# County Council Of Howard County, Maryland

2019 Legislative Session Legislative Day No. **11**

## Resolution No. 123 -2019

Introduced by: The Chairperson at the request of the County Executive

A RESOLUTION amending Volume I (Storm Drainage) of the Design Manual; providing that development within the Tiber Branch and Plumtree watersheds provide adequate management and conveyance of runoff for the 24-hour, 100-year and 3.55-hour, 6.6 inch storm event to a stormwater management facility; and generally relating to the adoption of revised standards for storm drainage systems.

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Introduced and read first time _____, 2019.

By order _____
Diane Schwartz Jones, Administrator

Read for a second time at a public hearing on _____, 2019.

By order _____
Diane Schwartz Jones, Administrator

This Resolution was read the third time and was Adopted___, Adopted with amendments___, Failed___, Withdrawn___, by the County Council on _____, 2019.

Certified By _____
Diane Schwartz Jones, Administrator

NOTE: [[text in brackets]] indicates deletions from existing law; TEXT IN SMALL CAPITALS indicates additions to existing law; ~~Strike-out~~ indicates material deleted by amendment; Underlining indicates material added by amendment.

**WHEREAS,** in accordance with Section 18.903 of the Howard County Code, the Design Manual sets forth Howard County's technical standards for the design, construction, and inspection of stormwater management systems; and

**WHEREAS,** the County has proposed changes to Volume I (Storm Drainage) of the Design Manual to require development within the Tiber Branch and Plumtree watersheds to provide adequate management and conveyance of runoff for the 24-hour, 100-year and 3.55-hour, 6.6 inch storm event to a stormwater management facility.

**NOW, THEREFORE, BE IT RESOLVED** by the County Council of Howard County, Maryland this _____ day of _____, 2019 that the following sections of Volume I (Storm Drainage) of the Design Manual are amended as shown in the pages attached as Exhibit A:

1. Section 4.1.1, Storm Drain Design Criteria
   Subsection A, Design Storm Criteria
2. Section 5.2.1, Stormwater Control Requirements

# Exhibit A

## CHAPTER 4
## HYDRAULICS

### 4.1 CLOSED CONDUIT SYSTEMS

#### 4.1.1 Storm Drain Design Criteria

A. Design Storm Criteria

1. Closed conduit drainage systems shall be designed for the 10-year storm. For drains in sumps within public rights-of-way or public easements, there shall be modifications of the "cA" and "I" computations to account for the 25-year storm event as set forth in the sample computations at the end of this chapter. For privately owned and maintained storm drain systems, the "cA" and "I" modifications shall not be required.

2. When a closed conduit system is installed to replace an open swale drainage system serving drainage areas of 30 acres or more and/or having a 10- year discharge of 100 cfs or more, the system shall be designed for the 100-year storm.

3. Inlet design shall be based on the 2-year ultimate condition storm.

4. DEVELOPMENT WITHIN THE TIBER BRANCH AND PLUMTREE WATERSHEDS, SHALL PROVIDE ADEQUATE CONVEYANCE OF RUNOFF FOR THE 24-HOUR, 100-YEAR STORM EVENT AND THE 3.55-HOUR, 6.6 INCH STORM EVENT TO A STORMWATER MANAGEMENT FACILITY.

[[4]]5. Residential lot drainage patterns shall be in accordance with the requirements of Section 4.6 of this Design Manual.

# CHAPTER 5
# STORMWATER MANAGEMENT

## 5.2 STORMWATER MANAGEMENT CRITERIA

The regulatory definition for MEP consists of two parts. The first is subjective and requires that all reasonable opportunities for using ESD planning techniques and practices are exhausted. Like the definition, the threshold for meeting the MEP standard consists of two parts. First, MEP is met if channel stability and predevelopment groundwater recharge rates are maintained and nonpoint source pollution is minimized. In both the definition and performance threshold, the second condition is the same; structural stormwater practices may be used only if determined to be absolutely necessary. While some flexibility and best professional judgment will be needed to determine when these first conditions are met, the second condition is straightforward. Local plans review and approval agencies should not approve structural BMPs if ESD options are available.

In addition to the State regulations, section 5.2 of the latest edition of the MDE Design Manual also includes standards for MEP compliance. The primary MEP standard is to use ESD to reduce post development runoff to levels found in natural, forested conditions. This requires capturing and treating from 1 to 2.6 inches of rainfall depending on site and design conditions (e.g., soils, proposed imperviousness). When this goal is met, the $Cp_v$, $WQ_v$, and $Re_v$ requirements are addressed. Designers will be responsible for determining specific rainfall targets for their projects using the methods outlined in section 5.2.

