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TIP PROJECT: R-3830

STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

UTILITY CONSTRUCTION PLANS LEE COUNTY

T.I.P. NO. R-3830	SHEET NO. UC-1
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UTILITY AGREEMENT PLANS

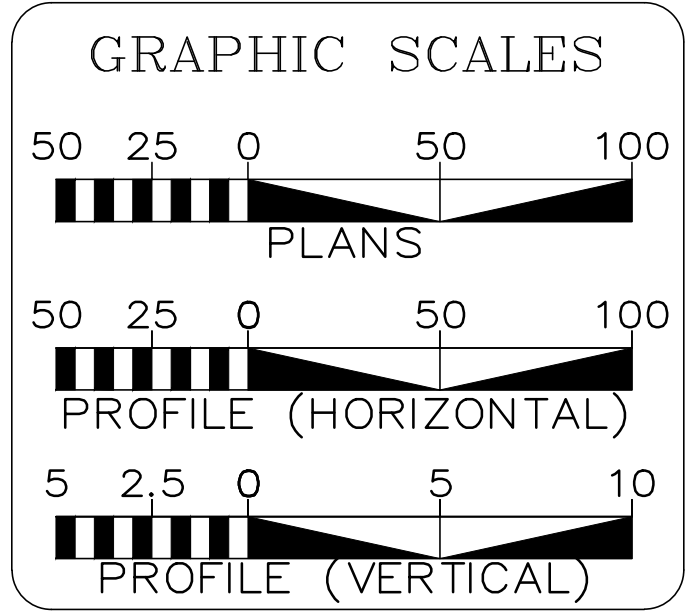
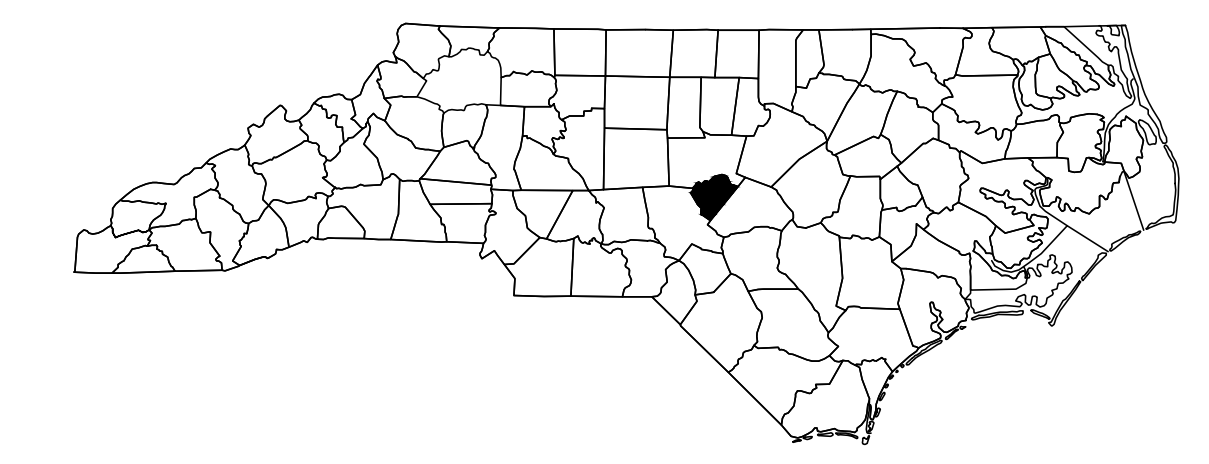
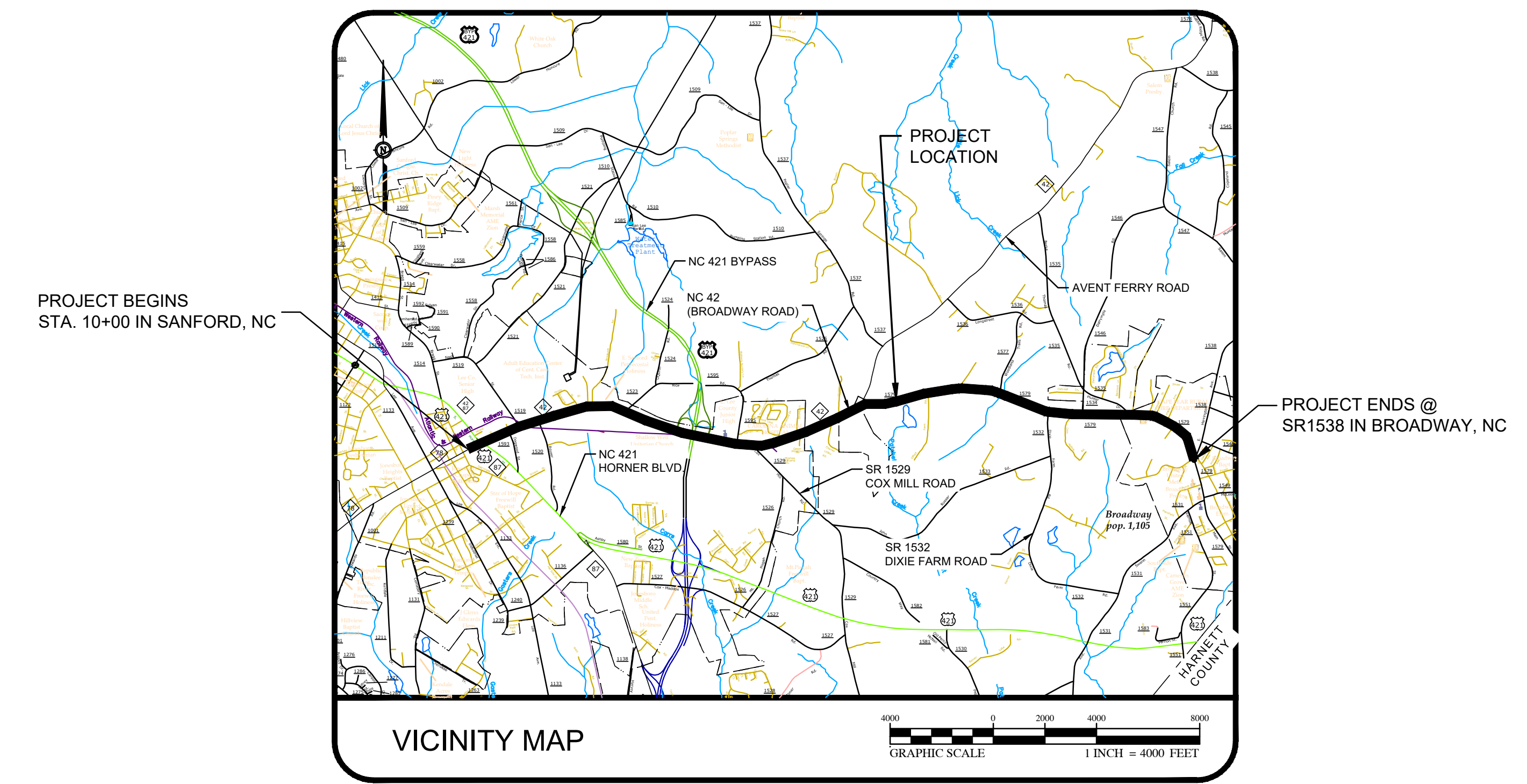
EXHIBIT "A"

COST BREAKDOWN LEGEND

STATE COST	75%
CITY OF SANFORD COST	25%

LOCATION: NC 42 FROM US 421 TO SR 1579 (MAIN STREET)
IN SANFORD AND ALONG SR 1579 FROM NC 42
TO SR 1538 (E. HARRINGTON AVE) IN BROADWAY

TYPE OF WORK: WATER AND SEWER RELOCATION



INDEX OF SHEETS

SHEET NO.:	DESCRIPTION:
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UC-2	UTILITY SYMBOLOGY
UC-3	NOTES
UC-3A THRU UC-3B	DETAILS
UC-4	SHEET REFERENCE
UC-5 THRU UC-25	PLAN AND PROFILE SHEETS

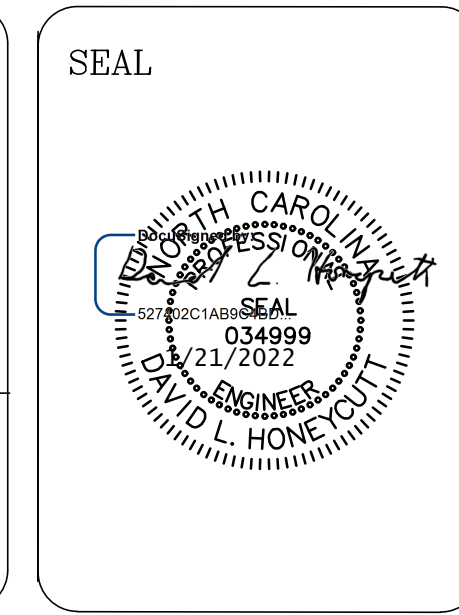
WATER AND SEWER OWNERS ON PROJECT

(A) WATER: CITY OF SANFORD
(B) SANITARY SEWER: CITY OF SANFORD
Water Dept.: 919-775-8215
Emergency: 919-775-8268 After Hours
Public Works: 919-777-1118

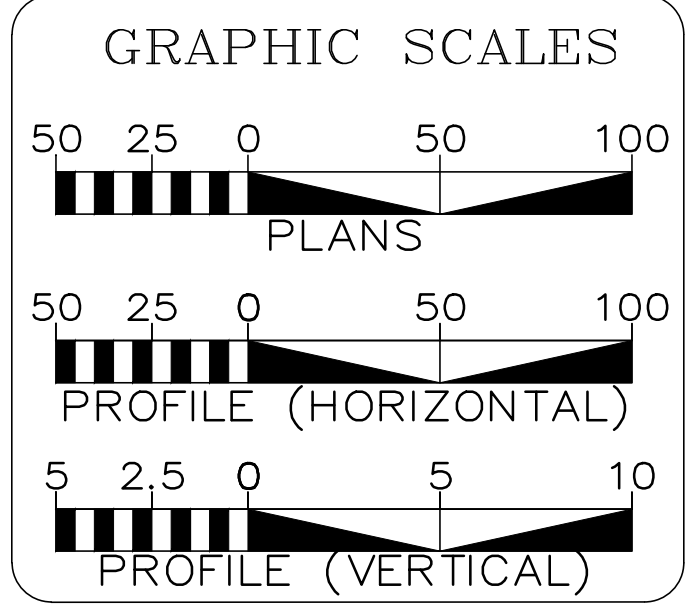
PREPARED IN THE OFFICE OF

CONSULTANT INFO
McGILL ASSOCIATES, P.A.
5 REGIONAL CIRCLE, SUITE A
PINEHURST, NC 28374
910-295-3159

DAVID HONEYCUTT CONSULTANT CONTACT #1
MATTHEW JONES CONSULTANT CONTACT #2



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UNTIL ALL SIGNATURES ARE COMPLETED



INDEX OF SHEETS

SHEET NO.:	DESCRIPTION:
UC-3C THRU UC-3D	DETAILS
UC-26 THRU UC-30	PLAN SHEETS
UC-31 THRU UC-35	PROFILE SHEETS

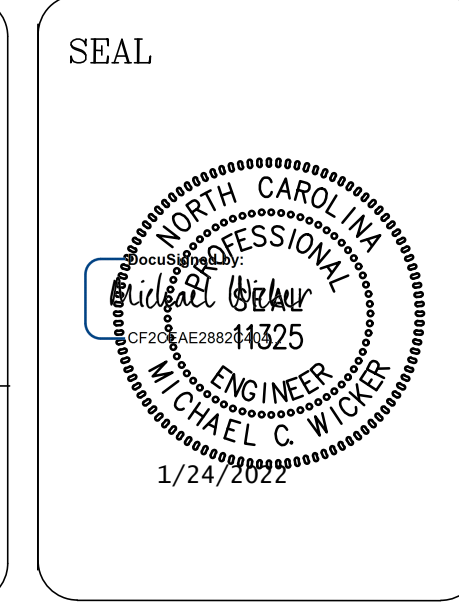
WATER AND SEWER OWNERS ON PROJECT

(A) WATER: TOWN OF BROADWAY
(B) SANITARY SEWER: TOWN OF BROADWAY
Water Dept.: 919-258-9922
Public Works: 919-258-9922
117 South Main Street

PREPARED IN THE OFFICE OF

CONSULTANT INFO
WithersRavenel
115 MacKenan Drive
CARY, NC 27511
919-469-3340

MICHAEL WICKER CONSULTANT CONTACT #1
MARK WU CONSULTANT CONTACT #2



DIVISION OF HIGHWAYS
UTILITIES UNIT
1555 MAIL SERVICES CENTER
RALEIGH, NC 27699-1555
PHONE (919) 707-6690
FAX (919) 250-4151

ALI KOUCHEKI, P.E. UTILITIES REGIONAL ENGINEER
JON LOUGHRY UTILITIES ENGINEER
DAYTON MARTIN, III UTILITIES AREA COORDINATOR
XXXX UTILITIES COORDINATOR

STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

UTILITIES PLAN SHEET SYMBOLS

PROPOSED WATER SYMBOLS

Water Line (Sized as Shown)	
11 1/4 Degree Bend	
22 1/2 Degree Bend	
45 Degree Bend	
90 Degree Bend	
Plug	
Tee	
Cross	
Reducer	
Gate Valve	
Butterfly Valve	
Tapping Valve	
Line Stop	
Line Stop with Bypass	
Blow Off	
Fire Hydrant	
Relocate Fire Hydrant	
Remove Fire Hydrant	
Water Meter	
Relocate Water Meter	
Remove Water Meter	
Water Pump Station	
RPZ Backflow Preventer	
DCV Backflow Preventer	
Relocate RPZ Backflow Preventer	
Relocate DCV Backflow Preventer	

PROPOSED SEWER SYMBOLS

Gravity Sewer Line (Sized as Shown)	
Force Main Sewer Line (Sized as Shown)	
Manhole (Sized per Note)	
Sewer Pump Station	

PROPOSED MISCELLANEOUS UTILITIES SYMBOLS

Power Pole	
Telephone Pole	
Joint Use Pole	
Telephone Pedestal	
Utility Line by Others (Type as Shown)	
Trenchless Installation	
Encasement by Open Cut	
Encasement	

Thrust Block	
Air Release Valve	
Utility Vault	
Concrete Pier	
Steel Pier	
Plan Note	
Pay Item Note	

EXISTING UTILITIES SYMBOLS

Power Pole		* Underground Power Line	
Telephone Pole		* Underground Telephone Cable	
Joint Use Pole		* Underground Telephone Conduit	
Utility Pole		* Underground Fiber Optics Telephone Cable	
Utility Pole with Base		* Underground TV Cable	
H-Frame Pole		* Underground Fiber Optics TV Cable	
Power Transmission Line Tower		* Underground Gas Pipeline	
Water Manhole		Aboveground Gas Pipeline	
Power Manhole		* Underground Water Line	
Telephone Manhole		Aboveground Water Line	
Sanitary Sewer Manhole		* Underground Gravity Sanitary Sewer Line	
Hand Hole for Cable		Aboveground Gravity Sanitary Sewer Line	
Power Transformer		* Underground SS Forced Main Line	
Telephone Pedestal		Underground Unknown Utility Line	
CATV Pedestal		SUE Test Hole	
Gas Valve		Water Meter	
Gas Meter		Water Valve	
Located Miscellaneous Utility Object		Fire Hydrant	
Abandoned According to Utility Records		Sanitary Sewer Cleanout	
End of Information			

* For Existing Utilities
 Utility Line Drawn from Record (Type as Shown) _____
 Designated Utility Line (Type as Shown) _____

UTILITY CONSTRUCTION


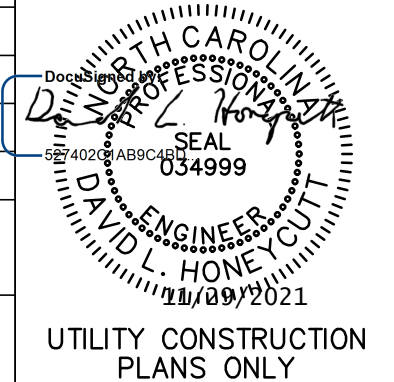
GENERAL NOTES:

1. THE PROPOSED UTILITY CONSTRUCTION SHALL MEET THE APPLICABLE REQUIREMENTS OF THE NC DEPARTMENT OF TRANSPORTATION'S "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" DATED 2018.
2. THE EXISTING UTILITIES BELONG TO THE CITY OF SANFORD.
3. ALL WATER LINES TO BE INSTALLED WITHIN COMPLIANCE OF THE RULES AND REGULATIONS OF THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY, DIVISION OF WATER RESOURCES, PUBLIC WATER SUPPLY SECTION. ALL SEWER LINES TO BE INSTALLED WITHIN COMPLIANCE OF THE RULES AND REGULATIONS OF THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY, DIVISION OF WATER RESOURCES, WATER QUALITY SECTION. PERFORM ALL WORK IN ACCORDANCE WITH THE APPLICABLE PLUMBING CODES.
4. THE UTILITY OWNER OWNS THE EXISTING UTILITY FACILITIES AND WILL OWN THE NEW UTILITY FACILITIES AFTER ACCEPTANCE BY THE DEPARTMENT. THE DEPARTMENT OWNS THE CONSTRUCTION CONTRACT AND HAS ADMINISTRATIVE AUTHORITY. COMMUNICATIONS AND DECISIONS BETWEEN THE CONTRACTOR AND UTILITY OWNER ARE NOT BINDING UPON THE DEPARTMENT OR THIS CONTRACT UNLESS AUTHORIZED BY THE ENGINEER. AGREEMENTS BETWEEN THE UTILITY OWNER AND CONTRACTOR FOR THE WORK THAT IS NOT PART OF THIS CONTRACT OR IS SECONDARY TO THIS CONTRACT ARE ALLOWED, BUT ARE NOT BINDING UPON THE DEPARTMENT.
5. PROVIDE ACCESS FOR THE DEPARTMENT PERSONNEL AND THE OWNER'S REPRESENTATIVES TO ALL PHASES OF CONSTRUCTION. NOTIFY DEPARTMENT PERSONNEL AND THE UTILITY OWNER TWO WEEKS PRIOR TO COMMENCEMENT OF ANY WORK AND ONE WEEK PRIOR TO SERVICE INTERRUPTION. KEEP UTILITY OWNERS' REPRESENTATIVES INFORMED OF WORK PROGRESS AND PROVIDE OPPORTUNITY FOR INSPECTION OF CONSTRUCTION AND TESTING.

6. THE PLANS DEPICT THE BEST AVAILABLE INFORMATION FOR THE LOCATION, SIZE, AND TYPE OF MATERIAL FOR ALL EXISTING UTILITIES. MAKE INVESTIGATIONS FOR DETERMINING THE EXACT LOCATION, SIZE, AND TYPE MATERIAL OF THE EXISTING FACILITIES AS NECESSARY FOR THE CONSTRUCTION OF THE PROPOSED UTILITIES AND FOR AVOIDING DAMAGE TO EXISTING FACILITIES. REPAIR ANY DAMAGE INCURRED TO EXISTING FACILITIES TO THE ORIGINAL OR BETTER CONDITION AT NO ADDITIONAL COST TO THE DEPARTMENT.
7. MAKE FINAL CONNECTIONS OF THE NEW WORK TO THE EXISTING SYSTEM WHERE INDICATED ON THE PLANS, AS REQUIRED TO FIT THE ACTUAL CONDITIONS, OR AS DIRECTED.
8. MAKE CONNECTIONS BETWEEN EXISTING AND PROPOSED UTILITIES AT TIMES MOST CONVENIENT TO THE PUBLIC, WITHOUT ENDANGERING THE UTILITY SERVICE, AND IN ACCORDANCE WITH THE UTILITY OWNER'S REQUIREMENTS. MAKE CONNECTIONS ON WEEKENDS, AT NIGHT, AND ON HOLIDAYS IF NECESSARY.
9. ALL UTILITY MATERIALS SHALL BE APPROVED PRIOR TO DELIVERY TO THE PROJECT. SEE 1500-7, " SUBMITTALS AND RECORDS" IN SECTION 1500 OF THE STANDARD SPECIFICATIONS.
10. IN THE EVENT THAT NCDOT AND CITY OF SANFORD UTILITY DETAILS AND/OR INSTALLATION PRACTICES DO NOT MATCH THEN THE MORE STRINGENT SHALL APPLY.


PROJECT SPECIFIC NOTES:

1. PROPOSED WATER LINE SHALL BE D.I. (DUCTILE IRON) PIPE.
2. CONTRACTOR'S ATTENTION IS DIRECTED TO SECTIONS 102, 107, AND 1550 OF THE STANDARD SPECIFICATIONS CONCERNING TRENCHLESS INSTALLATION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO HAVE BORE DESIGNED AND SEALED BY A LICENSED NORTH CAROLINA PROFESSIONAL ENGINEER. NO DAMAGE IS ALLOWED TO RIVER, WETLANDS, OR BUFFER ZONES.
3. WATER LINES AND SEWER LINES SHALL HAVE 3'-0" MINIMUM COVER UNLESS OTHERWISE SHOWN ON THE DRAWINGS.
4. WATER AND SEWER LINES SHALL HAVE A MINIMUM 10' HORIZONTAL SEPARATION OR A MINIMUM 18" VERTICAL SEPARATION WITH THE WATER OVER SEWER, OR BOTH WATER AND SEWER LINES SHALL BE DUCTILE IRON PIPE 10' EITHER SIDE OF THE CROSSING.
5. WATER AND STORM SEWER LINES SHALL HAVE A MINIMUM 18" SEPARATION EXCEPT UNDER NCDOT STORM DRAINS WHICH SHALL HAVE 24" VERTICAL SEPARATION. IF SEPARATION IS NOT OBTAINABLE, DUCTILE IRON PIPE SHALL BE USED FOR THE WATER LINE OR A SUPPORTING MATERIAL SUCH AS FLOWABLE FILL SHALL BE INSTALLED BETWEEN THE PIPES.
6. SANITARY SEWER AND STORM SEWER LINES SHALL HAVE A MINIMUM 18" SEPARATION. IF SEPARATION IS NOT OBTAINABLE, DUCTILE IRON PIPE SHALL BE USED FOR THE WATER LINE OR A SUPPORTING MATERIAL SUCH AS FLOWABLE FILL SHALL BE INSTALLED BETWEEN THE PIPES.
7. ALL WATER MAIN INSTALLATION PROPOSED TO BE IN THE EXISTING ROADWAY SHALL BE PERFORMED BETWEEN THE HOURS OF 9 PM AND 6 AM. CONTRACTOR SHALL COORDINATE WITH CITY OF SANFORD AND NCDOT TO SCHEDULE WORK.
8. CONTRACTOR SHALL ENSURE THAT ALL METER BOXES, VALVE BOXES AND HYDRANTS ARE SET AT FINAL GRADE.

