

GENERAL NOTES

Live Loading:

HS 20-44 [MS 18]

Reinforcement (Grade 40 [Grade 300]) (Cast-in-place):

FY= 40,000 PSI [275.8 MPa]

FS= 20,000 PSI [137.9 MPa]

Concrete (Class B) (Cast-in-place base):

F'c= 3250 psi [22.4 MPa]

Fc= 1300 psi [9.0 MPa]

Manhole Rings, Covers and Collars:

Adjust manhole rings, covers and set collars to ensure they are flush with surrounding pavement.

Pipe Inlets and Outlets:

Ensure a minimum inside dimension of the support wall between cutouts in the manhole riser of not less than 1ft [305].

Steps:

For manholes with a depth in excess of 3 ft-6 in [1065], install either extruded aluminum or preformed rubber coated bar steps at a spacing from 1ft [305] to 1ft-4 in [405] o.c.

Manhole Types:

Type A: Precast circular reinforced concrete cone and riser section. Cone section to be eccentric for easy access. Provide base for the manhole as approved by the engineer.

Type B: Precast reinforced concrete circular cone and riser section. Cone section to be concentric for better load distribution. Provide base for the manhole as approved by the engineer.

Type C: Precast circular reinforced slab cover and rise section. Provide base for the manhole as approved by the engineer.

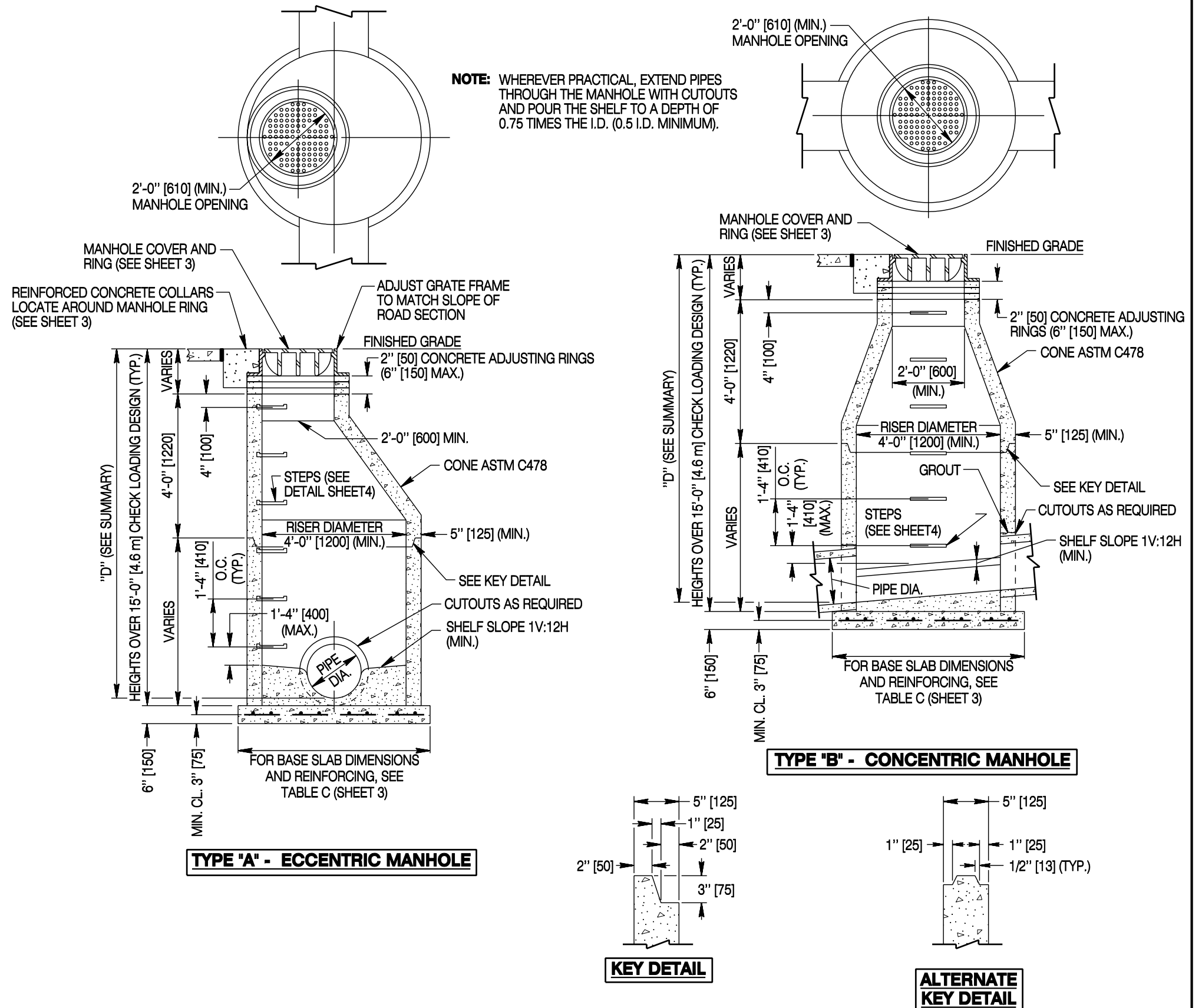
Type D: Combination of Type B and Type C which is a circular reinforced concrete slab cover, short cone and riser section. Provide base for the manhole as approved by the engineer.

Type E: Sanitary sewer manhole and is a cast in place monolithic concrete base. Set precast riser section before concrete sets - achieve water tight connection.

Type F: Precast reinforced concrete tee section for when the trunk line is directly under the manhole location. Top cone section may be eccentric for easy access.

Metric Dimensions:

Metric pipe dimensions are based on 1 in = 25 mm. Industry standards at the time of this contract may dictate the exact conversion of 1 in = 25.4 mm. Adjust metric dimensions shown herein accordingly.



