Pen Argyl Borough NPDES Permit Renewal

Pollution Reduction Plan (PRP)

PUBLIC PRESENTATION

JUNE 27, 2017

PAG-13

NPDES

PERMIT

Purpose of Presentation

- To provide overview of the Borough's current PAG-13 NPDES Permit
- Review upcoming changes to this Federal Mandated MS4 program
- Proposed measures to meet the new 2018 – 2023 permit requirements

What Does MS4 Mean?

- MS4 = Municipal Separate Storm Sewer System
- How the Borough manages its infrastructure to collect, convey and discharge stormwater

Why Care?

- Flooding issues
- Pollutants reaching surface waters
- Recharge of groundwater
- Volume and velocity of runoff
- Compliance with Federal Mandate

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MS4 Basics

Permit Timeline

Important Upcoming MS4 Dates and Tasks:

2013 – 2018 **Pen Argyl's Current MS4 NPDES permit**

6/27/17 Public Presentation of PRP
Begin Public Comment Period

9/07/17 Revised and Final PRP Plan from comments received

9/15/17 **MS4 NPDES Renewal Permit due to DEP**
Pollution Reduction Plan (PRP) due
Updated Stormwater Map due

2018 – 2023 **Next MS4 NPDES Permit Cycle**
Stormwater BMPs to be installed
Stormwater Ordinance to be updated

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MS4 Basics

Quick Recap

REGIONAL: Martins-Jacoby Watershed

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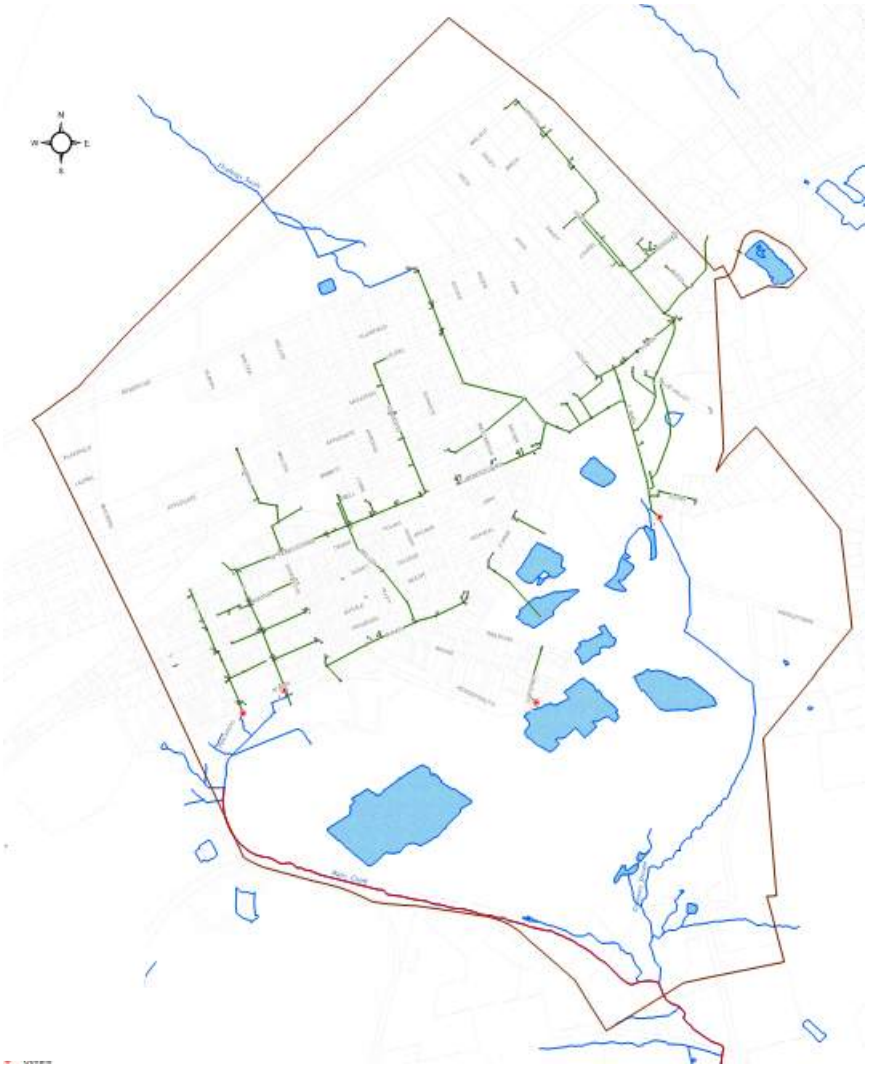
MS4 Basics

Quick Recap

LOCAL: Waltz Creek Drainage Areas



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MS4 Basics

Quick Recap

Ongoing MS4 NPDES Permit Requirements

Minimum Control Measures

- Public Education
- Public Participation
- Illicit Discharge Detection and Elimination
- Construction Site Runoff Control
- Post Construction Site Runoff Control
- Pollution Prevention and Good Housekeeping

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MS4 Basics

Quick Recap

So What's New for 2018-2023?

