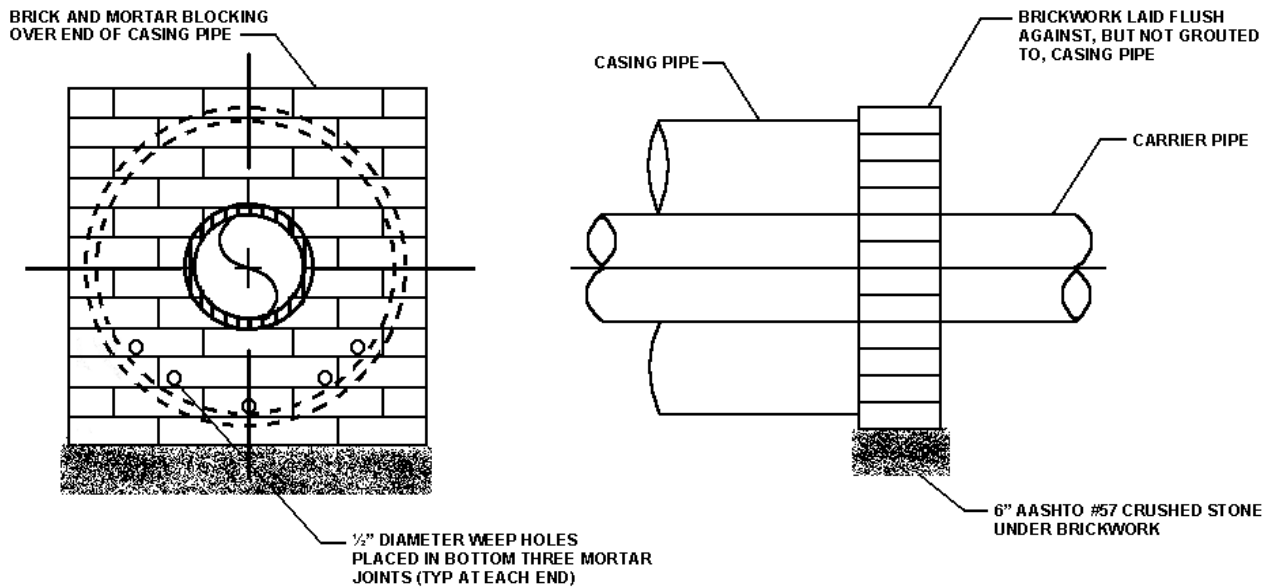
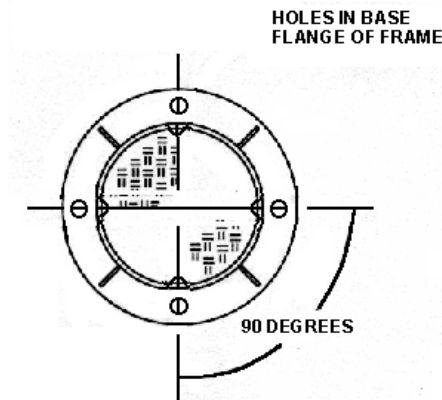


86

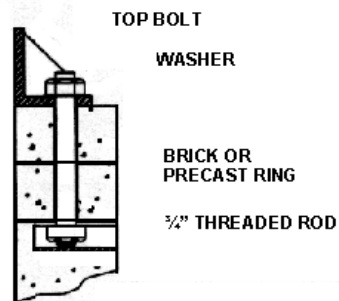


BLOCKING AT END OF CASING PIPE

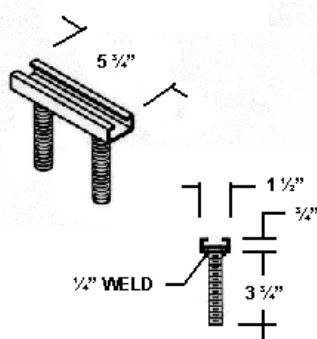
**ANTRIM TOWNSHIP
SANITARY SEWER CONSTRUCTION SPECIFICATIONS**



