Homeowner Solutions to Protect Your Lake

August 17, 2021

Lake Attitash Association Annual Meeting

Presented by:

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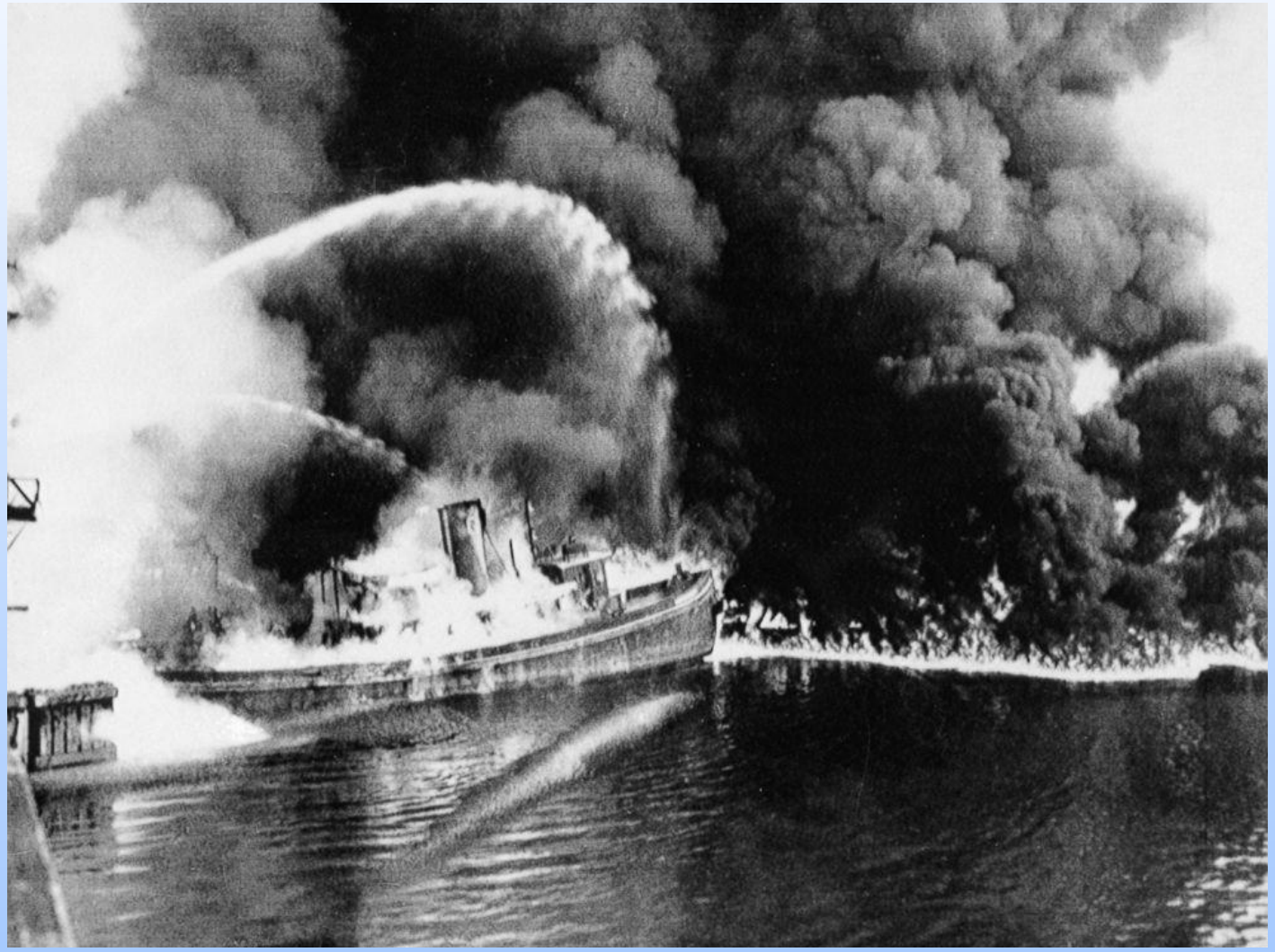
Agenda

- Water Pollution
- Watersheds and Nonpoint Source Pollution
- Homeowner Solutions
  - Inspecting your Property
  - Best Management Practices
- Resources for Homeowners
- Questions

