Chapter IX.10

WASTEWATER MANAGEMENT PLAN
FOR
SALEM COUNTY, NEW JERSEY
LOWER DELAWARE WATER QUALITY MANAGEMENT PLANNING AREA

PILESGROVE TOWNSHIP CHAPTER

PREPARED BY:

SICKELS & ASSOCIATES, INC.
SHERWOOD MEWS
833 KINGS HIGHWAY
WOODBURY, NEW JERSEY 08096

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SEE APPENDIX "B" OF WMP REPORT FOR:
PILESGROVE WMP, DATED NOVEMBER 9, 2010
PREPARED BY Alaimo Association of Engineers

I. INTRODUCTION

This chapter represents the Pilesgrove Township portion of the WMP. The WMP has been submitted to the New Jersey Department of Environmental Protection for approval so that it may be incorporated into the Lower Delaware Water Quality Management Plan via the Plan Amendment Procedure (NJAC 7:15).

Pilesgrove Township has prepared a SSA for inclusion within the Salem County Wastewater Management Plan. This Pilesgrove SSA report was prepared by Richard A. Alaimo Association of Engineers dated November 9, 2010. A copy of Pilesgrove WMP has been included at the end of this municipal chapter. However, certain modifications of the proposed future sewer service area are contained in the mapping prepared by the County, subsequent to the preparation of the Township plan.

The Township of Pilesgrove is located in the Delaware River Drainage Basin and lies within the Lower Delaware Water Quality Management Planning Area. The Planning Area is not located within the jurisdiction of the Pinelands Commission nor is it located within the Coastal Area Facility Review Act (CAFRA) area. The future wastewater service area (FWSA) for Pilesgrove Township is identified on Map No.3. This service area does not include any areas that lay within adjacent municipalities.

Pilesgrove Township does not currently have an adopted WMP in effect. The enclosed plan reflects current zoning and includes the default wastewater management alternative to support development in areas that are not designated as sewer service area, which is a discharge to groundwater of less than 2,000 gallons per day. The Pilesgrove Township WMP has been incorporated within the overall Salem County Wastewater Management Plan. The proposed plan, upon adoption, will remain in force and in effect until the expiration date noted in the Chapter 1, Salem County Summary.

II. EXISTING INFRASTRUCTURE AND TREATMENT FACILITIES

Pilesgrove Township does not own or operate any wastewater treatment or conveyance systems. The Woodstown Sewerage Authority serves a portion of Pilesgrove Township. The extent of this service area is further defined within the Woodstown municipal chapter and the attached Pilesgrove WMP prepared by Alaimo Engineers. Map No.2 depicts the areas actively served by existing wastewater facilities. These facilities consist of on-site treatment works that are regulated under a New Jersey Pollutant Discharge Elimination System permit. Tables located in Chapter 7 (VII) provide detailed information on each facility. "Actively served" means that the collection lines exist and that the property either is connected or has all regulatory approvals necessary to be connected

Pilesgrove Township does not own or operate any public potable water supply wells, water treatment plants or distribution mains. Map No.1 generally depicts the areas actively served by existing public water supply facilities. As with sewer service, "actively served" means that the distribution lines exist and that the properly either is connected or has all regulatory approvals necessary to be connected with no further review.

Pilesgrove Township does contain a few on-site non-industrial facilities serving single developments, sites or other properties under single ownership, but do not treat industrial flows. These facilities typically provide wastewater treatment for apartment complexes, commercial properties and businesses where regional sewerage is not available. In addition, some industrial land uses have independent wastewater treatment facilities that treat and discharge manufacturing process waste or sanitary sewage, rather than other types of effluent such as non-contact cooling water. They may be discharged to ground water or to surface water. The Wastewater Facilities Tables provided in Chapter 7 (VII) list all existing on-site, non-industrial and industrial treatment facilities that discharge 2,000 gallons per day or more of domestic wastewater and are regulated under a NJPDES permit.

Remaining areas of the Municipality, not otherwise designated as service areas for treatment facilities requiring a NJPDES permit, are included within a general wastewater management area for septic systems and other small treatment works that treat less than 2,000 gallons per day of wastewater and discharge to ground water.

