BOROUGH OF NORTH PLAINFIELD

STORMWATER MANAGEMENT PLAN

PREPARED FOR:
BOROUGH OF NORTH PLAINFIELD
BOROUGH HALL
263 SOMERSET STREET
NORTH PLAINFIELD
SOMERSET COUNTY, NEW JERSEY

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TABLE OF CONTENTS

LIST OF FIGURES

LIST OF APPENDICES

1.0 INTRODUCTION

This Municipal Stormwater Management Plan (MSWMP) documents the strategy for the Borough of North Plainfield (hereafter referred to as 'Borough') to address stormwater-related impacts. The creation of this plan is required by the *Municipal Stormwater Regulations (N.J.A.C. 7:14A-25)* and contains all of the required elements described in the *Stormwater Management Rules (Rules, N.J.A.C. 7:8)*. The plan addresses groundwater recharge, stormwater quantity, and stormwater quality impacts by incorporating stormwater design and performance standards for new major development, as defined within the *Rules*. These standards are intended to minimize the adverse impact of stormwater runoff on water quality and water quantity and the loss of groundwater recharge that provides baseflow in receiving water bodies. The plan describes long-term operation and maintenance measures for existing and future stormwater facilities.

The Borough has a combined total of less than one square mile of vacant or agricultural land. Therefore, according to *N.J.A.C. 7:8-4.2(c)10*, a "build-out" analysis is not required. However, the plan addresses the review and update of existing ordinances, the Borough Master Plan, and other planning documents to provide guidance for future development to include low impact development techniques. The final component of this plan includes a mitigation plan to allow for variances or exemptions from the requirements. As part of the mitigation plan of the stormwater plan, specific stormwater management measures are identified to lessen the impact of existing development.

2.0 GOALS

The Borough has long been a victim of flooding due to the amount of development in the surrounding area, its location downstream of the Watchung Mountains and the number of streams/brooks passing through the Borough. Although this plan does not intend to address flooding problems and large scale solutions for the Green Brook or Stony Brook, this plan provides the framework to make incremental improvements in line with the *Rules*.

The Army Corps of Engineering, New York District created a *Recommended Plan* to address flooding problems in the Green Brook and Stony Brook. As of the date of this report, no firm date for implementation of these improvements is available. In addition, the NJDOT is currently in the design and permitting phases for the design of improvements to the Crab Brook. This project will alleviate flooding along State Highway Route 22 in the area of the Crab Brook between Watchung Avenue and the east Borough border along the Crab Brook. As of the date of this report, no firm date for the implementation of this project is available.

Based on the above, many improvements associated with flooding related to existing streams and brooks are in the planning and design stages. As such, the Borough's goals are to reduce drainage and flooding issues at problem areas throughout the Borough. In addition, stormwater quality improvements associated with erosion and garbage will also be a focus of the Borough.

The goals of this MSWMP are to:

- reduce flood damage, including damage to life and property;
- minimize, to the extent practical, any increase in stormwater runoff from any new development;
- reduce soil erosion from any development or construction project;
- assure the adequacy of existing and proposed culverts and bridges, and other in-stream structures;
- maintain groundwater recharge;
- prevent, to the greatest extent feasible, an increase in nonpoint pollution;
- maintain the integrity of stream channels for their biological functions, as well as for drainage;

- minimize pollutants in stormwater runoff from new and existing development to restore, enhance, and maintain the chemical, physical, and biological integrity of the waters of the state, to protect public health, to safeguard fish and aquatic life and scenic and ecological values, and to enhance the domestic, municipal, recreational, industrial, and other uses of water; and
- protect public safety through the proper design and operation of stormwater basins and management facilities.

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

The Borough Land Development Ordinances already contain provisions for requiring stormwater management facilities for increases in impervious surfaces greater than 150 square feet. It is the intent of this MSWMP to incorporate the new *Rules* with the existing requirements.

3.0 STORMWATER DISCUSSION

Land development can dramatically alter the hydrologic cycle of a site and, ultimately, an entire watershed. Prior to development, native vegetation can either directly intercept precipitation or draw that portion that has infiltrated into the ground and return it to the atmosphere through evapotranspiration. Development can remove this beneficial vegetation and replace it with lawn or impervious cover, reducing the site's evapotranspiration and infiltration rates. Clearing and grading a site can remove depressions that store rainfall. Construction activities may also compact the soil and diminish its infiltration ability, resulting in increased volumes and rates of stormwater runoff from the site.

Impervious areas that are connected to each other through gutters, channels, and storm sewers can transport runoff more quickly than natural areas. This shortening of the transport or travel time quickens the rainfall-runoff response of the drainage area, causing flow in downstream waterways to peak faster and higher than natural conditions. These increases can create new and aggravate existing downstream flooding and erosion problems and increase the quantity of sediment in the channel. Filtration of runoff and removal of pollutants by surface and channel vegetation is eliminated by storm sewers that discharge runoff directly into a stream. Increases in impervious area can also decrease opportunities for infiltration which, in turn, reduces stream base flow and groundwater recharge. Reduced base flows and increased peak flows produce greater fluctuations between normal and storm flow rates, which can increase channel erosion. Reduced base flows can also negatively impact the hydrology of adjacent wetlands and the health of biological communities that depend on base flows. Finally, erosion and sedimentation can destroy habitat from which some species cannot adapt.

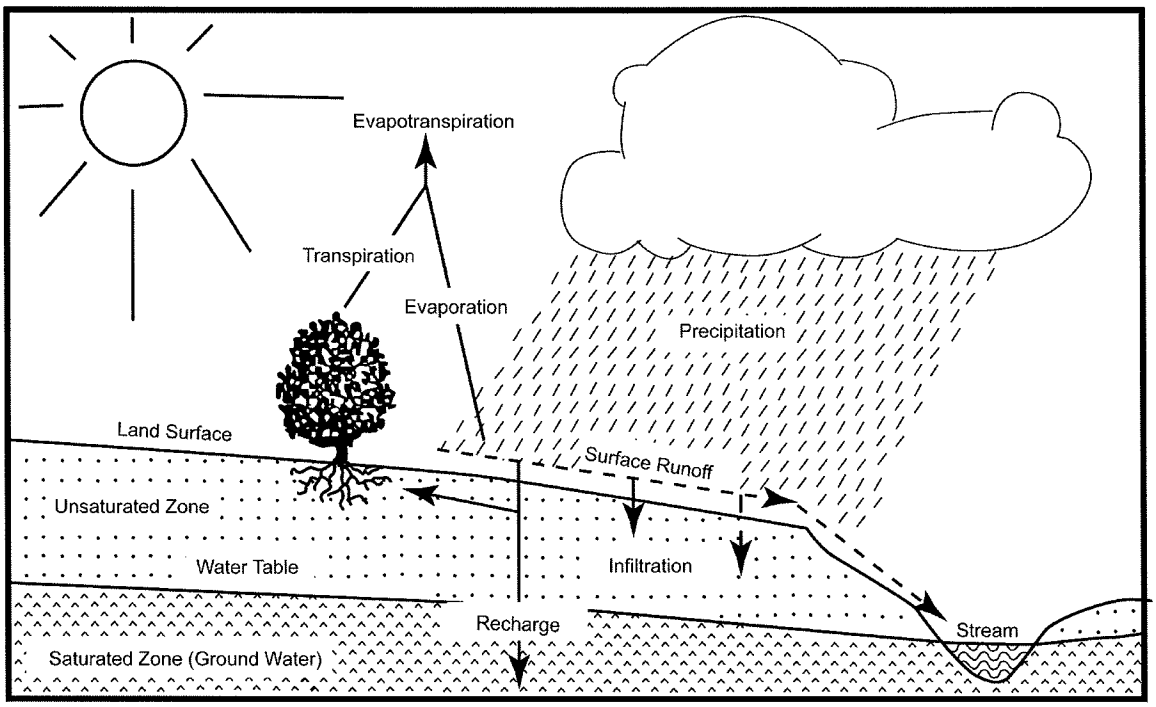


Figure 1: Groundwater Recharge in the Hydrologic Cycle

Source: New Jersey Geological Survey Report GSR-32

In addition to increases in runoff peaks, volumes, and loss of groundwater recharge, land development often results in the accumulation of pollutants on the land surface that runoff can mobilize and transport to streams. New impervious surfaces and cleared areas created by development can accumulate a variety of pollutants from the atmosphere, fertilizers, animal wastes, and leakage and wear from vehicles. Pollutants can include metals, suspended solids, hydrocarbons, pathogens, and nutrients.

In addition to increased pollutant loading, land development can adversely affect water quality and stream biota in more subtle ways. For example, stormwater falling on impervious surfaces or stored in detention or retention basins can become heated and raise the temperature of the downstream waterway, adversely affecting cold water fish species such as trout. Development can remove trees along stream banks that normally provide shading, stabilization, and leaf litter that falls into streams and becomes food for the aquatic community.

4.0 BACKGROUND

4.1 BOROUGH CHARACTERISTICS

The Borough comprises a 2.8 square mile area in Somerset County, New Jersey. Figure 3, USGS Topographic Map, depicts the Borough boundary on USGS quadrangle maps.

4.1.1 Population and Housing Trends

According to the *2000 Census Data*, the population of the Borough experienced a 1.1% increase in population since 1990.

Year	Population (persons)
1990	18,820
2000	21,103

According to the *Draft Somerset County Cross-acceptance Population Projections*, the estimated population of the Borough in 2020 is 22,722 persons.

4.1.2 Land Use

The Borough is an older community with established land uses. According to the *2002 Master Plan*, the Borough is a fully developed municipality. Only 75 parcels of vacant land, totaling approximately 36 acres, remain in the Borough. Additionally, *NJDEP Geographic Information System (GIS) digital data* indicates that there are only two (2) small parcels of "orchards/vineyards/nurseries/horticultural areas" and one (1) small parcel of "old field" in the Borough. Therefore, there is significantly less than one square mile of vacant or agricultural land in the Borough.

4.1.3 Water and Sewer Service

Water service throughout the entire Borough is provided by New Jersey American Water which recently purchased Elizabethtown Water.

According to the *2002 Master Plan*, more than 99% of the homes in the Borough are connected to the municipal sewer system. The Borough has been a member of the Plainfield Area

Regional Sewerage Authority, which has entered into a long-term contract with the Middlesex County Sewer Authority.

4.1.4 State Development and Redevelopment Plan

The purpose of the *State Development and Redevelopment Plan (State Plan)* is to coordinate planning activities and establish State-wide planning objectives in the areas of land use, housing, economic development, transportation, natural resource conservation, agriculture and farmland retention, recreation, urban and suburban redevelopment, historic preservation, public facilities and services, and intergovernmental coordination. The *State Plan* designates planning areas that share common conditions with regard to development and environmental features:

- Areas for Growth: Metropolitan Planning Areas (PA-1), Suburban Planning Areas (PA-2) and Designated Centers in any planning area.
- Areas for Limited Growth: Fringe Planning Areas (PA-3), Rural Planning Areas (PA-4), and Environmentally Sensitive Planning Areas (PA-5). In these planning areas, planning should promote a balance of conservation and limited growth—environmental constraints affect development and preservation is encouraged in large contiguous tracts.
- Areas for Conservation: Fringe Planning Area (PA-3), Rural Planning Areas (PA-4), and Environmentally Sensitive Planning Areas (PA-5).

The Borough is located in the Metropolitan Planning Area (PA-1). Groundwater recharge rates for native soils throughout most of the Borough are generally between 13 and 17 inches annually. The average annual groundwater recharge rates are shown graphically in Figure 4, Groundwater Recharge Areas.

4.1.5 Brownfields Sites and Known Contaminated Sites

A brownfield is defined under NJ state law (*N.J.S.A. 58:10B-23.d*) as "any former or current commercial or industrial site that is currently vacant or underutilized and on which there has been, or there is suspected to have been, a discharge of a contaminant." According to the United States Environmental Protection Agency (USEPA), Somerset County is administering a Brownfields Assessment Demonstration Pilot. Additionally, one of the goals and objectives

stated in the *2002 Master Plan* is "encourage the redevelopment of brownfield sites in the Borough". According to the Somerset County Planning Board, the brownfield site inventory for the Borough is generally based on the *Known Contaminated Sites report.*

The *Known Contaminated Sites in New Jersey report (2001 Edition)* is a municipal listing of sites where contamination of soil and/or ground water is confirmed at levels greater than the applicable cleanup criteria or standards. Remedial activities are underway or required at the sites with an on-site source(s) of contamination and at locations where the source(s) of contamination is unknown. Sites with completed remedial work that require engineering and/or institutional controls have reporting measures in place to ensure the effectiveness of past actions, and some include maintenance and/or monitoring. There are 22 sites in the Borough with on-site sources of contamination, one (1) site with an unknown source of contamination, and one (1) site with closed case(s) with restrictions on the *Known Contaminated Sites report.*

4.2 WATERWAYS

Three (3) waterways are located in or immediately adjacent to the Borough:

- Green Brook
- Stony Brook
- Crab Brook

Figure 2, Borough and its Waterways, illustrates the waterways in the Borough.

The Borough is located within the Lower Raritan, South River, and Lawrence Watershed Management Area (WMA #9). A Watershed Management Area is subdivided into smaller drainage area units which are defined as HUC-14s. The term "HUC-14" is from the hydrologic unit code system developed by the United States Geological Service for delineating and identifying drainage areas. The system starts with the largest possible drainage areas and progressively smaller subdivisions of the drainage area are delineated and numbered in a nested fashion. A drainage area with a hydrologic unit code (HUC) designation with 14 numbers, or HUC-14, is one of several sub-watersheds of a larger watershed. There are three (3) HUC-14s within the Borough:

- 02030105120040 – Green Brook (Bound Brook to North Plainfield gauge)
- 02030105120020 – Green Brook (North Plainfield gauge to Blue Brook)
- 02030105120030 – Stony Brook (North Plainfield)

Figure 7, Hydrologic Units (HUC-14s), illustrates the HUC-14s within the Borough.

Special water resource protection areas are those areas within 300 feet of Category One (C-1) waters and their immediate tributaries. C-1 waters are waters that receive special protection under the *Surface Water Quality Standards* because of their clarity, color, scenic setting or other characteristics of aesthetic value, exceptional ecological significance, exceptional recreational significance, exceptional water supply significance, or exceptional fisheries resource(s). In addition, the special water resource protection area is required adjacent to those waters that drain to the C-1 water within the limits of the associated sub-watershed (HUC-14). The special water resource protection area is intended as a buffer between development and these special waters in order to protect both water quality and the attributes for which the waters have been designated. The NJDEP has determined that a buffer of 300 feet is necessary to achieve the intended goals. The watercourses within the Borough are not categorized as Category One (C-1) by the NJDEP.

The following table summarizes the watercourse information:

Name of Watercourse	HUC-14	Classification
Green Brook	02030105120020 (Green Brook, North Plainfield gauge to Blue Brook) and 02030105120040 (Green Brook, Bound Brook to North Plainfield gauge)	FW2-NT (C-2)
Stony Brook	02030105120030 (Stony Brook, North Plainfield)	FW2-NT (C-2)
Crab Brook	02030105120030 (Stony Brook, North Plainfield)	FW2-NT (C-2)

Legend:
FW2 – General surface water classification applied to those fresh waters that are not designated as FW1 or Pinelands waters.

NT (non trout) – means fresh waters that have not been designated in *NJAC 7:9B-1.15(b) through (h)* as trout production or trout maintenance waters.
Category Two (C-2) waters means those waters not designated as Category One.

The New Jersey Department of Environmental Protection (NJDEP) has established an Ambient Biomonitoring Network (AMNET) to document the health of the state's waterways. There are over 800 AMNET sites throughout the state of New Jersey. These sites are sampled for benthic macroinvertebrates by NJDEP on a five-year cycle. Streams are classified as non-impaired, moderately impaired, or severely impaired based on the AMNET data. The data is used to generate a New Jersey Impairment Score (NJIS), which is based on a number of biometrics related to benthic macroinvertebrate community dynamics.

The following are the watercourses with their AMNET testing locations, AMNET site numbers, and classifications:

- Stony Brook at West End Avenue in North Plainfield (AN0422) – Moderately impaired
- Green Brook at Clinton Avenue in Plainfield (AN0423) – Moderately impaired
- Green Brook at Raymond Avenue in Watchung (AN0421) – Moderately impaired
  Please note that this AMNET site is referenced as "Green Brook at Raymond Avenue in Plainfield" on the *Integrated List* described below.

Crab Brook was not included in the AMNET study.

In addition to the AMNET data, the NJDEP and other regulatory agencies collect water quality chemical data on the streams in the state. The *New Jersey Integrated Water Quality Monitoring and Assessment Report (305(b) and 303(d)) (Integrated List)* is required by the federal Clean Water Act to be prepared biennially and is a valuable source of water quality information. This combined report presents the extent to which New Jersey waters are attaining water quality standards, and identifies waters that are impaired. The *Integrated List* is composed of the following five (5) Sublists:

- Sublist 1: Attaining the water quality standard and no use is threatened.

- Sublist 2: Attaining some of the designated uses; no use is threatened; and insufficient or no data is available to determine if the remaining uses are attained or threatened.
- Sublist 3: Insufficient or no data and information to determine if any designated use is threatened.
- Sublist 4: Impaired or threatened for one or more designated uses but does not require the development of a TMDL.
- Sublist 5: The water quality standard is not attained. The waterway is impaired or threatened for one or more designated uses by a pollutant(s), and requires a TMDL.

A TMDL is the amount of a pollutant that can be accepted by a waterbody without causing an exceedance of water quality standards or interfering with the ability to use a waterbody for one or more of its designated uses. The allowable load is allocated to the various sources of the pollutant, such as stormwater and wastewater discharges, which require an NJPDES permit to discharge, and nonpoint source, which includes stormwater runoff from agricultural areas and residential areas, along with a margin of safety. Provisions may also be made for future sources in the form of reserve capacity. An implementation plan is developed to identify how the various sources will be reduced to the designated allocations. Implementation strategies may include improved stormwater treatment plants, adoption of ordinances, reforestation of stream corridors, retrofitting stormwater systems, and other Best Management Practices (BMPs).

The following are the watercourses with their locations, sublists, and sublist constituents:

- Green Brook at Clinton Avenue in North Plainfield (NJDEP AMNET ID AN0423)
  This section is on Sublist 5 for benthic macroinvertebrates.
- Green Brook at North Plainfield (NJDEP/USGS Data ID 01403470)
  This section is on Sublist 1 for Phosphorus, Nitrate and Unionized Ammonia. It is on Sublist 3 for pH, Temperature, Dissolved Oxygen, Dissolved Solids and Total Suspended Solids. It is on Sublist 4 for Fecal Coliform.
- Green Brook at Raymond Avenue in Plainfield (NJDEP AMNET ID AN0421)
  This section is on Sublist 5 for benthic macroinvertebrates.

Please note that the AMNET information discussed above references this site as "Green Brook at Raymond Avenue in Watchung."

- Stony Brook at West End Avenue in North Plainfield (NJDEP AMNET ID AN0422) This section is on Sublist 5 for benthic macroinvertebrates.

No data regarding Crab Brook was available. A *Detailed TMDL Report* obtained from the USEPA website indicates that a fecal coliform TMDL has been approved/established by the EPA for Green Brook at North Plainfield. Though the *Integrated List* references a Sublist 5 listing for Stony Brook, which requires a TMDL, no detailed TMDL information could be located.

Flooding along the Green Brook and Stony Brook has been, and continues to be, a problem in the Borough. The Army Corps of Engineers (Corps) is studying and designing improvements to the Green Brook and Stony Brook. The Green Brook Flood Commission serves as an advisory board to the Corps.

The New Jersey Department of Transportation (NJDOT) is also in the planning stages for improvements to the Crab Brook between Watchung Avenue and the eastern border with Watchung Borough. The current capacity of the Crab Brook is very low which results in the flooding of Route 22.

In 1999, Hurricane Floyd caused significant damage to the Borough. The Borough is optimistic that the combined efforts of the Borough (through this MSWMP), Corps and NJDOT will minimize future impacts.

Many of the Borough drainage systems were designed and constructed many years ago and may be currently undersized to handle the amount of flow generated by overland flow from the Watchung Mountains.

4.3 Wellhead Protection Areas

According to the NJDEP, a Wellhead Protection Area (WHPA) is a mapped area calculated around a Public Community Water Supply (PCWS) well in New Jersey that delineates the horizontal extent of groundwater captured by a well pumping at a specific rate over a two-, five-

and twelve-year period of time for unconfined wells. The confined wells have a fifty (50) foot radius delineated around each well serving as the WHPA to be controlled by the water purveyor in accordance with *Safe Drinking Water Regulations* (*N.J.A.C. 7:10-11.7(b)1*).

