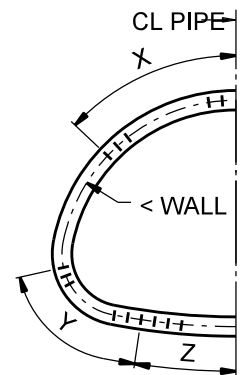


STIRRUP REQUIREMENTS (B)

NOMINAL SPAN	EQUIVALENT DIAMETER (A)	STIRRUP REQUIREMENTS (B)																
		TOP				BOTTOM												
				SIDES						CENTER								
		S	X	A _{s1}		S	Y			A _{s1}			S	Z			A _{s1}	
IIIA	IVA			IIA	IIIA		IVA	IIA	IIIA	IVA	IIA	IIIA		IVA	IIIA	IVA		
IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	
73	60	5	2' 8"		.20	4		1' 8"	2' 0"		.37	.66	5		1' 8"	1' 4"	.20	.20
88	72	5	3' 2"		.20	4		2' 0"	2' 5"		.39	.65	5		2' 0"	1' 7"	.20	.20
102	84	6	3' 8"		.20	4		2' 3"	2' 9"		.37	.64	6		2' 3"	1' 10"	.20	.20
115	90	6	4' 2"		.20	4		2' 6"	3' 1"		.36	.69	6		2' 6"	2' 0"	.20	.20
122	96	7	4' 5"		.20	4		2' 9"	3' 3"		.33	.67	7		2' 9"	2' 2"	.20	.20
138	108	7	5' 0"		.20	4-1/2		3' 1"	3' 8"		.33	.68	7		3' 1"	2' 6"	.20	.20
154	120	8	5' 6"		.20	5		3' 5"	4' 2"		.30	.62	8		3' 5"	2' 9"	.20	.20
169	132	7	5' 11"	.20		4-1/2	3' 9"	3' 9"		.20	.42		7	3' 9"	3' 9"		.20	

(B) SEE MNDOT STANDARD PLATE 3007D FOR STIRRUP OPTIONS.
 S = MAXIMUM STIRRUP SPACING IN INCHES MEASURED AT CENTERLINE OF WALL.
 A_{s1} = MINIMUM RADIAL REINFORCEMENT IN SQUARE INCHES PER SQUARE FOOT OF WALL MEASURED AT CENTERLINE OF WALL.
 X, Y, & Z ARE MEASURED AT CENTERLINE OF WALL.



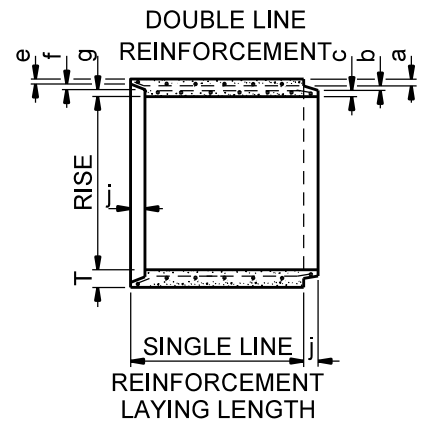
STIRRUP DETAILS

GENERAL NOTES:

- LAYING LENGTHS: 22" TO 122" DIA. (6' & 8'), 138" DIA. (4" & 6"), 154" & 169" DIA. (4' & 5').
- THREE-EDGE-BEARING-TEST REQUIREMENTS OF MNDOT SPECIFICATION 3236 ARE NOT APPLICABLE.
- BEDDING: CLASS "B" BEDDING, MNDOT SPEC. 2451, REQUIRED.

BASIS OF DESIGN:

- ULTIMATE STRENGTH ACCORDING TO 1977 AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, USING $U = 1.5D + 2.5(L + 1)$.
- LIVE LOAD BASED ON HS 20 LOADING WITH IMPACT AND DISTRIBUTION IN ACCORDANCE WITH 1977 AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES.
- FILL LOADS ON PIPE ARCH DETERMINED BY ACPA DESIGN DATA 17 PROCEDURE FOR POSITIVE PROJECTING CONDUIT, USING $r = 0.5$, $p = 0.7$, $w = 120$ LBS./C.F., AND BEARING ASSUMED TO ACT ON 80% OF THE CULVERT WIDTH.
- MAXIMUM DEPTH OF COVER, "EMBANKMENT CONDITION."*
 CLASS IIA 8 FT.
 CLASS IIIA 16 FT.
 CLASS IVA 23 FT.
 * MAXIMUM DEPTH OF COVER MAY BE INCREASED 25% OVER THE DEPTH LISTED FOR THE "EMBANKMENT CONDITION" WHEN INSTALLATION IN A "ZERO PROJECTION TRENCH CONDITION."



LONGITUDINAL SECTION

MNDOT SPEC. REF. 2501
 MNDOT 3014J1
 1 OF 3
 NOT TO SCALE



DRW: CXD DATE: 4/03
 APP: HRS DATE: 12/06

RC PIPE-ARCH

STANDARD PLATE NO. SEWR-4004