

SPECIAL BEDDING
FOR 14' - 20' DEPTHS
AND FOR PIPE 18" AND ABOVE IN SIZE

STANDARD BEDDING
FOR 3' TO 14' DEPTHS

NOTES:

1. EMBEDMENT MATERIAL MUST BE CLASS I (NO. 67 OR NO. 78M WASHED STONE IS TYPICALLY USED)
2. EMBEDMENT MATERIAL SHALL BE COMPACTED TO A MINIMUM OF 90% STANDARD PROCTOR DENSITY FOR CLASS I MATERIAL.
3. ALL SANITARY SEWER LINES LESS THAN 3' AND OVER 20 FEET IN DEPTH MUST BE D.I.P.

DRAWING NOT TO SCALE

BEDDING FOR FLEXIBLE AND SEMI-RIGID SANITARY SEWER PIPE

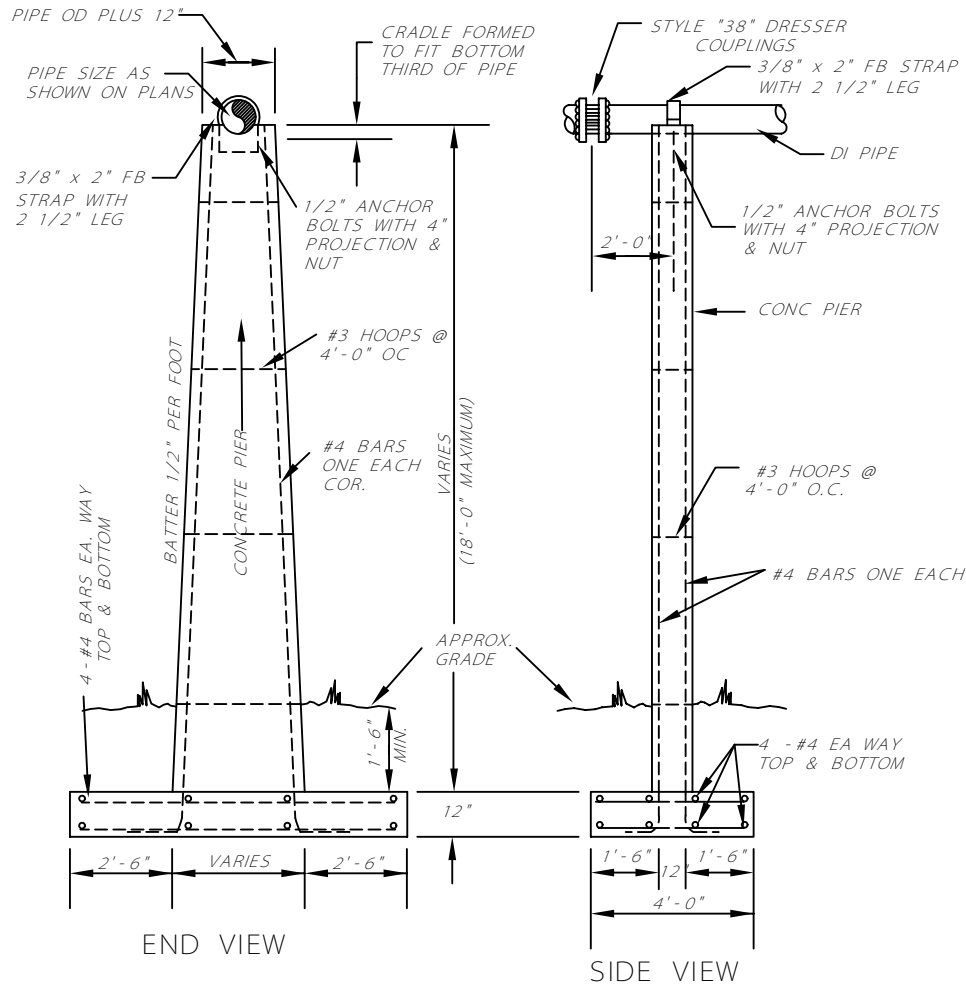
STANDARD DETAIL NUMBER HS703

DATE REVISIONS

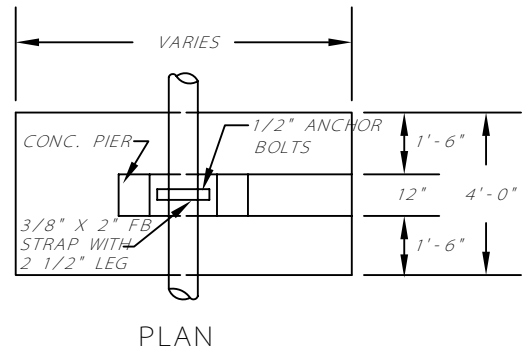
7/24/09

TOWN OF HOLLY SPRINGS ENGINEERING DEPARTMENT

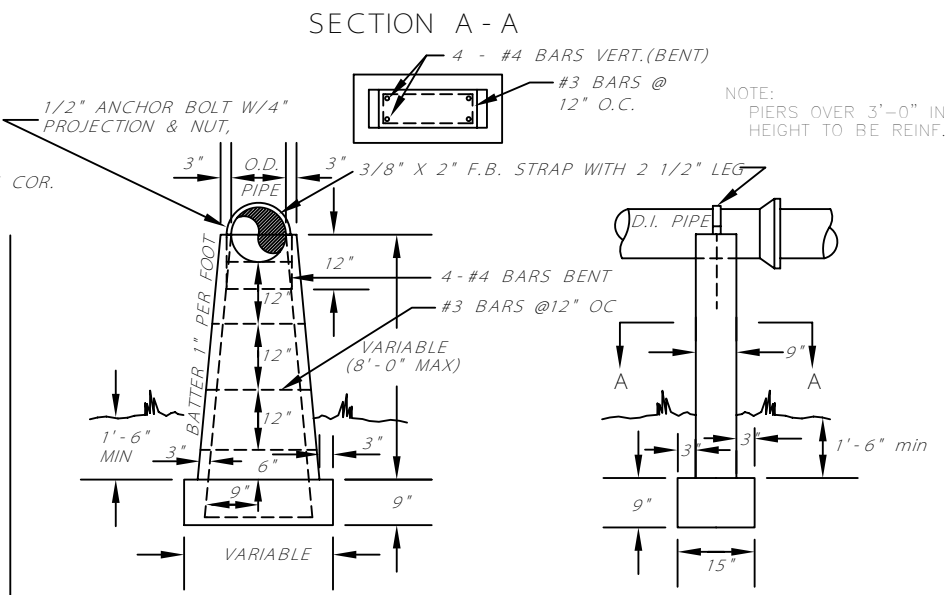




TYPE II CONC. PIER FOR EXPOSED PIPE



PLAN



END VIEW

SIDE VIEW

TYPE I CONC. PIER FOR EXPOSED PIPE

NOTE: CONCRETE SHALL BE 3000 PSI
STEEL SHALL BE GRADE 40

NOTE: PIERS OVER 3'-0" IN HEIGHT TO BE REINF.

DRAWING - NOT TO SCALE

STANDARD DETAIL NUMBER HS704	
DATE	REVISIONS
7/24/09	



LID COMPATIBLE WITH MANHOLE ODOR SCRUBBER INSET
DRILLED WITH TEN 1"Ø HOLES - SEE SPECIFICATIONS

MANHOLE ODOR SCRUBBER
STEPS AT 16" ON CENTER
(ONLY INSTALLED WHEN
DEPTH EXCEEDS 3')

MANHOLE SHALL RECEIVE
AN EPOXY COATING
SYSTEM ON THE INTERIOR
SUCH AS COR-COTE SC
AS MANUFACTURED BY
SHERWIN-WILLIAMS, RAVEN
405 AS MANUFACTURED
BY RAVEN LINING
SYSTEMS, SEWER KOTE
DURAMER 1030 OR AN
APPROVED EQUIVALENT

1 1/2" x 4" x 0'-8" LG. w/ 2-
3/8"Ø HOLES (2 REQ'D)

1/2"Ø S.S. CONC. EXP.
ANCHORS (2 EA. PLATE)

VARIABLE

S.S. 2 x 2 x 1/4" (LENGTH DEPENDENT
ON MANHOLE DIAMETER & SIZE OF
VALVE) w/ 4- 3/8"Ø x 1" LG. SLOTTED
HOLE

PROVIDE FLEXIBLE BOOT AND S.S.
BAND FOR FORCE MAIN.

FINISHED GRADE
(VARIES)

4' PRECAST
CONC. MANHOLE

2" VALMATIC VMC 302AS S.S.
AIR/VACUUM VALVE
OR AN APPROVED EQUAL

1/2" THK. X 1 1/2" WIDE S.S. FLAT BAR
(LENGTH AS DETERMINED BY VALVE
DIAMETER)

2" THD. S.S. BALL VALVE

2" S.S. NIPPLE (TYP.)

C900 PVC FORCEMAIN

ALL STAINLESS STEEL TAPPING SADDLE -
ROMAC MODEL 306 OR APPROVED EQUAL

2" FLOOR
DRAIN

TYPICAL CONCRETE FOOTING
(3000 P.S.I. CONCRETE)

12" No. 57 STONE

TYPICAL SECTION

1 1/2" x 4" x 0'-8" LG.
w/ 2- 3/8"Ø HOLES
(2 REQ'D)

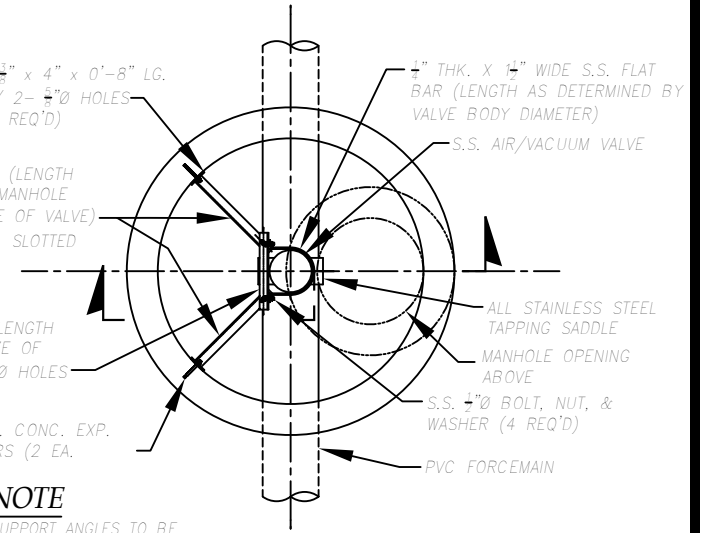
S.S. 2 x 2 x 1/4" (LENGTH
DEPENDENT ON MANHOLE
DIAMETER & SIZE OF VALVE)
w/ 4- 3/8"Ø x 1" LG. SLOTTED
HOLE

S.S. 2 x 2 x 1/4" (LENGTH
DEPENDENT ON SIZE OF
VALVE) w/ 4- 3/8"Ø HOLES

1/2"Ø S.S. CONC. EXP.
ANCHORS (2 EA.
PLATE)

NOTE

SUPPORT ANGLES TO BE
POSITIONED OPPOSITE
MANHOLE OPENING.



PLAN

NOTES:

MANHOLE STEPS SHALL BE PLACED
16" O.C. INSTALLED ONLY WHEN DEPTH EXCEEDS 3 FEET.

SEWAGE COMBINATION AIR VALVE MUST BE PRESSURE
VALVE WITH BACKFLUSHING ATTACHMENTS.

DRAWING NOT TO SCALE

COMBINATION SEWAGE AIR VALVE MANHOLE (FOR SANITARY SEWER FORCE MAINS)

