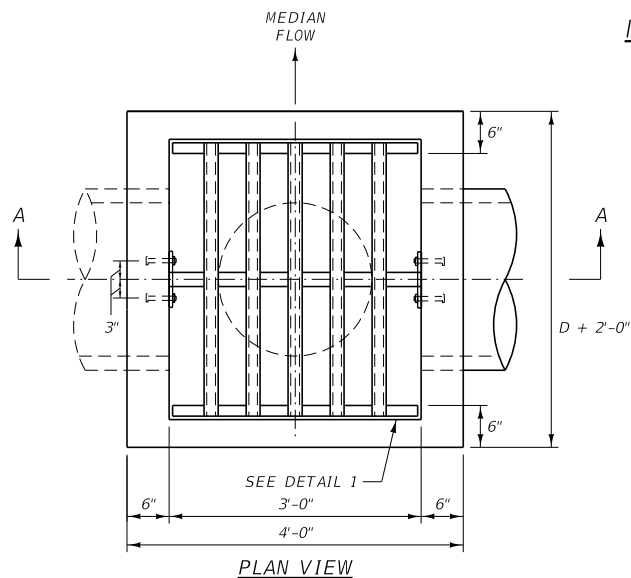
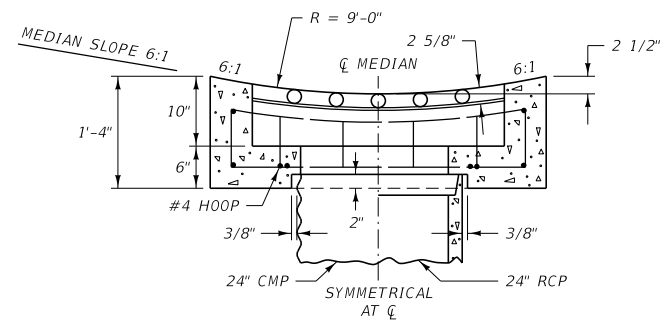


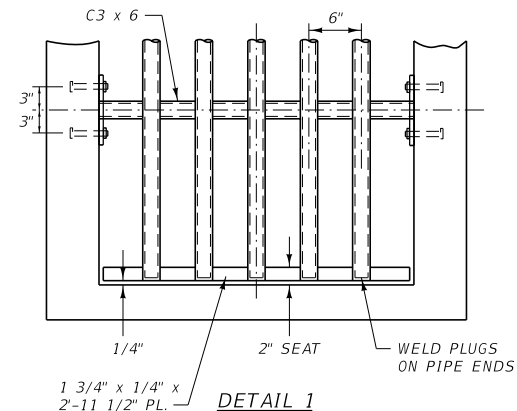
MEDIAN INLET



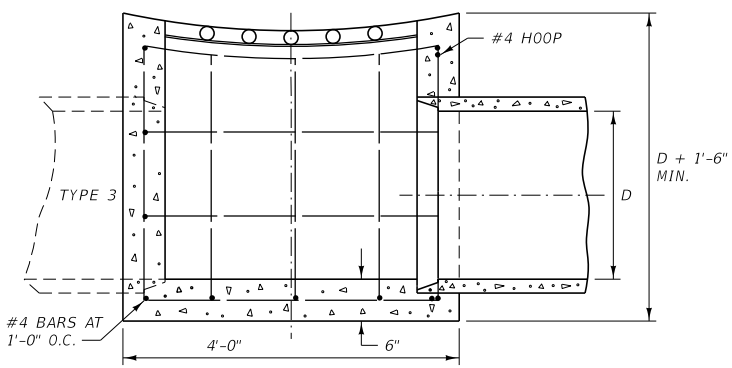
PLAN VIEW
TYPICAL FOR TYPES 1, 2 AND 3



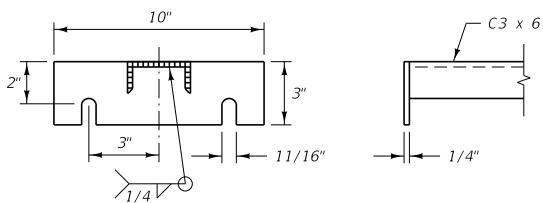
SECTION A-A
TYPE 1



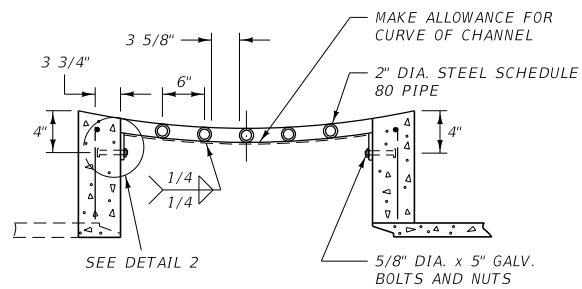
DETAIL 1



SECTION A-A
TYPE 2 HAS 1 PIPE CONNECTION
TYPE 3 HAS 2 PIPE CONNECTIONS



DETAIL 2



COVER DETAIL
TYPES 2 & 3

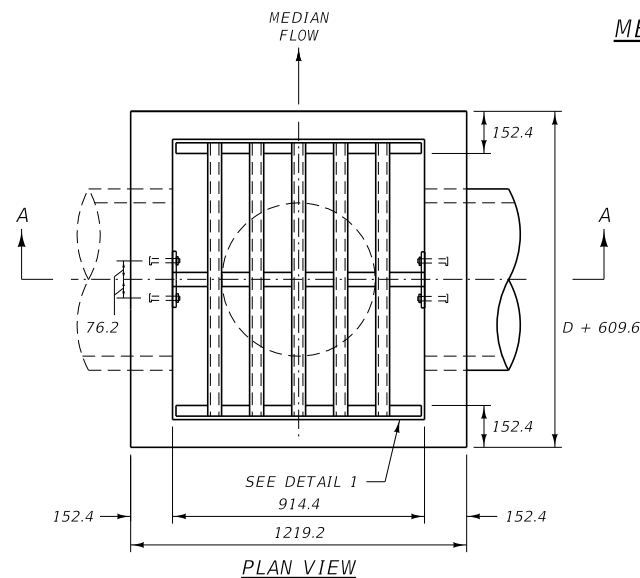
TYPE	GRATE AND REINFORCING STEEL (LB.) *		
	CMP AND RCP		
	24"	30"	36"
1	50	~	~
2	85	95	105
3	85 ⊙	95 ⊙	105 ⊙
GRATE	165	185	210

TYPE	CLASS GENERAL CONCRETE OR EQUAL (C.Y.) *					
	24"		30"		36"	
	CMP	RCP	CMP	RCP	CMP	RCP
1	0.4	0.4	~	~	~	~
2	1.0	1.0	1.1	1.0	1.2	1.1
3	0.9 ⊙	0.9 ⊙	1.0 ⊙	0.9 ⊙	1.0 ⊙	0.9 ⊙

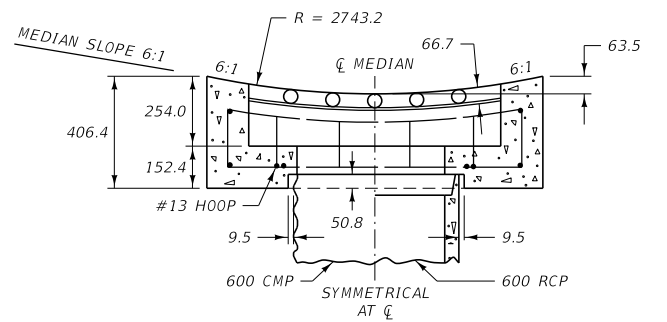
* QUANTITIES ARE FOR ESTIMATING PURPOSES ONLY.
⊙ TYPE 3 IS A SPECIAL CASE TO BE FIGURED FOR THE PARTICULAR INSTALLATION.

- NOTE:
- ① PAINT ALL EXPOSED METAL PARTS WITH ONE COAT OF ZINC RICH PAINT AND TWO COATS OF ALUMINUM PAINT PER SECTION 710.
 - ② WHEN MEDIAN INLET COVER IS INSTALLED OVER PIPES LARGER THAN 36", WITHOUT ADEQUATE COVER TO PERMIT THE USE OF TYPE 1 INSTALLATION, PROVIDE A DETAIL OF THE INSTALLATION IN THE PLANS.

