

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	15.87	15.87	0.31	7.31	Discharge to Non-Surface Waters	HQ-CWF	Yes
Undetained Areas							
Totals:	15.87	15.87	0.31	7.31			

Volume Management

Project: Rutters

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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)
Impervious Areas: Paved Parking Lots, Roofs, Driveways, Etc. (Excluding ROW)	0.05	B	98	0.041	2.38	432
Pervious as Meadow	6.87	B	58	1.448	0.16	4,005
Forested (Good Condition)	6.83	B	55	1.636	0.10	2,567
Impervious Areas: Paved Parking Lots, Roofs, Driveways, Etc. (Excluding ROW)	0.26	C	98	0.041	2.38	2,246
Pervious as Meadow	0.96	C	71	0.817	0.55	1,906
Forested (Good Condition)	0.90	C	70	0.857	0.51	1,662
TOTAL (ACRES): 15.87						TOTAL (CF): 12,819

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)	7.31	B	98	0.041	2.38	63,157
Open Space (Lawns, Parks, Golf Courses, Cemeteries, Etc.) - Good Condition (Grass Cover > 75%)	3.20	B	61	1.279	0.23	2,665

Meadow-Continuous Grass, Protected from Grazing and Generally Mowed for Hay	3.79	B	58	1.448	0.16	2,210
Open Space (Lawns, Parks, Golf Courses, Cemeteries, Etc.) - Good Condition (Grass Cover > 75%)	1.57	C	74	0.703	0.67	3,825
TOTAL (ACRES):	15.87					
TOTAL (CF):						71,857

NET CHANGE IN VOLUME TO MANAGE (CF): 59,037

Non-Structural BMP Volume Credits:

- Tree Planting Credit
- Other (attach calculations):

Structural BMP Volume Credits:

No. Structural BMPs: 7

Start BMP Numbering at: 1

DP No.	BMP No.	BMP Name	MRG	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	Rain Garden / Bioretention		Off-Site	3.34	17,453	10,660	0.25	72	Yes	2.0	11,112	13,511	3,943
001	2	Rain Garden / Bioretention		Off-Site	1.45	3,416	4,363	0.25	72	Yes	2.0	4,507	3,416	0
001	3	Vegetated Swale		Off-Site	1.30	1,220	5,500	0.25	60	Yes	2.0	2,750	1,220	0
001	4	Rain Garden / Bioretention		Off-Site	2.44	7,587	4,250	0.25	72	Yes	2.0	4,429	5,385	2,202
001	5	Rain Garden / Bioretention		Off-Site	0.80	3,519	5,035	0.25	72	Yes	2.0	5,197	3,519	0
001	6	Rain Garden / Bioretention		Off-Site	3.11	21,398	11,300	0.25	84	Yes	3.0	20,446	17,798	3,601
001	7	Infiltration Basin		Off-Site	0.97	8,616	7,680	0.20	96	No	2.0	8,616	8,616	
Totals:												53,464	9,745	

INFILTRATION & ET CREDITS (CF): 63,209

NET CHANGE IN VOLUME TO MANAGE (CF):	59,037
TOTAL CREDITS (CF):	63,209

VOLUME REQUIREMENT SATISFIED

Rate Control

Project: Rutters

Instructions	General	Volume	Rate	Quality
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Precipitation Amounts:

NOAA 2-Year 24-Hour Storm Event (in):	2.61
NOAA 10-Year 24-Hour Storm Event (in):	3.76
NOAA 50-Year 24-Hour Storm Event (in):	5.13
NOAA 100-Year 24-Hour Storm Event (in):	5.78

Alternative 2-Year 24-Hour Storm Event (in):	
Alternative 10-Year 24-Hour Storm Event (in):	3.8
Alternative 50-Year 24-Hour Storm Event (in):	
Alternative 100-Year 24-Hour Storm Event (in):	6.1

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)			
	Pre-Construction	Post-Construction	Net Change
2-Year Storm:	9.04	5.93	-3.11
10-Year Storm:	29.41	18.82	-10.59
50-Year Storm:	58.23	36.92	-21.31
100-Year Storm:	81.58	52.03	-29.55

Rate Control Satisfied
Rate Control Satisfied
Rate Control Satisfied
Rate Control Satisfied

