

## CHAPTER 18. REGULATION OF STORMWATER.

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## CHAPTER 18. REGULATION OF STORMWATER

### **§ 18-1. Local program.**

A. The board of supervisors has determined that the lands and waters of the county are great natural resources; that as a result of intensive land development and other land use conversions, degradation of these resources frequently occurs in the form of water pollution, stream channel erosion, depletion of groundwater resources, and more frequent localized flooding; and that it is in the public interest to establish a stormwater management program in Augusta County.

B. The County Engineer, or his designee, shall be the approving authority for the requirements of this Chapter.

State law reference—Virginia Code §§ 10.1-603.3 and 15.2-2241.

Cross references – Erosion and Sediment Control Ordinance, §§ 9-1, *et seq.*; Subdivision Ordinance, §§ 21-16 and §§21-42(A)(13) and 21-55(A); Zoning Ordinance, Article XLVII, §§ 25-471, *et seq.*

### **§ 18-2. Stormwater management facilities required.**

A. Every development requiring approval of construction plans, erosion and sediment control plans, or site plans shall be served by adequate stormwater management facilities.

B. Such facilities shall include channels, pipes, ponds, dams or other appurtenances computed by accepted engineering methods necessary to protect properties and receiving waters from erosion and damage due to changes in runoff rate of flow and hydrologic characteristics, including but not limited to, changes in volume, velocity, frequency, duration and peak flow rate of stormwater runoff.

### **§ 18-3. Information to be submitted.**

A. An owner or developer submitting to the county construction plans, erosion and sediment control plans or site plans shall provide information concerning the computations used to design a storm drainage system.

B. Proposed residential, commercial, or industrial subdivisions shall apply the stormwater management criteria provided in this section to the land development as a whole. Individual lots in new subdivision shall not be considered separate land-disturbing activities, but rather the entire subdivision shall be considered a single land development project. Hydrologic parameters shall reflect the ultimate land disturbance and shall be used in all engineering calculations.

C. Submitted information shall document the calculation of coefficients, curve numbers, time of concentrations, intensities, watershed sizes, channel sizes and related calculations.

D. Use of “pre-developed” coefficients for crop land is not acceptable. In place of crop land, coefficients for pasture shall be used. For purposes of computing runoff, all pervious lands in the site shall be assumed prior to development to be in good condition (if the lands are pastures, lawns, or parks), with good cover (if the lands are woods), or with conservation treatment (if the lands are cultivated); regardless of conditions existing at the time of computation.

E. Determination of flooding and channel erosion impacts to receiving streams due to land development projects shall be measured at each point of discharge from the development project and such determination shall include any runoff from the balance of the watershed that also contributes to that point of discharge.

F. Stormwater runoff shall be calculated by the following methods unless an alternative method for a specific project has been approved by the County Engineer:

1. Using the U.S. Department of Agriculture's Natural Resources Conservation Service (NRCS) synthetic 24-hour rainfall distribution and models, including, but not limited to TR-55 and TR-20; hydrologic and hydraulic methods developed by the U.S. Army Corps of Engineers; or other standard hydrologic and hydraulic methods.

2. The Rational Method may be used for evaluating peak discharges or the Modified Rational Method for evaluating volumetric flows to stormwater conveyances with drainage areas of 200 acres or less.

G. Construction of stormwater management facilities or modifications to channels shall comply with all applicable laws and regulations. Evidence of approval of all necessary permits, such as US Army Corps of Engineers and VA DEQ Wetland Permits, VA DEQ VPDES Permits, etc., shall be provided prior to beginning construction.

H. Pre-development and post-development runoff rates shall be verified by calculations that are consistent with good engineering practices and performed with methods approved and illustrated in the Virginia Stormwater Management Handbook. Calculations and designs must be prepared by a licensed professional engineer, a land surveyor – B, or certified landscape architect.

#### **§ 18-4. When stormwater detention or retention facility required.**

A. Except for single family or two family dwellings covered by an Agreement in Lieu of an Erosion & Sediment Control Plan, stormwater detention or retention facilities will be required for proposed development where land disturbance is 10,000 square feet

or greater and where there is a net increase in runoff between pre-developed and post-developed conditions.

B. Except for by right agricultural development, in cases of additions or incremental development, the pre-developed condition with respect to impervious or semi-impervious areas shall be the condition that existed on January 1, 1990. Stormwater detention or retention facilities may be required for proposed development where the sum of the currently proposed land disturbance and the existing impervious and semi-impervious surface is 10,000 square feet or greater and where there is a net increase in runoff between pre-developed and post-developed conditions. Existing stormwater management facilities must be verified adequate through calculations regardless of the type of development or the size of the addition or incremental development.

C. In cases where the contributing drainage area being developed is equal to or less than 1% of the entire watershed, stormwater detention will not be required. However, any concentrated water leaving the development site will be required to discharge into an adequate on or off site receiving channel as indicated in § 18-6.

