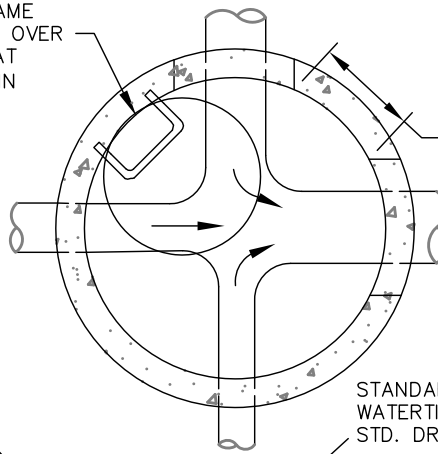


LOCATE FRAME AND COVER OVER LEDGE OF AT LEAST 12" IN WIDTH



8" MIN. BETWEEN KNOCKOUTS

STANDARD FRAME AND COVER OR WATERTIGHT FRAME AND COVER. SEE STD. DRAWING NO. 110, 120, OR 130

MAXIMUM 27" FROM TOP OF FIRST STEP TO TOP OF CASTING

SET FRAME IN NON-SHRINK GROUT

GRADE RINGS (2", 4", OR 6") MAXIMUM 12" SET IN NON-SHRINK GROUT

STANDARD ECCENTRIC 36" CONE

MANHOLE SECTION (VARIABLE 1'-4')

48" MINIMUM

MANHOLE STEPS SEE STD DRAWING NO. 100

5" MINIMUM

SEE DETAIL "A"

CONSTRUCT CHANNEL AND MIN 12" SHELF IN FIELD

PIPE I.D.

NON-SHRINKING GROUT

12" MINIMUM OF 3/4"-0" COMPACTED BASE MATERIAL

SMOOTH FINISH CHANNEL TO 3/4 VERTICAL HEIGHT OF PIPE

60" MINIMUM

NOTES:

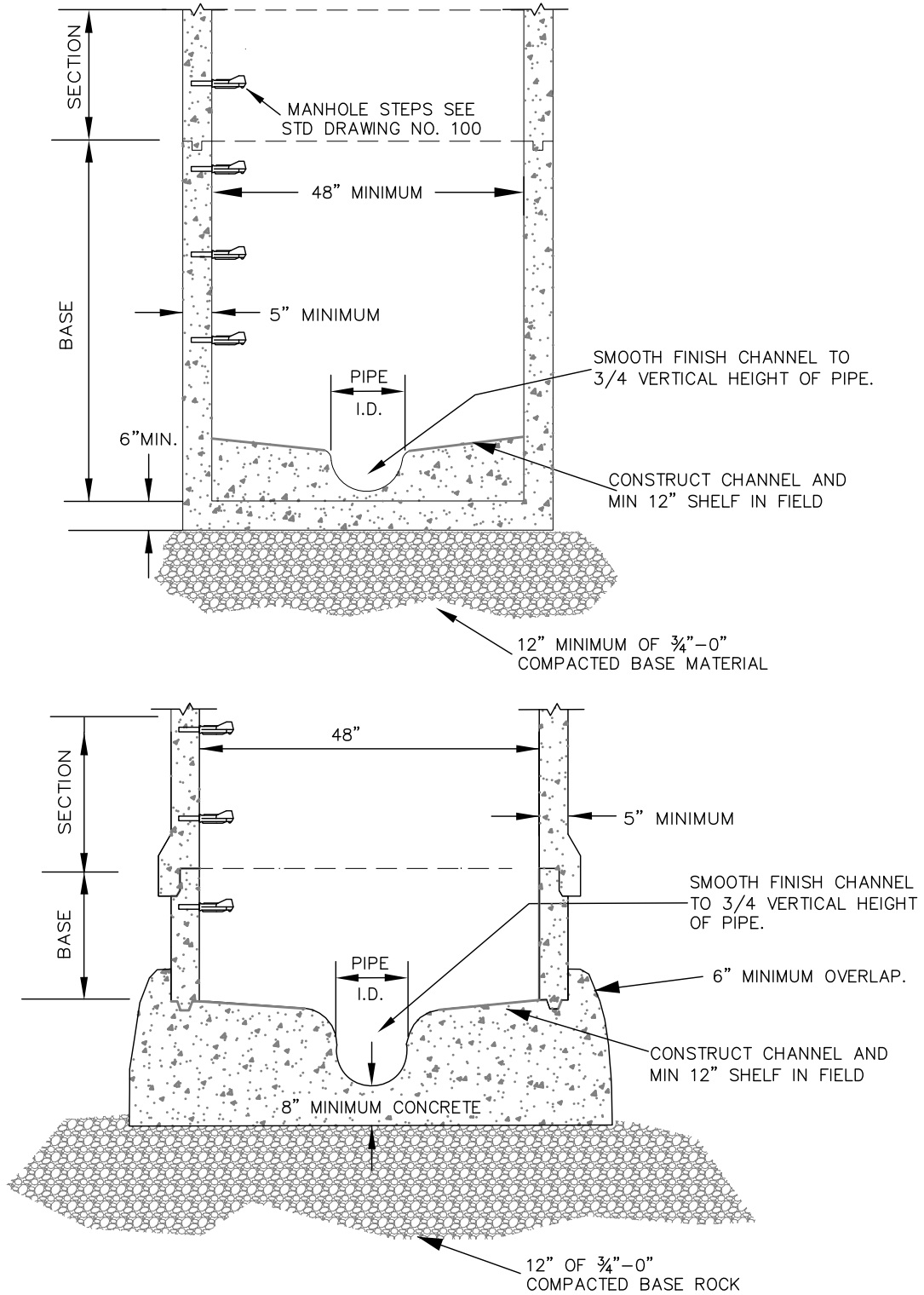
1. ALL PRE-CAST MANHOLE SECTIONS SHALL CONFORM TO THE REQUIREMENTS OF ASTM C-478.
2. SEE STD DRAWING 020 FOR POURED IN PLACE CONCRETE MANHOLE BASE.
3. ALL JOINTS AND RUBBER GASKETS SHALL CONFORM TO THE REQUIREMENTS OF ASTM C-443.
4. ALL PIPE CONNECTIONS TO MANHOLE SHALL BE WATERTIGHT.
5. PIPE CONNECTIONS OF 24" OR GREATER SHALL REQUIRE A MANHOLE AND CHANNEL DETAIL.
6. PIPE CONNECTIONS OF FOUR OR MORE MAINLINES SHALL REQUIRE A MANHOLE CONNECTION AND CHANNEL DETAIL.
7. PROVIDE A MINIMUM OF 8" OF INTACT (UNDISTURBED) MANHOLE WALL BETWEEN PIPE BREAKOUTS AS MEASURED ON THE INSIDE FACE OF THE MANHOLE.
8. BREAKOUT OF WALL FOR PIPE SHALL BE 2" MINIMUM AND 4" MAXIMUM CLEAR OF PIPE WALL.
9. THIS DETAIL LIMITED TO MAXIMUM INTERIOR DROP OF 12" FOR SANITARY CONNECTION AND 48" FOR STORM CONNECTION.
10. WATERTIGHT/TAMPER PROOF MANHOLE FRAME AND COVER SHALL BE USED IN ALL EASEMENT AND OFF STREET AREAS. SEE STD DRAWING 130.
11. ALL JOINTS AND RUBBER GASKETS SHALL CONFORM TO THE REQUIREMENTS OF ASTM C-443.

