

Chapter IX.14

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

UPPER PITTSBORO TOWNSHIP CHAPTER

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Sickels & Associates, Inc.

***Wastewater Management Plan for
Salem County, New Jersey
Upper Pittsgrove Township Chapter***

I. INTRODUCTION

This chapter represents the Upper Pittsgrove 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).

The Township of Upper Pittsgrove is located in the Delaware River Drainage Basin and 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 the Township are identified on Map No.3. This service area does not include any areas that lay within adjacent municipalities.

The Township of Upper Pittsgrove is an agricultural based municipality, bounded by four (4) municipalities within Salem County including Pilesgrove Township (to the north-west), Pittsgrove Township and Elmer Borough (to the south-east), and Alloway Township (to the south-west). Two other counties including Gloucester County (to the north-east) and Cumberland County (to the south) bound the Township as well. Upper Pittsgrove Township encompasses a total area of 21,844 acres (34.1 square miles) including approximately 7.2 acres of which is surface water (ponds, lakes, reservoirs) and 61.8 miles of streams (shown in map No.1) flowing in the municipality. This municipality has been developed mostly agriculturally or for use as low-density residential/agricultural plots, though some commercial development can be found along the US Route 40 highway. Due to its mostly agricultural land use, Upper Pittsgrove has a relatively low population density when compared to the rest of Salem County (approximately 85.9 people/sq mi), according to (2000) U.S. Census data.

Upper Pittsgrove Township has a population of 3,505 persons. The municipality's population trend over the past decade can be seen as a 0.11% average increase in population each year (1.1% over ten years), according to the most recent (2010) U.S. Census data. Table 1.1 is a summary of the historic population and trends for Upper Pittsgrove Township. In terms of population change over the next three decades, Upper Pittsgrove is expected to grow steadily according to the most recent study by the South Jersey Transportation Planning Organization, prepared in 2011. A summary of the SJTPO projected population can be found below in Table 1.2:

| Year | Population | Population Change | |
|-------|------------|-------------------|--------------|
| | | # | avg yearly % |
| 1980 | 3,139 | | |
| 1990 | 3,140 | 1 | 0.00% |
| 2000 | 3,468 | 328 | 1.04% |
| 2010* | 3,505 | 37 | 0.11% |

~Source: 1990 U.S. Census, *2010 U.S. Census

| Year | Population | Population Change | |
|------|------------|-------------------|--------------|
| | | # | avg yearly % |
| 2010 | 3,505 | | |
| 2020 | 3,618 | 113 | 3.2% |
| 2030 | 3,716 | 98 | 2.7% |
| 2040 | 3,813 | 97 | 2.6% |

~Source: SJTPO, 2011

A. Status of Previous Approved WMPs

Upper Pittsgrove Township has submitted several Water Quality Management Plans (WQMP's) / Amendments since 1992. The previously submitted amendments address NJPDES facilities, which serve 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. These amendments have included proposed expansions to the existing onsite ground water discharges from the Pittsgrove Township Elementary School and South Jersey Hospital as well as an on-site discharge to ground water serving a commercial development, Wawa Food Market.

Upper Pittsgrove 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 Upper Pittsgrove 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.

B. CURRENT WASTEWATER SERVICES

Upper Pittsgrove Township is not currently served by a public sewer system, nor does it contain any infrastructure for wastewater service.

C. CURRENT WATER SERVICES

Upper Pittsgrove Township does not currently own or operate a public community water supply system. The municipality does contain three privately owned small community water supply systems. These systems are the Country Club Estates, Bancroft Neuro Health Center, and Mater Dei Nursing Home. Together, these systems serve 488 persons within Upper Pittsgrove Township (according to NJDEP data).

D. OVERVIEW OF ENVIRONMENTAL, AND LOCAL CONSIDERATIONS TO WASTEWATER SERVICES

Wastewater Management Planning is part of the continuing planning process required by the New Jersey Water Quality Planning Act (N.J.S.A. 58:11A-1 et seq.) and Section 208 of the federal Clean Water Act. The intent of the continuing planning process is to align federal, State, regional and local land use planning to ensure that these land use plans do not conflict with each other.

The provision of environmental infrastructure, in particular centralized sewer service, has a profound influence on development patterns and intensity. The wastewater management planning process is intended to assign an appropriate wastewater management treatment alternative to geographic areas based on environmental sensitivity and other land use planning objectives such as regional center-based development or farmland preservation. The extension of public sewers into areas designated for protection by federal, State, regional or local land use plans would be inconsistent with those protection objectives.