 <p>McGill Associates, P.A. 5 Regional Circle, Suite A Pinehurst, NC 28374 Tel: 910-295-3159 Fax: 910-295-3647 www.mcgillassociates.com License No. C-0459</p>	PROJECT REFERENCE NO.	SHEET NO.
	R-3830	UC-3
	DESIGNED BY: DLH	
	DRAWN BY: WW, MJ, BB	
	CHECKED BY: DLH	
	APPROVED BY:	
REVISED:		
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	UTILITIES ENGINEERING SEC. PHONE: (919)707-6690 FAX: (919)250-4151	UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION

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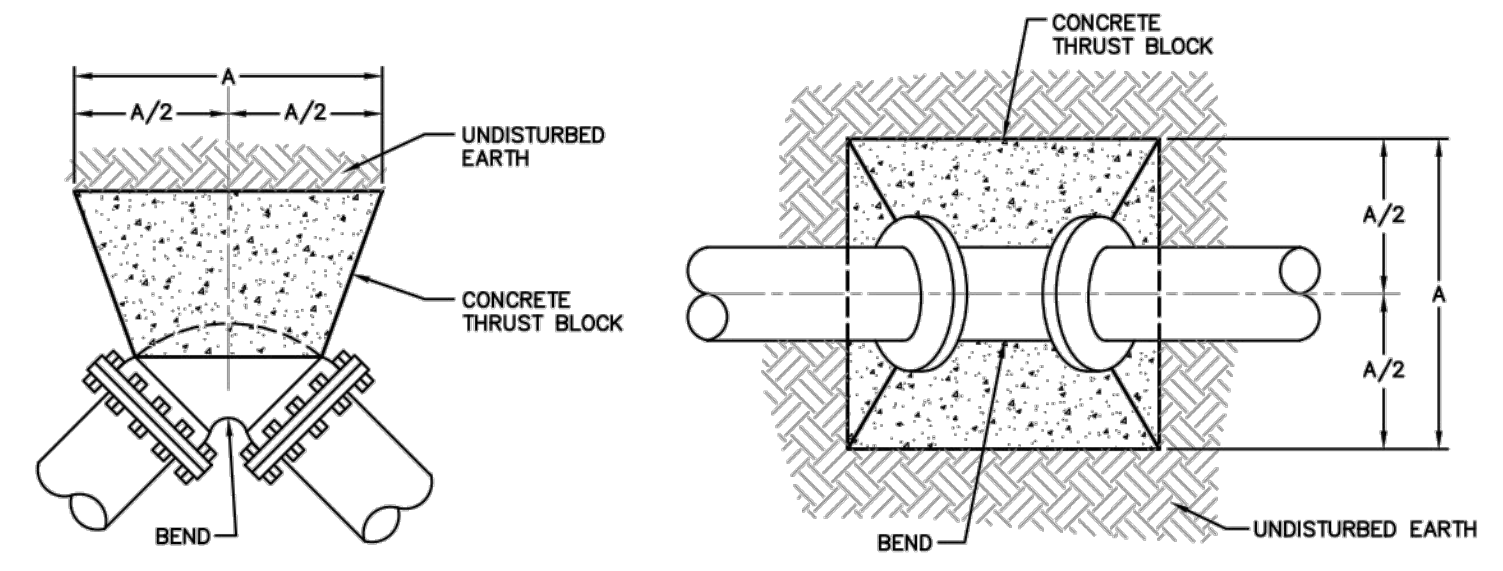
PROJECT REFERENCE NO. R-3830 SHEET NO. UC-3A

DESIGNED BY: DLH
 DRAWN BY: WW, MJ, BB
 CHECKED BY: DLH
 APPROVED BY: DLH

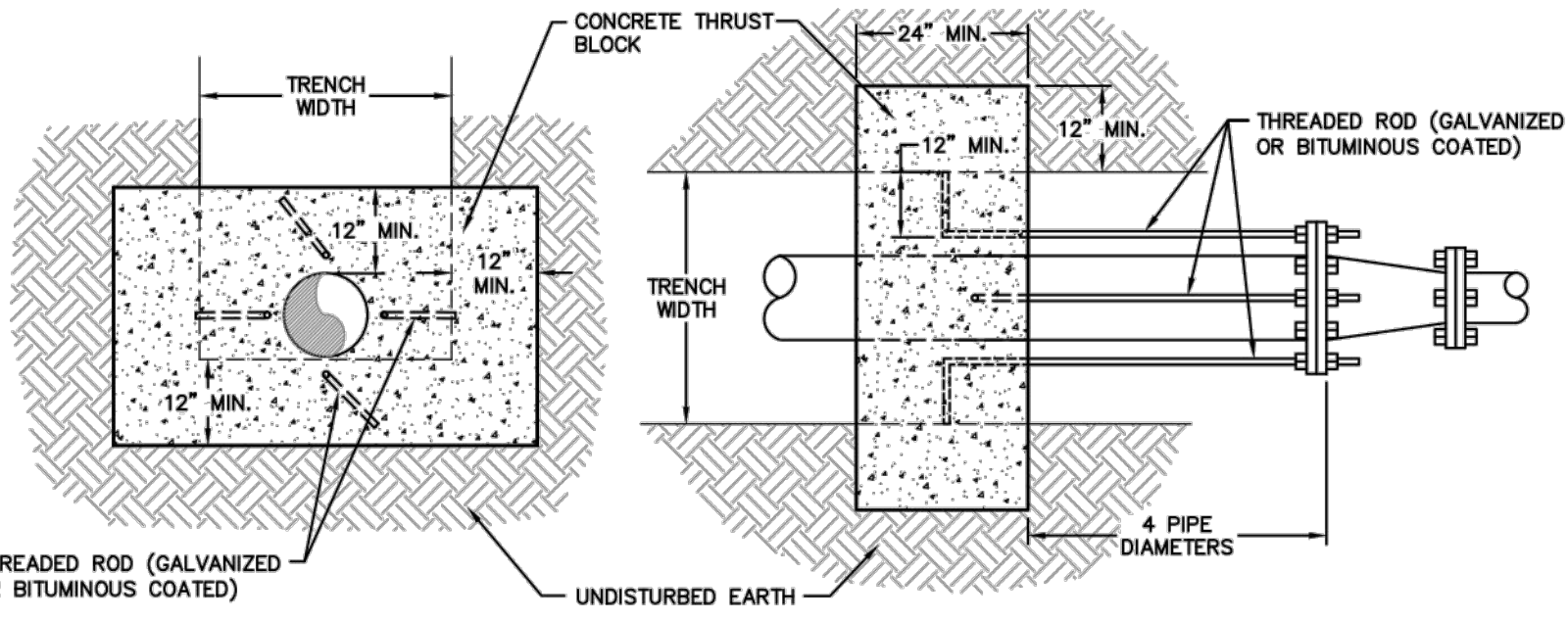
REVISIONS:

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
 UTILITIES ENGINEERING SEC.
 PHONE: (919)707-6690
 FAX: (919)250-4151

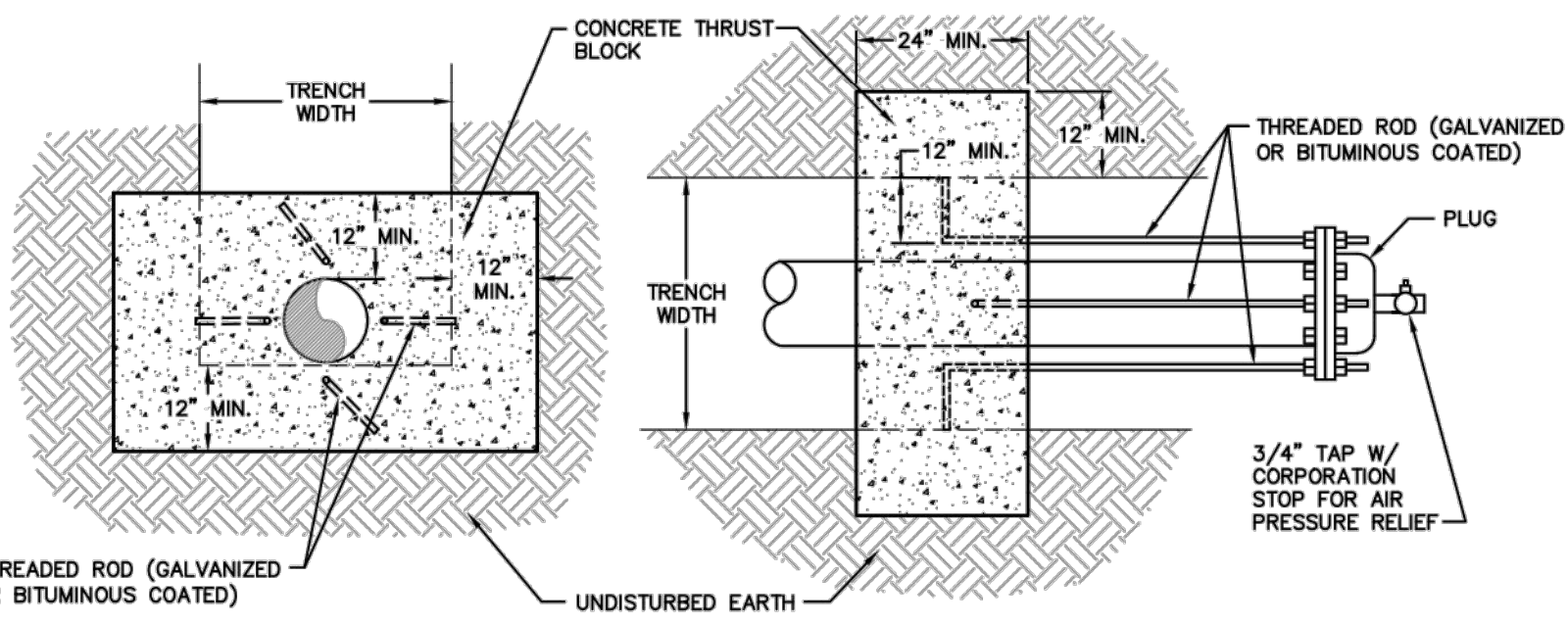
UTILITY CONSTRUCTION PLANS ONLY



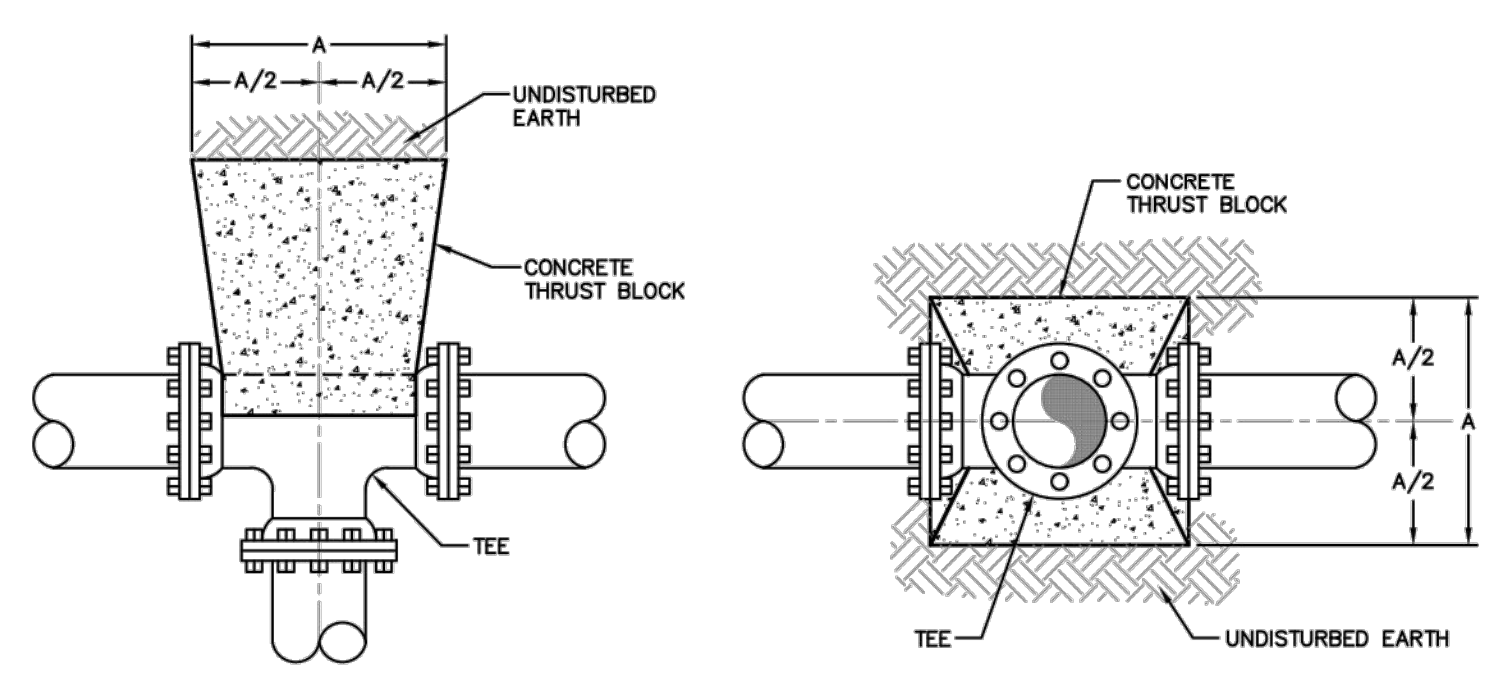
TYPICAL THRUST BLOCKS FOR BENDS



TYPICAL THRUST BLOCK FOR REDUCERS



TYPICAL THRUST BLOCK FOR PLUGS



TYPICAL THRUST BLOCKS FOR TEES

NOTES:

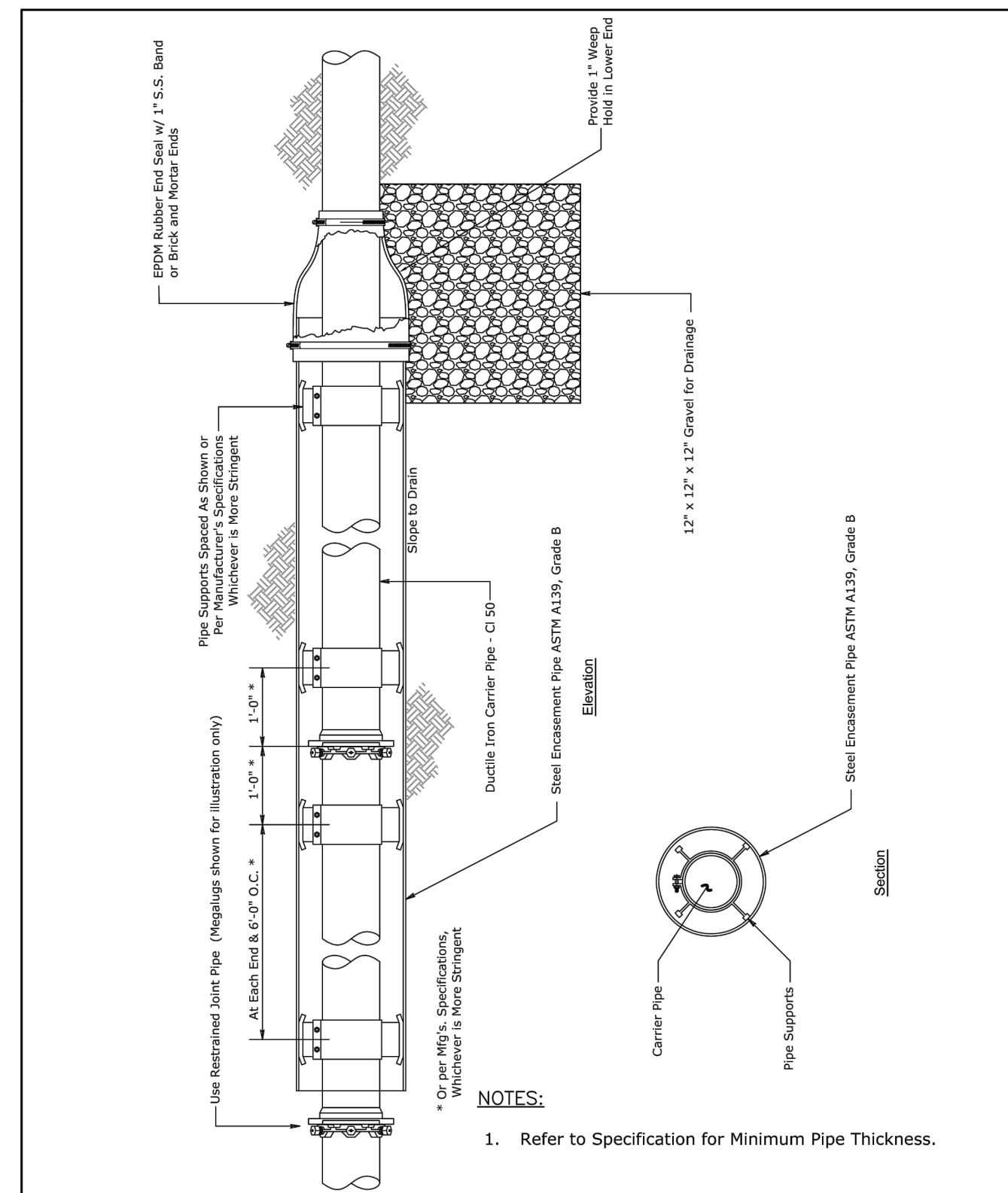
- FITTING JOINTS SHALL NOT BE POURED IN CONCRETE OR HAVE CONCRETE SPILLED ON THE BOLTS OR NUTS. THE FITTING SHALL BE WRAPPED IN A LAYER OF POLYETHYLENE PLASTIC PRIOR TO POURING THE THRUST BLOCK.
- ROD AND EYE BOLT DIAMETER SHALL BE A MINIMUM OF 3/4" AND SHALL MATCH THE SIZE OF THE BOLT PROVIDED WITH THE FITTING.
- CONTRACTOR SHALL REPLACE FITTING BOLTS WITH THREADED ROD FOR 1/2 OF THE BOLTS SUPPLIED WITH EACH FITTING. RODS SHALL BE EQUALLY SPACED.
- ALL DIMENSIONS SHOWN ARE IN INCHES.

TYPE

SIZE	11-1/4" BEND	22-1/2" BEND	45° BEND	90° BEND	TEE	PLUG
2-6	12	12	12	16	16	14
8	12	12	16	22	22	18
10	12	14	20	28	28	22
12	12	18	24	32	32	28
14	14	20	28	38	38	32
16	16	22	32	42	42	36
18	18	26	36	48	48	40
20	20	28	40	52	52	44
24	24	34	46	64	64	54
30	30	42	58	78	78	66
36	36	50	70	94	94	80
42	40	58	80	108	108	92
48	46	66	90	124	124	104

THRUST BLOCK DIMENSION "A"

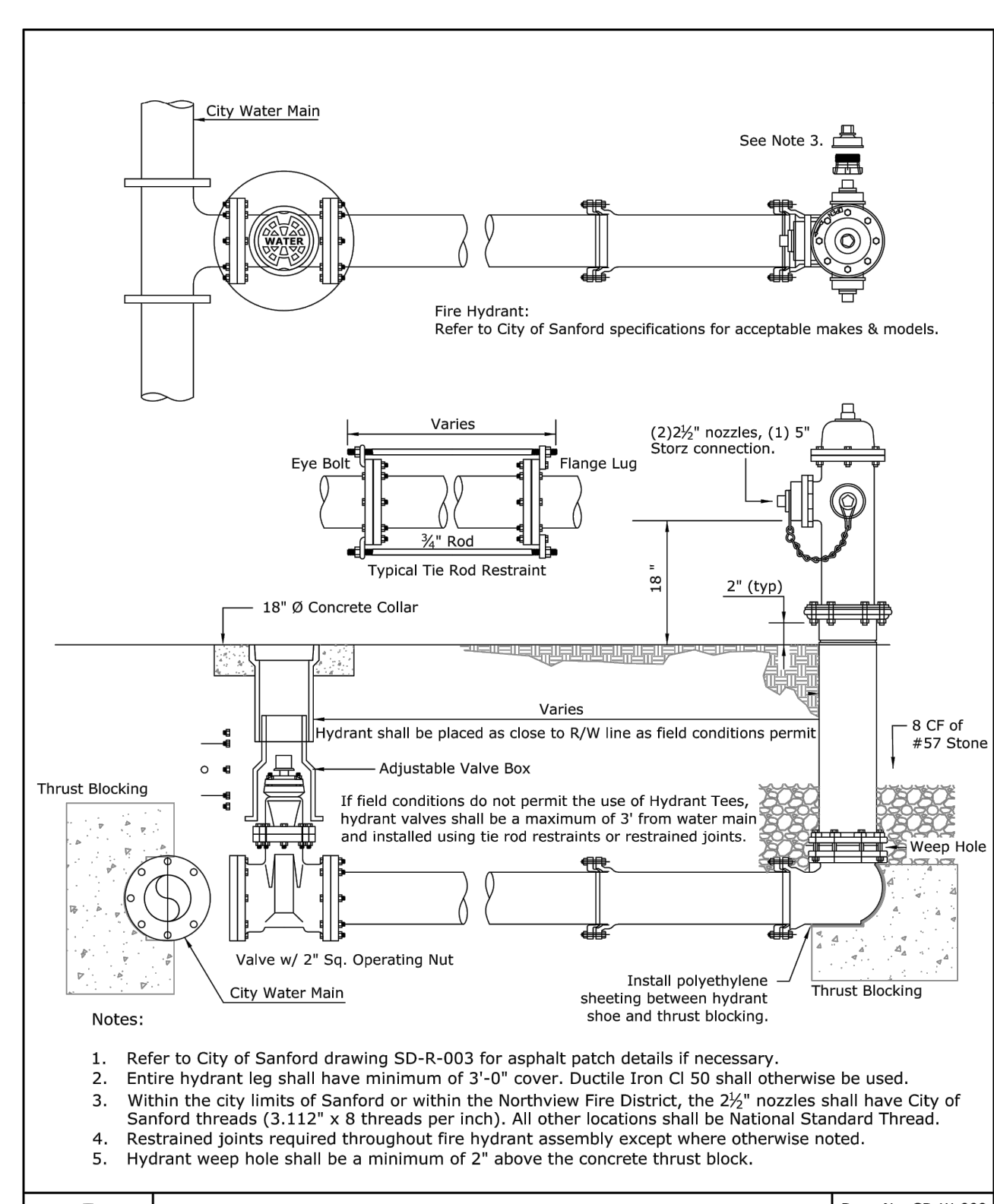
W
6
THRUST BLOCKING - ALL
UPDATED MARCH, 2017
NOT TO SCALE



