

NJDEP GREEN INFRASTRUCTURE RULE A PRIMER FOR MUNICIPALITIES



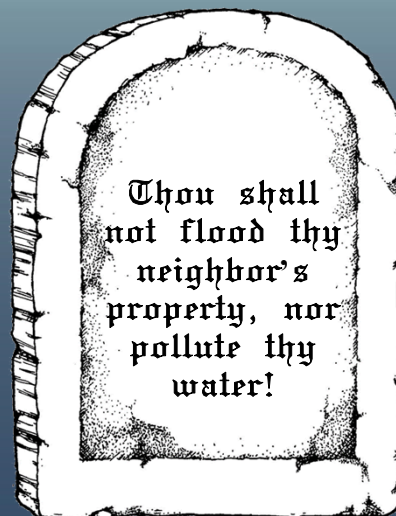
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WHAT'S THE BIG PICTURE?

(Elevator Speech version)

NJDEP made a number of improvements to the existing rule, most notably that **GREEN INFRASTRUCTURE IS REQUIRED** to meet the three performance criteria.



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OVERVIEW

1. Green Infrastructure
2. What's old and what's new?
3. How will the new rules expected to change applications?
4. What are some key things to look for?
5. Municipal ordinance revisions
6. Revisions to BMP Manual



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WHAT IS GREEN INFRASTRUCTURE?



It is more than just stormwater BMPs!

It is a new approach to design with a focus on natural processes.

✓ *Wetland creation*

✓ *Floodplain reconnection*

✓ *Living shorelines*



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50 YEARS EARTH DAY 2020



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Earth Rise (Apollo 8, 1969)



What does Earth Day have
to do with the revisions to
NJAC 7:8?

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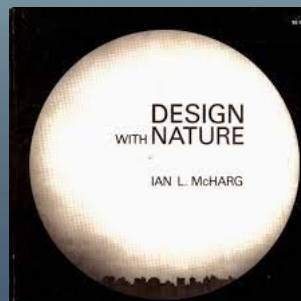
A NEW PERSPECTIVE?



Woodlands New Community, Wallace,
McHarg, Roberts and Todd, 1973



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Design with Nature
Ian McHarg, 1969

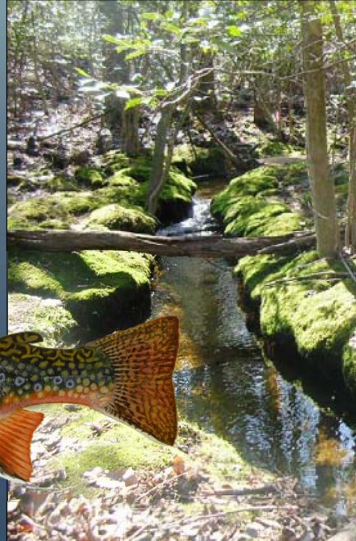
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WHAT IS GREEN INFRASTRUCTURE?

Southern NJ's only self-reproducing Brook Trout population relies on these same processes.



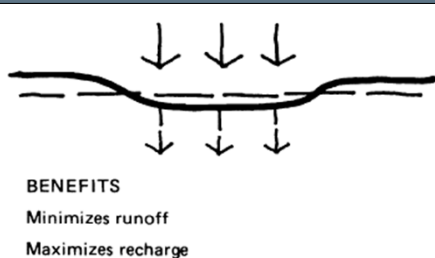
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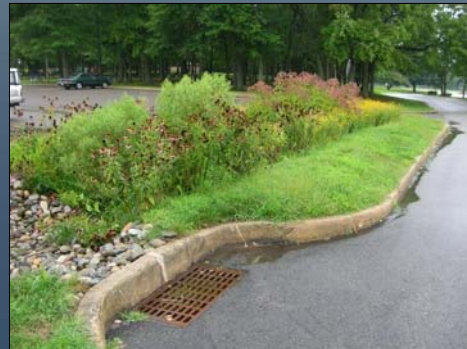
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WHAT IS GREEN INFRASTRUCTURE?

