# COUNTY OF BERGEN
# BOROUGH OF PARAMUS
# ORDINANCE No. 2024-32

**AN ORDINANCE TO REPEAL SECTIONS 363-36 THROUGH 363-46.4 OF THE CODE OF THE BOROUGH OF PARAMUS AND TO ENACT A NEW ORDINANCE 381 TO BE TITLED "MUNICIPAL STORMWATER CONTROL ORDINANCE 2024"**

**Section 1.** **NOW THEREFORE BE IT ORDAINED** by the Mayor and Council of the Borough of Paramus that Sections 363-36 through 363-46.4 of Chapter 363 of the Code of the Borough of Paramus titled "SEWERS" is hereby repealed.

**Section 2.** **BE IT FURTHER ORDAINED** by the Mayor and Council of the Borough of Paramus that the following new section 381-1 through 381-13 is hereby adopted

**381-1 Scope and Purpose:**

A. Policy Statement

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

B. Purpose

The purpose of this ordinance is to establish minimum stormwater management requirements and controls for "major development," as defined below in 381-2.

C. Applicability

1. This ordinance shall be applicable to the following major developments:
   a. Non-residential major developments; and
   b. Aspects of residential major developments that are not pre-empted by the Residential Site Improvement Standards at N.J.A.C. 5:21.

2. This ordinance shall also be applicable to all major and minor developments undertaken by Borough of Paramus.

3. An application required by ordinance pursuant to 381-1 (B) above that has been submitted prior to June 25, 2024, shall be subject to the stormwater management requirements in effect on June 24, 2024.

4. An application required by ordinance for approval pursuant to 381-1 (B) above that has been submitted on or after March 2, 2021, but prior to June 25, 2024, shall be subject to the stormwater management requirements in effect on June 24, 2024.

5. Notwithstanding any rule to the contrary, a major development for any public roadway or railroad project conducted by a public transportation entity that has determined a preferred alternative or reached an equivalent milestone before July 17, 2023, shall be subject to the stormwater management requirements in effect prior to July 17, 2023.

D. Compatibility with Other Permit and Ordinance Requirements

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

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

**381-2 Definitions:**

For the purpose of this ordinance, the following terms, phrases, words and their derivations shall have the meanings stated herein unless their use in the text of this Chapter clearly demonstrates a different meaning. When not inconsistent with the context, words used in the present tense include the future, words used in the plural number include the singular number, and words used in the singular number include the plural number. The word "shall" is always mandatory and not merely directory. 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.

"CAFRA Centers, Cores or Nodes" means those areas with boundaries incorporated by reference or revised by the Department in accordance with N.J.A.C. 7:7-13.16.

"CAFRA Planning Map" means the map used by the Department to identify the location of Coastal Planning Areas, CAFRA centers, CAFRA cores, and CAFRA nodes. The CAFRA Planning Map is available on the Department's Geographic Information System (GIS).

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

"Compaction" means the increase in soil bulk density.

"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.

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

"Core Forest" means any forest, as defined below, that has some portion at least 330 feet from all edges of the total forest area.

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

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

"Department" means the Department of Environmental Protection.

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

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

"Development" means the division of a parcel of land into two or more parcels, the construction, reconstruction, conversion, structural alteration, relocation or enlargement of any building or structure, any mining excavation or landfill, and any use or change in the use of any building or other structure, or land or extension of use of land, for which permission

is required under the Municipal Land Use Law, N.J.S.A. 40:55D-1 *et seq.* For purposes of this ordinance, use of the term "development" shall include any redevelopment of a parcel on which any building, structure, or other impervious surface exists.

In the case of development of agricultural land, development means: any activity that requires a State permit, any activity reviewed by the County Agricultural Board (CAB) and the State Agricultural Development Committee (SADC), and municipal review of any activity not exempted by the Right to Farm Act , N.J.S.A 4:1C-1 et seq.

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

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

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

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

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

"Forest" means a wooded area having an ecosystem typically consisting of a thick growth of trees and plants that has occurred through natural succession or reforestation, that exhibits or normally exhibits a contiguous tree canopy of greater than either 200 feet in width in any direction or one acre in area. The term "forest" shall include, but not be limited to, "core forest" as defined above.

"Green infrastructure" means a stormwater management measure that manages stormwater close to its source by:

1. Treating stormwater runoff through infiltration into subsoil;
2. Treating stormwater runoff through filtration by vegetation or soil; or
3. 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 sub-watershed, which is identified by a 14-digit hydrologic unit boundary designation, delineated within New Jersey by the United States Geological Survey.

"Impaired Water" means a surface water listed in the New Jersey Department of Environmental Protection Integrated Water Quality Assessment Report as failing to meet one or more designated uses or not meeting the standards set out in the Surface Water Quality Standards at N.J.A.C. 7:9B et seq.

"Impervious surface" means a surface that has been covered with a layer of material so that it is highly resistant to infiltration by water.

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

"Lead planning agency" means one or more public entities having stormwater management planning authority designated by the regional stormwater management planning committee pursuant to N.J.A.C. 7:8-3.2, that serves as the primary representative of the committee.

"Low Impact Development Techniques" means utilizing strategies and measures that manage stormwater runoff quantity and quality in the absence of structural stormwater measures, such as minimizing site disturbance, preserving natural vegetation and other important site features such as forests and especially core forests, reducing and disconnecting impervious cover, minimizing proposed ground slopes, utilizing native vegetation, minimizing turf grass lawns, revegetating areas, increasing time of concentration, and maintaining and enhancing natural drainage features and characteristics.

"Major development" means any development, including redevelopment, which results in either the disturbance of one half or more acres of land or an increase in, or replacement of, impervious surface of 5,000 or more square feet. "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 the above criteria. The amount of disturbance and impervious coverage shall be measured on a cumulative basis since February 2, 2004.

"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, race-tracks, and runways.

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

"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 municipality, in accordance with Section 381-4 (H) of this ordinance 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.

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

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

"Person" means any individual, corporation, company, partnership, firm, association, political subdivision of this State and any state, interstate or Federal agency.

"Pollutant" means any dredged spoil, solid waste, incinerator residue, filter backwash, sewage, garbage, refuse, oil, grease, sewage sludge, munitions, chemical wastes, biological materials, medical wastes, radioactive substance (except those regulated under the Atomic Energy Act of 1954, as amended (42 U.S.C. §§ 2011 *et seq.*)), thermal waste, wrecked or discarded equipment, rock, sand, cellar dirt, industrial, municipal, agricultural, and construction waste or runoff, or other residue discharged directly or indirectly to the land, ground waters or surface waters of the State, or to a domestic treatment works. "Pollutant" includes both hazardous and nonhazardous pollutants.

"Public roadway or railroad" means a pathway for use by motor vehicles or trains that is intended for public use and is constructed by, or on behalf of, a public transportation entity. A public roadway or railroad does not include a roadway or railroad constructed as part of a private development, regardless of whether the roadway or railroad is ultimately to be dedicated to and/or maintained by a governmental entity.

"Public transportation entity" means a Federal, State, county, or municipal government, an independent State authority, or a statutorily authorized public / private partnership program pursuant to P.L. 2018, c. 90 (N.J.S.A. 40A:11-52 et seq.), that performs a public roadway or railroad project that includes new construction, expansion, reconstruction, or improvement of a public roadway or railroad.

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

"Redevelopment" means development that results in the creation, addition, or replacement of impervious surface on a parcel of land with any existing building, structure, or other impervious surface. Redevelopment shall include, but not be limited to: the expansion of a building footprint; addition or replacement of a structure or a portion of structure regardless of footprint; and replacement of impervious surface that is not part of a routine maintenance activity. "Redevelopment" shall not include development involving municipal rights-of-way, a county or state highway, a federally designated railroad connector, or a private road open to the public; replacement in kind of a building or structure damaged or destroyed as a result of severe weather, fire, or flood if no change in the total area or footprint for each relevant structure or building; or routine maintenance of existing impervious surface(s).