The adopted Water Quality Management Planning Rules (N.J.A.C. 7:15) generally exclude the extension of sewer service into large contiguous areas, defined as 25 acres or more, of wetlands, category one water buffers, Natural Heritage Priority Sites and/or endangered and threatened species habitat. The extension of sewer service into these areas would encourage their development and thus conflict with the Department of Environmental Protection's statutory mandate to protect these resources.

It should be noted that under limited circumstances environmentally sensitive areas that meet the 25 acre threshold may be included in the sewer service area as necessary to preserve the investment in projects having already received certain local and State approvals, to relate sewer service areas to recognizable geographic features, or to accomplish center based development proposed by the local land use planning authority and approved by the Department of Environmental Protection through the plan endorsement process.

E. OVERVIEW OF WATER RESOURCE MANAGEMENT ISSUES

Upper Pittsgrove Township's existing sewer service area is completely served by individual water wells. The municipality has not identified any issues regarding water quality, water supply or concerns with non-sewered areas.

G. OVERVIEW OF FUTURE WASTEWATER SERVICES

Upper Pittsgrove Township does not own or operate any wastewater facilities or associated infrastructure. The Township has not identified future sewer service areas for inclusion within the Salem County Wastewater Management Plan (WMP). Areas not designated as a sewer service area will continue to be serviced by Individual subsurface sewage disposal systems (ISSDS's) with wastewater flows less than or equal to 2,000 gpd.

Based on the environmental, and local land use planning objectives discussed above, Map No.2 and Map No.3 identify areas presently served by public sewers and the areas planned to be served by public sewers in the future. These maps also identify sites that are served by an on-site treatment works, if applicable, that are regulated under a New Jersey Pollutant Discharge Elimination System (NJPDDES) permit. Future expansion of a treatment works facility is not required to meet the future wastewater generation needs of the municipality.

G. SUMMARY OF SIGNIFICANT ACTIONS

Amendments to the Water Quality Management Planning Rules adopted on July 7, 2008, 40 N.J.R. 4000(a), necessitated a modification to certain sewer service areas based on environmental sensitivity and local planning objectives as described in this document. In accordance with the regulatory requirements, undeveloped lands within the existing sewer service area have been removed based on the limits of environmental constrained areas. In addition, areas have been added based on local planning objectives and an environmental sensitivity assessment. Maps No.2 and No.3 reflect the changes in sewer service area as a result of this wastewater management plan.

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

II. EXISTING INFRASTRUCTURE AND TREATMENT FACILITIES

Upper Pittsgrove Township does not own or operate any public potable water supply wells 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 property either is connected or has all regulatory approvals necessary to be connected with no further review.

A. WASTEWATER TREATMENT PLANT

Upper Pittsgrove Township does not own or operate any wastewater treatment or conveyance systems. Map No.2 depicts the areas actively served by existing wastewater facilities, and the facilities tables in Chapter 7 (VII) provide detailed information on each facility. As with sewer service, the term "actively served" means that the collection lines exist and that the property either is connected or has all regulatory approvals necessary to be connected.

B. MAJOR TRANSMISSION PIPING AND PUMPING STATIONS

This Section is not applicable as Upper Pittsgrove Township does not own or operate a sanitary sewer conveyance system consisting of major interceptors, trunk lines and pumping stations for public wastewater treatment facilities.

C. EXISTING ON-SITE, NON-INDUSTRIAL WASTEWATER FACILITIES

These facilities serve 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. Table 2.C.1 lists all existing on-site, non-industrial treatment facilities that discharge 2,000 gallons per day or more of domestic wastewater and are regulated under a NJPDES permit. The Wastewater Facilities Tables provided in Chapter 7 (VII) list all existing on-site, non-industrial treatment facilities that discharge 2,000 gallons per day or more of domestic wastewater and are regulated under a NJPDES permit.

