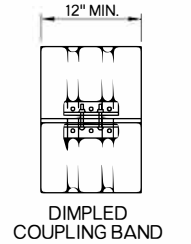
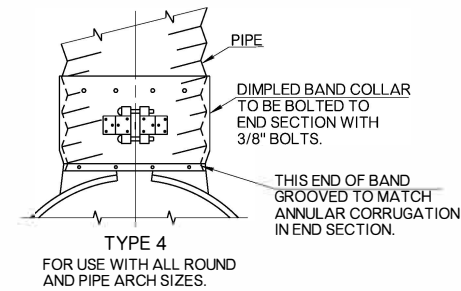
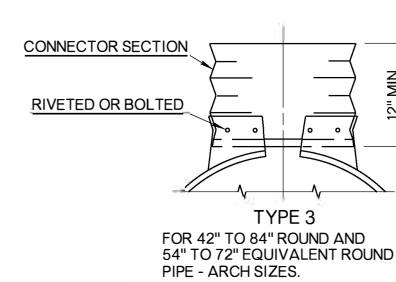
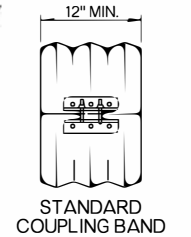
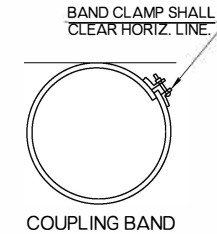
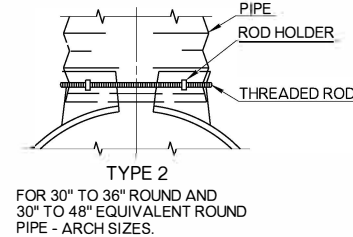
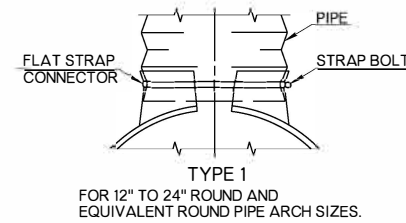
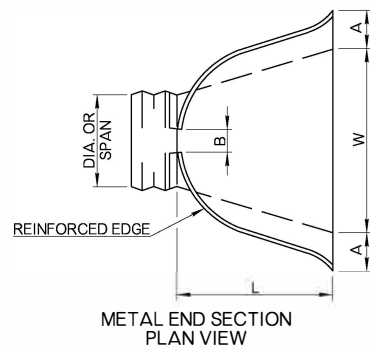
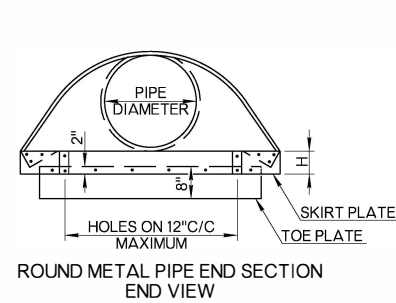
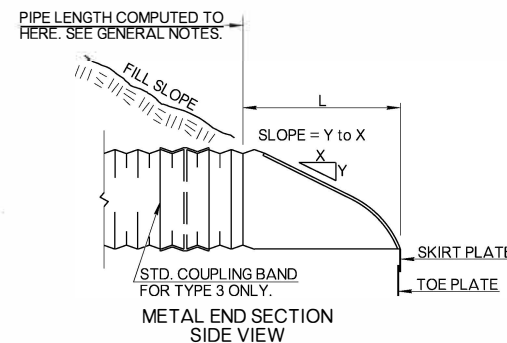
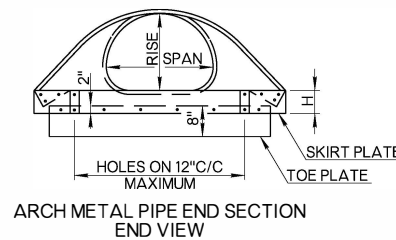


