



City of Durham

Public Works Department

Stormwater Services Divisions

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**Dry Detention Basin Design Summary**

Stormwater Management Construction Plan Review:

A complete stormwater management construction plan submittal includes a design summary for each stormwater BMP, design calculations, plans and specifications showing BMP, inlet and outlet structure details.

**I. PROJECT INFORMATION**

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

PIN: \_\_\_\_\_ Case #: \_\_\_\_\_

Design Contact Person: \_\_\_\_\_ Phone #: (\_\_\_\_) \_\_\_\_ - \_\_\_\_\_

Legal Name of Owner: \_\_\_\_\_

Owner Contact: \_\_\_\_\_ Phone #: (\_\_\_\_) \_\_\_\_ - \_\_\_\_\_

Owner Address: \_\_\_\_\_

Deed Book \_\_\_\_\_ Page # \_\_\_\_\_ or Plat Book \_\_\_\_\_ Page# \_\_\_\_\_ for BMP Property

For projects with multiple basins, specify which pond this worksheet applies to: \_\_\_\_\_

Detention provided for: \_\_\_\_\_ 1-year \_\_\_\_\_ 2-year \_\_\_\_\_ 10-year \_\_\_\_\_ other \_\_\_\_\_

Dam Height: \_\_\_\_\_ (feet) Dam Classification: \_\_\_\_\_

*Elevations*

Basin bottom elevation	_____	ft. (floor of the pond)
1-year storm orifice/weir elevation	_____	ft. (invert elevation)
1-year storm water surface elevation	_____	ft.
2-year storm orifice/weir elevation	_____	ft. (invert elevation)
2-year storm water surface elevation	_____	ft.
10-year storm orifice/weir elevation	_____	ft. (invert elevation)
10-year storm water surface elevation	_____	ft.
Emergency spillway elevation	_____	ft. (invert of emergency spillway)
Top of embankment/dam	_____	ft. (elevation)
Maximum water surface elevation	_____	ft. (max. storm pond can safely pass)

*Areas*

Design storm surface area	_____	ft <sup>2</sup> (Specify frequency event: _____ year)
Drainage area	_____	ac. (total drainage to the pond)

*Volumes*

Total storage volume provided at design storm	_____	ft <sup>3</sup>
Total storage volume provided at top of dam	_____	ft <sup>3</sup>

*Hydraulic Depth (volume of design storm divided by surface area of design storm)*

Hydraulic Depth \_\_\_\_\_ ft.

Discharges (Specify only applicable frequency events)

At BMP

	1-year	2-year	10-year	____-year
Inflow	_____ cfs	_____ cfs	_____ cfs	_____ cfs
Routed outflow	_____ cfs	_____ cfs	_____ cfs	_____ cfs

At Analysis Point(s) that BMP Contributes to

	1-year	2-year	10-year	____-year
Pre-development	_____ cfs	_____ cfs	_____ cfs	_____ cfs
Post-development w/o detention	_____ cfs	_____ cfs	_____ cfs	_____ cfs
With detention	_____ cfs	_____ cfs	_____ cfs	_____ cfs

Riser/Principal and Emergency Spillway Information

1-year storm orifice/weir	diameter_____ in.	length _____ft.	
2-year storm orifice/weir	diameter_____ in.	length _____ft.	
10-year storm orifice/weir	diameter_____ in.	length _____ft.	
____- year storm orifice/weir	diameter_____ in.	length _____ft.	
Principal spillway	diameter_____ in.		
Emergency spillway	width_____ ft.	side slopes ____:1	slope _____%

**II. REQUIRED ITEMS CHECKLIST**

The following checklist outlines design requirements. In the space provided to indicate the following design requirements have been met and supporting documentation is attached.

Applicant's initials

- \_\_\_\_\_ a. Riprap outlet protection, if provided, reduces flow to non-erosive velocities (provide calculations).
- \_\_\_\_\_ b. The basin side slopes are no steeper than 3:1.
- \_\_\_\_\_ c. Vegetative cover for the basin is specified. No woody vegetation is permitted on the embankment.
- \_\_\_\_\_ d. A trash rack or similar device is provided for both the overflow and orifice. Flat top trash racks are not acceptable. Access hatch has been provided.
- \_\_\_\_\_ e. A recorded drainage easement is provided for each basin including access to the nearest right-of-way and is graded per Section 8.3, Stormwater Control Facilities (BMPs).
- \_\_\_\_\_ f. If the basin is used for sediment and erosion control during construction, a note requiring clean out and vegetative cover being established prior to use as a dry detention basin shall be provided on the construction plan.
- \_\_\_\_\_ g. Anti-floatation calculations are provided for riser structure.
- \_\_\_\_\_ h. A plan view of the pond with grading shown is provided.
- \_\_\_\_\_ i. A profile through the forebay, main pond and spillway is provided. Water surface elevations are shown on the profile.
- \_\_\_\_\_ j. Riser structure details are provided.
- \_\_\_\_\_ k. Compaction specifications for the embankment are provided on the plan.
- \_\_\_\_\_ l. Dam designed to account for a 5.00% settlement factor.

\_\_\_\_\_ m. The minimum top of dam width has been provided for the pond embankment top width per Section 8.3, Stormwater Control Facilities (BMPs).

**Note: Executed Stormwater Facility Operation and Maintenance Permit Agreement, payment of permit fee per facility and payment of surety are required prior to construction drawing approval.**