

Carroll County Supplemental Materials Specifications for Bio-Swale, Bioretention, Micro-Bioretention & Rain Gardens

Material	Specification	Size	Notes
Plantings	See Landscape Plan	N/A	Plantings are site specific and per approved landscape plan
Seed Mix	Filter Bed Mix – Use Wet Meadow Mix per MD Standards and Specifications §707. See Table 3 (1 lb. minimum/micro-bioretention)	N/A	Used with straw mulch in place of shredded hardwood mulch Incorporate seed evenly in top ½” of filter media
Mulch	Shredded Hardwood	N/A	Aged 6 months, minimum. 3-inch depth over facility bottom.
Straw Mulch	MD Standards and Specifications §920.04.01. (200 lb. minimum/micro-bioretention)	N/A	1-inch Straw mulch over seed bed (facility bottom)
Geotextile	Class “C” – Apparent opening size (ASTM-D-4751), Grab Tensile Strength (ASTM-D-4632), Puncture Resistance (ASTM-D-4833)	N/A	Sides only Not on bottom unless specified on the plans
Underdrain and Reservoir Gravel	AASHTO M-43 No. 8 Stone	¾” – 1½”	Stone must be clean and washed
Underdrain and Observation Well Piping	Slotted PVC or Slotted HDPE Type “SP” Pipes Solid: Scheduled 40 PVC or HDPE Type “S”	See Plan	Refer to the Carroll County SWM Supplement Pg. 87 All pipes must be double walled (smooth core) and slotted (no circular holes)
Sand	ASTM-C-33 (3 parts to 6 within Filter Media)	0.02” – 0.04”	Sand substitutions such as Diabase and Graystone #10 are not acceptable. No calcium carbonate or dolomitic sand substitutions are acceptable. No “rock-dust” can be used for sand. Manufactured sand from approved sources may be used for filters. Manufactured sand may not be used in dams.
Soil	Engineer approved loam with 20% or less clay. (1 part to 6 within Filter Media)	N/A	
Wood Chips	Untreated “Green” (2 parts to 6 within Filter Media)	N/A	Untreated “green” wood chips
Filter/Planting Media	Comprised of 3 parts sand, 2 parts wood chips, 1 part soil	N/A	See individual material specifications
Embankments & Trench Backfill (non-378)	Soils used for embankments and trench backfill shall be uniform and in accordance with MD 378 Code, except that fill material shall conform to Unified Soil Classification, GC, SC, SM, MH, ML, CH, or CL and be compacted to a density of not less than 95% of maximum dry density. Woody vegetation is prohibited on embankments.	N/A	See Earth Fill and Structure Backfill, Carroll County Construction Specifications Carroll County SWM Supplement, Page 130
Principal Spillway Pipe (non-378)	Shall be in accordance with MD 378 Code, except that all pipe joints are to be gasketed and completely watertight. Pipes connected to risers (inlets) shall be a single piece 20-feet long with no joints.	See Plan	See Pipe Conduits, Carroll County Construction Specifications Carroll County SWM Supplement, Page 131

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March 20, 2020; Dec. 20, 2022, Jan. 6, 2023; Revised July 25, 2023; Revised Nov. 20, 2023,
Revised Jan. 23, 2026