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## **ENVIRONMENTAL PROTECTION**

### **LAND USE MANAGEMENT**

### **WATER RESOURCE MANAGEMENT**

### **DIVISION OF WATER QUALITY**

#### **Coastal Zone Management Rules**

#### **Freshwater Wetlands Protection Act Rules**

#### **Stormwater Management**

#### **Flood Hazard Area Control Act Rules**

#### **New Jersey Pollutant Discharge Elimination System**

#### **Highlands Water Protection and Planning Act Rules**

#### **Adopted Repeal and New Rule: N.J.A.C. 7:8-5.3**

**Adopted Amendments: N.J.A.C. 7:7-25.1; 7:7A-18.1; 7:8-1.2, 1.3, 1.6, 2.4, 3.4, 3.6, 3.9, 3.10, 4.2, 4.6, 5.1, 5.2, 5.4, 5.5, 5.6, 5.8, and 5.9; 7:13-11.2, 18.5, and 20.1; 7:14A-24.7; and 7:38-10.2**

#### **Adopted New Rule: N.J.A.C. 7:8-5.6**

#### **Adopted Repeal: N.J.A.C. 7:8-5.7**

Proposed: December 3, 2018, at 50 N.J.R. 2375(a).

Adopted: October 25, 2019, by Catherine R. McCabe, Commissioner, Department of Environmental Protection.

Filed: December 3, 2019, as R.2020 d.003, **with non-substantial changes** not requiring additional public notice and comment (see N.J.A.C. 1:30-6.3).

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Authority:                    As to N.J.A.C. 7:7: N.J.S.A. 12:3-1 et seq., 12:5-3, 13:1D-1 et seq.,  
13:1D-9 et seq., 13:1D-29 et seq., and 13:9A-1 et seq.;

As to N.J.A.C. 7:7A: N.J.S.A. 13:9B-1 et seq., and 58:10A-1 et seq.;

As to N.J.A.C. 7:8: N.J.S.A. 12:5-3, 13:1D-1 et seq., 13:9A-1 et seq.,  
13:19-1 et seq., 40:55D-93 to 99, 58:4-1 et seq., 58:10A-1 et seq.,  
58:11A-1 et seq., and 58:16A-50 et seq.

As to N.J.A.C. 7:13: N.J.S.A. 13:1D-1 et seq., 13:1D-29 et seq.,  
13:20-1 et seq., 58:10A et seq., 58:11A-1 et seq., and 58:16A-50 et  
seq.

As to N.J.A.C. 7:14A: N.J.S.A. 13:1B-3 et seq., 13:1D-1 et seq.,  
13:1D-29 et seq., 13:1E-1 et seq., 26:2C-1 et seq., 26:3A2-21,  
40:55D-1 et seq., 58:10-23.11 et seq., 58:10A-1 et seq., 58:11-23  
et seq., 58:11-49 et seq., 58:11-64 et seq., 58:11A-1 et seq., and  
58:12A-1 et seq.

As to N.J.A.C. 7:38: N.J.S.A. 13:1B-15.128 et seq., 13:1D-1 et seq.,  
13:9B-1 et seq., 13:20-1 et seq., 23:2A-1 et seq., 58:1A-1 et seq.,  
58:10A-1 et seq., 58:11-23 et seq., 58:11A-1 et seq., 58:12A-1 et  
seq., and 58:16A-50 et seq.

DEP Docket Number: 03-18-10.

Effective Date: March 2, 2020.

Operative Date: March 2, 2021.

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Expiration Dates:      November 14, 2021, N.J.A.C. 7:7;  
  
                                 August 5, 2022, N.J.A.C. 7:7A;  
  
                                 June 26, 2021, N.J.A.C. 7:8;  
  
                                 October 6, 2021, N.J.A.C. 7:13;  
  
                                 November 2, 2022, N.J.A.C. 7:14A; and  
  
                                 December 1, 2022, N.J.A.C. 7:38.

This rule adoption may be viewed or downloaded from the Department’s website at <http://www.nj.gov/dep/rules/adoptions.html>.

The Department is adopting amendments to the Stormwater Management rules, N.J.A.C. 7:8, to replace the current requirement that major developments incorporate nonstructural stormwater management strategies to the “maximum extent practicable” to meet groundwater recharge standards, stormwater runoff quantity standards, and stormwater runoff quality standards, with a requirement that green infrastructure be utilized to meet these same standards. The adopted amendments clarify and modify the definition of major development, which defines the scope of projects to which these rules apply. The Department is adopting changes to apply the total suspended solids (TSS) removal requirement to the runoff from motor vehicle surfaces and to eliminate the TSS removal requirement as it applies to runoff from other impervious surfaces not traveled by automobiles, such as rooftops and sidewalks. The Department is adopting several changes that will improve water quality and stormwater management improvements in communities with combined sewer systems. This adoption will also make changes to existing definitions, add new definitions, and make other

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alterations related to the changes identified above, and make minor changes to other provisions in the Stormwater Management rules as described below. Additionally, the Department is adopting minor amendments to provisions in the Coastal Zone Management Rules, the Freshwater Wetlands Protection Act Rules, the Flood Hazard Area Control Act Rules, the New Jersey Pollutant Discharge Elimination System rules, and the Highlands Water Protection and Planning Act Rules in order to update cross-references and incorporate other changes consistent with the amendments to the Stormwater Management rules.

As indicated in the notice of proposal Summary, 50 N.J.R. at 2376, the Department is in the process of seeking input regarding potential further amendments to the Stormwater Management rules. In response to this notice of proposal, the Department received comments that were beyond the scope of anything proposed in this rulemaking. The Department will consider the input provided by those comments as it determines what further amendments to the rules may be appropriate in a future rulemaking.

**Summary of Hearing Officer's Recommendation and Agency's Response:**

The Department held a public hearing on the notice of proposal on Tuesday, January 8, 2019, at 1:00 P.M., in the Department's Public Hearing Room, 401 East State Street, Trenton, New Jersey. Julie Krause, an Administrative Analyst for the Division of Water Quality, was the hearing officer. Ten persons commented at the public hearing. After considering the testimony at the public hearing and the written comments received, the hearing officer recommended that the Department adopt the amendments with the non-substantial changes described below

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in the Summary of Public Comments and Agency Responses and in the Summary of Agency-Initiated Changes below. The Department accepts the recommendation. A record of the public hearing is available for inspection in accordance with applicable law by contacting:

Department of Environmental Protection

Office of Legal Affairs

ATTN: DEP Docket No. 03-18-10

401 East State Street, 7th Floor

Mail Code 401-04L, PO Box 402

Trenton, NJ 08625-0402

**Summary** of Public Comments and Agency Responses:

The Department accepted comments on the notice of proposal through February 1, 2019.

The following persons submitted oral or written comments on the notice of proposal:

1. Anonymous
2. Bakun, George, Phillips 66 Company, Bayway Refinery
3. Buteas, Christine, New Jersey Business & Industry Association
4. Berg, Derek, Contech Engineered Solutions
5. Canuso, Michael, New Jersey Builders Association
6. Decker, Thomas, Jacobs Engineering Group
7. Dilodovico, Anthony, Bowman Consulting Group

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8. Dilodovico, Tony, Tony D Environmental Permitting, LLC
9. Fajman, Dan
10. Fischer, Robert J., New Jersey Turnpike Authority
11. Furnari, Russell, PSEG Services Corporation
12. Gan, Michael, Lieberman Blecher on behalf of Save Hamilton Open Space
13. Gajda, Henry, New Jersey League of Conservation Voters
14. Goldsmith, Amy, Clean Water Action
15. Hales, L. Stanton, Jr., Barnegat Bay Partnership
16. Hammer, Rebecca, National Resource Defense Council with endorsement by The American Littoral Society, Association of New Jersey Environmental Commissions, Clean Ocean Action, Delaware Riverkeeper Network, Environment New Jersey, Hackensack Riverkeeper, Musconetcong Watershed Association, New Jersey Chapter of the Sierra Club, New Jersey Highlands Coalition, New Jersey League of Conservation Voters, NY/NJ Baykeeper, Pinelands Preservation Alliance, Raritan Headwaters, Save Barnegat Bay, and The Watershed Institute
17. Hart, Dennis, Chemistry Council of New Jersey
18. Holtz, Jay, Stormwater Equipment Manufacturers Association
19. Hrabal, Valerie
20. Jezierny, Karen, Princeton University
21. Kibler, Bill, Raritan Headwaters
22. Kennedy, Dan, The Utility and Transportation Contractors of New Jersey

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23. Lucking, Grant, New Jersey Builders Association
24. McGuinness, Michael, NAIOP NJ
25. Miller, John, FEMA Region II
26. Minervini, William P.
27. Miola, Daniel, Langan Engineering and Environmental Services
28. Ogintz, Joanna, Oldcastle Infrastructure
29. Perry, Brian, Van Note Harvey Associates
30. Perry, Kandyce, New Jersey Future
31. Pisauro, Michael, The Watershed Institute
32. Plevin, Lisa, New Jersey Highlands Council
33. Polk, Dionne
34. Potosnak, Ed, New Jersey League of Conservation Voters, providing a petition with 1,106  
signatures
35. Quigley, Marcus, OptiRTC, Inc.
36. Rhoads, Jaclyn, Pinelands Preservation Alliance
37. Roth, Stacy P., The Pinelands Commission
38. Ryder, John, Van Note Harvey Associates
39. Scerbo, Ryan, DeCotiis, FitzPatrick, Cole & Giblin, LLP
40. Sippie-Gora, Jo
41. Skupien, Joseph, Storm Water Management Consulting, LLC
42. Tittel, Jeff, New Jersey Sierra Club

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43. Wilson, Louise, NJ Future

44. Woods, James, Bowman Consulting Group

The comments received and the Department's responses are summarized below. The number(s) in parenthesis after each comment identify the respective commenter(s) listed above.

### **General Comments**

1. COMMENT: It is appropriate that the Department values the environment and is prioritizing the use of green infrastructure to provide stormwater treatment. (28)

2. COMMENT: The Department is correct to give thought to how the State handles its water, including runoff water from storms. It only makes sense to try to reduce the pollution from getting into the water and to do what the State can to not let polluted water migrate. By reducing or even eliminating polluted runoff, green infrastructure techniques prevent water pollution, replenish much-needed groundwater, reduce flooding, take pressure off of aging or undersized drainage pipes, sustain healthy urban ecosystems, cool and clean the air, and sometimes capture rainfall for beneficial reuse, such as irrigation. The State government should provide the regulatory structure for it to be successful. (40)

3. COMMENT: The Department is correct in taking into account infiltration. Further, the proposed rules are beneficial in that they provide certainty in design for major developments. (3)

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4. COMMENT: The Department is to be commended for the proposed rules and their focus on engineering measures that will not only improve the quality and quantity of the stormwater discharges throughout the State, but also will result in increased ground water recharge and encourage the creation of hydrologically functional landscapes. (37)

5. COMMENT: The proposed rules will help protect water quality. Of particular benefit are the rules related to deed notices for stormwater management measures, a stronger standard for the circumstances when variances are allowed (although the proposed standard needs to be strengthened further), new and clarified requirements for stormwater management in combined sewer areas, and the narrow, proposed amendments to the definition of “major development.” (16)

6. COMMENT: The proposed amendments are an important first step toward protecting our State’s precious waterways and communities. The commenter looks forward to working with the Department and fellow stakeholders to continue to improve the rules through future amendments, and urges the Department to prioritize the phase 2 stormwater rule amendment stakeholder process. (43)

7. COMMENT: The proposed reorganization of the stormwater control standards is appropriate and makes the rules more understandable and user-friendly. (32)

RESPONSE TO COMMENTS 1 THROUGH 7: The Department acknowledges the commenters’ support for the rules.

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8. COMMENT: The Department is correct to update the New Jersey Stormwater Best Management Practices (BMP) Manual to recognize the infiltration and attenuation benefits of conventional and green infrastructure BMPs toward meeting the quality, quantity, and recharge standards. (23)

9. COMMENT: Updates to the New Jersey Stormwater BMP Manual regarding green infrastructure should be undertaken only after any proposed updates have been vetted by the design community. The Department should identify which design criteria apply to all three regulatory design and performance standards, that is, Quality, Recharge, and Quantity, and which only apply to one or two of the standards. (7 and 8)

RESPONSE TO COMMENTS 8 AND 9: The proposed amendments pertain to the Stormwater Management rules, not the New Jersey Stormwater BMP Manual. The Department will be releasing updates to certain sections of the New Jersey Stormwater BMP Manual to reflect changes adopted in the rules. The Department regularly solicits input through stakeholdering on modifications to the New Jersey Stormwater BMP Manual and all major revisions are posted for public comment. Regarding the identification of which design criteria in the New Jersey Stormwater BMP Manual are related to each of the standards in the Stormwater Management rules, the first page of each BMP chapter identifies which of the standards in the rules the particular BMP is presumed to be capable of providing compliance toward. In order to be credited with achieving that presumed performance, the BMP must be designed to meet all of the design criteria within the BMP chapter. The New Jersey Stormwater BMP manual reflects the Department's determination as to the presumed capability of the referenced methods to

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achieve compliance toward the applicable standard codified in the Stormwater Management rules. The Department will analyze other methods and assertions that a particular design proposed by an applicant will achieve a differing result toward compliance with the rule's standards on a case-by-case basis with the onus on the applicant to demonstrate the asserted capability of the method or design.

The existing New Jersey Stormwater BMP Manual is available on the Department's website at [https://www.njstormwater.org/bmp\\_manual2.htm](https://www.njstormwater.org/bmp_manual2.htm). Chapters currently available for public comment are available at [https://www.njstormwater.org/bmp\\_man\\_comments.htm](https://www.njstormwater.org/bmp_man_comments.htm).

10. COMMENT: While the proposed changes to the stormwater management rules are a step forward towards a more sustainable path of development and encourage water recharge, the proposed changes do not go far enough and in other ways, are a step backwards. Although the Department has taken positive steps to protect the natural resources of the State, promote water recharge, and improve water resiliency, the Department should go further to protect homes, businesses, infrastructure, and the economy against flooding and health concerns. (12)

11. COMMENT: The proposed rules do not go far enough, and represent a missed opportunity to improve water quality and reduce flooding across New Jersey. Implementing green infrastructure without making any changes to the performance standards governing how much stormwater is captured, treated, or detained on the site will not have a significant impact on runoff pollutant loadings or volumes. The standards themselves must be updated. (16)

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RESPONSE TO COMMENTS 10 AND 11: The Department has adopted amendments to reduce flooding, improve water quality, and prevent human health impacts. Specifically, the Department has amended the Stormwater Management rules to replace the requirement to use the nonstructural strategies to the maximum extent practicable with a requirement to meet the groundwater recharge and stormwater runoff quantity and quality standards using generally small-scale and distributed green infrastructure, which will result in more closely maintaining natural hydrology. The Department has also amended the stormwater runoff quantity control standard to require quantity control in tidal flood hazard areas unless the major development discharges into a major tidal waterbody. In combined sewer communities (many of which are located in or along tidal flood hazard areas), this will also have the effect of requiring attenuation of storm events before discharging into the combined sewer system (CSS), which in many cases will result in less combined sewer overflow, and ultimately reduces the potential health impacts that can result from human contact with combined sewage. The Department has also amended the stormwater runoff quality standard at N.J.A.C. 7:8-5.5(c) to clarify that stormwater runoff quality treatment is required, even if the ultimate discharge is a CSS and the Department has added additional flexibility in addressing the stormwater runoff quantity standard in the form of a “community basin” to combined sewer communities. See N.J.A.C. 7:8-4.2(c)14 and the related definition of a community basin at N.J.A.C. 7:8-1.2.

The adopted amendments described above are anticipated to have significant impacts in achieving the goals described in the notice of proposal Summary, 50 N.J.R. at 2376–2377, of reducing stormwater runoff volume, reducing erosion, encouraging infiltration and

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groundwater recharge, and of maintaining, or reproducing as closely as possible, the natural hydrologic cycle and minimizing the discharge of stormwater-related pollutants, such as TSS and nutrients, while continuing to protect the public and provide environmental benefits.

However, as indicated in the notice of proposal Summary, 50 N.J.R. at 2376, and in the introduction to this adoption above, the Department is currently obtaining input through the stakeholder process to determine if any further potential changes to the underlying standards might be appropriate. If it is determined that further amendments are needed, they would be subject to a future rulemaking with an opportunity to comment on any such amendments.

12. COMMENT: The Department must adopt the strongest stormwater management rules possible. Over 95 percent of New Jersey's bodies of water do not meet current water quality standards. The State needs more effective management systems in place to ensure that water quality meets critical standards to protect public health, vulnerable ecosystems, and drinking water supplies. And while the proposed stormwater rules are a step in the right direction, they do not go far enough to reverse the current trend of stormwater management in New Jersey.

(34)

13. COMMENT: The proposed Stormwater Management rules do not go far enough to protect New Jersey's waterways and communities from stormwater-related harms. Only five percent of streams in New Jersey meet standards for being fishable, swimmable, and drinkable, mostly because of nonpoint pollution. Sixty-five percent of the State's streams are impacted by phosphorus. The Department has to address nonpoint source pollution issues and reverse

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Governor Christie's rollbacks to the State's waterways and this proposed rulemaking does not effectively do that. The rules should be withdrawn and repropose with fixes. (42)

14. COMMENT: Stormwater is the greatest threat to water quality in New Jersey. The Department's 2014 Integrated Water Quality Assessment Report (finalized in 2017), demonstrates serious water quality impairments in New Jersey, as over 98 percent of the waters in the State fail to fully meet water quality standards. Analysis contained in the report shows "(d)eclining water quality trends for nitrate, total dissolved solids (TDS), and chlorides." Ambient biological monitoring results reveal "a slight negative trend toward impaired conditions," with one of the strongest trends being "the decline of non-impaired ('Excellent' and 'Good') sites." A significant contributor to the degradation of New Jersey's waters is stormwater runoff. The Integrated Report states that runoff from urban areas is a "likely cause of increased TDS and chloride concentrations over time." Biological trends analysis shows a correlation between biological impairment and land use patterns that result in an increase in polluted runoff, such as increase in impervious surface. Generally, "water quality declines as the intensity of land use increases."

The State's impairment data bear out the close relationship between stormwater runoff and water quality degradation. "Urban Runoff/Storm Sewers" is listed as a source of impairment for 942 of the total 2,560 assessment unit/pollutant combinations identified on that list. Thus, urban runoff and stormwater pollution are contributing sources to over one-third of New Jersey's impairments. This information proves that New Jersey's current stormwater regulations for development sites are not strong enough to prevent polluted runoff

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from degrading water quality throughout the State, much less improve conditions in waterways that are already impaired.

Under the New Jersey Water Pollution Control Act, improving water quality is a requirement under State law. As the stormwater regulations derive their authority in part from the Water Pollution Control Act, the obligation to restore, enhance, and maintain the State's waters is the standard by which the existing rules and this rulemaking should be judged. The insufficiency of these rules led to submission of a petition in 2014 asking the Department to strengthen them within the context of renewing the State's municipal stormwater (MS4) permits. Years of sustained advocacy by various organizations have put the Department on repeated notice of the need to fix the stormwater rules. Now that the Department is finally moving forward with proposed updates, it faces a critical opportunity to protect and restore New Jersey waters. However, the proposed rules, in their current form, miss that opportunity by leaving the core elements of the current rules unchanged. After all the time the Department has spent working on this rulemaking, it represents only a small, incremental step that does not address the underlying insufficiency of the regulatory standards. (16)

RESPONSE TO COMMENTS 12, 13, AND 14: The commenters appear to be referencing both the 2012 and 2014 Integrated Water Quality Monitoring and Assessment Reports (Integrated Reports.) The Integrated Reports found that only a small percentage of New Jersey's assessments units (AUs) fully support all applicable designated uses; however, the reports do not find that over 90 percent of the State's waters are impaired as implied in the comments. In fact, the Integrated Reports show that many AUs have insufficient information to assess

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designated use support. This is important because even if all other applicable designated uses were fully supported for an AU, if one applicable designated use had insufficient information the AU was not counted as fully supporting all applicable designated uses. Accordingly, focusing on such a statistic is misleading and does not provide an accurate assessment of the condition of the State's waters or compliance with any applicable regulatory or statutory mandate. A review of designated uses for 2014 shows that: Aquatic Life-General had 16 percent fully supporting, 64 percent not supporting, and 20 percent insufficient data out of 958 AUs; Aquatic Life-Trout had 10 percent fully supporting, 57 percent not supporting, and 33 percent insufficient data out of 200 AUs; Recreation had 24 percent fully supporting, 41 percent not supporting, and 35 percent insufficient data out of 958 AUs; Water Supply had 37 percent fully supporting, 37 percent not supporting, and 26 percent insufficient data out of 826 AUs; Shellfish Harvesting had 20 percent fully supporting, 67 percent not supporting, and 13 percent insufficient data out of 174 AUs; and Fish Consumption had 36 percent not supporting and 64 percent insufficient data out of 958 AUs.

The use assessment portion of the Integrated Reports are prepared in accordance with Federal Clean Water Act Section 305(b), which requires states to assess overall water quality and support of designated uses of all principal waters of the State. These reports are also intended to establish program priorities and funding for restoring, maintaining, enhancing, and protecting waters of the State and the uses and benefits (public health, environmental, and economic) they provide. The designated use assessments do not provide a mechanism for

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evaluating site-specific impacts from land use activities on receiving water quality. The source of pollutants listed in the Integrated Reports are only possible sources and not verified.

As described in the notice of proposal Summary, 50 N.J.R. 2375, the Department is adopting numerous amendments, including requiring the use of green infrastructure, which will reduce pollutant discharges to waters. Generally, these amendments are intended to, among other things, improve water quality and prevent flooding impacts. Please also see the Response to Comments 10 and 11 for more description of the adopted amendments intended to improve water quality in communities with CSSs.

15. COMMENT: The proposed rules, in particular the definitions, lack clarity. Interpretation of many of the rules seems to be left to the subjective judgment of the reviewer, whose perspective will vary greatly based on experience, expertise, and opinion. Expectations that are clearly prescribed and articulated in the regulations will result in consistent application of the rules and promote water quality. (18)

RESPONSE: The Department is not able to determine from the comment to which provision or provisions the commenter refers. Accordingly, the Department is unable to respond to the commenter's concerns. However, each of the amendments adopted in this rulemaking is described in detail in the notice of proposal Summary, 50 N.J.R. 2375. The Department also requires, through its Tier A Municipal Separate Storm Sewer Permit, that municipal reviewers take the Department's training on implementing the Stormwater Management rules at least once every five years. This is intended to provide reviewers both with the knowledge of how to

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perform reviews and to allow them to ask questions and get clarity on any particular provisions with which the reviewer is not familiar.

16. COMMENT: Stormwater management has become a major issue in the State and the sooner it is addressed, the less harm will come to residents and the environment. As the densest state in the country, New Jersey is challenged by run-off due to so much impervious surface. The State has also allowed development too close to water bodies that are subject to flooding, which is occurring more and more frequently. It is up to the Department to focus on creating robust and detailed rules to oversee building in the State. The rules should require that developers have a solid plan in place to manage stormwater/run-off if they include impervious surface. There is no development that does not impact the permeability of open space. (33)

17. COMMENT: The rules must fix Governor Christie's rollbacks on stormwater, buffers, and wetlands. (42)

RESPONSE TO COMMENTS 16 AND 17: How close a development can be constructed to a watercourse or wetland and what limits may be applicable to impervious surface on a site are not regulated through the Stormwater Management rules at N.J.A.C. 7:8, but rather through other Department rules, such as the Flood Hazard Area Control Act Rules, N.J.A.C. 7:13, the Freshwater Wetlands Protection Act Rules, N.J.A.C. 7:7A, the Coastal Zone Management Rules, N.J.A.C. 7:7, and the Highlands Water Protection and Planning Rules, N.J.A.C. 7:38.

The Stormwater Management rules require that all "major development" meets the design and performance standards at N.J.A.C. 7:8-5, which includes green infrastructure

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standards, groundwater recharge standards, stormwater runoff quality standards (if one-quarter acre or more of “regulated motor vehicle surface” is proposed), and the stormwater runoff quantity standards. Demonstrating compliance with these standards requires a developer to have a plan in place to manage the stormwater runoff from the proposed “major development.” Through the interaction of these various rules, the Department seeks to protect public health and safety, while also protecting the environment, including water quality, water quantity, critical habitats, and other features that impact the State. The amendments adopted at this time are another step in the Department’s continuing effort to further protect and improve the environment while protecting public health and safety.

18. COMMENT: The rule must require enough recharge or the break up of impervious cover to absorb more water. (42)

RESPONSE: The use of small-scale green infrastructure systems with limited drainage areas will result in more BMPs spread throughout a site that will result in breaking up, or disconnecting, impervious surfaces. Where feasible, these small-scale green infrastructure systems will also provide groundwater recharge.

19. COMMENT: The rule still gives preference for engineered controls like basins and outfall structures that can cause more erosion. (42)

RESPONSE: The Department does not give preference to basins and outfall structures. Instead, as described in the notice of proposal Summary, 50 N.J.R. at 2377, the amendments focus on

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maintaining the natural hydrologic cycle and managing stormwater at or near the location where it falls to the ground. However, the Department recognizes that basins and outfall structures will often be incorporated into designs. Erosion is caused by increased velocities of stormwater runoff and flow in watercourses resulting from development. Engineered controls, such as basins, reduce those velocities to minimize erosion.

20. COMMENT: The Department is strongly encouraged not to eliminate the requirement for individual sites to use non-structural strategies. This proposed change must be removed from the final rulemaking. (16)

RESPONSE: Through this rulemaking, the Department is replacing the requirement for individual sites to use nonstructural strategies with one to utilize green infrastructure to meet the same goals. The nine nonstructural stormwater management strategies previously described at N.J.A.C. 7:8-5.3(b) were relocated to N.J.A.C. 7:8-2.4(g) to require the evaluation of such strategies during municipal planning, where they can be more effectively utilized. As stated in the notice of proposal Summary, 50 N.J.R. at 2376, the requirement for individual sites to incorporate nonstructural strategies to the “maximum extent practicable” was ineffective at meeting the Department’s stated goals in adopting those requirements. The Department anticipates that the newly adopted green infrastructure standards will more thoroughly achieve the Department’s originally stated goals. Accordingly, there will no longer be a need to retain the nonstructural strategies requirement at N.J.A.C. 7:8-5.3 after the operative date of the amendments.

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21. COMMENT: The proposed Stormwater Management rules continue to require the use of nonstructural strategies for stormwater management. (42)

RESPONSE: The Department is amending the Stormwater Management rules to replace the existing requirement that major developments incorporate nonstructural stormwater management strategies to the “maximum extent practicable” to meet groundwater recharge standards, stormwater runoff quantity standards, and stormwater runoff quality standards, with a requirement that green infrastructure be utilized to meet these same standards. The rules do not continue to require individual sites utilize nonstructural strategies for stormwater management. However, as noted in the Response to Comment 20 above, the nonstructural strategies previously described at N.J.A.C. 7:8-5.3(b) were relocated to N.J.A.C. 7:8-2.4(g) to require the evaluation of such strategies during municipal planning, where they can be more effectively utilized.

22. COMMENT: Proposed N.J.A.C. 7:8-1.6(e), 4.6(a)3x and (b), and 5.2(g), (l), (m), and (n) outline certain responsibilities for a “review agency.” However, the identity of the review agency under each of these provisions is unclear. In the Pinelands Area, the entity reviewing development applications depends upon whether the applicant is a private entity or a public agency, that is, Federal, State, or local governmental entity. Specifically, private development applications are reviewed by local municipalities and/or counties pursuant to the Municipal Land Use Law. Public applications are reviewed by the Pinelands Commission for conformance with the

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requirements of the Pinelands CMP. Given this, the Department should clarify on adoption that in the Pinelands Area, either the municipality or the county, not the Pinelands Commission, is the “review agency” for purposes of determining compliance with the Department’s stormwater requirements. (37)

RESPONSE: The review agency is the governmental entity that is reviewing an application for compliance with the Stormwater Management rule, the stormwater control ordinance adopted pursuant to an MS4 permit, the applicable stormwater standards contained in the Residential Site Improvement Standards (RSIS) at N.J.A.C. 5:21, or an adopted regional stormwater management plan. Unless the Pinelands Commission reviews applications for compliance through one of those regulatory mechanisms, the Pinelands Commission would not be considered a review agency.

23. COMMENT: New Jersey has serious problems with flooding and water quality from runoff. The proposed Stormwater Management rulemaking does not move the State forward when it comes to dealing with flooding and nonpoint pollution. The rules also continue Governor Christie’s rollbacks and have too many exemptions. The proposed rulemaking does not deal with climate change, sea level rise, flooding, CSOs, and would make it easier to build pipelines. The Department should withdraw the proposed amendments and repropose with fixes. The model of the proposed rulemaking, however, is based on dealing with 100-year storm events that are happening every year. The rulemaking also exempts existing development, which is already the largest source of nonpoint pollution in the State. The Department should include

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this type of development in the Stormwater Management rules, along with roofs and sidewalks, because they contribute to extra pollution. (42)

24. COMMENT: The Department should make other changes to the rules that will enhance their effectiveness, such as expanding the universe of regulated sites to include small sites, establishing heightened standards for impaired watersheds, and creating requirements to preserve existing natural and open space on the site. (16)

RESPONSE TO COMMENTS 23 AND 24: The amendments adopted at this time require that new and redevelopment projects that meet the “major development” definition utilize green infrastructure instead of nonstructural strategies to meet groundwater recharge, stormwater runoff quantity (which will address flooding), and stormwater runoff quality standards. As stated in the rulemaking notice of proposal Summary, 50 N.J.R. at 2377, “[t]he use of these small scale and distributed green infrastructure stormwater practices, such as pervious paving, as well as certain infiltration basins and bioretention systems, has the potential to reduce the post-development peak flow rate from the area to be developed, increase groundwater recharge, improve water quality, increase on-site retention, and protect stream channels by creating a hydrologically functional landscape that mimics the pre-development runoff conditions (Coffman 2000).”

The notice of proposal Summary, 50 N.J.R. at 2384-2386, noted various amendments related to CSO. Further, eliminating CSO entirely is not possible through revisions to the rules alone. CSO discharges are being managed through individual NJPDES permits with the ultimate goal of reducing or eliminating CSO discharges.

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The rulemaking does not modify the applicability of the Stormwater Management rules to underground utility lines, such as pipelines. See N.J.A.C. 7:8-5.2(d).

Regarding the applicability of the stormwater runoff quality standard to roofs and sidewalks, please see the Response to Comments 319 through 328.

Regarding addressing climate change in the Stormwater Management rules, please see the Responses to Comments 50, 51, 52, 53, and 54.

25. COMMENT: The Department is expected to advance the state of stormwater management in New Jersey to the maximum extent practicable (to use a highly abused phrase.) However, in doing so, the Department must understand that, while such efforts must be based upon sound science and engineering, their resulting regulations must respect the ability, integrity, and rights of the regulated community to achieve them. Regulations should not presume to know how to do that better. (41)

RESPONSE: One of the Department's responsibilities is to interpret and translate laws into rules that explain the technical, operational, and legal details necessary to implement those laws. Respecting the expertise in the community, the Department employs a decision-making process that is open, seeking to tap best available science. In this case, one of the legislative requirements that the Department is charged with in New Jersey is to enhance, protect, and restore the quality of New Jersey's surface waters. This rulemaking is promulgated as one part of the Department's comprehensive program to achieve that objective.

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26. COMMENT: Because the rules' numeric performance standards govern the quantity and quality of runoff leaving the site, requiring the use of different BMPs to meet the same standards will not produce meaningfully different results. In the notice of proposal, the Department asserts that green infrastructure BMPs will provide improved water quality as compared to other types of BMPs. Yet the rulemaking does not explain how a site deploying green infrastructure practices would reduce pollution and/or runoff volumes more than a site using traditional BMPs when both sets of stormwater controls are designed to meet the exact same regulatory standards for recharge, peak flows, and sediment reduction. To the extent that the Department believes the green infrastructure scenario would in fact produce a better water quality outcome, it has not provided any quantitative evidence to support that belief. The lack of support for the Department's assertion matters because the current performance standards are too weak to protect New Jersey communities from stormwater-related harms, and if the green infrastructure proposal will not yield a meaningful improvement over the status quo, it falls short of what is needed and must be strengthened prior to adoption. The Department should take this opportunity to incorporate stronger performance standards into the rules that will actually require development sites to reduce their discharges of polluted runoff, protect waterways, and prevent flooding. (16)

RESPONSE: Although the numerical standards required to be met for new and re-development were not proposed to be revised as part of this rulemaking, the Department anticipates that through the use of green infrastructure, stormwater management will be improved, as stated in the notice of proposal Summary, 50 N.J.R. at 2376, "[t]he use of green infrastructure BMPs,

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such as pervious paving, infiltration basins, and bioretention systems, will more effectively achieve the Department's goals under the existing rules of reducing stormwater runoff volume, reducing erosion, encouraging infiltration and groundwater recharge, and of maintaining, or reproducing as closely as possible, the natural hydrologic cycle and minimizing the discharge of stormwater-related pollutants, such as TSS and nutrients." In particular, the benefits of green infrastructure will be achieved through the stormwater volume reduction that these types of BMPs will provide compared to conventional stormwater BMPs. Please also see the Response to Comment 273.

While the Department did not propose revisions to the numerical standards, as also stated in the notice of proposal Summary, 50 N.J.R. at 2376, the Department has been holding additional stakeholder discussions to evaluate further potential future changes to N.J.A.C. 7:8 that are not part of this rulemaking and to the New Jersey Stormwater BMP Manual. Should additional changes to the numerical standards be determined to be appropriate as a result of this stakeholder process, those changes would be proposed as amendments to the rules with a further opportunity for public comment/input.

27. COMMENT: The Department should allow for slow-release of stormwater in certain challenging circumstances. In urban, mostly built-out places with a CSS or in areas where soils are proven to be particularly challenging, infiltration is not always possible or advisable. The rules should include guidance on slow-release for use in these areas. An approach used successfully in Philadelphia is a slow-release rate on-site, not to exceed 0.05 cubic feet per

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second per acre of connected impervious surface when routing the water quality design storm.

Where infiltration is not feasible and the project is located in a combined sewer area, the Department should require BMP(s) to route, through an acceptable pollutant-reducing practice, 100 percent of the water quality design storm volume that is not infiltrated, and to ensure a slow release rate on-site that does not exceed 0.05 cubic feet per second (cfs) per acre of impervious cover. (43)

RESPONSE: Stormwater management approaches, such as that cited by the commenter as being used in Philadelphia, are based on extensive modeling of the collection system in question and are not necessarily appropriate in other communities utilizing a different type of collection system. Accordingly, including such a standard developed based upon the specific characteristics of one collection system in the Stormwater Management rules, which would apply to all communities, would not be appropriate. The Department acknowledges that utilization of slow release could be appropriate in a particular community based upon circumstances unique to its collection system. Accordingly, the rules allow communities, including CSO communities, to adopt an ordinance addressing slow release rates since the municipality is more knowledgeable about its system, provided the ordinance does not conflict with the design standards for structural BMPs specified by the Department.

The Stormwater Management rules require reductions in peak flow rates generated by design storms in order to reduce the impacts of development and mimic existing hydrology. However, a release rate of 0.05 cfs or less may not be achievable on many sites in New Jersey since the Stormwater Management rules establish a two and one-half inch minimum orifice

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diameter for a stormwater management basin outlet control structure at adopted N.J.A.C. 7:8-5.2(i)5. This minimum size was established to help prevent clogging of the outflow structure, but may be too large to achieve a flow rate of 0.05 cfs.

Both the topic of a slow release standard and revising the two and one-half inch minimum orifice diameter are being discussed in the ongoing stakeholdering noted in the introduction to this adoption above and in the notice of proposal Summary, 50 N.J.R. at 2376.

28. COMMENT: There are important new commercially available non-proprietary technologies that have been shown nationwide and in New Jersey to significantly enhance the performance of green and traditional stormwater control approaches that should be explicitly mentioned in the proposed rule. Specifically, the availability of Continuous Monitoring and Adaptive Control (CMAC) technologies can dramatically improve water quality and groundwater recharge outcomes for communities where they are incorporated into new development. CMAC has been approved for use throughout the Chesapeake Bay watershed by the U.S. Environmental Protection Agency (USEPA) Chesapeake Bay Program and in the member states, as well as approved as a functionally equivalent outlet control method through the Washington State TAPE program and reciprocally in a number of other jurisdictions nationwide. The Department should mention the use of "automated" or "smart" CMAC systems in the rule as an effective means to enhance the performance of already approved stormwater controls in new development. (35)

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RESPONSE: The rules do not specifically list available technologies other than the BMPs detailed in the New Jersey Stormwater BMP Manual. Based on the commenter's description, this technology does not appear to be a BMP, but rather a means of potentially increasing the effectiveness of a BMP. Mentioning the use of these technologies is outside the scope of the Stormwater Management rules or the New Jersey Stormwater BMP Manual.

29. COMMENT: Because the Department is requiring a much smaller contributory area to a green infrastructure practice, field testing in accordance with Appendix E of the New Jersey Stormwater BMP manual will become costly. The Department should consider reducing the soil testing requirements to accommodate the new rule proposal. (27)

RESPONSE: The Department recognized the impact of reducing the contributory drainage areas for green infrastructure BMPs and has worked to ensure that the appropriate testing is conducted in the most practical and cost-efficient manner. The Department is updating various chapters of the New Jersey Stormwater BMP Manual to correspond with the changes adopted in the rules. With respect to soil testing, the Department is modifying the requirements for soil testing for sites that include multiple green infrastructure BMPs.

30. COMMENT: The Department needs to provide a specific waiver that would allow applicants to obtain a waiver from strict compliance of the Stormwater Management rules through any of the permits issued by the Division of Land Use Regulation. The current rulemaking only includes a waiver process for public roadway expansion, and for public access projects. The proposed

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rules do acknowledge that a Hardship Exception can be obtained for a Flood Hazard Area Permit, but it has not been our experience that the Department will entertain a hardship exception request for stormwater management related compliance issues. It is important to note that there is no such hardship exception provision in the Freshwater Wetland Protection Act Rules or the Coastal Zone Management Rules, if only these types of permits are required for a project. While the notice of proposal suggests a waiver from strict compliance could be handled through the Waiver Rule (N.J.A.C. 7:1B), that is a burdensome and time-consuming process and, based upon our extensive knowledge, is not a viable option for stormwater management design issues. (7, 8, 24, and 27)

RESPONSE: As stated in the notice of proposal Summary, 50 N.J.R at 2382, the Department is not creating, through this rulemaking, a new process or program for the submission, evaluation, and granting of variances or waivers that differs from the Department's current permitting process. Providing a process whereby applicants for major development could obtain a waiver from strict compliance of the Stormwater Management rules through any of the permits issued by the Department's Division of Land Use Regulation would establish a new process, which is not the Department's intent. Further, the Stormwater Management rules are, in part, intended to prevent flooding and adverse impacts to water quality. Creating such a waiver would allow developments to be constructed without full compliance with the Stormwater Management rules, which would result in adverse impacts to surrounding or downstream properties in the form of degraded water quality, increased flooding, reduced groundwater availability, or otherwise altered hydrology, and as such, would not be appropriate.

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31. COMMENT: The Department should require that BMPs be monitored for at least five years and include any necessary maintenance. The rule should also require bonding in case the system fails. (42)

32. COMMENT: The Department should require that all new green infrastructure BMPs be subject to at least five years of inspections and monitoring to guarantee their continued performance. This requirement would help to ensure the successful rollout of a new stormwater management approach across the State. (16)

33. COMMENT: While proposed N.J.A.C. 7:8-5.2(m) requires the recording of a deed notice to make future purchasers aware of the stormwater management measures, this is not sufficient to ensure BMPs are functioning properly, as deed notices can be easily ignored. Without any monitoring or oversight, there is no system in place to confirm that the system is still being maintained or properly functioning pursuant to the deed notice. An improvement would be to include a requirement for municipalities to conduct regular inspections of stormwater management systems to ensure they are being maintained and are functioning. Without such a requirement, there is no procedure in place to ensure deed notices are being followed until it is already too late. A dedicated fund must also be established with a reasonable annual or quarterly fee to be charged to the responsible party to fund these inspections. Smaller municipalities could cooperate and share this service. (12)

34. COMMENT: Neither N.J.A.C. 7:8-5.2 nor 5.3 provides any method to ensuring a constructed stormwater management system is properly functioning at its inception. The Department

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should adopt a procedure that will help municipalities ensure that the stormwater management system is functioning correctly before an applicant passes along the responsibilities. An option would be to have a five-year monitoring period established, where an applicant has to provide a bond that will not be released until the mitigation project is proven to be correctly functioning. The applicant will also have to submit regular certifications that the system continues to be maintained and is functioning correctly. At the end of the five years, assuming that the stormwater management system is functioning correctly, the bond can then be released to the applicant. If the system is not functioning as designed and not in compliance with the stormwater management rules, then the developer will be required to correct and/or modify the system to ensure compliance. Clear penalties and enforcement options must also be established. (12)

RESPONSE TO COMMENTS 31, 32, 33, and 34: The Department did not propose to amend the maintenance requirements, N.J.A.C. 7:8-5.8, as part of this rulemaking. Existing N.J.A.C. 7:8-5.8 requires major developments to create a maintenance plan for all stormwater management measures proposed on-site. This maintenance plan must include 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). Further, N.J.A.C. 7:8-5.8 requires the responsible party to perform the maintenance tasks listed in the maintenance manual, retain logs of the maintenance performed, and to re-evaluate the effectiveness of the maintenance plan at least yearly.

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The Tier A and Tier B Municipal Separate Storm Sewer (MS4) permits require the municipalities to develop, update, implement, and enforce a program to ensure adequate long-term cleaning, operation, and maintenance of private stormwater management measures. This permit requirement is intended to ensure that adequate long-term operation and maintenance starts from the completion of the stormwater management measures and continues beyond the five years that the commenter proposed. Furthermore, in the municipality's stormwater control ordinance, the municipality may include fees and registration requirements to enforce adequate maintenance of stormwater management measures. It should also be noted that the rules allow municipalities to require performance and maintenance bonds in accordance with their authority under the Municipal Land Use Law at N.J.S.A. 40:55D-53.

The Department also conducts an audit program to review the effectiveness of municipal stormwater programs, including the enforcement of the maintenance requirements by the municipality. The Department believes that with these various measures already in effect, there is no need for a specific five-year monitoring period, as inspections and maintenance are required, as long as the stormwater management measure remains.

35. COMMENT: The Department refers in the notice of proposal to its Frequently Asked Questions (FAQs) document. Some of the proposed amendments to the Stormwater Management rules impact guidance currently contained in the FAQs. Are all FAQs incorporated into the proposed rules, or will the current FAQs be in effect where not changed or clarified by the new rules? (6)

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RESPONSE: As indicated in the notice of proposal Summary, in certain instances where guidance contained in an FAQ was believed to be helpful in clarifying the Department's interpretation of an existing regulatory requirement, amendments have been made to incorporate that clarification into the rule text. Most of the FAQs are simply answers to commonly asked questions individuals may have regarding the rules. Accordingly, all of the Stormwater Management Rules Frequently Asked Questions (FAQs) have not been incorporated into the adopted rules. Where the Department determined that longstanding interpretation and policy contained within an FAQ related to a provision being proposed for amendment would be helpful to be incorporated into the rule text, the rule was proposed for amendment to incorporate that clarifying information. As an example, the existing FAQs indicate that milling and/or repaving does not count as disturbance. Consistent with this policy, the adopted new definition for "disturbance" makes clear that milling and repaving is not considered disturbance.

Upon adoption of the proposed rules, the Department will update the FAQs to reflect the applicable changes, with some of the information added to the FAQs becoming operative one year from publication of this notice of adoption. Any portion of the FAQs unaffected by rule changes and which continues to provide answers to commonly asked questions will not be altered.

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36. COMMENT: The use of lawfully designed, approved, constructed, and functioning regional stormwater basins that have capacity for future development does not appear to be addressed under N.J.A.C. 7:8-3. (38)

RESPONSE: N.J.A.C. 7:8-3 addresses regional stormwater management and the potential use of regional basins. Only the specific sections of N.J.A.C. 7:8-3 proposed to be amended in some way were reproduced in the notice of proposal. N.J.A.C. 7:8-3.7, which was not proposed for amendment, and, thus, was not reproduced in the notice of proposal, requires a regional stormwater management plan to identify stormwater management measures necessary to offset the drainage area specific objectives, and design and performance standards set forth in the plan. It is through this section that a regional stormwater management plan can set forth the criteria for the use of a regional stormwater management basin.

*Model Stormwater Control Ordinance*

37. COMMENT: Based on our experience with the Department's adoption of the existing stormwater rules in February 2004, the Department is expected to revise its Model Stormwater Control Ordinance (Model Ordinance) for Municipalities currently provided at Appendix D of the New Jersey Stormwater BMP Manual. Given the requirements concerning stormwater management differ in the Pinelands Area, the Commission and the Department should work together to develop a revised Model Ordinance for Pinelands municipalities in order to ensure that such version of the Model Ordinance incorporates the requirements of the stormwater management standards contained in the Pinelands CMP. (37)

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38. COMMENT: Since municipalities must revise their stormwater ordinances, it would be appropriate for the Department to provide a model ordinance that comports with the changes.

(1)

39. COMMENT: Will municipalities be given a model ordinance to adopt? Will there be options within the model ordinance for municipalities to consider better practices to enhance stormwater management? The University of Maryland, Center for Disaster Resilience and Texas A&M University, Galveston Campus, Center for Texas Beaches and Shores issued a report late last year titled "The Growing Threat of Urban Flooding: A National Challenge." This report speaks to the growing flood threat to urbanized areas due to "increasingly intense precipitation," and concluded that the growing number of extreme rainfall events that produce intense precipitation are resulting in, and will continue to result in, increased urban flooding, unless steps are taken to mitigate their impacts; and urban flooding is a growing source of significant economic loss, social disruption, and housing inequality. (25)

40. COMMENT: Are municipalities expected to reevaluate the municipal Stormwater Management Plan that is an element of the municipal Master Plan? In doing so, does the Department expect that the municipal Stormwater Management ordinance amendments will be evaluated with respect to the entire Master Plan and municipal ordinances, including the Land Use Element and Zoning Ordinance? What is the expectation on the timing of these actions, and will the Department provide funding? (25)

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RESPONSE TO COMMENTS 37, 38, 39, AND 40: The Department has prepared two revised Model Stormwater Control Ordinances, one for Pinelands municipalities and one for non-Pinelands municipalities, both of which will be available on the Department's stormwater management website at [www.nj.gov/dep/stormwater](http://www.nj.gov/dep/stormwater) or [www.njstormwater.org](http://www.njstormwater.org). The revision of the model ordinance for Pinelands municipalities has been submitted to the Pinelands Commission for comment and any provided comments will be incorporated, as appropriate, before posting to the website. These ordinances do not include options, but reflect the minimum standards to meet the requirements of the Stormwater Management rules. Though the Department plans to create an updated sample municipal stormwater management plan in the future, the sample municipal stormwater management plan has not been amended at this time, as the Department determined significant revision was not required. It is expected that any of the amendments to ordinances or municipal stormwater management plans performed by municipalities will be carried through to Municipal Master Plans, Land Use Ordinances, or Zoning Ordinances, as necessary. However, as these documents may refer to, but typically do not include details pertaining to the Stormwater Management rules, the Department does not expect extensive changes would result.

The Department does not provide funding for municipalities to update their stormwater control ordinance or municipal stormwater management plans, but rather provides free model/sample materials that may be tailored to suit each individual municipality. As noted in the notice of proposal Summary, 50 N.J.R. at 2383, all municipalities will be given one year from

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the effective date of this rulemaking to implement the changes to their programs that will result from these amendments, which includes updating their stormwater control ordinance.

41. COMMENT: There currently are conflicting stormwater checklist compliance requirements with county, municipal, and Department requirements. The rules should address these conflicts and dictate which rules govern in conflicting scenarios to provide consistent stormwater regulations throughout the State. (27)

42. COMMENT: Since the existing rule was first proposed in 2003, the two major problems with the rule were the subjective non-structural strategy requirements and the allowance for conflicting reviews due to the multiple jurisdictions that the rule covered. The Department is finally removing the subjective non-structural strategy requirements from the design standards, but the currently conflicting stormwater checklist compliance requirements and reviews associated with county, municipal, Pinelands, Delaware and Raritan Canal Commission, Highlands Council, New Jersey Sports and Exposition Authority, RSIS, State Soil Conservation Committee and the Department requirements remain. The rules need to address and resolve these conflicts or at least dictate which rules govern in conflicting scenarios to provide consistent stormwater regulations throughout the State. (7 and 8)

RESPONSE TO COMMENTS 41 AND 42: The Stormwater Management rules provide the minimum standards that are implemented by counties, municipalities, and the Department, and do not prevent an agency from imposing additional or more stringent stormwater management requirements. Any requirements that are more stringent than the minimum

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standards are governed by the agency implementing those requirements. In cases where another agency has imposed more stringent requirements, the applicant must meet all of the requirements, including those more stringent requirements in order to obtain all the necessary approvals for construction. Where a county, municipality, or other entity with stormwater review jurisdiction has established more stringent requirements, it is anticipated that the design engineer will prepare one design that meets the most stringent applicable standard and submit that design for each required approval. The Department is not aware of conflicting compliance requirements and the commenter has not provided any examples of conflicting compliance requirements.

43. COMMENT: Although the Pinelands Comprehensive Management Plan (CMP) currently incorporates the Department's stormwater management rules by reference, this incorporation is limited to N.J.A.C. 7:8-5 and 6 (see N.J.A.C. 7:50-6.84(a)6), which are then modified and supplemented by specific requirements set forth in the CMP. There are a few provisions in the proposed new rules, amendments, and repeals that are inconsistent with Pinelands CMP standards. The Pinelands Protection Act, at N.J.A.C. 13:18A-10(c), prohibits a State agency from issuing any approval for the construction of any structure or the disturbance of any land within the State-designated Pinelands Area that is inconsistent with standards of the Pinelands CMP. To address this concern, the Department should include a provision on adoption that advises applicants and municipalities that the stormwater requirements may be different in the Pinelands Area. (37)

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RESPONSE: Implementation of the standards in these rules is performed through the review of applications for developments that require permits from the Department's Division of Land Use Regulation, approval under the Municipal Land Use Law, and/or through the requirements established in MS4 permits. Municipal review and approval is subject to the local stormwater control ordinance or the RSIS. The Department's model stormwater control ordinance for municipalities within the Pinelands contains Pinelands-specific requirements. In addition, municipalities, as well as highway agencies and public complexes, are subject to conditions in their MS4 general permits, which stipulate that the issuance of these permits shall not be considered as a waiver of any applicable Federal, State, or local rules, regulations, and ordinances and the Pinelands rules are specifically referenced. The RSIS contain a similar stipulation that also specifically references the Pineland's requirements. If a development subject to the Pinelands requirements also requires a permit from the Department's Division of Land Use Regulation, the Department requires that the application be accompanied by a certificate of filing with the Pinelands Commission. Therefore, in all cases there is already a mechanism by which applicants are informed of the differing rules in the Pinelands.

44. COMMENT: In order to address stormwater, the Department must include retrofitting of stormwater detention and detention systems. (42)

RESPONSE: If a new development proposes to use an existing BMP that does not meet the currently applicable standard, it will be necessary to retrofit the BMP to meet the current standard or it cannot be utilized for compliance. Additionally, the Department encourages

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voluntary retrofitting of existing BMPs and can even potentially provide funding for such activities through loans with principal forgiveness and low interest rates for retrofits with green infrastructure using State revolving loan funds or grant funding for retrofits projects using U.S. Environmental Protection Agency (USEPA) pass-through grants issued under Section 319(h) of the Federal Clean Water Act, 33 U.S.C. § 1329(h). For further information see <https://www.nj.gov/dep/wms/bears/npsrestgrants.html>.

