

Design Assumptions for
Nebraska Base Drawing NE100-50-003
Schedule 40 PVC (1120) Pipe for Plug Valve Drawdown Facility

Revised drawing: 8/03 Replaces: 5008-2

Schedule 40 PVC (1120) Pipe for Plug Valve Drawdown Facility

NEM NE501.80 states the requirements and criteria of drawdown installations with reference to Department of Natural Resources statutes (Surface Water – Chapter 46).

This type of drawdown should be installed where there is a need to open it on a regular basis.

This PVC pipe plug valve drawdown facility is to be used with concrete pipe principal spillway outlet works.

ASTM C33, Fine Aggregate for Concrete will be on site. The aggregate is used in the seepage protection filter construction.

Maximum allowable height of fill above PVC conduit is 30 feet.

Maximum joint deflection is 3 degrees at each joint.

Joint block detail should be used if camber will not provide desired inlet elevation. Angle of deflection should be rounded to the nearest 5 degree increment.

Design based on USBR Equation in the SCS “Draft” edition Design of Flexible Conduits (Plastic Pipe) 1982 and Uni-bell Handbook of PVC Pipe.

Instructions for
Nebraska Base Drawing NE100-50-003
Schedule 40 PVC (1120) Pipe for Plug Valve Drawdown Facility

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

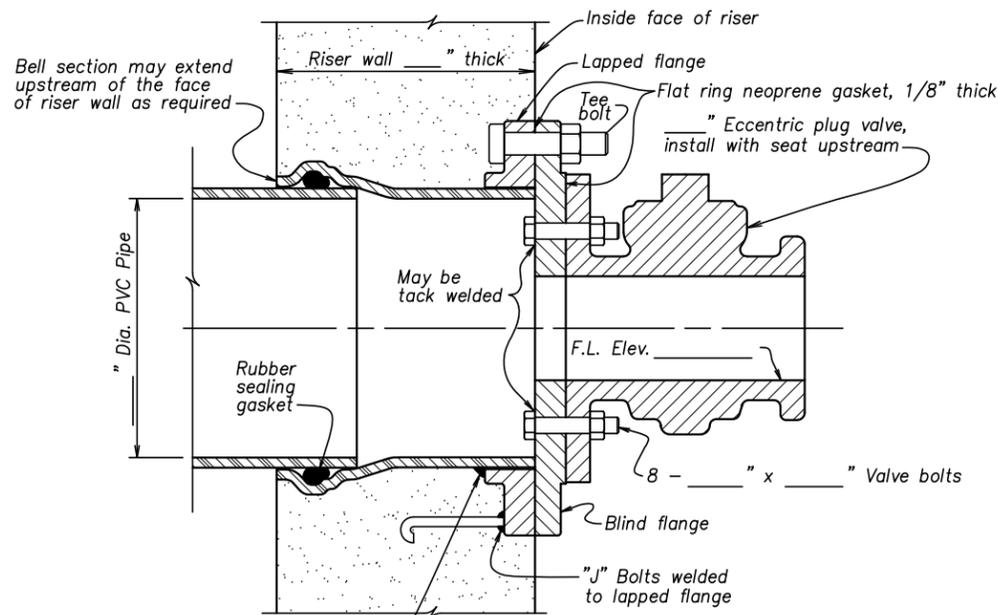
Drawn

Checked

Enter directly on drawing

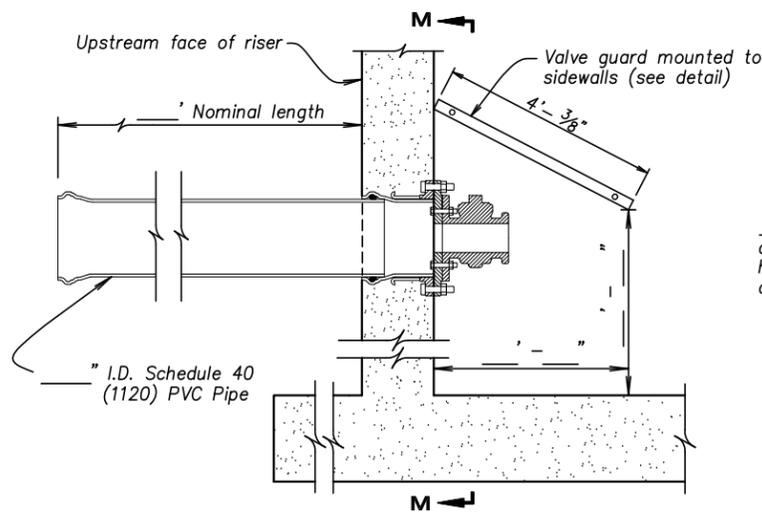
Left click on blue data fields to enter required information.

If Joint Block detail is not a requirement, left click on the Joint Block detail on the drawing to put an X across it .