Designed by: WRR
 Drawn by: GLD
 Checked by: RRC
 Previous Dep. No. 625-03A

GENERAL REQUIREMENTS AND TYPE A AND B MANHOLE DETAILS

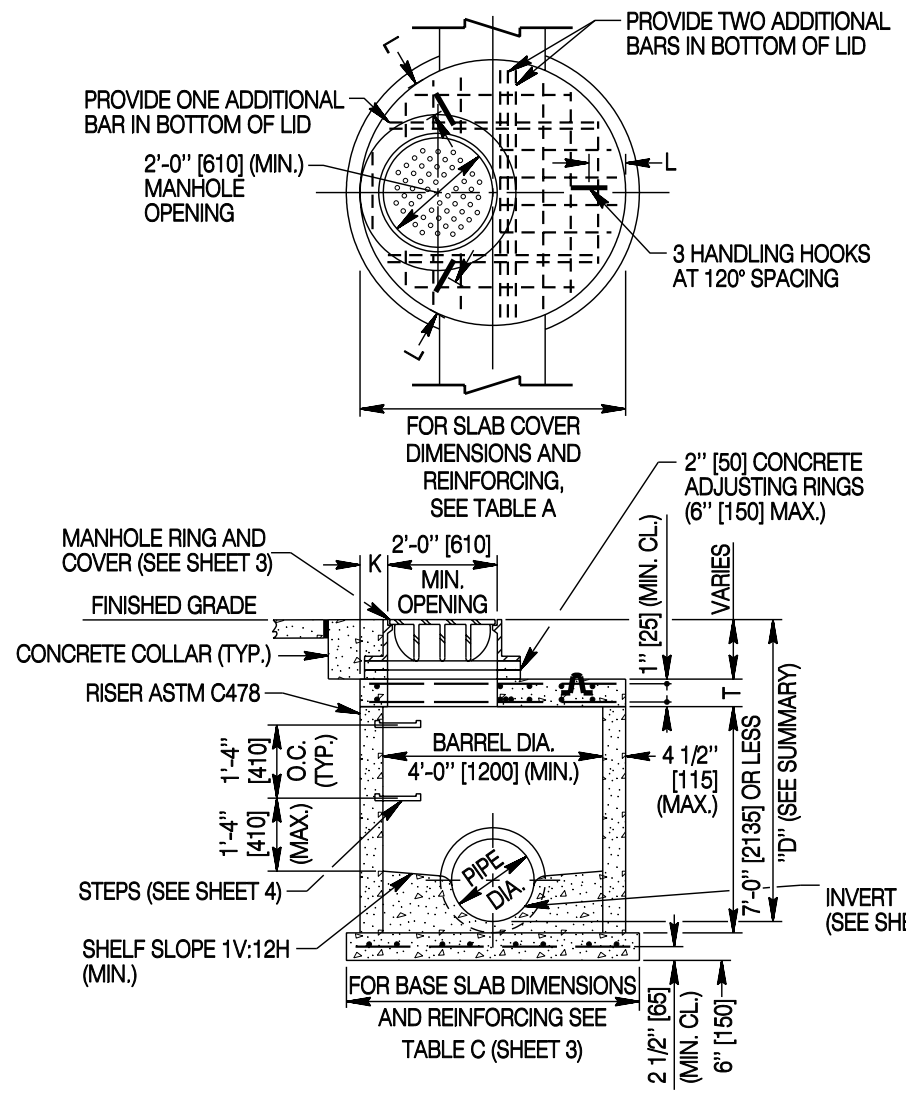
Note: Units shown in brackets [] are metric and are in millimeters (mm) unless other units are shown.



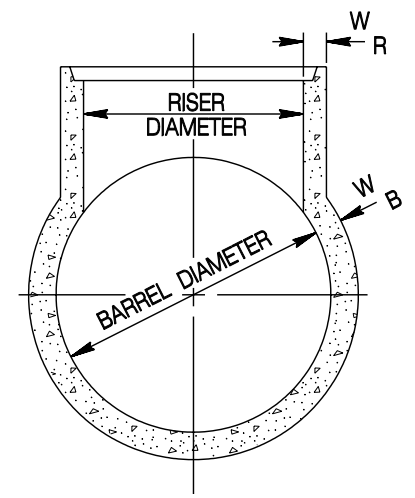
MANHOLES

STANDARD PLAN

STANDARD PLAN NUMBER
625-3
 SHEET 1 of 4
 Issued by: ENGINEERING SERVICES
 Date Issued: NOVEMBER, 2004
 FILE: j:\StanDuel_Std_VWK6253_01.dgn



