ENDWALL DIMENSIONS (EXCLUSIVE OF MULTIPLE PIPE SPACING)

ENDWALL POSITIONS FOR SINGLE AND MULTIPLE PIPE AND SPACING FOR MULTIPLE PIPE

GENERAL NOTES

1. Endwall dimensions, locations and positions are for round and elliptical concrete pipe and for round and pipe-in-corrugated metal pipe. Round concrete pipe shown.

2. Front slope and ditch transitions shall be in accordance with Index No. 280.

3. Endwalls may be cast in place or precast concrete. Reinforcing steel shall be Grade 40 or 60. Additional reinforcement necessary for handling units shall be determined by the Contractor or the supplier. Cost of reinforcement shall be included in the contract unit price for Concrete, Endwalls.

4. All exposed corners and edges of concrete pipe are to be chamfered 1/4".

5. Concrete shall be Class I, except ASTM C476 (4000 psi) concrete may be substituted for prestressed items manufactured in plants meeting the requirements of Section 449 of the Specifications.

6. On embankments with side slopes flatter than 1:3½, provide 20 transitions from the embankment to the flatter side slopes, right of way permitting.

7. For saddling around endwalls see Index No. 281.

8. Payment for concrete quantities for endwalls allocated to the pipe shall be made on the following basis:

   Endwall Skew to Pipe          Use Tabulated Value

   0° to 5°                     0°
   6° to 10°                    5°
   11° to 15°                   10°
   16° to 20°                   15°
   21° or over                 20°

9. Pipe length plan quantities shall be based on the pipe and locations shown in the standard location control line, or lengths based on special endwall locations called for in the plans.

10. Payment for pipe in pipe culverts shall be based on plan quantities, adjusted for endwall locations subsequently established by the Engineer.

11. Endwalls to be paid for under the contract unit price for Class 1 Concrete (Endwalls), CT.
<table>
<thead>
<tr>
<th>Opening Area</th>
<th>Dimensions</th>
<th>Concrete Elliptical Pipe</th>
<th>Corrugated Metal Pipe Arch</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
</tr>
<tr>
<td>E</td>
<td>F</td>
<td>G</td>
<td>H</td>
</tr>
</tbody>
</table>

**Data and Estimated Quantities for One Endwall**

- **Concrete Elliptical Pipe**
  - Number of Pipes and Shear Areas of Pipe
  - Approx. Weight
  - Overall Weight

- **Corrugated Metal Pipe Arch**
  - Number of Pipes and Shear Areas of Pipe
  - Approx. Weight
  - Overall Weight