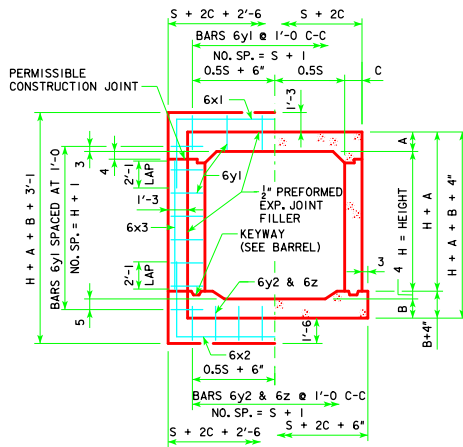
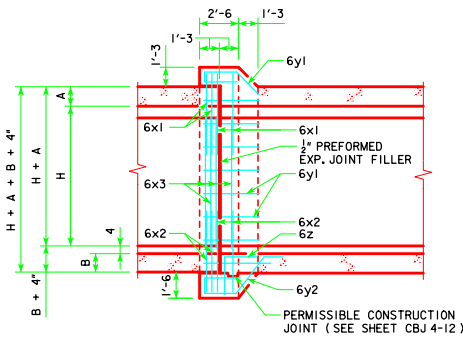


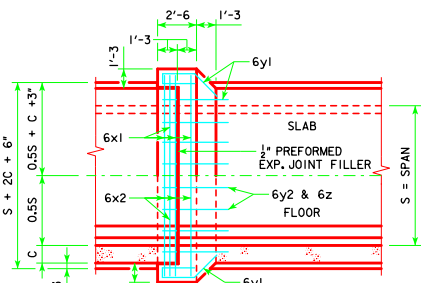
REVISED 07-13 - THE #9 BARS WERE ADDED TO NOTE NUMBER 6. FLOOR REINFORCING IN CULVERTS ON CBJ 3-12 - THIS SHEET.



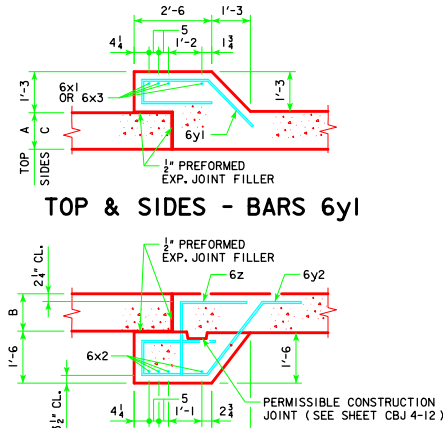
JOINT DETAIL SECTION THRU BARREL



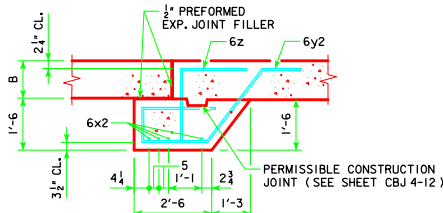
LONGITUDINAL SECTION



PLAN VIEW



TOP & SIDES - BARS 6y1



BOTTOM - BARS 6y2 & 6z

ESTIMATE OF QUANTITIES - ONE JOINT - 10' SPAN

BILL OF REINFORCING STEEL	10' x 4'		10' x 5'		10' x 6'		10' x 7'		10' x 8'		10' x 9'		10' x 10'		10' x 11'		10' x 12'											
BAR LOCATION	SHAPE	NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT									
6x1 SLAB & WALLS		4	23'-11"	144	4	23'-11"	144	4	23'-11"	144	4	24'-0"	144	4	24'-3"	146	4	24'-5"	147	4	24'-7"	148	4	24'-10"	149			
6x2 FLOOR & WALLS		4	25'-9"	155	4	27'-0"	167	4	23'-9"	143	4	23'-10"	143	4	24'-1"	145	4	24'-5"	146	4	24'-5"	147	4	24'-8"	148			
6x3 WALLS		--	--	--	--	--	--	8	5'-2"	62	8	6'-2"	74	8	7'-2"	86	8	8'-2"	98	8	9'-2"	110	8	10'-2"	122	8	11'-2"	134
6y1 TOP & SIDES		24	8'-0"	288	26	8'-0"	312	28	8'-0"	336	30	8'-0"	360	32	8'-0"	384	34	8'-0"	408	36	8'-0"	432	38	8'-0"	456	40	8'-0"	480
6y2 BOTTOM		12	9'-6"	171	12	9'-6"	171	12	9'-6"	171	12	9'-6"	171	12	9'-6"	171	12	9'-6"	171	12	9'-6"	171	12	9'-6"	171	12	9'-7"	173
6z BOTTOM & FLOOR		12	3'-11"	71	12	3'-11"	71	12	3'-11"	71	12	3'-11"	71	12	3'-11"	71	12	3'-11"	71	12	3'-11"	71	12	3'-11"	71	12	3'-11"	71
TOTAL WEIGHT (LB)				829			865			927			963			1000			1040			1078			1116			
TOTAL CONCRETE (CY)				6.2			6.5			6.8			7.1			7.4			7.8			8.1			8.5			

