

TRENCH WIDTH: O.D. PIPE + 2'-0"

NOTES:

1. BEDDING CLASSIFICATION SHALL MEET OR EXCEED ASTM D2321 CLASS 1 BEDDING FOR FLEXIBLE PIPING, AND ASTM C12, CLASS 'B' BEDDING FOR RIGID PIPING IN ROCK OR WET SOIL, PIPE MUST BE BEDDED IN AT LEAST 6" OF #57 WASHED STONE.
2. FORCE MAIN BEDDING SHALL BE SELECT NATURAL SAND WELL COMPACTED IN 6" LIFTS.
3. TRENCHES EXCAVATED OUTSIDE EXISTING ROAD AND RAILWAY RIGHTS-OF-WAY SHALL BE BE BACKFILLED WITH COMMON BACKFILL MATERIAL CONSISTING OF EXCAVATED MATERIALS EXCEPT HIGHLY ORGANIC SILTS AND CLAYS AND TAMPED THOROUGHLY. FILL SHALL BE DEPOSITED IN SUCCESSIVE, UNIFORM, APPROXIMATELY HORIZONTAL LAYERS. MATERIAL SHALL BE FREE OF ROOTS, STONES, AND DEBRIS. ALL MATERIAL SHALL HAVE AN IN-PLACE DENSITY OF AT LEAST 85% OF MAXIMUM DRY DENSITY (STANDARD PROCTOR) OR AS APPROVED BY THE ENGINEER. COMMON BACKFILL SHALL NOT CONTAIN STONE BLOCKS, BROKEN CONCRETE, MASONRY RUBBLE, OR OTHER SIMILAR MATERIALS. IT SHALL HAVE PHYSICAL PROPERTIES SUCH THAT IT CAN BE READILY SPREAD AND COMPACTED DURING FILLING. SNOW, ICE, AND FROZEN SOIL WILL NOT BE PERMITTED.
4. WHERE EXCAVATED MATERIAL, AFTER REMOVAL OF ROCKS, STUMPS, PLANT MATERIAL, AND OTHER EXTRANEIOUS MATERIAL AND PROPER DEWATERING, DRYING, PROTECTION, AND STORAGE OF THE EXCAVATION BY THE CONTRACTOR, CANNOT BE PREPARED TO MEET THE REQUIREMENTS FOR COMMON BACKFILL, DUE TO THE NATURE OF THE MATERIAL (E.G., EXCESSIVE ROCK, MUCK, ORGANICS, CLAY, SILT, OR OTHER MATERIAL), AND AS DETERMINED BY THE ENGINEER, THE UNACCEPTABLE EXCAVATION SHALL BE REMOVED FROM THE SITE AND DISPOSED OF BY THE CONTRACTOR AND REPLACED BY IMPORTED BACKFILL MEETING THE REQUIREMENTS OF STRUCTURAL BACKFILL. IMPORTED STRUCTURAL BACKFILL SHALL BE FREE OF ORGANICS, ROOTS OR OTHER DELETERIOUS MATERIALS AND SHALL NOT CONTAIN MORE THAN FIVE PERCENT (BY WEIGHT) ORGANIC MATERIAL, HAVE A PLASTICITY INDEX (PI) GREATER THAN 25, OR HAVE A MAXIMUM DRY DENSITY LESS THAN 90 POUNDS PER CUBIC FOOT. IMPORTED STRUCTURAL FILL SHOULD CONSIST OF MATERIAL CLASSIFIED AS ML, CL, SC, OR SM, OR BETTER PER ASTM D-2487 AND BE CAPABLE OF BEING COMPACTED TO 85% STANDARD PROCTOR.
5. THE CONTRACTOR IS RESPONSIBLE FOR MEETING ALL COMPACTION REQUIREMENTS.

DATE: 06/19/2019 SS-D DWG. NO. 1

SCALE: NOT TO SCALE

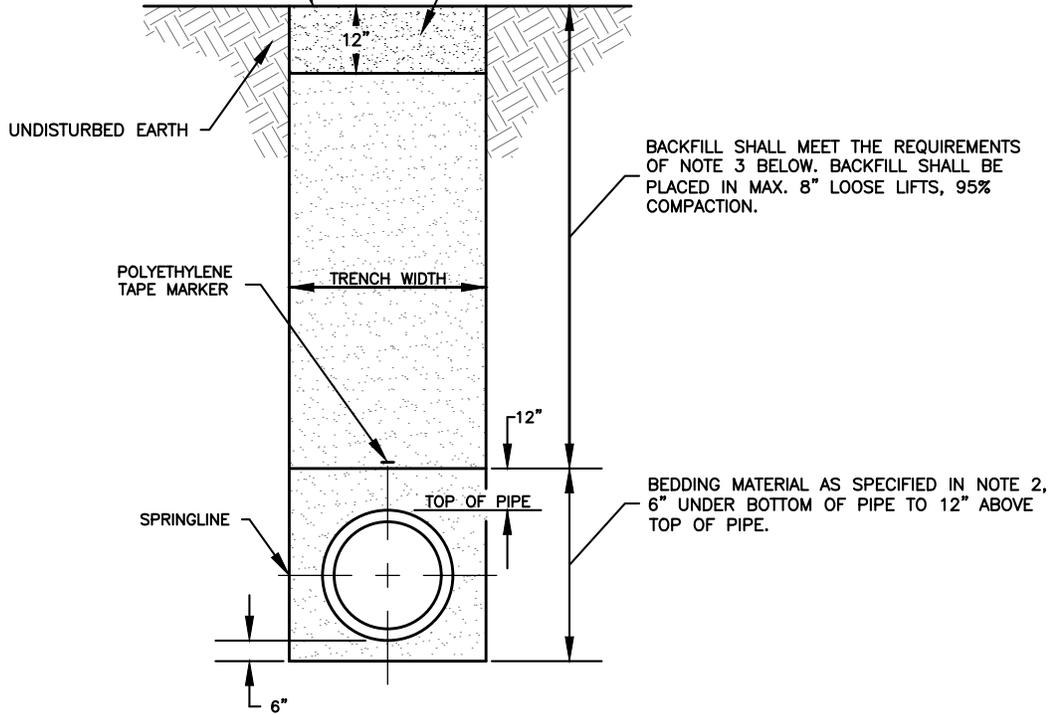
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**GRAVITY SEWER**  
**TRENCH CONSTRUCTION**  
**OUTSIDE PAVEMENT**



SEE DETAILS FOR TYPICAL  
PAVEMENT REPLACEMENT SECTIONS  
SS-D DWG. NO. 19

SEE NOTE 4 FOR BACKFILL REQUIREMENTS  
UNDER SUBGRADE



BACKFILL SHALL MEET THE REQUIREMENTS  
OF NOTE 3 BELOW. BACKFILL SHALL BE  
PLACED IN MAX. 8" LOOSE LIFTS, 95%  
COMPACTION.

BEDDING MATERIAL AS SPECIFIED IN NOTE 2,  
6" UNDER BOTTOM OF PIPE TO 12" ABOVE  
TOP OF PIPE.

TRENCH WIDTH: OUTSIDE DIAMETER OF PIPE + 2'-0"

NOTES:

1. THIS TRENCH BACKFILL DETAIL APPLIES TO AREAS UNDER PAVEMENT. CURB AND GUTTER, AND SIDEWALK.
2. BEDDING CLASSIFICATION SHALL MEET OR EXCEED ASTM D2321 CLASS 1 BEDDING FOR FLEXIBLE PIPING, AND ASTM C12, CLASS B BEDDING FOR RIGID PIPING.
3. COMMON BACKFILL MATERIAL SHALL CONSIST OF EXCAVATED MATERIALS EXCEPT HIGHLY ORGANIC SILTS AND CLAYS. FILL SHALL BE DEPOSITED IN SUCCESSIVE, UNIFORM, APPROXIMATELY HORIZONTAL LAYERS NOT EXCEEDING EIGHT (8) INCHES IN DEPTH FOR THE FULL WIDTH. MATERIAL SHALL BE FREE OF ROOTS, STONES, AND DEBRIS AND CAPABLE OF BEING COMPACTED TO 95% STANDARD PROCTOR. COMMON BACKFILL SHALL NOT CONTAIN STONE BLOCKS, BROKEN CONCRETE, MASONRY RUBBLE, OR OTHER SIMILAR MATERIALS. IT SHALL HAVE PHYSICAL PROPERTIES SUCH THAT IT CAN BE READILY SPREAD AND COMPACTED DURING FILLING. SNOW, ICE, AND FROZEN SOIL WILL NOT BE PERMITTED.

WHERE EXCAVATED MATERIAL, AFTER REMOVAL OF ROCKS, STUMPS, PLANT MATERIAL, AND OTHER EXTRANEIOUS MATERIAL AND PROPER DEWATERING, DRYING, PROTECTION, AND STORAGE OF THE EXCAVATION BY THE CONTRACTOR, CANNOT BE PREPARED TO MEET THE REQUIREMENTS FOR COMMON BACKFILL, DUE TO THE NATURE OF THE MATERIAL (E.G., EXCESSIVE ROCK, MUCK, ORGANICS, CLAY, SILT, OR OTHER MATERIAL), AND AS DETERMINED BY THE ENGINEER, THE UNACCEPTABLE EXCAVATION SHALL BE REMOVED FROM THE SITE AND DISPOSED OF BY THE CONTRACTOR AND REPLACED BY IMPORTED BACKFILL MEETING THE REQUIREMENTS OF STRUCTURAL BACKFILL. IMPORTED STRUCTURAL BACKFILL SHALL BE FREE OF ORGANICS, ROOTS OR OTHER DELETERIOUS MATERIALS AND SHALL NOT CONTAIN MORE THAN FIVE PERCENT (BY WEIGHT) ORGANIC MATERIAL, HAVE A PLASTICITY INDEX (PI) GREATER THAN 25, OR HAVE A MAXIMUM DRY DENSITY LESS THAN 90 POUNDS PER CUBIC FOOT. IMPORTED STRUCTURAL FILL SHOULD CONSIST OF MATERIAL CLASSIFIED AS ML, CL, SC, OR SM, OR BETTER PER ASTM D-2487 AND BE CAPABLE OF BEING COMPACTED TO 95% STANDARD PROCTOR.

4. THE TOP 12 INCHES OF FINAL BACKFILL FOR ROAD OR STREET SUBGRADE SHALL BE COMPACTED TO 98% STANDARD PROCTOR.
5. THE CONTRACTOR IS RESPONSIBLE FOR MEETING ALL COMPACTION REQUIREMENTS.

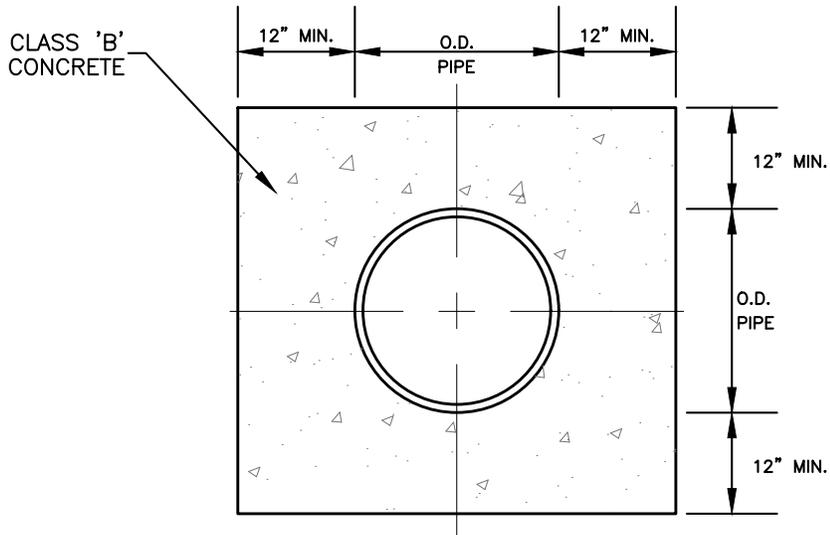
DATE: 05/14/2019 SS-D DWG. NO. 2

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**GRAVITY SEWER**  
**TRENCH CONSTRUCTION**  
**UNDER PAVEMENT**





WIDTH OF ENCASEMENT IN ROCK: O.D. PIPE + 24"

