

1. CONTRACTOR SHALL FIELD VERIFY LOCATION AND ELEVATION OF ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION OF PROPOSED FACILITIES. NOTIFY ENGINEER IMMEDIATELY OF ANY DISCREPANCIES.
2. CONTRACTOR SHALL NOTIFY THE APPROPRIATE UTILITY COMPANY 48 HOURS PRIOR TO EXCAVATING NEAR THEIR UTILITY.
3. CONTRACTOR SHALL TAKE ALL DUE PRECAUTIONS TO PROTECT EXISTING FACILITIES FROM DAMAGE. ANY DAMAGE TO EXISTING FACILITIES INCURRED AS A RESULT OF CONSTRUCTION OPERATIONS WILL BE REPAIRED BY THE CONTRACTOR AT HIS OWN EXPENSE.
4. CONTRACTOR SHALL TAKE EXTRA CARE TO PROTECT TREES IN AREAS ADJACENT TO CONSTRUCTION.
5. CONTRACTOR SHALL CONFIRM NO CONFLICTS BETWEEN EXISTING AND PROPOSED DRY/WET UTILITIES IN PUBLIC R.O.W. BEFORE STARTING SITE WORK CONSTRUCTION.

PROPERTY LINE
 EXISTING SANITARY SEWER
 EXISTING WATERLINE
 PROPOSED SANITARY SEWER
 PROPOSED WATERLINE
 PROPOSED SANITARY CLEANOUT
 EXISTING DRAINFIELD TO BE REMOVED

CONTRACTOR SHALL FIELD VERIFY LOCATION AND ELEVATION OF ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION OF PROPOSED FACILITIES. NOTIFY ENGINEER IMMEDIATELY OF ANY DISCREPANCIES.

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CONTRACTOR SHALL TAKE EXTRA CARE TO PROTECT TREES IN AREAS ADJACENT TO CONSTRUCTION.

- 1 DOMESTIC WATER METER WITH STANDARD CONNECTION.
(TAPPING SADDLE AND CORPORATION STOP).
- 2 REDUCED PRESSURE ZONE BACKFLOW PREVENTER (RE: DETAIL THIS SHEET)
CONTRACTOR SHALL PROVIDE SECURITY GATE FOR THIS BFP.
- 3 PROPOSED ADA PARKING SIGN.
- 4 CONTRACTOR SHALL ENSURE HANDICAP PARKING SPACES AND ACCESS
AISLES SHALL BE LEVEL WITH SURFACE SLOPES NOT EXCEEDING 1:50
(2%) IN ALL DIRECTIONS.

ALL WATER LINE MAINS SIZES 1 THRU 3 INCH SHALL BE PVC SCH 40.

WATER LINE SHALL BE CONSTRUCTED AND TESTED IN ACCORDANCE WITH AUTHORITY SPECIFICATION FOR WATER MAIN CONSTRUCTION AS CURRENTLY AMENDED.

WATER LINE SHALL HAVE BANK SAND BEDDING AND BACKFILL.

PROVIDE THRUST BLOCKING ACCORDING TO AUTHORITY STANDARDS SPECIFICATIONS.

PROVIDE A MINIMUM 6-INCHES OF CLEARANCE AT STORM SEWER AND WATER LINE CROSSING.

POLY-VINYL-CHLORIDE (PVC SDR 26) PIPE SHALL CONFORM TO ASTM SPECIFICATIONS D3034 AND BE INSTALLED ACCORDING TO ASTM D3231.

ALL SANITARY SEWER SERVICE LINES SHALL BE CONSTRUCTED TO TRUE ALIGNMENT AND GRADE. WARPED AND SAGGING LINES WILL NOT BE PERMITTED.

BUILDING TIE-ON CONNECTION WILL BE MADE DIRECTLY TO THE STUB-OUT FROM THE BUILDING PLUMBING AT THE FOUNDATION ON ALL WASTES OUTLETS.

WATER-TIGHT ADAPTERS OF A TYPE COMPATIBLE WITH THE MATERIALS BEING JOINED WILL BE USED AT THE POINT OF CONNECTION OF THE SERVICE LINE TO THE BUILDING PLUMBING. NO CEMENT GROUT MATERIALS ARE PERMITTED.

NO BENDS OR TURNS AT ANY POINT WILL BE GREATER THAN 45 DEGREES.

CLEANOUT WILL BE MADE WITH AIRTIGHT MECHANICAL PLUG.

THE PHYSICAL CONNECTION TO THE CITY OF CONROE'S SEWER MAIN WILL BE MADE BY USE OF AN ADAPTER OF A TYPE COMPATIBLE WITH MATERIALS BEING JOINED. THE CONNECTION SHALL BE WATERTIGHT. NO CEMENT GROUT MATERIALS ARE PERMITTED.

BACKFILLING OF SERVICE LINES TRENCH MUST BE ACCOMPLISHED WITHIN TWENTY-FOUR (24) HOURS OF INSPECTION AND APPROVAL. NO DEBRIS WILL BE PERMITTED IN THE TRENCH.

SANITARY SEWER CLEANOUTS: ENSURE SANITARY SEWER CLEANOUTS ARE INSTALLED: EVERY 100 FEET ALONG HORIZONTAL PIPING. AT ALL DIRECTION CHANGES GREATER THAN 45 DEGREES. ACCORDING TO FBC-PLUMBING 708.1.1.

HORIZONTAL SEPARATION: MAINTAIN A MINIMUM 5 FEET OF HORIZONTAL DISTANCE BETWEEN THE WATER SUPPLY AND SEWER LINES.

