

EN PIPE CORES.

KOR-N-SEAL OR APPROVED  
EQUAL MANHOLE ADAPTOR

4,000 PSI PCC  
SLOPE SHELVES  
1:12 TYP.

NOTE: FOR MANHOLES LARGER  
THAN 60" FROM RIM TO TOP  
PIPE, SEE STANDARD DETAILS

NOTE: FOR MANHOLES LESS  
THAN 60" FROM RIM TO TOP OF  
PIPE, SEE STANDARD DETAIL 203.

SET IN NON-SHRINK MORTAR

MANHOLE FRAME AND COVER PER PLANS AND SPECIFICATIONS.

GRADE RINGS 3" MINIMUM AND 12" MAXIMUM HEIGHT WITH NO SPACES.

24" MAX.

36"

12" TYP.

48" MIN INSIDE DIA.

5" MIN.

4" MIN.

12" MIN

12" MAX

3" MIN.

6" MIN.

18" MAX FOR RIGID PIPE.

STEPS SHALL BE ORIENTED OVER THE LEAST OBSTRUCTED SHELF AND SHALL NOT CONFLICT WITH ANY PIPE.

VARIABLE

FORM CHANNEL TO 2/3 PIPE I.D. HEIGHT

6" MINIMUM THICKNESS OF 3/4"-0" COMPACTED CRUSHED ROCK UNDER BASE.

FLOW

## SECTION A-A



## STANDARD MANHOLE FOR 27" AND LESSER DIAMETER PIPES

PWS VERSION: JAN 2026

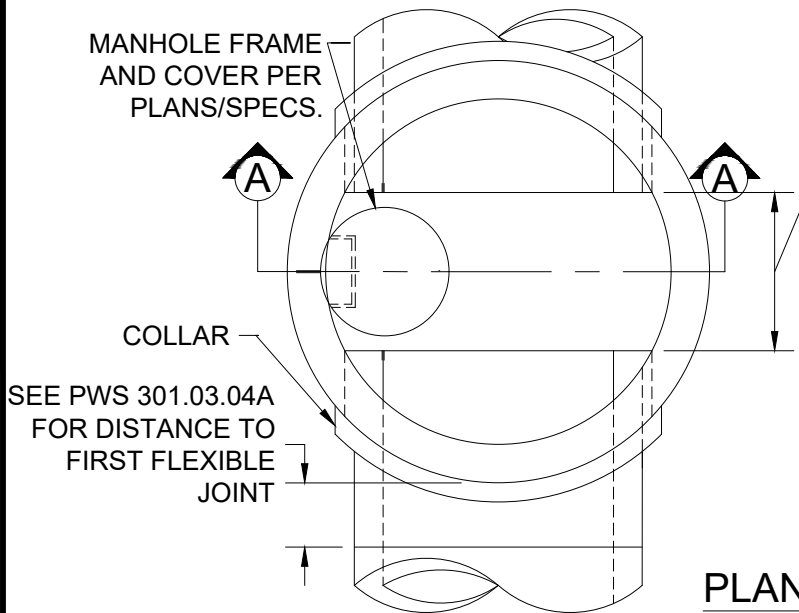
DRAWN AAD

REV. NOV 2025  
DATE

APPR.

DETAIL NO. 201

FILENAME: y:\inter-departmental\development engineering projects\public works standards\200\_pws revision copy\details\200\_general\general cad\202.dwg, Plotted 11/24/2025 8:36 AM, By: Anthony Dollowitch, ANSI FULL BLEED A (8.50 X 11.00 INCHES)

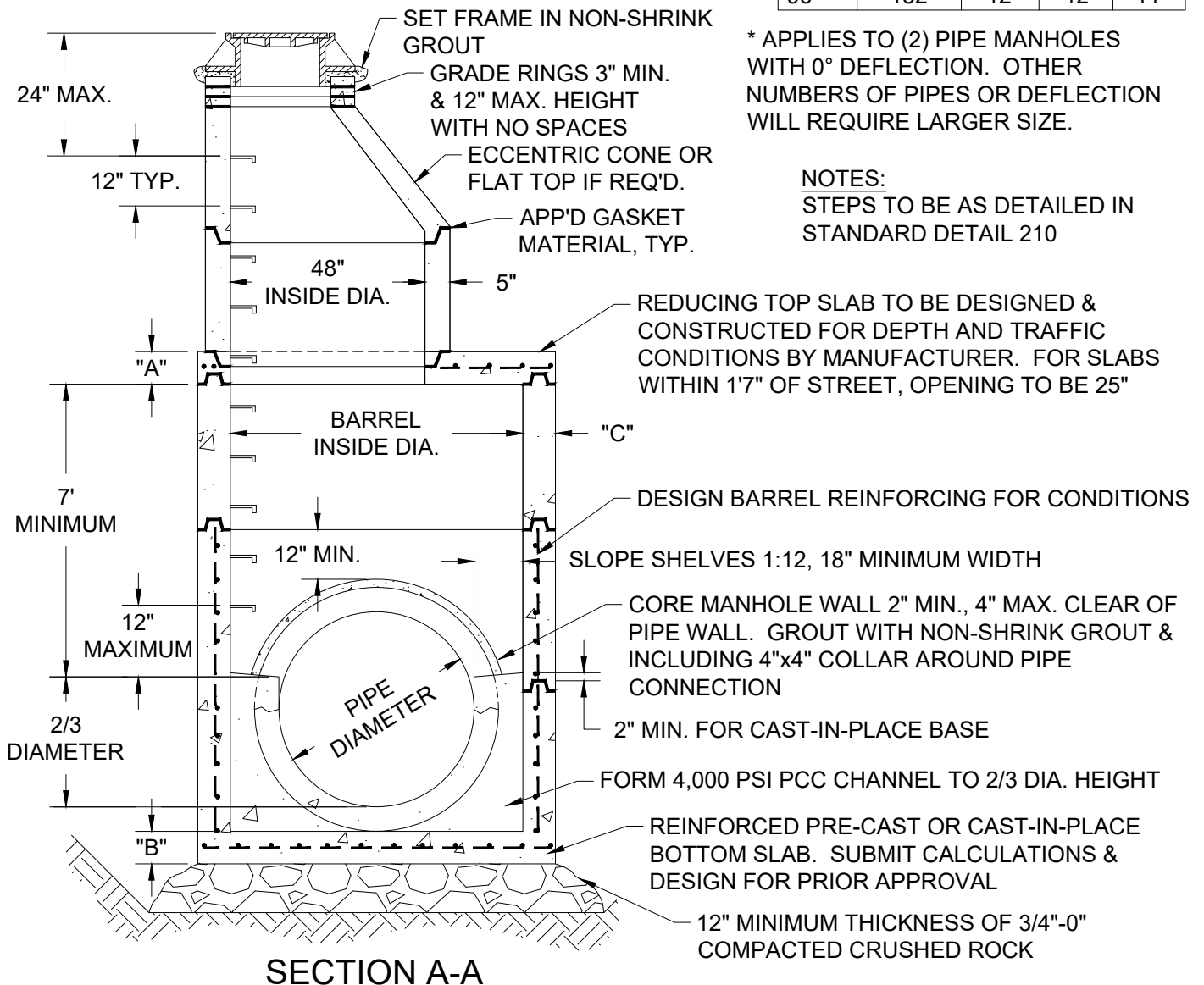


MINIMUM OF 12" PRECAST WALL BETWEEN PIPE CORING REQ'D.

PIPE DIA. IN.	BARREL DIA.* IN.	MINIMUMS		
		"A" DIM. IN.	"B" DIM. IN.	"C" DIM. IN.
30"	72"	7"	10"	7"
33"	72"	7"	10"	7"
36"	72"	7"	10"	7"
42"	84"	12"	12"	8"
48"	84"	12"	12"	8"
54"	96"	12"	12"	9"
60"	96"	12"	12"	9"
66"	108"	12"	12"	10"
72"	108"	12"	12"	10"
78"	120"	12"	12"	11"
84"	120"	12"	12"	11"
90"	132"	12"	12"	11"
96"	132"	12"	12"	11"

\* APPLIES TO (2) PIPE MANHOLES WITH 0° DEFLECTION. OTHER NUMBERS OF PIPES OR DEFLECTION WILL REQUIRE LARGER SIZE.

