ORDINANCE 2024-7

AN ORDINANCE AMENDING THE "CHERRY HILL TOWNSHIP ZONING ORDINANCE" ARTICLE II SECTION 202 (DEFINITIONS) and ARTICLE V, SECTION 516 (STORMWATER MANAGEMENT), AND OTHER RELEVANT SECTIONS, CONSISTENT WITH THE NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION UPDATED RULES (N.J.A.C. 7:8) ADOPTED ON MARCH 2, 2020 AND JULY 17, 2023, AND AS RECOMMEND BY THE CHERRY HILL TOWNSHIP PLANNING BOARD

WHEREAS, consistent with the provisions of the Municipal Land Use Law, including N.J.S.A. 40:55D-26 and 40:55D-64, prior to the hearing on the adoption of any amendment to the Zoning Ordinance, Cherry Hill Township Council has referred to the Cherry Hill Planning Board a proposed amendment to the various Articles of the Zoning Ordinance for review, comment and recommendation; and

WHEREAS, the Township Council of Cherry Hill has previously adopted, after recommendation from the Planning Board, the Master Plan and the revisions thereto as well as the land use plan element and the housing plan element of the Master Plan; and

WHEREAS, the Township Council recognizes that the Cherry Hill Township Zoning Ordinance Section 516, title "Stormwater Management," and other relevant sections, must be amended pursuant to the New Jersey Department of Environmental Protection (NJDEP) updated rules (N.J.A.C. 7:8) adopted on March 2, 2020 and July 17, 2023, and as recommend by the Cherry Hill Township Planning Board; and

NOW, THEREFORE, BE IT RESOLVED by the Township Council of the Township of Cherry Hill, County of Camden, in the State of New Jersey, that the proposed amendments to the Cherry Hill Township Zoning Ordinance Section 516, and other relevant sections, are hereby recommended for adoption as follows:

SECTION 1. The following definitions shall be added to the Cherry Hill Township Zoning Ordinance Section 202 (Definitions) and listed in alphabetical order:

PUBLIC ROADWAY OR RAILROAD: 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. [N.J.D.E.P.]

PUBLIC TRANSPORTATION ENTITY: 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. [N.J.D.E.P.]

SECTION 2. Section 516 (Stormwater Management) of the Cherry Hill Township Zoning Ordinance shall be repealed and replaced with the following:

A. Scope & Purpose.

1. 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. Structural and GI BMPs should be integrated with nonstructural stormwater management strategies and LID along with proper maintenance plans. Nonstructural strategies include both environmentally sensitive site design and source controls that prevent pollutants from being placed on the site or from being exposed to stormwater. Source control plans should be developed based upon physical site conditions and the origin, nature, and the anticipated quantity or amount of potential pollutants. Multiple stormwater management BMPs may be necessary to achieve the established performance standards for water quality, quantity, and groundwater recharge.

2. Purpose. The purpose of this Ordinance is to establish minimum stormwater management requirements and controls for development, including "major development," as defined in §202.

3. Applicability. This Ordinance shall be applicable to the following:
   a. All major and minor site plans and subdivisions that require review, specifically the following:
      i. Non-Residential 'major developments', as defined in §202; and
      ii. Residential 'major developments', which are not pre-empted by the Residential Site Improvement Standards (R.S.I.S.) per *N.J.A.C. 5:21.*
   b. All 'major developments' undertaken by the Township of Cherry Hill.
   c. 'Minor developments', as defined in §202, shall adhere to §516.D, §516.E.15, §516.E.16 and §516.E.18, under the following condition:
      i. Any subdivision or minor or major site plan approval, bulk (c) variances for open space, pursuant to *N.J.S.A. 40:55D-70c*.
   d. An application required by ordinance pursuant to 3.a. above that has been submitted prior to *{insert adoption date of this ordinance}*, shall be subject to the stormwater management requirements in effect on *{insert 1 day prior to the adoption date of this ordinance}*.
   e. An application required by ordinance for approval pursuant to

3.a. above that has been submitted on or after March 2, 2021, but prior to *{insert adoption date of this ordinance}*, shall be subject to the stormwater management requirements in effect on *{insert 1 day prior to the adoption date of this ordinance}*.

f. 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.

4. Compatibility. Planning and/or Zoning Board development approvals issued for subdivisions and site plans, pursuant to this Ordinance, are to be considered an integral part of any land use development approvals under the subdivision and site plan review process and do not relieve the applicant of the responsibility to secure required permits or approvals for activities regulated by any other applicable code, rule, act, or ordinance. In their interpretation and application, the provisions of this Ordinance shall be held to be the minimum requirements for the promotion of the public health, safety, and general welfare. This Ordinance is not intended to interfere with, abrogate, or annul any other ordinances, rule or regulation, statute, or other provision of law except that, where any provision of this Ordinance imposes restrictions different from those imposed by any other Ordinance, rule or regulation, or other provision of law, the more restrictive provisions or higher standards shall control.

B. Definitions. For the purpose of this ordinance, the terms, phrases, words and their derivations shall have the meanings stated in §201 & §202 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. In addition to the word usage in §201 and definitions provided in §202, the following definitions shall apply to this ordinance and should be the same as or based on the corresponding definitions in the *Stormwater Management Rules* at *N.J.A.C. 7:8-1.2*.

1. MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4): a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, manmade channels, or storm drains) that is owned or operated by the Township of Cherry Hill or other public body, and is designed and used for collecting and conveying stormwater.

2. STORM DRAIN INLET: an opening in a storm drain used to collect stormwater runoff and includes, but is not limited to, a grate inlet, curb-opening inlet, slotted inlet, and combination inlet.

3. TIME of CONCENTRATION: the time it takes for runoff to travel from the hydraulically most distant point of the watershed to the point of interest within a watershed.

C. Design & Performance Standards.

1. Stormwater management measures for major development shall be designed to provide erosion control, groundwater recharge, stormwater runoff quantity control, and stormwater runoff quality treatment as follows:
   a. The minimum standards for erosion control are those established under the Soil and Sediment Control Act, N.J.S.A. 4:24-39 et seq., and implementing rules at N.J.A.C. 2:90.
   b. The minimum standards for groundwater recharge, stormwater quality, and stormwater runoff quantity shall be met by incorporating green infrastructure.
2. The standards in this ordinance apply only to new major development and are intended to minimize the impact of stormwater runoff on water quality and water quantity in receiving water bodies and maintain groundwater recharge. The standards do not apply to new major development to the extent that alternative design and performance standards are applicable under the *Cooper River Regional Stormwater Management Plan* & amendments (2004, amended 2006) and similar regional plans, adopted in accordance with NJDEP rules.

D. Storm Drain Inlet Retrofit. The purpose of retrofitting existing storm drain inlets is to prevent the discharge of solids and floatables (such as plastic bottles, cans, food wrappers and other litter) to the municipal separate storm sewer system(s) operated by the Township so as to protect public health, safety and welfare, and to prescribe penalties for the failure to comply. To achieve this purpose, the following shall apply:

1. Applicability. The repaving, repairing (excluding the repair of individual potholes), resurfacing (including top coating or chip sealing with asphalt emulsion or a thin base of hot bitumen), reconstructing or altering of any surface that is in direct contact with an existing storm drain inlet on private property.
2. Exceptions. The following shall be exempt from storm drain inlet retrofit:
   a. Residential lot with one single-family dwelling; or
   b. any site that meets the design standards in §516.E.16.c, below, to control passage of solid and floatable materials; or
   c. any site that is retrofitted or replaced to meet the design standards in §516.E.16.c, below, prior to the completion of the project.
3. Design Standard. Storm drain inlets identified in §516.D.1, above, shall comply with §516.E.16.c.
4. Enforcement. The compliance of retrofitting existing storm drain inlets, §516.D, shall be enforced by the Zoning Officer in accordance with Article XI.

E. Major Development Requirements.

1. Maintenance Plan. Development shall incorporate a Maintenance Plan for the stormwater management measures incorporated into the design of a major development, in accordance with §516.J.
2. Habitat Protection. Stormwater management measures shall avoid

adverse impacts of concentrated flow on habitat for threatened and endangered species, as documented in the New Jersey Department of Environmental Protection (NJDEP) *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).

