

# When It Rains, It Drains

**Northampton Township's  
MS4 Stormwater  
Management Program  
Year 11**







**Clean Water**









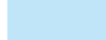
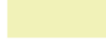

# Let's Talk About. . .

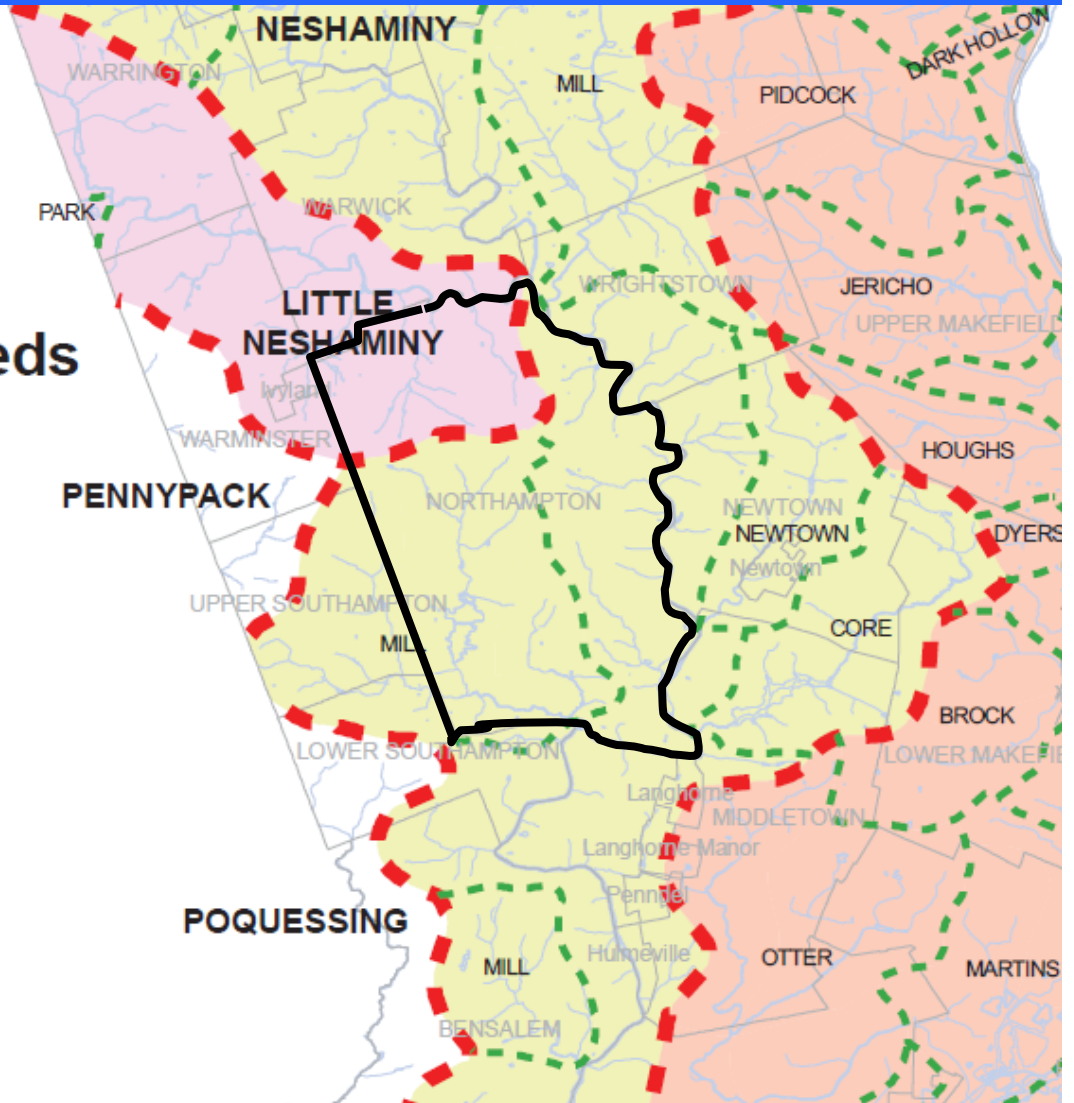
- What storm water is and why it can be a problem in our community.
- What our community is doing to manage storm water and how these activities will benefit us.

