

# ELIZABETH TOWNSHIP

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Pollutant Reduction Plan (PRP)  
Wylie and Fallen Timber Run

Elizabeth Township  
Allegheny County, PA

October 2018  
*Revised August 2023*



KLH

ENGINEERS, INC  
5173 CAMPBELLS RUN ROAD  
PITTSBURGH, PA 15205-9733

**ELIZABETH TOWNSHIP**  
**Pollutant Reduction Plan – Wylie Run and Fallen Timber Run**  
***Revised August 2023***

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# ELIZABETH TOWNSHIP

## Pollutant Reduction Plan - Wylie Run and Fallen Timber Run

*Revised August 2023*

### **Introduction**

Elizabeth Township (Township) has developed a Pollution Reduction Plan (PRP) for its Municipal Separate Storm Sewer System (MS4) in accordance with the requirements of the National Pollutant Discharge Elimination System (NPDES) Stormwater Discharges from Small Municipal Separate Storm Sewer Systems Permit. The MS4 permit is acquired and managed by the Department of Environmental Protection (PADEP). The Township's MS4 Permit is under NPDES Permit No. PAG136207 and is responsible for total sediment and phosphorus reduction for Wylie Run and Fallen Timber Run.

### **Section A – Public Participation**

- Elizabeth Township shall make a complete copy of the PRP available for public review.
- Elizabeth Township shall publish, in a newspaper of general circulation in the area, a public notice containing a statement describing the plan, where it may be reviewed by the public and the length of time Elizabeth Township will provide for the receipt of comments. The public notice must be published at least 45 days prior to the deadline for submission of the PRP to the DEP. A copy of the public notice will be attached to the PRP.
- Elizabeth Township shall accept written comments for a minimum of 30 days from the date of public notice. A copy of all written comments received from the public will be included with the PRP.
- Elizabeth Township shall accept comments from any interested member of the public at a public meeting or hearing, which may include a regularly scheduled meeting of the governing body of the municipality or municipal authority that is the permittee.
- Elizabeth Township shall consider and make a record of the consideration of each timely comment received from the public.
- Elizabeth Township shall consider and make a record of the consideration of each timely comment received from the public during the public comment period concerning the plan, identifying any changes made to the plan in response to the comment. A copy of the Township's record of consideration of all timely comments received in the public comment period will be attached to the PRP.

This Pollution Reduction Plan is available for review by the public for 30 days and comments, if any, will be addressed and submitted to DEP thereafter.

## **Section B – Map**

According to *Model My Watershed*, Elizabeth Township has a mix of developed intensities from open space to developed high intensity and is also a mix of pervious surfaces such as mixed forest, pastures/hay, deciduous forest, and shrub. Most of the Township is within the C/D soils.

An updated map for the PRP is attached in Appendix D.

## **Section C – Pollutants of Concern**

According to the MS4 Requirements table provided by PADEP, Elizabeth Township contributes to five (5) impaired surface waters which include the Monongahela River, Wylie Run, Fallen Timber Run, Gillespie Run, and Unnamed tributaries to the Youghiogheny River. Each impaired surface water has pollutants from stormwater runoff that the Township is responsible for managing. The following impairments to these surface waters are described below.

- Monongahela River – Appendix C – Polychlorinated Biphenyls (PCB)
- Wylie Run – Appendix A, Appendix E – Metals, Siltation
- Fallen Timber Run – Appendix A, Appendix E – Metals, Siltation
- Gillespie Run – Appendix A – Metals
- Unnamed Tributaries to Youghiogheny River – Appendix A - Metals

The Township is to create a PRP and obtain achievements for pollutant load reductions for each impaired stream that has Appendix D or Appendix E requirements within the permit. The PRP serves to address Appendix E requirements for Wylie Run and Fallen Timber Run.

## **Section D Existing Loading for Pollutants of Concern**

According to the 2010 Census Bureau, Elizabeth Township has a total of 14,611 acres. Within Elizabeth Township there are two (2) urbanized areas (UA) – Pittsburgh and Monessen-California. The Pittsburgh UA includes Wylie Run and the Monessen-California UA includes Fallen Timber Run. Using ArcGIS, the watershed areas were used to determine the planning areas, within each UA, for each impaired stream within the Township.

<b>Watershed/Impaired Stream</b>	<b>Acres</b>	<b>Acres within UA (Planning Area)</b>
Pittsburgh UA - Wylie Run	2,986	1,232.28
Monessen-California - Fallen Timber Run	2,529	158.52
Total	5,515	1,390.80

## Parsed Areas

Elizabeth Township has chosen to parse out areas within the planning areas. These parsed areas are displayed on the PRP Map in Appendix D.

- Planning Area

The Wylie Run Watershed has a non-urbanized area which is not to be included with the PRP planning area. The non-urbanized area is 41.9 acres.

- Roadways

Elizabeth Township has multiple state and county roads within the municipal boundary. Per the PennDOT municipal maps, Elizabeth Township has 21.2 miles of county and state roads in which the Township opts to parse. The mileage was converted into acres as shown below.

$$21.2 \text{ miles} * \frac{5280 \text{ feet}}{1 \text{ mile}} * 50 \text{ (right - of - way width)} * \left( \frac{1 \text{ acre}}{43,560 \text{ sqft}} \right) = \underline{128.5 \text{ acres}}$$

- Permitted Sites

The only permitted site that was within the Township was GPS Metals with a Stormwater-Industrial permit. Unfortunately, this site is not within either planning area and cannot be parsed.