Encasement Pipe

City of Sanford Engineering Dept - P.O. Box 3729 - Sanford, NC 27331

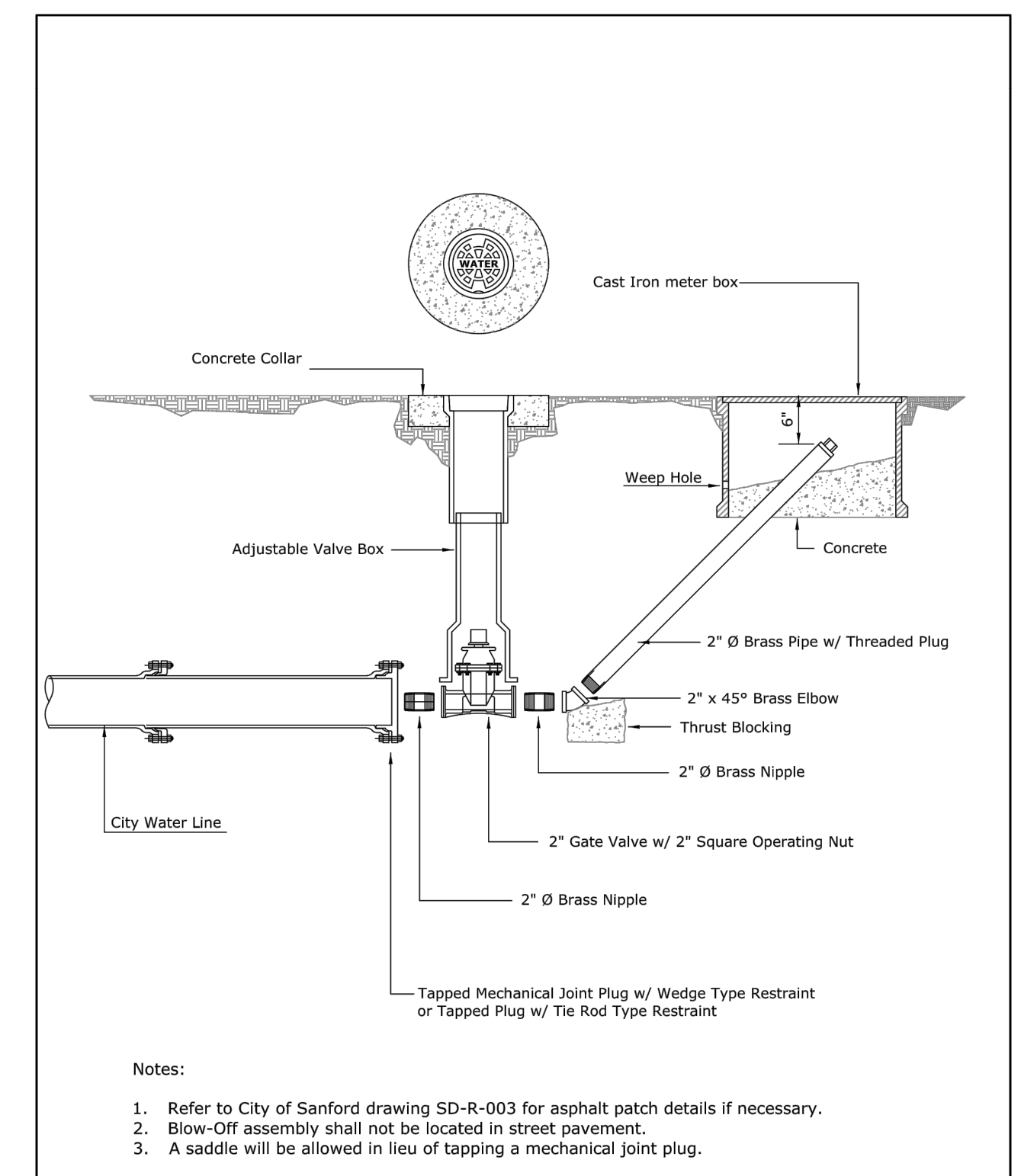
Dwg. No. SD-S-005
 Date: 10/16/2020
 Scale: Not To Scale
 Drawn By: Staff



Fire Hydrant Assembly

City of Sanford Engineering Dept - P.O. Box 3729 - Sanford, NC 27331

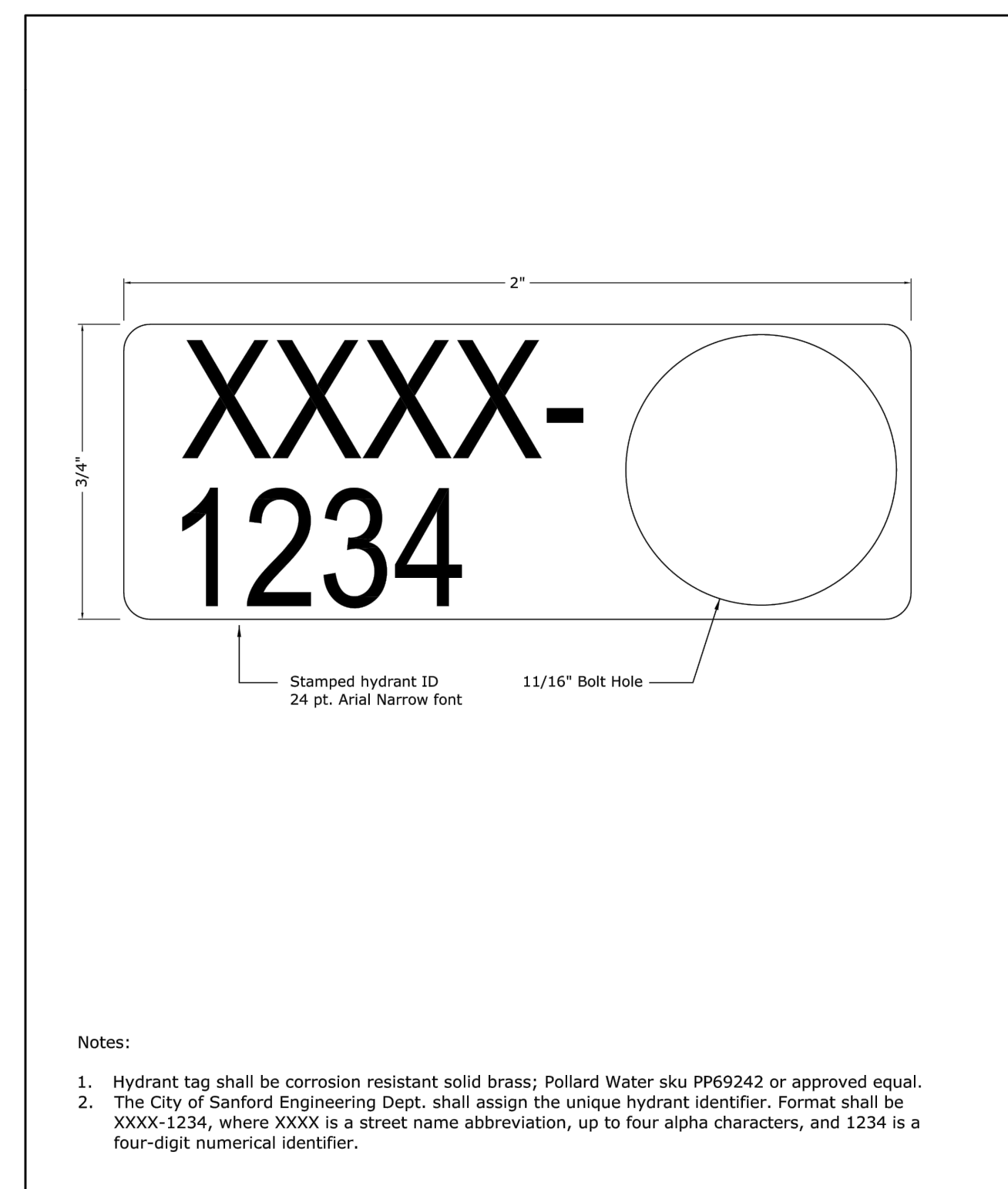
Dwg. No. SD-W-009
 Date: 02/11/2020
 Scale: Not To Scale
 Drawn By: Staff



Two Inch Blow-Off Assembly

City of Sanford Engineering Dept - P.O. Box 3729 - Sanford, NC 27331

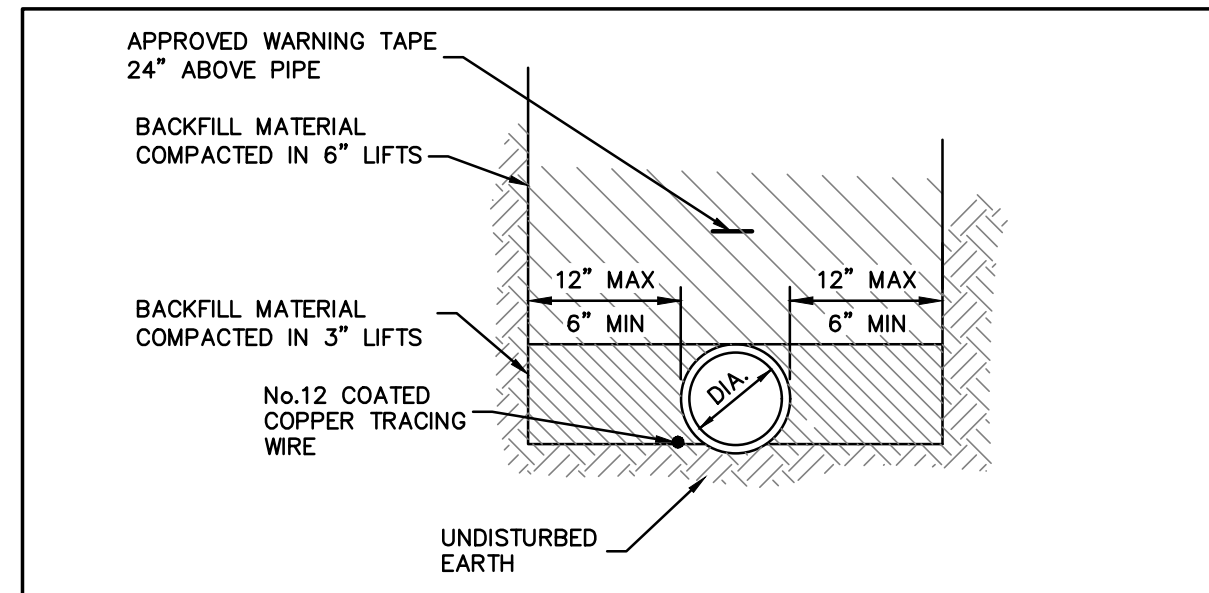
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 Date: 02/11/2020
 Scale: Not To Scale
 Drawn By: Staff



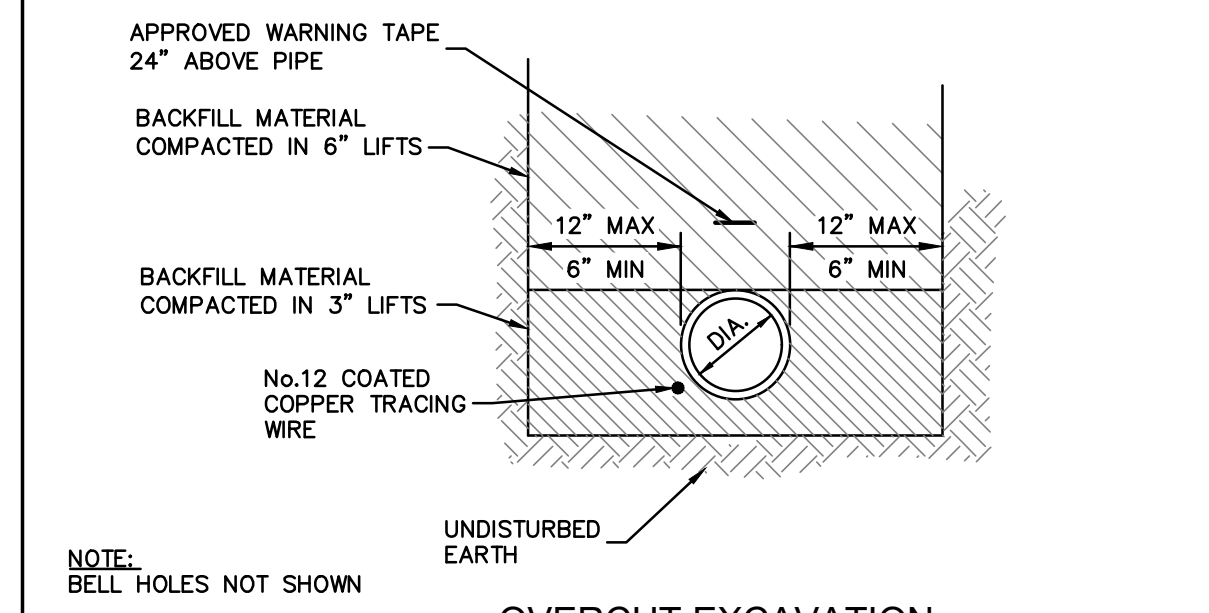
Hydrant Tag

City of Sanford Engineering Dept - P.O. Box 3729 - Sanford, NC 27331

Dwg. No. SD-W-011
 Date: 04/02/2020
 Scale: Not To Scale
 Drawn By: Staff



STANDARD EXCAVATION

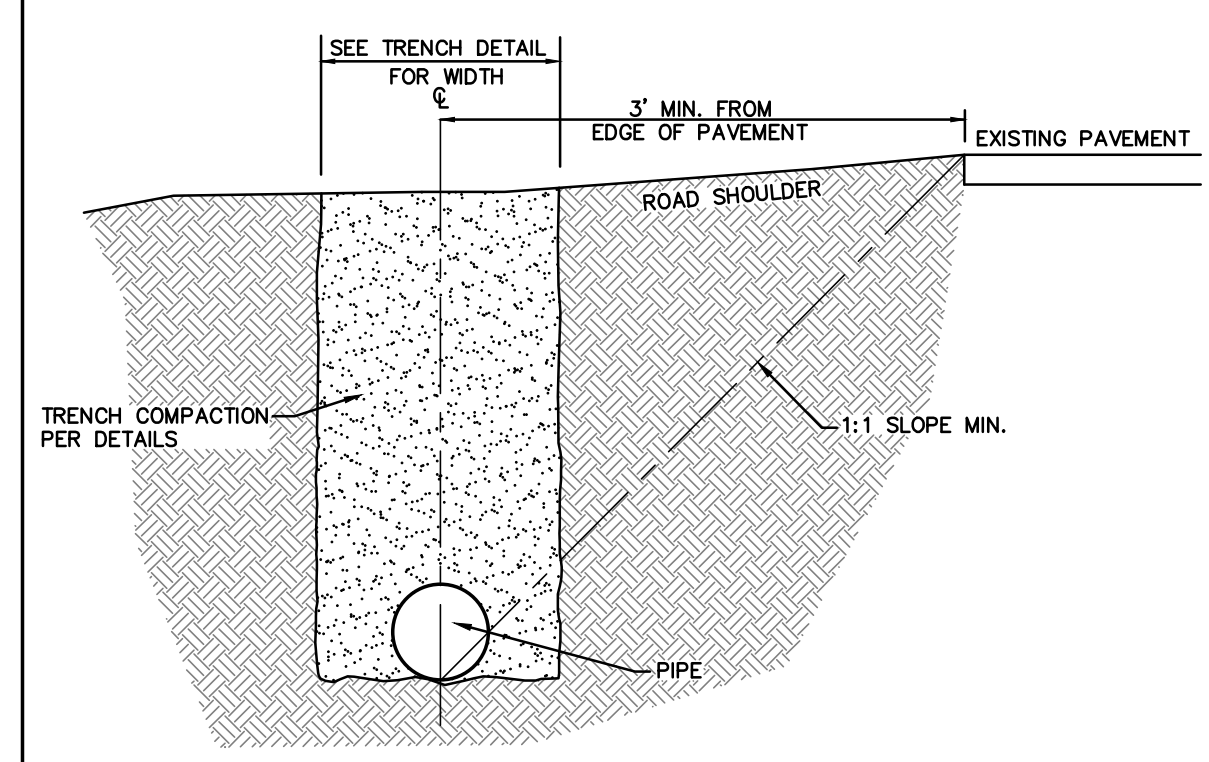


OVERCUT EXCAVATION

NOTE:
 BELL HOLES NOT SHOWN

NOTE:
 1. CONSTRUCTION OF TRENCHES SHALL COMPLY WITH ALL FEDERAL, STATE AND LOCAL SAFETY AND HEALTH REGULATIONS WHICH HAVE JURISDICTION AT THE PROJECT SITE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO BE FAMILIAR WITH THE APPLICABLE REGULATIONS AND FOLLOW THEM ACCORDINGLY.
 2. PAYMENT FOR ROCK EXCAVATION AND SELECT BACKFILL IN TRENCH SHALL BE FOR ACTUAL QUANTITIES AND SHALL NOT EXCEED THE WIDTH OF TRENCH SHOWN ON THIS DETAIL.

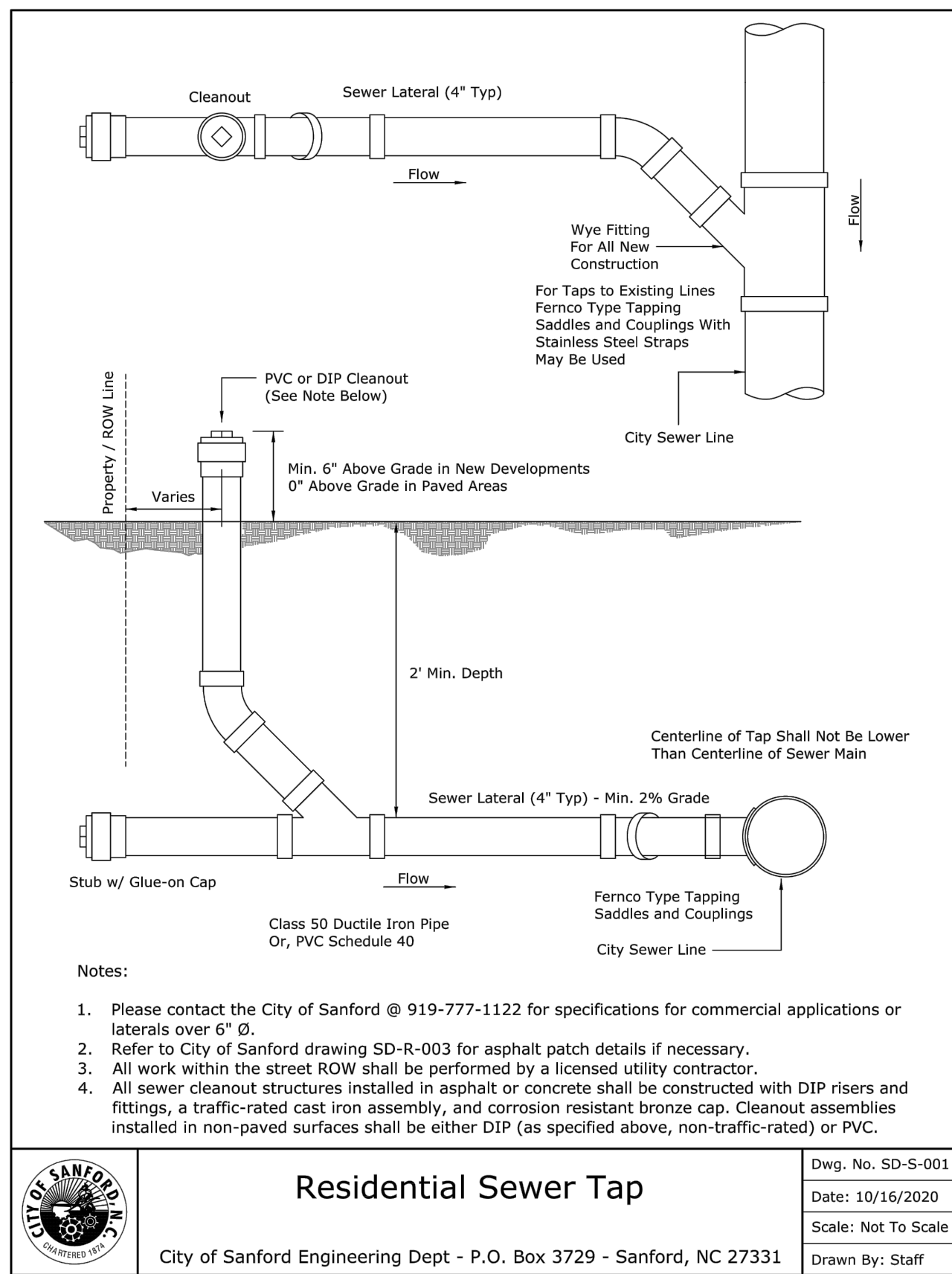
W
1
WATER LINE TRENCHING
UPDATED MARCH, 2017
NOT TO SCALE



WATER LINE INSTALLATION ON NCDOT ROAD SHOULDER

W
5
WATER LINE INSTALLATION ON NCDOT ROAD SHOULDER
UPDATED MARCH, 2017
NOT TO SCALE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

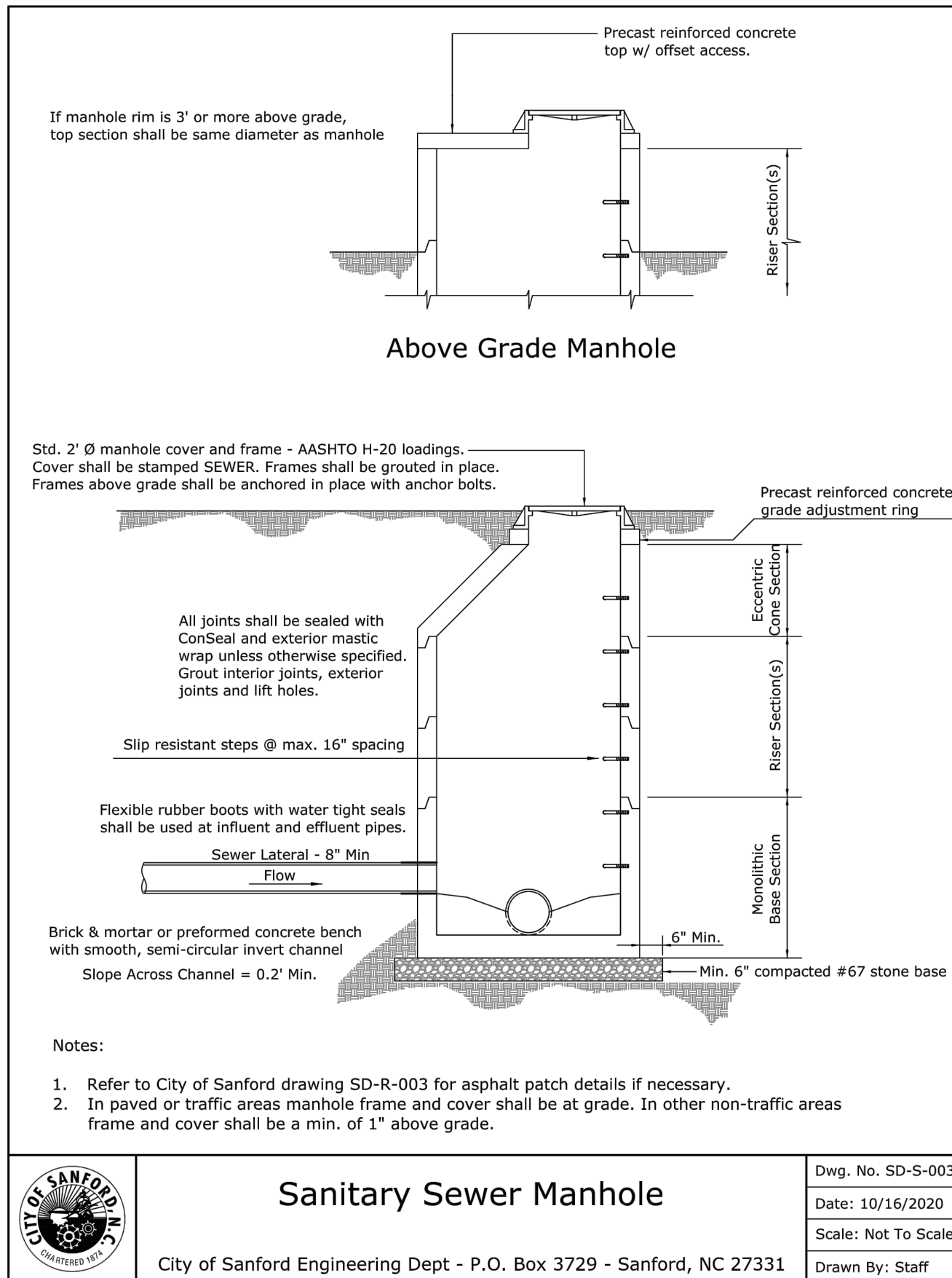


- Notes:**
1. Please contact the City of Sanford @ 919-777-1122 for specifications for commercial applications or laterals over 6" Ø.
 2. Refer to City of Sanford drawing SD-R-003 for asphalt patch details if necessary.
 3. All work within the street ROW shall be performed by a licensed utility contractor.
 4. All sewer cleanout structures installed in asphalt or concrete shall be constructed with DIP risers and fittings, a traffic-rated cast iron assembly, and corrosion resistant bronze cap. Cleanout assemblies installed in non-paved surfaces shall be either DIP (as specified above, non-traffic-rated) or PVC.

