

Design Assumptions for
Nebraska Base Drawing NE100-10-003
Metal Pipe Risers with Wooden Stop Log Control

Revised: 07/01 Replaces: 5001-5

Metal Pipe Risers with Wooden Stop Log Control

Use of the riser is permitted only as outlined in FOTG Section 4 – POND (378).

The riser gauge is determined by criteria contained in Table 3, FOTG Section 4 – POND (378).

The coating requirements are determined by criteria contained in EFH NB 6-34 a-h for corrosion resistance.

The design limitations for buoyancy of this application are a 8 ft. tall riser. Consult with the State Engineering Office if there is a need for a taller riser.

Pages 127 through 130, Chapter 3 of the EFH contains Hydraulic Tables for this type of installation.

Corrugation size (3 x 1) and (5 x 1) are only available in 36" dia. pipe and larger.

If the PI (plasticity index) of the soil in the embankment is less than 15, the inlet area will be armor coated or have a concrete apron.

Instructions for
NE Base Drawing NE100-10-003
Metal Pipe Risers with Wooden Stop Log Control

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

Fill data directly on drawing

Left click yellow boxes on drawing to mark with X as required.

Left click blue data fields to enter required data.

Date _____
 Designed _____
 Drawn _____
 Checked _____
 Approved _____

REQUIREMENT TABLE

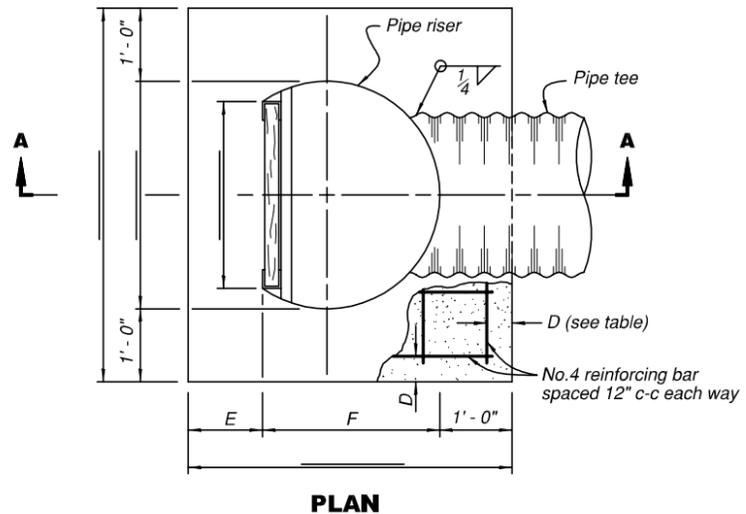
IN BOX INDICATES THE REQUIREMENTS THAT APPLY TO STRUCTURE INDICATES - NOT APPLICABLE

CONCRETE: CLASS 3000 3000M 4000 _____ CU.YD.
 REINFORCING STEEL: _____ LB.

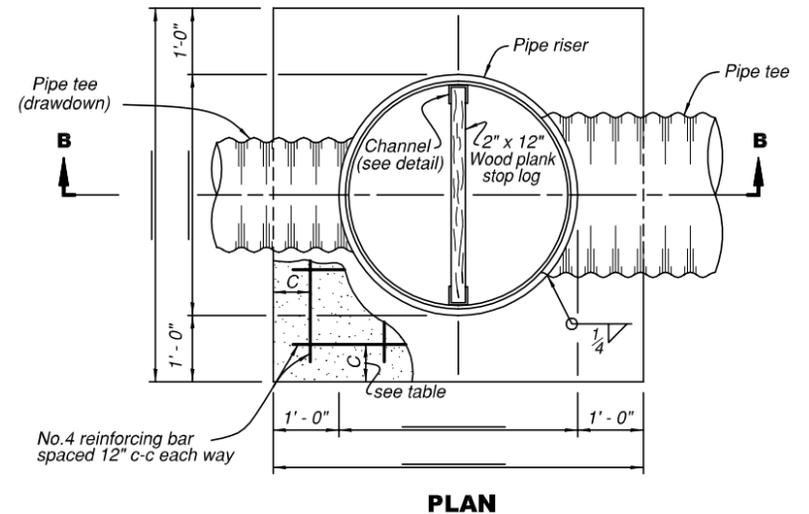
DETAIL A
 CORRUGATED METAL PIPE, ZINC COATED STEEL, _____" DIA., _____ GA., _____ FT.
 NOMINAL LENGTH WITH A _____" DIA., _____ GA., PIPE TEE _____ FT. NOMINAL LENGTH
 WELDED TO IT 9" FROM THE LOWER END.