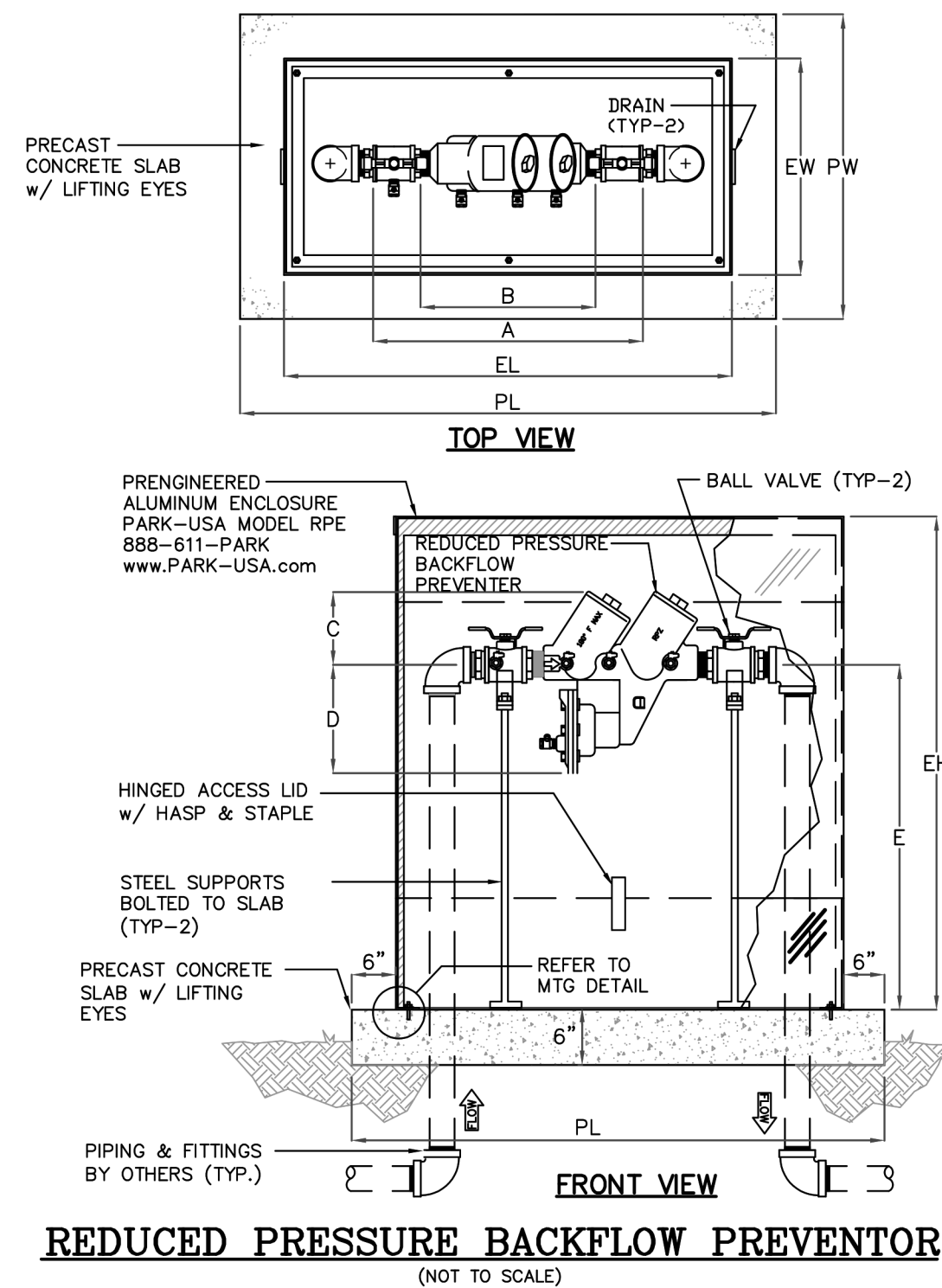
VERTICAL SEPARATION (IF CROSSING): THE WATER SUPPLY LINE MUST BE INSTALLED 12 INCHES ABOVE THE SEWER LINE. IF THIS SEPARATION IS NOT ACHIEVABLE, SECE THE SEWER PIPE IN CONCRETE.

EXTERIOR FIBERGLASS SKIN
 INTERNAL INSULATION
 1.5" IN WALLS, 3" @ TOP
 SECURE TO CONCRETE
 BASE w/ 3/8" GALV
 STEEL ANCHOR BOLTS
 PRECAST CONCRETE
 BASE

