

Roadside Bioretention Cell Care Guide

Rain gardens and bioretention cells capture stormwater runoff and let water soak into the ground as plants and soil filter pollutants.

These practices convert stormwater from a problem to a resource that replenishes groundwater and protects local waterways.

Built along the street, they also create attractive streetscapes and urban green spaces, provide natural habitat, and enhance pedestrian and bicycle safety.

Bioretention cells are more engineered than rain gardens, and have primary operations and maintenance (O&M) responsibility by the local government agency. This guide is for adjacent property owners or groups who are interested in supplementing that O&M.



Roadside Bioretention Cell Care Program

Thank you for your interest in bioretention cell stewardship. This guide describes the activities of your local agency and what you can do to support those activities if you are interested.

Maintenance Responsibilities

Seattle Public Utilities and King County Wastewater Treatment Division routinely monitor all roadside bioretention cells to determine the level of work needed to maintain healthy plants and ensure the facilities function properly. Identifying problems early and addressing them will insure a long healthy life for the system. Please notify us if you see concerns.

Why Bioretention Cells Matter

Bioretention cells are an innovative and effective way to restore the health of Seattle's urban watersheds. Over the last 150 years, we've covered our watersheds with streets, roofs, driveways and parking lots. In the process, we've increased stormwater runoff that causes pollution to flow into our creeks, lakes, the Duwamish River, and Elliott Bay. Bioretention cells help to protect and restore the Puget Sound and our local waterways.

Anatomy of a Bioretention Cell

1 Capture and Treatment Area

Special soils that allow the water to soak in.

2 Overflow Drain

Not all bioretention cells have one. These allow stormwater from larger storm events to flow out if the raingarden is full.

3 Curb Opening

Also called an inlet or outlet where stormwater can enter and exit



Plant Establishment Phase (first three years)

Young plants have tender roots and can be susceptible to damage without regular care. During this phase, the city or site developer contracts with professionals to care for the roadside bioretention cell.

Professional crews will:

- Check for proper function
- Remove sediment
- Clear curb openings and top of overflow drain
- Remove trash and debris
- Remove weeds
- Water plants
- Prune, replace or remove trees or plants if necessary

You can help by:

- Removing trash and debris
- Clearing curb openings and top of overflow drain
- Watering during dry periods
- Pushing aside accumulated sediment

Important Safety Guidelines When Working Near A Street

- Do not stand in street when performing maintenance activities.
- Make yourself visible. Wear brightly colored clothing or a safety vest.
- Since bioretention cells are next to the street, take extra caution and be aware of passing bicycles and vehicles.
- Wear sturdy shoes and thick gloves to help protect you from broken glass, sharp objects, pollutants, and other obvious or concealed hazards.
- Take care of your bioretention cell during daylight hours and avoid peak traffic times.
- Do not allow children younger than 10 years of age to work with you; older children must be accompanied by an adult volunteer. Keep in mind that adult supervision is critical when working within the street environment.
- Do not leave your tools unattended. Keep them out of the street and off the sidewalk so they don't pose a hazard.

We don't want you to get hurt, so please be safe.

Long-term Care Phase (after plants are established)

Professional crews will:

- Check for proper function
- Remove sediment
- Clear curb openings and top of overflow drain
- Remove trash and debris
- Remove weeds
- Water plants if necessary
- Prune, replace or remove trees or plants if necessary

You can help by:

- Removing trash and debris
- Clearing curb openings and top of overflow drain
- Pushing aside accumulated sediment
- Watering during dry periods
- Removing weeds

The Bioretention Cell Care Chart at right ► summarizes simple volunteer bioretention cell activities you can perform (See pages 6-9 for care how-to tips).

Please DO NOT:

- ⊘ Prune or trim plants and trees
- ⊘ Add or replace plants
- ⊘ Use chemical herbicides, fertilizers, or insecticides
- ⊘ Modify or alter the function or design
- ⊘ Add or remove bioretention soil, compost, mulch, or fill
- ⊘ Store tools, lumber or other items in the rain garden
- ⊘ Remove dead or dying plants
- ⊘ Remove sediment
- ⊘ Enter the systems when soils are wet (to protect soils)

Bioretention Cell Care Chart

After notifying us* that you want to help care for your local roadside bioretention cell, use this chart to make sure you know what to do. See the how-to steps on the following pages.

