



Update to MS4 Pollution Reduction Plan (PRP)

Presentation to Board of Supervisors



April 29, 2021



Pollution Reduction Plan (PRP)

National Pollutant Discharge Elimination System (NPDES) Stormwater Discharges From Small Municipal Separate Storm Sewer Systems (MS4)

Update/Revisions To PRP

- **Review Current PRP**
- **Proposed Revision to Sediment Reduction BMPs**
- **Stormwater control facilities inspection**
- **Update Stormwater Ordinance**

**MS4 Permit was
approved on March 23,
2018**



POLLUTION REDUCTION PLAN



**National Pollutant Discharge
Elimination System
Stormwater Discharge From
Small Municipal Separate
Storm Sewer System (MS4s)**

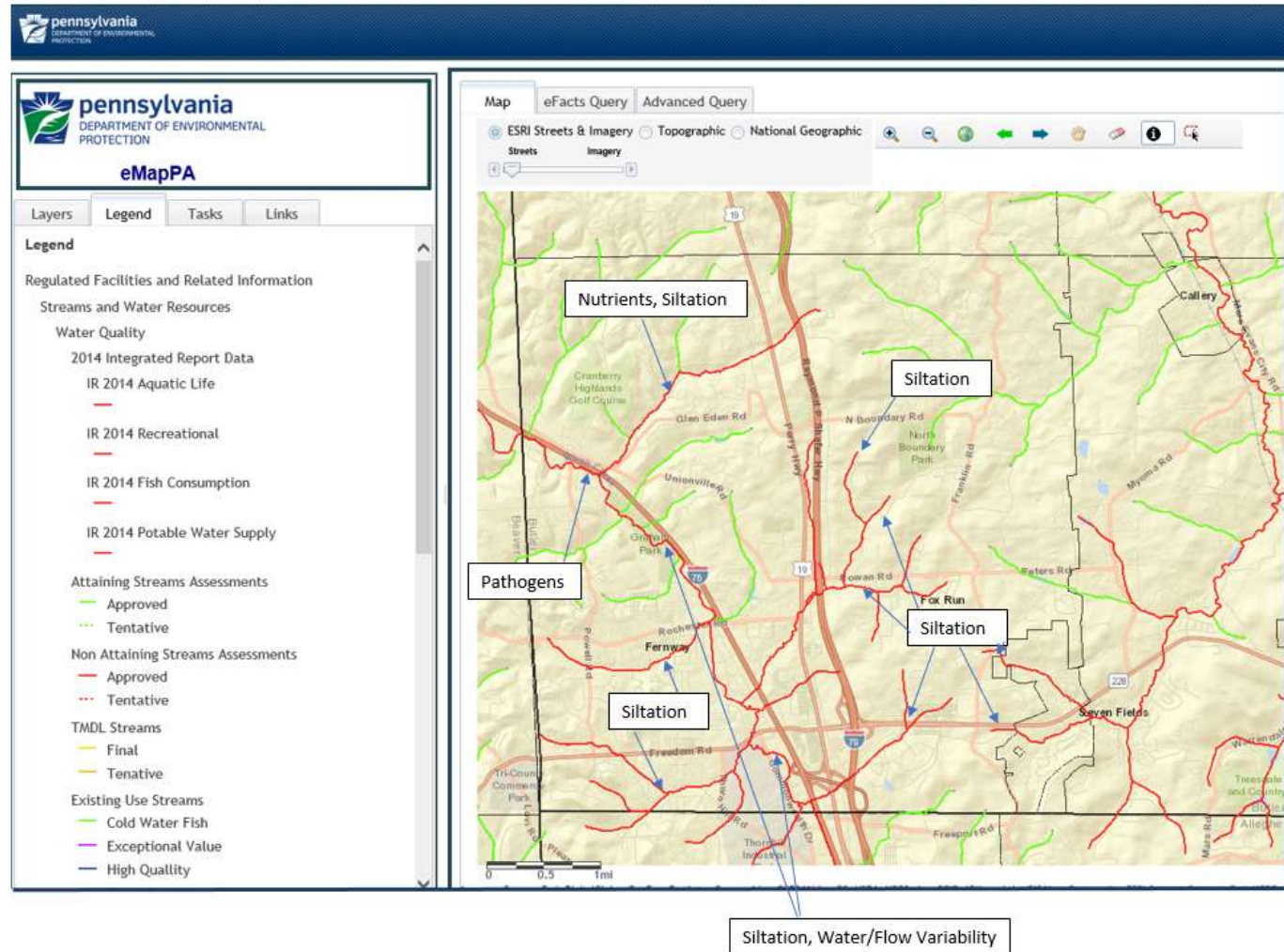
September 2017



PRP requirements must be complete by March 15, 2023

- Major revisions such as modification of the location, type or number of proposed BMPs, require public participation and DEP review.

Why does the Township MS4 Permit require a PRP?



Determine Existing Loading for Pollutants of Concern

PA DEP Provided – Statewide MS4 Land Cover Estimates

County	Municipality	UA % Impervious	UA % Pervious	Outside of UA % Impervious	Outside of UA % Pervious	UA Acres
Butler	CRANBERRY TWP	23%	77%	150%	950%	13,665.2
Allegheny	CRESCENT TWP	150%	950%	150%	950%	1,523.6

