

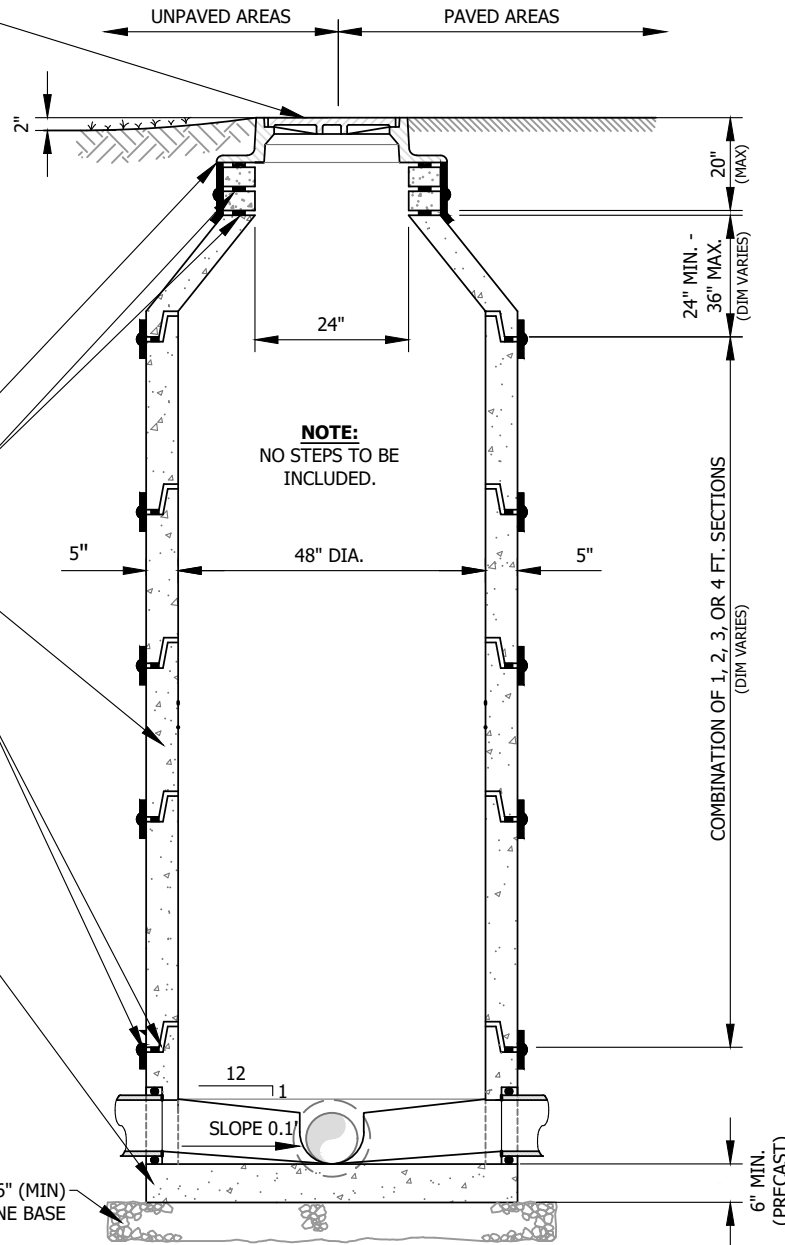
MANHOLE FRAME & COVER:
 ASTM A-48, LATEST EDITION, CLASS 35
 WITH 24" DIAMETER FRAME.
IN TRAFFIC AREAS:
 7" MIN. HGT., EQUAL TO EAST JORDAN 1022
 OR EQUAL WITH HEAVY DUTY COVER,
 MACHINED BEARING SURFACE & CONCEALED
 LIFT HOLES.
 (SET LID FLUSH WITH FINISHED STREET
 SURFACE).
IN NON-TRAFFIC AREAS:
 7" HGT., EQUAL TO EAST JORDAN 1022
 WITH MEDIUM DUTY COVER, MACHINED
 BEARING SURFACE & CONCEALED LIFT
 HOLES. SET TOP 2" ABOVE GRADE
 (AFTER EARTH SETTLEMENT).

BUTYL FILLER STRIP
GRADING RINGS:
 SEE SHEET WW-06 FOR GRADING RING NOTES

PRECAST CONE AND RISER SECTIONS:
 ASTM C-478, 4000 P.S.I. CONCRETE.

JOINTS:
 SEAL BETWEEN CASTING AND EACH RING MINIMUM SIZE 3/4"
 PREFORMED BUTYL RUBBER SEALANT MEETING ASTM C-990.
 PRIME EXTERIOR OF JOINTS WITH BITUMINOUS PRIMER PRIOR TO
 WRAPPING. ALL JOINTS SHALL HAVE EXTERIOR JOINT WRAP
 MEETING THE REQUIREMENTS OF ASTM C-877, MINIMUM 6" WRAP.
 IN INSTANCES WHERE JOINT IS BELOW WATER TABLE, JOINT SHALL
 BE SEALED WITH A CONTROLLED EXPANSION WATER SEAL EQUAL
 TO CONSEAL CS-231.

PRECAST BASE SECTION:
 BASE SECTION WITH RESILIENT PIPE TO MANHOLE CONNECTOR
 MEETING ASTM C-923.
 SMOOTH INVERT CHANNELS SHALL BE SHAPED TO A DEPTH OF A FULL
 INSIDE PIPE DIAMETER.
 THE MANHOLE BENCH SHALL SLOPE TOWARD THE CHANNEL AT A 12:1
 SLOPE.
 THE MANHOLE BASE SECTION SHALL BE PLACED ON A #5 OR #8
 STONE BASE WITH A MINIMUM COMPACTED DEPTH OF 6". THE STONE
 BASE SHALL OVERHANG THE BASE SECTION BY A MINIMUM OF 6".

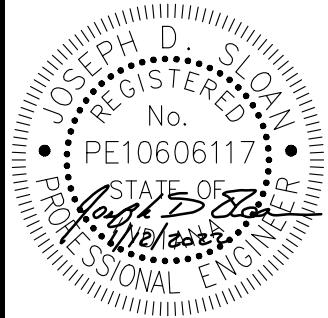


Minimum Pipe Deflection Angle 48"Ø Structure			
Pipe Size	15"	18"	24"
12"	65°	67°	73°
15"		69°	75°
18"			81°
24"			

- NOTE:**
- ALL MANHOLE LIDS SHALL BEAR "SANITARY SEWER" MOLDED INTO THE EXTERIOR SURFACE.
 - WATERTIGHT CASTINGS EQUAL TO EJ 1022-WT WITH GASKET AND BOLT DOWN LIDS REQUIRED AS NOTED.
 - ALL PRECAST CONCRETE SHALL CONTAIN WATERPROOFING ADDITIVE, XYPEX OR EQUIVALENT.
 - ALL PRECAST CONCRETE FOR FORCE MAIN RECEIVING MANHOLES AND ALL NEW MANHOLES WITHIN 500 FEET UPSTREAM OR DOWNSTREAM OF THE RECEIVING MANHOLE SHALL CONTAIN ANTI-CORROSION ADDITIVE, CONSHIELD OR EQUIVALENT.
 - IT IS UP TO THE EWSU REVIEWER TO DETERMINE IF ECCENTRIC OR CONCENTRIC IS ALLOWED.
 - REMOTE AREAS REQUIRE FRAME/CASTING TO BE MINIMUM 12" ABOVE GROUND WITH MARKER POLE.
 - REFER TO WW-20 FOR BENCH DETAIL.
 - ALL OPENINGS TO HAVE WATERTIGHT RESILIENT SEAL BOOT OR GASKET.
 - IF VENT REQUIRED, ADD PER DETAIL ON WW-11.

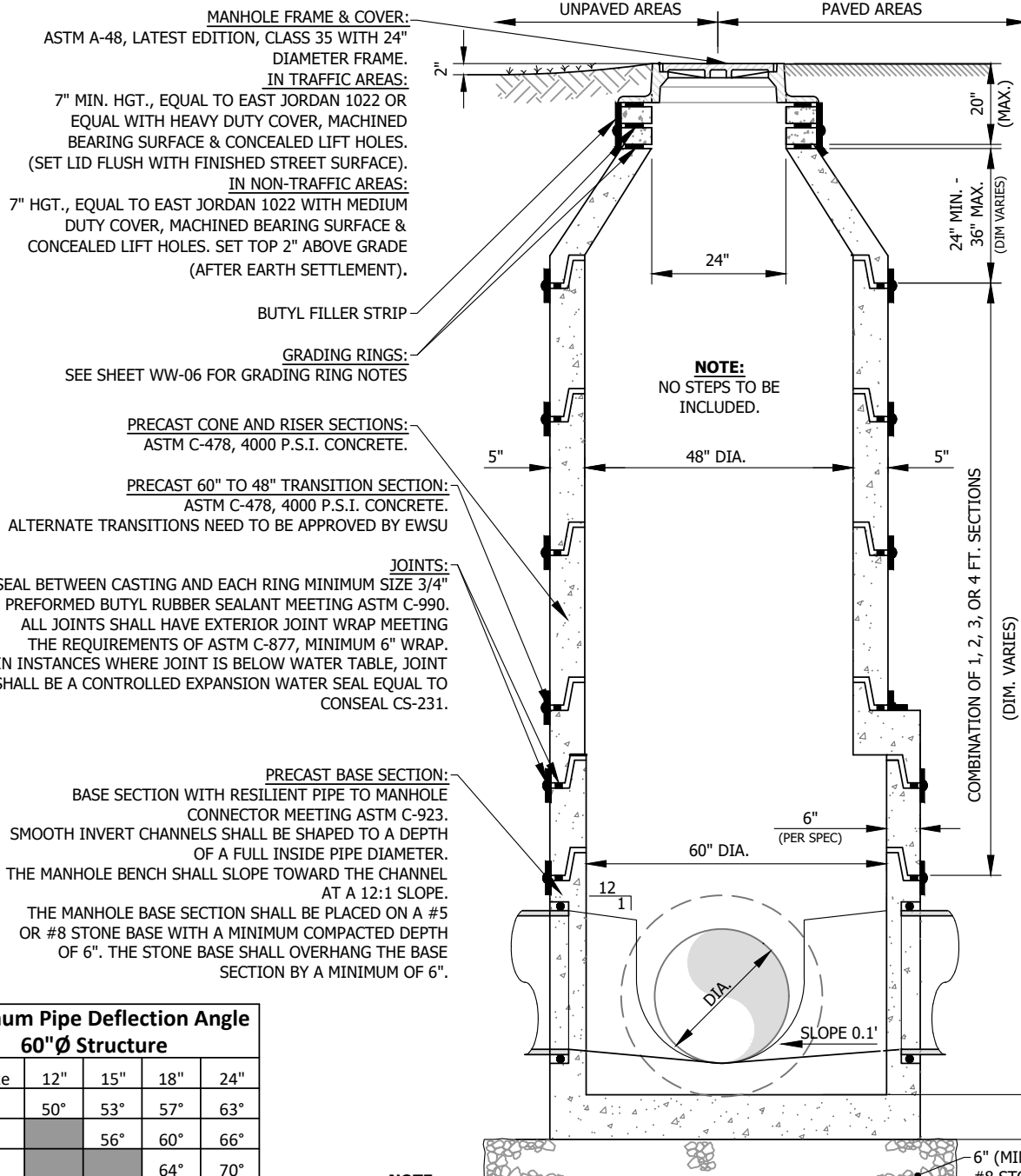
NOTE:
 1. ANGLE SHOWN IS FOR MIN. DEGREES BETWEEN CENTERLINES OF PIPES. THE DEGREES ARE BASED ON THE HOLE SIZE FOR EACH PIPE INCLUDING 6" MIN CONCRETE BETWEEN HOLES.

Date: Jan 13, 2022, 9:13am User Name: Ttrutherford File: S:\113-0170\WR\CAD\Plans\Details Proposed by: L.G.Sanitary Sewer\WW-01_Standard 48in Manhole.dwg



STANDARD PRECAST CONCRETE 48" MANHOLE

Approved: 01/12/2022	Adopted: 01/18/2022	Figure WW-01
Approved By: Joseph D. Sloan, P.E.	Scale: N.T.S.	



MANHOLE FRAME & COVER:
 ASTM A-48, LATEST EDITION, CLASS 35 WITH 24" DIAMETER FRAME.
IN TRAFFIC AREAS:
 7" MIN. HGT., EQUAL TO EAST JORDAN 1022 OR EQUAL WITH HEAVY DUTY COVER, MACHINED BEARING SURFACE & CONCEALED LIFT HOLES. (SET LID FLUSH WITH FINISHED STREET SURFACE).
IN NON-TRAFFIC AREAS:
 7" HGT., EQUAL TO EAST JORDAN 1022 WITH MEDIUM DUTY COVER, MACHINED BEARING SURFACE & CONCEALED LIFT HOLES. SET TOP 2" ABOVE GRADE (AFTER EARTH SETTLEMENT).

BUTYL FILLER STRIP
 GRADING RINGS:
 SEE SHEET WW-06 FOR GRADING RING NOTES

PRECAST CONE AND RISER SECTIONS:
 ASTM C-478, 4000 P.S.I. CONCRETE.

PRECAST 60" TO 48" TRANSITION SECTION:
 ASTM C-478, 4000 P.S.I. CONCRETE.
 ALTERNATE TRANSITIONS NEED TO BE APPROVED BY EWSU

JOINTS:
 SEAL BETWEEN CASTING AND EACH RING MINIMUM SIZE 3/4" PREFORMED BUTYL RUBBER SEALANT MEETING ASTM C-990.
 ALL JOINTS SHALL HAVE EXTERIOR JOINT WRAP MEETING THE REQUIREMENTS OF ASTM C-877, MINIMUM 6" WRAP.
 IN INSTANCES WHERE JOINT IS BELOW WATER TABLE, JOINT SHALL BE A CONTROLLED EXPANSION WATER SEAL EQUAL TO CONSEAL CS-231.

PRECAST BASE SECTION:
 BASE SECTION WITH RESILIENT PIPE TO MANHOLE CONNECTOR MEETING ASTM C-923.
 SMOOTH INVERT CHANNELS SHALL BE SHAPED TO A DEPTH OF A FULL INSIDE PIPE DIAMETER.
 THE MANHOLE BENCH SHALL SLOPE TOWARD THE CHANNEL AT A 12:1 SLOPE.
 THE MANHOLE BASE SECTION SHALL BE PLACED ON A #5 OR #8 STONE BASE WITH A MINIMUM COMPACTED DEPTH OF 6". THE STONE BASE SHALL OVERHANG THE BASE SECTION BY A MINIMUM OF 6".

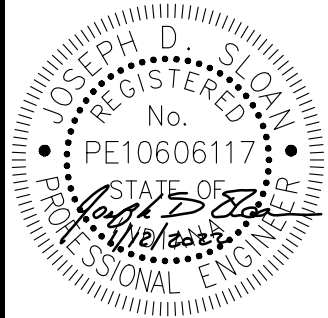
NOTE:
 NO STEPS TO BE INCLUDED.

- NOTE:**
1. ALL MANHOLE LIDS SHALL BEAR "SANITARY SEWER" MOLDED INTO THE EXTERIOR SURFACE.
 2. WATERTIGHT CASTINGS EQUAL TO EJ 1022-WT WITH GASKET AND BOLT DOWN LIDS REQUIRED AS NOTED.
 3. ALL PRECAST CONCRETE SHALL CONTAIN WATERPROOFING ADDITIVE, XYPEX OR EQUIVALENT.
 4. ALL PRECAST CONCRETE FOR FORCE MAIN RECEIVING MANHOLES AND ALL NEW MANHOLES WITHIN 500 FEET UPSTREAM OR DOWNSTREAM OF THE RECEIVING MANHOLE SHALL CONTAIN ANTI-CORROSION ADDITIVE, CONSHIELD OR EQUIVALENT.
 5. IT IS UP TO THE EWSU REVIEWER TO DETERMINE IF ECCENTRIC OR CONCENTRIC IS ALLOWED.
 6. REMOTE AREAS REQUIRE FRAME/CASTING TO BE MINIMUM 12" ABOVE GROUND WITH MARKER POLE.
 7. REFER TO WW-20 FOR BENCH DETAIL.
 8. ALL OPENINGS TO HAVE WATERTIGHT RESILIENT SEAL BOOT OR GASKET.
 9. IF VENT REQUIRED, ADD PER DETAIL ON WW-11.

Minimum Pipe Deflection Angle 60"Ø Structure				
Pipe Size	12"	15"	18"	24"
12"	50°	53°	57°	63°
15"		56°	60°	66°
18"			64°	70°
24"				76°
30"				
36"				

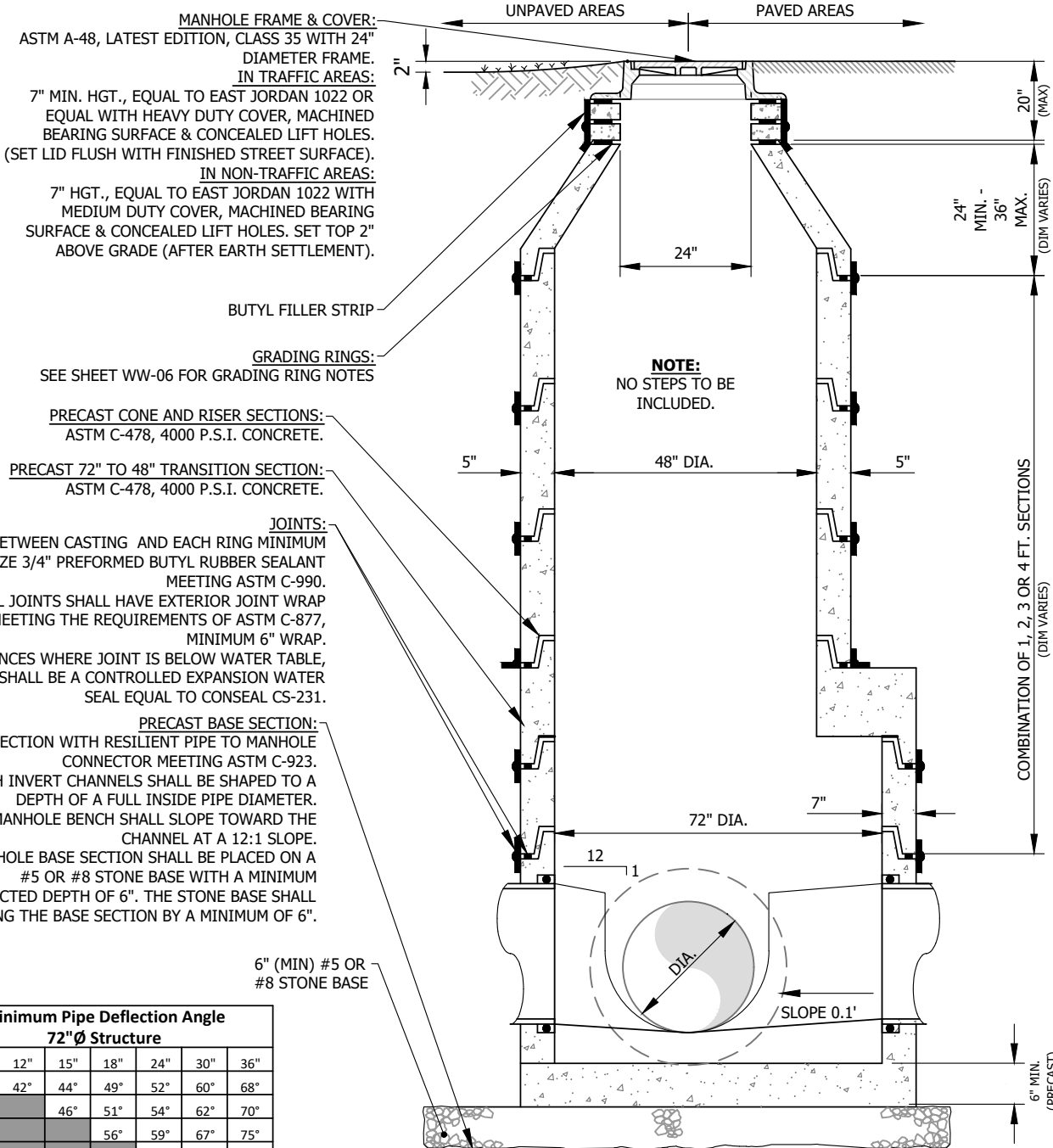
NOTE:
 1. ANGLE SHOWN IS FOR MIN. DEGREES BETWEEN CENTERLINES OF PIPES. THE DEGREES ARE BASED ON THE HOLE SIZE FOR EACH PIPE INCLUDING 6" MIN CONCRETE BETWEEN HOLES.

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STANDARD PRECAST CONCRETE 60" MANHOLE

Approved: 01/12/2022	Adopted: 01/18/2022	Figure WW-02
Approved By: Joseph D. Sloan, P.E.	Scale: N.T.S.	



MANHOLE FRAME & COVER:
 ASTM A-48, LATEST EDITION, CLASS 35 WITH 24" DIAMETER FRAME.
IN TRAFFIC AREAS:
 7" MIN. HGT., EQUAL TO EAST JORDAN 1022 OR EQUAL WITH HEAVY DUTY COVER, MACHINED BEARING SURFACE & CONCEALED LIFT HOLES. (SET LID FLUSH WITH FINISHED STREET SURFACE).
IN NON-TRAFFIC AREAS:
 7" HGT., EQUAL TO EAST JORDAN 1022 WITH MEDIUM DUTY COVER, MACHINED BEARING SURFACE & CONCEALED LIFT HOLES. SET TOP 2" ABOVE GRADE (AFTER EARTH SETTLEMENT).

BUTYL FILLER STRIP
GRADING RINGS:
 SEE SHEET WW-06 FOR GRADING RING NOTES

PRECAST CONE AND RISER SECTIONS:
 ASTM C-478, 4000 P.S.I. CONCRETE.
PRECAST 72" TO 48" TRANSITION SECTION:
 ASTM C-478, 4000 P.S.I. CONCRETE.

JOINTS:
 SEAL BETWEEN CASTING AND EACH RING MINIMUM SIZE 3/4" PREFORMED BUTYL RUBBER SEALANT MEETING ASTM C-990.
 ALL JOINTS SHALL HAVE EXTERIOR JOINT WRAP MEETING THE REQUIREMENTS OF ASTM C-877, MINIMUM 6" WRAP.
 IN INSTANCES WHERE JOINT IS BELOW WATER TABLE, JOINT SHALL BE A CONTROLLED EXPANSION WATER SEAL EQUAL TO CONSEAL CS-231.

PRECAST BASE SECTION:
 BASE SECTION WITH RESILIENT PIPE TO MANHOLE CONNECTOR MEETING ASTM C-923. SMOOTH INVERT CHANNELS SHALL BE SHAPED TO A DEPTH OF A FULL INSIDE PIPE DIAMETER. THE MANHOLE BENCH SHALL SLOPE TOWARD THE CHANNEL AT A 12:1 SLOPE. THE MANHOLE BASE SECTION SHALL BE PLACED ON A #5 OR #8 STONE BASE WITH A MINIMUM COMPACTED DEPTH OF 6". THE STONE BASE SHALL OVERHANG THE BASE SECTION BY A MINIMUM OF 6".

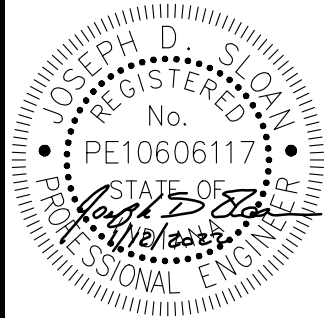
6" (MIN) #5 OR #8 STONE BASE

Minimum Pipe Deflection Angle 72"Ø Structure						
Pipe Size	12"	15"	18"	24"	30"	36"
12"	42°	44°	49°	52°	60°	68°
15"		46°	51°	54°	62°	70°
18"			56°	59°	67°	75°
24"				62°	70°	78°
30"					78°	86°
36"						94°
42"						
48"						

NOTE:
 1. ANGLE SHOWN IS FOR MIN. DEGREES BETWEEN CENTERLINES OF PIPES. THE DEGREES ARE BASED ON THE HOLE SIZE FOR EACH PIPE INCLUDING 6" MIN CONCRETE BETWEEN HOLES.

- NOTE:**
1. ALL MANHOLE LIDS SHALL BEAR "SANITARY SEWER" MOLDED INTO THE EXTERIOR SURFACE.
 2. WATERTIGHT CASTINGS EQUAL TO EJ 1022-WT WITH GASKET AND BOLT DOWN LIDS REQUIRED AS NOTED.
 3. ALL PRECAST CONCRETE SHALL CONTAIN WATERPROOFING ADDITIVE, XYPEX OR EQUIVALENT.
 4. ALL PRECAST CONCRETE FOR FORCE MAIN RECEIVING MANHOLES AND ALL NEW MANHOLES WITHIN 500 FEET UPSTREAM OR DOWNSTREAM OF THE RECEIVING MANHOLE SHALL CONTAIN ANTI-CORROSION ADDITIVE, CONSHIELD OR EQUIVALENT.
 5. IT IS UP TO THE EWSU REVIEWER TO DETERMINE IF ECCENTRIC OR CONCENTRIC IS ALLOWED.
 6. REMOTE AREAS REQUIRE FRAME/CASTING TO BE MINIMUM 12" ABOVE GROUND WITH MARKER POLE.
 7. REFER TO WW-20 FOR BENCH DETAIL.
 8. ALL OPENINGS TO HAVE WATERTIGHT RESILIENT SEAL BOOT OR GASKET.
 9. IF VENT REQUIRED, ADD PER DETAIL WW-11.

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STANDARD PRECAST CONCRETE 72" MANHOLE

Approved: 01/12/2022	Adopted: 01/18/2022	Figure WW-03
Approved By: Joseph D. Sloan, P.E.	Scale: N.T.S.	

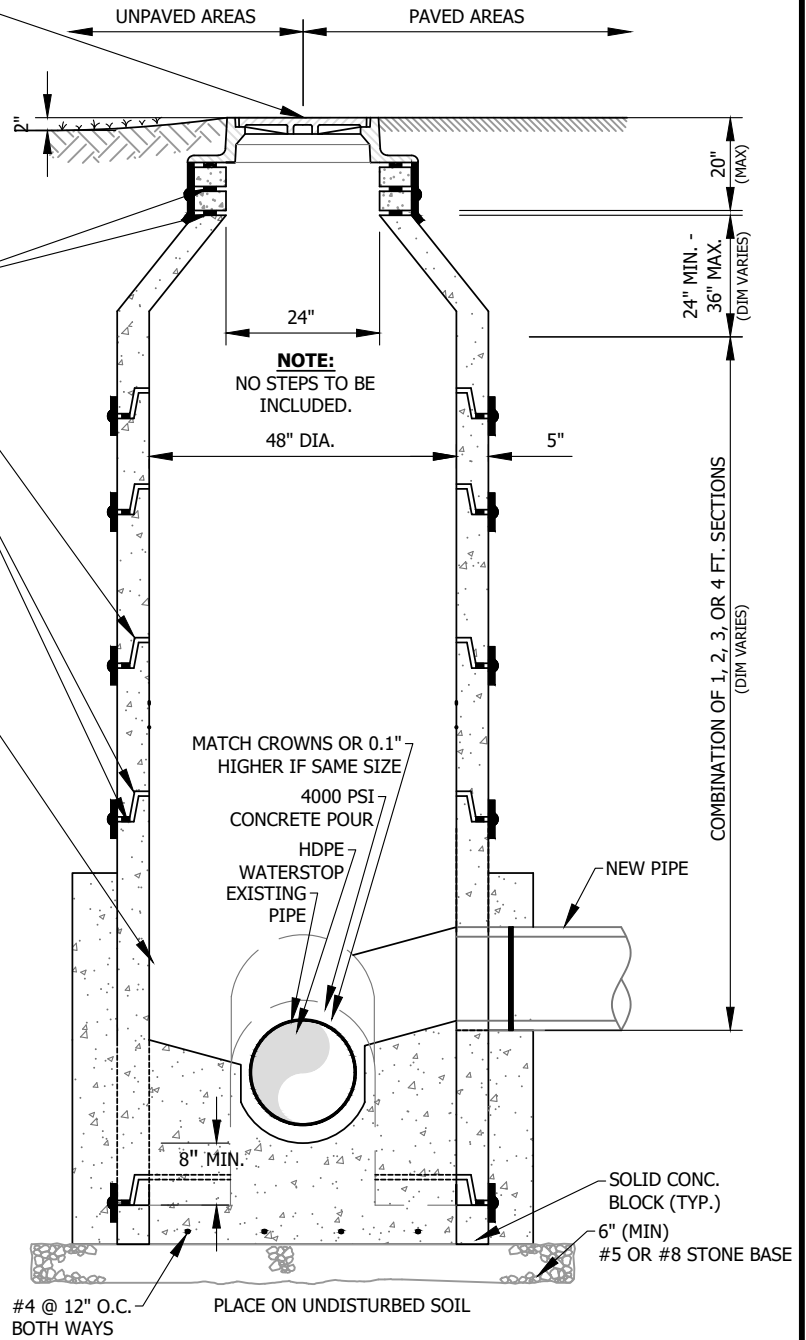
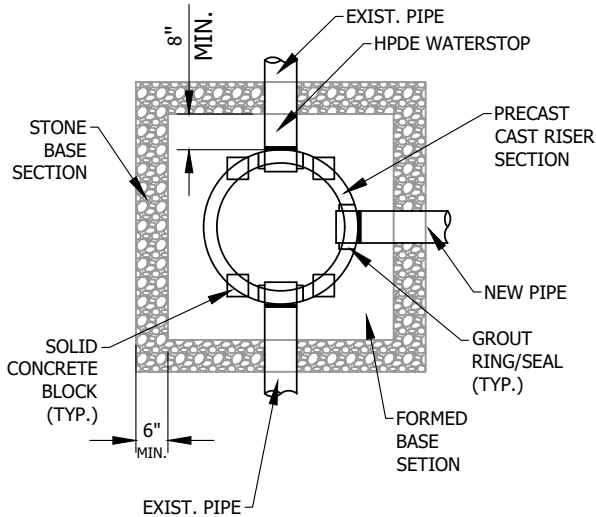
MANHOLE FRAME & COVER:
 ASTM A-48, LATEST EDITION, CLASS 35 WITH 24" DIAMETER FRAME.
IN TRAFFIC AREAS:
 7" MIN. HGT., EQUAL TO EAST JORDAN 1022 OR EQUAL WITH HEAVY DUTY COVER, MACHINED BEARING SURFACE & CONCEALED LIFT HOLES.
 (SET LID FLUSH WITH FINISHED STREET SURFACE).
IN NON-TRAFFIC AREAS:
 7" HGT., EQUAL TO EAST JORDAN 1022 WITH MEDIUM DUTY COVER, MACHINED BEARING SURFACE & CONCEALED LIFT HOLES. SET TOP 2" ABOVE GRADE (AFTER EARTH SETTLEMENT).

