

BOROUGH OF CALIFON  
COUNTY OF HUNTERDON  
STATE OF NEW JERSEY

ORDINANCE NO. 2021-07

AN ORDINANCE REPEALING ORDINANCE 2021-02 AND REVISING AND RE-ADOPTING CHAPTER 15.16, ENTITLED "STORMWATER CONTROL", OF THE CODE OF THE BOROUGH OF CALIFON, HUNTERDON COUNTY, NEW JERSEY

BE IT ORDAINED by the Mayor and Council of the Borough of Califon, in the County of Hunterdon, State of New Jersey that the Borough Code adopted August 24, 2000 and heretofore amended be further amended as follows:

SECTION ONE:

Chapter 15.16, Entitled "Stormwater Control", of the Code of the Borough of Califon is hereby deleted and replaced in its entirety with the following:

**Chapter 15.16 - Stormwater Control**

**15.16.010 - Scope and purpose.**

A. Policy Statement. Stormwater management is the process of minimizing stormwater runoff and directing stormwater by appropriate nonstructural and structural stormwater management measures, so as to control flooding, recharge ground water, and reduce pollution of water resources. Transport of stormwater-related pollutants into local surface and ground waters can have detrimental results; the destruction of fish, wildlife, and habitats; threats to public health due to contaminated food and drinking water supplies; and losses of recreational and aesthetic values. Stormwater management shall occur with the understanding and acceptance of stormwater as a resource; low impact and non-structural measures shall be tailored to a site, and applied wherever and to the extent practicable.

Flood control, groundwater recharge, and pollutant reduction through nonstructural or low impact techniques shall be explored before relying on structural best management practices (BMPs). Structural BMPs should be integrated with nonstructural stormwater management strategies and proper maintenance plans. Nonstructural strategies include both environmentally sensitive site design and source controls that prevent pollutants from being placed on the site or from being exposed to stormwater. Source control plans should be developed based upon physical site conditions and the origin, nature, and the anticipated quantity or amount of potential pollutants. Multiple

stormwater management BMPs may be necessary to achieve the established performance standards for water quality, quantity, and groundwater recharge.

B. Purpose. It is the purpose of this chapter to establish minimum stormwater management requirements and controls for "major development," as defined in Section 15.16.020. This chapter guides new development in a manner that is proactive and minimizes harmful impacts to natural resources. The provisions of this chapter are intended to:

1. Minimize increased stormwater runoff and volumes;
2. Induce water recharge into the ground wherever suitable infiltration, soil permeability, and favorable geological conditions exist;
3. Prevent an increase in nonpoint source pollution;
4. Maintain the integrity and stability of stream channels and riparian zone for their ecological functions, as well as for drainage, the conveyance of floodwater, and other purposes;
5. Control and minimize soil erosion and the transport of sediment.
6. Maintain adequate baseflow and natural flow regimes in all streams and other surface water bodies to protect the aquatic ecosystem;
7. Protect all surface water resources from degradation; and
8. Protect ground water resources from degradation and diminution.

C. Applicability.

1. This chapter shall be applicable to all site plans and subdivisions for the following major developments that require preliminary or final site plan or subdivision review:
  - a. Non-residential major developments; and
  - b. Aspects of residential major developments that are not pre-empted by the Residential Site Improvement Standards (RSIS) at N.J.A.C. 5:21.
2. This chapter shall also be applicable to all major developments undertaken by the Borough of Califon.
3. This chapter does not apply to activities of Hunterdon County, the State of New Jersey, and the government of the United States of America when those activities are specifically exempted from Borough regulation by relevant state or federal law.

D. Compatibility with Other Permit and Ordinance Requirements.

Development approvals issued for subdivisions and site plans pursuant to this chapter are to be considered an integral part of development approvals under the subdivision and site plan review process and do not relieve the applicant of the responsibility to secure required permits or approvals for activities regulated by any other applicable code, rule, act, or ordinance. In their interpretation and application, the provisions of this chapter shall be held to be the minimum requirements for the promotion of the public health, safety, and

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

#### **15.16.020 - Definitions.**

Unless specifically defined below, words or phrases used in this chapter shall be interpreted so as to give them the meaning they have in common usage, and to give this chapter its most reasonable application. The definitions below are the same as or based on the corresponding definitions in the stormwater management rules at N.J.A.C. 7:8-1.2.

"Borough" means the Borough of Califon

"Category One (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 N.J.A.C. 7:9B-1.15(c) through (h) for purposes of implementing the anti-degradation policies set forth at N.J.A.C. 7:9B-1.5(d) for protection from measurable changes in water quality 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 resource(s).

"Contributory drainage area" means the area from which stormwater runoff drains to a stormwater management measure, not including the area of the stormwater management measure itself.

"Department" means the New Jersey Department of Environmental Protection.

"Designated center" means a state development and redevelopment plan center as designated by the state planning commission such as urban, regional, town, village, or hamlet.

"Design engineer" means a person professionally qualified and duly licensed in New Jersey to perform engineering services that may include, but not necessarily be limited to, development of project requirements, creation and development of project design and preparation of drawings and specifications.

"Development" means the division of a parcel of land into two or more parcels, the construction, reconstruction, conversion, structural alteration, relocation or enlargement of any building or structure, any mining excavation or landfill, and any use or change in the use of any building or other structure, or land or extension of use of land, 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 Borough 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 activity that causes soil to be exposed to the potential 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 areas" means an area or feature which is of significant environmental value, including but not limited to: stream corridors; natural heritage priority sites; habitat of endangered or threatened species; large areas of contiguous open space or upland forest; steep slopes; and well head protection and groundwater recharge areas. Habitats of endangered or threatened species are identified using the department's landscape project as approved by the department's endangered and nongame species program, 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.

"Green Infrastructure" means a stormwater management measure that manages stormwater close to its source by treating stormwater runoff through infiltration into subsoil, treating stormwater runoff through filtration by vegetation or soil, or storing stormwater runoff for reuse.

"HUC-14" or "hydrologic unit code 14" means an area within which water drains to a particular receiving surface water body, also known as a subwatershed, which is identified by a 14-digit hydrologic unit boundary designation, delineated within New Jersey by the United States Geological Survey.

"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, N.J.S.A. 13:20-1 *et seq.* as amended.

"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.

"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 predominately 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.

"Maintenance plan" means a document required for all major development projects for stormwater management maintenance. The document shall contain specific preventative maintenance tasks and schedules; cost estimates, including estimated cost of sediment, debris, or trash removal; and the name, address, and telephone number of the person or persons responsible for preventative and corrective maintenance.

"Major development" means an individual "development," as well as multiple developments that individually or collectively result in:

- (1) The disturbance of one or more acres of land since February 2, 2004;
- (2) The creation of one-quarter acre or more of "regulated impervious surface" since February 2, 2004;
- (3) The creation of one-quarter acre or more of "regulated motor vehicle surface" since March 2, 2021;
- (4) A combination of (2) and (3) above that totals an area of one-quarter acre or more. The same surface shall not be counted twice when determining if the combination area equals one-quarter acre or more.

"Major development" includes all developments that are part of a common plan of development or sale (for example, phased residential development) that collectively or individually meet any one or more of paragraphs (1), (2), (3), or (4) above. Projects undertaken by any government agency that otherwise meet the definition of "major development" but which do not require approval under the Municipal Land Use Law, N.J.S.A. 40:55D-1 *et seq.*, are also considered "major development."

