NORTHEAST OHIO REGIONAL SEWER DISTRICT

Stormwater Management Program

Individual Residential Property Credit

why stormwater management?

THE INABILITY TO EFFECTIVELY DEAL WITH stormwater results in flooding, more pollution of our waterways, and erosion problems. Solving these problems can be difficult, since runoff from one community drains into another. A regional approach is the solution.

An established regional organization, the **Northeast Ohio Regional Sewer District (NEORSD)** is joining hundreds of communities—including Columbus, Cincinnati, and Toledo—that have created fees to support stormwater programs to address these problems.

what are the benefits to communities and individuals?

Fewer flooding incidents, healthier waterways, and a better quality of life for Greater Cleveland are the goals of the NEORSD Stormwater Management Program.

Stormwater problems require planning, modeling, construction, and innovative green practices like bioretention and stream restoration.

NEORSD will build projects and maintain streams and the large pipes that carry stormwater.* We will continue to rigorously monitor water quality.

To address regional drainage problems, NEORSD will expand watershed planning and floodplain management support.

NEORSD can provide the technical expertise to integrate multiple objectives (such as reducing floods and stormwater pollution, and developing green space) to benefit communities and residents.

NEORSD will coordinate educational programs that promote awareness of the importance of healthy watersheds, and develop regional partnerships to address the problems that cross community borders and boundaries.

When possible, the regional program will promote on-site, green alternatives to traditional "pipe and pond" practices. Bioretention, floodplain restoration, vegetated swales, pervious pavement, and other low-impact development practices will be priorities.

Rain garden

* *NEORSD's program focuses on large regional problems. Catch basins and small sewers will remain the responsibility of local communities.*

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 systems. When a demand is placed on these systems, the user pays.

Parking lots, rooftops, and driveways can't absorb water, so it moves quickly over these surfaces into nearby streams or sewers. A greater flow of water—i.e. a greater demand—is placed on the urban drainage system. So, the more paved (or "impervious") surfaces there are on one's property, the greater the fee.

For residential properties of four units or fewer, the fee is based on an **Equivalent Residential Unit** (ERU) equal to 3,000 sq. ft. of impervious surface (such as roof and driveway). The 2010 and 2011 rate for one (1) ERU is $4.75 per month.

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

- **Small (less than 2,000 sq. ft.)**
- **Medium (2,000 to 4,000 sq. ft.)**
- **Large (more than 4,000 sq. ft.)**

A small house pays **$2.85** per month, a medium house pays **$4.75** per month, and a large house pays **$8.55** per month.

Roof + driveway
= 3,000 sq. ft. impervious surface
= 1 ERU

NEORSD offers FINANCIAL INCENTIVES for managing stormwater at the source, which reduces the regional costs of stormwater problems and encourages environmental stewardship.

what is the credit program?

Customers who take measures to reduce the stormwater rate or volume flowing from their properties to the regional stormwater system can receive a reduction in their stormwater fee.

Credits can be obtained through:

- Installation and continuing use, operation, and maintenance of an approved Stormwater Control Measure (SCM, see p. 4) that NEORSD does not own, maintain, or operate; or
- Activities that reduce or alleviate NEORSD's cost of providing a regional stormwater management program.

There are three types of credits available for residential properties:

Individual Residential Property Credit
Flat reduction of 25% (see pp. 4-5)

Stormwater Quantity Credit
Reduction up to 50%

Stormwater Quality Credit
Reduction up to 25%

NOTE: This manual only addresses the Individual Residential Property Credit, not the Stormwater Quantity or Stormwater Quality Credits.*

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* *Customers who have extensive stormwater retention plans or who live in a subdivision with its own storm basin may qualify for the Stormwater Quantity and/or Stormwater Quality credits. Detailed information and application forms for these credits can be found in the comprehensive Stormwater Fee Credit Manual at* ***neorsd.org/stormwater.php****.*

individual residential property credit

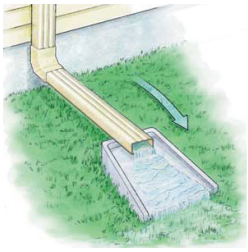
approved Stormwater Control Measures (SCMs)

A flat reduction of 25% (the Individual Residential Property Credit) is offered to customers who implement a NEORSD-approved Stormwater Control Measure (SCM). These SCMs include:

RAIN GARDENS

Rain gardens are landscaped areas built in a depression that are designed to capture and filter stormwater runoff from a roof or other impervious (paved) surface.

