

IMPROVING THE DESIGN STANDARDS FOR STORMWATER GRAVEL WETLANDS

Stormwater Gravel Wetlands are very effective at removing total suspended solids and nutrients such as nitrogen. Maintenance and inspection are important.

Forebay

- Allows the largest sediment particles to settle
- Outlet elevation should match the soil surface so the forebay can drain to allow for the first step nitrogen conversion process
- Low flow conveyance may be needed



Remove
excess
vegetation
periodically



Suggested Changes to NHDOT Design Standards and Specifications

- Adjust the size the outlet structure to the specific needs of the design. If the structure is too large, the water passes through too quickly. But if it is too small, the water stands too long.
- Fit the capacity of the hydraulic inlet to the size of the design treatment volume.
- Only use underdrain when a high water table prevents anaerobic bacteria from thriving.
- Design the forebay to drain within 24 hours after a one-inch rain.
- Protect openings larger than 4 inches to prevent leaves and debris from clogging drains.
- Remove excess vegetation periodically.
- Length to width ratio is less important than other parameters.

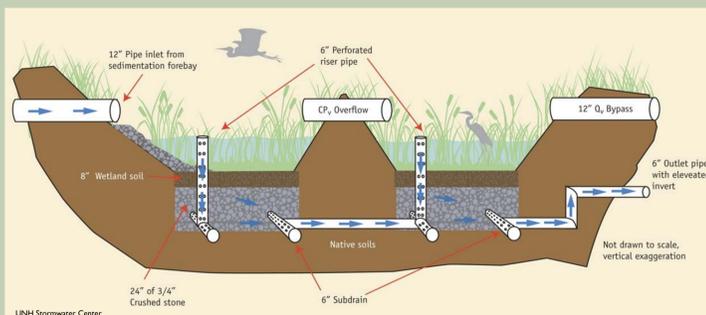
Outlet structures



Use trash racks or rock to guard openings larger than 4 inches to prevent leaves and debris from clogging the outlet drains. The rock should cover the slot to keep debris out.

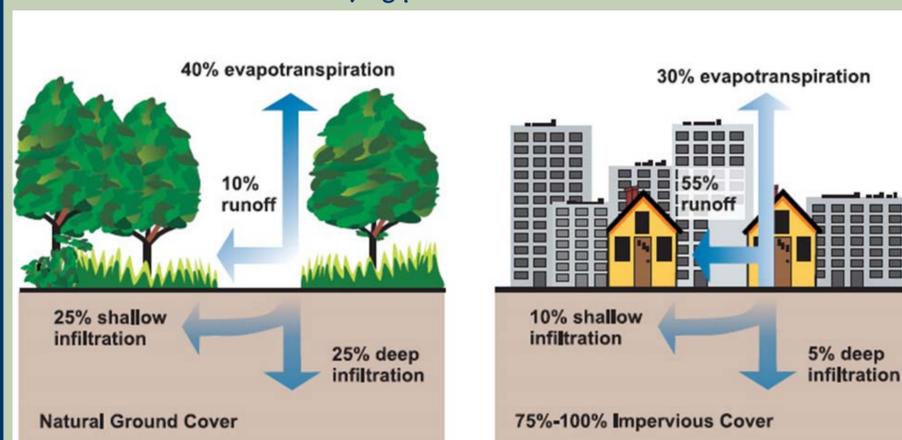
Cross-section

Water enters the SGW and infiltrates through wetland soil rich in humus before passing through a gravel layer. Humus captures non-organic contaminants and sediment. Anaerobic bacteria living in the gravel layer consume the nitrogen and other organic nutrients.



Impermeability

Roadways do not allow rain to soak into the ground. Water runs off carrying pollutants, nutrients, and sediment.



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