TOWNSHIP OF MENDHAM

ORDINANCE 5-2006

ORDINANCE TO ESTABLISH MINIMUM STORMWATER MANAGEMENT REQUIREMENTS AND CONTROLS FOR DEVELOPMENT PROJECTS IN THE TOWNSHIP OF MENDHAM SUPPLEMENTING CHAPTER XI OF THE REVISED GENERAL ORDINANCES OF THE TOWNSHIP OF MENDHAM ENTITLED "LAND USE ORDINANCE"

BE IT ORDAINED by the Township Committee of the Township of Mendham, in the County of Morris, New Jersey, as follows:

Section 1. Chapter XI entitled "Title, Purpose and Scope of Chapters XI through XXIV(A)" and Section 11-1 thereof entitled "Title" are hereby amended to read:

CHAPTER XI

TITLE, PURPOSE AND SCOPE OF CHAPTERS XI THROUGH XXIV(B)

11-1 TITLE

This chapter, together with Chapter XII, Definitions; Chapter XIII, Land Use Procedures and Fees; Chapter XIV, Planning Board; Chapter XV, Zoning Board of Adjustment; Chapter XVI, Subdivision and Site Plan Review; Chapter XVII, Environmental Impact Study Chapter XVIII, Flood Hazard Area Regulations; Chapter XIX, Soil Erosion, Sediment Control and Flood Prevention Regulations; Chapter XX, Soil Extraction Regulations; Chapter XXI, Zoning Regulations; Chapter XXII, Land Use Ordinance Enforcement, Violations, Penalties, Separability of Provisions and Effective Date; Chapter XXIII, Tree Preservation and Landscape Regulations; Chapter XXIV(A), Lot Development Permit, and Chapter XXIV(B), Stormwater Management shall be known as the Land Use Ordinance of the Township of Mendham.

Section 2. Chapters XI through XXIV(A) comprising the Land Use Ordinance of the Township of Mendham is hereby amended to include a new Chapter XXIV(B) entitled "Stormwater Management" to read as follows:

1. Purpose

A. Policy Statement

All land development activities result in changes to stormwater discharges that include changes to the rate and volume of stormwater runoff, decreases in groundwater recharge, and introduction of non-point source pollutants (NPS) into stormwater flows. Flood control, groundwater recharge, and pollutant reduction through nonstructural or low impact techniques shall be explored
before relying on structural best management practices (BMPs). Structural BMPs should be integrated with nonstructural stormwater management measures and proper maintenance plans. Nonstructural measures include both environmentally sensitive site design and source controls that prevent pollutants from being placed on the site. Source control plans should be developed based upon physical site conditions and the origin, nature, and the anticipated loading 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 New Jersey Stormwater Management Rules (NJAC 7:8) effective February 2, 2004, require that municipalities take specific actions to control the adverse environmental impacts of stormwater discharges. It is the purpose of this ordinance to establish minimum stormwater management requirements and controls for development projects subject to Township approval.

C. Applicability

This ordinance shall be applicable to any lot development plan, site plan or subdivision that requires approval by a Township official, Board or agency that will ultimately disturb 1.0 acre or more of land or will result in a net increase of 0.25 acre or more of impervious surfaces.

D. Compatibility with Other Permit and Ordinance Requirements

Development approvals issued pursuant to this ordinance are to be considered an integral part of development approvals under the subdivision and site plan review process 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 ordinance shall be held to be the minimum requirements for the promotion of the public health, safety, and general welfare. This ordinance 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 ordinance 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.

E. Definitions

Unless specifically defined below, words or phrases used in this ordinance shall be interpreted so as to give them the meaning they have in common usage and to give this ordinance it’s most reasonable application.

"Best Management Practices (BMP’s)" means the methods, measures, or practices to prevent or reduce the amount of pollution from point and nonpoint sources, including structural and non-structural controls, and operation and maintenance procedures.
"Compaction" means the increase in soil bulk density.

"Core" means a pedestrian-oriented area of commercial and civic uses serving the surrounding municipality, generally including housing and access to public transportation.

