



**NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
DISCHARGES OF STORMWATER ASSOCIATED WITH CONSTRUCTION ACTIVITIES
POST-CONSTRUCTION STORMWATER MANAGEMENT (PCSM) MODULE 2**

Applicant: M & G Realty, Inc.

Project Site Name: Rutter's Huntingdon Store # 93

Surface Water Name(s): wetlands tributary to UNT
of Juniata River

Surface Water Use(s): WWF

PCSM PLAN INFORMATION revised 3/15/22

1. Identify all structural and non-structural PCSM BMPs that have been selected and provide the information requested.

Discharge Point(s)	BMP ID	BMP Name	BMP Manual	Latitude N	Longitude W	DA Treated (ac)
002	1	Subsurface Infiltration Bed	6.4.3	40.48916°	78.03694°	2.37
001	2	Subsurface Infiltration Bed	6.4.3	40.48888°	78.03638°	0.30
001	3	Subsurface Infiltration Bed	6.4.3	40.48916°	78.03611°	0.29
001	4	Subsurface Infiltration Bed	6.4.3	40.48916°	78.03638°	0.57
001	5	Subsurface Infiltration Bed	6.4.3	40.48916°	78.03583°	0.55
001	6	Subsurface Infiltration Bed	6.4.3	40.48944°	78.03611°	1.76
002	7	Water Quality Filter	6.6.4	40.48944°	78.03722°	0.11
002	8	Water Quality Filter	6.6.4	40.48944°	78.03694°	0.46
002	9	Water Quality Filter	6.6.4	40.49000°	78.03666°	0.70
001	10	Water Quality Filter	6.6.4	40.49000°	78.03638°	0.42
001	11	Water Quality Filter	6.6.4	40.48972°	78.03611°	0.59
001	12	Water Quality Filter	6.6.4	40.48972°	78.03583°	0.31
001	13	Water Quality Filter	6.6.4	40.48944°	78.03583°	0.11
001	14	Water Quality Filter	6.6.4	40.48944°	78.03583°	0.07
001	15	Water Quality Filter	6.6.4	40.48916°	78.03611°	0.16

Undetained Areas: 0.90 acre(s)

The Project Qualifies as a Site Restoration Project (25 Pa. Code §102.8(n))

2. Describe the sequence of PCSM BMP implementation in relation to earth disturbance activities and a schedule of inspections for the critical stages of PCSM BMP installation.

The PCSM BMP Terre Arch subsurface infiltration beds will be constructed after the site grading has reached desired elevations. The PCSM BMP locations will be excavated to the proper depths and the arches installed. This critical stage of installation will be supervised by the products supplier, Terre Hill Company. The Water Quality Inlet insets cannot be installed in the completed stormwater collection system until the entire site has been permanently stabilized and the temporary inlet filter bag E&S BMP's are no longer needed and have been removed. A licensed professional will assure proper installation of these devices.

3. <input checked="" type="checkbox"/> Plan drawings have been developed for the project and will be available on-site.
4. <input checked="" type="checkbox"/> Plan drawings have been developed for the project and are attached to the NOI/application.
5. <input checked="" type="checkbox"/> Recycling and proper disposal of materials associated with PCSM BMPs are addressed as part of long-term operation and maintenance of the PCSM BMPs.
6. Identify naturally occurring geologic formations or soil conditions that may have the potential to cause pollution after earth disturbance activities are completed and PCSM BMPs are operational and the applicant's plan to avoid or minimize potential pollution and its impacts. The site is underlain by Hamilton Group geology which is known to contain pyritic shale. The Geotechnical Engineering Report documents that testing revealed pyritic sulfur bedrock could be encountered in the area proposed for the underground fuel tanks. The Geotechnical engineer will be present during excavation to evaluate soil conditions encountered in the field and determine the need for further testing. See Sheets ES4 and PCSM 3 for more detailed recommendations.
7. Identify whether the potential exists for thermal impacts to surface waters from post-construction stormwater. If such potential exists, identify BMPs that will be implemented to avoid, minimize, or mitigate potential thermal impacts. Any time when vegetated surfaces are change to impervious surface, thermal impacts can result. Thermal impacts will be minimized by utilizing underground PCSM BMP's that will help to avoid solar warming of ponded water.
8. <input checked="" type="checkbox"/> The PCSM Plan has been planned, designed, and will be implemented to be consistent with the E&S Plan.
9. <input checked="" type="checkbox"/> A pre-development site characterization has been performed.

