

APRON REINFORCING STEEL LOCATION & LENGTHS (#4 BARS - EQUALLY SPACED @ 18" MAXIMUM)*							APRON REINF. STEEL °	APRON CLASS CONCRETE
DIAMETER	E - BARS (NO.) FT. - IN.	F - BARS (NO.) FT. - IN.	G - BARS (NO.) FT. - IN.	H - BARS (NO.) FT. - IN.	X FT. - IN.	Y FT. - IN.		
18 & 24	(4) 7 - 2 <sup>7</sup> / <sub>8</sub>	(8) 1 - 9	(4) 7 - 4 <sup>3</sup> / <sub>4</sub>	(8) 1 - 9	3 - 7 <sup>3</sup> / <sub>4</sub>	3 - 5 <sup>5</sup> / <sub>8</sub>	57	0.83
30	(4) 7 - 10	(8) 1 - 9	(4) 7 - 4 <sup>3</sup> / <sub>4</sub>	(8) 1 - 9	3 - 7 <sup>3</sup> / <sub>4</sub>	4 - 1	59	0.87
36	(4) 8 - 5	(9) 1 - 9	(4) 8 - 5	(9) 1 - 9	4 - 8	4 - 8	66	0.99
*MINIMUM 1½" COVER OVER STEEL			°QUANTITIES ARE FOR ONE APRON					

SMD INLET BAR LIST					
BAR	SIZE	NO.	SHAPE	LENGTH	SPACE
TYPE 1 - 18" OR 24" RCP OR CGSP					
A	#4	5	BENT	11"-10"	6" C/C
B	#4	15	BENT	2'-11 1/2"	9" C/C
C	#5	7	STR.	3'-1 1/8"	6" C/C
D	#5	6	STR.	3'-3 3/4"	6" C/C
TYPE 2 - 18" OR 24" RCP OR CGSP					
A	#4	6	BENT	11"-10"	6" C/C
B	#4	16	BENT	3'-6 1/2"	9" C/C
C	#5	7	STR.	3'-1 1/8"	6" C/C
D	#5	6	STR.	3'-3 3/4"	6" C/C
TYPE 2A - 18", 24" OR 30" RCP OR CGSP					
A	#4	7	BENT	12'-11 1/2"	6" C/C
B	#4	18	BENT	4'-1"	9" C/C
C	#5	7	STR.	3'-3 3/4"	6" C/C
D	#5	7	STR.	3'-7"	6" C/C
TYPE 2B - 18", 24", 30" OR 36" RCP OR CGSP					
A	#4	8	BENT	16'-2"	6" C/C
B	#4	20	BENT	4'-7"	9" C/C
C	#5	7	STR.	4'-4"	6" C/C
D	#5	8	STR.	4'-4"	6" C/C

	TYPE 1 GRATE		TYPE 1A GRATE		TYPE 1B GRATE	
COMPONENT	DIMENSIONS	NO.	DIMENSIONS	NO.	DIMENSIONS	NO.
CROSS BARS	$\frac{3}{8}$ " DIA. x 2'-11 $\frac{7}{8}$ "	10	$\frac{3}{8}$ " DIA. x 3'-6 $\frac{1}{2}$ "	10	$\frac{3}{8}$ " DIA. x 4'-1 $\frac{1}{2}$ "	14
END PLATES	$3\frac{1}{2}$ " x $\frac{1}{4}$ " x 2'-11 $\frac{7}{8}$ "	2	$3\frac{1}{2}$ " x $\frac{1}{4}$ " x 3'-6 $\frac{1}{2}$ "	2	$3\frac{1}{2}$ " x $\frac{1}{4}$ " x 4'-1 $\frac{1}{2}$ "	2
BEARING PLATES	$4$ " x $\frac{1}{4}$ " x 3'-1"	16	$4$ " x $\frac{1}{4}$ " x 3'-1"	19	$4$ " x $\frac{1}{4}$ " x 4'-1"	22

