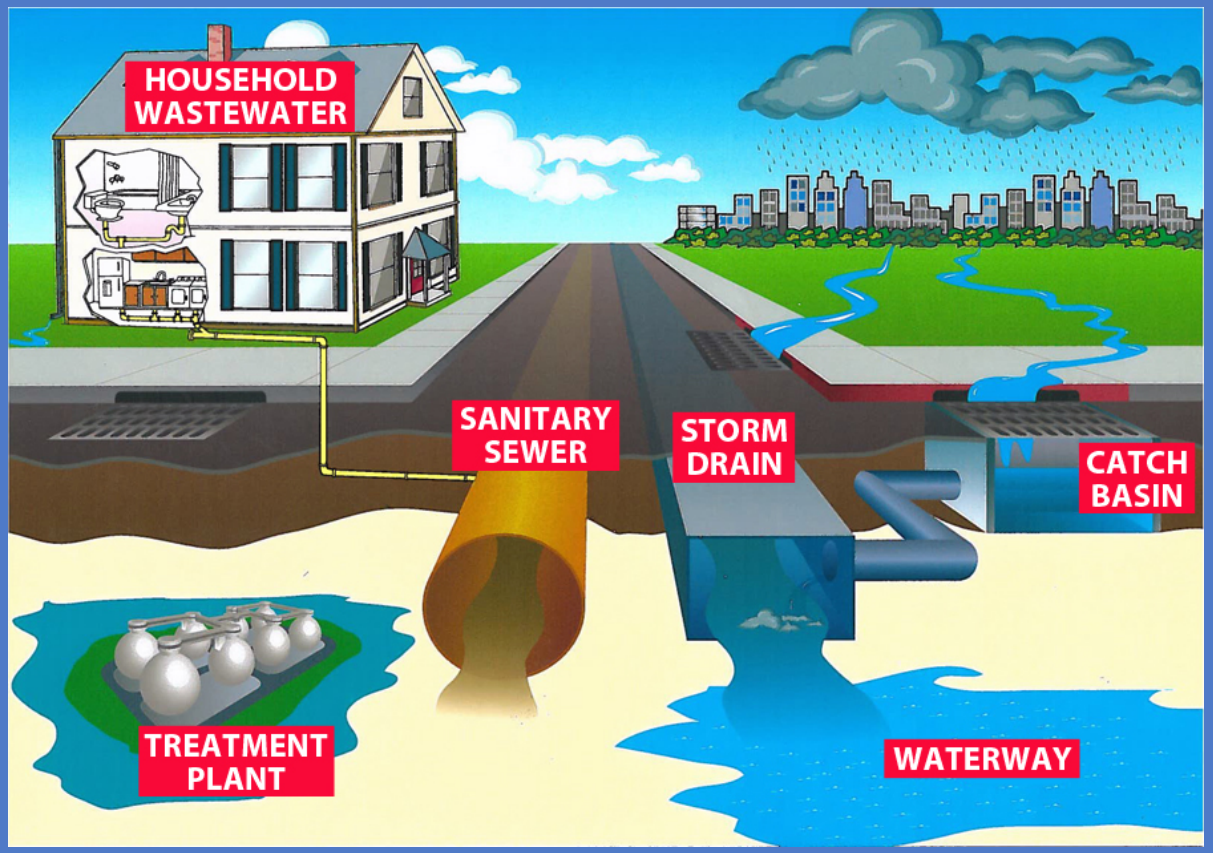
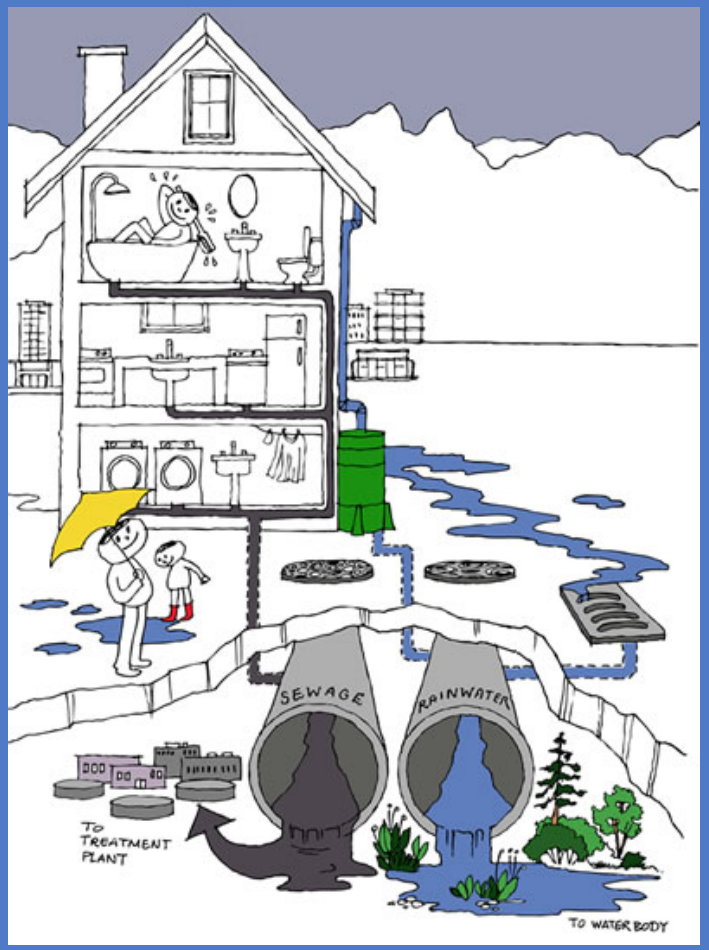
Stormwater Management Plan