DETAIL B
 CORRUGATED METAL PIPE, ZINC COATED STEEL, _____" DIA., _____ GA., _____ FT.
 NOMINAL LENGTH WITH A _____" DIA., _____ GA., PIPE TEE _____ FT. NOMINAL LENGTH
 WELDED TO IT 9" FROM THE LOWER END, AND A _____" DIA., _____ GA. PIPE TEE
 (DRAWDOWN) _____ FT. NOMINAL LENGTH WELDED TO IT _____" FROM THE LOWER END

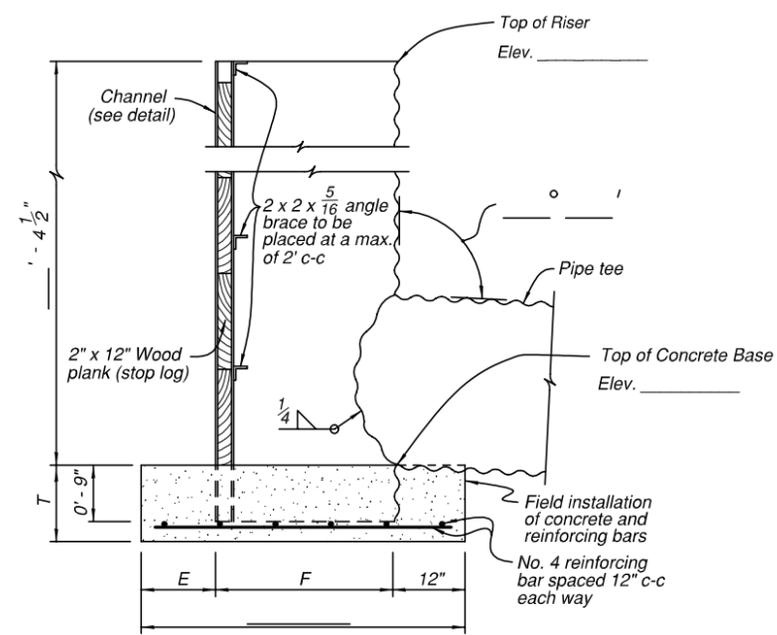
PIPE CLASSIFICATION	RISER	PIPE TEE	DRAWDOWN
STANDARD RIVETED _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CLOSE RIVETED _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> TYPE I FULL CIRCULAR CROSS-SECTION FABRICATED WITH <input type="checkbox"/> ANNULAR OR <input type="checkbox"/> HELICAL CORRUGATIONS _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> TYPE II, THIS IS TYPE I PIPE WHICH HAS BEEN REFORMED INTO A PIPE ARCH HAVING APPROXIMATELY A FLAT BOTTOM WITH <input type="checkbox"/> ANNULAR OR <input type="checkbox"/> HELICAL CORRUGATIONS _____	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
CORRUGATION REQUIREMENTS			
NOMINAL SIZE (INCH)			
<input type="checkbox"/> 1 1/2 x 1/4 (AVAILABLE ONLY IN HELICALLY CORRUGATED PIPE) _____	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/> 2 2/3 x 1/2 _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> 3 x 1 _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> 5 x 1 _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
COATINGS AND FABRICATION			
SEE METAL PIPE REQUIREMENTS AND COUPLING BANDS SHEET			



