

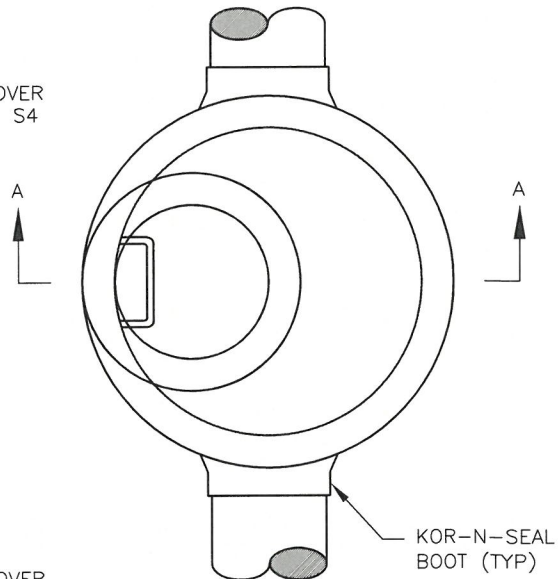
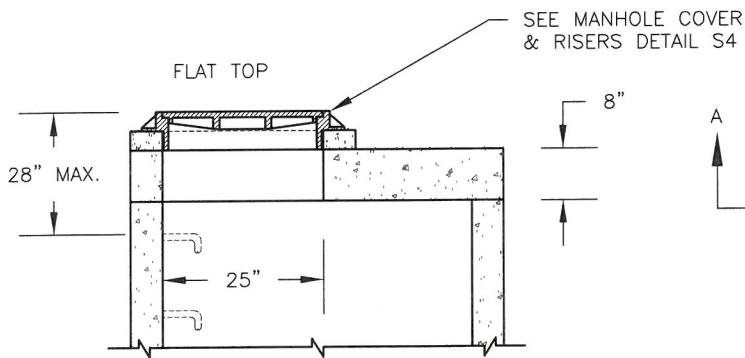


Gravity Sewer Details

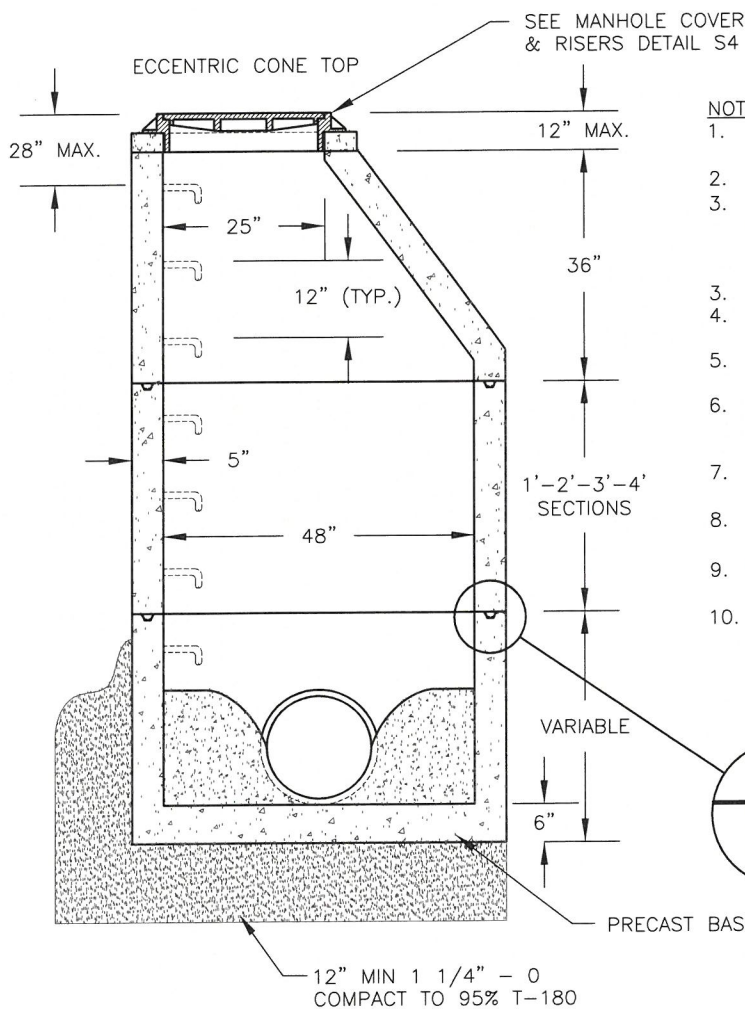
City of Camas Gravity Sanitary Details ~ INDEX

Gravity Sanitary Sewer Details

<u>Detail No.</u>	<u>Detail Name</u>	<u>Rev.</u>	<u>Rev. Date</u>
S1	48" SANITARY SEWER MANHOLE	7	9/26/2023
S2	48" SANITARY STD. DROP (UNDER 18") MANHOLE	7	9/26/2023
S3	60" SANITARY DROP (OVER 18") MANHOLE	4	8/20/2021
S4	MANHOLE COVER & RISERS	3	8/20/2021
SG1	GRAVITY SEWER CONSTRUCTION NOTES	4	7/17/2018
SG2	GRAVITY SEWER SERVICE	5	1/2/2024
SG3	GRAVITY SEWER REPLACEMENT	4	1/2/2024
SG4	GRINDER PUMP SEWER SERVICE	4	3/24/2022
SG5	GRAVITY SANITARY SEWER CLEAN OUT	3	7/17/2018