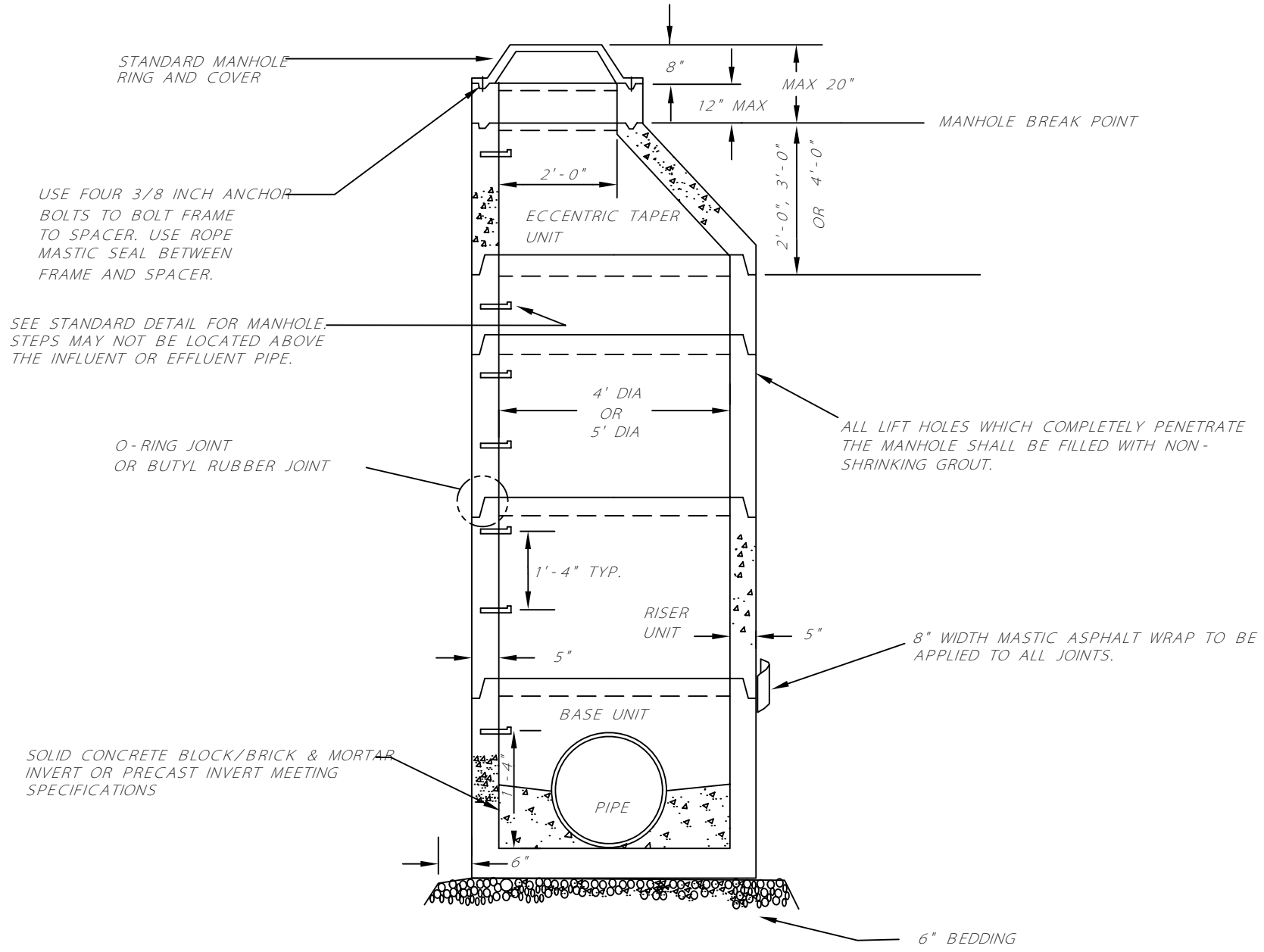
TOWN OF HOLLY SPRINGS ENGINEERING DEPARTMENT

STANDARD DETAIL NUMBER HS705

DATE REVISIONS

11/2/16





NOTES:

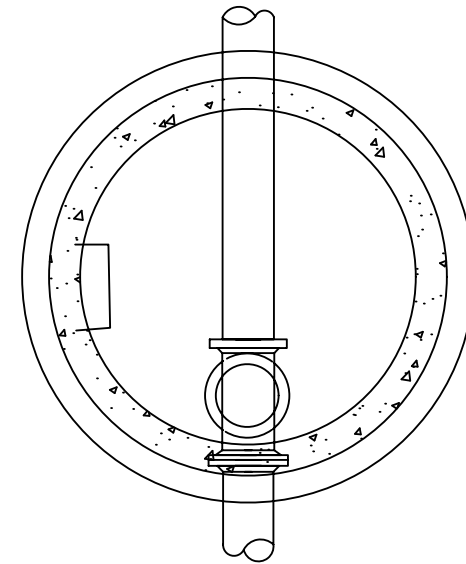
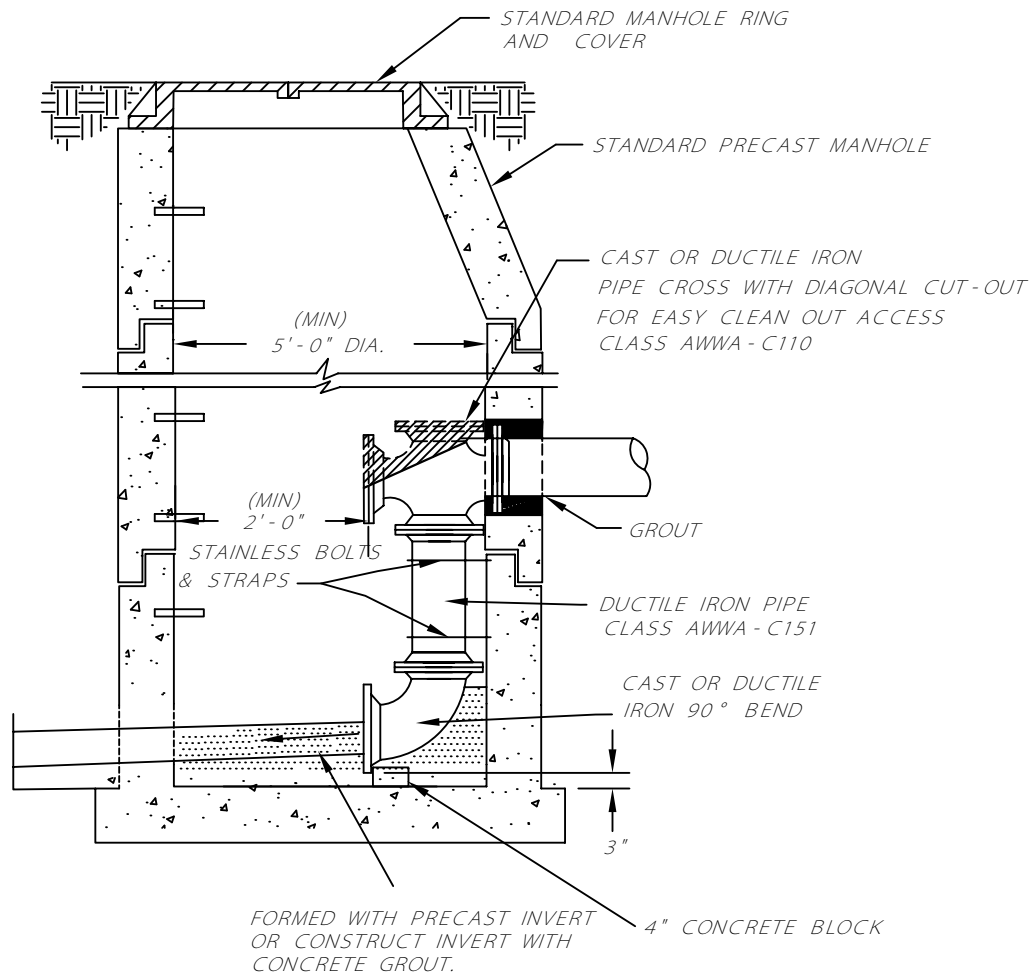
- 1. ANY MANHOLE OVER 20' IN DEPTH SHALL BE 5' IN DIAMETER.
- 2. NO FLAT TOPS ALLOWED.

DRAWING NOT TO SCALE

STANDARD PRECAST CONCRETE MANHOLE
 TOWN OF HOLLY SPRINGS ENGINEERING DEPARTMENT

STANDARD DETAIL NUMBER: HS706	
DATE	REVISIONS
7/24/09	





NOTES:

1. PIPE SIZE FOR DROP TO EQUAL TO INFLOW SEWER PIPE SIZE.
2. MECH. JOINT OR PUSH- ON FITTINGS, ALL BELL, TO BE USED.
3. CORE OR DRILL ALL HOLES FOR PIPE AND BOLTS.
4. DROP MANHOLE MANDATORY WHEN DIFFERENTIAL BETWEEN INVERTS IS GREATER THAN 12".
5. STAINLESS STEEL STRAPS SHALL BE USED ON ALL DROPS GREATER THAN 5 FEET AT 18 INCH INTERVALS.

DRAWING NOT TO SCALE

STANDARD INSIDE DROP MANHOLE

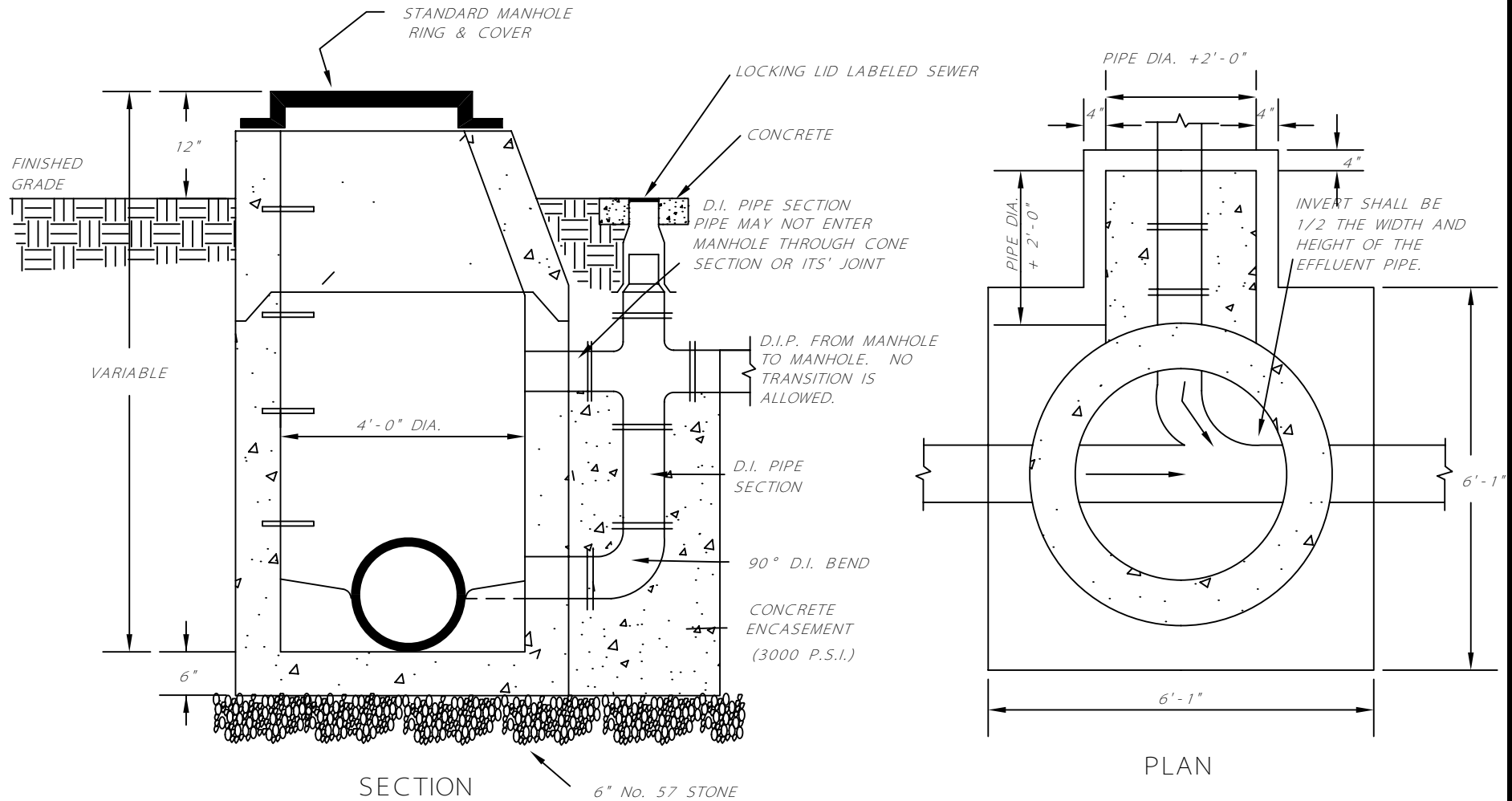
TOWN OF HOLLY SPRINGS ENGINEERING DEPARTMENT

STANDARD DETAIL NUMBER HS707

DATE REVISIONS

5/6/15





NOTE:
 OUTSIDE DROP TO BE USED ONLY WITH APPROVAL BY DIRECTOR OF ENGINEERING.

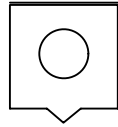
DRAWING NOT TO SCALE

STANDARD OUTSIDE DROP MANHOLE
 TOWN OF HOLLY SPRINGS ENGINEERING DEPARTMENT

STANDARD DETAIL NUMBERHS708	
DATE	REVISIONS
7/24/09	



CORROSION
RESISTANT MATL

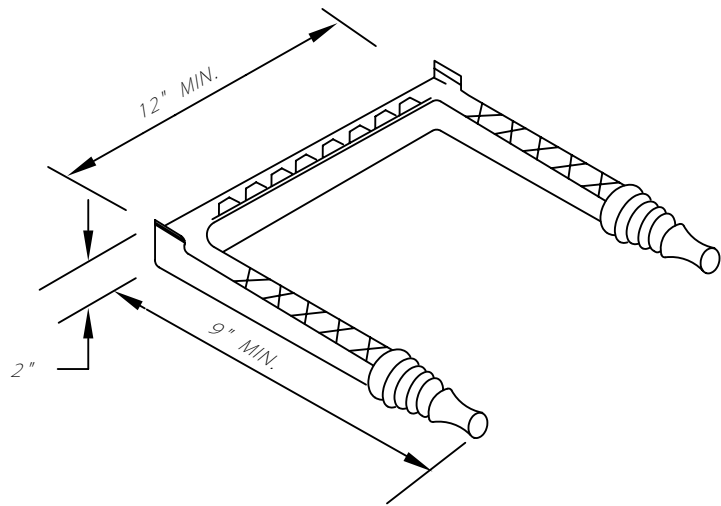


1/2" DIA.
STEEL ROD

SECTION

NOTES:

1. VERTICAL SPACING – 16" O.C.
2. STEPS TO PROTRUDE 5" FROM FACE OF STRUCTURE WALL, AND SHALL WITHSTAND A VERTICAL LOAD OF 400 LBS. AND A HORIZONTAL PULL OUT LOAD OF 1000 LBS.