STANDARD MANHOLE

DRAWING NO. 010

REVISED 12-16





NOTES:

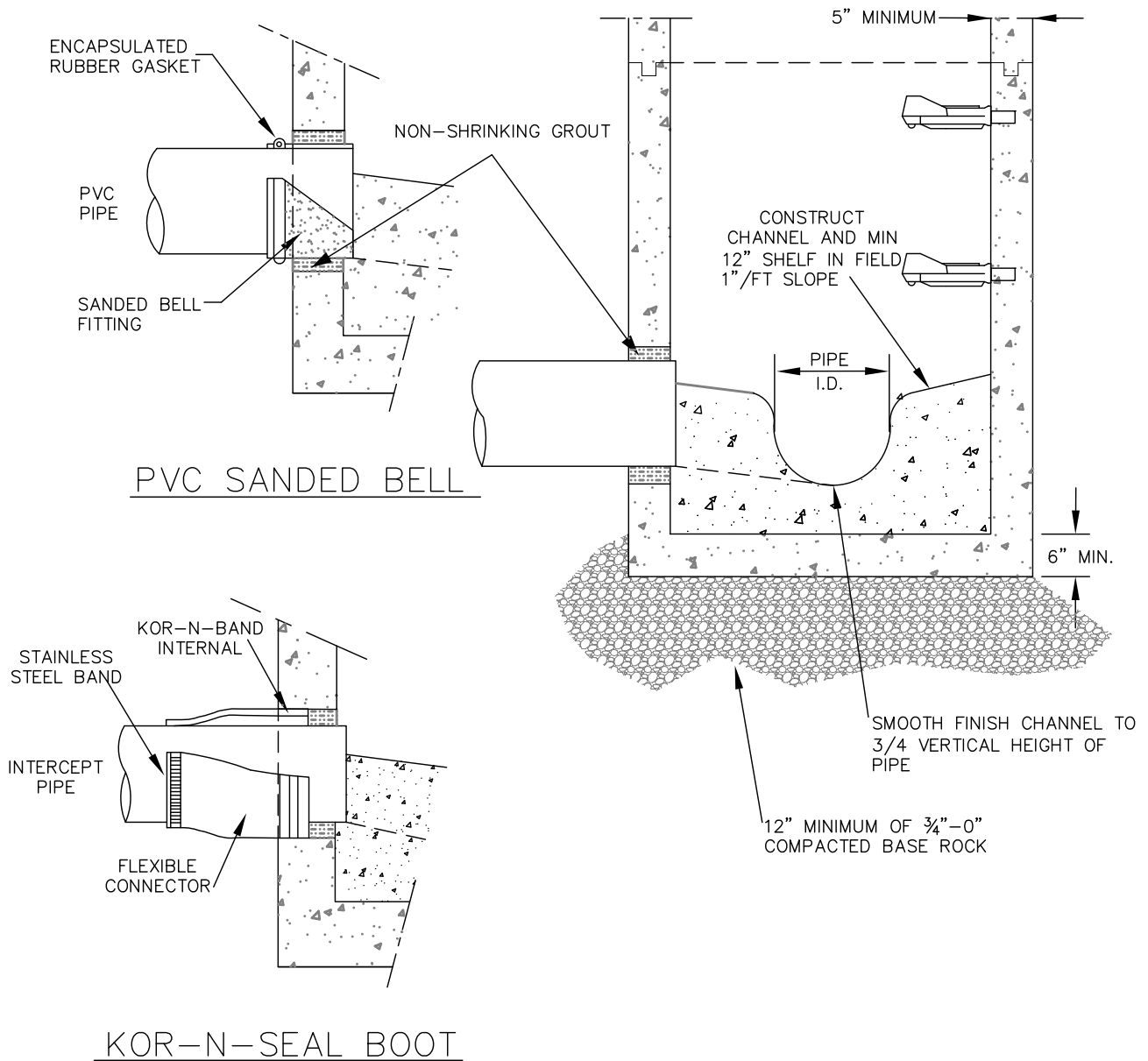
1. ALL MANHOLE SECTIONS SHALL CONFORM TO THE REQUIREMENTS OF ASTM C-478 AND APPLICABLE PROVISIONS