

Miscellaneous Sanitary Sewer Notes

1. Sanitary sewers, main, and services and their fittings shall be constructed of one (1) or more of the following materials:
 - a. PVC pipe, ASTM D-3034, SDR26 with elastomeric gasket joints conforming to ASTM D-3212.
 - b. Ductile iron pipe Class 52 with joints conforming to ANSI A21.11. Only when approved for structural purposes by the City Engineer or Director of Public Works or designated representative.

2. Sanitary sewer manholes shall be five (5)-feet zero (0)-inches diameter precast structures. Frames shall be East Jordan 1020, 1022 on 1050 HD with self-sealing application lids with concealed pick holes. Lids shall be imprinted with the word "sanitary."

3. Sanitary sewer manholes and inspection manholes shall have eccentric cones. All manhole sections and adjusting rings shall be securely sealed to each other using pre-formed bituminous mastic such as "RAM-NEK." This mastic shall be applied in such a manner that ground water inflow cannot enter the manhole through gaps between barrel sections or cone sections and adjusting rings. Double "TAR STICK" may be required in areas with high water tables. External "CRETEX" brand chimney seals shall be installed in all manholes. "MAC RAP" is to be used at all manhole section joints. All sanitary structures to be tar-coated including cones.

4. All pipe connections in/out of a sanitary manhole shall be cored and booted with gasket type water stop gaskets, with stainless steel bands per ASTM C923.

5. Sanitary sewer service risers shall be used when sewer main exceeds 12-feet in depth. The bedding under the riser tee shall thoroughly compacted. The engineer reserves the right to require concrete encasement of the riser or a concrete thrust block under the tee.

6. All sanitary sewers including service stubs shall be subject to an air test Section 31 of the Standard Specifications. Applicable portions of main line sewer including main with riser sections shall be subjected to a deflection test conducted by the contractor. All testing shall be observed by a City of Rolling Meadows Public Works Department Representative.

7. The main sanitary sewer shall be televised prior to acceptance. A videotape, CD, or DVD along with a paper report shall be submitted to the City of Rolling Meadows Public Works Department. All sewer televising must be performed by NASSCO certified operators using current NASSCO standards and coding system that can be found in current NASSCO documents. The contractor, without delay, shall preform all necessary corrective work.



City of Rolling Meadows
 3600 Kirchoff Road
 Rolling Meadows, Illinois 60008
 (847) 394-9500

ENGINEERING DETAILS

MISCELLANEOUS SANITARY SEWER NOTES

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8. Control and sampling manholes must be installed in the ROW or as approved by the City of Rolling Meadows on a straight portion of the line without any bends inside the manhole or within five (5)-feet of the exterior of the manhole. In the event that a grease trap is needed, the grease trap shall precede the sample manhole. The grease waste service must connect to a main service before the sample manhole.
9. All sump pumps must discharge outside of the home or to the storm sewer system. All interior floor drains waste ejector pits must connect to the sanitary sewer system.
10. All sanitary sewer stubs shall be marked with 4x4 post painted green.
11. Structures, manholes, inlets, catch basin sumps, and valve vaults shall be cleaned prior to any inspection at the end of the project and prior to City acceptance. Sanitary and storm sewer main shall be jet cleaned if evidence of debris build-up is present at the time of City acceptance.
12. Vehicle and truck dock drains must meet the plumbing code requirements, including waste interceptors, and must be approved by the City Public Works Director or designated representative.
13. When existing stubs are not available, all service connections to mainline sewer shall consist of the following:
 - a. If existing sewer is PVC or clay pipe, the mainline sewer shall be cut and a wye section with chamfer shall be installed with non-sheer mission coupling placed over connection points; for clay, a minimum of two (2)-feet of PVC is required on each side of wye;
 - b. Existing stubs or services planned for use must be televised and verified by the City of Rolling Meadows to be in acceptable condition prior to use or reuse; and
 - c. **Break in connections are not permitted.**
 - d. Sanitary Services must be a minimum of 6" and have an outside clean out access.



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EAST JORDAN 1050 HEAVY DUTY FRAME
IN ROADWAY 1020/1022 IN GRASSED
AREAS IMPRINTED W/"CITY OF ROLLING
MEADOWS SANITARY". GASKETED SEAL
TIGHT COVER, 22³/₄"

TWO (2) ADJUSTING RINGS
MAXIMUM ALLOWABLE. MAXIMUM
HEIGHT ON ADJUSTMENT IS 8"

PLASTIC BUTYL
SEALANT

EXTERNAL MANHOLE CHIMNEY SEAL,
CRETEX MFG. CONFORMING TO ASTM C-923

24"
MIN.

NON-CORROSIVE PLASTIC
COATED CAST IRON MANHOLE
STEPS

ECCENTRIC CONE SECTION ONLY

TAR COATED PRECAST
SECTIONS

60" DIA.
MIN.

5"
MIN.