Residential Sewer Tap

Dwg. No. SD-S-001
Date: 10/16/2020
Scale: Not To Scale
Drawn By: Staff

City of Sanford Engineering Dept - P.O. Box 3729 - Sanford, NC 27331



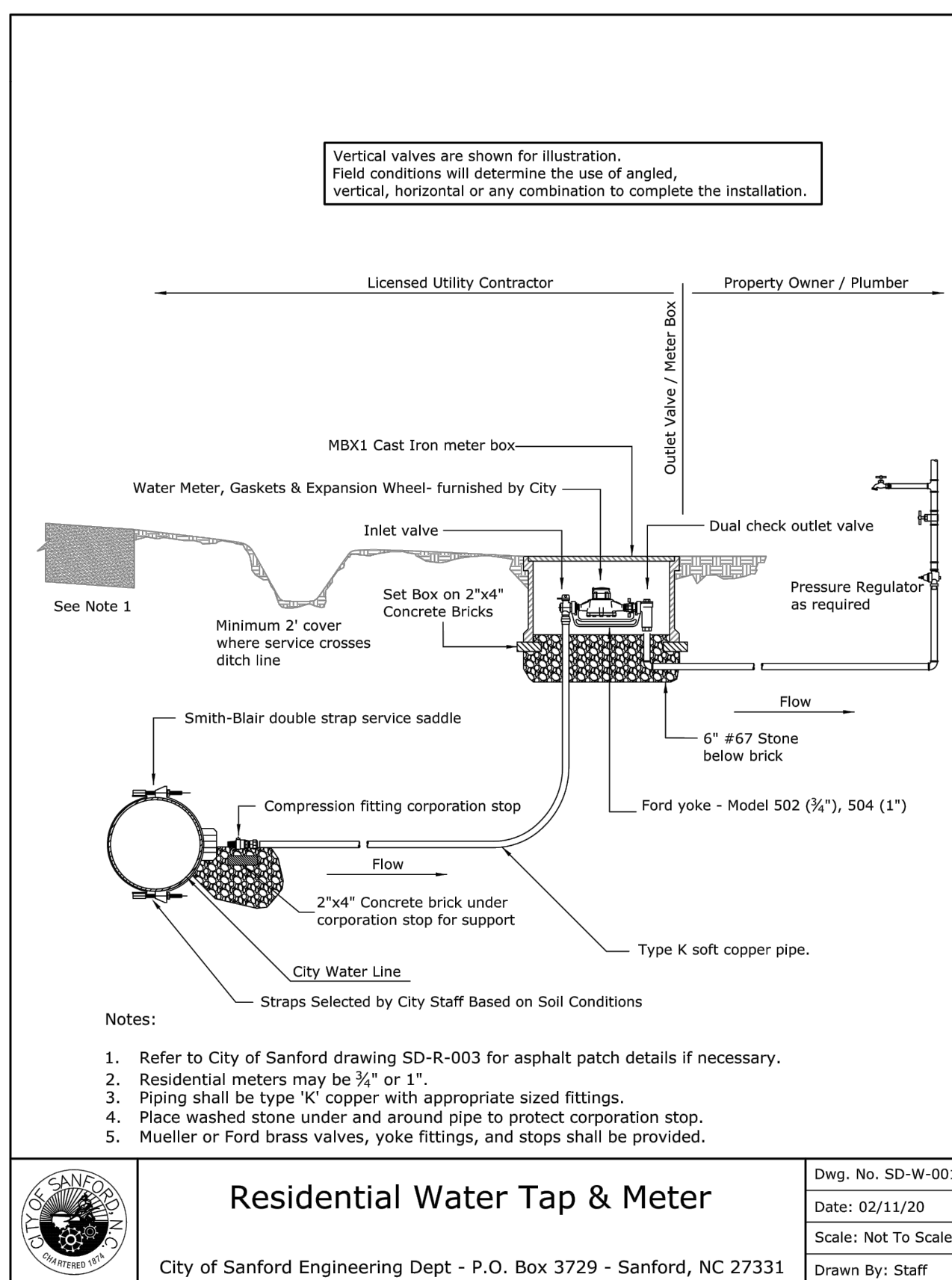
Std. 2' Ø manhole cover and frame - AASHTO H-20 loadings. Cover shall be stamped SEWER. Frames shall be grouted in place. Frames above grade shall be anchored in place with anchor bolts.

- Notes:**
1. Refer to City of Sanford drawing SD-R-003 for asphalt patch details if necessary.
 2. In paved or traffic areas manhole frame and cover shall be at grade. In other non-traffic areas frame and cover shall be a min. of 1" above grade.

Sanitary Sewer Manhole

Dwg. No. SD-S-003
Date: 10/16/2020
Scale: Not To Scale
Drawn By: Staff

City of Sanford Engineering Dept - P.O. Box 3729 - Sanford, NC 27331



- Notes:**
1. Refer to City of Sanford drawing SD-R-003 for asphalt patch details if necessary.
 2. Residential meters may be 3/4" or 1".
 3. Piping shall be type 'K' copper with appropriate sized fittings.
 4. Place washed stone under and around pipe to protect corporation stop.
 5. Mueller or Ford brass valves, yoke fittings, and stops shall be provided.

Residential Water Tap & Meter

Dwg. No. SD-W-001
Date: 02/11/20
Scale: Not To Scale
Drawn By: Staff

City of Sanford Engineering Dept - P.O. Box 3729 - Sanford, NC 27331

mcgill

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www.mcgillassociates.com
License No. C-0459

PROJECT REFERENCE NO. R-3830
SHEET NO. UC-3B

DESIGNED BY: DLH
DRAWN BY: WW, MJ, BB
CHECKED BY: DLH
APPROVED BY: [Signature]
REVISED:
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
UTILITIES ENGINEERING SEC.
PHONE: (919)707-6690
FAX: (919)250-4151

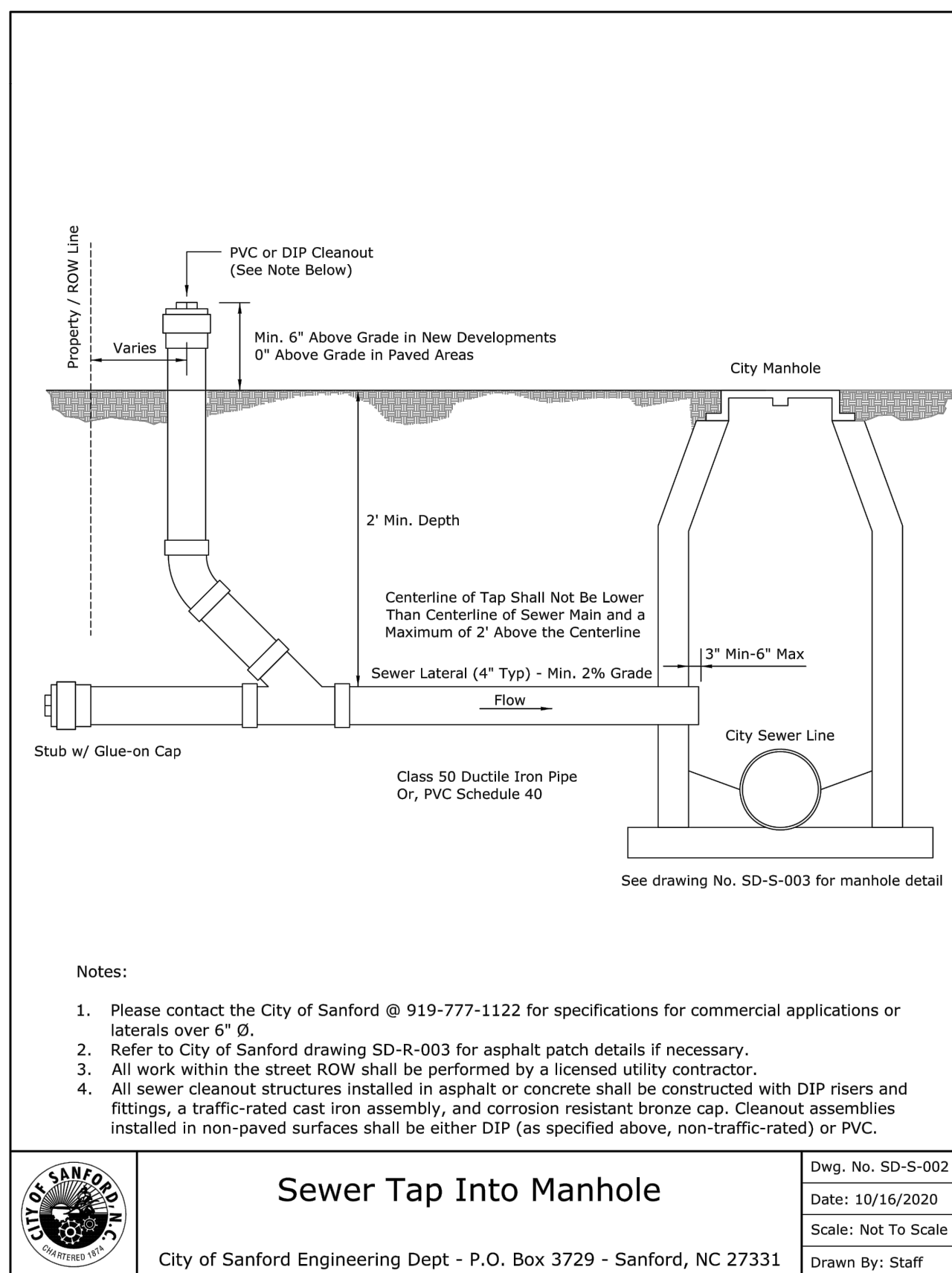
SEAL
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NORTH CAROLINA PROFESSIONAL ENGINEER
NO. 13080
EXPIRES 12/31/2021

UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION

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REVISIONS



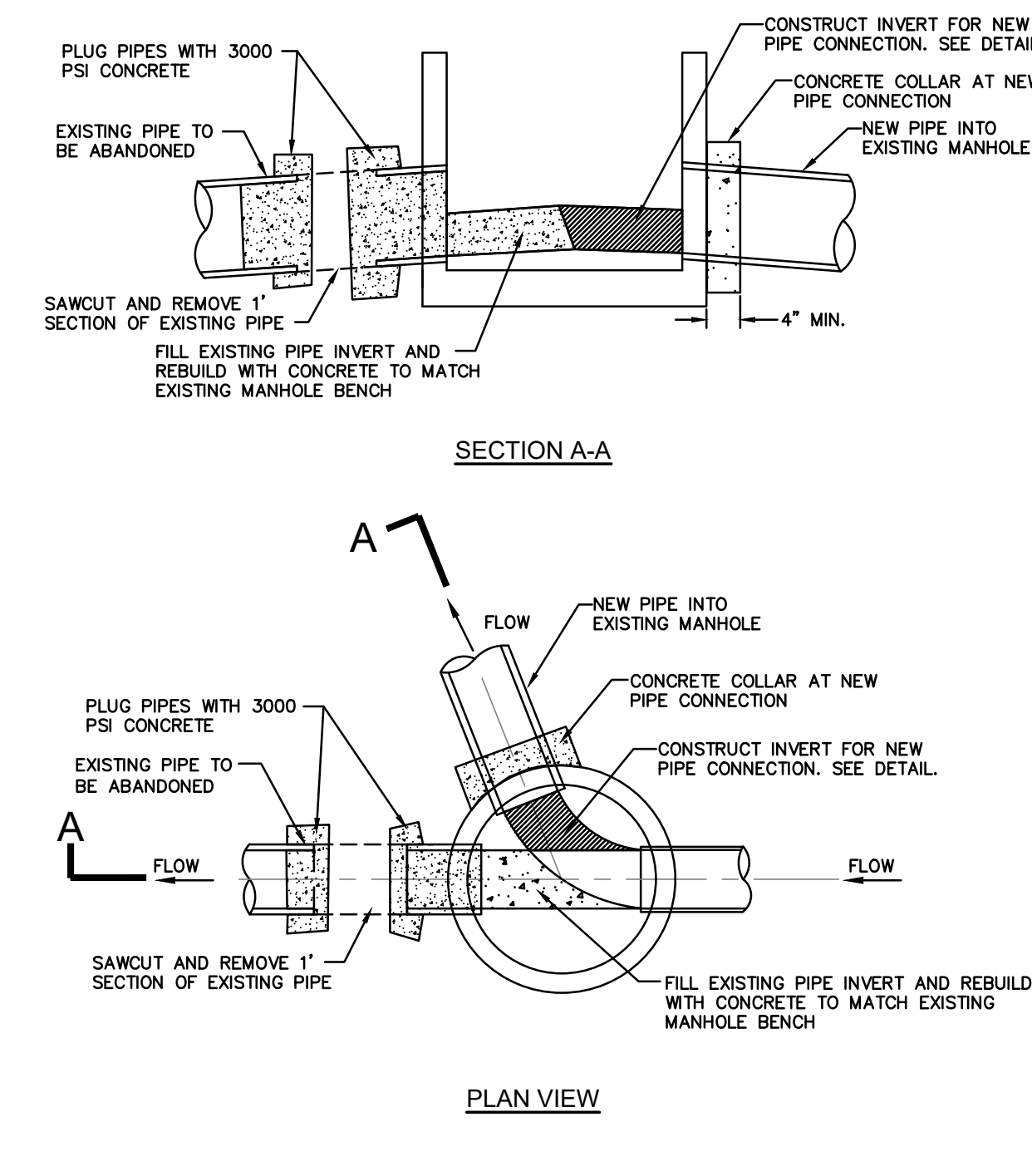
- Notes:**
1. Please contact the City of Sanford @ 919-777-1122 for specifications for commercial applications or laterals over 6" Ø.
 2. Refer to City of Sanford drawing SD-R-003 for asphalt patch details if necessary.
 3. All work within the street ROW shall be performed by a licensed utility contractor.
 4. All sewer cleanout structures installed in asphalt or concrete shall be constructed with DIP risers and fittings, a traffic-rated cast iron assembly, and corrosion resistant bronze cap. Cleanout assemblies installed in non-paved surfaces shall be either DIP (as specified above, non-traffic-rated) or PVC.

Sewer Tap Into Manhole

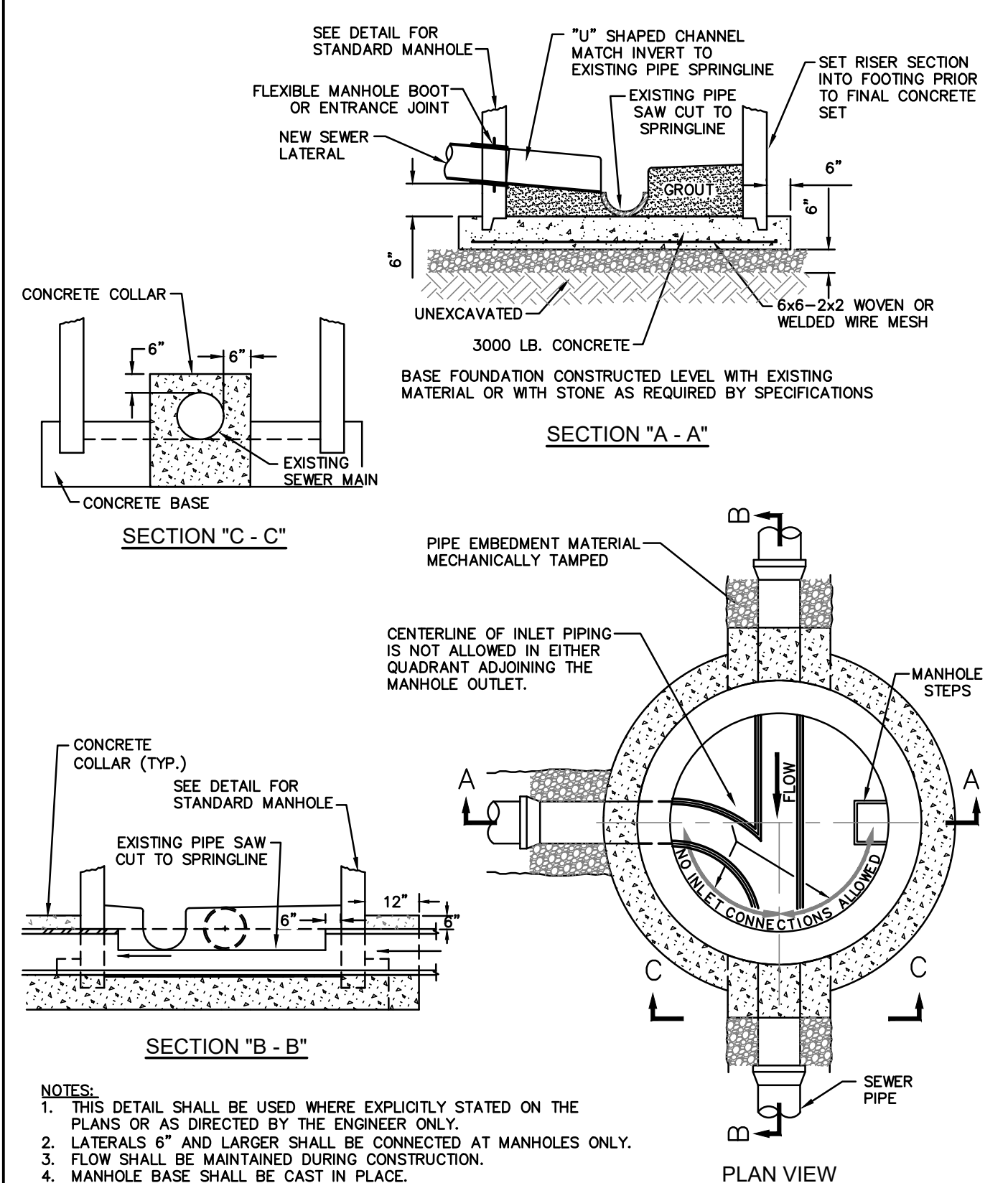
Dwg. No. SD-S-002
Date: 10/16/2020
Scale: Not To Scale
Drawn By: Staff