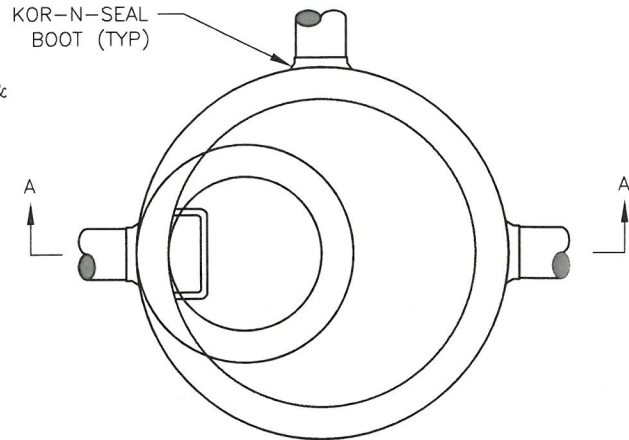
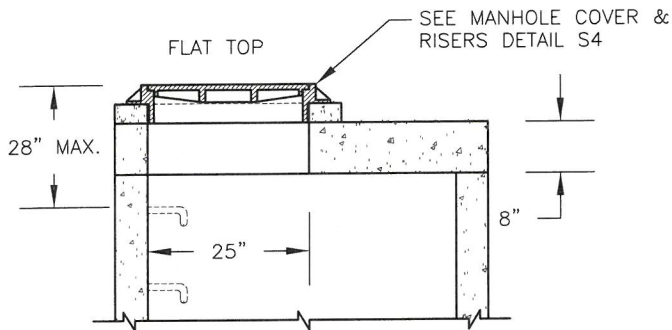
PLAN VIEW



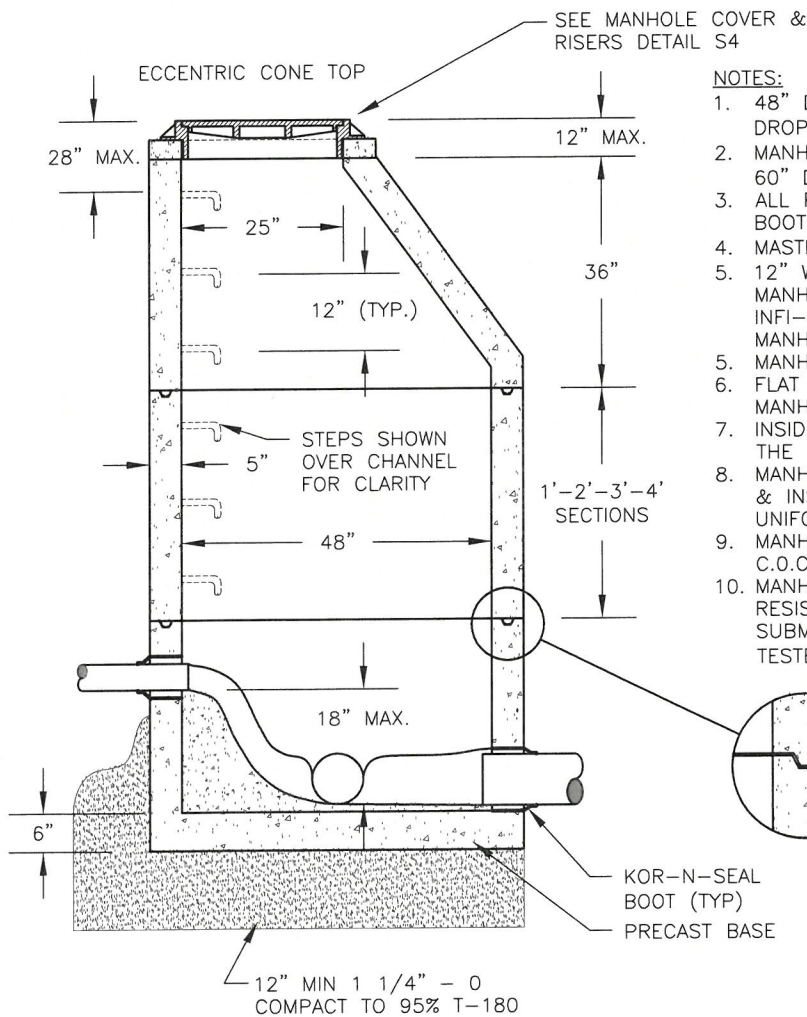
SECTION VIEW A-A

NOTES:

1. ALL PIPE OPENINGS SHALL BE CORED AND RUBBER BOOTED
2. MASTIC SEAL REQ'D IN ALL KEYLOCK JOINTS.
3. 12" WIDE +/- EXTERNAL SEALS REQUIRED AROUND ALL MANHOLE SECTION JOINTS. INSTALL MACWRAP, INFI-SHIELD, EZ WRAP, RISER-WRAP, OR OTHER MANHOLE EXTERNAL SEAL BAND SYSTEM.
3. MANHOLES SHALL CONFORM TO ASTM C-478
4. FLAT TOP SECTION MAY BE USED FOR SHALLOW MANHOLES
5. INSIDE JOINTS SHALL BE STRUCK SMOOTH & EVEN WITH THE INSIDE WALLS
6. MANHOLE BASE TO HAVE SHAPED CHANNELS. FLOW LINE & INSIDE SURFACES SHALL BE TROWLED SMOOTH & UNIFORM
7. MANHOLE TO BE VACUUM TESTED IN ACCORDANCE WITH C.O.C. STANDARDS
8. 48" DIA. MANHOLES SHALL HAVE CHanneled DROPS NOT TO EXCEED 18" HIGH. SEE DETAIL S2.
9. MANHOLES WITH GREATER THAN 18" DROP SHALL BE 60" DIA. WITH AN INTERIOR DROP. SEE DETAIL S3.
10. MANHOLE TO BE SPRAY LINED WITH HYDROGEN SULFIDE RESISTANT MATERIAL RAVEN 405 OR APPROVED EQUAL SUBMITTAL REQUIRED. LINING WILL BE ADHESION TESTED PER ASTM D-4541 AND/OR ASTM D-7234