For today's discussion we'll focus on the stormwater management part...



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NJAC §7:8-1.2 DEFINITIONS: GREEN INFRASTRUCTURE

Means a stormwater management measure that manages stormwater close to its source by:

1. Treating stormwater runoff through infiltration into subsoil;
2. Treating stormwater runoff through filtration by vegetation or soil; or
3. Storing stormwater runoff for reuse.



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LIVING RESILIENT SYSTEMS



ONE GROWING SEASON

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WHAT IS GREEN INFRASTRUCTURE?



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WHAT IS GREEN INFRASTRUCTURE?



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These may be forced into extinction!

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WHAT'S OLD AND WHAT'S NEW?

The three primary stormwater management performance metrics are generally unchanged.

- ❖ Groundwater Recharge (§7:8-5.4)
- ❖ Water Quality (§7:8-5.5)
- ❖ Peak Flow Control (Water Quantity §7:8-5.6)



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WHAT'S OLD AND WHAT'S NEW?

The three primary stormwater management performance metrics are generally unchanged.

...

However, how they are met in practice will be different in many instances.



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GREEN INFRASTRUCTURE IMPLEMENTATION NJAC §7:8-5.3

Key Points:

- GI shall be used to meet criteria.
- Tables 5-1, 5-2 summarize application of each BMP type.
- Some BMPs have drainage area limitations.



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GREEN INFRASTRUCTURE IMPLEMENTATION

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

1. The disturbance of one or more acres of land since February 2, 2004;
2. The creation of one-quarter acre or more of “regulated impervious surface” since February 2, 2004;
3. The creation of one-quarter acre or more of “regulated motor vehicle surface” since March 2, 2021; or
4. A combination of 2 and 3 above that totals an area of one-quarter acre or more.

If reviewed by the municipality:

- Through RSIS – ultimate disturbance of one acre or more
- Through Stormwater Control Ordinance – as defined in ordinance (but must at least cover projects where the ultimate disturbance is one acre or more)



Gabe Mahon, Chief, Bureau of Nonpoint Pollution Control

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Table 5-1: BMPs for recharge, quantity, and quality

Best Management Practice	Quality TSS removal (percent)	Quantity	Recharge	Minimum separation from SHWT (feet)
Cisterns	0	Yes	No	-
Dry Wells*	0	No	Yes	2
Grass Swales	50 or less	No	No	2
Green Roofs	0	Yes	No	-
Manufactured Treatment Device (MTDs)*	50 or 80	No	No	Device?
Pervious Paving Systems*	80	Yes	Yes No	2 1
Small-scale Bioretention Systems*	80 or 90	Yes	Yes No	2 1
Small-scale Infiltration Basins*	80	Yes	Yes	2
Small-scale Sand Filters*	80	Yes	Yes	2
Vegetative Filter Strips	60-80	No	No	-



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*Drainage area limitation applies to: dry wells, MTDs, pervious paving system, and small-scale bioretention, infiltration, and sand filters.

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Table 5-2: BMPs may only be used for quantity

Best Management Practice	Quality TSS removal (percent)	Quantity	Recharge	Minimum separation from SHWT (feet)
Bioretention Systems	80 or 90	Yes	Yes No	2 1
Infiltration Basins	80	Yes	Yes	2
Sand Filter	80	Yes	Yes	2
Standard Constructed Wetlands	90	Yes	No	N/A
Wet Ponds*	50-90	Yes	No	N/A

*Wet ponds used under Table 2 must be designed to have native vegetation and a reuse component.



