Everything Stormwater Management Related

ANJEC Commissioner's Training
Newark, NJ
May 2, 2026




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RUTGERS
New Jersey Agricultural Experiment Station

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What do the municipalities need?

Each Municipality has a permit for their MS4

(Municipal Separate Storm Sewer System = MS4)

A primary objective of the MS4 stormwater program shall be to implement best management practices and other measures that are designed to reduce the discharge of pollutants from the permittee's MS4, municipal maintenance yards and other ancillary operations to the maximum extent practicable pursuant to N.J.A.C. 7:14A-25.6(a)1 and 40 CFR 122.34(a), to protect water quality, and to satisfy the applicable water quality requirements of the Clean Water Act.

Section A:
Stormwater Management Program

- Develop, update, implement and maintain a Stormwater Pollution Prevention Plan (SPPP)
- Designate a Stormwater Program Coordinator (SPC)
- Ensure the MS4 Program and the SPPP is consistent with the Municipal Stormwater Management Plan (MSWMP)
- Ensure the MSWMP is a component of the municipal master plan
- Shall modify and update applicable ordinances and plan to reflect the MS4 Program including the Stormwater Control Ordinance

All should have been submitted to NJDEP by January 1, 2024

Section B:
Minimum Standards for Public Involvement and Participation

- Comply with applicable State and local public notice requirements
- Develop a municipal stormwater webpage displaying:
  - Stormwater Pollution Prevention Plan (SPPP) (excluding inspection logs and other recordkeeping documents)
  - Municipal Stormwater Management Plan (MSWMP)
  - Stormwater Control Ordinance (SCO)
  - Pet Waste Ordinance
  - Wildlife Feeding Ordinance
  - Litter Control Ordinance
  - Improper Disposal of Waste Ordinance
  - Containerized Yard Waste/Yard Waste Collection Program Ordinances
  - Private Storm Drain Inlet Retrofitting Ordinance
  - Illicit Connection Ordinance
  - Tree Removal/Replacement Ordinance
  - Privately-Owned Salt Storage Ordinance
  - MS4 Outfall Pipe Map
  - MS4 Infrastructure Map
  - Watershed Improvement Plan

Dedicate webpage should have been posted by January 1, 2024

NJDEP Stormwater Webpage Template

What is stormwater?

Human activity is largely responsible for stormwater pollution. Everything that we put on the ground or into the storm drain can end up in our water. Each of us has a responsibility to make sure these contaminants stay out of our water. Whether we have clean water is up to you.

The official definition of stormwater under the New Jersey Pollutant Discharge Elimination System(NJPDES) regulations at N.J.A.C. 7:14A is as follows:

'Stormwater' means water resulting from precipitation (including rain and snow) that runs off the land's surface, is transmitted to the subsurface, or is captured by separate storm sewers or other sewage or drainage facilities, or conveyed by snow removal equipment.

Stormwater Program Coordinator (SPC) Contact Information

If you have any questions about our stormwater program or would like additional information, please contact:

insert contact information here

Stormwater Links

Stormwater Pollution Prevention Plan (SPPP)

The SPPP was last updated on insert date here and describes how we implement the stormwater program in order to meet the requirements of our NJPDES Municipal Separate Storm Sewer System (MS4) permit.

- Check out the SPPP here Insert your own SPPP here

Municipal Stormwater Management Plan (MSWMP)

- Check out the Municipal Stormwater Management Plan Here Insert your own MSWMP here

MS4 Outfall Pipe Map

Watershed Improvement Plan (WIP)

The purpose of the WIP is to identify opportunities to improve water quality, reduce MS4 contribution of pollutants to waterbodies with impairments and Total Maximum Daily Load(TMDLs), and to address stormwater flooding to protect human health and safety, and the environment.

- Watershed Inventory Report
- Watershed Assessment Report
- Watershed Improvement Plan Report

Stormwater Resources

Click on the links below to learn more about stormwater and get access to educational resources.

- Rutgers Cooperative Research & Extension
- Clean Water NJ
- NJ Stormwater

Stormwater Ordinances/Regulatory Mechanisms

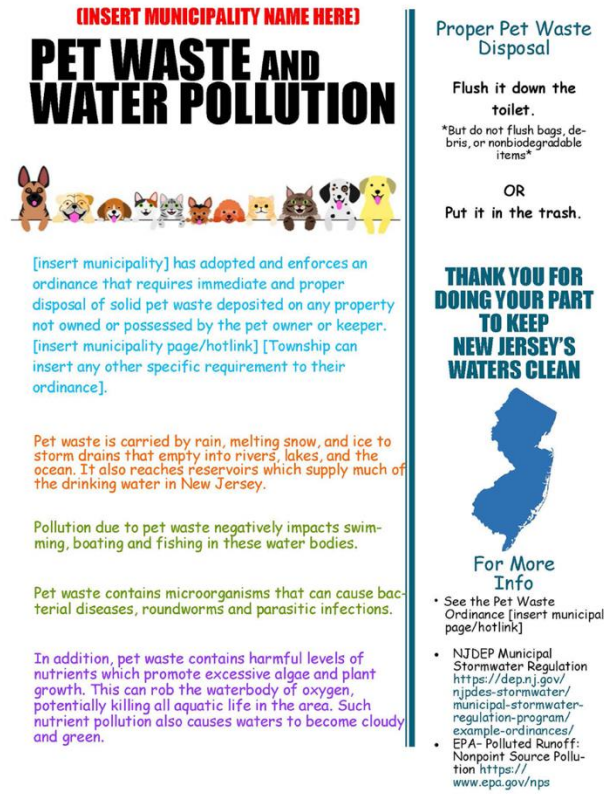
Click on our adopted stormwater ordinances below.

- Stormwater Control Ordinance
- Pet Waste Ordinance
- Wildlife Feeding Ordinance
- Litter Control Ordinance
- Improper Disposal of Waste Ordinance
- Containerized Yard Waste Ordinance
- Yard Waste Collection Program Ordinance
- Private Storm Drain Inlet Retrofitting Ordinance
- Illicit Connection Ordinance
- Tree Removal/Replacement Ordinance
- Privately-Owned Salt Storage Ordinance
- (Optional) Privately-Owned Refuse

NJDEP Stormwater Webpage Template

Brochures and Handouts

Check out the following handouts for more information on stormwater.


(INSERT MUNICIPALITY NAME HERE)

PET WASTE AND WATER POLLUTION

[insert municipality] has adopted and enforces an ordinance that requires immediate and proper disposal of solid pet waste deposited on any property not owned or possessed by the pet owner or keeper. [insert municipality page/hotlink] [Township can insert any other specific requirement to their ordinance].

Pet waste is carried by rain, melting snow, and ice to storm drains that empty into rivers, lakes, and the ocean. It also reaches reservoirs which supply much of the drinking water in New Jersey.

Pollution due to pet waste negatively impacts swimming, boating and fishing in these water bodies.

Pet waste contains microorganisms that can cause bacterial diseases, roundworms and parasitic infections.

In addition, pet waste contains harmful levels of nutrients which promote excessive algae and plant growth. This can rob the waterbody of oxygen, potentially killing all aquatic life in the area. Such nutrient pollution also causes waters to become cloudy and green.

Proper Pet Waste Disposal

Flush it down the toilet.

But do not flush bags, debris, or nonbiodegradable items

OR

Put it in the trash.