"County review agency" means an agency designated by the County Board of Chosen Freeholders to review municipal stormwater management plans and implementing ordinance(s). The county review agency may either be:

A county planning agency; or

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" means the New Jersey Department of Environmental Protection.

"Designated Center" means a State Development and Redevelopment Plan Center as designated by the State Planning Commission such as urban, regional, town, village, or hamlet.

"Design engineer" means 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.

"Development" means the division of a parcel of land into two or more parcels, the construction, reconstruction, conversion, structural alteration, relocation or 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. or any other activity that disturbs the surface of the land or vegetation in such a way that it would require an approval or permit to be issued by the municipality. In the case of development of agricultural lands, 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.

"Drainage area" means a geographic area within which stormwater, sediments, or dissolved materials drain to a particular receiving water body or to a particular point along a receiving water body.

"Environmentally constrained area" means 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 areas" means an area or feature which is of significant environmental value, including but not limited to: stream corridors; natural heritage priority sites; habitat of endangered or threatened species; large areas of contiguous open space or upland forest; steep slopes; and well head 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.

"Empowerment Neighborhood" means a neighborhood 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.

"Erosion" means the detachment and movement of soil or rock fragments by water, wind, ice, or gravity.

"HUC 14" means 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 with 11 numbers, or a HUC 11. There are 921 HUC 14 sub watersheds in New Jersey that range in size from 0.1 to 42 square miles.

"Impervious surface" means a surface that has been covered with a layer of material so that it is highly resistant to infiltration by water. These surfaces include, but are not limited to, asphalt, concrete, roofs, swimming pools, tennis courts, etc. Further, paving stones shall be considered impervious unless the minimum gap between or within the pavers provided for infiltration has a least dimension of two (2) inches. For the purposes of this Ordinance gravel areas that experience vehicular traffic at least weekly or are used for permanent parking areas are considered impervious surfaces.

"Infiltration" is the process by which water that seeps into the soil from precipitation.

"Major development" means any "development" that provides for ultimately disturbing one or more acres of land or increasing impervious surface by one-quarter acre or more. Disturbance for the purpose of this rule is the placement of impervious surface or exposure and/or movement of soil or bedrock or clearing, cutting, or removing of vegetation. Projects undertaken by any government agency which 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."

"Municipality" means any city, borough, town, township, or village.

"Node" means an area designated by the State Planning Commission concentrating facilities and activities which are not organized in a compact form.

"Nutrient" means a chemical element or compound, such as nitrogen or phosphorus, which is essential to and promotes the development of organisms.
"Person" means any individual, corporation, company, partnership, firm, association, or political subdivision of this State and any state, interstate or federal agency.

"Pollutant" means 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" means the amount of water from precipitation that infiltrates into the ground and is not evapotranspired.

"Sediment" means 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" means the lot or lots upon which a major development is to occur or has occurred.

"Soil" means all unconsolidated mineral and organic material of any origin.

"State Development and Redevelopment Plan Metropolitan Planning Area (PA1)" means 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" is defined as 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" means 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.

"Stormwater runoff" means water flow on the surface of the ground or in storm sewers, resulting from precipitation.

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

"Stormwater management measure" means any structural or nonstructural strategy, 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.

"Waters of the State" means the ocean and its estuaries, all springs, streams, wetlands, and bodies of surface or ground water, whether natural or artificial, within the boundaries of the State of New Jersey or subject to its jurisdiction.

"Wetlands" or "wetland" means 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.

2. Requirement for a Permit
   A. Prior to the issuance of a construction permit by the Construction Official for any new construction an applicability determination shall be obtained from the Township Engineer.
   B. Any new construction that is a major project as defined above shall be subject to the provisions of this Chapter and shall obtain a Lot Development Permit before a Construction Permit shall be issued.
   C. Consideration of a Lot Development Permit shall be made upon submission of an application form and five (5) copies of a Major Project Stormwater Management Plan (MPSMP). Said plan shall be subject to review by the Township Engineer who may refer the application and plan to the Planning Board Planning consultant and Environmental Consultant for review and comment if he deems it to be necessary.
   D. Action on the application and MPSMP shall be taken within twenty (20) calendar days of receipt of all plan elements as required by Section 9 of this Chapter.
   E. If approved the Township Engineer shall issue a Lot Development Permit. If disapproved, the Township Engineer shall notify the applicant and shall provide a written statement detailing the reasons for disapproval.