Water Pollution



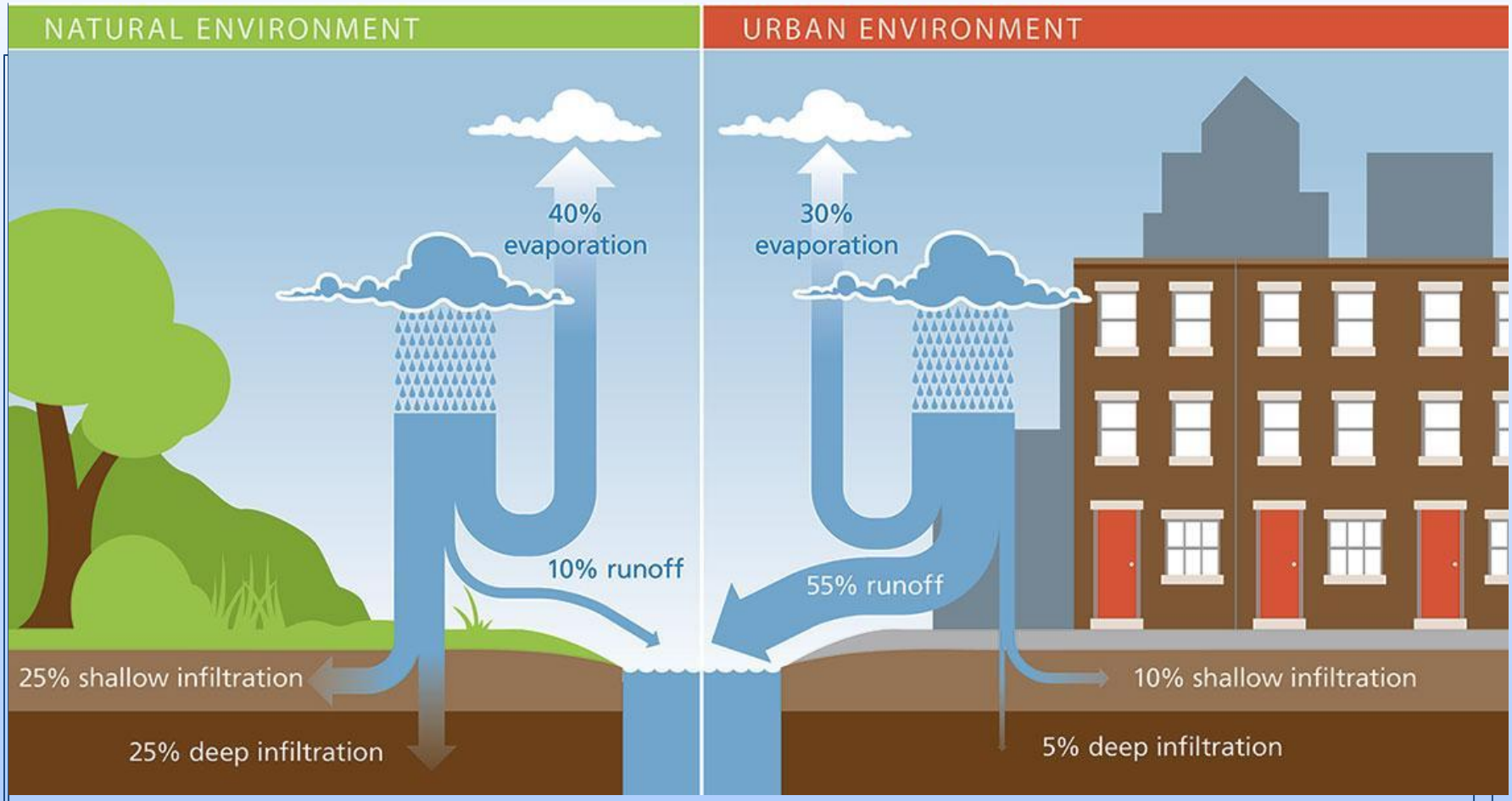
Water Pollution – Point Sources

Nutrients, Bacteria,
Oil, Haz Waste,
Sediment, etc.

Water Pollution – Nonpoint Sources

Nutrients, Bacteria,
Oil, Haz Waste,
Sediment, etc.