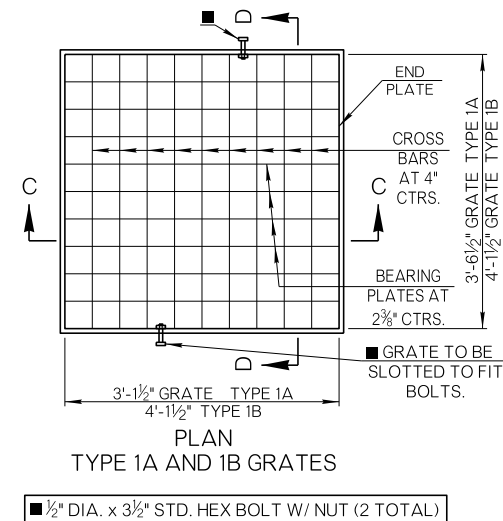
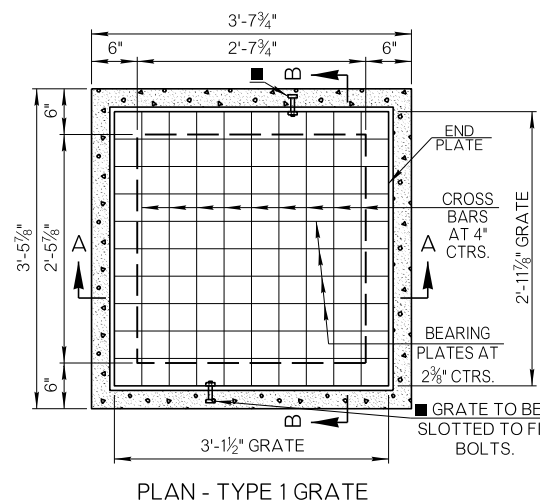
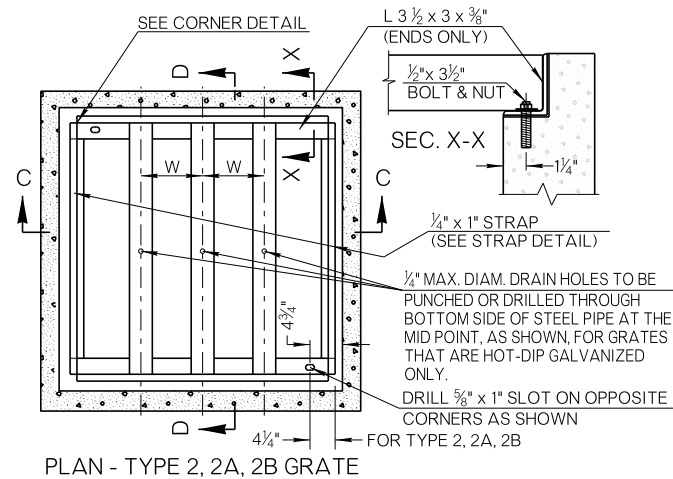
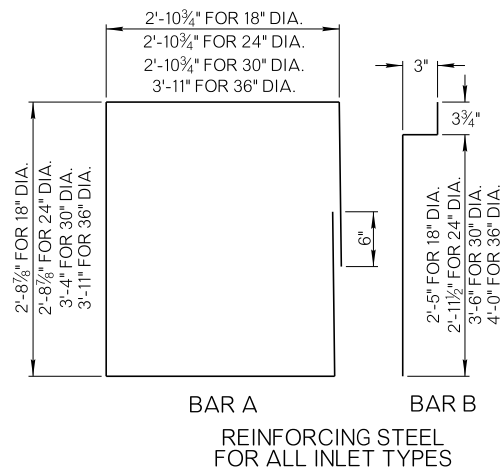
**GRATES - OVERALL DIMENSIONS**

TYPE 1 GRATE: 3'-1½" x 2'-11½"  
TYPE 2 GRATE: 3'-1¼" x 2'-11¼"  
TYPE 1A, 2A GRATE: 3'-1¼" x 3'-6½"  
TYPE 1B, 2B GRATE: 4'-1½" x 4'-1½"

W = 8½"      FOR TYPE 2  
W = 9"      FOR TYPE 2A & 2B

**PIPE GRATE MATERIAL**

2½" I.D. STD. WEIGHT STEEL PIPE



ESTIMATED SMD QUANTITIES					ADD'L SMD DEPTH PER VERT. FT.	
DESIGNATED PIPE SIZE IN INLET	TYPE OF GRATE	1 PIPE	2 PIPES	REINF. STEEL	CLASS A CONC.	REINF. STEEL
		CLASS A CONC.	CLASS A CONC.			
		CY	CY		LB.	CY
18" RCP	1 OR 2	0.75	0.67	115	0.23	27
24" RCP	1 OR 2	0.85	0.76	129	0.23	27
30" RCP	1A OR 2A	1.06	0.96	160	0.25	29
36" RCP	1B OR 2B	1.52	1.38	211	0.31	35

1. ALL CONSTRUCTION AND MATERIAL REQUIREMENTS SHALL BE IN ACCORDANCE WITH THE 2019 ODOT STANDARD SPECIFICATIONS.
2. VENT HOLES AND DRAIN HOLES FOR HOT DIP GALVANIZATION SHALL BE DRILLED OR PUNCHED IN GRATE AS SHOWN.
3. BICYCLE AND PEDESTRIAN SAFE GRATES, SIMILAR TO TYPE I GRATES, MAY BE USED, PROVIDED THEY MEET THE MINIMUM EQUIVALENT HYDRAULIC STRUCTURAL REQUIREMENTS AND PROPOSED DESIGNS ARE APPROVED BY THE ENGINEER. SUBSTITUTED GRATES SHALL BE INCLUDED IN THE PRICE BID FOR THE RESPECTIVE INLET.
4. EXPOSED ROUNDED EDGING. ALL EXPOSED SURFACES SHALL BE FINISHED IN ACCORDANCE WITH SECTION 509.
5. COST OF APRON MATERIALS (INCLUDING REINFORCING STEEL), LABOR, AND INSTALLATION SHALL BE INCLUDED IN THE PRICE BID FOR SMD INLET.