"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 N.J.A.C. 7:8, in an adopted regional stormwater management plan, or in this local ordinance, and has received a waiver from strict compliance from the Borough. Mitigation for the purposes of this Chapter, 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, 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.

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

"Motor vehicle surface" means any pervious or impervious surface that is intended to be used by "motor vehicles" and/or aircraft, and is directly exposed to precipitation including, but not limited to, driveways, parking areas, parking garages, roads, racetracks, and runways.

"New Jersey Stormwater Best Management Practices (BMP) Manual" or "BMP Manual" means the manual maintained by the Department providing, in part, design specifications, removal rates, calculation methods, and soil testing procedures approved by the Department as being capable of contributing to the achievement of the stormwater management standards specified in this chapter. The BMP Manual is periodically amended by the Department as necessary to provide design specifications on additional best management practices and new information on already included practices reflecting the best available current information regarding the particular practice and the Department's determination as to the ability of that best management practice to contribute to compliance with the standards contained in this chapter. Alternative stormwater management measures, removal rates, or calculation methods may be utilized, subject to any limitations specified in this chapter, provided the design engineer demonstrates to the Borough, in accordance with paragraph 15.16.040 F. and N.J.A.C. 7:8-5.2(g), that the proposed measure and its design will contribute to achievement of the design and performance standards established by this chapter.

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

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

"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, Borough of Califon, or political subdivision of this State subject to Borough 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 nonhazardous pollutants.

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

"Regulated impervious surface" means any of the following, alone or in combination:

1. A net increase of impervious surface;
2. The total area of impervious surface collected by a new stormwater conveyance system (for the purpose of this definition, a "new stormwater conveyance system" is a stormwater conveyance system that is constructed where one did not exist immediately prior to its construction or an existing system for which a new discharge location is created);
3. The total area of impervious surface proposed to be newly collected by an existing stormwater conveyance system; and/or
4. The total area of impervious surface collected by an existing stormwater conveyance system where the capacity of that conveyance system is increased.

"Regulated motor vehicle surface" means any of the following, alone or in combination:

1. The total area of motor vehicle surface that is currently receiving water;
2. A net increase in motor vehicle surface; and/or  
quality treatment either by vegetation or soil, by an existing stormwater management measure, or by treatment at a wastewater treatment plant, where the water quality treatment will be modified or removed.

"Riparian Zone" 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 the stream channel. A Riparian may encompass wetlands, may be contained with a floodplain or floodway, or may extend beyond a wetlands, floodplain or floodway boundary.

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

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

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

"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.

"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 management BMP" means an excavation or embankment and related areas designed to retain stormwater runoff. A stormwater management BMP may either be normally dry (that is, a detention basin or infiltration system), retain water in a permanent pool (a retention basin), or be planted mainly with wetland vegetation (most constructed stormwater wetlands). "Stormwater runoff" means water flow on the surface of the ground or in storm sewers, resulting from precipitation.

"Stormwater management measure" means any structural or nonstructural strategy, practice, technology, process, program, or other method intended to control or reduce stormwater runoff and associated pollutants, or to induce or control the infiltration or groundwater recharge of stormwater or to eliminate illicit or illegal non-stormwater discharges into stormwater conveyances.

"Structural stormwater measure" 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 species 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 N.J.S.A. 13:20-32k. and 13:20-34a(4).

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



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

**15.16.030 - General Standards.**

A. Design and Performance Standards for Stormwater Management Measures.

1. Stormwater management measures for major development shall be designed to provide erosion control, groundwater recharge, stormwater runoff quantity control, and stormwater runoff quality treatment as follows:
  - a. The minimum standards for erosion control are those established under the Soil and Sediment Control Act, N.J.S.A. 4:24-39 *et seq.*, and implementing rules at N.J.A.C. 2:90.
  - b. The minimum standards for groundwater recharge, stormwater quality, and stormwater runoff quantity shall be met by incorporating green infrastructure.
2. The standards in this chapter apply only to new major development and are intended to minimize the impact of stormwater runoff on water quality and water quantity in receiving water bodies and maintain groundwater recharge. The standards do not apply to major developments 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.

**15.16.040 - Stormwater management requirements for major development.**

- A. 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 15.16.100.
- B. Threatened and Endangered Species. Stormwater management measures shall avoid adverse impacts of concentrated flow on habitat for threatened and endangered species as documented in the department' landscape project or natural heritage database established under N.J.S.A. 13:1B-15.147 through 15.150, particularly *Helonias bullata* (swamp pink) and/or *Clemmys muhlenbergi* (bog turtle).
- C. Exemptions. The following linear development projects are exempt from the groundwater recharge, stormwater runoff quantity, and stormwater runoff quality requirements of paragraphs 15.16.040 P., Q., and R.:
  1. The construction of an underground utility line provided that the disturbed areas are revegetated upon completion;
  2. The construction of an aboveground utility line provided that the existing conditions are maintained to the maximum extent practicable; and

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

D. Waivers from Strict Compliance. A waiver from strict compliance from the groundwater recharge, stormwater runoff quantity, and stormwater runoff quality requirements of paragraphs 15.16.040 F. and G. may be obtained for the enlargement of an existing public roadway or railroad; or the construction or enlargement of a public pedestrian access, provided that the following conditions are met:

1. The applicant demonstrates that there is a public need for the project that cannot be accomplished by any other means;
2. The applicant demonstrates through an alternatives analysis, that through the use of nonstructural and structural stormwater management strategies and measures, the option selected complies with the requirements of paragraphs 15.16.040 F. and G. to the maximum extent practicable;
3. The applicant demonstrates that, in order to meet the requirements of paragraphs 15.16.040 F. and G., existing structures currently in use, such as homes and buildings, would need to be condemned; and
4. The applicant demonstrates that it does not own or have other rights to areas, including the potential to obtain through condemnation lands not falling under paragraph D.3. above within the upstream drainage area of the receiving stream, that would provide additional opportunities to mitigate the requirements of paragraphs 15.16.040 F. and G. that were not achievable on-site.

A waiver from strict compliance with the requirements of paragraphs 15.16.040 B. and C. may be issued in those case where an applicant has demonstrated the inability or impracticality of strict compliance, other than projects addressed under paragraph 15.16.040 F.1., with the stormwater management requirements set forth in N.J.A.C. 7:8, in an adopted regional stormwater management plan, or in a local ordinance which is as strict as N.J.A.C. 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 Borough'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.

E. Tables 1 through 3 below summarize the ability of stormwater practices identified and described in the New Jersey Stormwater Best Management Practices Manual to satisfy the green infrastructure, groundwater recharge, stormwater runoff quality and stormwater runoff quantity standards specified in paragraphs 15.16.040 O., P., Q. and R. When designed in accordance with the most current version of the New Jersey Stormwater Best Management Practices Manual, the stormwater management measures found at N.J.A.C. 7:8-5.2 (f) Tables 5-1, 5-2 and 5-3 and listed below in Tables 1, 2 and 3 are presumed to be capable of providing stormwater controls for the design and performance standards as outlined in the tables below. Upon amendments of the New Jersey Stormwater Best Management Practices to reflect additions or deletions of BMPs meeting these standards, or changes in the presumed performance of BMPs designed in accordance with the New Jersey Stormwater BMP Manual, the Department shall publish in the New Jersey Registers a notice of administrative change revising the applicable table. The most current version of the BMP Manual can be found on the Department’s website at: [https://njstormwater.org/bmp\\_manual2.htm](https://njstormwater.org/bmp_manual2.htm).

