

HEADWALL FOR RCR - ROUND

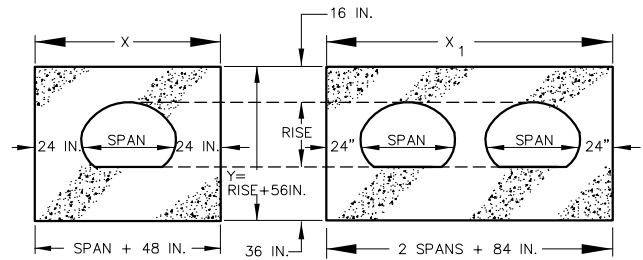
DIMENSIONS (SEE D-8a) QUANTITIES

BA	BC	X	A	X1	A1	Y	B	X2	CONCRETE		STEEL	
									SGL. Cu Yd	DBL Cu Yd	SGL LBS.	DBL LBS.
60	72	9-6	7	17-0	10	9-8	11	21	2.35	3.99	236	414
66	79	10-3	11.5	18-6	7	10-2	14	22	2.60	4.44	249	453
72	86	11-0	10	20-0	10	10-8	17	23	2.85	4.91	270	476
78	93	11-9	8.5	21-3	11	11-2	11	24	3.11	5.29	306	527
84	100	12-6	7	22-6	7	11-8	14	25	3.38	5.68	333	572
90	107	13-3	11.5	23-9	8.5	12-2	17	26	3.66	6.08	335	593
96	114	14-0	10	25-0	10	12-8	11	27	3.94	6.48	379	649
102	121	14-9	8.5	26-3	11.5	13-2	14	28	4.24	6.89	400	664
108	128	15-6	7	27-6	7	13-8	17	29	4.54	7.30	424	707

HEADWALL FOR CMP - ARCH

DIMENSIONS (SEE D-8a) QUANTITIES

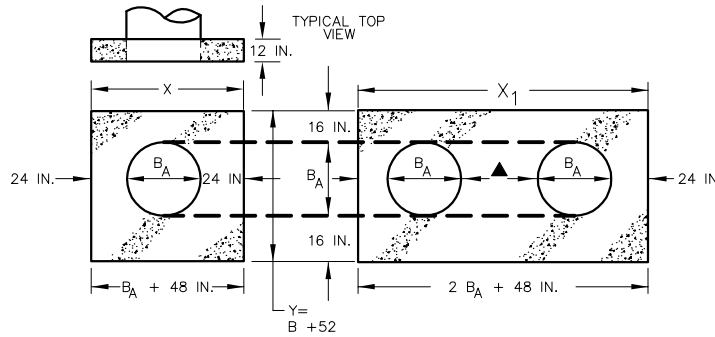
EQUIV BA	SPAN IN.	RISE IN.	X FT-IN.	A IN.	X1 FT-IN.	A1 IN.	Y FT-IN.	B IN.	CONCRETE		STEEL	
									SGL. Cu Yd	DBL Cu Yd	SGL LBS.	DBL LBS.
72	81	59	10-9	8.5	20-6	7	9-3	17.5	2.72	5.10	250	467
78	87	63	11-3	11.5	21-6	7	9-7	10.5	2.85	5.34	275	531
84	95	67	11-9	8.5	22-10	9	9-11	12.5	3.08	5.79	290	547
90	103	71	12-7	7.5	24-2	11	10-3	15	3.30	6.21	321	591
96	112	75	13-4	12	25-8	8	10-7	16.5	3.52	6.65	314	606
102	117	79	13-9	8.5	26-6	7	10-11	9.5	3.63	6.86	356	672
108	128	83	14-8	8	28-4	11	11-3	11.5	3.96	7.51	376	699



