HORIZONTAL WALL REINFORCING SCHEDULES (TABLE 1)

<table>
<thead>
<tr>
<th>WALL DEPTH SCHEDULE</th>
<th>AREA (in²/ft)</th>
<th>MAX. SPACING BARS</th>
<th>WWF</th>
</tr>
</thead>
<tbody>
<tr>
<td>0'-15'</td>
<td>412</td>
<td>0.20</td>
<td>12' 8'</td>
</tr>
</tbody>
</table>

TYPE C

Recommended Maximum Pipe Size:
- 2'-0" Wall - 18" Pipe
- 3'-1" Wall - 24" Pipe (18" where an 18" pipe enters a 2'-0" wall)

HORIZONTAL WALL REINFORCING SCHEDULES (TABLE 2)

<table>
<thead>
<tr>
<th>WALL DEPTH SCHEDULE</th>
<th>AREA (in²/ft)</th>
<th>MAX. SPACING BARS</th>
<th>WWF</th>
</tr>
</thead>
<tbody>
<tr>
<td>0'-6'</td>
<td>412</td>
<td>0.20</td>
<td>12' 8'</td>
</tr>
<tr>
<td>6'-10'</td>
<td>46</td>
<td>0.20</td>
<td>6' 5'</td>
</tr>
<tr>
<td>10'-13'</td>
<td>44</td>
<td>0.20</td>
<td>4' 3'</td>
</tr>
<tr>
<td>10'-15'</td>
<td>85.5</td>
<td>0.24</td>
<td>5½' 5½'</td>
</tr>
</tbody>
</table>

TYPE D

Recommended Maximum Pipe Size:
- 3'-1" Wall - 24" Pipe
- 4'-1" Wall - 36" Pipe

HORIZONTAL WALL REINFORCING SCHEDULES (TABLE 3)

<table>
<thead>
<tr>
<th>WALL DEPTH SCHEDULE</th>
<th>AREA (in²/ft)</th>
<th>MAX. SPACING BARS</th>
<th>WWF</th>
</tr>
</thead>
<tbody>
<tr>
<td>0'-5'</td>
<td>412</td>
<td>0.20</td>
<td>12' 8'</td>
</tr>
<tr>
<td>7'-7.5'</td>
<td>46</td>
<td>0.20</td>
<td>6' 5'</td>
</tr>
<tr>
<td>7.5'-10'</td>
<td>85.5</td>
<td>0.24</td>
<td>5½' 5½'</td>
</tr>
<tr>
<td>10'-15'</td>
<td>6.5</td>
<td>0.37</td>
<td>6½' 6½'</td>
</tr>
</tbody>
</table>

TYPE E

Recommended Maximum Pipe Size:
- 4'-6" Wall - 36" Pipe

DITCH BOTTOM INLET TYPES C, D, E AND H
**HORIZONTAL WALL REINFORCING SCHEDULES (TABLE 4)**

<table>
<thead>
<tr>
<th>WALL DEPTH</th>
<th>SCHEDULE</th>
<th>AREA (in²/ft)</th>
<th>MAX. SPACING</th>
</tr>
</thead>
<tbody>
<tr>
<td>0'-5'</td>
<td>0.50</td>
<td>0.24</td>
<td>5&quot;</td>
</tr>
<tr>
<td>5'-9'</td>
<td>0.65</td>
<td>0.37</td>
<td>6½&quot;</td>
</tr>
<tr>
<td>9'-13'</td>
<td>0.75</td>
<td>0.33</td>
<td>4½&quot;</td>
</tr>
</tbody>
</table>

**TYPE H (2 & 3-GRADE INLET)**

Recommended Maximum Pipe Size:
- 3'-0" Wall - 24" Pipe
- 6'-7" Wall - 1-60" Pipe
- Or 2-24" Pipe (5-3'-5")

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**HORIZONTAL WALL REINFORCING SCHEDULES (TABLE 5)**

<table>
<thead>
<tr>
<th>WALL DEPTH</th>
<th>SCHEDULE</th>
<th>AREA (in²/ft)</th>
<th>MAX. SPACING</th>
</tr>
</thead>
<tbody>
<tr>
<td>0'-0&quot;</td>
<td>C3.5</td>
<td>0.37</td>
<td>3½&quot;</td>
</tr>
<tr>
<td>5'-10&quot;</td>
<td>0.45</td>
<td>0.53</td>
<td>4½&quot;</td>
</tr>
</tbody>
</table>

**TYPE H (4-GRADE INLET)**

Recommended Maximum Pipe Size:
- 5'-0" Wall - 24" Pipe
- 8'-9" Wall - 1-78" Pipe
- Or 2-30" Pipe (5-4'-3")

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**GENERAL NOTES**

See Sheet 3 of 7.
1. These inlets are suitable for bicycle traffic and are to be used in ditches, medians and other areas subject to infrequent traffic loadings but are not to be placed in areas subject to heavy wheel loads. These inlets may be placed in areas subject to occasional pedestrian traffic such as landscaped areas and pavement areas where pedestrians can walk around the inlet.