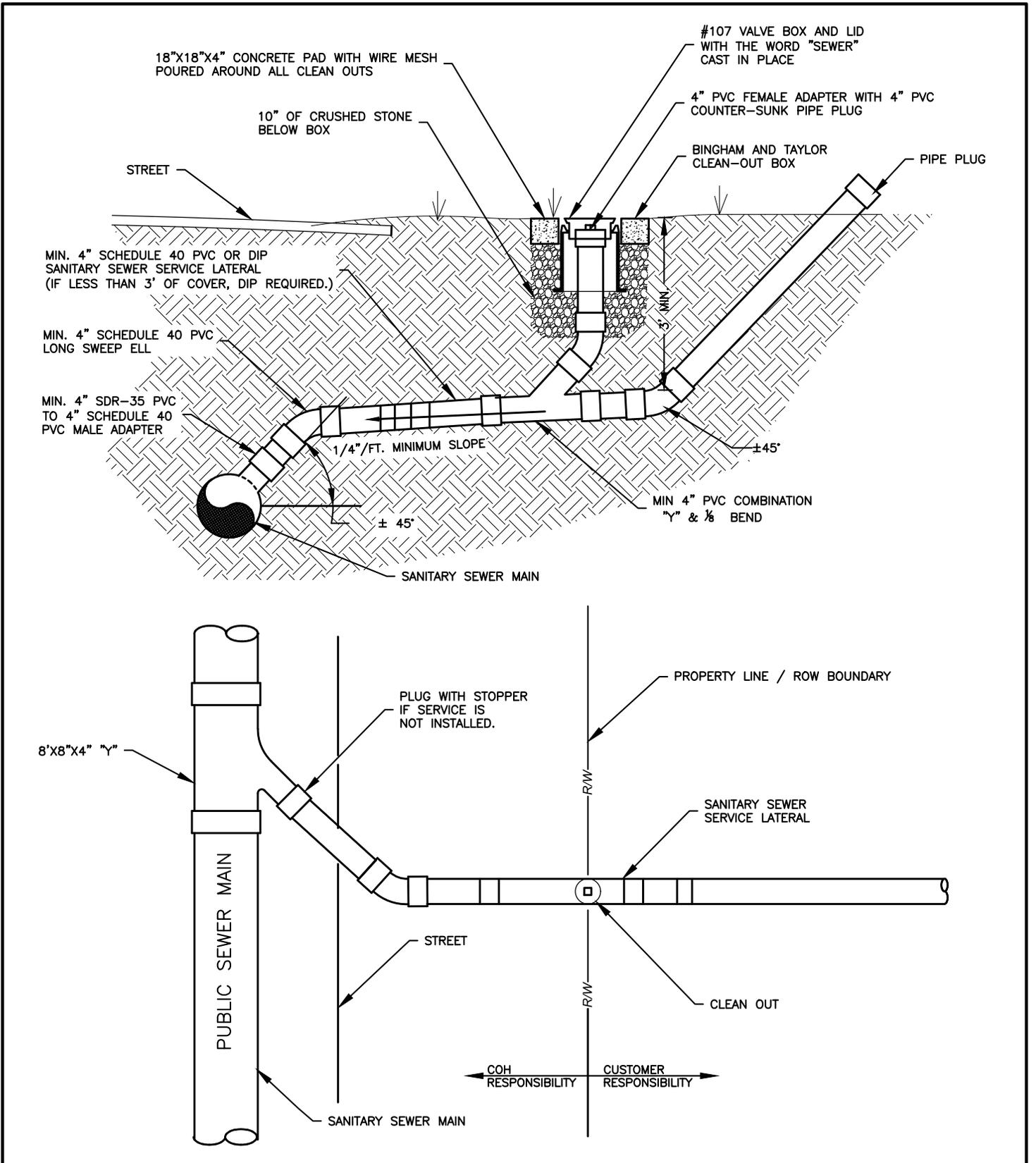
DATE: 01/12/2019 SS-D DWG. NO. 3

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## CONCRETE PIPE ENCASEMENT





DATE: 01/12/2019 SS-D DWG. NO. 4

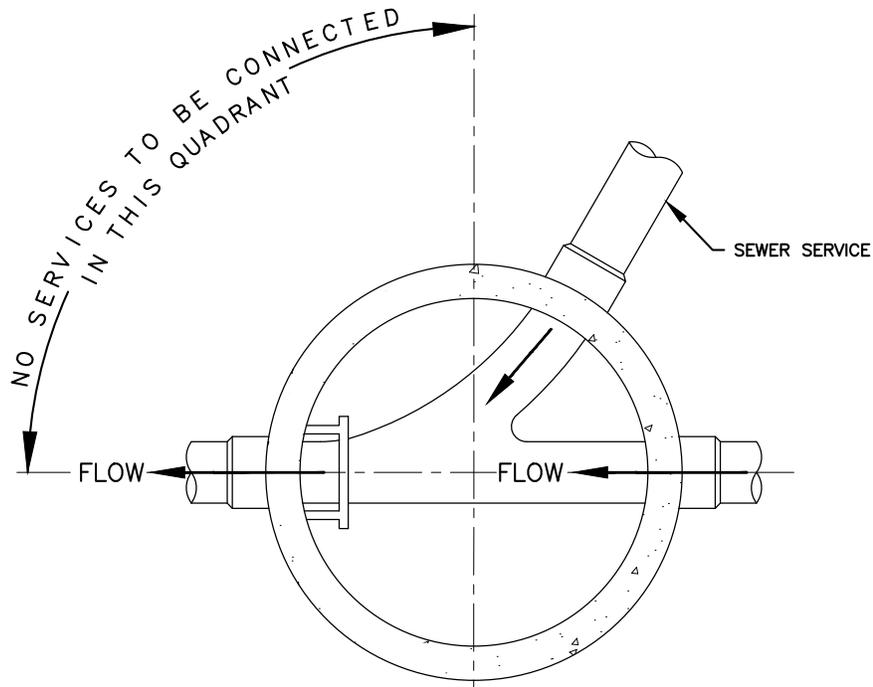
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## STANDARD SERVICE CONNECTION

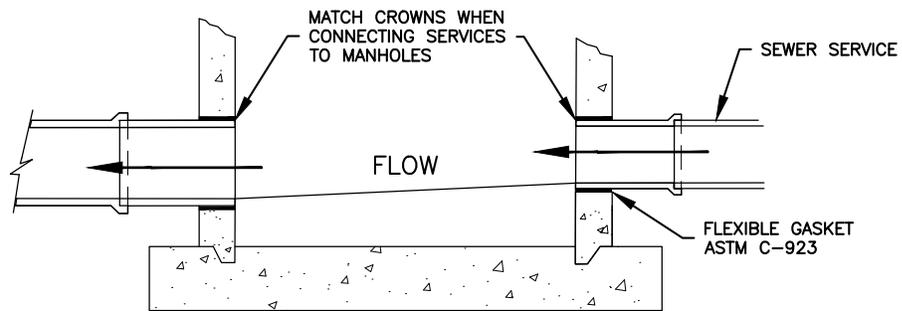
### LATERAL AND CLEANOUT





**PLAN**

N.T.S.



**SECTION**

N.T.S.

DATE: 01/12/2019 SS-D DWG. NO. 5

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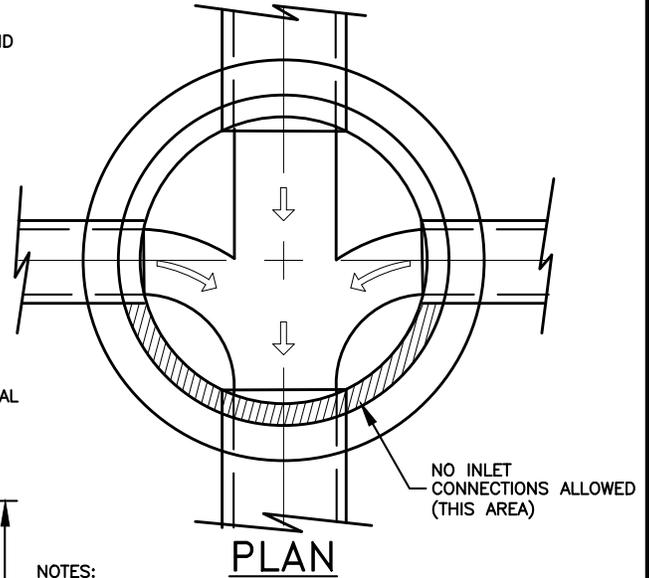
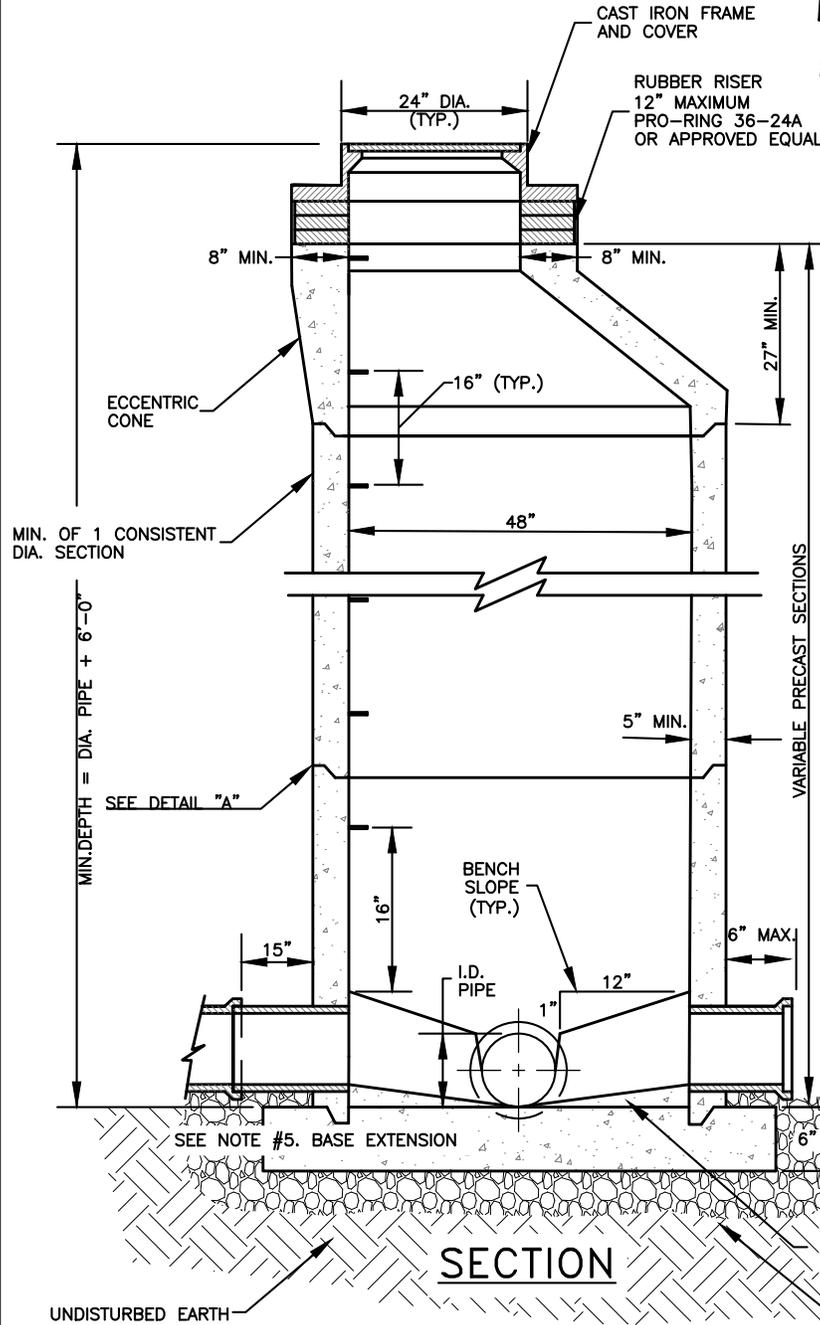
**SERVICE CONNECTIONS  
 AT MANHOLES**



NOTE:  
IF TOP STEP IS IN 24" DIA.  
OPENING, IT MAY PROJECT NO  
MORE THAN 3-1/2".

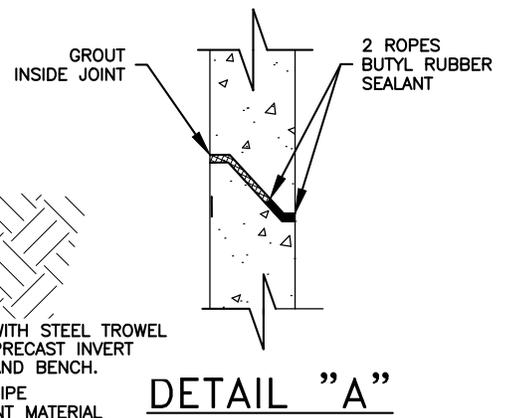
MANHOLE CASTING AND  
COVER NOT SHOWN

SEE DRAWINGS:  
NO. 16 FOR GRADE ADJUSTMENT.  
NOS. 11 AND 12 FOR CASTING DETAILS.  
NOS. 15 AND 16 FOR PAVEMENT DETAIL AROUND  
CASTING.



NOTES:

1. MANHOLE STEPS SHALL BE M.A. IND. PS-1-PF REINFORCED PLASTIC STEPS OR APPROVED EQUAL.
2. FOR PIPE CONNECTIONS USE ASTM C-923 FLEXIBLE GASKET SUCH AS A-LOK, DURA SEAL III, KOR-N-SEAL OR APPROVED EQUAL.
3. TAR STRIPS SHALL BE USED AT ALL JOINTS. THE CONTRACTOR SHALL APPLY TAR OVER THE CEMENT PARING ON THE OUTSIDE OF THE ADJUSTMENT RINGS AND OVER THE MANHOLE CASTING EXTERIOR.
4. RIM/LID FLUSH WITH GROUND IF IN ROADWAY/LANDSCAPE AREA, MINIMUM OF 2' ABOVE GRADE OTHERWISE.
5. EXTEND BASE 6" FOR 4' DIA. MANHOLE, MONOLITHICALLY CAST WITH BASE SECTION. EXTENDED BASE REQUIRED FOR MANHOLES GREATER THAN 8' DEEP AND WITHIN THE 500 YEAR FLOODPLAIN.



DATE: 09/10/2020 SS-D DWG. NO. 6

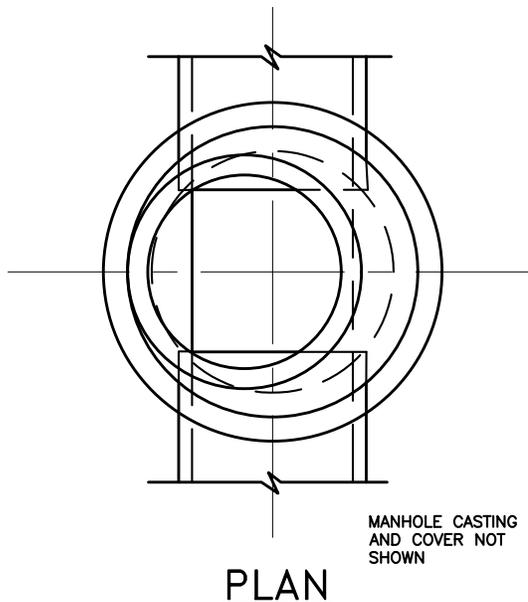
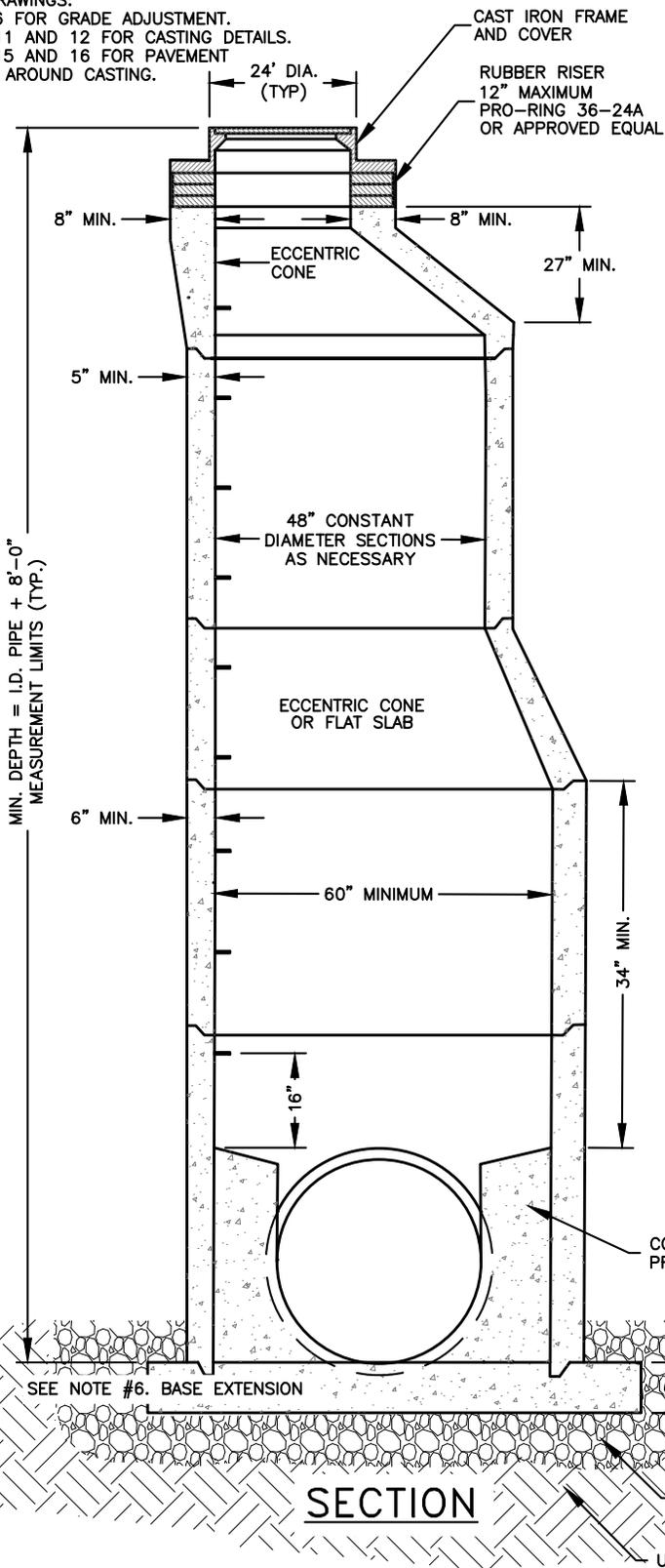
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## PRECAST MANHOLE