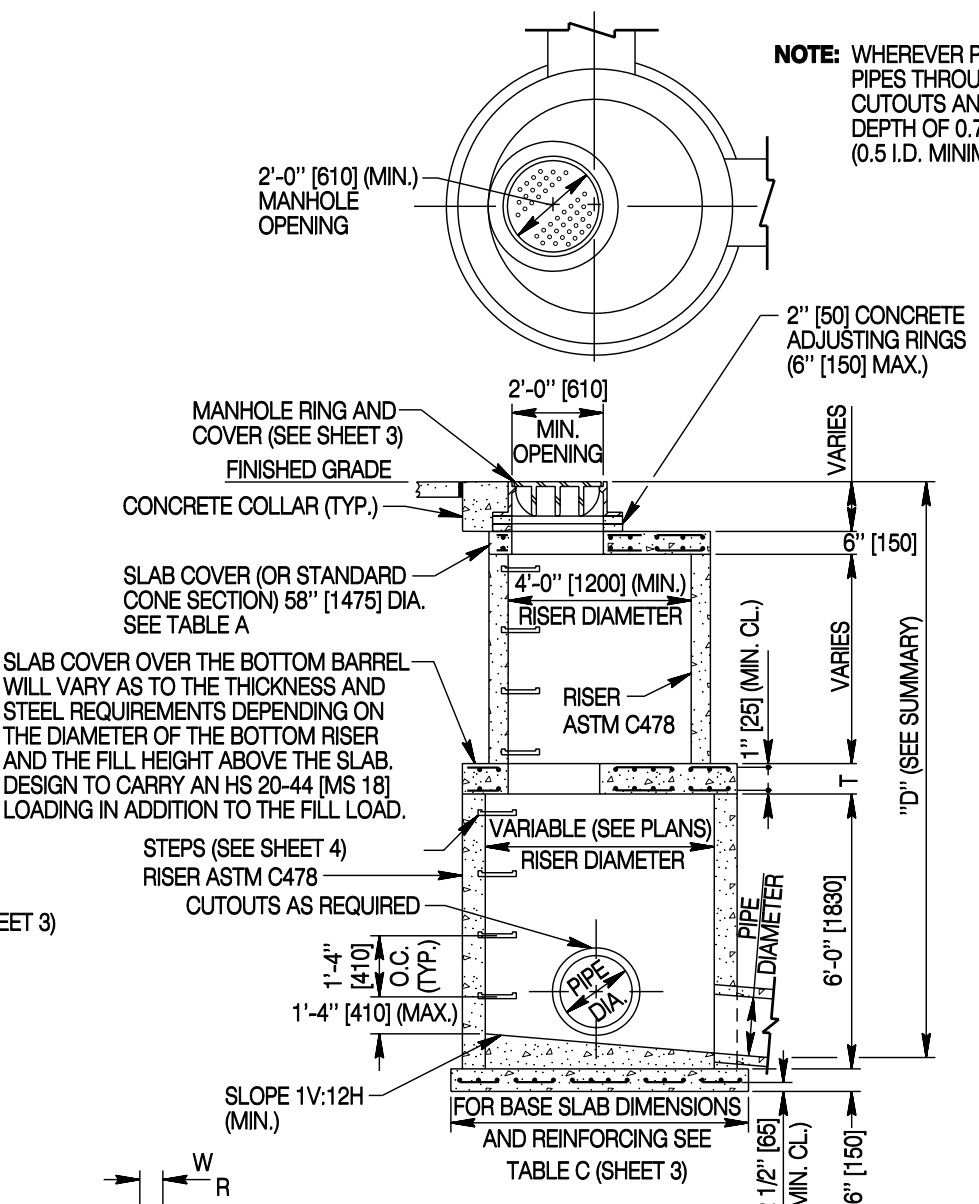
TYPE 'C' STRAIGHT MANHOLE WITH SLAB COVER



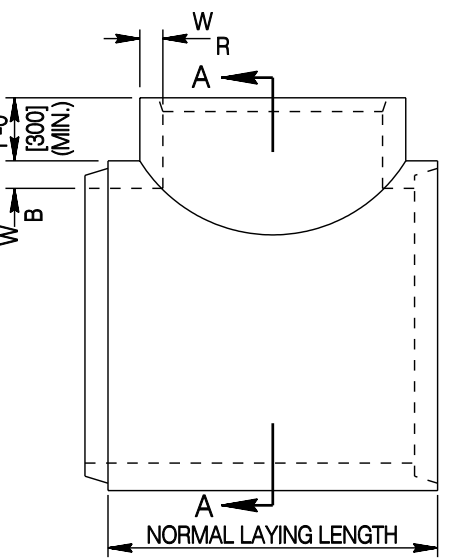
TYPE 'F' MANHOLE							
DIAMETER OF RISER		DIAMETER OF BARREL		W _B		W _R	
IN	mm	IN	mm	IN	mm	IN	mm
48	1200	42	1050	4.5	115	5	125
48	1200	48	1200	5	125	5	125
48	1200	54	1350	5.5	140	5	125
48	1200	60	1500	6	150	5	125
48	1200	66	1650	6.5	165	5	125
48	1200	72	1800	7	180	5	125
48	1200	78	1950	7.5	190	5	125
48	1200	84	2100	8	205	5	125

NOTE: FOR TYPICAL INSTALLATIONS OF TYPE 'F' MANHOLES SEE SHEET 4.

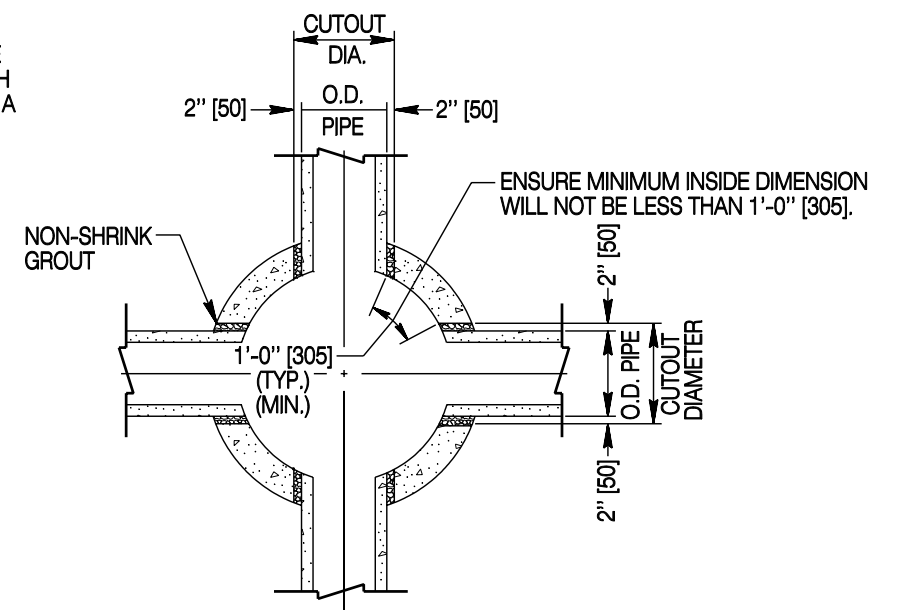
TYPE 'F' PRECAST TEE SECTIONS



TYPE 'D' BUILT-UP MANHOLE



- NOTE:**
- 1.) USE MANHOLE T-SECTIONS FOR BARREL SIZE 42 in - 84 in [1065 - 2135] WHEN TRUNK LINE IS DIRECTLY UNDER MANHOLE LOCATION. TOP CONE SECTION OF MANHOLE MAY BE ECCENTRIC FOR EASY ACCESS. (SEE SHEET 4.)
 - 2.) THE DIMENSIONS SHOWN ARE MINIMUMS FOR W_R AND W_B.