3. General Standards
   A. Stormwater management measures for major development shall be developed to meet the erosion control, groundwater recharge, stormwater runoff quantity, and stormwater runoff quality standards in this section. To the maximum extent feasible, these standards shall be met by incorporating nonstructural stormwater management strategies into the design. If these strategies alone are not sufficient to meet these standards, structural stormwater management measures necessary to meet these standards shall be incorporated into the design.
   B. The standards in this ordinance apply only to all 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. Such alternative standards shall provide at least as much protection from stormwater-related loss of groundwater recharge, stormwater quantity and water quality impacts of major development projects as would be provided under the standards in this subchapter.

C. For site improvements regulated under the Residential Site Improvement Standards (RSIS) at N.J.A.C. 5:21, the RSIS shall apply in addition to this section except to the extent the RSIS are superseded by this section or alternative standards 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.

B. Stormwater management measures shall avoid adverse impacts of concentrated flow on habitat for threatened and endangered species as documented in the Department’ Landscape Project or Natural Heritage Database established under N.J.S.A. 13:1B-15.147 through 15.150, particularly Helonius bullata (swamp pink) and/or Clemmys muhlenbergii (bog turtle).

C. The following linear development projects are exempt from the groundwater recharge, stormwater runoff quantity, and stormwater runoff quality requirements at Sections 3.F and 3.G:

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 14 feet, provided that the access is made of permeable material and that is provided with adequate methods to prevent vehicular traffic other than emergency vehicles.

D. A waiver from strict compliance from the groundwater recharge, stormwater runoff quantity, and stormwater runoff quality requirements at Sections 3.F and 3.G 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 alternatives analysis, that through the use of nonstructural and structural stormwater management strategies and measures, the option selected complies with the requirements of Sections 4.F and 4.G to the maximum extent practicable;

3.) The applicant demonstrates that, in order to meet the requirements at Sections 4.F and 4.G, 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 D.3 above within the upstream drainage area of the receiving stream, that would provide additional opportunities to mitigate for requirements of Sections 4.F and 4.G that were not achievable on-site.

E. Nonstructural Stormwater Management Strategies

1.) Nonstructural stormwater management strategies shall be incorporated into all applications subject to this Chapter.

2.) To the maximum extent practicable, the standards in Sections 4.F and 4.G shall be met by incorporating nonstructural stormwater management strategies at 4.E into the design. The applicant shall identify the nonstructural measures incorporated into the design of the project. If the applicant contends that it is not feasible for engineering, environmental, or safety reasons to incorporate any nonstructural stormwater management measures identified in 4.E.3 below into the design of a particular project, the applicant shall identify the strategy considered and provide a basis for the contention.

3.) Nonstructural stormwater management measures incorporated into site design shall:

   a) Protect areas that provide water quality benefits or areas particularly susceptible to erosion and sediment loss;

   b) Minimize impervious surfaces and break up or disconnect the flow of runoff over impervious surfaces;

   c) Maximize the protection of natural drainage features and vegetation;

   d) Minimize the decrease in the "time of concentration" from pre-construction to post construction. "Time of concentration" is defined as the time it takes for runoff to travel from the hydraulically most distant point of the watershed to the point of interest within a watershed;

   e) Minimize land disturbance including clearing and grading;

   f) Minimize soil compaction;
g) Provide low-maintenance landscaping that encourages retention and planting of native vegetation and minimizes the use of lawns, fertilizers and pesticides;

h) Provide vegetated open-channel conveyance systems discharging into and through stable vegetated areas;

i) Provide other source controls to prevent or minimize the use or exposure of pollutants at the site in order to prevent or minimize the release of those pollutants into stormwater runoff. These source controls include, but are not limited to:

   (1) Site design features that help to prevent accumulation of trash and debris in drainage systems;
   
   (2) Site design features that help to prevent discharge of trash and debris from drainage systems;
   
   (3) Site design features that help to prevent and/or contain spills or other harmful accumulations of pollutants at industrial or commercial developments; and
   
   (4) When establishing vegetation after land disturbance, applying fertilizer in accordance with the requirements established under the Soil Erosion and Sediment Control Act, N.J.S.A. 4:24-39 et seq., and implementing rules.

4.) Any land area used as a nonstructural stormwater management measure to meet the performance standards in Sections 3.F and 3.G shall be dedicated to a government agency, subjected to a conservation restriction filed with the appropriate County Clerk's office, or subject to an approved equivalent restriction that ensures that measure or an equivalent stormwater management measure approved by the reviewing agency is maintained in perpetuity.


6.) For the purpose of determining the sufficiency of nonstructural stormwater management measures being incorporated into the development activity the applicant shall provide an analysis utilizing the Mendham Township Nonstructural Strategies Points System (NSPS), which can be obtained from the Township Engineer.

F. Erosion Control, Groundwater Recharge and Runoff Quantity Standards

1.) This section contains minimum design and performance standards to control erosion, encourage and control infiltration and groundwater recharge, and control stormwater runoff quantity impacts of major development.
a) The minimum design and performance standards for erosion control are those established under the Soil Erosion and Sediment Control Act, N.J.S.A. 4:24-39 et seq. and implementing rules.

b) The minimum design and performance standards for groundwater recharge are as follows:

(1) The design engineer shall, using the assumptions and factors for stormwater runoff and groundwater recharge calculations at Section 5, either:

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

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

(2) This groundwater recharge requirement does not apply to projects within the “urban redevelopment” area, or projects subject to (3) below.

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

(a) Stormwater from roadways, driveways, or parking areas.

(b) 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

(c) 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.

(4) 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 and other subsurface structures in the vicinity or down gradient of the groundwater recharge area.

c) In order to control stormwater runoff quantity impacts, the design engineer shall, using the assumptions and factors for stormwater runoff calculations at Section 5, complete one of the following:

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

(2) 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 2, 10, and 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;

(3) Design stormwater management measures so that the post-construction peak runoff rates for the 2, 10 and 100 year storm events are 50, 75 and 80 percent, respectively, of the preconstruction 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.

2.) Any application for a new agricultural development that meets the definition of major development at Section 1.5 (Definitions) shall be submitted to the appropriate Soil Conservation District for review and approval in accordance with the requirements of this section and any applicable Soil Conservation District guidelines for stormwater runoff quantity and erosion control. For the purposes of this section, "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 manufacturing of agriculturally related products.

G. Stormwater Runoff Quality Standards

1.) Stormwater management measures shall be designed to reduce the post-construction load of total suspended solids (TSS) in stormwater runoff by 80 percent of the anticipated load from the developed site, expressed as an annual average. Stormwater management measures shall only be required for water quality control if an additional 1/4 acre of impervious surface is being proposed on a development site. 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 Pollution Discharge Elimination System (NJPDES) rules, N.J.A.C. 7:14A, or in a discharge specifically exempt under a NJPDES permit from this requirement. The water quality design storm is 1.25 inches of rainfall in two hours. Water quality calculations shall take into account the distribution of rain from the water quality design storm, as reflected in Table 1. The calculation of the volume of runoff may take into account the implementation of non-structural and structural stormwater management measures.

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<th>Time (Minutes)</th>
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2.) For purposes of TSS reduction calculations, Table 2 below presents the presumed removal rates for certain BMPs designed in accordance with the New Jersey Stormwater Best Management Practices Manual. The BMP Manual may be obtained from the address identified in Section 7, or found on the Department’s website at www.njstormwater.org. The BMP Manual and other sources of technical guidance are listed in Section 7. TSS reduction shall be calculated based on the removal rates for the BMPs in Table 2 below. Alternative removal rates and methods of calculating removal rates may be used if the design engineer provides documentation demonstrating the capability of these alternative rates and methods to the review agency. A copy of any approved alternative rate or method of calculating the removal rate shall be provided to the Department at the following address: Division of Watershed Management, New Jersey Department of Environmental Protection, PO Box 418 Trenton, New Jersey, 08625-0418.

