Chapter IX.9

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

PENNSVILLE TOWNSHIP CHAPTER

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Chapter IX.9

CHAPTER SUMMARY

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

The current WMP in effect for the Pennsville Sewerage Authority is an amendment to the Lower Delaware WQMP, which was adopted on May 13, 2010. **The PSA has not made any revisions or amendments to the previously approved plan as a part of this submission of the Salem County Wastewater Management Plan.** The Pennsville Sewerage Authority has been incorporated within the overall Salem County Wastewater Management Plan. The proposed Salem County WMP and this chapter, upon adoption, supercedes previous plans and will remain in force and in effect until the expiration date noted in the Chapter 1, Salem County Summary.

A copy of the adopted amendment as well as the previously approved PSA WMP Report has been attached for information purposes. Please note that attachments to the previously adopted plan have not been included within this report.

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I. INTRODUCTION

The purpose of this document is to provide a comprehensive Wastewater Management Plan (WMP) for the Pennsville Sewerage Authority (PSA). 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).

1. PSA WMP EXISTING SEWER SERVICE AREA

The current PSA sewer service area boundary delineated on Map #2 is serviced by the Pennsville Sewerage Authority Wastewater Treatment Plant (PSA-WWTP) and is generally defined by the Glenside, Churchtown, Central Park, Penns Beach, and Mahoneyville sections of Pennsville Township and a portion of the Township of Carneys Point adjacent to the north boundary of Pennsville. Within the Deepwater section of Pennsville, the wastewater from the Deepwater Generating Station is conveyed to the DuPont Chambers Works Wastewater Treatment Plant (WWTP). The PSA-WWTP is located on Industrial Park Road and was constructed in approximately 1960. The PSA-WWTP currently receives contributing flow from 5,337 residential living units, 551 commercial uses, and one (1) industrial use (Ganes Chemical Plant). The monthly flow generated by these contributors for the 2008 was 1.366 mgd.

An I&I study was completed in May, 2004 which investigated the infrastructure for a large portion of the Township and identified source(s) of "extraneous water" entering the system. "Extraneous water" is defined as water entering the system from sources other than the typical sanitary sewage uses such as bathroom facilities, laundry, bathing, food processing etc. Infiltration and inflow had been observed in varying degrees during large storm events. The Pennsville Sewerage Authority has been proactive in correcting localized infiltration problems within the existing infrastructure.

Wastewater generated within the PSA WMP existing sewer service area is conveyed to the PSA-WWTP which is designed to operate at 1.875 mgd. Wastewater entering the treatment plant is treated sequentially through primary settling tanks, trickling filters, rotating biological contactors (RBC's), secondary settling tanks, and chlorine contact tanks prior to discharging to the Delaware River. The plant has been modified to provide a pipe manifold which will allow the trickling filters to treat the wastewater prior to flow through the RBC's. The modified flow sequence has allowed the plant to operate more efficiently with a reduction in system maintenance by utilizing the existing over-designed trickling filters for primary treatment, and moving the RBC's which had become a high maintenance issue due to high bio-mass loading to secondary treatment.

The adopted amendment currently in effect is the "Corrective Action Plan" that was adopted several years ago to bring approximately ten (10) existing facilities into compliance with the Water Quality Management Plan (WQMP). The Township has completed a major overhaul of the Township's Master Plan and Zoning Ordinances. The enclosed plans reflect current zoning with proposed sewer service areas consistent with the Township's Master Plan. The existing sewer service limits, depicted on Map #2, were derived from existing sanitary sewer infrastructure currently constructed and/or approved.

The Authority has identified the future sewer service area necessary to implement a portion of the goals and objectives of the Township's Master Plan. Those areas have been reduced to account for the buffer requirements regarding wetlands, the habitats of Threatened and Endangered Species, Riparian Corridors and FW-2 Waters.

The proposed future sewer service areas depicted on Map 3 consists of proposed future areas outside the existing sewer service area. There are ten (10) projects that were previously permitted by the Department, and contribute flows to the PSA-WWTP. These areas were identified in the Corrective Action Report submitted to the Department on February 8, 2000 and have been included as part of the existing sewer service area. The additional proposed sewer service areas target existing developed areas serviced by Individual Subsurface Sewage Disposal Systems (ISSDS), which could feasibly be connected to existing sanitary sewer infrastructure. The remaining areas will continue to be serviced by ISSDS's with wastewater flows less than or equal to 2,000 gpd.

The proposed Sewer Service Area reflects current zoning changes adopted by Pennsville Township. **The proposed Sewer Service Area defined on Map #3 has been reduced, from our original submission, not to exceed the current permitted treatment plant capacity of 1.875 mgd.** This approach is being pursued in an effort to expedite the approval process and eliminate the need for upgrades to the WWTP at this time. In an effort to accommodate additional wastewater flows generated by future site specific amendments, population growth and development, the Authority will consider re-rating the WWTP at a future date rather than including this process as part of this WMP application. Any expansions or re-rating of the PSA WWTP will require further WMP amendments and anti-degradation analysis.

II. SUMMARY OF SIGNIFICANT ACTIONS

1. The WMP planning area for Pennsville depicted on Map #1 includes the entire Township, and a portion of Carneys Point adjacent to Pennsville and south of the Salem Canal. In addition, the Dupont Facility has been removed from this area, as it is currently included within the Carney's Point WMP.

2. The following additional future sewer service areas are proposed:

    a. The Authority has identified the future sewer service area necessary to implement a portion of the goals and objectives of the Township's Master Plan.

3. There are currently NJPDES regulated facilities within the existing sewer service area. There are no proposed changes to these facilities with relation to the WMP.

4. All areas not proposed to be included in the PSA sewer service areas in this WMP will be served by ISSDS's with 2,000 gpd or less flows.

5. Development within the WMP existing sewer service area consists primarily of infill development. The proposed sewer service area closely reflects current zoning.

6. The intent of this application is to obtain an approved WMP that does not exceed the current permitted treatment plant capacity of 1.875mgd. In an effort to accommodate additional wastewater flows generated by further expansion of the SSA, the Authority will consider re-rating the WWTP at a future date rather than including the re-rating process as part of this application. Any expansions or re-rating of the PSA WWTP will require further WMP amendments and anti-degradation analysis.

