STORM DRAIN AND PAVING NOTES

December 2022

1. All storm drain and paving construction shall be in accordance with the latest General Specifications and Standard Details of the Maryland State Highway Administration, Montgomery County, and the City of Rockville unless otherwise noted.

2. Material and Installation Requirements for Storm Drain – DPW will accept the following materials for the construction of main line storm drain, except as otherwise specified on the plans:
   A. Reinforced concrete pipe:
      a. Must be Class IV or V in accordance with the latest versions of ASTM C-76 and ASTM C-443 with rubber-gasketed joints and installed with Montgomery County Standard "C" shaped subgrade bedding or better.
   B. Plastic pipe:
      a. Will be allowed for pipes having a minimum diameter of 15" and a maximum diameter of 36" and as designated on the plan in specific installation locations.
      b. Must be corrugated polyethylene drainage pipe meeting AASHTO M252 or AASHTO M294; or corrugated polypropylene drainage pipe meeting AASHTO M330; and installed in accordance with ASTM D2321.
      c. Joints must be watertight according to the requirements of ASTM D3212 with gaskets that meet the requirements of ASTM F477. Gaskets must be installed by the pipe manufacturer and covered with a removable, protective wrap to ensure the gasket is kept free from debris.
      d. The pipe embedment zone must extend from 6" below the pipe to 12" above the pipe and consist of angular, crushed stone, rock, or gravel with large void content and little to no fines. Embedment zone backfill must meet the Class IA requirements of ASTM D2321 with 100% passing a 1-1/2" screen, less than or equal to 10% passing a #4 screen, and less than 5% passing a #200 screen.
         i. The pipe embedment zone/trench width must be a minimum of twice the pipe diameter plus 2".
         ii. Pipe embedment zone material must be placed along the side of the pipe for the full width of the trench in layers not exceeding an uncompacted depth of 6". Compact and consolidate each layer simultaneously on both sides of the pipe. Compact thoroughly under the haunches of the pipe. Continue this method of filling and compacting until the compacted backfill material is least 12 in. above the top of the pipe.
         iii. The pipe embedment zone must be encapsulated in a geotextile fabric material to protect against the loss of pipe support by preventing the lateral migration of fines from the trench wall into the backfill envelope.

e. The manufacturer and trade name of the pipe must be specified on the plans; as should all pertinent manufacturer installation requirements, recommendations, and guidelines for that material.
f. A third-party inspector must observe and certify that all materials and installation methods comply with these requirements, the City of Rockville Geotechnical Notes, and the approved plans.
g. The pipe must be deflection tested within 30 days of the placement of compacted fill to finished grade and/or proof rolling in accordance the City of Rockville Geotechnical Notes. This test must take place in the presence of the City Inspector and utilize a mandrel sized to 95% of the minimum inside diameter. Pipe segments which exceed 5% deflection will be rejected by the City and must be replaced in their entirety.

3. If springheads are encountered in any phase during construction, construction must be stopped until they are capped and piped to a storm drain or stream as directed by the City.

4. Provide positive drainage of all areas disturbed by construction. Minimum slope in paved areas is one percent. Minimum slope of graded areas is two percent. Maximum slope on earth banks is 3:1.

5. When tying into existing pavement, saw cut existing paving edge to provide a clean, straight, and vertical joint. When removing existing curb or sidewalk, remove to the nearest joint.

6. Paving Contractor is responsible for adjusting utility tops to finished grade.

7. Applicant is responsible for installing all pavement markings and signage in accordance with the Final Pavement Marking and Signage Plan, which is approved by the Chief of Traffic and Transportation.

8. For pavement sections of private driveways and parking lots, refer to Zoning and Planning Ordinance, 25.16.06.d. – Parking Design Standards -Paving Specifications.

9. Per Maryland Code Public Utilities Section, all newly installed or replaced storm drain and storm drain facilities must be identifiable, detectable, or locatable. Any new or replacement piping that is buried or installed connecting to the storm drain system, shall be buried or installed with a product or technology that makes the piping detectable or locatable. At a minimum, all pipe must be installed with detectable warning tape.
    A. Detectable Warning Tape.
        1. Placement
            a. Place tape directly over centerline of pipe the full length of trench, 18 to 30 inches below finished surface and with minimal number of splices.
            b. Overlap tape minimum 6 inches at splices and intersections.
        2. Description.
            a. Size: Six-inch width, minimum 5 mils thickness.
            b. Printing: Two lines, minimum 3/4-inch-high black lettering on each line, repeated continuously along length of tape at intervals no greater than 3 feet.
            c. Tape color must follow the APWA Uniform Color Code.
                i. Blue detectable warning tape for water mainline, water service connections, or when water and sewer are installed in same trench.
                ii. Green detectable warning tape for all sewer, storm drain, and stormwater management lines.
        3. Approved Manufacturers.

a. Refer to WSSC's Standards and Specifications Section 02315 Part 2.1(A)(2) for an approved manufactures list.

10. Where the drop on the main line through a structure can be accommodated by an invert slope of 1.5:1 or flatter, a rounded channel lined with sewer brick on edge shall be built to the crown of the pipes.

11. Where any part of the storm drain system is located in a fill section, provide fill material in accordance with the Geotechnical Notes compacted to 95% AASHTO T-99 density from approved subgrade to the structure bottom slabs and/or the pipe bedding.