MOUNTING DETAIL

CLOSED POSITION

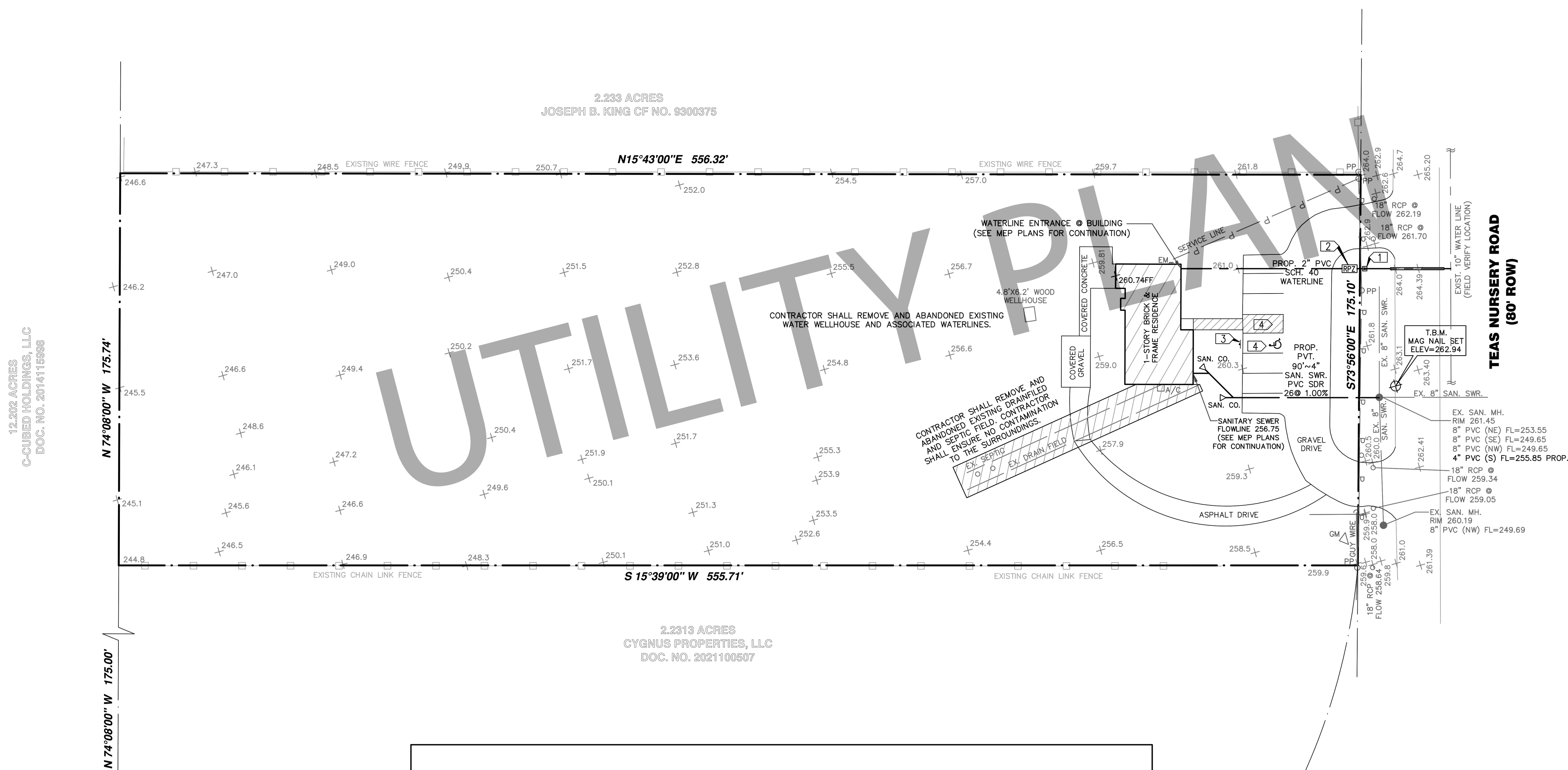
OPEN POSITION



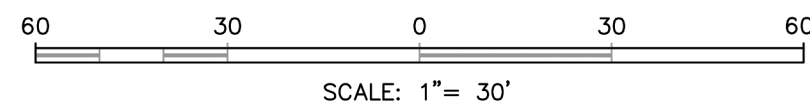
CONSTRUCTION OF ALL WATER AND SANITARY SEWER FACILITIES SHALL BE INSPECTED BY THE DISTRICT'S OPERATOR. OWNER OR HIS CONTRACTOR SHALL PROVIDE A MINIMUM OF 48 HOURS NOTICE TO REQUEST INSPECTION.

CITY ENGINEER:
ANNE TRAN, PE.
CONTACT: 936-522-3100

DISTRICT OPERATOR SHALL MAKE ALL PRIVATE AND PUBLIC WATER TAPS AND INSPECT ALL SANITARY SEWER CONNECTIONS TO DISTRICT FACILITIES INCLUDING TAPS AND TIES. INSPECTION WILL NOT BE MADE UNLESS OPERATOR HAS LETTER OF APPROVAL FROM DISTRICT ENGINEER AND PLANS APPROVED BY ALL GOVERNING AGENCIES.



EXISTING SEPTIC SYSTEM SHALL BE ABANDONED IN ACCORDANCE WITH THE REQUIREMENTS OF THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ) OSSF RULES (30 TAC CHAPTER 285) AND THE CITY OF CONROE, TEXAS. THE SEPTIC TANK SHALL BE PUMPED BY A LICENSED CONTRACTOR AND EITHER REMOVED OR FILLED WITH SAND OR GRAVEL. THE BUILDING SANITARY SERVICE SHALL BE DISCONNECTED FROM THE SEPTIC SYSTEM AND CONNECTED TO THE PUBLIC SANITARY SEWER. PROVIDE CLEANOUTS AT THE BUILDING EXIT, PROPERTY LINE, AND AS REQUIRED BY THE 2009 INTERNATIONAL PLUMBING CODE. ALL PLUMBING SYSTEMS SHALL COMPLY WITH THE 2009 INTERNATIONAL PLUMBING CODE AS ADOPTED BY THE CITY OF CONROE, TEXAS.



2229 TEAS NURSERY RD,
CONROE, TX 77304

SITE UTILITIES PLAN

DESIGNED BY:

DWN BY:

CHK BY:

SHEET
REFERENCES:

C.01

1. CONSTRUCTION AND INSTALLATION OF GRAVITY SANITARY SEWER PIPES AND FORCE MAINS BY THE TRENCHLESS TECHNOLOGY METHOD SHALL MEET ASTM, ANSI, AND AWWA STANDARDS. IF THERE IS A CONFLICT IN STANDARDS THE MOST STRINGENT SHALL GOVERN.
2. CONSTRUCTION AND INSTALLATION OF GRAVITY SANITARY SEWER PIPES AND FORCE MAINS BY THE OPEN CUT TRENCH METHOD SHALL BE IN ACCORDANCE WITH THE LATEST CITY OF CONROE AND TCQ SPECIFICATIONS. THE MOST STRINGENT SHALL GOVERN.
3. ALL SANITARY SEWER MANHOLES SHALL BE PRE-CAST CONCRETE UNLESS OTHERWISE SPECIFIED. RAM-NECK TO BE USED IN JOINTS. NO BRICK MANHOLES SHALL BE ALLOWED. FOR PVC PIPE, USE MANHOLE WATER STOP GASKET AND CLAMP ASSEMBLY AT MANHOLE CONNECTIONS. SANITARY SEWER MANHOLE RIMS SHALL BE 3 INCHES ABOVE NATURAL GROUND. BACKFILL SHALL BE ADDED AND SLOPED AWAY FROM THE MANHOLE RIM FOR DRAINAGE PURPOSE.
4. ALL NEW PRECAST CONCRETE SANITARY SEWER MANHOLES ARE TO BE COATED INSIDE WITH A FACTORY APPLIED HIGH BUILD EPOXY OR POLYUREA COATING, PER MANUFACTURER SPECIFICATIONS.
5. WHEN THE SANITARY SEWER MANHOLE LIES WITHIN THE 100 YEAR FLOODPLAIN, THE MANHOLE SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE CITY OF CONROE STANDARD SEALED AND VENTED MANHOLE DETAIL.
6. MANHOLE FRAME AND COVER SHALL BE 32" EAST JORDAN IRONWORKS V-1420 FRAME AND COVER (OR APPROVED EQUAL) WITH THE CITY OF CONROE SANITARY SEWER LOGO EMBEDDED IN LID UNLESS OTHERWISE SPECIFIED.
7. ALL CONNECTIONS TO SANITARY SEWER MANHOLES SHALL BE CORED AND BOOTED.
8. SANITARY SEWER MAIN SHALL BE GREEN PVC SDR 26, IN ACCORDANCE WITH ASTM SPECIFICATIONS D-3034, FOR 6" THROUGH 15" AND ASTM F-679 FOR 18" THROUGH 27".
9. FORCE MAINS SHALL BE GREEN PVC CLASS 150 CONFORMING TO AWWA C900 WITH PUSH ON GASKETS CONFORMING TO ASTM F477. HDPE FORCE MAINS SHALL BE PE4710 DR17 (125 PSI MINIMUM) WITH FUSION JOINTS AND CONFORMING TO AWWA C906.
10. STEEL CASING SHALL BE REQUIRED FOR ALL THOROUGHFARE AND COLLECTOR ROADWAYS, CREEK CROSSINGS AND AT ENGINEERING REPRESENTATIVE'S DISCRETION FOR ALL SANITARY SEWER LINES AND FORCE MAINS. THE STEEL CASING SHALL HAVE A MINIMUM WALL THICKNESS OF 0.375 INCHES, ROLLED STEEL TYPE; SPIRAL STEEL WILL NOT BE ALLOWED.
11. SEPARATION DISTANCES BETWEEN ALL SANITARY SEWER LINES AND WATER MAINS SHALL BE GOVERNED BY (TCQ) "TEXAS COMMISSION OF ENVIRONMENTAL QUALITY" CHAPTER 290.
12. SANITARY SERVICE LATERALS ARE INSTALLED AT A MINIMUM SLOPE OF 1.00% OR GREATER.
13. ALL SANITARY SEWER LINES, SERVICE LATERALS AND FORCE MAINS SHALL BE INSTALLED WITH #14 AWG TRACER WIRE, ATTACHED TO THE PIPE AT A 3'O'CLOCK POSITION USING TAPE OR WIRES AND HAVE A CONTINUITY TEST PERFORMED BEFORE ACCEPTANCE BY THE CITY OF CONROE.
14. METALLIC UNDERGROUND WARNING TAPE SHALL BE LAID 12" ABOVE ALL SANITARY SEWER LINES, SERVICE LATERALS AND FORCE MAINS. WARNING TAPE SHALL BE LABELED, "PRESSURIZED WASTEWATER BELOW" FOR FORCE MAINS AND "SANITARY SEWER BELOW" FOR SANITARY SEWER PIPES CONTINUOUSLY REPEATED WITH LETTER SIZING 1 1/2 INCHES.
15. NO SEWER PIPE SHALL BE LAID ON AN UNSTABLE FOUNDATION. IF UNSTABLE FOUNDATION IS FOUND THEN DETAIL SWR-13 SHALL BE REQUIRED. NO PIPE SHALL BE COVERED WITHOUT A CITY INSPECTOR'S APPROVAL.
16. BACKFILL AND BEDDING FOR SANITARY SEWER LINES AND FORCE MAINS MUST MEET ALL MINIMUM REQUIREMENTS OF ASTM D-2321 AND MUST BE IN ACCORDANCE WITH CITY OF CONROE BEDDING AND TRENCH DETAIL SWR-12.
17. CEMENT STABILIZED SAND (CSS) SHALL BE 100 PSI WITHIN 48 HOURS.



**SANITARY SEWER
CONSTRUCTION NOTES 1 OF 2**

Revision Date
03/01/2018

Approved By: *[Signature]*

SWR-01A

18. TESTING OF THE GRAVITY SANITARY SEWER PIPES AND FORCE MAINS SHALL BE PER CITY OF CONROE DESIGN MANUAL AND TCQ SPECIFICATIONS WITH THE MOST STRINGENT, SHALL GOVERN.
19. A DEFLECTION TEST SHALL BE REQUIRED AFTER THE BACKFILL HAS BEEN IN PLACE A MINIMUM OF 30 DAYS. THIS TEST SHALL BE DONE BY PULLING A HAND LINE WITH AN ATTACHED MANDEL FROM MANHOLE TO MANHOLE. THE MANDEL SHALL HAVE AN OUTSIDE DIAMETER THAT IS AT LEAST 95% OF THE ORIGINAL INSIDE DIAMETER OF THE PIPE. MANDEL TO BE MANUFACTURED WITH A MINIMUM OF SEVEN (7) RUNNERS, WITH EACH RUNNER BEING A MINIMUM OF 5 INCHES LONG. ANY PIPE NOT MEETING TEST REQUIREMENTS TO BE REMOVED AND REPLACED AT THE CONTRACTOR'S EXPENSE. THE TEST SHALL BE PERFORMED WITHOUT MECHANICAL PULLING DEVICES.
20. THE TOTAL INFILTRATION / EXFILTRATION MUST NOT EXCEED 50 GALLONS PER INCH DIAMETER PER MILE OF PIPE PER 24 HOURS AT A MINIMUM TEST HEAD OF TWO (2) FEET ABOVE THE CROWN OF A PIPE AT AN UPSTREAM MANHOLE, OR AT LEAST TWO (2) FEET ABOVE EXISTING GROUNDWATER LEVEL, WHICHEVER IS GREATER. OR AN AIR TEST SHALL BE REQUIRED PER 30 TAC § 217-57(A) (1) AND CONFORMING TO ASTM C924 OR F1417 WHICHEVER APPLIES.
21. CONTRACTOR / OWNER SHALL KEEP RECORD OF LOCATION OF ALL STACKS, STUBS, SEWER LEADS, THROUGHOUT ENTIRETY OF THE PROJECT. THE "RECORD" (AS-BUILT) DRAWINGS MUST SHOW THE EXACT LOCATION AND BE SUBMITTED BACK TO THE CITY OF CONROE, UPON COMPLETION OF THE JOB FOR FINAL ACCEPTANCE.



