

Chapter 16.80

GENERAL PROVISIONS

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16.80.010 Purpose.

The purpose of this article shall be to control soil erosion and sedimentation and related environmental damage by requiring adequate provisions for surface water retention and drainage and for the protection of exposed soil surfaces in order to reduce the danger from stormwater runoff, to retard non-point pollution from sediment and to conserve and protect the land, water, air and other environmental resources. This article is deemed essential and necessary to protect the public health, safety and welfare of the citizens of Raritan Township and the surrounding communities by accomplishing the following purposes:

- A. Maintaining the useful life of reservoirs by preventing sedimentation;
- B. Preventing dangers to life and property from flooding resulting from excessive water runoff and clogging of drainage structures;
- C. Preserving the recreational use of water bodies for swimming and fishing by preventing stagnation;
- D. Enhancing the recycling of waste water by maintaining sufficient flows in streams to maintain oxygen levels;
- E. Preventing toxic materials, nitrates and pesticides from entering public water supplies;
- F. Reducing public expenditures for repair of public facilities resulting from soil erosion and sedimentation;
- G. Conserving the taxable value of property enhancing the environmental characters of the township. (Prior code § 15-10.1)

16.80.020 Violations--Penalties.

If any person shall violate any of the provisions of this title, any standard promulgated pursuant to the provisions of this title, or shall fail to comply with the provisions of a certified plan, the township may institute a civil action in the superior court for injunctive relief to prohibit and prevent such violation or violations and the court may proceed in a summary manner. Any person who shall violate any of the provisions of this title, any standard promulgated pursuant to this title, or who shall fail to comply with the provisions of a certified plan shall be liable to a penalty of not more than three thousand dollars (\$3,000.00) to be collected in a summary proceeding pursuant to the Penalty Enforcement Law, R.S. 2A:58-1, et seq. The superior court, county court and municipal court shall have jurisdiction to enforce the penalty enforcement law. If the violation is of a continuing nature, each day during which it continues shall constitute an additional separate and distinct offense. (Prior code § 15-10.16)

Chapter 16.82

STANDARDS AND PROCEDURES

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16.82.010 Application and review procedures.

The following application and review procedures shall be complied with prior to causing a soil disturbance within the township:

A No application is required for the following:

1. Soil disturbance of five thousand (5,000) square feet or less, except as provided in subsection B of this section;

2. Agriculture, horticulture or residential landscaping uses.

B. Notwithstanding the provisions of subsection A of this section, any project causing a soil disturbance may be reviewed by the township engineer for the applicability of this title if, in the opinion of the township engineer, planning board or board of adjustment, there exists a danger of soil erosion or sedimentation caused by the project or land use.

C. Any project where the soil disturbance will be in excess of five thousand (5,000) square feet of surface area, but not part of a subdivision or site plan application except as described in subdivision 1 of this subsection, shall submit to the Hunterdon County soil conservation district a soil erosion and sediment control plan which plan shall be reviewed and approved or rejected by them.

A soil erosion and sediment control plan for single-family residential development on a lot not part of a major subdivision or site plan application will not be required unless more than five thousand (5,000) square feet of surface area is disturbed and one of the following conditions also exist:

1. Such disturbance is within one hundred (100) feet of the top of a bank of a stream or drainage way;

2. The slope of the area being disturbed is greater than ten percent.

D. Any subdivision or site plan application where the soil disturbance will be in excess of five thousand (5,000) square feet of surface area shall submit a soil erosion and sediment control plan to the planning board or board of adjustment where applicable, along with all other required information and plans. The planning board or board of adjustment shall, as part of the site plan or subdivision review, approve as part of the soil erosion and sediment control plan with or without

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conditions or disapprove said plan with the reasons for such disapproval. (Ord. 86-15 § 1; prior code § 15-10.2)

16.82.020 Plan amendments.

Minor amendments to a soil erosion and sediment control plan may be approved by the township engineer who shall notify the planning board or the board of adjustment where applicable of the nature and reason for the change. Major amendments shall be resubmitted to the original approving agency. (Prior code § 15-10.3)

16.82.030 Plan details.

The applicant shall submit a separate soil erosion and sediment control plan for each noncontiguous site. Plan preparation shall be by a professional engineer licensed in the state of New Jersey or other qualified individual.

The plan shall indicate or contain the following information:

- A. Location and description of existing natural and manmade features on soil types and characteristics pursuant to the Hunterdon County soil survey;
- B. Location and description of proposed changes to the site, including contours and spot elevations showing before and after conditions;
- C. Measures for soil erosion and sediment control which shall meet or exceed the standards set forth in the Standards for Soil Erosion and Sediment Control promulgated by the State Soil Conservation Committee. Such publication shall be on file at the offices of the Hunterdon County soil conservation district and the Raritan Township planning board.
- D. The township engineer, planning board or board of adjustment, where applicable, may waive specific plan detail requirements which in the judgment of the engineer and board are not necessary to fulfill the intent and purpose of this title. (Prior code § 15-10.4)

16.82.040 Approval procedures.

Plans shall be reviewed and certified by the township engineer when in conformance with the Standards for Soil Erosion and Sediment Control. Such review and certification shall be made within a period of thirty (30) days of submission of a complete development or construction application unless, by mutual written agreement between the township and the applicant, this period is extended for an additional thirty (30) days. Failure of the approving agency to make a decision within such period or such extensions thereof shall constitute certification of the plan. A major revision of the plan shall constitute a new submission.

The applicant shall be provided with a written notice of the decision by the approving agency. Such decision shall be included in the resolution of approval for the proposed project. This notice shall state that the plan is approved, approved subject to attached conditions, or denied with reasons attached.

A copy of such resolution or notice, including the name of the applicant, site location by street and address and tax map block and lot numbers, and proposed land use shall be sent to the Hunterdon County soil conservation district. The approving agency shall also make available such other information as may be required by the district. (Prior code § 15-10.5)

16.82.050 General standards.

In the preparation of soil erosion and sediment control plans, the following general principles of design shall be adhered to:

- A. The smallest practical area of land shall be exposed at any one time during development and, when feasible, natural vegetation shall be retained and protected.
- B. Temporary plant cover or mulching shall be used to protect critical erosion areas during

development.

C. Temporary diversions and outlets shall be constructed or installed to accommodate the increased runoff caused by the changed soil and surface conditions during and after development or disturbance.

D. Sediment basins, debris basins, desilting basins or silt traps shall be installed to remove sediment from runoff waters.

E. Existing water runoff shall be minimized and retained on site whenever possible to facilitate groundwater recharge.

F. Permanent final plant cover, such as turf, groundcover, shrubs and trees, shall be installed as quickly as possible as scheduled on the plans or as directed by the township engineer.

G. Permanent improvements, such as roads, catch basins, curbs, and all other such installations, shall be constructed without delay in accordance with the approved plans and as directed by the township engineer.

H. Clean up and restoration shall include removal of all temporary erosion control installations, cleaning of drainage facilities and systems if and where directed by the township engineer, and repairing any erosion damage incurred during the course of construction resulting from construction operations. (Prior code § 15-10.6)

16.82.060 Detailed standards.

The detailed plans, specifications and standards in any soil erosion and sedimentation control plan shall be dictated by the characteristics of the site to be developed and the nature of the development. All such plans shall utilize the Standards for Soil Erosion and Sediment Control in New Jersey as promulgated by the State Soil Conservation Committee. (Prior code § 15-10.7)

16.82.070 Plan implementation.

A. Timing. The planning board, the board of adjustment or the township engineer shall require the construction or installation of improvements or such other measures necessary to prevent soil erosion and sedimentation prior to any site development work or the start of construction.

B. Bonding. The planning board, the board of adjustment or the township engineer may provide for the posting of performance guarantees prior to and during the construction, and maintenance bonds in the same manner as provided in the township subdivision ordinance.

C. Maintenance. All permanent soil erosion and sediment control measures installed pursuant to this title shall be adequately maintained at all times. Temporary measures shall be maintained as needed or until the soil disturbance is permanently stabilized as determined by the township engineer. Upon request, the township engineer shall certify the date on which measures called for in the certified plan were completed. (Prior code § 15-10.8)

16.82.080 Inspection of projects.

A. Inspection of projects to determine execution in accordance with the certified plan shall be carried out by the township engineer. The applicant shall maintain a certified plan on site during all construction activity.

B. The township engineer shall determine at each inspection whether or not the provisions of the certified plan are being followed by the applicant. (Prior code § 15-10.9)

16.82.090 Notice in writing.

The township engineer shall inform the applicant in writing of observed deviation from the certified plan and request immediate compliance with the plan. (Prior code § 15-10.10)

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16.82.100 Stop construction order.

A. The township engineer may issue a stop construction order if the applicant fails to comply with the provisions of the certified plan.

B. When a stop construction order is issued, no further construction activity shall take place until the applicant is in compliance with all provisions of the certified plan. (Prior code § 15-10.11)

16.82.110 Certificate of occupancy.

The construction official shall not issue any permanent certificates of occupancy for any project unless there has been compliance with the provisions of the certified plan for permanent measures. Temporary certificates of occupancy shall not be issued unless necessary control measures have been installed and remaining controls have been guaranteed. (Prior code § 15-10.12)

16.82.120 Notice of compliance.

The township engineer shall provide the Hunterdon County soil conservation district and the construction official or land use enforcement officer with a report of compliance upon completion of the project. (Prior code § 15-10.13)

16.82.130 Fees.

All applicants for certification of soil erosion and sediment control plans shall be accompanied by a fee payable to the respective approving agency, as follows:

Subdivisions and site plans - Fee included in development and site plan review fee. No additional fee required.

