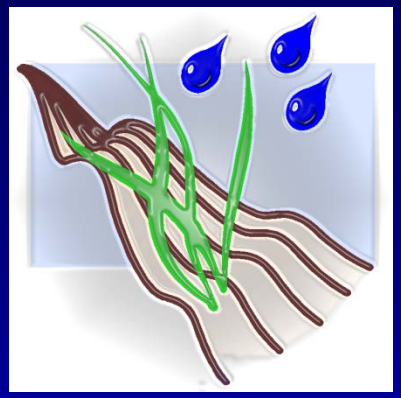


Revisions to the Delaware Sediment & Stormwater Regulations

48-HR Detention

Regulatory Advisory Committee Meeting

May 4, 2016

Felton-Farmington Room, DelDOT Administration Building

13.0 Wet Ponds

Definition: Wet Ponds are stormwater storage practices that consist of a combination of a permanent pool, micropool, or shallow marsh that promote a good environment for gravitational settling, biological uptake and microbial activity. Wet Ponds are widely applicable for most land uses and are best suited for larger drainage areas. Runoff from each new storm enters the wet pond and partially displaces pool water from previous storms. The pool also acts as a barrier to re-suspension of sediments and other pollutants deposited during prior storms. When sized properly, Wet Ponds have a residence time that ranges from many days to several weeks, which allows numerous pollutant removal mechanisms to operate. Wet Ponds can also provide storage above the permanent pool to help meet stormwater management requirements for larger storms. Design variants include:

- 13-A Wet Pond
- 13-B Wet Extended Detention (ED) Pond

A Wet ED Pond differs from a typical Wet Pond in that a Wet ED Pond provides 24-hour detention of all or a portion of the Resource Protection Volume (RPv). Optional internal baffles in the Wet ED Pond extend the flow path through the pond from the inflow point to the outlet. In addition, an undersized outlet structure restricts stormwater flow so it backs up and is stored within the Wet ED Pond. The temporary ponding enhances the ability of particulate pollutants to settle out and reduces the maximum peak discharge to the downstream channel, thereby reducing the effective shear stress on banks of the receiving stream.

Wet Ponds should be considered for use after all other upland runoff reduction opportunities have been exhausted and there is still a remaining treatment volume or runoff from larger storms (i.e. Cv an Fv) to manage.

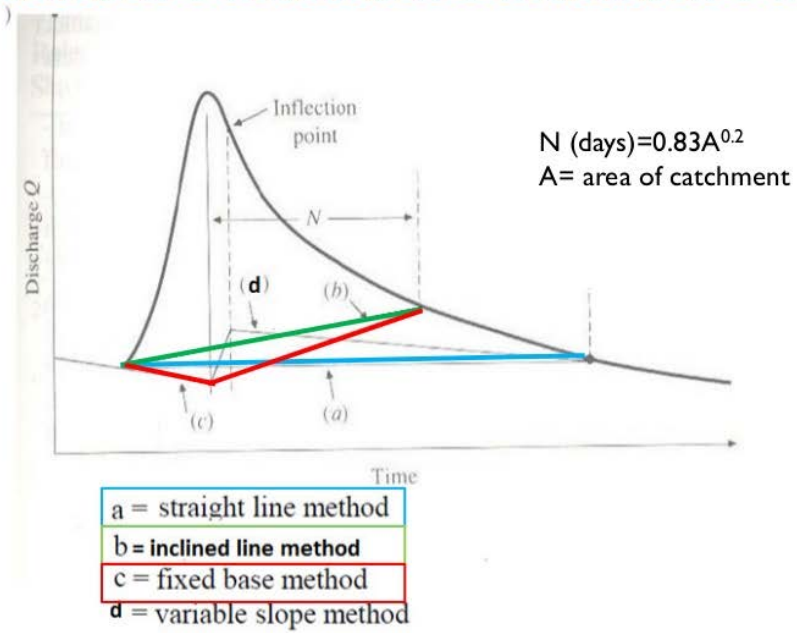
Wet Ponds do not receive any stormwater retention credit and should be considered only for pollutant removal efficiency and to manage flood events. Wet Ponds have both community and environmental concerns (see ***Section 13.3 Wet Pond Feasibility Criteria***) that need to be considered before applying them.