NOTES:  
STEPS TO BE AS DETAILED IN STANDARD DETAIL 210



CITY OF  
GRESHAM

## STANDARD MANHOLE FOR 30" AND LARGER DIAMETER PIPES

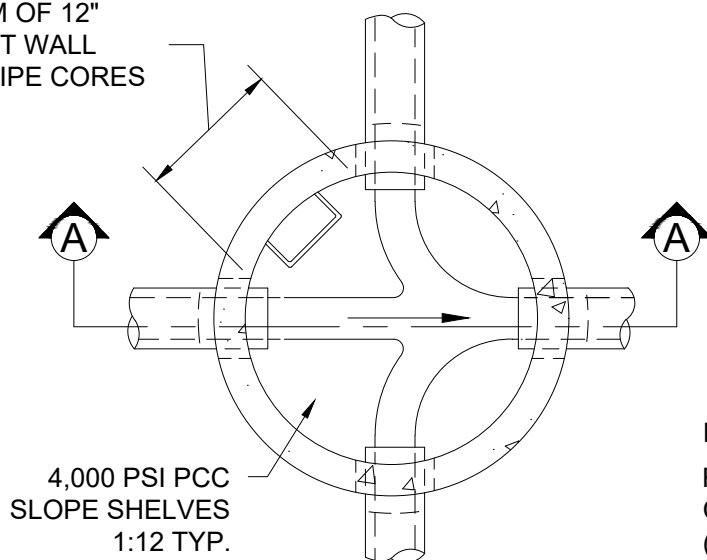
PWS VERSION: JAN 2026

DRAWN KCK

REV. DATE NOV 2025

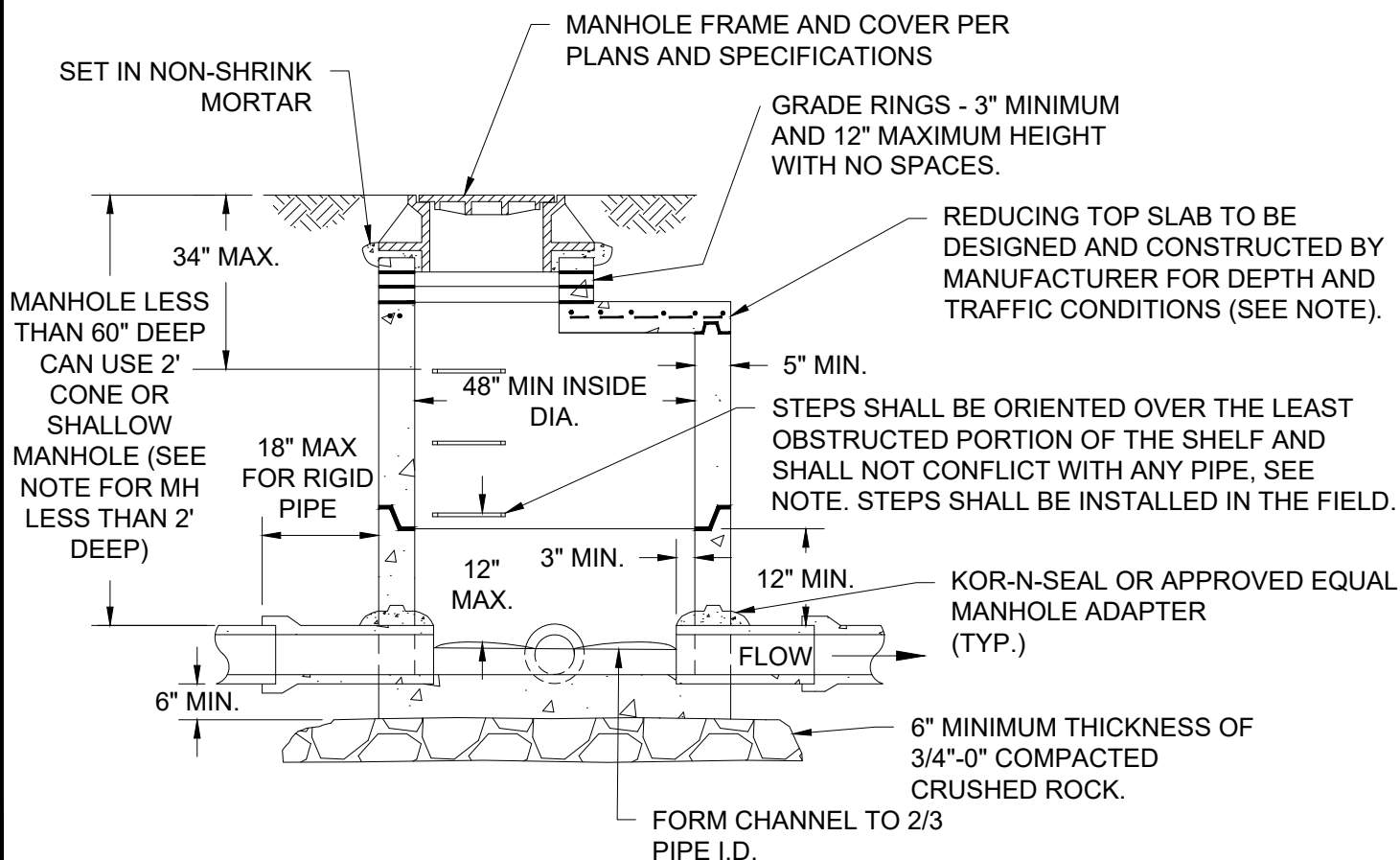
APPR. 

DETAIL NO. 202



FOR MANHOLES LESS THAN 2' DEEP A CONCENTRIC FLATTOP SHALL BE USED (NOT SHOWN), AND NO STEPS SHALL BE INSTALLED.

## PLAN



## SECTION A-A



## SHALLOW MANHOLE FOR 27" AND LESSER DIAMETER PIPES

PWS VERSION: JAN 2026

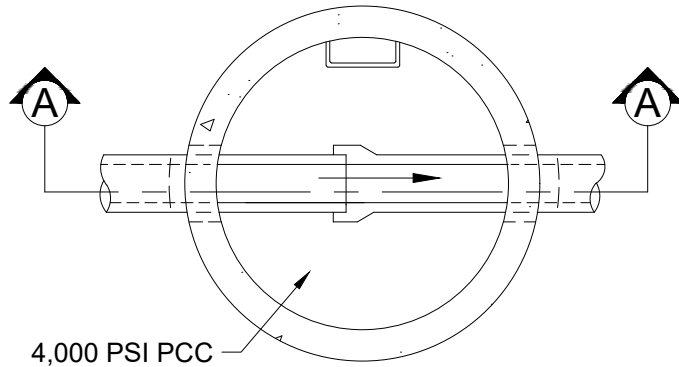
DRAWN AAD

REV. DATE NOV 2025

APPR

DETAIL NO. 203

FILENAME: y:\inter-departmental\development engineering projects\public works standards\200 pws revision copy\details\200\_general\general cad\204.dwg, Plotted 11/24/2025 8:36 AM, By: Anthony Dollowitch, ANSI FULL BLEED A (8.50 X 11.00 INCHES)

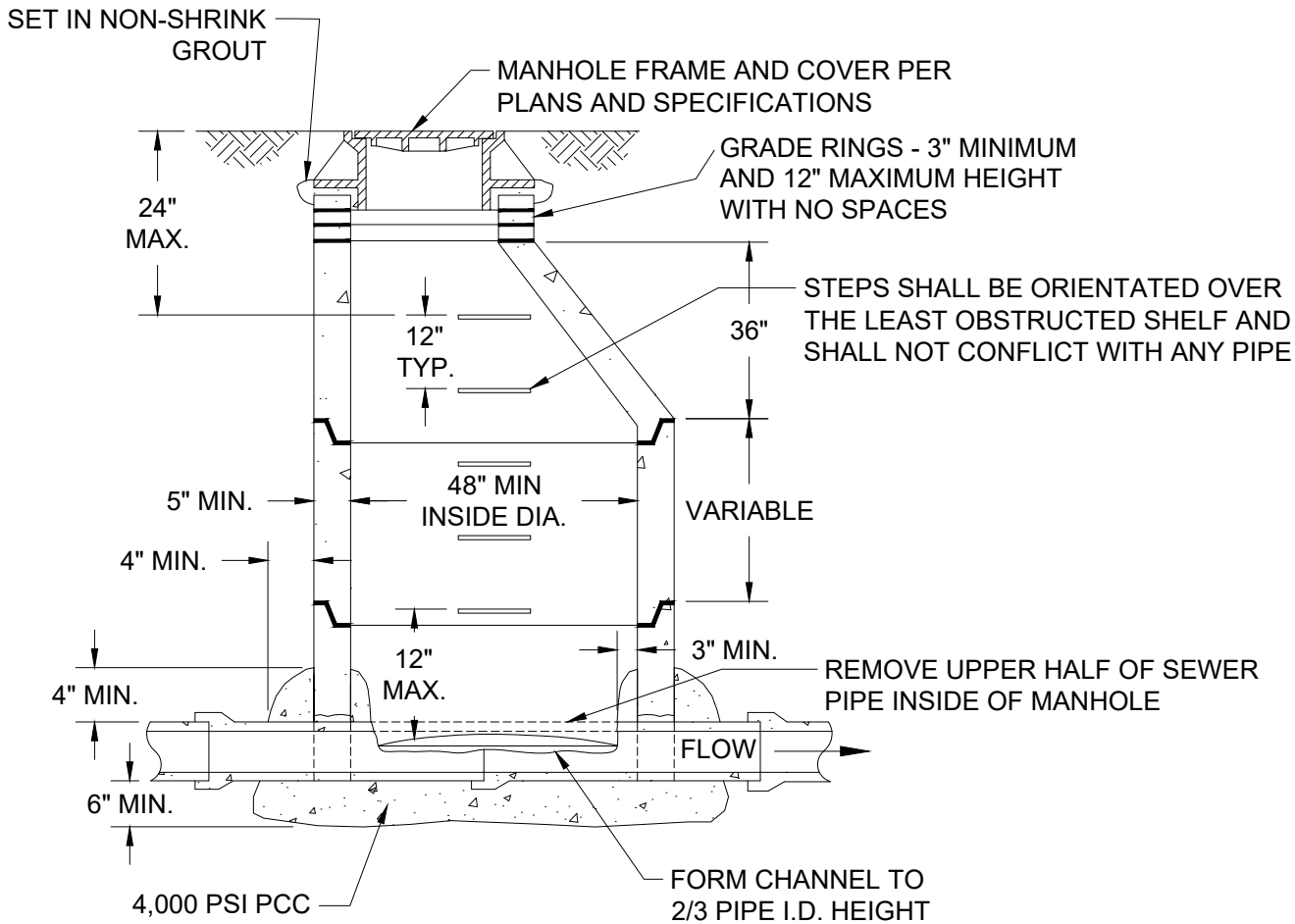


4,000 PSI PCC  
SLOPE SHELVES  
1:12 TYP.

**PLAN**

**NOTES:**

1. JOINTS SHALL BE WATER TIGHT AND COATED WITH WATERPROOF RUBBERIZED MASTIC MATERIAL BEFORE SETTING RISERS AND TOP. INSIDE JOINTS SHALL BE GROUTED.
2. MANHOLES SHALL HAVE A 12" MIN., 24" MAX. BOTTOM RISER. RISER TO BE BEDDED IN THE CAST-IN-PLACE CONCRETE AS THE BASE TAKES ITS INITIAL SET.
3. 3" TO 12" CLEARANCE BETWEEN BOTTOM RISER SECTION AND TOP OF PIPE. RISER SECTION MUST BE CAST TO ACCOMODATE PIPE (DOG HOUSE) NO SAWING OR BREAKING OF RISER WILL BE ALLOWED.
4. AFTER SHELF IS FORMED REMOVE TOP OF PIPE.



