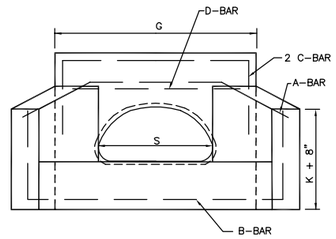

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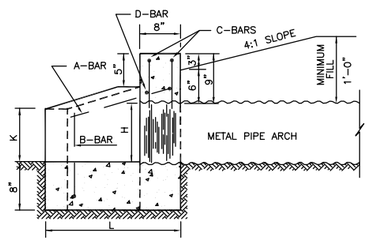
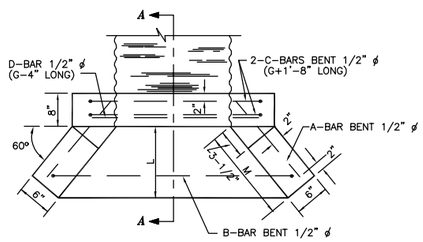


SECTION A-A



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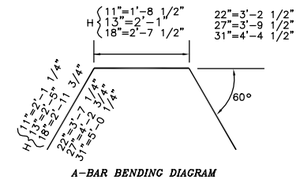
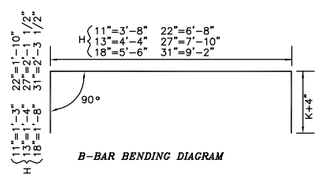
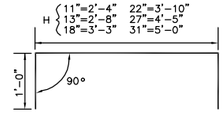


A-BAR BENDING DIAGRAM



B-BAR BENDING DIAGRAM



C-BAR BENDING DIAGRAM

METAL PIPE ARCH

TABLE OF DIMENSIONS FOR STEEL

S	H	A-BARS FORM	NO.	SIZE	LENGTH	B-BARS FORM	NO.	SIZE	LENGTH	C-BARS FORM	NO.	SIZE	LENGTH	D-BARS FORM	NO.	SIZE	LENGTH
18"	11"	BENT	1	1/2 ϕ	5'-11"	BENT	1	1/2 ϕ	6'- 2"	BENT	2	1/2 ϕ	4'- 4"	STR.	1	1/2 ϕ	2'- 4"
22"	13"	BENT	1	1/2 ϕ	6'-11"	BENT	1	1/2 ϕ	7'- 0"	BENT	2	1/2 ϕ	4'- 8"	STR.	1	1/2 ϕ	2'- 8"
29"	18"	BENT	1	1/2 ϕ	8'- 7"	BENT	1	1/2 ϕ	8'- 10"	BENT	2	1/2 ϕ	5'- 3"	STR.	1	1/2 ϕ	3'- 3"
36"	22"	BENT	1	1/2 ϕ	10'- 5"	BENT	1	1/2 ϕ	10'- 4"	BENT	2	1/2 ϕ	5'-10"	STR.	1	1/2 ϕ	3'-10"
43"	27"	BENT	1	1/2 ϕ	12'-3"	BENT	1	1/2 ϕ	12'- 1"	BENT	2	1/2 ϕ	6'- 5"	STR.	1	1/2 ϕ	4'- 5"
50"	31"	BENT	1	1/2 ϕ	14'- 5"	BENT	1	1/2 ϕ	13'- 9"	BENT	2	1/2 ϕ	7'- 0"	STR.	1	1/2 ϕ	5'- 0"

TABLE OF QUANT. FOR TWO END WLS.

H	CLASS A CONCRETE C.Y.	REINFORCING STEEL LBS.
11"	0.66	31.
13"	0.82	35.
18"	1.23	42.
22"	1.66	49.
27"	2.23	56.
31"	2.92	63.

TABLE OF DIMENSIONS FOR CONCRETE

S	H	AREA IN SQ. FT.	K	G	L	M
18"	11"	1.2	11"	2'-8"	1'-7"	1'-10"
22"	13"	1.8	1'-0"	3'-0"	1'-10"	2'-1 1/2"
29"	18"	3.1	1'-4"	3'-7"	2'-4"	2'-8 1/2"
36"	22"	4.9	1'-6"	4'-2"	2'-10"	3'-3 1/2"
43"	27"	7.1	1'-9 1/2"	4'-9"	3"-4 1/2"	3'-11"
50"	31"	9.6	1'-11 1/2"	5'-4"	4'-0 1/2"	4'-8"

SEE SHEET NO. 2 FOR GENERAL NOTES.

