

Calculation for Green Dry Basin Storage Capacity

Project Name: _____

Date Submitted: _____

Property Address: _____

Development/Property Name: _____

GMP Number: _____

Design Firm: _____

Design Engineer: _____ Telephone: _____ Email: _____

KY PE No.: _____

MSD Reviewer: _____

WM No. _____

Step A. Site Planning Recommendation

Define goals and primary function of dry basins based on the Green Dry Basin fact sheet in section 18.4.4. Refer to this section as needed throughout the remainder of this calculation sheet.

Step B. Calculate the Water Quality Volume Required (VR) of water to be removed by the Green Dry Basin (ft³)

1. A = Contributing drainage area to green dry basin: _____ ft²
2. RE = Required Water Quality Volume Rain Event in inches (minimum 0.6 in): _____ inches
3. I = Impervious cover of the contribution drainage area in percent: _____ %
4. VR = (1/12)(RE)(A)(0.05+(0.009)(I)) = _____ ft³

Step C. Calculate the Area (a) of the Orifice Outlet Structure. Review section 18.4.4.3.3 as needed.

1. A = Average surface area of the pond _____ ft²
2. C = Orifice coefficient, 0.66 for thin, 0.80 for materials thicker than orifice diameter _____
3. T = drawdown time of pond, must be greater than 24 hours _____ hours
4. g = Gravity _____ 32.2 ft/sec²
5. H = Elevation when pond is full to storage height _____ ft
6. H_o = Final area of dry basin bottom _____ ft
7. a = Area of the orifice outlet (minimum 6 inch outlet orifice) _____ ft²

$$a = [2A (H - H_o)^{0.5}] / [3600(C)(T)(2g)^{0.5}] = \underline{\hspace{2cm}} \text{ ft}^2$$

Note: Basin modeling analysis can be provided in lieu of the formula provided herein.

Step D. Prepare exhibits A and B for long-term maintenance and operation agreement.