STORMWATER ANALYSIS – RUNOFF VOLUME

Surface Water Name: Wetlands tributary to UNT to the Juniata River

Discharge Point(s): 001 & 002

1. The design standard is based on volume management requirements in an Act 167 Plan approved by DEP within the past five years.

2. The design standard is based on managing the net change for storms up to and including the 2-year/24-hour storm.

3. An alternative design standard is being used.

4. A printout of DEP's PCSM Spreadsheet – Volume Worksheet is attached.

5. 2-Year/24-Hour Storm Event: _____ inches Source of precipitation data: _____

6. Stormwater Runoff Volume, Pre-Construction Conditions: CF Calculations attached

7. Stormwater Runoff Volume, Post-Construction Conditions: CF Calculations attached

8. Net Change (Post-Construction – Pre-Construction Volumes): CF

9. Identify all selected structural PCSM BMPs and provide the information requested. Calculations attached

DP No.	BMP ID	Series	Vol. Routed to BMP (CF)	Inf. Area (SF)	Inf. Rate (in/hr)	Inf. Period (hrs)	Veg?	Media Depth (ft)	Storage Vol. (CF)	Inf. Credit (CF)	ET Credit (CF)
							<input type="checkbox"/>				
							<input type="checkbox"/>				
							<input type="checkbox"/>				
							<input type="checkbox"/>				
							<input type="checkbox"/>				
							<input type="checkbox"/>				
							<input type="checkbox"/>				
							<input type="checkbox"/>				

Total Infiltration & ET Credits (CF):
Non-Structural BMP Volume Credits (CF) (Attach Calculations):
Managed Release Credits (CF) (Attach MRC Design Summary):
Volume Required to Reduce/Manage (CF):
Total Credits (CF):

INFILTRATION INFORMATION	
BMP ID: 1	<input type="checkbox"/> Soil/geologic test results are attached.
1. No. of infiltration tests completed: 2	
2. Method(s) used for infiltration testing: Percolation	
3. Test Pit Identifiers (from PCSM Plan Drawings): INF-2 & INF -3	
4. Avg Infiltration Rate: 0.91 in/hr	5. FOS: 2 : 1
6. Infiltration rate used for design: 0.40 in/hr	
7. Separation distance between the BMP bottom and bedrock: +2.0 feet	
8. Separation distance between the BMP bottom and seasonal high-water table: +2.0 feet	
9. Comments:	
BMP ID: 2	<input type="checkbox"/> Soil/geologic test results are attached.
1. No. of infiltration tests completed: 1	
2. Method(s) used for infiltration testing: Percolation	
3. Test Pit Identifiers (from PCSM Plan Drawings): INF-1	
4. Avg Infiltration Rate: 2.00 in/hr	5. FOS: 2 : 1
6. Infiltration Rate Used for Design: 0.48 in/hr	
7. Separation distance between the BMP bottom and bedrock: +2.0 feet	
8. Separation distance between the BMP bottom and seasonal high-water table: +2.0 feet	
9. Comments:	
BMP ID: 3	<input type="checkbox"/> Soil/geologic test results are attached.
1. No. of infiltration tests completed: 1	
2. Method(s) used for infiltration testing: Percolation	
3. Test Pit Identifiers (from PCSM Plan Drawings): INF-4	
4. Avg Infiltration Rate: 0.50 in/hr	5. FOS: 2 : 1
6. Infiltration Rate Used for Design: 0.11 in/hr	
7. Separation distance between the BMP bottom and bedrock: +2.0 feet	
8. Separation distance between the BMP bottom and seasonal high-water table: +2.0 feet	
9. Comments:	
INFILTRATION INFORMATION	