Focus on streams that are impaired due to different pollutant factors

(sediment, low oxygen, metals, acid mine drainage, etc.)

Water Quality Requirements

- reduce sediment loads being discharged by 10%

Prepare a Pollution Reduction Plan (PRP)
Describes how the MS4 plans to address its impaired streams and met its required pollutant reduction.

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MS4 Pollution Reduction Plan Components

Understanding how stormwater travels through the Borough

The Purpose of Mapping & Pollution Reduction Planning

- Understand how stormwater run-off is entering the Borough and where it is discharging.
- How is the water impacted when traveling through the Borough?
- Is it collected and conveyed by pipes, or directed to stormwater BMPs.
- How surrounding land uses are impacting the water quality of its storm run-off.

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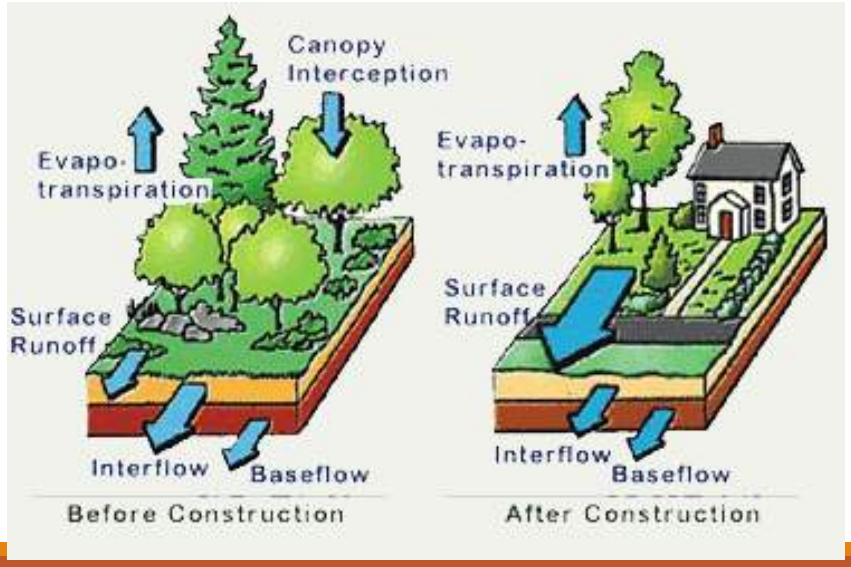

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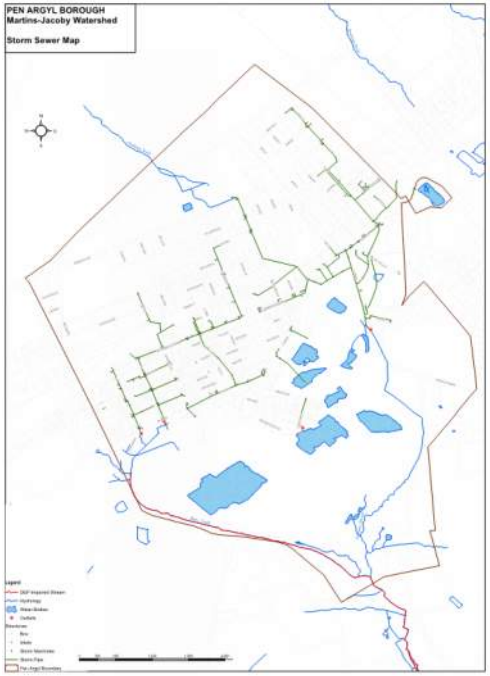
MS4 Pollution Reduction Plan Components