3. Exemptions. The following linear development projects are exempt from the groundwater recharge, stormwater runoff quantity, and stormwater runoff quality requirements of §516.E.17 & §516.E.18:

   a. The construction of an underground utility line, provided that the disturbed areas are re-vegetated upon completion;

   b. The construction of an above-ground utility line, provided that the existing conditions are maintained to the maximum extent practicable; and

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

4. Waiver. A waiver from strict compliance from the green infrastructure, groundwater recharge, stormwater runoff quantity, and stormwater runoff quality requirements of §516.E.15, §516.E.17 & §516.E.18 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 applicant requesting the waiver can demonstrate the following conditions are met:
   a. The applicant demonstrates that there is a public need for the project that cannot be accomplished by any other means;

   b. The applicant demonstrates through an alternatives analysis, that through the use of stormwater management measures, the option selected complies with the requirements of §516.E.15, §516.E.17 & §516.E.18 to the maximum extent practicable;

   c. The applicant demonstrates that, in order to meet the requirements of §516.E.15, §516.E.17 & §516.E.18, existing structures currently in use, such as homes and buildings, would need to be condemned; and

   d. The applicant demonstrates that it does not own or have other rights to areas, including the potential to obtain through condemnation lands not falling under §516.E.4.c. above within the upstream drainage area of the receiving stream, that would provide additional opportunities to mitigate the requirements of §516.E.15, §516.E.17 & §516.E.18 that were not achievable onsite.

5. Tables 5.15A through C below summarize the ability of stormwater best management practices (BMP) identified and described in the New Jersey Stormwater Best Management Practices (NJ BMP) Manual to satisfy the green infrastructure, groundwater recharge, stormwater

runoff quality and stormwater runoff quantity standards specified in §516.E.15, §516.E.17, and §516.E.18. When designed in accordance with the most current version of the NJ BMP 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 5.15A, 5.15B, and 5.15C 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 BMP 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/

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

Table 5.15A

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

Best Management Practice	Stormwater Runoff Quality TSS Removal Rate (percent)	Stormwater Runoff Quantity	Groundwater Recharge	Minimum Separation from Seasonal High Water Table (feet)
Cistern	0	Yes	No	--
Dry Well[a]	0	No	Yes	2
Grass Swale	50 or less	No	No	2[e] 1[f]
Green Roof	0	Yes	No	--
Manufactured Treatment Device[a] [g]	50 or 80	No	No	Dependent upon the device
Pervious Paving System[a]	80	Yes	Yes[b] No[c]	2[b] 1[c]
Small-Scale Bioretention Basin[a]	80 or 90	Yes	Yes[b] No[c]	2[b] 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 under Table 5.15C)

Table 5.15B

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

Best Management Practice	Stormwater Runoff Quality TSS Removal Rate (percent)	Stormwater Runoff Quantity	Groundwater Recharge	Minimum Separation from Seasonal High Water Table (feet)
Bioretention System	80 or 90	Yes	Yes[b] No[c]	2[b] 1[c]
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 under Table 5.15C)

Table 5.15C

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

Best Management Practice	Stormwater Runoff Quality TSS Removal Rate (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 to Tables 5.15A, 5.15B, and 5.15C:
(a) subject to the applicable contributory drainage area limitation specified at §516.E.15.b;
(b) designed to infiltrate into the subsoil;
(c) designed with underdrains;
(d) designed to maintain at least a 10-foot wide area of native vegetation along at least 50 percent of the shoreline and to include a stormwater runoff retention component designed to capture stormwater runoff for beneficial reuse, such as irrigation;
(e) designed with a slope of less than two percent;
(f) designed with a slope of equal to or greater than two percent;
(g) manufactured treatment devices that meet the definition of green infrastructure at §202;
(h) manufactured treatment devices that do not meet the definition of green infrastructure at §202.

7. 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 §516.K.2. Alternative stormwater management measures may be used to satisfy the requirements at §516.E.15 only if the measures meet the definition of green infrastructure at §202. Alternative stormwater management measures that function in a similar manner to a BMP listed at §516.E.15.b are subject to the contributory drainage area limitation specified at §516.E.15.b 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 §516.E.15.b 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 §516.E.4 is granted from §516.E.15.

8. 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.

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

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

    b. 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 §516.H.1;

c. 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;

d. Stormwater management BMPs shall be designed to meet the minimum safety standards for stormwater management BMPs at §516.H; and

e. 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.

10. 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 §202 may be used only under the circumstances described at §516.E.15.d.

11. Any application for a new agricultural development that meets the definition of major development at §202 shall be submitted to the Soil Conservation District for review and approval in accordance with the requirements at §516.E.15, §516.E.17, and §516.E.18 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.

12. If there is more than one drainage area, the groundwater recharge, stormwater runoff quality, and stormwater runoff quantity standards at §516.E.17 and §516.E.18 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.

13. Any stormwater management measure authorized under the municipal stormwater management plan or ordinance shall be reflected in a deed notice recorded in the Camden 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 §516.E.15, §516.E.17, and §516.E.18 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 §516.J.1.c.iii. 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.

14. 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 §516.E 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 Camden 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 §516.E.13 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 §516.E.13 above.

15. Green Infrastructure Standards.

    a. 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.

    b. To satisfy the groundwater recharge and stormwater runoff quality standards at §516.E.17.a.ii and §516.E.18, the design engineer shall utilize green infrastructure BMPs identified in Table 5.15A at §516.E.6 and/or an alternative stormwater management measure approved in accordance with §516.E.7. 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
Small-scale Bioretention Systems	2.5 acres
Small-scale Infiltration Basin	2.5 acres
Small-scale Sand Filter	2.5 acres

c. To satisfy the stormwater runoff quantity standards at §516.E.17.a.iii, the design engineer shall utilize BMPs from Table 5.15A or from Table 5.15B and/or an alternative stormwater management measure approved in accordance with §516.E.7.

d. If a variance in accordance with N.J.A.C. 7:8-4.6 or a waiver from strict compliance in accordance with §516.E.4 is granted from the requirements of this subsection, then BMPs from Table 5.15A, 5.15B, or 5.15C, and/or an alternative stormwater management measure approved in accordance with §516.E.7 may be used to meet the groundwater recharge, stormwater runoff quality, and stormwater runoff quantity standards at §516.E.17 & §516.E.18.

e. 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 §516.E.17 and §516.E.18, unless the project is granted a waiver from strict compliance in accordance with §516.E.4.

16. Nonstructural Strategies.

a. To the maximum extent practicable, the standards in §516.E.17 & §516.E.18 shall be met by incorporating nonstructural stormwater management strategies set forth at §516.E.16 into the design. The nonstructural measures

incorporated into the design of the project shall be identified by the applicant. If it is not feasible for engineering, environmental, or safety reasons to incorporate any nonstructural stormwater management measures identified in §516.E.16.b. into the design of a particular project, the strategy considered shall be identified and a basis provided for the contention.

b. Nonstructural stormwater management strategies incorporated into site design shall:
   i. Protect areas that provide water quality benefits or areas particularly susceptible to erosion and sediment loss;
   ii. Minimize impervious surfaces and break up or disconnect the flow of runoff over impervious surfaces;
   iii. Maximize the protection of natural drainage features and vegetation;
   iv. Minimize the decrease in the "time of concentration" from pre-construction to post construction.
   v. Minimize land disturbance including clearing and grading;
   vi. Minimize soil compaction;
   vii. Provide low-maintenance landscaping that encourages retention and planting of native vegetation and minimizes the use of lawns, fertilizers and pesticides;
   viii. Provide vegetated open-channel conveyance systems discharging into and through stable vegetated areas
   ix. Provide other source controls to prevent or minimize the use or exposure of pollutants at the site, in order to prevent or minimize the release of those pollutants into stormwater runoff. Such source controls include, but are not limited to:
      (a) Site design features that help to prevent the following
         (1) accumulation of trash and debris in drainage systems, including features that satisfy §516.E.16.
         (2) discharge of trash and debris from drainage systems;
         (3) harmful accumulations of pollutants at industrial or commercial developments; and/or spill containment thereof.
      (b) When establishing vegetation after land disturbance, applying fertilizer in accordance with the requirements established under the *Soil Erosion & Sediment Control Act, N.J.S.A. 4:24-39 et seq.*, and implementing rules.

c. Site design features identified under §516.E.6 and/or§516.E.16.b.ix, or alternative designs in accordance with §516.E.7, 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 §516.E.16.c.iii below.
   i. Grate. Design engineers shall use one of the following grates

whenever a grate is utilized in pavement or another ground surface to collect stormwater from that surface into a storm drain or surface water body under that grate:

(a) The New Jersey Department of Transportation (NJDOT) bicycle safe grate, which is described in Chapter 2.4 of the *NJDOT Bicycle Compatible Roadways and Bikeways Planning & Design Guidelines*; or

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

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

ii. Curb-Opening Inlet. 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") inches across the smallest dimension.

iii. Exemptions. This standard does not apply to the following:

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

(b) Where the Township Engineer, or review Board Engineer if associated with a Board approval, agrees that the standards would cause inadequate hydraulic performance that could not practicably be overcome by using additional or larger storm drain inlets;

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

(1) A rectangular space four and five-eighths (4 5/8") inches long and one and one-half (1 ½") inches wide (this option does not apply for outfall netting facilities); or

(2) A bar screen having a bar spacing of 0.5" inches.

