City of Richmond
Department of Public Utilities

Stormwater Management Program

Single Family Residential Property Credit Manual

Revised August 2013

DEPARTMENT OF PUBLIC UTILITIES

Why manage stormwater?

The failure to effectively deal with stormwater results in flooding, pollution of streams, creeks and rivers, and erosion problems. State and federal regulations require the City of Richmond to manage land runoff, rain and snow, drainage, seepage, etc. — technically known as "non-point source pollution" — and protect our waterways. Solving these problems can be difficult. The City of Richmond joined hundreds of other communities across the United States to create a Stormwater Utility, dedicated to funding and addressing these problems.

what are the benefits?

Fewer flooding incidents, healthier rivers, and a better quality of life for the citizens of Richmond are the goals of the Stormwater Management Program.

Stormwater problems require planning, construction and innovative green practices like stream restoration and bioretention — defined as the process in which contaminants and sedimentation are removed from stormwater runoff.

The Stormwater Utility maintains streams and catch basins, sewers, storm drains and large pipes that carry stormwater. We monitor the quality of our streams and rivers.

We address drainage problems, plan watersheds and manage floodplains. We have the technical expertise to accomplish multiple objectives, such as reducing floods and stormwater pollution, and developing green space to benefit the community and residents.

We offer educational programs that promote awareness of the importance of healthy watersheds.

We encourage on-site, green alternatives to traditional "pipe and pond" practices, the type you often see in shopping center parking lots. Bioretention, floodplain restoration, vegetated swales (marshy depressions between ridges), pervious pavement that absorbs water, and other low-impact development practices are our priorities.

Rain garden

What is the cost to our customers?

A stormwater utility is based on the premise that the urban drainage system is a public system, similar to water or wastewater. When a demand is placed on these systems, the users pay.

Parking lots, rooftops, and driveways can't absorb water, so the water moves quickly over these surfaces into nearby streams and sewers placing a burden on the urban drainage system that handles all that runoff. So, the more paved (or "impervious") surfaces there are on your property, the greater your responsibility, and that's why you pay a higher fee.

For single family residential properties, the fee is based on **square footage of impervious surface.**

Residences are placed in one of three categories based on total impervious surface:

- Small (1,000 sq. ft. or less)
- Medium (1,001 to 2,399 sq. ft.)
- Large (2,400 sq. ft. or more)

A small property pays $2.08 per month, a medium property pays $3.75 per month

Roof + driveway = 2,350 sq. ft. of impervious surface = the medium stormwater fee

Richmond offers financial incentives for managing stormwater at your home or place of business. This reduces the cost of stormwater problems and encourages environmental stewardship!

What is the credit program?

Customers who reduce the volume of water flowing off their properties into storm drains or surrounding bodies of water, can receive a reduction in their stormwater fee.

Credits can be obtained by:

- Installation and continuing use and maintenance of an approved Stormwater Control Measure (SCM) (not owned or maintained by the City)

- Activities that reduce or alleviate the City's cost of providing a stormwater management program.

Single family residential credits

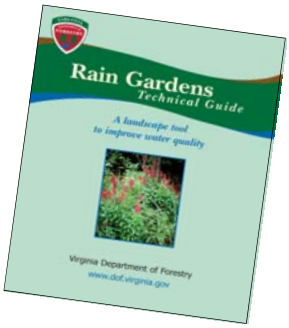
Approved Stormwater Control Measures

A reduction of up to a maximum of 50 percent is offered to customers who implement a combination of different approved Stormwater Control Measures (SCMs) or multiples of a single method. See page 16 for examples. These SCMs include:

RAIN GARDENS

Rain gardens are landscaped areas slightly below ground level that capture and filter stormwater runoff from a roof or other impervious (paved) surface.

- At least 25 percent of a property's roof or an equivalent surface area must drain to the rain garden.
- Rain gardens must be sized according to the Virginia Department of Forestry publication *Rain Gardens Technical Guide* found at www.dof.virginia.gov. Go to Conservation>Water Conservation>Rain Gardens to find it.



VEGETATED FILTER STRIPS

Vegetated filter strips are uniform strips of dense turf, meadow grasses, trees or other vegetation with a minimum slope to absorb runoff from roof downspouts.

- At least 50 percent of the property's roof must drain to the filter strip.
- Strip must be fully vegetated.
- Strip must be at least 50 feet long.
- Runoff from roof must be dispersed with a splash block or piping, the trough or pipe at the end of downspouts, directing water to the vegetation area.

ON-SITE STORMWATER STORAGE

Includes rain barrels, cisterns, or other stormwater storage devices approved by the Department of Public Utilities.

- 50 percent of the property's roof area must be connected to rain barrels or other storage devices that provide at least 50 gallons of storage per downspout.
- Must be covered with a lid or screen to prevent mosquitoes.
- Must drain in no less than 24 hours and no more than four days after each rainfall event.
- Overflows from storage must be directed to appropriate outlets or areas and away from neighboring properties, sidewalks, steep slopes or retaining walls.

PERVIOUS PAVEMENT

Pervious pavement may include concrete blocks, grid pavers, or pervious concrete or asphalt with a stone reservoir underneath (see p. 14). The reservoir temporarily stores surface runoff before seeping it into the soil below.

- At least 1,000 square feet of pervious pavement must be installed.
- Stone reservoir must be at least 10 inches deep at all points.
- Gravel is not considered pervious pavement.

Learn more about these SCMs on pp. 11—15

Maintenance Requirements

Stormwater control measures (SCMs) installed on a property must be maintained to ensure continued function. Recommendations can be found in the Virginia Department of Forestry Rain Gardens Technical Guide. (see Rain Gardens on p.4) and on the fact sheets on pp. 10-12).

Restrictions on credits

Transfer of credit: The residential property credit applies only to the applicant. Credits do not transfer if home ownership changes. A new application must be submitted for new account holders to receive the credit.

Single Family Residential Property Credit Limit: Single Family residential SCMs can be combined on a property for a credit up to but not exceeding 50 percent. A single type of SCM is 20 percent credit.

Local Community Requirements: The SCM must meet all applicable City of Richmond building, planning and zoning code requirements.

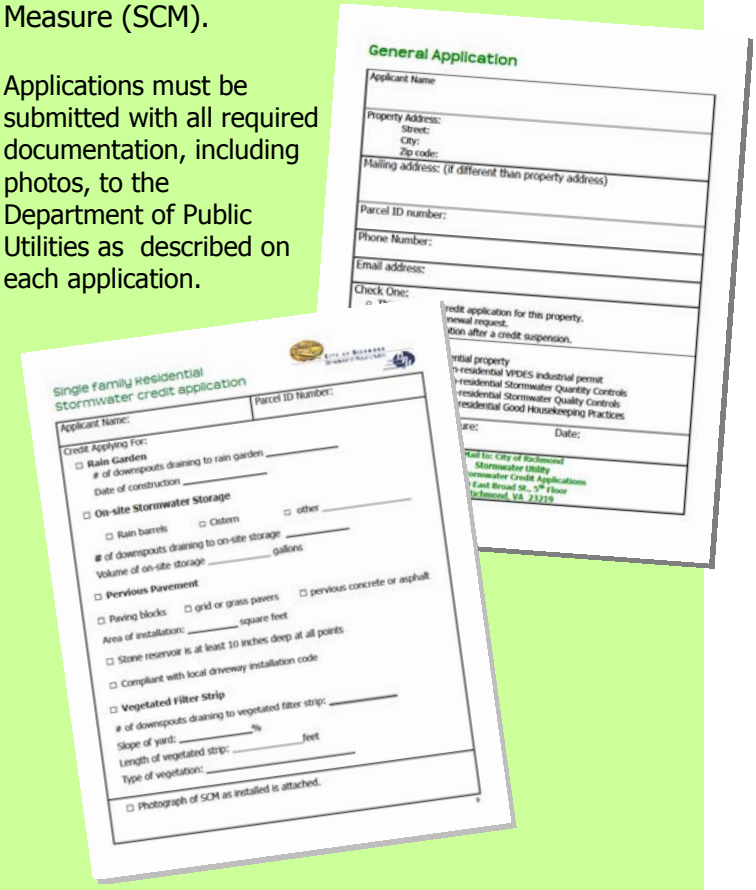
The credit is valid for three years. The property owner must re-submit the renewal application to continue to receive credit.