SEE DRAWINGS:  
 NO. 16 FOR GRADE ADJUSTMENT.  
 NOS. 11 AND 12 FOR CASTING DETAILS.  
 NOS. 15 AND 16 FOR PAVEMENT  
 DETAIL AROUND CASTING.



**NOTES:**

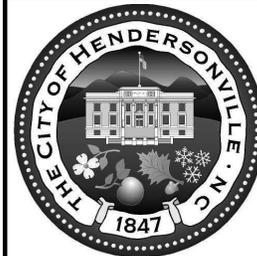
1. PRECAST MANHOLE SECTIONS SHALL MEET ASTM C478. MANHOLE JOINTS SHALL UTILIZE BUTYL RUBBER SEALANT, 2 PIECES ALL AROUND OR O-RING GASKETS (ASTM C443). A MINIMUM 6-INCH WIDE BUTYL RUBBER SEAL SHALL BE INSTALLED ON ALL BELOW GRADE EXTERIOR JOINTS.
2. MANHOLE STEPS SHALL BE M.A. IND. PS-1-PF REINFORCED PLASTIC STEPS OR APPROVED EQUAL.
3. FOR PIPE CONNECTIONS USE ASTM C-923 FLEXIBLE GASKET SUCH AS A-LOK, DURA SEAL III, KOR-N-SEAL OR APPROVED EQUAL.
4. TAR STRIPS SHALL BE USED AT ALL JOINTS. THE CONTRACTOR SHALL APPLY TAR OVER THE CEMENT PARGING ON THE OUTSIDE OF THE ADJUSTMENT RINGS AND OVER THE MANHOLE CASTING EXTERIOR.
5. RIM/LID FLUSH WITH GROUND IF IN ROADWAY/LANDSCAPE AREA, MINIMUM OF 2' ABOVE GRADE OTHERWISE.
6. EXTEND BASE 8" FOR 5' DIA. MANHOLE, MONOLITHICALLY CAST WITH BASE SECTION. EXTENDED BASE REQUIRED FOR MANHOLES GREATER THAN 8' DEEP AND WITHIN THE 500 YEAR FLOODPLAIN.

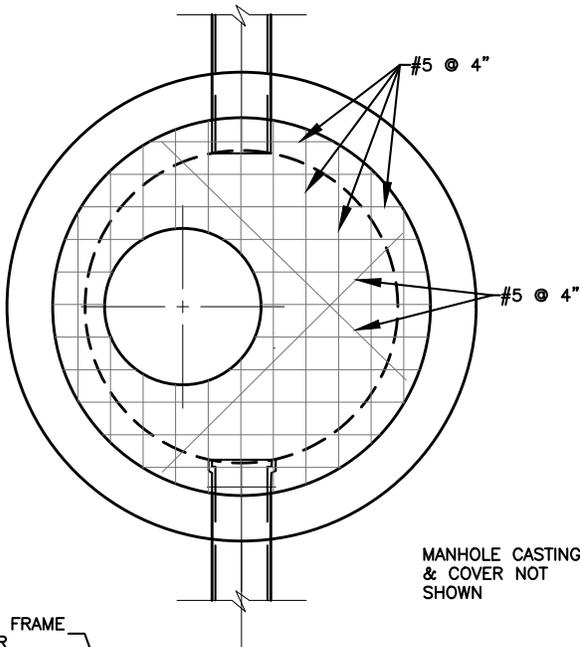
DATE: 09/23/2020 SS-D DWG. NO. 7

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**PRECAST MANHOLE  
 FIVE FOOT DIAMETER**

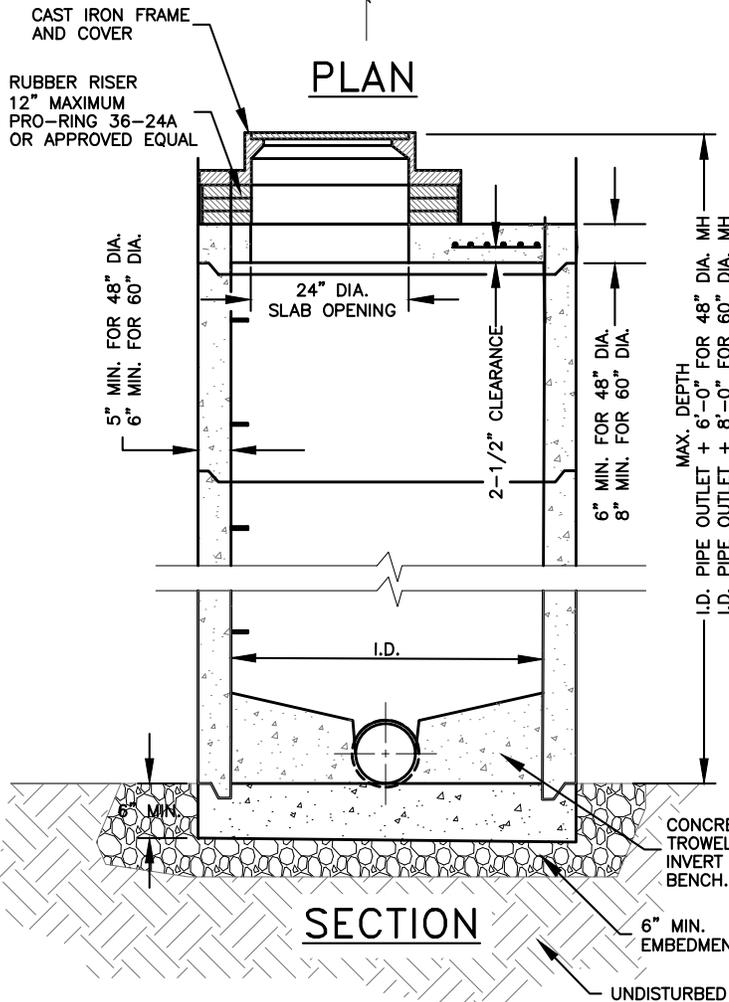




MANHOLE I.D.  
 48" FOR SEWERS 8" THRU 21"  
 60" FOR SEWERS 24" THRU 36"

SEE DRAWINGS:  
 NO. 16 FOR GRADE ADJUSTMENT.  
 NOS. 11 AND 12 FOR CASTING DETAILS.  
 NOS. 15 AND 16 FOR PAVEMENT  
 DETAIL AROUND CASTING.

**PLAN**



**SECTION**

**NOTES:**

PRECAST MANHOLE SECTIONS SHALL MEET ASTM C478. MANHOLE JOINTS SHALL UTILIZE BUTYL RUBBER SEALANT, 2 PIECES ALL AROUND OR O-RING GASKETS (ASTM C443). A MINIMUM 6-INCH WIDE BUTYL RUBBER SEAL SHALL BE INSTALLED ON ALL BELOW GRADE EXTERIOR JOINTS. CONCRETE IN MANHOLES SHALL MEET THE SPECIFICATION ITEM NOS. 5 & 14.

MANHOLE STEPS SHALL BE M.A. IND. PS-1-PF REINFORCED PLASTIC STEPS OR APPROVED EQUAL. IF TOP STEP IS IN 24" DIA. OPENING IT MAY PROJECT NO MORE THAN 3-1/2".

FOR PIPE CONNECTIONS USE ASTM C-923 FLEXIBLE GASKET SUCH AS A-LOK, DURA SEAL III, KOR-N-SEAL OR APPROVED EQUAL.

TAR STRIPS SHALL BE USED AT ALL JOINTS. THE CONTRACTOR SHALL APPLY TAR OVER THE CEMENT PARING ON THE OUTSIDE OF THE ADJUSTMENT RINGS AND OVER THE MANHOLE CASTING EXTERIOR.

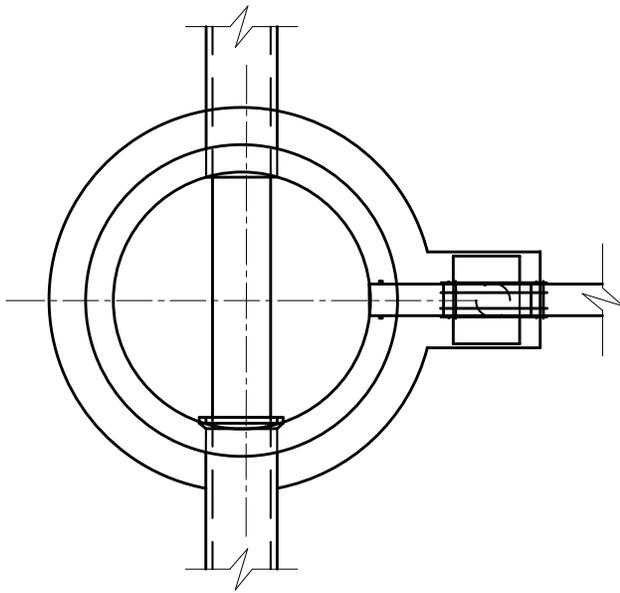
DATE: 09/23/2020 SS-D DWG. NO. 8

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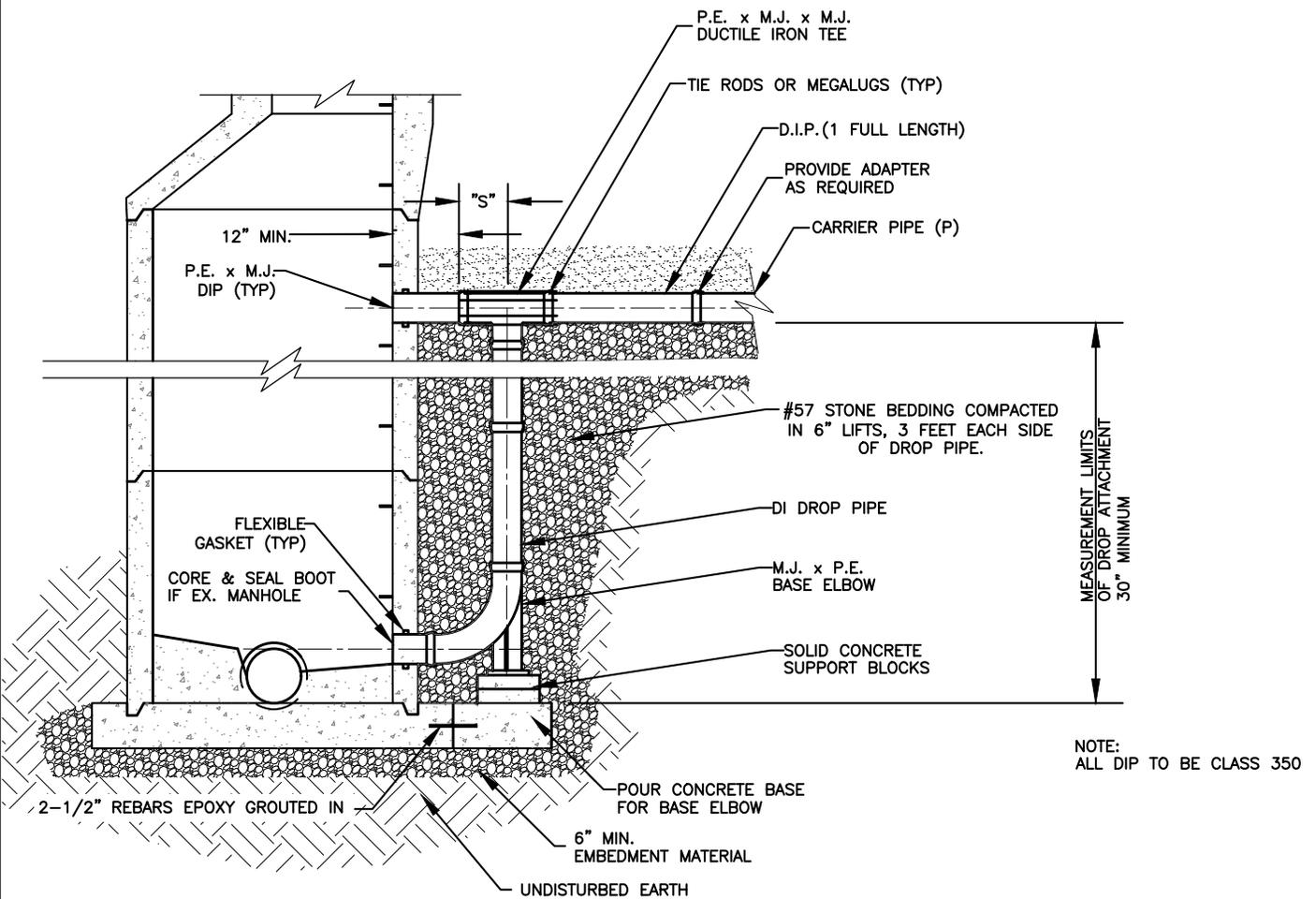
**SHALLOW PRECAST MANHOLE**





