

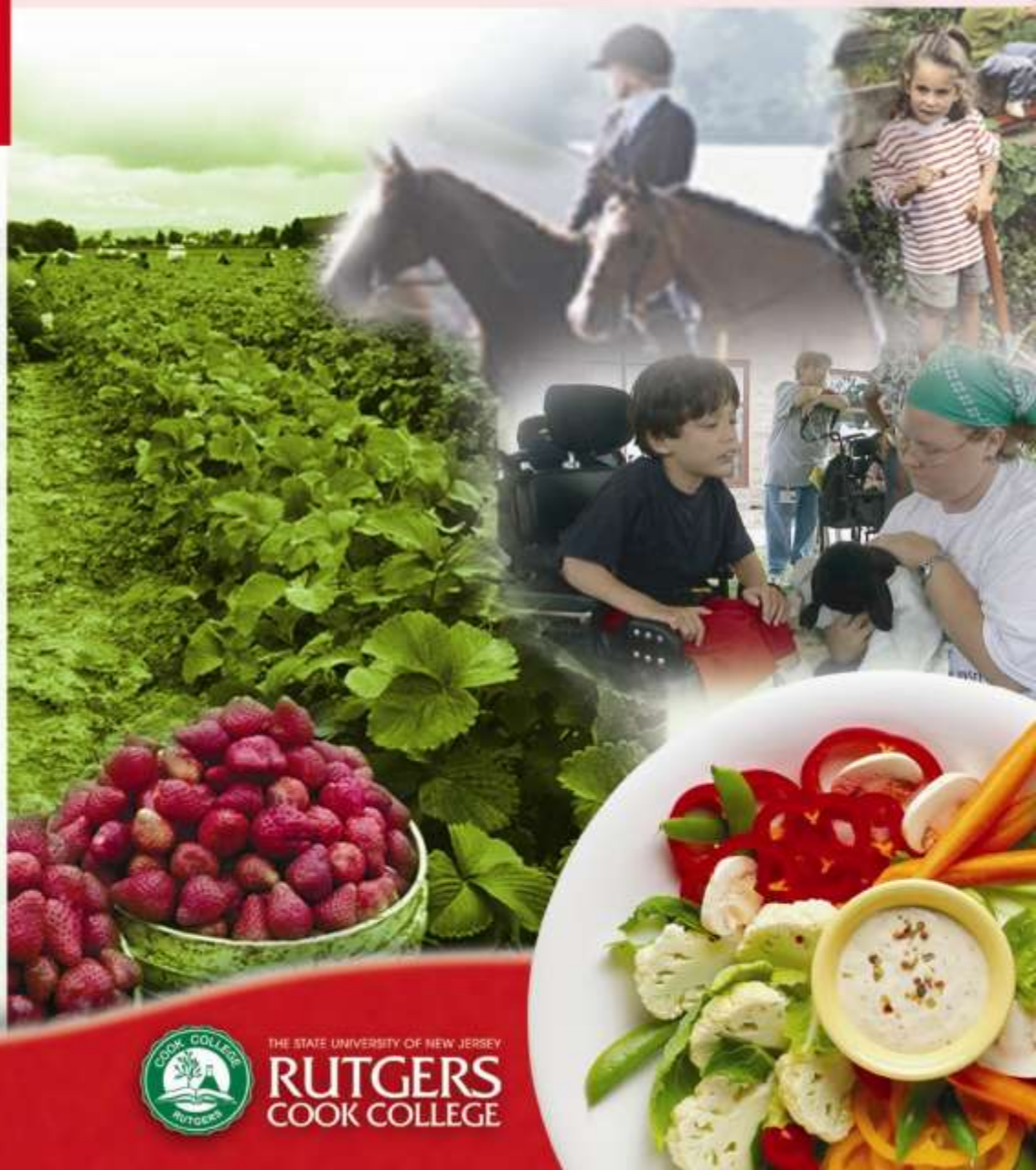
Water Regulations in New Jersey

*Presented to Rain Garden
Landscaper Training