**SECTION A-A**

**CITY OF  
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**CAST-IN-PLACE MANHOLE**

PWS VERSION: JAN 2026

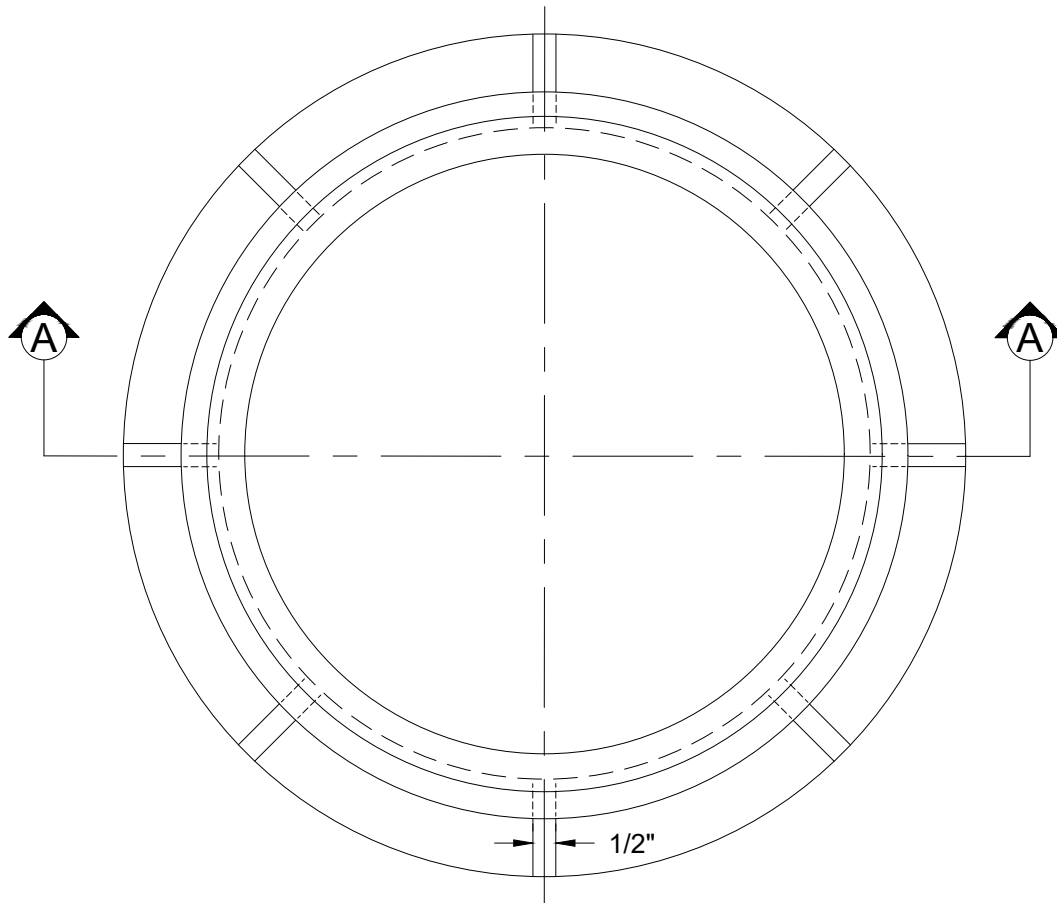
DRAWN KRB

REV. NOV 2025  
DATE

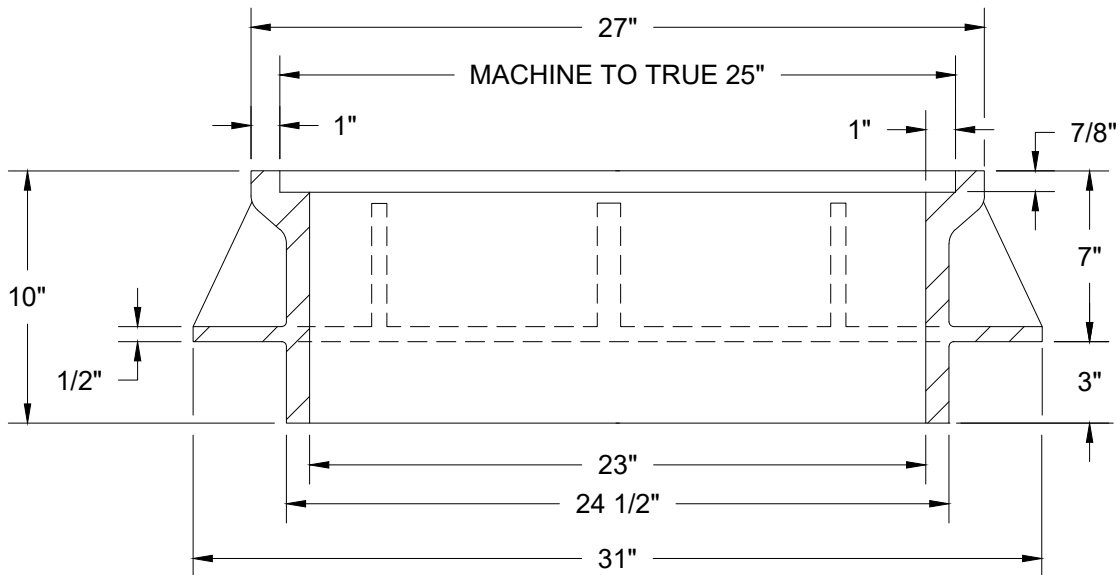
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DETAIL NO. 204

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**PLAN**



**SECTION A-A**

**NOTES:**

1. MATERIAL TO BE GRAY CAST IRON ASTM A48, CLASS 30, APPROXIMATE WEIGHT = 237 LBS.
2. TO BE USED IN ASPHALT GREATER THAN 4" IN DEPTH.

**CITY OF  
GRESHAM**

**STANDARD MANHOLE FRAME**

PWS VERSION: JAN 2026

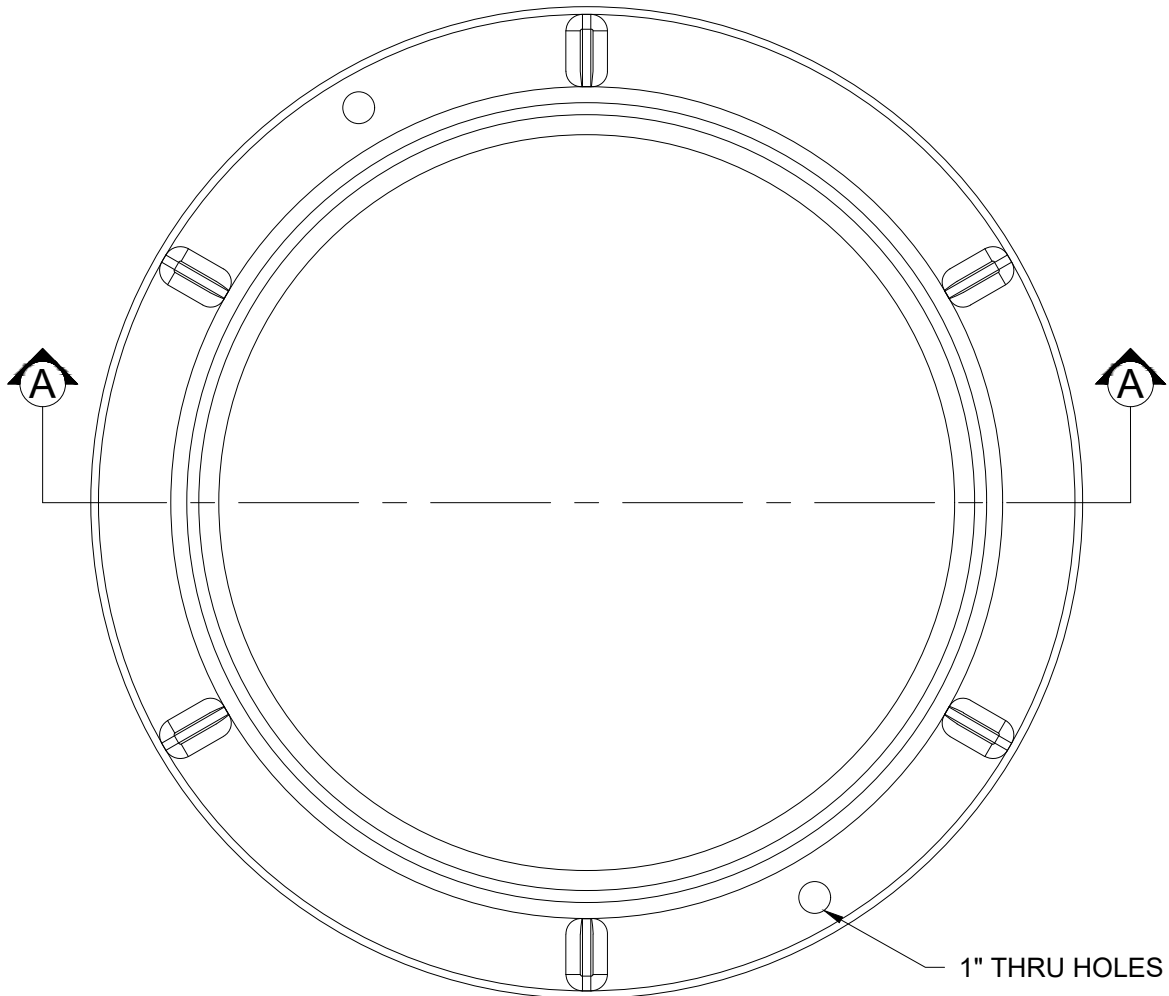
DRAWN **KCK**

REV. **JAN 2019**  
DATE

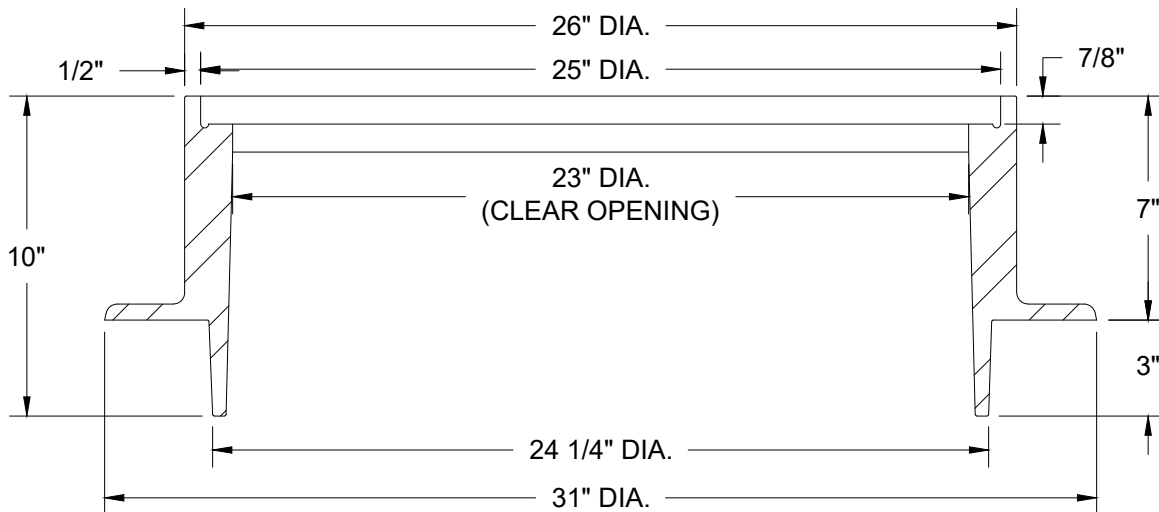
APPR. 