45. COMMENT: The Department needs to make sure the rule includes restoring 300-foot buffers, Special Water Resource Protection Areas (SWRPA), revegetating stream buffers, or riparian corridors as a way of dealing with nonpoint pollution. (42)

RESPONSE: Regulatory requirements for activities in stream buffers or riparian corridors are stipulated in the Flood Hazard Area Control Act (FHACA) Rules and, therefore, are not included in the Stormwater Management rules at N.J.A.C. 7:8. The SWRPA was a 300-foot-wide area adjacent to each side of water bodies designated as Category One waters pursuant to the Surface Water Quality Standards, N.J.A.C. 7:9B, and their associated perennial or intermittent streams that drained into or upstream of the Category One waters. As the FHACA Rules also established a 300-foot riparian zone along Category One waters and a slightly different set of tributaries, in 2016 the Department deleted provisions related to the SWRPA from the Stormwater Management rules and incorporated new standards into the similar 300-foot riparian zone in the FHACA Rules in order to create a 300-foot buffer with uniform standards applicable to a uniform set of surface waters (see 47 N.J.R. 1041(a); 48 N.J.R. 1067(a)). To

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reflect this change, reference to the SWRPA was replaced with reference to the 300-foot riparian zone contained in the FHACA Rules at N.J.A.C. 7:13-4.1(c)1. Incorporating riparian zones as a stormwater management BMP applicable to major developments would not be appropriate as this would allow the stormwater runoff from major developments to be discharged into the riparian zone without treatment, since the riparian zone would be the stormwater BMP providing treatment.

46. COMMENT: In areas where there is a total maximum daily load, the rule should require pollution reductions, so that waterways can return to be fully functioning. (42)

RESPONSE: The existing rules require that Regional Stormwater Management Plans include identification and evaluation of existing municipal, county, State, Federal, and other stormwater-related groundwater recharge, water quality, and water quantity regulations and programs including, where applicable, programs to develop total maximum daily loads (TMDLs) in accordance with the Water Quality Management Planning rules, N.J.A.C. 7:15. A TMDL represents the assimilative or carrying capacity of a waterbody, taking into consideration point and nonpoint sources of the pollutant of concern, natural background, and surface water withdrawals. A TMDL quantifies the amount of a pollutant a waterbody can assimilate without violating applicable water quality standards, allocates that loading capacity to known point sources in the form of Wasteload Allocations (WLAs) and to nonpoint sources in the form of Load Allocations (LAs), and includes a margin of safety and optional consideration of reserve capacity. All TMDLs must be calculated to achieve compliance with the applicable adopted

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surface water quality standard for the pollutant of concern. Accordingly, the reductions necessary to achieve full compliance with the SWQS, including inputs from nonpoint sources, are already addressed by the TMDL process. The Department has programs in place to implement TMDLs, such as the Municipal Separate Storm Sewer System permits and the NJPDES Discharge to Surface Water (DSW) permits. The topic of how TMDLs should be addressed in the Stormwater Management rules is being discussed in the ongoing stakeholdering noted in the introduction to this adoption above and in the notice of proposal Summary, 50 N.J.R. at 2376.

47. COMMENT: At existing N.J.A.C. 7:8-5.8(d), the cross-reference to subsection (h) should be to subsection (g). It is N.J.A.C. 7:8-5.8(g), not N.J.A.C. 7:8-5.8(h), that pertains to maintenance plan revisions. (26)

RESPONSE: The Department thanks the commenter for pointing out this erroneous cross-reference and is modifying the rule on adoption to correct the reference. N.J.A.C. 7:8-5.8(d) refers to future revisions to the maintenance plan. As indicated by the commenter, such revisions are discussed at N.J.A.C. 7:8-5.8(g), not 5.8(h).

#### *Stormwater Utility Law*

48. COMMENT: The Department, the Legislature, and the administration should facilitate the development and passage of rules governing the creation of stormwater utilities. (33)

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49. COMMENT: Currently, the Flood Defense Bill (A2694/S1073) sits in the assembly - already passed in the Senate - waiting to be posted in the Appropriations Committee. The Department is strongly urged to move this along. (33)

RESPONSE TO COMMENTS 48 AND 49: On March 18, 2019, Governor Phil Murphy signed into law the Clean Stormwater and Flood Reduction Act, which authorizes municipalities, counties, and certain authorities in the State to establish stormwater utilities.

The Legislature determined it is in the public interest to authorize the establishment of local stormwater utilities, and to allow those utilities to assess fees that are based on a fair and equitable approximation of the proportionate contribution of stormwater runoff from any real property, in order to finance the improvement of the State's stormwater infrastructure, better control water pollution and flooding, restore and enhance the quality of the State's waters, and protect the public health, safety, and welfare and the environment.

The Legislature further determined that green infrastructure is an effective approach to managing stormwater because it reduces and treats stormwater at its source while delivering other environmental, social, and economic benefits. The use of green infrastructure should be encouraged and, where appropriate, required to help decrease pollutant loads and runoff volumes to receiving waters.

#### *Climate Change*

50. COMMENT: Stormwater modeling looks at a 100-year storm when a 100-year storm happens nearly every year. Even in the previous administration, they started looking at

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modeling at the 250- and 500-year storm. A 100-year storm is now really the 10- or 15-year storm. Basically, somewhere in the State there's one every year and it's happening more and more. (42)

51. COMMENT: As the impacts of climate change are clear in their effects on New Jersey, our stormwater management systems need to be designed to manage more intense and frequent storms. (34)

52. The Department should account for climate change in the stormwater management rules. (16)

53. COMMENT: Protecting New Jersey's extensive urbanized areas will require attention on volume control; and design of stormwater management should consider future rainfall depth and intensity reflective of climate change. (25)

54. COMMENT: Because of predicted climate changes in the mid-Atlantic region (for example, increased precipitation and storms), the Department should revisit the parameters used to set the stormwater runoff quantity standards. As rainfall is likely to become more intense and more episodic in the future, it will certainly impact how our human built systems handle recharge and water flow. (15)

RESPONSE TO COMMENTS 50, 51, 52, 53, AND 54: New Jersey is working to address and mitigate the impacts of climate change in a variety of ways. New Jersey has attained its 2020 greenhouse gas reduction goal years ahead of schedule, and on June 17, 2019, adopted rules to rejoin the Regional Greenhouse Gas Initiative. The Department is also working on a coastal resilience plan, which is the first step for the Department to evaluate how its policies and

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programs allow for local, regional, and State response to climate change within the coastal zone. The Department has also formed a new Climate and Flood Resilience Program under the leadership of the Department's first Chief Resilience Officer. The Program serves as a "hub" responsible for coordinating the climate change resilience and adaptation work ongoing in many programs across the Department. The Climate and Flood Resilience Program is also responsible for engaging with other State departments and agencies to coordinate and improve the State's climate resilience planning.

The green infrastructure amendments now being adopted are based on studies that confirm green infrastructure strategies provide significantly greater runoff volume reduction in comparison to conventional stormwater systems. While the new rules are expected to yield multiple benefits, the ongoing stakeholdering noted in the introduction to this notice of adoption has included discussions on both additional volume control standards (on-site retention) and how to address climate change in the Stormwater Management rules. The Department will consider the information discussed in the stakeholder meetings for future rulemaking.

For more information on how New Jersey is working to address and mitigate the impacts of climate change, see <https://www.nj.gov/dep/climatechange/index.html>.

For more information about the Department's Climate and Flood Resilience Program, see <https://www.nj.gov/dep/cfr/index.htm>.

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For more information on mitigating climate impacts on stormwater runoff through applying green infrastructure strategies, using climate and land data, and using natural infrastructure, see <https://www.epa.gov/arc-x/climate-impacts-water-quality#tab-1>.

### **Stakeholder Engagement**

55. COMMENT: The commenter thanks the Department for facilitating an effective and inclusive process to amend the Stormwater Management rules to better serve the people and environment of our State. (43)

RESPONSE: The Department acknowledges the commenter's support of the stakeholder process.

56. COMMENT: The Department's stakeholder process fell short of its goal by not providing a draft pre-proposal of the rulemaking to the stakeholders for final comments prior to publication. (7 and 8)

57. COMMENT: Stormwater management is highly dynamic and each site presents unique challenges and pollutant loads. To address those challenges, a diverse stormwater toolbox is essential and it is well established that there is a need for underground stormwater infrastructure in urban areas. The Department should conduct a fully transparent and open stakeholder process to revise and finalize the proposed amendments to the stormwater regulations. (4)

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58. COMMENT: The Department states in the notice of proposal Summary that a broad range of stakeholders provided input during the development of the proposed new rules, repeals, and amendments. However, the manufacturers of stormwater treatment BMPs were not included in these discussions. Even though most of the manufacturers are not headquartered in New Jersey, the proposed rules could have a dramatic impact on the businesses and the manufacturers should have been represented in these conversations. These manufacturers not only construct engineered structural BMPs, but many also manufacture green infrastructure BMPs. BMP manufacturers have years and years of experience with green infrastructure, stormwater treatment BMPs, and the implementation of stormwater regulations and could have provided insight based on their experiences. (18 and 28)

59. COMMENT: The Department should have included major stormwater stakeholders, such as manufactured treatment device (MTD) providers in its rulemaking process. The proposed rules are overly rigid, fail to consider the latest science on green infrastructure performance, and will discourage future innovation in stormwater management. Had an inclusive stakeholder process been utilized, the resulting rules would have been more appropriate, and would be equally or increasingly protective of water quality. Major amendments to the stormwater management rules should not be implemented until a fully inclusive stakeholder process has been executed. (4)

RESPONSE TO COMMENTS 56, 57, 58 AND 59: Stakeholder involvement is an important component of rule and policy development. As discussed in the notice of proposal Summary, 50 N.J.R. at 2376, the Department developed the proposed new rules, repeals, and

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amendments, with input from representatives from environmental groups, developers, academia, municipalities, counties, regional agencies, and consultants, as well as representatives from the New Jersey Department of Agriculture, the New Jersey Department of Transportation, and the New Jersey Department of Community Affairs. Stakeholder meetings with these groups were conducted during various dates from 2011 to 2017, at which time the participants discussed the proposed rules, as well as concerns and constraints regarding implementation of green infrastructure strategies. Feedback from each session was considered and, in many cases, incorporated into this rulemaking as the Department determined appropriate. It should be noted that it was not the Department's goal of the stakeholdering process to provide pre-proposal language of the amendments to the stakeholder group.

Finally, although manufacturers and providers of stormwater measures were not included in the stakeholder meetings, engineers, developers, and State agencies that utilize those devices were present at the stakeholder meetings. Additionally, the Department holds regular meetings with MTD manufacturers. In the May 22, 2018, meeting, these manufacturers were informed of the Department's proposed amendments. In response, the MTD manufacturer representatives requested to be informed of the rule proposal and on December 7, 2018, the Department provided them with an additional notice of the rule proposal.

60. COMMENT: The Department states that the proposed revisions to the Stormwater Management Rules were developed "with extensive input from a broad range of stakeholders," including the input from three stakeholder meetings in November 2016 and one in June 2017.

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Similar to the Department's publication of the members of the Advisory Committee that had input into the development of the original rules and the New Jersey Stormwater BMP Manual, the Department should publish the names, affiliation, and expertise of the stakeholders present at the meetings noted above, particularly in light of the strong weight the Department gave to these stakeholders' inputs. (41)

RESPONSE: The Department's stakeholder process was designed to seek input from a broad range of entities across the State. Information relative to the stakeholders invited, the sign-in sheets, agendas, and presentations are all available on the Department's website at <https://www.nj.gov/dep/workgroups/past.html>.

### **Combined Sewer Overflows (CSOs)**

61. COMMENT: The proposed rules prioritize changes essential to support the development of strong CSO Long Term Control Plans, currently under development. The scope of this rulemaking is appropriate. (22)

RESPONSE: The Department acknowledges the commenter's support for the rules.

62. COMMENT: CSOs are a major problem in New Jersey, but the rules do not really address CSOs. CSOs are a health hazard, especially when sea level rise is taken into account. The rules do not require any restrictions on holding back of water on ground or near properties. The rules also have no language that would clean up nitrogen and phosphorous in our water or would limit increases in nutrients. Urban areas need to be retrofitted for stormwater management.

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Things like green roofs and wet gardens can help prevent CSOs. However, these methods are exempted because the rule exempts redevelopment. (42)

RESPONSE: It is unclear to the Department what is meant by restrictions on holding back of water on ground or near properties. However, the adopted rules support water quality and stormwater management improvements in communities with a CSS. The adopted rules clarify the applicability of the water quality standards for discharges into a CSS (N.J.A.C. 7:8-5.5(c)); require quantity control in tidal flood hazard areas (unless the design engineer demonstrates through hydrologic and hydraulic analysis that the increased rate, increased volume, or both of stormwater runoff will not result in additional flood damage below the point of discharge (N.J.A.C. 7:8-5.6(b)4)); expand the municipality's planning flexibility for CSOs and flood control (N.J.A.C. 7:8-4.2(c)14); and provide differing applicability of green infrastructure requirements to sewer separation projects to make them more feasible (N.J.A.C. 7:8-5.3(e)).

The Stormwater Management rules apply only to developments that meet the definition of "major development" at N.J.A.C. 7:8-1.2. These include redevelopment projects, which are not exempt from the adopted rules. Existing nitrogen and phosphorous in water and mandating developers to retrofit urban areas for stormwater management are beyond the scope of this rulemaking. However, it should be noted that major developments are required to remove nutrients to the maximum extent feasible.

63. COMMENT: There is a need to reduce stormwater volume for projects in urban areas that discharge to CSOs, but there is no apparent benefit in quality treatment of these flows, since

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they are mixed with sanitary flows within the CSO. Therefore, this requirement should be removed. (24 and 27)

RESPONSE: Authorizing the discharge of untreated stormwater from major developments that are subject to the adopted stormwater runoff quality standard would be counter to the goals of the Stormwater Management rule. The removal of pollutants at the site will prevent those pollutants from reaching the receiving waterbody, which provides a quantifiable water quality benefit. Further, while a site's stormwater may discharge to a CSS at the time of development or redevelopment, the sanitary and storm sewer systems may be separated in the future. Since the responsibility for ensuring stormwater runoff quality treatment falls on the developer, the construction of that stormwater runoff quality treatment must be required at the time of development.

#### **Manufactured Treatment Devices (MTDs)**

64. COMMENT: Currently, MTDs are one of the preferred BMPs for utilization on urban and contaminated sites. The rulemaking indicates that there are two MTDs that are considered green infrastructure BMPs, but it is unclear exactly which two MTDs currently qualify as such. The Department should specifically identify the two MTDs and identify where on the Department's website this information can be found. (7, 8, and 27)

65. COMMENT: The Department states in the notice of proposal that two MTDs certified by the Department meet the green infrastructure definition, meaning that they can be used towards

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compliance with the stormwater quality standard. Please clarify whether these include biofiltration systems with high-flow rate engineered media. (28)

RESPONSE TO COMMENTS 64 AND 65: The two MTDs certified by the Department that meet the green infrastructure definition are the Filterra® Bioretention System and the Biopod™ Biofilter. The MTD certifications and sizing information can be found on the Department's stormwater website at: <https://www.nj.gov/dep/stormwater/treatment.html>. The Department will amend the Stormwater MTD webpage to better clarify which MTDs qualify as green infrastructure.

66. COMMENT: These amendments effectively dismantle MTD verification and certification process provided by the New Jersey Corporation for Advanced Technology (NJCAT) and the Department. These amendments will result in a greatly reduced market for manufactured treatment systems and may render NJCAT testing and verification irrelevant. The State of New Jersey has spent a great deal of time and money to develop one of the most highly respected testing, verification, and certification programs in the United States, but the process is expensive, and manufacturers will not be able to afford to participate if there is no return on investment. A diminished NJCAT/Department program will affect water quality in any jurisdiction that depends on the program to ensure stormwater quality. (18)

RESPONSE: This rulemaking does not amend the NJCAT verification or Department certification process. Under this rulemaking, a major development must use green infrastructure BMPs to meet the stormwater runoff quality, stormwater runoff quantity, and groundwater recharge

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standards. As stated in the Economic Impact statement, 50 N.J.R. at 2394, providers of conventional stormwater materials, such as MTDs, may experience a reduced demand for their existing products. However, this rulemaking affects only a portion of uses of conventional type (non-green infrastructure) MTDs, as MTDs for road projects with a waiver from strict compliance, pre-treatment of certain other BMPs, retrofits of existing BMPs, and projects that are not major development will be unaffected by these changes. The reduction in demand for MTDs, however, may be partially offset by an increase in new certifications for MTDs that meet the definition of green infrastructure. While two MTDs certified by the Department meet the green infrastructure definition, and, thus, can still be used towards compliance with the stormwater quality standard, the rulemaking includes a delayed operative date, which will provide interested MTD manufacturers additional time to receive certification for new MTDs that meet the definition of green infrastructure, before the rules become operative. There may be existing MTDs that meet the definition of green infrastructure that have not previously sought Department certification but will now do so. Additionally, the Department anticipates that the change from conventional stormwater management to the use of green infrastructure will spur innovation and development of new MTDs that meet the definition of green infrastructure that will be certified in the future.

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**Economic Impact**

67. COMMENT: There is not enough information on long-term performance and maintenance costs for green infrastructure. Mandating the use of green infrastructure can create long-term financial burdens for property owners and taxpayers. (9)

68. COMMENT: As written, the proposed amendments are going to drive up the cost of stormwater management significantly, push development out of urban areas, and eliminate future innovation in stormwater management. (4)

RESPONSE TO COMMENTS 67 AND 68: As explained in the notice of proposal Summary, 50 N.J.R. at 2377, green infrastructure is a well-established stormwater management technique within the stormwater management field and is recognized as an effective stormwater management strategy by the Department, the USEPA, and cities throughout the country, such as Philadelphia, New York City, Washington DC, Pittsburgh, and Syracuse. The notice of proposal Summary further stated that green infrastructure is widely recognized to be a cost-effective and resilient approach to managing stormwater while simultaneously providing environmental, social, and economic co-benefits. These co-benefits include reduction in urban heat island effect, decreased energy use, removal of pollutants from the air through greater utilization of vegetation, beautification of public spaces, and increased property values.

As described in the Economic Impact statement, 50 N.J.R. at 2394, generally, the Department does not expect significant increased economic impact to property owners who assume the cost of operation and maintenance of green infrastructure installed at a major

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development on their parcel(s). The rulemaking does not include changes to stormwater maintenance requirements.

Additional information is available on the USEPA's green infrastructure website, <https://www.epa.gov/green-infrastructure/learn-about-green-infrastructure>, which includes a listing of dozens of studies, articles, and papers on the performance, benefits, and implementation of green infrastructure.

As also stated in the Economic Impact statement, 50 N.J.R. at 2394, the Department anticipates that the adopted amendments will increase innovation, particularly of new MTDs that meet the definition of green infrastructure at N.J.A.C. 7:8-1.2.

69. COMMENT: The proposed rules do not address TSS removal for redevelopment projects. The existing rules allow for 50 percent TSS removal for redeveloped impervious. There should be a provision for a reduced green infrastructure treatment requirement as part of redevelopment projects. Although the Department states that using green infrastructure to meet stormwater obligations will not be an economic burden to a developer for new projects (undeveloped properties), the cost to retrofit an existing site being redeveloped will escalate because of the additional disturbance and stormwater infrastructure required. (24 and 27)

RESPONSE: The rules do address redevelopment since the definition of "development" at N.J.A.C. 7:8-1.2 includes both new development and redevelopment activities. As such, redevelopment projects are regulated in the same manner as new developments.

Redevelopment projects that result in an overall decrease in impervious surface do not usually

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need BMPs (including green infrastructure BMPs), since the reduction in impervious surface by itself generally results in increased groundwater recharge and reduced stormwater runoff. The adopted rules refocus the stormwater runoff quality standards at N.J.A.C. 7:8-5.5. Instead of focusing on stormwater runoff from impervious surfaces in general, the amended rules, when operative, will address stormwater runoff from motor vehicle surfaces. To reflect this change, a new threshold is added under the adopted definition of “major development.” In particular, reflecting that this new category of surface replaces impervious surfaces for stormwater runoff quality control purposes, a new threshold is added to the definition indicating that a development will be considered major development if, individually or cumulatively, it results in the creation of one-quarter acre or more of “regulated motor vehicle surface.” All development meeting this threshold must comply with the specified standards.

As stated in the Economic Impact statement, 50 N.J.R. at 2393, the green infrastructure requirement will not significantly affect the costs of a land developer’s project meeting the proposed definition of “major development” at N.J.A.C. 7:8-1.2, due to the opportunities offered by green infrastructure BMPs to manage stormwater cost-effectively. While green infrastructure costs may vary widely depending on the green infrastructure BMP utilized and the needs and constraints of a development site, green infrastructure provides opportunities for cost-effective management of stormwater compared to conventional stormwater management measures that are commonly implemented under the existing Stormwater Management rules. The Economic Impact statement also summarized research by the USEPA, which showed that, for the majority of 17 case studies, low impact development, which

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includes the use of green infrastructure BMPs, such as bioretention systems, grass swales, and pervious paving systems, resulted in reduced overall costs (15 to 80 percent) when compared to conventional designs, which include underground vaults, MTDs, curbs, and gutters (USEPA, 2007). One case study in Bellingham, Washington estimated cost savings to be roughly 77 percent by choosing to retrofit two parking areas with rain gardens as an alternative to underground vaults (USEPA, 2007). In only a few cases were the initial low impact development costs higher than those for conventional designs. The research also showed that the use of low impact development reduced stormwater runoff volumes and pollutant loadings. Its use also resulted in non-monetized, such as improved aesthetics, expanded recreational opportunities, and increased property values (USEPA, 2007). The Economic Impact statement also described economic modeling of three development scenarios, which showed that green infrastructure resulted in, on average, a 19.3 percent savings in construction costs versus gray infrastructure (Jaffe, 2010).

70. COMMENT: In the Economic Impact statement, 50 N.J.R. at 2393, the Department discusses research included cost comparisons between low impact development, including the use of green infrastructure, and conventional designs. Did this research consider maintenance costs in making the cost comparisons? Please clarify the basis of the comparison of costs to other systems. Do the cost comparisons consider systems on the NJCAT verification list? (28)

RESPONSE: The comment appears to be referring to the report published by USEPA in 2007, entitled "Reducing Stormwater Costs through Low Impact (LID) Strategies and Practices," which

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was referenced by the Department in the notice of proposal document. In response to the first question, yes, the USEPA's report considered maintenance costs. In response to the second question, the report thoroughly explains the specific cost comparisons for each of the developments that were reviewed. However, the report summarized the conventional development costs, LID costs, cost difference, and percent difference for each development considered in the report. Conventional development cost refers to costs incurred or estimated for a traditional stormwater management approach, whereas LID cost refers to costs incurred or estimated for LID practices. Cost difference is the difference between the conventional development cost and the LID cost. Percent difference is the cost savings relative to the conventional development cost. The conventional systems in the report include engineered, end-of-pipe practices that were focused on controlling peak flow rate and suspended solids concentrations. However, since specific MTDs are not listed in the study, it is unknown if any of the conventional systems considered included MTDs that are on the NJCAT verification list.

71. COMMENT: Regarding economic impacts, the distributed stormwater BMPs listed in Table 5-1 are inadequate to provide the required level of quantity control, thus, requiring additional, centralized facilities to address runoff quantity, resulting in a larger percentage of the site being dedicated to stormwater BMPs. (USEPA 1999. Preliminary data summary of urban stormwater BMPs. EPA-821-R-99-012, Washington, DC. Wossink, Ada and Hunt, Bill. 2003. The Economics of Structural Stormwater BMPs in North Carolina, UNC-WRRI-2003-344.) Thus, the proposed changes could have significant effect on the amount of developable land on a site, which is

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often a critical driver for a project. The Department should rigorously evaluate this loss of developable footprint when considering the economic impact of the proposed rules. (1)

RESPONSE: In determining the relevance of various studies, it is important to confirm that the designs of BMPs used in the studies referenced by the commenter are similar to the designs in the New Jersey Stormwater BMP Manual. The New Jersey Stormwater BMP Manual includes designs for several of the BMPs listed in Table 5-1 that provide for stormwater runoff quantity control and in New Jersey, BMPs from Table 5-1, particularly small-scale bioretention systems and small-scale infiltration basins, are routinely used to provide quantity control. The requirement to utilize green infrastructure is intended to manage the stormwater runoff close to its source and to help maintain or mimic natural hydrology. This will result in the green infrastructure BMPs being distributed across the site. The studies cited by the commenter recognized that “the most appropriate BMPs are those that limit the generation of pollutants or remove pollutants from the urban landscape” and “when rainfall is managed as a resource instead of as a waste stream requiring treatment, future problems with quantity control may be avoidable” (§ 5.5.1 Flow Control, USEPA 1999. Report: Preliminary data summary of urban stormwater BMPs). The USEPA’s report further stated that “the advantages of infiltration include both water quantity control and water quality control (§ 5.2.1.1). For detention systems, the report conceded that a detention basin has limited pollutant removal capability (§ 5.2.1.2).” This limitation of the detention system will eventually result in the need to incorporate other types of BMPs to meet water quality. Furthermore, the study in North Carolina (Wossink, Ada and Hunt, Bill 2003. The Economics of Structural Stormwater BMPs in

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North Carolina, UNC-WRRI-2003-344), indicates that there were no bioretention systems in North Carolina in 1997, but bioretention systems became the second most common BMP system in 2001 (page 3, Wossink et al). Wossink's study also recognized that "both construction costs and operation costs with raingardens being least expensive" (page 12, Wossink et al). Although Wossink's study made a conclusive statement without any explanation that raingardens tend to take up more land (page 12), it indicated that green infrastructure BMPs can often be incorporated into developed parcels (page 3, Wossink et al). Thus, by incorporating green infrastructure BMPs into parcels instead of reserving separate parcel(s) for stormwater management, the developable footprint of a site is actually increased. Even in situations where small-scale distributed systems are insufficient to fully address the stormwater runoff quantity control standard, the effect of these small-scale distributed systems is accounted for in the sizing of the additional downstream facility required for stormwater runoff quantity control, making the downstream system designed for water quantity control on the developed property smaller than would otherwise be required.

72. COMMENT: The Department must allow interested towns to establish a dedicated source of funds for green infrastructure public works projects. (33)

RESPONSE: The New Jersey Legislature approved the Clean Stormwater and Flood Reduction Act on March 18, 2019, authorizing the governing body of any municipality to establish a stormwater utility for the purposes of acquiring, constructing, improving, maintaining, and operating stormwater management systems in the municipality. The municipality may charge

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and collect reasonable fees and other charges to recover the stormwater utility's costs for stormwater management. These fees and other charges may be collected from the owner or occupant of any real property discharging stormwater runoff, directly or indirectly, into the municipality's stormwater management system or into the waters of the State.

In addition, the Department actively supports the advancement of green infrastructure in New Jersey. The Department provides both technical and financial assistance for green infrastructure projects, including loans with principal forgiveness and low interest rates for green infrastructure projects using State revolving loan funds, grant funding for green infrastructure projects using USEPA pass-through grants issued under Section 319(h) of the Federal Clean Water Act, 33 U.S.C. § 1329(h), and technical assistance to municipalities on implementing green infrastructure in their communities.

73. COMMENT: The Department has portrayed green infrastructure practices as cheaper to implement and maintain than other BMPs, but programs and practitioners in areas that have considerable experience with green infrastructure practices are finding otherwise. A recent presentation detailing the City of Philadelphia's experience with green infrastructure practices concluded that green infrastructure is much more expensive to implement and maintain than the city initially predicted. Additionally, the same presentation confirms that decentralized smaller green infrastructure practices are much more costly than larger green infrastructure practices to both construct and maintain when considering acreage treated by the practices. Similar conclusions relative to cost are also emerging from the Chesapeake Bay Region. The

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Department should engage with programs, such as Philadelphia's, prior to adopting final regulations to benefit from their experience and refine the Department's expectations for green infrastructure accordingly. The Department should also talk with engineering firms and property owners in areas with green infrastructure standards in place, as they will confirm that green infrastructure is often more expensive and, in many cases, simply not feasible as a singular approach. (4)

74. COMMENT: The Department states in the Economic Impact statement, 50 N.J.R. at 2394, that property owners' maintenance costs for green infrastructure are expected to be lower with green infrastructure. Clarify whether these maintenance costs consider long-term maintenance of the system. Any stormwater treatment system that removes pollutants requires maintenance. (28)

75. COMMENT: The Department has not addressed the increased economic burden to private property owners or public works budgets on sites where green infrastructure practices cost appreciably more to maintain. It is not uncommon for green infrastructure practices to require monthly maintenance to maintain full functionality and appease property owners and tenants over concerns about trash and debris accumulating in surface BMPs. (4)

RESPONSE TO COMMENTS 73, 74, AND 75: It is noted that the commenter submitting comment 73 referenced a presentation in the submitted comment, but the link to the presentation was not included. Accordingly, the Department was unable to review this reference.

As the Department stated in the Economic Impact statement, 50 N.J.R. at 2393, and as was discussed in more detail in the Response to Comment 69, the proposed green

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infrastructure requirement is not anticipated to significantly affect the costs of a land developer's project meeting the proposed definition of "major development" at N.J.A.C. 7:8-1.2, due to the opportunities offered by green infrastructure BMPs to manage stormwater cost-effectively.

Since green infrastructure is typically distributed and small scale, developers may have to install multiple green infrastructure BMPs on a single major development site to manage stormwater, whereas under the current rules fewer larger stormwater management BMPs may be sufficient. Costs will vary depending on the scope of the project and the BMPs chosen.

As noted in the Economic Impact statement, at 50 N.J.R. 2394, and explained in further detail in the Response to Comment 67, in general, the Department expects no significant increased economic impact to property owners who assume the cost of operation and maintenance of green infrastructure.

The Department stated in the Economic Impact statement, 50 N.J.R. at 2394, that green infrastructure has direct and indirect economic and social benefits that may increase the value of properties containing, or in the vicinity of, green infrastructure over those containing or near conventional stormwater management BMPs. For example, green infrastructure manages stormwater while also adding aesthetic value, open space potential, and recreational opportunities to a developed site. The Economic Impact statement further explained that research by the USEPA shows that low impact development, including green infrastructure, can increase property values, the desirability of a property, and the speed of sales; thereby having a positive economic impact to property owners (USEPA, 2007). The potential for increased

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property values, which were shown to be over 10 percent higher for properties located within one-quarter mile of a public green infrastructure project in the City of Philadelphia and about 1.7 percent for properties located within one-quarter mile of private green infrastructure projects in the City of Philadelphia (Econsult Solutions, 2016), and improved site aesthetics associated with green infrastructure suggest that green infrastructure requirements will have a positive effect on New Jersey property owners.

Also, as discussed in the notice of proposal Summary, 50 N.J.R. at 2376, the Department developed these new rules, repeals, and amendments with extensive input from a broad range of stakeholders. Stakeholders included representatives from environmental groups, developers, academia, municipalities, counties, regional agencies, and consultants, as well as representatives from the New Jersey Department of Agriculture, the New Jersey Department of Transportation, and the New Jersey Department of Community Affairs. Included in those groups were various representatives that design and build green infrastructure systems in both Philadelphia and New York City. These stakeholders did not express concerns that green infrastructure would be infeasible in many cases.

Lastly, while it is undeniable that green infrastructure BMPs will require regular maintenance to maintain functionality, it is also undeniable that any traditional stormwater infrastructure would require regular maintenance. Issues, such as trash and debris accumulating in BMPs, are not limited to green infrastructure. Since green infrastructure tends to be more visible, the visibility of trash and debris in the systems may result in more complaints and subsequently more routine maintenance. However, the same trash and debris

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would accumulate in a traditional BMP, which, if constructed underground or off in the back of the site, would not be as visible. The fact that it is not visible may result in less complaints, but the fact that there are less complaints does not mean the BMP wouldn't require the same trash and debris removal to maintain its proper function. Additionally, since subsurface BMPs are more difficult to access for maintenance, removal of the trash and debris in subsurface systems, most of which would be traditional stormwater systems, is more costly than equivalent maintenance in surface BMPs, including many green infrastructure BMPs.

76. COMMENT: The Department's summary of economic impacts is limited to discussion on green infrastructure, the added requirements to treat water quality, and development in tidal areas. The Department states there will be little or no economic impact in these areas. However, the Department does not include a discussion on the economic impacts associated with the new definition of "major development." Specifically, the Department proposes to "clarify" the existing scope of major development. This "clarification" greatly expands what activities and properties are considered in determining if a proposed development exceeds the "major development" thresholds by creating a retroactive 15-year timeframe within which previous development of "the site" is considered. With this timeframe and the proposed definition of "major development" (including the cumulative total of land disturbances since 2004), the Department will create a significant adverse economic impact on property owners of large land parcels with existing development by restricting the applicability of the Flood Hazard Area Permits-by-Rule, which are currently prohibited for projects classified as a "major

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development” in the Stormwater Management Rules, and requiring a FHA Individual Permit (IP) for any disturbance within a regulated FHA on a “site” that previously has had a project meeting the “major development” threshold regardless of the impact to the regulated FHAs.

To understand this adverse economic impact, consider that the cost of permitting for a project regulated under an FHA Permit-by-Rule is zero. Then, consider that the cost of permitting for a “major development” regulated under an FHA IP is a minimum of \$3,000 for the Department’s review fee plus a minimum of \$4,500 for stormwater review. Added to this is the consulting engineer’s cost to prepare and submit the information required by the Department FHA IP Checklist, which could exceed \$5,000. That’s a total cost of \$12,500 for one activity proposed by one property owner at one location. Added to the cost in dollars is the adverse impact to the project schedule incurred by going through the FHA IP approval process. For property owners and applicants, these costs are significant for even one project. These costs will be repeated for every proposed disturbance in an FHA to maintain an existing development, even if the project does not, in and of itself, meet the “major development” thresholds and has no significant impact on regulated FHAs. For developed sites (actively disturbed areas) with 150 feet or 300 feet wide riparian zones, significant areas are within regulated FHAs. (38)

RESPONSE: The Department’s amendment to the definition of major development is a clarification of the practical method utilized by the Department when reviewing projects, and not an expansion of the definition. Prior to the amendments adopted at this time, “major development” was defined to mean development *ultimately disturbing* one or more acres of

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land, or increasing impervious surface by one-quarter acre or more and the Department has long looked back to February 2, 2004, as part of its general process of assessing disturbance and new impervious coverage. As noted in the notice of proposal Summary, 50 N.J.R. at 2387, the Department is clarifying the existing scope of the major development definition to more clearly express what activities are taken into account in determining if a proposed development ultimately causes impacts equal to or greater than the thresholds established in the definition. Particularly, the Department is incorporating into the revised definition of major development the specific timeframe within which prior development is considered in conjunction with proposed new development to determine the ultimate impact of the development. Since the change is clarifying and not expanding the major development definition, the requirement to obtain or not obtain a permit is unchanged, as are the costs associated with obtaining any necessary permits.

The notice of proposal summary further explained that, it has been the Department's experience that some applicants have attempted to circumvent regulation by phasing or dividing projects into pieces that, individually, are below the threshold of major development. The focus of the existing definition of "major development" on ultimate disturbance and on the ultimate increase in impervious surface precludes such an attempt to conduct projects in a manner that avoids compliance with the standards contained in the rules. By requiring such developments to comply with the rule requirements, the definition ensures that the negative impacts to public health and safety, private property, and the environment do not occur as a result of efforts to circumvent the rules. Accordingly, the Department has regulated such

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developments as major developments under the existing rules if they cumulatively exceeded the threshold established by the rules.

In the proposal Summary, 50 N.J.R. at 2388, the Department also stated that, consistent with the Department's intent to ensure that the benefits to public safety and the environment achieved by the rules are not circumvented, as expressed in the existing definition, it is the ultimate impact that is considered in determining if a proposed project constitutes major development subject to the Stormwater Management rules. Accordingly, the adopted definition clarifies that even where a current development application is part of a common plan of development or sale, such as an application seeking approval of the first phase of a planned multi-phase project, the rules require that the ultimate impacts of the development be considered in determining if the development is of a magnitude that requires stormwater to be managed in accordance with the standards contained in the Stormwater Management rules, even if that first phase alone would not be considered a major development. This approach is consistent with the approach taken under the Federal rules for small municipal separate storm sewer system (MS4) permits, which include provisions for regulating projects less than one acre that are part of a larger common plan of development greater than or equal to one acre (see 40 CFR 122.34(b)(4) and (5)).

Additionally, as noted in the Economic Impact statement, 50 N.J.R. at 2394, the Department expects the implementation of the rulemaking to improve regulatory predictability and to have a positive economic impact on the Department, local review agencies, and developers. The increased regulatory consistency and predictability will reduce costs to the

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Department, local review agencies, and project applicants by reducing the time spent on preparing, submitting, and reviewing a permit application.

77. COMMENT: The “Applicants and Review Agencies” section of the Economic Impact statement, 50 N.J.R. 2394-2395, is incomplete because it does not mention the administrative cost to review agencies of modifying municipal stormwater management plans, municipal stormwater control ordinances, and other enabling mechanisms by which changes to N.J.A.C. 7:8 will be implemented. This cost includes, for example, the expense of drafting amendments to such plans and ordinances, of providing legal notice and public hearings for such amendments, and of publishing adopted amendments. For example, as the Department indicated in the notice of proposal summary, 50 N.J.R. at 2383, several hundred municipalities must modify their stormwater control ordinances if this rulemaking is adopted.

Because existing N.J.A.C. 7:8-4.2(c)12 requires the municipal stormwater management plan to “include a copy of the recommended implementing stormwater control ordinance(s) requiring stormwater management measures,” and more fundamentally because the Municipal Land Use Law (MLUL), at N.J.S.A. 40:55D-93, states that municipalities adopt stormwater control ordinances “to implement” municipal stormwater management plans, several hundred municipalities must also modify their stormwater management plans if this rulemaking is adopted. Moreover, because the MLUL, at N.J.S.A. 40:55D-10.3, requires a detailed application for development “checklist” to be adopted by municipal ordinance, and because adoption of this rulemaking may change information required in this “checklist” (depending on the extent

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to which this “checklist” copies specific N.J.A.C. 7:8 language), some municipalities may also have to modify their N.J.S.A. 40:55D-10.3 “checklist” ordinances if the Department adopts the proposed rulemaking. (26)

RESPONSE: The Department does not anticipate that the costs to municipalities will be significant. The rulemaking does not specifically require municipalities to amend their municipal stormwater management plans, only the stormwater control ordinance. The Department has prepared a model ordinance that municipalities can use to minimize the effort require in preparation of a revised model ordinance. The Department assumes that the amendment of ordinances will occur during regular municipal meetings, which would not require additional legal notice.

### **7:8-1.2 Definitions**

#### *Community Basin*

78. COMMENT: In the proposed definition of “community basin” at N.J.A.C. 7:8-1.2, the significance of the term “community” should be included in the definition. The explanation of the term is provided in the notice of proposal Summary, 50 N.J.R. at 2386, but the Summary is not codified as rule text. (38)

RESPONSE: The definition of “community basin” accurately describes the term as a whole and points to N.J.A.C. 7:8-4.2(c)14, which further describes the complete requirements of a community basin. It is not necessary to modify the definition on adoption to codify the discussion in the notice of proposal Summary.

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79. COMMENT: The proposed definition of “community basin” omits bioretention. It appears this is an oversight, rather than an intentional omission. Bioretention should be added to the definition, as this is an effective stormwater management approach from an engineering standpoint and one of the best approaches from an aesthetic standpoint. (23)

RESPONSE: As indicated at N.J.A.C. 7:8-4.2(c)14ii, a municipality may allow developments to use the community basin to meet the stormwater runoff quantity control standards at N.J.A.C. 7:8-5.6, provided the runoff from each contributory site meets the green infrastructure, groundwater recharge, and water quality standards at N.J.A.C. 7:8-5.3, 5.4, and 5.5, as applicable, before leaving the site, unless a variance is granted pursuant to N.J.A.C. 7:8-4.6. Because community basins will be used for quantity control, the proposed definition, found at proposed N.J.A.C. 7:8-1.2, excludes bioretention systems as a consequence of their heavy reliance upon vegetation that can withstand repeated inundation. Due to the sites contributing stormwater to a community basin being required to meet the water quality and groundwater recharge standard by using green infrastructure on site, little to no runoff would be conveyed to the community basin during storm events that do not exceed the water quality design storm, which accounts for approximately 90 percent of all storm events that occur during an average year. Thus, there would be insufficient hydrology to maintain the vegetation. Therefore, the proposed definition for community basin limits the available BMPs to infiltration basins, sand filters designed to infiltrate, standard constructed wetlands, or wet ponds.

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80. COMMENT: The Department should modify the definition of “community basin” or the text of N.J.A.C. 7:8-4.2(c)14 to make it clear that the term “community basin” does not include any basin, filter, wetland, or pond that receives any inflow from a combined sewer. Because such inflow includes substantial quantities of untreated sewage, the design and operation of such a basin, filter, wetland, or pond requires attention to health and sanitary engineering concerns within the scope of the New Jersey Pollutant Discharge Elimination System (NJPDES) treatment works approval rules (N.J.A.C. 7:14A-22 and 23), but not addressed by N.J.A.C. 7:8 or the New Jersey Stormwater BMP Manual. Moreover, for reasons such as economy, efficiency, or ability to obtain resources, facilities that receive inflow from a combined sewer would, in some instances, be appropriately established and/or maintained not by a municipality but by a different entity (such as a sewerage authority or a municipal utilities authority) that operates the CSS. (26)

RESPONSE: The definition of a community basin requires that community basins, regardless of the type used, be constructed in accordance with the New Jersey Stormwater BMP Manual or approved as an alternative stormwater management measure pursuant to N.J.A.C. 7:8-5.2(g). The New Jersey Stormwater BMP Manual states for each BMP chapter that the BMPs are designed to store specifically stormwater runoff. Stormwater runoff is defined at N.J.A.C. 7:8-1.2 as water flow on the surface of the ground or in storm sewers, resulting from precipitation. Neither the New Jersey Stormwater BMP Manual nor the Stormwater Management rules at N.J.A.C. 7:8 states that stormwater management basins or stormwater management measures may accept anything other than stormwater runoff. Discharge of sewage would be regulated through the

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NJPDES Rules at N.J.A.C. 7:14A as a point source discharge and would not be covered under the Stormwater Management rules.

*Contributory Drainage Area*

81. COMMENT: The definition of “contributory drainage area” should state that it can vary depending on the design storm due to piped systems that can directly divert drainage to a different watershed than the associated overland flow. (7 and 8)

82. COMMENT: The Department should clarify the definition of “contributory drainage area” to state whether it is based on topography alone, or if it also considers drainage areas that may change during certain design storm events (for example, piped systems with overland relief to a different watershed). (23)

RESPONSE TO COMMENTS 81 AND 82: Since the term “contributory drainage area” is used within the Stormwater Management rules only to establish maximum contributory drainage areas for BMPs, if a situation exists where the contributory drainage area would vary depending on storm events, the largest possible contributory drainage area is what should be compared to the contributory drainage area limitation for that particular BMP. This will ensure that the BMP meets that contributory drainage area limitation during all storm events, as is intended by the contributory drainage area limitation.

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*Disturbance*

83. COMMENT: The proposed rules remain geared towards land development projects, which have little in common with highway (linear) public transportation projects. The rules are attempting to create a one-size fits all approach to stormwater management that, in many cases, will not fit with public linear roadway projects. For example, the definition of “disturbance” at N.J.A.C. 7:8-1.2 has been amended such that for routine full depth pavement reconstruction projects, all the pavement reconstruction area (except milling and resurfacing) will now count towards the one acre trigger for major development. This is contrary to the current interpretations from the Department, whereby if the soil is not touched, it is not counted as disturbance. This change in turn will preclude the use of Flood Hazard Permits by Rule (specifically, PBR #40 for milling, repaving, and/or resurfacing of a lawfully existing pavement) and will unnecessarily increase the Department staff workload since pavement reconstruction of any kind, within the same footprint, will intuitively not generate any increase in runoff and will have no impact on either water quality or groundwater recharge as compared to existing conditions. The Flood Hazard Area Control Act Rules Individual Permit process would be simply a paper-pushing exercise. As described by multiple stakeholders, many states have separate rules for linear/transportation projects. The Department should consider separating out stormwater management measures for linear development. (19)

RESPONSE: As described in the notice of proposal Summary, 50 N.J.R. at 2389, under the existing rules there is no separate definition of “disturbance” in the Stormwater Management rules; rather, a description of what constituted disturbance is contained within the definition of

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“major development.” The Department did not previously consider milling and repaving a disturbance under the existing rules and, as the adopted definition of “disturbance” indicates, milling and resurfacing is not a disturbance under the adopted rules.

Reconstruction is expressly a disturbance under the adopted definition. As stated in the notice of proposal Summary, 50 N.J.R. at 2389, while reconstruction would generally include the exposure and/or movement of soil, in the Department’s experience, the existing definition led some applicants to question if existing impervious surface reconstruction constituted disturbance, especially when the exposure and/or movement of soils only occurred in non-native soils placed as part of the original impervious surface construction. The addition of specific reference to reconstruction will clarify that all reconstruction constitutes disturbance.

As indicated in the Stormwater Management Rules Frequently Asked Questions (FAQs), which was published on the Department’s website to answer common questions resulting from the implementation of the 2004 overhaul to the Stormwater Management rules, “milling and/or repaving do not count as disturbance or redevelopment and do not trigger the Stormwater Management rules, provided there are no changes to the existing stormwater drainage system. The reconstruction of these areas, however, does constitute disturbance.” As can be seen from the FAQ, the Department has long considered reconstruction beyond milling and repaving to constitute disturbance. Therefore, this definition of “disturbance” will not preclude the use of Flood Hazard Permits by Rule (specifically, PBR #40 for milling, repaving, and/or resurfacing of a lawfully existing pavement). The Department’s implementation of this, as it specifically related to reconstruction, has not changed under this rulemaking.

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Regarding the request that the Department separate out stormwater management measures for linear development, the Department does not intend to promulgate separate rules for linear/transportation projects. However, at N.J.A.C. 7:8-5.3(e), the Department does allow a waiver from strict compliance from the requirements at N.J.A.C. 7:8-5.3, 5.4, 5.5, and 5.6 for the enlargement of an existing public roadway or railroad and other such linear development projects under certain conditions.

84. COMMENT: The proposed definition of “disturbance” is too inclusive. The exclusion for repaving should not be limited to milling and repaving but should include any maintenance that does not increase impervious motor vehicle surface area, including reconstruction in kind, if necessary, of an existing impervious surface (for example, concrete paving). Similarly, “cutting or removing of vegetation” is too general for inclusion as a disturbance as it could be construed to include mowing, resodding, and generally any maintenance of existing landscaping, including possibly pervious road surfaces. Maintenance of grades where the impermeability is not increased should also be specifically excluded if erosion is to be addressed at existing facilities without potentially triggering rule requirements. (2 and 17)

RESPONSE: Please see the Response to Comment 83 for information on the inclusion of “reconstruction” in the definition.

Under the existing rules, there is no separate definition of disturbance, but, rather, a description of the acts constituting disturbance was contained within the definition of major development. One of those acts is clearing, cutting, or removing of vegetation, which has been

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incorporated without change into the newly adopted definition of “disturbance.” “Clearing, cutting, or removing of vegetation” in the context of the Stormwater Management rules means to remove vegetation in a manner that changes the land cover of the area where the vegetation was cleared, cut, or removed in a way that affected the quality, volume, or peak flow rate of stormwater runoff from the area.

It is unclear to the Department, what types of specific maintenance activities the commenter is referring to regarding maintaining grades without increasing impermeability. However, if the maintenance activities include those contained within the definition of “disturbance,” such as the exposure and/or movement of soil or bedrock or clearing, cutting, or removing of vegetation, then the activities will constitute disturbance for purposes of the rulemaking.

### *Green Infrastructure*

85. COMMENT: The Department has adopted a new narrow definition of green infrastructure, which should be revised to be consistent with other nationally recognized definitions, such as the one published by the USEPA (<https://www.epa.gov/green-infrastructure/what-green-infrastructure>). (4)

RESPONSE: The USEPA has not established a specific definition for green infrastructure. The link to the USEPA guidance for green infrastructure provided in the comment does not provide a specific definition of green infrastructure, but rather provides different management practices that can be incorporated into green infrastructure. All of the green infrastructure

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management practices outlined in the cited USEPA guidance that can be used to directly manage stormwater fit within the adopted definition of “green infrastructure.”

86. COMMENT: Under N.J.A.C. 7:8-1.2, the proposed definition of “green infrastructure” includes treating stormwater runoff through filtration by vegetation or soil. The definition should also include the use of stone for filtration, even if the stone serves to provide another purpose, such as erosion control. (17)

RESPONSE: Stone is an integral component of several green infrastructure BMPs. However, on its own, stone is an ineffective media for the filtration of stormwater. Accordingly, stone filtration is not appropriate green infrastructure.

87. COMMENT: The notice of proposal Summary states that green infrastructure practices manage stormwater runoff through infiltration into the subsoil, filtration by vegetation or soil, or reuse. 50 N.J.R. at 2377. Does this definition of green infrastructure practices provide enough clarity for a dispersed set of reviewers? (28)

RESPONSE: The Department defines the term “green infrastructure” at N.J.A.C. 7:8-1.2, and includes the tables at new N.J.A.C. 7:8-5.3 to clarify the types of green infrastructure BMPs listed in the New Jersey Stormwater BMP Manual that may be used for development subject to the Stormwater Management rules to meet the groundwater recharge, stormwater quantity, and stormwater quality standards. Based upon the definition, tables, and other guidance materials provided by the Department, such as the New Jersey Stormwater BMP Manual, the Department believes there is sufficient clarity in order to provide for the implementation of

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effective stormwater management practices at all levels of review. See also the Response to Comment 15 with reference to training provided to municipal reviewers.

88. COMMENT: The Department's proposed definition of "green infrastructure" is too broad. Evapotranspiration is the third mechanism, other than infiltration and reuse, by which green infrastructure BMPs manage stormwater. Filtering and discharging stormwater—even if the filtration function is performed by vegetation and/or soil—does not meet the goal of green infrastructure to both reduce pollutant loading and control volume. The Department should bring its definition of green infrastructure into line with the accepted scientific and regulatory consensus regarding these practices by replacing the second element of the definition with "2. Reducing stormwater runoff through evapotranspiration by vegetation and/or soil." Further, the Department should ensure that the list of approved green infrastructure BMPs includes only practices that meet this corrected definition. (12, 16, and 43)

89. COMMENT: The definition of "green infrastructure" in the rule is not green. Instead, the Department needs to include evapotranspiration, infiltration, capturing, and reuse of rain water and vegetative buffers as green infrastructure. (42)

RESPONSE TO COMMENTS 88 AND 89: The Department recognizes that evapotranspiration is an important component of some green infrastructure BMPs, and those BMPs would meet part two of the definition of green infrastructure since they would provide filtration through vegetation. BMPs that provide filtration through vegetation and/or soils will reduce pollutants through filtration and reduce stormwater volume through sorption, evapotranspiration, or

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both. Specifically requiring evapotranspiration would not further the Department's goals of reducing stormwater runoff volume, reducing erosion, encouraging infiltration, and groundwater recharge, and of maintaining or reproducing as closely as possible the natural hydrologic cycle and minimizing the discharge of stormwater-related pollutants, such as TSS and nutrients.

90. COMMENT: The proposed definition of "green infrastructure" includes "3. Storing stormwater runoff for reuse." The definition should be expanded to include "storing stormwater runoff for reuse or evaporation" to take into account locations where water collects and ponds due to surface or subsurface conditions (for example, clayey subsoil), and may evaporate whatever does not infiltrate. (17)

RESPONSE: Ponding on the surface due to an impermeable or low permeability surface or subsurface layer is not a stormwater management BMP and, therefore, does not warrant inclusion in the definition of green infrastructure. Stormwater management design plans and calculations should, however, account for all surficial ponding that occurs on a major development site.