Stormwater Runoff

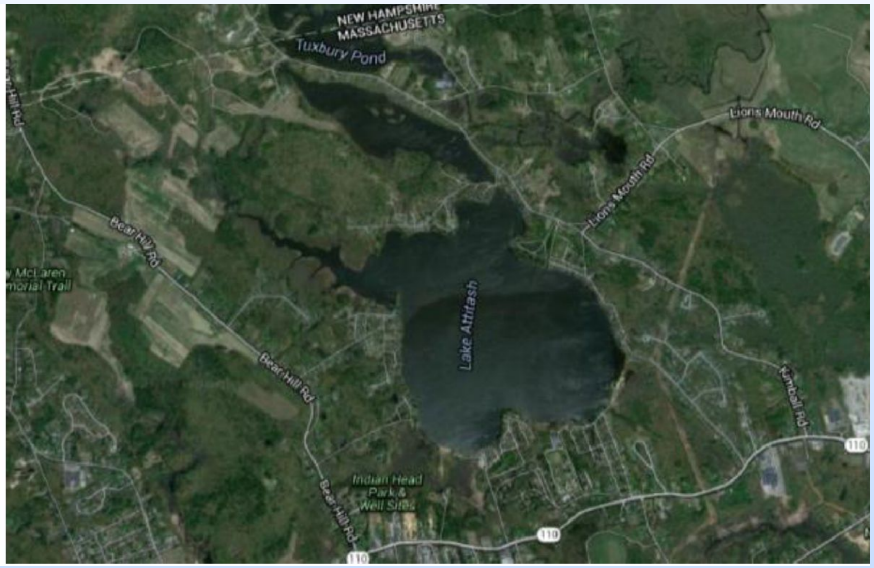


Development leads to “flashier” systems and higher pollutant loads

Watershed Approach

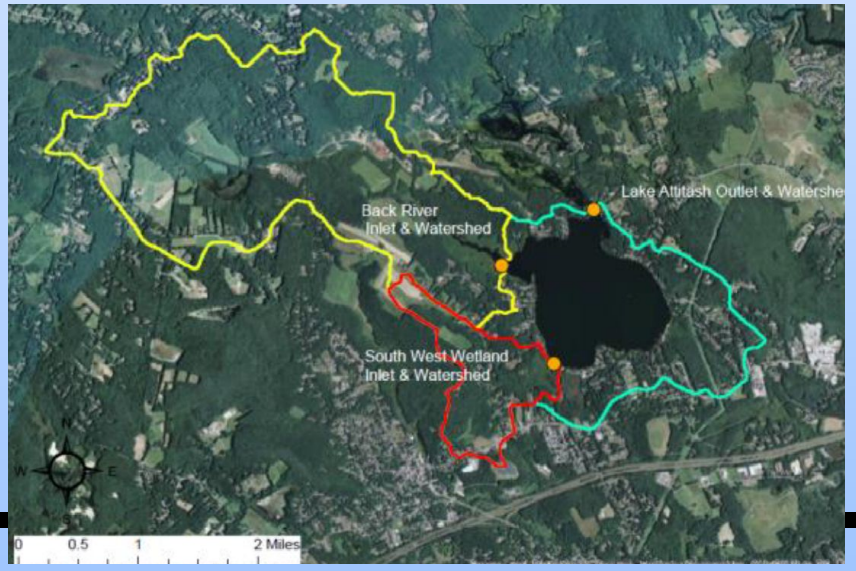
- **The area that surrounds the lake and supplies the lake with water (surface- and groundwater).**
- **Defined by surrounding topography and geology.**
- **Watershed land uses will determine the <u>quality</u> of the water supplied to the lake.**