Bioretention Cell Care and Maintenance Activity	Professional Crew Activity		Volunteer Activity	
	Varies, 0-3 Year Establishment Phase	Long-term Care Phase	Varies, 0-3 Year Establishment Phase	Long-term Care Phase
Clear curb openings of leaves, trash, and debris. Push aside sediment.	YES	YES	YES	YES
Remove trash	YES	YES	YES	YES
Clear top of overflow drain (do not lift the grate)	YES	YES	YES	YES
Water only during periods of drought	YES	YES	NO	YES
Remove weeds	YES	YES	NO	YES (with training)*
Prune trees and plants	YES	YES	NO	NO
Remove or replace trees and plants	YES	YES	NO	NO
Remove sediment	YES	YES	NO	NO
Structural/ Repairs	To report damage or other repair needs call the number below.		To report damage or other repair needs call the number below.	

*Get training and let us know you are helping at 700milliongallons.org
 For questions about vegetation, please contact the Garden hotline at 206-633-0224

Please notify us when:

Contact Information

- Plants or trees are damaged or need trimming for safety
- If your bioretention cell has had standing water for more than 72 hours after it stopped raining
- There is damage or vandalism to the facility
- There is something besides rain that has spilled into the bioretention cell

Caring for Your Bioretention Cell

The most important part of bioretention cell care is to make sure the facility captures and filters stormwater. So check your bioretention cell regularly to ensure water flows into the facility. If you see these problems let us know, or follow these care steps below:

Clear Curb Openings

Clear curb openings so water can flow into the bioretention cell. Rake and remove leaves, trash and debris. Push aside, but do not remove, sediment to create a clear path for stormwater flow. The best time to clear curb openings is before a rain storm.



Clear Drains

Make sure that overflow drains aren't blocked. Remove leaves, debris and trash on top of grates. Do not lift grates. Do not attempt to clear if there is more than two inches of water ponded.



Remove Trash

Pick up any trash you find and recycle, if appropriate, or throw into a trash can.



Watering

Although bioretention cell plants can tolerate our dry summer climate, they can benefit from additional watering during extended dry periods or extreme heat. Please use a gentle, low-pressure spray setting to avoid erosion, and don't water at a faster rate than the ground can soak it up.



Weed Removal – after the establishment phase

If unsure, don't remove.

- Remove weeds only after the establishment phase, when desirable plants are mature.
- You can weed by hand or with a small hand trowel, weed fork, or garden hoe. In order to eliminate weeds, it is important to try and remove their root systems.
- Do not use chemical herbicides.
- After removing a weed, gently pat down the soil to prevent air pockets that expose the roots of established plants. Loose soils can also encourage new weeds.
- If you are unsure whether a plant is a weed or invasive species, please do not remove it - because it may be a plant we want. Maintenance crews will address it on their next routine visit.
- Please do not remove plants that appear dead. Crews will evaluate these and replace if necessary.

See pages 10 - 11 for a photo guide to help identify the most common invasive and unwanted weed species.



What is Debris?



- Grass clippings
- Sticks
- Leaves
- Small branches
- Sediment at curb cut

Remove debris by hand or with a rake. Gather debris and put it in a yard-waste bin or other appropriate disposal container.



The most important times to remove debris and trash from your bioretention cell is before and after a storm. Heavy rains can cause trash and debris to collect around curb openings and overflow drains and block stormwater flow.

Rake leaves from around your curb cut, especially in the fall when leaves can quickly clog inlets.



Commonly Found Problem Weeds to Remove



Pigweed
Amaranthus sp.



Himalayan Blackberry
Rubus armeniacus



Dandelion
Taraxacum officinale



Morning Glory
Convolvulus arvensis



Common Lambsquarters
Chenopodium album



Clover
Trifolium repens



Common Vetch
Vicia sativa



Traveler's Joy
Clematis vitalba

Problem Weeds to Remove Continued



Canada Thistle
Cirsium arvense



Sweet Clover
Melilotus alba



Sow Thistle
Sonchus arvensis



Curly Dock
Rumex crispus



Bittercress species
Cardamine species



Queen Anne's Lace
Daucus carota



Chicory
Chicorium intybus



Herb Robert
Geranium robertianum

Protecting Seattle's Waterways

700MillionGallons.org

Thanks to the Portland Bureau of Environmental Services for permission to base this guide on their earlier publication, *City of Portland Green Street Stewards Guide*.

