

**PUTNAM VALLEY
CENTRAL SCHOOL
DISTRICT
PUTNAM VALLEY, NY**

**MS4PY6 STORMWATER
PROGRAM**

**FACT SHEET # 2
NOVEMBER 2015**

**RAIN GARDENS: A DESIGN
GUIDE FOR HOMEOWNERS**

**FOR MORE INFORMATION CONTACT
YOUR STORMWATER COORDINATOR:**

**PATRICK BELLINO AT:
845-528-8143 OR AT
pbellino@pvcsd.org**

**1. RAIN GARDENS IMPROVE THE
WATER QUALITY OF OUR STREAMS**

A rain garden consists of a shallow depression, usually 6 inches deep, that collects runoff from a roof, driveway or yard and allows the runoff to infiltrate into the ground. Rain gardens provide important environmental benefits:

- **Onsite Pollutant Reduction:** plants remove pollutants such as fertilizers, oils and fluids and other harmful substances from entering nearby streams and lakes
- **Onsite Volume Reduction:** plants reduce stormwater volume through the process of plant evaporation/transpiration and reduce the amount of stormwater discharged to nearby streams and lakes
- **Onsite Groundwater Replenishment:** the water that infiltrates through a rain garden replenishes the local groundwater
- **Street and Basement Flooding:** rain gardens allow about 30% of the rain water to soak into the ground thereby reducing street and basement flooding
- **Beautification of Your Property:** a rain garden enhances the beauty of your yard and the neighborhood, providing a valuable habitat for birds, butterflies and many beneficial insects

2. RAIN GARDENS PUBLIC CONCERNS

The two main public concerns are:

- **Costs:** A rain garden will not cost you more than planting other landscaped areas in your yard
- **Mosquito Breeding Sites:** A properly designed rain garden will not encourage mosquito breeding as the water will only held for 6 hours after the storm. Mosquitos need more time to lay and hatch their eggs.

3. THE RAIN GARDEN PLACEMENT

Rain gardens are versatile and they can be any size or shape. Factors to consider in the placement of a rain garden are:

- **Away from Basements:** Rain gardens should not be placed closer than 10 feet from the foundation of a house with a basement
- **Away From Septic Field and/or Well:** Do not build a rain garden over a septic field or near a well
- **In a Flat or Slightly Sloped Spot:** Ideally a rain garden should be located in a flat or slightly sloped area and preferably in a naturally low spot with good drainage where it will intercept and collect the most runoff

4. SOIL TESTING

You will want to place your rain garden where water infiltrates easily. To determine the soil suitability:

- **Percolation Test:** dig a hole 6 inches deep and fill it with water. If water in the hole drains in 24 hours, the soils are suitable for a rain garden

5. SIZING FACTORS

The surface area of a rain garden can be almost any size and depends on the depth, type of soils and how much roof area is being drained to the garden.

- **Roof Contribution:** Measure the footprint of the roof that actually feeds the gutter downspout to your rain garden
- **Sizing the Required Garden Area:** Divide the roof contributing area by 6. This calculation will size the garden to hold 1 inch of roof runoff in a garden 6 inches deep.

6. DIGGING YOUR GARDEN

Now that the size and place are set, you will need to build the rain garden.

- **Design the Shape of Your Garden:** A garden hose is a useful tool in laying out the shape and size of your garden.
- **Bottom of the Garden:** Dig out about 6 to 8 inches of the soil, using a rototiller or a hand shovel. If the yard is sloped you may need to construct a small berm (mound) around the perimeter from the bottom end to the top, so that the depression in the garden is level.
- **Stabilize the Edges of the Garden:** The berm or mound you have built around the perimeter of the garden can be stabilized with paving blocks or mulch to prevent the edges from washing away during a storm
- **Rain Garden Inlet Design:** Water from your building downspouts can be directed to your rain garden via a shallow rock-lined swale. You can also direct stormwater from the downspouts to the inlet of your rain garden via a buried 4 inch plastic pipe.

7. REPLACEMENT OF POOR SOIL

If the native soils are very clayey you may wish to improve the soil by adding sandy loam and compost. The mixture should consist of two thirds of sandy loam and one third of compost, blended well to allow plant roots to establish quickly.

8. PLANT SELECTION

The plants that do well in a rain garden are the ones that can tolerate wet conditions but also very dry conditions. Groupings of the same species tend to produce nice visual impact. You can lay out your plant groupings by color, shape and size and you should consider perennials, grasses, shrubs as well as small trees.

9. RAIN GARDEN MAINTENANCE

Rain gardens will need little effort once the plants are established.

- **Watering:** The plants will need to be watered until established
- **Weeding:** In the years following the installation, you will need to remove dead plant material
- **Mulch Replacement:** You may need to add mulch, as mulch breaks down with time
- **Pruning:** Some shrubs may have to be pruned

10. ADDING VALUE TO YOUR PROPERTY

When considering the placement of your rain garden, carefully consider how the rain garden can be integrated into the existing landscaping design.

- **Location:** You can choose where to locate your rain garden in the front or back of the yard. Pay attention to views from inside the house as well as those in your exterior garden design. Pick a location where you can see the rain garden from your home
- **Outdoor Gathering Spaces or Play Areas:** You may wish to locate the rain garden near patio or outdoor sitting area where you can enjoy the colors and observe the birds, butterflies and other insects. You can add trellises to support vines and creeping plants and to create an entrance to your rain garden
- **Garden Shapes:** A rain garden can be of any shape from a crescent to kidney or teardrop shape.

11. WHY BUILD A RAIN GARDEN IN YOUR HOME?

Rain gardens are beneficial to our environment.

- **Pollutant Reduction:** You are making a difference to our environment because every time it rains, you are reducing the amount of pollutants that leave your yard and enter nearby streams, ponds and lakes.
- **Aesthetics:** You are also enhancing the beauty of your yard and the neighborhood.

12. DESIGN INFORMATION

The design information presented in this fact sheet was extracted from literature on rain gardens prepared by UCONN Cooperative Extension System, College of Agriculture and Natural Resources. The sizing information may vary depending on local conditions.

- **Direct Gutter Downspout Connection:** The sizing information presented is to capture 90% of the runoff from your roof and assumes runoff from the gutter downspout will run directly into the garden.
- **Lawn Absorption:** If you are placing your garden in an area of the lawn more than 30 feet before it gets to your garden, the size of the rain garden may be smaller because some of the runoff will be absorbed by the lawn before entering the garden.
- **Clayey Soils:** Because of poor soils, the filtered water will not infiltrate into the ground below. However the under-drain perforated plastic piping system installed in gravel will collect the water which can then be discharged to a nearby storm sewer or drainage ditch.