

## Rain Garden Design Worksheet

**STEP 2. Determine the Roof Drainage Area of the House, Garage or Other Buildings that will Drain to the Rain Garden**

$$\begin{array}{rcccccc} \text{Length of House} & \times & \text{Width of House} & = & \text{Total Square Feet of Drainage} \\ \underline{80} \text{ ft} & \times & \underline{40} \text{ ft} & = & \underline{3,200} \text{ sq ft} \end{array}$$

**STEP 3. Determine the Drainage Area for Each Downspout by Dividing the Total Square Feet of House Drainage by the Number of Downspouts**

$$\begin{array}{rcccccc} \text{Total Square Feet of House} & \div & \text{Number of Downspouts} & = & \text{Drainage Area per Downspout} \\ \underline{3,200} \text{ sq ft} & \div & \underline{5} \text{ downspouts} & = & \underline{640} \text{ sq ft/downspout} \end{array}$$

**STEP 4. Determine how many Downspouts will be Directed to the Rain Garden and Multiply by the Result from STEP 3**

$$\begin{array}{rcccccc} \# \text{ of Downspouts to Garden} & \times & \text{Drainage Area/Downspout} & = & \text{Drainage Area to Rain Garden} \\ \underline{2} \text{ downspouts} & \times & \underline{640} \text{ sq ft} & = & \underline{1,280} \text{ sq ft} \end{array}$$

**STEP 5. Add Drainage Areas of Other Locations that will Flow to the Rain Garden (Driveways, Sidewalks, etc.)**

$$\begin{array}{rcccccc} \text{Square Footage of Other Areas} & + & \text{Roof Drainage Area to Garden} & = & \text{Total Drainage Area} \\ \underline{2,500} \text{ sq ft} & + & \underline{1,280} \text{ sq ft} & = & \underline{3,780} \text{ sq ft} \end{array}$$

**STEP 6. Determine the Infiltration Rate of the Soil**

*Assume for this example that the water level dropped 1 inch in 6 hours during the infiltration test*

$$\frac{1 \text{ inch}}{6 \text{ hours}} = \frac{X \text{ inches}}{24 \text{ hours}} \quad \rightarrow \quad X = 4 \text{ inches} = \text{Recommended Rain Garden Depth (for this example only)}$$

**STEP 7. Divide STEP 5 Result by the Recommended Depth from STEP 6 to Determine the Rain Garden Size (Note: assume the garden captures a 1" rain event)**

$$\begin{array}{rcccccc} \text{Total Drainage Area of Garden} & \div & \text{Depth of Garden (inches)} & = & \text{Rain Garden Size} \\ \underline{3,780} \text{ sq ft} & \div & \underline{4} \text{ inches} & = & \underline{945} \text{ sq ft} \end{array}$$

**STEP 8. Determine the Dimensions of the Rain Garden from STEP 7 Based Upon the Shape**

**STEP 9. Determine the Number of Plants Needed by Dividing Rain Garden Size from STEP 7 by 2.5**

$$\begin{array}{rcccccc} \text{Rain Garden Size} & \div & 2.5 \text{ sq ft} & = & \text{Number of Plants Needed} \\ \underline{945} \text{ sq ft} & \div & 2.5 \text{ sq ft} & = & \underline{378} \text{ Plants} \end{array}$$