DETAIL NO. **205A**

FILENAME: y:\inter-departmental\development engineering projects\public works standards\200\_pws revision copy\details\200\_general\general cad\205b.dwg, Plotted 11/24/2025 8:36 AM, By: Anthony Dollowitch, ANSI FULL BLEED A (8.50 X 11.00 INCHES)



**PLAN**



**SECTION A-A**

**NOTES:**

1. MANHOLE FRAME MANUFACTURED BY EJ, PRODUCT NUMBER 2603Z2, OR APPROVED EQUAL.
2. MATERIAL TO BE GRAY CAST IRON ASTM A48, CLASS 30.
3. TO BE USED IN ASPHALT GREATER THAN 4" IN DEPTH.

**CITY OF  
GRESHAM**

**STANDARD MANHOLE STRAIGHT WALL FRAME**

PWS VERSION: JAN 2026

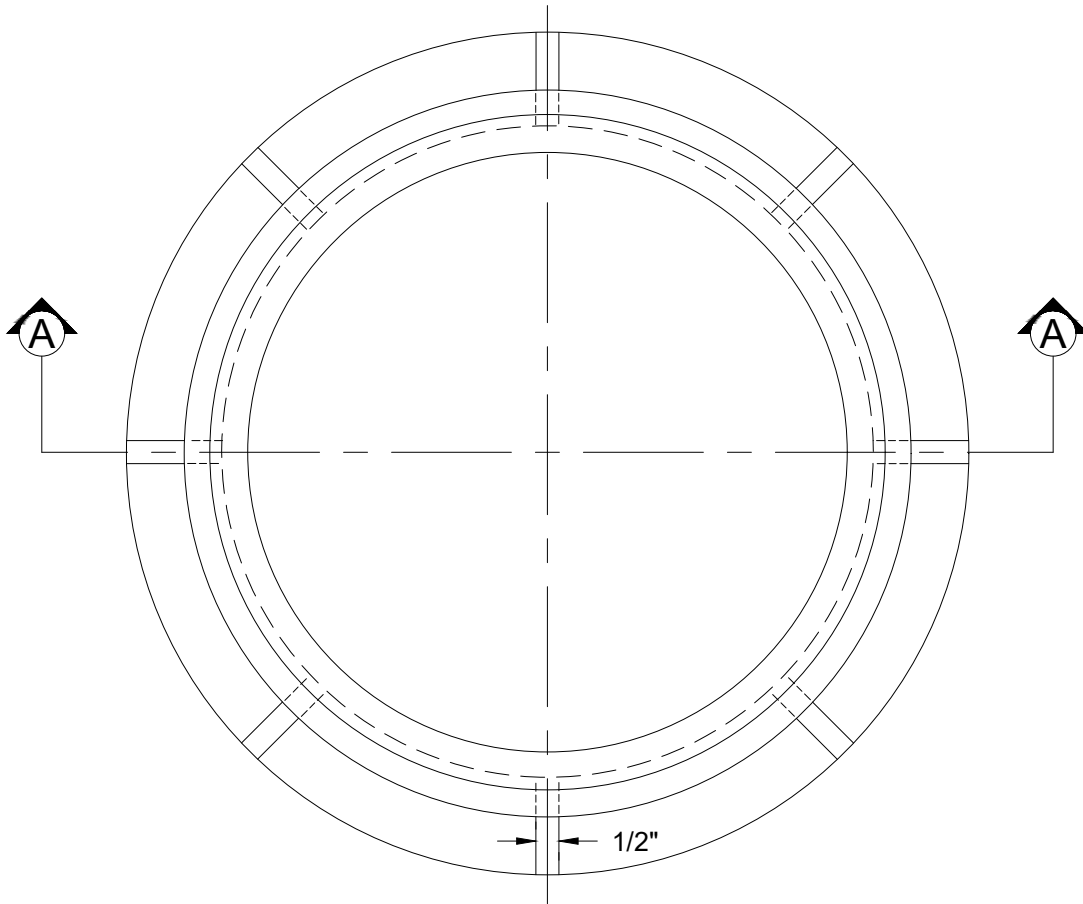
DRAWN **KRB**

REV. **NOV 2025**  
DATE

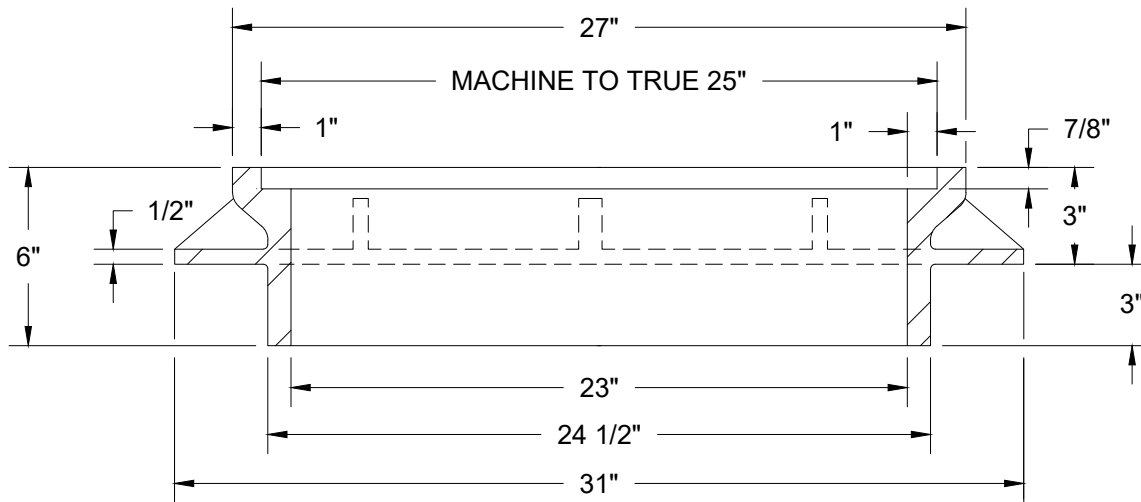
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DETAIL NO. **205B**

FILENAME: y:\inter-departmental\development engineering projects\public works standards\200\_pws revision copy\details\200\_general\general cad\206a.dwg, Plotted 11/24/2025 8:36 AM, By: Anthony Dollowitch, ANSI FULL BLEED A (8.50 X 11.00 INCHES)



PLAN SECTION



SECTION A-A

NOTES:

1. THIS MANHOLE FRAME MAY BE USED ONLY FOR LOCAL ROAD LOCATIONS.
2. MATERIAL TO BE GRAY CAST IRON ASTM A48, CLASS 30. APPROX. WEIGHT = 172 LBS.

CITY OF  
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SUBURBAN MANHOLE FRAME

PWS VERSION: JAN 2026

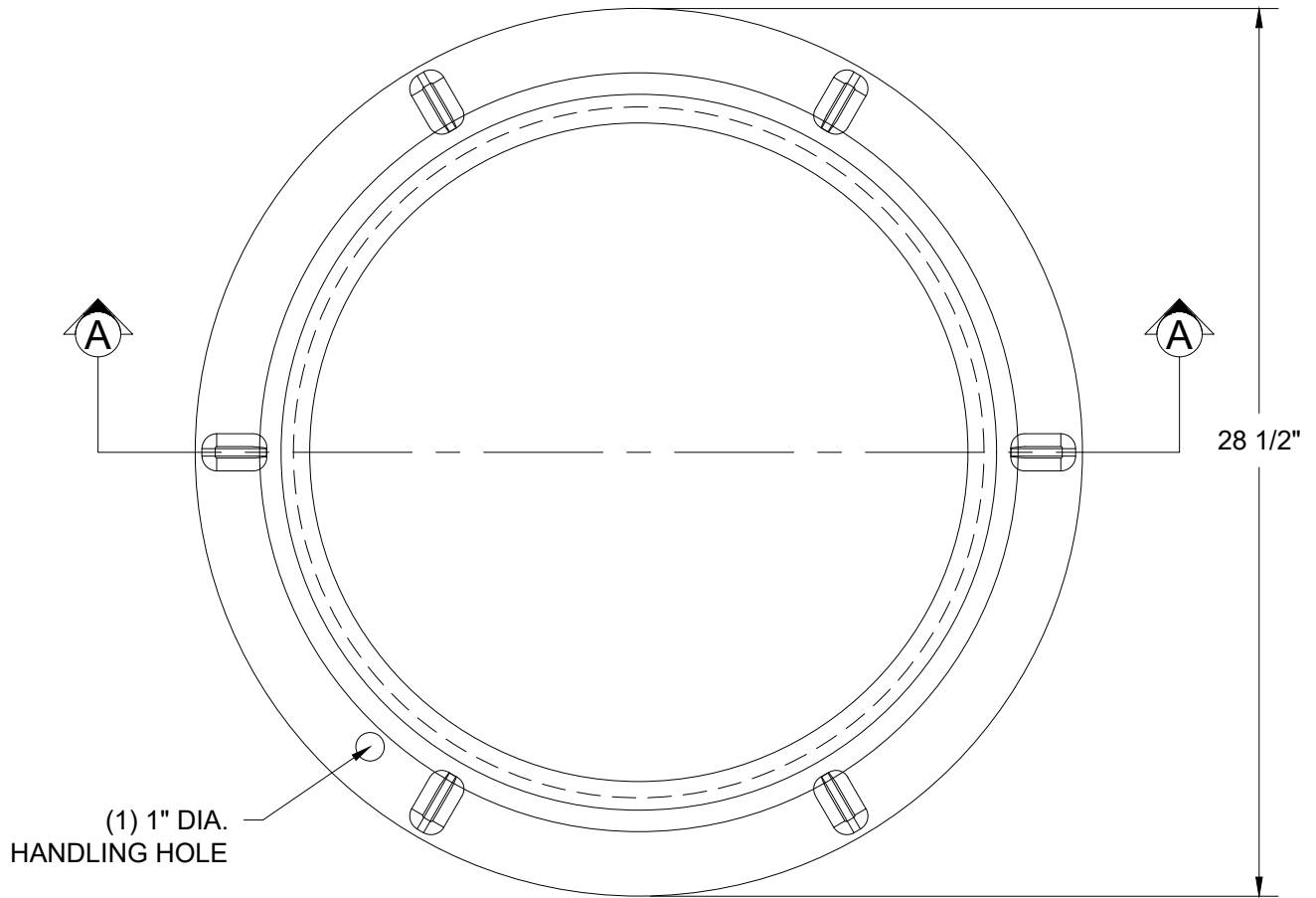
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REV. JAN 2019  
DATE