WHPA delineations are conducted in response to the Safe Drinking Water Act Amendments of 1986 and 1996 as part of the Source Water Area Protection Program (SWAP). The delineations are the first step in defining the sources of water to a public supply well. Within these areas, potential contamination will be assessed and appropriate monitoring will be undertaken as subsequent phases of the NJDEP SWAP.

Three (3) mapped public community water supply wells and their associated wellhead protection areas are located in the Borough.

Figure 5, Wellhead Protection Areas, depicts the wells and wellhead protection areas in the Borough.

4.4 WETLANDS

In addition to the rivers and streams that run through and along the Borough, there are a number of wetland areas. These wetland areas, shown in Figure 9, Constrained Land, provide flood storage, non-point pollutant removal and habitat for flora and fauna.

5.0 DESIGN AND PERFORMANCE STANDARDS

The Borough adopted the design and performance standards for stormwater management measures as presented in *N.J.A.C. 7:8-5* to minimize the adverse impact of stormwater runoff on water quality and water quantity and loss of groundwater recharge in receiving water bodies. The design and performance standards include the language for maintenance of stormwater management measures consistent with the *Rules* at *N.J.A.C. 7:8-5.8 Maintenance Requirements*, and language for safety standards consistent with *N.J.A.C. 7:8-6 Safety Standards for Stormwater Management Basins*.

During construction, Borough inspectors will perform periodic inspection of the construction of the project to ensure that the stormwater management measures are constructed and function as designed.

6.0 PLAN CONSISTENCY

The Borough is not within a Regional Stormwater Management Planning Area; therefore, this plan does not need to be consistent with any regional stormwater management plans (RSMPs). A fecal coliform TMDL has been developed for the waters of the Green Brook within the Borough; therefore, this plan must be consistent with the USEPA-approved TMDL. If any RSMPs or additional TMDLs are developed in the future, this MSWMP will be updated to be consistent.

The Borough currently utilizes the *Residential Site Improvement Standards* (*RSIS*) at *N.J.A.C. 5:21*. The MSWMP is consistent with the *RSIS*. The municipality will utilize the most current update of the *RSIS* in the stormwater management review of residential areas. This MSWMP will be updated to be consistent with any future updates to the *RSIS*.

7.0 NONSTRUCTURAL STORMWATER MANAGEMENT STRATEGIES

The Borough has reviewed the Master Plan and ordinances, and has provided a list of the sections in the Borough land use and zoning ordinances that are to be modified to incorporate nonstructural stormwater management strategies. These are the ordinances identified for revision. Once the ordinance texts are completed, they will be submitted to the county review agency for review and approval. A copy will be sent to the Department of Environmental Protection at the time of submission.

7.1 CHAPTER XIV: STREETS, SIDEWALKS AND SANITATION
Section 14-2.1 - Construction

Section 14-2. indicates that sidewalks are to be a minimum of four feet wide and constructed of concrete. Language was added via Ordinance No. 06-16 to require applicants to design sidewalks to discharge stormwater to grass areas, where feasible, in order to disconnect these impervious surfaces. Language was also added via Ordinance No. 06-16 to encourage the use of permeable paving materials where feasible.

7.2 CHAPTER XXII, ARTICLE VI: LAND DEVELOPMENT – SUBDIVISION SITE PLAN REVIEW AND APPROVAL
Section 22-56(c)7 – Submittal Procedure

Section 22-56(c)7 indicates a landscaping and buffering plan is required for a preliminary approval application to be deemed complete. Specifically, the plan requires depiction of "what will remain and what will be planted". Language was added via Ordinance No. 06-16 to require applicants to provide a full layout of the existing vegetated areas and a description of the conditions in those areas.

7.3 CHAPTER XXII, ARTICLE VII: LAND DEVELOPMENT – SITE PLAN AND SUBDIVISION STANDARDS
Section 22-79 – Standard Required Improvements

Section 22-79 f. includes detailed goals for Drainage. Language was added via Ordinance No. 06-16 to direct the reader to the proper section of the Stormwater Control Ordinance which is Section 22-101.

Section 22-81 - Design Standards for Subdivision Plats

Section 22-81 describes the requirements for streets in the Borough. The Borough ordinances discuss three (3) street classifications, "Secondary," which has a minimum right-of-way of 60 feet, and "Collector" and "Minor," which have a minimum right-of-way of 50 feet. Language was added via Ordinance No. 06-16 to encourage applicants to limit on-street parking to allow for narrower paved widths.

Item q(3) of this section indicates that natural features such as trees, brooks, hilltops and views shall be preserved whenever possible in designing any subdivision containing such features. This section was amended via Ordinance No. 06-16 to include forested trees which ensures that leaf litter and other beneficial aspects of the forest are maintained in addition to the trees.

7.4 CHAPTER XXII, ARTICLE VIII – LAND DEVELOPMENT – ZONING BOARD OF ADJUSTMENT

Several sections of Article VIII indicate that screening by hedge or other natural landscaping may be substituted for fencing if approved by the approving authority as part of the development plan. These sections were amended via Ordinance No. 06-16 to encourage the use of native vegetation to the maximum extent practicable before utilizing another means of screening, such as fences, walls or berms. Additionally, in areas where fencing is often necessary to prevent debris from migrating off a site onto neighboring properties (e.g., at the boundary between a business and residential zone, etc.), natural vegetation is recommended to be utilized in conjunction with the fencing.

Section 22-101 – Water Run-Off Control

Currently, this section did not specify that all new development and redevelopment plans must comply with New Jersey's *Soil Erosion and Sediment Control Standards*. Therefore, this section was amended via Ordinance No. 06-16 to state the same. During construction, any issues associated with soil erosion and sediment control measures witnessed by Borough inspectors should be reported to the local Soil Conservation District.

The following sections within 22-101 represent the bulk of the changes to be in compliance with the Rules. These sections were updated via Ordinance No. 06-16:

Section 22-101.2.d Data Required

The following was added at the end of the first paragraph, "Developments and improvements meeting the definition of major development as provided under Section 22-101.2.f, Stormwater Control Ordinance, shall comply with the requirements of that section."

Section 22-101.2.e Design Standards

The entire section after the first sentence was revised to read: "For developments and improvements that do not meet the definition of major development as provided under Section 22-101.2.f, Stormwater Control Ordinance, shall retain / detain water on site equal to the net difference in discharge as calculated before and after development. Design shall be based on the USDA Natural Resource Conservation Service (NRCS) methodology, including the NRCS Runoff Equation and Dimensionless Unit Hydrograph, as described in the NRCS National Engineering Handbook Section 4 – Hydrology and Technical Release 55 – Urban Hydrology for Small Watersheds or the Rational Method for peak flow and the Modified Rational Method for hydrograph computations. For developments and improvements meeting the definition of major development as provided under Section 22-101.2.f, Stormwater Control Ordinance, design shall be based on the Stormwater Control Ordinance. The following on-site water retention / detention facilities may be incorporated as prescribed for developments and improvements not meeting the definition of major development."

Section 22-101.2.f. Stormwater Control Ordinance

The Stormwater Control Ordinance, provided in Appendix 1, should be inserted into this section in its entirety.

Section 22-102 – Zones, Zoning Maps and Schedule

The Borough has 10 types of residential zones. Each zone has a maximum percent building coverage allocation, ranging from 20 percent in half of the zones to 35 percent for the R-4 residential zone, which allows up to nine (9) townhouses to be built on a two (2)-acre parcel of land. The Borough has seven (7) types of non-residential districts. Three of the seven (7) zones have a maximum percent building coverage allocation, ranging from 20 to 30 percent. No maximum percent building coverage allocation has been stated for the remaining four (4) business zones.

The Borough Code was amended via Ordinance No. 06-16 to add maximum building coverage allocations to the remaining four (4) business zones. Additionally, the Code was also revised to state that applicants must satisfy the percent impervious requirements as well as comply with the *Design and Performance Standards for Stormwater Management Measures (N.J.A.C. 7:8-5)*.

Section 22-115.28 – Buffer Areas in Business Zone

Section 22-115.28 requires buffer areas along any common boundary between a business zone district and a residential zone district. The buffer must be equal in width to 10% of the lot depth and shall consist of living plant matter, fencing, solid walls, earth berms or similar materials. The landscape requirements for these buffer areas in the existing section do not recommend the use of native vegetation. The language of this section was amended via Ordinance No. 06-16 to require the use of native vegetation, which requires less fertilization and watering than non-native species. Additionally, language was also added to allow buffer areas to be used for stormwater management by disconnecting impervious surfaces and treating runoff from these impervious surfaces.

Section 22-117.4 – Requirements for One and Two-Family Residence Parking

Section 22-117.4(d) requires that driveways be at least eight (8) feet in width. This requirement is more stringent than the NJDEP-recommended width of nine (9) feet. This section was amended via Ordinance No. 06-16 to allow the use of pervious paving materials to minimize stormwater runoff and promote groundwater recharge.

Section 22-117.5 – Requirements for All Other Off-Street Parking and Loading

Section 22-117.5(i) details off-street parking and loading requirements. All off-street parking and loading areas, other than off-street parking for one and two-family residences are required to be enclosed with concrete or Belgian block curbing and shall be constructed with a concrete or a bituminous concrete surface. The curbing shall be located five (5) feet from any property line or structural wall of a building, except in the B, B-1, and B-2 zones, in which parking areas may be constructed up to any property line which abuts a parking area on property in a

Business Zone, and further provided proper access between the two parking areas is provided. This section permits waiving of the curbing and paving requirement to facilitate proper drainage and stormwater management design. This section was amended via Ordinance No. 06-16 to encourage applicants to utilize curb cuts or flush curbs with curb stops to allow vegetated swales to be used for stormwater conveyance and to allow the disconnection of impervious areas. If vegetated swales can not be used, the use of landscaping islands in parking lots is encouraged.

7.5 New Ordinances

Stormwater Control Ordinance

See recommendations under 7.4 for detail on the new required Stormwater Control Ordinance.

Minimization of Turf Grass Lawn Areas

In order to minimize turf grass lawn areas, two new ordinances were recommended. The first of these ordinances would establish minimum and maximum yard sizes. The second would discourage enlargement of existing turf lawn areas without proper justification. These recommendations are not implemented at this time.

Vegetation Protection

In an effort to minimize land disturbance during construction, two new ordinances were recommended. The first ordinance would establish a "critical footprint area" that extends 20 feet beyond the driveway and building footprint where clearing of trees cannot occur. The second ordinance would prohibit clearcutting of the project site as part of the construction. These limitations protect vegetated areas that provide stormwater benefits. This complies with minimizing land disturbance, which is a nonstructural stormwater management strategy. These recommendations are not implemented at this time.

Parking Areas and Sidewalks

A new ordinance was recommended to encourage the use of multi-level parking structures rather than surface lots in non-residential zones. Additionally, shared parking, where practical, was also encouraged. These recommendations are not implemented at this time.

Currently, the Borough has no ordinances requiring landscaping islands in parking lots or between the roadway and the sidewalk. Therefore, a new ordinance was recommended to encourage the use of landscaping islands in parking lots and between the roadway and the sidewalk. Within Ordinance No. 06-16, Section 22-117.5 was amended to encourage landscaping islands in parking lot areas where vegetated swales cannot be used.

Unconnected Impervious Areas

Disconnection of impervious areas can occur in both low density development and high density commercial development, provided sufficient vegetated area is available to accept dispersed stormwater flows. Areas for disconnection include parking lot or cul-de-sac islands, lawn areas and other vegetated areas.

The Borough should require applicants to disconnect impervious surfaces, where practical, to promote pollutant removal and groundwater recharge.

Vegetated Open Channels

The use of vegetated channels, rather than the standard concrete curb and gutter configuration, can decrease flow velocity, and allow for stormwater filtration and re-infiltration.

Section 5.3(b)8 of the *Rules* indicates that nonstructural stormwater management strategies incorporated into site design shall provide vegetated open-channel conveyance systems discharging into and through stable vegetated areas. The Borough had no existing ordinances regarding the use of vegetated open channels. Within Ordinance No. 06-16, Section 22-117.5 was amended to encourage the utilization of curb cuts or flush curbs with curb stops to allow vegetated swales to be used for stormwater conveyance. One design option is for vegetated channels that convey smaller storm events, and provide an overflow into a storm sewer for larger storm events.

Wellhead Protection Areas

Per our recommendation, the Borough adopted Ordinance No. 06-17 which was an update to Section 22-137 entitled "Well Head Protection Areas". Same is provided in Appendix 2.

8.0 LAND USE / BUILD OUT ANALYSIS

Significantly less than one square mile of vacant or agricultural land remains in the Borough. Therefore, a detailed land use / build-out analysis is not required.

Figure 6, Existing Land Use, illustrates the existing land use in the Borough based on 1995/97 GIS information from NJDEP. Figure 8, Zoning Map of the Borough of North Plainfield, depicts the current zoning districts. Figure 9, Constrained Land, illustrates the constrained lands within the Borough.

9.0 MITIGATION PLANS

This mitigation plan is provided for a proposed development or redevelopment projects that seek a variance or exemption from the Borough Stormwater Management Plan or the *Rules*. Approval of the option to utilize a mitigation plan and choice of mitigation plan shall be under the sole discretion of the Borough agency providing review, i.e. Board of Adjustment, Planning Board, Borough Council and the Borough Engineer.

Any relief from this MSWMP or the *Rules* via a mitigation plan option shall utilize an option to provide equal or greater, quantifiable benefit than the specific relief being sought. For example, if a relief for stormwater quality is sought for a particular project, the necessary amount of stormwater quality improvements shall be accomplished via the mitigation plan. Calculations shall be provided indicating the parameter of relief being sought along with equal or greater benefit via the mitigation plan option. These calculations shall be reviewed and approved by the Borough Engineer.

In general, the mitigation project must be implemented in the same HUC-14 drainage area as the proposed development. The applicant must ensure the long-term maintenance of the project, including the maintenance requirements under Chapters 8 and 9 of the NJDEP *Stormwater BMP Manual*.

If a suitable site cannot be located in the same HUC-14 drainage area as the proposed development, a mitigation project may be selected that is not within the same drainage area but does provide an equal relief.

As a third option, in the case of mitigation plan options that do not address the variance or relief sought, the applicant may create a new mitigation option or provide a cash contribution to the Borough of North Plainfield which will be used by the Borough for Borough-wide drainage improvements and stormwater management improvement planning. The amount of the contribution shall be based on the relief being sought, the applicant's opinion on the cost impacts to meet this Plan and the *Rules*, and the discretion of the Borough agency providing review, i.e. Board of Adjustment, Planning Board, Borough Council and the Borough Engineer.

The applicant can select one of the following projects listed to compensate for the deficit from the performance standards resulting from the proposed project. The applicant will be responsible for any State, Federal, County or local approvals required to implement the mitigation project. More detailed information on the projects can be obtained from the Borough Engineer. A current list of mitigation projects shall be maintained by the Borough Engineer. Listed below are specific projects that may be used to address the mitigation requirement.

9.1 Stormwater Quantity and Flooding

- Perform stream cleaning and drainage system improvements at Greenwood Gardens located on Route 22 to eliminate flooding problems and to ensure the channel of the stream can pass the 25-year storm event.

- Perform Stream cleaning of the Green Brook and Stony Brook.

- Perform backyard drainage system improvements to include the installation of a new storm drain system to alleviate flooding problems between Sunset Place and West End Avenue.

- Perform a drainage system study along West End Avenue near Warfield Road to eliminate flooding problems and ensure the drainage conveyance system can pass the 25-year storm event. This option may also include the construction of the recommended improvements.

- Perform drainage system improvements to alleviate flooding along Parkview Avenue between Clinton Avenue and Harding Avenue.

- Perform drainage system improvements along Warfield Avenue to alleviate flooding in several locations.

- Perform general stormwater system improvements along the rear yards of Cedar Street to eliminate flooding.

9.2 STORMWATER QUALITY

- Retrofit specific streets or commercial locations to provide new, Type "B" water quality inlet casting compliant with the new *Rules*.

- Perform sanitary sewer repairs to decrease pollutant loading and investigate/repair possible connections between the storm sewer system and the sanitary sewer system. Areas to be provided by the Borough Engineer.

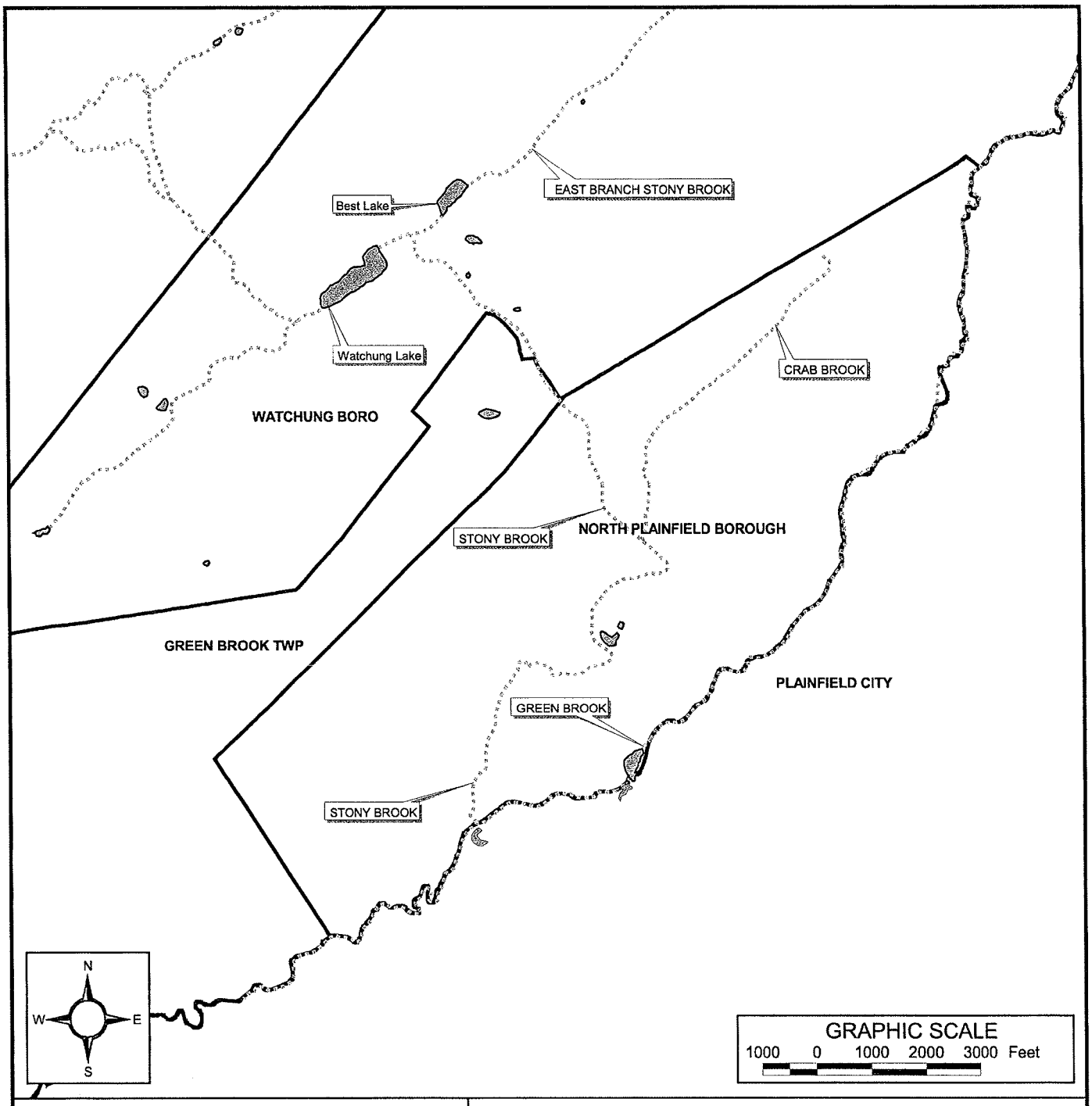
- Perform general cleaning of debris and garbage in stream and channel areas as directed by the Borough Engineer and/or Department of Public Works.

- Provide stormwater quality relief via a mechanical treatment device and/or low impact development technique in areas prone to stormwater quality impacts.

9.3 GROUNDWATER RECHARGE

- Perform sanitary sewer repairs to decrease the infiltration of groundwater into the sanitary sewer system and increase groundwater recharge. These repairs include manhole lining, sanitary sewer replacement and joint repairs.