III. EXISTING AND FUTURE WASTEWATER TREATMENT FACILITIES

The Pennsville Sewerage Authority (PSA) owns and operates one WWTP and a series of pump stations, and force mains used to convey wastewater flow to the WWTP. The sanitary sewer collection system in Pennsville is owned and maintained by the Authority. There is approximately 80 miles of sanitary sewer main with pipes ranging in size from 8 inches to 24 inches in diameter. The Authority currently owns and operates sixteen (16) pump stations. Twelve (12) of these pump stations are tributary to the 5th Street (main) pumping station. The remaining pump stations pump directly to the treatment plant. The exception is the Chestnut Pump Station, it pumps through the Goose Lane Pump Station. All flow is conveyed to the PSA WWTP for treatment.

1. EXISTING WASTEWATER FACILITIES

1.1 PSA Wastewater Treatment Plant

The PSA WWTP is a localized system for the conveyance, treatment, and disposal of the municipalities' wastewater within its service area. The WWTP treats domestic waste as well as industrial waste. Treated wastewater is discharged to the Delaware River under NJPDES Permit No. NJ0021598. The present permitted capacity is 1.875 MGD. A process flow diagram for the WWTP is located in Appendix "A". Treatment system performance is excellent under current conditions. Biochemical oxygen. demand (BODs) and total suspended solids (TSS) removal efficiencies of the overall treatment system continue to be excellent under current operating conditions, averaging 96.26% (TSS) and 97.39% (BOD's). Table # 1.1.1 and Table # 1.1.2, located within the Environmental Assessment Report, summarizes the monthly reporting of BOD and TSS data for 2008 with percent removal limits indicated.

1.2 WMP NOTES

- All existing, new, or expanded industrial pretreatment facilities requiring Significant Indirect User (SIU) permits and/or Treatment Works Approvals, and which are located within the specified sewer service area, are deemed to be consistent.
- 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.
- Individual subsurface sewage disposal systems (ISSDS) for individual residences can only be constructed in depicted sewer service areas if legally enforceable guarantees are provided, before such construction, that use of such systems will be discontinued when the depicted sewer service becomes available. This applies to ISSDS that require certification from the Department under the Realty Improvement Sewerage and Facilities Act (NJ.S.A. 58:11-23) or individual Treatment Works Approval or New Jersey Pollutant Discharge Elimination System Permits (under NJ.A.C. 7:14A). It also applies to ISSDS which require only local approvals if the WMP acknowledges adequate arrangements for enforcement of the requirement (such as through a municipal or sewerage authority ordinance). The PSA has established a provision within their Rules and Regulations that when the Authority provides for sanitary sewer to pass immediately adjacent to a property owner's boundary line, structures or houses, will be required to make the necessary arrangements to tie into the sanitary sewer system, if within the approved SSA.

- Pre-existing grant conditions and requirements (from Federal and State grants or loans for sewerage facilities) which provide for restriction of sewer service to environmentally sensitive areas, are unaffected by adoption of this WMP and compliance is required.
- Proposed developments tying into existing and proposed sewer service areas which require coastal permits must demonstrate compliance with all applicable sections of the Coastal Zone Management rules including, but not limited to, Wetlands. (N.J.A.C. 7:7E-3.27), Wetlands Buffers (N.J.A.C. 7:7E-3.28), Endangered or Threatened Wildlife or Vegetation Species Habitat (N.J.A.C. 7:7E-3.38), Secondary Impacts (NJ.A.C. 7:7E-6.3), Public Facility. Use Policies (N.J.A.C. 7:7E-7.6), Water Quality (N.J.A.C. 7:7E-8.4), Ground Water Use (N.J.A.C. 7:7E-8.6 and the policies wider General Land Areas rules, Subchapters 5, 5A and 5B.
- Non-degradation water areas shall be maintained in their natural state (set aside for posterity) are subject to restrictions including, but not limited to, the following: 1) DEP will not approve any pollutant discharges to an FWI stream, with the exception of upgrades to or continued operation of existing facilities serving existing development. 2) DEP will not approve any pollutant discharge to ground water nor approve any human activity which results in a degradation of natural quality except for the upgrade' or continued operation of existing facilities serving existing development. For additional information please see the Surface Water Quality Standards at NJ.A.C. 7:9B, and/or the Ground Water Quality Standards at N.J.A.C. 7:9-6.

1.3 Wastewater Flows

The existing wastewater flows conveyed to the PSA WWTP were calculated based on flows metered by PSA. The present average annual wastewater for 2008 is 1.366 mgd. The present average flow includes residential, commercial and industrial flows as well as an I/I component.

Included within the above existing wastewater flows are connections located within Carney's Point. The flow from these connections is not metered. Consequently, flow estimates from these connections were determined by utilizing the regulatory average daily flow values utilized within the regulations for each type of connection. These connections are identified in Table 1.3 below.

TABLE 1.3: Existing Flows within Carneys Point

CARNEYS POINT EXISTING SANITARY FLOW PROJECTIONS					
Block	**Lot**	**Units**	**Description**	**Daily Demand**	**ADF (gpd)**
223	2	34	Motel Bedrooms	60	2,040
401	10	39	Trailers	200	7,800
215	2	1	2,3,4 BR SFH	300	300
197	1	1	2,3,4 BR SFH	300	300
225	7	2100 S.F.	DOT Maintenance Facility	210	210
			(Note, used 0.1 gal/sf)		
				Total calculated daily flow:	**10,650**

Proposed future flows to be conveyed to the PSA WWTP projected under build-out conditions were evaluated based current zoning of identified developable land. All projected flows were separated into residential, commercial, and industrial components. Note that future residential flow calculations utilize a flow of 300 gpd per household. The 300 gpd estimate exceeds the current realized ADF per household, which more closely resembles 250 gpd. The 300gpd flow projection includes an allowance for I/I.

Total projected build-out flow for residential, commercial and industrial development was determined based on current zoning ordinances for the municipality within areas proposed as the future sewer service area. Environmental constraints with required buffers were also considered and indicated within the Mapping section of this report. A more detailed explanation of build-out flow calculations and criteria used is provided in the tables below.