SEWER SIZE	DROP SIZE
8"	8"
10"	10"
12", 15", 18"	12"
21", 24"	15"
27", 30", 36"	18"

TABLE OF DIMENSIONS	
"P"	"S"
6"	16"
8"	17"
10"	19"
12"	20"



NOTE:  
ALL DIP TO BE CLASS 350

DATE: 09/17/2019 SS-D DWG. NO. 9

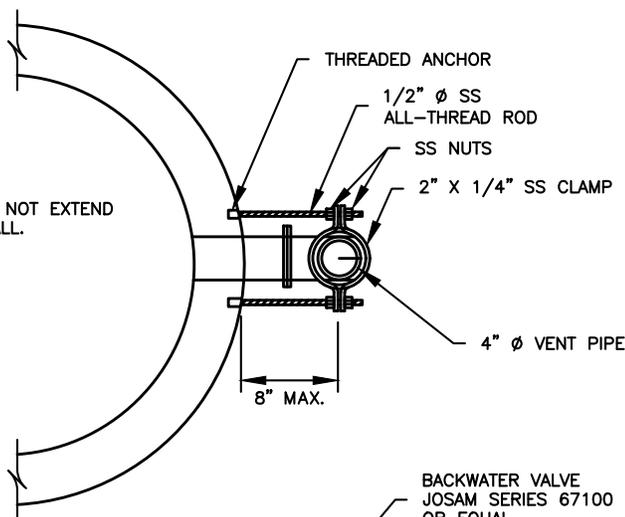
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## DROP MANHOLE

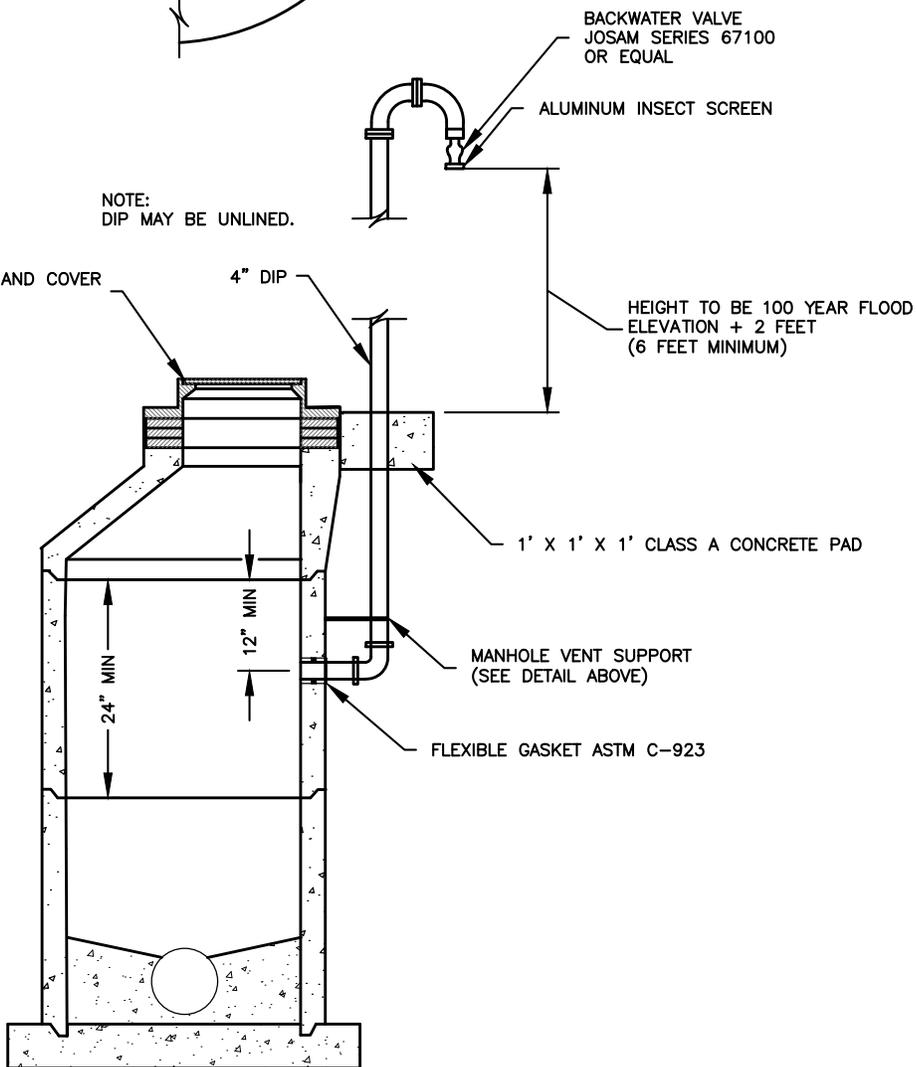


NOTE:  
ANCHOR HOLES SHALL NOT EXTEND THROUGH MANHOLE WALL.



NOTE:  
DIP MAY BE UNLINED.

WATERTIGHT FRAME AND COVER  
(ALL MANHOLES)



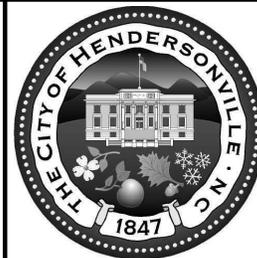
DATE: 01/12/2019 SS-D DWG. NO. 10

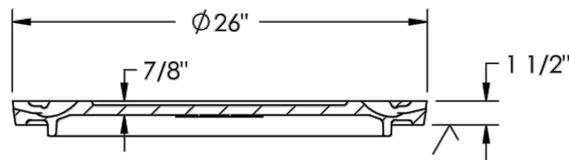
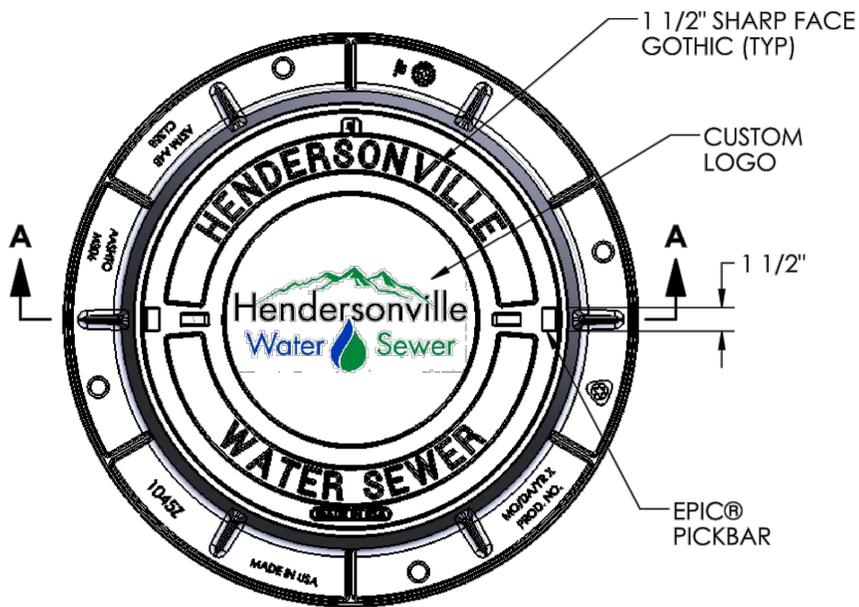
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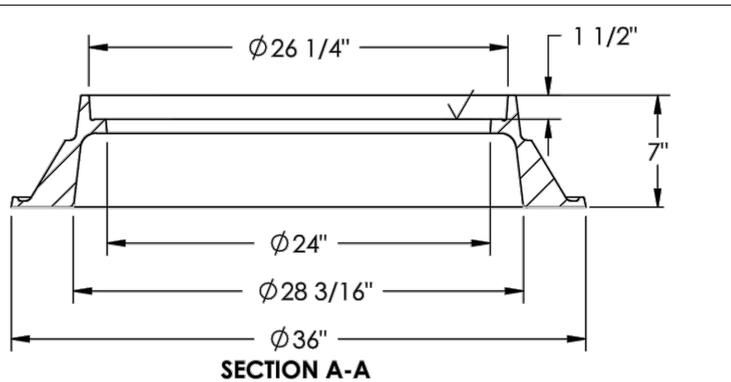
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## VENTED MANHOLE





## MANHOLE COVER



## MANHOLE CASTING

NOTE:  
COVER SHALL BEAR THE WORDS:  
"SANITARY SEWER"

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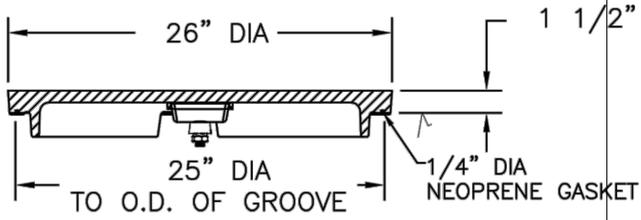
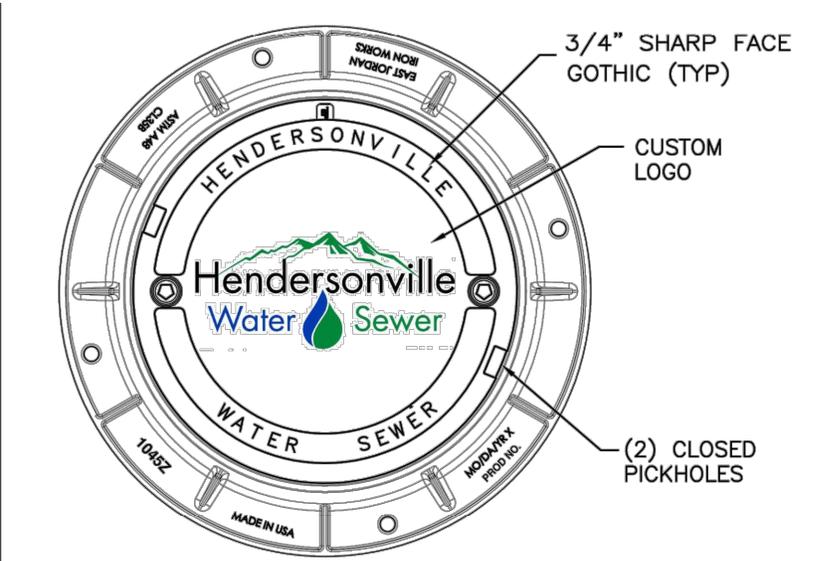
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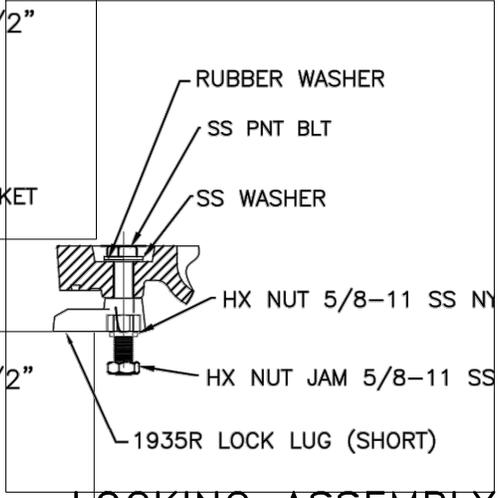
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## STANDARD MANHOLE CASTING AND COVER

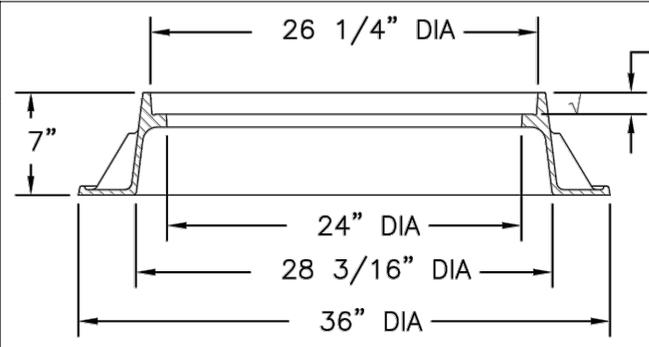




**MANHOLE COVER**



**LOCKING ASSEMBLY**



**MANHOLE CASTING**

NOTE:  
COVER SHALL BEAR THE WORDS:  
"SANITARY SEWER"