DIMENSIONS OF END SECTIONS FOR ROUND METAL PIPE									
PIPE DIA.	GA.	A	B	H	L	W	APPROX. SLOPE	BODY TYPE	
12"	16	6"	6"	6"	21"	24"	1:2 1/2	1PC.	
15"	16	7"	8"	6"	26"	30"	1:2 1/2	1PC.	
18"	16	8"	10"	6"	31"	36"	1:2 1/2	1PC.	
21"	16	9"	12"	6"	36"	42"	1:2 1/2	1PC.	
24"	16	10"	13"	6"	41"	48"	1:2 1/2	1PC.	
30"	14	12"	16"	8"	51"	60"	1:2 1/2	1PC.	
36"	14	14"	19"	9"	60"	72"	1:2 1/2	2PC.	
42"	12	16"	22"	11"	69"	84"	1:2 1/2	2PC.	
48"	12	18"	27"	12"	78"	90"	1:2 1/4	2PC.	
54"	12	18"	30"	12"	84"	102"	1:2	2PC.	
60"	12	18"	33"	12"	87"	114"	1:1 3/4	3PC.	
66"	12	18"	36"	12"	87"	120"	1:1 1/2	3PC.	
72"	12	18"	39"	12"	87"	126"	1:1 1/3	3PC.	
78"	12	18"	42"	12"	87"	132"	1:1 1/4	3PC.	
84"	12	18"	45"	12"	87"	138"	1:1 1/6	3PC.	



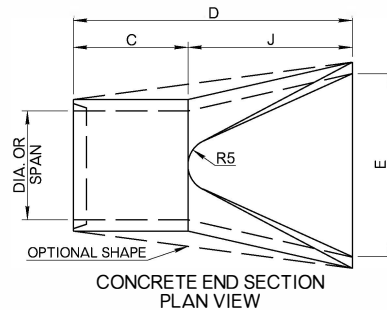
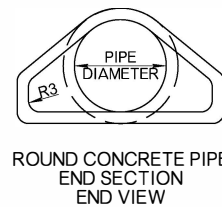
DIMENSIONS OF END SECTIONS FOR METAL PIPE - ARCH									
SPAN x RISE	EQUIV. ROUND	GA.	A	B	H	L	W	APPROX. SLOPE	BODY TYPE
17" x 13"	15"	16	7"	9"	6"	19"	30"	1:2 1/2	1PC.
21" x 15"	18"	16	7"	10"	6"	23"	36"	1:2 1/2	1PC.
24" x 18"	21"	16	8"	12"	6"	28"	42"	1:2 1/2	1PC.
28" x 20"	24"	#16	9"	14"	6"	32"	48"	1:2 1/2	1PC.
35" x 24"	30"	14	10"	16"	6"	39"	60"	1:2 1/2	1PC.
42" x 29"	36"	#14	12"	18"	8"	46"	75"	1:2 1/2	1PC.
49" x 33"	42"	12	13"	21"	9"	53"	85"	1:2 1/2	2PC.
57" x 38"	48"	12	18"	26"	12"	63"	90"	1:2 1/2	2PC.
64" x 43"	54"	12	18"	30"	12"	70"	102"	1:2 1/4	2PC.
71" x 47"	60"	12	18"	33"	12"	77"	114"	1:2 1/4	3PC.
77" x 52"	66"	12	18"	36"	12"	77"	126"	1:2	3PC.
83" x 57"	72"	12	18"	39"	12"	77"	138"	1:2	3PC.



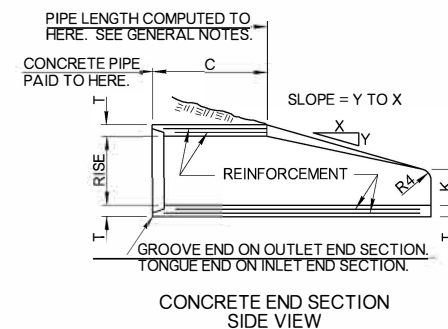
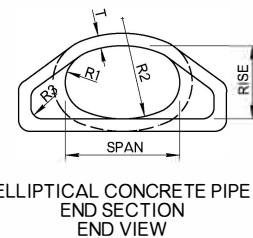
TYPICAL METAL END SECTION CONNECTIONS