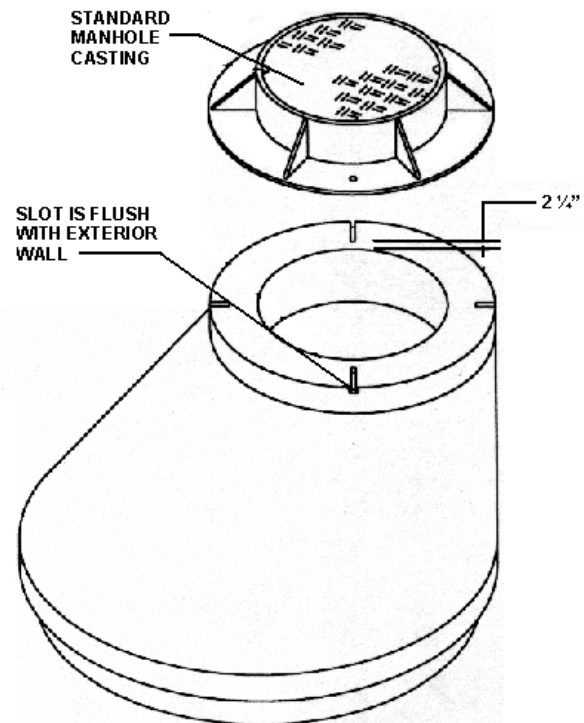
FRAME & COVER



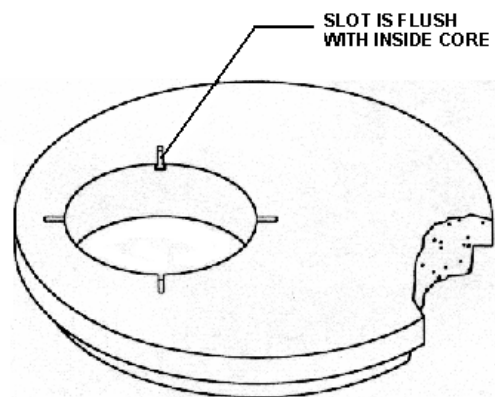
CONNECTION DETAIL



ADJUSTABLE SLOT BOLT

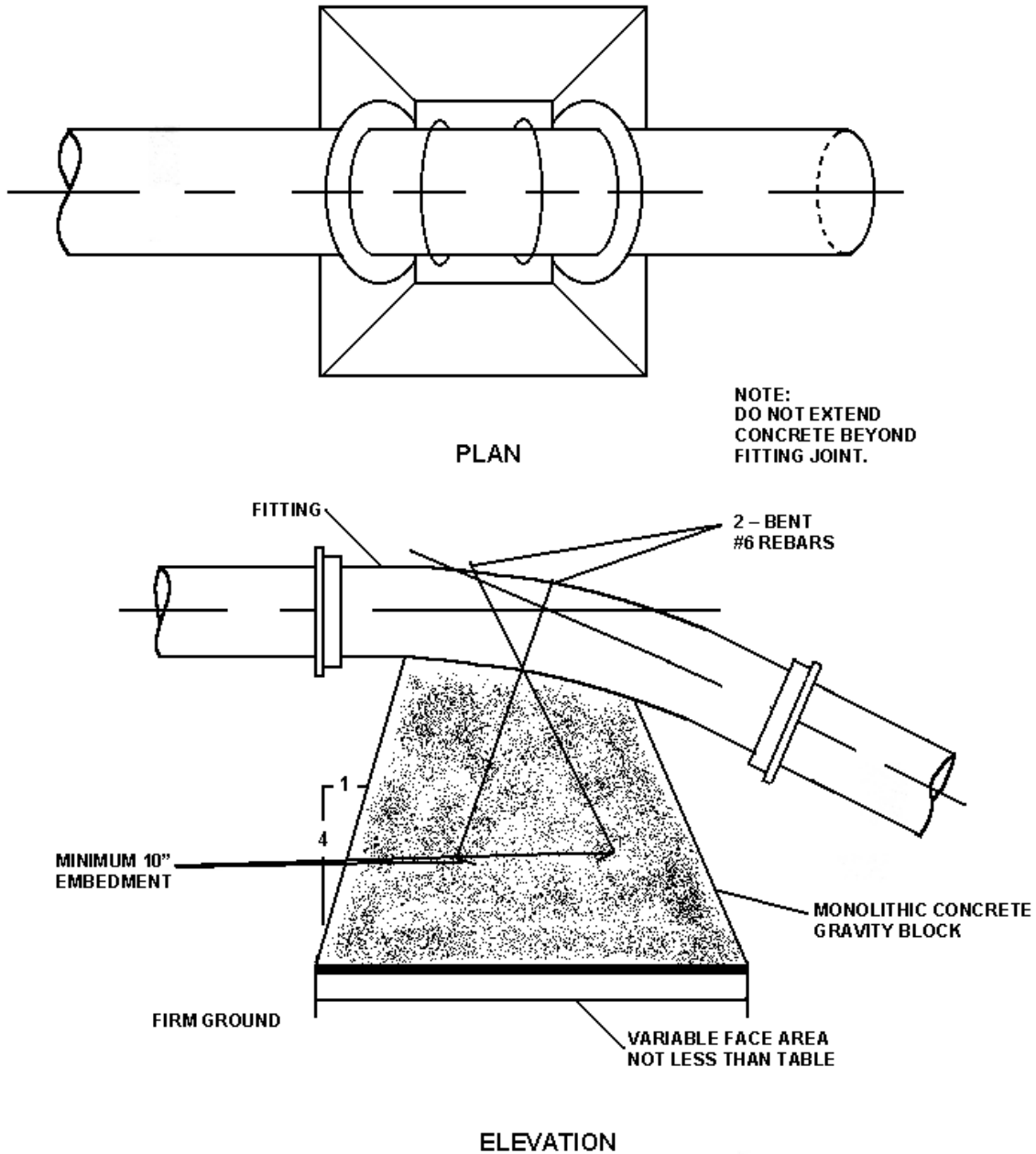


STANDARD CONE SECTION



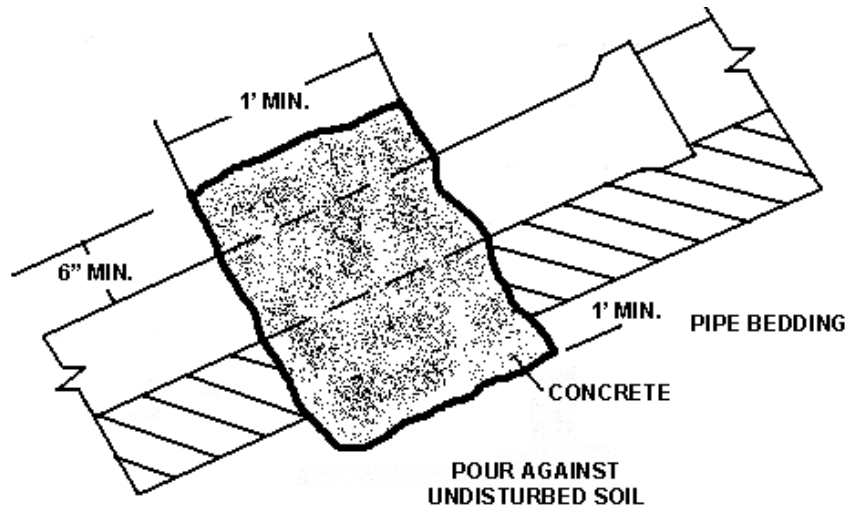
STANDARD FLAT SLAB SECTION

BOLT – SLOT

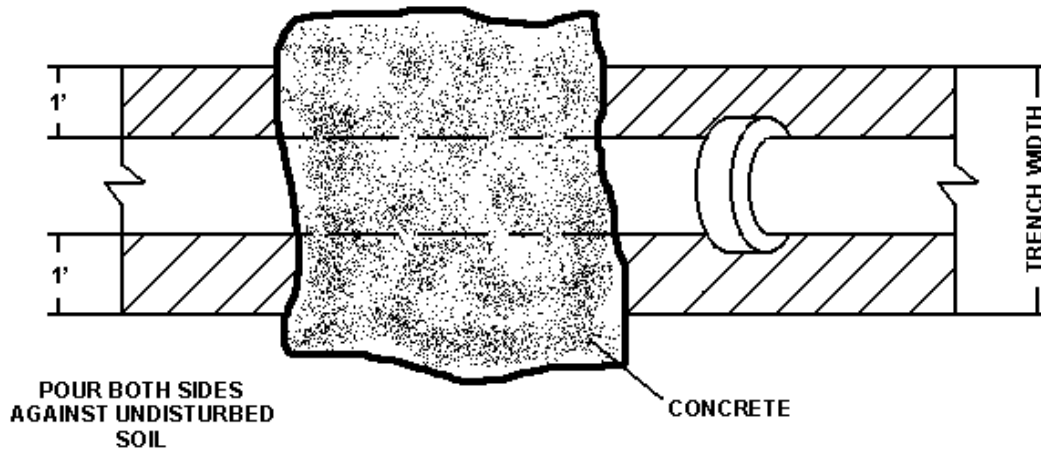


CONCRETE ANCHOR FOR VERTICLE BENDS

**ANTRIM TOWNSHIP
SANITARY SEWER CONSTRUCTION SPECIFICATIONS**



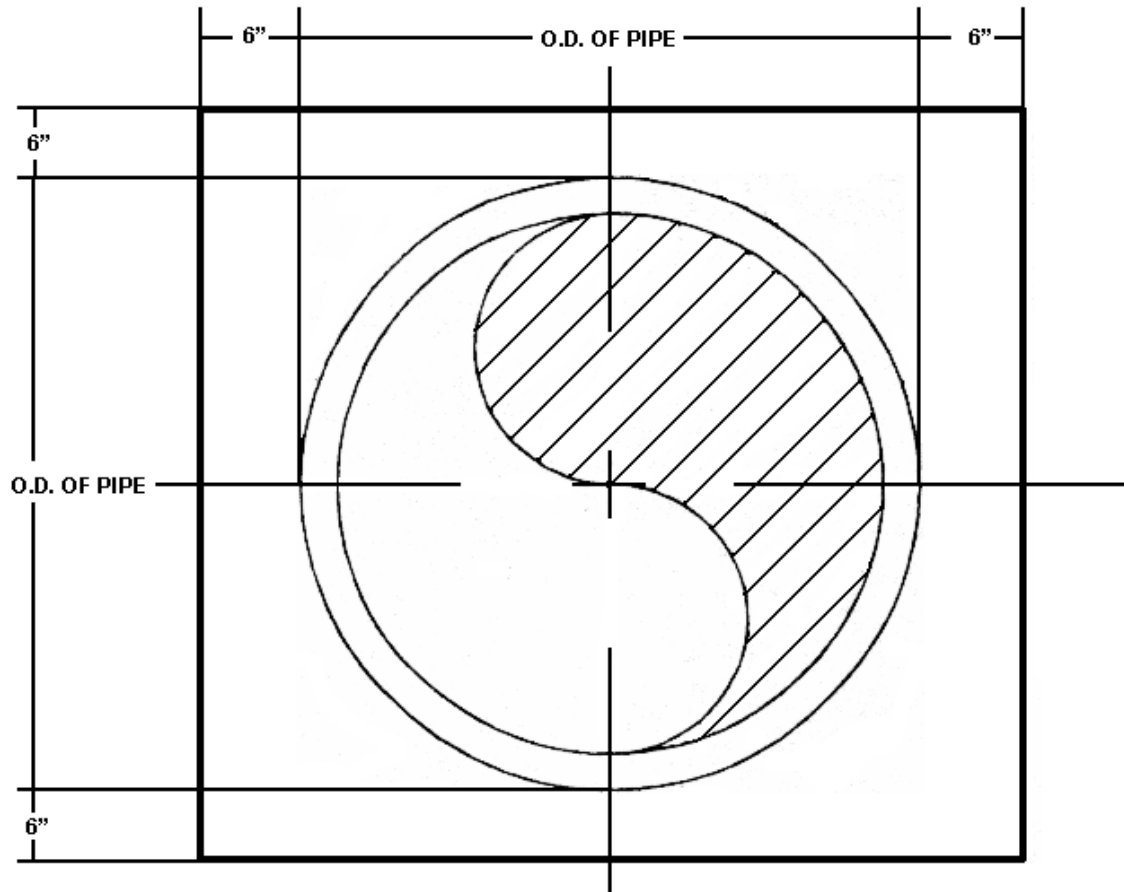
SIDE VIEW



PLAN VIEW

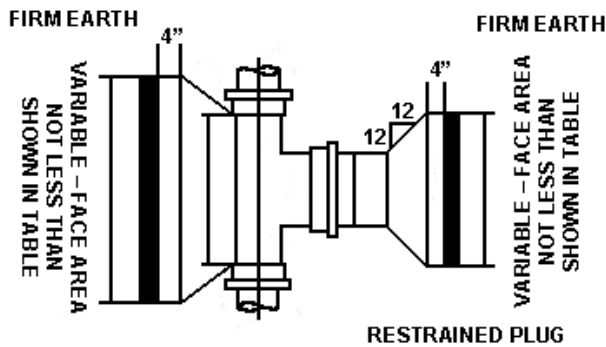
SLOPE	MIN. ANCHOR SPACING CENTER TO CENTER
.20 - .34	35'
.35 - .50	25'
.51+	15' OR CONCRETE ENCASEMENT

CONCRETE ANCHOR

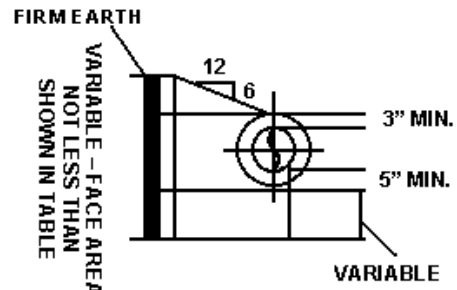


CONCRETE ENCASEMENT

**ANTRIM TOWNSHIP
SANITARY SEWER CONSTRUCTION SPECIFICATIONS**



NOT LESS THAN 6/10
THIS DIMENSION

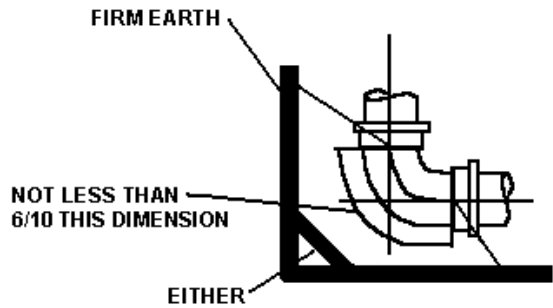


**APPLICABLE TO
TEES, WYES, & BENDS**

**BLOCKING FOR
TEES & PLUGS**

NOTES:

1. ALL TEES, WYES, CROSSES, PLUGS, AND BENDS OF 10" OR MORE SHALL BE BLOCKED AGAINST FIRM EARTH WITH CONCRETE.
2. EARTH PRESSURE FIGURED AT 4,000 PSF, IF EARTH ENCOUNTERED WILL NOT WITHSTAND THIS PRESSURE, THE AREA OF THE BLOCK MUST BE INCREASED PROPORTIONATELY. CALCULATIONS ARE BASED ON 225 PSI OR 150 # OF WORKING PRESSURE PLUS 50% WATER HAMMER FOR SIZES 4" TO 24" INCLUSIVE.
3. ALL CONCRETE SHALL HAVE A MINIMUM 28 DAY COMPREHENSIVE STRENGTH OF 4,000 PSI.



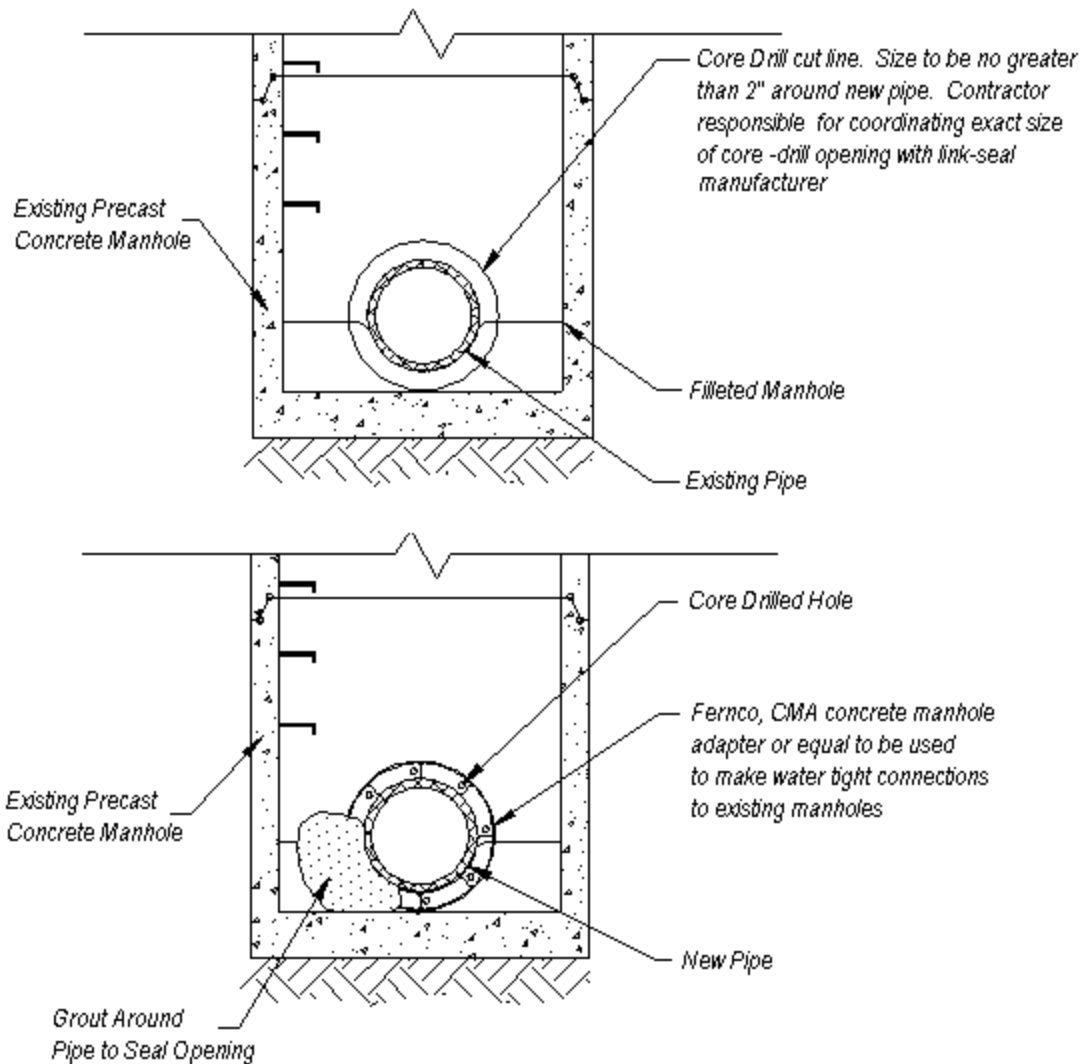
OUTSIDE FACE AREA NOT
LESS THAN SHOWN IN TABLE

