Harford Soil Conservation District
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December, 2022 Draft

POND CODE 378 CHECKLIST FOR SMALL POND APPROVAL

(Based on MDE Dam Safety Version)

Project Number: _____ Date: _____

Applicant Name: _____

Project Name: _____

Design Firm: _____

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

Designer (check off)			HSCD Reviewer		Submission Item
YES	NO	N/A	received (yes/no)	correct (yes/no)	
SUBMISSION DOCUMENTS					
					Point by point responses to comment letter (if applicable)
					Pond 378 construction plan set with Professional Engineer's certification, seal, signature, and date
					Stormwater management design report with Professional Engineer's certification, seal, signature, and date
					Geotechnical report for stormwater management pond with Professional Engineer's certification, seal, signature, and date
					Dam breach analysis for small ponds with Professional Engineer's certification, seal, signature, and date
					Pond Summary Sheet (MD-ENG-14)
					Approved erosion and sediment control plans from local soil conservation district

Designer (check off)			HSCD Reviewer		Submission Items
YES	NO	N/A	received (yes/no)	correct (yes/no)	
CONSTRUCTION PLANS					
					TITLE SHEET(S)
					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
					Jurisdictional Project/Tracking No.
					Jurisdictional SWM approval block.
					HSCD Small pond approval block.
					Vicinity map to scale (1"=2000') with major roads identified, north arrow, and site delineated
					Legend
					Sheet index / Sheet numbering
					Professional Engineer's certification, seal, signature, and date
					GENERAL INFORMATION (ALL SHEETS)
					Plan scale range: 1" = 10' to 1" = 50'
					Profile scale: 1" - 5' vertical, to 1" = 50' horizontal
					Maximum Drawing Size: 24" x 36"
					Minimum 3 grid ticks with lat./long on plan sheets
					North arrow
					Match lines labeled and referenced
					Profiles, details, and cross-sections drawn to scale
					Sheets numbered, consecutively; revisions noted with date
					Professional Engineer's certification, seal, signature, and date

Designer (check off)			HSCD Reviewer		Submission Items
YES	NO	N/A	received (yes/no)	correct (yes/no)	
					OTHER
					Construction specifications per MD Code 378 (Site Prep, Earth Fill, Structural Backfill, Pipe Conduits, Concrete, Stabilization)
					As-built tables
					As-built certification block
					Construction inspection schedule
					Maintenance schedule
					PLAN VIEW OF POND AT SCALE OF 1" = 50' OR LESS show and label the following:
					Existing and final contours (2' interval maximum) with index contours clearly labeled
					Locations of test borings and bench mark (1 in dam centerline (min); 1 in emergency spillway(min))
					Inflow channel or pipe; erosion protection
					Outflow pipe, outlet protection, outfall channel
					Property lines and easements with owners information
					Low flow channel (if applicable)
					Emergency spillway and outlet channel
					Stationing of embankment centerline; location of other section details
					Site features and existing/proposed grading to 200 ft beyond pond limits
					"No woody vegetation" zone delineated
					Storm drainage system, size, material (existing and proposed) with easements clearly identified

Designer (check off)			HSCD Reviewer		Submission Items
YES	NO	N/A	received (yes/no)	correct (yes/no)	
					Downstream conveyance system (existing and proposed) with easements clearly identified
					Utilities (existing and proposed) with easements clearly identified
					Floodplain limits with sections and water surface elevations
					Wetland boundary and wetland buffer labeled
					CBCA Boundary labeled
					Waters of the U.S. labeled
					Forest conservation easements labeled
					Sinkholes and rock outcrops labeled
					Forebays and internal berms (reference berm detail)
					Control structure (reference detail)
					Principal spillway
					Seepage control (reference detail)
					Limits of clay core trench
					Pond maintenance access
					Fencing (if applicable)
					Trash rack/low flow trash rack (reference detail)
					Limits of pond liner (if applicable)
					Benching for ponds deeper than 4 feet
					CROSS-SECTION OF DAM ALONG PRINCIPAL SPILLWAY (i.e. profile of principal spillway) – show and label the following:
					Existing and proposed ground surface
					Slope of embankment sides (2:1 max)/(5:1 max combined for top width ≤ 26 ft)