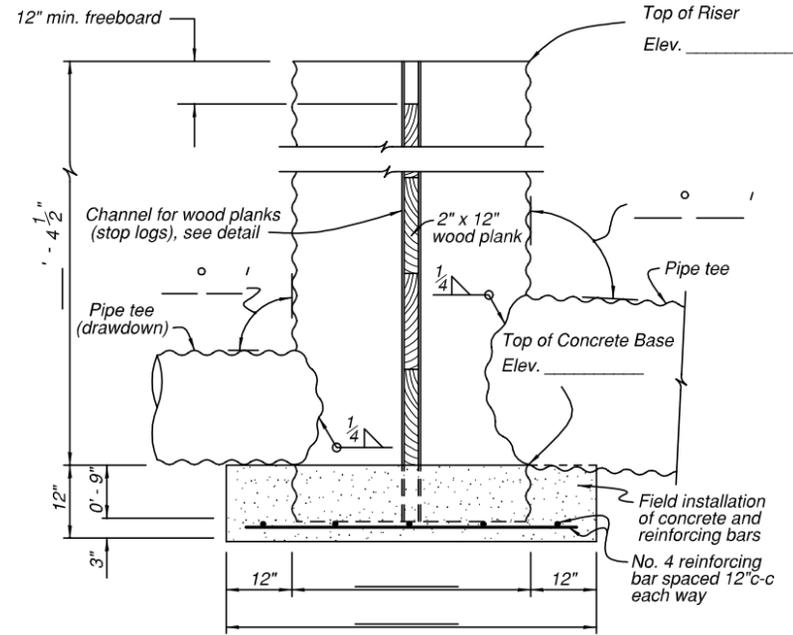
PLAN



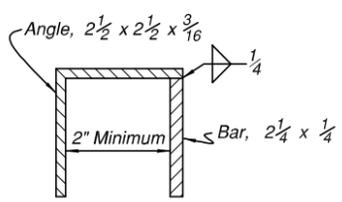
PLAN



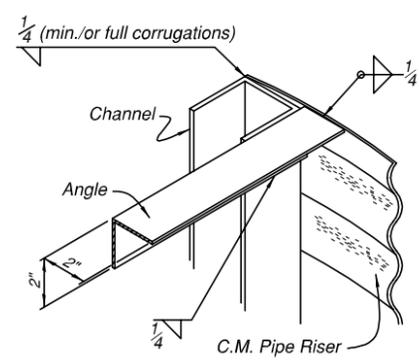
**SECTIONAL ELEVATION A-A
 STOP LOG FLOW CONTROL - PARTIAL RISER
 DETAIL A**



**SECTIONAL ELEVATION B-B
 STOP LOG FLOW CONTROL - FULL RISER
 DETAIL B**

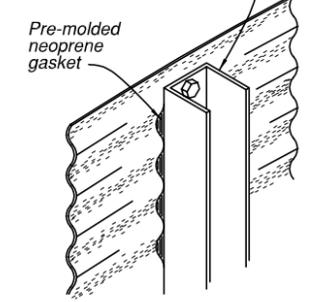


DETAIL OF CHANNEL



**CHANNEL INSTALLATION
 (PARTIAL RISER)**

Channel, fasten to every fourth inside crest of corrugation with 3/8" x 1" long bolts with hex nuts and lock washers.



**CHANNEL INSTALLATION
 (FULL RISER)**

FABRICATION AND INSTALLATION NOTES:

- FOR FABRICATION OF RISERS ON HELICAL PIPE A FILLER STRIP MAY BE USED TO INSURE A WATERTIGHT SEAL BETWEEN THE RISER AND TEE.
- ONLY ONE TYPE OF COATING SHALL BE USED IN EACH INSTALLATION.
- THE FOLLOWING ARE ACCEPTABLE SUBSTITUTIONS FOR THE CHANNEL DETAIL SHOWN:
 A. C 3x5 AMERICAN STANDARD CHANNEL
 B. 2 EACH - ANGLE, 2 x 1-1/4 x 3/16, WELD THE 1-1/4" LEGS TOGETHER USING 1/4" FILLET WELD, BOTH SIDES.
- WHEN THE ABOVE SUBSTITUTION IS USED IN THE "FULL RISER INSTALLATION" COUNTERSUNK 3/8" x 1" BOLTS WITH HEX NUTS AND LOCK WASHERS SHALL BE PROVIDED.
- ALL ANGLES AND BARS TO BE SECURELY WELDED AS SHOWN ON THE PLANS IN ACCORDANCE WITH SPECIFICATIONS.
- ALL WELDS AND HEAT AFFECTED AREAS ON GALVANIZED METAL TO BE TREATED IN ACCORDANCE WITH SPECIFICATIONS.
- NO.4 REINFORCED BAR = 1/2" DIA. = 0.668 LB. PER LIN. FT.
- CHANNEL DETAIL
 ANGLE, 2-1/2 x 2-1/2 x 3/16 = 3.07 LB. PER LIN. FT.
 BAR, 2-1/4 x 1/4 = 1.91 LB. PER LIN. FT.
 TOTAL WEIGHT = 4.98 LB. PER LIN. FT.
- PREMOLDED NEOPRENE GASKET SHALL BE SIMILAR AND EQUAL TO A BUTLER RUBBER CLOSURE STRIP (PART NO. 050424) AVAILABLE THROUGH THE LOCAL BUTLER BUILDING DEALER.
- USE A MINIMUM 30" DIA. RISER TO FACILITATE INSTALLATION AND REMOVAL OF STOP LOGS.
- ALL SEAMS CUT, DUE TO FABRICATING IN HELICAL PIPE, SHALL BE WELDED FOR A LENGTH OF 1" FROM THE EDGE OF THE CUT AND TREATED ACCORDING TO SPECIFICATIONS.