DP No.	BMP No.	BMP Name	MRC	Inflow to BMP (cfs)				Outflow from BMP (cfs)			
				2-yr	10-yr	50-yr	100-yr	2-yr	10-yr	50-yr	100-yr
001	1	Rain Garden / Bioretention		4.49	8.70	13.74	17.50	0.03	1.30	7.43	13.03
001	2	Rain Garden / Bioretention		0.66	1.97	3.77	5.21	0.00	0.06	0.68	2.72
001	3	Vegetated Swale									
001	4	Rain Garden / Bioretention		1.54	4.00	7.24	9.79	0.00	0.79	5.54	8.92
001	5	Rain Garden / Bioretention		1.15	2.39	3.92	5.07	0.00	0.00	0.15	0.60
001	6	Rain Garden / Bioretention		8.19	13.80	20.11	24.70	0.00	0.39	1.36	2.96
001	7	Infiltration Basin		3.60	5.28	7.16	8.67	0.00	0.59	2.81	0.62

Water Quality

Project: Rutters

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	
Impervious Areas: Paved Parking Lots, Roofs, Driveways, Etc. (Excluding ROW)	Residential	0.05	B	432	65.0	0.29	2.05	1.75	0.01	0.06	
Pervious as Meadow	Grassland/Herbaceous	6.87	B	4,005	48.8	0.22	2.30	12.20	0.06	0.58	
Forested (Good Condition)	Deciduous Forest/Evergreen Forest/Mixed Forest	6.83	B	2,567	45.0	0.13	1.05	7.21	0.02	0.17	
Impervious Areas: Paved Parking Lots, Roofs, Driveways, Etc. (Excluding ROW)	Residential	0.26	C	2,246	65.0	0.29	2.05	9.12	0.04	0.29	
Pervious as Meadow	Grassland/Herbaceous	0.96	C	1,906	48.8	0.22	2.30	5.81	0.03	0.27	
Forested (Good Condition)	Deciduous Forest/Evergreen Forest/Mixed Forest	0.90	C	1,662	45.0	0.13	1.05	4.67	0.01	0.11	
TOTAL (ACRES):					15.87	TOTALS:			40.77	0.16	1.47

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	7.31	B	63,157	65.0	0.29	2.05	256.34	1.14	8.08
Open Space (Lawns, Parks, Golf Courses, Cemeteries, Etc.) - Good Condition (Grass Cover > 75%)	Open Space	3.20	B	2,665	78.0	0.25	1.25	12.98	0.04	0.21
Meadow-Continuous Grass, Protected from Grazing and Generally Mowed for Hay	Grassland/Herbaceous	3.79	B	2,210	48.8	0.22	2.30	6.73	0.03	0.32
Open Space (Lawns, Parks, Golf Courses, Cemeteries, Etc.) - Good Condition (Grass Cover > 75%)	Open Space	1.57	C	3,825	78.0	0.25	1.25	18.63	0.06	0.30
TOTAL (ACRES): 15.87					TOTALS: 294.68 1.28 8.91					

POLLUTANT LOAD REDUCTION REQUIREMENTS (LBS):		
253.91	1.11	7.44

Characterize Undetained Areas (for Untreated Stormwater)

Land Cover	Area (acres)	Soil Group	CN	Ia (in)	Q Runoff (in)	Runoff Volume (cf)
Open Space (Lawns, Parks, Golf Courses, Cemeteries, Etc.) - Good Condition (Grass Cover > 75%)	0.5	B	61	1.279	0.23	416
Open Space (Lawns, Parks, Golf Courses, Cemeteries, Etc.) - Good Condition (Grass Cover > 75%)	1.51	C	74	0.703	0.67	3,678
Impervious Areas: Paved Parking Lots, Roofs, Driveways, Etc. (Excluding ROW)	0.45	B	98	0.041	2.38	3,888

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	MRCD	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	Rain Garden / Bioretention		3.34	17,453	17,453		0	10.00	0.24	1.04	0.00	0.00	0.00
001	2	Rain Garden / Bioretention		1.45	3,416	3,416		0	10.00	0.24	1.04	0.00	0.00	0.00
001	3	Vegetated Swale		1.30	1,220	1,220		0	24.00	0.20	0.85	0.00	0.00	0.00
001	4	Rain Garden / Bioretention		2.44	7,587	7,587		0	10.00	0.24	1.04	0.00	0.00	0.00
001	5	Rain Garden / Bioretention		0.80	3,519	3,519		0	10.00	0.24	1.04	0.00	0.00	0.00
001	6	Rain Garden / Bioretention		3.11	21,398	21,398		0	10.00	0.24	1.04	0.00	0.00	0.00
001	7	Infiltration Basin		0.97	8,616	8,616		0	10.00	0.24	1.04	0.00	0.00	0.00

TSS	TP	TN
0.00	0.00	0.00
35.46	0.15	1.07
35.46	0.15	1.07
40.77	0.16	1.47

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.

Eric W. Hershey

Spreadsheet User Name

10/11/2021

Date