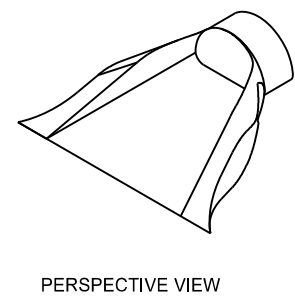
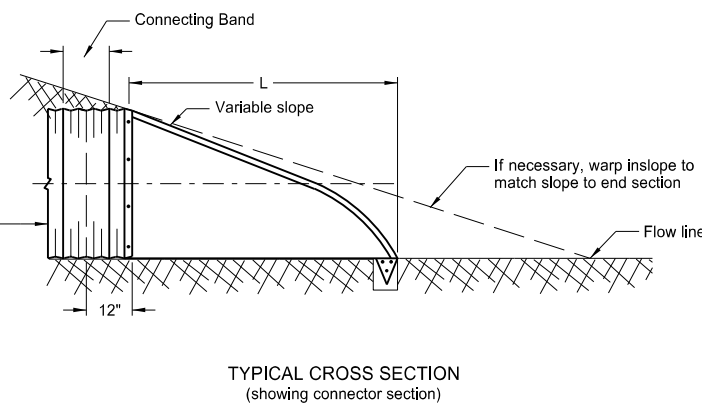
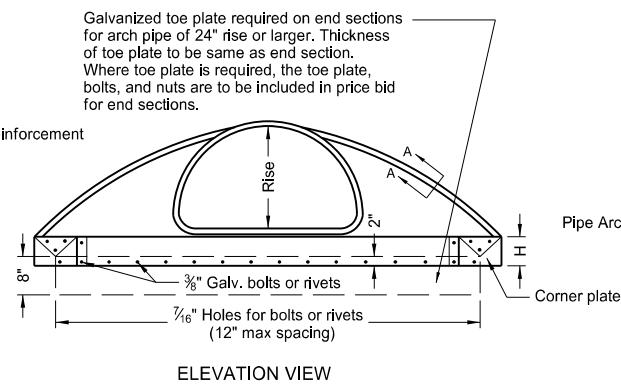
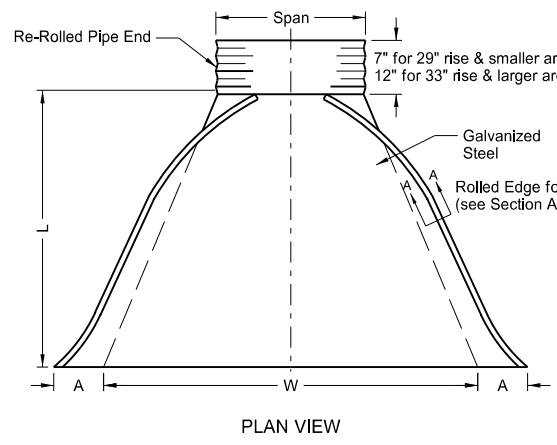


# CORRUGATED STEEL PIPE ARCH CULVERTS AND END SECTIONS

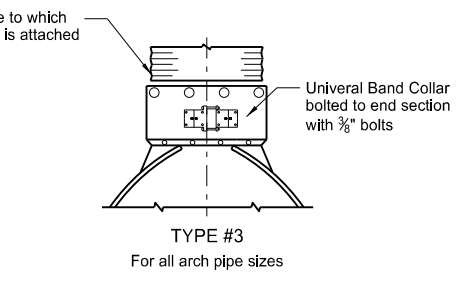
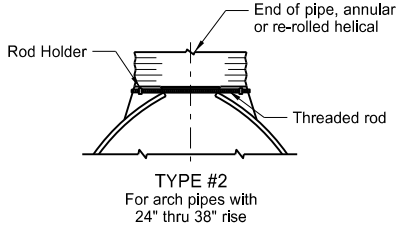
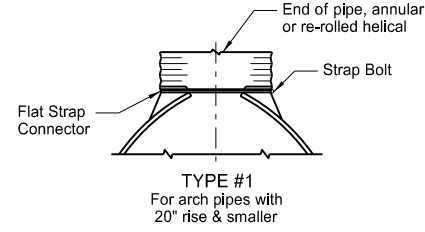
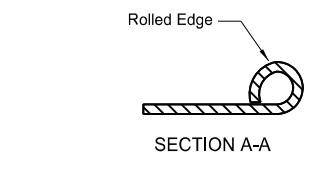
D-714-5



