Calculation of Permeable Paver's Storage Capacity

Project Name: ____________________________  MSD Reviewer: ____________________________
Date Submitted: ____________________________  WM No. ____________________________
Property Address: ____________________________  Project Name: ____________________________
Development/Property Name: ____________________________  Date Submitted: ____________________________
GMP Number: ____________________________  Property Address: ____________________________
Design Firm: ____________________________  Design Engineer: ____________________________
Design Engineer: ____________________________  Telephone: ____________________________
KY PE No.: ____________________________  Email: ____________________________

Step A. Site Planning Recommendation

Define goals and primary function of permeable pavers based on the Permeable Pavers Step
by Step Design Procedures beginning on page 18.3.12 as well as Table 18.5.9-B. Refer to
this section 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 depth 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 permeable paver:

1. A = Contributing drainage area to permeable pavers: _______ ft^2
2. RE_{WQV} = Required WQ_{V} Rain Event in inches:
3. I = Impervious cover of the contribution drainage area in percent:
   a. \[ R_V = 0.05 + 0.009 (I) = \]
4. WQ_{V Required} = \[ \frac{A}{12}(R_{WQV})(R_{V}) = \] _______ ft^3

Step D. Calculate the Provided Water Quality Volume (WQ_{V Provided}), or storage capacity
of permeable paver:

1. A = Area of permeable pavers: _______ ft^2
2. p1 = porosity of base layer 1 (% void): 40 %
3. d1 = depth of base layer 1: _______ ft
4. WQ_{V Provided} = \[ (\frac{A}{100})(p_1)(d_1) = \] _______ ft^3

** Note: This formula only applies if the paver surface and sub soil have a 0% slope.

Step E. Determine the Managed Water Quality Volume (MWQ_{V})

Determine the GMP Management Capacity of the permeable paver in percent (Refer to
1. Table 18.3-C for percent)
2. MWQ_{V} = \[ \frac{1}{100}(\text{GMP Management Capacity in percent})(WQ_{V Provided}) = \] _______ 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})
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1. Required RWQ = 2(WQ_Required - MWQ_N) = \text{ft}^3

Step G. Select Alternate GMPs to Treat RWQ. 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 is removed by the Alternate GMPs? \text{ft}^3
2. Does the Alternate GMP remove all the Required RWQ? \\
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):

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___________________________________________________________________________________________
___________________________________________________________________________________________