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

| <b>Table 1<br/>Green Infrastructure BMPs for Groundwater Recharge,<br/>Stormwater Runoff Quality, and/or Stormwater Runoff<br/>Quantity</b> |  |                                   |                             |   |
|---|--|-----------------------------------|-----------------------------|---|
| <b>Best Management Practice</b>   | <b>Stormwater Runoff Quality TSS Removal</b> | <b>Stormwater Runoff Quantity</b> | <b>Groundwater Recharge</b> | <b>Minimum Separation from Seasonal High Water Table (feet)</b> |
| Cistern   | 0  | Yes                               | No                          | --  |
| Dry Well <sup>(a)</sup>   | 0  | No                                | Yes                         | 2   |
| Grass Swale   | 50 or less                                   | No                                | No                          | 2 <sup>(e)</sup><br>1 <sup>(f)</sup>                            |
| Green Roof  | 0  | Yes                               | No                          | --  |
| Manufactured Treatment Device <sup>(a)</sup> <sup>(g)</sup>   | 50 or 80                                     | No                                | No                          | Dependent upon the device                                       |

|   |          |     |   |                                      |
|---|----------|-----|---|--------------------------------------|
| Pervious Paving System <sup>(a)</sup>         | 80       | Yes | Yes <sup>(b)</sup><br>No <sup>(c)</sup> | 2 <sup>(b)</sup><br>1 <sup>(c)</sup> |
| Small-Scale Bioretention Basin <sup>(a)</sup> | 80 or 90 | Yes | Yes <sup>(b)</sup><br>No <sup>(c)</sup> | 2 <sup>(b)</sup><br>1 <sup>(c)</sup> |
| Small-Scale Infiltration Basin <sup>(a)</sup> | 80       | Yes | Yes                                     | 2                                    |
| Small-Scale Sand Filter                       | 80       | Yes | Yes                                     | 2                                    |
| Vegetative Filter Strip                       | 60-80    | No  | No                                      | --                                   |

Notes corresponding to annotations (a) through (g) are found on Table 3 Below

| <b>Table 2<br/>Green Infrastructure BMPs for Stormwater Runoff Quantity<br/>(or for Groundwater Recharge and/or Stormwater Runoff<br/>Quality</b> |   |                                   |   |   |
|---|---|-----------------------------------|---|---|
| <b>Best Management Practice</b>   | <b>Stormwater Runoff Quality TSS Removal Rate (percent)</b> | <b>Stormwater Runoff Quantity</b> | <b>Groundwater Recharge</b>             | <b>Minimum Separation from Seasonal High Water Table (feet)</b> |
| Bioretention System   | 80 or 90  | Yes                               | Yes <sup>(b)</sup><br>No <sup>(c)</sup> | 2 <sup>(b)</sup><br>1 <sup>(c)</sup>                            |
| Infiltration Basin  | 80  | Yes                               | Yes                                     | 2   |
| Sand Filter <sup>(b)</sup>  | 80  | Yes                               | Yes                                     | 2   |
| Standard Constructed Wetland  | 90  | Yes                               | No                                      | N/A   |
| Wet Pond <sup>(d)</sup>   | 50-90   | Yes                               | No                                      | N/A   |

Notes corresponding to annotations (a) through (g) are found on Table 3 Below

| <b>Table 3<br/>BMPs for Groundwater Recharge, Stormwater Runoff Quality,<br/>and/or Stormwater Runoff Quantity only with a Waiver or<br/>Variance from N.J.A.C. 7:8-5.3</b> |  |                                   |                             |   |
|---|--|-----------------------------------|-----------------------------|---|
| <b>Best Management Practice</b>   | <b>Stormwater Runoff Quality TSS Removal</b> | <b>Stormwater Runoff Quantity</b> | <b>Groundwater Recharge</b> | <b>Minimum Separation from Seasonal High Water Table (feet)</b> |
| Blue Roof   | 0  | Yes                               | No                          | N/A   |
| Extended Detention Basin  | 40-60  | Yes                               | No                          | 1   |
| Manufactured Treatment Device <sup>(h)</sup>  | 50 or 80                                     | No                                | No                          | Dependent upon the device                                       |
| Sand Filter <sup>(c)</sup>  | 80   | Yes                               | No                          | 1   |
| Subsurface Gravel Wetland   | 90   | No                                | No                          | 1   |
| Wet Pond  | 50-90  | Yes                               | No                          | N/A   |

Notes to Tables 1, 2, and 3:

- (a) subject to the applicable contributory drainage area limitation specified at paragraph 15.16.040 O.2;
- (b) designed to infiltrate into the subsoil;
- (c) designed with underdrains;
- (d) designed to maintain at least a 10-foot-wide area of native vegetation along at least 50 percent of the shoreline and to include a stormwater runoff retention component designed to capture stormwater runoff for beneficial reuse, such as irrigation;
- (e) designed with a slope of less than two percent;
- (f) designed with a slope of equal to or greater than two percent;

(g) manufactured treatment devices that meet the definition of green infrastructure at Section 15.16.020;

(h) manufactured treatment devices that do not meet the definition of green infrastructure at Section 15.16.020.

G. An alternative stormwater management measure, alternative removal rate, and/or alternative method to calculate the removal rate may be used if the design engineer demonstrates the capability of the proposed alternative stormwater management measure and/or the validity of the alternative rate or method to the Borough. A copy of any approved alternative stormwater management measure, alternative removal rate, and/or alternative method to calculate the removal rate shall be provided to the Department in accordance with paragraph 15.16.070 B. Alternative stormwater management measures may be used to satisfy the requirements at paragraph 15.16.040 O. only if the measures meet the definition of green infrastructure at Section 15.16.020. Alternative stormwater management measures that function in a similar manner to a BMP listed at paragraph 15.16.040 O.2. are subject to the contributory drainage area limitation specified at paragraph 15.16.040 O.2. for that similarly functioning BMP. Alternative stormwater management measures approved in accordance with this paragraph that do not function in a similar manner to any BMP listed at paragraph 15.16.040 O.2. shall have a contributory drainage area less than or equal to 2.5 acres, except for alternative stormwater management measures that function similarly to cisterns, grass swales, green roofs, standard constructed wetlands, vegetative filter strips, and wet ponds, which are not subject to a contributory drainage area limitation. Alternative measures that function similarly to standard constructed wetlands or wet ponds shall not be used for compliance with the stormwater runoff quality standard unless a variance in accordance with N.J.A.C. 7:8-4.6 or a waiver from strict compliance in accordance with paragraph 15.16.040 D. is granted from paragraph 15.16.040 O.

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

I. Design standards for stormwater management measures are as follows:

1. Stormwater management measures shall be designed to take into account the existing site conditions, including, but not limited to, environmentally critical areas; wetlands; flood-prone areas; slopes; depth to seasonal high water table; soil type, permeability, and texture; drainage area and drainage patterns; the presence of solution-prone carbonate rocks (limestone area) and related karst topography;
2. Stormwater management measures shall be designed to minimize maintenance, facilitate maintenance and repairs, and ensure proper functioning. Trash racks shall be installed at the intake to the outlet structure, as appropriate, and shall have parallel bars with one-inch spacing between the bars to the elevation of the water quality design storm. For elevations higher than the water quality design storm, the parallel bars at the outlet structure shall be spaced no greater than one-third the width of the diameter of the orifice or one-third 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 paragraph 15.16.080 C.;
3. Stormwater management measures shall be designed, constructed, and installed to be strong, durable, and corrosion resistant. Measures that are consistent with the relevant portions of the Residential Site Improvement Standards at N.J.A.C. 5:21-7.3, 7.4, and 7.5 shall be deemed to meet this requirement;
4. Stormwater management BMPs shall be designed to meet the minimum safety standards for stormwater management BMPs at Section 15.16.080; and
5. The size of the orifice at the intake to the outlet from the stormwater management BMP shall be a minimum of two and one-half inches in diameter.

