

Green Infrastructure Project

Rain Garden

Want to mow less?

A rain garden is generally a low section of land that is planted with water-tolerant plants that absorb rainwater and filter out harmful chemicals. It is a very effective and attractive way of diverting runoff from your home's rain gutters.



anchorageraingardens.com

Rain gardens are landscaped areas planted with vegetation that helps filter rainwater that runs off roofs, driveways, sidewalks, and lawns. After a storm, the rain garden fills with this water and allows it to naturally filter into the ground rather than running off into the street or a storm drain system.

Cold Climate Considerations:

Due to our varying climactic conditions, it is best to choose plants that are native to Alaska. See the plant list on the last page of this handout for suggestions.

Cost Estimate:

- Self installed \$8 - \$20 per sq ft
- Professionally installed \$10 - \$25 per sq ft

Time Estimate:

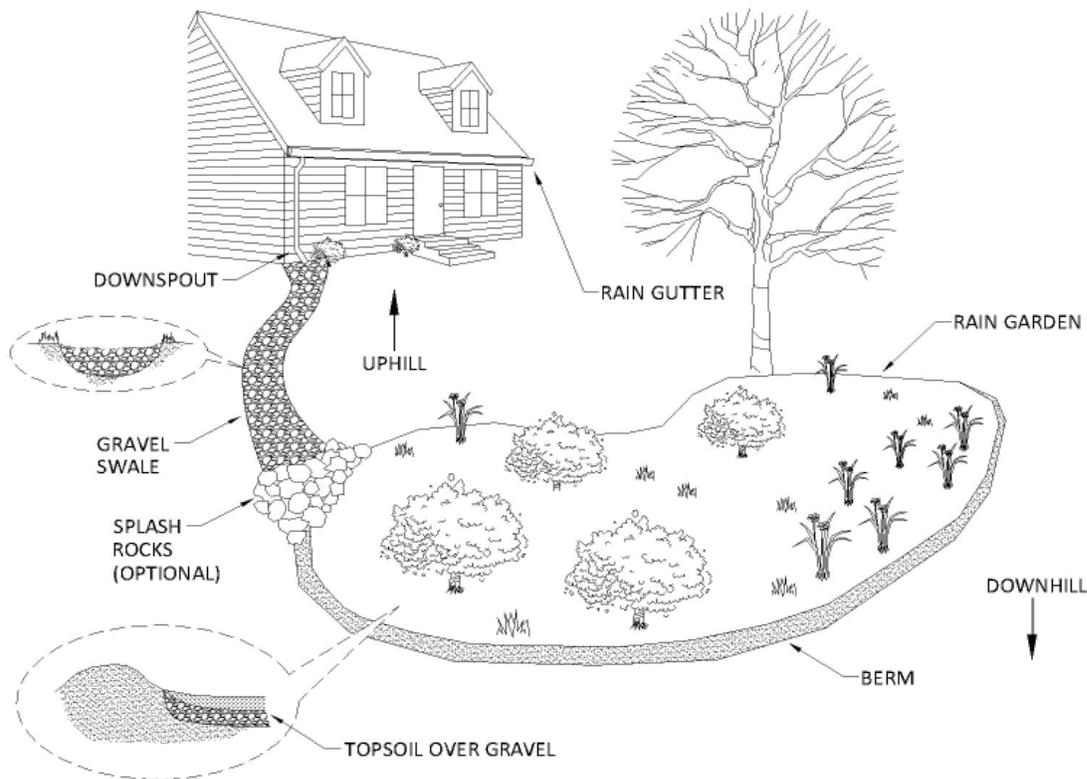
- This project will take one to three days to complete.