Right to Inspection. The City may inspect the SCM at any time during the three years. If the on-site stormwater storage is no longer functioning or has not been maintained, the City reserves the right to cancel the credit for up to three years.

To apply:

Applicants must complete a one-page **General Application** (p. 7) and a one-page Single Family Residential Property Credit Application (p. 9) and include a photo of their Stormwater Control Measure (SCM).

Applications must be submitted with all required documentation, including photos, to the Department of Public Utilities as described on each application.


General Application

Applicant Name

Property Address:
Street:
City:
Zip code:

Mailing address: (if different than property address)

Parcel ID number:

Phone Number:

Email address:

Check One:

Single family residential stormwater credit application

Applicant Name:

Parcel ID Number:

Credit Applying For:

Rain Garden
# of downspouts draining to rain garden
Date of construction

On-site Stormwater Storage
Rain barrels
Cistern
other
# of downspouts draining to on-site storage
Volume of on-site storage
gallons

Pervious Pavement
Paving blocks
grid or grass pavers
pervious concrete or asphalt
Area of installation:
square feet
Stone reservoir is at least 10 inches deep at all points
Compliant with local driveway installation code

Vegetated Filter Strip
# of downspouts draining to vegetated filter strip:
Slope of yard:
%
Length of vegetated strip:
feet
Type of vegetation:

Photograph of SCM as installed is attached.

Submit applications to City of Richmond Department of Public Utilities, Stormwater Utility, Attn: Stormwater Credit Applications, 730 E.Broad St., 5th floor, Richmond, VA 23219.

When an application is received, DPU will conduct a review of all submitted materials. If the application is not complete, DPU will contact the applicant and request the additional information necessary to complete the application.

Following the receipt of a complete application, DPU will provide a technical review and the applicant will be notified in writing when an application is approved or denied. If an application is denied, the applicant can appeal based on the appeals procedures in Chapter 106 of the City of Richmond administrative code.

Instructions for completing the General Application

1. Applicant Name—Name of individual property owner.

2. Property Address—list address number and street name. Include city and zip code.

3. Mailing address—Include if different from property address.

4. Parcel ID number—Each piece of land has its own parcel ID number. This information can be found on the City's website at *http://eservices.ci.richmond.va.us/applications/PropertySearch*. The number also appears on property tax assessments and bills.

5. Phone number—The primary contact for the applicant.

6. Email address—The primary contact for the applicant.

7. Check-one—Check which box applies.

8. Credits applying for—Select the credit for which the applicant is applying. If you are doing a residential project, check the first box. The other options relate to commercial properties and apartment complexes.

9. Applicant signature/date.

General Application

DEPARTMENT OF PUBLIC UTILITIES

Applicant Name:
Property Address: Street: City: Zip code:
Mailing address: (if different than property address)
Parcel ID number:
Phone Number:
Email address:
Check One: ☐ This is the first credit application for this property. ☐ This is a credit renewal request. ☐ This is a reapplication after a credit suspension.
Credit applying for: ☐ Single-family residential property ☐ Multi-family and non-residential VPDES industrial permit ☐ Multi-family and non-residential Stormwater Quantity Controls ☐ Multi-family and non-residential Stormwater Quality Controls ☐ Multi-family and non-residential Good Housekeeping Practices
Applicant/Contact signature: Date:
Mail to: City of Richmond **Stormwater Utility** **Attn: Stormwater Credit Applications** **730 E. Broad St., 5th Floor** **Richmond, VA 23219**

Instructions for completing the Single Family Residential Property Credit Application

1. Applicant Name—Name of individual property owner.

2. Property Address—list address number and street name. Include city and zip code.

3. Mailing address—Include if different from property address.

4. Parcel ID number—Each piece of land has its own parcel ID number. This information can be found on the City's website at *http://eservices.ci.richmond.va.us/applications/PropertySearch*. The number also appears on the property tax assessments and bills.