EXTERNAL JOINT SEALS
CONFORMING TO ASTM C-877,
TYPE II MAR-MAC MFG. OR
APPROVED EQUAL

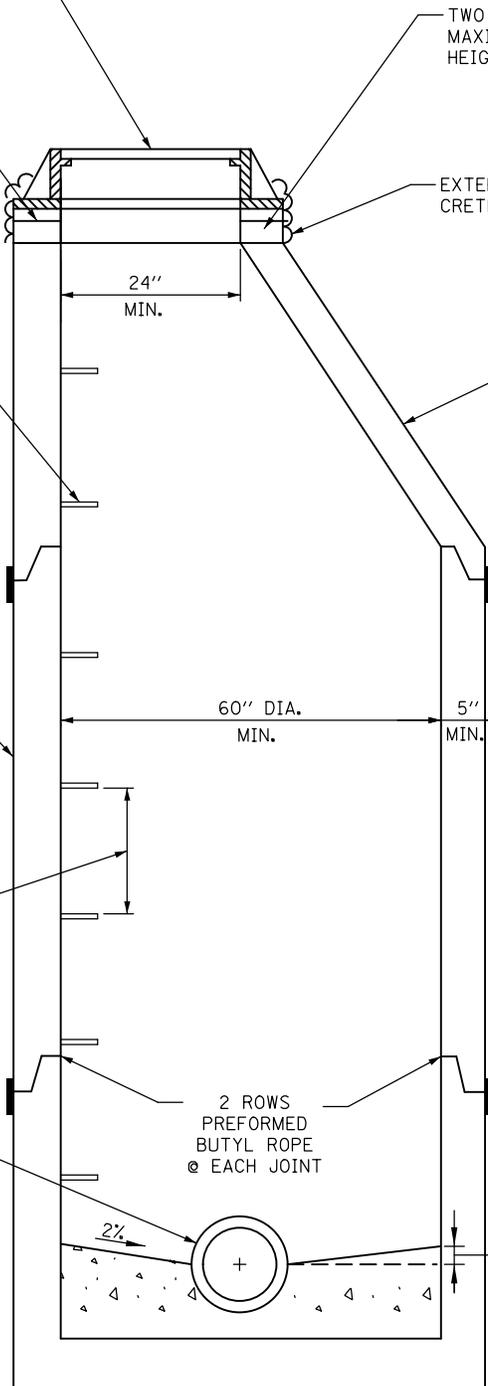
STEEL CORE PLASTIC
STEPS @ 16" O.C. NOT
BE POSITIONED OVER INVERTS

FLEXIBLE RUBBER CONNECTOR
CONFORMING TO ASTM C-923

2 ROWS
PREFORMED
BUTYL ROPE
@ EACH JOINT

FIRST SECTION MONOLITHIC
W/BASE

3" MIN.



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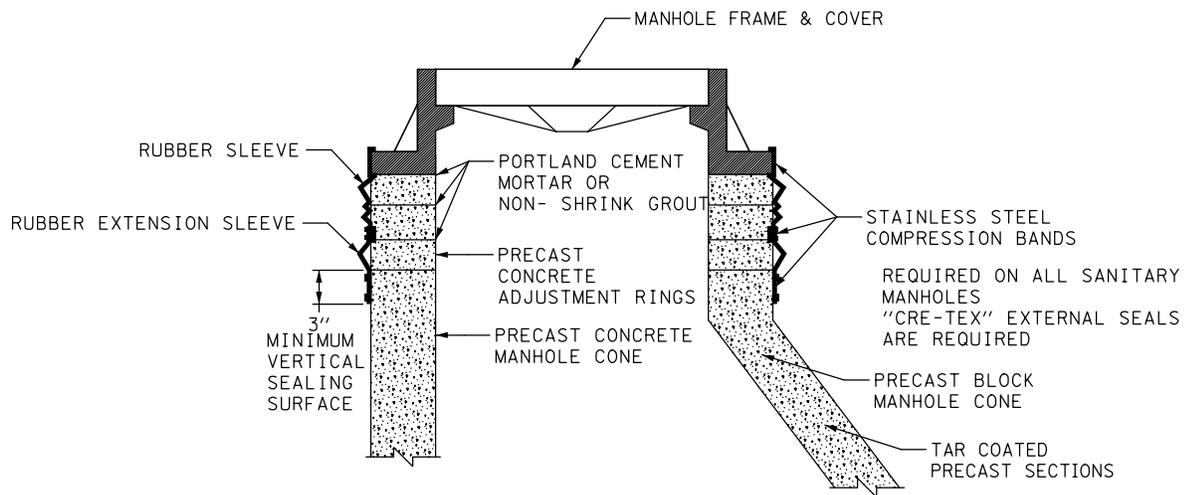
ENGINEERING DETAILS

**SANITARY MANHOLE
TYPE I**

DATE: 1/22/2018
REV 1:
REV 2:
REV 3:

DETAIL NO.

