

# SEDIMENT/STORMWATER MANAGEMENT BASIN CONSTRUCTION CHECKLIST

*For permanent structures per Delaware SCS Pond Code 378 and  
Delaware Sediment and Stormwater Regulations*

<b>KEY</b>	<b>PROJECT INFORMATION</b>
<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.