ENCAPSULATED STEEL STEP

DRAWING NOT TO SCALE

MANHOLE STEPS

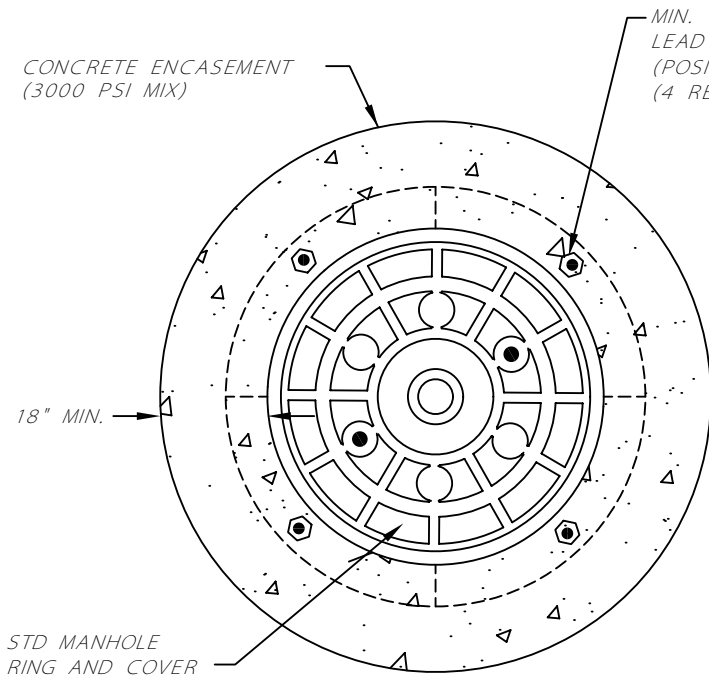
TOWN OF HOLLY SPRINGS ENGINEERING DEPARTMENT

STANDARD DETAIL NUMBER: HS709

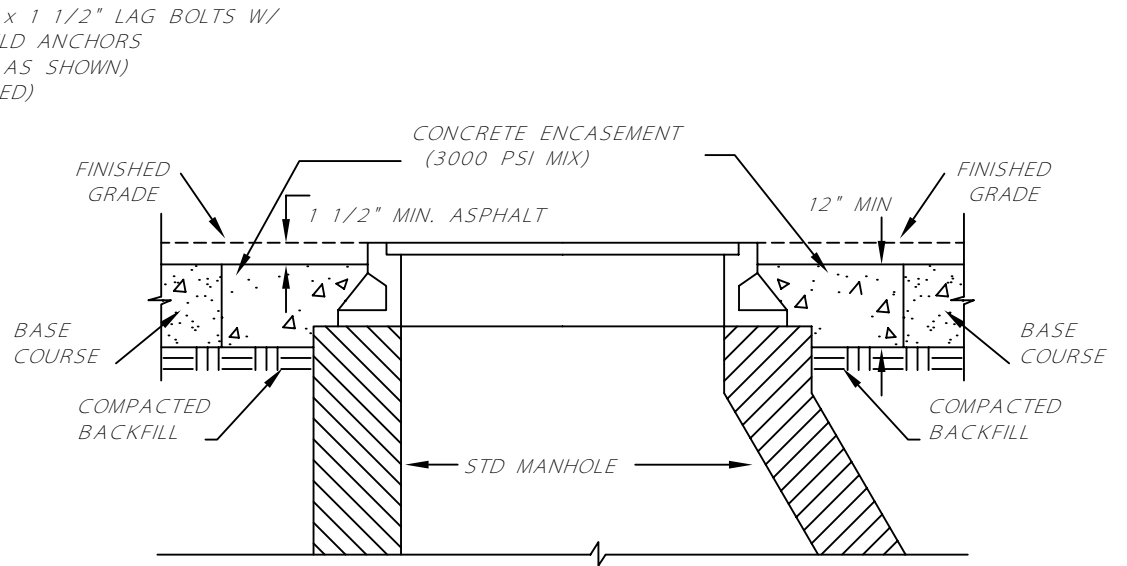
DATE REVISIONS

7/24/09





PLAN



SECTION

NOTES:

1. ALL MANHOLE COVERS TO HAVE 2 HOLES ONLY.
2. USE SOLID LID ON ALL MANHOLES LOCATED IN LOW AREAS OF ROAD PROFILE.
3. MANHOLE RING TO BE BOLTED AS SHOWN W/ROPE MASTIC SEAL BETWEEN FRAME AND SPACER.
4. DOMESTIC MADE IN USA AND MEET H2O LOADING NCDOT NO 840.54.

DRAWING NOT TO SCALE

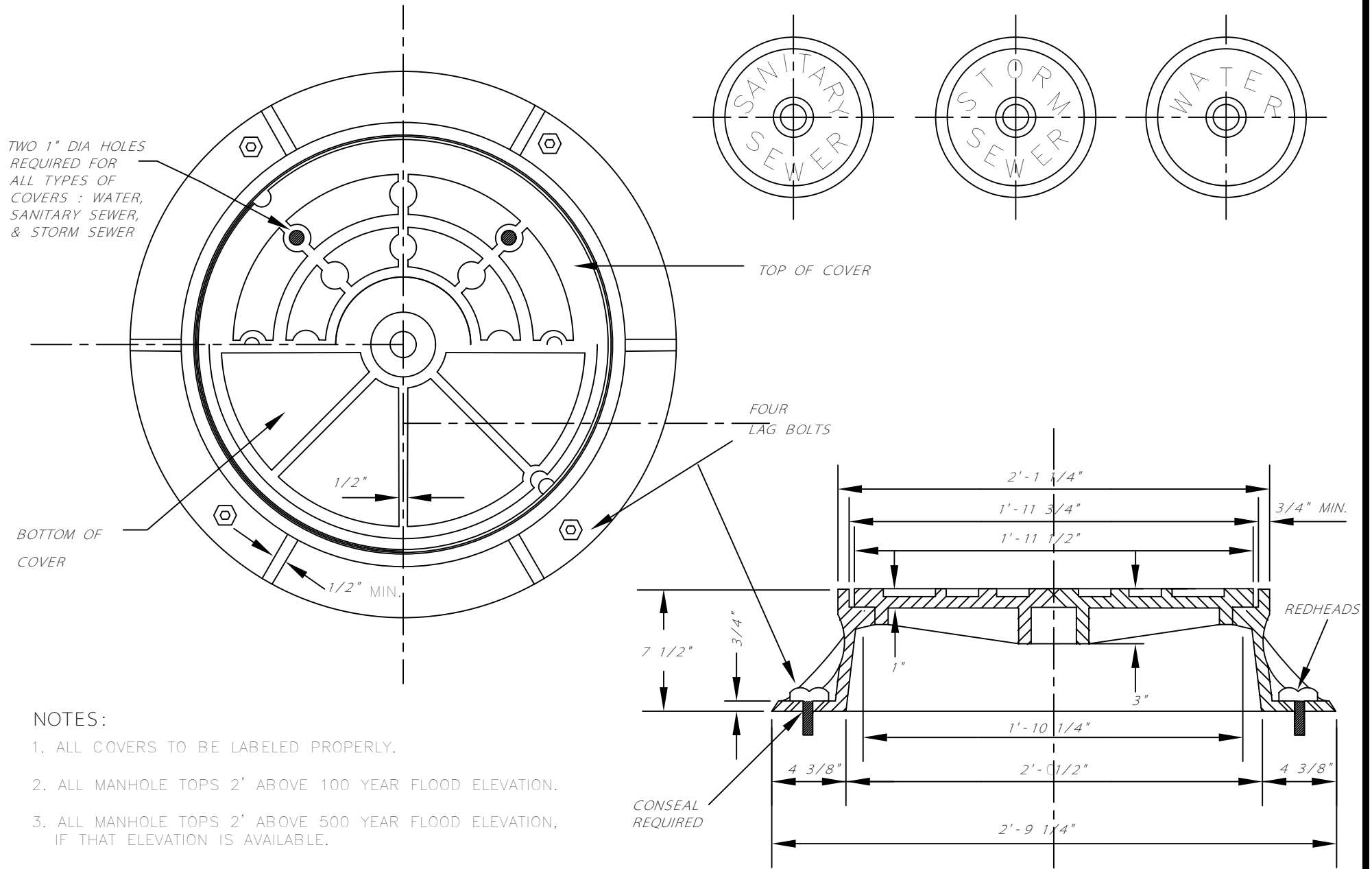
STANDARD MANHOLE RING AND COVER ENCASEMENT
FOR MANHOLES LOCATED IN PAVED AREAS

TOWN OF HOLLY SPRINGS ENGINEERING DEPARTMENT

STANDARD DETAIL NUMBERHS710

DATE	REVISIONS
7/24/09	





NOTES:

1. ALL COVERS TO BE LABELED PROPERLY.
2. ALL MANHOLE TOPS 2' ABOVE 100 YEAR FLOOD ELEVATION.
3. ALL MANHOLE TOPS 2' ABOVE 500 YEAR FLOOD ELEVATION, IF THAT ELEVATION IS AVAILABLE.
4. MATERIAL SPECIFICATION - GREY IRON, ASTM A48, CL35B, MADE IN USA.

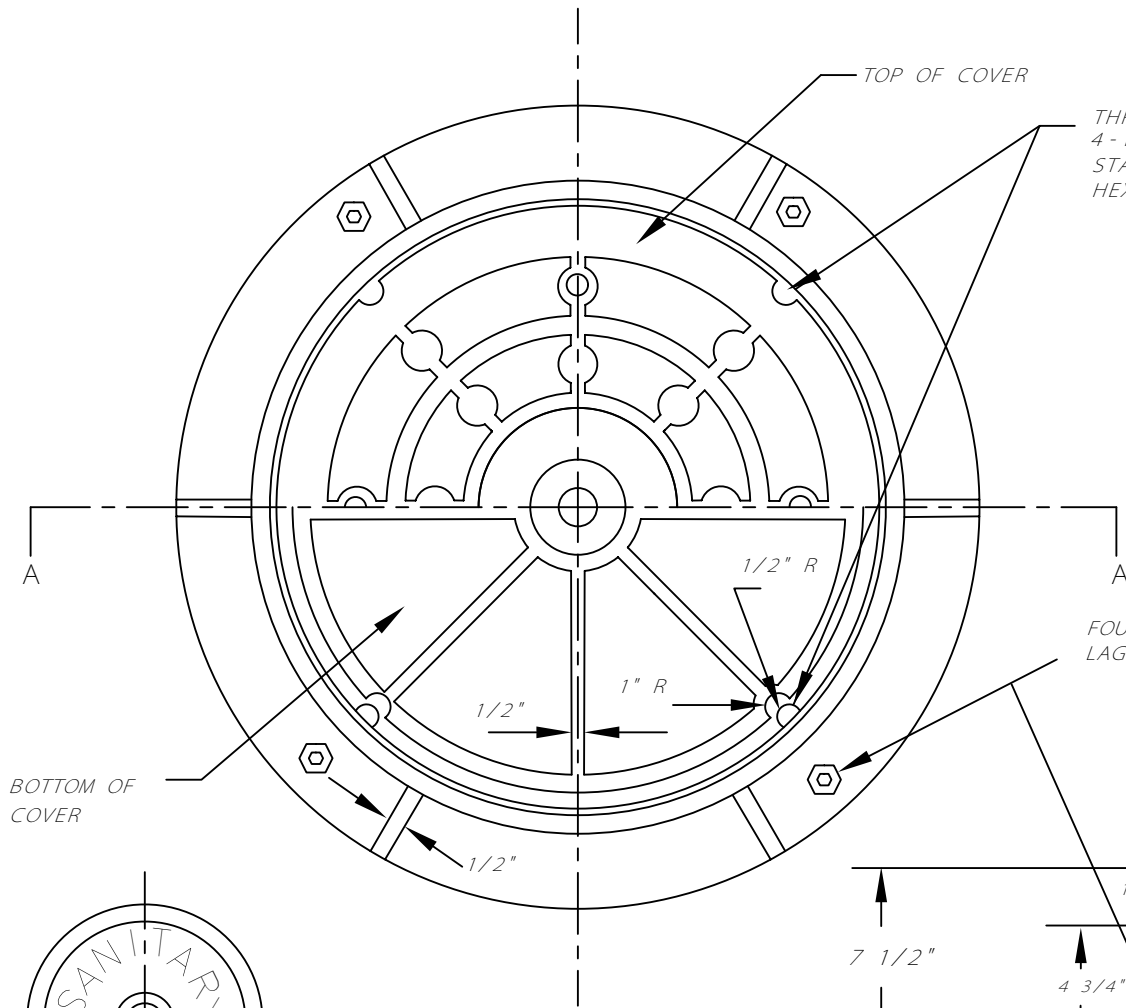
DRAWING NOT TO SCALE

STANDARD MANHOLE RING AND COVER FOR OUTSIDE OF PAVEMENT

STANDARD DETAIL NUMBERHS711	
DATE	REVISIONS
7/24/09	

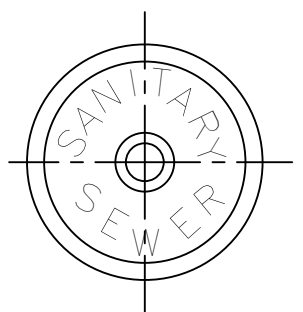
TOWN OF HOLLY SPRINGS ENGINEERING DEPARTMENT