Note: Routine Maintenance includes but is not limited to parking lot or driveway sealing or milling, roof repairs, replacement of a small number of boards on a deck. Routine Maintenance does not include complete replacement of deck boards or patio material.

"Replacement" means the removal and substitution of a substantial portion of the framing and roofing of an existing building or structure or the removal and substitution of a substantial portion of existing pavement or other impervious material.

"Routine maintenance" means the repair, replacement or maintenance of an existing impervious surface due to wear and tear or other aging of materials. "Routine maintenance" includes, but is not limited to, pavement sealing, milling and resurfacing, roof repairs, roof resurfacing, and deck repairs.

"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.
5. For minor or major development that includes any redevelopment all added or disturbed impervious surface, whether created by adding or replacing impervious surface that was in existence before the redevelopment occurs; and /or
6. 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.

"Retention Standard" means retaining onsite through green infrastructure or reuse one-half of the projected 2 year storm as defined in Table 6.

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

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

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

"State Development and Redevelopment Plan Metropolitan Planning Area (PA1)" means an area delineated on the State Plan Policy Map and adopted by the State Planning Commission that is intended to be the focus for much of the State's future redevelopment and revitalization efforts.

"State Plan Policy Map" is defined as the geographic application of the State Development and Redevelopment Plan's goals and statewide policies, and the official map of these goals and policies.

"Stormwater" means water resulting from precipitation (including rain and snow) that runs off the land's surface, is transmitted to the subsurface, or is captured by separate storm sewers or other sewage or drainage facilities, 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 management measure" means any practice, technology, process, program, or other method intended to control or reduce stormwater runoff and associated pollutants, or to induce or control the infiltration or groundwater recharge of stormwater or to eliminate illicit or illegal non-stormwater discharges into stormwater conveyances.

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

"Stormwater management planning agency" means a public body authorized by legislation to prepare stormwater management plans.

"Stormwater management planning area" means the geographic area for which a stormwater management planning agency is authorized to prepare stormwater management plans, or a specific portion of that area identified in a stormwater management plan prepared by that agency.

"Tidal Flood Hazard Area" means a flood hazard area in which the flood elevation resulting from the 2-, 10-, or 100-year storm, as applicable, is governed by tidal flooding from the Atlantic Ocean. Flooding in a tidal flood hazard area may be contributed to, or influenced by, stormwater runoff from inland areas, but the depth of flooding generated by the tidal rise and fall of the Atlantic Ocean is greater than flooding from any fluvial sources. In some situations, depending upon the extent of the storm surge from a particular storm event, a flood hazard area may be tidal in the 100-year storm, but fluvial in more frequent storm events.

"TMDL" means Total Maximum Daily Load means total maximum daily load formally established pursuant to N.J.S.A. 58:11A-7 and 33 U.S.C. 12512 et seq. A TMDL is the sum of individual waste load allocations for point sources, load allocations for nonpoint sources of pollution, other sources such as tributaries or adjacent segments, and allocations to a reserve or margin of safety for an individual permit.

"Urban Coordinating Council Empowerment Neighborhood" means a neighborhood given priority access to State resources through the New Jersey Redevelopment Authority.

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

"Urban Redevelopment Area" is defined as previously developed portions of areas:

1. Delineated on the State Plan Policy Map (SPPM) as the Metropolitan Planning Area (PA1), Designated Centers, Cores or Nodes;
2. Designated as CAFRA Centers, Cores or Nodes;
3. Designated as Urban Enterprise Zones; and
4. Designated as Urban Coordinating Council Empowerment Neighborhoods.

"Water control structure" means a structure within, or adjacent to, a water, which intentionally or coincidentally alters the hydraulic capacity, the flood elevation resulting from the 2-, 10-, or 100-year storm, flood hazard area limit, and/or floodway limit of the water. Examples of a water control structure may include a bridge, culvert, dam, embankment, ford (if above grade), retaining wall, and weir.

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

"Wetlands" or "wetland" 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.

**381-3 Design and Performance Standards for Stormwater Management Measures:**

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

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

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

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

C. Nonstructural stormwater strategies.

Standards for nonstructural management measures.

1. Buffers. Buffer areas are required along all lot and street lines separating residential uses from arterial and collector streets, separating a nonresidential use from either a residential se or residential zoning district line, and along all street lines where loading and storage are as can be seen from the street. The buffer area shall use native vegetation, which requires less fertilization and watering than non-native species. Buffer areas may be used for stormwater management by disconnecting impervious surfaces and treating runoff from these impervious surfaces. Preservation of natural wood tracts and limiting land disturbance for new construction shall be incorporated where practical.

2. Curbs and gutters. Curb cuts or flush curbs with curb stops are encouraged where practical to allow vegetated swales to be used for stormwater conveyance and to allow for the disconnection of impervious areas where practical.

3. Drainage systems. An existing ordinance may require that all streets be provided with inlets and pipes where the same are necessary for proper drainage. The use of natural vegetated swales in lieu of inlets and pipes are encouraged where practical.

4. Driveways and accessways. The use of pervious paving materials to minimize stormwater runoff and promote ground water recharge should be considered for driveways and accessways where practical. Consideration should be given for subsurface soil conditions. The use of crowned driveways is also encouraged to promote dysconnectivity between impervious surfaces and allow grass areas to promote groundwater recharge.

5. Natural features. Natural features, such as trees, brooks, swamps, hilltops, and views, are to be preserved whenever possible, and that care be taken to preserve selected trees to enhance soil stability and landscape treatment of the area. In addition, forested areas shall be maintained to ensure that leaf litter and other beneficial aspects of the forest are maintained in addition to the trees.

6. Non-conforming uses, structures or lots. The existing ordinance may allow an applicant/owner of an existing use to propose additions or alterations that exceed the permitted building and/or lot coverage percentages. The applicant should mitigate the impact of the additional impervious surfaces unless the stormwater management plan for the development provided for these increases in impervious surfaces. This mitigation effort must address water quality, flooding and groundwater recharge.

7. Off-site and off-tract improvements. Any off-site and off-tract stormwater management and drainage improvements shall conform to the "Design and Performance Standards" described herein and in the Borough Code.
8. Off-street parking and loading. Where practical, parking lots with more than 10 spaces and all loading areas should allow for flush curb with curb stop or curbing with curb cuts to encourage developers to allow for the discharge of impervious areas into landscaped areas for stormwater management. The use of natural vegetated swales for the water quality design storm, with over flow for larger storm events into storm sewers, should be utilized where practical. A developer may demonstrate that fewer spaces would be required, provided that area is set aside for additional spaces if necessary. Pervious paving could be provided for overflow parking areas.

9. Performance standards. Pollution source control must be evaluated in order to prohibit materials or wastes from being deposited upon a lot in such form or manner that they can be transferred off the lot, directly or indirectly, by natural forces such as precipitation, evaporation or wind. Materials and wastes that might create a pollutant or a hazard shall be enclosed with appropriate measures/devices.

10. Shade trees. The existing ordinance requires shade trees to be planted along the street on which the building fronts. In addition to this section, the Borough may have a Tree Preservation Ordinance that restricts and otherwise controls the removal of mature trees throughout the Borough. This article should recognize that the preservation of mature trees and forested areas must be considered in the management of environmental resources, particularly watershed management, air quality, and ambient heating and cooling. A critical disturbance area that extends beyond the driveway and building footprint where clearing of trees cannot occur shall be depicted on the plan minimizing land disturbance. Identification of forested areas and the percentage of wooded areas be protected from disturbance shall also be provided.

11. Sidewalks. Sidewalks should be designed to discharge stormwater to neighboring lawns where feasible to disconnect these impervious surfaces or use permeable paving materials where appropriate.

12. Soil erosion and sediment control. The applicant shall comply with the New Jersey Soil Erosion and Sediment Control Standards and/or the Borough's Soil Movement Ordinance as applicable and should incorporate procedures to retain and protect natural vegetation; minimize and retain water runoff to facilitate ground water recharge; and install diversions, sediment basins, and similar required structures prior to any on-site grading or disturbance.

