

prevent sliding when the slope exceeds 16%, and erosion control at the outlet to prevent undermining of the endwall. Generally, slopes over 20% are not acceptable unless specifically approved by the Director.

504.33 Standard Details - Drainage Structures: Structures and appurtenances for inlets, curb and gutter, endwalls, junctions, etc., shall conform to the current edition of the Road Designs and Standards of the Virginia Department of Highways and Transportation unless approved otherwise in writing and on the plans by the Director. The use of precast structures from an approved manufacturer as per VDOT will be allowed.

505.00 GENERAL REQUIREMENTS FOR INSTALLATION OF DRAINAGE APPURTENANCES

505.01 Construction Stakeout: Prior to the construction of any storm drainage system, the owners' or developers' engineer or surveyor shall place adequate line and grade stakes and shall also set stakes and furnish grades so that all manhole tops can be set to finish grade, all in accordance with approved plans.

505.02 Trenches: The provisions of Section 204.02 of this manual shall apply to the construction of trenches to contain storm drainage systems.

505.03 Bedding: The provisions of the current sections of the VDH&T VDOT Specifications shall apply for the bedding requirements of storm drainage systems.

505.04 Backfilling: In addition to the provisions of Section 204.02 of this manual, all storm drainage pipe culverts shall be backfilled to a minimum depth of cover of two (2) feet above the top of the pipe.

If necessary when the storm drain occurs under curb and gutter, a minimum of nine inches (9") clearance from the bottom of the gutter may be permitted by the Director.

505.05 Pipe Materials: Unless otherwise approved in writing by the Director, or unless specifically indicated on plans having his approval, all pipe used for construction of storm drainage systems shall be concrete culvert pipe, meeting the current and appropriate specifications of the American Society for Testing Materials. The laying length shall not be less than three (3) feet.

- 505.06 Jointing-Rubber Gasket: The use of rubber gaskets when joining pipes will be permitted provided that installation is in strict accordance with manufacturer's specifications and the recommended lubricant is used. The type of rubber gasket, lubricant, and pipe therefor will be subject to approval by the Director or his designated agent.
- 505.07 Jointing-Corrugated Metal Pipe Culvert: When corrugated metal pipe culvert is used, jointing shall be in strict accordance with the pipe manufacturer's specifications.
- 505.08 Jointing Specifications: All jointing must comply with the current criteria, standards, and specifications of the VDOT if roads and streets are to be taken into the State Highway System.
- 505.09 Ditch Construction: Ditches shall be constructed true to the approved cross-section and shall be constructed on a uniform grade and straight line with the longitudinal axis of the drain pipe unless otherwise approved by the Director. The sideslopes shall be free from rocks and stumps and wild vegetation. After dressing the slopes to proper cross-section, they shall be seeded with a grass type seed or sodded to prevent erosion in accordance with the Virginia Erosion and Sediment Control Handbook, latest edition.
- 505.10 Curb and Gutter Construction: Curb and gutter construction shall be in sections of uniform length, approximately ten (10) feet, and no section shall be less than six (6) feet in length.
- 505.11 Expansion Joints: Expansion joints shall be placed in header curb, combination curb and gutter, and sidewalk every forty (40) feet. Where stationary structures such as drop inlets, manholes, etc. are within the limits of the curb and gutter, and sidewalk, an expansion joint shall be placed between the structure and the curb and gutter and sidewalk.

506.00 STORMWATER MANAGEMENT

- 506.01 General Requirements: The general goal of the City of Manassas Park's policy on stormwater run-off control is, "the amount (rate) of run-off will not exceed that which exists before development occurs." The location, area, and a general description of the storm water management plan must be submitted at the time of preliminary plan submission.