Grading permits - \$50.00

Others - no Fee.

(Prior code § 15-10.14)

16.82.140 Appeals.

Any person, aggrieved by the decision of the township engineer, the board of adjustment, or the planning board shall have the right to file an appeal with the township committee setting forth in writing the complaint of the aggrieved party. A copy shall be filed with the person or agency from whose decision the appeal is being taken stating specifically the reasons the appellant believes the action of the construction official was improper. The township committee shall establish a hearing date within thirty (30) days of the receipt of the complaint and conduct a hearing. The township committee shall affirm, modify or reserve the aforesaid decision. (Prior code § 15-10.15)

Chapter 16.84

STORM WATER CONTROL ORDINANCE

Sections:

16.84.010	Applicability
16.84.020	Definitions.
16.84.030	General Standards
16.84.040	Calculation of Stormwater Runoff and Ground Water Recharge
16.84.050	Standards for Structural Stormwater Management Measures
16.84.060	Sources for Technical Guidance
16.84.070	Safety Standards for Stormwater Management Basins
16.84.080	Conflict of provisions.
16.84.090	Maintenance and Repair
16.84.100	Site Conditions to be Considered for a Site Development Stormwater Plan

16.84.010 Applicability

A. This ordinance shall be applicable to all site plans and subdivisions for the following major developments that require preliminary or final site plan or subdivision review:

1. Non-residential major developments; and
2. Aspects of residential major developments that are not pre-empted by the Residential Site Improvement Standards (RSIS) at N.J.A.C. 5:21. The provisions of both this ordinance and the RSIS are to be applied and reviewed concurrently for any residential major development.
3. In the case of agricultural or horticultural development that meets the definition of "major development" under N.J.A.C. 7:8, a farm conservation plan that addresses the protection of soil and water resources shall be developed and implemented. Such a plan shall be approved by the Hunterdon County Soil Conservation District.

B. This ordinance shall also be applicable to all major developments undertaken by the Township of Raritan. (Ord. 06-11 § A & B)

16.84.020 Definitions.

"Agriculture or horticulture" or "Agricultural or horticultural use" means the use of the land for common farmsite activities including but not limited to production, harvesting, storage, grading, packaging, processing and the wholesale and retail marketing of crops, plants, animals and other related commodities and the use and application of techniques and methods of soil preparation and management, fertilization, weed, disease and pest control, disposal of farm waste, irrigation, drainage, and water management, and grazing.

"Agricultural or horticultural development" means construction for the purposes of supporting common farmsite activities, including but not limited to: the production, harvesting, storage, grading, packaging, processing, and the wholesale and retail marketing of crops, plants, animals, and other related commodities and the use and application of techniques and methods of soil preparation and management, fertilization, weed, disease, and pest control, disposal of farm waste, irrigation, drainage and water management, and grazing.

"Category 1 (C1) Waters" means Waters of the State, including unnamed waterways that appear on Soil Survey and USGS Topographic Quadrangle within the same HUC 14 watershed, designated in NJAC 7:9B-1.15 (c) through (h) for purposes of implementing the anti-degradation policies set forth at NJAC 7:9B-1.5(d) for protection from measurable changes in water quality

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characteristics because of their clarity, color, scenic setting, other characteristics of aesthetic value, exceptional ecological significance, exceptional recreational significance, exceptional water supply significance, or exceptional fisheries resources(s).

“Compaction” means the increase in soil bulk density caused by subjecting soil to greater-than-normal loading. Compaction can also decrease soil infiltration and permeability rates.

“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 the Hunterdon County Planning Board, as designated by the County Board of Chosen Freeholders to review municipal stormwater management plans and implementing ordinance(s).

“Department” means the New Jersey Department of Environmental Protection.

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

“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, by any person, 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 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.

“Disturbance” means any activity including the clearing, excavating, storing, grading, filling or transportation of soil or any other activity that causes soil to be exposed to the danger of erosion.

“Drainage area” means 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.

“Environmentally critical area” 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; well head protection areas; and ground water recharge areas. Habitats of endangered or threatened species are those identified by the Department’s Landscape Project as approved by the Department’s Endangered and Non-game Species Program, or by the Department pursuant to the Highlands Act at N.J.S.A. 13:20-32k. and 13:20-34a(4).

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

“Ground water” means a body of water below the surface of the land in a zone of saturation where the spaces between the soil or geological materials are fully saturated with water.

“Highlands Act” means the Highlands Water Protection and Planning Act, P.L. 2004, c.120, codified at N.J.S.A. 13:20-1 et. seq. as amended.

“HUC-14” means a watershed as defined by the United States Geological Survey with a 14-digit identifier; a subwatershed.

“Impervious surface” means a surface that has been covered with a layer of material so that it is highly resistant to infiltration by water relative to natural conditions in the area.

“Infiltration” is the process by which water from precipitation seeps into the soil to a level below the normal root soil of plant species.

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"Karst Terrain" means an area where karst topography, with its characteristic surface and subterranean features, is developed as a result of the dissolution of limestone, dolomite, or other soluble rock. Characteristic physiographic features present in karst terrains include but are not limited to sinkholes, sinking streams, caves, blind valleys, large springs and subterranean drainage. See also limestone area.

"Limestone area" means an area of Hunterdon County underlain by carbonate sedimentary rock consisting chiefly of calcium carbonate. Limestone is commonly used as a general term for the class of rocks that consist of at least 80 percent calcium or magnesium carbonate. See also karst terrain.

"Low Impact Development" (LID) means methods incorporating design measures to replicate pre-development hydrology to reduce the impacts of development at a lot-level basis, treating rainwater where it falls by creating conditions that allow the water to infiltrate back into the ground. LID emphasizes greater infiltration of stormwater on-site rather than regarding the stormwater as a nuisance condition and disposable.

"Maintenance Plan" means a document required for all major development projects for stormwater management maintenance.

"Major development" means any "development" that provides for ultimately disturbing one or more acres of land or would create one-quarter acre or more of impervious surface. Major development shall not include Municipal Road road reconstruction or resurfacing within an existing paved footprint and with no additional impervious area not to exceed ¼ acre or no disturbance of one acre beyond the existing road footprint.

"Maximum Extent Practicable" means compliance with the specific objective to the greatest extent possible taking into account equitable considerations and competing factors, including but not limited to, environmental benefits, pollutant removal effectiveness, regulatory compliance, ability to implement given site-specific environmental conditions, cost and technical or engineering feasibility.

"Mitigation" means an action by an applicant -providing compensation or offset actions for onsite stormwater management requirements where the applicant has demonstrated the inability or impracticality of strict compliance with the stormwater management requirements set forth in NJAC 7:8, in an adopted regional stormwater management plan, or in this local ordinance, and has received a waiver from strict compliance from the municipality. Mitigation, for the purposes of this ordinance, includes both the mitigation plan detailing how the project's failure to strictly comply will be compensated, and the implementation of the approved mitigation plan within the same HUC-14 within which the subject project is proposed (if possible and practical), or a contribution of funding toward a regional stormwater control project, or provision for equivalent treatment at an alternate location, or other equivalent water quality benefit.

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

New Jersey Nonstructural Stormwater Management Strategies Point System (NSPS) means the New Jersey Department of Environmental Protection methodology and calculation spreadsheet used to determine if the nonstructural stormwater management strategies had been used to the maximum extent practicable as required by the stormwater rules.

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

"Nonstructural Stormwater Management Techniques" means techniques that control or reduce stormwater runoff in the absence of stormwater structures (e.g., basins and piped conveyances), such as minimizing site disturbance, preserving important site features including, but not limited to, natural vegetation, reducing and disconnecting impervious cover, minimizing slopes, utilizing native vegetation, minimizing turf grass lawns, increasing time of concentration and maintaining and enhancing natural drainage features and characteristics.

"Nutrient" means a chemical element or compound, such as nitrogen or phosphorus, which is essential to and promotes the development of plants, algae and other organisms or vegetation.

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“Nutrient concentration” means the amount of a nutrient in a defined volume of water (such as milligrams of nitrogen per liter). The relationship between nutrient concentration and nutrient load can vary and depends on the surface water flow, the volume of water in the water body or aquifer, and watershed characteristics.

“Nutrient load” means the total amount of a nutrient such as nitrogen or phosphorus entering the water during a given time, such as "tons of nitrogen per year", or "pounds of phosphorus per day." Nutrients may enter the water from runoff, ground water recharge, point source discharges, or the air (in the form of wet deposition such as rain or snow as well as dry deposition).

“Permeable” means a surface or land cover capable of transmitting or percolating a significant amount of precipitation into the underlying soils.

“Person” means any individual, corporation, company, partnership, firm, association, Township or Raritan, or political subdivision of this State subject to municipal jurisdiction pursuant to the Municipal Land Use Law , N.J.S.A. 40:55D-1 et seq.

“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 non-hazardous pollutants.

”Pollution” means the man-made or man-induced alteration of the chemical, physical, biological, and radiological integrity of water to the extent that the pollutant concentration or level violates either the Ground Water Quality Standards (N.J.A.C. 7:9-6) or the Surface Water Quality Standards (N.J.A.C. 7:9B) of New Jersey.

“Recharge” means the amount of water from precipitation that infiltrates into the ground, and becomes part of a ground water body.

“Review agency (municipal)” means the municipal body or official that is responsible for the review of a major development project for compliance with the stormwater management requirements.

“Sediment” means solid material, mineral or organic, that is in suspension and 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.