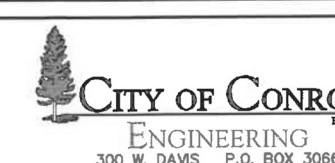
**SANITARY SEWER
CONSTRUCTION NOTES 2 OF 2**

Revision Date
03/01/2018

Approved By: *[Signature]*

SWR-01B

1. CONSTRUCTION AND INSTALLATION OF GRAVITY SANITARY SEWER PIPES AND FORCE MAINS BY THE TRENCHLESS TECHNOLOGY METHOD SHALL MEET ASTM, ANSI, AND AWWA STANDARDS. IF THERE IS A CONFLICT IN STANDARDS THE MOST STRINGENT SHALL GOVERN.
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8. SANITARY SEWER MAIN SHALL BE GREEN PVC SDR 26, IN ACCORDANCE WITH ASTM SPECIFICATIONS D-3034, FOR 6" THROUGH 15" AND ASTM F-679 FOR 18" THROUGH 27".
9. FORCE MAINS SHALL BE GREEN PVC CLASS 150 CONFORMING TO AWWA C900 WITH PUSH ON GASKETS CONFORMING TO ASTM F477. HDPE FORCE MAINS SHALL BE PE4710 DR17 (125 PSI MINIMUM) WITH FUSION JOINTS AND CONFORMING TO AWWA C906.
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19. A DEFLECTION TEST SHALL BE REQUIRED AFTER THE BACKFILL HAS BEEN IN PLACE A MINIMUM OF 30 DAYS. THIS TEST SHALL BE DONE BY PULLING A HAND LINE WITH AN ATTACHED MANDEL FROM MANHOLE TO MANHOLE. THE MANDEL SHALL HAVE AN OUTSIDE DIAMETER THAT IS AT LEAST 95% OF THE ORIGINAL INSIDE DIAMETER OF THE PIPE. MANDEL TO BE MANUFACTURED WITH A MINIMUM OF SEVEN (7) RUNNERS, WITH EACH RUNNER BEING A MINIMUM OF 5 INCHES LONG. ANY PIPE NOT MEETING TEST REQUIREMENTS TO BE REMOVED AND REPLACED AT THE CONTRACTOR'S EXPENSE. THE TEST SHALL BE PERFORMED WITHOUT MECHANICAL PULLING DEVICES.
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21. CONTRACTOR / OWNER SHALL KEEP RECORD OF LOCATION OF ALL STACKS, STUBS, SEWER LEADS, THROUGHOUT ENTIRETY OF THE PROJECT. THE "RECORD" (AS-BUILT) DRAWINGS MUST SHOW THE EXACT LOCATION AND BE SUBMITTED BACK TO THE CITY OF CONROE, UPON COMPLETION OF THE JOB FOR FINAL ACCEPTANCE.
22. AN APPROVED TAP PERMIT IS REQUIRED FOR ALL SEWER TAPS.



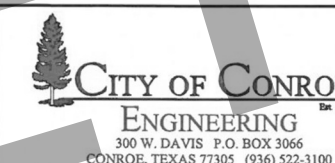
**SANITARY SEWER
CONSTRUCTION NOTES**

Revision Date
01/04/2024

Approved By: *[Signature]*

SWR-01

1. WATER MAINS SHALL BE BLUE PVC, CLASS 150 OR BETTER CONFORMING TO AWWA C900, AWWA C905 OR AWWA C909, UNLESS OTHERWISE SPECIFIED. PIPE JOINTS SHALL BE INTEGRAL BELL OR RESTRAINED TYPE CONFORMING TO ASTM D1519 WITH GASKETS CONFORMING TO ASTM F477. ALL WATER PIPES SHALL HAVE ANSI/NSF 61 CERTIFICATION.
2. FITTINGS SHALL BE DUCTILE IRON CONFORMING TO ANSI/AWWA C153/A21.53 FOR COMPACT FITTINGS AND ANSI/AWWA C110/A21.10 FOR FULL BODY FITTINGS. ALL FITTINGS SHALL BE CAST-IRON OR CAST STEEL AND COATED WITH AN ASPHALTIC MATERIAL OUTSIDE IN ACCORDANCE WITH ANSI/AWWA C104/A21.4. MECHANICAL JOINT FITTINGS AND ACCESSORIES SHALL BE MADE TO MEET ALL APPLICABLE REQUIREMENTS OF ANSI/AWWA C110/A21.10, 3" THROUGH 48" AND ANSI/AWWA C111/A21.11. MEGALUG OR APPROVED EQUAL RESTRAINTS SHALL BE USED FOR ALL MECHANICAL JOINT FITTINGS. COMPACT FITTINGS ARE ACCEPTABLE, EXCEPT FOR TEES, WHICH MUST BE FULL BODY TYPE.
3. PIPE BEDDING AND BACKFILL SHALL BE IN ACCORDANCE WITH THE CITY OF CONROE STANDARD DETAILS.
4. ALL WATER MAINS LESS THAN 16" SHALL HAVE A MINIMUM COVER OF FOUR FEET (4') FROM THE BOTTOM OF THE SUBGRADE OF A ROAD AND/OR TWO FEET SIX INCHES (2'-6") BELOW THE DITCH FLOWLINE, OR NATURAL GROUND, WHICHEVER IS LOWER, UNLESS OTHERWISE SPECIFIED.
5. ALL WATER MAINS 16" AND LARGER SHALL HAVE A MINIMUM COVER OF FIVE FEET (5') FROM THE BOTTOM OF THE SUBGRADE OF A ROAD AND/OR TWO FEET SIX INCHES (2'-6") BELOW THE DITCH FLOWLINE, OR NATURAL GROUND, WHICHEVER IS LOWER, UNLESS OTHERWISE SPECIFIED.
6. ALL GATE VALVES SHALL BE RESILIENT WEDGE TYPE, NON-RISEING STEM (OPEN-LEFT) AND CONFORMING TO AWWA C515. VALVE BOX SHALL BE CAST IRON TYPE-A WITH "WATER" OR "W" MARKED ON LID.
7. ALL WATER MAINS AND SERVICE LATERALS SHALL BE INSTALLED WITH #14 AWG TRACER WIRE, ATTACH TO THE PIPE AT A 3'O'CLOCK POSITION USING TAPE OR WIRES AND HAVE A CONTINUITY TEST PERFORMED BEFORE ACCEPTANCE BY THE CITY OF CONROE.
8. ALL WATER MAINS SHALL BE HYDROSTATICALLY TESTED IN ACCORDANCE WITH AWWA C605 FOR PVC OR AWWA C600 FOR DI PIPE AS REQUIRED IN 30 TAC § 290.44 (A)
9. PRIOR TO BACTERIOLOGICAL TESTING, ALL WATER PIPING SHALL BE TESTED AND DISINFECTED PER AWWA C651 AND AFFORND PRIOR TO USE.
10. THE CONTRACTOR SHALL OBTAIN ALL PERMITS BEFORE THE INSTALLATION OF THE SERVICE LINES, WATER METERS BOXES, COMBINATION METER VAULTS, FIRE SPRINKLER AND / OR IRRIGATION LINES.
11. WHEN THE SERVICE LATERAL AND LARGE METER VAULT ASSEMBLY ARE REQUIRED, THE CONTRACTOR SHALL CONTACT THE CITY OF CONROE TO SCHEDULE FOR EACH OF THE FOLLOWING: TAP INSTALLATION, INSPECTION AND LOADING OF METER VAULT.
12. THE CONTRACTOR SHALL MAINTAIN A MINIMUM SEPARATION DISTANCE BETWEEN WATERLINE AND SANITARY SEWER LINES AS REQUIRED BY DETAIL SWR-04 (e)
13. THE INSTALLATION OF ALL WATER LINES SHALL EXTEND ALONG THE ENTIRE LENGTH OF THE PROPERTY TO BE SERVED. WATER LINES THAT END SHALL EXTEND TO THE PROJECT LIMITS AND END WITH A BLOW-OFF VALVE AND BOX ASSEMBLY OR A GATE VALVE AND FIRE HYDRANT FOR FUTURE EXTENSIONS.
14. STEEL CASING SHALL BE REQUIRED FOR ALL THOROUGHFARE AND COLLECTOR ROADWAYS, AS WELL AS, CREEK CROSSINGS ON WATER MAINS. THE STEEL CASING SHALL HAVE A MINIMUM WALL THICKNESS OF 0.375 INCHES, ROLLED STEEL TYPE; SPIRAL WILL NOT BE ALLOWED.
15. CEMENT STABILIZED SAND (CSS) SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 100 PSI IN 48 HOURS.