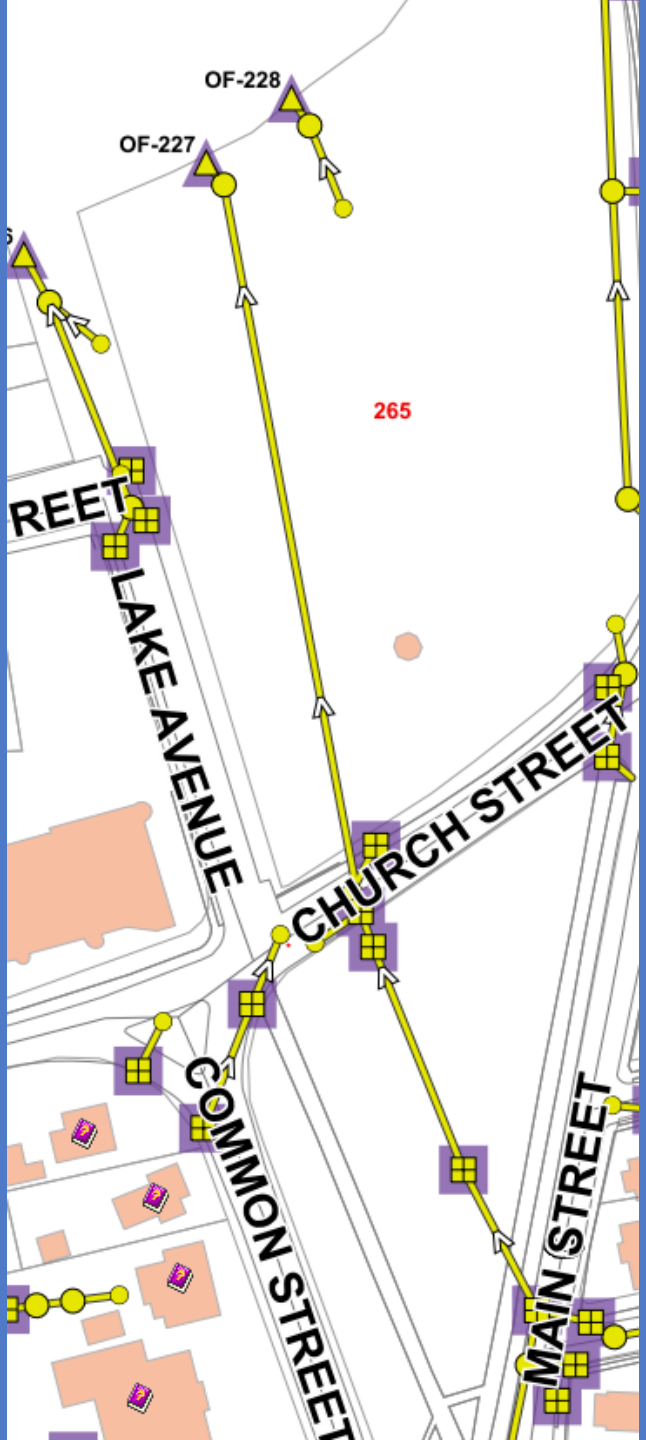
- *Clean water – important to all life!*
- *What is Stormwater Pollution?*
- How can you help reduce pollution?
- When rain and snowmelt run off paved surfaces, where does it go?

Stormwater Management Plan (SWMP)
Claire Moss
June 20, 2019


Are these systems connected?
Where do they lead?


