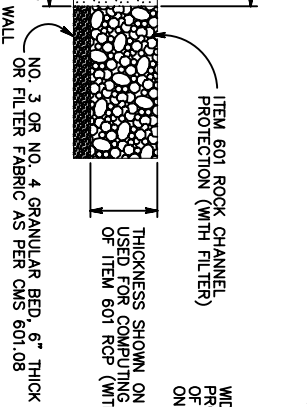
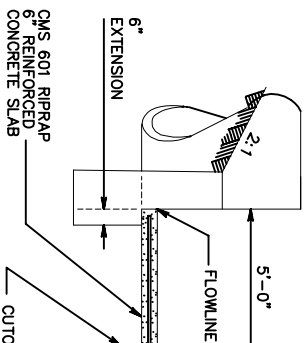


** TOP SURFACE OF 6" INLET HEADWALL EXTENSION

HEADWALL FOR CONCRETE PIPE

| CIRCULAR | | | | ELLIPTICAL | | | | | | |
|----------|--------|--------|-----|----------------|------|------|---------|--------|-----|----------------|
| D | W | H | T | Conc. Cu. Yds. | Span | Rise | W | H | T | Conc. Cu. Yds. |
| 12" | 2'-0" | 3'-0" | 12" | .20 | 23" | 14" | 3'-0" | 3'-2" | 12" | .29 |
| 15" | 2'-6" | 3'-2" | 12" | .26 | 30" | 19" | 3'-2" | 3'-4" | 12" | .35 |
| 18" | 3'-0" | 3'-3" | 12" | .31 | 34" | 22" | 3'-11" | 3'-5" | 12" | .38 |
| 21" | 3'-6" | 3'-4" | 12" | .37 | 38" | 24" | 4'-6" | 3'-6" | 12" | .44 |
| 24" | 4'-0" | 3'-6" | 12" | .43 | 42" | 27" | 4'-8" | 3'-7" | 12" | .45 |
| 27" | 4'-6" | 3'-8" | 12" | .49 | 45" | 29" | 5'-2" | 3'-8" | 12" | .49 |
| 30" | 5'-0" | 3'-9" | 12" | .56 | 49" | 32" | 5'-5" | 3'-10" | 12" | .52 |
| 33" | 5'-6" | 3'-10" | 12" | .62 | 53" | 34" | 5'-11" | 4'-0" | 14" | .66 |
| 36" | 6'-0" | 4'-0" | 12" | .69 | 60" | 38" | 6'-10" | 4'-2" | 14" | .82 |
| 39" | 6'-6" | 4'-2" | 12" | .77 | 68" | 43" | 8'-0" | 4'-4" | 16" | 1.01 |
| 42" | 7'-0" | 4'-3" | 12" | .84 | 76" | 48" | 9'-2" | 5'-0" | 16" | 1.34 |
| 48" | 8'-0" | 4'-6" | 12" | 1.09 | 83" | 53" | 10'-4" | 5'-2" | 18" | 1.66 |
| 54" | 9'-3" | 4'-9" | 14" | 1.32 | 91" | 58" | 11'-6" | 5'-5" | 18" | 1.97 |
| 60" | 10'-6" | 5'-6" | 16" | 1.93 | 98" | 63" | 12'-7" | 5'-7" | 20" | 2.38 |
| 66" | 11'-9" | 5'-9" | 18" | 2.42 | 106" | 68" | 13'-9" | 5'-10" | 20" | 2.69 |
| 72" | 13'-0" | 6'-3" | 18" | 2.77 | 113" | 72" | 14'-9" | 6'-0" | 22" | 3.14 |
| 78" | 14'-3" | 6'-3" | 20" | 3.37 | 121" | 77" | 15'-11" | 6'-3" | 22" | 3.49 |
| 84" | 15'-6" | 6'-6" | 22" | 4.05 | 128" | 82" | 17'-0" | 6'-5" | 24" | 4.04 |
| 90" | 16'-9" | 6'-9" | 22" | 4.51 | 136" | 87" | 18'-2" | 6'-8" | 24" | 4.84 |
| 96" | 18'-0" | 7'-0" | 24" | 5.31 | 143" | 92" | 19'-4" | 6'-10" | 26" | 5.12 |
| 102" | 19'-3" | 7'-3" | 26" | 6.20 | 151" | 97" | 20'-6" | 7'-1" | 26" | 5.42 |
| 108" | 20'-6" | 7'-6" | 26" | 6.78 | 166" | 106" | 22'-7" | 7'-5" | 28" | 6.80 |
| 114" | 21'-9" | 7'-9" | 28" | 7.81 | 180" | 116" | 24'-10" | 7'-10" | 30" | 7.99 |
| 120" | 23'-0" | 8'-0" | 30" | 8.93 | | | | | | |
| 126" | 24'-3" | 8'-3" | 30" | 9.57 | | | | | | |
| 132" | 25'-6" | 8'-6" | 32" | 10.84 | | | | | | |
| 144" | 28'-0" | 9'-0" | 34" | 13.00 | | | | | | |



THE DEPTH OF THE RIPRAP CUTOFF WALL (2'-6" MIN.) SHALL MATCH THE THICKNESS OF THE ROCK PROTECTION SHOWN ON THE PLANS 6'.

OUTLET CHANNEL PROTECTION DETAIL.

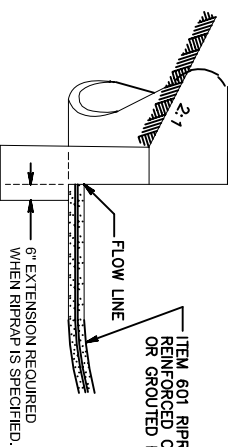
WIDTH OF RIPRAP AND ROCK CHANNEL PROTECTION SHALL BE EQUAL TO THE WIDTH OF HEADWALL UNLESS OTHERWISE SHOWN ON THE PLANS. (MINIMUM WIDTH 4'-0")

THICKNESS SHOWN ON PLAN AND USED FOR COMPUTING QUANTITY OF ITEM 601 RCP (WITH FILTER)

ITEM 601 ROCK CHANNEL PROTECTION (WITH FILTER)

NO. 3 OR NO. 4 GRANULAR BED, 6" THICK OR FILTER FABRIC AS PER CMS 601.08

NOTE
CONCRETE: CONCRETE HEADWALLS SHALL BE CLASS C.
CONCRETE QUANTITIES BASED ON HEADWALLS WITHOUT THE 6" EXTENSION UNDER THE CHANNEL PROTECTION.



INLET CHANNEL PROTECTION DETAIL

CONCRETE PIPE HEADWALLS HW-4B

STD0019