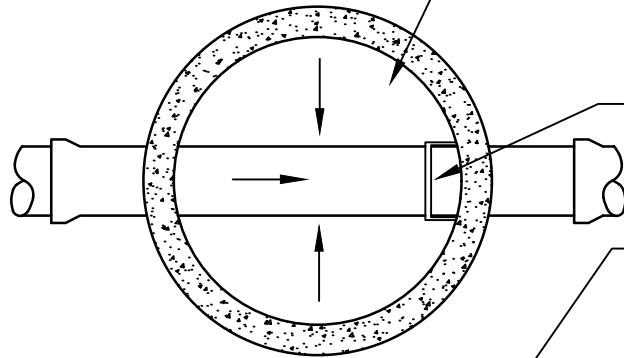


INTEGRAL INVERT OF MANHOLE TO SPRINGLINE OF PIPE SLOPED 2"/FT. TOWARD PIPE.

CASTING	A	B
R-1642-B	27"	7"
ESS.BRO.309	27"	7"

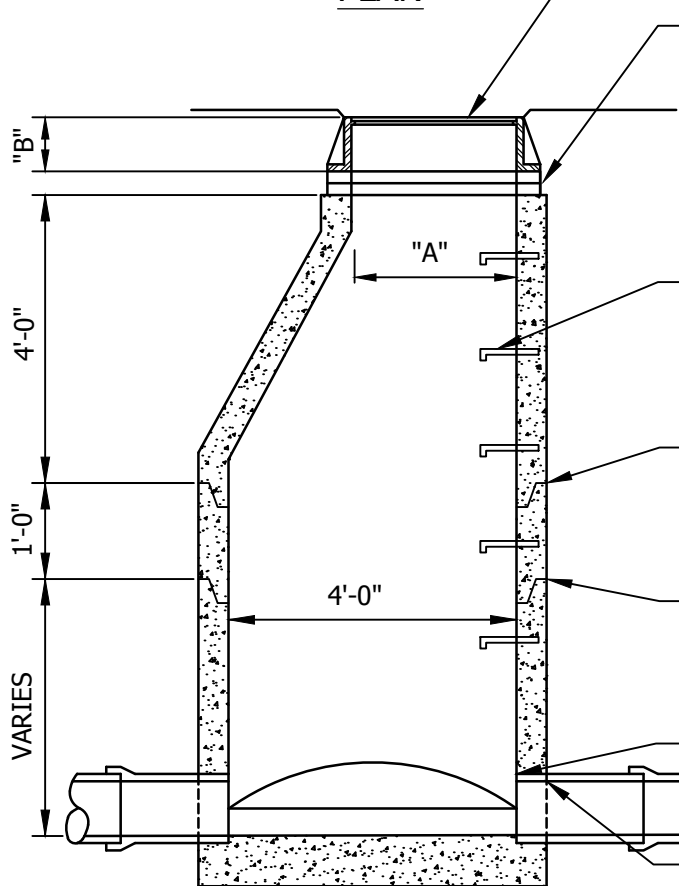


PLAN

MANHOLE STEPS SHALL BE PLACED SO THE OFFSET VERTICAL PORTION OF THE CONE IS FACING DOWNSTREAM.

NEENAH FRAME AND COVER OR EQUAL, LETTERED "SANITARY SEWER" WITH 2 CONCEALED PICK HOLES.

SET CASTING 1/8" TO 1/4" BELOW FINISHED GRADE.



SECTION

MIN. OF 2, MAX. OF 6 HDPE ADJUSTMENT RINGS. MAXIMUM 19" ADJUSTMENT, RINGS AND CASTING.

INSTALL I&I BARRIER PER PLANS AT LOCATIONS SELECTED BY THE ENGINEER. EXTERIOR SEAL CONSISTS OF GATOR WRAP OR ENGINEER APPROVED EQUAL.

MANHOLE STEPS, COPOLYMER POLYPROPYLENE PLASTIC, WITH 1/2" GRADE 60 STEEL REINFORCEMENT OR EQUAL, 16" ON CENTER.

PRECAST CONCRETE MANHOLE SECTIONS PER ASTM C478. ALL JOINTS IN MANHOLE TO HAVE "O" RING RUBBER GASKETS PER ASTM C443.

SEAL JOINT FIRST AND SECOND SECTION WITH A MINIMUM 1 LAYER OF GATOR WRAP OR ENGINEER APPROVED EQUAL.