OF STANDARD MANHOLE, DRAWING NO. 010.
2. ALL POURED IN PLACE CONCRETE SHALL HAVE A 28 DAY STRENGTH OF 3000 PSI AND A SLUMP OF 2" TO 4".

MANHOLE BASE



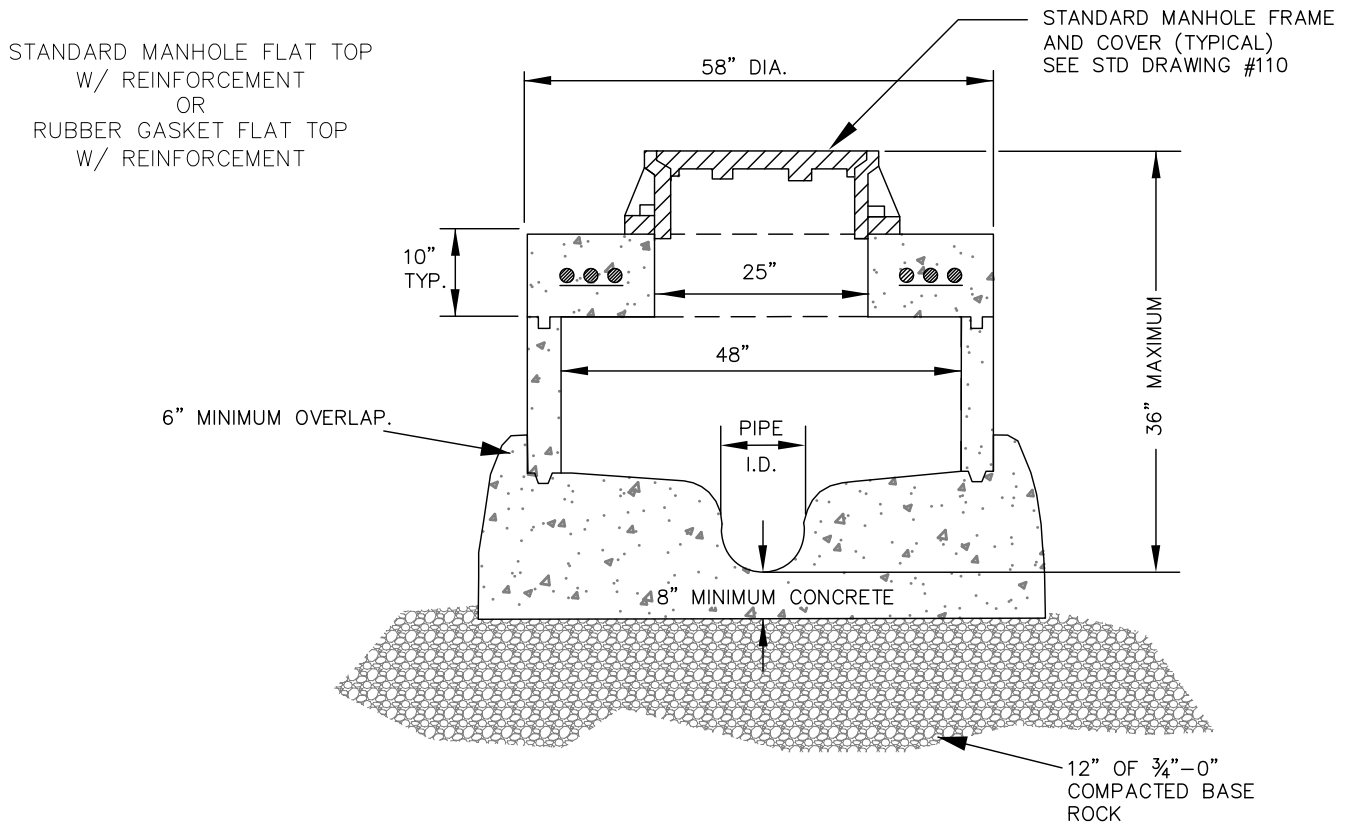
NOTES:

ALL PRE-CAST MANHOLE SECTIONS SHALL CONFORM TO THE REQUIREMENTS OF ASTM C-478 AND APPLICABLE PROVISIONS OF STANDARD DRAWING NO. 010.



MANHOLE CONNECTIONS



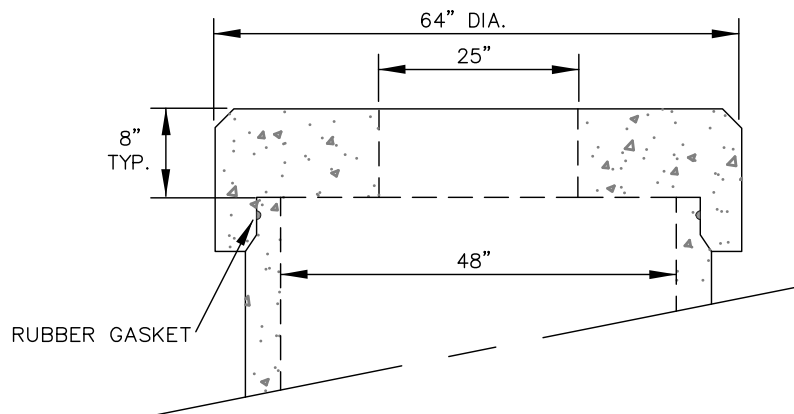


#6 BAR AROUND OUTSIDE OF OPENING
#6 DIAGONALS BOTH SIDES OF OPENING
#6 6" O.C. BOTH WAYS

RUBBER GASKET FLAT TOP (OPTIONAL)

NOTES:

1. ALL JOINTS AND RUBBER GASKETS SHALL CONFORM TO THE REQUIREMENTS OF ASTM C-433.
2. ALL MANHOLE SECTIONS SHALL CONFORM TO THE REQUIREMENTS OF ASTM C-478 AND APPLICABLE PROVISIONS OF STANDARD MANHOLE, SEE STD DRAWING NO. 010.
3. CENTER OPENING FLATTOP REQUIRED.
4. NO STEPS ALLOWED IN SHALLOW FLAT TOP MANHOLE.
5. ALL POURED IN PLACE CONCRETE SHALL HAVE A 28 DAY STRENGTH OF 3000 PSI AND A SLUMP OF 2" TO 4".



SHALLOW FLAT TOP MANHOLE

DRAWING NO. 040

REVISED 12-16

CleanWater Services

STANDARD MANHOLE FLAT TOP
W/REINFORCEMENT
OR
RUBBER GASKET FLAT TOP
W/REINFORCEMENT

#6 BAR AROUND OUTSIDE OF OPENING
#6 DIAGONALS BOTH SIDES OF OPENING
#6 6" O.C. BOTH WAYS

SMOOTH FINISH CHANNEL TO
3/4 VERTICAL HEIGHT OF
PIPE

12" MINIMUM OF 3/4"-0"
COMPACTED BASE ROCK

NON-SHRINKING GROUT

CONSTRUCT
CHANNEL AND MIN
12" SHELF IN FIELD
1"/FT SLOPE

PIPE
I.D.

6" MIN.

10"
TYP

58" DIA.