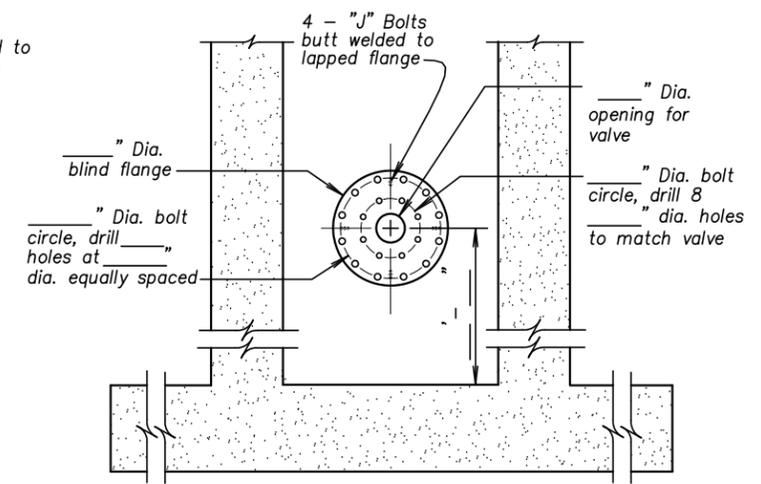


Prior to concrete encasement place sealing or caulking compound around pipe and between lapped flange

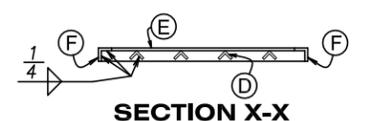
DETAIL OF FLANGE AND PLUG VALVE ASSEMBLY



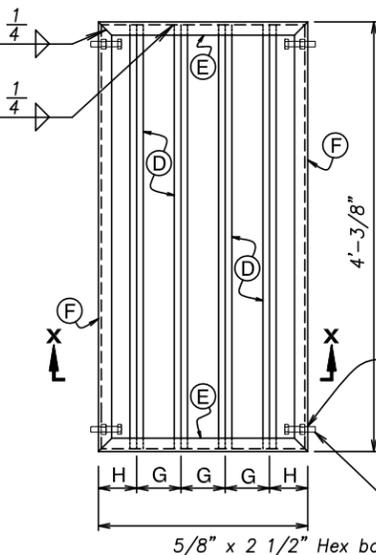
ELEVATION OF DRAWDOWN FACILITY



SECTION M-M
(Valve and guard not shown)



SECTION X-X



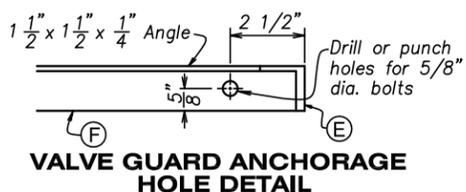
PLAN VIEW OF VALVE GUARD

VALVE GUARD TABLE OF QUANTITIES

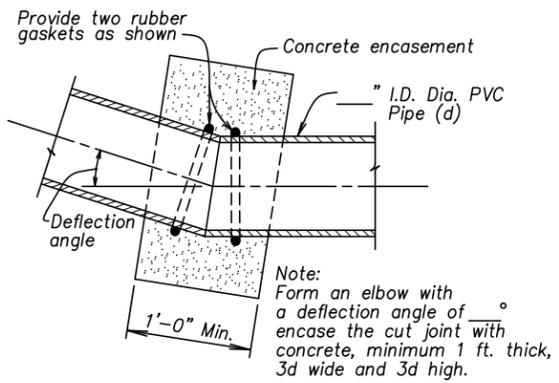
MARK	ITEM	RISER WIDTH (INCHES)			QUANTITY	WEIGHT (LBS.)		
		24"	30"	36"		24"	30"	36"
D	1" x 1" x 1/4" ANGLES	3'-11 7/8"	3'-11 7/8"	3'-11 7/8"	4	23.8	23.8	23.8
E	1 1/2" x 1 1/2" x 1/4" ANGLES	1'-11 5/8"	2'-5 5/8"	2'-11 5/8"	2	9.2	11.6	13.9
F	1 1/2" x 1 1/2" x 1/4" ANGLES	4'-3/8"	4'-3/8"	4'-3/8"	2	18.9	18.9	18.9
G	DIMENSION	5"	6"	7"	-	-	-	-
H	DIMENSION	4 5/16"	5 13/16"	7 5/16"	-	-	-	-
	5/8" x 2 1/2" HEX BOLTS	-	-	-	4	-	-	-
TOTAL WEIGHT =						51.9	54.3	56.6

WEIGHT OF 1" x 1" x 1/4" ANGLE = 1.49 LB./FT.
WEIGHT OF 1 1/2" x 1 1/2" x 1/4" ANGLE = 2.34 LB./FT.

NOTE:
DRILL 5/8" x 1" DEEP HOLES IN RISER WALLS TO FIT ANCHORAGE HOLES. TACK WELD 5/8" NUTS TO FRAME.