CUT PIPE FLUSH WITH INSIDE FACE OF WALL. GROUT INSIDE DOGHOUSE PER MnDOT 2506.2B.2.

KOR-N-SEAL MANHOLE GASKET (OR APPROVED EQUAL).

INTEGRAL BASE SECTION

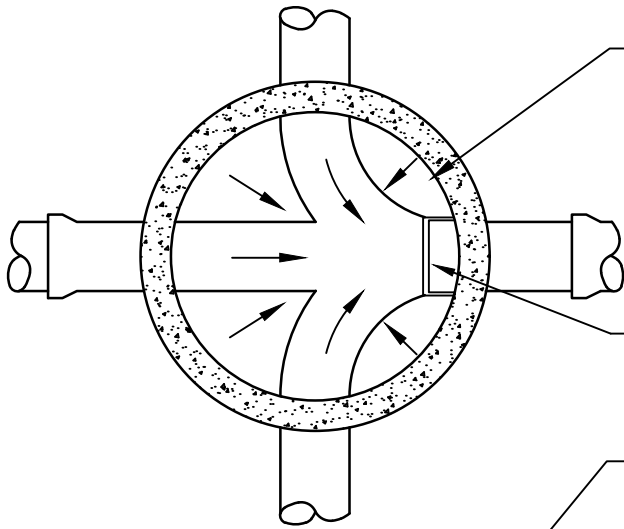
NOTE: MINIMUM DEPTH MANHOLE = 7'-9"



SANITARY SEWER MANHOLE

LAST REVISION:
JAN 2017

PLATE NO.
SAN-1



INTEGRAL INVERT OF MANHOLE TO SPRINGLINE OF PIPE SLOPED 2"/FT. TOWARD PIPE.

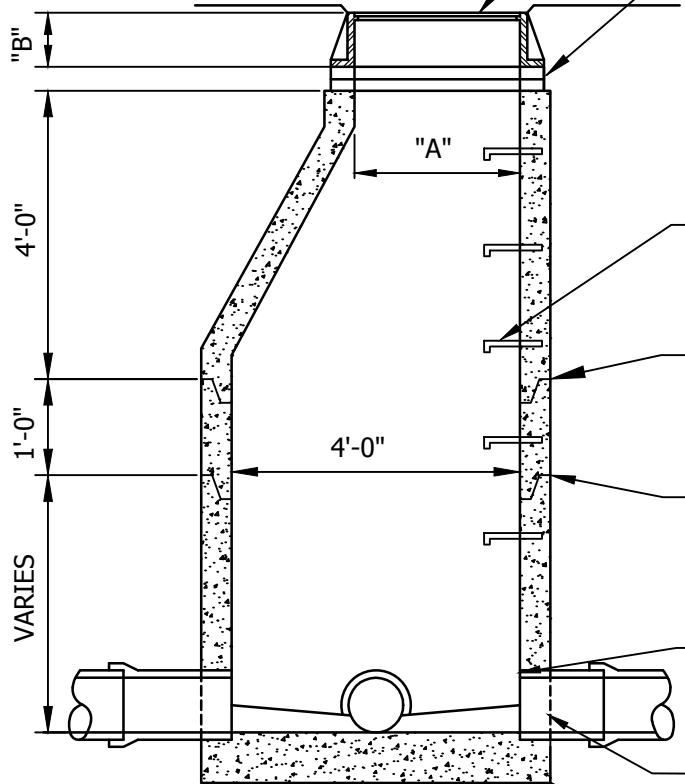
CASTING	A	B
R-1642-B	27"	7"
ESS.BRO.309	27"	7"

MANHOLE STEPS SHALL BE PLACED SO THE OFFSET VERTICAL PORTION OF THE CONE IS FACING DOWNSTREAM.

PLAN

NEENAH FRAME AND COVER OR EQUAL LETTERED "SANITARY SEWER" WITH 2 CONCEALED PICK HOLES
SET CASTING 1/8" TO 1/4" BELOW FINISHED GRADE.

MIN. OF 2, MAX. OF 6 HDPE ADJUSTMENT RINGS. MAXIMUM 19" ADJUSTMENT, RINGS AND CASTING.
INSTALL I&I BARRIER PER PLANS AT LOCATIONS SELECTED BY THE ENGINEER.
EXTERIOR SEAL CONSISTS OF GATOR WRAP OR ENGINEER APPROVED EQUAL.