FIGURES



BOROUGH AND ITS WATERWAYS

LEGEND:

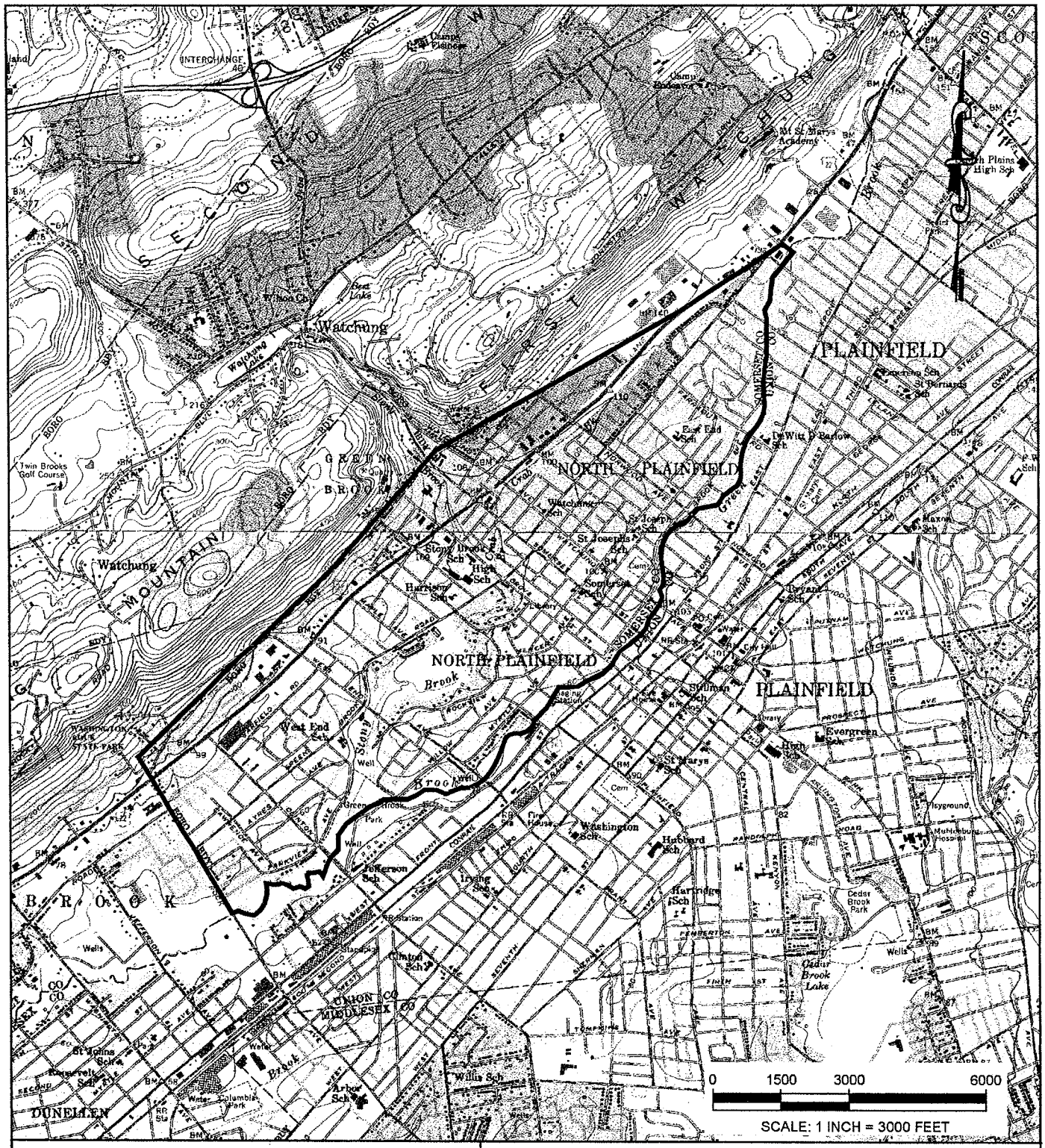
- MUNICIPAL BOUNDARY
- LAKES
- STREAMS

SOURCE:
NJDEP digital GIS data.

BOROUGH OF NORTH PLAINFIELD
263 SOMERSET STREET
SOMERSET COUNTY, NEW JERSEY

PMK Group
CONSULTING & ENVIRONMENTAL ENGINEERS
65 Jackson Drive, Cranford, New Jersey 07016
(908) 497-8900 * Fax: (908) 497-8945 * www.pmkgroup.com
CERTIFICATE OF AUTHORIZATION #24GA28028000

Drawn By: TS	Date: 4/15/05
Checked By: DS	Scale: As Noted
Project No. 046216-03	Figure 2



SOURCE: U.S.G.S. 7.5 MINUTE SERIES
PLAINFIELD & CHATHAM
QUADRANGLES, (1955 REV. 1981)

USGS TOPOGRAPHIC MAP

BOROUGH OF NORTH PLAINFIELD
263 SOMERSET STREET,
NORTH PLAINFIELD, NEW JERSEY

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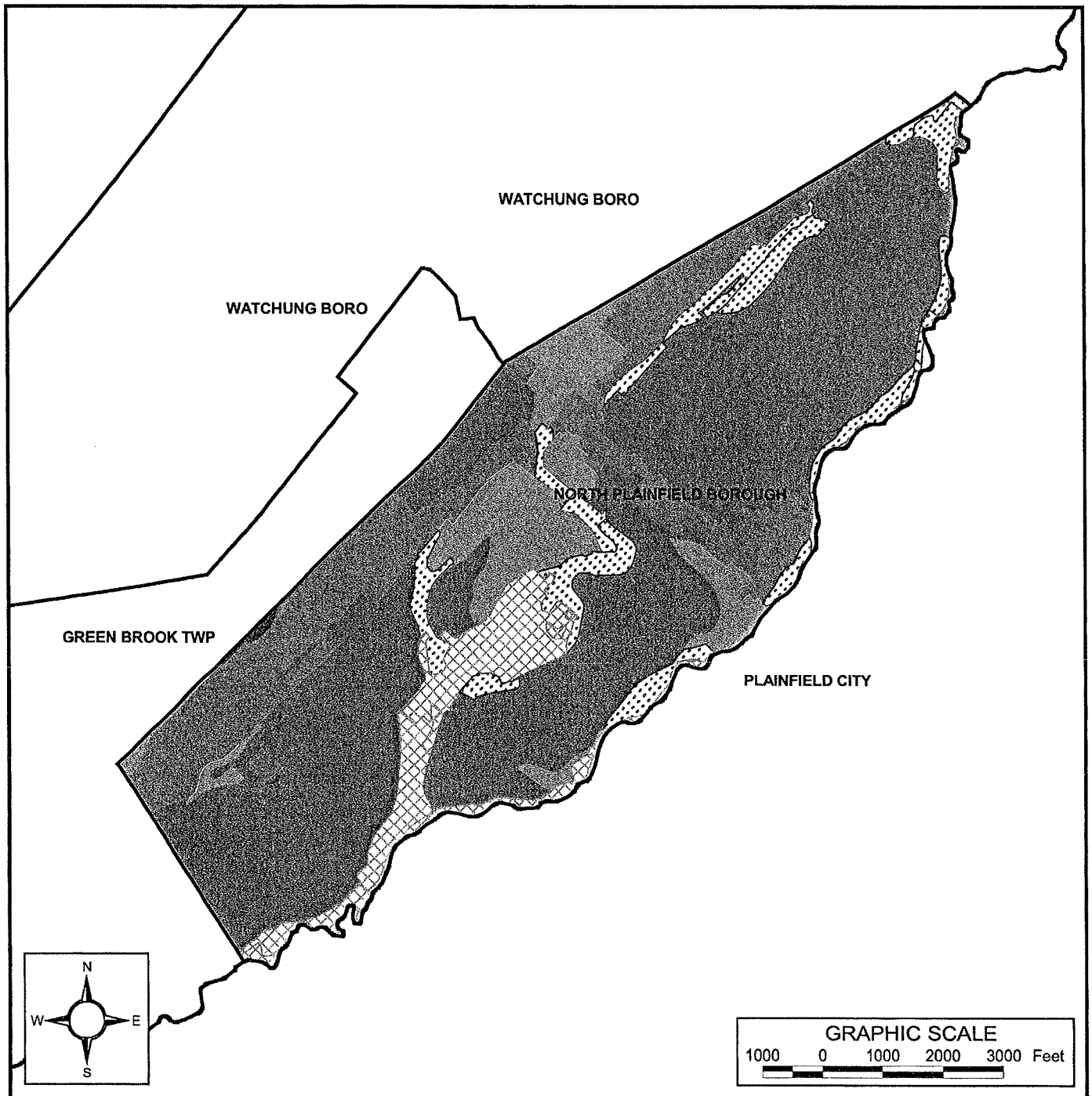
CERTIFICATE OF AUTHORIZATION #24GA28028000

DRAWN BY:	TS	DATE:	4/15/05
CHECKED BY:	DS	SCALE:	1"=3000'
PROJECT NO:	046216-03	PLATE NO.	3



GROUNDWATER RECHARGE AREAS

LEGEND:

- Municipal Boundary
- 18 to 21 in/yr
- 13 to 17 in/yr
- 8 to 12 in/yr
- 1 to 7 in/yr
- 0 in/yr
- Hydric Soils
- Wetlands & Open Water

SOURCE:
NJDEP digital GIS data.

BOROUGH OF NORTH PLAINFIELD
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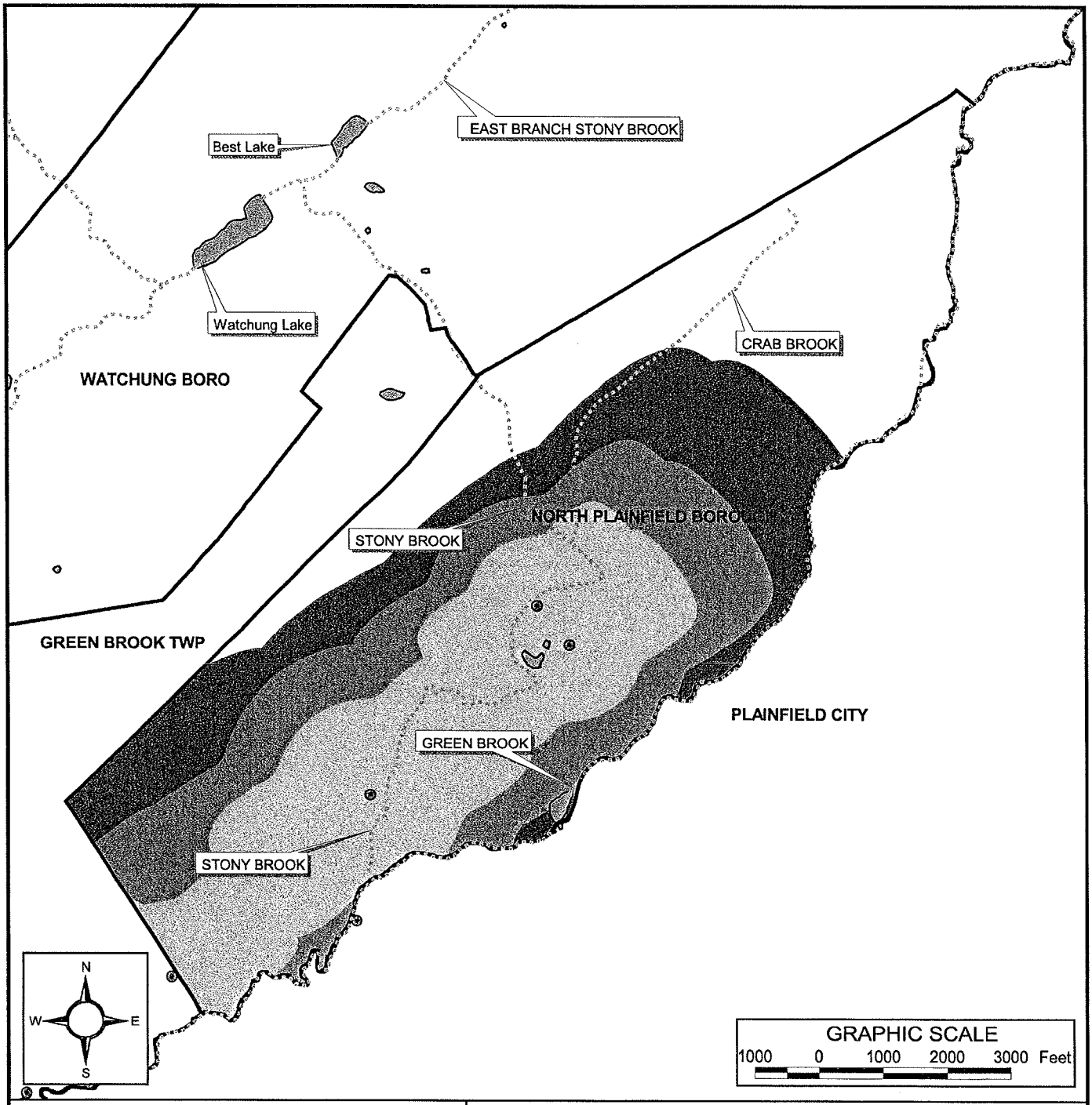
Drawn By: TS	Date: 4/15/05
Checked By: DS	Scale: As Noted
Project No. 046216-03	Figure 4



WELLHEAD PROTECTION AREAS

LEGEND:

- MUNICIPAL BOUNDARY
- STREAMS
- LAKES
- WELL LOCATION
- TIER 1: TIME OF TRAVEL= 2 YEARS
- TIER 2: TIME OF TRAVEL= 5 YEARS
- TIER 3: TIME OF TRAVEL=12 YEARS

SOURCE:
NJDEP digital GIS data.

BOROUGH OF NORTH PLAINFIELD
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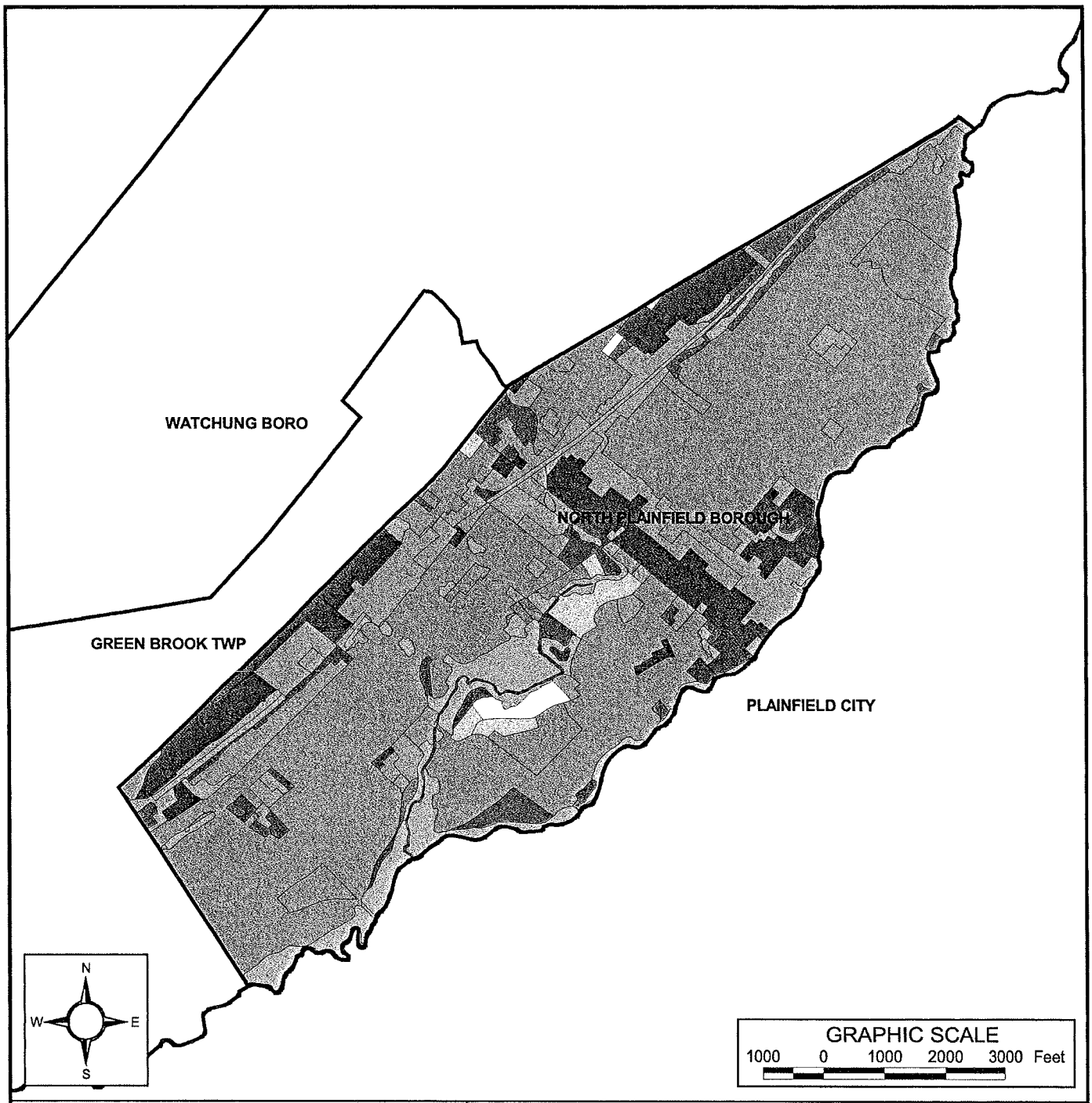
Drawn By:	TS	Date:	4/15/05
Checked By:	DS	Scale:	As Noted
Project No.	046216-03	Figure	5



EXISTING LAND USE

LEGEND:

- MUNICIPAL BOUNDARY
- AGRICULTURAL LAND
- ATHLETIC FIELDS (SCHOOLS)
- COMMERCIAL/SERVICES
- DECIDUOUS BRUSH/SHRUBLAND
- FORESTED AREAS
- INDUSTRIAL
- OTHER URBAN OR BUILT-UP LAND
- RECREATIONAL LAND
- RESIDENTIAL, RURAL, SINGLE UNIT
- RESIDENTIAL, SINGLE UNIT, LOW DENSITY
- RESIDENTIAL, SINGLE UNIT, MEDIUM DENSITY
- RESIDENTIAL, HIGH DENSITY, MULTIPLE DWELLING
- TRANSPORTATION/COMMUNICATIONS/UTILITIES
- WATERBODIES
- WETLAND AREAS

SOURCE:
NJDEP digital GIS data.