HOUSEHOLD WASTEWATER
SANITARY SEWER
STORM DRAIN
CATCH BASIN
TREATMENT PLANT
WATERWAY


SEWAGE
RAINWATER
TO TREATMENT PLANT
TO WATER BODY


OF-228
OF-227
265
REET
LAKE AVENUE
CHURCH STREET
COMMON STREET
MAIN STREET

MCM 1: Public Education and Outreach

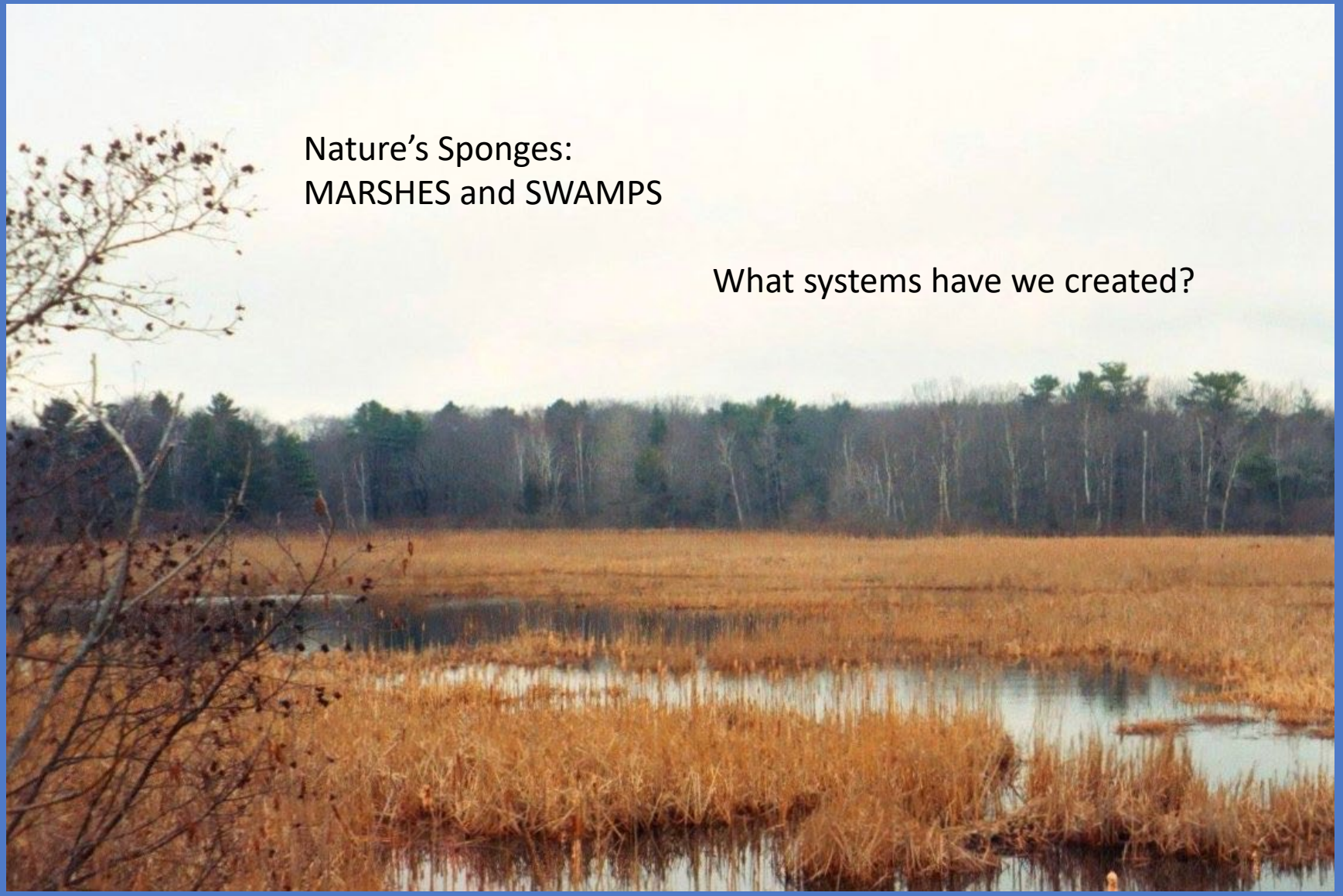
Objective: The permittee shall implement an education program that includes educational goals based on stormwater issues of significance within the MS4 area. The ultimate objective of a public education program is to increase knowledge and change behavior of the public so that pollutants in stormwater are reduced.

a. Brochures and Pamphlets √
b. Web Page √
c. Displays/ Posters/ Kiosks √
d. Newspaper Articles/ Press Releases √
e. Videos √
f. Stormwater Forum √
g. School Curriculum/ Programs √
h. Special Events/ Festivals/ Fairs √
i. Social Media Outreach √
j. Household Hazardous Waste Day √
k. Catch Basin Stenciling √
l. Community Rain Barrel Program √
m. Dog Waste Pledge and Bag Distribution Program √

Town of Wakefield, MA
November 13 at 9:23 AM ·

Looks like another rainy day. Do you notice an unusual amount of water pooling on your street? Clogged catch basins can cause flooding conditions during heavy rainstorms. You can help keep your property safe by clearing leaves and other obstructions when you're doing your fall yard clean up. Need to report a clogged catch basin? Reach out to our DPW team at (781) 246-6301 ext. 4120. If you're not composting your leaves or creating mulch from them, take advantage of curbside yard waste pickup—it has been moved from Saturday, November 17 to Saturday, December 1.
http://www.wakefield.ma.us/refuse-recycling-yard-waste

Like Comment


Nature’s Sponges:
MARSHES and SWAMPS
What systems have we created?

