



# Rain Gardens: Filtering and Recycling Rain Water

One of the effects of urban area growth is an increase in the amount of land devoted to new homes, offices, shopping centers, and parking lots. Besides covering and compacting the soil, these new developments create impermeable surfaces. Open areas that once allowed rain to soak into the ground now send that water elsewhere. Storm water run off from parking lots and buildings carries along soil and chemical residues that end up in the ground water system we depend on.

Installing a rain garden is one way to help manage that run off. Channeling the water into a specifically prepared site allows more of the impurities to be filtered out of the water before they enter the ground water supply.

## What is a rain garden?

A rain garden is a specially designed and slightly depressed site where rain water can be collected and allowed to slowly percolate through the soil. Filtering the rain water through the soil and plant roots removes many of the lawn and roof chemical residues and soil particles.

Although developed in the 1990s, rain gardens have been slow to catch on until recently. Many municipalities, corporations, and individual homeowners are installing rain gardens to help hold more rain near where it falls as a way to improve the storm water drainage.

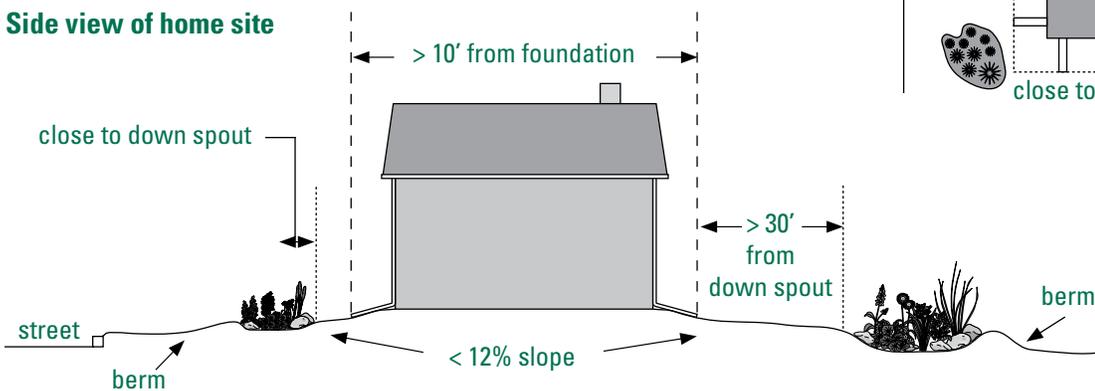
## How do I decide where to put a rain garden?

Like other landscaping features, a rain garden needs to fit into the overall plan. It should have a pleasing shape that complements the existing landscape. It also should be at least 10 feet away from houses to prevent water from seeping into basements.

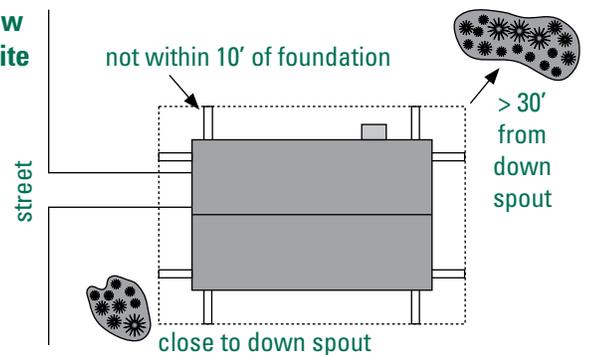
Rain gardens are best sited where they can act as filters, not as ponds. Although it sounds easiest to take advantage of natural or existing drainage patterns, rain gardens should not be placed where water already pools. Standing water indicates that the soil in that site has a high clay content or is heavily compacted. Soils with a higher sand content will drain more quickly.

Professional help may be necessary to determine the final location so that water is subtly directed to the rain garden rather than to the current pooling site. An alternative solution is to excavate the low spot and replace the soil with a mixture of sand, top soil, and compost.