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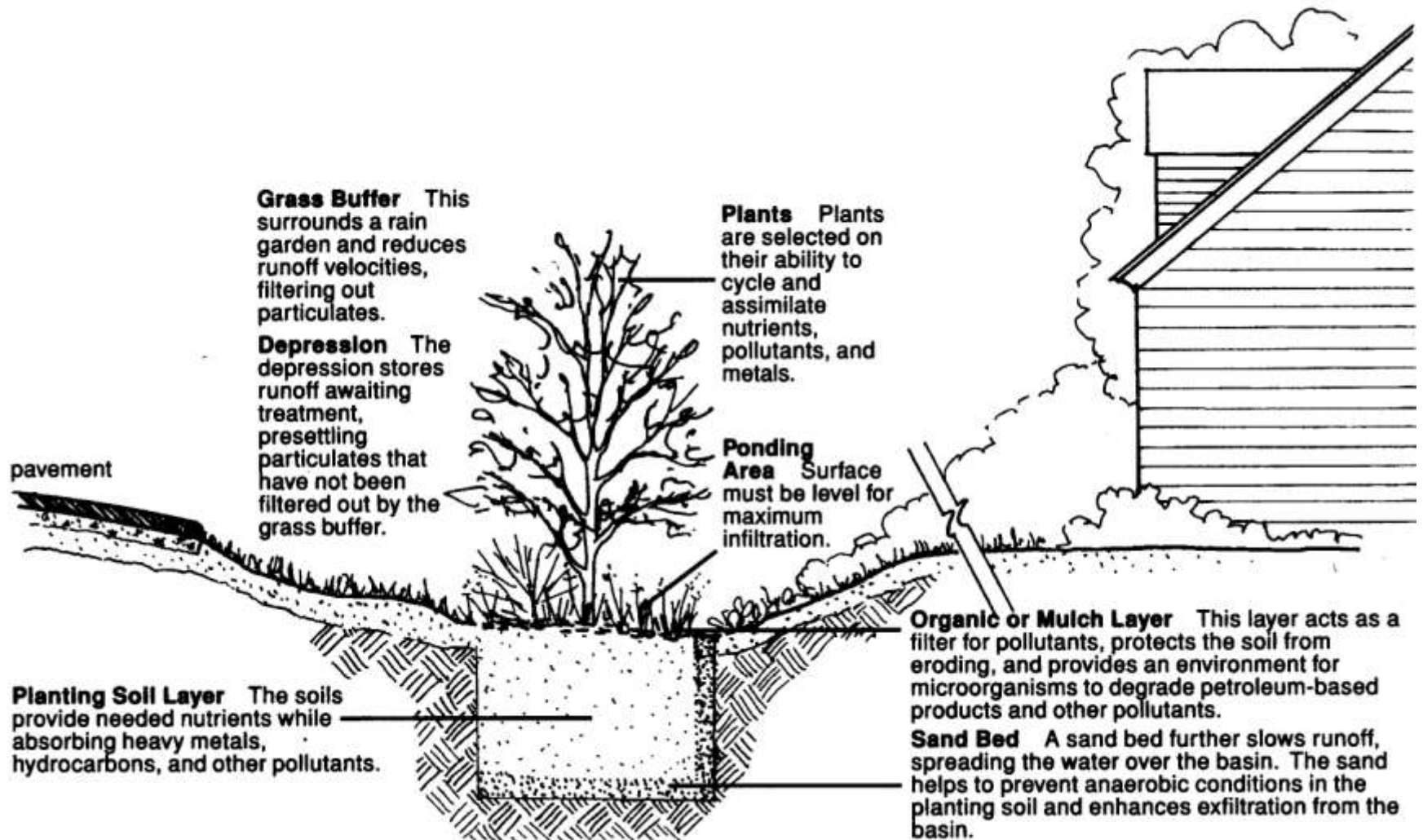
What is a Rain Garden?