| Municipal Map Designation | Facility Name | NJPDES Permit Number | Discharge Type (Groundwater or Surface Water) | Facility Table Number |
|----------------------------------|--|-----------------------------|--|------------------------------|
| 44 | WaWa | NJ0169889 | T1 | 44 |
| 45 | Upper Pittsgrove TWP Elementary School | NJ0100625 | GWIND | 45 |
| 46 | Country Club Estates | NJG0084603 | T1 | 46 |
| 47 | Appel Farm Arts & Music Ctr | NJG0133493 | T1 | 47 |
| 48 | Point 40 Diner | NJG0132624 | T1 | 48 |
| 49 | Mater Dei Nursing Home | NJG0170208 | T1 | 49 |
| 50 | Bancroft Neurohealth - Mullica Hill Campus | NJG0170992 | T1 | 50 |

D. EXISTING INDUSTRIAL WASTEWATER FACILITIES

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. Table 2.D.1 lists all existing industrial treatment works that discharge 2,000 gallons per day or more of process and wastewater and are regulated under a NJPDES permit. The Wastewater Facilities Tables provided in Chapter 7 (VII) list all existing industrial treatment facilities that discharge 2,000 gallons per day or more of domestic wastewater and are regulated under a NJPDES permit.

| Municipal Map Designation | Facility Name | NJPDES Permit Number | Discharge Type (Groundwater or Surface Water) | Facility Table Number |
|----------------------------------|----------------------|-----------------------------|--|------------------------------|
| 43 | Burlington Beef | NJ0099198 | GWIND | 43 |

E. GENERAL WASTEWATER MANAGEMENT AREAS FOR SEPTIC SYSTEMS

Generally, remaining areas of a 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.

F. Existing Areas Served by Public Water Supply Facilities

Upper Pittsgrove Township does not own or operate any public potable water supply wells or distribution mains. Map No.1 generally depicts the areas actively served by existing public water supply facilities.

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, 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 at 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.

A. ENVIRONMENTALLY SENSITIVE AREAS MAP

Under the Water Quality Management Planning Rules, large contiguous environmentally sensitive areas, generally defined as 25 acres or greater in size should be excluded from sewer service areas except under certain circumstances such as providing service to development that has already secured prior approvals or center based development approved by the Department of Environmental Protection through the Plan Endorsement process. Maps 5A, 5B and 5C, of the County map set, reflect the final results for the mapping of environmentally sensitive areas, based on the information described above and the WQMP rules. These maps were created using the following process:

1. Identify areas (to the extent that GIS interpretations are available) where pre-existing grant conditions and requirements (from Federal and State grants or loans for sewerage facilities) provide for restriction of sewer service to environmentally sensitive areas, and then delete areas (if any) where a map revision or grant waiver has been approved by USEPA. Note: 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.
2. Merge the GIS layers for wetlands, Category One riparian zones, Natural Heritage Priority Sites, and Threatened and Endangered Species habitats, and any others used by the County areas into a single composite GIS coverage.
3. Correct the composite areas by eliminating areas designated as urban in the most recent land use land cover layer (2002) to address land use/land cover modifications that have occurred since the environmental feature layers were prepared.
4. Identify and delete any composite areas less than 25 acres in size from the map of environmentally constrained areas. The resulting map shows the final environmentally sensitive areas, which is used to eliminate the potential for sewer service areas except where sewer service already exists, or exceptions are allowed for infill development or approved endorsed plans. It is noted for public information purposes that the excluded areas will be protected through other NJDEP regulatory programs such as the Flood Hazard Area Control Act and Freshwater Wetlands Act rules, and may be protected by municipal ordinances as well.

B. SEWER SERVICE AREAS IN ENVIRONMENTALLY SENSITIVE AREAS

The WQMP rules allow for inclusion of environmentally sensitive areas under limited conditions. The following modifications were considered for the WMP:

1. Where a development has secured approval under the Municipal Land Use Law and possesses a valid wastewater approval, the site may be included in the sewer service area if consistent with that valid wastewater approval. This information was gathered in consultation with municipalities.
2. Where a project has an approved site-specific water quality management plan and wastewater management plan amendment from the Department the project may be included in the wastewater management plan consistent with that approved site specific amendment for a period of six years from the date the amendment was adopted. The general locations of these developments are indicated on Map No.3, if applicable, and are keyed to a list of qualifying developments in each municipal chapter.
3. Where environmentally sensitive areas are bordered on either side by areas with existing sewer service, and where the infill development would generate 2,000 gpd or less of sewage based on existing zoning and where the area to be included does not include habitat critical to the recovery potential or the survival of a local population of an endangered or threatened species.
4. Where sewer service is necessary to support for center based development under an “endorsed plan” (through the State Planning Commission relative to the State Development and Redevelopment Plan) and would not remove habitat critical to endangered or threatened species. Where such modifications have been made, they are noted in the individual municipal chapters.
5. Where necessary to create a linear boundary that related to recognizable geographic features and would not remove habitat critical to the recovery potential or the survival of a local population of an endangered or threatened species. Where necessary to create a linear boundary that related to recognizable geographic features and would not remove habitat critical to the recovery potential or the survival of a local population of an endangered or threatened species.