**BLOCKING FOR
BENDS**

PIPE SIZE (IN.)	AREA SQ."	TOTAL FORCE (LBS.)	AREA OF BLOCK IN SQUARE FEET				
			TEES & PLUGS	90° BENDS	45° BENDS	22 1/2° BENDS	11 1/4° BENDS
2 1/4	5	1,180	1.0	1.0	1.0	1.0	1.0
4	13	2,900	1.0	1.0	1.0	1.0	1.0
6	29	6,500	1.7	2.3	1.3	1.0	1.0
8	53	12,000	3.0	4.1	2.2	1.2	1.0
10	82	19,000	4.8	6.3	3.4	1.8	1.0
12	118	26,800	6.7	9.1	4.9	2.5	1.3
14	168	37,800	9.5	12.3	6.7	3.4	1.8
16	220	48,500	12.2	16.1	8.8	4.5	2.3
18	276	62,290	15.6	20.4	11.0	5.6	2.9
20	342	77,000	19.3	25.7	13.7	7.0	3.6

CONCRETE THRUST BLOCKS

**ANTRIM TOWNSHIP
SANITARY SEWER CONSTRUCTION SPECIFICATIONS**



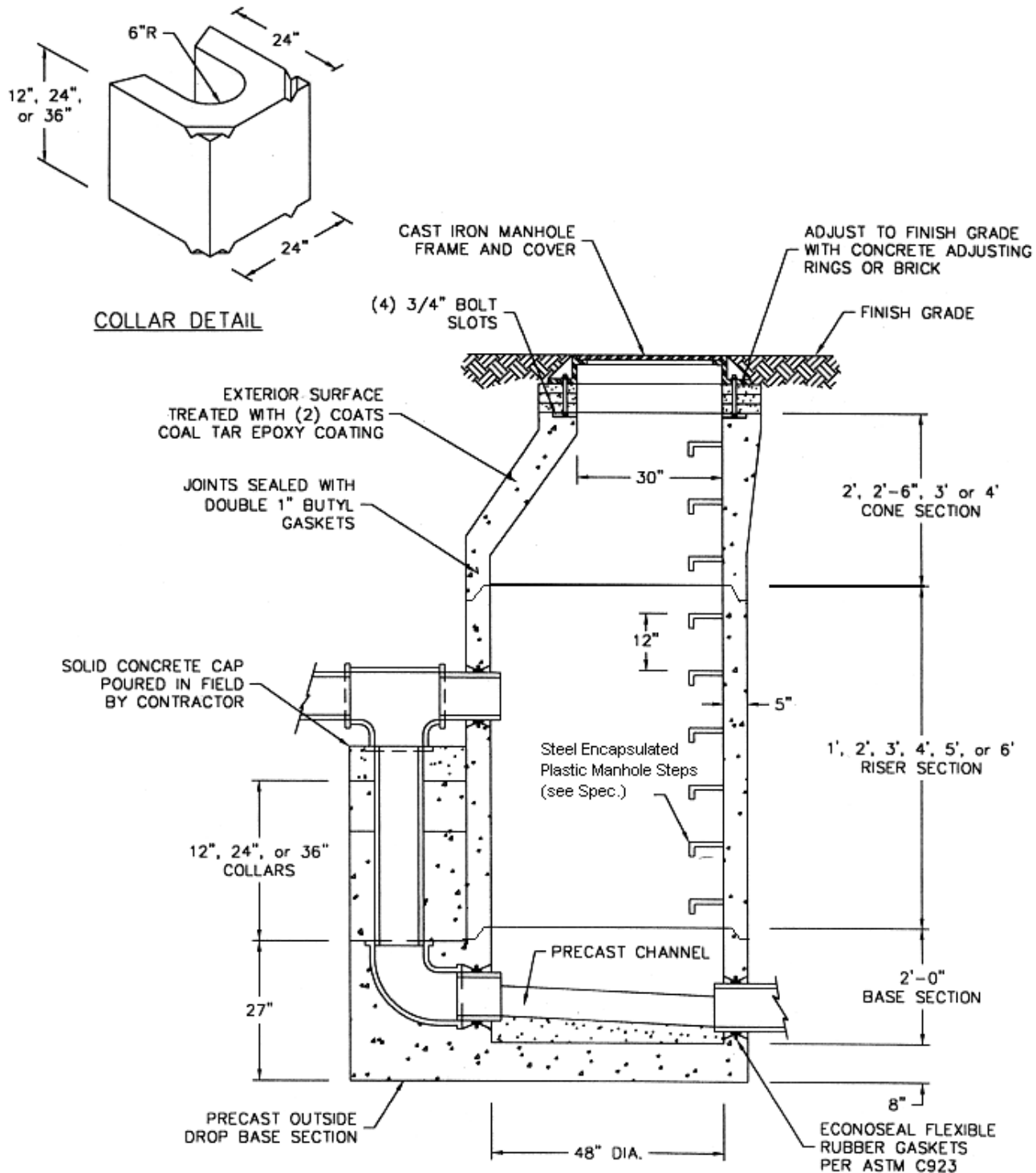
Details

1. The opening in the manhole wall for the new pipe shall be carefully bored to a size no greater than two (2) inches around the new pipe. The existing bench and channel in each manhole must be cut to invert to form a channel for the new pipe. The Contractor shall take all necessary precautions to prevent cutting debris from entering existing sewage flow.
2. The first section of new pipe out of the manhole must be a bell section no longer than six (6) feet and set on line and grade. An approved waterstop must be placed around the pipe, centered in the middle of the manhole wall. The waterstop shall be similar and equal to the CMA concrete manhole adapter as manufactured by Fernco. The Contractor must use a non-shrink hydraulic cement for filling and sealing the through on the inside face of the gasket.
3. The newly cut channels shall be finished with a non-shrink grout and troweled to meet existing channel.