5. Phone number—Of primary contact for the application.

6. Email address—Of primary contact for the application.

7. Check-one—check which box applies.

8. Credits applying for—Select the credit for which the applicant is applying.

9. Applicant signature/date.

Single family Residential Stormwater credit application

DEPARTMENT OF PUBLIC UTILITIES

Applicant Name:	Parcel ID Number:
Email address:	

Credit Applying For:

☐ **Rain Garden**

# of downspouts draining to rain garden _____

Date of construction _____

☐ **On-site Stormwater Storage**

☐ Rain barrels ☐ Cistern ☐ other _____

# of downspouts draining to on-site storage _____

Volume of on-site storage _____ gallons

☐ **Pervious Pavement**

☐ Paving blocks ☐ grid or grass pavers ☐ pervious concrete or asphalt

Area of installation: _____ square feet

☐ Stone reservoir is at least 10 inches deep at all points

☐ Compliant with local driveway installation code

☐ **Vegetated Filter Strip**

# of downspouts draining to vegetated filter strip: _____

Slope of yard: _____%

Length of vegetated strip: _____feet

Type of vegetation: _____

☐ Photograph of Stormwater Control Measure (SCM) as installed is attached.

Single family residential stormwater credit application (cont.)

DEPARTMENT OF PUBLIC UTILITIES

Sketch of property with SCM shown.

All applicable local codes:

_____ (initial) I, the applicant, have complied with all local codes applicable to the installation of the SCM.

Owner certification:

_____ (initial) I hereby certify that I own and live at the property and I further declare, under penalty of perjury, that the information provided by me in this application is the truth to the best of my knowledge and belief.

Applicant/Owner signature **Date:**

Mail to:
City of Richmond
Stormwater Utility
Attn: Stormwater Credit Applications
730 E. Broad St., 5th Floor
Richmond, VA 23219

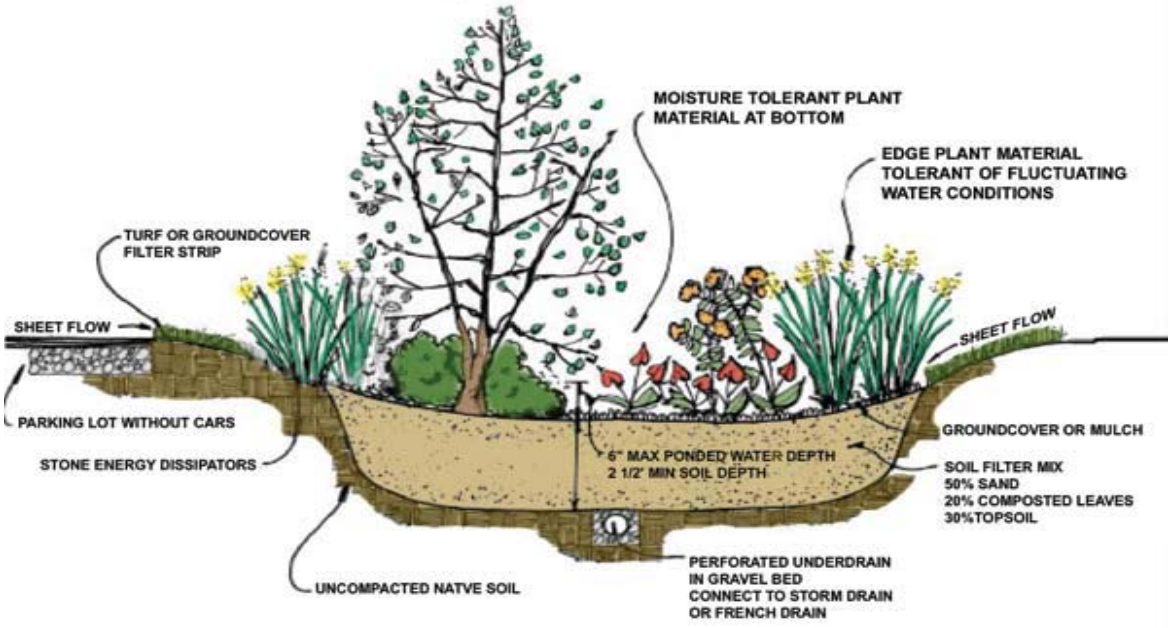
rain garden

RAIN GARDENS are landscaped areas built in a depression that capture and filter stormwater runoff from a roof or other impervious surface. The plants and soil in a rain garden provide an easy, natural way of reducing the amount of stormwater runoff.

