

Installing a Rain Garden

1. Check with Town to see if you need a permit and call for utility locations before you dig!!
2. Prepare the site by marking the excavation footprint with string or spray paint. Install erosion & sediment controls if necessary and stockpile materials. Remove grass (reuse, if possible).
3. Dig ½-1 ft to the desired ponding depth of 4-8" with another 2-3" for a mulch layer (if applicable). May need to over-dig another 3-6" to aerate compacted soils and/or add soil amendments. Use excavated material to create berms if needed. Mix amendments into the native soil.
4. **Be sure to make the bottom of ponding area flat.** You can check this by using two stakes, a string, a level, and a measuring tape.
5. Install inlets and overflows.
6. Plant. Arrange plants first, then remove from containers. Loosen root-bound plants and dig holes 2x wider than the root ball. Leave room for mulch layer. Plugs can go in after mulch.
7. Add mulch/organic surface layer (1-3") or just around plants. Protect small plants.
8. Turn on water to inspect flow path and to soak plants. May need to water plants for the first few weeks.
9. Clean up site. Remove erosion controls once area is stabilized.



Maintenance

Inspect your rain garden once a month after installation, after rain storms, and during regular landscaping activities. Be sure to look for:

- Weeds and invasive plants
- Sediment build up
- Debris and trash
- Plant and grass health
- Erosion/gullyng
- Inlet/outlet clogging
- Standing water/drainage issues

Maintenance activities will include:

- Vegetation pruning and trimming
- Debris and sediment removal
- Mowing
- Chemical maintenance for disease and pest control (only if needed). No fertilization is recommended
- Plant and mulch replacement, as needed
- Stabilization of any eroded areas with rock or plants
- Soil amendments for areas that pond water >24 hours after rain



For more detailed "how-to" information and link to downloadable rain garden App: <http://nemo.uconn.edu/raingardens/>

Rain Garden Guide for Homeowners

Town of Hingham, MA



Rain Garden Basics

Rain gardens are landscaped depressions designed to absorb stormwater runoff from rooftops, driveways, roads, parking lots, and compacted lawn areas. This runoff can carry pollutants, cause flooding and erosion, damage infrastructure, and impact aquatic ecosystems. Rain gardens use soils and plants to filter pollutants, promote recharge to groundwater, and encourage evapotranspiration. They are NOT ponds or wetlands; in fact, they should drain in less than 24 hours after it rains.

Designing a Rain Garden

1. Walk your property and determine stormwater flow paths. Note the location of underground pipes, trees, structures, property lines, septic systems, etc.
2. Determine the location for your rain garden. Try to avoid areas that:
 - are within 10 ft of a wall or basement, 4 ft of a sidewalk/driveway; and 50 ft of a septic system;
 - stay consistently wet;
 - have high groundwater or bedrock;
 - are under trees or on steep slopes; or
 - where getting water into and out of the rain garden is difficult.

3. Estimate drainage area and identify soil type (e.g., sand, clay, etc.). The drainage area is the impervious area draining to the rain garden (ft²).
4. Size your rain garden (surface area and ponding depth). Typical rain gardens are 200-400 sq ft in surface area and 6" deep.
 - Ponding depth can be deeper for sandy soils (4-8"), whereas clayey soils require a larger surface area with shallower depths (3-4").
 - Surface area is a function of the amount of runoff to be managed. A good target to shoot for is sizing the rain garden to handle a 1-inch rainfall (or 0.083 ft), or 90% of most storm events in Massachusetts. The area can be calculated using Table 1 or with the following equation:

$$\text{Rain garden surface area (ft}^2\text{)} = \frac{\text{Drainage area (ft}^2\text{ impervious)} \times 0.083 \text{ rainfall target (ft)}}{\text{Rain garden ponding depth (ft)}}$$

Table 1. Approximate Rain Garden Size (ft²) to meet rainfall target of 1 inch

Impervious Drainage Area	Ponding Depth		
	3" (.25 ft)	6" (.50 ft)	8" (.67 ft)
500 ft ²	170	85	65
750 ft ²	250	125	95
1000 ft ²	340	170	125
1500 ft ²	500	250	190
2000 ft ²	680	340	250

5. Amend soils if necessary to improve infiltration and provide organic matter for plants. Add a 3" layer of coarse sand and/or 3" of compost. (For a 100 ft² rain garden, a 3" layer = 1 cubic yard)
6. Direct water in and out. For inlets, consider using an extended downspout or pipe, vegetated or stone-lined swales, diversion berms, or direct the surface flow over lawn. For overflows:
 - Avoid directing overflow to other properties or structures;
 - Make berms higher near buildings;
 - Direct flows over lawns or into existing drain inlets.
7. Use plant species tolerant to both wet and dry conditions.
 - Prefer native species and DO NOT plant invasive vegetation;
 - Avoid using edible plants, particularly if treating driveway or road runoff;
 - Provide for variable heights, color, leaf shape (trees, shrubs, herbaceous);
 - Avoid placing woody vegetation at inflow/outflow locations; and
 - Consider visual appeal and maintenance.

