

Guidelines For Downspout Disconnection



**Regional Water Resource Agency (RWRA),
Owensboro, KY**

What is downspout disconnection all about?

Owensboro receives an average of 45 inches of rain a year. Some of that rain runs off your roof, into downspouts, and in many older homes it then runs into clay or cast iron standpipes around your homes foundation. These pipes are connected to your homes sewer pipe. The rainwater that flows into those pipes quickly becomes mixed with sewage and adds to the load of stormwater that flows into our sewer system. This added flow contributes to our sewers overflowing into the Ohio River.

You can disconnect your downspouts to redirect rainwater to your yard or garden. Containing rainwater on lawns and other landscape areas on your property reduces the demand on the sewer system and protects the quality of our river, streams and groundwater.

How can I disconnect my downspouts?

You can disconnect your downspouts from the standpipes and direct the flow of rainwater into landscaped areas or onto your lawn. Disconnection can be a low maintenance option to help move rainwater away from your building foundation and allow it to soak into the ground.

Disconnecting includes cutting the downspout; attaching elbows, extensions, and splash blocks to direct the water to flow away from the house. This process includes plugging the standpipe; and securing the new elbow and rain leader as needed.

Other literature and videos are available on the RWRA website (rwra.org) that show details of how to disconnect downspouts and how other measures can be implemented to better manage stormwater around your home.

Why should I disconnect my downspouts?

When you contain the rain on your property, you are helping to reduce flooding along with pollution that

impacts the waterways of Owensboro, including the Ohio River, and are generally being a better steward of our local environment.

One of the most serious water pollution problems affecting the Ohio River and streams across the country is the overflows of combined sewer systems that occur during rain events. These events are called Combined Sewer Overflows or CSO's. The sewers serving many of our neighborhoods are combined sewers. Much of the local sewer system was built over 55 years ago. Prior to that time all of the community's wastewater drained directly to the Ohio River. The stormwater catch basins along our streets also drained stormwater into the same pipe network. Additionally, downspouts from homes have also been connected to the sewer network.

In 1956, the Owensboro Sewer Commission built the West Treatment Plant, and began the process of treating the community's wastewater. However, stormwater flowing into this system quickly exceeded the capacity of the interceptor sewers and pump stations that send the flow to the treatment plant. In 1984 the community made another major

investment for water quality, by building the East Treatment Plant, and diverted much of the community's wastewater directly to that plant.

The Federal Clean Water Act (CWA) governs water quality across the United States. Though it was enacted in 1972, it did not specifically address wet weather issues like CSO's at that time. In 1994 the CWA was amended to regulate CSO's (commonly referred to as the CSO Policy). In 1999 the CWA was further amended to address urban stormwater runoff. Both of these regulations affect how our community moves forward to improve our waterways and stay in compliance with federal water quality regulations.

The CSO Policy requires sewer service providers with Combined Systems and CSO's to reduce and eliminate the overflows. RWRA is working with the Commonwealth of Kentucky Energy and Environment Cabinet, Dept. of Environmental Protection and the United States EPA to meet these new requirements under the Clean Water Act.

The Downspout Disconnection program is an important part of this water quality improvement effort. Participation and involvement by residents of Daviess County is essential to our community achieving the mandates of the Clean Water Act.

Where do I start?

Begin by preparing a good plan to ensure that the stormwater is redirected without damaging your foundation or negatively affecting your neighbor's property. This document describes a simple, four — step process to help you disconnect your downspouts.