GRADING RINGS:
 SEE SHEET WW-06 FOR GRADING RING NOTES

PRECAST CONE AND RISER SECTIONS:
 ASTM C-478, 4000 P.S.I. CONCRETE.

JOINTS:
 SEAL BETWEEN CASTING AND EACH RING MINIMUM SIZE 3/4" PREFORMED BUTYL RUBBER SEALANT MEETING ASTM C-990. PRIME EXTERIOR OF JOINTS WITH BITUMINOUS PRIMER PRIOR TO WRAPPING. ALL JOINTS SHALL HAVE EXTERIOR JOINT WRAP MEETING THE REQUIREMENTS OF ASTM C-877, MINIMUM 6" WRAP. IN INSTANCES WHERE JOINT IS BELOW WATER TABLE, JOINT SHALL BE SEALED WITH A CONTROLLED EXPANSION WATER SEAL EQUAL TO CONSEAL CS-231

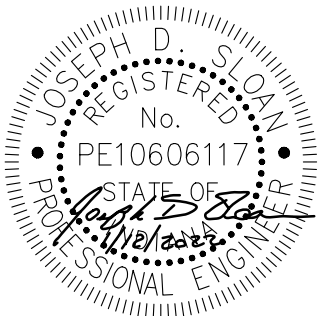
CAST IN PLACE BASE SECTION:
 THE MANHOLE BENCH SHALL SLOPE TOWARD THE CHANNEL AT A 12:1 SLOPE.
 THE MANHOLE BASE SECTION SHALL BE PLACED ON A #5 OR #8 STONE BASE WITH A MINIMUM COMPACTED DEPTH OF 6". THE STONE BASE SHALL OVERHANG THE BASE SECTION BY A MINIMUM OF 6".



NOTE:

1. ALL MANHOLE LIDS SHALL BEAR "SANITARY SEWER" MOLDED INTO THE EXTERIOR SURFACE.
2. WATERTIGHT CASTINGS EQUAL TO EJ 1022-WT WITH GASKET AND BOLT DOWN LIDS REQUIRED AS NOTED.
3. ALL PRECAST CONCRETE SHALL CONTAIN WATERPROOFING ADDITIVE, XYPEX OR EQUIVALENT.
4. ALL PRECAST CONCRETE FOR FORCE MAIN RECEIVING MANHOLES AND ALL NEW MANHOLES WITHIN 500 FEET UPSTREAM OR DOWNSTREAM OF THE RECEIVING MANHOLE SHALL CONTAIN ANTI-CORROSION ADDITIVE, CONSHIELD OR EQUIVALENT.
5. UP TO REVIEWER TO DETERMINE IF ECCENTRIC OR CONCENTRIC IS ALLOWED.
6. IF COVER IS ALIGNED WITH PIPE, ECCENTRIC CONE IS ALLOWED.
7. BONDING AGENT TO BE USED ON ALL SURFACES OF PRECAST.

Date: Jan 13, 2022, 9:14am User Name: Ttrutherford File: S:\113-0170\WR\CAD\Plans\Details Proposed by: L.G.Sanitary Sewer\WW-04 Standard Doghouse Detail.dwg



STANDARD DOGHOUSE 48" MANHOLE

Approved: 01/12/2022

Adopted: 01/18/2022

Figure

Approved By: Joseph D. Sloan, P.E.

Scale: N.T.S.

WW-04

MANHOLE FRAME & COVER:
 ASTM A-48, LATEST EDITION, CLASS 35 WITH 24" DIAMETER FRAME.
IN TRAFFIC AREAS:
 7" MIN. HGT., EQUAL TO EAST JORDAN 1022 OR EQUAL WITH HEAVY DUTY COVER, MACHINED BEARING SURFACE & CONCEALED LIFT HOLES. (SET LID FLUSH WITH FINISHED STREET SURFACE).
IN NON-TRAFFIC AREAS:
 7" HGT., EQUAL TO EAST JORDAN 1022 WITH MEDIUM DUTY COVER, MACHINED BEARING SURFACE & CONCEALED LIFT HOLES. SET TOP 2" ABOVE GRADE (AFTER EARTH SETTLEMENT).

CONCRETE GRADING RINGS:
 SEE SHEET WW-06 FOR GRADING RING NOTES

PRECAST FLAT TOP AND RISER SECTIONS:
 ASTM C-478, 4000 P.S.I. CONCRETE.

JOINTS:
 SEAL BETWEEN CASTING AND EACH RING MINIMUM SIZE 3/4" PREFORMED BUTYL RUBBER SEALANT MEETING ASTM C-990. PRIME EXTERIOR OF JOINTS WITH BITUMINOUS PRIMER PRIOR TO WRAPPING. ALL JOINTS SHALL HAVE EXTERIOR JOINT WRAP MEETING THE REQUIREMENTS OF ASTM C-877, MINIMUM 6" WRAP. IN INSTANCES WHERE JOINT IS BELOW WATER TABLE, JOINT SHALL BE A CONTROLLED EXPANSION WATER SEAL EQUAL TO CONSEAL CS-231.

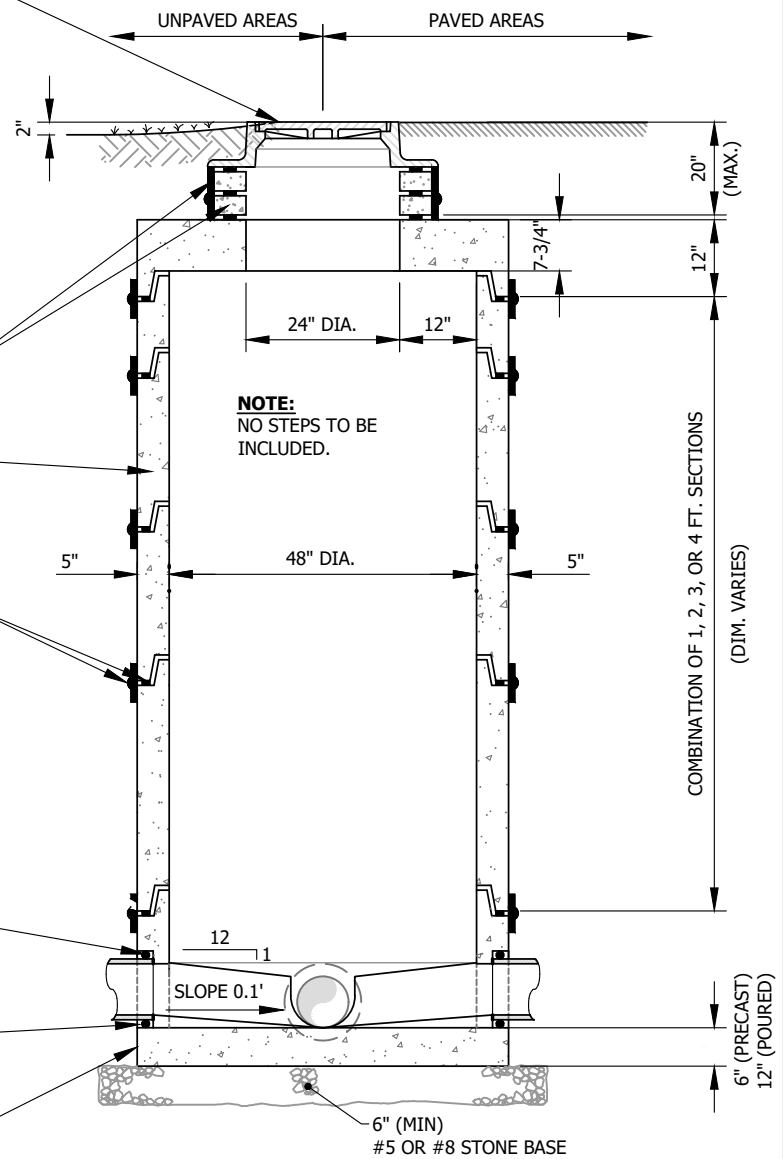
GROUT SEAL (TYP.)

WATER STOP RING OR BOOT (TYP.)

PRECAST BASE SECTION:
 BASE SECTION WITH RESILIENT PIPE TO MANHOLE CONNECTOR MEETING ASTM C-923. SMOOTH INVERT CHANNELS SHALL BE SHAPED TO A DEPTH OF A FULL INSIDE PIPE DIAMETER. THE MANHOLE SHELF SHALL SLOPE TOWARD THE CHANNEL AT A 12:1 SLOPE. THE MANHOLE BASE SECTION SHALL BE PLACED ON A #5 OR #8 STONE BASE WITH A MINIMUM COMPACTED DEPTH OF 6". THE STONE BASE SHALL OVERHANG THE BASE SECTION BY A MINIMUM OF 6".

NOTE:

1. ALL MANHOLE LIDS SHALL BEAR "SANITARY SEWER" MOLDED INTO THE EXTERIOR SURFACE.
2. WATERTIGHT CASTINGS EQUAL TO EJ 1022-WT CASKETED AND BOLT DOWN LIDS REQUIRED AS NOTED.
3. ALL PRECAST CONCRETE SHALL CONTAIN WATERPROOFING ADDITIVE, XYPEX OR EQUIVALENT.
4. ALL PRECAST CONCRETE FOR FORCE MAIN RECEIVING MANHOLES AND ALL NEW MANHOLES WITHIN 500 FEET UPSTREAM OR DOWNSTREAM OF THE RECEIVING MANHOLE SHALL CONTAIN ANTI-CORROSION ADDITIVE, CONSHIELD OR EQUIVALENT.
5. IT IS UP TO THE EWSU REVIEWER TO DETERMINE WHEN THE FLAT TOP MANHOLE CAN BE USED IN PLACE OF A STANDARD MANHOLE.
6. BONDING AGENT ON PRECAST SECTION WHERE CAST-IN-PLACE TO BE IN CONTACT.
7. LARGER OPENINGS MAY BE REQUIRED FOR LARGER DIAMETER BARREL MANHOLE SECTIONS.



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STANDARD PRECAST FLAT TOP MANHOLE

Approved: 01/12/2022

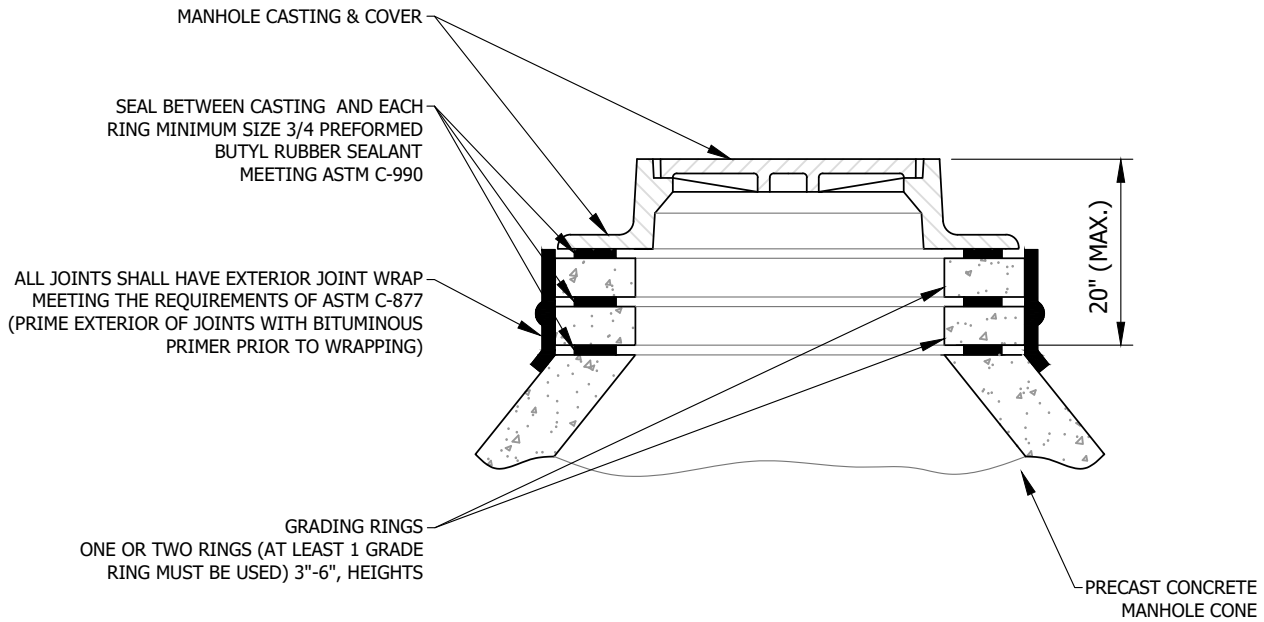
Approved By: Joseph D. Sloan, P.E.

Adopted: 01/18/2022

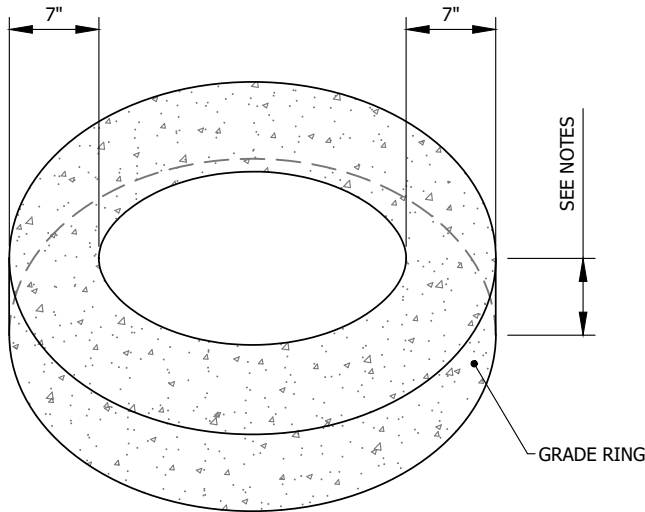
Scale: N.T.S.

Figure

WW-05



CASTING ADJUSTMENT



NOTE:

1. SYNTHETIC OR CONCRETE GRADE RINGS ALLOWED.
2. SYNTHETIC RINGS SHALL BE CRETEX PRO RINGS OR APPROVED EQUAL.
3. SYNTHETIC RINGS SHALL BE 2" MAXIMUM. 3" AND GREATER USE CONCRETE.
4. CONCRETE GRADE RINGS SHALL HAVE A MINIMUM STRENGTH: 4,500 PSI AT 28 DAYS.
5. CONCRETE RINGS SHALL BE 3"-6".
6. PRECAST GRADE RINGS SHALL CONTAIN WATER PROOFING ADDITIVE, XYPEX OR EQUIVALENT.
7. RINGS SHALL BE ALIGNED VERTICALLY AND CORRECTED IF OFFSET BEYOND 1/2".
8. RISER RINGS SHALL BE FREE OF DEFECTS AT INSTALLATION AND WARRANTY INSPECTION.
9. ALL PRECAST CONCRETE FOR FORCE MAIN RECEIVING MANHOLES AND ALL NEW MANHOLES WITHIN 500 FEET UPSTREAM OR DOWNSTREAM OF THE RECEIVING MANHOLE SHALL CONTAIN ANTI-CORROSION ADDITIVE, CONSHIELD OR EQUIVALENT.
10. SEE SEWER SPEC AS NEEDED.

GRADE RINGS

Date: Jan 13, 2022, 9:14am User Name: Truherford File: S:\113-0170\WR CAD\Plans\Details Proposed by L:\GSanitary_Sewer\WW-05 Standard Casting Adjustment and Riser Rings.dwg



STANDARD CASTING ADJUSTMENT AND GRADE RINGS

Approved: 01/12/2022

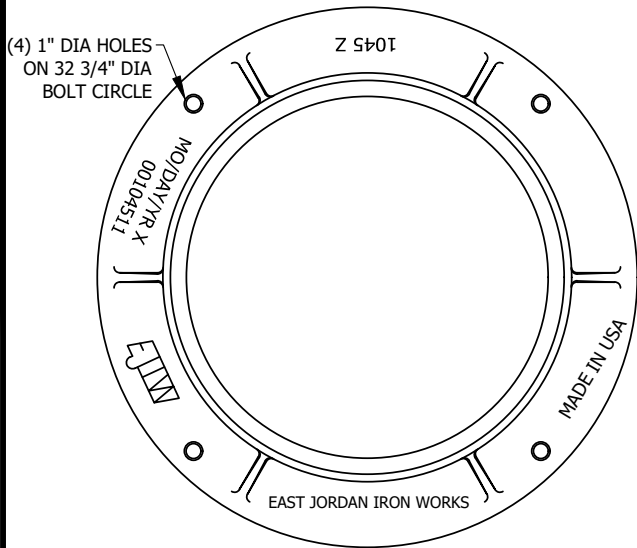
Approved By: Joseph D. Sloan, P.E.

Adopted: 01/18/2022

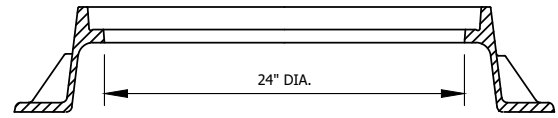
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Figure

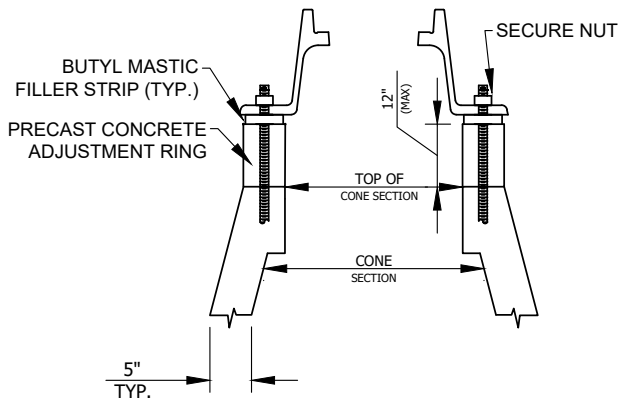
WW-06



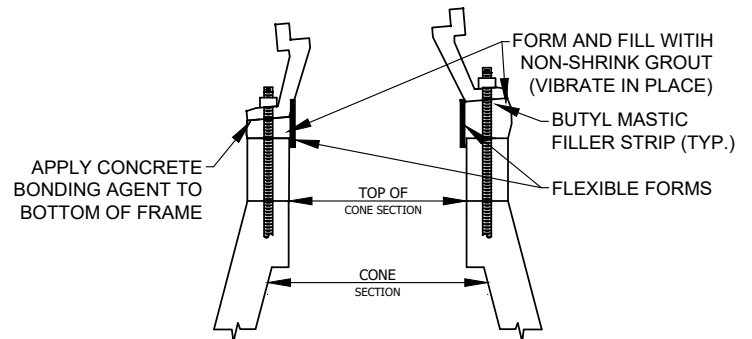
MANHOLE COVER



FRAME SECTION



INSTALLATION DETAIL FOR FRAMES AND COVERS



INSTALLATION DETAIL FOR SLOPE ADJUSTMENT

NOTE:

1. MANHOLE FRAME & COVER TO BE ASTM A-48, LATEST EDITION, CLASS 35 WITH 24" DIAMETER FRAME.
2. IN TRAFFIC AREAS, 7" MINIMUM HEIGHT., EQUAL TO EAST JORDAN 1022 OR EQUAL WITH HEAVY DUTY COVER, MACHINED BEARING SURFACE & CONCEALED LIFTHOLES. (SET LID FLUSH WITH FINISHED STREET SURFACE).
3. IN NON-TRAFFIC AREAS, 7" HEIGHT, EQUAL TO EAST JORDAN 1022 WITH MEDIUM DUTY COVER, MACHINED BEARING SURFACE & CONCEALED LIFT HOLES. SET TOP 2" ABOVE GRADE (AFTER EARTH SETTLEMENT).
4. APPROVED WATER SEALANT REQUIRED AT ALL JOINTS.
5. STAINLESS STEEL REQUIRED FOR ALL HARDWARE AND FASTENERS.
6. BOLT DOWN MANHOLE FRAME TYPICALLY USED IN REMOTE UNDEVELOPED OR ELEVATED AREAS, ETC.

Date: Jan 13, 2022, 9:14am User Name: Truherford File: S:\113-0170\WR CAD\Plans\Details Proposed by: LGSanitary Sewer\WW-06 Manhole Frame and Cover.dwg

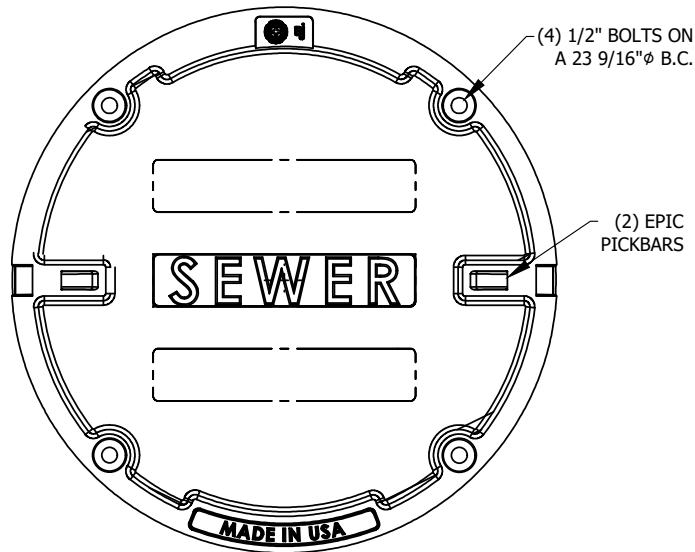


BOLT DOWN FRAME

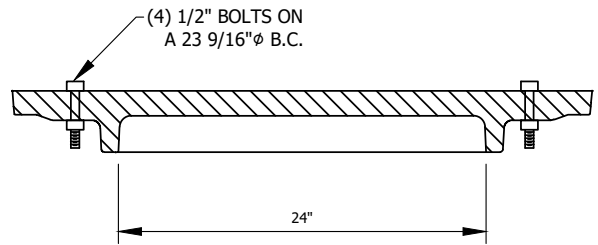
Approved: 01/12/2022
 Approved By: Joseph D. Sloan, P.E.

Adopted: 01/18/2022
 Scale: N.T.S.

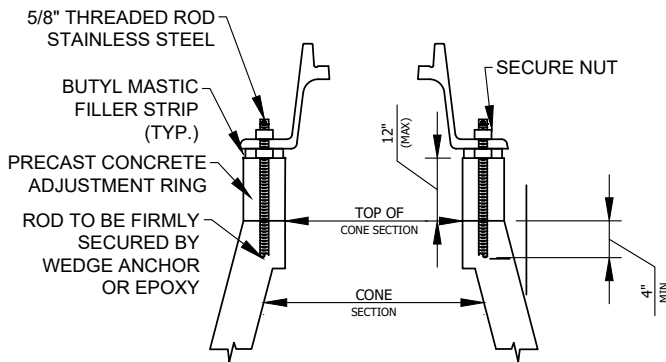
Figure **WW-07**



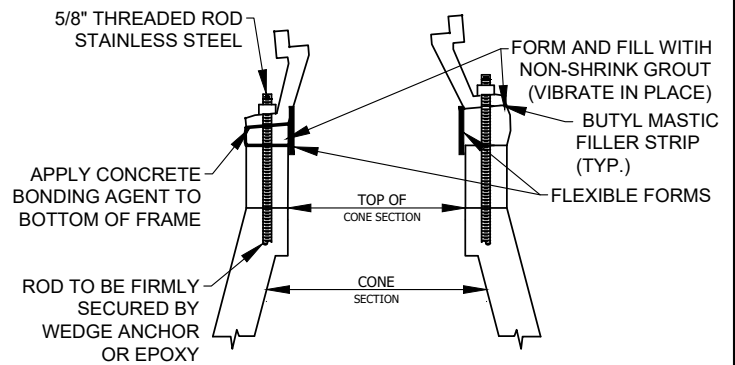
BOLTED MANHOLE COVER



FRAME SECTION



INSTALLATION DETAIL FOR FRAMES AND COVERS



INSTALLATION DETAIL FOR SLOPE ADJUSTMENT

NOTE:

1. APPROVED WATER SEALANT REQUIRED AT ALL JOINTS.
2. WATERTIGHT MANHOLE FRAME MODE #1045Z BY EAST JORDAN IRON WORKS, INC OR EQUIVALENT.
3. STAINLESS STEEL REQUIRED FOR ALL HARDWARE AND FASTENERS.
4. BOLT DOWN MANHOLE FRAME AND COVER SHALL BE IN FLOODPLAIN AREAS OR AT DIRECTION OF EWSU REVIEWER.

Date: Jan 13, 2022, 9:14am User Name: Truetherford File: S:\113-0170\WR CAD\Plans\Details Proposed by L.G\Sanitary Sewer\WW-07 Floodplain Manhole Frame and Cover.dwg



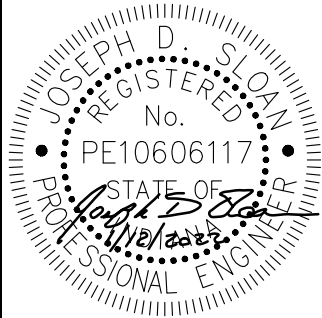
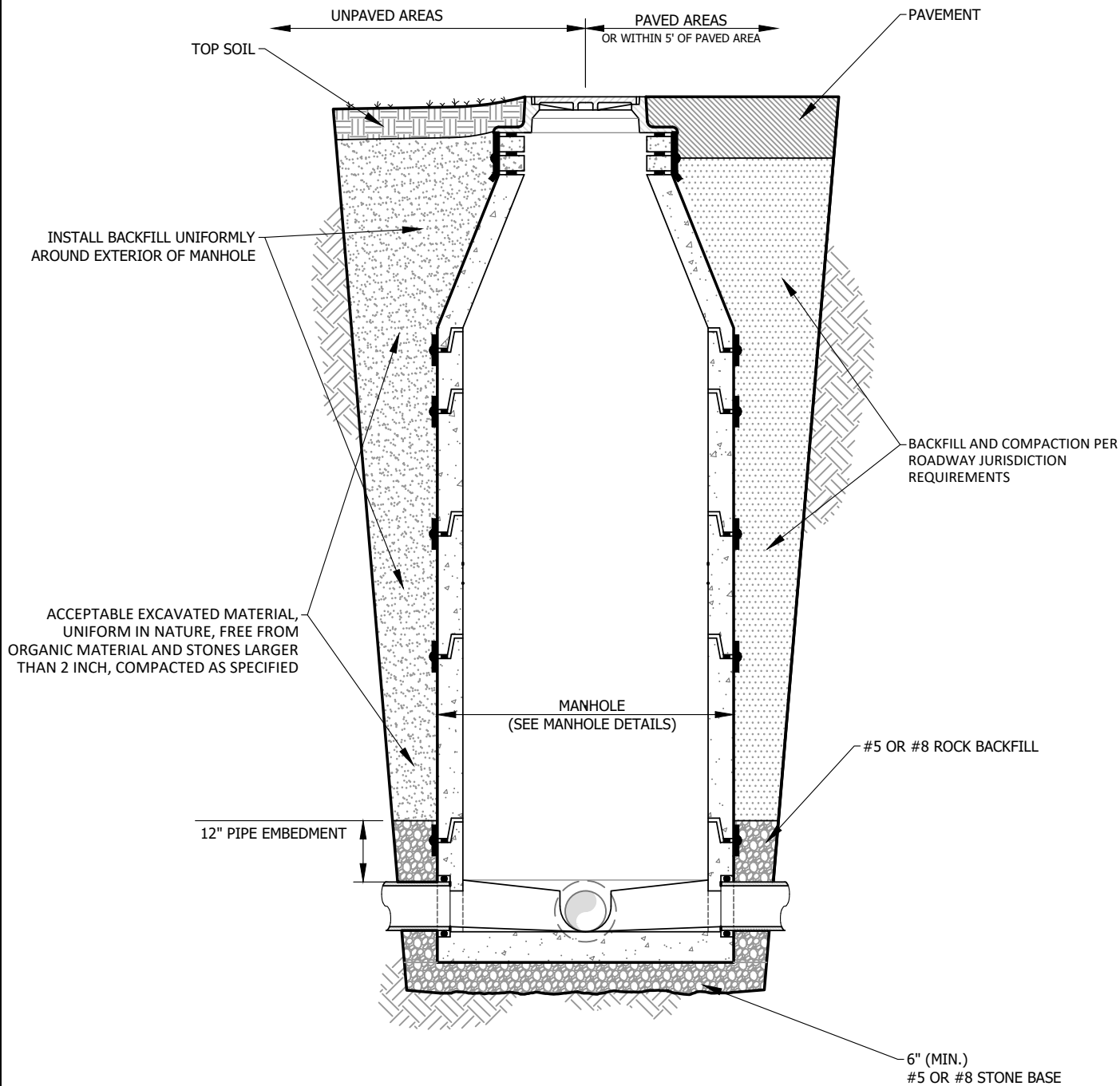
BOLT DOWN MANHOLE FRAME AND COVER

Approved: 01/12/2022
 Approved By: Joseph D. Sloan, P.E.