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

(d) Where flows are conveyed through a trash rack that has parallel bars with one-inch (1") spacing between the bars, to the elevation of the water quality design storm as specified in N.J.A.C. 7:8; or

(e) Where the NJDEP 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.

iv. Any land area used as a nonstructural stormwater management measure to meet the performance standards for erosion control, groundwater recharge, and runoff quantity (§515.E.17), as well as stormwater runoff quality (§516.E.18), shall be subject to the following:

(a) a conservation deed restriction is filed with the Camden County Clerk's office; or

(b) dedicated to the Township or County; or

(c) subject to an approved equivalent restriction that the stormwater management measure approved by the Township, Planning Board, or Zoning Board is maintained in perpetuity.

v. Guidance for nonstructural stormwater management strategies is available in the *NJ BMP Manual.* The BMP Manual may be obtained from the NJDEP or found on the NJDEP website at www.njstormwater.org.

17. Erosion Control, Groundwater Recharge & Runoff Quantity Standards.

a. This subsection contains minimum design and performance standards to control erosion, encourage and control infiltration and groundwater recharge, and control stormwater runoff quantity impacts of major development.

i. The minimum design and performance standards for erosion control are those established under the *Soil Erosion & Sediment Control Act, N.J.S.A. 4:24-39 et seq.* and implementing rules.

ii. The minimum design and performance standards for groundwater recharge are as follows:

(a) Recharge. The design engineer shall, using the assumptions and factors for stormwater runoff and groundwater recharge calculations at §516.F, demonstrate through hydrologic and hydraulic analysis that either:

(1) The site and its stormwater management measures maintain 100% percent of the average annual pre-

construction groundwater recharge volume for the site; or

(2) The increase of stormwater runoff volume from pre-construction to post-construction for the projected two-year storm, as defined and determined pursuant to Section F.2.c. of this ordinance, is infiltrated.

(b) Recharge Exceptions. This groundwater recharge requirement does not apply to projects within the "urban redevelopment area," or to the following projects:

(1) 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 NJDEP 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

(2) Industrial Exposure. "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.

iii. The minimum design and performance standards to control stormwater runoff quantity impacts of major development are included in this subsection.

(a) In order to control stormwater runoff quantity impacts, the design engineer shall, using the assumptions and factors for stormwater runoff calculations at §516.F, complete one of the following:

(1) Demonstrate through hydrologic and hydraulic analysis that for stormwater leaving the site, post-construction runoff hydrographs for the current and projected two-, 10-, and 100-year storm events, as defined and determined in Section F.2.b and c., respectively, of this ordinance, do not

exceed, at any point in time, the pre-construction runoff hydrographs for the same storm events;

(2) Demonstrate through hydrologic and hydraulic analysis that there is no increase, as compared to the pre-construction condition, in the peak runoff rates of stormwater leaving the site for the current and projected two-, 10-, and 100-year storm events, as defined and determined in Section F.2.b and c., 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;

(3) Design stormwater management measures so that the post-construction peak runoff rates for the current and projected two-, 10-, and 100 year storm events, as defined and determined in Section F.2.b and c., 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

(4) In tidal flood hazard areas, stormwater runoff quantity analysis in accordance with (1), (2) and (3) 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.

(b) The stormwater runoff quantity standards shall be applied at the site's boundary to each abutting lot, roadway, watercourse, or receiving storm sewer system. This does not relieve the applicant of accommodating offsite runoff in onsite stormwater management facilities.

18. Stormwater Runoff Quality Standards.

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

b. Stormwater management measures shall be designed to reduce the post-construction load of total suspended solids (TSS) in stormwater runoff generated from the water quality design storm as follows:
   i. Eighty (80%) percent TSS removal of the anticipated load, expressed as an annual average shall be achieved for the stormwater runoff from the net increase of motor vehicle surface. The requirement to reduce TSS does not apply to any stormwater runoff in a discharge regulated under a numeric effluent limitation for TSS imposed under the *New Jersey Pollution Discharge Elimination System* (NJPDES) rules, *N.J.A.C. 7:14A*, or in a discharge specifically exempt under a NJPDES permit from this requirement.
   ii. For redevelopment of existing impervious surfaces with regulated motor vehicle surface, the minimum required TSS removal rate is the greater of the TSS removal rate of the existing stormwater treatment system or 50% TSS removal rate.

c. 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.

d. 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 5.13. The calculation of the volume of runoff may take into account the implementation of stormwater management measures.

e. 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:

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

Where

R = total TSS percent load removal from application of both BMPs, and

A = the TSS percent removal rate applicable to the first BMP (see Tables 5.15A-C)

B = the TSS percent removal rate applicable to the second BMP (see Tables 5.15A-C)

f. 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 §516.E.17.a.ii, §516.E.17.a.iii, and §516.E.18.

g. 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.

h. 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.

i. 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.

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

Table 5.13 - 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

F. Calculation of Stormwater Runoff & Groundwater Recharge.

1. Stormwater Runoff. Stormwater runoff shall be calculated in accordance with Chapter 5 of the NJ BMP Manual (https://dep.nj.gov/stormwater/bmp-manual/) and the following:

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

i. *The USDA Natural Resources Conservation Service* (NRCS) methodology, including the NRCS *Runoff Equation & 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 the NRCS *Technical Release 55 – Urban Hydrology for Small Watersheds*, incorporated herein by reference as amended and supplemented. Information regarding the methodology is available from the Natural Resources Conservation Service website at:

https://www.nrc.gov/docs/ML1421/ML14219A437.pdf

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

b. 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 at §516.F.1.a.i. 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).

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

d. In computing stormwater runoff from all design storms, the design engineer shall consider the relative stormwater runoff rates and/or volumes of pervious and impervious surfaces separately to accurately compute the rates and volume of stormwater runoff from the site. To calculate runoff from unconnected impervious cover, urban impervious area modifications as described in the *NRCS*

Technical Release 55 – Urban Hydrology for Small Watersheds and other methods may be employed.

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

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

The *New Jersey Geological Survey Report GSR-32: A Method for Evaluating Ground-Water Recharge Areas in New Jersey*, incorporated herein by reference as amended and supplemented. Information regarding the methodology is available from the *NJ* BMP *Manual* available here: https://dep.nj.gov/stormwater/bmp-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, P.O. Box 420 Mail Code 29-01, Trenton, New Jersey 08625-0420.

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

a. 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 location9s0 of the drainage area(s) of the site. The data is available at:

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

b. 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

County	Current Precipitation Adjustment Factors		
	2-year Design Storm	10-year Design Storm	100-year Design Storm
Camden	1.03	1.04	1.05

c. Table 6: Future Precipitation Change Factors provided below sets forth the change factors to be used in determining the projected two-, 10-, and 100-

year storm events for use in this chapter, which are organized alphabetically by county. The precipitation depth of the projected two-, 10-, and 100-year storm events of a site shall be determined by multiplying the precipitation depth of the two-, 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

County	Future Precipitation Change Factors		
	2-year Design Storm	10-year Design Storm	100-year Design Storm
Camden	1.18	1.22	1.39

G. Township Standards.

1. Variances.

a. A variance from providing sufficient stormwater management basins may be requested of the Planning or Zoning Board, in accordance with *N.J.S.A. 40:55D-70c*. A variance may be granted if a finding that the deficiency will be mitigated by the construction of a stormwater project within the same subdrainage area (HUC-14). The mitigation project must provide the additional groundwater recharge benefits or protection from water quality (TSS removal) or quantity (rate of flow reduction) to compensate for the deficit from the design and performance standards resulting from the proposed project. The proposed project must meet the design and performance standards set forth in this stormwater ordinance.

b. If a suitable site cannot be located in the same sub-drainage area as the proposed development, as in §516.G.1.a, the mitigation project may provide mitigation that is not equivalent to the impacts for which the exemption is sought, but that addresses the same issue.

For example, if an exemption is given because the peak rate if reduction of 50 percent for the two year storm cannot be met, the selected project may address reducing the orifice size at an existing stormwater management basin.