3.) If more than one BMP in series is necessary to achieve the required TSS reduction for a site, the applicant shall utilize the following formula to calculate TSS reduction:

$$R = A + B - (AXB)/100$$

Where

- $R$ = total TSS percent load removal from application of both BMPs, and
- $A$ = the TSS percent removal rate applicable to the first BMP
- $B$ = the TSS percent removal rate applicable to the second BMP

<table>
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<th>Best Management Practice</th>
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</table>

4.) If there is more than one onsite drainage area, the 80% TSS removal rate shall apply to each drainage area, unless the runoff from the
subareas converge on site in which case the removal rate can be demonstrated through a calculation using a weighted average.

5.) 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 nonstructural strategies and structural measures that optimize nutrient removal while still achieving the performance standards in Sections 4.F and 4.G.

6.) Additional information and examples are contained in the New Jersey Stormwater Best Management Practices Manual, which may be obtained from the address identified in Section 7.

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.) Special water resource protection areas shall be established along all waters designated Category One at N.J.A.C. 7:9B and perennial or intermittent streams that drain into or upstream of the Category One waters as shown on the USGS Quadrangle Maps or in the County Soil Surveys, within the associated HUC14 drainage. These areas shall be established for the protection of water quality, aesthetic value, exceptional ecological significance, exceptional recreational significance, exceptional water supply significance, and exceptional fisheries significance of those established Category One waters. These areas shall be designated and protected as follows:

   a.) The applicant shall preserve and maintain a special water resource protection area in accordance with one of the following:

      (1) A 300-foot special water resource protection area shall be provided on each side of the waterway, measured perpendicular to the waterway from the top of the bank outwards or from the centerline of the waterway where the bank is not defined, consisting of existing vegetation or vegetation allowed to follow natural succession is provided.

      (2) (2) Encroachment within the designated special water resource protection area under Subsection (1) above shall only be allowed where previous development or disturbance has occurred (for example, active agricultural use, parking area or maintained lawn area). The encroachment shall only be allowed where applicant demonstrates that the functional value and overall condition of the special water resource protection area will be maintained to the maximum extent
practicable. In no case shall the remaining special water resource protection area be reduced to less than 150 feet as measured perpendicular to the top of bank of the waterway or centerline of the waterway where the bank is undefined. All encroachments proposed under this subparagraph shall be subject to review and approval by the Department.

b.) All stormwater shall be discharged outside of and flow through the special water resource protection area and shall comply with the Standard For Off-Site Stability in the "Standards for Soil Erosion and Sediment Control in New Jersey", established under the Soil Erosion and Sediment Control Act, N.J.S.A. 4:24-39 et seq.

c.) If stormwater discharged outside of and flowing through the special water resource protection area cannot comply with the Standard For Off-Site Stability in the "Standards for Soil Erosion and Sediment Control in New Jersey", established under the Soil Erosion and Sediment Control Act, N.J.S.A. 4:24-39 et seq., then the stabilization measures in accordance with the requirements of the above standards may be placed within the special water resource protection area, provided that:

(1) Stabilization measures shall not be placed within 150 feet of the Category One waterway;

(2) Stormwater associated with discharges allowed by this section shall achieve a 95% TSS post-construction removal rate;

(3) Temperature shall be addressed to ensure no impact on receiving waterway;

(4) The encroachment shall only be allowed where the applicant demonstrates that the functional value and overall condition of the special water resource protection area will be maintained to the maximum extent practicable;

(5) A conceptual project design meeting shall be held with the appropriate Department staff and Soil Conservation District staff to identify necessary stabilization measures; and

