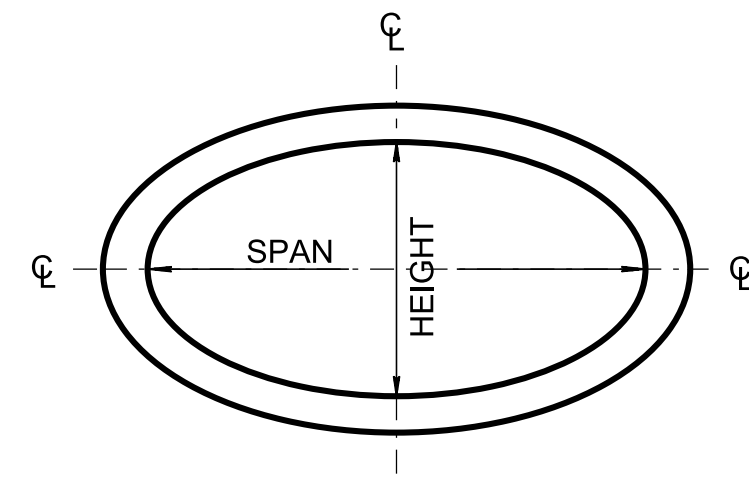
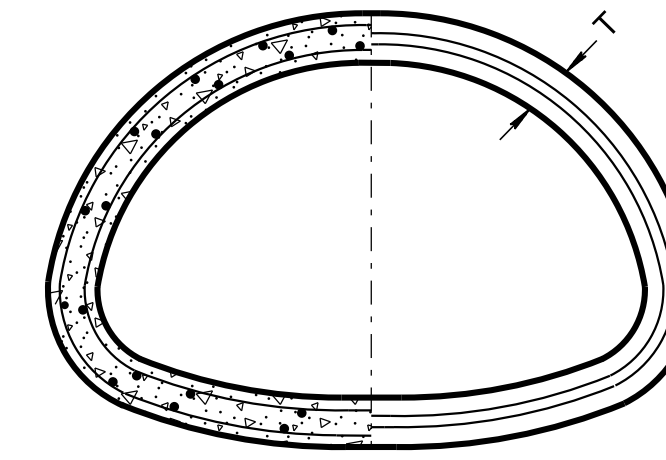


VERTICAL OVAL PIPE



HORIZONTAL OVAL PIPE



REINFORCED CONC. ARCH PIPE

REV. 6-21-71: DETAILS OF REINFORCED CONCRETE ARCH PIPE ADDED.

REV. 7-1-72: CHANGED DEPARTMENT NAME. CHANGED STANDARD REFERENCE DWG. NOS. IN NOTES.

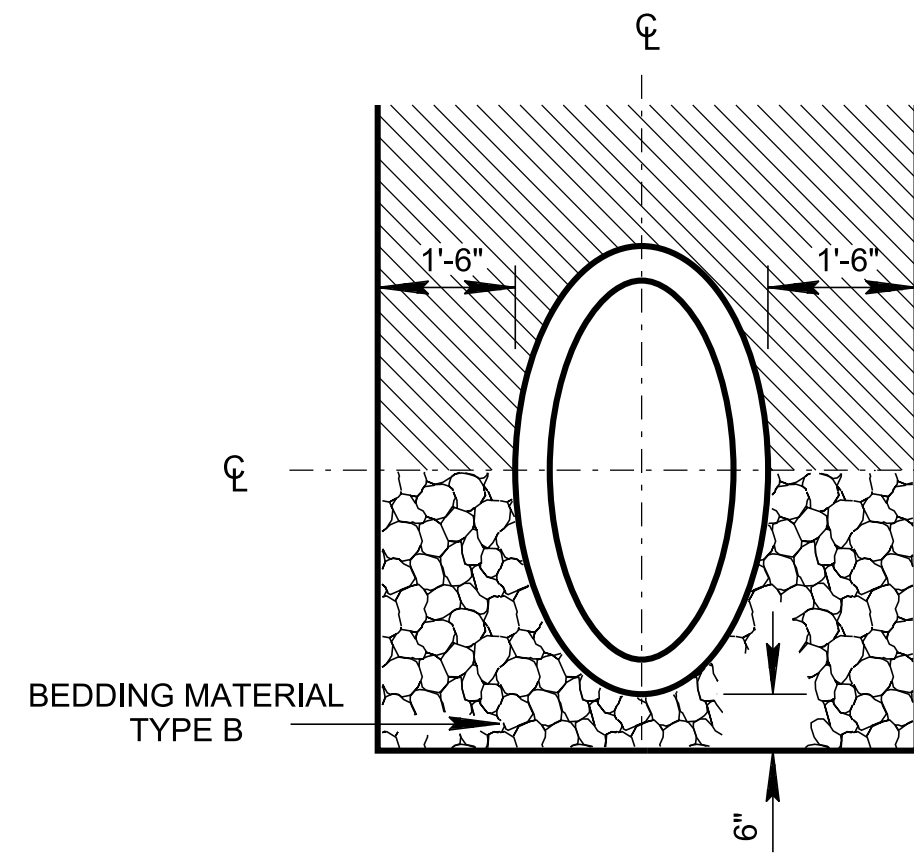
REV. 1-1-76: CHANGED DWG. NO. FROM CO-1-1 TO D-PO-1.

