

WINGWALLS FOR CONCRETE HEADWALLS

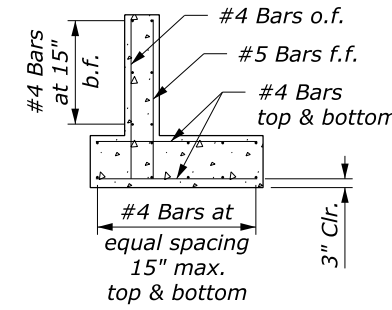
DIMENSIONS, REINFORCING STEEL AND CONCRETE TABLE OF QUANTITIES

| D INCH | H FEET | 0° WINGWALL SKEW | | | 15° WINGWALL SKEW | | | 30° WINGWALL SKEW | | | 45° WINGWALL SKEW | | | 60° WINGWALL SKEW | | |
|-----------|-----------|------------------|---------------|-------------|-------------------|---------------|-------------|-------------------|---------------|-------------|-------------------|---------------|-------------|-------------------|---------------|-------------|
| | | W FEET | CONC. CUYD | STEEL LB | W FEET | CONC. CUYD | STEEL LB | W FEET | CONC. CUYD | STEEL LB | W FEET | CONC. CUYD | STEEL LB | W FEET | CONC. CUYD | STEEL LB |
| 48 | 5.00 | 6.00 | 2.81 | 178 | 6.00 | 2.78 | 178 | 6.00 | 2.76 | 178 | 6.00 | 2.74 | 178 | 6.00 | 2.73 | 178 |
| 54 | 5.25 | 6.00 | 2.86 | 180 | 6.00 | 2.82 | 180 | 6.00 | 2.80 | 180 | 6.00 | 2.78 | 180 | 6.75 | 3.06 | 202 |
| 60 | 5.50 | 6.25 | 2.90 | 181 | 6.00 | 2.86 | 181 | 6.00 | 2.84 | 181 | 6.00 | 2.82 | 181 | 7.50 | 3.39 | 224 |
| 66 | 5.75 | 7.00 | 2.94 | 183 | 6.00 | 2.90 | 183 | 6.00 | 2.87 | 183 | 6.00 | 2.85 | 183 | 8.25 | 3.74 | 241 |
| 72 | 6.00 | 7.50 | 2.98 | 185 | 6.00 | 2.94 | 185 | 6.00 | 2.91 | 185 | 6.50 | 3.09 | 202 | 9.00 | 4.09 | 263 |
| 78 | 6.25 | 8.25 | 3.02 | 186 | 6.00 | 2.98 | 186 | 6.00 | 2.95 | 186 | 7.00 | 3.34 | 213 | 9.75 | 4.45 | 285 |
| 84 | 6.50 | 8.75 | 3.06 | 188 | 6.00 | 3.02 | 188 | 6.25 | 3.09 | 197 | 7.50 | 3.59 | 232 | 10.50 | 4.81 | 311 |
| 90 | 6.75 | 9.50 | 3.11 | 190 | 6.00 | 3.06 | 190 | 6.50 | 3.24 | 207 | 8.00 | 3.84 | 246 | 11.25 | 5.18 | 329 |
| 96 | 7.00 | 10.00 | 3.15 | 191 | 6.25 | 3.21 | 200 | 7.00 | 3.49 | 218 | 8.50 | 4.10 | 260 | 12.00 | 5.56 | 350 |