City of Sanford Engineering Dept - P.O. Box 3729 - Sanford, NC 27331

- GENERAL SEWER NOTES**
UPDATED MARCH, 2017
1. ALL CONSTRUCTION OUTSIDE RIGHTS-OF-WAY SHALL TAKE PLACE WITHIN THE PERMANENT AND TEMPORARY ACCESS EASEMENTS SHOWN.
 2. CONTRACTOR SHALL REPAIR ALL DISTURBED AREAS TO EQUAL OR BETTER CONDITION THAN THE ORIGINAL SITE, OR AS NOTED.
 3. LOCATIONS OF EXISTING UTILITIES AS SHOWN ARE APPROXIMATE ONLY. EXACT LOCATIONS ARE TO BE VERIFIED IN THE FIELD BY THE CONTRACTOR. AT LEAST THREE DAYS PRIOR TO CONSTRUCTION, CONTRACTOR MUST NOTIFY EXISTING UTILITY OWNERS. CALL 811 BEFORE YOU DIG.
 4. ALL WORK NEAR AND AROUND WATERWAYS MUST CONFORM TO THE RULES OF THE STATE OF NORTH CAROLINA.
 5. CONTRACTOR MUST PROVIDE EROSION CONTROL DEVICES TO CONTROL RUNOFF FROM THE CONSTRUCTION SITE. CONTRACTOR WILL BE RESPONSIBLE FOR ANY FINES THAT MAY BE LEVIED DUE TO POLLUTION CREATED DURING CONSTRUCTION.
 6. CONTRACTOR SHALL FOLLOW ALL FEDERAL, STATE AND LOCAL HEALTH AND SAFETY REGULATIONS PERTAINING TO CONSTRUCTION OPERATIONS.
 7. SEWER FORCE MAINS AND WATER LINES SHALL HAVE 3'-0" MINIMUM COVER UNLESS OTHERWISE SHOWN ON THE DRAWINGS.
 8. WATER AND SEWER LINES SHALL HAVE A MINIMUM 10' HORIZONTAL SEPARATION OR A MINIMUM 18" VERTICAL SEPARATION WITH THE WATER OVER SEWER, OR BOTH WATER AND SEWER LINES SHALL BE DUCTILE IRON PIPE 10' EITHER SIDE OF THE CROSSING.
 9. SEWER AND STORM SEWER LINES SHALL HAVE A MINIMUM 24" SEPARATION. IF 24" SEPARATION IS NOT OBTAINABLE, DUCTILE IRON PIPE SHALL BE USED FOR THE SEWER LINE OR A SUPPORTING MATERIAL SUCH AS FLOWABLE FILL SHALL BE INSTALLED BETWEEN THE PIPES.
 10. SEE PROJECT SPECIFICATIONS FOR ADDITIONAL INFORMATION.
 11. UNLESS OTHERWISE NOTED, ALL BURIED PIPE SHALL BE INSTALLED WITH PUSH-ON JOINTS AND EXPOSED PIPING SHALL BE FLANGED JOINT.
 12. LEGAL DESCRIPTIONS FOR PROPOSED EASEMENTS BY OTHERS.
 13. SITE TOPOGRAPHIC AND BOUNDARY SURVEY PROVIDED BY SURVEYOR NOTED ON PLANS.
 14. CONTRACTOR SHALL NOTIFY THE PROPER LOCAL AUTHORITIES 24 HOURS PRIOR TO ANY ROAD BEING CLOSED FOR CONSTRUCTION, INCLUDING BUT NOT LIMITED TO LOCAL NEWSPAPER, RADIO STATION, FIRE DEPARTMENT, COUNTY SHERIFF'S DEPARTMENT, AMBULANCE, AND COUNTY EMERGENCY AGENCY. ALL TRAFFIC CONTROL SHALL CONFORM TO THE REQUIREMENTS OF THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION.
 15. CONTRACTOR SHALL NOTIFY THE ENGINEER AFTER EXISTING BURIED UTILITIES HAVE BEEN LOCATED AND 24 HOURS PRIOR TO CONSTRUCTION.
 16. LOCATIONS SHOWN FOR SANITARY SEWER SERVICES ARE ASSUMED. COORDINATE LOCATIONS OF ALL PROPOSED SEWER SERVICE CONNECTIONS WITH PROPERTY OWNER PRIOR TO CONSTRUCTION.
 17. CONTRACTOR SHALL FIELD VERIFY ALL PROPOSED MANHOLE TOP ELEVATIONS AND EXISTING MANHOLE INVERTS PRIOR TO CONSTRUCTION AND NOTIFY ENGINEER OF ANY DISCREPANCIES. CONTRACTOR SHALL ADJUST ALL PROPOSED SEWER STRUCTURES TO MATCH FINISHED PAVEMENT ELEVATIONS. COSTS OF RAISING STRUCTURES SHALL BE CONSIDERED INCIDENTAL TO OTHER WORK ON THE PROJECT.
 18. MANHOLES AND CASTINGS SHALL MEET THE REQUIREMENTS OF OWNER AS WELL AS THE PROJECT SPECIFICATIONS.
 19. 4" SANITARY SEWER SERVICE LINES SHALL BE INSTALLED AT 2.0% MINIMUM SLOPE AND SHALL BE DUCTILE IRON IN PAVED AREAS.
 20. ALL FENCE DAMAGED DURING CONSTRUCTION SHALL BE REPLACED WITH LIKE MATERIALS IN A WORKMANLIKE MANNER AND IN ACCORDANCE WITH STANDARD FENCE CONSTRUCTION PRACTICES AT THE CONTRACTOR'S EXPENSE.
 21. CONTRACTOR SHALL FIELD LOCATE ALL BURIED TELEPHONE LINE IN CONFLICT WITH THE PROPOSED UTILITY LINE. WHERE NECESSARY, EXISTING BURIED TELEPHONE LINE SHALL BE TEMPORARILY MOVED DURING CONSTRUCTION OF THE PROPOSED UTILITY LINE AND RE-LAID AT NO ADDITIONAL COST TO THE OWNER.
 22. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO EXISTING ROADS DURING CONSTRUCTION AND SHALL REPAIR ROADS PER REQUIREMENTS OF THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION. NO OPEN CUTS OF EXISTING ROADS SHALL BE ALLOWED EXCEPT WHERE INDICATED ON THE DRAWINGS OR WHERE SPECIFIC PERMISSION IS GRANTED BY THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION. SAND OR A SIMILAR MATERIAL APPROVED BY THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION SHALL BE PLACED ON THE ROAD TO AID IN THE CLEAN UP AFTER CONSTRUCTION. A MINIMUM OF 2" OF SAND SHALL BE PLACED ON THE ROAD PRIOR TO STOCKPILING SPOIL MATERIAL ON THE ROAD SURFACE TO FACILITATE CLEANUP.
 23. CONTRACTOR SHALL MAINTAIN SEWAGE FLOW IN SEWER SYSTEM AT ALL TIMES AND SHALL PROVIDE BYPASS PUMPING AND/OR PIPING AS REQUIRED. NO SANITARY SEWER OVERFLOWS ARE PERMITTED.



MANHOLE LINE ABANDONMENT
UPDATED MARCH, 2017
NOT TO SCALE

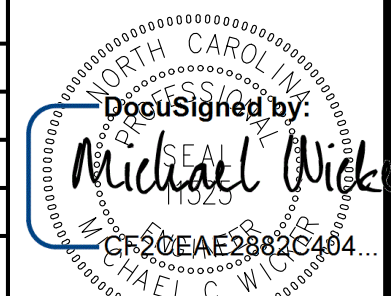


NEW MANHOLE CONSTRUCTED OVER EXISTING SEWER PIPE
UPDATED MARCH, 2017
NOT TO SCALE

NOTES:

1. THIS DETAIL SHALL BE USED WHERE EXPLICITLY STATED ON THE PLANS OR AS DIRECTED BY THE ENGINEER ONLY.
2. LATERALS 6" AND LARGER SHALL BE CONNECTED AT MANHOLES ONLY.
3. FLOW SHALL BE MAINTAINED DURING CONSTRUCTION.
4. MANHOLE BASE SHALL BE CAST IN PLACE.

**DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED**

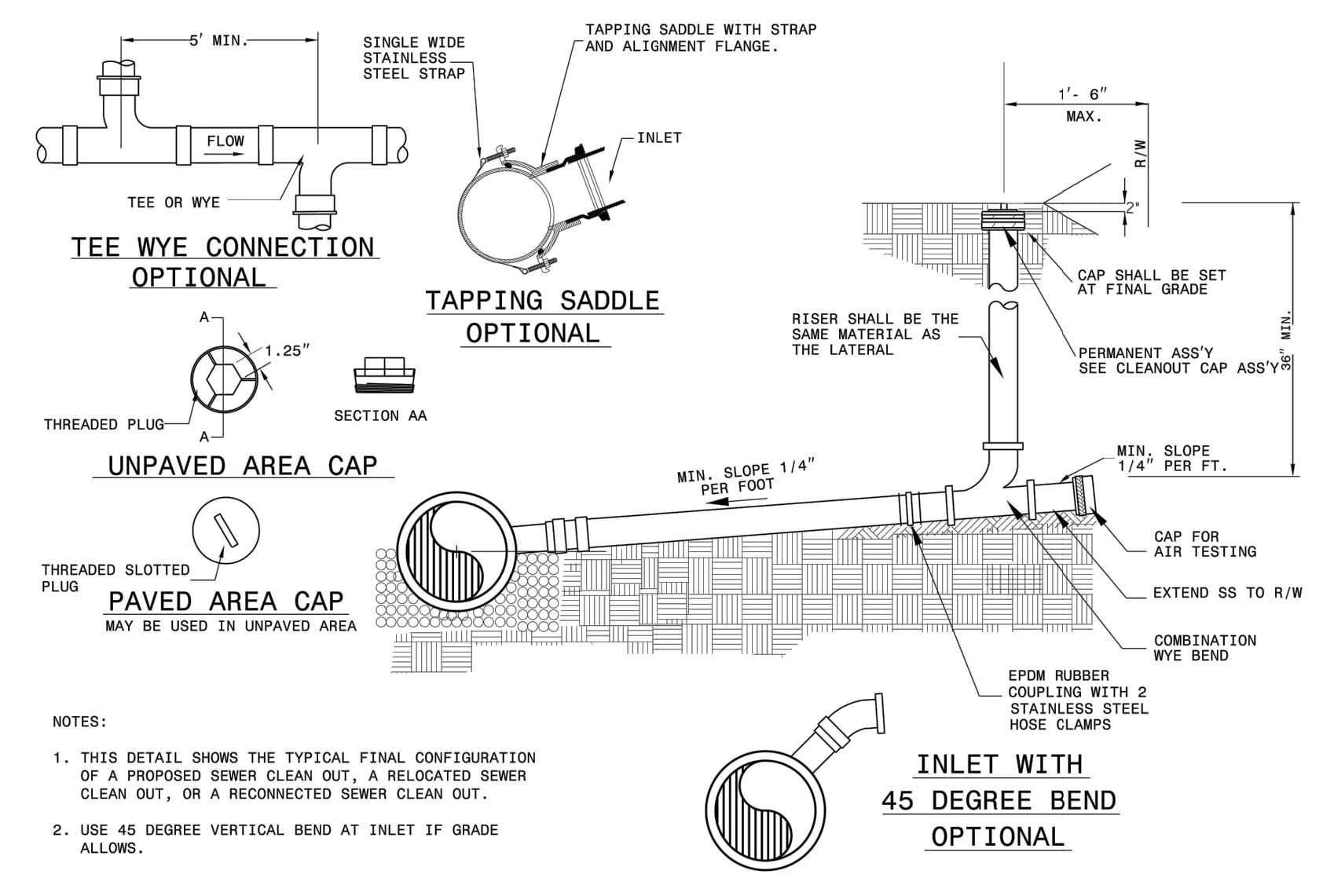
PROJECT REFERENCE NO. R-3830	SHEET NO. UC-03C
DESIGNED BY: MCW	 Designated by: Michael W. Wither License No. CF20EAE2882C404 State of North Carolina 5/12/2022
DRAWN BY: PAP	
CHECKED BY: JWW	
APPROVED BY:	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION UTILITIES ENGINEERING SEC. PHONE: (919)707-6690 FAX: (919)250-4151	

UTILITY CONSTRUCTION

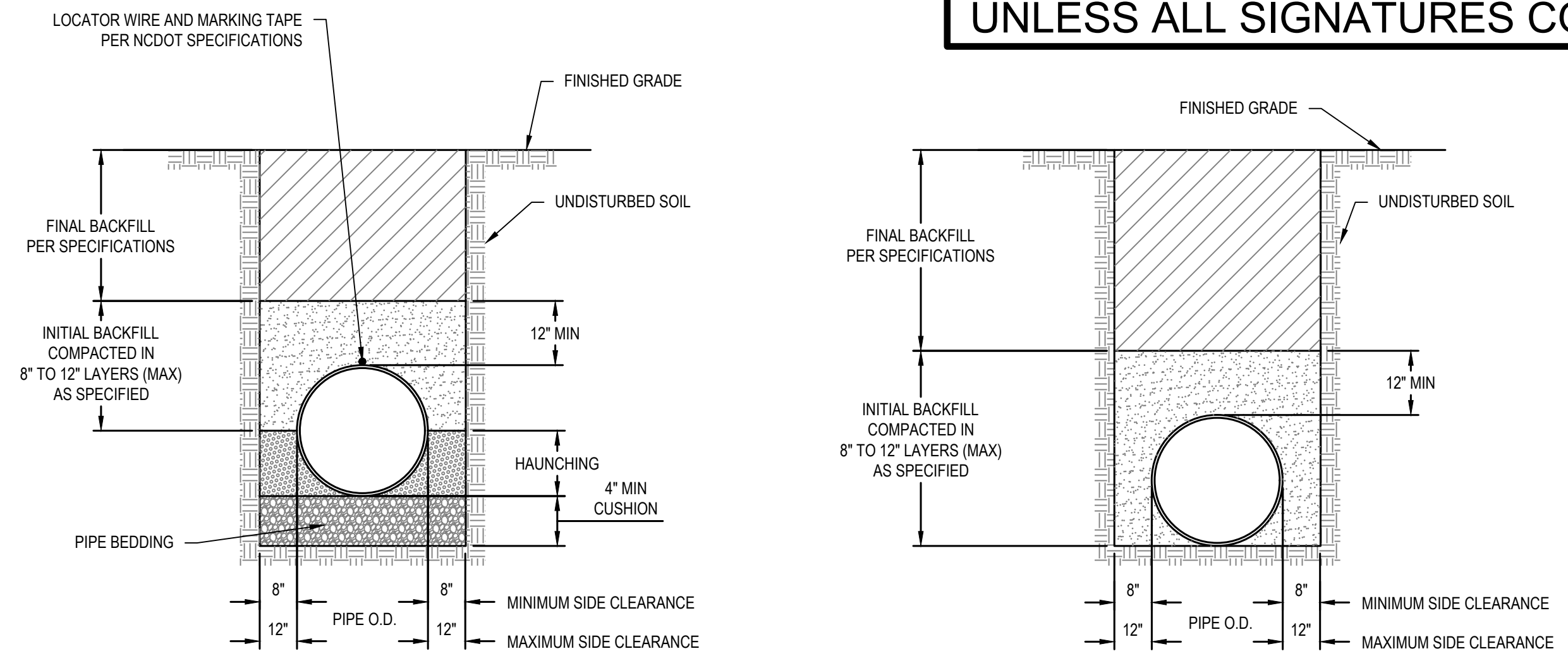
WithersRavenel
Engineers | Planners | Surveyors

115 MacKenan Drive | Cary, NC 27511 | t: 919.469.3340 | license #: C-0832 | www.withersravenel.com

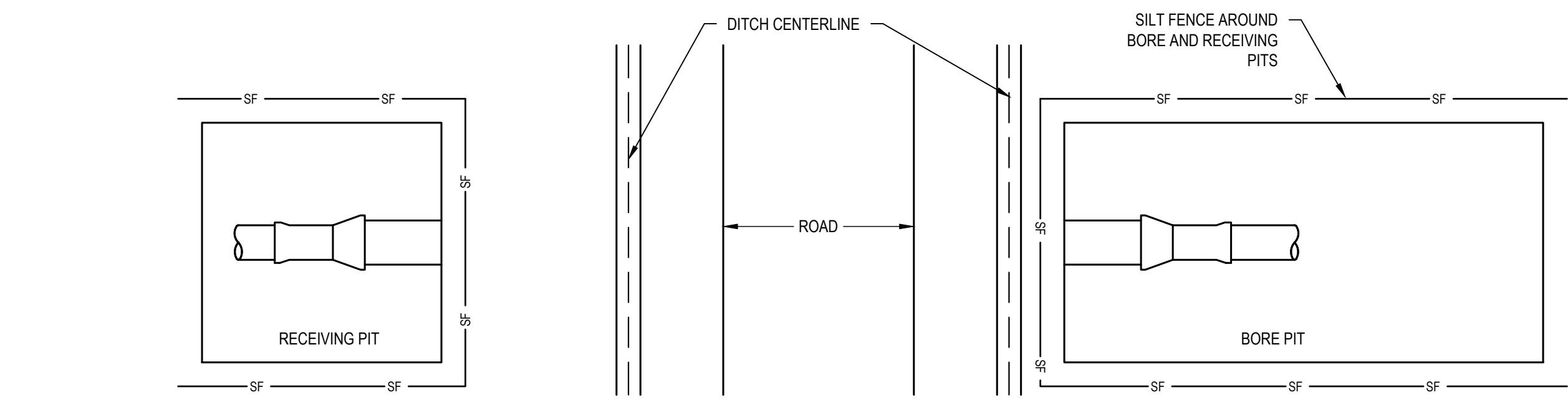
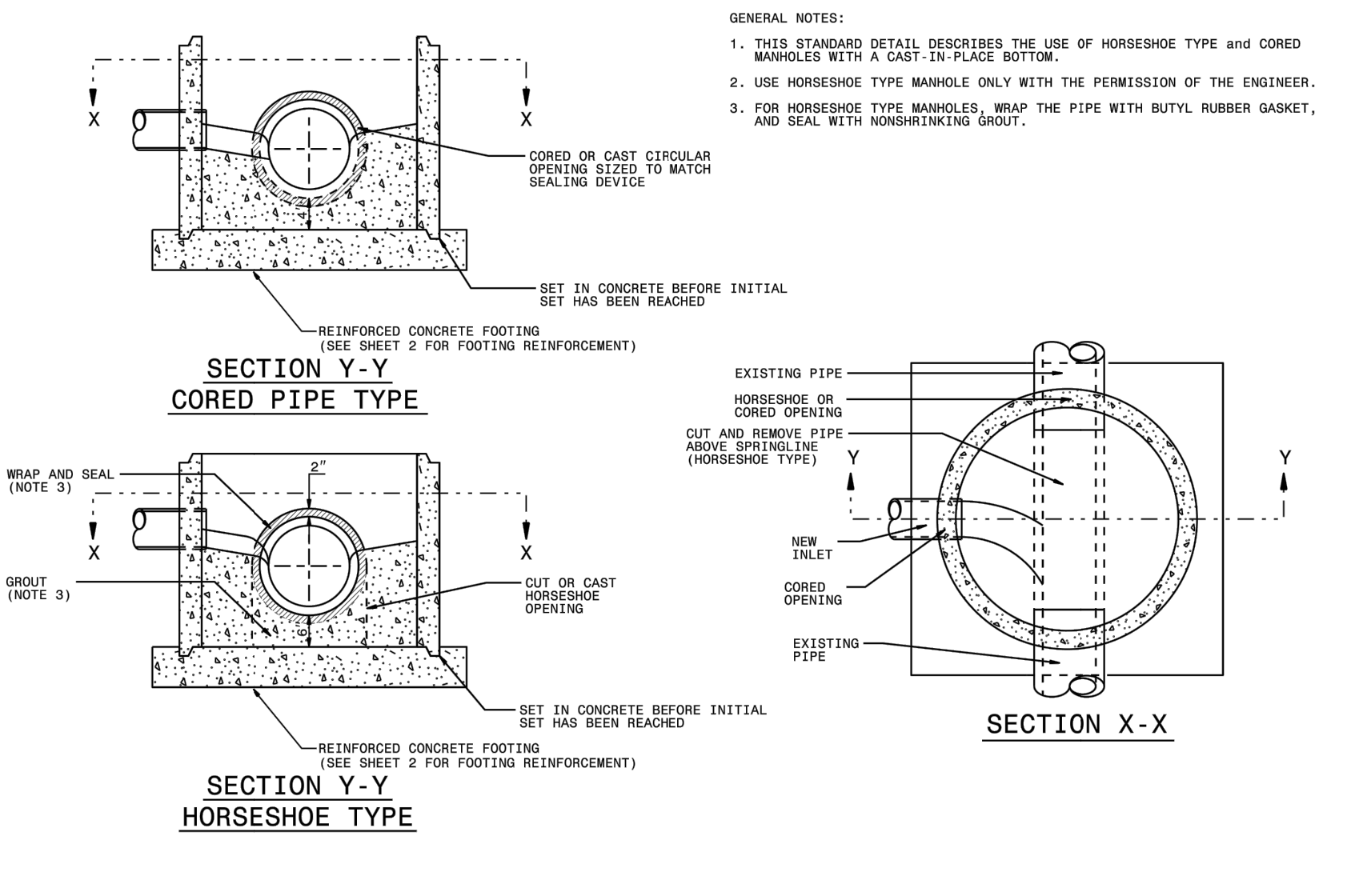
**DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED**



ROADWAY STANDARD DRAWING FOR
SEWER CLEAN OUT
SHEET 1 OF 1
1520.01



ROADWAY STANDARD DRAWING FOR
PRECAST CONCRETE SANITARY SEWER MANHOLE WITH CAST-IN-PLACE BOTTOM
SHEET 1 OF 2
1525.06



REINFORCED CONCRETE FOOTING FOR 5' PRECAST MANHOLE OR 4' PRECAST MANHOLE

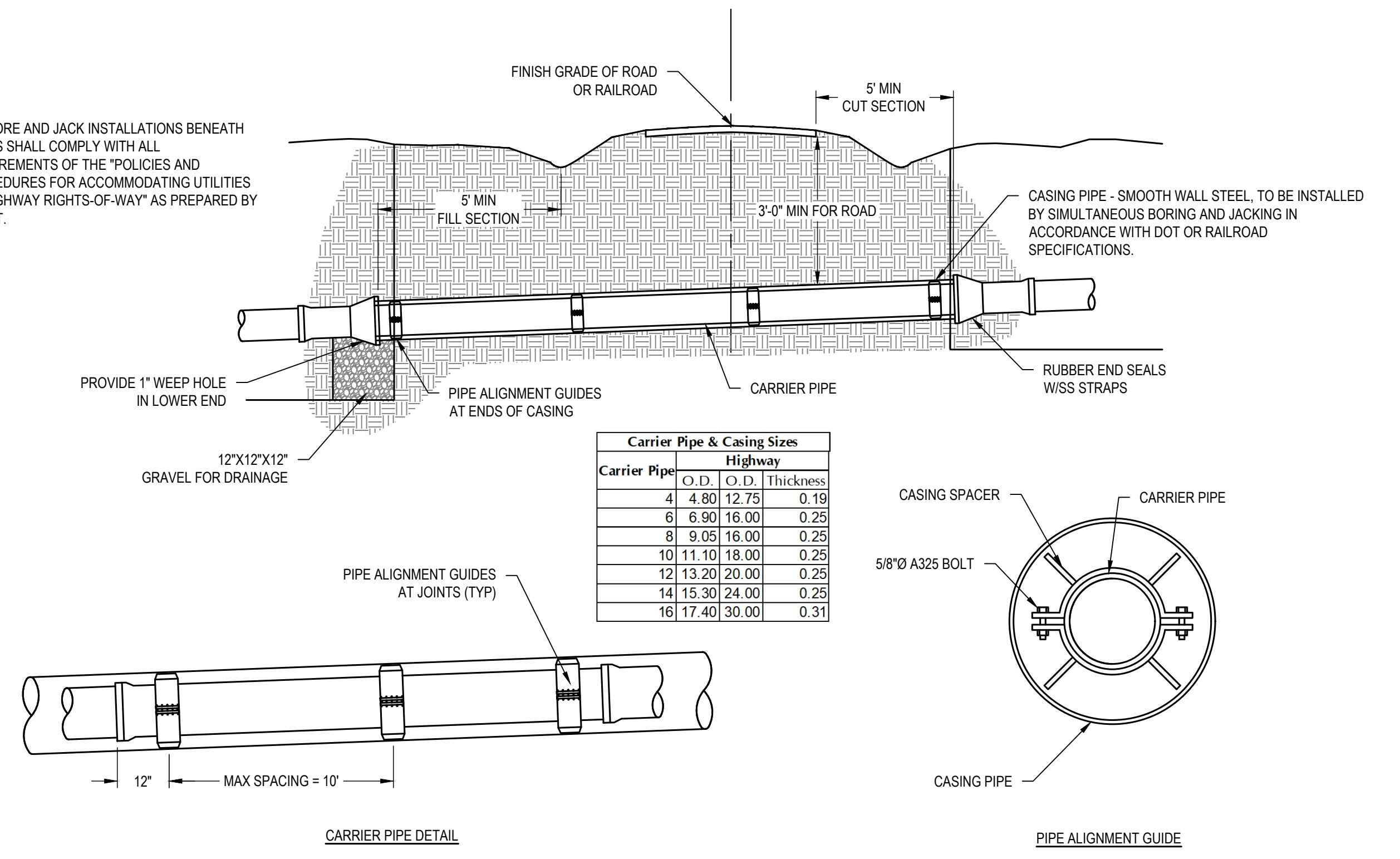
BAR	SIZE	LENGTH	NO.	WT. lbs.
T1	#5	5'-6"	18	103
CLASS "A" CONC. YD ³ 9" THICK 1.00				

BAR	SIZE	LENGTH	NO.	WT. lbs.
T2	#5	6'-6"	20	136
CLASS "A" CONC. YD ³ 9" THICK 1.36				
CLASS "A" CONC. YD ³ 12" THICK 1.82				

BAR	SIZE	LENGTH	NO.	WT. lbs.
T3	#5	7'-6"	24	188
CLASS "A" CONC. YD ³ 12" THICK 2.37				

PLACE REINFORCING STEEL SO THAT STEEL IS PLACED A MIN. OF 2" AND A MAX. OF 4" FROM THE TOP OF THE SLAB.