91. COMMENT: The notice of proposal Summary, at 50 N.J.R. 2377, states, "Even underdrained bioretention systems, which do not retain and infiltrate all runoff, have been shown to provide a higher volume reduction than traditional detention basins and to more closely mimic natural

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hydrology.” Do underdrained bioretention systems meet the definition of green infrastructure?

(28)

RESPONSE: The adopted definition of “green infrastructure” specifically includes treating stormwater runoff through filtration by vegetation or soil. Because underdrained bioretention systems provide such filtration, the systems qualify as “green infrastructure.”

### *Impervious Surface*

92. COMMENT: Artificial turf fields are currently considered to be impervious cover by the Department for the purposes of stormwater management compliance. Artificial turf fields should not be considered as impervious surface for the purposes of these regulations (either existing or proposed conditions). These types of fields provide underdrain systems that are spread out in a grid system and incorporate a stone bedding, which means that the majority of stormwater runoff is infiltrated into the subsoils rather than being conveyed to a piped system. These types of fields should be considered as a well-draining stone rather than an impervious surface. (27)

RESPONSE: The Department does not interpret the definition of “impervious surface” as including artificial turf fields; however, when calculating the stormwater runoff of artificial turf fields, an NRCS Curve Number (CN) of 98 is used in order to account for all stormwater runoff. In typical grass field situations, the infiltrated volume generally does not enter a drainage system. By contrast, with an artificial turf field, the water infiltrated must be included in the runoff volume because of the field underdrains, which convey the water via a piped system,

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rather than infiltrating into the subsoil. Modeling the system as anything other than an impervious surface would potentially underestimate the volume and peak flow rate of stormwater runoff leaving through the underdrains.

### *Major Development*

93. COMMENT: The proposed amended definition of “major development,” which will help to capture more projects and, thereby, reduce the impact of development on local waterways and infrastructure, is appropriate. Specifically, it is appropriate that the definition takes into account all disturbance cumulatively since 2004, in order to stop developers from phasing projects to avoid the major development threshold. (16)

RESPONSE: The Department acknowledges the commenter’s support of the adopted rule.

94. COMMENT: The notice of proposal does not address how the amended definition of “major development” will be interpreted regarding the phased project approach for corporate campuses or airports, which may include smaller distinct projects not part of a larger overall phased project. Clarification is needed for the major development definition applying to a site or tax lots for phased projects. (24 and 27)

RESPONSE: The adopted definition of “major development” includes all developments that collectively, or individually, result in triggering the threshold for major development, including, but not limited to, those developments that are part of a common plan of development or sale. To clarify, even smaller, distinct projects not part of a larger overall phased project at a

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school/company or airport campus that individually or cumulatively meet the definition of major development would be required to comply with the Stormwater Management rule or local stormwater control ordinance, as applicable.

95. COMMENT: “Major development” is defined as a project that disturbs one or more acres of land. Clarify if smaller projects are excluded from treatment requirements. (28)

RESPONSE: The definition of “major development” includes more than just projects that disturb one or more acres of land. See N.J.A.C. 7:8-1.2. Additionally, there are two distinct thresholds that must be considered. The first threshold is “major development,” which defines all projects regulated by the Stormwater Management rules. The second threshold is for the stormwater runoff quality standards at N.J.A.C. 7:8-5.5(a). So, a project could be major development - requiring water quantity control and groundwater recharge – but not trigger the water quality requirements. Water quality is only triggered if there is one-quarter acre or more of regulated motor vehicle surface. For a project to be subject to the stormwater runoff quality requirement, it must meet the definition of “major development” and exceed the threshold for the stormwater runoff quality standards. A project could propose a one-half acre increase of regulated motor vehicle surface, which would meet the definition of “major development” at N.J.A.C. 7:8-1.2 and would exceed the threshold for the stormwater runoff quality standard at N.J.A.C. 7:8-5.5, and, thus, would not be exempt from the requirement to provide stormwater runoff quality treatment. Note that both the definition of “major development” and the threshold for the stormwater runoff quality standards may be different in a local stormwater

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control ordinance than in the Stormwater Management rules and, therefore, it is necessary to consult the local stormwater control ordinance to determine its exact applicability.

96. COMMENT: The Department should reexamine proposed amendments to expand the definition of “major development,” which, as amended, include common plan developments. Only interconnected parts of a project should be considered. (3)

RESPONSE: As explained in the notice of proposal Summary, 50 N.J.R. at 2387 and explained further in the Response to Comment 76, the regulation of common plan developments is required by the Federal rules for small municipal separate storm sewer system (MS4) permits. The Federal rules include provisions for regulating projects less than one acre that are part of a larger common plan of development greater than or equal to one acre (see 40 CFR 122.34(b)(4) and (5)). Since the Stormwater Management rules are implemented, in part, through MS4 permits, it is necessary to include common plan developments in the definition of major development.

97. COMMENT: For major development under N.J.A.C. 7:8-1.2, the proposed rule specifies that impacts are cumulative since February 2, 2004. How will this be applied to linear transportation projects that are not built in obvious stages or sections as would a phased residential subdivision? For linear projects, there may be more than one site or project compiled into one set of contract plans; however, these sites or projects may be thousands of feet (or miles) apart. Please clarify how major development computations would apply to multiple

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sites/projects that may cumulatively exceed one acre and yet be miles apart and spread over multiple HUC-14s. (19)

98. COMMENT: The Department proposed to amend the definition of “major development” to explicitly include projects that disturb one or more acres since February 2, 2004, create one-quarter acre of regulated impervious surface since February 2, 2004, create one-quarter acre of motor vehicle surface since the effective date of the proposed rules, or create a combination of impervious surface and motor vehicle surface of more than one-quarter acre. Unlike residential, commercial, or industrial development projects, parcels or common plans of development do not define roadway projects. Currently, it is the practice of the Department to determine whether major development occurs on a roadway project based on whether the construction of the project is independent of other projects. Additional clarification is needed to indicate that this will continue for roadway projects. (10)

RESPONSE TO COMMENTS 97 AND 98: When evaluating whether a project exceeds the thresholds for major development, the adopted criteria in the definition will be utilized. However, when determining if linear transportation projects are part of a common plan or separate, the Department is not changing its existing practice, which requires a case-by-case review to determine if the projects are independent.

99. COMMENT: The definition of “major development” is linked to the applicability of the Department FHA Permits-by-Rule. Expanding the scope of major development projects by including cumulative totals of land disturbance and impervious surfaces restricts the

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applicability of Permits-by-Rules under the FHACA Rules. The thresholds triggering a major development (one acre of land disturbance and/or one-quarter acre of new impervious surfaces) are considered cumulative since February 2, 2004. It appears that counting land disturbance that has been previously approved and treated for stormwater management in accordance with N.J.A.C. 7:8, against a newly proposed project is tantamount to re-regulating the prior, approved land disturbance. Also, the definition, would appear to go against the Department's "grandfathering" provisions of the rules, which exempt projects with prior approvals from being subject to regulation. Furthermore, after the fact accounting for prior land development is problematic and will unreasonably burden project sponsors. The proposed definition does not specifically state the land (property) that must be considered under the "cumulative since February 2, 2004" timeframe. The previous definition of "site" is "the lots on which a major development is to occur or has occurred." Since a timeframe is proposed to be established in determining if a new development qualifies as a "major development," the land area for which that timeframe applies should be precisely described. The timeframe should only apply to projects having a common development plan. For example, if a lot was subdivided in 2010 into multiple lots, development was not yet proposed on some lots and each lot sold to different buyers, which lots would be subject to the thresholds if each buyer proposed a different, unrelated development? Please explain how the Department will establish the amount of cumulative disturbance since February 2, 2004. (29 and 38)

RESPONSE: In accordance with the definition of major development at N.J.A.C. 7:8-1.2, "cumulative since February 2, 2004" includes all developments that have occurred since that

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date as well as all developments that are, or were, part of the site (or sites if the original site was subdivided after February 2, 2004) since February 2, 2004. When the subdivision occurred, stormwater management requirements should have been considered by the municipality.

While these prior developments will be considered toward the threshold of major development, as long as they were constructed in accordance with all required approvals, these adopted amendments will not require the retrofit of the previous developments to meet these standards. Thus, there is no conflict with the grandfathering requirements at N.J.A.C. 7:8-1.6.

Regarding the applicability of permits-by-rule under the Flood Hazard Area Control Act Rules at N.J.A.C. 7:13 and the amendments to the definition of major development, please see the Response to Comment 76.

100. COMMENT: Incorporating the February 2, 2004, timeframe into the definition of “major development” unfairly and significantly limits the Department’s permitting options for corporate and/or institutional landowners having large tracts of lands on which land disturbance has been, and continues to be, necessary to maintain and upgrade facilities. If such entities constructed a major development within the timeframe (and provided stormwater management as required at the time), any additional land disturbance or new impervious surface would be a “major development” and would prohibit the landowners from authorization of Flood Hazard Area (FHA) Permits-by-Rule for very small projects that are necessary for the upkeep and advancement of facilities. If FHA permitting is required for a small project, corporate/institutional landowners are unfairly subject to costly FHA Individual Permit

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applications, regardless of the area of the disturbance or potential impact to the FHA regulated area. (38)

RESPONSE: Existing N.J.A.C. 7:8 rules define “major development” as development that provides for ultimately disturbing one or more acres of land or increasing impervious surface by one-quarter acre or more. Accordingly, the Department has regulated, under the existing rules, and will continue to regulate developments as major developments if they cumulatively exceed the threshold established by the rules. Specifically, there is no change in applicability from the existing to the amended “major development” definition regarding multiple developments that individually or collectively disturb one acre or more or create one acre or more of impervious surface. The Department is clarifying the existing scope of the major development definition to incorporate the date that the existing definition of “major development” was previously amended. The adopted amendment reflects that the Department considers the cumulative total of disturbance on one acre or more of land and cumulative total of creation of one-quarter acre or more of impervious surface since February 2, 2004. The rule clarification ensures that the cumulative disturbance of one acre or more of land and cumulative total of creation of one-quarter acre or more of impervious surface is considered by those applying the rules back to the date of February 2, 2004, as intended.

101. COMMENT: Why does the definition of “major development” include the cumulative total of land disturbance? Significant land disturbance is controlled by a Soil Erosion and Sediment Control Certification. Upon completion of the disturbance, the project area is stabilized,

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inspected by the soil conservation district and stabilization of the area confirmed by the soil conservation district through issuance of a statement of compliance. The timeframe of cumulative impacts for land disturbance will unfairly have a significant adverse economic impact to corporate and/or institutional property owners and project sponsors. An entity proposing a very small land disturbance, even with no new impervious surfaces, will be subject to the Stormwater Management rules if there has been previous land disturbances on the site (site needs to be defined) with a cumulative total of one acre or more since 2004, even if there is minimal effect from the small land disturbance. For example, a land owner reconstructed an athletic field in 2005 with a total land disturbance of more than one acre. The land owner now wishes to install a utility line in an “actively disturbed” lawn area located in a regulated FHA Riparian Zone. This project, which would otherwise be authorized under an FHA Permit-by-Rule 10, would be considered a “major development” and require an FHA Individual Permit thus requiring a costly, time-consuming permitting process. (38)

RESPONSE: As stated in the notice of proposal Summary, 50 N.J.R at 2387 and further explained in the Response to Comment 76 and 96, it has been the Department’s experience that some applicants have attempted to circumvent regulation by phasing or dividing projects into pieces that, individually, are below the threshold of major development. Therefore, to prevent attempts to avoid compliance, the Department has regulated such developments as major developments under the existing rules if they cumulatively exceeded the threshold established by the rules. The amended definition of major development is intended to clarify this existing implementation. The existing definition of “major development” at N.J.A.C. 7:8-1.2 includes

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“any development that provides for ultimately disturbing one or more acres of land or increasing impervious surface by one-quarter or more.” That definition became effective on February 2, 2004, and the adopted definition clarifies the cumulative requirements and the timeframe, which is the effective date of the existing definition. There are no changes to the cumulative requirements nor is it more stringent; therefore, the clarification of the timeframe for consideration of ultimate disturbance does not affect development other than to clarify that disturbances prior to February 2, 2004, will not be considered toward the threshold of regulation.

The New Jersey Soil Erosion and Sediment Control Act (N.J.S.A. 4:24-39 et seq.) requires all construction activities greater than 5,000 square feet to be developed in accordance with a plan to control erosion during construction. The plan must also ensure that erosion will not occur once construction is completed. Reviews conducted by the local soil conservation districts are typically limited in scope to the application of soil erosion and sediment control. Therefore, a soil conservation district approval does not demonstrate compliance with the Stormwater Management rules. Further, the impacts resulting from development are not limited to the areas where impervious surfaces are constructed. Land disturbance often results in the removal of existing vegetation and/or the compaction of soils, which results in increased runoff rates and volumes that must be managed in accordance with the Stormwater Management rules.

As this relates to the specific example cited, it should be noted that an exemption exists at N.J.A.C. 7:8-5.2(d) for underground utility lines provided that the area is revegetated upon

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completion. So, as long as the land area disturbed for the underground utility line in the example cited was revegetated after construction, that disturbance would not be considered toward the cumulative threshold of major development. Additionally, since the revised definition of major development is only a clarification that does not change the cumulative disturbance requirements for proposed development projects whether it qualifies for a Permit by Rule or Individual Permit under the Flood Hazard Control Act Rules is unaffected by this change to the rules.

102. COMMENT: How is “common plan of development” defined when applying the cumulative total of regulated areas? This is important because the proposed definition of “major development” is based on the concept of “common plan of development.” By not defining “common plan of development,” the definition is left open to interpretation. (29)

RESPONSE: While not specifically defined in the rules, a common plan of development is a multi-phase project (for example, phased residential development) where the ultimate impacts of the entire project must be considered in determining if the development is of a magnitude that requires stormwater to be managed in accordance with the standards contained in the rules. This language is consistent with the Federal rules for small municipal separate storm sewer system permits, which include provisions for regulating projects less than one acre that are part of a larger common plan of development greater than or equal to one acre (see 40 CFR 122.34(b)(4) and (5)). It should be further noted that multiple developments need not necessarily be part of a common plan of development to require cumulative consideration in

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determining if they meet the definition of major development. The definition of major development at N.J.A.C. 7:8-1.2 states that “major development means an individual ‘development,’ as well as multiple developments that individually or collectively result in ...”

The definition additionally clarifies that projects that are part of a common plan of development or sale that individually or cumulatively meet the criteria for major development are also considered major development. However, separate projects located on the same site, even those that are not specifically part of a common plan of development, must be considered cumulatively based on the first sentence of the definition of major development.

103. COMMENT: Given that land ownership and development plans change over time, how can the Department determine what “sites” and what “projects” are covered under the cumulative timeframe for land disturbance and impervious cover? (38)

RESPONSE: Although the Department amended the definition of “major development,” the amendment did not affect the existing requirement to determine what “sites” and what “projects” individually, or collectively, result in major development. The Department can determine what “sites” and what “projects” are covered under the cumulative timeframe for land disturbance and impervious cover by requesting all review agency site approval records since February 2, 2004, and/or reviewing digital imagery of the site over time for changes in land disturbance and impervious cover.

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104. COMMENT: Given the existing definition of “site,” how can a major development that occurred in the past on a “lot or lots” be considered part of a “common plan of development” when the property could have changed ownership, and/or the development plan changed? (38)

RESPONSE: As the definition of “major development” at N.J.A.C. 7:8-1.2 states, major development means an individual development, as well as multiple developments that individually or collectively meet any one or more of paragraphs 1-4 of the definition. The definition further explains that major development includes all developments that are part of a common plan of development or sale that individually or collectively meet any one or more of paragraphs 1-4. The commenter appears to be interpreting this portion of the definition to exclude developments that are not part of a common plan of development from collective consideration under the definition. This is an incorrect interpretation of the definition. The sentence about common plan of development is intended to clarify that major developments cannot avoid regulation by phasing, subdividing, or otherwise separating projects into smaller segments to stay below the threshold for regulation. It is not intended to exclude or exempt anything from cumulative consideration. As such, developments in the past will be counted towards the threshold of major development, even if the ownership and/or the development plan changed.

105. COMMENT: The proposed definition of “major development” includes an individual development, as well as multiple developments, that individually, or collectively, trigger one of the criteria over time starting as of February 2, 2004, or the rulemaking effective date, as

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applicable. The definition further states that this includes developments that are part of a common plan of development. Clarify the applicability of this definition for existing industrial sites that do not have known or phased development plans for a site, but where parts of the site may have to undergo redevelopment in the future at different points in time as business conditions change (for example, to meet new rules or product requirements). Developments over time at an existing industrial site that are unrelated to each other (that is, driven by different factors at different times and not known or planned together) should continue to be treated as separate projects for planning purposes so that stormwater management requirements do not otherwise trigger retroactive requirements and further redevelopment of a prior project area unrelated to a potential future development. The open-ended nature of this proposed definition could otherwise potentially trigger difficult upgrades that may make small projects uneconomical and eventually lead to the shutdown of some businesses. (2 and 17)

RESPONSE: The rules will not be applied retroactively to legally existing developments that were not considered major development at the time of their approval.

As explained in the notice of proposal Summary, 50 N.J.R. at 2387-2388, the Department has long considered individual projects on a site that cumulatively exceed the threshold of major development as major developments once that threshold has been exceeded. The amendments to the definition adopted in this rulemakingg are only intended to clarify this and to include a specific timeframe for consideration. Therefore, these developments cannot “continue to be treated as separate projects” as they never were treated

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as separate projects once the threshold of major development was exceeded. Not treating these projects cumulatively would allow significant adverse impacts to water quality, water quantity, and groundwater recharge to occur unmanaged, which is in direct conflict with the goals of this rulemaking. As the amendments to the definition do not change the applicability of the rules, they will not result in any additional costs to businesses and, therefore, will not lead to their shutdown. Furthermore, the costs to the community (among other things, degraded water quality, increased flooding, and reduced groundwater availability) resulting from not managing stormwater runoff far outweigh the costs of managing the stormwater appropriately.

106. COMMENT: The Department should take this opportunity to clarify that the cumulative or ultimate impact criterion for major development does not apply to discrete, unrelated projects that are separated from each other by a large distance from previous projects on a large site like a wastewater or water treatment plant. Once the major development threshold is reached, every activity on the site no matter how small would require stormwater management measures, placing an undue burden on these facilities. (1)

RESPONSE: Smaller distinct projects that are not part of a larger overall phased project at any site that, when cumulatively considered with all of the other projects that have occurred on the site after the timeframes set forth in the definition of major development at N.J.A.C. 7:8-1.2, meet the definition of major development and would require compliance with the Stormwater Management rule. Distance between projects on a single site is not a consideration in determining major development.

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The Department, in defining major development, has established the amount of disturbance, regulated impervious surface, and regulated motor vehicle surface that can be incorporated into a site before adverse impacts reach levels that can no longer be considered *de minimis*. Once this threshold on a site has been exceeded, it is necessary to provide stormwater controls to prevent those adverse impacts. These costs should be borne by the developer of the site rather than the community at large, which would bear the expense in the form of degraded water quality, increased flooding and erosion, and reduced availability of groundwater if stormwater management is not incorporated into the development.

Additionally, this specifically is not a change in Department's implementation of the Stormwater Management rules. As noted in the notice of proposal Summary, 50 N.J.R. at 2387, the Department has regulated such developments as major developments prior to the adopted amendments if they cumulatively exceeded the thresholds established by the rules.

107. COMMENT: The Department should clarify how the proposed rules would be applied to redevelopment of an existing site where the amount of motor vehicle surface and/or impervious area would be proposed to be reduced. In other words, can rule applicability be avoided by including in the project design an overall reduction of regulated areas (for example, by removal or reduction in size of parking areas exposed to precipitation), and if not, which parts of the rule would still be applicable? (2 and 17)

RESPONSE: "Major development" is the disturbance of one or more acres of land or the creation of one-quarter acre or more of regulated impervious surface/regulated motor vehicle

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surface. Note that the disturbance and regulated impervious surface on the property must be considered cumulatively since February 2, 2004, and the regulated motor vehicle surface must be considered cumulatively since the operative date of this rulemaking. If a hypothetical project decreases regulated impervious surface and regulated motor vehicle surface, and does not disturb an acre or more of land, then the project is not “major development” and the rules do not apply. If the project disturbs an acre or more of land it is “major development” but the reduction of motor vehicle surface would not subject the project to the stormwater runoff quality standards, since the stormwater runoff quality standard is only triggered when the project proposes to increase the regulated motor vehicle surface by one-quarter acre or more. Additionally, stormwater runoff quantity (N.J.A.C. 7:8-5.6), groundwater recharge (N.J.A.C. 7:8-5.4), and the use of green infrastructure BMPs (N.J.A.C. 7:8-5.3) would apply. In general, additional BMPs (including green infrastructure BMPs) are usually not needed for redevelopment projects that result in an overall decrease in impervious surface since projects with reduced impervious surface generally result in increased groundwater recharge and reduced stormwater runoff.

#### *Motor Vehicle*

108. COMMENT: The definition of “motor vehicle” at N.J.A.C. 7:8-1.2 includes all land vehicles propelled other than by muscular power, but does not include farm equipment, snowmobiles, all-terrain vehicles, motorized wheelchairs, go-carts, gas buggies, golf carts, ski-slope grooming machines, or vehicles that run only on tracks/rails. Turf management/landscaping equipment,

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“maintenance equipment in transit” and all electric vehicles should also be excluded from the definition. (20, 29, and 39)

109. COMMENT: The proposed definition of “motor vehicle” specifically excludes certain motorized equipment. The list of excluded equipment should also include riding mowers and tractors and other service vehicles whose primary purpose is not transport on a “motor vehicle surface.” (2 and 17)

RESPONSE TO COMMENTS 108 AND 109: Homeowner lawnmowers would not be considered a “motor vehicle.” The majority are propelled by muscular power, which excludes them from meeting the definition of “motor vehicle.” Further, as stated in the notice of proposal Summary, 50 N.J.R. at 2387, the proposed definition for “motor vehicle” excludes vehicles “that are not considered to be a significant source of impact to the water quality of stormwater runoff.” The definition at N.J.A.C. 7:8-1.2 specifically exempts farm equipment. Ride-on tractor style lawnmowers are not propelled by muscular power and so could be considered “motor vehicles,” but are substantially similar in nature to many types of farm equipment. Since the Department has determined that farm equipment is not a significant source of impact to the water quality of stormwater runoff and turf management/landscaping equipment that could be considered “motor vehicles” are smaller version of farm equipment that are less likely to be a significant source of impact to the water quality of stormwater runoff, the Department’s intent was to also exclude turf management/landscaping equipment from consideration as “motor vehicles.” It is unclear to the Department what type of vehicles the commenter is referring to as “maintenance equipment in transit”; however, it appears that this type of equipment is being

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driven or transported on a surface already utilized by “motor vehicles” making the surface by definition a “regulated motor vehicle surface.” Therefore, the Department does not see the need to specifically exclude “maintenance equipment in transit” from the definition of “motor vehicle.” Electric vehicles are “motor vehicles,” unless excluded by type, such as motorized wheelchairs or golf carts, since these types of electric vehicles are not considered to be a significant source of impact to the water quality of stormwater runoff.

*Motor Vehicle Surface and Regulated Motor Vehicle Surface*

110. COMMENT: In the proposed definition of “motor vehicle surface,” the Department recognizes that non-motor vehicle surfaces do not produce significant pollution, and, therefore, should not be subject to quality standards. The Department should further recognize that some surfaces that meet the proposed definition are very seldomly used by motor vehicles. These include access roads, pads at unstaffed utility stations, or roads along utility corridors. Since motor vehicles seldom traverse these surfaces, they also would not produce significant pollution and should not be subject to the quality standards. To extend the definition to these areas would create an exceptional expense for limited environmental benefit, which is not the intent of the rules. Therefore, the Department should establish a threshold for average daily vehicle use below which a surface will not be subject to quality standards. (1)

111. COMMENT: A “motor vehicle surface” as defined at N.J.A.C. 7:8-1.2 should be regulated by intent and frequency of use, not solely by the intended use. For example, a stabilized grass area intended only for emergency vehicle access with a very low frequency of use would

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generate significantly less pollution and volume of stormwater runoff than a paved asphalt parking lot at an office park; an overflow grass parking area at a church typically used on weekends or during special events should not be required to provide the same level of stormwater quality management as a paved asphalt parking lot; a pedestrian and bicycle pathway intended to be capable of use by motor vehicles for only emergency access or maintenance functions but such use is very infrequent; an access area used for service and maintenance to structures by snow removal equipment and lifts (scissor, fork, and boom lifts) with a very low frequency of use. Incorporating frequency of use into the definition would lessen the adverse economic impact of the new rules to landowners and applicants and would not discourage construction of new paved pedestrian and bicycle pathways. (20 and 39)

RESPONSE TO COMMENTS 110 AND 111: The definition of “motor vehicle surface” includes all surfaces intended to be used by motor vehicles regardless of frequency. However, as stated in the notice of proposal Summary, 50 N.J.R. at 2387, “in determining whether an area is considered a motor vehicle surface for purposes of determining the applicability of the rules, it is the overall use of the surface that is taken into account.” The overall use of the surface needs to be considered on a case-by-case basis. In the case of an access road that is gated and accessible to motor vehicles only in an emergency, for example, the overall use of the surface (except in the case of an emergency) does not allow for motor vehicles to use the surface and the reviewing agency may determine that the area can be excluded from the total motor vehicle surface of the site. However, a surface that is intended to be used by motor vehicles beyond an emergency situation, should be considered as part of the total motor vehicle surface

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of the site. The definition as proposed clearly defines a “motor vehicle surface”; adding a vehicle use threshold would create more confusion to permittees and the regulated community.

112. COMMENT: The Department should review of the definitions of “regulated motor vehicle surface” and “motor vehicle surface” as the amended definitions now incorporate porous pavement and other pervious surface in calculating whether the impervious threshold has been met. This amendment would remove the incentive to install pervious surfaces and would, therefore, be counterproductive to the Department’s goal of advancing green infrastructure.

(3)

RESPONSE: Pervious paving systems (sometimes called porous pavement) are a stormwater BMP that can be used to comply with the standards in the Stormwater Management rules, when designed appropriately. However, if not designed appropriately, the system may not be adequate to meet the standards. Therefore, it is necessary for the review agency to review designs to ensure they will be adequate to meet the rule requirements. In light of this, and as described in Section 10.4 of the Stormwater Management Rules FAQs, when determining if a project is a major development and if the stormwater runoff quality standard is applicable, pervious paving systems were considered to be an impervious surface prior to the adoption of this rulemaking. These definitions are not changing how pervious paving systems are applied towards the threshold of jurisdiction for the Stormwater Management rules and the applicability of the water quality standards. The Department anticipates that the adopted rules

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will result in increased usage of pervious paving systems throughout the State. A pervious paving system can satisfy the green infrastructure, groundwater recharge, stormwater runoff quality, and stormwater runoff quantity standards specified in the rules provided it meets the drainage area limitation and other design requirements in the rules and is either designed in accordance with the New Jersey Stormwater BMP Manual or approved as an alternative stormwater management measure.

113. COMMENT: The proposed definition of “regulated motor vehicle surface” includes the total area of motor vehicle surface receiving water quality treatment “by treatment at a wastewater treatment plant, where the water quality treatment will be modified.” The term “modified” should be revised to specifically be limited to modifications that will remove or lessen treatment. Wastewater treatment plants are routinely modified with treatment capacity generally maintained or improved. A wastewater treatment plant modification that maintains or improves treatment capacity should not result in rule application to motor vehicle surfaces that contribute inflow to the wastewater treatment plant. The Department’s explanation specifically refers to the example of “elimination of existing treatment measures” and not modification. The proposed rule should be reworded consistent with the Department’s intent.

(2 and 17)

RESPONSE: The notice of proposal Summary, 50 N.J.R. at 2388-2389, states that “changes to, or elimination of, existing treatment measures have the potential to adversely impact water quality in the same manner as the actual creation of motor vehicle surface.” The determination

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whether changes will adversely affect water quality will be decided on a case-by-case basis, as not all scenarios will have the same impact on water quality. The term “modified” includes any and all changes to water quality treatment. Furthermore, the stormwater runoff quality standard requires that a project under this scenario must maintain, or increase, the existing TSS removal of the anticipated load expressed as an annual average. So, while the review agency has the ability to review a modification to ensure that no adverse impacts will occur, the TSS removal requirement is not automatically applied. It would only be applied if the review agency determined there would be a reduction in water quality treatment.

114. COMMENT: The proposed definition of “motor vehicle surface” is too general and could be improperly applied to unintended facilities if not amended. For example, industrial facilities include accessways into process areas and tank storage areas that allow use by “motor vehicles” and can be exposed to precipitation. These accessways should not be considered “motor vehicle surface(s)” for purposes of this rule if they are part of a surface where the primary purpose is not transport (for example, accessways within secondary containment for a storage tank or tankfield). (2 and 17)

RESPONSE: The definition of “motor vehicle surface” includes all surfaces intended to be used by motor vehicles that are directly exposed to precipitation. An accessway into process areas and tank storage areas that allow use by “motor vehicles” and are exposed to precipitation meet the definition of “motor vehicle surface” in the rules. Runoff from these areas can have adverse impacts on the water quality of the receiving waterbody and, if above the thresholds

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for major development and stormwater runoff quality applicability, should be treated to prevent such impact in accordance with N.J.A.C. 7:8-5.5.

115. COMMENT: The Department should confirm whether temporary roads constructed as part of a major development will be treated as motor vehicle surfaces for rule implementation if the temporary road is to be restored to its original condition as part of the project. Permanent TSS removal facilities should not be required for temporary facilities needed for the construction phase of a project only. As the Department states in the notice of proposal Summary, “it is the overall use of the area that is taken into account” when determining whether an area is considered motor vehicle surface for purposes of rule applicability (50 N.J.R. at 2387). (2 and 17)

RESPONSE: As indicated in stormwater rule FAQ’s

([https://www.njstormwater.org/sw\\_rule\\_faqs.htm](https://www.njstormwater.org/sw_rule_faqs.htm)), a temporary road constructed as part of a major development project does not have to comply with the Stormwater Management rules if the temporary road is removed within six months and restored to pre-activity topography and vegetated cover; or the temporary road is necessary for a roadway construction project undertaken by a government entity or public transportation agency; provided: 1) The applicant demonstrates that there is no feasible alternative that would minimize or eliminate the need for the temporary road; 2) The applicant demonstrates that the temporary road, including any proposed stream crossings, will not cause erosion or increase flooding; and 3) The applicant restores all disturbed vegetation and topography to the maximum extent practicable.

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*New Jersey Stormwater Best Management Practices Manual*

116. COMMENT: With regard to the definition of “New Jersey Stormwater Best Management Practices (BMP) Manual,” the Department should confirm if the alternative measures referenced in the definition allow for applicants to utilize innovative designs not detailed in the New Jersey Stormwater BMP Manual, without seeking a variance, provided the design engineer demonstrates that the proposed measure and its design will contribute to achievement of the design and performance standards established in this chapter. (23)

RESPONSE: Innovative designs not detailed in the New Jersey Stormwater BMP Manual can be used without a variance, as long as the requirements of the Stormwater Management rules are met. Particularly, as stated at N.J.A.C. 7:8-5.2(g), an alternative stormwater management measure, alternative removal rate, and/or alternative method to calculate the removal rate may be used if the design engineer demonstrates the capability of the proposed alternative stormwater management measure and/or the validity of the alternative rate or method to the review agency. Where the Department is the review agency, documentation must be submitted in accordance with N.J.A.C. 7:8-1.3. Where the Department is not the review agency, a copy of any approved alternative stormwater management measure, alternative removal rate, and/or alternative method to calculate the removal rate must be provided to the Department in accordance with N.J.A.C. 7:8-1.3. Furthermore, an alternative stormwater management measure can be considered to satisfy the green infrastructure requirements at adopted N.J.A.C. 7:8-5.3 only if the measure is demonstrated by the applicant to the

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satisfaction of the review agency to be capable of satisfying the performance standards specified in the rules, meet the definition of green infrastructure, as defined at adopted N.J.A.C. 7:8-1.2, and meet the drainage area limitations specified either at adopted N.J.A.C. 7:8-5.3(b) or 5.2(g), as applicable.

117. COMMENT: The definition for “New Jersey Stormwater Best Management Practices (BMP) Manual” refers to N.J.A.C. 7:8-5.2(f). This appears to be a typographical error and should instead be a reference to N.J.A.C. 7:8-5.2(g). (23)

RESPONSE: The commenter is correct. The Department is modifying N.J.A.C. 7:8-1.2 on adoption to correct the cross-reference in the definition of “New Jersey Stormwater Best Management Practices (BMP) Manual.”

#### *Regulated Impervious Surface*

118. COMMENT: At N.J.A.C. 7:8-1.2, the definition of “regulated impervious surface” means any of the following, alone, or in combination: 1. A net increase of impervious surface; 2. The total area of impervious surface collected by a new stormwater conveyance system; 3. The total area of impervious surface proposed to be newly collected by an existing stormwater conveyance system; and/or 4. The total area of impervious surface collected by an existing stormwater conveyance system where the capacity of that conveyance system is increased. Based on items 2 through 4 above, please provide the regulatory jurisdiction and reference and research on

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how much the specific change in water quality treatment occurs for the conditions that are changed. (6)

119. COMMENT: “Regulated impervious surface” should only include area that results in an increase to the associated runoff flow above some *de minimis* level. The *de minimis* standard should include a graduated scale, based on the flow within the system, such as those established in the Statewide permits issued by the Department’s Division of Land Use Regulation to the New Jersey Department of Transportation. (10)

RESPONSE TO COMMENTS 118 AND 119: A *de minimis* standard with a graduated scale based on the flow within the system is not feasible. In part, the Stormwater Management rules are intended to prevent downstream flooding impacts and, as such, do not allow for any increases in peak flowrate leaving a major development site. Even if the Department would allow a *de minimis* increase in flow, determining what increase in flow rate would not cause adverse downstream flooding impacts would normally require a hydrologic and hydraulic analysis of the entire watershed, which is generally well beyond the scope of the calculations required to demonstrate compliance with the Stormwater Management rules and would need to be performed on a case-by-case basis. Further, the rules already implicitly identify *de minimis* flow as that which would result from activities not qualifying as major development.

120. COMMENT: With respect to “regulated impervious surface” under N.J.A.C. 7:8-1.2, please clarify that a “new stormwater conveyance system” will not include replacement of an existing stormwater conveyance system, such as removal and replacement of deteriorated corrugated

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metal pipes with an equivalent size reinforced concrete (or other) pipe. Please confirm that the addition of new inlets to an existing system will not be considered to increase the capacity of an existing stormwater conveyance system and will not create any new “regulated impervious surface.” Please also confirm that the addition of stormwater inlets (for example to correct deficiencies in gutter spread) will not be considered to increase the capacity of an existing stormwater conveyance system and will not create any new “regulated impervious surface.” If an existing pipe system is capable of conveying the water quality storm and is subsequently replaced with a more efficient pipe system, the contributory pavement area should not count towards the one-quarter acre since water quality will be unchanged. (19)

RESPONSE: A “new stormwater conveyance system” means a conveyance system built where one did not previously exist. The removal and replacement of deteriorated corrugated metal pipes with an equivalent size reinforced concrete (or other) pipe and/or the addition of new stormwater inlets within an existing stormwater conveyance system would not create any new “regulated impervious surface” provided the capacity of the existing stormwater collection system is not increased (carrying more flow to the receiving water body) or the stormwater peak flow rates at the outfalls are not increased.

121. COMMENT: The definition of “regulated impervious surface” should be clarified to make clear whether a new stormwater conveyance system means an area not previously collected by a conveyance system or a previously existing stormwater conveyance system to be realigned, enlarged, and/or a previously existing stormwater conveyance system to be reconstructed. The

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rule should apply only to a new stormwater conveyance system serving an area not previously collected by any piped conveyance system. In the event a stormwater conveyance system is being reconstructed or multiple conveyance systems are being realigned to treat the same area of impervious surface, there should be no significant impact on flow to the receiving waterbody. In light of New Jersey's aging stormwater infrastructure, and the numerous improvements in stormwater system design and construction, it is crucial not to disincentivize the alteration or reconstruction of stormwater systems by regulating stormwater system alterations and reconstruction activities that will have no impact on receiving waterbody flows.

(23)

122. COMMENT: The proposed definition of "regulated impervious surface" appears too general and could be improperly applied to unintended facilities if not amended. For example, it includes "... area of impervious surface collected by a new stormwater conveyance" without specifying that the stormwater conveyance be part of a direct discharge to a regulated water body. Stormwater conveyance is not defined and can, thus, be interpreted to be any ditch or pipe that carries stormwater. At industrial facilities, stormwater conveyances may discharge to a wastewater treatment plant because of the potential for exposure to industrial sources, and, thus, can also be considered to be a wastewater conveyance. (2 and 17)

RESPONSE TO COMMENTS 121 AND 122: If a major development is proposed to discharge its stormwater to a wastewater treatment plant, it still should be evaluated for compliance with the Stormwater Management rules. In the specific example provided in the comment, the hypothetical site is considered a major development on the basis that a new stormwater

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conveyance system that collected one-quarter acre or more of impervious surface was proposed. In this case, the major standard that the site must be evaluated against is the stormwater runoff quantity control standard and whether this stormwater flows through a wastewater treatment plant or not is immaterial in determining compliance. If the quantity of stormwater runoff leaving the major development site meets one of the criteria at N.J.A.C. 7:8-5.6(b), then compliance has been demonstrated. If not, stormwater management measures must be installed on-site to meet one of the options for compliance. As with any other major development, this is intended to prevent downstream flooding and/or erosion resulting from unmanaged quantities of stormwater runoff leaving the site.

It should be noted that stormwater runoff quality and groundwater recharge may also apply if other construction is also proposed or if the “regulated impervious surface” also meets the definition of “regulated motor vehicle surface”; however, as that was not described in the situation presented by the commenter, it is assumed that no other activities were proposed for this hypothetical situation.

123. COMMENT: The definition of “regulated impervious surface” should be clarified to state that a reconstructed system is not a new stormwater conveyance system. (7 and 8)

RESPONSE: As stated in the notice of proposal Summary, 50 N.J.R. at 2388, the definition of “regulated impervious surface” is intended to include activities that have the potential to increase flooding in the receiving waterbody in the same manner as the actual creation of impervious surface, since stormwater runoff from those existing surfaces would be discharged

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to a watercourse where it previously was not discharged or would be discharged at the existing location at a faster rate than before the modification or creation of the storm sewer system. A reconstructed system that does not alter the capacity of the system or the discharge location will not discharge at a faster rate or to a new location and, as such, is not “regulated impervious surface.” The inclusion of “the total area of impervious surface collected by a new stormwater conveyance system” in the definition of “regulated impervious surface” is intended to be limited to situations where a system is constructed where one did not exist or where a new discharge location is created. A reconstructed system where the capacity is increased is already included in paragraph 4 of the definition. In response to comments, the Department is modifying the definition of “regulated impervious surface” on adoption. A “new stormwater conveyance system” is a system that is constructed where one did not exist immediately prior to its construction or an existing system for which a new discharge location is created. A reconstructed stormwater conveyance system does not constitute a new conveyance system unless a new discharge location is created.

124. COMMENT: The proposed definition of “regulated impervious surface” is confusing and could be improperly applied to unintended facilities if not clarified. Paragraph 4 states that “the total area of impervious surface collected by an existing stormwater conveyance system” becomes a “regulated impervious surface” if “the capacity of that conveyance system is increased” by any amount. It should be clarified that the regulations only apply if the increased

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impervious surface of the stormwater conveyance system (and not the total impervious surface) meets one of the rule criteria. (2 and 17)

RESPONSE: As stated in the notice of proposal Summary, 50 N.J.R. at 2388, stormwater impacts occur through more than just the creation of impervious surface. A proposed development may not propose increases of impervious surface, but instead may increase the size of the stormwater conveyance system or construct a new collection system where one did not previously exist, which would carry more flow to the receiving waterbody and increase the risk of flood damage. The Department intended the definition of “regulated impervious surface” to include the total area of impervious surface, as it is the runoff from this total area that could potentially cause adverse impacts downstream if the capacity of the stormwater conveyance system is increased without implementing stormwater management controls to prevent those adverse impacts.

#### *Tidal Flood Hazard Area*

125. COMMENT: The proposed definition of “tidal flood hazard area” has been amended to reference the flood elevation from the two-, 10-, or 100-year storm. See N.J.A.C. 7:8-1.2 and 5.6(b)4. The definition states that a flood hazard area may be tidal in the 100-year storm, but fluvial in more frequent storm events. This definition has the potential to create confusion in applying N.J.A.C. 7:8-5.6, since the FEMA flood elevations for the two- and 10-year storm are only available where either the two-, 10-, and 100-year tidal storm elevations control or the two-, 10-, and 100-year fluvial storm elevations control. Although the two- and 10-year fluvial

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elevations on tidal main stems and tributaries can be calculated, there is no Department-recommended way to calculate the two- and 10-year tidal elevation of these waters to compare them with the associated calculated fluvial elevations. The flooding that occurs in 100-year tidal flood areas during the two- and 10-year storms is either tidally influenced or caused by localized drainage problems and not fluvial stream flooding. The rule should be clarified to state that the tidal detention requirements would apply for all storm events unless detention is deemed necessary by the municipality or county to alleviate localized drainage problems. (7, 8, 23, and 24)

126. COMMENT: The proposed definition of “tidal flood hazard area” states that although a flood hazard area may be tidal in the 100-year storm, the same flood hazard area may not necessarily be tidal in the two- or 10-year storms. The Department states in the notice of proposal Summary, 50 N.J.R. at 2390, that the amended definition “is intended to clarify that individual consideration should be given, whether the flood hazard areas resulting from each of the two-, 10-, and 100-year storms are tidally or fluvially controlled, when determining if stormwater runoff quantity control is required.” While it is understood that this situation is possible, it is not known how the Department (or design engineer) would determine the extent of the two- and 10-year tidal floodplains, as a matter of regulation. (10)

RESPONSE TO COMMENTS 125 AND 126: The intent of the inclusion of the statement that a flood hazard area may be tidal in the 100-year storm, but not necessarily in the two- or 10-year storms is to clarify: (a) that a two- or 10-year flood hazard area cannot be assumed to be tidal solely on the basis that the 100-year flood hazard area along that watercourse is tidal; and (b)

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that the flood hazard area for each storm event should be considered separately by both the designer and reviewer of the project when determining if stormwater runoff quantity control is required for a project. While the Department acknowledges that there are situations where sufficient information is not readily available, when it is available, it should be considered. It may also not be necessary to compare the tidal flood hazard elevation to fluvial flood hazard elevation in all cases. In some scenarios, a site may be clearly along a tidal section of a watercourse, and located inside the tidal 100-year flood hazard area, but be situated above the tidal 10-year flood elevation, in which case the potential impacts to neighboring properties may be greater if quantity control of the 10-year storm was not provided.

#### *Water Control Structure*

127. COMMENT: The definition of “water control structure” encompasses bridges. Many high bridges obviously do not affect flood elevation, but it would be onerous and, in most cases, unreasonable to quantitatively prove such, requiring a significant expenditure to validate what may be obvious by inspection. Therefore, the Department should develop criteria for, or a list of, bridges and other structures that are presumed to have no such effect. Alternatively, the Department should identify the most-upstream point along major tidal waterways that is considered definitely below the first water control structure and, therefore, stormwater quantity control is not required. (1)

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RESPONSE: The Department does not require that applicants prove which bridges are water control structures; however, it is an option for applicants who seek to avoid implementation of water quantity control measures.

Applicants who want to pursue this option should consult the flood profile maps that are readily available and can be used to determine which bridges spanning tidal waterways are considered water control structures. The flood profile of the 100-year storm would be compared to the elevation of the bridge (which is likely depicted on the profile) to evaluate if that bridge is functioning as a water control structure, or if the bridge is significantly above the flood profile and, therefore, not a water control structure. In cases where flood profile maps for the particular watercourse where the bridge is located are not available, applicants may also follow the procedure for approximating a flood hazard area design flood elevation described at N.J.A.C. 7:13, Flood Hazard Area Control Act Rules Appendix 1 [https://www.nj.gov/dep/rules/rules/njac7\\_13.pdf](https://www.nj.gov/dep/rules/rules/njac7_13.pdf), and compare the results of that analysis to the 100-year tidal backwater elevation from any studied downstream tidal waterbody or the Atlantic Ocean. The higher of the tidal backwater elevation or the approximate flood hazard area design flood elevation should then be compared to the bridge elevation to demonstrate that the bridge is above the flood hazard elevation, and, thus, not a water control structure.

#### **7:8-1.6 Applicability to major development**

128. COMMENT: It is appropriate that the Department provided a grandfathering provision for major development at N.J.A.C. 7:8-1.6. (3)

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129. COMMENT: N.J.A.C. 7:8-1.6 appropriately includes a delayed operative date and “grandfathering” of major development applications to deal with fairness issues related to the transition to relevant new standards related to project design and layout. (22)

RESPONSE TO COMMENTS 128 AND 129: The Department acknowledges the commenters’ support for the rules.

130. COMMENT: Proposed N.J.A.C. 7:8-1.6(b) lists specific developments that will be exempt from the new rule for up to one day prior to the “operative date” of the new rule. N.J.A.C. 7:8-1.6(b)1i through v and 2 refer to land development projects that are subject to Municipal Land Use Law approvals, building permits, and/or the Department’s Division of Land Use Regulation’s permits. The proposed rule does not address public transportation projects that may be at a very late stage of design (final design, Phase D, etc.) when the rule becomes operative. Nor does it address a transportation project that may be self-certified for stormwater management and require no Department permits. These projects would appear not to qualify for “grandfathering” from the new rules. Please clarify the operative date for projects that do not need MLUL, building permits, or approvals from the Department’s Division of Land Use Regulation. (19)

131. COMMENT: The rules include grandfathering provisions for projects that do not require permits from the Department’s Division of Land Use Regulation but are subject to the Municipal Land Use Law (MLUL), and all projects that require or have submitted for permits from the Department’s Division of Land Use Regulation. The rules do not allow grandfathering for public

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projects that do not require permits from the Department's Division of Land Use Regulation, but are not subject to the MLUL. It seems inappropriate to not allow similar consideration for linear development projects that have already completed a substantial amount of design and planning prior to the rule changes taking effect. The Department should provide for grandfathering of all linear development projects for which design is underway (that is, beyond concept development) at the effective date of the proposed rules. (10)

RESPONSE TO COMMENTS 130 AND 131: The Department has provided grandfathering for projects that do not require permits from the Department's Division of Land Use Regulation and are not subject to the MLUL in the draft Highway Agency MS4 renewal, which the Department intends at this time to make effective on January 1, 2020. Specifically, the draft permit reads, "Major development that does not require any Department permits listed under N.J.A.C. 7:8-1.6(c) and has received Federal or State authorization to initiate final design as of the operative date of amendments to the Stormwater Management rules at N.J.A.C. 7:8, shall be subject to the Stormwater Management rules in effect one day before the operative date of the rule amendments."

132. COMMENT: The use of "technically complete" at proposed N.J.A.C. 7:8-1.6(b)2 creates uncertainty for the regulated community as the phrase "technically complete" is subjective. The Department should amend the rule to use administratively complete as the criterion, since that is based on a published regulation and/or checklist and is a much more definitive, objective standard. (7, 8, and 23)

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RESPONSE: The use of a “technically complete application” at N.J.A.C. 7:8-1.6(b)2 and (c) means an application that includes all application requirements specified in the applicable rules with each application item being determined to be adequate to allow the Department to determine if the proposed project complies with the applicable rule chapter. Amending this criterion to “administratively complete application” would allow applicants to “grandfather” the project under the previous Stormwater Management rules by submitting application forms prior to the operative date of the rule amendment without regard for content, which would be counter to the reasons for allowing any applications to be reviewed based upon the previous Stormwater Management rules. In order to be reviewed under the previous Stormwater Management rules, the entire project, including the stormwater management system, must be substantially designed at the time of application. In such a case, revising the design could be overly burdensome. The design engineers or agents for applications that have been substantially designed should be able to submit “technically complete” applications, and, thus, meet the requirements at N.J.A.C. 7:8-1.6(b)2 and (c) to be reviewed under the previous Stormwater Management rules.

133. COMMENT: N.J.A.C. 7:8-1.6(b)1 should be modified to allow for submission waivers to be requested. This is a customary practice for Municipal Land Use Law applications. (7, 8, and 23)

RESPONSE: If an applicant is granted a waiver from one of the submission requirements specified in an ordinance that is not absolutely necessary for the municipality to determine compliance of an application/development with the requirements of this chapter and the local

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Stormwater Management ordinance, that submission would no longer be required as part of a complete application for approval under the MLUL and would not be required as an accompanying document pursuant to N.J.A.C. 7:8-1.6(b)1.

#### **7:8-2.4 Stormwater Management Plan Requirements**

134. COMMENT: The removal of the subjective nonstructural stormwater management “planning” strategies from the design standards is a positive step toward clearer and better implementable requirements. (7, 8, and 23)

RESPONSE: Department acknowledges the commenters’ support of the rules.

135. COMMENT: With the addition of the green infrastructure BMPs, the non-structural strategies should be removed from the adopted rules. If they remain in the rules, the Department should detail how they will be enforced and what will be required to demonstrate proper implementation. (24 and 27)

RESPONSE: Adopted N.J.A.C. 7:8-2.4(a) requires that a stormwater management plan include stormwater management measures, including green infrastructure, and nonstructural stormwater management strategies necessary to meet the stormwater management goals of N.J.A.C. 7:8. The design and performance standards under N.J.A.C. 7:8-5 do not include a requirement to evaluate the nonstructural strategies on individual development sites.

However, these strategies were required to be considered by municipalities when preparing their municipal stormwater management plans and must be considered when those plans are

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re-evaluated. A municipality may have previously relied on the incorporation of those requirements into the design and performance standards as their method of including those strategies in their municipal stormwater management plan. With those strategies removed from the design and performance standards, municipalities will need to reconsider how to incorporate those into their stormwater management plan when the plan is re-evaluated. A municipality may decide to incorporate some or all of those strategies into the design and performance standards of their municipal stormwater control ordinance, may choose to incorporate those strategies through one of the other municipal ordinances, such as changing their zoning in certain areas to minimize disturbance or provide additional protection for areas that provide water quality benefits, or may choose to do something else entirely. Ultimately, each municipality will have to determine how best to incorporate these strategies into its plan individually.

136. COMMENT: The strategies that are in existing N.J.A.C. 7:8-5.3 as a design requirement have been moved to planning under N.J.A.C. 7:8-2.4(g) and made optional. This is a significant change to the rule and will allow additional site disturbance leading to additional runoff. Green infrastructure techniques inherently require disturbance and are not a substitute for nonstructural strategies. The Department should reconsider the relegation of the nonstructural stormwater management strategies to planning. (25)

RESPONSE: The adopted amendments do not make the nonstructural strategies optional.

N.J.A.C. 7:8-2.4(a) requires that a stormwater management plan include stormwater

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management measures, including green infrastructure, and nonstructural stormwater management strategies necessary to meet the stormwater management goals of this chapter (N.J.A.C. 7:8). As stated in the notice of proposal Summary, 50 N.J.R. at 2376, developers of major developments sought to primarily rely on structural practices and few nonstructural strategies were actually incorporated into development designs. Since developers incorporated primarily structural practices, replacing the requirement to use nonstructural strategies “to the maximum extent practicable” with a requirement to use green infrastructure will not cause any additional disturbance. Therefore, the Department does not anticipate that the adopted amendments to replace the nonstructural strategies with a requirement to incorporate green infrastructure will result in additional disturbance. Additionally, the requirements to use green infrastructure BMPs will more effectively achieve the Department’s original goals in adopting the nonstructural strategies of reducing stormwater runoff volume, reducing erosion, encouraging infiltration and groundwater recharge, and of maintaining, or reproducing as closely as possible, the natural hydrologic cycle and minimizing the discharge of stormwater-related pollutants, such as TSS and nutrients. The use of green infrastructure BMPs will provide for more on-site retention of stormwater runoff than the use of conventional stormwater management techniques, which were often the structural practices that developers sought to incorporate instead of the nonstructural strategies. The Department expects the use of green infrastructure will result in lower runoff volumes leaving major development sites.