A rain garden is a landscaped, shallow depression that is designed to intercept, treat, and infiltrate stormwater at the source before it becomes runoff. The plants used in the rain garden are native to the region and help retain pollutants that could otherwise harm nearby waterways.

Rain Gardens

- Can be placed in strategic areas around the home landscape to capture rainfall and roof and impervious runoff
- Native plants that are water and climate tolerate are used
- Help control stormwater and nonpoint pollution while adding to the aesthetics of the landscape

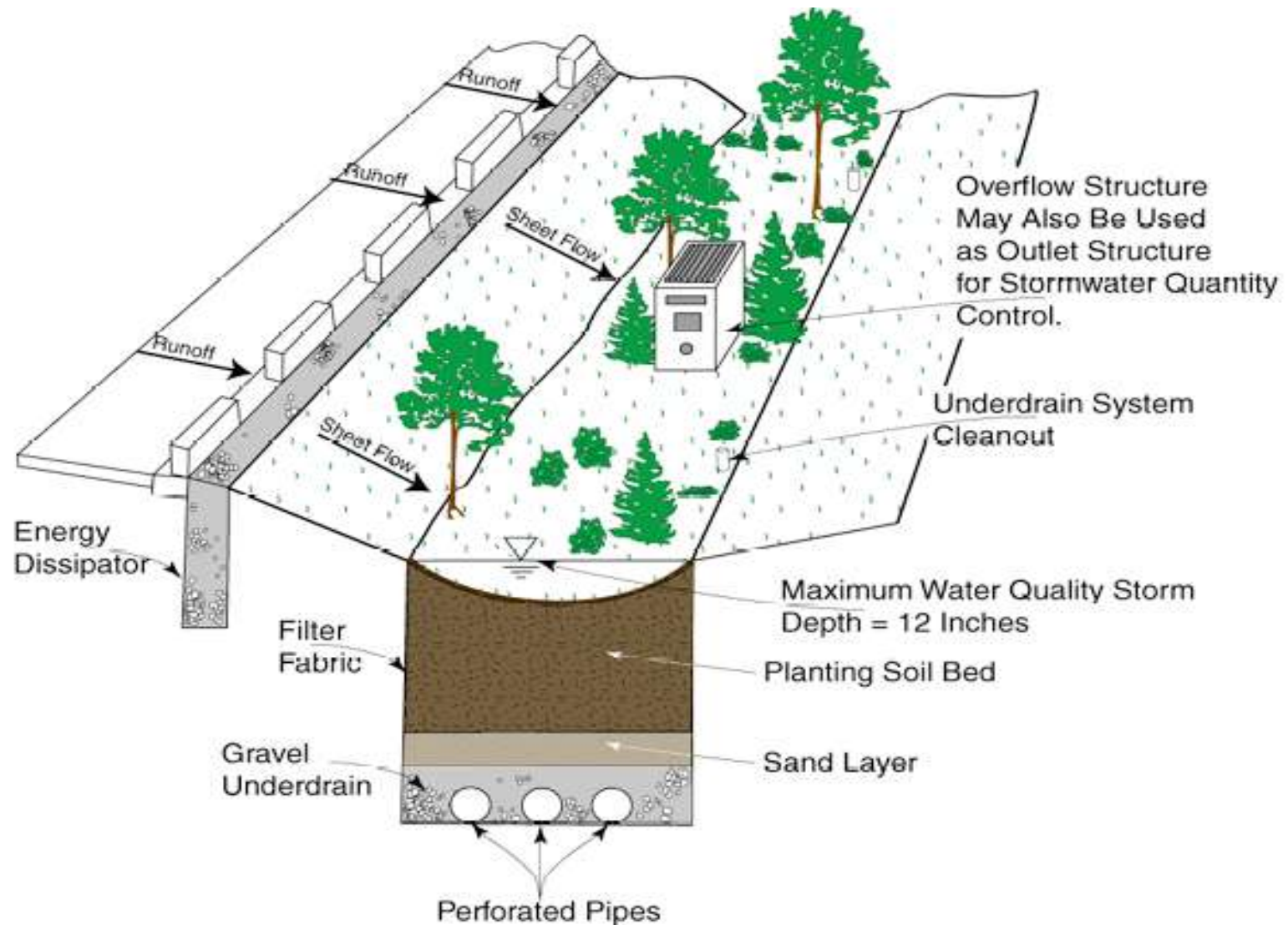
Rain Gardens Schematic (Bioretention Basins)



Your Rain Garden is composed of woody plants (trees and shrubs) and herbaceous species (flowers, grasses, and ground covers) planted in three wetness zones.