(6) All encroachments proposed under this section shall be subject to review and approval by the Department.

d.) A stream corridor protection plan will be developed by the Township of Mendham through an adopted municipal stormwater management plan. A stream corridor protection plan for a waterway subject to G.8 shall maintain or enhance the current functional value and overall condition of the special
water resource protection area as defined in G.8.a.)(1) above. In no case shall a stream corridor protection plan allow the reduction of the Special Water Resource Protection Area to less than 150 feet as measured perpendicular to the waterway subject to this subsection.

e.) This subsection does not apply to the construction of one individual single family dwelling that is not part of a larger development on a lot receiving preliminary or final subdivision approval on or before February 2, 2004, provided that the construction begins on or before February 2, 2009, provided that said preliminary or final subdivision application included stormwater management considerations for the amount of disturbance and new impervious areas being proposed on the individual lot in question.. This exception shall not apply to any subdivision where, as a condition of approval, individual lot development plans were required.

5. Calculation of Stormwater Runoff and Groundwater Recharge

A. Acceptable Modeling Methods

1.) Stormwater runoff shall be calculated in accordance with the following:

   a.) The design engineer shall calculate runoff using one of the following methods:

      (1.) The USDA Natural Resources 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


   b.) 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 at Section 4.A.1.a and the Rational and Modified Rational Methods at Section 4.A.1.b. 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 years without interruption prior to the time of application. If more than one land cover have existed on the site during the five 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).

c.) 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.

d.) 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 and other methods may be employed.

e.) 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.

2.) Groundwater recharge may be calculated in accordance with the following


Information regarding the methodology is available from the New Jersey Stormwater Best Management Practices Manual; at http://www.state.nj.us/dep/njgs/; or at New Jersey Geological Survey, 29 Arctic Parkway, P.O. Box 427 Trenton, New Jersey 08625-0427; (609) 984-6587.

6. Standards for Structural Stormwater Management Measures

A. Standards for structural stormwater management measures are as follows:

1. Structural stormwater management measures shall be designed to take into account the existing site conditions, including, for example, 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. Structural 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 (1") 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 inches. In addition, the design of trash racks must comply with the requirements of Section 8.C.1.).

3. Structural 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. At the intake to the outlet from the stormwater management basin, the orifice size shall be a minimum of two and one-half inches in diameter.

5. Stormwater management basins shall be designed to meet the minimum safety standards for stormwater management basins at Section 7.

B. Stormwater management measure guidelines are available in the New Jersey Stormwater Best Management Practices Manual. Other stormwater management measures may be utilized provided the design engineer demonstrates that the proposed measure and its design will accomplish the required water quantity, groundwater recharge and water quality design and performance standards established by this subchapter.

C. 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.

7. Sources for Technical Guidance

A. Technical guidance for stormwater management measures can be found in the documents listed at 1 and 2 below, which are available from Maps and Publications, Department of Environmental Protection, 428 East State Street, P.O. Box 420, Trenton, New Jersey, 08625; telephone (609) 777-1038.

1. Guidelines for stormwater management measures are contained in the New Jersey Stormwater Best Management Practices Manual, as amended. Information is provided on stormwater management measures such as: bioretention systems, constructed stormwater wetlands, dry wells, extended detention basins, infiltration structures, manufactured treatment devices, pervious paving, sand filters, vegetative filter strips, and wet ponds.

B. Additional technical guidance for stormwater management measures can be obtained from the following:

1. The "Standards for Soil Erosion and Sediment Control in New Jersey" promulgated by the State Soil Conservation Committee and incorporated into N.J.A.C. 2:90. Copies of these standards may be obtained by contacting the State Soil Conservation Committee or any of the Soil Conservation Districts listed in N.J.A.C. 2:90-1.3(a)4. The location, address, and telephone number of each Soil Conservation District may be obtained from the State Soil Conservation Committee, P.O. Box 330, Trenton, New Jersey 08625; (609) 292-5540;

2. The Rutgers Cooperative Extension Service, 732-932-9306; and

3. The Soil Conservation Districts listed in N.J.A.C. 2:90-1.3(a)4. The location, address, and telephone number of each Soil Conservation District may be obtained from the State Soil Conservation Committee, P.O. Box 330, Trenton, New Jersey, 08625, (609) 292-5540.