Understanding how stormwater travels through the Borough

Putting the Puzzle Pieces Together

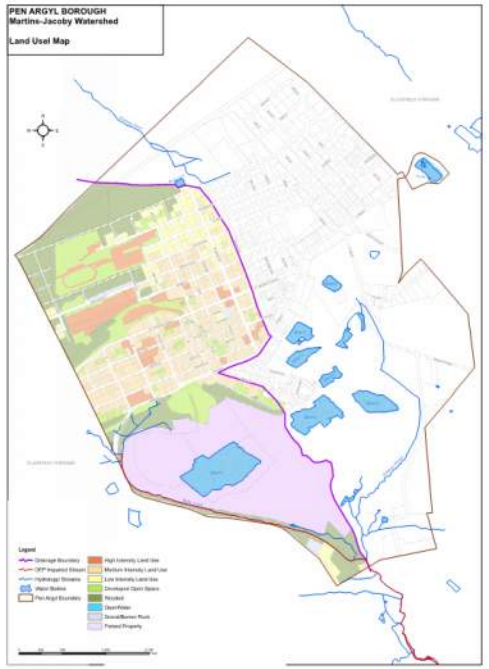


Storm Sewer System

Where and how is stormwater collected and conveyed

Drainage Areas

LIDAR topo downloaded to assist identifying drainage areas



Land Uses

WikiWatershed online program used to categorize land use areas

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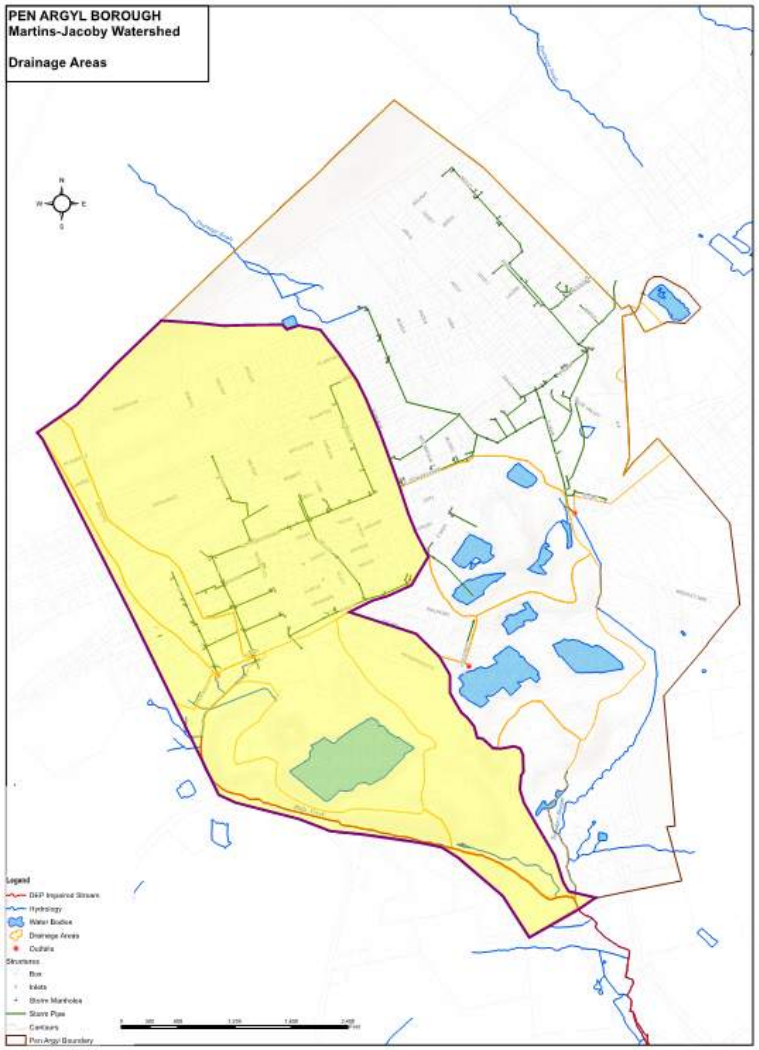
MS4 Pollution Reduction Plan Components

Defining the Drainage Area Impacting the Impaired Stream



Impaired Stream Drainage Area

Pen Argyl Borough MS4 Area
899.60 acres (1.39mi^2)

Impaired Drainage Area
Waltz Creek
399.44 acres

Parsed Areas within Impaired Drainage Area
110.30 acres

Remaining Impaired Stream Drainage Area
289.14 acres

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MS4 Pollution Reduction Plan Components