ROADWAY STANDARD DRAWING FOR
PRECAST CONCRETE SANITARY SEWER MANHOLE WITH CAST-IN-PLACE BOTTOM
SHEET 2 OF 2
1525.06

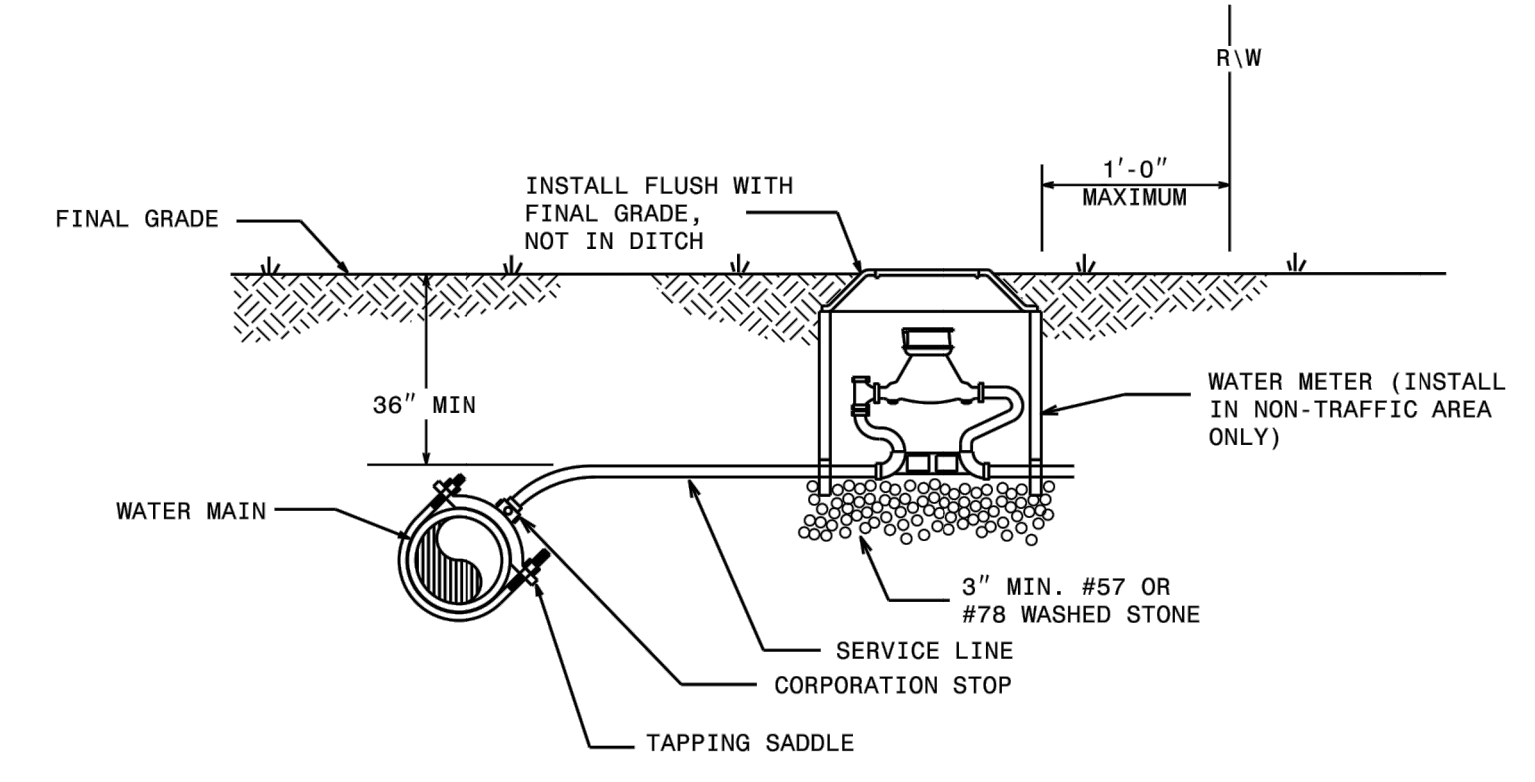


REVISIONS

K:\17-0070\170078-town of broadway sewer improve\CAD\civil drawings\R-3830_uc_03c_p01.dwg - Thursday, May 12, 2022 11:52:23 AM - PETERSON, PATRICK

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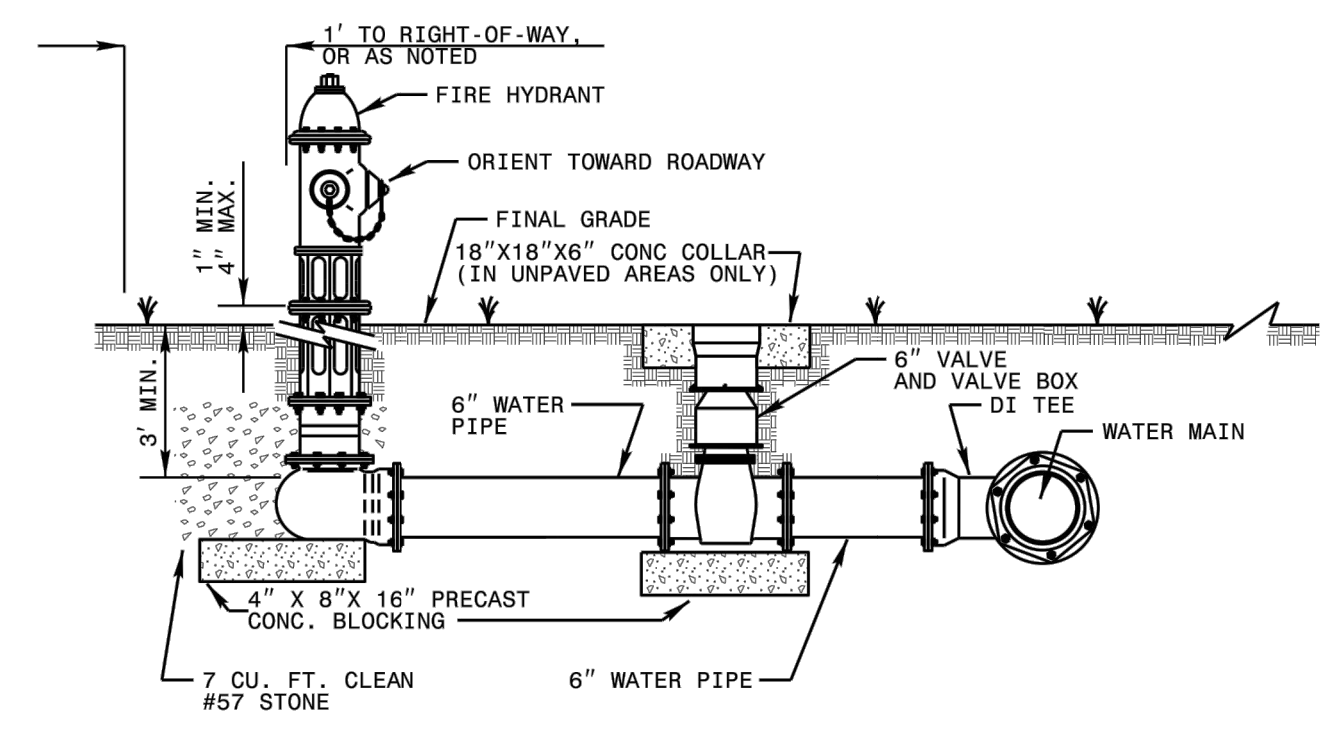
PROJECT REFERENCE NO. R-3830	SHEET NO. UC-03D
DESIGNED BY: MCW	DocuSigned by: <i>Michael Wicker</i> SEAL 11323 ENGINEER MICHAEL C. WICKER
DRAWN BY: PAP	
CHECKED BY: JWW	CFZCEAE2882C404
APPROVED BY:	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	
5/12/2022	
UTILITY CONSTRUCTION	
 WithersRavenel Engineers Planners Surveyors 115 MacKenan Drive Cary, NC 27511 T: 919.469.3340 License #: C-0832 www.withersravenel.com	
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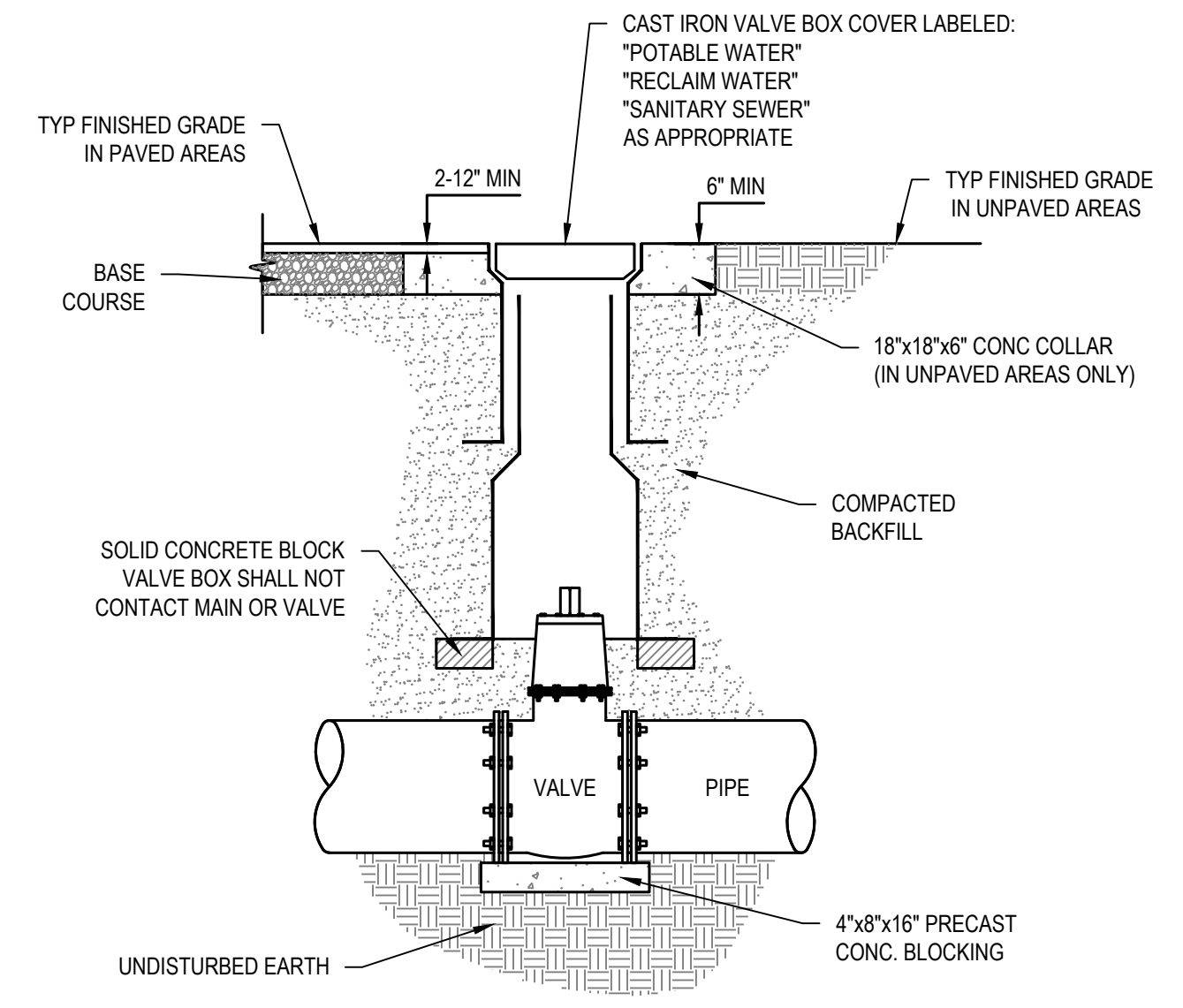
NOTES:
1. THIS DETAIL SHOWS THE TYPICAL FINAL WATER METER CONFIGURATION AFTER INSTALLATION OF A PROPOSED WATER METER, RECONNECTION OF AN EXISTING WATER METER, OR RELOCATION OF A WATER METER.

ROADWAY STANDARD DRAWING FOR
WATER METER
SHEET 1 OF 1
1515.01

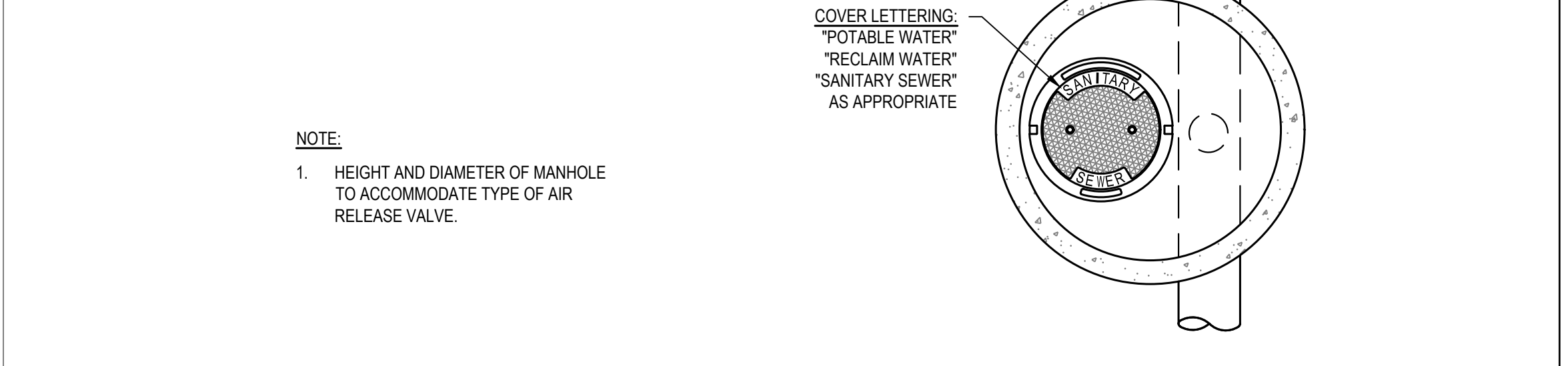
- NOTES:
- THIS DETAIL SHOWS THE TYPICAL FINAL FIRE HYDRANT CONFIGURATION AFTER INSTALLATION OF A PROPOSED FIRE HYDRANT, RECONNECTION OF AN EXISTING FIRE HYDRANT, OR RELOCATION OF A FIRE HYDRANT.
 - KEEP DRAIN PORTS FREE FROM OBSTRUCTION.
 - RESTRAIN ALL PIPE JOINTS AND FITTINGS. ACCEPTABLE TYPES OF RESTRAINT INCLUDE RESTRAINING GLANDS; RESTRAINED, PUSH-ON JOINTS; AND 3/4" BITUMINOUS COATED, ALL-THREAD RESTRAINING RODS. THRUST BLOCKS ARE NOT AN ACCEPTABLE TYPE OF RESTRAINT.
 - FOR RELOCATED OR RECONNECTED FIRE HYDRANTS, VERIFY THE VALVE IS RESTRAINED TO THE MAIN. PROVIDE APPROPRIATE RESTRAINT.
 - HYDRANT LOCATION APPLIES TO PROPOSED AND RELOCATED FIRE HYDRANTS.
 - LOCATE FIRE HYDRANT WITH 3' HORIZONTAL CLEARANCE FROM ABOVE GROUND OBJECTS.
 - PROVIDE A MINIMUM OF 3' COVER OVER ALL SECTIONS OF HORIZONTAL PIPE. USE FITTINGS AS NECESSARY.
 - TAPPING SLEEVES MAY BE USED ON EXISTING MAINS IN LIEU OF DI TEES.
 - LOCATE FIRE HYDRANT OUTSIDE OF THE VEHICLE RECOVERY AREA, ADJACENT TO THE R/W LINE, OR IN A PROTECTED AREA.



ROADWAY STANDARD DRAWING FOR
FIRE HYDRANT
SHEET 1 OF 1
1515.02

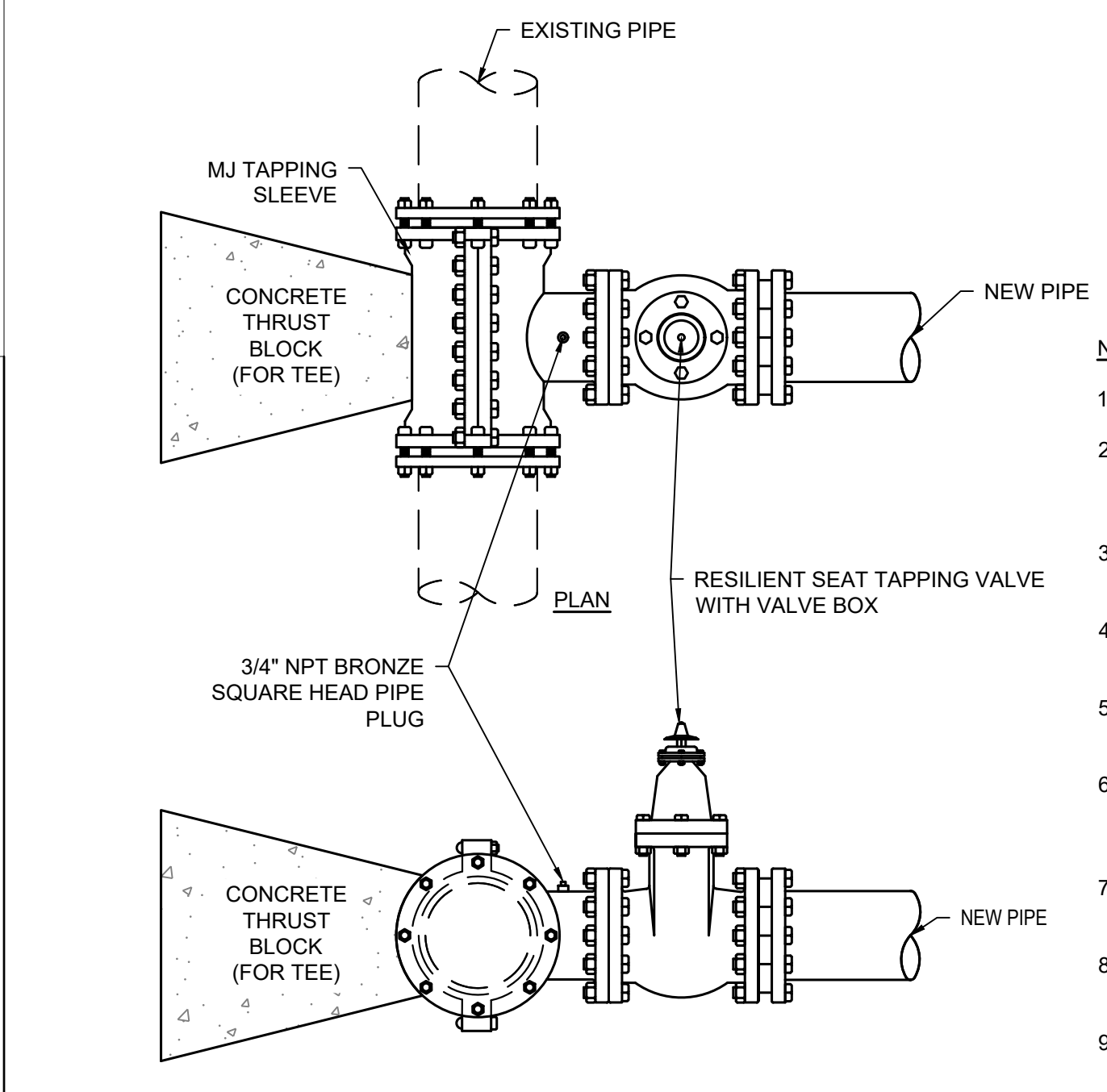
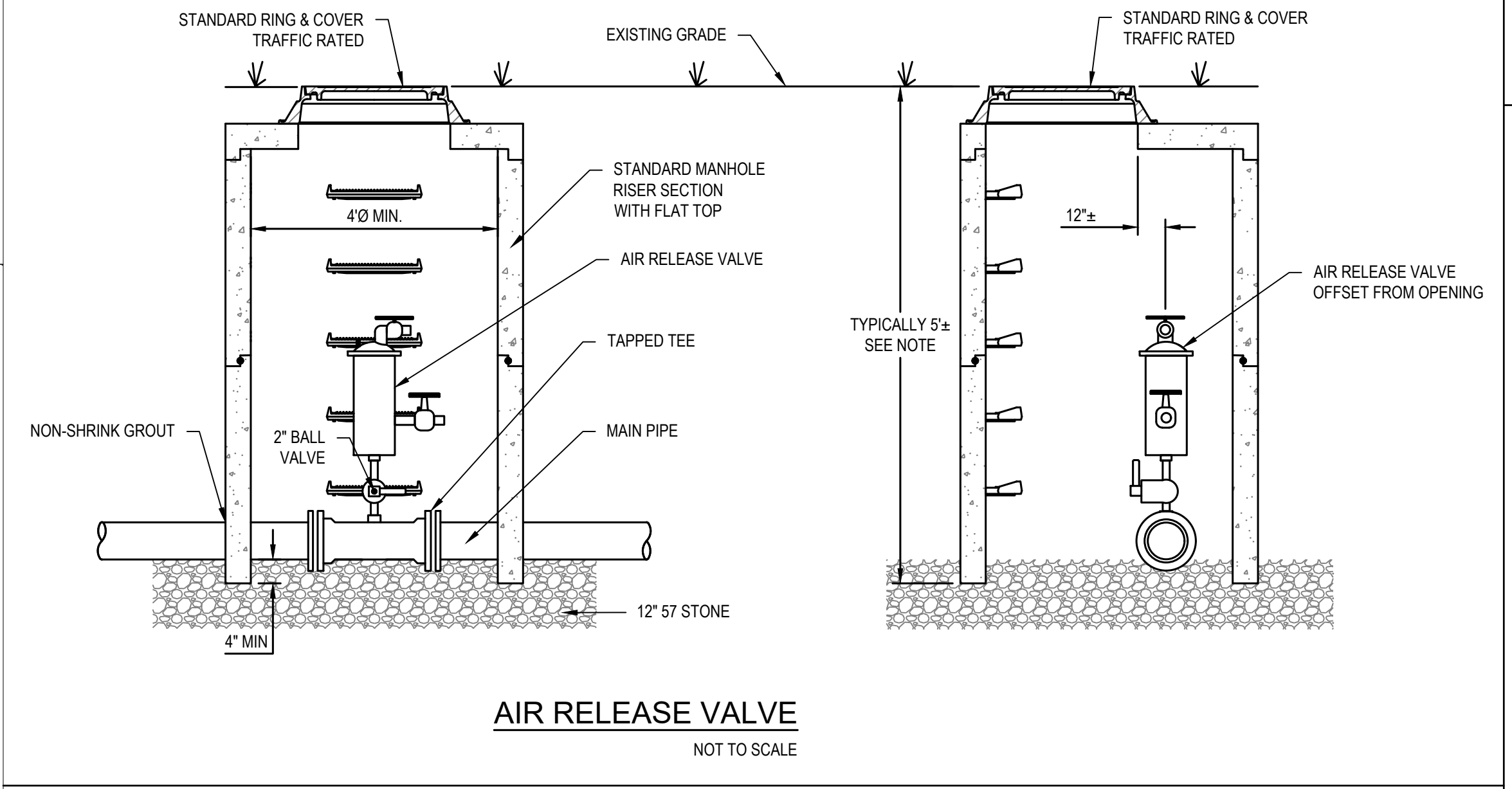