Table 13.1 Wet Pond and Wet ED Pond Performance Credits

Runoff Reduction	
Retention Allowance	0%
RPv -A/B Soil	0%
RPv - C/D Soil	0%
Cv	0%
Fv	0%
Pollutant Reduction	
TN Reduction	20%
TP Reduction	45%
TSS Reduction	60%

Volume Reduction vs. Volume Mitigation

Separation of Base flow



N (days)=0.83A$^{0.2}$
A= area of catchment

a = straight line method
b = inclined line method
c = fixed base method
d = variable slope method

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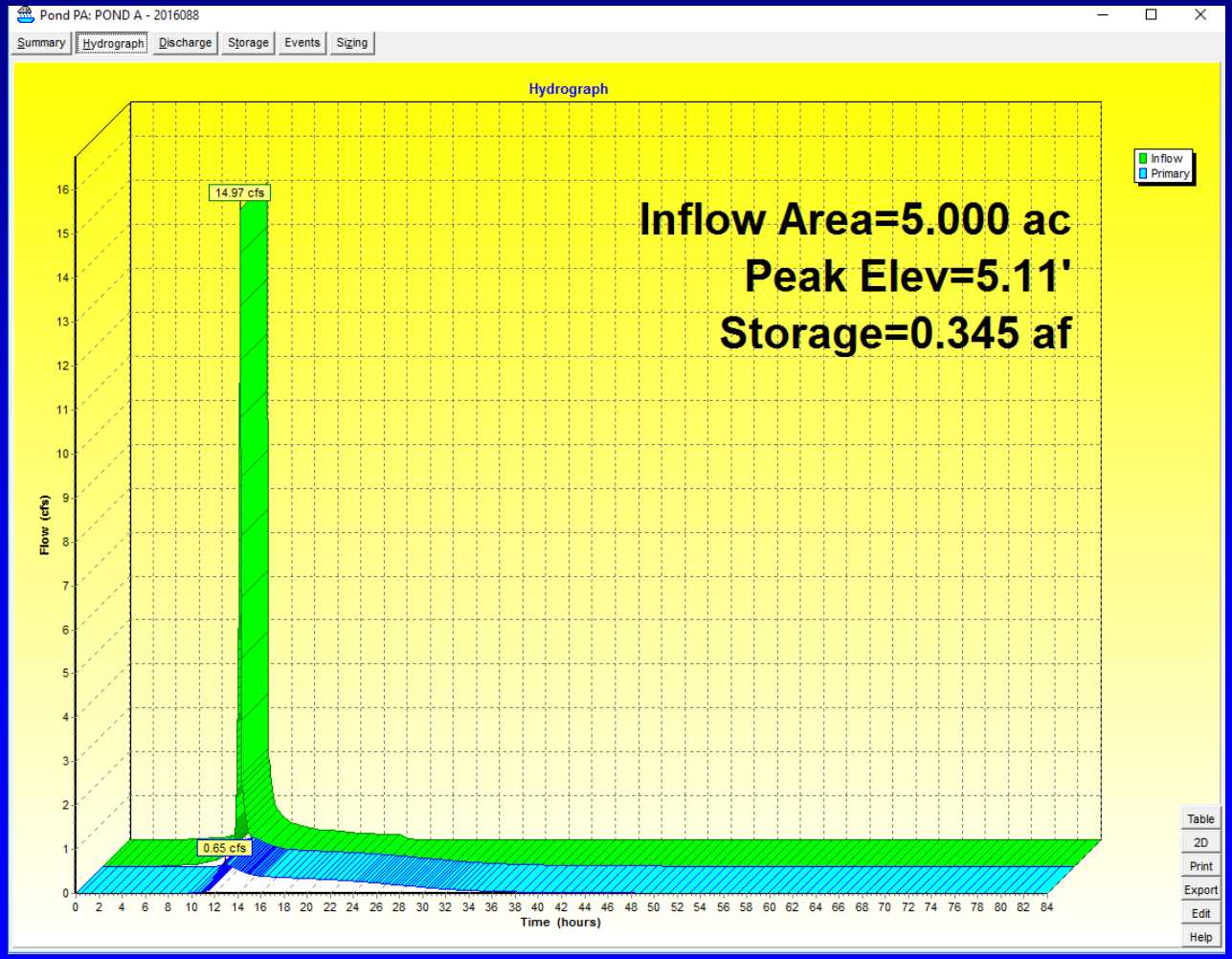
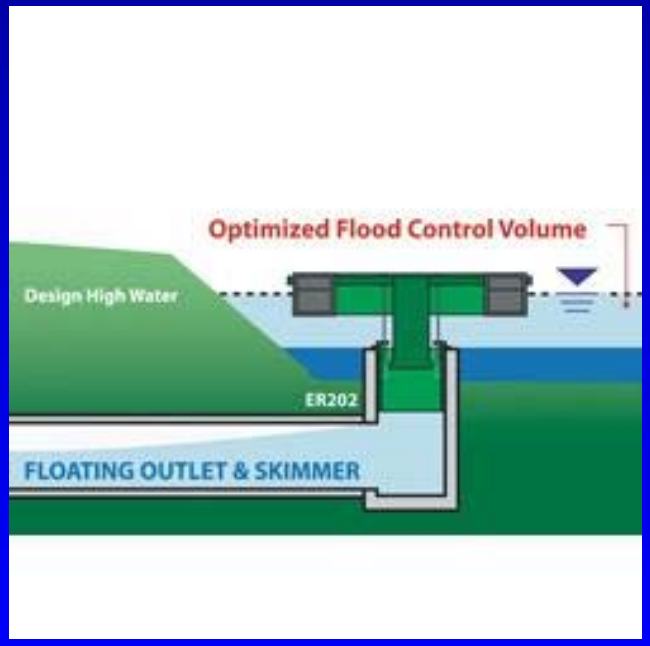
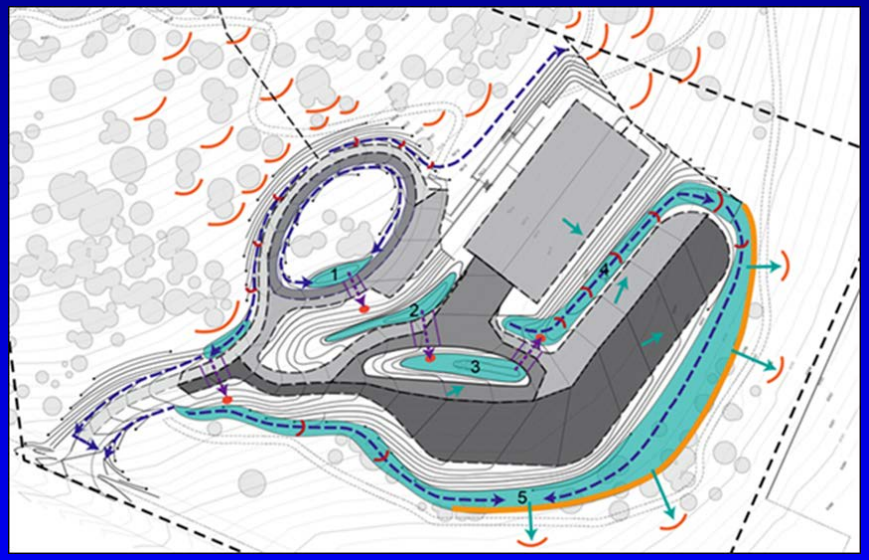
Volume Reduction vs. Volume Mitigation



Volume Reduction vs. Volume Mitigation



Volume Reduction vs. Volume Mitigation



QUESTIONS???