THREADED HOLES - 4 @ 90° /
 4-1/2"x1-3/4"
 STAINLESS STEEL (TYPE 316)
 HEX HEAD BOLTS

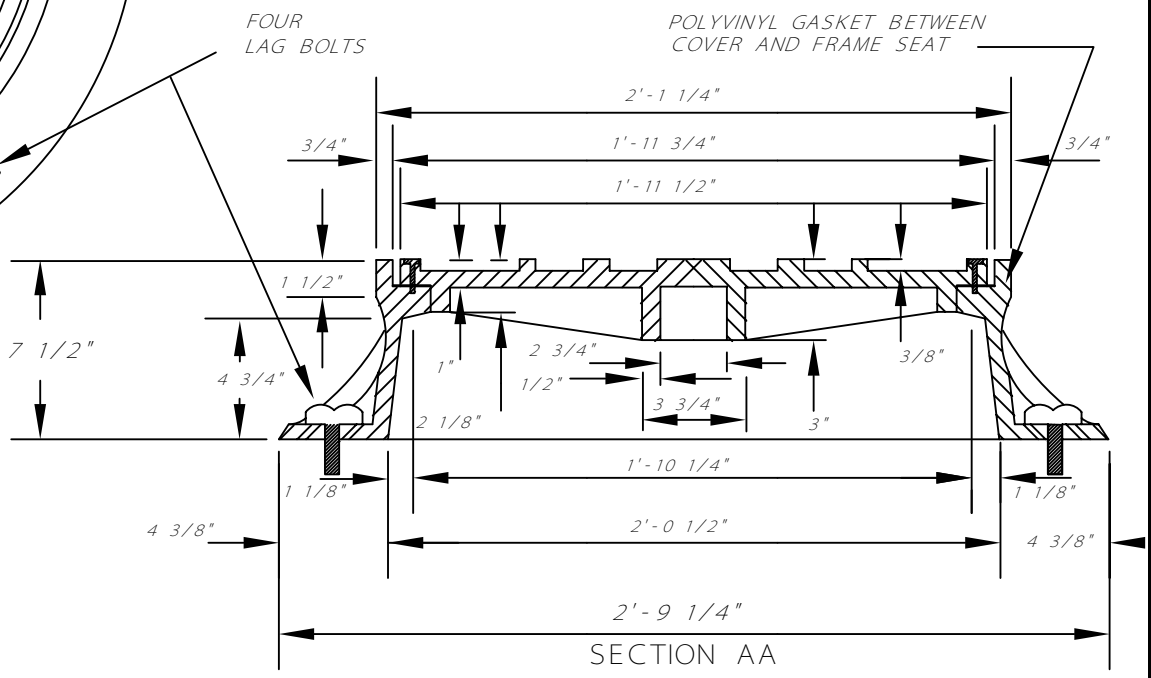
MINIMUM AVERAGE WEIGHT	
RING	190
COVER	120
<hr/>	
TOTAL	310



DETAIL CC

NOTES:
 1. MATERIAL SPECIFICATION - GREY IRON,
 ASTM A48, CL35B, MADE IN USA.

PLAN



SECTION AA

DRAWING NOT TO SCALE

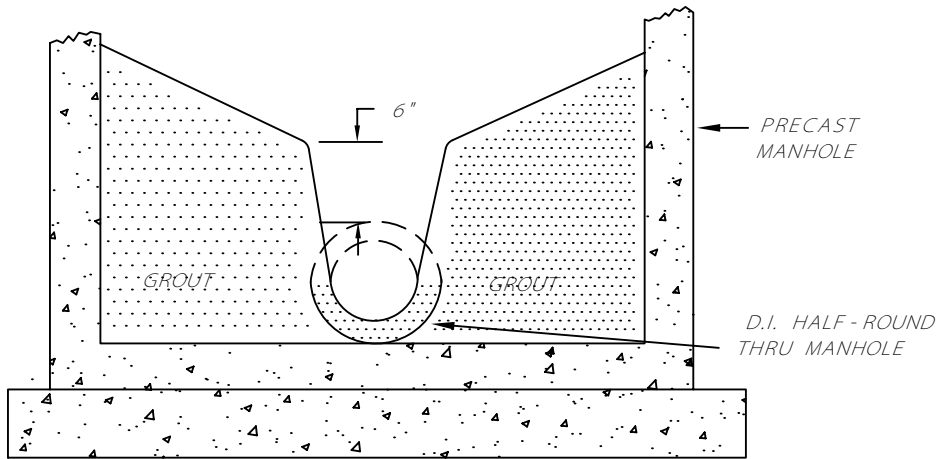
STANDARD MANHOLE RING AND COVER FOR WATERTIGHT MANHOLES

STANDARD DETAIL NUMBER HS712

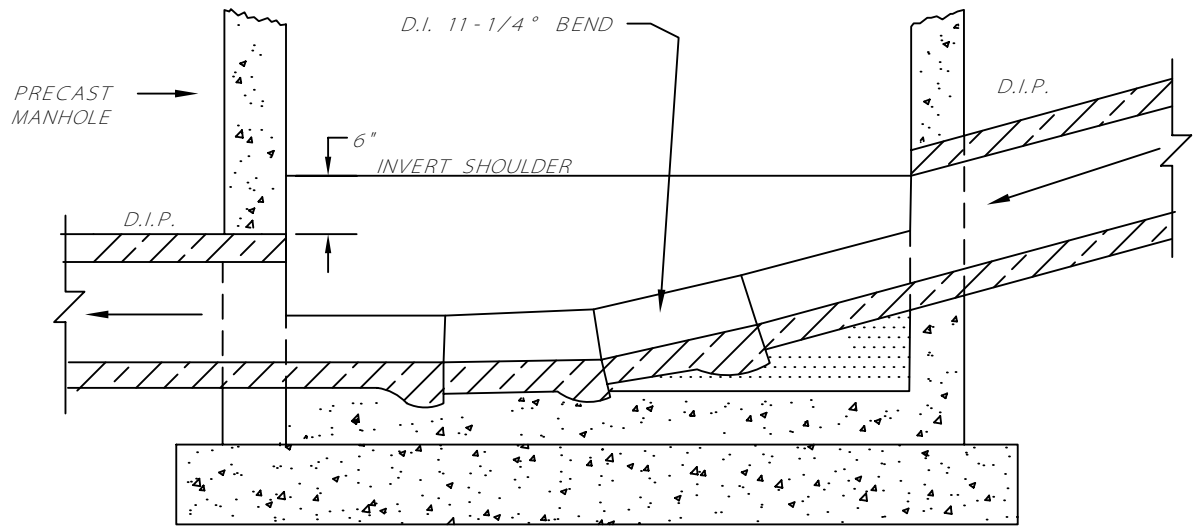
TOWN OF HOLLY SPRINGS ENGINEERING DEPARTMENT

DATE	REVISIONS
7/24/09	





TOP HALF OF PIPE
IN MANHOLE CUT OUT



NOTES:

1. NO HORIZONTAL ALIGNMENT CHANGE CAN BE MADE WITHIN THIS MANHOLE TYPE. USE ON GRADES 10% OR GREATER.
2. EACH JOINT OF PIPE BETWEEN HIGH VELOCITY MANHOLE & MANHOLE UPSTREAM SHALL HAVE CONCRETE COLLARS.

DRAWING NOT TO SCALE

STANDARD HIGH VELOCITY MANHOLE INVERT

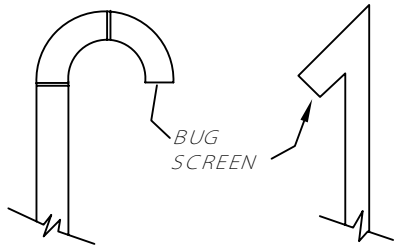
TOWN OF HOLLY SPRINGS ENGINEERING DEPARTMENT

STANDARD DETAIL NUMBER HS713

DATE REVISIONS

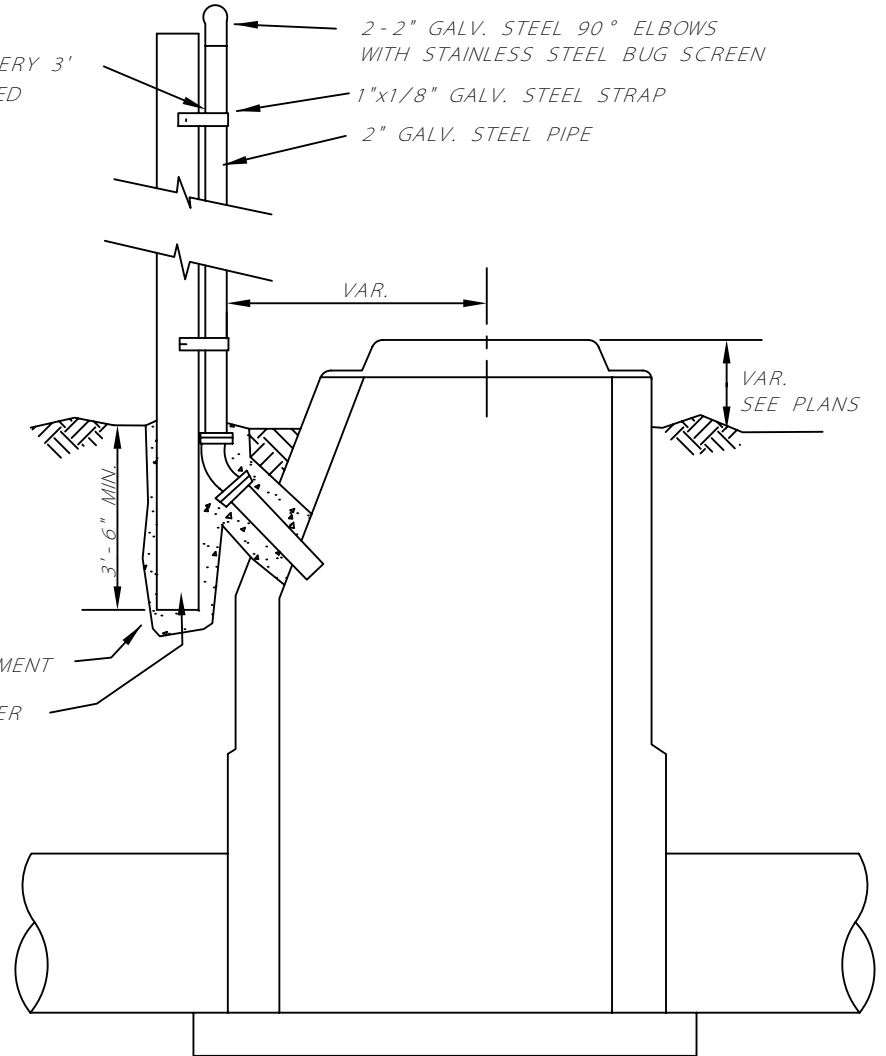
7/24/09



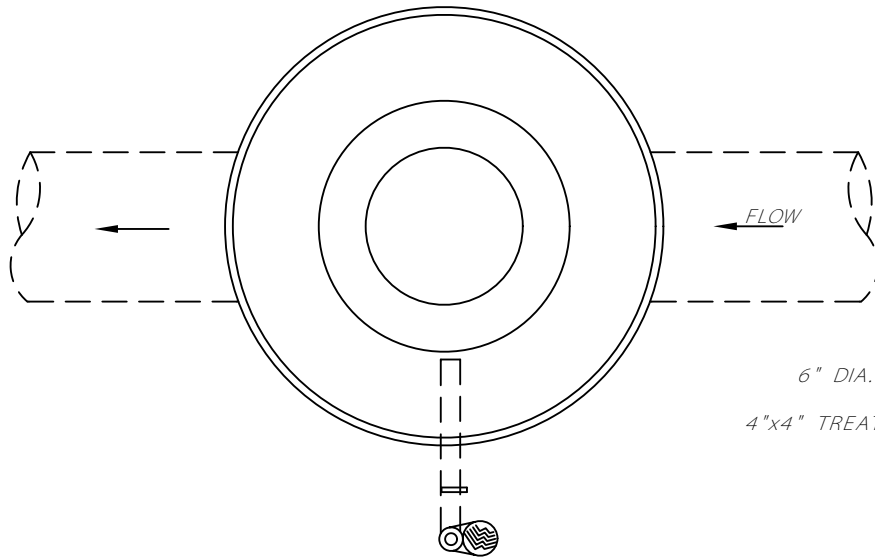


VENT

STRAP SPACING 1 EVERY 3'
MINIMUM OF 2 REQUIRED



ELEVATION



PLAN

NOTES:

1. LOCATION OF VENT PIPE SHALL BE AS DIRECTED BY THE CONSTRUCTION INSPECTOR WITH WATERTIGHT RING AND COVER VENT TO BE 2' ABOVE 100 YR. FLOOD PLAIN ELEVATION.
2. VENT PIPE MUST BE 2' ABOVE 500 YR. FLOOD PLAIN IN AREAS WHERE THIS DATA IS AVAILABLE, OR ANY OTHER LOW-LYING AREA DEEMED BY THE DIRECTOR OF ENGINEERING.