1. Observe your site

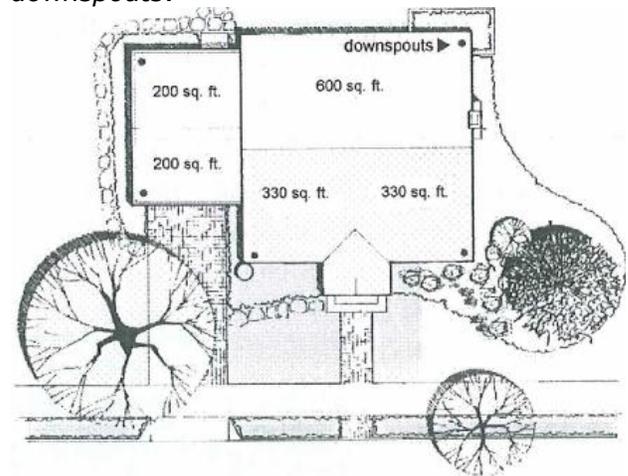
Find out where the runoff from

each of your downspouts goes. Include downspouts from your house, garage and other covered surfaces. Are your downspouts draining to your lawn or are they connected to the sewer system (or possibly, drywells)? Downspouts that are connected to standpipes most likely drain to the sewer system. If your downspouts drain to drywells on your property and are in good working order you may not need to disconnect them.

Draw what you see

Sketch a site plan of your home and your lot. Mark the locations of downspouts and draw the roofline. Estimate the square footage of your roof area. Map out areas in your yard downslope of the structures where you might redirect the disconnected downspouts.

Example site plan showing existing downspouts:



Slope: Add or remove soil to make sure that the slope of the ground allows water to flow away from structures. However, steep slopes may need extra planning to prevent potential erosion (i.e. over 10%).

Ground Area: Determine the area of the roof section that drains to each downspout and the ground surface area that the downspouts will be

discharged onto. Optimum ground surface area should be greater than 10% of the roof area.

Extensions: Disconnected downspouts should be extended at least 6 feet from a basement foundation wall and at least 2 feet from an at grade foundation or crawlspace. Downspout extensions and surrounding landscape surface should drain water away from any structures.

Property Lines: The end of your downspout extension should be at least 5 feet from your neighbors' property line and 3 feet from the public sidewalk. You may need more room if your yard slopes toward the neighbor or the sidewalk.

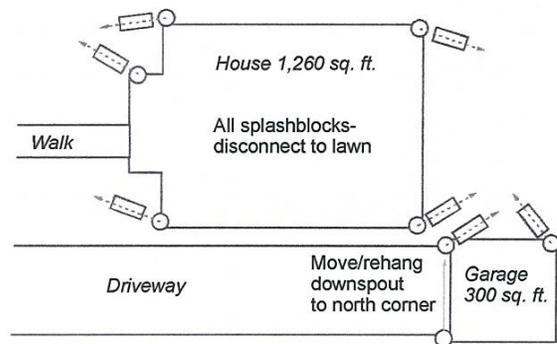
Other hazards: Make note of areas of special concern (i.e. surfaces that may freeze and thaw, retaining walls, exterior basement stairwells, etc.).

2. Design your disconnection

Mark downspouts to be disconnected on your existing site plan. Mark where you might pitch gutters, move downspouts, remove impervious areas, or add extensions or elbows to get around plants or other obstructions.

The ground area should be at least 10% of the roof area that drains to the disconnected downspout to effectively absorb stormwater.

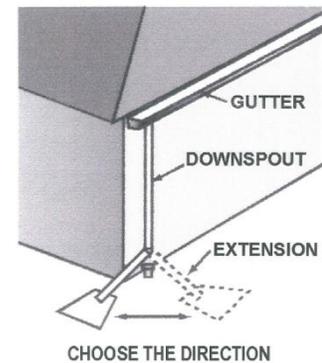
For example, to drain 500 square feet of rooftop, there should be at least 50 square feet of lawn or other landscape. Less area can be considered if the runoff will not adversely affect any building(s) or other's properties.



You may have more than one option for directing each downspout. Consider combining elbows and

extensions to send water to the side or front, or to get around obstacles and drain water away from building(s) or other's

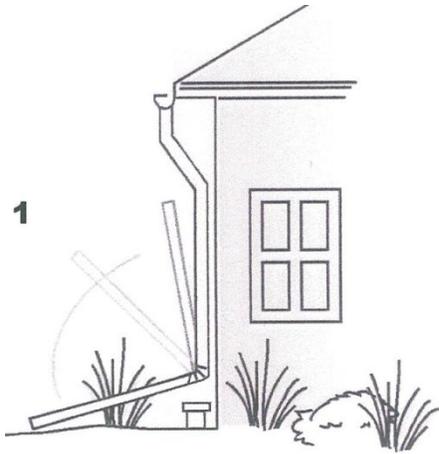
properties. Downspouts can also be relocated along the gutter to drain to a safe location.