Existing Pollution Load Calculations

Existing Pollution Load - Waltz Creek Drainage Area

LAND USE CATEGORY [1]	AREA (SF)	CONVERSION TO ACRES (AC)	STROUD TOOL IMPERVIOUS (%)	EXISTING LOAD IMPERVIOUS (AC)	SEDIMENT LOADING RATE (LB/AC) [2]	SEDIMENT EXISTING LOAD (LBS)
DEVELOPED, ROCK/BARREN	94,271.00	2.16	1.00	2.16	23.96	51.85
DEVELOPED, WOODED	3,549,169.00	81.48	0.00	0.00	2.69	0.00
DEVELOPED, OPEN SPACE	1,883,122.00	43.23	0.19	8.21	2.69	22.10
DEVELOPED, LOW INTENSITY	981,209.00	22.53	0.49	11.04	23.96	264.46
DEVELOPED, MEDIUM INTENSITY	2,792,173.00	64.10	0.79	50.64	23.96	1213.30
DEVELOPED, HIGH INTENSITY	1,182,096.00	27.14	1.00	27.14	23.96	650.21
REMAINING STREETS/ROADWAYS	2,112,833.00	48.50	1.00	48.50	23.96	1162.16
				TOTALS:	SEDIMENT	3364.07

Sources:

1 - Wiki Watershed, Model My Watershed Online Tool, Site Storm Model Scenario

2 - Wiki Watershed, Stream Reach Assessment Tool, Local Catchment Stats for WaltzCreek, (Sediment: Urban Areas 23.96 lbs/acre, Natural 2.69 lbs/acre)

MS4 Pollution Reduction Plan Components

Existing Pollution Load Calculations

Required Pollutant Load Reduction

Existing Pollutant Load =	3,367.07 lb/yr
Required Reduction =	10%
Minimum Pollutant Reduction Requierd =	336.40 lb/yr

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MS4 Pollution Reduction Plan Components

Assessing BMPs for Pollution Reduction

Two methods used for assessing BMPs to meet the reduction requirements

Review existing drainage areas for improvements

Before (Existing)

After (Proposed)

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MS4 Pollution Reduction Plan Components

Assessing BMPs for Pollution Reduction

Methods used for assessing BMPs to meet the reduction requirements

Review types of BMPs for new installation projects

Infiltration Beds

Buffer Easements

Rain Gardens

Wet Ponds

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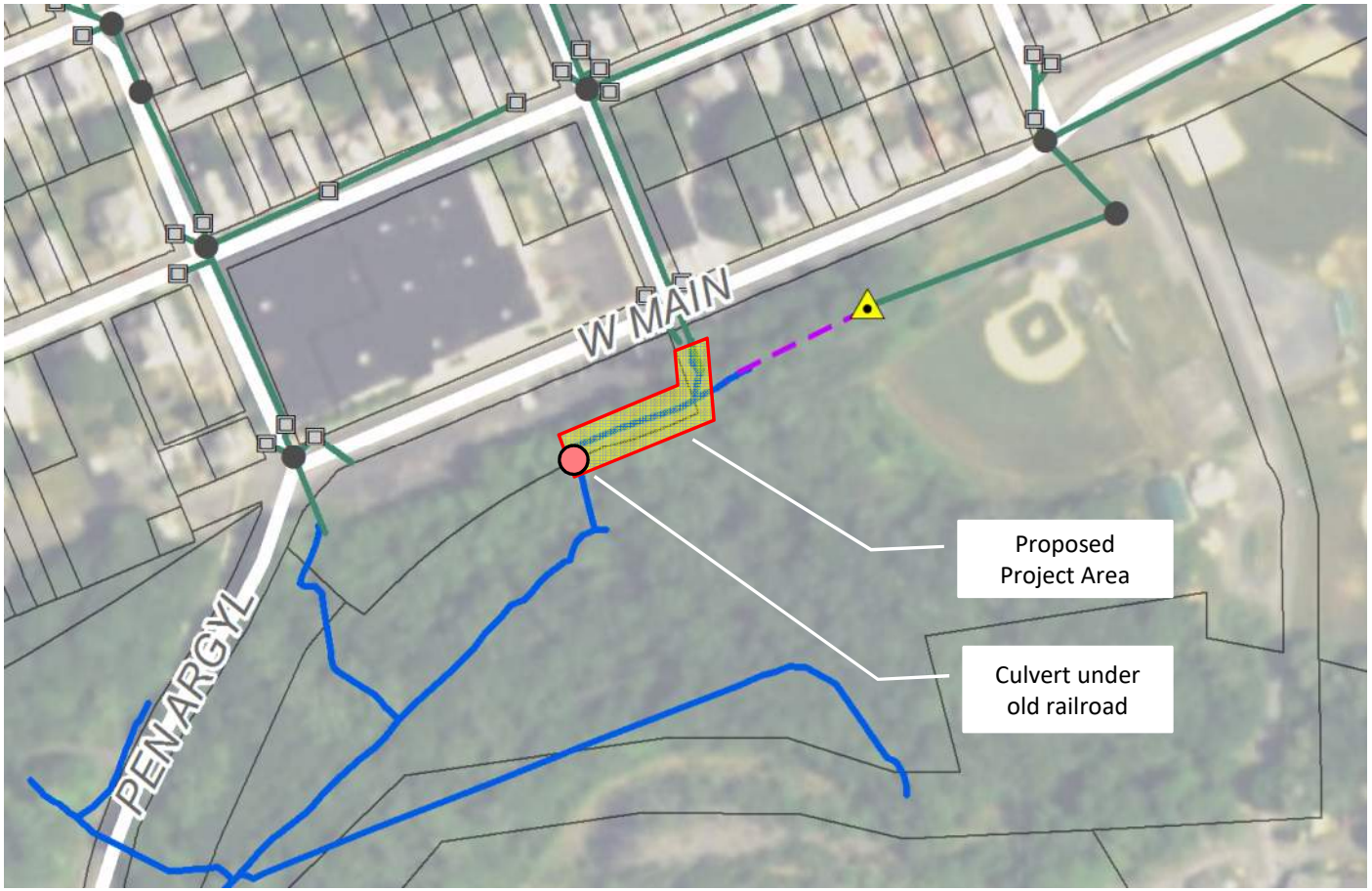
MS4 Pollution Reduction Plan Components

