

GRATE DIMENSIONS AND QUANTITIES IN ONE HEADWALL TYPE III END ENTRANCE 1:4 SLOPE

INSIDE PIPE DIAMETER	GRATES		BARS FOR ONE GRATE				HEADWALL GRATES (LBS.)	
	NUMBER REQUIRED	TYPE REQ'D.	BAR NO. 1		BAR NO. 2		EACH GRATE	TOTAL
			BARS REQ'D.	LENGTH	BARS REQ'D.	LENGTH		
18"	2	B	2	3'-7"	5	1'-10 1/2"	53	154
	1	C	2	3'-7"	5	1'-4 1/2"	48	
24"	4	B	2	4'-7"	7	1'-10 1/2"	69	276
	-	-	-	-	-	-	-	
30"	4	A	2	5'-7"	9	2'-4 1/2"	94	376
	-	-	-	-	-	-	-	
36"	5	B	2	6'-7"	11	1'-10 1/2"	103	608
	1	C	2	6'-7"	11	1'-4 1/2"	93	
42"	5	A	2	7'-1"	12	2'-4 1/2"	121	705
	1	C	2	7'-1"	12	1'-4 1/2"	100	
48"	7	B	2	7'-7"	13	1'-10 1/2"	119	941
	1	C	2	7'-7"	13	1'-4 1/2"	108	

GRATE DIMENSIONS AND QUANTITIES IN ONE HEADWALL TYPE III END ENTRANCE 1:6 SLOPE

INSIDE PIPE DIAMETER	GRATES		BARS FOR ONE GRATE				HEADWALL GRATES (LBS.)	
	NUMBER REQUIRED	TYPE REQ'D.	BAR NO. 1		BAR NO. 2		EACH GRATE	TOTAL
			BARS REQ'D.	LENGTH	BARS REQ'D.	LENGTH		
18"	2	B	2	3'-7"	5	1'-10 1/2"	53	250
	3	C	2	3'-7"	5	1'-4 1/2"	48	
24"	5	A	2	4'-7"	7	2'-4 1/2"	75	375
	-	-	-	-	-	-	-	
30"	6	B	2	5'-7"	9	1'-10 1/2"	86	672
	2	C	2	5'-7"	9	1'-4 1/2"	78	
36"	4	A	2	6'-7"	11	2'-4 1/2"	112	860
	4	B	2	6'-7"	11	1'-10 1/2"	103	
42"	5	A	2	7'-1"	12	2'-4 1/2"	121	1126
	4	C	2	7'-1"	12	1'-4 1/2"	100	
48"	8	A	2	7'-7"	13	2'-4 1/2"	130	1278
	2	B	2	7'-7"	13	1'-10 1/2"	119	

GRATE DIMENSIONS AND QUANTITIES IN ONE HEADWALL TYPE III END ENTRANCE 1:10 SLOPE

INSIDE PIPE DIAMETER	GRATES		BARS FOR ONE GRATE				HEADWALL GRATES (LBS.)	
	NUMBER REQUIRED	TYPE REQ'D.	BAR NO. 1		BAR NO. 2		EACH GRATE	TOTAL
			BARS REQ'D.	LENGTH	BARS REQ'D.	LENGTH		
18"	6	B	2	3'-7"	5	1'-10 1/2"	53	414
	2	C	2	3'-7"	5	1'-4 1/2"	48	
24"	9	B	2	4'-7"	7	1'-10 1/2"	69	747
	2	C	2	4'-7"	7	1'-4 1/2"	63	
30"	12	B	2	5'-7"	9	1'-10 1/2"	86	1110
	1	C	2	5'-7"	9	1'-4 1/2"	78	
36"	15	B	2	6'-7"	11	1'-10 1/2"	103	1535
	-	-	-	-	-	-	-	
42"	13	B	2	7'-1"	12	1'-10 1/2"	111	2043
	6	C	2	7'-1"	12	1'-4 1/2"	100	
48"	16	B	2	7'-7"	13	1'-10 1/2"	119	2443
	5	C	2	7'-7"	13	1'-4 1/2"	108	