SAN-1



NOTE:

MANHOLE FRAME - CHIMNEY SEAL SHALL BE INSTALLED ON SANITARY MANHOLES. THE SEAL AND SEAL EXTENSIONS SHALL BE AS MANUFACTURED BY CRETEX SPECIALTY PRODUCTS. THE SLEEVES AND EXTENSIONS SHALL HAVE A MINIMUM THICKNESS OF 3/16 INCHES AND SHALL BE EXTRUDED OR MOLDED FROM A HIGH-GRADE RUBBER COMPOUND CONFORMING TO THE APPLICABLE REQUIREMENTS OF ASTM C923, WITH A MINIMUM 1500 PSI TENSILE STRENGTH, MAXIMUM 18% COMPRESSION SET AND A HARDNESS (DUROMETER) OF 48±5. THE BANDS USED FOR COMPRESSING THE SLEEVE AND EXTENSION AGAINST THE MANHOLE SHALL BE FABRICATED FROM 16 GAUGE STAINLESS STEEL CONFORMING TO ASTM C-923 TYPE 304. ANY SCREW BOLTS OR NUTS USED ON THIS BAND SHALL BE STAINLESS STEEL CONFORMING TO ASTM F593 AND 594, TYPE 304. DETAILED INSTALLATION PROCEDURES SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS. ALL COSTS FOR THE FURNISHING AND INSTALLATION OF THE INTERNAL RUBBER SEAL AND EXTENSION SHALL BE INCLUDED IN THE UNIT PRICE BID FOR SANITARY MANHOLES. NO INTERNAL CHIMNEY SEALS PERMITTED.

PRECAST MANHOLE WITH EXTERNAL SEAL

- 1) THE RUBBER SLEEVE IS AVAILABLE IN A 9" HEIGHT (STANDARD).
- 2) SEE THE CHIMNEY HEIGHT TABLE BELOW FOR SEAL AND EXTENSION COMBINATIONS NEEDED TO SPAN FROM THE FRAME TO THE TOP OF THE CONE ON MANHOLES WITH VARIOUS CHIMNEY HEIGHTS. FRAME OFFSETS OR DIAMETER DIFFERENCES WILL REDUCE THESE SPAN HEIGHTS.
- 3) THE TOP OF THE CONE SHALL HAVE A MINIMUM OF 3" HIGH VERTICAL SEALING SURFACE THAT IS SMOOTH AND FREE OF ANY FORM OFFSETS OR EXCESSIVE HONEYCOMB.

CHIMNEY HEIGHT TABLE

COMBINATIONS OF SEALS AND EXTENSIONS	TO SPAN HEIGHTS OF:
STANDARD 9" ONLY	OVER 3" - 6.5"
STANDARD SEAL + EXTENSION	OVER 6.5" - 13.5"
STANDARD SEAL + MULTI EXTENSIONS	OVER 13.5"
ADD 7" OF COVERAGE FOR EACH ADDITIONAL EXTENSION.	



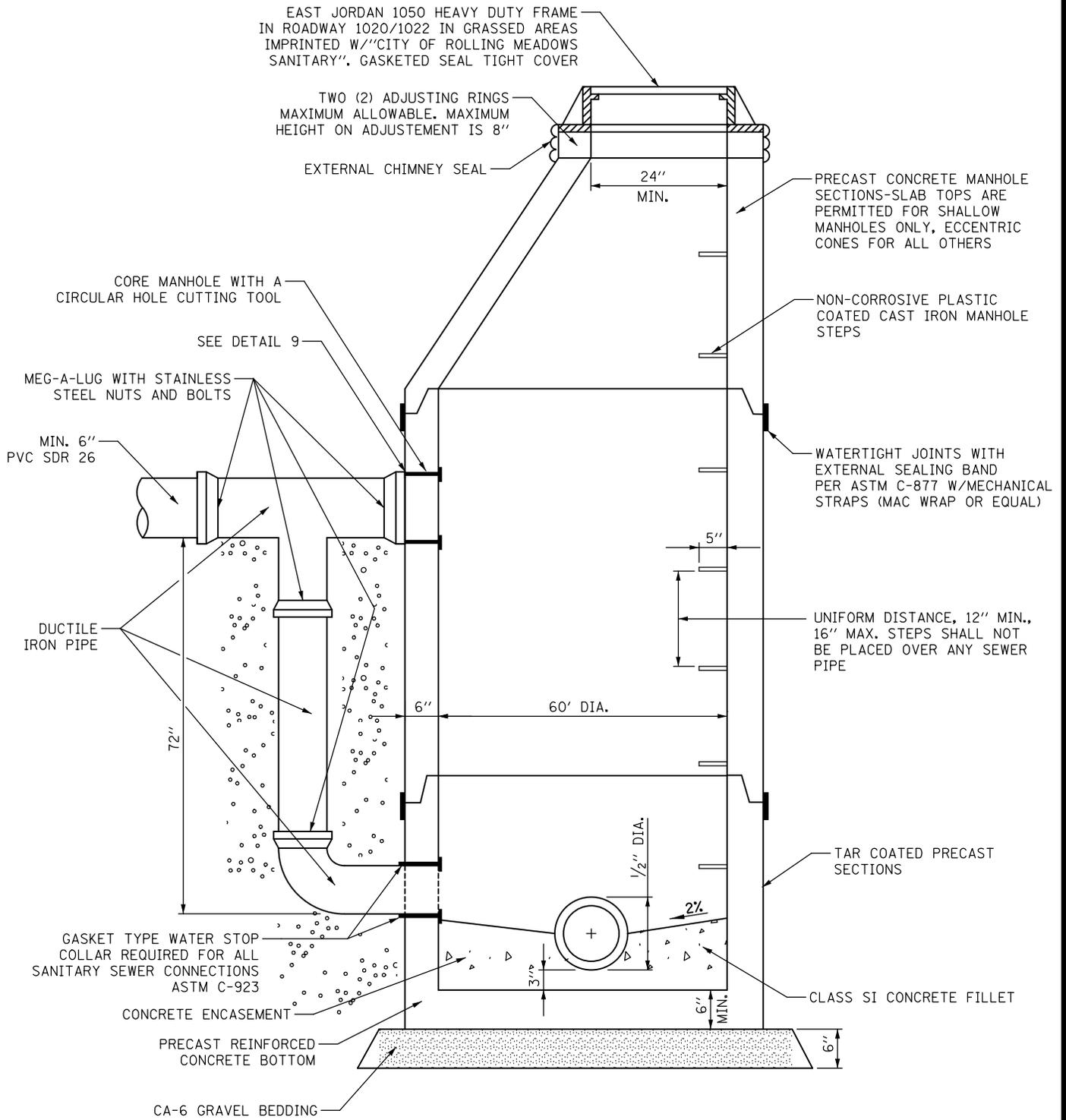
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ENGINEERING DETAILS