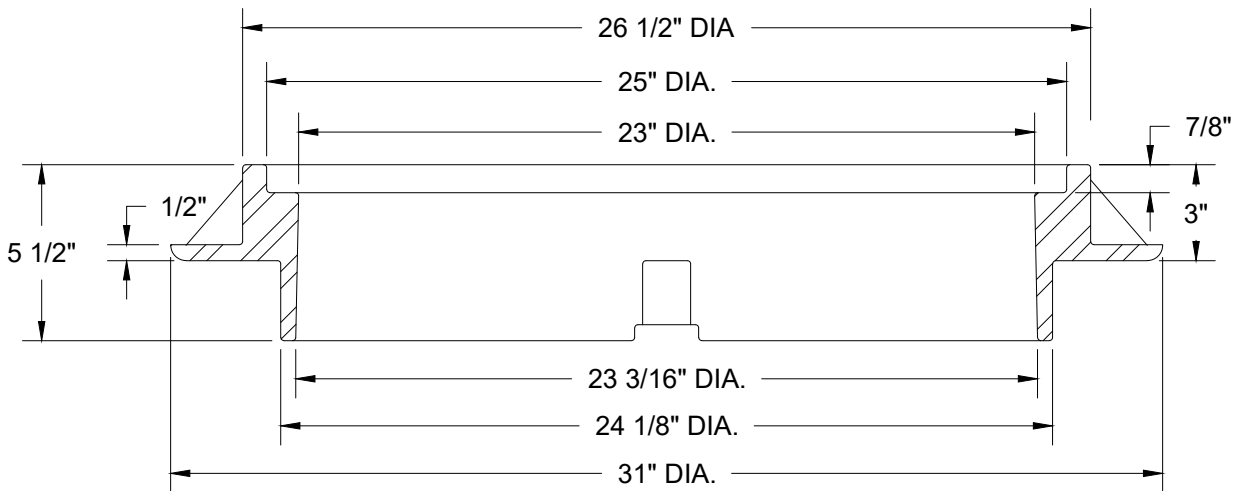
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DETAIL NO. 206A

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**PLAN SECTION**



**SECTION A-A**

**NOTES:**

1. THIS MANHOLE FRAME MAY BE USED ONLY FOR LOCAL ROAD LOCATIONS.
2. MANHOLE FRAME MANUFACTURED BY EJ, PRODUCT NUMBER 2601Z, OR APPROVED EQUAL.
3. MATERIAL TO BE GRAY CAST IRON ASTM A48, CLASS 30.

**CITY OF  
GRESHAM**

**SUBURBAN MANHOLE STRAIGHT WALL FRAME**

PWS VERSION: JAN 2026

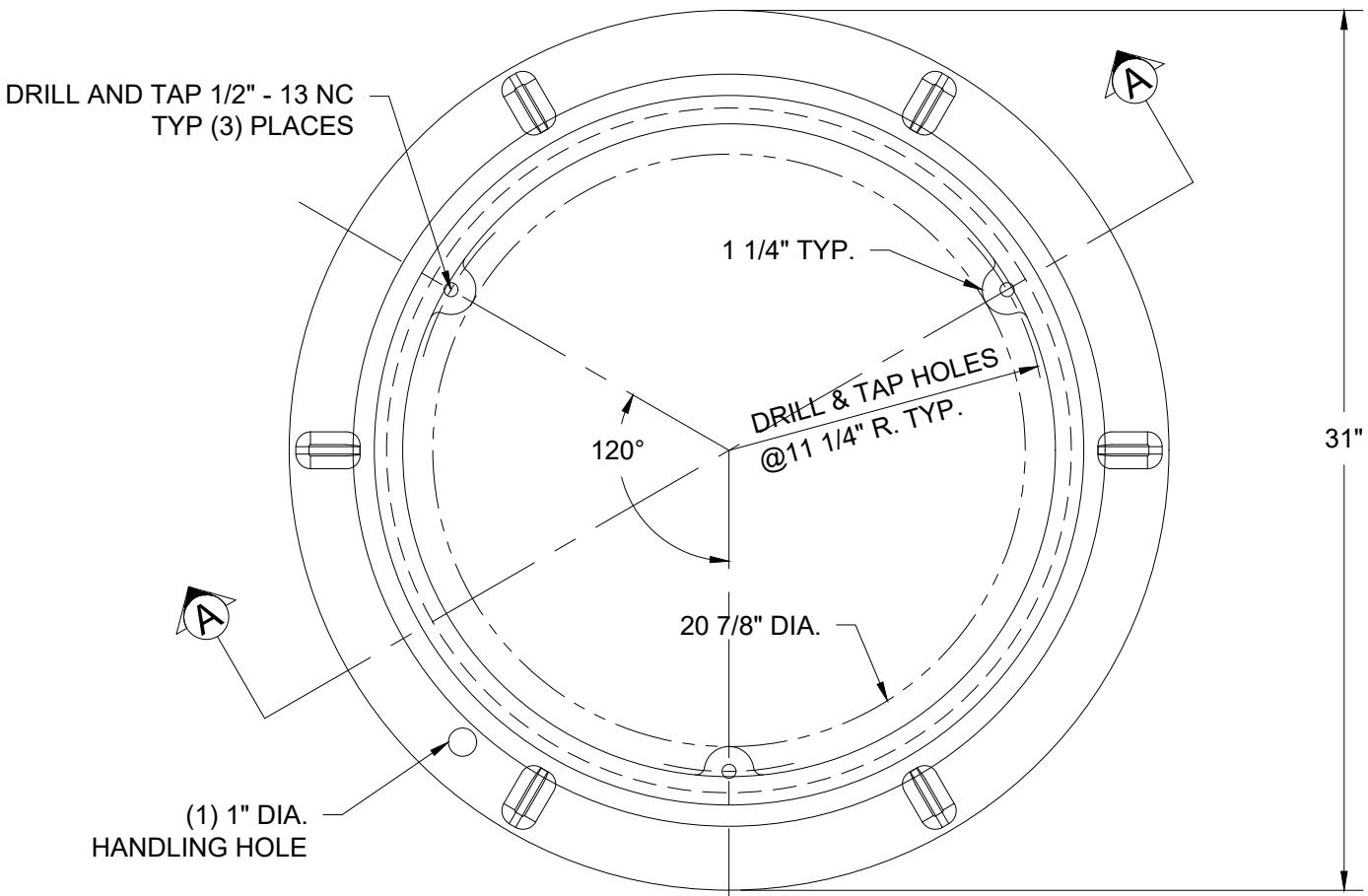
DRAWN **AAD**

REV. **NOV 2025**  
DATE

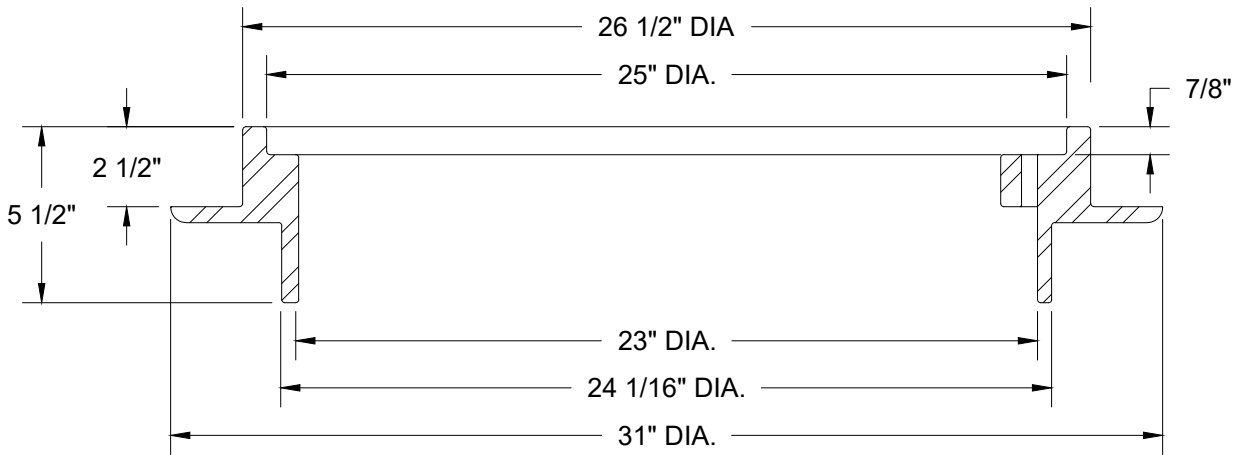
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DETAIL NO. **206B**

FILENAME: y:\inter-departmental\development engineering projects\public works standards\200 pws revision copy\details\200\_general\general cad\206c.dwg, Plotted 11/24/2025 8:37 AM, By: Anthony Dollowitch, ANSI FULL BLEED A (8.50 X 11.00 INCHES)



