### CONCRETE ROUND PIPE CULVERT

#### FILL HEIGHT AND PIPE CLASS TABLE

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<th>TRENCH</th>
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**NOTES:**

1. When directed, camber pipe culverts upward from a chord through the invert and outlet invert an ordinate amount equal to 1% of the pipe length. Develop camber on a parabolic curve. If the midpoint elevation on the parabolic curve exceeds the elevation of the invert, reduce the amount of camber or increase the pipe culvert gradient.

2. For flexible pavement and aggregate surface roadways, measure minimum cover from the top of the pipe culvert to the bottom of the roadway subgrade. For rigid pavement, measure minimum cover from the top of the pipe culvert to the top of the pavement. For all roadway surface types, measure maximum fill height from the top of the pipe culvert to the top of the pavement.

3. Pipe compaction limits shown are for pipe culvert installation in an embankment. For pipe installation in trench, ensure the compaction limits are the walls of the trench.

4. When grades exceed 10%, install supplemental concrete pipe ties on pipe culvert or install belt and spigot pipe.

5. Maximum fill heights for pipe culvert installations may be increased on approval of site-specific structural pipe designs meeting the criteria of AASHTO Standard Specifications for Highway Bridges.

6. Use supplemental concrete pipe ties on last downstream pipe-to-pipe joint and at downstream pipe-to-end section joint, if present. Use elsewhere as specified in the contract documents. Ensure all tie hardware are galvanized and conforming to ASTM A 307.

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**ON UNYIELDING MATERIAL**

Remove unyielding material and replace with selected fill compressible material. Lightly compact in layers not over 6 inches in uncompacted depth.

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**ON UNSTABLE MATERIAL**

Remove unstable material to firm bearing soil and replace with approved granular foundation fill material properly compacted.

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**LEGEND:**

- **Bedding material**
- Embankment material placed in layers not exceeding 6" compacted depth.
- Approved granular material or fine compressible soil placed in layers not exceeding 6" compacted depth.
- Do not install fastener over pipe joint.
- Tapered holes permitted when precast.

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**PIPING PLUG**

Construct piping plug at culvert inlet when embankment material is classified other than AASHTO A-6 or A-7. Inserts with full-height headwall or slope paving excluded. Construct plug of A-6 or A-7 material or other approved material with a permeability not to exceed 0.004 in/sec. Width may be adjusted to be into impervious material.