Program Objective and Project Description

The Town of Franklin DPW and Charles River Watershed Association (CRWA) are partnering on implementing a residential rain garden program which would help manage stormwater, and educate homeowners about the importance of treating and infiltrating stormwater runoff onsite. This project will result in the construction of residential rain gardens in the Town of Franklin to help reduce phosphorus and stormwater runoff volume to the Charles River (rain gardens that allow for groundwater recharge will be constructed where appropriate).

The goal of the program is to assist and encourage residents of Franklin, MA to construct rain gardens on their property. Besides planning and implementing two installation training events, CRWA will build a simple spreadsheet-type rain garden database to track the location and size of constructed rain gardens. CRWA will ultimately calculate reductions in phosphorus loading in stormwater from the rain gardens constructed through this program.

Data Collection

Members of the project team (DPW and CRWA staff) and participating residents will collect the following data on each constructed rain garden:

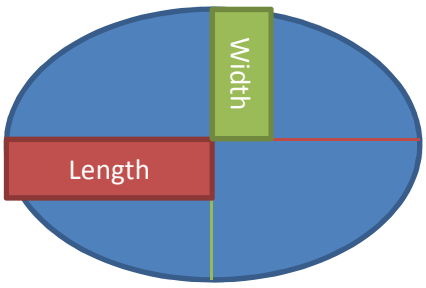
- Location (address at a minimum and GPS coordinates when possible)
- Rain garden area (see instructions below)
- Depth of rain garden media (see instructions below)
- Standing water height in rain garden (see instructions below)

Data will be collected and submitted to CRWA using the attached data sheet.

Rain Garden Area

Project team members will measure the length and width of the rain garden once it has been constructed. All rain garden areas will be calculated using the equation for the area of an ellipse (oval):

Π * (length/2) * (width/2)



Most rain gardens will not be perfect ellipses, therefore area measurements and resultant calculations are considered approximate.

When the constructed rain garden is more accurately calculated as multiple circles or ellipses, areas of individual ellipses will be calculated and then totaled (See figures 1-3).

Figure 1. Elliptical Rain Garden

Figure 2. Rain Garden Characterized as Two Ellipses

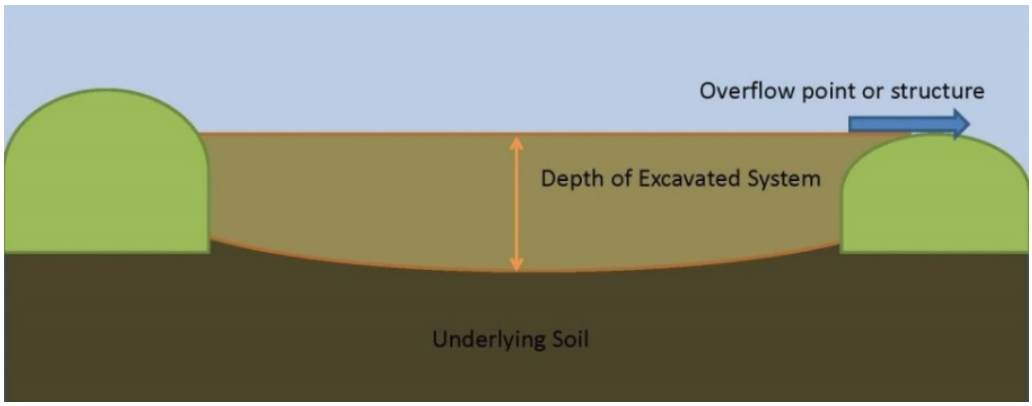
Figure 3a. Rain Garden Characterized as Two Ellipses

Figure 3b. Rain Garden Characterized as Two Ellipses with Measurement Lines Shown

Rain Garden Depth

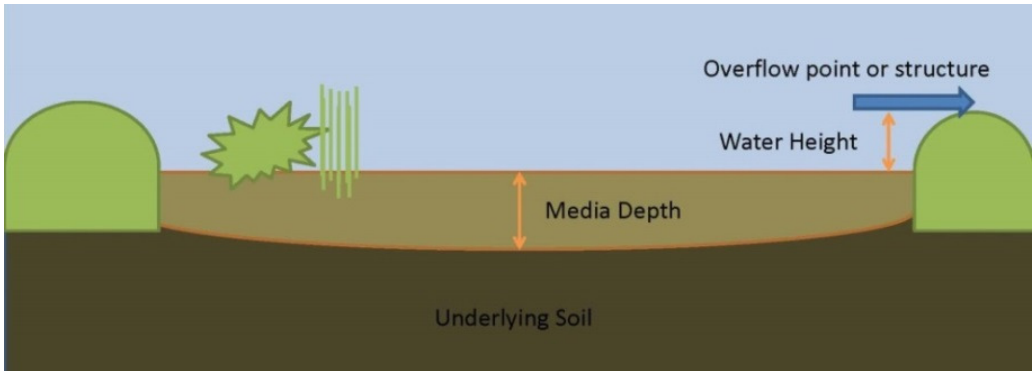
Measuring the rain garden depth is a three-step process.

Step 1. Through project trainings and materials, homeowner will be direct to excavate the existing soil to a certain depth and construct and overflow structure to a certain height. During rain garden construction, homeowners will be instructed to measure the depth of the system from the overflow point or structure (or some other fixed point if the overflow point is not yet finalized) down to the underlying soil to confirm the depth of the system. This measurement will be taken before any amended soil is added to the system.



Step 2. Once the system is constructed and planted, homeowners will measure the distance between the top of the rain garden soil and the overflow point to determine the maximum height for standing water in the system. (If necessary, at this stage the homeowner will also

measure the height of the overflow point from the fixed point used in step 1 to measure the depth of the system.)



Step 3. Calculate the depth of rain garden media by subtracting the water height (step 2 measurement) from the total system depth (step 1 measurement).

Depth of Media = System depth – water height

Drainage Area Size

Rain gardens will collect runoff from rooftop areas. Homeowners will determine which portions of the building footprint are draining into the rain garden and calculate the area. Building footprint diagrams are available through the Town of Franklin, Massachusetts Real Property Assessment Data website (http://franklin.patriotproperties.com/default.asp?br=exp&vr=6).

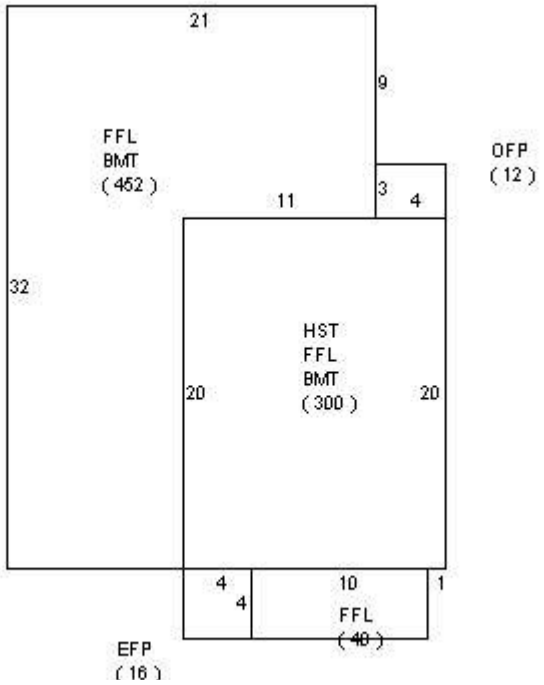


Figure 4. Image from Town of Franklin, Massachusetts Real Property Assessment Data website