Lake Attitash Watershed

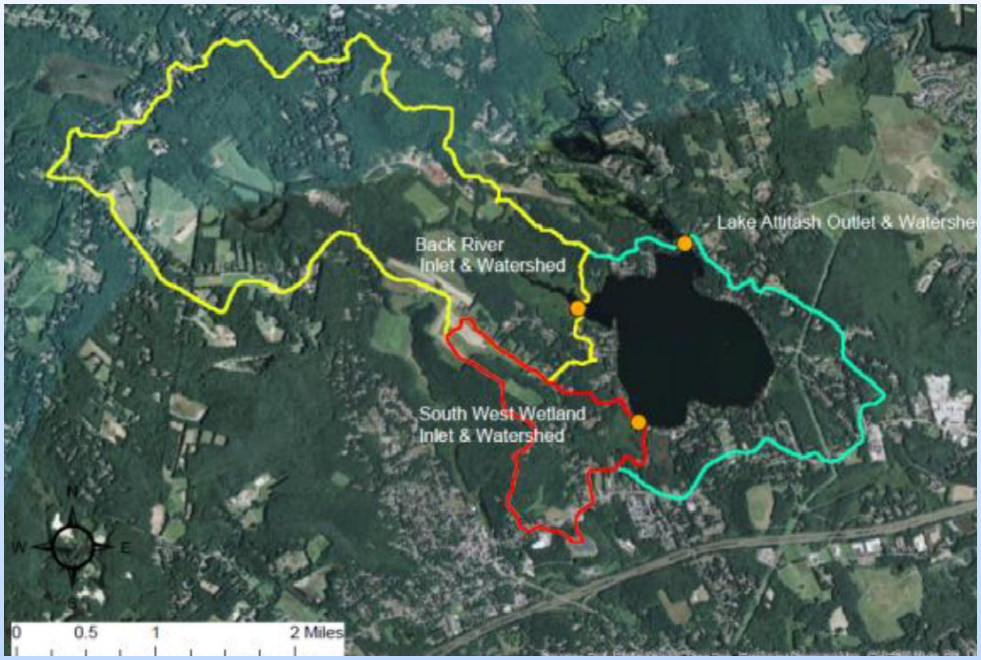


Lake Attitash = 360 acres in Amesbury and Merrimac

Lake Attitash Watershed = 2,500 acres and extends into NH



Lake Attitash Watershed

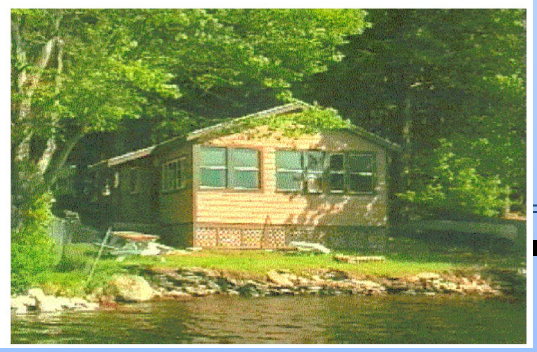


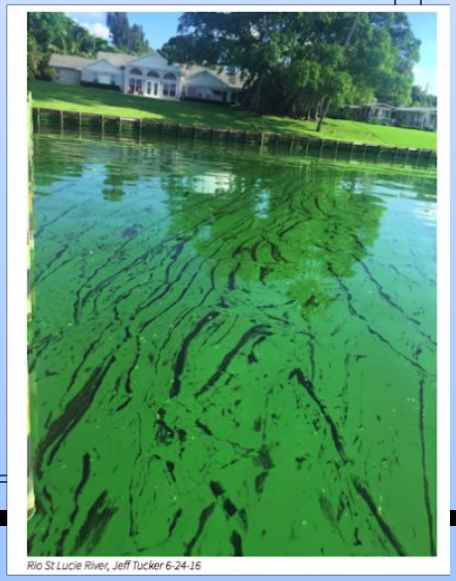
Atmospheric Load - ~10%
Internal Load - ~40%
Waterfowl - ~3%
Watershed Load - ~47%

Atmospheric Load - ~10%
Internal Load – Alum Treatment
Waterfowl
Watershed Load

From the 2016 WRS Attitash Management Report

Stormwater Runoff and Lakes

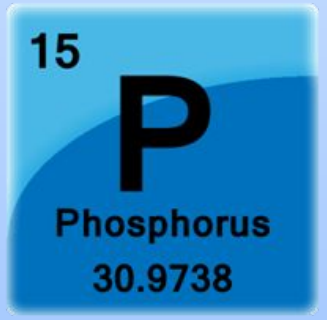




15
P
Phosphorus
30.9738

Lake Properties

- Lack of shoreline vegetation
- Steep slopes
- Impervious surfaces
- Sediment/Beach sand



Protecting your Lake

Inspecting your Property

Inspecting your Property

1. Look for obvious signs of erosion

Sediment = phosphorus!

