ESTIMATE OF QUANTITIES - FLUME BELL JOINTS

JUNCTION BELL JOINT

MARK	SIZE	LOCATION	SHAPE	10' x 4' NO.	LENGTH	WEIGHT	10' x 5' NO.	LENGTH	WEIGHT	10' x 6' NO.	LENGTH	WEIGHT	10' x 8' NO.	LENGTH	WEIGHT	10' x 10' NO.	LENGTH	WEIGHT
x1	6	WALLS & FLOOR		4	23'-0	96	4	23'-0	96	4	23'-0	96	4	23'-2	97	4	23'-2	97
x3	6	WALLS VERT.		8	4'-4	36	8	5'-4	45	8	6'-4	53	8	8'-4	70	8	10'-4	86
y1	6	WALLS HORIZ.		12	7'-9	97	14	7'-9	113	16	7'-9	129	20	7'-11	165	24	7'-11	198
y2	6	FLOOR VERT.		12	9'-9	122	12	9'-9	122	12	9'-9	122	12	9'-9	122	12	9'-9	122
z1	6	FLOOR VERT.		12	4'-3	53	12	4'-3	53	12	4'-3	53	12	4'-3	53	12	4'-3	53
TOTAL REINFORCING STEEL				404 LBS.			429 LBS.			453 LBS.			507 LBS.			556 LBS.		
TOTAL CONCRETE				4.1 CU. YDS.			4.4 CU. YDS.			4.7 CU. YDS.			5.3 CU. YDS.			5.9 CU. YDS.		

10' x 12' NO.	LENGTH	WEIGHT	12' x 6' NO.	LENGTH	WEIGHT	12' x 8' NO.	LENGTH	WEIGHT	12' x 10' NO.	LENGTH	WEIGHT	12' x 12' NO.	LENGTH	WEIGHT	MARK
4	23'-6	98	4	25'-2	105	4	25'-4	106	4	25'-4	106	4	25'-8	107	x1
8	12'-4	103	8	6'-4	53	8	8'-4	70	8	10'-4	86	8	12'-4	103	x3
28	8'-2	238	16	7'-9	129	20	7'-11	165	24	7'-11	198	28	8'-2	238	y1
13	9'-9	132	14	9'-10	144	14	9'-9	142	14	9'-9	142	15	9'-9	153	y2
13	4'-3	58	14	4'-5	64	14	4'-5	64	14	4'-5	64	15	4'-5	69	z1
629 LBS.			495 LBS.			547 LBS.			596 LBS.			670 LBS.			
6.5 CU. YDS.			5.1 CU. YDS.			5.7 CU. YDS.			6.3 CU. YDS.			6.9 CU. YDS.			

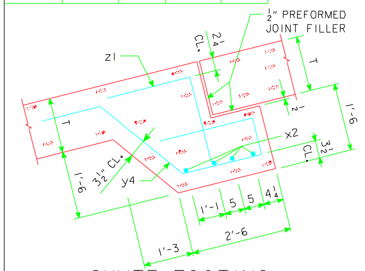
CHUTE BELL JOINT

MARK	SIZE	LOCATION	SHAPE	10' x 4' NO.	LENGTH	WEIGHT	10' x 5' NO.	LENGTH	WEIGHT	10' x 6' NO.	LENGTH	WEIGHT	10' x 8' NO.	LENGTH	WEIGHT	10' x 10' NO.	LENGTH	WEIGHT
x2	6	WALLS & FLOOR		4	23'-10	99	4	25'-4	106	4	23'-0	96	4	23'-2	97	4	23'-2	97
x4	6	WALLS VERT.		---	-----	----	---	-----	----	8	4'-0	33	8	5'-6	46	8	7'-0	58
y3	6	WALLS HORIZ.		8	7'-9	65	10	7'-9	81	12	7'-9	97	14	7'-11	116	18	7'-11	149
y4	6	FLOOR VERT.		12	9'-6	119	12	9'-6	119	12	9'-6	119	12	9'-6	119	12	9'-6	119
z1	6	FLOOR VERT.		12	4'-3	53	12	4'-3	53	12	4'-3	53	12	4'-3	53	12	4'-3	53
TOTAL REINFORCING STEEL				336 LBS.			359 LBS.			398 LBS.			431 LBS.			476 LBS.		
TOTAL CONCRETE				3.6 CU. YDS.			3.8 CU. YDS.			4.0 CU. YDS.			4.5 CU. YDS.			4.9 CU. YDS.		