J. Manufactured treatment devices may be used to meet the requirements paragraph 15.16.040 Q., provided the pollutant removal rates are verified by the New Jersey Corporation for Advanced Technology and certified by the Department. Manufactured treatment devices that do not meet the definition of green infrastructure at Section 15.16.020 may be used only under the circumstances described at paragraph 15.16.040 O.4.

K. Any application for a new agricultural development that meets the definition of major development at Section 15.16.020 shall be submitted to the Soil Conservation District for review and approval in accordance with the requirements at paragraphs 15.16.040 O., P., Q. and R. and any applicable Soil Conservation District guidelines for stormwater runoff quantity and erosion control. For purposes of this paragraph, "agricultural development" means land uses normally associated with the production of food, fiber, and livestock for sale. Such uses do not include the development of land for the processing or sale of food and the manufacture of agriculturally related products.

L. If there is more than one drainage area, the groundwater recharge, stormwater runoff quality, and stormwater runoff quantity standards at paragraphs 15.16.040 P., Q. and R. shall be met in each drainage area, unless the runoff from the drainage areas converge onsite and no adverse environmental impact would occur as a result of compliance with any one or more of the individual standards being determined utilizing a weighted average of the results achieved for that individual standard across the affected drainage areas.

M. Any stormwater management measure authorized under the Borough stormwater management plan or ordinance shall be reflected in a deed notice recorded in the Hunterdon County Clerk's Office. A form of deed notice shall be submitted to the Borough for approval prior to filing. The deed notice shall contain a description of the stormwater management measure(s) used to meet the green infrastructure, groundwater recharge, stormwater runoff quality, and stormwater runoff quantity standards at paragraphs 15.16.040 O., P., Q. and R. and shall identify the location of the stormwater management measure(s) in NAD 1983 State Plane New Jersey FIPS 2900 US Feet or Latitude and Longitude in decimal degrees. The deed notice shall also reference the maintenance plan required to be recorded upon the deed pursuant to paragraph 15.16.100 B.5. Prior to the commencement of construction, proof that the above required deed notice has been filed shall be submitted to the Borough. Proof that the required information has been recorded on the deed shall be in the form of either a copy of the complete recorded document or a receipt from the clerk or other proof of recordation provided by the recording office. However, if the initial proof provided to the Borough is not a copy of the complete recorded document, a copy of the complete recorded document shall be provided to the Borough within 180 calendar days of the authorization granted by the Borough.

N. A stormwater management measure approved under the Borough stormwater management plan or ordinance may be altered or replaced with the approval of the Borough, if the Borough determines that the proposed alteration or replacement meets the design and performance standards pursuant to Section 15.16.040 and provides the same level of stormwater management as the previously approved stormwater management measure that is being altered or replaced. If an alteration or replacement is approved, a revised deed notice shall be submitted to the Borough for approval and subsequently recorded with the Hunterdon County Clerk's Office and shall contain a description and location of the stormwater management measure, as well as reference to the maintenance plan, in accordance with M above. Prior to the commencement of construction, proof that the above required deed notice has been filed shall be submitted to the Borough in accordance with M above.

O. Green Infrastructure Standards



1. Paragraph 15.16.040 O. specifies the types of green infrastructure BMPs that may be used to satisfy the groundwater recharge, stormwater runoff quality, and stormwater runoff quantity standards.
2. To satisfy the groundwater recharge and stormwater runoff quality standards at paragraphs 15.16.040 P. and Q., the design engineer shall utilize green infrastructure BMPs identified in Table 1 at paragraph 15.16.040 F. and/or an alternative stormwater management measure approved in accordance with paragraph 15.16.040 G. The following green infrastructure BMPs are subject to the following maximum contributory drainage area limitations:

| <b>Best Management Practice</b>  | <b>Maximum Contributory Drainage Area</b>  |
|----------------------------------|--|
| Dry Well                         | 1 acre   |
| Manufactured Treatment Device    | 2.5 acres  |
| Pervious Pavement Systems        | Area of additional inflow cannot exceed three times the area occupied by the BMP |
| Small-scale Bioretention Systems | 2.5 acres  |
| Small-scale Infiltration Basin   | 2.5 acres  |
| Small-scale Sand Filter          | 2.5 acres  |

3. To satisfy the stormwater runoff quantity standards at paragraph 15.16.040 R., the design engineer shall utilize BMPs from Table 1 or from Table 2 and/or an alternative stormwater management measure approved in accordance with paragraph 15.16.040 G.
4. If a variance in accordance with N.J.A.C. 7:8-4.6 or a waiver from strict compliance in accordance with paragraph 15.16.040 D. is granted from the requirements of paragraph 15.16.040 O., then BMPs from Table 1, 2, or 3, and/or an alternative stormwater management measure approved in accordance with paragraph 15.16.040 G. may be used to meet the groundwater recharge, stormwater runoff quality, and stormwater runoff quantity standards at paragraphs 15.16.040 P., Q. and R.
5. For separate or combined storm sewer improvement projects, such as sewer separation, undertaken by a government agency or public utility (for example, a sewerage company), the requirements of paragraph 15.16.040 O. shall only apply to areas owned in fee simple by the government agency or utility, and areas within a right-of-way or easement held or controlled by the government agency or utility; the entity shall not be required to obtain additional property or property rights to fully satisfy the

requirements of paragraph 15.16.040 O. Regardless of the amount of area of a separate or combined storm sewer improvement project subject to the green infrastructure requirements of paragraph 15.16.040 O. each project shall fully comply with the applicable groundwater recharge, stormwater runoff quality control, and stormwater runoff quantity standards at paragraphs 15.16.040 P., Q. and R., unless the project is granted a waiver from strict compliance in accordance with paragraph 15.16.040 D.

P. Groundwater Recharge Standards

1. Paragraph 15.16.040 P. contains the minimum design and performance standards for groundwater recharge as follows:
2. The design engineer shall, using the assumptions and factors for stormwater runoff and groundwater recharge calculations at paragraph 15.16.050, either:
  - a. Demonstrate through hydrologic and hydraulic analysis that the site and its stormwater management measures maintain 100 percent of the average annual pre-construction groundwater recharge volume for the site; or
  - b. Demonstrate through hydrologic and hydraulic analysis that the increase of stormwater runoff volume from pre-construction to post-construction for the 2-year storm is infiltrated.
3. The following types of stormwater shall not be recharged:
  - a. Stormwater from areas of high pollutant loading. High pollutant loading areas are areas in industrial and commercial developments where solvents and/or petroleum products are loaded/unloaded, stored, or applied, areas where pesticides are loaded/unloaded or stored; areas where hazardous materials are expected to be present in greater than "reportable quantities" as defined by the United States Environmental Protection Agency (EPA) at 40 CFR 302.4; areas where recharge would be inconsistent with Department approved remedial action work plan or landfill closure plan and areas with high risks for spills of toxic materials, such as gas stations and vehicle maintenance facilities; and
  - b. Industrial stormwater exposed to "source material."