<b>Impaired Stream</b>	<b>New Planning Area excluding Parsing (acres)</b>
Wylie Run	1,232.28 – 41.9 = <b>1,190.42</b>
Fallen Timber Run	158.52 – 0 = <b>158.52</b>
Total (minus roadway parsing)	1,348.94 – 128.5 = <b>1,220.46</b>

The total combined planning area of 1,220.46 acres represents the total acreage of the PRP Planning Area.

## Calculation for Sediment Load Reduction

Using the *Statewide Land Cover Estimates* table and Appendix B in the *PRP Instructions* provided by DEP, the Township's sediment load reduction can be calculated by multiplying the total combined planning area by the percent impervious and pervious, then multiplied by the pollutant loading rate.

Elizabeth Township Allegheny County, PA	% Impervious	%Pervious	UA Acres
Urbanized Area	17%	83%	5,773.70

All Other Counties Loading Rates (Allegheny County, PA)	Total Nitrogen lbs/acre/year	Total Phosphorus Lbs/acre/year	TSS (Sediment) Lbs/acre/year
Impervious Developed	23.06	2.28	1,839
Pervious Developed	20.72	0.84	264.96

Using the DEP Simplified Method in the *PRP Instructions*, the existing pollutant loading for Elizabeth Township can be calculated.

Sediment:

$(1,220.46 \text{ acres} \times 17\% \text{ impervious} \times 1,839 \text{ lbs/acre/yr}) + (1,220.46 \text{ acres} \times 83\% \text{ pervious} \times 264.96 \text{ lbs/acre/yr})$

= 649,949 lbs/year

Total Phosphorus (TP):

$(1,220.46 \text{ acres} \times 17\% \text{ impervious} \times 2.28 \text{ lbs/acre/year}) + (1,220.46 \text{ acres} \times 83\% \text{ pervious} \times 0.84 \text{ lbs/acre/year})$

= 1,324 lbs/year TP

Based on the PRP Instructions provided by DEP, the MS4 Permittee is required to provide a 10% reduction in sediment per year. It is assumed that a 10% sediment reduction will also reduce the total phosphorus (TP) by 5%.

The total amount of pollutants is 649,949 lbs of sediment and 1,324 lbs of TP. Therefore the 10% reduction in sediment required is 64,995 lbs per year. The reduction in TP required is 66 lbs per year and is assumed to be accounted for in the removal of sediment.

### Existing BMPs in Elizabeth Township

Elizabeth Township currently does not have any existing BMPs within the Township to utilize to reduce their existing sediment and total phosphorus loading. However, the Township has decided to phase out the below projects in two phases – Phase I and Phase II. Phase I has been bid and awarded to a contractor and will begin construction in September 2023. Phase II projects have been approved for design by the Township with the assistance of KLH Engineers, Inc. and plan to start construction in 2024.

**Section E – Select BMPs to Achieve the Minimum Required Reductions in Pollutant Loading**

Since Elizabeth Township currently has no existing BMPs within the municipality, the Township is required to construct several BMPs until the 10% sediment reduction per year is achieved – 64,995 lbs/year. As described above, Phase I and Phase II projects are listed below.

The sediment and total phosphorus calculations for each BMP were derived from using ArcGIS, Model My Watershed land cover estimates, the *PRP Simplified Method Narrative* and the *BMP Effectiveness Values table* provided by DEP, and the *Pennsylvania Stormwater BMP Manual*, dated December 30, 2006.

**MS4 Construction Projects – Phase I (In Construction Phase)**

**Wylie Run**

**BMP #1-#3 - BMP Improvements and Conversions – Fox Run Housing Plan**

The Fox Run Plan is located along Happy Hollow Road and Billicks Lane in Elizabeth Township, PA which has been a known area that is prone to flooding and stormwater management issues. There are three (3) existing sediment basins located in the Fox Run housing plan that have never been converted to their intended post-construction stormwater management (PCSM) facilities due to unforeseen development circumstances. Since the Fox Run plans were dated in 2001, it can be assumed that the intended PCSM facilities were to be detention ponds. Given that the conversion of the ponds was never completed and are currently not assisting in stormwater management, the Township has decided to gain ease of access to improve and enhance these ponds to help refrain from flooding issues in the Happy Hollow area while gaining sediment reduction credit.

***BMP #1: BMP Enhancement and Restoration – Wet Pond  
Fox Run Plan – Pond 1***

Pond 1 will be a conversion from a sediment basin to an enhanced and restored wet pond. This pond is located on the hill above the intersection of Happy Hollow and Billicks Lane. The total drainage area tributary to this pond is approximately 24.61 acres. The below table shows the land cover estimates from Model My Watershed.

