### STORM DRAIN SYSTEMS

#### SIDE DRAINS

- **Pipe Material:** HDPE
- **Material:** High density polyethylene (HDPE)

#### TRANVERSE MEDIAN PIPES

- **Pipe Material:** HDPE
- **Material:** High density polyethylene (HDPE)

### NOTES

1. **RCP**
   - **Not allowed for grades >10%**
   - **Counties listed in Article 310-0 of the Standard specifications**
   - **CSP requires an acceptable cause in accordance with 1034-4**

2. **For different corrugations and arch pipes refer to roadway design manual and manufacturer's data**
3. **Minimum fill height is measured from top of pipe to subgrade**
4. **Where site conditions allow increase pipe diameter for structural considerations, provide a means to reduce risk of unintended entry into upstream end of pipe**
5. **Use only at system inlets & outlets if pipe slope is greater than 10%**
6. **Submit design sealed by an NC PE for review & approval by NCDOT**
7. **All pipes types subject to the maximum and minimum fill height requirements as found in Chapter 5 of the roadway design manual**

### FILL TABLES

#### DEFINITIONS

- **Open End Cross Pipes**
- **Primary**
- **Secondary**
- **Storm Drain Systems**
- **Transverse Median Pipes**
- **Slope Drains**
- **Side Drains**

### NCDOT PIPE MATERIAL SELECTION GUIDE

<table>
<thead>
<tr>
<th>RCP (REINFORCED CONCRETE)</th>
<th>AASHTO M170</th>
<th>CSP (CORRUGATED STEEL)</th>
<th>AASHTO M36</th>
<th>CAAP (CORRUGATED ALUMINUM)</th>
<th>AASHTO M794</th>
<th>HDPE AASHTO M294</th>
<th>ASTM F2764 OR AASHTO M300</th>
<th>PVC ASTM F249 AASHTO M304</th>
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<td><strong>III</strong></td>
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### OPEN END CROSS PIPES

- **Interstate**
  - CAN BE USED
  - **Use only if pipe slope is greater than 10%**
  - **Use only if pipe slope is greater than 10%**
  - **Do not use**

- **Primary**
  - CAN BE USED
  - **Use only if pipe slope is greater than 10%**
  - **Use only if pipe slope is greater than 10%**
  - **Use only if pipe slope is greater than 10%**

- **Secondary**
  - CAN BE USED
  - **Use only if system inlets & system outlet if pipe slope is greater than 10%**
  - **Use only if system inlets & system outlet if pipe slope is greater than 10%**
  - **Do not use**

### STORM DRAIN SYSTEMS

- **Interstate**
  - CAN BE USED
  - **Use only if pipe slope is greater than 10%**
  - **Use only if pipe slope is greater than 10%**
  - **Do not use**

- **Primary**
  - **Do not use**
  - **Can be used**
  - **Can be used**

- **Secondary**
  - **Do not use**
  - **Can be used**
  - **Can be used**

### SLOPE DRAINS

- **Interstate**
  - **Do not use**
  - **Can be used**
  - **Can be used**

- **Primary**
  - **Can be used**
  - **Can be used**
  - **Can be used**

- **Secondary**
  - **Can be used**
  - **Can be used**
  - **Can be used**

### SIDE DRAINS

- **Primary**
  - **Can be used**
  - **Can be used**
  - **Can be used**

- **Secondary**
  - **Can be used**
  - **Can be used**
  - **Can be used**