PA DEP Provided – Loading Rates

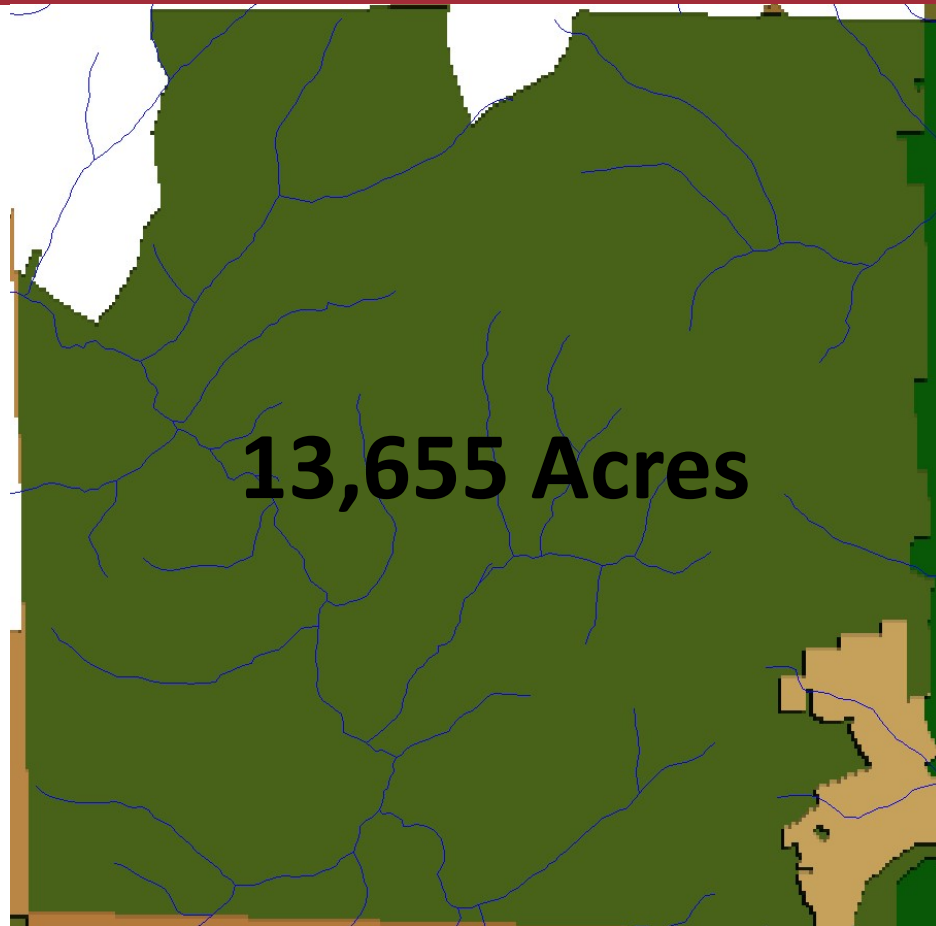
County	Category	Acres	TN lbs/acre/yr	TP lbs/acre/yr	TSS (Sediment) lbs/acre/yr
All Other	impervious developed	-	23.06	2.28	1,839
Counties	pervious developed	-	20.72	0.84	264.96

PA DEP Provided Data

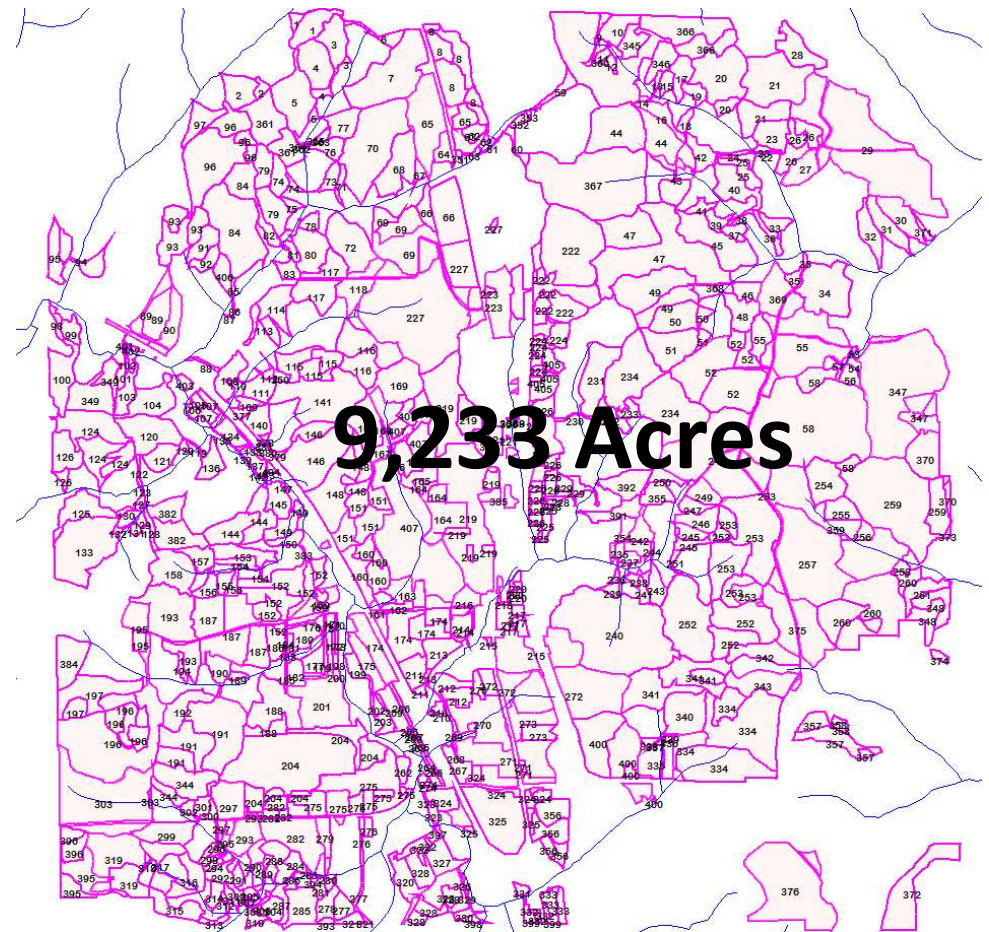
Total Developed Sediment Load = 8,561,663 lbs/yr
 Required Reduction Percentage = 10%
 Permit Cycle Required Reduction = 856,166 lbs/yr