Adopted: 01/18/2022
 Scale: N.T.S.

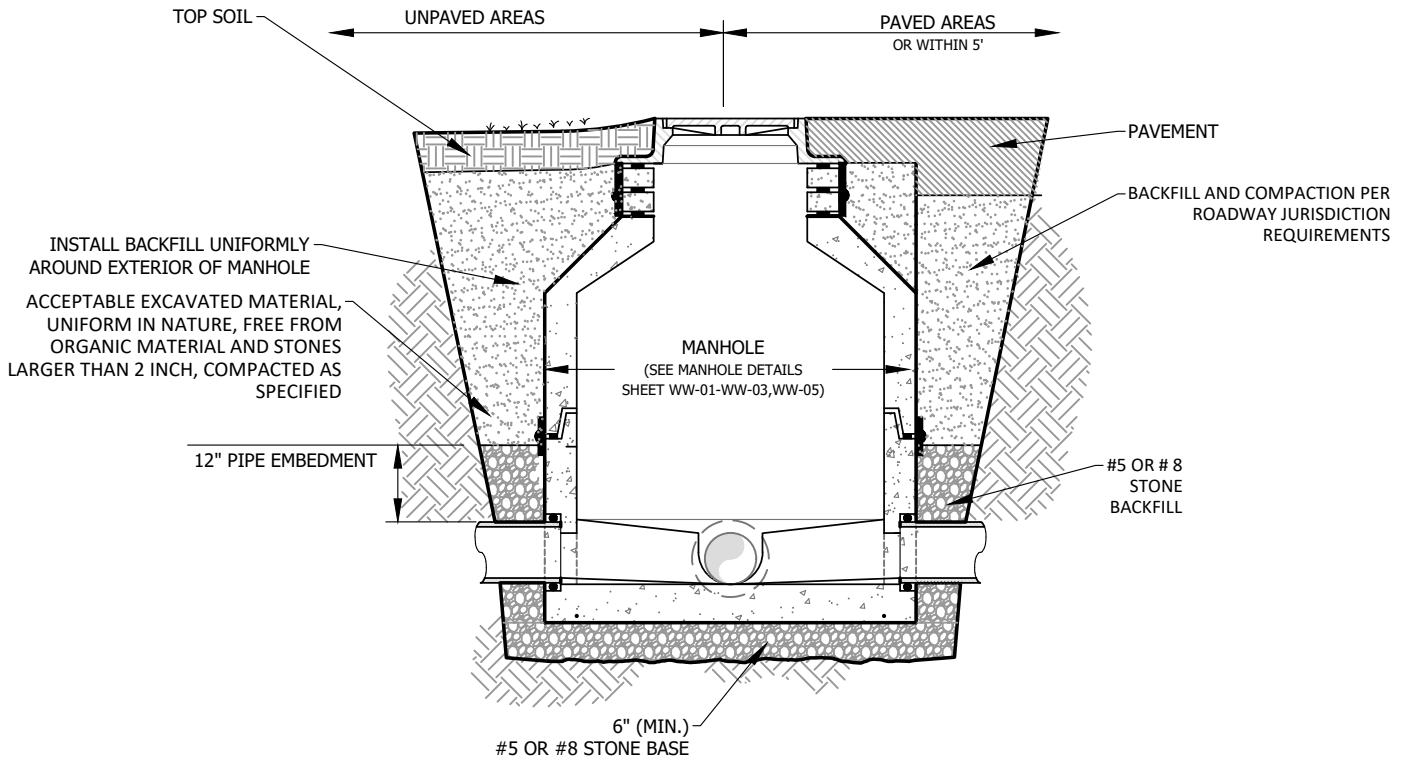
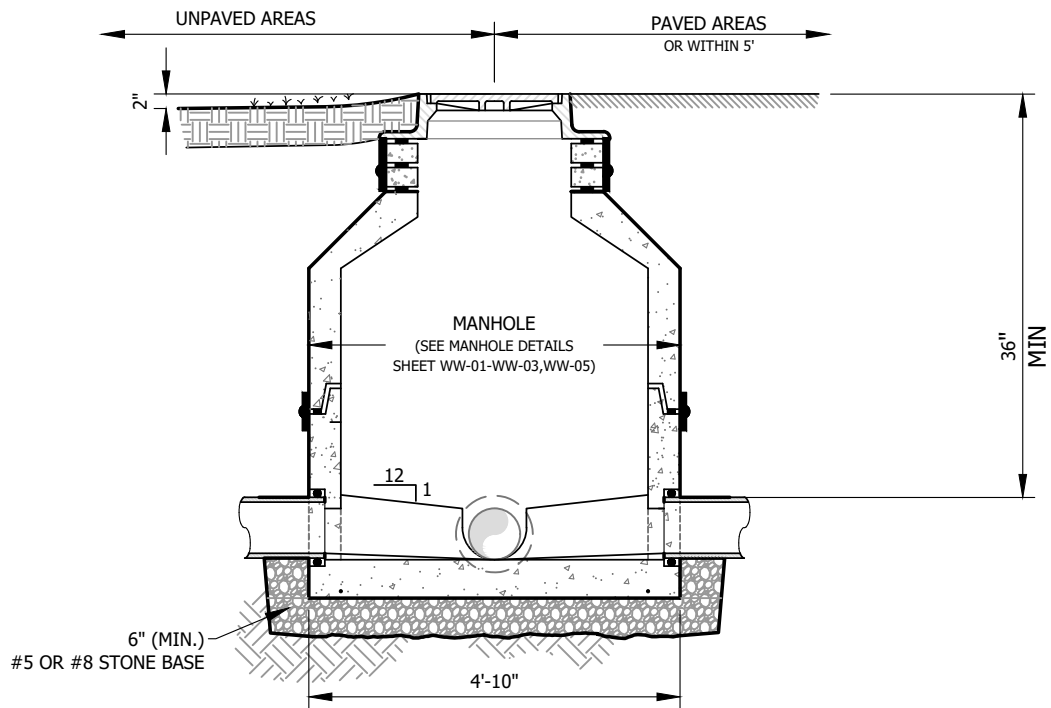
Figure
WW-08

Date: Jan 13, 2022, 9:14am User Name: TTruherford
 File: S:\113-0170\WR CAD\Plans\Details Proposed by LG\Sanitary Sewer\WW-08 Standard Manhole Backfill.dwg



STANDARD MANHOLE BACKFILL

Approved: 01/12/2022	Adopted: 01/18/2022	Figure WW-09
Approved By: Joseph D. Sloan, P.E.	Scale: N.T.S.	



- NOTE:**
1. OPENING SHALL BE LOCATED OUTSIDE AREAS OF STANDING/FLOWING WATER.
 2. ANY PIPE ENTERING REQUIRES 12" PIPE EMBEDMENT AND 6" STONE BASE.
 3. MAX 12" LINE ENTERING OR LEAVING STRUCTURE.
 4. FLAT TOPS MAY BE ALLOWED AT THE DISCRETION OF EWSU REVIEWER.

Date: Jan 13, 2022, 9:14am User Name: Trutherford
File: S:\113-01\WW\CAD\Plans\Details Proposed by LG\Sanitary Sewer\WW-08 Standard Shallow Manhole Backfill.dwg

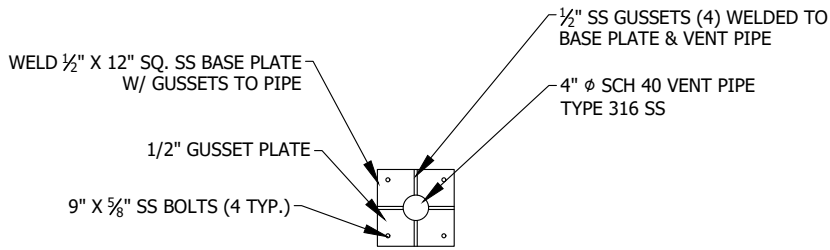


STANDARD SHALLOW MANHOLE AND BACKFILL DETAIL

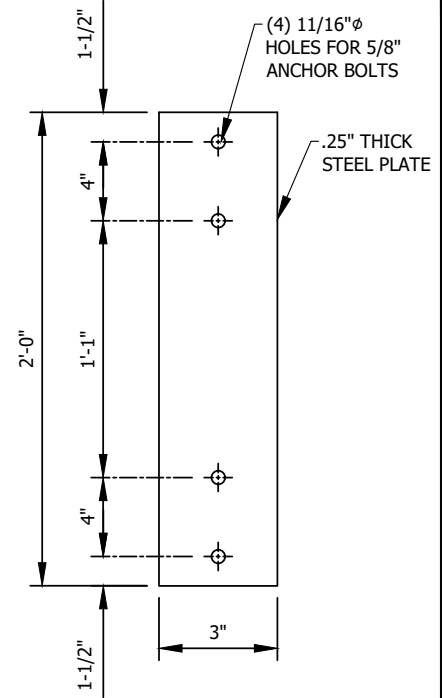
Approved: 01/12/2022
Approved By: Joseph D. Sloan, P.E.

Adopted: 01/18/2022
Scale: N.T.S.

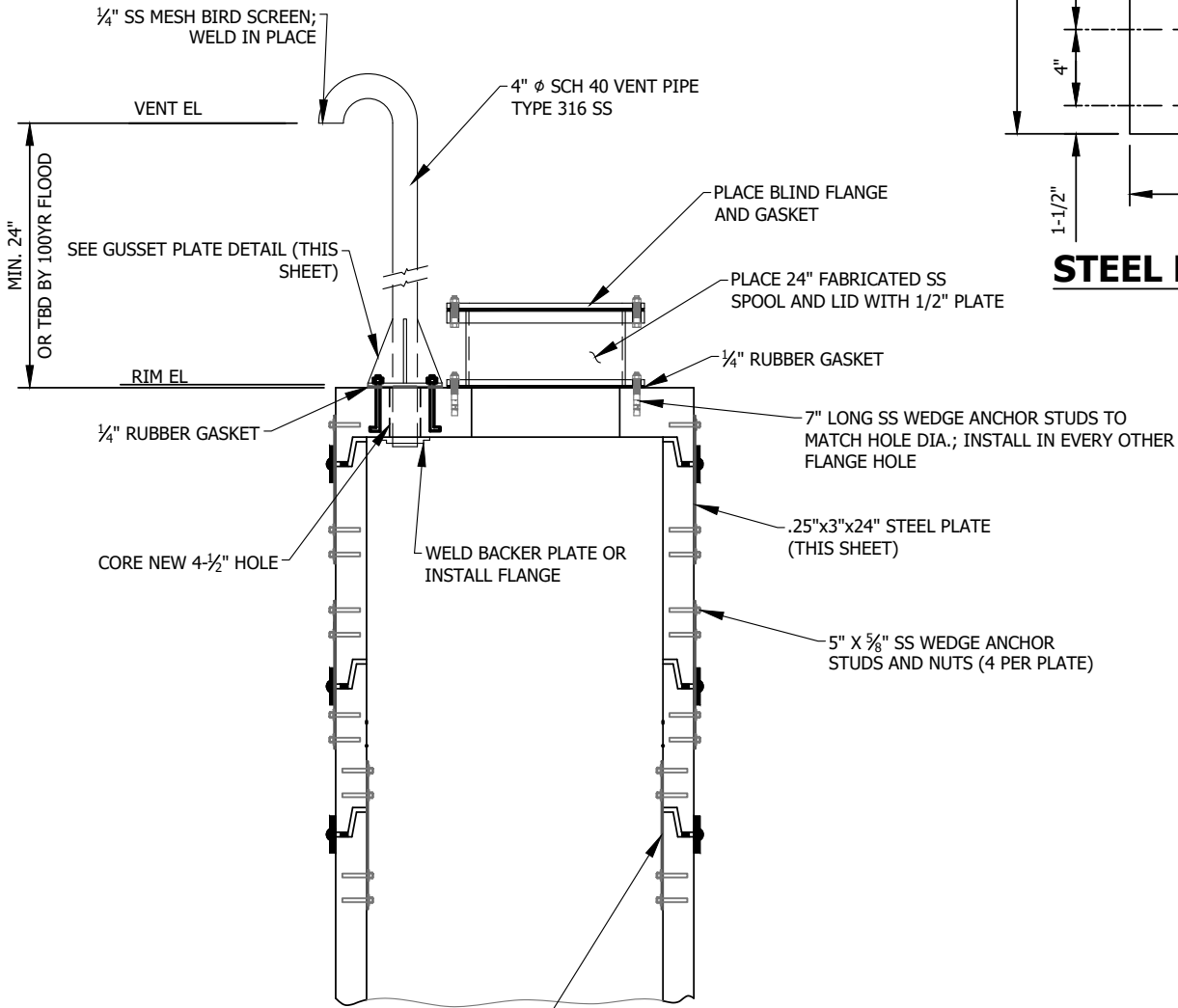
Figure **WW-10**



GUSSET PLATE



STEEL PLATE



STEEL PLATES (3 TYP. PER JOINT) SHALL BE INSTALLED EXTERNALLY FOR JOINTS ABOVE GRADE AND INTERNALLY FOR ALL BELOW GRADE

NOTE:
1. GUSSET PLATE TO BE USED IF VENT PIPE EXCEEDS 24".

Date: Jan 13, 2022, 9:14am User Name: TTruherford File: S:\113-0170\WR CAD\Plans\Details Proposed by L.G.Sanitary Sewer\WW-09 Flat Top Vented Floodplain Manhole Over 24".dwg



**FLAT VENTED FLOODPLAIN
PRECAST 48" MANHOLE**

Approved: 01/12/2022

Adopted: 01/18/2022

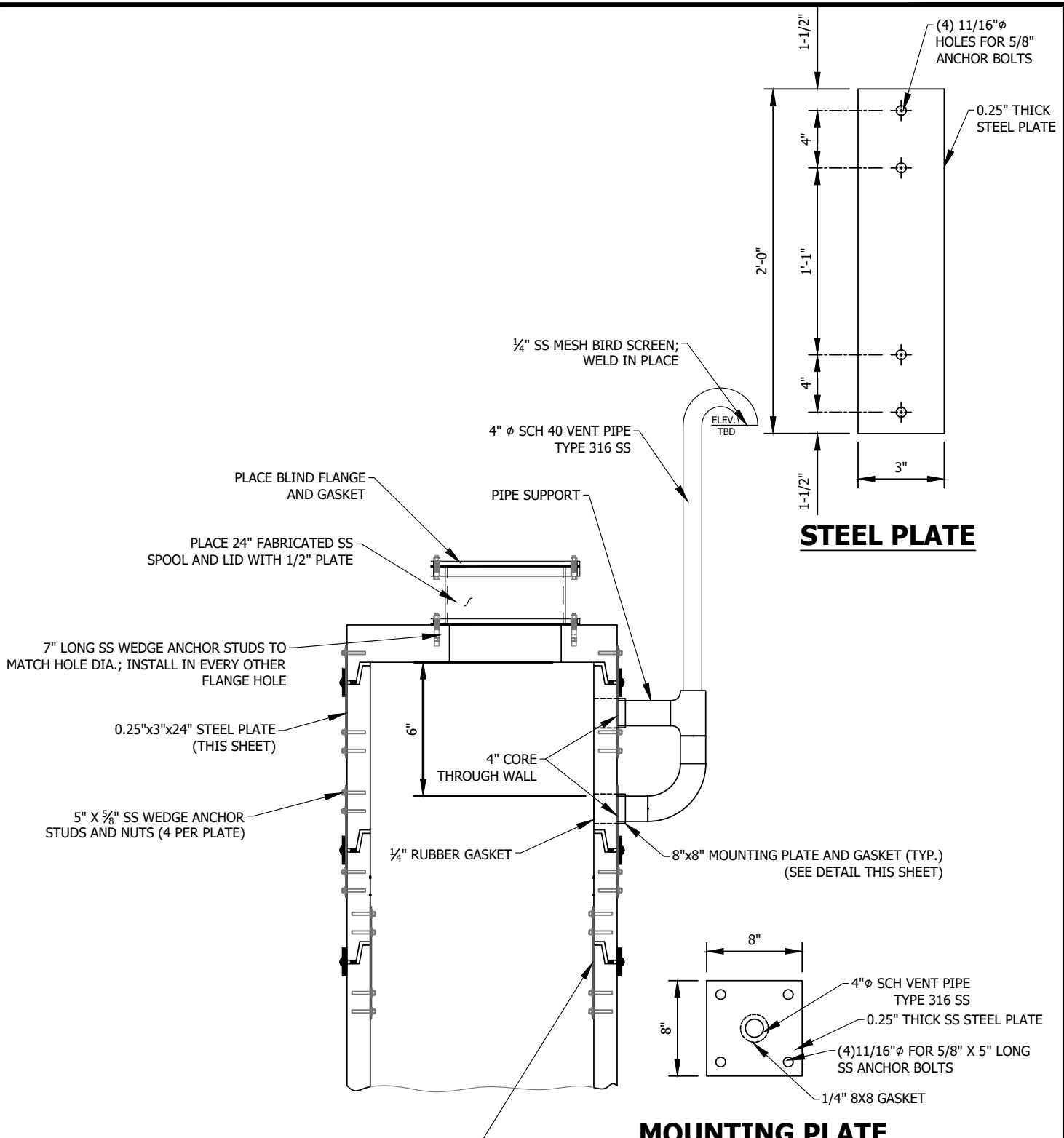
Figure

Approved By: Joseph D. Sloan, P.E.

Scale: N.T.S.

WW-11

Date: Jan 13, 2022, 9:14am User Name: Ttrutherford File: S:\113-01\01\WR CAD\Plans\Details Proposed by L:\Sanitary Sewer\WW-09 Flat Top Vented Floodplain Manhole Over Side Vent.dwg



STEEL PLATE

MOUNTING PLATE

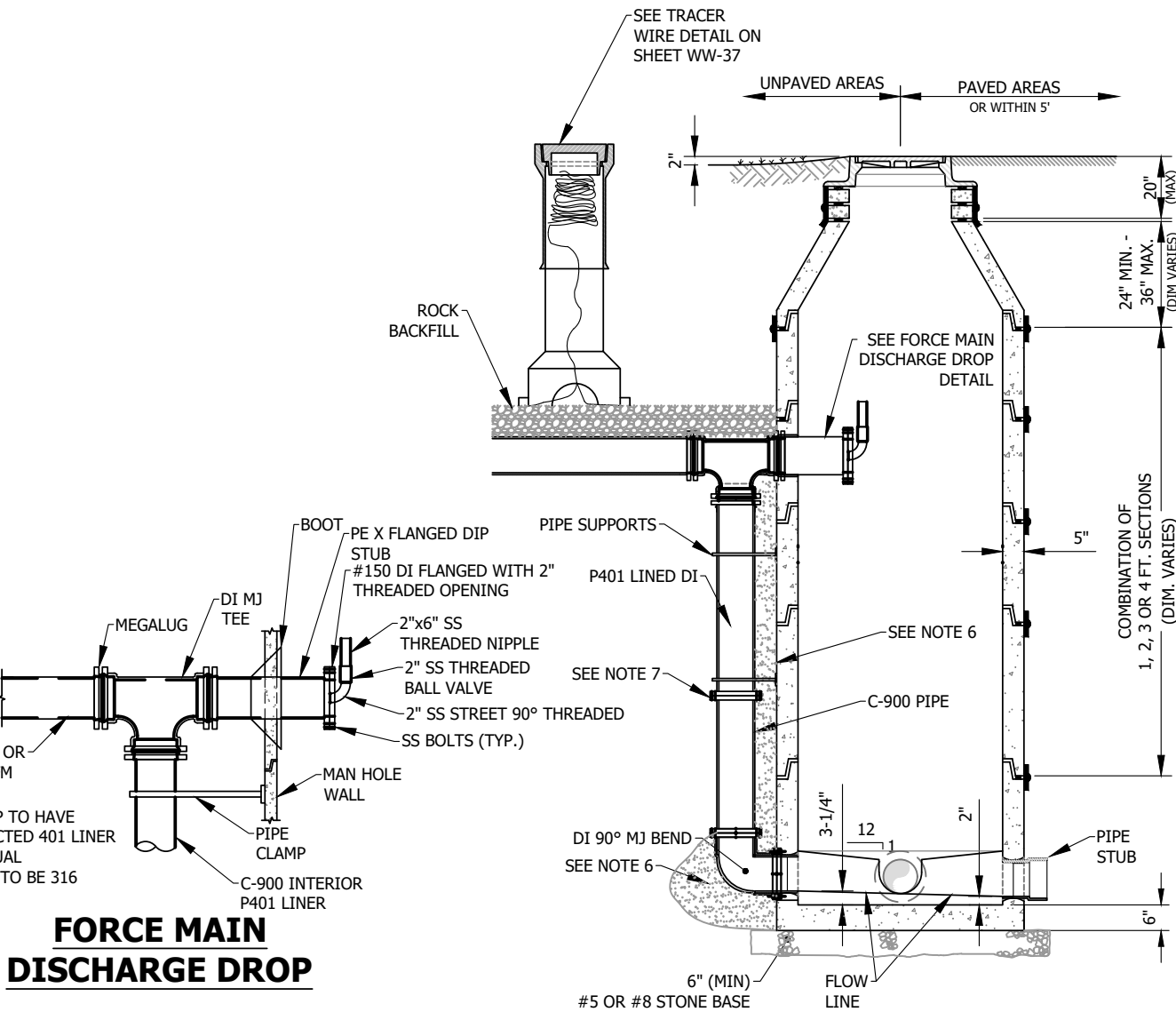
STEEL PLATES (3 TYP. PER JOINT) SHALL BE INSTALLED EXTERNALLY FOR JOINTS ABOVE GRADE AND INTERNALLY FOR ALL BELOW GRADE



**FLAT VENTED FLOODPLAIN
PRECAST 48" MANHOLE WITH SIDE VENT**

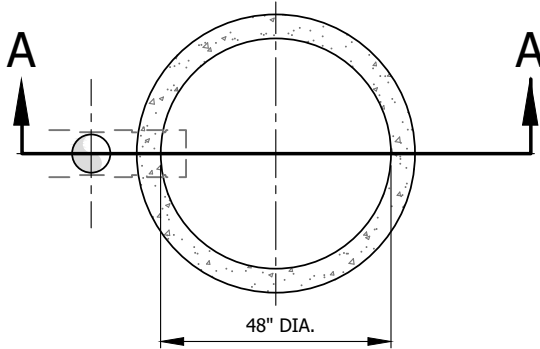
Approved: 01/12/2022	Adopted: 01/18/2022	Figure WW-12
Approved By: Joseph D. Sloan, P.E.	Scale: N.T.S.	

Date: Jan 13, 2022, 9:14am User Name: Ttrutherford File: S:\113-01-70\WR\CAD\Plans\Details Proposed by L\G\Sanitary Sewer\WW-10 External Drop Manhole(force main).dwg



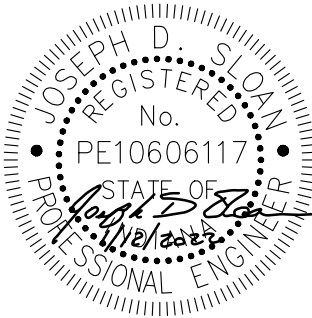
- NOTES:**
1. ALL DIP TO HAVE PROTECTED 401 LINER OR EQUAL
 2. ALL SS TO BE 316

FORCE MAIN DISCHARGE DROP



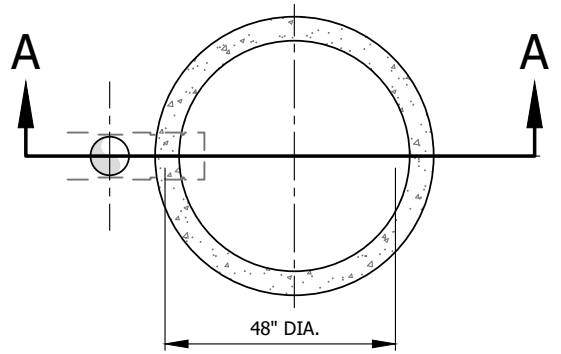
MANHOLE BASE/RISER PLAN

- SECTION "A-A"**
- NOTE:**
1. ALL MATERIAL, DESIGN, MANUFACTURE, PHYSICAL TEST REQUIREMENTS, FINISH MARKING, INSPECTION, REJECTION AND REPAIRS TO MEET / OR EXCEED "SPECIFICATIONS FOR PRECAST-REINFORCED CONCRETE MANHOLE SECTIONS". PER ASTM C-478 (LATEST REVISION).
 2. RESILIENT CONNECTORS MEET "SPECIFICATIONS FOR RESILIENT CONNECTORS BETWEEN REINFORCED CONCRETE MANHOLE STRUCTURES, PIPES AND LATERALS". PER ASTM C-923 (LATEST REVISION). RESILIENT CONNECTORS SHALL MEET AND/OR EXCEED ASTM C-478 GASKET REQUIREMENTS. 1" MASTIC BUTYL WILL BE ADDED BETWEEN THE JOINTS OF THE PRECAST DROP AND SHALL BE TIED INTO THE BARREL SECTION SEALANT. ALL ANGLES AND FALL SHALL BE ACCORDING TO PLANS.
 3. SPECIFIC DROP TO ELEVATION TO BE DESIGNED BY ENGINEER.
 4. ALL PRECAST CONCRETE FOR FORCE MAIN RECEIVING MANHOLES AND ALL NEW MANHOLES WITHIN 500 FEET UPSTREAM OR DOWNSTREAM OF THE RECEIVING MANHOLE SHALL CONTAIN ANTI-CORROSION ADDITIVE, CONSHIELD OR EQUIVALENT
 5. SPECIFIC DROP TO ELEVATION TO BE DESIGNED BY ENGINEER.
 6. CLASS 2 OR GREATER PER ASTM D-2321
 7. MEGALUG RESTRAINTS ON ALL JOINTS.
 8. IT IS UP TO THE EWSU REVIEWER TO DETERMINE IF ECCENTRIC OR CONCENTRIC IS ALLOWED.

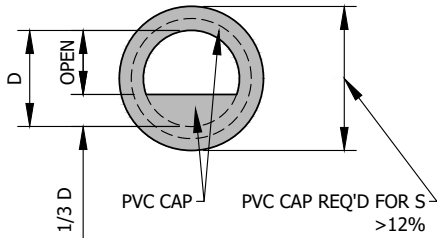


**PRECAST EXTERNAL DROP MANHOLE
(REQUIRED ON ALL DROPS GREATER THAN 24")
(FORCE MAIN)**

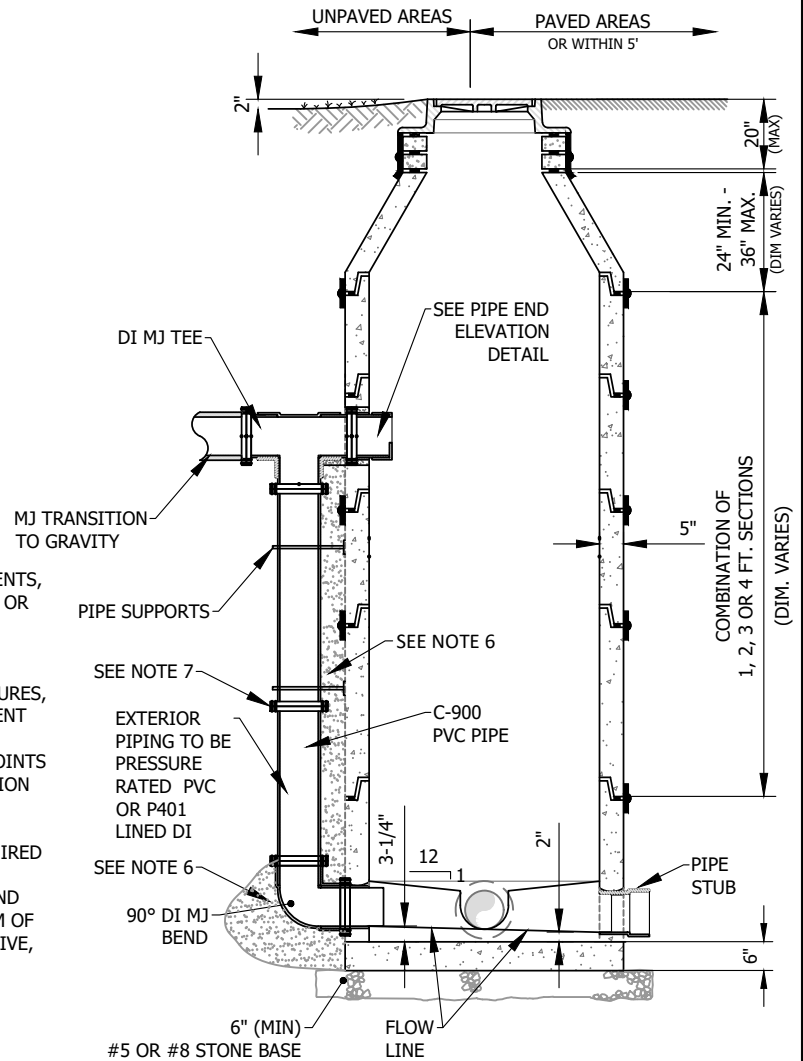
Approved: 01/12/2022	Adopted: 01/18/2022	Figure WW-13
Approved By: Joseph D. Sloan, P.E.	Scale: N.T.S.	