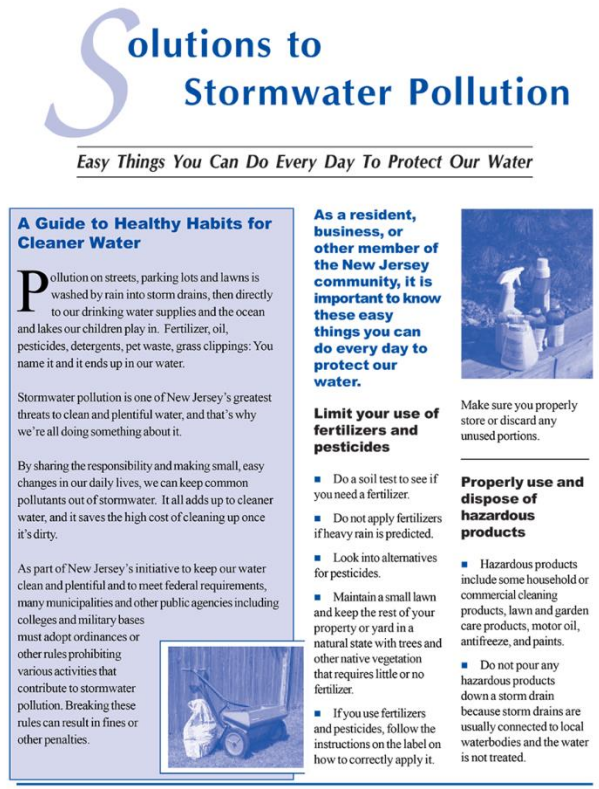
THANK YOU FOR DOING YOUR PART TO KEEP NEW JERSEY'S WATERS CLEAN

For More Info

- See the Pet Waste Ordinance [insert municipal page/hotlink]
- NJDEP Municipal Stormwater Regulation https://dep.nj.gov/njpdes-stormwater/municipal-stormwater-regulation-program/example-ordinances/
- EPA- Polluted Runoff: Nonpoint Source Pollution https://www.epa.gov/nps

Pet Waste Flyer

DOWNLOAD PET WASTE FLYER >


Solutions to Stormwater Pollution

Easy Things You Can Do Every Day To Protect Our Water

A Guide to Healthy Habits for Cleaner Water

Pollution on streets, parking lots and lawns is washed by rain into storm drains, then directly to our drinking water supplies and the ocean and lakes our children play in. Fertilizer, oil, pesticides, detergents, pet waste, grass clippings: You name it and it ends up in our water.

Stormwater pollution is one of New Jersey's greatest threats to clean and plentiful water, and that's why we're all doing something about it.

By sharing the responsibility and making small, easy changes in our daily lives, we can keep common pollutants out of stormwater. It all adds up to cleaner water, and it saves the high cost of cleaning up once it's dirty.

As part of New Jersey's initiative to keep our water clean and plentiful and to meet federal requirements, many municipalities and other public agencies including colleges and military bases must adopt ordinances or other rules prohibiting various activities that contribute to stormwater pollution. Breaking these rules can result in fines or other penalties.

As a resident, business, or other member of the New Jersey community, it is important to know these easy things you can do every day to protect our water.

Limit your use of fertilizers and pesticides

- Do a soil test to see if you need a fertilizer.
- Do not apply fertilizers if heavy rain is predicted.
- Look into alternatives for pesticides.
- Maintain a small lawn and keep the rest of your property or yard in a natural state with trees and other native vegetation that requires little or no fertilizer.
- If you use fertilizers and pesticides, follow the instructions on the label on how to correctly apply it.

Make sure you properly store or discard any unused portions.

Properly use and dispose of hazardous products

- Hazardous products include some household or commercial cleaning products, lawn and garden care products, motor oil, antifreeze, and paints.
- Do not pour any hazardous products down a storm drain because storm drains are usually connected to local waterbodies and the water is not treated.

Stormwater Education Brochure

DOWNLOAD BROCHURE >

Stormwater Education Handout

DOWNLOAD BROCHURE >

Section C:
Minimum Standards for Local Public Education and Outreach

- Implement a Public Education and Outreach Program
  - Earn 12+ points each year – at least three different activities
  - A minimum of one activity must involve educating businesses, which discharge to the MS4, and the general public of hazards associated with illicit connections and improper disposal of waste

Due every year by December 31st

Section F:
Minimum Standards for Pollution Prevention/ Good Housekeeping for Municipal Operators

Community-wide Ordinances

- Pet Waste
- Wildlife Feeding
- Litter Control
- Improper Waste Disposal
- Yard Waste
- Private Inlet Retrofitting
- Privately-Owned Salt Storage
- Tree Removal/Replacement

All adopted by May 1, 2024

Training

6. Stormwater Program Coordinator (SPC) Training
   - Participate in Department free training webinar

January 1, 2026

7. Annual Employee Training
   - Individual responsible for implementation of MS4 permit receive annual training, i.e. governing body members, municipal employees in public works, engineering, etc.

i. SPPP
ii. Construction Site Stormwater Runoff
iii. Post-Construction Stormwater Management in New Development and Redevelopment
iv. Community-wide Ordinances
v. Community-wide Measures
vi. Stormwater Facility Maintenance
vii. Municipal Maintenance Yard
viii. Operations and other ancillary operations
ix. MS4 Mapping
x. Outfall stream scouring detection and control
xi. Illicit Connection Elimination
xii. Watershed Improvement Plan

Due every year by December 31st

Section G: MS4 Mapping, and Scouring, and Illicit Discharge Detection Elimination

- MS4 Mapping
  i. MS4 outfalls
  ii. MS4 groundwater discharge points
  iii. MS4 interconnections
  iv. Storm drain inlets
  v. MS4 manholes
  vi. MS4 conveyance
  vii. MS4 pump stations
  viii. Stormwater facilities
  ix. Property boundaries of maintenance yards

Due January 1, 2026

Section H:
Watershed Improvement Plan

- Designed to improve water quality problems
- Focused on reducing the MS4 contribution of pollutants to waterbodies with listed impairments and TMDLs
- Reducing or eliminating flooding with priority given based on human health and safety, environmental impacts, and frequency of occurrence
- Plan shall be developed with input from residents, businesses, neighboring towns, other dischargers

Section H:
Watershed Improvement Plan

Phase 1 – Prepare and submit the Watershed Inventory Report; conduct outreach (January 1, 2026)

- Summarize/map required information, some is available from the Department's GIS database

Phase 2 – Prepare and submit the Watershed Assessment Report; conduct outreach (January 1, 2027)

