



**STORMWATER MANAGEMENT PERMIT
AND CONSTRUCTION PLAN REVIEW CHECKLIST**

March 2021

CITY OF ROCKVILLE
DEPARTMENT OF PUBLIC WORKS (DPW)
111 Maryland Avenue
Rockville, Maryland 20850
240-314-8500
www.rockvillemd.gov

Project Information:

Project Name: _____

Legal Description: Subdivision: _____ Lot(s) and Block(s): _____ Parcel(s): _____

Property Address: _____

Tax Acct. ID(s): _____

Engineering Firm: _____

Contact Person: _____

Phone Number: _____

Email Address: _____

PDS Case No: _____

DPW SMC Permit No. _____ (assigned by DPW)

DPW PWK Permit No. _____ (assigned by DPW)

DPW SMP Permit No: _____ (assigned by DPW)

DPW SCP Permit No: _____ (assigned by DPW)

How to Use this Checklist:

This checklist has been developed to provide the engineer with guidance in preparing and submitting Stormwater Management Construction Plans. For Concept phase (SMC) submissions, please refer to and utilize the separate Stormwater Management Concept Review Checklist. All items in this checklist must be addressed. The engineer must complete each item in the checklist prior to submittal and indicate the status by completing the left hand column entitled "Initial Submission." Use the legend below to complete this column. Any items that are marked INC (incomplete) must be explained. The engineer must sign this checklist indicating that it has been completed in accordance with this guidance and the Submission Acceptance Policy below.

Legend: = Complete or Provided, N/A = Not Applicable, INC = Incomplete (provide explanation)

Submission Acceptance Policy:

Correctly filling out this checklist will assist in the acceptance, review and approval process. All of the items in SECTION A - APPLICATION SECTION must be provided with the initial submission for the City to accept the package and forward it to the Reviewer. Incomplete submissions may be rejected. Once forwarded to the Reviewer, the Reviewer will have one week to review the package for the items listed in SECTION B - SUBMISSION REQUIREMENTS. Failure to include the required items or to explain items not included may result in the rejection of the submission without review.

Name of Firm

Date

Signature of Responsible Person

Responsible Person's Name

Title

STORMWATER MANAGEMENT REVIEW CHECKLIST - PAGE 2

Initial Submission		Rockville's Review			
		1st	2nd	3rd	
A) APPLICATION SECTION (Submissions shall be made using the City's Virtual Permit Application portal available at www.rockvillemd.gov)					
1	_____	Completed and signed Stormwater Management Permit (SMP) Application	_____	_____	_____
2	_____	Stormwater Management Application and Plan Review Fee (Check made out to City of Rockville). Fee amount is based on estimated cost of stormwater management and per the Public Works Development Fee Schedule. Estimates shall use City Standard Prices for Cost Estimating as may be updated - available at: www.rockvillemd.gov/286/Streets-Driveway-Right-of-Way A SWM Plan Resubmission Review Fee is required starting with the 4 th	_____	_____	_____
3	_____	Stormwater Management Permit Fee and Monetary Contribution Fee [not required at initial submission]. Permit fees will be confirmed by staff after review and approval of cost estimate and must be paid prior to permit issuance	_____	_____	_____
4	_____	One digital (PDF) copy of the proposed plans. Plans must be on 24" x 36" sheets and must utilize the standard City base sheet. Vector-Based PDF files are required for all plans, calculations, reports and other supporting documentation. It is recommended that drawings created in AutoCAD are converted to Vector-Based PDF by using the Autodesk Vector Graphic Converter "DWG to PDF.pc3 plotter driver."	_____	_____	_____
B) SUBMISSION REQUIREMENTS					
1	_____	Transmittal explaining purpose of the submission including explanation of any unusual circumstances	_____	_____	_____
2	_____	One digital (PDF) copy of the approved NRI/FSD and FCP. (An unapproved FCP can be submitted however an approved copy of the FCP must be provided prior to the approval of the SWM Plan)	_____	_____	_____
3	_____	One digital (PDF) copy of the Signature Set Site Plan and approval letter	_____	_____	_____
4	_____	One copy of each previously issued SWM Concept and Safe Conveyance Approval Letters	_____	_____	_____
5	_____	One digital (PDF) copy of the corresponding Erosion and Sediment Control Plan, Storm Drain and Paving Plan and drainage study computations	_____	_____	_____
6	_____	One digital (PDF) copy of the SWM Landscape Plan certified by a State of MD Registered Landscape Architect on separate sheet from the Site SWM plans	_____	_____	_____
7	_____	One digital (PDF) copy of the Drainage Area Map/Safe Conveyance Map (See Section H below)	_____	_____	_____
8	_____	One digital (PDF) copy of the SWM Report (see Section I below)	_____	_____	_____
9	_____	One digital (PDF) copy of the Geotechnical Report (see Section J below)	_____	_____	_____
10	_____	One digital (PDF) copy of proposed Stormwater Management Easements (for facilities onsite) and/or License and Maintenance Agreement (for facilities within ROW) [not required at initial submission]. Easements must be recorded prior to permit issuance	_____	_____	_____
11	_____	Stormwater Management bond estimate [not required at initial submission]. Bonds must be reviewed and approved by the City prior to permit issuance	_____	_____	_____
12	_____	Stormwater Management Database Form [not required at initial submission]	_____	_____	_____
13	_____	State of MD Professional Engineer certification on plan sets and reports. Structural design and PE seal, where required, must be on separate sheet from the Site SWM plans	_____	_____	_____
14	_____	AutoCAD file of all public improvements, suitable for use in ESRI ArcMap. Required upon City's request prior to as-built approval	_____	_____	_____