BMP#	Land Type	Area (ft^2)	Area (acres)	Acres Impervious	Acres Pervious
1 - Cedar Drive Pond 1	Developed, Open Space	231,780.38	5.32	1.01	4.31
	Developed, Low Intensity	492,533.31	11.31	5.54	5.77
	Developed, Medium Intensity	338,013.05	7.76	6.13	1.63
	Developed, High Intensity	9,657.52	0.22	0.22	0.00
			<b>Total</b>	<b>12.90</b>	<b>11.71</b>

The *PRP Simplified Method Narrative* provided by DEP was used to calculate the acres impervious and pervious using the percentages as shown below in the above table. These percentages are used consistently throughout the proposed BMPs with the appropriate land cover.

Developed, Open Space	19%
Developed, Low Intensity	49%
Developed, Medium Intensity	79%
Developed, High Intensity	100%

Using the *BMP Effectiveness Values* table provided by DEP, the sediment load reduction for the wet pond can be calculated. The sediment load reduction calculation for the detention pond will be subtracted to populate the true sediment load reduction achieved by doing these improvements.

### Sediment Removal

#### Detention Pond

$(12.90 \text{ acres impervious} \times 1,839 \text{ lbs/acre/yr} \times 10\% \text{ sediment removal efficiency}) + (11.71 \text{ acres pervious} \times 264.96 \text{ lbs/acre/yr} \times 10\% \text{ sediment removal efficiency})$

= 2,682.58 lbs/year

#### Wet Pond

$(12.90 \text{ acres impervious} \times 1,839 \text{ lbs/acre/yr} \times 60\% \text{ sediment removal efficiency}) + (11.71 \text{ acres pervious} \times 264.96 \text{ lbs/acre/yr} \times 60\% \text{ sediment removal efficiency}) - 2,682.58 \text{ lbs/year}$

= 13,412.89 lbs/year

### Total Phosphorus Removal

#### Detention Pond

$(12.90 \text{ acres impervious} \times 2.28 \text{ lbs/acre/yr} \times 10\% \text{ TP removal efficiency}) + (11.71 \text{ acres pervious} \times 0.84 \text{ lbs/acre/yr} \times 10\% \text{ TP removal efficiency})$

= 3.92 lbs/year

#### Wet Pond

$(12.90 \text{ acres impervious} \times 2.28 \text{ lbs/acre/yr} \times 45\% \text{ TP removal efficiency}) + (11.71 \text{ acres pervious} \times 0.84 \text{ lbs/acre/yr} \times 60\% \text{ TP removal efficiency}) - 3.92 \text{ lbs/year}$

= 13.74 lbs/year



*BMP #2: BMP Conversion – Constructed Dry Extended Detention Basin  
Fox Run Plan – Pond 2*

Pond 2 will be a conversion from a sediment basin to a dry extended detention basin with bioretention. This pond is located below Cedar Drive adjacent to Happy Hollow. The total drainage area tributary to this pond is approximately 29.27 acres. The below table shows the land cover estimates from Model My Watershed.

BMP#	Land Type	Area (ft <sup>2</sup> )	Area (acres)	Acres Impervious	Acres Pervious
2 - Cedar Drive Pond 2	Developed, Open Space	550,478.28	12.64	2.4	10.24
	Developed, Low Intensity	492,533.20	11.31	5.5	5.77
	Developed, Medium Intensity	144,862.71	3.33	2.6	0.70
	Developed, High Intensity	28,972.54	0.67	0.7	0.00
	Pervious - Deciduous Forest, pature/hay	57,945.08	1.33	0.0	1.33
			<b>Total</b>	<b>11.23</b>	<b>18.03</b>

The same calculation method as Pond 1 is used.

Sediment Removal

Detention Pond

$$(11.23 \text{ acres impervious} \times 1,839 \text{ lbs/acre/yr} \times 10\% \text{ sediment removal efficiency}) + (18.03 \text{ acres pervious} \times 264.96 \text{ lbs/acre/yr} \times 10\% \text{ sediment removal efficiency})$$

$$= 2,542.92 \text{ lbs/year}$$

Dry Extended Detention

$$(11.23 \text{ acres impervious} \times 1,839 \text{ lbs/acre/yr} \times 60\% \text{ sediment removal efficiency}) + (18.03 \text{ acres pervious} \times 264.96 \text{ lbs/acre/yr} \times 60\% \text{ sediment removal efficiency}) - 2,542.92 \text{ lbs/year}$$

$$= 12,714.60 \text{ lbs/year}$$

Total Phosphorus Removal

Detention Pond

$$(11.23 \text{ acres impervious} \times 2.28 \text{ lbs/acre/yr} \times 10\% \text{ TP removal efficiency}) + (18.03 \text{ acres pervious} \times 0.84 \text{ lbs/acre/yr} \times 10\% \text{ TP removal efficiency})$$

$$= 4.07 \text{ lbs/year}$$

Dry Extended Detention

$$(11.23 \text{ acres impervious} \times 2.28 \text{ lbs/acre/yr} \times 20\% \text{ TP removal efficiency}) + (18.03 \text{ acres pervious} \times 0.84 \text{ lbs/acre/yr} \times 20\% \text{ TP removal efficiency}) - 4.07 \text{ lbs/year}$$

$$= 4.07 \text{ lbs/year}$$

*BMP #3: BMP Conversion – Constructed Dry Extended Detention Basin  
Fox Run Plan – Pond 3*

Pond 3 will be a conversion from a sediment basin to a dry extended detention basin with bioretention. This pond is located along Cedar Drive near the back of the Fox Run plan. The total drainage area tributary to this pond is approximately 29.26 acres. The below table shows the land cover estimates from Model My Watershed.