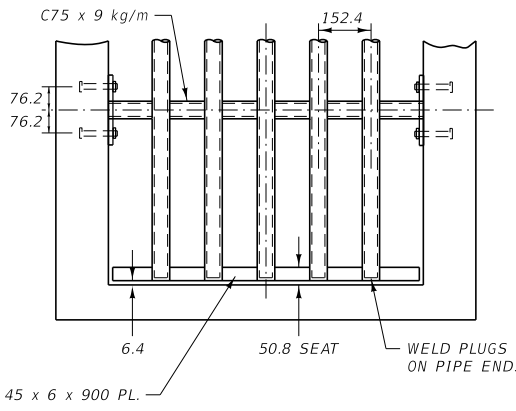
METRIC MEDIAN INLET



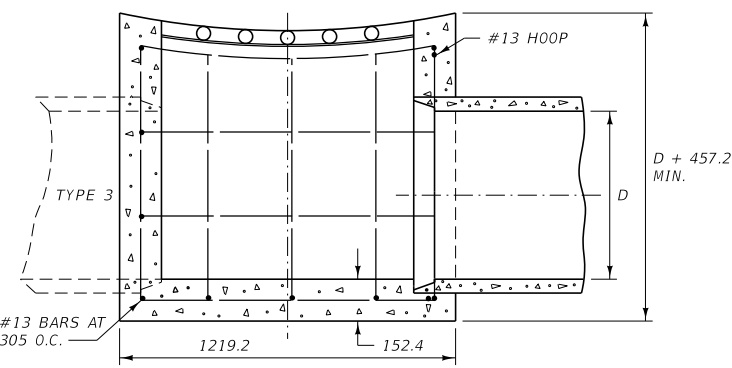
PLAN VIEW
TYPICAL FOR TYPES 1, 2 AND 3



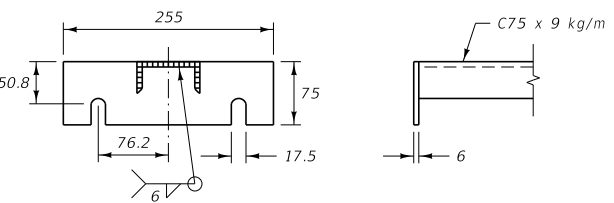
SECTION A-A
TYPE 1



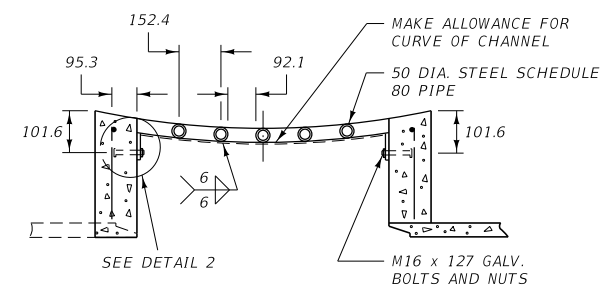
DETAIL 1



SECTION A-A
TYPE 2 HAS 1 PIPE CONNECTION
TYPE 3 HAS 2 PIPE CONNECTIONS



DETAIL 2



COVER DETAIL
TYPES 2 & 3

TYPE	GRATE AND REINFORCING STEEL (kg) *		
	CMP AND RCP		
	600 mm	750 mm	900 mm
1	22.7	~	~
2	38.6	43.1	47.6
3	38.6 ⊙	43.1 ⊙	47.6 ⊙
GRATE	74.8	83.9	95.3

TYPE	CLASS GENERAL CONCRETE OR EQUAL (CUBIC METERS) *					
	600 mm		750 mm		900 mm	
	CMP	RCP	CMP	RCP	CMP	RCP
1	0.31	0.31	~	~	~	~
2	0.76	0.76	0.84	0.76	0.92	0.84
3	0.69 ⊙	0.69 ⊙	0.76 ⊙	0.69 ⊙	0.76 ⊙	0.69 ⊙

* QUANTITIES ARE FOR ESTIMATING PURPOSES ONLY.
⊙ TYPE 3 IS A SPECIAL CASE TO BE FIGURED FOR THE PARTICULAR INSTALLATION.

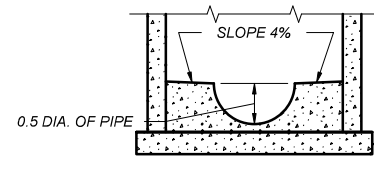
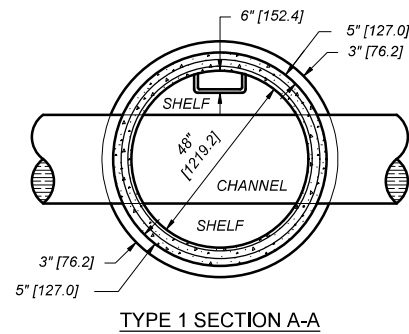
- NOTE:
- ① PAINT ALL EXPOSED METAL PARTS WITH ONE COAT OF ZINC RICH PAINT AND TWO COATS OF ALUMINUM PAINT PER SECTION 710.
 - ② WHEN MEDIAN INLET COVER IS INSTALLED OVER PIPES LARGER THAN 900 mm, WITHOUT ADEQUATE COVER TO PERMIT THE USE OF TYPE 1 INSTALLATION, PROVIDE A DETAIL OF THE INSTALLATION IN THE PLANS.

ALL DIMENSIONS ARE MILLIMETERS (mm) UNLESS OTHERWISE NOTED.

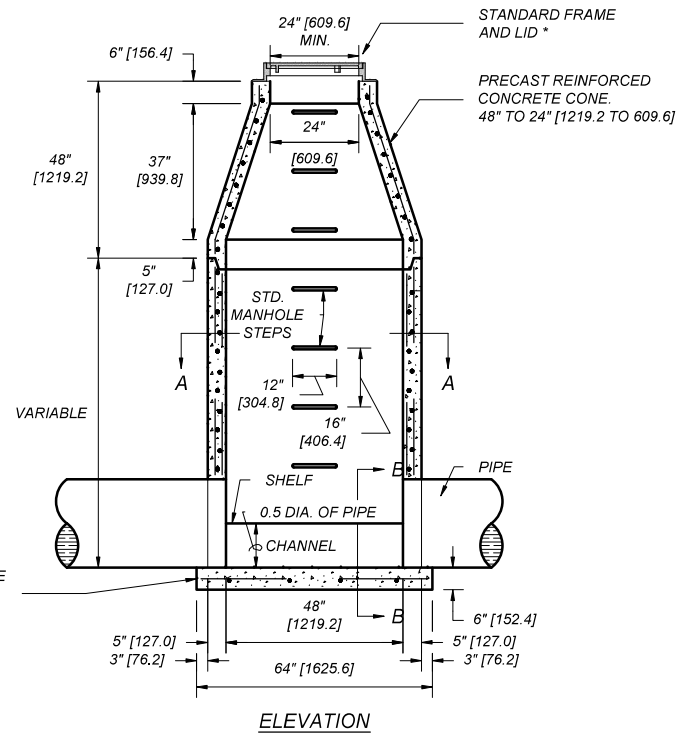
DETAILED DRAWING
REFERENCE DWG. NO.
STANDARD SPEC. 604-00
SECTION 604, 710

MEDIAN INLET

MDTA MONTANA DEPARTMENT OF TRANSPORTATION



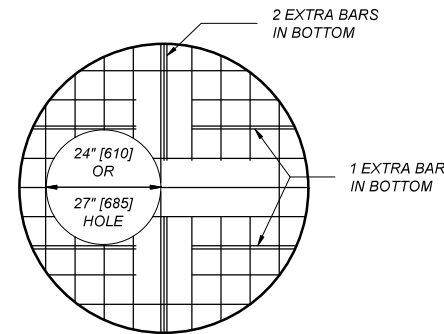
TYPE 1 SECTION B-B



ELEVATION

TYPE 1 MANHOLE

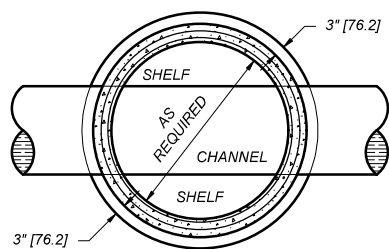
* MINIMUM WEIGHT FOR FRAME AND LID IS 400 LB [180 kg]. TOOL RING AND COVER TO A MACHINE FIT. A LIGHTER FRAME AND LID MAY BE USED IF APPROVED BY THE FACILITY OWNER RESPONSIBLE FOR MAINTENANCE OF THE MANHOLE.