Bioretention Systems for Parking Lot









New Jersey Regulations

- NJDEP – Stormwater Management Rules
- NJDEP – Municipal Separate Storm Sewer System (MS4) Permitting Rules
- Municipal stormwater management plans and ordinances
- Regional Stormwater Management Plans
- Total Maximum Daily Loads (TMDLs)

Stormwater Regulations

Stormwater Regulations

- Municipal “Phase II” NJPDES Stormwater Regulations N.J.A.C. 7:14a
- Watershed Management Stormwater Regulations N.J.A.C. 7:8



Municipal “Phase II” NJPDES Stormwater Regulations N.J.A.C. 7:14a



NJPDES “Phase II” Stormwater Permitting Rule

- Amends N.J.A.C. 7:14A
- Proposes 4 general permits to implement stormwater program
 - Tier A Municipal
 - Tier B Municipal
 - Public Complexes
 - Highways



“Phase II” Rule Timeline

- Rule Proposed: January 6, 2003
- Rule Adoption: January 2004
- Apply for Permit: Within 30 days after rule adoption
- Fully Implement Program: 2008

Municipalities Impacted

- Those with Municipal Separate Storm Sewer Systems (MS4s)
 - Tier A (467 Municipalities)
 - Population > 10,000
 - Density > 1,000/square mile
 - Tier B (99 Municipalities)
 - Smaller/less populated

Tier A Requirements

- Prepare Stormwater Pollution Prevention Plan (SPPP)
[within 1 year of permit authorization]
- Comply with Statewide Basic Requirements (SBRs) [within 1 year of permit authorization, unless otherwise noted]
 1. Public involvement and participation
 2. Construction site storm water runoff control
 3. Post-construction storm water management in new development and re-development
 4. Public education on storm water impacts
 5. Prohibit improper disposal of waste
 6. Control of floatable and solid materials
 7. Maintenance Yards and Highway Service Area Program
 8. Employee Training

Tier B Requirements

- Comply with 2 of the Statewide Basic Requirements (SBRs) [within 1 year of permit authorization, unless otherwise noted]
 - SBR #3: Post-construction storm water management in new development and re-development
 - SBR #4: Public education on storm water impacts

Stormwater Pollution Prevention Plan

A report that describes the municipality's stormwater program, including details for implementing SBRs.



SBR #1

Public Involvement/Participation

Comply with applicable State and local public notice requirements when providing for public participation.

SBR #2

Construction Site Stormwater Runoff Control

- Applies in land disturbance > 1 acre
 - Implement erosion & sediment control BMPs
 - Control waste such as discarded building materials, concrete truck washout, chemicals, litter, & sanitary waste that may impact water quality.
 - If associated with “industrial activity”, implement “best achievable technology”
 - Must develop, submit for review, and implement a stormwater pollution prevention plan (SPPP)



Post-Construction Stormwater Management in New Development

- Adopt Stormwater Management Plan
- Implement Stormwater Control Ordinances
- Ensure compliance with Residential Site Improvement Standards
- Ensure adequate long-term operation and maintenance of BMPs
- New storm drain inlets must meet design standards



SBR #4

Public Education

- Develop public education program about:
 - the impacts of storm water discharges on surface and ground water
 - steps the public can take to reduce pollutants in stormwater
 - Informing public employees, businesses, and the public about the hazards of illicit connections and improper disposal of waste
- Additional requirements in Permit (not in regulation)
 - Distribute educational materials once per year
 - Conduct annual “event”
 - Label all storm drain inlets within 5 years