PIPE ARCH DIMENSION		GALV. THICK.	END SECTION DIMENSIONS					APPROX. SLOPE RATE	BODY PIECE
SPAN	RISE		A	B	H	L	W		
17	13	0.064	7	9	6	19	30	2 1/2:1	1
21	15	0.064	7	10	6	23	36	2 1/2:1	1
24	18	0.064	8	12	6	28	42	2 1/2:1	1
28	20	0.064	9	14	6	32	48	2 1/2:1	1
35	24	0.079	10	16	6	39	60	2 1/2:1	1 or 2
42	29	0.079	12	18	8	46	75	2 1/2:1	1 or 2
49	33	0.109	13	21	9	53	85	2 1/2:1	2
57	38	0.109	18	26	12	63	90	2 1/2:1	2
64	43	0.109	18	30	12	70	102	2 1/2:1	2
* 71	47	0.109	18	33	12	77	114	2 1/2:1	3
* 77	52	0.109	18	36	12	77	126	2:1	3
* 83	57	0.109	18	39	12	77	138	2:1	3

① These sizes have 0.109" sides and 0.138" center panels.  
Manufacturers tolerances of above dimensions will be allowed.  
Splices to be the lap riveted type.  
Multiple panel bodies shall have lap seams which are to be tightly joined with 3/8" dia. galv. bolts or rivets. Nuts to be torqued to 25 foot-lbs ±.

① Applicable to equivalent sizes of 3"x1" corrugations.



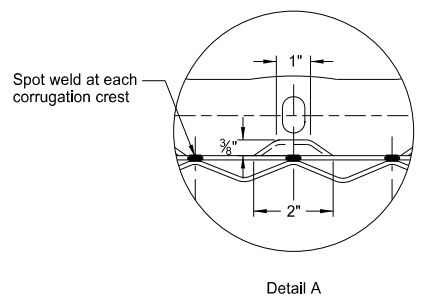
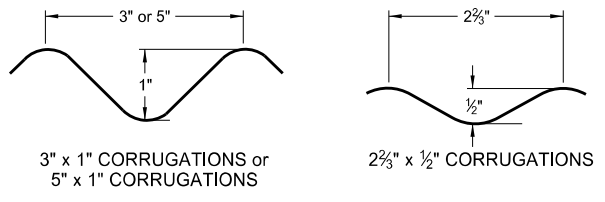
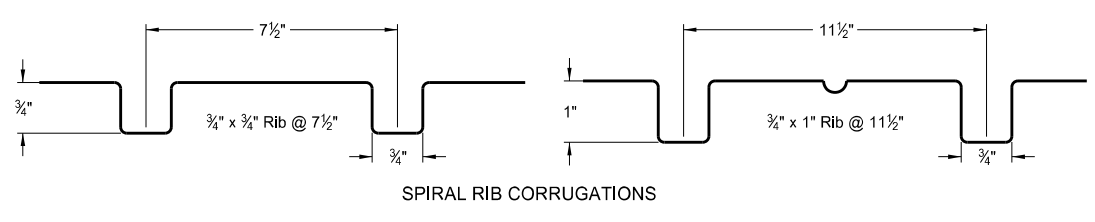
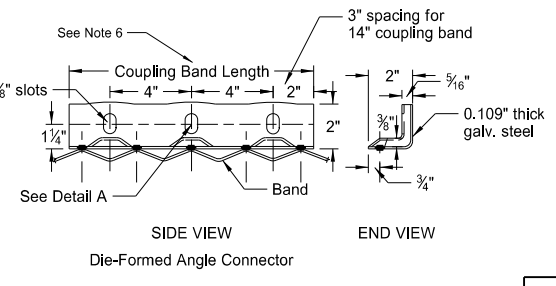
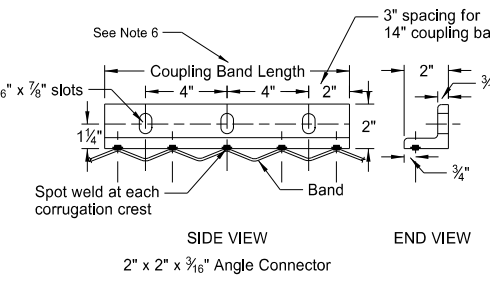
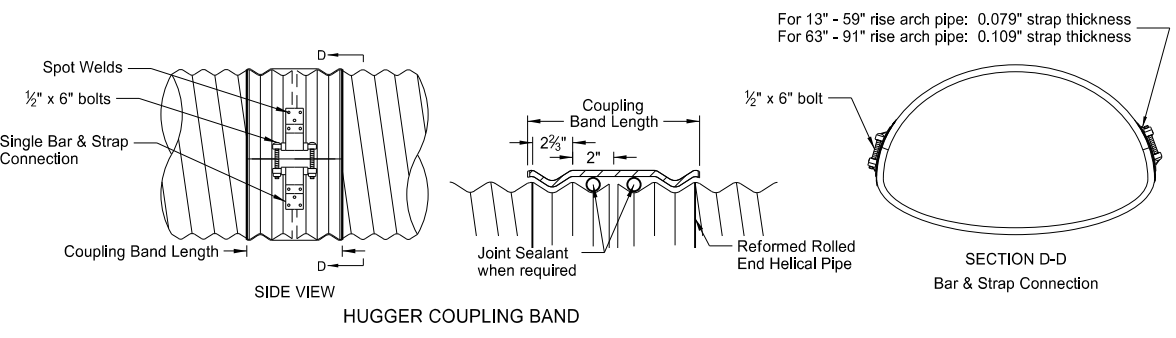
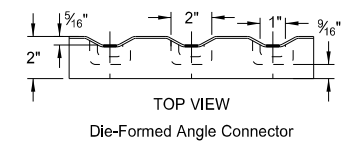
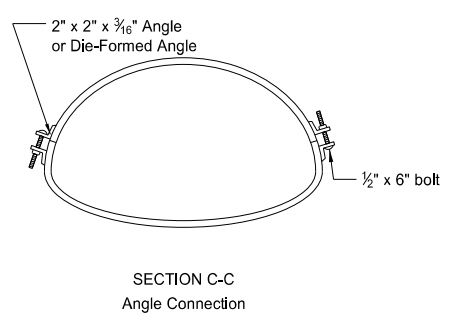
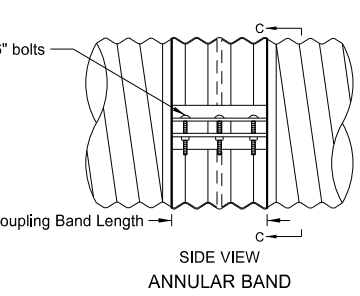
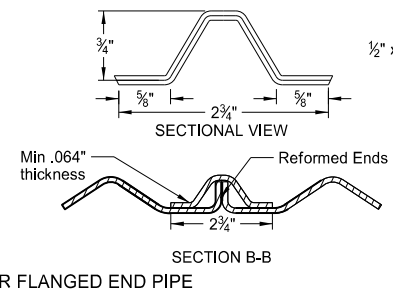
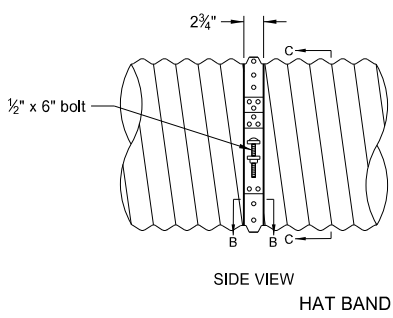
SPAN	RISE	EQUIV PIPE DIA.
17	13	15
21	15	18
24	18	21
28	20	24
35	24	30
42	29	36
49	33	42
57	38	48
64	43	54
71	47	60
77	52	66
83	57	72