DRAWING NOT TO SCALE

STANDARD TYPICAL MANHOLE VENT DETAIL

TOWN OF HOLLY SPRINGS ENGINEERING DEPARTMENT

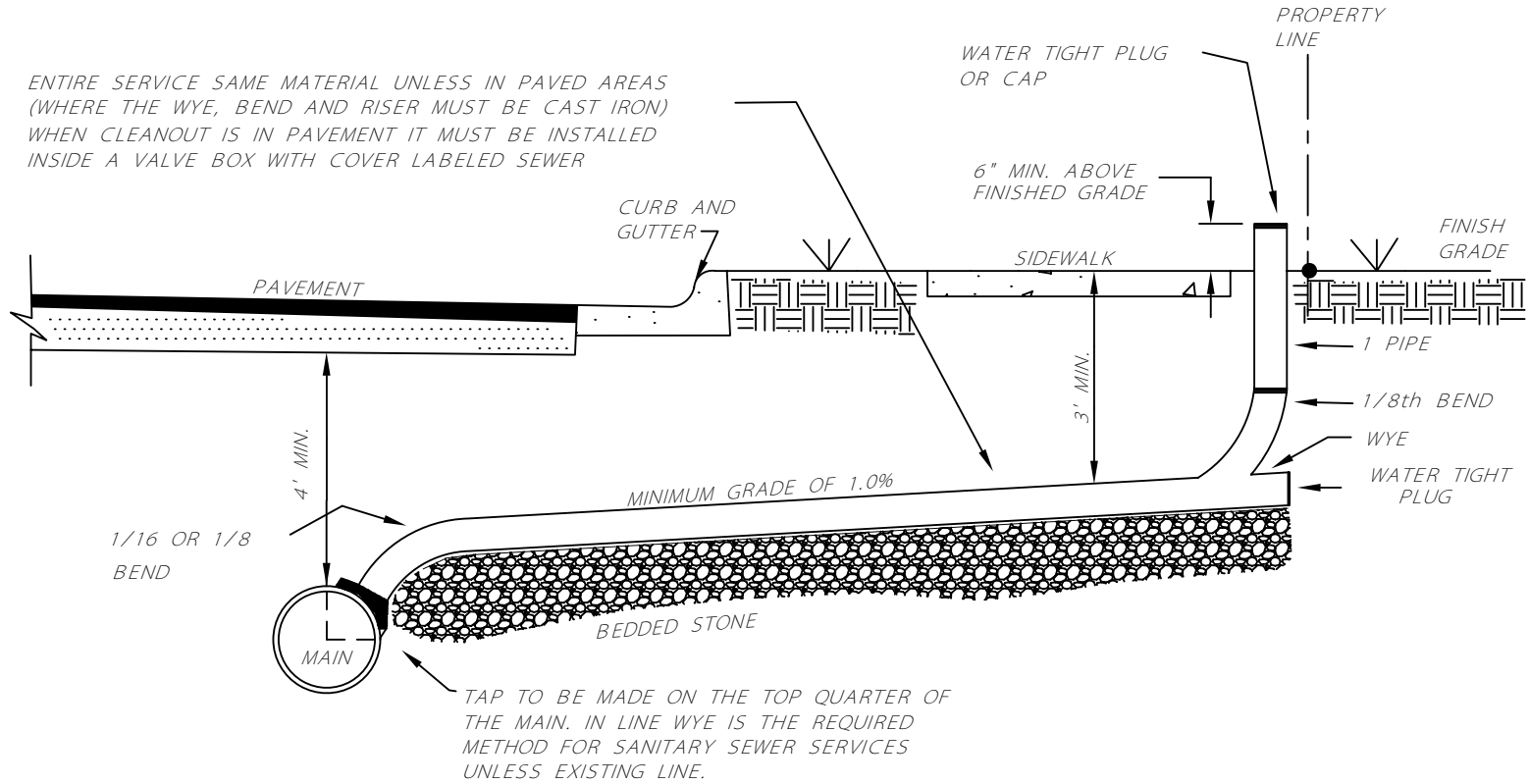
STANDARD DETAIL NUMBER: HS714

DATE REVISIONS

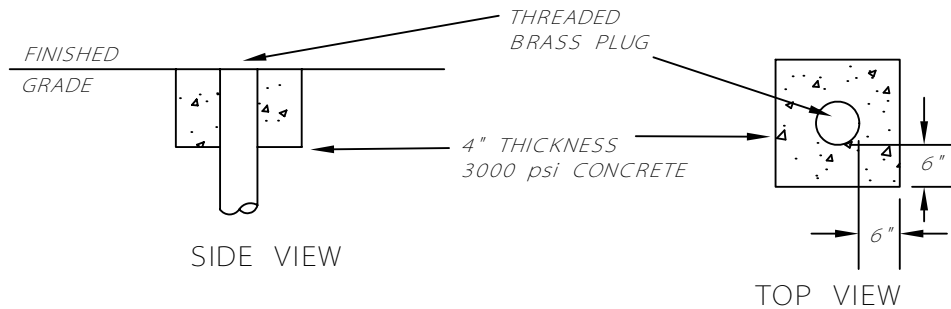
7/24/09



ENTIRE SERVICE SAME MATERIAL UNLESS IN PAVED AREAS (WHERE THE WYE, BEND AND RISER MUST BE CAST IRON) WHEN CLEANOUT IS IN PAVEMENT IT MUST BE INSTALLED INSIDE A VALVE BOX WITH COVER LABELED SEWER



OPTIONAL CLEAN OUT
(FOR WELL MAINTAINED AREA)



NOTES:

1. SANITARY SEWER SERVICES WHICH ARE 14 TO 20 FEET DEEP SHALL REQUIRE BEDDING IN ACCORDANCE WITH BEDDING DETAIL FOR FLEXIBLE PIPE.
2. SERVICES OVER 20' AND UNDER 3' DEEP SHALL BE D.I.P.
3. ALL SERVICES TO BE BEDDED IN STONE INCLUDING DUCTILE.

DRAWING NOT TO SCALE

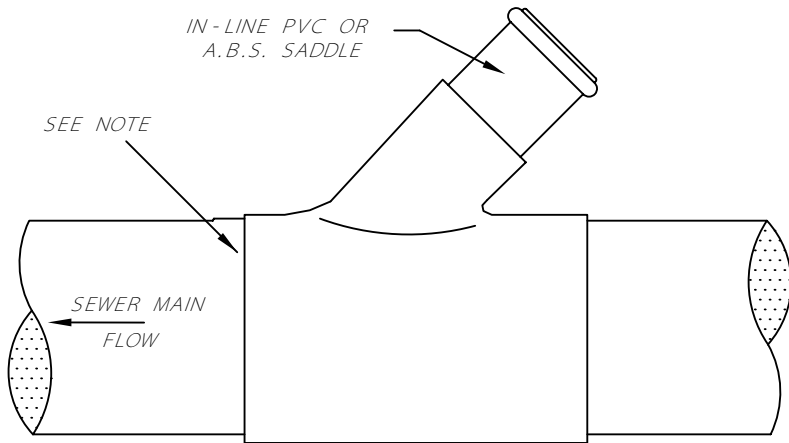
STANDARD SANITARY SEWER TAP AND SERVICE

TOWN OF HOLLY SPRINGS ENGINEERING DEPARTMENT

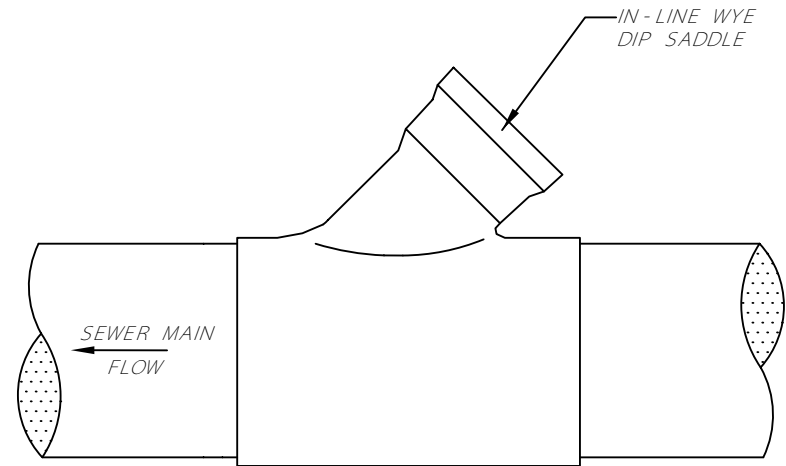
STANDARD DETAIL NUMBER HS715

DATE	REVISIONS
5/6/15	





PVC AND ABS PIPE



DUCTILE IRON PIPE

NOTES:

- 1. PVC/ ABS SOLVENT SHALL BE USED AT ALL JOINTS.

DRAWING NOT TO SCALE

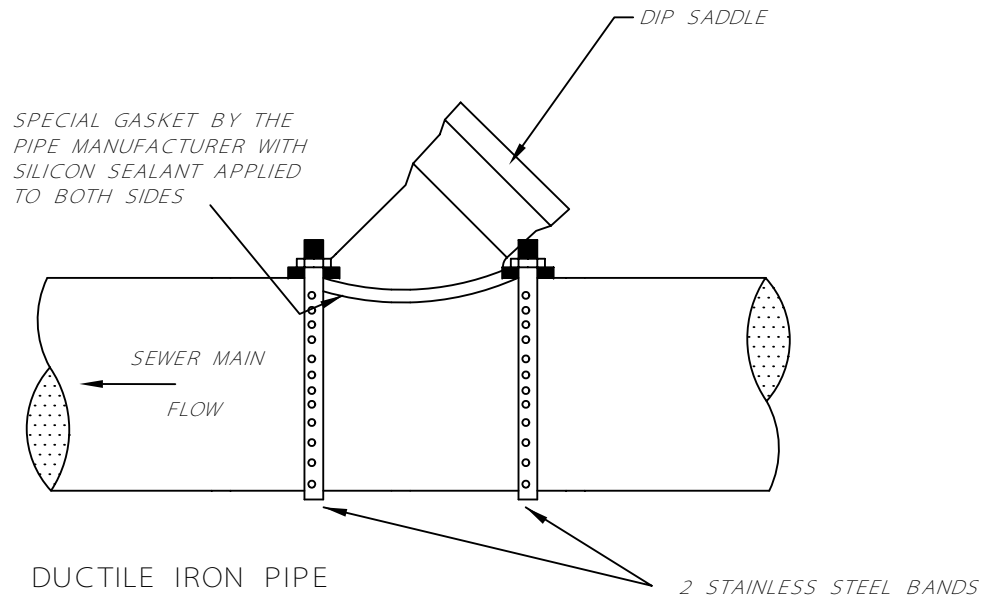
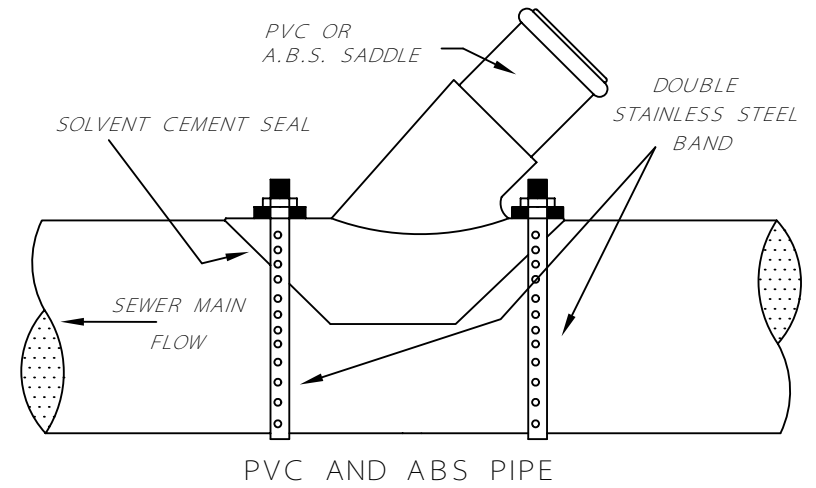
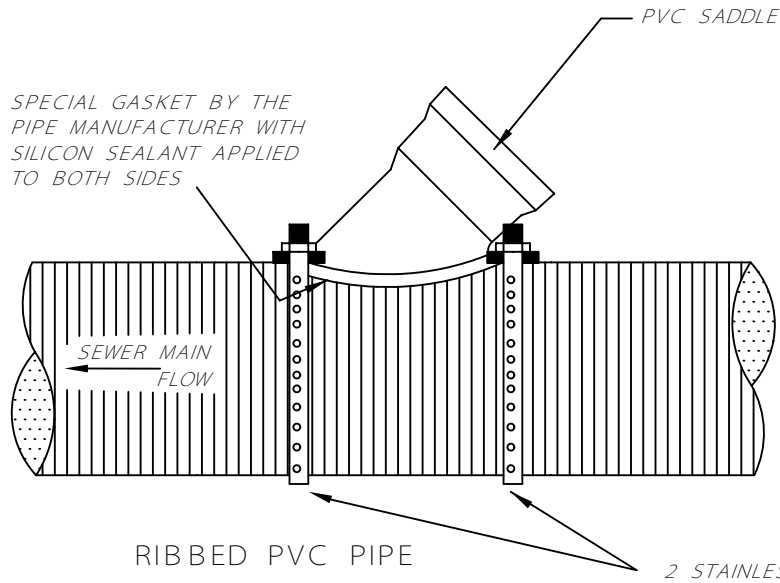
STANDARD SANITARY SEWER LATERAL CONNECTIONS FOR NEW LINES

TOWN OF HOLLY SPRINGS ENGINEERING DEPARTMENT

STANDARD DETAIL NUMBER HS716

DATE	REVISIONS
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NOTES:

1. PVC SOLVENT CEMENT SHALL BE USED FOR PVC SADDLES.
2. ABS SOLVENT CEMENT SHALL BE USED FOR ABS SADDLES.
3. TRUSS SADDLES SHALL BE USED WITH TRUSS PIPE.