Other suggestions

1) Consider installing a hinged downspout elbow and enclosed extension that you can flip up against the house during dry weather or lawn mowing. The extension must be enclosed, not an open trough. (see diagram 1)

2) Should you not have adequate green space, think about creating more by removing paved surfaces, such as concrete pathways, patios or unused driveway area. Pavement or concrete may be replaced with pavers or gravel where appropriate to allow for infiltration. (see diagram 3)

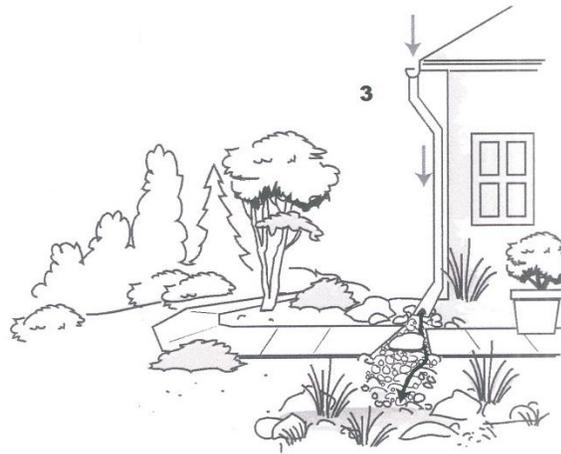


3) Extend downspouts underneath a deck or raised patio to get runoff to a landscaped area. (see diagram 4)

4) Use plastic or concrete splashblocks, rocks, flagstone, or boulders at the end of downspouts to control erosion, help direct runoff, and add visual interest. (see diagram 5)

5) Incorporate other stormwater management systems into your downspout disconnections, such as a rain garden, dry well, rain barrel, etc. See page 6 for more information.

6) If you are uncertain how to best approach your specific situation, you may want to seek advice from qualified contractors, or other professional.



3. Disconnect

Tools

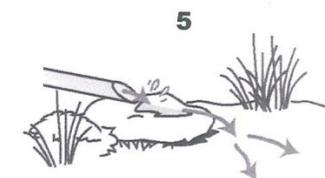
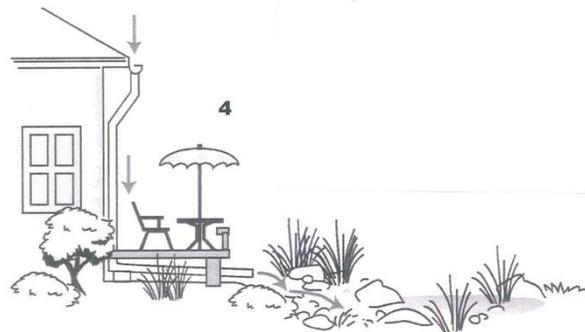
The tools needed may include a hacksaw, a drill, a pair of needle-nose pliers or crimpers, a tape measure, and a screwdriver or nut driver.

Materials

Make a list of the parts and materials needed. Downspout elbows and extensions come in a few standard shapes, sizes, colors, and materials to fit your gutters. Ask if the materials you choose can be painted to match your paint color or blend into your landscaping. Sewer standpipes must be properly sealed.

Some downspouts are attached only to the gutter and the sewer standpipe. If so, you may need to secure your downspout to your house with a bracket or strap to keep it in place when you disconnect.

Use durable, gutter-grade materials such as aluminum, steel, copper, vinyl,



and plastic. Black ABS SCH 40 plastic is a durable option found in most hardware stores and home centers.

All disconnections should meet the considerations discussed in this document and the water should flow away from all structures.

A) Measure the existing downspout from the top of the standpipe and mark it at about 9 inches above the standpipe. You may need to cut the downspout higher depending on the length of your extension.

B) Cut the existing downspout with a hacksaw at the mark. Remove the cut piece.

