

NOTES:

1. PRECAST CONCRETE MANHOLES SHALL CONFORM TO ASTM C478 EXCEPT AS MODIFIED BY THE SPECIFICATIONS.
2. BASES NOT BUILT MONOLITHIC WITH BOTTOM SECTION SHALL BE POURED OF 3000 PSI CONCRETE.
3. MANHOLE MAY BE TRANSITIONED TO 4' DIA., 8' ABOVE F.L. OF OUTFALL FOR 5' & 6' MANHOLES.
4. THE BOTTOM SECTION OF ALL PRECAST MANHOLES NOT BUILT MONOLITHIC WITH THE BASE SHALL BE SET INTO A STEEL REINFORCED POURED CONCRETE BASE A MIN OF 4". (#4 @ 6" E.W.)
5. WATERPROOFING WILL BE REQUIRED ON THE EXTERIOR SURFACE OF MANHOLE STRUCTURES FROM BASE TO MANHOLE RINGS. PRECAST MANHOLES WILL BE SHOP COATED. THE WATERPROOF COATING SHALL BE KOPPERS COMPANY, INC. BITUMASTIC NO. 50 OR TNE MEC COMPANY, INC. ASPHALT BASE FOUNDATION COAT AND SHALL CONSIST OF TWO COATS WET THICKNESS OF 22-26 MILS WITH A COMBINED DRY THICKNESS OF 31 MILS.
6. THE COMPRESSIVE STRENGTH OF CONCRETE USED IN THE CONSTRUCTION OR PRECAST REINFORCED CONCRETE MANHOLES SHALL NOT BE LESS THAN 4000 PSI.
7. ONLY ECCENTRIC MANHOLE CONES WILL BE ALLOWED UNLESS OTHERWISE APPROVED BY THE CITY ENGINEER.
8. ADDITIONAL BASE THICKNESS FOR MANHOLES GREATER THAN 20' DEEP SHALL BE APPROVED BY CITY ENGINEER WITH SUBMITTAL OR APPROPRIATE CALCULATIONS.
9. ALL MANHOLE JOINTS SHALL BE SEALED WITH AN EXTERNAL RUBBER SLEEVE, INFI-SHIELD GATOR WRAP AS MANUFACTURED BY SEALING SYSTEMS, INC., OR APPROVED EQUAL.