PLAN SECTION




SECTION A-A

- NOTES:
- 1. THIS MANHOLE FRAME MAY BE USED ONLY FOR LOCAL ROAD LOCATIONS.
  - 2. MANHOLE FRAME MANUFACTURED BY EJ, PRODUCT NUMBER 2601ZPT, OR APPROVED EQUAL.
  - 3. MATERIAL TO BE GRAY CAST IRON ASTM A48, CLASS 30. APPROXIMATE WEIGHT = 172 LBS
  - 4. ONE BOLT DOWN TAB MUST BE ORIENTED DIRECTLY OVER CENTER OF MANHOLE STEPS

CITY OF  
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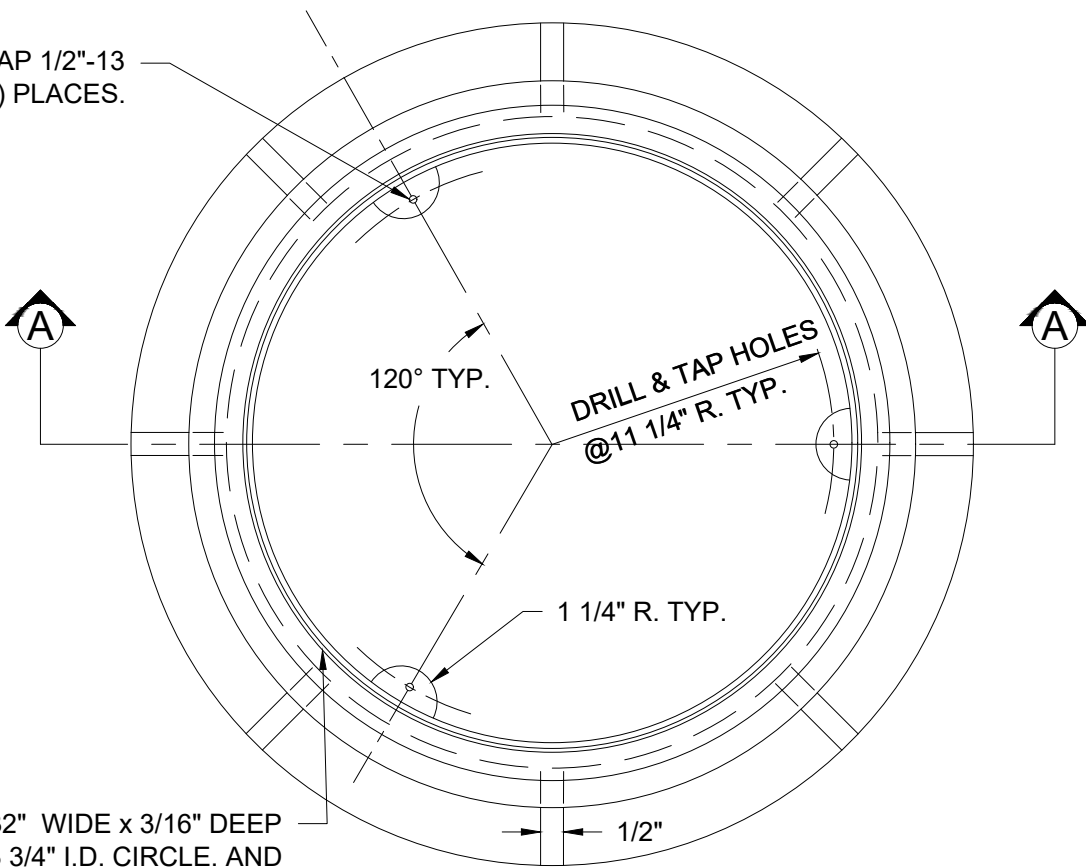
SUBURBAN TAMPERPROOF AND WATERTIGHT  
MANHOLE STRAIGHT WALL FRAME

PWS VERSION: JAN 2026

DRAWN	AAD
REV. DATE	NOV 2025
APPR.	
DETAIL NO.	206C

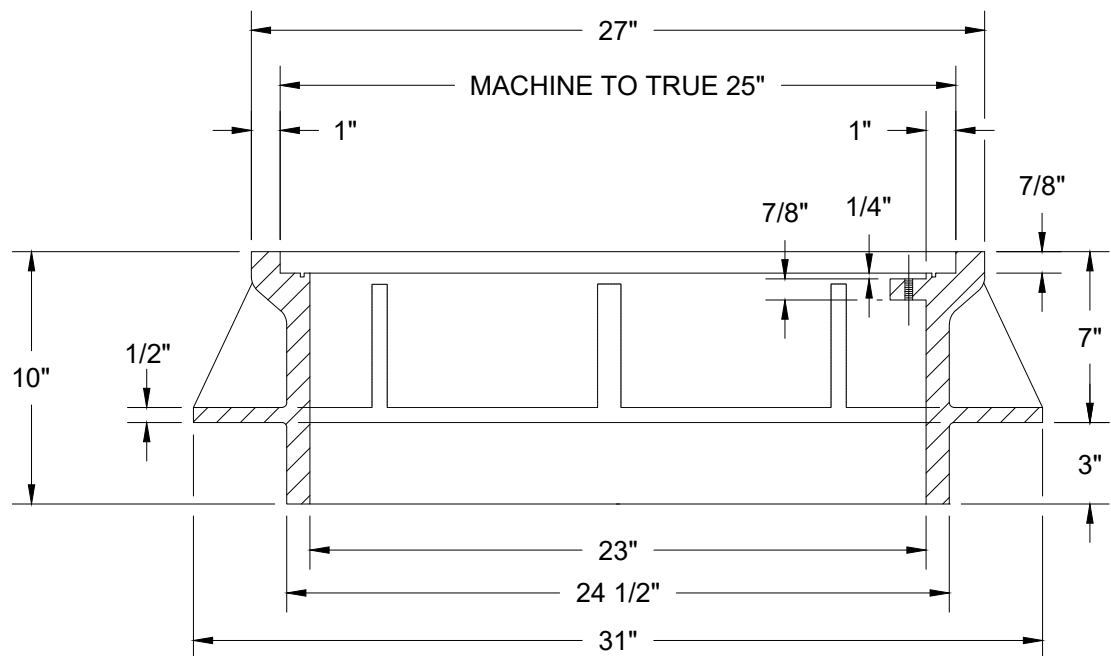
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DRILL AND TAP 1/2"-13  
NC, TYPICAL (3) PLACES.



MACHINE 9/32" WIDE x 3/16" DEEP  
GROOVE ON 23 3/4" I.D. CIRCLE. AND  
INSTALL 23 3/4" I.D., 1/4" WIDE X 1/4"  
DEEP NEOPRENE GASKET.

PLAN



SECTION A-A

- NOTE:
1. MATERIAL TO BE GRAY CAST IRON ASTM A48, CLASS 30. APPROXIMATE WEIGHT = 237 (INDUSTRIAL)
  2. TO BE USED IN ASPHALT GREATER THAN 4" IN DEPTH .
  3. ONE BOLT DOWN TAB MUST BE ORIENTED DIRECTLY OVER CENTER OF MANHOLE STEPS

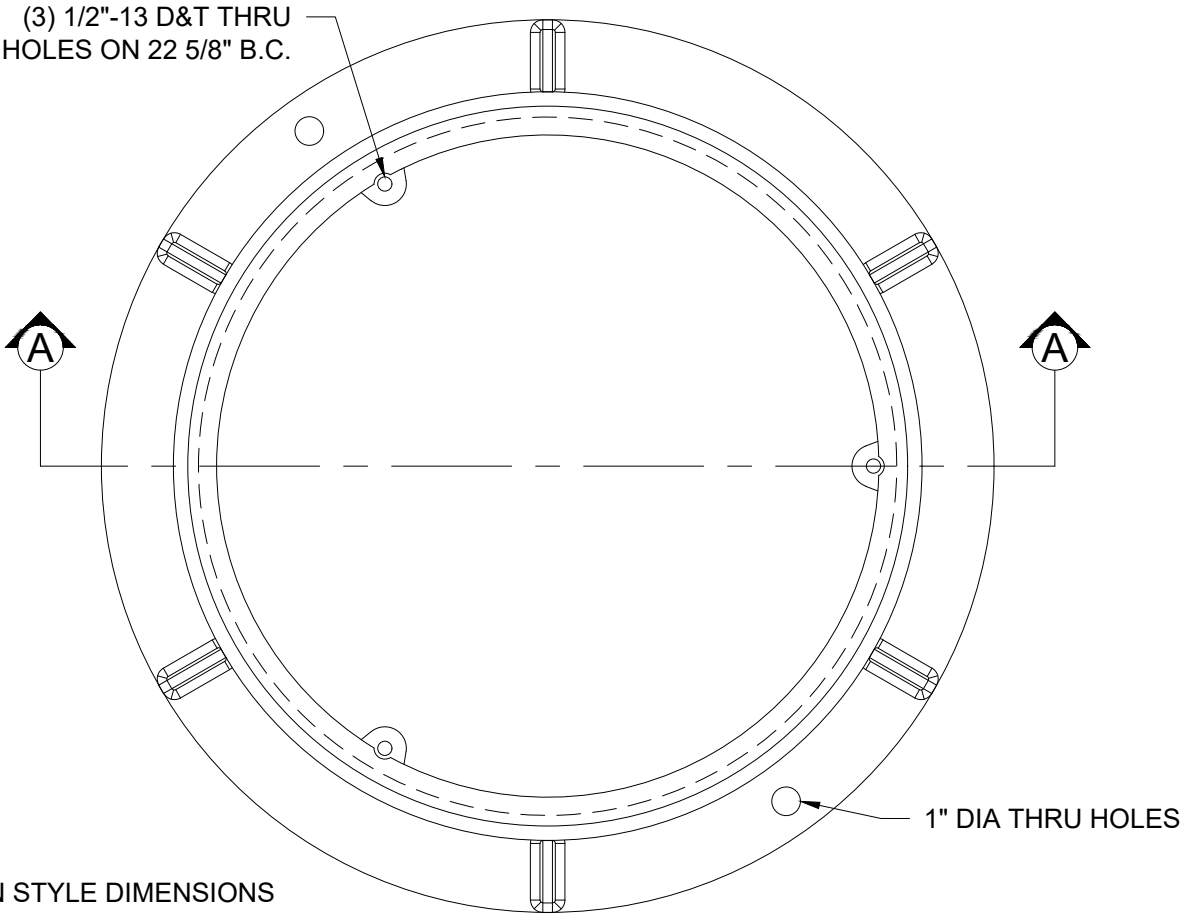
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TAMPERPROOF AND WATERTIGHT  
MANHOLE FRAME

