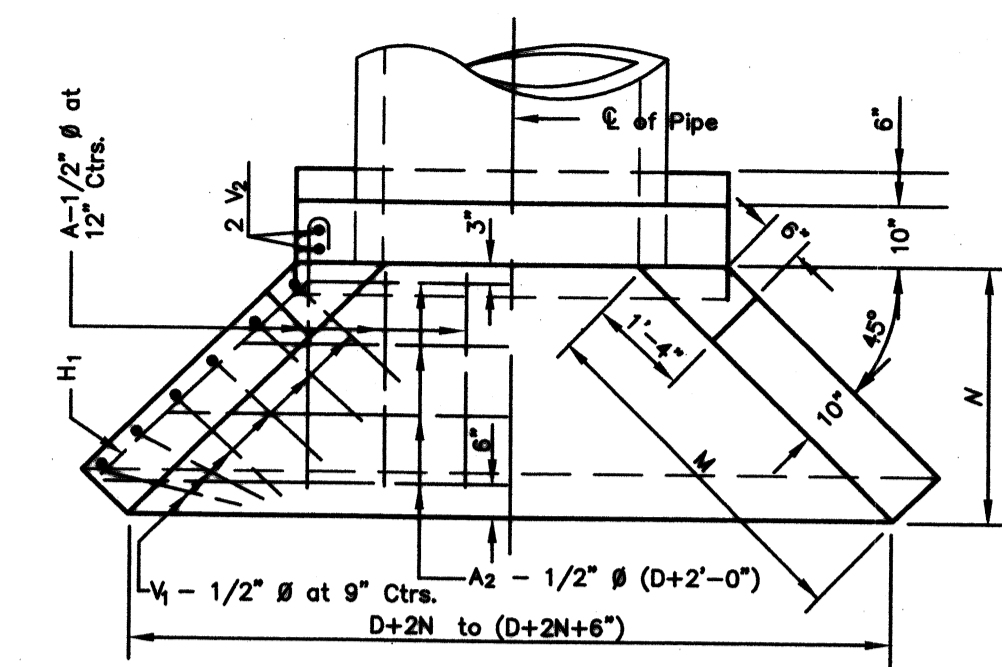
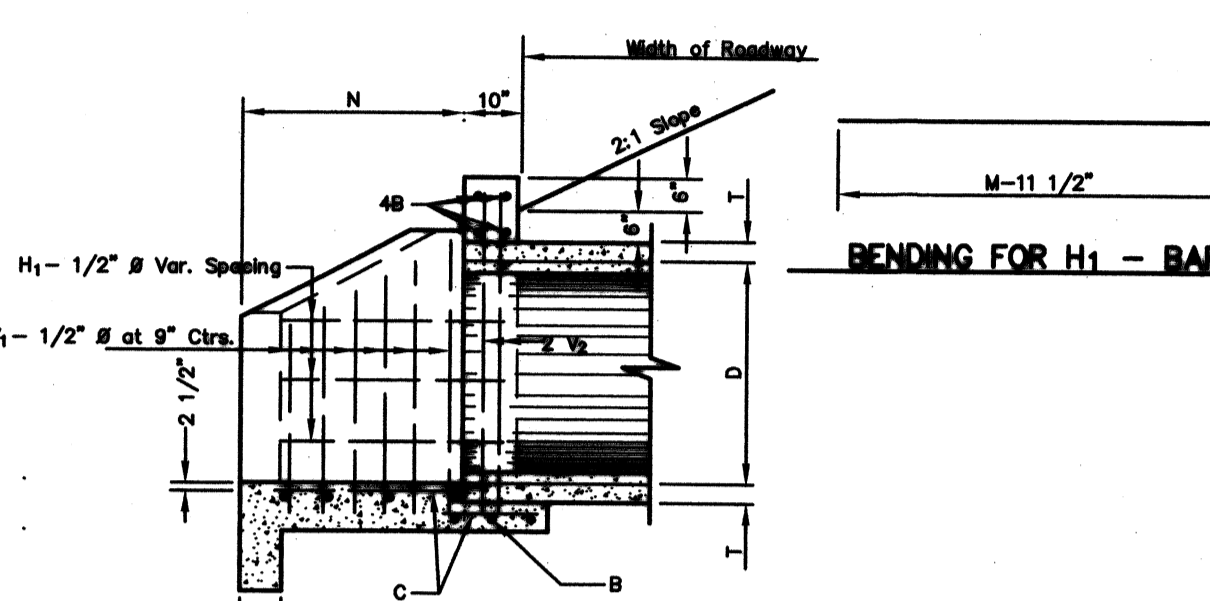
