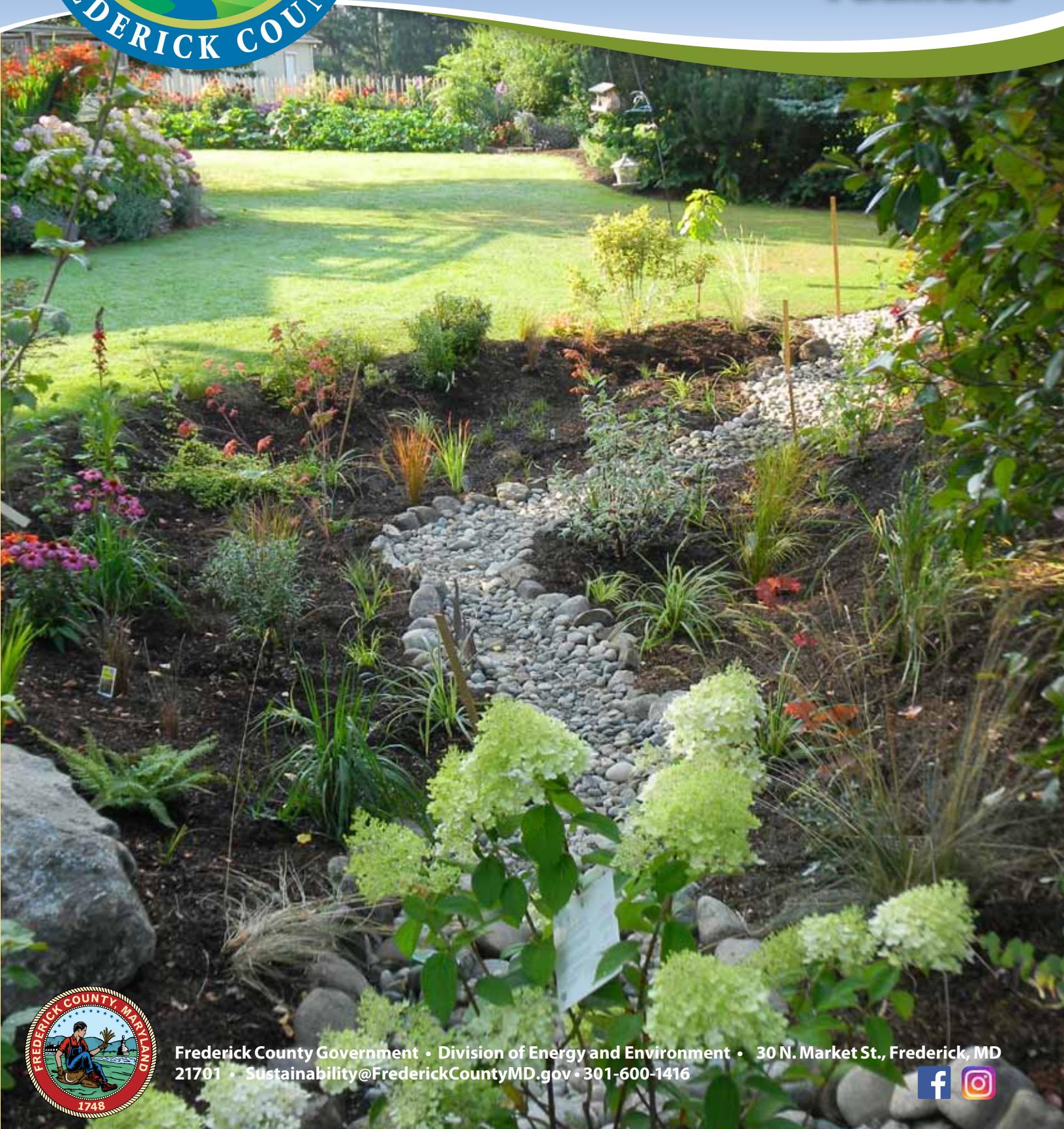


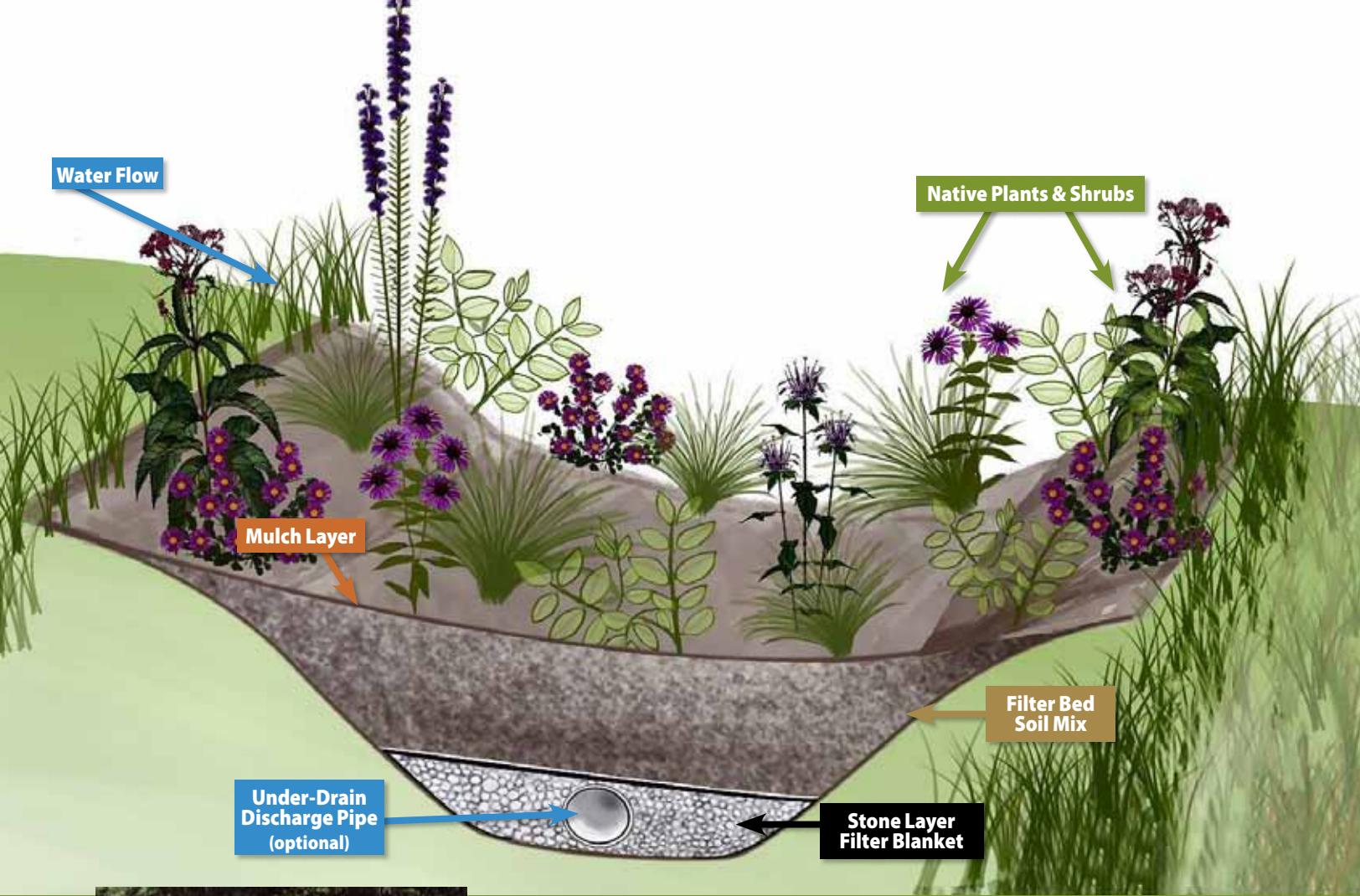


Guidance for Maintaining Rain Garden, Bioswale, and Micro-Bioretention Facilities



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What are rain gardens, bioswales and micro-bioretention facilities?

Rain gardens, bioswales, and micro-bioretention facilities are best management practices (BMPs) for stormwater management (SWM) that double as landscaping features. They are designed to filter stormwater runoff and improve water quality.

Micro-Bioretention Areas (see pg. 4 for photo) are usually planted with native plants and have three layers: mulch, a filter bed mixture of sand, soil and organic matter, and a stone layer. The filtered water is sent to the storm drain system via a perforated pipe, or absorbed into the soil. Micro-bioretention areas are often located along roads, cul-de-sac islands, and parking lots.