48"

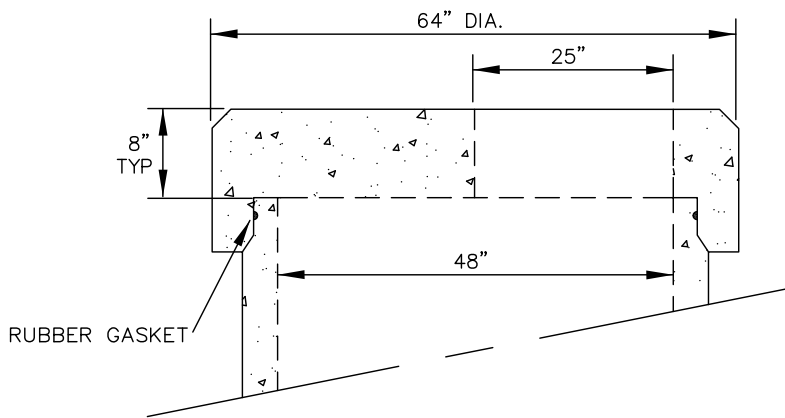
25"

36" MINIMUM, 59" MAXIMUM

RUBBER GASKET
FLAT TOP
(OPTIONAL)

NOTES:

1. ALL JOINTS AND RUBBER GASKETS SHALL CONFORM TO THE REQUIREMENTS OF ASTM C-433.
2. ALL MANHOLE SECTIONS SHALL CONFORM TO THE REQUIREMENTS OF ASTM C-478 AND APPLICABLE PROVISIONS OF STANDARD MANHOLE, SEE STD DRAWING NO. 010.
3. STEPS REQUIRED ON FLAT TOP MANHOLES DEEPER THAN 48" FROM FINISHED GRADE TO I.E. OUT.



FLAT TOP MANHOLE

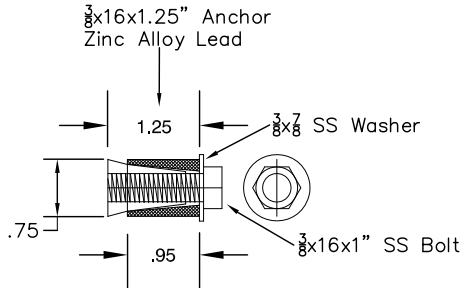
DRAWING NO. 050

REVISED 12-16

CleanWater Services

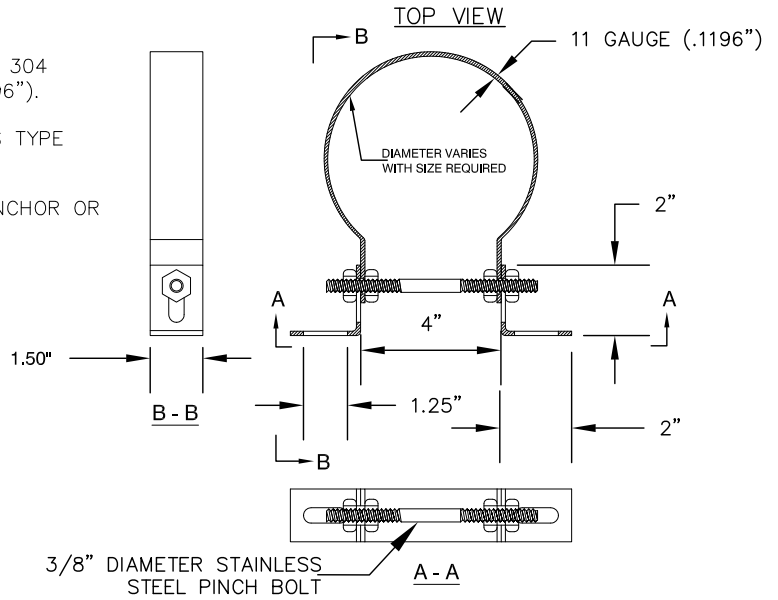
SPECIFICATIONS:

- 1) CLAMP AND BRACKETS ARE TYPE 304 STAINLESS STEEL, 11 GAUGE (.1196").
- 2) 3/8" ϕ PINCH BOLT AND NUTS IS TYPE 18-8 STAINLESS STEEL.
- 3) RELINER CLAMP/BRACKET AND ANCHOR OR APPROVED EQUIVALENTS.