Q. Stormwater Runoff Quality Standards

1. Paragraph 15.16.040 Q. contains the minimum design and performance standards to control stormwater runoff quality impacts of major development. Stormwater runoff quality standards are applicable when the major development results in an increase of one-quarter acre or more of regulated motor vehicle surface.
2. Stormwater management measures shall be designed to reduce the post-construction load of total suspended solids (TSS) in stormwater runoff generated from the water quality design storm as follows:

- a. Eighty percent TSS removal of the anticipated load, expressed as an annual average shall be achieved for the stormwater runoff from the net increase of motor vehicle surface.
  - b. If the surface is considered regulated motor vehicle surface because the water quality treatment for an area of motor vehicle surface that is currently receiving water quality treatment either by vegetation or soil, by an existing stormwater management measure, or by treatment at a wastewater treatment plant is to be modified or removed, the project shall maintain or increase the existing TSS removal of the anticipated load expressed as an annual average.
3. The requirement to reduce TSS does not apply to any stormwater runoff in a discharge regulated under a numeric effluent limitation for TSS imposed under the New Jersey Pollutant Discharge Elimination System (NJPDES) rules, N.J.A.C. 7:14A, or in a discharge specifically exempt under a NJPDES permit from this requirement. Every major development, including any that discharge into a combined sewer system, shall comply with 2 above, unless the major development is itself subject to a NJPDES permit with a numeric effluent limitation for TSS or the NJPDES permit to which the major development is subject exempts the development from a numeric effluent limitation for TSS.
  4. The water quality design storm is 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 4, below. The calculation of the volume of runoff may take into account the implementation of stormwater management measures.

Table 4 - Water Quality Design Storm Distribution

| <b>Time<br/>(Minutes)</b> | <b>Cumulative<br/>Rainfall<br/>(Inches)</b> | <b>Time<br/>(Minutes)</b> | <b>Cumulative<br/>Rainfall<br/>(Inches)</b> | <b>Time<br/>(Minutes)</b> | <b>Cumulative<br/>Rainfall<br/>(Inches)</b> |
|---------------------------|---|---------------------------|---|---------------------------|---|
| 1                         | 0.00166                                     | 41                        | 0.1728                                      | 81                        | 1.0906                                      |
| 2                         | 0.00332                                     | 42                        | 0.1796                                      | 82                        | 1.0972                                      |
| 3                         | 0.00498                                     | 43                        | 0.1864                                      | 83                        | 1.1038                                      |
| 4                         | 0.00664                                     | 44                        | 0.1932                                      | 84                        | 1.1104                                      |
| 5                         | 0.00830                                     | 45                        | 0.2000                                      | 85                        | 1.1170                                      |
| 6                         | 0.00996                                     | 46                        | 0.2117                                      | 86                        | 1.1236                                      |
| 7                         | 0.01162                                     | 47                        | 0.2233                                      | 87                        | 1.1302                                      |
| 8                         | 0.01328                                     | 48                        | 0.2350                                      | 88                        | 1.1368                                      |
| 9                         | 0.01494                                     | 49                        | 0.2466                                      | 89                        | 1.1434                                      |
| 10                        | 0.01660                                     | 50                        | 0.2583                                      | 90                        | 1.1500                                      |
| 11                        | 0.01828                                     | 51                        | 0.2783                                      | 91                        | 1.1550                                      |
| 12                        | 0.01996                                     | 52                        | 0.2983                                      | 92                        | 1.1600                                      |
| 13                        | 0.02164                                     | 53                        | 0.3183                                      | 93                        | 1.1650                                      |
| 14                        | 0.02332                                     | 54                        | 0.3383                                      | 94                        | 1.1700                                      |
| 15                        | 0.02500                                     | 55                        | 0.3583                                      | 95                        | 1.1750                                      |
| 16                        | 0.03000                                     | 56                        | 0.4116                                      | 96                        | 1.1800                                      |
| 17                        | 0.03500                                     | 57                        | 0.4650                                      | 97                        | 1.1850                                      |
| 18                        | 0.04000                                     | 58                        | 0.5183                                      | 98                        | 1.1900                                      |
| 19                        | 0.04500                                     | 59                        | 0.5717                                      | 99                        | 1.1950                                      |
| 20                        | 0.05000                                     | 60                        | 0.6250                                      | 100                       | 1.2000                                      |
| 21                        | 0.05500                                     | 61                        | 0.6783                                      | 101                       | 1.2050                                      |
| 22                        | 0.06000                                     | 62                        | 0.7317                                      | 102                       | 1.2100                                      |
| 23                        | 0.06500                                     | 63                        | 0.7850                                      | 103                       | 1.2150                                      |
| 24                        | 0.07000                                     | 64                        | 0.8384                                      | 104                       | 1.2200                                      |
| 25                        | 0.07500                                     | 65                        | 0.8917                                      | 105                       | 1.2250                                      |
| 26                        | 0.08000                                     | 66                        | 0.9117                                      | 106                       | 1.2267                                      |
| 27                        | 0.08500                                     | 67                        | 0.9317                                      | 107                       | 1.2284                                      |
| 28                        | 0.09000                                     | 68                        | 0.9517                                      | 108                       | 1.2300                                      |
| 29                        | 0.09500                                     | 69                        | 0.9717                                      | 109                       | 1.2317                                      |
| 30                        | 0.10000                                     | 70                        | 0.9917                                      | 110                       | 1.2334                                      |
| 31                        | 0.10660                                     | 71                        | 1.0034                                      | 111                       | 1.2351                                      |
| 32                        | 0.11320                                     | 72                        | 1.0150                                      | 112                       | 1.2367                                      |
| 33                        | 0.11980                                     | 73                        | 1.0267                                      | 113                       | 1.2384                                      |
| 34                        | 0.12640                                     | 74                        | 1.0383                                      | 114                       | 1.2400                                      |
| 35                        | 0.13300                                     | 75                        | 1.0500                                      | 115                       | 1.2417                                      |
| 36                        | 0.13960                                     | 76                        | 1.0568                                      | 116                       | 1.2434                                      |
| 37                        | 0.14620                                     | 77                        | 1.0636                                      | 117                       | 1.2450                                      |
| 38                        | 0.15280                                     | 78                        | 1.0704                                      | 118                       | 1.2467                                      |
| 39                        | 0.15940                                     | 79                        | 1.0772                                      | 119                       | 1.2483                                      |
| 40                        | 0.16600                                     | 80                        | 1.0840                                      | 120                       | 1.2500                                      |

5. 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:

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

Where

R = total TSS Percent Load Removal from application of both BMPs, and

A = the TSS Percent Removal Rate applicable to the first BMP

B = the TSS Percent Removal Rate applicable to the second BMP.

6. Stormwater management measures shall also be designed to reduce, to the maximum extent practicable, the post-construction nutrient load of the anticipated load from the developed site in stormwater runoff generated from the water quality design storm. In achieving reduction of nutrients to the maximum extent practicable, the design of the site shall include green infrastructure BMPs that optimize nutrient removal while still achieving the performance standards in paragraphs 15.16.040 P., Q. and R.

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

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

9. Pursuant to the Flood Hazard Area Control Act Rules at N.J.A.C. 7:13-11.2(j)3.i, runoff from the water quality design storm that is discharged within a 300-foot riparian zone shall be treated in accordance with paragraph 15.16.040 Q. to reduce the post-construction load of total suspended solids by 95 percent of the anticipated load from the developed site, expressed as an annual average.