MANHOLE BASE/RISER PLAN



PIPE END ELEVATION



SECTION "A-A"

NOTE:

1. ALL MATERIAL, DESIGN, MANUFACTURE, PHYSICAL TEST REQUIREMENTS, FINISH MARKING, INSPECTION, REJECTION AND REPAIRS TO MEET / OR EXCEED "SPECIFICATIONS FOR PRECAST-REINFORCED CONCRETE MANHOLE SECTIONS". PER ASTM C-478 (LATEST REVISION).
2. RESILIENT CONNECTORS MEET "SPECIFICATIONS FOR RESILIENT CONNECTORS BETWEEN REINFORCED CONCRETE MANHOLE STRUCTURES, PIPES AND LATERALS". PER ASTM C-923 (LATEST REVISION). RESILIENT CONNECTORS SHALL MEET AND/OR EXCEED ASTM C-478 GASKET REQUIREMENTS. 1" MASTIC BUTYL WILL BE ADDED BETWEEN THE JOINTS OF THE PRECAST DROP AND SHALL BE TIED INTO THE BARREL SECTION SEALANT. ALL ANGLES AND FALL SHALL BE ACCORDING TO PLANS.
3. 33" DROP MINIMUM REQUIRED. DROP IS 8" PIPE ONLY. IF DROP REQUIRES GREATER THAN 8" PIPE, A SPECIAL DETAIL WILL BE REQUIRED FOR APPROVAL.
4. ALL PRECAST CONCRETE FOR FORCE MAIN RECEIVING MANHOLES AND ALL NEW MANHOLES WITHIN 500 FEET UPSTREAM OR DOWNSTREAM OF THE RECEIVING MANHOLE SHALL CONTAIN ANTI-CORROSION ADDITIVE, CONSHIELD OR EQUIVALENT.
5. SPECIFIC DROP ELEVATION TO BE DESIGNED BY ENGINEER.
6. CLASS 2 OR GREATER PER ASTM D-2321.
7. MEGALUG RESTRAINTS ON ALL JOINTS.
8. PRECAST DROP AT DISCRETION OF EWSU REVIEWER.
8. IT IS UP TO THE EWSU REVIEWER TO DETERMINE IF ECCENTRIC OR CONCENTRIC IS ALLOWED.

Date: Jan 13, 2022, 9:14am User Name: Ttrutherford File: S:\113-0170\WR\CAD\Plans\Details Proposed by: L.G.Sanitary Sewer\WW-10 External Drop Manhole(Grawdy).dwg

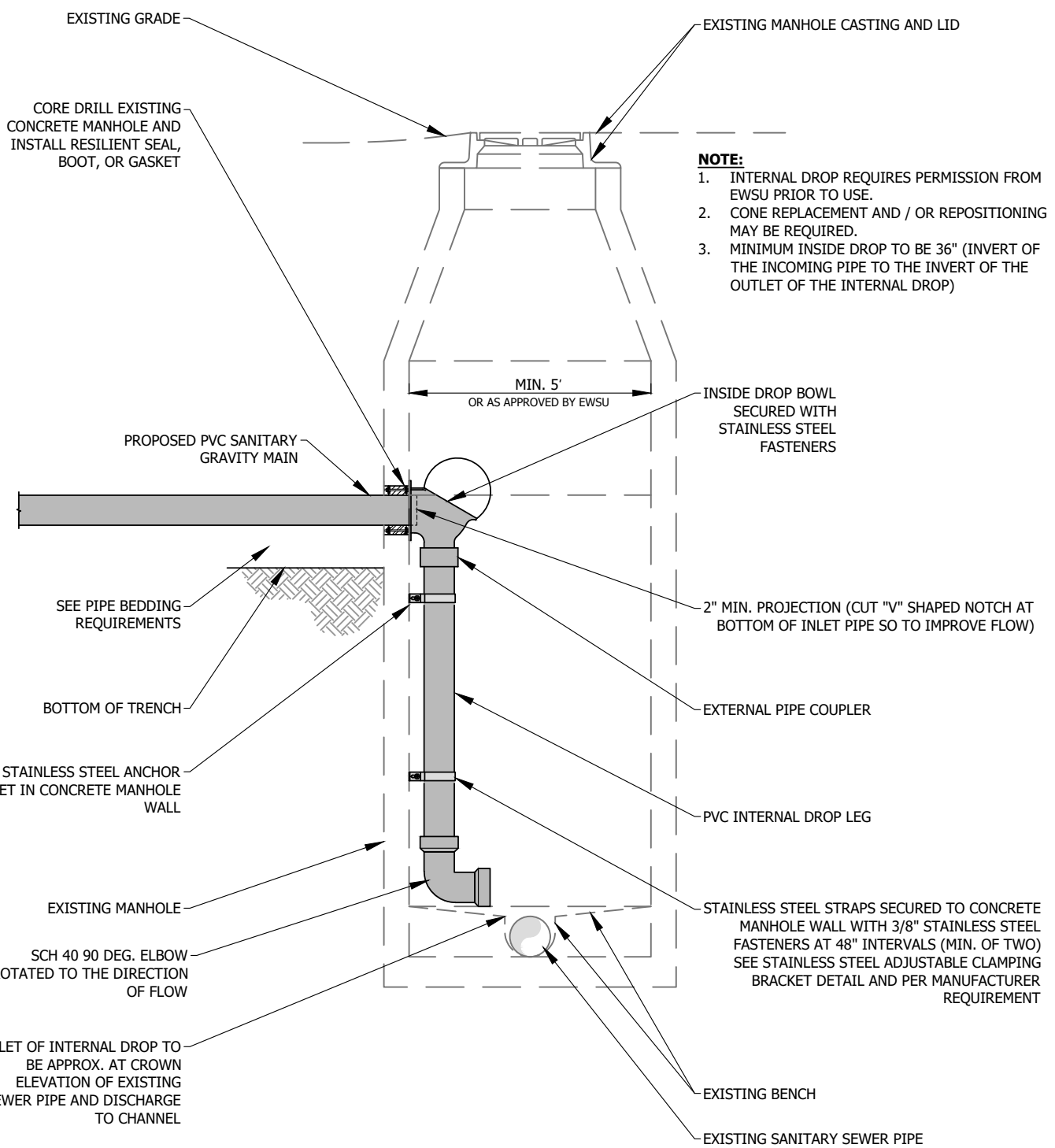


**PRECAST EXTERNAL DROP MANHOLE
(REQUIRED ON ALL DROPS GREATER THAN 24")
(GRAVITY)**

Approved: 01/12/2022
Approved By: Joseph D. Sloan, P.E.

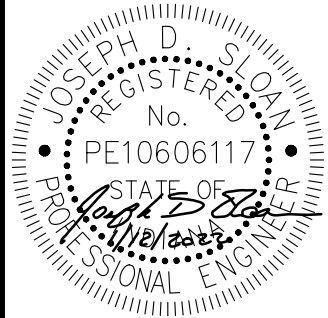
Adopted: 01/18/2022
Scale: N.T.S.

Figure **WW-14**



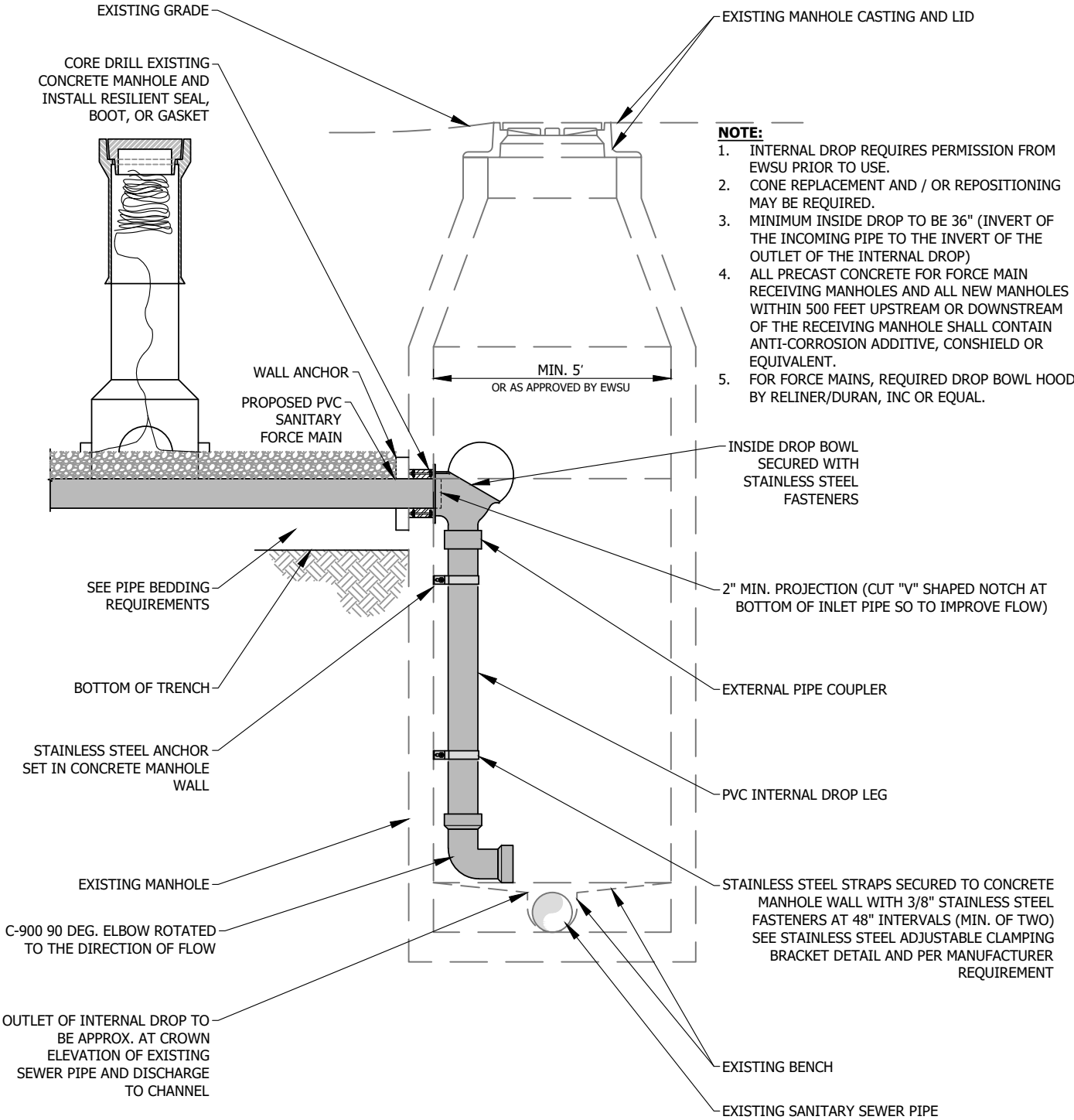
- NOTE:**
1. INTERNAL DROP REQUIRES PERMISSION FROM EWSU PRIOR TO USE.
 2. CONE REPLACEMENT AND / OR REPOSITIONING MAY BE REQUIRED.
 3. MINIMUM INSIDE DROP TO BE 36" (INVERT OF THE INCOMING PIPE TO THE INVERT OF THE OUTLET OF THE INTERNAL DROP)

Date: Jan 13, 2022, 9:15am User Name: Ttrutherford File: S:\113-0170\WR CAD\Plans\Details Proposed by L-G\Sanitary Sewer\WW-11 Internal Drop Connection to Existing MH.dwg

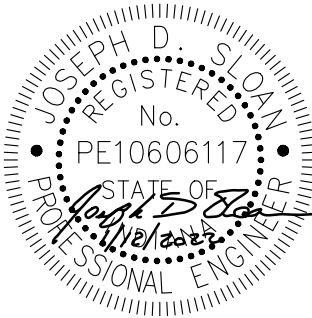


INTERNAL DROP CONNECTION TO EXISTING MANHOLE (GRAVITY)

Approved: 01/12/2022	Adopted: 01/18/2022	Figure
Approved By: Joseph D. Sloan, P.E.	Scale: N.T.S.	WW-15



Date: Jan 13, 2022, 9:15am User Name: Ttrutherford File: S:\113-0170\WR CAD\Plans\Details Proposed by L.G\Sanitary Sewer\WW-11 Internal Drop Connection to Existing MH(forceMain).dwg

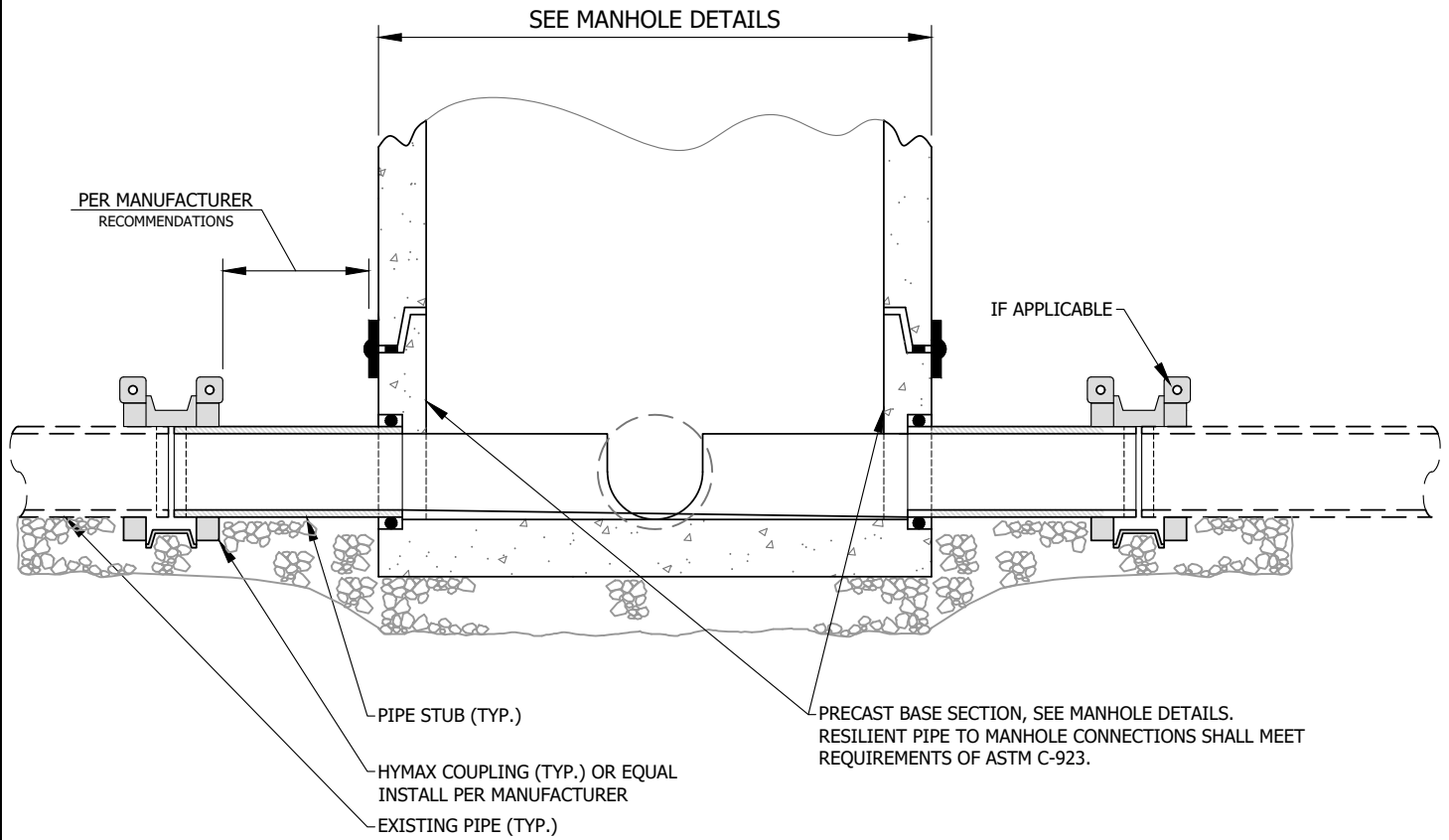


INTERNAL DROP CONNECTION TO EXISTING MANHOLE (FORCE MAIN)

Approved: 01/12/2022	Adopted: 01/18/2022
Approved By: Joseph D. Sloan, P.E.	Scale: N.T.S.

Figure **WW-16**

Date: Jan 13, 2022, 9:15am User Name: Ttrutherford
 File: S:\113-0170\WR\CAD\Plans\Details Proposed by LG\Sanitary Sewer\WW-17 New MH Connection to Existing Pipe.dwg



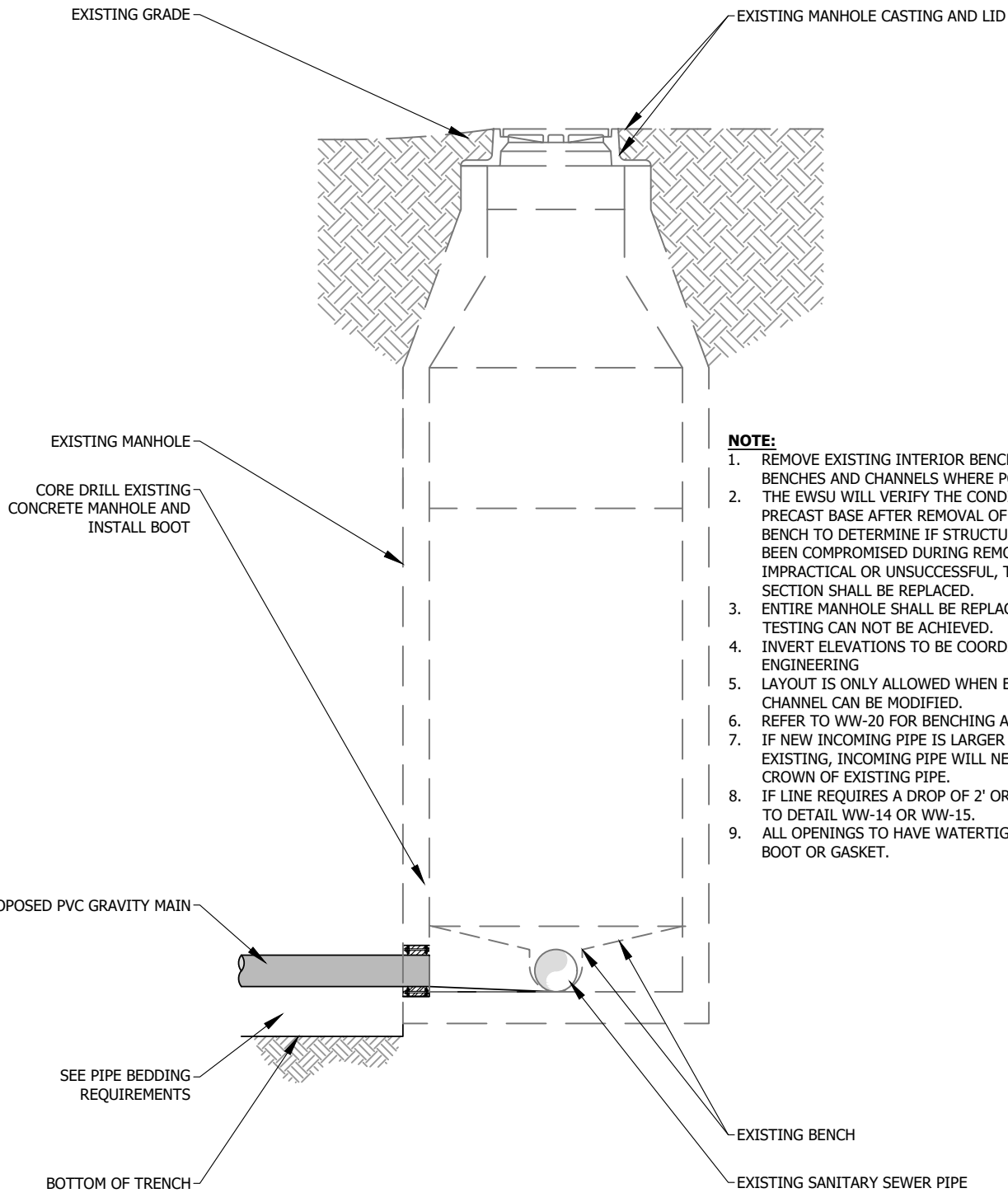
NOTE:

1. CUT OUT SECTION OF EXISTING PIPE, INSTALL NEW MANHOLE WITH STUBS, CONNECT WITH HYMAX COUPLERS AS REQUIRED.
2. MANHOLE TO MEET STANDARD DETAILS WW-01 THROUGH WW-03



NEW MANHOLE ON EXISTING PIPE

Approved: 01/12/2022	Adopted: 01/18/2022	Figure WW-17
Approved By: Joseph D. Sloan, P.E.	Scale: N.T.S.	



NOTE:

1. REMOVE EXISTING INTERIOR BENCH AND RE-POUR BENCHES AND CHANNELS WHERE POSSIBLE.
2. THE EWSU WILL VERIFY THE CONDITION OF THE PRECAST BASE AFTER REMOVAL OF THE INTERIOR BENCH TO DETERMINE IF STRUCTURAL INTEGRITY HAS BEEN COMPROMISED DURING REMOVAL. IF REMOVAL IS IMPRACTICAL OR UNSUCCESSFUL, THE ENTIRE BASE SECTION SHALL BE REPLACED.
3. ENTIRE MANHOLE SHALL BE REPLACED IF VACUUM TESTING CAN NOT BE ACHIEVED.
4. INVERT ELEVATIONS TO BE COORDINATED WITH ENGINEERING
5. LAYOUT IS ONLY ALLOWED WHEN EXISTING BENCH OR CHANNEL CAN BE MODIFIED.
6. REFER TO WW-20 FOR BENCHING ANGLES.
7. IF NEW INCOMING PIPE IS LARGER DIAMETER THAN EXISTING, INCOMING PIPE WILL NEED TO MATCH CROWN OF EXISTING PIPE.
8. IF LINE REQUIRES A DROP OF 2' OR GREATER, REFER TO DETAIL WW-14 OR WW-15.
9. ALL OPENINGS TO HAVE WATERTIGHT RESILIENT SEAL BOOT OR GASKET.

Date: Jan 13, 2022, 9:15am User Name: Ttrutherford File: S:\113-0170\WR CAD\Plans\Details Proposed by LG\Sanitary Sewer\WW-13 New Pipe Connection to Existing MH.dwg



NEW PIPE CONNECTION TO EXISTING MANHOLE

Approved: 01/12/2022

Adopted: 01/18/2022

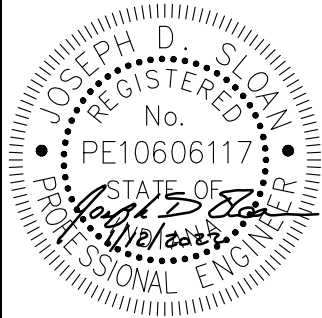
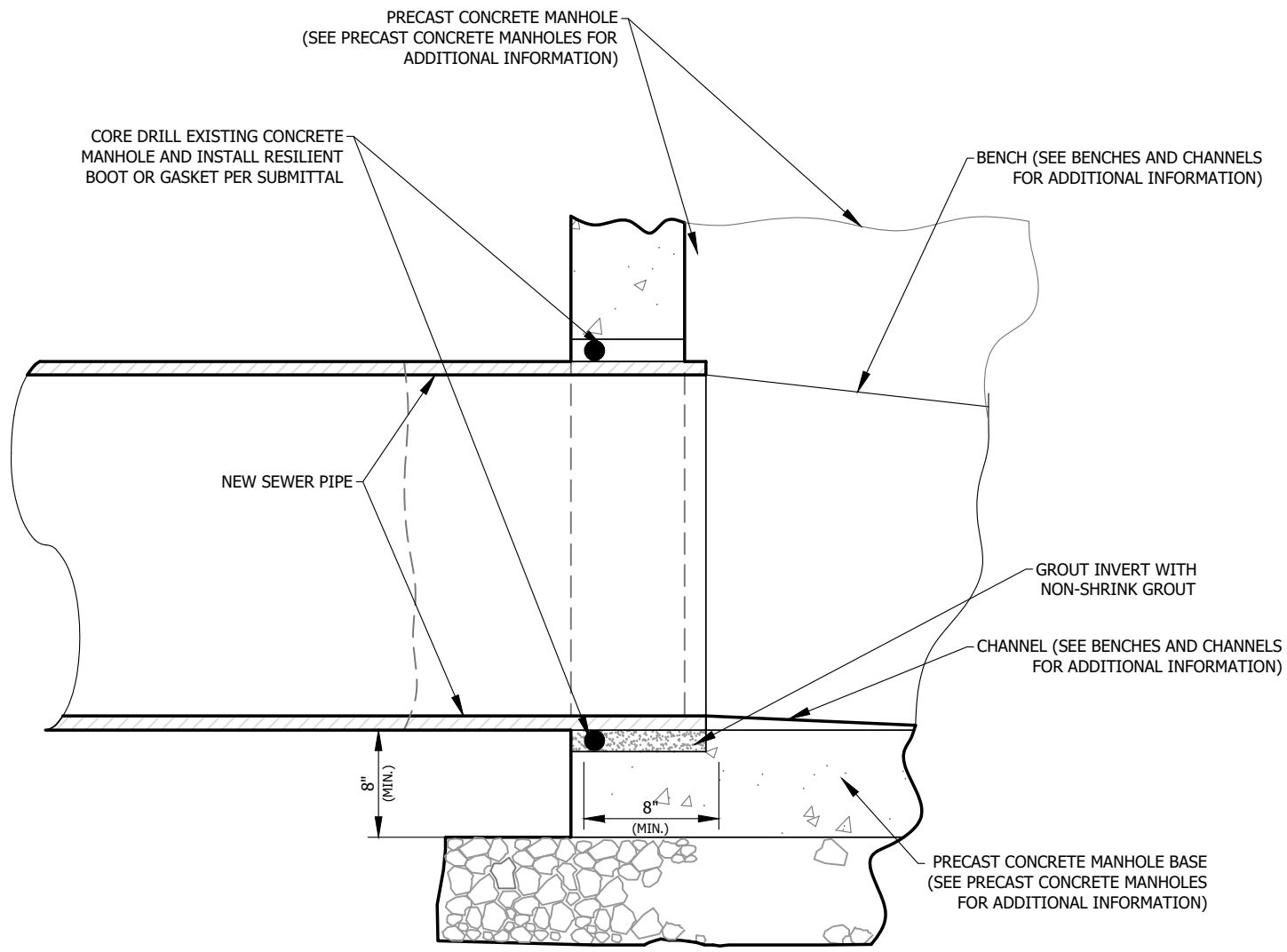
Figure

Approved By: Joseph D. Sloan, P.E.

Scale: N.T.S.

WW-18

Date: Jan 13, 2022, 9:15am User Name: Ttrutherford
 File: S:\113-0170\WR\CAD\Plans\Details Proposed by LG\Sanitary Sewer\WW-14 Stub-out at Manhole.dwg



CORE EXISTING MANHOLE FOR NEW TAP

Approved: 01/12/2022	Adopted: 01/18/2022
Approved By: Joseph D. Sloan, P.E.	Scale: N.T.S.

Figure **WW-19**

1 1/2" WIDE x 1" DEEP SLOT (TYP.)
FOR PIPE CLEARANCE

CHANNEL
(TYP.)

BENCH
(TYP.)

SEE NOTE

FLOW
ARROW

MANHOLE
BASE

FLOW ARROW
(TYP.)

SEE NOTE

TYPICAL 4-WAY FLOW

CHANNEL
(TYP.)

BENCH
(TYP.)

FLOW
ARROW

90°

MANHOLE
BASE

FLOW ARROW

SEE NOTE

1 1/2" WIDE x 1" DEEP SLOT (TYP.)
FOR PIPE CLEARANCE

TYPICAL 3-WAY FLOW

NOTE:

1. WALLS SHALL BE FLARED OUT AS REQUIRED SO THAT TESTING AND INSPECTION EQUIPMENT CAN BE SAFELY REMOVED.
2. ALL NON-TYPICAL BENCHES AND CHANNELS WILL REQUIRE A SPECIAL DETAIL ON THE PLANS.
3. DEPTH OF CHANNEL SHALL EQUAL DIAMETER OF PIPE
4. THREE WAY TEE SHALL BE BUILT AS A TYPICAL FOUR WAY FLOW.

1 1/2" WIDE x 1" DEEP SLOT (TYP.)
FOR PIPE CLEARANCE

CHANNEL
(TYP.)

BENCH
(TYP.)

MANHOLE
BASE

FLOW ARROW

TYPICAL STRAIGHT FLOW

BENCH
(TYP.)

1 1/2" WIDE x 1" DEEP SLOT (TYP.)
FOR PIPE CLEARANCE

SEE NOTE 1

SEE NOTE

CHANNEL
(TYP.)