Installation standards

To obtain a single family residential property credit for a rain garden the following standards and requirements must be met:

- At least 25 percent of the property's roof area or equivalent impervious surface must drain to the rain garden.
- The rain garden must be sized and constructed according to the Virginia Department of Forestry *Rain Gardens Technical Guide.*
- Overflows must be directed to appropriate outlets or areas and away from neighboring properties, sidewalks, steep slopes or retaining walls.



Rain garden cross section

Maintenance guidelines

1. Rain gardens must be maintained annually to ensure continued function. Maintenance includes weeding, checking for erosion and other tasks listed in the *Rain Garden Technical Guide*.
2. The property owner is responsible for maintaining the rain garden. The credit renewal process will require documentation that the rain garden continues to function as approved.

Include a photo of the rain garden with your application!

on-site stormwater storage structures

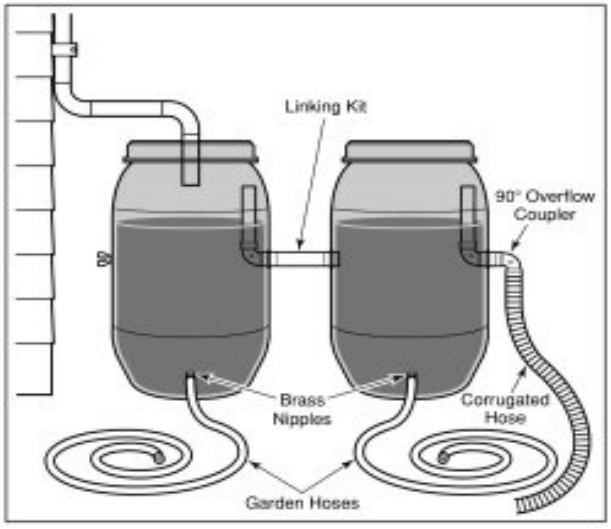
ON-SITE STORMWATER STORAGE STRUCTURES can include rain barrels, cisterns or other devices as approved by the City of Richmond Stormwater Utility. These structures collect and capture rooftop rainwater that would otherwise drain directly to the stormwater system or streams. The collected rainwater can be used to water plants, trees, or lawns during dry periods.

RAIN BARREL:

A **rain barrel** is a 40-55 gallon barrel or drum with some type of diverter or connection from a downspout, a spigot or hose to drain the barrel, and some type of overflow mechanism. Any openings to the air should be screened to keep debris and insects out.

An overflow mechanism must be provided so that when the rain barrel is full, excess water can flow back into the downspout and then to a storm sewer, or into a landscaped area.

Saving water not only helps protect the environment it saves money and energy because of the decreased demand for treated tap water. You can purchase a rain barrel or make your own. Your rain barrel must meet the credit requirements on the next page.



CISTERN

Cisterns are similar to rain barrels in function, but hold larger quantities of water. They can be installed underground, at ground level, or elevated depending on the site and space constraints of the property.

A cistern should be constructed out of reinforced concrete, galvanized steel, or plastic, and should have smooth interior surfaces, be watertight, have enclosed lids and be sized according to the installation standards on the next page to manage the proper amount of runoff.

To obtain a single family residential credit for on-site stormwater storage…

Certain standards and guidelines must be met!

on-site stormwater storage structures, cont.

Installation standards

To obtain a single family residential property credit for on-site stormwater storage the following standards and requirements must be met:

1. 50 percent of the property's roof area is properly connected to rain barrels or other approved storage devices that provide at least 40 gallons of storage per downspout
2. On-site stormwater storage must be completed in such a way that mosquitoes cannot breed in the water. Cover the rain barrels with a lid or screen that prevents mosquitoes from entering the storage structure.
3. On-site stormwater storage must be equipped with an overflow or bypass mechanism to divert rainwater to the storm drainage systems when the storage container is full. These mechanisms must not cause erosion, property damage or overflow onto a neighboring property.
4. On-site stormwater storage must be completely drained in no less than 24 hours and no longer than four days after each rainfall event.
5. All on-site stormwater storage structures must meet the local codes for downspout disconnection, property setbacks and all other applicable codes.