BMP ID: 4	<input type="checkbox"/> Soil/geologic test results are attached.
10. No. of infiltration tests completed: 1	
11. Method(s) used for infiltration testing: Percolation	
12. Test Pit Identifiers (from PCSM Plan Drawings): INF-5	
13. Avg Infiltration Rate: 0.82 in/hr	14. FOS: 2 : 1
15. Infiltration rate used for design: 0.19 in/hr	
16. Separation distance between the BMP bottom and bedrock: +2.0 feet	
17. Separation distance between the BMP bottom and seasonal high-water table: +2.0 feet	
18. Comments:	
BMP ID: 5	<input type="checkbox"/> Soil/geologic test results are attached.
10. No. of infiltration tests completed: 1	
11. Method(s) used for infiltration testing: Percolation	
12. Test Pit Identifiers (from PCSM Plan Drawings): INF-6	
13. Avg Infiltration Rate: 13.50 in/hr	14. FOS: 2 : 1
15. Infiltration Rate Used for Design: 3.42 in/hr	
16. Separation distance between the BMP bottom and bedrock: +2.0 feet	
17. Separation distance between the BMP bottom and seasonal high-water table: +2.0 feet	
18. Comments:	
BMP ID: 6	<input type="checkbox"/> Soil/geologic test results are attached.
7. No. of infiltration tests completed: 1	
8. Method(s) used for infiltration testing: Percolation	
9. Test Pit Identifiers (from PCSM Plan Drawings): INF-7	
10. Avg Infiltration Rate: 0.88 in/hr	11. FOS: 2 : 1
12. Infiltration Rate Used for Design: 0.20 in/hr	
9. Separation distance between the BMP bottom and bedrock: +2.0 feet	
10. Separation distance between the BMP bottom and seasonal high-water table: +2.0 feet	
10. Comments:	

STORMWATER ANALYSIS – PEAK RATE

Surface Water Name: Wetlands tributary to UNT to the Juniata River **Discharge Point(s):** 002

1. The design standard is based on rate requirements in an Act 167 Plan approved by DEP within the past five years.
2. The design standard is based on managing the net change for 2-, 10-, 50-, and 100-year/24-hour storms.
3. An alternative design standard is being used.
4. A printout of DEP’s PCSM Spreadsheet – Rate Worksheet is attached.
5. Alternative rate calculations are attached.

6. Identify precipitation amounts. Source of precipitation data: NOAA

2-Year/24-Hour Storm:	2.66	10-Year/24-Hour Storm	3.84
50-Year/24-Hour Storm:	5.25	100-Year/24-Hour Storm	5.93

7. Report peak discharge rates, pre- and post-construction (without BMPs), based on a time of concentration analysis.

Design Storm	Pre-Construction Peak Rate (cfs)	Post-Construction Peak Rate (cfs)	Difference (cfs)
2-Year/24-Hour	2.41	8.11	5.70
10-Year/24-Hour	4.93	12.04	7.11
50-Year/24-Hour	8.29	16.69	8.40
100-Year/24-Hour	9.97	18.92	8.95

8. Identify all BMPs used to mitigate peak rate differences and provide the requested information.

BMP ID	Inflow to BMP (cfs)				Outflow from BMP (cfs)			
	2-Yr	10-Yr	50-Yr	100-Yr	2-Yr	10-Yr	50-Yr	100-Yr
1	8.11	12.04	16.69	18.92	0.45	1.34	2.07	2.34

9. Report peak rates for pre-construction and post-construction with BMPs and identify the differences.

Design Storm	Pre-Construction Peak Rate (cfs)	Post-Construction Peak Rate (with BMPs) (cfs)	Difference (cfs)
2-Year/24-Hour	2.41	1.60	-0.81
10-Year/24-Hour	4.93	3.50	-1.43
50-Year/24-Hour	8.29	5.55	-2.74
100-Year/24-Hour	9.97	6.48	-3.49

STORMWATER ANALYSIS – PEAK RATE

Surface Water Name: Wetlands tributary to UNT to the Juniata River **Discharge Point(s):** 001

10. The design standard is based on rate requirements in an Act 167 Plan approved by DEP within the past five years.
11. The design standard is based on managing the net change for 2-, 10-, 50-, and 100-year/24-hour storms.
12. An alternative design standard is being used.
13. A printout of DEP's PCSM Spreadsheet – Rate Worksheet is attached.
14. Alternative rate calculations are attached.