MANHOLE
BASE

FLOW ARROW

TYPICAL CURVE FLOW

Date: Jan 13, 2022, 9:15am User Name: Ttrutherford
File: S:\113-0170\WR CAD\Plans\Details Proposed by L\G\Sanitary Sewer\WW-15 Standard Manhole Benches & Channels.dwg



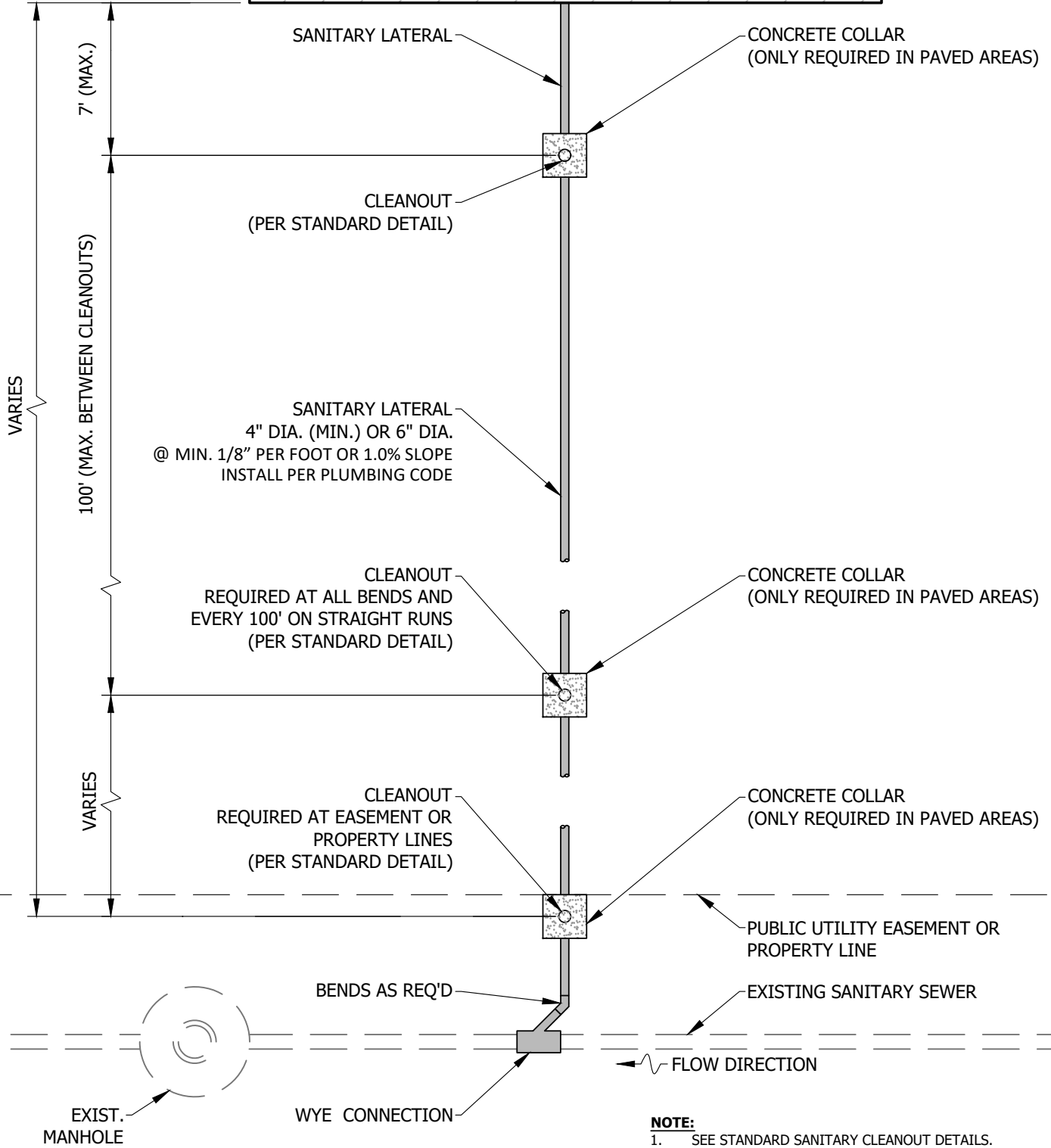
STANDARD MANHOLE BENCHES AND CHANNELS

Approved: 01/12/2022
Approved By: Joseph D. Sloan, P.E.

Adopted: 01/18/2022
Scale: N.T.S.

Figure
WW-20

RESIDENCE
TO BE CONNECTED TO PUBLIC SEWER
(IN-LINE LAYOUT)



Date: Jan 13, 2022, 9:15am User Name: Ttrutherford File: S:\113-0170\WR\CAD\Plans\Details Proposed by LG\Sanitary Sewer\WW-16 Lateral Sewer Connection Layout (Residential).dwg

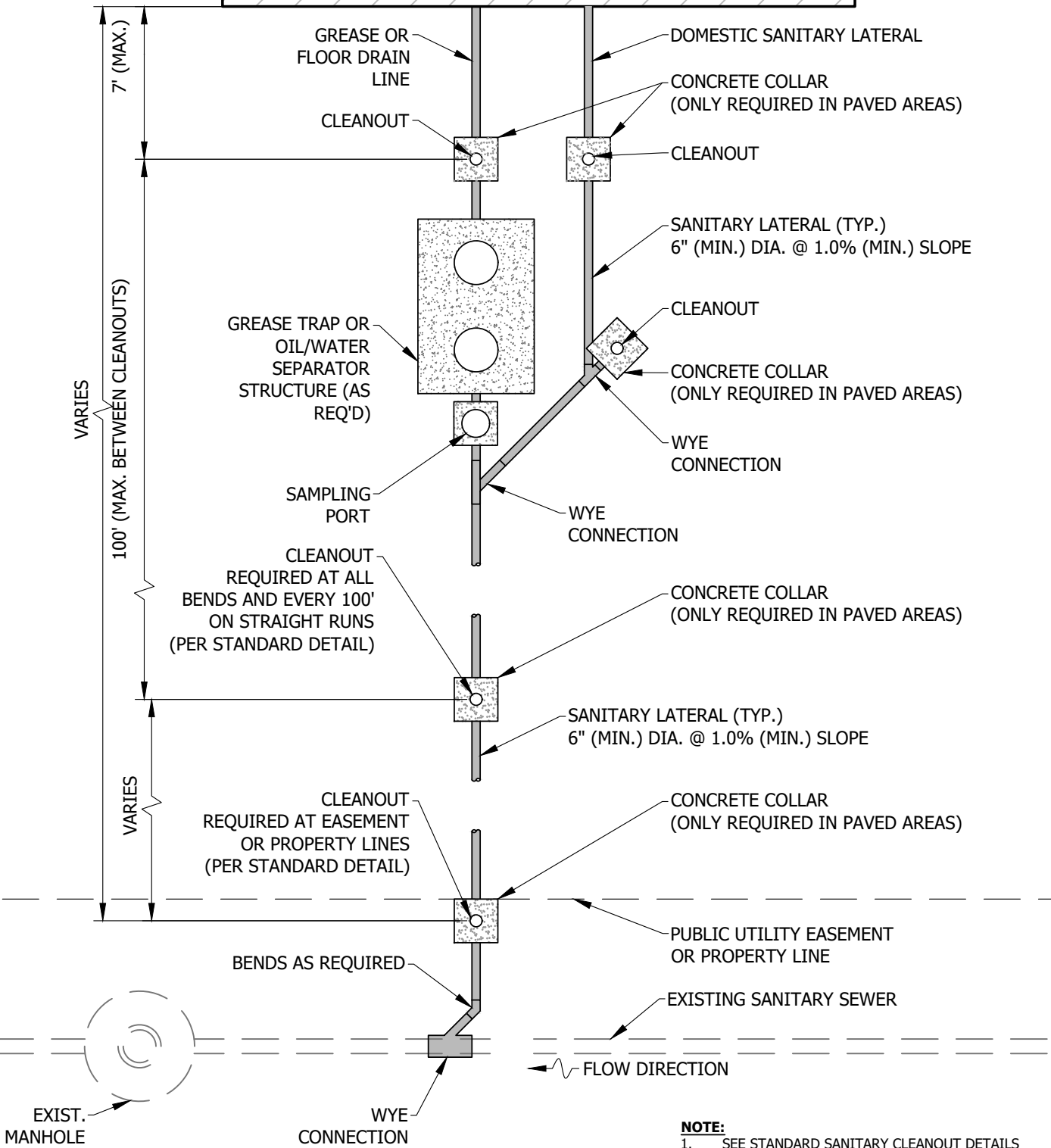


LATERAL SEWER CONNECTION LAYOUT (RESIDENTIAL)

Approved: 01/12/2022	Adopted: 01/18/2022
Approved By: Joseph D. Sloan, P.E.	Scale: N.T.S.

Figure **WW-21**

COMMERCIAL OR INDUSTRIAL
TO BE CONNECTED TO PUBLIC SEWER
(IN-LINE LAYOUT)



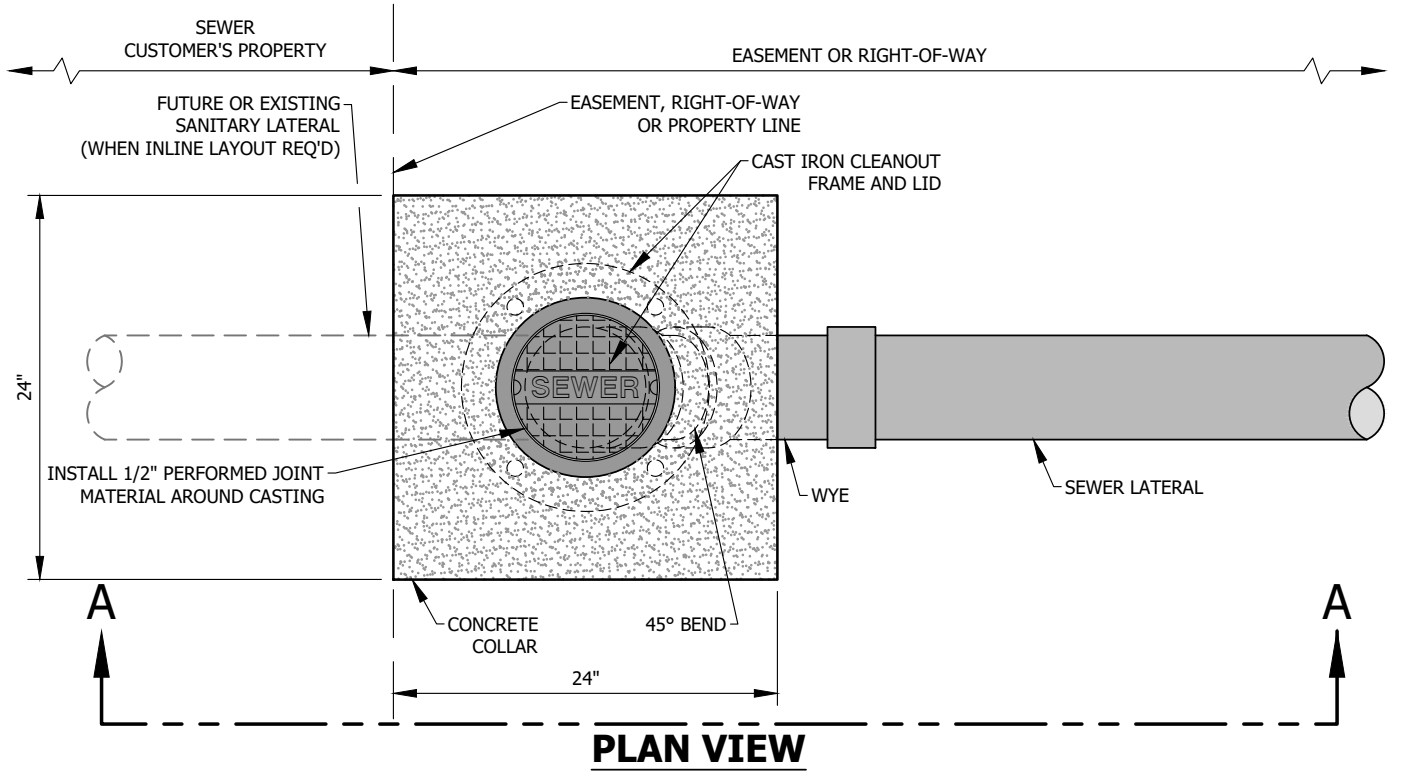
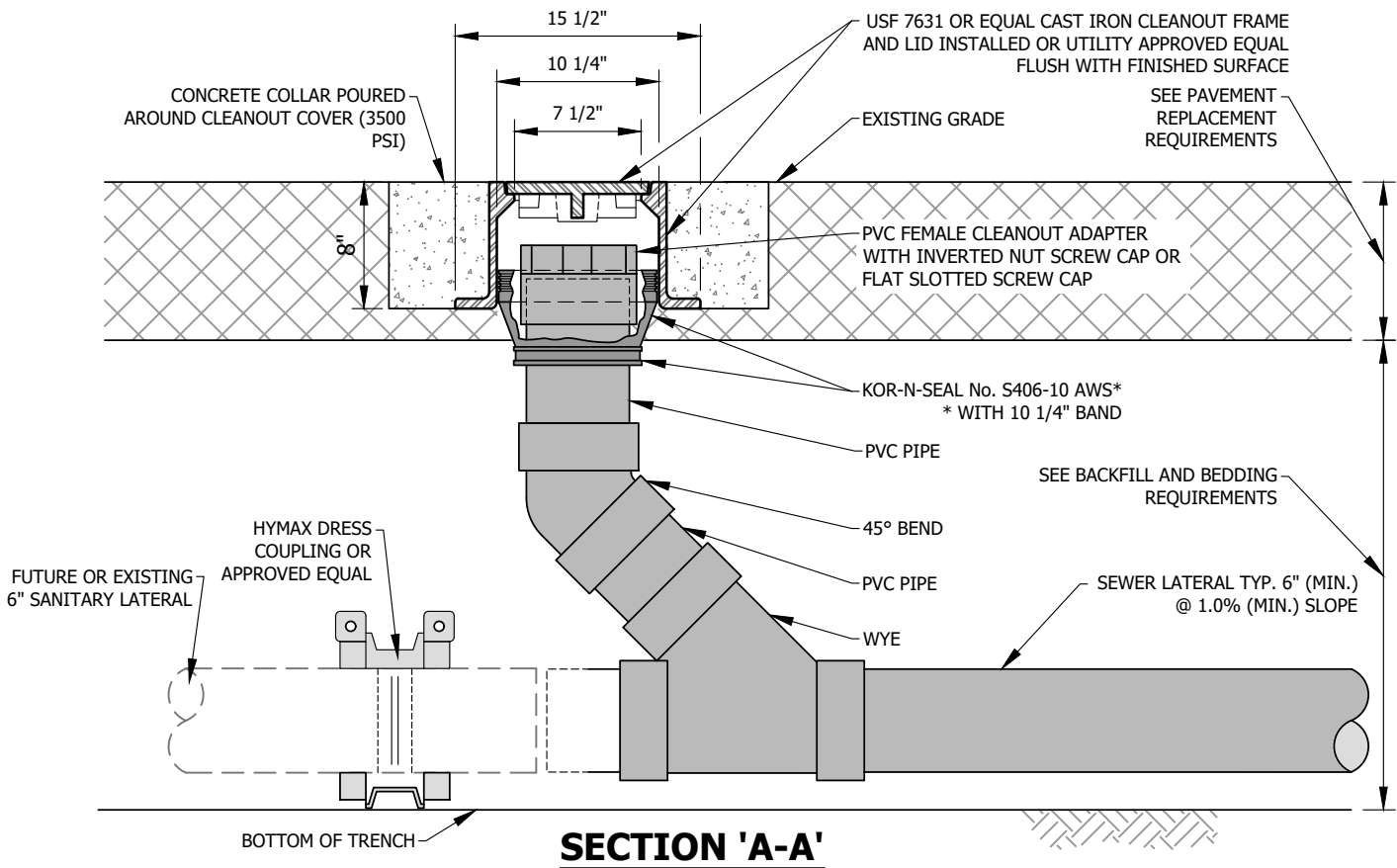
NOTE:
1. SEE STANDARD SANITARY CLEANOUT DETAILS

Date: Jan 13, 2022, 9:15am User Name: Ttrutherford File: S:\113-0170\WR\CAD\Plans\Details Proposed by L.G.\Sanitary Sewer\WW-17 Lateral Sewer Connection Layout (Commercial).dwg



LATERAL SEWER CONNECTION LAYOUT (COMMERCIAL)

Approved: 01/12/2022	Adopted: 01/18/2022	Figure WW-22
Approved By: Joseph D. Sloan, P.E.	Scale: N.T.S.	



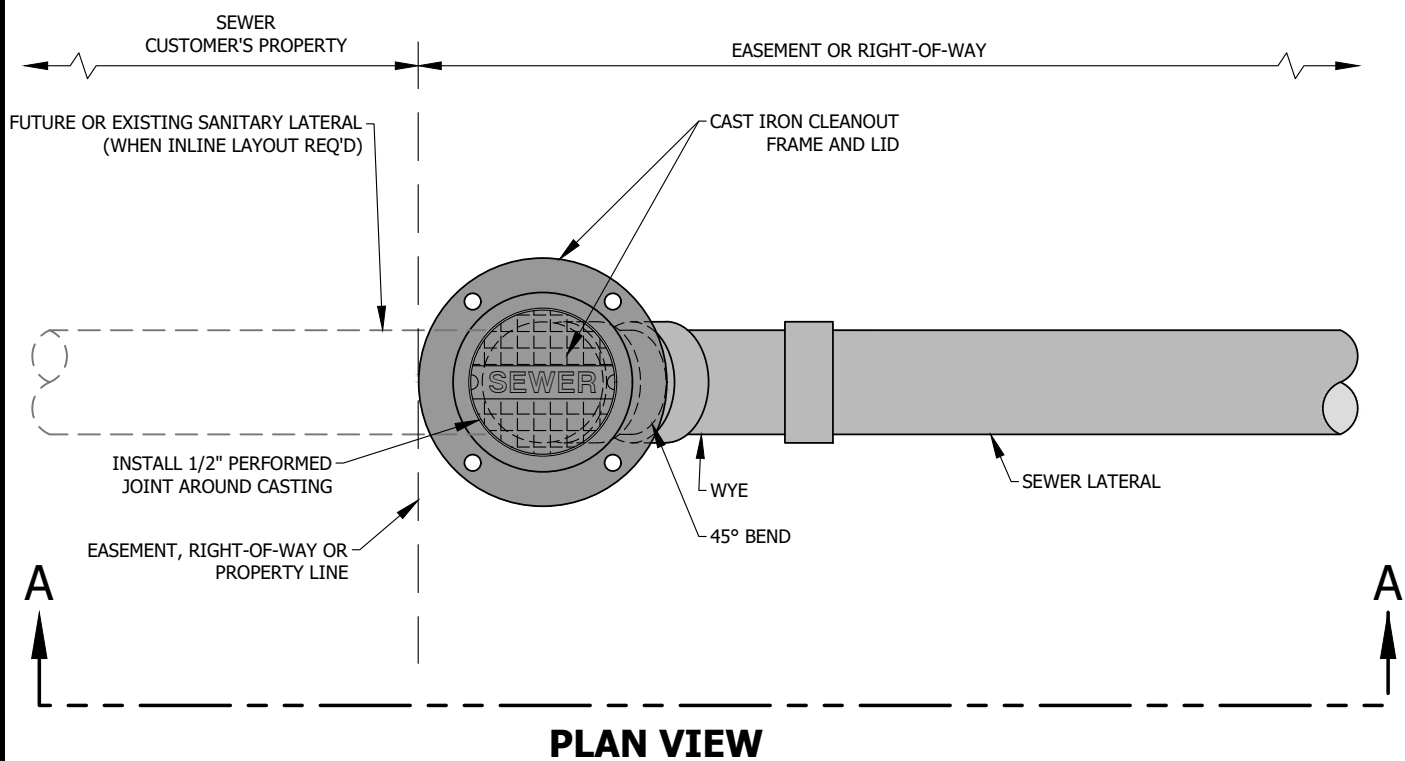
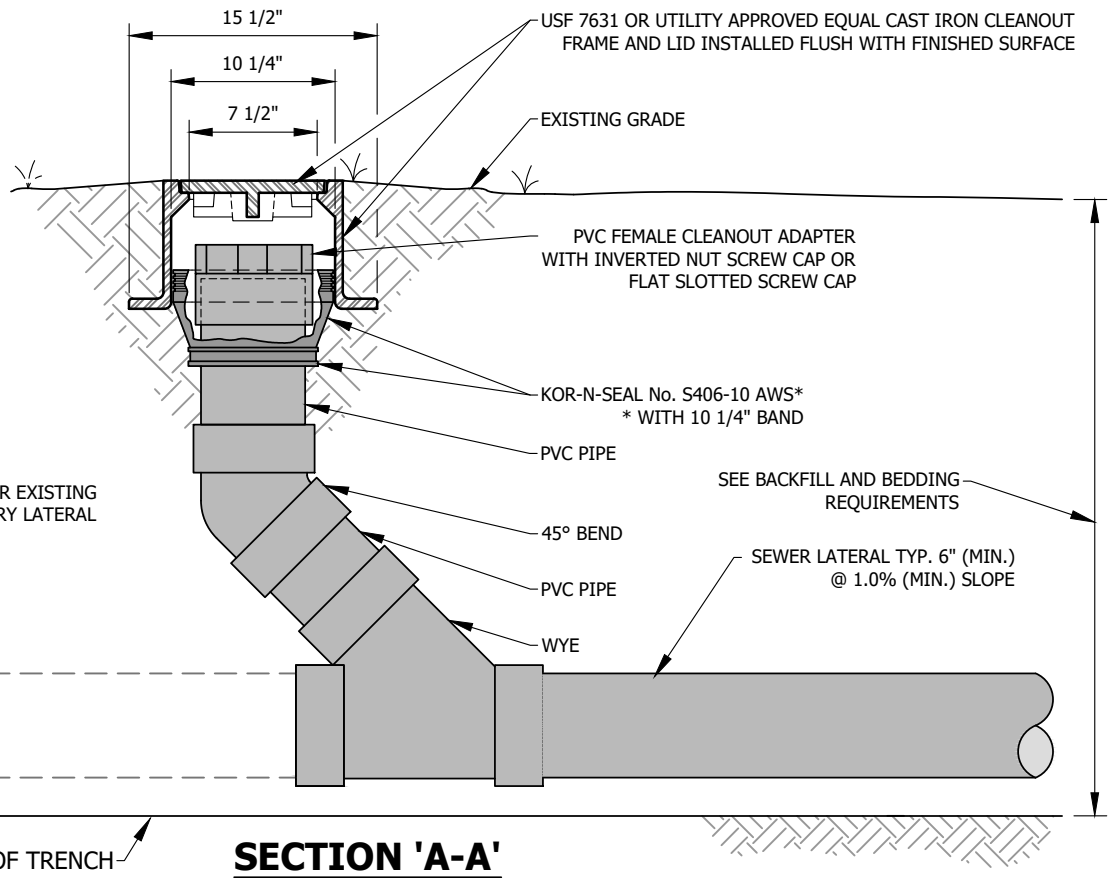
Date: Jan 13, 2022, 9:15am User Name: Ttrutherford File: S:\113-0170\WR CAD\Plans\Details Proposed by L.G.\Sanitary Sewer\WW-18 Standard Sanitary Cleanout in in Pavement.dwg



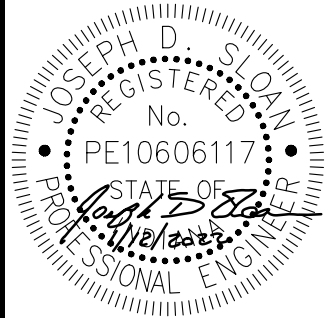
STANDARD SANITARY CLEANOUT IN PAVED AREAS

Approved: 01/12/2022	Adopted: 01/18/2022
Approved By: Joseph D. Sloan, P.E.	Scale: N.T.S.

Figure **WW-23**

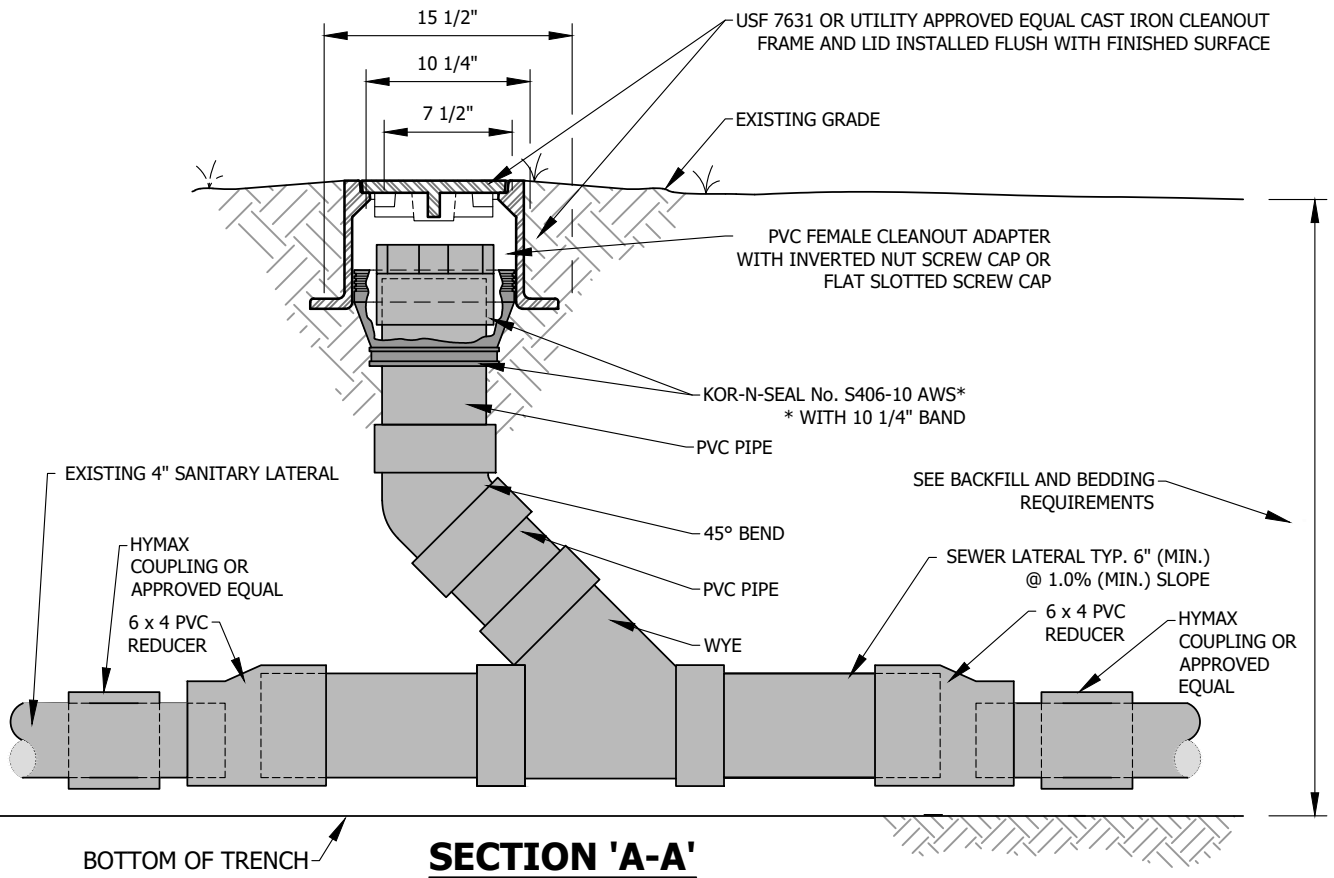


Date: Jan 13, 2022, 9:15am User Name: Ttrutherford File: S:\113-01\70\WR\CAD\Plans\Details Proposed by LGSanitary Sewer\WW-19 Standard Sanitary Cleanout Unpaved Areas.dwg

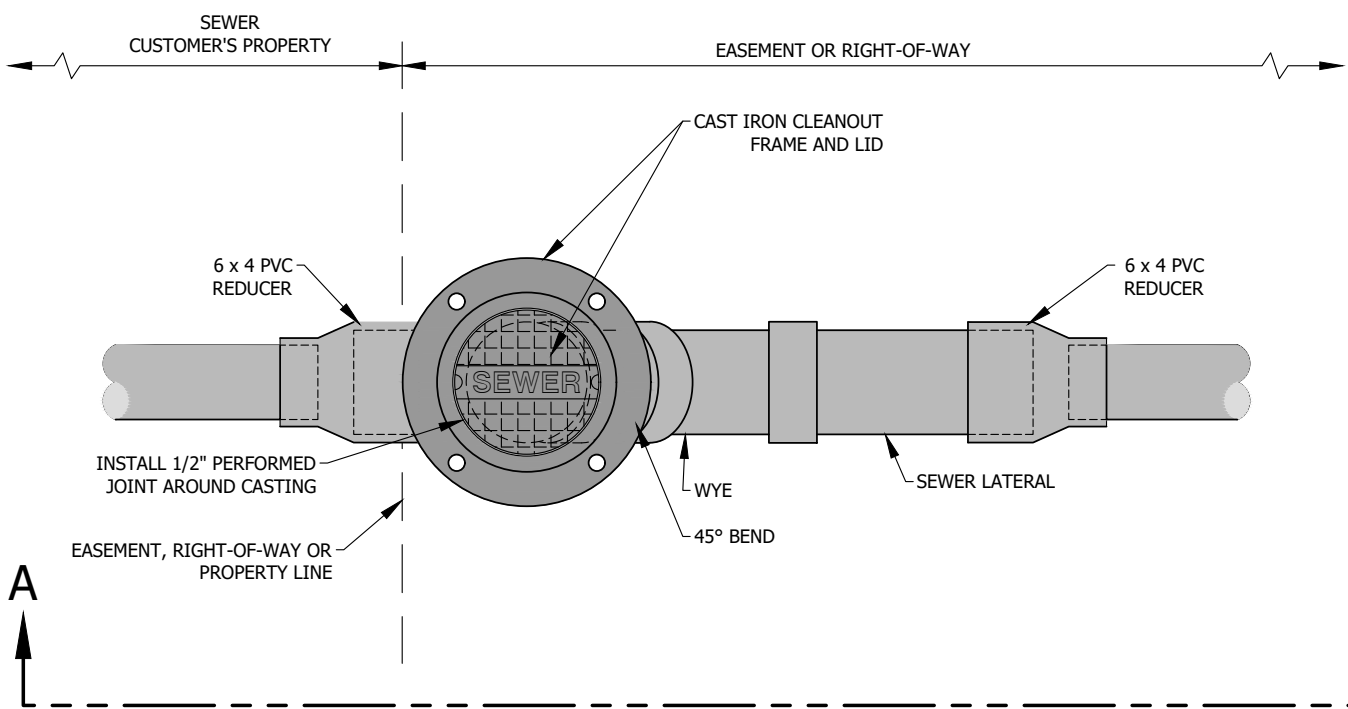


STANDARD SANITARY CLEANOUT IN UN-PAVED AREAS

Approved: 01/12/2022	Adopted: 01/18/2022	Figure WW-24
Approved By: Joseph D. Sloan, P.E.	Scale: N.T.S.	