As another example, if an exemption is given because the removal of 80 percent of the Total Suspended Solids cannot be met, the selected project may provide a natural vegetated buffer around a lake edge to discourage the geese population and address water quality impacts due to fecal impairment.

c. Construction of real mitigation projects to offset the deficit from the design and performance standards resulting from the proposed project through §516G.1.a or .b is recommended. However, the Cherry Hill Planning or Zoning Board may permit a developer to provide full funding or partial funding to the Township for a project listed in the *Cherry Hill Stormwater Management Plan*. Partial funding or full funding must equal or exceed the value of providing the stormwater design on the development site. The value of full funding will include the value to implement the project, including costs to purchase property, easements and long term property maintenance.

d. In order to justify a variance, an applicant must demonstrate that the variance for the development cannot be met due to unusual circumstances on the existing property. Variances are <u>not</u> recommended for greenfields, i.e. properties that are currently open space or have not been previously developed.

e. In order to justify a variance, a preliminary stormwater management design and cost analysis of the stormwater system that would be required to meet the recharge, water quality (TSS removal) and water quantity (peak rate of reduction) stormwater management requirements of this Ordinance. This analysis will be utilized to determine and select the mitigation project to be constructed by the applicant.

f. The developer must ensure the long term maintenance of the project, including the maintenance requirements under Chapters 8 and 9 of the NJDEP BMP Manual.

2. <u>Mitigation Projects.</u> Exemptions or design waiver(s) are to be granted only upon the condition that the applicant provides one or more of the following mitigation projects of equal value within the same sub-watershed as delineated by the HUC 14. The selection of the mitigation project(s) are to be under the review and approval of the Planning or Zoning Board Engineer, as applicable. The mitigation projects proposed within the Township of Cherry Hill are listed in the *Cherry Hill Stormwater Management Plan* and the list of mitigation projects will be updated and maintained by the Director of Public Works and the person responsible for the NJDEP NJPDES Municipal Separate Storm Sewer (MS4) Permit. The Mitigation Projects fall into the following basic categories:

   a. <u>Stormwater Outfall Retrofit</u>. Provide retrofit measures at existing stormwater outfalls within the same HUC14 under the guidance of the Board Engineer and Municipal Engineer:
      i. Outlet structure modifications (for example, repair of outfall condition though installation of drop manhole, upgraded outfall structure, rip-rap apron, or scour hole).
      ii. Installation of in-line or end-of-pipe BMP as approved by the NJDEP to treat stormwater draining into an existing outfall. The approved treatment devices can be found on <u>www.njstormwater.org</u>

   b. <u>River, Stream or Lake Bank Stabilization</u>. Stabilization projects to

reduce the total suspended solids:

i. Stabilization of eroded river, creek or lake banks where public or private property or structures are threatened.

ii. Stabilization of eroded river, creek or lake banks to reduce sediment deposition and improve water quality.

c. Stormwater Basin Retrofit. Stormwater Basin retrofit projects to provide water quality and recharge measures within the same HUC14. The retrofit of existing basins may be accomplished through one or more of the following applications:

i. Outlet Structure Modifications.

ii. Regrading, Design and Landscaping, in accordance with §516G.6.

iii. Elimination of Low Flow Channels.

iv. Installation of in-line or end-of-pipe BMP, as approved by the NJDEP, to treat stormwater draining into an existing outfall. The approved treatment devices can be found on www.njstormwater.org.

d. Stormwater Outfall Restoration. Mitigation of Existing Stormwater Outfalls within the same HUC14 shall be under the guidance of the Cherry Hill Township Engineer and/or Public Works Department. The retrofit of existing outfalls may be accomplished through a variety and/or combination of options to meet the mitigation costs required. Review of each existing outfall condition should be reviewed with the Township before selecting one or more of the following options:

i. Replacement of failed outfall structure with outlet protection.

ii. Replacement with installation of drop manhole to set outfall structure at invert of stream channel with outlet protection.

iii. Installation of in-line or end-of-pipe BMP as approved by the NJDEP to pretreat stormwater before the outfall structure.

iv. Disconnect outfall from receiving waterway to eliminate erosion condition. Permitted only with detailed hydrologic analysis and stability analysis of the receiving area.

e. Lake & Pond Management. The improvement of lake and ponds shall be mitigated by providing the following:

i. A comprehensive management plan and maintenance schedule for a publicly held lakes or ponds within Cherry Hill Township.

ii. A lake edge stabilization project through the use of native plants and erosion control.

iii. A geese management plan through the vegetation of lake edge to reduce the fecal impairment of the lake or pond.

3. Underground Detention/Infiltration/Retention Basins. Underground facilities are not recommended as a design solution for residential development. The Township of Cherry Hill will not accept maintenance responsibility for underground stormwater facilities or stormwater outflow control structures located within stormwater inlets within the public right-

of-way.

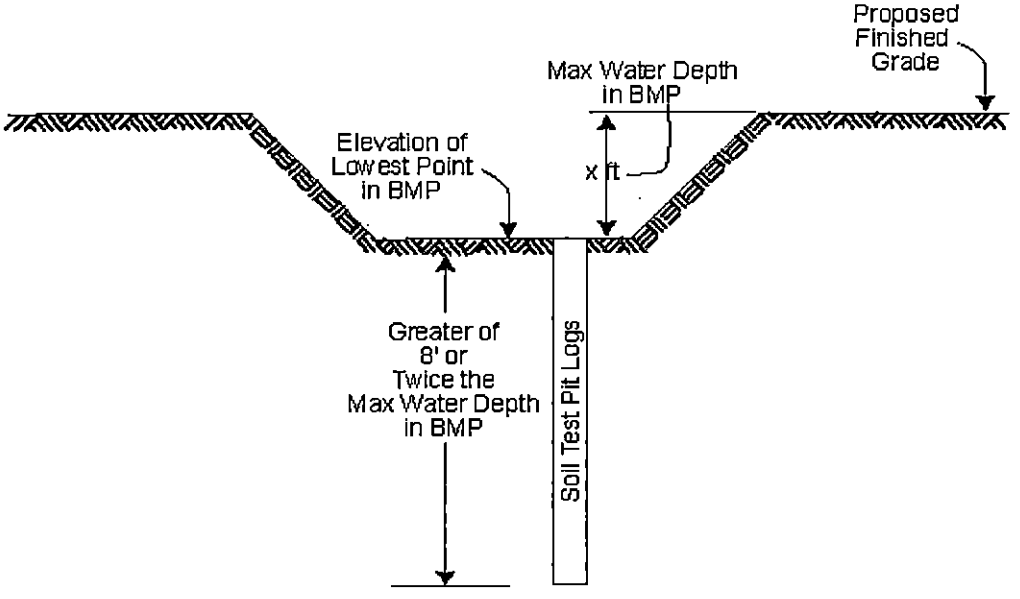
a. If underground detention/infiltration/retention is proposed, filters and other means of discouraging debris from entering the underground system is required prior to entry of stormwater to the underground system.

i. Some ideas include a combination of the following: Flexstorm, Gratemaster, or Stormsack inlet filters, or Trash Guard Plus (or equal); downspout filter(s) placed prior to entering downspout or prior to entering subsurface storage; and gutter guards.

4. Setbacks. Detention and/or infiltration basins shall not be permitted in any of the following locations:
   a. front yard setbacks, per the zone of which the subject basin is located within, and
   b. side yard setbacks, per the zone of which the subject basin is located within, and
   c. residential buffers, and
   d. sight triangle areas, per §502.M, and
   e. within ten (10') feet of any property line.

5. Soils. Soil analysis requirements for stormwater measures shall conform to *NJ BMP Manual, Chapter 12.*.
   a. Explorations. Soil explorations (soil profile pits and soil borings) shall be of the number, type, and depth(s) as outlined in the NJ BMP Manual.

   b. Permeability. Soil permeability tests shall be conducted on the most hydraulically restrictive horizon as outlined in the NJ BMP Manual:



   c. Fractured Bedrock. Stormwater infiltration BMPs relying on fractured bedrock for exfiltration shall be installed as outlined in the NJ BMP Manual.

