

Disconnecting Your Downspouts to Improve Local Water Quality



Virginia gets an average of 45.22 inches of rain every year. For an average size home of 1,260 square feet, that amounts to approximately 35,500 gallons of rainwater runoff each year. Rain that runs off your roof may flow directly into an underground sewer pipe or down your driveway to the street where it picks up pollutants and flows to a storm drain, ending up in the nearest stream. Why not put it to better use? You can disconnect your downspouts to redirect water to your yard or garden. Preventing rainwater from flowing over hard surfaces on your property also reduces demand on the sewer system and protects the quality of rivers, streams, and groundwater.

What is involved in disconnecting my downspouts?

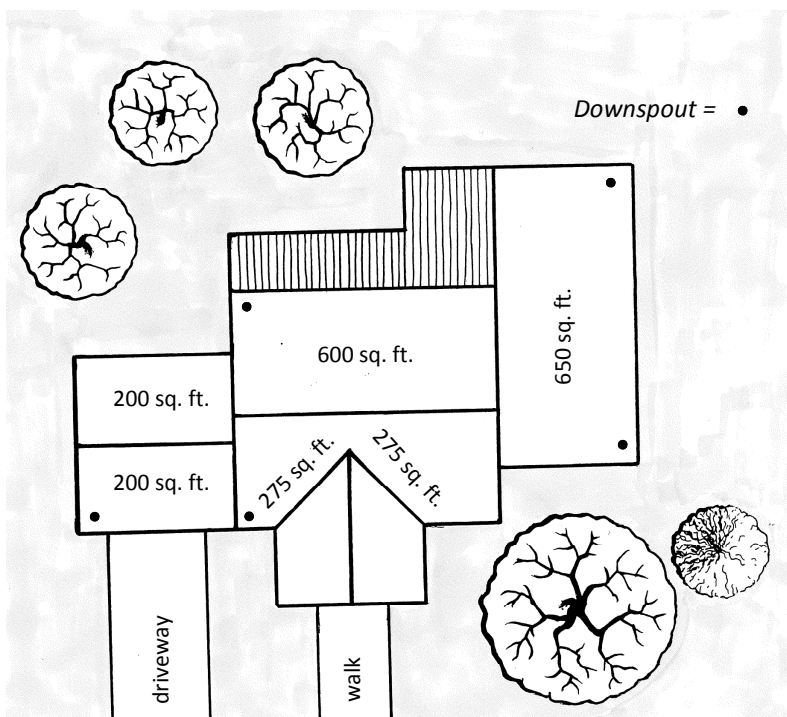
You can disconnect your downspouts from existing standpipes and let it flow over landscaped areas or lawns. Disconnection can be a low-maintenance option to help move water away from building foundations and allow it to soak into the ground.

Disconnecting includes cutting the downspout; attaching elbows, extensions, and splash blocks to direct the water to flow away from the house; plugging the standpipe; and securing the materials to existing structures.

Where do I start?

Begin by preparing a good plan to ensure that the storm water soaks into the ground without damaging your structures or neighboring structures. This brochure describes a simple, four-step process to help you disconnect your downspouts.

Example site plan: locate existing downspouts on your house.



Observe your Site

Find out where runoff from all of the downspouts on your house goes, include garages and other covered surfaces. Are your downspouts draining to your lawn or are they connected to the sewer system or to drywells? Downspouts that drain into standpipes (pipes) may drain into a public sewer system, a curb cut (a hole in the curb at the sidewalk), soakage trench, a drywell, or other storm water drainage system. If your downspouts drain into soakage trenches or drywells on your property and are in good working order, you do not need to disconnect, but may want to in order to avoid future maintenance or replacement costs.

Draw What you See

Sketch a site plan. As a starting point, you can view and print an aerial view of your property from <http://earth.google.com/>, or draw a plan of your yard similar to the one shown on the previous page. Mark the locations of downspouts and the roof line and estimate the square footage of your roof area. Map out areas in your yard downslope of structures where you might disconnect downspouts.

Safety Considerations

Slope: Add or remove soil to make sure that the slope of the ground allows water to flow **away** from structures. However, do not disconnect downspouts on slopes over 10%.

Drainage: Avoid disconnecting downspouts in an area too small for good drainage.

Extensions: Extend your downspout with a pipe to discharge water at least 6 feet from a structure's basement and 2 feet from a structure's crawl space or slab foundation. Downspout extensions and surrounding landscape surface must drain water away from any structures.