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

#### R. Stormwater Runoff Quantity Standards

1. Paragraph 15.16.040 R. contains the minimum design and performance standards to control stormwater runoff quantity impacts of major development.

2. In order to control stormwater runoff quantity impacts, the design engineer shall, using the assumptions and factors for stormwater runoff calculations at Section 15.16.050, complete one of the following:
  - a. Demonstrate through hydrologic and hydraulic analysis that for stormwater leaving the site, post-construction runoff hydrographs for the 2-, 10-, and 100-year storm events do not exceed, at any point in time, the pre-construction runoff hydrographs for the same storm events;
  - b. Demonstrate through hydrologic and hydraulic analysis that there is no increase, as compared to the pre-construction condition, in the peak runoff rates of stormwater leaving the site for the 2-, 10- and 100-year storm events and that the increased volume or change in timing of stormwater runoff will not increase flood damage at or downstream of the site. This analysis shall include the analysis of impacts of existing land uses and projected land uses assuming full development under existing zoning and land use ordinances in the drainage area; or
  - c. Design stormwater management measures so that the post-construction peak runoff rates for the 2-, 10- and 100-year storm events are 50, 75 and 80 percent, respectively, of the pre-construction peak runoff rates. The percentages apply only to the post-construction stormwater runoff that is attributable to the portion of the site on which the proposed development or project is to be constructed.
3. The stormwater runoff quantity standards shall be applied at the site's boundary to each abutting lot, roadway, watercourse, or receiving storm sewer system.

**15.16.050 - Calculation of stormwater runoff and groundwater recharge.**

- A. Stormwater runoff shall be calculated in accordance with the following:
  1. The design engineer shall calculate runoff using one of the following methods:
    - a. The USDA Natural Resources Conservation Service (NRCS) methodology, including the NRCS Runoff Equation and Dimensionless Unit Hydrograph, as described in Chapters 7, 9, 10, 15 and 16 Part 630, Hydrology National Engineering Handbook, incorporated herein by reference as amended and supplemented. This methodology is additionally described in Technical Release 55 - Urban Hydrology for Small Watersheds (TR-55), dated June 1986, incorporated herein by reference as amended and supplemented. Information regarding the methodology is available from the Natural Resources Conservation Service website at:  
[https://www.nrcs.usda.gov/Internet/FSE\\_DOCUMENTS/stelprdb1044171.pdf](https://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb1044171.pdf)

or at United States Department of Agriculture Natural Resources Conservation Service, 220 Davison Avenue, Somerset, New Jersey 08873; or

b. The Rational Method for peak flow and the Modified Rational Method for hydrograph computations. The rational and modified rational methods are described in "Appendix A-9 Modified Rational Method" in the Standards for Soil Erosion and Sediment Control in New Jersey, January 2014. This document is available from the State Soil Conservation Committee or any of the Soil Conservation Districts listed at N.J.A.C. 2:90-1.3(a)3. The location, address, and telephone number for each Soil Conservation District is available from the State Soil Conservation Committee, PO Box 330, Trenton, New Jersey 08625. The document is also available at:

<http://www.nj.gov/agriculture/divisions/anr/pdf/2014NJSoilErosionControlStandardsComplete.pdf>

2. For the purpose of calculating runoff coefficients and groundwater recharge, there is a presumption that the pre-construction condition of a site or portion thereof is a wooded land use with good hydrologic condition. The term "runoff coefficient" applies to both the NRCS methodology at paragraph 15.16.050 A.1.a. and the rational and modified rational methods at paragraph 15.16.050 A.1.b. A runoff coefficient or a groundwater recharge land cover for an existing condition may be used on all or a portion of the site if the design engineer documents through the use of photos, affidavits, or other land use records that the hydrologic condition has existed on the site or portion of the site for at least five years without interruption prior to the time of application. If more than one land cover have existed on the site during the five years immediately prior to the time of application, the land cover with the lowest runoff potential shall be used for the computations. In addition, there is the presumption that the site is in good hydrologic condition (if the land use type is pasture, lawn, or park), with good cover (if the land use type is woods), or with good hydrologic condition and conservation treatment (if the land use type is cultivation).

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

4. In computing stormwater runoff from all design storms, the design engineer shall consider the relative stormwater runoff rates and/or volumes of pervious and impervious surfaces separately to accurately compute the rates and volume of stormwater runoff from the site. In calculating stormwater runoff using the NRCS methodology, the design engineer shall use appropriate twenty-four-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.

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

B. Groundwater recharge may be calculated in accordance with the following:

1. The New Jersey Geological Survey Report GSR-32 A Method for Evaluating Ground-Water Recharge Areas in New Jersey, incorporated herein by reference as amended and supplemented. Information regarding the methodology is available from the New Jersey Stormwater Best Management Practices Manual; at <http://www.state.nj.us/dep/njgs/>; or at New Jersey Geological Survey, 29 Arctic Parkway, P.O. Box 427 Trenton, New Jersey 08625-0427; (609) 984-6587.

2. In complying with the design and performance standards in Section 15.16.040, the design engineer shall calculate stormwater runoff infiltration volumes in accordance with the 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 two-year, twenty-four-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 existing 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 existing 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.

**15.16.060 – Solids and Floatable Materials Control Standard.**

A. Site design features identified under paragraph 15.16.040 F. above, or alternative designs in accordance with paragraph 15.16.040 G. above, to prevent discharge of trash and debris from drainage systems shall comply with the following standard to control passage of solid and floatable materials through storm drain inlets. For purposes of this paragraph, "solid and floatable materials" means sediment, debris, trash, and other floating, suspended, or settleable solids. For exemptions to this standard see paragraph 15.16.060 A.2. below.

1. Design engineers shall use one of the following grates whenever they use a grate in pavement or another ground surface to collect stormwater from that surface into a storm drain or surface water body under that grate:
  - a. 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; or
  - b. 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. Examples of grates subject to this standard include grates in grate inlets, the grate portion (non-curb-opening portion) of combination inlets, grates on storm sewer manholes, ditch grates, trench grates, and grates of spacer bars in slotted drains. Examples of ground surfaces include surfaces of roads (including bridges), driveways, parking areas, bikeways, plazas, sidewalks, lawns, fields, open channels, and stormwater system floors used to collect stormwater from the surface into a storm drain or surface water body.
  - c. For curb-opening inlets, including curb-opening inlets in combination inlets, the clear space in that curb opening, or each individual clear space if the curb opening has two or more clear spaces, shall have an area of no more than seven (7.0) square inches, or be no greater than two (2.0) inches across the smallest dimension.
2. The standard in A.1. above does not apply:
  - a. Where each individual clear space in the curb opening in existing curb-opening inlet does not have an area of more than nine (9.0) square inches;
  - b. Where the Borough agrees that the standards would cause inadequate hydraulic performance that could not practicably be overcome by using additional or larger storm drain inlets;

- c. Where flows from the water quality design storm as specified in N.J.A.C. 7:8 are conveyed through any device (e.g., end of pipe netting facility, manufactured treatment device, or a catch basin hood) that is designed, at a minimum, to prevent delivery of all solid and floatable materials that could not pass through one of the following: a rectangular space four and five-eighths (4.625) inches long and one and one-half (1.5) inches wide (this option does not apply for outfall netting facilities); or a bar screen having a bar spacing of 0.5 inches. Note that these exemptions do not authorize any infringement of requirements in the Residential Site Improvement Standards for bicycle safe grates in new residential development (N.J.A.C. 5:21-4.18(b)2 and 7.4(b)1).
- d. Where flows are conveyed through a trash rack that has parallel bars with one-inch (1 inch) spacing between the bars, to the elevation of the Water Quality Design Storm as specified in N.J.A.C. 7:8; or
- e. Where the New Jersey Department of Environmental Protection determines, pursuant to the New Jersey Register of Historic Places Rules at N.J.A.C. 7:4-7.2(c), that action to meet this standard is an undertaking that constitutes an encroachment or will damage or destroy the New Jersey Register listed historic property.