C. EXCEPTIONS TO THE USE OF GEOGRAPHIC OR POLITICAL BOUNDARIES

Upper Pittsgrove Township has not identified a delineated SSA at this time. Consequently, there are no exceptions necessary for the delineations used in this WMP.

D. ENVIRONMENTALLY SENSITIVE AREAS – DATA SOURCES

The information described above with regard to the mapping of proposed sewer service areas and Environmentally Sensitive Areas was obtained from various sources. Table 4.D.1 below highlights the information and sources used to delineate environmentally constrained areas.

| Category | Source | Source Location | Original Date | Date Last Revised |
|----------------------------------|--|-----------------------------|----------------------|--------------------------|
| Wetlands | NJDEP | www.state.nj.us/dep/gis | 11/9/99 | |
| Floodplains | FEMA | www.msc.fema.gov/webmap/wcs | 1/9/03 | |
| Stream Corridors | NJDEP | www.state.nj.us/dep/gis | 8/1/08 | 12/1/10 |
| Threatened & Endangered Species | NJDEP | www.njfishandwildlife.com | 11/1/09 | 2/13/09 |
| Parks, Preserves, & Open Space | Green Acres Recreation Program & NJDEP | www.state.nj.us/dep/gis | 2/13/09 | |
| Preserved Agricultural Lands | NJ SADC | www.nj.gov/agriculture/sadc | 1/25/11 | |
| Surface Water Quality Standards | NJDEP | www.state.nj.us/dep/gis | 10/1/07 | 1/19/11 |
| National Heritage Priority Sites | NJDEP | www.state.nj.us/dep/gis | 2/13/09 | |
| Zoning | Municipality | Current Master Plan | N/A | 1/1/02 |

V. FUTURE WASTEWATER DEMAND AND FACILITIES

This chapter describes 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.

Upper Pittsgrove Township is not proposing future wastewater demand or public wastewater treatment facilities at this time. Consequently, wastewater demand projections have not been included within this municipal chapter. However, zoning, as described below has been utilized to assess the potential build out of non-sewer service areas and available dilution for each HUC-11 area. was prepared by Fralinger Engineering. The results of the analysis are presented within this chapter.

A. CONFORMANCE AND NONCONFORMANCE WITH ZONING AND PRIOR LAND USE APPROVALS

Where the WMP build out deviates from either current zoning or prior land use approvals, such deviation and the reasons for the deviation are explained in this chapter

B. MUNICIPAL ZONING AND COMPOSITE ZONING

The municipal zoning information provided below is specific to this chapter. A composite zoning map has not been developed as municipal zoning ordinances are not uniform in their nomenclature or definitions. Table 5.B.1 below identifies the zoning specific to this chapter and was been utilized for the associated non-sewer service area build-out analyses. The HUC-11 areas referenced were obtained from the data presented within the data prepared by Fralinger Engineering

| Zone | Zone Description | HUC-11 Area (ac) |
|-------------|--------------------------------------|-------------------------|
| A | AGRICUTURAL | 11,930.0 |
| B | BUSINESS | 104.0 |
| HB | HIGHWAY BUSINESS | 534.7 |
| LR-A | LOW DENSITY RESIDENTIAL/AGRICULTURAL | 3,499.2 |
| P | PUBLIC | 140.0 |
| VB | VILLAGE BUSINESS | 46.1 |
| VR | VILLAGE RESIDENTIAL | 341.5 |

C. CALCULATING FUTURE WASTEWATER AND WATER SUPPLY NEEDS AND CAPACITY

This Section is not applicable as Upper Pittsgrove Township does not own or operate a wastewater treatment plant or sanitary sewer conveyance system consisting of major interceptors, trunk lines and pumping stations associated with public wastewater treatment facilities. In addition, Upper Pittsgrove Township does not own or operate any public community water supply facilities, wells, or distribution mains.

D. MUNICIPAL DEMAND PROJECTIONS IN URBAN MUNICIPALITIES

This Section is not applicable, as Upper Pittsgrove Township is not designated as an urban municipality.

