



**CECIL SOIL CONSERVATION DISTRICT**  
 105 Chesapeake Boulevard, Suite B-3, Elkton, MD 21921  
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### MD-378 SMALL POND REVIEW CHECKLIST

Project Name: \_\_\_\_\_ Date: \_\_\_\_\_

CSCD Project No. (If Known): \_\_\_\_\_

Type of Submittal:     1st Review                       2nd Review                       Subsequent Review No. \_\_\_\_\_

PLEASE NOTE THAT PLANS SUBMITTED WITHOUT A COMPLETED  
 CHECKLIST MAY BE RETURNED WITHOUT REVIEW

Designer (check off)			MDE/CSCD Reviewer		SUBMISSION ITEM
YES	NO	N/A	received (yes/no)	correct (yes/no)	
<b>SUBMISSION DOCUMENTS</b>					
					Application for CSCD Review [ <a href="#">Appendix 9</a> ]
					Digital Copies of all completed checklists, plans, reports, calculations, analysis, evaluations, etc. to be submitted with hard copies
					MD-378 construction plan set with Professional Engineer's certification, seal, signature, and date <sup>1</sup>
					Stormwater management (SWM) design report with Professional Engineer's certification, seal, signature, and date <sup>1</sup>
					Geotechnical report for SWM pond with Professional Engineer's certification, seal, signature, and date <sup>1</sup>
					Dam breach analysis for small ponds with Professional Engineer's certification, seal, signature, and date <sup>2</sup>
					Provide Determination of Embankment Design Category and Approval Authority [ <a href="#">Appendix 2</a> ]
<b>CONSTRUCTION PLANS</b>					
<b>TITLE SHEET(S)</b>					
					Project name, street address, zoning, tax map, election district, parcel no., latitude, longitude
					Owner/Developer name, address, and phone number
					Design Professional name, address, and phone number
					CSCD project number
					Vicinity Map to Scale (1"=2000') with major roads identified and site delineated
					Legend

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					Sheet Index
					Professional Engineer's certification [Appendix 8], seal, signature, and date <sup>1</sup>
					Developer's/Landowner's Certification block [Appendix 8] <sup>1</sup>
					Provide note(s) specifying who has final authority for reviewing & approving all pond structures [Appendix 10]
					Provide standardized CSCD signature block for Small Pond Approval [Appendix 10]
					Provide Geotechnical Engineer Certification Block [Appendix 8]
					Provide Engineer's Certification Block [Appendix 8] <sup>1</sup>
					Provide Engineer's As-built certification block [Appendix 8]
<b>GENERAL INFORMATION - ALL SHEETS</b>					
					Plan scale (range: 1" = 10' to 1" = 50')
					Profiles: horizontal & vertical scale (Typical: Horiz. 1" = 50', Vert. 1" = 5')
					Maximum drawing size: 24" x 36"
					Minimum 3 grid ticks with lat/long on site plan sheets
					North arrow
					Match lines labeled and referenced
					Profiles, details, and cross-sections drawn to scale
					Sheets numbered, consecutively; revisions noted with date
					CSCD Tracking Number (if known)
					Professional Engineer's certification [Appendix 8], seal, signature, and date <sup>1</sup>
<b>PLAN VIEW OF POND AT SCALE OF 1"=50' OR LESS show and label the following:</b>					
					Existing and final contours (2' interval maximum) with index contours clearly labeled
					Locations of test borings and bench marks ( minimum 1 in dam centerline; 1 in emergency spillway, 1 in pond bottom)
					Inflow channel and/or pipe, protection (section/detail required)
					Outflow channel and/or pipe, protection (section/detail required)
					Property lines, easements, owner's & adjacent owner's information
					Low flow channel, protection (section/detail required)
					Emergency spillway with entrance and exit channels (section/detail required)

