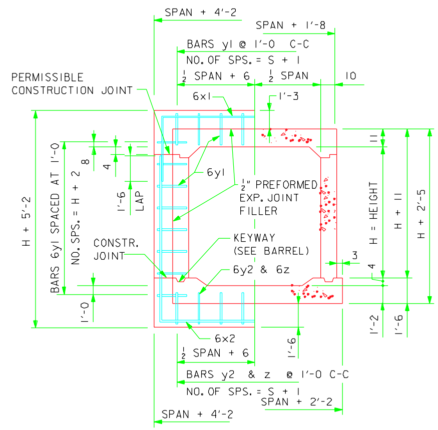
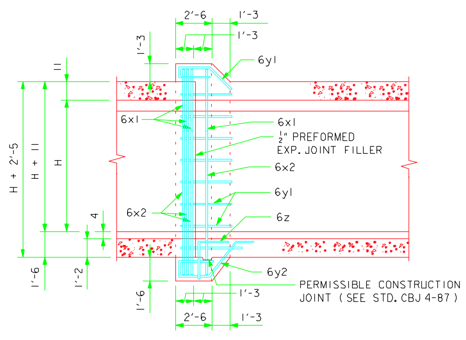
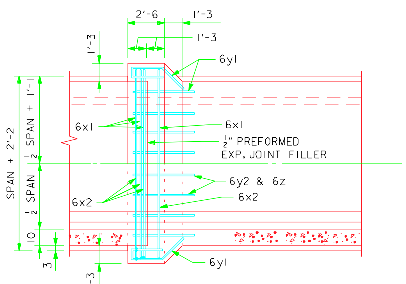


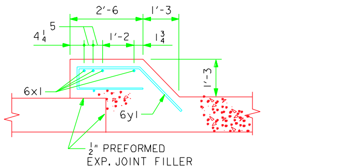
JOINT DETAIL
SECTION THRU BARREL



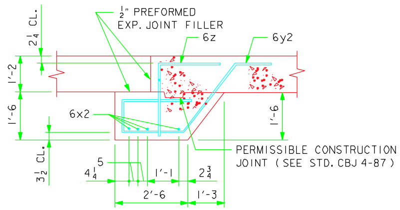
LONGITUDINAL SECTION



PLAN VIEW



TOP & SIDES - BARS y1



BOTTOM BARS - y2 & z

ESTIMATE OF QUANTITIES - ONE JOINT - 10' SPAN

BILL OF REINFORCING STEEL

MARK	LOCATION	SHAPE	10' x 4' SIZE	NO.	LENGTH	LIN. FT.	10' x 5' SIZE	NO.	LENGTH	LIN. FT.	10' x 6' SIZE	NO.	LENGTH	LIN. FT.
x1	SLAB AND WALLS		6	4	23'-8	94.7	6	4	23'-8	94.7	6	4	23'-8	94.7
x2	FLOOR AND WALLS		6	4	23'-10	95.3	6	4	25'-10	103.3	6	4	23'-8	94.7
x3	WALLS		—	—	—	—	—	—	—	—	6	8	3'-8	29.3
y1	TOP AND SIDES		6	26	8'-0	208.0	6	28	8'-0	224.0	6	30	8'-0	240.0
y2	BOTTOM		6	12	9'-0	108.0	6	12	9'-0	108.0	6	12	9'-0	108.0
z	BOTTOM & FLOOR		6	12	4'-0	48.0	6	12	4'-0	48.0	6	12	4'-0	48.0
					LENGTH	554.0			LENGTH	578.0			LENGTH	614.7
TOTAL WEIGHT						832 lbs.				868 lbs.				923 lbs.
TOTAL CONCRETE						6.3 cu. yds.				6.6 cu. yds.				6.9 cu. yds.

MARK	LOCATION	10' x 8' SIZE	NO.	LENGTH	LIN. FT.	10' x 10' SIZE	NO.	LENGTH	LIN. FT.	10' x 12' SIZE	NO.	LENGTH	LIN. FT.
x1	SLAB AND WALLS	6	4	23'-8	94.7	6	4	23'-8	94.7	6	4	23'-8	94.7
x2	FLOOR AND WALLS	6	4	23'-8	94.7	6	4	23'-8	94.7	6	4	23'-8	94.7
x3	WALLS	6	8	5'-8	45.3	6	8	7'-8	61.3	6	8	9'-8	77.3
y1	TOP AND SIDES	6	34	8'-0	272.0	6	38	8'-0	304.0	6	42	8'-0	336.0
y2	BOTTOM	6	12	9'-0	108.0	6	12	9'-0	108.0	6	12	9'-0	108.0
z	BOTTOM & FLOOR	6	12	4'-0	48.0	6	12	4'-0	48.0	6	12	4'-0	48.0
				LENGTH	662.7			LENGTH	710.7			LENGTH	758.7
TOTAL WEIGHT					995 lbs.				1067 lbs.				1140 lbs.
TOTAL CONCRETE					7.4 cu. yds.				8.0 cu. yds.				8.6 cu. yds.