D. Further guidance on the implementation of these strategies can be found in the New Jersey Department of Environmental Protection Stormwater Best Management Practices Manual, April 2004, as amended.

**381-4 Stormwater Management Requirements for Major Development:**

A. The development shall incorporate a maintenance plan for the stormwater management measures incorporated into the design of a major development in accordance with Section 381-10.

B. The development design shall limit the creation of stormwater runoff through implementation of Low Impact Development Techniques to the extent technically practicable without a substantial reduction of the allowable development given the applicable zoning and other provisions of State law or regulations, or other municipal ordinances.

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

D. The development design shall avoid changing the surface and subsurface hydrology of the site so as to avoid potential impacts to surface waters, wetlands or groundwater.

E. The following linear development projects are exempt from the groundwater recharge, stormwater runoff quality, and stormwater runoff quantity requirements of Section R, S and T:

1. The construction of an underground utility line, 18 inches or under in diameter, provided that the disturbed areas are revegetated upon completion;
2. The construction of an aboveground utility line provided that the existing conditions are maintained to the maximum extent practicable; and
3. The construction of a public pedestrian access, such as a sidewalk or trail with a maximum width of 14 feet, provided that the access is made of permeable material.

F. A waiver from strict compliance from the green infrastructure, groundwater recharge, stormwater runoff quality, and stormwater runoff quantity requirements of Section Q, R, S and T may be obtained for the enlargement of an existing public roadway or railroad; or the construction or enlargement of a public pedestrian access, provided that the following conditions are met:

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

2. The applicant demonstrates through an alternatives analysis, that through the use of stormwater management measures, the option selected complies with the requirements of Section Q, R, S and T to the maximum extent practicable;
3. The applicant demonstrates that, in order to meet the requirements of Section Q, R, S and T, 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 Section F (3) above within the upstream drainage area of the receiving stream, that would provide additional opportunities to mitigate the requirements of Section Q, R, S and T that were not achievable onsite.

G. Tables 1 through 3 below summarize the ability of stormwater best management practices identified and described in the New Jersey Stormwater Best Management Practices Manual to satisfy the green infrastructure, groundwater recharge, stormwater runoff quality and stormwater runoff quantity standards specified in Section Q, R, S and T. 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://dep.nj.gov/stormwater/bmp-manual/

H. 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.

**Table 1**

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

| Best Management Practice | Stormwater Runoff Quality TSS Removal Rate (percent) | Stormwater Runoff Quantity | Groundwater Recharge | Minimum Separation from Seasonal High Water Table (feet) |
|---|---|---|---|---|
| Cistern | 0 | Yes | No | -- |
| Dry Well[a] | 0 | No | Yes | 2 |
| Grass Swale | 50 or less | No | No | 2[e]<br>1[f] |
| Green Roof | 0 | Yes | No | -- |
| Manufactured Treatment Device[a] [g] | 50 or 80 | No | No | Dependent upon the device |
| Pervious Paving System[a] | 80 | Yes | Yes[b]<br>No[c] | 2[b]<br>1[c] |
| Small-Scale Bioretention Basin[a] | 80 or 90 | Yes | Yes[b]<br>No[c] | 2[b]<br>1[c] |
| Small-Scale Infiltration Basin[a] | 80 | Yes | Yes | 2 |
| Small-Scale Sand Filter | 80 | Yes | Yes | 2 |
| Vegetative Filter Strip | 60-80 | No | No | -- |

*(Notes corresponding to annotations [a] through [g] are found on Page 17)*

**Table 2**

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

| Best Management Practice | Stormwater Runoff Quality TSS Removal Rate (percent) | Stormwater Runoff Quantity | Groundwater Recharge | Minimum Separation from Seasonal High Water Table (feet) |
|---|---|---|---|---|
| Bioretention System | 80 or 90 | Yes | Yes[(b)] | 2[(b)] |
| Infiltration Basin | 80 | Yes | Yes | 2 |
| Sand Filter[(b)] | 80 | Yes | Yes | 2 |
| Standard Constructed Wetland | 90 | Yes | No | N/A |
| Wet Pond[(d)] | 50-90 | Yes | No | N/A |

*(Notes corresponding to annotations [(b)] through [(d)] are found on Page 17)*

**Table 3**

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

| Best Management Practice | Stormwater Runoff Quality TSS Removal Rate (percent) | Stormwater Runoff Quantity | Groundwater Recharge | Minimum Separation from Seasonal High Water Table (feet) |
|---|---|---|---|---|
| Blue Roof | 0 | Yes | No | N/A |
| Extended Detention Basin | 40-60 | Yes | No | 1 |
| Manufactured Treatment Device[(h)] | 50 or 80 | No | No | Dependent upon the device |

| | | | | |
|---|---|---|---|---|
| Sand Filter[c] | 80 | Yes | No | 1 |
| Subsurface Gravel Wetland | 90 | No | No | 1 |
| Wet Pond | 50-90 | Yes | No | N/A |

*(Notes corresponding to annotations [b] through [d] are found on Pages 10-13)*

Notes to Tables 1, 2, and 3:

1. subject to the applicable contributory drainage area limitation specified at Section Q (2);
2. designed to infiltrate into the subsoil;
3. designed with underdrains;
4. 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;
5. designed with a slope of less than two percent;
6. designed with a slope of equal to or greater than two percent;
7. manufactured treatment devices that meet the definition of green infrastructure at Section II;
8. manufactured treatment devices that do not meet the definition of green infrastructure at Section II.

I. An alternative stormwater management measure, alternative removal rate, and/or alternative method to calculate the removal rate may be used if the design engineer demonstrates the capability of the proposed alternative stormwater management measure and/or the validity of the alternative rate or method to the municipality. A copy of any approved alternative stormwater management measure, alternative removal rate, and/or alternative method to calculate the removal rate shall be provided to the Department in accordance with Section 381-6 (B). Alternative stormwater management measures may be used to satisfy the requirements at Section 381-4 (Q) only if the measures meet the definition of green infrastructure at Section 381-2. Alternative stormwater management measures that function in a similar manner to a BMP listed at Section 381-4 (Q.2) are subject to the contributory drainage area limitation specified at Section 381-4 (Q.2) for that similarly functioning BMP. Alternative stormwater management measures approved in accordance with this subsection that do not function in a similar manner to any BMP listed at Section 381-4 (Q.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 Section 381-4 (F) is granted from Section 381-4 (Q).

J. 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.

K. 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; site hydrology, soil type, permeability, and texture; drainage area and drainage patterns; and the presence of solution-prone carbonate rocks (limestone);
   2. Stormwater management measures shall be designed and demonstrated not to negatively impact wetlands or surface waters on site or adjacent to the property. Nor shall the proposed project alter the drainage patterns.
   3. 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 Section 381-8 (C);
   4. 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;
   5. Stormwater management BMPs shall be designed to meet the minimum safety standards for stormwater management BMPs at Section 381-8; and
   6. 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.

L. Manufactured treatment devices may be used to meet the requirements of this subchapter, provided the pollutant removal rates are verified by the New Jersey Corporation for

Advanced Technology and certified by the Department. Manufactured treatment devices that do not meet the definition of green infrastructure at Section II may be used only under the circumstances described at Section 381-4 (O.4).

M. Any application for a new agricultural development that meets the definition of major development at Section 381-2 shall be submitted to the Soil Conservation District for review and approval in accordance with the requirements at Sections 381-4 Q, R, S and T and any applicable Soil Conservation District guidelines for stormwater runoff quantity and erosion control. For purposes of this subsection, "agricultural development" means land uses normally associated with the production of food, fiber, and livestock for sale. Such uses do not include the development of land for the processing or sale of food and the manufacture of agriculturally related products.

N. If there is more than one drainage area, the groundwater recharge, stormwater runoff quality, and stormwater runoff quantity standards at Section 381-4 R, S and T 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.