STORMWATER MANAGEMENT REVIEW CHECKLIST - PAGE 3

Initial Submission	Rockville's Review		
	1st	2nd	3rd
C) GENERAL INFORMATION			
1 _____	_____	_____	_____
2 _____	_____	_____	_____
3 _____	_____	_____	_____
4 _____	_____	_____	_____
5 _____	_____	_____	_____
6 _____	_____	_____	_____
D) BASE SHEET			
1 _____	_____	_____	_____
2 _____	_____	_____	_____
3 _____	_____	_____	_____
4 _____	_____	_____	_____
5 _____	_____	_____	_____
6 _____	_____	_____	_____
7 _____	_____	_____	_____
8 _____	_____	_____	_____
9 _____	_____	_____	_____
E) PLAN VIEW			
1 _____	_____	_____	_____
2 _____	_____	_____	_____
3 _____	_____	_____	_____
4 _____	_____	_____	_____

STORMWATER MANAGEMENT REVIEW CHECKLIST - PAGE 4

Initial Submission	Rockville's Review		
	1st	2nd	3rd
E) PLAN VIEW (continued)			
5 _____	_____	_____	_____
Location of the following environmental features as depicted on the NRI/FSD: Significant trees, street trees, ephemeral, perennial and intermittent streams with associated stream valley buffers, 100-year floodplain with 25 foot building restriction line, wetlands, wetland buffers, park buffers, soils, hydric soils, seeps, springs, steep slopes and highly erodible soils. Note: 100-year floodplain exists when the drainage area to any point on the property \geq 30 acres. Unmapped 100-year floodplain requires DPW approval and must be shown on the NRI/FSD. Disturbance or construction in 100-year floodplain may require a Floodplain Variance (FPV)			
6 _____	_____	_____	_____
Existing features and improvements within the project limits including roads (label public or private), buildings, parking, sidewalks, outbuildings, sheds, utilities, SWM measures, etc. shown and labeled to remain, to be removed, to be abandoned, to be relocated, etc. Layers to be lighter or screen for clarity			
7 _____	_____	_____	_____
Overhead utilities including utility poles, streetlights, traffic signal poles and equipment. Underground utilities including location, type, material and sizes. Crossings with existing utilities will require test pits to verify horizontal and vertical information			
8 _____	_____	_____	_____
Proposed improvements including roads, buildings, parking, sidewalks, etc.			
9 _____	_____	_____	_____
Proposed utilities including water, sewer, storm drain and appurtenances			
10 _____	_____	_____	_____
Initial, interim and final phasing identified and delineated. Interim grading shown on separate plan where project is sequenced or as applicable			
11 _____	_____	_____	_____
Type, location, identifying label (i.e. SWM -1) and size (if applicable) of each SWM measure proposed to be part of the Stormwater Management System			
12 _____	_____	_____	_____
Existing and proposed drainage divides delineated			
13 _____	_____	_____	_____
Drainage areas to each SWM measure delineated and drainage areas labeled in acres. The information for the labeled areas must match the SWM System Summary Table and the information provided in the SWM Report			
14 _____	_____	_____	_____
Proposed limits of disturbance (LOD) delineated and labeled. LOD limits must match approved Forest Conservation Plan (FCP)			
15 _____	_____	_____	_____
Location and dimensions of proposed SWM easements. Easements for filtration facilities shall include flow splitters and outfalls. Easements for structural facilities shall include storage chambers, control structures, outfalls, any related appurtenances and access points. Easement widths shall provide adequate space for construction, maintenance and vehicle access, and meet OSHA excavation requirements. Min. 10-foot clearance around each facility or as approved by DPW			
16 _____	_____	_____	_____
Existing and proposed inverts, elevations and schematic profiles based on field verified information, and utilizing the survey datum, to support the vertical aspects of the SWM System			
17 _____	_____	_____	_____
SWM System Summary Table - The table should be organized by drainage area, study point, and/or SWM measure, as applicable. At a minimum the drainage area (ac), the impervious area (ac), the type of measure, the target, required, provided and as-built ESD_V , P_E , WQ_V , Re_V , Cp_V , and Qp_{10} as applicable shall be included in the table. A comments column can be added if it assists in explaining what is being proposed. SWM System Summary Table shall be located on the cover sheet			
18 _____	_____	_____	_____