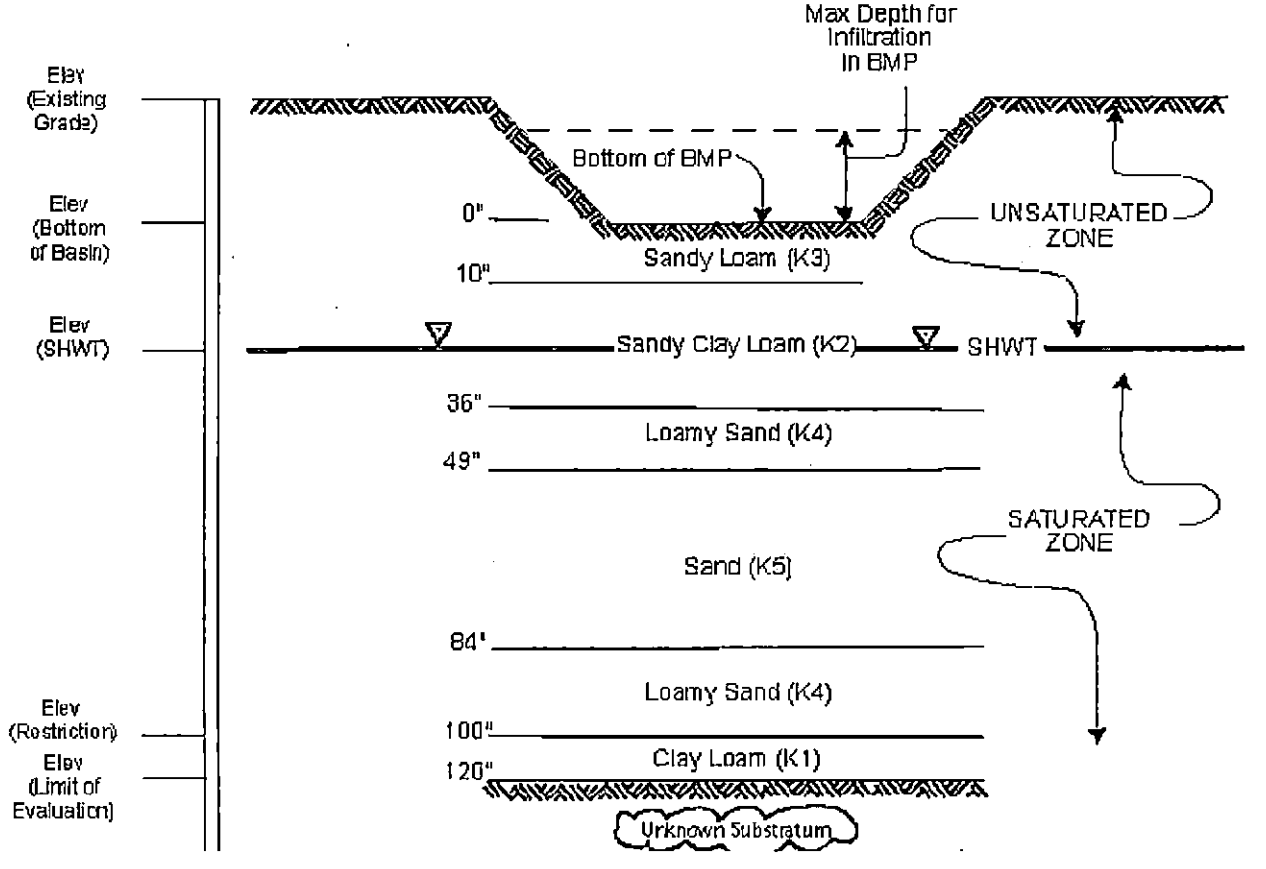
   d. Soil Tests. A minimum of one (1) permeability test shall be performed at each soil profile pit and soil boring location. Permeability rates can be determined as described in the NJ BMP Manual.

e. A soil log shall be prepared for each soil profile pit and soil boring. The soil boring log shall be in accordance with the NJ BMP Manual and, at a minimum, provide the following:

i. elevation of the existing ground surface and elevations of permeability test locations;
ii. the depth and thickness of each soil horizon and the depth to the substratum;
iii. the dominant matrix or background and mottle colors using the *Munsell* system of classification for hue, value and chroma;
iv. the appropriate textural class as shown on the USDA textural triangle; the volume percentage of coarse fragments larger than two (2) millimeters in diameter; the abundance, size, and contrast of mottles;
v. the soil moisture condition, using standard USDA classification terminology;
vi. the presence of any soil horizon, substratum or other feature that exhibits an in-place permeability rate less than one (1") inch per hour; the depth and occurrence of soil restrictions including, but not limited to, abrupt textural boundaries likely to restrict the movement of water, fragipans, dense materials, bedrock, and ortstein;
vii. the depth to the seasonally high ground water level, either perched or regional;
viii. the static (stabilized) water level, presence of soil mottles or other redoximorphic features; and
ix. any observed seepage or saturation.

6. Landscaping & Design.

a. Intent. Detention and retention basins should appear as natural as possible, in addition to functionality, to be a community asset in addition to infrastructure. Essentially, during dry weather these basins will appear as shallow depressions in which native



plants grow, while during periods of heavy rain the basins will appear as natural ponds. Detention basins are not intended as long-term seasonal water features; basins will be filled with water only during peak storm flows, after which time water levels will diminish.

b. Requirements. To achieve this goal, the following shall govern the design of basins in all non- residential developments and residential developments, unless superseded by the RSIS Subchapter 7:
   i. Basins shall be not be constructed of concrete or other human-made materials, except at spillways, inlets, and other such control structures.
   ii. The shape of the basin shall be irregular and asymmetrical in nature, maximizing the preservation of existing tree stands and vegetation.
   iii. The sides of basins shall be gently-sloping with a maximum slope ratio shall not exceed 4:1. A design waiver may be requested from the Planning or Zoning Board, provided additional stabilization methods are applied, such as turf reinforcement mats, erosion control blankets, and application of seed mixes with quick germination rates.
   iv. Mowing shall be prohibited in the Zone 1 of the basin and limited to a maximum of twice per year in Zone 2 and 3.
   v. Only native species of landscaping shall be utilized, as listed in the *NJ BMP Manual*.
   vi. The application of fertilizer shall be restricted, utilizing Integrated Pest Management (IPM) strategies to maintain basin plantings.
   vii. The use of fountains, falls, benches, educational signage, patios, walkways, overlooks and similar are encouraged around the periphery, to make the site as park-like as possible.
   viii. Landscaping should be a minimum of five (5') feet from basin infrastructure, including but not limited to a dam's toe of slope, perforated pipes, riser structure, low flow orifice, inlets, and similar.

c. Landscaping Zones. Stormwater basins, whether they function as retention or detention basins, all have a zone of influence generally based on the occurrence of storms, i.e. a series of concentric bands or planting zones, where various physical and environmental components such as soil type, water depth, water fluctuations, velocity, and slope, collectively and/or individually influence the kinds of plants which will tolerate such conditions and thrive. Each planting zone or band requires its own plant type to properly perform its mutually critical role. Plants have differing tolerances to inundation; the four zones described in this section will dictate which plants will survive where (every facility does not necessarily exhibit all of these zones). These zones are shown as follows in Table 5.16:

TABLE 5.16.
LANDSCAPING
ZONES

Zone	Stormwater Level	Hydrologic Conditions	Deciduous Trees	Evergreen Trees	Shrubs	Groundcover	Seed
1	2-Year Storm	regularly inundated	min. 1/10,000sf	not required	10% cover	25% cover	15 lbs/acre
2	10-Year Storm	periodically inundated	min. 1/6,000sf	not required	20% cover	50% cover	20 lbs/acre
3	100-Year Storm	infrequently inundated	min. 1/5,000sf	min. 1/10,000sf	30% cover	40% cover	20 lbs/acre
4	Basin Periphery (within 20')	seldom or never inundated	min. 1/3,000sf	min. 1/4,000sf	30% cover	30% cover	60 lbs/acre

i. Zone 1 (2-Year Storm). Zone One generally encompasses up to the two (2) year flood recurrence interval, which is a flood of extreme magnitude that has a fifty (50%) percent chance of happening in any year. This area commonly extends vertically about one (1') foot from the basin bottom. As this zone is regularly inundated, this area is the most difficult to establish since plants must be able to withstand inundation of water during storms, when wind might blow water into the area, or the occasional drought during the summer. To stabilize the soil in this zone, Zone 1 must have a vigorous cover. Types of landscaping, as required in Table 5.6, are as follows:

(a) Deciduous trees shall be a minimum caliper (diameter) of two (2") inches, six (6") inches from the ground. Acceptable species include river birch (*betula nigra*), green ash (*fraxinus pennsylvanica*), white ash (*fraxinus americana*), red maple (*acer rubrum*), willow oak (*quercus phellos*), swamp white oak (*quercus bicolor*), sweetgum (*liquidambar styraciflua*), black gum (*nyssa sylvatica*), and American sycamore (*platanus occidentalis*).

(b) Evergreen trees are not required in this zone.

(c) Shrubs shall be a minimum of twenty-four (24") inches in height. Acceptable species include pussy willow (*salix discolor*), swamp rose (*rosa palustris*), buttonbush (*cephalanthus occidentalis*), highbush blueberry (*vaccinium spp.*), arrowood (*viburnum dentatum*), spicebush (*lindera Benzoin*), sweetbells (*leucothoe racemosa*), sweet pepperbush (*clethra alnifolia*), winterberry (*ilex verticillata*), inkberry holly (*ilex glabra*), sweet bay magnolia (*magnolia virginiana*), red osier/silky dogwood (*cornus stolonifera/amomum*), grey dogwood (*cornus racemosa*), black willow (*salix nigra*), and serviceberry (*amelanchier spp.*).