Pros:

- Aesthetically pleasing
- Reduces water runoff
- Increases groundwater infiltration
- Increase property value
- Creates habitat

Cons:

- Surface freezing in the fall reduces the water retention potential.
- A restricted list of suitable plants



Materials:

- Rain Garden soil mix (if replacing existing soil) 50-60% sand, 20-30% topsoil, 20-30% compost. Amount will vary depending on size of garden.
- Fertilizer mix (10-20-10 in the spring)
- Sand (optional) amount varies depending on garden size. (see step 4)
- Gravel (optional) amount varies depending on garden size. (see step 4)
- Appropriate plants - see list
- Weed-Free Mulch
- Universal Downspout Adapter

Tools:

- Large Roll-out Measuring Tape
- Marking Flags
- Shovel
- Tarp
- Digging fork or Rototiller
- Spade
- Bow rake

Steps:

1. Choose an appropriate size for your rain garden. The more runoff you can redirect to your rain garden, the larger it can be. If you make the garden larger than can be supported by runoff, you will have to water it more during dry periods. See www.anchorageraingardens.com/RGmanualWEB.pdf for examples of how to calculate the appropriate size.
 2. Choose the right location for your rain garden:
 - a. Do not build a rain garden in permafrost.
 - b. Note the direction of rainwater runoff and low spots where water collects.
 - c. Make sure that the chosen location is downhill and at least 10 feet away from buildings with basements.
 - d. Location should not be on or near septic tanks or wellheads.
 - e. Before you dig, be aware of underground service lines or utilities on your property. Call 1-800-478-3121 or go online at www.akonecall.com to have the underground lines marked for you.
 3. Once you have chosen a location, define the borders using marking flags.
 4. Test the infiltration rate of your soil:
 - a. Dig an eight by eight inch hole within the designated area after the ground has had enough time to thaw in the spring.
 - b. Fill the hole with water and check the depth of the water every hour for at least three hours.
 - c. If the water level in the hole goes down on average at least one inch an hour your soil will be able to drain effectively for a rain garden.
 - d. If it takes longer than eight hours for the hole to completely drain, then you will want to put gravel layer and then a sand layer under your rain garden.
 5. Remove sod, if needed, and dig a three to four foot deep hole, putting the soil off to the side onto a tarp. Making the rain garden hole this deep and amending the soil will help ensure proper drainage.
 6. Loosen the soil in the hole with a digging fork or a rototiller.
 7. You can place a layer of gravel before replacing the soil. (see step 4) The gravel should be no more than twelve inches deep.
 8. If using gravel, add a 3-4 inch layer of sand on top of the gravel. This will aid in drainage.
 9. Loosely pile the soil back in or replace the soil with rain garden soil mix: 50 - 60% sand, 20 – 30% topsoil, and 20 – 30% compost.
 10. The height of the finished garden bed should be lower than the height of the soil surrounding the bed, approximately 5-7 inches lower. You can bow the sides slightly to aid in the look of the garden, but garden should not be level with the surrounding soil.
 11. Redirect downspouts to flow into designated area by constructing berms or swales, or use pipes:
 - To create berms along the downhill side of the rain garden:
 - a. Pile up an appropriate amount of soil using left over soil from the rain garden hole. Usually five inches tall is sufficient to retain water but not drown plants.
 - b. Compact the soil by walking on it and tamping it down well.
 - c. To help minimize erosion of the berms, either put a two inch layer of mulch on the berm or plant drought resistant plants for ground cover. Yellow sedum is a good choice for a ground cover and a native variety can be found.
 - To create a swale from the downspout to the rain garden:
 - a. The swale can be as wide or narrow as you want it, and does not need to be very deep.
 - b. The slope of the swale should be not more than 3:1, horizontal to vertical.
 - c. Remove the sod and dig a trench with the dimensions you wish your swale to be.
 - d. Once you have finished your trench, either replace the sod or reseed the swale. You will need to water the sod or seeds well until they are established.
 - e. Attach a universal downspout adapter to the downspout and redirect it into the swale.
 12. Grade the area so that water entering the garden will spread out over the whole area.
 13. Plant selected plants.
 14. Feed plants using fertilizer mix according to the package directions.
 15. Put a three to four inch layer of mulch down to help retain moisture and deter weeds.
 16. Water young plants until well established.
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Suggested Rain Garden Plant List

Native plants are the best choice for an interior rain garden as they require less maintenance and are tolerant of our varied conditions. Be sure to check whether you are getting the species from this list if you wish to use plants that are native to Alaska and avoid planting invasive plant species.