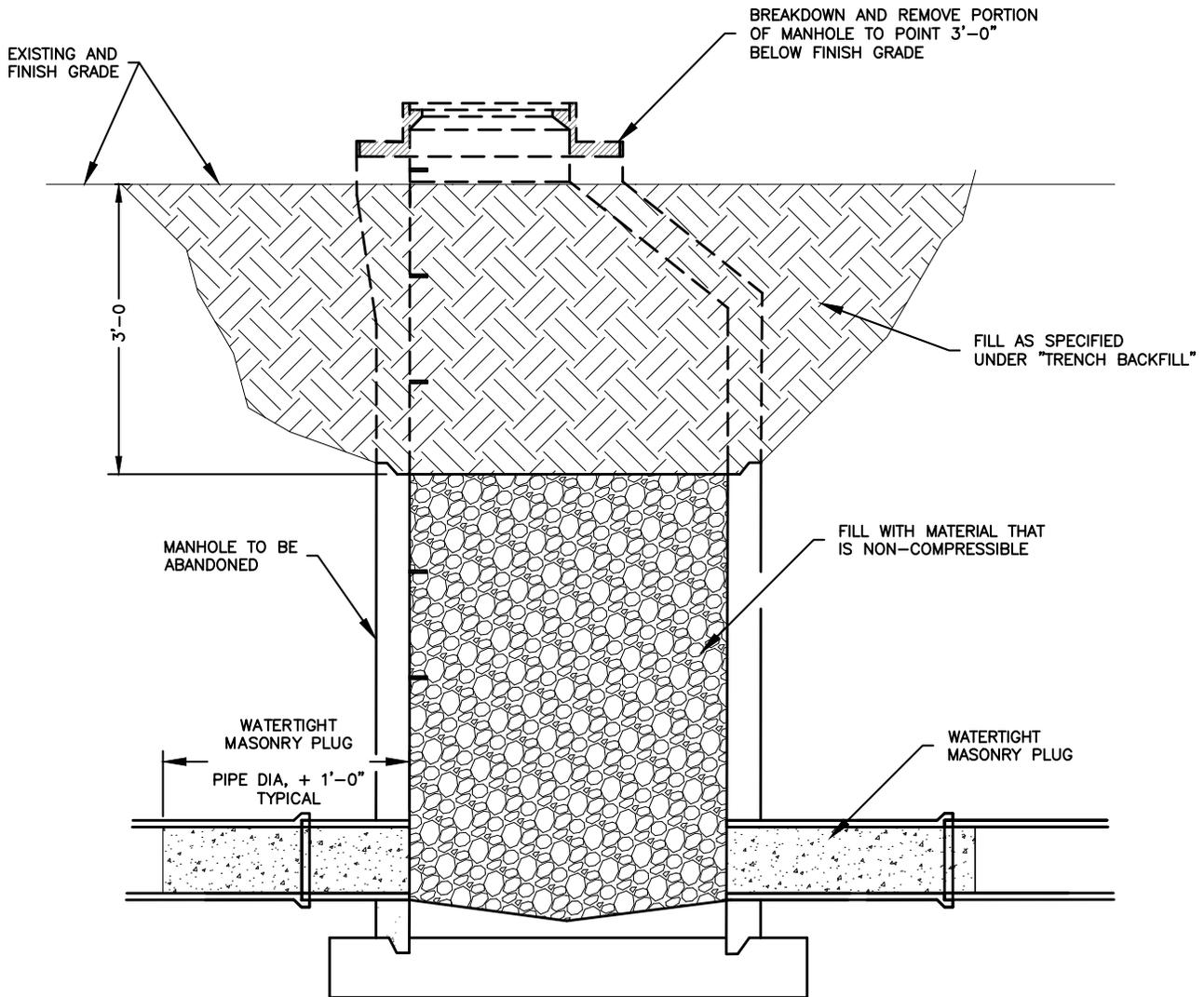
DATE: 01/12/2019 SS-D DWG. NO. 12

SCALE: NOT TO SCALE

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**WATERTIGHT, LOCKING  
MANHOLE CASTING AND COVER**





**MANHOLE ABANDONMENT PROCEDURE:**  
 (SEE SPECIFICATIONS FOR ADDITIONAL INFORMATION)

MANHOLES WHICH ARE TO BE ABANDONED WILL FIRST HAVE BOTH INFLUENT AND EFFLUENT LINES PLUGGED INSIDE THE MANHOLE WITH WATERTIGHT MASONRY. THE MINIMUM LENGTH OF WATER TIGHT MASONRY PLUGS WILL BE THE DIAMETER OF THE ABANDONED PIPE PLUS ONE FOOT. THE MANHOLE WILL THEN BE FILLED WITH INCOMPRESSIBLE MATERIAL (CRUSHED STONE OR AS APPROVED). TO A POINT THREE FEET 93'-0" BELOW THE FINISH GRADE. THE REMAINDER OF THE MANHOLE SHALL BE BROKEN DOWN AND REMOVED, THEN THE EXCAVATION SHALL BE BACKFILLED TO FINISH GRADE AS SPECIFIED UNDER TRENCH BACKFILL.

DATE: 01/12/2019 SS-D DWG. NO. 13

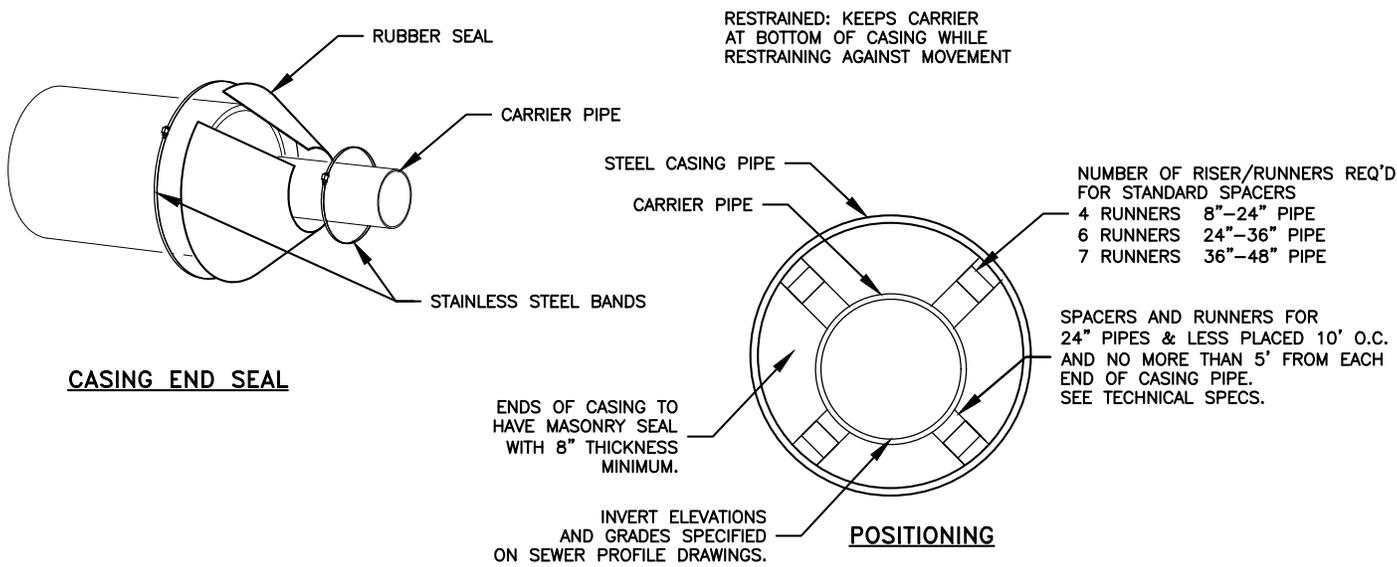
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**MANHOLE ABANDONMENT**



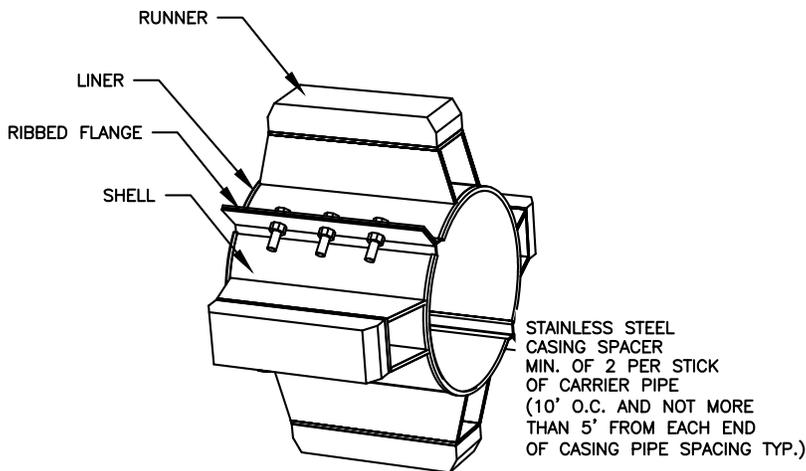


**CASING END SEAL**

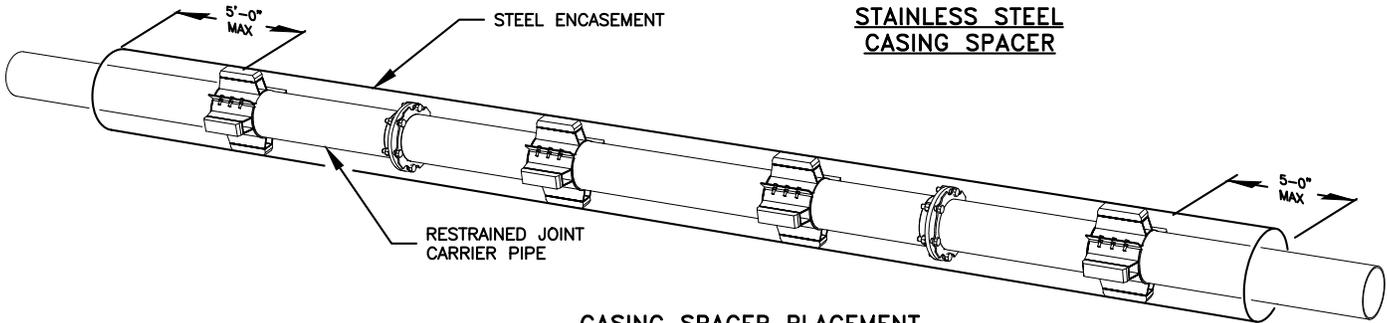
**POSITIONING**

**NOTES:**

1. RESTRAINED POSITIONING TO BE USED AT ALL TIMES.
2. CARRIER PIPE JOINTS SHALL BE MECHANICALLY RESTRAINED, DUCTILE IRON OR C900 PVC ONLY.
3. STAINLESS STEEL CASING SPACERS SHALL BE STYLE CCS AS MANUFACTURED BY CASCADE WATERWORKS MFG. CO. OF YORKVILLE, IL OR ENGINEER APPROVED EQUIVALENT.
4. CASING END SEAL SHALL BE STYLE CCES AS MANUFACTURED BY CASCADE WATERWORKS MFG. CO. OF YORKVILLE, IL OR ENGINEER APPROVED EQUIVALENT.



**STAINLESS STEEL CASING SPACER**



**CASING SPACER PLACEMENT DIAGRAM**

DATE: 01/12/2019 SS-D DWG. NO. 14

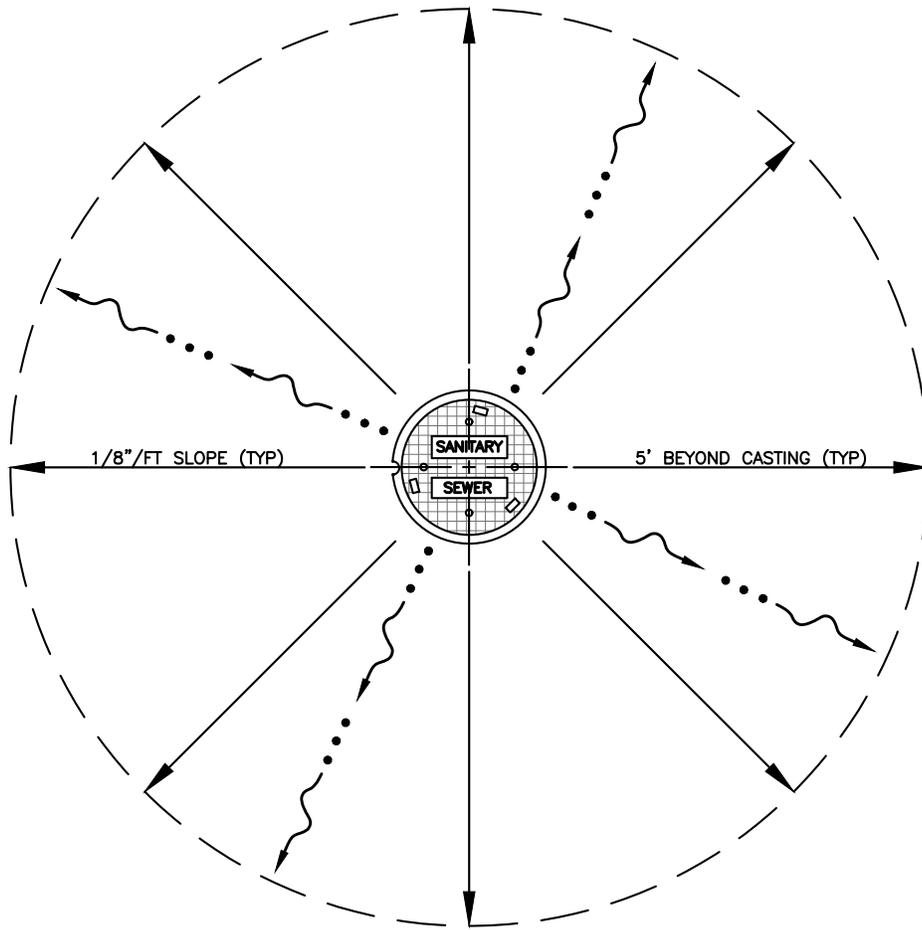
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**PIPE BORING  
 AND  
 ENCASEMENT**



THIS DRAWING IS FOR ROAD GRADES LESS THAN 1" PER FOOT (i.e. LEVEL ±). SEE DRAWING 34 FOR ROAD GRADES GREATER THAN 1" PER FOOT.

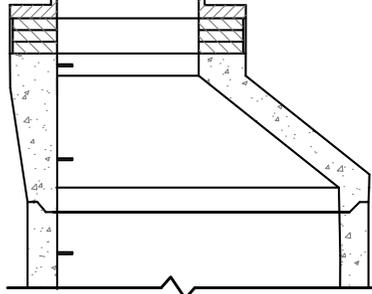


CONSTRUCT TOP OF CASTING  
1/4" BELOW TOP OF ASPHALT



CONTRACTOR TO SLOPE PAVEMENT AWAY FROM THE MANHOLE CASTING IN ORDER TO AVOID ANY PONDING AROUND THE MANHOLE. THIS WORK IS TO BE DONE DURING PAVEMENT CONSTRUCTION AS THE FINAL TOPCOAT OF ASPHALT IS CONSTRUCTED AND PLACED.

GRADE ADJUSTMENT TO SLOPE TOP OF CASTING PARALLEL WITH ROAD SURFACE ON PAVEMENT GRADES GREATER THAN 1"/FT.