There is a secondary standard that must be considered when assessing MEP compliance. ESD must be used to treat runoff from 1 inch of rainfall to address both $WQ_v$ and $Re_v$ requirements. This is a minimum level of compliance, not a contingency standard that is used when specific rainfall targets cannot be met. Designers must capture and treat at least 1 inch of rainfall while using ESD to reduce runoff and achieve specified goals.

### 5.2.1 Stormwater Control Requirements

A. The minimum stormwater control requirements shall require that the planning techniques, nonstructural practices, and design methods specified in the MDE Design Manual be used to implement ESD to the MEP. The use of ESD planning techniques and treatment practices must be exhausted before any structural BMP is implemented. Stormwater Management for development projects shall be designed in accordance with the Howard County Code, Title 18, Subtitle 9. Information found in this design manual is supplemental to the requirements found in the code and MDE Design Manual referenced above.

The county reserves the right, on a case-by-case basis, to require that management measures be provided as necessary to maintain the post-development peak discharges for [[a]] 24-hour, 1-year, 10-year, [[25-year and/or 100-year]] 25-YEAR, 100-YEAR STORM EVENTS, AND 3.55-HOUR, 6.6 INCH storm events at a level that is equal to or less than the respective 24-hour, 1-year, 10-year, [[25-year and/or 100-year]] 25-YEAR, 100-YEAR STORM EVENTS, AND 3.55-HOUR, 6.6 INCH STORM EVENTS predevelopment peak discharge rates, through stormwater management practices that control volume, timing and rate of runoff. Except within in-fill development, storage volume and RCN reductions by the use of Alternative Surfaces and Nonstructural Practices may be considered for only the 1- year event.

The 10-year design storm event shall be employed when there is no control over infrastructure and the conveyance system is at design capacity, or it is determined that downstream flooding (based on recorded historical flooding problems) will occur as the result of the proposed development. The 100-year design storm event is to be employed to prevent flood damage from large frequency storm events, to maintain the boundaries of the 100-year floodplain and protect the physical integrity of BMP structures. Storage volume and RCN reductions by the use of non-structural credit practices shall not be considered when designing for the Overbank or Extreme Flood Protection.

The upstream drainage areas to the Cabin Branch crossing Shaffers Mill Road, a tributary to the Dorsey Branch crossing Dorsey Mill Road and the drainage area associated with Bonnie Branch, which parallels Bonnie Branch Road, shall be required to provide10-year peak management control. Additional stream systems may be included at the sole discretion of Howard County.

DEVELOPMENT WITHIN THE TIBER BRANCH AND PLUMTREE WATERSHED SHALL BE REQUIRED TO PROVIDE PEAK MANAGEMENT CONTROL FOR 24-HOUR,10-YEAR STORM EVENTS AND 24-HOUR, 100-YEAR STORM EVENTS, AS WELL AS 3.55-HOUR, 6.6-INCH STORM EVENTS. MANAGEMENT IS DEFINED AS THE REDUCTION OF THE PEAK RUNOFF FOR THE PROPOSED DESIGN CONDITION TO BE EQUAL OR LESS THAN THE PREDEVELOPED SITE CONDITIONS MODELED AS WOODS IN GOOD CONDITIONS. MANAGEMENT WILL BE ADDRESSED FOR ANY DISTURBANCE GREATER THAN 5,000 SQUARE FEET THAT CREATES IMPERVIOUS AREA.

WITHIN THE TIBER BRANCH AND PLUMTREE WATERSHEDS, THE REQUIRED ORDER OF ALTERNATIVE MANAGEMENT STRATEGIES SHALL BE LIMITED TO THE FOLLOWING:

1. PROVIDE STORMWATER MANAGEMENT FOR ALL STORM EVENTS DESCRIBED IN SECTION 5.2.1.A.

2. PROVIDE UP TO AND INCLUDING MANAGEMENT FOR THE 24-HOUR, 100-YEAR STORM ON-SITE. PROVIDE AN EQUIVALENT REDUCTION IN PEAK RUNOFF RATE FOR THE 3.55-HOUR, 6.6-INCH STORM EVENTS PEAK MANAGEMENT CONTROL IN AN OFFSITE FACILITY WITHIN THE SAME WATERSHED.
3. PROVIDE UP TO AND INCLUDING MANAGEMENT FOR THE 24-HOUR, 100-YEAR STORM EVENTS ON-SITE. PROVIDE A FEE IN LIEU INTO AN ESTABLISHED FLOOD MITIGATION CAPITAL PROJECT WITHIN THE SAME WATERSHED FOR THE COST PER ACRE-FOOT OF STORAGE TO PROVIDE EQUIVALENT PEAK MANAGEMENT CONTROL FOR THE 3.55-HOUR, 6.6-INCH STORM EVENTS.
4. PROVIDE UP TO AND INCLUDING MANAGEMENT FOR THE 24-HOUR, 100-YEAR STORM EVENTS ON-SITE. PAY A FEE INTO AN ESTABLISHED STORMWATER BANK LOCATED WITHIN THE SAME WATERSHED BASED ON THE REQUIRED PEAK RUNOFF RATE REDUCTION TO MANAGE THE 3.55-HOUR, 6.6-INCH STORM EVENTS.