CONNECTING TO EXISTING MANHOLE³

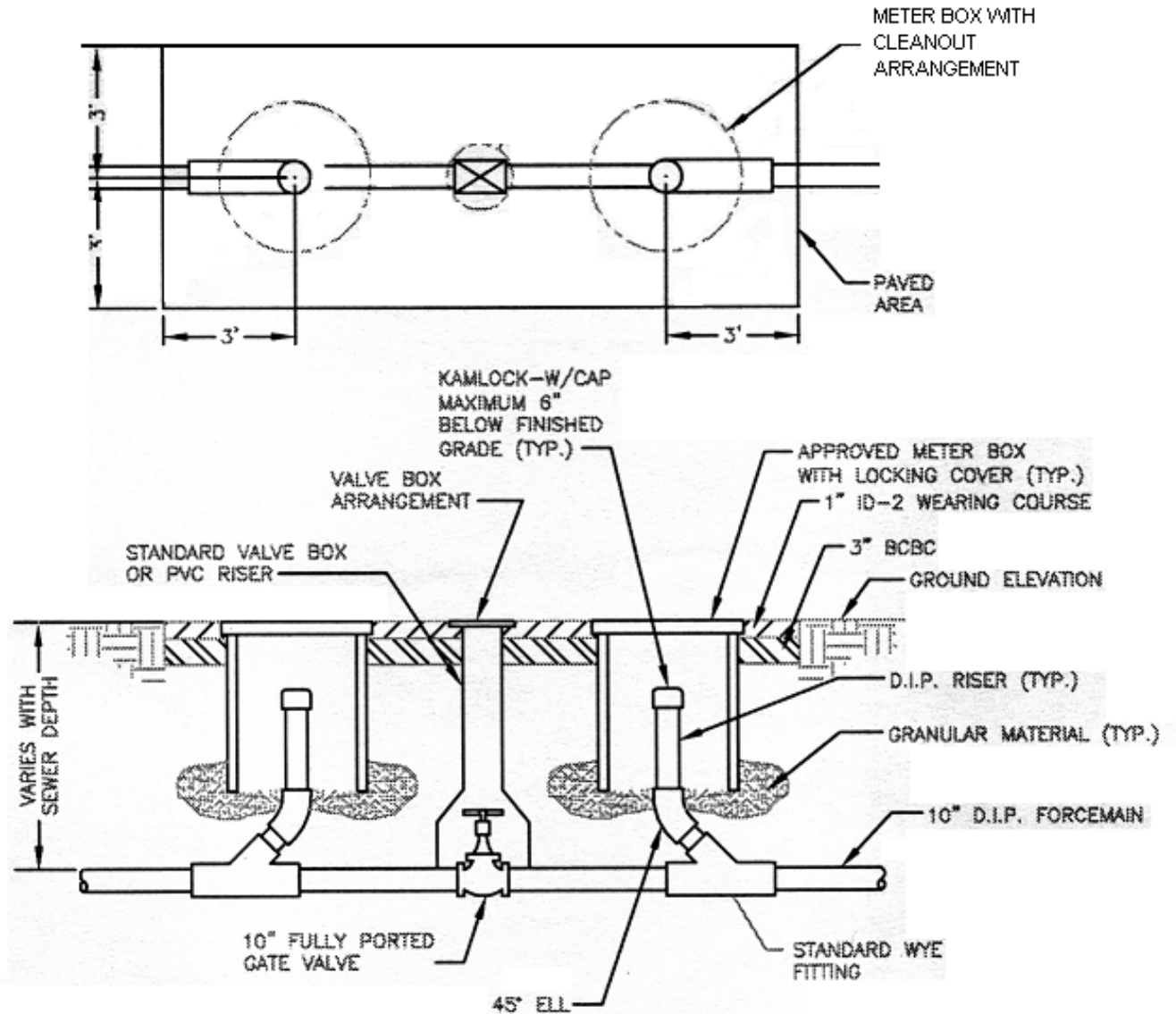
³ Revised June 27, 2005

**ANTRIM TOWNSHIP
SANITARY SEWER CONSTRUCTION SPECIFICATIONS**

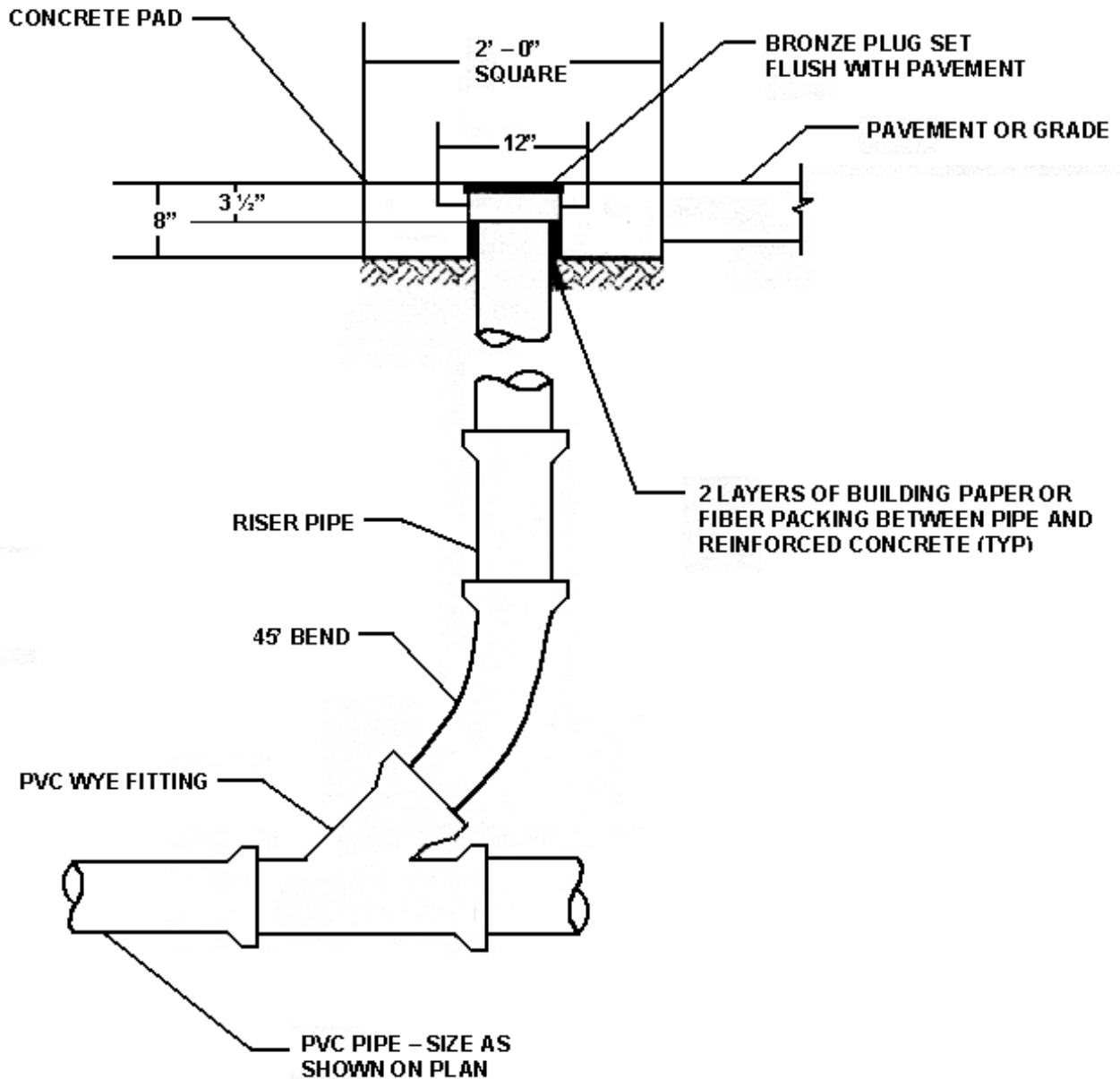


PRECAST DROP MANHOLE

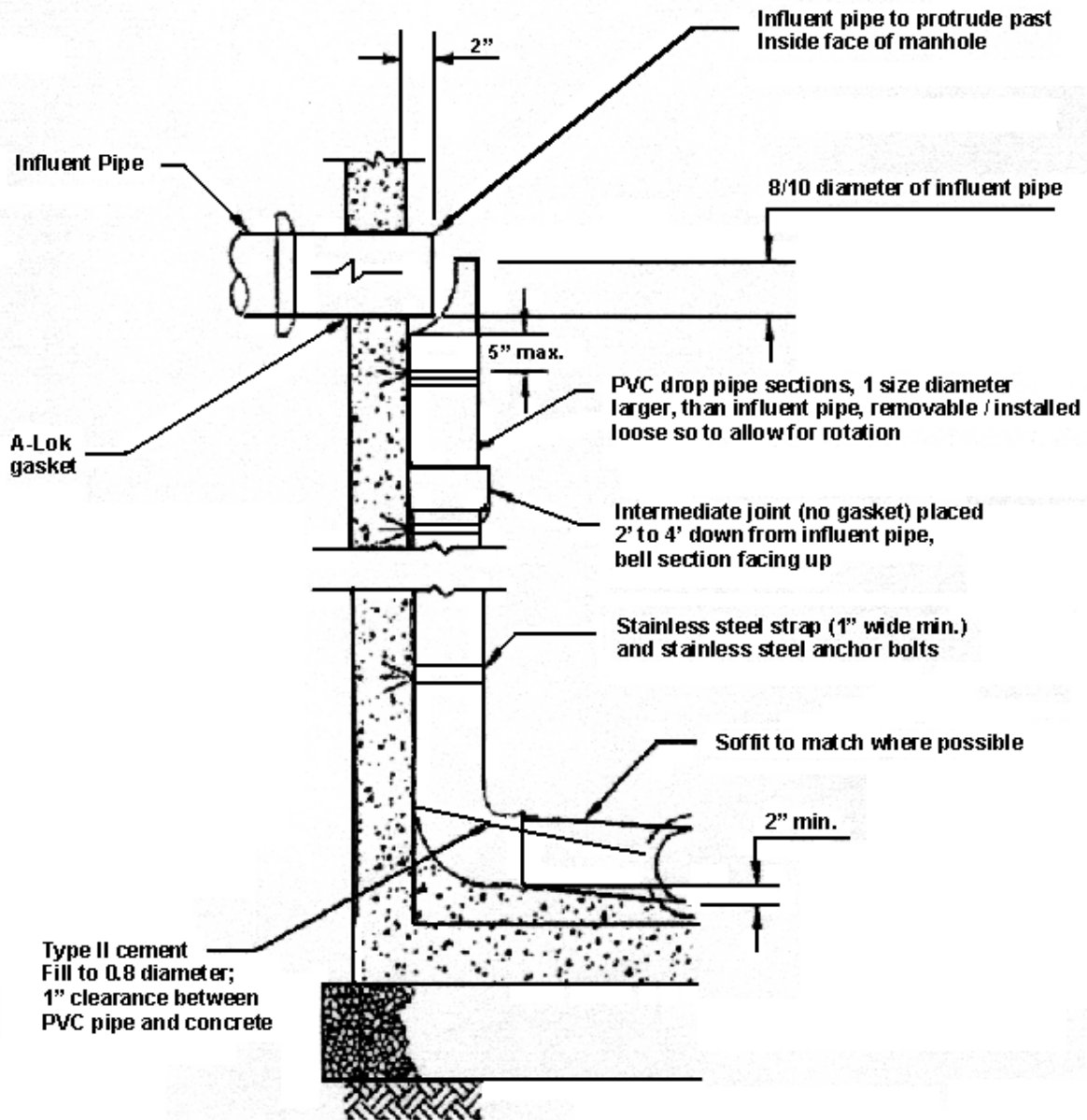
**ANTRIM TOWNSHIP
SANITARY SEWER CONSTRUCTION SPECIFICATIONS**



FORCEMAIN IN-LINE CLEANOUT



GRAVITY SEWER IN-LINE CLEANOUT



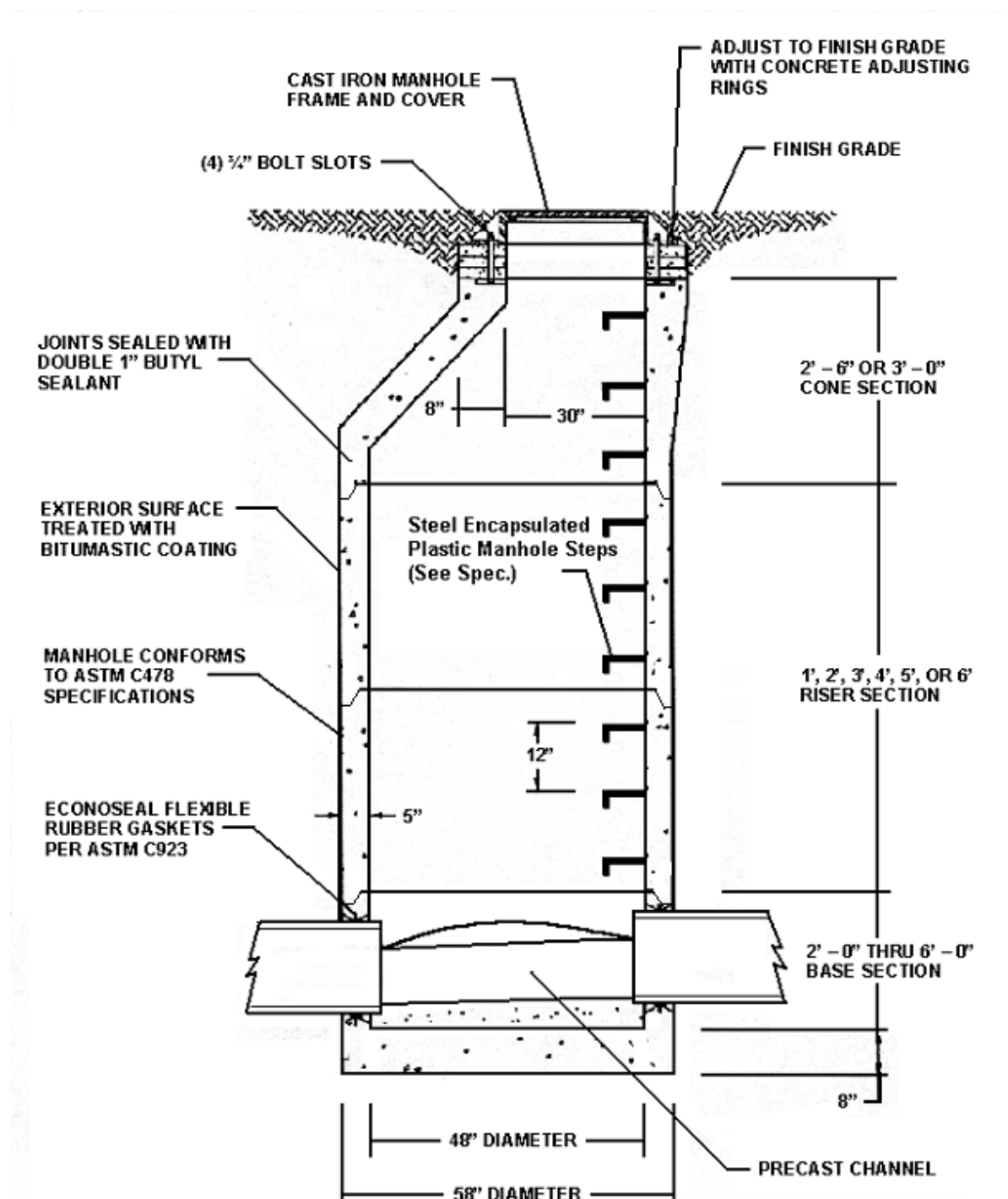
Notes:

1. 72" diameter manhole required when one (1) 8" inside drop or larger are incorporated.

