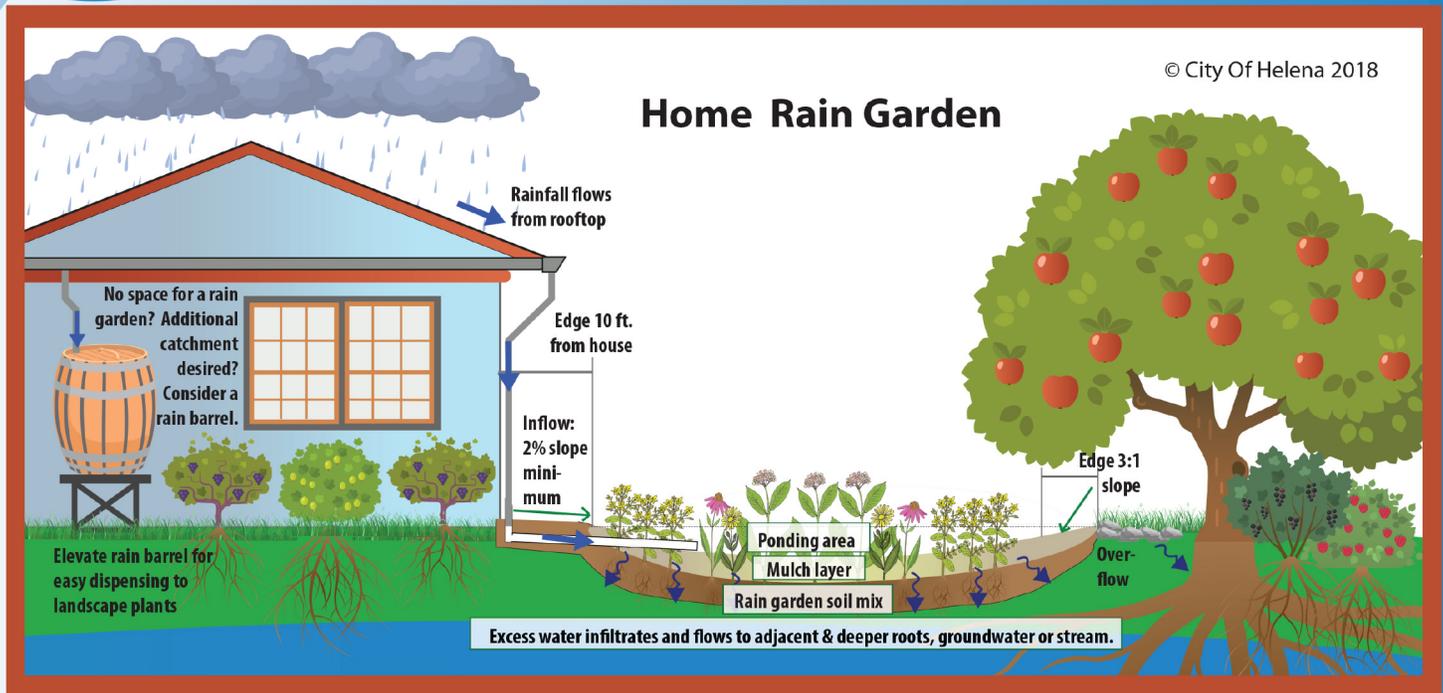


Create a Home Rain Garden to Collect and Filter Stormwater Run Off While Saving \$\$\$.

## CATCH IT. STORE IT. CLEAN IT.



### SAVE \$\$

Every rain event is an opportunity for water to gush out of downspouts, cascade across lawns and into storm drains, picking up pesticide and herbicide residue on its way and taking away important soil nutrients from residential and commercial landscapes. This can pollute our watersheds and also create a need to purchase expensive fertilizers for a thriving landscape to replace the lost nutrients.

### INCREASE VALUE

Rain gardens can reduce your water bill, leave nutrients on your property, irrigate your landscape (including edible landscaping), reduce flooding, help clean our community's groundwater, increase forage for butterflies, birds, and other pollinators, all while increasing aesthetic value for your property.

# 8 Easy Steps to Build Your Home Rain Garden

## Nature's Water Filter:

Rain gardens are shallow landscaped depressions, clean and absorb stormwater runoff from roofs, parking lots and roads.

### STEP 1: How to Create a Rain Garden Overview

Work with plants, amended soil, and mulch to filter water runoff. Think about your rain garden as consisting of 3 Zones. Zone 1, the lowest point is the wettest, and plants that can handle "wet feet" are best for this area. The next level up is Zone 2 and should contain plant species that can handle occasional standing water. The highest level, Zone 3, will rarely or never have standing water and is best planted with species that prefer drier climates. **Location:** Rain gardens must be located to intercept runoff from impervious areas. They can be placed anywhere good soils with adequate drainage rates exist. It is best to keep rain gardens at least 10 feet from building foundations and at least 50 feet from a septic system or slopes greater than 15 percent. Call 811 to make sure underground utilities aren't in the way.