1.3.1 Existing Sewer Service Area Build Out of Infill Development

Residential flows within the existing Sewer Service Area were projected by determining the maximum number of dwelling-units based on current zoning. The current regulated NJDEP average daily flow of 300 gpd was then applied to the calculations for each dwelling-unit.

Commercial flows were projected by determining the maximum number of office and retail stores based on current zoning. The current regulated NJDEP average daily flow of 0.1 gpd/sf was then applied to the calculations for each unit based on an established commercial use of approximately 8,250 s.f. office and retail store space (33% of 25,000 s.f.).

Industrial flows were projected by determining the maximum number of units based on current zoning. An average daily flow of 25 gals/person/8hr Shift was applied, based on 50 employees per facility.

A summary of the Existing Sewer Service Area Build-out Analysis is located in Section 4, Environmental Constraints Analysis, Table 4.1.1.

1.4 Other Wastewater Treatment Facilities in the Planning Area

There are a total of seven (7) domestic or industrial treatment facilities located with the Pennsville Township planning area. Facility Table(s) have been completed for each facility NJPDES permit. Facilities tables related to industrial wastewater and discharge to groundwater permits have been included in Appendix "B". A Facility Table has been completed for the DuPont Chambers Works. However, only those flows from the Deepwater Generating Plant are accounted for, as this facility is within the Pennsville WMP planning area. A separate facility table for the Deepwater Generating Plant has not been provided.

The Ganes/Siegfried (USA) Inc. Chemical Plant is located within Pennsville Township. However a facility table has not be provided for this facility as it is an SIU discharger and its industrial process flows are accounted for in the Industrial Flow section of the Pennsville STP Facility Table.

The following table identifies existing facilities within the existing Sewer Service Area that have NJPDES permits.

TABLE 1.4.1: NJPDES REGULATED FACILITES

	Facility	NJPDES # & Discharge Type	Wastewater Description	Facility Table
A	Water Street Water Treatment Plant	NJ0068730 DSW NJ0102385 DGW	Sanitary flow only to Pennsville STP. Filter backwash to SW and GW.	Facility Tables 6 & 7
B	Heron Avenue Water Treatment Plant	NJ0068705 DSW NJ0102369 DGW	Sanitary flow only to Pennsville STP. Filter backwash to SW and GW.	Facility Tables 4 & 5
C	Pennsville STP	NJ0021598 DSW		Facility Table 1
D	Fort Mott State Park	NJG0133159 DGW	Sanitary to GW	Facility Table 3
E	Pennsville SFL	NJ0056499 DGW	GW Sampling/Site Remediation	Facility Table 8
F	Deepwater Generating Plant	NJ0005363 DSW NJ0103357 DGW	Multiple outfalls of non-process wastewater to Delaware River. DGW is all process and sanitary wastewater flow to a surface impoundment which then is transported to Dupont.	Covered under Facility Table 2

G	Dupont Chamber Works WTP	NJ0005100 DSW		Facility Table 2
H	Ganes/Siegfried (USA) Inc. Chemical Plant	NJ0035394 DSW NJ0103721 DSW	Emergency discharge of non-contact cooling water to Miles Creek. SIU Permit – Industrial process and sanitary wastewater flow to Pennsville STP.	No table

Note: The Facility Table for the DuPont Chambers Works only accounts for flow from the Deepwater Generating Plant, as this facility is within the Pennsville WMP planning area.

2. FUTURE WASTEWATER FACILITIES

Growth within the proposed Sewer Service Area is expected due to population increases and infill development. To accommodate the anticipated increases in development within the Planning Area, an increase in the Sewer Service Area is being proposed. However, the proposed Sewer Service Area will not exceed the current permitted treatment plant capacity of 1.875 mgd.

The PSA is currently planning the design of a new primary clarifier located at the wastewater treatment plant (WWTP) within Pennsville Township in an effort to improve operational flexibility. Additional treatment plant modifications would be evaluated as the need for increased capacity arises. Upgrades to the conveyance system would also be investigated as site-specific amendments to the WMP are proposed. A summary of the proposed Sewer Service Area Build-out Analysis is located in Section 4, Environmental Constraints Analysis, Table 4.2.1.

IV. SUMMARY OF ENVIRONMENTAL ASSESSMENTS AND ANALYSIS

1. POINT SOURCE POLLUTANT LOADING ANALYSIS

New Jersey anti-degradation policies specify that existing uses be maintained and that designated uses be achieved and maintained unless "the Department finds, after full satisfaction of the intergovernmental coordination and public participation provisions of the Departments continuing planning process as set forth in the Statewide Water Quality Management Plan (See NJAC 7:15) which includes, but is not limited to NJAC 7:14, NJPDES Regulations that allows lowering water quality if necessary to accommodate important economic or social development in the area in which the waters are located." DRBC Water Quality regulations define Zone 5 Delaware River Waters as follows:

A. Description. Zone 5 is that part of the Delaware River extending from R.M. 78.8 to R.M. 48.2, Liston Point, including the tidal portions of the tributaries thereof.

B. Water Uses to be Protected. The quality of waters in Zone 5 shall be maintained in a safe and satisfactory condition for the following uses:

- Industrial water supplies after reasonable treatment;
- Maintenance of resident fish and other aquatic life,
- Propagation of resident fish from R.M. 70.0 to R.M. 48.2,
- Passage of anadromous fish,
- Wildlife;
- Recreation;
- Navigation.

Activities under this WMP will comply with anti-degradation policies and objectives. Increases in discharges up to the current permitted limit of 1.875 mgd will proceed in a manner to prevent increases in load or concentration of parameters of concern. This will be accomplished by improving, as necessary, the management and treatment systems to continue to comply with NJDEP effluent discharge requirements established in accordance with the anti-degradation policies. The PSA is currently reviewing and revising their local limits for the facilities of Significant Industrial Users to protect effluent quality. Treatment improvements will be investigated as development increases. Potential improvements may include expansion and upgrade of individual unit processes of the treatment system as a whole to improve treatment process performance and ensure compliance with applicable criteria.