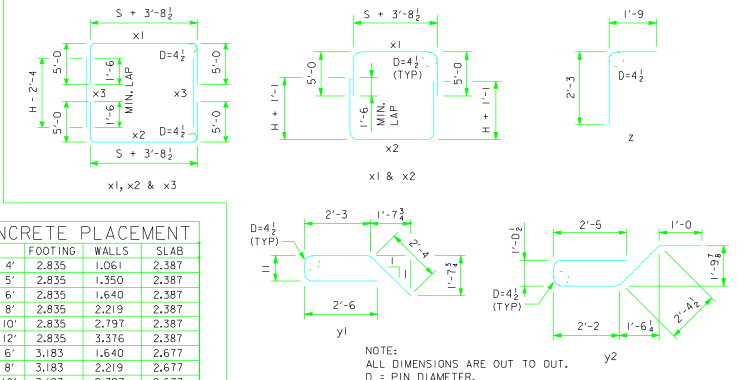
ESTIMATE OF QUANTITIES - ONE JOINT - 12' SPAN

BILL OF REINFORCING STEEL

MARK	LOCATION	SHAPE	12' x 6' SIZE	NO.	LENGTH	LIN. FT.	12' x 8' SIZE	NO.	LENGTH	LIN. FT.
x1	SLAB AND WALLS		6	4	25'-8	102.7	6	4	25'-8	102.7
x2	FLOOR AND WALLS		6	4	25'-8	102.7	6	4	25'-8	102.7
x3	WALLS		6	8	3'-8	29.3	6	8	5'-8	45.3
y1	TOP AND SIDES		6	32	8'-0	256.0	6	36	8'-0	288.0
y2	BOTTOM		6	14	9'-0	126.0	6	14	9'-0	126.0
z	BOTTOM & FLOOR		6	14	4'-0	56.0	6	14	4'-0	56.0
					LENGTH	672.7			LENGTH	720.7
TOTAL WEIGHT						1010 lbs.				1082 lbs.
TOTAL CONCRETE						7.5 cu. yds.				8.1 cu. yds.

MARK	LOCATION	12' x 10' SIZE	NO.	LENGTH	LIN. FT.	12' x 12' SIZE	NO.	LENGTH	LIN. FT.
x1	SLAB AND WALLS	6	4	25'-8	102.7	6	4	25'-8	102.7
x2	FLOOR AND WALLS	6	4	25'-8	102.7	6	4	25'-8	102.7
x3	WALLS	6	8	7'-8	61.3	6	8	9'-8	77.3
y1	TOP AND SIDES	6	40	8'-0	320.0	6	44	8'-0	352.0
y2	BOTTOM	6	14	9'-0	126.0	6	14	9'-0	126.0
z	BOTTOM & FLOOR	6	14	4'-0	56.0	6	14	4'-0	56.0
				LENGTH	768.7			LENGTH	816.7
TOTAL WEIGHT					1155 lbs.				1227 lbs.
TOTAL CONCRETE					8.7 cu. yds.				9.2 cu. yds.

BENT BAR DETAILS



CONCRETE PLACEMENT

SIZE	FOOTING	WALLS	SLAB
10' X 4'	2.835	1.061	2.387
10' X 5'	2.835	1.350	2.387
10' X 6'	2.835	1.640	2.387
10' X 8'	2.835	2.219	2.387
10' X 10'	2.835	2.797	2.387
10' X 12'	2.835	3.376	2.387
12' X 6'	3.183	1.640	2.677
12' X 8'	3.183	2.219	2.677
12' X 10'	3.183	2.797	2.677
12' X 12'	3.183	3.376	2.677

NOTES:

1. DIMENSIONS AND QUANTITIES SHOWN BASED ON SLAB THICKNESS OF 11", WALL = 10", AND FLOOR = 1'-2.
2. CHANGE LENGTHS OF BARS x1, x2, z, AND ADJUST REINFORCING STEEL AND CONCRETE QUANTITIES ACCORDINGLY FOR SLAB, WALL, AND FLOOR THICKNESSES OTHER THAN SHOWN.
3. ALL BAR LENGTHS ARE ESTIMATED WITH A 2" CLEARANCE FROM CONCRETE EDGE TO OUTSIDE OF BAR, EXCEPT AS NOTED.
4. MATERIAL AND CONSTRUCTION TO BE IN ACCORDANCE WITH THE CURRENT STANDARD SPECIFICATIONS OF I.D.O.T.
5. SEE DRAWING RCB-GI-87 FOR GENERAL INFORMATION, SPECIFICATIONS, AND DESIGN STRESSES.
6. BARREL FLOOR BARS m1 ARE TO BE SHORTENED 6" AT BELL JOINTS.

LATEST REVISION DATE : 04-02

APPROVED BY : [signature]

STANDARD DESIGN

CULVERT BELL JOINTS

FOR
REINFORCED CONCRETE BOX CULVERTS
10' AND 12' SPANS

HIGHWAY DIVISION
IOWA DEPARTMENT OF TRANSPORTATION

MAY , 1987

CBJ 3-87

REVISED 04-02 - ADDED PERMISSIBLE CULVERT BELL JOINT.
CBJ3.SO1 -REVISED : 8/89 ; CONCRETE QUANTITIES CORRECTED. NOTE #6 ADDED.

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