Design Assumptions for Nebraska Base Drawings NE600-10-001 & NE600-10-001a Irrigation Tailwater Pit - Pipe Letdown and Irrigation Tailwater Pit - Straight Pipe with Pipe Support

New drawings: 8/01 and 9/02 respectively

Corrugated Metal Pipe

Minimum pipe size 12" dia

Coupling bands shall be 2 gages lighter than pipe but not lighter than 16 gage

The pipe gage requirements shall be included in the Table of Quantities

The following designations for pipe class, series, shape and coating when referred to on the drawings are in accordance with the current federal specifications WW-P-405

			Depth	Pitch
Class I	Annular Corrugations	Series A	½	2-1/4 – 2-3/4
		Series B	1	2-3/4 – 3-1/4
Class II	Helical Corrugations	Series A	½	1-7/8 – 2-3/4
		Series B	1	2-3/4 – 3-1/4
		Series C	¼	1-3/8 – 1-7/8

Type I Full circular cross section
Zinc coated steel

When corrosive soils are present PVC or PE pipe shall be used

PVC and PE Pipe

Minimum pipe size 10" dia

Minimum cover over the pipe when the dike is used for a road – 30 inches and an analysis shall be completed to determine adequate pipe strength (TR-77) if pipe stiffness $\leq$ 125 PSI

PVC 1120 or 1220. SDR 32.5 or stronger required for fill heights over 8 feet
Conforming to ASTM D1785 (Schedule 40, 80) and/or ASTM D2241 (SDR)

Tie downs shall be required on all PVC and PE applications

Instructions for
Nebraska Base Drawings NE600-10-001 & NE600-10-001a
Irrigation Tailwater Pit - Pipe Letdown
and
Irrigation Tailwater Pit - Straight Pipe with Pipe Support

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

	Who (initials)	When (MM/DD/YY)
Designed		
Drawn		
Checked		

Enter directly on drawing

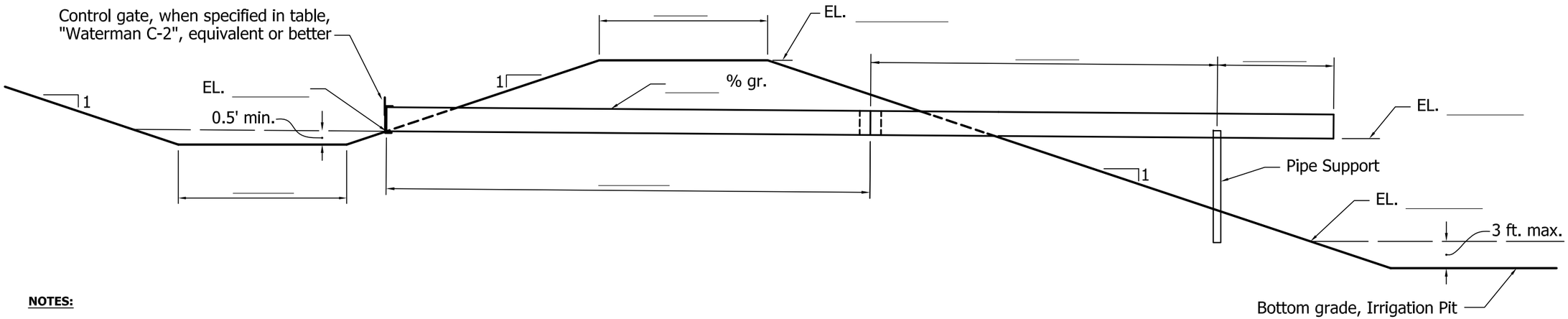
Left click on boxes on drawing to mark with X as required.
Left click data fields to enter required information.

Clear Form

Click to clear all form fields

Print Drawing

Note: Select page 3 of 4 or 4 of 4 to print desired drawing.



NOTES:

CORRUGATED METAL PIPE

1. FOR COLLAR COUPLING BANDS, COAT PIPE ENDS AND THE LAP OF THE BAND WITH ¼ INCH THICK BITUMINOUS MASTIC

2. WHEN EQUIPMENT TRAVEL IS NECESSARY OVER THE CORRUGATED METAL PIPE, A MINIMUM OF 2 FT. EARTH FILL COVER IS REQUIRED. WHEN OTHER THAN STANDARD CMP IS USED, EQUIPMENT TRAVEL SHALL BE LIMITED IN ACCORDANCE WITH LOAD TABLES FOR THE PIPE.

3. COUPLING BANDS SHALL HAVE THE SAME CORRUGATION REQUIREMENT AND THE SAME COATING AS THE DESIGNATED PIPE.

4. ALL WELDS AND ALL HEAT AFFECTED AREAS ON COATED STEEL SHALL BE THOROUGHLY CLEANED AND TREATED IN ACCORDANCE WITH ASTM'S.