The PSA WWTP is currently operated under NJPDES Permit number NJ0021598 issued on 8/15/2005 with an expiration date of 10/31/2010. The PSA treatment plant consistently operates within its current permit limits for BOD and TSS. Permitted effluent limits for BOD correspond to (185 kg/day monthly average and 319 kg/day weekly average) with TSS limits being (213 kg/day monthly average and 319 kg/day weekly average). Effluent reporting, based on 2008 data, reflects an average monthly limit for BOD of 35.68 kg/day, with an average monthly TSS limit of 50.80 kg/day. A summary of the BOD and TSS Sampling through 2008 is located in Section 1, Environmental Constraints Analysis, Table(s) 1.1.1 and 1.1.2.

Assuming that concentration based limits remain, at future flows, the PSA WWTP is expected to continue to meet those limits with appropriate plant expansions and upgrades. When flows conveyed to the WWTP approach the current permit capacity of 1.875 MGD, upgrades to the plant will be evaluated as needed with the first phase being a re-rating of the WWTP. Any expansions or re-rating of the PSA WWTP will require further WMP amendments and anti-degradation analysis.

2. NONPOINT SOURCE POLLUTANT LOADING ANALYSIS

Pennsville Township has prepared a Stormwater Management Plan for the municipality. It is assumed that a plan prepared to meet NJDEP requirements will meet the requirements of the wastewater management planning process. The Storm Water Management Plan has been adopted by Pennsville Township. The final resolution

establishing minimum storm water management requirements with Ordinance # A-32-2006 was submitted to Salem County on December 19, 2006. In addition, a nitrate dilution model zoning overlay ordinance was adopted on December 3, 2009 establishing a limitation on the nitrate loading of each subdivision that proposes the use of an onsite subsurface sewage disposal system.

3. CONSUMPTIVE WATER USE ANALYSIS

3.1 Background

The Township of Pennsville is presently serviced from eight (8) ground water wells located throughout the Township. Wells #1 through #8 withdraw water from the Upper and Middle PRM (Potomac Raritan Aquifer). Generally, sanitary sewer service is available where potable water service is currently in place. However, there are a few sections of water main along Hook Road and Fort Mott Road where sanitary sewer is not available.

Table #3.1.1, below, summarizes each well with its designation and pump capacity. The location of existing wells have been provided on Map #2 for your convenience**.**

TABLE #3.1.1: EXISTING PENNSVILE TWP. WELLS

Well Permit Number	Well Designation	Pump Capacity (gpm)	Aquifer
5000041	1	250	Middle PRM
3000018	2	400	Middle PRM
3005148	3A	700	Upper PRM
3008335	4A	500	Upper PRM
2810466	5	700	Upper PRM
3003013	6	700	Upper PRM
3000012165	7	355	Middle PRM
3000012164	8	435	Upper PRM

The Township has a total of 1.75 million gallons of storage capacity at locations listed in Table #3.1.2 below.

Table #3.1.2: STORAGE CAPCITY

WATER TOWER	CAPACITY (MGD)
Water Street	0.15 mg
Tufts Road	0.6 mg
Sharp Street	1.0 mg

The Township of Pennsville currently has an average daily usage of approximately 1.016 million-gallons/day based upon the 2008 calendar year. The peak annual and monthly water demand over a period of 5 years between 2004 through 2008, occurred in 2006. The reduction in average demand, over the last few years, is partially due to the enforcement of water restrictions and water conservation appurtenances in residential and commercial buildings and improvements/replacements within the system's infrastructure. Additional historical flow data has been provided in Table 3.1.3 below.

a) TABLE # 3.1.3: ANNUAL FLOW SUMMARY

	ANNUAL FLOW	AVERAGE DAILY	AVERAGE MONTHLY	PEAK MONTHLY
YEAR	TOTAL	FLOW	FLOW	FLOW
2008	370.75 MGY	1.016 MGD	30.895 MGM	40.023 MGM June
2007	387.36 MGY	1.061 MGD	32.280 MGM	39.330 MGM July
2006	445.65 MGY	1.221 MGD	37.138 MGM	46.650 MGM August
2005	420.58 MGY	1.152 MGD	35.048 MGM	38.861 MGM June
2004	349.16 MGY	0.957 MGD	29.097 MGM	34.069 MGM May

3.2 Comparison of Water Allocations and Projected Build-out

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 Township. The analysis should compare the Buildout water supply need with the existing permitted water allocation. To complete the objective of this analysis, water allocation and drinking water utilized within Pennsville Township were compared. A build-out projection of the infill development within the existing sewer service area and development within the proposed sewer service area was then prepared to determine the additional water demands that may result. These demands were then added to the current water demand within the township and then compared to the water allocation to verify whether sufficient water supply exists to serve the proposed development. The information provided was made available by the Pennsville Water Department and the PSA. The comparison of water allocation and projected build-out is summarized in the table below.

Table 3.2.1: Water Allocation within Pennsville Township for 2008

Water Company	Permit #	Water Allocation (mgm) / (mgy)	Avg. Demand 2008 (mgm) / (mgy)	Build-Out Projection (mgm)/ (mgy)
Pennsville Water Dept.	5047	54.25 / 580.0	30.90 / 370.75	10.22 / 122.64

Note: Build-out calculations reflect an increase of 0.336 mgd being necessary to support the projected development.

The Pennsville Water Department "planning area" consists of the entire municipality. However, infrastructure is not currently constructed along all roadways thereby limiting the number of residents being supplied with potable water. The current water distribution system infrastructure closely matches where existing sanitary sewer infrastructure is installed with the exception of few areas. Water demand within the existing SSA was not calculated. This report reflects water demands based on all water utilized by Pennsville, both inside and outside the SSA.

Proposed future water demand to be utilized by projected development under build-out conditions were evaluated based on similar criteria utilized for the sanitary sewer analysis. All projected flows were separated into residential, commercial, and industrial components. The current regulated NJDEP average daily demand was then applied to the calculations for each type of use to determine whether sufficient water exists to serve the proposed development.

The total monthly water allocation for the water system that serves the municipality (1.808 mgd) is greater than the water supply necessary to support existing demands and proposed development within the sewer service area (1.352mgd). The projected calculations were based on the proposed build-out projections and average daily flow values utilized within the regulations for each type of development.

