

New Drainage Criteria Manual Highlights

- If your development lies within the drainage design area of a larger development approved prior to the effective date of the new manual (September 5, 2014), you are required to provide the following information:
 - Demonstrate that your POST development conditions (CN's, C-Values, Land Use, etc.) match the assumptions of the original report, or are conservative.
 - Demonstrate that your POST development conditions cause the site to drain proportionally to the same outfalls as the original report assumptions.
- (ALL OTHER DEVELOPMENTS) Each STUDY POINT on your site must comply with the 'Four Minimum Standards'. Drainage reports should clearly discuss each standard and demonstrate compliance (See Chapter 2 of the Drainage Criteria Manual).
 - *Minimum Standard #1 – Water Quality*
 - If a development project increases impervious area by more than 2000 SF, the stormwater management system shall be capable of removing at least 80% of Total Suspended Solids (TSS) from an equivalent onsite impervious area by implementing the TSS Reduction Method (Ch. 4) and/or Low Impact Development (Ch. 5).
 - *For example, if a development increases imperviousness onsite by 3,500 SF, then at a minimum, the runoff from 3,500 SF of impervious area must be treated to remove 80% of TSS.*
 - *If the contributing area draining to a water quality feature exceeds the required minimum area, the water quality feature must be designed to handle the additional area.*
 - *Note that any onsite impervious area (draining to a common study point) may be treated to meet this requirement. Parking areas are preferred.*
 - *Minimum Standard #2 – Channel Protection*
 - The volumetric increase in runoff (PRE vs. POST) for the 1-year, 24-hour storm shall be detained and released over a period of approximately 40 hours
 - Min. Std. #2 may be waived for sites with a POST-Developed 1-year, 24-hour peak flowrate of less than 2 cfs
 - *Minimum Standard #3 – Overbank Flood Protection*
 - Provide detention such that the POST Development peak flowrate for the 2, 5 10, and 25-year, 24-hour storms does not exceed PRE Development levels for each STUDY POINT
 - This is no different than the current 1995 manual requirements
 - *Minimum Standard #4 – Extreme Flood Protection*
 - Provide detention such that the POST Development peak flowrate for the 100-year, 24-hour storm does not exceed PRE Development levels for each STUDY POINT
 - This is no different than the current 1995 manual requirements
 - Additionally, 1 FT freeboard is no longer required and there is no requirement for 25% additional capacity safety factor.



- Summary of detention design to satisfy Minimum Standards #2-4:
 1. Calculate the 1-yr, 24-hr hydrograph for the subbasin PRE-Development.
 2. Calculate the 1-yr, 24-hr hydrograph for the subbasin POST-Development.
 3. Calculate the volume difference between #1 and #2.
 4. Create a synthetic, 24-hr hydrograph with a total volume equal to #3 by manipulating CN, Area, or Tc. This is a hypothetical storm used just for compliance.
 5. Model your pond with the 24-hr storm from #4 and a single outfall orifice at bottom of pond.
 6. Choose size of orifice in order to drain the pond in approximately 40 hrs (a *drained* pond shall be defined as $Q_{out} \leq 0.01$ cfs or Pond WSE ≤ 0.01 ft).
 7. Calculate *highest* WSE achieved in pond during #6. This shall be the lowest elevation for any other weirs or outfalls from the pond discharge structure(s).
 8. Design remainder of pond outfall structure(s) to limit the 2, 5, 10, 25, and 100-yr, 24-hr storms to PRE-Developed rates (Min. Stds. #3 and #4).

- Rainfall depths and intensities have been updated (See Section 3.2.1).
 - The 24-hr storm depths have been adjusted for SCS calculations.
 - Also, the information for creating IDF curves to determine intensities for the rational method have been updated.

- ****Please carefully review all chapter titles/headings in the TABLE OF CONTENTS as there are 8 Chapters and 10 Appendices that must be cross referenced to find all the information you will need to draft a successful drainage report**
 - **New Stormwater Sizing Criteria Chapter 2**
 - **New Water Quality Chapter 4**
 - **New Low Impact Development Chapter 5**

- This manual is a first edition and the City of Fayetteville would greatly appreciate your help to find and correct any errors therein. Please send all found errors, typos, etc. in an email to cgranderson@fayetteville-ar.gov to be kept on file until the next manual update –*Thank you!*