INSIDE DROP MANHOLE

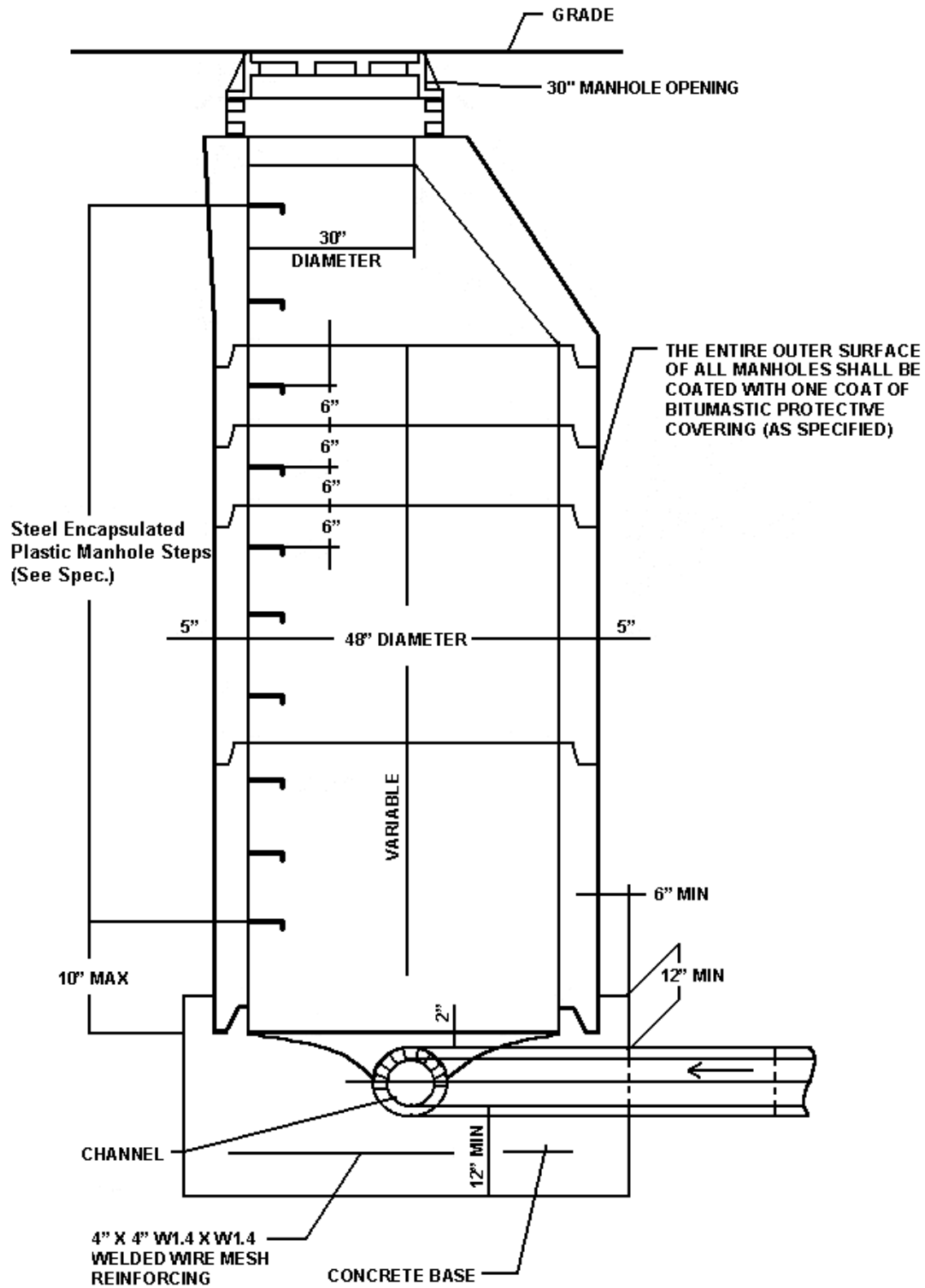
(FOR EXISTING MANHOLES ONLY)