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Table 5-3: BMPs may only be used with waiver

Best Management Practice	Quality TSS removal (percent)	Quantity	Recharge	Minimum separation from SHWT (feet)
Blue Roofs	0	Yes	No	N/A
Extended Detention Basins	40-60	Yes	No	1
Manufactured Treatment Device	50 or 80	No	No	Dependent upon the device
Sand Filters	80	Yes	No	1
Subsurface Gravel Wetlands	90	No	No	1
Wet ponds	50-90	Yes	No	N/A



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GREEN INFRASTRUCTURE IMPLEMENTATION

Some BMPs have drainage area limitations (NJAC §7:8-5.3(b)):

- Recall the NJDEP GI Definition:
"...manages stormwater close to its source."
- Dry Well: 1 acre (not a new requirement)
- Pervious Pavement (3:1 ratio)
- MTDs, "Small-Scale" Bioretention, Inf. Basins, Sand Filters **2.5 acres**

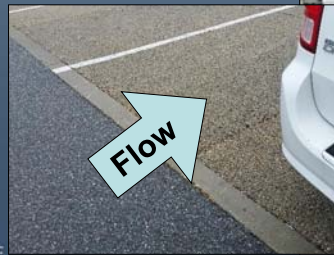


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PERVIOUS PAVEMENT

Limit contributory drainage to three times the area of the receiving pervious pavement. (3:1 ratio)



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MAXIMUM DRAINAGE AREA

2.5-Acre Maximum Contributory Drainage Area for most BMPs (NJAC §7:8-5.3(b)):

- Will only have any influence on sites that are larger than 2.5 acres (obviously).
- Will encourage (require) designers to distribute BMPs throughout the site; which is a very good thing in terms of their operation.



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NEW

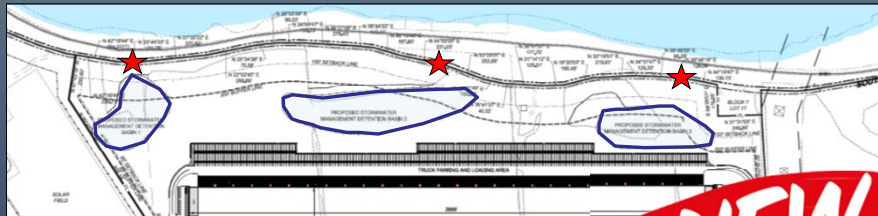
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SITE-WIDE COMPLIANCE

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

Require quantity, quality, and groundwater recharge to be met in each drainage area on-site

(unless they converge before leaving the property)



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INFLUENCE ON LD APPLICATIONS?

Still somewhat of an unknown but...

Drainage Area Limit → Decentralization of BMPs



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INFLUENCE ON LD APPLICATIONS?



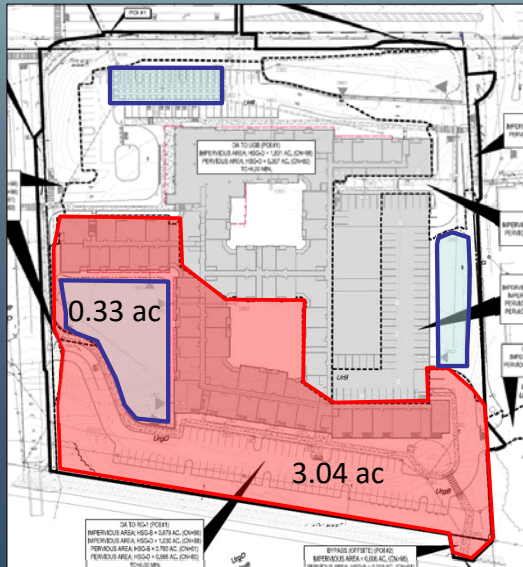
INFLUENCE ON LD APPLICATIONS?

Drainage Area Limitations

- Will affect large scale commercial (warehouses) and residential projects.
- No more big basin at the bottom of the project.



INFLUENCE ON LD APPLICATIONS?



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MOTOR VEHICLE SURFACES (MVS)

Recall that this is now incorporated into the definition of a Major Development (NJAC §7:8-1.2).