#### **§ 18-5. Construction of stormwater management facilities.**

A. All stormwater management facilities shall be designed and constructed in accordance with the requirements of this chapter, "Minimum Standard 19" of the Virginia Erosion and Sediment Control Law and Regulations, and the Virginia Stormwater Management Handbook, Latest Edition. In the event the requirements of this chapter are more stringent, this chapter shall govern.

B. The capacity of retention or detention facilities shall be designed for the developed twenty-five (25) year frequency storm with the outlet structure designed to allow a maximum discharge equivalent to the pre-developed ten (10) year frequency storm. A retention or detention facility must also be designed so that there is no increase in runoff due to development based on the two (2) year frequency storm. All emergency spillways shall be designed to accommodate the developed one-hundred (100) year frequency storm.

C. Construction of stormwater management facilities within a Federal Emergency Management Agency (FEMA) designated 100-year floodplain shall be avoided to the extent possible. When this is unavoidable, all stormwater management facility construction shall be in compliance with all applicable regulations under the National Flood Insurance Program, 44 CFR Part 59, and Chapter 25, Division H, Article XLVII, Floodplain Overlay Districts and the Augusta County Code. These stormwater management facilities shall be designed and located, to the extent practical, to provide an unrestricted release up to at least the 25-year flood elevation of the receiving state water.

D. Care shall be taken to avoid designs of stormwater management facilities which may result in excessive maintenance efforts and costs to the county. The county reserves the right to disapprove plans for stormwater management facilities which, even

though properly designed to accommodate the calculated flows in the opinion of the County Engineer, may result in excessive maintenance efforts and costs to the county.

E. Use of Low Impact Development (LID) design methodologies and best management practices is acceptable and encouraged, however stormwater infiltration practices or practices having an infiltration component, as specified in the Virginia Stormwater Management Handbook, are prohibited, even with pretreatment, in the following circumstances:

1. Where stormwater is generated from highly contaminated source areas known as “hotspots, or;
2. Where stormwater is being managed in a designated source water protection area, or;
3. Under certain geologic conditions (e.g., karst) that prohibit the proper pretreatment of stormwater.

F. Where necessary, the County Engineer may require that peak stormwater flows from a development not exceed the capacity of the existing downstream drainage facilities or the peak flow resulting from the site in its true undeveloped state.

G. The bottom slopes of channels and detention facilities shall have no less than a 1% slope. Facilities constructed in cut or in areas of poorly drained soils may be required to backfill with amended soils and/or install underdrains in order to provide for proper drainage. In such facilities, a “low flow” channel may also be required across the facility’s bottom to allow water to collect in one area and drain out rather than stand in the entire bottom. Low flow channels shall have concrete, asphalt or other appropriate lining in order to allow water to drain at minimum slope.

H. Any stormwater management facilities that are designed to have a permanent pool of water constructed in or adjacent to residential and commercial zoning areas shall be constructed with an aquatic bench or have a minimum of a six-foot fence installed around the perimeter of the facility.

I. To the extent possible, stormwater management facilities shall not be built on multiple lots, but rather should be located on a lot under single ownership. An access easement of sufficient width given site specific conditions, must be provided.

#### **§ 18-6. Channels and pipes.**

A. All concentrated stormwater runoff leaving a development site shall be discharged directly into an adequate, natural or man-made, on-site or off-site, receiving channel or pipe.

B. All concentrated runoff leaving the discharge structure of a detention facility shall discharge directly into an adequate natural or man-made receiving channel or pipe.

C. Natural channel characteristics shall be preserved to the maximum extent practicable.

D. An existing natural channel shall be deemed adequate if: (1) it is capable of conveying the runoff from a developed two (2) year frequency storm without over topping its banks or eroding after development of the site; or (2) an engineer's certificate, satisfactory to the County Engineer, that the existing natural channel is adequate and, given the limitations of existing conditions downstream, that construction, installation and utilization of a channel capable of conveying the runoff from a developed ten (10) year frequency storm would cause more damage downstream than utilization of the existing channel.

E. A previously constructed man made channel shall be deemed adequate if it is capable of conveying the runoff from a developed ten (10) year frequency storm without over topping its banks, and erosion will not occur from a developed two (2) year frequency storm.

F. Channels, pipes and storm sewer systems may be analyzed utilizing the rational method to determine peak flow rate and shall be capable of conveying the runoff from a developed ten (10) year frequency storm except that channels, pipes and storm sewer systems intended to convey runoff to a stormwater detention or retention facility shall be capable of conveying the runoff from a developed twenty-five (25) year frequency storm. All channels, pipes and storm sewer systems shall be analyzed for the one-hundred (100) year frequency storm in order to establish drainage patterns anticipated during extreme meteorologic events.