# Where Does Storm Water Go In Our Community?

- Travels over land
- Carried through municipal separate storm sewer system (MS4)
- Discharges into the Neshaminy Creek and its tributaries (Ironworks Creek, Little Neshaminy Creek, Mill Creek, Pine Run & Springfield Lake/Churchville Reservoir)

**Figure 1.  
Bucks County Watersheds**

-  Primary Watershed
  -  Secondary Watershed
  -  Water Bodies
  -  Municipal Boundary
- ACT 167 PLANS**
-  Saucon
  -  Delaware River (South)
  -  East Branch Perkiomen
  -  Neshaminy
  -  Little Neshaminy



# What is Storm Water?

- Rain events
- Snow melt
- Other surface runoff and drainage



# How is Storm Water Regulated?

- **Federal Clean Water Act – 1972**
- **Pennsylvania Clean Streams Law - 1937**
- **PA Stormwater Management Act – 1978 (Act 167)**
- **NPDES Post-Construction Stormwater Management Plans**
- **Municipal Zoning and Ordinances**

# A "Point" of Confusion: Point Source vs. Nonpoint Source

- **POINT source**
  - Travels through a conveyance system
  - Regulated under permit program
- **NONPOINT source**
  - Runoff that is not a point source
  - Addressed through voluntary programs



# Why is Storm Water a Problem?

- Problem: Decrease in quality
- Problem: Increase in quantity
- Cause: Developed and disturbed land



















# Why is Storm Water a Problem?

- Problem: Non-storm water discharges enter systems
- Cause: Illicit discharges
- Cause: Illicit connections



household wastewater  
(toilet, sinks, etc.)

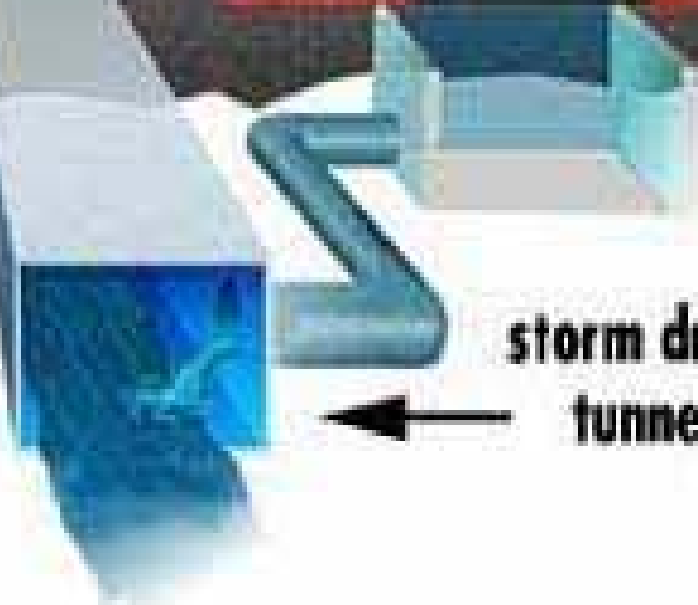


catch basin

sewer pipe →



**2 UNDERGROUND  
SYSTEMS**



storm drain  
tunnel ←

# Storm Water Pollutants

- Sediment
- Trace Metals
- Nutrients
- Toxic Chemicals
- Bacteria
- Chlorides
- Oxygen Demand
- Thermal Impacts
- Oil and Grease

**Now We Know About  
Storm Water and Its  
Impacts on Our  
Community. . .**

**But What Are We  
Doing About It?**

# Storm Water Permit Program for Small Communities

- New federal regulation requires permit for our community
- PA DEP created state permitting program to meet federal regulation



# What Does Our NPDES MS4 Permit Require?

- Implement a storm water management program
- Track progress toward goals
- Report on our progress through Annual Report to PADEP

# Our Storm Water Program

- Public Education (MCM #1)
- Construction Site Runoff Management (MCM #2)
- Illicit Discharge Detection and Elimination (MCM #3)
- Public Involvement (MCM #4)
- Post-Construction Storm Water Management (MCM #5)
- Good Housekeeping and Pollution Prevention (MCM #6)

# Public Education and Outreach (MCM #1)

## Past Activities

- Developed outreach plan for community
- Distributed educational materials developed by PA DEP
- Used Community Access Channel to educate residents

# Public Education and Outreach (MCM #1)

- Updated website to include a Stormwater page and links to other stormwater related websites
- Included stormwater related articles in newsletters
- Notified public about 2013 SEPA Household Hazardous Waste and Old Computer Collection Program (TV, website, newspaper & Board meeting)



### Why?

Household products containing toxic chemicals, like pesticides, oil-based paints, solvents, cleaning products, weed killers and automotive batteries can be a threat to people and the environment if improperly discarded. Never throw these materials into the trash, as the toxic chemicals may harm sanitation workers, or result in fires in collection vehicles. It is also not safe to pour them into a sink or storm drain as they can end up in the environment polluting the air, water, or soil.

