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Rainwater Runoff with drops: 10 ways to conserve and protect rainwater on your property

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Second in a series

Rain benefits us in many different ways. The recent drought reminds us that we rely on rainwater to keep our vegetation green and to help recharge our groundwater, which among other things helps keep our wells from running dry. Heavy rainfall, however, can create stormwater, which can be a destructive force if not properly managed. Unchecked stormwater runoff can tear up our roads and driveways, flood our basements, scour out streambeds, and wash pollutants into streams and drinking water supplies.

Changes in land use are the main reason for damage from stormwater, where rain water is prevented from penetrating into the soil. This can be caused by changing the slope of land during construction, creating hard, impervious surfaces such as roads or driveways, or creating bare soil when stripping vegetation away from the land. As a property owner, therefore, it is worth taking the time to consider such changes carefully.

The ten suggestions listed are ways you, the landowner, can manage your property so that stormwater runoff works for you, while at the same time saving you money and time in the care of your land.

1. Watch the water during a storm

One of the most valuable things you can do up front is also the easiest: make careful observations and notes of what happens on your road and property during and after a rainstorm. Pay close attention to where the ground gets soggy or temporarily ponded; where the water from your roof goes; where the muddy runoff forms; and what happens to the creeks near your house.

2. Use landscaping to your advantage

The next important step is to limit runoff. Having rainwater absorbed into the ground provides many benefits. It helps fill your well; it can prevent potentially damaging torrents from racing down your road or driveway; it can keep wetness out of your basement and away from your foundation. It will also hold your lawn and field chemicals where you want them - on the vegetation, and not somewhere down the Thornton River, off to join all kinds of other chemicals in the Chesapeake Bay. Here are several ways to improve your control of runoff from your yard or property:

- Avoid having areas of bare soil. Plant grass or other ground covers; put straw or chip mulch over newly-seeded areas;

- Mow your grass higher and less frequently, and utilize shrubs, trees and flowers, particularly on hillsides (but not on top of septic drainfields, which must be kept clear of water-loving shrubs or trees). This will save you time and effort, and will help the water soak into the ground.

- Arrange for downspouts and for roof runoff to drain into vegetated areas rather than flowing down roads or driveways or into storm drains.

3. Limit impervious surfaces

Limit where possible the use of hard, impervious surfaces such as pavement, concrete walkways, solid patios or compacted gravel, which are major contributors to runoff. When you have a choice, consider alternative materials such as loose gravel, wood chips or open, porous patterns.

4. Maintain vegetation beside streams

Tall grasses, shrubs and trees in the buffer area along a stream may provide many benefits to water quality, fish and wildlife, the stability of stream banks, and groundwater. It can also greatly reduce the severity of floods. Allow as wide a vegetated buffer as you can. An easy way to do this is to stop mowing near a stream or pond. A buffer as wide as 100 feet on each side of the stream is best if you can manage it as studies show this width is necessary to contain large volumes of runoff, and the pollutants they may carry.

5. Protect areas during new construction

Whenever carrying out any new construction, protect bare soil from erosion by using straw or other ground cover, and use silt fences as appropriate. Ensure that you or your contractor maintain best-management practices and adhere to State and County codes.

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6. Consider rain gardens

In some places, it makes sense to build a "rain garden" to capture stormwater runoff and allow it to percolate into the soil, filtering pollutants from the water. To see this in action, come visit the rain garden constructed in Sperryville by RappFLOW to capture stormwater from the large parking area at the Schoolhouse beside the Thornton River.

7. Harvest rainwater for re-use

Thousands of gallons of rain fall on a typical house or barn roof here each year. You can design your landscaping to take advantage of this runoff, or capture the water with rain barrels or storage cisterns to use in gardening or for other purposes. Certain structures may also be appropriate for "green roofs" which are planted with vegetation for both temperature control and to capture runoff.

8. Reduce pollutant runoff

Homeowners can help lessen polluted runoff into waterways by:

Storing chemicals in waterproof containers away from rain;

·Keeping pet and animal wastes away from paved surfaces, bare soil, or mowed grass.

·Maintaining cars and trucks in good repair to prevent leakage of oil, antifreeze, brake fluids, etc. onto roads and driveways.

·Using only as much fertilizer or chemicals on your lawns, fields or gardens as you absolutely must. Pesticides, the nitrogen and phosphorous in fertilizers, and other chemicals are major sources of pollution in streams and rivers, and the Chesapeake Bay.

9. Build and maintain private roads and driveways to avoid erosion, pollution, and costs.

We have more than 400 miles of private roads and driveways in Rappahannock County. These private roads are a major contributor to stormwater runoff, land and stream bed erosion, and sedimentation and other types of pollution in streams. By properly designing and maintaining your private road or driveway to handle rain runoff, you will be repaid many times over in the avoidance of future costs and damage.

Ideally, road runoff should be discharged uniformly off the road surface, resulting in sheet flow into a grassed or wooded area where it will gradually percolate into the ground without creating channels or causing erosion. If that is not what you are seeing on your road or driveway during a heavy rain, make notes and correct the problems as soon as possible. Keep the road crowned and graded smoothly. Keep road ditches stable and vegetated. Use the right gravel mix for your situation. Do not allow the runoff to go directly into a stream or pond. Instead, make it spread into a vegetated area which can absorb it and cleanse it of sediments and pollutants.

Our local Culpeper Soil and Water Conservation District offices offer free, professional advice on the best ways to construct and maintain roads and driveways to handle runoff and protect against damage both to your road, and to downstream areas.

10. Getting help

Various free resources are available to the home or property owner interested in better managing stormwater runoff on his or her land. For more information, contact:

·The Culpeper Soil and Water Conservation District, www.culpeper.vaswdc.org, 540-825-8591.

·The Virginia Department of Conservation and Recreation, <http://www.dcr.virginia.gov/>.

·Virginia Cooperative Extension, <http://www.ext.vt.edu/>.

·Rappahannock County, <http://rappahannock.us/rappahannockoffices.html>.

·RappFLOW, <http://www.rappflow.org/>.

·Nonpoint Source Pollution & You, www.dcr.virginia.gov/sw/nps/htm.



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