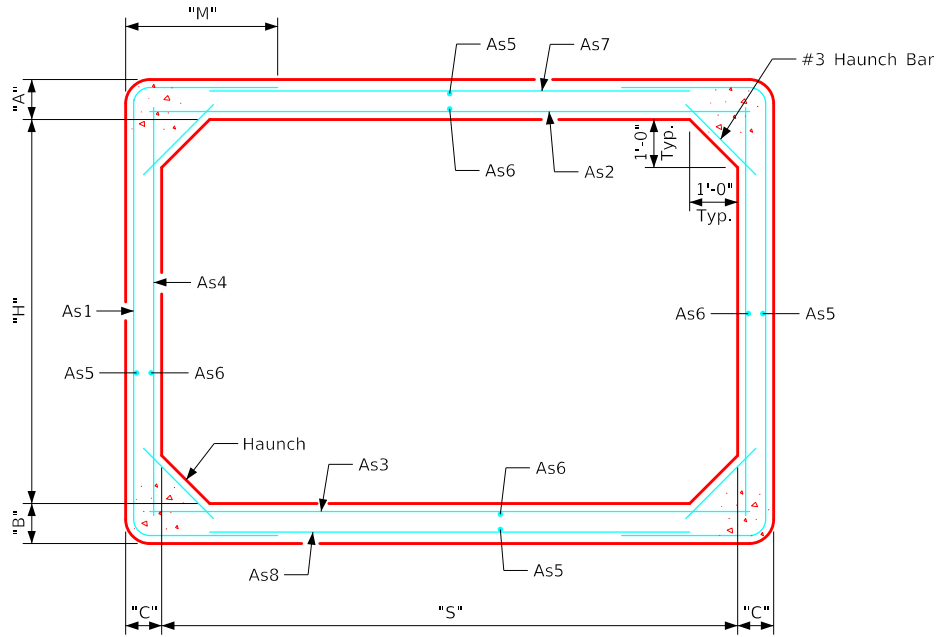


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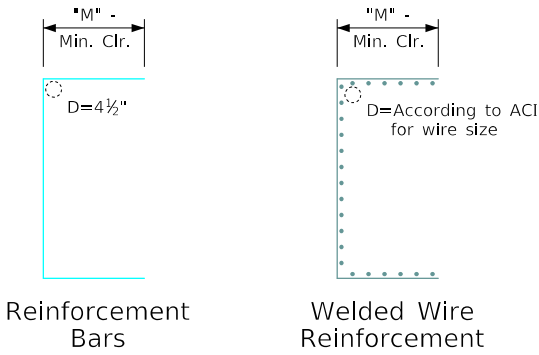
Variable Dimensions and Quantities for 12' Span Barrel Sections																				
Dimensions									Reinforcement Requirements										Weight (LB/FT)	
									As1			As2		As3		As4		As7/As8		
Size	Class	f'c (KSI)	Fill (FT)	S (FT)	H (FT)	A (IN)	B (IN)	C (IN)	Area (IN²/FT)	Length	M	Area (IN²/FT)	Length	Area (IN²/FT)	Length	Area (IN²/FT)	Length	Area (IN²/FT)	Length	
12'x4'	1	5.0	2-9	12	4	9	10	8	1.04	11'-1"	3'-1"	0.71	12'-6"	0.71	12'-6"	0.20	4'-6"	0.24	11'-4"	4270
	2	5.0	10-15	12	4	9	10	9	1.25	11'-7"	3'-4"	0.86	12'-6"	0.86	12'-6"	0.23	4'-6"	0.24	11'-6"	4410
	3	5.0	16-19	12	4	11	11	9	1.37	11'-0"	2'-11"	0.96	12'-6"	0.98	12'-6"	0.23	4'-6"	0.27	11'-6"	4915
	4	5.0	20-25	12	4	12	12	9	1.62	10'-10"	2'-9"	1.20	12'-6"	1.22	12'-6"	0.24	4'-6"	0.29	11'-6"	5250
12'x5'	1	5.0	2-10	12	5	9	10	8	1.01	11'-9"	2'-11"	0.89	12'-6"	0.89	12'-6"	0.20	5'-6"	0.24	11'-4"	4470
	2	5.0	11-15	12	5	9	10	9	1.13	12'-3"	3'-2"	0.98	12'-6"	0.98	12'-6"	0.23	5'-6"	0.24	11'-6"	4635
	3	5.0	16-21	12	5	11	11	9	1.32	11'-8"	2'-9"	1.22	12'-6"	1.25	12'-6"	0.23	5'-6"	0.27	11'-6"	5140
	4	5.0	22-25	12	5	12	12	9	1.40	11'-6"	2'-7"	1.38	12'-6"	1.40	12'-6"	0.23	5'-6"	0.29	11'-6"	5475
12'x6'	1	5.0	2-10	12	6	9	10	8	0.93	12'-5"	2'-9"	0.98	12'-6"	1.01	12'-6"	0.20	6'-6"	0.24	11'-4"	4670
	2	5.0	11-15	12	6	9	10	8	1.17	12'-7"	2'-10"	1.25	12'-6"	1.25	12'-6"	0.20	6'-6"	0.24	11'-4"	4670
	3	5.0	16-19	12	6	10	11	8	1.23	12'-5"	2'-8"	1.40	12'-6"	1.46	12'-6"	0.23	6'-6"	0.27	11'-4"	5000
	4	5.0	20-25	12	6	12	12	9	1.22	12'-4"	2'-6"	1.50	12'-6"	1.53	12'-6"	0.23	6'-6"	0.29	11'-6"	5700
12'x7'	1	5.0	2-10	12	7	9	10	8	0.77	13'-3"	2'-8"	0.92	12'-6"	0.96	12'-6"	0.20	7'-6"	0.24	11'-4"	4870
	2	5.0	11-15	12	7	9	10	8	1.05	13'-5"	2'-9"	1.34	12'-6"	1.37	12'-6"	0.20	7'-6"	0.24	11'-4"	4870
	3	5.0	16-20	12	7	10	11	8	1.16	13'-3"	2'-7"	1.61	12'-6"	1.65	12'-6"	0.20	7'-6"	0.27	11'-4"	5200
	4	5.0	21-25	12	7	12	12	9	1.10	13'-4"	2'-6"	1.62	12'-6"	1.65	12'-6"	0.23	7'-6"	0.29	11'-6"	5925
12'x8'	1	5.0	2-11	12	8	9	10	8	0.89	14'-3"	2'-8"	1.23	12'-6"	1.28	12'-6"	0.20	8'-6"	0.24	11'-4"	5070
	2	5.0	12-18	12	8	10	10	8	1.04	14'-4"	2'-8"	1.65	12'-6"	1.71	12'-6"	0.20	8'-6"	0.24	11'-4"	5235
	3	5.0	19-21	12	8	11	11	9	0.99	14'-6"	2'-8"	1.56	12'-6"	1.61	12'-6"	0.23	8'-6"	0.27	11'-6"	5815
	4	5.0	22-25	12	8	12	12	9	1.04	14'-4"	2'-6"	1.71	12'-6"	1.74	12'-6"	0.23	8'-6"	0.29	11'-6"	6150