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**7:8-4.2 Municipal stormwater management plan and elements**

137. COMMENT: Proposed N.J.A.C. 7:8-4.2(c)11 should be amended to eliminate the opening language that states “In order to grant a variance (or exemption) from the design and performance standards in N.J.A.C. 7:8-5” and, thus, require that a mitigation plan be included in a municipal plan. Proposed N.J.A.C. 7:8-4.6(a) mandates that a municipal plan that includes a mitigation plan must exist for an applicant to receive a variance from the design and performance standards. The regulation, as proposed, creates a burden beyond the applicant’s control. (7 and 8)

RESPONSE: N.J.A.C. 7:8-4.2(c)11, both prior to, and after, this rulemaking becomes operative, specifies that, if a municipality wishes to have the ability to grant variances from the design and performance standards at N.J.A.C. 7:8-5, its municipal stormwater management plan must include a mitigation plan. This paragraph additionally specifies what this mitigation plan must include. This provision was proposed for amendment to add specificity to what must be included in the plan when a municipality chooses to create a mitigation plan in order to have the discretion to grant variances, and to remove the phrase “or exemption” to eliminate any potential misconception that a variance in the stormwater context could include total relief from the standards required by this chapter. The rulemaking did not change, in any manner, the voluntary nature of mitigation planning; a municipality that does not intend to grant variances is not required to prepare a mitigation plan. This rulemaking does not change the previous process or create any additional burden on an applicant.

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138. COMMENT: Will there be a way to determine which municipalities have approved mitigation plans in order to allow them to grant variances? (23, 24, and 27)

RESPONSE: In accordance with the existing Stormwater Management rules at N.J.A.C. 7:8-4.3, all municipalities were required to develop and adopt a municipal stormwater management plan as an integral part of their Municipal Master Plan. Furthermore, N.J.A.C. 7:8-4.4(e) and the Tier A MS4 permit require municipalities to post their adopted stormwater management plans and ordinances on their website within 30 days of receiving approval from the county review agency or to submit copies to the Department and provide written notice to the Soil Conservation District and State Soil Conservation Committee of their approved or conditionally approved municipal stormwater management plan and ordinance(s) within 30 days of receiving approval from the county review agency. To date, all municipalities have chosen to satisfy this notice requirement in part through posting the plan on the municipal website. If the municipality has an approved mitigation plan, it will be part of the approved municipal stormwater management plan and would be available for review either on the municipality's website, in person at the municipality, or through a public records request.

139. COMMENT: Proposed N.J.A.C. 7:8-4.2 should also allow for the use of a community basin to control flooding in areas that are not served by or hydraulically connected to combined sewers. (26)

RESPONSE: Municipalities with combined sewer systems are currently developing Long-Term Control Plans to reduce or eliminate combined sewer overflows. While the exact cost for

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implementing these plans is not yet known, the Department estimates that the Statewide cost will be in the billions of dollars. Due to the high cost and complexity of efforts to address CSOs, it is the Department's intent to give these communities additional options to address CSOs in a cost-effective manner. Additionally, some municipalities with CSSs experience localized street flooding or basement flooding caused by the backup of the CSS. In some cases, the floodwater is a mix of stormwater and untreated sewage. Direct contact with stormwater combined with sewage is a public health concern. Therefore, because of the environmental impact to the receiving waterbodies and the public health impact to the community, the Department intends to afford municipalities with CSSs the flexibility to establish community basins to reduce CSOs and flooding that major development sites can also use to meet their quantity control requirement. Multiple municipalities without a CSS can potentially utilize N.J.A.C. 7:8-3, which allows the creation of regional stormwater management plans. Through the regional stormwater management plan, a regional stormwater planning committee may establish a regional stormwater management basin to achieve water quantity control outside of a combined sewer area.

140. COMMENT: Will there be a way to determine which towns, cities, etc. have approved community basins in municipalities with CSS? (27)

RESPONSE: At the present time, the Department does not have a database to track community basins, since none exist. However, the Department may create such a tracking system as community basins are established. In the future, it will also be possible to determine which

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municipalities have community basins as they should be added to the municipality's Municipal Stormwater Management Plan pursuant to N.J.A.C. 7:8-4.2(c)14. Municipalities that establish community basins must also adopt ordinances to regulate the conditions and limitations of the inflow contributing to the community basin pursuant to N.J.A.C. 7:8-4.2(c)14vi. Therefore, a search of the municipality's ordinances would show whether or not they have a community basin.

141. COMMENT: Proposed N.J.A.C. 7:8-4.2(c)14v should be modified to include additional flexibility, such as allowing for a utility authority or other similar public entities to be the responsible party for the maintenance of a community basin. (7 and 8)

142. COMMENT: Even if the Department revises the proposed new N.J.A.C. 7:8-1.2 definition of "community basin" or proposed new N.J.A.C. 7:8-4.2(c)14 to make it clear that the term "community basin" does not include any basin, filter, wetland, or pond that receives any inflow from a combined sewer, the language at proposed new N.J.A.C. 7:8-4.2(c)14 that allows the municipality alone to "establish" and maintain the community basin may be too restrictive. In some instances, it may be appropriate, for reasons such as economy, efficiency, or ability to obtain resources, for the community basin to instead be established and/or maintained by a different entity (such as a sewerage authority or a municipal utilities authority) that operates the CSS. Therefore, the Department should consider revising the first sentence of proposed new N.J.A.C. 7:8-4.2(c)14 by changing "seeks to establish" to "seeks establishment of," and revising N.J.A.C. 7:8-4.2(c)14v by inserting "or the entity that operates the combined sewer

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system” immediately after “municipality.” Nothing in existing N.J.A.C. 7:8-5.8 prevents such an entity from having the responsibility for maintenance. (26)

RESPONSE TO COMMENTS 141 AND 142: N.J.A.C. 7:8-4.2(c)14v states that the municipality must be the party responsible for maintenance of the community basin. However, N.J.A.C. 7:8-5.8(b) allows the maintenance plan to identify a different entity other than the municipality to conduct all the maintenance activities of the community basin, as long as the municipality remains the responsible entity. If the maintenance activities are transferred to another entity, all of the requirements of N.J.A.C. 7:8-5.8 must be met and the maintenance guidelines for stormwater management measures in Chapter 8 of the New Jersey Stormwater BMP Manual should be followed. Since N.J.A.C. 7:8-4.2(c)14 requires that the community basin be incorporated into the Municipal Stormwater Management Plan, it would be inappropriate for an agency other than the municipality to be the responsible entity for the maintenance. However, as noted above, the municipality could have an agreement with another entity, such as a sewerage authority, to perform the maintenance, while the municipality retains the ultimate responsibility for ensuring the maintenance occurs.

143. COMMENT: The Department’s explanation of the “community basin” provision at proposed new N.J.A.C. 7:8-4.2(c)14 is misleading. See 50 N.J.R. at 2385-2386, “Expansion of municipality’s planning flexibility for CSOs and flood control (N.J.A.C. 7:8-4.2(c)14 and related definitions at N.J.A.C. 7:8-1.2).” First, the paragraph does not mention that, like the rest of a regional stormwater management plan, any alternative design and performance standards and

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selected stormwater management measures in this plan have no force under N.J.A.C. 7:8 unless this plan is adopted as an amendment to the areawide water quality management (WQM) plan(s) in accordance with N.J.A.C. 7:8-3.9 and the WQM planning rules at N.J.A.C. 7:15.

Areawide WQM plan amendments are valid only upon adoption by the Department and, in some areas of New Jersey, the WQM designated planning agency (see N.J.A.C. 7:15-3.5(c) and (g)10). In other words, the flexibility provided to regional planning committees under N.J.A.C. 7:8-3 cannot be put to use unless the Department (and, in some areas, the WQM designated planning agency) expressly and formally approves the specific use of this flexibility after satisfaction of the public participation process established under N.J.A.C. 7:15-3.5. Second, an existing N.J.A.C. 7:8 provision outside of N.J.A.C. 7:8-3 does “provide an individual municipality the same flexibility as provided to regional planning committees to establish such alternative standards and regional stormwater basins.” (26)

144. COMMENT: The flexibility provided under proposed new N.J.A.C. 7:8-4.2(c)14 differs greatly from the flexibility provided to regional planning committees under existing N.J.A.C. 7:8-3 because, unlike N.J.A.C. 7:8-3, proposed new N.J.A.C. 7:8-4.2(c)14 provides flexibility that can be put to use without the Department expressly and formally approving the specific use of this flexibility after satisfaction of a Department-regulated public participation process. Please explain why existing N.J.A.C. 7:8-5.1(b) is inadequate for this purpose, and why flexibility should be provided to an individual municipality without such express and formal Department approval. (26)

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145. COMMENT: If the Department persists in trying to use N.J.A.C. 7:8-3 to justify proposed new N.J.A.C. 7:8-4.2(c)14, this justification is also weakened if no regional stormwater management plans have been adopted under N.J.A.C. 7:8-3. Please state whether the Department has adopted, or formally proposed to adopt, any such plans under N.J.A.C. 7:8-3, and identify any such plans. (26)

RESPONSE TO COMMENTS 143, 144, AND 145: Whether or not any regional stormwater management plans have been adopted is irrelevant with regard to the revised language changes to the municipal stormwater management section of the rules at N.J.A.C. 7:8-4.2(c)14. N.J.A.C. 7:8-4.2(c)14 refers to establishing community stormwater basins within municipal stormwater management plans, whereas N.J.A.C. 7:8-5.1(b) refers to regional stormwater management plans, in which multiple municipalities work together to develop a more comprehensive regional stormwater management plan. The notice of proposal Summary, 50 N.J.R. at 2386, briefly outlined the provisions of N.J.A.C. 7:8-3 to provide context and to outline the limitations imposed on municipalities. Specifically, municipalities are required to ensure major development projects meet the stormwater management requirements on-site. Prior to this rulemaking, municipalities would have been unable to allow for the use of a community basin, even though the use of a similar concept, a regional stormwater management basin, could be authorized through N.J.A.C. 7:8-5.3. The process for regional stormwater management planning at N.J.A.C. 7:8-3 is intended to allow multiple municipalities to coordinate on a regional scale. The Department's intent in adopting N.J.A.C. 7:8-4.2(c) is to grant similar

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authority to allow for a basin to be utilized by multiple developments in certain individual municipalities under particular conditions, as outlined at N.J.A.C. 7:8-4.2(c)14.

The notice of proposal Summary, 50 N.J.R. at 2386, further explains that, due to the high cost and complexity of efforts to address CSOs, N.J.A.C. 7:8-4.2(c)14 was incorporated to provide flexibility to municipalities to address CSOs in a cost-effective manner. While the Department does not directly review and approve municipal stormwater management plans, as they are reviewed by the county, they must be submitted to the Department. The Department will require any plans that are approved by the county, but ultimately not in compliance with the applicable requirements to be revised. Furthermore, the Long-Term Control Plans for addressing CSOs will be submitted to the Department for review and approval. Since community basins are intended to be used to help address CSO, the Department will be aware of the use of a community basin both in the municipal stormwater management plan and the CSO Long-Term Control Plan, which the Department will review and approve before implementation.

146. COMMENT: At the end of existing N.J.A.C. 7:8-4.2(c)1, change N.J.A.C. 7:8-2.3 to 2.2 (Goals of stormwater management planning) to correct an erroneous cross-reference. N.J.A.C. 7:8-2.3 identifies potential stormwater management planning agencies and does not set forth goals.

(26)

RESPONSE: The Department is modifying N.J.A.C. 7:8-4.2(c)1 on adoption to correct the cross-reference.

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#### **7:8-4.6 Variance from the Design and Performance Standards for Stormwater Management**

##### **Measures**

147. COMMENT: Proposed N.J.A.C. 7:8-4.6(a) mandates that a municipal plan that includes a mitigation plan must exist for an applicant to receive a variance from the design and performance standards. This creates a burden beyond the applicant's control. As an alternative to a municipal plan, the applicant should have the ability to prepare an off-site mitigation plan otherwise meeting the regulatory requirements. This would make N.J.A.C. 7:8-4.6(a) consistent with N.J.A.C. 7:8-4.6(a)3i, which specifically allows for a mitigation project to be proposed by the applicant. Proposed N.J.A.C. 7:8-4.6(a)3i would also need to be expanded to add the language or the criteria at N.J.A.C. 7:8-2.4 if a municipal mitigation plan has not been adopted. (23 and 24)

RESPONSE: As indicated above in the Response to Comment 137, this rulemaking does not change the previous process or create an additional burden on an applicant. Municipalities do not have to grant variances, and they do not have to create a mitigation plan if they do not intend to grant variances. Where a municipality does intend to use the authority to grant variances, it can create a mitigation plan that allows evaluation of mitigation projects suggested by applicants, thus, allowing for the consideration of projects submitted by applicants as is permitted at N.J.A.C. 7:8-4.6(a)3i.

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148. COMMENT: At a minimum, the Department should revise the existing opening language at N.J.A.C. 7:8-4.6(a) to state, “A municipality may grant a variance from the design and performance standards in N.J.A.C. 7:8-5, provided ...” Substituting “the design and performance standards in N.J.A.C. 7:8-5” for “the design and performance standards for stormwater management measures set forth in its approved municipal stormwater management plan and stormwater control ordinance(s)” eliminates a conflict between existing N.J.A.C. 7:8-4.6(a) and 4.2(c)11, which N.J.A.C. 7:8-4.6(a) expressly cross-references, and which uses the language “the design and performance standards in N.J.A.C. 7:8-5.” The language “the design and performance standards in N.J.A.C. 7:8-5” is preferable because it can reasonably be interpreted to include not only the N.J.A.C. 7:8-5 design and performance standards set forth in the municipality’s approved municipal stormwater management plan and stormwater control ordinance(s), but also the N.J.A.C. 7:8-5 design and performance standards copied in the RSIS in various provisions of N.J.A.C. 5:21-7. For residential development outside the Pinelands Area, municipalities mainly apply the N.J.A.C. 7:8-5 design and performance standards not through the municipality’s “approved municipal stormwater management plan and stormwater control ordinance(s),” but through the RSIS. See, in regard to pre-emption of municipal ordinances by the RSIS, N.J.S.A. 40:55D-40.5, and the NJPDES Municipal Separate Storm Sewer System rules at N.J.A.C. 7:14A-25.6(b)3iv. In addition, the language “the design and performance standards in N.J.A.C. 7:8-5” appropriately limits the scope of N.J.A.C. 7:8-4.6 and 4.2(c)11 to those standards (as distinct from other standards that the municipality might add in a stormwater control ordinance). (26)

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149. COMMENT: The Department should revise N.J.A.C. 7:8-4.6(a) to state, “In connection with development for which permission from the municipality may be required under the Municipal Land Use Law at N.J.S.A. 40:55D-1 et seq., a municipality may grant a variance from the design and performance standards in N.J.A.C. 7:8-5, including the provisions of the RSIS for stormwater management (N.J.A.C. 5:21-7) copied from N.J.A.C. 7:8-5, provided ...” The “in connection with” clause appropriately limits municipal power to grant a variance to developments that may require municipal approval under the MLUL. The RSIS clause makes it clear that the “standards” of concern include RSIS provisions copied from N.J.A.C. 7:8-5. (26)

RESPONSE TO COMMENTS 148 AND 149: The Stormwater Management rules require municipalities to develop municipal stormwater management plans and ordinances, and also allow municipalities to grant variances from the requirements set forth in those plans and ordinances. The Department is modifying N.J.A.C. 7:8-4.2(c)11 on adoption to make it consistent with adopted N.J.A.C. 7:8-4.6(a) by stating that variances can be granted from the design and performance standards for stormwater management measures set forth in its approved municipal stormwater management plan and stormwater control ordinance(s). The additionally suggested language regarding the RSIS would need to be incorporated into the RSIS instead of the Stormwater Management rules, because the Stormwater Management rules cannot authorize variances from the RSIS.

150. COMMENT: The Department should provide greater clarity as to how cost will be factored into decision-making on granting variances. Cost plays a key role in the decisions of how and

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when a site is developed. Similarly, the exclusion of cost from consideration is a subjective matter and is not clearly defined. Surely there will be extenuating circumstances, and with a dispersed review system, how can the State ensure fair and equal interpretations? (28)

151. COMMENT: The Department states in the notice of proposal Summary, 50 N.J.R. at 2376, that the stakeholder group involved in drafting the proposed amendments felt that cost should not be a factor when deciding if a project should be granted a variance from the requirement to use green infrastructure. Cost is most definitely a factor in stormwater management. The regulated community cannot afford to maintain the BMPs that are already installed, so it is absurd to think that the situation can be improved by relying only on green infrastructure practices that on many sites cost more to install and maintain than other BMPs. Failing to account for costs will drive projects out of urban areas, increasing sprawl and leading property owners to neglect installed BMPs, which will just add to existing impairments. Cost must be considered in adopting sustainable stormwater management standards. (4)

RESPONSE TO COMMENTS 150 AND 151: As the Department explained in the notice of proposal Summary, 50 N.J.R. at 2381, cost is not included as a factor in determining if a project should be granted a waiver from the green infrastructure requirements. The Department did not state that costs could not be considered at all in determining the appropriate BMPs for a site or that costs were not considered in the development of the rules. The Department encourages developers to select the most cost-effective green infrastructure BMPs for their particular project sites. However, a developer's preference for a particular BMP need not be based on cost. To be acceptable under the rules, the chosen BMP must achieve the applicable standards,

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and either be designed in accordance with the New Jersey Stormwater BMP Manual or be approved as an alternative stormwater measure pursuant to N.J.A.C. 7:8-5.2(g).

The Department addressed the potential economic impact of the rules in the notice of proposal Economic Impact statement, 50 N.J.R. at 2393.

152. COMMENT: Proposed N.J.A.C. 7:8-4.6(a)1, provides that to obtain a variance, an applicant must demonstrate that it is technically impracticable to meet any one or more of the design and performance standards on-site. For the purposes of this analysis, technical impracticability exists only when the design and performance standard cannot be met for engineering, environmental, or safety reasons. The Department must also allow for a variance when an applicant demonstrates it is financially impracticable to meet any one or more of the design and performance standards on-site. In addition to this being necessary, it would also make the requirement consistent with the Department's Flood Hazard Area Control Act Regulations at N.J.A.C. 7:13-15.1, which consider unreasonable cost as a basis for hardships. (7, 8, 23, and 24)

153. COMMENT: For variances, the practicability of stormwater management measures does not consider financial practicability, only technical impracticability. Other Department programs do consider financial impact; for example, the flood hazard rules consider economics, that is, stream crossings versus culverts. While the Department clearly wants to promote green infrastructure and wants to set the bar high for variances, it cannot do so by ignoring cost and financial impacts. Costs that are exceedingly high, especially in relationship to the benefits gained, creates every bit as much infeasibility as is created by technical considerations. The

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Department cannot just ignore excessive cost in its analysis and rule requirements. Further, as noted above, the Department does appropriately consider cost in other rules. Even in this rulemaking, the Department specifically allows its own decision-making to take cost into account through the waiver rule (for example, undue burden) although it denies this authority to other entities making stormwater decisions. Refusing to consider the cost of a requirement can create a situation where the regulation becomes so burdensome as to be a constitutional taking. (3)

RESPONSE TO COMMENTS 152 AND 153: As explained in the notice of proposal Summary, 50 N.J.R. at 2376, the majority of stakeholders felt that cost should not be a factor in determining if a project should be granted a variance at the municipal level from the green infrastructure requirements. The Department agrees. This intent was made clear in the notice of proposal Summary, 50 N.J.R. at 2381, by stating that to “ensure that variances are not given in inappropriate circumstances, for example, based solely upon cost or convenience considerations, technical impracticability is defined to exist only if the design and performance standards cannot be met for engineering, environmental, or safety reasons.” Applicants seeking relief from the proposed green infrastructure standards that do not propose a project eligible for consideration for a waiver from strict compliance in accordance with N.J.A.C. 7:8-5.2(e) (enlargement of an existing public roadway or railroad, or the construction or enlargement of a public pedestrian access) may seek a waiver/exception under the Department’s Waiver Rule, N.J.A.C. 7:1B, and within the hardship provision in the Flood Hazard Area Control Act Rules, N.J.A.C. 7:13-15.1. While the Waiver Rule and the hazard provision in

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the Flood Hazard Area Control Act Rules allow for cost to be a consideration, the Department has not reviewed applications that have made a compelling case for a waiver or hardship exception from the provisions of the Stormwater Management rules based solely upon cost. The Stormwater Management rules are, in part, intended to prevent flooding and adverse impacts to water quality. Granting a waiver from the Stormwater Management rules would allow developments to be constructed without full compliance with the Stormwater Management rules, which would result in adverse impacts to surrounding or downstream properties in the form of degraded water quality, increased flooding, reduced groundwater availability, or otherwise altered hydrology, and as such, would not be appropriate. Allowing such impacts to occur to surrounding properties and the community on the basis of the cost to the developer of the major development would be inappropriate.

Further, it should be noted that, pursuant to N.J.A.C. 7:13-12.7, cost is not a factor in determining if the use of a circular, elliptical, or box culvert can be utilized instead of the preferred bridge, arch culvert, or three-sided culvert. Cost can only be considered in this determination through a hardship exception.

154. COMMENT: The term “technical infeasibility” is vague and leaves interpretation up to the individual reviewers. The Department needs to provide greater clarity. What exactly is considered infeasible? (28)

RESPONSE: While the term “technical infeasibility” was used in the notice of proposal Summary, 50 N.J.R. at 2376, to describe the opinions of stakeholders on allowing the utilization

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of non-green infrastructure BMPs, the term is not used in the rule text. Instead, the adopted rule at N.J.A.C. 7:8-4.6(a)1 bases qualification for a variance upon whether the applicant requesting the variance is able to demonstrate that it is technically impracticable to meet any one or more of the applicable standards on the major development site. As specified in the rule, “technical impracticability” exists only when the design and performance standard cannot be met for engineering, environmental, or safety reasons. N.J.A.C. 7:8-4.6(a)1 requires this demonstration of technical impracticability to be performed for each combination of the drainage area and stormwater management standard for which a variance is sought. Major development projects may encompass several drainage areas, each requiring their own analysis to demonstrate technical impracticability.

155. COMMENT: At proposed N.J.A.C. 7:8-4.6(a)1, the phrase “technically impracticable” needs significantly more definition/clarity/criteria attached to it. As currently proposed, it seems each municipality is burdened with making its own interpretation, which will surely introduce subjectivity. Moreover, economic/financial impracticality must be considered worthy of a variance and criteria established for same. Engineering impracticability rarely exists, as a solution can almost always be designed if there is an unlimited budget. However, an unlimited budget is, itself, impractical. Perhaps an approach similar to the hardship exception set forth in the Flood Hazard Area Control Act Rules (N.J.A.C. 7:13) would be appropriate. (44)

156. COMMENT: Proposed N.J.A.C. 7:8-4.6(a)1 requires that an applicant demonstrate that it is technically impracticable to meet any one or more of the design or performance standards on

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the major development site in order to be eligible for consideration for approval of a requested variance. This proposed change is generally supported, but is technically impracticable and should be more clearly defined. For example, is it technically impracticable to recharge stormwater in an area underlain by carbonate rock? (32)

RESPONSE TO COMMENTS 155 AND 156: N.J.A.C. 7:8-4.6(a) states that, “A municipality may grant a variance ...” The use of the word “may” indicates that the Stormwater Management rules do not compel a municipality to grant a variance. The granting of a variance is based upon the individual municipality’s stormwater management plan and ordinance(s), and as such, variability in the process of granting of variances between municipalities is inherent. If a variance is desired, it is the applicant’s responsibility to discuss the situation with the municipality and provide a demonstration, to the satisfaction of the municipality, that it is technically impracticable (meaning engineering, environmental, or safety reasons) to meet any one or more of the design and performance standards on-site and to comply with the process the municipality has set forth for granting variances.

As to the specific example regarding carbonate rock, it is potentially possible that compliance with the groundwater recharge standard may be technically impracticable in some situations due to carbonate rock. However, it would be the applicant’s responsibility to demonstrate technical infeasibility across the entire site to the satisfaction of the municipality to be potentially granted the variance. Furthermore, even though it is possible that the presence of carbonate rock could result in technical implacability for a site, this should not be construed to mean that in all cases the presence of carbonate rock should immediately be

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judged to preclude groundwater recharge on-site. It may preclude groundwater recharge in certain areas of the site or may require numerous distributed BMPs, rather than a smaller number of larger BMPs, and such specifics would need to be addressed in the demonstration of technical infeasibility provided by the applicant to the municipality.

As indicated in the notice of proposal Summary, 50 N.J.R. at 2381, “while the rules acknowledge, by providing the variance option at the municipal level, that there may be cases where site constraints are present that cannot be overcome, consistent with the intent to achieve the benefits attributable to utilization of green infrastructure, allowance of a variance from the design and performance standards and the utilization of non-green infrastructure BMPs is intended to be limited to instances in which strict compliance with the requirements of the rules is technically impracticable.” For more information regarding cost as a factor in granting a variance or waiver from the Stormwater Management rules, please see the Response to Comments 150 and 151 and the Response to Comments 152 and 153.

157. COMMENT: More detail is needed on how technically infeasible will be determined.

Additionally, how can cost not be included in this analysis? If high costs force projects out of urban areas and into previously undeveloped areas with less site constraints, water quality will ultimately suffer. Ideally this guidance should provide a clear explanation on how other types of high performing BMPs may be used to manage and treat runoff onsite when constraints make green infrastructure alone impractical or excessively costly. Technically infeasible should clearly address common issues, such as limited infiltration capacity, lack of space for surface

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BMPs, contaminated soils, high groundwater etc., and establish a list of other BMPs suitable for consideration when these issues arise. (4)

158. COMMENT: The Department should clarify how a reviewer will evaluate if the design and performance standard cannot be met for engineering, environmental, or safety reasons when an application includes a request for a variance. (28)

RESPONSE TO COMMENTS 157 AND 158: N.J.A.C. 7:8-4.6(a)1 requires that an applicant demonstrate that it is technically impracticable to meet any one or more of the design or performance standards on the major development site in order to be eligible for consideration for approval of the requested variance. Technical impracticability is defined to exist only if the design and performance standard cannot be met for engineering, environmental, or safety reasons. Several of the potential issues noted by the commenter may fall into one of these categories. However, this determination must be made on a case-by-case basis.

Applicants must perform an alternatives analysis demonstrating that each green infrastructure BMP is technically impracticable for each drainage area, if the applicant seeks to use non-green infrastructure BMPs on the entire site. In addition, the Department does not anticipate that there are many cases in which it will be technically impracticable to meet the stormwater management standards using green infrastructure. For a list of suitable BMPs, please reference the New Jersey Stormwater BMP Manual found at [https://www.njstormwater.org/bmp\\_manual2.htm](https://www.njstormwater.org/bmp_manual2.htm).

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For more information regarding cost as a factor in granting a variance or waiver from the Stormwater Management rules, please see the Response to Comments 150 and 151 and the Response to Comments 152 and 153.

159. COMMENT: In order to protect communities from pollution and flooding, variances must be granted as seldom as possible. To meet this goal, the Department proposes to require that applicants demonstrate that full compliance with the rules is technically impracticable, and the notice of proposal states that “technical impracticability exists only when the design and performance standard cannot be met for engineering, environmental, or safety reasons.” The rulemaking is not strong enough to ensure that variances are granted only when truly necessary. Under this standard of impracticability, a project applicant could design a site with a large amount of runoff-generating impervious cover and then argue that it is infeasible to meet the performance standards for “engineering reasons.” The Department should revise the proposed standard to avoid creating this loophole. Adopt the approach taken by the District of Columbia, which requires certain projects eligible for variances to demonstrate technical infeasibility by describing each opportunity that could be created by amending the project’s site design in order to create an expanded area for stormwater BMPs. (16)

160. COMMENT: The technically impracticable clause that allows a property owner to request a variance when the rule’s standards cannot be met is not specific enough and, therefore, could serve as a loophole for property owners to bypass the use of green infrastructure. To mitigate this potential loophole, a substantial analysis, including narrative, calculations and supporting

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documentation to support the finding of technical impracticability, should be required. A prescribed hierarchy of desired approaches may be useful to guide this process. This is an approach used successfully in Philadelphia. (43)

RESPONSE TO COMMENTS 159 AND 160: N.J.A.C. 7:8-4.6(a)1, 2, and 3 require various demonstrations to be submitted to the municipality in order to be granted a variance. These include a demonstration of technical impracticability in each drainage area, a demonstration that the maximum possible compliance is achieved on-site, and a demonstration that the mitigation will appropriately prevent adverse impacts to the surrounding properties and the environment. While not specifically required, in order to demonstrate compliance with these requirements, it will be necessary for the applicant to submit narratives, calculations, and supporting documentation. In order to demonstrate technical impracticability, these submittals would need to include an explanation of how each available BMP could not be incorporated into the site based on engineering, environmental, or safety reasons.

Further, N.J.A.C. 7:8-4.6(a)1, as amended, makes clear that demonstrating that compliance is technically impracticable for one drainage area on a site does not result in the approved variance being applicable to the entire site. Instead, applicants must perform an alternatives analysis demonstrating that each green infrastructure BMP is technically impracticable for each drainage area, if the applicant seeks to use non-green infrastructure BMPs on the entire site.

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The Department does not have preferences for one BMP that satisfies the requirements of the rules over another. Accordingly, the Department does not believe the creation of a hierarchy is appropriate.

161. COMMENT: Proposed N.J.A.C. 7:8-4.6(a)2 states, “the applicant demonstrates that the proposed design achieves the maximum possible compliance with the design and performance standards on-site.” The use of the word “possible” is problematic as it creates uncertainty since theoretically anything is “possible.” Substitute the word “practicable” for the word “possible.” (7, 8, 23, 24, and 44)

RESPONSE: A continuing goal of the Stormwater Management rules is for post-development hydrology to maintain or reproduce the natural hydrologic cycle for the area of development. The design and performance standards set forth by the rule help to achieve this goal by maintaining groundwater recharge volumes, controlling water quality runoff from small storm events, and controlling the rate and volume of runoff associated with these developments. However, the Department recognizes that there may be limited instances where it is technically impracticable to achieve full compliance with the standards contained in this rule for major development sites. For that reason, the Department is continuing to allow variances to be granted at the local level pursuant to N.J.A.C. 7:8-4.6.

This rulemaking amended N.J.A.C. 7:8-4.6 to clarify the conditions that would warrant the granting of a variance by a municipality for a major development project. The amendments are intended to ensure that municipalities are not granting variances under inappropriate

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circumstances. N.J.A.C. 7:8-4.6(a)1 requires the applicant requesting a variance from any one of the stormwater management standards to demonstrate that it is technically impracticable to fully attain those standards onsite due to engineering, environmental, or safety reasons. Once it has been demonstrated that it is technically impracticable to fully comply with the requirements on-site, N.J.A.C. 7:8-4.6(a)2 requires the applicant seeking the variance to demonstrate that the project design will result in the greatest possible compliance on-site with the stormwater management standards for which the variance is sought. This prevents an applicant from demonstrating that a small portion of compliance is technically impracticable on-site and providing all compliance as off-site mitigation rather than providing compliance on-site for the portion that was not demonstrated to be technically impracticable.

162. COMMENT: With respect to the mitigation requirements at proposed N.J.A.C. 7:8-4.6(a)3, please consider that municipal boundaries do not coincide with topographic divides or watershed areas. Therefore, an applicant may need to seek a variance for a project on a property remotely situated from the remainder of the municipality with respect to watershed designations and downstream watercourses. In such case(s), the requirements at N.J.A.C. 7:8-4.6(a)3iii, pertaining to HUC 14 and N.J.A.C. 7:8-4.6(a)3ix(2), pertaining to downstream watercourse and relative position in the watershed will serve to preclude the applicant from qualifying for a variance, simply due to the project's location with respect to established municipal boundaries. Either these requirements should be omitted or language added to

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provide the municipality the right and obligation to entertain variance(s) for such (and similar) situations. (44)

RESPONSE: The municipality is under no obligation through the Stormwater Management rules to grant any requests for variances under N.J.A.C. 7:8-4.6, regardless of the situation. The purpose behind the ability to grant a variance is for a municipality to allow a development that the municipality has deemed appropriate to occur even if a unique situation exists on-site that makes it technically impracticable to provide compliance with the applicable stormwater requirements for the development, as long as a mitigation project is constructed in such a way as to offset any adverse effects of granting the variance. Providing mitigation outside the bounds of the criteria established at N.J.A.C. 7:8-4.6(a)3 will not be sufficient to offset the adverse effects of granting the variance and therefore, cannot be approved. Please also see the Response to Comment 163.

163. COMMENT: Proposed N.J.A.C. 7:8-4.6(a)3iii should be amended to state that mitigation projects shall be located in the same HUC 11 as the area of the major development subject to the variance. The U.S. Geological Survey basically developed the various HUC watershed delineations for modelling purposes and not as regulatory boundary requirements. Land may not be available at a reasonable cost or time in the same HUC 14 and all HUC 14 areas are a subset of a HUC 11 area. Additionally, the Department needs to incorporate a financial hardship consideration should an applicant be required to acquire land for a mitigation project. (3, 7, 8, 23, and 24)

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RESPONSE: It is the Department's intention that the amendments to the Stormwater Management rules remain consistent with its longstanding goal for post-development hydrology to maintain or reproduce the natural hydrologic cycle in the development area. Under the existing Stormwater Management rules, prior to the operative date of this rulemaking, mitigation projects allowed by a municipality's approved mitigation plan are required to be implemented within the same drainage area where the variance was granted. This requirement ensures that stormwater is being managed as close as possible to the location where the variance is granted and furthers the goal of the rules to maintain the natural hydrology as closely as possible in the post construction development area. Adopted N.J.A.C. 7:8-4.6(a)3iii requires that mitigation occur in the same 14-digit hydrologic unit code as the area of the major development subject to the variance. This revision provides greater clarity to review agencies and applicants as to the extent of the drainage area within which the mitigation project must occur. While all HUC 14 areas are a subset of a HUC 11 area, the HUC 11 area is much larger than an HUC 14. Utilizing such a large area as the spatial extent for which a mitigation project could be implemented would be inconsistent with the goal to maintain or reproduce the natural hydrologic cycle as closely as possible to the post construction development area.

As stated at N.J.A.C. 7:8-5.1, the intent of the design and performance standards contained within N.J.A.C. 7:8-5 is "to minimize the adverse impact of stormwater runoff on water quality and water quantity and loss of groundwater recharge in receiving water bodies." The Department is allowing flexibility in implementing these standards by allowing a variance to

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be granted in limited circumstances if appropriate mitigation is performed. Creating a financial hardship provision that would allow for a variance to be granted without sufficient mitigation due to the cost associated would not meet the stated intent of those design and performance standards.

164. COMMENT: Depending upon the character of the municipality (such as where large quantities of impervious surfaces may exist with respect to municipal boundaries and/or existing watercourses), the requirement at N.J.A.C. 7:8-4.6(a)3ix(2) may not be in the overall best interest of the municipality with respect to reducing flooding and/or improving water quality. (44)

RESPONSE: It is unclear to the Department what situation would occur where meeting the requirements at N.J.A.C. 7:8-4.6(a)3ix(2) would not be in the interest of preventing flooding. Since the topic of this subparagraph is variances from the stormwater runoff quantity standard only, it is not intended to relate to water quality improvements as the stormwater runoff quality requirements would be met on-site (or subject to N.J.A.C. 7:8-4.6(a)3viii if a variance was also requested from the stormwater runoff quality standard). This provision requires the mitigation project to provide that mitigation along the same watercourse and upstream of the proposed major development where the variance is sought. Allowing the mitigation for the stormwater runoff quantity standard to be located along a separate watercourse or downstream of the major development where the variance is sought could result in adverse

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impacts to properties downstream of the major development and, therefore, would not meet the intent of offsetting the effect of granting the variance.

165. COMMENT: Proposed N.J.A.C. 7:8-4.6(a)3ix(2) should be amended to also allow for the mitigation to be located downstream of the major development for projects located within the upper reaches of a watershed and also where the specific item being mitigated is for quantity reasons and reducing flows upstream may actually have no effect on the downstream area. (7 and 8)

166. COMMENT: Regarding proposed N.J.A.C. 7:8-4.6(a)3ix(2), the requirement for the mitigation to be located upstream of the major development subject to the variance could be onerous for projects located within the upper reaches of a watershed and inadvertently preclude meaningful mitigation opportunities in historically developed areas that are typically in the lower reaches of a watershed. (23)

RESPONSE TO COMMENTS 165 AND 166: Adopted N.J.A.C. 7:8-4.6 addresses the requirements for a variance from the design and performance standards set forth in a municipality's stormwater management plan. While a variance is intended to provide relief to the limited situations where strict compliance with the stormwater management standards are not achievable on a major development site, it is not an exemption from attaining those standards. Instead, a variance allows for the applicant of a major development project to meet those standards through offsite mitigation projects. Accordingly, municipalities are only allowed to

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grant variances when their municipal stormwater management plan provides a mitigation plan that applicants can use to offset the standards not being attained at the major development.

The amendments are intended to provide greater clarity on the circumstances that warranted a municipality to grant a variance from any one or more of the stormwater management standards and to ensure that the granting of the variance will not result in adverse impacts as a result of not meeting the rule requirements on-site. This includes N.J.A.C. 7:8-4.6(a)3ix, which establishes three new conditions that must be met before a municipality can grant a variance from the stormwater quantity standards at N.J.A.C. 7:8-5.6. These conditions ensure that the mitigation project(s) will provide peak flow rate attenuation for an equivalent area upstream on the same watercourse as the major development for which the variance is sought and will not result in increased flood damages downstream of the development. One condition requires the mitigation project(s) to be upstream along the same watercourse that receives stormwater runoff from the major development. This requirement ensures that additional flood damages cannot occur between the location of the major development where the variance is granted and the location of the mitigation project, since the mitigation project cannot be located downstream. Allowing the mitigation project to be located downstream would allow for the possibility of additional flood damages in the area between the major development and the mitigation project, which is contrary to the goals of the Stormwater Management rules.

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167. COMMENT: Regarding proposed N.J.A.C. 7:8-4.6(a)3x, it is unclear why an applicant would not be permitted to transfer the responsibility for preventative and corrective maintenance of mitigation projects to a non-public entity. A developer may seek to transfer responsibility for maintenance of the mitigation project to a community association that specifically budgets for the maintenance obligation, which is a preferable scenario for ensuring long-term maintenance. The Department should amend the rule to allow an applicant to transfer responsibility for preventative and corrective maintenance of mitigation projects to any entity, provided the receiving entity accepts responsibility, and a notice submission is issued to the review agency to identify the responsible party, similar to permit transfer notices applicable in the Department's Land Use regulatory programs. (23)

RESPONSE: Pursuant to N.J.A.C. 7:8-4.6, an applicant seeking a variance from the design and performance standards for stormwater management measures may be granted the variance if the municipality includes a mitigation plan in its municipal stormwater management plan and all of the other conditions stated at N.J.A.C. 7:8-4.6(a) are met. The prohibition against the transfer of responsibility for preventive and corrective maintenance to a non-public entity at adopted N.J.A.C. 7:8-4.6(a)3x is intended to ensure maintenance is performed, as approved and required, for the life cycle of the mitigation project in order to guarantee the pollutant removing capabilities of the mitigation project. An applicant can sub-contract various tasks; however, the applicant remains legally responsible for maintenance unless a written agreement with a public agency is obtained and submitted to the reviewing authority. Since the Department understands that the developer of many residential projects does not retain the

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long-term maintenance responsibilities for the development, the Department does agree that the maintenance responsibility of the mitigation project should be able to be transferred from the developer to the homeowner's association (or similar entity) that is taking responsibility for the maintenance of the stormwater management measures at the major development site. The Department is modifying the rule on adoption for clarification.

168. COMMENT: Proposed N.J.A.C. 7:8-4.6 allows a municipality to grant a variance from the design and performance standards for stormwater management measures, provided that the applicant implements a mitigation project in the same HUC 14. N.J.A.C. 7:8-4.6(a)3x states that the applicant shall be responsible for preventative and corrective maintenance of the mitigation project. However, the proposed rule fails to provide for any sort of monitoring or oversight to ensure that the applicant fulfills said obligation. There is no system to make sure the mitigation project is properly functioning or being maintained, and in the situation where an applicant fails to do so, there is no enforcement or penalties enumerated. (12)

RESPONSE: Mitigation projects will include stormwater management measures, which would be subject to requirements in this rulemaking, the municipality's Municipal Separate Storm Sewer System (MS4) permit, and the approved Municipal Stormwater Management Plan and Stormwater Control Ordinance(s). Minimum standards for post-construction stormwater management in new development and redevelopment are specified in the MS4 general permits for Tier A municipalities, Tier B municipalities, public complexes, and highway agencies. Permittees authorized under these permits are required to ensure adequate long-term

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cleaning, operation, and maintenance of all permittee-owned or operated stormwater facilities.

In addition, municipalities are also required to develop, update, implement, and enforce a program to ensure adequate long-term cleaning, operation, and maintenance of stormwater facilities not owned or operated by the municipality. The Stormwater Control Ordinance(s) outlines the required maintenance and repair of stormwater management measures. It also contains the penalties for violating the ordinance. Therefore, methods for oversight of mitigation projects to ensure that they are maintained and functioning already exist.

169. COMMENT: The purpose of N.J.A.C. 7:8-4.6(b) should be explained. Is it the Department's intent to revisit/scrutinize the municipal decision(s) and, if so, what is the consequence to the applicant? The rules need to be clear as to what point in time an applicant may fully rely upon the municipal decision. If the intent is to revisit the decisions, the Department should be the sole approving authority. (44)

170. COMMENT: If a town gives a variance, it will be sent to the county and the Department for review, yet the rules say nothing about the ability of these authorities to reject the variance. (34)

171. COMMENT: The Department rules should govern any variances requested by a developer, and it should be able to reject the variance. (33)

172. COMMENT: Proposed N.J.A.C. 7:8-4.6, regarding variances from the design and performance standards, is well written; moreover, the section provides clear guidance regarding: (1) when a variance may be approved; (2) the documentation required to show that

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strict compliance with the rules is technically impractical; and (3) the mitigation that will be required. What happens if the municipality agrees to approve a variance, but the county review agency or the Department disagrees? (15)

RESPONSE TO COMMENTS 169, 170, 171, and 172: The requirement at N.J.A.C. 7:8-4.6(b) to submit a copy of the variance to the Department already existed prior to this rulemaking. The Department only added a timeframe of 30 days for this submittal as no timeframe previously existed. Similar to the review of any project for compliance with the Stormwater Management rules at the municipal level, whether that occurs through the RSIS or the municipal stormwater control ordinance, the Department does not have direct oversight of the development. Rather, the Department has oversight through the MS4 permit issued to the municipality that requires the review of major development projects for compliance with the stormwater requirements in the RSIS and the local stormwater control ordinance. The result of the municipality improperly approving a variance would be similar to the result of the municipality improperly approving a major development project without a variance, which would be non-compliance with the MS4 permit. So, while the Department would not directly reject a variance that the Department did not agree meets the requirements in the rules for granting a variance, a municipality that improperly grants a variance would be potentially subject to a violation and subsequent enforcement action by the Department.

173. COMMENT: Proposed N.J.A.C. 7:8-4.6(b) requires that any approved variance be submitted by the municipal review agency to the county review agency and the Department. It is unclear

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whether this requirement is necessary for Pinelands municipalities given that the Pinelands Comprehensive Management Plan (CMP) expressly provides that the exemptions, exceptions, applicability standards, and waivers of strict compliance for stormwater management described at N.J.A.C. 7:8 shall not apply. Please clarify that this provision does not apply in the Pinelands Area. (37)

RESPONSE: The commenter appears to be referencing N.J.A.C. 7:50-6.84(a)6vi(5), which states in full that “unless specifically included within (a)6vi(1) through (3) above, the exemptions, exceptions, applicability standards and waivers of strict compliance for stormwater management described in N.J.A.C. 7:8 shall not apply.” However, in accordance with N.J.A.C. 7:50-6.84(a)6vi(1), (2), (3), and (4), a municipality is allowed to provide an exception that waives strict compliance from the stormwater management standards established in the Pinelands CMP for a major development project. N.J.A.C. 7:50-6.84(a)6vi(3) specifically states “provided an applicant for major development pursuant to N.J.A.C. 7:50-4.31 through 4.50 is able to demonstrate that the standards set forth in (a)6i through v above cannot be met on the parcel proposed for development or that stormwater management would more effectively be achieved through alternative measures, strict compliance with said standards may be waived at the discretion of the municipality in which the proposed development is located, provided the municipal stormwater management plan certified by the Commission pursuant to N.J.A.C. 7:50-3 specifies the circumstances under which such alternative measures would be appropriate and identifies those parcels or projects elsewhere in the Pinelands Area where any off-site mitigation would be permitted to occur[.]” Thus, if a variance is granted under the CMP, the

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Department should be notified pursuant to N.J.A.C. 7:8-4.6. There is no inconsistency in this requirement.

174. COMMENT: It is unclear whether the Department has considered that the proposed rule will likely result in notification to the county and Department for all variances granted, including variances granted for minor changes to trash rack design, and outlet structure size. Although notification may be warranted in the case where variances from certain regulatory standards are granted (for example, N.J.A.C. 7:8-5.3, 5.4, and 5.5), reporting of all variances may put undue burden on the municipal review agencies. The Department should consider which specific variances require notification and revise the rule accordingly. (37)

RESPONSE: As stated in the notice of proposal Summary, 50 N.J.R. at 2382, it is not the Department's intent to create a new process or program for the submission, evaluation, and granting of variances from the existing permitting process with the proposed amendments. The existing Stormwater Management rules at N.J.A.C. 7:8-4.6, which have been in effect since 2004, require municipalities granting a variance or exemption to submit a written report to the county review agency and the Department describing the variance or exemption, as well as the required mitigation. This requirement is being relocated to N.J.A.C. 7:8-4.6(b) with an amendment to require that the report be submitted within 30 days of the approval of the variance. Adding this timeframe will ensure that both the Department and the county review agency are aware of approvals and will allow timely monitoring to ensure that mitigation required as a condition of granting of the variance is achieving the offsetting benefits it was

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designed to provide. Furthermore, while the rules acknowledge, by providing the variance option at the municipal level, that there may be cases where site constraints are present that cannot be overcome, consistent with the intent to achieve the benefits attributable to utilization of green infrastructure, allowance of a variance from the design and performance standards, and the utilization of non-green infrastructure BMPs is intended to be limited to instances in which strict compliance with the requirements of the rules is technically impracticable. To ensure that variances are not given in inappropriate circumstances, technical impracticability is defined to exist only if the design and performance standard cannot be met for engineering, environmental, or safety reasons. Accordingly, the Department does not anticipate receiving notice for a large number of variances, particularly for the small changes noted by the commenter, as the Department does not see how an applicant could demonstrate that the trash rack spacing requirements cannot be met for engineering, environmental, or safety reasons. Additionally, if a significant number of variances are being granted for particular provisions, such as the minor changes noted by the commenter, the Department would like to be made aware of these variances, so it can re-evaluate those particular requirements. As indicated above, the requirement to submit a written report describing the variance to the county and the Department has been in effect since 2004. During this 15-year period, the Department has not seen a significant number of variances granted for minor changes. Accordingly, the Department does not anticipate the continued reporting requirement to become a burdensome responsibility for municipalities in the future.

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**7:8-5.2 Stormwater Management Measures for Major Development**

*N.J.A.C. 7:8-5.2(a)*

175. COMMENT: At the end of proposed N.J.A.C. 7:8-5.2(a)1, the Department should insert “and 16:25A” after “N.J.A.C. 2:90” to account for “projects” (as defined at N.J.S.A. 4:24-41.g) that the New Jersey Department of Transportation (NJDOT) proposes to construct. Pursuant to N.J.S.A. 4:24-43, NJDOT has promulgated its Soil Erosion and Sediment Control Standards at N.J.A.C. 16:25A. For “projects” that the NJDOT proposes to construct, the minimum design and performance standards for erosion control are those established under the Soil Erosion and Sediment Control Act and the implementing rules at N.J.A.C. 16:25A, not N.J.A.C. 2:90 (which is promulgated under N.J.S.A. 4:24-42 by the State Soil Conservation Committee). At the end of existing N.J.A.C. 7:8-5.4(a)1 and proposed N.J.A.C. 7:8-2.4(g)9iv, the phrase “and implementing rules” covers both N.J.A.C. 2:90 and 16:25A without expressly listing either of them. (26)

RESPONSE: As the intent of this provision has always been to make clear that the erosion control is to be measured against the Soil Erosion and Sediment Control Act, and the rules implementing that Act, the Department agrees that reference to these rules implementing a portion of the Soil Erosion and Sediment Control Act is appropriate. Accordingly, the Department has added a cross-reference to N.J.A.C. 16:25A following the reference to N.J.A.C. 2:90 at N.J.A.C. 7:8-5.2(a)1, as suggested.

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*N.J.A.C. 7:8-5.2(e)*

176. COMMENT: If a major development project proposed by a highway agency requires a waiver of strict compliance at N.J.A.C. 7:8-5.2(e), but the project does not require approval from the Department's Division of Land Use Regulation, what procedure would be followed to obtain the waiver? (10)

RESPONSE: A waiver from strict compliance with the Stormwater Management rules for the green infrastructure, groundwater recharge, stormwater runoff quantity, and stormwater runoff quality standards at N.J.A.C. 7:8-5.3, 5.4, 5.5, and 5.6, respectively, may be obtained for major development projects involving the enlargement of an existing public roadway or railroad, or the enlargement or construction of a new public pedestrian access pursuant to the requirements specified at N.J.A.C. 7:8-5.2(e). In the situation where a highway agency's project does not require any Department permits, the permittee identified under the MS4 Highway Agency permit is the entity responsible for ensuring that the proposed project meets the requirements set forth in the Stormwater Management rules (including any applicable waivers). Similarly, the permittee is responsible for ensuring this even when a permit from the Department is required.

177. COMMENT: Are requests for waivers of strict compliance at N.J.A.C. 7:8-5.2(e) intended to be performed on a sub-watershed (that is, HUC-14) level, project wide, or on some other basin extent? (10)

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RESPONSE: A waiver of strict compliance at N.J.A.C. 7:8-5.2(e) can only be sought for the specific drainage area of the project where compliance cannot be achieved. It should not be sought project wide or across the HUC-14, unless compliance cannot be achieved across the entire project or the entire length of the project within a certain HUC-14. However, be aware that compliance with the waiver requirements, specifically N.J.A.C. 7:8-5.2(e)3 and 4, may require the exploration of alternatives that extend beyond the limits of the specific drainage area where compliance cannot be achieved in order to determine if any mitigation can be performed in the upstream drainage area of the receiving stream.

178. COMMENT: N.J.A.C. 7:8-5.2(e) references the applicability for waivers for existing public roadways or railroads. The Department should clarify that the waiver is for both public and private railroads. (6)

RESPONSE: The Stormwater Management rules allow for a waiver from strict compliance from the stormwater management standards to be sought by applicants of major development projects involving the expansion of public roadways or railroads, provided that the conditions set forth at N.J.A.C. 7:8-5.2(e) are met. The Department only amended this section to include that waivers can be applied for from the green infrastructure standards. Since the applicability was not revised, it remains only applicable to public roadways and railroads. Therefore, the attainment of a waiver from strict compliance from the stormwater management standards would not be applicable to the expansion of private railroads.