SECTION 'A-A'



PLAN VIEW

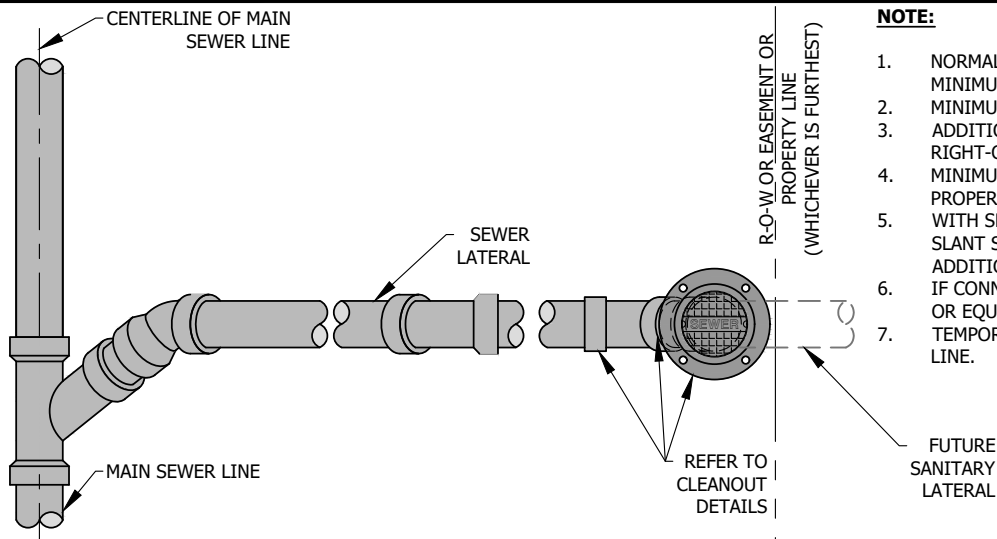
Date: Jan 13, 2022, 9:15am User Name: Ttrutherford File: S:\113-01-70\WR\CAD\Plans\Details Proposed by LG\Sanitary Sewer\New Cleanout on Existing 4" .dwg



NEW CLEANOUT ON EXISTING 4" PIPE

Approved: 01/12/2022	Adopted: 01/18/2022
Approved By: Joseph D. Sloan, P.E.	Scale: N.T.S.

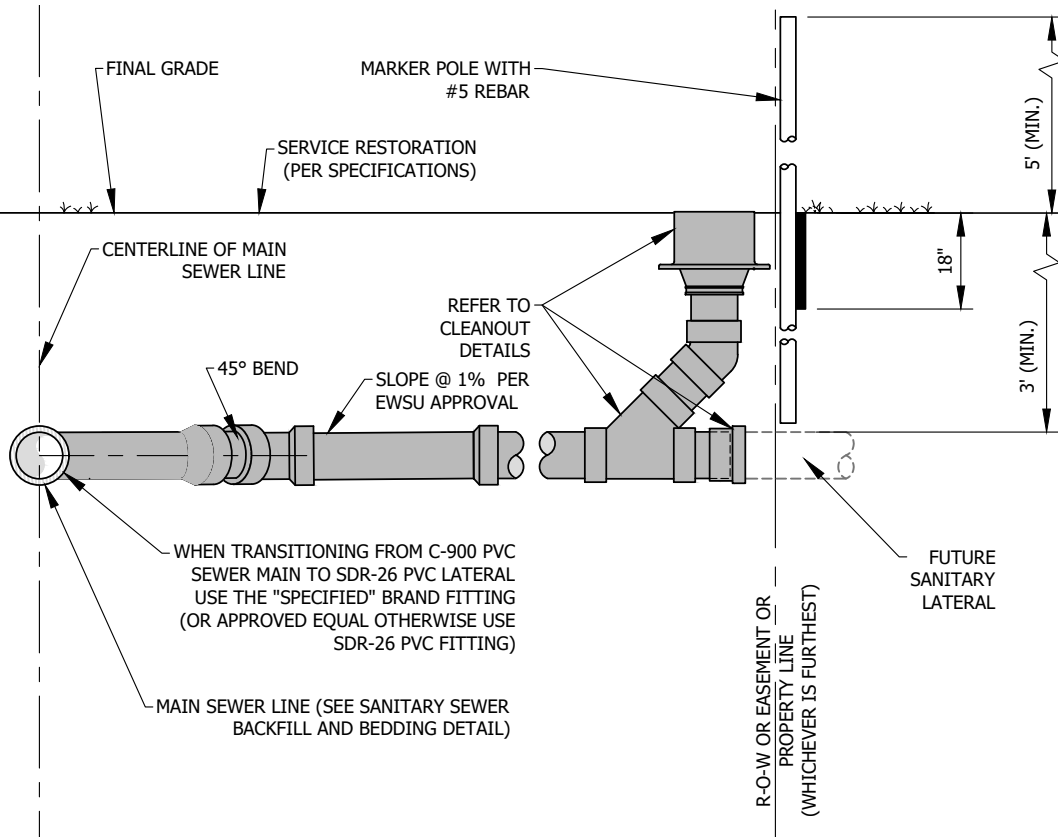
Figure **WW-25**



NOTE:

1. NORMAL LATERAL SLOPE IS 4" @ 1/4" PER FOOT, MINIMUM LATERAL SLOPE IS 6" @ 1/8" PER FOOT.
2. MINIMUM COVER IS 3 FEET OVER PIPE.
3. ADDITIONAL CLEANOUT REQUIRED AT RIGHT-OF-WAY WHERE LATERAL CROSSES ROADWAY.
4. MINIMUM LATERAL SIZE FROM SEWER MAIN TO PROPERTY LINE CLEANOUT IS 6".
5. WITH SEWER UTILITY APPROVAL, DEEP SEWER SLANT STACK MAY BE INSTALLED; MAY REQUIRE ADDITIONAL EASEMENT.
6. IF CONNECTING TO EXISTING LINE, HYMAX COUPLING OR EQUAL REQUIRED.
7. TEMPORARY FACTORY CAP REQUIRED AT PROPERTY LINE.

PIPING PLAN VIEW



PIPING ELEVATION VIEW

CONTRACTOR SHALL PROVIDE "AS-BUILT" SERVICE CONNECTION TIE DOWN MEASUREMENTS TO THE OWNER, ENGINEER, AND PROPERTY OWNER.

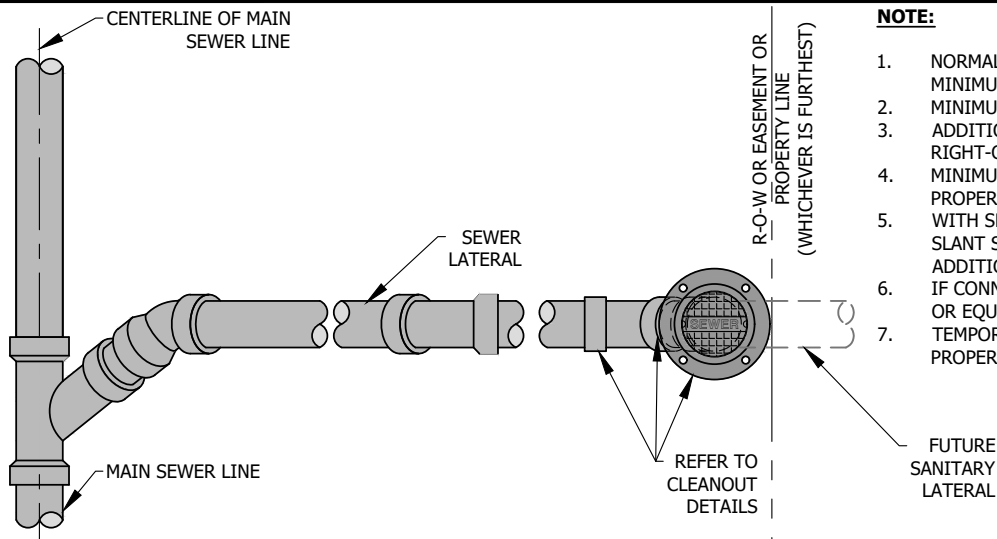
Date: Jan 13, 2022, 9:15am User Name: Ttrutherford File: S:\113-0170\WR\CAD\Plans\Details Proposed by L:\G\Sanitary Sewer\Shallow Sanitary Service Connection.dwg



SHALLOW SANITARY SERVICE CONNECTION (LESS THAN 5' DEPTH)

Approved: 01/12/2022	Adopted: 01/18/2022
Approved By: Joseph D. Sloan, P.E.	Scale: N.T.S.

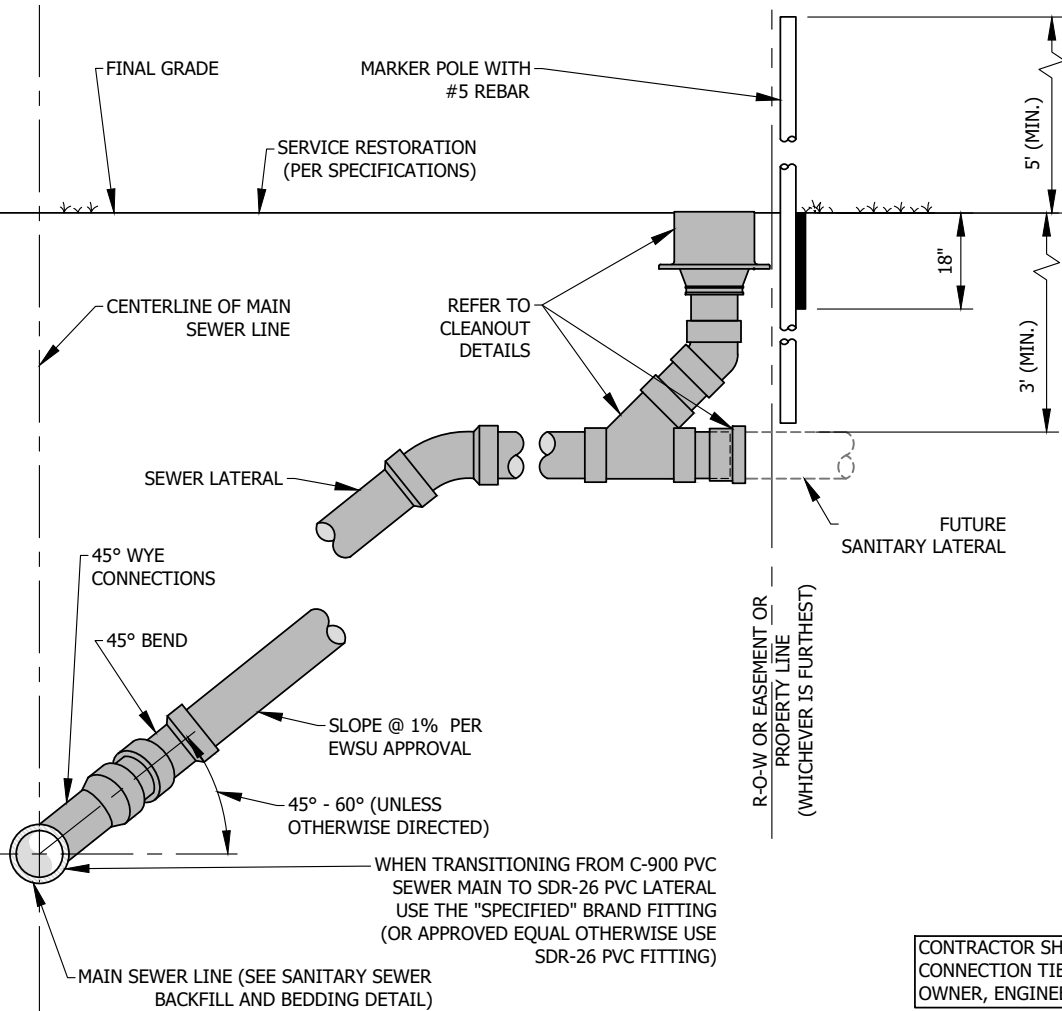
Figure **WW-26**



PIPING PLAN VIEW

NOTE:

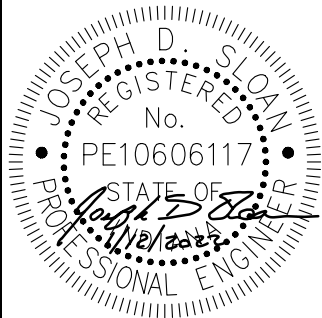
1. NORMAL LATERAL SLOPE IS 4" @ 1/4" PER FOOT, MINIMUM LATERAL SLOPE IS 6" @ 1/8" PER FOOT.
2. MINIMUM COVER IS 3 FEET OVER PIPE.
3. ADDITIONAL CLEANOUT REQUIRED AT RIGHT-OF-WAY WHERE LATERAL CROSSES ROADWAY.
4. MINIMUM LATERAL SIZE FROM SEWER MAIN TO PROPERTY LINE CLEANOUT IS 6".
5. WITH SEWER UTILITY APPROVAL, DEEP SEWER SLANT STACK MAY BE INSTALLED; MAY REQUIRE ADDITIONAL EASEMENT.
6. IF CONNECTING TO EXISTING LINE, HYMAX COUPLING OR EQUAL REQUIRED.
7. TEMPORARY FACTORY CAP REQUIRED AT PROPERTY LINE.



PIPING ELEVATION VIEW

CONTRACTOR SHALL PROVIDE "AS-BUILT" SERVICE CONNECTION TIE DOWN MEASUREMENTS TO THE OWNER, ENGINEER, AND PROPERTY OWNER.

Date: Jan 13, 2022, 9:16am User Name: Ttrutherford File: S:\113-0170\WR\CAD\Plans\Details Proposed by L:\Sanitary Sewer\WW-20 Shallow Sanitary Service Connection.dwg



**MEDIUM SANITARY SERVICE CONNECTION
(GREATER THAN 5' DEPTH)**

Approved: 01/12/2022

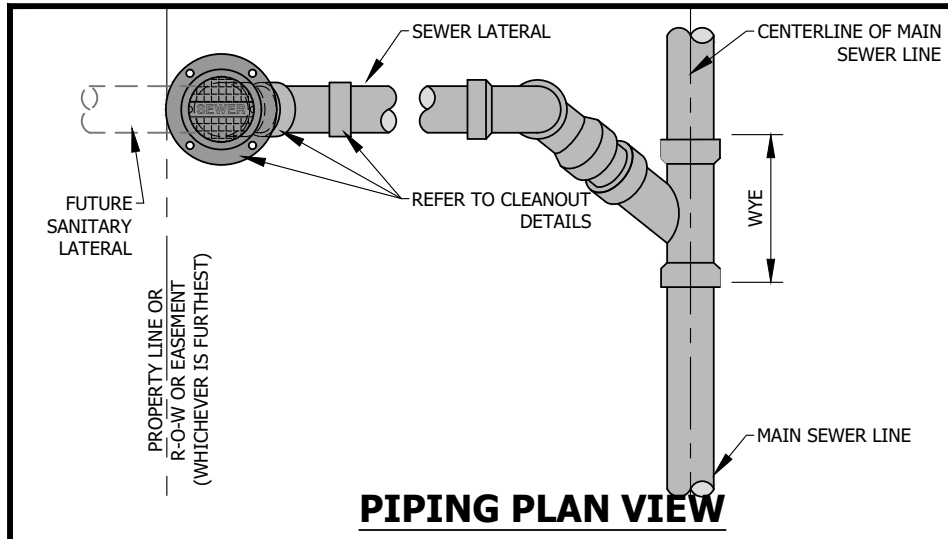
Adopted: 01/18/2022

Figure

Approved By: Joseph D. Sloan, P.E.

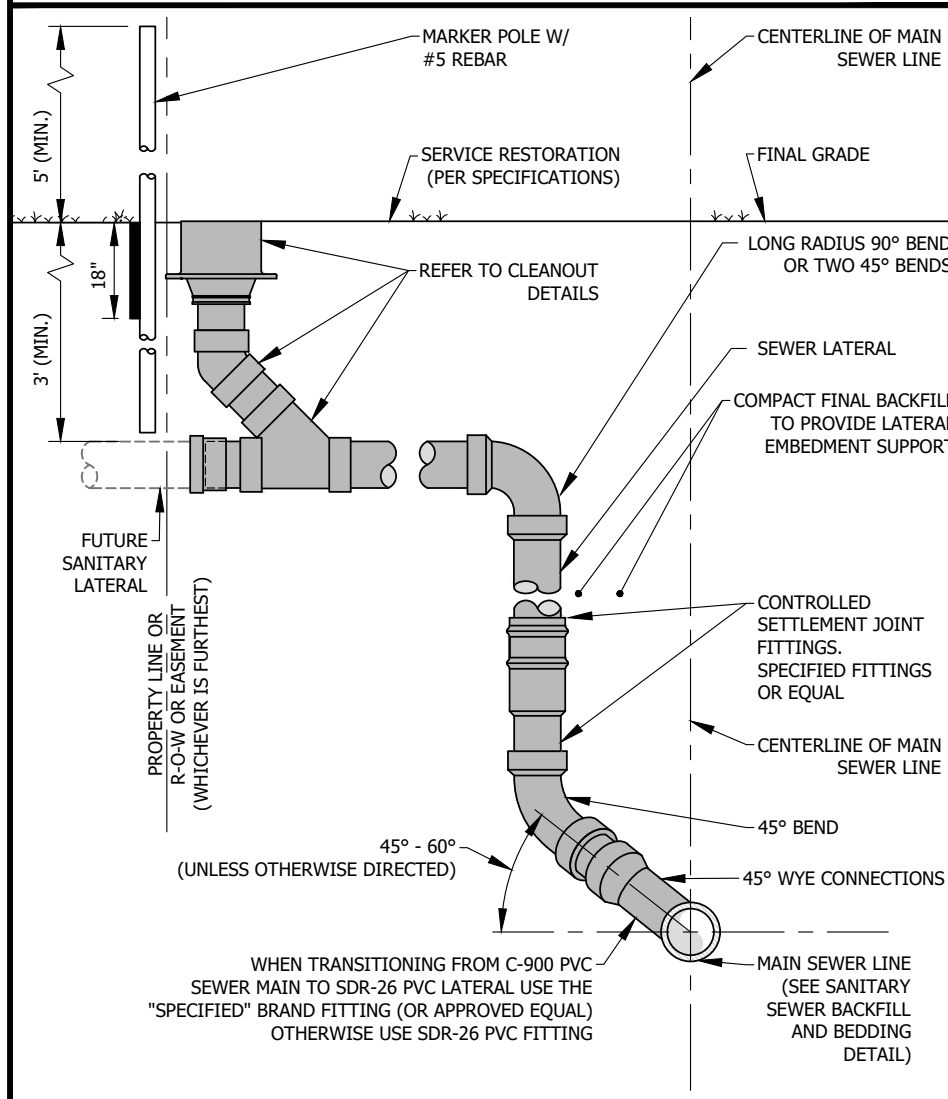
Scale: N.T.S.

WW-27



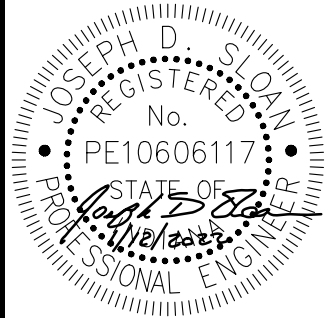
PIPING PLAN VIEW

- NOTE:**
1. NORMAL LATERAL SLOPE IS 4" @ 1/4" PER FOOT, MINIMUM LATERAL SLOPE IS 6" @ 1/8" PER FOOT.
 2. MINIMUM COVER IS 3 FEET OVER PIPE.
 3. ADDITIONAL CLEANOUT REQUIRED AT RIGHT-OF-WAY WHERE LATERAL CROSSES ROADWAY
 4. MINIMUM LATERAL SIZE FROM SEWER MAIN TO PROPERTY LINE CLEANOUT IS 6".
 5. WITH SEWER UTILITY APPROVAL, DEEP SEWER SLANT STACK MAY BE INSTALLED; MAY REQUIRE ADDITIONAL EASEMENT.
 6. TEMPORARY FACTORY CAP REQUIRED AT PROPERTY LINE.



PIPING ELEVATION VIEW

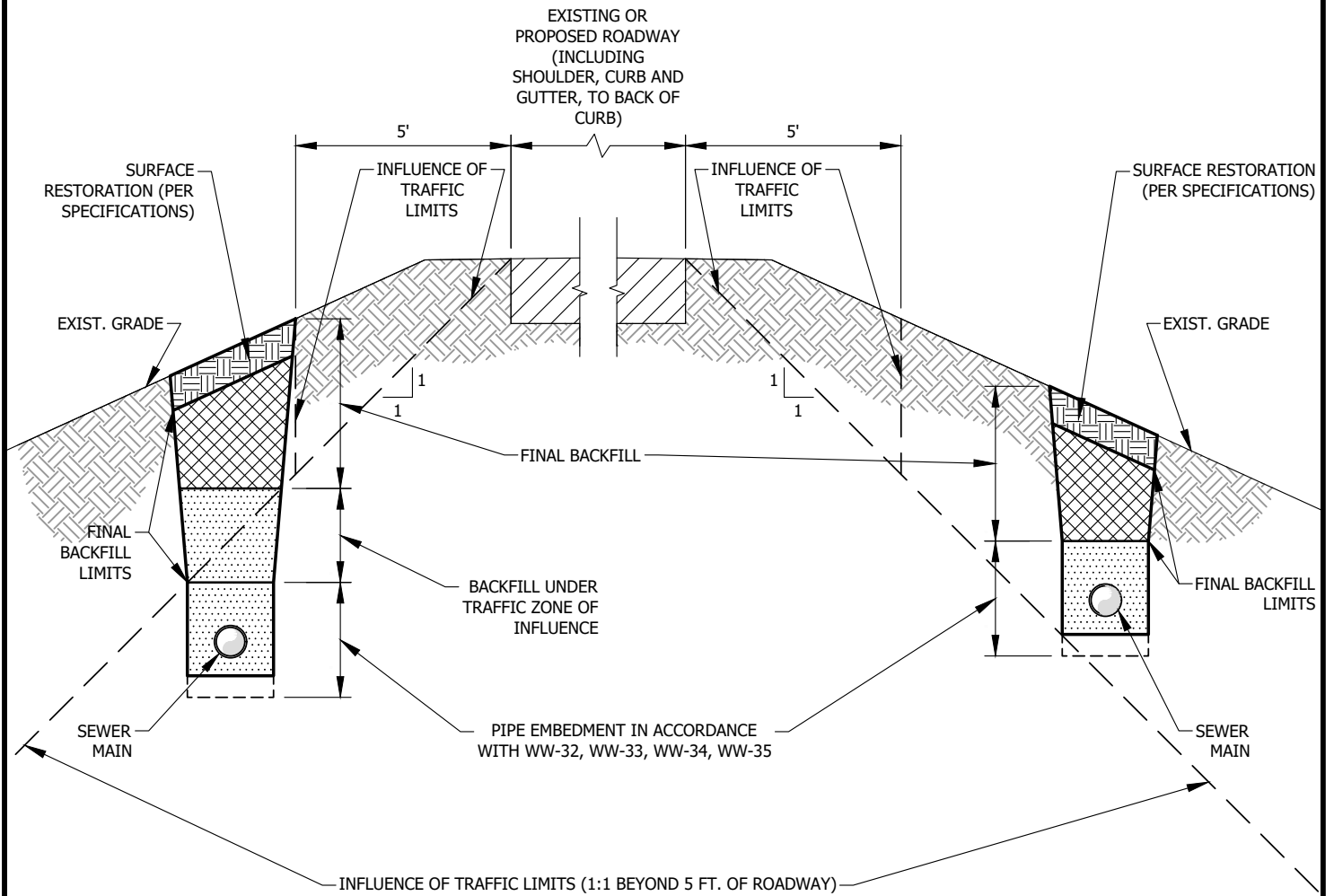
CONTRACTOR SHALL PROVIDE "AS-BUILT" SERVICE CONNECTION TIE DOWN MEASUREMENTS TO THE OWNER, ENGINEER, AND PROPERTY OWNER.



**DEEP SANITARY SERVICE CONNECTION
(GREATER THAN 12' DEPTH)**

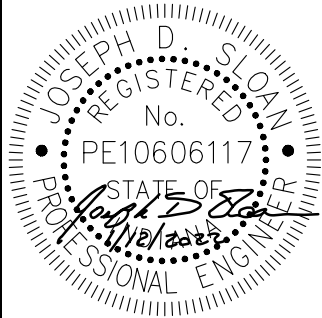
Approved: 01/12/2022	Adopted: 01/18/2022	Figure WW-28
Approved By: Joseph D. Sloan, P.E.	Scale: N.T.S.	

Date: Jan 13, 2022, 9:16am User Name: Trutherford
 File: S:\113-0170\WR\CAD\Plans\Details Proposed by LO Sanitary Sewer\WW-22-Final Backfill and Traffic Influence Detail.dwg



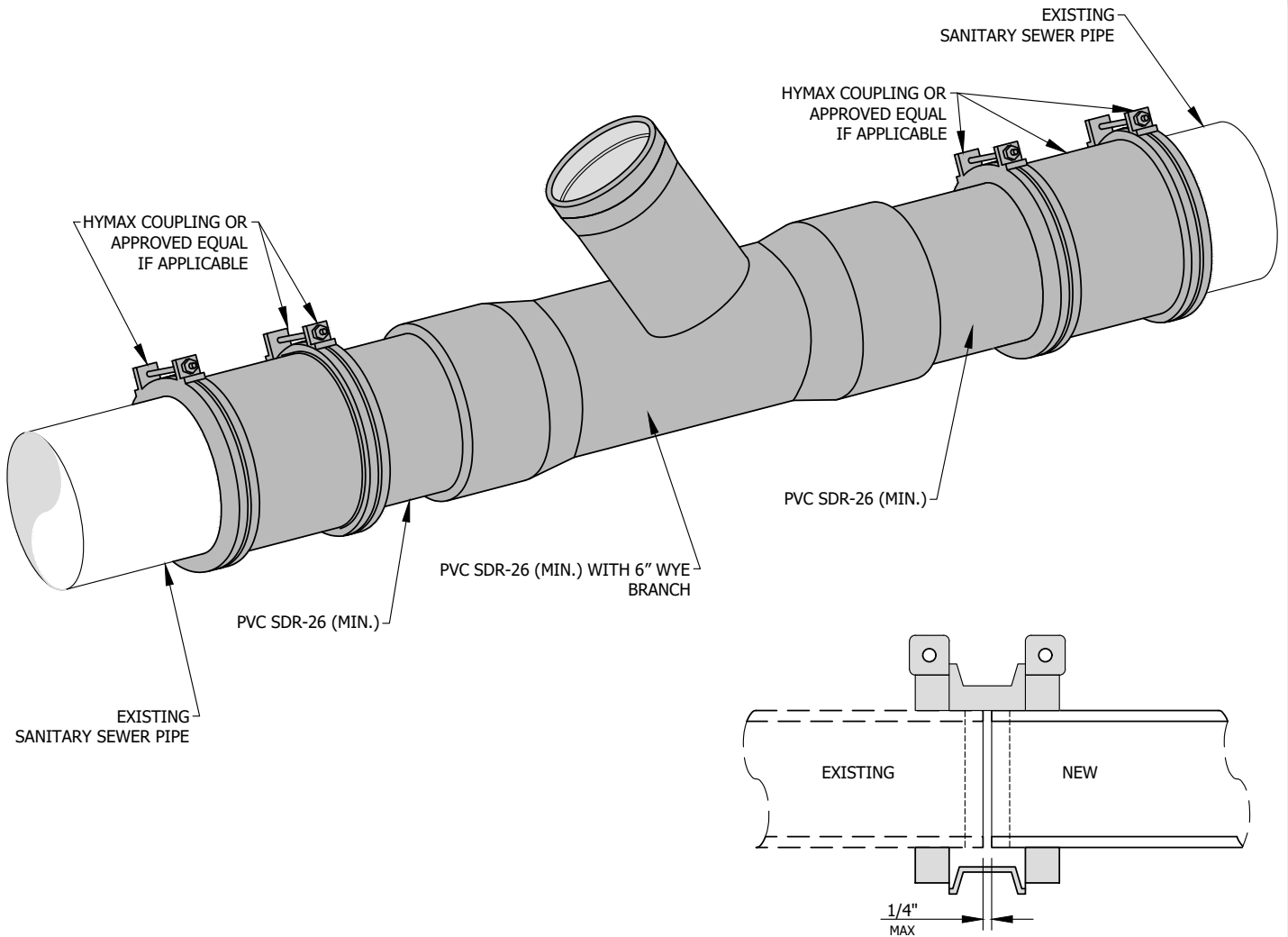
NOTE:

1. BEDDING AND BACKFILL SHALL CONFORM TO DETAILS WW-32, WW-33, WW-34, WW-35.
 FOR SEWERS GREATER THAN FIVE FEET FROM THE EDGE OF EXISTING OR PROPOSED ROADWAY, ANY PORTION OF THE TRENCH BELOW THE ZONE OF TRAFFIC INFLUENCE SHALL BE BACKFILLED IN ACCORDANCE WITH THE STREET JURISDICTION REQUIREMENTS.