“Solid and floatable materials” means sediment, debris, trash, and other floating, suspended, or settleable solids.

”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, that could be a source of pollutants in any industrial stormwater discharge to ground or surface water. 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.

“Special Resource Waters” means water bodies receiving special protections due to their drinking water status or role as high-quality habitat for Threatened and Endangered species or species of commercial or recreational importance. This includes waterways so designated through the NJ Stormwater Management Rules (N.J.A.C. 7:8) because of exceptional ecological significance, exceptional water supply significance, exceptional recreational significance, exceptional shellfish resource, or exceptional fisheries resource. Waters so designated are

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protected by a 300-foot buffer extending on either side of the waterway measured perpendicular from top-of-bank or center of channel for waterways lacking a defined top-of-bank.

“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, or conveyed by snow removal equipment.

“Stormwater runoff” means the flow of stormwater on or across the surface of the ground, in drainage facilities or in storm sewers.

“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 (a constructed stormwater wetland).

“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 ground water recharge of stormwater or to eliminate illicit or illegal non-stormwater discharges into stormwater conveyances.

“Stream buffer” means a strip of land located immediately adjacent to a stream channel consisting of natural, undisturbed vegetative cover, which serves as a transition area between uplands and riparian lands. A stream buffer may encompass wetlands, may be contained within a flood plain or floodway or may extend beyond a wetland, floodplain or floodway boundary.

“Structural Stormwater Techniques” means a stormwater management measure that involves control of concentrated stormwater runoff or infiltration such as stormwater basins, piped conveyance systems and manufactured stormwater devices, and can include various types of basins, filters, surfaces, and devices located on individual lots in a residential development or throughout a commercial, industrial, or institutional development site in areas not typically suited for larger, centralized structural facilities.

“Threatened and Endangered Species” – Endangered Species are those whose prospects for survival in New Jersey are in immediate danger because of a loss or change in habitat, over-exploitation, predation, competition, disease, disturbance or contamination. Assistance is needed to prevent future extinction in New Jersey. Threatened Species are those who may become endangered if conditions surrounding them begin to or continue to deteriorate. Habitats of endangered or threatened species are those identified by the Department’s Landscape Project as approved by the Department’s Endangered and Nongame Species Program, or by the Department pursuant to the Highlands Act at NJSA 13:20-32k. and 13:20-34a(4).

“Time of concentration” is defined as the time it takes for stormwater runoff to travel from the hydraulically most distant point of the watershed to the point of interest within a watershed.

“Transition area” means an area of protected upland adjacent to a freshwater wetland that minimizes adverse impacts on the wetland or serves as an integral component of the wetlands ecosystem. Also called “buffer” area.

“Urban Redevelopment Area” is defined as previously developed portions of areas delineated on the State Plan Policy Map (SPPM) as the Metropolitan Planning Area (PA1); Designated Centers, Cores or Nodes.

“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.

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“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.

of this ordinance shall comply with the requirements of Sections 16.84.090.B and C. (Ord. 06-11)

16.84.030 General Standards

A. Design and Performance Standards for Stormwater Management Measures

1. Stormwater management measures for major development shall be designed to meet the erosion control, ground water recharge, and stormwater runoff quantity and quality standards in Section 16.84.030, as described in technical guidance documents listed in Section 16.84.060. As detailed in 16.84.030, to the maximum extent practicable, 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 along with the practicable nonstructural strategies, and/or off site mitigation measures..
2. The standards in this ordinance apply to both new major development and redevelopment and are intended to minimize the impact of stormwater runoff on water quality and water quantity in receiving water bodies and maintain ground water recharge. The standards do not apply to 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.

B. Stormwater Management Requirements for Major Development

1. Nonstructural Stormwater Management Strategies. To the maximum extent practicable, the standards in Sections 16.84.030.B and C shall be met by incorporating nonstructural stormwater management strategies set forth in this subsection into the design. The applicant shall identify the nonstructural measures incorporated into the design of the project. Documentation of the use of nonstructural stormwater management measures shall require the preparation by the applicant of the NJDEP Low Impact Development checklist. If the applicant contends that it is not feasible for engineering, environmental, or safety reasons to incorporate any or only specific nonstructural stormwater management measures identified in Section 16.84.030.B.2 below into the design of a particular project, the applicant shall identify the strategy or strategies considered and provide a basis for the contention. In both cases, the applicant bears the burden of proving any impracticability. If the Board finds that the applicant has not provided stormwater management strategies to the maximum extent practicable then the application shall be deemed to be in violation of the stormwater management ordinance.
2. Nonstructural stormwater management strategies incorporated into site design shall:
 - a. Protect areas that provide water quality benefits or areas particularly susceptible to erosion and sediment loss;
 - b. Minimize the creation of new impervious surfaces and reduce, break up or otherwise disconnect the flow of runoff over impervious surfaces;
 - c. Maximize the protection of natural drainage features and vegetation, except where native or natural vegetation is considered invasive;
 - d. Minimize the decrease in the "time of concentration" from pre-construction to post construction;
 - e. Minimize land clearing and disturbance and overall site grading;
 - f. Minimize soil compaction;
 - g. Retain native, non-invasive vegetation, plant low-maintenance landscaping, plant native vegetation, and minimize the creation of lawns and the use of plantings and vegetation that require the excessive use of fertilizers, pesticides and irrigation;

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- 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, exposure and/or mobilization of pollutants and prevent or minimize the release and transport of those pollutants into stormwater runoff. Such source controls include, but are not limited to:
 - j. Site design features that help to prevent accumulation of trash and debris in drainage systems, including features that satisfy Section 16.84.030.B.3 below;
 - k. Site design features that help to prevent discharge of trash and debris from drainage systems;
 - l. Site design features that help to prevent and/or contain spills or other harmful accumulations of pollutants at industrial or commercial developments; and
 - m. When establishing vegetation after land disturbance, application 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. Prior to applying fertilizer, soil tests must be conducted onsite to determine the type of fertilization necessary.
3. Site design features identified under Section 16.84.030.B.2 above shall comply with the following standard to control passage of solid and floatable materials through storm drain inlets. For exemptions to this standard see Section 16.84.030.A.3.e below.
- a. Design engineers shall use either 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 water body under that grate:
 - b. The New Jersey Department of Transportation (NJDOT) bicycle safe grate, which is described in Chapter 2.4 of the NJDOT Bicycle Compatible Roadways and Bikeways Planning and Design Guidelines (April 1996); or
 - c. 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 0.5 inches across the smallest dimension.
 - d. Whenever design engineers use a curb-opening inlet, 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.
 - e. This standard does not apply:
 - i. Where the review agency determines that this standard would cause inadequate hydraulic performance that could not practicably be overcome by using additional or larger storm drain inlets that meet these standards;
 - ii. Where flows from the water quality design storm as specified in 16.84.030.C.1 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:
 - (1) A rectangular space four and five-eighths inches long and one and one-half inches wide (this option does not apply for outfall netting facilities); or
 - (2) A bar screen having a bar spacing of 0.5 inches.
 - (3) Where flows are conveyed through a trash rack that has parallel bars with one-inch (1") spacing between the bars, to the elevation of the water quality design storm as specified in Section 16.84.030.C.1; or
 - (4) Where the review agency determines that action to meet this standard is an undertaking that constitutes an encroachment or will

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damage or destroy a structure or site listed or determined to be eligible to be listed on the National Register for Historic Places as listed within the Township Historical Survey, Hunterdon County Historical Survey, The New Jersey Register of Historical Places or the National Register of Historic Places or as may be further recommended by the Raritan Township Local Historians Committee

4. Any land area used as a nonstructural stormwater management measure to meet the performance standards in Sections 16.84.030.B and C shall be:
- dedicated to a government agency; or
 - subjected to a conservation restriction filed with the Hunterdon 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.

5. Guidance for nonstructural stormwater management strategies is available in the New Jersey Stormwater Best Management Practices Manual. The BMP Manual may be obtained from the address identified in Section 16.84.060, or found on the Department's website at www.njstormwater.org.

6. The applicant shall show that the proposed non-structural stormwater management measures are adequate using the New Jersey Department of Environmental Protection's Nonstructural Stormwater Management Strategies Point System (NSPS). If the Board finds that the applicant has not provided for nonstructural stormwater management strategies to the maximum extent practicable then the application shall be deemed to be in violation of the stormwater management ordinance and appropriate mitigation measures shall be provided for.

C. Erosion Control, Ground Water Recharge and Stormwater Runoff Quantity Control Standards

1. This subsection contains minimum design and performance standards to control erosion, maintain ground water recharge, and control stormwater runoff quantity impacts of major development projects.

- 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.
- The minimum design and performance standards for ground water recharge are as follows:

- Using the criteria for calculating stormwater runoff and ground water recharge in Section 16.84.040.B, the design engineer shall comply with at least one of the following standards:

- Demonstrate through hydrologic and hydraulic analysis that the post-developed project site maintains 100 percent of the site's pre-developed average annual ground water recharge volume; or
- Demonstrate through hydrologic and hydraulic analysis that any increase in the project site's projected stormwater runoff volume produced by the 2-Year, 24-hour storm from pre-developed to post-developed conditions is fully infiltrated.

- Ground water recharge is not required at major development projects located within an "urban redevelopment area" as defined in Section 16.84.020 or from those portions of major development projects that produce stormwater runoff described in (3) below.