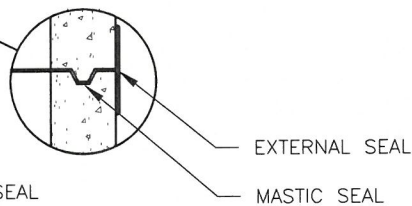
PLAN VIEW

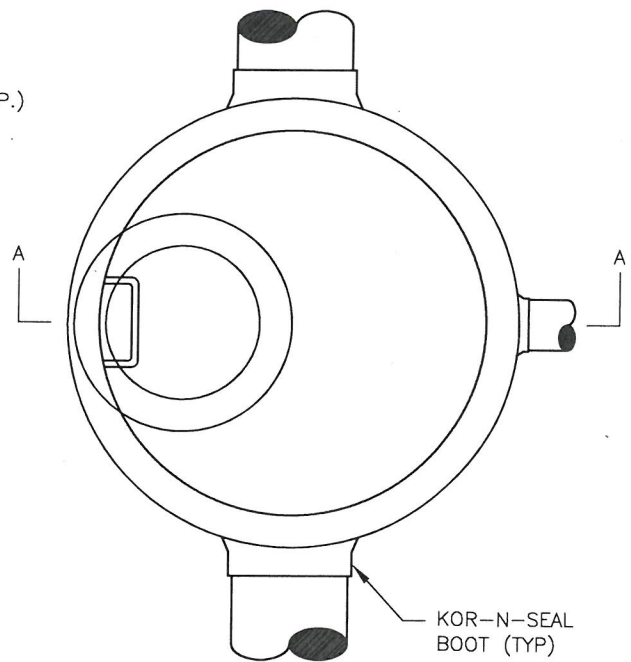
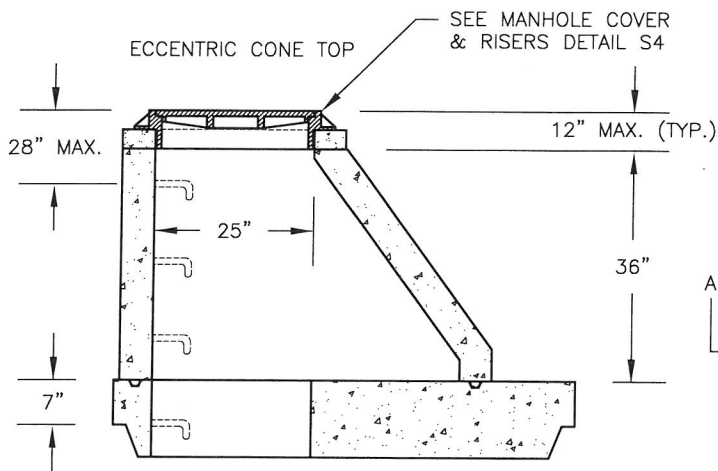


SECTION VIEW A-A

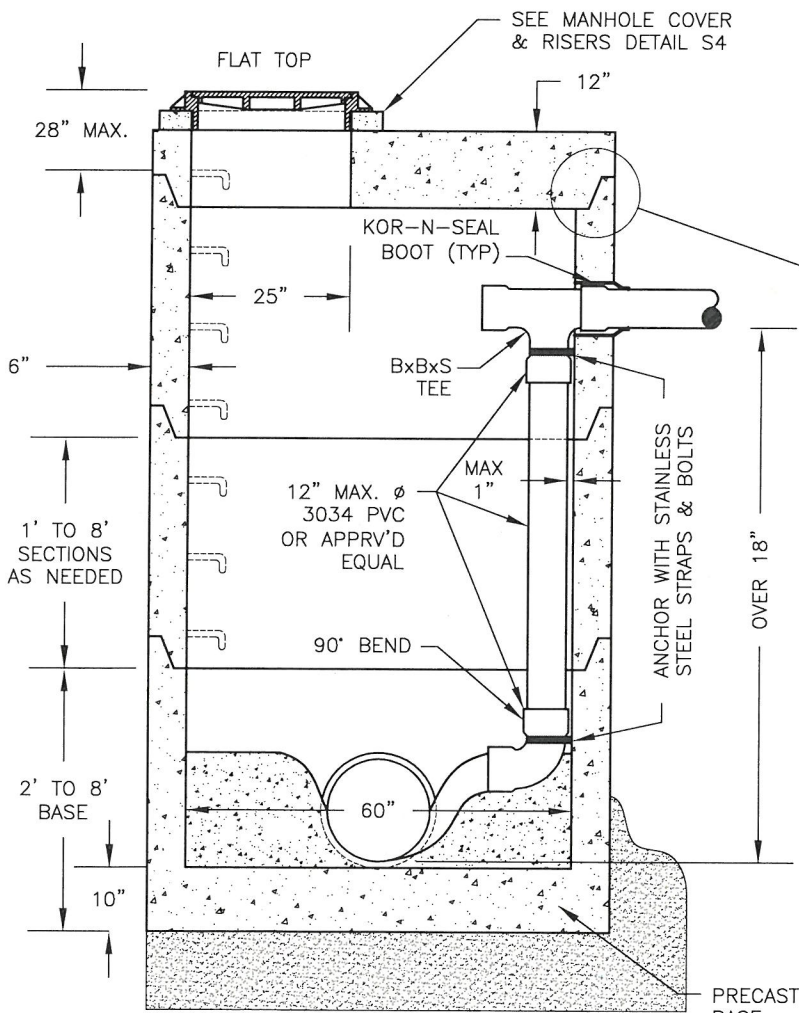
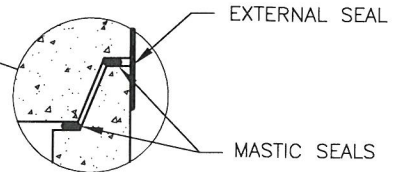
NOTES:

1. 48" DIAMETER MANHOLES SHALL HAVE CHANNELED DROPS NOT TO EXCEED 18".
2. MANHOLES WITH A DROP GREATER THAN 18" SHALL BE 60" DIA. WITH AN INTERIOR DROP. SEE DETAIL S3.
3. ALL PIPE OPENINGS SHALL BE CORED AND RUBBER BOOTED
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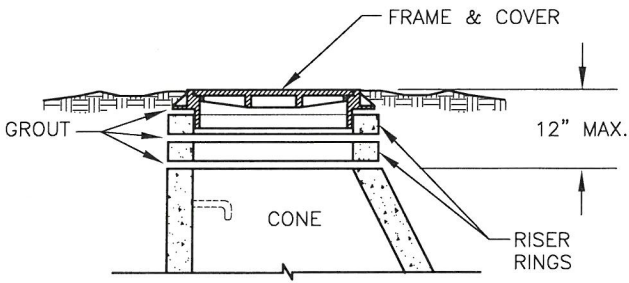
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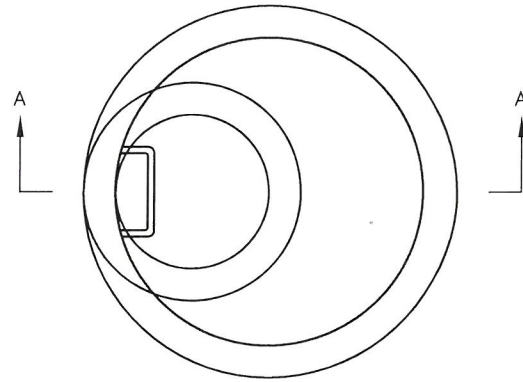
SECTION VIEW A-A