SBR #5

Prohibit Improper Disposal of Waste

- Develop map showing all MS4 outfall pipes to a surface water body
- Develop, implement and enforce a program to detect and eliminate illicit connections (5 years)
- Prohibit improper disposal of waste into MS4
 - Enact ordinances
 - Pet waste
 - Litter
 - Improper waste disposal
 - Wildlife feeding
 - Yard waste – no closer than 10 feet from inlets, must be picked up monthly (Oct. – Dec.) and once in Spring





SBR #6

Solid and Floatable Material Control

- Develop and implement an operation and maintenance program that prevents or reduces the discharge of solid and floatable materials
- Permit requires:
 - Sweep curbed streets, roads & highways (with speed limit ≤ 35 mph) in predominantly commercial/industrial areas monthly, and within one week of any leaf pickup or snow melt.
 - Storm drain inlet retrofitting during reconstruction
 - Annual catch basin cleaning
 - Roadside erosion control maintenance program
 - Outfall pipe scouring detection, remediation, and maintenance program



SBR #7

Maintenance Yards and Highway Service Areas

- Develop and implement an operation and maintenance program that prevents or reduces pollutant runoff
- Permit requires:
 - Construct permanent indoor storage for de-icing materials
 - Develop and implement SOPs for vehicle fueling, bulk delivery, and inspection and maintenance of storage tanks, piping, and pumps
 - Implement vehicle maintenance practices
 - No discharge of wash water without proper BMPs
 - Implement good housekeeping practices



SBR #8 Employee Training

Develop and conduct employee training program for appropriate employees that covers the required topics in SBR #1 through #7.



Additional Measures (AMs)

- AMs are non-numeric or numeric effluent limitations that are expressly required to be included in the stormwater program by an adopted areawide or Statewide Water Quality Management Plan (WQM plan).
- AMs may modify or be in addition to SBRs.
- AMs may be required by:
 - a TMDL approved or established by USEPA,
 - **a regional stormwater management plan**, or
 - other elements of adopted areawide or Statewide WQM plans.

Additional Measures (AMs)

NJDEP will notify Tier A municipalities of the adoption of an AM, and will list each adopted AM in the permit by making a minor modification to the permit.

AMs, other than numeric effluent limitations, will specify the BMPs that must be implemented and the measurable goals for each BMP.

The AMs will also specify time periods for implementation.



Watershed Management Stormwater Regulations N.J.A.C. 7:8

Stormwater Management Rule

- Amends N.J.A.C. 7:8, 7:7A, 7:7E, 7:13, 7:15, & 7:20
- Establishes Municipal and Regional Stormwater Management Plan Requirements
- Establishes Performance Standards for New Development
- New BMP Manual

Municipal Stormwater Mgmt. Plan (Key Elements)

- Include maps showing:
 - water bodies on USGS quads and Soil Survey Maps
 - groundwater recharge areas and well head protection areas
 - Projected land uses at full build out
 - HUC14 drainage areas
- Include copies of stormwater ordinances



Municipal Stormwater Mgmt. Plan (Key Elements)

- Describe how plan:
 - Incorporates design and performance standards
 - Provides for long-term operation & maintenance of BMPs
 - Coordinates with other management plans and Township Master Plan
- Calculate:
 - Impervious surface area of each HUC14
 - NPS Pollutant Load at full build out
- Provide Mitigation Plan for situations where performance standards can't be met



Performance Standards for New Development

- Site Design
 - 300 foot buffer on C1 Streams
 - No stormwater outfalls in buffer
 - Encroachment to 150 feet allowed if previous disturbance
 - Must provide 95% TSS Removal
 - Minimize and disconnect impervious surfaces
 - Minimize disturbance of drainage features and native vegetation
 - Minimize decrease in time of concentration
 - Minimize clearing and grading
 - Minimize impacts to wetlands with endangered species

Performance Standards for New Development

- Water Quantity

- Demonstrate that post-development 2, 10, and 100-year storm event hydrographs do not exceed pre-development hydrographs

OR

- Demonstrate that hydrograph peaks will not increase and that increase in volume or change in timing won't increase flood damage downstream

OR

- Design BMPs so 2, 10, and 100-year post-development peak runoff rates are reduced to 50%, 75%, and 80% of the pre-development peak runoff rates, respectively.