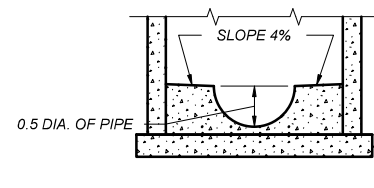
TYPE 3 MANHOLE ROOF SLAB

NOTE:

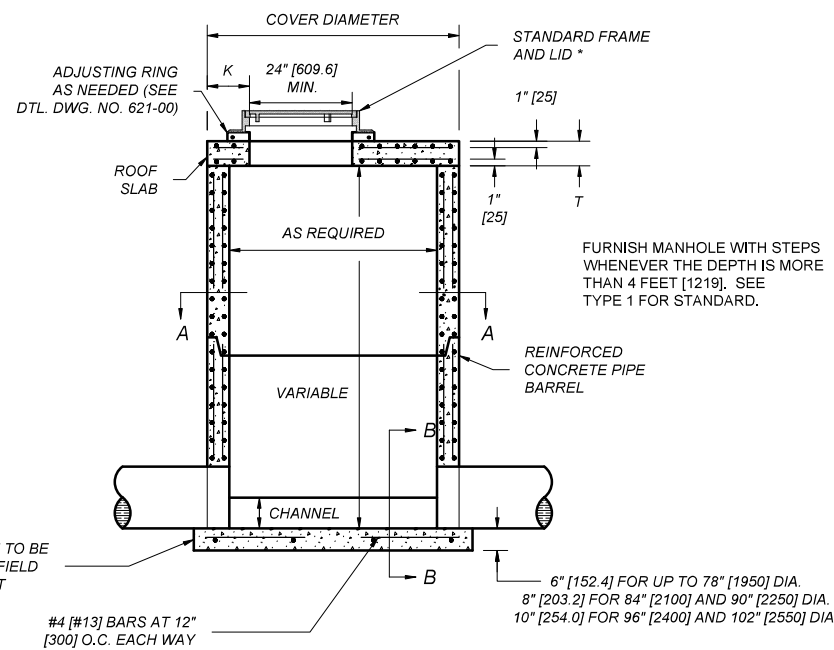
CENTER THE OPENING OVER THE ROOF SLAB FOR TYPE I, II, IV AND V INLETS ON 48" [1200] COMBINATION TYPE 3 MANHOLES.



TYPE 3 SECTION A-A



TYPE 3 SECTION B-B



TYPE 3 MANHOLE

UNITS SHOWN IN BRACKETS [] ARE METRIC AND ARE IN MILLIMETERS (mm) UNLESS OTHER UNITS ARE SHOWN.

NOTES:

- UPPER PART IS A CONE TO REDUCE DIAMETER FROM 48" TO 24" [1219.2 TO 609.6]. CUT BOTTOM OF LOWER SECTION SQUARE TO FIT BASE. GROUT JOINT BETWEEN BASE AND WALL. A GROUT CONSISTING OF ONE PART PORTLAND CEMENT AND TWO PARTS APPROVED SAND MAY BE USED; AN APPROVED PREMIXED GROUT, AVAILABLE COMMERCIALY, MAY BE USED.
- CONFORM ALL MANHOLE CONSTRUCTION, EXCEPT FRAME, LID, AND BASE, TO AASHTO M 199 [199M]. THIS PROVIDES THAT REINFORCEMENT MAY BE MADE OF (1) COLD DRAWN STEEL WIRE- AASHTO M 32 [32M], (2) STEEL WIRE FABRIC- AASHTO M 55 [55M], OR (3) STEEL BARS- AASHTO M 31 [31M].
- THE CONSTRUCTION AND REINFORCEMENT OF THE BASE FOR EACH TYPE MUST BE COMPATIBLE WITH THE CONDITIONS AND THE WEIGHT OF THE SUPER-STRUCTURE. AASHTO M 199 [199M] PROVIDES FOR 4000 PSI [27.6 MPa] CONCRETE. THE MIX CALLS FOR 6 SACKS OF CEMENT PER CUBIC YARD [335 kg/m³]. REINFORCEMENT SHOWN IS ILLUSTRATIVE ONLY. SEE AASHTO M 199 [199M].
- THE ECCENTRIC CONE TRANSITION WILL BE PERMITTED WHEN ITS USE WILL BE AS GOOD OR BETTER THAN THE ONES SHOWN, OR IF IT IS MORE ADAPTABLE TO EXISTING CONDITIONS.
- USE MANHOLE STEPS THAT ARE METALLIC AND COATED WITH COPOLYMER POLYPROPYLENE, OR AN APPROVED EQUAL. THE MINIMUM DESIGN LIVE LOAD FOR A SINGLE CONCENTRATED LOAD IS 300 POUNDS [135 kg].

TYPE 3 MANHOLE ROOF SLAB					
PIPE DIA.	SLAB DIA.	T	K	BOTTOM BARS	TOP BARS
48"	58"	6"	6"	#4 AT 6"	~
54"	65"	8"	6"	#4 AT 6"	~
60"	72"	8"	7"	#4 AT 6"	#3 AT 6"
66"	79"	8"	7"	#4 AT 6"	#3 AT 6"
72"	86"	8"	8"	#4 AT 6"	#3 AT 6"
78"	93"	8"	8"	#4 AT 4"	#4 AT 4"
84"	100"	8"	9"	#4 AT 4"	#4 AT 4"
90"	107"	8"	9"	#4 AT 4"	#4 AT 4"
96"	114"	8"	9"	#5 AT 4"	#4 AT 4"
102"	121"	8"	9"	#5 AT 4"	#4 AT 4"

TYPE 3 MANHOLE ROOF SLAB (METRIC)					
PIPE DIA.	SLAB DIA.	T	K	BOTTOM BARS	TOP BARS
1200	1473.2	152.4	152.4	#13 AT 150	~
1350	1651.0	203.2	152.4	#13 AT 150	~
1500	1828.8	203.2	177.8	#13 AT 150	#10 AT 150
1650	2006.6	203.2	177.8	#13 AT 150	#10 AT 150
1800	2184.4	203.2	203.2	#13 AT 150	#10 AT 150
1950	2362.2	203.2	203.2	#13 AT 100	#13 AT 100
2100	2540.0	203.2	228.6	#13 AT 100	#13 AT 100
2250	2717.8	203.2	228.6	#13 AT 100	#13 AT 100
2400	2895.6	203.2	228.6	#16 AT 100	#13 AT 100
2550	3073.4	203.2	228.6	#16 AT 100	#13 AT 100

NOTE: ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED

DETAILED DRAWINGS

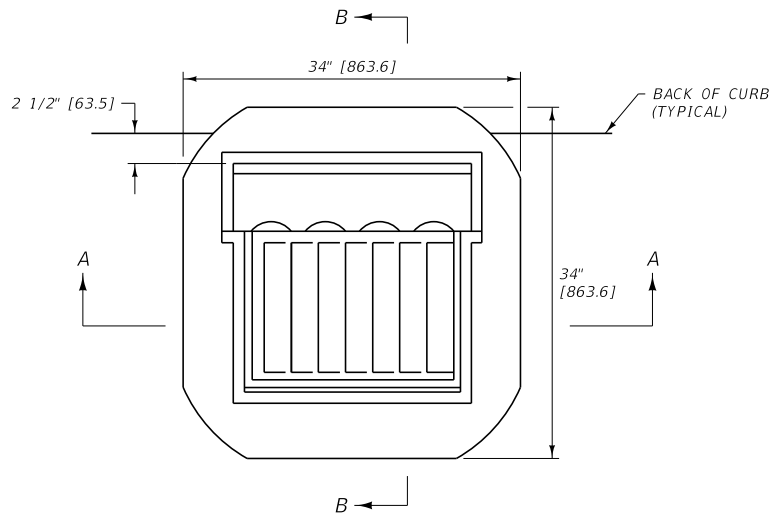
REFERENCE STANDARD SPEC. SECTION 604.711 DWG. NO. 604-02