- At least 25% of a property's roof or an equivalent impervious surface area must drain to the rain garden.
- Rain gardens must be sized according to the worksheet in the *Rain Garden Manual for Homeowners:* **http://crwp.org/pdf_files/2007_rain_garden_manual.pdf**
- Overflows must be directed to appropriate outlets or areas.



VEGETATED FILTER STRIPS

Uniform strips of dense turf, meadow grasses, trees, or other vegetation with a minimum slope can treat the water quality of runoff from paved surfaces (see pp. 14-15). In certain circumstances, a large lawn may meet these criteria.

- At least 50% of a property's roof must drain to the filter strip.
- Strip must be fully vegetated (grass, shrubs, trees, flowers, etc.)
- Strip must be at least 50 ft. long, depending on slope of yard.

ON-SITE STORMWATER STORAGE

Includes rain barrels, cisterns, rain bladders, or other storage devices approved by NEORSD (see pp. 11-12).

- 50% of the property's roof area must be connected to rain barrels that provide at least 40 gallons of storage per downspout, OR . . .
- Storage devices (cistern) must be sized to hold the runoff from 50% of the property's roof during a one-inch rain storm.
- Must be covered to prevent mosquitoes.
- Must drain in no less than 24 hours and no more than 4 days, unless bigger than the minimum required storage.
- Overflows from storage must be directed to appropriate outlets or areas.

PERVIOUS PAVEMENT

Paving blocks, grid pavers, or pervious concrete can be used for driveways and patios with a stone reservoir underneath (see p. 13). The reservoir temporarily stores surface runoff before infiltrating it into the soil below.

- Credit can be obtained if the applicant has at least 1,000 sq. ft. of pervious pavement.
- Must meet local building and zoning codes for driveways.
- Gravel driveways are not considered a type of pervious pavement.

Learn more about these SCMs on pp. 11-15.



IMPERVIOUS SURFACE REDUCTION

Credit can be obtained if an applicant removes 500 sq. ft. or more of existing impervious surface and replaces it with a vegetated, pervious surface. (It does not necessarily have to receive water from a downspout, as would a rain garden.)

Maintenance Requirements

SCMs installed on a property must be maintained to ensure continued function. Recommendations can be found in the *Rain Garden Manual for Homeowners* (see "Rain Gardens" on p. 4) and on the fact sheets on pp. 11-15.

Restrictions on credits

Homestead restriction: Customers who pay the Stormwater Homestead Fee are not eligible for stormwater fee credits.

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

Individual Residential Property Credit Limit: Individual residential SCMs cannot be combined on a property for a credit larger than 25%.

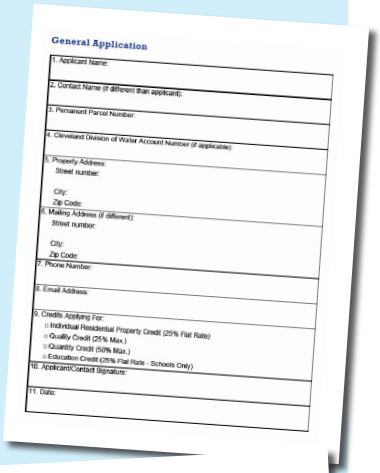
Local Community Requirements: A credit is only applicable for SCMs that are allowed by the member community in which the property is located. SCMs must meet all applicable building, subdivision and planning, and zoning code requirements of member communities including downspout disconnection, landscaping and property setbacks requirements.