Performance Standards for New Development

- Groundwater Recharge
 - Maintain 100% of average annual groundwater recharge volume
- OR
 - Infiltrate increase in the post development runoff volume for the 2-year storm

Performance Standards for New Development

- Water Quality
 - Install BMPs to reduce at least 80% of total suspended solids (TSS) loads
 - Install BMPs to provide nutrient removal to maximum extent feasible

Performance Standards for New Development

TSS Removal Rates

<u>BMP</u>	<u>Removal Rate</u>
Bioretention	90%
Constructed Wetlands	90%
Manufactured Treatment Systems	See N.J.A.C 7:8-5.7(d)
Forested Buffers	70%
Extended Detention Basin	40-60%
Infiltration Structure	80%
Sand Filter	80%
Vegetative Filter Strip	50%
Wet Pond	60-90%

Mitigation Plans

If a developer cannot satisfy one of the three stormwater management requirements, they have to complete a mitigation project to compensate for the deficiency.

State and Local Regulatory Initiatives

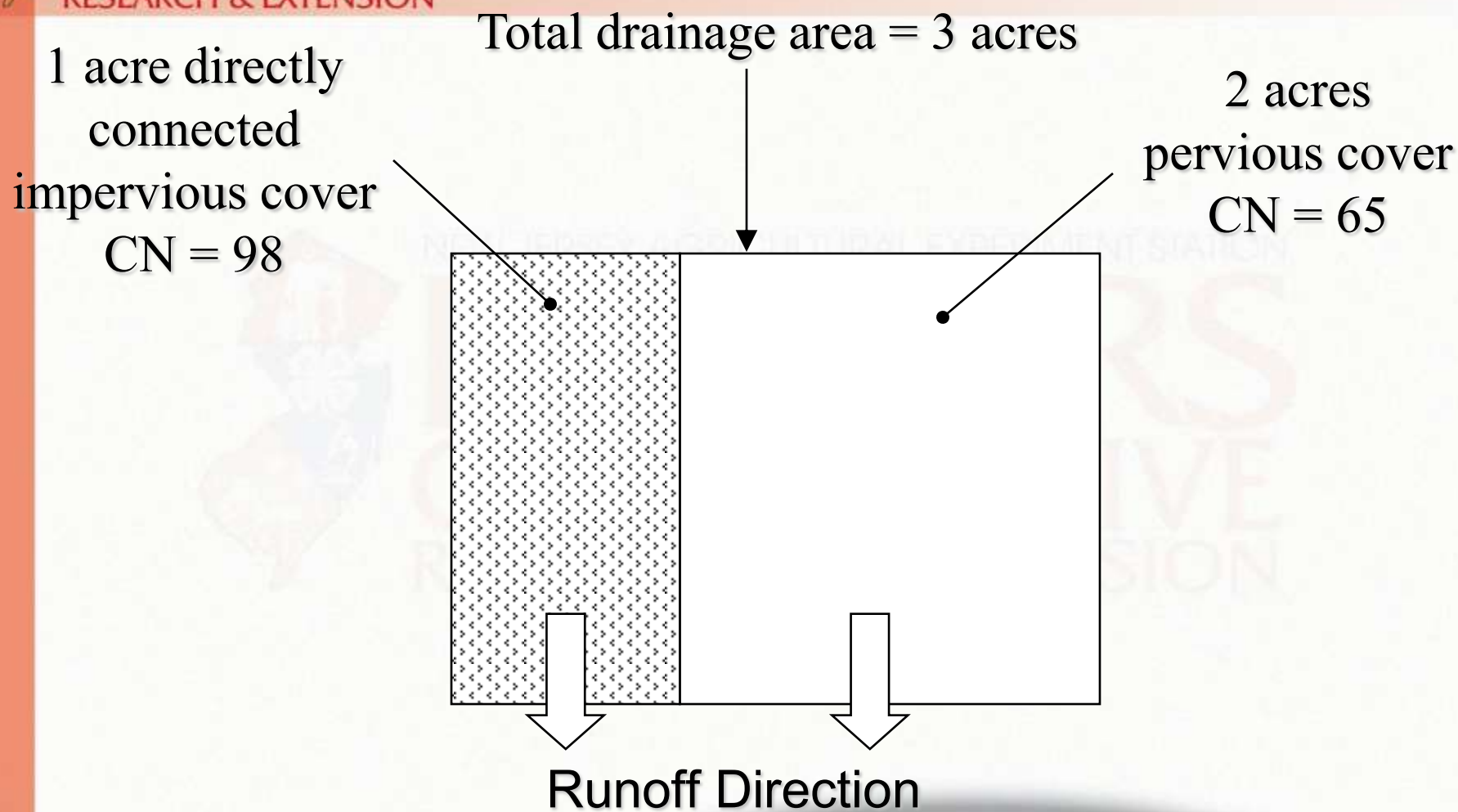
Impervious Cover Regulations

- Arbitrary limits on impervious cover at local level and at state level
- Reduces ability to install greenhouses or other controlled environments on farmland
- Restricts installation of pools, patios and additions on residential properties