Inspecting your Property

2. Look for slopes with no buffer

Inspecting your Property

3. Look at your practices

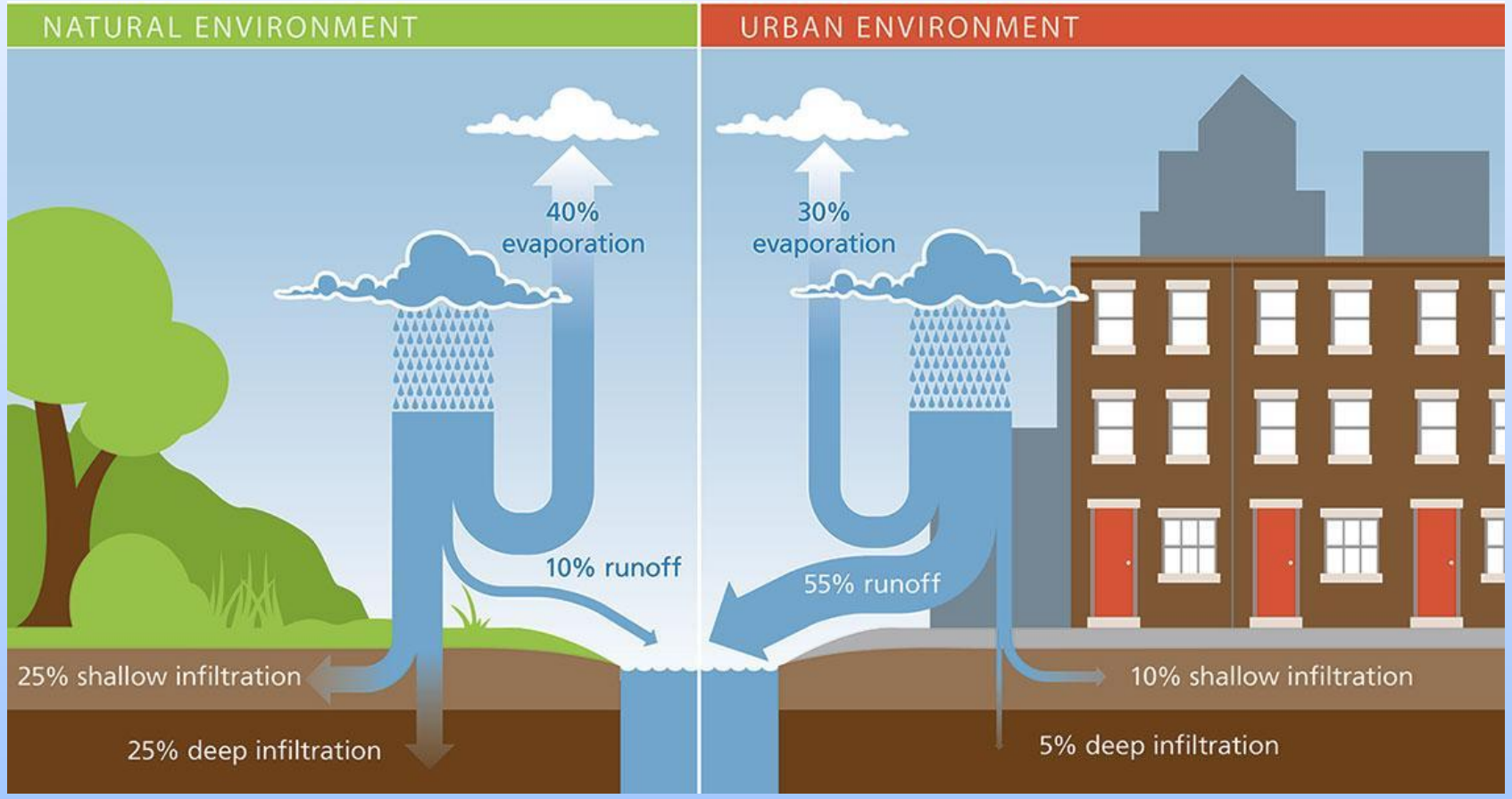
Protecting your Lake

Landscape Design Improvements

1. Increase infiltration
2. Reduce the quantity of stormwater runoff
3. Alter your practices

Landscape Design Improvements

1. Increase infiltration



Infiltration Practices

Vegetated Buffers

- **Pollutant Uptake /Filtering**
- **Habitat / Wildlife Food Source**
- **Shading**
- **Aesthetics**
- **Physical deterrent to Canada geese, which prefer easy access to grassed areas for feeding**

Vegetated Buffers

Simple to Complex

Vegetated Buffers

Design Considerations

- Aesthetics. Include a diversity of shrubs, wildflowers and ground cover that will add visual interest provide year-round color.
- Maintain lake access and unobstructed views.
- Use low-maintenance native plants, beneficial to wildlife.
- Maintain a "useable area" between the homes and buffer for picnic tables, chairs, etc.

