



# *Rain Garden Installation Guide For Homeowners*

A companion to the "Start-to-Finish Rain Garden Design: A Workbook for Homeowners"



## Introduction to Rain Gardens & Using this Guide

### What is a Rain Garden?

A rain garden is a shallow dish-like depression in the ground that is planted with water-tolerant vegetation. The primary purpose of a rain garden is to soak up stormwater and infiltrate it into the ground. Rain gardens provide many other benefits as well . . .

- Beautifies the landscape
- Soaks up Puddles
- Provides an Outlet for Roof and Sump Pump Water
- Improvements to Water Quality
- Reduces Pressure on Existing Storm Sewer Infrastructure
- Provides Habitat

### Step One : Planning your Rain Garden

Before you begin digging your rain garden, you should put some work into designing the garden. Rain garden design includes getting to know the characteristics of your soil, determining the appropriate location for the garden, calculating appropriate size and depth, and choosing appropriate plants. The more time you put into planning your rain garden, the more successful it will be and the happier you will be with it! There are many resources available to help you plan your garden. This installation guide is a companion to the "Start-to-Finish Rain Garden Design: A Workbook for Homeowners."

### Installing your Rain Garden . . .

This guide is meant to take homeowners like you through the process of installing a rain garden. This guide was compiled from a number of different rain garden sources from Minnesota and around the country. This guide offers advice, techniques and helpful tips, but it is by no means the *only* way to install a rain garden. Every rain garden and situation is unique, and every installation is also unique!



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### SOME TOOLS YOU MAY NEED

- Tape Measure
- Shovels
- Spades or a sod cutter
- Rakes
- Level (preferably a string level)
  - Stakes
  - String
- Wheelbarrows
  - Trowels
- Potato Fork, pitch fork, or garden tiller
- Backhoe (optional)
- Edger (optional)
- Strong Backs & Elbow

## Safety First!

Before you start installing your rain garden, realize that it is going to be hard work - especially if you are planning to do most of the work by hand or by yourself. Be sure to take care of yourself and those working with you by not over-exerting yourself, being mindful about your back and how you are lifting things, and drinking plenty of fluids. The very first step you should take before beginning to install your rain garden is to locate all underground utilities at the rain garden site and the surrounding area.

## Shaping Your Rain Garden

It is now time to lay out a shape for your rain garden. Using the size that you previously calculated that your garden should be, lay out a hose or rope (or use spray paint) to find a pleasing shape for your garden.

## Cutting the Sod

Depending on how big your rain garden is and how many people you have helping you, you may want to consider renting a sod cutter to remove the turf from your rain garden site. Otherwise, a spade will do the job. Cut the sod to the shape of the garden that you laid out.

💧 Sod that you remove can be transplanted elsewhere if you so wish!

## Excavation & Soil Ripping

Excavating the existing soil out of your rain garden can be an adventure. Even though you've tested the soils, you may still run into interesting things! Plan to dig far enough down so that when you put your soil amendments in later, you are left with the desired depression depth. You may find though that you run into clay, fill, asphalt, anything! If feasible, try and dig past this layer.

When you have dug down far enough, you want to rough up, or rip, the soil at the bottom. This will take care of any compaction that happened during excavation.

## Getting Water to your Garden

If you are planning to bury a tile from your downspout, sump pump, or other stormwater source and outlet it into your rain garden, you should probably do it now. There are many ways you can choose to do this, check at your local hardware store to find the supplies you will need. Make sure that you bury the tile high enough that it will outlet above the surface of the mulch! If you plan to let water surface flow into your garden, then you don't have to worry about burying anything.

💧 No matter what method you are using to get water into your garden, you may want to consider keeping water out of your rain garden for the first growing-season (if possible), it will give your plants a chance to establish themselves before putting them to work. Of course, you still need to make sure they get enough water to survive and thrive.

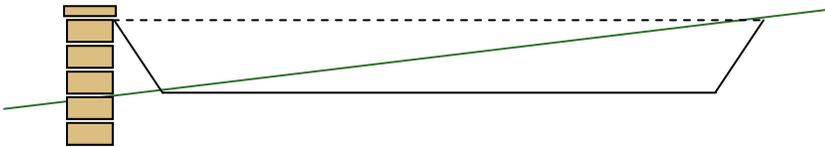
### A NOTE ABOUT HEAVY EQUIPMENT

If you choose to use large equipment like a backhoe or a skid loader, be sure not to let them in or on the rain garden site unless they have tracks. Tracks distribute the weight of a machine whereas wheels concentrate it and cause compaction.

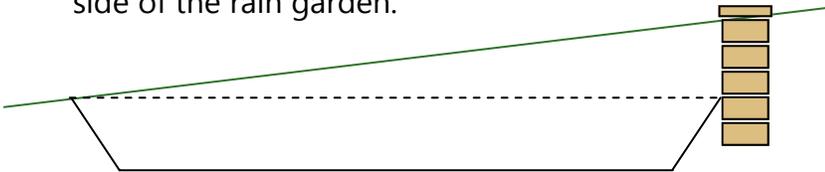
## Flat Bottom

At this point, you want to make sure that the bottom of your rain garden is as flat as possible so that water pools evenly across the rain garden rather than pooling in lower spots (Unless of course you planned for your rain garden to have separate pooling pods or sections). If you have a flat lawn this will be very simple. If you have a sloped lawn it is a bit trickier, but there are a number of options for achieving a flat bottom:

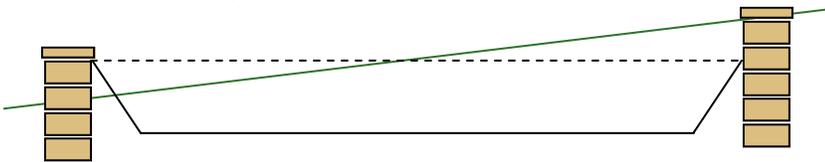
1. Build up the downhill side. Use a berm or a wall to bring the low end of the rain garden to the same height as the high end of the garden.