VALVE & VALVE BOX
NOT TO SCALE

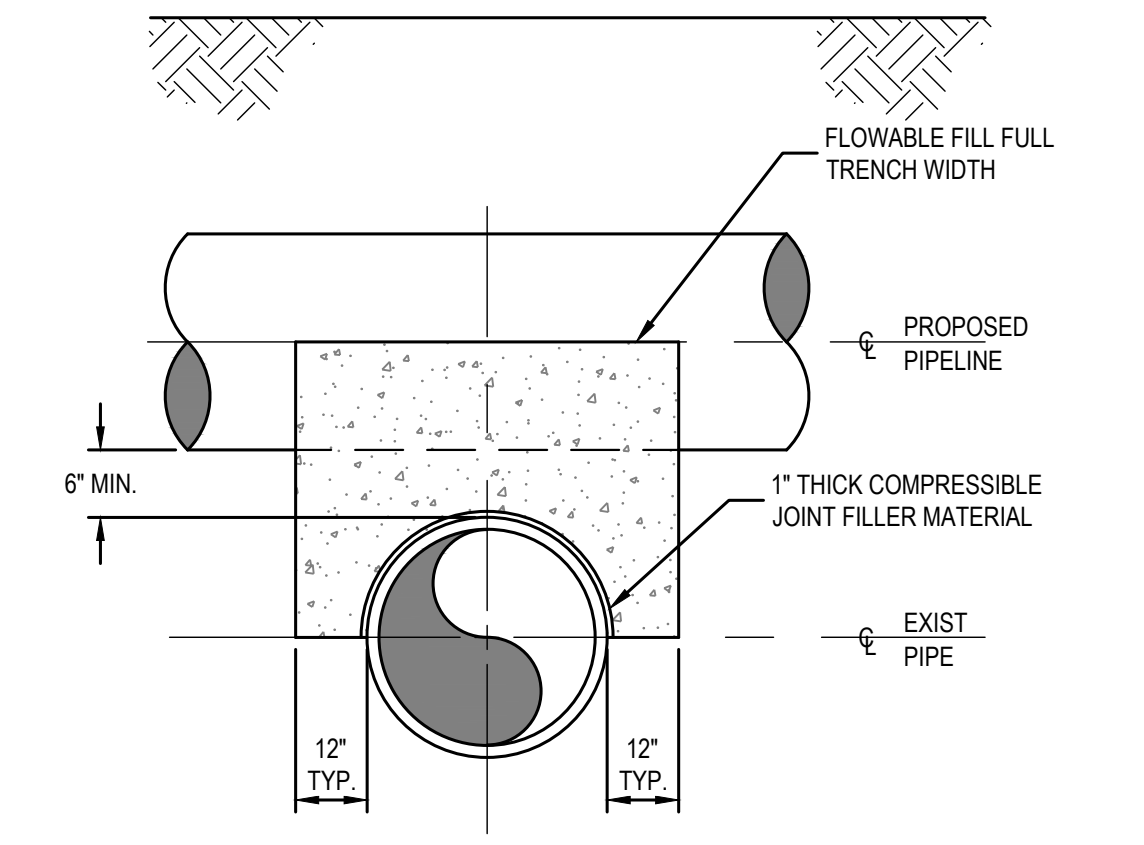


NOTE:
1. HEIGHT AND DIAMETER OF MANHOLE TO ACCOMMODATE TYPE OF AIR RELEASE VALVE.

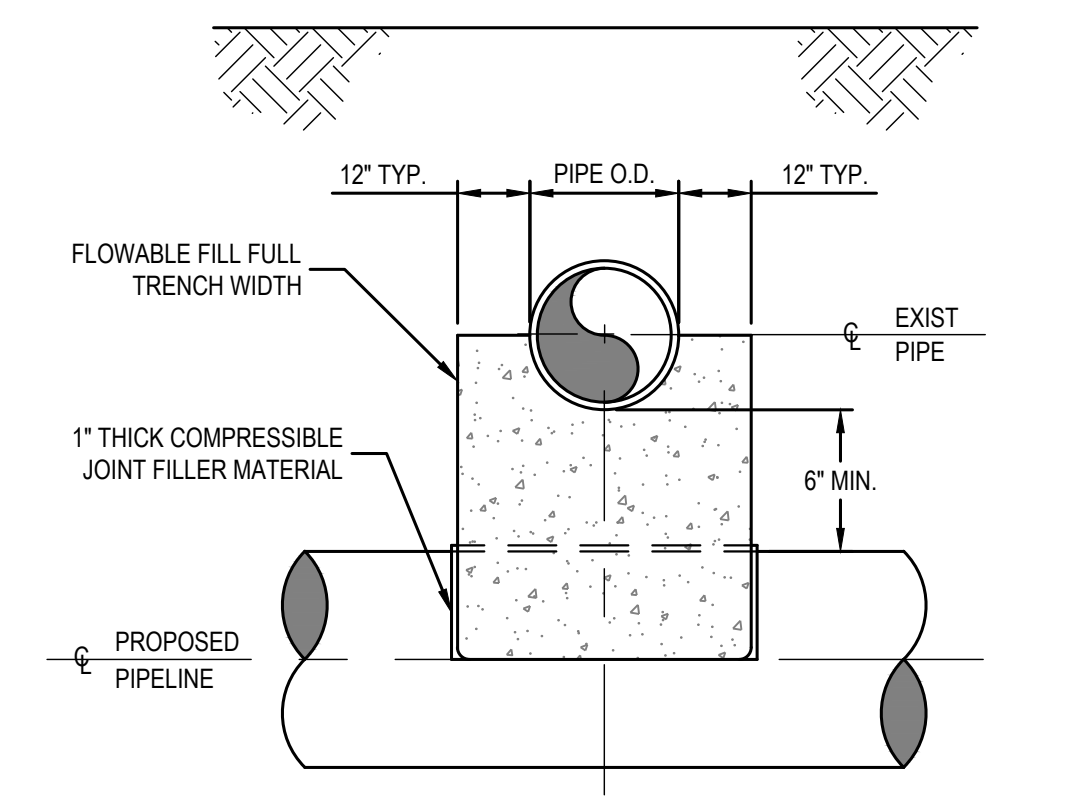
AIR RELEASE VALVE
NOT TO SCALE



TAPPING SLEEVE AND VALVE
NOT TO SCALE



PROPOSED PIPELINE OVER EXISTING PIPE



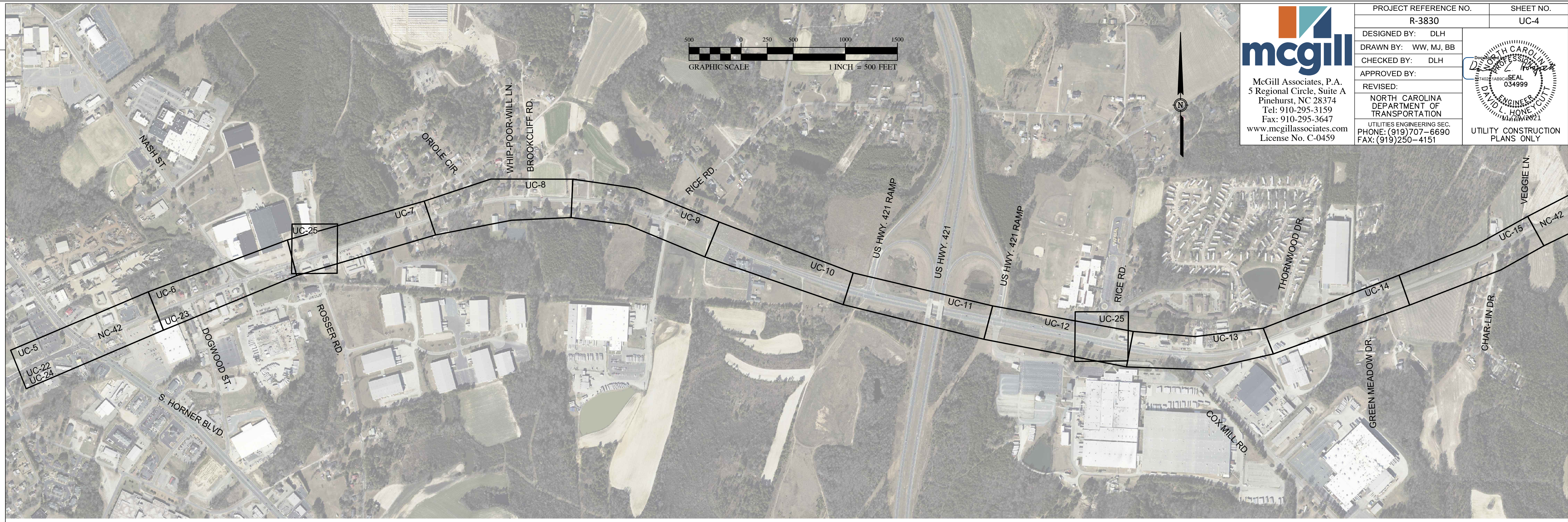
PROPOSED PIPELINE UNDER EXISTING PIPE

PIPE CROSSING DETAIL
NOT TO SCALE

NOTE:
NO ENCASUREMENT REQUIRED FOR SPACE 18 INCHES OR GREATER.

REVISIONS

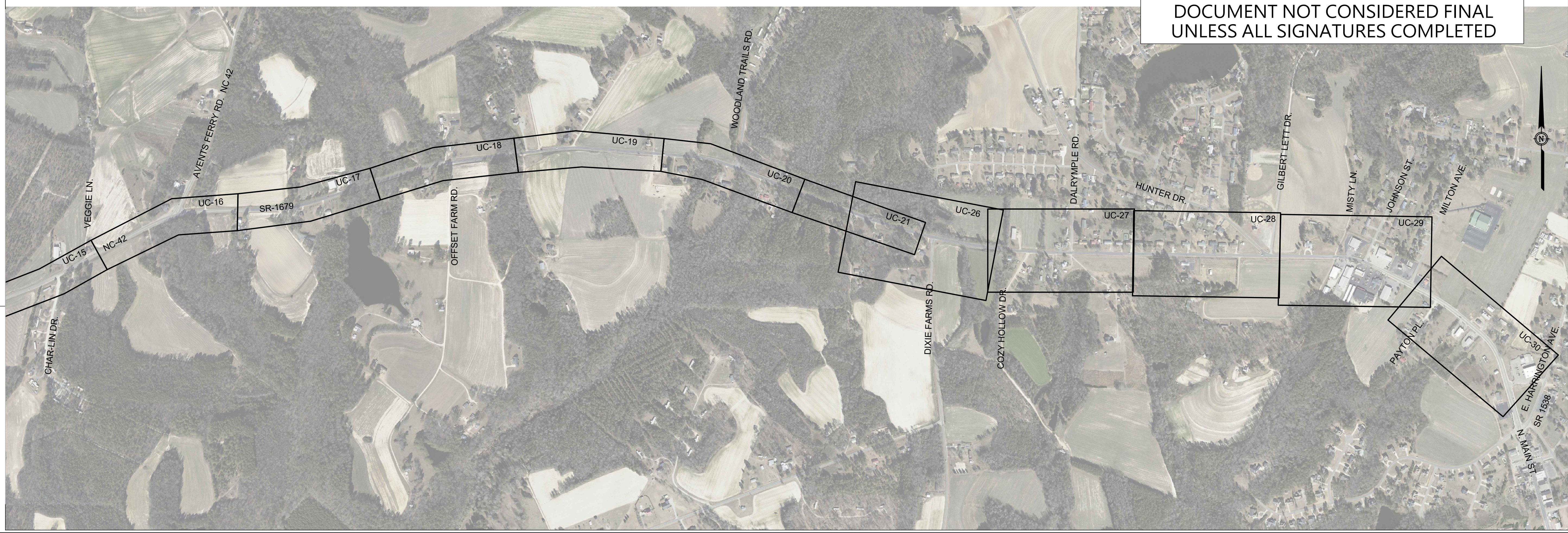
K:\17-0070\170078-town of broadway sewer improve\CAD\civil drawings\R-3830_ut_rtl_UC03b_psh.dwg - Thursday, May 12, 2022 11:52:27 AM - PETERSON, PATRICK



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 Pinehurst, NC 28374
 Tel: 910-295-3159
 Fax: 910-295-3647
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 License No. C-0459

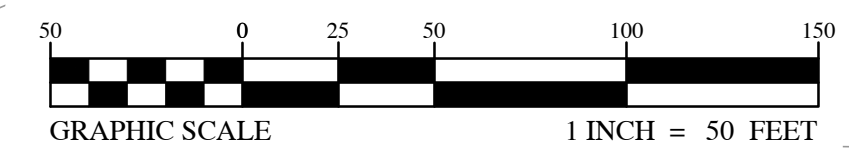
PROJECT REFERENCE NO.	R-3830	SHEET NO.	UC-4
DESIGNED BY:	DLH		
DRAWN BY:	WW, MJ, BB		
CHECKED BY:	DLH		
APPROVED BY:			
REVISED:		NORTH CAROLINA DEPARTMENT OF TRANSPORTATION UTILITIES ENGINEERING SEC. PHONE: (919)707-6690 FAX: (919)250-4151	
			UTILITY CONSTRUCTION PLANS ONLY

REVISIONS



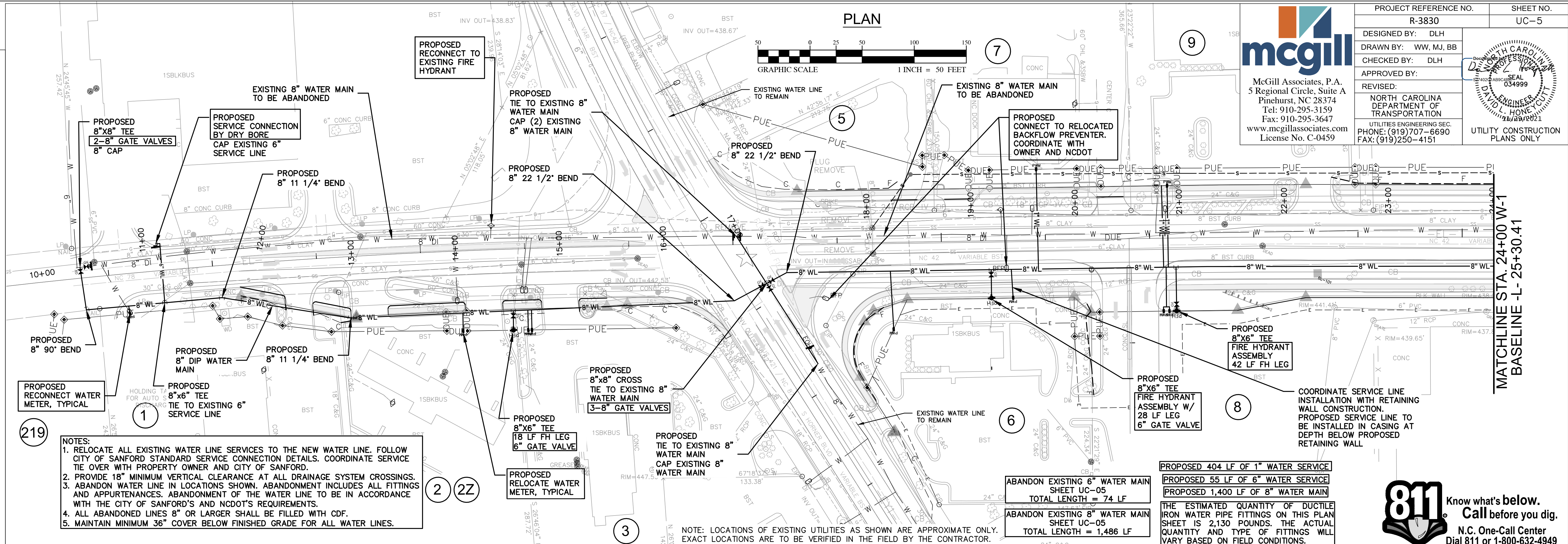
UTILITY CONSTRUCTION
 DOCUMENT NOT CONSIDERED FINAL
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PLAN



McGill Associates, P.A.
5 Regional Circle, Suite A
Pinehurst, NC 28374
Tel: 910-295-3159
Fax: 910-295-3647
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License No. C-0459

PROJECT REFERENCE NO. R-3830	SHEET NO. UC-5
DESIGNED BY: DLH	
DRAWN BY: WW, MJ, BB	
CHECKED BY: DLH	
APPROVED BY:	REVISED: NORTH CAROLINA DEPARTMENT OF TRANSPORTATION UTILITIES ENGINEERING SEC. PHONE: (919)707-6690 FAX: (919)250-4151
UTILITY CONSTRUCTION PLANS ONLY	



- NOTES:**
1. RELOCATE ALL EXISTING WATER LINE SERVICES TO THE NEW WATER LINE. FOLLOW CITY OF SANFORD STANDARD SERVICE CONNECTION DETAILS. COORDINATE SERVICE TIE OVER WITH PROPERTY OWNER AND CITY OF SANFORD.
 2. PROVIDE 18" MINIMUM VERTICAL CLEARANCE AT ALL DRAINAGE SYSTEM CROSSINGS.
 3. ABANDON WATER LINE IN LOCATIONS SHOWN. ABANDONMENT INCLUDES ALL FITTINGS AND APPURTENANCES. ABANDONMENT OF THE WATER LINE TO BE IN ACCORDANCE WITH THE CITY OF SANFORD'S AND NCDOT'S REQUIREMENTS.
 4. ALL ABANDONED LINES 8" OR LARGER SHALL BE FILLED WITH CDF.
 5. MAINTAIN MINIMUM 36" COVER BELOW FINISHED GRADE FOR ALL WATER LINES.

ABANDON EXISTING 6" WATER MAIN
SHEET UC-05
TOTAL LENGTH = 74 LF

ABANDON EXISTING 8" WATER MAIN
SHEET UC-05
TOTAL LENGTH = 1,486 LF

PROPOSED 404 LF OF 1" WATER SERVICE

PROPOSED 55 LF OF 6" WATER SERVICE

PROPOSED 1,400 LF OF 8" WATER MAIN

THE ESTIMATED QUANTITY OF DUCTILE IRON WATER PIPE FITTINGS ON THIS PLAN SHEET IS 2,130 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.