MANHOLE STEPS, COPOLYMER POLYPROPYLENE PLASTIC, WITH 1/2" GRADE 60 STEEL REINFORCEMENT OR EQUAL, 16" ON CENTER.

PRECAST CONCRETE MANHOLE SECTIONS PER ASTM C478. ALL JOINTS IN MANHOLE TO HAVE "O" RING RUBBER GASKETS PER ASTM C443.

SEAL JOINT FIRST AND SECOND SECTION WITH A MINIMUM 1 LAYER OF GATOR WRAP OR ENGINEER APPROVED EQUAL.

CUT PIPE FLUSH WITH INSIDE FACE OF WALL.
GROUT INSIDE DOGHOUSE PER MnDOT 2506.2B2.

KOR-N-SEAL MANHOLE GASKET (OR APPROVED EQUAL).

INTEGRAL BASE SECTION

SECTION

NOTE: MINIMUM DEPTH MANHOLE = 7'-9"



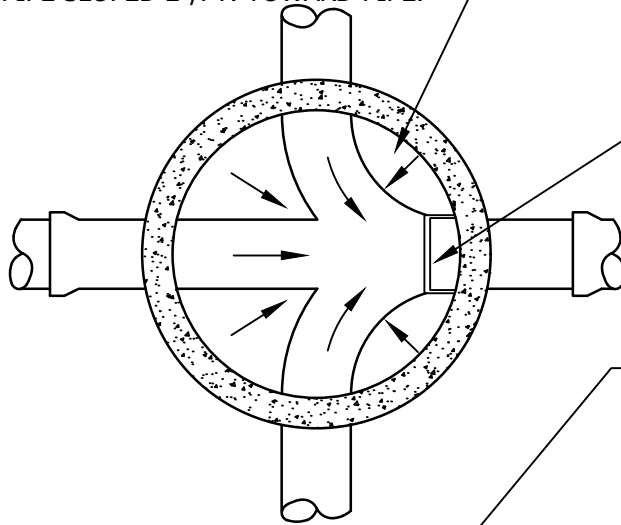
SANITARY SEWER JUNCTION MANHOLE

LAST REVISION:
JAN 2017

PLATE NO.
SAN-2

INTEGRAL INVERT OF MANHOLE TO SPRINGLINE OF PIPE SLOPED 2"/FT. TOWARD PIPE.

CASTING	A	B
R-1642-B	27"	7"
ESS.BRO.309	27"	7"



MANHOLE STEPS SHALL BE PLACED FACING THE DOWNSTREAM MANHOLE WALL.

NEENAH FRAME AND COVER OR EQUAL, LETTERED "SANITARY SEWER", WITH 2 CONCEALED PICK HOLES. SET CASTING 1/8" TO 1/4" BELOW FINISHED GRADE.

MIN. OF 2, MAX. OF 6 HDPE ADJUSTMENT RINGS. MAXIMUM 19" ADJUSTMENT, RINGS AND CASTING.

INSTALL I&I BARRIER PER PLANS AT LOCATIONS SELECTED BY THE ENGINEER. EXTERIOR SEAL CONSISTS OF GATOR WRAP OR ENGINEER APPROVED EQUAL.