TYPE 'E' SANITARY SEWER MANHOLE

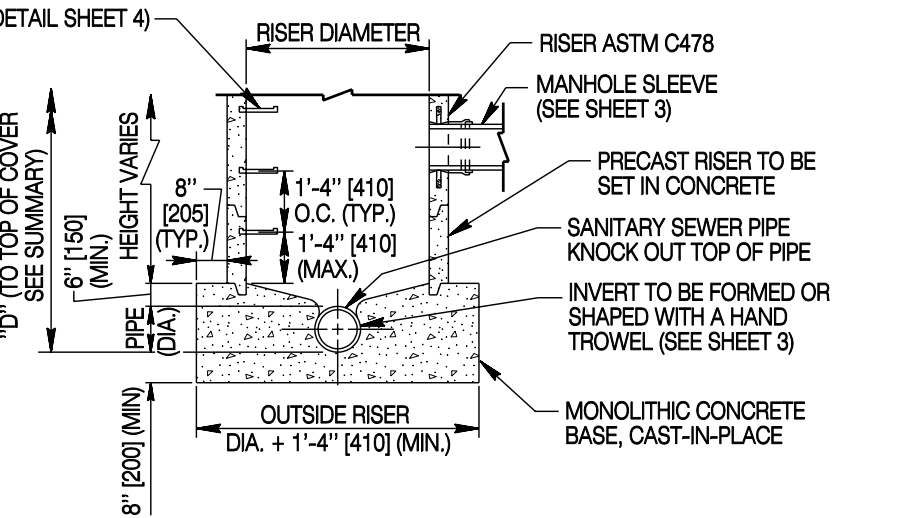


TABLE A													
RISER DIAMETER	COVER DIAMETER	WEIGHT OF SLAB COVER		T			K			BOTTOM BARS	TOP BARS		
		LBS	kg	IN	mm	IN	mm	IN	mm				
42	1050	51	1295	830	376	6	150	6	150	7	180	#4 @ 6" [#13 @ 150]	
48	1200	58	1475	1140	517	6	150	6	150	8	205	#4 @ 6" [#13 @ 150]	
54	1350	65	1650	1990	903	8	205	6	150	8	205	#4 @ 6" [#13 @ 150]	
60	1500	72	1830	2510	1139	8	205	7	180	9	230	#4 @ 6" [#13 @ 150]	#3 @ 6" [#10 @ 150]
66	1650	79	2005	3090	1402	8	205	7	180	9	230	#4 @ 6" [#13 @ 150]	#3 @ 6" [#10 @ 150]
72	1800	86	2185	3720	1687	8	205	8	205	10	255	#4 @ 6" [#13 @ 150]	#3 @ 6" [#10 @ 150]
78	1950	93	2360	4400	1996	8	205	8	205	10	255	#4 @ 4" [#13 @ 100]	#3 @ 4" [#10 @ 100]
84	2100	100	2540	5140	2331	8	205	8	205	11	280	#4 @ 4" [#13 @ 100]	#3 @ 4" [#10 @ 100]

NOTE: ALTERNATE SLAB COVERS MAY BE USED WITH CERTIFICATION OF HS 20-44 [MS 18] LOADING DESIGN.

Designed by: WRR
 Drawn by: GLD
 Checked by: RRC
 Previous Des. No. 625-03A

TYPE C, D, E AND F MANHOLE DETAILS

Note: Units shown in brackets [] are metric and are in millimeters (mm) unless other units are shown.

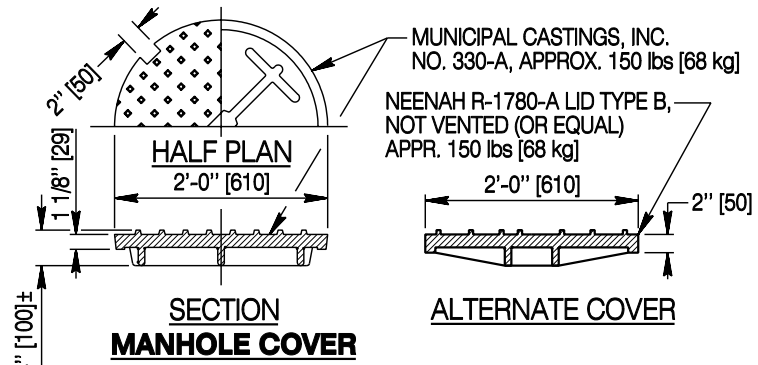


MANHOLES

STANDARD PLAN

STANDARD PLAN NUMBER
625-3
 SHEET 2 of 4
 Issued by: ENGINEERING SERVICES
 Date Issued: NOVEMBER, 2004
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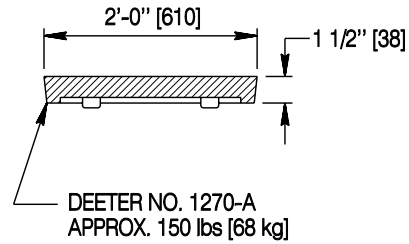
NOTE: INDIVIDUAL MUNICIPALITIES MAY REQUEST THAT ALTERNATE MANHOLE LIDS AND FRAMES BE USED. WHEN SPECIFIED MAKE MODIFICATIONS.