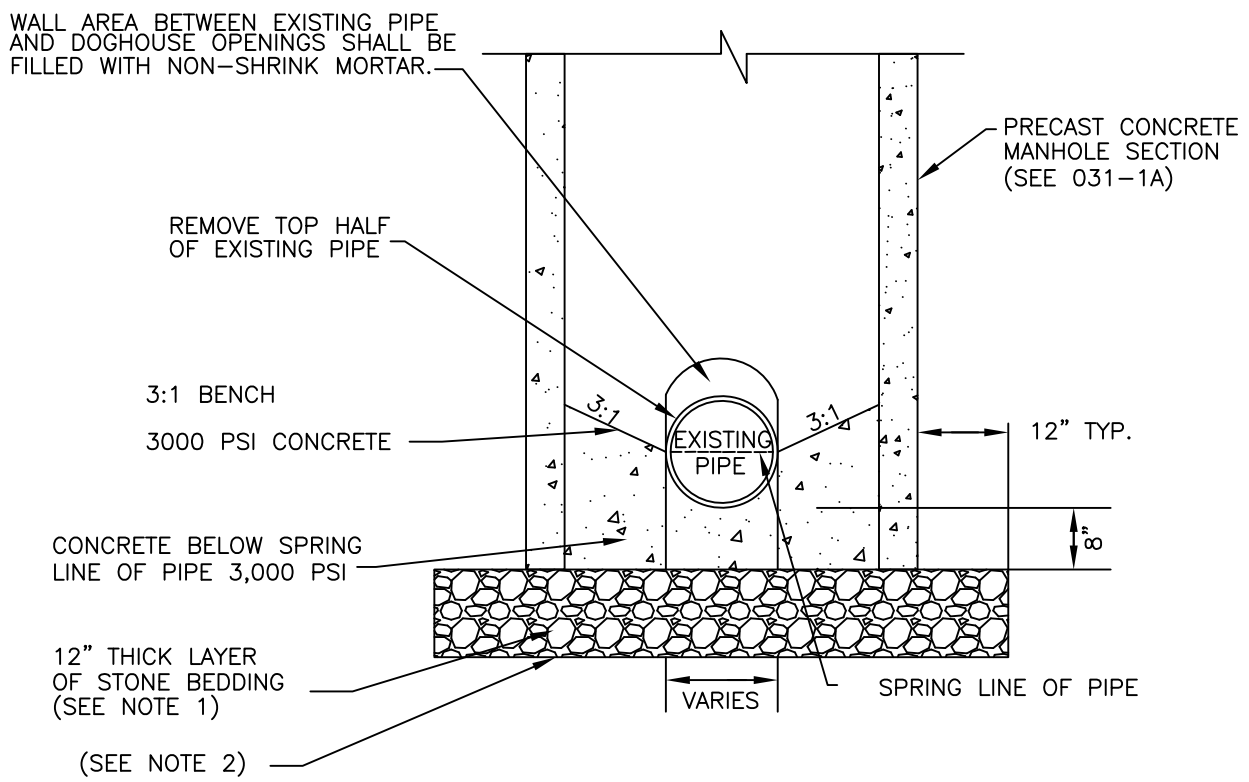
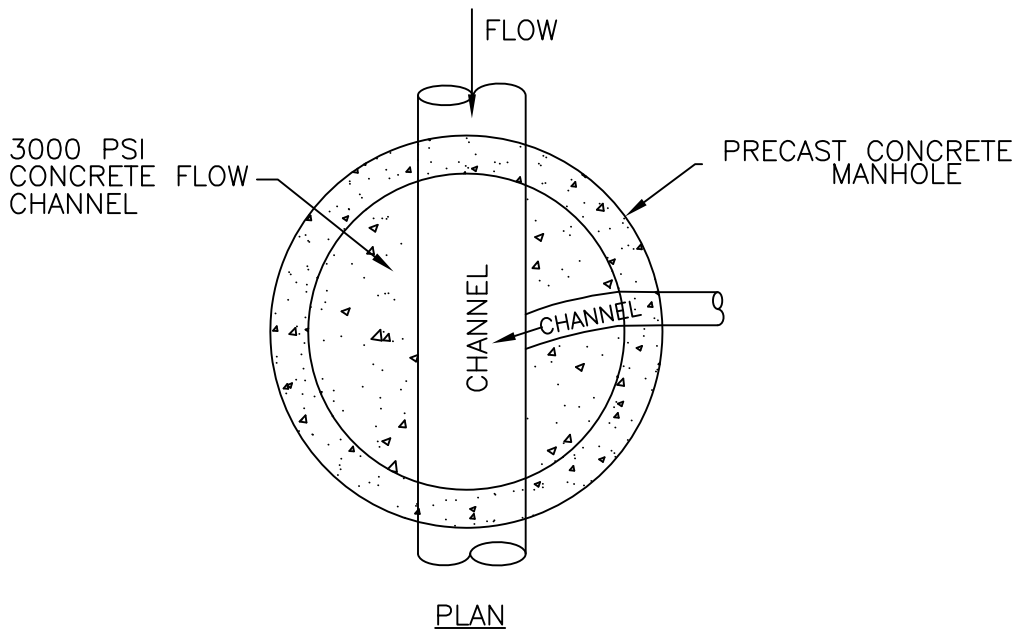
REV 2016



CITY OF LIBERTY, MO
DEPARTMENT OF
PUBLIC WORKS

STANDARD
PRECAST MANHOLE
DETAIL

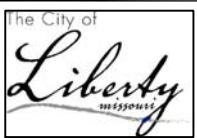
D31-1A



TYPICAL CROSS SECTION

1. STONE BEDDING SHALL CONFORM TO SECTIONS 3012 AND 3016.
2. IF MANHOLE EXCAVATION BOTTOM IS IN UNSUITABLE MATERIAL, SUITABLE FILL MATERIAL AND MIRAFI 140N OR APPROVED EQUAL FILTER FABRIC WILL BE REQUIRED PRIOR TO PLACEMENT OF BEDDING.