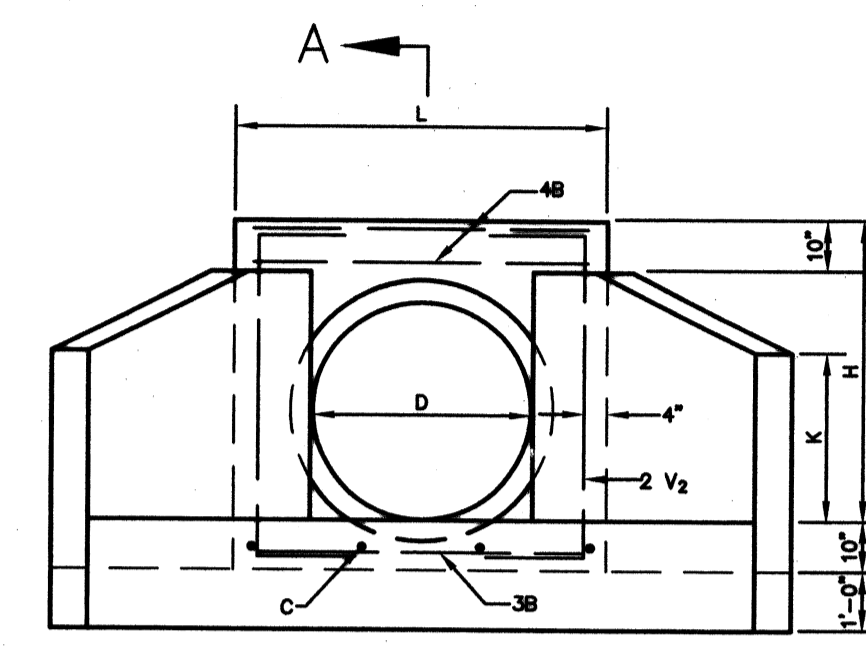


