



Worcester Residential Rain Garden Training Program

June 23-24, 2011

# RAIN GARDEN INSTALLATION





# GETTING STARTED

- It is most effective to start the actual construction of the rain garden in the spring when the abundant rains will allow for best plant establishment and easier digging
- Summer/autumn start will also work, but the plants may need more watering until they become established



# INSTALLATION STEPS

1. Remove existing grass
2. Excavate to desired elevation and grade
3. Add soil amendments



# INSTALLATION STEPS

4. Prepare berm  
(if necessary)
5. Prepare  
overflow
6. Level the base  
(lowest area)





# INSTALLATION STEPS

**7.** Plant native species

**8.** Apply mulch

**9.** Water plants

**10.** Appreciate a job  
well done



# TOOLS & MATERIALS NEEDED



- Rakes and shovels
- Rototiller
- Wheelbarrow
- String level or survey equipment
- Measuring tape
- Triple-shredded hardwood mulch
- Plants



- Soil amendments, if necessary: fertilizer, pH adjustments (lime), coarse sand
- Optional: decorative stone, signage, seating, pipe extensions, pavers for path
- Work crew (friends, neighbors, and family)



# STEP ONE

- Delineate rain garden area



- Remove existing grass with a shovel or machinery



# STEP TWO

- Excavate to design depth based on necessary storage and soil amendment requirements





# STEP THREE

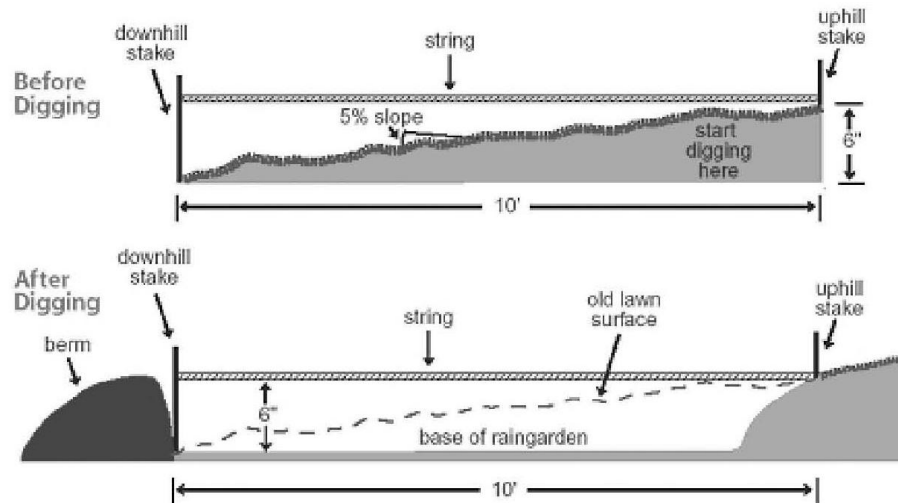
- Add soil amendments, if necessary



- Combine amendments with existing soil using shovels or rototiller
- Loosen and prepare soil for grading and planting

# STEP FOUR

- Prepare the berm, if necessary





# STEP FIVE

- Prepare the overflow



## BUFFER

The buffer, or outer edge, of the rain garden slows down the flow of water, filters out sediment, and provides absorption of the pollutants in stormwater runoff. Plants located in this area of the rain garden tolerate and thrive in dry soil.

## SLOPE

The slope of the rain garden pitches downward and connects the buffer of the rain garden to the base. It creates a holding area to store runoff awaiting treatment and infiltration. Plants situated in this area should tolerate both wet and dry soils equally.

## BASE

The bottom area is the flat, deepest visible area of the rain garden and is planted with plant species that prefer wet soil. The base should be level so that the maximum amount of water can be filtered and infiltrated. It is very important that this area drains within 24 hours to avoid problems with stagnant water that can become a mosquito breeding habitat.

## SAND BED

If drainage is a problem, a sand bed may be necessary to improve drainage. Adding a layer of coarse sand (also known as bank run sand or concrete sand) will increase air space and promote infiltration. It is important that sand used in the rain garden is not play box sand or mason sand as these fine sands are not coarse enough to improve soil infiltration and may impede drainage.

## BERM

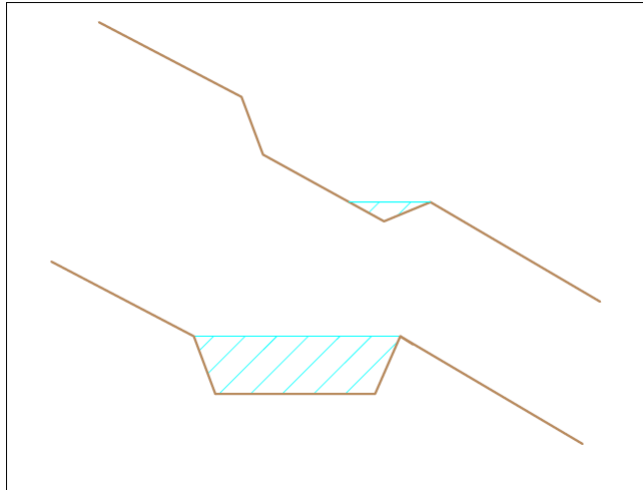
The berm is a constructed mound, or bank of earth, that acts as a barrier to control, slowdown, and contain the stormwater in the rain garden. The berm can be vegetated and/or mulched.

## OVERFLOW

The overflow (outlet) area serves as a way for stormwater to exit the rain garden during larger rain events. An overflow notch can be used as a way to direct the stormwater exiting the rain garden to a particular area surrounding the rain garden.

# STEP SIX

- Level the rain garden base





# STEP SEVEN

- Plant native species



# STEP EIGHT

- Apply mulch



- Allow for a 3" depth mulch (triple-shredded hardwood with no dye) to be spread throughout the entire rain garden
- For every 100 square feet of rain garden, you will need about 1 cubic yard of mulch (3" depth)



# STEP NINE

- Water Plants



# STEP TEN

- Appreciate a job well done





# INSTALLATION SUMMARY

Delineate the rain garden, using either spray paint, a rope, or a garden hose.



Remove existing grass with either a shovel or machinery. If using machinery, the heavy weight of the machinery can compact the soil. Be sure to only run the machinery along the edge of the rain garden, not directly on top of it.



Dig the rain garden to its appropriate depth based upon the soil infiltration test.





# INSTALLATION SUMMARY

Add soil amendments if necessary. Use a rototiller or shovel to combine amendments with existing soil. Loosen and prepare the soil.



Shape the rain garden bed. Create a berm and an overflow area (outlet) for the water.



Level the base (lowest area) of the rain garden to prevent ponding. Use a ruler, two stakes, and something level to check for an even surface. If the base is not level, use a rake and shovel to smooth it out.





# INSTALLATION SUMMARY

Before planting, place each plant in the desired locations. Dig a hole of equal depth, but slightly wider, to the size of the container. Take the plant out of the container, loosen the roots, and plant.



Use empty plant containers to protect small plants. Apply two to three inches of mulch throughout the rain garden.



Water plants, either by installing a soaker hose or watering manually.



# INSTALLATION SUMMARY

At time of installation



First growing season



Second growing season



Photos courtesy of: United States Department of Agriculture and Madeline Flahive DiNardo



Amy Boyajian  
Program Associate, Rutgers Cooperative Extension  
Water Resources Program  
732-932-9800 ext. 6164  
boyajian@envsci.rutgers.edu

<http://water.rutgers.edu>

