

Calculation for Underground 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 underground storage based on the Underground Storage Step by Step Design Procedures beginning on page 18.5.17-5 as well as Table 18.5.17-A. Refer to these sections as needed throughout the remainder of this calculation sheet.

Step B. Determine the Required Water Quality Volume Rain Event, RE_{WQV} in inches (Refer to Chapter 18.3; A minimum of 0.6 inches must be used):

_____ inches

Step C. Calculate the Required Water Quality Volume (WQ_V Required) of water to be removed by the underground storage area

1. A = Contributing drainage area to underground storage area: _____ ft^2
2. RE_{WQV} = Required WQ_V Rain Event in inches: _____ inches
3. I = Impervious cover of the contribution drainage area in percent: _____ %
 - a. $R_V = 0.05 + 0.009 (I) =$ _____
4. WQ_V Required* = $(A/12)(RE_{WQV})(R_V) =$ _____ ft^3

Step D. Determine the area needed for the underground storage:

1. Determine the depth of the storage area: D _____ ft
2. Find the area of the storage area: $A = WQ_V / D$ _____ ft^2

Note: The total volume of the underground storage area should be equivalent to the Required WQ_V

Step E. Determine the Managed Water Quality Volume (MWQ_V)

1. Determine the GMP Management Capacity of the underground storage in percent (Refer to Table 18.3-C for percent): _____ %
2. $MWQ_V = (1/100)(\text{GMP Management Capacity in percent})(WQ_V \text{ Provided}) =$ _____ ft^3
3. Is all of the WQ_V Required managed or treated (i.e. is MWQ_V greater than or equal to WQ_V Required)? _____

If No, adjust WQ_V Provided parameters to allow for greater storage capacity and/or proceed to Step F.

If Yes, proceed to step H.

Step F. Calculate the Required Remaining Water Quality Volume (RWQ_V)

1. Required $RWQ_V = 2(WQ_V \text{ Required} - MWQ_V) =$ _____ ft^3

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Step G. Select Alternate GMPs to Treat RWQ_v. Examples may include:

Check all that apply. Include additional calculation sheets as necessary.

- Green Wet Basin
- Green Dry Basin
- Catch Basin Inserts
- Proprietary Water Quality Units
- Other

1. How much additional WQ_v is removed by the Alternate GMPs? _____ ft³
2. Does the Alternate GMP remove all the Required RWQV? _____
3. If Yes, proceed to step H.
If No, alter existing GMPs or add new ones to provide adequate storage.

Step H. Complete O&M documentation.

Additional Calculations and Explanation (Required if design deviates from calculation sheet):