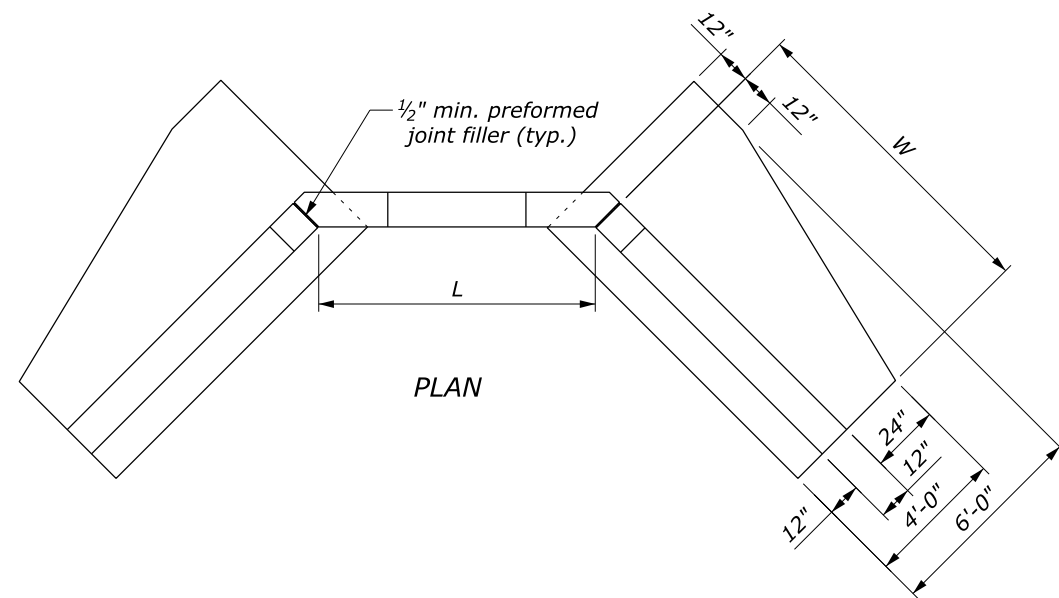
| WINGWALL | PIPE SKEW | | | |
|----------|-----------|-----|-----|-----|
| | 0° | 15° | 30° | 45° |
| ① | 45° | 45° | 60° | 60° |
| ② | 45° | 30° | 15° | 0° |
| ③ | 45° | 30° | 15° | 0° |
| ④ | 45° | 45° | 60° | 60° |

NOTE:

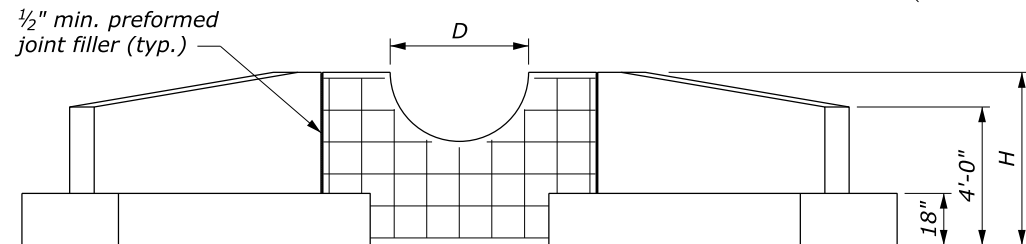
- Concrete conforms to Section 601. Chamfer all exposed edges 3/4-inch and finish all exposed surfaces with a Class 1 ordinary finish.
- Reinforcing steel clearance is 2-inches unless otherwise noted.
- For skew angles shown in table, the length W and quantities for wingwalls are computed for a 1V:1.5H side slope. For 1V:2H or 1V:2.5H slopes compute length W with the following equation:
 $W = D/2 \times \text{slope} \times \text{secant (wingwall skew angle)}$
 Minimum W not less than 6 feet.
- Quantities shown in table are for one wingwall only. For lengths W not shown in table, approximate the quantities by multiplying the quantities for 0° skew and a given height H by the factor: $1 + [(W-6.0) \times 0.14]$.
- See Standards 601-1 and 601-2 for headwall and slope paving dimensions.
- Final quantities will be determined by using the tables on this standard.
- Do not order materials until the length, skew angle, and slope bevel in the field have been approved.