maintenance guidelines

1. Clean your gutters regularly to reduce debris.
2. Clear off any screens as necessary.
3. Periodically check any hoses associated with the storage structure to clear any debris.
4. To winterize, disconnect and return the downspout to its original configuration. Remove the hoses and mesh screen and store them. Make sure to drain the container to prevent it from freezing and cracking. If possible, store it upside down, so no water or materials will be able to enter.
5. For cisterns, leave the outflow spigot fully open during frost/freezing periods and unhook the drain hose about twice a year to clean out any compacted sediment.

where to get a rain barrel:

You can purchase a rain barrel at most major lawn and garden centers. Call your local center to see if they carry them or if they can order one for you. There are numerous online suppliers as well, including amazon.com.

You can also make your own rain barrel using a large trashcan, agricultural supply container, or other large container and a little ingenuity.

For more recommendations, talk to your local Soil and Water Conservation District or watershed group (see back page).

Remember to include a photo of your rain barrel with your application!

pervious pavement

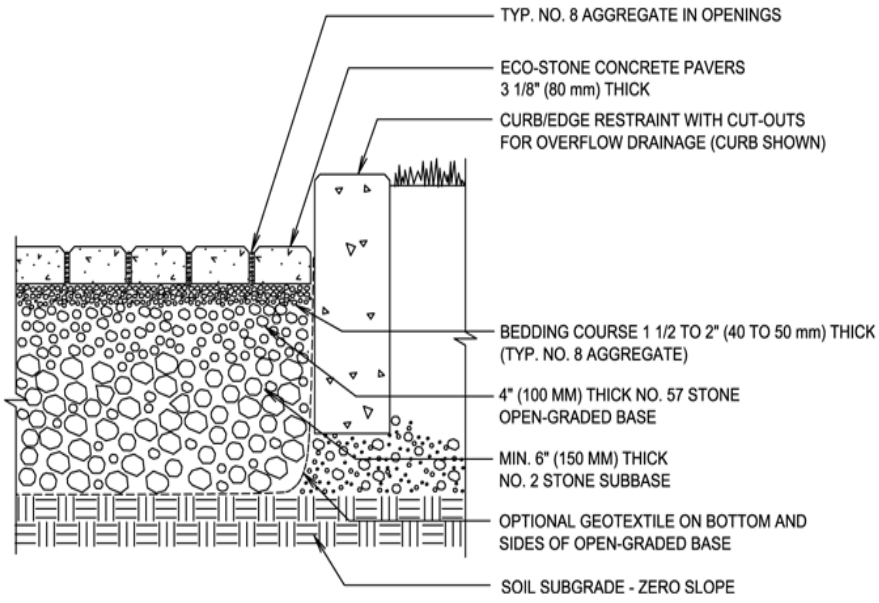
PERVIOUS PAVEMENTS are designed to allow stormwater to seep through the surface into the soil below where the water is naturally filtered and pollutants are removed. Pervious pavement may include paving blocks, grid pavers, pervious concrete, or pervious asphalt. Gravel driveways are not considered pervious and are not eligible for a credit.

It is recommended that a qualified installer with knowledge of hydrology and hydraulics be consulted for applications using pervious pavement to ensure desired results. This fact sheet provides an overview of construction guidelines and research to date, but is not meant to replace the services of experienced, professional installers.

Installation standards:

To obtain a credit for pervious pavement the following criteria must be met:

- Installed for the purpose of runoff filtration.
- Area of pervious pavement is at least 1,000 square feet.
- Stone reservoir underneath the pavement type is at least 10 inches deep at all points.
- Installation meets all local building and zoning standards for driveway installations.



Maintenance guidelines:

1. Ensure pervious pavement system is draining, and there are no visible signs of standing water on surface.
2. Do not apply salt or sand during winter months.
3. Use a professional vacuum service annually to remove sediment accumulation and organic debris on the pavement surface.
4. Remove accumulated leaves and debris from pavement surface in the fall.

Remember to include a photo of the pervious pavement and a photo of the construction identifying the depth of the stone reservoir with your application!

vegetated filter

VEGETATED FILTER STRIPS are uniform strips of dense turf, meadow grasses, trees, or other vegetation with a minimum slope to treat runoff from roof downspouts.