BOROUGH OF NORTH PLAINFIELD
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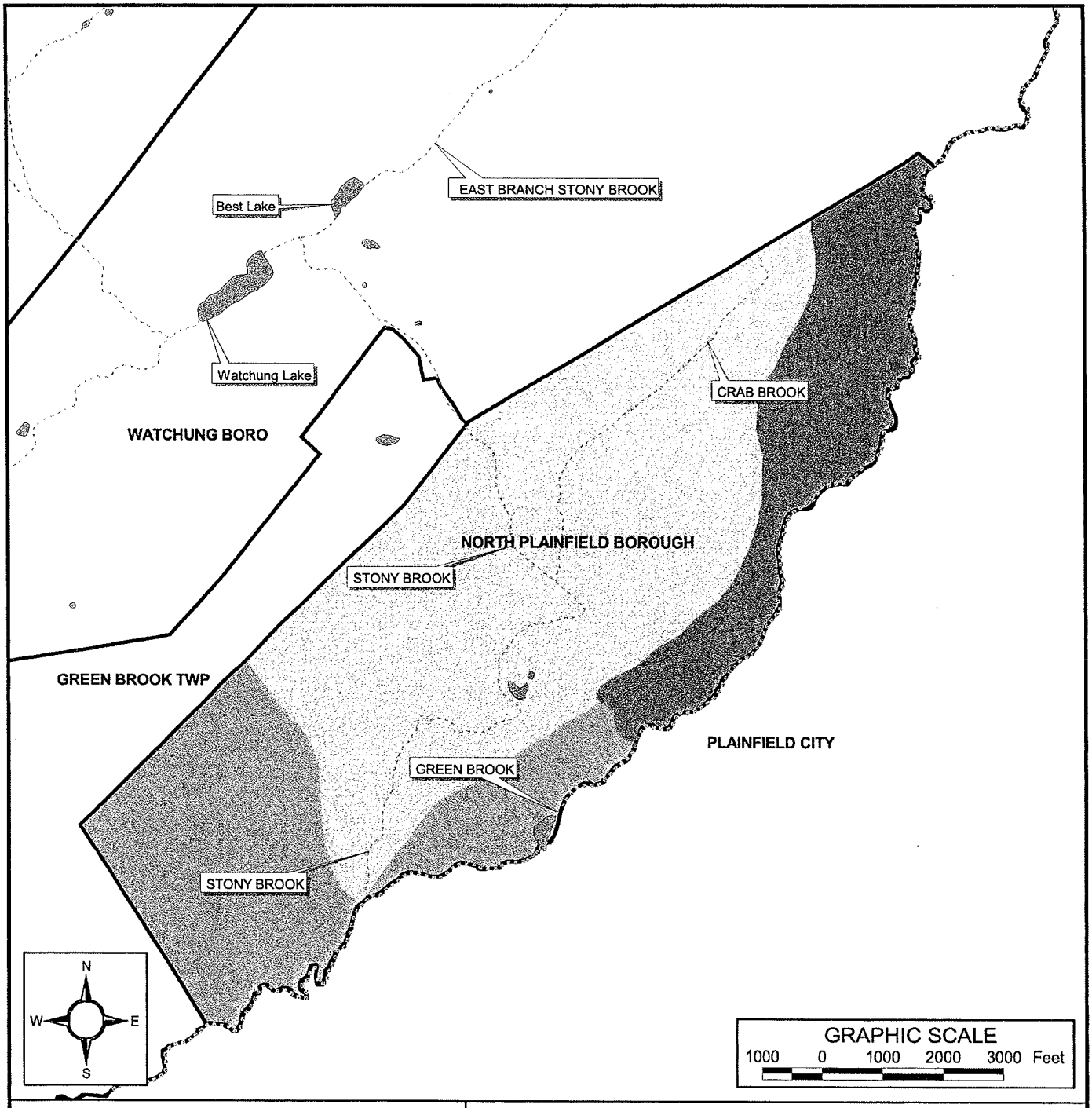
Drawn By: TS	Date: 4/15/05
Checked By: DS	Scale: As Noted
Project No. 046216-03	Figure 6



HYDROLOGIC UNITS (HUC14)

LEGEND:

- MUNICIPAL BOUNDARY
- LAKES
- STREAMS
- 02030105120020
- 02030105120030
- 02030105120040

SOURCE:
NJDEP digital GIS data.

BOROUGH OF NORTH PLAINFIELD
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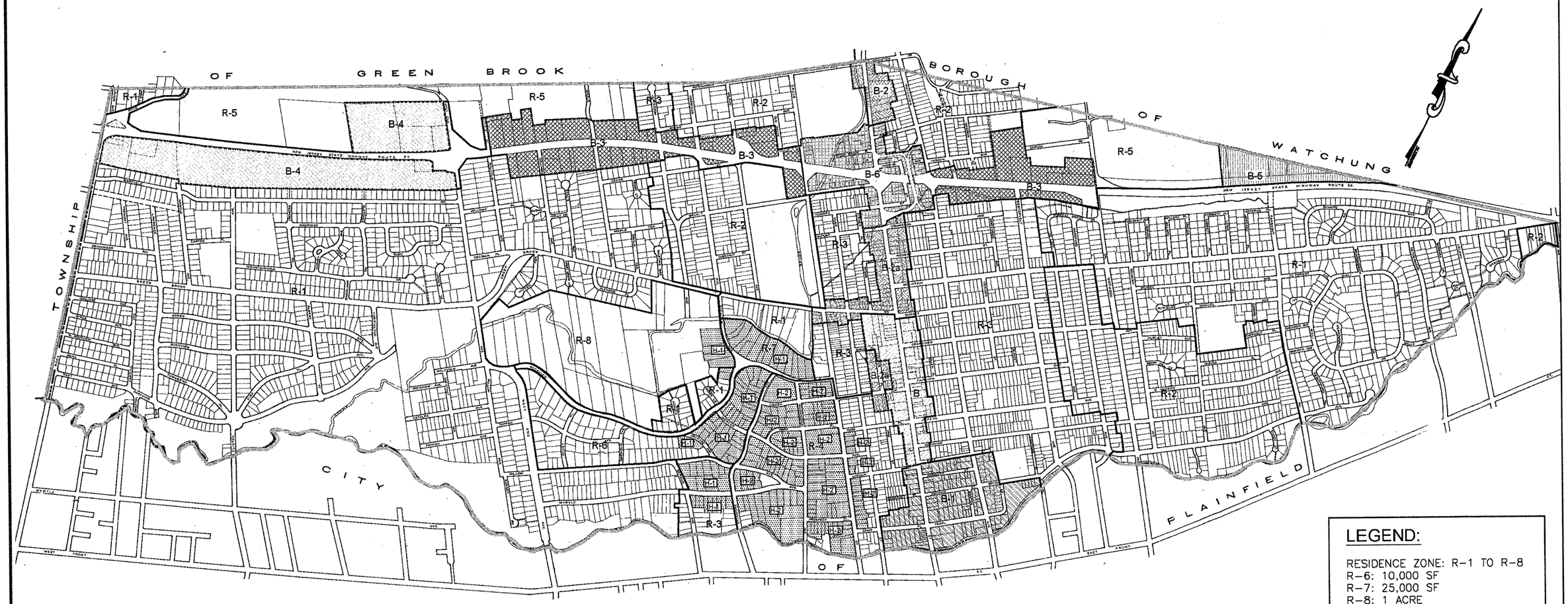
Drawn By: TS	Date: 4/15/05
Checked By: DS	Scale: As Noted
Project No. 046216-03	Figure 7



LEGEND:

RESIDENCE ZONE: R-1 TO R-8
R-6: 10,000 SF
R-7: 25,000 SF
R-8: 1 ACRE

BUSINESS ZONE:

- B
- B-1
- B-2& B-2a
- B-3
- B-4
- B-5
- B-6
- HD

GRAPHIC SCALE

0 600 1200 2400

SCALE: 1 INCH = 1200 FEET

SOURCE:
ZONING MAP INFORMATION TAKEN FROM
ORDINANCES OF NORTH PLAINFIELD BOROUGH,
MAP REVISED "APRIL 2005".

BOROUGH OF NORTH PLAINFIELD
263 SOMERSET STREET
SOMERSET COUNTY, NEW JERSEY

ZONING MAP

DRAWN BY: TS	DATE: 4/15/05		
CHECKED BY: DS	SCALE: AS NOTED		
PROJECT NO.: 046216-03	PLATE NO.: 8		

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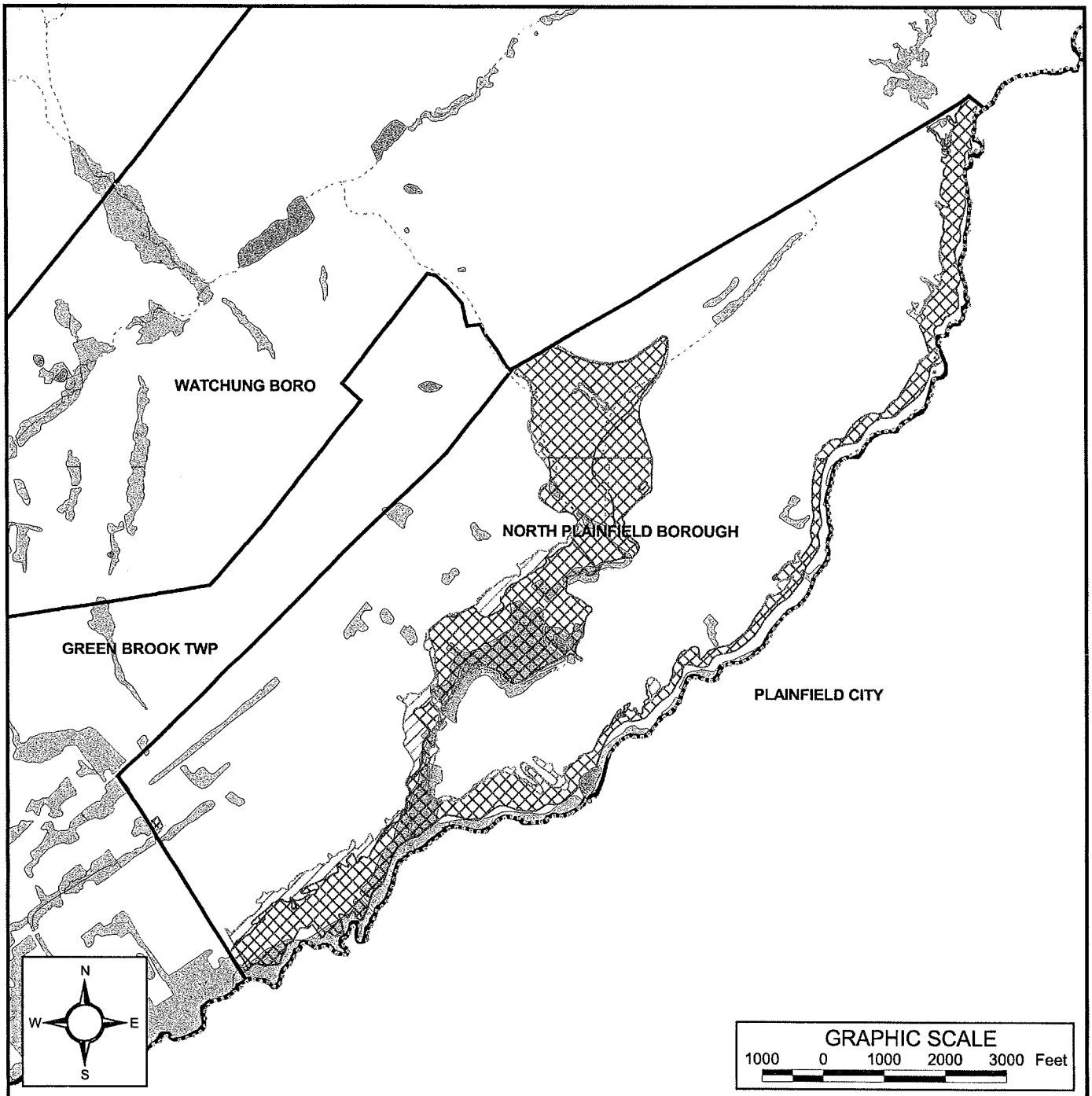
PROFESSIONAL ENGINEER LIC. NO. _____
DATE: _____ CERTIFICATE OF AUTHORIZATION #24GA28028000



CONSTRAINED LAND

LEGEND:

- MUNICIPAL BOUNDARY
- LAKES
- STREAMS
- 100- YEAR FLOOD PLAIN
- 500- YEAR FLOOD PLAIN
- WETLAND AREAS

SOURCE:
NJDEP digital GIS data.

BOROUGH OF NORTH PLAINFIELD
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Drawn By: TS	Date: 4/15/05
Checked By: DS	Scale: As Noted
Project No. 046216-03	Figure 9

Appendix 1: Stormwater Control Ordinance

§ 22-101. WATER RUN-OFF CONTROL.

§ 22-101.1. Purpose. [Ord. #679, S 9-201]

It is hereby determined that disastrous floods which have occurred over the last several years have caused significant damage to public and private property, health, safety, convenience, and general welfare of the community. It is further found that the significant increase in flood occurrences is partially due to an increase in stormwater runoff. The increase in the quantity of stormwater runoff is a result of the development of lands with impermeable surfaces in and around the community. It is therefore determined that the special public interest in the control of stormwater justifies the regulation of property located within the community as provided in this chapter.

§ 22-101.2. Regulation. [Ord. #679, S 9-202; Ord. #90-04, S 1; Ord. #06-16; Ord. #08-23]

a. No land area shall be developed by any person, partnership, corporation, municipal entity, or other public agency which shall increase the quantity or velocity of stormwater emanating from the development as a result of the construction of an impermeable surface or any other means which increases stormwater runoff, except in accordance with a permit issued therefor as provided by this chapter. All proposed developments within the Borough must comply with the Soil Erosions and Sediment Control Standards of New Jersey **[N.J.S.A. 4:24-39 et seq.]**

b. This chapter and the requirements and standards contained herein shall be applicable to any person, partnership, corporation, municipal entity, or public agency which shall by any means whatsoever develop land area, provided, however, the following exemptions from the requirements of this chapter shall be granted by the Construction Official or Borough Engineer:

    1. Any development or construction of any impervious surface which results in less than 150 square feet of impervious surface being added to any building lot.

    2. The repair, replacement, or renovation of an existing impermeable surface, regardless of size, when the repair, replacement or renovation does not increase the existing building lot coverage by impermeable surfaces, does not change the location of any impermeable surface on the building lot and is designed primarily to replace a deteriorated condition.

c. Application for Approval.

    1. In cases where the development of land involves the construction of a building or other facility requiring a construction permit, the Construction Official shall determine whether the development is exempt. If the character of the work to be undertaken by the applicant is found to be exempt, the Construction Official may proceed with the issuance of a construction permit. If the character of the work to be undertaken is such that requires review and approval with regard to the provisions of this chapter, the applicant shall proceed to submit an

application and other data as outlined in Subsection 22-101.2, paragraph d herein to the Borough Engineer. The Borough Engineer, through the Construction Official, upon completing his review of the application and data, shall either approve, conditionally disapprove, or disapprove the application. Upon approval or exemption the Construction Official may proceed with the issuance of a construction permit. If the application is approved, the Borough Engineer shall issue a permit. If conditionally disapproved by the Borough Engineer the application and data shall be returned to the applicant with appropriate comments and/or requirements to be incorporated into the data and resubmitted for approval, disapproval or exemption.

2. In cases where the development of land does not require a construction permit, the developer shall submit a preliminary application to the Borough Engineer. If the character of the development to be undertaken by the applicant is found to be exempt, the Borough Engineer shall so notify the applicant in writing and the applicant may proceed to develop the land area. If not exempt, the developer shall submit an application and other data as outlined in Subsection 22-101.2, paragraph d to the Borough Engineer. The Borough Engineer, upon completing his review of the application and data, shall either approve, disapprove or conditionally disapprove the application. If the application is approved, the Borough Engineer shall issue a permit. If conditionally disapproved by the Borough Engineer, the application and data shall be returned to the applicant with appropriate comments and/or requirements to be incorporated into the data and resubmitted for approval, disapproval or exemption.

d. Data Required. Any application submitted for approval must be accompanied by the following data, the payment of the appropriate fee and submitted at the appropriate time, provided, however, the Borough Engineer may waive the submission of any data in specific instances, when in his judgment, same is not necessary for a proper evaluation of the application. Developments and improvements meeting the definition of major development as provided under Subsection 22-101.2f, Stormwater Control Ordinance, shall comply with the requirements of that section.

1. Any development on single dwelling lot with a one or two family dwelling. Application to accompany request for construction permit.

   (a) Plot plan showing dimensions of property, proposed buildings, driveway, patios, sidewalks, etc., including area of each and every improvement.

   (b) One percolation test and soil log report for each dwelling lot when utilizing subsurface recharge system.

   (c) Topographical survey showing existing and proposed grades on the U.S. Coastal and Geodetic Survey Datum.

2. Major subdivision application to accompany preliminary subdivision application to Planning Board.

(a) Same data as required for preliminary subdivision approval.

(b) One percolation test and soil log report for each dwelling lot when utilizing subsurface recharge system.

(c) Design calculations.

(d) Detailed plans for retention-detention facilities.

3. Commercial Lots. Application to accompany site plan review application.

(a) Plot plan showing dimensions of property, proposed buildings, driveways, parking areas, etc., and areas of each and every improvement.

(b) Topographical survey showing existing and proposed grades on the U.S. Coastal and Geodetic Survey Datum.

(c) One percolation test and soil log report for each lot when utilizing subsurface recharge systems.

(d) Design calculations.

(e) Detailed plans for retention-detention facilities.

4. All Other Developments. Application to accompany site plan review or subdivision application if applicable, otherwise in accordance with Subsection 22-101.2, paragraph c.

Applications for a stormwater control permit which accompany subdivision and site plan applications shall be acted on by the Borough Engineer within the same time allotted for the necessary Board review and approval. All other applications which come before the Construction Official and/or the Borough Engineer shall be acted on within 21 days of submittal. All data accompanying a stormwater control application shall be prepared by a professional engineer and/or architect licensed in the State of New Jersey.

e. Design Standards. The intent of this section is to regulate and control stormwater runoff as it is increased as a result of development except as exempted by Subsection 22-101.2, paragraph b. For developments and improvements that do not meet the definition of major development as provided under Subsection 22-101.2f, Stormwater Control Ordinance, shall retain/detain water on site equal to the net difference in discharge as calculated before and after development. Design shall be based on the USDA Natural Resource Conservation Service (NRCS) methodology, including the NRCS Runoff Equation and Dimensionless Unit Hydrograph, as described in the NRCS National Engineering Handbook Section 4 — Hydrology and Technical Release 55 — Urban Hydrology for Small Watersheds or Rational Method for peak flow and the Modified Rational Method for Hydrograph computations. For peak flow developments and improvements meeting the definition of major development as provided under Subsection 22-101.2f, Stormwater Control Ordinance, design shall be based on the more stringent of the Stormwater Control Ordinance or the Handbook for Stormwater Detention Basins

as adopted by the Somerset County Planning Board, including all subsequent revisions. The following on-site water retention/detention facilities may be incorporated as prescribed for developments and improvements not meeting the definition of major development.

f. Stormwater Control. **[Amended 11-17-2020 by Ord. No. 20-10; 4-12-2021 by Ord. No. 21-01]**

1. Scope and Purpose:

(a) Policy Statement. Flood control, groundwater recharge, and pollutant reduction shall be achieved through the use of stormwater management measures, including green infrastructure best management practices (GI BMPs) and nonstructural stormwater management strategies. GI BMPs and low-impact development (LID) should be utilized to meet the goal of maintaining natural hydrology to reduce stormwater runoff volume, reduce erosion, encourage infiltration and groundwater recharge, and reduce pollution. GI BMPs and LID should be developed based upon physical site conditions and the origin, nature and the anticipated quantity, or amount, of potential pollutants. Multiple stormwater management BMPs may be necessary to achieve the established performance standards for water quality, quantity, and groundwater recharge.

(b) Purpose. The purpose of this subsection is to establish minimum stormwater management requirements and controls for "major development," as defined in Subsection f(2) below.

(c) Applicability.

(1) This subsection shall be applicable to all site plans and subdivisions for the following major developments that require preliminary or final site plan or subdivision review:

(i) Nonresidential major developments; and

(ii) Aspects of residential major developments that are not pre-empted by the Residential Site Improvement Standards at N.J.A.C. 5:21.

(2) This subsection shall also be applicable to all major developments undertaken by the Borough of North Plainfield.

(d) Compatibility with Other Permit and Ordinance Requirements. Development approvals issued pursuant to this subsection are to be considered an integral part of development approvals and do not relieve the applicant of the responsibility to secure required permits or approvals for activities regulated by any other applicable code, rule, act, or ordinance. In their interpretation and application, the provisions of this subsection shall be held to be the minimum requirements for the

promotion of the public health, safety and general welfare. This subsection is not intended to interfere with, abrogate, or annul any other ordinances, rule or regulation, statute, or other provision of law except that, where any provision of this subsection imposes restrictions different from those imposed by any other ordinance, rule or regulation, or other provision of law, the more restrictive provisions or higher standards shall control.

2. Definitions. For the purpose of this subsection, the following terms, phrases, words and their derivations shall have the meanings stated herein unless their use in the text of this subsection clearly demonstrates a different meaning. When not inconsistent with the context, words used in the present tense include the future, words used in the plural number include the singular number, and words used in the singular number include the plural number. The word "shall" is always mandatory and not merely directory or discretionary. The definitions below are the same as or based on the corresponding definitions in the Stormwater Management Rules at N.J.A.C. 7:8-1.2.

COMMUNITY BASIN — An infiltration system, sand filter designed to infiltrate, standard constructed wetland, or wet pond, established in accordance with N.J.A.C. 7:8-4.2(c)14, that is designed and constructed in accordance with the New Jersey Stormwater Best Management Practices Manual, or an alternate design, approved in accordance with N.J.A.C. 7:8-5.2(g), for an infiltration system, sand filter designed to infiltrate, standard constructed wetland, or wet pond and that complies with the requirements of this chapter.

COMPACTION — The increase in soil bulk density.

CONTRIBUTORY DRAINAGE AREA — The area from which stormwater runoff drains to a stormwater management measure, not including the area of the stormwater management measure itself.

