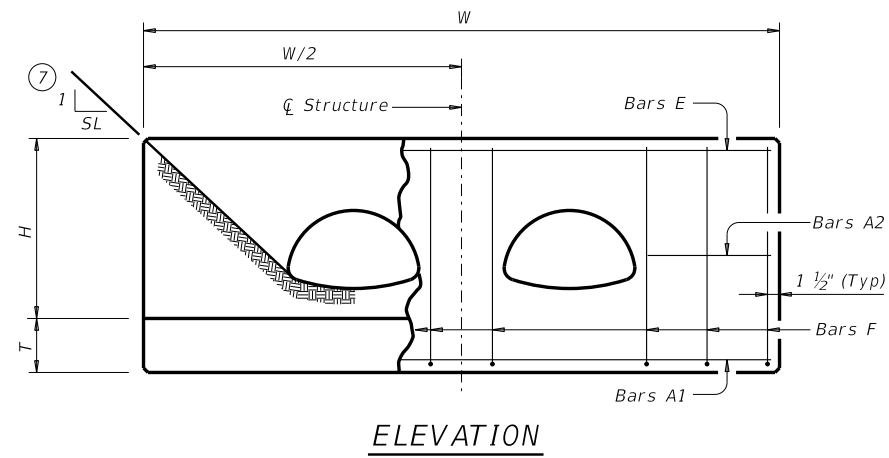


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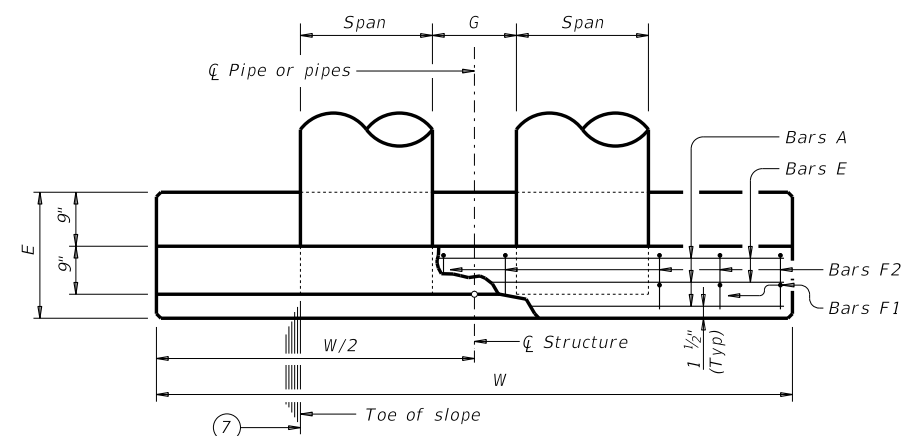
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### TABLE OF VARIABLE DIMENSIONS (5) AND QUANTITIES FOR ONE HEADWALL

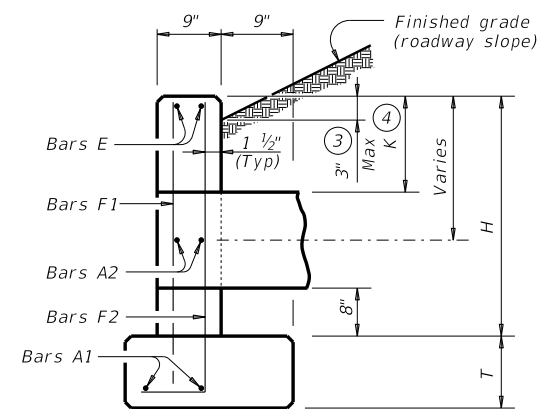
Slope	Size of Pipe Arch		Values for One Pipe			Values To Be Added for Each Addtl Pipe			
	Span	Rise	W	Reinf (Lbs) (1)	Conc (CY) (2)	W	Reinf (Lbs) (1)	Conc (CY) (2)	
2:1	1	17"	13"	9' - 9"	130	1.1	2' - 5"	28	0.3
	2	21"	15"	10' - 9"	139	1.3	2' - 11"	33	0.3
	3	28"	20"	13' - 0"	184	1.8	3' - 9"	43	0.5
	4	35"	24"	14' - 11"	249	2.2	4' - 7"	50	0.6
	5	42"	29"	17' - 2"	311	3.2	5' - 5"	69	0.9
	6	49"	33"	19' - 1"	342	3.8	6' - 3"	77	1.1
	7	57"	38"	21' - 5"	438	4.7	7' - 2"	86	1.4
	8	64"	43"	23' - 8"	508	5.6	8' - 2"	110	1.6
	9	71"	47"	25' - 7"	577	6.5	9' - 1"	120	2.0
3:1	1	17"	13"	13' - 11"	182	1.6	2' - 5"	28	0.3
	2	21"	15"	15' - 3"	196	1.8	2' - 11"	33	0.3
	3	28"	20"	18' - 4"	270	2.6	3' - 9"	42	0.5
	4	35"	24"	20' - 11"	356	3.2	4' - 7"	50	0.6
	5	42"	29"	24' - 0"	434	4.5	5' - 5"	70	0.9
	6	49"	33"	26' - 7"	499	5.4	6' - 3"	77	1.1
	7	57"	38"	29' - 9"	628	6.7	7' - 2"	87	1.4
	8	64"	43"	32' - 10"	715	7.9	8' - 2"	111	1.6
	9	71"	47"	35' - 5"	798	9.2	9' - 1"	120	2.0
4:1	1	17"	13"	18' - 1"	236	2.1	2' - 5"	28	0.3
	2	21"	15"	19' - 9"	268	2.4	2' - 11"	33	0.3
	3	28"	20"	23' - 8"	336	3.3	3' - 9"	42	0.5
	4	35"	24"	26' - 11"	460	4.2	4' - 7"	50	0.6
	5	42"	29"	30' - 10"	557	5.8	5' - 5"	69	0.9
	6	49"	33"	34' - 1"	653	6.9	6' - 3"	78	1.1
	7	57"	38"	38' - 1"	819	8.6	7' - 2"	87	1.4
	8	64"	43"	42' - 0"	950	10.2	8' - 2"	111	1.7
	9	71"	47"	45' - 3"	1,053	11.9	9' - 1"	120	2.0
6:1	1	17"	13"	26' - 5"	343	3.1	2' - 5"	29	0.3
	2	21"	15"	28' - 9"	381	3.5	2' - 11"	33	0.3
	3	28"	20"	34' - 4"	504	4.9	3' - 9"	42	0.5
	4	35"	24"	38' - 11"	673	6.1	4' - 7"	50	0.6
	5	42"	29"	44' - 6"	823	8.5	5' - 5"	70	0.9
	6	49"	33"	49' - 1"	945	10.1	6' - 3"	78	1.1
	7	57"	38"	54' - 9"	1,227	12.5	7' - 2"	87	1.4
	8	64"	43"	60' - 4"	1,407	14.8	8' - 2"	110	1.7
	9	71"	47"	64' - 11"	1,571	17.3	9' - 1"	119	2.0