**SANITARY SEWER
 EXTERNAL CHIMNEY
 SEAL DETAIL**

DATE: 1/22/2018	DETAIL NO.
REV 1:	
REV 2:	
REV 3:	

SAN-3



NOTES:

USE DROP CONNECTIONS FOR ANY SANITARY SEWER PIPE ENTERING TWO (2) FEET OR MORE ABOVE THE LOWEST PIPE INVERT.

ALL PRECAST CONCRETE STRUCTURES MUST CONFORM TO AASHTO M199

1. ALL PIPE CONNECTIONS OPENINGS SHALL BE PRECAST WITH RESILIENT RUBBER WATER TIGHT PIPE SLEEVES.
2. MANHOLE FRAME, ADJ. RINGS & ALL CONCRETE SECTIONS SHALL BE SET ON A PREFORMED BIT. PLASTIC GASKET (RUB-R-NEK OR EZ STIK)
3. FILL LUG HOLES WITH BITUMINOUS MASTIC JOINT MATERIAL AND NON-SHRINKING GROUT.



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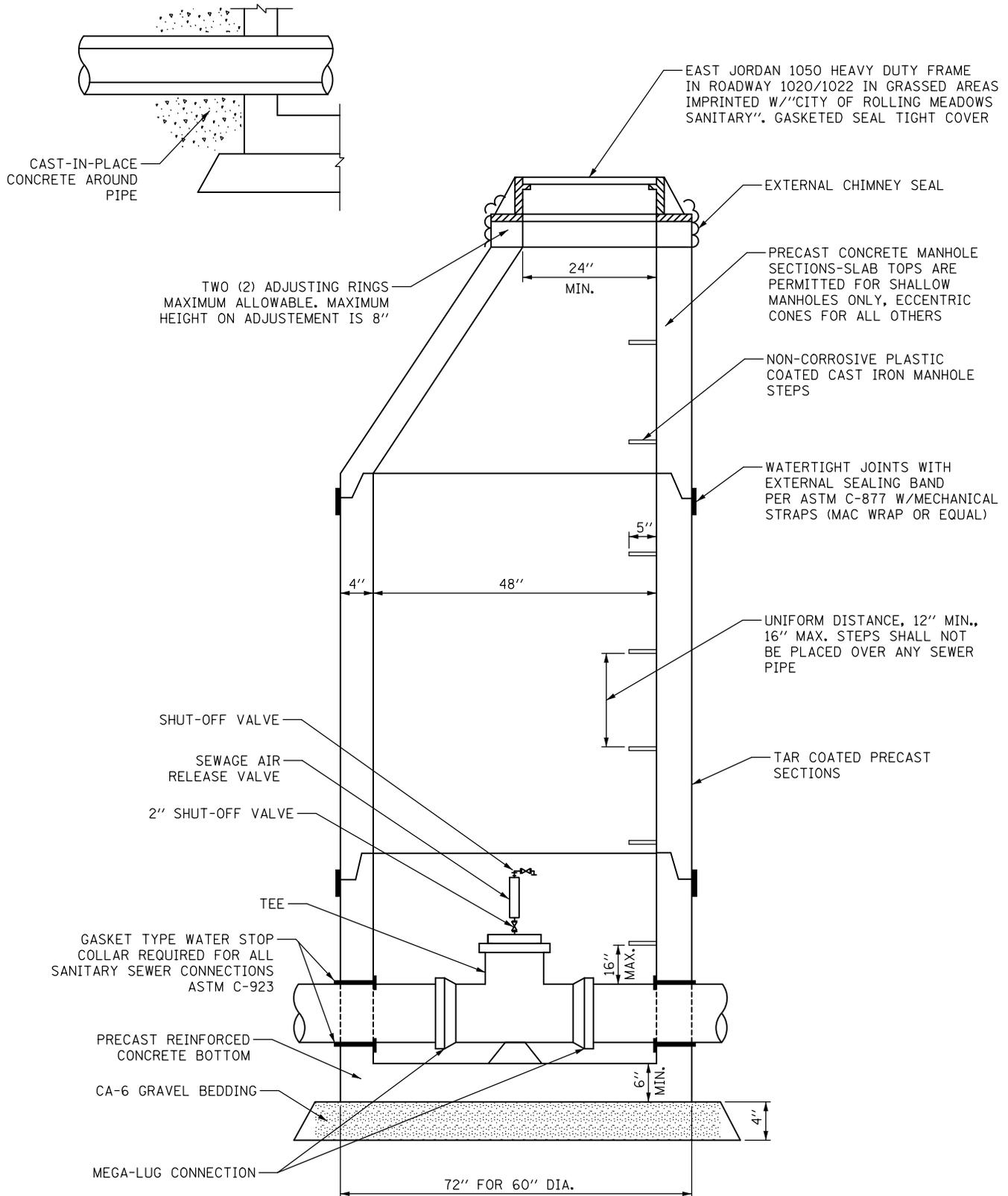
ENGINEERING DETAILS