MATERIAL LIST FOR FULL RISER CONCRETE BASE

DIA. OF RISER IN INCHES	30	36	42	48	54	60	66	72
CONCRETE, CU.YDS.	0.75	0.93	1.12	1.33	1.56	1.81		
NO. 4 REINFORCING BAR, LIN.FT.	40	45	60	66	84	91		
LENGTH OF EACH BAR, FT.-IN.	4 - 0	4 - 6	5 - 0	5 - 6	6 - 0	6 - 6		
TOTAL NUMBER OF BARS	10	10	12	12	14	14		
TOTAL WEIGHT - NO. 4 BARS, LBS.	26.7	30.0	40.1	44.1	56.1	60.8		

MATERIAL LIST FOR PARTIAL RISER CONCRETE BASE

DIA. OF RISER IN INCHES	48	54	60	66	72	78
CONCRETE, CU.YDS.	1.25	1.96	2.27	3.13	3.56	4.01
NO. 4 REINFORCING BAR, LIN.FT.	66	84	91	112	120	144
LENGTH OF EACH BAR, FT.- IN.	5 - 6	6 - 0	6 - 6	7 - 0	7 - 6	8 - 0
TOTAL NUMBER OF BARS	12	14	14	16	16	18
TOTAL WEIGHT - NO. 4 BARS, LBS.	44.1	56.1	60.8	74.8	80.2	96.2

NO. 4 REINFORCING BAR = 1/2 IN. DIA. = 0.668 LBS./LIN.FT.

TABLE OF DIMENSIONS

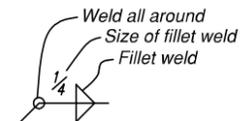
DIA. OF RISER IN INCHES	30	36	42	48	54	60	66	72	78
C - DIMENSION IN INCHES	3	6	3	6	3	6	-	-	-
D - DIMENSION IN INCHES	-	-	-	6	3	6	3	6	3
E - DIMENSION IN FT./IN	-	-	-	2' - 7"	2' - 2"	2' - 0"	1' - 6"	1' - 9"	1' - 8"
F - DIMENSION IN FT./IN	-	-	-	2' - 5"	3' - 4"	4' - 0"	4' - 8"	5' - 3"	5' - 10"
T - DIMENSION IN INCHES	-	-	-	12"	15"	15"	18"	18"	18"

TABLE OF QUANTITIES FOR RISER BASES

ITEM	UNIT	QUANTITY
CONCRETE	CU.YDS.	
REINFORCED STEEL (RISER BASE ONLY)	LBS.	
PRE-MOLDED NEOPRENE GASKET	LIN.FT.	
FABRICATED CHANNEL, _____ FT.	LBS.	
2" x 12" WOOD PLANK CONSTRUCTION GRADE DOUGLAS FIR (OR EQUAL) NO. _____ LENGTH EACH	B.F.M.	
2" x 2" x 5/16" ANGLE BRACE _____ EA. @ _____ FT.	LBS.	

TOTAL ANGLE BRACE WEIGHT = TOTAL BRACE LENGTH x 3.92 LBS.

WELD SYMBOLS



NOTE: Weld symbol placed above line indicates weld is on opposite side of joint to which arrow points.

Weld symbol below line indicates weld is on side of joint to which arrow points.



File No. _____

CAD Dwg. NE100-10-003.dwg

**METAL PIPE RISERS WITH
 WOODEN STOP LOG CONTROL**

Sheet _____ of _____