12'x9'	1	5.0	2-10	12	9	9	10	8	0.83	15'-3"	2'-8"	1.29	12'-6"	1.32	12'-6"	0.20	9'-6"	0.24	11'-4"	5270
	2	5.0	11-15	12	9	9	10	8	0.95	15'-7"	2'-10"	1.56	12'-6"	1.62	12'-6"	0.20	9'-6"	0.24	11'-4"	5270
	3	5.0	16-20	12	9	10	11	9	0.98	15'-9"	2'-10"	1.65	12'-6"	1.71	12'-6"	0.23	9'-6"	0.27	11'-6"	5870
	4	5.0	21-25	12	9	12	12	9	0.99	15'-6"	2'-7"	1.79	12'-6"	1.85	12'-6"	0.23	9'-6"	0.29	11'-6"	6375
12'x10'	1	5.0	2-11	12	10	9	10	8	0.84	16'-9"	2'-11"	1.44	12'-6"	1.50	12'-6"	0.20	10'-6"	0.24	11'-4"	5470
	2	5.0	12-17	12	10	10	10	8	0.92	16'-8"	2'-10"	1.73	12'-6"	1.83	12'-6"	0.20	10'-6"	0.24	11'-4"	5635
	3	5.0	18-20	12	10	11	11	9	0.92	16'-10"	2'-10"	1.65	12'-6"	1.74	12'-6"	0.23	10'-6"	0.27	11'-6"	6265
	4	5.0	21-25	12	10	12	12	8	1.01	16'-8"	2'-8"	2.04	12'-6"	2.07	12'-6"	0.23	10'-6"	0.29	11'-4"	6300
12'x11'	1	5.0	2-11	12	11	9	10	8	0.84	18'-5"	3'-3"	1.55	12'-6"	1.64	12'-6"	0.23	11'-6"	0.24	11'-4"	5670
	2	5.0	12-15	12	11	10	10	8	0.80	18'-4"	3'-2"	1.64	12'-6"	1.76	12'-6"	0.23	11'-6"	0.24	11'-4"	5835
	3	5.0	16-20	12	11	11	11	9	0.89	18'-4"	3'-1"	1.74	12'-6"	1.83	12'-6"	0.24	11'-6"	0.27	11'-6"	6490
	4	6.0	21-25	12	11	12	12	10	0.93	18'-4"	3'-0"	1.77	12'-6"	1.88	12'-6"	0.24	11'-6"	0.29	11'-8"	7150
12'x12'	1	5.0	2-10	12	12	9	10	8	0.84	20'-3"	3'-8"	1.61	12'-6"	1.67	12'-6"	0.32	12'-6"	0.24	11'-4"	5870
	2	5.0	11-15	12	12	10	10	10	0.80	20'-0"	3'-6"	1.43	12'-6"	1.56	12'-6"	0.30	12'-6"	0.24	11'-8"	6720
	3	5.0	16-20	12	12	11	11	11	0.83	20'-0"	3'-5"	1.53	12'-6"	1.65	12'-6"	0.27	12'-6"	0.27	11'-10"	7405
	4	6.0	21-25	12	12	12	12	12	0.90	20'-2"	3'-5"	1.61	12'-6"	1.70	12'-6"	0.29	12'-6"	0.29	12'-0"	8100



Typical Barrel Section

Notes:

1. Longitudinal reinforcement denoted as As5 and As6 must be placed in slab, floor, and walls and must be 0.06 in²/ft minimum.
2. All reinforcement lengths and areas are minimum requirements.
3. If reinforcing bars are substituted for welded wire reinforcing, dimension "M" and/or length of the As7/As8 reinforcement shall be adjusted to ensure adequate lap length is provided.
4. Weight of sections assumes a density of 150 PCF and squared corners.
5. See PRCB G1-20 and G2-20 for additional information and notes.



Bent Bar Details

All dimensions are out to out.
D = pin diameter (min.).
Pin diameter may be increased if
needed to maintain clear cover.

LATEST REVISION DATE	 APPROVED BY BRIDGE ENGINEER		
		Standard Design Single Precast Reinforced Concrete Box Culverts December, 2020	
		Culvert Barrel Details 12'-0" Span Barrel Sections	PRCB 12-20