5. ROD SIZE FOR 12" THRU 15" DIAMETER PIPE SHALL BE 3/8" DIAMETER. FOR PIPE LARGER THAN 15" DIAMETER THE ROD SHALL BE ½" DIAMETER. DIAMETER OF HOLES IN THE LUGS SHALL BE 1/8" LARGER THAN THE DIAMETER OF ROD USED.

6. DURING FABRICATION RIVETED SEAMS SHALL BE CAULKED WITH AN ASPHALT OR BASE MATERIAL MEETING ASTM A849 TO PROVIDE A WATERTIGHT SEAM. ALL CIRCUMFERENTIAL AND LONGITUDINAL SEAMS SHALL BE CAULKED BEFORE RIVETING. THIS SHALL BE ACCOMPLISHED TO THE INNER LAP SURFACE BEFORE RIVETING SUCH THAT WHEN THE RIVETS ARE IN PLACE, ALL VOIDS ARE FILLED.

7. CLOSE RIVETED PIPE SHALL BE FABRICATED SO THAT THE RIVET SPACING IN THE CIRCUMFERENTIAL SEAMS SHALL NOT EXCEED 3 INCHES, EXCEPT THAT 12 RIVETS WILL BE SUFFICIENT ON 12" DIA. PIPE.

PVC AND POLYETHYLENE (PE) PIPE

1. SDR _____ PRESSURE RATED PVC PIPE SHALL CONFORM TO ASTM STANDARD D2241 SCHEDULE 40 AND 80 SHALL CONFORM TO ASTM STANDARD D1785.

2. THE LONGEST SECTION OF PIPE IN THE INSTALLATION SHALL NOT EXCEED 20 FEET IN LENGTH.

3. PVC PIPE SHALL BE JOINED BY SOLVENT WELDED IN ACCORDANCE WITH ASTM D2855 OR GASKETED COUPLING IN ACCORDANCE WITH ASTM F477. THE STRENGTH OF THE JOINT OR COUPLING SHALL BE CONSISTENT WITH THE STRENGTH OF THE PIPE BEING USED.

4. PE PIPE SHALL BE JOINED WITH WATERTIGHT COUPLERS IN ACCORDANCE WITH ASTM F477.

5. THE PIPE SHALL BE FIRMLY AND UNIFORMLY BEDDED SO THE LOWER ONE-SIXTH OF THE CIRCUMFERENCE WILL BEAR AGAINST ORIGINAL OR COMPACTED EARTH.

6. MAXIMUM HEIGHT OF FILL OVER PIPE AS PER TECHNICAL GUIDE STANDARD 378, POND, TECHNICAL GUIDE STANDARD 620 UNDERGROUND OUTLETS, OR TECHNICAL GUIDE STANDARD 430, IRRIGATION WATER CONVEYANCE IF AN ALALYSIS IS NOT COMPLETED.

TABLE OF QUANTITIES

REQUIREMENTS FOR STRUCTURE — ☒ X BOX FOR REQUIRED

PIPE

____ " DIA. PVC PIPE

MINIMUM STRENGTH REQUIRED:

- ☐ SDR 17-250 PSI
- ☐ SDR 21-200 PSI
- ☐ SDR 26-160 PSI
- ☐ SDR 32.5-125 PSI
- ☐ SDR 41-100 PSI
- ☐ SDR 51-80 PSI

OR

- ☐ SCHEDULE 80
- ☐ SCHEDULE 40

OR ____ " DIA. CORRUGATED PVC PIPE, TYPE _____

OR ____ " DIA. CORRUGATED PE PIPE, TYPE _____

OR ____ " DIA. GALV. C.M. PIPE, 16 GA.

OTHER, SPECIFY _____

CLASS_____ SERIES_____

SECTION LENGTH-FT.	NO. OF SECTIONS	TOTAL LENGTH
TOTAL LENGTH-FT.	----------	

COUPLING BANDS

TYPE	NO. REQUIRED
☐ 1 FT. COLLAR W/2 RODS, NUTS, & LUGS	
☐ 2 FT. COLLAR W/4 RODS, NUTS, & LUGS	
☐ HUGGER	
☐ OTHER , SPECIFY _____	

☐ END CAP ☐ CONTROL GATE ☐ TIE DOWN

LOCATION MAP

SEC. _____ T_____ R_____

TBM ELEV. _____

TBM DESCRIPTION:

Date

Designed

Drawn

Checked

Approved

NRCS Natural Resources Conservation Service

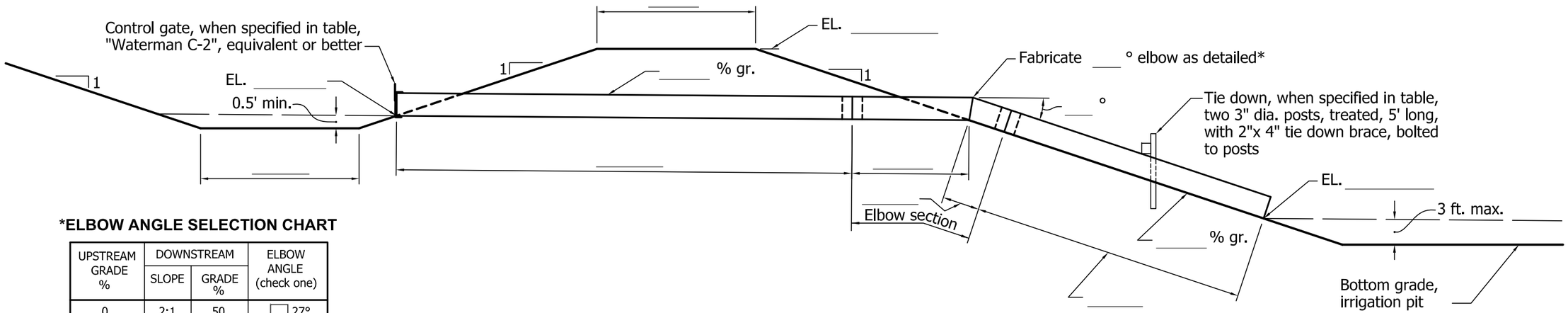
CAD file: NE600-10-001a.dwg

Drawing No.

Sheet of

IRRIGATION TAILWATER PIT
STRAIGHT PIPE WITH PIPE SUPPORT

Nebraska Standard Drawing
NE600-10-001a New 9/02



*ELBOW ANGLE SELECTION CHART

UPSTREAM GRADE %	DOWNSTREAM SLOPE	DOWNSTREAM GRADE %	ELBOW ANGLE (check one)
0	2:1	50	☐ 27°
0	3:1	33	☐ 18°
0	4:1	25	☐ 14°
0	5:1	20	☐ 11°
1	2:1	50	☐ 26°
1	3:1	33	☐ 18°
1	4:1	25	☐ 13°
1	5:1	20	☐ 11°
2	2:1	50	☐ 26°
2	3:1	33	☐ 17°
2	4:1	25	☐ 13°
2	5:1	20	☐ 10°

ELBOW CALCULATION:

GRADE OF DOWNSTREAM PIPE (BELOW ELBOW) IN PERCENT.
MINUS GRADE OF UPSTREAM PIPE (ABOVE ELBOW) IN PERCENT.
DIVIDE BY 100.
EQUALS THE TANGENT OF THE ANGLE OF THE ELBOW.

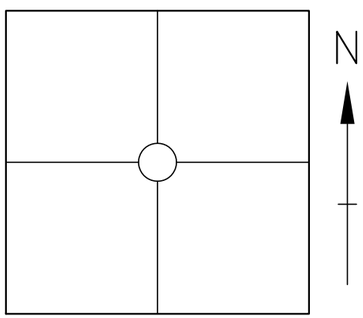
EXAMPLE:

UPSTREAM GRADE = 1%
DOWNSTREAM SLOPE = 4:1 = 25% GR.

$$25\% - 1\% = \frac{24\%}{100} = 0.24$$

ATAN (0.24) = 13.49°
USE 13° ELBOW

LOCATION MAP



SEC. _____ T _____ R _____

TBM ELEV. _____

TBM DESCRIPTION:

NOTES:

CORRUGATED METAL PIPE

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OR

☐ SCHEDULE 80
☐ SCHEDULE 40

OR ____ " DIA. CORRUGATED PVC PIPE, TYPE _____

OR ____ " DIA. CORRUGATED PE PIPE, TYPE _____

OR ____ " DIA. GALV. C.M. PIPE, 16 GA.

OTHER, SPECIFY _____

CLASS _____ SERIES _____

SECTION LENGTH-FT.	NO. OF SECTIONS	TOTAL LENGTH
ELBOW SECTION-FT.	1@____W/____° ELBOW*	
TOTAL LENGTH-FT.	----------	

COUPLING BANDS — TYPE — NO. REQUIRED

☐ 1 FT. COLLAR W/2 RODS, NUTS, & LUGS _____
☐ 2 FT. COLLAR W/4 RODS, NUTS, & LUGS _____
☐ HUGGER _____
☐ OTHER , SPECIFY _____ _____

☐ END CAP ☐ CONTROL GATE ☐ TIE DOWN

Date
Designed
Drawn
Checked
Approved

NRCS Natural Resources Conservation Service

CAD file: NE600-10-001.dwg

Drawing No.

Sheet of

IRRIGATION TAILWATER PIT PIPE LETDOWN

Nebraska Standard Drawing
NE600-10-001 New 8/01