### STEP 2: Find a site that can absorb water & determine size, depth & shape

Take a good look at your yard: You'll need a low spot or depression in order to make a rain garden. Clay soils work best to make a rain garden because they slow the percolation of water, holding water while allowing it to slowly drain. If you are unsure of the type of soil you have, complete a soil test, which can usually be done for a small fee through your state's extension service. If your test indicates sandy soil, you will need to add water-absorbing compost and topsoil to the rain-garden area. The most common reason for rain garden failure is soil compaction, so the correct soil composition is key. **Size:** Rain gardens sited for single-family homes are typically 5 to 10 percent the size of the impervious surface generating the runoff entering the garden. Measure the square footage of the impervious area (length x width); then multiply this by 0.07 (7 percent). Determine a length and width of the rain garden that best fits the site. For example, a 2,000-square-foot roof, when multiplied by 7 percent, would call for a rain garden 140 square feet in size, or 14 feet long by 10 feet wide. **Garden Depth:** A typical rain garden is between four and eight inches deep. A rain garden less than four inches deep will need too much surface area to provide enough water storage to infiltrate larger storms. Storm water runoff should spread evenly across the entire rain garden, to increase the opportunity for infiltration. **Shape:** Ovals, kidneys, and teardrops often look best, but rain gardens can also be long and skinny. Use a garden hose to test possible shapes. Once you settle on a design, decide where the water will flow in and where any overflow will exit. Mark the shape with chalk powder, paint, or flags. On your lawn, mark 18 inches farther out for sod removal, since grass has a way of creeping into planting beds.

### STEP 3: Select appropriate plants, and mulch, mulch, mulch!

Choose native plants based on site considerations for light, moisture, and soil. Vary plant structure, height, and flower color for seasonal appeal and butterfly habitat. For the space just below the overflow, consider a fruit/nut tree with companion perennial plantings of fruiting shrubs and other native herbaceous plants. An excellent informational resource for native, beneficial and edible plants that will grow in Helena, go to the website for the 6th Ward Garden Park (<https://6thwardgardenpark.com/plants>). Remember to consider the Zones 1-3 and research your plants' needs. Seedlings are easier to establish than direct-sown seed when you are going to make a rain garden so you don't have to worry about the seed washing away. It is important to water rain gardens regularly throughout the first season. Once established, they may require additional watering during drought or extended dry periods. A shredded wood mulch - about 3 inches thick - is an important part of a rain garden. Mulch helps retain moisture and discourages weed seeds from germinating. Use straw or wood mulch that has not been chemically treated. If you plant perennial ground covers, they will fill in over time, reducing the need to continually add mulch. On the following page you will find a short plant list and their corresponding zones/uses. For more comprehensive information, see the **Additonal Resources** list at the end of this document.



	ZONE 1	ZONE 2	ZONE 3	USES
Butterfly weed		■		pollinator
Yarrow			■	pollinator, medicinal, edible
Current, golden		■		edible, pollinator
Raspberry, red		■		edible, pollinator
Grape (Valiant)			■	edible, pollinator
Milkweed	■			pollinator
Sweetgrass	■			pollinator, medicinal
Arnica		■		pollinator, medicinal
Beebalm		■		pollinator, medicinal
Coneflower			■	pollinator, medicinal
Rocky Mountain Iris	■			pollinator, erosion control
Rabbitbrush, green			■	pollinator

### STEP 4: Remove the grass

Strip away any lawn by slicing off the roots with a sharp spade directed at as low an angle as you can manage, or use a sod cutter, which you can rent for about \$80 a day. You should be able to roll up sections of the stripped lawn as if they were pieces of carpet.

### STEP 5: Excavate the basin

Using a shovel or an excavator—you can rent one for about \$230 a day or just hire an operator—dig down to the depth you need. Create a flat bottom so that water will percolate down evenly. If the rain garden is on a slope, you can pile some of the excavated soil into a berm on the low side to retain the water. For stability, stomp the berm soil down well and make the base at least 2 feet wide and the top at least 1 foot wide. The peak of the berm should be at least 6 inches higher than the water level when the rain garden is full.

### STEP 6: Lay the inlet pipe

Dig a trench for a pipe that will carry water from one or more gutter downspouts to the rain garden. (Note: If you can corral helpers, this can be done at the same time you excavate the rain garden.) Install the piping. Rigid piping with smooth walls is the most durable, but corrugated tubing is easier to work with; get the kind without perforations. Extend the piping into the rain garden basin by a foot or so. Line the area underneath with stones to prevent erosion. You can also place stones over and beside the pipe to hide it and to keep corrugated tubing from curling up. When all the piping is in place, fill in the rest of the trench with excavated soil.

### STEP 7: Fill the basin

Fill all but the top 6 to 12 inches of the excavated area with rain-garden soil. Slope the sides gently. If the soil you excavated is relatively free of clay, you can use a mixture of 65 percent native soil to 35 percent compost, or 2 scoops of soil for each scoop of compost. If you dug out clay soil, refill with a mixture of 60 percent screened sand and 40 percent compost. If you are creating a dry well, fill that with washed round stones 1½ to 2 inches in diameter. Also pack stones around the overflow area to prevent erosion.

### STEP 8: Add your plants, then add your mulch!

#### Additional Resources

**City of Helena**, Matt Culpo, Stormwater Engineer, (406) 447-8073, mculpo@helenamt.gov

**MT Native Plant List:** <http://www.mtnativeplants.org/wp-content/uploads/2018/07/Kelsey-Chapter-Recommended-Species-Helena-Area-Barton.pdf>

**Rain Gardens in Greater Detail:** [https://www.nrcs.usda.gov/wps/portal/nrcs/mt/water/resources/NRCS144P2\\_057466/](https://www.nrcs.usda.gov/wps/portal/nrcs/mt/water/resources/NRCS144P2_057466/)

**6th Ward Garden Park Plant List:** <https://6thwardgardenpark.com/plants>