Property Lines: Keep the end of your downspout extension 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 towards your neighbor or the sidewalk.

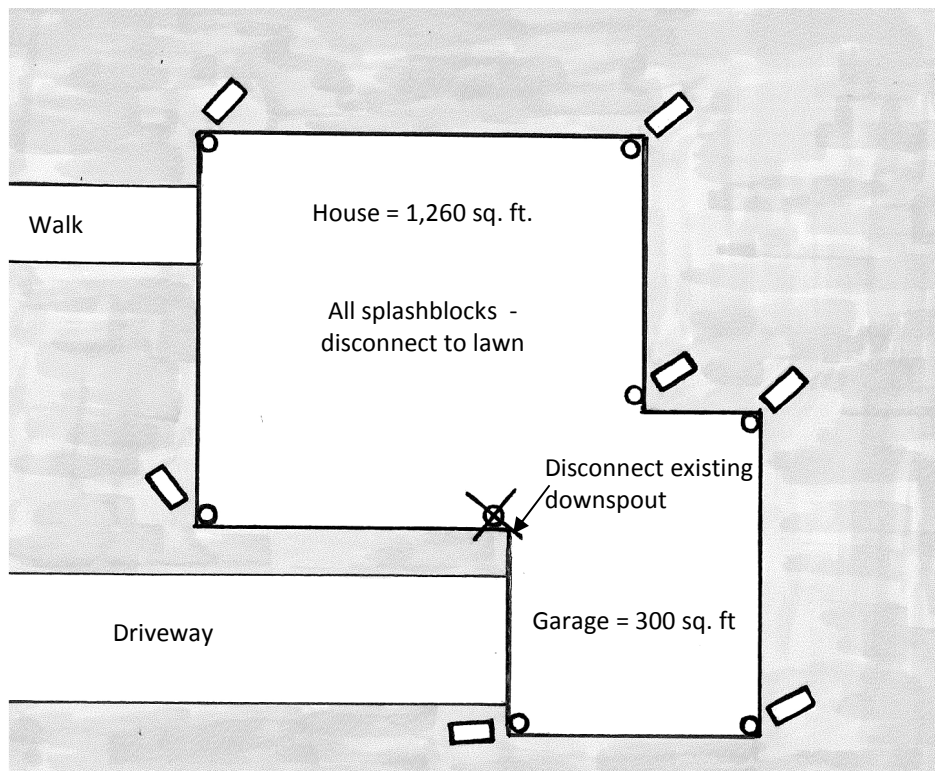
Access: Avoid disconnecting downspouts or adding downspout extensions across a walkway, patio, driveway, or in front of a gate because of possible tripping hazards.

Other Hazards: Do not disconnect directly over a septic system, drain field, or an underground oil tank unless they have been decommissioned. Do not disconnect within ten feet of a retaining wall.

Design your Disconnection

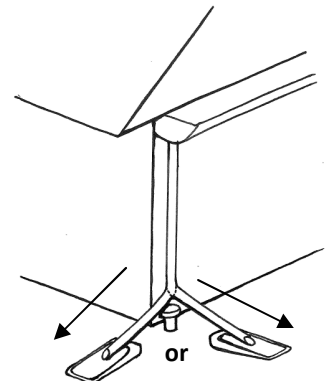
Mark downspouts to be disconnected on your existing site plan. Mark where you might pitch gutters, move downspouts, remove walkways or other impervious areas, or add extensions or elbows to get around plants or other obstructions. Make sure you have enough landscaped area for rain to soak safely into the ground. The ground area must be at least 10% of the roof area that drains to the disconnected downspout. For example, to drain 300 square feet of rooftop, there should be at least 30 square feet of landscape.

Roof area	Sizing factor	Landscaped area size
300 sq. ft. ×	10% =	30 sq. ft. (or 5' x 6')



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 the house. Downspouts can also be relocated along the gutter to a safe drainage location.

With a gutter extension pipe, you can choose the direction of your rain water runoff from the downspout.



Tools

You will need a hacksaw, a drill, a pair of needle-nose pliers or crimpers, a tape measure, and a screwdriver or nut driver.