Table of estimates for Total Area, Disturbed Area, new Impervious Area, replacement Impervious Area, and total Impervious Area for the Site and the Rights-of-Way separately			

STORMWATER MANAGEMENT REVIEW CHECKLIST - PAGE 5

Initial Submission		Rockville's Review			
		1st	2nd	3rd	
F) PROPOSED ENVIRONMENTAL SITE DESIGN FACILITIES					
1	_____	Limit drainage area to single ESD facility per State and County guidelines	_____	_____	_____
2	_____	Provide adequate setbacks from property lines (min. 5-ft), other utilities (min. 5-ft), slab-on-grade foundations (minimum 10-ft) and buried foundations (min. 20-ft) or as approved by DPW	_____	_____	_____
3	_____	Filter media and aggregates per MCDPS material specifications. Planting medium shall consist of 1/3 perlite or solite, 1/3 compost, 1/3 topsoil	_____	_____	_____
4	_____	Surface mulch layer three (3) inch thick of standard double shredded aged hardwood mulch (pine bark not acceptable). Mulch layer is contained within the facility's ponding depth and does not contribute to filter media storage volume	_____	_____	_____
5	_____	Elevations for the filter media surface, riser/weir crest (ESD storage elevation), 10-year WSEL, and top of berm/planter box. Provide minimum six (6) inches of freeboard between the ESD storage elevation and top of berm/planter box. Maximum twelve (12) inch ponding depth	_____	_____	_____
6	_____	Facility dimensions including surface area at the filter media and ponding elevations	_____	_____	_____
7	_____	Storm drain system connections shown and inverts provided	_____	_____	_____
8	_____	Coordinate roof drainage system with MEP design. Submit riser diagrams	_____	_____	_____
9	_____	Design of concrete planter boxes by structural engineer. Building wall waterproofing designed by architect. Provide details with professional seals	_____	_____	_____
10	_____	Design of velocity dissipation devices and computations at all outfalls to support non-erosive conveyance of the 10-year storm, including flow rates, flowing full and actual velocities in all outfall pipes, and velocity through the dissipating device	_____	_____	_____
11	_____	Embankment max. 3:1 side slopes and top width of berm min. two (2) feet	_____	_____	_____
12	_____	SWM practices adjacent to pedestrian and parking uses shall meet MCDPS WRTP-8 design guidelines for safe placement and fall prevention barriers	_____	_____	_____
13	_____	Underdrain and associated cleanouts with perforated (or slotted) vs non-perforated sections clearly shown along the length. Perforations shall end a minimum of two (2) feet from sidewalls and structures. Provide a min. six (6) inch of gravel above the underdrain and three (3) inch of gravel below the pipe	_____	_____	_____
14	_____	Specify observation well/cleanout locations and provide watertight, removable cap	_____	_____	_____
15	_____	SWM Landscape Plan, coordinated with the Forest Conservation Plan and in conformance with City Standards. Include a list of plant species, sizes, planting details, quantities and their locations. Clearly identify plantings to be approved, permitted and bonded by the SWM permit (versus the Forestry permit)	_____	_____	_____
G) PROPOSED STRUCTURAL FACILITIES					
1	_____	Max. drainage area to single structural facility less than one (1) acre	_____	_____	_____
2	_____	Structural (underground detention) facilities shall have minimum four (4) foot height (or diameter) and be constructed of metal, HDPE or reinforced concrete: <ul style="list-style-type: none"> • Metal storage pipes must be circular, aluminized, Type 2, and must be designed for the appropriate loading (minimum 14-gauge). Pipe ends must be matched and numbered, from the manufacturer • Gasketed concrete pipe meeting ASTM C-76 or C-361 • Circular HDPE pipe meeting ASTM D2321. Concrete manholes must be used at all HDPE pipe connections • Concrete vaults meeting ACI 350, Environmental Engineering Concrete Structures, with freezing and thawing exposures. Concrete shall be Type II or IIA cement, with 28 day compressive strength of 4500 psi for cast in place and 5000 psi for pre-cast structures. Proprietary structures must be specifically approved by DPW in advance of submission 	_____	_____	_____
3	_____	All joints must be soil tight when used for flow attenuation, and must be water tight when used to store the water quality volume	_____	_____	_____