Rain Gardens are shallow saucer shaped depressions that temporarily hold runoff for a short period of time. They function similarly to micro-bioretention, but without a buried perforated pipe. Rain gardens are often used in residential settings to collect water from sidewalks, driveways, and downspouts from roof gutters.

Bioswales are similar to micro-bioretention areas, designed with vegetation, soil, and a perforated pipe. Bioswales are typically installed along roadways.

Maintenance 101

DO...Monthly

- ✓ Remove weeds and invasive plants (warm months).
- ✓ Remove trash and debris.
- ✓ Inspect facility for signs of erosion, obstructions, or unhealthy vegetation.
- ✓ Check facility a few days after rain storms to ensure there is no standing water after two days.

DO... Annually, or as needed

- ✓ Cut back dead stems from herbaceous plants at the beginning of spring season.
- ✓ Water new plants frequently to promote growth. Water during droughts, which should only be required when no rain has occurred for more than 10 days.
- ✓ Replenish mulch to a total depth of 3 inches.
- ✓ Remove fallen leaves in autumn season. Leaves may block the flow of rainwater.
- ✓ If erosion is observed, reestablish grass and vegetation.

DO NOT...

- ✗ Apply excess salt and sand around the facility in winter.
- ✗ Store snow and leaves on top of facility.
- ✗ Apply fertilizer or pesticide to facility.



MAINTENANCE SCHEDULE

	SPRING	SUMMER	FALL	WINTER	AS NEEDED
Mulching	✗				✗
Weeding	✗	✗	✗		✗
Pruning			✗	✗	✗
New Planting	✗		✗		
Watering					✗
Removing Debris	✗	✗	✗	✗	✗



TROUBLESHOOTING

SYMPTOM	POSSIBLE CAUSE	SOLUTION
Standing water in the facility longer than 48 hours	Prolonged standing water indicates the facility or underdrain may be blocked or clogged, or the soil pores are clogged with sediment.	Check the pipe for blockages, flush pipe with water. If the soil pores have become clogged, the facility may need to be tilled and/or replanted using new soil.
Weeds overtaking facility	Weeds that are established may take multiple seasons to kill.	Manually remove weeds as soon as they are visible. Don't let weeds seed.
Dead or dying plants	Your plants may be the wrong type for shade and moisture conditions, or being smothered by weeds.	Plant new native vegetation in accordance with MDE planting guidelines.
No mulch or visibly reduced mulch	Mulch decomposes over time. Storms can also move mulch.	Replenish mulch and/or stone to a 3 inch total depth
Erosion or bare soil	Runoff is moving too fast and/or vegetation has died.	Stabilize soil by planting new vegetation. Rocks may be added to slow flow and minimize erosion.



Micro-Bioretention Area

Frequently Asked Questions

Who is responsible for maintenance?

As the property owner, YOU or designee are responsible for all maintenance of your micro-bioretention facility, rain garden or bioswale. Maintenance of SWM facilities and BMPs is the responsibility of landowners for privately owned lots and the Homeowner's Association (HOAs) for community owned properties.

Can I remove the rain garden, bioswale, or micro-bioretention facility on my property?

No, you cannot remove these facilities if they have been required by Frederick County as part of your building installation. Frederick County maintains a database of all required SWM structures and is required to inspect the facilities every three (3) years. Maintenance issues found during inspections are detailed in an inspection report and are required to be addressed within 90 days from the date of notice.

You are doing your part to help protect watershed health, and the water quality of our streams, rivers, and the Chesapeake

Bay by maintaining your rain garden, bioswale, or micro-bioretention area.

Why is it important to maintain the facility?

Unmaintained rain gardens, bioswales, and micro-bioretention facilities will:

- Stop filtering rainwater and allow pollutants and trash to enter streams via stormwater.
- Become expensive and/or difficult to restore.
- Allow water to pool on the surface long enough to breed mosquitoes (3 or more days).

I need help or have questions?

Frederick County staff and inspectors can answer your questions and provide additional guidance about maintaining your rain garden, bioswale or micro-bioretention facility. Please contact us at sustainability@frederickcountymd.gov or visit www.frederickcountymd.gov



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