

## SUMMARY OF DESIGN STANDARDS FOR STORMWATER QUANTITY, QUALITY, AND EROSION CONTROL FACT SHEET 112012

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In 1972, the United States Environmental Protection Agency (EPA) adopted the Clean Water Act. In the early 1990s, EPA began Phase I implementation of Non-Point Source water pollution and the Lexington-Fayette Urban County Government (LFUCG) was designated as a Phase I Municipal Separate Storm Sewer System (MS4). Phase II implementation included state entities like universities so starting in 2010, the University of Kentucky received a MS4 permit and initiated a detailed Stormwater Quality Management Plan (SWQMP) to prevent pollution of our storm sewers, streams, and waterways.

The University's SWQMP has referenced the LFUCG *Stormwater Manual* as the technical standard for all new and re-development on campus. This fact sheet summarizes the design thresholds that would mandate the preparation of stormwater management plans for water quantity and/or water quality and erosion control for projects on the University's main campus in Lexington. When it is determined that a stormwater management plan is needed for a project, the LFUCG *Stormwater Manual* serves as the technical standard, unless otherwise noted.

**New Development** is defined as construction of buildings or other structures, parking lots, and other permanent impervious surfaces, where one (1) acre or more of land will be disturbed. Disturbance is defined as construction that exposes soil; it does not include remodeling or pavement resurfacing. (Source: LFUCG *Stormwater Manual* – Chapter 1).

**Re-Development** includes construction on sites that previously contained structures or parking lots, where one (1) acre or more of land (including buildings and parking lots) will be disturbed. Disturbance is defined as construction that exposes soil; it does not include remodeling or pavement resurfacing. Proposed development on in-fill parcels that never contained buildings or parking lots shall be considered New Development. (Source: LFUCG *Stormwater Manual* – Chapter 1).

### **Water Quantity Criteria**

All new and re-development projects over one (1) acre or more in size shall be required to design and construct a Best Management Practice (BMP), such as a detention facility, to limit the post-development peak flow rate to match or reduce the existing flow rate for a variety of storm events based on the 10-year, 100-year, and other historical rain events. (Source: LFUCG *Stormwater Manual* – Chapter 5) These facilities can be small on-site facilities or the site runoff could be routed through a larger regional facility. Detention can be exempted if an engineering study can prove that the receiving drainage system has the capacity to convey the increased runoff, the result of the detention basin will have less than 0.1 foot rise on downstream flood levels (post development), or if the construction of an on-site detention basin would actually increase flooding downstream. Since re-development typically involves the removal of existing impervious area in favor of green space and buffers to meet current codes, resulting in a decrease in impervious area, detention is usually not required for re-development unless this assumption is not true. (Source: LFUCG *Stormwater Manual* – Chapter 1)

### **Water Quality Criteria**

Runoff from impervious areas may carry pollutants to our storm sewer systems and streams. All new and re-development projects one (1) acre in size or more must address the quality of Stormwater runoff. A water quality volume (WQV), commonly called the "first-flush", must be pre-treated prior to release from the site. On the University's main campus, the WQV is based on the 90<sup>th</sup> percentile annual storm event. New Development is required to capture and treat the WQV from all impervious surfaces. Re-development must treat 20% of the WQV from all impervious surfaces, post-development, unless the impervious cover of the site is decreased from existing conditions by a minimum of 20%, in which case the Water Quality Criteria has been met. Sites with less than 10% impervious cover are exempt. However, the University still encourages the implementation of a water quality BMP under these exceptions, whenever possible. (Source: LFUCG *Stormwater Manual* – Chapter 1)

### **Best Management Practices (BMP)**

Chapter 5 of the LFUCG *Stormwater Manual* provides the technical guidance for the design of water **quantity** BMPs. Chapter 10 of the LFUCG *Stormwater Manual* provides the technical guidance for the design of water **quality** BMPs. In

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some instances, one BMP can serve both as water quantity and water quality control. The University has adopted its own *Post-Construction Structural BMP Operations and Maintenance Plan* that includes guidance on the BMPs to be implemented on campus. Designers and Reviewers will note that not all BMPs listed in the *LFUCG Stormwater Manual* are included in the *Post-Construction Structural BMP Operations and Maintenance Plan*. It is implied that if a particular BMP is not included in the University's *Post-Construction Structural BMP Operations and Maintenance Plan*, then the design and construction of the particular BMP is not approved for use on main campus even though it is included in the *LFUCG Stormwater Manual*. For the purposes of using the *LFUCG Stormwater Manual* to design BMPs for development on main campus, the University is considered a commercial / industrial land use.

**Stormwater Pollution Prevention Plans (SWPPP)**

During construction of the various facilities and related stormwater management BMPs for water quantity and quality, soil will be disturbed. Construction that disturbs soil requires a SWPPP. Sites one (1) acre or more of land disturbance are regulated by the MS4 permit. The Kentucky Division of Water (KDOW) also requires a permit (KYR10) for projects over one (1) acre in size. In addition, the MS4 regulations empower the MS4 community to regulate disturbances less than one (1) acre if deemed necessary. The University has adopted the use of the *Best Management Practices (BMPs) for Controlling Erosion, Sediment, and Pollutant Runoff from Construction Sites Manual* and the *Kentucky Erosion Prevention and Sediment Control Field Guide* as the standards for preparing SWPPPs and implementing erosion control during construction.

Prior to construction, a Contractor must obtain approval from KDOW and UK Capital Projects Management Division (CPMD) or Physical Plant Division (PPD) of a SWPPP for sites one (1) acre or more in land disturbance. Projects disturbing less than one (1) acre shall notify CPMD or PPD of work to determine if a SWPPP is needed.







**Submittals and Responsibilities**

Given that the University is permitted as a MS4 separate from LFUCG, submittals to LFUCG for approval are not required. All submittals for main campus projects will go to CPMD or PPD, depending on project size and complexity. Approvals serve as "permits"; construction oversight will be by CPMD or PPD personnel.

The University's MS4 Permit coordinator (Water Quality Compliance Manager) is on staff within the Environmental Management Department (EMD). The EMD provides technical assistance and guidance to CPMD, PPD, and others on MS4 related activities, but is not an approval agency for stormwater management plans or SWPPPs.

University projects not located on the main campus but within Lexington – Fayette Co., (i.e., Coldstream Research Campus) are under the jurisdiction of the LFUCG MS4 permit and are required to follow all standards of LFUCG in lieu of the University MS4 Permit.

**Quick Reference Chart**

Is a Stormwater Management Plan Required?			
	Water Quantity Plan	Water Quality Plan	SWPPP
Projects less than 1 acre			 (1)
Projects more than 1 acre		 (2)	

(1) = Notify CPMD / PPD for guidance

(2) = Required depending on site design