

Dry Detention Facility Construction Checklist

*For permanent structures per USDA SCS Pond Code 378,
Delaware Sediment and Stormwater Regulations, and
Post Construction Stormwater BMP Standards and Specifications*

PROJECT INFORMATION

Project Name: _____

Location: _____

Contractor: _____

Construction Reviewer: _____

Date(s) / Time(s) of Inspections: _____

KEY:

<u>✓</u>	Item meets standard
<u>X</u>	Item not acceptable
<u>N/A</u>	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.

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

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

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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

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.)

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_____ 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.
_____ 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.