- The following two types of stormwater runoff shall not be recharged:
 - Stormwater runoff from areas of high pollutant loading. High pollutant loading areas are: 1) areas in industrial and commercial developments where solvents and/or petroleum products are

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loaded/unloaded, stored, or applied; 2) areas where pesticides are loaded/unloaded or stored; 3) 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; and 4) areas where recharge would be inconsistent with a 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

(b). Stormwater runoff from industrial areas exposed to "source material."

iv. The design engineer shall assess and certify the hydraulic impact on the ground water table and design the project site and all site ground water recharge measures so as to avoid adverse hydraulic impacts. Adverse hydraulic impacts include, but are not limited to, raising the ground water table so as to cause surface ponding, flooding of basements and other subsurface facilities, and interference with the proper operation of subsurface sewage disposal systems and other subsurface structures in the vicinity of a ground water recharge measure.

c. The minimum design and performance standards for the control of stormwater runoff quantity are as follows:

i. Using the criteria for calculating stormwater runoff and ground water recharge in Section 16.84.040, the design engineer shall comply with at least one of the following standards:

(a.) Demonstrate through hydrologic and hydraulic analysis that the post-developed stormwater runoff hydrographs from the project site for the 2, 10, and 100-Year storms do not exceed, at any point in time, the site's pre-developed runoff hydrographs for the same storms;

(b.) Demonstrate through hydrologic and hydraulic analysis that under post-developed site conditions: 1) there is no increase in pre-developed stormwater runoff rates from the project site for the 2, 10, and 100-Year storms; and 2) any increased stormwater runoff volume or change in stormwater runoff timing for these storms will not increase flood damage at or downstream of the project site. When performing this analysis for pre-developed site conditions, all off-site development levels shall reflect existing conditions. When performing this analysis for post-developed site conditions, all off-site development levels shall reflect full development in accordance with current zoning and land use ordinances.

(c.) Design onsite stormwater management measures so that the peak post-developed stormwater runoff rates from the project site for the 2, 10 and 100-Year storms are 50, 75 and 80 percent, respectively, of the site's peak pre-developed stormwater runoff rates. Peak stormwater outflow rates for these storms shall be adjusted where necessary to account for the discharge of increased stormwater runoff rates and/or volumes from project site areas not controlled by the onsite measures. The percentages do not have to be applied to those portions of the project site that are not proposed for development at the time of application provided that such areas are: 1) protected from future development by conservation easement, deed restriction, or other acceptable legal measures or 2) would be subject to review under these standards if they are proposed for any degree of development in the future.

2. Any application for a new agricultural or horticultural development that meets the definition of major development in Section 2 shall be submitted to the appropriate Soil Conservation

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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.

D. Stormwater Runoff Quality Standards

1. Stormwater management measures shall be designed to reduce by 80 percent the anticipated post-construction load of total suspended solids (TSS) in stormwater runoff from the developed site, expressed as pounds per year. Stormwater management measures shall only be required for water quality control if an additional 1/4 acre or more 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. Daily limits of TSS (TMDL) may apply to the site development based on conditions of regulatory approvals.

2. The water quality design storm shall be 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, subject to revision due to subsequent rule changes. The calculation of the volume of runoff may take into account the implementation of non-structural and structural stormwater management measures

Table 1: Water Quality Design Storm Distribution			
Time (Minutes)	Cumulative Rainfall (Inches)	Time (Minutes)	Cumulative Rainfall (Inches)
0	0.0000	65	0.8917
5	0.0083	70	0.9917
10	0.0166	75	1.0500
15	0.0250	80	1.0840
20	0.0500	85	1.1170
25	0.0750	90	1.1500
30	0.1000	95	1.1750
35	0.1330	100	1.2000
40	0.1660	105	1.2250
45	0.2000	110	1.2334
50	0.2583	115	1.2417
55	0.3583	120	1.2500
60	0.6250		

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Table 2: TSS Removal Rates for BMPs (Source: New Jersey Stormwater Best Management Practices Manual)	
Best Management Practice	TSS Percent Removal Rate
Bioretention Systems	90
Constructed Stormwater Wetland	90
Extended Detention Basin	40-60
Infiltration Structure	80
Manufactured Treatment Device	See Section 6.C
Sand Filter	80
Vegetative Filter Strip	60-80
Wet Pond	50-90

3. For purposes of TSS reduction calculations, Table 2 presents the presumed removal rates for certain BMPs designed, constructed and maintained in accordance with the New Jersey Stormwater Best Management Practices Manual, subject to revision due to subsequent rule changes. The current edition of the BMP Manual may be obtained from the address identified in Section 16.84.060, or found on the Department's website at www.njstormwater.org. The BMP Manual and other sources of technical guidance are listed in Section 16.84.060. TSS reduction shall be calculated based on the removal rates for the BMPs in Table 2 below. Alternative BMPs, removal rates and methods of calculating removal rates may be approved if the design engineer provides documentation demonstrating the capability of these alternative BMPs, removal rates and computational methods to the review agency. Documentation for alternative rates and methods shall consist of published (peer-reviewed) journal article or scientific paper. A copy of any approved alternative rate or method of calculating the removal rate, including documentation, 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.

4. If more than one BMP in series is necessary to achieve the required 80 percent 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 (expressed as a whole number) from application of both BMPs, and

A = the TSS percent removal rate (whole number) applicable to the first (upstream) BMP

B = the TSS percent removal rate (whole number) applicable to the second (downstream) BMP

In cases where three (or more) BMPs are used in series, the applicant shall calculate the TSS reduction for the two most upstream BMPs in the series using the above formula, then substitute the result (R) of that calculation in the formula for "A" when calculating the combined result with the next BMP in the series.

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5. If there is more than one onsite drainage area, the 80 percent TSS removal rate shall apply to the discharge of each drainage subarea, unless the runoff from the subareas converge on site, in which case the removal rate can be demonstrated through a calculation using an area-weighted average.
6. Stormwater management measures shall also be designed to reduce, to the maximum extent practicable, the post-construction nutrient load from the developed site in stormwater runoff generated from the water quality design storm. In achieving reduction of nutrients to the maximum extent practicable, the design of the site shall include nonstructural strategies and structural measures that optimize nutrient removal while still achieving the performance standards in Sections 16.84.030.B and C. This standard may be superceded by a more stringent numeric effluent limitation 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. Daily limits for nutrient loading (TMDL) may apply to the site development based on conditions of regulatory approvals.
7. 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 16.84.060.
8. 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 and any new stormwater discharge point to waters classified as FW1.
9. Special water resource protection areas shall be established along all waters designated Category One at N.J.A.C. 7:9B, and along all perennial or intermittent streams that drain into or upstream of the Category One waters as shown on the USGS Quadrangle Maps, in the County Soil Surveys within the associated HUC14 drainage area, the Municipal Stormwater Management Plan, or a stream delineation overlay prepared by the Department. 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, unless superceded by a local Stream Corridor Protection Ordinance:
 - i. 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.
 - ii. Encroachment within the designated special water resource protection area under Subsection i. above shall only be allowed where previous development or disturbance has occurred (for example, pre-existing active agricultural use, parking area or maintained lawn area). The encroachment shall only be allowed where the applicant demonstrates to the satisfaction of the review agency 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.
 - 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

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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:

- i. Stabilization measures shall not be placed within 150 feet of the Category One waterway;
 - ii. Stormwater discharges allowed by this section shall achieve a 95 percent TSS post-construction removal rate;
 - iii. Thermal pollution by stormwater discharges shall be addressed to ensure no significant increase or decrease in temperature occurs in the receiving waterway outside of the mixing zone;
 - iv. The encroachment shall only be allowed where the applicant demonstrates to the satisfaction of the review agency that the ecological value and condition of the special water resource protection area will be maintained to the maximum extent practicable;
 - v. A conceptual project design meeting shall be held with the Township staff to identify necessary stabilization measures; and
 - vi. All encroachments proposed under this section shall be reviewed and approved by the Department prior to approval by the review agency.
- d. A stream corridor protection plan for a waterway subject to paragraph C.9 shall maintain or enhance the current ecological value and condition of the special water resource protection area as defined 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. Paragraph C.9 does not apply to the construction of one individual single family dwelling that is not part of a larger development and is 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.

E. Maintenance Plan

The development shall incorporate a maintenance plan for the stormwater management measures incorporated into the design of a major development in accordance with Section 16.84.090.

F. Exemptions

The following linear development projects are exempt from the ground water recharge, stormwater runoff quantity, and stormwater runoff quality requirements of Sections 16.84.030.B and C:

1. The construction of an underground utility line provided that the disturbed areas are re-vegetated 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 constructed of permeable material such as wood chips, unpacked gravel, or porous pavement.

G. Waivers from Strict Compliance

1. A waiver from strict compliance with the ground water recharge, stormwater runoff quantity, and stormwater runoff quality requirements of Sections 16.84.030.B and C 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:
 - a. The applicant demonstrates that there is a public need for the project that cannot be accomplished by any other means;
 - b. The applicant demonstrates, through an alternatives analysis acceptable to the review agency, that through the use of nonstructural and structural stormwater

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management strategies and measures, the option selected complies with the requirements of Sections 16.84.030.B and C to the maximum extent practicable;

c. The applicant demonstrates that, in order to meet the requirements of Sections 16.84.030.B and C, existing structures currently in use, such as homes and buildings, would need to be condemned; and

d. 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 F.1.c. above within the upstream drainage area of the receiving stream, that would provide additional opportunities to mitigate the requirements of Sections 16.84.030.B and C that were not achievable on-site.