CONCRETE MANHOLE

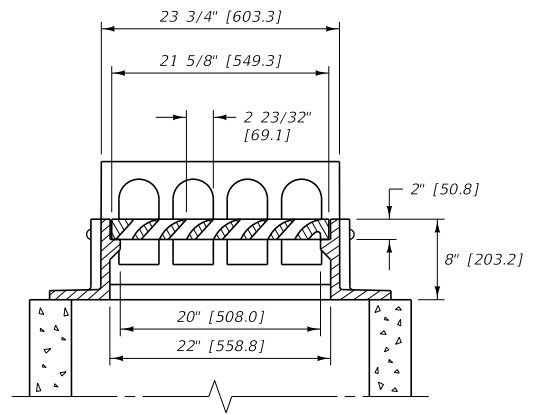
EFFECTIVE: JAN 23, 2020



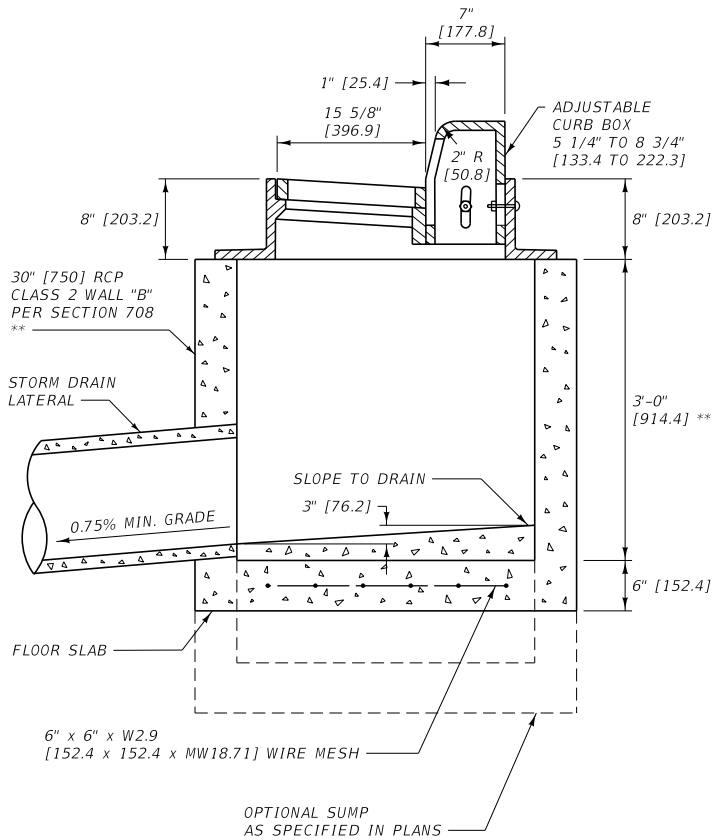
REVISED JUN 27, 2024



PLAN



SECTION A-A



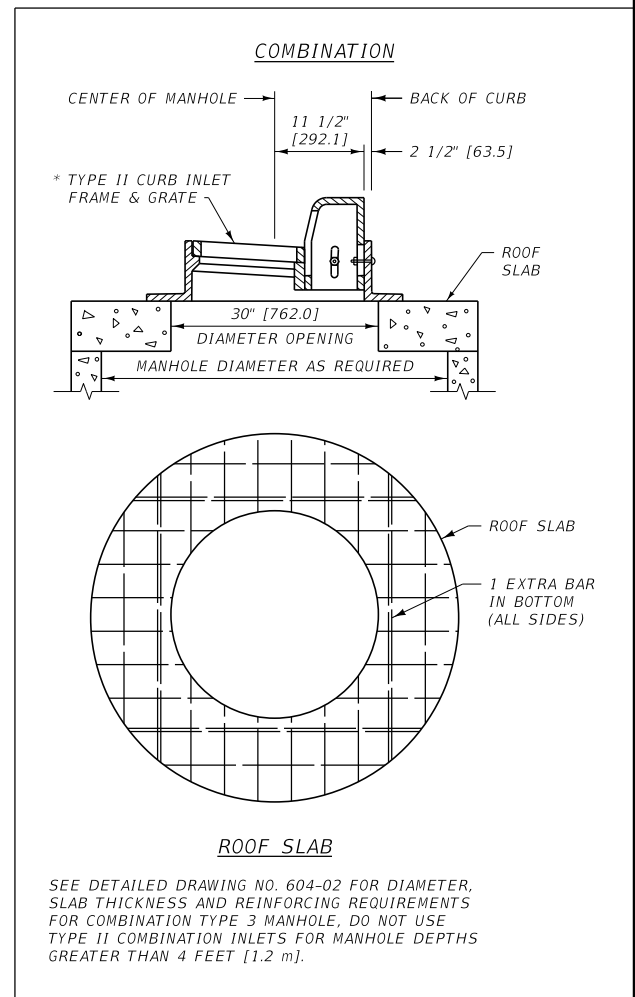
SECTION B-B

** STANDARD UNLESS OTHERWISE NOTED ON THE PLANS.

NOTES: ALL CONCRETE IS CLASS GENERAL OR APPROVED EQUAL.

* SEE QUALIFIED PRODUCTS LIST FOR APPROVED GRATES.

UNITS SHOWN IN BRACKETS [] ARE METRIC AND ARE IN MILLIMETERS (mm) UNLESS OTHER UNITS ARE SHOWN.

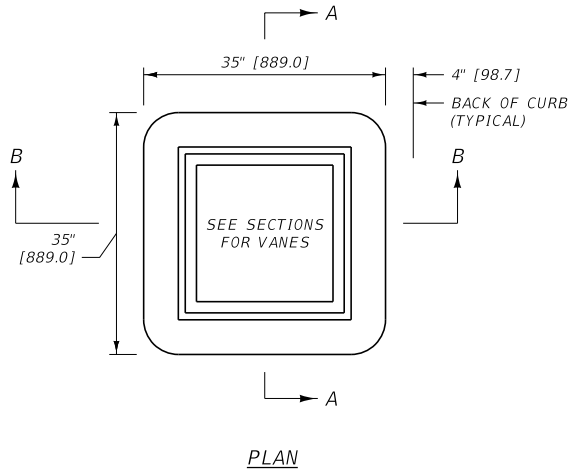


ROOF SLAB

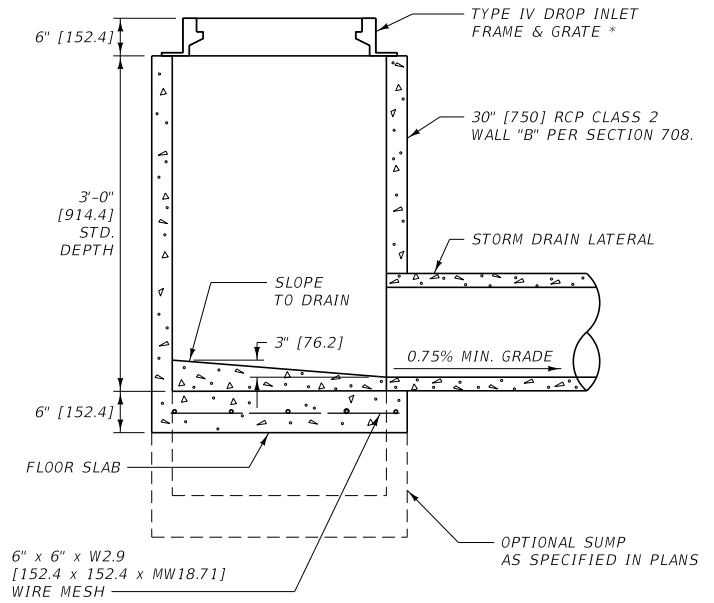
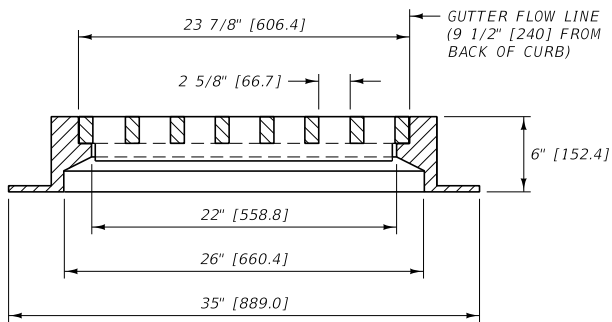
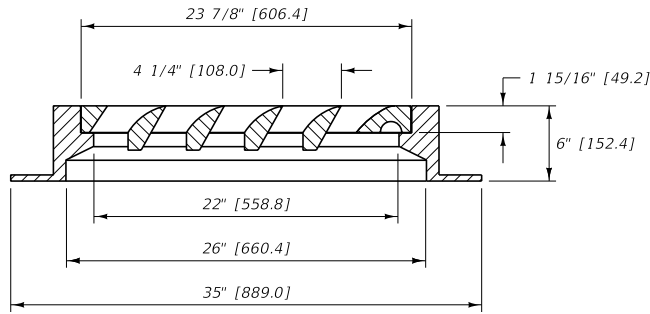
SEE DETAILED DRAWING NO. 604-02 FOR DIAMETER, SLAB THICKNESS AND REINFORCING REQUIREMENTS FOR COMBINATION TYPE 3 MANHOLE, DO NOT USE TYPE II COMBINATION INLETS FOR MANHOLE DEPTHS GREATER THAN 4 FEET [1.2 m].