STORMWATER MANAGEMENT REVIEW CHECKLIST - PAGE 6

Initial Submission	Rockville's Review		
	1st	2nd	3rd
G) PROPOSED STRUCTURAL FACILITIES (continued)			
4 _____	_____	_____	_____
5 _____	_____	_____	_____
6 _____	_____	_____	_____
7 _____	_____	_____	_____
8 _____	_____	_____	_____
9 _____	_____	_____	_____
10 _____	_____	_____	_____
11 _____	_____	_____	_____
12 _____	_____	_____	_____
H) DRAINAGE AREA MAP / SAFE CONVEYANCE MAP			
1 _____	_____	_____	_____
2 _____	_____	_____	_____
3 _____	_____	_____	_____
4 _____	_____	_____	_____
5 _____	_____	_____	_____
6 _____	_____	_____	_____

STORMWATER MANAGEMENT REVIEW CHECKLIST - PAGE 7

Initial Submission		Rockville's Review			
		1st	2nd	3rd	
I) SWM REPORT					
1	_____	An <u>Overview Section</u> which includes important information about the project including the size of the property (ac), existing features found on the site, zoning, proposed development, impervious area proposed to be created (ac), a statement about whether the site qualifies as a "redevelopment" according to Chapter 19 with sufficient information to support the findings, the soil found on the site, the watershed the site is located in and the location of any upstream or down stream ponds that may pose a dam breach hazard	_____	_____	_____
2	_____	A <u>Proposed SWM Section</u> explaining how stormwater measures, consistent with the City's SWM requirements and the MDE Manual, will be provided for the project. This section must include a narrative that supports the Design and the use of SWM as prioritized in Section 19-51 of Chapter 19 and explains:	_____	_____	_____
3	_____	• How the Design incorporates the protection and enhancement of natural resources	_____	_____	_____
4	_____	• How efforts that have been made to maintain the existing drainage patterns and drainage areas	_____	_____	_____
5	_____	• The ESD techniques, for instance better site planning, minimization of impervious surfaces, slowing down of runoff, and the use of nonstructural and approved innovative technologies that have been contemplated and why they have been selected. An explanation of which measures were contemplated and rejected and why should also be provided (can be a narrative, table, etc.). This information will assist in DPW's determination of whether the concept incorporates ESDs to the Maximum Extent Practicable (MEP)	_____	_____	_____
6	_____	• How infiltration areas will be protected from compaction and sediment	_____	_____	_____
7	_____	• Integration of erosion and sediment controls into the stormwater system/strategy	_____	_____	_____
8	_____	If requesting use of SWM alternatives, the report shall include descriptions of the proposed alternatives and written justification for the alternative that addresses the requirement of the Stormwater Management Regulations. Describe and document all site constraints that restrict providing full SWM controls	_____	_____	_____
9	_____	<u>Computation Section</u> - All computations as required to support the use of ESDs to the MEP, structural measures and/or alternatives (such as a monetary contribution in lieu of on-site managed) must be included in the report. Supporting computations shall utilize TR-55 and the MDE Manual, including Chapter 5, as applicable and as may be supplemented by future documents	_____	_____	_____
10	_____	The SWM System Summary Tables as described in Section E (above)	_____	_____	_____