Vegetated Buffers

Wildflowers

New England aster
White turtlehead
Boneset



Blue flag iris
Cardinal flower
Wild bergamot
Foamflower




Vegetated Buffers

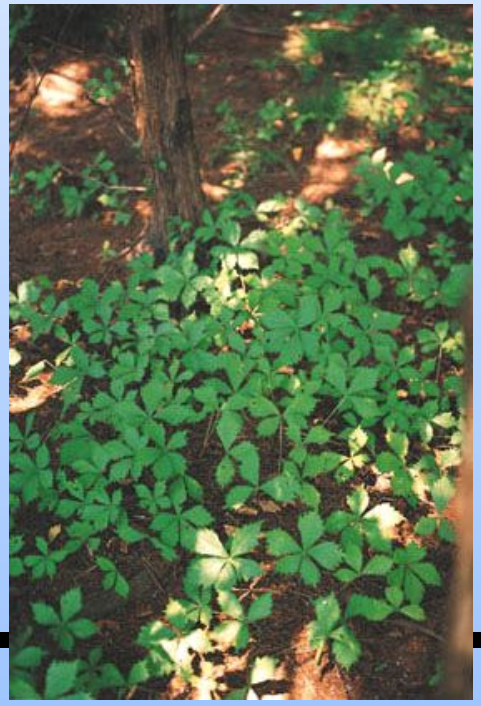
Groundcover

Bearberry

Partridgeberry

Virginia Creeper

Lowbush blueberry



Vegetated Buffers

Ferns

Cinnamon fern

Royal fern

Christmas fern

Vegetated Buffers

Grasses/Sedges

Canada Bluejoint or Reedgrass

Pennsylvania sedge

Narrow-leaved cat-tail

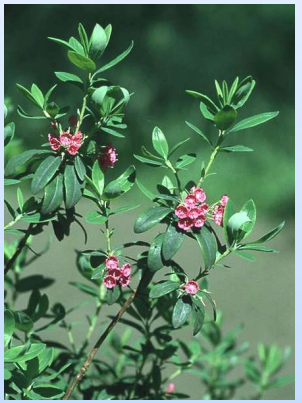
Vegetated Buffers

Shrubs

Sweet pepperbush

Winterberry holly

Sheep laurel



Highbush blueberry

Maple-leaf viburnum

Vegetated Buffers

Installation

Vegetated Buffers

Installation to Completion

Preconstruction Condition

Shrub Buffer Plantings

Silky Dogwood

Red Osier Dogwood

Bayberry

Pussy Willow

Meadowsweet

Northern Arrowood

Sweet Pepperbush

Installation

Installation

Fully Stabilized Buffer

Infiltration Practices

Other Examples

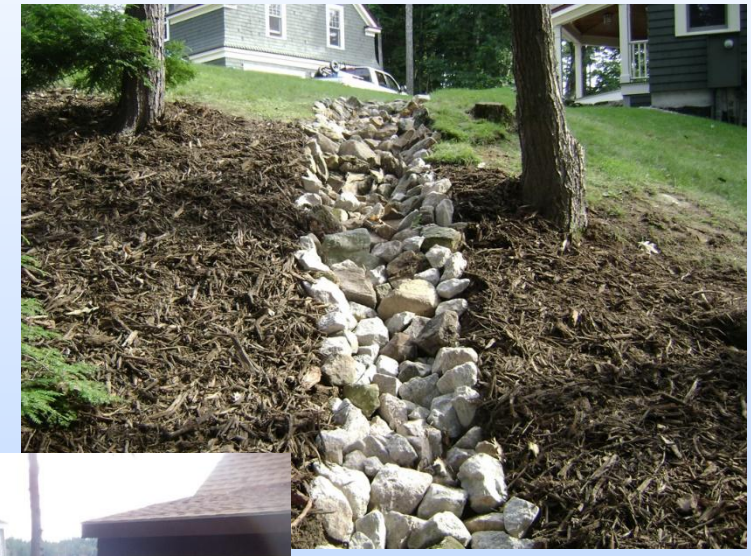
- **Rain Gardens**
- **Infiltration Steps**
- **Infiltration Trenches**
- **Rubber Razors**