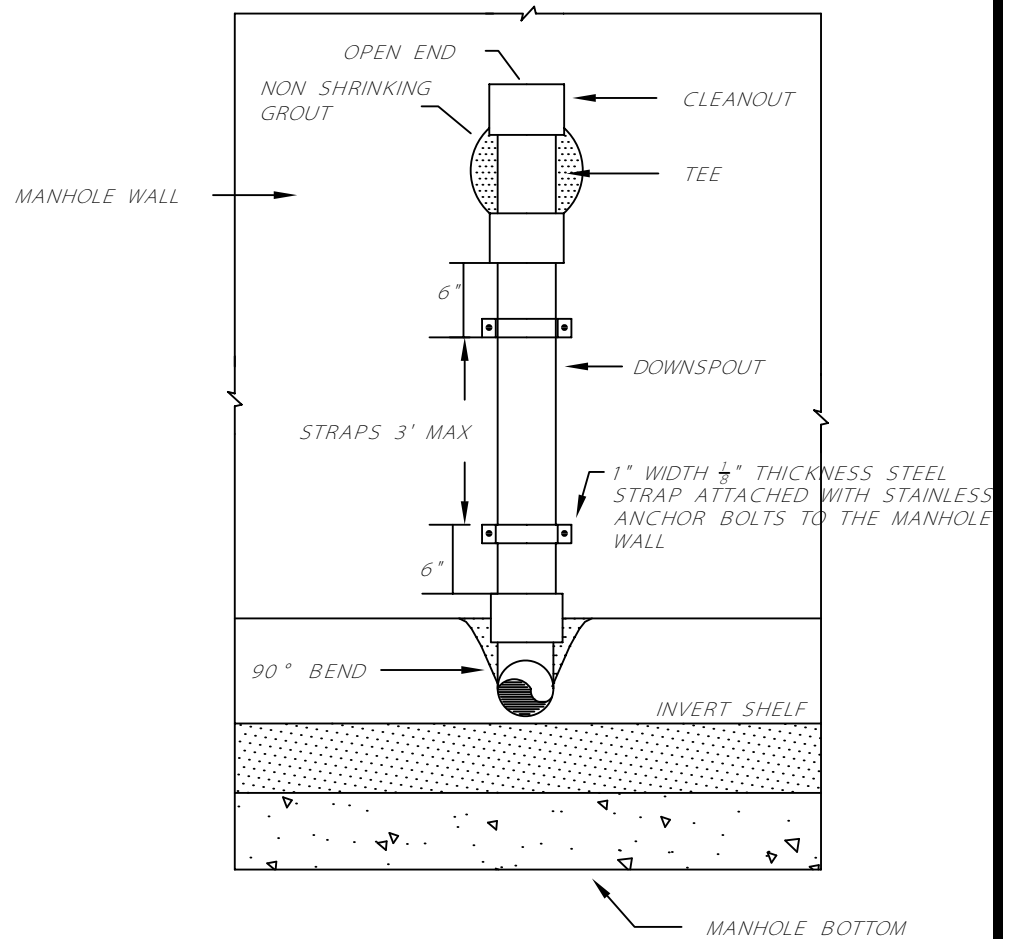
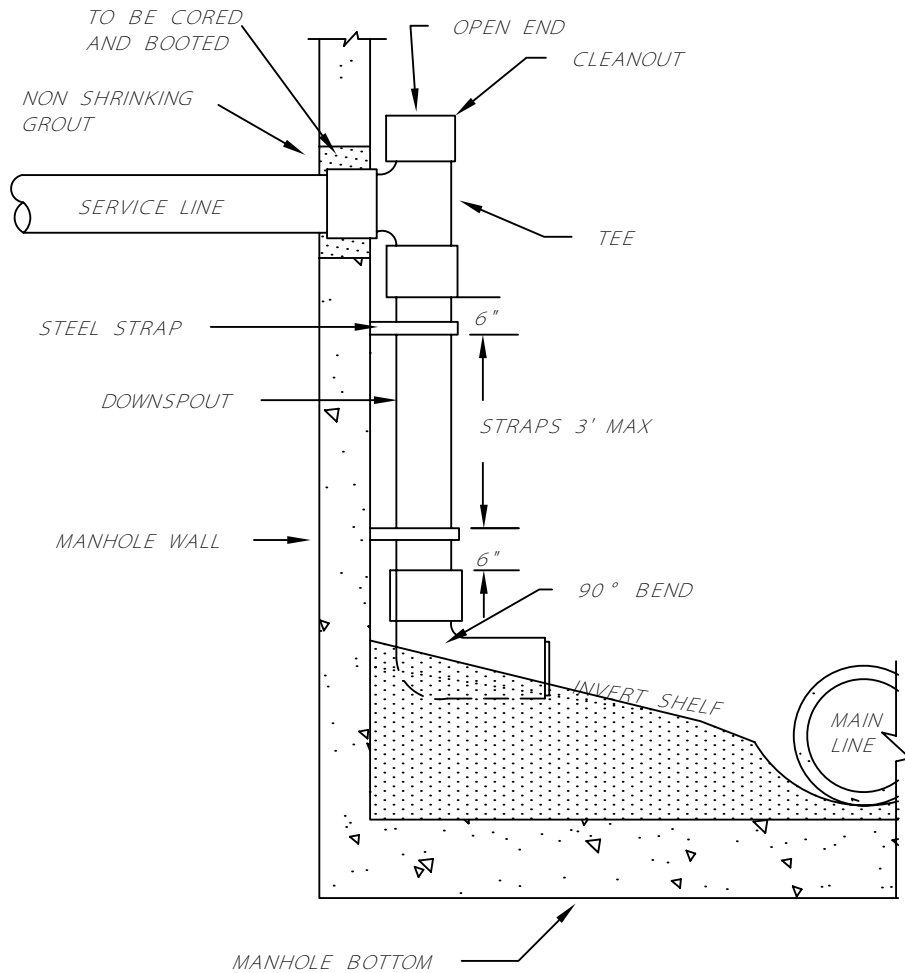
DRAWING NOT TO SCALE

STANDARD SANITARY SEWER LATERAL CONNECTIONS FOR EXISTING LINES

STANDARD DETAIL NUMBER HS717	
DATE	REVISIONS
7/24/09	

TOWN OF HOLLY SPRINGS ENGINEERING DEPARTMENT





NOTES:

1. PIPING CONFIGURATION TO BE USED ON ALL DROPS.
2. DROPS TO BE CONSTRUCTED OF A.B.S., P.V.C. OR D.I.P. PIPE
3. SERVICE LINE MAY NOT ENTER MANHOLE THROUGH CONE SECTION OR ITS JOINT.
4. THIS DETAIL SHALL NOT BE USED FOR FORCE MAINS.

* MAX. NO. OF SERVICES INTO MANHOLE SHALL BE 3.

DRAWING NOT TO SCALE

STANDARD INSIDE DROP FOR SANITARY SEWER SERVICE

TOWN OF HOLLY SPRINGS ENGINEERING DEPARTMENT

STANDARD DETAIL NUMBER HS718

DATE	REVISIONS
5/6/15	



SPECIFICATION TIME (min-sec) REQUIRED FOR PRESSURE DROP FROM 3-1/2 TO 2-1/2 PSIG
WHEN TESTING ONE PIPE DIAMETER ONLY

PIPE DIAMETER, INCHES

	4	6	8	10	12	15	18	21	24
25	0:04	0:10	0:18	0:28	0:40	1:02	1:29	2:01	2:38
50	0:09	0:20	0:35	0:55	1:19	2:04	2:58	4:03	5:17
75	0:13	0:30	0:53	1:23	1:59	3:06	4:27	6:04	7:55
100	0:18	0:40	1:10	1:50	2:38	4:08	5:56	8:05	10:34
125	0:22	0:50	1:28	2:18	3:18	5:09	7:26	9:55	11:20
150	0:26	0:59	1:46	2:45	3:58	6:11	8:30		
175	0:31	1:09	2:03	3:13	4:37	7:05			
200	0:35	1:19	2:21	3:40	5:17				12:06
225	0:40	1:29	2:38	4:08	5:40			10:25	13:36
250	0:44	1:39	2:56	4:35			8:31	11:35	15:07
275	0:48	1:49	3:14	4:43			9:21	12:44	16:38
300	0:53	1:59	3:31				10:12	13:53	18:09
350	1:02	2:19	3:47			8:16	11:54	16:12	21:10
400	1:10	2:38			6:03	9:27	13:36	18:31	24:12
450	1:19	2:50			6:48	10:38	15:19	20:50	27:13
500	1:28			5:14	7:34	11:49	17:01	23:09	30:14

STANDARD AIR TEST TABLE

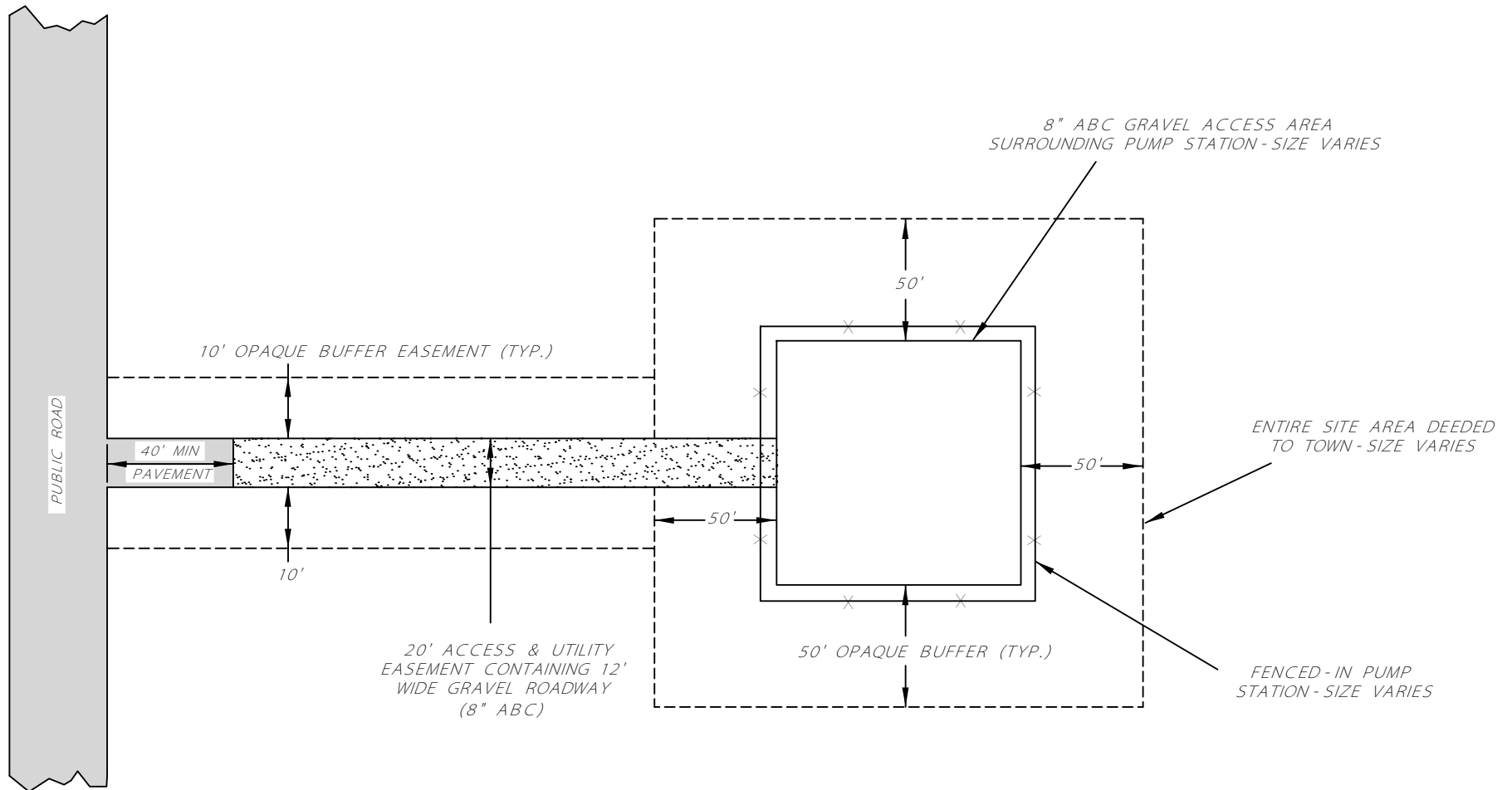
TOWN OF HOLLY SPRINGS ENGINEERING DEPARTMENT

STANDARD DETAIL NUMBER HS719

DATE REVISIONS

7/24/09





NOTES:

1. VARIANCES TO BUFFERS (WIDTH OR TYPE) MUST BE APPROVED BY THE TOWN BOARD.

2. SITE LAYOUT (BOTH PUMP STATION AND GRAVEL ACCESS AREA) REQUIRE APPROVAL OF DIRECTOR OF ENGINEERING AND DIRECTOR OF PUBLIC UTILITY DEPARTMENTS.

