



Perceval Forebay Graphic: built 2023

The Perceval wet forebay meets the performance criteria for a government approved Urban BMP (Best Management Practice) Design. This design can be used for a Wet ED (extended detection) forebay where the inflow of water (3 stormwater discharge pipes from Galahad Lot 9 and Merlin Lot 22) is equal to the ground level of the permanent retention pond. This Wet ED sediment forebay prevents flooding on the grounds before the permanent retention pond and improves water quality by acting as a pretreatment stilling basin. The first purpose of this sediment forebay was to prevent flooding in the grounds north of the permanent retention pond.

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Appendix D Sediment Forebay (VA DEQ Stormwater Design Specification)

Description of Practice

“A sediment forebay is a settling basin or plunge pool constructed at the incoming discharge points of a stormwater BMP. The purpose of a sediment forebay is to allow sediment to settle from the incoming stormwater runoff before it is delivered to the balance of the BMP. A sediment forebay helps to isolate the sediment deposition in an accessible area, which facilitates BMP maintenance efforts.”

Practice Applications and Feasibility

“A sediment forebay is an essential component of most impoundment and infiltration BMP’s including retention, detention, extended-detention, constructed wetlands, and infiltration basins.

A sediment forebay should be located at each inflow point in the stormwater BMP. Storm drain piping or other conveyances may be aligned to discharge into one forebay or several as appropriate for the particular site.

A sediment forebay not only serves as a maintenance feature in a stormwater BMP, it also enhances the pollutant removal capabilities of the BMP. The volume and depth of the forebay work in consort with the outlet protection at the inflow points to dissipate the energy of incoming stormwater flows. This allows the heavier, coarse grained sediments and particulate pollutants to settle out of the runoff.

An “on-line” BMP designed for flood control and channel erosion control is subject to the natural bed material (sediment) load, plus any bed load increases due to higher velocities in the upstream channels. This is especially true for regional facilities where the upstream channel is used to convey the increased developed condition flows. In such cases, the sediment forebay becomes as essential facility maintenance component as it serves to simplify clean-out operations.

A sediment forebay, however, is designed to trap the sediments within a confined area. This causes a more rapid sediment accumulation. Studies indicate that for a typical mixed-use watershed, sediment should be removed from the forebay every three to five years. Despite this frequency, removal of sediment from the forebay should be less costly over the same time period than a one-time cleaning of the entire basin. This is due in part to the fact that removing sediment from the forebay is a much simpler operation than that of an entire stormwater basin or pond. The sediment is confined to strategic forebay locations with easy access. Furthermore, the more frequent and less expensive schedule will likely become a regular part of the operation and maintenance efforts of the owners.”