BMP#	Land Type	Area (ft <sup>2</sup> )	Area (acres)	Acres Impervious	Acres Pervious
3 - Cedar Drive Pond 3	Developed, Open Space	86,917.61	2.00	0.38	1.62
	Developed, Low Intensity	231,780.30	5.32	2.61	2.71
	Developed, Medium Intensity	9,657.51	0.22	0.18	0.05
	Mixed Forest	38,360.05	0.88	0.00	0.88
	Pasture/Hay	28,972.54	0.67	0.00	0.67
	Deciduous Forest	878,833.64	20.18	0.00	20.18
	<b>Total</b>			<b>3.16</b>	<b>26.10</b>

The same calculation method as Pond 1 and 2 is used.

Sediment Removal

Detention Pond

$(3.16 \text{ acres impervious} \times 1,839 \text{ lbs/acre/yr} \times 10\% \text{ sediment removal efficiency}) + (26.10 \text{ acres pervious} \times 264.96 \text{ lbs/acre/yr} \times 10\% \text{ sediment removal efficiency})$

= 1,272.67 lbs/year

Dry Extended Detention

$(3.16 \text{ acres impervious} \times 1,839 \text{ lbs/acre/yr} \times 60\% \text{ sediment removal efficiency}) + (26.10 \text{ acres pervious} \times 264.96 \text{ lbs/acre/yr} \times 60\% \text{ sediment removal efficiency}) - 1,272.67 \text{ lbs/year}$

= 6,363.35 lbs/year

Total Phosphorus Removal

Detention Pond

$(3.16 \text{ acres impervious} \times 2.28 \text{ lbs/acre/yr} \times 10\% \text{ TP removal efficiency}) + (26.10 \text{ acres pervious} \times 0.84 \text{ lbs/acre/yr} \times 10\% \text{ TP removal efficiency})$

= 2.91 lbs/year

Dry Extended Detention

$(3.16 \text{ acres impervious} \times 2.28 \text{ lbs/acre/yr} \times 20\% \text{ TP removal efficiency}) + (26.10 \text{ acres pervious} \times 0.84 \text{ lbs/acre/yr} \times 20\% \text{ TP removal efficiency}) - 2.91 \text{ lbs/year}$

= 2.91 lbs/year

BMP #4 – Bioretention (C/D soil with underdrain)

*Stoneybrook Park*

Stoneybrook Park is located along Cowan Drive in which a bioretention area will be constructed along the south side of the park. The total drainage area tributary to this BMP is approximately 4 acres. The below table shows the land cover estimates from Model My Watershed.

BMP#	Land Type	Area (ft <sup>2</sup> )	Area (acres)	Acres Impervious	Acres Pervious
4 - Stoney Brook Park Rain Garden 1	Developed, Open Space	28,972.52	0.67	0.13	0.54
	Developed, Low Intensity	38,630.02	0.89	0.43	0.45
	Developed, Medium Intensity	57,945.03	1.33	1.05	0.28
	Deciduous Forest	48,287.53	1.11	0.00	1.11
			<b>Total</b>	<b>1.61</b>	<b>2.38</b>

Sediment Removal

(1.61 acres impervious x 1,839 lbs/acre/yr x 55% sediment removal efficiency) + (2.38 acres pervious x 264.96 lbs/acre/yr x 55% sediment removal efficiency)

= 1,975.27 lbs/year

Total Phosphorus Removal

(1.61 acres impervious x 2.28 lbs/acre/yr x 45% TP removal efficiency) + (2.38 acres pervious x 0.84 lbs/acre/yr x 45% TP removal efficiency)

= 2.55 lbs/year

BMP #5-#6 – Bioretention (C/D soil with underdrain)

*Stoneybrook Drive/Happy Hollow Road*

Two bioretention areas will be constructed along Stoneybrook Drive and along Happy Hollow Road. The total drainage area tributary to this BMP is approximately 0.67 acres. The below table shows the land cover estimates from Model My Watershed.

BMP#	Land Type	Area (ft^2)	Area (acres)	Acres Impervious	Acres Pervious
5 - Stoney Brook Rain Garden 2	Developed, Low Intensity	19,315.02	0.44	0.22	0.23
			<b>Total</b>	<b>0.22</b>	<b>0.23</b>
BMP#	Land Type	Area (ft^2)	Area (acres)	Acres Impervious	Acres Pervious
6 - Stoney Brook Rain Garden 3	Deciduous Forest	9,657.51	0.22	0.00	0.22
			<b>Total</b>	<b>0.00</b>	<b>0.22</b>

### Sediment Removal

#### Rain Garden 2

(0.22 acres impervious x 1,839 lbs/acre/yr x 55% sediment removal efficiency) + (0.23 acres pervious x 264.96 lbs/acre/yr x 55% sediment removal efficiency)  
= 256.04 lbs/year