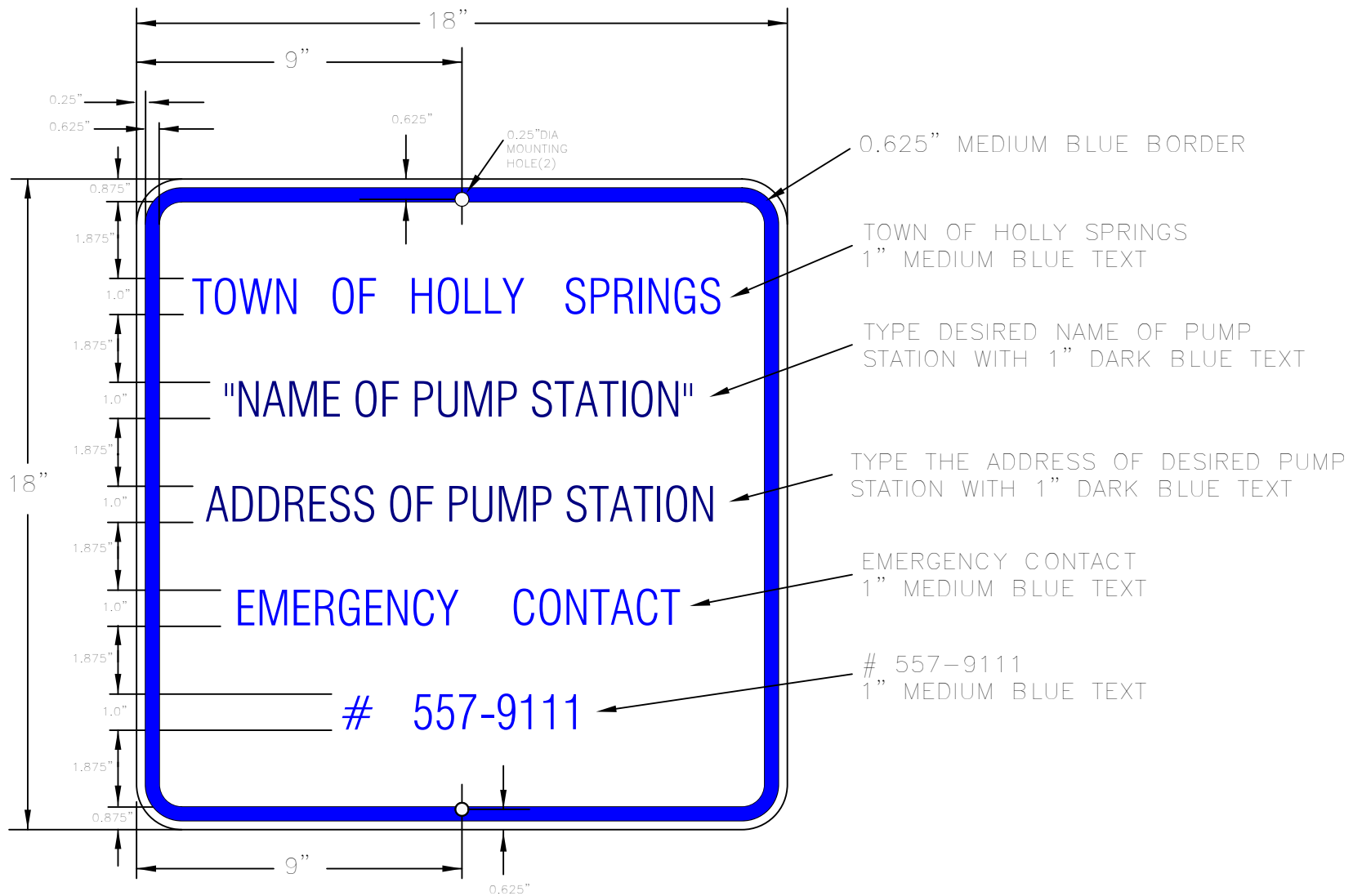
DRAWING NOT TO SCALE

PUMP STATION SITE LAYOUT AND MINIMUM DIMENSIONS

TOWN OF HOLLY SPRINGS ENGINEERING DEPARTMENT

STANDARD DETAIL NUMBER: HS720	
DATE	REVISIONS
7/24/09	





NOTES:

1. 18" x 18" NON-REFLECTIVE 18 GAUGE STEEL
2. TEXT TO BE CENTERED ON SIGN

DRAWING NOT TO SCALE

STANDARD PUMP STATION LOCATION SIGN

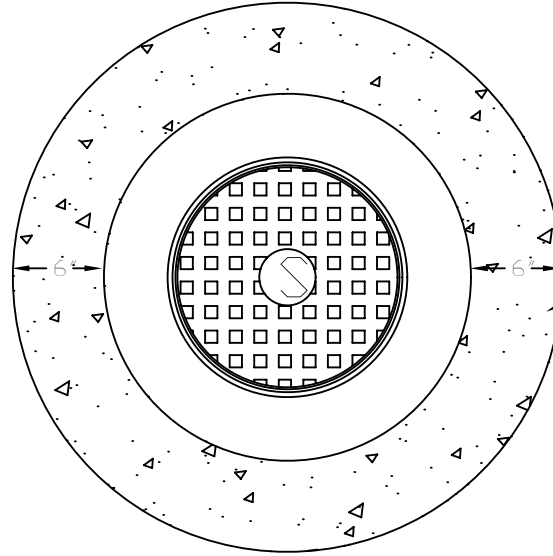
TOWN OF HOLLY SPRINGS ENGINEERING DEPARTMENT

STANDARD DETAIL NUMBER: HS721

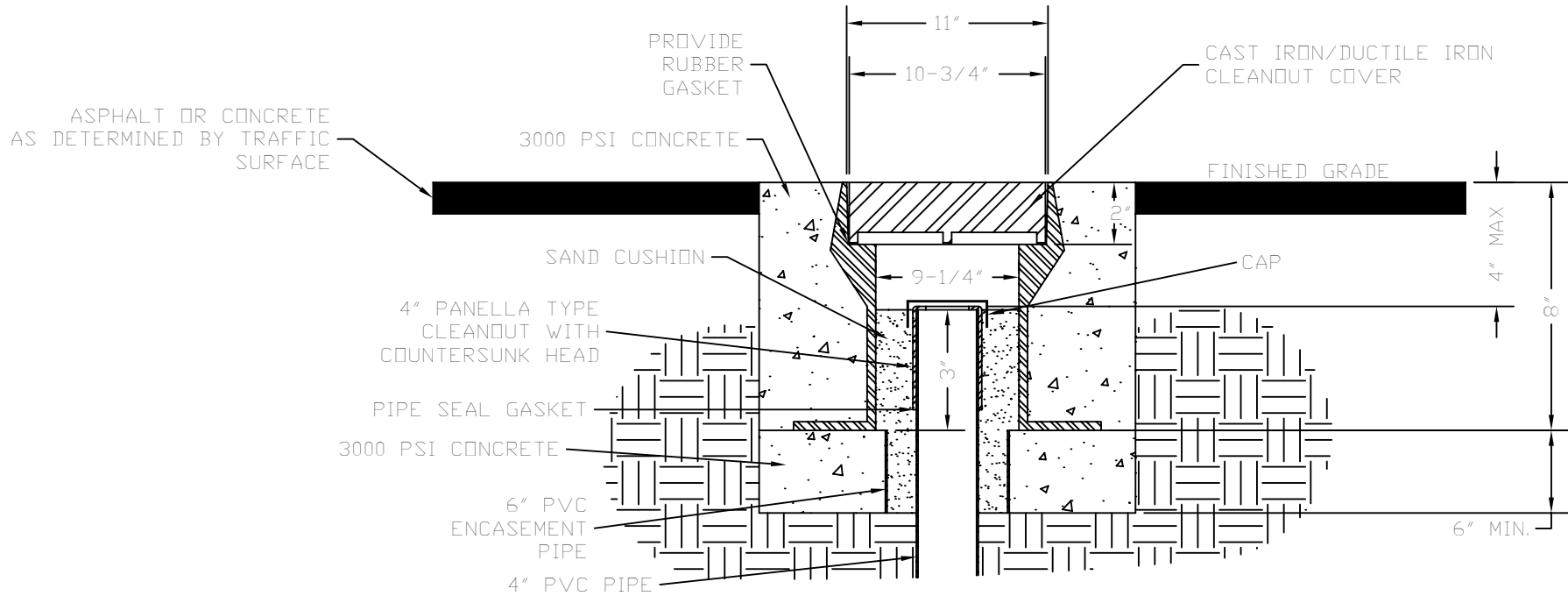
DATE	REVISIONS
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CONCRETE AROUND
VALVE BOX



DRAWING NOT TO SCALE

SEWER MINI-MANHOLE CLEANOUT COVER ASSEMBLY FOR TRAFFIC AREA

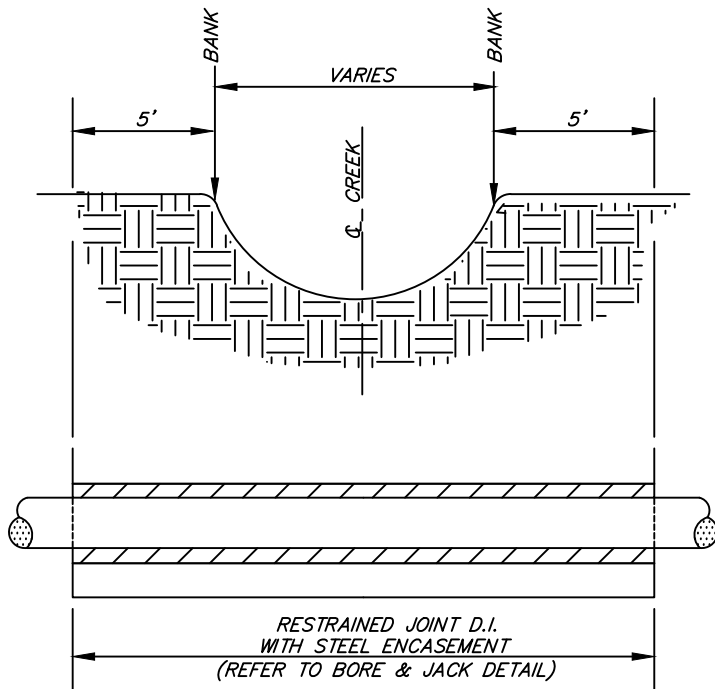
TOWN OF HOLLY SPRINGS ENGINEERING DEPARTMENT

STANDARD DETAIL NUMBER HS723

DATE REVISIONS

7/24/09	

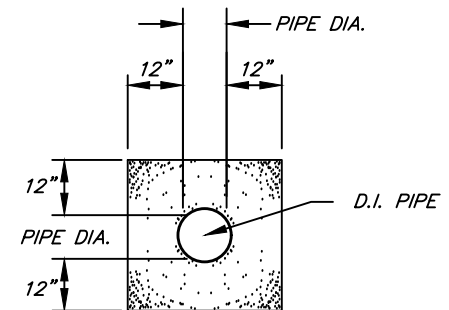




CROSS SECTION

NOTES:

1. TOP OF CASING PIPE MUST BE AT LEAST 1' BELOW SOLID STREAM BOTTOM.
2. CONCRETE ENCASEMENT MAY BE PERMITTED IN CERTAIN CIRCUMSTANCES. SEE CONCRETE DETAIL.
3. IF DUCTILE IRON PIPE USED, IT SHALL BE 401 PROTECT COATING AND PIPE RESTRAINED.
4. IF PVC PIPE USED IT MUST MEET WATERLINE STANDARDS AND RESTRAINED.



**CONCRETE DETAIL
(IF PERMITTED)**

DRAWING NOT TO SCALE

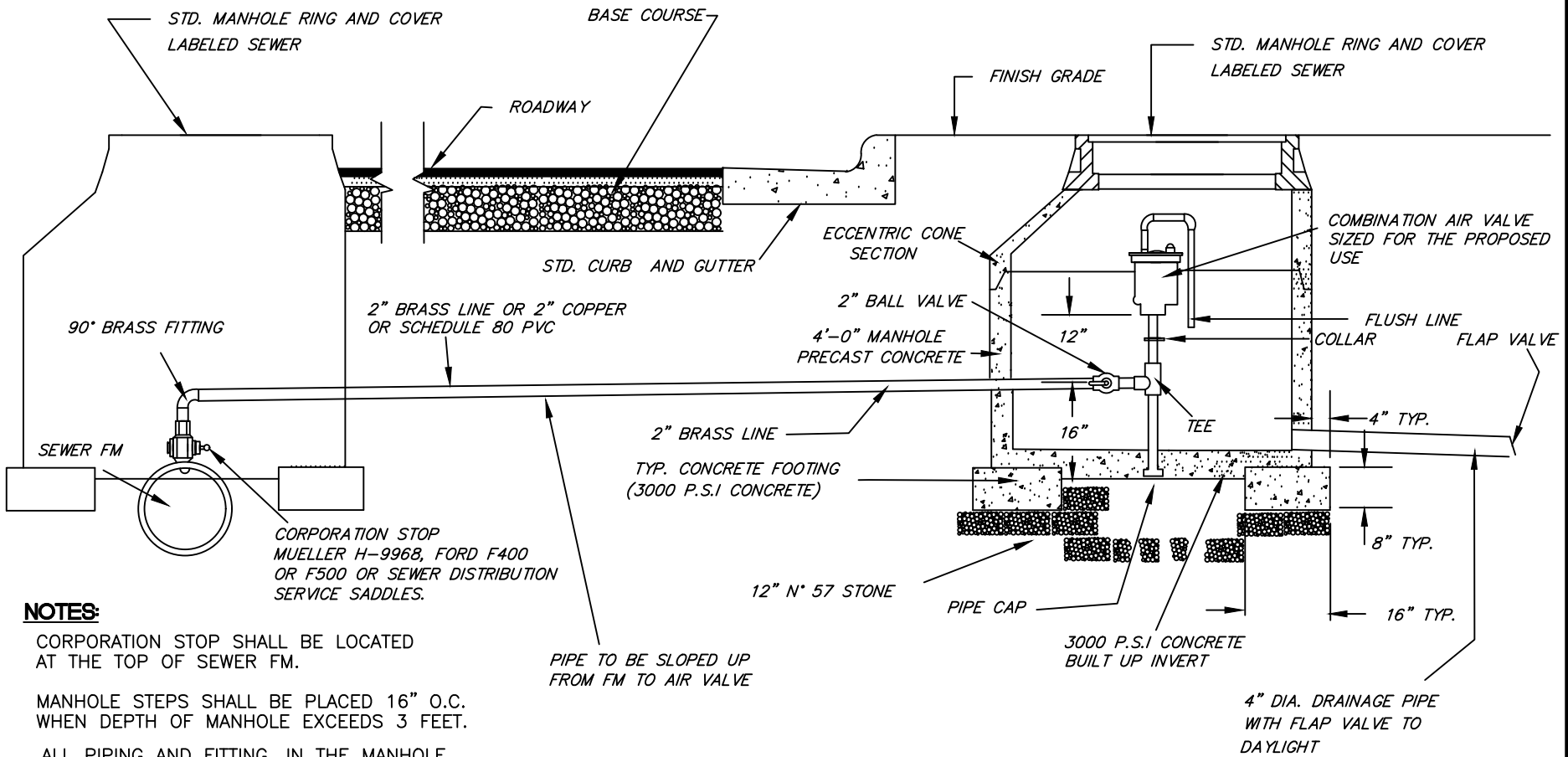
STANDARD STEEL ENCASEMENT FOR STREAM CROSSING

TOWN OF HOLLY SPRINGS ENGINEERING DEPARTMENT

STANDARD DETAIL NUMBER: **HS724**

DATE	REVISIONS
7/24/18	





NOTES:

CORPORATION STOP SHALL BE LOCATED AT THE TOP OF SEWER FM.