Recertification

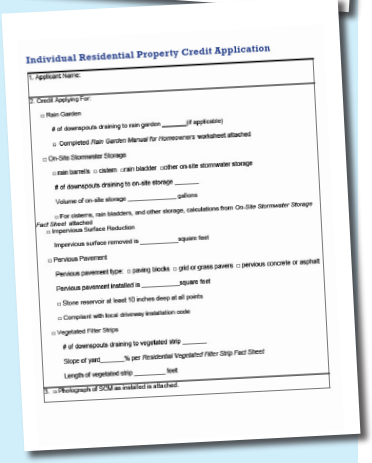
The Individual Residential Property Credit is valid for three (3) years. The applicant must submit a recertification application to continue to receive the credit. Failure to do so by the required deadline will result in elimination of the credit.

to apply:

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


General Application

1. Applicant Name:
2. Contact Name (if different than applicant):
3. Permanent Parcel Number:
4. Cleveland Division of Water Account Number (if applicable):
5. Property Address:
Street number:
City:
Zip Code:
6. Mailing Address (if different):
Street number:
City:
Zip Code:
7. Phone Number:
8. Email Address:
9. Credits Applying For:
□ Individual Residential Property Credit (25% Flat Rate)
□ Quality Credit (25% Max.)
□ Quantity Credit (50% Max.)
□ Education Credit (25% Flat Rate - Schools Only)
10. Applicant/Contact Signature:
11. Date:


Individual Residential Property Credit Application

1. Applicant Name:
2. Credit Applying For:
□ Rain Garden
# of downspouts draining to rain garden _____ (if applicable)
□ Completed *Rain Garden Manual for Homeowners* worksheet attached
□ On-Site Stormwater Storage
□ rain barrels □ cistern □ rain bladder □ other on-site stormwater storage
# of downspouts draining to on-site storage _____
Volume of on-site storage _____ gallons
□ For cisterns, rain bladders, and other storage, calculations from *On-Site Stormwater Storage Fact Sheet* attached
□ Impervious Surface Reduction
Impervious surface removed is _____ square feet
□ Pervious Pavement
Pervious pavement type: □ paving blocks □ grid or grass pavers □ pervious concrete or asphalt
Pervious pavement installed is _____ square feet
□ Stone reservoir at least 10 inches deep at all points
□ Compliant with local driveway installation code
□ Vegetated Filter Strips
# of downspouts draining to vegetated strip _____
Slope of yard _____% per *Residential Vegetated Filter Strip Fact Sheet*
Length of vegetated strip _____ feet
3. □ Photograph of SCM as installed is attached.

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

Applications must be submitted with all required documentation to NEORSD as described on each application. Applications can be submitted via e-mail to **stormwater@neorsd.org** or via mail to **NEORSD, Watershed Programs Department, 3900 Euclid Avenue, Cleveland, Ohio 44115.**

Following the receipt of a complete application, NEORSD will provide a complete 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 Title V of NEORSD's Code of Regulations (which can be found at **neorsd.org/title5**).

Instructions for completing the General Application

1. Applicant Name - Name of individual property owner.
2. Contact Name - particularly in the case of a non-residential or group application, the name of the contact who is submitting the application.
3. Permanent Parcel Number - Each piece of land that is sold has its own Permanent Parcel Number. This information can be found through the County Auditor's office or website, or from a source such as your local library. If there are multiple permanent parcel numbers, attach a separate and complete list to the application, and note in box 3, "See attached list".
4. Cleveland Division of Water Account Number (if applicable) - This number is only for those account holders that receive their drinking water from the Cleveland Division of Water. The account number can be found on the monthly statement. If there are multiple account numbers, attach a separate and complete list to the application, and note in box 4, "See attached list."
5. Property Address - If there are multiple property addresses, attach a separate and complete list to the application, and note in box 5, "See attached list."
6. Mailing Address – Include if different from box 5.
7. Phone Number – Of primary contact for the application.
8. Email Address – Of primary contact for the application.
9. Credits Applying For - Select the credits for which the applicant is applying. Multiple boxes may be selected.
10. Applicant/contact signature
11. Date

General Application

1. Applicant Name

2. Contact Name (if different than applicant)

3. Permanent Parcel Number

4. Cleveland Division of Water Account Number (if applicable)

5. Property Address:

   Street Number:
   City:
   Zip Code:

6. Mailing Address (if different):

   Street Number:
   City:
   Zip Code:

7. Phone Number:

8. Email Address:

9. Credits Applying For:

- ☐ Individual Residential Property Credit (25% Flat Rate)
- ☐ Quality Credit (25% Max.)
- ☐ Quantity Credit (50% Max.)
- ☐ Education Credit (25% Flat Rate— Schools Only)

Information and application forms for Quality, Quantity, and Education credits can be found in the comprehensive Stormwater Fee Credit Manual at ***neorsd.org/stormwater.php***

10. Applicant/Contact Signature:

11. Date:

Mail to: **NEORSD, Watershed Programs Department, 3900 Euclid Avenue, Cleveland, Ohio 44115.**

Instructions for completing the Individual Residential Property Credit application

1. Applicant Name - Name of individual property owner.
2. Credits Applying For - Select the stormwater control measure (SCM) that is being submitted for credit approval. Appropriate implementation of any one (1) approved SCM is sufficient to receive the credit. Implementation of additional SCMs cannot increase the Individual Residential Property Credit beyond 25%.
3. Photograph of SCM As Installed - Attach a photograph of the installed SCM that indicates the date the photo was taken.
4. Sketch of property with SCM shown - Include a sketch of the property for which the credit is to be applied. This can be a hand-drawn sketch. The sketch should represent an aerial view of the property and include at a minimum the house, driveway, SCM(s), and road.
5. Local Codes - All SCMs must meet all applicable building, subdivision and planning, and zoning code requirements of member communities including downspout disconnection, landscaping, and property setbacks requirements.
6. Owner Certification - Check the box to certify that you are the owner and occupier of the property, and that all information provided is true. Individual Residential Property Credits are not available to non-owner occupied properties.

Individual Residential Property Credit application

1. Applicant Name

2. Credit Applying For:

☐ **Rain Garden**

# of downspouts draining to rain garden _____ (if applicable)

☐ Completed *Rain Garden Manual for Homeowners* worksheet attached

☐ **On-Site Stormwater Storage**

☐ rain barrels ☐ cistern ☐ rain bladder ☐ other on-site stormwater storage

# of downspouts draining to on-site storage _____

Volume of on-site storage _____ gallons

☐ For cisterns, rain bladders, and other storage, calculations from residential on-site stormwater storage structure fact sheet (pp. 11-12) attached

☐ **Impervious Surface Reduction**

Impervious surface removed is _____ square feet

☐ **Pervious Pavement**

Pervious pavement type: ☐ paving blocks ☐ grid or grass pavers

☐ pervious concrete or asphalt

Pervious pavement installed is _____ square feet

☐ Stone reservoir at least 10 inches deep at all points

☐ Compliant with local driveway installation code

☐ **Vegetated Filter Strips**

# of downspouts draining to vegetated strip _____

Slope of yard _____% (per residential vegetated filter strips fact sheet, pp. 14-15)

Length of vegetated strip _____ feet

3. ☐ Photograph of SCM as installed is attached.

Mail to: **NEORSD, Watershed Programs Department, 3900 Euclid Avenue, Cleveland, Ohio 44115.**

Individual Residential Property Credit application (cont.)

4. Sketch of property with SCM shown

5. All applicable local codes

☐ I, the applicant, have complied with all local codes applicable to the installation of the SCM.

6. Owner certification:

☐ I hereby certify that I own and live at this 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.

7. Applicant/Contact Signature:

8. Date:

residential on-site stormwater storage structures

ON-SITE STORMWATER STORAGE STRUCTURES can include rain barrels, cisterns, bladders, or other storage devices as approved by the **Northeast Ohio Regional Sewer District (NEORSD)**. These structures collect and capture rooftop rainwater that would otherwise drain directly to the stormwater system or streams. The collected stormwater can be used to water plants, trees, or lawns during dry periods.

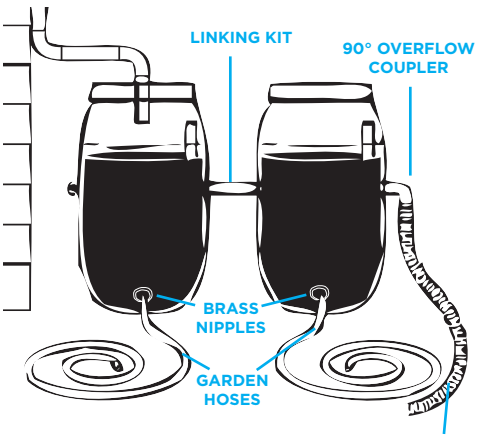
rain barrel:

A **rain barrel** is composed of 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.