CORE — A pedestrian-oriented area of commercial and civic uses serving the surrounding municipality, generally including housing and access to public transportation.

COUNTY REVIEW AGENCY — An agency designated by the Somerset County Board of Commissioners to review municipal stormwater management plans and implementing ordinance(s). The county review agency may either be:

(a) A county planning agency; or

(b) A county water resource association created under N.J.S.A. 58:16A-55.5, if the ordinance or resolution delegates authority to approve, conditionally approve, or disapprove municipal stormwater management plans and implementing ordinances.

DEPARTMENT — The New Jersey State Department of Environmental Protection.

DESIGN ENGINEER — A person professionally qualified and duly licensed in New Jersey to perform engineering services that may include, but not necessarily be limited to, development of project requirements, creation and development of project design and preparation of drawings and specifications.

DESIGNATED CENTER — A State Development and Redevelopment Plan Center as designated by the State Planning Commission such as urban, regional, town, village, or hamlet.

DEVELOPMENT — The division of a parcel of land into two (2) or more parcels, the construction, reconstruction, conversion, structural alteration, relocation or enlarge-enlargement of any building or structure, any mining excavation or landfill, and any use or change in the use of any building or other structure, or land or extension of use of land, for which permission is required under the Municipal Land Use Law, N.J.S.A. 40:55D-1 et. seq. In the case of development of agricultural land, "development" means any activity that requires a state permit, any activity reviewed by the County Agricultural Board (CAB) and the State Agricultural Development Committee (SADC), and municipal review of any activity not exempted by the Right to Farm Act, N.J.S.A. 4:1C-1 et. seq.

DISTURBANCE — The placement or reconstruction of impervious surface or motor vehicle surface, or exposure and/or movement of soil or bedrock or clearing, cutting, or removing of vegetation. Milling and repaving is not considered disturbance for the purposes of this definition.

DRAINAGE AREA — A geographic area within which stormwater, sediments, or dissolved materials drain to a particular receiving waterbody or to a particular point along a receiving waterbody.

EMPOWERMENT NEIGHBORHOODS — Neighborhoods designated by the Urban Coordinating Council "in consultation and conjunction with" the New Jersey Redevelopment Authority, pursuant to N.J.S.A. 55:19-69.

ENVIRONMENTALLY CONSTRAINED AREA — The following areas where the physical alteration of the land is in some way restricted, either through regulation, easement, deed restriction or ownership such as: wetlands, floodplains, threatened and endangered species sites or designated habitats, and parks and preserves. Habitats of endangered or threatened species are identified using the Department's Landscape Project as approved by the Department's Endangered and Nongame Species Program.

ENVIRONMENTALLY CRITICAL AREA — An area or feature which is of significant environmental value, including but not limited to: stream corridors, natural heritage priority sites, habitats of endangered or threatened species, large areas of contiguous open space or upland forest, steep slopes, and wellhead protection and groundwater recharge areas. Habitats of endangered or threatened species are identified using the Department's Landscape Project as approved by the Department's Endangered and Nongame Species Program.

EROSION — The detachment and movement of soil or rock fragments by

water, wind, ice, or gravity.

GREEN INFRASTRUCTURE — A stormwater management measure that manages stormwater close to its source by:

(a) Treating stormwater runoff through infiltration into subsoil;

(b) Treating stormwater runoff through filtration by vegetation or soil; or

(c) Storing stormwater runoff for reuse.

HUC 14 or HYDROLOGIC UNIT CODE 14 — An area within which water drains to a particular receiving surface water body, also known as a sub-watershed, which is identified by a 14-digit hydrologic unit boundary designation, delineated within New Jersey by the United States Geological Survey.

IMPERVIOUS SURFACE — A surface that has been covered with a layer of material so that it is highly resistant to infiltration by water.

INFILTRATION — The process by which water seeps into the soil from precipitation.

LEAD PLANNING AGENCY — One or more public entities having stormwater management planning authority designated by the regional stormwater management planning committee, pursuant to N.J.A.C. 7:8-3.2, that serves as the primary representative of the committee.

MAJOR DEVELOPMENT —

(a) An individual "development," as well as multiple developments that individually or collectively result in:

  (1) The disturbance of one (1) or more acres of land since February 2, 2004;

  (2) The creation of one-quarter (1/4) acre or more of "regulated impervious surface" since February 2, 2004;

  (3) The creation of one-quarter (1/4) acre or more of "regulated motor vehicle surface" since March 2, 2021; or

  (4) Combination of Subsection f2(a)(2) and (3) above that totals an area of one-quarter (1/4) acre or more. The same surface shall not be counted twice when determining if the combination area equals one-quarter (1/4) acre or more.

(b) Major development includes all developments that are part of a common plan of development or sale (for example, phased residential development) that collectively or individually meet any one or more of Subsection f(2)(a)(1), (2), (3) or (4) above. Projects undertaken by any government agency that otherwise meet the definition of "major development" but which do not require approval under the Municipal

Land Use Law, N.J.S.A. 40:55D-1 et. seq., are also considered major development.

MOTOR VEHICLE — Land vehicles propelled other than by muscular power, such as automobiles, motorcycles, autocycles, and low speed vehicles. For the purposes of this definition, motor vehicle does not include farm equipment, snowmobiles, all-terrain vehicles, motorized wheelchairs, go-carts, gas buggies, golf carts, ski-slope grooming machines, or vehicles that run only on rails or tracks.

MOTOR VEHICLE SURFACE — Any pervious or impervious surface that is intended to be used by "motor vehicles" and/or aircraft, and is directly exposed to precipitation including, but not limited to, driveways, parking areas, parking garages, roads, racetracks, and runways.

MUNICIPALITY — Any city, borough, town, township, or village.

NEW JERSEY STORMWATER BEST MANAGEMENT PRACTICES (BMP) MANUAL or BMP MANUAL — The manual maintained by the Department providing, in part, design specifications, removal rates, calculation methods, and soil testing procedures approved by the Department as being capable of contributing to the achievement of the stormwater management standards specified in this chapter. The BMP Manual is periodically amended by the Department as necessary to provide design specifications on additional best management practices and new information on already included practices reflecting the best available current information regarding the particular practice and the Department's determination as to the ability of that best management practice to contribute to compliance with the standards contained in this subsection. Alternative stormwater management measures, removal rates, or calculation methods may be utilized, subject to any limitations specified in this chapter, provided the design engineer demonstrates to the municipality, in accordance with Subsection f(4)(f) of this subsection and N.J.A.C. 7:8-5.2(g), that the proposed measure and its design will contribute to achievement of the design and performance standards established by this subsection.

NODE — An area designated by the State Planning Commission concentrating facilities and activities which are not organized in a compact form.

NUTRIENT — A chemical element or compound, such as nitrogen or phosphorus, which is essential to and promotes the development of organisms.

PERSON — Any individual, corporation, company, partnership, firm, association, the Borough of North Plainfield, or political subdivision of this state and any state, interstate or federal agency.

POLLUTANT — Any dredged spoil, solid waste, incinerator residue, filter backwash, sewage, garbage, refuse, oil, grease, sewage sludge, munitions, chemical wastes, biological materials, medical wastes, radioactive substance (except those regulated under the Atomic Energy Act of 1954, as amended

(42 U.S.C. §§ 2011 et seq.), thermal waste, wrecked or discarded equipment, rock, sand, cellar dirt, industrial, municipal, agricultural, and construction waste or runoff, or other residue discharged directly or indirectly to the land, ground waters or surface waters of the state, or to a domestic treatment works. "Pollutant" includes both hazardous and nonhazardous pollutants.

RECHARGE — The amount of water from precipitation that infiltrates into the ground and is not evapotranspired.

REGULATED IMPERVIOUS SURFACE — Any of the following, alone or in combination:

(a) A net increase of impervious surface;

(b) The total area of impervious surface collected by a new stormwater conveyance system (for the purpose of this definition, a "new stormwater conveyance system" is a stormwater conveyance system that is constructed where one did not exist immediately prior to its construction or an existing system for which a new discharge location is created);

(c) The total area of impervious surface proposed to be newly collected by an existing stormwater conveyance system; and/or

(d) The total area of impervious surface collected by an existing stormwater conveyance system where the capacity of that conveyance system is increased.

REGULATED MOTOR VEHICLE SURFACE — Any of the following, alone or in combination:

(a) The total area of motor vehicle surface that is currently receiving water;

(b) A net increase in motor vehicle surface; and/or quality treatment either by vegetation or soil, by an existing stormwater management measure, or by treatment at a wastewater treatment plant, where the water quality treatment will be modified or removed.

SEDIMENT — Solid material, mineral or organic, that is in suspension, is being transported, or has been moved from its site of origin by air, water or gravity as a product of erosion.

SITE — The lot or lots upon which a major development is to occur or has occurred.

SOIL — All unconsolidated mineral and organic material of any origin.

STATE DEVELOPMENT AND REDEVELOPMENT PLAN METROPOLITAN PLANNING AREA (PA1) — An area delineated on the State Plan Policy Map and adopted by the State Planning Commission that is intended to be the focus for much of the state's future redevelopment and revitalization efforts.

STATE PLAN POLICY MAP — The geographic application of the State

Development and Redevelopment Plan's goals and statewide policies, and the official map of these goals and policies.

STORMWATER — Water resulting from precipitation (including rain and snow) that runs off the land's surface, is transmitted to the subsurface, or is captured by separate storm sewers or other sewage or drainage facilities, or conveyed by snow removal equipment.

STORMWATER MANAGEMENT BMP — An excavation or embankment and related areas designed to retain stormwater runoff. A stormwater management BMP may either be normally dry (that is, a detention basin or infiltration system), retain water in a permanent pool (a retention basin), or be planted mainly with wetland vegetation (most constructed stormwater wetlands).

STORMWATER MANAGEMENT MEASURE — Any practice, technology, process, program, or other method intended to control or reduce stormwater runoff and associated pollutants, or to induce or control the infiltration or groundwater recharge of stormwater or to eliminate illicit or illegal non-stormwater discharges into stormwater conveyances.

STORMWATER MANAGEMENT PLANNING AGENCY — A public body authorized by legislation to prepare stormwater management plans.

STORMWATER MANAGEMENT PLANNING AREA — The geographic area for which a stormwater management planning agency is authorized to prepare stormwater management plans, or a specific portion of that area identified in a stormwater management plan prepared by that agency.

STORMWATER RUNOFF — Water flow on the surface of the ground or in storm sewers, resulting from precipitation.

URBAN COORDINATING COUNCIL EMPOWERMENT NEIGHBORHOOD — A neighborhood given priority access to state resources through the New Jersey Redevelopment Authority.

URBAN ENTERPRISE ZONES — A zone designated by the New Jersey Enterprise Zone Authority pursuant to the New Jersey Urban Enterprise Zones Act, N.J.S.A. 52:27H-60 et. seq.

URBAN REDEVELOPMENT AREA — Previously developed portions of areas:

(a) Delineated on the State Plan Policy Map (SPPM) as the Metropolitan Planning Area (PA1), Designated Centers, Cores or Nodes;

(b) Designated as Urban Enterprise Zones; and

(c) Designated as Urban Coordinating Council Empowerment Neighborhoods.

WATER CONTROL STRUCTURE — A structure within, or adjacent to, a water, which intentionally or coincidentally alters the hydraulic capacity, the

flood elevation resulting from the two-, 10-, or 100-year storm, flood hazard area limit, and/or floodway limit of the water. Examples of a water control structure may include a bridge, culvert, dam, embankment, ford (if above grade), retaining wall, and weir.

WATERS OF THE STATE — The ocean and its estuaries, all springs, streams, wetlands, and bodies of surface or groundwater, whether natural or artificial, within the boundaries of the State of New Jersey or subject to its jurisdiction.

WETLANDS or WETLAND — An area that is inundated or saturated by surface water or ground water at a frequency and duration sufficient to support, and that under normal circumstances does support, a prevalence of vegetation typically adapted for life in saturated soil conditions, commonly known as hydrophytic vegetation.

3. Design and Performance Standards for Stormwater Management Measures.

   (a) Stormwater management measures for major development shall be designed to provide erosion control, groundwater recharge, stormwater runoff quantity control, and stormwater runoff quality treatment as follows:

      (1) The minimum standards for erosion control are those established under the Soil and Sediment Control Act, N.J.S.A. 4:24-39 et. seq., and implementing rules at N.J.A.C. 2:90.

      (2) The minimum standards for groundwater recharge, stormwater quality, and stormwater runoff quantity shall be met by incorporating green infrastructure.

   (b) The standards in this subsection apply only to new major development and are intended to minimize the impact of stormwater runoff on water quality and water quantity in receiving water bodies and maintain groundwater recharge. The standards do not apply to new major development to the extent that alternative design and performance standards are applicable under a regional stormwater management plan or Water Quality Management Plan adopted in accordance with Department rules.

4. Stormwater Management Requirements for Major Development.

   (a) The development shall incorporate a maintenance plan for the stormwater management measures incorporated into the design of a major development in accordance with Subsection f10 of this subsection below.

   (b) Stormwater management measures shall avoid adverse impacts of concentrated flow on habitat for threatened and endangered species as documented in the Department's Landscape Project or Natural Heritage Database established under N.J.S.A. 13:1B-15.147 through 15.150,

particularly Helonias bullata (swamp pink) and/or Clemmys muhlenbergii (bog turtle).

(c) The following linear development projects are exempt from the groundwater recharge, stormwater runoff quality, and stormwater runoff quantity requirements of Subsection f4(p), (q), and (r) of this subsection:

(1) The construction of an underground utility line provided that the disturbed areas are revegetated upon completion;

(2) The construction of an aboveground utility line provided that the existing conditions are maintained to the maximum extent practicable; and

(3) The construction of a public pedestrian access, such as a sidewalk or trail with a maximum width of fourteen (14) feet, provided that the access is made of permeable material.

(d) A waiver from strict compliance from the green infrastructure, groundwater recharge, stormwater runoff quality, and stormwater runoff quantity requirements of Subsection f4(o), (p), (q), and (r) of this subsection may be obtained for the enlargement of an existing public roadway or railroad; or the construction or enlargement of a public pedestrian access, provided that the following conditions are met:

(1) The applicant demonstrates that there is a public need for the project that cannot be accomplished by any other means;

(2) The applicant demonstrates through an alternatives analysis, that through the use of stormwater management measures, the option selected complies with the requirements of Subsection f4(o), (p), (q), and (r) of this subsection to the maximum extent practicable;

(3) The applicant demonstrates that, in order to meet the requirements of Subsection f4(o), (p), (q), and (r) of this subsection, existing structures currently in use, such as homes and buildings, would need to be condemned; and

(4) The applicant demonstrates that it does not own or have other rights to areas, including the potential to obtain through condemnation lands not falling under Subsection 4(d)(3), of this subsection above within the upstream drainage area of the receiving stream, that would provide additional opportunities to mitigate the requirements of Subsection f4(o), (p), (q), and (r) of this subsection that were not achievable on site.

(e) Tables 1 through 3 below summarize the ability of stormwater best management practices identified and described in the New Jersey Stormwater Best Management Practices Manual to satisfy the green infrastructure, groundwater recharge, stormwater runoff quality and

stormwater runoff quantity standards specified in Subsection f4(o), (p), (q), and (r) of this subsection. When designed in accordance with the most current version of the New Jersey Stormwater Best Management Practices Manual, the stormwater management measures found at N.J.A.C. 7:8-5.2(f) Tables 5-1, 5-2 and 5-3 and listed below in Tables 1, 2 and 3 are presumed to be capable of providing stormwater controls for the design and performance standards as outlined in the tables below. Upon amendments of the New Jersey Stormwater Best Management Practices to reflect additions or deletions of BMPs meeting these standards, or changes in the presumed performance of BMPs designed in accordance with the New Jersey Stormwater BMP Manual, the Department shall publish in the New Jersey Registers a notice of administrative change revising the applicable table. The most current version of the BMP Manual can be found on the Department's website at: https://njstormwater.org/bmp_manual2.htm

(f) Where the BMP tables in the NJ Stormwater Management Rule are different due to updates or amendments with the tables in this subsection the BMP Tables in the Stormwater Management rule at N.J.A.C. 7:8-5.2(f) shall take precedence.

Table 1

Green Infrastructure BMPs for Groundwater Recharge, Stormwater Runoff Quality, and/or Stormwater Runoff Quantity

Best Management Practice	Stormwater Runoff Quality TSS Removal Rate (percent)	Stormwater Runoff Quantity	Groundwater Recharge	Minimum Separation from Seasonal High Water Table (feet)
Cistern	0	Yes	No	—
Dry well[a]	0	No	Yes	2
Grass swale	50 or less	No	No	2[e]
				1[f]
Green roof	0	Yes	No	—
Manufactured treatment device[a][g]	50 or 80	No	No	Dependent upon the device
Pervious paving system[a]	80	Yes	Yes[b]	2[b]
			No[c]	1[c]

Table 1

Green Infrastructure BMPs for Groundwater Recharge, Stormwater Runoff Quality, and/or Stormwater Runoff Quantity

Best Management Practice	Stormwater Runoff Quality TSS Removal Rate (percent)	Stormwater Runoff Quantity	Groundwater Recharge	Minimum Separation from Seasonal High Water Table (feet)
Small-scale bioretention basin[a]	80 or 90	Yes	Yes[b]	2[b]
			No[c]	1[c]
Small-scale infiltration basin[a]	80	Yes	Yes	2
Small-scale sand filter	80	Yes	Yes	2
Vegetative filter strip	60-80	No	No	—

(Notes corresponding to annotations (a) through (g) are found in the notes following Table 3.)

Table 2

Green Infrastructure BMPs for Stormwater Runoff Quantity

(or for Groundwater Recharge and/or Stormwater Runoff Quality with a Waiver or Variance from N.J.A.C. 7:8-5.3)

Best Management Practice	Stormwater Runoff Quality TSS Removal Rate	Stormwater Runoff Quantity	Groundwater Recharge	Minimum Separation from Seasonal High-Water Table (feet)
Bioretention system	80 or 90	Yes	Yes[b]	2[b]
			No[c]	1[c]
Infiltration basin	80	Yes	Yes	2

Table 2

Green Infrastructure BMPs for Stormwater Runoff Quantity

(or for Groundwater Recharge and/or Stormwater Runoff Quality with a Waiver or Variance from N.J.A.C. 7:8-5.3)

Best Management Practice	Stormwater Runoff Quality TSS Removal Rate	Stormwater Runoff Quantity	Groundwater Recharge	Minimum Separation from Seasonal High-Water Table (feet)
Sand filter[b]	80	Yes	Yes	2
Standard constructed wetland	90	Yes	No	N/A
Wet pond[d]	50-90	Yes	No	N/A

(Notes corresponding to annotations [b] through [d] are found in the notes following Table 3.)

Table 3

BMPs for Groundwater Recharge, Stormwater Runoff Quality, and/or Stormwater Runoff Quantity

only with a Waiver or Variance from N.J.A.C. 7:8-5.3

Best Management Practice	Stormwater Runoff Quality TSS Removal Rate	Stormwater Runoff Quantity	Groundwater Recharge	Minimum Separation from Seasonal High Water Table (feet)
Blue roof	0	Yes	No	N/A
Extended detention basin	40-60	Yes	No	1
Manufactured treatment device[h]	50 or 80	No	No	Dependent upon the device
Sand filter[c]	80	Yes	No	1

Table 3

BMPs for Groundwater Recharge, Stormwater Runoff Quality, and/or Stormwater Runoff Quantity

only with a Waiver or Variance from N.J.A.C. 7:8-5.3

Best Management Practice	Stormwater Runoff Quality TSS Removal Rate	Stormwater Runoff Quantity	Groundwater Recharge	Minimum Separation from Seasonal High Water Table (feet)
Subsurface gravel wetland	90	No	No	1
Wet pond	50-90	Yes	No	N/A

Notes to Tables 1, 2, and 3:

(a) Subject to the applicable contributory drainage area limitation specified at Subsection f4(o)(2);

(b) Designed to infiltrate into the subsoil;

(c) Designed with underdrains;

(d) Designed to maintain at least a ten (10) foot wide area of native vegetation along at least fifty (50%) percent of the shoreline and to include a stormwater runoff retention component designed to capture stormwater runoff for beneficial reuse, such as irrigation;

(e) Designed with a slope of less than two percent;

(f) Designed with a slope of equal to or greater than two percent;

(g) Manufactured treatment devices that meet the definition of green infrastructure at Subsection f2 of this subsection;

(h) Manufactured treatment devices that do not meet the definition of green infrastructure at Subsection f2 of this subsection.