III. ENVIRONMENTAL AND OTHER LAND FEATURES

A full description of the mapping of environmental features for the County can be found in Chapter I of this report. This section includes a summary of the environmental features and public open space for the municipality that were taken into account when preparing the mapping. These features are significant to wastewater management planning for three reasons: they may influence the delineation of sewer service areas, they may reduce the potential future wastewater generation due to existing regulatory programs, or they may be subject to federal grant limitations that prohibit the extension of sewer service into these areas. Some of this mapping has been used in the development of a map of environmentally sensitive areas where the extension of sewer service areas is restricted **(see Delineation of Sewer Service Areas, below).**

Development in areas mapped as wetlands, flood prone areas, designated river areas, or other environmentally sensitive areas may be subject to special regulation under Federal or State statutes or rules. Interested persons should check with the Department of Environmental Protection for the latest information. Depiction of environmental features is for general information purposes only, and shall not be construed to define the legal geographic jurisdiction of such statutes or rules.

The following environmental features have been identified within the County map set:

- **A.** Surface Waters and Classifications—Refer to Map No.5A of County map set
- **B.** Riparian Zones -- Refer to Map No.5C of County map set
- **C.** Flood Prone Areas – Refer to Map No.5A of County map set
- **D.** Freshwater Wetlands -- Refer to Map No.5B of County map set
- **E.** Coastal Wetlands –Refer to Maps 5A and 5B of County map set
- **F.** Public Open Space and Recreation Areas –Refer to Map No.5B of County map set
- **G.** Preserved Agricultural Areas and Other Conservation Easements on Private Lands –Refer to Map No.5C of County map set
- **H.** Suitable Habitat for Threatened and Endangered Species – Refer to Maps 5B and 5C
- **I.** Natural Heritage Priority Sites –Refer to Map No.5C of County map set

IV. DELINATION OF SEWER SERVICE AREAS AND PLANNING INTEGRATION

The results of the environmental analyses, summarized in Section III above and within the report prepared by Richard A. Alaimo Association of Engineers, provide justification for the established service area delineations by demonstrating consistency with all applicable NJDEP requirements and criteria. This WMP chapter provides the most current planning efforts within the municipalities WMP planning area.

The WQMP rules NJAC 7:15-5.22 require coordination with and solicitation of comments or consent from certain agencies, entities and plans, and consistency with other plans. These requirements are addressed in the Chapter 1, Salem County Summary within this document.

This chapter provides the method used to delineate future sewer service areas based on the mapping of significant environmentally sensitive areas, and consistency with other regional plans.

Pilesgrove Township prepared their own WMP for inclusion within the Salem County Wastewater Management Plan. The methods used to delineate future sewer service areas have been defined within the Pilesgrove WMP prepared by Richard A. Alaimo Association of Engineers dated November 9, 2010. A copy of Pilesgrove WMP has been included within Appendix "B" of the WMP document.

V. FUTURE WASTEWATER DEMAND AND FACILITIES

This section is intended to describe the build out methodology used to project future wastewater treatment demand for future sewer service areas and general wastewater management service areas within the County WMP.

Pilesgrove Township is proposing changes to their current sewer service area as defined within the attached November 9, 2010 document. The proposed changes and associated wastewater build-out projections have been provided within section 2.4 of the attached Pilesgrove WMP document.

Generally, the default wastewater management alternative to support development in areas that are not designated as sewer service area is discharge to groundwater less than 2,000 gallons per day. A nitrate dilution analysis for septic systems is typically performed, in similar fashion to that conducted for sewer service areas, except that environmentally sensitive areas are not removed prior to performing the build out analysis. The intent of this analysis is to assess the available dilution on a HUC 11 basis used to establish the maximum number of units that can be built in a watershed and continue to meet the regulatory nitrate target.

The nitrate dilution analysis for septic systems was performed independently by Alaimo Engineers on behalf of Pilesgrove Township. The methodology utilized to develop the net nitrate dilution and associated build-out capacity of each zone is further defined within section 4 of the November 2010 report.