E. MUNICIPAL DEMAND PROJECTIONS IN NON-URBAN MUNICIPALITIES

Development of vacant land is the predominant factor in determining future wastewater treatment needs. Further, because external market and economic forces, such as interest rates, are a dominant factor in determining the rate of construction, this analysis assesses the ability to provide wastewater treatment while protecting surface and ground water quality for the entire projected build out allowable by zoning. There are two separate methods employed for calculating future wastewater generation at build out depending based on the wastewater service area designation.

1. Future Wastewater from Non-Urban Municipalities' Sewer Service Areas

This Section is not applicable, as Upper Pittsgrove Township is not proposing a sewer service area as a part of this submission of the Salem County WMP.

2. Existing Sewer Service Area Build Out Analysis

An analysis of the sewer service area does not apply to Upper Pittsgrove Township as this municipality does not currently have an approved sewer service area is not proposing a sewer service area as a part of this submission of the Salem County WMP.

F. FUTURE WASTEWATER OUTSIDE OF SEWER SERVICE AREAS

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.

This analysis used NJDEP's nitrate-nitrogen target of 2 mg/L, with the assumption that all ammonium and other nitrogen compounds are converted to nitrate within the property, and that the nitrate concentrations dilute evenly across the HUC11. These assumptions are implicit in the nitrate dilution model developed by NJDEP. The County ran the analysis using annual average recharge (provided in the GSR-32 model).

Table 5-F-1 summarizes the number of residential units and commercial square footage that could potentially generate wastewater per zone within each HUC11, outside the sewer service area, within the municipality.

| Table 5.F.1: HUC-11 BUILDOUT (Based on Existing Zoning) | | | | |
|--|---------------|--------------------|----------------------------|------------------------|
| HUC11 | Zoning | Total Acres | Residential (Units) | Commercial (SF) |
| 02040202160 | A | 1,062.37 | 350.58 | 0.00 |
| | LR/A | 508.82 | 254.41 | 0.00 |
| | TOTALS | 1,571.20 | 605.00 | 0.00 |
| 02040206030 | A | 3,429.80 | 1,131.83 | 0.00 |
| | B | 55.60 | 0.00 | 363,262.34 |
| | HB | 143.88 | 0.00 | 1,253,495.36 |
| | P | 18.10 | 0.00 | 157,723.57 |
| | VR | 43.30 | 62.87 | 0.00 |
| | TOTALS | 3,690.68 | 1,194.70 | 1,774,481.27 |
| 02040206060 | A | 2,488.11 | 821.08 | 0.00 |
| | VR | 20.58 | 29.88 | 0.00 |
| | TOTALS | 2,508.69 | 850.96 | 0.00 |
| 02040206080 | A | 266.92 | 88.08 | 0.00 |
| | TOTALS | 266.92 | 88.08 | 0.00 |
| 02040206120 | HB | 32.55 | 0.00 | 283,592.09 |
| | LR | 1,432.27 | 716.14 | 0.00 |
| | LR/A | 350.29 | 175.15 | 0.00 |
| | VR | 72.58 | 105.38 | 0.00 |
| | TOTALS | 1,887.69 | 996.67 | 283,592.09 |
| 02040206150 | A | 4,682.80 | 1,545.32 | 0.00 |
| | B | 48.42 | 0.00 | 316,371.59 |
| | HB | 358.23 | 0.00 | 3,120,933.71 |
| | LR | 903.95 | 451.98 | 0.00 |
| | LR/A | 1,207.81 | 603.91 | 0.00 |
| | P | 121.86 | 0.00 | 1,061,673.29 |
| | VB | 46.09 | 0.00 | 401,541.63 |
| | VR | 205.00 | 297.65 | 0.00 |
| | TOTALS | 7,574.17 | 2,898.86 | 4,900,520.24 |

The wastewater summary projections presented above for areas outside the SSA were prepared on behalf of the County of Salem by Fralinger Engineering in accordance with the Wastewater Estimation tool provided by the Department.

The goal of this HUC11-scale planning exercise to estimate the number of residential and commercial units within each HUC 11 on a municipal basis. The number of units that could be built under the existing zoning is compared to the allowable number of residential and commercial units in an effort to ensure that the current nitrate dilution standards can be satisfied. This method is intended to be a guide for estimating the impact of nitrate from septic tanks on HUC11-scale ground-water quality. Other, more specific, methods may be required to further detail impacts to the zoning of each municipality.