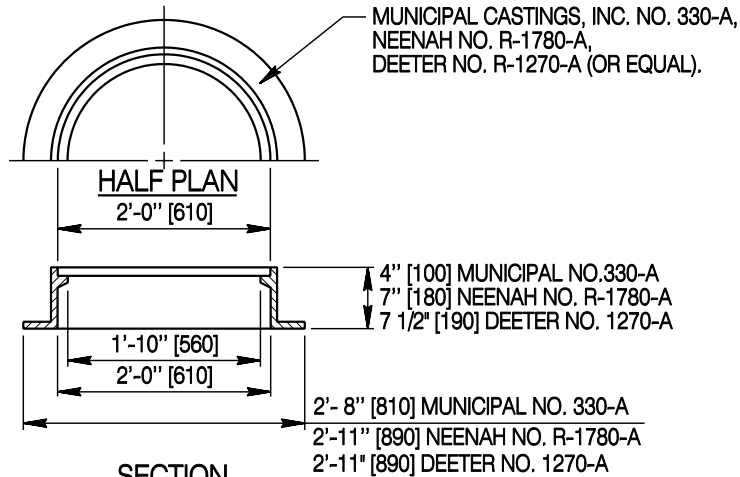
SECTION MANHOLE COVER

ALTERNATE COVER

SLEEVE DIMENSIONS					
PIPE DIA.	"A"		"B"		
	IN	mm	IN	mm	
8	200	10 3/8	265	18 3/8	465
10	250	12 5/8	320	20 5/8	525
12	300	14 7/8	380	22 7/8	580

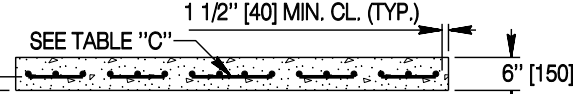
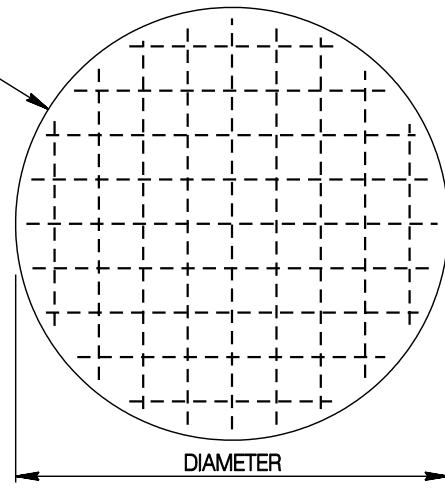


MANHOLE RING & SOLID COVER



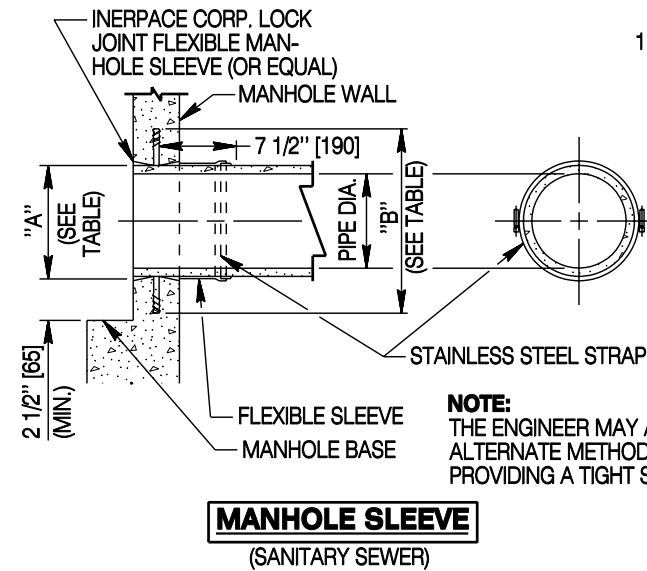
SECTION MANHOLE RING

NOTE: BASES MAY BE PRECAST OR CAST-IN-PLACE AS A SQUARE UNIT WITH THE APPROVAL OF THE ENGINEER.



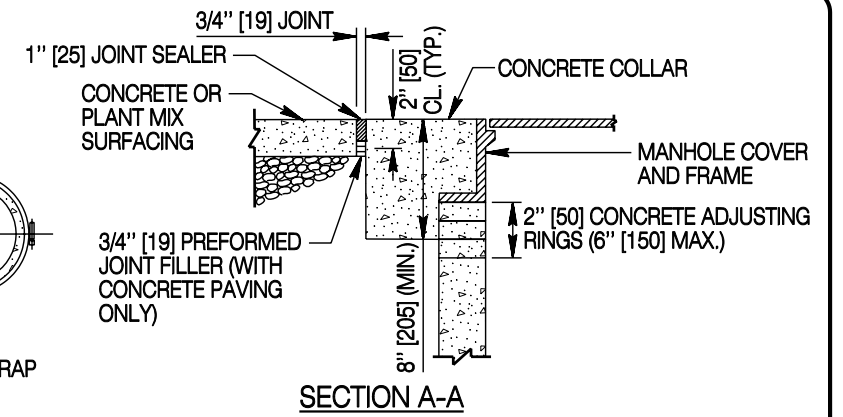
MANHOLE SIZE	DIAMETER		REINFORCING		CONCRETE		REINFORCING WEIGHT	
	IN	mm	FT - IN	mm	CY	m³	LBS	kg
48	1200	5 - 4	1625	#4 @ 8" [#13 @ 205] EACH WAY	0.41	0.31	40	18
54	1350	5 - 11	1805	#4 @ 8" [#13 @ 205] EACH WAY	0.51	0.39	55	25
60	1500	6 - 6	1980	#4 @ 6" [#13 @ 150] EACH WAY	0.61	0.47	85	39
72	1800	7 - 8	2335	#4 @ 6" [#13 @ 150] EACH WAY	0.85	0.65	120	54
84	2100	8 - 10	2690	#4 @ 6" [#13 @ 150] EACH WAY	1.13	0.86	155	70