FINAL BACKFILL AND TRAFFIC INFLUENCE DETAIL

Approved: 01/12/2022	Adopted: 01/18/2022	Figure
Approved By: Joseph D. Sloan, P.E.	Scale: N.T.S.	WW-29



NOTE:

1. FOR COUPLINGS OF 12" AND LESS IN DIAMETER, THE PIPES MUST BE INSERTED A MINIMUM OF 2.25" INTO THE COUPLING.
2. FOR PIPES LARGER THAN 15" DIAMETER, SEE DETAIL WW-43.
3. ROMAC, GENECO, OR STAINLESS TAPPING SADDLE TO BE ALLOWED UNDER SPECIAL CIRCUMSTANCES AS APPROVED BY EWSU.

Date: Jan 13, 2022, 9:16am User Name: Ttrutherford File: S:\113-0170\WR\CAD\Plans\Details Proposed by L.G.\Sanitary Sewer\WW-23 Sanitary Service Connection to Exis Pipe.dwg



SANITARY SERVICE CONNECTION TO EXISTING PIPE

Approved: 01/12/2022

Approved By: Joseph D. Sloan, P.E.

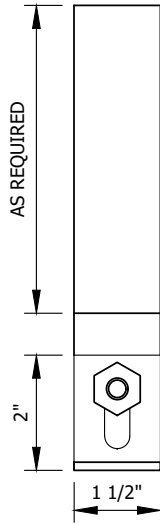
Adopted: 01/18/2022

Scale: N.T.S.

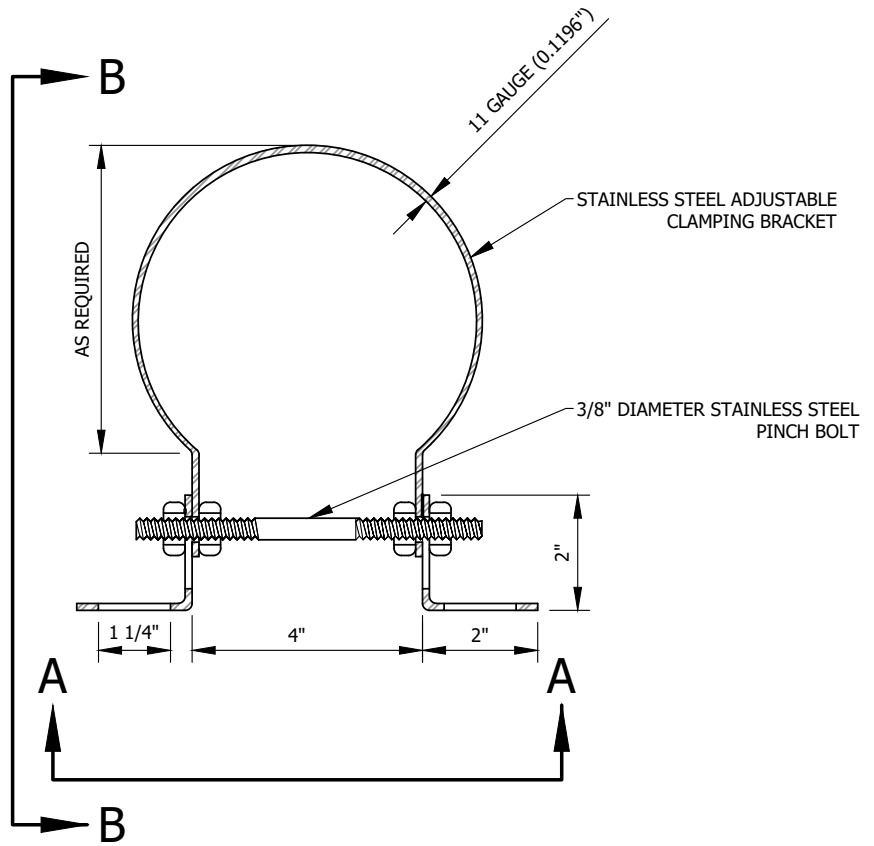
Figure

WW-30

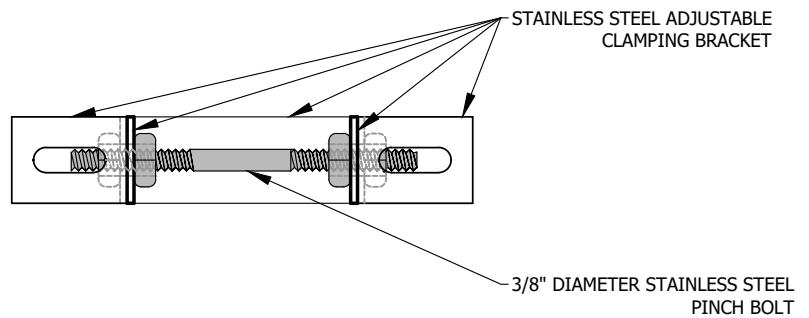
Date: Jan 13, 2022, 9:16am User Name: Ttrutherford
 File: S:\113-0170\WR CAD\Plans\Details Proposed by L\G\Sanitary Sewer\WW-24 Stainless Steel Adjustable Clamping Bracket.dwg



SECTION 'B-B'



SECTIONAL PLAN VIEW



SECTION 'A-A'

NOTE:

- 1) CLAMP AND BRACKETS IS TYPE 304 STAINLESS STEEL, 11 GAUGE (0.1196").
- 2) 3/8" DIA. PINCH BOLT AND NUTS IS TYPE 18-8 STAINLESS STEEL.
- 3) NUMBER OF BRACKETS & SPACING PER MANUFACTURER.



**INSIDE DROP STAINLESS STEEL
 ADJUSTABLE CLAMPING BRACKET**

Approved: 01/12/2022

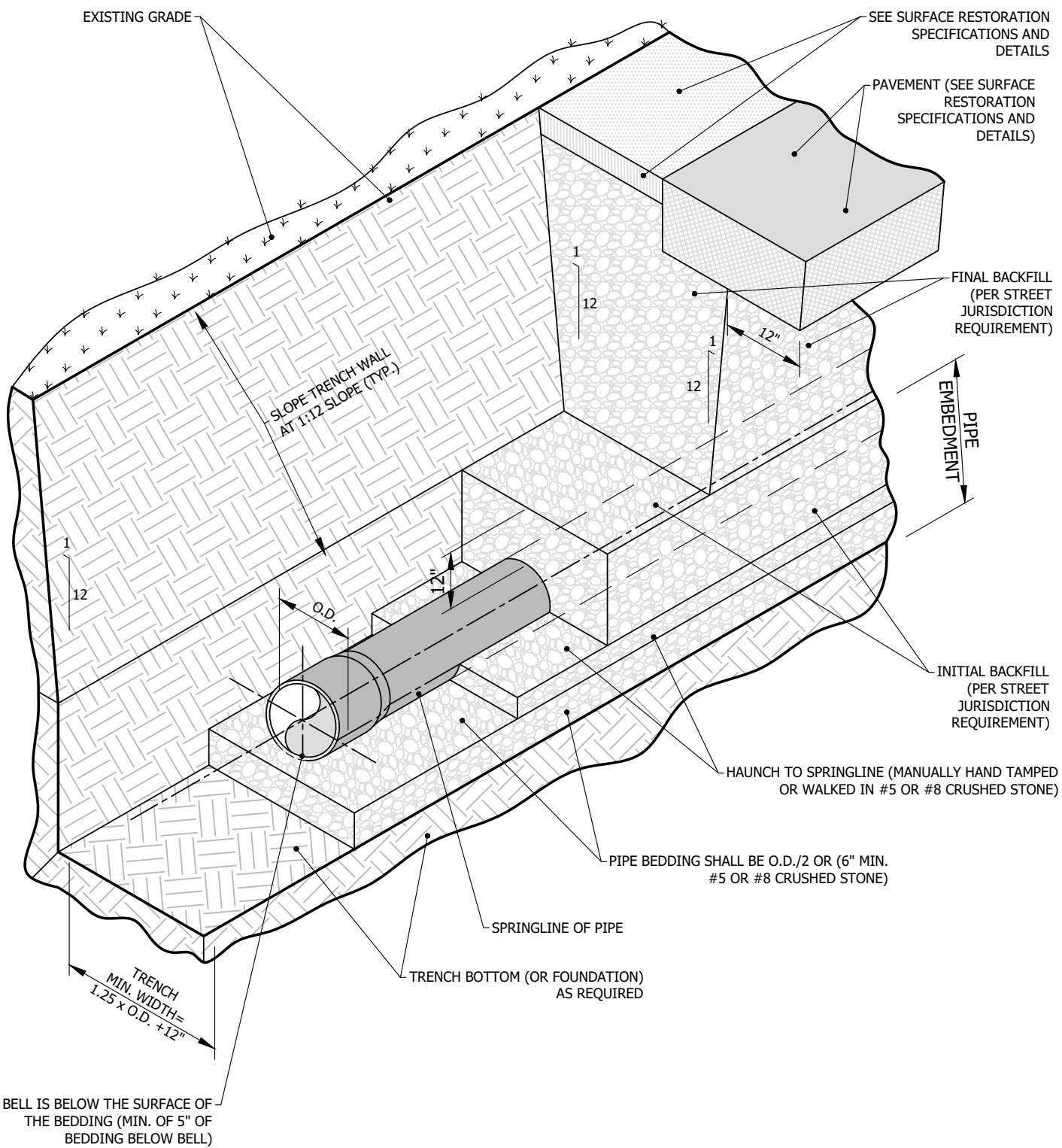
Adopted: 01/18/2022

Figure

Approved By: Joseph D. Sloan, P.E.

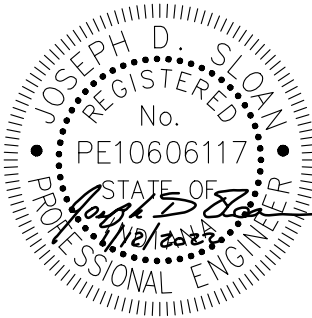
Scale: N.T.S.

WW-31



Date: Jan 13, 2022, 9:16am User Name: Truherford File: S:\113-0170\WR CAD\Plans\Details Proposed by L:\Sanitary Sewer\WW-25 Rigid San Sewer Pipe Bedding within 5' of Pavement.dwg

- NOTE:**
1. OSHA TRENCH SAFETY REQUIREMENTS SHALL BE FOLLOWED WITH ALL TRENCH EXCAVATION.
 2. PAVEMENT DOES NOT INCLUDE SIDEWALKS AND DRIVEWAYS.



RIGID SANITARY SEWER PIPE BEDDING AND BACKFILL WITHIN 5' OF, OR UNDER PAVEMENT

Approved: 01/12/2022	Adopted: 01/18/2022	Figure
Approved By: Joseph D. Sloan, P.E.	Scale: N.T.S.	WW-32

EXISTING GRADE

SEE SURFACE RESTORATION SPECIFICATIONS AND DETAILS

FINAL BACKFILL

PIPE EMBEDMENT

INITIAL BACKFILL

HAUNCH TO SPRINGLINE (MANUALLY HAND TAMPED OR WALKED IN #5 OR #8 CRUSHED STONE)

PIPE BEDDING SHALL BE O.D./2 OR (6" MIN. COMPACTED #5 OR #8 CRUSHED STONE)

SPRINGLINE OF PIPE

TRENCH BOTTOM (OR FOUNDATION) AND TOP SOIL REQUIREMENTS AS REQUIRED

TRENCH MIN. WIDTH = 1.25 x O.D. + 12"

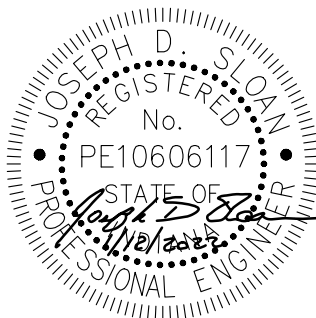
BELL IS BELOW THE SURFACE OF THE BEDDING (MIN. OF 5" OF BEDDING BELOW BELL)

SLOPE TRENCH WALL AT 1:12 SLOPE (TYP.)

NOTE:

1. OSHA TRENCH SAFETY REQUIREMENTS SHALL BE FOLLOWED WITH ALL TRENCH EXCAVATION.
2. INITIAL BACKFILL: SUITABLE EXCAVATED MATERIAL MAY BE USED, COMPACTED AS SPECIFIED.
3. FINAL BACKFILL: SUITABLE EXCAVATED MATERIAL MAY BE USED, COMPACTED AS SPECIFIED.
4. ALL SUITABLE EXCAVATED MATERIAL SHALL BE FREE OF ROCKS OF MORE THAN TWO INCHES IN DIAMETER, CONCRETE, ROOTS, STUMPS, TRASH, FROZEN MATERIALS, OR OTHER SIMILAR MATERIAL.

Date: Jan 13, 2022, 9:16am User Name: Truherford File: S:\113-0170\WR CAD\Plans\Details Proposed by L.G\Sanitary Sewer\WW-26 Rigid San Sewer Pipe Bedding Beyond 5' of Pavement.dwg



RIGID SANITARY SEWER PIPE BEDDING AND BACKFILL MORE THAN 5' FROM PAVEMENT

Approved: 01/12/2022

Adopted: 01/18/2022

Figure

Approved By: Joseph D. Sloan, P.E.

Scale: N.T.S.

WW-33

EXISTING GRADE

SEE SURFACE RESTORATION SPECIFICATIONS AND DETAILS

PAVEMENT (SEE SURFACE RESTORATION SPECIFICATIONS AND DETAILS)

FINAL BACKFILL (PER STREET JURISDICTION REQUIREMENT)

PIPE EMBEDMENT

INITIAL BACKFILL COMPACTED #5 OR #8 CRUSHED STONE

HAUNCH TO SPRINGLINE (MANUALLY HAND TAMPED OR WALKED IN #5 OR #8 CRUSHED STONE)

PIPE BEDDING SHALL BE O.D./2 OR (6" MIN. COMPACTED #5 OR #8 CRUSHED STONE)

SPRINGLINE OF PIPE

TRENCH BOTTOM (OR FOUNDATION) AS REQUIRED

SLOPE TRENCH WALL AT 1:12 SLOPE (TYP.)

1
12

1
12

1
12

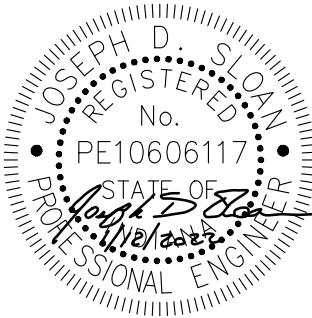
TRENCH MIN. WIDTH = 1.25 x O.D. + 12"

BELL IS BELOW THE SURFACE OF THE BEDDING (MIN. OF 5" OF BEDDING BELOW BELL)

NOTE:

1. OSHA TRENCH SAFETY REQUIREMENTS SHALL BE FOLLOWED WITH ALL TRENCH EXCAVATION.
2. INITIAL BACKFILL: #5 OR #8 CRUSHED STONE MANUALLY COMPACTED.
3. FINAL BACKFILL: SUITABLE EXCAVATED MATERIAL MAY BE USED, COMPACTED AS SPECIFIED.
4. ALL SUITABLE EXCAVATED MATERIAL SHALL BE FREE OF ROCKS OF MORE THAN TWO INCHES IN DIAMETER, CONCRETE, ROOTS, STUMPS, TRASH, FROZEN MATERIALS, OR OTHER SIMILAR MATERIAL.
5. PAVEMENT DOES NOT INCLUDE SIDEWALKS AND DRIVEWAYS.

Date: Jan 13, 2022, 9:16am User Name: Ttrutherford File: S:\113-0170\WR\CAD\Plans\Details Proposed by L.G.\Sanitary Sewer\WW-27 Non-Rigid San Sewer Pipe Bedding within 5' of Pavement.dwg



NON-RIGID SANITARY SEWER PIPE BEDDING AND BACKFILL WITHIN 5' OF, OR UNDER PAVEMENT

Approved: 01/12/2022

Adopted: 01/18/2022

Figure

Approved By: Joseph D. Sloan, P.E.

Scale: N.T.S.

WW-34

EXISTING GRADE

SEE SURFACE RESTORATION SPECIFICATIONS AND DETAILS

FINAL BACKFILL

SLOPE TRENCH WALL AT 1:12 SLOPE (TYP.)

PIPE EMBEDMENT

INITIAL BACKFILL COMPACTED #5 OR #8 CRUSHED STONE

HAUNCH TO SPRINGLINE (MANUALLY HAND TAMPED OR WALKED IN #5 OR #8 CRUSHED STONE)

PIPE BEDDING SHALL BE O.D./2 OR (6" MIN. COMPACTED #5 OR #8 CRUSHED STONE)

SPRINGLINE OF PIPE

TRENCH BOTTOM (OR FOUNDATION) AS REQUIRED

TRENCH MIN. WIDTH = 1.25 x O.D. + 12"

BELL IS BELOW THE SURFACE OF THE BEDDING (MIN. OF 5" OF BEDDING BELOW BELL)

NOTE:

1. OSHA TRENCH SAFETY REQUIREMENTS SHALL BE FOLLOWED WITH ALL TRENCH EXCAVATION.
2. INITIAL BACKFILL: #5 OR #8 CRUSHED STONE MANUALLY COMPACTED
3. FINAL BACKFILL: SUITABLE EXCAVATED MATERIAL MAY BE USED, COMPACTED AS SPECIFIED.
4. ALL SUITABLE EXCAVATED MATERIAL SHALL BE FREE OF ROCKS OR MORE THAN TWO INCHES IN DIAMETER, CONCRETE, ROOTS, STUMPS, TRASH, FROZEN MATERIALS, OR OTHER SIMILAR MATERIAL.

Date: Jan 13, 2022, 9:16am User Name: Ttrutherford File: S:\113-0170\WR CAD\Plans\Details Proposed by LGSanitary Sewer\WW-28 Non-Rigid San Sewer Pipe Bedding Beyond 5' of Pavement.dwg



NON-RIGID SANITARY SEWER PIPE BEDDING AND BACKFILL MORE THAN 5' FROM PAVEMENT

Approved: 01/12/2022

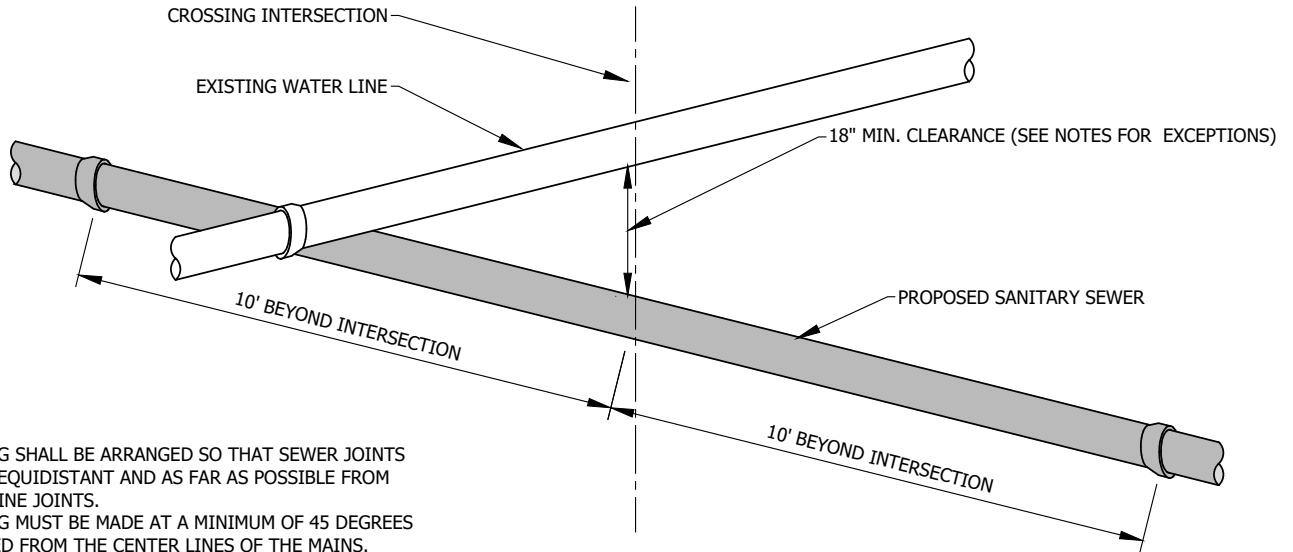
Adopted: 01/18/2022

Figure

Approved By: Joseph D. Sloan, P.E.

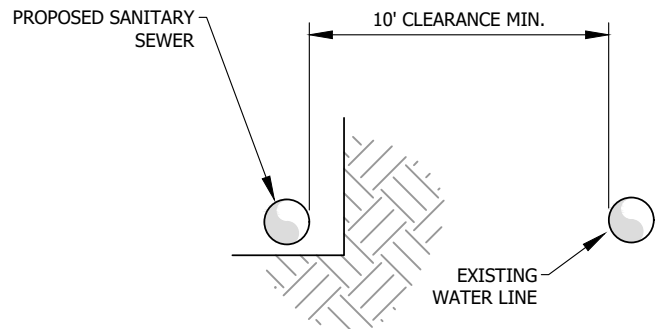
Scale: N.T.S.

WW-35



NOTE:

1. CROSSING SHALL BE ARRANGED SO THAT SEWER JOINTS WILL BE EQUIDISTANT AND AS FAR AS POSSIBLE FROM WATER LINE JOINTS.
2. CROSSING MUST BE MADE AT A MINIMUM OF 45 DEGREES MEASURED FROM THE CENTER LINES OF THE MAINS.



NOTE:

ALL OF THE FOLLOWING MUST BE MET

1. THE SANITARY SEWER AND WATER MAIN ARE NOT IN CONTACT.
2. THE SANITARY SEWER MATERIAL IS PVC SDR-21 OR PVC C900 FOR ALL INSTANCES WHERE HORIZONTAL OR VERTICAL CLEARANCE REQUIREMENTS ARE NOT MET.
3. THE SANITARY SEWER MEETS ALL PRESSURE TESTING REQUIREMENTS OF WATER MAIN.
4. THE SANITARY SEWER AND WATER MAIN ARE LAID ON SEPARATE TRENCH SHELVES.
5. ANY SANITARY SEWER JOINTS ARE A COMPRESSION TYPE JOINT THAT ARE PLACED EQUIDISTANTLY FROM THE WATER MAIN.
6. IF BOTH PRESSURE PIPES, EXCEPTION TO 18" CROSSING.

Date: Jan 13, 2022, 9:16am User Name: TTruherford File: S:\113-0170\WR CAD\Plans\Details Proposed by L.G\Sanitary Sewer\WW-29 Sanitary Sewer and Water Main Crossing.dwg



PROPOSED SANITARY SEWER AND EXISTING WATER LINE CROSSING

Approved: 01/12/2022

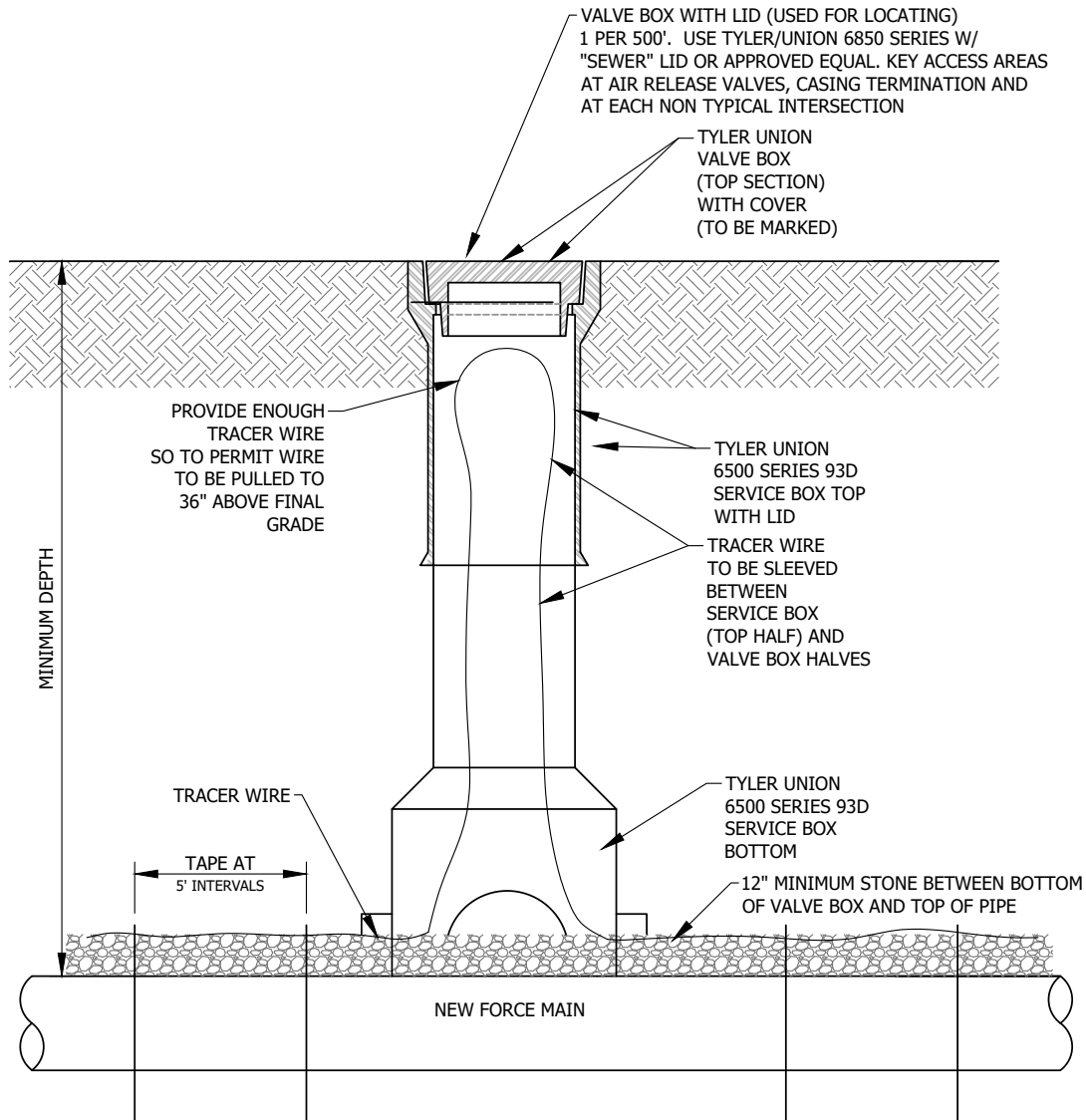
Adopted: 01/18/2022

Figure

Approved By: Joseph D. Sloan, P.E.

Scale: N.T.S.

WW-36



NOTE:

1. THE TRACER WIRE SHALL BE CAPABLE OF, AND DEMONSTRATED TO HAVE, CONTINUOUS TRANSMISSION OF TRACING SIGNAL ALONG THE FULL LENGTH OF THE INSTALLED PIPE.
2. CONTINUOUS INSULATED #12 AWG SOLID COPPER CLAD STEEL CONDUCTOR. THE WIRE SHALL BE INSTALLED ALONG THE PIPE, FASTENED SECURELY TO THE PIPE AT FIVE FOOT INTERVALS, AND TERMINATED ABOVE GROUND WITH THE LEAD TAPED AROUND EACH STRUCTURE.
3. FOR OPEN CUT INSTALLATION USE COPPERHEAD® 1230G-HS OR APPROVED EQUAL.
4. FOR DIRECTIONAL DRILL INSTALLATION USE COPPERHEAD® SOLOSHOT™ 1245G-EHS OR APPROVED EQUAL.
5. IF DIRECTIONALLY DRILLED, DOUBLE WIRE REQUIRED.
6. ALL WIRES SUBJECT TO CONTINUITY TEST.
7. TRACER WIRE AND BOX SHALL BE INSTALLED ON FORCE MAINS.
8. TAPE WIRE TO PIPE AT 5' INTERVALS.

Date: Jan 13, 2022, 9:16am User Name: TTruherford File: S:\113-0170\WR\CAD\Plans\Details Proposed by: L.G.Sanitary Sewer\Tracer Wire Box.dwg



FORCE MAIN TRACER WIRE AND BOX

Approved: 01/12/2022

Approved By: Joseph D. Sloan, P.E.