2. A waiver from strict compliance with the requirements of Sections 16.84.030.B and C may be issued in those cases where an applicant has demonstrated the inability or impracticality of strict compliance, other than projects addressed under Subsection F.1, with the stormwater management requirements set forth in NJAC 7:8, in an adopted regional stormwater management plan, or in a local ordinance which is as strict as NJAC 7:8. A waiver from strict compliance for such projects can only be obtained if the applicant agrees to undertake a suitable mitigation measure identified in the mitigation section of the municipality's Stormwater Management Plan. In such cases, the Applicant must submit a mitigation plan detailing how the project's failure to strictly comply will be compensated. In cases where a waiver is granted, an applicant should provide mitigation, if possible and/or practical within the same HUC-14 watershed within which the subject project is proposed, or contribute funding toward a regional stormwater control project, or provide for equivalent treatment at an alternate location, or other equivalent water quality benefit, in lieu of implementing the required stormwater control measures on their specific site.

H. Threatened and Endangered Species

When habitat for threatened and endangered species (see definition for Environmental Critical Areas in Section 2), is present on a site, stormwater management measures shall be implemented to avoid adverse impacts caused by pollutant discharge, the creation of concentrated flow, or the alteration of recharge;

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16.84.040 Calculation of Stormwater Runoff and Ground Water Recharge

A. Stormwater Runoff Calculations

1. In complying with the design and performance standards in Sections 16.84.030, the design engineer shall calculate stormwater runoff using one of the following methods:

a. The USDA Natural Resources Conservation Service (NRCS) methodology, including the NRCS Runoff Equation, NRCS Dimensionless Unit Hydrograph, and appropriate NRCS 24-Hour design storm, as described in the current NRCS National Engineering Handbook Part 630 – Hydrology, and the current Technical Release 55 – Urban Hydrology for Small Watersheds or superceding document; or

b. The Rational Method for peak stormwater runoff rate calculations and the Modified Rational Method for stormwater runoff hydrograph calculations. Use of the Rational Method and Modified Rational Method are limited to drainage areas of 20 acres or less. Neither the Rational Method nor Modified Rational Method shall be used to calculate runoff volumes for ground water recharge or stormwater runoff infiltration purposes.

2. When selecting or calculating runoff coefficients for pre-developed project site conditions using any of the above methods, the project site's land cover shall be assumed to be woods. However, another land cover may be used to calculate runoff coefficients if: 1) such land cover has existed at the site or portion thereof site without interruption for at least five years immediately prior to the time of application; and 2) the design engineer can document the

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character and extent of such land cover through the use of photographs, affidavits, and/or other acceptable land use records. If more than one land cover other than woods has existed on the site during the five years immediately prior to the time of application, the land cover with the lowest runoff potential (including woods) shall be used for the computations. All pre-developed land covers shall be assumed to be in good hydrologic condition and, if cultivated, shall be assumed to have applied appropriate conservation practices.

3. In calculating pre-developed site stormwater runoff, the design engineer shall include the effects of all land features and structures, such as ponds, wetlands, depressions, hedgerows and culverts, that reduce pre-developed site stormwater runoff rates and/or volumes.
4. In calculating stormwater runoff using the NRCS methodology, the design engineer shall use appropriate 24-Hour rainfall depths as developed for the project site by the National Oceanic and Atmospheric Administration.
5. In calculating stormwater runoff using the NRCS methodology, the design engineer shall separately calculate and then combine the runoff volumes from pervious and directly connected impervious surfaces within a drainage area.
6. Calculation of stormwater runoff from unconnected impervious surfaces shall be based, as applicable, upon the Two-Step methodology as described in the Department's current Stormwater Best Management Practices Manual or the NRCS methodology described in the current Technical Release 55 – Urban Hydrology for Small Watersheds.

B. Ground Water Recharge Calculations

1. In complying with the design and performance standards in Section 16.84.030, the design engineer may calculate ground water recharge in accordance with the New Jersey Groundwater Recharge Spreadsheet (NJGRS) computer program as described in the Department's current Stormwater Best Management Practices Manual. Alternative ground water recharge calculation methods may be used upon approval by the municipal engineer.
2. In complying with the design and performance standards in Section 16.84.030, the design engineer shall calculate stormwater runoff infiltration volumes in accordance with the USDA Natural Resources Conservation Service (NRCS) methodology, including the NRCS Runoff Equation, as described in the current NRCS National Engineering Handbook Part 630 – Hydrology and the current Technical Release 55 – Urban Hydrology for Small Watersheds. In addition, the design engineer shall use appropriate 2-Year, 24-Hour rainfall depths as developed for the project site by the National Oceanic and Atmospheric Administration.
3. When selecting or calculating runoff coefficients for pre-developed project site conditions for ground water recharge or stormwater runoff infiltration calculations, the project site's land cover shall be assumed to be woods. However, another land cover may be used to calculate runoff coefficients if: 1) such land cover has existed at the site or portion thereof site without interruption for at least five years immediately prior to the time of application; and 2) the design engineer can document the character and extent of such land cover through the use of photographs, affidavits, and/or other acceptable land use records. If more than one land cover other than woods has existed on the site during the five years immediately prior to the time of application, the land cover with the lowest runoff potential (including woods) shall be used for the computations. All pre-developed land covers shall be assumed to be in good hydrologic condition and, if cultivated, shall be assumed to have conservation treatment. (Ord. 06-11)

16.84.050 Standards for Structural Stormwater Management Measures

A. Structural Management Measures

Standards for structural stormwater management measures are as follows:

1. Structural stormwater management measures shall be designed to factor into the design the existing site conditions which may cause the measure to fail, have an adverse effect on water quality or quantity, or cause harm or damage to persons or property, including, for example,

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environmentally critical areas, wetlands; flood-prone areas; slopes; depth to seasonal high water table; soil type, permeability and texture; drainage area and drainage patterns; existing or former mines; significant land filling; and the presence of solution-prone carbonate rocks (limestone) and related Karst topography.

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 16.84.070.

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. The measures are to be sequenced in the site development process so that erosion control standards are met and so the measure is not compromised or impaired by construction runoff.

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 16.84.070.

6. Where tail water will affect the hydraulic performance of a stormwater management measure, the design engineer shall include such effects in the measure's design.

B. Guidelines for Management Measures

Stormwater management measure guidelines are available in the New Jersey Stormwater Best Management Practices Manual and other documents as described in Section 16.84.060. Other stormwater management measures may be utilized provided the design engineer demonstrates to the satisfaction of the review agency that the proposed measure and its design will accomplish the required water quantity, ground water recharge and water quality design and performance standards established by Section 16.84.030 of this ordinance.

C. Manufactured Treatment Devices

1. Manufactured treatment devices may be used to meet the requirements of Section 16.84.030 of this ordinance, provided the pollutant removal rates are verified by the New Jersey Corporation for Advanced Technology and certified by the Department.

2. Non-verified manufactured treatment devices may also be used for purposes other than underground discharge of stormwater, where such devices provide a clear benefit to stormwater quality or flow control in a manner that facilitates improved nonstructural stormwater management controls on the site, or avoids the need for approval of off-site mitigation. The benefits of proposed non-verified manufactured treatment devices must be proved to the satisfaction of the review agency.

3. Manufactured treatment devices may be used only where the maintenance plan required by Section 16.84.090 ensures that the manufactured device will be properly maintained for its functional lifespan and will be replaced as needed with management measures that are at least as effective as the original manufactured treatment device working in accordance with manufacturers specifications. (Ord. 06-11)

16.84.060 Sources for Technical Guidance

A. Primary Technical Guidance

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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, New Jersey 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. This document is also available at www.njstormwater.org.

2. The New Jersey Department of Environmental Protection Stormwater Management Facilities Maintenance Manual, (NJDEP Ocean County Demonstration Study, Stormwater Management Facilities Maintenance Manual, dated June 1989) as amended.

B. Additional Technical Guidance

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, P.O. Box 330, Trenton, New Jersey 08625; (609) 292-5540, or the Hunterdon County Soil Conservation District, 687 Pittstown Road, Suite 1, Frenchtown, NJ 08825, (908) 788-1397.

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

3. The Hunterdon County Soil Conservation District, 687 Pittstown Road, Suite 1, Frenchtown, NJ 08825, (908) 788-1397.

4. The United States Environmental Protection Agency, including the National Management Measures to Control Nonpoint Source Pollution from Urban Areas, available at the Web site: <http://www.epa.gov/owow/nps/urbanmm/index.html>.

5. Field guides of the United States Department of Agriculture, Natural Resources Conservation Service, where supplemental to and not conflicting with a source of Primary Guidance in Section 7.A.

6. Other similarly authoritative governmental or trade association sources acceptable to the municipality.

(Ord. 06-11)

16.84.070 Safety Standards for Stormwater Management Basins

A. General Scope

This section sets forth requirements to protect public safety through the proper design and operation of stormwater management basins. This section applies to any new stormwater management basin.