PWS VERSION: JAN 2026

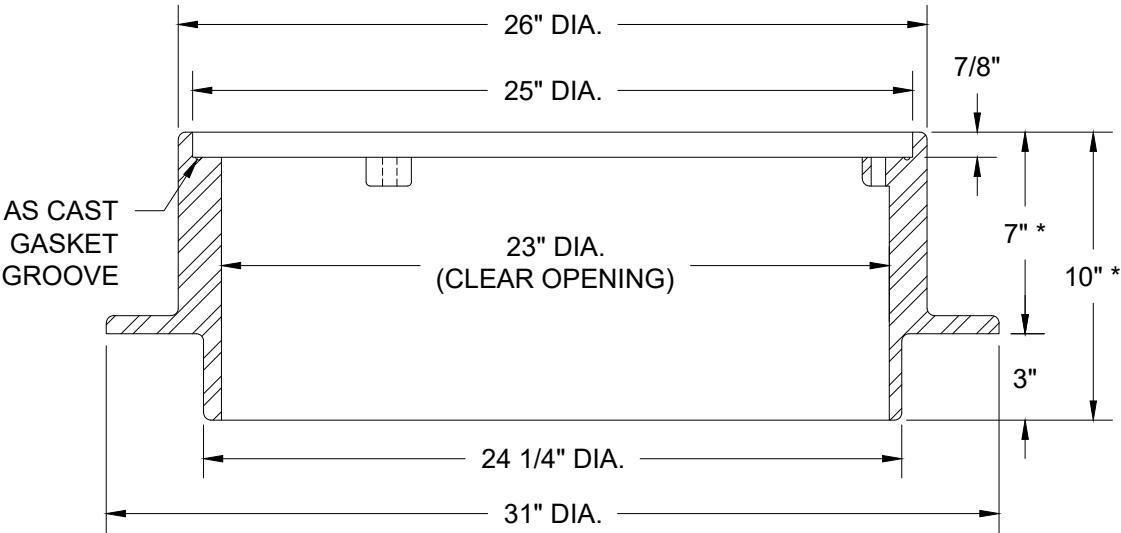
DRAWN	AAD
REV. DATE	NOV 2025
APPR.	
DETAIL NO.	207A

FILENAME: y:\inter-departmental\development engineering projects\public works standards\200 pws revision copy\details\200\_general\general cad\207b.dwg, Plotted 11/24/2025 8:37 AM, By: Anthony Dollowitch, ANSI FULL BLEED A (8.50 X 11.00 INCHES)



\* SUBURBAN STYLE DIMENSIONS MAY BE USED FOR LOCAL ROAD INSTALLATION. SEE DETAIL 206C.

PLAN



SECTION A-A

- NOTE:
1. MATERIAL TO BE GRAY CAST IRON ASTM A48, CLASS 30.
  2. MANHOLE FRAME MANUFACTURE BY EJ, PRODUCT NUMBER 2603Z2PT, OR APPROVED EQUAL.

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STANDARD TAMPERPROOF AND WATERTIGHT  
MANHOLE STRAIGHT WALL FRAME

PWS VERSION: JAN 2026

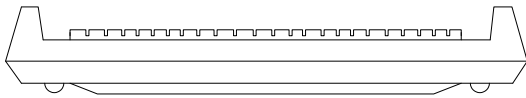
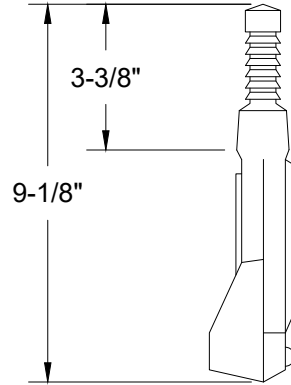
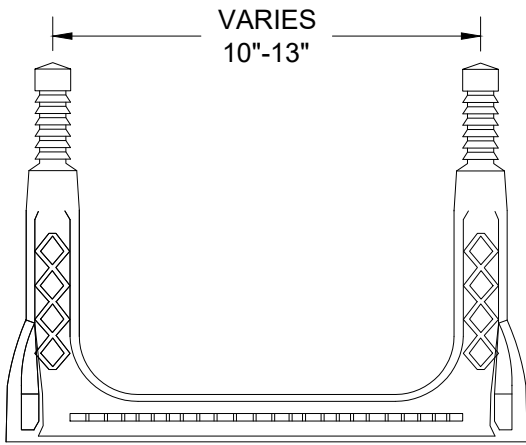
DRAWN KRB

REV. DATE JAN 2024

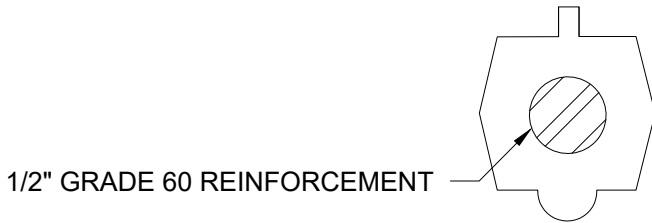
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DETAIL NO. 207B

FILENAME: y:\inter-departmental\development engineering projects\public works standards\200\_pws revision copy\details\200\_general\general cad\210.dwg, Plotted 11/24/2025 8:37 AM, By: Anthony Dollowitch, ANSI FULL BLEED A (8.50 X 11.00 INCHES)



COPOLYMER POLYPROPYLENE PLASTIC

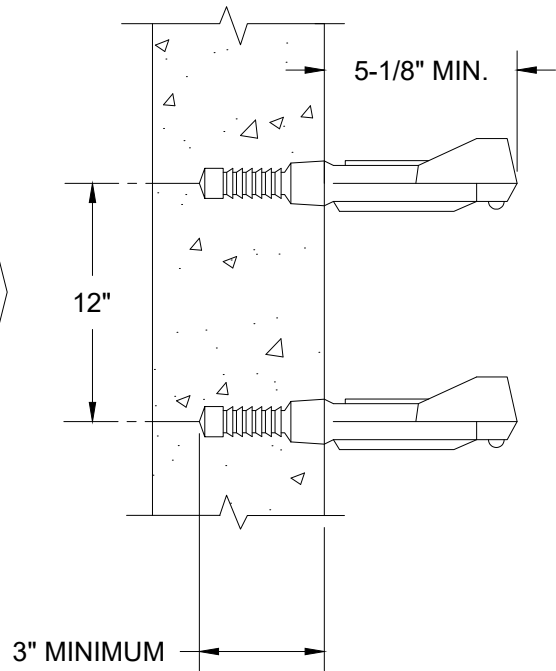


**NOTE:**

MANHOLE STEPS MUST BE TIGHT AND FIRMLY EMBEDDED. THEY MUST ALSO MEET THE ASTM TEST FOR WITHSTANDING PULLING OUT.

**MATERIALS:**

PLASTIC: MUST CONFORM WITH ASTM C478.  
STEEL REINFORCING BAR MINIMUM 1/2" GRADE 60 MEETING REQUIREMENTS OF ASTM A615  
ENCAPSULATED WITH INJECTION MOLDED COPOLYMER POLYPROPYLENE WITH SERRATED SURFACES.



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MANHOLE STEP

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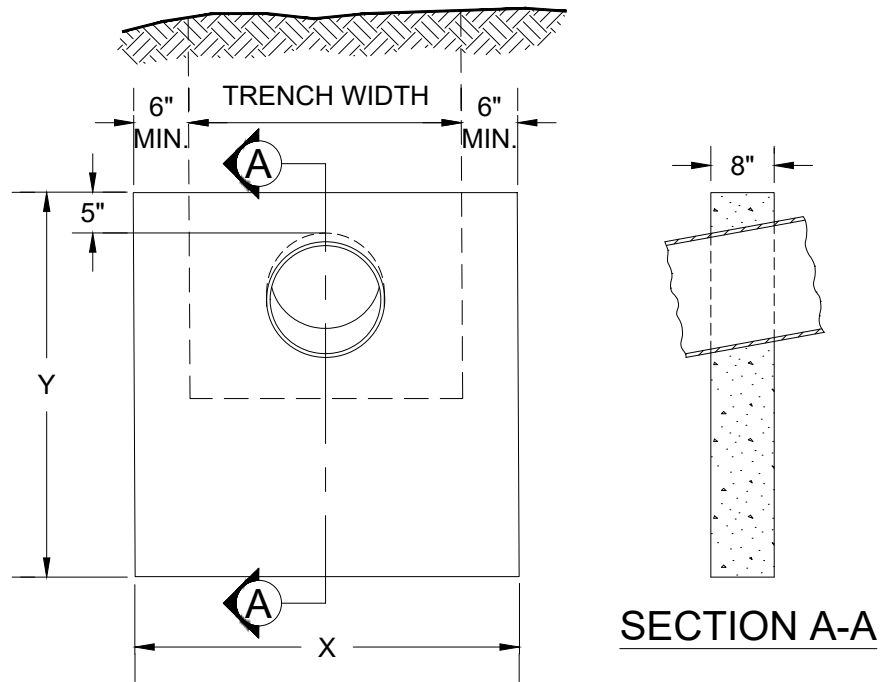
REV. JAN 2020  
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DETAIL NO. 210



FILENAME: y:\inter-departmental\development engineering projects\public works standards\200 pws revision copy\details\200\_general\general cad\212.dwg, Plotted 11/24/2025 8:37 AM, By: Anthony Dollowitch, ANSI FULL BLEED A (8.50 X 11.00 INCHES)



DIMENSION TABLE			
PIPE DIA.	X, MIN. (ft)	Y (ft)	MIN VOL (CY)
6" TO 10"	4	3	0.29
12" TO 15"	4	4	0.37
18" TO 24"	5	4	0.42
> 24"	TO BE DETERMINED BY ENGINEER OF RECORD		

NOTES:

1. ALL CONCRETE SHALL BE 4,000 PSI 28 DAY COMPRESSIVE STRENGTH, WITH 2" TO 4" SLUMP.
2. ANCHOR WALLS MUST BE USED WITH PIPES WITH SLOPES OVER 20%. ANCHOR WALLS TO BE EQUALLY SPACED. PROPORTION SPACING WITH SLOPE.