G. If an adequate receiving channel or pipe does not exist on or off the development site, one shall be constructed to the nearest existing adequate channel, in accordance with the following requirements:

1. It shall be designed to accommodate the developed ten (10) year frequency storm while not causing erosion due to the developed two (2) year frequency storm.
2. It shall be constructed on or off site to the point where the channel is adequate or to the point where the total watershed is one hundred (100) times greater than the contributing or project watershed.
3. Bottom slopes shall, where reasonably possible, be no less than 1%. Side slopes shall be no steeper than 3:1. If side slopes of 3:1 cannot be achieved, the easement shall be piped.
4. All well-defined drainage channels across lots one-half (1/2) acre or less in area shall be installed within drainage easements on lot lines. For purposes of this section a well-defined channel is a channel

with side slopes steeper than 3:1 and deeper than 2 feet or otherwise would be difficult to maintain with normal lawn equipment.

**§ 18-7. Inspection and Maintenance.**

A. When stormwater management facilities, including detention or retention facilities are utilized, the owner or developer shall provide methods, procedures and guarantees, including appropriate documentation, that the facilities will be periodically inspected and perpetually maintained so as to function as designed and not result in nuisances or health hazards.

B. In addition to owner inspections, the County will conduct periodic inspections of the storm drainage facilities and will provide the property owner or developer with the results of each inspection. The property owner or developer shall correct all identified deficiencies in a timely manner.

C. For all types of development, the owner or developer shall be responsible for maintenance of stormwater management facilities. In residential subdivisions only, the County will assume long-term maintenance of stormwater detention facilities and drainage easements from the developer in accordance with the provisions of the agreement required by Paragraph E below after:

1. If the subdivision has less than twenty-five (25) lots, eighty percent (80%) of the lots within the development have been built upon.
2. If the subdivision has twenty-five (25) or more lots, ninety percent (90%) of the lots within the development have been built upon.

D. In residential subdivisions only, for final plats recorded on or after January 1, 2010 and where no homeowners association is required by this code, the County will assume both routine and long-term maintenance of stormwater detention or retention facilities in accordance with the percentage requirements of the above Paragraph C and in accordance with the provisions of the agreement required by Paragraph E below if the facility:

1. Has a capacity of at least fifteen thousand (15,000) cubic feet, and
2. Is located on property dedicated to the County.

E. For all types of development, including residential development, the responsibility of the property owner or developer and their successors for maintenance shall be set forth in a legal stormwater agreement which shall be recorded by the property owner or developer. This agreement is separate and distinct from any agreements and bonding required in accordance with a site plan, §21-36 (Subdivision), or §25-213 (Plan of Development). The agreement shall provide that:

1. The County will periodically conduct inspections to ensure stormwater management facilities are being properly maintained.

2. If deficiencies are found, the owner or developer and its successors will correct the deficiencies in a timely manner.

3. If applicable under Paragraph C above, the developer and its successors shall contact the county when the percentage requirement is met. At that time the county will conduct a final inspection and the developer and its successors will be notified of the results of the inspection. Any deficiencies shall be corrected by developer and its successors. If there are no deficiencies the county will accept the facilities for long term maintenance by written certificate. For purposes of this chapter, long term maintenance is defined as maintenance other than routine maintenance, such as the repair of erosion and failures that do not occur on a regular basis.

4. The property owners of all stormwater management facilities and easements shall be responsible for routine maintenance. For purposes of this chapter, routine maintenance is defined as mowing so that vegetation never exceeds the height limitation imposed in §15-22 of this code for the underlying zoning district and lot size, and removing debris and trash that occurs on a regular basis.

5. If the property owners fail to perform routine maintenance, the county reserves the right to complete the work. In such event the cost or expenses thereof shall be chargeable to and paid by the lot owners of such property and may be collected by the county as taxes and levies are collected.

F. In "Mixed Use" Zoning Districts, storm drainage facilities, including detention or retention facilities and storm water drainage easements, shall be owned and managed as provided in § 25-418 of Chapter 25 of the County Code.

**§ 18-8. General drainage improvement programs and multi-jurisdictional systems.**

A. When the board of supervisors has established a general drainage improvement program for an area having related and common drainage problems and within which the land owned or controlled by the subdivider or developer is located, the subdivider or developer shall pay a pro rata share of the cost of providing reasonable drainage facilities located outside the property limits of the land owned or controlled by the subdivider or developer but necessitated or required, at least in part, by the construction or improvement of the subdivision or development.

B. Where stormwater resulting from a project flows into another political jurisdiction, final approval of the proposed development may be deferred until the county and the other jurisdiction mutually agree that the proposed system will be satisfactory.

State law reference--Virginia Code § 15.2-2243.

**§ 18-9. Waivers.**

The board of supervisors may by separate resolution authorize waivers in or exceptions to the general regulations of this chapter in cases of unusual situations or when strict adherence to the general regulations would result in substantial injustice or hardship.

**§ 18-10. Bonding requirement.**

The board of supervisors or its agent may require appropriate bonding with surety or other security in favor of the county to guarantee construction and maintenance of storm drainage facilities.

**§ 18-11. Proceedings to prevent violation of chapter.**

In case of violation of the provisions of this chapter, the board of supervisors or its agent may institute such proceedings as are necessary to prevent, restrain, correct or abate such violation.

(Ord. 2/10/10, effective 3/1/10)