GENERAL NOTES
1. ALL CONCRETE SHALL BE CLASS D (BOX CULVERT). SEE TABLE FOR BOTTOM MAT.
2. ALL CONSTRUCTION JOINTS SHALL BE THOROUGHLY CLEANED BEFORE FRESH CONCRETE IS PLACED.
3. ALL CONSTRUCTION JOINTS NOT SHOWN ON THE PLANS SHALL BE CONSTRUCTED ONLY IF APPROVED BY THE ENGINEER.
4. THE CONTRACTOR SHALL MAINTAIN THE STABILITY OF THE STRUCTURE DURING CONSTRUCTION.
5. STRUCTURE EXCAVATION AND BACKFILL SHALL BE IN ACCORDANCE WITH STANDARD PLAN M-601-3.
6. FOR ANY QUANTITIES SHOWN IN THE TABLE, A PRELIMINARY INVESTIGATION AND REPORT ARE REQUIRED.
7. BACKFILL SHALL NOT BEGIN UNTIL TOP SLAB HAS REACHED DESIGN STRENGTH.
8. SPLICE QUANTITIES FOR LONGITUDINAL AND TRANSVERSE BARS ARE NOT INCLUDED.
9. REINFORCING STEEL SHALL BE GRADE 60.
10. THE MINIMUM LAP SPLICE LENGTH FOR EPOXY COATED REINFORCING BARS SHALL BE:
   - BAR SIZE: #4, 3" CLEAR
   - BAR SIZE: #5, #6, #7, #8, #9, #10, #11

SECTION B-B

HEADWALL CORNER REINFORCING DETAIL

REINFORCING PLAN

CONSTRUCTION JOINT DETAIL FOR STAGED CONSTRUCTION

NOTE: THIS DETAIL IS FOR CONSTRUCTION JOINTS INSTALLED PERPENDICULAR TO THE EDGE OF THE BOX.

NOTE: THIS DETAIL IS FOR CONSTRUCTION JOINTS INSTALLED PERPENDICULAR TO THE END OF THE BOX.

SECTION C-C

TRIPLE CONCRETE BOX CULVERT (CAST-IN-PLACE)
### TRIPLE CONCRETE BOX CULVERT DIMENSIONS, QUANTITIES & RATING FACTORS (EXCLUDING HEADWALL & TOEWALL QUANTITIES)

<table>
<thead>
<tr>
<th>BAR SIZE</th>
<th>6</th>
<th>8-5</th>
<th>51-6</th>
<th>4</th>
<th>51-4</th>
<th>45-4</th>
<th>20-8</th>
<th>20-6</th>
<th>51-8</th>
<th>45-8</th>
<th>20-4</th>
<th>51-4</th>
</tr>
</thead>
<tbody>
<tr>
<td>TYPICAL LENS</td>
<td>15</td>
<td>15</td>
<td>10</td>
<td>16</td>
<td>15</td>
<td>15</td>
<td>15</td>
<td>15</td>
<td>15</td>
<td>15</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>TYPICAL ARC LENGTH</td>
<td>15</td>
<td>15</td>
<td>10</td>
<td>16</td>
<td>15</td>
<td>15</td>
<td>15</td>
<td>15</td>
<td>15</td>
<td>15</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>HEADWALL LENS</td>
<td>15</td>
<td>15</td>
<td>10</td>
<td>16</td>
<td>15</td>
<td>15</td>
<td>15</td>
<td>15</td>
<td>15</td>
<td>15</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>TOEWALL LENS</td>
<td>15</td>
<td>15</td>
<td>10</td>
<td>16</td>
<td>15</td>
<td>15</td>
<td>15</td>
<td>15</td>
<td>15</td>
<td>15</td>
<td>15</td>
<td>15</td>
</tr>
</tbody>
</table>

### HEADWALL AND TOEWALL QUANTITIES

<table>
<thead>
<tr>
<th>CULVERT</th>
<th>90° TO 75°</th>
<th>74° TO 60°</th>
<th>59° TO 45°</th>
</tr>
</thead>
<tbody>
<tr>
<td>#</td>
<td>#</td>
<td>#</td>
<td>#</td>
</tr>
<tr>
<td>LENS</td>
<td>15</td>
<td>15</td>
<td>10</td>
</tr>
<tr>
<td>ARC LENGTH</td>
<td>15</td>
<td>15</td>
<td>10</td>
</tr>
</tbody>
</table>

### NOTES

1. **BAR SPACING:** 1/4 in. spacing at each end of the span for a distance of 1/4 of the span length, 2 in. spacing elsewhere.
2. **QUANTITIES:** Given for one headwall and one toe wall, and are based on per linear foot of headwall. Steel quantities include all reinforcing. Quantities shall be paid for as shown on the plans.
3. **SHEAR HEADWALLS:** Not recommended for these spans. A special design is required.
4. **REINFORCING BARS:** FEMA bars in the headwall and toe wall are designated by an asterisk (*). All reinforcing bars in the headwall and toe wall shall be epoxy coated.
5. **REINFORCING QUANTITIES:** Include both epoxy-coated and uncoated bars.
6. **VARIABLES:** When the fill heights are less than 2 ft, variable bar sizes are recommended. All reinforcing bars are epoxy coated, and the 1/4 in. spacing is maintained.
7. **BARS IN THE TOP SLAB:** The number of bars required is listed on the sheet and includes both epoxy-coated and uncoated bars.
8. **ADDITIONAL INFORMATION:** Refer to the CDOT Rating Manual.
9. **HEADWALL AND TOEWALL DETAILS:** See M-601-3, Sheet 1 of 2.
10. **COMMENTS:** Refer to the CDOT Rating Manual.

### TRIPLE CONCRETE BOX CULVERT (CAST-IN-PLACE)

- **STANDARD PLAN NO.:** M-601-3
- **Standard Sheet No.:** 2 of 2