DETAILED DRAWING	
REFERENCE	DWG. NO.
STANDARD SPEC.	604-03
SECTION 604, 708	

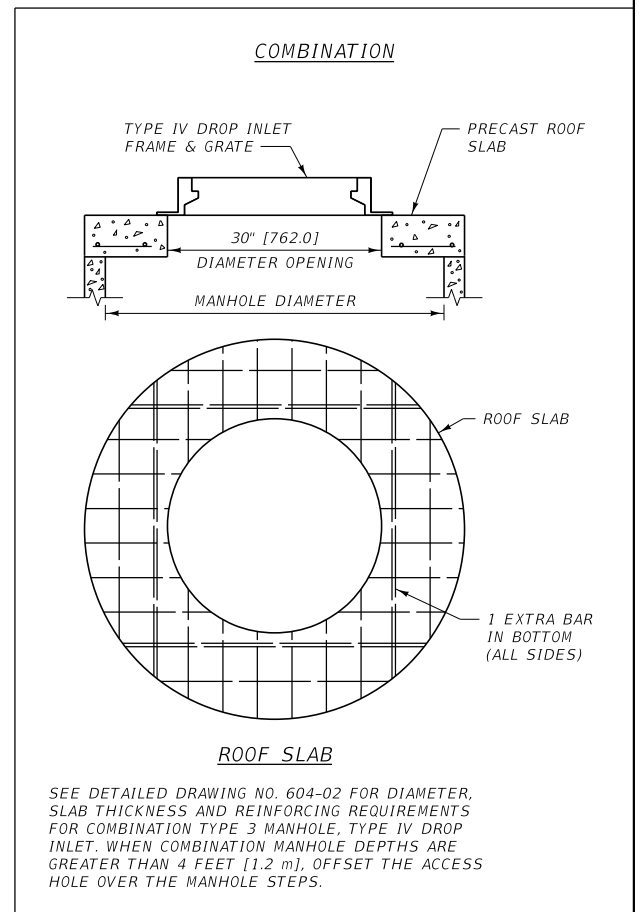
CURB INLET
TYPE II



DIRECTION OF INTAKE FLOW



SINGLE DROP INLET
TYPE IV *



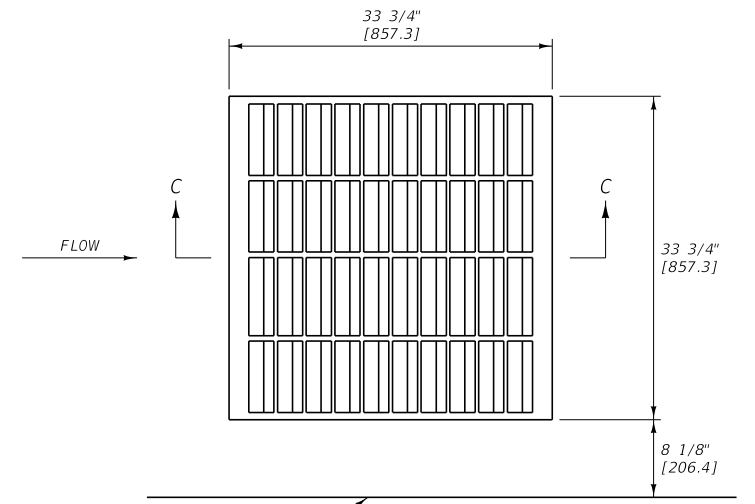
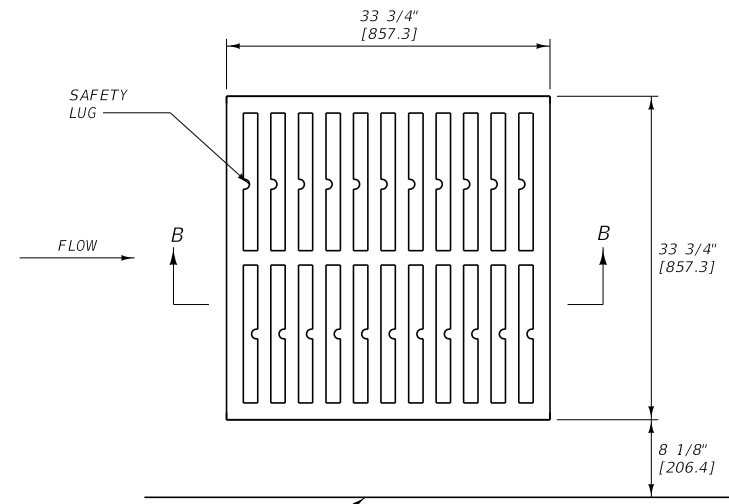
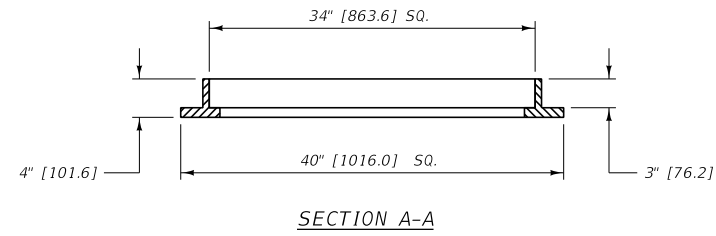
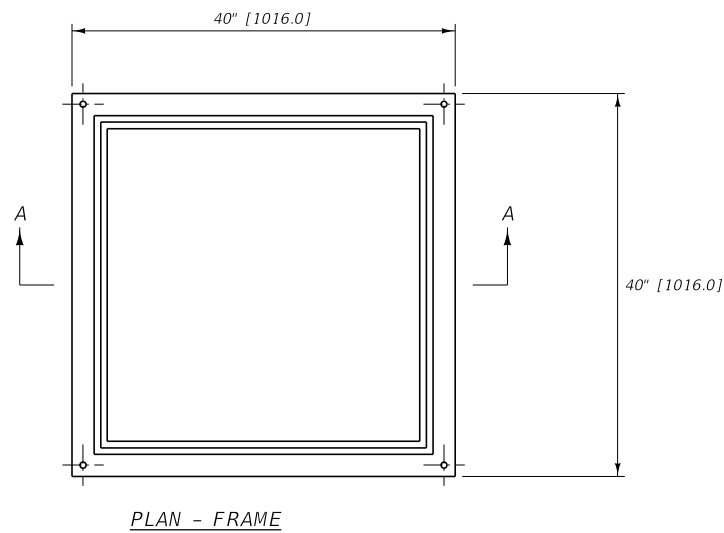
NOTE:
ALL CONCRETE IS CLASS
GENERAL OR APPROVED EQUAL.

* SEE QUALIFIED PRODUCTS LIST
FOR APPROVED GRATES.

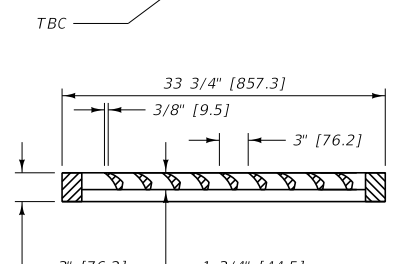
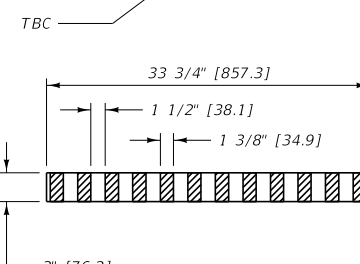
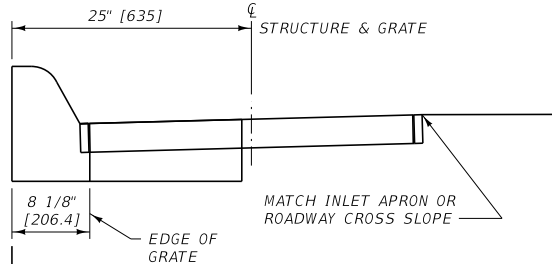
UNITS SHOWN IN BRACKETS [] ARE
METRIC AND ARE IN MILLIMETERS (mm)
UNLESS OTHER UNITS ARE SHOWN.