Example of rain barrel with downspout diverter that directs overflow back to the downspout

Saving water not only helps protect the environment it saves money and energy because of the decreased demand for treated tap water. Check with your County Soil and Water Conservation District or local watershed group for instructions on how to make and install a rain barrel. Rain barrels can also be purchased through several online suppliers. Ensure your rain barrel will meet the requirements on the next page.



Example of rain barrel with overflow to yard

rain bladder:

A **rain bladder** is a flexible modular tank designed to be installed into the tightest locations and can be completely hidden from view. They can be installed under the sub-floor of a home, gazebo, and under decking.

Example of rain bladder

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.

Example of Cistern

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 an individual residential property credit for on-site stormwater storage CERTAIN STANDARDS AND GUIDELINES MUST BE MET.

installation standards:

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

1. 50% 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,

   - or -

   storage structures must be sized to hold the runoff from at least 50% of the property's roof area during a 1-inch rainfall event.

   $V = ½ \times A \times 0.6225$ gallons/feet^2

   Where:

   V = volume of storage structure in gallons

   A = total surface area of roof in square feet

   0.6225 = conversion factor (gallons per cubic foot per inch of rain)

   Example

   A 500-gallon cistern would provide runoff storage from a 1,600-square-foot rooftop for a one-inch rainfall.

   A = 1,600 square feet

   ½ x 1,600 x 0.6225 = 498 gallons

2. On-site stormwater storage must be completed in such a way that does not provide mosquito breeding grounds, such as making sure rain barrels are covered 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 storage structure 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 4 days after each rainfall event.
5. All on-site stormwater storage structures must meet the requirements of member community building and zoning codes for downspout disconnection, landscaping, property setbacks, and other applicable local 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.

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

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

residential pervious pavement

PERVIOUS PAVEMENTS are designed to allow percolation or infiltration of stormwater 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.

It is recommended that a qualified installer with knowledge in 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 and is not meant to replace the services of experienced, professional installers.

installation standards:

To obtain an individual residential property credit for pervious pavements the following criteria must be met:

a. Installed for the purpose of runoff infiltration.

b. Area of pervious pavement is at least 1,000 sq. ft.

c. Used on slopes no greater than 4%.

d. The stone reservoir underneath the pavement type must be at least 10 inches deep at all points.

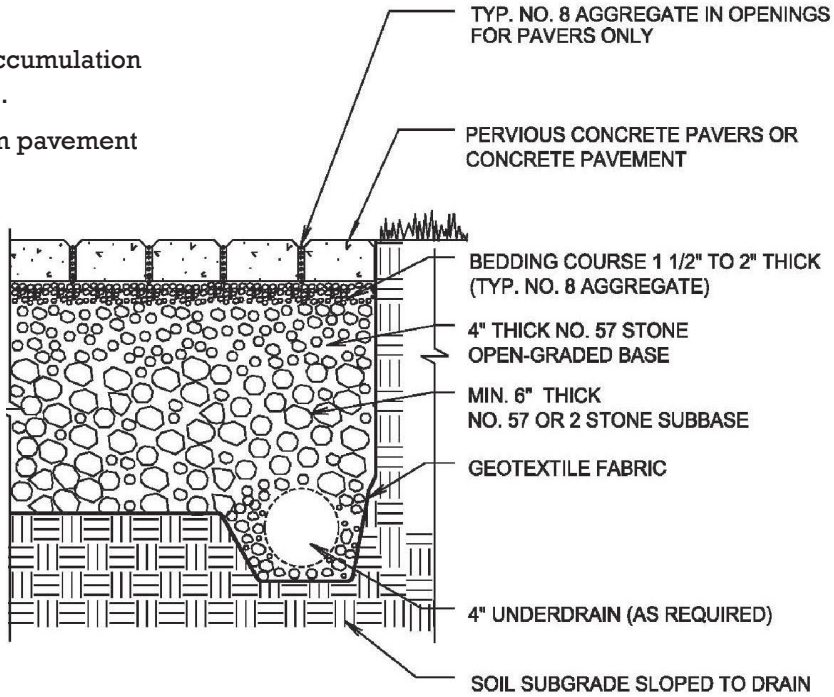
e. The installation meets the local building and zoning standards for driveway installations.