2. Dig down the uphill side. Dig down the high end until it is the same depth as the low end of the rain garden. Use landscape blocks to hold back the uphill side of the rain garden.



3. Build up the downhill side and dig down the uphill side. Do a combination of building up and digging down until you achieve a flat bottom.



When building up your berm or wall, be sure to remember to include the outlet. The outlet is meant to let excess water out of the rain garden once it is full. The outlet should be the lowest spot around the edge of your garden. And water coming out of the outlet should flow downhill and away from buildings.

## FIGURING OUT HOW HIGH TO MAKE YOUR BERM

To ensure that you build your berm to the correct height, pound a stake into the uphill side and a few stakes at the downhill side. Stretch lengths of string from the uphill stake (where the stake meets the ground) to the downhill stakes. Use a level to make sure that the strings are horizontal. Where the strings sit on the downhill stakes is the height that your berm should be.



## BUILDING A STURDY WALL

If you plan to use landscape blocks to build a wall for your rain garden, make sure that you bury a few rows (also called "courses") of the blocks so that the wall has a sturdy base and won't fall down with the pressure of the soil it is holding back. Also make sure that all of the blocks are level! If you have never built a landscape wall before, you may want to do a bit of research before you start - a poorly built wall can be quite a mess . . .



## Soil Amendments

Soil amendments are what you add to your existing soils to make them infiltrate better and/or provide a better growing medium for plants. Soil amendments are not necessarily required, but they will give your rain garden a really good start!

After you have excavated some of the existing soils out and thoroughly ripped the bottom, you should begin adding your soil amendments. If you are adding more than one amendment (for example sand and compost), be sure that they are well mixed. You can either do this before or during adding them to the rain garden.

Adding only a little bit to start with, the first few inches of amendments should be mixed with the ripped existing soils. You may want to use a garden tiller or potato fork to mix these layers well. Then you can add the rest of the amendments.

## Edging

It is often times recommended that you put an edging on your rain garden. A well-defined edge will give your rain garden a clean, crisp appearance and will make it easier to mow around. Interlocking brick is a nice choice as are black landscape edger, rocks, or an immaculately mown edge. When you edge make sure that whatever you use doesn't stick up over the rim of the rain garden and block the flow of water from getting into the rain garden.

💧 When placing your edging, do your best to stay out of the rain garden to avoid compacting the soils!

## Erosion Control

Now it's time to place any erosion control you may need to help protect your soils from eroding away. Soils can erode if water lands on it too hard or if too much water moves too quickly over it. River rocks, small boulders, flagstone, or stepping stones can be used to both break the fall of water entering the rain garden and slow the water down. Erosion control blankets are often draped over berms so protect them from washing out.

## Mulching

Mulching your rain garden is also optional, but will give your rain garden a better chance of success. Mulch will help your garden retain some moisture for when it dries out and suppress weeds. It is recommended that you mulch your garden before you plant it because it helps spread your weight when you are walking and kneeling in the rain garden, therefore reducing compaction. Shredded hardwood mulch is recommended for use in rain gardens because it binds together to form a mat which keeps it from floating away when it rains. Double-shredded hardwood mulch is even better if you can find it!

### ENERGY DISSIPATING STAIRCASE

An attractive way to reduce the velocity (and therefore the energy) of water entering your rain garden is to build a staircase out of stepping stones or some other flattish stone for the water to flow down. An added benefit of a staircase is that the sediment that the water was carrying will drop on the stairs and can be easily swept up after the storm!



## Planting

Planting your rain garden is relatively simple. Just move the mulch aside, dig a hole according to the size of your plant, plop your plant in the hole, make sure there is soil all around and under it, and move the mulch back.

If you are planting plants larger than plugs, you may want to loosen the roots of the plant a bit, especially if the plant was root-bound (the roots were pressed up around the sides and the bottom of the pot). Also, make sure to leave some room between the plant and the mulch so the stem doesn't get scratched if it sways in the wind.

## Cleaning Up & Watering

To keep your plants healthy and happy, be sure to give them a good watering when you are done planting and for the next few weeks so that they don't dry out. Clean up any loose soil around your garden and, if needed, begin reestablishing the turf around the rain garden so that the garden looks crisp and clean!

## Spreading the Word About Rain Gardens

Now that your rain garden is complete, be prepared for lots of inquiries from people in the community. Many people have never heard of or seen a rain garden before and they may be curious about its unique form. Be sure to give these curious neighbors a thorough explanation about how rain gardens clean up dirty stormwater and reduce puddles and flooding. Explain how water gets into and out of your rain garden and tell them about the plants you chose. The more people understand about the function and benefit of rain gardens, the more rain gardens will be planted; and the more rain gardens we have, the more impact they will have on increasing water quality and reducing stormwater runoff volume!

### Example of a Rain Garden Installation:



Laying the shape for a rain garden.



Cutting the sod.



Excavation.



Adding Soil Amendments.



Finished Rain Garden.

### Sources and Credits:

Board of Regents of the University of Wisconsin System. *Rain Gardens: A how-to manual for homeowners*. UWEX Publication, 2003.

Rusty Schmidt, Dan Shaw, and David Dods. *The Blue Thumb Guide to Raingardens*. Waterdrop Innovations, LLC, 2007.



Minnesota Pollution  
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