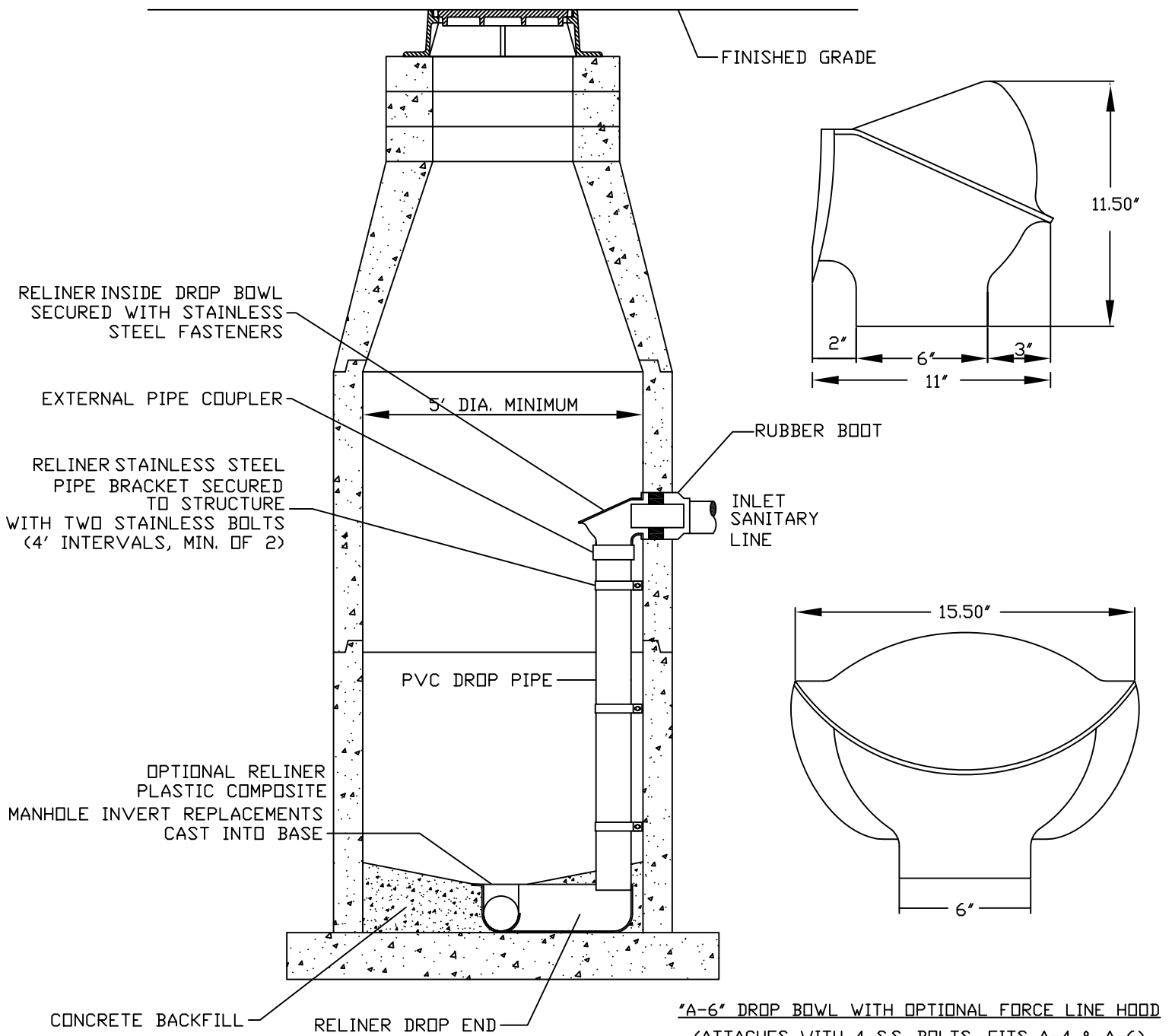
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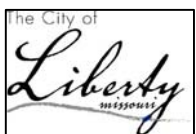
SANITARY SEWER
DOGHOUSE MANHOLE
DETAIL