PIPE SLOPE	WALL SPACING
20%	21'
100%	12'
> 100%	NOT ALLOWED

3. PLACE WALL IMMEDIATELY BELOW BELL OF PIPE WHERE POSSIBLE.

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PIPE ANCHOR WALL

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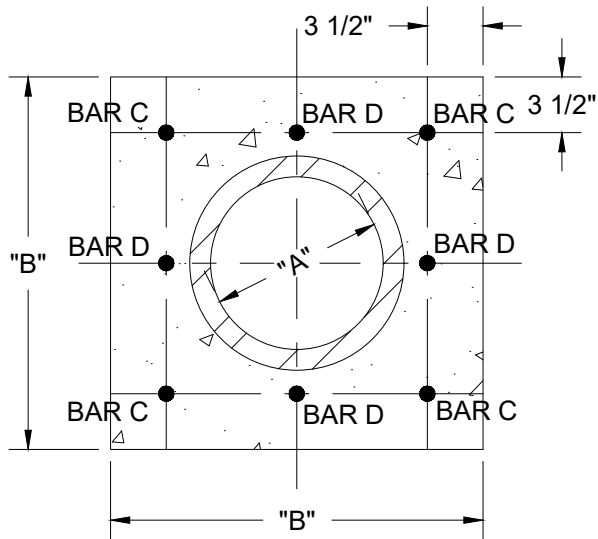
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REV. JAN 2024  
DATE

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DETAIL NO. 212

FILENAME: y:\inter-departmental\development engineering projects\public works standards\200 pws revision copy\details\200\_general\general cad\213.dwg, Plotted 11/24/2025 8:37 AM, By: Anthony Dollowitch, ANSI FULL BLEED A (8.50 X 11.00 INCHES)



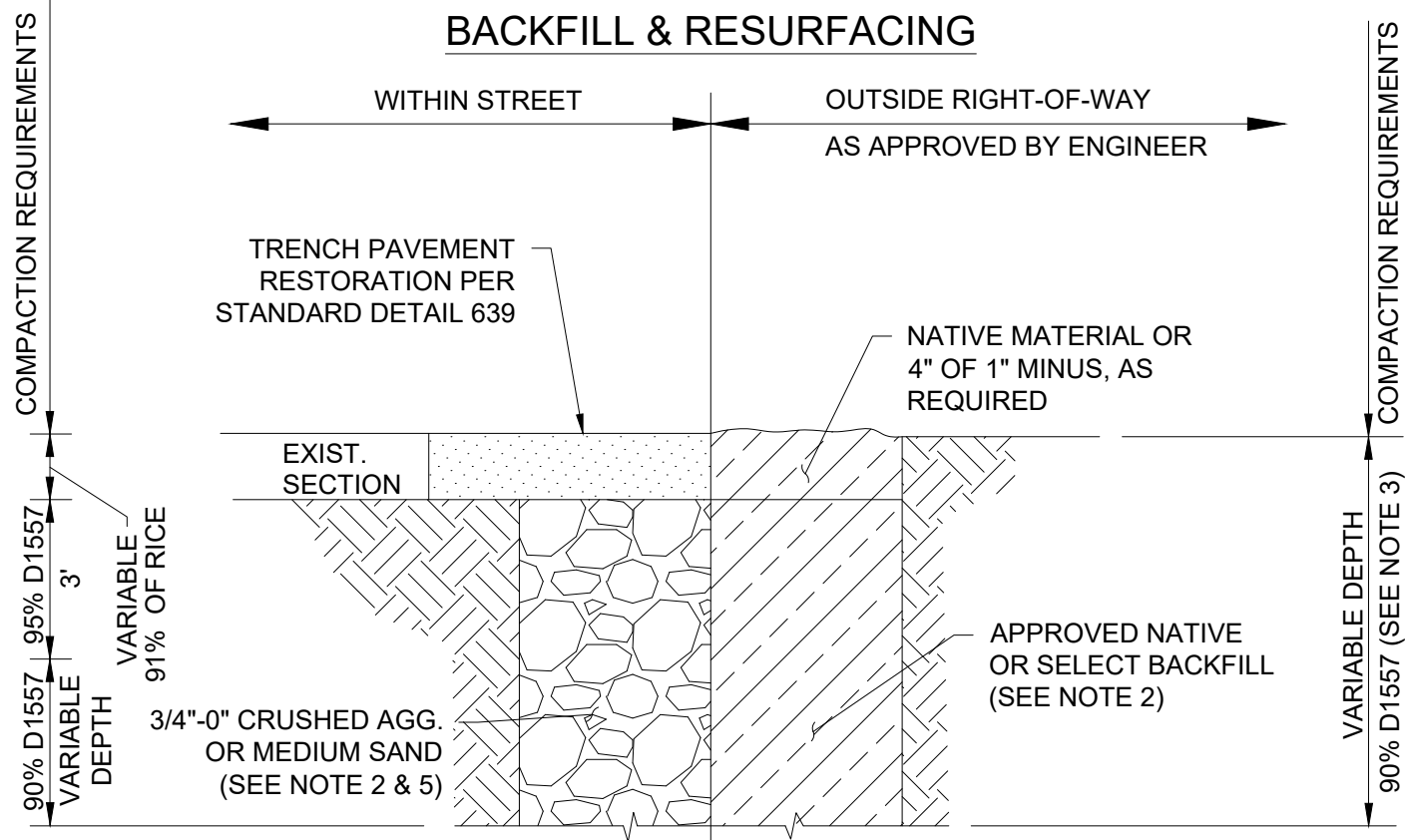
DIMENSIONS (IN.)		BARS REQ'D
"A"	"B"	
6	16	C
8	19	C
10	21	C
12	23	C
15	26 1/2	C
18	30 1/2	C
21	39	C & D
24	43	C & D
27	50	C & D

VERTICAL SECTION

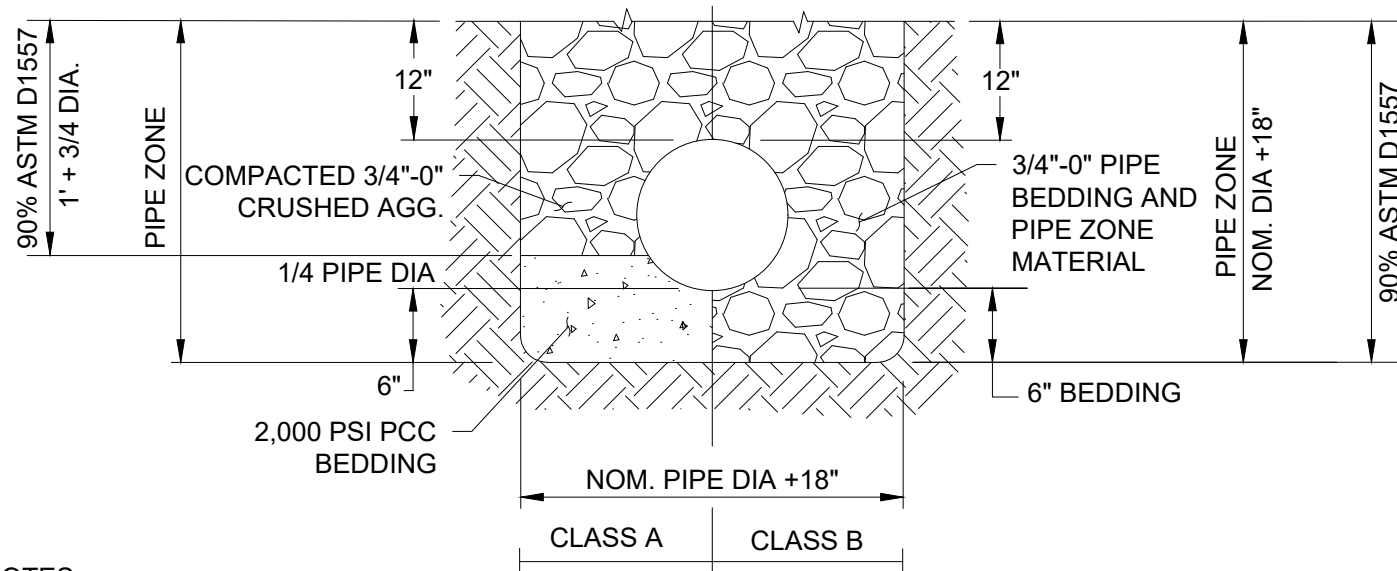
NOTES:

- 1. ALL CONCRETE SHALL BE 4,000 PSI, 3" TO 5" SLUMP.
- 2. STEEL REINFORCING SHALL BE NO. 5 IN CONFORMANCE WITH ASTM A615, GRADE 60, WITH DEFORMATIONS PER ASTM A305.

## BACKFILL & RESURFACING



## BEDDING & PIPE ZONE



NOTES:

1. WHERE REQUIRED BY THE ENGINEER OF RECORD OR THE CITY, GRANULAR TRENCH STABILIZATION SHALL BE PLACED PRIOR TO THE PIPE ZONE MATERIAL. SIZE AND DEPTH TO BE BASED ON SOIL CONDITIONS.
2. USE CLSM WHERE SPECIFIED AND WHERE REQUIRED BY THE ENGINEER.
3. IN AREAS WHERE NATIVE BACKFILL IS BROUGHT TO THE SURFACE AND IS TO BE SEEDED, DO NOT COMPACT THE TOP 2".
4. WHERE WATERLINES ARE WRAPPED WITH POLYETHYLENE ENCASMENT OR EQUIVALENT, SAND SHALL BE USED WITHIN THE ENTIRE PIPE ZONE AREA.
5. MEDIUM SAND NOT FOR USE IN AREAS OF HIGH GROUNDWATER

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## TRENCH AND BACKFILL

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REV. DATE	OCT 2025
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APPR

DETAIL NO. 214