B. Requirements for Trash Racks, Overflow Grates and Escape Provisions

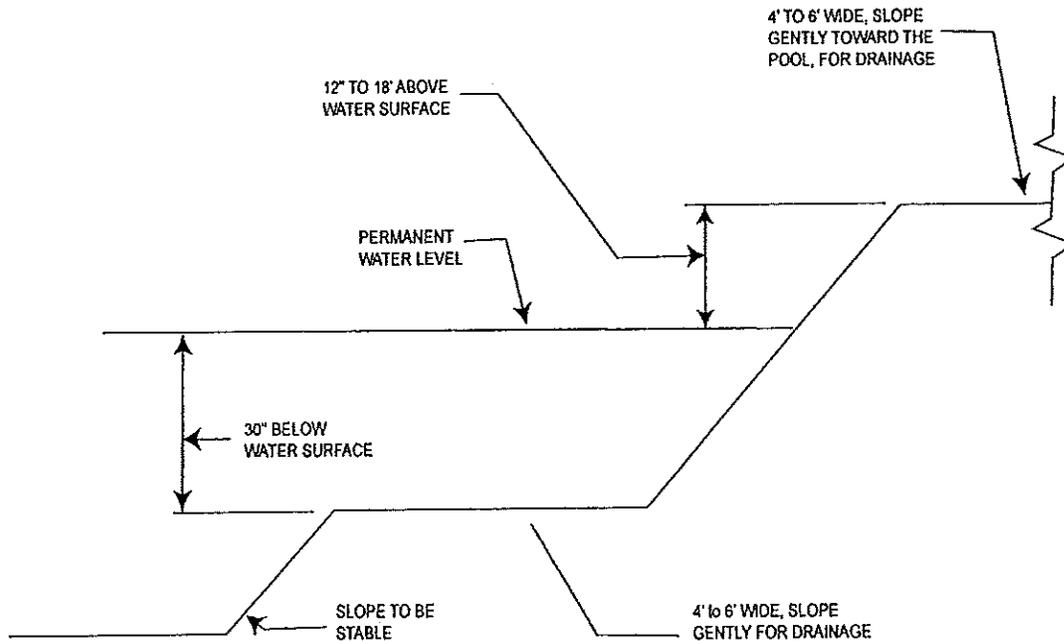
1. A trash rack is a device intended to intercept runoff-borne trash and debris that might otherwise block the hydraulic openings in the outlet structure of a structural stormwater management measure. Trash racks shall be installed upstream of such outlet structure openings to ensure proper functioning of the structural stormwater management measure in accordance with the following:

- a. The trash rack should be constructed primarily of bars aligned in the direction of flow with a maximum bar spacing of approximately $\frac{1}{2}$ the diameter or width of the hydraulic opening it is protecting. Transverse bars aligned perpendicular to flow should be sized and spaced as necessary for rack stability and strength.

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- b. The trash rack shall not adversely affect the hydraulic performance of either the outlet structure opening it is protecting or the overall outlet structure.
 - c. The trash rack shall have sufficient net open area under clean conditions to limit the peak design storm velocity through it to a maximum of 2.5 feet per second.
 - 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 lbs/ft sq.
2. An overflow grate is a device intended to protect the opening in the top of a stormwater management measure outlet 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 more 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 lbs./ft sq.
3. Structural stormwater management measures shall include escape provisions as follows:
- a. If a structural stormwater management measure has an outlet structure, escape provisions shall be incorporated in or on the structure. Escape provisions means the permanent installation of ladders, steps, rungs, or other features that provide readily accessible means of ingress and egress from the outlet structure.
 - b. Safety ledges shall be constructed on the slopes of all new structural stormwater management measures having a permanent pool of water deeper than two and one-half feet. Such safety ledges shall be comprised of 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 Section 16.84.070.D for an illustration of safety ledges in a stormwater management basin.
 - c. In new stormwater management basins, the maximum slope of the interior and exterior of an earthen dam, embankment, or berm shall not be steeper than 3 horizontal to 1 vertical in accordance with N.J.A.C. 7:8-6(c)3.
 - d. An emergency drawdown method for detention basins is required where the permanent pool will be more than two and one-half feet deep. This drawdown method must consider downstream or offsite stability at the outfall in accordance with the Standards for Soil Erosion and Sediment Control in New Jersey.

Depicted is an elevational view.



NOTE: NOT DRAWN TO SCALE

NOTE: FOR BASINS WITH PERMANENT POOL OF WATER ONLY

(Ord. 06-11)

16.84.080 Conflict of provisions.

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 Section 16.84.080.C below as part of the submission of the applicant's application for subdivision or site plan approval.

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

3. The applicant shall submit to the approving municipal authority the required number of copies of the materials listed in the checklist for site development stormwater plans in accordance with Section 16.84.080.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 (the review agency). That review agency shall consult the township 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 ordinance.

C. Submission Requirements

The information in 16.84.080.C.1 through 16.84.080.C.8 below shall be provided unless a waiver is approved through 16.84.080.C.9 below:

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1. Existing Site Conditions Base Map, including topography, streams, roads and current built environment

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 300 feet beyond the limits of the proposed development, at a scale appropriate to show site details, showing 2-foot contour intervals.

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 critical areas and to those that provide particular opportunities or constraints for development.

3. Project Description and Site Plan(s)

A map (or maps) at a scale appropriate for the site 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. Stormwater Site Planning and Design Summary

This plan shall provide a demonstration of how the goals and standards of Sections 3 through 6 are being met, including both nonstructural and structural approaches. The focus of this plan shall be to describe how the site is being managed or developed to meet the objective of controlling ground water recharge, stormwater quality and stormwater quantity problems at the source by land management and source controls whenever possible. Refer to the Municipal Stormwater Management Plan and/or the Municipal Stormwater Pollution Prevention Plan for additional requirements. It should explain in full the maps required by this section.

5. Stormwater Management Facilities Map(s)

The following information, illustrated on a map at a scale appropriate for the site, 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, land area to remain in natural vegetation, and details of the proposed plan to infiltrate, manage, 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 and discharge stability calculations for the pre-development and post-development conditions for the design storms specified in Section 16.84.030 of this ordinance.
- b. When the proposed stormwater management control measures (e.g., infiltration basins) depend 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 soils present at the location of the control measure. The municipality shall be notified of site investigation activities and given the opportunity to have a witness, either prior to approval or as a condition of approval, as appropriate for the specific type of measure. Subsequent to approval of the major development, post-construction bulk soil density and infiltration testing shall be required

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for all infiltration measures that were used as justification for meeting the recharge standard, to ensure that they were properly constructed.

7. Maintenance and Repair Plan

The design and planning of the stormwater management facility shall meet the maintenance requirements of Section 16.84.090.

8. Completed New Jersey Department of Environmental Protections Nonstructural Stormwater Management Strategies Point System (NSPS) spreadsheet and narrative further describing the information used to prepare the spreadsheet.

9. Waiver from Submission Requirements

The review agency may, in consultation with the municipal engineer, waive submission of any of the requirements in Sections 16.84.080.C.1 through 16.84.080.C.6 of this ordinance when it can be demonstrated that the information requested is impossible to obtain or it would create a significant economic hardship on the applicant to obtain and its absence will not materially affect the review process. (Ord. 06-11)

16.84.090 Maintenance and Repair

A. Applicability

1. Projects subject to review pursuant to Section 16.84.010.C of this ordinance shall comply with the requirements of Sections 16.84.090.B and 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. This plan shall be separate from all other documents and designed for ongoing use by the site owners or operators in performing and documenting maintenance and repair, and by the municipality in ensuring implementation of the maintenance plan. The final maintenance plan shall be updated and provided to the municipality post-construction to include an evaluation based on the specifications of the initial maintenance plan and as-built conditions.

2. The maintenance plan shall contain specific preventive maintenance tasks and schedules; cost estimates, including estimated cost of sediment, debris, or trash removal and disposal; safety needs; identification of methods and disposal sites for materials removed during maintenance; maintenance requirements for created wetlands and other ecological systems; safety devices and systems; warranty and operational standards from the manufacturers of any manufactured treatment devices (See Section 16.64.050.C); and the name, address, and telephone number of the person or persons responsible for preventive and corrective maintenance (including replacement), using maintenance guidelines for stormwater management measures from Section 16.64.060, the Municipal Stormwater Management Plan, Municipal Stormwater Pollution Prevention Plan and any relevant regional stormwater management plan. If the maintenance plan identifies a person other than the developer (for example, a public agency or homeowners' association) as having the responsibility for continuing 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 16.84.090.B.2 above is not a public agency, the maintenance plan and any future revisions based on Section 16.84.090.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. Preventive and corrective maintenance shall be performed to maintain the function of the stormwater management measures, including repairs or replacement to the structures; removal of

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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 16.84.090.B.2 above shall maintain a detailed log of all preventive 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 16.84.090.B.2 above shall evaluate the effectiveness of the maintenance plan at least once per year and adjust the plan and the deed as needed.

8. The person responsible for maintenance identified under Section 16.84.090.B.2 above shall retain, submit annually to the municipality 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 16.84.090.B.6 and 16.84.090.B.7 above.

9. The requirements of Sections 16.84.090.B.3 and 16.84.090.B.4 do not apply to stormwater management facilities that are dedicated to and accepted by the municipality or another governmental agency of competent jurisdiction.

10. In the event that the stormwater management facility becomes a danger to public safety or public health or is in need of maintenance or repair, 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 township engineer or his designee. The municipality, 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 municipality or County may immediately proceed to do so and shall bill the cost thereof to the responsible person.