ANCHOR DETAIL

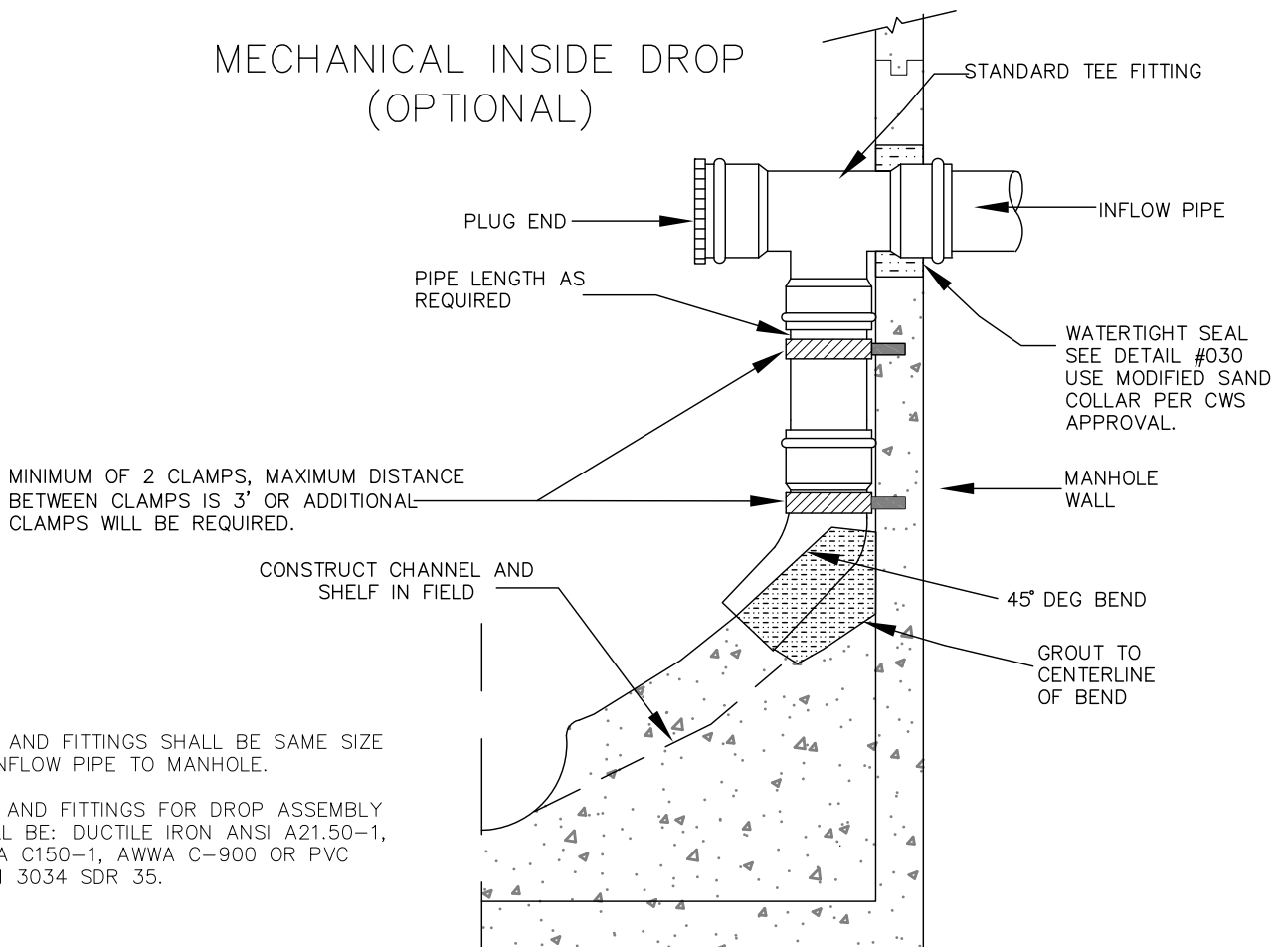
N.T.S.



CLAMP DETAIL

N.T.S.

MECHANICAL INSIDE DROP (OPTIONAL)

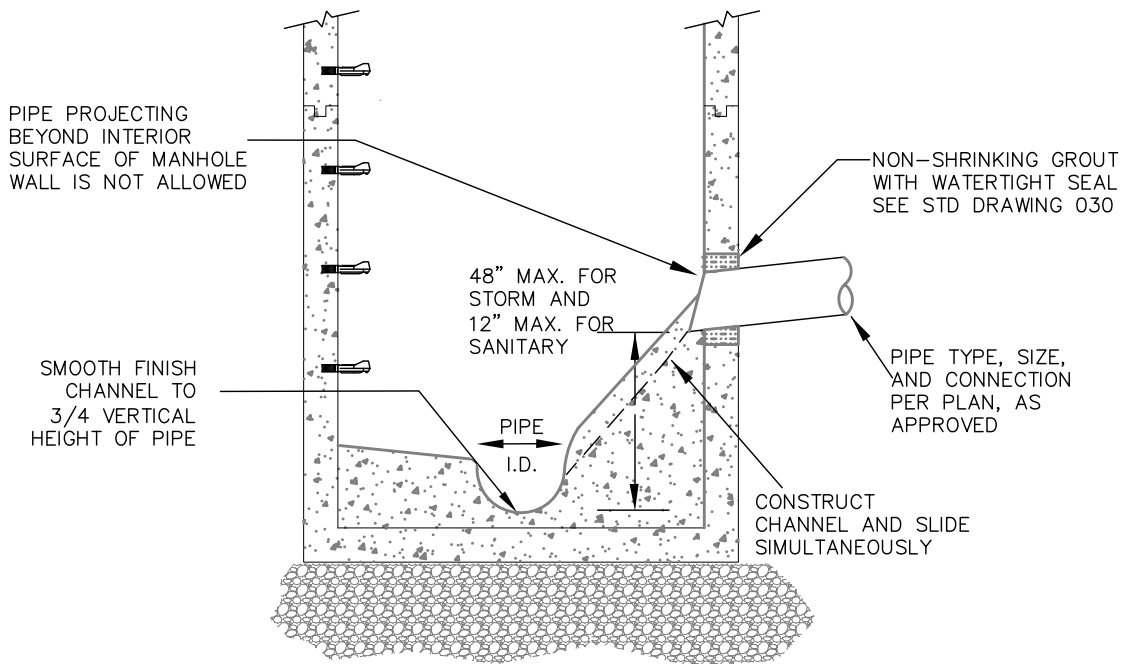


NOTES:

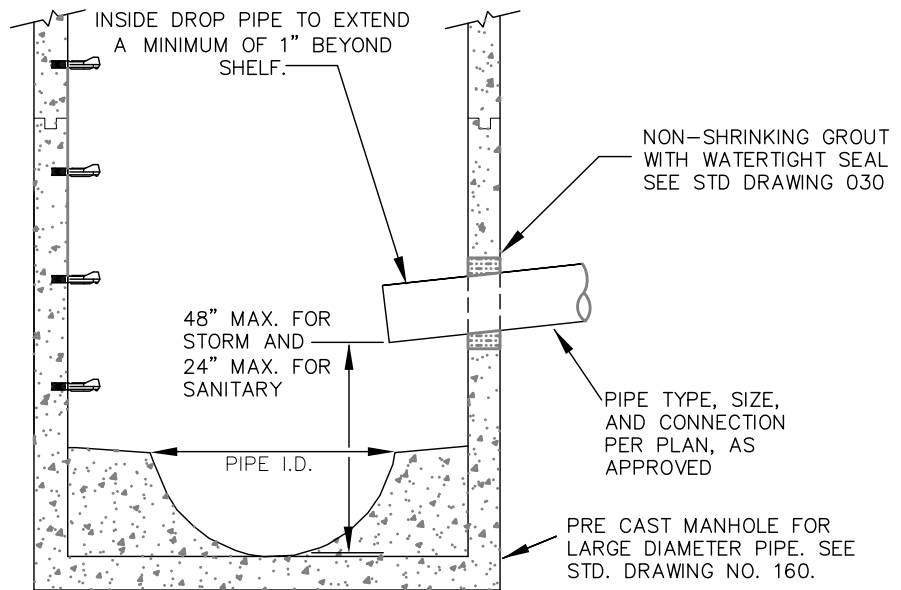
1. PIPE AND FITTINGS SHALL BE SAME SIZE AS INFLOW PIPE TO MANHOLE.
2. PIPE AND FITTINGS FOR DROP ASSEMBLY SHALL BE: DUCTILE IRON ANSI A21.50-1, AWWA C150-1, AWWA C-900 OR PVC ASTM 3034 SDR 35.

MECHANICAL INSIDE DROP
MANHOLE





OPEN INSIDE DROP
WITH BEAVER SLIDE

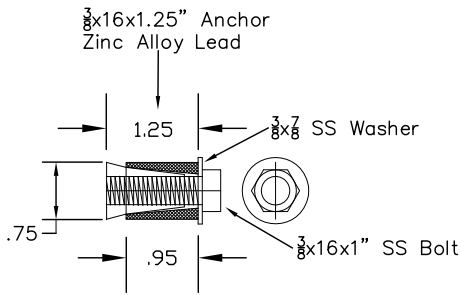


OPEN INSIDE DROP FOR
LARGE DIAMETER PIPE

OPEN INSIDE DROP MANHOLE

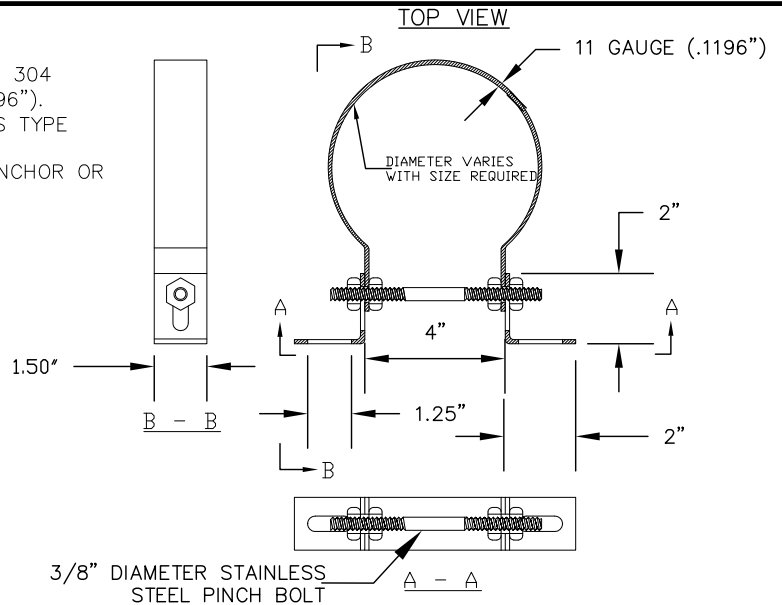


- SPECIFICATIONS:
- 1) CLAMP AND BRACKETS ARE TYPE 304 STAINLESS STEEL, 11 GAUGE (.1196").
 - 2) 3/8" Ø PINCH BOLT AND NUTS IS TYPE 18-8 STAINLESS STEEL.
 - 3) RELINER CLAMP/BRACKET AND ANCHOR OR APPROVED EQUIVALENTS.