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 basins. This subchapter applies to any new stormwater management basin.

B. The provisions of this section are not intended to preempt more stringent municipal or county safety requirements for new or existing stormwater management basins.

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 basin to ensure proper functioning of the basin outlets in accordance with the following:

a. The trash rack shall have parallel bars, with no greater than six inch spacing between the bars.

b. The trash rack shall be designed so as not to adversely affect the hydraulic performance of the outlet pipe or structure.

c. The average velocity of flow through a clean trash rack is not to exceed 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.

d. The trash rack shall be constructed and installed to be rigid, durable, and corrosion resistant, and shall be designed to withstand a perpendicular live loading of 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:

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

   b. The overflow grate spacing shall be no less than two inches across the smallest dimension.

   c. 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 300 pounds per square foot.

3. For purposes of this subsection, escape provisions means the permanent installation of ladders, steps, rungs, or other features that provide easily accessible means of egress from stormwater management basins. Stormwater management basins shall include escape provisions as follows:

   a. If a stormwater management basin has an outlet structure, escape provisions shall be incorporated in or on the structure. With the prior approval of the reviewing agency identified in Section 8.D a freestanding outlet structure may be exempted from this requirement.

   b. Safety ledges shall be constructed on the slopes of all new stormwater management basins having a permanent pool of water deeper than two and one-half feet. Such safety ledges shall be comprised of at least two steps. Each step shall be four to six feet in width. One step shall be located approximately two and one-half feet below the permanent water surface, and the second step shall be located one to one and one-half feet above the permanent water surface. See Figure i, below, for an illustration of safety ledges in a stormwater management basin.

   c. In new stormwater management basins, the maximum interior slope for an earthen dam, embankment, or berm shall not be steeper than 3 horizontal to 1 vertical.

D. Variance or Exemption from Safety Standards

1. A variance or exemption from the safety standards for stormwater management basins may be granted only upon a written finding by the appropriate reviewing agency (municipality, county or Department) that the variance or exemption will not constitute a threat to public safety.

Figure i. Illustration of Safety Ledges in a New Stormwater Management Basin
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 ordinance, the applicant shall submit all of the required components of the Checklist for the Site Development Stormwater Plan at 9.C below as part of the submission of the applicant's application for subdivision or site plan approval.

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

3.) The applicant shall submit twenty (20) copies of the materials listed in the checklist for site development stormwater plans in accordance with Section 9.C of this ordinance.

B. Site Development Stormwater Plan Approval

The applicant's Site Development project shall be reviewed as a part of the subdivision or site plan review process by the municipal board or official from which municipal approval is sought. That municipal board or official shall consult the engineer retained by the Planning and/or Zoning Board (as appropriate) to determine if all the checklist requirements have been satisfied and to determine if the project meets the standards set forth in this ordinance.

C. Checklist Requirements

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 200 feet beyond the limits of the proposed development, at a scale of 1"=200' or greater, showing 2-foot contour intervals. The map as appropriate shall indicate the following: existing surface water drainage, shorelines, steep slopes, soils, erodible soils, perennial and intermittent streams that drain into or upstream of the Category 1 waters, wetlands and flood plains along with their appropriate buffer strips, pervious or vegetative surfaces by cover type, 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 environs. 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 Plan(s)

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 occur in the natural terrain and cover, including lawns and other landscaping, and seasonal high ground water elevations. A written description of the site plan and justification of proposed changes in natural conditions may also be provided.

4.) Land Use Planning and Source Control Plan

This plan shall provide a demonstration of how the goals and standards of Sections 3 through 6 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:

a.) Total area to be 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.

b.) 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

a.) Comprehensive hydrologic and hydraulic design calculations for the pre-development and post-development conditions for the design storms specified in Section 4 of this ordinance.

b.) When the proposed stormwater management control measures (e.g. infiltration basins) depends on the hydrologic properties of soils, 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 soil types 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 Section 10.

