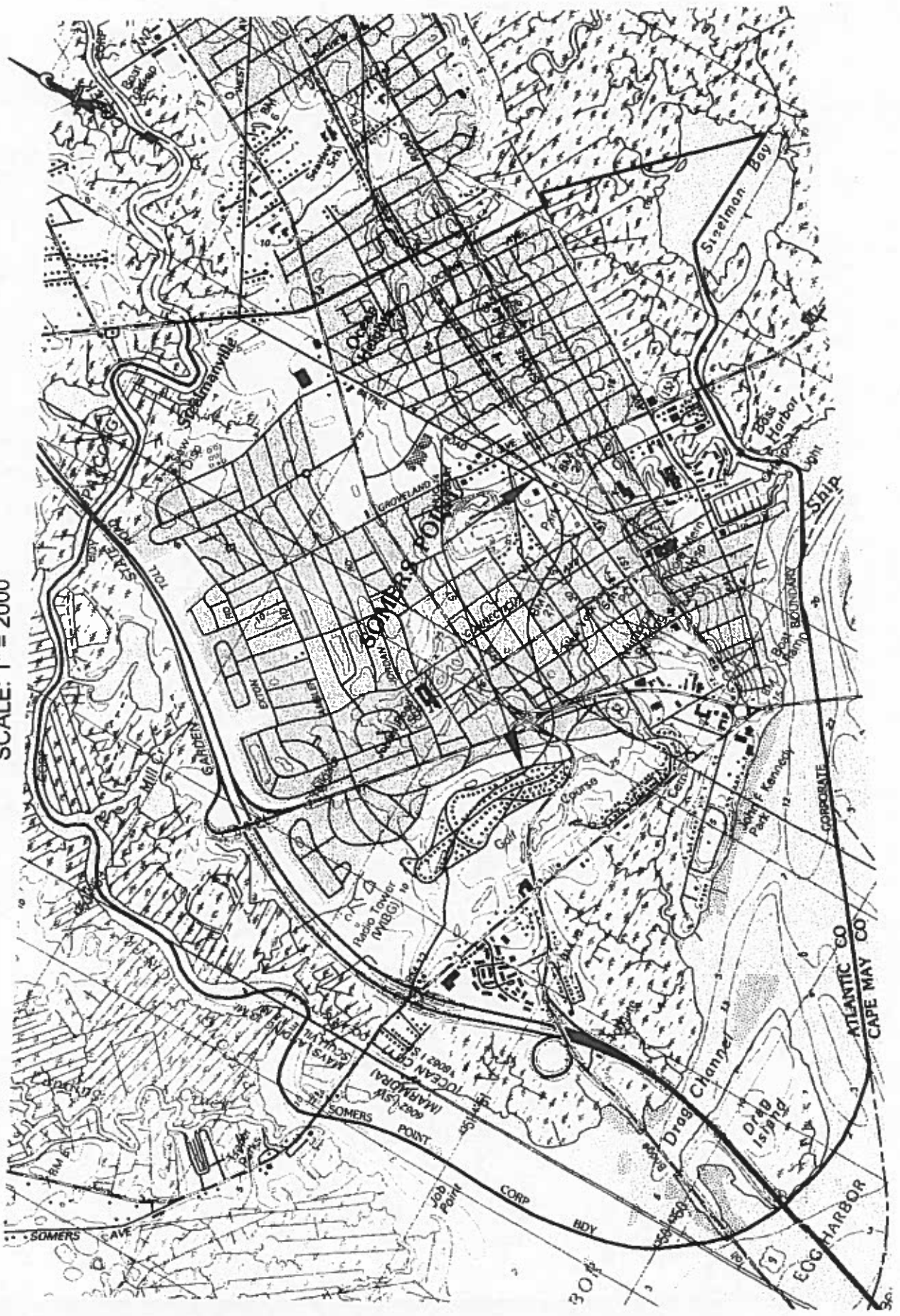
PACCONG CREEK

GREAT EGG HARBOR & TUCKAHOE RIVER  
WATERSHED MANAGEMENT AREA

GREAT EGG HARBOR RIVER

**MUNICIPAL STORMWATER MANAGEMENT PLAN**  
**FIGURE 5 - HYDRAULIC UNIT