15. Identify precipitation amounts. Source of precipitation data: NOAA

2-Year/24-Hour Storm: 2.66 10-Year/24-Hour Storm 3.84

50-Year/24-Hour Storm: 5.25 100-Year/24-Hour Storm 5.93

16. Report peak discharge rates, pre- and post-construction (without BMPs), based on a time of concentration analysis.

Design Storm	Pre-Construction Peak Rate (cfs)	Post-Construction Peak Rate (cfs)	Difference (cfs)
2-Year/24-Hour	4.63	12.64	8.01
10-Year/24-Hour	9.27	19.92	10.65
50-Year/24-Hour	15.37	28.63	13.26
100-Year/24-Hour	18.42	32.82	14.40

17. Identify all BMPs used to mitigate peak rate differences and provide the requested information.

BMP ID	Inflow to BMP (cfs)				Outflow from BMP (cfs)			
	2-Yr	10-Yr	50-Yr	100-Yr	2-Yr	10-Yr	50-Yr	100-Yr
2	1.14	4.05	11.25	16.56	0.14	2.14	8.14	10.99
3	1.04	4.28	11.74	16.39	0.45	3.87	10.72	15.48
4	2.04	2.96	4.07	4.60	0.00	0.00	0.12	0.34
5	1.65	6.51	13.86	16.31	0.41	4.00	10.79	14.65
6	5.29	8.29	11.82	13.52	0.35	4.74	10.31	12.26

18. Report peak rates for pre-construction and post-construction with BMPs and identify the differences.

Design Storm	Pre-Construction Peak Rate (cfs)	Post-Construction Peak Rate (with BMPs) (cfs)	Difference (cfs)
2-Year/24-Hour	4.63	1.84	-2.79
10-Year/24-Hour	9.27	5.27	-4.00
50-Year/24-Hour	15.37	13.07	-2.30
100-Year/24-Hour	18.42	16.80	-1.62

STORMWATER ANALYSIS – WATER QUALITY

A printout of DEP's PCSM Spreadsheet – Quality Worksheet is attached for all surface waters receiving discharges.

LONG-TERM O&M

Describe the long-term operation and maintenance (O&M) requirements for each selected PCSM BMP.

BMP ID	O&M Requirements
See Sheet PCSM 3 for specific maintenance requirements specified for the different types of PCSM BMP's	
1, 2, 3, 4, 5, 6	Terre Arch subsurface Infiltration Bed
7, 8, 9, 10, 11, 12, 13, 14, & 15	Water Quality Inlet Insert

PCSM PLAN DEVELOPER

I am trained and experienced in PCSM methods. I am a licensed professional.

Name:	<u>Benjamin S. Piper, P.E.</u>	Title:	<u>Senior Designer</u>
Company:	<u>Keller Engineers, Inc.</u>	Phone No.:	<u>814-696-7430</u>
Address:	<u>P.O. Box 61</u>	Email:	<u>bpiper@keller-engineers.com</u>
City, State, ZIP:	<u>Hollidaysburg, PA 16648</u>	License No.:	<u>PE086344</u>
License Type:	<u>Registered Professional Engineer</u>	Exp. Date	<u>09/30/23</u>

PCSM Plan Developer Signature

Date

General Information

Instructions **General** Volume Rate Quality

Project Name: Application Type:

County: Municipality:

Project Type: New Project Minor / Major Amendment

Area: acres Total Earth Disturbance: acres
(In Watershed) *(In Watershed)*

No. of Post-Construction Discharge Points: Start DP Numbering at:

Discharge Point (DP) No.	Drainage Area (DA) (acres)	Earth Disturbance in DA (acres)	Existing Impervious in DA (acres)	Proposed Impervious in DA (acres)	Receiving Waters	Ch. 93 Class	Structural BMP(s)
001	2.65	2.42	0.00	2.08	wetlands tributary to UNT to Juniata River	WWF	Yes
Undetained Areas					wetlands tributary to UNT to Juniata River	WWF	
Totals:	2.65	2.42		2.08			