(g) An alternative stormwater management measure, alternative removal rate, and/or alternative method to calculate the removal rate may be used if the design engineer demonstrates the capability of the proposed alternative stormwater management measure and/or the validity of the alternative rate or method to the municipality. A copy of any approved alternative stormwater management measure, alternative removal rate, and/or alternative method to calculate the removal rate shall be provided to the Department in accordance with Subsection f4(b) above of this

subsection. Alternative stormwater management measures may be used to satisfy the requirements at Subsection f4(o) of this subsection below only if the measures meet the definition of green infrastructure at Subsection f2 above. Alternative stormwater management measures that function in a similar manner to a BMP listed at Subsection f4(o)(2) of this subsection below are subject to the contributory drainage area limitation specified at Subsection f4(o)(2) of this subsection below for that similarly functioning BMP. Alternative stormwater management measures approved in accordance with this subsection that do not function in a similar manner to any BMP listed at Subsection f4(o)(2) of this subsection below shall have a contributory drainage area less than or equal to two and one-half (2.5) acres, except for alternative stormwater management measures that function similarly to cisterns, grass swales, green roofs, standard constructed wetlands, vegetative filter strips, and wet ponds, which are not subject to a contributory drainage area limitation. Alternative measures that function similarly to standard constructed wetlands or wet ponds shall not be used for compliance with the stormwater runoff quality standard unless a variance in accordance with N.J.A.C. 7:8-4.6 or a waiver from strict compliance in accordance with Subsection f4(d) of this subsection above is granted under Subsection f4(o) of this subsection below.

(h) Whenever the stormwater management design includes one or more BMPs that will infiltrate stormwater into subsoil, the design engineer shall assess the hydraulic impact on the groundwater table and design the site, so as to avoid adverse hydraulic impacts. Potential adverse hydraulic impacts include, but are not limited to, exacerbating a naturally or seasonally high water table, so as to cause surficial ponding, flooding of basements, or interference with the proper operation of subsurface sewage disposal systems or other subsurface structures within the zone of influence of the groundwater mound, or interference with the proper functioning of the stormwater management measure itself.

(i) Design standards for stormwater management measures are as follows:

(1) Stormwater management measures shall be designed to take into account the existing site conditions, including, but not limited to, environmentally critical areas; wetlands; flood-prone areas; slopes; depth to seasonal high water table; soil type, permeability, and texture; drainage area and drainage patterns; and the presence of solution-prone carbonate rocks (limestone);

(2) Stormwater management measures shall be designed to minimize maintenance, facilitate maintenance and repairs, and ensure proper functioning. Trash racks shall be installed at the intake to the outlet structure, as appropriate, and shall have parallel bars with one-inch spacing between the bars to the elevation of the water quality design storm. For elevations higher than the water quality design storm, the

parallel bars at the outlet structure shall be spaced no greater than one-third (1/3) the width of the diameter of the orifice or one-third (1/3) the width of the weir, with a minimum spacing between bars of one inch and a maximum spacing between bars of six (6) inches. In addition, the design of trash racks must comply with the requirements of Subsection f8(c) of this subsection below;

(3) Stormwater management measures shall be designed, constructed, and installed to be strong, durable, and corrosion resistant. Measures that are consistent with the relevant portions of the Residential Site Improvement Standards at N.J.A.C. 5:21-7.3, 7.4, and 7.5 shall be deemed to meet this requirement;

(4) Stormwater management BMPs shall be designed to meet the minimum safety standards for stormwater management BMPs at Subsection f8 of this subsection; and

(5) The size of the orifice at the intake to the outlet from the stormwater management BMP shall be a minimum of two and one-half (2 1/2) inches in diameter.

(j) Manufactured treatment devices may be used to meet the requirements of this subchapter, provided the pollutant removal rates are verified by the New Jersey Corporation for Advanced Technology and certified by the Department. Manufactured treatment devices that do not meet the definition of green infrastructure at Subsection f2 of this subsection may be used only under the circumstances described at Subsection f4(o)(4) of this subsection.

(k) Any application for a new agricultural development that meets the definition of major development at Subsection f2 of this subsection above. shall be submitted to the Soil Conservation District for review and approval in accordance with the requirements at Subsections f4(o), (p), (q), and (r) of this subsection below and any applicable Soil Conservation District guidelines for stormwater runoff quantity and erosion control. For purposes of this subsection, "agricultural development" means land uses normally associated with the production of food, fiber, and livestock for sale. Such uses do not include the development of land for the processing or sale of food and the manufacture of agriculturally related products.

(l) If there is more than one drainage area, the groundwater recharge, stormwater runoff quality and stormwater runoff quantity standards at Subsections f4(p), (q), and (r) of this subsection below shall be met in each drainage area, unless the runoff from the drainage areas converge onsite and no adverse environmental impact would occur as a result of compliance with any one or more of the individual standards being determined utilizing a weighted average of the results achieved for that individual standard across the affected drainage areas.

(m) Any stormwater management measure authorized under the municipal stormwater management plan or ordinance shall be reflected in a deed notice recorded in the office of the Somerset County Clerk. A form of deed notice shall be submitted to the municipality for approval prior to filing. The deed notice shall contain a description of the stormwater management measure(s) used to meet the green infrastructure, groundwater recharge, stormwater runoff quality, and stormwater runoff quantity standards at Subsections f4(o), (p), (q), and (r) of this subsection below and shall identify the location of the stormwater management measure(s) in NAD 1983 State Plane New Jersey FIPS 2900 US Feet or Latitude and Longitude in decimal degrees. The deed notice shall also reference the maintenance plan required to be recorded upon the deed pursuant to Subsection f10(b)(5) of this subsection. Prior to the commencement of construction, proof that the above required deed notice has been filed shall be submitted to the municipality. Proof that the required information has been recorded on the deed shall be in the form of either a copy of the complete recorded document or a receipt from the clerk or other proof of recordation provided by the recording office. However, if the initial proof provided to the municipality is not a copy of the complete recorded document, a copy of the complete recorded document shall be provided to the municipality within one hundred eighty (180) calendar days of the authorization granted by the Borough.

(n) A stormwater management measure approved under the municipal stormwater management plan or ordinance may be altered or replaced with the approval of the municipality, if the municipality determines that the proposed alteration or replacement meets the design and performance standards pursuant to Subsection f4 of this subsection and provides the same level of stormwater management as the previously approved stormwater management measure that is being altered or replaced. If an alteration or replacement is approved, a revised deed notice shall be submitted to the municipality for approval and subsequently recorded with the Office of the Somerset County Clerk and shall contain a description and location of the stormwater management measure, as well as reference to the maintenance plan, in accordance with Subsection f4(m) of this subsection above. Prior to the commencement of construction, proof that the above required deed notice has been filed shall be submitted to the municipality in accordance with Subsection f4(m) of this subsection above.

(o) Green Infrastructure Standards.

(1) This subsection specifies the types of green infrastructure BMPs that may be used to satisfy the groundwater recharge, stormwater runoff quality, and stormwater runoff quantity standards.

(2) To satisfy the groundwater recharge and stormwater runoff quality standards at Subsection f4(p) and (q) of this subsection, the design

engineer shall utilize green infrastructure BMPs identified in Table 1 at Subsection f4(f) of this subsection above and/or an alternative stormwater management measure approved in accordance with Subsection f4(g) of this subsection above. The following green infrastructure BMPs are subject to the following maximum contributory drainage area limitations:

Best Management Practice	Maximum Contributory Drainage Area
Dry well	1 acre
Manufactured treatment device	2.5 acres
Pervious pavement systems	Area of additional inflow cannot exceed three times the area occupied by the BMP
Small-scale bioretention systems	2.5 acres
Small-scale infiltration basin	2.5 acres
Small-scale sand filter	2.5 acres

(3) To satisfy the stormwater runoff quantity standards at Subsection f4(r) of this subsection below, the design engineer shall utilize BMPs from Table 1 or from Table 2 and/or an alternative stormwater management measure approved in accordance with Subsection f4(g) of this subsection.

(4) If a variance in accordance with N.J.A.C. 7:8-4.6 or a waiver from strict compliance in accordance with Subsection f4(d) of this subsection above is granted from the requirements of this subsection, then BMPs from Table 1, 2, or 3 and/or an alternative stormwater management measure approved in accordance with Subsection f4(g) of this subsection above may be used to meet the groundwater recharge, stormwater runoff quality, and stormwater runoff quantity standards at Subsection f4(q), (p), and (r) of this subsection herein and below.

(5) For separate or combined storm sewer improvement projects, such as sewer separation, undertaken by a government agency or public utility (for example, a sewerage company), the requirements of this subsection shall only apply to areas owned in fee simple by the government agency or utility and areas within a right-of-way or easement held or controlled by the government agency or utility. The entity shall not be required to obtain additional property or property rights to fully satisfy the requirements of this subsection. Regardless of the amount of area of a separate or combined storm sewer improvement project subject to the green infrastructure

requirements of this subsection, each project shall fully comply with the applicable groundwater recharge, stormwater runoff quality control, and stormwater runoff quantity standards at Subsection f4(q), (p) and (r) of this subsection herein and below, unless the project is granted a waiver from strict compliance in accordance with Subsection f4(d) of this subsection above.

(p) Groundwater Recharge Standards.

(1) This subsection contains the minimum design and performance standards for groundwater recharge as follows:

(2) The design engineer shall, using the assumptions and factors for stormwater runoff and groundwater recharge calculations at Subsection f5, either:

(i) Demonstrate through hydrologic and hydraulic analysis that the site and its stormwater management measures maintain one hundred (100%) percent of the average annual pre-construction groundwater recharge volume for the site; or

(ii) Demonstrate through hydrologic and hydraulic analysis that the increase of stormwater runoff volume from pre-construction to post-construction for the two (2) year storm is infiltrated.

(3) This groundwater recharge requirement does not apply to projects within the urban redevelopment area, or to projects subject to Subsection f4 of this subsection below.

(4) The following types of stormwater shall not be recharged:

(i) Stormwater from areas of high pollutant loading. High pollutant loading areas are areas in industrial and commercial developments where solvents and/or petroleum products are loaded/unloaded, stored, or applied, areas where pesticides are loaded/unloaded or stored; areas where hazardous materials are expected to be present in greater than "reportable quantities" as defined by the United States Environmental Protection Agency (EPA) at 40 CFR 302.4; areas where recharge would be inconsistent with Department-approved remedial action work plan or landfill closure plan and areas with high risks for spills of toxic materials, such as gas stations and vehicle maintenance facilities; and

(ii) Industrial stormwater exposed to source material. "Source material" means any material(s) or machinery, located at an industrial facility, that is directly or indirectly related to process, manufacturing or other industrial activities, which could be a source of pollutants in any industrial stormwater discharge to groundwater. Source materials include, but are not

limited to, raw materials; intermediate products; final products; waste materials; by-products; industrial machinery and fuels, and lubricants, solvents, and detergents that are related to process, manufacturing, or other industrial activities that are exposed to stormwater.

(q) Stormwater Runoff Quality Standards.

(1) This subsection contains the minimum design and performance standards to control stormwater runoff quality impacts of major development. Stormwater runoff quality standards are applicable when the major development results in an increase of one-quarter acre or more of regulated motor vehicle surface.

(2) Stormwater management measures shall be designed to reduce the post-construction load of total suspended solids (TSS) in stormwater runoff generated from the water quality design storm as follows:

(i) Eighty (80%) percent TSS removal of the anticipated load, expressed as an annual average shall be achieved for the stormwater runoff from the net increase of motor vehicle surface.

(ii) If the surface is considered regulated motor vehicle surface because the water quality treatment for an area of motor vehicle surface that is currently receiving water quality treatment either by vegetation or soil, by an existing stormwater management measure, or by treatment at a wastewater treatment plant is to be modified or removed, the project shall maintain or increase the existing TSS removal of the anticipated load expressed as an annual average.

(3) The requirement to reduce TSS does not apply to any stormwater runoff in a discharge regulated under a numeric effluent limitation for TSS imposed under the New Jersey Pollutant Discharge Elimination System (NJPDES) rules, N.J.A.C. 7:14A, or in a discharge specifically exempt under a NJPDES permit from this requirement. Every major development, including any that discharge into a combined sewer system, shall comply with Subsection f4(q)(2) of this subsection above, unless the major development is itself subject to a NJPDES permit with a numeric effluent limitation for TSS or the NJPDES permit to which the major development is subject exempts the development from a numeric effluent limitation for TSS.

(4) The water quality design storm is one and one-quarter (1.25) inches of rainfall in two (2) hours. Water quality calculations shall take into account the distribution of rain from the water quality design storm, as reflected in Table 4, below. The calculation of the volume of

runoff may take into account the implementation of stormwater management measures.

(5) If more than one BMP in series is necessary to achieve the required eighty (80%) percent TSS reduction for a site, the applicant shall utilize the following formula to calculate TSS reduction:

$$R = A + B - (A \times B)/100$$

Where:

R	=	Total TSS Percent Load Removal from application of both BMPs.
A	=	The TSS Percent Removal Rate applicable to the first BMP.
B	=	The TSS Percent Removal Rate applicable to the second BMP.

Table 4 - Water Quality Design Storm Distribution

Time (Minutes)	Cumulative Rainfall (Inches)	Time (Minutes)	Cumulative Rainfall (Inches)	Time (Minutes)	Cumulative Rainfall (Inches)
1	0.00166	41	0.1728	81	1.0906
2	0.00332	42	0.1796	82	1.0972
3	0.00498	43	0.1864	83	1.1038
4	0.00664	44	0.1932	84	1.1104
5	0.00830	45	0.2000	85	1.1170
6	0.00996	46	0.2117	86	1.1236
7	0.01162	47	0.2233	87	1.1302
8	0.01328	48	0.2350	88	1.1368
9	0.01494	49	0.2466	89	1.1434
10	0.01660	50	0.2583	90	1.1500
11	0.01828	51	0.2783	91	1.1550
12	0.01996	52	0.2983	92	1.1600
13	0.02164	53	0.3183	93	1.1650
14	0.02332	54	0.3383	94	1.1700
15	0.02500	55	0.3583	95	1.1750
16	0.03000	56	0.4116	96	1.1800
17	0.03500	57	0.4650	97	1.1850

Table 4 - Water Quality Design Storm Distribution

Time (Minutes)	Cumulative Rainfall (Inches)	Time (Minutes)	Cumulative Rainfall (Inches)	Time (Minutes)	Cumulative Rainfall (Inches)
18	0.04000	58	0.5183	98	1.1900
19	0.04500	59	0.5717	99	1.1950
20	0.05000	60	0.6250	100	1.2000
21	0.05500	61	0.6783	101	1.2050
22	0.06000	62	0.7317	102	1.2100
23	0.06500	63	0.7850	103	1.2150
24	0.07000	64	0.8384	104	1.2200
25	0.07500	65	0.8917	105	1.2250
26	0.08000	66	0.9117	106	1.2267
27	0.08500	67	0.9317	107	1.2284
28	0.09000	68	0.9517	108	1.2300
29	0.09500	69	0.9717	109	1.2317
30	0.10000	70	0.9917	110	1.2334
31	0.10660	71	1.0034	111	1.2351
32	0.11320	72	1.0150	112	1.2367
33	0.11980	73	1.0267	113	1.2384
34	0.12640	74	1.0383	114	1.2400
35	0.13300	75	1.0500	115	1.2417
36	0.13960	76	1.0568	116	1.2434
37	0.14620	77	1.0636	117	1.2450
38	0.15280	78	1.0704	118	1.2467
39	0.15940	79	1.0772	119	1.2483
40	0.16600	80	1.0840	120	1.2500

(6) Stormwater management measures shall also be designed to reduce, to the maximum extent feasible, the post-construction nutrient load of the anticipated load from the developed site in stormwater runoff generated from the water quality design storm. In achieving reduction of nutrients to the maximum extent feasible, the design of the site shall include green infrastructure BMPs that optimize nutrient removal while still achieving the performance standards in Subsection f4(p), (q) and (r) of this subsection above, herein and

below.

(7) In accordance with the definition of "FW1" at N.J.A.C. 7:9B-1.4, stormwater management measures shall be designed to prevent any increase in stormwater runoff to waters classified as FW1.

(8) The Flood Hazard Area Control Act Rules at N.J.A.C. 7:13-4.1(c)1 establish three hundred (300)[-] foot riparian zones along Category One waters, as designated in the Surface Water Quality Standards at N.J.A.C. 7:9B, and certain upstream tributaries to Category One waters. A person shall not undertake a major development that is located within or discharges into a three hundred (300) foot riparian zone without prior authorization from the Department under N.J.A.C. 7:13.

(9) Pursuant to the Flood Hazard Area Control Act Rules at N.J.A.C. 7:13-11.2(j)3.i, runoff from the water quality design storm that is discharged within a three hundred (300) foot riparian zone shall be treated in accordance with this subsection to reduce the post-construction load of total suspended solids by ninety five (95%) percent of the anticipated load from the developed site, expressed as an annual average.

(10) This stormwater runoff quality standards do not apply to the construction of one (1) individual single-family dwelling, provided that it is not part of a larger development or subdivision that has received preliminary or final site plan approval prior to December 3, 2018, and that the motor vehicle surfaces are made of permeable material(s) such as gravel, dirt, and/or shells.

(r) Stormwater Runoff Quantity Standards.

(1) This subsection contains the minimum design and performance standards to control stormwater runoff quantity impacts of major development.

(2) In order to control stormwater runoff quantity impacts, the design engineer shall, using the assumptions and factors for stormwater runoff calculations at Subsection f5 of this subsection, complete one of the following:

(i) Demonstrate through hydrologic and hydraulic analysis that for stormwater leaving the site, post-construction runoff hydrographs for the two (2)-, ten (10)-, and one hundred (100)-year storm events do not exceed, at any point in time, the pre-construction runoff hydrographs for the same storm events;

(ii) Demonstrate through hydrologic and hydraulic analysis that there is no increase, as compared to the pre-construction condition, in the peak runoff rates of stormwater leaving the

site for the two (2)-, ten (10)- and one hundred (100)-year storm events and that the increased volume or change in timing of stormwater runoff will not increase flood damage at or downstream of the site. This analysis shall include the analysis of impacts of existing land uses and projected land uses assuming full development under existing zoning and land use ordinances in the drainage area;

(iii) Design stormwater management measures so that the post-construction peak runoff rates for the two (2)-, ten (10)- and one hundred (100)-year storm events are fifty (50%) percent, seventy-five (75%) percent and eighty (80%) percent, respectively, of the pre-construction peak runoff rates. The percentages apply only to the post-construction stormwater runoff that is attributable to the portion of the site on which the proposed development or project is to be constructed.

(3) The stormwater runoff quantity standards shall be applied at the site's boundary to each abutting lot, roadway, watercourse, or receiving storm sewer system.

5. Calculation of Stormwater Runoff and Groundwater Recharge:

(a) Stormwater runoff shall be calculated in accordance with the following:

(1) The design engineer shall calculate runoff using one of the following methods:

(i) The USDA Natural Resources Conservation Service (NRCS) methodology, including the NRCS Runoff Equation and Dimensionless Unit Hydrograph, as described in Chapters 7, 9, 10, 15 and 16 Part 630, Hydrology National Engineering Handbook, incorporated herein by reference as amended and supplemented. This methodology is additionally described in Technical Release 55 - Urban Hydrology for Small Watersheds (TR-55), dated June 1986, incorporated herein by reference as amended and supplemented. Information regarding the methodology is available from the Natural Resources Conservation Service website at: https://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb1044171.pdf or at United States Department of Agriculture Natural Resources Conservation Service, 220 Davison Avenue, Somerset, New Jersey 08873; or

(ii) The Rational Method for peak flow and the Modified Rational Method for hydrograph computations. The rational and modified rational methods are described in "Appendix A-9 Modified Rational Method" in the Standards for Soil Erosion and Sediment Control in New Jersey, January 2014. This

document is available from the State Soil Conservation Committee or any of the Soil Conservation Districts listed at N.J.A.C. 2:90-1.3(a)3. The location, address, and telephone number for each Soil Conservation District is available from the State Soil Conservation Committee, PO Box 330, Trenton, New Jersey 08625. The document is also available at: http://www.nj.gov/agriculture/divisions/anr/pdf/ 2014NJSoilErosionControlStandardsCo mplete.pdf.