#### Rain Garden 3

The *Pennsylvania Stormwater BMP Manual - Chapter 8*, dated December 30, 2006, was used as a reference to calculate the following sediment reduction of the bioretention area along Happy Hollow for BMPs in series.

$$1 - [ (1 - \% \text{ efficiency of BMP 1 (bioretention)}) \times (1 - \% \text{ efficiency of BMP 2 (bioretention)}) ]$$

$$= 1 - [ (1-0.55) \times (1-0.55) ] = 80\% \text{ sediment removal efficiency}$$

(0.00 acres impervious x 1,839 lbs/acre/yr x 80% sediment removal efficiency) + (0.22 acres pervious x 264.96 lbs/acre/yr x 80% sediment removal efficiency)

$$= 46.49 \text{ lbs/year}$$

$$= 256.04 + 46.49 = 302.53 \text{ lbs/year}$$

### Total Phosphorus Removal

#### Rain Garden 2

(0.22 acres impervious x 2.28 lbs/acre/yr x 45% TP removal efficiency) + (0.23 acres pervious x 0.84 lbs/acre/yr x 45% TP removal efficiency)

$$= 0.31 \text{ lbs/year}$$

#### Rain Garden 3

(0.00 acres impervious x 2.28 lbs/acre/yr x 45% TP removal efficiency) + (0.22 acres pervious x 0.84 lbs/acre/yr x 45% TP removal efficiency)

$$= 0.08 \text{ lbs/year}$$

## MS4 Construction Projects – Phase II

### Wylie Run

#### BMP #7 – Dry Extended Detention Basin

##### *Blaine Hill VFD Ballfields*

This property is owned by the Blaine Hill Volunteer Fire Dept., which is not a concern as the Township has already introduced this project to the VFD. The total drainage area tributary to this BMP is approximately 47.67 acres. The below table shows the land cover estimates from Model My Watershed.

BMP#	Land Type	Area (ft <sup>2</sup> )	Area (acres)	Acres Impervious	Acres Pervious
7 - Blaine Hill VFD Ballfields Pond	Developed, Open Space	193,149.94	4.43	0.84	3.59
	Developed, Low Intensity	733,969.79	16.85	8.26	8.59
	Developed, Medium Intensity	560,134.84	12.86	10.16	2.70
	Developed, High Intensity	9,657.50	0.22	0.22	0.00
	Pervious - Deciduous forest, mixed forest, shrub, grassland, pasture/hay	579,449.82	13.30	0.00	13.30
			<b>Total</b>	<b>19.48</b>	<b>28.19</b>

#### Sediment Removal

$(19.48 \text{ acres impervious} \times 1,839 \text{ lbs/acre/yr} \times 60\% \text{ sediment removal efficiency}) + (28.19 \text{ acres pervious} \times 264.96 \text{ lbs/acre/yr} \times 60\% \text{ sediment removal efficiency})$

= 25,975.77 lbs/year

#### Total Phosphorus Removal

$(19.48 \text{ acres impervious} \times 2.28 \text{ lbs/acre/yr} \times 20\% \text{ TP removal efficiency}) + (28.19 \text{ acres pervious} \times 0.84 \text{ lbs/acre/yr} \times 20\% \text{ TP removal efficiency})$

= 13.62 lbs/year

#### BMP #8 – Dry Extended Detention Basin

##### *Broadlawn Drive*

This property is owned by a utility company, Peoples Gas. The Township plans to discuss concept ideas with the gas company for this project before construction. The total drainage area tributary to this BMP is approximately 28.82 acres. The below table shows the land cover estimates from Model My Watershed.

BMP#	Land Type	Area (ft <sup>2</sup> )	Area (acres)	Acres Impervious	Acres Pervious
8 - Broadlawn Dr Pond	Developed, Open Space	154,519.68	3.55	0.67	2.87
	Developed, Low Intensity	338,011.81	7.76	3.80	3.96
	Developed, Medium Intensity	164,177.16	3.77	2.98	0.79
	Pervious - Deciduous forest, mixed forest, pasture/hay	598,763.78	13.75	0.00	13.75
			<b>Total</b>	<b>7.45</b>	<b>21.37</b>

### Sediment Removal

(7.45 acres impervious x 1,839 lbs/acre/yr x 60% sediment removal efficiency) + (21.37 acres pervious x 264.96 lbs/acre/yr x 60% sediment removal efficiency)

= 11,617.65 lbs/year

### Total Phosphorus Removal

(7.45 acres impervious x 2.28 lbs/acre/yr x 20% TP removal efficiency) + (21.37 acres pervious x 0.84 lbs/acre/yr x 20% TP removal efficiency)

= 13.62 lbs/year

### BMP #9 – Dry Extended Detention Basin

#### *Grouse Drive*

This BMP is located behind residential properties and is an open space along Scenery Drive and Grouse Drive by which the Township owns. Elizabeth Township plans to control stormwater by constructing a dry detention facility on this open space and leaving open a possible opportunity for underground stormwater detention as well. The total drainage area tributary to this BMP is approximately 43.67 acres. The below table shows the land cover estimates from Model My Watershed.

