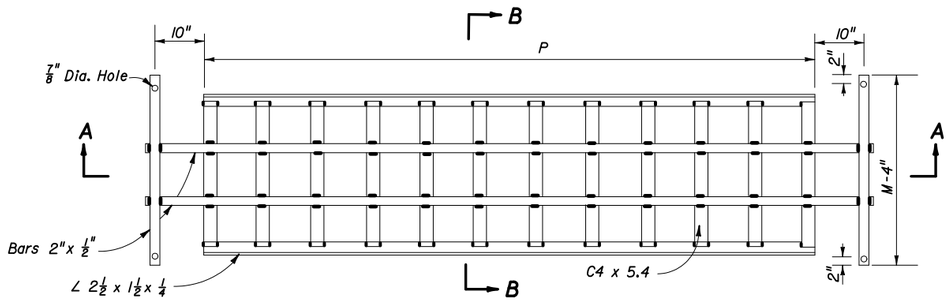
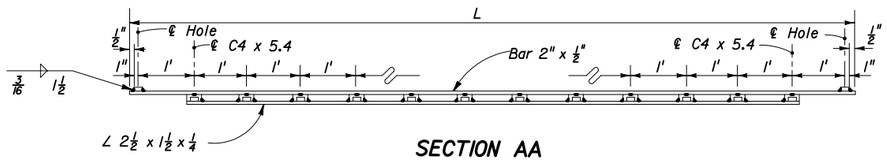
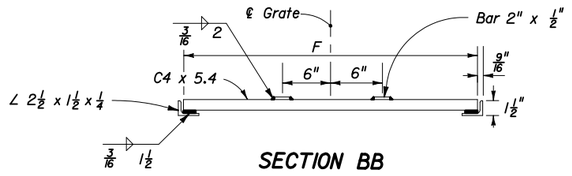