**15.16.070 - Sources for technical guidance.**

A. Technical guidance for stormwater management measures can be found in the documents listed below, which are available to download from the Department's website at:

[http://www.nj.gov/dep/stormwater/bmp\\_manual2.htm](http://www.nj.gov/dep/stormwater/bmp_manual2.htm).

- 1. Guidelines for stormwater management measures are contained in the New Jersey Stormwater Best Management Practices Manual, as amended and supplemented. Information is provided on stormwater management measures such as, but not limited to, those listed in Tables 1, 2, and 3.
- 2. Additional maintenance guidance is available on the Department's website at:

[https://www.njstormwater.org/maintenance\\_guidance.htm](https://www.njstormwater.org/maintenance_guidance.htm).

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

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

- 1. The "Standards for Soil Erosion and Sediment Control in New Jersey" promulgated by the state soil conservation committee and incorporated into N.J.A.C. 2:90. Copies of these standards may be obtained by contacting the state soil conservation committee or any of the

soil conservation districts listed in N.J.A.C. 2:90-1.3(a)4. The location, address, and telephone number of each soil conservation district may be obtained from the state soil conservation committee, P.O. Box 330, Trenton, New Jersey 08625; (609) 292-5540;

2. The Rutgers Cooperative Extension Service, 732-932-9306;
3. The Hunterdon County Soil Conservation District, 687 Pittstown Road; Suite 1, Frenchtown, N.J. 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, National Resources Conservation Service, where supplemental to and not conflicting with a source of primary guidance in paragraph 15.16.070 A.
6. Other similarly authoritative governmental or trade association sources acceptable to the Borough.

**15.16.080 - Safety standards for stormwater management BMP's.**

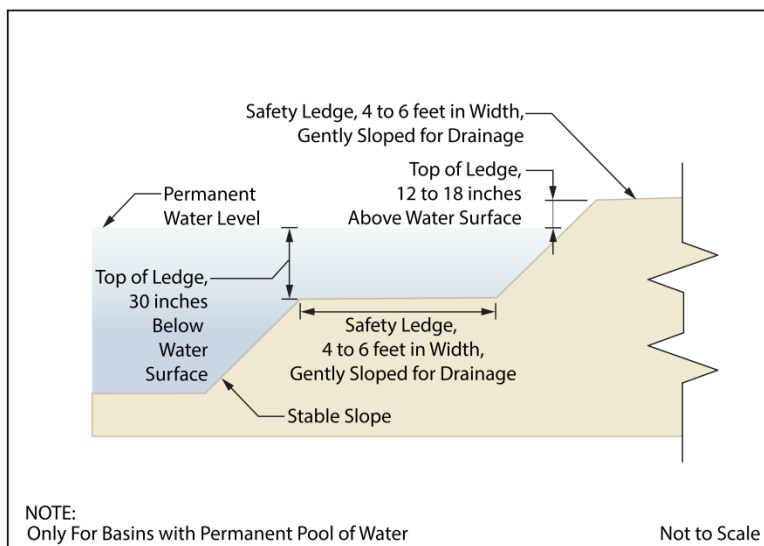
- A. This section sets forth requirements to protect public safety through the proper design and operation of stormwater management BMP's. This section applies to any new stormwater management BMP.
- B. The provisions of this section are not intended to preempt more stringent Borough or county safety requirements for new or existing stormwater management BMPs. Borough and county stormwater management plans and ordinances may, pursuant to their authority, require existing stormwater management BMPs to be retrofitted to meet one or more of the safety standards in paragraphs 15.16.080 C.1., C.2., and C.3. for trash racks, overflow grates, and escape provisions at outlet structures.
- C. Requirements for Trash Racks, Overflow Grates and Escape Provisions.
  1. A trash rack is a device designed to catch trash and debris and prevent the clogging of outlet structures. Trash racks shall be installed at the intake to the outlet from the stormwater management BMP to ensure proper functioning of the basin outlets in accordance with the following:
    - a. The trash rack shall have parallel bars, with no greater than six inch spacing between the bars.
    - b. The trash rack shall be designed so as not to adversely affect the hydraulic performance of the outlet pipe or structure.
    - c. The average velocity of flow through a clean trash rack is not to exceed two and one-half feet per second under the full range of stage and discharge. Velocity is to be computed on the basis of the net area of opening through the rack.

- d. The trash rack shall be constructed and installed to be rigid, durable, and corrosion resistant, and shall be designed to withstand a perpendicular live loading of 300 lbs/ft. sq.
2. An overflow grate is designed to prevent obstruction of the overflow structure. If an outlet structure has an overflow grate, such grate shall meet the following requirements:
    - a. The overflow grate shall be secured to the outlet structure but removable for emergencies and maintenance.
    - b. The overflow grate spacing shall be no less than two inches across the smallest dimension.
    - c. The overflow grate shall be constructed and installed to be rigid, durable, and corrosion resistant, and shall be designed to withstand a perpendicular live loading of 300 lbs./ft. sq.
  3. For purposes of this paragraph 3, escape provisions means the permanent installation of ladders, steps, rungs, or other features that provide easily accessible means of egress from stormwater management BMP's. Stormwater management BMP's shall include escape provisions as follows:
    - a. If a stormwater management BMP has an outlet structure, escape provisions shall be incorporated in or on the structure. With the prior approval of the reviewing agency identified in paragraphs 5.16.080 C. a free-standing outlet structure may be exempted from this requirement.
    - b. Safety ledges shall be constructed on the slopes of all new stormwater management BMP's 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 paragraph 15.16.080 E. for an illustration of safety ledges in a stormwater management BMP.
    - c. In new stormwater management BMP's, the maximum interior slope for an earthen dam, embankment, or berm shall not be steeper than three horizontal to one 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 on-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.
- D. Variance or Exemption from Safety Standards.

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

E. Illustration of Safety Ledges in a New Stormwater Management BMP.

Elevation View –Basin Safety Ledge Configuration



**15.16.090 - Requirements for a site development stormwater plan.**

A. Submission of Site Development Stormwater Plan.

1. Whenever an applicant seeks Borough approval of a development subject to this chapter, the applicant shall submit all of the required components of the checklist for the site development stormwater plan at paragraph 15.16.090 C. below as part of the submission of the applicant's application for subdivision or site plan approval.
2. The applicant shall demonstrate that the project meets the standards set forth in this chapter.
3. The applicant shall submit the required number of copies of the materials listed in the checklist for site development stormwater plans in accordance with paragraph 15.16.090 C.

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 Borough board or official from which Borough approval is sought. That Borough board or official shall consult the engineer retained by the planning and/or zoning board (as appropriate) to determine if all of the checklist requirements have been satisfied and to determine if the project meets the standards set forth in this chapter.