3.3 2000-2025 Water & Demand Projections

The population of the Township of Pennsville, as of the 2000 U.S. Census, was 13,194. The U.S. Census indicated 13,794 people resided in the Township in 1990. The population decrease over that 10 year period was approximately 4.3%. The Delaware Valley Regional Planning Commission (D.V.R.P.C.) forecasted the population growth in Salem County from 2000-2025 to be 7.6%. This translates into a projected population of 14,279 for the Township of Pennsville. These predictions were based on current available data.

Total projected build-out flow for residential, commercial and industrial development was determined based on current zoning ordinances for the municipality within areas proposed as the future sewer service area. Environmental constraints with required buffers were also considered and indicated within the Mapping section of this report. **Sufficient water allocation exists to accommodate the currently proposed Sewer Service Area.**

Growth within the proposed Sewer Service Area is expected due to population increases and infill development. To accommodate anticipated increases in water consumption within the proposed Sewer Service Area upgrades to the water distribution system will be evaluated as development is proposed. Table 3.3.1 below identifies the Future Water Demand Projections of the "Existing Sewer Service Area Build-out" based on current zoning. Table 3.3.2 below identifies the Future Water Demand Projections of the "Proposed -Build-out" based on current zoning.

TABLE 3.3.1: POTENTIAL FUTURE DEMAND PROJECTIONS

(Existing Sewer Service Area Infill Development Build Out)

ZONE	Units	(a) Description	Daily Demand	ADF (gpd)
R-1	106	2,3 & 4 BR SFH	320– Note(A)	33,920
R-2	22	2,3 & 4 BR SFH	320– Note(A)	7,040
R-3	19	2,3 & 4 BR SFH	320– Note(A)	6,080
C	4	8,250 SF Office / Retail Store	1031– Note(B)	4,124
CBD	0	Office / Store Front	395– Note(D)	0
LI	3	50 employees total / facility	1250– Note(C)	3,750
HI	0	50 employees total / facility	1250– Note(C)	0
C/O	0	26,136 SF Commercial Facility	3267– Note(E)	0
CONS	0	1800 SF Building Limit	320– Note(F)	0
Total Projected Additional Future Demand - Projected Development				**0.055 mgd**

TABLE 3.3.2: POTENTIAL FUTURE DEMAND PROJECTIONS

(Proposed Sewer Service Area Build Out)

ZONE	Units	(b) Description	Daily Demand	ADF (gpd)
R-1	0	2,3 & 4 BR SFH	320– Note(A)	0
R-2	0	2,3 & 4 BR SFH	320– Note(A)	0
R-3	97	2,3 & 4 BR SFH	320– Note(A)	31,040
C	229	8,250 SF Office / Retail Store	1031– Note(B)	236,099
CBD	0	Office / Store Front	395– Note(D)	0
LI	11	50 employees total / facility	1250– Note(C)	13,750
HI	0	50 employees total / facility	1250– Note(C)	0
C/O	0	26,136 SF Commercial Facility	3267– Note(E)	0
CONS	0	1800 SF Building Limit	320– Note(F)	0
Total Projected Additional Future Demand - Projected Development				**0.281 mgd**

The notes referenced in the above table are indicated below.

NOTES:

(A) Residential Average Daily Flow Based on 320 GPD established as a percentage for 2, 3 & 4 bedroom dwellings

(B) Commercial Average Daily Flow Based on 0.125 gal/SF established for 8,250 SF Offices and Retail Stores (33% of 25,000 SF)

(C) Light/Heavy Industrial Average Daily Flow Based on 25 gals/person/8hr. Shift

(D) Commercial Business District Average Daily Flow Based on 395 GPD, which is more stringent that the 0.125gal/sf established for offi

(E) C/O Average Daily Flows based on 0.125 gal/SF established for 26,136 SF Offices and Retail Stores (30% coverage on 2 acres)

(F) Conservation District Average Daily Flow Based on 300 GPD as maximum allowable building size is 1,800 SF.

4. ENVIRONMENTAL CONSTRAINTS ANALYSIS

The information included in the Environmental Constraints Analysis for the future sewering of properties identifies land area that is currently undeveloped and not environmentally constrained. The environmental constraints analysis for the future sewering of properties focused on wetlands; floodplains; stream corridors; Natural Heritage priority sites, threatened and endangered species site or designated habitats; and parks, preserves and open space. Buffering of environmentally constrained areas are indicated on Map #5. Table 4-1 highlights the information and sources used to delineate environmentally constrained areas.

Table 4-1 Information Sources for Environmentally Constrained Areas

Category	Source	Source Location
Wetlands	NJDEP	www.state.nj.us/dep/gis
Floodplains	FEMA	www.msc.fema.gov/webmap/wcs
Stream Corridors	NJDEP	www.state.nj.us/dep/gis
Threatened & Endangered Species	NJDEP	www.njfishandwildlife.com
Parks, Preserves, & Open Space	Green Acres Recreation Program & NJDEP	www.state.nj.us/dep/gis
Surface Water Quality Standards	NJDEP	www.state.nj.us/dep/gis
National Heritage Priority Sites	NJDEP	www.state.nj.us/dep/gis
Zoning	Pennsville Township	Current Master Plan

4.1 Existing Sewer Service Area- Analysis

The present annual wastewater flow from 2008 is 1.366 mgd. The build-out of the existing sewer service area consisted of evaluating residential, commercial and industrial flow projections to the extent of development that could occur according to applicable zoning in developable areas. The projections are based on the potential for development of existing infill lots within areas zoned for each use and the most current land use regulations for the municipality. The total number of potential units within each residential, commercial and industrial district was then multiplied by the maximum percent building coverage specified in the zoning ordinances to reach a maximum building area at build-out. Residential flows were projected assuming 300gpd / dwelling unit. Commercial flows were projected assuming 0.1 GPD/sq.ft. of building area with Industrial flows being based on 25 gals/person/8hr Shift. Table 4.1.1 summarizes the zoning build-out flow projections for the existing sewer service area.