### Sediment Removal

(17.11 acres impervious x 1,839 lbs/acre/yr x 60% sediment removal efficiency) + (26.56 acres pervious x 264.96 lbs/acre/yr x 60% sediment removal efficiency)

= 23,101.58 lbs/year

### Total Phosphorus Removal

(17.11 acres impervious x 2.28 lbs/acre/yr x 20% TP removal efficiency) + (26.56 acres pervious x 0.84 lbs/acre/yr x 20% TP removal efficiency)

= 12.26 lbs/year

## Fallen Timber Run

### BMP #10 – Dry Extended Detention Basin

#### Oxford Avenue

This BMP is in the Fallen Timber Run planning area and is located near Oxford Avenue and Underwood Avenue. The total drainage area tributary to this BMP is approximately 27.71 acres. The below table shows the land cover estimates from Model My Watershed.

BMP#	Land Type	Area (ft <sup>2</sup> )	Area (acres)	Acres Impervious	Acres Pervious
1 - Oxford Ave	Developed, Open Space	135,205.01	3.10	0.59	2.51
	Developed, Low Intensity	424,930.02	9.76	4.78	4.98
	Developed, Medium Intensity	270,410.01	6.21	4.90	1.30
	Developed, High Intensity	19,315.00	0.44	0.44	0.00
	Pervious - Deciduous forest, mixed forest, shrub, pasture/hay	357,327.52	8.20	0.00	8.20
	<b>Total</b>		<b>10.72</b>	<b>10.72</b>	<b>17.00</b>

#### Sediment Removal

(10.72 acres impervious x 1,839 lbs/acre/yr x 60% sediment removal efficiency) + (17 acres pervious x 264.96 lbs/acre/yr x 60% sediment removal efficiency)

= 14,531 lbs/year

#### Total Phosphorus Removal

(10.72 acres impervious x 2.28 lbs/acre/yr x 20% TP removal efficiency) + (17 acres pervious x 0.84 lbs/acre/yr x 20% TP removal efficiency)

= 8 lbs/year

#### **Total Pollutant Reduction**

The below summary shows how much sediment can be reduced from each of the proposed BMPs listed above.

PRP Planning Area	TSS Reduction (lbs/year)
Wylie Run	95,417
Fallen Timber Run	14,531
<b>Total</b>	<b>109,948</b>

Minimum Required	64,995
<b>Difference</b>	<b>-44,953</b>

The total sediment removed from the proposed BMPs is 109,948 lbs of sediment/year, resulting in an additional 44,953 lbs of sediment/year than the 10% reduction requirement. Since the 10% reduction in sediment removal assumes a 5% reduction in total phosphorus, the total phosphorus reduction requirement has been achieved.

Please note that the Township is required to only meet the minimum required sediment and phosphorus reductions. Therefore, the Township will choose which Phase II projects will benefit them the most to meet their reduction requirements.

**Section F – Identify Funding Mechanism**

The Phase I projects have been and will be funded through their annual budget. Elizabeth Township has applied for a Growing Greener Grant offered through DEP for Phase II projects. The Township is hopeful to receive the grant in order to keep moving forward with the PRP requirement of achieving their sediment reduction goals. Other grant opportunities the Township may consider are listed below.

- CDBG (Community Development Block Grant)
- LSA (Local Share Account) Grants
- CITF (Construction Industry Trust Fund)
- GTRP (Greenways, Trails, and Recreation Program)
- PADEP Environmental Stewardship and Watershed Protection Act Grants
- NOAA Habitat Conservation Program Grants

**Section G – Identify Responsible Parties for Operation and Maintenance of BMPs**

Once implemented, the BMPs must be maintained in order to continue producing the expected pollutant reductions. Elizabeth Township staff and Department of Public Works (DPW) will work together to ensure proper maintenance of each BMP is completed throughout each year.

Wet Pond – Vegetation shall be inspected every two to three weeks during the first growing season or until established. The wet pond shall be inspected at least four times per year and after major storms at storms greater than 2” in 24 hours. If there are any observed problems such as erosion, flow issues, bank stability, inlet/outlet failure, sediment, or debris, then such problems shall be corrected as soon as possible. Vegetation should maintain at least 85% cover of the emergent vegetation zone and buffer area.



Dry Extended Detention Basins – All basins shall be inspected on a quarterly basis. This inspection includes inspecting the basin structures (basin bottom, trash racks, outlet structure, riprap, inlets, etc.) to ensure there is no debris/sediment clogging the structure, removal of said sediment with immediate stabilization and revegetation, mowing or trimming of vegetation. Vegetated areas shall be inspected annually for erosion, unwanted growth of exotic/invasive species, and should remain maintained at a minimum of 95%.

Bioretention – The bioretention areas should be inspected monthly by Municipal staff to ensure that water is being captured and infiltrated through the soil. In addition, the structure should be monitored after significant rain events to ensure proper function. If the depressed area begins to fill with sediment, Municipal staff should remove sediment to the designed elevation and dispose of the material properly. Maintenance is crucial to the effectiveness of this BMP. The Township Department of Public Works staff will review the process and be responsible for maintenance and inspection of the Bioretention area.