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					Stationing of embankment centerline; including POT's, POC's, locations of other sections/profiles crossing centerline (northing & easting on point of beginning and end)
					Site features and existing/proposed grading to 200' beyond pond limits
					"No woody vegetation" zone delineated <sup>3</sup>
					Storm drainage system (existing & proposed) with size, material and easements clearly identified & labeled
					Downstream conveyance system (existing & proposed) with property lines, right-of-ways, easements clearly identified & labeled
					Utilities (existing and proposed) with easements clearly identified & labeled
					Floodplain limits with sections and water surface elevations
					Wetland boundary and wetland buffer labeled
					Chesapeake Bay Critical Area (CBCA) Boundary labeled
					Waters of the U.S. labeled
					Forest conservation easement areas labeled
					Sinkholes and rock outcrops labeled
					Forebays and internal berms (reference berm detail)
					Control Structures (labeled, reference detail)
					Principal spillway (labeled, size, material)
					Seepage control (labeled, reference detail)
					Pond maintenance access (dimension width, slope)
					Fencing (label, height, type, reference detail)
					Limits of pond liner (label, material)
					Benching for ponds with permanent pools (permanent pools required to be $\geq 4'$ deep)
					Pond Design Criteria Table [ <a href="#">Appendix 11</a> ]
					Pond Hydrologic Criteria Table [ <a href="#">Appendix 11</a> ]
					Sediment controls (must match exactly with plans being reviewed for approval)
					<b>CROSS-SECTION OF DAM ALONG PRINCIPAL SPILLWAY (PS) (i.e. profile of principal spillway) - Provide the following:</b>
					Existing and proposed ground surface
					Slope of embankment sides (2:1 max / 5:1 max combined for upstream and downstream for top width $\leq 26'$ )
					Embankment top elevation & width (6' min; 10'-26' for road)
					Cutoff trench (dimensioned); bottom elevation & width 4' min; side slopes 1:1 max; depth 4' min below concrete cradle
					Impervious core (up to 10 yr WSEL); side slopes 1:1 max; top width 4' min; top elevation

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					Control structure (label, reference detail location, elevation of all top/weirs/openings/inverts)
					Trash rack(s) (label, reference detail)
					SWM WSEL at Design High Water (DHW) Typically 100-YR storm event
					Bottom of pond (lowest elevation)
					Permanent pool WSEL
					10-YR & 100-YR storm event WSEL
					Principal spillway pipe (barrel); inside diameter or dimensions; length, slope, invert in and out
					Material: for concrete pipe, ASTM C-361; for PVC pipe, ASTM D-1785 or D-2241; for HDPE, AASHTO M294 Type S; for HDPE $\leq 10"$ ,
					Specify watertight joints
					Phreatic line (4:1 slope from 10-YR WSEL); saturated length
					Saturation length
					Anti-seep collars or filter diaphragm (reference detail location)
					Concrete bedding if pipe is concrete (reference detail location)
					Outlet protection: median riprap size ( $d_{50}$ ); thickness, length, width, filter cloth, cross-section detail (reference detail location)
					10-YR & 100-YR Q (cfs) and velocities (fps) at PS outfall
					Design Elevations of constructed and settled top of dam
					Freeboard (min 1' above DHW with emergency spillway, or min 2' without emergency spillway)
					Crest of emergency spillway (dotted line)
					<b>PROFILE OF EMERGENCY SPILLWAY (ES)</b> <b>Provide the following drawn to scale and stationed:</b>
					Existing and proposed ground surface - locate on natural ground or in cut, or use weir or pass through principal spillway
					Invert elevations of inlet channel, control section, and outlet channel
					Lengths of inlet channel, control section, and outlet channel
					Slopes of inlet channel, control section, and outlet channel
					100-YR Q (cfs) and velocity (fps)
					Cross-section detail of emergency spillway with invert (crest) elevation, 100-YR WSEL, bottom width, existing & proposed ground surface, side slopes labeled
					Proper ground cover/protection of control section
					Proper ground cover/protection of inlet & outlet channels