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SCALE: NOT TO SCALE

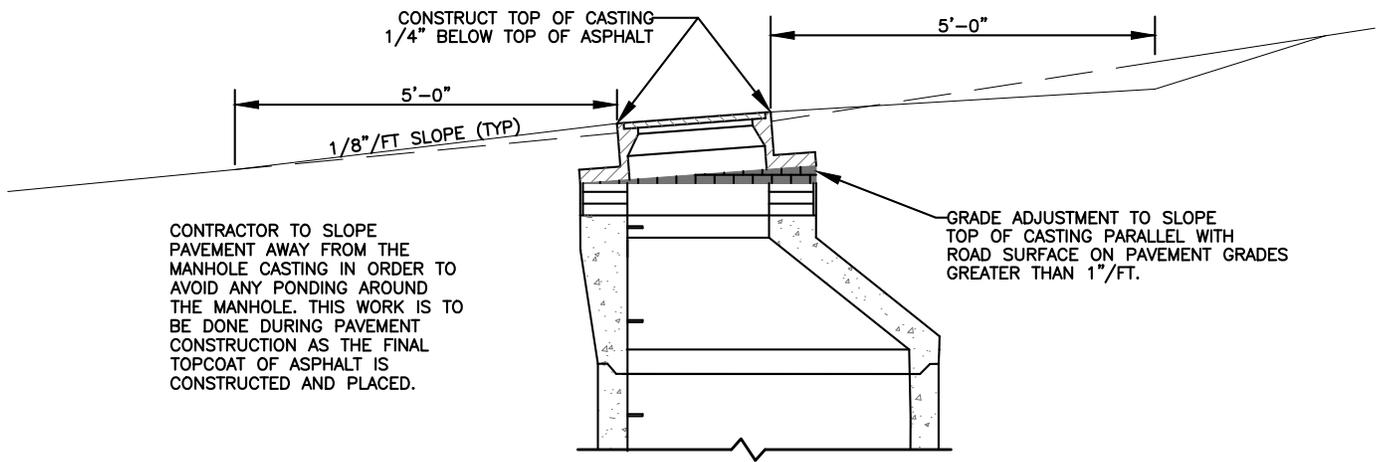
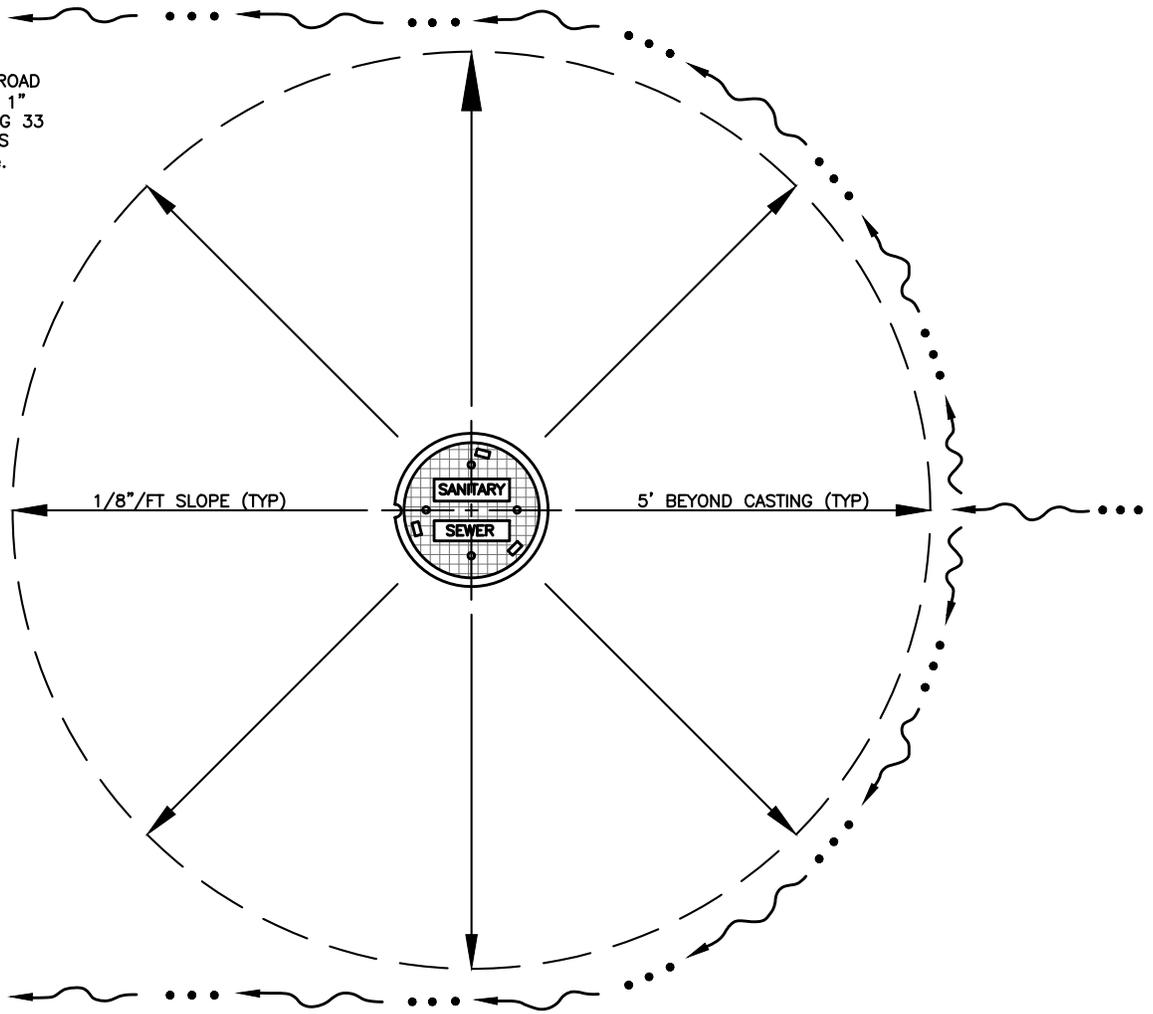
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Hendersonville, NC 28792  
(828) 697-3000 (office)

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**MH CASTING IN NEW ASPHALT PAVEMENT**  
**ROAD GRADES LESS THAN 1" PER FOOT**



THIS DRAWING IS FOR ROAD GRADES GREATER THAN 1" PER FOOT. SEE DRAWING 33 FOR ROAD GRADES LESS THAN 1" PER FOOT (i.e. LEVEL ±)



CONTRACTOR TO SLOPE PAVEMENT AWAY FROM THE MANHOLE CASTING IN ORDER TO AVOID ANY PONDING AROUND THE MANHOLE. THIS WORK IS TO BE DONE DURING PAVEMENT CONSTRUCTION AS THE FINAL TOPCOAT OF ASPHALT IS CONSTRUCTED AND PLACED.

GRADE ADJUSTMENT TO SLOPE TOP OF CASTING PARALLEL WITH ROAD SURFACE ON PAVEMENT GRADES GREATER THAN 1"/FT.

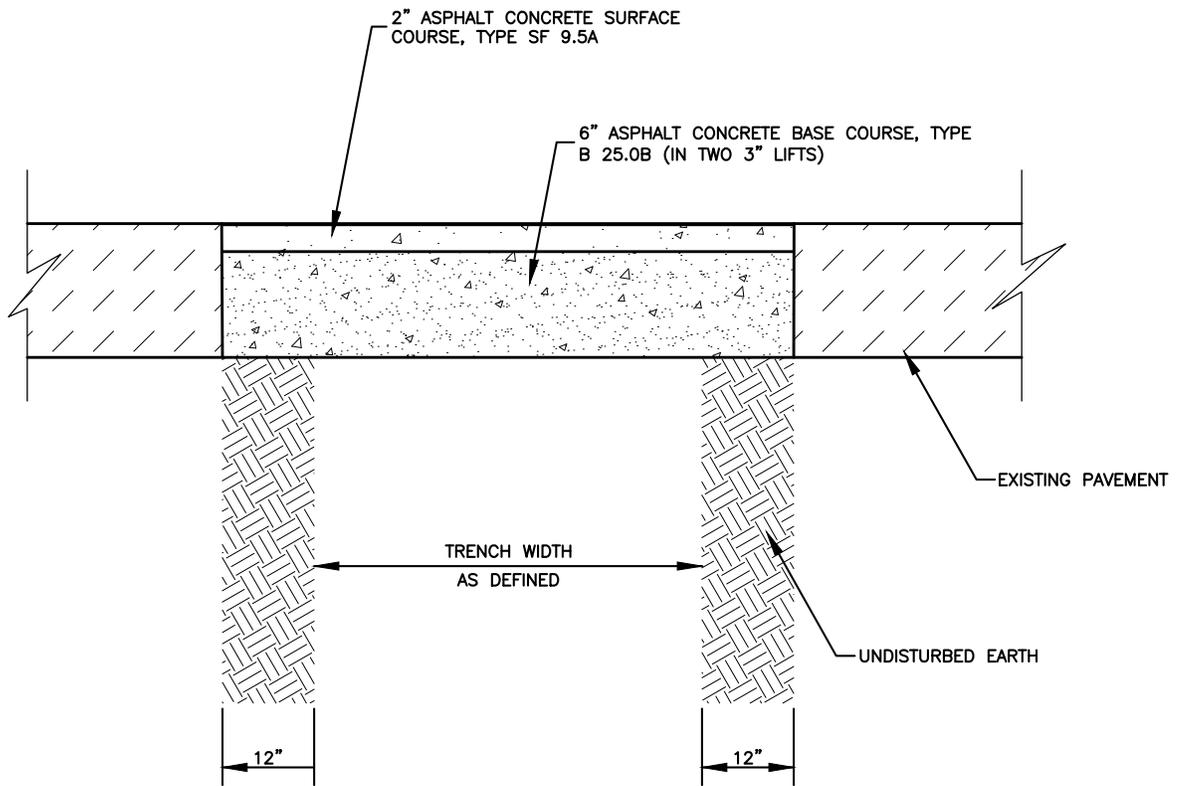
DATE: 01/12/2019 DETAIL DWG. NO. 16

SCALE: NOT TO SCALE

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**MH CASTING IN NEW ASPHALT PAVEMENT**  
**ROAD GRADES GREATER THAN 1" PER FOOT**





**GENERAL PAVEMENT NOTE:**  
 WHERE EDGES OF REPLACED SECTIONS EXTENDS WITHIN 2'-0" OF ROADWAY EDGE, PAVEMENT IS TO BE REPLACED TO ROADWAY EDGE AT NO ADDITIONAL COST.

PAYMENT LIMIT FOR ALL PAVEMENT SHALL BE TRENCH WIDTH + 2'-0"

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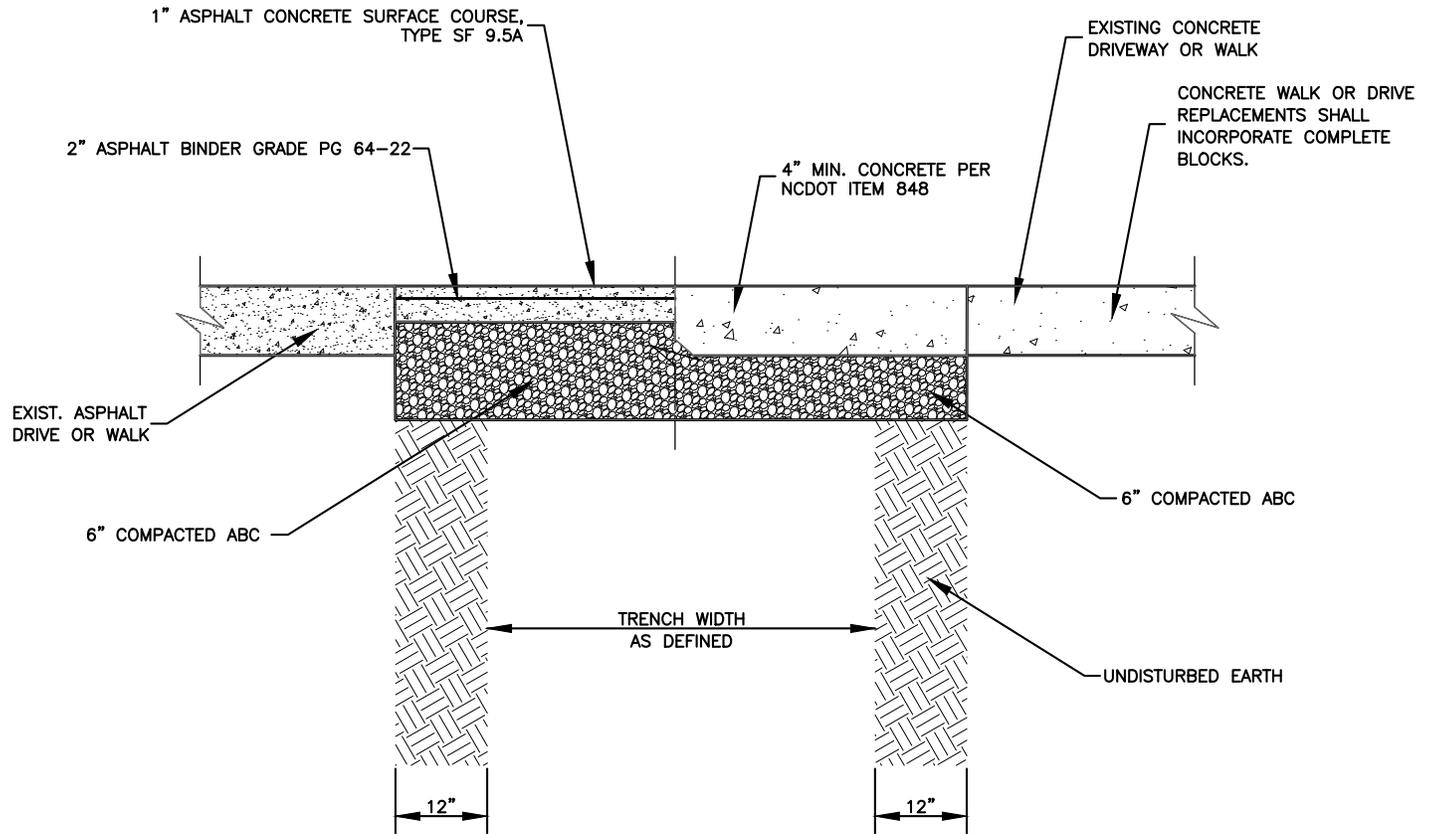
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ASPHALT CONCRETE  
REPLACEMENT



ASPHALT APPROACHES TO DRIVEWAYS OTHER THAN ASPHALT, SHALL NOT BE PATCHED, AND REPLACED ENTIRELY. INSTEAD, THE 1" SURFACE COURSE SHALL BE CONSTRUCTED AT THE SAME TIME THE ROAD IS PAVED.

PAYMENT LIMIT FOR ALL PAVEMENT SHALL BE TRENCH WIDTH + 2'-0"



**GENERAL PAVEMENT NOTE:**  
WHERE EDGES OF REPLACED SECTIONS EXTENDS WITHIN 2'-0" OF ROADWAY EDGE, PAVEMENT IS TO BE REPLACED TO ROADWAY EDGE AT NO ADDITIONAL COST.