TABLE 4.1.1: Existing Sewer Service Area Build-Out Projections

ZONE	TOTAL AREA (ACRES) *NOTE (A)*	POTENTIAL UNITS *NOTE (B)*	AVERAGE DAILY FLOW (GPD) *NOTE (C)*	TOTAL ADF (GPD) *NOTE (D)*
R-1	854.8 Acres	106	300 gpd Note E*	31,800 gpd
R-2	2,521 Acres	22	300 gpd Note E*	6,600 gpd
R-3	1,854.5 Acres	19	300 gpd Note E*	5,700 gpd
Commercial	2,200 Acres	4	825 gpd Note F*	3,300 gpd
Industrial	2,519.8 Acres	3	1,250 gpd Note G*	3,750 gpd
CONS	5,966 Acres	0	300 gpd	0 gpd
			TOTAL	**51,150 gpd (0.051 mgd)**

Notes:

(A) The TOTAL AREA represents the overall acreage per zone of the entire Township in accordance with the current Pennsville Township Master Plan.

(B) The POTENTIAL UNITS represent the number of remaining units that may be constructed within each zone within the existing sewer service area.

(C) Average Daily Flow has been calculated based on current NJDEP regulations.

(D) The TOTAL ADF represents the remaining potential build-out within the existing sewer service area.

(E) Residential Average Daily Flow Based on 300 GPD established for 3 or more bedroom dwellings

(F) Commercial Average Daily Flow of 825 gpd was based on 0.1 gal/SF established for 8,250 SF Offices and Retail Stores

(G) Industrial Average Daily Flow of 1,250 gpd was based on 25 gals/person/8hr. Shift.

As indicated in Section 1 above, there is a small portion of Carneys Point which is served by the Pennsville WWTP. The future wastewater flows projected from the section of Carney's Point that are to be conveyed for residential, commercial and industrial development to the PSA WWTP were calculated based on the current zoning ordinances for the municipality within areas designated as developable lands. The total developable area within each district was then multiplied by the maximum percent building coverage specified in the zoning ordinances to reach a maximum building area at build-out. Commercial flows were projected assuming 0.1 GPD / sqft of building area. A reduction of available lot area has been indicated to account for Right-of-Way requirements of potential development. Table 4.1.2 summarizes the zoning build-out flow projections by

municipality for the future sewer service area. There is one parcel with approximately developable 3.5 acres within Carney's Point, which may potentially be developed and conveyed to the PSA. It is zoned for general commercial and may result in 10 units based on the 15,000sf lot area for that zone.

TABLE 4.1.2: Existing Carneys Point Section Build-Out Projections

ZONE	TOTAL PROPOSED DEVELOPABLE (ACRES)	LOT AREAS	POTENTIAL UNITS	AVERAGE DAILYFLOW (GPD) *NOTE (A)*	TOTAL ADF (GPD)
Commercial	3.5 Acres	15,000 S.F	10	450 gpd	4,500 gpd

NOTE(s):

(A) Commercial Average Daily Flow of 450 gpd was based on 0.1 gal/SF established for 4,500 SF Offices and Retail Stores (30% of 15,000 SF).

4.2 Future Sewer Service Area- Analysis

The future wastewater flows projected to be conveyed for residential, commercial and industrial development to the PSA WWTP were calculated based on the current zoning ordinances for the municipality within areas designated as developable lands, which resulted from the environmental constraints analysis. Residential, commercial and industrial flow projections were calculated using the developable land area zoned for each use. The total developable area within each district was then multiplied by the maximum percent building coverage specified in the zoning ordinances to reach a maximum building area at build-out. Residential flows were projected assuming 300gpd / dwelling unit. Commercial flows were projected assuming 0.1 GPD / sqft of building area with an average daily flow of 25 gals/person/8hr Shift being applied to Industrial flows, based on 50 employees per facility. A reduction of available lot area has been indicated to account for Right-of-Way requirements of potential development. Table 4.2.1 summarizes the zoning build-out flow projections by municipality for the future sewer service area.

TABLE 4.2.1: Future Sewer Service Area Build-Out Projections

ZONE	TOTAL AREA (ACRES) *NOTE (A)*	TOTAL PROPOSED DEVELOPABLE (ACRES) *NOTE (B,L)*	LOT AREAS *NOTE (C)*	POTENTIAL UNITS *NOTE (D)*	AVERAGE DAILYFLOW (GPD) *NOTE (E)*	TOTAL ADF (GPD) *NOTE (F)*
R-1	854.8 Acres	0 Acres	10,000 SF	0	300 gpd Note G*	0 gpd
R-2	2,521 Acres	0 Acres	15,000 SF	0	300 gpd Note G*	0 gpd
R-3	1,854.5 Acres	89.38 Acres	40,000 SF	97	300 gpd Note G*	29,100 gpd
C	2,159.6 Acres	131.89 Acres	25,000 SF	229	825 gpd Note H*	188,925 gpd
CBD	40.4 Acres	0 Acres	4,000 SF	0	300 gpd	0 gpd
LI	788.3 Acres	22.77 Acres	2 Acres	11	1,250 gpd Note I*	13,750 gpd
HI	420.3 Acres	0 Acres	2 Acres	0	1,250 gpd Note I*	0 gpd
C/O	1,311.2 Acres	0 Acres	2 Acres	0	2,614 gpd Note J*	0 gpd
CONS	5,966 Acres	0 Acres	10 Acres	0	300 gpd Note K*	0 gpd
					TOTAL	234,775 gpd **(0.232 mgd)**

The notes referenced below are indicated in the above table.

Notes:

(A.) The TOTAL AREA represents the overall acreage per zone of the entire Township in accordance with the current Pennsville Township Master Plan.

(B.) The TOTAL DEVELOPABLE AREA represents the overall acreage per zone being proposed for the expanded Pennsville Township sewer service area.

(C.) The LOT AREA represents current requirement for development within each zone.

(D.) The POTENTIAL UNITS represent the number of potential units that could be built within each zone within the future sewer service area. (Units were rounded to next whole number)

(E.) Average Daily Flow has been calculated based on current NJDEP regulations.

(F.) The TOTAL ADF represents the potential build-out within the proposed sewer service area.

(G.) Residential Average Daily Flow Based on 300 GPD established for 3 or more bedroom dwellings.

(H.) Commercial Average Daily Flow of 825 gpd was based on 0.1 gal/SF established for 8,250 SF Offices and Retail Stores (33% of 25,000 SF).