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Jason Brinkley, Civil Engineer, Ext 348

The City Of Enid, Oklahoma

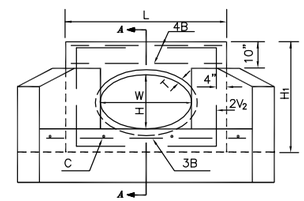
REVISIONS

Number	Date	Description

Project Number:
Project Location:
Sheet Title: STANDARD HEADWALLS FOR ARCH PIPE
Project Title: DD - 9 SHT. 1

Engr. Seal: REGISTERED PROFESSIONAL ENGINEER ROBERT S. HITT 13111 OKLAHOMA

Date:	6/1/00
Scale:	NO SCALE
Cad File:	G:\DATA\SPECS\DD9
Drawn By:	P.B./C.L.H.
Designed By:	R.H.
Approved By:	R.H.
Sheet:	of



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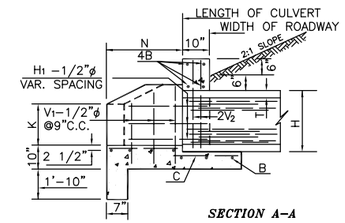

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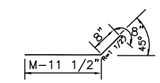
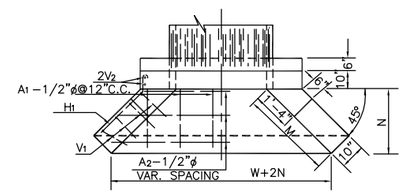
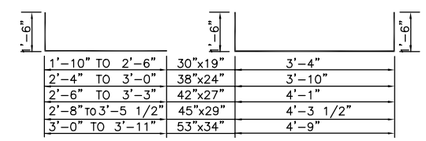


H1 BARS



PLAN



1'-10" TO 2'-6"	30"x19"	3'-4"
2'-4" TO 3'-0"	38"x24"	3'-10"
2'-6" TO 3'-3"	42"x27"	4'-1"
2'-8" TO 3'-5 1/2"	45"x29"	4'-3 1/2"
3'-0" TO 3'-11"	53"x34"	4'-9"

V1 BARS *V2 BARS*

BAR BENDING DIAGRAM

CONCRETE ELLIPTICAL PIPE

DIMENSIONS & QUANTITIES FOR HEADWALLS WITH 45° WINGS

DIMENSIONS									REINFORCING STEEL												QUANTITIES ⚠	
W	H	AREA SQ.FT.	T	H1	K	L	M	N	A1-1/2"ϕ NO.	A1-1/2"ϕ LGTH.	A2-1/2"ϕ NO.	A2-1/2"ϕ LGTH.	B -1/2"ϕ NO.	B -1/2"ϕ LGTH.	C -1/2"ϕ NO.	C -1/2"ϕ LGTH.	H1-1/2"ϕ NO.	H1-1/2"ϕ LGTH.	V1 -1/2"ϕ NO.	V1 -1/2"ϕ LGTH.	V2 -1/2"ϕ NO.	V2 -1/2"ϕ LGTH.	CLASS'A' CONC. CU. YD.	REINF. STEEL LBS.
30"	19"	3.3	3 1/4"	2'-10 1/4"	1'- 4"	4'-10 1/4"	2'-6"	1'-9"	5	1'- 5"	3	5'-8"Av.	7	4'-6 1/4"	4	1'-6"	8	2'-10 1/2"	12	3'- 8"Av.	4	6'- 4"	1.27	104.
38"	24"	5.1	3 3/4"	3'- 3 3/4"	1'-10"	5'- 6 1/4"	3'-1"	2'-11 1/2"	6	1'-10"	3	6'-9"Av.	7	5'-2 1/4"	4	1'-6"	12	3'- 5 1/2"	16	4'- 2"Av.	4	6'-10"	1.87	140.
42"	27"	6.3	3 3/4"	3'- 6 3/4"	2'- 0"	5'-10 1/4"	3'-5"	2'-4 1/4"	6	2'- 1"	3	7'-1"Av.	7	5'-6 1/4"	4	1'-6"	12	3'- 9 1/2"	16	4'- 4 1/2"Av.	4	7'- 1"	2.09	149.
45"	29"	7.4	4 1/2"	3'- 9 1/2"	2'- 2"	6'- 1 1/4"	3'-8"	2'-7 1/8"	7	2'- 3"	4	7'-9"Av.	7	5'-9 1/4"	4	1'-6"	12	4'- 0 1/2"	16	4'- 6 1/4"Av.	4	7'- 3"	2.38	163.
53"	34"	10.2	5"	4'- 3"	2'- 6"	6'- 9 1/4"	4'-3"	3'-0"	7	2'- 8"	4	8'-8"Av.	7	6'-5 1/4"	5	1'-6"	12	4'- 7 1/2"	20	4'-11 1/2"Av.	4	7'- 9"	3.01	195.

⚠ FOR ONE HEADWALL

GENERAL NOTES

1. ALL CONSTRUCTION AND MATERIALS SHALL BE IN ACCORDANCE WITH THE CURRENT STANDARD SPECIFICATIONS.
2. ALL EXPOSED CONCRETE EDGES SHALL HAVE A 3/4" CHAMFER.

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Engr. Seal: REGISTERED PROFESSIONAL ENGINEER ROBERT S. HITT 13111 OKLAHOMA

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Drawn By:	P.B./C.L.H.
Designed By:	R.H.
Approved By:	R.H.
Sheet:	of