C. 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.

D. The maintenance plan shall specifically provide a specific municipal right of access for inspection of measures, and for maintenance if required under Section 16.64.090.B.10. (Ord. 06-11)

16.84.100 Site Conditions to be Considered for a Site Development Stormwater Plan

In addition to the prescribed information in Section 16.64.080: Requirements for a Site Development Stormwater Plan, Part C. Submission Requirements, the following elements should be considered and presented as appropriate and in combinations sufficient to adequately indicate the existing site conditions and that of the surrounding environs:

1. Hydrology
 - a. Perennial or intermittent streams as shown on the USGS 7.5 Minute Quadrangle Maps and as indicated in the Soil Survey of Hunterdon County, New Jersey
 - b. Special water resource protection areas 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, in the Municipal Stormwater Management Plan, or in the County Soil Surveys
 - c. Wetlands, NJDEP Linear Non-Tidal Wetlands, Marshlands and NJDEP Letter of Interpretation findings
 - d. FEMA Q3 Flood Data 100 Year-Floodplains and Floodways
 - e. Geometry of on-site drainage areas

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2. Boundaries and Buffers
 - a. Appropriate buffers to streams, rivers, wetlands, marshlands, ponds, lakes and other water bodies as specified in pertinent "ordinances, rules, regulations, statutes or other provisions of law imposed by local, County, State or Federal agencies"
 - b. Existing and proposed bearing and distances of property lines
 - c. Existing and proposed conservation, maintenance, construction, reconstruction, sight, utility, drainage and right-of way easements and dedications
3. Vegetation and Landscaping
 - a. Pervious and vegetated surfaces, i.e. woodlands, grasslands and other significant natural features not listed if being utilized for LID credit
 - b. Native and invasive stands of vegetation
 - c. Vegetated habitat for Threatened and Endangered Species
4. Geology and Soils (as indicated in the Soil Survey of Hunterdon County, New Jersey)
 - a. Steep slopes, 10% or > slopes
 - b. Soil types
 - c. Highly erodible soils, with an erodibility factor (K) of .40 or <
 - d. Drainage Class and recharge potential
 - e. Colloidal soils
 - f. Depth to bedrock
 - g. Seasonal high water table
 - h. Soils subject to dynamic compaction and compacted soils
 - i. Soil pH
 - j. Shrink swell potential
 - k. Deeply fractured bedrock
 - l. Limestone and karst topography
 - m. Hardpans and plough pans
5. Existing Man Made Structures and Activities
 - a. Existing buildings and significant permanent manmade features
 - b. Roads by classification, parking areas and other impervious surfaces
 - c. Bridges and culverts
 - d. Utilities, sub-surface and above ground
 - e. Mining / quarry operations and blasting areas
 - f. Acid or other hazardous runoff
 - g. Areas of fill and buried debris
 - h. Wellheads and associated ground water withdrawals Pipes, discharges and BMP' s of existing stormwater utilities
 - i. Groundwater mounding
 - j. Septic systems and wells of adjacent lots
 - k. Leaking sanitary lines
 - l. Previous land use (agricultural, industrial, commercial)

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SITE CONDITIONS CHECKLIST			
In addition to the prescribed information in Section 916.64.080: Requirements for a Site Development Stormwater Plan, Part C. Submission Requirements, the following elements should be considered and presented as appropriate and in combinations sufficient to adequately indicate the <u>existing</u> site conditions and that of the surrounding environs:			
Y	N	N/A	Hydrology
			Perennial or intermittent streams as shown on the USGS 7.5 Minute Quadrangle Maps and as indicated in the Soil Survey of Hunterdon County, New Jersey
			Special water resource protection areas along all waters designated Category One at N.J.A.C. 7:9B and perennial/intermittent streams that drain into/upstream of the Category One waters as shown on the USGS Quad Maps Soil Survey
			Wetlands, NJDEP Linear Non-Tidal Wetlands, Marshlands and NJDEP Letter of Interpretation findings
			FEMA Q3 Flood Data 100 Year-Floodplains and Floodways
			Geometry of on-site drainage areas
Y	N	N/A	Boundaries and Buffers
			Appropriate buffers to streams, rivers, wetlands, marshlands, ponds, lakes and other water bodies as specified in pertinent "ordinances, rules, regulations, statutes or other provisions of law imposed by local, County, State or Federal agencies"
			Existing and proposed bearing and distances of property lines
			Existing and proposed conservation, maintenance, construction, reconstruction, sight, utility, drainage and right-of way easements and dedications
Y	N	N/A	Vegetation and Landscaping
			Pervious and vegetated surfaces, i.e. woodlands, grasslands and other significant natural features not listed if being utilized for LID credit
			Native and invasive stands of vegetation
			Vegetated habitat for Threatened and Endangered Species
Y	N	N/A	Geology and Soils (Soil Survey of Hunterdon County, New Jersey)
			Steep slopes, 10% or > slopes
			Soil types
			Highly erodible soils, with an erodibility factor (K) of .40 or <
			Drainage Class and recharge potential
			Colloidal soils
			Depth to bedrock
			Seasonal high water table
			Soils subject to dynamic compaction and compacted soils
			Soil pH
			Shrink swell potential
			Deeply fractured bedrock
			Limestone and karst topography
			Hardpans and plough pans
Y	N	N/A	Existing Man Made Structures and Activities
			Existing buildings and significant permanent manmade features

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		Roads by classification, parking areas and other impervious surfaces
		Bridges and culverts
		Utilities, sub-surface and above ground
		Mining / quarry operations and blasting areas
		Acid or other hazardous runoff
		Areas of fill and buried debris
		Wellheads and associated ground water withdrawals
		Pipes, discharges and BMP' s of existing stormwater utilities
		Groundwater mounding
		Septic systems and wells of adjacent lots
		Leaking sanitary lines
		Previous land use (agricultural, industrial, commercial)

(Ord. 06-11)

Chapter 16.85

FLOODPLAIN REGULATIONS

Sections:

16.85.010	Site Plan and Permit Requirements in Floodplain
16.85.020	Specific Floodplain Requirements
16.85.030	Application Procedures for Building Permit
16.85.040	Conflict of Provisions
16.85.050	Administration and Enforcement
16.85.060	Floodplain Certificates
16.85.070	Violation – Penalty

16.85.010 Site Plan and Permit Requirements in Floodplain

A. Site Plan Data. Action by Planning Board. In addition to the site plan approval requirements contained in Chapter 16.20, no building or structure shall hereafter be erected, enlarged, expanded, externally altered or modified nor any paving, fill, excavation or improvement be permitted within any floodplain area unless a development application has been submitted to the township planning board for its review and approval.

Such plan shall be drawn to a scale not less than one inch equals fifty (50) feet and shall show in addition to the information required under other ordinances, the following information:

1. Existing and proposed buildings and structures;
2. Proposed finished grade elevations at the corners of any structure or structures;
3. Existing topography and proposed grading at contour intervals of at least two feet;
4. The lowest elevation within any proposed structure after its completion;
5. The location, type and size of all existing and proposed storm drainage facilities and other utilities servicing or proposed to service the premises in question;
6. The location, size and nature of all existing and proposed drainage rights-of-way or easements and the location, size and description of any lands to be dedicated to the municipality, county or state;
7. The layout and size of existing and proposed public or private streets;
8. The elevation of any existing or proposed pumping facilities;
9. The nature and extent of any construction alterations or repairs;
10. The location, size and nature of the entire lot or lots in question and any contiguous lots owned by the applicant or in which the applicant has a direct or indirect interest;
11. Proof of stream encroachment lines obtained from the department;
12. The extent of filling of the land, if any;
13. The location, type and size of all existing and proposed erosion and siltation control measures, such as slope protection, soil stabilization, sedimentation basins, sediment traps, headwalls, aprons and the like;

14. Any and all other information and data necessary to meet any of the requirements of this title.

In any given situation for good and sufficient reasons the planning board may waive any of the above submission requirements.

In addition, where required by the planning board, the developer shall furnish information relating to subsurface conditions, based on percolation tests and soil borings or probes. Test borings or probes shall be performed by a licensed professional engineer with proven competency in the field of soils engineering standards and practices. A detailed report of the test shall be submitted to the planning board and township engineer for review.

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The planning board shall act upon the site plan within sixty (60) days of the date of formal acceptance by the planning board thereof or the date of approval by the department, whichever is later, or other extension of time agreed to by the applicant. Failure of the planning board to act within the time limit, or limits, shall be deemed a denial of any site plan submitted under this title. Planning board disapproval shall include written findings upon any site plan element found contrary to the provisions or intent of this title.

B. Permits. No person shall engage in a permitted use within a delineated floodplain until all necessary permits have been obtained.

C. Conditions. The planning board may impose such conditions on permitted uses as it deems appropriate to promote the public safety, health and welfare, to protect public and private property, wildlife and fisheries, and to preserve, protect and enhance the natural environment of the floodplain. No certificate of occupancy shall be issued unless all conditions of approval have been complied with. (Ord. 06-11)

16.85.020 Specific Floodplain Requirements

A. Preservation of Natural Land. It is found that natural floodplains, periodic flooding, soils, vegetation, fish and wildlife and that periodic flooding of lowland areas, marshes and swamps adjacent to stream channels produces a rich physical-chemical environment for many living organisms. It is further found that floodplains contain biological communities which are among the most productive of natural systems and perform the following essential to the natural environment:

1. Passage and storage of storm floodwaters;
2. Removal of sediment loads from streams through deposition;
3. Replenishment of groundwater supplies through soil infiltration;
4. Dissipation of energy of flood flows, thereby reducing downstream destruction;
5. Provide areas of recreational and aesthetic pleasure.

Because of the importance of the natural floodplain as cited above, all natural land within any delineated floodplain shall be preserved in its natural state and, where possible, developed land within the floodplain shall be restored to its natural state so as to duplicate the natural or undeveloped drainage characteristics in terms of runoff and velocity.

B. Permitted Uses in Channels, Floodplains and Floodplain (500 year) Areas.

1. Channel. Within any channel, structures may be erected, enlarged, expanded or externally altered and fill, excavation or other improvements or changes may be permitted only in connection with stream improvement or stabilization, which improvements or changes shall have the specific approval of the State Department of Environmental Protection and the township planning board. The Hunterdon County planning board shall receive copies of all exhibits for their review and approval as required.