**ANTRIM TOWNSHIP
SANITARY SEWER CONSTRUCTION SPECIFICATIONS**



TYPICAL MANHOLE

**ANTRIM TOWNSHIP
SANITARY SEWER CONSTRUCTION SPECIFICATIONS**

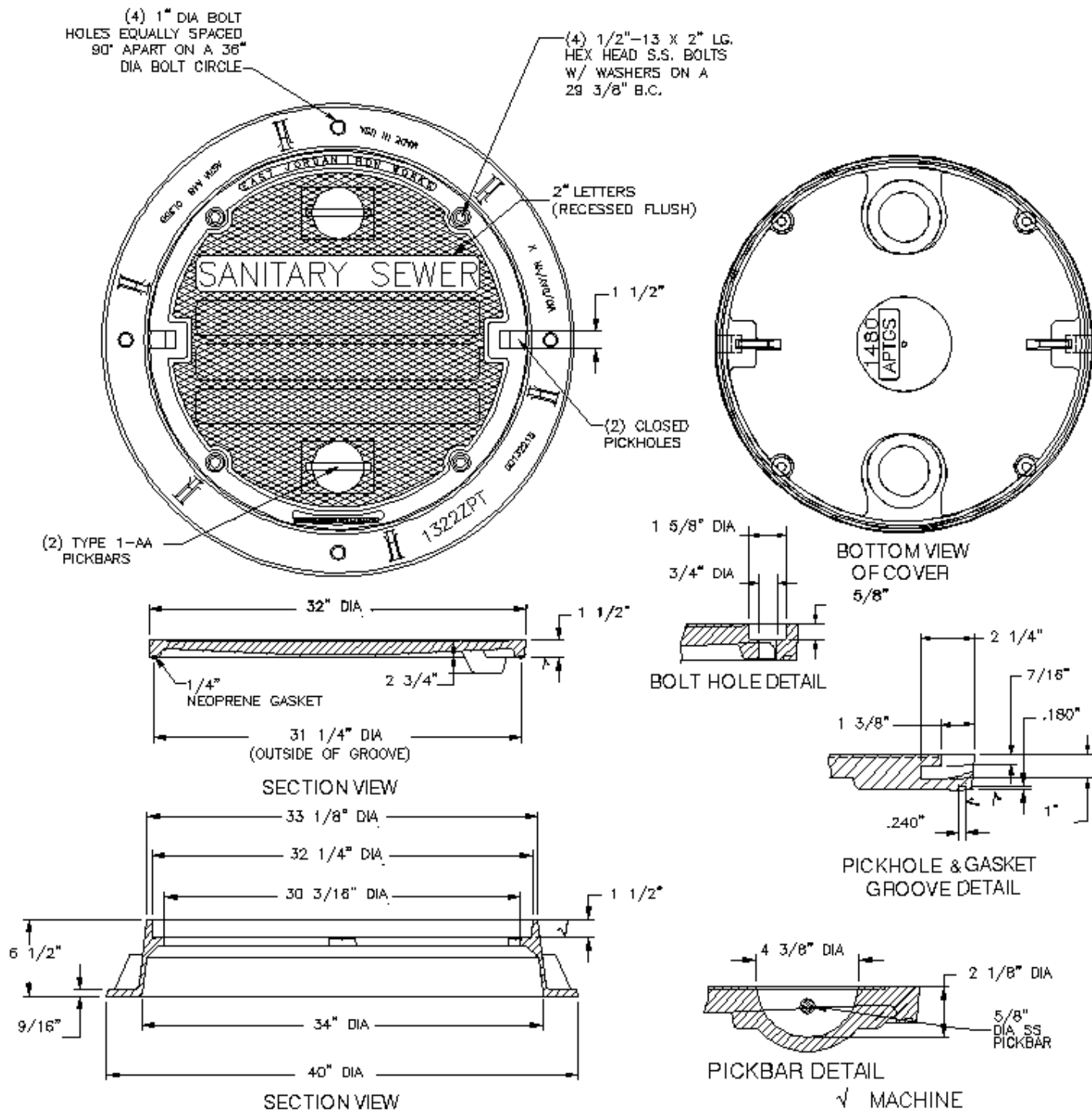


INSPECTION MANHOLE

³ Revised June 27, 2005

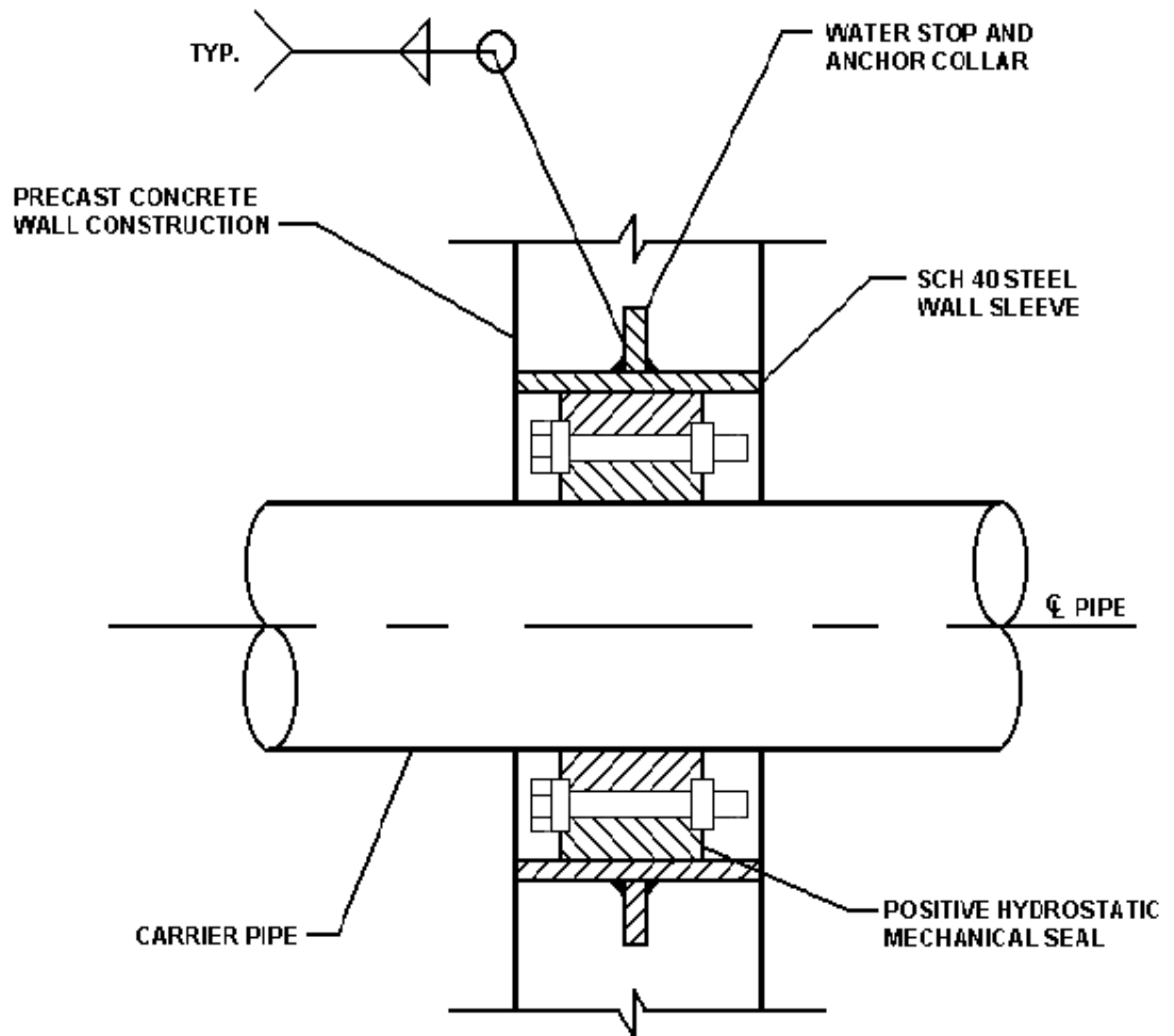


ANTRIM TOWNSHIP SANITARY SEWER CONSTRUCTION SPECIFICATIONS



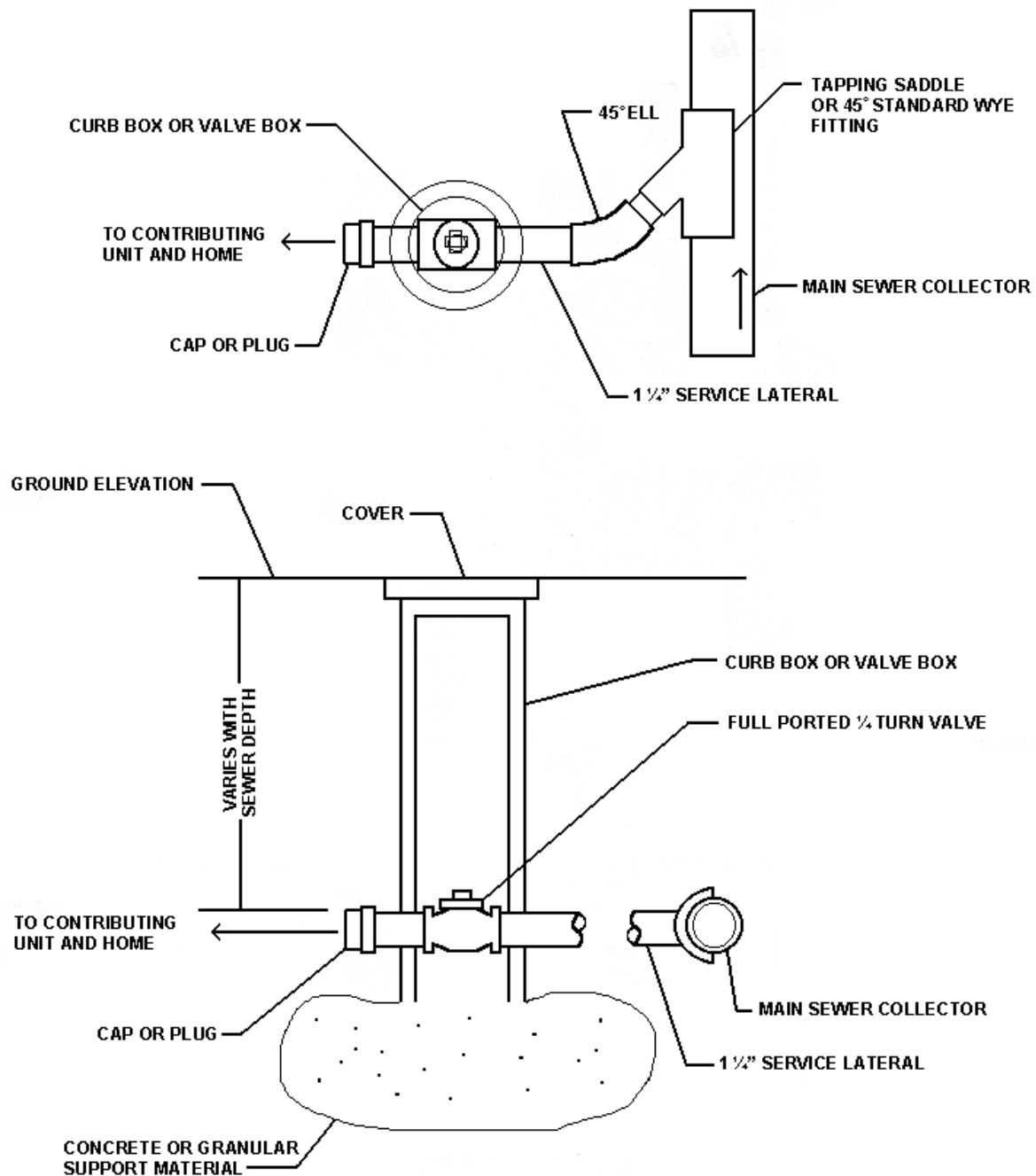
MANHOLE LID ASSEMBLY³

³ Revised June 27, 2005

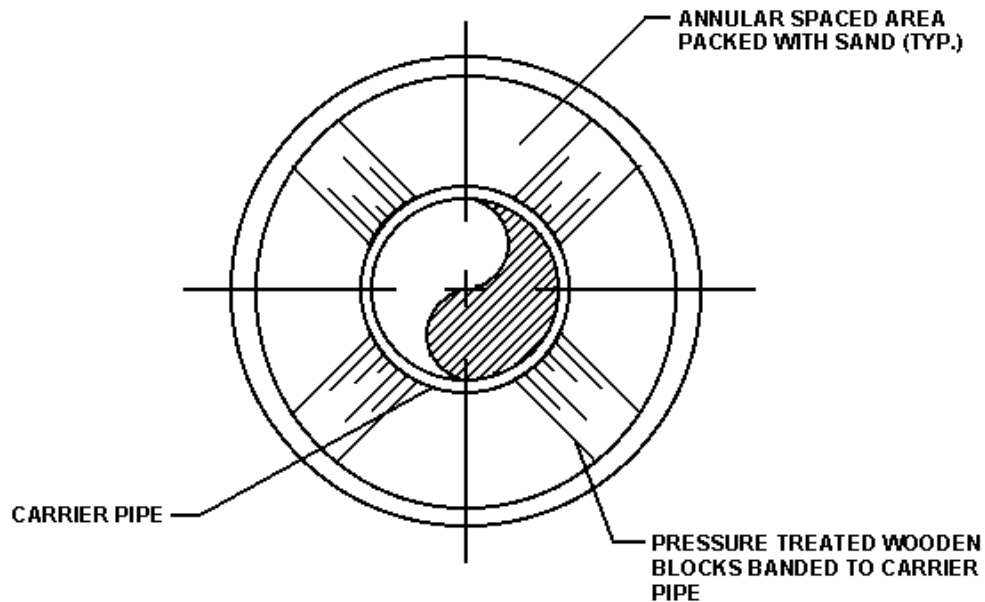


PIPE WALL PENETRATION

**ANTRIM TOWNSHIP
SANITARY SEWER CONSTRUCTION SPECIFICATIONS**



PRESSURE SERVICE LINE CONNECTION



ITEM	MATERIAL	SIZE
CARRIER PIPE	DUCTILE IRON	8 INCH
CASING PIPE	STEEL	AS SHOWN

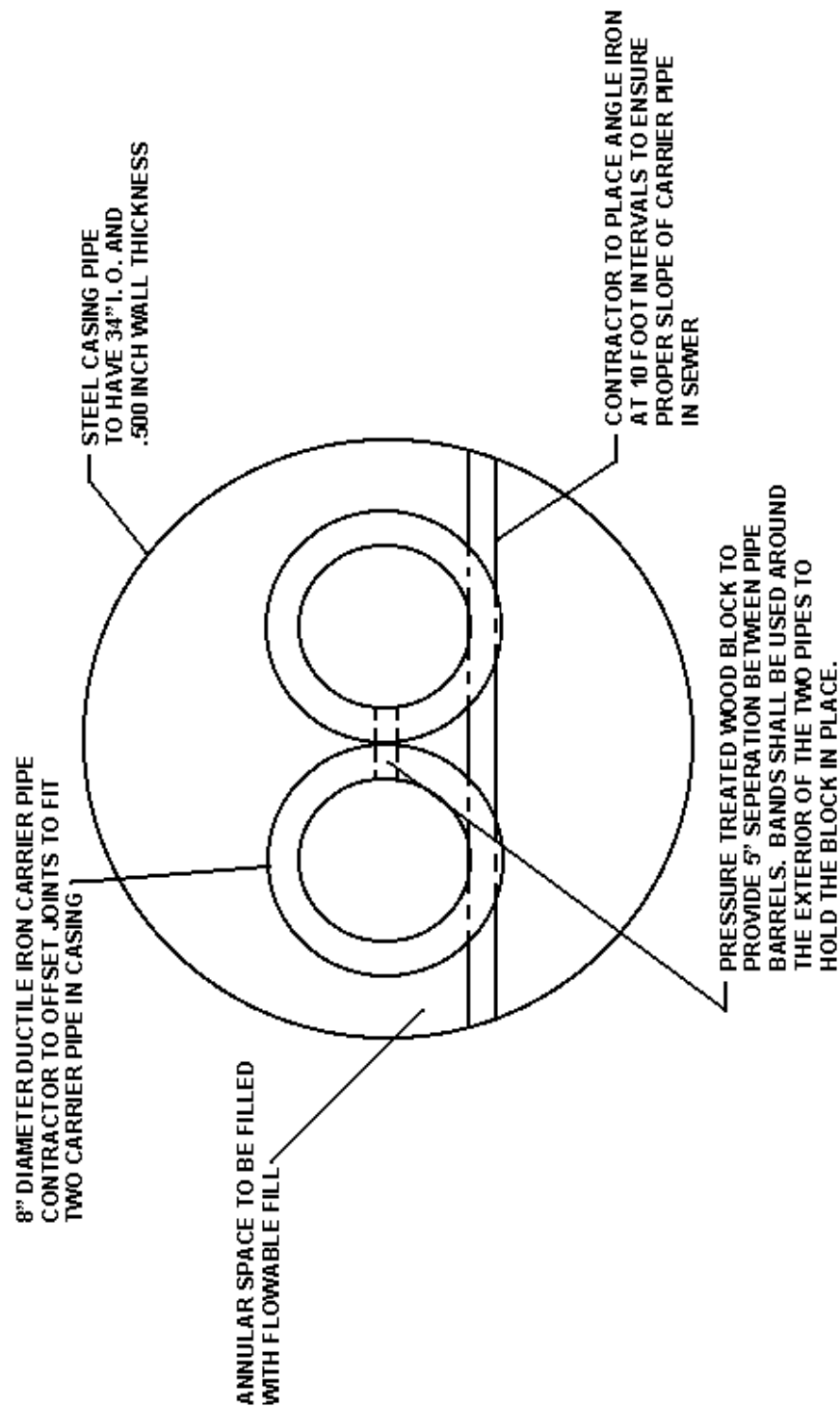
NOTE:
END OF THE CASING PIPE SHALL BE CLOSED
WITH MASONRY AND CONCRETE