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179. COMMENT: N.J.A.C. 7:8-5.2(e)2 states the applicant demonstrates, through an alternatives analysis, that through the use of stormwater management measures, the option selected complies with the requirements of N.J.A.C. 7:8-5.3, 5.4, 5.5, and 5.6 to the maximum extent practicable. Please explain and clarify what is meant by the “maximum extent practicable” and provide detailed examples and processes on what the Department would require. Will mitigation projects be required? It is outlined in the Municipal Stormwater Plan but will they be required on all projects that don’t meet certain requirements? Will mitigation projects be required for public roadway and public and private railroads? (6)

RESPONSE: “Maximum extent practicable” in the context of the waiver of strict compliance at N.J.A.C. 7:8-5.2(e) means that the applicant must prove to the reviewing agency that the proposed management measures come as close as possible to achieving the applicable standards. Determining if the proposed management measures come as close as possible to the standards is done on a case-by-case basis, normally through an alternatives analysis. Mitigation projects outlined in a Municipal Stormwater Management Plan are associated with obtaining a variance in accordance with N.J.A.C. 7:8-4.6. Therefore, mitigation projects in accordance with the Municipal Stormwater Management Plan are not required when seeking a waiver under N.J.A.C. 7:8-5.2(e). However, N.J.A.C. 7:8-5.2(e)4 does require that “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 (e)3 above within the upstream drainage area of the receiving stream, that would provide additional opportunities to mitigate for requirements of N.J.A.C. 7:8-5.4 and 5.5 that were not achievable onsite.” So, mitigation is

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required if it can be provided. However, as noted above, the mitigation need not be performed pursuant to any Municipal Stormwater Management Plan. It also should be noted that the waiver of strict compliance at N.J.A.C. 7:8-5.2(e) is available only for the enlargement of an existing public roadway or railroad, or the construction or enlargement of a public pedestrian access. Any mitigation required pursuant to N.J.A.C. 7:8-5.2(e)4 would only apply to projects that meet those qualifications and are seeking the waiver of strict compliance. As private railroads do not meet the qualifications for the waiver of strict compliance, mitigation through N.J.A.C. 7:8-5.2(e)4 would not be applicable.

180. COMMENT: Compliance with N.J.A.C. 7:8-5.2(a)2, which requires the use of green infrastructure for quantity, quality, and groundwater recharge will be difficult, at best, to achieve on linear projects. Although these projects may have access to a waiver of strict compliance at N.J.A.C. 7:8-5.2(e), the justification process is time consuming and would require the public agency to go to the Department for approval of the waiver of strict compliance even if no Department permit(s) are otherwise required for a project. There should be an exemption from green infrastructure for linear projects. (19)

181. COMMENT: Situating stormwater management systems along a linear development is complex, involving many factors, including topography, existing drainage features and patterns, soil conditions, seasonal high-water table location, environmental constraints, right-of-way, etc. Due to this complex process, many different types of BMPs are currently employed on roadways, the majority of which would not meet the requirements of green infrastructure in

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the proposed rules. Adding a limitation on the contributory drainage area and limiting the list of allowable BMPs to those listed in Tables 5-1 and 5-2, dependent upon the standard, will further complicate this process, and it is probable that the green infrastructure BMPs will be found to be infeasible in many instances, thus, requiring waivers. Although there is the ability to receive a waiver of strict compliance to avoid the green infrastructure requirement, this will require additional effort and uncertainty during the design process. The waiver request would involve an alternatives analysis, including assessing the ability to acquire additional right-of-way and find offsite locations to mitigate for the requested waiver. The inclusion of these items in the analysis suggests that the need to acquire additional right-of-way or complex mitigation requirements will be unacceptable justification for a waiver. This requirement could add time and cost to typical linear development projects, especially for the acquisition of additional right-of-way. Uncertainty during design phases is similarly a significant concern. Unless different procedures are established, it is anticipated that the waiver of strict compliance will be reviewed by the Department when Land Use Permits are submitted to the Department. The project design is typically advanced to 60 percent complete, or more, at this point. Not knowing the outcome of a waiver request would present a substantial risk to the project that would result in major design modifications, and adversely affect the project cost and schedule. The Department should exempt New Jersey Turnpike Authority projects from the green infrastructure requirements of N.J.A.C. 7:8-5.2(a)2. (10)

182. COMMENT: The proposed rules will effectively disallow the use of conventional MTDs (that is, hydrodynamic and filtration) without acquiring a waiver of strict compliance. Instead,

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MTDs that meet the requirements of green infrastructure are to be used. Conventional MTDs are a valuable tool for linear development and a waiver should not be required for linear development. Since 2004, the New Jersey Turnpike Authority has installed close to 200 such MTDs on the Garden State Parkway and New Jersey Turnpike that are utilized in many conditions to meet the current standards. They are often used due to complexities associated with linear development, such as right-of-way constraints; environmental constraints; the inability to use infiltration-based BMPs for water quality due to soil conditions; and their ability to be retrofitted into existing drainage systems. The use of biofilter systems (green infrastructure MTDs) on the Garden State Parkway or New Jersey Turnpike would need to be reviewed further, but present concerns, including the ability to manage the large runoff flow rates generated by the highways; implications associated with installing systems with protruding vegetation in close proximity to a high speed highway; and additional maintenance requirements and costs represent potential adverse impacts if the proposed regulations are adopted. The Department should exempt New Jersey Turnpike Authority projects from the Green Infrastructure requirements of N.J.A.C. 7:8-5.2(a)2 or allow the use of conventional MTDs without a waiver. (10)

RESPONSE TO COMMENTS 180, 181, AND 182: The Department recognizes the unique challenges faced by transportation agencies undertaking major development projects along existing public roadways and acknowledges that in certain instances strict compliance with the Stormwater Management rules may not be feasible. In recognition of these challenges, N.J.A.C. 7:8-5.2(e) provides a waiver from strict compliance with various requirements of this chapter

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for the enlargement of an existing public roadway provided the conditions at N.J.A.C. 7:8-5.2(e)1, 2, 3, and 4 are met. Further, N.J.A.C. 7:8-5.2(e) is expanded through this rulemaking to provide a waiver of strict compliance from the new green infrastructure standard in specific circumstances where the applicant demonstrates that compliance with the new requirements cannot be feasibly met. In such cases, a detailed evaluation of the project is essential to determine whether compliance can be practically achieved and further, in cases where full compliance is not feasible, that compliance is achieved to the maximum extent practicable. In determining practicability, the Department considers all relevant factors including topography, existing drainage features and patterns, soil conditions, seasonal high-water table location, environmental constraints, the area of proposed pavement, quality of the receiving surface water, and the practicability of acquiring additional right-of-way to achieve compliance with this chapter. It should be noted that the method, analysis, and requirements of receiving a waiver from strict compliance have not been amended other than the aforementioned expansion to allow relief from the green infrastructure requirement where compliance is demonstrably impracticable. In evaluating requests for a waiver of strict compliance from the green infrastructure standards, such as the adopted drainage area limitations, the Department will consider additional factors specific to those requirements, such as the loss of water quality benefits, the need to acquire additional property, the amount of additional storm sewer piping that would be required, the amount of runoff carried from offsite properties, the distance between potential additional BMPs, public highway safety concerns, and the potential environmental impact of additional BMPs and their outfall structures.

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As stated in the notice of proposal summary at 50 N.J.R. at 2376, it has been the Department's experience that demonstrating nonstructural strategies have been implemented to the maximum extent practicable for a given project is often difficult and inherently involves a certain measure of subjectivity. Therefore, the adopted amendments replacing the previous requirement to utilize nonstructural strategies to the maximum extent practicable will provide clarity for applicants and improve consistency in implementation by review agencies. This will improve regulatory predictability and allow greater certainty in design.

It should be further noted that the adopted new rules and amendments affect only a portion of uses of conventional type (non-green infrastructure) MTDs. As explained in the Economic Impact statement, 50 N.J.R. at 2394, the Department can permit the use of conventional non-green infrastructure MTDs for the enlargement of an existing public roadway or railroad in accordance with N.J.A.C. 7:8-5.2(e). The conditions for the waiver of strict compliance from the green infrastructure, groundwater recharge, stormwater runoff quality, and the stormwater runoff quantity requirements at N.J.A.C. 7:8-5.2(e) have not been amended by this rulemaking. Since a waiver of strict compliance is available for the enlargement of public roadways, it is not necessary to provide a specific exemption for the use of conventional non-green infrastructure MTDs.

Notwithstanding the above, given the unique challenges faced by transportation agencies undertaking essential safety improvements to public roadways, and in light of the inherent complexity of such projects, the Department is committed to providing greater clarity and predictability to said agencies requesting a waiver of strict compliance under N.J.A.C. 7:8-

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5.2(e). To this end, the Department's Division of Land Use Regulation staff is available to provide timely guidance on potential waiver requests during and after the concept development phase of such projects. Further, the Department will develop guidance on the specific conditions that, when present, warrant a waiver under N.J.A.C. 7:8-5.2(e).

Finally, the commenter's statement that a public agency would need to seek approval from the Department for the waiver from strict compliance at N.J.A.C. 7:8-5.2(e) even if no permit from the Department's Division of Land Use Regulation is otherwise required for a project is incorrect. Where a highway agency does not require a Department permit for the construction of a major development, N.J.A.C. 7:8-5.2(e) does not require application to the Department. The public agency is required by their MS4 permit to ensure that any major developments they perform comply with the provisions of the Stormwater Management rules, including any waiver of strict compliance. See also the Response to Comments 289 and 290.

*N.J.A.C. 7:8-5.2(f) - General*

183. COMMENT: The Department is commended for proposing objective and proven-effective green infrastructure BMPs to meet the quality, quantity, and recharge standards. (7, 8, and 23)

184. COMMENT: The proposed Table 5-1, Table 5-2, and Table 5-3 at N.J.A.C. 7:8-5.2(f) that identify BMPs presumed capable of contributing towards achievement of the stormwater management standards (designed in accordance with New Jersey Stormwater BMP Manual) provide good summaries for the applicant and their stormwater management design engineers.

(32)

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185. COMMENT: The proposed rules properly include allowances for a range of green infrastructure BMPs to meet water quality/quantity standards and groundwater recharge standards that can be increased and/or adapted over time within the New Jersey Stormwater BMP manual. (22)

RESPONSE TO COMMENTS 183, 184, AND 185: The Department acknowledges these comments in support of the rules.

186. COMMENT: The approach to green infrastructure as detailed in Tables 5-1, 5-2, and 5-3 and as required in the following sections are a significant and detrimental departure from the current Stormwater Management rules. Under the current rules, the requirements for stormwater quantity, quality, and groundwater recharge are presented as performance standards that a major development must achieve. The current rules do not require, in any way, how those standards are to be achieved, only that they must be. The method of achieving the standards is left to the property owner, site engineer, and municipal boards and officials, based upon a wide range of factors, including property size, slope, existing cover, subsurface geology, groundwater, zoning, existing and proposed land uses, municipal ordinances, county resolutions, proximity to offsite facilities and uses, traffic, potable water supply and sanitary sewerage and treatment, costs, aesthetics, maintenance and operation, mosquito and other pest control, existing and future property values, and public safety. It is for these reasons that the current rules do not dictate the types of BMPs, their drainage areas, and their number. Instead, as noted above, the current rules only require the selected BMPs meet the

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performance standards for a major development and allow the factors noted above to determine their type, number, location, and other characteristics needed to meet the performance standards. However, the requirements for the proposed green infrastructure BMPs as contained in Tables 5-1, 5-2, and 5-3 unfortunately not only represent an effort to specify what level of stormwater management performance is to be achieved by a major development, but also to specify how that performance is to be achieved. By specifying both preferred lists of green infrastructure BMPs and the size that they and their drainage areas must be, the Department is also proposing to specify how that performance is to be achieved, without consideration for any of the other factors cited above. This represents an unwarranted intrusion into the fair use of private and public property, undermines the land use powers of municipalities, and interferes with the site design, construction, and safe use and maintenance procedures practiced by professional engineers, planners, and public administration and safety officials. The unwarranted nature of this intrusion is highlighted by the fact noted above that the current Stormwater Management rules already achieve the stated goals of the proposed green infrastructure approach. (41)

RESPONSE: One of the goals of the adopted rulemaking is to maintain natural hydrology, which requires that stormwater runoff be treated near its source. Distributed, small-scale, limited contributory drainage area BMPs are needed to be utilized in most cases to maintain natural hydrology. The design and performance standards under existing N.J.A.C. 7:8-5.4 and 5.5 have not been amended, and the rules provide the design engineer multiple options for meeting the water quantity and water quality criteria. The adopted rules at N.J.A.C. 7:8-5.2, Tables 5.1, 5.2,

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and 5.3 summarize the ability of stormwater BMPs identified and described in the New Jersey Stormwater BMP Manual to satisfy the green infrastructure, groundwater recharge, stormwater runoff quality, and stormwater runoff quantity standards specified in this chapter. Additionally, N.J.A.C. 7:8-5.2(g) allows alternative stormwater management measures, alternative removal rates, and/or alternative methods to calculate the removal rate provided the design engineer demonstrates the capability of the proposed alternative stormwater management measure and/or the validity of the alternate rate method to the review agency.

187. COMMENT: Some developers own and operate golf courses and, with the current and future demand for affordable housing, the trend is to convert portions of these golf courses into mixed-use or stand-alone housing sites. Due to the demand for irrigation of the remaining golf course and perhaps common vegetated areas, utilizing stormwater management ponds for irrigation instead of extraction of groundwater is the preferred, water conservation method for irrigation. To maximize the amount of stored water available for irrigation, it is best to have all surface water runoff directed into the ponds and not into the ground. The proposed regulations would appear to prohibit this practical, environmentally protective, water conservation management design since it is technically feasible, although certainly not preferred, to provide green infrastructure BMPs that would infiltrate the water into the groundwater and, thus, reduce the amount of stored water for irrigation. (7, 8, and 24)

RESPONSE: The adopted rules require that both the groundwater recharge and stormwater runoff quality be met using the BMPs listed in Table 5-1 (or an alternative BMP approved

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pursuant to N.J.A.C. 7:8-5.2(g)). A wet pond is not one of the BMPs listed in Table 5-1 and, thus, cannot be used to address the groundwater recharge standard or stormwater runoff quality standard without a variance pursuant to N.J.A.C. 7:8-4.6 or a waiver of strict compliance pursuant to N.J.A.C. 7:8-5.2(e). Further, a wet pond is not capable of providing groundwater recharge. The rules also require that the stormwater runoff quantity standard be met using BMPs listed in Table 5-1 or 5-2 (or an alternative BMP approved pursuant to N.J.A.C. 7:8-5.2(g)). A wet pond is one of the BMPs listed in Table 5-2, and stormwater re-use is a required component of that BMP. Therefore, while the wet pond described by the commenter cannot be used for compliance with the groundwater recharge or stormwater runoff quality standard, it is allowed for compliance with the stormwater runoff quantity standard. It is not possible to direct all of the runoff from the site to a wet pond if compliance with the groundwater recharge standard is required; however, not all major developments are subject to the groundwater recharge standard. See N.J.A.C. 7:8-5.4. Compliance with the stormwater runoff quality standard does not prohibit the runoff from being directed to a downstream wet pond for collection after compliance has been achieved. BMPs, such as small-scale bioretention systems or vegetative filter strips, do not rely on infiltration to provide stormwater runoff quality treatment and, thus, the treated water could be directed to a downstream wet pond for re-use as irrigation water. Additionally, not all major developments are subject to the stormwater runoff quality standard. See N.J.A.C. 7:8-5.5.

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It should also be noted that directing all runoff into a wet pond would also not comply with the existing Stormwater Management rules if compliance with the groundwater recharge standard was necessary.

188. COMMENT: For water quality BMPs, provisions should be provided for full build-out of property in urban areas (that is, lot line construction). A credit should be given for BMPs proposed in the public row associated with the project. For example, if a new building encompasses the entirety of a property, green infrastructure BMPs incorporated in the surrounding or fronting row areas should satisfy the requirements of the new Stormwater Management Rule requirements. (24 and 27)

RESPONSE: The Stormwater Management rules generally require that the applicable design and performance standards be met prior to runoff leaving the developed property in order to ensure that no surrounding properties are subjected to adverse impacts resulting from unmanaged stormwater entering the property. As long as permission is granted by the public agency that controls the right-of-way and these BMPs provide the required stormwater management prior to the runoff entering any other property (other than the right-of-way), conveyance system, or water of the State, the Department agrees that BMPs located in public right-of-way immediately adjacent to, and contiguous with, the developed property can be used to demonstrate compliance with the Stormwater Management rules, since the areas where the BMPs are proposed would technically become part of the overall site where the major development is located.

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189. COMMENT: N.J.A.C. 7:8-5.2 was amended to add subsection (f), which establishes Tables 5-1, 5-2, and 5-3 to identify BMPs presumed to be capable of contributing towards the achievement of the stormwater management standards. However, the language states that the listed stormwater management measures “shall be presumed to be capable of providing stormwater controls for the design and performance standards as outlined in the tables.” The commenter opposes this language as it does not account for different site-specific conditions that may result in an outcome that is less than those values in the tables. The Department should modify this language to state that it may be capable of providing up to the stated design and performance standards for planning purposes; however, an applicant must still demonstrate that the design will be sufficient to comply with the applicable stormwater management regulations. (12)

RESPONSE: As stated at N.J.A.C. 7:8-5.2(f), the BMPs listed in Tables 5-1, 5-2, and 5-3 are presumed capable of satisfying the performance standards when designed in accordance with the New Jersey Stormwater BMP Manual and the Stormwater Management rules. Further, the tables are accompanied by notes that highlight additional specifications for listed BMPs. Also, the New Jersey Stormwater BMP Manual includes specifications that must be part of the design to achieve the results presumed in the tables. The design engineer will need to account for specific site conditions to properly design and size the individual BMP according to the New Jersey Stormwater BMP Manual. If the BMP is not designed in accordance with the New Jersey Stormwater BMP Manual and the Stormwater Management rules, it cannot be presumed to

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capable of providing stormwater controls for the design and performance standards as outlined in the tables. In such a case, the BMP would need to be reviewed as an alternative stormwater management measure pursuant to N.J.A.C. 7:8-5.2(g), which requires the applicant to demonstrate the capability of the BMP to the satisfaction of the review agency.

190. COMMENT: The Department should add a footnote to each table clarifying that the noted minimum separation from the seasonal high-water table is to be measured from the bottom of the BMP as designed per the New Jersey Stormwater BMP Manual. For example, in the case of a “small-scale bioretention system” designed with an underdrain, it is not obvious from Table 5-2 whether the required one-foot separation noted in the table is to be measured from the basin’s invert, or from the bottom of the entire system (that is, the required filter fabric located below the gravel layer). Additionally, a notation should be added that, in the Pinelands Area, the required minimum separation of two feet between the elevation of the lowest point of the bottom of any infiltration facility and the seasonal high water table would still apply as required by N.J.A.C. 7:50-6.84(a)6iv(1). (37)

RESPONSE: In order to be granted the presumed capabilities shown in the tables, N.J.A.C. 7:8-5.2(f) requires that the BMPs be “... designed in accordance with the New Jersey Stormwater Best Management Practices Manual ...” and the Stormwater Management rule. According to the New Jersey Stormwater BMP Manual, the minimum separation from the seasonal high water table is always measured from the bottom of the BMP, and this is explained in detail in the individual BMP chapters in the New Jersey Stormwater BMP Manual. As such, the

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suggested footnote is unnecessary. Further, over the last several years, the Department updated many of the individual BMP chapters to, among other things, include updated narratives and drawings that clearly indicate both the minimum separation distance from the seasonal high water table and how the separation distance from seasonal high water table is to be measured. As noted at N.J.A.C. 7:8-1.5, the requirements of the chapter may be superseded by other agencies or entities that impose more stringent stormwater management requirements. Since the requirements throughout the State may vary, the Department believes that it is not appropriate to list the requirements of any particular agency in addition to the general requirements of the rule.

191. COMMENT: The proposed rules require a major development to use the green infrastructure BMPs listed at N.J.A.C. 7:8-5.2(f) Table 5-1 and/or an alternative stormwater management measure that meets the definition of green infrastructure at N.J.A.C. 7:8-1.2 and is approved in accordance with N.J.A.C. 7:8-5.2(g). The Department needs to provide clear definitions, as well as design and sizing requirements of the practices included in Tables 5-1, 5-2, and 5-3. (28)

192. COMMENT: The TSS removal rates for the BMPs noted in Table 5-2 at N.J.A.C. 7:8-5.2(f) of the rulemaking must be associated with design factors. Provide additional justification and sizing relationships for these BMPs. The range of performance values is too great for some practices. (28)

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RESPONSE TO COMMENTS 191 AND 192: The additional information the commenter is requesting is provided within the applicable portions of the New Jersey Stormwater BMP Manual. Providing that level of specificity directly in the rules would not be practical. For example, the BMP chapter for Pervious Paving Systems alone is 35 pages.

193. COMMENT: The notice of proposal indicates that the Department shall publish changes when revising Tables 5-1, 5-2, and 5-3. How often, at what frequency, and where will the table updates be published? (28)

RESPONSE: The Department will publish a change following any amendment to the New Jersey Stormwater BMP Manual that affects the information contained within one of the tables. These amendments to provide additional BMP design specification or revise existing BMPs are conducted periodically as the need for a change becomes apparent, but not at a set timeframe. As specified at N.J.A.C. 7:8-5.2(f), these changes will be published in the New Jersey Register as part of a notice of administrative change. As noted in the Response to Comments 8 and 9, the Department regularly solicits input through stakeholdering on modifications to the New Jersey Stormwater BMP Manual and all major revisions are posted for public comment.

194. COMMENT: The drainage area limitations at N.J.A.C. 7:8-5.3(b) should be incorporated into Tables 5-1 and 5-2 for ease of use. (19)

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RESPONSE: The Notes to Tables 5-1, 5-2, and 5-3 provide a cross-reference to N.J.A.C. 7:8-5.3(b) and the applicable contributory drainage area limitations. Note that the contributory drainage area limitations only apply to Table 5-1.

195. COMMENT: The Department must allow all infiltration associated with the green infrastructure BMPs to be counted toward stormwater runoff volume reductions for the cost benefits compared to grey infrastructure to be realized. Without this, the design engineer will have to provide both green infrastructure and traditional grey infrastructure to meet the water quantity requirements of the proposed regulations. (7 and 8)

196. COMMENT: The Department has not recognized infiltration BMPs as water quantity reduction measures. Water quantity credit should be given for infiltration, because of the emphasis of the rulemaking on infiltration. (27)

RESPONSE TO COMMENTS 195 AND 196: The Department conducted stakeholder meetings to evaluate allowing infiltration during quantity control routing calculations, and based on input from that stakeholdering, is making changes to Chapter 5 and various BMPs with infiltration components contained within the New Jersey Stormwater BMP Manual that will allow stormwater runoff quantity control credit for infiltration during routing calculations for the two-, 10-, and 100-year storm events when utilizing certain green infrastructure BMPs that are designed in accordance with the New Jersey Stormwater BMP Manual, including the applicable soil testing and groundwater mounding requirements.

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197. COMMENT: Green infrastructure should be held to the same stringent protocol criteria as MTDs in order to have the Department ensure that performance metrics are not diminished. If green infrastructure is not held to the same protocol requirements as MTDs, then this prescriptive standard will limit innovation and could potentially mean that performance metrics will not be met. (9)

RESPONSE: An MTD used in New Jersey to meet the water quality criteria at N.J.A.C. 7:8-5.5 must be tested in accordance with the Department's protocol, verified by NJCAT and certified by the Department, which ensures that sufficient water quality treatment is provided. Non-proprietary green infrastructure used to meet the water quality, quantity, and groundwater recharge requirements under the Stormwater Management rules must be designed in accordance with the New Jersey Stormwater BMP Manual (N.J.A.C. 7:8-5.2(f)), unless an alternative stormwater measure is proposed and meets the requirements at N.J.A.C. 7:8-5.2(g). The stormwater measures established in the New Jersey Stormwater BMP Manual include design, construction, and maintenance requirements for various BMPs to ensure that the quality, quantity, and groundwater standards are met in accordance with the rule.

198. COMMENT: Green infrastructure is highly installation dependent and, therefore, performance of green infrastructure can vary greatly from location-to-location. There needs to be a better understanding on how proper installation is controlled to ensure performance metrics are met. (9)

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RESPONSE: In general, the Stormwater Management rules at N.J.A.C. 7:8-5.2 require proper design and installation of all structural stormwater measures. Further, the New Jersey Stormwater BMP Manual includes design and installation requirements for the green infrastructure, including all of those systems listed in both Table 5-1 and 5-2 of the Stormwater Management rules. The New Jersey Stormwater BMP Manual is available at [https://www.njstormwater.org/bmp\\_manual2.htm](https://www.njstormwater.org/bmp_manual2.htm).

199. COMMENT: Most BMPs only work 50 percent of the time in optimum situations. They do not work in areas with steep slopes or high groundwater. (42)

RESPONSE: The efficacy of BMPs will vary depending on the situation, and, as such, the TSS removal rates assigned to BMPs are based on a variety of studies and resources rather than one source or installation. While steep slopes and high groundwater are more challenging conditions in which to construct BMPs, BMPs can be designed to work within those constraints.

*N.J.A.C. 7:8-5.2(f) - Bioretention*

200. COMMENT: What is small-scale bioretention? What are the design assumptions and design requirements? (28)

RESPONSE: All the green infrastructure BMPs listed in Tables 5-1, 5-2, and 5-3 have been defined in the New Jersey Stormwater BMP Manual. Small-scale bioretention systems are vegetated stormwater management facilities that are designed to treat stormwater runoff and serve a maximum drainage area of 2.5 acres. This is a new BMP chapter that will be added to

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the New Jersey Stormwater BMP Manual. The design assumptions and design requirements will be specified in the New Jersey Stormwater BMP Manual, and will be very similar to those of the existing bioretention systems chapter.

201. COMMENT: Green infrastructure practices, particularly bioretention practices, which are the most widely deployed and studied green infrastructure practices, are not always the most effective BMPs, especially for nutrient removal. In fact, the International BMP database shows that bioretention systems are commonly exporters of phosphorus, which is a major pollutant of concern in New Jersey. Statistical analysis published by the BMP Database in 2017

[http://www.bmpdatabase.org/Docs/03-SW-](http://www.bmpdatabase.org/Docs/03-SW-1COh%20BMP%20Database%202016%20Summary%20Stats.pdf)

[1COh%20BMP%20Database%202016%20Summary%20Stats.pdf](http://www.bmpdatabase.org/Docs/03-SW-1COh%20BMP%20Database%202016%20Summary%20Stats.pdf)) shows that, based on all of the data submitted to date, bioretention systems are net exporters of total phosphorus. Similar findings have been published in Washington State showing that bioretention cells are prone to exporting both phosphorus and heavy metals. The export of pollutants is typically occurring when bioretention cells are deployed in areas lacking infiltration capacity and runoff is instead routed through an underdrain. This is increasingly common in urban areas with numerous site constraints. In these instances where runoff reduction isn't viable, water quality would be best served by deploying more effective flow through practices with proven performance for pollutants of concern. (4)

RESPONSE: The statistical analysis published by the BMP Database in 2017 is based upon bioretention BMPs of varying design and does not specify characteristics that may effectively

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reduce effluent concentrations of total phosphorus, such as depth of filter media, composition of filter media, duration of retention time prior to discharge, flowpath(s) through the filter media, and the presence or absence of mulch; nor does it address the length of time that has passed since the completion of construction. External factors, such as the absence of pretreatment, inadequate street sweeping up-gradient of a bioretention BMP, and the presence of up-gradient non-native species, also increase phosphorus concentrations. Additionally, there are a number of studies that show that the concentration of phosphorus in effluent decreases over time.

Further, the information referenced by the commenter is not the only available information on the phosphorous removal rates of bioretention practices. Two such sources reviewed by the Department show that the removal rates vary widely from exporting phosphorous to removal rates of up to 100 percent in some systems. The median phosphorous removal rate in both of the sources reviewed by the Department were five percent and 30 percent, meaning that the average bioretention basin examined provided total phosphorous removal and was not a net exporter of phosphorous (Hager et al., Performance of low-impact development best management practices: a critical review, School of Engineering, University of British Columbia, Okanagan Campus, Kelowna, BC V1V 1V7, Canada, September 11, 2018, <https://tspace.library.utoronto.ca/bitstream/1807/93101/1/er-2018-0048.pdf>; and Center for Watershed Protection, National Pollutant Removal Performance Database, Version 3, Ellicott City, MD, September 2007,

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<http://www.stormwaterok.net/CWP%20Documents/CWP-07%20NatI%20Pollutant%20Removal%20Perform%20Database.pdf>).

In order to provide successful water quality treatment, the stormwater management design must be tailored to suit the proposed development site and its surrounds. In some instances, it may be desirable to use a series of stormwater BMPs in a treatment train to address the removal of total suspended solids (TSS), nutrients and pollutants of concern. Chapter 4: Stormwater Pollutant Removal Criteria in the New Jersey Stormwater BMP Manual provides guidance on this subject. Although the presumed TSS removal rate established in the rules to address stormwater runoff water quality is a primary reason a particular stormwater BMP is selected, the removal of nutrients to the maximum extent feasible must also be considered. Note that there currently are no MTDs (or flow through devices as the commenter referred to them) certified by the Department for nutrient removal.

All of the design criteria set forth in the applicable BMP chapter of the New Jersey Stormwater BMP Manual must be demonstrated in the submitted engineering plans and stormwater management report in order for a particular BMP to be granted the presumed TSS removal rate. In particular, the media depth specified for a bioretention BMP is the minimum required, and additional studies indicate increasing this depth enhances phosphorus removal. The maximum standards for design volume, standing water depth and drain time were set at the published values as they also contribute to ensuring pollutant removal. The sand component in the soil bed material is a key component to phosphorus removal. Native vegetation is required because it requires less fertilizer, which is a source of phosphorus and

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nitrogen. Furthermore, a strong maintenance plan is essential and should include steps pertaining to the removal of dead vegetation to ensure phosphorus released by decaying plants is not transported down-gradient. Other considerations must be evaluated when designing a bioretention BMP, such as whether or not mulch will contribute phosphorus to down-gradient water bodies, as well as the distance between the locations of inflows and outflows in order to increase media contact time, which enhances removal of various pollutants. Finally, the reviewer(s) for the approving entity or agency must decide whether the proposed design is appropriate for the site and its surrounding environs, provided it otherwise complies with the regulatory requirements.

*N.J.A.C. 7:8-5.2(f) – Cisterns*

202. COMMENT: Regarding the use of cisterns to harvest rainwater for reuse, in the eastern United States where precipitation is common throughout the year there tends to be insufficient demand for harvested water to ensure cisterns are emptied in time to capture subsequent rain events. What steps will be taken to ensure there is sufficient demand for harvested water on a given site so that cisterns are emptied ahead of incoming storms? (4)

RESPONSE: As stated in the New Jersey Stormwater BMP Manual Chapter on cisterns, cisterns are not a viable stormwater management choice for sites with little or no demand for reuse. It is imperative to evaluate the intended use of and the demand for any potentially captured stormwater when designing or reviewing a cistern. In order to provide the necessary storage for subsequent storm events, the demand for cistern water reuse on site must be sufficient to

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empty the cistern within 72 hours after a rain event. In many situations, the demand for water reuse will vary depending on the day or time of year. In order to ensure that the cistern volume will be available for subsequent storm events, the cistern water reuse must be calculated based upon the lowest three-day demand that would occur during the year. If the lowest three-day demand is insufficient to empty a cistern, but demand is greater on other days, a secondary storage tank must be used. Immediately following a rain event, the cistern water would be transferred into the secondary storage tank for later reuse. The secondary storage tank must be sized sufficiently to hold water from each rain event until it is reused. The chapter also has examples of how to ensure that the reuse need equates appropriately to the amount of rainfall on a site.

*N.J.A.C. 7:8-5.2(f) - Dry wells*

203. COMMENT: Regarding proposed Table 5-1, a dry well is proposed to be given no credit for stormwater runoff quantity control. There does not appear to be a basis for this. From a stormwater quantity standpoint, a dry well is at least as effective as a cistern, which is proposed for use as quantity control, in that a dry well has the ability to store a volume of water with the added benefit of then infiltrating that water into the ground. (23)

204. COMMENT: Regarding proposed Table 5-1, a dry well is proposed to be given no credit for stormwater runoff quantity control. There does not appear to be a basis for this since a dry well can store a volume of water with the added benefit of then infiltrating that water into the

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ground. All infiltration from green infrastructure must count towards runoff volume reductions. (7 and 8)

RESPONSE TO COMMENTS 203 AND 204: The BMPs listed in the tables at N.J.A.C. 7:8-5.2(f) are presumed capable of providing stormwater controls for the design and performance standards as outlined in the tables, when designed in accordance with the New Jersey Stormwater BMP Manual and the Stormwater Management rules. The design in the New Jersey Stormwater BMP Manual for a cistern includes a type of cistern designed with an extended detention component above the level of water stored for re-use, which is why the table lists it as capable of providing stormwater runoff quantity control. On the other hand, the design for dry wells in the New Jersey Stormwater BMP Manual limits the volume of a dry well to the water quality design storm. Larger storms will overtop the dry well and that is why it is not listed as capable of providing stormwater runoff quantity control. When performing the calculations to demonstrate compliance with the stormwater runoff quantity control standard, the effect of any proposed dry wells can be included in the calculation. However, it cannot be assumed that a dry well will be capable of achieving the requirements without additional BMPs.

205. COMMENT: Table 5-1 indicates dry wells are disallowed for quantity control, while small scale infiltration basins are allowed. A dry well is essentially a mini-subsurface infiltration basin and should be allowed for quantity control. Exclusion of dry wells for quantity control will introduce subjectivity with respect to semantics for some subsurface infiltration measures. (44)

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RESPONSE: Subsurface infiltration basins and dry wells have many similarities; however, a dry well cannot be listed as presumed capable of providing stormwater runoff quantity control. As noted in Response to Comment 189, the BMPs listed in Table 5-1 are only presumed capable of providing the performance listed in the table "... when designed in accordance with the New Jersey Stormwater BMP Manual and this chapter." As indicated in the Response to Comments 203 and 204, the design for dry wells in the New Jersey Stormwater BMP Manual limits the volume of a dry well to the water quality design storm and, as such, will be overtopped by larger storms. While a dry well alone cannot be used to achieve compliance with the stormwater runoff quantity control standard, the use of a dry well can be included in the calculations demonstrating compliance achieved by the dry well in conjunction with other BMPs.

206. COMMENT: Dry wells are not a substitute for green infrastructure, which should be a part of all applications for building permits. Dry wells can become overflowing openings that expel water. (33)

207. COMMENT: Dry wells are not proper substitutes for green infrastructure. Therefore, the definition of green infrastructure and relevant tables should be adjusted accordingly. (34)

208. COMMENT: Seepage pits included in the rule are not green infrastructure. (42)

RESPONSE TO COMMENTS 206, 207, AND 208: Because dry wells manage stormwater close to its source and treat runoff through infiltration into the subsoil, these BMPs meet the definition of green infrastructure as proposed at N.J.A.C. 7:8-1.2. As noted in proposed Table 5-1, dry wells, when designed in accordance with the New Jersey Stormwater BMP Manual, can be used

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to meet the groundwater recharge requirement, but cannot be presumed capable of achieving the stormwater runoff quality and quantity standards. Properly designed, constructed, and maintained dry wells should not regularly overflow. Dry wells that overflow regularly, or otherwise malfunction, may be inadequately sized for the volume of stormwater directed to it, may have been improperly constructed, and/or may not have been maintained in a manner which allows for the continued infiltration of stormwater.

*N.J.A.C. 7:8-5.2(f) - Green Roofs*

209. COMMENT: Regarding proposed Table 5-1, green roofs are proposed to be given no credit for stormwater runoff quality. This is understandable in the very limited ways in which green roofs are typically employed. However, the proposed rule could foster significant innovation in design. For instance, a green roof on top of a shorter building or lower roof tier adjacent to a parking garage could be utilized to treat the top motor vehicle surface of the garage. At a minimum, a caveat should be added to allow a green roof to provide for water quality when designed to treat a separate impervious surface. (23)

210. COMMENT: Regarding proposed Table 5-1, green roofs are proposed to be given no credit for stormwater runoff quality, but a caveat should be added to allow a green roof to provide for water quality when designed to treat a separate impervious surface. (7 and 8)

211. COMMENT: In the notice of proposal (Table 5-1), green roofs are given no credit for stormwater runoff quality. However, a green roof adjacent to a parking garage could be utilized

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to treat the top motor vehicle surface of the garage, so a green roof should be allowed to provide for water quality when designed to treat a separate impervious surface. (24)

RESPONSE TO COMMENTS 209, 210, AND 211: Green roofs capture precipitation falling over the entire area covered by the green roof and are designed for their volume reduction capability, which takes place through evapotranspiration. The shallow-rooted plants selected are grown in a special medium that is lightweight, is typically shallow in depth compared to garden plants and yet is able to retain moisture for plant uptake. Roughly 10-20 percent of the engineered medium is organic material, with the remainder being lightweight aggregate, so as to not compromise the load bearing capacity of the roof as well as the building foundation. The media particle size must also be large enough to not clog the required filter fabric and yet small enough to retain the water for plant uptake. However, one disadvantage of these lightweight particles is that they may become buoyant, which might occur when concentrated runoff is introduced from other areas.

There is a lack of studies available at this time regarding the capability of green roofs to remove total suspended solids. Additionally, the potential for TSS to clog the void spaces in the growing media or the filter fabric is a concern. Finally, contaminants in runoff generated by vehicular traveled surfaces, such as oil, can affect the durability of the leak protection layer, which could result in structural damage. Considering these factors, at this time, it would be inappropriate to assign a TSS removal rate to green roofs.

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*N.J.A.C. 7:8-5.2(f) - Infiltration Basins*

212. COMMENT: While not specifically listed in the Department's list of approved green infrastructure practices, the proposed definition of green infrastructure appears to encompass the use of subsurface infiltration basins, which are increasingly used for stormwater management in New Jersey. These subsurface BMPs are difficult to inspect and maintain, and they provide none of the community co-benefits of other green infrastructure practices. The Department should specify that these subsurface BMPs are not eligible for approval as an alternative stormwater management measure that meets the definition of green infrastructure.

(16)

RESPONSE: Infiltration basins, surface or subsurface, treat stormwater runoff by infiltration into subsoil, which meets the definition of green infrastructure and results in groundwater recharge and reduced volume of stormwater leaving a development site. However, subsurface BMPs are more difficult to maintain than surface BMPs. As noted in the Response to Comment 189, the BMPs listed in Tables 5-1, 5-2, and 5-3 are only presumed capable of providing stormwater controls for the design and performance standards as outlined in the tables when designed in accordance with the New Jersey Stormwater BMP Manual and the Stormwater Management rules. Therefore, in order to be presumed capable of meeting the requirements of the Stormwater Management rules, a subsurface infiltration basin, which appears in both Tables 5-1 and 5-2, would need to be either designed in accordance with the New Jersey Stormwater BMP Manual or approved by the review agency as an alternative BMP under N.J.A.C. 7:8-5.2(g). The New Jersey Stormwater BMP Manual chapter on infiltration basins

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includes 80 percent TSS removal pre-treatment for all subsurface infiltration basins precisely to limit the amount of maintenance that will be required for the subsurface components. If the subsurface infiltration basin is approved as an alternative BMP, the design engineer is responsible for documenting the capability of the alternative BMP and providing for sufficient maintenance capabilities to the satisfaction of the review agency.

While it is true that an infiltration basin may not provide as many of the community co-benefits as some other types of green infrastructure systems, such as bioretention systems, it does provide similar benefits to certain other green infrastructure BMPs, such as pervious paving systems, dry wells, and sand filters that infiltrate, and the groundwater recharge and stormwater runoff volume reduction provided by infiltrating stormwater runoff are significant benefits that should not be discounted.

213. COMMENT: The Department should provide clarification as to whether various underground infiltration systems, such as chambers, vaults, or perforated pipes are suitable for meeting recharge requirements. (4)

RESPONSE: Both dry wells and small-scale infiltration basins, even those constructed as chambers, vaults, or perforated pipes can be used for compliance toward the groundwater recharge standard, as long as those BMPs comply with the applicable maximum contributory drainage area, and are designed in accordance with the New Jersey Stormwater BMP Manual or are approved as an alternative stormwater management measure pursuant to N.J.A.C. 7:8-5.2(g).

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214. COMMENT: In the tables at N.J.A.C. 7:8-5.2(f), small-scale infiltration basins (Table 5-1) and infiltration basins (Table 5-2) are shown to be acceptable for quantity control. However, as currently written, the individual BMP chapter for the Infiltration Basin states, in part, “[t]he maximum design volume to be infiltrated is the volume generated by the Water Quality Design Storm.” Does the Department intend to modify the BMP Standard to allow for infiltrating greater volumes/higher design storms? (44)

RESPONSE: As noted in the Response to Comments 195 and 196, revisions are being made to the New Jersey Stormwater BMP Manual to allow infiltration to be considered during water quantity control routings in certain situations. However, restrictions on sizing the infiltration component of the BMPs are not being modified at this time. Note that those BMP chapters allow for the infiltration component of BMPs to be sized larger than the water quality design storm when necessary to meet a regulatory requirement. Further, an applicant could potentially submit an alternative design to the Department pursuant to N.J.A.C. 7:8-5.2(g).

215. COMMENT: The existing New Jersey Stormwater BMP Manual indicates infiltration basins can only be used for quantity control if “online.” Will this limitation be removed? (44)

RESPONSE: This design requirement has not been removed. Online basins are sized to manage up to the 100-year storm event, while off-line basins are only sized to manage up to the water quality design storm, with everything above that volume diverted elsewhere. Since an off-line

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basin is sized only for the water quality design storm, it cannot be presumed capable of providing stormwater runoff quantity control.

216. COMMENT: Under N.J.A.C. 7:8-5.5(e), Table 5-2, TSS Removal Rates for BMPs, Infiltration Structures are assigned a TSS percent removal rate of 80, yet solids removal leads to the clogging and failure of the facility. An infiltration facility should not get any TSS removal credit; pretreatment should be required to remove the sediment prior to delivery to the infiltration structure. The Department would be correct to modify the table accordingly. (25)

RESPONSE: Upon the operative date of the adopted amendments, Table 5-2 at existing N.J.A.C. 7:8-5.5(e) will be deleted and replaced by the tables at N.J.A.C. 7:8-5.2(f). Infiltration facilities have been assigned an 80 percent TSS removal rate in the Stormwater Management rules since 2004, and this rulemaking has not changed that TSS removal rate. Since an infiltration facility infiltrates the stormwater runoff from the water quality design storm, the runoff is not discharged off-site and, thus, the TSS contained in that runoff is not discharged off-site. This results in the removal of TSS from the overall discharge of stormwater runoff from the site. Clogging of an infiltration facility is a possibility; however, with proper design, construction, and the appropriate maintenance, the risk of such a failure is no greater than the risk of failure of any BMP.

216A. COMMENT: It is unclear whether the application of the proposed rules will result in any notable benefit for utilizing a “small-scale bioretention system” over a “small-scale infiltration

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basin.” Given the difference in cost of each of these types of BMPs and the notable difference in maintenance requirements, it seems possible that the proposed rulemaking will result in the construction of more small-scale infiltration basins than small-scale bioretention systems. If it is the Department’s intent to encourage the use of small-scale bioretention systems over the use of small-scale infiltration basins, the proposed rulemaking should be revised to reflect that intent. (37)

RESPONSE: Since small-scale bioretention systems and small-scale infiltration basins both meet the definition of green infrastructure at N.J.A.C. 7:8-1.2, either can be used to meet the green infrastructure requirements, assuming that they are feasible options for the particular site in question. It is not the Department’s intent to incentivize one of these BMPs over the other.

*N.J.A.C. 7:8-5.2(f) - MTDs*

217. COMMENT: Regarding proposed Table 5-1, MTDs (which in this context are devices that meet the definition of “green infrastructure”) should be treated similar to small-scale bioretention systems for stormwater runoff quantity and groundwater recharge since, depending on the device, both can be provided. This would provide flexibility, so as not to stifle innovation in the application of green infrastructure. (23)

RESPONSE: Table 5-1 identifies the green infrastructure BMPs from the New Jersey Stormwater BMP Manual that can be used to satisfy the stormwater runoff quality, quantity, and/or recharge standards. Currently, certified MTDs can only be used to meet the water quality standards, and only two of the certified MTDs are considered to meet the green infrastructure

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definition. No certified MTDs provide groundwater recharge or stormwater runoff quantity. As new technologies or innovations emerge and are approved by the Department, in accordance with N.J.A.C. 7:8-5.2(f), the Department could amend the table through a notice of administrative change published in the New Jersey Register to include such technologies.

218. COMMENT: Table 5-1 should not state that MTDs can only achieve 50 or 80 percent annual TSS removal. The removal rate achieved by an MTD is determined through a detailed laboratory and field testing and reporting process that is then certified by the State. As such, there is no proscribed removal that an MTD must achieve. Instead, it achieves the rate that is demonstrated and certified and can be any value that the manufacturer designs and builds, and the State certifies it to be. (41)

RESPONSE: The Stormwater Management rules, at N.J.A.C. 7:8-5.2(j), require verification by NJCAT for an MTD prior to the Department certifying the technology. The NJCAT MTD verification process document (<https://www.njstormwater.org/pdf/njcat-mtd-process-1-25-13.pdf>) specifies TSS removal rates of 50 percent for hydrodynamic separator MTDs and 80 percent for filtration MTDs. An MTD that follows the prescribed Department testing protocol (see <https://www.njstormwater.org/treatment.html>) and meets the removal efficiency can be verified by NJCAT, and subsequently certified by the Department at the noted removal rates. Since 2013, there has been no field testing component to the NJCAT verification or the Department's certification process.

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219. COMMENT: It is concerning that the Department included two particular BMPs in the proposed list of accepted green infrastructure practices. Specifically, dry wells and MTDs, neither of which appears on the USEPA's list of green infrastructure BMPs. Neither of these BMPs should be included in Table 5-1 or Table 5-2 of the proposed rulemaking, listing approved green infrastructure practices. (16)

RESPONSE: As noted in the Response to Comments 206, 207, and 208, dry wells manage stormwater close to its source and treat runoff through infiltration into the subsoil, and, thus, meet the definition of green infrastructure at N.J.A.C. 7:8-1.2. Similarly, MTDs have a limited drainage area and, at the current time, at least two of these devices treat stormwater through filtration by soil and vegetation, thereby meeting the green infrastructure definition. As noted in the Response to Comment 85, the USEPA has not established a specific definition for green infrastructure. The link to the USEPA guidance referenced in Comment 85 does not provide a specific definition of green infrastructure, but rather provides different management practices that the USEPA believes can be "woven into a community." The Department believes that the green infrastructure practices noted by the USEPA are examples and were not intended by the USEPA to be an all-inclusive listing of green infrastructure management practices.

*N.J.A.C. 7:8-5.2(f) - Pervious Paving Systems*

220. COMMENT: Table 5-1 does not require that pervious paving achieve any degree of runoff infiltration nor does it have any subsurface permeability or depth to groundwater requirements. As such, it is not clear how this type of paving achieves its assigned TSS removal

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rate of 80 percent other than the implication that it does so simply by passing the runoff through itself with no further treatment or infiltration required. What data and/or analyses does the Department base its TSS removal rate on, particularly since there are no subsurface infiltration, permeability, or depth to groundwater requirements? (41)

RESPONSE: Table 5-1 lists a minimum separation from the seasonal high water table for both pervious paving systems with underdrains and those without. Further, N.J.A.C. 7:8-5.2(f) requires that BMPs listed in Tables 5-1, 5-2, and 5-3 be designed in accordance with the New Jersey Stormwater BMP Manual to be presumed capable of providing stormwater controls for the design and performance standards as outlined in the tables. Therefore, in order to be presumed capable of providing the 80 percent TSS removal rate associated with pervious paving systems, those systems must be designed to meet the specific criteria contained in the tables, the Stormwater Management rules, and the applicable chapters of the New Jersey Stormwater BMP Manual.

The subchapter of the New Jersey Stormwater BMP Manual entitled “Pervious Paving Systems” was extensively revised and subsequently published in November 2016. A system designed in accordance with all of the design and performance standards published therein, that is, standards regarding inflow, surface course, choker course, storage bed, safety, outlet structure, construction requirements, cold weather requirements, and the specific standards based on the material comprising the surface course, is assigned an 80 percent TSS removal rate. The minimum infiltration rate of the surface course designed to address water quality is 6.4 inches/hour. The minimum design permeability of the subsoil is 0.5 inches per hour. The

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reference section, which begins on page 34 of that chapter, contains a list of 26 references on which the Department based its TSS removal rate and other requirements. The chapter can be viewed at: <https://www.njstormwater.org/pdf/2016-11-07-pervious-paving-final.pdf>.

221. COMMENT: Clarification is needed on how pervious pavers can be designed to address stormwater quantity management, as this is not clear in the notice of proposal. (24)

RESPONSE: The New Jersey Stormwater BMP Manual provides, in part, design specifications, removal rates, calculation methods, and soil testing procedures approved by the Department as being capable of contributing to the achievement of the stormwater management standards specified in the Stormwater Management rules, and as such, additional clarification is not needed within the rules. Specifically, the subchapter entitled “Pervious Paving Systems” of the New Jersey Stormwater BMP Manual discusses, in detail, the design, usage, and benefits of pervious pavers, and how pervious paving systems can be used to achieve water quantity, quality, and groundwater recharge requirements.

*N.J.A.C. 7:8-5.2(f) - Sand Filters*

222. COMMENT: Sand filters that don’t infiltrate should still be considered green infrastructure because they treat runoff by filtering water through sand. (27)

223. COMMENT: Why are sand filters acceptable only with infiltration? When are sand filters considered green infrastructure? (28)

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RESPONSE TO COMMENTS 222 AND 223: Sand filters that do not infiltrate do not meet the definition of “green infrastructure” at N.J.A.C. 7:8-1.2. In particular, they do not include filtration by soils or vegetation. The use of a sand layer alone is not sufficient to qualify as green infrastructure. Bioretention systems, on the other hand, that include a soil layer and vegetation are considered green infrastructure, even if they are not designed to infiltrate.

224. COMMENT: Why are sand filters being categorized as green infrastructure practices when many other equally or more effective flow-through treatment practices are excluded? Sand filters do not include soil or vegetation, nor do they typically infiltrate. If sand filters are acceptable, then all media filtration systems achieving appropriate levels of pollutant reduction should also be included. (4)

RESPONSE: “Green infrastructure” is defined at N.J.A.C. 7:8-1.2. The BMPs contained in the New Jersey Stormwater BMP Manual that meet this definition of green infrastructure are found in Tables 5-1 and 5-2 at N.J.A.C. 7:8-5.2(f) and include both small-scale sand filters and size-unrestricted sand filters. In order for a sand filter to be considered green infrastructure, it must be designed to infiltrate stormwater runoff into the subsoil. Sand filters that are not designed to infiltrate, and similarly, media filtration systems, do not meet the definition of green infrastructure.

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*N.J.A.C. 7:8-5.2(f) - Vegetative Filter Strips*

225. COMMENT: N.J.A.C. 7:8-5.2(f) cites the tables to be used to meet green infrastructure BMPs. The Department should clarify whether existing green infrastructure facilities that comply with the proposed tables, whether natural or manmade, can be relied upon to meet the requirements for a new major development. For example, can existing vegetative filter strips that will remain in place downstream of a new major development be relied upon to meet green infrastructure requirements by routing overland runoff from the new major development into and through the existing vegetative strip. (2 and 17)

RESPONSE: It is true that the rules do not distinguish between natural and manmade BMPs. While most BMPs are manmade, the Department can conceive of scenarios where the use of natural green infrastructure would be appropriate and feasible, but does not anticipate many such instances. As suggested by the commenter, this seems most likely for the vegetative filter strip BMP, which specifically allows the use of existing forested areas, assuming the applicable design criteria can be met. It would be the task of the design engineer to ensure that the operating and design characteristics of any existing green infrastructure are sufficient to manage both the original stormwater and the stormwater runoff from the new intended development in accordance with the applicable regulatory requirements.