The condition of any area appearing suitable for an intended use must be assessed by a comprehensive, due diligence investigation of several factors, including but not limited to a Natural Resource Inventory, physical on-site conditions, local, State and Federal requirements, approvals, status of any outstanding violation, the past uses and possible residual contamination of a site. NJDEP Land Use/ Land Cover and 2002 aerial photographs were utilized as the base layers.

The method/data generated by the analysis may have specific limitations. As a result of these limitations, the current output can only be qualified as an initial screen of current field conditions per County/ Municipality. Further customization of more specific methods may be required to further detail impacts to the zoning of each municipality.

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. This analysis does not apply to Upper Pittsgrove Township, as this municipality is not currently served by a public sewer system.

A. ADEQUACY OF SEWAGE TREATMENT PLANT CAPACITY

Upper Pittsgrove Township does not own or operate a Wastewater Treatment Plant. The Township is not proposing future wastewater demand or public wastewater treatment facilities at this time. Consequently, wastewater treatment plant capacity and associated demand projections have not been included within this municipal chapter.

B. ANTIDegradation ANALYSIS FOR NEW AND EXPANDED DOMESTIC TREATMENT WORKS

This section is not applicable to Upper Pittsgrove Township, as the Township is not proposing any new or expanded wastewater facilities.

C. DISCHARGES TO GROUND WATER

The number of units allowed by zoning exceeds that which can be supported in a particular watershed. The Municipality is currently reviewing the results of the dilution analysis in an effort to determine what zoning adjustments may be appropriate to meet both the regulatory requirements and the development objectives of the municipality. The method/data generated by the Wastewater Estimation model builder has specific limitations within this application, as identified above. Consequently, this initial step does not provide sufficient data or an accurate depiction of development potential for the municipality. The Municipality will need to apply more specific methods of analysis prior to making adjustments to the current zoning.

D. Adequacy of dilution to meet future non-sewer service area demand

The Wastewater Estimation model builder was utilized to compare existing zoning to the available nitrate dilution within each HUC11. The HUC11 analysis was performed for each municipality independently. The available land use within each HUC was proportioned based upon the total number of acres located within the municipal boundary. Consequently, distributing the total number of allowable units among municipalities, within a given HUC11, was not necessary as the land area used for the analysis had already been proportioned. When determining the number of potential units, based on zoning, permanently preserved open space was removed from the potential buildout. Conversely, the number of allowable units, based on available dilution capacity within each HUC, utilized permanently preserved open space areas.

Table 6.D.1 below summarizes the allowable number of residential units and commercial square footage that could be developed by the municipality outside the wastewater service area, while maintaining a target concentration of nitrate in groundwater

| Table 6.D.1: HUC-11 BUILDOUT CAPACITY / DENSITY | | | | |
|--|---------------|--------------------|----------------------------|------------------------|
| HUC11 | Zoning | Total Acres | Residential (Units) | Commercial (SF) |
| 02040202160 | A | 1,062.37 | 149.63 | 0.00 |
| | LR/A | 508.82 | 71.67 | 0.00 |
| | TOTALS | 1,571.20 | 221.30 | 0.00 |
| 02040206030 | A | 3,429.80 | 476.36 | 0.00 |
| | B | 55.60 | 7.72 | 30,886.50 |
| | HB | 143.88 | 19.98 | 79,934.15 |
| | P | 18.10 | 2.51 | 10,057.87 |
| | VR | 43.30 | 6.01 | 0.00 |
| | TOTALS | 3,690.68 | 512.59 | 120,878.53 |
| 02040206060 | A | 2,488.11 | 340.84 | 0.00 |
| | VR | 20.58 | 2.82 | 0.00 |
| | TOTALS | 2,508.69 | 343.66 | 0.00 |
| 02040206080 | A | 266.92 | 38.13 | 0.00 |
| | TOTALS | 266.92 | 38.13 | 0.00 |
| 02040206120 | HB | 32.55 | 4.93 | 19,728.42 |
| | LR | 1,432.27 | 217.01 | 0.00 |
| | LR/A | 350.29 | 53.07 | 0.00 |
| | VR | 72.58 | 11.00 | 0.00 |
| | TOTALS | 1,887.69 | 286.01 | 19,728.42 |
| 02040206150 | A | 4,682.80 | 678.67 | 0.00 |
| | B | 48.42 | 7.02 | 28,069.15 |
| | HB | 358.23 | 51.92 | 207,671.82 |
| | LR | 903.95 | 131.01 | 0.00 |
| | LR/A | 1,207.81 | 175.05 | 0.00 |
| | P | 121.86 | 17.66 | 70,645.41 |
| | VB | 46.09 | 6.68 | 26,719.21 |
| | VR | 205.00 | 29.71 | 0.00 |
| | TOTALS | 7,574.17 | 1,097.71 | 333,105.59 |