O. Any stormwater management measure authorized under the municipal stormwater management plan or ordinance shall be reflected in a deed notice recorded in the Bergen County Clerk's Office. A form of deed notice shall be submitted to the municipality for approval prior to filing. The deed notice shall contain a description of the stormwater management measure(s) used to meet the green infrastructure, groundwater recharge, stormwater runoff quality, and stormwater runoff quantity standards at Section 381-4 Q, R, S and T 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 Section 381-11 (B.5). Prior to the commencement of construction, proof that the above required deed notice has been filed shall be submitted to the municipality. Proof that the required information has been recorded on the deed shall be in the form of either a copy of the complete recorded document or a receipt from the clerk or other proof of recordation provided by the recording office. However, if the initial proof provided to the municipality is not a copy of the complete recorded document, a copy of the complete recorded document shall be provided to the municipality within 180 calendar days of the authorization granted by the municipality.

P. A stormwater management measure approved under the municipal stormwater management plan or ordinance may be altered or replaced with the approval of the municipality, if the municipality determines that the proposed alteration or replacement meets the design and performance standards pursuant to Section 381-4 of this ordinance

and provides the same level of stormwater management as the previously approved stormwater management measure that is being altered or replaced. If an alteration or replacement is approved, a revised deed notice shall be submitted to the municipality for approval and subsequently recorded with the Bergen 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 K above. Prior to the commencement of construction, proof that the above required deed notice has been filed shall be submitted to the municipality in accordance with O above.

Q. Green Infrastructure Standards

1. This subsection specifies the types of green infrastructure BMPs that may be used to satisfy the groundwater recharge, stormwater runoff quality, and stormwater runoff quantity standards.
2. To satisfy the groundwater recharge and stormwater runoff quality standards at Section 381-4 R and S, the design engineer shall utilize green infrastructure BMPs identified in Table 1 at Section 381-4 (H) and/or an alternative stormwater management measure approved in accordance with Section 381-4 (J). The following green infrastructure BMPs are subject to the following maximum contributory drainage area limitations:

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

3. To satisfy the stormwater runoff quantity standards at Section 381-4 (T) the design engineer shall utilize BMPs from Table 1 or from Table 2 and/or an alternative stormwater management measure approved in accordance with Section 381-4 (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 Section 381-4 (F) is granted from the requirements of this subsection, then BMPs from Table 1, 2, or 3, and/or an alternative stormwater management measure approved in accordance with Section 381-4 (I) may be used to meet the

groundwater recharge, stormwater runoff quality, and stormwater runoff quantity standards at Section 381-4 R, S and T.

5. For separate or combined storm sewer improvement projects, such as sewer separation, undertaken by a government agency or public utility (for example, a sewerage company), the requirements of this subsection shall only apply to areas owned in fee simple by the government agency or utility, and areas within a right- of-way or easement held or controlled by the government agency or utility; the entity shall not be required to obtain additional property or property rights to fully satisfy the requirements of this subsection. Regardless of the amount of area of a separate or combined storm sewer improvement project subject to the green infrastructure requirements of this subsection, each project shall fully comply with the applicable groundwater recharge, stormwater runoff quality control, and stormwater runoff quantity standards at Section 381-4 R, S and T, unless the project is granted a waiver from strict compliance in accordance with Section 381-4 (F).

R. Recharge Standards

1. This subsection contains the minimum design and performance standards for groundwater recharge as follows:
2. The design engineer shall, using the assumptions and factors for stormwater runoff and groundwater recharge calculations at Section 381-5, either:

   i. 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
   ii. Demonstrate through hydrologic and hydraulic analysis that the increase of stormwater runoff volume from pre-construction to post-construction for the projected 2-year storm, as defined and determined pursuant to Section 381-5 (D) of this ordinance, is infiltrated.

3. This groundwater recharge requirement does apply to projects within the "urban redevelopment area," except as provided in 3(i) and(ii) or to projects subject to 4 below.

   i. The mounding analysis demonstrates impacts to adjoining buildings or structures.
   ii. Existing onsite or offsite contamination might be mobilized by the installation of recharge BMPs.

4. The following types of stormwater shall not be recharged:

   i. Stormwater from areas of high pollutant loading. High pollutant loading areas are areas in industrial and commercial developments where solvents and/or petroleum products are loaded/unloaded, stored, or applied, areas where pesticides are

loaded/unloaded or stored; areas where hazardous materials are expected to be present in greater than "reportable quantities" as defined by the United States Environmental Protection Agency (EPA) at 40 CFR 302.4; areas where recharge would be inconsistent with Department approved remedial action work plan approved pursuant to the Administrative Requirements for the Remediation of Contaminated Sites rules, N.J.A.C. 7:26C, or Department landfill closure plan and areas; and areas with high risks for spills of toxic materials, such as gas stations and vehicle maintenance facilities; and

ii. Industrial stormwater exposed to "source material." "Source material" means any material(s) or machinery, located at an industrial facility, that is directly or indirectly related to process, manufacturing or other industrial activities, which could be a source of pollutants in any industrial stormwater discharge to groundwater. Source materials include, but are not limited to, raw materials; intermediate products; final products; waste materials; by-products; industrial machinery and fuels, and lubricants, solvents, and detergents that are related to process, manufacturing, or other industrial activities that are exposed to stormwater.

S. Runoff Quality Standards

1. This subsection contains the minimum design and performance standards to control stormwater runoff quality impacts of major development. Stormwater runoff quality standards are applicable when the major development results in an increase of 5,000 square feet or more of regulated impervious surface.
2. Stormwater management measures shall be designed to reduce the post- construction load of total suspended solids (TSS) in stormwater runoff generated from the water quality design storm as follows:

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

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

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

with 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**

| Time (Minutes) | Cumulative Rainfall (Inches) | Time (Minutes) | Cumulative Rainfall (Inches) | Time (Minutes) | Cumulative Rainfall (Inches) |
|---|---|---|---|---|---|
| 1 | 0.00166 | 41 | 0.1728 | 81 | 1.0906 |
| 2 | 0.00332 | 42 | 0.1796 | 82 | 1.0972 |
| 3 | 0.00498 | 43 | 0.1864 | 83 | 1.1038 |
| 4 | 0.00664 | 44 | 0.1932 | 84 | 1.1104 |
| 5 | 0.00830 | 45 | 0.2000 | 85 | 1.1170 |
| 6 | 0.00996 | 46 | 0.2117 | 86 | 1.1236 |
| 7 | 0.01162 | 47 | 0.2233 | 87 | 1.1302 |
| 8 | 0.01328 | 48 | 0.2350 | 88 | 1.1368 |
| 9 | 0.01494 | 49 | 0.2466 | 89 | 1.1434 |
| 10 | 0.01660 | 50 | 0.2583 | 90 | 1.1500 |
| 11 | 0.01828 | 51 | 0.2783 | 91 | 1.1550 |
| 12 | 0.01996 | 52 | 0.2983 | 92 | 1.1600 |
| 13 | 0.02164 | 53 | 0.3183 | 93 | 1.1650 |
| 14 | 0.02332 | 54 | 0.3383 | 94 | 1.1700 |
| 15 | 0.02500 | 55 | 0.3583 | 95 | 1.1750 |
| 16 | 0.03000 | 56 | 0.4116 | 96 | 1.1800 |
| 17 | 0.03500 | 57 | 0.4650 | 97 | 1.1850 |
| 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 feasible, the post-construction nutrient load of the anticipated load from the developed site in stormwater runoff generated from the water quality design storm. In achieving reduction of nutrients to the maximum extent feasible, the design of the site shall include green infrastructure BMPs that optimize nutrient removal while still achieving the performance standards in Section 381-4 R, S and T. Except to the extent that receiving watercourse has an approved nutrient TMDL for the relevant segment or the segment is impaired for nutrients. In such case, the stormwater management measures shall be designed to eliminate the discharge of nutrients from the site.
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. Such measures shall prevent any increase in pollutant discharges 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 this subsection 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. The 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.
11. Stormwater water runoff from regulated impervious surfaces that are not regulated motor vehicle surfaces shall be routed to a separate BMP listed in Table 5 for treatment and shall not be comingled with runoff from a regulated motor vehicle surface for water quality treatment unless such routing is technically impracticable, or the applicant

demonstrates that comingled treatment provides equal or greater water quality treatment than separate systems.