NOTES:

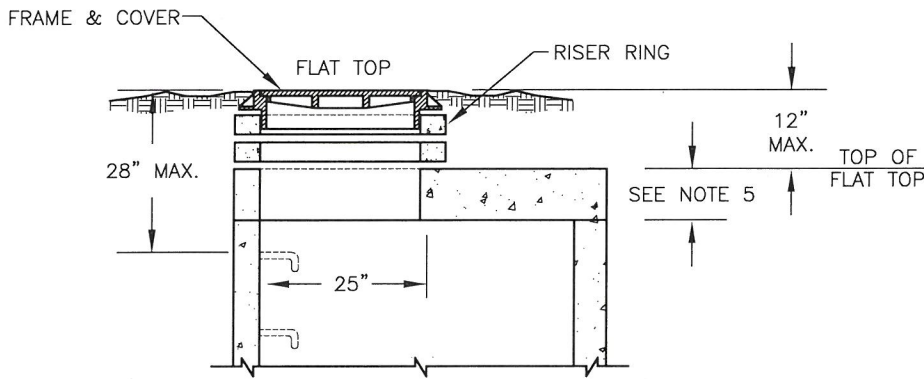
1. MANHOLES WITH GREATER THAN 18" DROP SHALL BE 60" DIAMETER WITH AN INTERIOR DROP
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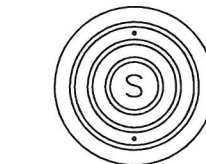
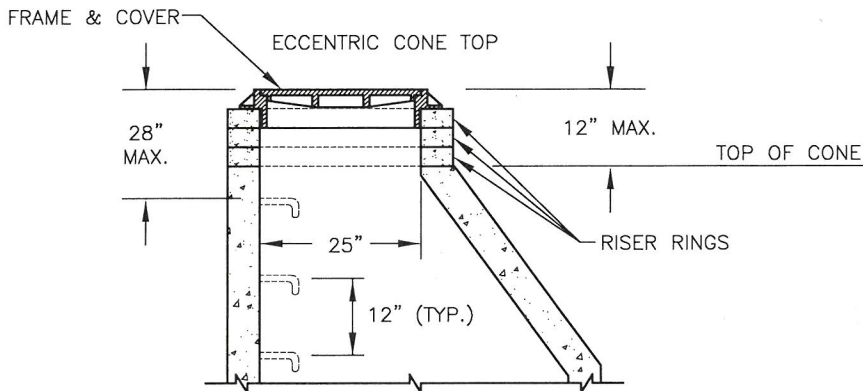
RISER RING & COLLAR DETAIL



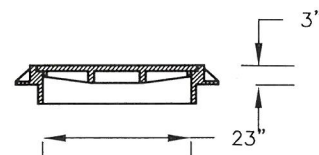
PLAN VIEW



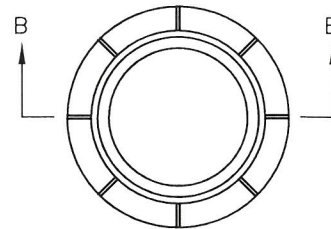
STORM COVER



SANITARY COVER



SECTION B-B



3" TALL FRAME

CAST IRON SUBURBAN COVER & FRAME

SECTION VIEWS A-A

NOTES:

1. MANHOLES SHALL CONFORM TO ASTM C-478.
2. NON-SHRINK GROUT SHALL BE USED BETWEEN FRAME, RISER RINGS, AND MANHOLE.
3. 3" TALL FRAME IS STANDARD, 7" TALL FRAME (NOT SHOWN) IS OPTIONAL.
4. ANY COMBINATION OF RISER RING THICKNESS, GROUT, AND FRAME SHALL BE USED TO ACHIEVE THE 12" MAXIMUM DEPTH FROM FINISH GRADE TO TOP OF CONE OR FLAT TOP.
5. 8" THICK FLAT TOP FOR 48" MANHOLE
12" THICK FLAT TOP FOR 60" MANHOLE

REV. NO.	DATE	BY	APPR.
1	5/1/07	SCD	JC
2	1/1/11	SCD	JC
3	8/18/21	ECD	JC



CITY OF CAMAS ~ SANITARY DETAIL
MANHOLE COVER & RISERS

DETAIL APPROVED BY *Jan C. Coetter* 8-20-21
DATE

DETAIL NO.

S4

NOT TO SCALE

MANHOLES.DWG

CONVENTIONAL GRAVITY SEWER CONSTRUCTION NOTES:

1. ALL TRENCH EXCAVATION AND PIPE INSTALLATION SHALL CONFORM TO THE MOST RECENTLY ADOPTED VERSION OF W.S.D.O.T. STANDARD SPECIFICATIONS SECTION 7-08.3(1) AND SECTION 7-08.3(2). ALL EXCESS MATERIAL FROM THE TRENCH EXCAVATION SHALL BE DISPOSED OF ON AN APPROVED SITE.
2. PIPE BEDDING & PRE-COVER (PIPE ZONE) MATERIAL SHALL BE 5/8 INCH MINUS CRUSHED ROCK.
3. TRENCH BACKFILL MATERIAL SHALL BE 1-1/4 INCH MINUS CRUSHED ROCK.
4. TRENCH COMPACTION SHALL BE PER CITY OF CAMAS STANDARD TEST REQUIREMENTS DETAIL G4. CONTRACTOR TO DETERMINE THE TYPE OF EQUIPMENT AND METHOD TO USE TO ACHIEVE THE REQUIRED COMPACTION. EACH LIFT SHALL BE COMPACTED TO A MINIMUM OF 95 PERCENT OF THE MAXIMUM DENSITY AS DETERMINED BY THE A.A.S.H.T.O. T-180 TEST METHOD.
5. SETTLEMENT OF THE FINISHED SURFACE WITHIN THE WARRANTY PERIOD SHALL BE CONSIDERED TO BE A RESULT OF IMPROPER COMPACTION AND SHALL BE PROMPTLY REPAIRED BY THE CONTRACTOR AT NO EXPENSE TO THE CITY.
6. ALL PIPE AND FITTINGS SHALL CONFORM TO THE MOST RECENTLY ADOPTED VERSION OF W.S.D.O.T. STANDARD SPECIFICATIONS SECTION 7-17.2. PIPE SIZES UP TO 15 INCHES SHALL CONFORM TO ASTM D3034 SDR26. PIPE SIZES FROM 18 TO 48 INCHES SHALL CONFORM TO ASTM F679 PS115.
7. ALL PIPE CONNECTIONS AT MANHOLES SHALL BE CORED AND RUBBER BOOTED.
8. VACUUM TESTING OF MANHOLES IS REQUIRED PRIOR TO APPLICATION OF AN APPROVED HYDROGEN SULFIDE RESISTANT LINER.
9. ALL MANHOLES SHALL BE COATED WITH A HYDROGEN SULFIDE RESISTANT LINING, MATERIAL SUBMITTAL REQUIRED. LINING SHALL ALSO BE APPLIED TO EXISTING MANHOLES WHEN A NEW LINE ENTRY IS TIED-IN TO THE MANHOLE.
10. ALL PIPE AND FITTINGS SHALL BE AIR TESTED AT FOUR P.S.I. FOR ONE MINUTE PER EVERY 100 FEET OF MAINLINE.
11. SANITARY SERVICE LATERAL SHALL BE 6 INCHES IN DIAMETER AND THE ENDS SHALL EXTEND 8 FEET PAST THE STREET RIGHT-OF-WAY LINE OR AS SHOWN ON THE PLANS AND MARKED WITH A 10 FOOT LONG 2" X 4".
12. ALL SANITARY LINES SHALL BE INSTALLED WITH A MINIMUM COVER OF 6 FEET AND A MINIMUM GRADE OF 0.4% UNLESS OTHERWISE SHOWN ON THE PLANS.



SANITARY SEWER DETAIL
GRAVITY SEWER CONSTRUCTION NOTES

NOT TO SCALE

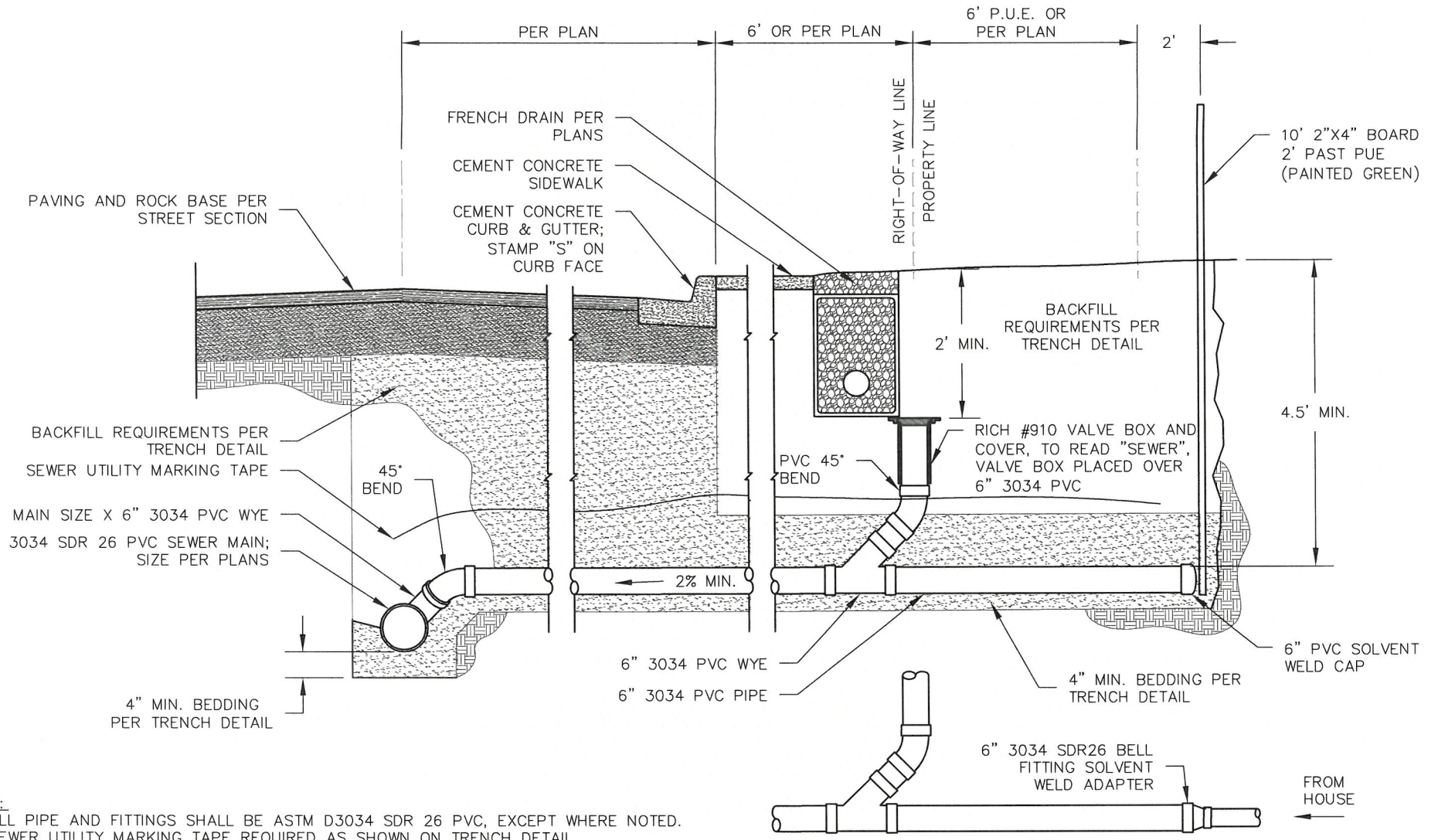
DETAIL NO.