(2) For the purpose of calculating runoff coefficients and groundwater recharge, there is a presumption that the pre-construction condition of a site or portion thereof is a wooded land use with good hydrologic condition. The term "runoff coefficient" applies to both the NRCS methodology above at Subsection f5(a)(1)(i) and the Rational and Modified Rational Methods at Subsection f5(a)(1)(ii). A runoff coefficient or a groundwater recharge land cover for an existing condition may be used on all or a portion of the site if the design engineer verifies that the hydrologic condition has existed on the site or portion of the site for at least five (5) years without interruption prior to the time of application. If more than one land cover have existed on the site during the five (5) years immediately prior to the time of application, the land cover with the lowest runoff potential shall be used for the computations. In addition, there is the presumption that the site is in good hydrologic condition (if the land use type is pasture, lawn, or park), with good cover (if the land use type is woods), or with good hydrologic condition and conservation treatment (if the land use type is cultivation).

(3) In computing pre-construction stormwater runoff, the design engineer shall account for all significant land features and structures, such as ponds, wetlands, depressions, hedgerows, or culverts, that may reduce pre-construction stormwater runoff rates and volumes.

(4) In computing stormwater runoff from all design storms, the design engineer shall consider the relative stormwater runoff rates and/or volumes of pervious and impervious surfaces separately to accurately compute the rates and volume of stormwater runoff from the site. To calculate runoff from unconnected impervious cover, urban impervious area modifications as described in the NRCS Technical Release 55 - Urban Hydrology for Small Watersheds or other methods may be employed.

(5) If the invert of the outlet structure of a stormwater management measure is below the flood hazard design flood elevation as defined at N.J.A.C. 7:13, the design engineer shall take into account the effects of tailwater in the design of structural stormwater management measures.

(b) Groundwater recharge may be calculated in accordance with the following: The New Jersey Geological Survey Report GSR-32, A Method for Evaluating Groundwater-Recharge Areas in New Jersey, incorporated herein by reference as amended and supplemented. Information regarding the methodology is available from the New Jersey Stormwater Best Management Practices Manual; at the New Jersey Geological Survey website at:https://www.nj.gov/dep/njgs/pricelst/gsreport/gsr32.pdf or at New Jersey Geological and Water Survey, 29 Arctic Parkway, PO Box 420 Mail Code 29-01, Trenton, New Jersey 08625-0420.

6. Sources for Technical Guidance:

(a) Technical guidance for stormwater management measures can be found in the documents listed below, which are available to download from the Department's website at: http://www.nj.gov/dep/stormwater/bmp_manual2.htm.

(1) Guidelines for stormwater management measures are contained in the New Jersey Stormwater Best Management Practices Manual, as amended and supplemented. Information is provided on stormwater management measures such as, but not limited to, those listed in Tables 1, 2, and 3.

(2) Additional maintenance guidance is available on the Department's website at: https://www.njstormwater.org/maintenance_guidance.htm.

(b) Submissions required for review by the Department should be mailed to: The Division of Water Quality, New Jersey Department of Environmental Protection, Mail Code 401-02B, PO Box 420, Trenton, New Jersey 08625-0420.

7. Solids and Floatable Materials Control Standards.

(a) Site design features identified under Subsection f4(f) above, or alternative designs in accordance with Subsection f4(g) above, to prevent discharge of trash and debris from drainage systems shall comply with the following standard to control passage of solid and floatable materials through storm drain inlets. For purposes of this subsection, "solid and floatable materials" means sediment, debris, trash, and other floating, suspended, or settleable solids. For exemptions to this standard see Subsection f7(a)(2) below.

(1) Design engineers shall use one of the following grates whenever they use a grate in pavement or another ground surface to collect stormwater from that surface into a storm drain or surface waterbody under that grate:

(i) The New Jersey Department of Transportation (NJDOT)

§ 22-101.2

bicycle safe grate, which is described in Chapter 2.4 of the NJDOT Bicycle Compatible Roadways and Bikeways Planning and Design Guidelines; or

(ii) A different grate, if each individual clear space in that grate has an area of no more than seven (7.0) square inches, or is no greater than one half of one (0.5) inch across the smallest dimension.

[a] Examples of grates subject to this standard include grates in grate inlets, the grate portion (non-curb-opening portion) of combination inlets, grates on storm sewer manholes, ditch grates, trench grates, and grates of spacer bars in slotted drains. Examples of ground surfaces include surfaces of roads (including bridges), driveways, parking areas, bikeways, plazas, sidewalks, lawns, fields, open channels, and stormwater system floors used to collect stormwater from the surface into a storm drain or surface water body.

(iii) For curb-opening inlets, including curb-opening inlets in combination inlets, the clear space in that curb opening, or each individual clear space if the curb opening has two or more clear spaces, shall have an area of no more than seven (7.0) square inches, or be no greater than two (2.0) inches across the smallest dimension.

(2) The standard in Subsection f7(a)(1) of this subsection above does not apply:

(i) Where each individual clear space in the curb opening in existing curb-opening inlet does not have an area of more than nine (9.0) square inches;

(ii) Where the municipality agrees that the standards would cause inadequate hydraulic performance that could not practicably be overcome by using additional or larger storm drain inlets;

(iii) Where flows from the water quality design storm as specified in N.J.A.C. 7:8 are conveyed through any device (e.g., end of pipe netting facility, manufactured treatment device, or a catch basin hood) that is designed, at a minimum, to prevent delivery of all solid and floatable materials that could not pass through one of the following:

[a] A rectangular space four and five-eighths (4.625) inches long and one and one-half (1.5) inches wide (this option does not apply for outfall netting facilities); or

[b] A bar screen having a bar spacing of one-half (0.5) inch.

Note that these exemptions do not authorize any infringement of requirements in the Residential Site Improvement Standards for bicycle safe grates in new residential development [N.J.A.C. 5:21-4.18(b)2 and 7.4(b)1].

(iv) Where flows are conveyed through a trash rack that has parallel bars with one-inch (1 inch) spacing between the bars, to the elevation of the Water Quality Design Storm as specified in N.J.A.C. 7:8; or

(v) Where the New Jersey Department of Environmental Protection determines, pursuant to the New Jersey Register of Historic Places Rules at N.J.A.C. 7:4-7.2(c), that action to meet this standard is an undertaking that constitutes an encroachment or will damage or destroy the New Jersey Register listed historic property.

8. Safety Standards for Stormwater Management Basins:

(a) This section sets forth requirements to protect public safety through the proper design and operation of stormwater management BMPs. This section applies to any new stormwater management BMP.

(b) The provisions of this section are not intended to preempt more stringent municipal or county safety requirements for new or existing stormwater management BMPs. Municipal and county stormwater management plans and ordinances may, pursuant to their authority, require existing stormwater management BMPs to be retrofitted to meet one or more of the safety standards in Subsections f8(c)(1), f8(c)(2) of this subsection below and f8(c)(3) of this subsection below for trash racks, overflow grates, and escape provisions at outlet structures.

(c) Requirements for Trash Racks, Overflow Grates and Escape Provisions.

(1) A trash rack is a device designed to catch trash and debris and prevent the clogging of outlet structures. Trash racks shall be installed at the intake to the outlet from the Stormwater management BMP to ensure proper functioning of the BMP outlets in accordance with the following:

(i) The trash rack shall have parallel bars, with no greater than six-inch spacing between the bars;

(ii) The trash rack shall be designed so as not to adversely affect the hydraulic performance of the outlet pipe or structure;

(iii) The average velocity of flow through a clean trash rack is not to exceed two and one-half (2.5) feet per second under the full range of stage and discharge. Velocity is to be computed on the

basis of the net area of opening through the rack; and

(iv) The trash rack shall be constructed of rigid, durable, and corrosion resistant material and designed to withstand a perpendicular live loading of three hundred (300) pounds per square foot.

(2) An overflow grate is designed to prevent obstruction of the overflow structure. If an outlet structure has an overflow grate, such grate shall meet the following requirements:

(i) The overflow grate shall be secured to the outlet structure but removable for emergencies and maintenance.

(ii) The overflow grate spacing shall be no less than two (2) inches across the smallest dimension.

(iii) The overflow grate shall be constructed and installed to be rigid, durable, and corrosion resistant, and shall be designed to withstand a perpendicular live loading of three hundred (300) pounds per square foot.

(3) Stormwater management BMPs shall include escape provisions as follows:

(i) If a stormwater management BMP has an outlet structure, escape provisions shall be incorporated in or on the structure. Escape provisions include the installation of permanent ladders, steps, rungs, or other features that provide easily accessible means of egress from stormwater management BMPs. With the prior approval of the Borough, pursuant to Subsection f8(c) of this subsection herein, a freestanding outlet structure may be exempted from this requirement;

(ii) Safety ledges shall be constructed on the slopes of all new stormwater management BMPs having a permanent pool of water deeper than two and one-half (2 1/2) feet. Safety ledges shall be comprised of two (2) steps. Each step shall be four (4) to six (6) feet in width. One step shall be located approximately two and one-half (2 1/2) feet below the permanent water surface, and the second (2nd) step shall be located one to one and one-half (1 1/2) feet above the permanent water surface. See Subsection f8(e) of this subsection below for an illustration of safety ledges in a stormwater management BMP; and

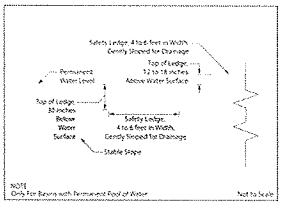
(iii) In new stormwater management BMPs, the maximum interior slope for an earthen dam, embankment, or berm shall not be steeper than three (3) horizontal to one (1) vertical.

(d) Variance or Exemption from Safety Standard. A variance or exemption

from the safety standards for stormwater management BMPs may be granted only upon a written finding by the Borough that the variance or exemption will not constitute a threat to public safety.

(e) Safety Ledge Illustration.

Elevation View - Basin Safety Ledge Configuration



9. Requirements for a Site Development Stormwater Plan:

(a) Submission of Site Development Stormwater Plan.

(1) Whenever an applicant seeks municipal approval of a development subject to this subsection, the applicant shall submit all of the required components of the Checklist for the Site Development Stormwater Plan at Subsection f9(c) of this subsection below as part of the submission of the application for approval.

(2) The applicant shall demonstrate that the project meets the standards set forth in this subsection.

(3) The applicant shall submit fifteen (15) copies of the materials listed in the checklist for site development stormwater plans in accordance with Subsection f9(c) of this subsection below.

(b) Site Development Stormwater Plan Approval. The applicant's Site Development project shall be reviewed as a part of the review process by the municipal board or official from which municipal approval is sought. That municipal board or official shall consult the municipality's review engineer to determine if all of the checklist requirements have been satisfied and to determine if the project meets the standards set forth in this subsection.

(c) Submission of Site Development Stormwater Plan. The following information shall be required:

(1) Topographic Base Map. The reviewing engineer may require upstream tributary drainage system information as necessary. It is recommended that the topographic base map of the site be submitted which extends a minimum of two hundred (200) feet beyond the limits of the proposed development, at a scale of 1"=200' or greater, showing two (2) foot contour intervals. The map, as appropriate,

may indicate the following: existing surface water drainage, shorelines, steep slopes, soils, erodible soils, perennial or intermittent streams that drain into or upstream of the Category One waters, wetlands and flood plains along with their appropriate buffer strips, marshlands and other wetlands, pervious or vegetative surfaces, existing man-made structures, roads, bearing and distances of property lines and significant natural and manmade features not otherwise shown.

(2) Environmental Site Analysis. A written and graphic description of the natural and man-made features of the site and its surroundings should be submitted. This description should include a discussion of soil conditions, slopes, wetlands, waterways and vegetation on the site. Particular attention should be given to unique, unusual, or environmentally sensitive features and to those that provide particular opportunities or constraints for development.

(3) Project Description and Site Plans. A map (or maps) at the scale of the topographical base map indicating the location of existing and proposed buildings roads, parking areas, utilities, structural facilities for stormwater management and sediment control, and other permanent structures. The map(s) shall also clearly show areas where alterations will occur in the natural terrain and cover, including lawns and other landscaping, and seasonal high groundwater elevations. A written description of the site plan and justification for proposed changes in natural conditions shall also be provided.

(4) Land Use Planning and Source Control Plan. This plan shall provide a demonstration of how the goals and standards of Subsections f3 through 5 of this subsection above are being met. The focus of this plan shall be to describe how the site is being developed to meet the objective of controlling groundwater recharge, stormwater quality and stormwater quantity problems at the source by land management and source controls whenever possible.

(5) Stormwater Management Facilities Map. The following information, illustrated on a map of the same scale as the topographic base map, shall be included:

(i) Total area to be disturbed, paved or built upon, proposed surface contours, land area to be occupied by the stormwater management facilities and the type of vegetation thereon, and details of the proposed plan to control and dispose of stormwater.

(ii) Details of all stormwater management facility designs, during and after construction, including discharge provisions, discharge capacity for each outlet at different levels of

detention and emergency spillway provisions with maximum discharge capacity of each spillway.

(6) Calculations.

(i) Comprehensive hydrologic and hydraulic design calculations for the pre-development and post-development conditions for the design storms specified in Subsection f4 of this subsection.

(ii) When the proposed stormwater management control measures depend on the hydrologic properties of soils or require certain separation from the seasonal high water table, then a soils report shall be submitted. The soils report shall be based on onsite boring logs or soil pit profiles. The number and location of required soil borings or soil pits shall be determined based on what is needed to determine the suitability and distribution of soils present at the location of the control measure.

(7) Maintenance and Repair Plan. The design and planning of the stormwater management facility shall meet the maintenance requirements of Subsection f10 of this subsection below.

(8) Waiver from Submission Requirements. The municipal official or board reviewing an application under this subsection may, in consultation with the Borough Engineer waive submission of any of the requirements in Subsection f9(c)(1) through f9(c)(6) of this subsection above when it can be demonstrated that the information requested is impossible to obtain or it would create a hardship on the applicant to obtain and its absence will not materially affect the review process.

10. Maintenance and Repair.

(a) Applicability. Projects subject to review as in Subsection f1(c) of this subsection above shall comply with the requirements of Subsection f10(b) and Subsection f10(c) of this subsection below.

(b) General Maintenance.

(1) The design engineer shall prepare a maintenance plan for the stormwater management measures incorporated into the design of a major development.

(2) The maintenance plan shall contain specific preventative maintenance tasks and schedules; cost estimates, including estimated cost of sediment, debris, or trash removal; and the name, address, and telephone number of the person or persons responsible for preventative and corrective maintenance (including replacement). The plan shall contain information on BMP location, design, ownership, maintenance tasks and frequencies, and other

details as specified in Chapter 8 of the NJ BMP Manual, as well as the tasks specific to the type of BMP, as described in the applicable chapter containing design specifics.

(3) If the maintenance plan identifies a person other than the property owner (for example, a developer, a public agency or homeowners' association) as having the responsibility for maintenance, the plan shall include documentation of such person's or entity's agreement to assume this responsibility, or of the owner's obligation to dedicate a stormwater management facility to such person under an applicable ordinance or regulation.

(4) Responsibility for maintenance shall not be assigned or transferred to the owner or tenant of an individual property in a residential development or project, unless such owner or tenant owns or leases the entire residential development or project. The individual property owner may be assigned incidental tasks, such as weeding of a green infrastructure BMP, provided the individual agrees to assume these tasks; however, the individual cannot be legally responsible for all of the maintenance required.

(5) If the party responsible for maintenance identified under Subsection f10(b)(3) of this subsection above is not a public agency, the maintenance plan and any future revisions based on Subsection f10(b)(7) of this subsection below shall be recorded upon the deed of record for each property on which the maintenance described in the maintenance plan must be undertaken.

(6) Preventative and corrective maintenance shall be performed to maintain the functional parameters (storage volume, infiltration rates, inflow/outflow capacity, etc.) of the stormwater management measure, including, but not limited to, repairs or replacement to the structure; removal of sediment, debris, or trash; restoration of eroded areas; snow and ice removal; fence repair or replacement; restoration of vegetation; and repair or replacement of non-vegetated linings.

(7) The party responsible for maintenance identified under Subsection f10(b)(3) above shall perform all of the following requirements:

(i) Maintain a detailed log of all preventative and corrective maintenance for the structural stormwater management measures incorporated into the design of the development, including a record of all inspections and copies of all maintenance-related work orders;

(ii) Evaluate the effectiveness of the maintenance plan at least once per year and adjust the plan and the deed as needed; and

(iii) Retain and make available, upon request by any public entity with administrative, health, environmental, or safety authority over the site, the maintenance plan and the documentation required by Subsection f10(b)(6) and (7) of this subsection above.

(8) The requirements of Subsection f10(b)(3) and (4) of this subsection above do not apply to stormwater management facilities that are dedicated to and accepted by the municipality or another governmental agency, subject to all applicable municipal stormwater general permit conditions, as issued by the Department.

(9) In the event that the stormwater management facility becomes a danger to public safety or public health, or if it is in need of maintenance or repair, the Borough shall so notify the responsible person in writing. Upon receipt of that notice, the responsible person shall have fourteen (14) calendar days to effect maintenance and repair of the facility in a manner that is approved by the municipal engineer or his designee. The Borough, in its discretion, may extend the time allowed for effecting maintenance and repair for good cause. If the responsible person fails or refuses to perform such maintenance and repair, the Borough or the County may immediately proceed to do so and shall bill the cost thereof to the responsible person. Nonpayment of such bill may result in a lien on the property.

(c) Nothing in this subsection shall preclude the municipality in which the major development is located from requiring the posting of a performance or maintenance guarantee, in accordance with N.J.S.A. 40:55D-53.

11. Penalties. Any person(s) who erects, constructs, alters, repairs, converts, maintains, or uses any building, structure or land in violation of this subsection shall be subject to the general penalty provisions of the Borough Code regarding ordinance violations. Each day a violation occurs shall be a separate penalty.

12. Severability. Each section, subsection, sentence, clause and phrase of this subsection is declared to be an independent section, subsection, sentence, clause and phrase, and the finding or holding of any such portion of this subsection to be unconstitutional, void, or ineffective for any cause, or reason, shall not affect any other portion of this subsection.

§ 22-101.3. Maintenance of Systems. [Ord. No. 679, § 9-203; Ord. No. 06-16; Ord. No. 2018-13]

If not addressed under Subsection 22-101.2f, the owner of any system installed under this chapter to control or regulate stormwater runoff shall properly maintain such system to insure its correct functioning.

a. Annual Permit, Inspection, Oversight and Owner Responsibilities.

1. All developments that contain stormwater management measures within the Borough that meet the requirements of N.J.A.C. 7:8-1.6, "Applicability to major development," and/or if an additional 1/4 acre of impervious surface is being proposed on the development site, the development is subject to a Stormwater Maintenance Permit and periodic inspection. An annual Stormwater Maintenance Permit is required in January of each year.

Annual Permit/inspection fees for each stormwater device:

(a) Vegetative swales: $250 for the first 100 linear feet and $50 for each additional 100 linear feet;

(b) Infiltration basin (above ground/below ground): $500 for aboveground and $750 for below ground $500/$750;

(c) Detention basin (above ground/below ground): $500 for aboveground/$750 for below ground;

(d) Wet pond or rain garden: $750;

(e) Bioretention basin: $750;

(f) Porous pavement/pervious surface: $500;

(g) Constructed wetland: $750; and,

(h) Manufactured treatment device: $500.

2. Recordkeeping, Inspection and Repair Guidelines and Noncompliance Penalties:

(a) Quarterly maintenance records shall be submitted to the Borough of North Plainfield Department of Public Works Office. Report forms and report guidance can be obtained in the New Jersey Department of Environmental Protection - NJPDES Monitoring Report Form Reference Manual, or from the Borough Department of Public Works or the Borough Web Site.

The maintenance records for the periods of:

(1) The January 1 to March 31 period must be reported no later than April 30;

(2) The April 1 to June 30 period must be reported no later than July 31;

(3) The July 1 to September 30 period must be reported no later than October 31;, and,

(4) The October 1 to December 31 period must be reported no later than January 31 of the following year.

(b) Mechanically treated structures that utilize filters shall have a record that shall be provided to the Borough containing the requirements of the replacement of the filters as per manufacturer specifications and the actual dates that the filters have been replaced. Such information shall be provided under the periods above.

(c) Inspections shall include but not be limited to:

(1) Detention basin outflow structures and escape provisions as outlined in N.J.A.C. 7:8-6.2;

(2) Vegetation;

(3) Trash racks and overflow grates;

(4) Embankment erosion; and,

(5) Sediment removal and pond maintenance.

(d) The owner of the stormwater management measure shall complete all repairs of the facility within 30 calendar days of the date of notice of by Borough of the necessary repairs.