## Side view of home site



## Aerial view of home site



## What should I know about building and maintaining a rain garden?

An important first step is locating the utility lines. Some designers request you do this before they visit the site. If not done then, it must be done before beginning to dig. Contact Iowa One Call (1-800-292-8989) to request this free service.

Excavating the entire rain garden area is recommended even if drainage is not a problem. The finished grade should be 4 to 6 inches below the surrounding area. The depression collects and holds the rain water while it percolates through the soil. To improve drainage of clay soil, work in equal amounts of sand, top soil, and compost.

To prevent heavy rains from washing out the opposite side of the garden, construct a small berm along the backside. The soil that was excavated can be used to build the berm.

Spring planting is ideal for giving plants a good start. However, potted plants can be added through the summer as long as they are watered as necessary until well established.

After planting, water the area well and add a one- to two-inch layer of mulch over the garden area. Mulching helps control weed growth while the plants are small.

Adding a few well-placed rocks along the side where water enters the garden will help reduce the possibility of heavy rain washing away the mulch.

During the first few years, the garden will need weeding and minimal care until the plants are established. Watering should only be done when there has been no rain for an extended period of time.



Sweet flag   Swamp milkweed   Marsh marigold   Turtlehead   Cardinal flower

## What plants are used in rain gardens?

Placing the rain garden in a sunny site increases the number of plant choices. Native plants are commonly used because their deep, fibrous root systems help filter impurities from the rain water. Those same deep roots allow the plant to survive when rainfall is less abundant. Native plants also tend to attract many wildlife species and thus increase the visual appeal of the garden. Some of the native plants used in Iowa rain gardens include the following examples.

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- Sweet flag (*Acorus calamus*)
- Swamp milkweed (*Asclepias incarnata*)
- New England aster (*Aster novae-angliae*)
- White false indigo (*Baptisia lactea*)
- False aster (*Boltonia asteroides*)
- Marsh marigold (*Caltha palustris*)
- Bottlebrush sedge (*Carex comosa*)
- Tussock sedge (*Carex stricta*)
- Turtlehead (*Chelone glabra*)
- Queen of the prairie (*Filipendula rubra*)
- Blue flag iris (*Iris versicolor*)
- Prairie blazing star (*Liatris pycnostachya*)
- Cardinal flower (*Lobelia cardinalis*)
- Virginia bluebells (*Mertensia virginica*)
- Smooth penstemon (*Penstemon digitalis*)
- Meadow rue (*Thalictrum*)
- Ironweed (*Vernonia fasciculata*)



For a more complete listing of plants suited to Iowa rain gardens visit these websites:

**The Goundwater Foundation (Rain Gardens 101)**  
[www.groundwater.org/ta/raingardens.html](http://www.groundwater.org/ta/raingardens.html)

**University of Minnesota Extension**  
[www.extension.umn.edu/distribution/horticulture/DG8464.html](http://www.extension.umn.edu/distribution/horticulture/DG8464.html) (Click on "Rain Garden Plants")

## Where can I find more information?

These websites offer additional information:

**Urban Resources & Borderland Alliance Network (URBAN)**  
[www.urbanwaterquality.org](http://www.urbanwaterquality.org)

**Rain Gardens of West Michigan**  
[www.raingardens.org](http://www.raingardens.org)

**Rain Gardens: A household way to improve water quality in your community and Rain Gardens: A how-to manual for homeowners, University of Wisconsin Extension**  
<http://clean-water.uwex.edu/pubs/>

Contact your Iowa State University Extension county office. Visit one of these websites.

**<http://store.extension.iastate.edu/>**  
**[www.yardandgarden.extension.iastate.edu](http://www.yardandgarden.extension.iastate.edu)**  
**[www.reimangardens.iastate.edu](http://www.reimangardens.iastate.edu)**

Call ISU's Hortline at (515) 294-3108  
(Monday-Friday, 10 a.m.-noon and 1-4:30 p.m.)

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