MCM 2: Public Involvement and Participation

Objective: The permittee shall provide opportunities to engage the public to participate in the review and implementation of the permittee's SWMP.

a. SWMP Review
b. Household Hazardous Waste/ Used Oil Collection ✓
c. Catch Basin Stenciling/ Makers ✓
d. Cleanups- Shoreline/ Waterbody ✓
e. Work Order Program: hotline/ website- reporting problems/ violations ✓
f. Lend support to various Town environmental advocacy groups ✓
g. Public Meeting- Stormwater ✓
h. Stormwater Committee/ Task Force ✓
i. Adopt a Drain Program
j. Dog Waste Pledge and Bag Distribution Program ✓

WHAT CAN YOU DO TO LIMIT STORMWATER POLLUTION?

1. Do not use or limit the use of fertilizers, herbicides and insecticides on your lawn
2. Always pick up after your pet
3. Properly dispose of all toxic materials; NEVER use storm drains
4. Use non-toxic products whenever possible
5. Take your car to the car wash instead of washing it in the driveway
6. Plant native trees and vegetation along river banks and in your neighborhood

Town of Wakefield, MA
January 16 at 8:52 AM ·

No one want to think about the bacteria, viruses, and parasites that dog waste brings into our brooks and streams…so let's keep it clean. If you pledge to pick up after your furry friend when you register your dog, we'll give you a free waste bag dispenser. See the details here:
http://www.wakefield.ma.us/…/2019-dog-license-application-a…

Like Comment

Town of Wakefield, MA
January 28 at 10:58 AM ·

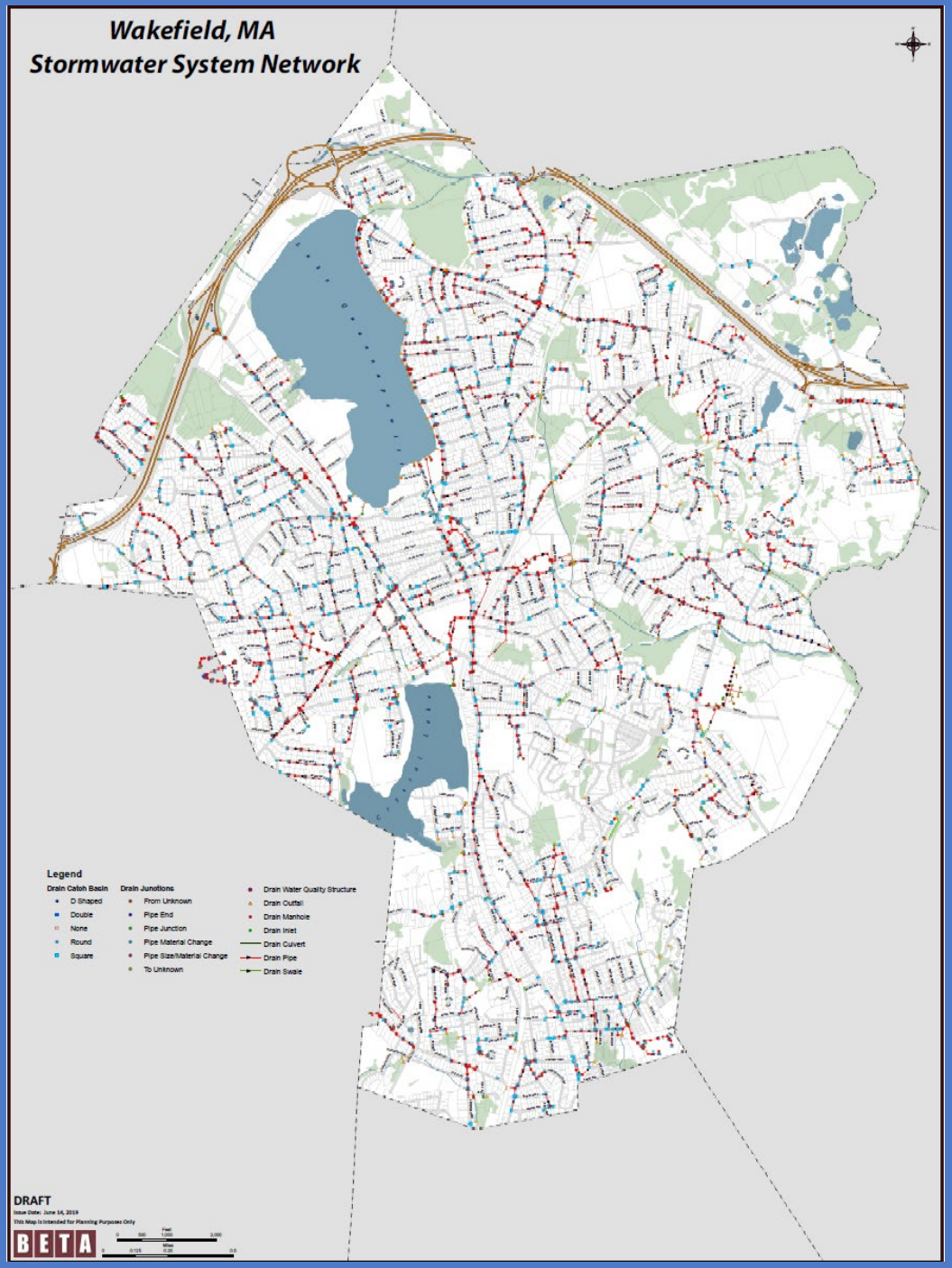
Have you made your pledge to pick up after your dog? You'll help our water system…and fellow walkers! Bring the completed pledge form to our Town Clerk's office to receive your free waste bag dispenser.
www.wakefield.ma.us/stormwater