TYPICAL BORING SECTION WITH SINGLE CARRIER PIPE

PVC SDR 35 CARRIER PIPE	STEEL CASING PIPE
8 INCH	16 INCH

STATE ROUTE TYPICAL BORING SCHEDULE

BORING SECTION

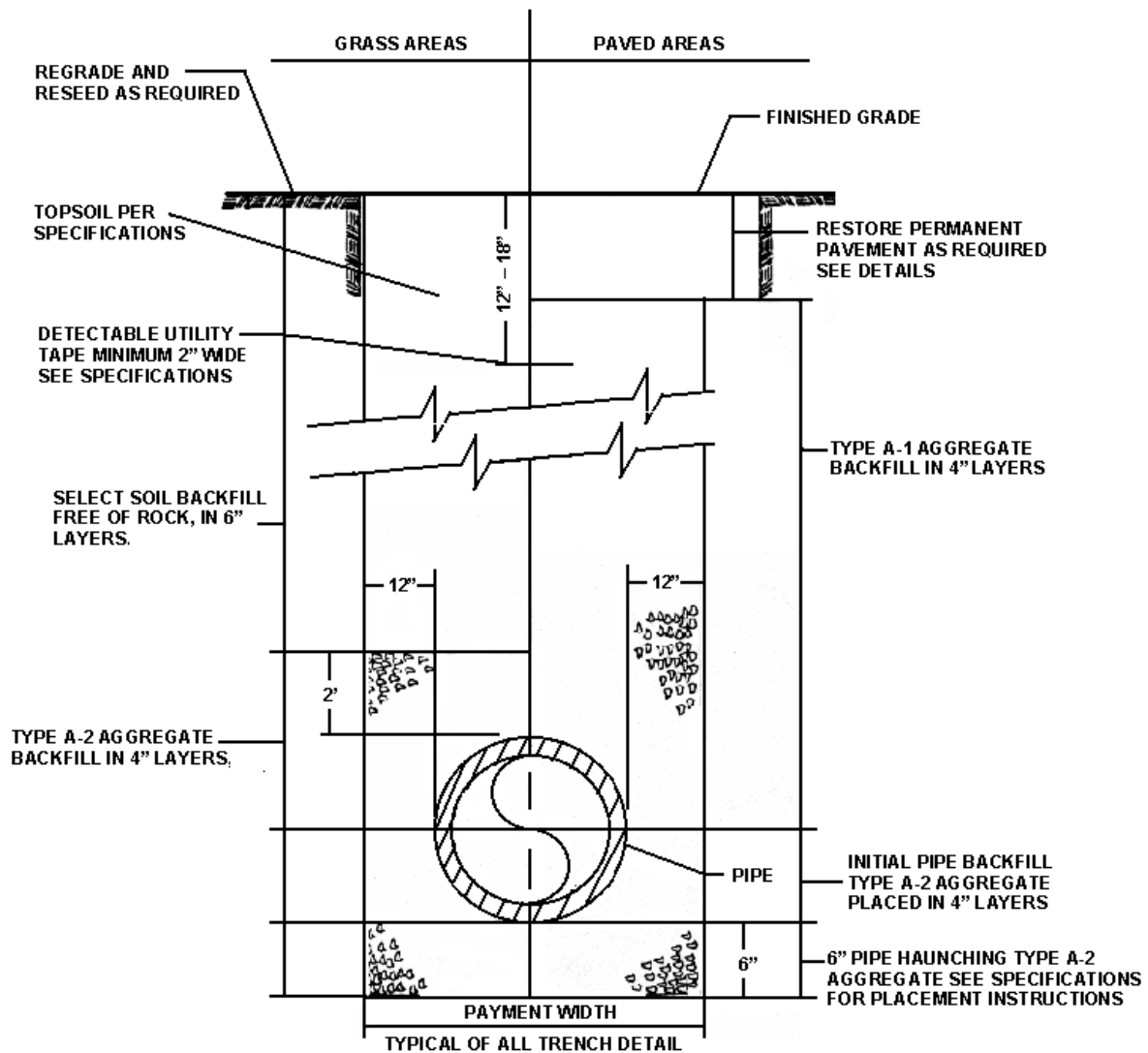


ITEM	MATERIAL	SIZE
CARRIER PIPE	DUCTILE IRON	8 INCH
CASING PIPE	STEEL	AS SHOWN

NOTE:
END OF THE CASING PIPE SHALL BE CLOSED WITH
LIGHT BRICK MASONRY AND CONCRETE

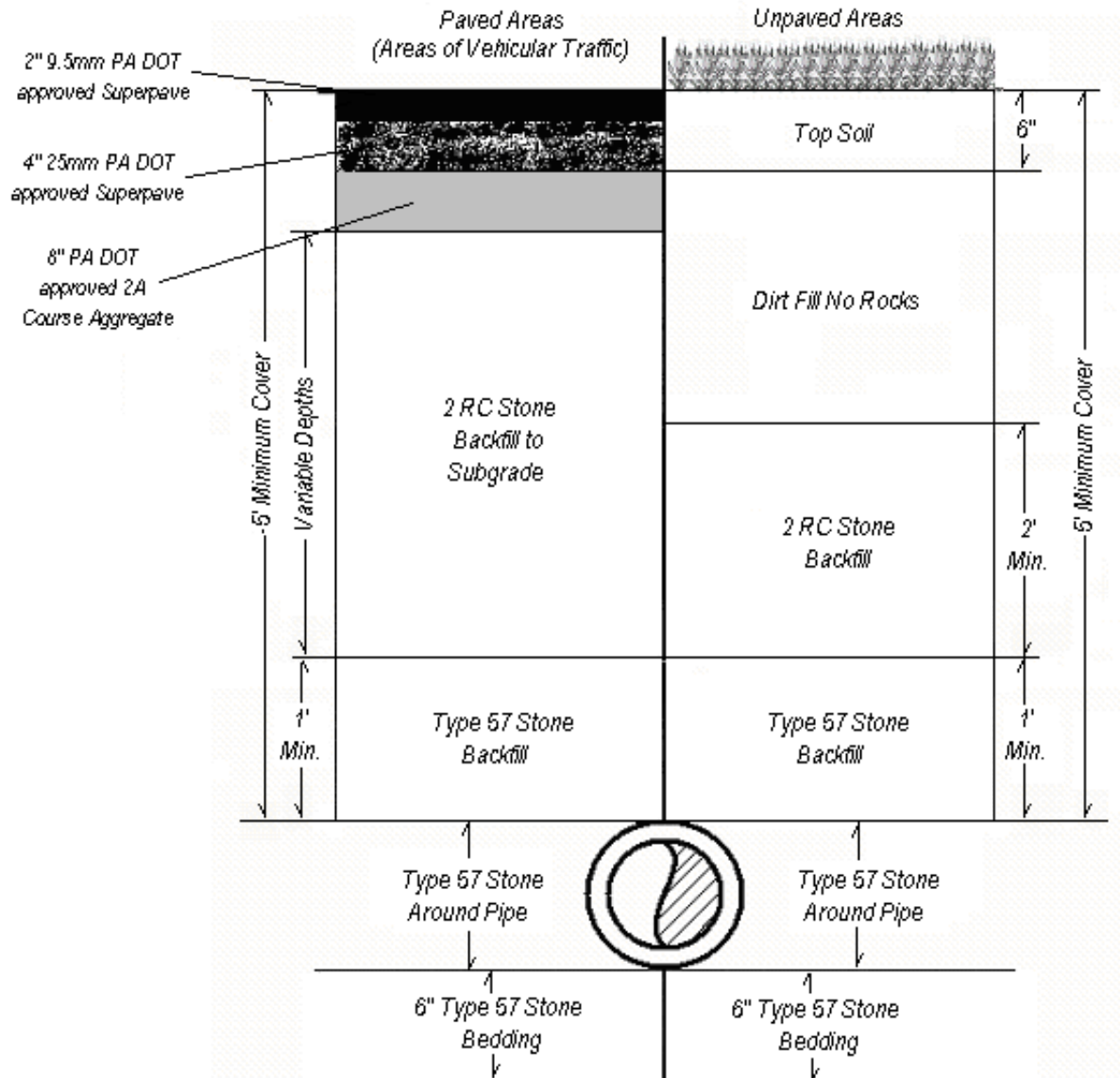
BORING W/ MULTIPLE PIPES

**ANTRIM TOWNSHIP
SANITARY SEWER CONSTRUCTION SPECIFICATIONS**



TYPICAL PIPE TRENCH AND EMBEDMENT DETAIL

**ANTRIM TOWNSHIP
SANITARY SEWER CONSTRUCTION SPECIFICATIONS**

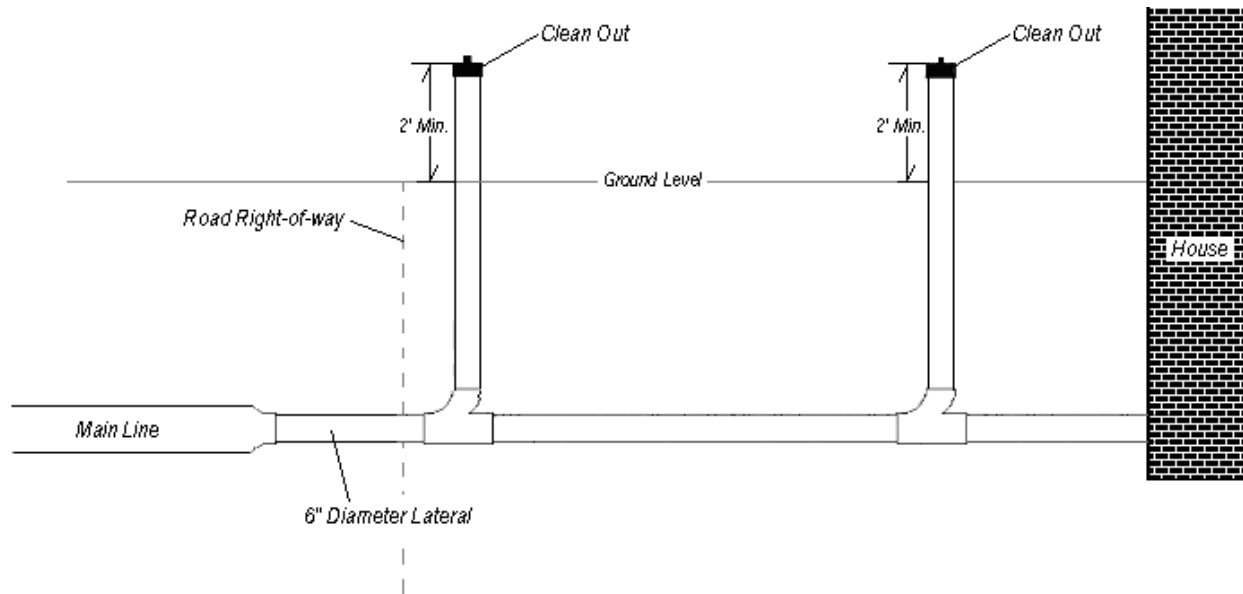


Antrim Township Road Construction Specifications shall be followed when constructing a road overtop of any sewerline.

BACKFILL³

³ Revised June 27, 2005

**ANTRIM TOWNSHIP
SANITARY SEWER CONSTRUCTION SPECIFICATIONS**



For Bedding and Backfill requirements please refer to backfill detail

NOTES:

1. No rocks within six inches (6") of the pipe.
2. Line must be air or water tested, and witnessed by the ATMA.²
3. Cleanout must be established at every eighty foot (80') interval of line.
4. Any line exceeding eighty feet (80') in length, shall have an additional cleanout in the middle of the line, and cleanouts shall be equally spaced.²
5. The two foot (2') stone cover shall not be placed until after inspection by the ATMA, and only Type 57 stone shall be used for backfill.²
6. For backfill see detail
7. The entire pipe shall be laid on six inches (6") of Type #57 stone bedding.
8. The Township requires a minimum of four feet (4') of cover over the entire length of the pipe.
9. After right-of-way line lateral may reduce to 4" for residential use only and shall have a minimum 1/4" per foot drop.
10. Non-residential shall be 6" minimum laterals and all 6" laterals shall have a minimum 1/8" per foot drop residential or nonresidential.