2. Floodplain. Within any floodplain, structures may be erected, enlarged, expanded or externally altered, and fill, excavation or other improvements or changes may be permitted only in connection with stream improvement or stabilization, which improvements or changes shall have the specific approval of the State Department of Environmental Protection and the township planning board. The Hunterdon County planning board shall receive copies of all exhibits for their review and approval as required.

The accepted practices of soil husbandry and farming, as well as recreational uses in the nature of parks, playgrounds, picnic areas, golf course, and boat landings shall be permitted in accordance with the issuance of a permit as provided by Section 16.84.050(B). No material, equipment or vehicles shall be parked or stored in the floodway even in conjunction with a permitted use.

3. Floodplain (500 year) areas. Until a floodplain (500 year) has been designated by the department, the requirements for the floodplain, subsection (C)(2) of this section, shall apply to the floodplain (500) area.

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Once a floodplain has been designated, structures may be constructed, erected, enlarged, expanded, externally altered or modified and fill, excavation and other improvements may be permitted in the floodplain (500 year) area only after receiving specific approval of the township planning board a use allowed by the zoning chapter and further subject to the conditions set forth in this title.

C. Prohibited Uses in Channels, Floodways and Flood Fringe Areas. No person shall hereafter engage in, cause, or permit other persons to engage in prohibited uses within a delineated floodplain. The following uses shall be prohibited:

1. Placing, depositing, or dumping any fill, solid waste, garbage, refuse, trash, rubbish or debris;
2. Dumping or discharging untreated domestic sewerage or industrial wastes, either solid or liquid;
3. The storage or disposal of pesticides or of chemical soil nutrients;
4. The storage or processing of materials that are in time of flooding buoyant, flammable or explosive;
5. The storage or processing of hazardous materials.

D. Pre-existing Nonconforming Structures and Uses.

1. Structures or land uses in any floodplain which existed on or before April 28, 1975, may be permitted to continue subject to the following conditions:

a. If any pre-existing structure is destroyed by any means, including floods, to an extent of fifty (50) percent or more of its replacement cost at time of destruction, it shall not be reconstructed, except in conformity with the provisions of this title;

b. No pre-existing structure shall be moved, altered, expanded, changed or enlarged unless the provisions of this title are complied with. This provision does not apply to routine maintenance and repair, provided that such maintenance and repair does not increase the flood damage potential of the structure.

In any portion of the floodplain, an existing nonconforming use or structure may be altered or expanded provided that such alteration or expansion does not increase its ground coverage or flood damage potential.

2. Structures in the floodplain, vacant or unused, for six consecutive months or longer shall not qualify as pre-existing uses. This subsection shall not apply to structures for rent or sale. (Ord. 06-11)(Prior code § 15-11.6)

16.85.030 Application Procedures for Building Permit

A. Notice of Hearing--Review by Planning Board.

1. Notice of Hearing. Upon application for a development in the floodplain, a public hearing shall be held by the planning board in accordance with Section 16.08.050. In addition to the requirements of Section 16.08.050, notice shall be given to the township's environmental commission and the governing bodies and environmental commissions of other municipalities which may be affected by the proposed use.

2. Review--Criteria. In reviewing the application and arriving at findings, the planning board shall consult with the township engineer and other experts and consider the following criteria in addition to those set forth in Section 16.84.060(B):

- a. The danger to life and property due to increased flood heights or velocities caused by encroachment;
- b. The danger that materials may be swept onto other lands or downstream to the injury of others;
- c. The proposed water supply and sanitation systems and the insulation of these systems from disease, contamination, and unsanitary conditions resulting from flooding;
- d. The susceptibility of the proposed use to flood damage and the effects of such damage;
- e. The need for a waterfront location;
- f. The availability of alternate locations not subject to flooding;
- g. The duration, rate of rise and sediment transport of flood for ordinary and emergency vehicles;

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- h. The safety of access to the property in times of flood for ordinary and emergency vehicles;
- i. The extent to which the hydraulic capacity of the floodway will be disrupted;
- j. The degree to which any aspect of food chain or plant, animal, fish or human life process are affected adversely within or beyond the proposed use area;
- k. The degree to which the proposed activity alters natural water flow or water temperature;
- l. The degree to which the proposed use provides facilities for the proper handling of litter, trash, refuse, and sanitary and industrial waste;
- m. The degree to which irreplaceable land types will be destroyed;
- n. The degree to which the natural scenic and aesthetic values at the proposed activity site can be retained;
- o. The degree to which materials not subject to major damage by floods are firmly anchored to prevent flotation or are readily removable from the area within the time available after flood warning.

If the planning board finds that the proposed use would violate or tend to violate the purposes and intent of this title, the application shall be denied.

B. Condition of Approval for Permitted Uses. If the application shall not violate the purposes and intent of this title, the planning board may approve the application and impose such permit conditions as are necessary to promote the public safety, health and welfare, to protect public and private property, wildlife and fisheries, and to preserve, protect, and enhance the natural environment of the floodplain.

- 1. General Conditions. These conditions may include, but are not limited to, the following:
 - a. Modification of waste disposal and water supply facilities;
 - b. Imposition of operation controls, sureties and deed restrictions;
 - c. Requirements for construction of stormwater detention facilities, channel modifications, dikes, levees and other protective measures;
 - d. Installation of an adequate flood warning system;
 - e. Postponement of development until such time as protective measures are installed, or until the floodway and flood hazard area have been delineated by the department or the township.
- 2. Specific Conditions. Where applicable, the planning board shall condition approval as follows:
 - a. Fill shall be no lower than one foot above the flood hazard design elevation and shall extend at such height for a distance of at least fifteen (15) feet beyond the limits of any structure erected thereon;
 - b. Structures on fill shall be built so that the first floor or basement are at a minimum of one foot above the flood hazard design elevation;
 - c. Structures not placed on fill shall be otherwise elevated so that the first floor is at a minimum of one foot above the flood hazard design elevation or shall be flood proofed as set forth in subdivision (2)(d) of this subsection. Flood proofing alone shall not be adequate for residences, hospitals, nursing homes, schools, day care centers, and similar uses;
 - d. Flood proofing measures shall be consistent with the flood protection elevation for the particular area, flood velocities, durations, rates of rise, hydrostatic and hydrodynamic forces, and other similar factors. The planning board shall require the applicant to submit a plan or document certified by a registered professional engineer that the flood proofing measures are consistent with the flood hazard design elevation and associated flood factors. Any or all of the following flood proofing measures may be required:
 - i. Anchorage to resist flotation and lateral movement,
 - ii. Installation of watertight doors, bulkheads, and shutters, or similar devices,
 - iii. Reinforce walls to resist water pressures,
 - iv. Use of paints, membranes or mortars to reduce seepage of water through walls,
 - v. Addition of weight to structures to resist floatation,
 - vi. Installation of pumps to lower water levels in structures,
 - vii. Construction of water supply and waste treatment systems in a manner which prevents the entrance of flood waters,
 - viii. Pumping facilities, or comparable measures, for the subsurface drainage systems of buildings to relieve external foundation wall and basement flood pressures,

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- ix. Construction that resists rupture or collapse caused by water pressure or floating debris,
- x. Installation of valves or controls on sanitary and storm drains which will permit the drains to be closed to prevent backup of sewerage or stormwaters into the structure. Gravity drainage of basements may be eliminated by mechanical devices,
- xi. Location of all electrical equipment, circuits and installed electrical appliances in a manner which will assure they are not subject to inundation and flooding,
- xii. Storage facilities for chemicals, explosives, buoyant materials, flammable liquids, or other toxic or hazardous materials shall be situated above the flood hazard design elevation and shall be flood proofed to prevent flotation of storage containers or damage to storage containers which could result in the escape of toxic materials into the air or flood waters,
- xiii. Use of construction materials are resistant to water damage;
- xiv. Installation of emergency standby electrical power equipment.

C. *Flood Map.* The Planning Board, after proper investigation, survey and public hearing, may recommend amendments to the Department of Housing and Urban Development Flood Map.

—D. *Flood Insurance.* Flood insurance, in accordance with the National Flood Insurance Program shall be required for all development in the floodplain.

(Ord. 06-11)

16.85.040 Conflict of Provisions

Should the provisions of this chapter conflict with the provisions of any other ordinance of the Township, the provisions of this chapter shall take precedence unless such other ordinance places greater restrictions on the use of land and density of development or construction standards, then such other ordinance shall apply. (Ord. 06-11)

16.85.050 Administration and Enforcement

The administration and enforcement of the provisions of this chapter relating to the construction, erection, maintenance and continued operation at design capacity of stormwater detention facilities and other facilities, structures, devices and techniques required under this chapter to carry out the objectives of this chapter shall be the responsibility of the Township Engineer. Failure to maintain any stormwater detention facility, structure or device at design capacity or carry out procedures or techniques required as part of this chapter shall be considered a violation of this chapter.

The Township Engineer shall serve notice on the owner or occupant to correct any violations of this chapter within thirty (30) days. Upon failure of the owner or occupant to correct such violation, the Township Engineer shall prosecute a complaint to correct such violation before the municipal judge. (Ord. 06-11)

16.85.060 Floodplain Certificates

Upon written application identifying the property to be certified and the payment of a thirty (\$30.00) dollar fee, the Township Engineer shall certify to the applicant that the property identified in the application is or is not within the floodplain or flood hazard area. (Ord. 06-11)

16.85.070 Violation - Penalty

Refer to Section 1.08. (Ord. 06-11)