Adopted: 01/18/2022

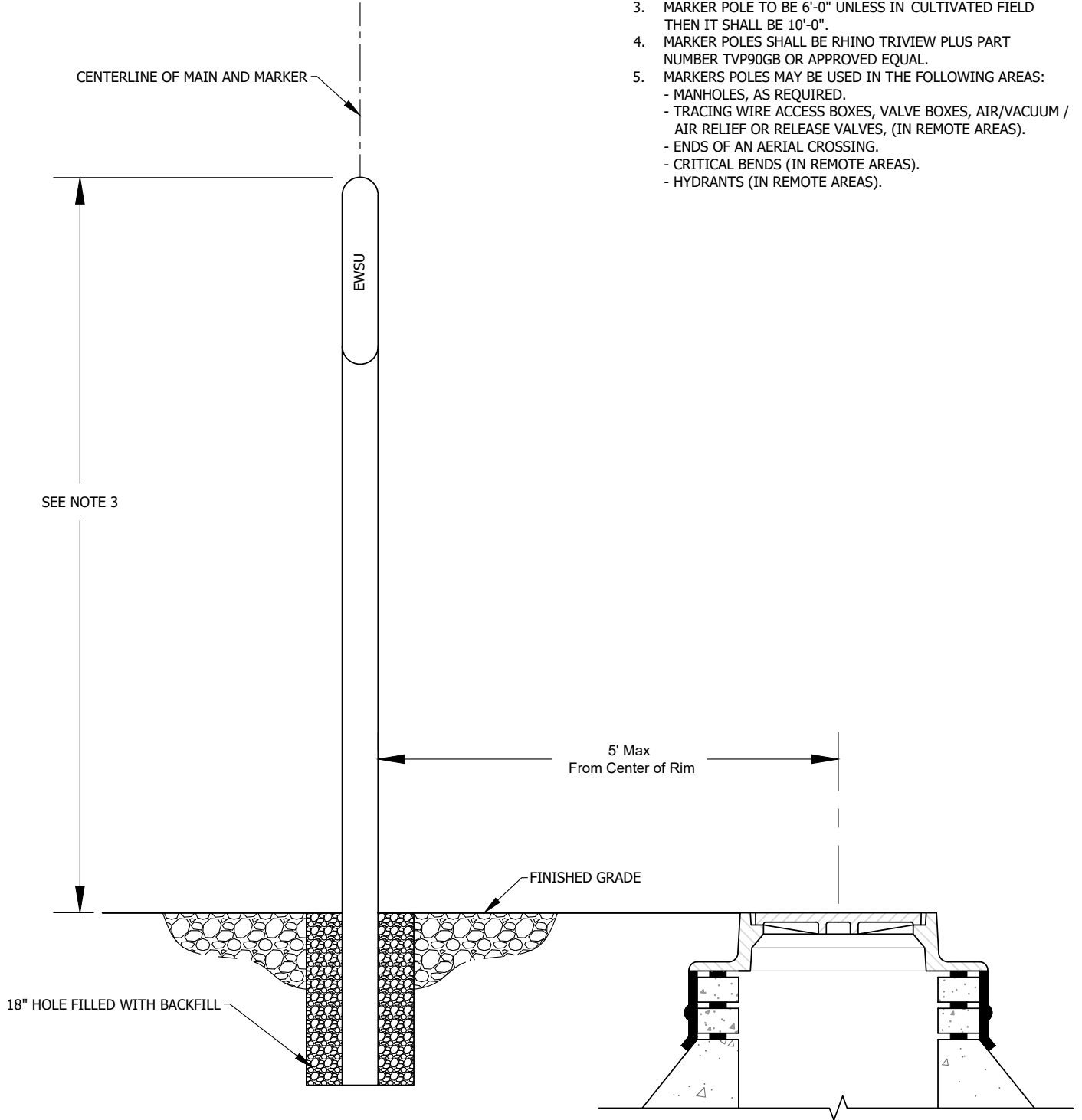
Scale: N.T.S.

Figure

WW-37

NOTE:

1. PLASTIC MARKER SHALL HAVE REFLECTIVE STICKER LABELED "EWSU".
2. POLE SHALL STATE "IN CASE OF EMERGENCY CALL EWSU (812) 421-2130)."
3. MARKER POLE TO BE 6'-0" UNLESS IN CULTIVATED FIELD THEN IT SHALL BE 10'-0".
4. MARKER POLES SHALL BE RHINO TRIVIEW PLUS PART NUMBER TVP90GB OR APPROVED EQUAL.
5. MARKERS POLES MAY BE USED IN THE FOLLOWING AREAS:
 - MANHOLES, AS REQUIRED.
 - TRACING WIRE ACCESS BOXES, VALVE BOXES, AIR/VACUUM / AIR RELIEF OR RELEASE VALVES, (IN REMOTE AREAS).
 - ENDS OF AN AERIAL CROSSING.
 - CRITICAL BENDS (IN REMOTE AREAS).
 - HYDRANTS (IN REMOTE AREAS).

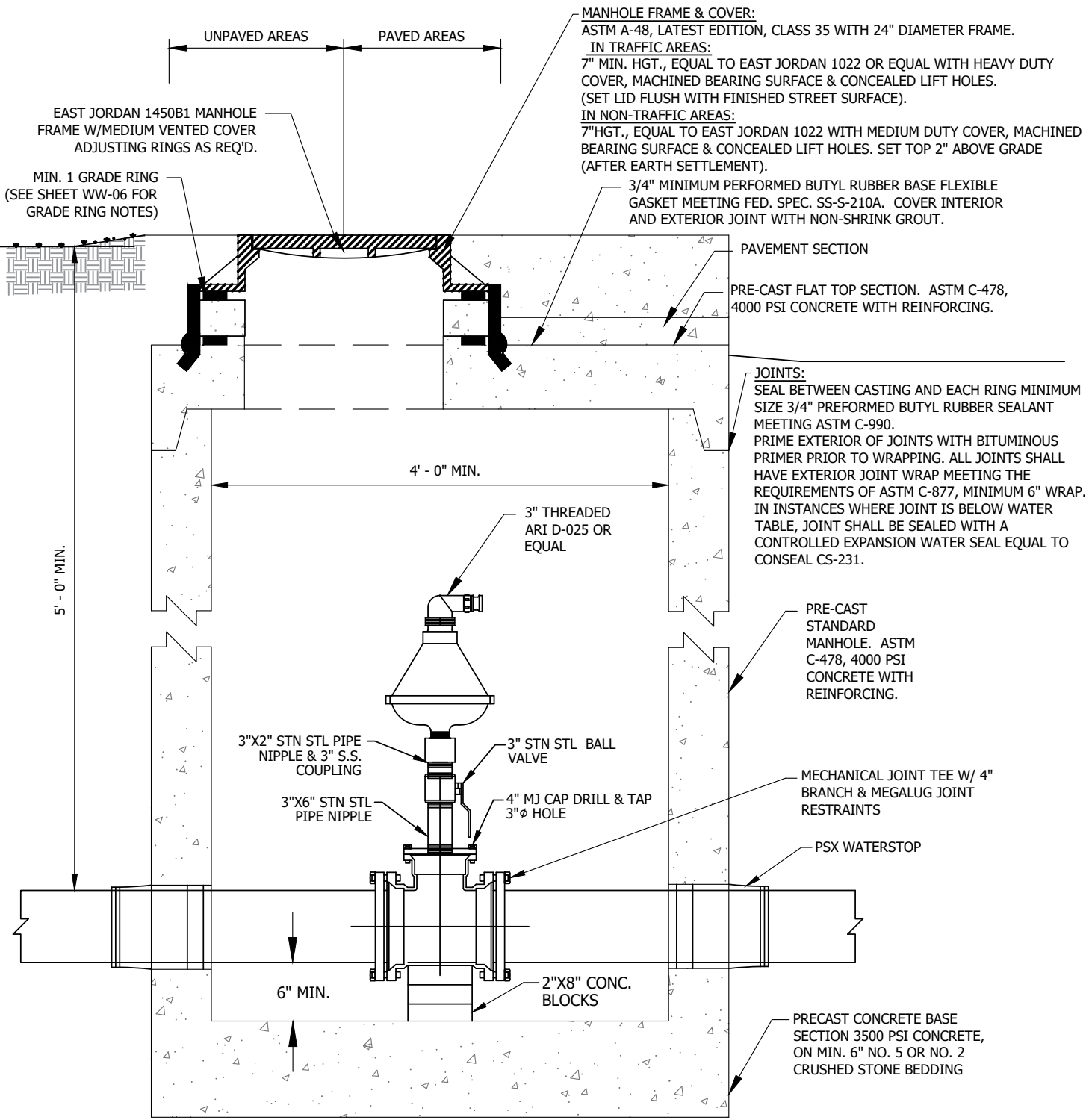


Date: Jan 13, 2022, 9:16am User Name: TTruherford File: S:\113-0170\WR CAD\Plans\Details Proposed by L.G\Sanitary Sewer\Marker Pole Detail.dwg



MARKER POLE FOR RURAL AREAS

Approved: 01/12/2022	Adopted: 01/18/2022	Figure WW-38
Approved By: Joseph D. Sloan, P.E.	Scale: N.T.S.	



MANHOLE FRAME & COVER:
 ASTM A-48, LATEST EDITION, CLASS 35 WITH 24" DIAMETER FRAME.
IN TRAFFIC AREAS:
 7" MIN. HGT., EQUAL TO EAST JORDAN 1022 OR EQUAL WITH HEAVY DUTY COVER, MACHINED BEARING SURFACE & CONCEALED LIFT HOLES. (SET LID FLUSH WITH FINISHED STREET SURFACE).
IN NON-TRAFFIC AREAS:
 7" HGT., EQUAL TO EAST JORDAN 1022 WITH MEDIUM DUTY COVER, MACHINED BEARING SURFACE & CONCEALED LIFT HOLES. SET TOP 2" ABOVE GRADE (AFTER EARTH SETTLEMENT).
 3/4" MINIMUM PERFORMED BUTYL RUBBER BASE FLEXIBLE GASKET MEETING FED. SPEC. SS-S-210A. COVER INTERIOR AND EXTERIOR JOINT WITH NON-SHRINK GROUT.

JOINTS:
 SEAL BETWEEN CASTING AND EACH RING MINIMUM SIZE 3/4" PREFORMED BUTYL RUBBER SEALANT MEETING ASTM C-990. PRIME EXTERIOR OF JOINTS WITH BITUMINOUS PRIMER PRIOR TO WRAPPING. ALL JOINTS SHALL HAVE EXTERIOR JOINT WRAP MEETING THE REQUIREMENTS OF ASTM C-877, MINIMUM 6" WRAP. IN INSTANCES WHERE JOINT IS BELOW WATER TABLE, JOINT SHALL BE SEALED WITH A CONTROLLED EXPANSION WATER SEAL EQUAL TO CONSEAL CS-231.

PRE-CAST STANDARD MANHOLE. ASTM C-478, 4000 PSI CONCRETE WITH REINFORCING.

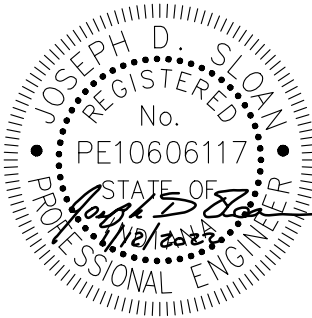
MECHANICAL JOINT TEE W/ 4" BRANCH & MEGALUG JOINT RESTRAINTS

PSX WATERSTOP

PRECAST CONCRETE BASE SECTION 3500 PSI CONCRETE, ON MIN. 6" NO. 5 OR NO. 2 CRUSHED STONE BEDDING

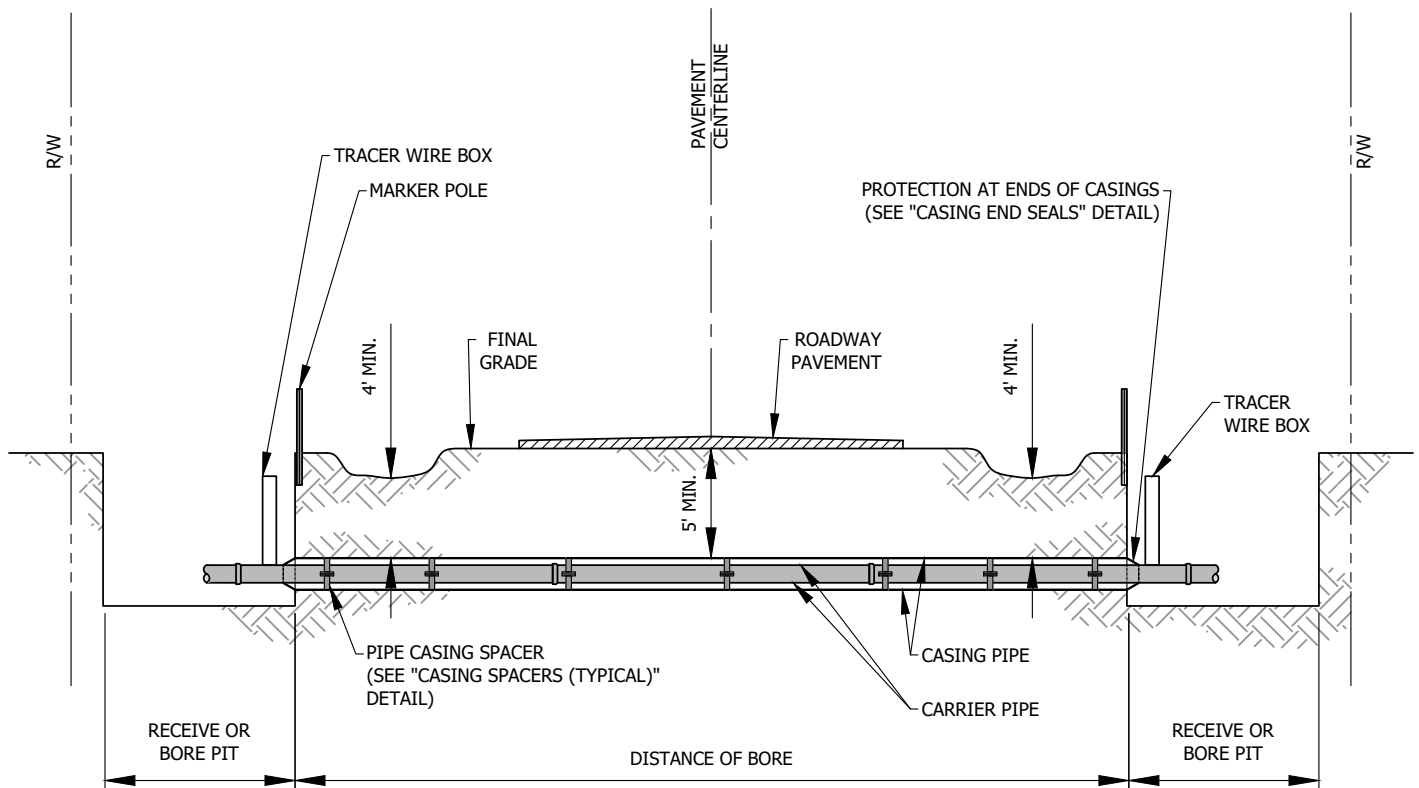
- NOTE:**
1. USE STAINLESS STEEL AT LIFT STATION.
 2. NYLON ELSEWHERE UNLESS SPECIFIED BY ENGINEER.
 3. TRACER WIRE BOX SHALL BE PRESENT ON ONE SIDE OF THE AIR RELEASE VALVE.
 4. FOLLOW BACKFILL REQUIREMENTS PER WW-09.

Date: Jan 13, 2022, 9:17am User Name: Ttrutherford File: S:\113-0170\WR CAD\Plans\Details Proposed by: L.G.Sanitary Sewer\Air Release Valve.dwg



SANITARY SEWER FORCE MAIN AIR RELEASE VALVE

Approved: 01/12/2022	Adopted: 01/18/2022	Figure WW-39
Approved By: Joseph D. Sloan, P.E.	Scale: N.T.S.	



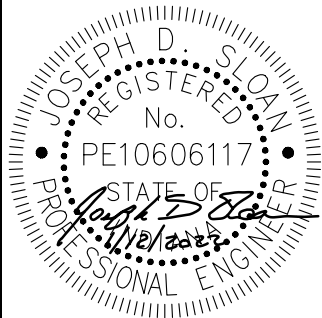
WELDING:

STEEL CASING SECTIONS SHALL BE CONNECTED BY WELDING. ACCORDANCE WITH ASTM A 139, GRADE B, OR ELECTRIC-RESISTANCE WELDED PIPE IN ACCORDANCE WITH ASTM A 53.

NOTE:

1. ALL PIPE JOINTS WITHIN THE CASING ARE TO BE RESTRAINED.
2. TRACING WIRE TO BE INSTALLED THROUGH ALL CASED BORINGS AND CONNECTED TO MARKING POSTS. IF BORED, TRACER WIRE SHALL BE DOUBLED WIRED.
3. THE TRACER WIRE SHALL BE CAPABLE OF, AND DEMONSTRATED TO HAVE, CONTINUOUS TRANSMISSION OF TRACING SIGNAL ALONG THE FULL LENGTH OF THE INSTALLED PIPE.
4. CONTINUOUS INSULATED #12 AWG SOLID COPPER CLAD STEEL CONDUCTOR. THE WIRE SHALL BE INSTALLED ALONG THE PIPE, FASTENED SECURELY TO THE PIPE AT FIVE FOOT INTERVALS, AND TERMINATED ABOVE GROUND WITH THE LEAD TAPED AROUND EACH STRUCTURE.
5. FOR OPEN CUT INSTALLATION USE COPPERHEAD® 1230G-HS OR APPROVED EQUAL.
6. FOR DIRECTIONAL DRILL INSTALLATION USE COPPERHEAD® SOLOSHOT™ 1245G-EHS OR APPROVED EQUAL.
7. IF DIRECTIONALLY DRILLED, DOUBLE WIRE REQUIRED.
8. ALL WIRES SUBJECT TO CONTINUITY TEST.
9. TAPE WIRE TO PIPE AT 5' INTERVALS.
10. STEEL PIPE USED AS CARRIER PIPE TO HAVE MINIMUM WALL THICKNESS LISTED ON WW-41.
11. STEEL PIPE USED AS CASING PIPE, BUT NOT USED AS CARRIER PIPE, SHALL BE SELECTED BY THE CONTRACTOR TO HAVE MINIMUM WALL THICKNESS SUFFICIENT TO RESIST JACKING FORCES. FOR INSTALLATIONS WHERE THE CASING IS NOT USED AS CARRIER BUT ONLY AS CASING FOR A CARRIER PIPE, THE THICKNESS OF THE CASING SHALL BE DETERMINED BY THE CONTRACTOR.
12. MATERIAL FURNISHED UNDER THIS SPECIFICATION SHALL BE COVERED BY TYPE C CERTIFICATION IN ACCORDANCE WITH 916.

Date: Jan 13, 2022, 9:17am User Name: Ttrutherford File: S:\113-0170\WR\CAD\Plans\Details Proposed by L.G\Sanitary Sewer\WW45-Typical Jack and Bore Casing Piping.dwg



TYPICAL JACK AND BORE CASING PIPE

Approved: 01/12/2022

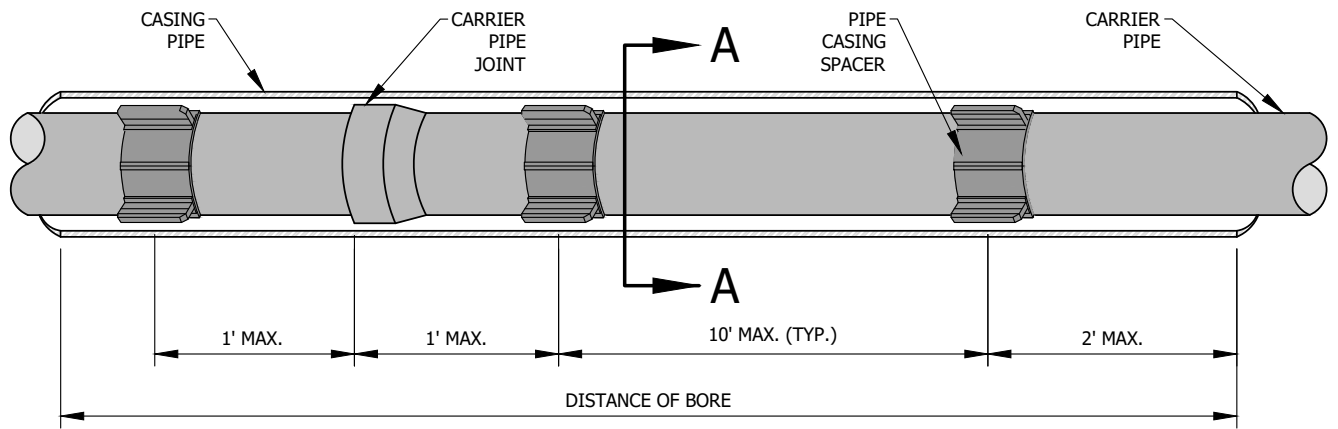
Approved By: Joseph D. Sloan, P.E.

Adopted: 01/18/2022

Scale: N.T.S.

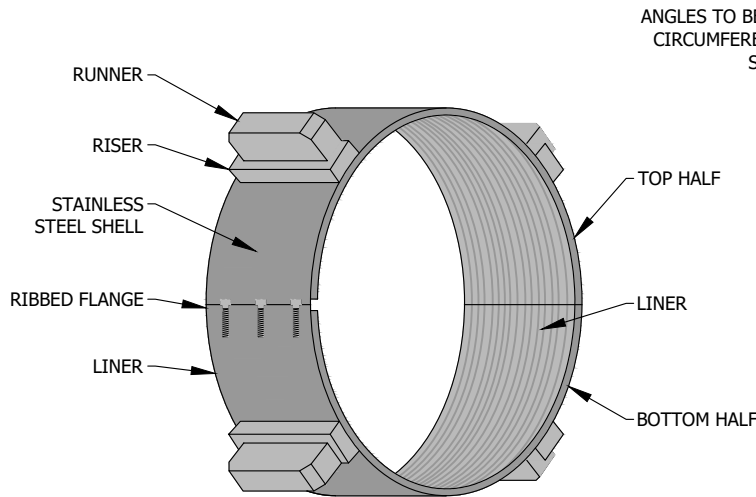
Figure

WW-40

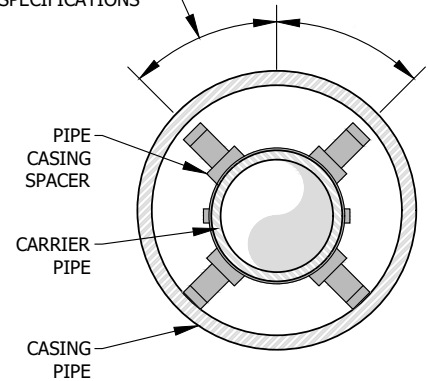


CARRIER PIPE		
PIPE SIZE	MIN. CASING O.D.	THICKNESS *
6"	16"	1/4"
8"	18"	1/4"
10"	20"	5/16"
12"	24"	3/8"
16"	30"	1/2"
20"	36"	1/2"
24"	42"	9/16"

* UNLESS OTHERWISE REQUIRED BY IN.D.O.T., RAILROAD OR OTHER SUCH GOVERNING AUTHORITY.



ANGLES TO BE CONSTANT AROUND ENTIRE CIRCUMFERENCE OF THE PIPE. NUMBER OF SPACERS PER MANUFACTURER'S SPECIFICATIONS



SECTION "A-A"

NOTE:

1. CASING SPACERS SHALL BE CCS SERIES BY CASCADE WATERWORKS MFG. OR APPROVED EQUAL ALTERNATE CASING SPACERS MAY BE USED WITH PRIOR APPROVAL FROM CITY UTILITIES PROJECT ENGINEER.
2. CITY UTILITIES APPROVED CASING SPACERS AND END SEALS SHALL BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS. USE A "CENTERED" CONFIGURATION AND PROVIDE THE MANUFACTURER WITH THE FOLLOWING INFORMATION: CARRIER PIPE O.D., CASING PIPE I.D., AND CASING LENGTH.

Date: Jan 13, 2022, 9:17am User Name: Ttrutherford File: S:\113-01\DWK\CAD\Plans\Details Proposed by L.G.Sanitary Sewer\WW46-Typical Casing Spacers.dwg



TYPICAL CASING SPACERS

Approved: 01/12/2022

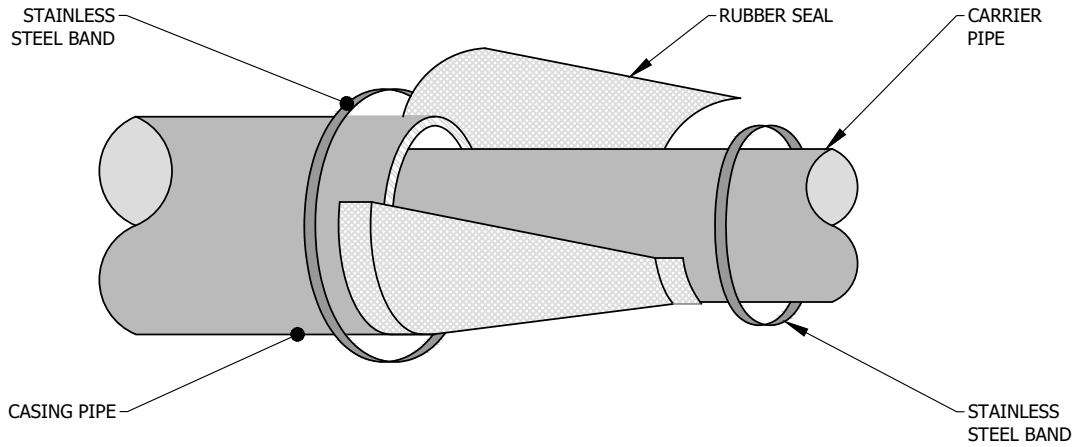
Approved By: Joseph D. Sloan, P.E.

Adopted: 01/18/2022

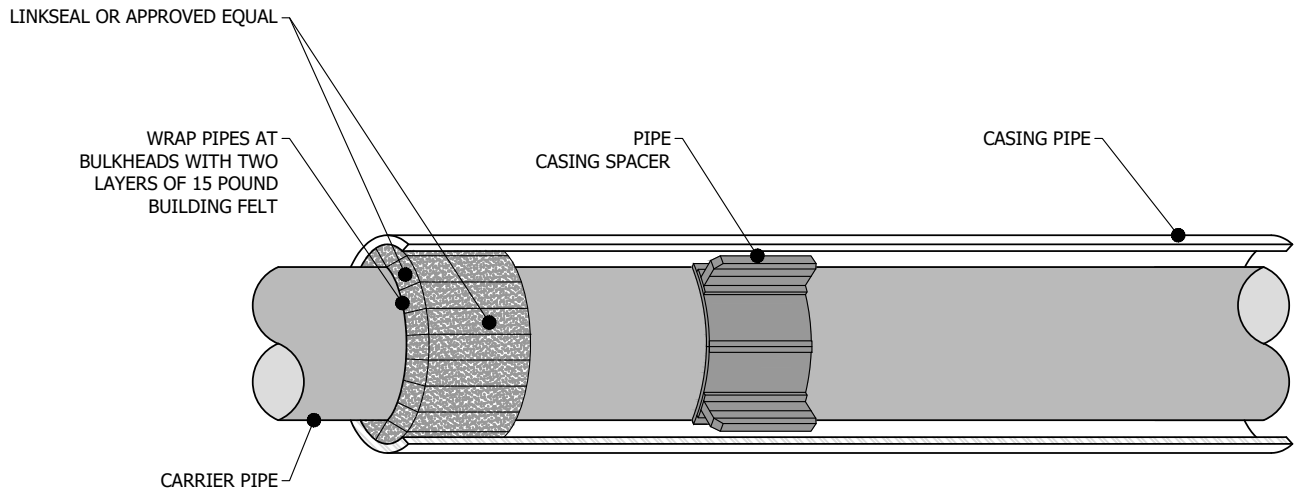
Scale: N.T.S.

Figure

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METHOD 'A'



NOTE:
1. THIS STANDARD IS APPLICABLE FOR 4" DIAMETER AND LARGER CARRIER PIPE.

METHOD 'B'

Date: Jan 13, 2022, 9:17am User Name: TTruherford File: S:\113-0170\WR CAD\Plans\Details Proposed by L\G\Water\DW19-Typical Casing End Seals.dwg



TYPICAL CASING END SEALS

Approved: 01/12/2022

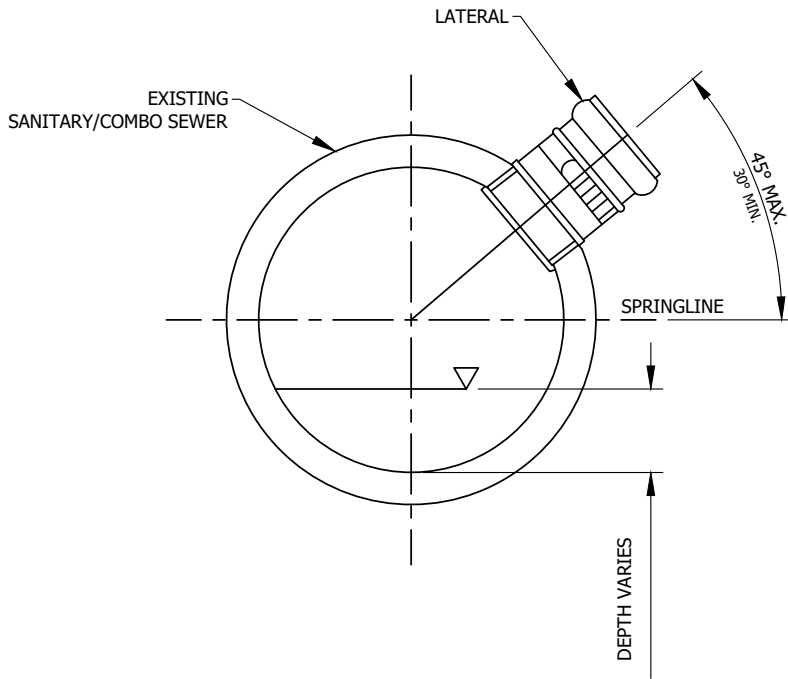
Approved By: Joseph D. Sloan, P.E.

Adopted: 01/18/2022

Scale: N.T.S.

Figure

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NOTE:

1. TO BE USED ON 15"Ø PIPE OR LARGER.
2. SADDLE TAP SHALL BE KOR-N-TEE OR APPROVED EQUAL.
3. LATERAL CONNECTIONS SHALL BE 6"-10".
4. CORE BIT PER MANUFACTURER SPECIFICATION.
5. HDPE AND PVC PRODUCT SHALL BE DETERMINED BY THE EWSU REVIEWER.

MATERIAL & DIAMETER vs. PREFERRED PRODUCT MANUFACTURER AND /OR PROCESS			
	15"	18"	24"+
RCP	INSERTA -TEE	INSERTA -TEE	INSERTA -TEE
HDPE	TBD	TBD	TBD
PVC	TBD	TBD	TBD
BRICK GUNITE	TBD	TBD	KOR-N-TEE

Date: Jan 13, 2022, 9:17am User Name: Ttrutherford File: S:\113-0170\WR\CAD\Plans\Details Proposed by L.G\Sanitary Sewer\Large Core Tap.dwg



MEDIUM/LARGE DIAMETER SEWER TAP

Approved: 01/12/2022	Adopted: 01/18/2022
Approved By: Joseph D. Sloan, P.E.	Scale: N.T.S.

Figure **WW-43**