Sediment
 Loading Rates
 Impervious &
 Pervious UA

Urbanized Area - State vs Township Parsed Area



Mapshed Urbanized Area



Township GIS - Urbanized Area after parsing

Determine Existing Loading for Pollutants of Concern

PA DEP Provided Data

Required Reduction = 856,166 lbs/yr (Sediment)

Cranberry Township's GIS Data (MS3s)

Required Reduction (Parsing) = 545,848 lbs/yr
310,318 lbs/yr

Required Reduction (Parsing and BMPs) = 345,014 lbs/yr
511,152 lbs/yr (60%)

2017 PRP – Proposed BMPs

Option #1 Cranberry Township Pollution Reduction Plan Proposed BMPs					
BMP Effectiveness Values (EV) provided from DEP					
Proposed BMP #	Proposed BMP Location	Proposed BMP	BMP EV	Proposed Limits (Acres)	Proposed Reduction (lbs/yr)
1	Brush Creek	Stream bank restoration along the Brush Creek	44.88 Ind/ft/yr	6,000 If	269,280
2	Twp. Inlets	Storm Sewer System Solid Removal	Weight * PCF	---	2,500
3	Twp. Parks	Tree Planting	20%	2	610
4	Along Twp Roads	Vegetative Open Channels	50%	95	72,400
5	Twp. Streets	Street Sweeping (25 Times Annually)	9%	2	274
		Total Proposed TSS Reduction (lb/yr) =			345,064
		Required Reduction (lb/yr) =			345,014
		Excess TSS reduction (lb/yr)=			50

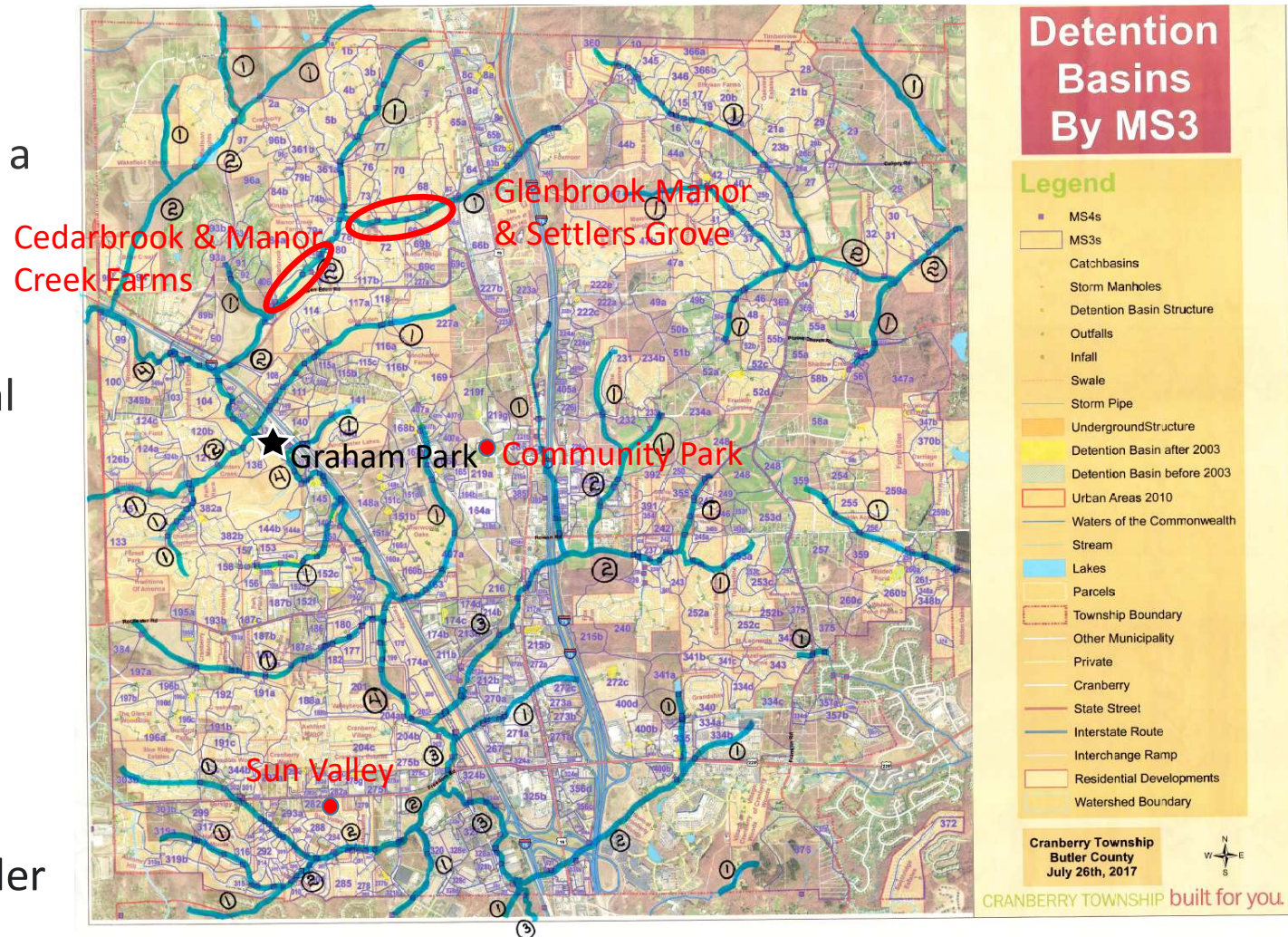
DEP Stream Restoration Projects Eligibility Criteria

Stream restoration projects must meet qualifying criteria (May 11, 2018)

- Document there is an existing problem
- Minimum of 100 linear feet of stream channel
- Impervious areas upstream of the project must be sufficiently treated to address peak flows
- **Both sides of the channel**
- **Focus 1st-3rd order streams (small). Larger stream projects will require additional documentation**

STREAM ORDER

- Measure of the position of a stream in the hierarchy of tributaries.
- Rank the size and potential power of streams.
- Small streams with no branches are 1st Order
- Ohio River - 8th Order.
- Mississippi River – 10th Order



Update to Cranberry Township Pollution Reduction Plan Proposed BMPs

BMP Effectiveness Values (EV) provided from DEP

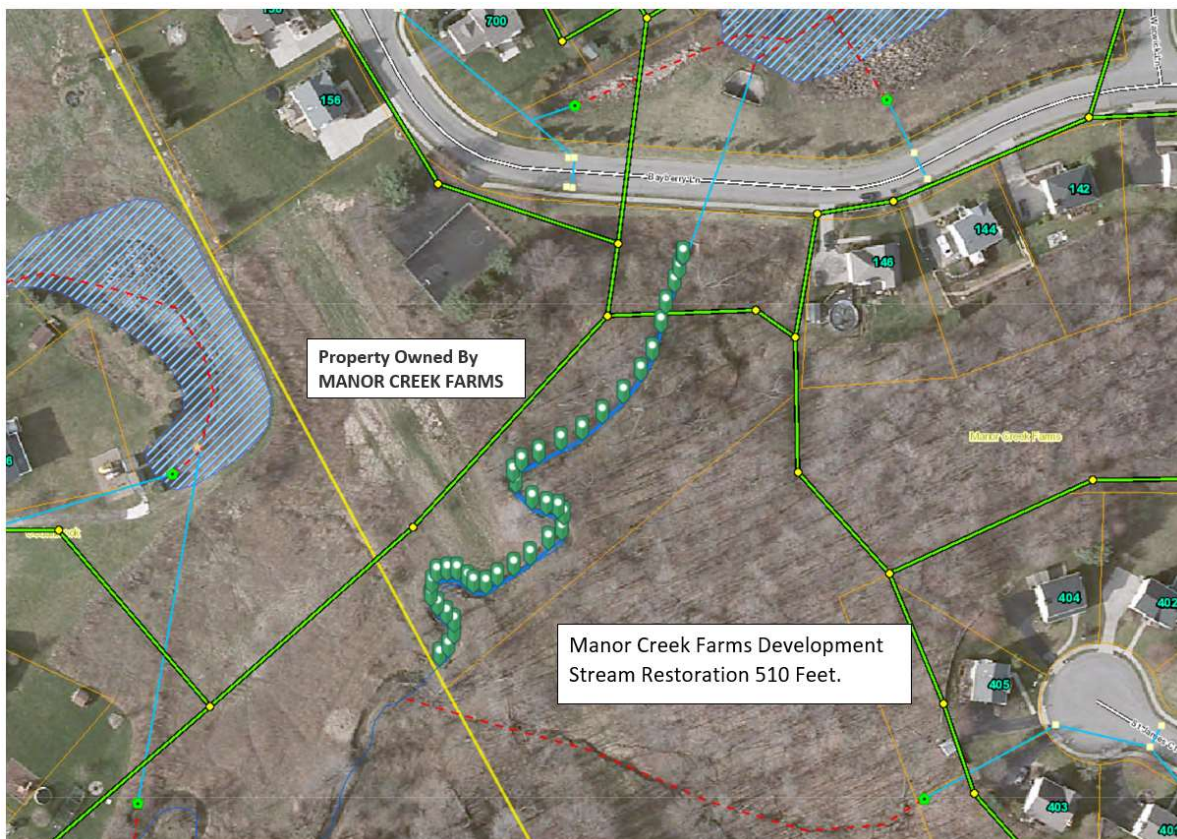
Proposed BMP #	Proposed BMP Location	Proposed BMP	BMP EV	Proposed Limits	Proposed Reduction (lbs/yr)
1	Cedarbrook	Stream bank restoration along unnamed tributary to Brush Creek	44.88 Ind/ft/yr	2,100	94,248
2	Manor Creek Farms	Stream bank restoration along unnamed tributary to Brush Creek	44.88 Ind/ft/yr	510	22,889
3	Glenbrook Manor	Stream bank restoration along unnamed tributary to Brush Creek	44.88 Ind/ft/yr	3,065	137,557
4	Settlers Grove	Stream bank restoration along unnamed tributary to Brush Creek	44.88 Ind/ft/yr	1,373	61,620
5	Community Park	Stream bank restoration along the Brush Creek	44.88 Ind/ft/yr	673	30,204
6	Sun Valley	Proposed Detention Basin	60%	8.19	2,879
		Purchase of Property			
7	North Boundary	Tree Planting (17 Trees)	20%		65
		Total Proposed TSS Reduction (lb/yr) =			349,462
		Required Reduction (lb/yr) =			345,014
		Excess TSS reduction (lb/yr)=			4,448

*Proposed
Revisions to
PRP BMPs*

1. Cedarbrook Development



2. Manor Creek Farms Development



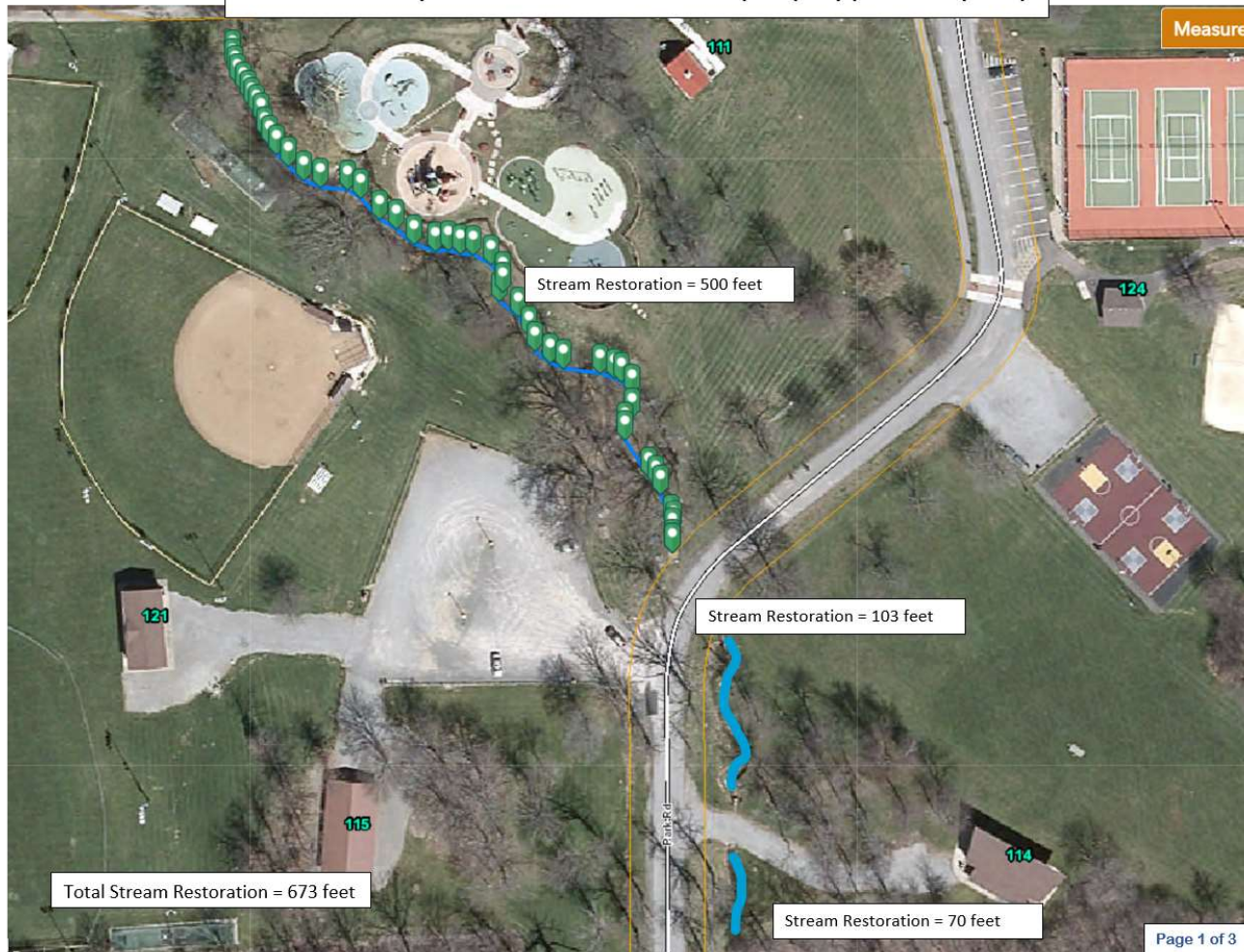
3. Glenbrook Manor Development



4. Settlers Grove Development



Unnamed Tributary to Coal Run located on Township Property (Community Park)

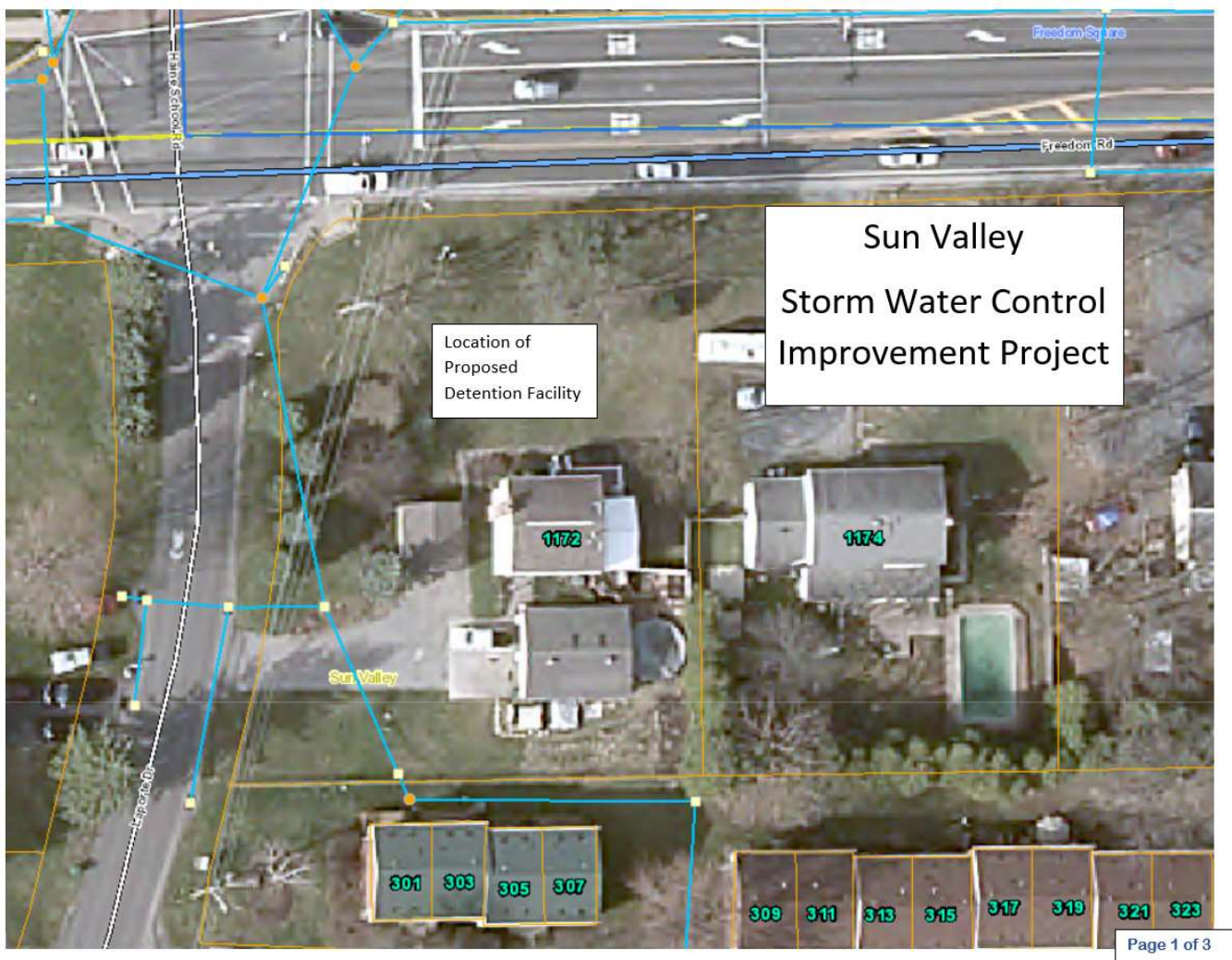


5. Community Park

Project Address
Over 100 Feet
Stream Channel

1st Order Stream

6. Sun Valley Project



Stream Restoration Enhancements

Small Streams & Midsize Streams Restoration Improvements

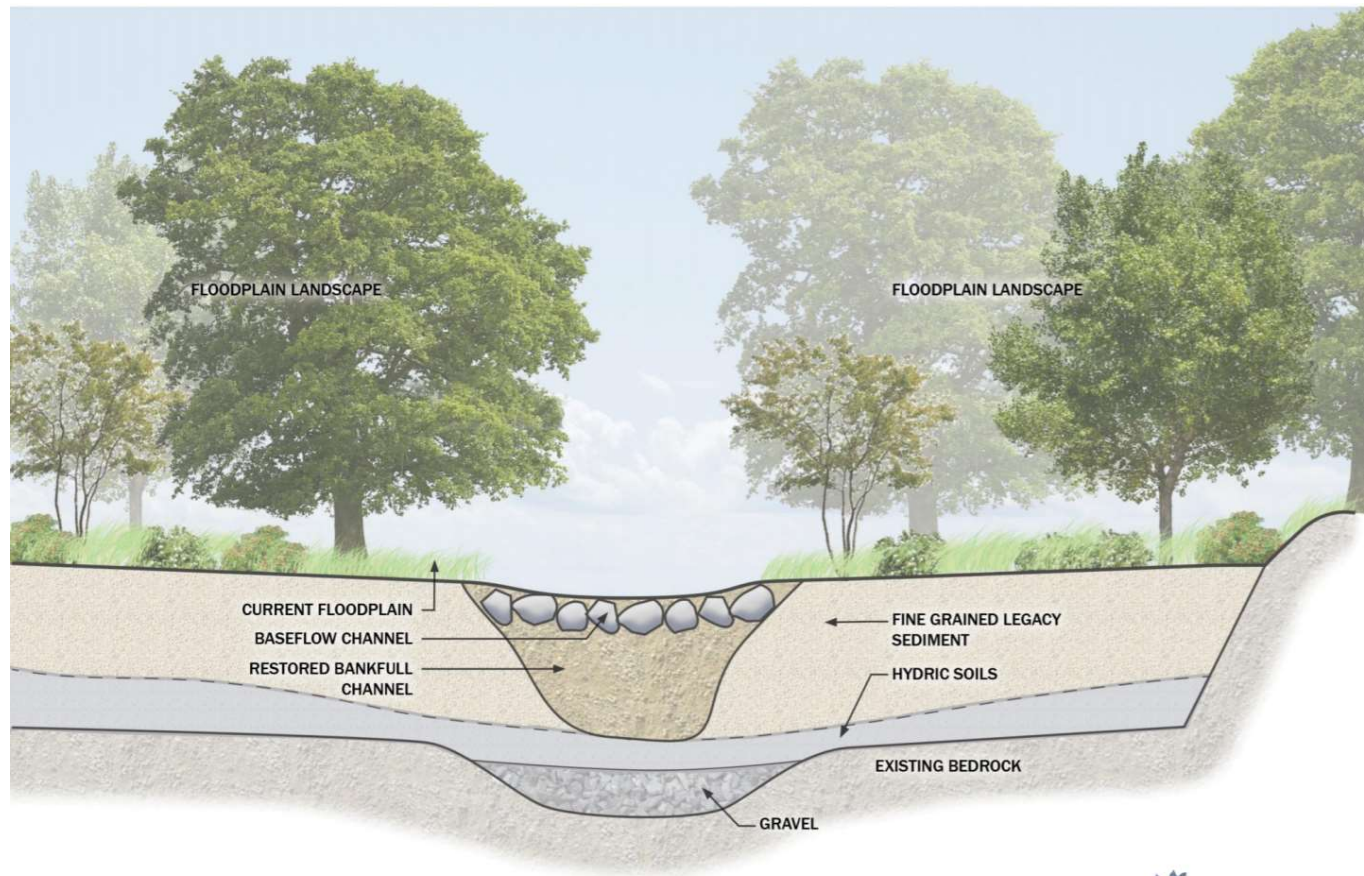
Sediment Reduction BMPs



Small Stream - Restoration Improvements

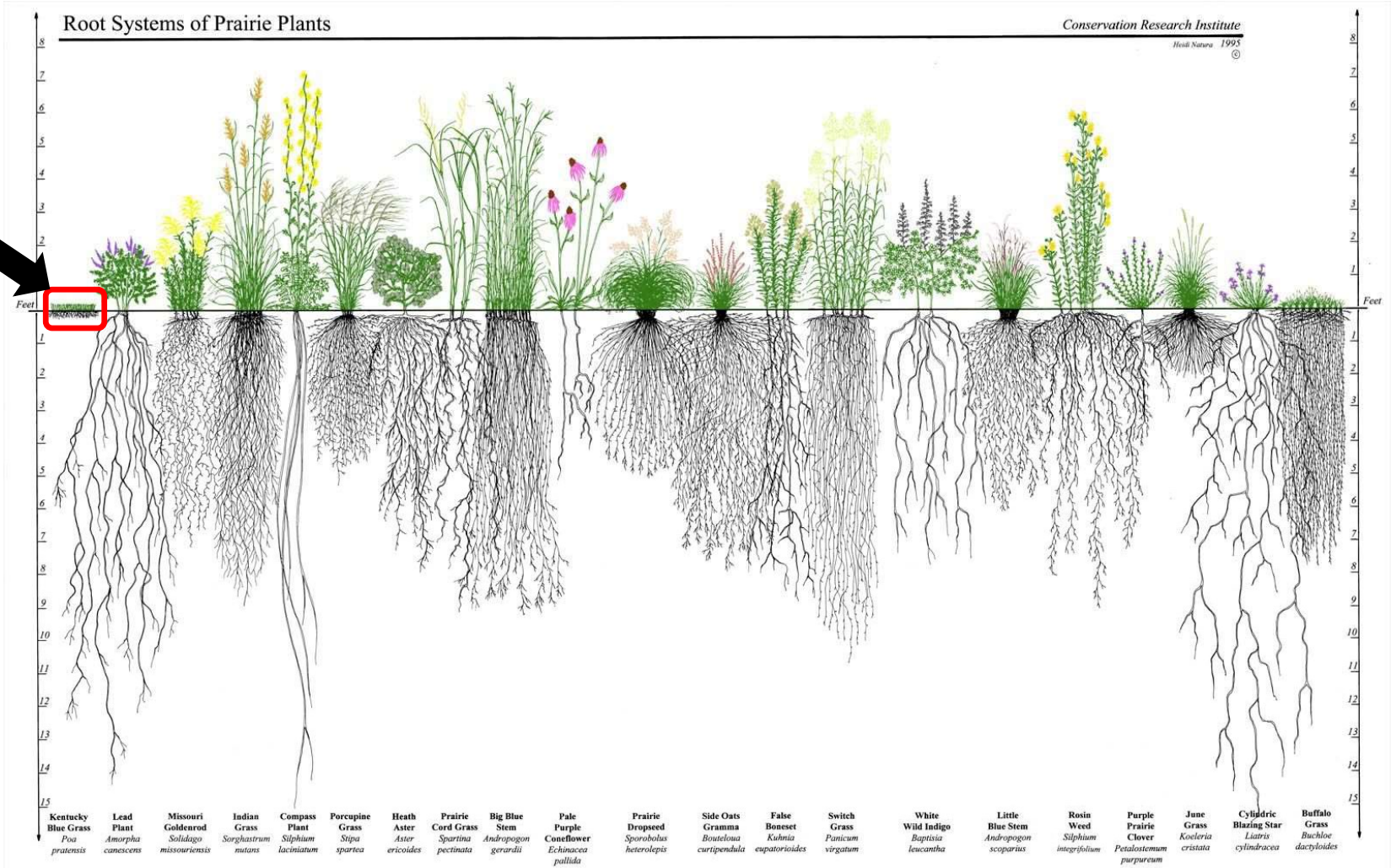
Reconnect the floodplain

Surface runoff rise up and spread out of its banks during storm events

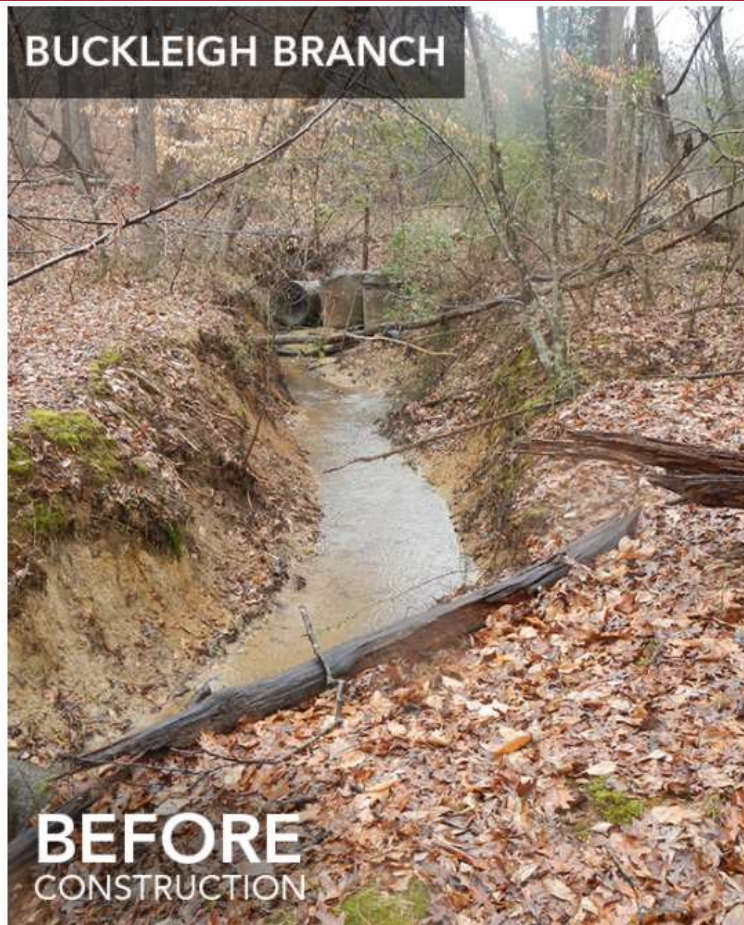


Biohabitats

Grass



Small Stream - Restoration Improvements

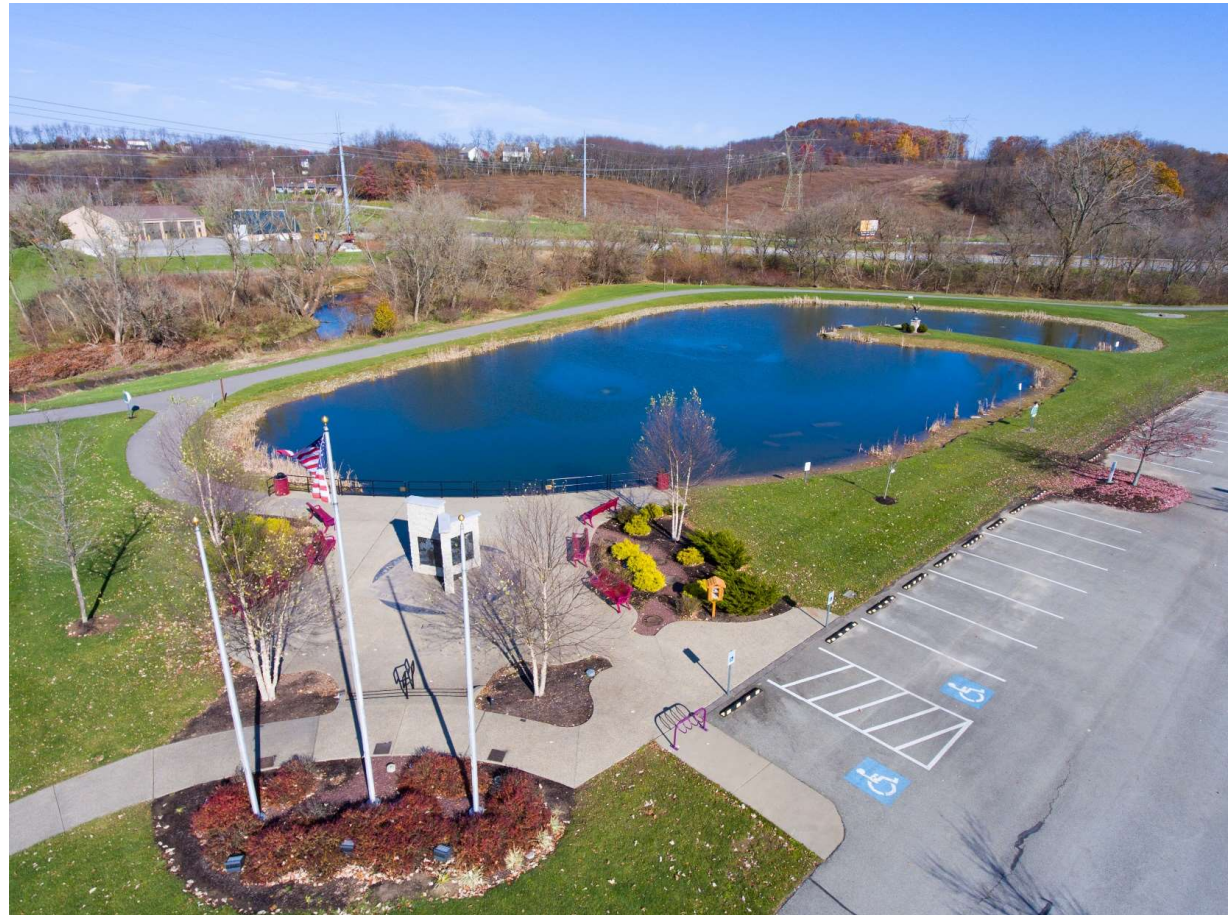


2020
Reedy Creek Stream
Restoration Project
North Carolina

Stormwater Control Facilities Inspection

Stormwater Control Facilities Inspection

- Wet Ponds/ Retention Basins
- Dry Ponds / Detention Basins
- Naturalized Ponds
- Underground Collection & Storage Facilities
- Subsurface Infiltration Basins