**DROP MANHOLE
 DETAIL OUTSIDE TYPE**

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ALL PRECAST CONCRETE STRUCTURES MUST CONFORM TO AASHTO M199



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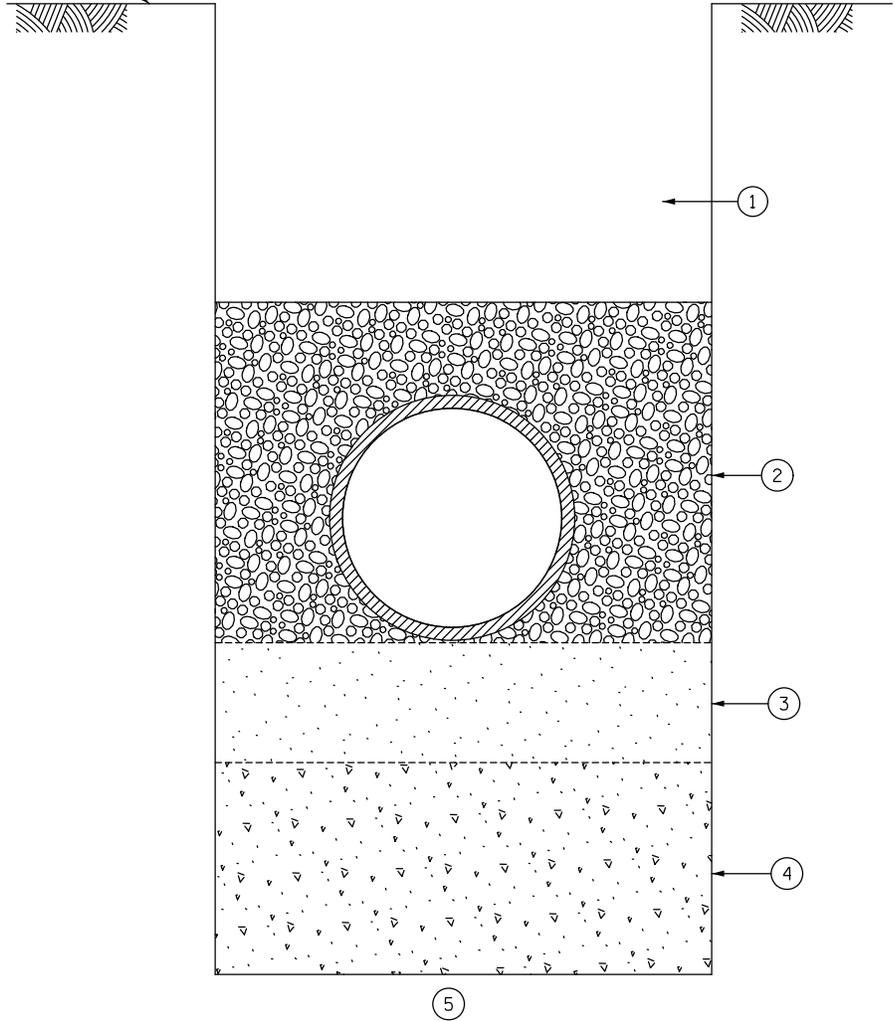
ENGINEERING DETAILS

**SANITARY SEWER
 AIR RELEASE
 MANHOLE DETAIL**

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REV 1:	
REV 2:	
REV 3:	

DETAIL NO.	SAN-5
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FINISHED GRADE



- ① TRENCH BACKFILL UNDER PAVEMENT, CURB AND GUTTER AS INDICATED IN ROAD SUBGRADES AND WITHIN 2' OF ANY PROPOSED CURB AND GUTTER OR SIDEWALK. MECHANICALLY COMPACTED BACKFILL OF EXCAVATED MATERIALS IN OTHER LOCATIONS IF APPROVED BY THE PROVISIONS FOR MATERIALS AND COMPACTION REQUIREMENTS.
- ② FOR SANITARY SEWER PVC; COMPACTED GRANULAR MATERIAL CA-6 TO 12" ABOVE TOP PIPE. (ALSO SEE NOTE #1 BELOW)
- ③ 6" COMPACTED BEDDING, CA-6 GRADATION
- ④ UNSUITABLE MATERIAL TO BE REMOVED WHERE DIRECTED BY THE ENGINEER AND REPLACED WITH SUITABLE AND COMPACTED MATERIAL
- ⑤ TRENCH WIDTH - PIPE O.D. + 12" MINIMUM PIPE O.D. + 18" MAXIMUM

NOTES:

- 1. PVC PIPE CONFORMING TO THE SDR SPECIFIED IN THE PLANS SHALL BE INSTALLED TO THE LATEST REVISED SPECIFICATION REQUIREMENTS OF ASTM D2321 USING EITHER COMPACTED CLASS I OR CLASS II GRANULAR MATERIALS FOR BEDDING, HAUNCHING AND INITIAL BACKFILL OF 12" OVER THE TOP OF PIPE TO PROVIDE THE NECESSARY SUPPORT FOR THE PIPE SO THAT THE MAXIMUM DEFLECTION DOES NOT EXCEED 5% OF THE PIPE'S ORIGINAL INTERNAL DIAMETER.
- 2. ALL CA-6 MATERIAL TO BE IDOT APPROVED

SANITARY SEWER AND SERVICES



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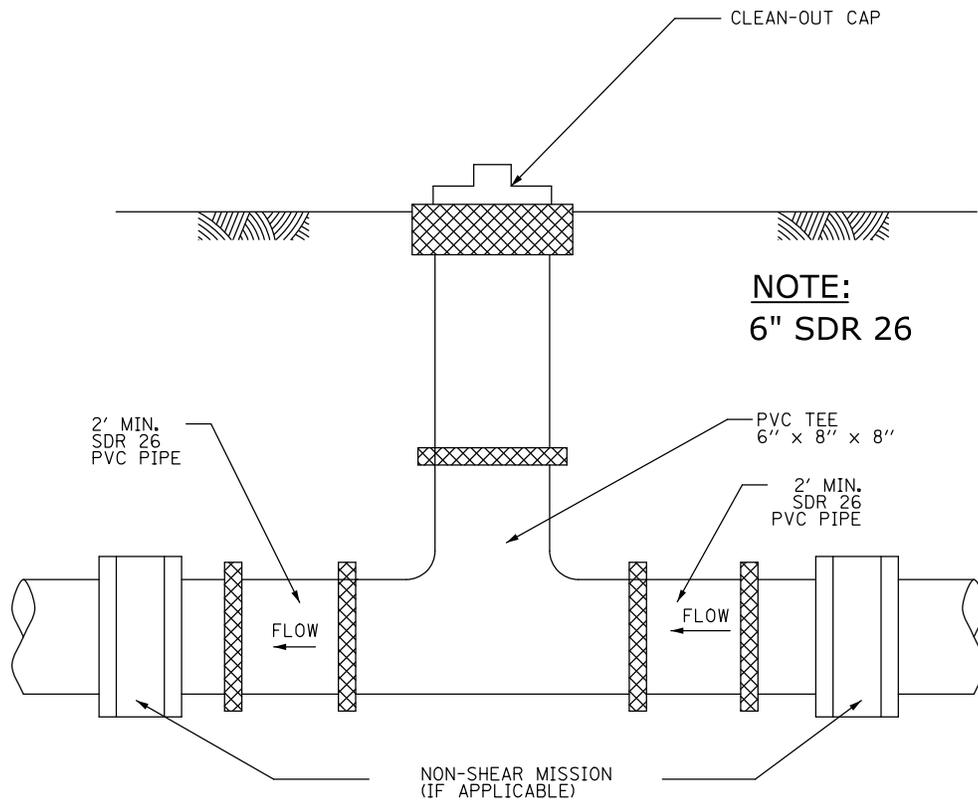
ENGINEERING DETAILS

**TYPICAL SANITARY TRENCH
 CROSS SECTION**

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REV 1:	
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REV 3:	

DETAIL NO.

SAN-6



CLEAN OUT

NOTE:

EXTERIOR CLEAN-OUTS CANNOT BE INSTALLED FURTHER THAN 5 FEET FROM THE FOUNDATION. EXCEPTION: WHEN EXISTING CONDITIONS PREVENT THE INSTALLATION AS SPECIFIED, THE CLEAN-OUT MAY BE INSTALLED IN A LOCATION AS DETERMINED BY THE DIRECTOR OF PUBLIC WORKS.



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ENGINEERING DETAILS

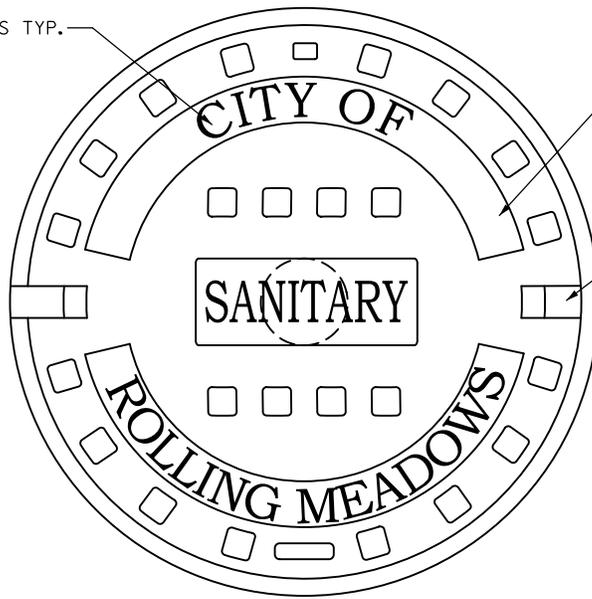
**SANITARY SEWER SERVICE
CLEANOUT DETAIL**

DATE:	1/22/2018
REV 1:	
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REV 3:	