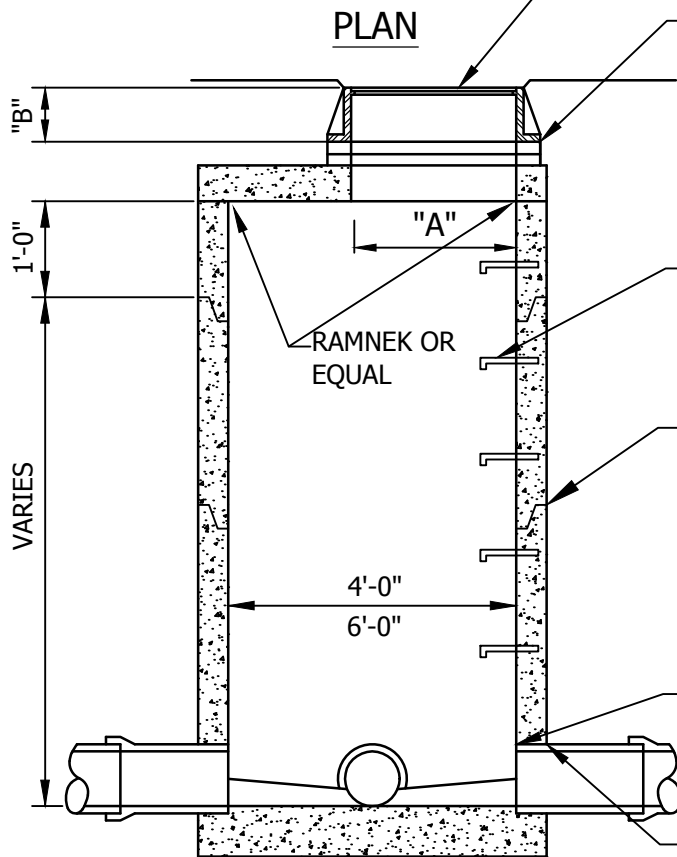
MANHOLE STEPS, COPOLYMER POLYPROPYLENE PLASTIC, WITH 1/2" GRADE 60 STEEL REINFORCEMENT OR EQUAL, 16" ON CENTER.

PRECAST CONCRETE MANHOLE SECTIONS PER ASTM C478. ALL JOINTS IN MANHOLE TO HAVE "O" RING RUBBER GASKETS PER ASTM C443. SEAL JOINT FIRST AND SECOND SECTION WITH A MINIMUM 1 LAYER OF GATOR WRAP OR ENGINEER APPROVED EQUAL.

CUT PIPE FLUSH WITH INSIDE FACE OF WALL. GROUT INSIDE DOGHOUSE PER MnDOT 2506.2B2.

KOR-N-SEAL MANHOLE GASKET (OR APPROVED EQUAL).