(I.) Light/Heavy Industrial Average Daily Flow based on 25 gals/person/8hr. Shift

(J.) C/O Average Daily Flow od 2,614 gpd was based on 0.1 gal/SF established for 26,136 SF Offices and Retail Stores (30% coverage on 2 acres).

(K.) Conservation District Average Daily Flow Based on 300 GPD as maximum allowable building size is 1,800 SF.

(L.) A reduction of developable lot area has been included within the calculations to account for Right-of-Way requirements of potential development.

(M.) Carney's Point Zoning District Average Daily Flow Based on 300 GPD.

5. RIPARIAN CORRIDOR ANALYSIS

The objective of the stream corridor analysis is to ensure that there is no loss of value due to potential short-term or long-term disturbance as well as maintain compliance with the Flood Hazard Act. Within this plan, the stream network coverage listed in Table 4.1 was used to create areas that are considered undevelopable. There are no FW I-Trout Production or FW 2- Trout Production designated waters within the proposed Sewer Service Area. Map #5 shows the results of this analysis and identifies those areas that are undevelopable.

"Pursuant to N.J.A.C. 7:15, Riparian zones are: 300 feet from top of bank (or centerline of a first order stream where no bank is apparent) for waters designated as Category One and all upstream tributaries within the same HUC 14; 150 feet for waters designated Trout Production and all upstream waters; 150 feet for water designated Trout Maintenance and all upstream waters within one linear mile as measured along the length of the regulated water; 150 feet for any segments of water flowing though an area that contains documented habitat for a threatened or endangered species of plant or animal, which is critically dependent on the surface water body for survival, and all upstream waters (including tributaries) within one linear mile as measured along the length of the surface water body; 150 feet for waters that run through acid-producing soils, and; 50 feet for all waters not designated as C1, trout waters, critically water dependent Threatened and/or Endangered Species Habitat, or associated with acid soils.

Surface waters that are designated Category One are listed in the Surface Water Quality Standards at N.J.A.C. 7:9B. The Department's "Surface Water Quality Standards" GIS data layer was utilized to determine these waters. The applicable 300 foot buffer has been applied to these waterways and removed from the proposed sewer service areas on the mapping. Lesser width buffers have not been graphically removed from the sewer service area but are not proposed for sewer service. Jurisdictional determinations by the Department will be utilized to determine the extent of the sewer service area on individual lots.

Further compliance with the riparian zone standard will be demonstrated by the adoption of Pennsville Township's Riparian Corridor Ordinance. This Ordinance has been updated to be in compliance with the Flood Hazard Control Act Rules (N.J.A.C. 7:13) and Water Quality Management Rules (N.J.A.C. 7:15), and has been has been reviewed by the Pennsville Township Committee and Pennsville Planning Board. The Pennsville Township Committee adopted this ordinance on May 20, 2010. A copy of Ordinance A-13-2010 has been forwarded to the Department.

6. ENDANGERED AND THREATENED SPECIES ANALYSIS

The protection of Threatened and Endangered Species and their habitat is important to the ecology of Salem County. The intent is to minimize impacts to threatened and endangered species and their habitat. Accordingly, areas that are identified as Landscape Project Area, Rank 3, 4, or 5 in NJDEP, Division of Fish Wildlife, Natural Heritage Priority Sites, Endangered Non-Game Species Program (ENSP), are considered undevelopable lands under this plan**.** Map # 5 shows the results of this analysis for the proposed Sewer Service Area and identifies those areas that are undevelopable.

7. ALTERNATIVES ANALYSIS

The PSA-WWTP has modified its process to reverse the treatment sequence of the trickling filters and RBC's for improved wastewater treatment efficiency as discussed in Section I of this report. The PSA is currently planning the design of a new primary clarifier and grit removal system located at the wastewater treatment plant (WWTP) within Pennsville Township in an effort to improve operational flexibility.

The proposed Sewer Service Area identified on Map #3 has been defined not to exceed the current permitted treatment plant capacity of 1.875 mgd. This approach is being pursued in an effort to expedite the approval process and eliminate the need for upgrades to the WWTP at this time. In an effort to accommodate additional wastewater flows generated by further expansion of the SSA, the Authority will consider re-rating the WWTP at a future date rather than including the re-rating process as part of this application. Any expansions or re-rating of the PSA WWTP will require further WMP amendments and anti-degradation analysis.

When flows conveyed to the WWTP approach the current permit capacity of 1.875 MGD, upgrades to the plant will be made as needed with the first phase being a re-rating of the WWTP. Such a re-rating would require an additional amendment to the WMP and would include an anti-degradation analysis.

V. BASIS FOR SERVICE AREA DELINEATIONS

The results of the required environmental analyses, summarized in Section IV, provide justification for the established service area delineations by demonstrating consistency with all applicable NJDEP requirements and criteria. The PSA WMP provides the most current planning efforts within the Sewer Service Area. A table summarizing the principally permitted uses, conditionally permitted uses and minimum lot size permissible in each zone has been included below.

Summary Table of Permitted Uses

ZONE	LOT AREA	PRINCIPALLY PERMITTED USES	CONDITIONALLY PERMITTED USES
R-1 R-2 R-3	10,000 SF 15,000 SF 40,000 SF	Single Family Dwellings Municipal Use Private/ Public Education Facility Non-Profit Library	Home Occupation Plant Nursery (accessory structure) Farm Stand
C	25,000 SF	Retail Stores, Personal Service Shops (tailor, barber etc…) Professional Business Office, Lodge, Tavern, Theater Restaurant, Bank, Mortuary, Marina, Nursery, Floral shop Service, Repair, Supply shop	Repair garage/ service station Dry Cleaning, Laundry pickup, Hotel / Motel Bakery, Shopping center with individual entrances, Apartments that occupy portion of commercial building Telecommunications / wireless facilities
CBD	4,000 SF	Business facilities devoted to retail sales of goods and personal services, including restaurants Banks and other financial institutions Professional Business, administrative, social, consulting and health services only on second or third floor.	Outdoor dining areas as accessory to permitting food establishment
LI	2 Acres	Retail Stores, Warehouse or yard for storage Copy or Business Service Center, Office Complexes Personal service businesses such as beauty salon, shoe repair, dry cleaners, insurance	Plant Nursery Farm Stand Parking Facilities
HI	2 Acres	Any use permitted in LI zone Manufacture of non-toxic durable products or materials	Parking Facilities
C/O	2 Acres	Offices for administrative, executive, professional, business sales and similar uses Retail sales and service including newspapers, novelties, clothing, spirits, general merchandise and repair Personal service businesses such as beauty salon, shoe repair, dry cleaners, insurance	
CONS	10 Acres	Outdoor recreation facilities, Maintenance of Waterways, Emergency Activities, Gardening, farming, grazing Conservation efforts in accordance with NJSSCC, USDI, NJDEP, Fish and Wildlife Service	Farm Stand Parking Facilities

