Town of Chevy Chase
4301 Willow Lane
Chevy Chase, MD 20815

301-654-7144 (phone)
301-718-9631 (fax)
townoffice@townofchevychase.org

Town Permit No.: _____

1. Calculate the 3-Month Storm Event Required Storage Volume for the New Impervious Surface

Enter the Total Square Foot AREA of the New Impervious Surface: Box 1 [ ]

Describe the Cover Type of the New Impervious Surface: _____

(Rooftop, concrete or asphalt driveway, semi-pervious surfaces)

Determine Curve Number (CN) for New Impervious Surface: Box 2 [ ]

(go to Sec. III (Methodology) in Water Drainage Users' Guide for CN values)

Calculate the Required Storage Volume to Retain; Do this calculation for each different cover type that comprises all of the New Impervious Area.

Solve for S (potential maximum retention after runoff begins, unit less value)

$$S = \frac{1000}{CN} - 10$$

S = Box 3 [ ]

Now Solve for Q:

$$Q = \frac{(1.25 - 0.2S)^2}{(1.25 + 0.8S)}$$

Where:
Q = runoff (inches)
P = rainfall (1.25 inches for 3-Month Event)
S = potential maximum retention after runoff begins (inches)

Q = _____ Inches of Runoff

Convert the Inches of Runoff (Q) to Cubic Feet of Runoff by dividing Q by 12 and multiplying the result by the New Impervious Area (Box 1)

(Q (inches) ÷ 12) x Impervious area (square feet) = Required Storage Volume (cubic feet)

Required Storage Volume (cubic feet) = _____

If there is more than ONE type of New Impervious Surface, add up all the calculated values for the Total Required Storage Volume.

Area 1 _____ + Area 2 _____ = _____ Total Required Storage Volume (Cubic Feet)

3-Month Storm Event Total Required Storage Volume (cubic feet) to Retain: Box 4 [ ]

2. **Calculate the 10-Year Storm Event Required Storage Volume for the All Post Construction Impervious Surfaces**

The Surface Cover Type and Curve Number (CN) are the SAME as for the 3-Month Calculation

S = Box 3 [ ]

Solve for Q

$$Q = \frac{(5.1 - 0.2S)^2}{(5.1 + 0.8S)}$$

Where:
Q = runoff (inches)
P = rainfall (5.1 inches for 5-Year Event)
S = potential maximum retention after runoff begins (inches)

Q = _____ Inches of Runoff

Convert the Inches of Runoff (Q) to Cubic Feet of Runoff by dividing Q by 12 and multiplying the result by the New Impervious Area (Box 1)

Q (inches) ÷ 12) x Impervious area (square feet) = Required Storage Volume (cubic feet)

Required Storage Volume (cubic feet) = _____

If there is more than ONE type of New Impervious Surface, add up all the calculated values for the Total Required Storage Volume.

Area 1 _____ + Area 2 _____(etc.) = _____ Total Required Storage Volume (Cubic Feet)

10-Year Storm Event Total Required Storage Volume (cubic feet) to Retain: [ ] Box 5

3. **Calculate the 10-Year Storm Event Runoff Volume for Pre-Existing Surfaces**

This calculation is made using the same footprint used in the Proposed Conditions. These surfaces are to be removed, disturbed and/or altered during the proposed construction.

Describe the Cover Type of the Existing Surface(s) _____
(Rooftop, concrete or asphalt driveway, semi-pervious surfaces, green space)

Determine Curve Number (CN) for Existing Surfaces : CN _____
(go to Sec. 3 (methodology) for CN values)

Calculate the Runoff Volume for the Existing Conditions; Do this calculation for each type of different cover type that comprises the same footprint as the New Impervious Area.

Solve for S (potential maximum retention after runoff begins, unit less value)

$S = \frac{1000}{CN} - 10$ S =

Now Solve for Q

$Q = \frac{(5.1 - 0.2S)^2}{(5.1 + 0.8S)}$

Where:
Q = runoff (inches)
P = rainfall (5.1 inches for 5-Year Event)
S = potential maximum retention after runoff begins (inches)

Q = _____ Inches of Runoff

Convert the Inches of Runoff (Q) to Cubic Feet of Runoff by dividing Q by 12 and multiplying the result by the New Impervious Area (Box 1)

Q (inches) ÷12) x Impervious area (square feet) = Required Storage Volume (cubic feet)

Existing Conditions Runoff Volume (cubic feet) = _____

If there is more than ONE type of Existing Surface, ADD UP all the calculated values for the Total Existing Conditions Runoff Volume.

Area 1 _____cf + Area 2 _____cf = _____ Total Required Storage Volume (Cubic Feet)

10-Year Storm Event Total Runoff Volume for Existing Conditions (cubic feet):

Box 6 [ ]

4. Calculate the Required Storage Volume to Retain for the Proposed Project

Determine the INCREASE in runoff for the 10-Year Storm event by Subtracting the Existing 10-Year Runoff (Box 6).from Proposed 10-Year Runoff (Box 5)

Increase in 10-Year Storm Event Runoff = Box 7 [ ]

COMPARE the Values in Box 4 and Box 7. The LARGER value is the Required Storage Volume to Retain for the Proposed Project.

Box 8 [ ]