INTEGRAL BASE SECTION



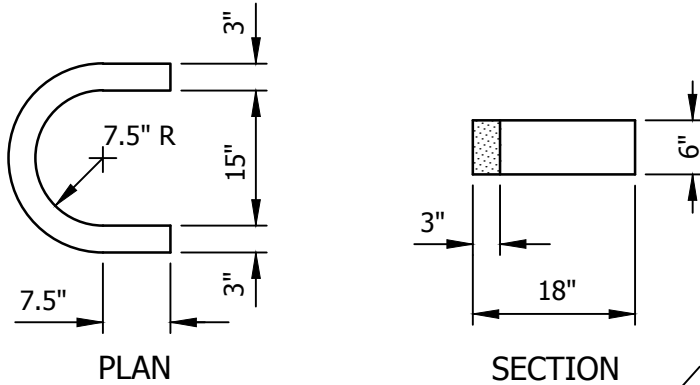
SECTION



SANITARY SEWER JUNCTION MANHOLE WITH REINFORCED TOP SLAB

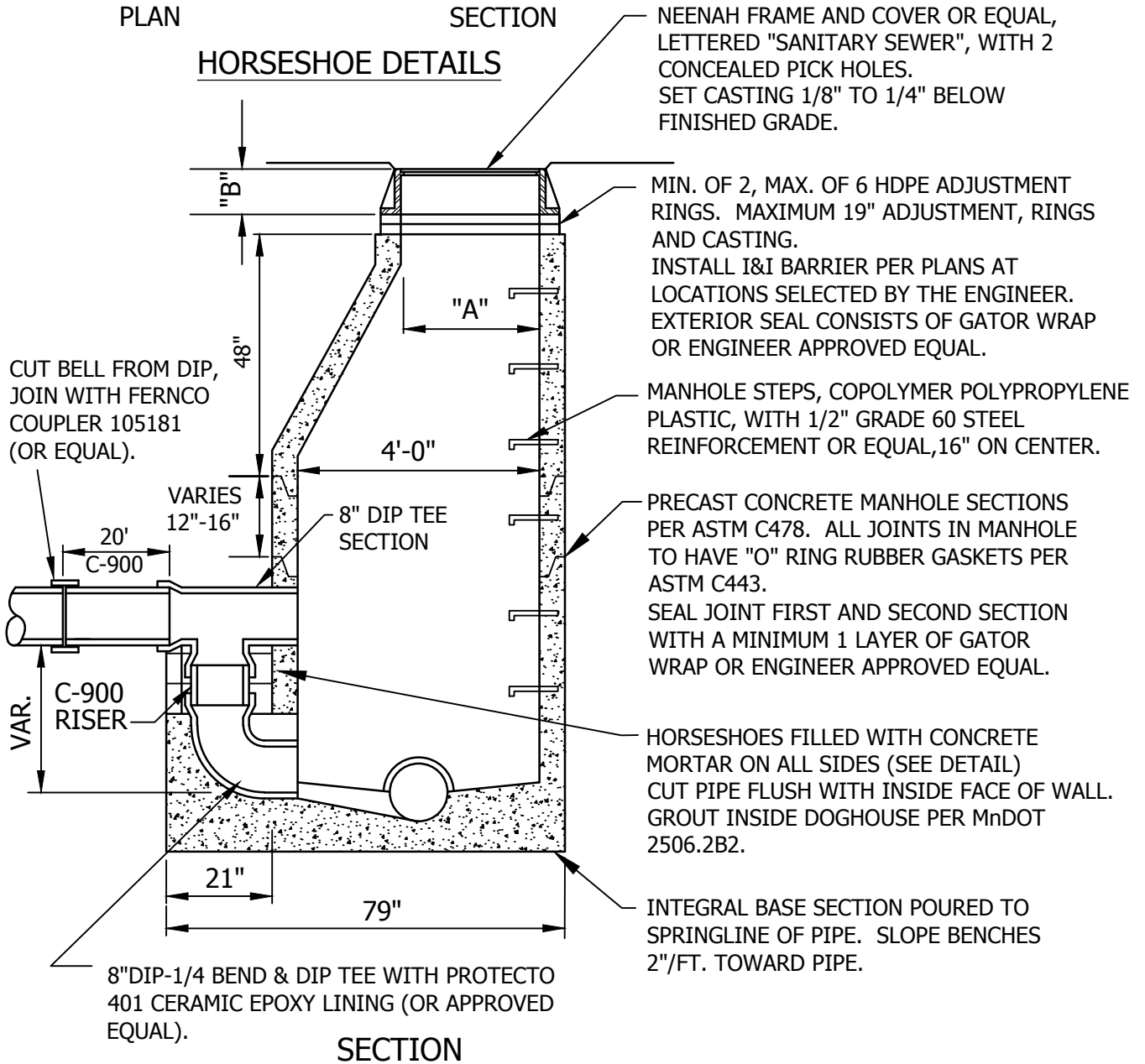
LAST REVISION:
DEC 2016

PLATE NO.
SAN-3



CASTING	A	B
R-1642-B	27"	7"
ESS. BRO. 306	27"	7"