MANHOLE BASE SLAB
(PRECAST OR CAST-IN-PLACE)

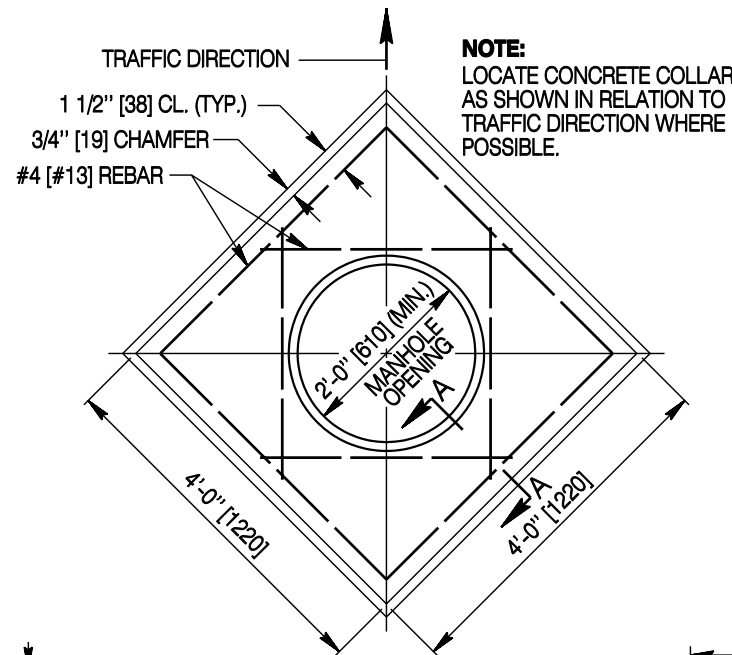


MANHOLE SLEEVE
(SANITARY SEWER)

NOTE: THE ENGINEER MAY APPROVE ALTERNATE METHODS OF PROVIDING A TIGHT SEAL.

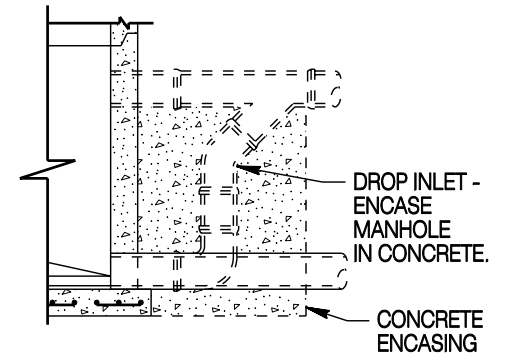


SECTION A-A



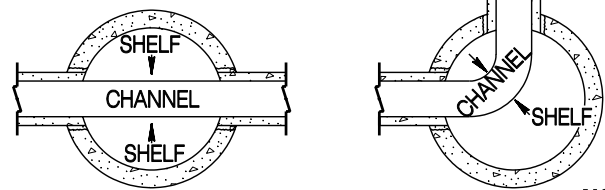
CONCRETE COLLAR

NOTE: LOCATE CONCRETE COLLAR AS SHOWN IN RELATION TO TRAFFIC DIRECTION WHERE POSSIBLE.

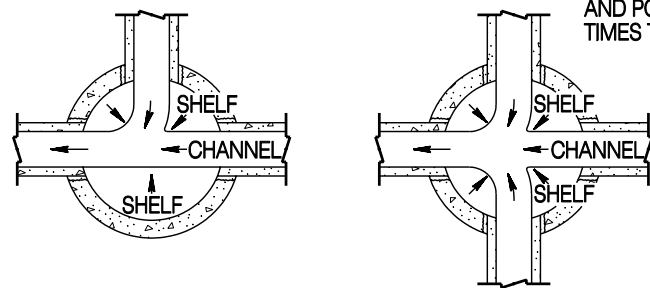


DROP MANHOLE

NOTE: USE DROP MANHOLES AS DIRECTED BY THE ENGINEER, OR AS SPECIFIED IN THE PLANS.

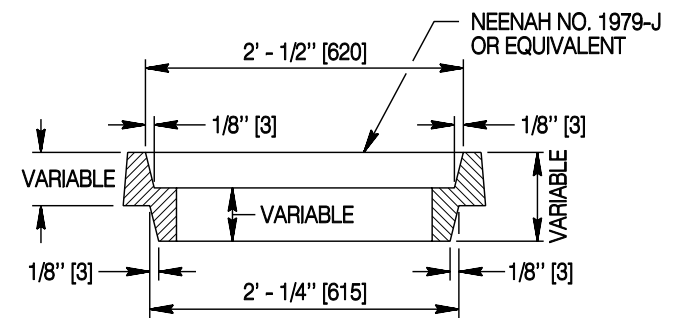


NOTE: WHEREVER PRACTICAL, EXTEND THE PIPES THROUGH THE MANHOLE WITH CUTOUTS AND POUR THE SHELF TO A DEPTH OF 0.75 TIMES THE I.D. (0.5 I.D. MINIMUM).



TYPICAL MANHOLE CHANNELS

NOTE: SHELVES TO BE FORMED OR SHAPED WITH A TROWEL.



MANHOLE ADJUSTING RING
(EXTENSION RING)

NOTE: CHECK THE DIMENSIONS AGAINST EXISTING FRAMES AND LIDS TO ENSURE A PROPER FIT.

Designed by: WRR
Drawn by: GLD
Checked by: RRC
Previous Dwg. No. 625-03A

MANHOLE RINGS, COVERS, BASES AND MISCELLANEOUS DETAILS

Note: Units shown in brackets [] are metric and are in millimeters (mm) unless other units are shown.