(d) Acceptable groundcover planting species include cardinal flower (*lobelia cardinalis*), blue flag iris (*iris versicolor*), sweet flag (*acorus calamus*), Marsh marigold (*caltha palustris*), swamp milkweed (*asclepsis incarnata*), redtop (*agrostis spp.*), switchgrass (*panicum virgatum*), Canada bluejoint (*calamagrostis canadensis*), many bulrushes (*scirpus spp.*), and spike rushes (*eleocharis spp.*).

(e) A natural seed mix of natural prairie, meadow or wildflower shall be utilized at 80 lbs/acre. Mixtures should include 20% Annual Ryegrass, 20% Fowl Bluegrass, 20% Foxsedge, 7% Ticklegrass, 5% Soft Rush, 5% Lurid Sedge, 5% Showy Tickseed Sunflower, 3% Green Bulrush, 3% Joe-Pye Weed, 3% Blue Vervain, 2% Nodding-Bur Marigold, 2% Rough Leaved Goldenrod, 2% Boneset, 1% Marsh Blazing Star, 1% Sensitive Fern, 1% Purple Stem Aster. Turf grass seed mixes, comprised primarily of Kentucky Bluegrass, Tall Fescue or Perennial rye is not permitted.

ii. Zone 2 (10 Year Storm). Zone Two is the area below the ten (10) year flood recurrence interval, which is a flood of extreme magnitude that has a ten (10%) percent chance of happening in any year. This zone generally extends from 1' to 4' feet above the basin floor. Plants in this zone are subject to periodic inundation after storms and may experience saturated or partly saturated soil. Types of landscaping, as required in Table 5.6, are as follows:

(a) Deciduous trees shall be a minimum caliper (diameter) of two (2") inches, six (6") inches from the ground. Acceptable species include green ash (*fraxinus pennsylvanica*), river birch (*betula nigra*), sweetgum (*liquidambar styraciflua*), American hornbeam (*carpinus caroliniana*), persimmon (*diospyros virginiana*), and red maple (*acer rubrum*).

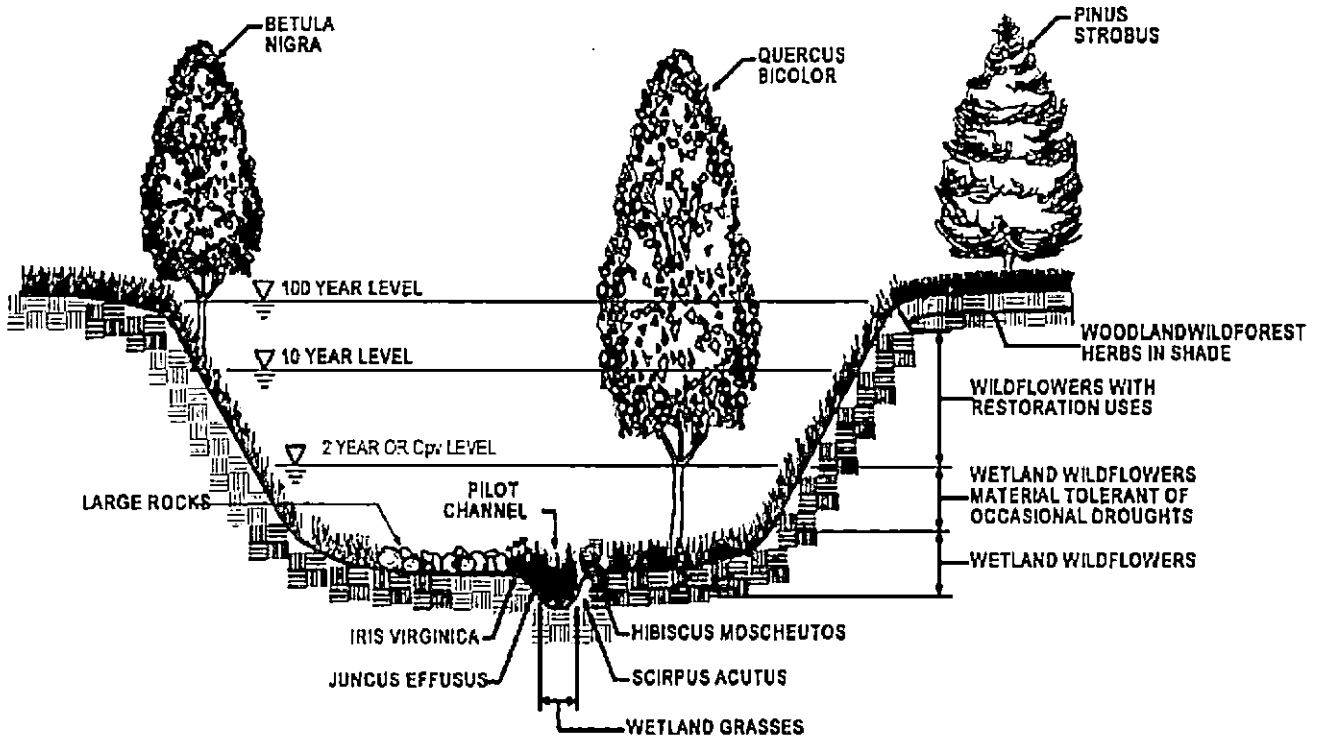
(b) Evergreen trees are not required in this zone.

(c) Shrubs shall be a minimum of twenty-four (24") inches in height. Acceptable species include hollies (*ilex spp.*), steeplebush (*spirea tomentosa*), serviceberry (*amelanchier arborea*), nannyberry (*viburnum lentago*), sweet pepperbush (*clethra alnifolia*), bayberry (*morella pensylvanica*), elderberry (*sambucus canadensis*), sweetbay magnolia (*magnolia virginiana*), hawthorn (*crategus*), and shrub dogwoods (*cornus spp.*).

(d) Acceptable groundcover planting species include asters (*aster spp.*), goldenrods (*solidago spp.*), beebalm (*monarda didyma*), bergamont (*monarda fistulosa*), lobelias (*lobelia spp.*), coneflower (*rudbeckia spp.*), violets (*viola spp.*), lilies (*lilium spp.*), primrose (*oenothera spp.*), milkwort (*polygala spp.*), and flatsedge (*cyperus spp.*).

(e) A natural seed mix of natural prairie, meadow or wildflower shall be utilized at 20 lbs/acre. Mixtures should include 25% Annual Ryegrass, 15% Little Bluestem, 10% Fowl Bluegrass, 10% Partridge Pea, 10% Ticklegrass, 10% Sideoats Grama, 5% Blunt

Broom Sedge, 4% Showy Tick Trefoil, 3% Black Eyed Susan, 3% Ox-Eye Sunflower, 2% Broom Sedge, 1% Zig-Zag Aster, 1 % Marsh Blazing Star, 1% Butterfly Milkweed. Turf grass seed mixes, comprised primarily of Kentucky Bluegrass, Tall Fescue or Perennial rye is not permitted.



Source: Claytor and Schueler 1997.

iii. Zone 3 (100 Year Storm). Zone Three is the area below the one hundred (100) year flood recurrence interval, which is a flood of extreme magnitude that has a one (1%) percent chance of happening in any year. This zone is infrequently inundated by floodwaters that quickly recede in a day or less. It's important to stabilize the steep slopes characteristic of this zone and establish low maintenance natural vegetation. Types of landscaping, as required in Table 5.6, are as follows:

(a) Deciduous trees shall be a minimum of minimum caliper (diameter) of two (2") inches, six (6") inches from the ground. Acceptable species include American hornbeam (*carpinus caroliniana*), cherries (*prunus spp.*), willow oak (*quercus phellos*), hickories (*carya spp.*), and witch-hazel (*hamamelis virginiana*).

(b) Evergreen trees shall be a minimum of six (6') feet in height. Acceptable species include White Fir (*abies concolor*), Eastern Red Cedar (*juniperus virginiana*), Norway Spruce (*picea abies*), Colorado Spruce (*picea pungens*), Japanese Black Pine (*pinus thunbergi*), and Douglas Fir (*pseudotsuga taxifolia*).

(c) Shrubs shall be a minimum of twenty-four (24") inches in

height. Acceptable species include phlox (*phlox spp.*), solomon's seal (*polygonatum biflorum*), many fescues (*festuca spp.*), many viburnums (*viburnum spp.*), and Virginia rose (*rosa virginiana*).

(d) Acceptable groundcover planting species include Trumpetcreeper (*campsis radicans*), Wintercreeper Euonymus (*euonymus fortunei vegetus*), English Ivy (*hedera helix*), Shore Juniper (*jurtiperus conferta*), Andorra Juniper (*juniperus horizontalis plurnosa*), Packasandra (*pacysandra terminalis*), Virginia Creeper (*parthenocissus qitiuquefolia*), Grapes sp. (*vitis sp.*), and Myrtle (*vinca minor*).