BASIS OF PAYMENT		
ITEM. NO.	ITEM	UNIT
611 (G)	INLET ( SMD-TYPE 1 )	EA
611 (G)	INLET ( SMD-TYPE 2 )	EA
611 (G)	INLET ( SMD-TYPE 2A )	EA
611 (G)	INLET ( SMD-TYPE 2B )	EA

NOTE: COST OF INLET GRATE SHALL BE INCLUDED IN THE PRICE BID FOR THE INLET. COST OF ALL CLASS A CONCRETE AND REINFORCING STEEL NECESSARY FOR ADDITIONAL DEPTH SHALL BE INCLUDED IN THE PRICE BID FOR THE SMD INLET. SMD INLET ADDITIONAL DEPTH DATA SHALL BE NOTED ON THE PLANS.

APPROVED BY  
ROADWAY ENGINEER:  DATE: 4/3/2025  
ROADWAY DESIGN DIVISION STANDARD

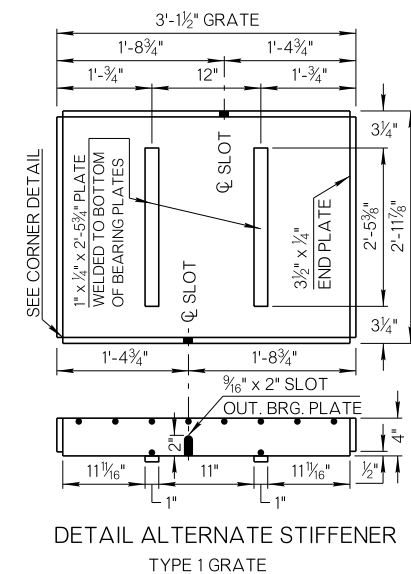
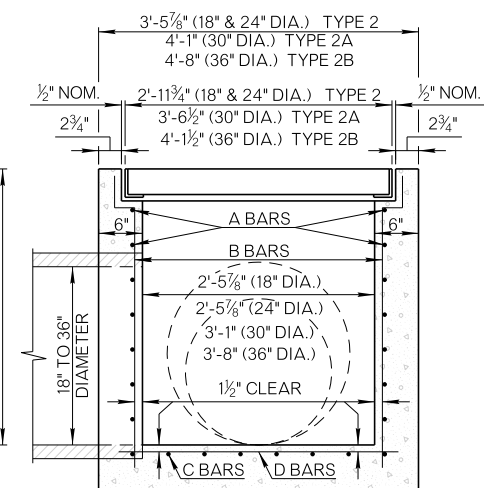
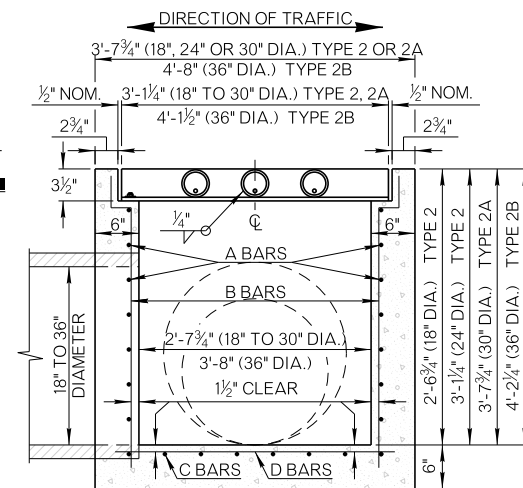
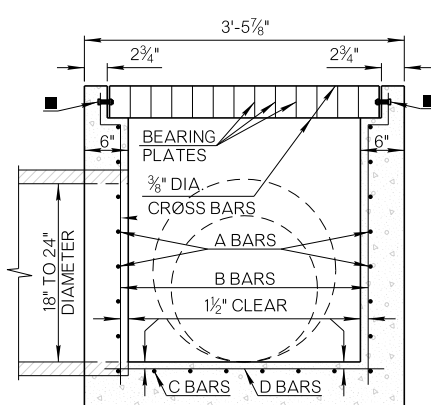
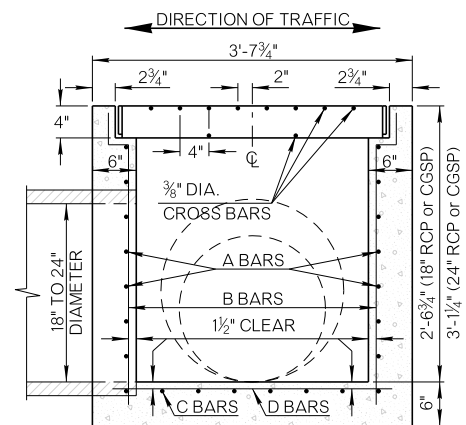
## CAST-IN-PLACE STANDARD MEDIAN DRAINS (18" TO 36" PIPES)



2019 SPECIFICATIONS

MD-4	3
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-26



DETAIL ALTERNATE STIFFENER  
TYPE 1 GRATE