2. Inlets subject to minimal debris should be constructed without slots. Where debris is a problem inlets should be constructed with slots. Slotted inlets located within roadway clear zones and areas subject to pedestrians shall have traversable slots. The traversable slot modification is not adaptable to inlet Type H. Slots may be constructed at either or both ends as shown on plans. Traversable slots shall not be used in areas subject to occasional bicycle traffic.

3. Steel grates are to be used on all inlets where bicycle traffic is anticipated.

GENERAL NOTES

1. Steel grates are required on inlets with traversable slots and on inlets where bicycle traffic is anticipated.

2. Traversable slots constructed in existing inlets shall be paid for as inlets partial. For conversion work and method of payment see "TRAVERSABLE SLOT INLETS (PARTIAL) FOR EXISTING INLETS".

8. Soldering to be used on all inlets not located in paved areas and paid for under contract unit price for Performance turf, $1/

9. For supplementary details see Index No. 201.

10. All reinforcing is Grade 60 bars with 2" min. cover unless otherwise noted. Bars to be cut or bent for 1½" clearance around pipe opening. Provide one additional #4 bar above and at each side of pipe opening.

NOTE: Steel Grates are Required on Inlets with Traversable Slots and on Inlets where Bicycle Traffic is Anticipated.
FOR TRAVERSABLE SLOTS

PAVEMENT AND SODDING QUANTITIES FOR TRAVERSABLE SLOTS

<table>
<thead>
<tr>
<th>Inlet</th>
<th>Pavement</th>
<th>Sed</th>
<th>Single Slot</th>
<th>Double Slot</th>
<th>Single Slot</th>
<th>Double Slot</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>4.85 0.77</td>
<td>12</td>
<td>12</td>
<td>12</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>D</td>
<td>3.99 0.91</td>
<td>14</td>
<td>14</td>
<td>14</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>E</td>
<td>5.88 0.91</td>
<td>16</td>
<td>16</td>
<td>16</td>
<td>7</td>
<td>7</td>
</tr>
</tbody>
</table>
For payment see General Notes Nos. 6 and 7, Sheet 3 of 7.

For plan view and additional details see Sheet 4 of 7.

NOTE: See General Notes Nos. 6 and 7, Sheet 3 of 7.

For payment see General Notes Nos. 6 and 7, Sheet 3 of 7.

NOTE: For plan view and additional details see Sheet 4 of 7.
DESIGN NOTES FOR TRAVERSABLE SLOT INLETS (PARTIAL) FOR EXISTING INLETS

1. The general purpose of these conversions is to remove the hazard of the protruding inlet top, while not creating a hazard by depressing the top too deeply.

2. The corrective procedure depends on the approach ditch grade and hydraulic requirements of the site. The selection of the appropriate case depends on the relationship between inlet top and ditch elevation, and, on the vertical clearance between the top of the uppermost pipe(s) and the grate. The purpose for the Case 1 conversion is to add the traversable slot to an existing inlet where top removal, change in grate elevation and ditch transitions are not required. Case 2 will normally be applicable to ditches with flatter grades adjoining the inlet. Case 3 will normally be applicable to ditches with steeper grades adjoining the inlet where build up of the existing ditch is acceptable.

3. The designer shall stipulate in the plans which case is to be constructed at each individual inlet location.

Where the existing inlet top is above the existing ditch (Case 2) but borrow material will be required to adjust the ditch (Case 3), and vertical clearance or other conditions do not prevent removal of the inlet top, the designer should call for Case 2. The designer shall determine if ditch reconstruction is required more than 35 feet beyond any traversable slot side and shall include separate pay items in the plans to cover the cost for that portion of required ditch reconstruction exceeding the 35 foot limit. The designer shall also determine whether ditch pavement is required for ditch restoration within the 35 feet limit and include that pavement under a pay item separate from the inlets partial.

