

PC-21 WET EXTENDED DETENTION BASIN

Reference: Maryland Stormwater Design Manual.

**BMP Objectives**

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|-------------------------------------|-----------------------|
| <input type="checkbox"/> | Perimeter Control |
| <input type="checkbox"/> | Slope Protection |
| <input type="checkbox"/> | Borrow and Stockpiles |
| <input checked="" type="checkbox"/> | Drainage Areas |
| <input checked="" type="checkbox"/> | Sediment Trapping |
| <input type="checkbox"/> | Stream Protection |
| <input checked="" type="checkbox"/> | Temporary Stabilizing |
| <input checked="" type="checkbox"/> | Permanent Stabilizing |

Definition and Purpose

A wet extended detention basin is used to capture and treat a specific volume of stormwater runoff. This structure is generally the same as a wet basin. However, this BMP provides water quality treatment through a combination of a permanent pool and extended detention storage. Water in the permanent pool mixes with initial runoff from storm events. The permanent pool enhances the effectiveness of the basin by promoting biological uptake.

Appropriate Applications

- Can be used to enhance stormwater quality and reduce peak discharges.
- Are most applicable in residential, commercial, and industrial areas.
- If constructed early in development of a particular site, become an effective means of trapping sediment from construction activities.
- Can be retrofitted into existing flood control facilities.
- Are used for regional and/or follow-up water quality treatment but are also effective as an “on-site” BMP.
- Also work well in conjunction with other BMPs used to control upstream and downstream sediments.
- Can be effective if they are combined with BMP’s that attenuate peak stormwater discharges or reduce runoff volumes. If needed, flood routing detention volume can be designed and captured by the basin, above volume used for water quality treatment. Basin size can be reduced if effectively combined with other BMPs.
- Can also be used for recreation and open space and in some cases, wildlife habitat if wetlands or shallow pools are incorporated into the design.

Design Parameters

- Generally, minimum drain time of 40 hours is recommended for the extended storage volume to allow finer particulates found in urban stormwater runoff to settle.
- If possible, basin should be incorporated into existing facility or flood control basin.
- Other urban uses such as recreation, open space, and/or wildlife habitat should be considered.
- Generally, land required is approximately 0.5 to 2.0 percent of tributary development area.
- Groundwater elevations should be accounted for in the design and construction of the basin.
- If minimum dam heights and volumes are exceeded, regulatory requirements should be reviewed for dam embankments and storage volumes.

Maintenance and Inspection

- Conduct inspections as required by the NPDES permit or contract specifications during construction.
- Periodic inspection and maintenance will be required based on post-construction site conditions.
- Make any repairs necessary to ensure the measure is operating properly.
- Regular maintenance is necessary to remove surface sediment, trash, debris, and leaf litter, and dead or diseased plant material.