Installation standards:

To obtain a credit for vegetated filter strips the following criteria must be met:

50 percent of the property's roof area drains to the vegetated filter strip.
Filter strips are fully vegetated and there are no areas of bare soil or mulch.
Filter strips must be at least 50 feet long.
Runoff from roof downspouts must be dispersed using splash block (a type of splash block is pictured at right).
Slope of the downspout must be less than five percent.

Maintenance guidelines:

1. Clean gutters regularly to reduce debris.
2. Check the splash blocks twice a year to make sure they are not broken or damaged.
3. Maintain healthy vegetation along the filter strip.
4. Plant additional vegetation if bare soil or erosion is present.

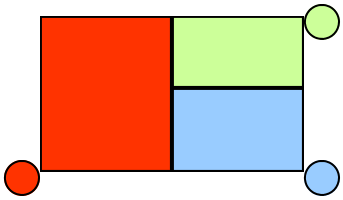
Include a photo of the vegetated filter strip with your application!

Example

Jane Doe wants to apply for a stormwater credit. Let's follow along as she decides which stormwater control measures (SCMs) will work for her as she fills out her application.

Jane has 3 downspouts on her house. To qualify for a  credit, half her roof needs to drain to the rain barrels.

Let's look at Jane's roof.



This downspout drains the green area (or a quarter of her roof)

This downspout drains the blue area (or a quarter of her roof)

This downspout drains the red area (or half of her the roof)

For Jane to qualify for the credit either the red downspout or ***both*** the green and blue downspouts need to be connected to rain barrels because the credit requires half the roof to drain into a storage device. Jane decides to put a rain barrel on the red drain and goes to her neighborhood garden center and purchases a rain barrel kit. She attaches the rain barrel to the red downspout and is now is eligible for a **20 percent credit!**

But Jane isn't finished! She likes saving water and decides to add two more barrels and capture all the rain from her roof. She installs two more rain barrels and applies for another credit. Her credit is **now 40 percent!** Go Jane!

Let's review Jane's situation. She has installed three rain barrels and has **qualified for 40 percent off her stormwater bill**. She can **earn up to 50 percent off** so she still has 10 percent more to save. What else can she do to get that last 10 percent of credit? Her driveway and patio square footage equals 675 square feet so she doesn't meet the 1,000 square foot installation requirement for pervious pavement.

Jane reviews her credit manual and discovers another way to save. Jane likes gardening, so she chooses a rain garden for her last SCM. Jane downloads the *Rain Garden Technical Guide* on the Department of Forestry's website. Jane has already captured all of the rain from her roof, so she searches for drainage from another impervious surface area where she can capture the water. With a little reworking of the landscaping, Jane can capture the runoff from her small driveway into an appropriately sized rain garden. Jane fills out her third credit application to use the **remaining 10 percent credit available to her**.

With a little bit of research, sweat equity and planning, Jane has accomplished great things! She has saved water, reduced pollution and added a beautiful new garden. Oh—and she **saved 50 percent** on her stormwater bill. Good job, Jane!

resources

Virginia Department of Forestry
Information on water quality and rain gardens
Rain Garden Technical Guide
http://www.dof.virginia.gov
434-977-6555

Virginia Soil and Water Conservation District
Watershed education, low impact development information, backyard conservation, lawn and tree care tips, rain garden and rain barrel information
http://www.vaswcd.org
804-559-0324

Virginia Department of Conservation and Recreation
Watershed education, lawn care and pet waste information, land conservation
http://www.dcr.virginia.gov
804-786-1712

Clean Virginia Waterways
Rain barrel workshops and supplies, watershed education
http://www.longwood.edu/cleanva
434-395-2602

Chesapeake Bay Foundation
Water Quality, lawn care tips, Chesapeake Bay education, rain garden and rain barrel information
http://www.cbf.org
804-648-4011

Alliance for the Chesapeake Bay
Chesapeake Bay education, Clean Stream projects, rain barrel and native landscaping information
http://www.allianceforthebay.org
804-775-0951

Environmental Protection Agency (EPA)
Pollution Prevention
http://www.epa.gov/stormwater
800-438-2474

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