### When and where you can bring your materials?

Each event will take place rain or shine from 9:00 AM to 3:00 PM

## 2011 Southeastern Pennsylvania Household Hazardous Waste and Old Computer Collection Program

Bring your household hazardous wastes and old Computers to one of the following scheduled events

### What can you bring?

As many as three old Computers and up to 25 gallons or 220 pounds of Hazardous Products. Please read the label! Hazardous products will have cautionary words on the label. For example: *Danger, Warning, or Caution*. Other words or phrases that can signal hazardous products include: *poisonous, hazardous, combustible, flammable, corrosive, volatile, caustic, irritant, explosive, toxic, use with adequate ventilation, or avoid inhaling.*

If there are no words indicating it is a hazardous product, it likely isn't.

Bring		Do Not Bring
<b>Pesticides</b> - Chlordane - DDT - Malathion - Sevin - Rodent Poison  <b>Flammables</b> - Oil-based Paint - Paint Thinner - Spot Removers - Gasoline - Kerosene - Gas/Oil mixture - Heating Oil  <b>Caustics</b> - Ammonia-Based Cleaners - Household Lye - Oven Cleaner - Drain Cleaner - Metal Cleaner	<b>Toxics</b> - Photographic Chemicals - Pool Chemicals - Rust / Paint Remover - Weed Killer - Antifreeze - Mercury - CFLs (fluorescent lamps) <b>Household Batteries</b> - All Button Types - Lithium - Re-chargeables  <b>Lead-Acid Batteries</b> - Car - Marine - Motorcycle - Truck	<b>- LATEX PAINT</b> (it is <u>not</u> toxic – it is water based) <i>*Remove lid to allow to air dry or mix with absorbent (e.g. Kitty litter) until no longer a liquid and discard in plastic trash bag.</i> - Appliances (with or without Freon) - Asbestos - Biological Waste - Explosives - Gas Cylinders - Household Batteries (regular alkaline) - PCBs - Pressurized CFCs (greater than 1 lb.) - Radioactive Waste - Tires  For additional information on disposal options, contact: ♦ The PADEP Recycling Hotline at 1-800-346-4242 ♦ Bucks County Planning Commission 215-345-3400 ♦ <a href="http://www.buckscounty.org">http://www.buckscounty.org</a> and Click on "How do I.....Recycle in Bucks"

### 2011 Schedule

Lower Bucks Area	May 7, 2011	Lower Makefield Corporate Center – So. Campus, 770 Township Line Road, Lower Makefield Twp.
Upper Bucks Area	June 18, 2011	Upper Bucks County Area Vo-Tech School, 3115 Ridge Road – Bedminster Township
Middle Bucks Area	July 23, 2011	CB South High School, (pending CB School Board approval) 1100 Folly Road – Warrington Township
Upper Bucks Area	August 6, 2011	Quakertown Community High School 600 Park Avenue – Quakertown Borough
Lower Bucks Area	August 27, 2011	Bucks County Technical High School 610 Wistar Road – Bristol Township

This program is a community service of the Bucks County Board of Commissioners and participating municipalities and is not open to business, industry or institutions.



Bucks County Board of Commissioners

Charles H. Martin, Chairman  
 Robert G. Loughery, Vice Chairman  
 Diane M. Ellis-Marseglia, LCSW





# Public Involvement & Participation (MCM # 2)

## Past Activities

- Provided public notice
- Created a public involvement plan
- Held a public meeting on the program

# Public Involvement & Participation (MCM # 2)

- Solicit greater public participation in program & survey residents about its effectiveness with assistance from EAC
- EAC can organize stream or roadside cleanup activities
- Initiate storm drain stenciling program with local organizations









## Does This FISH Look Familiar?

**He should.** His image is appearing on storm drains in your neighborhood. He wants you to know that your creeks and rivers, his home, are being contaminated by pollution from our streets, sidewalks, parks, and yards. Rain and melting snow collects pollutants from these surfaces and washes them into storm drains. Many storm drains empty directly into our local waterways, which are part of the Delaware Estuary. An Estuary is a body of water where salt from the ocean mixes with fresh water from the river. The Delaware Estuary stretches approximately 134 miles, from the falls at Trenton, New Jersey and Morrisville, Pennsylvania, south to the mouth of the Delaware Bay between Cape May, New Jersey and Cape Henlopen, Delaware.