Proposed BMPs for Pollution Reduction

Waltz Creek Proposed BMP – Option #1
Stream Restoration



Outfalls turned off map for clearer view of the pipes and drainage lines

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MS4 Pollution Reduction Plan Components

Proposed BMPs for Pollution Reduction

Waltz Creek Proposed BMP – Option #1
Stream Restoration

- Stream work will require Permits and a stream assessment
- Stabilization of eroded slopes
- Clearing of sediment from iron pipes, possible pipe replacement
- Long term stream health can still be impacted by the adjacent parking lot

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MS4 Pollution Reduction Plan Components

Proposed BMPs for Pollution Reduction

Waltz Creek Proposed BMP #1 - Stream Restoration

LAND USE CATEGORY [1]	AREA (SF)	CONVERSION TO ACRES (AC)	STROUD TOOL IMPERVIOUS (%)	PROP. LOAD IMPERVIOUS (AC)	SEDIMENT LOADING RATE (LB/AC) [2]	SEDIMENT EXISTING LOAD (LBS)
DEVELOPED, ROCK/BARREN		-	1.00	0.00	23.96	0.00
DEVELOPED, WOODED		-	0.00	0.00	2.69	0.00
DEVELOPED, OPEN SPACE	50,647.00	1.16	0.19	0.22	2.69	0.59
DEVELOPED, LOW INTENSITY		-	0.49	0.00	23.96	0.00
DEVELOPED, MEDIUM INTENSITY	504,403.00	11.58	0.79	9.15	23.96	219.18
DEVELOPED, HIGH INTENSITY	188,964.00	4.34	1.00	4.34	23.96	103.94
REMAINING STREETS/ROADWAYS	191,764.00	4.40	1.00	4.40	23.96	105.48
				TOTALS:	SEDIMENT	429.19