http://naturalpathlandscaping.com/permeable.html

Example of pervious pavers used for residential driveway

maintenance guidelines:

1. Ensure pervious pavement system is draining, and there are not visible signs of standing water on surface.
2. Remove accumulated salt on surface during winter months.
3. Vacuum as necessary to remove sediment accumulation and organic debris on the pavement surface.
4. Remove accumulated leaves and debris from pavement surface in the fall.



Minimum Residential Pervious Driveway Typical Section

residential vegetated filter strips

VEGETATED FILTER STRIPS are uniform strips of dense turf, meadow grasses, trees or other vegetation with a minimum slope to treat the water flowing from impervious surfaces. In certain circumstances a large lawn that receives runoff from impervious areas of a property may meet the criteria for a grass filter strip.

installation standards:

To obtain an individual residential property credit for vegetated filter strips the following criteria must be met:

a. 50% of the property's roof area must drain to the vegetated filter strip.

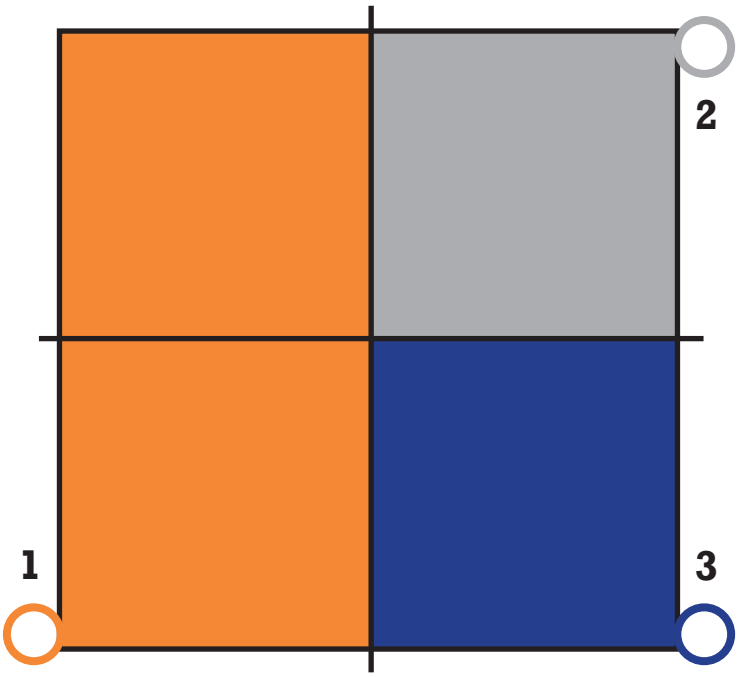
b. Runoff from downspouts must be dispersed using splash block prior to reaching filter strip.

c. The slope of a vegetated filter strip must be greater than 1% and less than 5%.

d. Filter strips must be fully vegetated, and vegetation must be kept healthy.

e. Vegetated filter strips must have a minimum length of 50 feet, but should be designed to provide a length based on their slope within the ranges noted on the next page.

Example roof showing drainage area to downspouts to vegetated filter strips



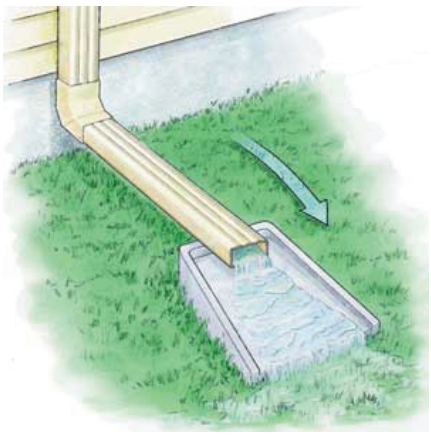
Downspout 1—Drains the orange area (1/2 of roof)

