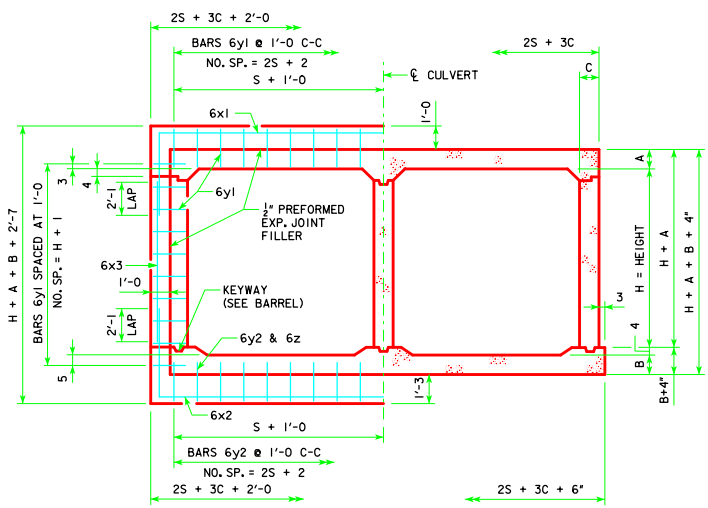


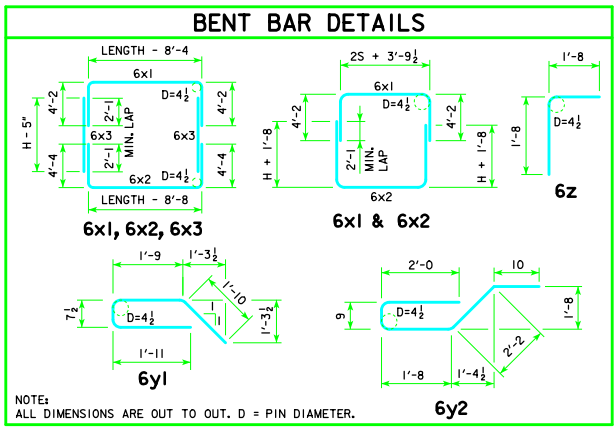
REVISED 07-13 - THE #9 BARS WERE ADDED TO NOTE NUMBER 7. ENGLISH DESIGNATED IN CULVERTS.DGN - MODEL I-12 - THIS SHEET ISSUED 04-12.



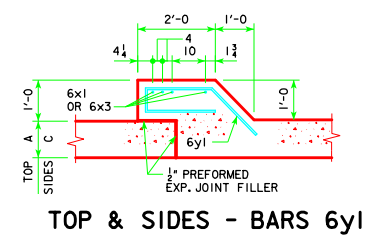
**JOINT DETAIL SECTION THRU BARREL**

ESTIMATE OF QUANTITIES - ONE JOINT - 8' SPAN																	
BILL OF REINFORCING STEEL		8' x 4'		8' x 5'		8' x 6'		8' x 7'		8' x 8'		8' x 9'		8' x 10'			
BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT
6x1	SLAB & WALLS		4	28'-2"	169	4	28'-2"	169	4	28'-2"	169	4	28'-2"	169	4	28'-6"	171
6x2	FLOOR & WALLS		4	31'-2"	187	4	33'-2"	199	4	28'-6"	171	4	28'-6"	171	4	28'-6"	171
6x3	WALLS		--	--	--	--	--	--	8	5'-7"	67	8	6'-7"	79	8	8'-7"	103
6y1	TOP & SIDES		31	6'-2"	287	33	6'-2"	306	35	6'-2"	324	37	6'-2"	343	39	6'-2"	361
6y2	BOTTOM		19	7'-5"	212	19	7'-5"	212	19	7'-5"	212	19	7'-5"	212	19	7'-5"	212
6z	BOTTOM & FLOOR		19	3'-4"	95	19	3'-4"	95	19	3'-4"	95	19	3'-4"	95	19	3'-4"	95
TOTAL WEIGHT (LB)					950			981			1038			1069			1130
TOTAL CONCRETE (CY)					5.2			5.4			5.6			5.8			6.0