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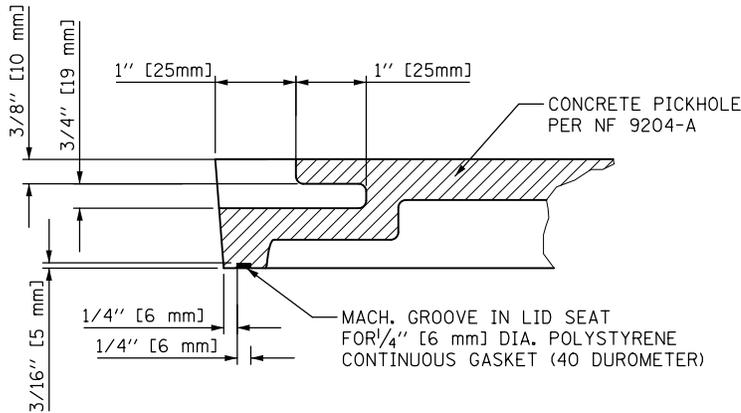
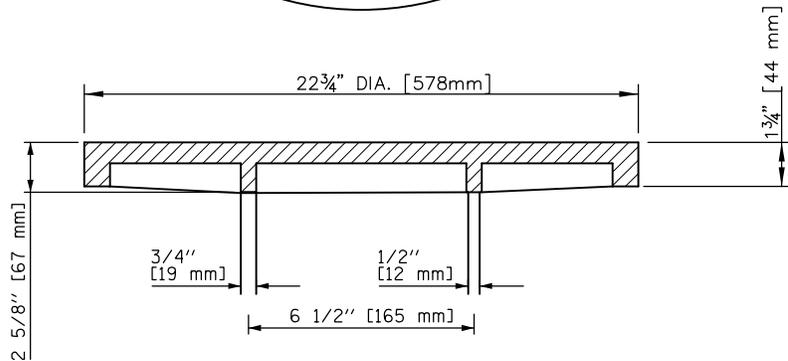
SAN-7

2" [51mm] RAISED LETTERS TYP.
FLUSH WITH SURFACE



TYPE "B" RECESSED POCKETS

(2) CONCEALED TYPE PICK HOLE
PER NF - 9204 - A



EAST JORDAN GASKETED SEAL TIGHT COVER 1040



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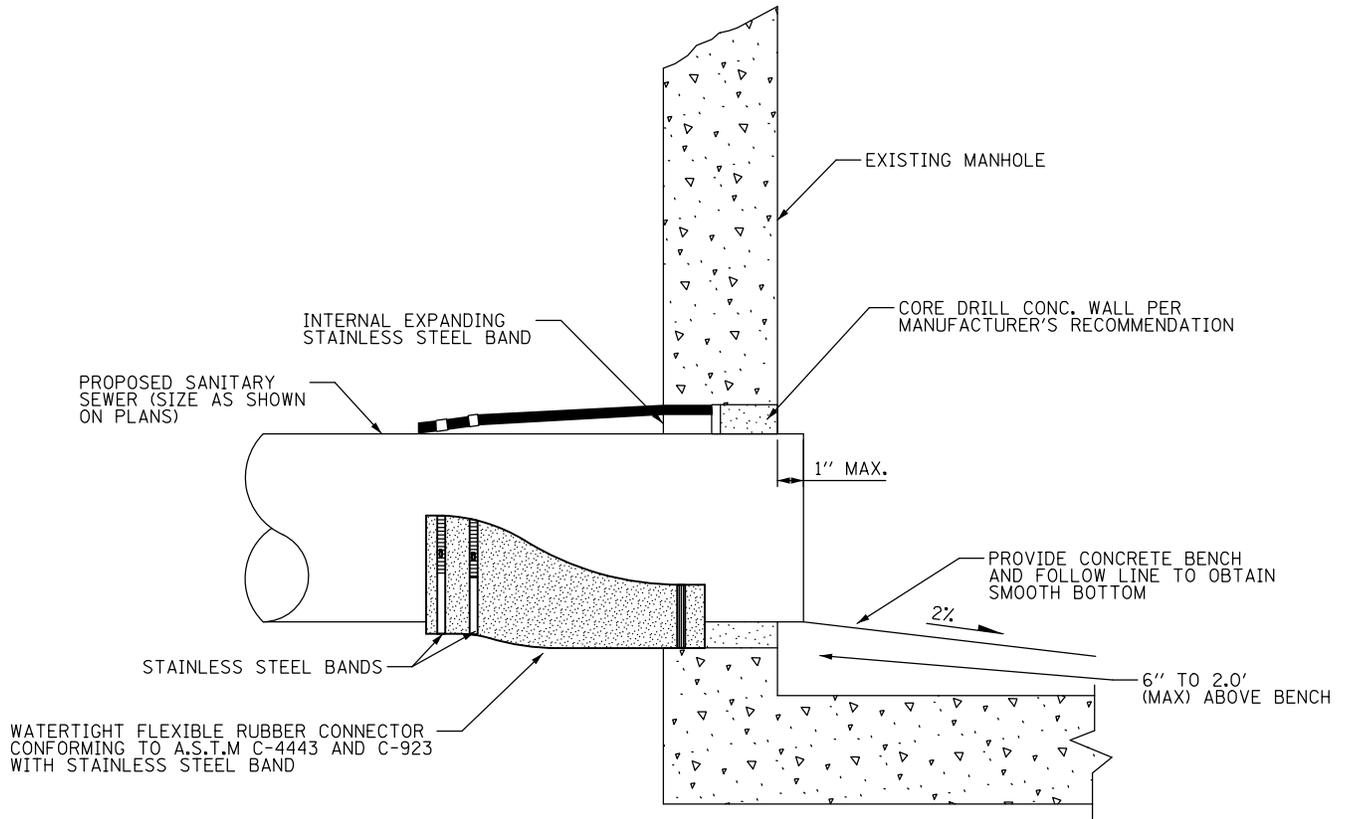
ENGINEERING DETAILS