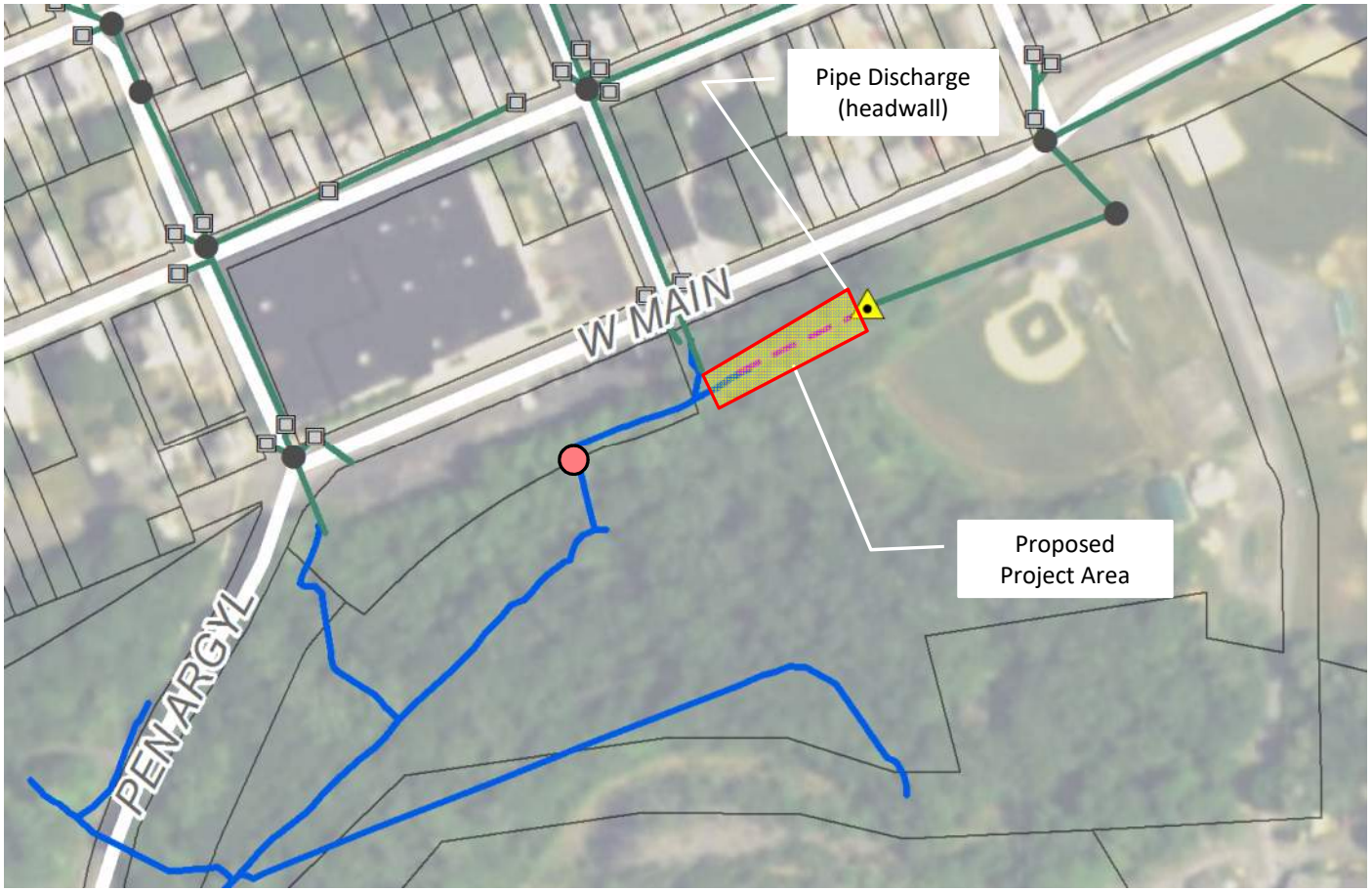
With the selection of this BMP, the load reductions would be met

MS4 Pollution Reduction Plan Components

Proposed BMPs for Pollution Reduction

Waltz Creek Proposed BMP – Option #2

Open Vegetated Channel



Outfalls turned off map for clearer view of the pipes and drainage lines

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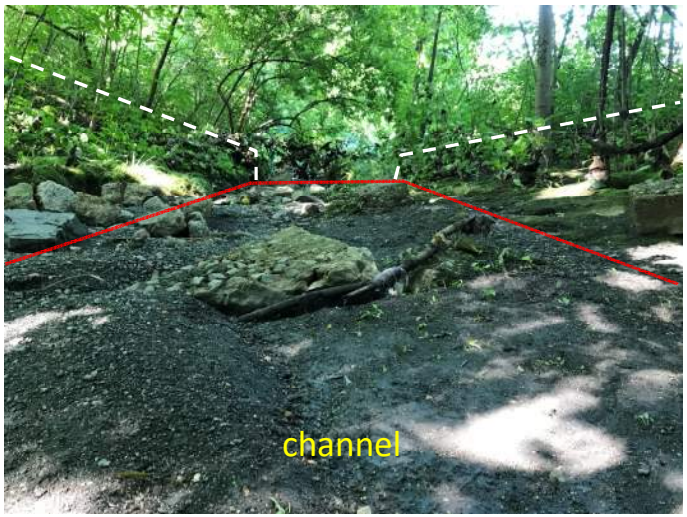
MS4 Pollution Reduction Plan Components

