Loudoun County, Virginia

www.loudoun.gov
Department of Building and Development
1 Harrison Street, SE, P.O. Box 7000, Mailstop #60A, Leesburg, VA 20177-7000
Telephone: 703/777-0220 • www.Loudoun.gov/bonds
Fax: Permits, Zoning, and Administration 703/771-5215 • Engineering 703/737-8993

Technical and Procedural Newsletter

The purpose of this correspondence is to inform the Land Development and Home Building Community of technical and procedural updates that have recently transpired. Please distribute this information to applicable personnel within your organization

Date: January 1, 2016

To: Members of the Land Development and Home Building Community

From: William Cain, Floodplain Management Team Leader

Topic: Acceptable Design Protocols for Stream Restoration Projects

---

The adoption of Zoning Ordinance Amendment (ZOAM) 2015-0003 added certain "Stream Restorations" to the list of Permitted Uses within the Floodplain Overlay District (FOD) under the Revised 1993 Zoning Ordinance. In accordance with Section 4-1505(A)(16), stream restorations shall be designed in accordance with standards from the most recent version or edition, as applicable, of the following publications:

- Natural Channel Design (Rosgen): As presented in Applied River Morphology (Rosgen Dave. Applied River Morphology. Pagosa Springs, CO: Wildland Hydrology, 1996.), and associated reference material presented on the Wildland Hydrology website (http://www.wildlandhydrology.com/html/references_.html), and in Wildland Hydrology course materials (i.e. Rosgen Levels I through V).

- Virginia Handbook: Department of Conservation and Recreation. The Virginia Stream Restoration & Stabilization Best Management Practices Guide. 2004 http://www.deq.virginia.gov/Portals/0/DEQ/Water/Publications/BMPGuide.pdf

- Regenerative Step Pool Storm Conveyance (SPSC): Anne Arundel County, Maryland. Regenerative Step Pool Storm Conveyance (SPSC) – Also Known as Coastal Plain Outfalls Design Guidelines. December 2012. http://www.aacounty.org/DPW/Watershed/SPSCdesignguidelinesDec2012Rev5a.pdf

- EPA, Stream Mechanics and USFWS Function-Based Framework (i.e. stream pyramid): Harman, W., R. Starr, M. Carter, K. Tweedy, M. Clemmons, K. Suggs, C. Miller. 2012.

A Function-Based Framework for Stream Assessment and Restoration Projects. US Environmental Protection Agency, Office of Wetlands, Oceans, and Watersheds, Washington, DC EPA 843-K-12-006. http://water.epa.gov/lawsregs/guidance/wetlands/upload/A_Function-Based_Framework-2.pdf

- EPA, Stream Mechanics and USFWS Natural Channel Design Handbook: Harman, W., R. Starr. 2011. Natural Channel Design Review Checklist. US Fish and Wildlife Service, Chesapeake Bay Field Office, Annapolis, MD and US Environmental Protection Agency, Office of Wetlands, Oceans, and Watersheds, Wetlands Division. Washington, D.C. EPA 843-B-12-005. http://water.epa.gov/lawsregs/guidance/wetlands/upload/Natural_Channel_Design_Checklist_5_16_12.pdf

- Urban Enlargement Factor: Caraco, D.S. "Dynamics of Urban Stream Channel Enlargement." Watershed Protection Techniques, 2000: 3(3); 729-734.

- Maryland Piedmont Regional Curve: McCandless, Tamara L., and Everett, Richard A. Maryland Stream Survey: Bankfull Discharge and Channel Characteristics of Streams in the Piedmont Hydrologic Region. Annapolis, Maryland: U.S. Fish and Wildlife Service, 2002.

- Virginia Piedmont Regional Curve: Lotspeich, Russell R. Regional Curves of Bankfull Channel Geometry For Non-Urban Streams In The Piedmont Physiographic Province, Virginia. Scientific Investigations Report 2009-5206, Reston, Virginia: United States Geological Survey, 2009.

- U.S. Department of Agriculture Natural Resources Conservation Service Conservation Practice Standards, criteria and guidance.

Other publications may be used as a basis for design subject to review and approval by the Floodplain Administrator. Applications that are not designed in accordance with standards from these approved publications may not be acceptable.

Please note that additional approvals may be required from applicable State and Federal agencies.

Questions concerning this memo may be directed to bill.cain@loudoun.gov.