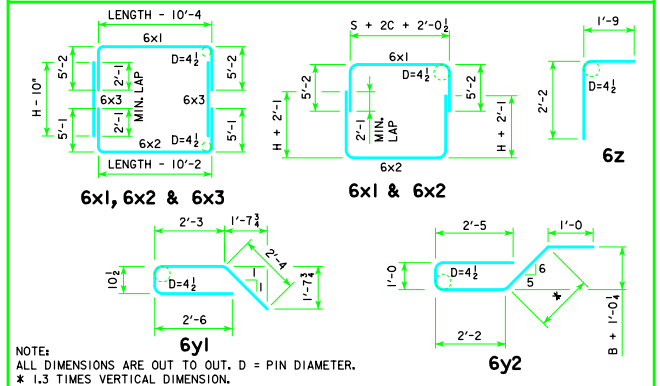
ESTIMATE OF QUANTITIES - ONE JOINT - 12' SPAN

BILL OF REINFORCING STEEL	12' x 4'		12' x 5'		12' x 6'		12' x 7'		12' x 8'		12' x 9'		12' x 10'		12' x 11'		12' x 12'											
BAR LOCATION	SHAPE	NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT	NO.	LENGTH	WEIGHT									
6x1 SLAB & WALLS		4	26'-2"	157	4	26'-2"	157	4	26'-1"	157	4	26'-1"	157	4	26'-3"	158	4	26'-5"	159	4	26'-8"	160	4	26'-10"	161			
6x2 FLOOR & WALLS		4	28'-9"	168	4	30'-0"	180	4	25'-11"	156	4	25'-11"	156	4	26'-1"	157	4	26'-3"	158	4	26'-6"	159	4	26'-8"	160			
6x3 WALLS		--	--	--	--	--	--	8	5'-2"	62	8	6'-2"	74	8	7'-2"	86	8	8'-2"	98	8	9'-2"	110	8	10'-2"	122	8	11'-2"	134
6y1 TOP & SIDES		26	8'-0"	312	28	8'-0"	336	30	8'-0"	360	32	8'-0"	384	34	8'-0"	408	36	8'-0"	432	38	8'-0"	456	40	8'-0"	480			
6y2 BOTTOM		14	9'-10"	207	14	9'-10"	207	14	9'-10"	207	14	9'-10"	207	14	9'-10"	207	14	9'-10"	207	14	9'-10"	207	14	9'-10"	207			
6z BOTTOM & FLOOR		14	3'-11"	82	14	3'-11"	82	14	3'-11"	82	14	3'-11"	82	14	3'-11"	82	14	3'-11"	82	14	3'-11"	82	14	3'-11"	82			
TOTAL WEIGHT (LB)				926			962			1024			1061			1097			1135			1173			1249			
TOTAL CONCRETE (CY)				7.1			7.3			7.6			7.9			8.2			8.5			8.8			9.6			

CONCRETE PLACEMENT

BARREL SIZE	BARREL DIMENSION			BELL JOINT QUANTITIES (CY)		
	A	B	C	FOOTING	WALLS	SLAB
10' x 4'	12.5	14	9	2.808	1.047	2.372
10' x 5'	12.5	14	9	2.808	1.332	2.372
10' x 6'	12	14	9	2.808	1.618	2.360
10' x 7'	12.5	14.5	9	2.819	1.903	2.372
10' x 8'	12	14.5	9.5	2.834	2.189	2.372
10' x 9'	12.5	14.5	11	2.877	2.474	2.419
10' x 10'	12.5	14.5	12	2.905	2.760	2.443
10' x 11'	12.5	15	13	2.946	3.045	2.467
10' x 12'	12.5	15	14.5	2.989	3.331	2.502
12' x 4'	14.5	17	10.5	3.265	1.047	2.740
12' x 5'	14.5	17	10.5	3.265	1.332	2.740
12' x 6'	14.5	17	10	3.251	1.618	2.728
12' x 7'	14.5	17	10	3.251	1.903	2.728
12' x 8'	14.5	17	10	3.251	2.189	2.728
12' x 9'	14.5	17	11	3.279	2.474	2.752
12' x 10'	14.5	17	12	3.308	2.760	2.776
12' x 11'	14.5	17.5	13.5	3.363	3.045	2.812
12' x 12'	14.5	17.5	14.5	3.392	3.331	2.835

BENT BAR DETAILS



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 RCB 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 RCB G1-12 FOR GENERAL INFORMATION, SPECIFICATIONS, AND DESIGN STRESSES.
- BARREL FLOOR BARS m1 & m9 ARE TO BE SHORTENED 6" IN LENGTH AT BELL JOINTS.

LATEST REVISION DATE 07-13 APPROVED BY BRIDGE ENGINEER 	 Iowa Department of Transportation Highway Division
	STANDARD DESIGN SINGLE REINFORCED CONCRETE BOX CULVERTS APRIL, 2012
	CULVERT BELL JOINTS CBJ 3-12 10' & 12' SPANS