Rain Gardens

Infiltration Steps

Infiltration Steps

Infiltration Trenches



Rubber Razors

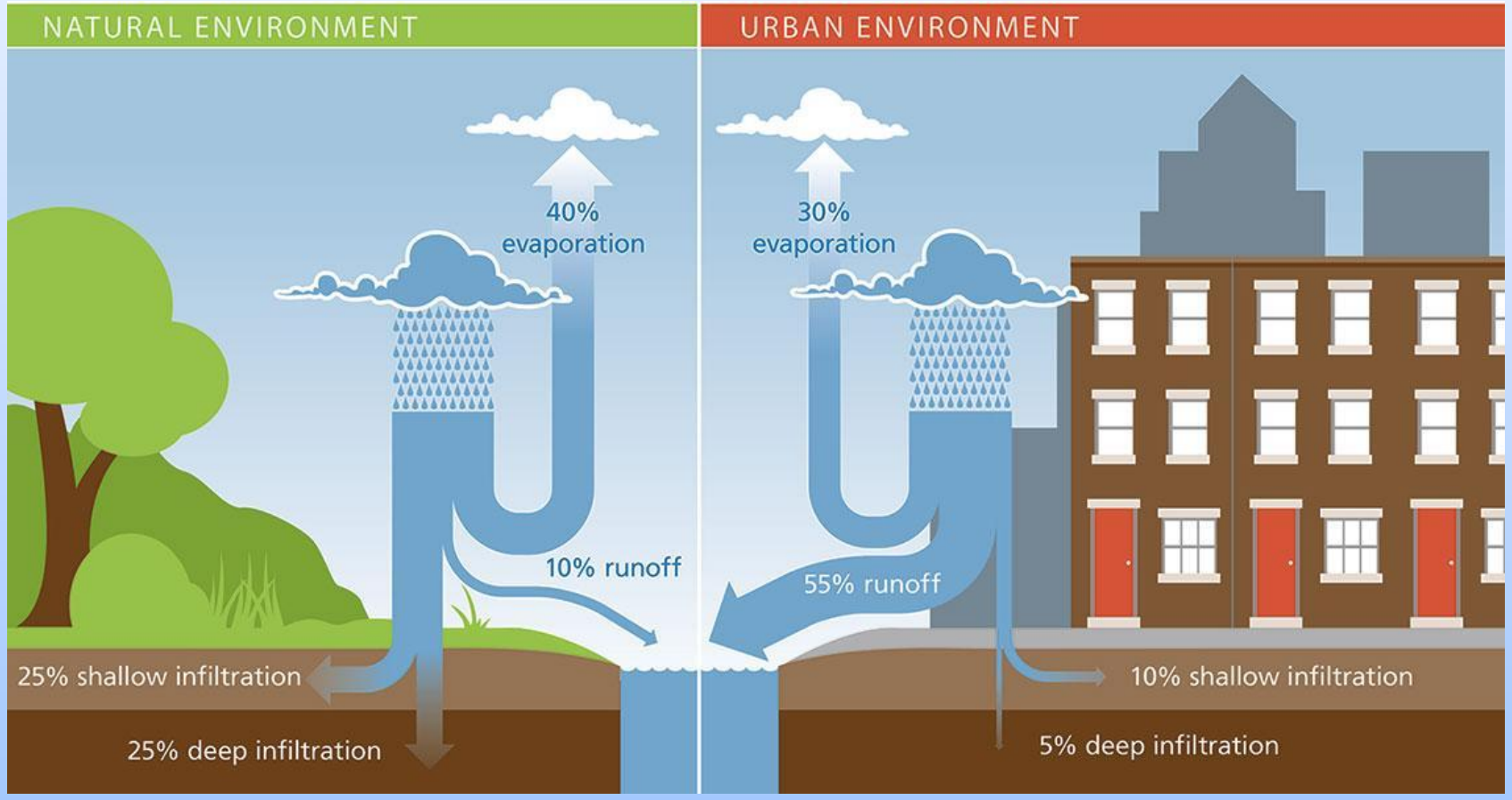
Protecting your Lake

Landscape Design Improvements

1. Increase infiltration
2. **Reduce the <u>quantity</u> of stormwater runoff**
3. Alter your practices

Landscape Design Improvements

2. Reduce quantity of stormwater runoff



Reduce Quantity

Capturing Stormwater for Reuse

Reduce Quantity

Reduce Impervious Surfaces

- **Less Pavement**
- **Alternative Materials**

Alternative Materials

Protecting your Lake

Landscape Design Improvements

1. Increase infiltration
2. Reduce the quantity of stormwater runoff