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					<b>CROSS-SECTION OF DAM ALONG CENTERLINE</b> <b>Provide the following drawn to scale and stationed:</b>
					Top of dam elevation (constructed and settled)
					Location of principal spillway with concrete cradle (if concrete pipe used)
					Existing ground
					Proposed ground
					Top of core and elevations; limits shaded
					Bottom of cutoff trench and elevation; limits shaded
					Location and crest elevation of emergency spillway (shown in cut)
					100-YR and 10-YR WSEL's
					<b>CONTROL STRUCTURE/CONCRETE WEIR DETAIL</b> <b>Provide the following drawn to scale:</b>
					Material specified (same as principal spillway pipe); thickness or gauge (if metal)
					Riser crest elevation and invert elevations of all openings
					All openings dimensioned
					Inside dimensions (diameter or width, length, height)
					Concrete collar shown and labelled
					Key joint & waterstop detail
					Riser base: length, width, thickness or gage (if metal)
					Depth of embedment of structure into embankment (on bottom and all sides)
					Low flow orifice pipe anchor and support labelled (as applicable)
					Dewatering device shown and labeled (reference detail)
					Show and label trash rack for all openings (reference detail(s) as applicable)
					Locate and label all steel reinforcement with dimensions
					<b>TRASH RACK DETAIL(S)</b>
					Material specified; galvanized and removable
					Opening sizes dimensioned
					Extension required on top flow inlet structures (no flat trash racks)
					Anti-vortex device (for cylindrical trash racks)
					<b>FILTER DIAPHRAGM</b>
					Drain material noted; ASTM C-33 sand

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					Extend to normal pool WSEL
					Dimensions - width (min 3D from outer principal spillway pipe); height (min 3D above outer diameter of pipe and 18 inches below outer diameter of pipe); thickness (2 ft min)
					Min 2 ft cover
					Pressure relief drain pipe diameter, material, perforations
					<b>GATE VALVE DETAIL</b>
					Valve stem to top of structure and accessible (with key storage location mounted inside structure)
					Valve stem anchored
					Specify material and manufacturer
					<b>STORM DRAIN PROFILE(S) (inflow structure &amp; slope protection, systems through &amp; exiting pond, any additional systems within pond embankment)</b>
					Structures numbered and stationed
					Size and inverts of all pipes at the structure
					Structure inverts labeled upstream and downstream
					10-YR hydraulic gradient shown and labeled
					Label limits of road, pavement, right-of-way above profile
					Existing and finished ground-over centerline of storm drain shown
					Structure schedule
					Provide Storm Drain Flow Tabulation & Hydraulic Gradient Computations for all storm drain systems shown
					<b>LANDSCAPE PLAN</b>
					Include plant material, number, spacing, location, and size
					"No woody vegetation" zone delineated <sup>3</sup>
<b>REPORTS AND CALCULATIONS</b>					
					<b>SOILS INVESTIGATION REPORT</b>
					Boring Map & Logs <sup>4</sup> (See Pond MD-378 for min. boring locations)
					Determination of seepage potential
					Determination of bearing strength, if soil is an unstable clay
					Provide boring log(s) on dam profile and boring location on plan view

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					Boring logs shall contain blow counts, elevations, and location of ground water (if located) to minimum depth of 4-ft below the bottom of the proposed pond
					<b>HYDROLOGY</b>
					Existing and ultimate conditions drainage area (DA) maps at scale 1" = 200' or less
					Existing and ultimate DA limits delineated
					Existing and ultimate DA land uses delineated within DA
					Existing and ultimate time-of-concentration (TC) paths shown within DA
					USDA Soils map (site and DA delineated)
					Check DNR maps to determine if pond outfalls to a stream in a Coldwater Resource Watershed & Provide Use In Pond Design Table <sup>5&amp;6</sup>
					<b>RUNOFF COMPUTATIONS</b>
					Define Hydrologic Soil Group (A, B, C or D) for each soil on site
					Existing and ultimate runoff curve numbers (RCNs)
					Existing and ultimate TC
					Existing and ultimate development hydrographs for 10-YR and 100-YR storm events
					<b>POND HYDRAULICS/ROUTINGS</b>
					Basin routing using short cut method of storage indication
					Elevation vs. Storage table for pond from bottom to top of embankment
					HY-8 or culvert capacity analysis
					Elevation vs. Discharge table which includes each stage of outflow control
					<a href="#">Inflow hydrograph NOAA Atlas 14 (provide copy)</a> <sup>7</sup>
					Outflow hydrograph of routed discharges for 10-YR and 100-YR storm events
					Provide routing with low flow stage clogged
					<b>SPILLWAY(S)</b>
					Provide ultimate Capacity of principal and emergency spillway sized by Code 378
					Reference ESC handbook Design by Engineering Field Manual, pps 11-34.1 through 11-54.11