(e) A natural seed mix of natural prairie, meadow or wildflower shall be utilized at 80 lbs/acre. Acceptable species include phlox (*phlox spp.*) and many fescues (*festuca spp.*). Turf grass seed mixes, comprised primarily of Kentucky Bluegrass, Tall Fescue or Perennial rye is not permitted.

iv. Zone 4 (Basin Periphery). Zone Four encompasses the area approximately twenty (20') feet above the one hundred (100) year flood recurrence interval, or top of the basin. The placement of plants in this zone is important since it is the most visible area and screen undesirable views, serve as a buffer, and provide shade to allow a greater variety of plant materials. Types of landscaping, as required in Table 5.6, are as follows:

(a) Deciduous trees shall be a minimum of minimum caliper (diameter) of two (2") inches, six (6") inches from the ground. Acceptable species include Basswood (*tilia americana*), Flowering Dogwood (*cornus florida*), Redbud (*cercis canadensis*), Sassafras (*sassafras albidum*), American Beech (*fagus grandifolia*), White Ash (*fraxinus americana*), Scarlet Oak (*quercus coccinea*), White Oak (*quercus alba*), and Black Oak (*quercus velutina*).

(b) Evergreen trees shall be a minimum of six (6') feet in height. Acceptable species include White Fir (*abies concolor*), Eastern Red Cedar (*juniperus virginiana*), Norway Spruce (*picea abies*), Colorado Spruce (*picea pungens*), Japanese Black Pine (*pinus thunbergi*), and Douglas Fir (*pseudotsuga taxifolia*).

(c) Shrubs shall be a minimum of twenty-four (24") inches in height. Acceptable species include Bayberry (*myrica pennsylvanica*), Blackhaw (*viburnum prunifolium*), Fragrant Sumac (*rhus aromatica*), Highbush Blueberry (*vaccinium corymbosum*), Inkberry (*ilex glabra*), Potentilla (*potentilla fruticosa*), Red Cedar (*juniperus virginiana*), and Serviceberry (*amelanchier canadensis*).

(d) Fine fescues (festuca spp.) and groundcover plantings are acceptable in this zone.

d. Process. Basin landscaping shall be shown on a landscaping plan or separate basin landscaping plan, as part of any site or subdivision plan application, per Article VIII.

H. Safety Standards. This section sets forth requirements to protect public safety through the proper design and operation of stormwater management BMPs, which shall apply to any new or modified stormwater management BMP.

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 §516.H .1 for trash racks, overflow grates, and escape provisions at outlet structures.

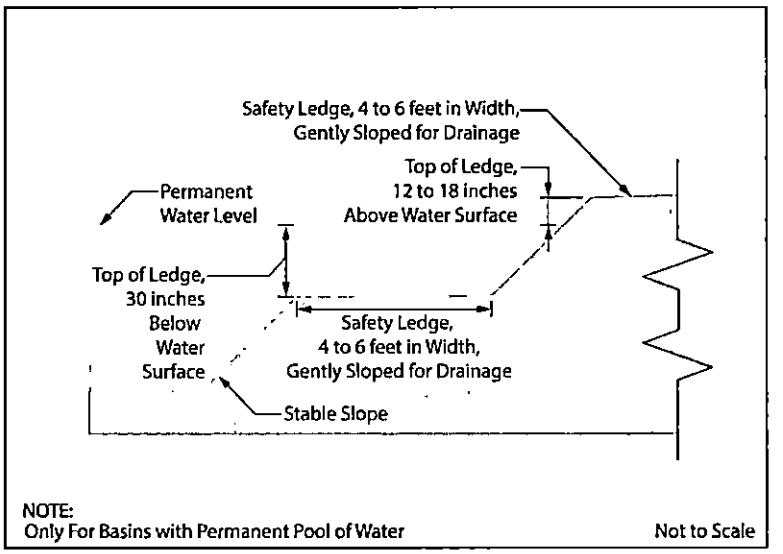
1. Requirements for Trash Racks, Overflow Grates, and Escape Provisions.
   a. Trash Rack. A trash rack is a device designed to catch trash and debris and prevent the clogging of outlet structures. Trash racks shall be installed at the intake to the outlet from the stormwater management BMP to ensure proper functioning of the BMP outlets, in accordance with the following:
      i. The trash rack shall have parallel bars, with no greater than six (6") 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 lbs./square foot.
   b. Overflow Grate. 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 lbs./square foot.
      iv. Overflow grates shall be installed a minimum of 3 inches above the maximum design storm so as not to impede flow for routings and allow for construction tolerances. If the grate location cannot be raised 3 inches above the maximum design water elevation or is being used as an emergency spillway, no grate should be specified, and a trash rack should be proposed instead.

c. Escape Provisions. 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 Township pursuant to §516.H.1, 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 (2.5') feet. Safety ledges shall be comprised of two steps. Each step shall be four to six (4-6') 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 below for an illustration of safety ledges in a stormwater management BMP; and

Elevation View – Basin Safety Ledge Configuration



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 (3:1).

2. 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 Township Planning or Zoning Board that the variance or exemption will not constitute a threat to public safety.

I. Site Development Stormwater Plan.

1. Requirements.

a. 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 §516.I.2 as part of the complete Board application for subdivision or site plan approval.

b. The applicant shall demonstrate that the project meets the standards set forth in this Ordinance.

c. The applicant shall submit 3 double-sided paper copies and one electronic copy in portable document format (PDF) or comparable format of the Stormwater Plan and any additional materials listed in the checklist, in accordance with §516.I.2 of this Ordinance.

2. Approval. All stormwater management facilities and infrastructure shall be reviewed as a part of the subdivision or site plan review process by the applicable municipal Board or official from which Township approval is sought., That Township board or official (as appropriate) shall consult the Township'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.

3. Location. All stormwater management facilities and infrastructure in association with a major residential site plan shall be constructed on a separate lot specifically reserved for such purpose, unless otherwise approved by the Planning Board or Zoning Board of Adjustment, whichever the case may be. Where the area designated for stormwater management facilities are part of a residential major site plan, the areas devoted to these stormwater management purposes shall not be counted as part of the required open space.

4. Checklist Requirements - Submission of Site Development Stormwater Plan. The following information shall be required:
   a. 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 that drain into or upstream of the Category One waters, wetlands and flood plains along with their appropriate buffer strips, marshlands and other wetlands, pervious or vegetative surfaces, existing man-made structures, roads, bearing and distances of property lines, and significant natural and manmade features not otherwise shown.

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

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

d. Land Use Planning & Source Control Plan. This plan shall provide a demonstration of how the goals and standards of §516.C, §516.E and §516.F 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.

e. Stormwater Management Facilities Map. The following information, illustrated on a map of the same scale as the topographic base map, shall be included:
   i. Total area to be disturbed, paved or built upon, proposed surface contours, land area to be occupied by the stormwater management facilities and the type of vegetation thereon, and details of the proposed plan to control and dispose of stormwater.
   ii. Details of all stormwater management facility designs, during and after construction, including discharge provisions, discharge capacity for each outlet at different levels of detention and emergency spillway provisions with maximum discharge capacity of each spillway.

f. Calculations.
   i. Comprehensive hydrologic and hydraulic design calculations for the pre-development and post-development conditions for the design storms specified in §516.E of this Ordinance.
   ii. When the proposed stormwater management control measures (e.g., basins) 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. See Chapter 12 of the NJ BMP Manual for additional information:

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

g. Maintenance & Repair Plan. The design and planning of the stormwater management facility(ies) shall meet the maintenance requirements of §516.J.

h. Waiver from Submission Requirements. The applicable Township official or Board reviewing an application under this Ordinance may, in consultation with the Township's review engineer, waive submission, upon written request of the applicant, of any of the requirements in §516.D, 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.

J. Maintenance & Repair. Projects subject to review in §516.A.3 shall comply with the below requirements:

1. General Maintenance.

a. The design engineer shall prepare a Maintenance Plan for the stormwater management measures incorporated into the design of a major development.

b. 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.

c. Responsibility.

i. 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.

ii. 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.

iii. If the party responsible for maintenance identified under §516.J.1.c is not a public agency, the maintenance plan and any future revisions based on §516.J.b and c shall be recorded upon the deed of record for each property on which the maintenance described in the maintenance plan must be undertaken.

iv. The requirements of §516.J.1.c.i and §516.J.1.c.ii do not apply to stormwater management facilities that are dedicated to and accepted by the Township or another governmental agency,

subject to all applicable municipal stormwater general permit conditions, as issued by the Department.

v. The Responsible Party for Maintenance identified under §516.J.c.i shall perform all of the following requirements:
   (a) maintain a detailed log of all preventative and corrective maintenance for the structural stormwater management measures incorporated into the design of the development, including a record of all inspections and copies of all maintenance-related work orders;
   (b) evaluate the effectiveness of the Maintenance Plan at least once per year and adjust the plan and deed as needed; and
   (c) retain and make available, upon request by any public entity with administrative, health, environmental, or safety authority over the site, the Maintenance Plan and documentation required by §516.J.c.v & §516.J.c.vi(a).

vi. Repair.
   (a) 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.
   (b) In the event that the stormwater management facility becomes a danger to public safety or public health in the opinion of the Township, 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 affect 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.