226. COMMENT: The Department should allow treating stormwater through natural filtration into subsoils followed by vegetation. (42)

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RESPONSE: A vegetative filter strip is a stormwater management measure that treats stormwater through natural filtration and vegetation. Pollutants are removed from stormwater runoff through filtration and biological uptake, which can aid in meeting the stormwater runoff quality standards by removing 60 to 80 percent of the TSS, depending on the type of vegetation used. This BMP is included in Table 5-1 as an option for compliance and is considered green infrastructure. As such, the suggestion made by this commenter is already incorporated into the adopted rule. See the New Jersey Stormwater BMP Manual subchapter entitled “Vegetative Filter Strips” for design criteria for a vegetative filter strip.

*N.J.A.C. 7:8-5.2(f) – Standard Constructed Wetlands and Subsurface Gravel Wetlands*

227. COMMENT: Under N.J.A.C. 7:8-5.2(f), please clarify whether a constructed wetland can be used to achieve water quantity and water quality requirements without a waiver, given that acceptable upstream pre-treatment has been provided either as a separate BMP or a forebay on the constructed wetland. (38)

RESPONSE: As indicated by Table 5-2, a standard constructed wetland can be used for compliance with the stormwater runoff quantity standard, but not the water quality requirements at N.J.A.C. 7:8-5.5, unless a waiver or variance is granted. While it is possible that a separate upstream BMP may satisfy the water quality requirements, the standard constructed wetland would not be the BMP achieving compliance with the stormwater runoff quality requirements.

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228. COMMENT: As proposed, without a waiver, standard constructed wetlands will not be able to be used to meet water quality and/or groundwater recharge requirements (Table 5-2); they will only be considered for meeting water quantity requirements. Constructed wetlands are highly effective in addressing water quality. The Department should clarify that a constructed wetland can be used to achieve water quantity and water quality requirements without a waiver, given that acceptable upstream pre-treatment has been provided either as a separate BMP or a forebay on the constructed. (20 and 39)

RESPONSE: In accordance with the Department's goal of decentralizing and managing stormwater runoff close to its source, N.J.A.C. 7:8-5.3 establishes maximum contributory drainage areas for green infrastructure BMPs. By design, standard constructed wetlands must have a minimum drainage area of 10 acres, thus, putting this BMP out of line with the Department's goal. As such, and as noted under Table 5-2, the use of constructed wetlands can be allowed for compliance with the stormwater runoff quality standard only via a waiver or variance, and then, only if it is designed and built in accordance with the New Jersey Stormwater BMP Manual, will it be recognized to achieve the stormwater runoff quality and quantity standards. It should also be noted that a standard constructed wetland is not capable of providing groundwater recharge. So, with or without a waiver, it is not an acceptable BMP for meeting the groundwater recharge standard.

229. COMMENT: Table 5-3 lists subsurface gravel wetlands as a BMP that does not provide water quantity mitigation. While subsurface gravel wetlands do not provide groundwater

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recharge or water volume reductions, they do provide peak rate mitigation as a result of the horizontal travel time. (20 and 39)

RESPONSE: In accordance with the existing New Jersey Stormwater BMP Manual subchapter entitled Subsurface Gravel Wetlands, subsurface gravel wetlands are stormwater management systems designed to address the stormwater *quality* impacts of land development. The subsurface gravel wetlands BMP is not capable of providing compliance toward the groundwater recharge or stormwater runoff *quantity* standards. The main purpose of this BMP is to provide TSS removal and denitrification. Denitrification requires longer retention time to achieve the stated removal rates. Utilizing this BMP for stormwater runoff quantity control would result in larger volumes of water flushing the system and affecting the microbial treatment inherent in the design. Additionally, the nature of the design of this particular BMP produces in no appreciable retention time for the larger design storms. Therefore, subsurface gravel wetlands cannot be used to comply with the stormwater runoff quantity standard.

*N.J.A.C. 7:8-5.2(f) - Wet Ponds*

230. COMMENT: Under N.J.A.C. 7:8-5.2(f), the notes to Tables 5-1, 5-2, and 5-3 state that wet ponds will be required to be designed to maintain at least a 10-foot-wide area of native vegetation along at least 50 percent of its shoreline and to include a stormwater retention component designed to capture stormwater runoff for beneficial reuse. The Department should clearly define design timing requirements to meet “beneficial reuse.” (38)

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RESPONSE: The design requirements for each BMP listed in Tables 5-1, 5-2, and 5-3 are contained within the New Jersey Stormwater BMP Manual. The Department intends to include the specific information requested within a revised subchapter entitled Wet Ponds. The chapter contains no timing requirements relative to the beneficial reuse requirement. However, it requires that the development site includes active, long-term demand for water reuse, such as irrigation at a golf course.

231. COMMENT: The term “beneficial reuse” used in footnote d of Table 5-2 needs further definition/clarification. Other than irrigation, what other uses would qualify? How should the size/volume of the wet pond relate to the volume of water proposed for reuse? (44)

RESPONSE: Revisions are being made to the wet pond chapter of the New Jersey Stormwater BMP Manual to provide clarity on the beneficial re-use component of that BMP. Other beneficial reuses include, but are not limited to, toilet flushing and vehicle washing. The volume of reuse is dependent on the on-site demand for water rather than the total volume of the wet pond.

232. COMMENT: Regarding proposed Tables 5-2 and 5-3, wet ponds, subsurface gravel wetlands, and standard constructed wetlands can provide 90 percent removal of TSS, which is a higher TSS removal than any of the Table 5-1 BMPs, except certain small scale bioretention systems, yet they cannot be utilized for water quality treatment unless usage of all the lesser

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effective BMPs is deemed technically infeasible. This is contrary to the Clean Water Act goal of utilizing the best available treatment technology for water quality. (7 and 8)

RESPONSE: Best Available Technology Economically Achievable (BAT) is defined in the Clean Water Act at section 304(b)(2). In general, BAT represents the best available economically achievable performance of plants in the industrial subcategory or category

(<https://www.epa.gov/eg/learn-about-effluent-guidelines#BAT>). The BAT requirements are applicable to effluent limitations for point sources (33 U.S.C. § 1311(2)(A)). However, 40 CFR 122.44(k) authorizes BMPs to control stormwater discharges, which include the stormwater discharges from the major developments defined in the Stormwater Management rules. The factors in the selection of BMPs include not only the effectiveness of a BMP, but also the alterations to the hydrology caused by the developments. Wet ponds, standard constructed wetlands, and subsurface gravel wetlands collect runoff from large drainage areas and do not recharge the stormwater back to the groundwater near the source and are likely to result in greater alteration of existing or pre-development hydrology. Additionally, these BMPs require large contributory drainage areas to maintain their permanent pools. Therefore, these BMPs do not satisfy the intent of the rules to maintain or reproduce, as closely as possible, the natural hydrologic cycle and, therefore, were not included in Table 5-1.

*N.J.A.C. 7:8-5.2(g)*

233. COMMENT: The Department should allow for innovation and creative design alternatives, as science is ever-evolving. The Department should include a framework or process for design

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flexibility in order to allow for changing technology and innovative stormwater management.

The following suggested language, based on language in Philadelphia Water Department regulations, could appear as a footnote to Tables 5-1, 5-2, and 5-3 at N.J.A.C. 7:8-5.2(f): BMPs contained in these tables are not exclusive. The Department encourages the development of innovative practices that meet the intent of the Stormwater Rules. The Department recognizes that new stormwater management systems and products are being developed continuously and supports innovative approaches to management. Design professionals are encouraged to request a pre-application meeting with the Department's Division of Water Quality early in the approval process to discuss BMP design requirements or if the designer wishes to use new or non-standardized technologies to meet the requirements of N.J.A.C. 7:8. (43)

234. COMMENT: The Department needs to provide a clear definition of acceptable alternative measures. The rule states "alternative measures 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 review agency." What documentation is required? What proof of performance is required? How will this program use the existing NJCAT verification program? (28)

235. COMMENT: More specific criteria at N.J.A.C. 7:8-5.2(g) is required for approval of "alternative measures" to avoid confusion and allow for predictability. (19)

236. COMMENT: Proposed N.J.A.C. 7:8-5.2(f) should be amended to clearly allow for deviations from the New Jersey Stormwater BMP manual technical requirements, subject to review and approval by the Department, for a given BMP where the deviations are appropriate from an

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engineering or technical perspective based on the specific site and proposed application. By way of illustration, wet ponds have a minimum required drainage area of 20 acres but allow for a water budget analysis to be submitted in order to demonstrate that a smaller contributory drainage area is appropriate for a specific application. While this type of deviation was recently codified in the 2014 wet pond BMP, there are often site-specific instances that are not, and cannot, be reasonably foreseen and/or practically addressed for each BMP. This flexibility needs to be provided, so that the design engineer can optimize the stormwater management system for a particular site and project. (23)

237. COMMENT: How will alternative stormwater management measures (N.J.A.C. 7:8-5.2(g)) be vetted and approved? A clear, robust, and well-defined process must be presented to ensure proper functionality and performance of alternative BMPs, as well as parity with BMPs already accepted for use. (4)

238. COMMENT: The minimum amount of performance documentation for acceptance of an alternative stormwater management measure approved pursuant to N.J.A.C. 7:8-5.2(g) should be clearly noted. (4)

RESPONSE TO COMMENTS 233 THROUGH 238: The adopted rules allow that innovative design, as an alternative stormwater management measure may be used to meet the requirement to use green infrastructure, if the alternative measure is approved pursuant to N.J.A.C. 7:8-5.2(g) and meets the definition of green infrastructure. Designs that deviate from the New Jersey Stormwater BMP Manual may also be reviewed as alternative stormwater management measures in the same manner. Unlike designs that meet the requirements set forth in the New

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Jersey Stormwater BMP Manual, the burden of proof in demonstrating the capability of an alternative stormwater management measure is on the applicant. The required documentation to demonstrate the capability of these alternative measures depends on the specific nature of the alternative stormwater management measures and the review agency's instructions, as the capability of the alternative stormwater management measure must be demonstrated to the review agency's satisfaction. The documentation may include, but is not limited to, surveys, observational records, field tests, hydrologic and hydraulic modeling and simulations, scientific reports, and/or academic studies and articles. Since the Department cannot predict what alternative stormwater management measures may be created in the future and to allow for innovation, an all-inclusive list of required documentation cannot be provided in the rule. The allowance of alternative stormwater management measures has been in the Stormwater Management rules since the rules were adopted in 2004. This process does not rely on the NJCAT verification program, which is only used for MTDs.

239. COMMENT: Proposed N.J.A.C. 7:8-5.2(g) states that 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 or waiver is granted. Both standard constructed wetlands and wet ponds provide excellent runoff quality mitigation as is recognized in proposed Table 5-2. Therefore, the prohibition on alternative measures that function similarly appears to be without basis and should be adjusted to allow alternative

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measures that function similarly to standard constructed wetlands or wet ponds to be used for compliance with the stormwater runoff quality standard without a variance or waiver. (23)

RESPONSE: As further described in the notice of proposal Summary, 50 N.J.R. at 2377-2380, the Department has a goal of increased use of small-scale decentralized stormwater management systems. Wetlands, wet ponds, and similarly functioning alternative BMPs rely on larger drainage areas to maintain the permanent pools that these systems rely upon, and, thus, cannot meet the Department's goal of small-scale decentralized stormwater management systems. While these types of larger contributory drainage area BMPs are permitted for stormwater runoff quantity control, the small-scale decentralized BMPs will be required in order to comply with the stormwater runoff quality standard and the groundwater recharge standard to achieve the standards contained in the rules and accomplish the goals of this chapter as expressed in the notice of proposal summary and summarized in the Response to Comment 240.

240. COMMENT: Drafting a standard that only allows the use of green infrastructure practices will stop all future innovation. Why would the Department implement regulations that do not encourage the development of even more cost effective and higher performing BMPs? (4)

RESPONSE: As stated in the notice of proposal Summary, 50 N.J.R. 2376-2377, the "use of green infrastructure BMPs, such as pervious paving, infiltration basins, and bioretention systems, will more effectively achieve the Department's goals under the existing rules of reducing stormwater runoff volume, reducing erosion, encouraging infiltration and groundwater

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recharge, and of maintaining, or reproducing as closely as possible, the natural hydrologic cycle and minimizing the discharge of stormwater-related pollutants, such as TSS and nutrients.” The Department welcomes innovation that aligns with the stated goals, especially innovations that are more cost effective and better performing. Alternative BMPs are allowed pursuant to N.J.A.C. 7:8-5.2(g), provided that those alternatives meet the definition of green infrastructure or the project is granted a variance from the green infrastructure standard or a waiver of strict compliance at N.J.A.C. 7:8-5.2(e). Further, as stated in the Economic Impact statement, 50 N.J.R. at 2394, “the Department anticipates that the change from conventional stormwater management to the use of green infrastructure will spur innovation and development of new MTDs that meet the definition of green infrastructure and will seek certification in the future.”

241. COMMENT: The Department should consider allowing for innovation in the New Jersey Stormwater BMP Manual. For example, using pumps for green roofs or drainage to a green roof. (3)

RESPONSE: The New Jersey Stormwater BMP Manual is separate from, although referenced within, the Stormwater Management rules and is not amended through this rulemaking.

However, innovative BMPs can be approved as alternative stormwater management measures pursuant to N.J.A.C. 7:8-5.2(g). For more information on green roofs, see the Response to Comments 209, 210, and 211.

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*N.J.A.C. 7:8-5.2(h)*

242. COMMENT: Because the new Stormwater Management Rules will require more infiltration features, better guidance should be provided for groundwater mounding analysis, especially as it relates to infiltration BMPs that may have influence on each other due to the constraints on drainage area size. In other words, it may be difficult to place green infrastructure BMPs far enough apart where their mounds would not impact each other. (27)

243. COMMENT: At proposed N.J.A.C. 7:8-5.2(h), the language implies that a groundwater mounding analysis (or similar demonstration) will be required for any infiltration measure. Does the Department intend to publish a standard for such analyses in the New Jersey Stormwater BMP Manual? Mounding is referenced (without specific criteria) in the New Jersey Stormwater BMP Manual's subchapter entitled Infiltration Basins; however, as the subject rule changes will surely result in a significant increase in the use of infiltration measures, a specific standard is warranted. In the absence of adopted criteria/protocols, the subjectivity door will be wide open. (23 and 44)

RESPONSE TO COMMENTS 242 AND 243: N.J.A.C. 7:8-5.2(h) requires assessment of the hydraulic impact on the groundwater table when an infiltration stormwater management measure is used and specifies the site must be designed to avoid adverse hydraulic impacts. In January 2019, the Department released a draft of a new chapter for the New Jersey Stormwater BMP Manual, entitled Groundwater Table Hydraulic Impact Assessment Guide for Infiltration BMPs and the Department anticipates publishing a final version of this chapter in the near future. This chapter was drafted to provide guidance on assessing groundwater mounding and

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includes explanations on how to use the Hantush Spreadsheet, appropriate ranges for input values, and numerous examples. Much of this information was discussed in Department conducted stakeholder meetings. This chapter also includes a discussion on calculating the combined effect of multiple BMPs.

244. COMMENT: Under N.J.A.C. 7:8-5.2(i)2, a one-inch spacing for a trash rack at and below the water quality elevation will lead to clogging due to grass, leaf litter, and other debris carried by runoff, and cause water to rise to the next higher outlet. This will allow higher flow rates to exit the control structure. The Department should consider a larger opening or an alternative. (25)

RESPONSE: The one-inch trash rack spacing is not a new requirement but has been recodified from N.J.A.C. 7:8-5.7 to 5.2. The one-inch spacing has been in place since 2004. The purpose of the trash rack is to prevent as much debris as possible, including grass clippings and leaf litter, from entering the outlet structure and being discharged downstream into the receiving waters. Trash rack openings larger than one inch would allow more debris, including grass clippings and leaf litter, to enter the outlet structure, where it is more difficult to remove. Since the commenter did not provide any suggested alternatives, the Department is unable to evaluate those. However, if such an alternative is brought to the attention of the Department, it can be discussed as part of the ongoing stakeholder process noted above in the introductory description of the amendments adopted at this time and in the notice of proposal Summary, 50 N.J.R. at 2376.

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*N.J.A.C. 7:8-5.2(j)*

245. COMMENT: At N.J.A.C. 7:8-5.2(j), are NJCAT verification and Department certification for 80 percent TSS removal required? What is the performance expectation? The Department should specify filtration or hydrodynamic separation and also add a reference to N.J.A.C. 7:8-5.5 for further clarification. While that section references the NJCAT verification process, the Department should provide greater detail on the requirement to follow NJCAT verification and Department verification process, including sizing. (28)

RESPONSE: As stated at N.J.A.C. 7:8-5.2(j), NJCAT verification and Department certification of the pollutant removal rate are required for any MTD used to meet the requirements of N.J.A.C. 7:8. However, some MTDs are verified and certified for 50 percent TSS removal (hydrodynamic separators) and others for 80 percent (filters). It is up to the designer to follow the computational methods identified in the New Jersey Stormwater BMP Manual and on the Department's website at [https://www.njstormwater.org/mtd\\_guidance.htm](https://www.njstormwater.org/mtd_guidance.htm) for sizing the MTD. The performance expectations and detailed information of the protocol for filtration and hydrodynamic separation can also be found at the aforementioned hyperlink.

*N.J.A.C. 7:8-5.2(l)*

246. COMMENT: N.J.A.C. 7:8-5.2(l) states that if there is more than one drainage area, the groundwater recharge, stormwater runoff quality, and stormwater runoff quantity standards at N.J.A.C. 7:8-5.4, 5.5, and 5.6, respectively, shall be met in each drainage area, unless the runoff from the drainage areas converge onsite and no adverse environmental impact would occur as

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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. The requirement to meet the groundwater recharge and quality in each drainage area is not practical for linear development projects with drainage areas that do not converge onsite. For example, a small drainage area may have re-developed pavement that may require 50 percent TSS treatment but does not really change the pollutant load. It is understood that recharge and water quality is more regional. Meeting the recharge and groundwater recharge at each drainage area will result in additional BMPs and additional disturbances. This will also require additional maintenance at multiple locations, and safety concerns for access for maintenance, especially along linear development projects, such as highways and rails. The limits should be clarified/expanded to include HUC-14 or other more reasonable approaches. Also, please clarify the definition of drainage area which is too broad.

(6)

RESPONSE: The existing Stormwater Management rules already require that the water quality standards be met in each drainage area, and although this condition has been expanded to also apply to the groundwater recharge standard, N.J.A.C. 7:8-5.2(e) allows for a waiver from strict compliance from the requirements at N.J.A.C. 7:8-5.3, 5.4, 5.5, and 5.6 for the enlargement of an existing public roadway or railroad and other such linear development projects if the specified conditions are met.

Meeting the groundwater recharge standards in each drainage area will, in some cases, require maintenance to be performed at multiple, smaller locations, but as stated in the notice

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of proposal Summary, 50 N.J.R. at 2394, and explained in the Response to Comments 67 and 68, the Department expects that this redistribution of maintenance responsibilities should not be a significant increase from the overall maintenance that would be required at larger locations.

The amendments to these rules only apply to future major developments. The stormwater BMPs for those new projects should be designed to ensure safe access for all maintenance requirements.

HUC 14s are too large to allow for any stormwater standards to be averaged across areas of that size. The average size of a HUC-14 subwatershed in New Jersey is 8.5 square miles, and their boundaries do not follow the boundaries of towns or counties. Averaging standards across areas of this size would be counter to the goals of maintaining natural hydrology and managing stormwater runoff close to its source.

A new definition for the term drainage area is unnecessary. A new definition for the term “contributory drainage area” which is nearly the same term, was proposed and has been adopted into N.J.A.C. 7:8. A contributory drainage area is the area from which stormwater runoff drains to a stormwater management measure, not including the area of the stormwater management measure itself. The only difference in these two terms is that the definition of contributory drainage area is specific to a stormwater management measure, and the term drainage area in the context of N.J.A.C. 7:8-5.2(l) is broader, in that the drainage area is not limited specifically to a stormwater management measure, but to the point where the runoff leaves the site, which may or may not be at a stormwater management measure.

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247. COMMENT: The new rules will require the groundwater recharge requirements to be applicable to multiple drainage areas on site, unless they converge on site. Establishing groundwater flow characteristics, directions, and convergence on a site is a complex process that needs to consider many factors, including soil conditions. The potential drainage infrastructure cost impacts from this proposed rule may be substantial and the environmental impacts *de minimis*, unless the project's basin areas and the resulting recharge amounts are substantial. The Department should establish a designated boundary (for example, HUC14) to delineate the extent of groundwater flow on a site, in order to define on-site drainage area convergence. (10)

RESPONSE: Except in the case of a variance or waiver from strict compliance, as noted below, the groundwater recharge should be provided on-site. However, the process of evaluating groundwater flow characteristics described by the commenter is not required by the rules. Due to the complex nature of such an analysis, and the limited likelihood of a substantial deviation from surficial topography, it is only necessary to consider the overland flow drainage area in this regard and it is not necessary to consider a separate groundwater flow drainage area.

As noted in the notice of proposal Summary, 50 N.J.R. at 2390, absent such a requirement that runoff converge on site before averaging can be used to demonstrate compliance, a development project with two drainage areas could be designed to have one groundwater recharge area exceed the recharge requirement but another groundwater recharge area provide no groundwater recharge, with the weighted average of the two points

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arguably in compliance with the standard contained in the rules. One purpose of design and performance standards for groundwater recharge is to minimize the loss of groundwater recharge caused by a major development. A situation that allows a greater impact on groundwater in one area than another area of a site undermines the purpose of the rules. The extent of an area designated as HUC 14, in reference to the groundwater recharge requirement, should only be considered when evaluating a location for groundwater recharge mitigation pursuant to a variance approval, or in situations where a waiver from strict compliance at N.J.A.C. 7:8-5.2(e) is applicable and strict compliance is not practicable.

248. COMMENT: The proposed language at N.J.A.C. 7:8-5.2(l) consists of one long sentence and is confusing. The Department should clarify this provision on adoption by more clearly stating what is required to demonstrate how this standard is to be met. Including an example within the regulation itself would also be helpful. (37)

RESPONSE: As the commenter did not provide any specifics other than the fact that the sentence is long, the Department is unable to evaluate any suggested revision to the language. However, the Department will include examples on the applicability of this subsection in a revised Chapter 5 of the New Jersey Stormwater BMP Manual.

249. COMMENT: Regarding proposed N.J.A.C. 7:8-5.2(l), the proposed rule requires that if there is more than one drainage area, the groundwater recharge and stormwater runoff quantity standards be met in each drainage area, unless the runoff from the drainage areas converge on

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the site. If two or more drainage areas converge downstream off the site, and provided there is no downstream impact off-site to neighbors or adjacent property owners, the drainage areas should be considered as one for the purpose of addressing the quantity utilizing a weighted average of the results across the affected drainage areas. Additionally, deficits in groundwater recharge do not specifically relate to on-site surface water drainage areas, so the restriction on recharge is inappropriate and should be eliminated. (7, 8, and 24)

250. COMMENT: For groundwater recharge and quantity management, the notice of proposal requires analysis of each watershed at the point of discharge from the site. If two watersheds ultimately converge downstream of the site, can these be considered as one for the purpose of recharge and quantity provided there is no downstream impact off-site to neighbors or adjacent property owners? The Department seems willing to permit mitigation projects for the municipal waiver process for projects located within the same HUC-14. Wouldn't this be a similar approach? The Stormwater Management Rule adoption document should address this issue. (27)

RESPONSE TO COMMENTS 249 AND 250: Allowing multiple drainage areas that converge off site to be considered as one would potentially result in adverse impacts in one or more drainage areas with respect to groundwater recharge and/or stormwater runoff quality standards. Ensuring that neither of these adverse impacts occurs would force reviewing agencies into evaluating a level of additional complex calculations that would place an untenable burden on them, while potentially subjecting nearby property owners to additional risk. As adopted, the new rule allows the use of a weighted average of the controls

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implemented in the drainage areas if the runoff from those drainage areas converge on site and it is demonstrated that use of the weighted average will not result in any adverse environmental impacts. This will provide flexibility while ensuring compliance with the standards and goals of the Stormwater Management rules.

The Department considered the fact that groundwater flow does not specifically relate to on-site surface water drainage areas and considered requiring that the groundwater flow areas converge on-site rather than the surface drainage area. However, the Department determined that the use of the surface drainage area was an adequate surrogate for the groundwater flow, as, in the majority of cases, they follow the same patterns and, therefore, the additional analysis required to determine the exact groundwater flow directions would not provide substantial benefit.

Variances can only be granted when the applicant demonstrates, to the satisfaction of the municipality, that the standards cannot be achieved on-site due to technical impracticability. So, allowing groundwater recharge or stormwater runoff quantity controls to be averaged across the entire site for all major developments would circumvent the important demonstration that compliance in each drainage area was technically infeasible, and would potentially allow adverse impacts to occur on nearby properties.

*N.J.A.C. 7:8-5.2(m)*

251. COMMENT: The proposed requirement for deed notices for stormwater management measures is appropriate. By providing notice of existing stormwater facilities to the new

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owners of properties that change hands, this requirement would help ensure that BMPs are maintained. As a result, it would be an important step toward addressing the widespread failures of stormwater BMPs seen across New Jersey that have hindered progress toward improving water quality. (16)

252. COMMENT: The requirement for deed notices to be recorded identifying the type and location of each stormwater management measure (proposed N.J.A.C. 7:8-5.2(m)), when taken with the existing requirement that BMP maintenance plans also be recorded in the deed, strengthens overall stormwater protections. Far too often stormwater management measures are not kept up when properties change ownership, so clear notification in the property deed makes potential purchasers aware of their responsibilities. (15)

RESPONSE TO COMMENTS 251 AND 252: The Department acknowledges these comments in support of the rules.

253. COMMENT: The requirement of deed restrictions for stormwater management measures is supported; however, the rulemaking does not go far enough to ensure that the systems are functioning as designed, in perpetuity. Additional requirements to maintain, and if necessary repair, non-functioning systems should be included. The proposed rulemaking also does not address existing non-functioning stormwater management systems that may be exacerbating the degradation of downstream receiving waterbodies. (32)

RESPONSE: The Department acknowledges the commenter's support of the deed notice requirement applicable to stormwater management measures in accordance with N.J.A.C. 7:8-

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5.2(m). The maintenance requirement section of the rules is found at N.J.A.C. 7:8-5.8, which was not amended in the rulemaking, so was not reproduced in the notice of proposal. N.J.A.C. 7:8-5.8 requires the design engineer to prepare a maintenance plan for the stormwater management measures that contains specific preventative maintenance tasks and schedules. N.J.A.C. 7:8-5.8(e) requires preventative and corrective maintenance be performed to maintain the function of the stormwater management measure, including repairs or replacement to the structure, and N.J.A.C. 7:8-5.8(g) requires that the person responsible for maintenance evaluate the effectiveness of the maintenance plan at least once per year and adjust the plan and the deed notice as needed.

In addition, the Municipal Separate Storm Sewer System (MS4) permits require the municipality to develop, update, implement, and enforce a program to ensure adequate long-term cleaning, operation, and maintenance of stormwater facilities not owned or operated by the municipality, not subject to the conditions of another NJPDES stormwater permit, and constructed after February 7, 1984. The obligation of the municipality to enforce proper maintenance of privately owned stormwater facilities prior to 2004 and independent of the operation of an MS4 is also inherent from the first adopted Stormwater Management rules in 1983, authorized under the Stormwater Management Act enacted in 1981 (P.L. 1981, c. 32, codified at N.J.S.A. 40:55D-93 et seq.). The 1983 Stormwater Management rules require that the “[r]esponsibility for operation and maintenance of storm water management facilities ... shall remain with the property owner and shall pass to any successor or owner.” However, it also mandates that “the approving agency [of the development] shall be made to insure

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continued performance of these obligations” N.J.A.C. 7:8-3.4(a)5 (as it was codified in 1983).

The 1983 Stormwater Management rules further impose on the municipality a duty to incorporate a “schedule of maintenance inspections” into the municipality’s ordinance. When a private entity neglects the maintenance duty, the 1983 Stormwater Management rules authorize the municipality to perform the maintenance work for the private entity and charge the private entity for the cost of such work. Although the Stormwater Management rules were revised effective February 2, 2004, the Stormwater Management rules in effect on February 1, 2004, remain applicable to older major development, particularly regarding these maintenance obligations.

254. COMMENT: The proposed amendment to allow the use of green infrastructure at N.J.A.C. 7:8-5.2 and 5.3 poses a serious concern on the maintenance and enforcement of these green infrastructure stormwater management measures. As currently proposed, there is no method of oversight that would ensure that any stormwater management system is being maintained or continues to function correctly. This concern is especially true when dealing with green infrastructure systems, which may not be as easily discerned as a stormwater management system and may be erroneously destroyed or left unmaintained. The Department is urged to adopt of a method of oversight and enforcement to ensure that stormwater management systems are properly maintained, continue to function correctly, and, in the situation where the system is not being maintained or has been destroyed, there is a clear enforcement path against the offending party. (12)

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RESPONSE: The Department classifies green infrastructure as a type of stormwater management measure and as a stormwater facility. Stormwater management measures regulated by this rule are approved through the review of applications for developments that require permits from the Department's Division of Land Use Regulation, approval under the Municipal Land Use Law, and/or through the requirements established in MS4 permits, all of which already contain requirements to ensure the stormwater management measures are maintained. Municipal review and approval is subject to either the local stormwater control ordinance or the RSIS. The local stormwater control ordinance is required to be at least as stringent as the Stormwater Management rules and the RSIS requires compliance with the Stormwater Management rules for major developments. Additionally, major developments that require permits from the Division of Land Use Regulation are reviewed for compliance with the Stormwater Management rules by the Department. In all cases, the maintenance requirements at N.J.A.C. 7:8-5.8 (or more stringent requirements in a local stormwater control ordinance) would be applicable. In addition, municipalities, as well as highway agencies and public complexes, are subject to conditions in their MS4 permits that specify the minimum standards for stormwater facilities maintenance. Permittees authorized under these permits are required to ensure adequate long-term cleaning, operation, and maintenance of all stormwater facilities they own or operate. In addition, municipalities are also required to develop, update, implement, and enforce a program to ensure adequate long-term cleaning, operation, and maintenance of stormwater facilities not owned or operated by the

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municipality. Therefore, there already exists methods for oversight and enforcement to ensure proper maintenance and continued function of green infrastructure.

255. COMMENT: The National Geodetic Survey will replace the North American Datum of 1983 (NAD 83) and the North American Vertical Datum of 1988 (NAVD 88) with a new geometric reference frame and geopotential datum in 2022. Given these rules will not become operative until 2021, it would be prudent to allow for this updated datum in addition to the NAD 1983 State Plane required at N.J.A.C. 7:8-5.2(m). (23)

RESPONSE: As indicated in the notice of proposal summary, the purpose of the deed notice is provide notice to future purchasers of the land that certain conditions exist on site or certain restrictions apply to the use of the property, and these conditions or restrictions continue to apply after the transfer of ownership in the property. The deed notice in conjunction with the BMP maintenance plan is intended to place future prospective owners of the property on notice of the presence, location, and maintenance obligations relative to the stormwater management measure and will ensure protection of the stormwater management measure in perpetuity. The Department agrees that the rule should make clear that the most current North American Datum may be used to reflect the location of the stormwater management measures on the property. However, as this change cannot be made upon adoption, the Department will propose to amend N.J.A.C. 7:8-5.2(m) in the upcoming rulemaking referenced in the Response to Comments 289 and 290 to make clear that any subsequent datums approved for use by NOAA's National Geodetic Survey can also be used.

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256. COMMENT: Proposed N.J.A.C. 7:8-5.2(m) will require that all stormwater management measures be reflected in a deed notice and identified by each measure's NAD 1983 State Plane (Coordinates) New Jersey FIPS 2900US Feet or Latitude and Longitude in decimal degrees. For ease of use when reviewing deeds, a plat, plan, map, or other form of document, which visually depicts each stormwater management measure's location, should be included in the deed notice. (37)

RESPONSE: The Department believes that the locational information proposed to be recorded in the deed notice is sufficient to provide the presence and location of the stormwater management measures that are to be protected and maintained. In addition, N.J.A.C. 7:8-5.8(d), which was not amended in the rulemaking, will continue to require that, where the entity responsible for maintenance is not a public entity, the maintenance plan (which may already include a plat, plan, or map) is recorded upon the deed of record for each property on which maintenance described in the maintenance plan must be undertaken. This ensures that potential purchasers and subsequent owners are provided notice not only of the existence and location of the stormwater management measure, but also the measures necessary to ensure that the stormwater management measure continues to function and provide the benefits it was designed to provide.

257. COMMENT: Are the requirements at N.J.A.C. 7:8-5.2(m) for the deed notice necessary for a public roadway or public or private railroad? (6)

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RESPONSE: The deed notice requirements at proposed N.J.A.C. 7:8-5.2(m) are applicable whenever a stormwater management measure is approved on land that has an assigned lot, regardless of ownership. Stormwater management measures approved on land areas that do not have assigned lot designations would not be subject to this requirement, because those land areas lack a deed to which a notice could attach.

258. COMMENT: The proposed rules, at N.J.A.C. 7:8-5.2(m), will now require recordation of a deed notice for all proposed stormwater management measures, which identifies the proposed stormwater management measures and associated maintenance requirements. Currently, the Stormwater Management rules do not require recordation of deed notices for public development, since there is no need to notice future landowners of their responsibility to maintain the stormwater management systems. The commenter has its own system for inventorying and assuring maintenance of their stormwater management systems. Requiring a deed notice would not help this process, but only add unnecessary burden. The proposed rules should exclude public development from requiring recordation of deed notices for stormwater management systems, consistent with the current rules. (10)

RESPONSE: The Department does not intend for projects that are not located on lots and blocks, such as the New Jersey Turnpike, to file a deed notice, since that would not be possible. Please also see the Response to Comment 257.

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259. COMMENT: N.J.A.C. 7:8-5.2(m) requires the filing of a deed notice, so that all “stormwater management measures” are identified in the deed. It is unclear whether the Department intends such notice to include inlets, conveyance piping, stormwater outfalls, etc. Although the term “stormwater management measure” is defined in the existing stormwater rules, the inclusion of a definition for the term “stormwater conveyance structures” would help clarify what is intended to be included and described in the deed notice, if the Department’s intent was to exclude these other components of the overall stormwater management system from the deed notice. If, however, the Department intended to include these features in the deed notice, the definition of “stormwater management measure” needs to be clarified to incorporate these typical features of the overall stormwater management system. (37)

RESPONSE: N.J.A.C. 7:8-5.8(a), which was not amended in the rulemaking, requires the design engineer to provide a maintenance plan for the stormwater management measures incorporated into the design of a major development project. The Department’s intent is that the stormwater management measures identified in the deed notice required at adopted N.J.A.C. 7:8-5.2(m) are the same stormwater management measures that would be identified in the maintenance plan required at N.J.A.C. 7:8-5.8(a). The Department does not intend for the deed notice to include inlets or stormwater conveyance piping. However, outfalls should be included.

260. COMMENT: N.J.A.C. 7:8-5.2(m) requires a deed notice containing the stormwater management measure and that the deed notice be filed prior to commencement of

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construction. The Department should not require a deed notice to be filed prior to commencement of construction. Instead, the deed notice should not be required to be filed until construction is completed to ensure that the deed notice represents actual construction. It is possible for a project that has received permit approvals to then not progress because of conditions that develop during or after project approval. (2 and 17)

RESPONSE: The requirement to file the deed notice is after the review agency issues its final approval but before the commencement of construction. If the actual construction is to differ from the final approval, then the applicant must go back to the review agency for a revised approval, and a revised deed notice must be filed prior to commencement of construction. If a project (for example, a housing subdivision) has received permit approvals but does not progress to construction because of conditions that develop during or after project approval, it is not necessary to file the deed notice.

261. COMMENT: The notice of proposal requires that the deed notice include reference to the maintenance plan. The Department should clarify the content of such reference or require a copy of the actual maintenance plan be filed with the deed notice rather than referencing the plan. (37)

RESPONSE: N.J.A.C. 7:8-5.8(d), which was not amended in the rulemaking, already requires the maintenance plan (including future revisions) to be recorded upon the deed of record for each property on which maintenance described in the maintenance plan must be undertaken. The reference on the deed notice required at N.J.A.C. 7:8-5.2(m) is only intended to direct the

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reader to the maintenance plan, which, as noted above, is also required to be recorded on the deed.

*N.J.A.C. 7:8-5.2(n)*

262. COMMENT: At proposed N.J.A.C. 7:8-5.2(n), the deed notice for a replacement measure should, as applicable to the specific project, provide for the elimination of the deed notice filed for the measure being replaced. Similarly, if the original measure is being altered, the replacement deed notice must, as appropriate on a project-specific basis, allow for the amendment of the original deed notice commensurate with the alteration. (44)

RESPONSE: Proposed N.J.A.C. 7:8-5.2(n) requires that when an alteration or replacement of previously approved stormwater management measure is approved a revised deed notice shall be submitted to the reviewing agency for approval and subsequently recorded with the appropriate Office of the County Clerk or the registrar of deeds and mortgages and shall contain a description and location of the stormwater management measure, as well as reference to the maintenance plan, in accordance with N.J.A.C. 7:8-5.2(m). The Department does not agree that this proposed condition should provide for the elimination or amendment of the original deed notice. When a land record is searched both the original and revised deed notice records will be returned, and it will be evident by the approved language contained within the revised deed notice if it is altering or replacing the original deed notice.

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263. COMMENT: Regarding proposed N.J.A.C. 7:8-5.5(m) and (n), the provisions requiring the filing of a deed notice are a requirement for the filing of a notice instrument in the title record of property where the development is located for the limited purpose of describing and identifying stormwater management measures, and such deed notice instruments would not constitute conservation restrictions pursuant, and subject, to N.J.S.A. 13:8B-1 et seq. Since the potential implications of having to release a conservation restriction for approved modifications to stormwater management measures would impose unnecessary burdens upon regulated parties and the Department, the Department should clarify N.J.A.C. 7:8-5.5(m) and (n) to confirm that the required deed notice is not a conservation restriction and is not subject to N.J.S.A. 13:8B-1 et seq. (23)

RESPONSE: N.J.A.C. 7:8-5.2(m) and (n) serve the purpose to place future prospective owners of the property on notice of the presence, location, and maintenance obligations relative to the stormwater management measure and will ensure protection of the stormwater management measure in perpetuity. The deed notice required by these subsections is not intended to serve as a conservation restriction and is not subject to N.J.S.A. 13:8B-1 et seq.

### **7:8-5.3 Green Infrastructure Standards**

264. COMMENT: The Department is to be commended for its acknowledgement that green infrastructure has aesthetic value. (3)

265. COMMENT: The proposed change at N.J.A.C. 7:8-5.3 that would require green infrastructure be utilized to meet the groundwater recharge, stormwater runoff quantity, and

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stormwater runoff quality standards for major development are welcomed. As written, the proposed language provides objectivity and predictability, which is lacking from the current “maximum extent practicable” language. The wide range of nonstructural alternatives now available, their proven efficacy (often meeting and/or exceeding the current standards) in a variety of settings, their cost-effectiveness, and resiliency, all provide support and justification for the Department to mandate their use. (15)

266. COMMENT: The rulemaking to require the use of green infrastructure to treat stormwater on major developments will provide benefits to both water quality and quantity in stormwater treatment. The use of green infrastructure is supported and provides certainty in design, may have a greater aesthetic value than grey infrastructure, and allows for infiltration to be counted with respect to applicable stormwater quantity standards, which should help designers meet stormwater requirements. (23)

267. COMMENT: The use of green infrastructure to treat stormwater for major development projects where feasible and practicable is supported as it will provide benefits for water quality treatment, water quantity management, and groundwater recharge requirements. (27)

268. COMMENT: The rulemaking is supported as it offers flexibility for the new requirement that major developments utilize green infrastructure to meet the “maximum extent practicable” standards of the Stormwater Management rules including, but not limited to, the ability to obtain a variance or waiver from strict compliance for enlargement of an existing public roadway or railway. (22)

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269. COMMENT: The proposed change to require the use of green infrastructure to treat stormwater on major developments should provide water quality and groundwater recharge benefits and the use of green infrastructure BMPs is supported, since they provide a certainty in design compared to the subjective non-structural strategies requirements and have a greater aesthetic value than so-called “traditional” grey infrastructure. (7 and 8)

270. COMMENT: The lack of a regulatory mechanism to evaluate the existing “maximum extent practicable” standard has been a burden to the development community and the Department regulators alike. This rulemaking is necessary to create clear standards for stormwater management techniques that can meet the “maximum extent practicable” test in the existing Stormwater Management rules at N.J.A.C. 7:8-5.3. (22)

271. COMMENT: The new green infrastructure requirement is supported as it gives rise to associated improvements, including a clear definition of green infrastructure; updates to the New Jersey Stormwater BMP Manual to provide appropriate credit for stormwater infiltration, meaning green infrastructure techniques like rain gardens, bioretention basins, and infiltration basins are presumed to infiltrate and function properly, making it unnecessary to design redundant gray infrastructure systems; clear tables that identify which green infrastructure BMPs (for example, rain garden/bioretention system, permeable pavements, green roof, cistern, grass swale) meet each of the three minimum design and performance standards. (43)

RESPONSE TO COMMENTS 264 THROUGH 271: The Department acknowledges these comments in support of the rules. It should be noted that upon the operative date of the rulemaking, the

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“maximum extent practicable” requirement in the Stormwater Management rules will no longer be applicable.

272. COMMENT: The removal of the subjective non-structural stormwater management “planning” strategies from the design standards is the most positive step that the Department could take to have clearer and better implementable requirements. Replacing these subjective requirements with green infrastructure design standards is definitely a positive step; however, the Department’s insistence on limiting the contributory drainage area associated with each mandatory green infrastructure BMP will continue to cause implementation problems and restrict design engineers from providing the most cost-effective, environmentally protective stormwater management designs on various sites, especially large industrial/commercial warehousing sites. Mandating the use of a limited number of specific green infrastructure BMPs for water quality and recharge without an identified off-ramp for certain situations, such as providing affordable housing on existing golf-courses and redevelopment of contaminated sites that are not in an urban redevelopment area and/or need to add more than 0.25 acres of regulated motor vehicle surfaces, will also continue to cause implementation problems. (7 and 8)

RESPONSE: The Department acknowledges the commenter’s support of the replacement of the nonstructural stormwater management strategies with the green infrastructure design standards. However, the Department does not agree that “limiting the contributory drainage area associated with each mandatory green infrastructure BMP will continue to cause

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implementation problems.” As noted in the Response to Comments 280 and 281, the

Department anticipates that limiting the contributory drainage area associated with each green infrastructure BMP will ensure that stormwater runoff is treated near the source, mimicking the natural hydrologic cycle.

273. COMMENT: While the proposed rule preamble gives credit to green infrastructure for reducing post-development runoff volume, the rule itself (at N.J.A.C. 7:8-5.2) has no numerical requirements for an applicant to do so and no way to evaluate achievement. Runoff volume and how that exacerbates existing riverine and urban flooding is particularly concerning. The Department should look to other jurisdictions to evaluate how runoff volume reduction has been required. There are modern standards that can be replicated. (25)

RESPONSE: Providing volume reduction is one of the key differences in performance between BMPs that meet the definition of green infrastructure at N.J.A.C. 7:8-1.2 and those that do not. So, while not specifically required under the adopted rulemaking, the Department anticipates that requiring green infrastructure will result in significant volume reduction. The definition of green infrastructure requires that the BMP function in one of three ways in order to be considered green infrastructure. Paragraphs one and three of the definition require that the BMP either infiltrate or store the stormwater runoff for re-use. Any BMP that functions on one of those two methods would provide significant volume reduction as both infiltration and storage for re-use prevent that stormwater runoff from leaving the site. Paragraph two of the definition requires filtration by soils and/or vegetation. BMPs that function in this way would

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also provide significant volume reduction, especially during a smaller rain event, though some of the stormwater runoff would still be discharged off-site after the volume reduction capability of the BMP is exceeded. Thus, it is not clear to the Department at this time what additional benefits would be achieved by a numerical volume reduction standard.

Additionally, this topic is one of the issues being discussed during the ongoing stakeholdering of the Stormwater Management rules noted in the introduction to this adoption. The Department welcomes any additional information the commenter may have regarding achieving volume reductions.

274. COMMENT: PSEG facilities are critical and vital infrastructure that provide essential gas and electric utility services to the residents and businesses of New Jersey. Utilities like PSEG are sited to meet demand and to ensure public safety and reliability. Utility facilities are located in urban, suburban, and rural communities across the State. Many facilities are located in heavily developed urban and suburban areas where, due to space constraints, safety and reliability concerns, or other issues, it would be technically impractical or infeasible to comply with the green infrastructure requirements onsite. Mitigation projects within the relevant drainage area may be unavailable or incommensurate with the scope of the development project.

Additionally, even in those drainage areas where a mitigation project is available, the utility would be required to maintain the project in perpetuity unless a public agency was willing to accept transfer of the project. As a result, a utility could be either unable to comply with the rule requirements or responsible for maintenance of a mitigation project in perpetuity,

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the unspecified and potentially unlimited costs of which would be borne by its ratepayers. To address these issues, the Department should include a utility-specific waiver within the rule provisions that exempts a utility from compliance with the green infrastructure requirements when, as demonstrated by the utility, it would not be practical or feasible to implement them onsite. In such cases, the utility could revert to onsite implementation of structural stormwater management. (11)

RESPONSE: As there are waivers, at N.J.A.C. 7:8-5.2(d), available to both underground and above ground utility lines, the Department assumes that these comments are directed toward the non-linear utility facilities, such as electrical substations.

These types of facilities (assuming they are major development) are currently subject to the same underlying stormwater runoff quality, quantity, and groundwater recharge standards as would be applicable after the operative date of this adopted rulemaking. The commenter provides no specifics as to why it would be technically impracticable or infeasible to meet the stormwater runoff quality, quantity, and groundwater recharge standards with green infrastructure, but would be feasible with non-green infrastructure BMPs, as would be required without this adopted rulemaking. "Space constraints, safety and reliability concerns, or other issues" appear equally applicable to both green infrastructure and non-green infrastructure BMPs. It should also be noted that this rulemaking applies to the development or redevelopment of these facilities, and will not apply to existing facilities that are not redeveloped.

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Regarding maintenance, as noted above, these facilities are currently subject to the stormwater runoff quality, quantity, and groundwater recharge requirements once the threshold for regulation has been exceeded. Whether the BMPs used to achieve compliance are located on-site or as part of an off-site mitigation project, it is the applicant's responsibility to ensure that they are maintained in perpetuity. This rulemaking will not result in an increased cost on ratepayers in that regard, as maintenance of the method used to achieve compliance with the rules in perpetuity is currently a requirement.

Regarding the location of mitigation projects, please see the Response to Comment 163.

275. COMMENT: The Department is incorrect or misinformed in stating that "the use of green infrastructure BMPs ... will more effectively achieve the Department's goals under the existing rules of reducing stormwater runoff volume, reducing erosion, encouraging infiltration, and groundwater recharge, and of maintaining, or reproducing as closely as possible, the natural hydrologic cycle." As the Department is, or should be, aware, the existing rules already achieve these goals to the same degree as the proposed green infrastructure approach through their current groundwater recharge performance standards. These standards already require equal or even greater amounts of infiltration (and subsequent) recharge than the proposed green infrastructure BMPs will do. Therefore, the reason quoted above as one of the primary reasons for proposing green infrastructure is not correct and offering it in the notice of proposal Summary is inappropriate and misleading. (41)

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RESPONSE: The Department did not amend the standards relative to groundwater recharge under the adopted rulemaking. Rather, the Department has replaced the requirement that major developments incorporate nonstructural stormwater management strategies to the “maximum extent practicable” to meet groundwater recharge standards, stormwater runoff quantity standards, and stormwater runoff quality standards, with a requirement that green infrastructure be utilized to meet these same standards. Since the groundwater recharge standard was not lessened and compliance with these adopted amendments will most often result in the use of infiltration type BMPs, where feasible, the logical effect of the amendments would be to increase the amount of infiltration and groundwater recharge that will occur on major developments. A hypothetical site may only require infiltration of one-half inch of runoff to meet the groundwater recharge standard, but with the proposed green infrastructure standard, the site may be designed to infiltrate the entire water quality design storm, which is 1.25 inches. In addition, the groundwater recharge standard, as identified at N.J.A.C. 7:8-5.4(a)2ii, does not apply to projects within an “urban redevelopment area.” However, since the use of infiltration type BMPs will be increased, the proposed green infrastructure standard will also likely increase the amount of infiltration and groundwater recharge in areas that fit the definition of an “urban redevelopment area” since infiltration BMPs will often be used even though groundwater recharge is not required.

Further, as explained in the notice of proposal Summary, 50 N.J.R. at 2376, while the goal of the use of nonstructural strategies at existing N.J.A.C. 7:8-5.3 is the same as the goal of the green infrastructure requirement adopted in this rulemaking, the nonstructural strategies were

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not successful in achieving the desired benefits. The subjective nature of the nonstructural strategies resulted in developers of major developments seeking to rely primarily on structural standards with few nonstructural strategies actually incorporated into development designs. Since the green infrastructure requirement lacks this same measure of subjectivity, the Department anticipates that it will be more successful in achieving the stated goals.

#### *Contributory Drainage Area*

276. COMMENT: Regarding proposed N.J.A.C. 7:8-5.3(b), the inclusion of dry wells as a green infrastructure BMP and maintaining the one-acre drainage area limit is supported. From a practical standpoint, this is self-regulating by virtue of the nature of the design. The use of this BMP for rooftop disconnection and recharge has proven effective in countless installations, particularly for single-family dwellings throughout the State. Dry wells are recognized as an infiltration BMP in many jurisdictions, including the New York State Stormwater Management Design Manual, the Stormwater Management Guidance Manual prepared by the Philadelphia Water Department, the Pennsylvania Stormwater BMP Manual, Prince George's County, Maryland's Environmental Site Design requirements, and the Maryland Environmental Site Design requirements. (7 and 23)

277. COMMENT: Regarding proposed N.J.A.C. 7:8-5.3(b), the proposed 2.5-acre contributory drainage area limitation for small-scale bioretention systems, small-scale infiltration basins, and small-scale sand filters is supported. The Department has provided a plethora of authoritative support for this threshold. From a practical perspective, the smaller the BMP, the lesser the

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potential adverse impact from groundwater mounding. Therefore, there is an inherent benefit to minimizing the contributory drainage to these types of BMPs. Providing the 2.5-acre “middle of the road” approach, allows for flexibility where the otherwise more desirable smaller BMPs are inherently difficult to achieve, such as for a warehouse development. (23)

278. COMMENT: Regarding proposed N.J.A.C. 7:8-5.3(b), continuing the current New Jersey Stormwater BMP Manual guidance limiting the maximum ratio of contributory drainage area to surface area of pervious paving systems to 3:1 is supported. This ratio has been successfully employed at numerous locations throughout the State. Further, this ratio allows for the downstream parking row (constructed of pervious pavement) of a double loaded parking aisle to service both the access aisle and the upstream parking row, which is an efficient application of this highly effective BMP. (23)

RESPONSE TO COMMENTS 276, 277, AND 278: The Department acknowledges these comments in support of the rules.

279. COMMENT: Why are MTDs being artificially restricted to treating 2.5-acre maximum drainage areas? There is no scientific reason for this and doing so will drive up the cost of both treatment and maintenance on larger properties. It is well documented that there are economies of scale realized when BMPs are scaled up. (4)

RESPONSE: MTDs that meet the definition of green infrastructure at this time function similarly to small-scale bioretention systems, which also are limited to a 2.5-acre drainage area maximum. The 2.5-acre contributory drainage area limitation was determined based on a

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review of various state and county regulatory agencies throughout the country, and deemed appropriate and necessary to achieve the Department's goal of treating stormwater runoff close to its source and maintaining the natural hydrology at a site. Should the Department determine a new methodology addresses a larger contributory drainage area while attaining the goals of this chapter, the Department will initiate rulemaking related to the drainage area limitation.