DETAILED DRAWING	
REFERENCE	DWG. NO.
STANDARD SPEC.	604-04
SECTION 604, 708	

DROP INLET
TYPE IV

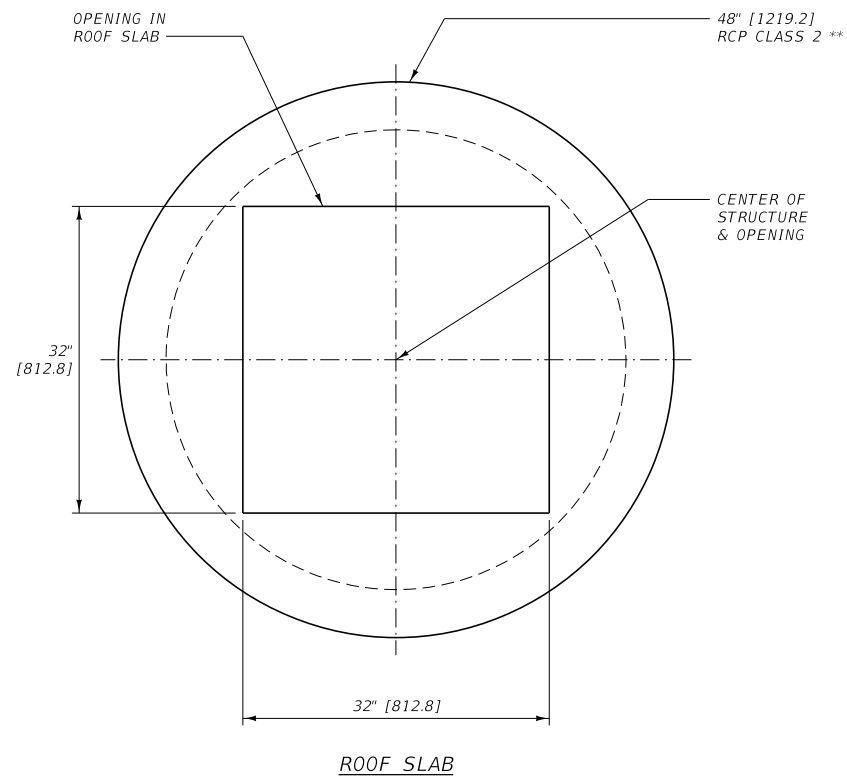


CURB TO GRATE

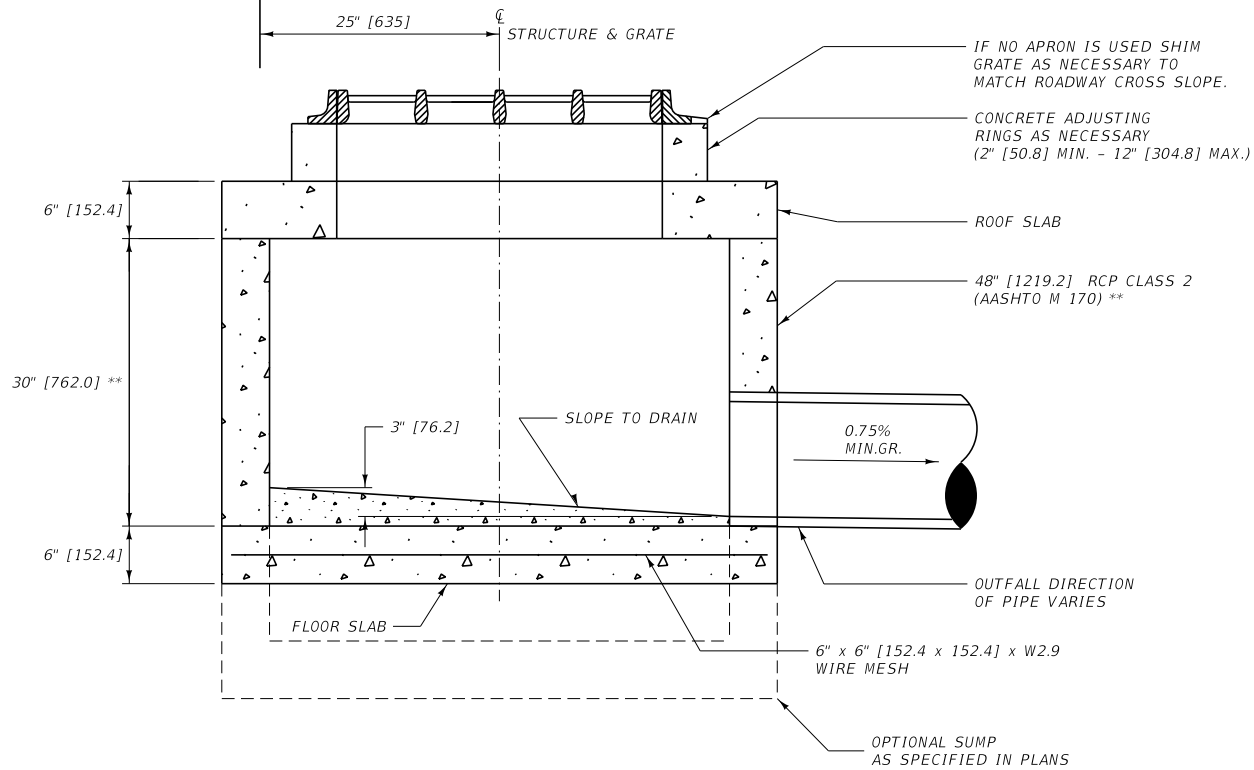


SECTION B-B
STRAIGHT BAR GRATE
TYPE I *

SECTION C-C
VANE STYLE GRATE
TYPE V *



TYPE I AND V DROP INLET



SECTION VIEW

NOTES: ALL CONCRETE IS CLASS GENERAL OR APPROVED EQUAL.
SEE PLANS FOR LOCATIONS AND QUANTITIES.

SET ALL FINAL INLET GRATE ELEVATIONS TO ENSURE THAT POSITIVE DRAINAGE IS PROVIDED FROM THE FLOWLINE OF THE CURB AND GUTTER SECTION INTO THE INLET.

** STANDARD UNLESS OTHERWISE NOTED ON PLANS.

PLAN STATION AND OFFSET IS TO THE CENTER OF THE STRUCTURE.

TYPE I AND TYPE V GRATES ARE INTERCHANGEABLE WITH THE SAME FRAME AND HAVE THE ABILITY TO BE ROTATED 90 DEGREES IN ANY DIRECTION. INSTALL GRATE TO MATCH FLOW DIRECTION SHOWN.

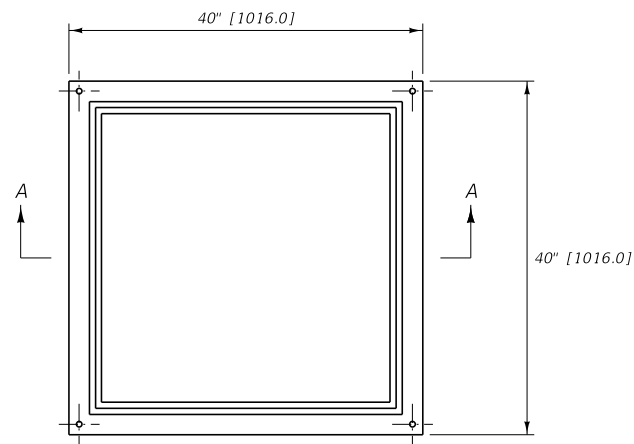
PROVIDE SAFETY LUG ON STRAIGHT BAR GRATE BETWEEN EACH BAR.

* SEE QUALIFIED PRODUCTS LIST FOR APPROVED GRATES

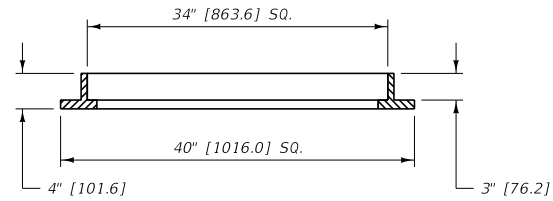
UNITS SHOWN IN BRACKETS [] ARE METRIC AND ARE IN MILLIMETERS (mm) UNLESS OTHER UNITS ARE SHOWN.