Like Comment

MCM 3: Illicit Discharge Detection and Elimination (IDDE) Program

Objective: The permittee shall implement an IDDE program to systematically find and eliminate sources of non-stormwater discharges to its municipal separate storm sewer system and implement procedures to prevent such discharges.

a. SSO Inventory ✓
b. Drainage System Map ✓
c. Written IDDE Program ✓
d. Implement IDDE Program ✓
e. Employee Training ✓
f. Conduct dry weather screening ✓
g. Conduct wet weather screening
h. Ongoing screening


Wakefield, MA
Stormwater System Network
Legend
Drain Catch Basin
D Shaped
Double
None
Round
Square
Drain Junctions
From Unknown
Pipe End
Pipe Junction
Pipe Material Change
Pipe Size/Material Change
To Unknown
Drain Water Quality Structure
Drain Outfall
Drain Manhole
Drain Inlet
Drain Culvert
Drain Pipe
Drain Swale
DRAFT
BETA

Town of Wakefield Illicit Discharge Detection & Elimination (IDDE) Protocol

Purpose

This memorandum provides documentation and protocol for the Town of Wakefield's IDDE program and clarification on the framework from which the Town will continue to implement a comprehensive plan to prioritize, detect, eliminate and document illicit discharges to the municipal separate storm sewer system (MS4). This protocol is intended to satisfy the requirements of the NPDES MS4 permit requirements.

Introduction

The protocol is structured into five (5) phases of work. The first phase is **Primary Screening** which designates the outfall's rating (see below) and appropriate follow up actions. The second phase is **Secondary Screening** which includes indicator monitoring, sampling and testing as required. The third phase is to **Locate** the presence and source of an illicit discharge. The fourth phase is **Elimination** of the illicit discharge, and the fifth and final phase is **Documentation/ Monitoring** of screening and removal processes.

Job No.: _____ Town: _____

Inspector: _____ Date: _____

CATCH BASIN INSPECTION FORM

Catch Basin I.D.		**Final Discharge from Structure?** Yes ☐ No ☐ **If Yes, Discharge to Outfall No:** _____	
Catch Basin Label:	**Stencil** ☐ **Ground Inset** ☐ **Sign** ☐ **None** ☐ **Other** _____		
Basin Material:	Concrete ☐ Corrugated metal ☐ Stone ☐ Brick ☐ Other: _____ ☐	**Catch Basin Condition:**	Good ☐ Poor ☐ Fair ☐ Crumbling ☐
Pipe Material:	Concrete ☐ HDPE ☐ PVC ☐ Clay Tile ☐ Other: _____ ☐	**Pipe Measurements:**	Inlet Dia. (in): d= ___ Outlet Dia. (in): D= ___

Required Maintenance/ Problems (check all that apply):

- ☐ Tree Work Required
- ☐ New Grate is Required
- ☐ Pipe is Blocked
- ☐ Frame Maintenance is Required
- ☐ Remove Accumulated Sediment
- ☐ Pipe Maintenance is Required
- ☐ Basin Undermined or Bypassed
- ☐ Cannot Remove Cover
- ☐ Ditch Work
- ☐ Corrosion at Structure
- ☐ Erosion Around Structure
- ☐ Remove Trash & Debris
- ☐ Need Cement Around Grate

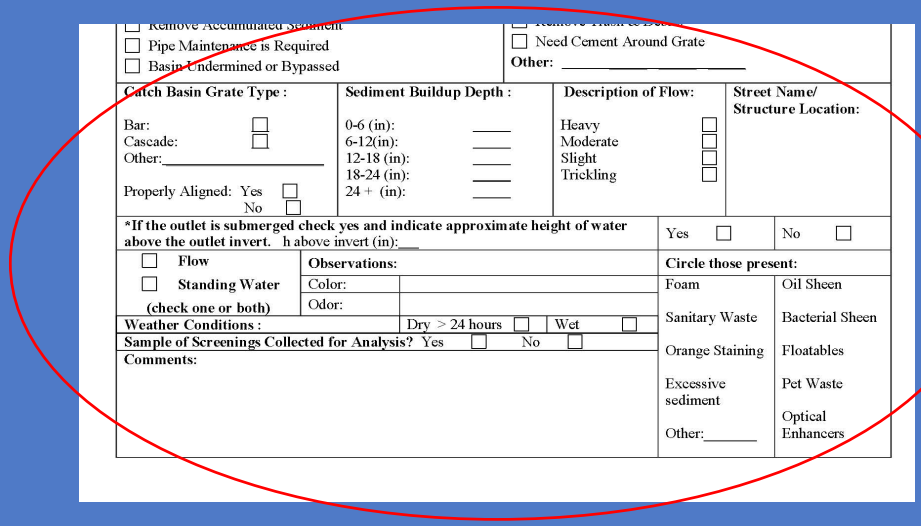
Other: _____

Catch Basin Grate Type :	**Sediment Buildup Depth :**	**Description of Flow:**	**Street Name/ Structure Location:**
Bar: ☐ Cascade: ☐ Other: _____ Properly Aligned: Yes ☐ No ☐	0-6 (in): ____ 6-12(in): ____ 12-18 (in): ____ 18-24 (in): ____ 24 + (in): ____	Heavy ☐ Moderate ☐ Slight ☐ Trickling ☐	

***If the outlet is submerged check yes and indicate approximate height of water above the outlet invert.** h above invert (in):___ Yes ☐ No ☐

☐ **Flow** ☐ **Standing Water** **(check one or both)**	**Observations:** Color:	**Circle those present:**	
	Odor:	Foam	Oil Sheen
Weather Conditions :	Dry > 24 hours ☐ Wet ☐	Sanitary Waste	Bacterial Sheen
Sample of Screenings Collected for Analysis? Yes ☐ No ☐		Orange Staining	Floatables
Comments:		Excessive sediment	Pet Waste
		Other: _____	Optical Enhancers

- ❖ Every time you open a drainage structure, you must fill out an inspection form
- ❖ These forms can be found on your tablet



MCM 4: Construction Site Stormwater Runoff Control

Objective: The objective of an effective construction stormwater runoff control program is to minimize or eliminate erosion and maintain sediment on site so that it is not transported in stormwater and allowed to discharge to a water of the U.S through the permittee's MS4. The construction site stormwater runoff control program required by this permit is a separate and distinct program from EPA's stormwater construction permit program. (http://cfpub1.epa.gov/npdes/stormwater/cgp.cfm)

a. Site inspection and enforcement of Erosion and Sediment Control (ESC) measures ✓
b. Site plan review ✓
c. Erosion and Sediment Control ✓
d. Waste Control
e. Development of Tracking Matrix ✓