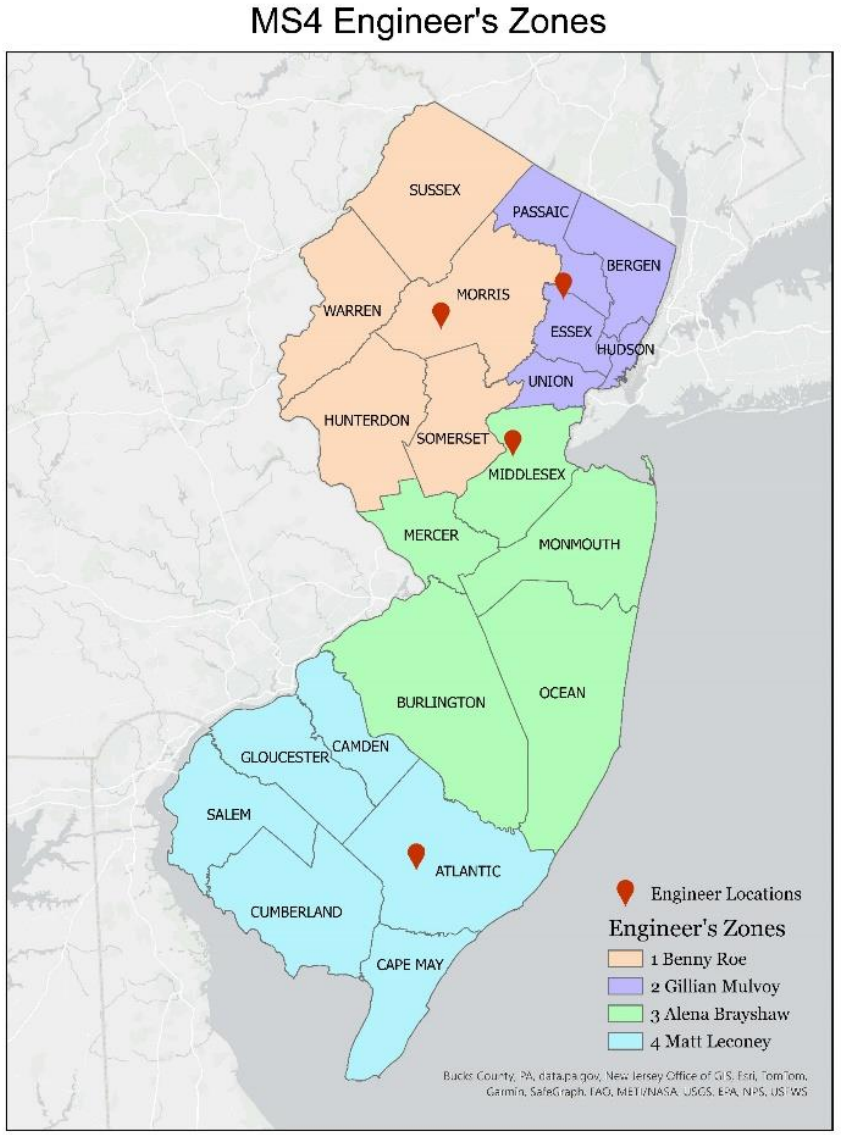
- Assess potential projects with estimates of the reduction in pollutant loading & funding need

Phase 3 – Prepare and submit the Watershed Improvement Plan Report; conduct outreach (December 1, 2027)

- Summarize proposed projects with improvement expected, comments received, costs, coordination with other regulatory programs, and implementation schedule

MS4 Technical Assistance Program

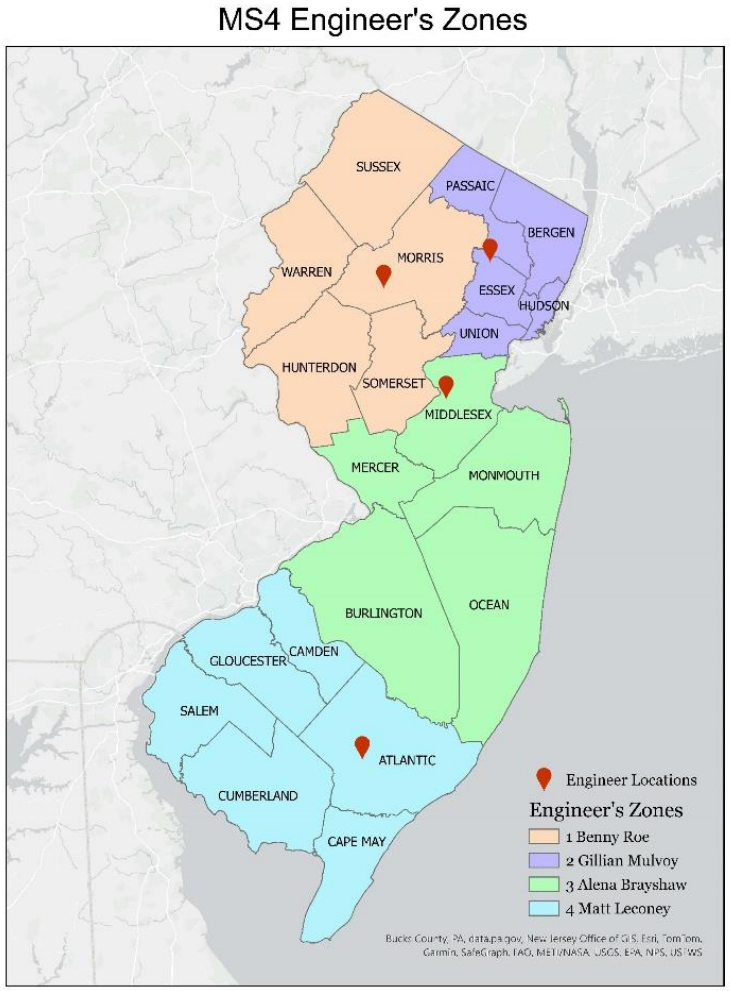
- Three-year agreement w/ NJDEP to support MS4 communities statewide
- Four Regional Engineers
- Provide technical support to all municipalities
- Focus on former Tier B municipalities
- Expand to existing Tier A as capacity is available



MS4 Technical Assistance Program

Contact us!

- Northwest – Benny Roe
  - benny.roe@rutgers.edu
- Northeast – Gillian Mulvoy
  - gillian.mulvoy@rutgers.edu
- Central – Alena Brayshaw
  - alena.brayshaw@rutgers.edu
- South – Matthew Leconey
  - matthew.leconey@rutgets.edu



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

1. Reduce flood damage, including damage to life and property
2. Minimize, to the extent practical, any increase in stormwater runoff from any new development
3. Reduce soil erosion from any development or construction project
4. Assure the adequacy of existing and proposed culverts and bridges, and other instream structures;
5. Maintain groundwater recharge
6. Prevent, to the greatest extent feasible, an increase in nonpoint pollution
7. Maintain the integrity of stream channels for their biological functions, as well as for drainage;
8. Minimize pollutants in stormwater runoff from new and existing development to restore, enhance and maintain the chemical, physical, and biological integrity of the waters of the State, to protect public health, to safeguard fish and aquatic life and scenic and ecological values, and to enhance the domestic, municipal, recreational, industrial and other uses of water
9. Protect public safety through the proper design and operation of stormwater management basins


ROAD
CLOSED
FLOOD
WATER

Rules Apply To Major Development

"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. The same surface shall not be counted twice when determining if the combination area equals one-quarter acre or more.

- 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."

