

# Rain Gardens

Capturing  
and using the  
Rains of the  
Great Plains



Indiangrass



Blanketflower



Blue Fescue



Prairie Coneflower



Bleeding Heart

North Dakota



*Helping People Help the Land*





**Figure 1.** A 200-square foot rain garden blooms just 2 months after construction and planting.

### What is a Rain Garden

A rain garden is a colorful, perennial planting designed to capture and use rain water that may otherwise run off. (Figure 1) It is a garden in a shallow depression. It can be large or small. A rain garden is not a wetland and should not hold water for more than a few hours, or a day at most. It is not a breeding ground for mosquitoes.

### Why Plant a Rain Garden

#### A Rain Garden

- ◆ **Captures and filters runoff**  
Limited rains of the Great Plains fall hard and fast. Runoff from roofs, lawns, and drives may overload storm sewers and pollute streams. (Figure 2)
- ◆ **Reduces the need for supplemental water**  
Water is often limited in the Great Plains. Maintaining a green and colorful yard with rural or municipal water can be expensive.
- ◆ **Grows healthy plants using good water**  
Rain is high quality water, good for plants; while well water may be poor for plant health.
- ◆ **Provides changing colors and textures**  
A mix of plants changes color, structure, shape, and form throughout the season. (Figure 5)
- ◆ **Provides habitat**  
Forbs and grasses in a rain garden are attractive to butterflies, bees, birds, and other wildlife.

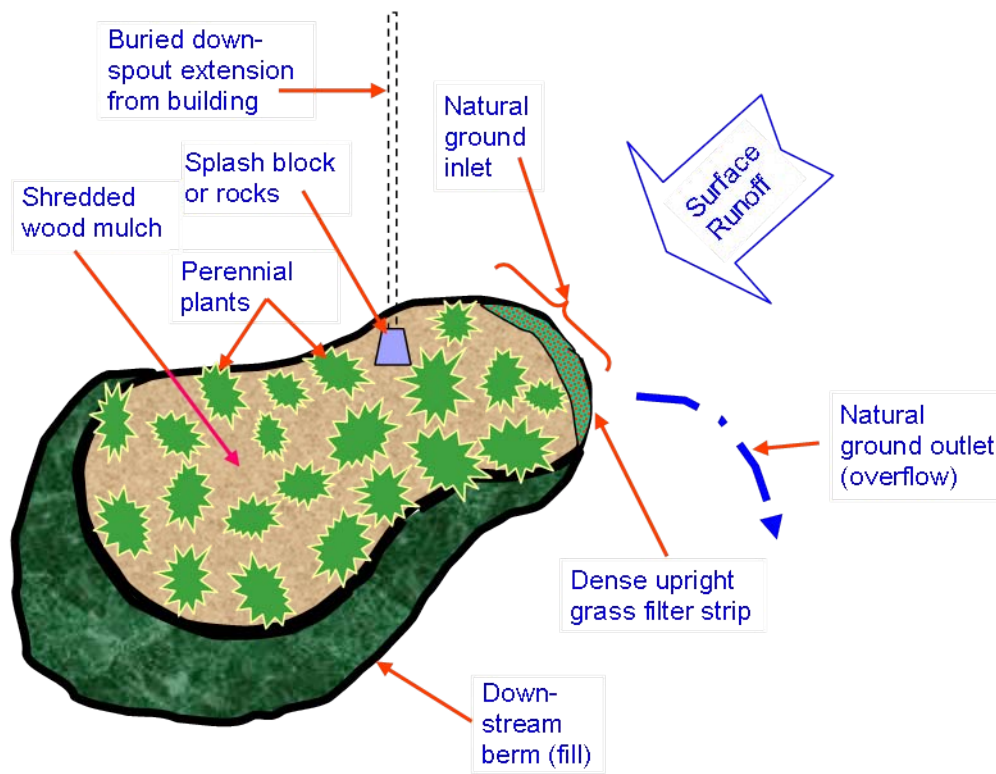


**Figure 2.** A new rain garden captures roof and yard runoff from a ½ inch, 15-minute prairie thunderstorm in July. Note the drought stressed yard outside the rain garden.



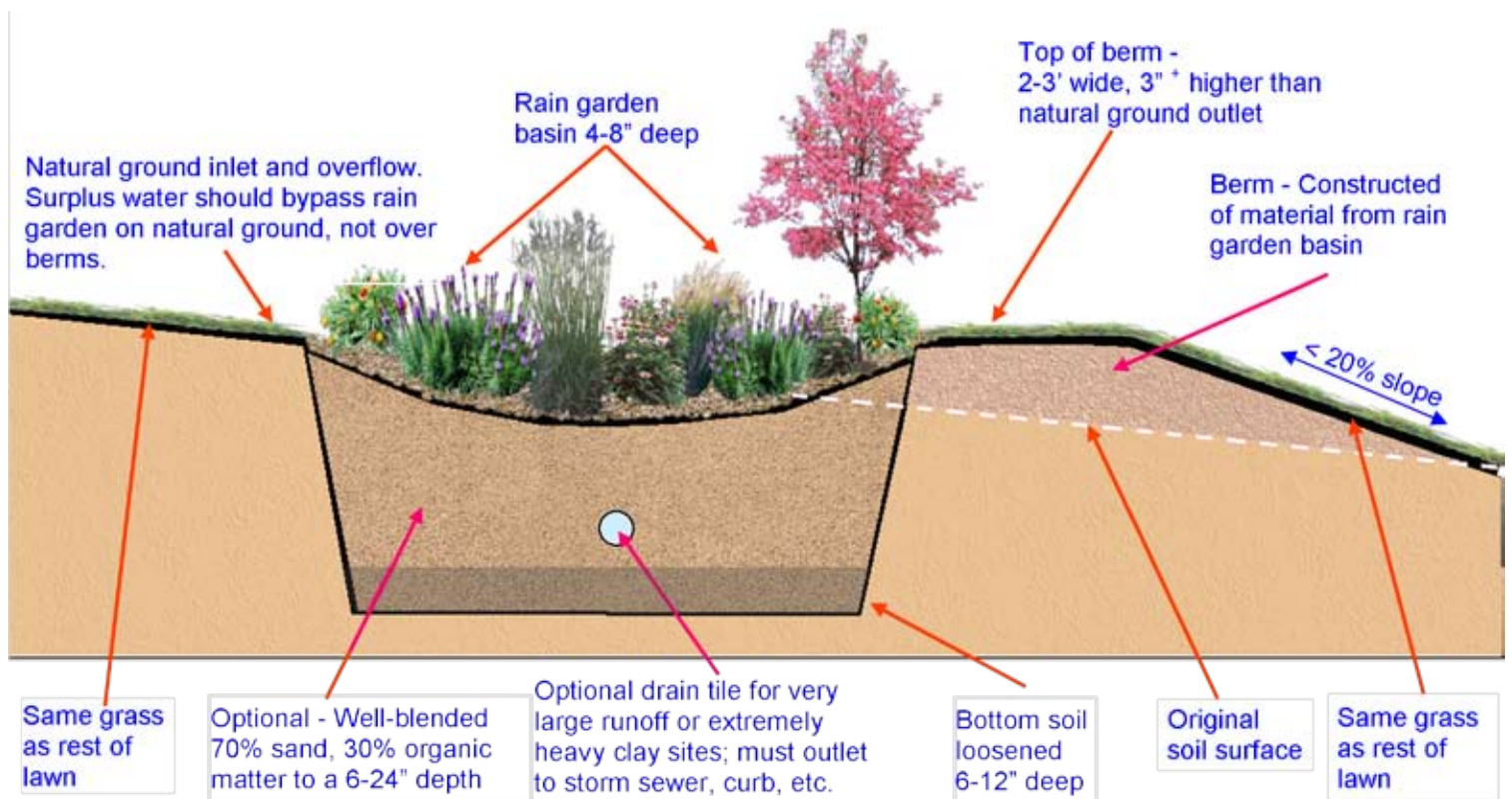


Figure 3. Plan View of Rain Garden



- Rain Gardens from "Thought to Bloom"**
- ✓ Read a good "how to" manual (See references)
  - ✓ Check local ordinances
  - ✓ Check for utilities
  - ✓ Locate potential site
  - ✓ Determine size
  - ✓ Draw a plan
  - ✓ Outline the area on the ground
  - ✓ Build the rain garden
  - ✓ Plant the rain garden
  - ✓ Apply shredded wood mulch 2-3" deep before or after planting
  - ✓ Water and weed as needed
  - ✓ Enjoy the ever changing array of colors and textures from spring to fall

Figure 4. Cross-section of Rain Garden



## Where to Establish a Rain Garden

Locate a rain garden to intercept runoff from roofs, yards, drives, or streets. (Figure 2) It should not be built within 10 feet of foundation walls or on poorly drained sites. A rain garden should not be built over buried utilities or where mature plants could obstruct overhead utilities or drivers' vision. Do not construct a rain garden where prohibited by local ordinances or where subject to disturbance.