280. COMMENT: Regarding proposed Table 5-1, the Department's insistence on limiting the contributory drainage area associated with each mandatory green infrastructure BMP will continue to cause implementation problems and restrict design engineers from providing the most cost-effective, environmentally protective stormwater management designs on various sites, especially large industrial/commercial warehousing sites. Although the use of green infrastructure is supported where feasible and practical, there is a need to develop large industrial and commercial sites and incorporating green infrastructure BMPs into stormwater management designs for these large industrial and commercial sites will be challenging due to the proposed limitation on contributory drainage areas for each mandatory green infrastructure BMP. As an example, most industrial warehousing sites, many of which are now incorporating wholesale/retail spaces within portions of the buildings, can range from 20 to over 250 acres with total impervious areas, in some cases, over 100 acres due to the high demand for quick delivery of internet shopping items, as well as the growing need to provide marijuana products for medical, and perhaps, eventually, recreational, use. Due to the large

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tractor-trailers that these sites must accommodate, pervious paving is not appropriate. The proposed 2.5 acre maximum contributory drainage area for the green infrastructure BMPs would require an impractical number of BMPs for such sites. The Department should allow large-scale green infrastructure BMPs and an increase in the maximum contributory drainage area for BMPs to accommodate these large industrial and commercial sites. Designing the currently proposed green infrastructure techniques on a larger scale to increase the maximum contributory drainage area by incorporating multiple influent pipes could accomplish this. (7, 8, 24, and 27)

281. COMMENT: According to the proposed SWM Rules at N.J.A.C. 7:8-5.3(b), there are limitations on the drainage area to proposed bioretention systems, infiltration basins, and sand filters because it becomes more difficult "for the runoff to be evenly distributed across the filter bed" and "instead, the runoff from the smaller events is filtered largely around the entrance to the BMP and the filter bed in that area is subjected to more pollutants than the areas farther from the entrance." The rules should recognize that a single installation (such as infiltration bed) could have multiple inlet points and, therefore, the drainage area limitation should apply to each inlet, not to the installation as a whole. The Department's reasoning as presented in the proposed rules seems to be based upon BMPs with only single inlets and the presuming overloading of pollutants at the entrance is a problem of excessive drainage area and runoff and pollutant volumes to each individual entrance system, not the total drainage area and runoff to the BMP. In addition, limiting the drainage and size of BMPs will result in more land disturbance since the footprint of a single, larger BMP with multiple runoff entrances or inlets

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will be considerable smaller than the total footprint of several smaller BMPs with the same runoff volume and treatment capability with no more overloading of the entrance area. If overloading at inlets/entrances is such a problem, why does the Department want to regulate the drainage area to BMPs and not the inflow systems? As an example, if there is an X acre contributory drainage area to a green infrastructure BMP, but there must be enough outfalls or entry points into the BMP such that the contributory drainage limit is applied to each outfall into the BMP, not the BMP itself. If a certain spacing on the entry points must also be established to ensure adequate filtering of the runoff within the BMP, then that too could be suggested. (1, 38, and 41)

RESPONSE TO COMMENTS 280 AND 281: A goal of the Stormwater Management rules is to maintain or reproduce, as closely as possible, the natural hydrologic cycle for the area post-development. In the natural hydrologic cycle on undeveloped land, stormwater is managed at or near the location it falls to the ground. Some rainfall will be intercepted by vegetation and never reach the ground, some will infiltrate into the soil and subsoil, and some will evaporate. When vegetation is removed, and/or impervious surfaces are incorporated as part of the development, such changes interrupt the natural hydrologic cycle. If a stormwater management measure receives stormwater runoff from a large drainage area, it will be located downstream and away from the location where the natural hydrologic cycle has been interrupted. A green infrastructure BMP is a stormwater management measure that manages stormwater close to its source, and it is the Department's intent to use green infrastructure to replace the stormwater management measures for large drainage areas. Therefore, the size of

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the drainage area contributing to a green infrastructure BMP must be limited. The selection of the contributory drainage area for each green infrastructure BMP has been addressed in the notice of proposal summary at 50 N.J.R. 2378-2380.

While, in most cases, it is necessary to limit the size of the contributory drainage area of green infrastructure BMPs, the Department recognizes that there are green infrastructure practices for which a limitation on contributory drainage area is not applicable. This may be because the design of the BMP already has a built-in limitation on its contributory drainage area and/or the BMP by its nature is already distributed, such as a vegetative filter strip, and, thus, could exceed any contributory drainage area limitation while still maintaining natural hydrology and managing stormwater runoff close to its source.

Green infrastructure, such as rain gardens in parking lots and planters along the sidewalk, are not like a large basin that needs significant area for side slopes, a spillway, and a large outlet structure. These can be incorporated into a site rather than reserving a separate area for stormwater management. Furthermore, a pervious paving system will manage runoff directly under the parking area without the need of an additional reserved space for large basins. Therefore, the use of green infrastructure does not necessarily result in more disturbance than would a large basin.

Regarding the use of multiple inlets, the number of the inlets to a green infrastructure BMP does not necessarily determine the size of the contributory drainage area. A drainage area may have more than one inlet to a green infrastructure BMP, or multiple drainage areas may converge to a single inlet. Also, a large quantity of runoff may be conveyed through a large

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inlet or through multiple smaller inlets. If the drainage limitation is applied to each inlet, it will result in a single stormwater management measure receiving runoff through multiple inlets from multiple drainage areas, which, collectively, may result in a large contributory drainage area. If that is the case, the stormwater management measure will not be able to maintain or reproduce the natural hydrologic cycle near the source.

It should also be noted that the Department updated the Pervious Paving Systems chapter of the New Jersey Stormwater BMP Manual in November 2016, and, in doing so, removed the previous weight restrictions for tractor trailers and commercial traffic.

282. COMMENT: N.J.A.C. 7:8-5.3 adds the use of green infrastructure and limiting drainage areas to BMPs. Please refer to the specific referenced study in the other states. Did the other states do peer review studies to determine the limiting drainage area? Limiting the drainage areas will lead to additional BMPs, more maintenance, and higher costs. (6)

RESPONSE: It is unclear what study the commenter is referencing. The notice of proposal Summary, 50 N.J.R. at 2378-2379, lists various jurisdictions that have established limitations on contributory drainage areas for stormwater BMPs. Whether such limitations have been peer reviewed is unknown to the Department, though there is no indication of publication of any such study. However, this is irrelevant, since the limitations are currently in place and are only shown as examples of criteria/limitations in other states' rules and/or stormwater BMP manuals and to demonstrate that the drainage area limitations adopted in this rulemaking are achievable. In regard to cost, as noted in the Economic Impact statement, 50 N.J.R. at 2393-

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2395, the Department has provided case studies and references that indicate that costs associated with green infrastructure installation and maintenance are less than that of conventional stormwater measures in the majority of cases.

283. COMMENT: The Department should consider increasing the drainage area to a green infrastructure BMP where additional pervious area is contained within the drainage area. The maximum contributory drainage area should either be changed to the maximum impervious contributory drainage area or should include a breakdown of maximum impervious area and maximum pervious area for a total drainage area of "X." (24 and 27)

284. COMMENT: As impervious surface is the main contributor to pollution and volume of stormwater runoff, the contributory drainage area limit should be applicable only to impervious areas, that is, a green infrastructure BMP may have a five-acre drainage area, but be limited to the threshold established for impervious surface within that drainage area. (29)

RESPONSE TO COMMENTS 283 AND 284: As indicated in the definition of the green infrastructure at N.J.A.C. 7:8-1.2, a green infrastructure BMP must manage stormwater "close to its source." Limiting the contributory drainage area to a green infrastructure BMP is intended keep a stormwater management measure close to the source, where it can mimic the natural or pre-development hydrology that is being altered due to the changes of the land cover caused by a proposed development. The changes to a land cover may be from natural vegetation to an impervious surface and/or to a disturbed pervious surface, including grass lawns, landscaping areas, and planted trees. Even though there may be no increase in

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impervious surface, a change of land cover from, for example, natural woods to a grass lawn, will alter the amount of groundwater recharge occurring on-site and both the peak flow rate and total volume of runoff leaving the disturbed area. Therefore, limiting the contributory drainage area differently for pervious and impervious surfaces would conflict with the Department's goal of managing stormwater runoff close to its source and maintaining or mimicking the natural hydrologic cycle.

285. COMMENT: Critical to the implementation of green infrastructure is the limit established on the contributory drainage area for each type of BMP. Earlier in the stakeholder process for this rulemaking, the Department had suggested that a drainage area limit of one acre would be proposed, regardless of the type of BMP used. Now, in this rulemaking, the Department has deviated from that course and proposed, at N.J.A.C. 7:8-5.3, a drainage area limit of one acre for dry wells (which are not properly considered green infrastructure), but 2.5 acres for some BMPs (small-scale bioretention, small-scale infiltration basins, and small-scale sand filters) and no limit for other BMPs (cisterns, grass swales, green roofs, and vegetative filter strips). The Department should reduce the drainage area limits in the proposed rules, consistent with the best available science and drawing from the approaches used in other jurisdictions. (16)

286. COMMENT: The Department should shrink the maximum drainage area for small scale BMPs. The 2.5 acre maximum drainage area for small-scale BMPs such as grass swales, rain gardens, cisterns, green roofs, and small-scale sand filters, is too large. A maximum drainage area of 1.5 acres is recommended for small-scale BMPs. Larger drainage areas encourage fewer

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and larger BMPs, while smaller drainage areas contribute to multiple, small BMPs that tend to function better than larger ones, and that distribute the water around the site and mimic natural hydrology. (43)

RESPONSE TO COMMENTS 285 AND 286: The adopted contributory drainage area limits are consistent with the best available science and draw from the approaches used in other jurisdictions. As described at 50 N.J.R. 2378-2380, that is exactly the approach the Department used in selecting the drainage area limits set forth in this rulemaking.

It is true that the Department had previously discussed during stakeholder meetings a possible contributory drainage area of one acre for those BMPs that are subject to 2.5 acre limits under this rulemaking. This was revised after reviewing and drawing on the approaches used in other jurisdictions. It should be noted that the Department never suggested a one-acre drainage area limitation for all green infrastructure BMPs. In stakeholder presentations back to 2014, the Department has stated that certain BMPs, such as vegetative filter strips, need not be subject to a drainage area limitation.

287. COMMENT: The Department's assertion that a drainage area limit is not applicable for green roofs is inaccurate. The Department states that "they only manage the stormwater that falls directly on the surface of the green roof," but this is factually incorrect, as green roofs can be designed to capture runoff from other areas of the rooftop. As a result, it is appropriate to establish a drainage area limit for green roofs. For example, the District of Columbia limits the

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entire contributing drainage area to a green roof (including the green roof itself) to no more than 25 percent larger than the area of the green roof. (16)

RESPONSE: The adopted amendments do not include any requirements that would specifically prevent additional drainage from being directed to a green roof. Accordingly, this comment appears to be directed toward the BMP design reflected in the New Jersey Stormwater BMP, rather than any limitation contained in the adopted amendments. As further explained in the Response to Comments 209, 210, and 211, the design in the New Jersey Stormwater BMP Manual only manages rainfall that falls directly on the green roof, particularly since the lightweight growing medium used for green roofs may become buoyant if concentrated flow is directed onto a green roof. The Department will consider this comment during future revisions to the New Jersey Stormwater BMP Manual. However, please note that a design that does not follow the New Jersey Stormwater BMP may be approved as an alternative stormwater management measure pursuant to N.J.A.C. 7:8-5.2(g).

288. COMMENT: The proposed rule's drainage area limits will not be effective at ensuring BMPs function correctly in managing runoff at the source unless they are coupled with a loading ratio. In other words, the Department should establish, for each BMP, a maximum ratio of contributory drainage area to the surface area of the BMP. The Department already proposes to establish such a ratio of 3:1 for pervious paving systems, and its rationale applies to other BMPs as well: if a BMP receives an excessive flow of stormwater runoff, achievement of the rule's stormwater management goals can be negatively impacted. This scenario can occur if a

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large area drains into a too-small stormwater facility. Establishing a drainage area limit does not itself solve this problem because such a limit does not regulate the size of the BMP in relation to the size of the area draining into it. The Department should establish loading ratios for each type of stormwater management practice to ensure their proper function. The commenter noted that Pennsylvania, among other jurisdictions, has taken a similar approach.

(16)

RESPONSE: The design criteria established in the New Jersey Stormwater BMP Manual take into account a number of factors beyond the drainage area limit set forth at N.J.A.C. 7:8-5.3. For the majority of the BMPs the New Jersey Stormwater BMP Manual's design criteria include a maximum ponding depth, which, when coupled with a maximum contributory drainage area, essentially set a maximum loading ratio for the BMP. To be more specific, if a BMP has a one-foot maximum ponding depth and a maximum drainage area of 2.5 acres, there is a specific minimum BMP footprint that can be calculated depending on the imperviousness of the drainage area. The ratio of the drainage area to the minimum BMP footprint is the loading ratio. As such, in most cases including a specific loading ratio requirement would be redundant.

Alternatively, an applicant can seek approval of an alternative stormwater management measure pursuant to N.J.A.C. 7:8-5.2(g). In such a case, the applicant's design would be individually evaluated by the review agency to ensure that the BMP will function properly. Depending on the BMP, it may be appropriate to consider the maximum ponding depth similarly to how the BMPs in the New Jersey Stormwater BMP Manual are set or to consider a loading ratio.

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289. COMMENT: N.J.A.C. 7:8-5.3 adds the use of green infrastructure and limiting drainage areas to BMPs. Smaller tributary areas will lead to additional BMPs. This will result in additional disturbances since smaller BMPs still require similar areas for grading, access ramps, freeboard, fences, buffers, and the additional drainage facilities to direct runoff for these smaller BMPs. This will also require additional maintenance at multiple locations, and safety concerns for access for maintenance, especially along linear development projects, such as highways and rails. Safe areas will be required for maintenance personnel to stage and provide space for equipment. Road lane closures and rail outages may also be required causing additional safety concerns. (6)

290. COMMENT: The limitation on the contributory drainage area to infiltration basins and bioretention systems (2.5 acres) is not practical for NJTA projects. A typical section of roadway pavement along the Garden State Parkway or New Jersey Turnpike is 100 feet, or more, in width. Assuming a conservative roadway width of 100 feet, and not considering runoff from medians, vegetated shoulders or other off-roadway areas (including offsite), a BMP would be required about every 1,100 feet (0.2 miles) or less if off-roadway areas are involved. This restriction would require an excessive amount of BMPs to meet the stormwater management requirements on a typical linear development, which will likely affect right-of-way requirements, design effort, and project cost. Additionally, an increased number of BMPs will require additional maintenance requirements at multiple locations, which will tax the resources of the NJTA and present operational concerns. Due to the high volume and speed along both

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roadways, BMPs must be situated at a safe distance from the roadside or protective measures (that is, barriers, guide rails, etc.) must be utilized. This will potentially require acquisition of right-of-way and/or create access issues associated with maintenance and increase the use of barriers along the roadways. The Department should exempt NJTA projects from the Green Infrastructure requirements at N.J.A.C. 7:8-5.2(a)2, or a larger contributory drainage area be allowed. (10)

RESPONSE TO COMMENTS 289 AND 290: As discussed in the notice of proposal Summary at 50 N.J.R. at 2376-2377, the use of green infrastructure BMPs will more effectively achieve the Department's goals of reducing stormwater runoff volume, reducing erosion, encouraging infiltration and groundwater recharge, maintaining or reproducing, as closely as possible, the natural hydrologic cycle, and minimizing the discharge of stormwater-related pollutants, such as TSS and nutrients.

Regarding the commenter's calculation of the required BMPs per length of roadway, this incorrectly assumes that the entire width of an existing roadway would be required to meet the requirements of this rulemaking. The Stormwater Management rules apply only to projects that meet the definition of "major development" and not to existing development established prior to February 2, 2004, which is not associated with a new project. However, the Department recognizes that transportation agencies undertaking projects along existing roadways often have little control over stormwater runoff directed into their drainage systems from offsite properties and the Department recognizes the unique challenges raised by the commenter.

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Further, for certain, linear roadway projects, the Department agrees that a drainage area limit of 2.5 acres will not be able to be feasibly achieved. While these projects can seek relief through the waiver of strict compliance at N.J.A.C. 7:8-5.2(e), the Department has concluded that public interest would be better served by exempting certain, linear roadway projects from the drainage area limitation rather than requiring the applicant to spend public money to prepare an analysis for relief through the waiver of strict compliance on each individual project, when it is clearly infeasible. Accordingly, the Department intends to propose amendments to the Stormwater Management rules that would exempt certain linear development projects from the drainage area restrictions in the Stormwater Management rules. It is the Department's intention to publish this anticipated rulemaking in a timeframe that will allow it to accept and consider public comment on the specific amendments proposed, including on the size of the project that would qualify for the exemption, and adopt amendments deemed to be appropriate prior to the operative date of these new rules, repeals, and amendments.

As explained in the Response to Comments 180, 181, and 182, the Department recognizes the unique challenges that projects along existing roadways face and considers many factors in granting the waiver of strict compliance at N.J.A.C. 7:8-5.2(e). Safety of both motorists and maintenance crews are certainly one of those factors.

Lastly, this rulemaking provides a means to incorporate stormwater management measures other than green infrastructure in specific cases. Under N.J.A.C. 7:8-4.6, the municipality may grant a variance from the use of green infrastructure when engineering,

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environmental, or safety reasons cause a technical impracticability. When the variance is granted with an approved mitigation plan, the stormwater management measures in Table 5-2 or potentially Table 5-3 may be utilized. Furthermore, projects along existing public railroads or roadways can seek relief through the waiver of strict compliance at N.J.A.C. 7:8-5.2(e), in which case, BMPs from Table 5-2 or potentially Table 5-3 can be used.

291. COMMENT: The notice of proposal limits design engineers utilizing potential solutions that would be more prudent given site conditions or owner preferences. (9)

292. COMMENT: Drafting regulations that only allow the use of green infrastructure BMPs is overly restrictive, ignores the complexities of stormwater management in urbanized areas, discourages future innovation in stormwater management, will require both higher initial capital and overall lifecycle costs on many sites without additional water quality benefit to receiving waters, and has the potential to push some projects from urban areas to green fields resulting in additional sprawl.

Green infrastructure practices can be a highly effective means of managing stormwater runoff and support the use of green infrastructure where applicable, but green infrastructure practices represent a small subset of the tools available for stormwater management and sound regulations must include all of the tools that can meet applicable water quality and quantity goals, as well as provide a pathway for acceptance for new potentially cheaper and more effective technologies. The best way to ensure receiving waters are protected, while also maximizing design flexibility and encouraging innovation, is to implement a strong performance

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based standard with specific water quality and quantity criteria defined and then thoroughly vet BMPs to identify those capable of meeting said standards. (4)

293. COMMENT: Prioritizing the use of green infrastructure to effectively disallow manufactured solutions will limit a designer's ability to choose the best, most cost-effective option for treating stormwater on a given site. This will have the most impact on stormwater quality from highly urbanized sites that do not have space for adequate land-based solutions. Prioritizing green infrastructure may compromise water quality or force development from urban areas to outlying areas where more space is available for green infrastructure. Currently, there is not enough information on the long-term performance or maintenance requirements of green infrastructure to use it as a singular solution. Performance is dependent on design, materials, and installation, which all vary greatly. Regulations that are so dependent on green infrastructure for water quality should include strict guidelines to limit such variables and require testing and verification to prove that each approach meets performance metrics. Maintenance of green infrastructure must also be better understood. Large land-based systems do not require maintenance as often as smaller manufactured systems, but when a large land-based system eventually fails, the logistics and cost of maintenance are overwhelming. (18)

294. COMMENT: All stormwater management regulation should embrace performance-based standards, require consistent evaluation and verification of the performance of all types of BMPs, and provide a clear path for acceptance of new, innovative solutions. Performance-based standards ensure water quality is protected without hindering innovation or forcing

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development out of urban areas to undeveloped areas less prone to site constraints.

Consistently evaluating and rating all types of stormwater BMPs ensures BMP comparability.

And finally, ensuring that there is a clear path to acceptance for new stormwater innovations is another way to encourage investment in stormwater research, which in turn leads to new advancements, more cost-effective solutions, and furthers the community need to restore and maintain water quality in our receiving waters. (18)

RESPONSE TO COMMENTS 291, 292, 293, and 294: As discussed in greater detail in the notice of proposal Summary, 50 N.J.R. at 2376, the Department has sought for several years to improve the environmental effects resulting from the BMPs used to satisfy the stormwater management rule requirements, so that post-development hydrology maintains or reproduces the natural hydrologic cycle for the area of development. These requirements have transitioned from the use, beginning in 2004, of nonstructural stormwater management strategies to the “maximum extent practicable,” which resulted in a variety of inconsistencies and subjectivity in implementation, to the use of the Nonstructural Strategies Point System, which was struck down by the Superior Court of New Jersey, Appellate Division, in 2013. Finally, as a result of the current rulemaking, the rules will transition to the mandatory use of green infrastructure so that major developments begin to replicate a hydrologically functional landscape that mimics the pre-development runoff conditions (Coffman 2000). The notice of proposal Summary further indicated that a literature review conducted by Ahiablame, Engel, and Chaubey showed that research broadly demonstrates that green infrastructure that infiltrates runoff provides significantly greater volume reduction in comparison to conventional

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stormwater systems, which results in stormwater management that more closely maintains or mimics natural hydrology (Ahiablame, Engel, and Chaubey 2012). Even underdrained bioretention systems, which do not retain and infiltrate all runoff, have been shown to provide a higher volume reduction than traditional detention basins (Poresky et al. 2012) and to more closely mimic natural hydrology (DeBusk, Hunt, and Line 2011). Requiring green infrastructure will also improve consistency in implementation by review agencies by providing a less subjective standard, thereby, providing applicants with greater regulatory predictability.

The requirement to utilize green infrastructure is not overly restrictive as the Department has provided 10 specified green infrastructure BMPs that can be used to meet the water quality, water quantity, and groundwater recharge standards. These include small-scale bioretention systems, grass swales, small-scale infiltration basins, and pervious paving systems, and an additional five BMPs that may be used to meet the water quantity standard, such as wet ponds and standard constructed wetlands. The rules also allow for other green infrastructure BMPs to be utilized, through N.J.A.C. 7:8-5.2(g), provided the design engineer demonstrates to the review agency the capability of the proposed alternative stormwater management measures to achieve the standards in the rules and that the proposed alternative meets the proposed “green infrastructure” definition at N.J.A.C. 7:8-1.2.

Regarding the costs associated with green infrastructure, please see the Response to Comments 67 and 68 and the Response to Comment 69.

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295. COMMENT: The Department should adopt a volumetric standard that requires regulated sites—both new and redevelopment—to retain on-site the water quality design storm volume with no discharge to surface waters. Because greater runoff volumes lead to more pollution, reducing stormwater runoff by retaining it on-site can dramatically reduce the pollutant loads from development. Retaining and reducing runoff volume is more effective than relying on runoff quality standards because “the constituents remaining even in ‘treated’ stormwater represent a substantial, but largely unappreciated, impact to downstream watercourses,” and because “flow is itself responsible for additional erosion and sedimentation that adversely impacts surface water quality” (National Research Council, Urban Stormwater Management in the United States (2009)). As a result, the U.S. Environmental Protection Agency (EPA) has found that “[v]olume retention is critical to reduce pollutant loads of all water quality parameters and to reduce erosion of the receiving waterbody” (U.S. EPA, Municipal Separate Storm Sewer System Permits: Post-Construction Performance Standards & Water Quality-Based Requirements, A Compendium of Permitting Approaches, EPA 833-R-14-003, at 3 (June 2014)).

(16)

296. COMMENT: The Department states in the notice of proposal that one of its goals is to “maintain or reproduce the natural hydrologic cycle” on developed sites. Even that modest goal is not necessarily sufficient to protect water quality and will not be achieved by requiring green infrastructure BMPs if the rules continue to apply performance metrics focused on maintaining pre-construction recharge volumes and peak rates. However, natural hydrology can be replicated much more closely by applying an on-site retention standard, as the USEPA

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recommended in its stormwater permitting guide. While maintaining or reproducing the natural hydrologic cycle is not always sufficient to protect receiving waters from the impacts of development, adopting a retention standard would help the Department achieve that goal while also effectively reducing pollution loads to local waterways. Not only would a retention standard be more effective than the current requirements in the rules, it would also be practicable to implement; many jurisdictions around the country have demonstrated the feasibility of implementing volume-based requirements for the on-site retention of stormwater. A modeling analysis performed by Princeton Hydro, attached to these comments as an appendix, confirms that an on-site retention requirement would be far more effective at reducing overall runoff volumes than using green infrastructure to meet the current regulatory standards. (16)

RESPONSE TO COMMENTS 295 AND 296: A developed site that fully maintains the natural hydrologic cycle on-site would have the same effect on water quality that the undeveloped site did. The Department anticipates that the new requirement to utilize green infrastructure to meet the groundwater recharge standards, stormwater runoff quantity standards, and stormwater runoff quality standards, will result in significant on-site retention because the definition of green infrastructure is drafted in such a way that it will result in a large percentage of developments using on-site retention. The definition of green infrastructure includes three types of BMPs – those that infiltrate, those that store for re-use, and those that include filtration by soils or vegetation. Stormwater that is infiltrated or stored for re-use will be retained on-site, thus, infiltration or storage for re-use types of green infrastructure will provide

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on-site retention up to the design storm of those green infrastructure systems, which is generally the water quality design storm or greater. While BMPs that are considered green infrastructure because they include filtration by soils or vegetation will not provide on-site retention for their entire design storm, they will still provide significantly more on-site retention that would be provided by a non-green infrastructure BMP (Poresky et al. 2012). Additionally, the Department anticipates that green infrastructure BMPs that are considered green infrastructure only because they include filtration by soils or vegetation will be mostly used when infiltration is not feasible, as these require the installation of additional components, such as underdrain pipes, that result in increased costs that would not be justified if infiltration was feasible. It should be noted that if the Department were to require on-site retention of the water quality design storm, consideration of potential waivers would need to be given to sites that are not conducive to infiltration, are contaminated, or have other constraints that would make compliance not possible. In those situations, the use of green infrastructure BMPs that rely on filtration by soils or vegetation or green infrastructure BMPs that rely on storage for re-use would be the means of achieving the greatest on-site retention. The results of such an on-site retention requirement would be that BMPs that rely on infiltration would be used where feasible and BMPs that rely on filtration by soils and vegetation and BMPs that rely on storage for re-use would be used where infiltration is not feasible. For most developments, the end result may be a little different than the results of the green infrastructure requirements adopted in this rulemaking. However, the Department is exploring this topic further in the

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ongoing stakeholdering noted in the introduction to this adoption above and in the notice of proposal Summary, 50 N.J.R. at 2376.

The Department reviewed the modeling analysis provided by the commenter. According to the commenter's description of the model, "The analysis compares two stormwater management scenarios: one in which green infrastructure BMPs are used to meet the current performance standards (as this rulemaking would require), and another in which green infrastructure is used to meet the current standards while also retaining the full 1.25-inch water quality design storm volume on-site. For both scenarios, the total pre- to post-construction runoff volume is modeled under a range of conditions including all four soil groups and four different storm-event sizes, producing modeled simulations for each stormwater management scenario. Under almost all of the simulations modeled (14 of 16), the retention scenario results in significantly less overall runoff volume than the scenario corresponding to this rule proposal." Note that each of these scenarios was also modeled with each of the four hydrologic soil groups (A, B, C, and D), as well as for each of the two-, 10-, and 100-year, and water quality design storms which is how the 16 comparisons were created.

The Department reviewed the modeling analysis provided by the commenter in support of its argument that an on-site retention requirement would be far more effective at reducing overall runoff volumes than using green infrastructure. For the purpose of this response, the Department will refer to the two scenarios reflected in the commenter's submitted analysis as the "on-site retention" scenario (the commenter's preferred scenario) and the "green

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infrastructure” scenario (the scenario the commenter asserts meets the requirements of this rulemaking).

An initial problem with the scenarios utilized is they make some assumptions about on-the-ground conditions that do not commonly occur. For example, the modeling assumed that the entire water quality design storm could be infiltrated in an area with hydrologic soil group D type soils, which in most cases is not possible (note this may also not be possible on some sites with hydrologic soil group C soils). The model also designs the “green infrastructure” scenario as a bioretention system with underdrains, even in the hydrologic soil groups where infiltration is a viable option. Generally, developers do not construct underdrain systems where they are not required, because including such a system would increase expenses unnecessarily in such hydrologic soil groups. The use of infiltration across all soil groups in the “on-site retention” design and the lack of infiltration for any of the hydrologic soil groups in the “green infrastructure” design compares two different scenarios, neither of which is likely to occur in practice. As a result, the output of the model reflects greater runoff volumes from the “green infrastructure” scenario than would be expected in the real world.

A comparison between a BMP that relies on infiltration and a BMP that does not will show less runoff volume leaving the infiltration BMP. However, it is not accurate to represent all green infrastructure BMPs as BMPs that do not infiltrate. While these adopted amendments do not specifically require the on-site retention of any particular storm, many of the BMPs in Table 5-1 provide for on-site retention of the water quality design storm. In the majority of cases, the BMPs that provide the on-site retention will be selected by developers, assuming

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they are feasible for the site. As noted above, a developer is not likely to construct an underdrained bioretention system where infiltration is a feasible option.

Furthermore, on-site retention of the entire water quality design storm is not as simple as the model portrays it. On-site retention using infiltration is not feasible on sites with soils that are not conducive to infiltration. Any potential on-site retention standard would need to consider those situations. The Department anticipates that these adopted standards will provide, in many cases, the same effect as an on-site retention standard for the water quality design storm, while providing flexibility to use other BMPs where infiltration is not feasible. Please also see the Response to Comment 273 for more information regarding on-site retention.

297. COMMENT: In order to avoid confusion, the Department should amend the language of N.J.A.C. 7:8-5.3(a) on adoption as follows: "This section specifies the types of green infrastructure BMPs that shall (may) be used to satisfy the groundwater recharge, stormwater runoff quality, and stormwater runoff quality standards." The use of the word "shall" in place of the originally proposed "may" more clearly states the intent of the rule and will avoid confusion for design engineers and the reviewing agencies. (37)

RESPONSE: As indicated throughout the notice of proposal Summary and rule text, including in N.J.A.C. 7:8-5.3 itself (see, for example, N.J.A.C. 7:8-5.3(b)), it is the Department's intent that, with very limited exception, green infrastructure stormwater management measures be utilized to satisfy the standards specified in the rules. The rules allow this to be accomplished using

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either the green infrastructure stormwater management BMPs identified in Table 5-1 of N.J.A.C. 7:8-5.2(f) or an alternative stormwater management measure approved in accordance with N.J.A.C. 7:8-5.2(g). Consistent with that intent, the BMPs identified in this section as being subject to a limitation on the contributory drainage area are not the only means of complying with the rules, but are acceptable examples that may be used to satisfy the requirements. However, an “alternative stormwater management measure approved in accordance with N.J.A.C. 7:8-5.2(g)” may also be used. While it is true that the word “shall” could have been used in this context as the subsections that follow identify both options for complying with the rules, the Department believes that use of the word “may” more clearly conveys the intent that neither the listed green infrastructures identified as being subject to drainage area limitations in this section nor the green infrastructure BMPs referenced at N.J.A.C. 7:8-5.2(f) are the exclusive means of satisfying the standards of the rules, but that the rules recognize that other innovative measures may be developed that will also be accepted as alternative measures to achieve compliance.

298. COMMENT: The Department should clarify how remediation sites should be handled where the environmental requirements for the site preclude infiltration from a water quality perspective. (24 and 27)

299. COMMENT: The Department needs to clarify exactly how water quality compliance on remediation sites will be handled where the environmental requirements for the site preclude

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infiltration. At a minimum, special provisions or exceptions should be provided for areas with shallow groundwater and/or environmental contamination. (7, 8, and 24)

300. COMMENT: The updated Stormwater Rules should provide provisions/exceptions in urban areas where green infrastructure BMPs are not feasible due to shallow groundwater and/or environmental contamination. (27)

RESPONSE TO COMMENTS 298, 299, AND 300: Green infrastructure practices that rely on infiltration may still be considered during the remediation and redevelopment of contaminated properties; however, it is important to have stormwater and remediation goals align. Careful site analysis and planning is necessary before implementing green infrastructure that relies on infiltration on contaminated properties and must always be performed in consultation with the Licensed Site Remediation Professional (LSRP) or the Department. For example, detailed analysis involving all parties may demonstrate that infiltration would accelerate pollutant mobilization towards the zone of influence of extraction wells used for groundwater remediation, and, therefore, could assist in expediting or enhancing remediation efforts. Or, if the remediation strategy is natural attenuation, all parties may agree that infiltrating stormwater without contamination may aid the process. Furthermore, it may be feasible to provide infiltration on some portions of a site, even if it is not feasible in other areas. If it is determined that infiltration is not feasible across a particular site, green infrastructure BMPs that do not rely on infiltration, such as bioretention systems or pervious paving systems with an impermeable liner and an underdrain, should be used to achieve the required stormwater runoff quality treatment.

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Shallow groundwater tables can be overcome in several different ways. First, fill could be imported into the site to raise the elevation of the ground, and, thus, create more separation between the ground surface and the seasonal high water table. Note that this may be challenging on sites that are located in fluvial flood hazard areas as the zero percent net fill requirement within the Flood Hazard Area Control Act Rules would be applicable. If filling the site is not possible, the BMPs chosen should be designed to be as wide and as shallow as possible. This may necessitate selecting certain BMPs over others. For example, a pervious paving system can be constructed much shallower overall than a bioretention system with underdrains, even if the bioretention system with underdrains is spread out over as large an area as feasible. If using wide, shallow BMPs is still not sufficient to achieve the required separations from the seasonal high water table, the applicant and/or the design engineer can consider seeking approval of an alternative stormwater management measure that includes an impermeable clay layer below the BMP to prevent the water table from impacting the BMP. As this will require an individualized approval from the review agency, it is important that this be discussed with the review agency prior to submitting the application in order to provide the information the review agency will require in making its determination in accordance with N.J.A.C. 7:8-5.2(g).

The Department does not anticipate that there are many cases in which it will be technically infeasible to meet these applicable standards using green infrastructure. If the Department is the review agency for an application in such a situation, relief can be sought through the Waiver Rule, at N.J.A.C. 7:1B, or, if the application is for a permit under the Flood

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Hazard Area Control Act Rule, at N.J.A.C. 7:13, through a hardship exception. If a municipality is the review agency, relief can be sought through a variance pursuant to N.J.A.C. 7:8-4.6.

301. COMMENT: Regarding proposed N.J.A.C. 7:8-5.3(b), flexibility should be added to the rule to allow for at least part of the water quality requirement to be met by proposed Table 5-2 BMPs. This would be particularly applicable on sites that do not have a groundwater recharge requirement or when the water quality standard required is higher than the baseline 80 percent TSS removal, such as for discharge within a 300-foot riparian zone under the Flood Hazard Area Control Act Rules. (7, 8, 23, and 24) With regard to the latter, it would appear extremely difficult, if not impossible, to achieve 95 percent TSS removal utilizing Table 5.1 as at least two BMPs need to be utilized in series and the first BMP must both have a lower TSS percentage removal than the second BMP and cannot infiltrate the water quality storm, which would leave no further stormwater to treat in the second BMP to reach the 95 percent removal requirement. The only BMPs that do not infiltrate are grass swales and a small scale Bioretention System. Since the latter BMP can provide 90 percent removal, a grass swale of at least 50 feet in length (could be significantly longer depending upon the existing grade) through the Riparian Zone would have to be provided prior to the small scale Bioretention System and the two BMPs in series, if even constructible within the 300-foot Riparian Zone, would require significant disturbance of existing vegetation. (7 and 8)

RESPONSE: N.J.A.C. 7:8-5.3(b) specifies that either the green infrastructure BMPs listed in Table 5-1 or an alternative stormwater management measure approved pursuant to N.J.A.C. 7:8-

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5.2(g) must be utilized to satisfy the groundwater recharge and stormwater runoff quality standards. The BMPs in Table 5-1 are intended to be small-scale, distributed BMPs, many of which are subject to maximum contributory drainage areas indicated at N.J.A.C. 7:8-5.3(b). The BMPs listed in Table 5-2 either have small-scale counterparts listed in Table 5-1 or are BMPs that rely on large drainage areas to maintain permanent pools of water in the BMP. Allowing major development projects the flexibility to use BMPs listed in Table 5-2 would circumvent the Department's goal to maintain, or reproduce as closely as possible, the natural hydrologic cycle, as noted in the notice of proposal at 50 N.J.R. 2377.

The Department does not anticipate that there are many cases in which it will be technically infeasible to meet these standards using green infrastructure. If the Department is the review agency for an application in such a situation, relief can be sought through the Waiver Rule at N.J.A.C. 7:1B, or if the application is for a permit under the Flood Hazard Area Control Act Rule, at N.J.A.C. 7:13, through a hardship exception. If the review agency is a municipality, the applicant may seek relief through the variance procedure at N.J.A.C. 7:8-4.6.

302. COMMENT: Relative to the green infrastructure standard at N.J.A.C. 7:8-5.3, it is acknowledged in the summary for the rule modification that green infrastructure small-scale BMPs cannot be expected to fully meet the stormwater quantity requirements for a major development site, in which case larger-scale BMPs listed in new Tables 5-2 and 5-3 may be used. Can any quantifiable water quality or groundwater recharge benefit be attributed/counted/credited to these BMPs? (38)

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RESPONSE: Absent a variance or waiver, the use of larger-scale BMPs from Tables 5-2 and 5-3 cannot be credited toward compliance with the stormwater runoff quality or groundwater recharge standards. In accordance with the adopted rule at N.J.A.C. 7:8-5.3(b), only those BMPs identified in Table 5-1, or an alternative stormwater management measure approved pursuant to N.J.A.C. 7:8-5.2(g), may be used to satisfy the groundwater recharge and stormwater quality and stormwater quantity standards without a waiver or variance from N.J.A.C. 7:8-5.3. While green infrastructure BMPs identified in Table 5-2 may additionally be used to satisfy water quantity standards, those BMPs in Table 5-2 can only be used to satisfy the standards for recharge and/or stormwater quality if a waiver or variance is granted from N.J.A.C. 7:8-5.3. Additionally, Table 5-3 identifies those BMPs that can only be used to satisfy the standards for stormwater quality, quantity, and/or recharge if a waiver or variance is granted from N.J.A.C. 7:8-5.3.

303. COMMENT: The Department is urged to specifically reference the importance of nonstructural strategies in the revised model stormwater management plan and model stormwater ordinance that will be developed to reflect the amended rules. Green infrastructure and nonstructural strategies complement each other. Municipalities should do all they can to prevent, for example, the clearing of woodlands, which are highly valuable for stormwater management, in order to accommodate constructed stormwater systems. (43)

RESPONSE: The nonstructural stormwater management strategies are referenced in the model stormwater management plan since they are a required component of the stormwater

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management plan requirements at N.J.A.C. 7:8-2.4. However, as the model stormwater control ordinance represents the minimum requirements for compliance, and a municipality may decide that the best way to address the nonstructural strategies is within a separate ordinance (for example, a tree ordinance or a zoning ordinance), it would be inappropriate to include the nonstructural strategies within the model stormwater control ordinance.

304. COMMENT: The requirement that green infrastructure strategies be utilized to meet the stormwater recharge, quality, and quantity standards is supported; however, nonstructural strategies should be considered prior to the installation of any structural systems, including green infrastructure. (32)

RESPONSE: The Department acknowledges the commenter's support of green infrastructure strategies being utilized to meet the groundwater recharge, stormwater runoff quality, and stormwater runoff quantity standards. The existing requirement that nonstructural strategies be incorporated to the maximum extent practical prior to the use of any structural measures proved to be subjective enough to not fully achieve the Department's goals of reducing stormwater runoff volume, reducing erosion, encouraging infiltration and groundwater recharge, maintaining or reproducing, as closely as possible, the natural hydrologic cycle, and minimizing the discharge of stormwater-related pollutants, such as TSS and nutrients. Although under the adopted amendments nonstructural strategies are no longer required to be considered prior to structural systems by a developer, they still must be considered by a municipality when preparing and/or updating their Municipal Stormwater Management Plan. In

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the evaluation of this plan, an individual municipality may choose to incorporate requirements related to nonstructural strategies in its Stormwater Control Ordinance or other ordinances (such as zoning ordinances, tree ordinance, etc.) as the individual municipality sees fit.

305. COMMENT: The Department should continue requiring individual sites to use nonstructural strategies for stormwater management. While the current requirements of the rules for nonstructural strategies need improvement, the Department's notice of proposal to eliminate those strategies from the section of the rules governing individual sites' compliance obligations does not make sense. Nonstructural strategies are absolutely necessary for environmental protection and stormwater reduction. Relocating the nonstructural strategies to the section of the rules governing municipal and regional stormwater management planning (N.J.A.C. 7:8-2.4) would create unnecessary conflict and confusion for developers. If the Department removes the nonstructural stormwater requirements from N.J.A.C. 7:8-5, developers could clear out vegetation and trees, implement rain gardens or other structural BMPs in their place, and receive approval unless towns have ordinances that specifically limit clearance or provide tree protection. This process is detrimental to water quality, habitat, and water supply. Rather than removing the nonstructural stormwater requirements, the Department should leave them in and instead—either now or as part of any future updates to the stormwater management rules—adopt changes that would include a greater description and specific requirements for each one of these strategies. For example, strategy one is “protect areas that provide water quality benefits or areas particularly susceptible to erosion

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and sediment loss.” The rules should require identification of riparian buffers, corridors, highly erodible soils, and wetlands and require no disturbance. Another option is to disconnect anything over 10 percent of impervious cover to better define strategy two. For strategy seven, towns should require developments to landscape only with native plants unless there are locations or conditions that the Department can identify, that allow for exceptions. (16)

RESPONSE: While it is technically true that developers could potentially clear vegetation and remove trees if there isn't a local ordinance that prevents it, the same situation existed prior to this rulemaking, because the requirements of the nonstructural strategies were too subjective to achieve the desired benefits when used in individual site plan reviews. The purpose of the recodification of the nonstructural strategies and the inclusion of the green infrastructure BMPs was to eliminate the subjective nature of the “maximum extent practicable” requirement for site plan reviews. Furthermore, the relocation of the nonstructural strategies to N.J.A.C. 7:8-2.4 will require municipalities to ensure the principles embodied in the nonstructural strategies are implemented in their municipal stormwater management plans and any applicable ordinances. This combined with the use of small-scale, distributed green infrastructure BMPs on individual development projects will meet the Department's goals of reducing stormwater runoff volume, reducing erosion, encouraging infiltration and groundwater recharge, and of maintaining or reproducing the natural hydrologic cycle.

306. COMMENT: The Department does not present a cogent reason for replacing the current nonstructural strategies with the proposed green infrastructure requirements. After stating

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that implementing the nonstructural strategies originally involved “a measure of subjectivity,” the Department then describes how it developed the nonstructural strategies points system (NSPS) to address this problem and “to increase predictability and uniformity of determinations” and “allow greater certainty of design.” However, the Department does not then present a reason for abandoning the nonstructural strategies and the NSPS, particularly since the Appellate Division only found that, in order for it to be used as part of the Stormwater Management rules and provide the benefits the cited above, the NSPS simply needed to be formally adopted by the Department (just, as the Appellate Division noted in their opinion, the Delaware and Raritan Canal Commission had already done). The only stated reason that the Department provides for abandoning the nonstructural strategies and replacing them with the proposed green infrastructure techniques is “in order to address the continuing issues in implementation of the existing rules.” However, from the preceding text, the Department (and the Appellate Division) clearly states that the only “continuing issue” with rule implementation is the need to formally adopt the NSPS. No other “continuing issues” are cited in the notice of proposal Summary. Therefore, how does the Department justify abandoning an established and thoroughly documented and codified stormwater management approach like the nonstructural strategies for no stated reason other than that the well-known, widely used NSPS implementation tool simply needs to be formally adopted? This is a particularly pertinent question since the Department has instead spent considerably more time, effort, and expense to research, develop, codify, and propose an entirely new approach that also requires the same

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formal adoption that the Department has decided the nonstructural strategies and NSPS do not warrant. More justification for this decision is needed. (41)

307. COMMENT: Formally adopting the Nonstructural Stormwater Strategies Point System (NSPS) or similar quantitative analysis would eliminate the subjectivity of the “maximum extent practicable” requirement. Reference should also be made in the rule to the currently existing Low Impact Development Checklist (Included as Appendix A of the New Jersey Stormwater BMP Manual). By completing this checklist, the applicant can easily summarize where/how stormwater will be managed on the site using low-impact/green infrastructure. This enables a more thorough review of the project to ensure that these strategies are being implemented. (32)

RESPONSE TO COMMENTS 306 AND 307: The Department began using the NSPS in an attempt to reduce the inconsistencies and subjectivity in implementation of the requirement that major developments incorporate the nonstructural strategies to the “maximum extent practicable.” The use of this tool was struck down by the Superior Court of New Jersey, Appellate Division, in 2013. While the Appellate Division’s decision in the case was based on the fact that the NSPS had not been formally adopted through the rulemaking process, the Court also made the following statement:

“It is clear from the language used by the Department itself that its review of the use of nonstructural measures does not go beyond the NSPS if the minimum number of points have been awarded to satisfy the "sufficient" standard, without

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determining whether the use of additional nonstructural measures would have been practicable.”

After re-examining the NSPS and its use, the Department agrees with this statement.

Since no evaluation of the practicability of additional nonstructural measures was required when using the NSPS, its use set a different bar for compliance than “maximum extent practicable.” So, while the Department could have chosen to go through the rulemaking process in an attempt to adopt the NSPS to eliminate the subject standard of “maximum extent practicable,” the Department would have been lessening the requirements in the rule, as the NSPS did not meet “maximum extent practicable.”

Instead, the Department chose to focus on the reasons the rule had required nonstructural strategies to the maximum extent practicable, and to craft a new standard that would be both objective and capable of meeting those goals.

With respect to the Low Impact Development Checklist, although helpful in evaluating the incorporation of nonstructural strategies when correctly used, the checklist is not being amended at this time and is no longer applicable. Additional guidance will be incorporated into the chapters or appendices of New Jersey Stormwater Management BMP Manual.

308. COMMENT: Many sites, especially in urbanized areas, have numerous constraints that make it impractical to manage stormwater runoff with green infrastructure practices alone. Many sites include some combination of soils with limited infiltration capacity, contaminated soils, high ground water, space and utility constraints, and limited demand for harvested water.

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Areas such as Philadelphia with extensive experience implementing green infrastructure practices have realized this and subsequently modified their standards to include well vetted flow through treatment practices in order to ensure stormwater is properly treated when onsite retention is not viable. Similarly, the states of New York and Maryland, which also prioritize green infrastructure where feasible, maintain strong performance based standards and a broad suite of BMPs capable of meeting them when green infrastructure practices alone are not sufficient. The Department is setting the stormwater community up for failure by assuming green infrastructure practices alone are sufficient. Numerous programs now acknowledge that stormwater is best managed by a combined green/gray strategy. (4)

309. COMMENT: The rules should provide provisions/exceptions in urban areas where green infrastructure BMPs are not feasible due to shallow groundwater and/or environmental contamination. (24)

RESPONSE TO COMMENTS 308 AND 309: It is unclear to the Department what space or utility constraints would allow for the construction of a major development on the site, but would prevent the construction of stormwater BMPs to manage the runoff from that major development. Further, the Department's adopted definition of green infrastructure does provide a broad suite of BMPs including not only practices that infiltrate and practices that store stormwater for reuse, but also practices that filter stormwater runoff through vegetation or soils. If BMPs that infiltrate or store stormwater for reuse can't be used on a particular site, BMPs that filter stormwater runoff through vegetation or soils can be used to meet the green infrastructure requirements.

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While the presence of high groundwater is an additional challenge, there are methods that can be used to allow for BMPs to be installed on the site nonetheless. There are green infrastructure BMPs listed in Table 5-1, such as green roofs, cisterns, and green infrastructure MTDs, and green infrastructure BMPs listed in Table 5-2, such as wet ponds and standard constructed wetlands, which can be used regardless of the depth to groundwater. If those BMPs are not feasible on-site due to existing site conditions, fill could be imported into the site to raise the elevation of the ground and increase the depth to groundwater to a point where any BMP could be feasible. If there are no other options that would allow a BMP to be designed for the site due to the elevation of the groundwater table, the Department would consider allowing an impermeable liner below a BMP, such as a small-scale bioretention system, which would prevent the groundwater from interfering with the function of the BMP. In the rare scenario where it is truly technically infeasible to incorporate BMPs into a site the applicant can seek relief from the standards. If the Department is the review agency for an application in such a situation, relief can be sought through the Waiver Rule, at N.J.A.C. 7:1B, or, if the application is for a permit under the Flood Hazard Area Control Act Rule, at N.J.A.C. 7:13, through a hardship exception. If a municipality is the review agency, relief can be sought through a variance pursuant to N.J.A.C. 7:8-4.6.

See the Response to Comments 298, 299, and 300 for a discussion on the use of BMPs on sites with contamination.

Regarding situations where green infrastructure is not feasible, see the Response to Comment 310.

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310. COMMENT: The rules should provide a waiver or exceptions to allow the use of MTDs in areas where green infrastructure is not feasible (for example, urban areas, contaminated sites, or shallow groundwater). (24 and 27)

RESPONSE: There may be limited instances where engineering, environmental, or safety reasons make it technically impracticable for a major development to incorporate green infrastructure BMPs on-site to achieve full compliance with the green infrastructure standards contained in the notice of proposal. However, as stated in the notice of proposal Summary, 50 N.J.R. at 2396, the Department does not anticipate that there are many cases in which it will be technically infeasible to meet the rule requirements using green infrastructure. If the Department is the review agency for an application in such a situation, relief can be sought through the Waiver Rule, at N.J.A.C. 7:1B, or if the application is for a permit under the Flood Hazard Area Control Act Rules, at N.J.A.C. 7:13, through a hardship exception. If a municipality is the review agency, then relief can be sought through the municipal variance process coupled with a mitigation project. Furthermore, the rule allows waivers from strict compliance to be obtained from the green infrastructure requirements at N.J.A.C. 7:8-5.3 for certain projects along existing roadways in accordance with N.J.A.C. 7:8-5.2(e). Additionally, it should be noted that MTDs that rely on filtration through vegetation or soils are considered green infrastructure and can be used to meet the green infrastructure requirements without seeking any relief.

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For a discussion on incorporating stormwater BMPs into sites with contamination, please see the Response to Comments 298, 299, and 300 and for information on incorporating BMPs into sites with high groundwater, please see the Response to Comments 308 and 309.

311. COMMENT: Regarding proposed N.J.A.C. 7:8-5.3(e), to promote sewer separation, this regulation should be revised to allow the use of end-of-pipe facilities including non-green MTDs. The requirement as written will discourage sewer separation. (1)

RESPONSE: Nothing in the adopted amendments specifically limits the use of end-of-pipe facilities, though they would be subject to any applicable drainage area limitations pursuant to N.J.A.C. 7:8-5.3(b). While the use of non-green MTDs would be limited by the newly adopted rules due to the requirement to use green infrastructure, for storm sewer improvement projects (including sewer separation) the applicability of the green infrastructure standard is limited to the areas within the right-of-way and property owned in fee simple by the government agency undertaking the storm sewer separation project, though the groundwater recharge, stormwater runoff quality, and stormwater runoff quantity standards would apply to the entire drainage area affected by the storm sewer separation project pursuant to newly adopted N.J.A.C. 7:8-5.3(e). Therefore, non-green MTDs could be used to provide the required treatment for areas outside of the right-of-way and areas owned in fee simple by the government agency undertaking the project.