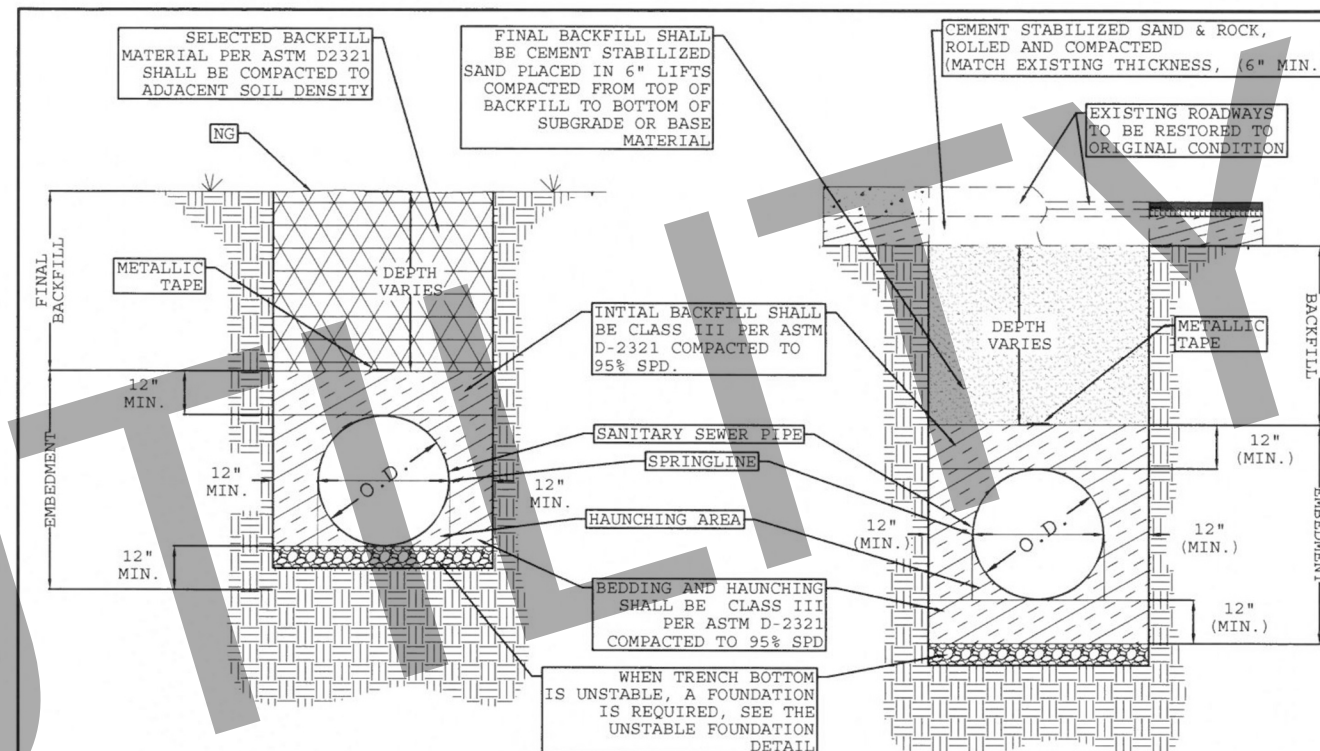


**WATER MAIN
CONSTRUCTION NOTES**

Revision Date
06/26/2018

Approved By: *[Signature]*

WTR-01



**SANITARY SEWER BEDDING
DETAIL
OUTSIDE ROADWAY AREAS**

HAUNCHING

THE HAUNCHING AREA IS THE MOST IMPORTANT IN TERMS OF LIMITING THE SEPARATION OF A FLEXIBLE PIPE. THIS IS THE AREA THAT SHOULD BE COMPACTED TO THE REQUIRED R SPECIFIED DENSITY.