D31-1B



1. FOR ALL DIMENSIONS NOT SHOWN, SEE STANDARD MANHOLE DETAIL.
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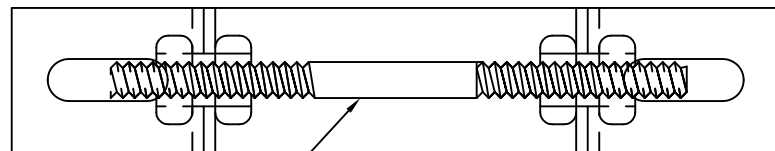
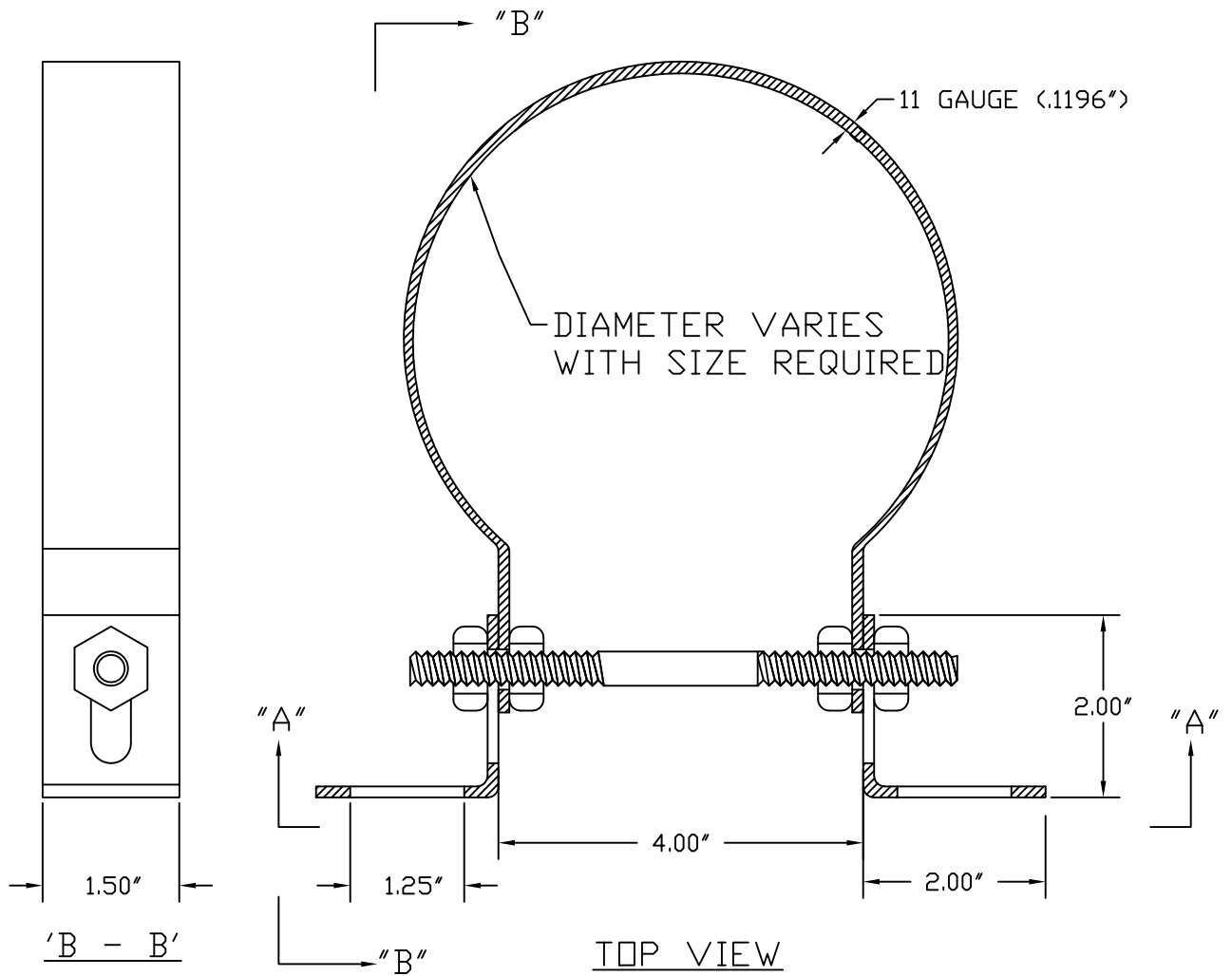
REV 2009



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INSIDE
DROP
MANHOLE
DETAILS

D31-2A



3/8" DIAMETER STAINLESS
STEEL PINCH BOLT

SPECIFICATIONS:

- 1) CLAMP AND BRACKETS IS TYPE 304 STAINLESS STEEL, 11 GAUGE (.1196").
 - 2) 3/8" Ø PINCH BOLT AND NUTS IS TYPE 18-8 STAINLESS STEEL.
 - 3) WIDE RANGE OF SIZES FOR SDR35, SCH40, C100-C900 STOCKED FOR 4" - 30"
- OTHER SIZES AVAILABLE.