ALL PROJECTS WITHIN THE TIBER BRANCH AND PLUMTREE WATERSHEDS ARE SUBJECT TO THESE REQUIREMENTS, REGARDLESS OF WHEN THEY RECEIVED SUBDIVISION OR SITE DEVELOPMENT PLAN APPROVAL, AND SHALL PROVIDE STORMWATER MANAGEMENT, AS OUTLINED IN THIS SECTION.

[[The upstream drainage areas to the Tiber Branch above the Patapsco River and the Hudson Branch above the Tiber Branch and tributary]] TRIBUTARY drainage areas to the Deep Run above any railroad crossings shall be required to provide 10-year and 100-year peak management control. Additional stream systems may be included at the sole discretion of Howard County.

B. The use of ESD planning techniques and treatment practices shall not conflict with existing State law or local ordinances, regulations, or policies. Howard County shall modify planning and zoning ordinances and public works codes to eliminate any impediments to implementing ESD to the MEP according to the MDE Design Manual.

C. Redevelopment

The goal of the current redevelopment regulations is to gain water quality treatment on existing developed lands while supporting County initiatives to improve urban communities. Redevelopment projects offer unique challenges and stormwater management ordinances need to be tailored to consider County goals, available resources, and application of stormwater practices within Howard County.

Redevelopment Planning Process:

The design and review processes for any redevelopment project need to consider the many constraints that limit effective implementation of

stormwater practices. Factors such as underground infrastructure may restrict available facility options, while existing storm drain elevations may dictate how runoff flows through and off a site. This information and other existing conditions should be evaluated during the concept phase of project planning in order to assess all options for ESD implementation and other possible stormwater solutions.

Alternative Management Strategies:

Alternative management strategies may be considered after all opportunities for using ESD have been exhausted during the planning process. Alternative strategies and policies for meeting stormwater requirements may include, on-site and off-site structural BMPs, retrofitting existing structural BMPs, stream restoration, trading policies with other pollution control programs, watershed management plans, and fees-in-lieu. On a case by case basis, MDE and Howard County Department of Planning and Zoning will determine the conditions, criteria, and program directives dedicated to implementing stormwater management when an alternative or other policy is used to meet redevelopment requirements.

WITHIN THE TIBER AND PLUMTREE WATERSHEDS, THE REQUIRED ORDER OF ALTERNATIVE MANAGEMENT STRATEGIES TO ACHIEVE QUANTITY MANAGEMENT WITHIN THE PROPOSED LIMIT OF DISTURBANCE SHALL BE LIMITED TO THE FOLLOWING:

1. PROVIDE STORMWATER MANAGEMENT FOR ALL STORM EVENTS DESCRIBED IN SECTION 5.2.1.A.
2. PROVIDE UP TO AND INCLUDING MANAGEMENT FOR THE 24-HOUR, 100-YEAR STORM EVENTS ON-SITE. PROVIDE AN EQUIVALENT REDUCTION IN PEAK RUNOFF RATE FOR THE 3.55-HOUR, 6.6-INCH STORM EVENTS PEAK MANAGEMENT CONTROL IN AN OFFSITE FACILITY WITHIN THE SAME WATERSHED.
3. PROVIDE UP TO AND INCLUDING MANAGEMENT FOR THE 24-HOUR, 100-YEAR STORM EVENTS ON-SITE. PROVIDE A FEE IN LIEU INTO AN ESTABLISHED FLOOD MITIGATION CAPITAL PROJECT WITHIN THE SAME WATERSHED FOR THE COST PER ACRE-FOOT OF STORAGE TO PROVIDE EQUIVALENT PEAK MANAGEMENT CONTROL FOR THE 3.55-HOUR, 6.6-INCH STORM EVENTS.
4. PROVIDE UP TO AND INCLUDING MANAGEMENT FOR THE 24-HOUR, 100-YEAR STORM EVENTS ON-SITE. PAY A FEE INTO AN ESTABLISHED STORMWATER BANK LOCATED WITHIN THE SAME WATERSHED BASED ON THE REQUIRED PEAK RUNOFF RATE REDUCTION TO MANAGE THE 3.55-HOUR, 6.6-INCH STORM EVENTS.