

Rain Garden

Overview

- Building a well-designed rain garden can reduce potential flood damage costs.
- Rain garden installation projects can vary in difficulty and cost.
- For the average single-family home, the rain garden should be about 20% of the size of the impervious surface* (roof, patio or pavement) that is draining into the garden.
- Residential gardens are typically 100 to 400 square feet in size.
- Soil excavation is often necessary.
- Plant native plants in the rain garden. See the following link for an established native species list: https://canr.udel.edu/wp-content/uploads/sites/16/2018/03/12024157/Rain_Gardens.pdf

Potential Benefits:

- On-site stormwater management which reduces flooding risk.
- Filters pollutants such as chemicals, metals, fertilizers and pesticides from stormwater.
- Recharges the water table.
- Reduces the local mosquito population.
- Visually appealing.
- May improve mental health.
- Provides wildlife habitat.



Photo credit: DNREC

Key Takeaways

During intense precipitation events, stormwater systems may not be able to keep up with the influx of water.

Grass lawns do not have deep root structures to absorb as much water as the deep, dense root system of a well-designed rain garden.

To avoid repair costs associated with flood-related damage or destruction of property, a rain garden can be installed to reduce flooding on residential and commercial properties.



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Yard Adaptation Rain Garden

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Estimated Costs/Benefits

*U.S. dollars (2022), estimates are subject to change

Potential Costs			Potential Benefits		
Garden Installation Type	Estimate		Post-flooding Recovery Action	Estimate	
Simple "Do It Yourself" (150 square feet)	\$150-	\$750	Regrade yard	Residential	\$700-\$1,700
Complex: drainage systems (150 square feet)	\$750-	\$2,250		Commercial	\$1,860-\$4,530
Professional Installation (150 square feet)	\$2,250-	\$3,000	Remove standing water	Residential	\$1,300-\$5,000
Commercial Site (400 square feet)	\$4,000-	\$16,000		Commercial	\$3,460-\$13,330
TOTAL COST ESTIMATE	Residential Rain Garden (150 sq ft)	\$150-\$3,000	TOTAL SAVINGS ESTIMATE	Residential property	\$2,000-\$6,700
	Commercial Rain Garden (400 sq ft)	\$4,000-\$16,000		Commercial property	\$5,320-\$17,860

Expected Maintenance

Initial maintenance

- Water the garden at least twice per week until the plants are established. After plants are established, watering may not be necessary unless there is an extreme drought.
- Weeding is required until plant cover is established.

Periodic maintenance

- Weed and prune shrubs to remove dead stems.
- Replenish the top layer of mulch annually.

Permitting Agencies

Contacts for permitting requirements include but are not limited to the following:

- Your city and/or county government for local flood ordinances or regulations
- Your city and/or county government for building permits
- DNREC or delegated agency Sediment and Stormwater Management Plan

Who to Contact

- Design professional (landscape designer or engineer) or contractor if any of the following apply to your project:
 - Treatment of off-site drainage.
 - Property is on a steep slope.
 - There are a lot of tree root systems on the property.
 - Existing soils do not drain well and you may need an underdrain system.
- 811 Call Before You Dig

Additional Resources

- University of Delaware Botanic Gardens: Rain Gardens

Resources can also be found at <https://de.gov/iadapt>

Technical definitions and more information are located on the I-ADAPT website: <https://de.gov/iadapt>.



This information is intended to be used for planning purposes. It is not intended to substitute or take precedence over the guidance of design engineers, contractors, utility companies or regulatory agencies.

For more information, contact DNREC's Division of Climate, Coastal and Energy at DNREC_IADAPT@Delaware.gov