GRATE DIMENSIONS AND QUANTITIES IN ONE HEADWALL TYPE III SIDE ENTRANCE 1:4 SLOPE

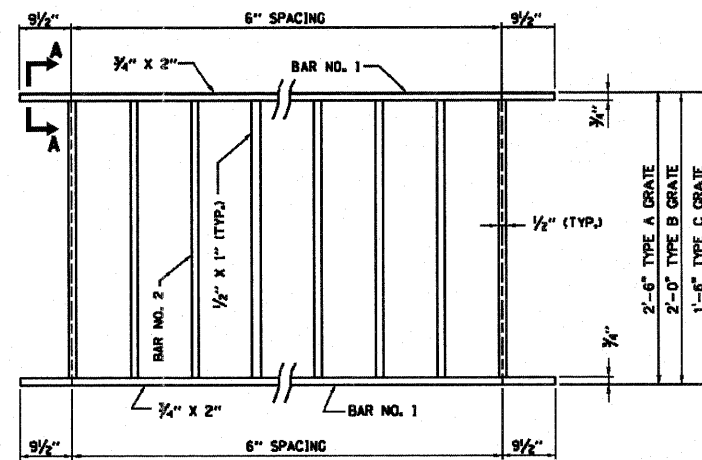
INSIDE PIPE DIAMETER	GRATES		BARS FOR ONE GRATE				HEADWALL GRATES (LBS.)	
	NUMBER REQUIRED	TYPE REQ'D.	BAR NO. 1		BAR NO. 2		EACH GRATE	TOTAL
			BARS REQ'D.	LENGTH	BARS REQ'D.	LENGTH		
18"	4	A	2	3'-7"	5	2'-4 1/2"	57	228
	-	-	-	-	-	-	-	
24"	5	B	2	4'-7"	7	1'-10 1/2"	69	408
	1	C	2	4'-7"	7	1'-4 1/2"	63	
30"	5	A	2	5'-7"	9	2'-4 1/2"	94	548
	1	C	2	5'-7"	9	1'-4 1/2"	78	
36"	7	B	2	6'-7"	11	1'-10 1/2"	103	814
	1	C	2	6'-7"	11	1'-4 1/2"	93	
42"	4	A	2	7'-1"	12	2'-4 1/2"	121	928
	4	B	2	7'-1"	12	1'-10 1/2"	111	
48"	4	A	2	7'-7"	13	2'-4 1/2"	130	1115
	5	B	2	7'-7"	13	1'-10 1/2"	119	

GRATE DIMENSIONS AND QUANTITIES IN ONE HEADWALL TYPE III SIDE ENTRANCE 1:6 SLOPE

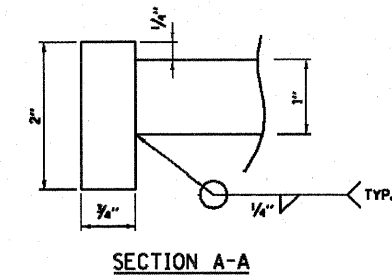
INSIDE PIPE DIAMETER	GRATES		BARS FOR ONE GRATE				HEADWALL GRATES (LBS.)	
	NUMBER REQUIRED	TYPE REQ'D.	BAR NO. 1		BAR NO. 2		EACH GRATE	TOTAL
			BARS REQ'D.	LENGTH	BARS REQ'D.	LENGTH		
18"	6	B	2	3'-7"	5	1'-10 1/2"	53	414
	2	C	2	3'-7"	5	1'-4 1/2"	48	
24"	4	A	2	4'-7"	7	2'-4 1/2"	75	576
	4	B	2	4'-7"	7	1'-10 1/2"	69	
30"	6	A	2	5'-7"	9	2'-4 1/2"	94	876
	4	C	2	5'-7"	9	1'-4 1/2"	78	
36"	8	A	2	6'-7"	11	2'-4 1/2"	112	1102
	2	B	2	6'-7"	11	1'-10 1/2"	103	
42"	6	A	2	7'-1"	12	2'-4 1/2"	121	1392
	6	B	2	7'-1"	12	1'-10 1/2"	111	
48"	4	A	2	7'-7"	13	2'-4 1/2"	130	1602
	10	B	2	7'-7"	13	1'-10 1/2"	119	

NOTES:

- ALL STRUCTURAL STEEL SHALL BE AASHTO M270, GRADE 36.
- GALVANIZING SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.
- FOR PLACEMENT OF GRATES, SEE SHEET 1 OR 4 (OF 5) IN THIS SERIES.
- ALL TABLE DIMENSIONS AND QUANTITIES ARE FOR SINGLE PIPE CULVERT HEADWALLS. TO ADAPT ANY OF THESE TABLES FOR DOUBLE PIPE CULVERTS, DOUBLE THE NUMBER OF GRATES REQUIRED AND DOUBLE THE TOTAL WEIGHT (LBS.) OF THE GRATES.
- ALL SLOPES ARE EXPRESSED AS UNITS OF VERTICAL DISPLACEMENT TO UNITS OF HORIZONTAL DISPLACEMENT (V:H).



TYPICAL GRATE



SECTION A-A

SHEET 5 OF 5

Illinois Tollway
Open Roads for a Faster Future

HEADWALL TYPE III
18"-24"-30"-36"-42"-48"
FOR 1:4, 1:6, AND 1:10 SLOPES

STANDARD B6-02

Rev. 1-9-12

APPROVED: *Paul Kovacs*
CHIEF ENGINEER DATE 6-1-2009...