- Constructed Wetlands
- Pervious Pavement with Infiltration Bed



Stormwater Facilities Located In Cranberry Township

Above ground ponds (388)

Underground storage facilities (57)

Detention Basins By MS3

Legend

- MS4s
- MS3s
- Catchbasins
- Storm Manholes
- Detention Basin Structure
- Outfalls
- Infall
- Swale
- Storm Pipe
- Underground Structure
- Detention Basin after 2003
- Detention Basin before 2003
- Waters of the Commonwealth
- Stream
- Lakes
- Parcels
- Township Boundary
- Other Municipality
- Private
- Cranberry
- State Street
- Interstate Route
- Interchange Ramp
- Residential Developments
- Watershed Boundary

Cranberry Township
Butler County
June 28th, 2017



CRANBERRY TOWNSHIP built for you.

Require Annual Inspection by the Property Owners

2019 Township Staff Provided Pond Inspection Workshops

April, July, and November

2021 Township Staff Preparing to Offer Additional Pond Inspection Workshops

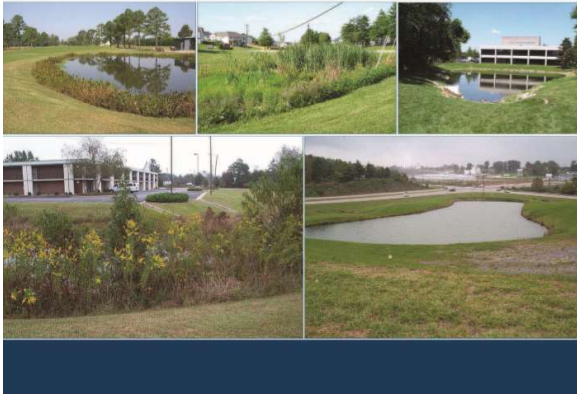
Pond inspection reporting to Township begin 2022

Inspection and reporting between January to March

Pond Inspection Reference Guide



Stormwater Wet Pond and Wetland Management Guidebook



EPA 833-B-09-001 | February 2009

**Environmental
Protection Agency**

Department of Environmental Protection

Pennsylvania Stormwater
Best Management Practices
Manual

BMPs

December 2006



**Pond & Swale
Maintenance**

A Guidebook for Private Owners in Cranberry Township



July 2017

Cranberry Township



Update Township Stormwater Ordinance

**Amend Township Ordinance to meet
DEP 2022 Model Stormwater Management
Ordinance.**

Update Stormwater Management Ordinance

- **Definitions**
- **Operation and Maintenance**
- **Enforcement & Penalties**
- **Pond Inspection Annually & after cessation of a 10-year or greater storm (3.38 inches- 24 hour rainfall)**

Questions