Plant Type	Plant Name	Latin Name	Sun	Height	Bloom Color
Deciduous shrubs	*Tundra Rose	<i>Dasiphora fruticosa</i> +	Full	3-4 feet	Yellow
	*Red-Twig Dogwood	<i>Cornus sericea</i>	Part/Full	5-8 feet	White
	*Silverberry	<i>Eleagnus commutata</i>	Full	12 feet	Yellow
	*Prickly Rose	<i>Rosa acicularis</i>	Part/Full	4 feet	Pink
	*Soapberry	<i>Shepherdia canadensis</i>	Part	6 feet	Yellow/Green
	*Lingonberry	<i>Vaccinium alaskaense</i>	Part	3-5 feet	White
	*Highbush Cranberry	<i>Viburnum edule</i>	Part/Full	4-8 feet	White
Perennials	**Columbine	<i>Aquilegia formosa</i>	Shade/Part	8-14 inches	Red
	*Alaska Wild Iris	<i>Iris setosa</i>	Part/Full	12-24 inches	Purple
	*Ostrich Fern	<i>Matteuccia struthiopteris</i>	Shade/Part	30-36 inches	
	*Bluebells	<i>Mertensia paniculata</i>	Part/Full	18-30 inches	Blue/Purple
	*Chocolate Lily	<i>Fritillaria camschatcensis</i>	Part/Full	18 inches	Purple/Brown
	**Jacob's Ladder	<i>Polemonium acutiflorum</i>	Part/Full	3-6 Inches	Blue
	*Northern Monkshood	<i>Aconitum delphinifolium</i>	Part/Full	10-30 inches	Blue/White
	*Dwarf Fireweed	<i>Chamerion latifolium</i> ++	Full	2 feet	Magenta/Pink
	**Indian Paintbrush	<i>Castilleja caudata</i>	Full	8-16 inches	Green/Yellow
	**Violet	<i>Viola spp</i>	Shade	4-12 inches	Purple
	*Northern Geranium	<i>Geranium erianthum</i>	Part/Full	14-24 Inches	Blue/Purple

* Indicates Native Plant Species ** Indicates There Are Native And Non-Native Varieties/Species"

Older Latin Names: + *Potentilla fruticosa* ++ *Epilobium latifolium*

Maintenance:

Weed, fertilize, and water frequently until the plants are established.

For more information about this and other Green Infrastructure Projects please visit:

www.fairbanksig.com

Sources:

Alaska Department of Fish and Game, Native Alaskan and Exotic Plants Used by Wildlife

www.wildlife.alaska.gov/index.cfm?adfg=birds.plants

Low Impact Development Center, Inc., Bioretention Benefits

www.lid-stormwater.net/bio_benefits.htm

Low Impact Development, Rain Garden Design Templates

www.lowimpactdevelopment.org/raingarden_design/index.htm

Cuyahoga Soil and Water Conservation District, Rainwater Garden Plans

www.cuyahogaswcd.org/grantfunded-raingardens.htm

Municipality of Anchorage. (n.d.). Rain Gardens: A How-To Manual for Homeowners in the Municipality of

Anchorage. <http://anchageraingardens.com/RGmanualWEB.pdf>

Rain Gardens of West Michigan, Rainwater Garden Plans

www.raingardens.org

University of Alaska Fairbanks Cooperative Extension Service, A Key to Flower Growing in Alaska

www.uaf.edu/ces/publications-db/catalog/anr/HGA-00139.pdf