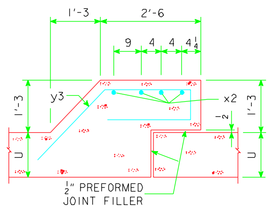
10' x 12' NO.	LENGTH	WEIGHT	12' x 6' NO.	LENGTH	WEIGHT	12' x 8' NO.	LENGTH	WEIGHT	12' x 10' NO.	LENGTH	WEIGHT	12' x 12' NO.	LENGTH	WEIGHT	MARK
4	23'-6	98	4	25'-2	105	4	25'-4	106	4	25'-4	106	4	25'-8	107	x2
8	8'-6	71	8	4'-0	33	8	5'-6	46	8	7'-0	58	8	8'-6	71	x4
20	8'-2	170	12	7'-9	97	16	7'-11	132	18	7'-11	149	22	8'-2	187	y3
13	9'-6	129	14	9'-7	140	14	9'-7	140	14	9'-7	140	15	9'-7	150	y4
13	4'-3	58	14	4'-5	64	14	4'-5	64	14	4'-5	64	15	4'-5	69	z1
526 LBS.			439 LBS.			488 LBS.			517 LBS.			584 LBS.			
5.4 CU. YDS.			4.4 CU. YDS.			4.9 CU. YDS.			5.3 CU. YDS.			5.8 CU. YDS.			

CONCRETE PLACEMENT

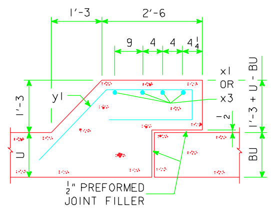
S x H	JUNCTION BELL		CHUTE BELL	
	FOOTING	WALLS	FOOTING	WALLS
10' x 4'	2.8	1.3	2.8	0.8
10' x 5'	2.8	1.6	2.8	1.0
10' x 6'	2.8	1.9	2.8	1.2
10' x 8'	2.8	2.5	2.8	1.6
10' x 10'	2.8	3.0	2.8	2.1
10' x 12'	2.9	3.6	2.9	2.5
12' x 6'	3.2	1.9	3.2	1.2
12' x 8'	3.2	2.5	3.2	1.6
12' x 10'	3.2	3.0	3.2	2.1
12' x 12'	3.3	3.6	3.3	2.5