DETAILED DRAWING	
REFERENCE STANDARD SPEC. SECTION 604	DWG. NO. 604-14

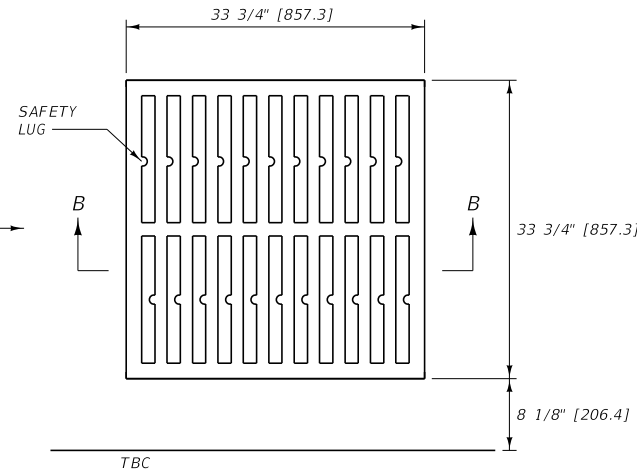
DROP INLETS
TYPE I AND V



PLAN - FRAME



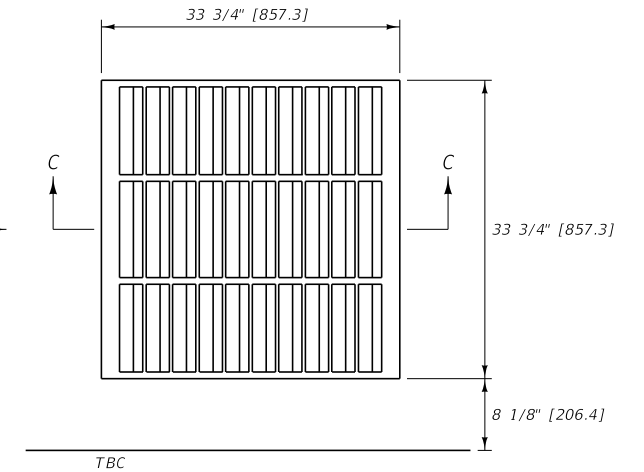
SECTION A-A



SECTION B-B

STRAIGHT BAR GRATE

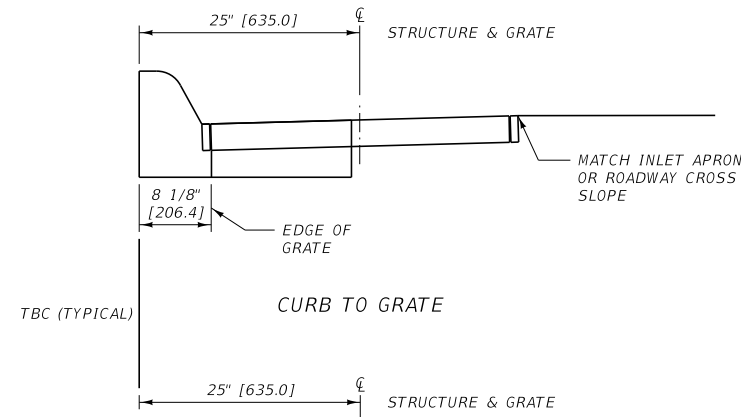
TYPE III *



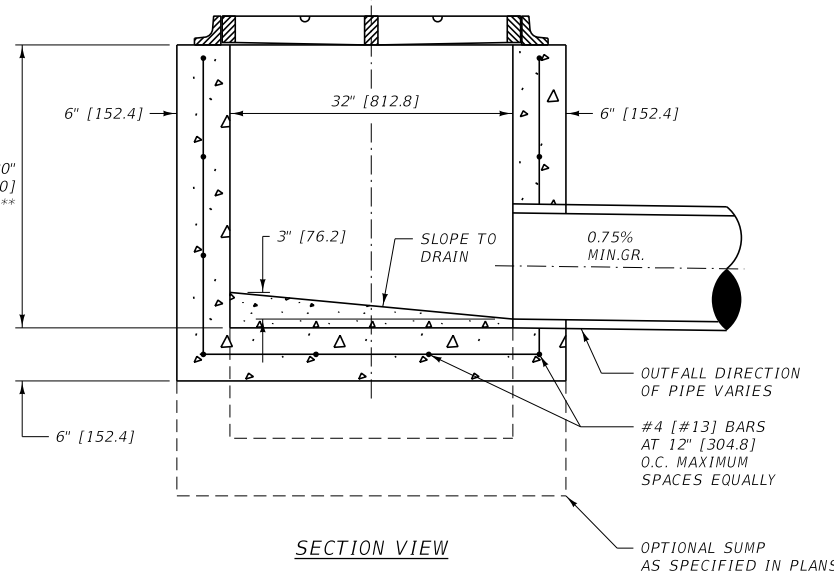
SECTION C-C

VANE STYLE GRATE

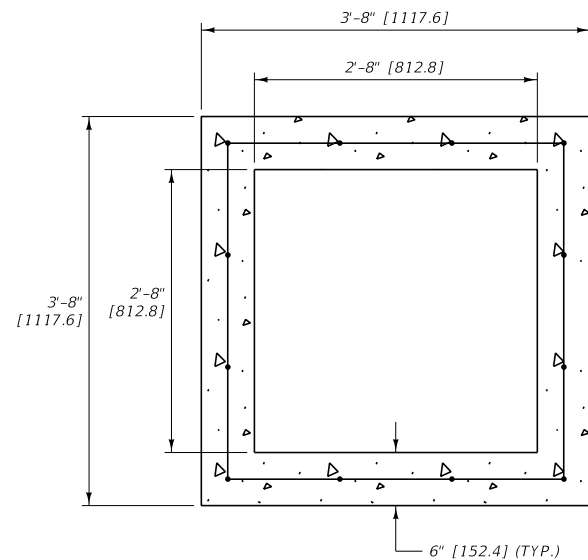
TYPE VI *



CURB TO GRATE



SECTION VIEW



TOP VIEW

TYPE III AND VI DROP INLET

NOTES: ALL CONCRETE IS CLASS GENERAL OR APPROVED EQUAL.

SEE PLANS FOR LOCATIONS AND QUANTITIES.

SET ALL FINAL INLET GRATE ELEVATIONS TO ENSURE THAT POSITIVE DRAINAGE IS PROVIDED FROM THE FLOWLINE OF THE CURB AND GUTTER SECTION INTO THE INLET.

** STANDARD UNLESS OTHERWISE NOTED ON PLANS.

PLAN STATION AND OFFSET IS TO THE CENTER OF THE STRUCTURE.

TYPE III AND TYPE VI GRATES ARE INTERCHANGEABLE WITH THE SAME FRAME AND HAVE THE ABILITY TO BE ROTATED 90 DEGREES IN ANY DIRECTION. INSTALL GRATE TO MATCH FLOW DIRECTION SHOWN.

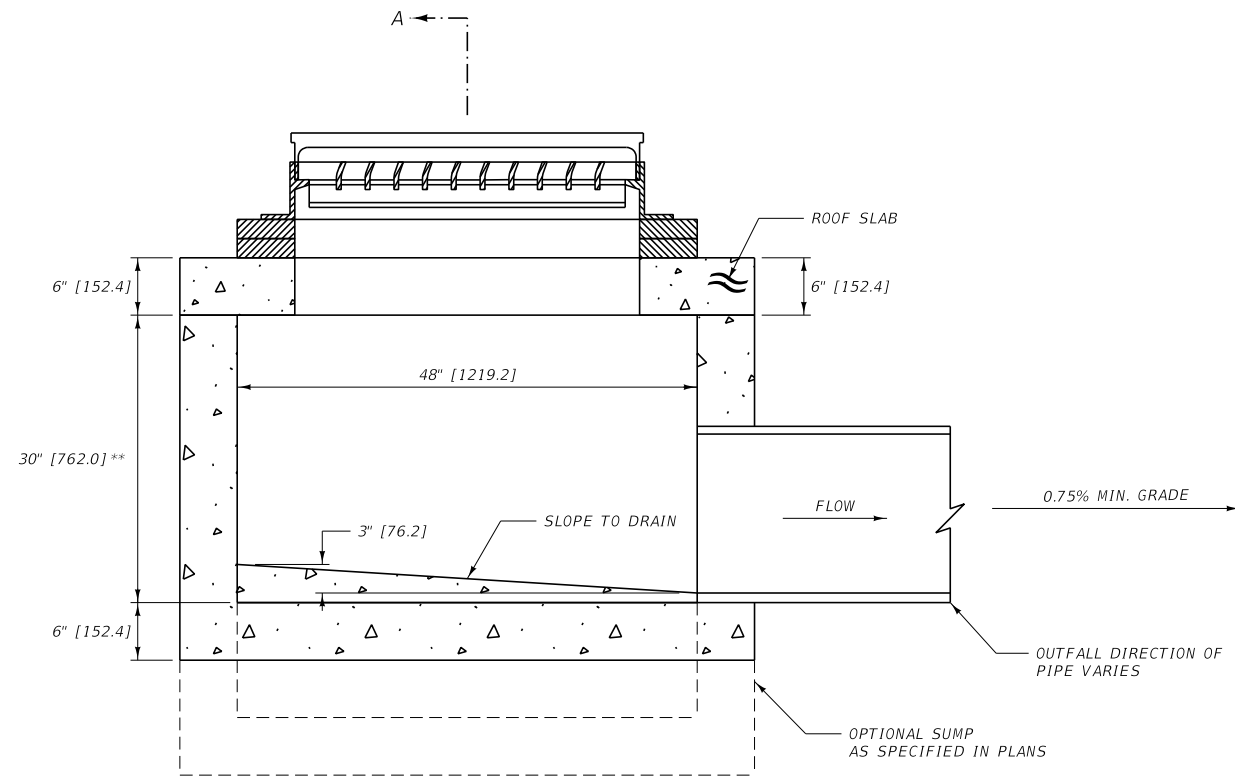
PROVIDE SAFETY LUG ON STRAIGHT BAR GRATE BETWEEN EACH BAR.

* SEE QUALIFIED PRODUCTS LIST FOR APPROVED GRATES.

