MS4 POLLUTION REDUCTION PLAN (PRP)

FOR

BOROUGH OF OLD FORGE

LACKAWANNA COUNTY

PENNSYLVANIA

Submitted to:

PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION

February 24, 2025

Prepared by:

reuther+bowen
Engineering, Design, Construction Services

326 Ward Street
Dunmore, PA 18512
(570) 496-7020

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Appendices

A. Public Participation

The PRP plan will be available for public review starting on March 1, 2025, on the Borough website, and a hardcopy will be available for review during normal business hours at the Old Forge Borough Building.

Notice of the public comment period and public meeting will be published in the Scranton Times in accordance with the permit requirements. This notice is included in Appendix A of this plan.

A copy of timely comments received, and documentation of comments received during the Borough Council meeting will be included as Appendix B of the PRP plan. The PRP will be revised as necessary to consider public comment. The Borough's record of consideration of comments will be included in the submission of the PRP as Appendix C of the PRP.

B. PRP Map

A Pollution Reduction Plan (PRP) map for the Borough of Old Forge has been prepared by analyzing the known Outfall location along the Lackawanna River and Saint Johns Creek. The map enclosed was prepared by Reuther+Bowen based on GIS mapping information from the Lackawanna County GIS department and the assistance of Old Forge Borough Public Works Department to determine the existing 17 listed outfalls. The map can be found in Appendix D of this report. The aerial base map was utilized to delineate the sewershed areas within the Borough and to determine pervious and impervious landuse surfaces. The areas outside the 17 delineated sewersheds either discharge directly to the river/creek, to a combined sewer system or are the responsibility of the Department of Transportation (PennDOT) or a private entity. As displayed in the map, entire Borough is located within the Lackawanna River Watershed with sewershed areas mapped to verify direct discharge within the Borough planning area in support of the sediment loading calculations.

The locations of potential sediment reduction best management practices (BMPs) are shown on the map. see the enclose sewershed map.

C. Pollutants of Concern

The following streams are within or along the Borough boundary and are affected in the PRP designated area, they are as follows: Lackawanna River with tributaries Saint Johns Creek, and Mill Creek. Saint Johns Creek's confluence is to the Lackawanna River, and no portion of Mill Creek is within Old Forge but the confluence is within the Municipal boundary. Therefore, no direct discharges exist from Old Forge to Mill Creek.

Table 1. Impairments within The Borough of Old Forge Urbanized Area.

Municipality	NPDES Permit	Individual Permit?	Waters	Impairment(s)	Other Cause(s) of Impairments	TMDL Priority
Old Forge Borough	PAG132256	No	Lackawanna River	Appendix A-Metals, pH (4a); Appendix B-Pathogens (4c); Appendix E-Siltation (5)	Flow Alteration (4c)	Medium
			Saint Johns Creek	Appendix E-Siltation (5))	Flow Alteration (4c)	Medium
			Mill Creek	N/A	Cause Unknown (5); Flow Alteration (4c)	Medium

D. Existing Loading for Pollutants of Concern

The Borough of Old Forge consists of approximate 3.5 square miles or roughly 2,220 acres, where the entire Borough is within the Lackawanna River Watershed and is considered Urbanized Area. The seventeen (17) known outfalls were surveyed within the Borough and approximately 375 acres drain to these outfalls making up the Borough study area. The remaining areas within the borough either drain directly to the creek, are collected within combined sewer systems, drain to private stormwater collection systems and are collected within PennDOT storm collection systems.

To determine the total yearly sediment load within the borough, the sediment loading (TSS) values of 1305.05 lb/acre/year for the impervious land cover and 132.98 lb./acre/year for pervious land cover were utilized. These values were taken from Attachment B of the PRP Instructions and are to be used with the DEP Simplified Method as the loading rates for MS4s within the Chesapeake Bay watershed. The landuse was delineated in AutoCAD Civil 3D while using available lidar contour from the Pennsylvania Department of Conservation and Natural Resources and multiple sources of aerial imagery. For the residential developments, the tracts were typically ¼ acre lots. To determine the pervious and impervious area the SCS curve number reference was utilized which states the ¼ acre residential lot is thirty-eight (38) percent impervious and sixty-two (62) percent pervious. A breakdown of the outfalls along with the areas can be found in the appendix of this report.