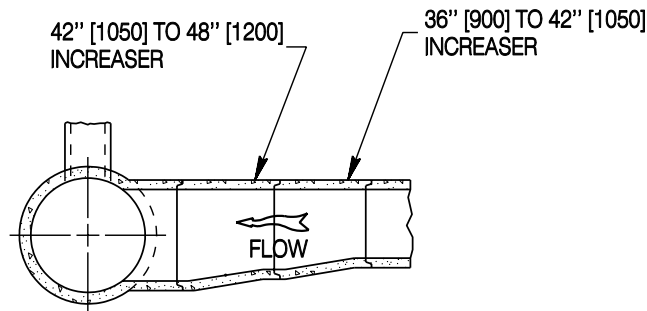


MANHOLES

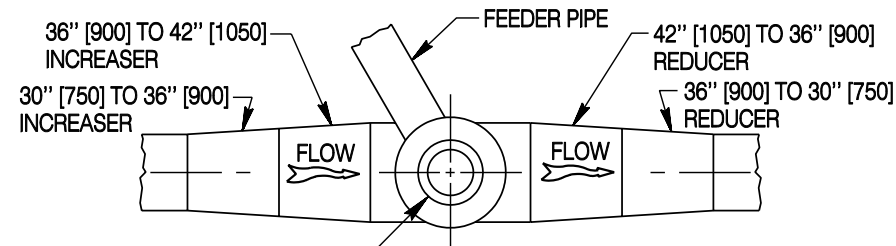
STANDARD PLAN

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625-3
SHEET 3 of 4
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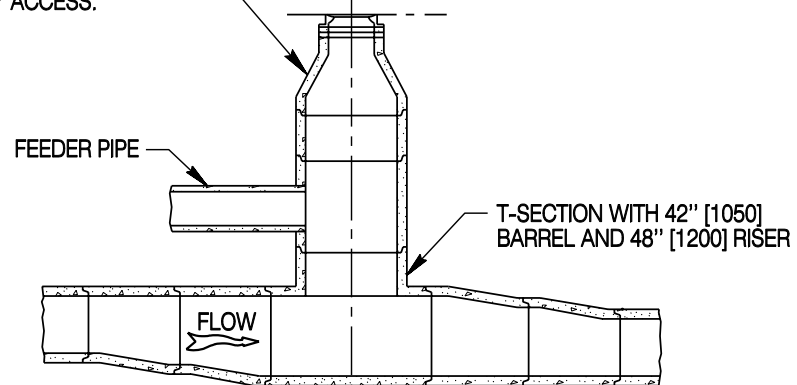


SECTION B-B



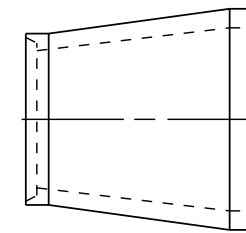
PLAN

CONCENTRIC CONE SHOWN, CONE MAY BE ECCENTRIC FOR EASY ACCESS.

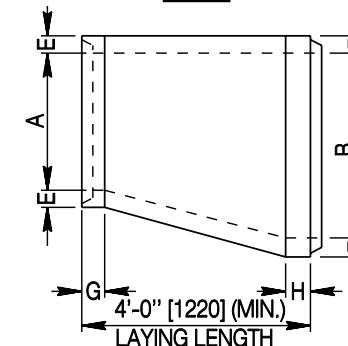


SECTION

TEE SECTION FOR SMALL DIAMETER TRUNK LINE



PLAN

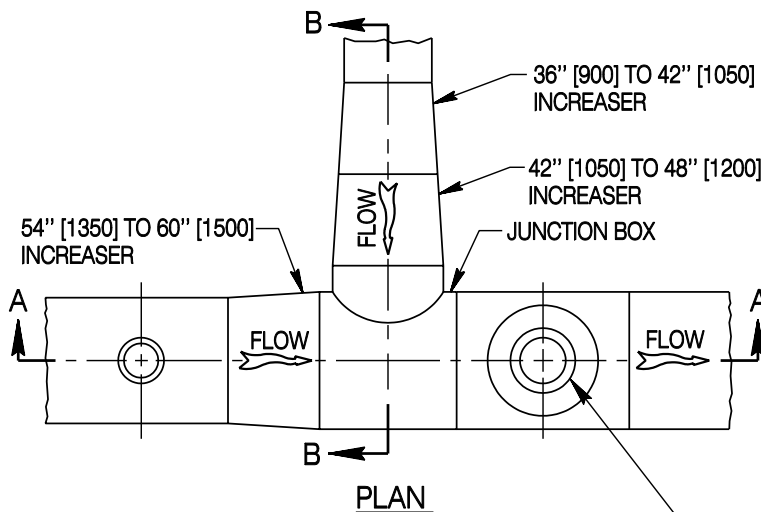


ELEVATION

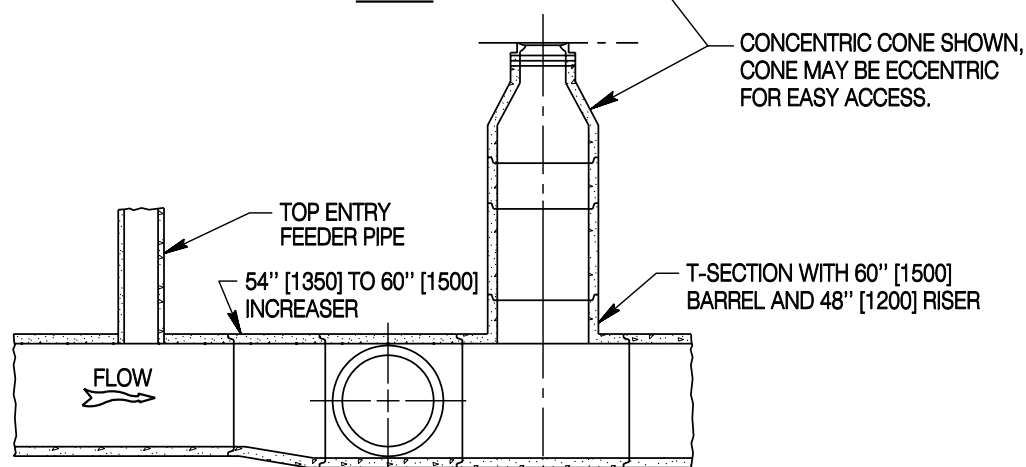
(TYPICAL INCREASER SHOWN)