# FOR ALUMINUM END SECTIONS THE 28" x 20" SHALL BE 14 GAGE AND THE 42" x 29" SHALL BE 12 GAGE.

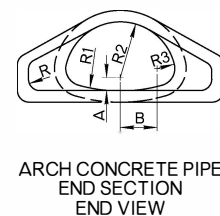
DIMENSIONS OF PRECAST END SECTIONS FOR ROUND PIPE										
DIAMETER	R3	R4	R5	T	K	J	C	D	E	SLOPE
18"	3"	3"	6"	2 1/2"	9"	2.25'	3.83'	6.08'	3.00'	1:3
24"	3"	3"	7"	3"	9 1/2"	3.63'	2.50'	6.12'	4.00'	1:3
30"	3"	3"	8"	3 1/2"	12"	4.50'	1.65'	6.16'	5.00'	1:3
36"	3"	3"	10 1/2"	4"	15"	5.25'	2.90'	8.15'	6.00'	1:3
42"	3"	3"	10 1/2"	4 1/2"	21"	5.25'	2.92'	8.17'	6.50'	1:3
48"	6"	6"	14"	5"	24"	6.00'	2.17'	8.17'	7.00'	1:3
54"	6"	6"	-	5 1/2"	27"	5.42'	2.92'	8.33'	7.50'	1:2 1/2
60"	6"	6"	-	6"	30"	5.00'	3.25'	8.25'	8.00'	1:2
66"	6"	6"	-	6 1/2"	24"	6.50'	1.75'	8.25'	8.50'	1:2
72"	6"	6"	-	7"	24"	6.50'	1.75'	8.25'	9.00'	1:2



APPROX. EQUIV. DIAMETER	DIMENSIONS OF PRECAST END SECTIONS FOR ELLIPTICAL PIPE													
	RISE	SPAN	R1	R2	R3	R4	R5	T	K	J	C	D	E	SLOPE
18"	14"	23"	6"	20"	3"	3"	6"	2 3/4"	8"	2.25'	3.75'	6.00'	3.00'	1:3
24"	19"	30"	8 1/4"	26 1/4"	3"	3"	7"	3 1/4"	8 1/2"	3.25'	2.75'	6.00'	4.00'	1:3
30"	24"	38"	10 1/4"	32 3/4"	3"	3"	9"	3 3/4"	9 1/2"	4.50'	1.50'	6.00'	5.00'	1:3
36"	29"	45"	12 1/4"	39 1/4"	3"	3"	12"	4 1/2"	11 1/4"	5.00'	3.00'	8.00'	6.00'	1:3
42"	34"	53"	14 1/2"	46"	6"	6"	13"	5"	15 3/4"	5.00'	3.00'	8.00'	6.50'	1:3
48"	38"	60"	16 1/2"	51 1/2"	6"	6"	14"	5 1/2"	21"	5.00'	3.00'	8.00'	7.00'	1:3
54"	43"	68"	18 3/4"	58 1/2"	6"	6"	16"	6"	25 1/2"	5.00'	3.00'	8.00'	7.50'	1:3
60"	48"	76"	20 3/4"	65"	6"	6"	36 11/16"	6 1/2"	30"	5.00'	3.25'	8.25'	8.00'	1:2
66"	53"	83"	22 3/4"	71 1/2"	6"	6"	36 1/8"	7 1/2"	24"	6.50'	1.75'	8.25'	8.50'	1:2
72"	58"	91"	24 3/4"	78"	6"	6"	38"	7 1/2"	24"	6.50'	1.75'	8.25'	9.00'	1:2



