

Rain Garden Site & Soil Assessment

Before installing your rain garden, it is necessary to locate any underground utilities (gas, electric, etc.) on the site. Utilize “call before you dig” services (in Connecticut: <http://www.cbyd.com/>, 1-800-922-4455 two days in advance) and other sources to confirm that there are no buried utilities at the rain garden location.

This scorecard is intended to be used for infiltrating *rainwater* from rooftops and lawns. It is not to be used for infiltrating other water, such as from animal waste, car washing, cleaning pesticide containers or other residential/commercial uses which discharge water.

These assessments are designed for people to do general evaluation of property, but are not a substitute for detailed, on-site investigations by professionals. Professional investigations may provide recommendations for alternate design modifications on the site.

Step 1: Site your rain garden in the proper spot:

Indicator	Unfavorable Condition	Favorable Condition	Comments/Modifications
Distance from foundation	Less than 20 feet	More than 20 feet	This distance is necessary to prevent water from seeping into the basement or causing frost damage.
Distance from downspout	Less than 20 feet	20 to 30 feet	If the downspout is more than 30 feet from the site, consider creating a grass swale or using PVC pipe to move water to garden site without causing an erosion problem. Be sure to factor in any additional runoff from the area between the house and the garden.
Distance from septic drain field	Less than 10 feet	More than 10 feet	The drain field might be overloaded and fail with additional water.
Slope of land between the rain garden site and the house	Less than 1% slope (flat); or the house is lower than the site; or the slope is greater than 15%	Slope is between 1 and 15% AND land slopes down from the house to the rain garden	To prevent erosion, create a grass swale, rock lined waterway, or use PVC pipe to move water from the downspout to the rain garden if the slope is more than 8%. Rain gardens located upslope from or level with the water source are not practical in most cases. They would require pumping runoff to the site.
Slope of land at the rain garden site	Slopes greater than 12%	Lower slopes are more favorable to create a nearly level rain garden.	### <i>Rain Gardens: A how-to manual for homeowners</i> has more details on digging the site. If slope is less than 4%, garden should be 3 to 5” deep If slope is between 5 and 7%, garden should be 6 to 7” deep If slope is between 8 and 12%, garden should be 8” deep
Distance to nearest trees	Less than 10 feet	More than 10 feet	Tree roots may be damaged by digging in the rain garden area.
Sun vs. shade	Completely shady	Sunny or somewhat shady	Choose species able to tolerate sun/shade conditions on your site.



Step 2: Examine the soils in your proposed rain garden:

Indicator	Unfavorable Condition	Favorable Condition	Comments/Modifications
Bedrock (ledge)	Exposed bedrock at the proposed site or within one foot of the surface	Can dig a hole at least 2 feet deep without hitting solid bedrock	Consider another location for the rain garden if bedrock is near the surface. Some types of bedrock may allow water to infiltrate through cracks and into groundwater. Other types will not allow infiltration at all and cause overflow.
Soil compaction	Wire flag or probe cannot be inserted into the soil at all	Loose soil at least 2 feet deep	If the soil is compacted, loosen it OR replace with a mix of 50-60% sand, 20-30% compost, and 20-30% topsoil.
Soil texture	Clay, sand	Loamy sand, sandy loam, loam, silt loam, silty clay loam, sandy clay loam	Use "Guide to Texture by Feel". Rain gardens in sandier soils may be smaller than those in clayier soils, all other factors being equal. See rain garden sizing worksheet.
Drainage of soil (determined by observing surface ponding)	Standing water on the site more than 2 days after a heavy rain	Standing rain water lasts less than 24 hours, even after a heavy rain.	Goal of rain garden is to increase infiltration of water into the soil. Areas that are already ponded may not accommodate additional water and ponding for more than 72 hours may provide breeding habitat for mosquitoes.
Drainage of soil, part 2 (determined by infiltration test)	Water moves down less than 1 inch in an hour	Water moves down faster than 1 inch in an hour	Instructions: Dig a 6 to 10 inch deep hole in soil, fill with water, measure how fast water moves down 1 inch.

Step 3: Determine the size and shape of your rain garden:

Indicator	Unfavorable Condition	Favorable Condition	Comments/Modifications
Size of drainage area (roof and lawn)	More than 3000 square feet. For larger roofs and lawns, consider multiple rain gardens or other treatment options	Less than 3000 square feet (Roof area and lawn combined)	The size of rain the garden you will need depends on the size of the drainage area, the slope of the garden, and the soil texture. See rain garden sizing worksheet
Size of rain garden	More than 300 square feet		If size calculates to more than 300 square feet, divide into smaller gardens.
Width of rain garden	Less than 15 feet if slope is more than 8%	10 feet wide is ideal	The longer side of the rain garden should face upslope.

These comments and modifications are general; there may be on-site exceptions. Professional on-site investigations may provide recommendations for alternate design modifications on the site.

Rain Gardens: A how-to manual for homeowners can be viewed at: <http://clean-water.uwex.edu/pubs/raingarden/>



Rain garden sizing worksheet

(to be used with the rain garden soil and site assessment sheets)

Evaluate your site:

Distance from downspout _____ Slope at rain garden site _____

Slope less than 4% – garden should be 3 to 5” deep

Slope 5 to 7% – garden should be 6 to 7 ” deep

Slope 8 to 12% – garden should be 8” deep

Depth of proposed rain garden: _____

Determine your soil texture using the “Soil Texture by Feel” chart and choose a size factor:

Distance from downspout to rain garden	20 to 30 feet **			More than 30 feet
Depth of rain garden	3 – 5 inches	6 – 7 inches	8 inches	All depths
Your soil texture	Size factors			
Sand	Not suitable for rain garden			
Loamy sand	0.19	0.15	0.08	0.03
Sandy clay	0.43	0.32	0.20	0.10
Silty clay	0.43	0.32	0.20	0.10
Clay	Not suitable for rain garden			
Sandy clay loam	0.43	0.32	0.20	0.10
Silty clay loam	0.43	0.32	0.20	0.10
Clay loam	0.43	0.32	0.20	0.10
Sandy loam	0.19	0.15	0.08	0.03
Silt loam	0.34	0.25	0.16	0.06
Loam	0.34	0.25	0.16	0.06

** Rain gardens should be located at least 20 feet from the foundation of the building

Size factor _____

Determine drainage area:

Area of roof drainage (in sq. ft.) _____

Area of lawn (in sq. ft.) (for rain gardens > 30’ from the downspout) _____

Calculate rain garden size:

Multiply the size factor times the drainage area to get the garden area in square feet _____

Determine length and width:

Pick the best rain garden width for your lawn and landscaping _____

Divide the size of your garden by the width to determine the length _____



U.S. Department of Agriculture
Natural Resources Conservation Service

344 Merrow Road, Suite A, Iolani, Connecticut 06084-3917
860.871.4011 - phone * 860.871.4054 - fax * www.ct.nrcs.usda.gov