Downspout 2—Drains the grey area (1/4 of roof)

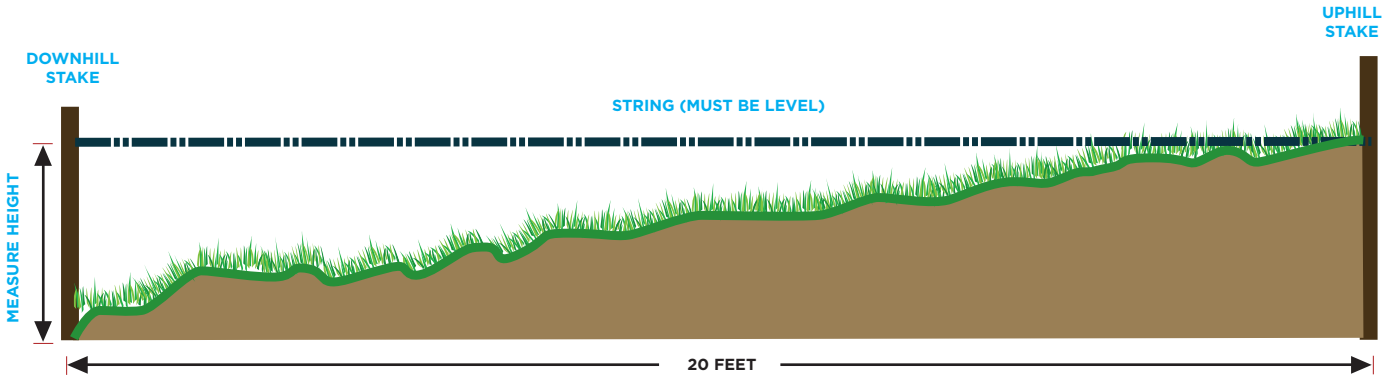
Downspout 3—Drains the blue area (1/4 of roof)

To be eligible for the credit either Downspout 1 or both Downspouts 2 and 3 need to outlet to vegetated filter strips.

Examples of downspouts for vegetated filter strips



how to measure the slope of a residential vegetated filter strip:



Height of string at downhill stake	Approximate slope of filter strip	Minimum length of filter strip
2.5 inches	1%	50 feet
5 inches	2%	120 feet
7 inches	3%	135 feet
10 inches	4%	170 feet
12 inches	5%	210 feet

maintenance guidelines:

1. Maintain healthy vegetation along the filter strip. If planted with grass, the height should be at least 3 to 4 inches.
2. If erosion occurs causing rills and gullies, repair and stabilize.
3. Check splash blocks twice a year to make sure they are not broken or deteriorating. Replace as needed.

resources

Chagrin River Watershed Partners

Works with member communities in developing strategies to address flooding, erosion, and water quality problems.

crwp.org

Cuyahoga Soil and Water Conservation District

Responsible for protecting the natural resources within the county, providing local leadership, education, and technical assistance.

cuyahogaswcd.org

Doan Brook Watershed Partnership

Through collaboration and sharing of resources, develops and implements a watershed management plan for the preservation and improvement of Doan Brook.

doanbrookpartnership.org

GreenCityBlueLake

A network of people and organizations creating a sustainable Northeast Ohio.

gcbl.org

Lake County Soil and Water Conservation District

Provide leadership and technical expertise to guide the protection and conservation of the unique soil and water resources of Lake County

lakecountyohio.gov

Lorain Soil and Water Conservation District

Provides leadership in a partnership effort to help people conserve, maintain, and improve the natural resources and environment in Lorain County.

lorainswcd.com

Summit Soil and Water Conservation District

Provides local leadership and technical assistance for programs to conserve soil, improve water quality, and enhance the natural resources of Summit County.

summitswcd.org

West Creek Preservation Committee

Seeks to conserve open space and create outdoor recreation opportunities in the West Creek watershed in Parma, Seven Hills, Brooklyn Heights, and Independence

westcreek.org/wcpc.html

For more information, contact:

Betsy Yingling
Manager of Watershed Technical Support
yinglingb@neorsd.org
216.881.6600

neorsd.org/stormwater

Northeast Ohio
Regional Sewer District