12. Stormwater runoff from regulated motor vehicle surfaces shall be routed to a BMP listed in Table 5.1 which is designed to treat hydrocarbons and other substances expected to be found from such surfaces.

T. Stormwater Runoff Quantity Standards

1. This subsection contains the minimum design and performance standards to control stormwater runoff quantity impacts of major development.
2. The site shall be designed to manage through on-site retention the Retention Storm at the site or on contiguous properties in common ownership. The management shall be through the utilization of one or more green infrastructure techniques.
3. In order to control stormwater runoff quantity impacts, the design engineer shall, using the assumptions and factors for stormwater runoff calculations at Section 381-5, complete one of the following:

   i. Demonstrate through hydrologic and hydraulic analysis that for stormwater leaving the site, post-construction runoff hydrographs for the current and projected 2-, 10-, and 100-year storm events, as defined and determined in Section 381-5 C and D, respectively, of this ordinance, do not exceed, at any point in time, the pre-construction runoff hydrographs for the same storm events;
   ii. Demonstrate through hydrologic and hydraulic analysis that there is no increase, as compared to the pre-construction condition, in the peak runoff rates of stormwater leaving the site for the current and projected 2-, 10-, and 100-year storm events, as defined and determined pursuant to Section 381-5 C and D, respectively, of this ordinance, and that the increased volume or change in timing of stormwater runoff will not increase flood damage at or downstream of the site. This analysis shall include the analysis of impacts of existing land uses and projected land uses assuming full development under existing zoning and land use ordinances in the drainage area;
   iii. Design stormwater management measures so that the post-construction peak runoff rates for the current and projected 2-, 10-, and 100-year storm events, as defined and determined in Section 381-5 C and D, respectively, of this ordinance, 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; or
   iv. In tidal flood hazard areas, stormwater runoff quantity analysis in accordance with 3. i, ii and iii above is required unless the design engineer demonstrates through hydrologic and hydraulic analysis that the increased volume, change in timing, or increased rate of the stormwater runoff, or any combination of the three will not

result in additional flood damage below the point of discharge of the major development. No analysis is required if the stormwater is discharged directly into any ocean, bay, inlet, or the reach of any watercourse between its confluence with an ocean, bay, or inlet and downstream of the first water control structure.

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

5. Regardless of the method used for compliance with Section 381-5 (T) (Quantity) the stormwater design shall not cause; contribute to; or exacerbate flooding upstream or downstream of the site.

**381-5 Calculation of Stormwater Runoff and Groundwater Recharge:**

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

1. The design engineer shall calculate runoff using the following method:

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://directives.sc.egov.usda.gov/viewerFS.aspx?hid=21422

or at United States Department of Agriculture Natural Resources Conservation Service, New Jersey State Office.

2. For the purpose of calculating curve numbers 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 "curve number" applies to the NRCS methodology above at Section 391-5 (A.1). A curve number or a groundwater recharge land cover for an existing condition may be used on all or a portion of the site if the design engineer verifies that the hydrologic condition has existed on the site or portion of the site for at least five years without interruption prior to the time of application. If more than one land cover has 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. For the purpose of calculating runoff coefficients and groundwater recharge, the pre-construction land cover of a site or portion thereof shall be considered to be woods, unless the applicant provides sufficient evidence that another land cover (e.g., farmland) had existed for at least five years without interruption prior to initial development of the site. Furthermore, the pre-construction condition of the site or portion thereof shall be considered to have been in good hydrologic condition. If more than one land use existed on the site during the five years prior to initial development of the site, the land cover with the lowest runoff potential shall be used for the computations. The term "runoff coefficient" applies to the NRCS methodology above.

4. For a major or minor development, all regulated impervious surfaces shall be included in calculating the requirements for stormwater management. However, any existing regulated impervious surface that will drain into an existing stormwater best management practice that is to remain after development and that meets current stormwater management requirements shall be deducted from the total amount of impervious surface that must be treated by new stormwater best management practices.

5. 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.

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

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:

The New Jersey Geological Survey Report GSR-32: A Method for Evaluating Groundwater-Recharge Areas in New Jersey, incorporated herein by reference as amended and supplemented. Information regarding the methodology is available from the New Jersey Stormwater Best Management Practices Manual; at the New Jersey Geological Survey website at:

https://www.nj.gov/dep/njgs/pricelst/gsreport/gsr32.pdf

or at New Jersey Geological and Water Survey, 29 Arctic Parkway, PO Box 420, Mail Code 29-01, Trenton, New Jersey 08625-0420.

C. The precipitation depths of the current 2-, 10-, and 100-year storm events shall be determine by multiplying the values determined in accordance with items 1 and 2 below:

1. The applicant shall utilize the National Oceanographic and Atmospheric Administration (NOAA), National Weather Service's Atlas 14 Point Precipitation Frequency Estimates: NJ, in accordance with the location(s) of the drainage area(s) of the site. This data is available at:

https://hdsc.nws.noaa.gov/hdsc/pfds/pfds_map_cont.html?bkmrk=nj and

2. The applicant shall utilize Table 5: Current Precipitation Adjustment Factors below, which sets forth the applicable multiplier for the drainage area(s) of the site, in accordance with the county or counties where the drainage area(s) of the site is located. Where the major development lies in more than one county, the precipitation values shall be adjusted according to the percentage of the drainage area in each county. Alternately, separate rainfall totals can be developed for each county using the values in the table below.

Table 5: Current Precipitation Adjustment Factors

| | Current Precipitation Adjustment Factors | | |
|---|---|---|---|
| | 2-year Design Storm | 10-year Design Storm | 100-year Design Storm |
| Atlantic | 1.01 | 1.02 | 1.03 |
| Bergen | 1.01 | 1.03 | 1.06 |
| Burlington | 0.99 | 1.01 | 1.04 |
| Camden | 1.03 | 1.04 | 1.05 |
| Cape May | 1.03 | 1.03 | 1.04 |
| Cumberland | 1.03 | 1.03 | 1.01 |
| Essex | 1.01 | 1.03 | 1.06 |
| Gloucester | 1.05 | 1.06 | 1.06 |
| Hudson | 1.03 | 1.05 | 1.09 |
| Hunterdon | 1.02 | 1.05 | 1.13 |
| Mercer | 1.01 | 1.02 | 1.04 |
| Middlesex | 1.00 | 1.01 | 1.03 |
| Monmouth | 1.00 | 1.01 | 1.02 |
| Morris | 1.01 | 1.03 | 1.06 |
| Ocean | 1.00 | 1.01 | 1.03 |
| Passaic | 1.00 | 1.02 | 1.05 |
| Salem | 1.02 | 1.03 | 1.03 |
| Somerset | 1.00 | 1.03 | 1.09 |
| Sussex | 1.03 | 1.04 | 1.07 |
| Union | 1.01 | 1.03 | 1.06 |
| Warren | 1.02 | 1.07 | 1.15 |

D. Table 6: Future Precipitation Change Factors provided below sets forth the change factors to be used in determining the projected 2-, 10-, and 100-year storm events for use in this chapter, which are organized alphabetically by county. The precipitation depth of the projected 2-, 10-, and 100-year storm events of a site shall be determined by multiplying the precipitation depth of the 2-, 10-, and 100-year storm events determined from the National Weather Service's Atlas 14 Point Precipitation Frequency Estimates pursuant to (C.)1 above, by the change factor in the table below,

in accordance with the county or counties where the drainage area(s) of the site is located. Where the major development and/or its drainage area lies in more than one county, the precipitation values shall be adjusted according to the percentage of the drainage area in each county. Alternately, separate rainfall totals can be developed for each county using the values in the table below.