You can help protect his home and your drinking water supply by taking the following actions:



**Service your car** regularly to prevent oils and other fluids from leaking onto the pavement so they don't wash into the storm drains. Recycle motor oil and antifreeze at local service stations.



**Choose water-based paints** and wash brushes in your sink with water. Reuse and recycle paint thinner, which is a hazardous material. Do not pour it down your drain or into a storm drain.



**Bag or compost leaves** and other yard waste. Don't allow leaves to collect in the street.



**Minimize the use of toxic substances** such as mothballs, drain and oven cleaners, insect sprays and many other products. Substitute with products that use natural ingredients whenever possible.



**Put dog wastes in the toilet** or trash can, not in the street or down a storm drain. Dog waste introduces disease-causing bacteria into our water supply.



**Keep litter off the street.** Put trash in trash cans and clean up litter so it doesn't wash into storm drains and end up in our streams and rivers.

These simple actions can help improve the quality of our streams and rivers, benefiting both human and animal life.

Call 1-800-445-4935 to find out more information on the Delaware Estuary and stormwater runoff pollution.

## Clean Water Begins and Ends With You!



Pennsylvania Coastal Zone Management Program

The Laffey-McHugh Foundation

Printed on recycled paper.



# Illicit Discharge Detection and Elimination (MCM #3)

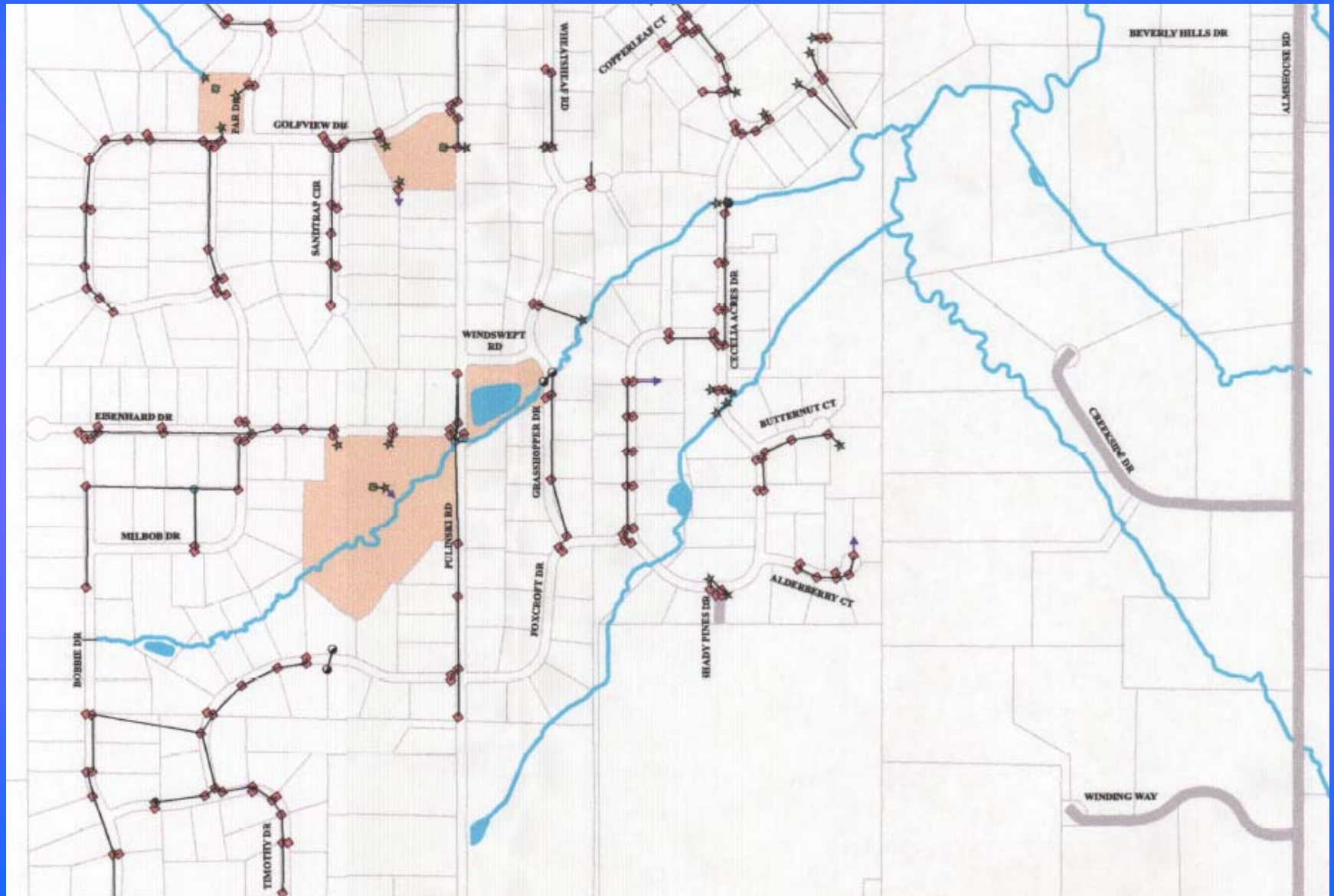
## Past Activities

- Enacted DEP's model ordinance for the Neshaminy & Little Neshaminy Creek Watershed Act 167 Plan