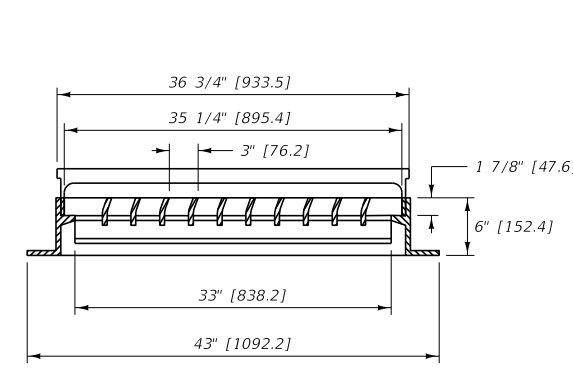
UNITS SHOWN IN BRACKETS [] ARE METRIC AND ARE IN MILLIMETERS (mm) UNLESS OTHER UNITS ARE SHOWN.

DETAILED DRAWING	
REFERENCE STANDARD SPEC. SECTION 604	DWG. NO. 604-16

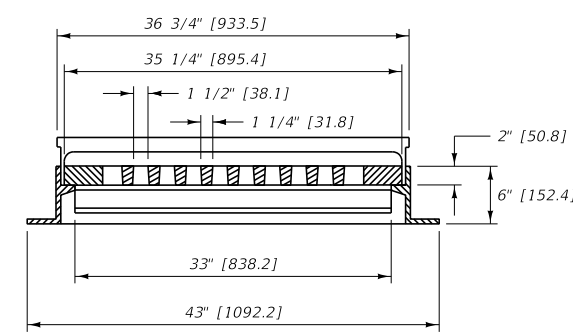
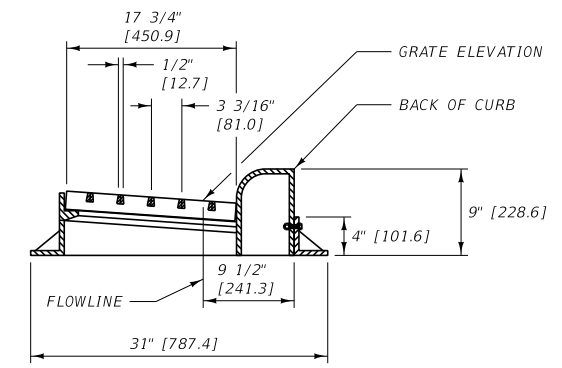
DROP INLETS
TYPE III AND VI



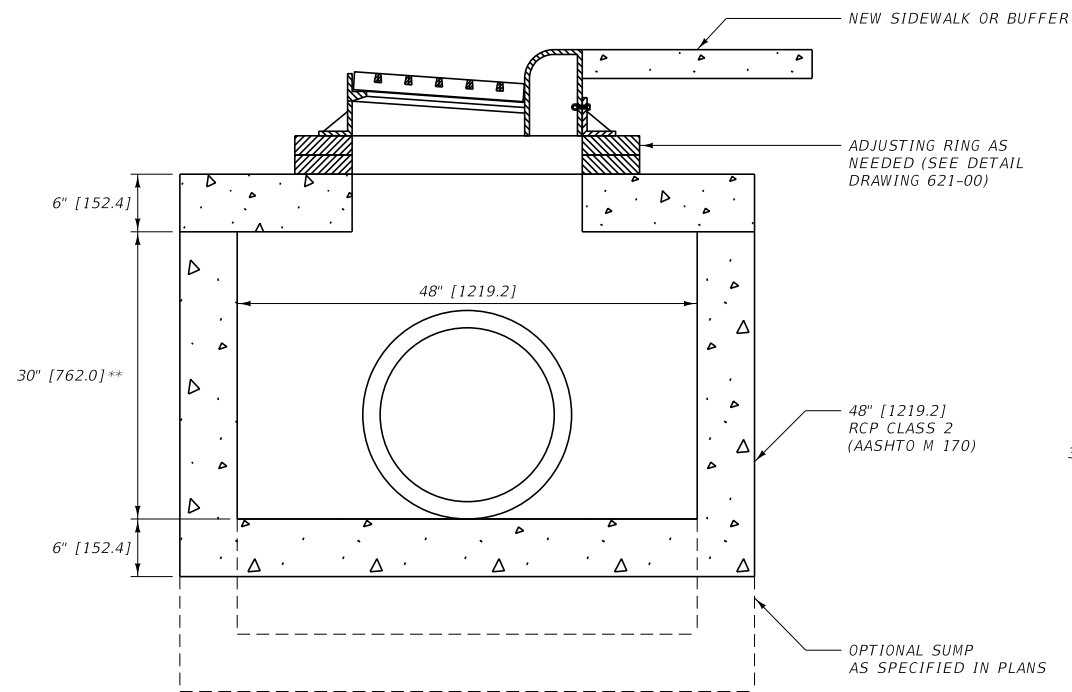
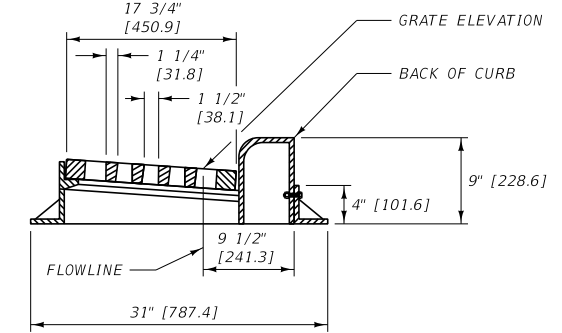
TYPE B CURB INLET



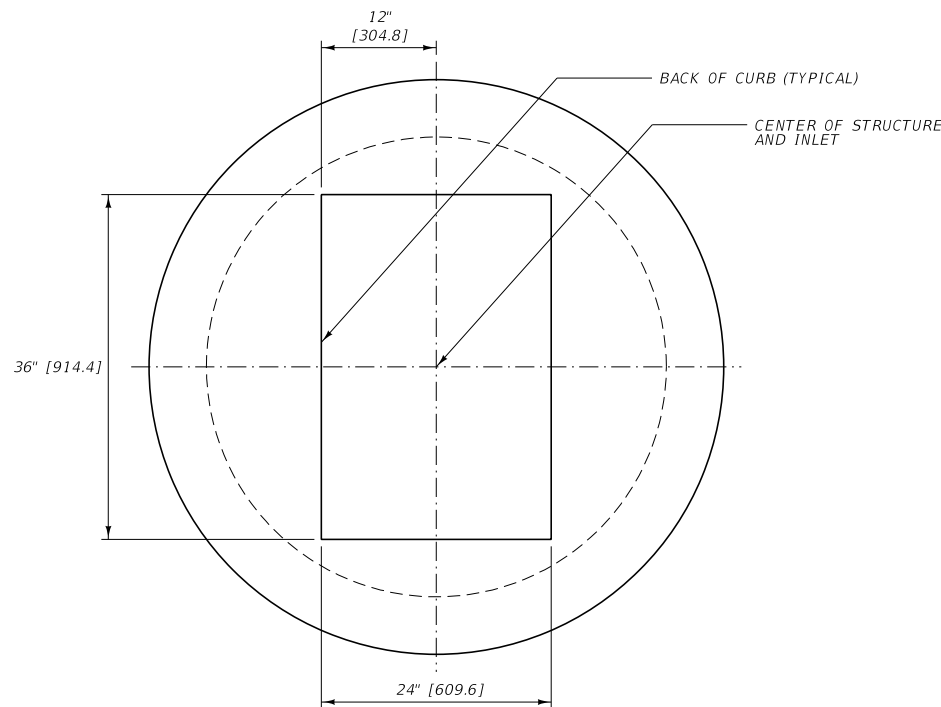
TYPE B
CURVED VANE STYLE *



TYPE A
STRAIGHT BAR STYLE *



SECTION A-A



ROOF SLAB

NOTE: SEE DETAIL DRAWING NO.604-02 FOR REINFORCING REQUIREMENTS

- NOTES:
- SEE PLANS FOR LOCATIONS AND QUANTITIES.
 - PLAN STATION AND OFFSET IS CENTER OF STRUCTURE.
 - ** STANDARD UNLESS OTHERWISE NOTED ON PLANS.
 - SET ALL FINAL INLET GRATE ELEVATIONS TO ENSURE THAT POSITIVE DRAINAGE IS PROVIDED.
 - WHEN USED AS A COMBINATION M.H. AND THE DEPTH IS GREATER THAN 4' [1200], OFFSET THE ACCESS HOLE/GRATE OVER THE M.H. STEPS.
 - * SEE QUALIFIED PRODUCTS LIST FOR APPROVED GRATES.

UNITS SHOWN IN BRACKETS [] ARE METRIC AND ARE IN MILLIMETERS (mm) UNLESS OTHER UNITS ARE SHOWN.

DETAILED DRAWING	
REFERENCE STANDARD SPEC. SECTION 604	DWG. NO. 604-18

TYPE A AND B CURB INLETS