REV. 3-15-76: DELETED REFERENCE TO OLD DWG. NO., SUBSTITUTED NEW DWG. NO.

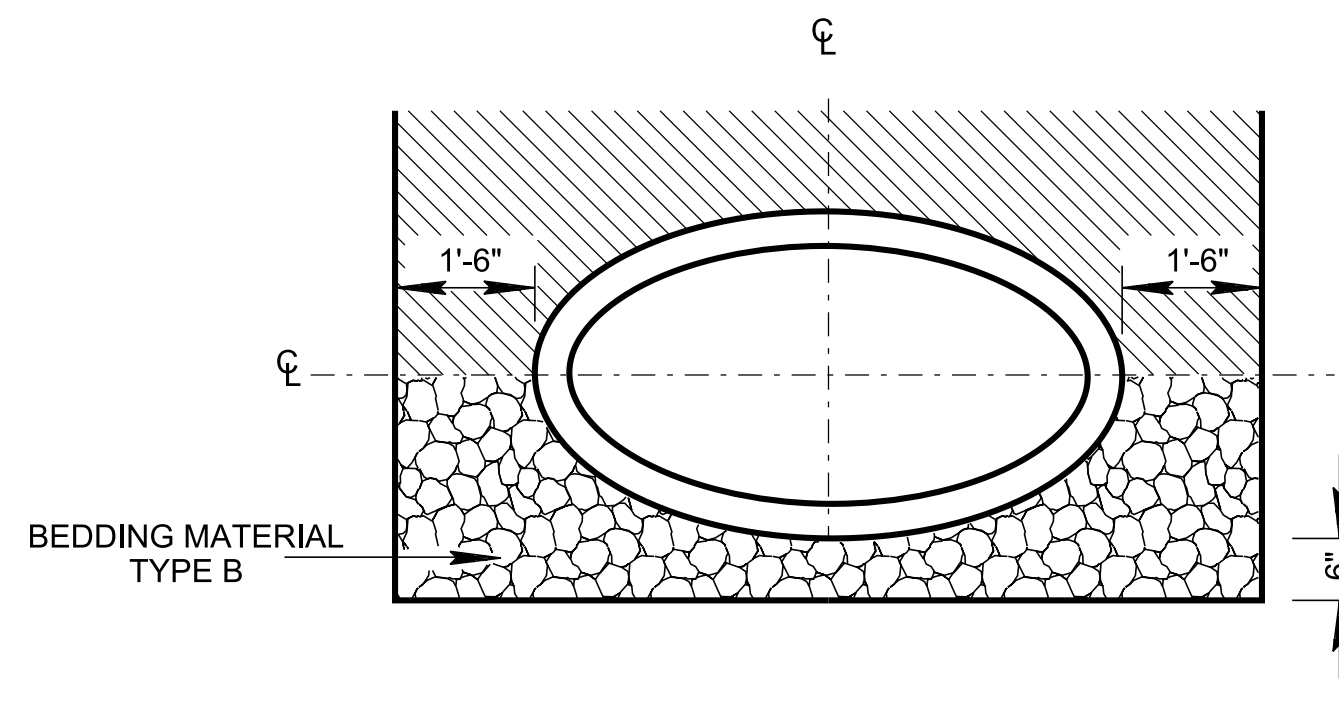
REV. 7-17-81: CHANGED ITEM NO. TO AGREE WITH NEW SPECIFICATION BOOK.

REV. 5-27-01: MODIFIED GENERAL NOTES (C) AND (D). ADDED NOTE (E).

REV. 06-28-19: REMOVED FLAT BASE PIPES. REVISED GENERAL NOTES AND RENAMED DRAWING. REDREW SHEET.



VERTICAL OVAL PIPE



HORIZONTAL OVAL PIPE

SKETCHES SHOWING PLACING OF BEDDING MATERIAL TYPE B FOR OVAL PIPE CULVERT. FOR OTHER BEDDING DETAILS, SEE STANDARD DRAWING D-PB-1.