- Updated storm sewer system map
- Implemented program to detect non-storm water in system
- Educated community on problems related to dumping in storm sewers

# Illicit Discharge Detection and Elimination (MCM #3)

- Periodically update database for new outfalls using current numbering system
- Continuing dry weather monitoring of outfalls (40% each year)
- Need to continue educating community on problems related to dumping in storm sewers in upcoming newsletters or mailings

# Stormwater Collection System Map



**ILLICIT DISCHARGE FIELD SCREENING PROGRAM  
Data Collection Form**

OUTFALL #: Q2 Date: 2/22/2013 Time: 11:25am

TIME SINCE LAST RAIN:      ≥72 hours      <72 hours  
QUANTITY OF LAST RAIN:    ≥0.1 inches    <0.1 inches  
INSPECTION TEAM: \_\_\_\_\_  
\_\_\_\_\_

**SITE DESCRIPTION:**

LOCATION (Narrative Description): Adjacent To 300 Rocksville

STRUCTURE TYPE: OPEN CHANNEL    MANHOLE    OUTFALL    OTHER: \_\_\_\_\_

DOMINANT WATERSHED LAND USES: INDUSTRIAL    COMMERCIAL    RESIDENTIAL    UNKNOWN  
OTHER: \_\_\_\_\_

**FLOW ESTIMATION:**

WAS FLOW OBSERVED?    NO                      YES                      IF YES, PLEASE ANSWER a. - d. BELOW.  
a.    WIDTH OF WATER SURFACE (feet):                      \_\_\_\_\_  
b.    APPROXIMATE DEPTH OF WATER (feet):                      \_\_\_\_\_  
c.    APPROXIMATE FLOW VELOCITY (feet per second):                      \_\_\_\_\_  
d.    FLOW RATE (cubic feet per second) = a x b x c =                      \_\_\_\_\_

**VISUAL OBSERVATIONS:**

WAS A PHOTO TAKEN?    NO                      YES    (Roll and Photo Number: 218, 219, 216, 214)

