

**PRP Report and Strategy Plan for Willistown Township  
MS4 Individual Permit Application 2018**

**Appendix I - Amended 01-28-22**

**Proposed BMP's Load Reduction Analysis**









**RIDLEY CREEK WATERSHED  
SEDIMENT INLET FILTER: STORM SEWER SYSTEM SOLID REMOVAL LOAD REDUCTION PER FILTER BAG**

WATERSHED + UA	Inlets	Location	Estimated Drainage Area (ac)	Maximum Allowed Used (ac) <sup>(B)</sup>	Impervious Developed (lbs/ac/yr) <sup>2</sup>	Sediment Loading (lb/yr)	TSS Removal (%) <sup>(D)</sup>	Collections Per Year (+/-)	Sediment Removed (lb/yr) <sup>3</sup>
SSRC23	I-RC23A(A)	Cratin Lane	1.52	0.50	1,504.78	752.39	80	4	601.91
SSRC23	I-RC23B	Cratin Lane	0.42	0.42	1,504.78	637.27	80	4	509.82
SSRC24b	I-RC24A(A)	Smedley Drive	1.58	0.50	1,504.78	752.39	80	4	601.91
SSRC24b	I-RC24B	Smedley Drive	38.77	0.50	1,504.78	752.39	80	4	601.91
SSRC25b	I-RC25A(A)	Dutton Mill Road	0.06	0.06	1,504.78	90.29	80	4	72.23
SSRC25b	I-RC25B	Dutton Mill Road	0.21	0.21	1,504.78	312.09	80	4	249.67
SSRC26	I-RC26A(A)	Fox Run Lane	2.42	0.50	1,504.78	752.39	80	4	601.91
SSRC26	I-RC26B	Fox Run Lane	0.43	0.43	1,504.78	642.24	80	4	513.79
SSRC27	I-RC27(A)	Fox Run Lane	2.98	0.50	1,504.78	752.39	80	4	601.91
SSRC2	I-RC2A	Farmhouse Lane	6.00	0.50	1,504.78	752.39	80	4	601.91
SSRC6	I-RC6A	Willow Pond Lane	0.89	0.50	1,504.78	752.39	80	4	601.91
SSRC6	I-RC6B	Willow Pond Lane	2.00	0.50	1,504.78	752.39	80	4	601.91
SSRC6	I-RC6C	Willow Pond Lane	3.44	0.50	1,504.78	752.39	80	4	601.91
SSRC6	I-RC6D	Willow Pond Lane	0.20	0.20	1,504.78	300.96	80	4	240.76
SSRC7	I-RC7A	Oak Tree Road	5.25	0.50	1,504.78	752.39	80	4	601.91
SSRC5	I-RC5A	Woodmont Drive	3.60	0.50	1,504.78	752.39	80	4	601.91
SSRC5	I-RC5B	Woodmont Drive	0.65	0.50	1,504.78	752.39	80	4	601.91
								<b>TOTAL</b>	<b>8,809.22</b>

- A. Last inlet prior to Outfall
- B. Maximum allowed = 0.5 ac. without further additional supporting test data
- C. Manufacturer testing at 82.2%
- D. Storm Sewer Solids Removal Max. Allowed per Reference 1.
- E. Maximum number of sweepings / collections to achieve maximum sediment removal.

**REFERENCES:**

1. NPDES Stormwater Discharges from MS4's BMP Effectiveness Values 3800-PM-BCW0100m
2. PADEP Developed Land Loading Rates for PA Counties for Chester County
3. Impervious conditions only apply, per PADEP PRP Instructions 3800-PM-BCW0100k.

**RIDLEY CREEK**  
**BMP REDUCTION LOAD REDUCTION PER ACRE ANALYSIS 1 - BASIN RETROFITS INTO RAINGARDENS, RIPARIAN FOREST BUFFER, AND OTHER BMP'S**

SewerShed	BMP Type	Pervious Area	Impervious area	Treated Area (ac)	Impervious Loading Rate (lb/ac/yr) 2	TSS (%) 1	Impervious Sediment Removed lb/yr	Pervious Loading Rate (lb/ac/yr) 2	TSS (%) 1	Pervious Sediment Removed lb/yr	Combined Sediment Removed (lb/yr) 3&4
SSRC28 (Rita Reves Park)	Bioretention/Raingarden C/D Soils w/UD	1.97	2.17	4.14	1504.78	55	1,796	185.12	55	201	1,997
SSRC2 (Farmhouse Lane)	Bioretention/Raingarden C/D Soils w/UD	5.85	1.54	7.39	1504.78	55	1,275	185.12	55	596	1,870
SSRC6 (Hickory Lane Basin)	Bioretention/Raingarden A/B Soils wo/UD	19.41	2.12	21.53	1504.78	90	2,871	185.12	90	3,234	6,105
Troutback Farm Drainage Area, s	Riparian Forest Buffer	12.52	4.53	17.05	1504.78	50	3,408	185.12	50	1,159	4,567
<b>BMP SUBTOTALS</b>							<b>9,350</b>			<b>5,189</b>	<b>14,539</b>

SewerShed	BMP Type	Load Reduction	No. Trees to be Planted	Treated Area (ac)	Pervious Area	Impervious area	Treated Area (ac) 7	Impervious Loading Rate (lb/ac/yr) 2	Impervious Sediment Removed lb/yr	Pervious Loading Rate (lb/ac/yr) 2	Pervious Sediment Removed lb/yr	Pollutant Loading Rate Prior (lb/yr)	TSS (%) 1	Combined Sediment Removed (lb/yr) 3&4
Willistown Point Drainage Area, s	Tree Plantings													
	STEP 1 - Treated Area	0.01	383	3.83										
	STEP 2 - Prior Pollutant Loading Rate	9.77	3.39	3.83	N/A	N/A		185.12	709	709				
	STEP 3 - Sediment Removed									709		20		142
<b>BMP SUBTOTAL</b>								<b>0</b>		<b>709</b>		<b>20</b>		<b>142</b>

OTHER ACCEPTABLE BMPS														
<b>INLET SEDIMENT REMOVAL</b>	Sediment Filter Bags (Flexstorm)													8,809
	(8 Additional Inlet Sediment Filter Bags)													
<b>BMP SUBTOTAL</b>														<b>8,809</b>
<b>TOTAL BMP REMOVAL TOTALS</b>														<b>23,490</b>

<b>Required Reduction</b>	<b>22,304</b>
<b>10% Minimum Requirement Met</b>	<b>YES</b>
<b>Allowance for Final Design Adjustments</b>	<b>1,186</b>

- REFERENCES/NOTES:
1. NPDES Stormwater Discharges from MS4's BMP Effectiveness Values
  2. PADEP Developed Land Loading Rates for PA Counties for Chester County
  3. Use combined Sediment only if under both impervious and pervious conditions, per PADEP PRP Instructions 3800-PM-BCW0100k.
  4. Additional removal rates possible for areas with undeveloped land outside urbanized area using TSS=234.6 lb/ac/yr, per PADEP PRP Instructions 3800-PM-BCW0100k.
  5. Post-Development Drainage Area to Riparian Buffer, Pervious and Impervious per Troutbeck Farm Subdivision Stormwater Report, drainage area in parsed-out area.
  6. Post Development Drainage Area to Tree Plantings, Pervious and Impervious per Willistown Point Subdivision Stormwater Report, drainage area in the parsed-out area.
  7. The drainage area total that passes through the tree plantings areas, use only the pervious area.
  8. The for reference, not included in the calculation.