## APPENDIX A

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Public Advertisement

Appendix A – The original PRP plan was advertised on November 24, 2017 and re-advertised on November 15, 2018. This revised PRP will be advertised on Tuesday, August 8, 2023. Notices of publication are appended.

## NOTICE

Elizabeth Township

Allegheny County

Elizabeth Township, Allegheny County, Pennsylvania, has revised a Pollutant Reduction Plan (PRP) as required by the PA DEP under the MS4 program. The goal of the PRP is to reduce sediment and total phosphorous flowing into Wylie Run and Fallen Timber Run. The PRP proposes to install stormwater best management practices (BMPs) to reduce the pollutant loading as required.

The PRP is available for public review at the Elizabeth Township Municipal building and township website at [www.elizabethtownship.com](http://www.elizabethtownship.com).

Written comments will be received from the public 30 days from the date- of this notice.

Greg Butler

Elizabeth Township

AFFP  
REVISED PRP

# Affidavit of Publication

STATE OF PENNSYLVANIA } SS  
COUNTY OF  
WESTMORELAND }

Stacy Wolford, being duly sworn, says:

That she is Managing Editor of the Mon Valley Independent, a daily newspaper of general circulation, printed and published in Monessen, Westmoreland County, Pennsylvania; that the publication, a copy of which is attached hereto, was published in the said newspaper on the following dates:

November 15, 2018

That said newspaper was regularly issued and circulated on those dates.

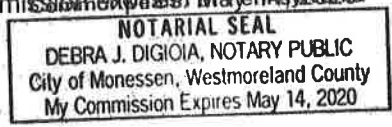
SIGNED: *Stacy Wolford*

\_\_\_\_\_  
Managing Editor

Subscribed to and sworn to me this 15th day of November 2018.

*Debra J. DiGioia*  
\_\_\_\_\_  
Debra J. DiGioia, Notary Public, Westmoreland County, Pennsylvania

My commission expires ~~May 14, 2020~~



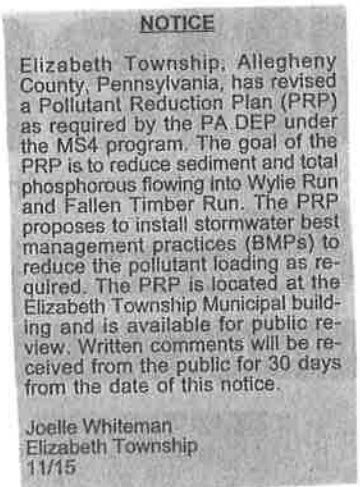
00001670 00024728

Joelle Whiteman  
Elizabeth Township  
522 Rock Run Rd  
ELIZABETH, PA 15037

## NOTICE

Elizabeth Township, Allegheny County, Pennsylvania, has revised a Pollutant Reduction Plan (PRP) as required by the PA DEP under the MS4 program. The goal of the PRP is to reduce sediment and total phosphorous flowing into Wylie Run and Fallen Timber Run. The PRP proposes to install stormwater best management practices (BMPs) to reduce the pollutant loading as required. The PRP is located at the Elizabeth Township Municipal building and is available for public review. Written comments will be received from the public for 30 days from the date of this notice.

Joelle Whiteman  
Elizabeth Township  
11/15



## Affidavit of Publication

STATE OF PENNSYLVANIA } SS  
COUNTY OF  
WESTMORELAND }

Jeffrey T. Oliver, being duly sworn, says:

That he is General Manager of the Mon Valley Independent, a daily newspaper of general circulation, printed and published in Monessen, Westmoreland County, Pennsylvania; that the publication, a copy of which is attached hereto, was published in the said newspaper on the following dates:

November 24, 2017

That said newspaper was regularly issued and circulated on those dates.

SIGNED:

  
\_\_\_\_\_  
General Manager

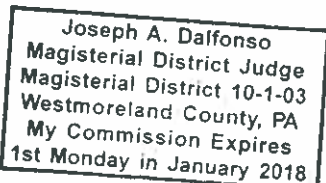
Subscribed to and sworn to me this 24th day of November 2017.

  
\_\_\_\_\_  
Joseph A. Dalfonso, Notary Public, Westmoreland County, Pennsylvania

My commission expires: January 01, 2018

00001670 00015047

Joelle Whiteman  
Elizabeth Township  
522 Rock Run Rd  
ELIZABETH, PA 15037



### NOTICE

Elizabeth Township, Allegheny County, Pennsylvania, has prepared a Pollutant Reduction Plan (PRP) as required by the PA DEP under the MS4 program. The goal of the PRP is to reduce sediment and total phosphorous flowing into Wylie Run and Fallen Timber Run. The PRP proposes to install stormwater best management practices (BMPs) to reduce the pollutant loading as required. The PRP is located at the Elizabeth Township Municipal Building and is available for public review. Written comments will be received from the public for 30 days from the date of this notice.  
11/24

### NOTICE

Elizabeth Township, Allegheny County, Pennsylvania, has prepared a Pollutant Reduction Plan (PRP) as required by the PA DEP under the MS4 program. The goal of the PRP is to reduce sediment and total phosphorous flowing into Wylie Run and Fallen Timber Run. The PRP proposes to install stormwater best management practices (BMPs) to reduce the pollutant loading as required. The PRP is located at the Elizabeth Township Municipal Building and is available for public review. Written comments will be received from the public for 30 days from the date of this notice.  
11/24

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APPENDIX B

Public Advertisement Comments

Appendix B – Public comments, if any, will be submitted to DEP after the 30-day comment period beginning August 8, 2023 and concluding September 8, 2023.