'A - A'

REV 2009

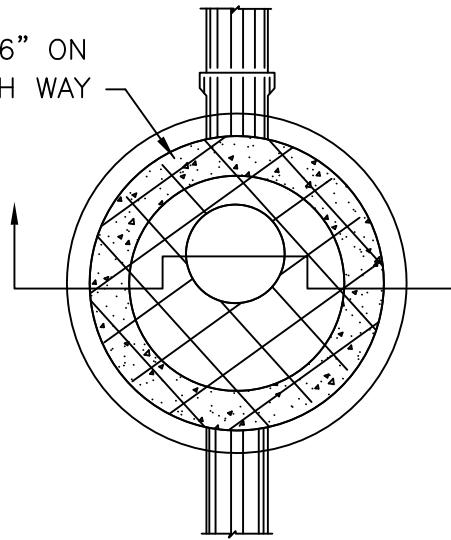


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STAINLESS STEEL
ADJUSTABLE
CLAMPING
BRACKETS

D31-2B

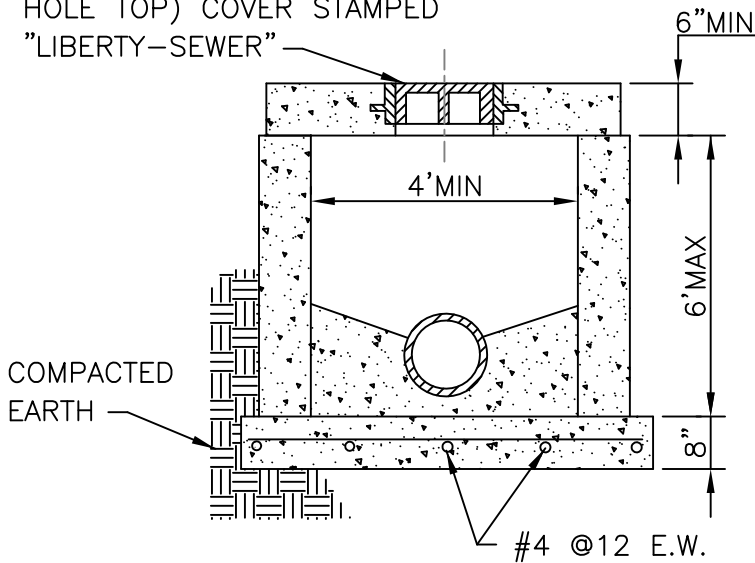
#5 BARS AT 6" ON CENTERS EACH WAY



USE OF A STANDARD LID AND RING WILL BE ALLOWED WHERE GRADE PERMITS (SEE SPEC. FOR APPROVED TYPES)

PLAN

CLAY & BAILEY NO.2020 DEETER NO.2016 OR APPROVED EQUAL. RING AND LID (CAST IN MAN-HOLE TOP) COVER STAMPED "LIBERTY-SEWER"

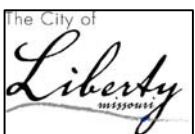


SECTION

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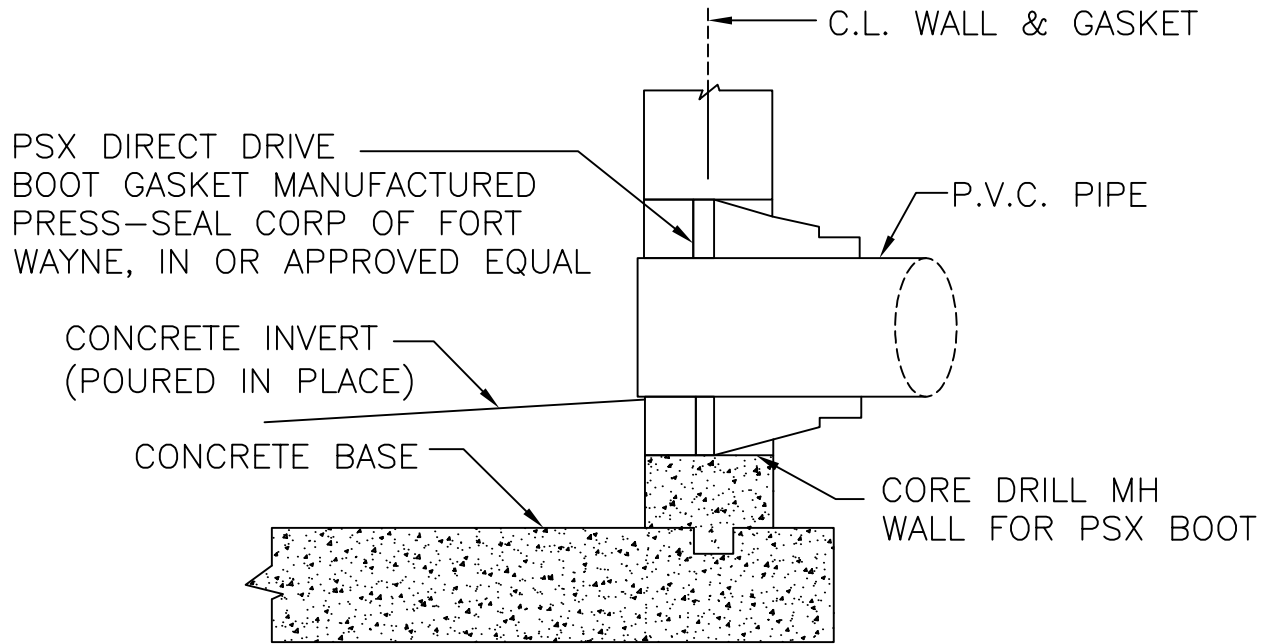
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PUBLIC WORKS