8.) Waiver from Submission Requirements

The municipal official or board reviewing an application under this ordinance may, in consultation with the municipal engineer, waive submission of any of the requirements in Sections 9.C.1) through 9.C.6) of this ordinance 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

1.) Projects subject to review as in Section 1.C of this ordinance shall comply with the requirements of Section 10.B and 10.C.

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). Maintenance guidelines for stormwater management measures are available in the New Jersey Stormwater Best Management Practices
Manual. If the maintenance plan identifies a person other than the
developer (for example, a public agency or homeowners' association)
as having the responsibility for maintenance, the plan shall include
documentation of such person's agreement to assume this
responsibility, or of the developer's obligation to dedicate a stormwater
management facility to such person under an applicable ordinance or
regulation.

3.) 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.

4.) If the person responsible for maintenance identified under Section
10.B.2) above is not a public agency, the maintenance plan and any
future revisions based on Section 9.B.7) below shall be recorded upon
the deed of record for each property on which the maintenance
described in the maintenance plan must be undertaken.

5.) Preventative and corrective maintenance shall be performed to
maintain the function of the stormwater management measure,
including 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.

6.) The person responsible for maintenance identified under Section
10.B.2) above shall 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.

7.) The person responsible for maintenance identified under Section
10.B.2) above shall evaluate once a year and adjust the plan and the
deed as needed with the approval of the Township Engineer.

8.) The person responsible for maintenance identified under Section
10.B.2) above shall 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 Sections 10.B.6) and 10.B.7) above.

9.) The requirements of Sections 10.B.3) and 10.B.4) do not apply to
stormwater management facilities that are dedicated to and accepted
by the municipality or another governmental agency.

10.) 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, the municipality shall so notify the responsible person in
writing. Upon receipt of that notice, the responsible person shall have
fourteen (14) days to effect maintenance and repair of the facility in a manner that is approved by the municipal engineer or his designee. If the responsible person fails or refuses to perform such maintenance and repair, the municipality or County may immediately proceed to do so and shall assess the cost thereof as additional taxes to the responsible person.

Nothing in this section 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.

C. Penalties

Any responsible person who violates any portion or section of this ordinance shall be subject to the penalties as specified in Chapter 22 of the Township Ordinances.

11. Appeals

A. Any person aggrieved by any decision or action of the Township Engineer in the administration of this Chapter may appeal such action to the Planning Board.

B. All such appeals shall be filed with the Planning Board Secretary in writing upon a form provided for that purpose. No filing fee shall be required. Unless the appeal is filed within 30 days following the action by the Township Engineer shall be deemed final.

C. The Planning Board shall conduct a public hearing on each appeal within 45 days of the filing of the appeal. The hearing shall be scheduled by the Planning Board.

Section 3. Superceding Other Provisions

Any provisions of the Revised General Ordinances of the Township of Mendham which are inconsistent with the provisions of this Ordinance are hereby superceded including, without limiting the generality hereof:

1) Chapter XVI, Subdivision and Site Plan Review, Section 16-10 Design Standards, Subsection 16-10.2u and Subsection 16-10.9

2) Chapter X, Streets and Roads, Section 10-4 Specifications, Subsections 10-4.9 and Subsection 10-4.10

Section 4. Effective Date

This ordinance shall take effect upon publication of the notice of final adoption and upon the approval by the county review agency, or sixty (60) days after submission to the county review agency if they fail to act.
Section 5. Severability

If the provisions of any article, section, subsection, paragraph, subdivision, or clause of this ordinance shall be judged invalid by a court of competent jurisdiction, such order of judgment shall not affect or invalidate the remainder of any article, section, subsection, paragraph, subdivision, or clause of this ordinance.

Adopted: March 28, 2006

Attest: TOWNSHIP OF MENDHAM, IN THE COUNTY OF MORRIS

Penny Newell, Township Clerk

By Richard H. Krieg, Mayor