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312. COMMENT: At proposed new N.J.A.C. 7:8-5.3(e), the phrase “government agency or sewerage authority” makes no sense. To understand why, one must begin by discussing what is meant by “sewerage authority,” a term not defined or otherwise explained in existing N.J.A.C. 7:8 or the proposed changes thereto. Absent such explanation, readers may reasonably presume (no matter what the authors of proposed N.J.A.C. 7:8-5.3(e) intend) that a “sewerage authority” is what the NJPDES rules and Water Quality Management Planning rules at N.J.A.C. 7:14A-1.2 and 7:15-1.5 correctly define as a “sewerage authority”: “a sewerage authority created pursuant to the Sewerage Authorities Law, N.J.S.A. 40:14A-1 et seq.” More fundamentally, however, if (as seems likely) a municipality is a “government agency” for purposes of proposed new N.J.A.C. 7:8-5.3(e), then a “sewerage authority” (as defined at N.J.A.C. 7:14A-1.2 and 7:15-1.5), and, for that matter, a “municipal utilities authority,” is also, inarguably, a “government agency.” If the term “sewerage authority” at proposed new N.J.A.C. 7:8-5.3(e) is intended by the Department to refer to a private entity that may undertake sewer improvement projects, then a potential term to replace “sewerage authority” for this purpose is “sewerage company,” a term used in New Jersey public utilities statutes (see, for example, N.J.S.A. 48:13-9 through 14). (26)

RESPONSE: As indicated in the notice of proposal summary at 50 N.J.R. 2390, this subsection reflects the Department’s recognition that, due to factors including the presence of numerous property owners in the drainage area of sewer improvement projects, “it would be highly impracticable for a government agency or sewer utility to install enough green infrastructure throughout the sewer improvement project’s drainage area to meet the water quantity, water

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quality, and groundwater recharge standards.” Accordingly, the rules provide an exception from the green infrastructure requirements for this type of project, with the green infrastructure requirement only applicable to lands owned in fee simple by the entity undertaking the project, with the water quantity, water quality, and groundwater recharge standards, as applicable, to continue to be required to be met, but not exclusively through the installation of green infrastructure. To reflect that this exception applies to the entity undertaking such a project, whether it be a sewerage authority or more generically a sewer utility as indicated in the quoted language above, the Department is changing N.J.A.C. 7:8-5.3(e) to read as follows: “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 section 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 section.”

#### **7:8-5.5 Stormwater Runoff Quality Standards**

##### *General*

313. COMMENT: The rules do not deal with total suspended solids and do not have nutrient limits for nitrogen or phosphorus. (42)

RESPONSE: The Stormwater Management rules at N.J.A.C. 7:8-5.5 require both the removal of TSS and nutrients. Both the existing rules and the amended rules require 80 percent TSS

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removal and nutrients must be removed to the maximum extent feasible. The definition of nutrients at N.J.A.C. 7:8-1.2 includes both nitrogen and phosphorous.

314. COMMENT: N.J.A.C. 7:8-5.5 Table 5-4: Water Quality Design Storm Distribution. Add clarification of how to apply design storm to calculate the water quality flow rate or water quality volume. (28)

RESPONSE: The Department has developed extensive guidance regarding the specific method(s) to calculate stormwater runoff flow rate and volume including various calculation examples and detailed information regarding when and how to use each method. This information and additional guidance on this topic is available in Chapter 5 of the New Jersey Stormwater BMP Manual which can be found on the Department's website at [https://www.njstormwater.org/bmp\\_manual/NJ\\_SWBMP\\_5%20print.pdf](https://www.njstormwater.org/bmp_manual/NJ_SWBMP_5%20print.pdf).

315. COMMENT: N.J.A.C. 7:13-11.2(j)3 in the Flood Hazard Area Control Act Rules, taken literally, requires infiltration of the water quality storm for "major development" (that is, either a quarter acre of new impervious surface OR one acre of disturbance), while the proposed Stormwater Management rules at N.J.A.C. 7:8-5.5(a) state that water quality only applies when a major development results in an increase of (one quarter) acre or more of "regulated motor vehicle surface." This inconsistency requires correction in both rules. (19)

RESPONSE: Projects that require permits under the Flood Hazard Area Control Act Rules must meet the requirements set forth in those rules, including N.J.A.C. 7:13-11.2(j)3, if applicable.

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Projects that are major developments must additionally meet the requirements set forth in the Stormwater Management rules, including N.J.A.C. 7:8-5.5, if applicable. As explained below, nothing is in conflict between the two rules and both sets of rules must be followed if they are applicable to a particular project.

The Flood Hazard Area Control Act rules utilize the definition of major development in the Stormwater Management Rules by stating “major development, as defined in the Stormwater Management rules at N.J.A.C. 7:8-1.2.” Since the Flood Hazard Area Control Act Rules have the same definition, on the date that the amendments being adopted now become operative, the definition of “major development” in the Flood Hazard Area Control Act will automatically become the amended Stormwater Management rule definition. For that reason, there is not currently, nor will there be, any inconsistency between the two.

The perceived inconsistency is likely related to the fact that under the Flood Hazard Area Control Act Rules, “all runoff from the water quality design storm that is discharged within the riparian zone shall be treated, in accordance with the methods set forth at N.J.A.C. 7:8-5.5.” However, since this specifically requires the discharged stormwater to be treated in accordance with N.J.A.C. 7:8-5.5, the 95 percent TSS removal requirement is only applied when N.J.A.C. 7:8-5.5 is applicable.

#### *Water Quality Applicability*

316. COMMENT: The concept of applying the stormwater runoff quality standards to regulated motor vehicle surfaces as defined in the proposed rules through N.J.A.C. 7:8-5.5(a) and 1.2 is

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supported. As the Department noted, this will provide needed clarity that the water quality standards apply to all motor vehicle services regardless of whether they are pervious or impervious. (23)

RESPONSE: The Department acknowledges the commenter's support of the proposed rule amendments.

317. COMMENT: Focus on motor vehicle surface (pervious or impervious) seems to miss a broad swath of pollutant generating surfaces. By excluding all impervious surfaces other than motor vehicle surfaces, the regulations miss the quantity and quality of runoff from other pollutant generating surfaces. (28)

RESPONSE: The rules retain the criteria for impervious surfaces in the definition of major development. Therefore, stormwater runoff quantity controls are required for impervious surfaces even if they are not motor vehicle surfaces.

Please refer to the Response to Comments 319 through 328 for additional information on the applicability of the stormwater runoff quality standards.

318. COMMENT: Under N.J.A.C. 7:8-5.5(a), please confirm whether existing "regulated motor vehicle surfaces" (for example, full depth pavement reconstruction) will require TSS removal, retroactively (as is currently the policy), once the one quarter acre threshold is otherwise exceeded. (19)

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RESPONSE: The commenter is correct that, after the operative date of the adopted amendments, once the one quarter acre threshold is exceeded, water quality treatment will be required for regulated motor vehicle surfaces pursuant to N.J.A.C. 7:8-5.5(b).

319. COMMENT: The Department should not exclude sidewalks and rooftops from the stormwater runoff quality standard at N.J.A.C. 7:8-5.5. Sidewalks and rooftops are significant contributors of pollutants. Given New Jersey's problem with water pollution, more attention, not less, should be focused on water quality requirements. The exclusion of sidewalks and rooftops from water quality requirements should be removed from the proposed rule, unless such removal would trigger reproposal of the entire rulemaking. If removing the sidewalks and rooftops exclusion would prevent or substantially delay implementation of the rest of the rulemaking, instead the Department should, in the ongoing stakeholdering process, again extend the stormwater quality standard requirements to sidewalks and rooftops. (43)

320. COMMENT: While there is general acknowledgment that motor vehicle surfaces are the primary area of concern with regard to the transport of TSS, sidewalks, and, to a lesser extent, rooftops, are a major pathway for the transport of nutrient pollutants into the stormwater conveyance systems. Because there are no current standards for nutrient removal, and nutrients, particularly phosphorous, sorb to solids, the TSS removal requirement acts to reduce nutrient loadings to the ecosystem. Until the Department promulgates nutrient reduction requirements, the commenter strongly urges the Department to leave non-motor vehicle surfaces under the TSS removal requirements. The commenter does agree with the

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Department's decision to include both pervious and impervious surfaces in the definition of "motor vehicle surface" at N.J.A.C. 7:8-1.2. (15)

321. COMMENT: The Department must not exempt non-motor vehicle surfaces from the rules' water quality requirement. The Department should not remove non-vehicular impervious surfaces from the TSS requirement. Instead, the Department should revise the existing rule language to clarify that impervious surface includes both vehicular and non-vehicular impervious surfaces. It is well documented that non-vehicular impervious surfaces have a significant pollution impact on receiving waterways, via discharges of both suspended solids and other pollutants. The Department should, therefore, continue to consider non-motor vehicle surface when determining the total acreage of impervious surfaces subject to the rules' water quality requirements. Roofs can be a significant contributor of solids and organic carbon loading. (16)

322. COMMENT: Proposed N.J.A.C. 7:8-5.5(a) limits the applicability of stormwater runoff quality controls to only apply when a major development results in an increase of one-quarter acre or more of regulated motor vehicle surface. The stormwater runoff quality must be applicable to all surfaces. While "regulated motor vehicle surfaces" may account for a majority of the TSS found in stormwater runoff, other impervious surfaces, such as roofs and sidewalks still account for TSS and may have a major aggregate effect. The stormwater runoff quality standards should continue to apply to all impervious surfaces and not be limited to only regulated motor vehicle surfaces. While the Department indicates that the intent of this change is to remove a loophole with pervious surfaces, such as gravel or stone parking areas, a

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simple solution would be to have the section apply to both “impervious surfaces” and the newly defined term “regulated motor vehicle surfaces.” Similarly, while the Department indicated that its goal is to provide consistent application of the standards, the Department also noted that local reviewing agencies might still apply the TSS removal requirement to rooftops and sidewalks. By explicitly providing that the section applies to both impervious surfaces and regulated motor vehicle surfaces, this will ensure a consistent approach Statewide rather than potentially having different standards among different municipalities. (12)

323. COMMENT: Why does the stormwater runoff quality standard only apply after, specifically, “one-quarter acre” of new motor vehicle surface? The Department should clarify if non-motor vehicle impervious surfaces are excluded from the treatment requirement. There can be substantial pollutants generated from rooftops and other impervious land use. It seems short-sighted and inconsistent with the USEPA and other regulatory agencies to exclude these impervious areas from treatment requirements. Please clarify. (28)

324. COMMENT: The elimination of the water quality requirement for non-vehicular impervious surfaces is strongly opposed. (16)

325. COMMENT: The proposed rule eliminates the total suspended solids (TSS) removal requirement as it applies to runoff from impervious surfaces not traveled by automobiles, such as rooftops and sidewalks. The Department should not exempt (TSS) regulations because it will allow for more nonpoint pollution. TSS also carry other nutrients that brings other pollutants with them. That amendment should be removed. (42)

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326. COMMENT: Any surface that is impervious, including sidewalks and rooftops, whether it is traveled by automobiles or not, should be required to have to control stormwater and total suspended solids. If it is impervious, stormwater needs to be managed and treated. (34)

327. COMMENT: Roof runoff generally carries lower pollutant loads than other impervious surfaces, but the exclusion of sidewalks from impervious surfaces requiring treatment seems short-sighted. These surfaces are often sanded, salted, exposed to trash, fertilizers, and pet waste and, thus, can be significant contributors to pollutant loads. They also produce runoff contributing to the overall volume leaving a site. The Department should reconsider this exclusion and include all impervious surfaces other than roof runoff. Additionally, turf areas, such as lawns and athletic fields, while not fully impervious, do contribute significantly more runoff than undisturbed natural areas so their impact to pollutant loading and runoff volumes should be considered accordingly. (4)

328. COMMENT: Limiting the definition of pollution generating surfaces to only those surfaces that accommodate motor vehicle traffic will leave runoff from rooftops, walkways, and other similar impervious surfaces untreated. These surfaces accumulate airborne pollutants and contaminants from materials, such as bituminous roofing. These pollutants will degrade receiving waters. (18)

RESPONSE TO COMMENTS 319 THROUGH 328: The Stormwater Management rules require that stormwater management measures shall be designed to reduce the post-construction load of TSS in stormwater runoff generated from the water quality design storm by 80 percent.

Stormwater management measures shall also be designed to reduce, to the maximum extent

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feasible, the post-construction nutrient load of the anticipated load from the developed site in stormwater runoff generated from the water quality design storm. The Department has not changed these requirements. The Stormwater Management rule does not regulate materials such as salt or bituminous roof material.

As noted in the notice of proposal Summary, 50 N.J.R. at 2386, the Department, in applying the existing rules to a major development, did not focus on TSS removal for rooftops and sidewalks as these surfaces are not considered to be significant contributors of TSS. The Department is clarifying the application of the TSS removal requirement to the runoff from motor vehicle surfaces and removing the TSS removal requirement as it applies to runoff from other impervious surfaces not traveled by automobiles, such as rooftops and sidewalks. The adopted change does not affect the water quantity requirement for stormwater flowing from impervious surfaces.

Also noted in the notice of proposal Summary, 50 N.J.R. at 2386, many studies have indicated that petroleum hydrocarbons, oils, sediments, suspended solids, and other pollutants from motor vehicles contribute significantly to pollution deposited on the surfaces that are used by motor vehicles (Hoffman, 1982; Stenstrom, 1982; Hewitt, 1992; Pitt, 2005; Aryal, 2055; Rowe, 2011). The Summary also states that studies also show that stormwater runoff from roofs often contains less TSS that contribute to adverse water quality impacts than stormwater runoff from motor vehicle surfaces (Pitt, 1986; Bannerman, 1993; Pitt, 2005) and that stormwater runoff from sidewalks and similar surfaces not traversed by motor vehicles similarly has lesser levels of TSS with a correspondingly reduced contribution to adverse water quality

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impacts. For those reasons, the Department has long considered the runoff from those surfaces to not be a significant contributor of TSS.

Additionally, the adopted amendments will help eliminate any ambiguity as to what surfaces should be taken into account in determining whether a particular development is required to satisfy the rules' stormwater runoff quality standards. It has been the Department's experience in implementing the existing rules that applicants have sought to use gravel or stone parking areas in order to avoid the stormwater runoff quality control standards, arguing that these materials should not be considered impervious surfaces. However, as stated in the notice of proposal Summary, 50 N.J.R. 2387, unpaved parking/storage surface, roadways, and driveways have been shown to contribute significant TSS loadings to streams (Reid, 1984; Pitt, 1986; Clinton, 2003; Bloser, 2012). Allowing gravel, stone, or other unpaved areas utilized by motor vehicles to be considered to be pervious surface and, thus, not subject to the TSS removal requirement, would be inconsistent with the purpose of the rules to minimize the impact of stormwater runoff on water quality. Thus, the Department is amending N.J.A.C. 7:8-5.5 to require that the rules' stormwater runoff quality standards, including removal of 80 percent TSS and reduction of nutrient load to the maximum extent feasible, be applicable to protect water quality when one-quarter acre of motor vehicle surface is proposed by the applicant.

As stated in the 2004 adoption of the Stormwater Management rules in Response to Comments 164 through 168, 36 N.J.R. at 690, the one-quarter acre impervious surface threshold was already used by the Department's Land Use Regulation Program to evaluate

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stormwater impacts from development under a variety of regulatory programs, including Freshwater Wetlands, Flood Hazard Area, Waterfront Development, and CAFRA permits prior to the 2004 adoption of amendments to the Stormwater Management rules, which originally incorporated the one-quarter acre threshold into the Stormwater Management rules. This threshold for major development is applied by the Department to capture increases in impervious cover that are below the threshold for entities regulated under the NJPDES Municipal Stormwater Regulation Program of one acre of disturbance, but deemed significant and consistently regulated by the Department in the Division of Land Use Regulation.

329. COMMENT: By abandoning the water quality requirement for non-motorized vehicle surfaces, the rules ignore the fact that the Department originally chose TSS as a surrogate for other pollutants. Applying the water quality requirements to roof tops and sidewalk surfaces will help ensure that their runoff is treated and that these impacts will be mitigated. (16)

RESPONSE: As stated in the 2004 adoption of the Stormwater Management rules, 36 N.J.R. at 749, total suspended solids were selected as a surrogate for pollutant removal efficiency because many pollutants are either particulate in nature or adhere to particulate matter. However, as the studies noted in the notice of proposal Summary, 50 N.J.R. at 2386, and in the Response to Comments 319 through 328 show, rooftops and sidewalks are not significant sources of suspended solids, which would include particulate matter. Since those surfaces are not significant sources of particulate matter, there is little for any pollutants to adhere to. Because they do not shed a lot of particulate matter, requiring stormwater runoff quality

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treatment for rooftops and sidewalks would be in conflict with the Department's reasoning for selecting TSS as a surrogate for pollutant removal efficiency.

330. COMMENT: The proposed amendments to the definitions contained in the proposed rule associated with making a distinction between motor vehicle and non-motor vehicle surfaces are supported; however, the Department should consider including additional water quality standards associated with all impervious and pervious surfaces. Nonpoint source pollutants are attributed to stormwater runoff and should be included in the rule. In addition, reference to and discussion of Total Maximum Daily Loads (TMDLs) should be included in the proposed rule.

(32)

RESPONSE: The Department acknowledges the commenter's support of the proposed definitions in the rules. With regard to the question of the distinction between motor vehicle and non-motor vehicle surfaces, see the Reponse to Comment 329.

The adopted rule contains the stormwater runoff quality standards at N.J.A.C. 7:8-5.5, which include TSS, and nutrients to the maximum extent feasible. While not proposed in this rulemaking, the Department is evaluating additional water quality standards in ongoing stakeholdering noted in the introduction to this adoption above and in the notice of proposal Summary, at 50 N.J.R. 2376.

The adopted rule does reference Total Maximum Daily Loads (TMDLs) under N.J.A.C. 7:8-3.4(a)5 as part of Regional Stormwater Management Planning. N.J.A.C. 7:8-3.4 is amended to update cross-references to ensure programs develop TMDLs in accordance with N.J.A.C.

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7:15-5 as part of existing municipal, county, State, Federal, and other stormwater-related groundwater recharge, water quality, and water quantity regulations and programs. For additional information regarding TMDLs see <https://www.nj.gov/dep/dwg/msrp-tmdl-rh.htm>.

The Department is also evaluating addition changes related to TMDLs in the ongoing stakeholdering noted above. Please also see the Response to Comment 46 for more information regarding TMDLs.

331. COMMENT: The rule treats impervious cover with automobile's different with other types of impervious cover, which is wrong. It does not deal with compacted soils that in parts of New Jersey are like impervious cover. (42)

RESPONSE: The Department made the distinction between motor vehicle and non-motor vehicle surfaces in the proposed rule to clarify the exclusion of non-motor vehicle surfaces from the water quality requirement since the Department has long considered the runoff from those surfaces not to be a significant contributor of TSS. Compacted soils are generally not considered an "impervious surface" as defined at N.J.A.C. 7:8-1.2 and areas disturbed by a proposed project are already included in the land cover aspect of the stormwater calculations so no additional consideration is required. Compacted soils could be subject to the stormwater runoff water quality requirements if it is also a "motor vehicle surface" (that is, dirt road) intended to be used by "motor vehicles," making it a "regulated motor vehicle surface."

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*N.J.A.C. 7:8-5.5(b)2*

332. COMMENT: Where, for example, a roadside swale is replaced with a pipe, the Department should provide guidance on how to calculate the existing level of treatment provided by the vegetated area that is replaced. This is necessary because, in most instances, the existing treatment would not meet the Department's criteria for a BMP. (1)

RESPONSE: The Department will provide guidance on this in a revised chapter of the New Jersey Stormwater BMP Manual. However, in the case of a roadside swale that does not meet the minimum requirements of the grass swale BMP, any BMP listed in Table 5-1 can be used to compensate for its removal as, in this case, the roadside swale was providing less than 50 percent TSS removal. In the case of a roadside swale that does meet the grass swale BMP, the grass swale BMP chapter can be used to calculate the existing level of treatment.

333. COMMENT: The definition of "regulated motor vehicle surface" at N.J.A.C. 7:8-1.2, and similarly the proposed language at N.J.A.C. 7:8-5.5(b)2, implies that a motor vehicle surface which, under existing conditions, flows over "vegetation or soil" will be assumed to be providing some unspecified level of water quality treatment. The New Jersey Stormwater BMP Manual does not provide any TSS removal rates for "soil." Furthermore, according to the New Jersey Stormwater BMP Manual, flow over vegetation or grass does not provide any water quality treatment unless certain minimum overland flow lengths are provided, which is rarely achievable, particularly on linear roadway projects. If this standard is to be applied to existing conditions, this definition, and the New Jersey Stormwater BMP Manual, needs revision to

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include TSS removal rates for “soil,” as well as for short lengths of overland flow across “vegetation” (such as grass/swales, roadway embankment slopes, and roadway umbrella sections). (19)

RESPONSE: Flow through soil or short lengths of overland flow across vegetation will provide a measure of TSS removal in some scenarios; however, unless designed in accordance with one of the BMPs already listed in the New Jersey BMP Manual, or approved as an alternative stormwater management measure pursuant to N.J.A.C. 7:8-5.2(g), they will not be capable of achieving significant, repeatable TSS removal to warrant inclusion in the New Jersey Stormwater BMP Manual as a BMP. In order to mitigate for the removal of one of these features that does not provide significant enough TSS removal to warrant inclusion as a BMP, one can utilize any of the BMPs listed in Table 5-1 with a TSS removal rate greater than 0 (or an alternative stormwater management measure pursuant to N.J.A.C. 7:8-5.2(g) that is capable of providing equivalent TSS removal) to treat the area that previously received treatment by the vegetation or soil.

334. COMMENT: The Department should clarify the definition of regulated impervious surface as it relates to the total area of impervious surface collected by an existing stormwater conveyance system where the capacity of the existing stormwater collection system is increased. The rulemaking is unclear on whether or not these regulated impervious areas in this situation would require water quality treatment. (24 and 27)

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RESPONSE: The stormwater runoff quality standards at N.J.A.C. 7:8-5.5 are applicable when a major development results in an increase of one-quarter acre or more of “regulated motor vehicle surface” not “regulated impervious surface.” So, although the total area of impervious surface collected by an existing stormwater conveyance system would be a “regulated impervious surface” if the capacity of the existing stormwater collection system is increased, it would not be subject to the stormwater runoff quality standards unless the surface is also considered a “regulated motor vehicle surface” and the project is considered major development.

335. COMMENT: What are the required TSS reduction requirements for changes of existing flow conveyances. For example, an existing conveyance system can be changed by replacing an existing 15-inch diameter pipe with an 18-inch diameter pipe. Please include examples of other changes in existing conveyance and justify the required TSS reduction requirements. (6)

RESPONSE: Assuming no other construction is proposed, the example stated in the comment would not require compliance with the stormwater runoff quality standards. Please also see the Response to Comment 337.

336. COMMENT: If an existing swale does not meet the water quality BMP standards, then projects that impact these existing swales should not be made to provide for water quality compensation if altered or if a swale is converted to a lined or closed system. Providing for a stable waterway is required by the New Jersey Standards for Soil Erosion. Specific experience

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has shown that adding water quality treatment for some changed existing systems lead to adding additional curb to collect runoff for treatment and installation of MTDs or other BMPs that require additional maintenance and costs. This is counterproductive in some cases. Provide justification on why, if a project impacts an existing swale that does not meet the grass swale standards in accordance with the New Jersey Stormwater BMP Manual, it has to provide additional water quality treatment. (6)

RESPONSE: A swale must meet the design in the New Jersey Stormwater BMP Manual to be presumed capable of providing 50 percent TSS removal. A swale that does not meet this design may still provide stormwater runoff quality treatment to a lesser degree and if it was proposed to be removed, adequate treatment to mitigate for the removal of the swale is necessary to prevent adverse impacts downstream of the project.

337. COMMENT: What data and studies were used to specify the change in water quality as a result of the change in drainage patterns such as increasing pipe size. This also relates to statement of the use of the minimum 50 percent TSS in the FAQs? (6)

RESPONSE: Increasing pipe size alone would not require stormwater runoff quality treatment under N.J.A.C. 7:8-5.5. In order to trigger that requirement, a proposed project must increase regulated motor vehicle surface by one-quarter acre or more. While increasing pipe size may be considered regulated impervious surface, on its own, it generally would not meet the definition of regulated motor vehicle surface. The remainder of the comment relates to a frequently

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asked question posted on the Department's website and it is outside the scope of this rulemaking.

*Nutrients (N.J.A.C. 7:8-5.5(f))*

338. COMMENT: Though proposed amended N.J.A.C. 7:8-2.4(a) does not eliminate the use of structural measures to meet the requirements of the chapter, proposed amendments throughout, including N.J.A.C. 7:8-5.5(f), eliminate the use of structural measures to meet storm water runoff quality requirements. In some instances, structural measures may be available to meet water quality standards to the "maximum extent feasible" and, therefore, should be permitted to be considered. (3)

RESPONSE: Newly adopted N.J.A.C. 7:8-5.5(f) states "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 N.J.A.C. 7:8-5.4 and 5.6 and this section." No language contained therein is intended to or would eliminate the use of structural measures.

339. COMMENT: As written, these rules will not reduce nutrient loads to the maximum extent practical. Research published by the international BMP database clearly shows that bioretention is a net exporter of total phosphorus and other studies have reached similar

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conclusions. There are much more effective solutions for reducing nutrient loads already in use such as media filters tailored specifically for nutrient reduction. The Department is encouraged to draft specific nutrient reduction standards and identify the BMPs able to meet them. (4)

RESPONSE: Currently, the Department has only certified MTDs, including media filters, for the removal of total suspended solids. There are no media filters certified for nutrient removal in New Jersey. However, as part of the ongoing stakeholder process noted in the introduction to this adoption, the Department is currently exploring potential changes to the nutrient standard at N.J.A.C. 7:8-5.5(f). Should the Department determine that it is appropriate to amend the rules to incorporate numerical nutrient removal standards, additional information will be provided on the BMPs capable of achieving the standard as part of any future rulemaking and in amendments to the New Jersey Stormwater BMP manual.

Please see the Response to Comment 201 for information on the exportation of phosphorous from bioretention systems.

340. COMMENT: Proposed N.J.A.C. 7:8-5.5(f) requires that stormwater management measures be designed to reduce, to the maximum extent feasible, the post-construction nutrient load in runoff resulting from the water quality design storm from a developed site. The Department, in the notice of proposal summary, acknowledges the difficulty in interpreting and enforcing a “maximum extent practicable” standard due to subjectivity on the part of the site designer and the review agency. The Department also acknowledges inconsistencies it has observed in determinations made by different review agencies when applying the rules. The subjectivity of

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interpreting and enforcing a “maximum extent practicable” standard applies equally to the interpretation and enforcement of a “maximum extent feasible” standard. The Department should consider eliminating the “maximum extent feasible” standard and replacing it with a minimum nutrient removal rate (numerical percentage) standard. This could be accomplished by referencing the nutrient removal capabilities identified in the New Jersey Stormwater BMP Manual (see Table 4.2, Nutrient Removal Rates for BMPs). (37)

341. COMMENT: 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. The Department should clarify what the performance expectation is and for what nutrient? Define maximum extent feasible. (28)

RESPONSE TO COMMENTS 340 AND 341: As indicated at adopted N.J.A.C. 7:8-5.5(f), the stormwater runoff quality standard for nutrients is 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. The typical nutrients are phosphorus and nitrogen, and the removal rates that can be achieved by each BMP toward achieving the rules’ maximum extent feasible standard are indicated in Chapter 4, Table 4.2 of the New Jersey Stormwater BMP Manual located at [https://www.njstormwater.org/bmp\\_manual2.htm](https://www.njstormwater.org/bmp_manual2.htm). While not specifically defined at N.J.A.C. 7:8-1.2, as described in Chapter 4 of the New Jersey Stormwater BMP Manual, “maximum extent feasible” with regard to reduction in nutrients means that the input of nutrients to the drainage area should be minimized, and when selecting a stormwater management measure to

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address the TSS removal requirement, the measure with the highest nutrient removal rate that also meets the site's constraints should be chosen. Re-evaluation of the nutrient standard is being explored during the ongoing stakeholdering of the Stormwater Management rules noted in the introduction to this adoption above. The Department will consider the commenter's suggestion to replace the "maximum extent feasible" standard with a minimum nutrient removal rate (numerical percentage) standard as part of that re-evaluation.

342. COMMENT: The proposed rules, at N.J.A.C. 7:8-5.5(f), have no quantitative requirement to remove nutrients, even as phosphorous continues to be an issue in New Jersey stream designated use impairments, see:

[https://www.epa.gov/sites/production/files/201707/documents/nj\\_2014\\_303d\\_final\\_fact\\_sheet.pdf](https://www.epa.gov/sites/production/files/201707/documents/nj_2014_303d_final_fact_sheet.pdf). The Department should advance beyond the term "maximum extent feasible" and

implement a numeric requirement. It should also tie Total Maximum Daily Loads to the Stormwater Rule as urban runoff continues to block restoration of the State's waters. (25)

RESPONSE: Including a numerical nutrient standard or adding a requirement related to TMDLs are both topics that are being explored during the ongoing stakeholdering noted in the introduction to this adoption above and in the notice of proposal Summary, 50 N.J.R. at 2376.

343. COMMENT: At proposed N.J.A.C. 7:8-5.5(f), the Department should add language along the following lines: "The nutrients required to be reduced under this subsection are: "1. Nitrogen and phosphorus; and 2. Any nutrient(s), other than nitrogen and phosphorus, listed in a

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regional stormwater management plan adopted in accordance with this chapter or an areawide water quality management plan adopted in accordance with N.J.A.C. 7:15 as a nutrient for which reduction under this subsection is required in a geographic area that includes the site.” Such language would let applicants and review agencies know whether, for any particular site, which specific chemical element(s) or compound(s), if any, besides nitrogen and phosphorus, is a “nutrient” that must be reduced. Existing N.J.A.C. 7:8-1.2 and other existing Department rules at N.J.A.C. 7:14A-1.2 and 7:9B-1.4 define “nutrient” very broadly. Applicants and review agencies should not have to determine by themselves, for each site in question, which specific chemical element(s) or compound(s), if any, besides nitrogen and phosphorus, is a “nutrient” that must be reduced to the maximum extent feasible under proposed N.J.A.C. 7:8-5.5(f). (Note in this regard that stormwater management measures that would provide such reduction for, say, alkaline metals, trace metals, and/or oxidized sulfur may differ from stormwater management measures that would provide such reduction for nitrogen and phosphorus.) It should be the Department’s responsibility to identify formally these specific chemical elements or compounds (if any) that may vary for different locations (for example, calcium-poor Pinelands waters versus calcium-rich waters in northwest New Jersey limestone valleys). The language suggested in the beginning of this comment is consistent with use of regional stormwater management plans and areawide WQM plans in existing N.J.A.C. 7:8-5.1(b) and 7:14A-25.6(e) to establish location-specific stormwater management requirements. Those trying to identify the practical meaning and impact of proposed N.J.A.C. 7:8-5.5(f) deserve to know how the Department, in practice, has interpreted existing N.J.A.C. 7:8-5.5(e) and the

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Department “nutrient” definition. The Department’s adoption notice for this rulemaking should disclose the specific instances (if any) in which, in the administration of N.J.A.C. 7:8, the NJPDES rules (N.J.A.C. 7:14A), the Surface Water Quality Standards (N.J.A.C. 7:9B), or the Water Quality Planning Act (N.J.S.A. 58:11A-1 et seq.), the Department has officially identified in the written public record any specific chemical element(s) or compound(s), besides nitrogen and phosphorus (including nitrogen and phosphorus containing species such as ammonia, nitrate, TKN, phosphate, etc.) as a “nutrient” under the Department’s “nutrient” definition. (26)

RESPONSE: The definition of nutrient at N.J.A.C. 7:8-1.2 reads, “‘Nutrient’ means a chemical element or compound, such as nitrogen or phosphorus, which is essential to and promotes the development of organisms.” Since the definition of nutrient already includes nitrogen and phosphorous, it is unnecessary to include any reference to those elements or their compounds at N.J.A.C. 7:8-5.5(f). It is also unnecessary to reference any nutrients referenced in a regional stormwater management plan, as suggested by the commenter. N.J.A.C. 7:8-5.1(b) states, “the standards specified in this subchapter do not apply to major development if alternative design and performance standards that are at least as protective as would be achieved through this subchapter when considered on a regional stormwater management area basis are applicable under a regional stormwater management plan adopted in accordance with this chapter or a water quality management plan adopted in accordance with N.J.A.C. 7:15.” Since the standards contained at N.J.A.C. 7:8-5.5(f) would be superseded by the requirements contained in a regional stormwater management plan adopted in accordance with this chapter, including the additional information suggested by the commenter is unnecessary.

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344. COMMENT: N.J.A.C. 7:8-5.5(f) requires post-construction nutrient loads from the developed site to achieve maximum feasible nutrient reduction. The Department should verify that this requirement is met if the developed site will not use any fertilizers, as is common for many industrial facility developments. (2 and 17)

RESPONSE: If a development site is required to comply with the stormwater runoff quality standards, solely avoiding fertilizers would not satisfy the maximum extent feasible standard for nutrients at N.J.A.C. 7:8-5.5(f). The “maximum extent feasible” standard is a two-step approach. First, the input of nutrients to the drainage area should be limited as much as feasible (such as the restriction of fertilizers). Second, when selecting green infrastructure BMPs to address the TSS removal requirement, the measure that optimizes nutrient removal while still achieving the performance standards for stormwater quality, stormwater quantity, and groundwater recharge should be chosen.

*N.J.A.C. 7:8-5.5(c)*

345. COMMENT: The new and clarified requirements for stormwater management in combined sewer areas are supported. In particular, it is critical that the rules’ water quality requirement is enforced at sites that drain into a CSS. It also makes sense to allow the use of regional or community basins in combined sewer areas, as long as those basins are properly designed and maintained, as they can achieve important cost savings and open up additional green infrastructure possibilities in densely developed areas. (16)

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346. COMMENT: The rulemaking is supported because the clarity it offers as to the applicability of the water quality standards to discharges into a CSS will result in major developments having to contribute their fair share to infrastructure upgrades to meet the goal of eliminating CSOs in New Jersey. (22)

RESPONSE TO COMMENTS 345 AND 346: The Department acknowledges these comments in support of the rules.

347. COMMENT: N.J.A.C. 7:8-5.5(c) states that the requirement to reduce TSS does not apply to discharges regulated under a NJPDES permit with a numeric TSS effluent limit. This requirement is supported and the Department should further clarify whether this also applies to NJPDES permits with a TSS numeric design criterion. (2 and 17)

RESPONSE: The Department acknowledges the commenter's support of this amendment. Only stormwater discharges regulated under a NJPDES permit with a numeric effluent limitation or specific exemption for TSS are exempt from the TSS reduction requirements at N.J.A.C. 7:8-5.5. Stormwater discharges regulated under a NJPDES permit with only TSS numeric design criterion are not exempt from the TSS reduction requirements at N.J.A.C. 7:8-5.5. Furthermore, it should be noted that in cases where a discharge is regulated under NJPDES permit with a numeric effluent limitation or specific exemption for TSS, the exemption from the stormwater runoff quality standards at N.J.A.C. 7:8-5.5 extends only to those portions of the property that are conveyed to the regulated discharge points under that NJPDES permit. Other portions of the property (for example, the employee parking area) where the runoff is directed away from the

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NJPDES regulated discharge points, would not be exempt from the stormwater runoff quality standards at N.J.A.C. 7:8-5.5.

348. COMMENT: At proposed N.J.A.C. 7:8-5.5(c), the sentence remaining from the existing rules seems to be in conflict with the newly added sentence. Perhaps the intent was to delete the sentence from the existing rules but, there is no bracket to indicate such. (44)

RESPONSE: The Department proposed to add additional language to the section to further clarify and reiterate that all major developments, including those served by a CSS, are subject to the TSS reduction requirement, unless the development itself is subject to a NJPDES permit that imposes a numeric effluent limit on TSS in the runoff discharge from the development or the development is specifically exempted from the TSS removal requirement in a NJPDES permit to which the development is subject. The existing language is intended to remain in the rule.

*N.J.A.C. 7:8-5.5(i)*

349. COMMENT: N.J.A.C. 7:8-5.5(i) requires 95 percent TSS removal for discharges within a 300-foot riparian zone. The Department should confirm that this requirement does not apply to discharges with a NJPDES TSS numeric permit limit exempted from TSS reduction requirements pursuant to N.J.A.C. 7:8-5.5(c). (2 and 17)

RESPONSE: The Department confirms that stormwater discharges regulated under a NJPDES permit with a numeric effluent limitation for TSS are exempt from the 95 percent TSS reduction requirements at N.J.A.C. 7:8-5.5(i). However, any stormwater discharge to the 300-riparian

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zone triggered by a major development that does not discharge through the monitoring point containing the numeric effluent limitation for TSS shall be treated for the 95 percent TSS removal.

#### **7:8-5.6 Stormwater Runoff Quantity Standards**

350. COMMENT: N.J.A.C. 7:8-5.6 relates to “tidal flood hazard areas” and requires a stormwater runoff quality analysis, unless certain specific alternative information is provided. N.J.A.C. 7:8-5.6(b)4 indicates that no analysis is required if stormwater is discharged to any surface water body. This section is inconsistent with the standards of the CMP, which prohibit discharges to wetlands, wetland transition areas, and surface water bodies. See N.J.A.C. 7:50-6.83(b) and 6.84(a)1i and (a)6ii(4). The Department should clarify on adoption that this provision is not applicable in the Pinelands Area. (37)

RESPONSE: The adopted rule at N.J.A.C. 7:8-5.6(b)4 states that 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. Further, no provision at N.J.A.C. 7:8-5.6 specifically authorizes any discharge to waterbodies; rather, it outlines when a stormwater quantity control analysis is required, and the requirements that must be attained when such an analysis is applicable. If the Pinelands Commission does not authorize any discharges into tidal surface water bodies, then stormwater quantity control analyses are always required for those major developments, as those projects would not meet the condition required to grant an approval without an analysis.

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**7:8-5.7 Calculation of Stormwater Runoff and Groundwater Recharge**

351. COMMENT: N.J.A.C. 7:8-5.7 makes reference to use of the USDA NRCS Methodology. The Department should clarify the runoff curve number (RCN) that should be used for crushed stone and rail ballast. The rules specify that NRCS methodology is to be used, but do not specify the RCN. (6)

RESPONSE: While the rules specify this methodology as one that may be used to calculate stormwater runoff, the Department does not develop curve numbers for use in the methodology. Since, as the commenter states, that there is no specific curve number for crushed stone and rail ballast specified in the methodology, one must be approximated from the curve numbers published in the National Engineering Handbook. In its capacity as a review agency, the Department determines if the curve numbers used in submitted calculations are acceptable. Even though the ballast itself is porous and will not directly generate runoff, the subbase is compacted and graded to prevent infiltration and to encourage stormwater to drain away from under the railroad. This is likely to produce runoff similarly to a gravel roadway and, as such, the Department will accept the use of the curve number published in the USDA NRCS Methodology for a gravel roadway for railroad ballast, unless the Department is made aware of additional information that demonstrates to the satisfaction of the Department that a different curve number is more appropriate.

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352. COMMENT: Pursuant to N.J.A.C. 7:8-5.7(a)1i, the TR-55 methodology and the June 1986

Technical Release referred to in this section no longer technically exist and should be deleted.

(19)

RESPONSE: Even though TR-55 itself has not been updated, it is still a valuable reference for describing and outlining the entire method in one document. As such, the Department determined it was appropriate to maintain a reference (and a link) to this document in the rule. However, the adopted language at N.J.A.C. 7:8-5.7(a)1i allows the use of “The USDA Natural Resources Conservation Service (NRCS) methodology, including the NRCS Runoff Equation and Dimensionless Unit Hydrograph, as described in Chapters 7, 9, 10, 15, and 16, Part 630, Hydrology National Engineering Handbook.” The adopted rule further states that this “methodology is additionally described in Technical Release 55—Urban Hydrology for Small Watersheds (TR-55), dated June 1986.” Chapters 7, 9, 10, 15, and 16, Part 630, Hydrology National Engineering Handbook have been incorporated into the rules by reference. TR-55 is also referenced as an additional source of information on the method and is incorporated by reference as well. Both sources are incorporated by reference, as amended and supplemented. Technically, the applicable chapters of the National Engineering Handbook will govern the use of this methodology for compliance with the Stormwater Management rules, not TR-55, as those chapters of the National Engineering Handbook are the updated supplements to the TR-55 methodology.

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353. COMMENT: N.J.A.C. 7:8-5.7(a)1ii should be revised to include a maximum drainage area limit for the use of the Rational method. (19)

RESPONSE: The Department provides details regarding calculations using the Rational Method in the New Jersey Stormwater BMP manual, Chapter 5: Computing Stormwater Runoff Rates and Volumes, which states, "Use of the Rational Method should be limited to drainage areas less than 20 acres with generally uniform surface cover and topography." See the following link for additional information:

[https://www.nj.gov/dep/stormwater/bmp\\_manual/NJ\\_SWBMP\\_5%20print.pdf](https://www.nj.gov/dep/stormwater/bmp_manual/NJ_SWBMP_5%20print.pdf).

354. COMMENT: Proposed N.J.A.C. 7:8-5.7(a)1ii allows the use of the Modified Rational Method. This is an antiquated technique that leads to the undersizing of detention/retention facilities. The Department should eliminate the reference as an acceptable method in the rule. (25)

RESPONSE: The Modified Rational Method has been specifically listed as an accepted method for sizing stormwater management basins since the original Stormwater Management rules were published in 1983. Whether this method should continue to be used for hydrograph calculations under the Stormwater Management rules is currently under consideration as part of the ongoing stakeholdering noted in the introduction to this adoption.

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**Summary of Agency-Initiated Changes:**

The Department is modifying the rules on adoption to correct a previously existing typographical error at N.J.A.C. 7:8-5.1(a). Additionally, the Department is correcting an error at newly adopted N.J.A.C. 7:8-5.2(j). Proposed N.J.A.C. 7:8-5.2(j) stated that MTDs may be used to meet the requirements of N.J.A.C. 7:8-5 under the circumstances described in N.J.A.C. 7:8-5.3(d). The circumstances at N.J.A.C. 7:8-5.3(d) are when a variance or waiver of strict compliance is granted. As was described in the notice of proposal Summary, 50 N.J.R. at 2378, and can be seen by the incorporation of MTDs that meet the definition of green infrastructure in Table 5-1 at N.J.A.C. 7:8-5.2(f), a variance or waiver of strict compliance is only required for BMPs, including MTDs, that do not meet the definition of green infrastructure. Therefore, adopted N.J.A.C. 7:8-5.2(j) has been clarified to state that meeting the circumstances at N.J.A.C. 7:8-5.3(d) is only required for the MTDs that do not meet the definition of green infrastructure.

**Federal Standards Statement**

N.J.S.A. 52:14B-1 et seq. (as amended by P.L. 1995, c. 65), require State agencies which adopt, readopt, or amend State rules that exceed any Federal standards or requirements to include in the rulemaking document a Federal standards analysis. There are several Federal programs concerning stormwater runoff and nonpoint source pollution control. These adopted amendments, do not change the limits that are within the Federal programs. Instead they change the way that the limits are evaluated, which is not discussed in the Federal programs. The Federal programs are discussed below.

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#### Clean Water Act

The Federal Clean Water Act (33 U.S.C. §§ 1251 et seq.) requires permits under Section 402 of that Act (33 U.S.C. § 1342) for certain stormwater discharges. The Department's requirements to obtain such permits are set forth in the New Jersey Pollutant Discharge Elimination System Rules, N.J.A.C. 7:14A, rather than in the Stormwater Management rules being amended.

Section 319 of the Clean Water Act (33 U.S.C. § 1329) authorizes a Federal grant-in-aid program to encourage states to control nonpoint sources. The Department developed a management program for nonpoint source control under which the Department issues grants to local, regional, State, and interstate agencies, as well as to nonprofit organizations to, for example, develop or monitor BMPs to control stormwater.

#### Coastal Zone Management Act

Under Section 6217(g) of the Coastal Zone Management Act Reauthorization and Amendments of 1990 (CZARA), P.L. 101-508, the USEPA has published "Guidance Specifying Management Measures For Sources of Nonpoint Pollution In Coastal Waters" (CZARA 6217(g) Guidance). States may opt to participate or not participate in the overall coastal zone management program, with no penalty for non-participation other than the loss of Federal grants for this program. No mandatory Federal standards or requirements for nonpoint sources pollution control are imposed. The CZARA 6217(g) Guidance includes management measures for stormwater runoff and nonpoint source pollution control from land development, as well as many other source types. The Department has developed a coastal zone management program, including a component addressing coastal nonpoint pollution control. The Stormwater Management rules at

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N.J.A.C. 7:8 are one means by which the Department implements its nonpoint pollution control program.

The Department has determined that the adopted amendments, new rules, and repeals do not contain any standards or requirements that exceed the standards or requirements imposed by Federal law. Accordingly, Executive Order No. 27 (1994) and N.J.S.A. 52:14B-1 et seq. (P.L. 1995, c. 65), do not require any further analysis.

**Full text** of the adopted amendments and new rules follows (additions to proposal indicated in boldface with asterisks **\*thus\***; deletions from proposal indicated in brackets with asterisks **\*[thus]\***):

## CHAPTER 8

### STORMWATER MANAGEMENT

#### 7:8-1.2 Definitions

The following words and terms, when used in this chapter, shall have the following meanings unless the context clearly indicates otherwise.

...

“Major development” means an individual “development,” as well as multiple developments

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that individually or collectively result in:

1.-2. (No change from proposal.)

3. The creation of one-quarter acre or more of “regulated motor vehicle surface” since \*[(the operative date of this rulemaking)]\* **March 2, 2021\***; or

4. (No change from proposal.)

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

...

“New Jersey Stormwater Best Management Practices (BMP) Manual” or “BMP Manual” means the manual maintained by the Department providing, in part, design specifications, removal rates, calculation methods, and soil testing procedures approved by the Department as being capable of contributing to achievement of the stormwater management standards specified in this chapter. The manual is periodically amended by the Department as necessary to provide design specifications on additional best management practices and new information on already included practices reflecting the best available current information regarding the particular practice and the Department’s determination as to the ability of that best management practice to contribute to compliance with the standards contained in this chapter. Alternative

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stormwater management measures, removal rates, or calculation methods may be utilized, subject to any limitations specified in this chapter, provided the design engineer demonstrates to the review agency, in accordance with N.J.A.C. 7:8-5.2(f), that the proposed measure and its design will contribute to achievement of the design and performance standards established by this chapter.

...

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

1. (No change from proposal.)
2. The total area of impervious surface collected by a new stormwater conveyance system **\*(for the purpose of this definition, a “new stormwater conveyance system” is a stormwater conveyance system that is constructed where one did not exist immediately prior to its construction or an existing system for which a new discharge location is created)\*;**

3. – 4. (No change from proposal.)

...

7:8-1.6 Applicability to major development

(a) (No change.)

(b) The following major development shall be subject to the stormwater management requirements in effect on **\*[(one day before the operative date of this amendment)]\* \*March 1, 2021\*:**

1. Major development that does not require any of the Department permits listed in (c) below and that has submitted an application that includes both the application form and all

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accompanying documents required by ordinance for one of the following approvals pursuant to the Municipal Land Use Law (N.J.S.A. 40:55D-1 et seq.) prior to \*[(the operative date of this proposed amendment)]\* **\*March 2, 2021\***:

i.-v. (No change from proposal.)

2. Major development for which a technically complete application was submitted to the Department for one of the approvals listed at (c) below prior to \*[(the operative date of this proposed amendment)]\* **\*March 2, 2021\***, provided that the application included a stormwater management review component.

(c) For the purposes of this section, the term "permit" shall include transition area waivers under the Freshwater Wetlands Protection Act. In order to qualify under (b)2 above, a technically complete permit application must have been submitted to the Department for the major development under the following statutes, provided that the permit included a stormwater management review component, prior to \*[(the operative date of this proposed amendment)]\* **\*March 2, 2021\***:

1.-5. (No change from proposal.)

(e) (No change from proposal.)

#### 7:8-4.2 Municipal stormwater management plan and elements

(a)-(b) (No change from proposal.)

(c) A municipal stormwater management plan shall, at a minimum:

1. Describe how the municipal stormwater management plan will achieve the goals of

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stormwater management planning set forth at N.J.A.C. 7:8-~~[2.3]~~**2.2**;

2.-10. (No change from proposal.)

11. In order to grant a variance from the ~~\*[design and performance standards in N.J.A.C. 7:8-5]~~**\*stormwater management measures set forth in its approved municipal stormwater management plan and stormwater control ordinance(s)\***, include a mitigation plan that identifies what measures are necessary, potential mitigation projects, and/or criteria to evaluate mitigation projects that can be used to offset the deficit created by granting a variance in accordance with N.J.A.C. 7:8-4.6.

12.-14. (No change from proposal.)

7:8-4.6 Variance from the design and performance standards for stormwater management measures

(a) A municipality may grant a variance from the design and performance standards for stormwater management measures set forth in its approved municipal stormwater management plan and stormwater control ordinance(s), provided the municipal plan includes a mitigation plan in accordance with N.J.A.C. 7:8-4.2(c)11 and the following conditions are met:

1.-2. (No change from proposal.)

3. A mitigation project in accordance with the following is implemented:

i.-ix. (No change from proposal.)

x. The applicant **\*or the entity assuming maintenance responsibility for the associated major development\*** shall be responsible for preventive and corrective

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maintenance (including replacement) of the mitigation project and shall be identified as such in the maintenance plan established in accordance with N.J.A.C. 7:8-5.8. This responsibility is not transferable to any entity other than a public agency, in which case a written agreement with that public agency must be submitted to the review agency.

(b) (No change from proposal.)

## SUBCHAPTER 5. DESIGN AND PERFORMANCE STANDARDS FOR STORMWATER MANAGEMENT MEASURES

### 7:8-5.1 Scope

(a) This subchapter establishes design and performance standards for stormwater management measures for \*[(a)]\* major development intended to minimize the adverse impact of stormwater runoff on water quality and water quantity and loss of groundwater recharge in receiving water bodies.

(b) (No change.)

### 7:8-5.2 Stormwater management measures for major development

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

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

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implementing rules at N.J.A.C. 2:90 **\*and 16:25A\***.

2. (No change from proposal.)

(b) - (i) (No change from proposal.)

(j) Manufactured treatment devices may be used to meet the requirements of this subchapter **\*[under the circumstances described in N.J.A.C. 7:8-5.3(d)]\***, 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 N.J.A.C. 7:8-1.2 may be used only under the circumstances described at N.J.A.C. 7:8-5.3(d).\***

(k)-(n) (No change from proposal.)

7:8-5.3 Green infrastructure standards

(a)-(d) (No change from proposal.)

(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 \*[authority]\* \*company)\***, the requirements of this section shall only apply to areas owned in fee simple by the government agency or **\*[sewerage authority]\* \*utility\***, and areas within a right-of-way or easement held or controlled by the government agency or **\*[sewerage authority]\* \*utility\***; the entity shall not be required to obtain additional property or property rights to fully satisfy the requirements of this section. Regardless of the amount of area of a separate or combined storm sewer improvement project subject to the green infrastructure requirements of this section,

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each project shall fully comply with the applicable groundwater recharge, stormwater runoff quality control, and stormwater runoff quantity standards at N.J.A.C. 7:8-5.4, 5.5, and 5.6, unless the project is granted a waiver from strict compliance in accordance with N.J.A.C. 7:8-5.2(e).

#### 7:8-5.8 Maintenance requirements

(a)-(c) (No change.)

(d) If the person responsible for maintenance identified under (b) above is not a public agency, the maintenance plan and any future revisions based on \*[(h)]\* **(g)** below shall be recorded upon the deed of record for each property on which the maintenance described in the maintenance plan must be undertaken.

(e)-(i) (No change.)