2. Maintenance/Performance Bonds.
   a. Responsibility for operation and maintenance of any stormwater management facilities, including periodic removal and disposal of accumulated particulate material and debris, shall remain with the owner or owners of the property, with permanent arrangements in place so that it shall pass to any successive owner, unless assumed by a government agency. If portions of the land are to be sold, legally binding arrangements shall be made to pass the basic responsibility to successors in title. These arrangements shall

designate, for each project, the property owner, governmental agency or other legally established entity to be permanently responsible for maintenance.

b. The applicant shall enter into a Stormwater Maintenance Agreement with the Township to ensure the continued operation and maintenance of the stormwater facility. This agreement shall be reviewed and approved by the applicable Board Engineer and Township Solicitor. This Agreement may include, but may not necessarily be limited to, personal guaranties, deed restrictions, covenant and bonds. In cases where property is subdivided and sold separately, a Homeowners Association (HOA) or similar permanent entity should be established as the responsible entity, absent an agreement by a governmental agency to assume responsibility. In addition, the applicant shall:
   i. Describe in detail the mechanisms for maintenance, including:
      (a) The types and quantities of equipment necessary for maintenance.
      (b) The maintenance schedule in terms of maintenance activities required on annual basis.
      (c) The methodology of maintaining all detention/ infiltration facilities on the site.
      (d) The entity responsible for the maintenance activity.
      (e) The life expectancy of the stormwater facility.
   ii. Itemize costs associated with each of the items described in §516.J.2.b.i, in addition to manpower, capital costs for equipment and foreseeable costs associated with repair of a system which fails.
   iii. Obtain approval from the applicable Board for all arrangements and values, per §516G.

c. Developer Contribution. An exemption or design waiver(s) may be requested for the requirements outlined §516.J.2.b relating to the formation of a responsible entity for the long-term care and maintenance of stormwater management facilities by the Planning Board or Zoning Board, upon the Board's determination that both the area to be developed and the Township on whole would be better served by an agreed upon cash bequest to the designated stormwater management maintenance fund as established below:
   i. The Township of Cherry Hill shall establish a separate fund to receive contributions from developers where the Planning Board or Zoning Board has determined that the formation of a responsible entity, for the long-term care and maintenance of stormwater management facilities, is not warranted or practical. These funds shall be utilized for the long-term care and maintenance of stormwater management facilities in such locations as deemed most beneficial to the residents of the Township by Township Council. The contribution shall be placed in the budget by way of a dedication by rider. The Township Council and the Mayor shall be provided with financial reports by the Township Controller, as to the status of said account.

ii. Calculation. The amount of money to be contributed shall be calculated as follows:
(a) $50,000 for the first acre, or part thereof, of basin area, as calculated by the Planning or Zoning Board Engineer.

(b) $25,000 for each additional acre, or part thereof, of basin area in excess of one acre, as calculated by the Planning or Zoning Board Engineer.

iii. The amount of the developer's contribution for long-term basin maintenance shall be established by resolution of the Township Council, and updated as necessary.

iv. Payment of the contribution required pursuant hereto shall be made prior to the signing of the final plans and/or deeds.

d. In the event that any type of stormwater management facility becomes a threat to public safety or public health or is in need of maintenance, the Township shall so notify, in writing, the owner of the facility. From the notice, the owner shall have fourteen (14) days to perform such maintenance and repair on the facility in a manner that is approved by the Township Engineer. If the owner fails to perform such maintenance and repair on the facility within the required time period, the Township may immediately proceed to do so and shall bill the cost of such repairs to the owner of the facility.

3. Nothing in this section shall preclude the Township 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.*

K. Sources For Technical Guidance.

1. Technical guidance for stormwater management measures can be found in the documents listed below, which are available from the Department's website at:
a. Guidelines for stormwater management measures are contained in the *NJ BMP Manual,* as amended and supplemented. Information is provided on stormwater management measures such as, but not limited to, those listed in Tables 5.13A, 5.13B, and 5.13C.

Additional maintenance guidance is available on the Department's website at: https://dep.nj.gov/stormwater/maintenance-guidance/.

2. 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.

3. Additional technical guidance for stormwater management measures can be obtained from the following:
a. The *"Standards for Soil Erosion & Sediment Control in New Jersey"* promulgated by the State Soil Conservation Committee and incorporated into *N.J.A.C. 2:90.* Copies of these standards may be obtained here: https://www.nj.gov/agriculture/divisions/anr/nrc/njerosion.html;

b. Camden County Soil Conservation District, per *N.J.A.C. 2:90-1.3(a)4,* (www.camdenscd.org);

c. The Rutgers Cooperative Extension Service, (732) 932-9306 and Water Resources Program: Rain Garden Information Center (http://water.rutgers.edu/main.htm);

d. *Part 630 Hydrology National Engineering Handbook*, United States Department of Agriculture (U.S.D.A.), Natural Resources Conservation Service (N.R.C.S.), (210-vi, NEH, September 1997) 1-1 available here: https://www.nrcs.usda.gov/wps/portal/nrcs/detailfull/national/water/manage/hydrology/?cid=STELPRDB1043063; and

e. New Jersey *Residential Site Improvements Standards* (N.J.A.C. Title 5 Chapter 21), latest edition, available here: https://www.nj.gov/dca/divisions/codes/offices/rsis.html.

L. Construction Requirements. The construction requirements outlined in the NJ BMP Manual for each stormwater management BMP shall be incorporated and supplemented as follows:

1. Where "engineer" is stated in §516.L, it is meant to be the design engineer, licensed engineer working on behalf of the applicant/owner/contractor, or his/her/their designated representative(s) as appropriate.

2. The extents and depth of soil replacement areas, if required, are subject to the direction and approval of the engineer based upon site conditions encountered during excavation.

3. It is expected that, to the maximum extent practicable, the engineer will be providing guidance to the contractor for the entire duration of the stormwater BMP construction. The engineer will be onsite or available for the construction of the stormwater management BMP from excavation through to seeding and slope stabilization.

4. Where proprietary systems are installed, a representative from the manufacturer shall be available during the installation of the system.

   a. For example, an ACF representative should be available for the placement of geotextile, initial installation of Stormtech chambers, stone placement around chambers, and geotextile wrapping of bed to ensure it was performed properly.

5. The engineer shall be onsite to inspect and certify, at a minimum, the following, as applicable: extents and depth of soil replacement areas, placement of geotextile, inspection and approval of K-4 soil replacement material, basin bottom elevation, K-5 sand material, and in-place depths of both soil replacement material and K-5 sand.

6. It is the contractor's responsibility to coordinate the anticipated schedule with the engineer in advance of any activities the engineer must certify prior to continuing construction activities.

7. The engineer shall provide a certification stating that, while they were onsite on (dates) and (times), all construction was performed in accordance with the design plans. This certification shall be in addition to the post-construction requirements in §516.M.

M. Post-Construction Requirements.

1. An as-built survey shall be prepared by a licensed land surveyor.

2. Post-construction permeability testing in accordance with the NJ BMP Manual shall be performed for all applicable stormwater management BMPs.

3. As-built routings shall be prepared by a licensed engineer for each as-built stormwater BMP.

4. A statement should be prepared by a licensed engineer that the as-built permeability and/or as-built routings comply with the design and state regulations. Otherwise:

   a. If the as-built routings exceed the allowable and/or permeability testing shows a longer drain time than allowed in the BMP Manual, corrective action must be outlined and submitted to the Township or review board Engineer, as applicable.

   b. All corrections or remedial actions deemed by the Township to be necessary due to the failure to comply with the standards established by the design, this ordinance, and/or any reasons of public health or safety shall be completed by the applicant. The applicant shall pay all costs associated with such reviews and site visits.

N. 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 penalties outlined in Article XI, Section 1106.

O. Severability. See Article XII, Section 1202.

SECTION 3. All ordinances or parts of ordinances inconsistent with this amending ordinance are hereby repealed to the extent of their inconsistencies only.

SECTION 4. This ordinance shall take effect twenty (20) days after passage and publication, as required by law.

INTRODUCED: OCTOBER 28, 2024

ADOPTED: DECEMBER 30, 2024

MAYOR DAVID FLEISHER

COUNCIL PRESIDENT

ATTEST:

PATTI CHACKER, RMC
TOWNSHIP CLERK