Volume Management

Project: **Huntingdon Rutter's Store 93**

2-Year / 24-Hour Storm Event (NOAA Atlas 14): inches

Alternative 2-Year / 24-Hour Storm Event inches

Alternative Source:

Pre-Construction Conditions: No. Rows: Exempt from Meadow in Good Condition Automatically Calculate CN, Ia, Runoff and Volume

Land Cover	Area (acres)	Soil Group	CN	Ia (in)	Q Runoff (in)	Runoff Volume (cf)
Pervious as Meadow	2.42	D	78	0.564	0.89	7,849
TOTAL (ACRES): 2.42						TOTAL (CF): 7,849

Post-Construction Conditions: No. Rows:

Land Cover	Area (acres)	Soil Group	CN	Ia (in)	Q Runoff (in)	Runoff Volume (cf)
Impervious Areas: Paved Parking Lots, Roofs, Driveways, Etc. (Excluding ROW)	2.08	D	98	0.041	2.43	18,346
Open Space (Lawns, Parks, Golf Courses, Cemeteries, Etc.) - Good Condition (Grass Cover > 75%)	0.34	D	80	0.500	1.00	1,236
TOTAL (ACRES): 2.42						TOTAL (CF): 19,582

JET CHANGE IN VOLUME TO MANAGE (CF):

Non-Structural BMP Volume Credits:

- Tree Planting Credit
- Other (attach calculations):

Structural BMP Volume Credits: No. Structural BMPs:

Start BMP Numbering at:

DP No.	BMP No.	BMP Name	MRC?	Discharge	Incremental BMP DA (acres)	Volume Routed to BMP (CF)	Infiltration / Vegetated Area (SF)	Infiltration Rate (in/hr)	Infiltration Period (hrs)	Vegetated?	Media Depth (ft)	Storage Volume (CF)	Infiltration Credit (CF)	ET Credit (CF)
001	1	Infiltration Bed		Off-Site	2.37	17,889	7,360	0.40	72	No		10,700	13,350	

Totals: 13,350

INFILTRATION & ET CREDITS (CF): 13,350

NET CHANGE IN VOLUME TO MANAGE (CF): 11,733

TOTAL CREDITS (CF): 13,350

VOLUME REQUIREMENT SATISFIED

Rate Control

Project: Huntingdon Rutter's Store 93

Instructions
General
Volume
Rate
Quality

Precipitation Amounts:

NOAA 2-Year 24-Hour Storm Event (in):	2.66
NOAA 10-Year 24-Hour Storm Event (in):	
NOAA 50-Year 24-Hour Storm Event (in):	
NOAA 100-Year 24-Hour Storm Event (in):	

Alternative 2-Year 24-Hour Storm Event (in):	
Alternative 10-Year 24-Hour Storm Event (in):	
Alternative 50-Year 24-Hour Storm Event (in):	
Alternative 100-Year 24-Hour Storm Event (in):	

Report Summary of Peak Rates Only

Attach model input and output data or other calculations to support the rates reported below.

	Peak Discharge Rates (cfs)		Net Change	
	Pre-Construction	Post-Construction		
2-Year Storm:	2.41	1.60	-0.81	Rate Control Satisfied
10-Year Storm:	4.93	3.50	-1.43	Rate Control Satisfied
50-Year Storm:	8.29	5.55	-2.74	Rate Control Satisfied
100-Year Storm:	9.97	6.48	-3.49	Rate Control Satisfied

Water Quality

Project: Huntingdon Rutter's Store 93

PRINT

Instructions **General** Volume Rate **Quality**

Pre-Construction Pollutant Loads:

Land Cover (from Volume Worksheet)	Land Cover for Water Quality	Area (acres)	Soil Group	Runoff Volume (cf)	Pollutant Conc. (mg/L)			Pollutant Loads (lbs)		
					TSS	TP	TN	TSS	TP	TN
Pervious as Meadow	Grassland/Herbaceous	2.42	D	7,849	48.8	0.22	2.30	23.92	0.11	1.13
TOTAL (ACRES): 2.42					TOTALS: 23.92 0.11 1.13					