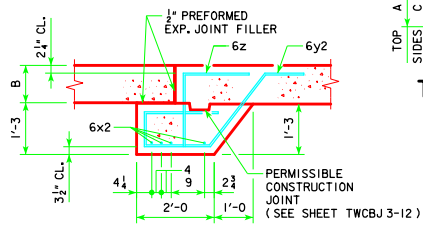
CONCRETE PLACEMENT						
BARREL SIZE	BARREL DIMENSION			BELL JOINT QUANTITIES (CY)		
	A	B	C	FOOTING	WALLS	SLAB
8' x 4'	9.5	11.5	9	2.535	0.668	2.039
8' x 5'	9.5	11.5	9	2.535	0.850	2.039
8' x 6'	9.5	12	9	2.543	1.032	2.039
8' x 7'	9.5	12	9	2.543	1.214	2.039
8' x 8'	9.5	12	9	2.543	1.396	2.039
8' x 9'	9.5	12	9	2.543	1.578	2.039
8' x 10'	9	12	10.5	2.586	1.760	2.066



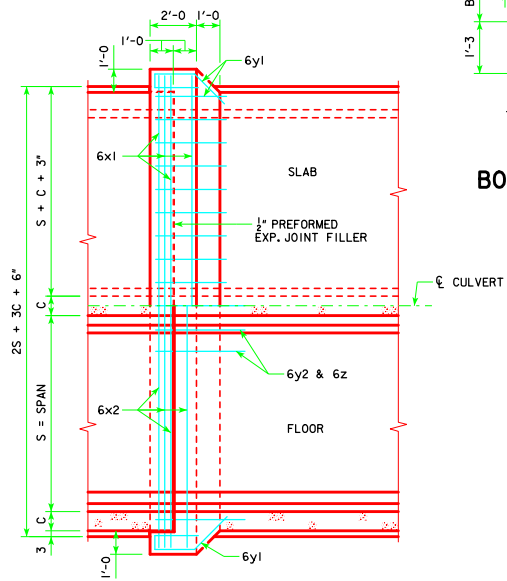
NOTE: ALL DIMENSIONS ARE OUT TO OUT. D = PIN DIAMETER.



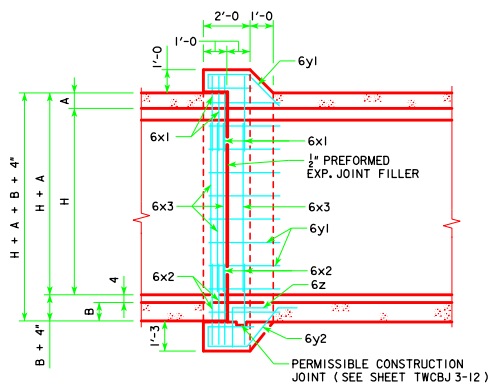
**TOP & SIDES - BARS 6y1**



**BOTTOM - BARS 6y2 & 6z**



**PLAN VIEW**



**LONGITUDINAL SECTION**

**NOTES:**

- DIMENSIONS AND QUANTITIES SHOWN ARE BASED ON SLAB, FLOOR, AND WALL THICKNESSES (A, B, AND C, RESPECTIVELY). VALUES FOR THESE DIMENSIONS, UNDER VARYING FILL CONDITIONS, CAN BE FOUND ON THE TWRCB CULVERT BARREL DETAIL SHEETS.
- CHANGE LENGTHS OF BARS 6x1, 6x2, 6z, AND ADJUST REINFORCING STEEL AND CONCRETE QUANTITIES ACCORDINGLY FOR SLAB, WALL AND FLOOR THICKNESSES OTHER THAN SHOWN.
- ALL BAR LENGTHS ARE ESTIMATED WITH A 2" CLEARANCE FROM CONCRETE EDGE TO OUTSIDE OF BAR, EXCEPT AS NOTED.
- MATERIAL AND CONSTRUCTION TO BE IN ACCORDANCE WITH THE CURRENT STANDARD SPECIFICATIONS OF I.D.O.T.
- SEE SHEET TWRCB GI-12 FOR GENERAL INFORMATION, SPECIFICATIONS AND DESIGN STRESSES.
- BARS 6x1 & 6x2 MAY BE FURNISHED IN TWO EQUAL LENGTHS ADDING 2'-3" TO THE OVERALL LENGTH TO OBTAIN A 2'-3" MIN. LAP. THE ABOVE IS TO BE PERFORMED AT NO ADDITIONAL COST TO THE CONTRACTING AUTHORITY.
- BARREL FLOOR BARS m1 & m9 ARE TO BE SHORTENED 6" IN LENGTH AT BELL JOINTS.

LATEST REVISION DATE 07-13	APPROVED BY BRIDGE ENGINEER <i>Thomas E. M. Donnell</i>		
		STANDARD DESIGN <b>TWIN REINFORCED CONCRETE BOX CULVERTS</b> APRIL, 2012	
		<b>CULVERT BELL JOINTS</b>	<b>TWRCBJ I-12</b> 8' SPAN