Table 6: Future Precipitation Change Factors

| | Future Precipitation Change Factors | | |
|---|---|---|---|
| | 2-year Design Storm | 10-year Design Storm | 10-year Design Storm |
| Atlantic | 1.22 | 1.24 | 1.39 |
| Bergen | 1.20 | 1.23 | 1.37 |
| Burlington | 1.17 | 1.18 | 1.32 |
| Camden | 1.18 | 1.22 | 1.39 |
| Cape May | 1.21 | 1.24 | 1.32 |
| Cumberland | 1.20 | 1.21 | 1.39 |
| Essex | 1.19 | 1.22 | 1.33 |
| Gloucester | 1.19 | 1.23 | 1.41 |
| Hudson | 1.19 | 1.19 | 1.23 |
| Hunterdon | 1.19 | 1.23 | 1.42 |
| Mercer | 1.16 | 1.17 | 1.36 |
| Middlesex | 1.19 | 1.21 | 1.33 |
| Monmouth | 1.19 | 1.19 | 1.26 |
| Morris | 1.23 | 1.28 | 1.46 |
| Ocean | 1.18 | 1.19 | 1.24 |
| Passaic | 1.21 | 1.27 | 1.50 |
| Salem | 1.20 | 1.23 | 1.32 |
| Somerset | 1.19 | 1.24 | 1.48 |
| Sussex | 1.24 | 1.29 | 1.50 |
| Union | 1.20 | 1.23 | 1.35 |
| Warren | 1.20 | 1.25 | 1.37 |

**381-6 Sources for Technical Guidance:**

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

https://dep.nj.gov/stormwater/bmp-manual/

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://dep.nj.gov/stormwater/maintenance-guidance/

B. Submissions required for review by the Department should be mailed to:

The Division of Watershed Protection and Restoration, New Jersey Department of Environmental Protection, Mail Code 501-02A, PO Box 420, Trenton, New Jersey 08625- 0420.

**381-7 Solids and Floatable Materials Control Standards:**

A. Site design features identified under Section 381-4 (F) above, or alternative designs in accordance with Section 381-4 (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 Section 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:

   i. 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
   ii. A different grate, if each individual clear space in that grate has an area of no more than seven (7.0) square inches, or is no greater than 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.

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

2. The standard in A.1. above does not apply:

i. Where each individual clear space in the curb opening in existing curb-opening inlet does not have an area of more than nine (9.0) square inches;
ii. Where the municipality agrees that the standards would cause inadequate hydraulic performance that could not practicably be overcome by using additional or larger storm drain inlets;
iii. Where flows from the water quality design storm as specified in N.J.A.C. 7:8 are conveyed through any device (e.g., end of pipe netting facility, manufactured treatment device, or a catch basin hood) that is designed, at a minimum, to prevent delivery of all solid and floatable materials that could not pass through one of the following:

a. A rectangular space four and five-eighths (4.625) inches long and one and one-half (1.5) inches wide (this option does not apply for outfall netting facilities); or
b. A bar screen having a bar spacing of 0.5 inches.

iv. Where flows are conveyed through a trash rack that has parallel bars with one- inch (1 inch) spacing between the bars, to the elevation of the Water Quality Design Storm as specified in N.J.A.C. 7:8; or
v. Where the New Jersey Department of Environmental Protection determines, pursuant to the New Jersey Register of Historic Places Rules at N.J.A.C. 7:4- 7.2(c), that action to meet this standard is an undertaking that constitutes an encroachment or will damage or destroy the New Jersey Register listed historic property.

**381-8 Safety Standards for Stormwater Management Basins:**

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

B. The provisions of this section are not intended to preempt more stringent municipal or county safety requirements for new or existing stormwater management BMPs. Municipal and county stormwater management plans and ordinances may, pursuant to their authority, require existing stormwater management BMPs to be retrofitted to meet one or more of

the safety standards in Section 381-8 (C.1.), (C.2.), and (C.3.) below for trash racks, overflow grates, and escape provisions at outlet structures.

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

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

   i. The trash rack shall have parallel bars, with no greater than six-inch spacing between the bars;
   ii. The trash rack shall be designed so as not to adversely affect the hydraulic performance of the outlet pipe or structure;
   iii. The average velocity of flow through a clean trash rack is not to exceed 2.5 feet per second under the full range of stage and discharge. Velocity is to be computed on the basis of the net area of opening through the rack; and
   iv. The trash rack shall be constructed of rigid, durable, and corrosion resistant material and designed to withstand a perpendicular live loading of 300 pounds per square foot.

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

   i. The overflow grate shall be secured to the outlet structure but removable for emergencies and maintenance.
   ii. The overflow grate spacing shall be no greater than two inches across the smallest dimension
   iii. The overflow grate shall be constructed and installed to be rigid, durable, and corrosion resistant, and shall be designed to withstand a perpendicular live loading of 300 pounds per square foot.

3. Stormwater management BMPs shall include escape provisions as follows:

   i. If a stormwater management BMP has an outlet structure, escape provisions shall be incorporated in or on the structure. Escape provisions include the installation of permanent ladders, steps, rungs, or other features that provide easily accessible means of egress from stormwater management BMPs. With the prior approval of the municipality pursuant to 381-8 (C) above, a free-standing outlet structure may be exempted from this requirement;

ii. Safety ledges shall be constructed on the slopes of all new stormwater management BMPs having a permanent pool of water deeper than two and one-half feet. 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 381-8 (E) below for an illustration of safety ledges in a stormwater management BMP; and

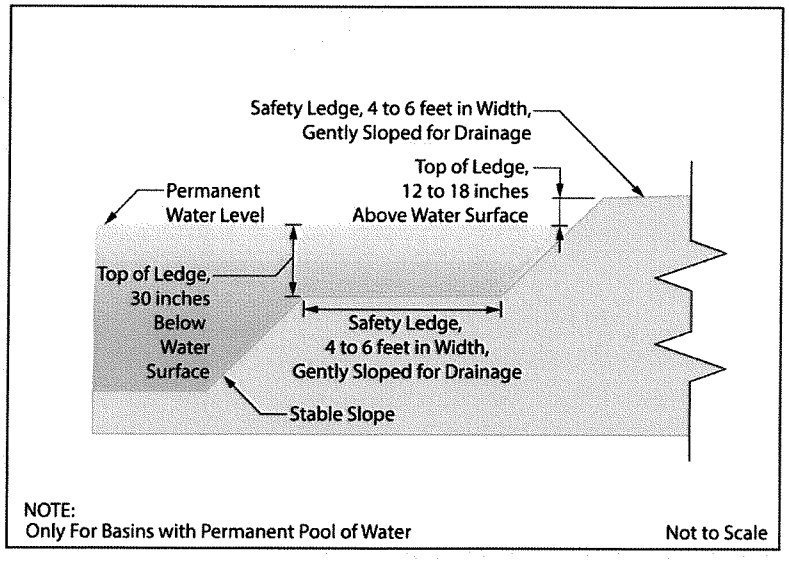
iii. In new stormwater management BMPs, the maximum interior slope for an earthen dam, embankment, or berm shall not be steeper than three horizontal to one vertical.

D. Variance or Exemption from Safety Standard

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

E. Safety Ledge Illustration

Elevation View –Basin Safety Ledge Configuration




**381-9 Minor Development:**

A. The stormwater runoff requirements applicable to minor developments are as follows:

1. For each square foot of new impervious surface, 2 gallons of stormwater shall be managed using green infrastructure practices set out in Table 7 below or such other measures as may be required by the municipal engineer of which the Retention Storm must be retained on site utilizing green

infrastructure.

2. All such development shall be subject to review by the municipal engineer to determine that all stormwater runoff created by the development is adequately controlled and does not cause an adverse impact on adjoining property owners or downstream impacts.

3. In such cases where it is determined that the out flow from the stormwater management system will impact an adjacent property, the out flow shall be directed to a storm sewer, gutter, swale, or other suitable stormwater runoff conveyance measure.