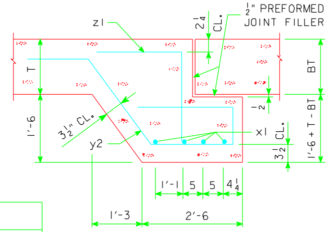
CHUTE FOOTING



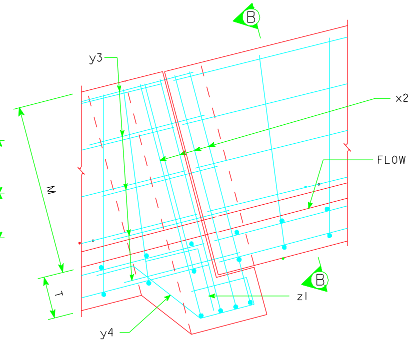
CHUTE WALLS



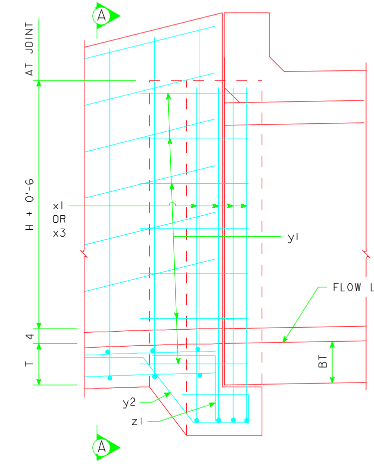
JUNCTION WALLS



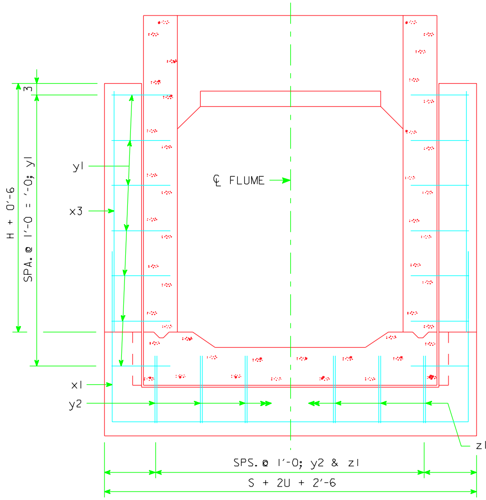
JUNCTION FOOTING



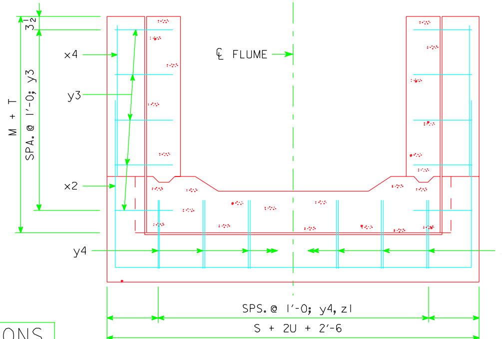
PART ELEVATION - CHUTE BELL JT.



PART ELEV. - JUNCTION BELL JT.

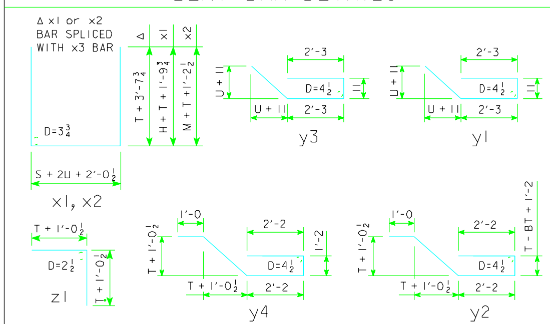


SECTION A-A



SECTION B-B

BENT BAR DETAILS



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

S = CULVERT SPAN
H = CULVERT HEIGHT

BARREL & CHUTE DIMENSIONS

S x H	M	T	U	BT	BU
10' x 4'	3'-0	1'-1	9	10 1/2	9
10' x 5'	3'-9	1'-1	9	10	9
10' x 6'	4'-6	1'-1	9	10	9
10' x 8'	6'-0	1'-1	10	10 1/2	9
10' x 10'	7'-6	1'-1	10	10	10
10' x 12'	9'-0	1'-1	1'-0	10 1/2	1'-0
12' x 6'	4'-6	1'-2	9	11 1/2	9
12' x 8'	6'-0	1'-2	10	1'-0	9
12' x 10'	7'-6	1'-2	10	1'-0	10
12' x 12'	9'-0	1'-2	1'-0	1'-0 1/2	1'-0

NOTES:
1. DIMENSIONS AND QUANTITIES SHOWN BASED ON 'U' FLUME WALLS, 'BU' BARREL WALLS, 'T' FLUME FLOOR AND 'BT' BARREL FLOOR THICKNESSES.
2. CHANGE LENGTHS OF BARS x1 AND ADJUST REINFORCING STEEL AND CONCRETE QUANTITIES ACCORDINGLY OTHER THAN WALL AND FLOOR THICKNESSES SHOWN.
3. FLOOR BARS m1 ARE TO BE SHORTENED 6" AT BELL JOINTS.
4. SEE STANDARD SHEET RCF-01-03 FOR GENERAL INFORMATION.

LATEST REVISION DATE :

APPROVED BY :

STANDARD DESIGN

FLUME BELL JOINTS

FOR

REINFORCED CONCRETE FLUMES - 10' & 12' SPANS

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

JANUARY, 2004

FBJ-03-04

FBJ0304.S01 - THIS SHEET ISSUED 01-04.

XXXXXXXXXXSYSTEMTIME XXXXXXXUSERNAME XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXDGNSPEC