

Design Assumptions for
Nebraska Base Drawing NE100-50-001
18" - 48" Reinforced Concrete Pipe and Appurtenances

Revised: 7/09 Replaces: 5006-1

18" - 48" Reinforced Concrete Pipe and Appurtenances

Design criteria for three-edge bearing strength contained in TR-5.
Design criteria for pipe joint extensibility contained in TR-18.

Instructions for
Nebraska Base Drawing NE100-50-001
18"- 48" Reinforced Concrete Pipe and Appurtenances

Fill in the following data fields to automatically fill in the necessary data fields on the drawing.

Title block

Title line(s)

Subtitle line

County, State

Sheet number of

Who / When

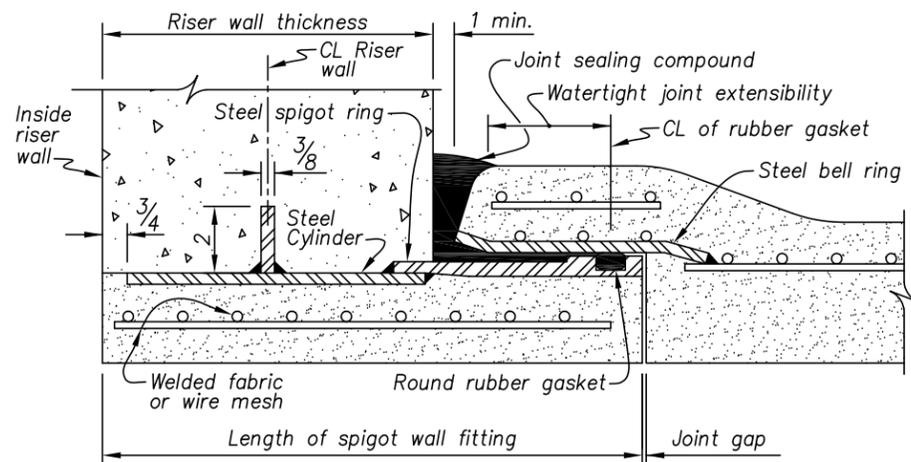
Designed

Drawn

Checked

Enter directly on drawing

Left click on blue data fields to enter required information.



**DETAIL A
SPIGOT WALL FITTING**

REQUIREMENT TABLE

REINFORCED CONCRETE PIPE, _____" DIAMETER		
NUMBER OF SECTIONS	SECTION LENGTH - (FT.)	TOT. LENGTH - (FT.)
@	=	
@	=	
@	=	
1 (OUTLET) @	_____ (_____ + 20') =	
TOTAL LENGTH - (FEET)		
SPIGOT WALL FITTING: _____ FT. LENGTH		
CONCRETE: CLASS 4000		
_____ LIN.FT. BEDDING x _____ CU.YD./FT.= _____ CU.YD.		
3/4" PREFORMED EXPANSION JOINT FILLER, AS REQUIRED PER ASTM D994		
JOINT SEALING COMPOUND, AS REQUIRED PER ASTM C990, C877, OR C920		

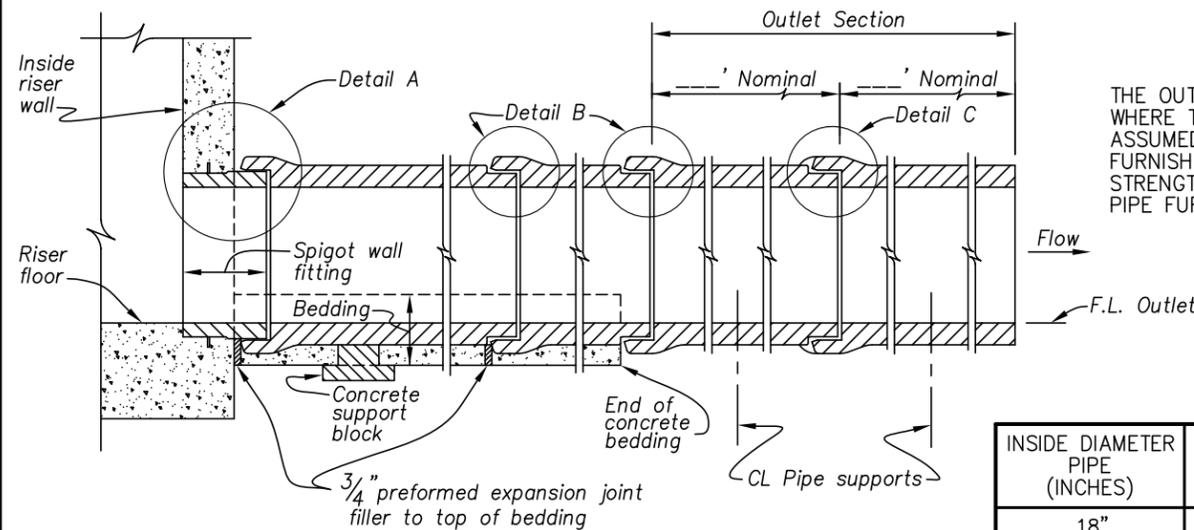
JOINT REQUIREMENTS

LENGTH OF PIPE SECTION (FEET)	MINIMUM JOINT LENGTH (INCHES)	MINIMUM JOINT LIMITING ANGLE (DEGREES)

FOR PIPE LENGTH OTHER THAN SHOWN, JOINT REQUIREMENTS WILL BE DETERMINED BY THE ENGINEER.

WHERE PIPES OF DIFFERENT LENGTHS ARE CONNECTED IN THE SAME CONDUIT, ADJOINING PIPES SHALL MEET THE JOINT REQUIREMENTS OF THE LONGER PIPE.

PRIOR TO DELIVERY OF PIPE, THE PIPE JOINT DETAIL PROPOSED FOR USE SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.



R.C. PIPE
(Spigot wall fitting, Bedding, Pipe joints, Outlet section)

STRENGTH REQUIREMENTS

THE OUTSIDE DIAMETER OF PIPE ASSUMED IN DESIGN IS _____ INCHES. WHERE THE PIPE FURNISHED HAS AN OUTSIDE DIAMETER GREATER THAN ASSUMED IN DESIGN, THE THREE-EDGE BEARING STRENGTH OF THE PIPE FURNISHED MUST NOT BE LESS THAN THE SPECIFIED THREE-EDGE BEARING STRENGTH MULTIPLIED BY THE RATIO OF THE OUTSIDE DIAMETER OF THE PIPE FURNISHED TO THE OUTSIDE DIAMETER ASSUMED IN DESIGN.

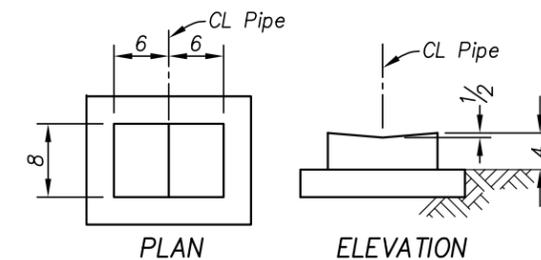
STRENGTH REQUIREMENTS

INSIDE DIAMETER OF PIPE (INCHES)	HYDROSTATIC PRESSURE (HEAD OF WATER) (FEET)	EXTERNAL LOAD	
		MINIMUM 3 EDGE BEARING STRENGTH IN POUNDS PER LINEAL FOOT OF PIPE PER ASTM C497	
		APPLICABLE STANDARD SPECIFICATION	
		AWWA C301	AWWA C300
		LOAD TO PRODUCE NOT MORE THAN 0.001 INCH CRACK ONE FOOT LONG	LOAD TO PRODUCE NOT MORE THAN 0.01 INCH CRACK ONE FOOT LONG

DIMENSIONS AND CONCRETE QUANTITIES FOR BEDDING

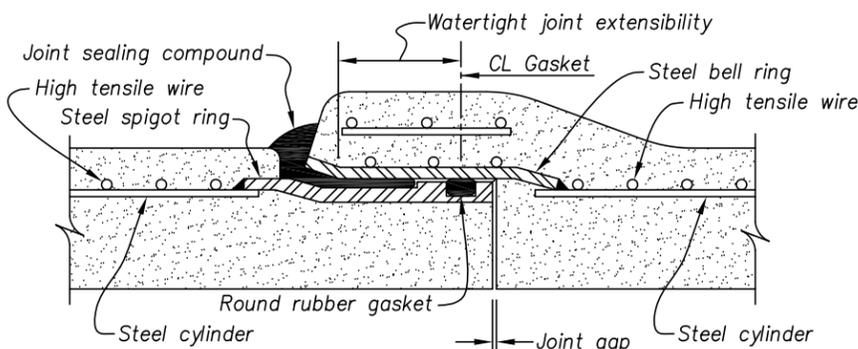
INSIDE DIAMETER PIPE (INCHES)	X (FT.- IN.)	Y (INCHES)	OUTSIDE DIAMETER PIPE (INCHES)	BEDDING (CU.YDS./FT.)	CONCRETE QUANTITY PER LINEAL FOOT OF BEDDING = CU.YDS./FT. OF BEDDING
18"	2 - 7	6.5	22.0	0.0525	0.0519 - 0.0003 (Df - 24)
24"	3 - 1	7.5	28.75	0.0678	0.0665 - 0.0004 (Df - 32)
30"	3 - 4	8	35.5	0.0746	0.0734 - 0.0005 (Df - 38)
36"	3 - 8	8.5	42.125	0.0843	0.0833 - 0.0006 (Df - 44)
42"	4 - 1	9.5	49.0	0.0991	0.0977 - 0.0007 (Df - 51)
48"	4 - 5	10	55.75	0.1095	0.1077 - 0.0008 (Df - 58)

Df = OUTSIDE DIAMETER OF PIPE FURNISHED, IN INCHES
STEEL QUANTITIES DO NOT CHANGE WITH OUTSIDE DIAMETER OF PIPE



SUGGESTED SUPPORT BLOCKS

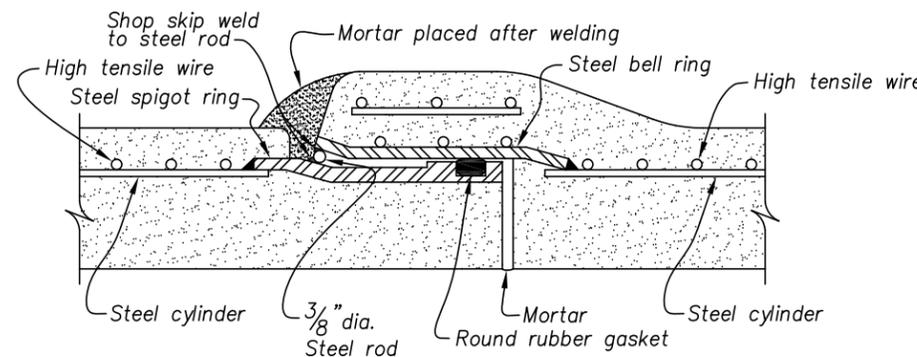
SUFFICIENT BLOCKS SHALL BE PROVIDED TO SUPPORT THE PIPE TO THE LINE AND GRADE SHOWN ON THE DRAWINGS. THE CONTRACTOR SHALL DETERMINE THE NUMBER AND SIZE OF BLOCKS REQUIRED. WEDGES MAY BE USED AS AN ALTERNATE.



**DETAIL B
PIPE JOINT**

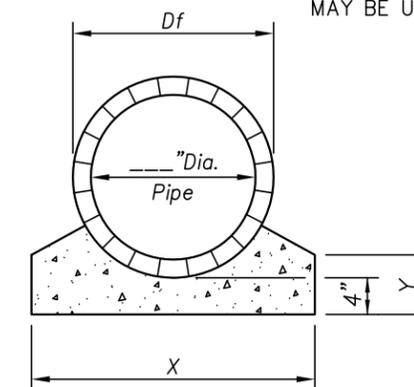
JOINT LENGTH EQUALS WATERTIGHT JOINT EXTENSIBILITY PLUS JOINT GAP.
MINIMUM JOINT LENGTH IS _____".

THE PIPE SHALL BE DRAWN TOGETHER SO THAT THE MAXIMUM JOINT GAP DOES NOT EXCEED 3/8" FOR PIPE LAID ON A STRAIGHT LINE. FOR CAMBERED PIPE OR PIPE LAID ON A CURVED LINE, THE JOINT GAP AT THE CLOSEST POINT SHALL NOT EXCEED 3/8" AND AT THE FARTHEST POINT SHALL NOT EXCEED 1/2".



**DETAIL C
PIPE JOINT IN OUTLET SECTION**

SKIP WELDING: WELD 2", SKIP 6" - REPEAT PROCEDURE UNTIL FULL LENGTH OF RODS ARE WELDED TO RINGS.



**DETAIL OF
CONCRETE BEDDING**

18"- 48" REINFORCED CONCRETE PIPE AND APPURTENANCES