

# Dry Detention Facility Construction Checklist

*This checklist has been designed for sheet flow  
in accordance with the Delaware Sediment and Stormwater Program's  
Post Construction Stormwater BMP Standards, Specifications and Details*

## **PROJECT INFORMATION**

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

Location: \_\_\_\_\_

Contractor: \_\_\_\_\_

Construction Reviewer: \_\_\_\_\_

Date(s) / Time(s) of Inspections: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

## **KEY:**

✓

**Item meets standard**

X

**Item not acceptable**

N/A

**Item not applicable**

## **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 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.

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**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.

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Concrete pipe (continued)

\_\_\_\_ 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.)

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\_\_\_\_\_ 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

**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.

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Parge if necessary.

**C. Riprap apron/channel.**

- \_\_\_\_\_ Apron/channel excavated to design cross-section with proper transition to existing ground.
- \_\_\_\_\_ Geotextile 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.
- \_\_\_\_\_ Stabilization matting 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.