HEADWALL FOR STRUCTURAL PLATE - ARCH

DIMENSIONS (SEE D-8a) QUANTITIES

EQUIV BA	SPAN FT-IN.	RISE FT-IN.	X FT-IN.	A IN.	X1 FT-IN.	A1 IN.	Y FT-IN.	B IN.	CONCRETE		STEEL	
									SGL Cu yd	DBL Cu yd	SGL lbs	DBL lbs
66	6-1	4-7	10-1	10.5	19-2	11	8-11	15.5	2.52	4.70	2.32	424
75	7-0	5-1	11-0	10	21-0	10	9-5	9.5	2.80	5.25	2.82	509
84	7-11	5-7	11-11	9.5	22-10	9	9-11	12.5	3.08	5.79	291	540
93	8-10	6-1	12-10	9	24-8	8	10-5	15.5	3.36	6.33	309	622
102	9-9	6-7	13-9	8.5	26-6	7	10-11	9.5	3.63	6.86	379	673
111	10-11	7-1	14-11	9.5	28-10	9	11-5	12.5	4.05	7.67	377	711
120	11-10	7-7	15-10	9	30-8	8	11-11	15.5	4.36	8.28	395	731
132	12-10	8-4	16-10	9	32-8	8	12-8	11	4.75	9.03	441	839
141	14-1	8-9	18-1	10.5	35-2	11	13-1	13.5	5.17	9.86	448	931
150	15-4	9-3	19-4	12	37-8	8	13-7	16.5	5.69	10.88	490	953
159	15-10	9-10	19-10	9	38-8	8	14-2	11	5.89	11.25	534	1019



HEADWALL FOR CMP - ROUND

DIMENSIONS (SEE D-8a) QUANTITIES

BA	X	A	X1	A1	Y	B	CONCRETE		STEEL	
							SGL Cu yd	DBL Cu yd	SGL lbs	DBL lbs
60	9-0	10	16-6	7	9-4	18	2.38	4.25	217	396
66	9-6	7	17-9	8.5	9-10	12	2.56	4.70	252	454
72	10-0	10	19-0	10	10-4	15	2.78	5.17	255	472
78	10-6	7	20-0	10	10-10	18	2.96	5.56	276	499
84	11-0	10	21-0	10	11-4	12	3.19	5.95	297	553
90	11-6	7	22-0	10	11-10	15	3.40	6.38	317	571
96	12-0	10	23-0	10	12-4	18	3.62	6.79	321	597
102	12-6	7	24-0	10	12-10	12	3.84	7.21	364	663
108	13-0	10	25-0	10	13-4	15	4.06	7.63	362	678

■ - MULTIPLY X (OR X1) DIMENSION AND ALL QUANTITIES BY FACTOR IF CULVERT SKEW IS LESS THAN 90° AND HEADWALL REMAINS PARALLEL TO THE ROADWAY ☉

SKEW FACTOR TABLE

SKEW ANGLE A°	90	85	80	75	70	65	60	55	50	45	40	35	30
FACTOR (Cosec A°)	1.000	1.004	1.015	1.033	1.054	1.103	1.158	1.221	1.305	1.414	1.556	1.743	2.000

GENERAL NOTES:

- HEADWALL SHALL BE PERPENDICULAR TO THE CULVERT UNLESS SHOWN ON THE PLANS.
 - REVISED CDOH M-601-10.
 - VOLUME OCCUPIED BY PIPE HAS BEEN DEDUCTED FROM STEEL AND CONCRETE QUANTITIES.
- ▲ - WHEN 2 OR MORE CONDUITS ARE LAID SIDE BY SIDE THEY SHALL BE PLACED SO THAT THE ADJACENT PIPES WILL BE 1/2 INSIDE SPAN OR 3 FEET APART. (INCLUDING WALL THICKNESS) WHICHEVER IS LESS.

HEADWALLS FOR PIPES (60+ IN. DIAMETER AND ABOVE)



CITY OF
FORT COLLINS
UTILITIES
FORT COLLINS, CO.
(970) 221-6700

STORMWATER
CONSTRUCTION DETAILS

APPROVED:

DATE: 2-6-01

DRAWN BY: NBJ

DETAIL
D-18B