As noted in the Pollutant Aggregation Suggestions for MS4 Requirements Table Instructions and the Pollutant Aggregation Suggestions for MS4 Requirements Table (Municipal), Old Forge Borough may achieve the ten (10) percent sediment pollutant reduction across the entire Planning Area, as opposed to a 10 percent reduction in the Planning Areas for each receiving impaired

surface water. This is due to Lackawanna River and the Saint Johns Creek sharing a common impairment (sediment)

The total sediment load of the Borough Planning Area is calculated to be 206,302 lb. /year.

The total required sediment reduction shall be 10% of the total sediment load (206,302) is calculated to be 20,630 lb/year.

E. BMP's to Achieve Required Reduction in Pollutant Loading

The BMP's with potential to provide the required ten (10) percent reduction in sediment pollution in the next five (5) years are identified below. A detailed analysis of each BMP's effectiveness, cost and if site acquisition is required prior to implementation. The calculations prepared to support the selection of BMPs are included in Appendix F.

Street Sweeping (Not Utilized in overall Sediment Reduction Calculation)

The Borough currently maintains streets and drainage facilities throughout the Municipality. The Borough currently does not perform street sweeping but will contract with a local company to perform street sweeping within the design areas. The removal of debris and sediment from the roadway will reduce the amount of sediment discharged to the from Borough facilities. The Borough will provide street sweeping a minimum of 12 times each year within the identified areas to meet the requirements for the MS4. The following sediment removal was calculated within the sewersheds delineated.

Estimated Sediment Reduction: 28 acres (streets within sewersheds) * 1305.05 lbs/acre/yr * 0.09 (9%)

= 3,289 lbs/yr

Bio-Retention Basin

The proposed Bio-retention basin (BMP-01) will be located on a parcel currently owned by the Borough of Old Forge. The current sewershed (DA-09) collects runoff from an existing Borough Park and a portion of the Old Forge High School campus. To achieve this task the Borough will reroute a portion of the existing conveyance system to the proposed bio-retention basin while maintaining the current outfall. The current sewershed collects approximately 10.93 acres of drainage area. This location has the potential to collect the remaining area within the High School Campus providing additional sediment reduction then what is listed below. The noted drainage area will be evaluated and updated during the bio-retention basin design. BMP-01 is being designed with construction anticipated in late Summer of 2025.

BMP-1 Bioretention Basin

Table 1 Background

BMP Type	Latitude	Longitude
Bioretention/Basin	41.373403	-75.742169

Table 2. Sediment Load to the BMP

	Drainage Area (Ac)	Land Use Loading Rate (lb/acre/yr)	Sediment Loading To BMP (lb/yr)
Impervious	4.73	1305.05	6,172.88
Pervious	6.20	132.98	824.47
Total	10.93		6,997.35

Table 3. Existing Condition Calculations

Volume Treated (ac-ft)	Inches per Impervious Acre	Percent Reduction	Sediment Load Reduction by BMP (lb/yr)
0.0	0.0	0.0%	0.0

Table 4. Proposed Condition Calculations

Volume Treated (Ac-Ft)	Inches per Impervious Cover	Percent Reduction	Sediment Load Reduced by	Retrofit Final Sediment Load Reduced [Proposed

			BMP (lb/yr)	Load – Existing Load Reduced (lb/yr) (Retrofits Only
0.54	1.37	75%	5,248.01	5,248.01

Bio-Retention Basin

The Borough is proposing to install Bioretention / Rain Garden downstream of existing developed residential area in sewershed DA-12. The noted sewershed has sufficient drainage area (approximately 86 acres) to accommodate the sediment reduction requirement. The proposed location of the BMP will be north of a current stormwater conveyance easement the Borough has obtained from the landowner Lackawanna Heritage Valley and will require an easement/land acquisition from the current owner.

BMP-2 Bioretention Basin

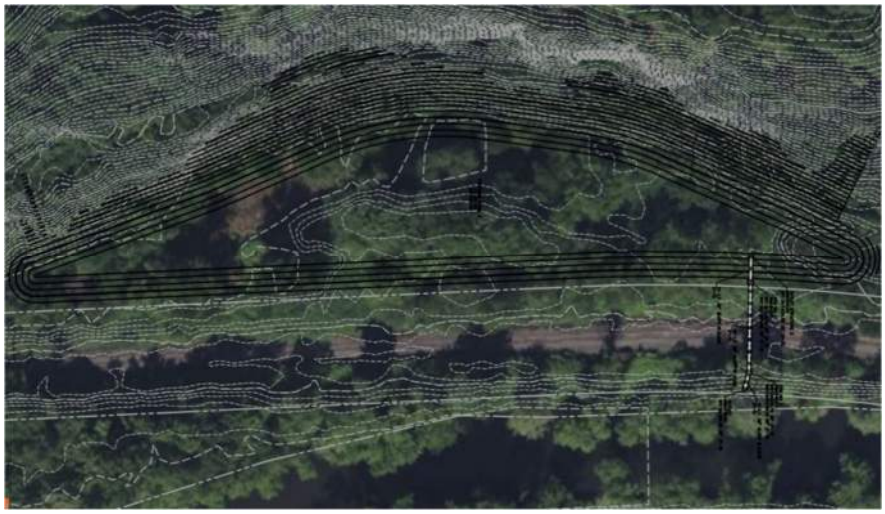


Table 1 Background

BMP Type	Latitude	Longitude
Bioretention Basin	41.370972	-75.723312

Table 2. Sediment Load to the BMP

	Drainage Area (Ac)	Land Use Loading Rate (lb/acre/yr)	Sediment Loading To BMP (lb/yr)
Impervious	34.52	1305.05	45,050.33
Pervious	51.76	132.98	6,883.04
Total	86.28		51,933.37

Table 3. Existing Condition Calculations

Volume Treated (ac-ft)	Inches per Impervious Acre	Percent Reduction	Sediment Load Reduction by BMP (lb/yr)
0.0	0.0	0.0%	0.0

Table 4. Proposed Condition Calculations

Retrofit Storage Volume (RS) Treated (Ac-Ft)	Inches per Impervious Cover	Percent Reduction	Sediment Load Reduced by BMP (lb/yr)	Retrofit Final Sediment Load Reduced [Proposed Load – Existing Load Reduced (lb/yr) (Retrofits Only
1.35	0.47	50%	25,966.68	25,966.68

F. Funding

Unless funding changes are provided at the State and Federal levels, the funding of design and installation of BMP's required by the State and Federal MS4 program will be the responsibility of the Borough. The Borough will seek grants from any available sources including Federal, State and private sources, in addition, the Borough will entertain collaborative efforts with other municipalities

G. Operation and Maintenance (O&M) of BMP's

A written O & M program will be developed specifically with the detailed design of each BMP. Old Forge Borough will be the responsible party to maintain all BMP's. General O & M measures as described below:

Street Sweeping – Street sweeping will continue using a vacuum truck on Borough streets. Areas with separate storm systems having outfalls directly to either St. Johns Creek or the Lackawanna River watersheds, street sweeping will occur a minimum of 25 times per year.

Bioretention – Maintenance activities focus largely on maintaining infiltration capacity and the health of the vegetation. Upon installation of the vegetation, it should be water for a minimum of a two week period to help establish the vegetation. Biweekly for the first year the vegetation should be inspected for signs of disease or distress. Once vegetation is established and on a monthly schedule inspect inlet controls and outlet structures for trash and sediment accumulation and remove in an approved manner. Maintain records of all inspections and repairs.

Appendix A

Public Notice

NOTICE OF PUBLIC COMMENT PERIOD FOR NPDES STORMWATER DISCHARGE POLLUTANT REDUCTION PLAN

Old Forge Borough is preparing an application for a National Pollution Discharge Elimination System (NPDES) Individual Stormwater Permit for Stormwater Discharges from Small Municipal Separate Storm Sewer Systems (MS4s) to be submitted in May 2025 to the Pennsylvania Department of Environmental Protection (PADEP). The Borough is required to submit a Pollution Reduction Plan (PRP) to the PADEP as part of the MS4 application. The plan describes potential sediment reduction measures in the St. Johns Creek and Lackawanna River watersheds.

The Borough is hereby giving notice of the public comment period on the Pollution Reduction Plan, which is a requirement of the Individual MS4 permit. The Borough shall accept comments from April 18, 2025 through May 19, 2025. A copy of the plan will be available on April 18, 2025 on the Borough website, at www.oldforgeborough.com. A hardcopy can be reviewed in person during normal business hours at the Old Forge Borough Building located at 310 South Main Street, Old Forge, PA 18518. Written comments may be submitted to the Borough Manager at this address during the comment period. The plan will be discussed, and the public will have the opportunity to comment at the May 6, 2025 Borough Council work session.

The Borough Council work session will be held at the Old Forge Borough Building (Council Chambers) on May 6, 2025 at 7 p.m.

Appendix B

Public Comments

(TO BE INCLUDED AT THE END
OF PUBLIC REVIEW PERIOD)

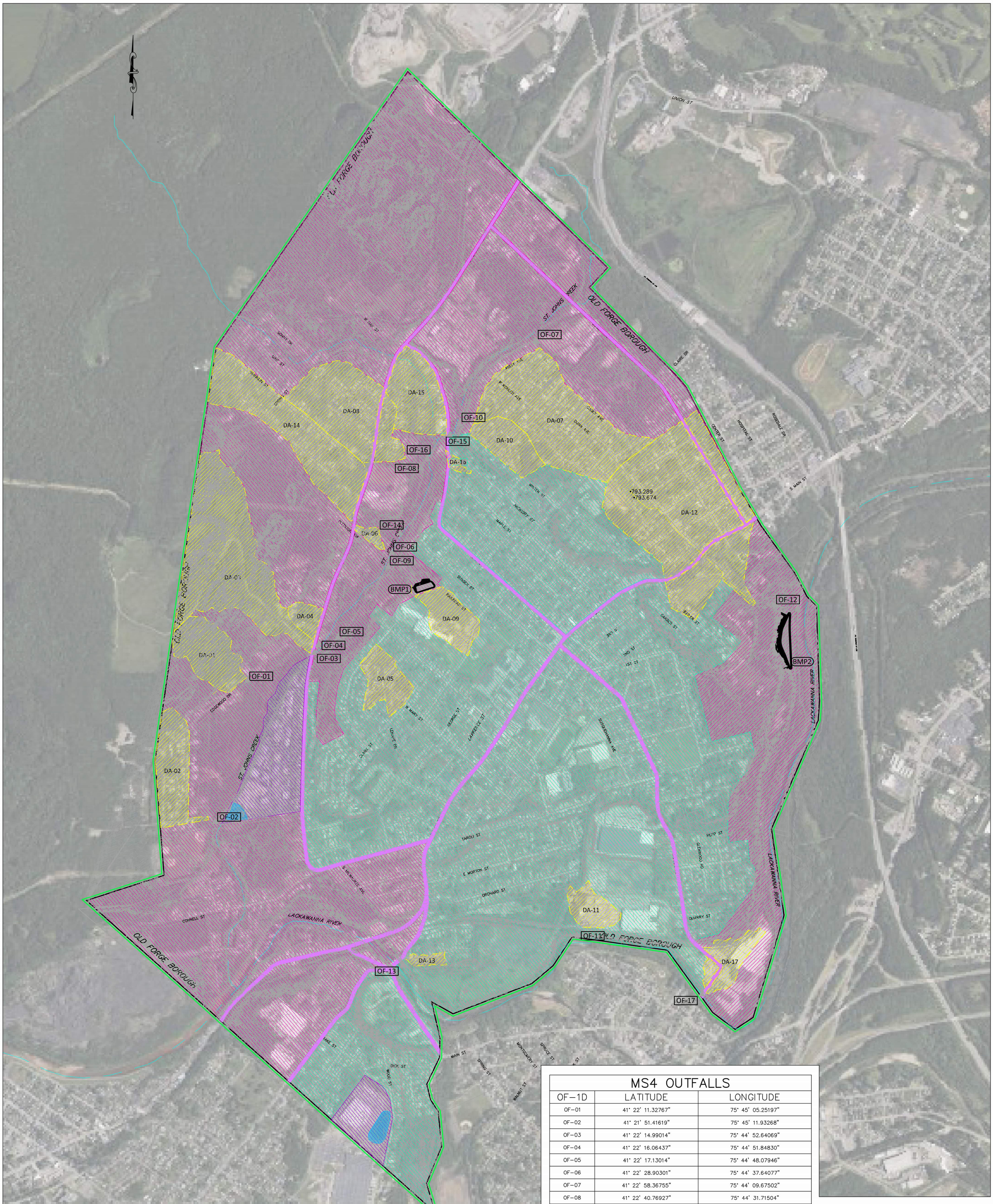
Appendix C

Record of Consideration of Comments

(TO BE INCLUDED AT THE END
OF PUBLIC REVIEW PERIOD)

Appendix D

Maps



MS4 OUTFALLS

OF-1D	LATITUDE	LONGITUDE
OF-01	41° 22' 11.32767"	75° 45' 05.25197"
OF-02	41° 21' 51.41619"	75° 45' 11.93268"
OF-03	41° 22' 14.99014"	75° 44' 52.64069"
OF-04	41° 22' 16.06437"	75° 44' 51.84830"
OF-05	41° 22' 17.13014"	75° 44' 48.07946"
OF-06	41° 22' 28.90301"	75° 44' 37.64077"
OF-07	41° 22' 58.36755"	75° 44' 09.67502"
OF-08	41° 22' 40.76927"	75° 44' 31.71504"
OF-09	41° 22' 26.91947"	75° 44' 38.28923"
OF-10	41° 22' 46.89748"	75° 44' 24.35629"
OF-11	41° 21' 34.13762"	75° 44' 04.40016"
OF-12	41° 22' 19.60478"	75° 43' 21.59411"
OF-13	41° 21' 30.47390"	75° 44' 37.37044"
OF-14	41° 22' 31.63859"	75° 44' 35.99491"
OF-15	41° 22' 45.41023"	75° 44' 26.22573"
OF-16	41° 22' 42.12995"	75° 44' 30.50736"
OF-17	41° 21' 25.42994"	75° 43' 41.30734"

- MUNICIPAL BOUNDARY
- IMPAIRED STREAMS
- URBANIZED AREA
- SEWERSHED - STORM
- MS4 OUTFALL
- PARSED - STATE ROAD
- PARSED - DIRECT DISCHARGE TO WATERWAY
- PARSED - PRIVATE DEVELOPMENT
- PARSED - COMBINED STORM/SANITARY
- BMP2 — BEST MANAGEMENT PRACTICE

GRAPHIC SCALE
1 IN = 500 FT
0' 500' 1000' 1500'

OWNER:
OLD FORGE BOROUGH
310 S MAIN STREET
OLD FORGE, PA 18518

PROJECT TITLE:
OLD FORGE BOROUGH
MS-4
OLD FORGE BOROUGH , LACKAWANNA COUNTY, PENNSYLVANIA

PREPARED BY:
reuther+bowen
Engineering, Design, Construction Services
326 WARD ST. SCRANTON, PA 18512-2424
PHONE (570)496-7020 FAX (570)496-7021

SEAL:

TITLE:
MS-4 MAP

DATE ISSUED:	DRAWN BY:	DWG. NO.
04/15/2025	DL	MS-4.1
SCALE: AS SHOWN	REVIEWED BY: JK	
PROJECT NO: 5190.19	CHECKED BY: MB	

Appendix E

Loading Calculations

Stream	ID	Land Use	Area	Sediment (TSS) lbs/yr	Total Drainage Area (Acres)
St. Johns Creek	DA-01	Pervious	0.70	93.09	15.84
	DA-01	Impervious	0.47	613.37	
	DA-01	Pervious - Woods	14.67	3441.58	
St. Johns Creek	DA-02	Pervious	9.98	1327.14	16.64
	DA-02	Impervious	6.66	8691.63	
St. Johns Creek	DA-03	Pervious	2.45	325.80	55.38
	DA-03	Impervious	1.64	2140.28	
	DA-03	Pervious - Woods	51.29	12032.63	
St. Johns Creek	DA-04	Pervious	2.38	316.49	3.97
	DA-04	Impervious	1.59	2075.03	
St. Johns Creek	DA-05	Pervious	6.13	815.17	10.21
	DA-05	Impervious	4.08	5324.60	
St. Johns Creek	DA-06	Pervious	1.00	132.98	1.67
	DA-06	Impervious	0.67	874.38	
St. Johns Creek	DA-07	Pervious	30.22	4018.66	50.36
	DA-07	Impervious	20.14	26283.71	
St. Johns Creek	DA-08	Pervious	20.33	2703.48	33.89
	DA-08	Impervious	13.56	17696.48	
St. Johns Creek	DA-09	Pervious	6.56	872.35	10.94
	DA-09	Impervious	4.38	5716.12	
St. Johns Creek	DA-10	Pervious	6.78	901.60	11.30
	DA-10	Impervious	4.52	5898.83	
Lackawanna River	DA-11	Pervious	4.36	579.79	7.26
	DA-11	Impervious	2.90	3784.65	
Lackawanna River	DA-12	Pervious	51.76	6883.04	86.28
	DA-12	Impervious	34.52	45050.33	
Lackawanna River	DA-13	Pervious	0.52	69.15	0.86
	DA-13	Impervious	0.34	443.72	
St. Johns Creek	DA-14	Pervious	22.82	3034.60	38.04
	DA-14	Impervious	15.22	19862.86	
St. Johns Creek	DA-15	Pervious	13.04	1734.06	21.74
	DA-15	Impervious	8.70	11353.94	
St. Johns Creek	DA-16	Pervious	5.87	780.59	9.78
	DA-16	Impervious	3.91	5102.75	
Lackawanna River	DA-17	Pervious	5.32	707.45	8.86
	DA-17	Impervious	3.54	4619.88	