REINFORCED CONCRETE ARCH PIPE (C)					
ROUND PIPE D EQUIVALENT	SPAN x HEIGHT	BEDDING MATERIAL TYPE B C.Y. PER FT.	WALL THICKNESS "T"	LAYING LENGTH FT.	NOMINAL WEIGHT PER FT. LBS.
18"	22"x13"	.181	2½"	8	175
24"	29"x18"	.206	3"	8	275
30"	36"x23"	.247	3½"	8	385
36"	44"x27"	.283	4"	8	595
42"	51"x31"	.323	4½"	8	685
48"	58"x36"	.359	5"	8	880
54"	65"x40"	.410	5½"	8	1090
60"	73"x45"	.450	6"	8	1320

(C) WHERE HORIZONTAL OVAL PIPE IS SPECIFIED, REINFORCED CONCRETE ARCH PIPE MAY BE SUBSTITUTED.

OVAL CONCRETE CULVERT PIPES												
ROUND PIPE EQUIVALENT	NOMINAL END AREA SQ. FT.	HORIZONTAL OVAL PIPE			VERTICAL OVAL PIPE			WALL THICKNESS "T" INCHES	LAYING LENGTH FEET	NOMINAL WEIGHT PER FT. LB.	MAXIMUM FILL HEIGHT FOR CLASS III PIPE (D)	
		SPAN	HEIGHT	BEDDING (C) C.Y. PER FT.	SPAN	HEIGHT	BEDDING (C) C.Y. PER FT.				HORIZ. OVAL	VERT. OVAL
18"	1.8	23"	14"	0.217				2¼"	8	195	10	
24"	3.3	30"	19"	0.256				3¼"	8	300	10	
27"	4.1	34"	22"					3½"	8	365	10	
30"	5.1	38"	24"	0.311				3¾"	8	430	10	
33"	6.3	42"	27"					3¾"	8	475	10	
36"	7.4	45"	29"	0.371	29"	45"	0.421	4½"	8	625	10	13
39"	8.8	49"	32"		32"	49"		4¾"	8	720	10	20
42"	10.2	53"	34"	0.433	34"	53"	0.491	5"	8	815	10	20
48"	12.9	60"	38"	0.488	38"	60"	0.556	5½"	8	1000	10	20
54"	16.6	68"	43"	0.555	43"	68"	0.632	6"	8	1235	10	20
60"	20.5	76"	48"	0.625	48"	76"	0.711	6½"	8	1475	10	21
66"	24.8	83"	53"	0.694	53"	83"	0.787	7"	8	1745	10	22
72"	29.5	91"	58"	0.770	58"	91"	0.873	7½"	8	2040	10	22
78"	34.6	98"	63"	0.846	63"	98"	0.954	8"	8	2350	10	24
84"	40.1	106"	68"	0.927	68"	106"	1.045	8½"	8	2680	10	24
90"	46.1	113"	72"	1.000	72"	113"	1.126	9"	8	3050	10	24
96"	52.4	121"	77"	1.087	77"	121"	1.223	9½"	8	3420	10	24
102"	59.2	128"	82"	1.166	82"	128"	1.308	9¾"	8	3725	10	
108"	66.4	136"	87"	1.252	87"	136"	1.404	10"	8	4050	10	
114"	74.0	143"	92"	1.343	92"	143"	1.500	10½"	8	4470	10	
120"	82.0	151"	97"	1.441	97"	151"	1.608	11"	8	4930	10	
132"	99.2	166"	106"	1.523	106"	166"	1.817	12"	8	5900	10	
144"	118.6	180"	116"	1.838	116"	180"	2.036	13"	8	7000	10	

(1) ALL COST OF BEDDING MATERIAL TYPE B WILL BE INCLUDED IN THE COST OF THE PIPE.

(2) MAXIMUM FILL HEIGHT BASED ON BEDDING STANDARD, DWG. D-PB-1. GREATER FILL HEIGHTS PERMISSIBLE WITH HIGHER TYPES OF BEDDING.

GENERAL NOTES

- (A) OVAL PIPE DESIGNED FOR HORIZONTAL PLACEMENT MAY BE SUBSTITUTED FOR VERTICAL OVAL PIPE BUT UNDER NO CIRCUMSTANCES MAY OVAL PIPE DESIGNED FOR VERTICAL PLACEMENT BE SUBSTITUTED FOR HORIZONTAL OVAL PIPE.
- (B) FOR DETAILS OF WINGWALLS, SEE STANDARD DRAWING NO. D-PE-5 FOR HORIZONTAL OVAL CONCRETE PIPES.
- (C) SPECIFICATIONS FOR REINFORCED CONCRETE ARCH PIPE SHALL CONFORM TO AASHTO M206 FOR THE SPECIFIED DIAMETERS AND STRENGTH CLASSES.
- (D) SPECIFICATIONS FOR REINFORCED CONCRETE OVAL PIPE SHALL CONFORM TO AASHTO M207 FOR THE SPECIFIED DIAMETERS AND STRENGTH CLASSES.

MINOR REVISION -- FHWA APPROVAL NOT REQUIRED

STATE OF TENNESSEE
STANDARD DRAWING
DEPARTMENT OF TRANSPORTATION

STANDARD OVAL AND REINFORCED CONCRETE ARCH PIPE CULVERT

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