Proposed BMPs for Pollution Reduction

Waltz Creek Proposed BMP – Option #2

Open Vegetated Channel



- Stabilization of eroded side slopes, remove debris and return channel grades
- Clear accumulated sediment blocking drainage flow
- Shaded area beneficial for managing water temperature of creek's headwaters
- Establish fines for illegal dumping in this area

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MS4 Pollution Reduction Plan Components

Proposed BMPs for Pollution Reduction

Waltz Creek Proposed BMP #2 - Open Vegetated Channel

LAND USE CATEGORY [1]	AREA (SF)	CONVERSION TO ACRES (AC)	STROUD TOOL IMPERVIOUS (%)	PROP. LOAD IMPERVIOUS (AC)	SEDIMENT LOADING RATE (LB/AC) [2]	SEDIMENT EXISTING LOAD (LBS)
DEVELOPED, ROCK/BARREN		-	1.00	0.00	23.96	0.00
DEVELOPED, WOODED		-	0.00	0.00	2.69	0.00
DEVELOPED, OPEN SPACE	26,543.00	0.61	0.19	0.12	2.69	0.31
DEVELOPED, LOW INTENSITY	105,920.00	2.43	0.49	1.19	23.96	28.55
DEVELOPED, MEDIUM INTENSITY	714,773.00	16.41	0.79	12.96	23.96	310.59
DEVELOPED, HIGH INTENSITY	101,150.00	2.32	1.00	2.32	23.96	55.64
REMAINING STREETS/ROADWAYS	653,031.00	14.99	1.00	14.99	23.96	359.20
				TOTALS:	SEDIMENT	754.29

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MS4 Pollution Reduction Plan Components

Required Minimum Load Reduction

Required Pollutant Load Reduction = 336.40 lb/yr

Proposed Pollutant load Reduction

WALTZ CREEK – BMP OPTION #1		STREAM RESTORATION	
REQUIREMENT	Proposed Load	BMP Effectiveness Value	Proposed Improvement
Total Sediment	429.19 lb/yr	44.88 lb/ft/yr	9.5 LF *

* Restoring 9.5 LF of stream will yield a proposed sediment reduction of 429.19 lbs/yr due to the land uses in the drainage area passing through this section of proposed stream restoration.

WALTZ CREEK – BMP OPTION #2		OPEN VEGETATED CHANNEL	
REQUIREMENT	Proposed Load	BMP Effectiveness Value	Proposed Load Reduction
Total Sediment	754.29 lb/yr	70%	528.00 lb/yr

Either BMP will meet the required pollutant load reduction

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MS4 Pollution Reduction Plan Components

Funding

Identify Potential Funding Sources

Show DEP where funding may come from in order to install and maintain each BMP

Source/ Group	Type
BMP OPTION 1 – Stream Restoration	
DEP – Growing Greener Grant	FUNDING SOURCE - Conservation & Environmental Projects focused on water quality for planning and installation, requires 15% match
Wildlands Conservancy	FUNDING & PLANNING SOURCE - Assist with the identification of invasive and volunteer plantings for removal; recommendations for embankment restoration; recommendations for the property owner on improvements to the parking lot; list of plantings for re-vegetation
Private Property Owner and Green & White Youth Association	PLANNING SOURCE - Preparation of a stormwater management agreement between the property owners and the Borough
Lehigh County Mini Grant	FUNDING SOURCE - Funding for signage and supplemental plantings not supported through donated materials
Northern Nurseries Inc	MATERIAL SOURCE - Donated plant material
Borough of Pen Argyl	FUNDING SOURCE - Budget funds

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MS4 Pollution Reduction Plan Components

Funding

Identify Potential Funding Sources

Show DEP where funding may come from in order to install and maintain each BMP

Source/ Group	Type
BMP OPTION 2 – Open Vegetated Channel	
DEP – Growing Greener Grant	FUNDING SOURCE - Conservation & Environmental Projects focused on water quality, requires 15% match
Lehigh Valley Master Watershed Steward Program Volunteers	LABOR SOURCE - Volunteers to assist with the removal of accumulated sediment, debris removal and re-vegetation of the channel and streambank
Green & White Youth Association Volunteers	PLANNING & LABOR SOURCE - Preparation of stormwater management agreement between GW and the Borough; Volunteers to assist with the re-vegetation of the channel and streambank; Assistance in circulation of educational materials
Northern Nurseries Inc	MATERIAL SOURCE - Donated plant material
Borough of Pen Argyl	FUNDING SOURCE - Budget funds

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MS4 Pollution Reduction Plan Components

Maintenance

Operations & Maintenance of the BMPs

Prepare a list of anticipated maintenance tasks to keep the BMPs working efficiently

- Identify the party(ies) responsible for ongoing Operations and Maintenance (O&M)
- The activities involved with O&M for each BMP proposed
- The frequency at with O&M activities will occur
- If the Borough has a third party fulfill a portion of their O&M duties, a maintenance agreement shall be prepared between the Borough and the third party.