INCREASERS AND REDUCERS									
DIAMETER A TO B		E		F		G		H	
IN TO IN	mm TO mm	IN	mm	IN	mm	IN	mm	IN	mm
24 TO 30	600 TO 750	3	75	3 1/4	83	3 1/2	90	5	125
27 TO 30	675 TO 750	3 1/4	83	3 1/2	90	6	150	6	150
30 TO 36	750 TO 900	3 1/2	90	4	100	4	100	5	125
33 TO 42	825 TO 1050	3 3/4	95	4 1/2	115	6	150	6	150
36 TO 42	900 TO 1050	4	100	4 1/2	115	6	150	6 1/2	165
42 TO 48	1050 TO 1200	4 1/2	115	5	125	6	150	6 1/2	165
48 TO 54	1200 TO 1350	5	125	5 1/2	140	6	150	6 1/2	165
48 TO 60	1200 TO 1500	5	125	6	150	6	150	6 1/2	165
54 TO 60	1350 TO 1500	5 1/2	140	6	150	6	150	6 1/2	165
60 TO 66	1500 TO 1650	6	150	6 1/2	165	6	150	6 1/2	165
66 TO 72	1650 TO 1800	6 1/2	165	7	180	8	205	8	205
66 TO 78	1650 TO 1950	6 1/2	165	7 1/2	190	6 1/2	165	7 1/2	190
72 TO 78	1800 TO 1950	7	180	7 1/2	190	8	205	8	205
78 TO 84	1950 TO 2100	7 1/2	190	8	205	8	205	8	205

NOTE: 1.) DIMENSIONS E, F, G AND H ARE MINIMUM.
2.) BASE PAYMENT FOR INCREASERS AND REDUCERS ON PIPE OF THE LARGER DIAMETER.

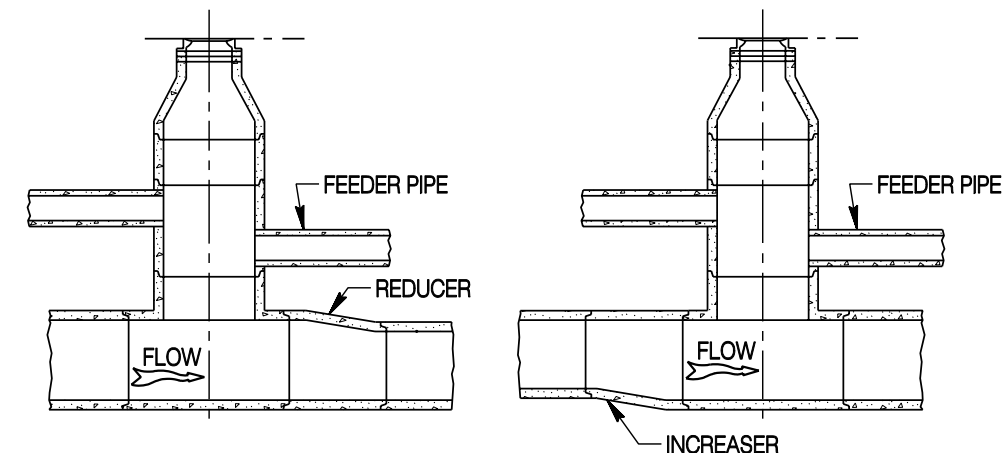


PLAN

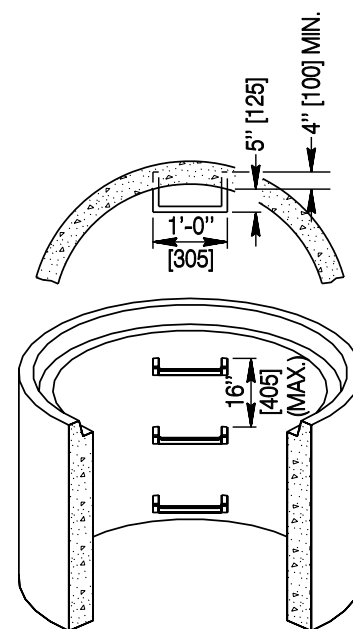


SECTION A-A

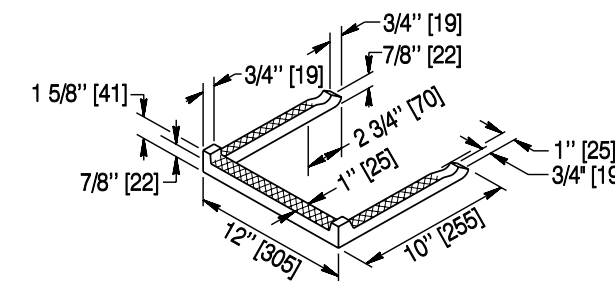
TEE SECTION AND JUNCTION INLET TYPICAL INSTALLATION



INCREASERS AND REDUCERS



#4 (#13) (MINIMUM) REINFORCING BAR ENCASED IN A CORROSION-RESISTANT MATERIAL AS PROVIDED BY DELTA PIPE PRODUCTS, OR M.A. INDUSTRIES, INC.



CAST IRON STEP-NEENAH NO. R-1982-F

STEPS

NOTE: ALTERNATE STEPS MAY BE PROVIDED WITH APPROVAL OF THE ENGINEER. ENSURE STEPS ARE IN ACCORDANCE WITH ASTM C478.

Designed by: WRR
Drawn by: GLD
Checked by: RRC
Previous Des. No. 625-03A

INCREASERS AND REDUCERS

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WYOMING DEPARTMENT OF TRANSPORTATION

MANHOLES

STANDARD PLAN

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