BEDDING

THE BEDDING DIRECTLY UNDERNATH THE PIPE IS ROUTINELY ONLY TO BRING THE TRENCH BOTTOM UP TO GRADE. IT SHOULD NOT BE SO THICK OR SOFT THAT THE PIPE WILL SETTLE AND LOSE GRADE. THE PURPOSE OF THE BEDDING IS TO PROVIDE A FIRM, STABLE AND UNIFORM SUPPORT OF THE PIPE. A LAYER OF MATERIAL SUFFICIENT TO ESTABLISH LINE, GRADE, AND SUPPORT SHOULD BE PLACED. HELL HOLES SHOULD BE EXCAVATED TO INSURE UNIFORM BEARING.

FOUNDATION

A FOUNDATION IS REQUIRED WHEN THE TRENCH BOTTOM IS UNSTABLE. ANY FOUNDATION THAT WILL SUPPORT A RIGID PIPE SUCH AS REINFORCED CONCRETE WITHOUT CAUSING LOSS OF GRADE OR FLEXURAL CLAY MIXTURES. SOIL TYPES CM, CC, SR AND SC ARE INCLUDED IN THIS CLASS.

ASTM D-2321
DESCRIPTION OF FILL MATERIALS
ALLOWED BY CITY OF CONROE

CLASS I
ANGULAR, 1/4\"/>

CLASS II
FINE SAND AND CLAYEY GRAVELS, INCLUDING FINE SANDS AND SAND-CLAY MIXTURES, AND GRAVEL-CLAY MIXTURES. SOIL TYPES CM, CC, SR AND SC ARE INCLUDED IN THIS CLASS.

**SANITARY SEWER
BEDDING DETAIL
INSIDE ROADWAY AREAS**

HAUNCHING

THE HAUNCHING AREA IS THE MOST IMPORTANT IN TERMS OF LIMITING THE SEPARATION OF A FLEXIBLE PIPE. THIS IS THE AREA THAT SHOULD BE COMPACTED TO THE REQUIRED R SPECIFIED DENSITY.

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THE BEDDING DIRECTLY UNDERNATH THE PIPE IS ROUTINELY ONLY TO BRING THE TRENCH BOTTOM UP TO GRADE. IT SHOULD NOT BE SO THICK OR SOFT THAT THE PIPE WILL SETTLE AND LOSE GRADE. THE PURPOSE OF THE BEDDING IS TO PROVIDE A FIRM, STABLE AND UNIFORM SUPPORT OF THE PIPE. A LAYER OF MATERIAL SUFFICIENT TO ESTABLISH LINE, GRADE, AND SUPPORT SHOULD BE PLACED. HELL HOLES SHOULD BE EXCAVATED TO INSURE UNIFORM BEARING.

FOUNDATION

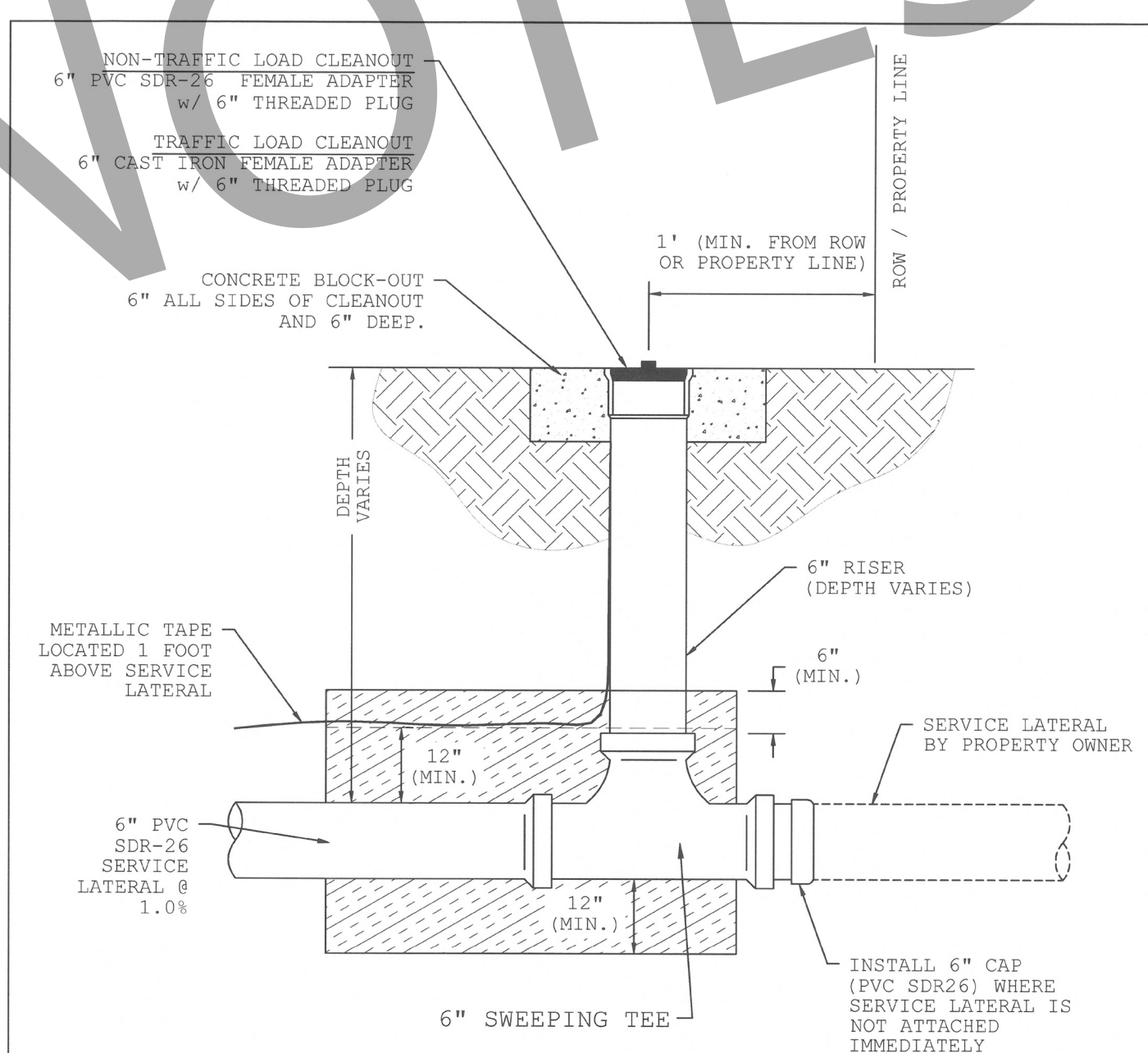
A FOUNDATION IS REQUIRED WHEN THE TRENCH BOTTOM IS UNSTABLE. ANY FOUNDATION THAT WILL SUPPORT A RIGID PIPE SUCH AS REINFORCED CONCRETE WITHOUT CAUSING LOSS OF GRADE OR FLEXURAL CLAY MIXTURES. SOIL TYPES CM, CC, SR AND SC ARE INCLUDED IN THIS CLASS.