SPAN	RISE	EQUIV PIPE DIA.
53	41	48
60	46	54
66	51	60
73	55	66
81	59	72
87	63	78
95	67	84
103	71	90
112	75	96
117	79	102
128	83	108
137	87	114
142	91	120

For pipe arches use the same width band as for circular pipe of equal periphery.

COUPLING TYPE	CORRUGATION PITCH x DEPTH	ARCH PIPE RISE	COUPLING BAND LENGTH	MIN. BAND THICKNESS
Hat Band	2 2/3" x 1/2"	13" - 38"	2 3/4"	.064"
		41" - 91"	14"	.052"
Annular Band	2 2/3" x 1/2"	13" - 57"	10 1/2"	.052"
		63" - 67"	10 1/2"	.079"
Hugger Band	3" x 1" Rerolled End	41" - 91"	10 1/2"	.052"
		5" x 1" Rerolled End	12"	.064"

- NOTES:**
- Pipe and connecting bands shall conform to applicable sections of NDDOT Standard Specifications and to AASHTO M-36.
  - Top edge of all end sections to have rolled edges for reinforcement (see Section A-A). The reinforced edges are to be supplemented with 2" x 2" 1/16" galv. angle for 77"x52" and 83"x57" sizes. Angles are to be attached by galv. 3/8" dia. bolts and nuts. Angles are to extend from pipe to the corner wing bend.
  - Coupling bands shall be two-piece for all arch pipes.
  - 1/2" x 8" bolts may be used as a substitute for the 1/2" x 6" bolts shown in the details.
  - Coupling bands wider than 14" may be used if a minimum of four 1/2" bolts with maximum spacing of 5 1/2" are used for the connection
  - Length of spot welds shall be minimum 1/2".



NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
08-16-13	
REVISIONS	
DATE	CHANGE
01-07-14	End Section Plan View
02-27-14	3" x 1" Corrugation Detail
09-18-19	Added Perspective View Detail

This document was originally issued and sealed by  
**Jon Kettering**  
Registration Number  
**PE-4684**,  
on 9/18/19 and the original document is stored at the North Dakota Department of Transportation