VALVE GUARD ANCHORAGE HOLE DETAIL



JOINT BLOCK DETAIL
where d = i.d. of pipe

REQUIREMENT TABLE

ITEM	UNIT	QUANTITY
___" I.D. SCHEDULE 40 PVC (1120) PIPE	FT.-IN.	
TOTAL SCHEDULE 40 PVC (1120)		
TRASH RACK FOR ___" I.D. DRAWDOWN PIPE, PER DETAIL	EACH	1
___" ECCENTRIC PLUG VALVE - MANUAL ACTUATOR INCLUDING NECESSARY GASKETS	EACH	1
___" DIA. LAPPED FLANGE, INCLUDING NECESSARY GASKET	EACH	1
BLIND FLANGE FOR ___" DIA. PIPE	EACH	1
TEE BOLTS, ___" x ___" WITH WASHERS AND NUTS	EACH	
"J" BOLTS, 3/8" DIA. x 4" LONG	EACH	4
VALVE BOLTS, ___" x ___" WITH WASHERS AND NUTS	EACH	8

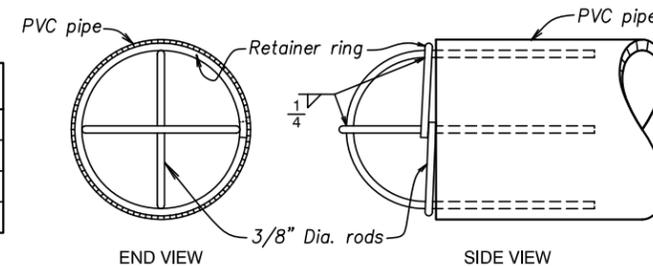
CONSTRUCTION NOTES

- SCHEDULE 40 PVC (1120) PIPE AND GASKET JOINTS SHALL BE IN ACCORDANCE WITH ASTM D1785.
- THE CONTRACTOR SHALL CUT A ___" LENGTH BELL SECTION FROM ONE SECTION OF PVC PIPE TO BE INSTALLED IN THE CONCRETE RISER WALL.
- THE CONTRACTOR SHALL USE ASTM C33, FINE AGGREGATE FOR CONCRETE, AS BACKFILL MATERIAL AROUND THE PVC PIPE, COMPACTION SHALL BE AS SPECIFIED FOR THE SEEPAGE PROTECTION FILTER.
- EARTH FILL SHALL BE COMPLETED 2D ABOVE THE FLOWLINE OF THE PVC DRAWDOWN PIPE AND THEN EXCAVATE A TRENCH (PER DETAIL) FOR PIPE PLACEMENT AND BACKFILL AS SHOWN.
- THE CONTRACTOR MAY USE ASTM C33, FINE AGGREGATE FOR CONCRETE, AS BEDDING MATERIAL BELOW THE PVC PIPE, IF DESIRED.
- THE LAST 5 FEET OF TRENCH BACKFILL AT THE DRAWDOWN PIPE INLET SHALL BE COMPACTED EARTH FILL IN LIEU OF FINE AGGREGATE TO PROVIDE A WATER SEAL AT THE INVERT OF THE PVC PIPE.
- JOINT BLOCK IF REQUIRED, SHALL BE LOCATED AS SHOWN ON THE DRAWDOWN CROSS-SECTION OR PROFILE.
- 160 P.S.I. PRESSURE RATED PVC PIPE (ASTM D2241) MAY BE SUBSTITUTED FOR SCHEDULE 40 PVC PIPE.
- FLANGES SHALL BE CLASS 150 STEEL FLANGES.
- VALVE SIMILAR OR EQUAL TO DEZURIK CODE ____, FIGURE 118, F, 6, RS16.
- THE BLIND FLANGE IS TO BE CUT AND DRILLED FOR THE SIZE OF VALVE SPECIFIED.

QUANTITIES FOR DRAWDOWN TRASH RACK

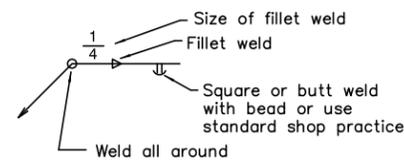
PIPE I.D. INCHES	*ROD LENGTHS INCHES	**RETAINER RING LENGTH INCHES	TOTAL LENGTH FEET-INCHES
6	52	24	6-4
8	58	30	7-4
10	64	36	8-4
12	70	43	9-5

* 2 RODS REQUIRED
** APPROXIMATE 2" LAP
RODS TO BE ZINC-COATED OR PAINTED ACCORDING TO PAINT SYSTEM C.
3/8" DIA. BARS = 0.376 LB./FT.



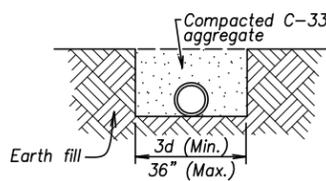
DETAIL OF DRAWDOWN PIPE TRASH RACK

WELD SYMBOLS



NOTE:
WELD SYMBOL 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. WHEN SIZE OF FILLET WELD IS OMITTED, USE STANDARD SHOP PRACTICE.

DETAIL OF TYPICAL PIPE INSTALLATION



where d = i.d. of pipe