

Routine Maintenance Activities for Rain Gardensⁱ

Congratulations on your new rain garden! Now that your garden is in place, there are a few tasks you will need to keep up with to ensure that your garden will continue to function properly. Most importantly, be sure that your plants are able to get established. This means that the plants will need to be watered during hot, dry spells, especially during the first two years.

The schedule below includes the most important maintenance activities. Each rain garden is site-specific and there may be maintenance activities outlined within that do not apply to your particular garden. In the case that an activity does not apply to your garden, please disregard. For more detailed instructions, see the following pages.

Activity	Schedule
<ul style="list-style-type: none"> • Water to promote plant growth and survival, especially during the first two years and during dry spells. • Inspect site following rainfall events. Add/replace vegetation in any eroded areas. 	<p style="text-align: center;">As Needed (Following Construction)</p>
<ul style="list-style-type: none"> • Prune and weed swale to maintain appearance. • Remove accumulated trash and debris. • Replace mulch as needed. 	<p style="text-align: center;">Regularly (Monthly)</p>
<ul style="list-style-type: none"> • Inspect inflow area for sediment accumulation. Remove any accumulated sediment or debris. • Inspect site for erosion as well as sediment and mulch which have been moved around in the garden. Add/replace vegetation in any eroded areas. • Inspect rain garden for dead or dying vegetation. Replace vegetation as needed. • Test planting bed for pH. If the pH is below 5.2, limestone should be applied. If the pH is above 8.0, iron sulfate and sulfur should be applied. 	<p style="text-align: center;">Annually (Semi-Annually During First Year)</p>
<ul style="list-style-type: none"> • Remove and replace mulch. 	<p style="text-align: center;">Every 2 to 3 Years</p>

1. Plant Care

1.1 TRIMMING, PRUNING, AND THINNING

Trimming and pruning of excess vegetation will occasionally be necessary. Dead, dying, diseased, or hazardous branches should be trimmed and removed as they occur. Trees and shrubs may also be pruned for shape or to maximize fruit production. Trees, shrubs, and flowers may be pinched, pruned, thinned or dead-headed during the growing season to encourage more flowering, a bushier plant, or a fresh set of leaves. Pruning of trees should occur over the winter, but definitely before bud-break (usually by mid-March). Pruning of flowering shrubs should be performed immediately after the plants have finished blooming. For specific pruning instructions and disease identification for your plants, consult the Maryland Cooperative Extension's Home and Garden Information Center at 800-342-2507 or www.hgic.umd.edu.

1.2 MOWING

Do not mow your rain garden unless it is planted in turf grass. By design, plants in rain gardens are meant to flourish throughout the growing season. The lush vegetation is an important component of the rain garden, as it aids in the capture of nutrients and infiltration of water. When mowing near rain gardens, either use a mulching blade, or point the mower away from the rain gardens. Fresh grass clippings are high in nitrogen and should not be applied to rain gardens, as they will compromise the facility's pollutant reduction effectiveness.

1.3 WEEDING

As with a regular garden, your rain garden will require more frequent and aggressive weeding during the first few years, until your desired plants become fully established. Weeding should be limited to invasive and exotic species, which can overwhelm the desired plant community. Weeding should occur once a week during the summer and at least once a month during the remainder of the growing season. Non-chemical methods (hand pulling and hoeing) are preferable. Chemical herbicides should be avoided. For updated information on invasive species consult the Maryland Invasive Species Council at <http://www.mdinvasivesp.org>.

1.4 WATERING

Regular watering is most critical during the first few weeks after planting and very important during hot, dry spells in the first two years after planting. During the first two years, plants should be watered whenever the top four inches of soil is dry. After the first two years, once plants are established, watering should only be necessary during drought conditions. When irrigating, water deeply, ensuring that water reached below the mulch layer and into the soil a minimum of every three to six days.

To conserve water, reduce the potential for immediate evaporation, disease and fungal infestation, and improve the potential for infiltration, watering should be performed from in the early morning, roughly from 5:00 to 7:00am.

A general rule of thumb when monitoring plant success is: if plants wilt during the day but recover in the evening, watering is not necessary. If plants do not recover in the evening, then watering is likely to be necessary. Another rule of thumb is to stick a pencil or screwdriver about four inches into the soil. If the soil is moist at that depth, watering is not needed.

In addition, although plantings have been selected for their ability to withstand both dry and wet conditions, care should be taken to not over-water. Signs of stress associated with over-watering include: wilting of leaves or petals, yellowing of leaves, ringed spots on leaves, and soft or rotting plant base.

1.5 FERTILIZING

Rain gardens are designed to absorb excess nutrients. Therefore, it is unlikely that soil fertilization will be necessary. Excess fertilization compromises the facility's pollutant reduction effectiveness, leads to weak plant growth, promotes disease and pest outbreaks, and inhibits soil life. If soil fertility is in doubt, call the Maryland Cooperative Extension Home and Garden Information Center at 800-342-2507 or access their website at www.hgic.umd.edu for information on soil testing. If fertilization is necessary, only organic fertilizers should be used.