ELEVATION



PLAN



SECTION AT CENTER OF PIPE

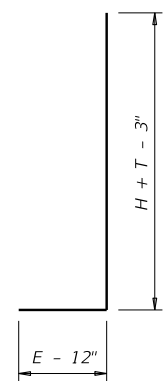
- ① Total quantities include one 3'-1" lap for bars over 60 ft in length.
- ② Quantities shown are for metal pipe and will decrease slightly for concrete pipe installations.
- ③ For vehicle safety, construct curbs no more than 3" above finished grade. Reduce curb heights if necessary, to meet these requirements. No changes will be made in quantities and no additional compensation will be allowed for this work.
- ④ K is measure from top of curb to inside face of pipe.
- ⑤ Dimensions shown are usual and maximum.
- ⑥ Quantities shown are for one structure end only (one headwall).
- ⑦ Indicated slope is perpendicular to centerline pipe or pipes.

### TABLE OF CONSTANT DIMENSIONS

Design	Size of Pipe Arch		G	K (5)	H	T	E
	Span	Rise					
1	17"	13"	1' - 0"	1' - 0"	2' - 7"	0' - 10"	1' - 6"
2	21"	15"	1' - 2"	1' - 0"	2' - 9"	0' - 10"	1' - 6"
3	28"	20"	1' - 5"	1' - 0"	3' - 2"	0' - 10"	1' - 10"
4	35"	24"	1' - 8"	1' - 0"	3' - 6"	0' - 10"	2' - 0"
5	42"	29"	1' - 11"	1' - 0"	3' - 11"	1' - 0"	2' - 4"
6	49"	33"	2' - 2"	1' - 0"	4' - 3"	1' - 0"	2' - 6"
7	57"	38"	2' - 5"	1' - 0"	4' - 8"	1' - 0"	2' - 10"
8	64"	43"	2' - 10"	1' - 0"	5' - 1"	1' - 0"	3' - 0"
9	71"	47"	3' - 2"	1' - 0"	5' - 5"	1' - 0"	3' - 4"

### TABLE OF REINFORCING STEEL (6)

Bar	Size	Spa	No.
A1	#5	~	2
A2	#5	1' - 6"	~
E	#5	~	2
F	#5	1' - 0"	~



BARS F2

**MATERIAL NOTES:**  
Provide Grade 60 reinforcing steel.  
Provide Class C concrete ( $f'c = 3,600$  psi).

**GENERAL NOTES:**  
Designed according to AASHTO LRFD Bridge Design Specifications.  
Do not mount bridge rails of any type directly to these culvert headwalls.  
This standard may not be used for wall heights, H, exceeding the values shown.

Cover dimensions are clear dimensions, unless noted otherwise. Reinforcing dimensions are out-to-out of bars.

**Bridge Division Standard**

## CONCRETE HEADWALLS WITH PARALLEL WINGS FOR NON-SKEWED ARCH PIPE CULVERTS

### CH-PW-A-0

FILE: CD-CH-PWA0-20.dgn	DN: TxDOT	CK: TxDOT	OW: TxDOT	CK: TxDOT
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REVISIONS				
DIST		COUNTY		SHEET NO.