Designer (check off)			HSCD Reviewer		Submission Items
YES	NO	N/A	received (yes/no)	correct (yes/no)	
					Embankment top width (6’ minimum; 10-26’ for road); top elevation
					Cutoff trench (dimensioned); bottom width 4’ minimum; side slopes 1:1 maximum; depth 4’ minimum below concrete cradle
					Impervious Core (up to 10 year WSEL); side slopes; top width; top elevation
					Control structure (and reference detail location)
					Trash rack (all openings in control structure; reference detail)
					SWM Design WSEL (Design High Water (DHW))
					Permanent pool WSEL
					100-yr WSEL
					Control structure openings: diameter or dimensions
					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 ≤ 10”, AASHTO M252 Type S
					Specify watertight joints
					CROSS-SECTION OF DAM ALONG PRINCIPAL SPILLWAY (i.e., profile of principal spillway) – show and label the following:
					Existing and proposed ground surface.
					Slope of embankment sides (2:1 max)/(5:1 max combined for top width ≤ 26 ft)
					Embankment top width (6’ minimum; 10-26’ for road); top elevation

Designer (check off)			HSCD Reviewer		Submission Items
YES	NO	N/A	received (yes/no)	correct (yes/no)	
					Cutoff trench (dimensioned); bottom width 4’ minimum; side slopes 1:1 maximum; depth 4’ minimum below concrete cradle
					Impervious Core (up to 10 year WSEL); side slopes; top width; top elevation
					Control structure (and reference detail location)
					Trash rack (all openings in control structure; reference detail)
					SWM Design WSEL (Design High Water (DHW))
					Permanent pool WSEL
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					Control structure openings: diameter or dimensions
					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 ≤ 10”, AASHTO M252 Type S
					Specify water tight joints
					Phreatic line (4:1 slope from 10 year WSEL); saturated length
					Filter diaphragm (reference detail location) or anti seep collar
					Bedding (if pipe is concrete) (detail required)
					Outlet protection: median riprap size (d_{50}); thickness; length, width; cross-section detail (reference location); filter cloth
					Design Qs and velocities
					Specification of construction height and settled height for dam construction elevations
					Freeboard (min 1ft above DHW, or min 2 ft without emergency spillway)

Designer (check off)			HSCD Reviewer		Submission Items
YES	NO	N/A	received (yes/no)	correct (yes/no)	
					PROFILE OF EMERGENCY SPILLWAY detail drawn to scale to show and label the following:
					Existing and proposed ground surface. Locate on natural ground or in cut. Otherwise, use weir or pass through principal spillway.
					Invert elevations - inlet, control and outlet sections
					Length of inlet, control, and outlet sections
					Slopes of inlet, control and outlet sections
					Design Q and velocity
					Cross-section detail of emergency spillway with invert (crest) elevation, 100 year WSEL, bottom width, existing and proposed ground surface, side slopes labeled.
					Proper protection of spillway
					Protection of channel including material type and size
					CROSS-SECTION OF DAM ALONG CENTERLINE drawn to scale and stationed to show the following:
					Top of dam and elevation
					Location of principal spillway with concrete cradle
					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 year and 10 year WSELs denoted
					CONTROL STRUCTURE DETAIL
					Material specified (same as principal spillway pipe); thickness or gage (if metal)

Designer (check off)			HSCD Reviewer		Submission Items
YES	NO	N/A	received (yes/no)	correct (yes/no)	
					Riser crest elevation and invert elevations of all openings
					All openings dimensioned
					Inside dimensions (diameter or width, length, height)
					Concrete collar shown and labeled
					Key joint detail
					Riser base: length, width, thickness or gage (if metal)
					Key joint detail
					Depth of embedding
					Low flow orifice anchor and support labeled
					Dewatering device shown and labeled (reference detail)
					Show and label trash rack – all openings. (reference detail)
					TRASH RACK DETAIL(S)
					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)
					FILTER DIAPHRAGM DETAIL
					Drain material noted; ASTM C-33 sand
					Extend to normal pool WSEL
					Dimensions – width (minimum 3D from outer principal spillway pipe); height (minimum 3D above outer diameter of pipe and 18 inches below outer diameter of pipe); thickness (2 feet min.)
					Minimum 2 ft. cover
					Pressure relief drain pipe diameter, material, perforations