\* 4" MIN FOR CONCRETE SIDEWALK REPLACEMENT, 6" FOR DRIVEWAYS OR DRIVE APRON REPLACEMENT.

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ASPHALT OR CONCRETE  
DRIVEWAY AND WALKWAY



**GENERAL PAVEMENT NOTE:**

MILL DOWN EXISTING PAVEMENT, 2" IN DEPTH;  
CLEAN ALL SURFACES, APPLY TACK COAT, AND IN  
STALL A FULL WIDTH 2" ASPHALT SURFACE COURSE,  
TYPE S9.5C PAVEMENT OVERLAY.

WHERE EDGES OF REPLACED SECTIONS EXTEND  
WITHIN 2'-0" OF ROADWAY ASPHALT EDGE, REMOVE  
AND REPLACE EXISTING ASPHALT AND SUBGRADE TO  
THE ROADWAY EDGE PER THE DETAIL AND NOTES AS  
SHOWN BELOW, AT NO ADDITIONAL COST.

4" ASPHALT BINDER COURSE TYPE I-19.0  
(INSTALL INITIAL 6" ASPHALT BINDER COURSE,  
MILLED DOWN TO 4" DEPTH AT COMPLETION.)

EXISTING PAVEMENT  
(THICKNESS VARIES)

UNDISTURBED EARTH

TRENCH EXCAVATED AREA  
(SEE TRENCH CONSTRUCTION  
DETAIL SS-D DWG. NO. 2)

8" COMPACTED ABC

12" TRENCH WIDTH AS DEFINED 12"

**NOTES:**

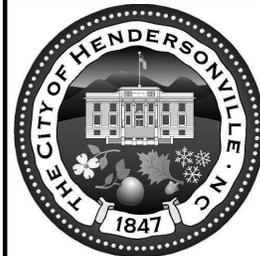
1. SAW-CUT EXISTING PAVEMENT EDGES TO A CLEAN STRAIGHT EDGE. APPLY TACK AT A RATE OF .25 GAL/YD<sup>2</sup> TO ALL EXISTING PAVEMENT VERTICAL EDGES PRIOR TO ASPHALT PAVING.
2. INSTALL 8" ABC STONE BASE COMPACTED TO 100% MAX. DRY DENSITY AS DETERMINED BY AASHTO T-99 IN ASPHALT PATCH AREAS EXTENDING 1' WIDE ON EACH SIDE OF TRENCH EXCAVATED AREA. THE CONTRACTOR IS RESPONSIBLE FOR MEETING ALL COMPACTION REQUIREMENTS. ENGINEER SHALL PROVIDE SUB-GRADE TESTING DATA FROM AN INDEPENDENT GEOTECHNICAL FIRM. THERE SHALL BE 1 TEST REQUIRED PER ROAD CROSSING OR 1 TEST FOR EVERY 100 FEET OF TRENCHED AREAS IN ROADWAY. CORRECTED DEFICIENCIES AND ANY SUBSEQUENT TESTING IS THE RESPONSIBILITY OF THE CONTRACTOR.
3. PROVIDE A MINIMUM OF 6" ASPHALT BINDER COURSE (I-19.0) COMPACTED IN 2" LIFTS MATCHING THE TOP OF THE EXISTING PAVEMENT EXTENDING 1' WIDE ON EACH SIDE OF THE TRENCH EXCAVATED AREA.
4. EXISTING PAVEMENT, TO THE EXTENTS SHOWN ON THE DRAWINGS, SHALL BE MILLED DOWN 2" IN DEPTH PER NCDOT SECTION 607; PAVEMENT CLEANED OF ALL MILLINGS, TACK COAT APPLIED AT A RATE OF 0.08 GAL/YD<sup>2</sup> PER NCDOT SECTION 605, AND A 2" ASPHALT SURFACE COURSE, TYPE S9.5C, OVERLAY INSTALLED MAINTAINING EXISTING ROADWAY ELEVATIONS. THE 2" ASPHALT SURFACE COURSE SHALL BE APPLIED AS ONE UNIFORM SEAMLESS LAYER ACROSS THE PAVEMENT WIDTH.
5. IF ASPHALT BINDER PATCHING CANNOT BE ACHIEVED THE SAME DAY OF TRENCH EXCAVATION, TEMPORARILY INSTALL 4" COMPACTED ABC STONE BASE TOPPED WITH A COATING OF 2" ROCK DUST (FINES), FLUSH WITH THE EXISTING PAVEMENT, ON TOP OF THE INSTALLED 8" COMPACTED ABC STONE BASE. THE ABC STONE BASE AND ROCK DUST (FINES) MUST BE MAINTAINED UNTIL FINAL PAVING IS COMPLETE.
6. INSTALL TEMPORARY ASPHALT PAVEMENT STRIPING AND MARKINGS AS REQUIRED DURING CONSTRUCTION. UPON COMPLETION OF FINAL PAVING, ALL THERMOPLASTIC STRIPING, PAVEMENT MARKINGS, AND PAVEMENT MARKERS MUST BE REPLACED PER NCDOT SPECIFICATIONS.

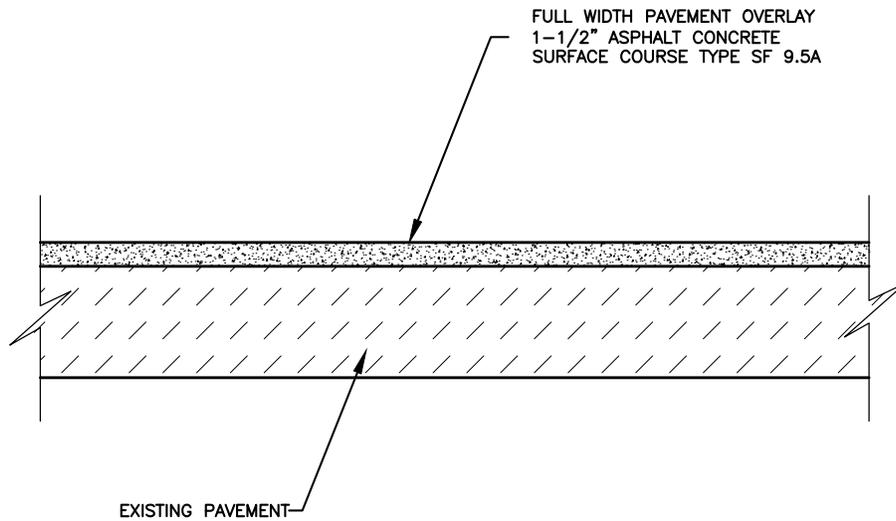
DATE: 08/16/2019 SS-D DWG. NO. 19

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**ASPHALT PAVEMENT REPLACEMENT  
WITH OVERLAY**





NOTES:

1. THE ENTIRE STREET PAVEMENT SHALL BE MILLED DOWN 1-1/2" PER NCDOT 607 FOR THE 1-1/2" ASPHALT CONCRETE SURFACE COURSE OVERLAY TO MAINTAIN EXISTING ROADWAY ELEVATIONS. THE 1-1/2" LAYER OF ASPHALT CONCRETE SURFACE COURSE SHALL BE APPLIED AS ONE UNIFORM SEAMLESS LAYER ACROSS THE PAVEMENT WIDTH.
2. SEAL BETWEEN ASPHALT CONCRETE SURFACE COURSE OVERLAY AND EXISTING SURFACES PER NCDOT ITEM 605.

DATE: 01/12/2019 SS-D DWG. NO. 20

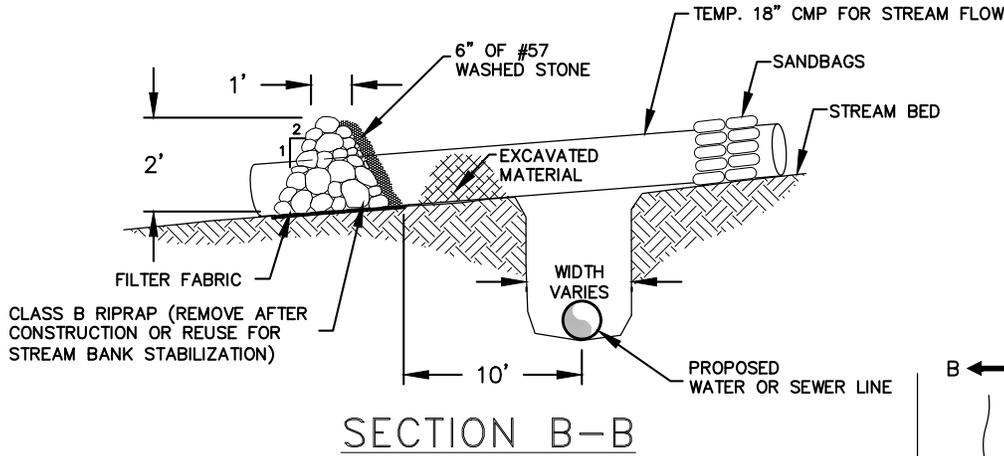
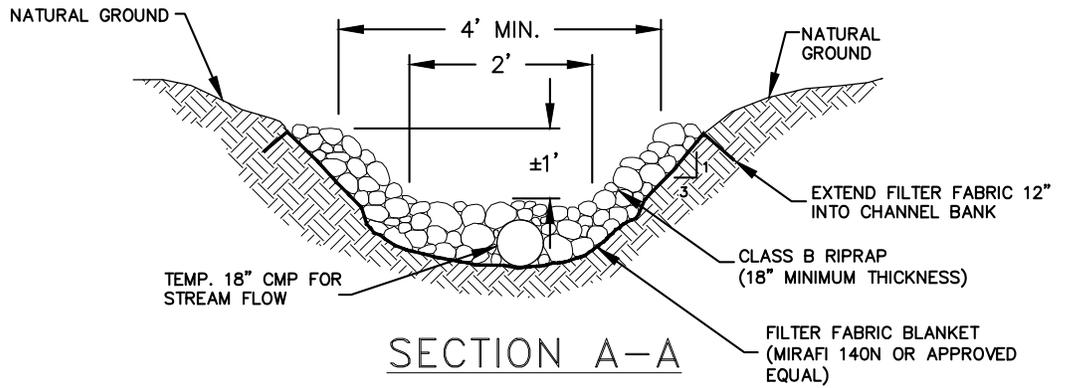
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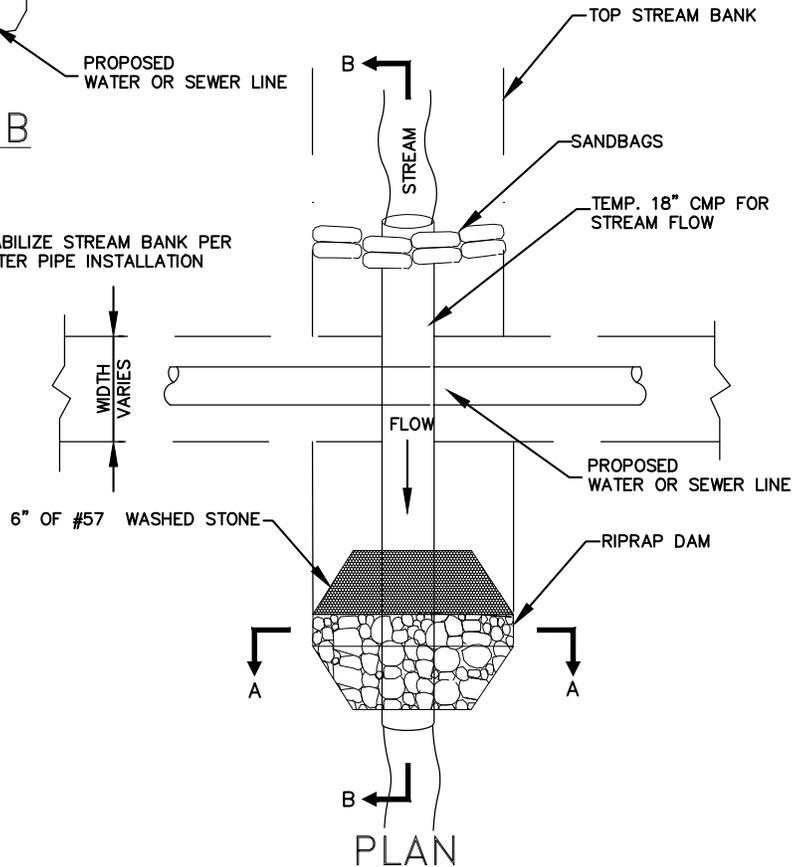
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ASPHALT CONCRETE  
FULL WIDTH OVERLAY





NOTE: STABILIZE STREAM BANK PER  
DETAIL AFTER PIPE INSTALLATION



NOTE: ALL DISCHARGE FROM DEWATERING THE WORK  
AREA SHALL BE PUMPED TO EITHER A TEMPORARY  
SEDIMENT TRAP OR DEWATERING SILT BAG PER DETAILS

