

SEDIMENT/STORMWATER MANAGEMENT BASIN CONSTRUCTION CHECKLIST
*For permanent structures per Delaware NRCS Pond Code 378,
 Delaware Sediment and Stormwater Regulations, and
 Post Construction Stormwater Management BMPs Standards and Specifications.*

KEY		PROJECT INFORMATION
<u>√</u>	Item meets standard	Project ID: _____
<u>X</u>	Item not acceptable	Contractor: _____
<u>N/A</u>	Item not applicable	Inspector: _____
<u>C</u>	Item requires engineer's cert.	Date(s): _____

I. Materials and equipment.

- _____ Pipe and appurtenances on-site prior to construction and dimensions checked.
 - _____ 1) Material (including protective coating, if specified).
 - _____ 2) Diameter
 - _____ 3) Dimensions of metal riser or pre-cast concrete outlet structure.
 - _____ 4) Required dimensions between water control structures (orifices, weirs, etc.) are in accordance with plans.
 - _____ 5) Barrel stub for prefabricated pipe structures at proper angle for design barrel slope.
 - _____ 6) Number and dimensions of prefabricated anti-seep collars.
 - _____ 7) Watertight connectors and gaskets.
 - _____ 8) Outlet drain valve.
- _____ Appropriate compaction equipment available, including hand and small power tamps.
- _____ Project benchmark near pond site.
- _____ Equipment for temporary de-watering.

II. Subgrade preparation.

- _____ Area beneath embankment stripped of all vegetation, topsoil and organic matter.
- _____ Cut-off trench excavated a minimum of 4 FT below subgrade and minimum 4 FT below proposed pipe invert, with side slopes no steeper than 1:1.
- _____ Impervious material used to backfill cut-off trench.

III. Pipe spillway installation.

_____ Method of installation detailed on plans.

A. Bed preparation.

_____ Installation trench excavated with 1:1 side slopes.

_____ Stable, uniform, dry subgrade of relatively impervious material. (*If subgrade is wet, contractor shall have defined steps before proceeding with installation.*)

_____ Invert at proper elevation and grade.

B. Pipe placement.

_____ Metal/Plastic pipe

_____ 1) Watertight connectors and gaskets properly installed

_____ 2) Anti-seep collars properly spaced and having watertight connections to pipe.

_____ 3) Backfill placed and tamped by hand under “haunches” of pipe.

_____ 4) Remaining backfill placed in max. 8” lifts using small power tamping equipment until 2’ cover over pipe is reached.

_____ Concrete pipe

_____ 1) Pipe set on blocks or concrete slab for pouring of low cradle.

_____ 2) Pipe installed with rubber gasket joints with no spalling in gasket interface area.

_____ 3) Excavation for lower half of anti-seep collar(s) with reinforcing steel set.

_____ 4) Entire area where anti-seep collar(s) will come in contact with pipe coated with mastic or other approved waterproof sealant.

_____ 5) Low cradle and bottom half of anti-seep collar installed as monolithic pour and of an approved mix.

_____ 6) Upper half of anti-seep collar(s) formed with reinforcing steel set.

_____ 7) Concrete for collar of an approved mix and vibrated into place. (Protected from freezing while curing, if necessary.)

_____ 8) Forms stripped and collar inspected for honeycomb prior to backfilling. Parge if necessary.

C. Backfilling

_____ Fill placed in maximum 8” lifts.

_____ Backfill taken minimum 2’ above top of anti-seep collar elevation before traversing with heavy equipment.

IV. Riser/Outlet structure installation.

A. Metal riser

- _____ Riser base excavated or formed on stable subgrade to design dimensions.
- _____ Embedded section of aluminum or aluminized pipe to be painted with zinc chromate or equivalent on **inside and outside** surfaces.
- _____ Set on blocks to design elevations and plumbed.
- _____ Reinforcing bars placed at right angles and projecting into sides of riser.
- _____ Concrete poured so as to fill inside of riser to invert of barrel.

B. Pre-cast concrete structure

- _____ Dry and stable subgrade.
- _____ Riser base set to design elevation.
- _____ If more than one section, no spalling in gasket interface area; gasket or approved caulking material placed securely.
- _____ Watertight and structurally sound collar or gasket joint where structure connects to pipe spillway.

C. Poured concrete structure

- _____ Footing excavated or formed on stable subgrade, to design dimensions with reinforcing steel set.
- _____ Structure formed to design dimensions, with reinforcing steel set as per plan.
- _____ Concrete of an approved mix and vibrated into place. (Protected from freezing while curing, if necessary.)
- _____ Forms stripped and structure inspected for “honeycomb” prior to backfilling. Parge if necessary.

V. Embankment construction.

A. Fill material.

- _____ Soil engineer’s test.
- _____ Visual test by inspector.

B. Compaction.

- _____ Soil engineer’s test.
- _____ Visual test by inspector.

C. Embankment.

- _____ Fill placed in max. 8” lifts and compacted with appropriate equipment.
- _____ Constructed to design cross-section, side slopes and top width.
- _____ Constructed to design elevation plus allowance for settlement.

VI. Impounded area construction.

- _____ Excavated/graded to design contours and side slopes.
- _____ Inlet pipes have adequate outfall protection.
- _____ Forebay
- _____ Wet pond requirements.
 - _____ 1) 10 FT reverse slope bench one foot above normal pool elevation.
 - _____ 2) 10 FT wide level bench one foot below normal pool elevation.

VII. Earth emergency spillway construction.

- _____ Spillway located in cut or structurally stabilized with riprap, gabions, concrete, etc.
- _____ Excavated to proper cross-section, side slopes and bottom width.
- _____ Entrance channel, crest, and exit channel constructed to design grades and elevations.

VIII. Outlet protection.

A. End section.

- _____ Securely in place and properly backfilled.

B. Endwall

- _____ Footing excavated or formed on stable subgrade, to design dimensions and reinforcing steel set, if specified.
- _____ Endwall formed to design dimensions with reinforcing steel set as per plan.
- _____ Concrete of an approved mix and vibrated into place. (Protected from freezing, if necessary.)
- _____ Forms stripped and structure inspected for “honeycomb” prior to backfilling. Parge if necessary.

C. Riprap apron/channel.

- _____ Apron/channel excavated to design cross-section with proper transition to existing ground.
- _____ Filter fabric in place.
- _____ Stone sized as per plan and uniformly placed at the thickness specified.

IX. Vegetative stabilization.

- _____ Approved seed mixture or sod.
- _____ Proper surface preparation and required soil amendments.
- _____ Excelsior mat or other stabilization materials, as per plan.

X. Miscellaneous

- _____ Toe drain.
- _____ Temporary dewatering device installed as per plan w/appropriate fabric, stone size and perforations if included.
- _____ Drain for ponds having a permanent pool.
- _____ Trash rack/anti-vortex device secured to outlet structure.
- _____ Trash protection for low flow pipes, orifices, etc.
- _____ Fencing (when required).
- _____ Access road.
- _____ Set aside area for clean-out and maintenance.