HORSESHOE DETAILS

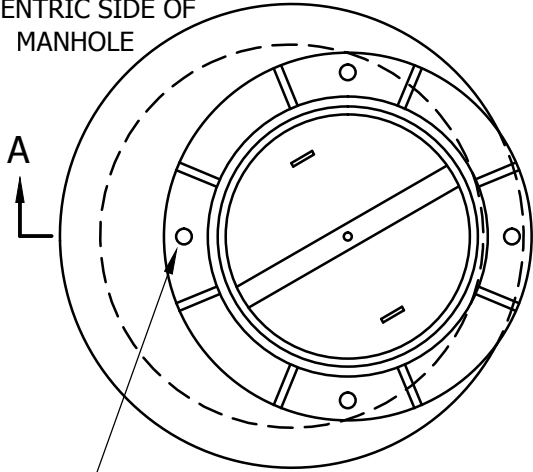


**SANITARY SEWER
OUTSIDE DROP MANHOLE**

LAST REVISION:
DEC 2016

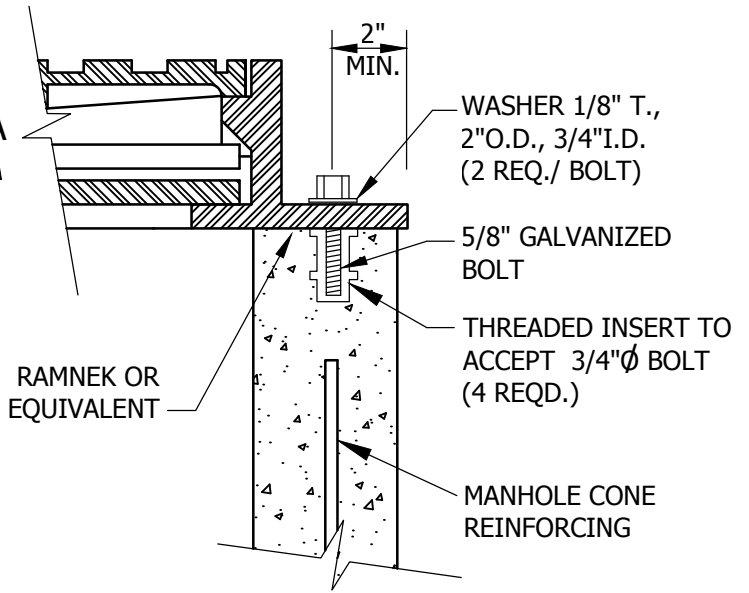
PLATE NO.
SAN-4

ECCENTRIC SIDE OF
MANHOLE

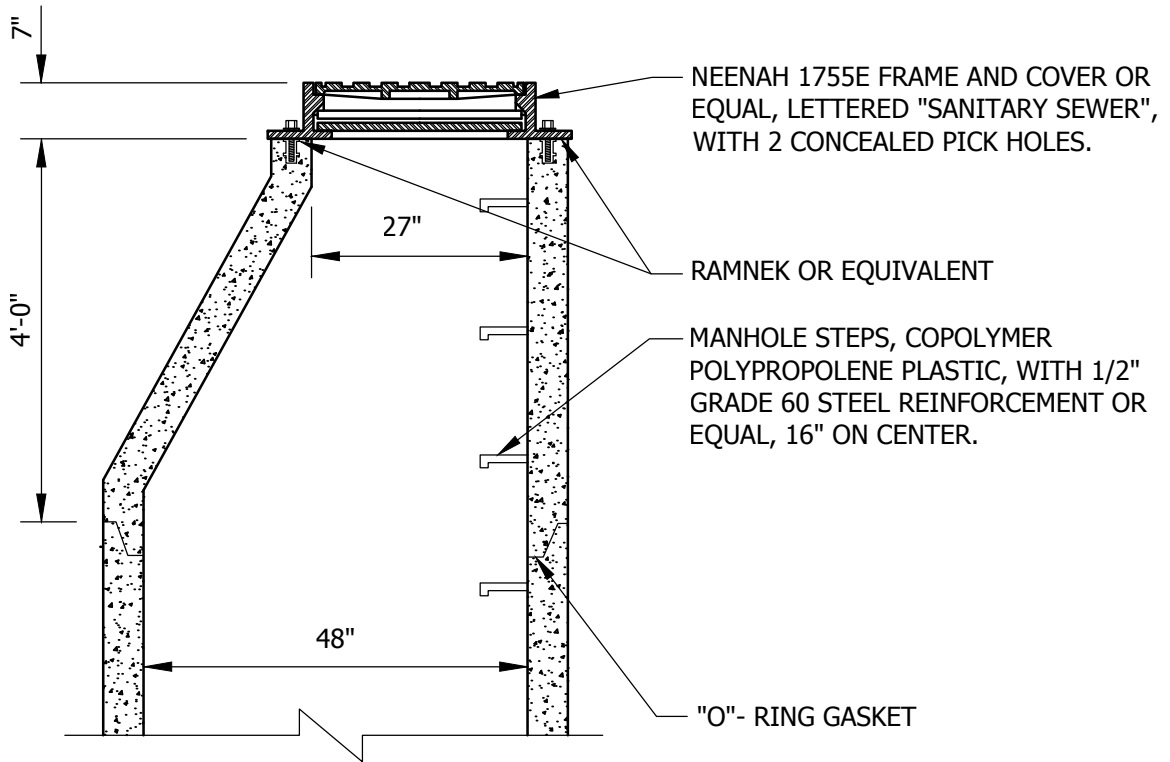


4EA. - 1" DIA. HOLES IN MANHOLE
FRAME EVENLY SPACED

PLAN
(TOP COVER REMOVED)



TIE DOWN DETAIL



SECTION A-A

NOTE: THIS CASTING FOR USE IN LOCATIONS
WHERE THE CASTING WILL BE SUBMERGED
FOR MORE THAN 4 HOURS.