- >0.25 ac. of impervious coverage (no change)
- >0.25 ac. of Motor Vehicle Surface (new trigger)
- >0.25 ac. combined Imp. + MVS (new trigger)



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MOTOR VEHICLE SURFACE

DEFINITION (NJAC §7:8-1.2):

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

**These surfaces now require 80% TSS
Water Quality Treatment.**



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MOTOR VEHICLE SURFACE



What it rules IN and what it rules OUT:

- Standard pavement drive/parking areas. (Yes)
- Gravel and dirt drive/parking areas. (Yes)
- Rooftops (hopefully impervious) (No)
- Sidewalks or other ground level non-vehicular areas (plazas?) (No)



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MOTOR VEHICLE SURFACE

Common Issue with Gravel Areas:

- TR55 Table 2.5 is not clear about a CN for gravel:

----- Cover description -----	----- Curve numbers for hydrologic soil group -----				
Cover type and hydrologic condition	Average percent impervious area ^{2/}	A	B	C	D
<i>Fully developed urban areas (vegetation established)</i>					
Impervious areas:					
Paved parking lots, roofs, driveways, etc. (excluding right-of-way)		98	98	98	98
Streets and roads:					
Paved; curbs and storm sewers (excluding right-of-way)		98	98	98	98
Paved open ditches (including right-of-way)		83	89	92	93
Gravel (including right-of-way)		76	85	89	91



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"Including [pervious] right-of-way"

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MOTOR VEHICLE SURFACE

Use a CN of 96/98 for Gravel Areas

*Per Draft Chapter 5 BMP Manual, NRCS guidance,
and common sense.*



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MUNICIPAL ORDINANCE REVISIONS

Do municipalities have to revise their stormwater control ordinances?

Yes. The rules represent the minimum standard for municipal stormwater control ordinances. Therefore, municipal stormwater control ordinances must be revised to be (*at a minimum*) consistent with these amendments.

How long do municipalities have to revise their ordinances?

Municipalities have until **March 3, 2021** for their revised ordinance to become effective.



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MUNICIPAL ORDINANCE REVISIONS

Revised Model Ordinance is Available:

www.nj.gov/dep/stormwater/bmp_manual/NJ_SWBMP_D.pdf

APPENDIX D: MODEL STORMWATER CONTROL ORDINANCE FOR MUNICIPALITIES

Important Notes: This sample ordinance is provided to assist municipalities in revising their municipal stormwater control ordinances to reflect amendments to the Stormwater Management rules at N.J.A.C. 7:8, adopted March 2, 2020. It is provided for information purposes only. It is important that amended rules are carefully reviewed before any portion of this draft ordinance is adopted.

Have the ability to lower the threshold requiring SWM, increase TSS requirement, etc. "minimum standard".



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MUNICIPAL ORDINANCE REVISIONS



1,500 sf Imp.
16% Impervious



5,600 sf Imp.
62% Impervious



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Impervious Area “Creep”

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BMP MANUAL: REVISIONS & UPDATES

New/draft material can be found at NJDEP:

https://www.nj.gov/dep/stormwater/bmp_manual2.htm

Draft Sections Open for Public Comment:

- **Chapter 5:** Stormwater Management and Quantity and Quality Standards and Computations
- **Chapter 12:** Soil Testing Criteria
(the chapter formally known as Appendix E)



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BMP MANUAL: REVISIONS & UPDATES

NEW

Chapter 13: Groundwater Table Hydraulic Impact Assessments for Infiltration BMPs

NJAC 7:8-5.2(h)

"...the design engineer shall assess the hydraulic impact on the groundwater table, so as to avoid adverse hydraulic impacts....Potential adverse hydraulic impacts include...

- Causing surficial ponding
- Flooding of basements
- Interfere with sewage disposal systems
- Interfere with the proper functioning of the BMP itself."



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CHAPTER 13 (NEW)

https://www.nj.gov/dep/stormwater/bmp_manual/NJ_SWBMP_13.pdf

A two-foot separation from Seasonal High Groundwater (SHWT) is required...

Min. separation from SHWT is listed for each BMP in Tables 5-1, 5-2 and 5-3 of the new rules.



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QUESTIONS?

Enter them into the chat and Michael or I will repeat them.



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