Impervious Developed	1305.05 lbs/acre/yr
Pervious developed	132.98 lbs/acre/yr
Undeveloped	234.6 lbs/acre/yr

TOTAL SEDIMENT LOAD **206302.21**

REQUIRED SEDIMENT REDUCTION **20630.22**

Appendix F

BMP Calculations

BMP-1 Bioretention Basin

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Volume Treated (Ac-Ft)	Inches per Impervious Cover	Percent Reduction	Sediment Load Reduced by BMP (lb/yr)	Retrofit Final Sediment Load Reduced [Proposed Load – Existing Load Reduced (lb/yr) (Retrofits Only
0.54	1.37	75%	5,248.01	5,248.01

BMP-1

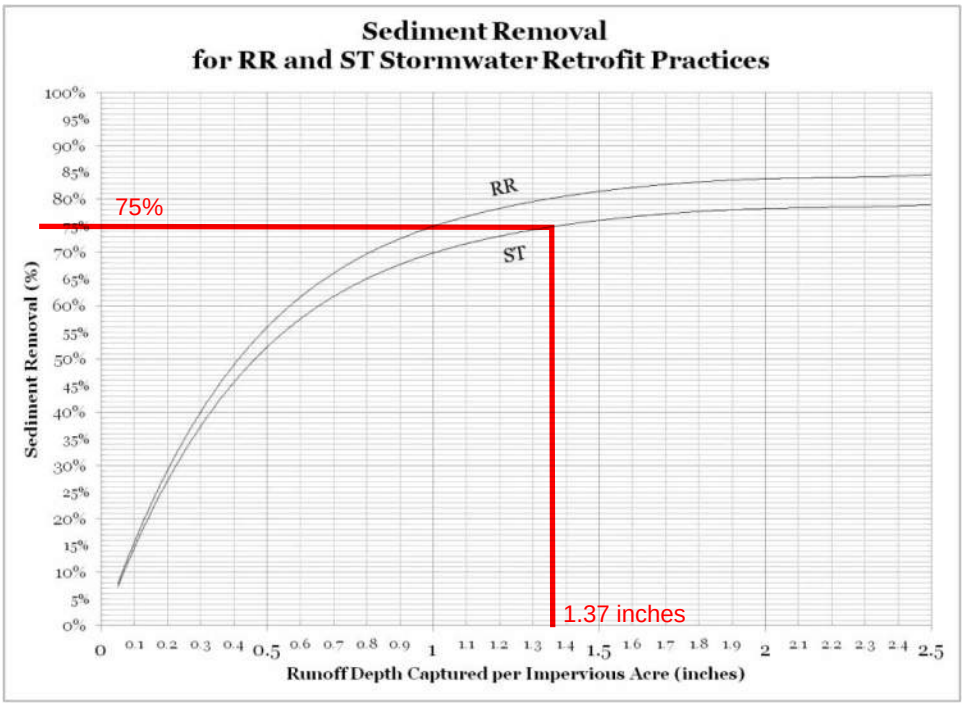


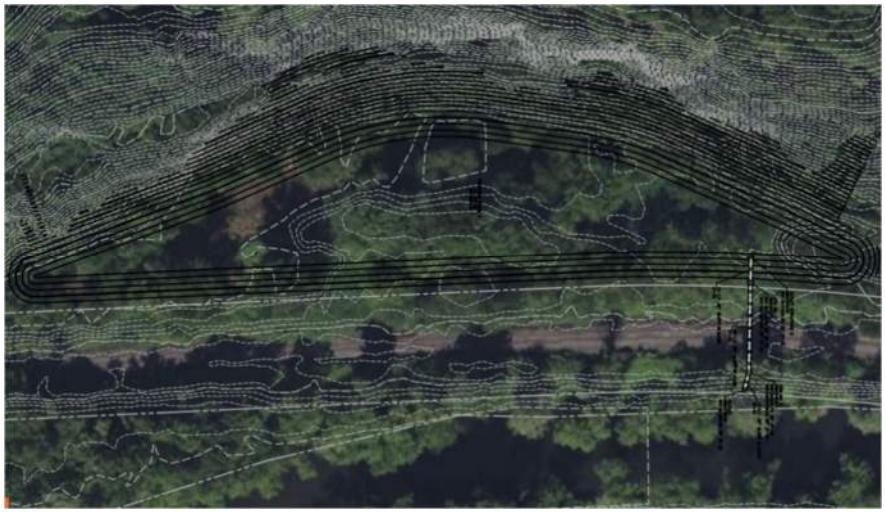
Figure 5. Retrofit Removal Adjustor Curve for Sediment

Runoff reduction is defined as the total post development runoff volume that is reduced through canopy interception, soil amendments, evaporation, rainfall harvesting, engineered infiltration, extended filtration or evapo-transpiration. Retrofit projects that achieve at least a 25% reduction of the annual runoff volume are classified as providing Runoff Reduction (RR), and therefore earn a higher net removal rate. Retrofit projects that employ a permanent pool, constructed wetlands or sand filters have less runoff reduction capability, and their removal rate is determined using the Stormwater Treatment (ST) curve.