When the detention ditch concept is to be used with Case 3, the designer shall stipulate Case 3 (Detention) in the plans.

The designer shall determine whether light soil or other conditions at each Individual Inlet indicates the need for Underdrain in Case 3 conversions and shall call for Underdrain, Type I in the plans.

METHOD OF PAYMENT FOR TRAVERSABLE SLOT INLETS (PARTIAL) FOR EXISTING INLETS

1. Existing inlets converted to traversable slot tops under Cases 1, 2 and 3 shall be paid for as inlets partial, each. Case shall not be included in the pay item description.

2. All ditch reconstruction work within 35 feet of each traversable slot conversion, whether required by these details or as a direct result of the conversion, shall be included as a part of the partial cost. Reconstruction work shall include excavation and removal of surplus materials or borrow materials in place, grading, construction shaping and restoration of disturbed turf. Sodding, ditch pavement and underdrain are not included as part of the inlet partial cost and are to be paid for separately.

3. Concrete inlet pavement and sodding shall be paid in accordance with the sections on this detail and with the Plan on Sheet 4 and Sections AA, BB and CC, as Case 1, and tabular quantities on Sheet 5.

4. Unit price and payment shall constitute full compensation for inlet conversion (including concrete inlet paving and replacement grate(s), ditch reconstruction, restoration of disturbed turf, and shall be paid for under the contract price for Inlets (DT Bid) (Type _ ) (Partial), each.

Sodding shall be paid for under the contract unit price for Performance Turf, SY. Ditch pavement shall be paid for separate from the inlet by pavement type(s) and underdrain are not included as part of the inlet partial cost and are to be paid for separately.
ALT. A STRUCTURE BOTTOM FOR INLETS TYPE C, D & E

TYPE C 4'-0"  Type D 4'-1"  Type E 4'-6"

(Minimum Diameter Unless Otherwise Shown In The Plans)

See Index No. 200 For Structure Bottom Details and Hole Reinforcement.

ALT. B STRUCTURE BOTTOM FOR INLETS TYPE C, D & E

ALT. B Structure Bottom

See Index No. 200 For Structure Bottom Details and Hole Reinforcement.

TOP SLAB OPENINGS

<table>
<thead>
<tr>
<th>DIAMETER</th>
<th>MIN.</th>
<th>MAX.</th>
</tr>
</thead>
<tbody>
<tr>
<td>2'-0&quot;</td>
<td>2'-0&quot;</td>
<td>3'-0&quot;</td>
</tr>
<tr>
<td>3'-0&quot;</td>
<td>3'-0&quot;</td>
<td>4'-0&quot;</td>
</tr>
<tr>
<td>4'-0&quot;</td>
<td>4'-0&quot;</td>
<td>5'-0&quot;</td>
</tr>
</tbody>
</table>

#8 Bars

### CENTERED OPENING

- Top Slab With Centered Opening
- #4 Bar Each Corner (2'-0" Min. Length)
- 2 Way Reinforcement See Tables
- #5 Hoop Bar (Peripheral Reinforcement)

### TOP SLAB REINFORCING DIAGRAM

- Centered Openings See Table For Dimensions
- #4 Bar Each Corner (2'-0" Min. Length)
- 2 Way Reinforcement See Tables
- #5 Hoop Bar (Peripheral Reinforcement)

### TOP SLAB REINFORCING SCHEDULE

<table>
<thead>
<tr>
<th>GRADE</th>
<th>SCHEDULE</th>
</tr>
</thead>
<tbody>
<tr>
<td>60</td>
<td>70 KSI (WIRE FABRIC)</td>
</tr>
</tbody>
</table>

### TOP SLAB WITH CENTERED OPENING

- Slab Depth
- Slab Thickness
- Reinforcing (2 Ways) Schedule

### PIPE OPENING SCHEMATIC

- Ditch Bottom Inlet Types C, D, E and H

SECTION AA

SECTION BB

ALT. A STRUCTURE BOTTOM FOR INLETS TYPE C, D & E

Top Slab With Centered Opening
- #4 Bar Each Corner (2'-0" Min. Length)
- 2 Way Reinforcement See Tables
- #5 Hoop Bar (Peripheral Reinforcement)

DITCH BOTTOM INLET TYPES C, D, E AND H

INDEX NO. 232

SHEET NO. 7 of 7

LAST REVISION 07/01/05

DESCRIPTION:

2016 DESIGN STANDARDS