

## **VDOT DRAINAGE MANUAL SEPTEMBER 2009 REVISIONS**

All chapters have been revised except for 3, 4 and 5.

All revisions have been shaded on the pages of text for more clarity and there will be a revision date (9/09) shown in the lower left corner of the page.

All Errata have been incorporated into the Manual.

The following HDA's have been incorporated into the Manual:

- HDA 05-01      Consideration of Flood Plain Storage in the Design of Drainage Facilities
  
- HDA 05-02.2    Change in Procedure for Determining Mean & Low Tide Elevations (Revised 3/24/08)
  
- HDA 05-03      DOT's Adoption & Implementation of NOAA ATLAS 14 Rainfall Precipitation Frequency Data  
  
\* **DOWNLOAD FILE** -Microsoft EXCEL spreadsheet file containing "B, D, & E" factors referenced in Hydraulic Design Advisory (HDA) 05-03
  
- HDA 05-04.3\_    Application of NRCS' "TR-55" , "TR-20", EFH -2 Hydrologic Computations Using NOAA ATLAS 14 Rainfall Data (Revised 9/08)  
  
\* **DOWNLOAD FILE** - Microsoft EXCEL spreadsheet file containing NRCS' implementation of NOAA ATLAS 14 24-hr total point rainfall data for Virginia (and appropriate county zone maps) as presented in Hydraulic Design Advisory (HDA)05-04.2

- HDA 05-05 Dan Anderson Peak Discharge Determinations - Procedural Revision
- HDA 06-02 Scour Considerations for Three-sided Drainage Structures
- HDA 06-03.1\_ Culvert Outlet Protect Road and Bridge Standard EC-1 (Revised 9/07)
- HDA 06-04 Recommendations for Mannings "n" Values for VDOT Standard Riprap Sizes (Revised 11/06)
- HDA 06-05 Erosion and Sediment Control Plan Details (Revised 11/06)
- HDA 07-02 Countersinking Considerations for Single and Multiple Barrel Culverts.
- HDA 08-02 Guidelines for the Design and Acceptance of Roadway Causeways
- HDA 08-03 Inlet Design - Allowable Spread Criteria
- HDA 09-02 Storm Sewer Pipe 06/08/09

## Chapter 9

### 9.3 Design Criteria

The information below was added under section 3.

b. For those locations that show a maximum spread width of "*1/2 Driving Lane Width + Gutter width (If Any)*", the table assumes that the driving lane is adjacent to the curb/curb and gutter section. If the driving lane is not adjacent to the curb/curb and gutter section (e.g., there is a parking or bicycle lane between the curb/curb and gutter section and the driving lane), then the maximum spread width shall be 10 feet, except in no case shall the spread of the water be allowed to encroach beyond the center of the closet driving lane adjacent to the parking or bicycle lane.

c. For those locations that show a maximum spread width of "*Shoulder Width*" (not "*Shoulder Width + 3'*"), the table assumes that the shoulder width will be a minimum of 6 feet. Where the shoulder width is less than 6 feet, the maximum spread width shall be 6 feet, except in no case shall the spread of the water be allowed to encroach more than 3 feet into the driving lane adjacent to the shoulder.