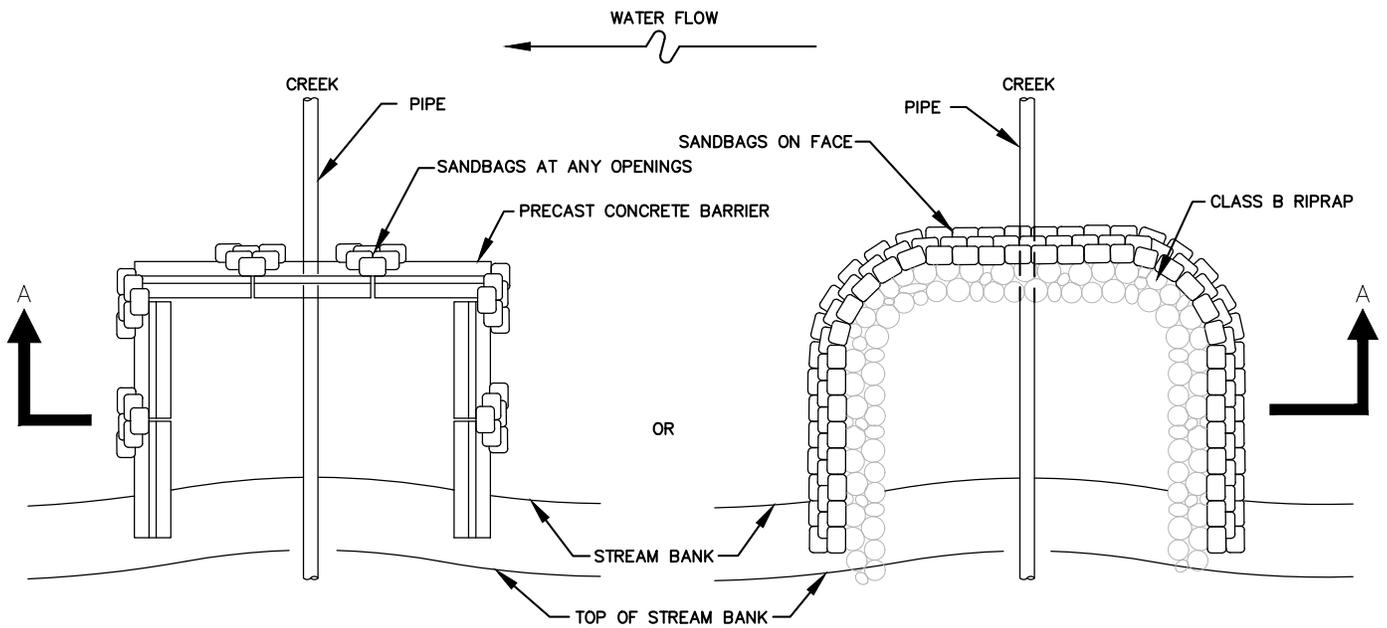
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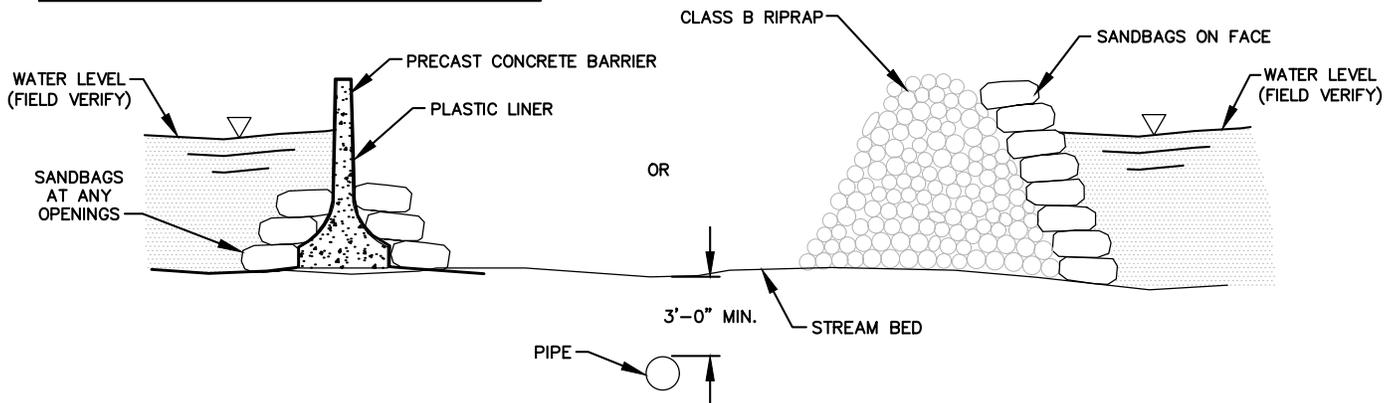
### SMALL CREEK CROSSING





NOTE: ALL DISCHARGE FROM DEWATERING THE WORK AREA SHALL BE PUMPED TO EITHER A TEMPORARY SEDIMENT TRAP OR DEWATERING SILT BAG PER DETAILS

PLAN



SECTION A-A

NOTES:

1. COFFER DAM WILL BE BUILT SO THAT APPROXIMATELY ONE-HALF (1/2) OF THE STREAM CHANNEL IS OPEN AT ALL TIMES.
2. MATERIAL FROM THE STREAM BED SHALL NOT BE USED FOR COFFER DAM.
3. NO EARTHEN MATERIAL SHALL BE USED FOR COFFER DAM OR PLACED IN STREAM FOR ANY REASON.
4. STREAM BED SHALL BE DISTURBED THE MINIMUM REQUIRED FOR CONSTRUCTION OF PIPE LINE AND WILL BE RESTORED TO ORIGINAL CONTOURS WHEN WORK IS COMPLETE.
5. ALTERNATIVE COFFER DAM MATERIAL IS ACCEPTABLE BUT SHALL BE APPROVED BY THE ENGINEER.

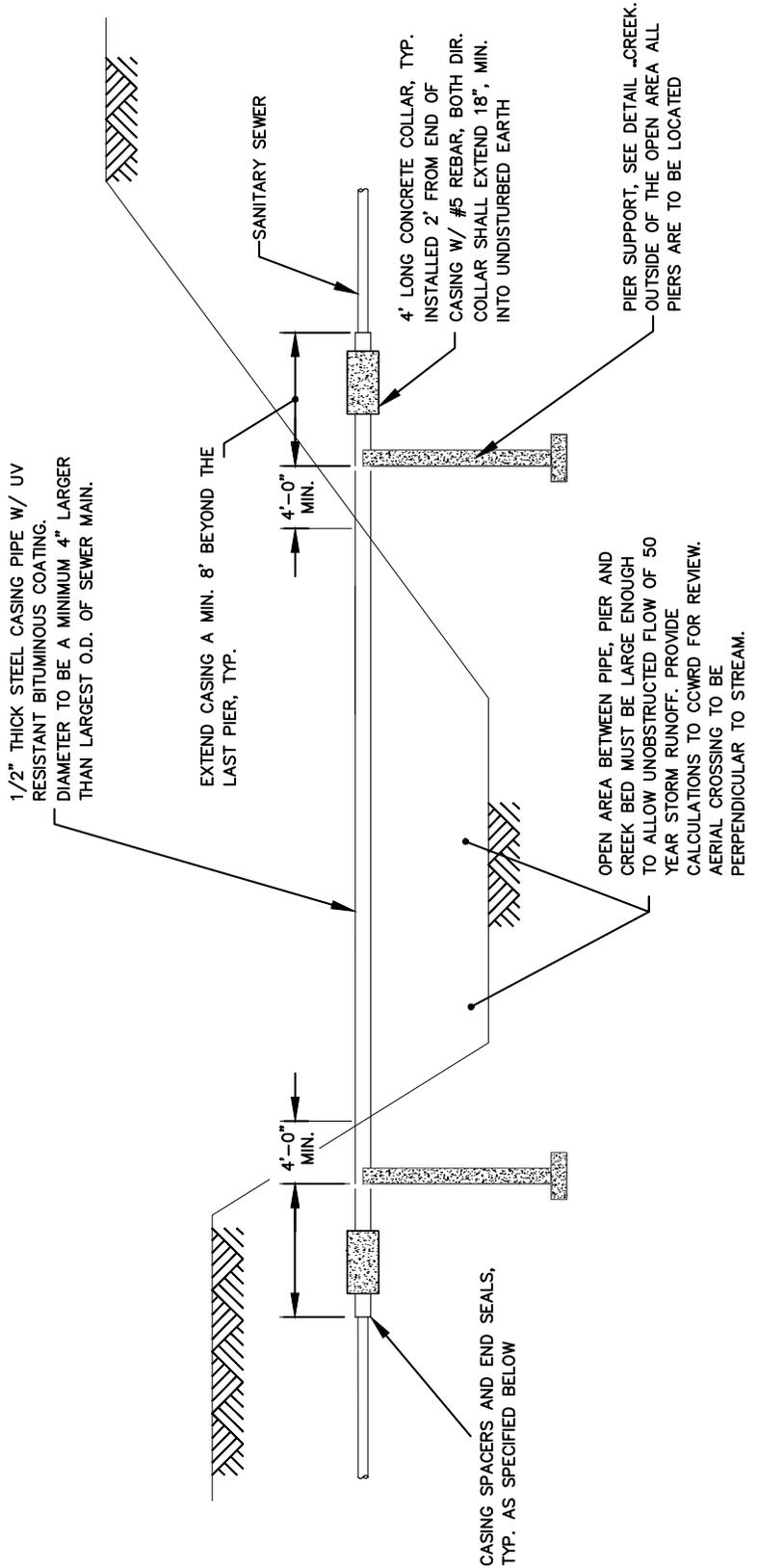
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LARGE CREEK CROSSING





APPROVED CASING SPACERS: MODEL  
 CCS, CASCADE WATERWORKS MODEL  
 BWM-SS, BWM COMPANY APPROVED  
 END SEALS: MODEL CCES, CASCADE  
 WATERWORKS MODEL BWM-PO, BWM  
 COMPANY

ELEVATION

DATE: 01/12/2019 SS-D DWG. NO. 23-1

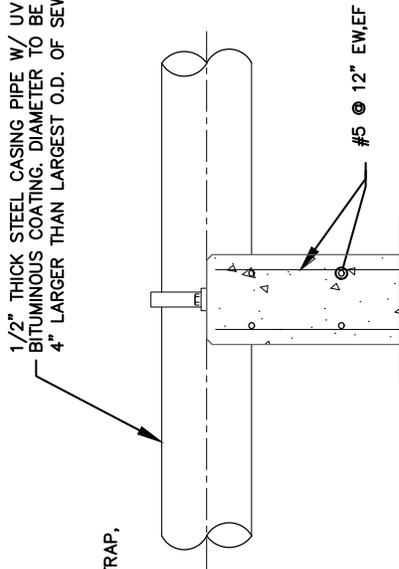
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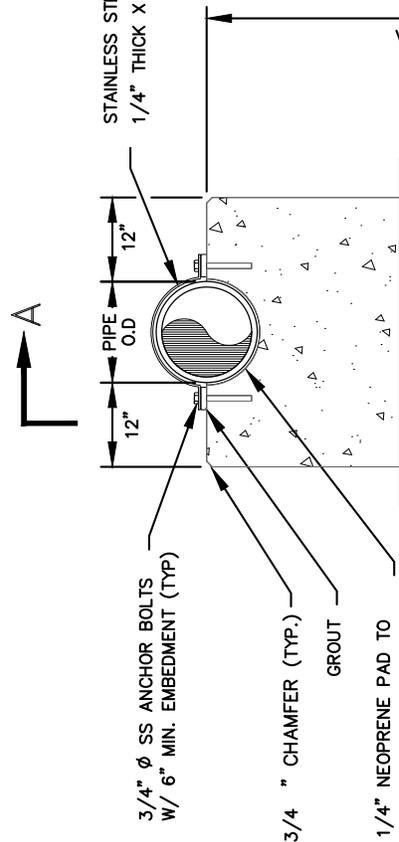
AERIAL SEWER CROSSING (1 OF 2)



1/2" THICK STEEL CASING PIPE W/ UV RESISTANT BITUMINOUS COATING. DIAMETER TO BE A MIN. 4" LARGER THAN LARGEST O.D. OF SEWER MAIN



STAINLESS STEEL PIPE STRAP, 1/4" THICK X 3" WIDE



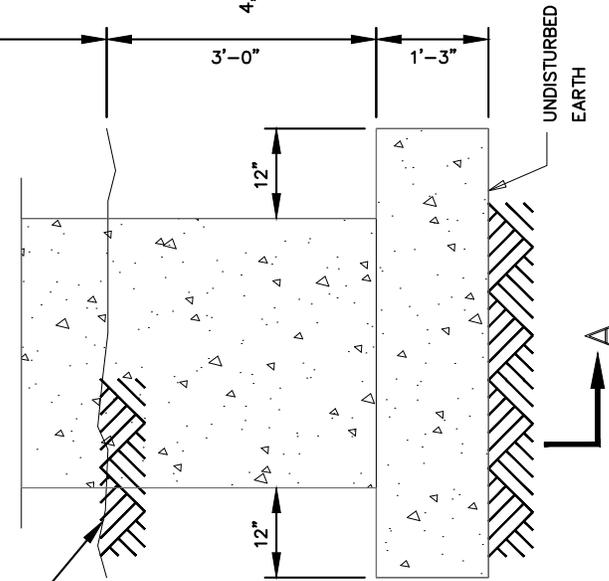
3/4" Ø SS ANCHOR BOLTS W/ 6" MIN. EMBEDMENT (TYP)

3/4" CHAMFER (TYP.)

GROUT

1/4" NEOPRENE PAD TO SEPARATE STEEL FROM CONCRETE

LOWEST ELEV. OF CREEK OR SWALE



4,000 PSI CONCRETE

UNDISTURBED EARTH

© 12" EF, 2" CLEAR #5x3'-6" DOWELS

#6 @ 12" EW, T&B, 3" CLEAR

SECTION

ELEVATION

DATE: 01/12/2019 SS-D DWG. NO. 23-2

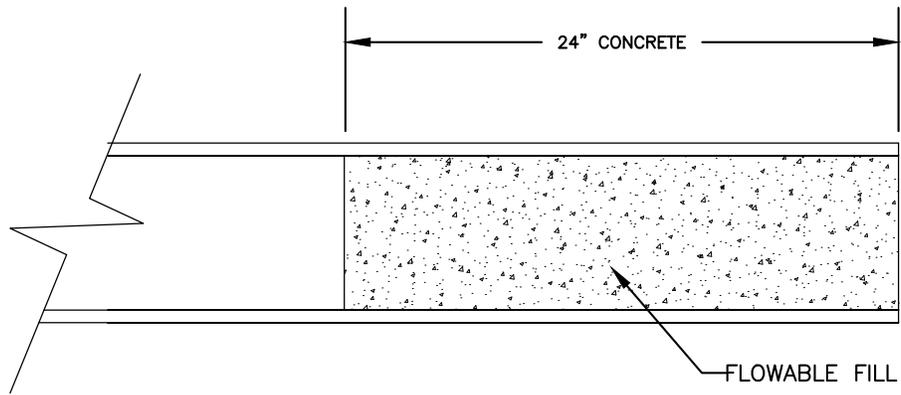
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AERIAL SEWER CROSSING (2 OF 2)





SECTION PIPE ABANDONMENT

**NOTE:**

1. PIPE PLUGS SHALL BE INSTALLED TO THE SATISFACTION OF THE ENGINEER.
2. ABANDONED PIPES, 12" AND LARGER, SHALL BE BROKEN INTO EVERY 50' AND SHALL BE FILLED COMPLETELY WITH SAND SLURRY.

DATE: 01/12/2019 SS-D DWG. NO. 24

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PIPE ABANDONMENT

