



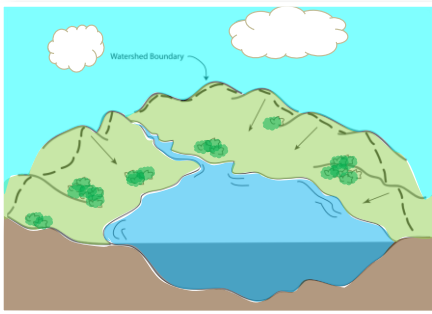
Stormwater Management on Small Sites

2015 Granite State Designers and Installers Conference
March 17, 2015



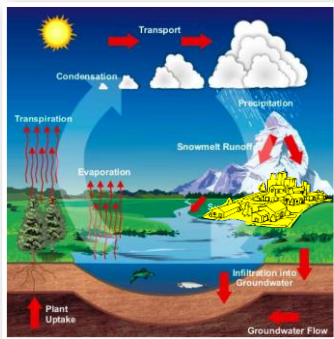


Watershed





The Water Cycle





stormwater runoff
storm wa-ter run-off
noun


Water from rain or melting snow that doesn't soak into the ground.



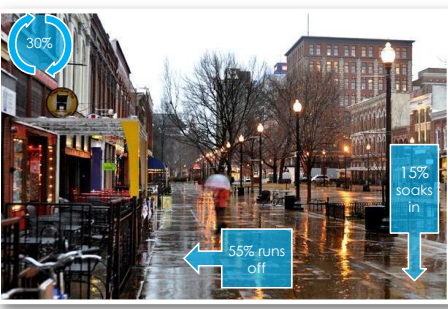


Undeveloped Area





Highly Developed Area



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Impacts to Water

Watershed: 26,000 acres
 6% slope to lake
 Sandy, 8:35 of Soil
 Physical driver: Topography

Runoff to water: 26,000 (PK)
 TSS: 155 (pounds)
 Phosphorus: 0.03 (pounds)
 Nitrogen: 0.2 (pounds)

Adapted from Jeff Schloss, UNH CE and Wisconsin Dept. of Natural Resources and the Wisconsin Lakes Partnership using the Simple Method and the Residential Loading Model. Photo source: www.gardnet.com

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Why does it matter?

Stormwater runoff causes or contributes to over 90% of the water pollution problems in NH.

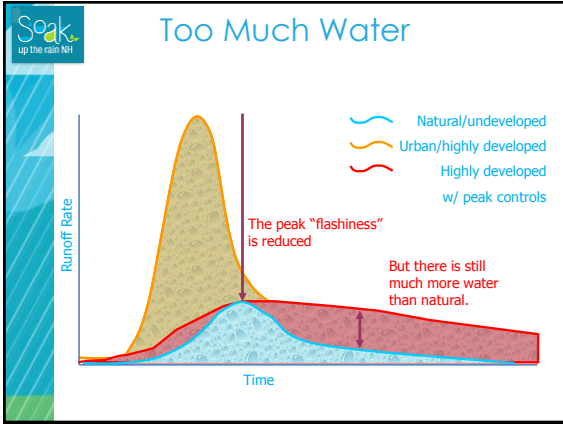
Aquatic Life Use
 Primary Contact Recreation

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Two Issues

1. TOO MUCH WATER

2. CARRIES POLLUTION







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Sediment



The 'Sediment' section features four images: a house with a large pile of dirt next to it, a dirt road with deep tire tracks, a close-up of muddy water, and a stream with brown water.

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Nutrients



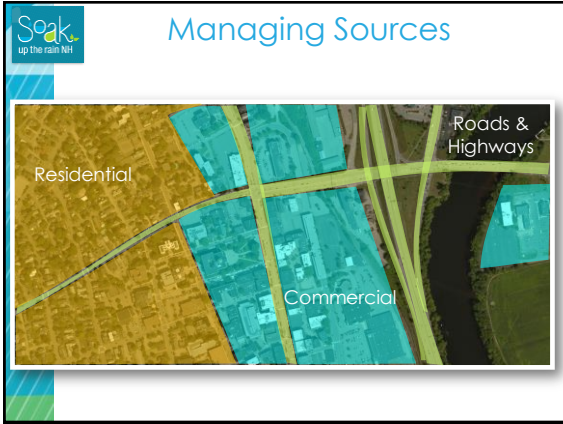
The 'Nutrients' section features three images: a dirt road with deep tire tracks, a green fertilizer spreader, and a pond with green algae.