BENDING FOR V₁ - BARS

D=15"	1'-0" to 2'-0"
D=18"	2'-1" to 2'-3"
D=24"	2'-4" to 2'-10"
D=30"	2'-8" to 3'-4"
D=36"	2'-11" to 3'-11"
D=42"	3'-3" to 4'-5"

BENDING FOR V₂ - BARS

D=15"	2'-10"
D=18"	3'-1"
D=24"	3'-8"
D=30"	4'-2"
D=36"	4'-8"
D=42"	5'-3"

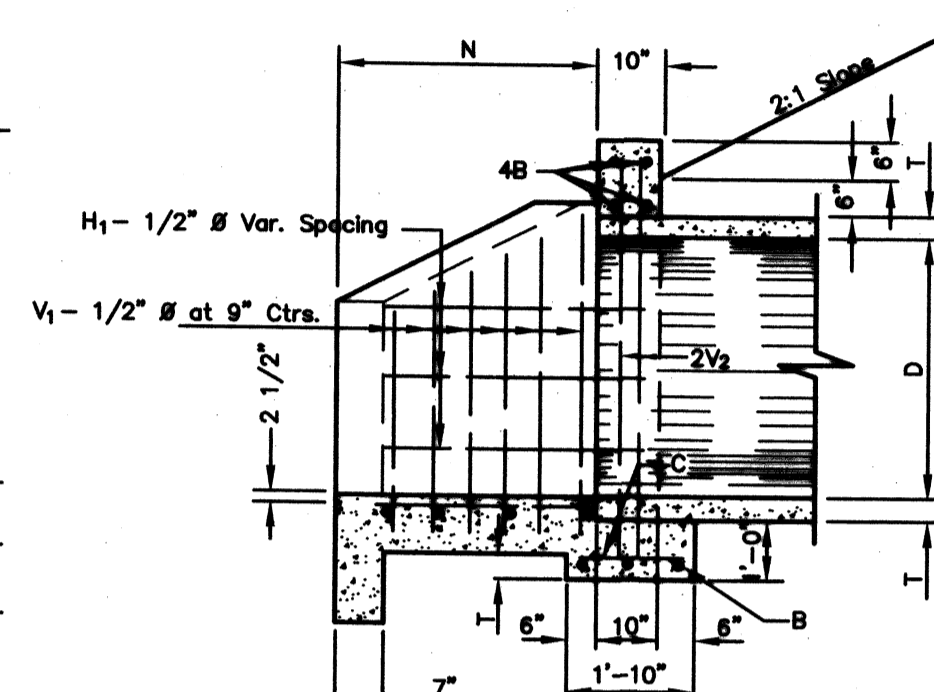
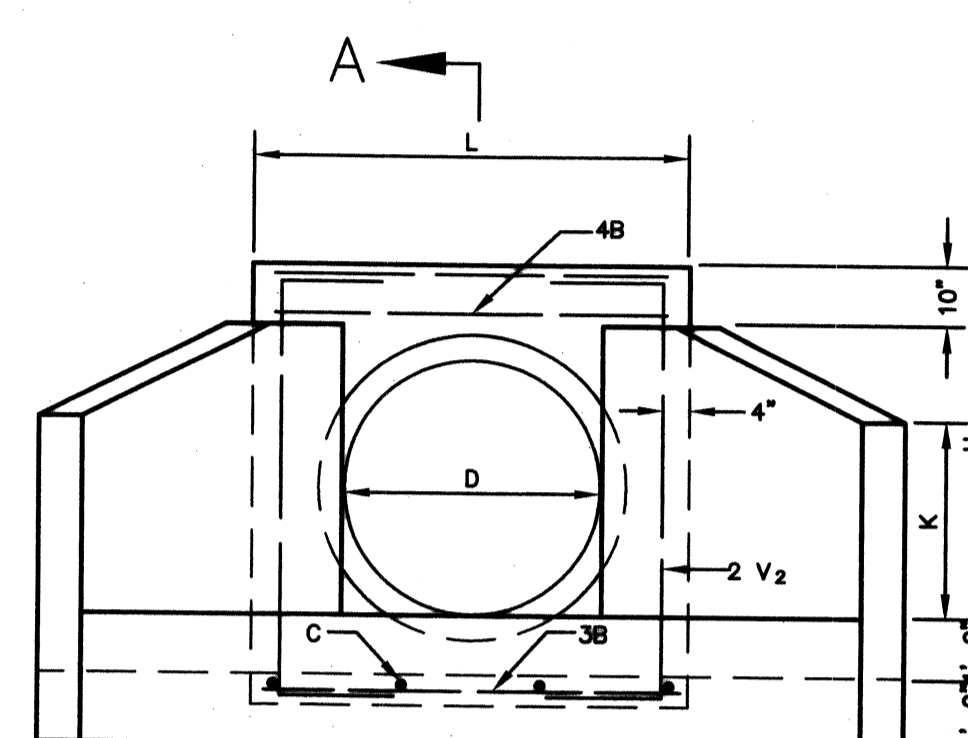
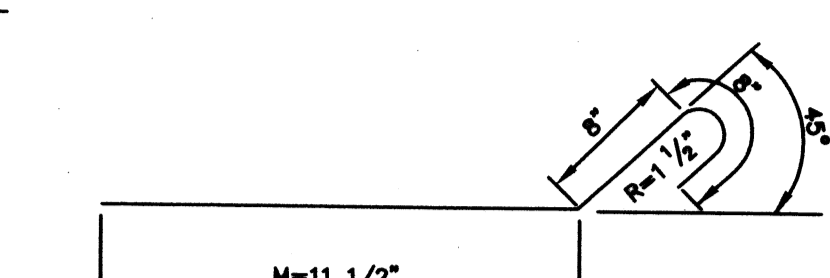


BENDING FOR V₁ - BARS

D=48"	3'-10" to 5'-2"
D=54"	4'-2" to 5'-8"
D=60"	4'-6" to 6'-2"
D=66"	4'-10" to 6'-8"
D=72"	5'-2" to 7'-4"

BENDING FOR V₂ - BARS

D=48"	6'-5"
D=54"	7'-0"
D=60"	7'-7"
D=66"	8'-2"
D=72"	8'-9"