4. If the municipal engineer determines that the out flow from the stormwater management system may damage an adjoining property and the out flow cannot be safely directed to a storm sewer, gutter, swale, or other suitable stormwater runoff conveyance measure, the stormwater runoff from the development shall be retained on-site at a rate of 3 gallons of storage for each square foot of new impervious surface using green infrastructure practices or such other measures as may be required by the municipal engineer.

5. If the applicant cannot comply with (4) above or that is not sufficient to eliminate impacts to the adjacent property, the proposal should be redesigned, or reduced in scope so that the stormwater management measures do not damage an adjoining property.

Table 7
Minor Development

| | |
|---|---|
| Grass Swale | Green Roof |
| Pervious Paving System | Small-Scale Bioretention Basin |
| Small-Scale Infiltration Basin | Small-Scale Sand Filter |
| Vegetative Filter Strip | Cistern |
| Dry Well* | |

* The use of dry wells is allowed only where the other listed methods cannot feasibly meet the requirements of this section.

6. Soil Testing shall be performed to confirm the permeability of the soils and the depth of the water table and seasonal high-water table.

7. The stormwater management feature shall be protected from future development by conservation easement, deed restriction, or other acceptable legal measures.
8. Variances. A variance from strict compliance with the requirement of Section 381-4 (F) may be granted for those projects where an applicant has demonstrated the inability or impracticability of strict compliance with the stormwater management requirements in that section. If the municipal engineer or the reviewing board agrees that full compliance is impracticable or unable to be accomplished, the applicant shall:

i. Install BMPs to the extent practical on the site;
ii. Pay a Minor Development Waiver Fee (MDWF) to the Municipality's Minor Stormwater Management Fund for that portion of the stormwater management requirements that could not be accomplished on site.
iii. The Minor Development Waiver Fee shall be calculated on a per gallon basis to reflect the average cost of implementing green infrastructure BMPs. The MDWF may be adjusted from time to time as determined by the Municipal Governing Body.

**381-10 Requirements for a Site Development Stormwater Plan:**

A. Submission of Site Development Stormwater Plan

1. Whenever an applicant seeks municipal approval of a development subject to this ordinance, the applicant shall submit all of the required components of the checklist for the Site Development Stormwater Plan at Section C. below as part of the submission of the application for approval.

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

3. The applicant shall submit three (3) copies of the materials listed in the checklist for site development stormwater plans in accordance with Section 381-10 (C.) of this ordinance.

B. Site Development Stormwater Plan Approval

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

C. Submission of Site Development Stormwater Plan

The following information shall be required:

1. Topographic Base Map

The reviewing engineer may require upstream tributary drainage system information as necessary. It is recommended that the topographic base map of the site be submitted which extends a minimum of 200 feet beyond the limits of the proposed development, at a scale of 1"=200' or greater, showing 2-foot contour intervals. The map as appropriate may indicate the following: existing surface water drainage, shorelines, steep slopes, soils, erodible soils, perennial or intermittent streams, wetlands and flood plains along with

their appropriate buffer strips, marshlands and other wetlands, vernal pools, pervious or vegetative surfaces, existing man- made structures, roads, bearing and distances of property lines, and significant natural and manmade features not otherwise shown.

2. Environmental Site Analysis

A written and graphic description of the natural and man-made features of the site and its surroundings should be submitted. This description should include a discussion of soil conditions, slopes, wetlands, waterways surface and subsurface hydrology, and vegetation on the site. In the written site analysis, the identification of all waterways and watersheds with names, water and wetland classification; existing water quality impairments or approved TMDLs shall be identified. Particular attention should be given to unique, unusual, or environmentally sensitive features and to those that provide particular opportunities or constraints for development. The map shall also include the following: existing surface water drainage, shorelines, steep slopes, soils, erodible soils, karst, springs, seeps, intermittent or perennial streams, wetlands and flood plains along with their appropriate buffer strips, marshlands and other wetlands, vernal pools, forests and core forests, pervious or vegetative surfaces, watersheds, existing man-made structures, roads, bearing and distances of property lines, and significant natural and manmade features (including outfalls, inlets, drainage pipes, etc.) not otherwise shown.

3. Project Description and Site Plans

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

4. Land Use Planning and Source Control Plan

This plan shall provide a demonstration of how the goals and standards of Sections 381-3 through 381-5 are being met. The focus of this plan shall be to describe how the site is being developed to meet the objective of controlling groundwater recharge, stormwater quality and stormwater quantity problems at the source by land management and source controls whenever possible.

5. Stormwater Management Facilities Map

The following information, illustrated on a map of the same scale as the topographic base map, shall be included:

i. Total area to be disturbed, paved or built upon, proposed surface contours, and area to be occupied by the stormwater management facilities and the type of vegetation thereon, and details of the proposed plan to control and dispose of stormwater.
ii. Details of all stormwater management facility designs, during and after construction, including discharge provisions, discharge capacity for each outlet at different levels of detention and emergency spillway provisions with maximum discharge capacity of each spillway.
iii. Location and results of all test pits overlaid with the location of all BMPs. The SHWT, depth of mottling observed; and bottom elevation of the BMP shall be listed in a comprehensive chart.
iv. Map of the predevelopment and post development drainage areas.
v. Map demonstrating the contributory drainage area for each BMP.

6. Calculations

i. Comprehensive hydrologic and hydraulic design calculations for the pre-development and post-development conditions for the design storms specified in Section 381-4 of this ordinance.
ii. When the proposed stormwater management control measures depend on the hydrologic properties of soils or require certain separation from the seasonal high water table, then a soils report shall be submitted. The soils report shall be based on onsite boring logs or soil pit profiles. The number and location of required soil borings or soil pits shall be determined based on what is needed to determine the suitability and distribution of soils present at the location of the control measure.

7. Maintenance and Repair Plan

The design and planning of the stormwater management facility shall meet the maintenance requirements of Section 381-11.

8. Waiver from Submission Requirements

The municipal official or board reviewing an application under this ordinance may, in consultation with the municipality's review engineer, waive submission of any of the requirements in Section 381-10 (C.1.) through 381-10 (C.7.) of this ordinance when it can be demonstrated that the information requested is impossible to obtain or it would create a hardship on the applicant to obtain and its absence will not materially affect the review process.

**381-11 Maintenance and Repair:**

A. Applicability

Projects subject to review as in Section 381-1 (C.) of this ordinance shall comply with the requirements of Section B. and C. below.

B. General Maintenance

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

2. The maintenance plan shall contain specific preventative maintenance tasks and schedules; cost estimates, including estimated cost of sediment, debris, or trash removal; and the name, address, and telephone number of the person or persons responsible for preventative and corrective maintenance (including replacement). The plan shall contain information on BMP location, design, ownership, maintenance tasks and frequencies, and other details as specified in Chapter 8 of the NJ BMP Manual, as well as the tasks specific to the type of BMP, as described in the applicable chapter containing design specifics.

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

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

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

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

7. The party responsible for maintenance identified under Section B.3. above shall perform all of the following requirements:

i. Maintain a detailed log of all preventative and corrective maintenance for the structural stormwater management measures incorporated into the design of the development, including a record of all inspections and copies of all maintenance-related work orders;
ii. Evaluate the effectiveness of the maintenance plan at least once per year and adjust the plan and the deed as needed; and
iii. Retain and make available, upon request by any public entity with administrative, health, environmental, or safety authority over the site, the maintenance plan and the documentation required by Section B.6. and B.7. above.

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

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

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

**381-12 Stormwater License and Inspection Requirements:**

1. All stormwater management facilities are to be maintained by the responsible party or homeowner association in accordance with the approved maintenance plan.
2. All stormwater management facilities for major and minor developments are required to obtain a Stormwater Maintenance Permit from the Borough of Paramus Building Department.
3. The Annual fee for the Stormwater Maintenance Permit shall be as set forth in Section 381-13.
4. The Stormwater Maintenance Permit shall be renewed each year no later than January 1st.