NJDEP Green Infrastructure Definition

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
3. Storing stormwater runoff for reuse

Green Infrastructure Standard

- Green infrastructure best management practices (BMP) must be used to satisfy 1) recharge, 2) water quality, and 3) water quantity
- Three tables identifying the performance of each BMP in meeting the three standards
  - Water Quality & Recharge – BMPs in Table 1
  - Quantity – BMPs in Table 1 or Table 2
  - If received a variance – BMPs in Table 1, Table 2, or Table 3
- Maintain existing ability to propose an alternative stormwater design
  - Alternative design must meet green infrastructure definition and must meet drainage area limitation if similar to BMP with limit

Best Management Practice	Quality TSS removal rate (%)	Quantity	Recharge	Minimum separation from seasonal high-water table (ft)
Bioretention Systems	80 or 90	Yes	Yes No	2 1
Cisterns	0	Yes	No	-
Dry Wells	0	No	Yes	2
Grass Swales	50 or less	No	No	2
Green Roofs	0	Yes	No	-
Infiltration Basins	80	Yes	Yes	2
Manufactured Treatment Device	50 or 80	No	No	Dependent upon the device
Pervious Paving Systems	80	Yes	Yes No	2 1
Sand Filters	80	Yes	Yes	2
Vegetative Filter Strips	60-80	No	No	-

TABLE 1

TABLE 2

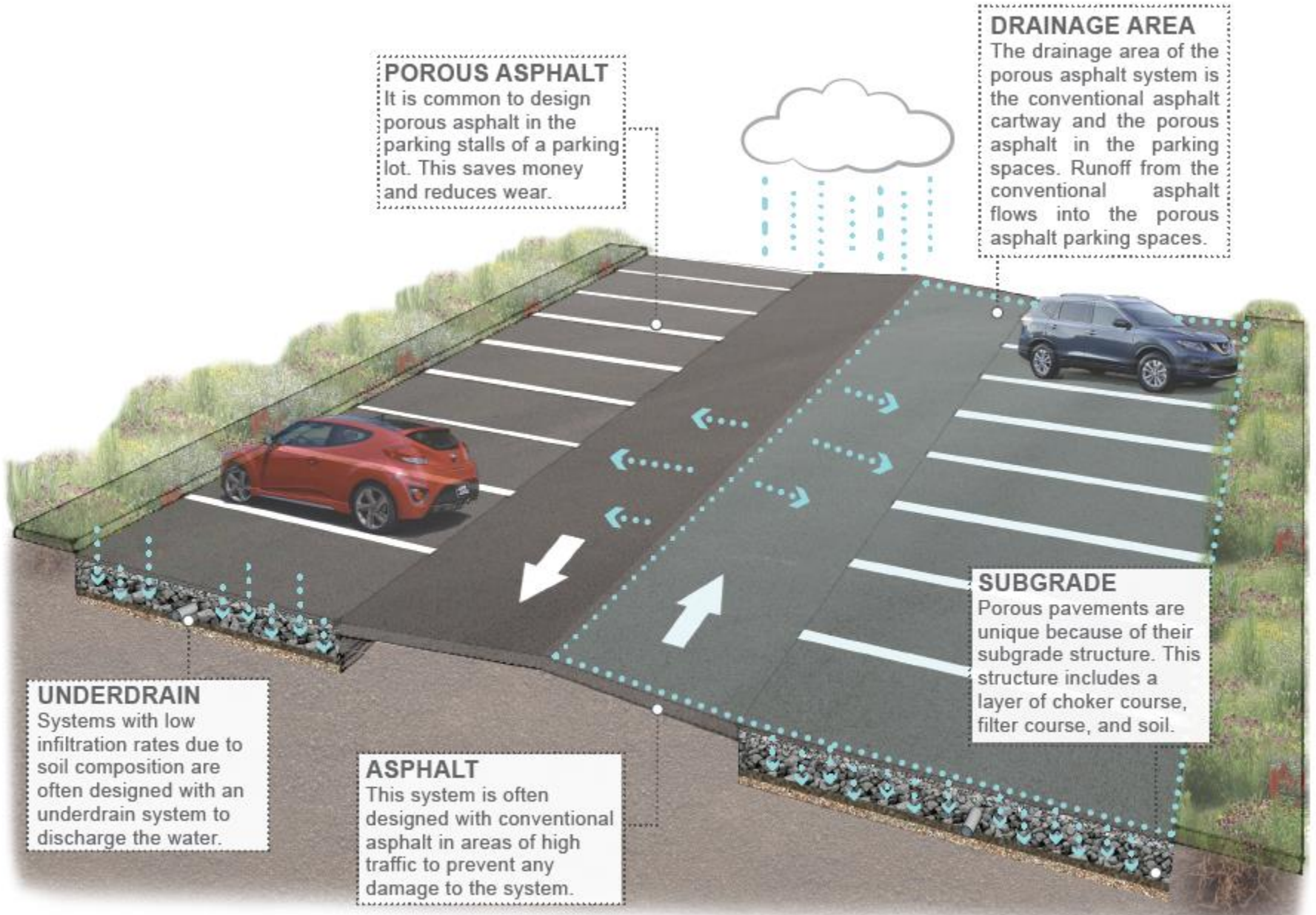
Best Management Practice	Quality TSS removal rate (%)	Quantity	Recharge	Minimum separation from seasonal high-water table (ft)
Bioretention Systems	80 or 90	Yes	Yes No	2 1
Infiltration Basins	80	Yes	Yes	2
Standard Constructed Wetlands	90	Yes	No	N/A
Wet Ponds	50-90	Yes	No	N/A

TABLE 3

Best Management Practice	Quality TSS removal rate (%)	Quantity	Recharge	Minimum separation from seasonal high-water table (ft)
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

Table 3 BMPs may only be used if a variance is granted.

Pervious Paving Systems



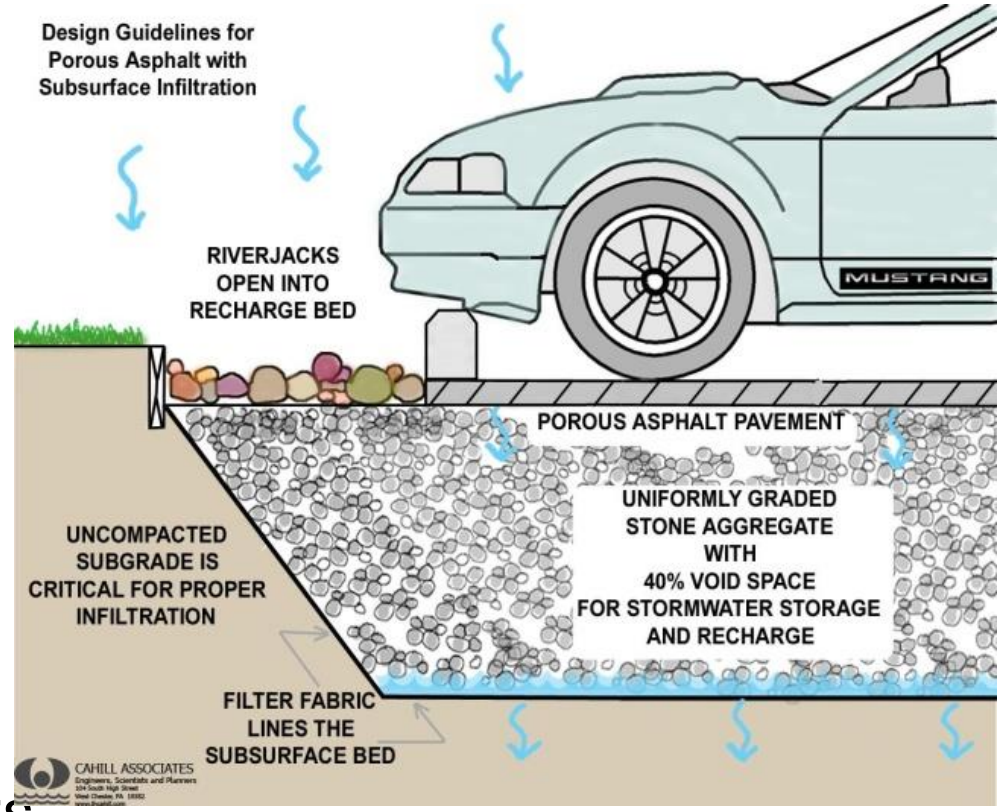
Permeable Pavements

- Underlying stone reservoir
- Porous asphalt and pervious concrete are manufactured without "fine" materials to allow infiltration
- Grass pavers are concrete interlocking blocks with open areas to allow grass to grow
- Ideal application for porous pavement is to treat a low traffic or overflow parking area