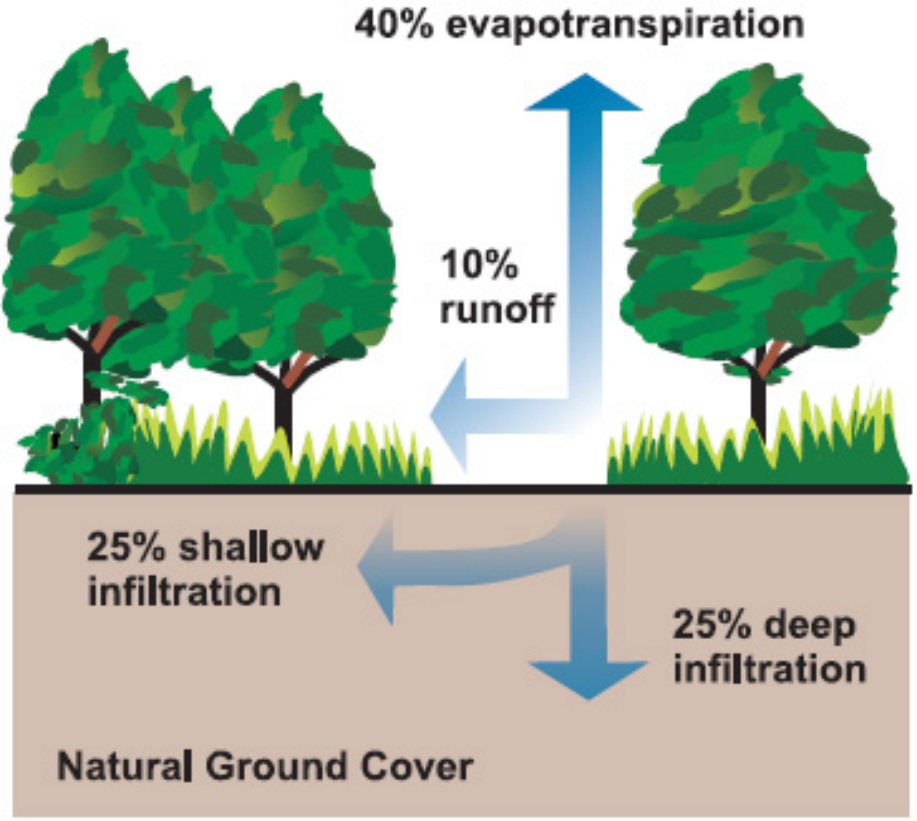
Construction and Sediment runoff

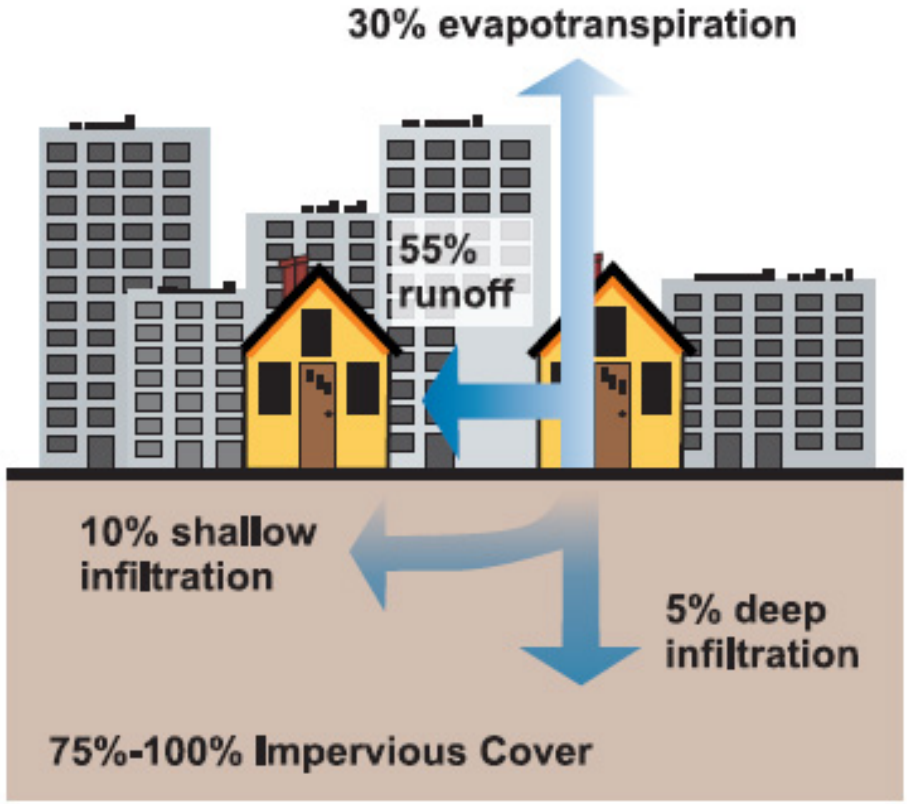
- Place sediment barriers (silt fence) on the downhill edge of bare soil areas in order to pond runoff
  - Install multiple every 100-200 feet across long slopes
- Fiber rolls can be used instead of silt fences if fences do not fit
- Use sediment basins on site in order to keep sediment and debris from leaving and flowing into a waterbody
  - Sediment basins can end up being used as retention basins after construction

MCM 5: Stormwater Management in New Development and Redevelopment (Post Construction Stormwater Management)

Objective: The objective of this control measure is to reduce the discharge of pollutants found in stormwater through the retention of treatment of stormwater after construction on new or redeveloped sites.

a. As- built plans for on-site stormwater control √
b. Target properties to reduce impervious areas
c. Provide green infrastructure
d. Street design and parking lot guidelines
e. Ensure any stormwater controls or management practices for new development meet the retention or treatment requirements of the permit and all applicable requirements of the Massachusetts Stormwater Handbook


40% evapotranspiration
10% runoff
25% shallow infiltration
25% deep infiltration
Natural Ground Cover


30% evapotranspiration
55% runoff
10% shallow infiltration
5% deep infiltration
75%-100% Impervious Cover