GENERAL NOTES

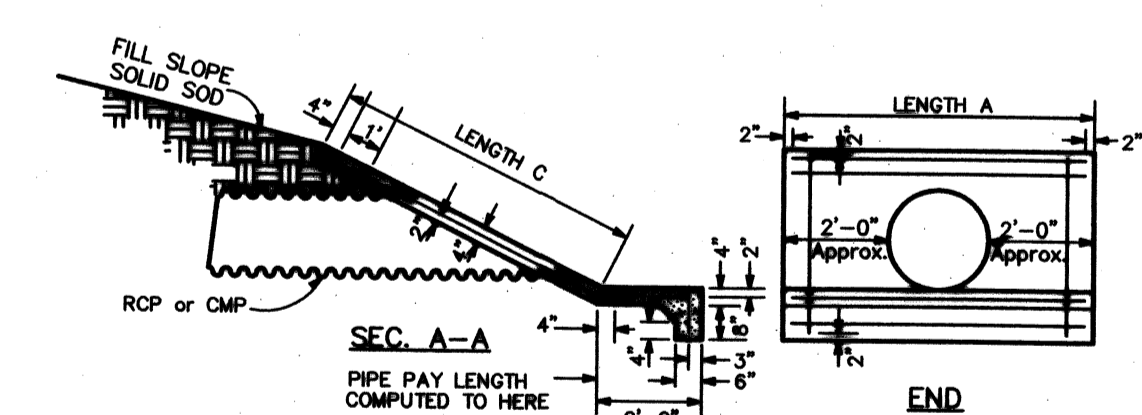
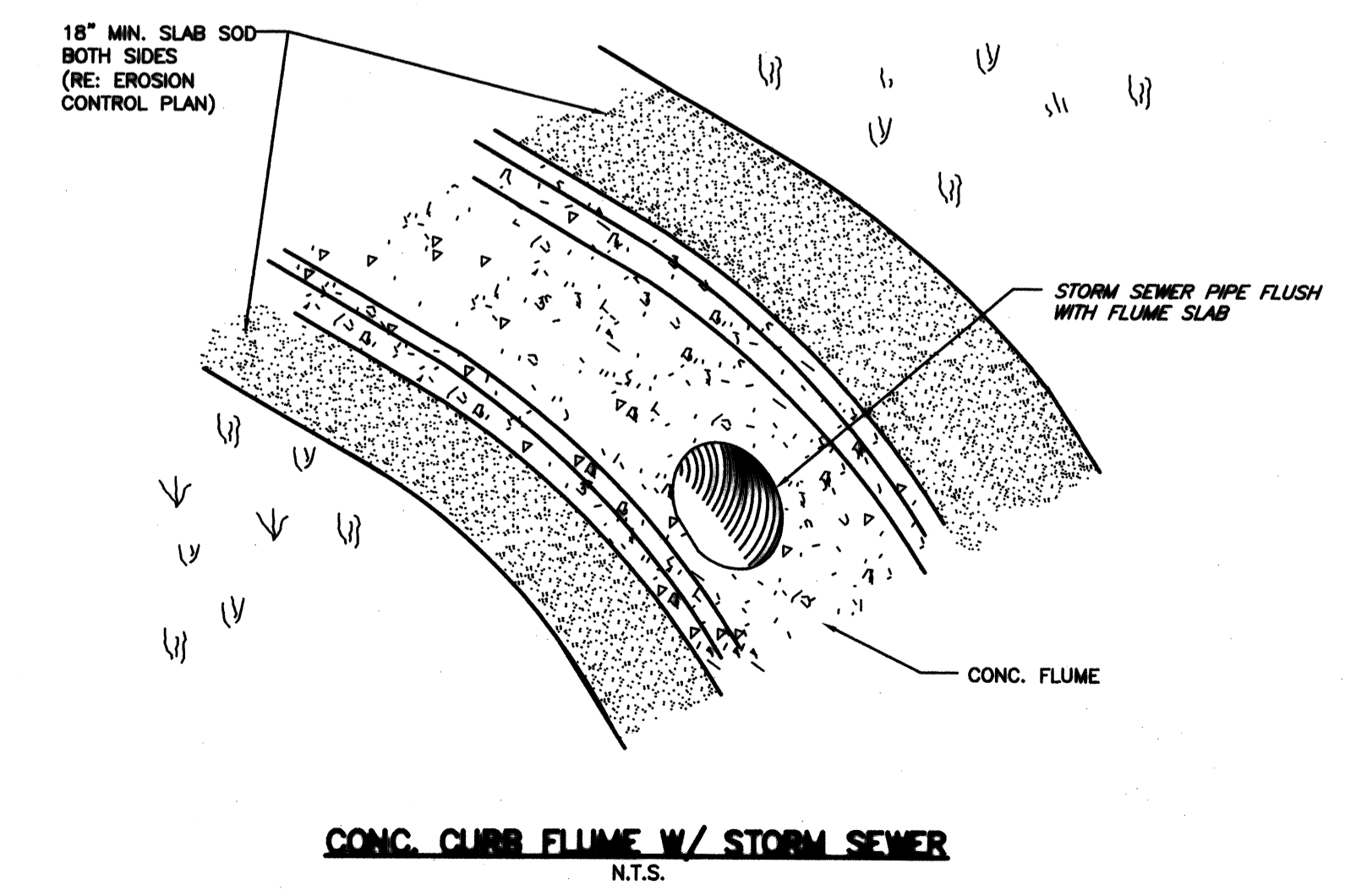
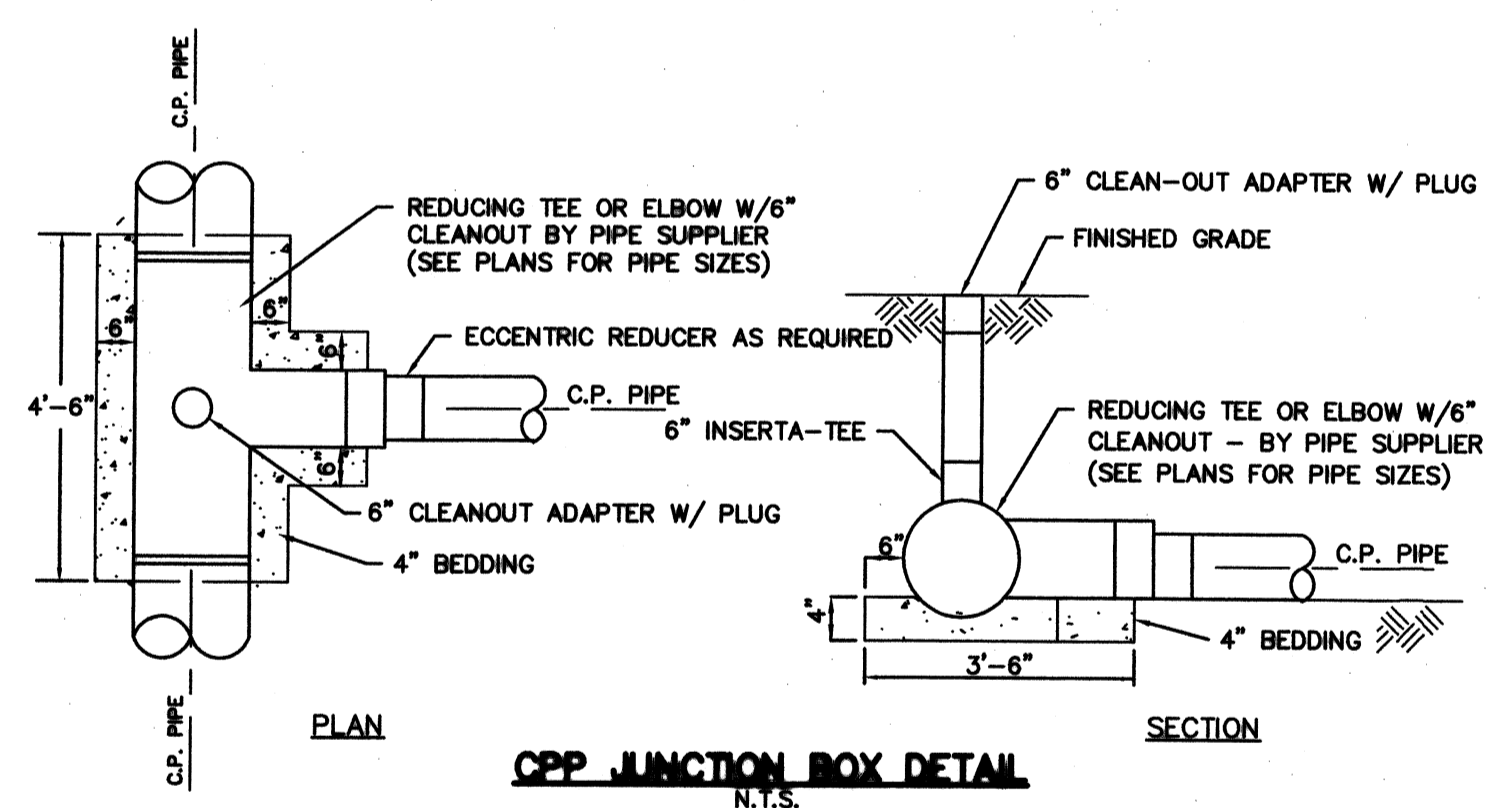
- All Construction shall be in accordance with City Standard Specifications.
- All Exposed Concrete Surfaces shall have a Carbonium Finish.
- All Exposed Concrete Edges shall have a 3/4" Chamfer.
- Reinforced Concrete Pipe shall conform to the Requirements of AASHTO M-179 (ASTM C-76)
- Minimum Depth of Fill over Culverts shall be 1'-0".
- Wall Thickness (Dimension "T") of Pipes shown, are taken from "Wall B" Column of ASTM and AASHTO Tables.