(e) The owner of the stormwater management measure, immediately upon written notice by the Borough, must complete repairs that may adversely affect the public's health, safety and welfare in the time and manner established.

(f) For each individual act or violation of this chapter, each and every day upon which any violation shall occur or continue to occur, shall constitute a separate offense.

(g) Failure to obtain an annual Stormwater Maintenance Permit: $100.

(h) Failure to provide quarterly maintenance records: $50 per violation.

(i) A person who has not complied with this chapter and who, after written notice by the Borough, refuses to implement and/or maintain soil erosion control and stormwater runoff control measures and facilities in conformance with these regulations shall be subject to a fine of not more than $1,000 or 90 days in jail, or both, plus the cost of prosecution.

3. The Borough, in its sole discretion, may extend the time allowed for effecting maintenance and repair for good cause. If the responsible person fails or refuses to perform such maintenance and repair, the municipality may immediately proceed to do so and shall bill the cost thereof to the responsible person or place a lien on the subject land.

4. Nothing in this section shall preclude the Borough from requiring the posting of a performance or maintenance guaranty in accordance with N.J.S.A. 40:55D-53.

Appendix 2: Ordinance No. 06-17 Municipal Well Head Protection Ordinance

Chapter 22. Land Development

Article XII. WELL HEAD PROTECTION

§ 22-137. WELL HEAD PROTECTION AREAS.

§ 22-137.1. Statement of Findings.

[Ord. #06-17, S I]
The Governing Body of the Borough of North Plainfield finds that:

a. The groundwater underlying this municipality is a major source of existing and future water supplies, including drinking water. The groundwater underlying this municipality lies within the Buried Valley Aquifer Systems of the Central Passaic River Basin, which are designated as a "solesource" aquifer under Section 1424(e) of the Federal Safe Drinking Water Act of 1974.

b. The groundwater aquifers are integrally connected with, are recharged by, and flow into the surface waters, lakes and streams, which also constitute a major source of water for drinking, commercial and industrial needs.

c. Accidental spills and discharges of toxic and hazardous materials may threaten the quality of these groundwater supplies and related water sources.

d. Contaminated water from any source is a detriment to the health, welfare and comfort of the residents of this municipality, and other users of these water resources.

e. Spills or discharges of hazardous substances or hazardous wastes may contaminate or pollute water. As a preventive measure, the proximity of such materials to sources of water supplies, such as public community wells, should be restricted so that there will be sufficient time to find and clean up such spills or discharges before water supplies become contaminated.

§ 22-137.2. Purpose.

[Ord. #06-17, S II]
The purpose of this section is to protect the public health, safety and welfare through the protection of the groundwater resources underlying the municipality to ensure a supply of safe and healthful drinking water for the present and future generations of local residents, employees and the general public in this municipality, as well as users of these water supplies outside this municipality. Areas of land surrounding each public community well, known as Well Head Protection Areas (WHPAs), from which contaminants may move through the ground to be withdrawn in the water taken from the well, have been delineated. Through regulation of land use, physical facilities and other activities within these areas, the potential for groundwater contamination can be reduced. The purpose of the regulations contained in this section is to prevent the migration of potential pollutants from areas within a WHPA into groundwater that is withdrawn from a public community well.

§ 22-137.3. Statutory Authority.

[Ord. #06-17, S III]
The municipality of the Borough of North Plainfield is empowered to regulate these activities under the provisions of the New Jersey Municipal Land Use Law, N.J.S.A. 40:55D-1 et seq., which authorizes each municipality to plan and regulate land use to secure a safe and adequate drinking water supply for its residents. The Board of Health of this municipality has autonomous power granted by the State Legislature to develop this section to protect public health, safety and welfare, as set forth in the New Jersey Local Boards of Health Law, N.J.S.A. 26:3-1 et seq., and the New Jersey County Environmental Health Act, N.J.S.A. 26:3A2-21 et seq.

§ 22-137.4. Definitions.

[Ord. #06-17, S IV]

ADMINISTRATIVE AUTHORITY
Shall mean the Planning Board or Board of Adjustment and the Board of Health, acting jointly and in consultation, with all of the powers delegated, assigned, or assumed by them according to statute or ordinance.

APPLICANT
Shall mean person applying to the Board of Health, Planning Board, Board of Adjustment or the Construction Office proposing to engage in an activity that is regulated by the provisions of this section, and that would be located within a regulated Well Head Protection Area.

AQUIFER
Shall mean a formation, group of formations, or part of a formation that contains sufficient saturated permeable rock, sand, or gravel which is capable of storing and transmitting usable quantities of water to wells and springs.

BEST MANAGEMENT PRACTICES (BMP)
Shall mean performance or design standards established to minimize the risk of contaminating groundwater or surface waters while managing the use, manufacture, handling or storage of hazardous substances or hazardous wastes.

CONTAMINATION
Shall mean the presence of any harmful or deleterious substances in the water supply.

DEVELOPMENT
Shall mean the carrying out of any construction, reconstruction, alteration of surface or structure or change of land use or intensity of use.

DISCHARGE
Shall mean any intentional or unintentional action or omission, unless pursuant to and in compliance with the conditions of a valid and effective Federal or State Permit, resulting in the releasing, spilling, pumping, pouring, emitting, emptying or dumping of a hazardous substance into the waters or lands of the State or into waters outside the jurisdiction of the State when damage may result to the lands, waters or natural resources within the jurisdiction of the State.

GROUNDWATER
Shall mean water contained in interconnected pores of a saturated zone in the ground, also known as well water. A saturated zone is a volume of ground in which the voids in the rock or soil are filled with water at a pressure greater than atmospheric.

HAZARDOUS SUBSTANCE
Shall mean any substance designated under 40 CFR 116 pursuant to Section 311 of the Federal Act, the Spill Compensation and Control Act, N.J.S.A. 58:10-23,II et seq., or Section 4 of the State

Act. Substances listed include petroleum, petroleum products, pesticides, solvents and other substances.

HAZARDOUS WASTE

Shall mean any solid waste that is defined or identified as a hazardous waste pursuant to the Solid Waste Management Act, N.J.S.A. 13:1E et seq., N.J.S.A. 7:26-8, or 40 CFR Part 261.

MAXIMUM CONTAMINANT LEVEL

Shall mean maximum permissible level of a contaminant in water which is delivered to any user of a public community water system.

NJDEP

Shall mean any New Jersey Department of Environmental Protection.

PERSON

Shall mean any individual, public or private corporation, company, partnership, firm, association, owner or operator, political subdivision of this State, and any State, Federal or interstate agency or an agent or employee thereof.

POLLUTED WATER

Shall mean, in the content of drinking water, water is polluted when a pollutant is present in excess of a maximum contaminant level or bacteriological limit established by law or regulation.

POTENTIAL POLLUTANT SOURCE (PPS)

Shall mean activity or land use which may be a source of a pollutant that has the potential to move into groundwater withdrawn from a well. For the purposes of this section Potential Pollutant Sources are defined in Subsection **22-137.7**.

PPS

Shall mean Potential Pollutant Source.

PUBLIC COMMUNITY WELL

Shall mean a public water supply well which serves at least 15 service connections used by year-round residents or regularly serves at least 25 year-round residents.

SIC

Shall mean Standard Industrial Classification.

SOLE SOURCE AQUIFER

Shall mean any drinking water aquifer upon which more than 50% of a population group depends and for which there is no practicable or affordable alternate water supply, as certified by the United States Environmental Protection Agency.

TIER 1 WELL HEAD PROTECTION AREA

Shall mean that area of land within a WHPA from which groundwater may enter the well within two years. (See maps referenced under Subsection **22-137.5**)

TIER 2 WELL HEAD PROTECTION AREA

Shall mean that area of land within a WHPA from which groundwater may enter the well within five years. (See maps referenced under Subsection **22-137.5**)

TIER 3 WELL HEAD PROTECTION AREA

Shall mean that area of land within a WHPA from which groundwater may enter the well within 12 years. (See maps referenced under Subsection **22-137.5**)

TIME OF TRAVEL (TOT)

Shall mean the average time that a volume of water will take to travel in the saturated zone from a given point to a pumping well.

WELL HEAD

Shall mean the well borehole and appurtenant equipment.

WELL HEAD PROTECTION AREA (WHPA)

Shall mean an area described in plan view around a well, from which groundwater flows to the well and groundwater pollution, if it occurs, may pose a significant threat to the quality of water withdrawn from the well.

WHPA

Shall mean Well Head Protection Area.

§ 22-137.5. Establishment of Well Head Protection Areas and Maps.

[Ord. #06-17, S V]

a. Well Head Protection Area Maps:

1. The delineations of Well Head Protection Areas for public community wells, which were published by the New Jersey Geological Survey of the New Jersey Department of Environmental Protection, are incorporated herein and made a part of this section. They are designated as follows: New Jersey Well Head Protection Areas, Edition 2, Geospatial Data Presentation, New Jersey Digital Data Series, DGS02-2, dated 18 June 2002. A description of these data, which has been excerpted from these materials, is appended as Appendix B. A map of the Well Head Protection Areas located within the Borough of North Plainfield is included as part of this section, and is appended as Figure 1, and is adopted as of August 14, 2006. Maps of the municipality on which these delineations have been overlain shall be on file and maintained by the officers of the Clerk of the Borough of North Plainfield, and of the Board of Health of the Borough of North Plainfield.[1]

   [1] *Editor's Note: Appendix B, referred to herein, is included as an attachment to this chapter.*

2. Well Head Protection Areas, as shown on the maps described in Section 22-137.5a1, shall be considered to be superimposed over any other established zoning district. Land in a Well Head Protection Area may be used for any purpose permitted in the underlying district, subject to the additional restriction presented herein.

b. Assignment of Restriction Within Well Head Protection Areas: Properties located wholly or partially within a Well Head Protection Area shall be governed by the restrictions applicable to the Well Head Protection Area.

c. Inclusion of Well Head Protection Area Zoning into Master Plan: The municipal Master Plan provides the legal basis for zoning and land use regulation at the local level. The technical foundation or local well head protection in this municipality should be incorporated into the Master Plan. A technical report on the need for well head protection in the Borough of North Plainfield may be adopted as part of the Master Plan (N.J.S.A. 40:55D-28b(11)). The technical report should include the following information:

1. A statement setting forth the rationale and need to protect the public water supply through a program of well head protection for public community wells.

2. Reference to the method used to delineate the Well Head Protection Areas (WHPAs) according to the "tiered" level of protection for public community wells based upon the time of travel (TOT) of groundwater, as developed by the New Jersey Geological Survey.

§ 22-137.6. Regulation of Well Head Protection Areas for Public Community Wells.

[Ord. #06-17, S VI]

a. The Administrative Authority for administering the provisions of this section shall be the Planning Board or Board of Adjustment and the Board of Health of the Borough of North Plainfield acting jointly and in consultation.

b. Any applicant for a permit requesting a change in land use or activity, which is subject to review under the provisions of the Municipal Land Use Law and other pertinent regulations of the Borough of North Plainfield, and which is located within a delineated WHPA, as defined in Subsection **22-137.5**, that involves a Potential Pollutant Source (PPS), as defined in Subsection **22-137.7**, shall comply with the requirements of this section.

c. Any applicant for a permit requesting a change in land use or activity, which is subject to the requirements of this section, shall file an Operations and Contingency Plan, as required by Subsection **22-137.9**, with the Administrative Authority. No permit that allows a change in land use or activity, which is subject to the requirements of this section, shall be granted unless an Operations and Contingency Plan for the proposed change has been approved by the Administrative Authority. Any plan approved by the Administrative Authority shall be kept on file in the offices of the Borough of North Plainfield, and shall be available to the public for inspection.

d. Any change in land use or activity that introduces a Major or Minor Potential Pollutant Source (PPS), as defined in Subsection **22-137.7** shall be prohibited within a Tier 1 WHPA.

e. Any change in land use or activity that introduces a Major PPS, as defined in Subsection **22-137.7**, shall be prohibited within a Tier 2 WHPA.

f. Any change in land use or activity that involves any PPS, as defined in Subsection **22-137.7**, within any WHPA, that is not prohibited pursuant to Subsection **22-137.6d** or **e**, shall comply with the Best Management Practice Standards, as defined in Subsection **22-137.9**.

g. This Section is supplementary to other laws and ordinances in this municipality. Where this section or any portion thereof imposes a greater restriction than is imposed by other regulations, the provisions of this section shall supersede. These rules and regulations shall in no way effect the limitations or requirements applicable in the underlying municipal land use and zoning districts.

§ 22-137.7. Potential Pollutant Sources Listed.

[Ord. #06-17, S VII]
The following are Major and Minor Potential Pollutant Sources (PPS) subject to the requirements of this section. This listing is consistent with the New Jersey Safe Drinking Water Act, N.J.A.C. 7:10-11.7 through 12.12.

a. Major PPSs. Major PPSs include:

   1. Permanent storage or disposal of hazardous wastes, industrial or municipal sludge or radioactive materials, including solid waste landfills.

   2. Collection and transfer facilities for hazardous wastes, solid wastes that contain hazardous materials and radioactive materials.

   3. Any use or activity requiring the underground storage of a hazardous substance or waste in excess of an aggregate total of 50 gallons.

   4. Underground fuel and chemical storage and oil tanks regulated by NJDEP under provisions of the Underground Storage of Hazardous Substances Act (N.J.S.A. 58:10A-21 et seq.).

   5. Aboveground storage facility for a hazardous substance or waste with a cumulative capacity greater than 2,000 gallons.

   6. Any industrial treatment facility lagoon.

7. Any facility with a SIC Code number included under the New Jersey Safe Drinking Water Act Regulations at N.J.A.C. 7:10A-1.14, Table II(N), with a toxicity number of II or greater. (See Appendix A).[1]

   [1] *Editor's Note: Appendix A, referred to herein, is included as an attachment to this chapter.*

8. Automotive service center (repair and maintenance).
9. Landfill.
10. Dry cleaning facility.
11. Road salt storage facility.
12. Cemetery.
13. Highway maintenance yard.
14. Truck, bus, locomotive maintenance yard.
15. Site for storage and maintenance of heavy construction equipment and materials.
16. Site for storage and maintenance of equipment and materials for landscaping.
17. Livestock operation.
18. Quarrying and/or mining facility.
19. Asphalt and/or concrete manufacturing facility.
20. Junkyard/auto recycling and scrap metal facility.
21. Residential or agricultural motor fuel in NJDEP exempted underground storage tanks (i.e., under 1,000 gallons).

b. Minor PPSs. Minor PPSs include:

1. Underground storage of hazardous substance or waste of less than 50 gallons.
2. Underground heating oil storage tank with a capacity of less than 2,000 gallons.
3. Sewage treatment facility.
4. Sanitary sewer system, including sewer line, manhole, or pump station. (See conditions in Subsection **22-137.7c**.)
5. Industrial waste line. (See conditions in Subsection **22-137.7c**.)
6. Septic leaching field.
7. Facility requiring a groundwater discharge permit issued by the NJDEP pursuant to N.J.A.C 7:14A et seq.
8. Stormwater retention-recharge basin.
9. Dry well. (See conditions in Subsection **22-137.7c**.)
10. Stormwater line. (See conditions in Subsection **22-137.7c**.)
11. Waste oil collection, storage and recycling facility.
12. Agricultural chemical bulk storage and mixing or loading facility including crop dusting facilities.
13. Aboveground storage of hazardous substance or waste in quantities of less than 2,000 gallons.

c. Conditions:

1. Sanitary sewer lines, industrial waste lines and stormwater lines may be located no closer than 100 feet to a regulated well, and only if they are constructed of watertight construction (that is steel, reinforced concrete, cast iron, PVC or other suitable material).

2. Manhole and/or connections to a sanitary sewer system are prohibited within 10 feet of a regulated well.

3. Dry wells dedicated to roof runoff and serving residential properties or commercial or industrial properties with SIC codes not listed in Appendix A may be located no closer than 100 feet to a regulated well.[2]

[2] *Editor's Note: Appendix A, referred to herein, is included as an attachment to this chapter*

§ 22-137.8. Best Management Practice Performance Standard.

[Ord. #06-17, S VIII]

Any applicant proposing any change in land use or activity that involves any PPS, as defined in Subsection **22-137.7**, that would be located either wholly or partially within any WHPA shall comply with and operate in a manner consistent with the following Best Management Practices:

a. All portions or areas of a facility in which hazardous substances or hazardous wastes are stored, processed, manufactured or transferred outdoors, shall be designed so that the discharges of hazardous substances will be prevented from overflowing, draining, or leaching into the groundwater or surface waters.

b. Outdoor storage, dispensing, loading, manufacturing or processing areas of hazardous substances or hazardous wastes must be protected from precipitation, stormwater flows or flooding.

c. Wherever hazardous substances are stored, processed, manufactured or transferred outdoors, the design features shall include secondary containment and/or diversionary structures which may include but not be limited to:

1. Containers, dikes, berms or retaining walls sufficiently impermeable to contain spilled hazardous substances, for the duration of a spill event.

2. Curbing.

3. Gutter, culverts and other drainage systems.

4. Wiers, booms and other barriers.

5. Lined diversion ponds, lined lagoons and lined retention basins, holding tanks, sumps, slop tanks and other collecting systems.

6. Drip pans.

d. Secondary containment and/or diversionary systems, structure or equipment must meet the following standards:

1. The system must block all routes by which spilled hazardous substances could be expected to flow, migrate, or escape into the groundwater or surface waters.

2. The system must have sufficient capacity to contain or divert the largest probable single discharge that could occur within the containment area, plus an additional capacity to compensate for any anticipated normal accumulation of rainwater.

3. In order to prevent the discharge of hazardous substances into groundwater, all components of the system shall be made of or lined with impermeable materials sufficient to contain the

substance for the duration of a spill event. Such material or liner must be maintained in an impermeable condition.

4. No manufacturing area, processing area, transfer area, dike storage area, or other storage area, or secondary containment/diversion system appurtenant thereto shall drain into a watercourse, or into a ditch, sewer, pipe or storm drain that leads directly or indirectly into a surface or subsurface disposal area, unless provision has been made to intercept and treat any spilled hazardous substances in an NJDEP approved industrial wastewater treatment or pre-treatment facility, of other NJDEP approved facility.

5. Catchment basins, lagoons and other containment areas that may contain hazardous substances should not be located in a manner that would subject them to flooding by natural waterways.

e. Stormwater shall be managed so as to prevent contamination of groundwater, and so as to be in accordance with applicable law and regulations of the State of New Jersey, and of the Borough of North Plainfield.

§ 22-137.9. Operations and Contingency Plan.

[Ord. #06-17, S IX]

a. Any applicant proposing any change in land use or activity that involves any PPS, as defined in Subsection **22-137.7**, that would be located either wholly or partially within any WHPA shall submit an Operations and Contingency Plan to the Administrative Authority. This Operations and Contingency Plan shall inform the Administrative Authority about the following aspects of the proposal:

   1. Types of PPS proposed for the site;

   2. Types and quantities of hazardous substances or hazardous wastes that may be used or stored on site;

   3. Means to be employed to contain or restrict the spillage or migration of hazardous substances or hazardous wastes from the site into groundwater;

   4. Means to be used to contain or remediate accidental spillage of such materials;

   5. Means to notify administrative authority about any accidental spillage of such materials;

   6. Demonstrations that the proposed use and/or activity would employ, to the maximum extent possible, best management practices as set forth in Subsection **22-137.8**, to protect groundwater quality in the WHPA and minimize the risk of potential groundwater contamination.

b. The Administrative Authority shall review, and shall approve or reject any Operations and Contingency Plan prior to approving or denying the application for land use change or activity.

c. Any Operations and Contingency Plan submitted shall be available for public review and comment.

§ 22-137.10. Enforcement.

[Ord. #06-17, S X]

A prompt investigation shall be made by the appropriate personnel of the Health Department of North Plainfield, of any person or entity believed to be in violation hereof. If, upon inspection, a condition which is in violation of this section is discovered, a civil action in the Special Part of the Superior Court, or in the Superior Court, if the primary relief sought is injunctive or if penalties may exceed the

jurisdictional limit of the Special Civil Part, may be commenced by the filing and serving of appropriate process. Nothing in this section shall be construed to preclude a municipality's right, pursuant to N.J.S.A. 26:3A-25, to initiate legal proceedings hereunder in Municipal Court. The violation of any section or subsection of this section shall constitute a separate and distinct offense independent of the violation of any other section or subsection, or of any order issued pursuant to this section. Each day a violation continues shall be considered a separate offense.