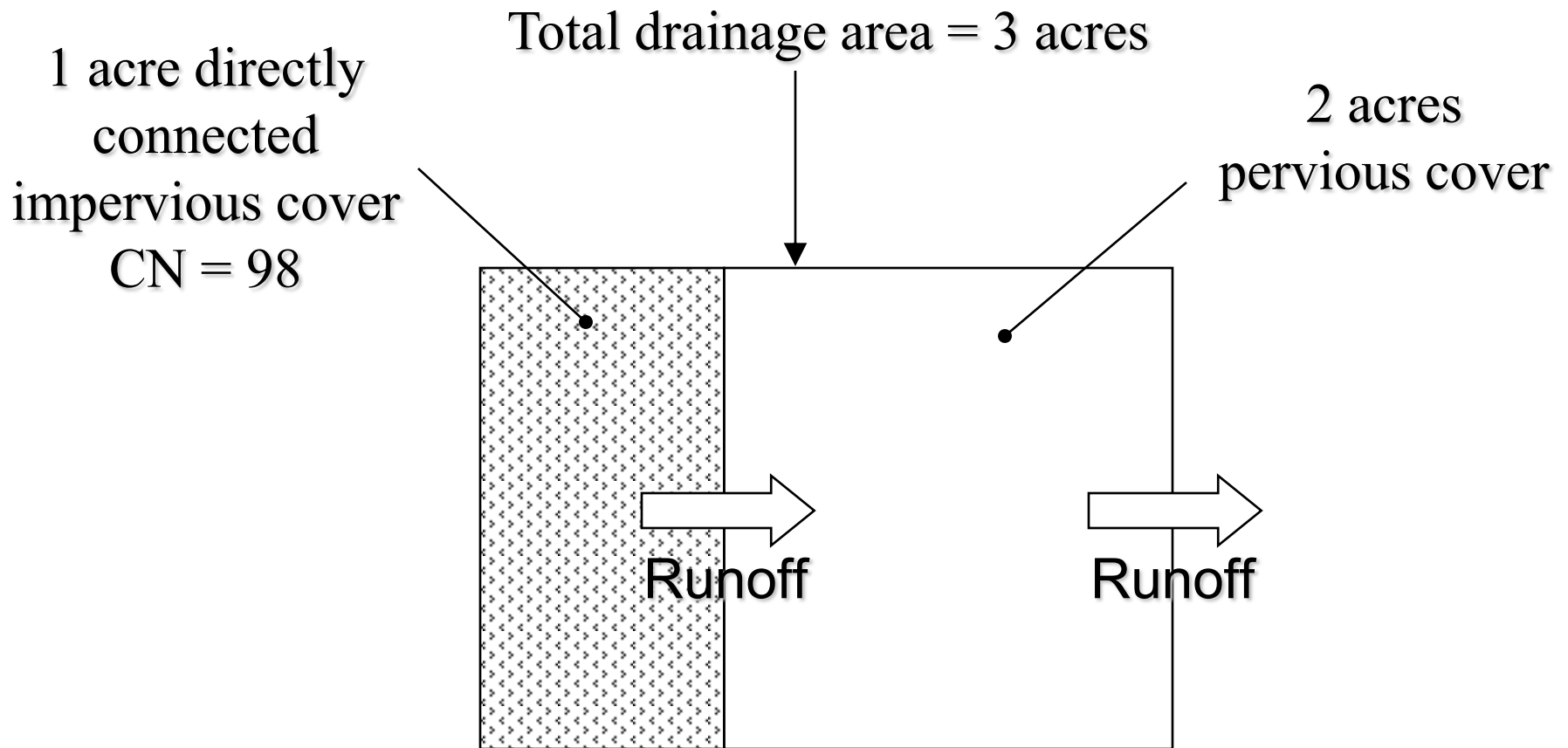
Important Consideration

Total Impervious Area (TIA)
vs.
Effective Impervious Area (EIA)

Connected
vs.
Disconnected



For 1.25 inch storm, 3,811 cubic feet of runoff = 28,500 gallons.



For 1.25 inch storm, 581 cubic feet of runoff = 4,360 gallons.

Comparing
Connected
Impervious
Surfaces
to
Disconnected
Impervious
Surfaces



Regional Stormwater Management Plans

Address specific water quality concerns, flooding problems, and groundwater recharges issues on a watershed basis. Allows communities to adopt more stringent ordinances to achieve a higher level of environmental protection.

Part A: Ordinances and Mandates

1. Stormwater Management Control Ordinance
2. Low/No Phosphorus Fertilizer Ordinance
3. Coal Tar Reduction Ordinance
4. Stream Corridor Protection Ordinance
5. MS4 Permit Educational Mandate Focus
6. Terminal Catch Basin Cleaning
7. Sump Pump Ordinance and Enforcement
 - To avoid accidental spills from wastewater treatment plant, sump pumps should not discharge to sanitary sewers



1. Stormwater Control Ordinance

New Definition of “Major Development”

“Major development” means any “development” that provides for ultimately disturbing one-**half** or more acres of land **or increases impervious cover by 5,000 square feet**. Disturbance for the purpose of this rule is the placement of impervious surface or exposure and/or movement of soil or bedrock or clearing, cutting, or removing of vegetation, **or razing and replacement of existing structures**.

1. Stormwater Control Ordinance

New Nonstructural Stormwater Management Strategies

Since the impact of impervious surfaces can be minimized through disconnection, twenty percent (20%) of all surfaces greater than 5,000 square feet will be required to be disconnected prior to resurfacing ...

1. Stormwater Control Ordinance

New Nonstructural Stormwater Management Strategies

“The two-year design storm runoff volume from these disconnected areas shall be infiltrated if the soils and geology of the area permits. Permeability testing should be performed before design of infiltration practice is complete, and options of soil replacement with an underdrain system or a capture and reuse system could provide alternatives to low infiltration areas.”

More New Nonstructural Stormwater Management Strategies

To further minimize the impact of impervious surfaces, twenty percent (20%) of all roofs greater than 5,000 square feet will be required to be disconnected prior to resurfacing or replacement ...



More New Nonstructural Stormwater Management Strategies

In an effort to restore some of the tree canopy in the watershed, all major development will offset their construction contributing 10 cents per square foot developed to a municipal reforestation fund. A minimum of 20 trees per new home or per 5,000 square feet of building footprint will be installed or funding provided to the municipality...









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