3. **Alter your practices**

Landscape Design Improvements

3. Alter Practices

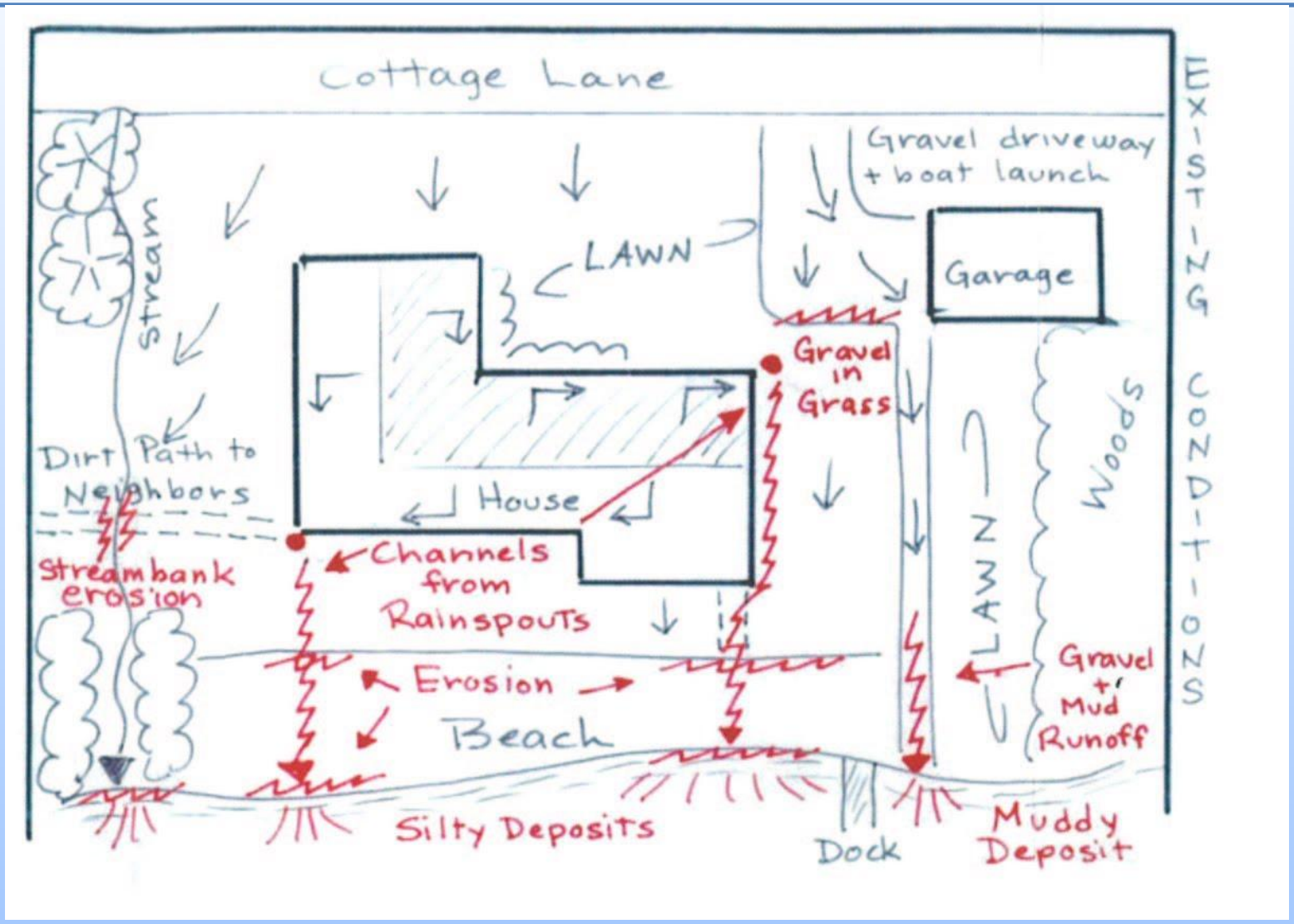
Phosphorus-Free Fertilizer

- **Soil test first!**
- **Buy low to no phosphorus fertilizer.**
- **Time it right!**
- **Don’t overdo it!**

Protecting your Lake

Inspecting your Property

Protecting your Lake



Protecting your Lake

Protecting your Lake

Lake Properties

Lake Properties

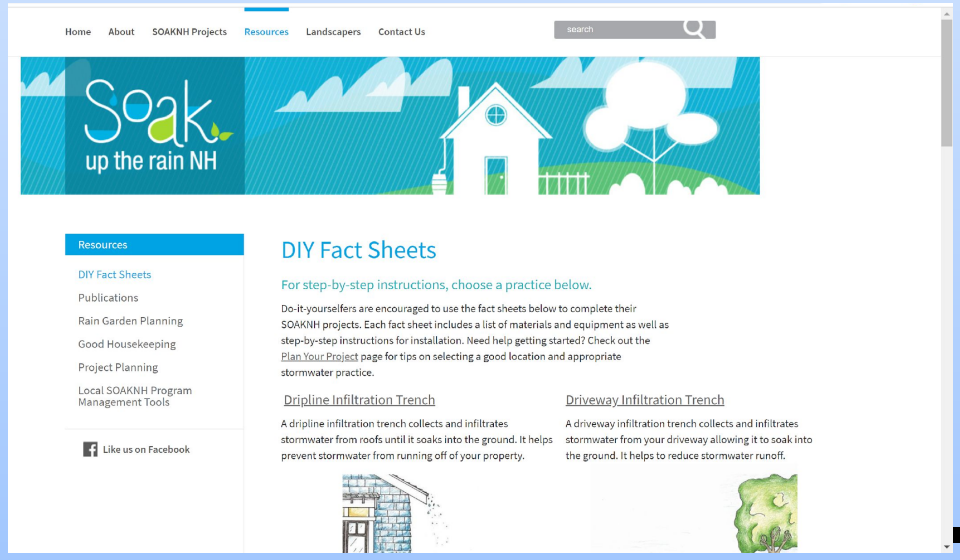
Resources for Homeowners

USEPA Soak up the Rain Program

https://www.epa.gov/soakuptherain

NHDES Soak up the Rain Program

https://www4.des.state.nh.us/SoakNH/



Questions?