STANDARD SHALLOW
MANHOLE DETAIL

D31-3



NOTES:

1. ALL PIPE CONNECTIONS TO EXISTING MANHOLES SHALL BE CORE-DRILLED.

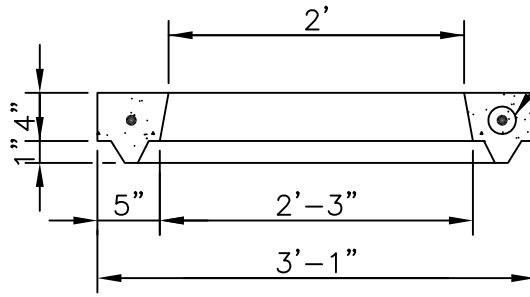
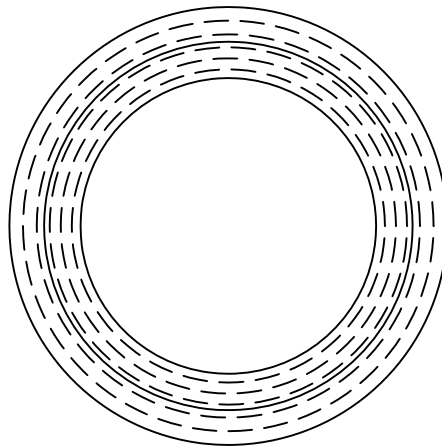
REV 2017



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PUBLIC WORKS

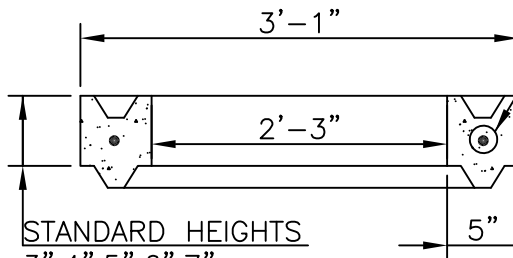
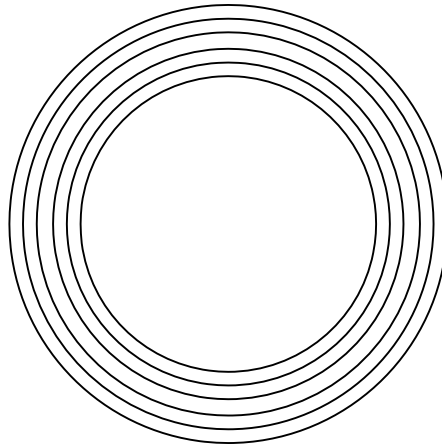
MANHOLE
CONNECTIONS
W/PVC SEWER PIPE

D31-4



#4 WIRE
CENTERED

**REDUCER
GRADE RING**
WEIGHT: 165 LB.



#4 WIRE
CENTERED

GRADE RING
WEIGHT: 41 LB./V IN.

STANDARD HEIGHTS
3", 4", 5", 6", 7",
8", 10", 12"

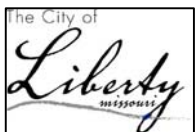
NOTES:

GRADE RINGS SHALL MEET REQUIREMENTS OF
ASTM DESIGNATION C-478-80 STANDARD
SPECIFICATION FOR PRECAST REINFORCED
CONCRETE MANHOLE SECTIONS.

CONCRETE: 4000 P.S.I.

REINFORCEMENT: #4 WIRE, ASTMA-82

REV 2009



CITY OF LIBERTY, MO
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PUBLIC WORKS

GRADE RINGS

D31-5