Post-Construction Pollutant Loads (without BMPs):

Land Cover (from Volume Worksheet)	Land Cover for Water Quality	Area (acres)	Soil Group	Runoff Volume (cf)	Pollutant Conc. (mg/L)			Pollutant Loads (lbs)		
					TSS	TP	TN	TSS	TP	TN
Impervious Areas: Paved Parking Lots, Roofs, Driveways, Etc. (Excluding ROW)	Residential	2.08	D	18,346	65.0	0.29	2.05	74.46	0.33	2.35
Open Space (Lawns, Parks, Golf Courses, Cemeteries, Etc.) - Good Condition (Grass Cover > 75%)	Open Space	0.34	D	1,236	78.0	0.25	1.25	6.02	0.02	0.10
TOTAL (ACRES): 2.42					TOTALS: 80.48 0.35 2.44					

POLLUTANT LOAD REDUCTION REQUIREMENTS (LBS):

56.56	0.24	1.32
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Characterize Undetained Areas (for Untreated Stormwater)

Land Cover	Area (acres)	Soil Group	CN	Ia (in)	Q Runoff (in)	Runoff Volume (cf)

Non-Structural BMP Water Quality Credits:

- Pervious Undetained Area Credit
- Other (attach calculations)

Structural BMP Water Quality Credits:

Use default BMP Outflows and Median BMP Outflow Concentrations

DP No.	BMP No.	BMP Name	MR ₂	BMP DA (acres)	Vol. Routed to BMP (CF)	Inf. & ET Credits (CF)	Capture & Buffer Credits (CF)	Outflow (CF)	Outflow Conc. (mg/L)			Pollutant Loads (lbs)		
									TSS	TP	TN	TSS	TP	TN
001	1	Infiltration Bed		2.37	17,889	13,350		4,539	22.00	0.10	2.38	6.24	0.03	0.67

TSS	TP	TN
6.24	0.03	0.67
6.96	0.03	0.21
13.19	0.06	0.89
23.92	0.11	1.13

POLLUTANT LOADS FROM STRUCTURAL BMP (TREATED) OUTFLOWS (LBS):
 POLLUTANT LOADS FROM UNTREATED STORMWATER (LBS):
 NON-STRUCTURAL BMP WATER QUALITY CREDITS (LBS):
 NET POLLUTANT LOADS FROM SITE, POST-CONSTRUCTION (LBS):
 POLLUTANT LOADS FROM SITE, PRE-CONSTRUCTION (LBS):

WATER QUALITY REQUIREMENT SATISFIED

CERTIFICATION

I certify under penalty of law and subject to the penalties of 18 Pa.C.S. § 4904 (relating to unsworn falsification to authorities) that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I further certify that the structure, function, and calculations contained in this spreadsheet have not been modified in comparison to the spreadsheet DEP has posted to its website or, if modifications were made, an explanation of the modifications made is attached to this spreadsheet.

Ben Piper

Spreadsheet User Name

2/10/2022

Date

General Information

Instructions
General
Volume
Rate
Quality

Project Name: Application Type:

County: Municipality:

Project Type: New Project Minor / Major Amendment

Area: acres Total Earth Disturbance: acres
(In Watershed)

No. of Post-Construction Discharge Points: Start DP Numbering at:

Discharge Point (DP) No.	Drainage Area (DA) (acres)	Earth Disturbance in DA (acres)	Existing Impervious in DA (acres)	Proposed Impervious in DA (acres)	Receiving Waters	Ch. 93 Class	Structural BMP(s)
002	4.76	4.61	0.15	2.70	wetlands tributary to UNT Juniata River	WWF	Yes
Undetained Areas					wetlands tributary to UNT to Juniata River	WWF	
Totals:	4.76	4.61	0.15	2.7			

Volume Management

Project: **Huntingdon Rutter's Store 93**

Instructions
General
Volume
Rate
Quality

2-Year / 24-Hour Storm Event (NOAA Atlas 14): inches
 Alternative 2-Year / 24-Hour Storm Event inches
 Alternative Source:

Pre-Construction Conditions: No. Rows:
 Exempt from Meadow in Good Condition Automatically Calculate CN, Ia, Runoff and Volume

Land Cover	Area (acres)	Soil Group	CN	Ia (in)	Q Runoff (in)	Runoff Volume (cf)
Pervious as Meadow	4.61	D	78	0.564	0.89	14,952
Impervious Areas: Paved Parking Lots, Roofs, Driveways, Etc. (Excluding ROW)	0.15	D	98	0.041	2.43	1,323
TOTAL (ACRES):						4.76
TOTAL (CF):						16,275

Post-Construction Conditions: No. Rows:

Land Cover	Area (acres)	Soil Group	CN	Ia (in)	Q Runoff (in)	Runoff Volume (cf)
Impervious Areas: Paved Parking Lots, Roofs, Driveways, Etc. (Excluding ROW)	2.70	D	98	0.041	2.43	23,815
Open Space (Lawns, Parks, Golf Courses, Cemeteries, Etc.) - Good Condition (Grass Cover > 75%)	1.67	D	80	0.500	1.00	6,069
TOTAL (ACRES):						4.37
TOTAL (CF):						29,884

NET CHANGE IN VOLUME TO MANAGE (CF): 13,609

Non-Structural BMP Volume Credits:

Tree Planting Credit

Other (attach calculations):

Structural BMP Volume Credits:

No. Structural BMPs: **5**

Start BMP Numbering at: **2**

DP No.	BMP No.	BMP Name	MRCS	Discharge	Incremental BMP DA (acres)	Volume Routed to BMP (CF)	Infiltration / Vegetated Area (SF)	Infiltration Rate (in/hr)	Infiltration Period (hrs)	Vegetated?	Media Depth (ft)	Storage Volume (CF)	Infiltration Credit (CF)	ET Credit (CF)
002	2	Infiltration Bed		Off-Site	0.30	9,793	4,480	0.48	72	No		7,384	9,319	
002	3	Infiltration Bed		to BMP No. 2	0.29	8,967	2,880	0.11	72	No		3,424	1,711	
002	4	Infiltration Bed		to BMP No. 3	0.57	4,713	4,800	0.19	72	No		4,713	4,713	
002	5	Infiltration Bed		to BMP No. 3	0.55	3,447	4,800	3.42	72	No		3,447	3,447	
002	6	Infiltration Bed		to BMP No. 5	1.76	11,032	5,120	0.20	72	No		0	922	
Totals:													20,112	

INFILTRATION & ET CREDITS (CF):

20,112

NET CHANGE IN VOLUME TO MANAGE (CF):

13,609

TOTAL CREDITS (CF):

20,112

VOLUME REQUIREMENT SATISFIED

Rate Control

Project: Huntingdon Rutter's Store 93

Instructions
General
Volume
Rate
Quality

Precipitation Amounts:

NOAA 2-Year 24-Hour Storm Event (in):	2.66
NOAA 10-Year 24-Hour Storm Event (in):	
NOAA 50-Year 24-Hour Storm Event (in):	
NOAA 100-Year 24-Hour Storm Event (in):	

Alternative 2-Year 24-Hour Storm Event (in):	
Alternative 10-Year 24-Hour Storm Event (in):	
Alternative 50-Year 24-Hour Storm Event (in):	
Alternative 100-Year 24-Hour Storm Event (in):	

Report Summary of Peak Rates Only

Attach model input and output data or other calculations to support the rates reported below.