Designer (check off)			HSCD Reviewer		Submission Items
YES	NO	N/A	Received (yes/no)	correct (yes/no)	
					ANTI SEEP COLLAR DETAIL
					Collar(s) material, dimensions, spacing rate (min./max.), etc.
					Minimum 1 ft. cover
					Watertight connection specified.
					STORM DRAINAGE PROFILES (inflow systems, systems through pond, systems adjacent to pond)
					Structures numbered and stationed
					Size and inverts of all pipes at the structure
					Structure inverts labeled upstream and downstream at each structure
					10 year hydraulic grading shown and labeled.
					Label limits of road, pavement, right-of-way above profile.
					Existing and finished ground line at centerline of storm drain shown
					Structure and pipe schedules
					LANDSCAPING PLAN
					Include plant material, number, spacing, location, and size.
					"No woody vegetation" zone delineated
					REPORTS AND CALCULATIONS
					SOILS INVESTIGATION REPORT
					Borings along centerline of dam and in the borrow area
					Use of Unified Soil Classification System
					Determination of seepage potential

Designer (check off)			HSCD Reviewer		Submission Items
YES	NO	N/A	received (yes/no)	correct (yes/no)	
					Determination of bearing strength, if soil is an unstable clay
					Log on dam profile and plan view
					Blow counts, elevations, and location of ground water
					HYDROLOGY
					Existing and **ultimate conditions** drainage area map (1" = 200' scale or less):
					Existing and ultimate drainage area (DA) limits delineated
					Existing and ultimate land uses delineated
					Existing and ultimate time of concentration paths shown
					USDA Soils map (site and DA delineated)
					Runoff computations
					Hydrologic Soil Groups
					Existing RCN and ultimate RCN
					Time of concentration (existing and ultimate)
					Existing and ultimate development hydrographs for 10 and 100 year storms
					POND HYDRAULICS/ROUTINGS
					Basin routing using short cut method or storage indication
					Stage - storage table and curve for pond to top of embankment
					HY8 or culvert capacity analysis
					Stage (elevation) - discharge table for pond
					Inflow hydrograph NOAA Atlas 14
					Routed discharges for 10-yr and 100-yr storms

Designer (check off)			HSCD Reviewer		Submission Items
YES	NO	N/A	received (yes/no)	correct (yes/no)	
					Discharge velocities and outfall channel protection sizing (10-yr storm)
					Anti-flotation computations for riser, FOS ≥ 1.2
					EMERGENCY SPILLWAY
					Capacity of principal spillway and emergency spillway sized by Code 378
					Reference ESC handbook Design by Engineering Field Manual, pps 11-34.1 through 11-54.11
					OUTFALL STUDY
					Existing vegetation and condition
					Flow rates and velocities, after development, for 10-yr and 100-yr storms
					Elevation at end of outlet protection
					Property lines, easements, utility crossings, floodplain limits, waters of US, wetlands and wetland buffers, location and first floor elevation of critical structures.
					DAM BREACH ANALYSIS
					Danger reach study per the following guidance: https://mde.maryland.gov/programs/water/DamSafety/Documents/Dam-Breach-Analysis/2018-05-15-Breach-AnalysisGuidance.pdf
					Cross sections at critical points (in improved and existing channel)
					Check mapping for additional ponds or embankments in flow path and hazard creep
					d≤ 1.5 feet, Class “a” structure

Designer (check off)			HSCD Reviewer		Submission Items
YES	NO	N/A	Received (yes/no)	correct (yes/no)	
					GATE VALVE DETAIL
					Valve stem to top of structure and accessible
					Valve stem anchored
					Specify material

ADDITIONAL NOTES: _____

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REVIEWER NAME:_____ **DATE:**_____