The PSA WMP proposed Sewer Service Area encompasses the future sewer service area necessary to implement a portion of the goals and objectives of the Pennsville Township's Master Plan. Those areas have been reduced to account for the buffer requirements regarding wetlands, the habitats of Threatened and Endangered Species and Riparian Corridors. Development intensity was been addressed within the Township Master Plan and Land Development Ordinance adopted August 24, 2005. The Storm Water Management Plan has been adopted by Pennsville Township. The final resolution establishing minimum storm water management requirements with Ordinance # A-32-2006 was submitted to Salem County on December 19, 2006.

The proposed PSA sewer service area delineation does not conflict with Coastal Zone Management rules, including the Wetland rule, N.J.A.C. 7:7E-3.27; Wetland Buffers rule, N.J.A.C. 7:7E-3.28; General Land Area rules, N.J.A.C. 7:7E-5, 5A and 5B; Secondary Impacts rule, N.J.A.C. 7:7E6.3; Public Facility Use rule, N.J.A.C. 7:7E-7.6; Water Quality rule, N.J.A.C. 7:7E-8.4; and Groundwater Use rule, N.J.A.C. 7:7E-8.6.

The proposed PSA 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.

VI. INTRODUCTION – MAPPING REQUIREMENTS

The mapping for this WMP was created by using available data from NJDEP, online GIS data sets. 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. Mapping, as summarized below, are provided as per the NJDEP WMP guidelines:

1. MAP #1: WMP PLANNING AREA

The map depicts the current Pennsville WMP planning area, which includes all of Pennsville Township with the addition of the NJDOT facility on the Border of Carney's Point and excluding the Dupont facility, which is included within the Carney's Point WMP. The map also includes municipal boundaries, major drainage basin boundaries (U.S.G.S. hydrologic unit code (HUC) 11 watersheds), CAFRA regulated areas municipal wells and the water service area boundary for Pennsville Township. There are no areas within the Hackensack Meadowlands District, Pinelands Areas, Pinelands National Reserves, or franchise areas within the Township of Pennsville. The Pennsville Sewerage Authority regulates all public sewer within the WMP planning area.

2. MAP #2: EXISTING FACILITIES & SERVICE AREAS

This map depicts the existing wastewater service areas as well as the present extent of the actual sewer infrastructure, including sewage pumping stations, major interceptors and trunk lines, and the PSA-WWTP. In addition, existing NJPDES regulated facilities, with permit number, and their discharge locations are included. All areas outside the existing sewer service area are areas served by ISSDS with wastewater planning flows of less than or equal to 2,000 gpd. Also identified within this map is the Dupont Chambers Works sewer service area including the Deepwater Generating Plant.

3. MAP #3: PROPOSED FACILITIES & SERVICE AREAS

This map illustrates the wastewater service 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. All existing infrastructure and facilities will remain as shown on Map 2. No new NJPDES regulated facilities are proposed in the WMP Sewer Service Area. The Gaines/Siegfried Chemical Plant proposes to increase its TWA regulated discharge limits to the PSA-WWTP, but the regulated NJPDES area will remain unchanged. The existing NJPDES regulated facilities are shown on this map.

4. MAP #4: PENNSVILLE TOWNSHIP ZONING MAP

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

ZONING REGULATIONS							
ZONE	**LOT AREA**	**LOT FRONTAGE**	**FRONT YARD**	**SIDE YARD**	**REAR YARD**	**MAX. BUILDING AREA**	**BUILDING HEIGHT**
R-1	10,000 SF	100 ft.	35 Ft.	15 Ft.	20 Ft.	28%	45 Ft.
R-2	15,000 SF	100 ft.	35 Ft.	15 Ft.	20 Ft.	28%	45 Ft.
R-2	40,000 SF	200 ft.	50 Ft.	30 Ft.	50 Ft.	28%	45 Ft.
COM	25,000 SF	100 ft.	25 Ft.	6 Ft.	20 Ft.	*	45 Ft.
CB	4,000 SF	30 ft.	25 Ft.	6 Ft.	20 Ft.	43%	45 Ft.
LI	2 Acres	200 ft.	50 Ft.	10 Ft.	10 Ft.	30%	50 Ft.
HI	2 Acres	200 ft.	50 Ft.	10 Ft.	10 Ft.	30%	50 Ft.
C/O	2 Acres	200 ft.	50 Ft.	10 Ft.	10 Ft.	30%	50 Ft.
CONS	10 Acres	200 ft.	50 Ft.	30 Ft.	50 Ft.	*	45 Ft.

** As shall be determined as suitable and proper for the particular lot and use intended by the Board upon site plan application.*

5. MAP #5A: ENVIRONMENTAL FEATURES

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). The Pennsville WMP proposed Sewer Service Area does not contain 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 #5B: ENVIRONMENTAL FEATURES

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. The Pennsville WMP proposed sewer service area does not contain any New Jersey and Federal Wild and Scenic Rivers, FW 1 Trout Production or FW 2 Trout Production or farmlands preservation areas.

7. MAP #5C: ENVIRONMENTAL FEATURES

The map depicts environmental features indicated in N.J.A.C. 7:15-5.17 including the natural heritage priority site for threatened and endangered species, the pigs eye NHPS. Landscape Project Areas for Forested Wetlands and Bald Eagle Foraging are shown on this map. The Pennsville WMP proposed sewer service area does not contain 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 located within the southern portion of the Township.