11. More than **twenty-four (24) hours' notice (not to include non-work days)** is required at the time of such connection and inspection are to be done.

HOUSE SERVICE CONNECTION FOR STRUCTURES BUILT AFTER JULY 1, 2004 (LATERAL)³

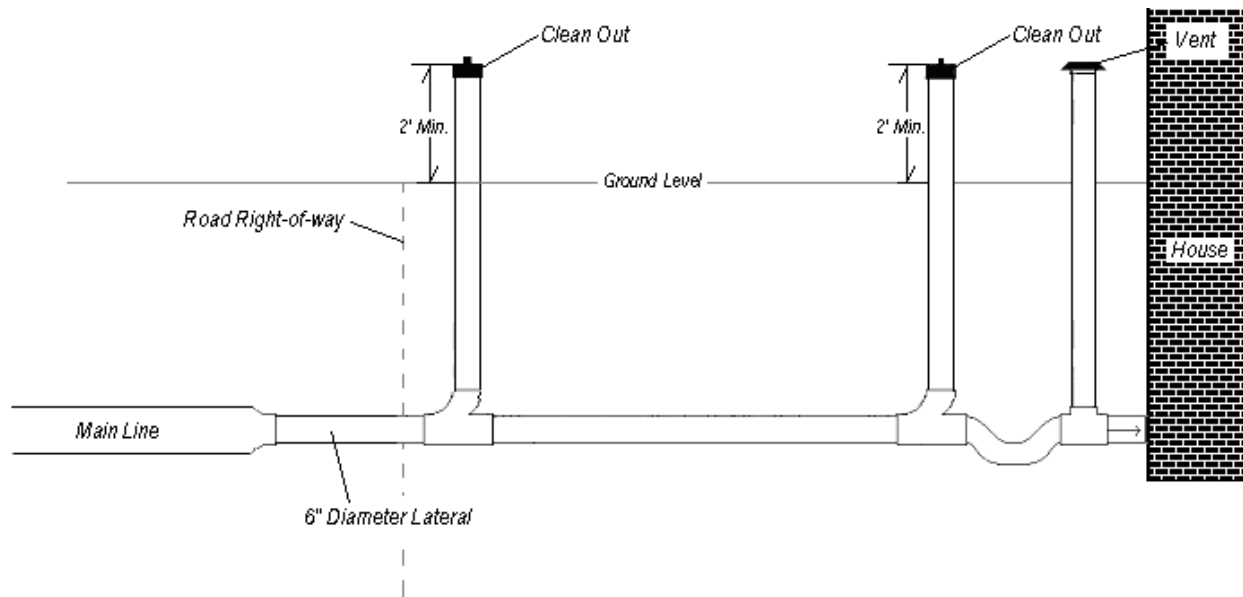
¹ Added January 19, 2004

² Revised January 19, 2004

³ Revised June 27, 2005

⁴ Revised December 18, 2006

**ANTRIM TOWNSHIP
SANITARY SEWER CONSTRUCTION SPECIFICATIONS**



For Bedding and Backfill requirements please refer to backfill detail

NOTES:

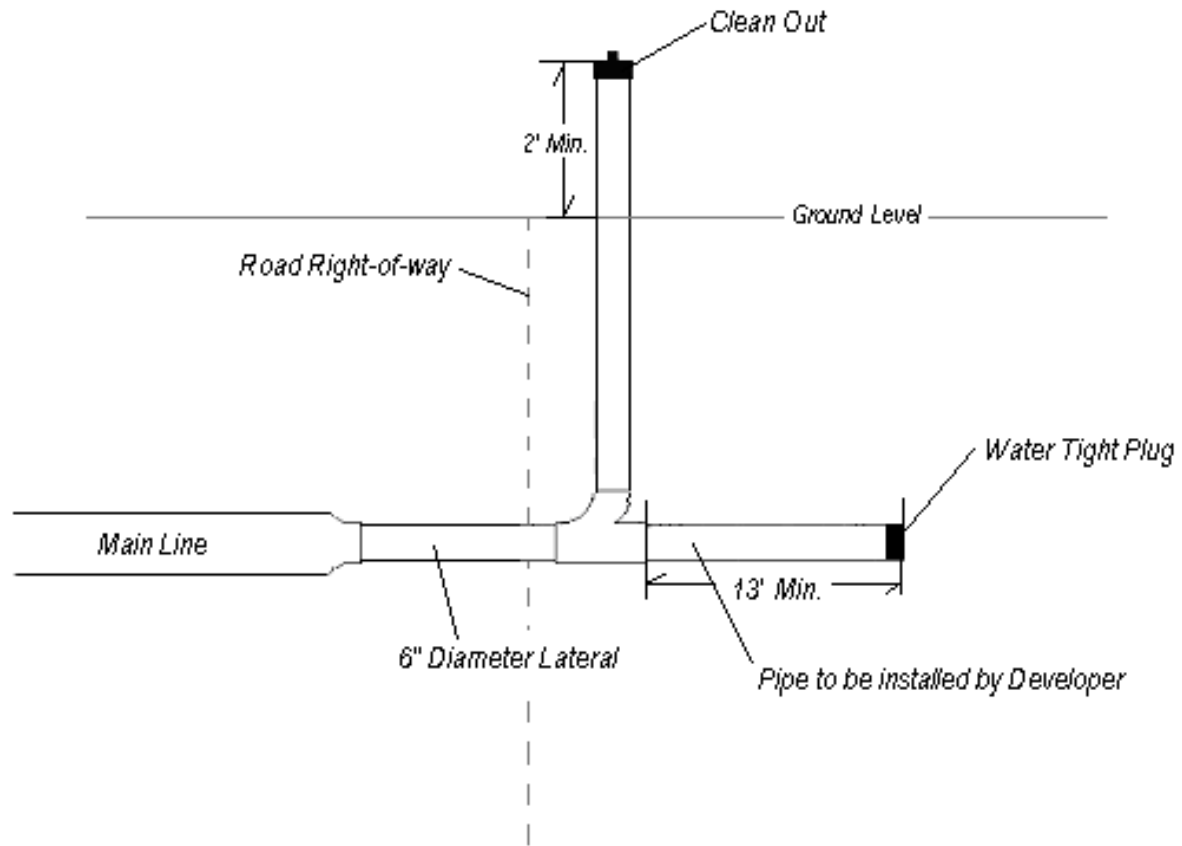
1. No rocks within six inches (6") of the pipe.
2. Line must be air or water tested, and witnessed by the ATMA.²
3. Cleanout must be established at every eighty foot (80') interval of line.
4. Any line exceeding eighty feet (80') in length, shall have an additional cleanout in the middle of the line, and cleanouts shall be equally spaced.²
5. The two foot (2') stone cover shall not be placed until after inspection by the ATMA, and only Type 57 stone shall be used for backfill.²
6. For backfill see detail
7. The entire pipe shall be laid on six inches (6") of Type #57 stone bedding.
8. The Township requires a minimum of four feet (4') of cover over the entire length of the pipe.
9. After right-of-way line lateral may reduce to 4" for residential use only and shall have a minimum 1/4" per foot drop.
10. Non-residential shall be 6" minimum laterals and all 6" laterals shall have a minimum 1/8" per foot drop residential or nonresidential.
11. More than **twenty-four (24) hours' notice (not to include non-work days)** is required at the time of such connection and inspection are to be done.

HOUSE SERVICE CONNECTION FOR STRUCTURES BUILT PRIOR TO JULY 1, 2004 (LATERAL)³

¹ Added January 19, 2004

² Revised January 19, 2004

³ Revised June 27, 2005



For Bedding and Backfill requirements please refer to backfill detail

Mainline Construction with Service Lateral³

³ Added June 27, 2005