5. A detailed inspection and maintenance report shall be submitted annually no later than January 1st to the Borough of Paramus Department of Public Works.
6. The inspection and maintenance report shall include and not be limited to:
   i. Stormwater inlets and manholes.
   ii. Detention basin outflow structures.
   iii. Trash racks and overflow grates.
   iv. Vegetation.
   v. Embankment erosion control.
   vi. Sediment removal and pond maintenance.
   vii. Mechanical Treatment Devices utilizing filters shall have a record of filter replacement as per the manufacturer's specifications.
   viii. Green infrastructure measures including condition of all plants

   The Inspection report shall include copies of photographs depicting the condition of the BMP.

A. Zero increase in stormwater runoff:

1. It is the purpose of this section to establish minimum stormwater management requirements and controls for the discharge of surface water from construction, including, but not limited to, new dwellings, all enlargement of or addition to existing structures and site work not defined in §381-1 (A).
2. This section shall be applicable to all minor site plans and development, including applications for building permits for the construction of a new structure, or enlargement of or addition to an existing structure, in which the completed improvements shall result in an increase of impervious area of 500 square feet or more.

B. Stormwater Requirements:

1. The property owner or developer/contractor shall not cause surface water runoff from one lot to another which affects the proper use of any other lot, or causes excessive water accumulation on, or damage to, any other lot, or any structure thereon. The property owner or developer/ contractor shall construct such swales, drains, walls or other drainage facilities as are necessary to prevent water runoff from interfering with the use of or damage to any other lot, or any structure thereon.
2. All applications for a building permit or site work permit for properties to which this section applies shall contain a grading plan prepared by a professional engineer which includes topography, elevations and drainage patterns providing for a zero increase or reduction in stormwater runoff as a result of the completed project.
3. The Borough Engineer or his designated representative shall review each application for a building permit or soil movement permit for properties to which this section

applies and approve same as providing for a zero increase in stormwater runoff for the completed project.

4. No building permit or site work permit shall be issued for any project to which this section applies when, in the opinion of the Borough Engineer, the applicant fails to provide for a zero increase in stormwater runoff.
5. The movement of any soil or property shall not result in any increase in the amount of, rate or a change in the direction of stormwater runoff of the lot and shall not restrict or prevent the current flow of stormwater from adjacent lots across the subject lot.
6. At the time of the application for a building permit for any project to which this section applies, the applicant shall deposit funds in escrow to cover or defray the cost of the Borough Engineer's review of the application relative to stormwater runoff and/or other site-work-related items.
7. Prior to the issuance of a certificate of occupancy or approval for construction performance in accordance with this section the applicant's professional engineer shall certify, in writing, that the construction and/or landscaping was performed in accordance with the grading plans and that there is a zero increase in stormwater runoff.

C. Design guidelines:

1. An application for a building permit for any project to which this section applies, shall include an underground dry well or similar system designed to adequately handle stormwater runoff generated on impervious areas discharged into the system. The following are minimum requirements for the dry well or similar system design:
2. The drywell shall be designed to fully retain at least a ten-year, sixty-minute duration storm runoff generated on the additional impervious area.
3. Drainage calculations, signed and sealed by a licensed professional civil engineer, shall be submitted for applications which, in the opinion of the Borough Engineer, may alter the preexisting stormwater discharge pattern which exits from the site in question. The stormwater discharge rate and total volume to neighboring properties must be maintained or reduced during or following soil movement.
4. If an area larger than the additional impervious surface is discharged into the dry well, the dry well shall be designed to retain the runoff generated on the total area connected to the dry well.
5. The dry well invert shall be at a minimum two feet above the seasonal high-water table.
6. The dry wells should be inspected once a year and cleaned as necessary. Maintenance procedures are to be shown on the grading plan or as a separate document.
7. Applications which propose the use of groundwater infiltration shall be accompanied by a soil log with the site's seasonal high-groundwater elevation, certified by a licensed professional civil engineer. In lieu of a soil log, the applicant's engineer may perform a percolation test.

8. The percolation test and the installation of the groundwater infiltration system must be witnessed by the Borough Engineer or his representative. The applicant's engineer shall contact the Borough Engineer a minimum of 48 hours prior to the test and construction of the infiltration system to schedule an inspection.

D. Sump discharge:

1. Discharge flow generated by sump pumps is to be mitigated by the installation of dry wells, the connection to a storm sewer and/or use of one's own property for discharge of the water, so long as such discharge does not adversely affect or flow into any adjacent property.
2. The discharge location of basement sump pumps must be shown on the grading plan.

E. Any costs associated with compliance of zero increase in stormwater or sump pump discharge regulations are to be borne by the applicant and/or developer.

F. Severability and construction. This section shall be construed consistent with the purpose stated in Subsection A hereof. Any ambiguities in this section shall be construed in accordance with the purpose of this section. If any part of this section is invalidated by a court of competent jurisdiction, the remainder of this section shall be saved to the full extent possible. This section repeals provisions of the Paramus Code only where stated herein; otherwise, this section is amendatory and supplementary to existing provisions of the Paramus Code.

G. All ordinances or parts thereof inconsistent herewith are hereby repealed to the extent of such inconsistency. All ordinances are hereby amended to be consistent with this section, and all ordinances, including this one, shall be construed consistent with the express purpose of this section.

**381-13 Fees:**

Annual permit/inspection fees for each stormwater device:

| | | |
|---|---|---|
| 1. | Stormwater maintenance annual permit/inspection | $300.00 |
| 2. | Drywell, under 1,000 cubic feet of storage | $ 50.00 |
| 3. | Drywell, over 1,000 cubic feet of storage | $250.00 |
| 4. | Grass swales (when used for TSS removal (first 100 linear feet) | $100.00 |
| | and for each additional 100 linear feet | $ 25.00 |
| 5. | Infiltration basin (aboveground/below-ground) | $500.00/$750.00 |
| 6. | Detention basis (aboveground/below-ground) | $500.00/$750.00 |
| 7. | Wet pond | $750.00 |
| 8. | Bioretention basis | $750.00 |
| 9. | Porous pavement/pervious surface | $500.00 |
| 10. | Constructed wetland | $750.00 |
| 11. | Rain garden | $ 0.00 |
| 12. | Manufactured treatment device | $500.00 |
| 13. | Small-scale bioretention system | $250.00 |
| 14. | Small-scale sand filter | $250.00 |
| 15. | Cistern, under 1,000 cubic feet of storage | $ 0.00 |
| 16. | Cistern, over 1.000 cubic feet of storage | $250.00 |
| 17. | Vegetative filter strips(first 100 linear feet) | $250.00 |
| | and for each additional 100 linear feet | $ 50.00 |
| 18. | Green roof | $750.00 |

**381-14 Penalties:**

Any person(s) who erects, constructs, alters, repairs, converts, maintains, or uses any building, structure or land in violation of this ordinance shall be subject to the following penalties:

1. Each act of violation, and every day upon which any violation shall occur or continues to occur, shall constitute a separate offense.
2. Failure to obtain an annual stormwater maintenance permit $250.00.
3. Failure to provide quarterly maintenance records $100.00.
4. A person who has not complied with this chapter and who, after notice, refuses to implement and maintain soil erosion control and stormwater runoff control measures and facilities in conformance with these regulations shall be subject to a fine of not more than $1,000.00 or ninety (90) days in jail, or both, plus the cost of prosecution.

**Section 3**. If any part of this Ordinance is for any reason held to be invalid, such decision shall not affect the validity of the remaining portions of this Ordinance.

**Section 4.** All ordinances or parts of ordinances inconsistent herewith are hereby repealed to the extent of such inconsistency.

**Section 5.** This Ordinance shall take effect upon final passage and publication according to law.

Attest:

Annemarie Krusznis, RMC/CMC
Borough Clerk

Approved:

Christopher DiPiazza, Mayor

Introduced: November 12, 2024

Adopted: December 3, 2024