COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF CLEAN WATER

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)
001	1	Subsurface Infiltration Bed	6.4.3	40.48916°	78.03694º	2.37
002	2	Subsurface Infiltration Bed	6.4.3	40.48888º	78.03638º	0.30
002	3	Subsurface Infiltration Bed	6.4.3	40.48916°	78.03611º	0.29
002	4	Subsurface Infiltration Bed	6.4.3	40.48916°	78.03638º	0.57
002	5	Subsurface Infiltration Bed	6.4.3	40.48916°	78.03583º	0.55
002	6	Subsurface Infiltration Bed	6.4.3	40.48944º	78.03611º	1.76
001	7	Water Quality Filter	6.6.4	40.48944º	78.03722º	0.11
001	8	Water Quality Filter	6.6.4	40.48944º	78.03694º	0.46
001	9	Water Quality Filter	6.6.4	40.49000º	78.03666º	0.70
002	10	Water Quality Filter	6.6.4	40.49000º	78.03638º	0.42
002	11	Water Quality Filter	6.6.4	40.48972º	78.03611º	0.59
002	12	Water Quality Filter	6.6.4	40.48972º	78.03583º	0.31
002	13	Water Quality Filter	6.6.4	40.48944º	78.03583º	0.11
002	14	Water Quality Filter	6.6.4	40.48944º	78.03583º	0.07
002	15	Water Quality Filter	6.6.4	40.48916º	78.03611º	0.16
002	16	Water Quality Filter	6.6.4	40.48900º	78.03626º	0.32
002	17	Water Quality Filter	6.6.4	40.48951º	78.03558º	0.11
002	18	Water Quality Filter	6.6.4	40.48932º	78.03575º	0.26
002	19	Water Quality Filter	6.6.4	40.48912º	78.03593º	0.18
002	20	Water Quality Filter	6.6.4	40.48887º	78.03614º	0.29
002	21	Water Quality Filter	6.6.4	40.48880º	78.03632º	0.30
001	22	Water Quality Filter	6.6.4	40.48898º	78.03673º	0.63

001	23	Water Quality Filter	6.6.4	40.48927º	78.03727º	0.23
001	24	Water Quality Filter	6.6.4	40.48959º	78.03773º	0.11

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. ☒ Plan drawings have been developed for the project and will be available on-site.

4. ☒ Plan drawings have been developed for the project and are attached to the NOI/application.

5. ☒ 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. ☒ The PCSM Plan has been planned, designed, and will be implemented to be consistent with the E&S Plan.

9. ☒ 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)**
							☐				
							☐				
							☐				
							☐				
							☐				
							☐				
							☐				
							☐				

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	☐ 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	☐ 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	☐ 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	☐ 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	☐ 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	☐ 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):** **001**

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):** **002**

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	4.48	12.64	8.16
10-Year/24-Hour	8.97	19.92	10.95
50-Year/24-Hour	14.89	28.63	13.74
100-Year/24-Hour	17.84	32.82	14.98

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	4.48	1.83	-2.65
10-Year/24-Hour	8.97	5.02	-3.95
50-Year/24-Hour	14.89	13.49	-1.40
100-Year/24-Hour	17.84	17.29	-0.55

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**
7-24	**Water Quality Inlet Insert**

PCSM PLAN DEVELOPER

☒ I am trained and experienced in PCSM methods.

☒ I am a licensed professional.

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License Type:	**Registered Professional Engineer**	Exp. Date	**09/30/23**

PCSM Plan Developer Signature

01/04/23

Date