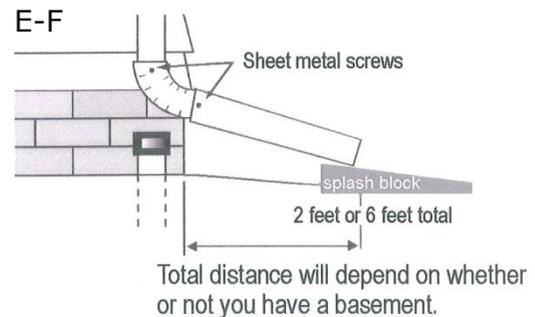
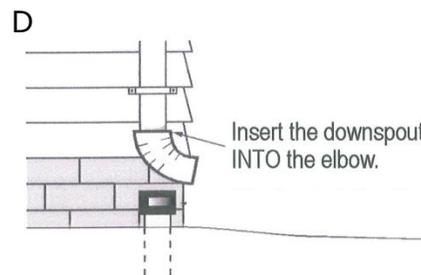
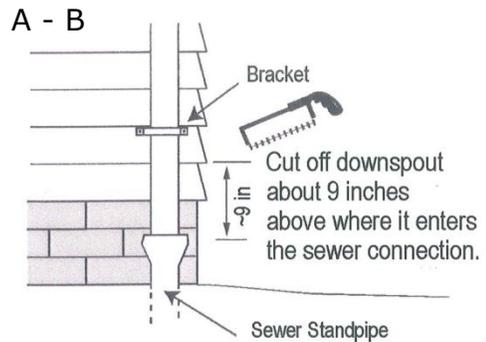
C) Plug or cap the standpipe using an approved method.

D) Attach the elbow. Be sure to attach the elbow OVER the downspout. Do NOT insert the elbow up inside the downspout or it will leak. If the elbow does not fit over the downspout, use crimpers or needle-nose pliers to crimp the end of the cut downspout so it slides INSIDE the elbow.

E) Measure and cut the downspout extension to the desired length. Attach the extension to the elbow by slipping the extension OVER the end of the elbow. Do NOT install the elbow over the extension or it will leak. The length of the extension will depend on site conditions and where you want the downspout to drain.

- Downspouts should drain at least 6 feet from basement walls and at least 2 feet from crawl spaces and concrete slabs.
- The end of the downspout should be directed parallel to or directed away from the nearest property line (no closer

than 5 feet), and possibly more if your yard slopes toward your neighbor's property.



F) Secure the pieces with sheet metal screws at each joint where the downspout, elbow, and extension connect. It helps to pre-drill holes for the screws. Pop rivets may be used in the place of screws.

G) Using a splash block at the end of the extension may help prevent soil erosion.

4. Maintenance

Proper maintenance of your gutters, downspouts, and landscaping can prevent problems.

Gutters:

- Clean at least twice a year, and more often if you have overhanging trees.
- Make sure gutters are pitched to direct water to downspouts.
- Caulk leaks and holes.
- Make sure roof flashing directs water into the gutters.
- Look for low spots or sagging areas along the gutter line and repair with spikes or place new hangers as needed.

Downspouts:

- Check and clear elbows or bends in downspouts to prevent clogging.
- Each elbow or section of the downspout should funnel into the one below it. All parts should be securely fastened together.

Landscaping:

- The ground should slope away from structures.
- Don't build up soil, bark mulch, or woodpiles against the siding.

Additional Information

There is a vast amount of information available on the internet. Here are a just a few regarding downspout disconnection, urban runoff, and rain gardens:

www.epa.gov/owow/nps

www.cwp.org

<http://www.bluegrassraingardenalliance.org>

<http://www.bgpride.org/WaterPollutionPrevention.htm>

<http://www.msdlouky.org/aboutmsd/pdfs/MSDRainGardenGuide3rdEd.pdf>

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Scranton Sewer Authority
312 Adams Avenue
Scranton PA 18503
570-348-5330
www.scrantonsewer.org

Lackawanna River Corridor Association
Bernard McGurl
2006 North Main Avenue
Scranton PA 18508
570-347-6311
www.lrca.org