ODOR:    NONE    MUSTY    SEWAGE    ROTTEN EGGS    SOUR MILK    OTHER: ND

COLOR:    CLEAR    RED    YELLOW    BROWN    GREEN    GREY    OTHER: ND

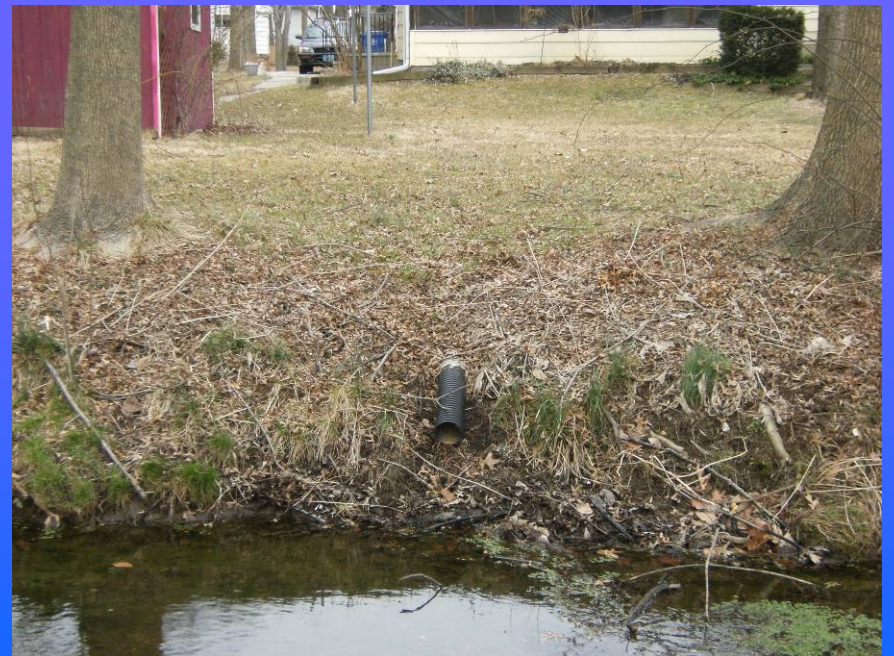
CLARITY:    CLEAR    CLOUDY    OPAQUE    ND

FLOATABLES:    NONE    OILY SHEEN    GARBAGE/SEWAGE    OTHER: ND

DEPOSITS/STAINS:    NONE    SEDIMENTS    OILY    OTHER: ND

VEGETATION CONDITION:    NONE    NORMAL    EXCESSIVE GROWTH    INHIBITED GROWTH







# Construction Site Storm Water Runoff Control (MCM #4) Past Activities

- Enacted DEP's model ordinances and updated our existing ordinances
- Coordinated inspections with Bucks County Conservation District
  - Erosion and Sediment Control Program
  - NPDES Construction Storm Water Permitting
- Educated construction industry











# Stormwater and the Construction Industry

## Protect Natural Features



- Minimize clearing.
- Minimize the amount of exposed soil.
- Identify and protect areas where existing vegetation, such as trees, will not be disturbed by construction activity.
- Protect streams, stream buffers, wild woodlands, wetlands, or other sensitive areas from any disturbance or construction activity by fencing or otherwise clearly marking these areas.

## Construction Phasing



- Sequence construction activities so that the soil is not exposed for long periods of time.
- Schedule or limit grading to small areas.
- Install key sediment control practices before site grading begins.
- Schedule site stabilization activities, such as landscaping, to be completed immediately after the land has been graded to its final contour.

## Vegetative Buffers



- Protect and install vegetative buffers along waterbodies to slow and filter stormwater runoff.
- Maintain buffers by mowing or replanting periodically to ensure their effectiveness.

## Silt Fencing



- Inspect and maintain silt fences after each rainstorm.
- Make sure the bottom of the silt fence is buried in the ground.
- Securely attach the material to the stakes.
- Don't place silt fences in the middle of a waterway or use them as a check dam.
- Make sure stormwater is not flowing around the silt fence.

## Site Stabilization



- Vegetate, mulch, or otherwise stabilize all exposed areas as soon as land alterations have been completed.

# Maintain your BMPs!

[www.epa.gov/npdes/menuofbmps](http://www.epa.gov/npdes/menuofbmps)

## Construction Entrances



- Remove mud and dirt from the tires of construction vehicles before they enter a paved roadway.
- Properly size entrance BMPs for all anticipated vehicles.
- Make sure that the construction entrance does not become buried in soil.

## Slopes



- Rough grade or terrace slopes.
- Break up long slopes with sediment barriers, or under drain, or divert stormwater away from slopes.

## Dirt Stockpiles



- Cover or seed all dirt stockpiles.

## Storm Drain Inlet Protection



- Use rock or other appropriate material to cover the storm drain inlet to filter out trash and debris.
- Make sure the rock size is appropriate (usually 1 to 2 inches in diameter).
- If you use inlet filters, maintain them regularly.