Hack saw



Drill



Needle-nose pliers



Screwdriver



Measuring Tape

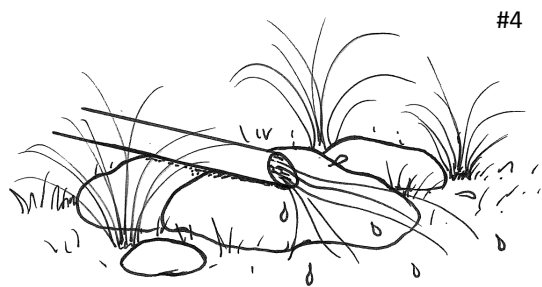
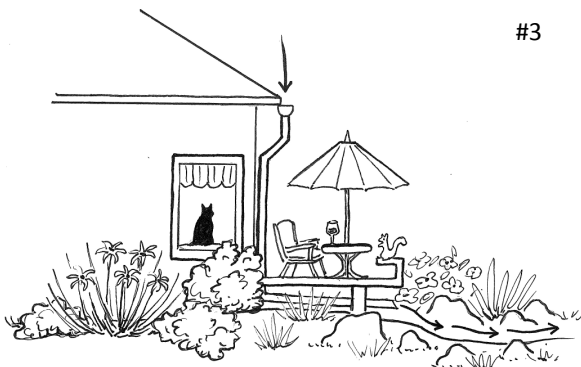
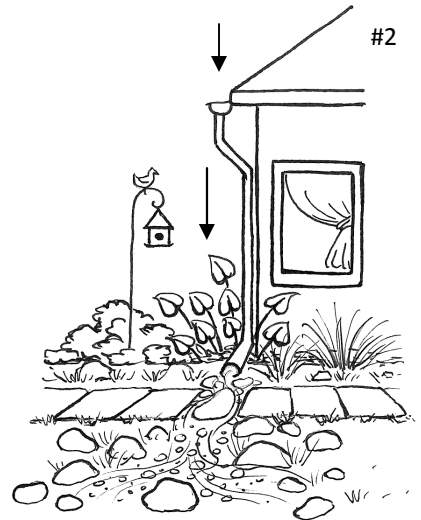
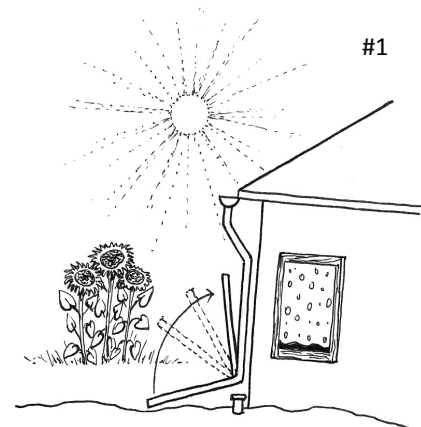
Materials

Make a list of the parts and materials needed. Downspout elbows and extensions come in an assortment of standard shapes, sizes, colors, and materials to fit your gutters. Ask at your local home improvement store if the materials you choose can be painted to match your paint color or blend into your landscaping. Sewer standpipes must be sealed with a rubber cap secured by a hose clamp or with a wing-nut test plug. Most standpipes are between three and five inches wide. Measure the inside diameter of yours before shopping. 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.

Product Specifications: 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. Do **NOT** use corrugated black plastic (ADS), roll-out-hose, PVC pipe, dryer hose, swivel or open-trough materials because of their limited durability.

Other Suggestions

- 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. (Diagram #1)
- Think about creating a space to disconnect by removing paved surfaces, such as concrete pathways, patios or unused driveway area.
- Replace pavement or concrete with pavers or gravel where appropriate to allow for infiltration. (Diagram #2)
- Extend downspouts underneath a deck or raised patio to get runoff to a landscaped area. (Diagram #3)
- Use plastic or concrete splash blocks, rocks, flagstone, or boulders at the end of downspouts to control erosion, help direct runoff, and add visual interest. (Diagram #4)
- Incorporate other storm water management systems into your downspout disconnections, such as a rain garden, soakage trench, or rainwater harvesting system.



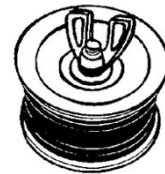
Time to Disconnect the Downspout

All disconnections should meet the specifications found on page 3 and the water should always flow away from all structures.

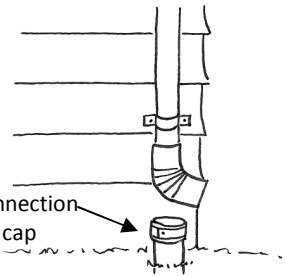
1. Measure the existing downspout from the top of the standpipe and mark it at about 9 inches above the standpipe. You may need to cut the downspout higher depending on the length of your extension.