ANCHOR DETAIL

N.T.S.

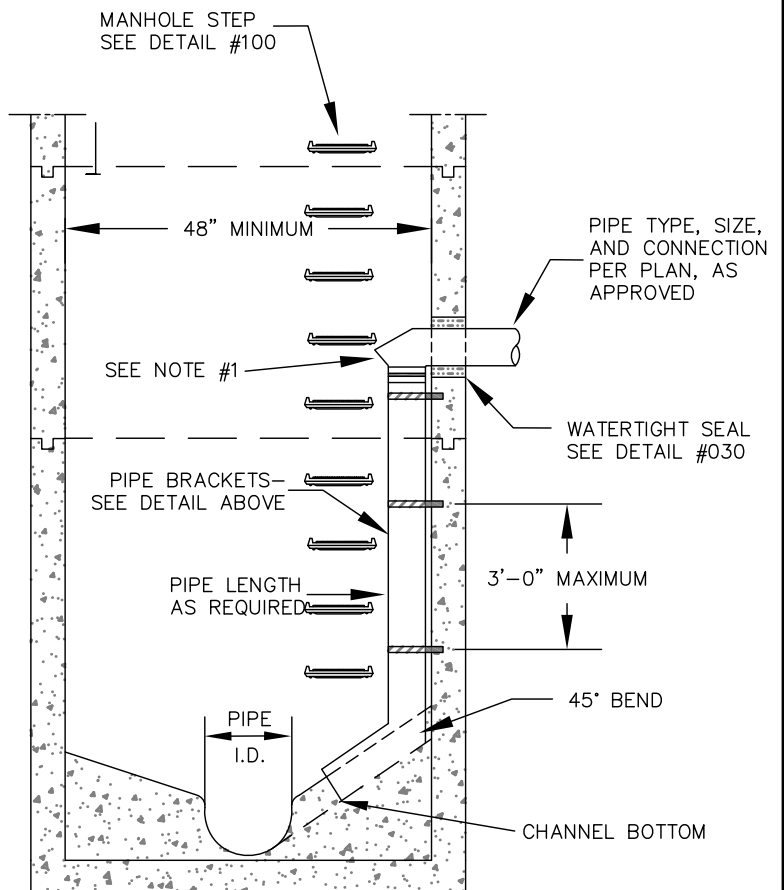
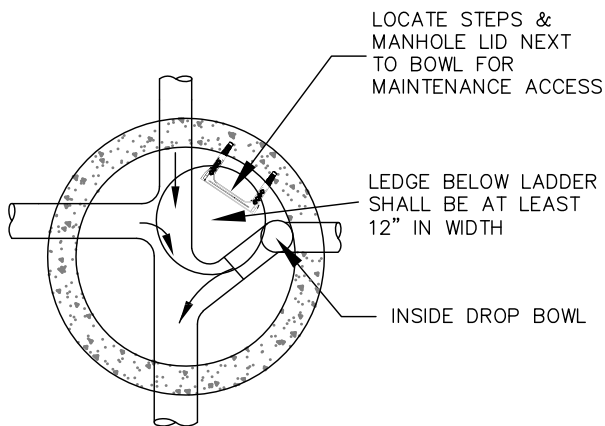


CLAMP DETAIL

N.T.S.

NOTES:

1. DROP BOWL AS MANUFACTURED BY RELINER-DURAN INC. OR APPROVED EQUAL.
2. DROP BOWL TO BE SIZED PER MANUFACTURER'S RECOMMENDATIONS (INFORMATION AVAILABLE @ RELINER.COM) OR AS REQUIRED BY DISTRICT OR CITY.
3. PIPE AND FITTING FOR DROP ASSEMBLY SHALL BE: AWWA C150-1, AWWA C-900 OR PVC ASTM 3034 SDR 35.
4. NO MORE THAN ONE DROP BOWL PER MANHOLE WITHOUT WRITTEN APPROVAL BY DISTRICT OR CITY.
5. WRITTEN APPROVAL BY DISTRICT OR CITY IS REQUIRED FOR DROP BOWL INSTALLATION ON PIPELINES WITH A SLOPE OF 5% OR GREATER.



INSIDE DROP MANHOLE W/BOWL

DRAWING NO. 090

REVISED 12-16

CleanWater Services