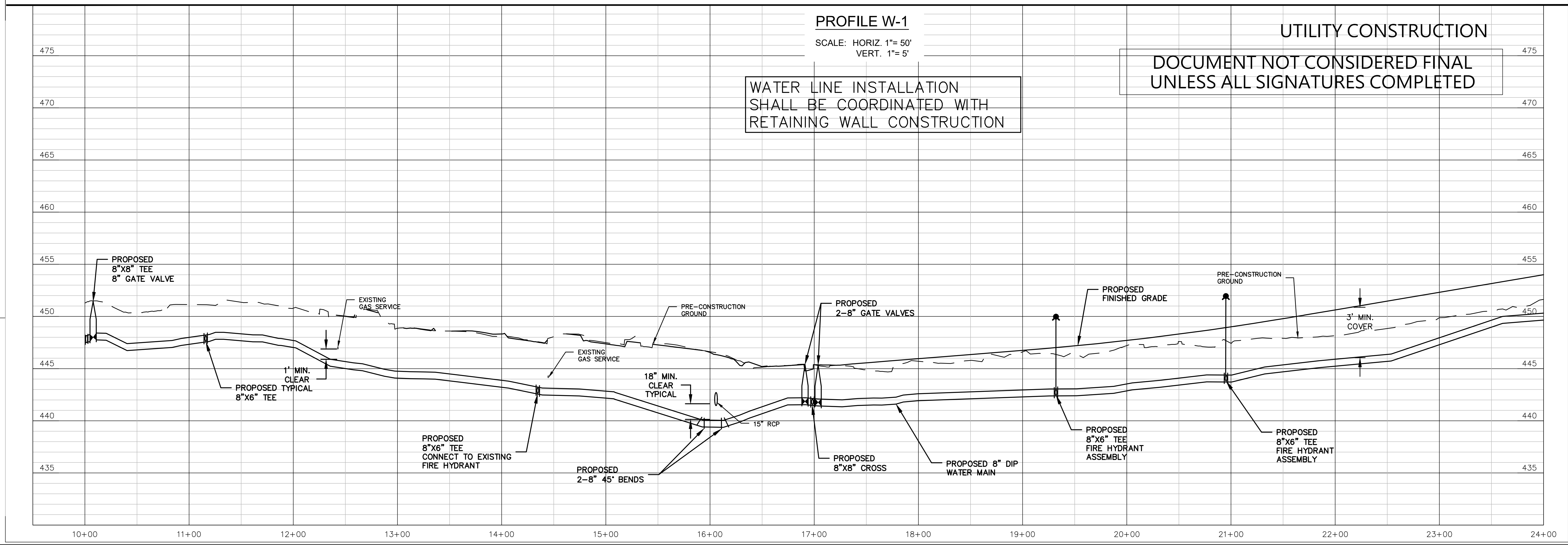
PROFILE W-1

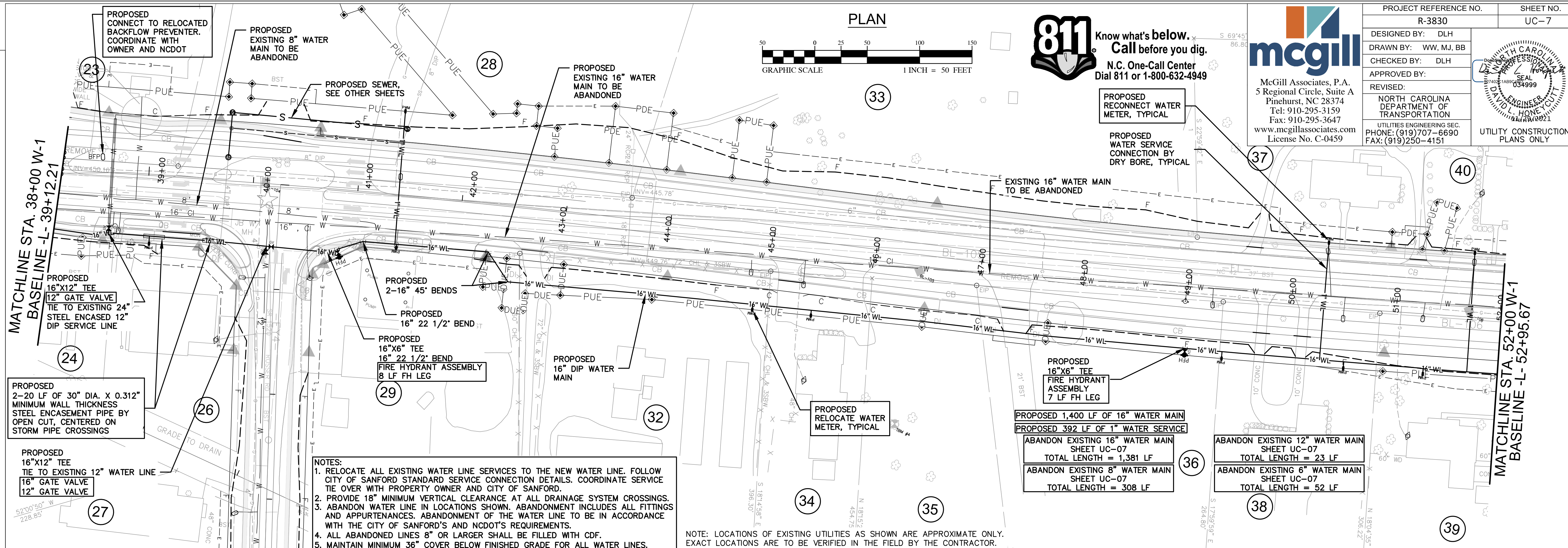
SCALE: HORIZ. 1"= 50'
VERT. 1"= 5'

WATER LINE INSTALLATION SHALL BE COORDINATED WITH RETAINING WALL CONSTRUCTION

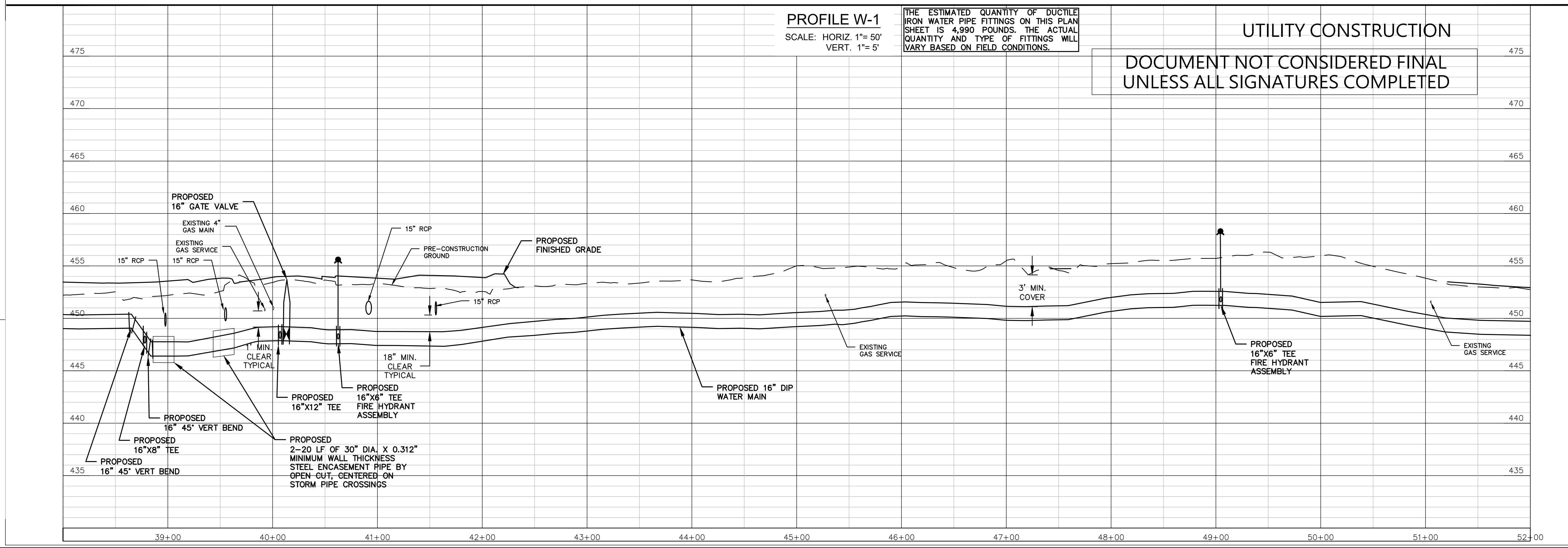
UTILITY CONSTRUCTION

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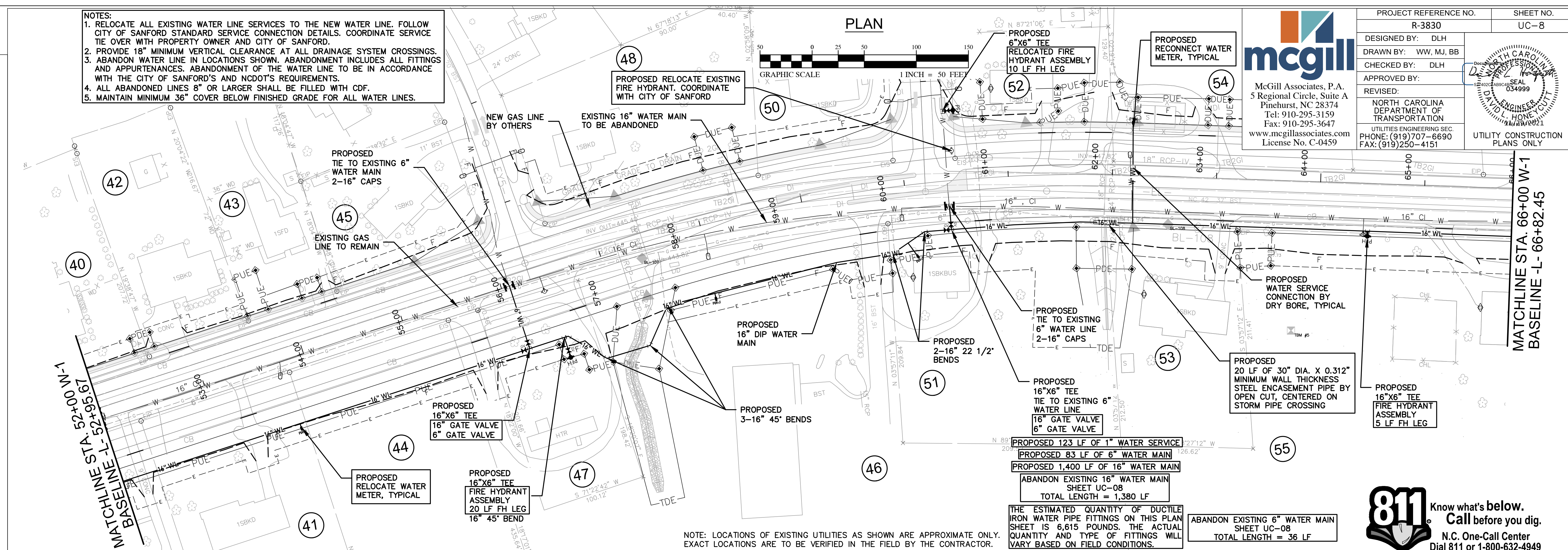
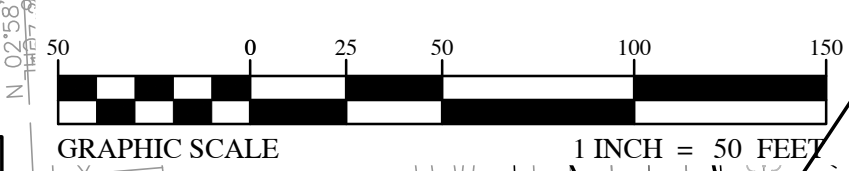


REVISIONS



- NOTES:
1. RELOCATE ALL EXISTING WATER LINE SERVICES TO THE NEW WATER LINE. FOLLOW CITY OF SANFORD STANDARD SERVICE CONNECTION DETAILS. COORDINATE SERVICE TIE OVER WITH PROPERTY OWNER AND CITY OF SANFORD.
 2. PROVIDE 18" MINIMUM VERTICAL CLEARANCE AT ALL DRAINAGE SYSTEM CROSSINGS.
 3. ABANDON WATER LINE IN LOCATIONS SHOWN. ABANDONMENT INCLUDES ALL FITTINGS AND APPURTENANCES. ABANDONMENT OF THE WATER LINE TO BE IN ACCORDANCE WITH THE CITY OF SANFORD'S AND NCDOT'S REQUIREMENTS.
 4. ALL ABANDONED LINES 8" OR LARGER SHALL BE FILLED WITH CDF.
 5. MAINTAIN MINIMUM 36" COVER BELOW FINISHED GRADE FOR ALL WATER LINES.

PLAN



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 5 Regional Circle, Suite A
 Pinehurst, NC 28374
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 Fax: 910-295-3647
 www.mcgillassociates.com
 License No. C-0459

PROJECT REFERENCE NO. R-3830	SHEET NO. UC-8
DESIGNED BY: DLH	
DRAWN BY: WW, MJ, BB	
CHECKED BY: DLH	
APPROVED BY:	REVIS: NORTH CAROLINA DEPARTMENT OF TRANSPORTATION UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151 UTILITY CONSTRUCTION PLANS ONLY

MATCHLINE STA. 52+00 TO 52+95.67
 BASELINE L-1

MATCHLINE STA. 66+00 W-1
 BASELINE L-66+82.45

REVISIONS

NOTE: LOCATIONS OF EXISTING UTILITIES AS SHOWN ARE APPROXIMATE ONLY. EXACT LOCATIONS ARE TO BE VERIFIED IN THE FIELD BY THE CONTRACTOR.

THE ESTIMATED QUANTITY OF DUCTILE IRON WATER PIPE FITTINGS ON THIS PLAN SHEET IS 6,615 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.

ABANDON EXISTING 6" WATER MAIN SHEET UC-08
 TOTAL LENGTH = 36 LF

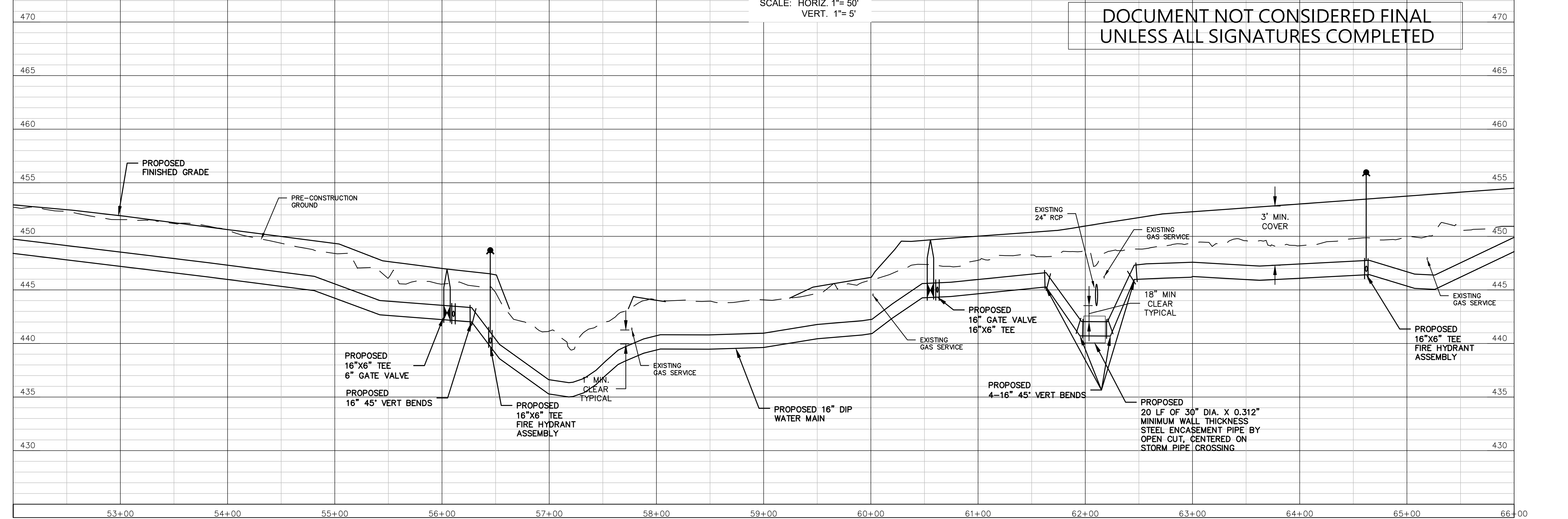
811 Know what's below.
 Call before you dig.
 N.C. One-Call Center
 Dial 811 or 1-800-632-4949

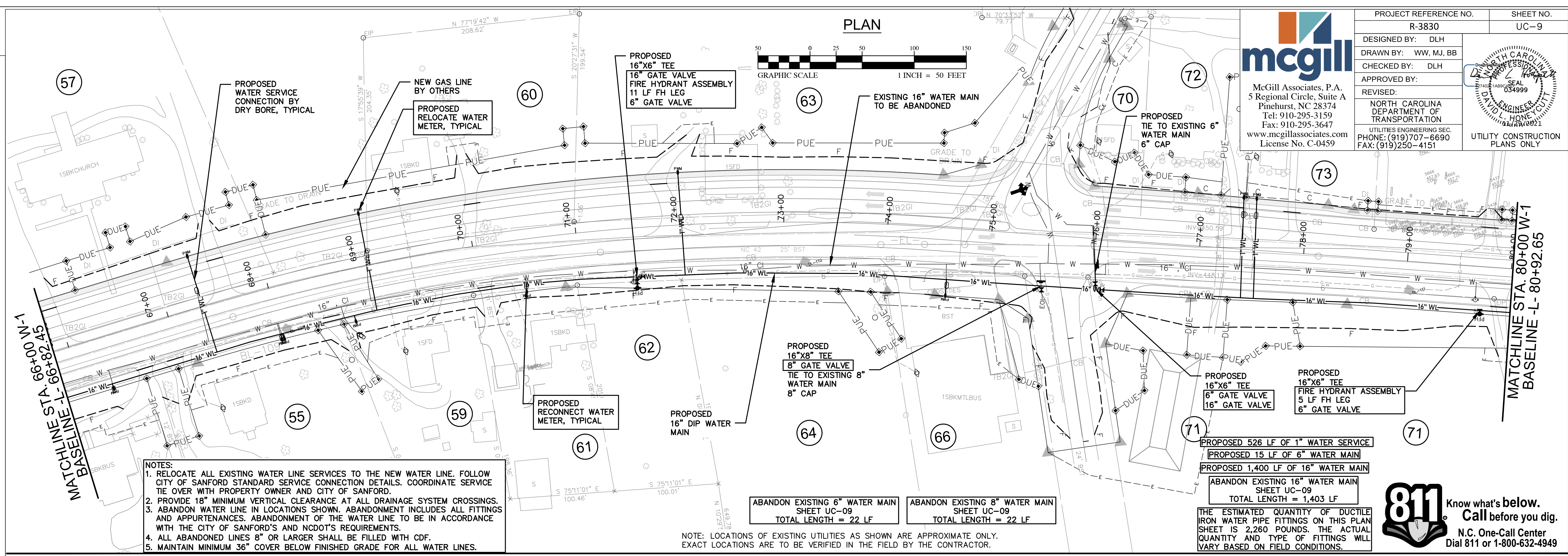
PROFILE W-1

SCALE: HORIZ. 1"= 50'
 VERT. 1"= 5'

UTILITY CONSTRUCTION

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- NOTES:**
1. RELOCATE ALL EXISTING WATER LINE SERVICES TO THE NEW WATER LINE. FOLLOW CITY OF SANFORD STANDARD SERVICE CONNECTION DETAILS. COORDINATE SERVICE TIE OVER WITH PROPERTY OWNER AND CITY OF SANFORD.
 2. PROVIDE 18" MINIMUM VERTICAL CLEARANCE AT ALL DRAINAGE SYSTEM CROSSINGS.
 3. ABANDON WATER LINE IN LOCATIONS SHOWN. ABANDONMENT INCLUDES ALL FITTINGS AND APPURTENANCES. ABANDONMENT OF THE WATER LINE TO BE IN ACCORDANCE WITH THE CITY OF SANFORD'S AND NCDOT'S REQUIREMENTS.
 4. ALL ABANDONED LINES 8" OR LARGER SHALL BE FILLED WITH CDF.
 5. MAINTAIN MINIMUM 36" COVER BELOW FINISHED GRADE FOR ALL WATER LINES.

ABANDON EXISTING 6" WATER MAIN
SHEET UC-09
TOTAL LENGTH = 22 LF

ABANDON EXISTING 8" WATER MAIN
SHEET UC-09
TOTAL LENGTH = 22 LF

PROPOSED 526 LF OF 1" WATER SERVICE

PROPOSED 15 LF OF 6" WATER MAIN

PROPOSED 1,400 LF OF 16" WATER MAIN

ABANDON EXISTING 16" WATER MAIN
SHEET UC-09
TOTAL LENGTH = 1,403 LF

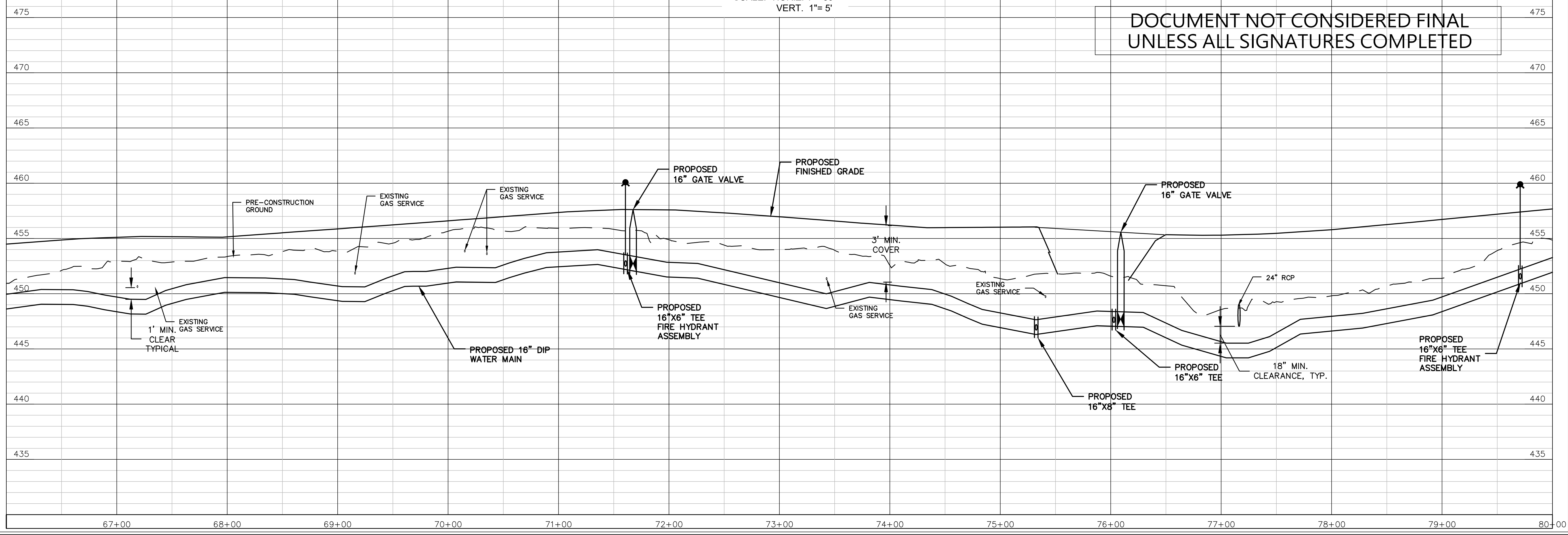
THE ESTIMATED QUANTITY OF DUCTILE IRON WATER PIPE FITTINGS ON THIS PLAN SHEET IS 2,260 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.

811 Know what's below. Call before you dig.

N.C. One-Call Center
Dial 811 or 1-800-632-4949

PROFILE W-1

SCALE: HORIZ. 1"= 50'
VERT. 1"= 5'



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Pinehurst, NC 28374
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Fax: 910-295-3647
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License No. C-0459

PROJECT REFERENCE NO. R-3830
SHEET NO. UC-9

DESIGNED BY: DLH
DRAWN BY: WW, MJ, BB
CHECKED BY: DLH
APPROVED BY:

REVISED:
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
UTILITIES ENGINEERING SEC.
PHONE: (919)707-6690
FAX: (919)250-4151

UTILITY CONSTRUCTION PLANS ONLY

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