Table 2 assigns all of the stormwater practices referenced in Bay State stormwater manuals into either the ST or RR category, so that designers can quickly determine which curve they should use based on the primary treatment practice employed by the retrofit. In situations where a mix of ST and RR practices are used within the same retrofit project, the designer should use the curve based on either the largest single practice used in the project or the ones that provide the majority of the retrofit treatment volume.

The removal rates determined from the retrofit removal rate adjustor curves are applied to the entire drainage area to the retrofit, and not just its impervious acres. Also, the retrofit reporting unit is the entire treated area, regardless of whether it is pervious or impervious.

BMP-2 Bioretention Basin



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1.35	0.47	50%	25,966.68	25,966.68

BMP-2

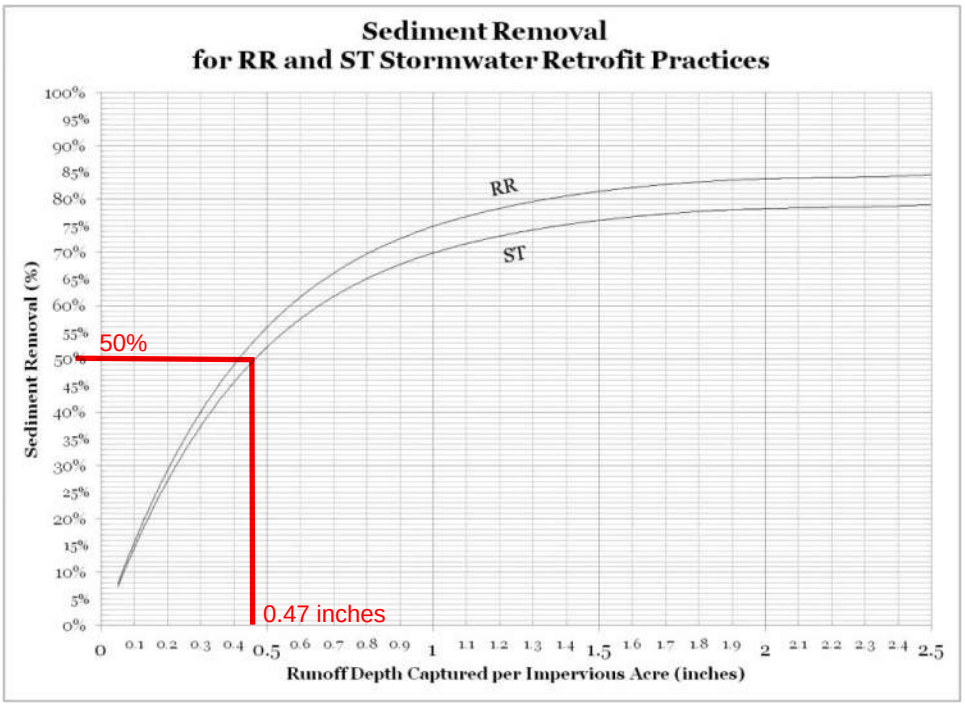

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Table 2 assigns all of the stormwater practices referenced in Bay State stormwater manuals into either the ST or RR category, so that designers can quickly determine which curve they should use based on the primary treatment practice employed by the retrofit. In situations where a mix of ST and RR practices are used within the same retrofit project, the designer should use the curve based on either the largest single practice used in the project or the ones that provide the majority of the retrofit treatment volume.