Jim P. Caruth 7-23-18
DETAIL APPROVED BY DATE

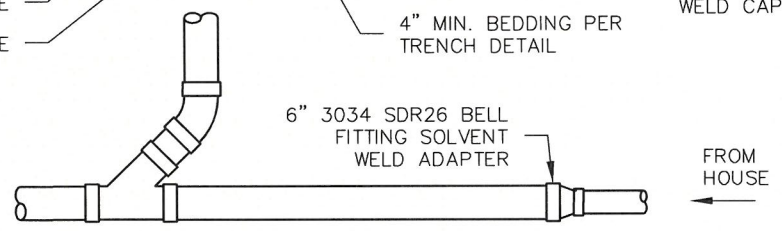
REVISION: 4

DATE: 7/17/2018

SG1



- NOTES:**
1. ALL PIPE AND FITTINGS SHALL BE ASTM D3034 SDR 26 PVC, EXCEPT WHERE NOTED.
 2. SEWER UTILITY MARKING TAPE REQUIRED AS SHOWN ON TRENCH DETAIL.
 3. ELEVATION OF SERVICE STUB OUT AND CONNECTION TO BE NOTED ON AS-BUILT DRAWINGS.
 4. USE ASTM D3138 SOLVENT CEMENT FOR TRANSITION JOINTS BETWEEN ABS DWV AND PVC NON-PRESSURE PIPING COMPONENTS.
 5. BEFORE NEW HOME IS ISSUED FINAL OCCUPANCY, THE CLEANOUT AND VALVE CAN WILL NEED TO BE RAISED:
 - a. TO 6" BELOW FINISHED GRADE WHEN LOCATED IN LANDSCAPED OR LAWN AREA
 - b. TO TOP OF CONCRETE WHEN LOCATED IN A DRIVEWAY



SANITARY CONNECTION AT BUILD-OUT



SANITARY SEWER DETAIL
GRAVITY SEWER LATERAL STUB OUT

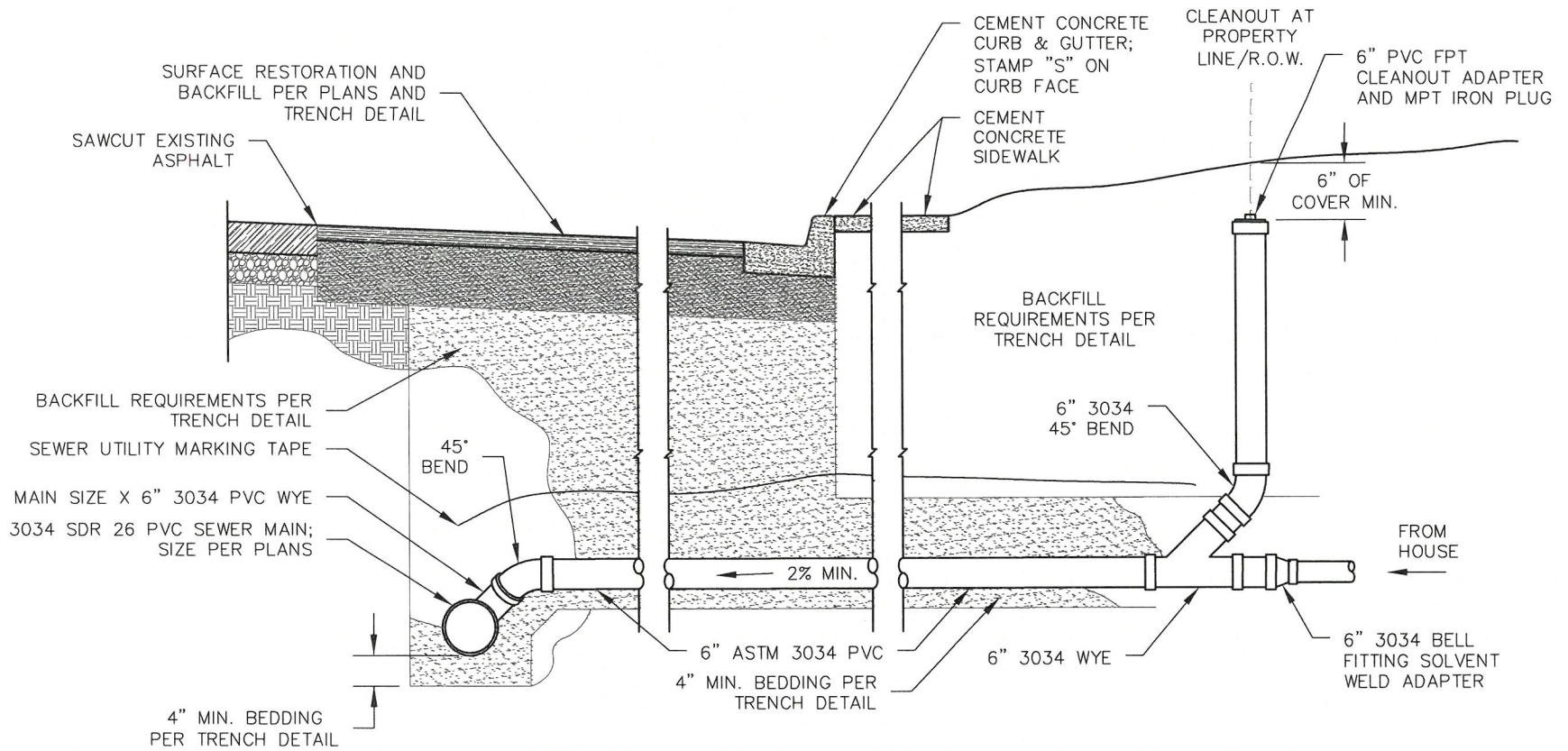
Jim P. [Signature] 1-2-24
DETAIL APPROVED BY DATE