ADVANTAGES

- Manage stormwater runoff
- Minimize site disturbance
- Promote groundwater recharge
- Low life cycle costs, alternative to costly traditional stormwater management methods
- Mitigation of urban heat island effect
- Contaminant removal as water moves through layers of the system

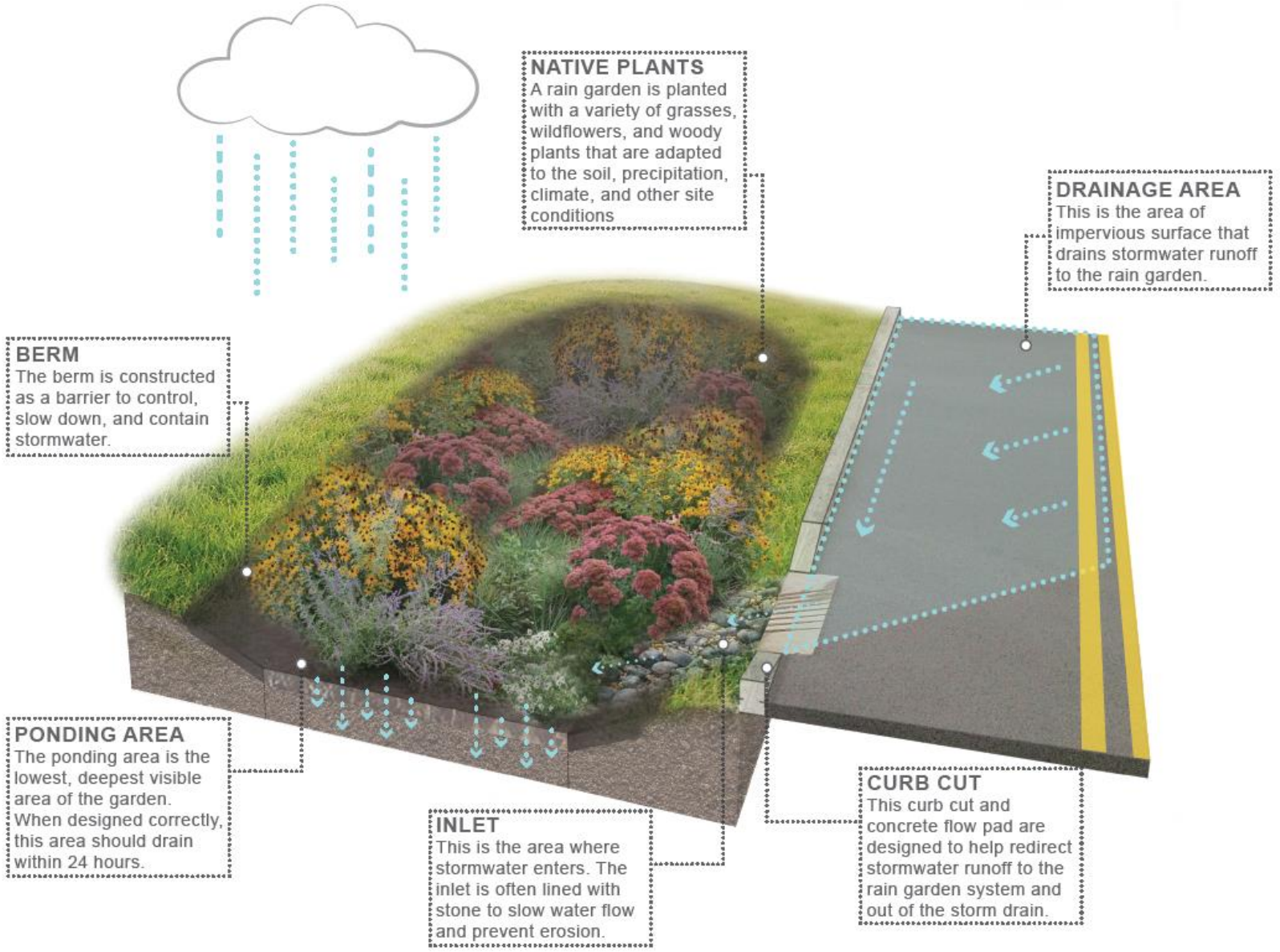
COMPONENTS



Porous Asphalt

Grass Pavers