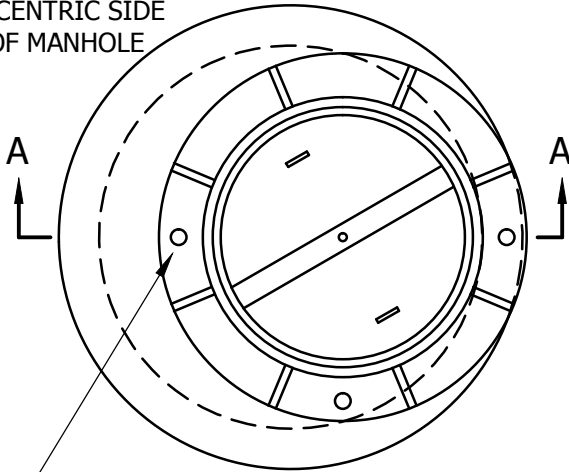


**WATERTIGHT CASTING FOR
SANITARY SEWER MANHOLE**

LAST REVISION:
APR 2009

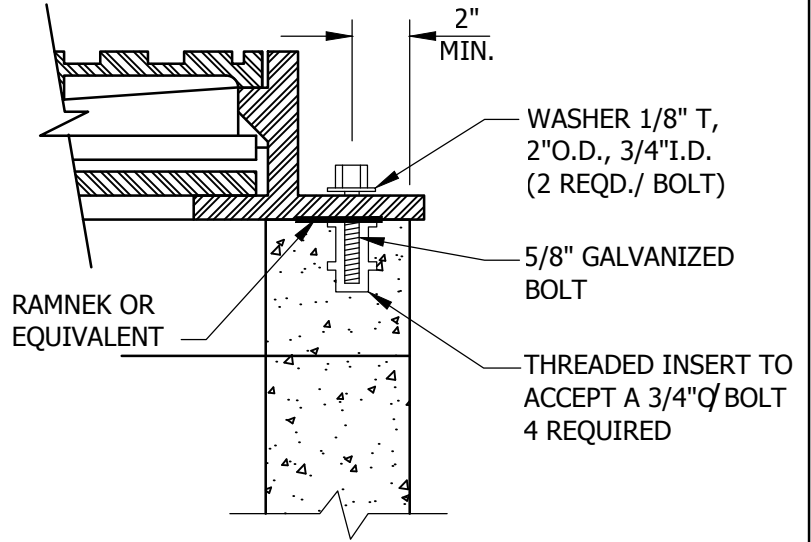
PLATE NO.
SAN-5

ECCENTRIC SIDE
OF MANHOLE

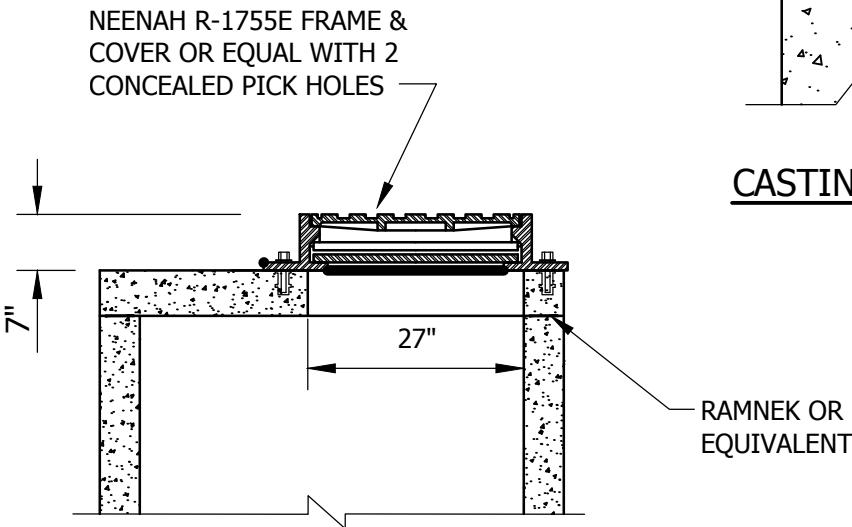


4EA. - 1" DIA. HOLES IN MANHOLE
FRAME EVENLY SPACED

PLAN
(TOP COVER REMOVED)



CASTING TIE DOWN DETAIL



SECTION A-A

NOTE: THIS CASTING FOR USE IN LOCATIONS
WHERE THE CASTING WILL BE SUBMERGED
FOR MORE THAN 4 HOURS.



WATERTIGHT CASTING FOR
FLAT SLAB SANITARY SEWER MANHOLE

LAST REVISION:
APR-2009

PLATE NO.
SAN-6