The removal rates determined from the retrofit removal rate adjustor curves are applied to the entire drainage area to the retrofit, and not just its impervious acres. Also, the retrofit reporting unit is the entire treated area, regardless of whether it is pervious or impervious.

Appendix G

Attachment B – Developed Land Loading Rates for PA Counties

ATTACHMENT B
DEVELOPED LAND LOADING RATES FOR PA COUNTIES[1,2,3]

County	Category	Acres	TN lbs/acre/yr	TP lbs/acre/yr	TSS (Sediment) lbs/acre/yr
Adams	impervious developed	10,373.2	33.43	2.1	1,398.77
	pervious developed	44,028.6	22.99	0.8	207.67
Bedford	impervious developed	9,815.2	19.42	1.9	2,034.34
	pervious developed	19,425	17.97	0.68	301.22
Berks	impervious developed	1,292.4	36.81	2.26	1,925.79
	pervious developed	5,178.8	34.02	0.98	264.29
Blair	impervious developed	3,587.9	20.88	1.73	1,813.55
	pervious developed	9,177.5	18.9	0.62	267.34
Bradford	impervious developed	10,423	14.82	2.37	1,880.87
	pervious developed	23,709.7	13.05	0.85	272.25
Cambria	impervious developed	3,237.9	20.91	2.9	2,155.29
	pervious developed	8,455.4	19.86	1.12	325.3
Cameron	impervious developed	1,743.2	18.46	2.98	2,574.49
	pervious developed	1,334.5	19.41	1.21	379.36
Carbon	impervious developed	25.1	28.61	3.97	2,177.04
	pervious developed	54.2	30.37	2.04	323.36
Centre	impervious developed	7,828.2	19.21	2.32	1,771.63
	pervious developed	15,037.1	18.52	0.61	215.84
Chester	impervious developed	1,838.4	21.15	1.46	1,504.78
	pervious developed	10,439.8	14.09	0.36	185.12
Clearfield	impervious developed	9,638.5	17.54	2.78	1,902.9
	pervious developed	17,444.3	18.89	1.05	266.62
Clinton	impervious developed	7,238.5	18.02	2.80	1,856.91
	pervious developed	11,153.8	16.88	0.92	275.81
Columbia	impervious developed	7,343.1	21.21	3.08	1,929.18
	pervious developed	21,848.2	22.15	1.22	280.39
Cumberland	impervious developed	8,774.8	28.93	1.11	2,065.1
	pervious developed	26,908.6	23.29	0.34	306.95
Dauphin	impervious developed	3,482.4	28.59	1.07	1,999.14
	pervious developed	9,405.8	21.24	0.34	299.62
Elks	impervious developed	1,317.7	18.91	2.91	1,556.93
	pervious developed	1,250.1	19.32	1.19	239.85
Franklin	impervious developed	13,832.3	31.6	2.72	1,944.85
	pervious developed	49,908.6	24.37	0.76	308.31
Fulton	impervious developed	3,712.9	22.28	2.41	1,586.75
	pervious developed	4,462.3	18.75	0.91	236.54
Huntington	impervious developed	7,321.9	18.58	1.63	1,647.53
	pervious developed	11,375.4	17.8	0.61	260.15
Indiana	impervious developed	589	19.29	2.79	1,621.25
	pervious developed	972	20.1	1.16	220.68
Jefferson	impervious developed	21.4	18.07	2.76	1,369.63
	pervious developed	20.4	19.96	1.24	198.60
Juniata	impervious developed	3,770.2	22.58	1.69	1,903.96
	pervious developed	8,928.3	17.84	0.55	260.68
Lackawana	impervious developed	2,969.7	19.89	2.84	1,305.05
	pervious developed	7,783.9	17.51	0.76	132.98
Lancaster	impervious developed	4,918.7	38.53	1.55	1,480.43
	pervious developed	21,649.7	22.24	0.36	190.93
Lebanon	impervious developed	1,192.1	40.58	1.85	1,948.53
	pervious developed	5,150	27.11	0.4	269.81