DRAINAGE AREAS, HUC-14s**

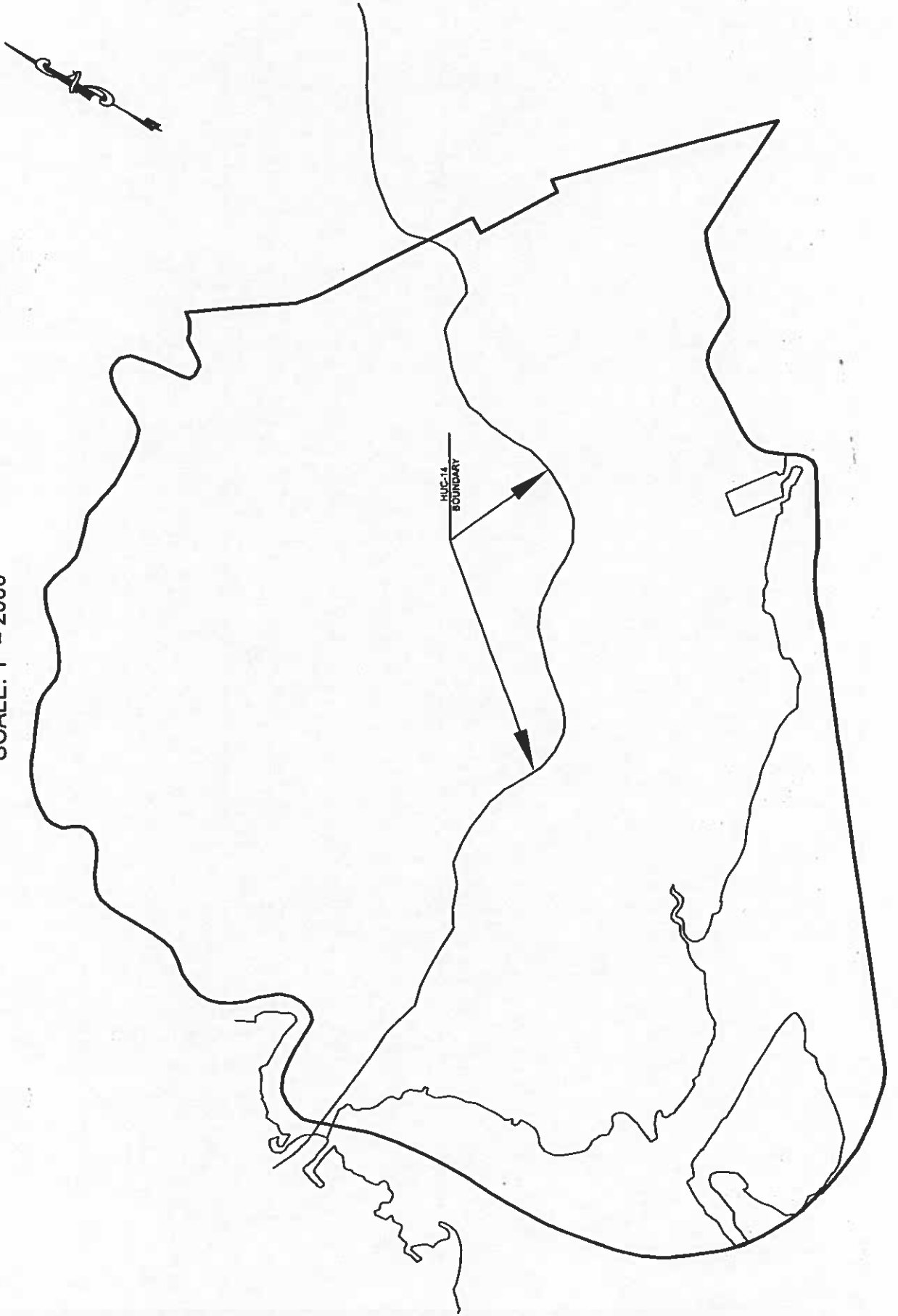
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MUNICIPAL STORMWATER MANAGEMENT PLAN  
FIGURE 5 - HYDRAULIC UNIT DRAINAGE AREAS, HUC-14s

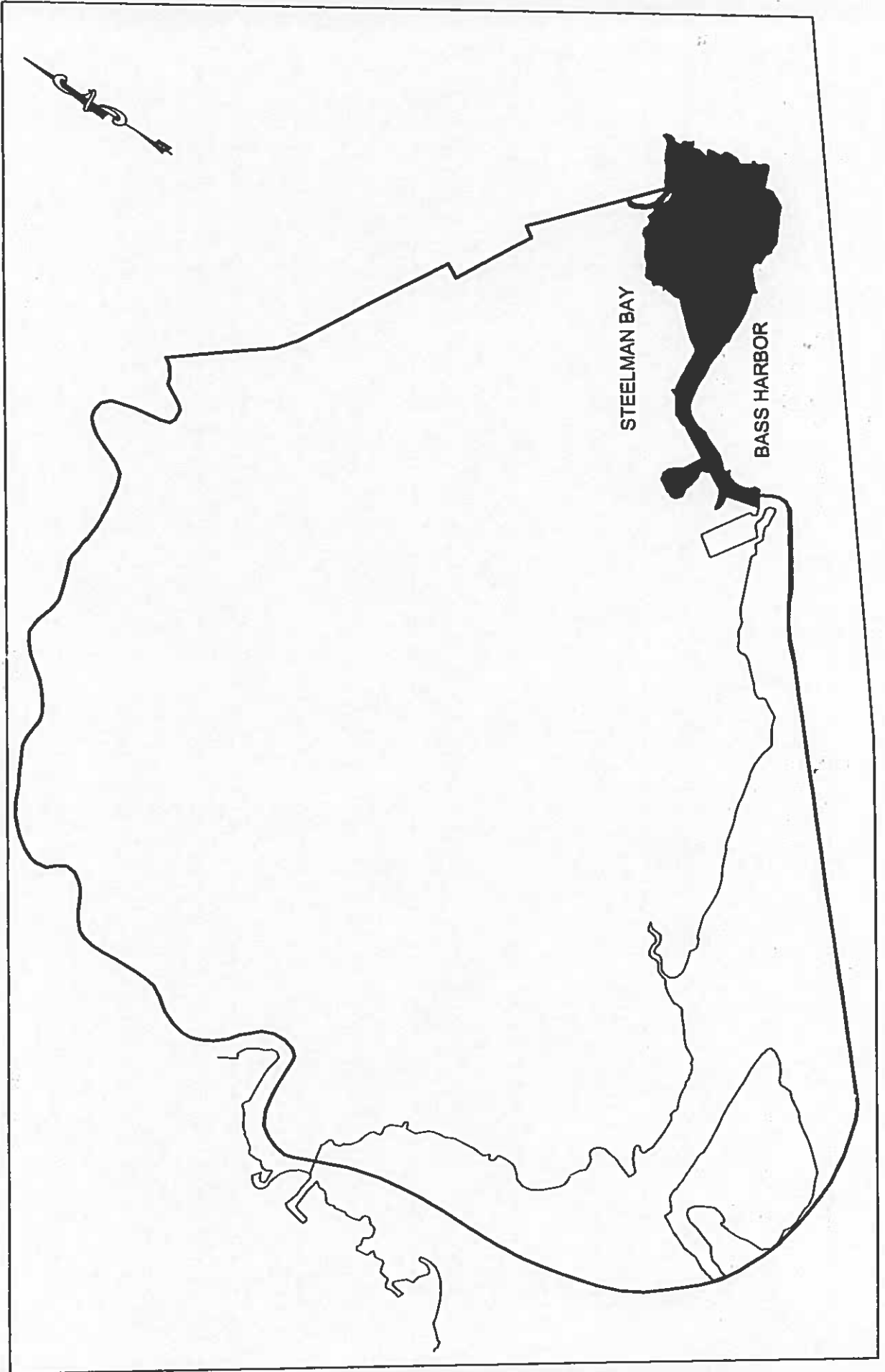
SCALE: 1" = 2000'



MUNICIPAL STORMWATER MANAGEMENT PLAN

FIGURE 6 - CLASS 1 WATERS

SCALE: 1" = 2000'



# *City of Somers Point*

## **Resolution**

No. 67 of 2005

**Subject:** Adopting Stormwater Mangement Plan

**Introduced By:** Councilman Tapp

**WHEREAS**, the New Jersey Department of Environmental Protection has promulgated statewide basic requirements in connection with Tier A Municipal Stormwater Permit NJ0141852; and

**WHEREAS**, one of these requirements which affect the City of Somers Point include the adoption of a Stormwater Management Plan; and

**WHEREAS**, the creation of this plan is required by N.J.A.C. 7:14A-25 and the elements of this plan are specified by N.J.A.C. 7:8-4; and

**WHEREAS**, this Stormwater Management Plan documents the strategy for the City of Somers Point to address Stormwater-related impacts.

**NOW, THEREFORE, BE IT RESOLVED** that the City Council of the City of Somers Point hereby adopts the Stormwater Management Plan attached hereto and made a part hereof.

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I Carol L. Degrassi, City Clerk of the City of Somers Point, New Jersey, hereby certify that the foregoing Resolution is a true copy, duly adopted by the City Council of said City at a Regular meeting held on the 14<sup>th</sup> day of April, 2005.

In Witness Whereof, I have hereunto set my hand and seal of my Office this 14<sup>th</sup> day of April, 2005.

  
Carol L. Degrassi, RM/C/MC, City Clerk