

**PC-23      *EXTENDED DETENTION SHALLOW WETLAND***

Reference: Maryland Stormwater Design Manual.



Photograph to come.

**BMP Objectives**

- Perimeter Control
- Slope Protection
- Borrow and Stockpiles
- Drainage Areas
- Sediment Trapping
- Stream Protection
- Temporary Stabilizing
- Permanent Stabilizing

**Definition and Purpose**

An extended detention shallow wetland is used to capture and treat a specific volume of stormwater runoff. This structure is a shallow wetland with additional detention storage provided for water quality treatment. Wetland species are added to the bottom of the basin to enhance the pollutant removal capability, and a perennial base flow is required to maintain and promote wetland vegetation.

**Appropriate Applications**

- Extended detention shallow wetland:
  - Can be used to reduce peak discharges.
  - Can be used as a follow-up structural BMP or as a stand-alone facility.
  - Can be incorporated with small existing wetlands (requires state and federal permits).
  - Require an area sufficiently large for impounding stormwater in shallow basins.
  - Can be arranged in a series of terraces.
  - Can provide effective follow-up treatment to on-site and other basin BMPs.
- If needed, flood storage can be provided above volume used for water quality treatment.
- State and federal regulations protecting natural wetlands recognize classification of wetlands constructed for water quality treatment.
- The advantage is in aesthetics and creation of wildlife habitat, and the disadvantage is the need for continuous base flow to maintain wetland growth.

**Design Parameters**

- Generally, minimum drain time of 24 hours is recommended.

- Wetlands constructed outside of the Waters of the U.S. and explicitly designed for stormwater management are not subject to the provisions of the Clean Water Act (Sections 401 and 404). When abandoned, they may be regulated as natural wetlands.
- Perennial base flow is needed and is determined through a water budget analysis.
- Other urban uses such as recreation, open space, and/or wildlife habitat should be considered.
- Loamy soils are required in the wetland bottom to sustain plant growth.
- Exfiltration through basin bottom is not reliable because of low permeability soils and/or high ground water elevations.
- 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.