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## APPENDIX C

### Public Comments Consideration

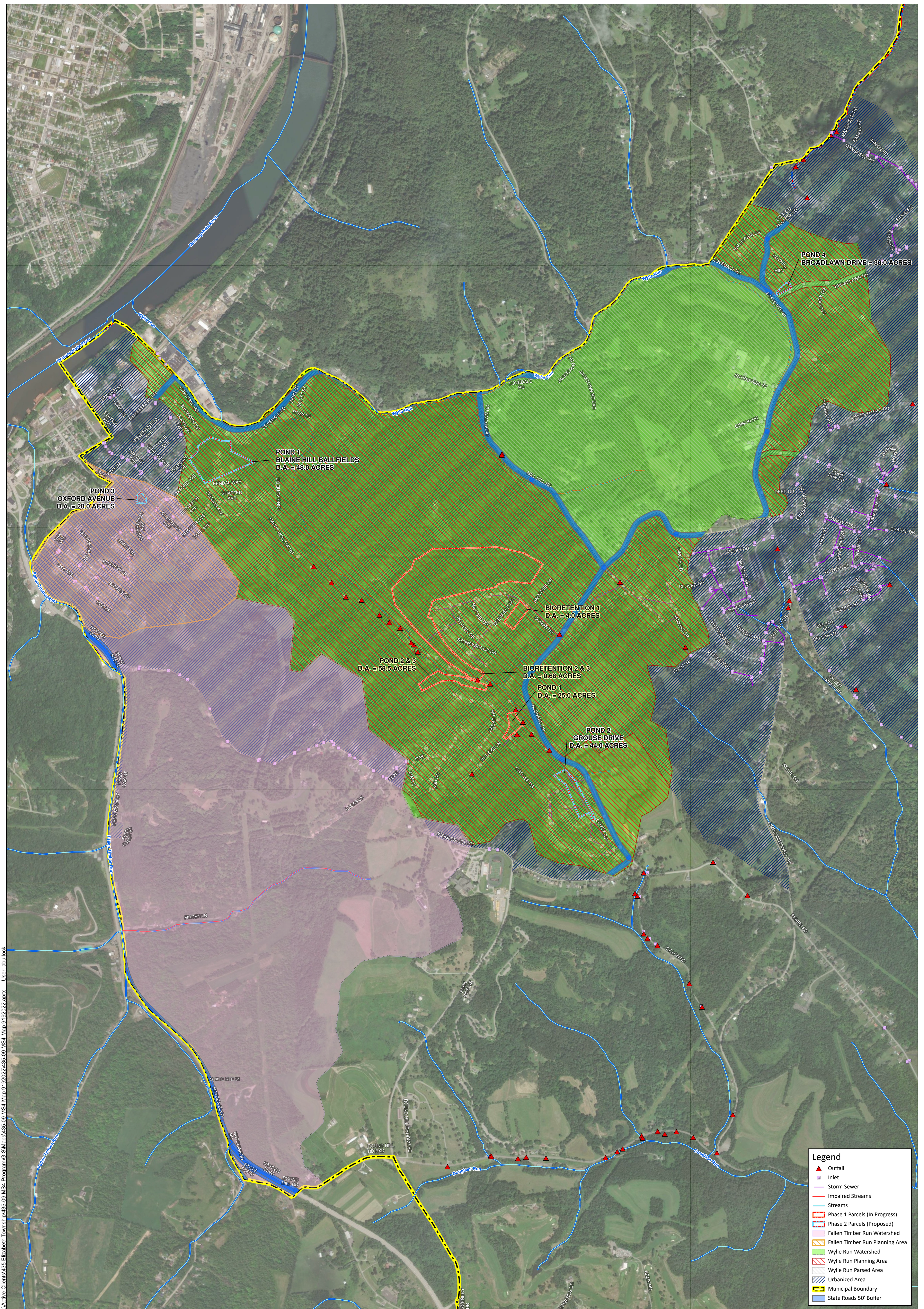
Appendix C – Public comments, if any, will be submitted to DEP after the 30-day comment period beginning August 8, 2023 and concluding September 8, 2023.

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APPENDIX D

MS4 Map





S:\Active Clients\435 Ellizabeth Township\GIS\Map\435-09 MS4 Map 9192022.aprx User: abullock

**435-09**

0 700 1,400  
Feet  
Print Poster Size: 24 x36 1:8,400

Author: AJB  
Date: 8/8/2023  
NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet

**ELIZABETH TOWNSHIP  
ALLEGHENY COUNTY, PENNSYLVANIA  
WYLIE RUN AND FALLEN TIMBER RUN  
WATERSHEDS**

**KLH**  
ENGINEERS, INC

5173 Campbells Run Road, Pittsburgh, PA 15205 - 412-494-0510 - klhengineers.com