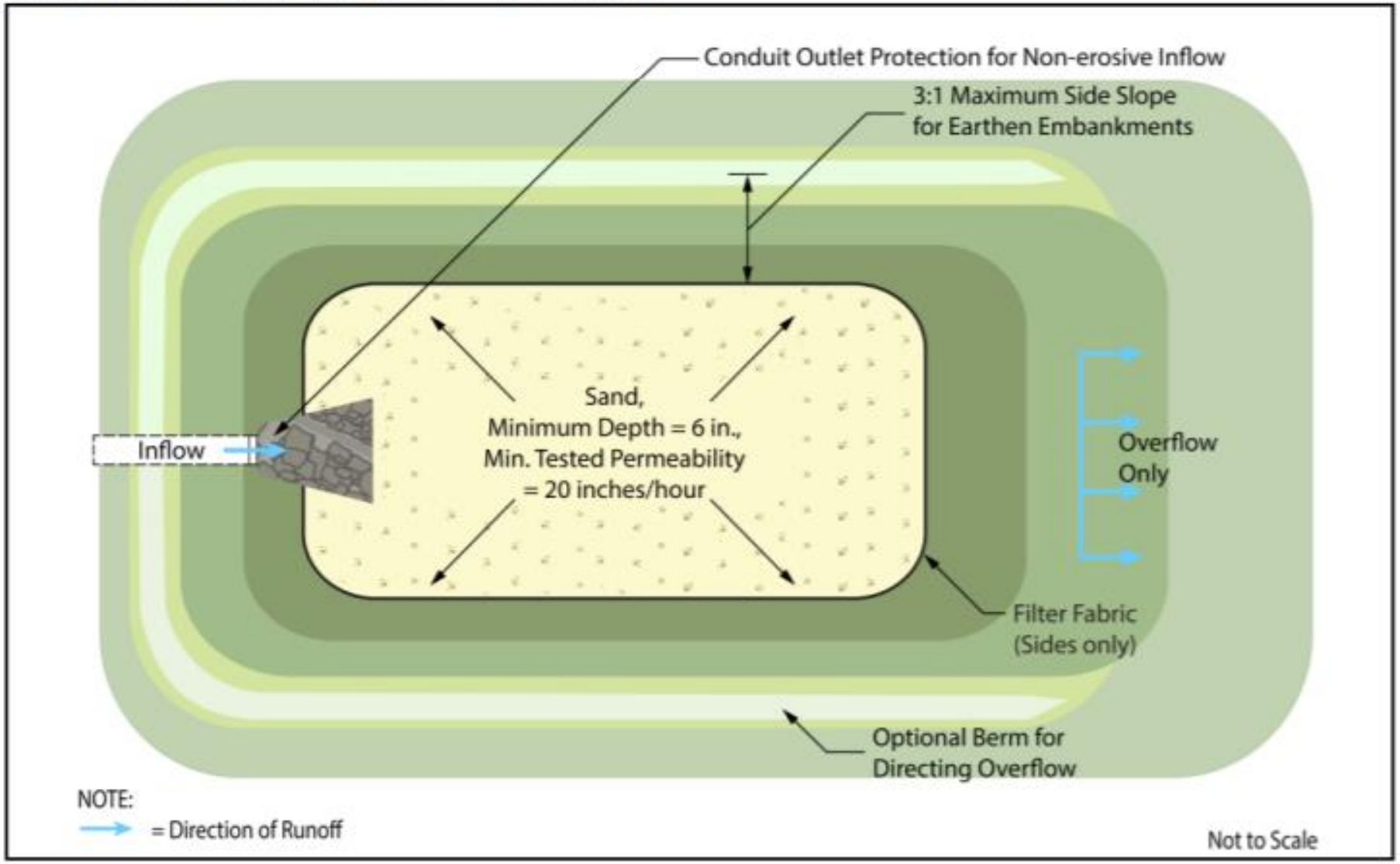
Bioretention Systems



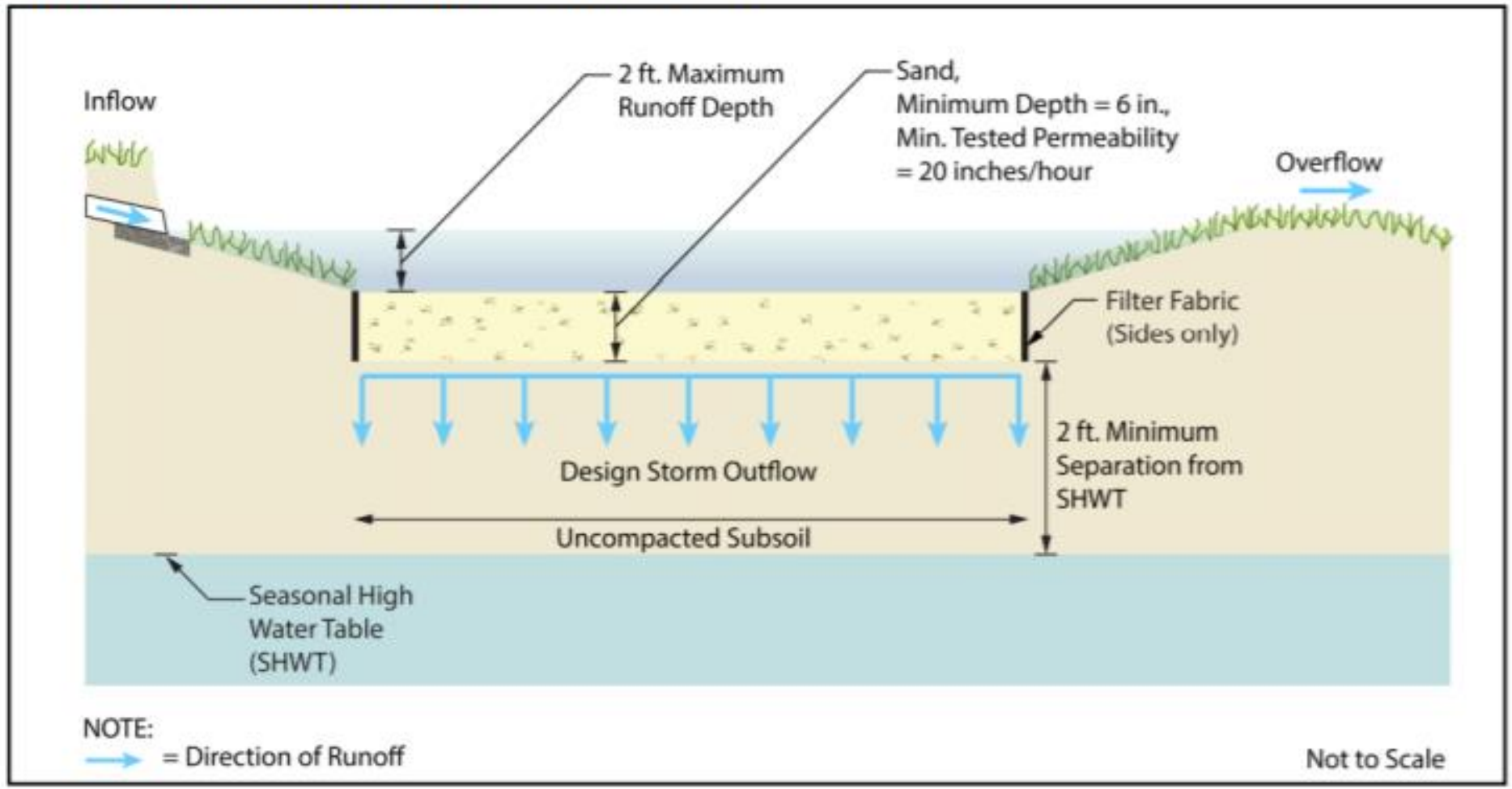
Small-Scale Bioretention Systems

Infiltration Systems

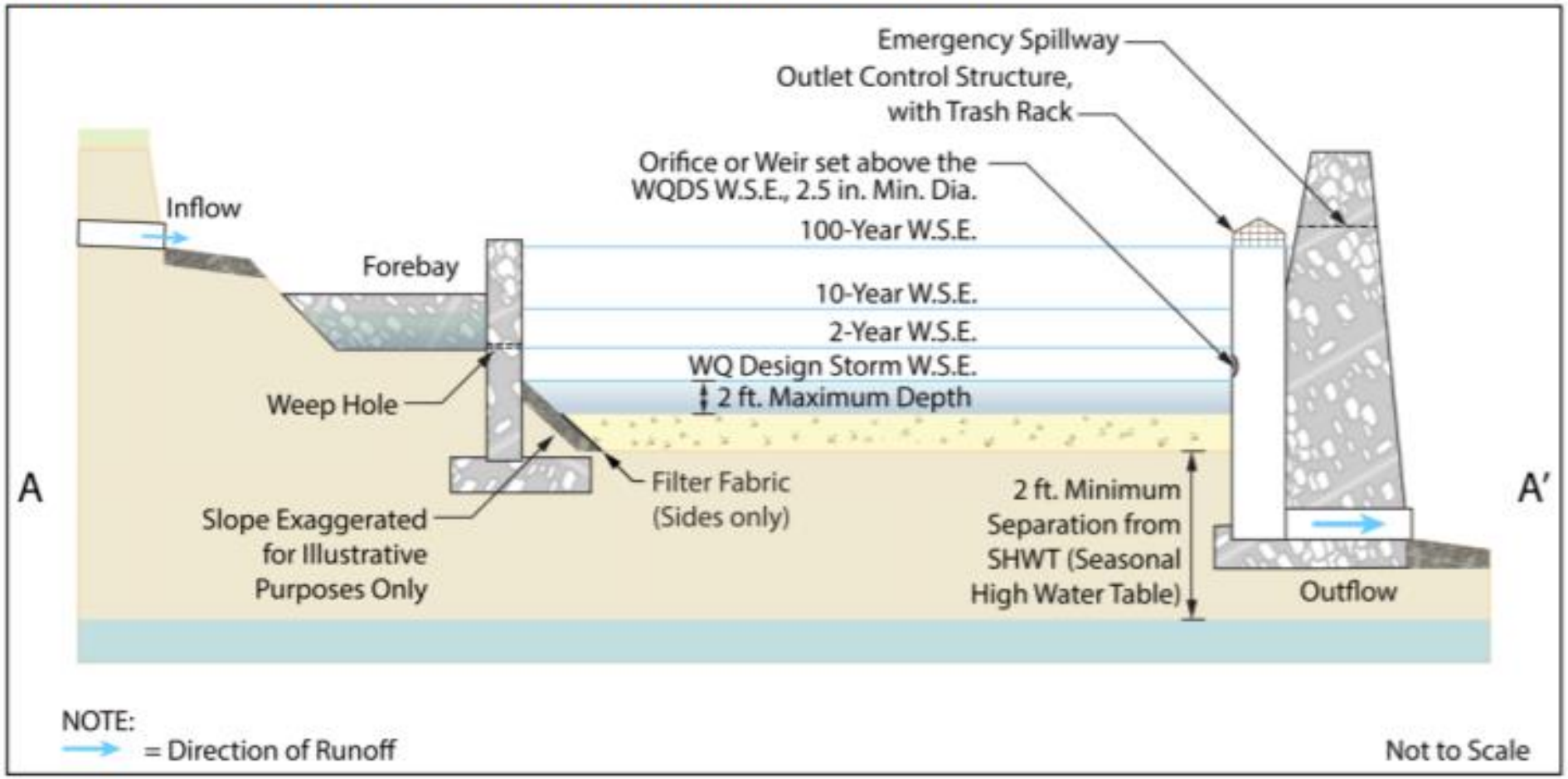
Surface Infiltration Basin – Plan View



Surface Infiltration Basin – Profile View

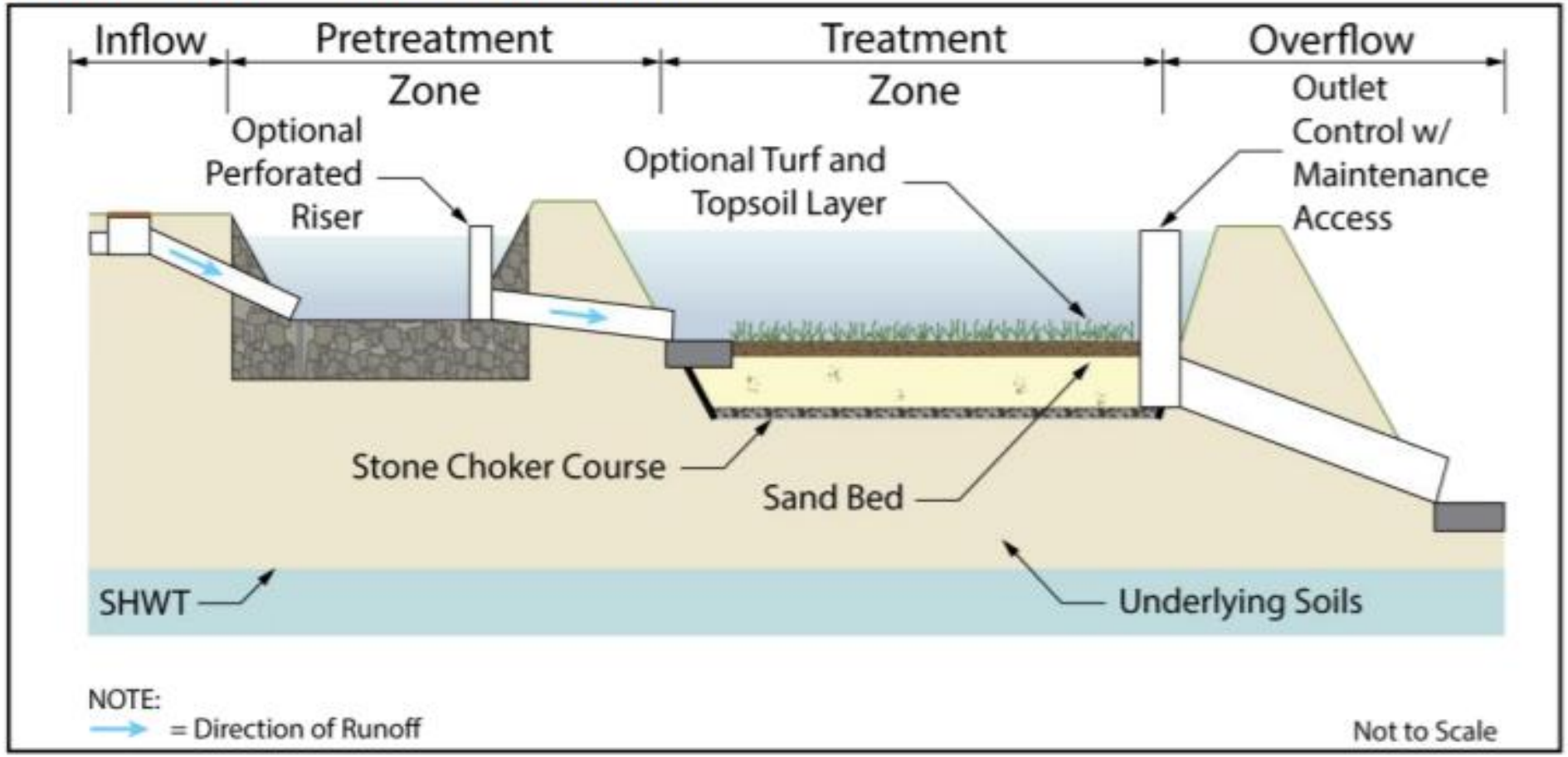


Infiltration – Extended Detention Basin: Profile View

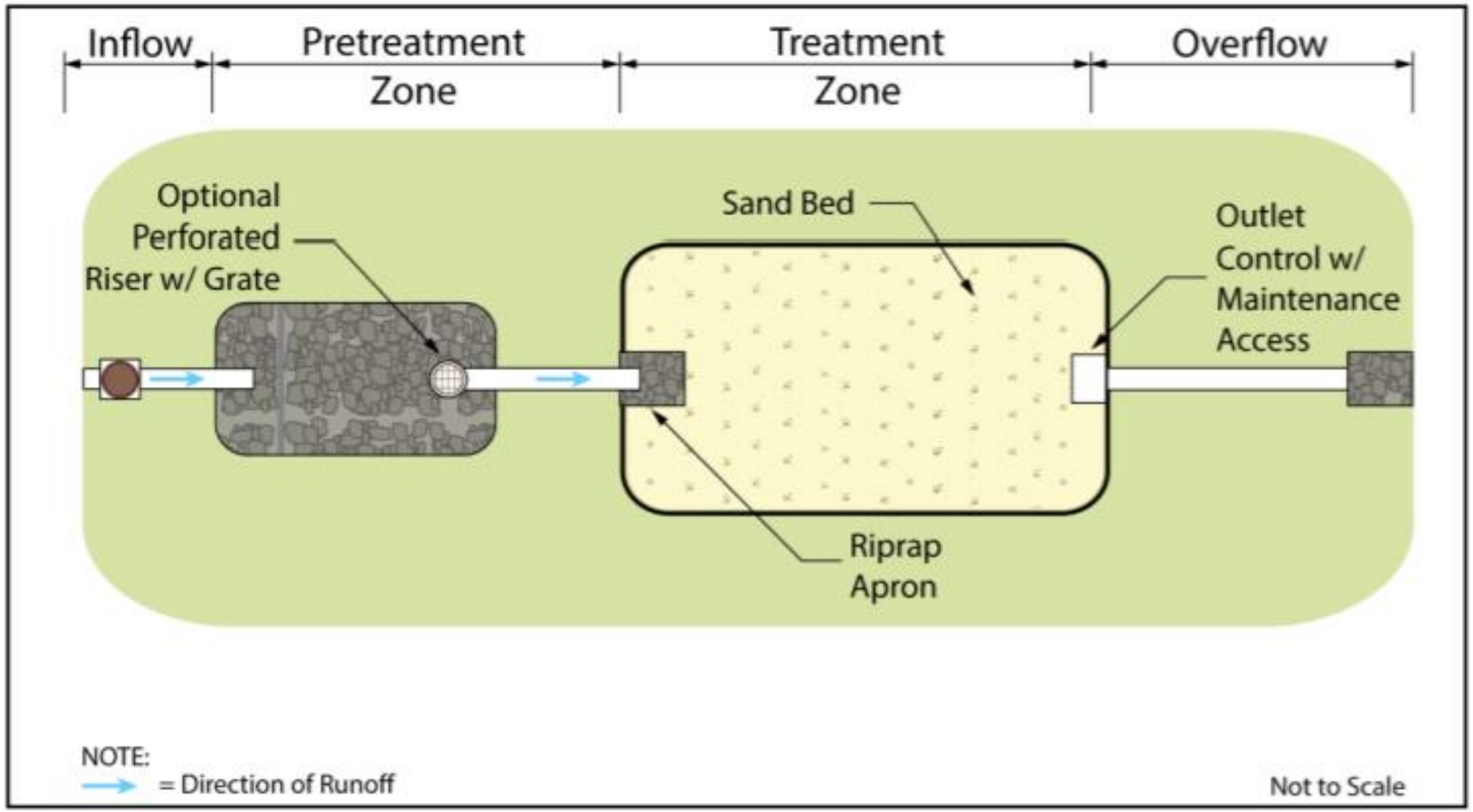


