

Section 5.5.1 and 5.5.4 RISDISM Guidance -- Filtering Systems: Separation to Seasonal High Groundwater Table

Guidance regarding RI Stormwater Design and Installation Standards Manual, Section 5.5 Filtering Systems, pages 5-46, 5-48 and 5-49. Sections taken directly from the Manual that are the subject of clarification in this Guidance are in bold below.

Issue: Separation to Seasonal High Groundwater Table

5.5.1 Feasibility

Required Elements, page 5-46, bullet 1:

- **The bottom of filtering systems shall be located at or above the seasonal high groundwater table. The top of filtering systems shall be located at least 3 feet above the seasonal high groundwater table.**

Clarification:

The 3' of separation is to provide the appropriate treatment of stormwater prior to entry into the groundwater system. This 3' of treatment (i.e. 18" of bioretention soil plus 18" of native material) has been determined to be protective of the groundwater source.

The "top of the filtering system" is the top of the ground within the filter:

- For filters installed with a grass cover, the top of the soil layer within which the grass is planted will be considered the "top of the filtering system."
- For bioretention systems, the top of the mulch layer will be considered the "top of the filtering system."
- The elevation of the full water level is not the "top of the filtering system."

5.5.4 Treatment

Design Guidance, page 5-49, bullets 1 and 2:

- **The depth of sand and organic filters may be reduced to 12" on a case-by-case basis as demonstrated by the designer that 18" is not feasible, such as sites with high groundwater or shallow depth to bedrock or clay soils, or in retrofit situations where pre-existing site constraints exist.**
- **The depth of bioretention systems may be reduced to 12" on a case-by-case basis as demonstrated by the designer that the 24" to 48" range is not feasible, such as sites with high groundwater or shallow depth to bedrock or clay soils or in retrofit situations where pre-existing site constraints exist. In these cases, the designer should add 20% (by volume) of well-aged (6-12 months), well-aerated, leaf compost (or approved equivalent) to the planting soil mixture, and will need to demonstrate that the facility meets the required 75% WQ_v storage.**

Clarification:

DEM and CRMC have determined that a "high groundwater table or shallow depth to bedrock or clay soils" is not justification for a reduced filter depth and consequent reduced separation to the seasonal high groundwater table for a stormwater treatment filtering system. The Required

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Element in section 5.5.1 that specifies a 3 foot separation distance takes precedence over these design guidance bullets in section 5.5.4.

A reduction in the filter/bioretenion depth and the 3 foot separation to the seasonal high groundwater may be allowed in the following situations:

- The distance may be reduced to 2 feet for strictly residential land uses, i.e., stormwater runoff from residential rooftops, driveways, and parking areas, but not roadways. (This is consistent with the conditions in section 5.3.1 for Stormwater Infiltration practices.)
- Retrofit situations designed to improve water quality, as compared to existing conditions, wherein the minimum 3 foot separation standard cannot be met due to existing site constraints and there is little risk to Groundwater quality.
- On a case-by-case basis after discussion with the DEM or CRMC where it is determined that a 3 foot separation is not necessary due to site specific hydrogeologic conditions.
- The separation may be reduced for brownsfields or state listed sites, as long as the infiltration is allowed by the Office of Waste Management.
- The separation may be reduced for redevelopment areas where the groundwater is classified as GB.

Considerations for Lined Systems:

When the 3 foot separation distance to the seasonal high groundwater table cannot be met, the filter system must be lined and underdrained with a surficial discharge. Please note that lined or underdrained BMP's do not receive 100% pollutant removal credit for bacteria, metals and phosphorus. Pollutant removals are important considerations as the site is designed if stormwater discharging from increased impervious cover enters an impaired waterbody. The application will need to include offsets to compensate for the increase in pollutants to the waters of the State.