1.6 PEST MANAGEMENT

Trees, shrubs and herbaceous plants should be monitored regularly for pests and disease. For identification of specific pests and diseases, and for treatment recommendations, consult the Maryland Cooperative Extension's Home and Garden Information Center at 800-342-2507 or <http://www.hgic.umd.edu>. It is important to keep in mind that insects and soil microorganisms perform a vital role in maintaining soil structure. Therefore, the use of pesticides should be avoided so as not to harm beneficial organisms. An alternative to pesticide use is to adopt an Integrated Pest Management (IPM) approach. This involves reducing pests to acceptable levels using a combination of biological, physical, mechanical, cultural, and chemical controls. For more information, consult University of Maryland's IPM website at <http://www.mdipm.umd.edu/>.

1.7 PLANT REPLACEMENT

When replacing a plant, place the new plant in the same location as the old plant, or as near as possible to the old location. The exception to this recommendation is if plant mortality is due to initial improper placement (i.e., in an area that is too wet or too dry) or if diseased/infected plant material was used and there is risk of persistence of the disease or fungus in the soil. The best time to plant is in early to mid-fall or early to mid-spring. Trees can be planted as long as the soil temperature remains above 32°F at a depth of six inches. Plants should be put in the ground as soon as possible after purchase to ensure the best chance of survival. Trim established plants as needed to make sure they don't shade out new plantings.

2. Infiltration Maintenance

2.1 PONDING AND DRAINAGE PROBLEMSⁱⁱ

Rain gardens are designed to have water standing for up to 24 hours at a time. If this water period is routinely exceeded, the facility may not be functioning properly. Contact the contractor that installed the rain garden or contact Blue Water Baltimore at 410-254-1577.

2.2 TRASH AND DEBRIS REMOVAL

Runoff flowing into rain gardens may carry trash and debris, which should be removed weekly to ensure that inlets do not become blocked and to keep the area from becoming unsightly. Inspect rain garden area after rainstorms to ensure drainage paths are free from blockages. When appropriate, curb cuts in parking areas will need to periodically be cleared of accumulated sediment and debris.

2.3 COMPOSTING

Note that composted material should NOT be applied to rain gardens.

2.4 MULCHING

Mulch has many benefits: it reduces competition by grass roots with tree and plant roots; controls weeds; prevents and reduces soil compaction; preserves soil moisture; and discourages potentially injurious practices like mowing and string trimming near tree trunks or woody stems. Rain gardens areas should receive a protective layer of mulch over root areas, similar to that provided by leaf litter in a natural forest. Mulch layers should not exceed two to three inches in depth around trees, shrubs, and perennials. Avoid blocking inflow entrance points with mounded mulch or raised plantings. To avoid bark rot and subsequent infestation by pests, mulch should not be mounded around the base of plants. The use of aged mulch is recommended and should consist of the shredded type rather than the chip type, to minimize floating. The mulch materials placed in the facility will decompose and blend with the soil medium over time. Once a full groundcover is established or if plant material is very dense, mulching may not be necessary.

The following materials may be used as mulch in rain gardens:

- Shredded hardwood mulch (recommended)
- Chipped hardwood mulch

The following materials should NOT be used as mulch in rain gardens:

- Fresh grass clippings
- Animal waste
- Compost

2.5 PET WASTE REMOVAL

Always clean up pet waste from your lawn and rain garden to reduce this source of pollution. Studies show that pet waste is a leading source of disease, causing harmful bacteria to end up in our waterways, making them unsafe for human recreational use.

2.6 SNOW REMOVAL

Plowed or shoveled snow piles should not block inlet structures or be placed in rain garden; however fallen snow need not be removed.

2.7 DE-ICING

Ice removal is NOT necessary in rain gardens. Treatment for ice buildup nearby rain gardens may be necessary for safety, however consider the impact that de-icing products will have on the environment before using them. Standard de-icing agents can be incredibly harmful to plant and aquatic life. Environmentally-friendly ice control agents are available that have been shown to have fewer adverse effects on pavement, infrastructure, vehicles, and plants. For example, calcium magnesium acetate (CMA) can be used as an alternative to salt in environmentally sensitive areas. Although CMA is environmentally-friendly, it is effective only to 21°F and has a higher cost than conventional chemicals. Another example is Ice Ban, which is made from agricultural residues and is considered to be environmentally friendly. Abrasives such as sand and gravel are frequently used alone or in conjunction with salt to provide traction on slippery surfaces. Avoid using large amounts of sand and gravel near rain gardens, since they may reduce the infiltration capacity of your rain garden.

ⁱ This modified rain garden maintenance schedule was taken from the Prince George's County, Maryland Bioretention Manual.

ⁱⁱ If you are not sure if your rain garden is functioning properly, please call Blue Water Baltimore at 410-254-1577.