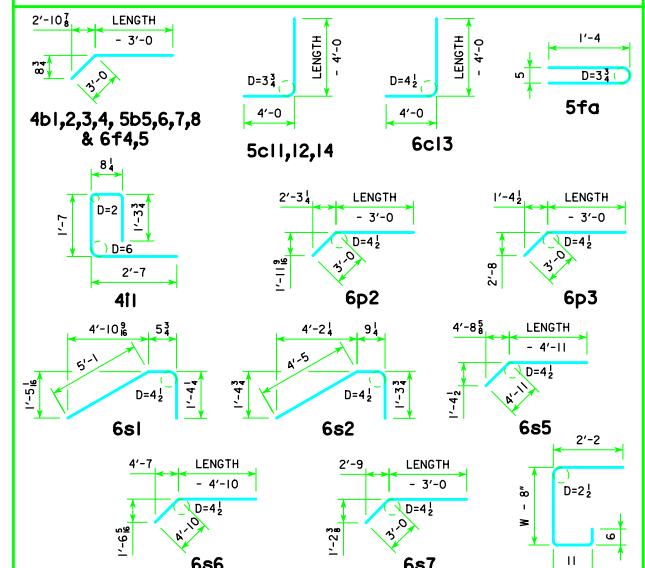


ENGLISH REDUCED/PLELECULVERTS.DGN - TRH 15-7-12 - THIS SHEET ISSUED 04-12.

BILL OF REINFORCING FOR ONE HEADWALL 15° SKEW CULVERT SPAN x CULVERT HEIGHT

Table with columns for BAR, LOCATION, SHAPE, NO., LENGTH, and WEIGHT for various reinforcement items like FENCE ANCHOR, WINGWALL, INTERIOR WALLS, APRON, and CURTAIN. Includes summary rows for REINFORCING STEEL, CONCRETE, PARAPET, WINGWALLS, and FOOTING.

BENT BAR DETAILS



NOTE: ALL DIMENSIONS ARE OUT TO OUT. D = PIN DIAMETER.
Δ INCLUDES TOP OF WINGWALL QUANTITIES.
* ASSUMES APRON AND FLOOR ARE EQUAL THICKNESS, ADJUST CONCRETE QUANTITIES FOR TRANSITION WHERE APRON AND FLOOR THICKNESS ARE NOT EQUAL.
NOTE: WEIGHT OF BARS OVER 40'-0 LONG INCLUDES AN ALLOWANCE OF 2'-3 FOR LAP. LENGTHS SHOWN FOR BARS OVER 40'-0 LONG DO NOT INCLUDE LAP.
SHORT DENOTES SHORT WINGWALL
LONG DENOTES LONG WINGWALL

HEADWALL NOTES:

- 1. SEE DRAWING TRRCS G1-12 FOR GENERAL INFORMATION, SPECIFICATIONS, AND DESIGN STRESSES.
2. THIS HEADWALL IS BASED ON A 3:1 SLOPE NORMAL TO CENTERLINE OF ROADWAY.
3. THE SIDES OF THE FOOTING ARE TO BE FORMED TO INSURE CORRECT LINE AND GRADE.
4. ALL SLAB AND FLOOR REINFORCING STEEL IS TO BE SUPPORTED BY BAR CHAIRS AT INTERVALS OF NOT MORE THAN 3'-0 IN EITHER DIRECTION AS OUTLINED IN THE STANDARD SPECIFICATIONS.
5. CLEAR DISTANCE FROM FACE OF CONCRETE TO NEAR REINFORCING BAR IS TO BE 2" UNLESS OTHERWISE NOTED OR SHOWN. CLEARANCE TO THE BOTTOM ENDS OF VERTICAL BARS SHALL BE 3 INCHES.
6. CONCRETE QUANTITIES ARE ESTIMATED FROM BACK OF PARAPET.
7. HORIZONTAL TAILS OF BARS "b" & "s" ESTIMATED TO EXTEND 2'-0 BEYOND BACK OF PARAPET (INTO END OF BARREL. LONGITUDINAL BARS "d", "f", AND "g" ESTIMATED TO PROJECT INTO END SECTION OF BARREL. A MINIMUM OF 2'-0 BEYOND BACK OF PARAPET.
8. THE "LENGTH" COLUMN REFLECTS TOTAL NUMBER OF FEET NECESSARY TO MEET THESE REQUIREMENTS.

Iowa Department of Transportation Highway Division
STANDARD DESIGN
TRIPLE REINFORCED CONCRETE BOX CULVERTS
APRIL, 2012
FLARED WING HEADWALLS 15° SKEW
TRH 15-7-12

LATEST REVISION DATE
[Signature]
APPROVED BY BRIDGE ENGINEER