C. Checklist Requirements. The following information shall be required:

1. Topographic Base Map. The reviewing engineer may require upstream tributary drainage system information as necessary. It is recommended that the topographic base map of the site be submitted which extends a minimum of two hundred (200) feet beyond the limits of the proposed development, at a scale of one inch equals two hundred (200) feet or greater, showing two-foot contour intervals. The map as appropriate may indicate the following: existing surface water drainage, shorelines, steep slopes, soils, erodible soils, perennial or intermittent streams that drain into or upstream of the Category One waters, wetlands and flood plains along with their appropriate riparian zone, marshlands and other wetlands, pervious or vegetative surfaces, existing man-made structures, roads, bearing and distances of property lines, and significant natural and manmade features not otherwise shown.
2. Environmental Site Analysis. A written and graphic description of the natural and man-made features of the site and its environs. This description should include a discussion of soil conditions, slopes, wetlands, waterways and vegetation on the site. Particular attention should be given to unique, unusual, or environmentally sensitive features and to those that provide particular opportunities or constraints for development.
3. Project Description and Site Plan(s). A map (or maps) at the scale of the topographical base map indicating the location of existing and proposed buildings, roads, parking areas, utilities, structural facilities for stormwater management and sediment control, and other permanent structures. The map(s) shall also clearly show areas where alterations occur in the natural terrain and cover, including lawns and other landscaping, and seasonal high ground water elevations. A written description of the site plan and justification of proposed changes in natural conditions may also be provided.
4. Land Use Planning and Source Control Plan. This plan shall provide a demonstration of how the goals and standards of Sections 15.16.030 through 15.16.070 are being met. The focus of this plan shall be to describe how the site is being developed to meet the objective of controlling groundwater recharge, stormwater quality and stormwater quantity problems at the source by land management and source controls whenever possible.
5. Stormwater Management Facilities Map. The following information, illustrated on a map of the same scale as the topographic base map, shall be included:
  - a. Total area to be paved or built upon, proposed surface contours, land area to be occupied by the stormwater management facilities and the type of vegetation thereon, and details of the proposed plan to control and dispose of stormwater.
  - b. Details of all stormwater management facility designs, during and after construction, including discharge provisions, discharge capacity

for each outlet at different levels of detention and emergency spillway provisions with maximum discharge capacity of each spillway.

6. Calculations.

a. Comprehensive hydrologic and hydraulic design calculations for the pre-development and post-development conditions for the design storms specified in Section 15.16.040.

b. When the proposed stormwater management control measures (e.g., infiltration basins) depends on the hydrologic properties of soils, then a soils report shall be submitted. The soils report shall be based on onsite boring logs or soil pit profiles. The number and location of required soil borings or soil pits shall be determined based on what is needed to determine the suitability and distribution of soils present at the location of the control measure.

The Borough 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 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 15.16.100.

8. Waiver from Submission Requirements. The Borough official or board reviewing an application under this chapter may, in consultation with the Borough engineer, waive submission of any of the requirements in paragraphs 15.16.090 C.1. through C.6. when it can be demonstrated that the information requested is impossible to obtain or it would create a hardship on the applicant to obtain and its absence will not materially affect the review process.

**15.16.100 - Maintenance and repair.**

A. Applicability.

1. Projects subject to review as in paragraph 15.16.010 C. shall comply with the requirements of paragraphs 15.16.100 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.

2. The maintenance plan shall contain specific preventative maintenance tasks and schedules; cost estimates, including estimated cost of sediment, debris, or trash removal; and the name, address, and telephone number of the person or persons responsible for preventative and corrective

maintenance (including replacement). The plan shall contain information on BMP location, design, ownership, maintenance tasks and frequencies, and other details as specified in Chapter 8 of the NJ BMP Manual, as well as the tasks specific to the type of BMP, as described in the applicable chapter containing design specifics. Maintenance guidelines for stormwater management measures are available in the New Jersey Stormwater Best Management Practices Manual.

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

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

5. If the person responsible for maintenance identified under paragraph 15.16.100 B.2. is not a public agency, the maintenance plan and future revisions based on paragraph 15.16.100 B.7. shall be recorded upon the deed of record for each property on which the maintenance described in the maintenance plan must be undertaken.

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

7. The person responsible for maintenance identified under paragraph 15.16.100 B.2. shall perform all of the following requirements:

- a. maintain a detailed log of all preventative and corrective maintenance for the structural stormwater management measures incorporated into the design of the development, including a record of all inspections and copies of all maintenance-related work orders;
- b. evaluate the effectiveness of the maintenance plan at least once per year and adjust the plan and the deed as needed; and
- c. retain and make available, upon request by any public entity with administrative, health, environmental, or safety authority over the site,



the maintenance plan and the documentation required by paragraphs 15.16.100 B.6. and B.7. above.

d. Beginning on March 2, 2020, persons responsible for maintenance under paragraph 15.16.100 B.2. above shall make annual submissions to the Borough, by March 2, containing excerpts of the detailed log of all preventative and corrective maintenance that was performed for the calendar year that just ended for all structural stormwater measures incorporated into the design of the development, including a record of all inspections and copies of all maintenance related work orders.

8. The person responsible for maintenance identified under paragraph 15.16.100 B.2. shall evaluate the effectiveness of the maintenance plan at least once per year and adjust the plan and the deed as needed.

9. The person responsible for maintenance identified under paragraph 15.16.100 B.2. shall retain and make available, upon request by any public entity with administrative, health, environmental, or safety authority over the site, the maintenance plan and documentation required by paragraphs 15.16.100 B.6. and 7.

10. The requirements of paragraphs 15.16.100 B.3. and 4. do not apply to stormwater management facilities that are dedicated to and accepted by the Borough or another governmental agency.

11. In the event that the stormwater management facility becomes a danger to public safety or public health, or if it is in need of maintenance or repair, the Borough shall so notify the responsible person in writing. Upon receipt of that notice, the responsible person shall have fourteen (14) days to effect maintenance and repair of the facility in a manner that is approved by the Borough engineer or his designee. The Borough, in its discretion, may extend the time allowed for effecting maintenance and repair for good cause. If the responsible person fails or refuses to perform such maintenance and repair, the Borough or 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 Borough 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 Borough right of access for inspection of measures, and for maintenance if required under paragraph 15.16.100 B.10.

#### **15.16.110 - Penalties.**

Any person who erects, constructs, alters, repairs, converts, maintains, or uses any building, structure or land in violation of this Chapter shall be subject to the penalties set forth in Section 1.08.010 of the Code of the Borough of Califon.

SECTION TWO: Repealer. Ordinance 2021-02, which was entitled "An Ordinance Revising and Re-Adopting Chapter 15.16, Entitled 'Stormwater Control', of the Code of the Borough of Califon, Hunterdon County, New Jersey" is hereby repealed in its entirety.

SECTION THREE: Effective Date. This Ordinance shall take effect immediately upon publication of Notice of Final Passage and approval by Hunterdon County in the manner provided by law.

ATTEST:

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Laura G. Eidsvaag, RMC  
Borough Clerk/Administrator

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Charles Daniel  
Mayor

FIRST READING: May 3, 2021

PUBLICATION: May 12, 2021

PUBLIC HEARING/FINAL ADOPTION: June 7, 2021

PUBLICATION BY TITLE: June 16, 2021

Prepared by Mark S. Anderson,  
Borough Attorney