# Post-Construction Storm Water Management (MCM #5)

## Past Activities

- PA DEP's model storm water management ordinance for Neshaminy Creek Watershed adopted on July 27, 2011, and amended April 25, 2012
- Ensure proper operation and maintenance of post-construction controls



# Infiltration Trench/Seepage Bed





# **Pollution Prevention/ Good Housekeeping (MCM #6)**

## **Past Activities**

- **Implemented O & M program that focus on pollution prevention**
- **Conducted training session for Public Works employees on good housekeeping practices**
- **Created O & M program for vehicle and storm sewer system maintenance based on PADEP templates**

# **Pollution Prevention/ Good Housekeeping (MCM #6) New Permit Requirement**

- **Section 303(d) of the Clean Water Act requires that Total Maximum Daily Loads (TMDLs) be developed for all impaired waterbodies**
- **A TMDL establishes the amount of pollutant that a waterbody can assimilate without exceeding its water quality standard for that pollutant**
- **Neshaminy Creek TMDL Plan approved by DEP in 2003 and amended in 2008**

# Pollution Prevention/ Good Housekeeping (MCM #6)

- MS4 permittees must develop, implement, and enforce an MS4 TMDL Plan that is designed to achieve the pollution reduction requirements
- The goal is to reduce siltation, total suspended solids (TSS) and nutrients such as phosphorous and nitrogen
- Northampton Township submitted its TMDL Plan to DEP in 2012



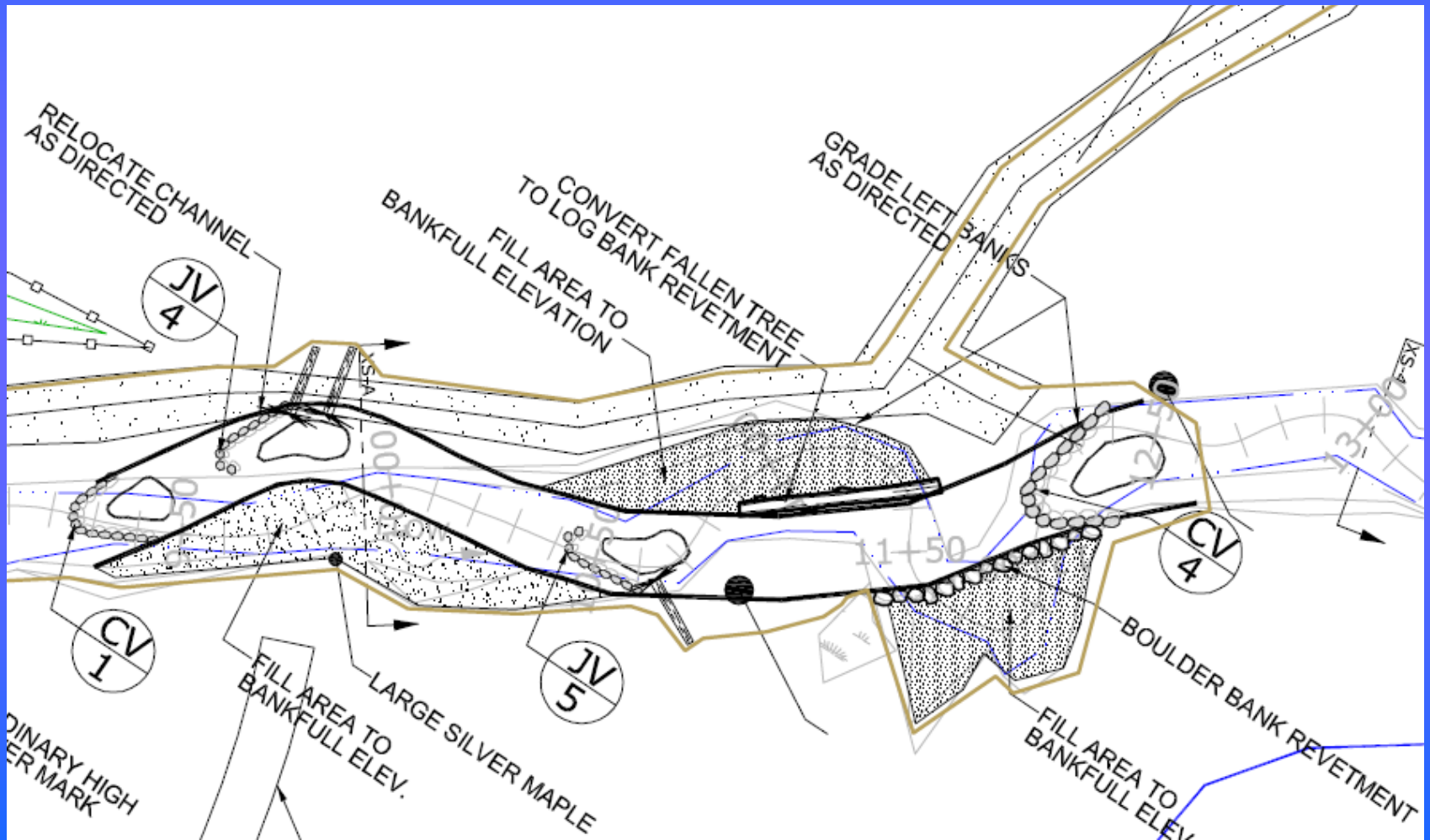
# Pollution Prevention/ Good Housekeeping (MCM #6)