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

3. Plug or cap the standpipe using an in-pipe test plug or an over-the-pipe cap secured by a hose clamp. Do NOT use concrete to seal your standpipe.



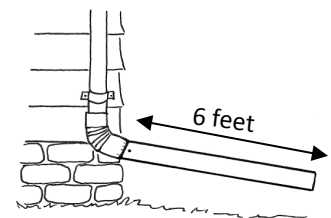
4. Attach the elbow. Be sure to attach the elbow OVER the downspout. Do NOT insert the elbow up inside the downspout or it will leak. If the elbow does not fit over the downspout, use crimpers or needle-nose pliers to crimp the end of the cut downspout so it slides INSIDE the elbow.



5a. 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.

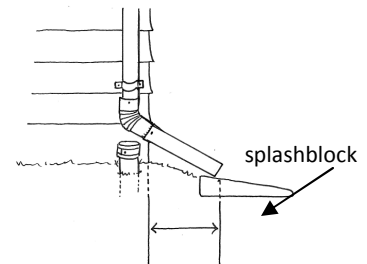
5b. Make sure your downspouts drain at least 6 feet from basement walls and at least 2 feet from crawl spaces and concrete slabs.

5c. Make sure the end of the downspout is at least 5 feet from your property line, more if your yard slopes toward your neighbor's house.



6. 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.

7. Place a splash block at the end of the extension to prevent soil erosion.



2 feet or 6 feet total (depending on if you have a basement)

Maintenance

Proper maintenance of your gutters, downspouts, and landscaping can reduce problems down the road...

Gutters:

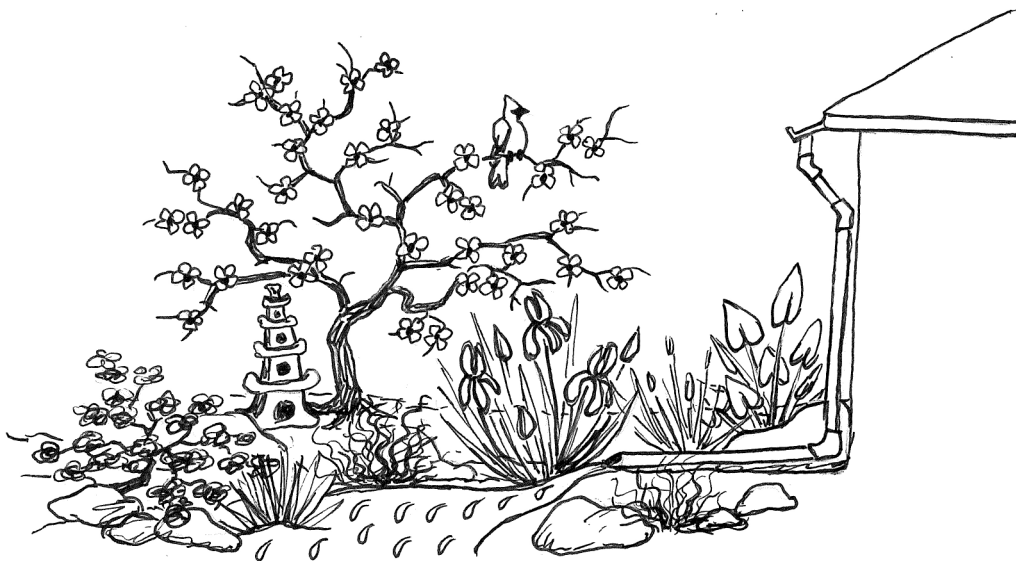
- Clean at least twice a year, more often if you have overhanging trees.
- Make sure gutters are pitched to direct water to downspouts.
- Fill leaks and holes with caulk.
- Make sure roof flashing directs water into the gutters.
- Look for low spots or sagging areas along the gutter line and repair with 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 with sheet metal screws.

Landscaping:

- The ground should slope away from structures.
- Don't build up soil, bark dust, or woodpiles against the siding.
- Avoid draining water onto impermeable plastic weed block or cloth.



Protecting America's Founding River

The mission of the James River Association is to be guardian of the James River.

We provide a voice for the river and take action to promote conservation and responsible stewardship of its natural resources.



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