**SANITARY SEWER
BEDDING AND TRENCH DETAIL**

Revision Date
03/01/2018

Approved By: *[Signature]*

SWR-12



NOTES:

1. PROVIDE CAST IRON RISER AND FITTINGS WHERE CLEAN-OUT IS SUBJECT TO TRAFFIC LOADS.
2. ALL OTHER CLEANOUTS AND FITTINGS SHALL BE PVC SDR-26 OR SCHEDULE 40 PVC.
3. ALL HAUNCHING AND EMBEDMENT SHALL BE PER ASTM D-2321.

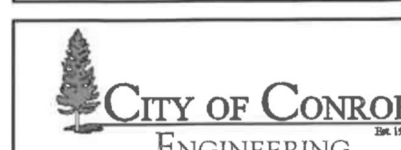
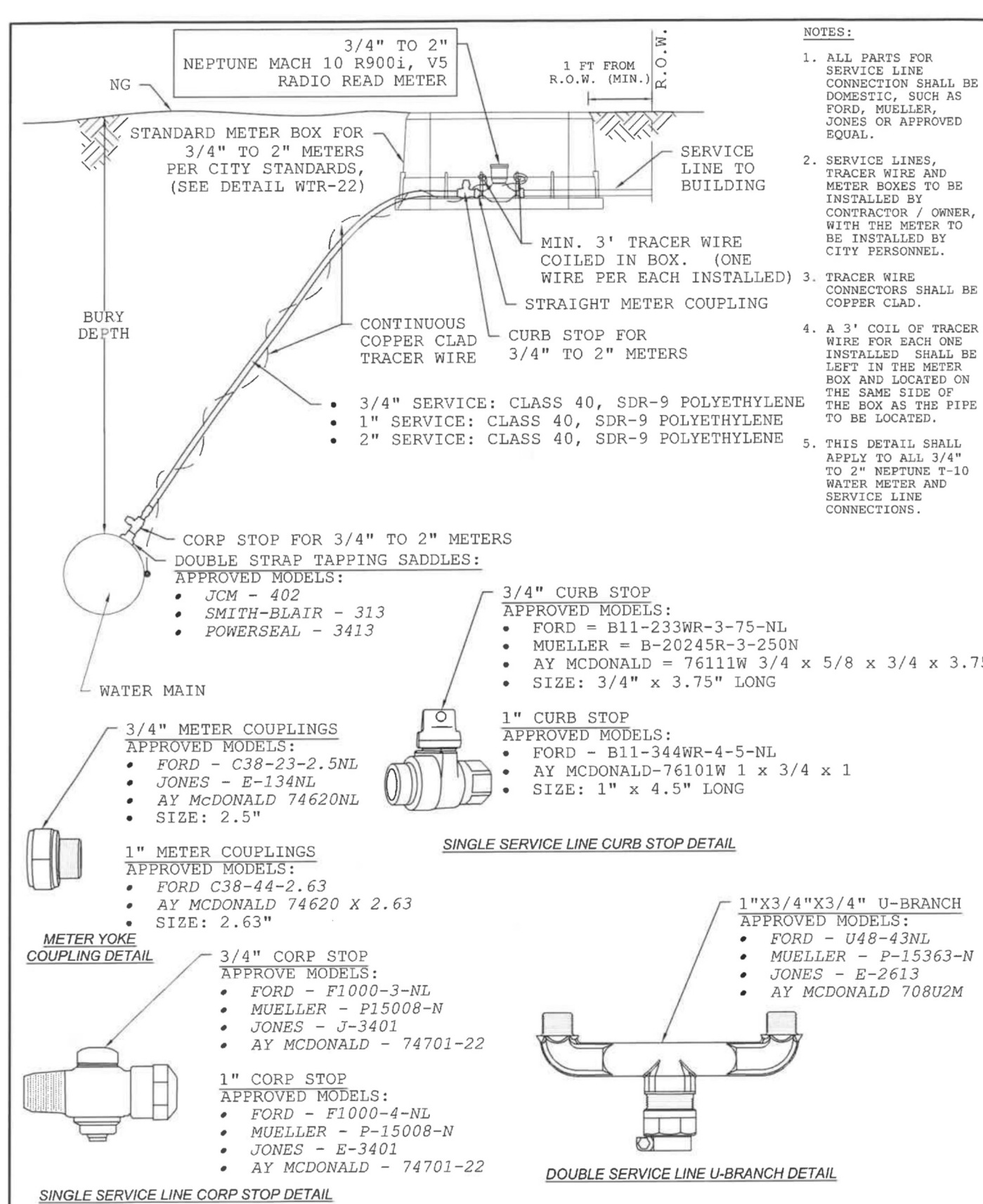


**SANITARY SEWER
CLEAN-OUT DETAIL**

Revision Date
03/01/2018

Approved By: *[Signature]*

SWR-18



**WATER MAIN
STANDARD 2\"/>**

Revision Date
05/17/2023

Approved By: *[Signature]*

WTR-24

2229 TEAS NURSERY RD,
CONROE, TX 77304

**GENERAL
CONSTRUCTION
NOTES AND
DETAILS**

DESIGNED BY:

DWN BY:

CHK BY:

SHEET
REFERENCE:

C.02