APPROX. EQUIV. DIAMETER	DIMENSIONS OF PRECAST END SECTIONS FOR ARCH PIPE																
	SPAN	RISE	A	B	R	R1	R2	R3	R4	R5	T	K	J	C	D	E	SLOPE
18"	22"	13"	- 1/4"	5 3/4"	2"	27 1/2"	13 3/4"	5 1/4"	3"	13"	2 1/2"	7"	2.25'	3.75'	6.08'	3.00'	1:3
24"	28"	18"	3 7/16"	9 21/32"	3"	40 11/16"	14 9/16"	4 19/32"	3"	16 13/16"	3"	9 1/2"	3.58'	2.50'	6.08'	4.00'	1:3
30"	36"	22"	3 3/4"	12 3/32"	3"	51"	18 3/4"	6 1/32"	3"	18 1/2"	3 1/2"	12"	4.50'	1.58'	6.08'	5.00'	1:3
36"	43"	26"	4 1/8"	15 1/2"	6"	62"	22 1/2"	6 3/8"	3"	24 5/16"	4"	15"	5.25'	2.90'	8.15'	6.00'	1:3
42"	51"	31"	5 1/16"	18"	6"	73"	26 1/4"	7 9/16"	3"	27 1/2"	4 1/2"	21"	5.25'	2.92'	8.17'	6.50'	1:3
48"	58"	36"	6"	20 1/2"	6"	84"	30"	8 3/4"	3"	28 1/2"	5"	24"	6.00'	2.17'	8.17'	7.00'	1:3
54"	65"	40"	6 5/8"	22 11/16"	6"	92 1/2"	33 3/8"	9 13/16"	6"	33 1/8"	5 1/2"	27"	5.42'	2.92'	8.34'	7.50'	1:2.4
60"	73"	45"	7 1/2"	25 9/32"	6"	105"	37 1/2"	11 7/32"	6"	33 11/16"	6"	30"	5.00'	3.25'	8.25'	8.00'	1:2
72"	88"	54"	9"	31 7/16"	6"	126"	45"	12 9/16"	6"	38 15/16"	7"	24"	6.50'	1.75'	8.25'	9.00'	1:2



- GENERAL NOTES
- ALL CONSTRUCTION AND MATERIAL REQUIREMENTS SHALL BE IN ACCORDANCE WITH THE 2019 ODOT STANDARD SPECIFICATIONS.
  - CULVERT END SECTIONS SHALL BE OF THE SAME MATERIAL AND SHAPE (ROUND, ARCH, OR ELLIPTICAL) AS THE PIPE ON WHICH THEY ARE INSTALLED.
  - DIMENSIONS SHOWN FOR END SECTIONS ARE SUBJECT TO MANUFACTURER TOLERANCES.
  - TOE PLATE WILL BE REQUIRED ON ALL METAL END SECTIONS UNLESS SOLID ROCK IS ENCOUNTERED. HOLES IN TOE PLATE TO BE PUNCHED TO MATCH HOLES IN SKIRT PLATE. 3/8" BOLTS TO BE FURNISHED. LENGTH OF TOE PLATES FOR ROUND PIPE END SECTIONS SHALL BE W=10" FOR 12" TO 30" DIAMETER PIPE, W=20" FOR 36" TO 84" DIAMETER PIPE. LENGTH OF TOE PLATES FOR ARCH PIPE END SECTIONS SHALL BE W=10" FOR A RISE OF 13" TO 29" AND W=20" FOR A RISE OF 33" TO 57".
  - CONNECTOR SECTION, SKIRT PLATE, AND TOE PLATE ON METAL END SECTIONS SHALL BE THE SAME GAGE AND MATERIAL AS THE SKIRT AND SHALL BE INCLUDED IN PRICE BID FOR END SECTION.
  - IF TYPE 3 METAL END SECTION IS USED AS OPTIONAL PIPE, THE LENGTH OF PIPE TO BE REDUCED BY 12" FOR EACH END SECTION. IF CONCRETE PIPE OPTION IS USED, THE LENGTH OF PIPE TO BE REDUCED BY THE C DIMENSION FOR EACH END SECTION.

BASIS OF PAYMENT		
ITEM NO.	ITEM	UNIT
613 (L)	▼ PREFAB. CULVERT END SECTION, ROUND	EA
613 (L)	▼ PREFAB. CULVERT END SECTION, ARCH	EA
613 (L)	▼ PREFAB. CULVERT END SECTION, ELLIPTICAL	EA

▼ END SECTION DIMENSION(S) SHALL BE SPECIFIED.

APPROVED BY ROADWAY ENGINEER: DATE: 6/30/22  
ROADWAY DESIGN DIVISION STANDARD

PREFABRICATED CULVERT END SECTIONS  
 OKLAHOMA Transportation

2019 SPECIFICATIONS