SECTION A-A

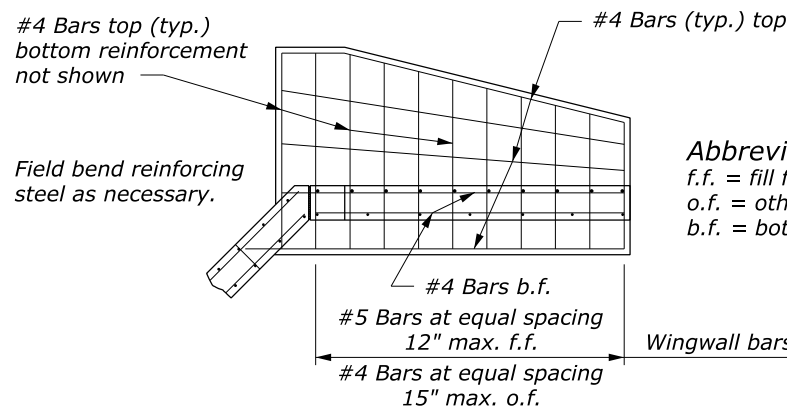


PLAN

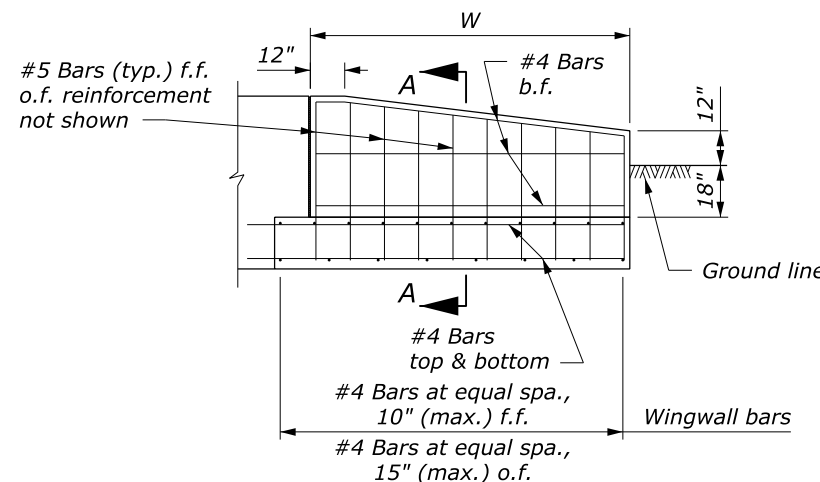


ELEVATION

HEADWALL AND WINGWALL



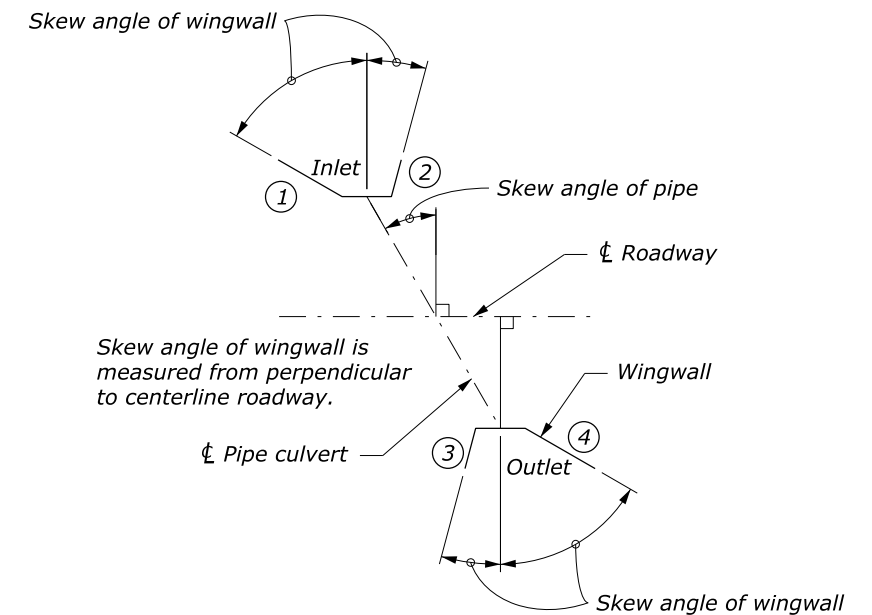
PLAN



ELEVATION

TYPICAL WINGWALL

Abbreviations:
 f.f. = fill face
 o.f. = other face
 b.f. = both faces



WINGWALL LAYOUT

NO SCALE

| | |
|--|-------------------|
| U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION FEDERAL LANDS HIGHWAY | |
| U.S. CUSTOMARY STANDARD | |
| WINGWALLS FOR CONCRETE HEADWALLS | |
| STANDARD APPROVED FOR USE 6/2005 REVISED: 6/2007 | STANDARD 601-3 |