PLAN

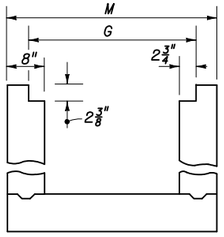



SECTION AA

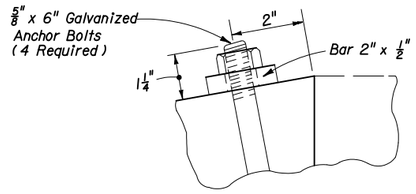



SECTION BB

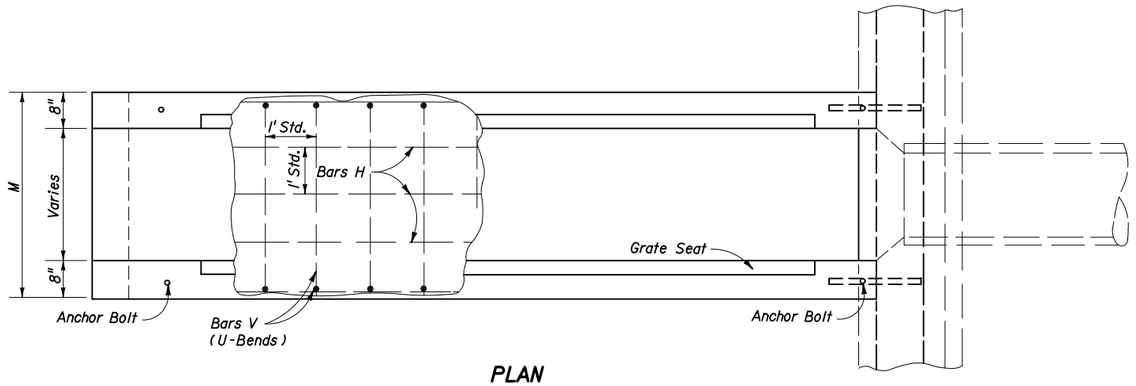
GRATE DETAIL



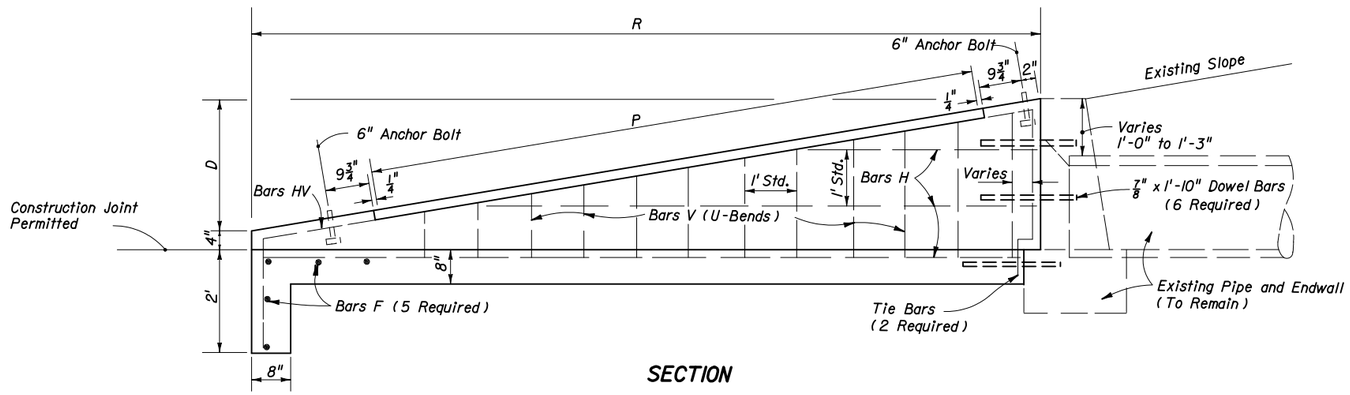

GRATE SEAT DETAIL




ANCHOR BOLT DETAIL




PLAN




SECTION

## GENERAL NOTES

1. For use criteria see "Steel Grating Use Criteria" Index No. 261.
2. Grates shall be ASTM A242, A572 or A588, Grade 50 steel, and galvanized in accordance with Section 962 and 425-3.2 of the Standard Specifications.
3. Channel section C3 x 6.0 may be substituted for the C4 x 5.4 channel.
4. All reinforcing No. 4 bars with 2" clearance except as noted. Spacings shown are center to center. Laps to be 12" minimum. Welded wire fabric ( two cages max. ) having an equivalent cross section area ( 0.20 sq. in. ) may be substituted for bar reinforcement.
5. Drill 1 1/4" holes 8" deep with a rotary drill in existing endwall for dowel bars. Holes shall be thoroughly cleaned prior to installing Adhesive-Bonded Dowels.
6. Endwall to be paid for under the contract unit price for Class I Concrete ( Endwalls ), CY and Reinforcing Steel ( Roadway ), LB. Cost of Adhesive-Bonded Dowels to be included in the contract unit price for reinforcing steel. Cost of grates to be paid for under the contract unit price for Endwall Grate, LB., plan quantity. Cost of galvanized bolts and nuts to be included in the contract unit price for the grate.
7. Sod slopes 5' each side and above endwall. Sodding to be paid for under the contract unit price for Performance Turf, SY.

## DIMENSIONS AND QUANTITIES PER GRATE

| Slope | Pipe Size | Channels @ 5.4 Lbs./LF | | | Bars @ 3.4 lbs/LF (2 ea.) | | | Angles @ 3.2 Lbs./LF (2) | | Total Weight-Lbs. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Quantity | F | Lbs. | L | M-4" | Lbs. | P | Lbs. | |
| 1:6 | 15" | 10 | 2'-6 7/8" | 139 | 11'-3" | 3'-3" | 99 | 9'-4" | 60 | 298 |
| | 18" | 12 | 2'-9 7/8" | 183 | 13'-3" | 3'-6" | 114 | 11'-4" | 73 | 370 |
| | 24" | 15 | 3'-3 7/8" | 269 | 16'-3" | 4'-0" | 138 | 14'-4" | 92 | 499 |
| | 30" | 18 | 3'-9 7/8" | 372 | 19'-3" | 4'-6" | 162 | 17'-4" | 111 | 645 |
| 1:4 | 15" | 6 | 2'-6 7/8" | 83 | 7'-3" | 3'-3" | 71 | 5'-4" | 34 | 188 |
| | 18" | 7 | 2'-9 7/8" | 107 | 8'-3" | 3'-6" | 80 | 6'-4" | 41 | 228 |
| | 24" | 9 | 3'-3 7/8" | 161 | 10'-3" | 4'-0" | 97 | 8'-4" | 53 | 311 |
| | 30" | 11 | 3'-9 7/8" | 227 | 12'-3" | 4'-6" | 114 | 10'-4" | 66 | 407 |

## DIMENSIONS AND QUANTITIES PER U-ENDWALL

| Pipe Size | G | M | D | R | P | Class I Concrete-CY | Reinforcing Steel-Lbs. | Sod SY |
|---|---|---|---|---|---|---|---|---|
| 15" | 2'-8 1/2" | 3'-7" | 2'-2" | 13'-0" | 9'-4" | 2.12 | 167 | 23 |
| 18" | 2'-11 1/2" | 3'-10" | 2'-5" | 14'-6" | 11'-4" | 2.53 | 173 | 25 |
| 24" | 3'-5 1/2" | 4'-4" | 2'-11" | 17'-6" | 14'-4" | 3.48 | 238 | 29 |
| 30" | 3'-11 1/2" | 4'-10" | 3'-5" | 20'-6" | 17'-4" | 4.57 | 315 | 32 |
| 15" | 2'-8 1/2" | 3'-7" | 2'-2" | 8'-8" | 5'-4" | 1.44 | 120 | 19 |
| 18" | 2'-11 1/2" | 3'-10" | 2'-5" | 9'-8" | 6'-4" | 1.72 | 130 | 20 |
| 24" | 3'-5 1/2" | 4'-4" | 2'-11" | 11'-8" | 8'-4" | 2.36 | 167 | 22 |
| 30" | 3'-11 1/2" | 4'-10" | 3'-5" | 13'-8" | 10'-4" | 3.09 | 225 | 25 |

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION

2008 FDOT Design Standards

# SAFETY MODIFICATIONS FOR ENDWALLS

| Last Revision | Sheet No. |
|---|---|
| 07/01/07 | 1 of 1 |

Index No. 295