DIMENSIONS & QUANTITIES FOR HEADWALLS WITH 45° WINGS

D	AREA SQ.FT.	DIMENSIONS						REINFORCING STEEL										QUANTITIES*					
		T	H	K	L	M	N	A ₁ - 1/2" #	A ₂ - 1/2" #	B - 1/2" #	C - 1/2" #	H ₁ - 1/2" #	V ₁ - 1/2" #	V ₂ - 1/2" #	CLASS "A" CONC. C.Y.	REINF. STEEL LBS.							
18"	1.33	2 1/4"	2'-8 1/4"	1'-5"	3'-7"	1'-3"	1'-3"	4	1'-0"	2	3'-0" Av.	7	3'-3"	3	1'-0"	4	2'-1"	4	3'-0" Av.	4	8'-10"	.74	87
18"	1.77	2 1/2"	2'-8 1/2"	1'-7"	3'-10"	2'-1 1/2"	1'-0"	4	1'-2"	2	4'-3" Av.	7	3'-5"	3	1'-0"	4	2'-0"	4	3'-0" Av.	4	9'-1"	.91	81
24"	3.14	3"	3'-3"	1'-10 1/2"	4'-4"	2'-10"	2'-0"	8	1'-0"	3	6'-3" Av.	7	4'-0"	3	1'-0"	8	3'-2"	8	4'-1" Av.	4	8'-8"	1.37	85
30"	4.81	3 1/2"	3'-8 1/2"	2'-2"	4'-10"	3'-8 1/2"	2'-0"	8	2'-8"	3	6'-3" Av.	7	4'-6"	4	1'-0"	8	3'-11"	8	4'-0" Av.	4	7'-2"	1.77	104
36"	7.87	4"	4'-4"	2'-8 1/2"	5'-4"	4'-3"	3'-0"	8	3'-0"	4	7'-3" Av.	7	5'-0"	4	1'-0"	8	4'-7"	10	4'-11" Av.	4	7'-0"	2.39	130
42"	9.88	4 1/2"	4'-10 1/2"	2'-0"	6'-10"	4'-11 1/2"	3'-0"	8	3'-2"	4	8'-3" Av.	7	5'-8"	4	1'-0"	8	5'-4"	12	5'-4" Av.	4	8'-3"	2.89	181