	Peak Discharge Rates (cfs)		Net Change	
	Pre-Construction	Post-Construction		
2-Year Storm:	4.63	1.84	-2.79	Rate Control Satisfied
10-Year Storm:	9.27	5.27	-4.00	Rate Control Satisfied
50-Year Storm:	15.37	13.07	-2.30	Rate Control Satisfied
100-Year Storm:	18.42	10.99	-7.43	Rate Control Satisfied

Water Quality

Project: Huntingdon Rutter's Store 93

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Instructions General Volume Rate **Quality**

Pre-Construction Pollutant Loads:

Land Cover (from Volume Worksheet)	Land Cover for Water Quality	Area (acres)	Soil Group	Runoff Volume (cf)	Pollutant Conc. (mg/L)			Pollutant Loads (lbs)		
					TSS	TP	TN	TSS	TP	TN
Pervious as Meadow	Grassland/Herbaceous	4.61	D	14,952	48.8	0.22	2.30	45.56	0.21	2.15
Impervious Areas: Paved Parking Lots, Roofs, Driveways, Etc. (Excluding ROW)	Residential	0.15	D	1,323	65.0	0.29	2.05	5.37	0.02	0.17
TOTAL (ACRES): 4.76					TOTALS:			50.93	0.23	2.32

Post-Construction Pollutant Loads (without BMPs):

Land Cover (from Volume Worksheet)	Land Cover for Water Quality	Area (acres)	Soil Group	Runoff Volume (cf)	Pollutant Conc. (mg/L)			Pollutant Loads (lbs)		
					TSS	TP	TN	TSS	TP	TN
Impervious Areas: Paved Parking Lots, Roofs, Driveways, Etc. (Excluding ROW)	Residential	2.70	D	23,815	65.0	0.29	2.05	96.66	0.43	3.05
Open Space (Lawns, Parks, Golf Courses, Cemeteries, Etc.) - Good Condition (Grass Cover > 75%)	Open Space	1.67	D	6,069	78.0	0.25	1.25	29.56	0.09	0.47
TOTAL (ACRES): 4.37					TOTALS:			126.22	0.53	3.52

POLLUTANT LOAD REDUCTION REQUIREMENTS (LBS):

75.29 0.30 1.21

Characterize Undetained Areas (for Untreated Stormwater)

Land Cover	Area (acres)	Soil Group	CN	Ia (in)	Q Runoff (in)	Runoff Volume (cf)

Non-Structural BMP Water Quality Credits:

- Pervious Undetained Area Credit
- Other (attach calculations)

Structural BMP Water Quality Credits:

Use default BMP Outflows and Median BMP Outflow Concentrations

DP No.	BMP No.	BMP Name	MRC	BMP DA (acres)	Vol. Routed to BMP (CF)	Inf. & ET Credits (CF)	Capture & Buffer Credits (CF)	Outflow (CF)	Outflow Conc. (mg/L)			Pollutant Loads (lbs)		
									TSS	TP	TN	TSS	TP	TN
002	2	Infiltration Bed		0.30	9,793	9,319		474	22.00	0.10	2.38	0.65	0.00	0.07
002	3	Infiltration Bed		0.29	8,967	1,711		7,256	-	-	-	-	-	-
002	4	Infiltration Bed		0.57	4,713	4,713		0	-	-	-	-	-	-
002	5	Infiltration Bed		0.55	3,447	3,447		0	-	-	-	-	-	-
002	6	Infiltration Bed		1.76	11,032	922		10,110	-	-	-	-	-	-

POLLUTANT LOADS FROM STRUCTURAL BMP (TREATED) OUTFLOWS (LBS):

TSS	TP	TN
0.65	0.00	0.07

POLLUTANT LOADS FROM UNTREATED STORMWATER (LBS):

39.28	0.16	1.10
39.93	0.17	1.17
50.93	0.23	2.32

NON-STRUCTURAL BMP WATER QUALITY CREDITS (LBS):

NET POLLUTANT LOADS FROM SITE, POST-CONSTRUCTION (LBS):

POLLUTANT LOADS FROM SITE, PRE-CONSTRUCTION (LBS):

WATER QUALITY REQUIREMENT SATISFIED

CERTIFICATION

I certify under penalty of law and subject to the penalties of 18 Pa.C.S. § 4904 (relating to unsworn falsification to authorities) that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I further certify that the structure, function, and calculations contained in this spreadsheet have not been modified in comparison to the spreadsheet DEP has posted to its website or, if modifications were made, an explanation of the modifications made is attached to this spreadsheet.

Ben Piper

Spreadsheet User Name

2/10/2022

Date