Sand Filter

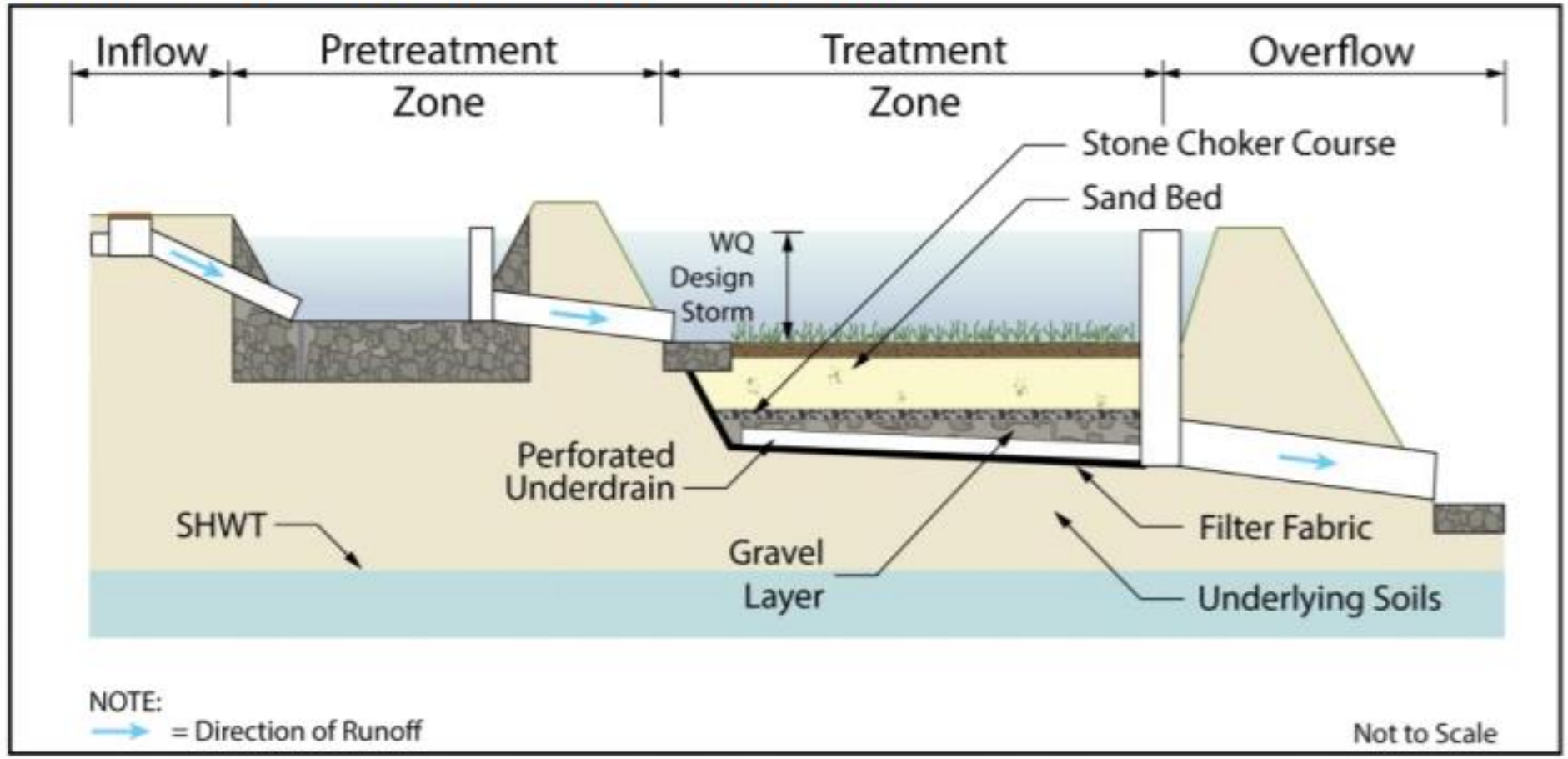
Profile View – Sand Filter Basics



Plan View – Sand Filter Basics



Profile View – Sand Filter with Underdrain



Questions to ask when reviewing a proposed development plan …

1. Are they using green infrastructure from Table 1 to satisfy groundwater recharge and water quality requirements?
2. Are they using green infrastructure from Tables 1 or 2 to satisfy groundwater recharge requirements?
3. Did they do soil testing in each proposed green infrastructure practices? How many tests?
4. Is the season high-water table one or two feet below the bottom of the green infrastructure practice?
5. Did they provide a maintenance manual, who is doing to do the maintenance, and do they know they are responsible?


Questions?