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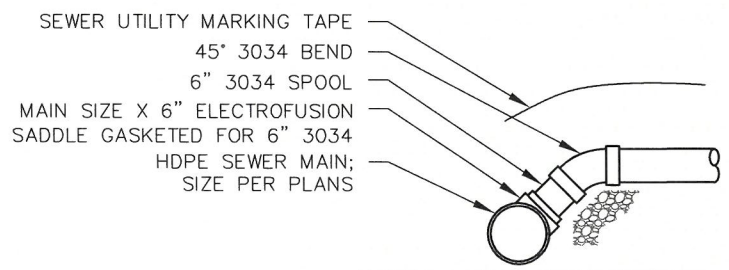
SG2

REVISION: 5 DATE: 01/02/2024

GRAV-SERV.DWG



3034 PVC MAIN CONNECTION



HPDE MAIN CONNECTION

NOTES:

1. ALL PIPE AND FITTINGS SHALL BE ASTM D3034 SDR26 PVC, UNLESS OTHERWISE NOTED ON THIS DETAIL, APPROVED BY THE ENGINEER, OR AS INDICATED IN THE PLANS.
2. IF EXISTING MAIN IS CLAY, CONCRETE, OR IRON PIPE USE 'FERNCO' ® STYLE COUPLER, OR APPROVED EQUAL.
3. IF EXISTING MAIN IS ABS-DWV, SCHEDULE 40 PVC, OR 3034 PVC USE APPROPRIATE ADAPTER FITTING, 'FERNCO' STYLE COUPLING IS NOT ALLOWED.
4. USE ASTM D3138 SOLVENT CEMENT FOR TRANSITION JOINTS BETWEEN ABS-DWV AND PVC NON-PRESSURE PIPING COMPONENTS.
5. 'INSERTA TEE' ® STYLE CONNECTOR NOT ALLOWED ON MAIN CONNECTIONS.
6. SEWER UTILITY MARKING TAPE REQUIRED AS SHOWN ON TRENCH DETAIL.
7. NEW PARTY LATERALS ARE NOT PERMITTED



SANITARY SEWER DETAIL
GRAVITY SEWER LATERAL ON EXISTING MAIN

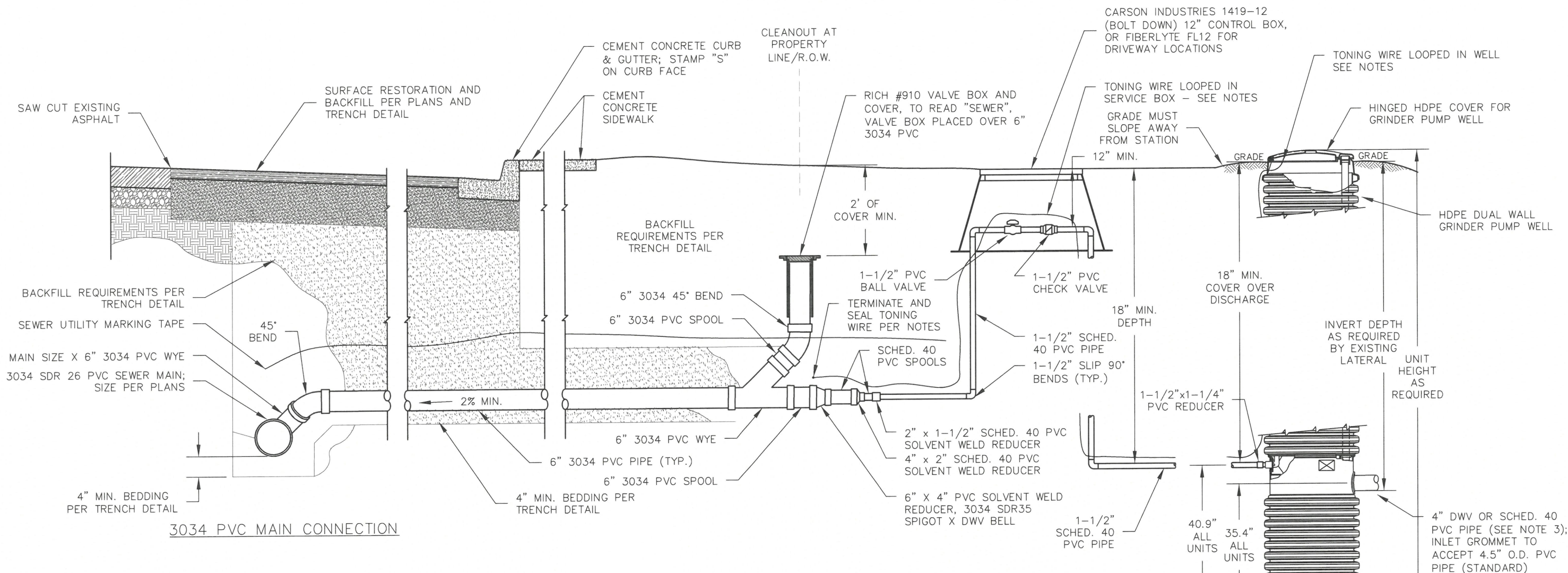
DETAIL APPROVED BY *J.P. Claverton* 1-2-24
DATE

NOT TO SCALE DETAIL NO.