DIMENSIONS & QUANTITIES FOR HEADWALLS WITH 45° WINGS

D	AREA SQ.FT.	DIMENSIONS						REINFORCING STEEL										QUANTITIES*					
		T	H	K	L	M	N	A ₁ - 1/2" #	A ₂ - 1/2" #	B - 1/2" #	C - 1/2" #	H ₁ - 1/2" #	V ₁ - 1/2" #	V ₂ - 1/2" #	CLASS "A" CONC. C.Y.	REINF. STEEL LBS.							
48"	12.57	5"	5'-5"	3'-2"	6'-4"	5'-3 1/2"	3'-0"	7	3'-8"	4	8'-0" Av.	7	6'-0"	5	1'-0"	8	5'-8"	12	6'-8" Av.	4	10'-8"	3.81	184
54"	18.90	5 1/2"	5'-11 1/2"	3'-8"	6'-10"	5'-10 1/2"	4'-2"	7	3'-10"	5	9'-11" Av.	7	6'-8"	5	1'-0"	8	6'-3"	14	6'-11" Av.	4	11'-0"	4.84	214
60"	19.63	6"	6'-8"	3'-10"	7'-4"	6'-8 1/2"	4'-7"	8	4'-3"	5	10'-10" Av.	7	7'-0"	8	1'-0"	10	6'-10"	16	7'-4" Av.	4	11'-7"	5.33	283
66"	23.78	6 1/2"	7'-0 1/2"	4'-2"	7'-10"	7'-1"	5'-0"	8	4'-8"	5	11'-8" Av.	7	7'-8"	8	1'-0"	10	7'-8"	18	7'-8" Av.	4	12'-2"	6.20	281
72"	28.27	7"	7'-7"	4'-8"	8'-4"	7'-8 1/2"	5'-8"	8	5'-2"	6	12'-8" Av.	7	8'-0"	8	1'-0"	10	8'-2"	20	8'-3" Av.	4	12'-8"	7.22	326



SLOPE WALL - SINGLE ROUND PIPE

PIPE SIZE	LENGTH A	LENGTH C	CONC. C.Y.	STEEL LENGTH	
				H-BARS	S-BARS
12"	5'-0"	6'-8"	0.57	4'-8"	8'-9"
18"	5'-8"	8'-8"	0.71	5'-2"	10'-9"
24"	6'-0"	10'-6"	0.86	5'-8"	12'-9"
30"	6'-8"	12'-6"	1.02	6'-2"	14'-9"
36"	7'-0"	9'-0"	0.87	6'-8"	11'-3"
42"	7'-8"	10'-0"	0.97	7'-2"	12'-3"
48"	8'-0"	11'-0"	1.06	7'-8"	13'-3"
54"	8'-8"	12'-0"	1.19	8'-2"	14'-3"

NOTE:
 1. SLOPE OF PIPE SHALL BE SHOP CUT. TWO COATS OF COLD GALVANIZED WILL BE APPLIED TO CUT EDGES OF STEEL PIPE. COSTS OF CUTTING AND GALVANIZED SHALL BE INCLUDED IN PRICE BID FOR PIPE.
 2. REINFORCED STEEL SHALL BE NO. 4 DEFORMED BARS. COST OF STEEL SHALL BE INCLUDED IN PRICE BID FOR CLASS "A" CONCRETE.
 3. QUANTITIES SHOWN IN TABLES ARE FOR END ONLY.
 4. ALL PIPES ARE TO BE CUT ON A 2:1 SLOPE THRU 30' ROUND OR IT EQUIVALENT ARCH.
 5. ALL CONSTRUCTION AND MATERIALS SHALL BE IN ACCORDANCE WITH THE CURRENT STANDARDS OR SUPPLEMENTAL SPECIFICATIONS.

CLASS "A" CONCRETE SLOPE WALL DETAIL

MISCELLANEOUS STORM SEWER DETAILS

WAL-MART SUPERCENTER #4321-00

NW 53rd ST. NORTH & N. MERIDIAN WICHITA, KANSAS

SMC Consulting Engineers, P.C.
 815 West Main - Oklahoma City, OK 73106
 PH: 405-232-7715 Fax: 405-232-7859
 KANSAS CERTIFICATE OF AUTHORIZATION NO. E-335 EXP. DEC. 2008

SMC

DATE: 12/12/08
 DRAWN BY: TN
 PROJECT NO.: 4344.00
 ENGINEER: TERENCE L. HAYNES, P.E. #14583

SCALE: NTS
 SHEET NO. C-8.15