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					<b>OUTFALL STUDY</b>
					Existing vegetation and condition
					Flow rates and velocities, after development, for 10-YR and 100-YR storm events
					Elevation at end of outlet protection
					Property lines, easements, utility crossings, floodplain limits, waters of U.S., wetlands and wetland buffers, location and first floor elevation of critical structures.
					<b>DAM BREACH ANALYSIS</b>
					Danger reach study per the following guidance: <a href="https://mde.maryland.gov/programs/water/damsafety/documents/dam-breach-analysis/2018-05-15-Breach-analysis-guidance.pdf">https://mde.maryland.gov/programs/water/damsafety/documents/dam-breach-analysis/2018-05-15-Breach-analysis-guidance.pdf</a>
					Cross sections at critical points (in improved and existing channel)
					Check mapping for additional ponds or embankments in flow path and hazard creep
					$d \leq 1.5$ ft, Class "a" structure
					<b>STRUCTURAL/STABILITY COMPUTATIONS</b>
					Anti-flotation computations for riser with Factor of Safety (FOS) $\geq 1.2$
					Riser/weir stability computations (bearing, sliding, overturning)
					Riser/weir structural computations for concrete & reinforcement
					Anti-seep collar sizing, number & spacing calculation
					<b>NOTES ON PLANS</b>
					Construction specifications per MD Code 378
					Maintenance schedule for each type of BMP
					Sequence of Construction with CSCD Invited to Preconstruction Meeting

See attached footnotes



## FOOTNOTES FOR MD-378 SMALL POND REVIEW CHECKLIST

Notes:

<sup>1</sup>Engineer's seal/signature and owner's signature required at time of submitting final plans to obtain approval signatures from CSCD - only one (1) copy of plans & documents needed for first and subsequent submittals - provide two (2) hardcopies to CSCD once all approving signatures received

<sup>2</sup>See guidance for dam breach analysis published by MDE titled "[Guidance for Completing a Dam Breach Analysis for Small Ponds and Dams in Maryland](#)" draft dated May 2018.

<sup>3</sup>No trees, shrubs, or woody vegetation is allowed within 25 ft of the inlet structure, on the fill embankment, and within 15 ft of the fill embankment

<sup>4</sup>All soil investigations shall be logged using the Unified Soil Classification System

<sup>5</sup>Check DNR map to determine stream classification (see link below)

<sup>6</sup>Engineer-In-Charge to verify stream is or is not a designated coldwater resource. Streams in Coldwater Resource Watersheds are considered regulated watersheds and must meet MDE Thermal Design Criteria in order to qualify to be reviewed and approved by Cecil Soil Conservation District in lieu of obtaining a Permit from MDE Dam Safety Program. See [Dam and Small Pond Approval Guidelines in Coldwater Resource Watersheds](#) for "design guidance" for small ponds in a coldwater resource watershed. Coldwater Resources such as a stream with Use Class III/III-P can be determined using the mapping tool below for Designated Use Classes for Maryland's Surface Waters:

<https://mdewin64.mde.state.md.us/WSA/DesigUse/index.html>

<sup>6 (cont.)</sup>or as Maryland Trout Watershed; Benthic Coldwater Macroinvertebrate watershed; or, Put and Grow Trout Watershed which is identified on the Maryland DNR Freshwater Fisheries – Coldwater Resource Mapping Tool below:

<https://maryland.maps.arcgis.com/apps/webappviewer/index.html?id=dc5100c0266d4ce89df813f34678944a>

<sup>7</sup>The link to NOAA Atlas 14 Rainfall Distribution is below:

<https://hdsc.nws.noaa.gov/pfds/>