VI. ANALYSIS OF CAPACITY TO MEET FUTURE WASTEWATER NEEDS

This section of the wastewater management plan analyzes whether there is sufficient wastewater treatment capacity to meet the needs of the Municipality based on the projections described above. For sewer service areas this requires a comparison of the projected future demand to the existing capacity of the sewage treatment plant.

In areas outside of sewer service areas, the default wastewater management alternative is discharge to groundwater less than 2,000 gallons per day, commonly referred to as septic systems. The assessment of water quality impacts from development on septic systems relies on nitrate concentration. In this analysis, Nitrate acts as a conservative surrogate for any of a number of constituents that could be discharged from a septic system (e.g. cleaners, solvents, pharmaceuticals, etc.). Nitrate was chosen because it is highly soluble in water, and because it is a stable compound that by itself could render water unsuitable for human consumption. The capacity to support septic systems without violating groundwater quality standards is determined by the amount of dilution available. The Water Quality Management Planning Rules advocate a watershed approach to assessing the adequacy of available dilution to meet future development on septic systems. Using this approach, available dilution, (essentially groundwater recharge), is calculated within a HUC 11 watershed and translated into a finite amount of wastewater that can be discharged, which in turn can be translated into a finite number of housing units that can be supported while maintaining a target concentration of nitrate in groundwater. Zoning is then applied to the available land in that same watershed, outside of any sewer service area, to calculate the number of units that could be developed on septic systems.

The results of these two analyses are then compared and if the number of units based on zoning does not exceed the maximum units that can be supported, adequate capacity has been demonstrated. If the number of units allowed by zoning exceeds that which can be supported in a particular watershed, then some adjustment to zoning within that watershed may be required.

Pilesgrove evaluated the capacity for the sewer service areas and non-sewer service areas. The associated analysis has been provided within the November 10, 2010 document prepared by Alaimo Engineers. This document has been included within Appendix "B".

VII. FUTURE WATER SUPPLY AVAILABILITY

The purpose of the Depletive/Consumptive Water Use Analysis is to determine if there is sufficient water supply to serve the proposed development of the municipality. The analysis should compare the build-out water supply need with the existing permitted water allocation. To complete the objective of this analysis, water allocation and drinking water demand within the existing sewer service area were compared. A build-out projection of the proposed sewer service area was then prepared to determine the additional water demands that may result. These demands were also compared to the water allocation to verify whether sufficient water supply exists to serve the proposed development. The specific details related to this analysis are further defined in section 4.3 of the attached Pilesgrove WMP.

VIII. MAPPING REQUIREMENTS

A. BASIS FOR SERVICE AREA DELINEATIONS

The results of the required environmental analyses, summarized in Section III and the delineation of the sewer service areas identified in section IV above provide justification for the established service area delineations by demonstrating consistency with all applicable NJDEP requirements and criteria. The Pilesgrove WMP provides the most current planning efforts within the Sewer Service Area.

The Pilesgrove WMP proposed Sewer Service Area encompasses the future sewer service area necessary to implement the goals and objectives of the municipality. Those areas have been reduced to account for the buffer requirements regarding wetlands, the habitats of Threatened and Endangered Species and Riparian Corridors.

The proposed Pilesgrove Township WMP Sewer Service Area does not contain any areas located within the Pinelands. Areas located within the watershed of a Fresh Water One (FWl) stream, as classified in the Surface Water Quality Standards, and/or that have Class I-A ground water (Ground Water of Special Ecological Significance), as classified in the Ground Water Quality Standards, are identified as "Non-degradation water areas based on the Surface Water Quality Standards at NJ.A.C. 7:9B, and/or the Ground Water Quality Standards at NJ.A.C. 7:9-6." Areas so designated are included on Map 3. Non-degradation water areas shall be maintained in their natural state (set aside for posterity) and are subject to restrictions.

B. MAPPING CLASSIFICATION

The mapping for this municipal chapter of the WMP was created by using available data from NJDEP, online GIS data sets and has been prepared in accordance with NJDEP WMP guidelines. The maps included within this submission reflect the requirements for preparing a Water Quality Management Plan Amendment. Five (5) maps with specific features have been provided. Supplemental maps have been included to clarify information in an effort to clearly depict the required information. Each map has been provided with a complete and readily understandable legend. All 30” x 42” maps have been developed using New Jersey Department of Environmental Protection Geographic Information System digital data at a scale of 1” = 1 mile’. Additional 11” x 17” maps have been provided within each report for convenience. The maps are classified below:

1. MAP #1: WMP MUNICIPAL MAP/WATER INFRASTRUCTURE

The map depicts the municipal boundary as well as the potable water infrastructure, if applicable. The map also includes HUC-11's, and existing water service infrastructure. Map No.1 shows areas of the municipality that lay within the Hackensack Meadowlands District, Pinelands Areas, Pinelands National Reserves, or franchise areas.

2. Map No.2: Existing Facilities & Service Areas

This map depicts the existing wastewater service area. This map also identifies the present extent of the actual sewer infrastructure within the municipal boundary of Pilesgrove Township, including all sewer department buildings, existing NJPDES facility (WWTP) locations, pump stations, force mains, and gravity sewers. All areas outside the existing sewer service area are served by ISSDS with wastewater planning flows of less than or equal to 2,000 gpd.

3. Map No.3: Proposed Facilities & Service Areas

The map illustrates the wastewater service areas, non-degradation areas, pumping stations, major interceptors and trunk lines, which are proposed to exist in the future. The boundaries of future service areas coincide with recognizable geographic or political features (i.e., roads, lot lines, zoning area boundaries, water bodies). The proposed future infrastructure and facilities are also depicted on the map. The existing infrastructure and facilities from Map No.2 are also included in this map.

4. Map No.4: Pilesgrove Township Zoning Map

The map depicts the current zoning of Pilesgrove Township. The zoned minimum lot acreage for Commercial, Industrial and Residential areas within the WMP proposed Sewer Service Area indicated in Table 8.B.4.1 below were utilized to determine calculated flows within the future sewer service area.

Table 8.B.4.1: Zoning Regulations

Zone	Zone Title		Minimum Lot Area	Minimum Lot Frontage	Minimum Lot Width	Minimum Lot Depth	Minimum Front Yard Setback	Minimum Side Yard Setback	Minimum Rear Yard Setback	Minimum Open Space	Maximum Building Coverage	Maximum Lot Coverage
AH-1	AFFORDABLE HOUSING		5 ACRES	300'						25%		30%
AR-1	AGRICULTURAL RETENTION (ADA)	DETACHED DWELLINGS	2.0 ACRES	200'	200'	300'	75'	40'	75'		4%	5%
		DETACHED DWELLING (MAJOR SUBDIVISION)	3.0 ACRES	250'	250'	350'	100'	50'	75'		4%	5%
		COMMERCIAL STABLES, RIDING ACADEMIES, CHURCHES	4.0 ACRES	300'	300'	300'	75'	75'	100'		10%	15%
AR-2	AGRICULTURAL RETENTION	DETACHED DWELLINGS	2.0 ACRES	200'	200'	300'	75'	40'	75'		4%	5%
		DETACHED DWELLING (MAJOR SUBDIVISION)	3.0 ACRES	250'	250'	350'	100'	50'	75'		4%	5%
		COMMERCIAL STABLES, RIDING ACADEMIES, CHURCHES	4.0 ACRES	300'	300'	300'	75'	75'	100'		10%	15%
HC-1	HIGHWAY COMMERCIAL	RETAIL	1 ACRE	150'	150'	150'	75'	25'	50'			55%
		SHOPPING CENTERS	10 ACRES	500'	500'	500'	100'	100'	100'			55%
		HOTELS & MOTELS	4 ACRES	300'	300'	300'	75'	75'	100'			55%
HC-2	HIGHWAY COMMERCIAL	RETAIL	1 ACRE	150'	150'	150'	75'	25'	50'			55%
		SHOPPING CENTERS	10 ACRES	500'	500'	500'	100'	100'	100'			55%
		HOTELS & MOTELS	4 ACRES	300'	300'	300'	75'	75'	100'			55%
HC-3	HIGHWAY COMMERCIAL	RETAIL	1 ACRE	150'	150'	150'	75'	25'	50'			55%
		SHOPPING CENTERS	10 ACRES	500'	500'	500'	100'	100'	100'			55%
		HOTELS & MOTELS	4 ACRES	300'	300'	300'	75'	75'	100'			55%
JCOAH	JUDICIALLY ORDERED COAH		24,000 SF	125'	125'	100'	40'	10'	30'			20%
NC	NEIGHBORHOOD COMMERCIAL		1 ACRE	150'	150'	175'	60'	25'	50'			55%
PLI	PLANNED LIGHT INDUSTRIAL	1								10%		50%
		2								25%		55%
		3								40%		60%
		4								50%		65%
PPE	PUBLIC, PARKS, EDUCATION		5 ACRES		400'	400'	50'	25'	50'		35%	60%
PRD-1	PLANNED RESIDENTIAL - SAME AS											
RR	RESTRICTED RESIDENTIAL	DETACHED DWELLING	2.0 ACRES	200'	200'	300'	75'	40'	75'		4%	5%
		DETACHED DWELLING (MAJOR SUBDIVISION)	3.0 ACRES	250'	250'	350'	100'	50'	75'		4%	5%
		CHURCHES	4.0 ACRES	300'	300'	300'	75'	75'	100'		10%	15%
SR	SINGLE FAMILY RESIDENTIAL	DETACHED DWELLING	1.0 ACRE	150'	150'	200'	50'	30'	50'		8%	12%
		CLUSTER	0.75 ACRES	125'	125'	175'						
		CHURCHES	4.0 ACRES	300'	300'	300'	75'	75'	100'		10%	15%
SR-5	SINGLE FAMILY RESIDENTIAL	DETACHED DWELLING	8,000 SF	70'	70'	100'	35'	15'	25'		20%	30%
		CHURCHES	25,000 SF	150'	150'	150'	50'	25'	35'		10%	15%
VN	VILLAGE NEIGHBORHOOD	~~DETACHED SINGLE TWO FAMILY~~	0.5 ACRES	100'	100'	150'	30'	20'	35'		15%	25%
		~~DUPLEX~~	1 ACRE	150'	150'	150'	30'	30'	35'		15%	25%
		PROFESSIONAL & RETAIL USE	1 ACRE	150'	150'	150'	40'	25'	50'		20%	60%
		CHURCHES	2 ACRES	200'	200'	300'	50'	40'	50'		10%	20%
CONS	CONSERVATION		5 ACRES									

5. Map No.5A: Environmental Features (Refer to County Map Set)

The map depicts environmental features indicated in N.J.A.C. 7:15-5.17 including major drainage basin boundaries (U.S.G.S. Hydrologic Unit Code (HUC) 11 Watersheds), CAFRA boundary and flood prone areas (FEMA). Map No.5A shows any New Jersey and Federal Wild and Scenic Rivers, FW 1-Trout Production or FW 2 Trout Production or farmlands preservation areas. Streams with FW2-NTC1/SE1 and FW2-NT/SE1 ranking are also shown.

6. Map No.5B: Environmental Features (Refer to County Map Set)

The map depicts environmental features indicated in N.J.A.C. 7:15-5.17 including wetlands, required wetlands buffers, public open space and recreation areas greater than or equal to (10) ten acres. Additional information including major drainage basin boundaries (U.S.G.S. hydrologic unit code (HUC) 14 watersheds), landscape project areas for grasslands, emergent and forested areas with rankings of 3, 4 and 5 are also shown. MapNo.5B shows any New Jersey and Federal Wild and Scenic Rivers, FW 1 Trout Production or FW 2 Trout Production or farmlands preservation areas.

7. Map No.5C: Environmental Features (Refer to County Map Set)

The map depicts environmental features indicated in N.J.A.C. 7:15-5.17 including the natural heritage priority sites for threatened and endangered species. Landscape Project Areas for Forested Wetlands and Bald Eagle Foraging are shown on this map. Map No.5C shows any New Jersey and Federal Wild and Scenic Rivers, FW 1-Trout Production or FW 2 Trout Production or Farmlands Preservation areas. C-1 water bodies are identified on the map as well. Sewer service areas are excluded from the 300ft buffers of C-1 water bodies and on all tributaries within the HUC 14 watershed.