SANITARY MANHOLE SELF SEALING LID

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ENGINEERING DETAILS

**EXISTING SANITARY MANHOLE
 PIPE ENTRY DETAIL**

DATE:	1/22/2018
REV 1:	
REV 2:	
REV 3:	

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SAN-9

Sanitary Sewer Testing Specifications

1. Testing and Inspection for Acceptance of Sanitary Sewers
 - a. Exfiltration of air under pressure.
 - b. Deflection of flexible Thermoplastic Pipe.
 - c. Televising.

2. Testing Technique

All Testing Methods: All wyes, tees, and stubs shall be plugged with flexible jointed caps, or acceptable alternate, securely fastened to withstand the internal test pressure. Such plugs or caps shall be readily removable.

- a. Air Testing Method Procedures: The section of sewer to be tested shall have been trench backfilled and cleared. Pneumatic plugs (having a sealing length equal to or greater than the diameter of the pipe to be tested) placed in both ends of the pipe to be tested shall be inflated to 25 psig. The sealed sewer pipe shall then be pressurized to four (4) psig above the average back pressure of groundwater over the sewer pipe and the air pressure allowed to stabilize for at least two (2) minutes.

After the stabilization period the line shall be pressurized to three and a half (3.5) psig and the time in minutes measured for pressure to drop to two and a half (2.5) psig. If groundwater is present, the air pressure within shall be increased to three and a half (3.5) psig above the level of the groundwater and the drop of one (1) pound of air pressure measured in minutes.

Air testing techniques shall be in accordance with the latest ASTM Standard Practice for testing sewer lines by low-pressure air test method for the appropriate pipe material, except that the time shall not be less than that shown in the Air Test Table contained in Section 31-1.11 C of the Standard Specifications for Water and Sewer Main Construction.

3. Deflection Testing for Flexible Thermoplastic Pipe:

- a. The pipeline shall be tested for excess deflection by pulling a "go/no go" mandrel through the pipe from manhole to manhole. The mandrel shall be sized in accordance with Section 31-1.11 and record deflection.



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SANITARY SEWER TESTING SPECIFICATIONS

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- b. Wherever possible and practical, the testing shall initiate at the downstream lines and proceed towards the upstream lines.
- c. Where deflection is found to be in excess of allowable testing limits, the contractor shall excavate to the point of excess deflection and carefully compact around the point where excess deflection was found. The line shall then be retested for deflection. However, should after the initial testing the deflection pipe fail to return to the original size (inside diameter), the line shall be replaced.

4. Televising Standards

- a. The main sanitary sewer shall be televised prior to acceptance. A videotape, CD, or DVD (along with a paper report) shall be submitted to the City of Rolling Meadows Public Works Department. All sewer televising must be performed by NASSCO certified operators using current NASSCO standards and coding system that can be found in current NASSCO documents. The contractor without delay shall preform all necessary corrective work.

AIR TEST TABLE									
TIME (MIN:SEC) REQUIRED FOR PRESSURE DROP FROM 30 TO 20 PSIG WHEN TESTING ONE PIPE DIAMETER ONLY									
Pipe Length (feet)	PIPE DIAMETER, Inches								
	4	6	8	10	12	15	18	21	24
2	0:04	0:10	0:18	0:28	0:40	1:02	1:29	2:01	2:38
4	0:09	0:20	0:35	0:55	1:19	2:04	2:58	4:03	5:17
6	0:13	0:30	0:53	1:23	1:59	3:06	4:27	6:04	7:55
8	0:18	0:40	1:10	1:50	2:38	4:08	5:56	8:05	10:34
10	0:22	0:50	1:28	2:18	3:18	5:09	7:26	9:55	11:20
12	0:26	0:59	1:46	2:45	3:58	6:11	8:30		
14	0:31	1:09	2:03	3:13	4:37	7:05			
16	0:35	1:19	2:21	3:40	5:17				12:06
18	0:40	1:29	2:38	4:08	5:40			10:25	13:36
20	0:44	1:39	2:56	4:35			8:31	11:35	15:07
22	0:48	1:49	3:14	4:43			9:21	12:44	16:38
24	0:53	1:59	3:31				10:12	13:53	18:09
30	1:02	2:19	3:47			8:16	11:54	16:12	21:10
32	1:10	2:38			6:30	9:27	13:36	18:31	24:12
38	1:19	2:50			6:48	10:38	15:19	20:50	27:13
40	1:28			5:14	7:34	11:49	17:01	23:09	30:14



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ENGINEERING DETAILS

**SANITARY SEWER
 TESTING SPECIFICATIONS**

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