## How to Build a Rain Garden

Most rain gardens can be constructed with equipment available to homeowners such as shovels, rakes, and rototillers. A small rain garden of simple design can be built in a day.

- Do your homework first. Many design manuals are available, online and at public offices. Several are listed in the reference section of this publication.
- Locate a proper site.
- Calculate square footage draining to the rain garden (from roof, yard, drive, etc.).
- Mark outline of rain garden. Rain garden area should equal about 10% of the drainage area. Irregular margins are often more attractive. (Figure 3)
- Evaluate soil compaction, texture, and infiltration.
- Dig a 4-8 inch deep basin with a flat bottom. Excavated material can be placed on the downhill side or moved offsite. (Figure 4) Avoid compaction during construction.
- Loosen 6-12 inches of the natural soil below the bottom of the rain garden.
- Large designs or sites with high clay content soils may require over-digging the basin 1-2 feet deep, backfilling with a well blended mix of 70% sand and 30% organic matter (yard compost, purchased peat moss, etc.), and shaping the top of this material into a 4-8 inch deep basin.
- Slope and pack any created berms, leaving a gentle slope that will be easy to maintain.
- Smooth, seed berm, and plant the rain garden.
- Apply shredded wood mulch as desired to conserve water and control weeds. Shredded mulch stays in place better than wood chips.
- Water and weed to establish plants.



## How to Plant a Rain Garden

Use potted or bare root plants rather than seeds. Plant from April to September. Place the more water tolerant species near the bottom, and drought tolerant near the edges. Plant spacing will vary depending upon species and desired appearance. Generally, 15-18 inches between plants is adequate. Consider mature size when spacing plants.



**Figure 5.** For much of the summer in the Great Plains, a rain garden might be the only "green" area in a non-irrigated yard.

## What to Plant in a Rain Garden

Rain gardens can be planted to native or non-native species of flowers, grasses, shrubs, and trees. Do not plant species considered invasive. Consider the growth habit and mature size of the species. Some native species are deep rooting and encourage infiltration of runoff water. Native species are adapted to local conditions and may be more tolerant of diseases and drought, compared to some non-native species. A diversity of plant species will provide an array of color and texture, and attract a variety of insects and wildlife. Disease and insects may destroy an entire rain garden if planted to a single species. Plants requiring constant moisture should not be planted in a rain garden. Use locally adapted species and varieties.

## How to Maintain a Rain Garden

Very little additional water or weeding is needed once a rain garden is established. Supplemental water is usually needed only to establish plants and during drought. Apply and renew mulch as needed to control weeds and conserve water. Leave vegetation standing over winter for snow catch, textural diversity, and visual interest. In early spring, remove previous year's growth by mowing or clipping before new growth initiates.

**For more information, contact:**

- USDA Natural Resources Conservation Service
- Soil and Water Conservation Districts
- Land Grant Universities and Cooperative Extension Service
- Local Greenhouses and Nurseries

**References and Additional Reading\***

**“Living Landscapes in North Dakota: A GUIDE TO NATIVE PLANTSCAPING”**

Available at North Dakota NRCS offices. Booklet contains detailed information on site evaluation, planning, and establishment of native plants. Adapted forbs, grasses, trees, and shrubs are listed and described.

**“Rain Gardens - A how-to manual for homeowners”**

<http://www.dnr.wisconsin.gov/org/water/wm/dsfm/shore/documents/rgmanual.pdf>

This is an easy to follow manual that shows homeowners how to plan, install, and maintain a rain garden.

**“Rain Gardens, Rice Creek Watershed District”**

<http://ricecreek.org/bluethumb/raingardens>

This Minnesota web site has information on creating and planting rain gardens and more. A very effective plant selector tool is part of this site.

**Maplewood, Minnesota “Rain Water Gardens”**

<http://tinyurl.com/2yvxxa>

The rain garden program at Maplewood is explained. Pictures and designs of many different garden types are included. Links within the document give complete details from design through maintenance.

***\*Note: When using these references, select only plant species adapted to your location.***

**Buried pipes and cables can kill**

Check with a utility location service or electric, gas, phone, or cable suppliers to locate buried utilities that may be affected by construction. Some buried utilities are quite shallow and easily severed by a hand shovel, causing death or injury.

**CHECK BEFORE DIGGING!**

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