The following Table 6-D-2 summarizes the results of the nitrate dilution capacity analysis. The table reflects the differences between the potential number of residential units and commercial square footage that could be projected by the municipality outside the wastewater service area and number of allowable units necessary to maintain a target concentration of nitrate in groundwater.

| TABLE-6-D-2: HUC11 Dilution Analysis Summary- Potential Development and Available Dilution | | | | | |
|---|--------------------|-------------------------------------|-------------------------------------|---------------------------------|---------------------------------|
| HUC11 | Total Acres | Residential Buildout (Units) | Residential Capacity (Units) | Commercial Buildout (SF) | Commercial Capacity (SF) |
| 02040202160 | | | | | |
| TOTALS | 1,571.20 | 605.00 | 221.30 | 0.00 | 0.00 |
| 02040206030 | | | | | |
| TOTALS | 3,690.68 | 1,194.70 | 512.59 | 1,774,481.27 | 120,878.53 |
| 02040206060 | | | | | |
| TOTALS | 2,508.69 | 850.96 | 343.66 | 0.00 | 0.00 |
| 02040206080 | | | | | |
| TOTALS | 266.92 | 88.08 | 38.13 | 0.00 | 0.00 |
| 02040206120 | | | | | |
| TOTALS | 1,887.69 | 996.67 | 286.01 | 283,592.09 | 19,728.42 |
| 02040206150 | | | | | |
| TOTALS | 7,574.17 | 2,898.86 | 1,097.71 | 4,900,520.24 | 333,105.59 |

The comparison of analyses shows that a build-out based on zoning would result in much more development than can actually be sustained to achieve adequate nitrate dilution. Therefore, the build-out based on the nitrate dilution analysis should be used in future planning. In addition, the current septic densities for the HUC-11's in Alloway Township are also expected to be much lower than required to achieve adequate nitrate dilution, when compared to the results of the nitrate dilution analysis.

The nitrate dilution analysis prepared for the Water Quality Management Plan results in the number of residential units and commercial square footage allowable for each for each watershed within the Municipality. *The method/data generated by the Wastewater Estimation model builder has specific limitations within the application*, as previously indicated above. As a result of these limitations, the current output of this GIS tool can only be qualified as an initial screen of current field conditions per County/ Municipality.

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 within the existing sewer service area are compared. A build-out projection of the proposed sewer service area is then prepared to determine the additional water demands that may result. Finally, the demands are compared to the water allocation to verify whether sufficient water supply exists to serve the proposed development. However, there currently isn't any existing or proposed sewer service area included as part of this WMP, therefore a Depletive/Consumptive Water Use Analysis was not performed at this time.

A. SUFFICIENCY OF WATER SUPPLY

Upper Pittsgrove Township does not own or operate any public potable water supply wells or distribution mains. Development within this municipality is supplied by individual water wells. Consequently, a comparison of water allocation was not performed.

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 Salem WMP provides the most current planning efforts within the Sewer Service Area.

The Upper Pittsgrove Township 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 Upper Pittsgrove Township Sewer Service Area does not contain any areas located within the Pinelands. Areas located within the watershed of a Fresh Water One (FW1) 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 N.J.A.C. 7:9B, and/or the Ground Water Quality Standards at N.J.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 24" x 36" maps have been developed using New Jersey Department of Environmental Protection Geographic Information System digital data at a scale of 1" = 2,000'. 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. This planning area is exclusive to the municipality's boundary. 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 (none) within the municipal boundary of Upper Pittsgrove Township, including all sewer department buildings, existing NJPDES facility 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: Upper Pittsgrove Township Zoning Map

The map depicts the current zoning of Upper Pittsgrove Township. The zoned minimum lot acreage for Commercial, Industrial and Residential areas within the WMP proposed Sewer Service Area indicated in the table located on the map.

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) 11 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 11 watershed.