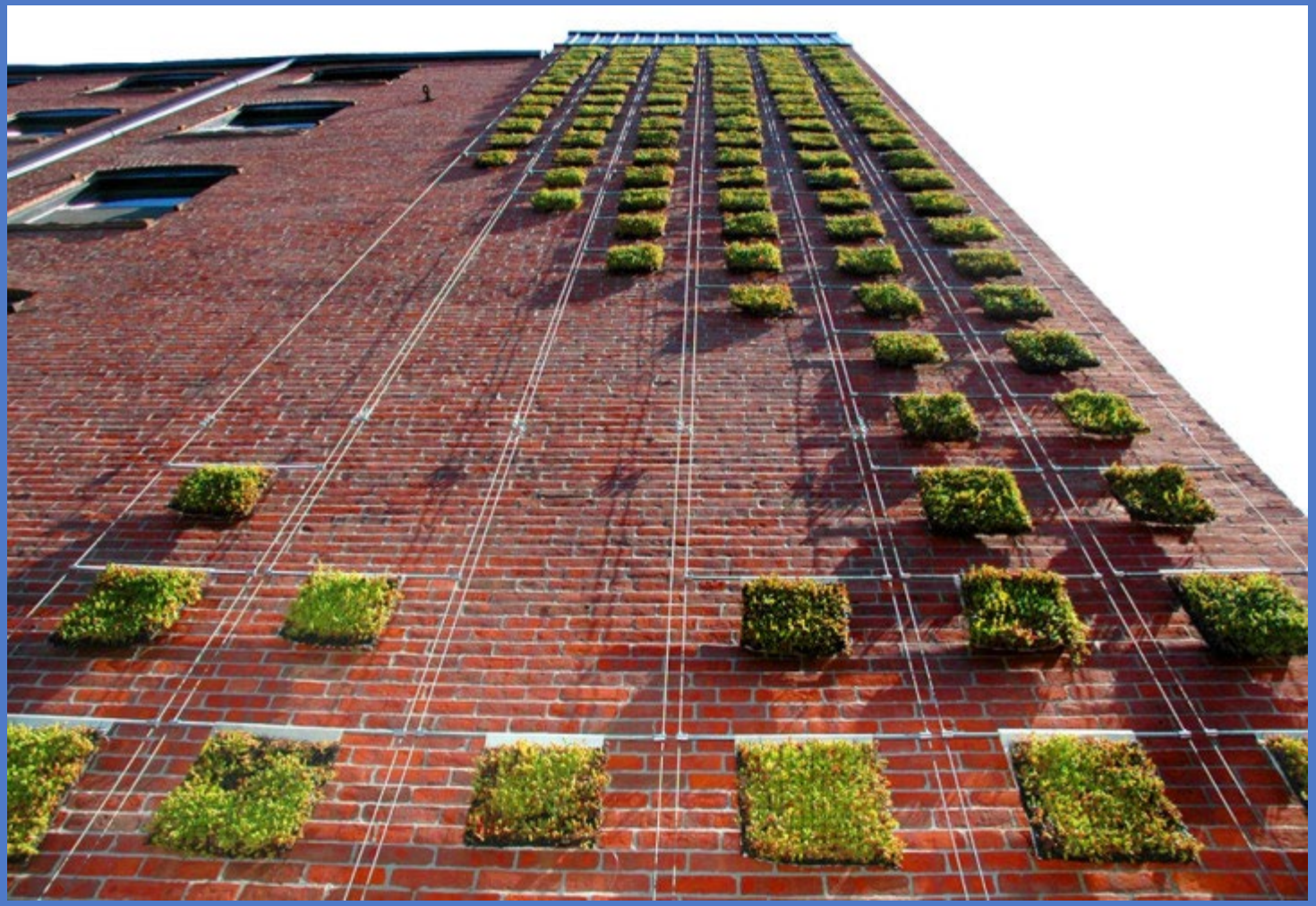
Stormwater Central: Away from the Gutter and Into the Ground

This blog explores a range of best management practices to reduce urban stormwater runoff and increase water infiltration and retention.

Ecology Action Centre

RBC Blue Water Project™

Nearby examples of urban greening and stormwater mitigation: Whole Foods Market, Lynnfield Marketplace



Nearby examples of urban greening and stormwater mitigation: Boston's South End, *"Parti Wall, Hanging Green"*

MCM 6: Good Housekeeping and Pollution Prevention for Permittee Owned Operations

- Objective: The permittee shall implement an operations and maintenance program for permittee-owned operations that has a goal of preventing or reducing pollutant runoff and protecting water quality from all permittee-owned operations.

a. O&M procedures ✓
b. Inventory all permittee-owned parks and open spaces, buildings and facilities, and vehicles and equipment
c. MS4 Infrastructure O&M ✓
d. Stormwater Pollution Prevention Plan
e. Catch Basin Cleaning ✓
f. Street Sweeping Program ✓
g. Road salt use optimization program ✓
    i. Winter Road Maintenance
h. Inspections and maintenance of stormwater treatment structures ✓
    i. Trash Rack Program

Thank you,
Questions?