SG3

REVISION: 4 DATE: 01/02/2024

GRAV-SERV.DWG



3034 PVC MAIN CONNECTION

HDPE MAIN CONNECTION

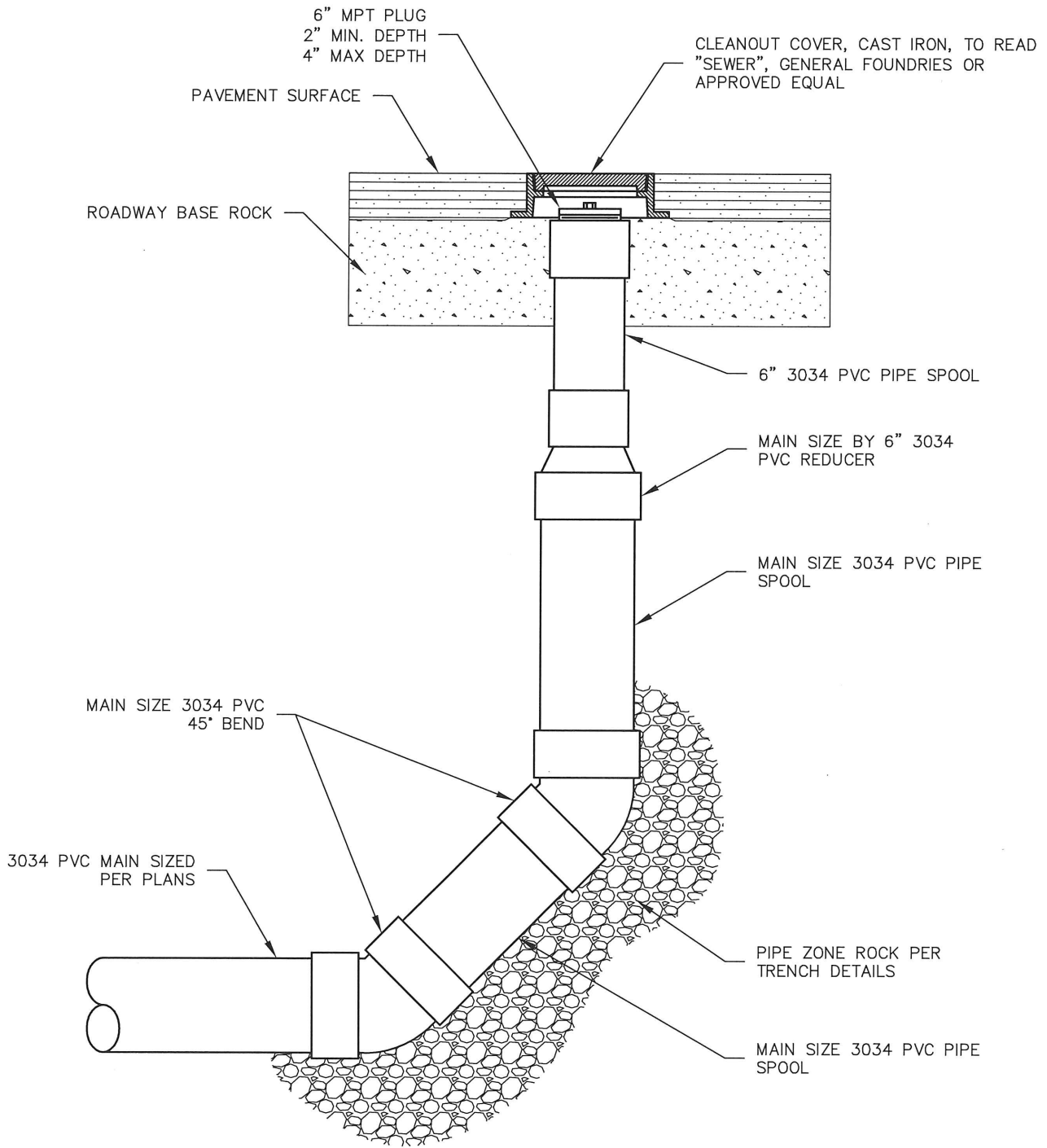
SERVICE LATERAL NOTES:

1. ALL PIPE AND FITTINGS SHALL BE ASTM D3034 SDR26 PVC OR SCHEDULE 40 PVC, UNLESS OTHERWISE NOTED ON THIS DETAIL, APPROVED BY THE ENGINEER, OR AS INDICATED IN THE PLANS.
2. SEE TRENCH DETAIL FOR BEDDING AND BACKFILL REQUIREMENTS.
3. BALL VALVE AND CHECK VALVE TO BE ASSEMBLED PRIOR TO INSTALLATION AND SHALL BE INSPECTED BY INSPECTOR BEFORE INSTALLATION.
4. IF EXISTING LATERAL IS CLAY, CONCRETE, OR IRON PIPE USE 'FERNCO' STYLE COUPLER, OR APPROVED EQUAL. IF EXISTING LATERAL IS 3034 PVC USE APPROPRIATE ADAPTER FITTING - 'FERNCO' STYLE COUPLING IS NOT ALLOWED.
5. 'INSTERTA TEE' STYLE CONNECTOR NOT ALLOWED ON MAIN CONNECTIONS.
6. LOCATE VALVE BOX OUTSIDE OF SIDEWALK AND WITHIN RIGHT-OF-WAY.
7. SEWER UTILITY MARKING TAPE AND 14 GAUGE HDPE INSULATED COPPER CLAD STEEL TONING WIRE REQUIRED AS SHOWN ON TRENCH DETAIL.
8. CONNECTIONS AND SPLICES TO TONING WIRE SHALL BE SEALED WITH KING GEL CAPS, 3M DBY DIRECT BURY CAPS, OR OTHER APPROVED CONNECTION, AT ALL SPLICES.
9. ELIMINATE CLEANOUT AT PROPERTY LINE IF RIM I.E. IS LOWER THAN MAIN
10. FOR CITY OWNED INSTALLATIONS, THE GRINDER PUMP SHALL BE MANUFACTURED BY E-ONE, MODEL TO BE APPROVED BY THE ENGINEER.
11. BEFORE NEW HOME IS ISSUED FINAL OCCUPANCY, THE CLEANOUT AND VALVE CAN WILL NEED TO BE RAISED:
 - a. TO 6" BELOW FINISHED GRADE WHEN LOCATED IN LANDSCAPED OR LAWN AREA
 - b. TO TOP OF CONCRETE WHEN LOCATED IN A DRIVEWAY

GRINDER PUMP INSTALLATION NOTES:

- A. SEE MANUFACTURER'S INSTALLATION INSTRUCTIONS FOR FURTHER DETAILS
- B. A CONCRETE ANCHOR IS REQUIRED ON ALL MODELS, SIZED PER MANUFACTURER SPECIFICATIONS FOR MODEL INSTALLED.
- C. 6" MINIMUM LAYER OF 3/4"-1/2" WASHED RIVER ROCK BEDDING.

POURED IN-PLACE ANCHOR DETAIL



NOTES:

1. ALL PIPE AND FITTINGS SHALL BE GASKETED 3034 SDR26 PVC.
2. PROVIDE 2' SQ. x 6" DEEP CONCRETE COLLAR AROUND VALVE BOX FOR CLEANOUTS WHEN LOCATED OUT OF ROADWAY.
3. SEE TRENCH DETAIL FOR BACKFILL/BEDDING AND SEWER UTILITY MARKING TAPE REQUIREMENTS.