Target Completion Date	Proposed Project	Sediment Reduction (lbs/year)
2009	Rain garden installed at Northampton Township Municipal Park	7,307
2014	Clean sediment from storm sewer inlets	7,890
2014	Street sweeping with high efficiency vacuum sweeper	24,930
2016	Stream bank stabilization: Big Meadow Park	4,730
2016	Stream bank stabilization: unnamed tributary to Little Neshaminy Creek	2,365

# Stream Bank Stabilization



# Stream Bank Stabilization





# Rain Gardens

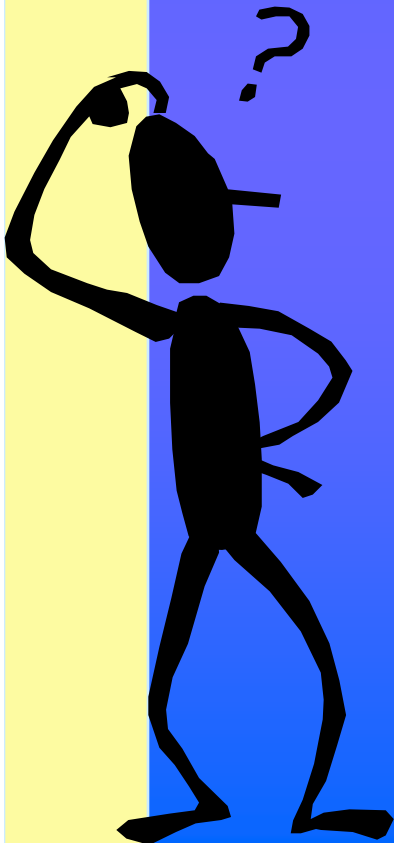


*Rainwater can support the landscape and soils, reducing pipes and basins.*





**How Will Our  
Storm Water  
Program Benefit  
Our Community?**



# Expected Benefits of Our Storm Water Program

- Enhanced fishing
- Enhanced opportunities for recreation
- Reduced flood damage
- Drinking water benefits
- Navigational benefits
- Reduced illness
- Enhanced aesthetic value

## Here are some ways for residents to prevent stormwater pollution:

- Properly dispose of hazardous substances, such as used motor oil, cleaning supplies and paint - never pour them down any part of the storm sewer system, and report anyone who does.
- Look for signs of soil and other pollutants leaving construction sites when it rains or tracked into roads by construction vehicles. Report poorly managed construction sites that could impact stormwater runoff to the Township.

## Here are some ways for residents to prevent stormwater pollution:

- Install innovative stormwater practices on residential properties, such as rain barrels or rain gardens, that capture stormwater and keep it on-site instead of letting it drain away into the storm sewer system.
- Pick up after pets and dispose of their waste properly. No matter where pets make a mess - in a backyard or on open space - stormwater runoff can carry pet waste from the land to the storm sewer system to a stream.



## Here are some ways for residents to prevent stormwater pollution:

- Use pesticides, fertilizers and herbicides properly and efficiently to prevent excess runoff of these items.
- Store materials that could pollute water indoors and use containers for outdoor storage that do not rust or leak to eliminate exposure of materials to stormwater.
- Report any discharge from stormwater outfalls during times of dry weather - a sign there could be a problem.

# How Can Residents Get Involved?

- Pass on information about the storm water program to other community residents
- Report any storm water issues to Northampton Township

# For More Information. . .

- **Northampton Township**
- 55 Township Road  
Richboro, PA 18954
- Phone: (215) 357-6800
- Fax: (215) 357-1251
- email: [msoloman@nhtwp.com](mailto:msoloman@nhtwp.com)

- website:

[http://www.northamptontownship.com/  
information/stormwater.aspx](http://www.northamptontownship.com/information/stormwater.aspx)

- ***Hours: Monday through Friday***
  - *8:30 a.m. to 4:30 p.m.*