Pen Argyl Borough shall identify on the O&M activities conducted in its Annual MS4 report to DEP

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MS4 Pollution Reduction Plan Components

Maintenance

When does the work need completed?

The MS4 has **5** years to complete the installation of the BMPs laid out in the Pollution Reduction Plan

Work needs to be completed by September 2023

The MS4 shall prepare a summary report on how the required pollution load reduction was satisfied and submit that report to DEP

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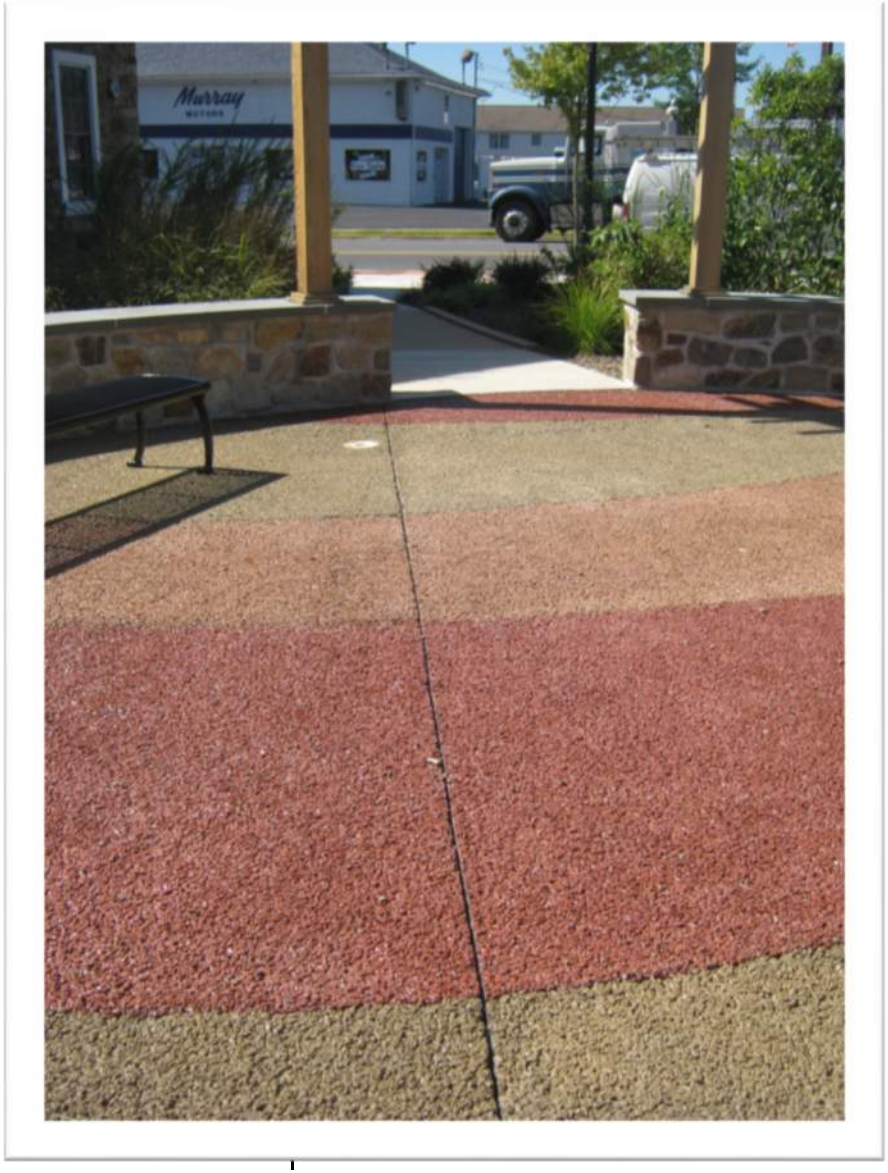

Questions?