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Bacteria




The 'Bacteria' section features three images: a dog digging in the dirt, a woman and child walking, and a construction site with pipes.










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DIY Fact Sheets

New Hampshire Department of Environmental Resources (NHDES) • Vermont Department of Environmental Conservation (VTDES)

DRIPLINE INFILTRATION TRENCH

A drifeline infiltration trench collects and infiltrates stormwater from your roof until it soaks into the ground. It helps control stormwater from running off your property.



SIZING AND DESIGN

STEP 1. Measure the distance from the side of your house to the side of your yard. To measure, stand near the house and hold one end of a tape measure and the other end of the tape measure near the side of your yard.

STEP 2. Mark the reference line on the ground along the exterior of your house where you will be installing the trench.

STEP 3. Measure 12" from the reference line away from the house and mark this as the reference line. This is the center boundary line for installation.

STEP 4. Measure 6" from this reference line toward your house and mark this along the perimeter. This is the inside boundary line for installation.

- 1. Measuring tape
- 2. Shovel
- 3. Crushed stone 1/2" to 3/4" diameter
- 4. Measurements previously taken on adjacent yard area to install trench

EQUIPMENT & MATERIALS

- 1. DIGGING: Shovel
- 2. FILLING: Crushed Stone 1/2" to 3/4" diameter
- 3. FINISHING: Polyethylene or other plastic
- 4. FINISHING: Gravel
- 5. FINISHING: Weed fabric
- 6. FINISHING: Topsoil
- 7. FINISHING: Sod
- 8. FINISHING: Grass seed

New Hampshire Department of Environmental Resources (NHDES) • Vermont Department of Environmental Conservation (VTDES)

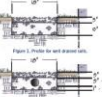
DRIPLINE INFILTRATION TRENCH

INSTALLATION

STEP 1. Dig a trench to least 18" deep between the outside and inside foundation lines extending along the perimeter of your house. Clear the bottom of the trench away from the house to the extent you wish away from the foundation.

STEP 2. To extend the life of the trench, line the sides with non-woven geotextile fabric.

STEP 3. For Shallow Drifeline Trench: Fill the trench with 12" of crushed stone. For the Deep Drifeline Trench: Fill the trench with 12" of crushed stone. Lay a 2" particle board over the 12" crushed stone. Lay a 2" layer of geotextile over the particle board. Lay a 2" layer of topsoil over the geotextile. Lay a 2" layer of sod or grass seed over the topsoil. Lay a 2" layer of sod or grass seed over the topsoil.



Notes: Do not install a trench in a yard with a silt or clay soil. Do not install a trench in a yard with a slope greater than 1:4. Do not install a trench in a yard with a slope greater than 1:4. Do not install a trench in a yard with a slope greater than 1:4.

CAUTION: Do not install a trench in a yard with a slope greater than 1:4. Do not install a trench in a yard with a slope greater than 1:4. Do not install a trench in a yard with a slope greater than 1:4.

Disposal Reference:
 Make Inquiries of Environmental Protection, Conservation Division, Inc. at 800-333-7689. Fax: 603-271-2876.



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Infiltration Trenches






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Dry Well




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Infiltration Steps



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Pervious Pavements



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Rain Garden



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Rain Barrel



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Vegetated Swale



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Water Bar



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Multiple Hats



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Consider Stormwater on the Job Site



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Consider Stormwater on the Job Site












Greenland, NH



Take Home Points

- Stormwater pollution contributes to over 90% of NH's water quality problems.
- Residential properties contribute to the problem.
- Consider where the water will flow at final grade.
- Think about simple practices (swales, dry wells, trenches) that you can create on site to help soak up the rain.
- Keep heavy equipment off of those areas.



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