MANHOLE STEPS SHALL BE PLACED 16" O.C. WHEN DEPTH OF MANHOLE EXCEEDS 3 FEET.

ALL PIPING AND FITTING, IN THE MANHOLE, SHALL BE BRASS.

NOTE: IF DRAIN PIPE TO DAYLIGHT IS NOT ACHIEVABLE THEN MUST RECEIVE APPROVAL FROM DIRECTOR OF ENGINEERING FOR AN ACCEPTABLE STANDARD AIR RELEASE.

DRAWING NOT TO SCALE

STANDARD COMBINATION AIR VALVE MANHOLE FOR SEWER FM, TYPE 2

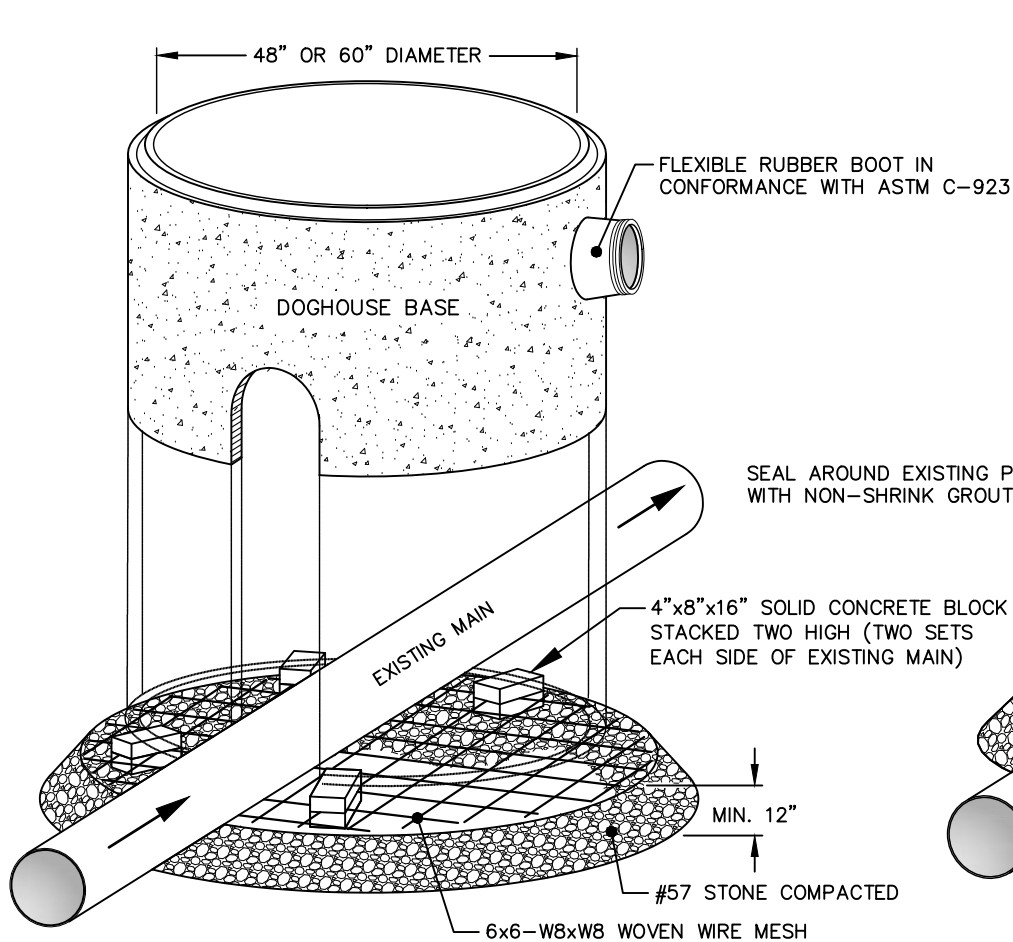
TOWN OF HOLLY SPRINGS ENGINEERING DEPARTMENT

STANDARD DETAIL NUMBER: **HS727**

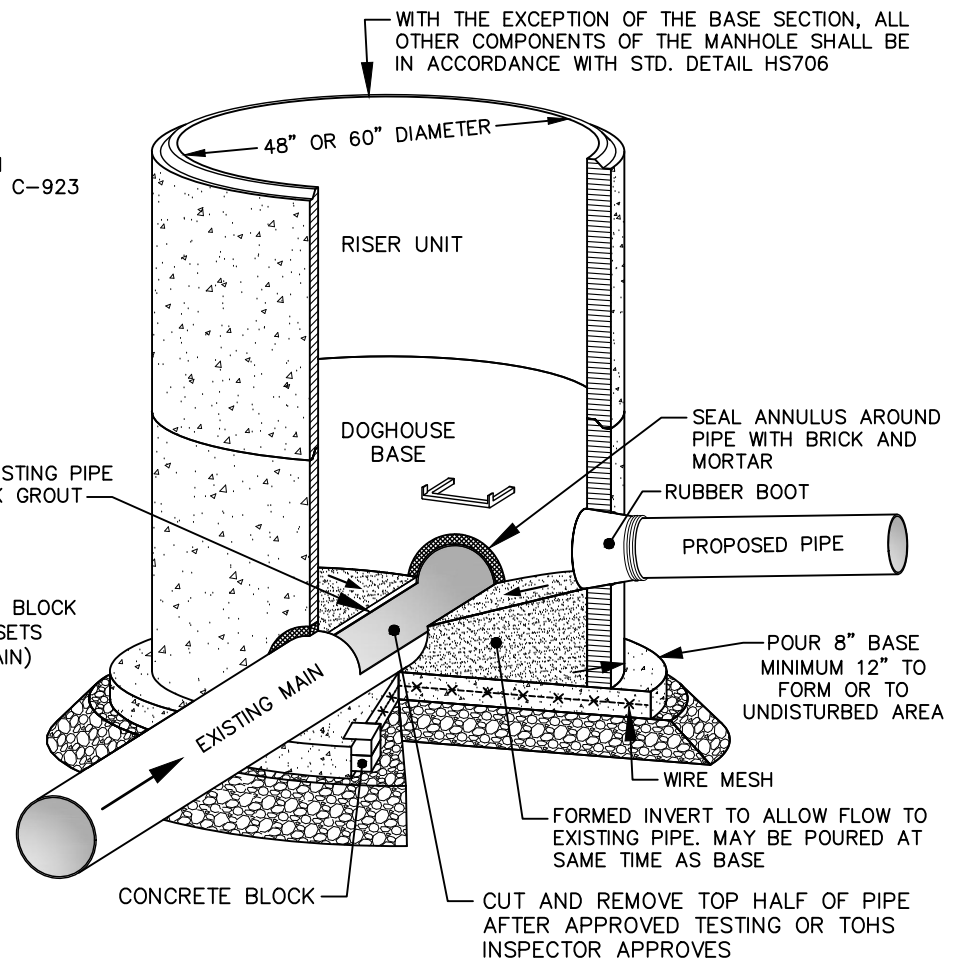
DATE REVISIONS

7/27/18





BASE UNIT INSTALLMENT



INVERT INSTALLMENT

NOTES:

1. DOGHOUSE OPENINGS IN PRECAST UNITS SHALL HAVE A RADIUS OF 4 TO 8 INCHES LARGER THAN THE EXISTING PIPE DIAMETER.
2. CAST-IN-PLACE CONCRETE SHALL BE 4000 PSI, PER ASTM C-94.
3. ALL PRECAST MANHOLE COMPONENTS SHALL MEET ASTM C-478.
4. BENCH SHALL SLOPE UPWARD FROM THE SPRINGLINE TO THE PROJECTED LEVEL OF THE PIPE CROWN OR 8 INCHES ABOVE THE SPRINGLINE, WHICHEVER IS LESS.

DRAWING NOT TO SCALE

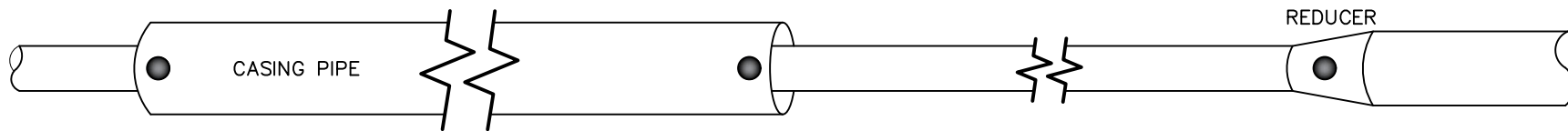
STANDARD PRECAST CONCRETE DOGHOUSE MANHOLE

TOWN OF HOLLY SPRINGS ENGINEERING DEPARTMENT

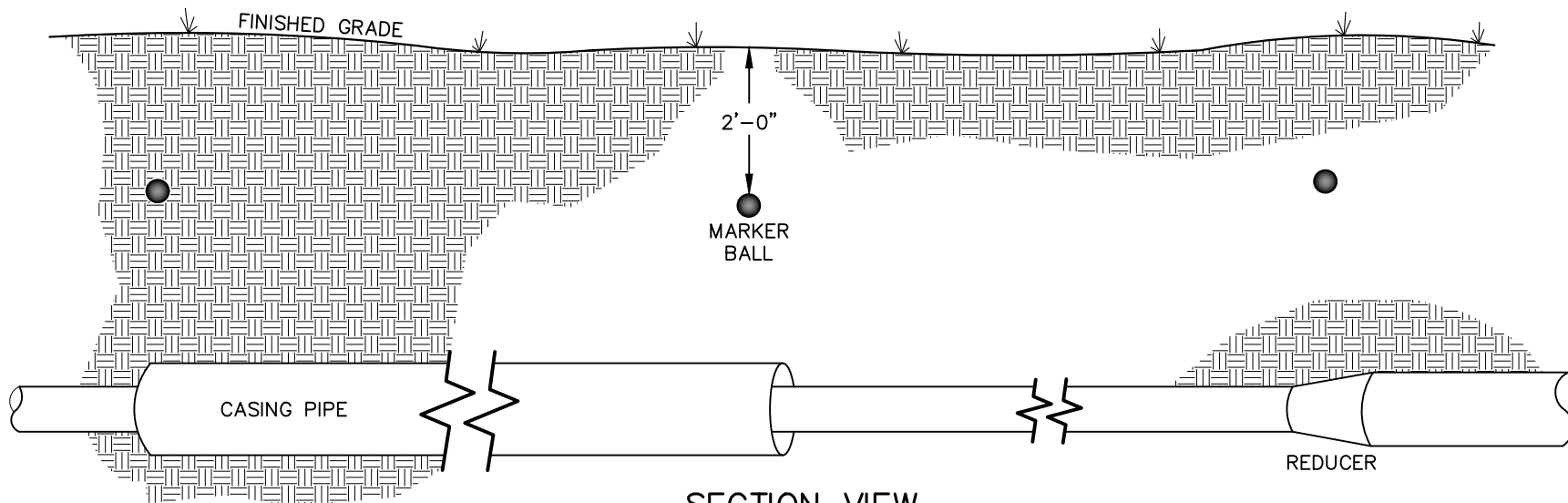
STANDARD DETAIL NUMBER: **HS728**

DATE	REVISIONS
1/15/19	





PLAN VIEW



SECTION VIEW

UTILITY MARKER BALL COLOR
GREEN - SEWER

● = NON-PROGRAMMABLE MARKER BALL

NOTES:

1. MARKER BALLS SHALL BE LOCATED ABOVE THE PIPE, 2 FEET BELOW FINISHED GRADE.
2. ADDITIONAL BALLS MAY BE REQUIRED AS DIRECTED BY THE TOWN IN CONGESTED AREAS OR TO MARK AN ATYPICAL ALIGNMENT.

DRAWING NOT TO SCALE

**STANDARD UTILITY MARKER BALL LOCATIONS
FOR SEWER FORCE MAINS**

STANDARD DETAIL NUMBER: HS729

DATE	REVISIONS
2/22/19	

TOWN OF HOLLY SPRINGS ENGINEERING DEPARTMENT