11	_____	Sizing calculations for design of stormwater treatment practices. Include contributing drainage area, facility dimensions and surface area, depths and elevations of filter layers, void ratio (0.4 for gravel and sand filtration systems, 0.3 for permeable pavement) and outlet configuration. Compute required and provided rainfall depth (P _E) and storage volume (filter, ponding and enhanced). Submit flow splitter and/or structural computations, if applicable	_____	_____	_____
12	_____	Flow velocity calculations to support safe conveyance. Bioswales shall convey the max. ESD flow velocity for the 1-year storm at 1.0 fps or less and shall convey the 10-year, 24-hour storm at a non-erosive velocity with a min. 6-inches of freeboard	_____	_____	_____
13	_____	If proposing a SWM monetary contribution, a plan indicating sub-drainage area affected and a table listing the impervious acreage for each area and what type of alternative is proposed (i.e., contribution for components of WQv, Cpv and/or Qp10). Monetary Contribution requests for right-of-way areas must be broken out and reported separately from request for on-site areas	_____	_____	_____
14	_____	Seal, signature, and license number of a Maryland Professional Engineer on the cover of the report	_____	_____	_____

STORMWATER MANAGEMENT REVIEW CHECKLIST - PAGE 8

Initial Submission	Rockville's Review			
	<table border="0"> <tr> <td style="padding: 0 15px;">1st</td> <td style="padding: 0 15px;">2nd</td> <td style="padding: 0 15px;">3rd</td> </tr> </table>	1st	2nd	3rd
1st	2nd	3rd		

J) GEOTECHNICAL REPORT

- | | | | | | |
|---------|---|--|-------|-------|-------|
| 1 _____ | Geotechnical Report for the site prepared, signed, sealed and certified by a qualified professional registered in the State of Maryland. Soil and infiltration testing shall be completed in accordance with MDE procedures, Appendix D.1 of the SWM Design Manual. Feasibility shall be demonstrated with percolation testing, NRCS Soil Mapping or a previous report for the site prepared by a qualified geotechnical consultant. Borings shall be completed for every 50 linear feet of infiltration trench or 200 square feet of filter area and within 20 feet of the proposed facility. Any borings within the Critical Root Zone (CRZ) as defined by the Environmental Guidelines or the City Forester shall be completed with a hand auger only so as not to disturb the tree and root system. Infiltration testing is not required to be performed in areas where development is prohibited, such as stream valley buffers, wetlands, forest preservation areas, etc. Infiltration testing is also not required in soil type D if the Geotechnical Engineer verifies the soil type through an on-site investigation | <table border="0"> <tr> <td style="padding: 0 15px;">_____</td> <td style="padding: 0 15px;">_____</td> <td style="padding: 0 15px;">_____</td> </tr> </table> | _____ | _____ | _____ |
| _____ | _____ | _____ | | | |
| 2 _____ | At a minimum, the report must include boring logs, infiltration rates, and a map with boring locations and designations that match the SWM Plan. The report shall identify soil classifications and descriptions, areas of fill, and depth to bedrock and the seasonal high water level. The report must address the feasibility of infiltration measures and provide construction/design recommendations | <table border="0"> <tr> <td style="padding: 0 15px;">_____</td> <td style="padding: 0 15px;">_____</td> <td style="padding: 0 15px;">_____</td> </tr> </table> | _____ | _____ | _____ |
| _____ | _____ | _____ | | | |

COMMENTS:
