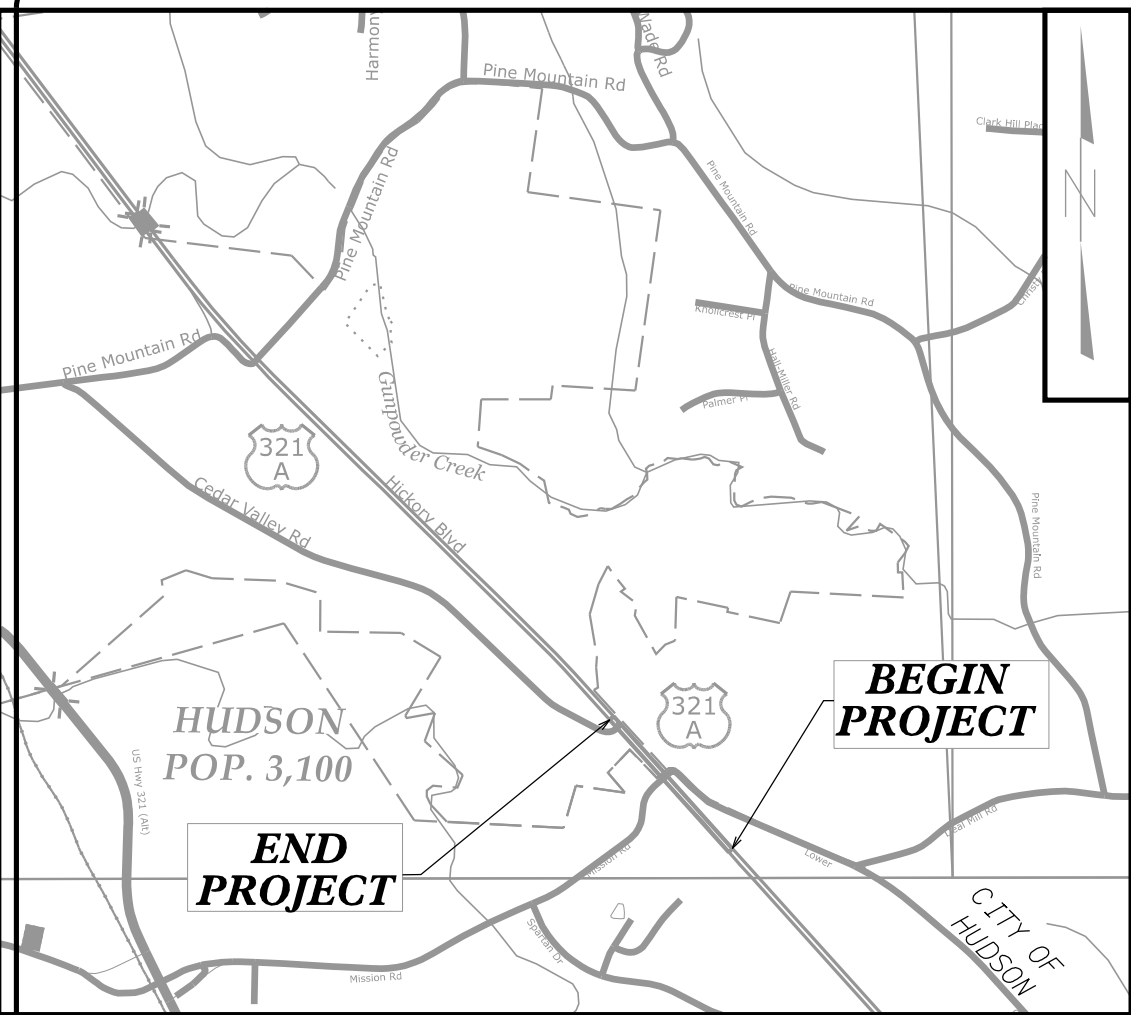


TIP PROJECT: U-4700CC

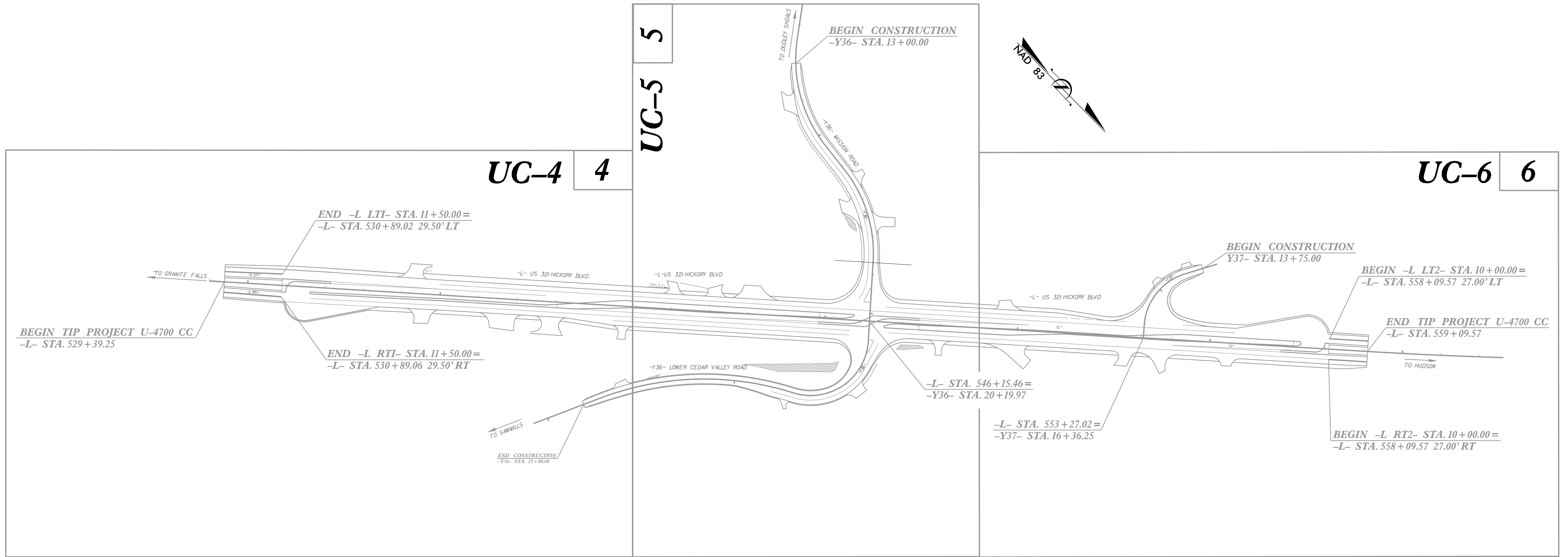
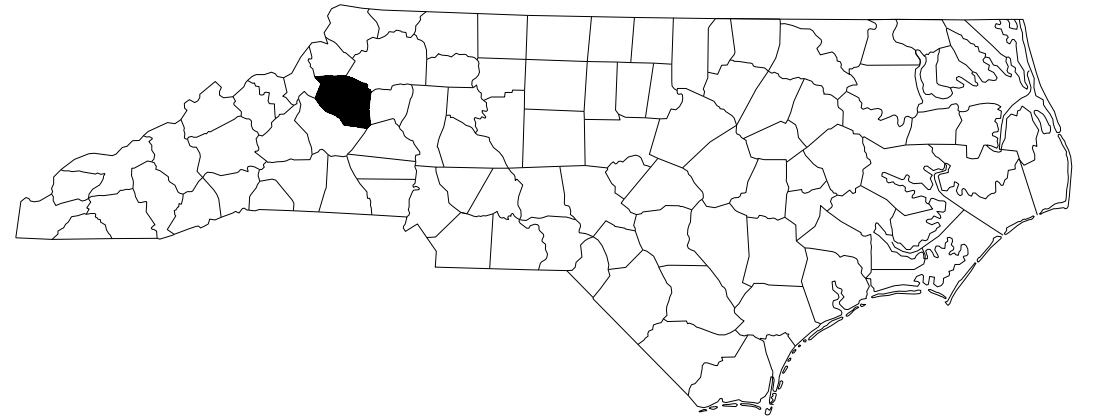


VICINITY MAP

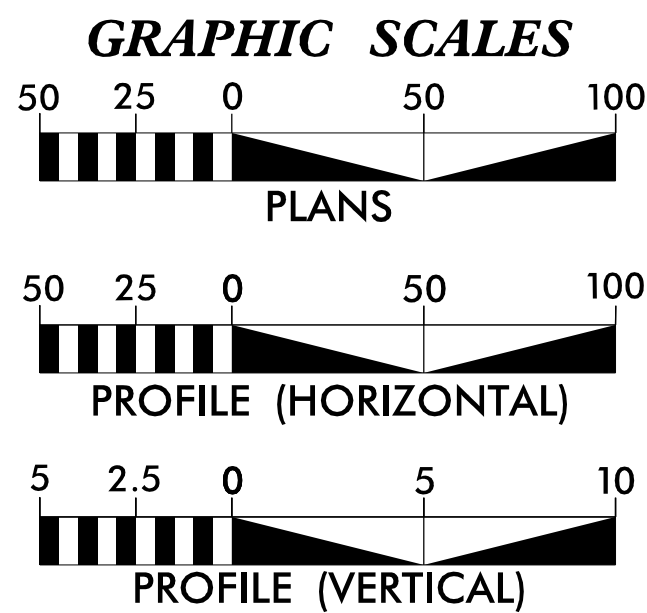
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

UTILITY CONSTRUCTION PLANS
CALDWELL COUNTY

LOCATION: US 321 (HICKORY BLVD.) AT SR 1108 (MISSION RD.)
AND SR 1109 (LOWER CEDAR VALLEY RD.)
TYPE OF WORK: WATER & SEWER LINE RELOCATION



DOCUMENT NOT CONSIDERED FINAL
UNTIL ALL SIGNATURES ARE COMPLETED



SHEET NO.	DESCRIPTION
UC-1	TITLE SHEET
UC-2	UTILITY SYMBOLOGY
UC-3 - UC-3A	NOTES
UC-3B - UC-3G	DETAILS
UC-4 - UC-6B	UTILITY PLAN & PROFILE

PUBLIC UTILITY OWNERS
ON PROJECT

- (1) WATER & SEWER - TOWN OF SAWMILLS
- (2) SEWER - CITY OF LENOIR
- (3) WATER - CALDWELL COUNTY

West Consultants, PLLC
405 South Sterling Street
Morganton, NC 28655
(828) 433-5661
Fax (828) 433-5662

SEAL:
NORTH CAROLINA
PROFESSIONAL ENGINEER
BENJAMIN B. THOMAS
SEAL 20757

Jamie Noe, P.E.
Joseph Montgomery, P.G.
Benjie Thomas, P.E.

Vaughn & Melton
Consulting Engineers
1318-F Patton Avenue
Asheville, NC 28806
(828) 253-2796

SEAL:
NORTH CAROLINA
PROFESSIONAL ENGINEER
JAMIE D. NOE
SEAL 20757

PROJECT UTILITY ENGINEER (JMT)
PROJECT UTILITY COORDINATOR
PROJECT UTILITY ENGINEER (WEST)

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






















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

Ramie Shaw PROJECT MANAGER
Brandon Greer DIVISION UTILITY ENGINEER

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

UTILITIES PLAN SHEET SYMBOLS









PROPOSED WATER SYMBOLS


Water Line (Sized as Shown)	
11¼ Degree Bend	
22½ 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	REM FH
Water Meter	
Relocate Water Meter	
Remove Water Meter	REM WM
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	

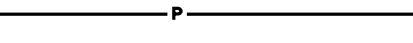
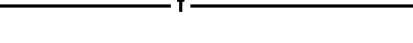




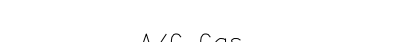


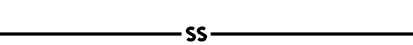
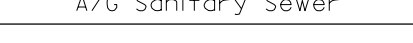
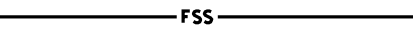
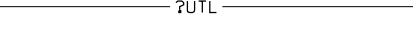






PROPOSED MISCELLANOUS UTILITIES SYMBOLS

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	


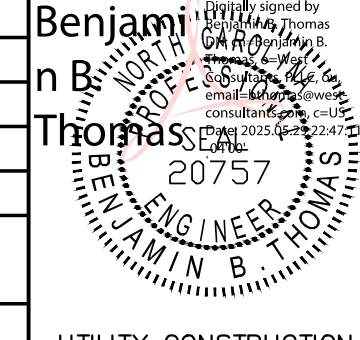
EXISTING UTILITIES SYMBOLS

Power Pole	
Telephone Pole	
Joint Use Pole	
Utility Pole	
Utility Pole with Base	
H-Frame Pole	
Power Transmission Line Tower	
Water Manhole	
Power Manhole	
Telephone Manhole	
Sanitary Sewer Manhole	
Hand Hole for Cable	
Power Transformer	
Telephone Pedestal	
CATV Pedestal	
Gas Valve	
Gas Meter	
Located Miscellaneous Utility Object	
Abandoned According to Utility Records	AATUR
End of Information	E.O.I.

*Underground Power Line	
*Underground Telephone Cable	
*Underground Telephone Conduit	
*Underground Fiber Optics Telephone Cable	
*Underground TV Cable	
*Underground Fiber Optics TV Cable	
*Underground Gas Pipeline	
Aboveground Gas Pipeline	
*Underground Water Line	
Aboveground Water Line	
*Underground Gravity Sanitary Sewer Line	
Aboveground Gravity Sanitary Sewer Line	
*Underground SS Forced Main Line	
Underground Unknown Utility Line	
SUE Test Hole	
Water Meter	
Water Valve	
Fire Hydrant	
Sanitary Sewer Cleanout	

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

UTILITY CONSTRUCTION

 <div>405 South Sterling Street Morganton, NC 28655 (828) 433-5661 Fax (828) 433-5662 NC License No. P-0210 www.west-consultants.com</div>	PROJECT REFERENCE NO.		SHEET NO.
	DESIGNED BY: JTC		<div>Benjamin B. Thomas</div> 
	DRAWN BY: JTC		
	CHECKED BY: BBT		
TOWN OF SAWMILLS	APPROVED BY:		UTILITY CONSTRUCTION PLANS ONLY
	REVISED:		
	NORTH CAROLINA DEPARTMENT OF TRANSPORTATION		
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151			

UTILITY CONSTRUCTION

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

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 JANUARY 2024.

2. THE EXISTING UTILITIES BELONG TO THE TOWN OF SAWMILLS.
CONTACT: STEVE COONSE
828-396-7903
4096 US HWY 321-A
SAWMILLS, NC 28630

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.

LIST OF STANDARD DRAWINGS

1515.01 WATER METER

1520.01 SEWER CLEAN OUT

1525.06 PRECAST CONCRETE SANITARY SEWER MANHOLE WITH CAST-IN-PLACE BOTTOM

1631.01 MATTING INSTALLATION

PROJECT SPECIFIC NOTES:

1. PROPOSED 8" WATER LINE SHALL BE AWWA C-900 DR-18. THREE FEET OF COVER SHALL BE MAINTAINED AT ALL TIMES.

2. ALL WATER LINE FITTINGS SHALL USE JOINT RESTRAINT GLANDS AND CONCRETE THRUST BLOCKING.

3. AFTER THE NEW WATER LINE IS CERTIFIED, ALL WATER SERVICES SHALL BE RECONNECTED. IF EXISTING WATER METERS NEED TO BE RELOCATED THEY SHALL BE CONNECTED TO THE NEW WATER LINE WITH NEW $\frac{3}{4}$ " TYPE K COPPER SERVICE LINES.

4. ALL WATER AND SEWER LINES SHALL BE INSTALLED WITH TRACER WIRE. WATER LINES SHALL HAVE A BURIED METALLIC WARNING TAPE 12" ABOVE THE TOP OF THE WATER LINE.

5. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING AND PAYING FOR ALL TESTING THAT MAY BE REQUIRED.

6. WHEN REMOVED SOIL IS REQUIRED TO BE PLACED ON ASPHALT OR CONCRETE SURFACES, THE CONTRACTOR SHALL PROTECT THESE SURFACES WITH A LAYER OF SAND OR ROCK DUST AT NO ADDITIONAL COST TO THE DEPARTMENT.

7. THE CONTRACTOR SHALL MAINTAIN AN "AS BUILT" SET OF DRAWINGS. THE DRAWINGS SHALL BE RED LINE MARKED TO REFLECT DEVIATIONS FROM THE ORIGINAL DESIGN, INCLUDING ALL CHANGES IN PIPELINE AND STRUCTURE LOCATIONS AND ELEVATIONS. SUCH RED LINE MARKS SHALL BE BASED ON MEASUREMENTS USING A TAPE AND TRANSIT, OR BETTER. A LICENSED SURVEYOR IS NOT REQUIRED TO PERFORM THIS TASK EXCEPT FOR NEW GRAVITY SEWER MAINS. FOR NEW GRAVITY MAINS, CONTRACTOR SHALL PROVIDE AS-BUILT PLAN AND PROFILE DRAWINGS PRODUCED BY AN NC REGISTERED PROFESSIONAL SURVEYOR. THESE DRAWINGS SHALL SHOW ACTUAL MANHOLE LOCATIONS, NEW ELEVATIONS, INVERT IN AND OUT ELEVATIONS, AND THE CALCULATED SLOPE BETWEEN MANHOLES. IT IS NOT RECESSARY TO SURVEY GROUND SURFACE ELEVATIONS BETWEEN MANHOLES, UNLESS IN THE OPINION OF THE ENGINEER THE SURFACE ELEVATIONS ARE SIGNIFICANTLY ALTERED FROM THE DESIGN ELEVATIONS.

8. CONTRACTOR TO VERIFY ANY SERVICE CONNECTIONS ON EXISTING SEWER LINE TO BE ABANDONED AND TO RECONNECT TO NEW SEWER.

BYPASS PUMPING NOTES:

DURING CONSTRUCTION, ALL SEWER MAINS SHALL REMAIN IN OPERATION. IF A SECTION NEEDS TO BE TEMPORARILY TAKEN OUT OF SERVICE AND WHERE BYPASS PUMPING IS METHOD OF DIVERTING WASTEWATER, THE FOLLOWING SHALL APPLY:

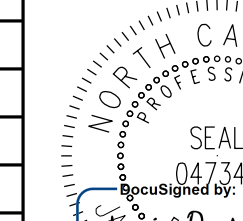
- BYPASS PUMP SHALL BE TWO TIMES THE NORMAL PEAK HOUR FLOW RATE
- THERE SHALL BE A BACKUP PUMP
- BYPASS PUMPING SHALL BE MONITORED AT ALL TIMES
- IF BYPASS PUMPING IS REQUIRED OVERNIGHT, FLOAT CONTROL WITH AUTOMATIC REMOTE ALARMS FOR HIGH WATER AND PUMP FAILURE TO NOTIFY CONTRACTOR IS REQUIRED.
- CONTRACTOR SHALL ASSUME RESPONSIBILITY DURING BYPASS PUMPING FOR ALL FINES, PENALTIES, CLEAN UP COSTS, AND OTHER RELATED COSTS RESULTING FROM OVERFLOW DUE TO BYPASS PUMP FAILURE, OR OTHER BYPASS PUMPING RELATED ISSUE.

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5/17/24

UTILITY CONSTRUCTION

CALDWELL COUNTY

PROJECT REFERENCE NO.		SHEET NO.	
U-4700CC		UC-3A	
DESIGNED BY: MRD			
DRAWN BY: ND			
CHECKED BY: JDN			
APPROVED BY: JDN			
REVISED:			
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION		5/28/2025 11:12:31 PM EDT	
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151		UTILITY CONSTRUCTION PLANS ONLY	
DOCUMENT NOT CONSIDERED FINAL UNTIL ALL SIGNATURES ARE COMPLETED			

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 JANUARY 2024.

2. THE EXISTING WATER UTILITIES INCLUDED IN CONTRACT BELONG TO CALDWELL COUNTY. PLEASE CONTACT MR. BARRY CALLOWAY, 1385 FAIRVIEW DR. SW, LENOIR, NC 28645, (828) 757-6865, bcalloway@caldwellcountync.org. THE EXISTING SEWER UTILITIES INCLUDED IN CONTRACT BELONG TO CITY OF LENOIR. PLEASE CONTACT MR. JEFF CHURCH, 510B GREER CIRCLE SW, LENOIR, NC, 28645, (828)-757-4459, jeff.church@ci.lenoir.nc.us THE EXISTING WATER AND SEWER UTILITIES INCLUDED IN CONTRACT BELONG TO TOWN OF SAWMILLS. PLEASE CONTACT MR. STEVE COONSE, 4096 US HIGHWAY 321-A, SAWMILLS, NC 28630, (828) 396-7903

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. 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.

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. 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.

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.

PROJECT SPECIFIC NOTES:

1. ALL FITTINGS SHALL BE DUCTILE IRON MECHANICAL JOINT USING GRIP RINGS. NO GLUE OR PUSH-ON FITTINGS ARE ALLOWED. THRUST BLOCKING IS REQUIRED.

2. IF HDPE PIPE IS INSTALLED BY DIRECTIONAL DRILL, IT SHALL BE FILLED WITH WATER AND NOT BE CONNECTED TO ANY OTHER PIPE OR FITTING FOR ONE WEEK FROM THE TIME OF INSTALLATION.

3. NEW WATER LINES MUST BE PRESSURE TESTED AT 200 PSI OR 1.5 TIMES AVERAGE STATIC PRESSURE IN PROJECT AREA, WHICHEVER IS MORE FOR 2 HOURS. TEST TO BE OBSERVED BY CALDWELL COUNTY WATER AND SEWER REPRESENTATIVE.

4. SERVICE INTERRUPTIONS SHALL BE SCHEDULED WITH CALDWELL COUNTY AND/OR CITY OF LENOIR AND SHALL BE COMPLETED DURING OFF-PEAK HOURS. AFTER 9 PM AND BE COMPLETED BY 4 AM, UNLESS AUTHORIZED BY CALDWELL COUNTY AND/OR CITY OF LENOIR. INTERRUPTION SHALL NOT EXCEED 8 HOURS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING TEMPORARY POTABLE WATER SUPPLIES TO ANY CUSTOMER UPON REQUEST BY THE COUNTY AND/OR WHEN DURATION OF THE WATER SERVICE LOSS OR DISRUPTION EXCEEDS 4 HOURS.

5. ALL NCDEQ-DWR-PWS AND LOCAL TESTING MUST BE COMPLETED AND APPROVED PRIOR TO CONNECTING THE NEW CONSTRUCTION TO THE EXISTING WATER LINES.

6. THE PROFESSIONAL ENGINEER (PE) SHALL OBTAIN AND PROVIDE THE NCDEQ "AUTHORIZATION TO CONSTRUCT" PERMIT TO THE UTILITY CONTRACTOR BEFORE THE CONSTRUCTION OF THE WATER LINE SHALL BEGIN. THE UTILITY CONTRACTOR MUST POST A COPY OF THE NCDEQ "AUTHORIZATION TO CONSTRUCT" PERMIT ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY ON SITE PRIOR TO THE START OF CONSTRUCTION. THE PERMIT MUST BE MAINTAINED ON SITE THROUGHOUT THE ENTIRE CONSTRUCTION PROCESS OF THE PROPOSED WATER LINES THAT WILL SERVE THIS PROJECT.

7. 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 SHALL BE ALLOWED TO RIVER, WETLANDS OR BUFFER ZONES.

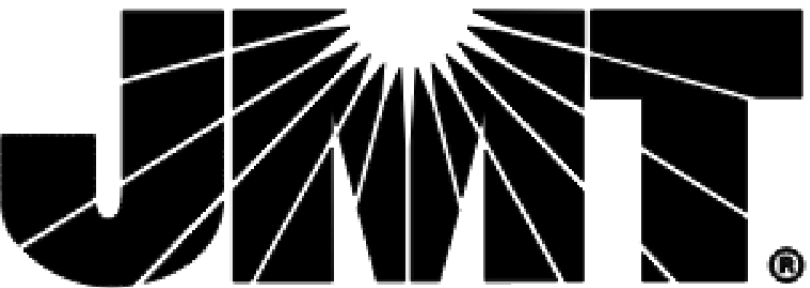
8. HDPE PRESSURE PIPE FOR POTABLE WATER SHALL MEET THE REQUIREMENTS OF NSF 61.

9. ANY NECESSARY CONNECTIONS FOR TESTING AND FILLING THE INSTALLED WATER MAIN WILL BE REQUIRED AND CONSIDERED INCIDENTAL TO THE WATER MAIN.

10. ALL MANHOLES SHOWN TO BE ADJUSTED ON THE PLANS ARE TO BE INSPECTED AND ENSURED THAT THE MANHOLE IS STRUCTURALLY SOUND. IN ANY CASE WHERE THEY ARE DEEMED UNSOUND, THE CONTRACTOR SHALL REACH OUT TO THE OWNER AND ENGINEER FOR GUIDANCE ON NEXT STEPS FORWARD.

11. THE CONTRACTOR IS RESPONSIBLE FOR WORKING WITH UTILITY OWNERS TO CONFIRM WHO OWNS THE EXISTING FACILITIES AND ENSURE THE CORRECT OWNER IS INSPECTING THE WORK.

12. ASBESTOS CEMENT PIPE SHALL BE REMOVED BY AN APPROVED CONTRACTOR. ASBESTOS CEMENT PIPE REMOVAL SHALL BE IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL RULES, REGULATIONS AND PROCEDURES. THE CONTRACTOR SHALL CONTACT HEALTH HAZARDS CONTROL UNIT ADMINISTERING THE NORTH CAROLINA ASBESTOS HAZARD MANAGEMENT PROGRAM FOR REFERENCE. ANY PERMITS NECESSARY FOR REMOVAL AND/ OR DISPOSAL OF ASBESTOS CEMENT PIPE ARE TO BE ACQUIRED BY THE CONTRACTOR WITH NO ADDITIONAL EXPENSE TO THE UTILITY OWNER OR THE DEPARTMENT.




PROJECT TYPICAL DETAILS



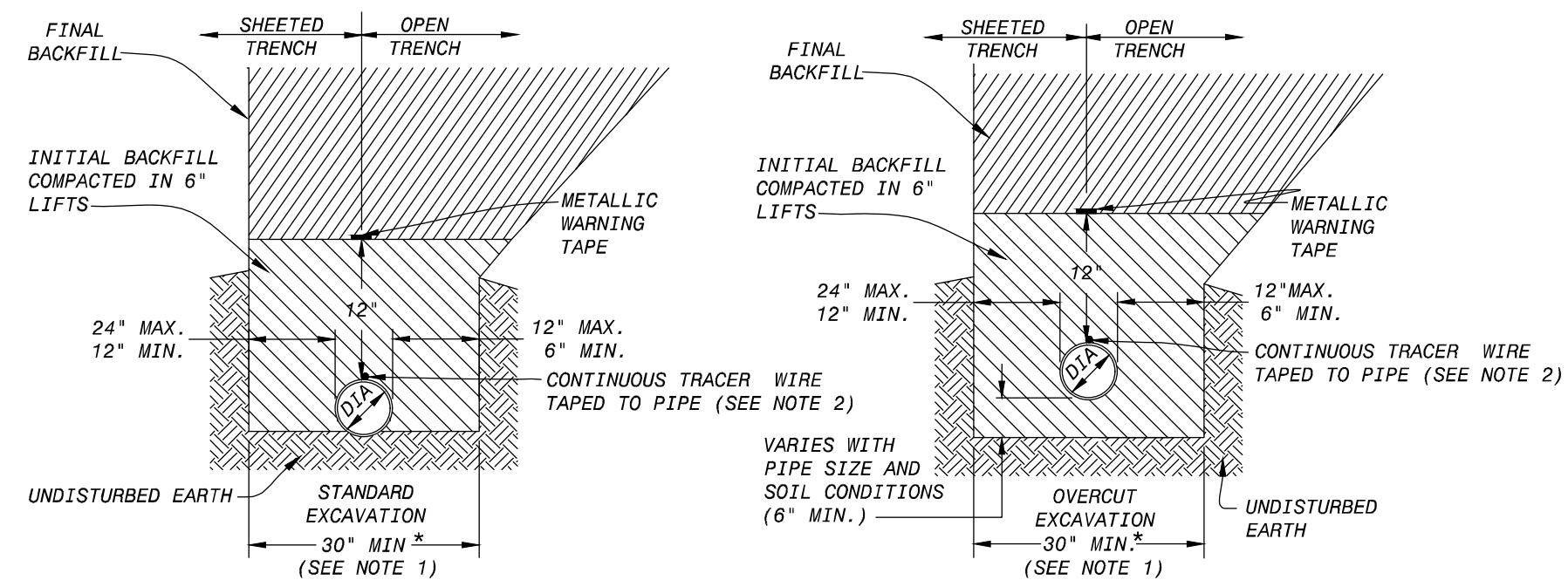
405 South Sterling Street
Morganton, NC 28655
(828) 433-5661
Fax (828) 433-5662
NC License No. P-0210
www.west-consultants.com

TOWN OF SAWMILLS

PROJECT REFERENCE NO.		SHEET NO.	
		UC-3B	
DESIGNED BY: JTC			
DRAWN BY: JTC			
CHECKED BY: BBT			
APPROVED BY:			
REVISED:			
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION			
UTILITIES ENGINEERING SEC.		UTILITY CONSTRUCTION	
PHONE: (919) 707-6690		PLANS ONLY	
FAX: (919) 250-4151			

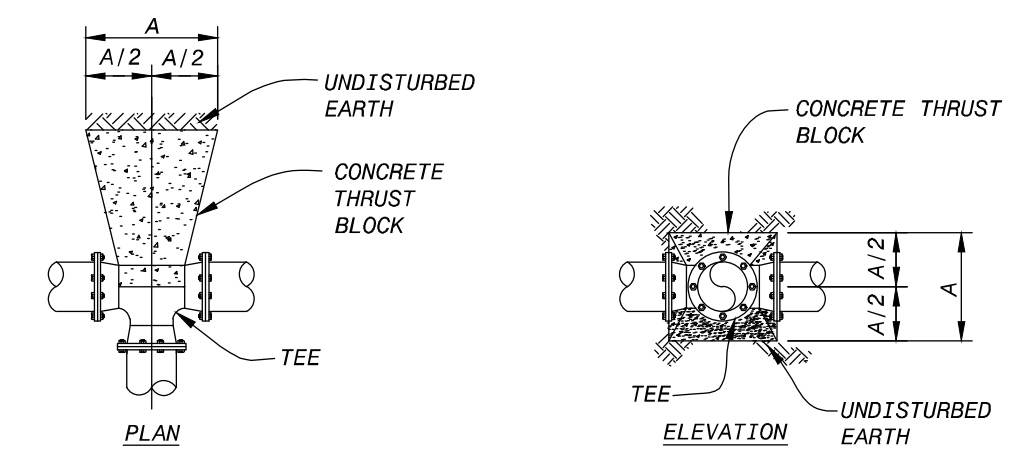
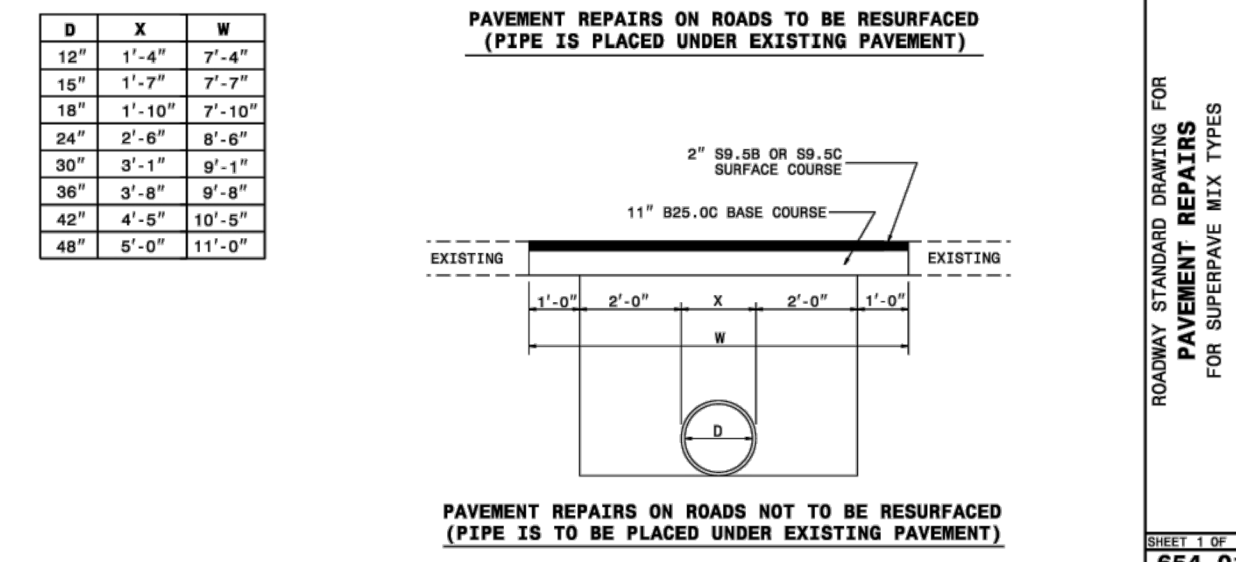
UTILITY CONSTRUCTION

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

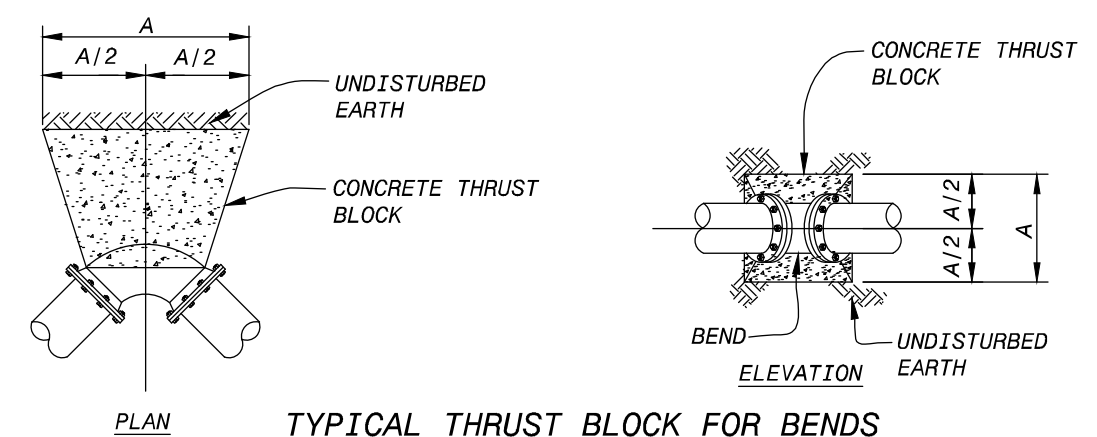


- NOTES:
1. 30" MINIMUM TRENCH WIDTH SHALL BE MAINTAINED EVEN IN AREAS OF ROCK EXCAVATION, UNLESS OTHERWISE DIRECTED BY THE THE ENGINEER. WIDTHS GREATER THAN 30" WILL NOT QUALIFY FOR PAYMENT UNLESS APPROVED BY THE ENGINEER.
 2. TRACER WIRE TO BE UL LISTED, COPPER, COATED SUITABLE FOR BURIAL AND AT LEAST 12 GAUGE.

TYPICAL WATER LINE TRENCHING DETAILS



TYPICAL THRUST BLOCK FOR TEES

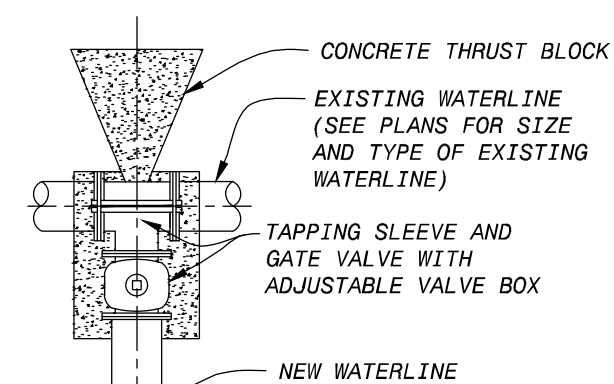


TYPICAL THRUST BLOCK FOR BENDS

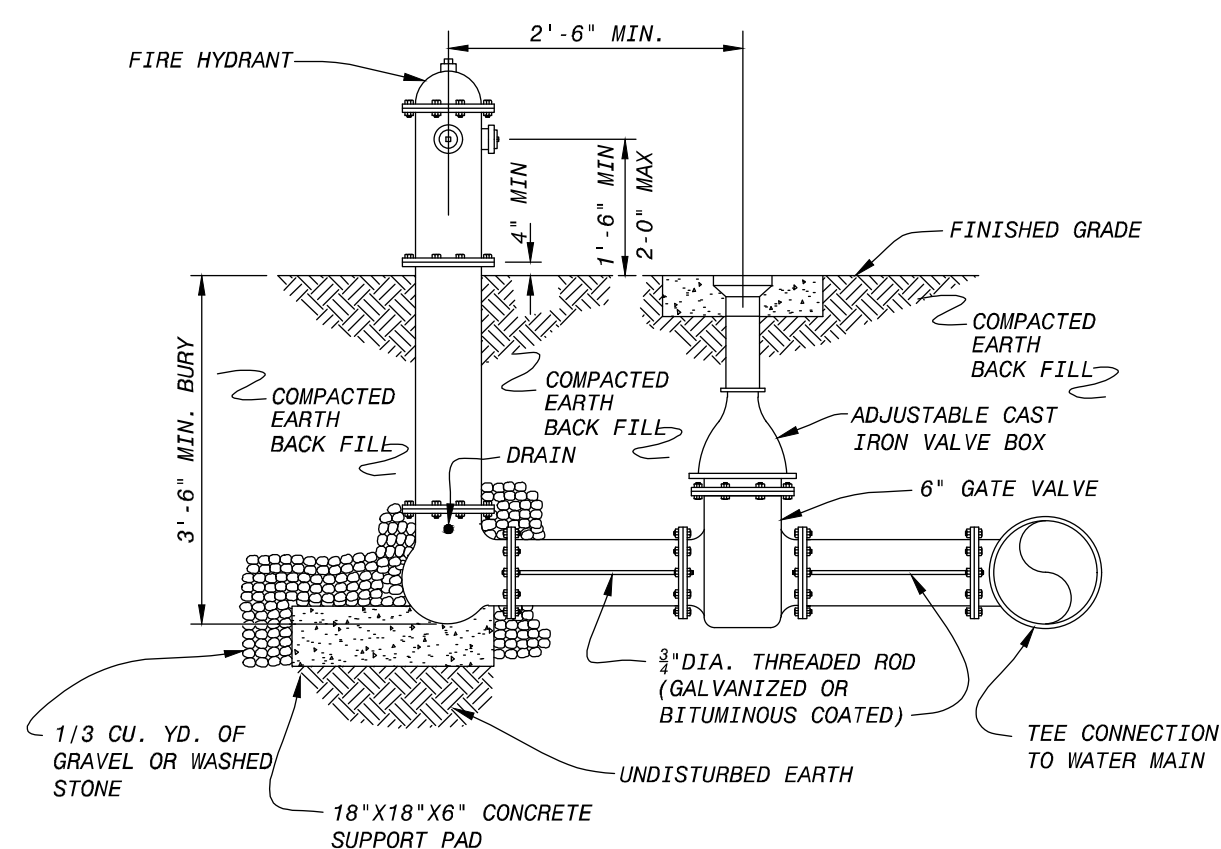
SIZE	11½" BEND	22½" BEND	45" BEND	90" BEND	TEE	PLUG
2-6	12	12	12	16	16	14
8	12	12	16	22	22	18
10	12	14	20	28	28	22
12	12	18	24	32	32	28
14	14	20	28	38	38	32
16	16	22	32	42	42	36
18	18	26	36	48	48	40
20	20	28	40	52	52	44
24	24	34	46	64	64	54
30	30	42	58	78	78	66
36	36	50	70	94	94	80
42	40	58	80	108	108	92
48	46	66	90	124	124	104

NOTE: CARE SHALL BE TAKEN WHEN PLACING THRUST BLOCKS TO KEEP THE FITTING BOLTS FREE OF CONCRETE.

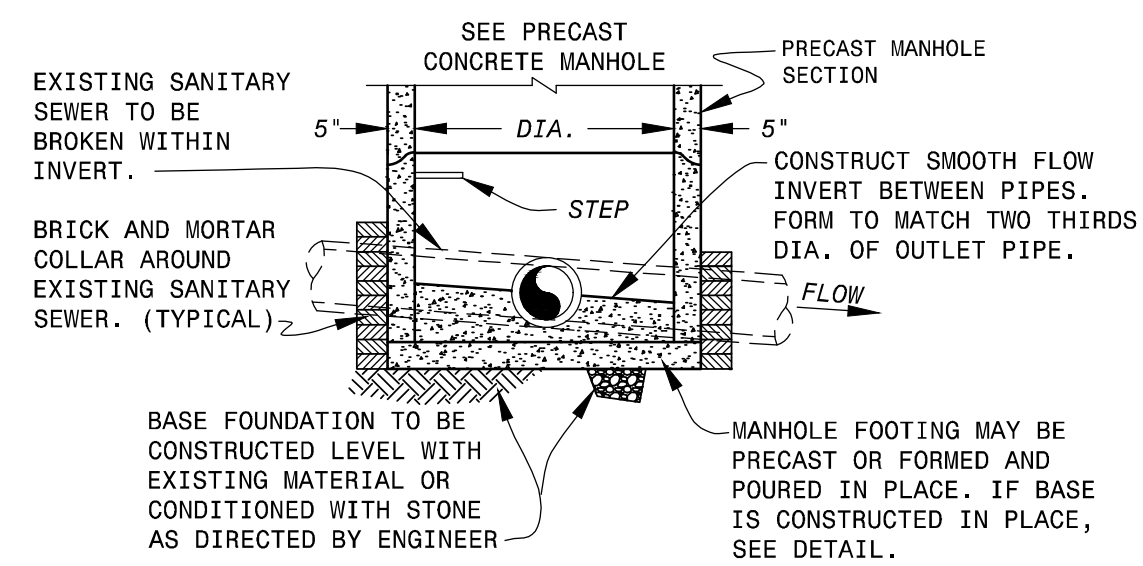
THRUST BLOCKS DIMENSION "A"
(DIMENSION "A" IN INCHES)



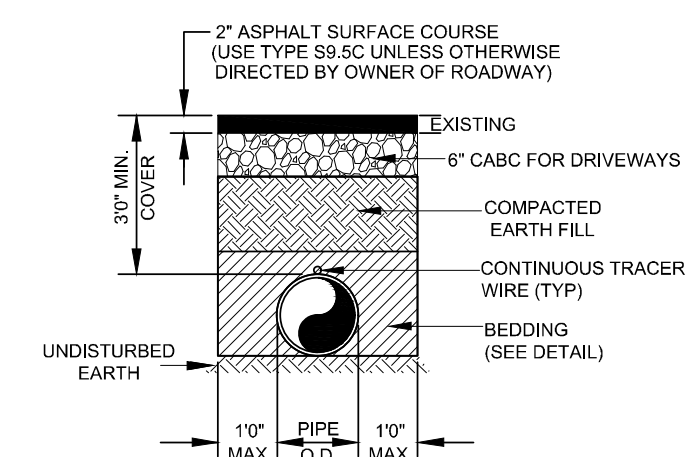
TYPICAL TAPPING SLEEVE
AND
VALVE CONNECTION DETAIL



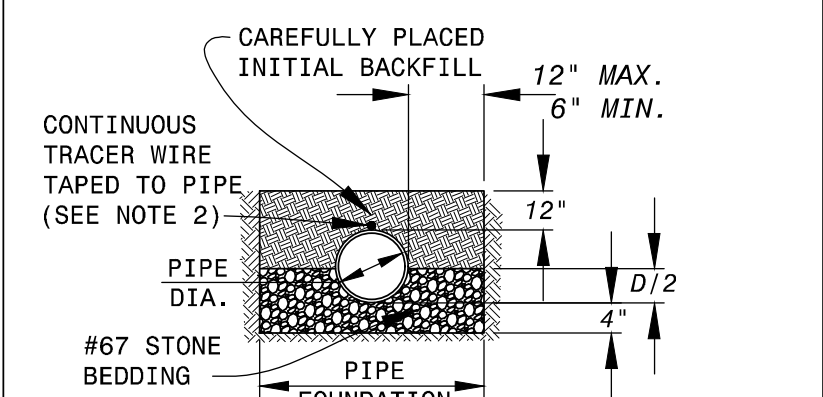
TYPICAL ROD TYPE FIRE HYDRANT INSTALLATION



**MANHOLE SET OVER
EXISTING SANITARY SEWER
("DOGHOUSE TYPE")**



TYPICAL DRIVEWAY REPAIR



BEDDING REQUIRED FOR:

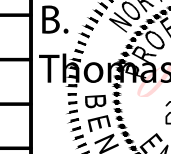
1. SDR 35 PVC PIPE (ALL DEPTHS)
2. TRACER WIRE TO BE ZIP TIED OR TAPED WITH PVC TAPE TO PVC PIPE.
TRACER WIRE TO BE UL LISTED, COPPER, SUITABLE FOR BURIAL, COATED AND AT LEAST 12 GAUGE.

PROJECT TYPICAL DETAILS

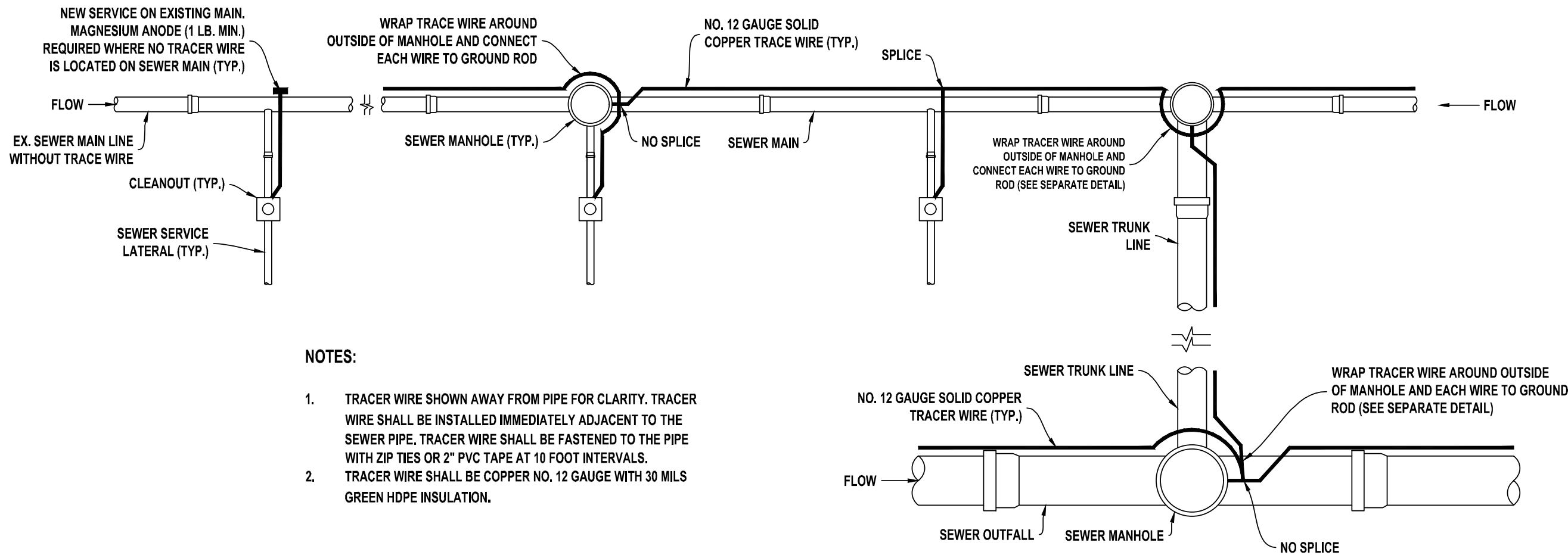


405 South Sterling Street
Morganton, NC 28655
(828) 433-5661
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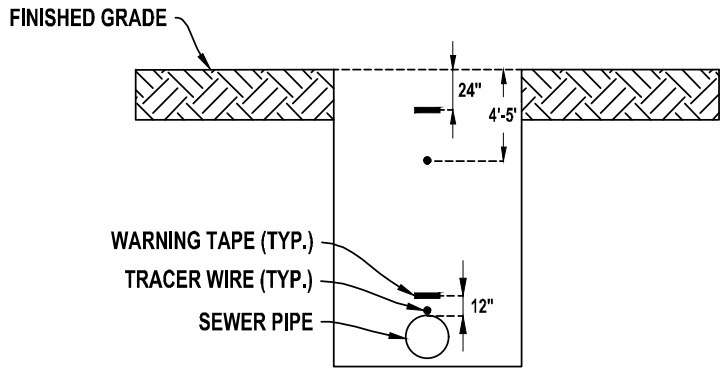
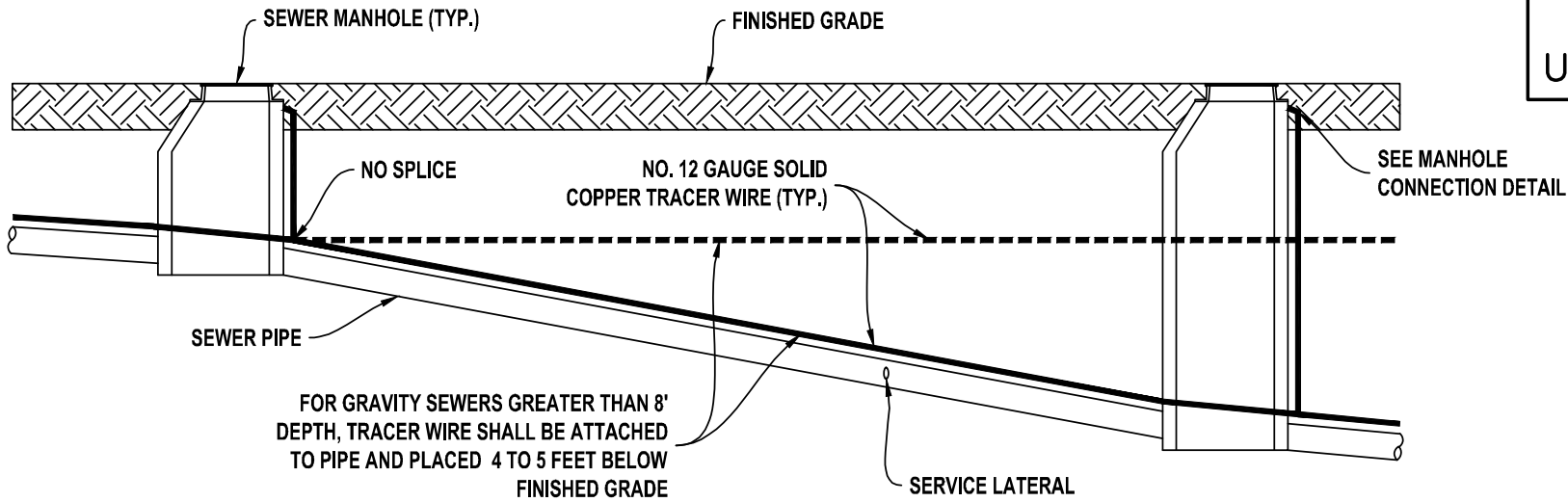
TOWN OF SAWMILLS

PROJECT REFERENCE NO.		SHEET NO.
		UC-3C
DESIGNED BY: JTC	<div>Benjamin B. Thomas, Jr. Professional Engineer No. 20757 Seal</div> 	
DRAWN BY: JTC		
CHECKED BY: BBT		
APPROVED BY:		
REVISED:		
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION		UTILITY CONSTRUCTION PLANS ONLY
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151		

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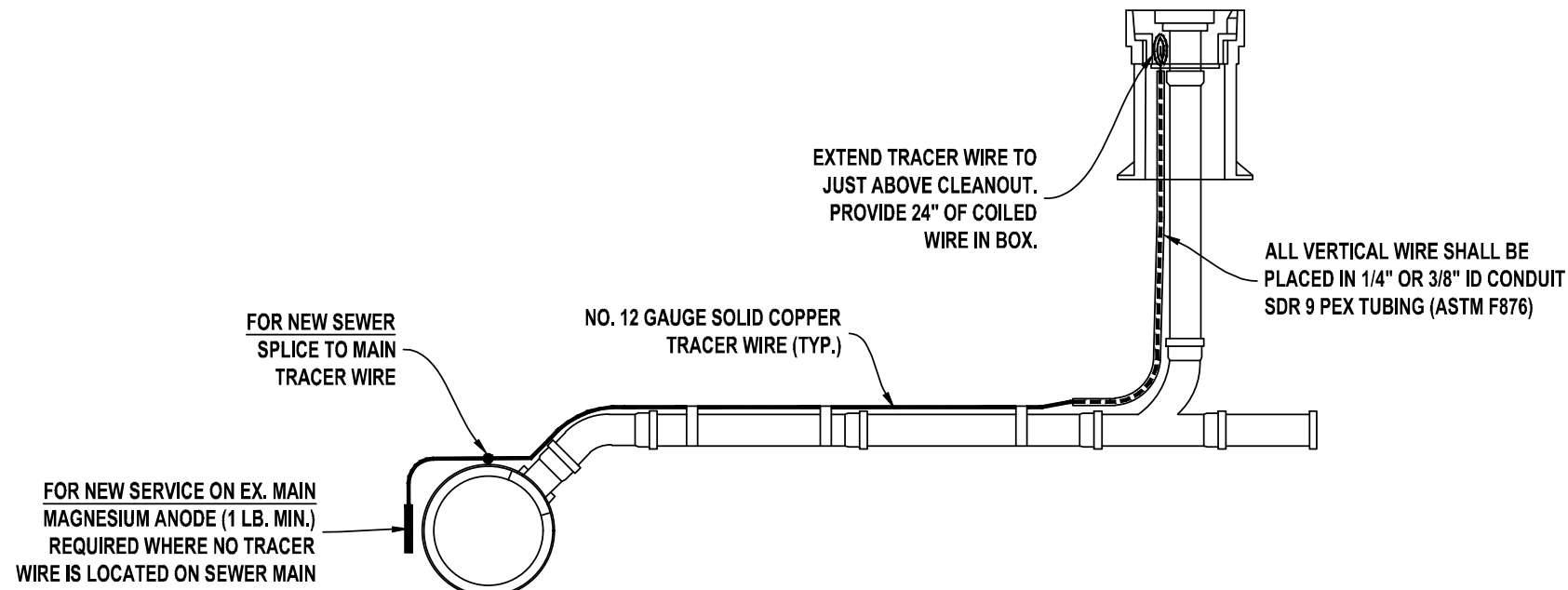


GRAVITY SEWER TRACER WIRE DETAIL
PLAN VIEW



- NOTES:
- TRACER WIRE ATTACHED TO THE SEWER PIPE IS SUFFICIENT FOR GRAVITY SEWER SEGMENTS THAT ARE INSTALLED DEEPER THAN 8 FEET, BUT ARE LESS THAN 8 FEET DEEP AT BOTH THE UPSTREAM AND DOWNSTREAM MANHOLES.

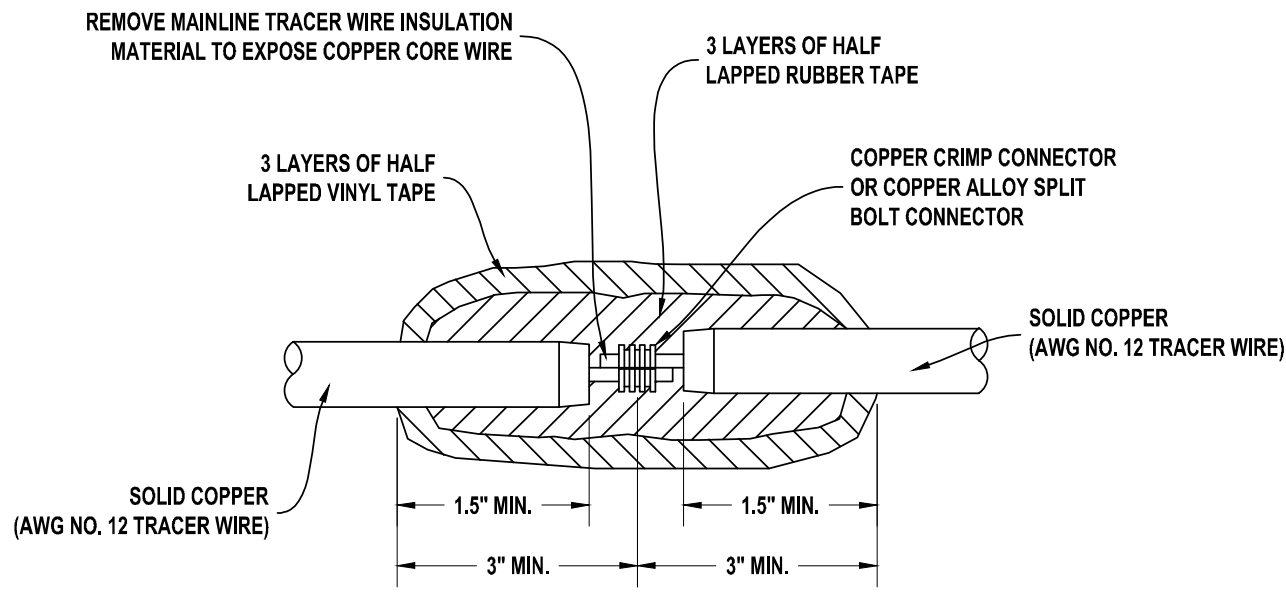
GRAVITY SEWER TRACER WIRE DETAIL (DEPTH > 8 FT)
PROFILE VIEW



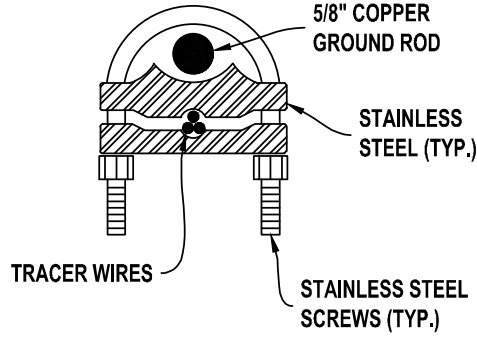
- NOTES:
- THE TRACER WIRE SHALL BE CONTINUOUS TO THE GREATEST EXTENT POSSIBLE. WHERE SPLICES ARE NEEDED IN THE WIRE, THE SPLICES SHALL BE SECURELY BONDED TOGETHER WITH AN APPROVED INDUSTRIAL CONNECTOR TO PROVIDE ELECTRICAL CONTINUITY. CONNECTOR SHALL BE COPPER AND INSULATION SHALL BE REPAIRED TO SEAL OUT MOISTURE AND CORROSION AND SHALL BE INSTALLED IN A MANNER SO AS TO PREVENT AN UNINSULATED WIRE EXPOSURE.
 - THE CLEANOUT AT THE RIGHT OF WAY OR EASEMENT SHALL SERVE AS THE TEST PORT.
 - SPLICED CONNECTIONS SHALL BE ALLOWED BETWEEN THE MAIN LINE TRACER WIRE AND THE LATERAL TRACER WIRE.
 - FOR NEW SEWER TAPS ON EXISTING MAINS VOID OF ANY TRACER WIRE, PROVIDE A 1 LB. MAGNESIUM ANODE FOR THE TRACING WIRE TERMINATION AT THE POINT OF THE NEW TAP ON THE EXISTING SEWER MAIN. PLACE ANODE AT BOTTOM EDGE OF TRENCH AWAY FROM MAIN AND LATERAL.
 - PRIOR TO ACCEPTANCE, EACH WIRE SEGMENT SHALL PASS A CONDUCTIVITY TEST, WITNESSED BY THE ENGINEER OR OWNER.

SERVICE LATERAL TRACER WIRE DETAIL
SECTION VIEW

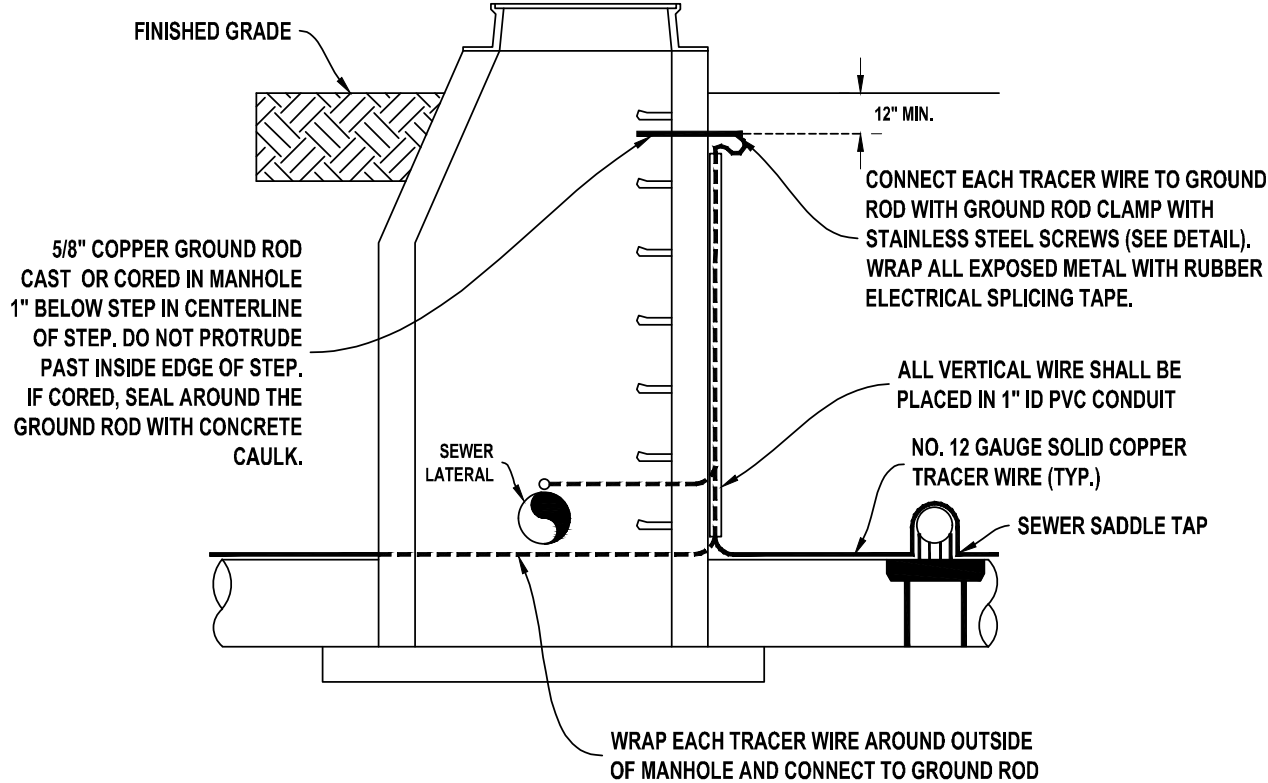
- NOTES:
- IN LINE SPLICES SHALL BE LIMITED TO THE GREATEST EXTENT POSSIBLE. TRACER WIRE SHALL BE AS CONTINUOUS AS POSSIBLE WITHOUT SPLICES.
 - IN LINE SPLICES SHALL INCLUDE 3 FEET OF SLACK WIRE ON EACH SIDE OF EACH SPlice.
 - BRANCH SPLICES ON EXISTING WIRE SHALL INCLUDE 3 FEET OF SLACK WIRE ON THE NEW BRANCH WIRE.
 - BRANCH SPLICES ON NEW MAIN INSTALLATION SHALL INCLUDE 3 FEET OF SLACK WIRE ON EACH SIDE OF THE SPlice IN EACH DIRECTION.



IN-LINE OR REPAIR SPlice

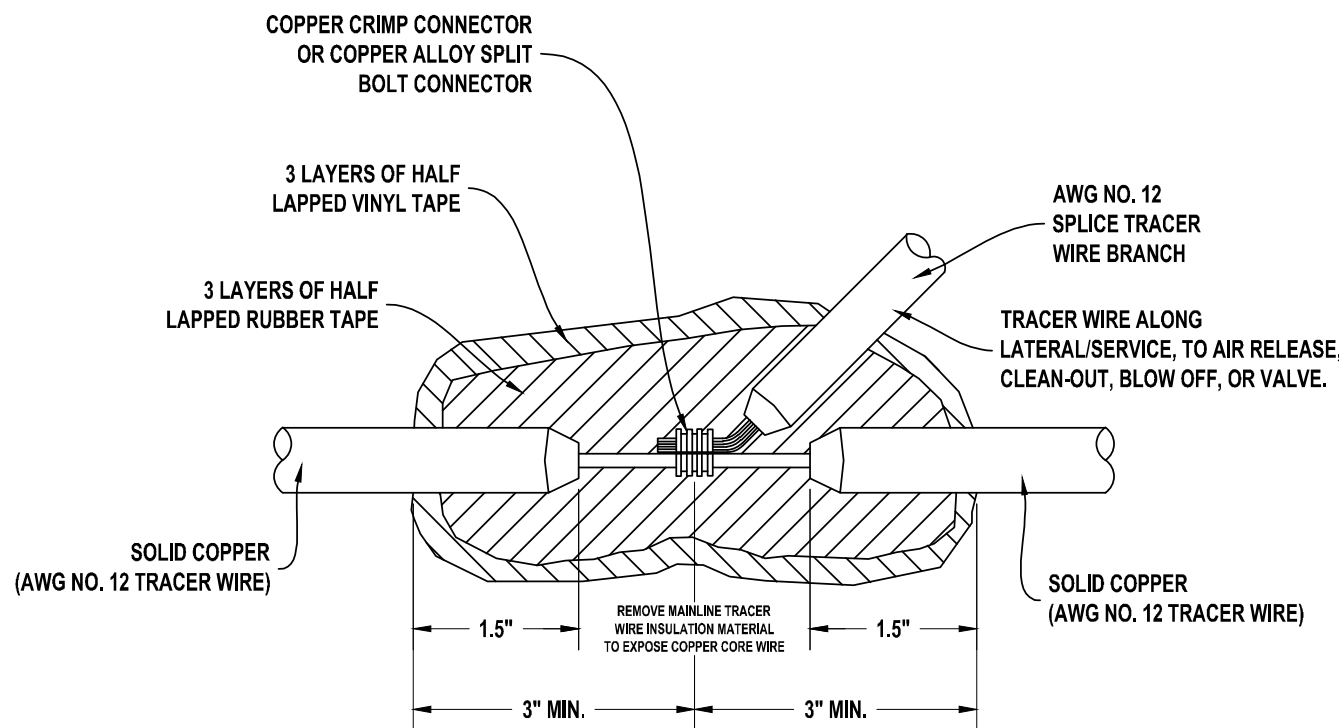


GROUND ROD CLAMP
SECTION VIEW




- NOTES:
- WHERE LATERAL TAPS ARE MADE BY SERVICE SADDLES THE TRACER WIRE SHALL NOT BE ALLOWED TO BE PLACED BETWEEN THE SADDLE AND MAIN.
 - SPLICES IN THE PRIMARY TRACER WIRE ALONG THE SEWER MAIN SHALL INCLUDE 3 FEET OF SLACK WIRE ON EACH SIDE OF EACH SPlice.
 - FOR INSTALLING A NEW LATERAL ON AN EXISTING MAIN WITH TRACER WIRE, ONLY SPlice TO EXISTING WIRE WITH 3 FEET OF SLACK ON NEW LATERAL.

MANHOLE TRACER WIRE DETAIL
SECTION VIEW



BRANCH IN-LINE SPlice FOR SERVICE/LATERAL,
TEE, CROSS, AIR RELEASE, BLOW OFF, OR VALVE

PROJECT TYPICAL DETAILS



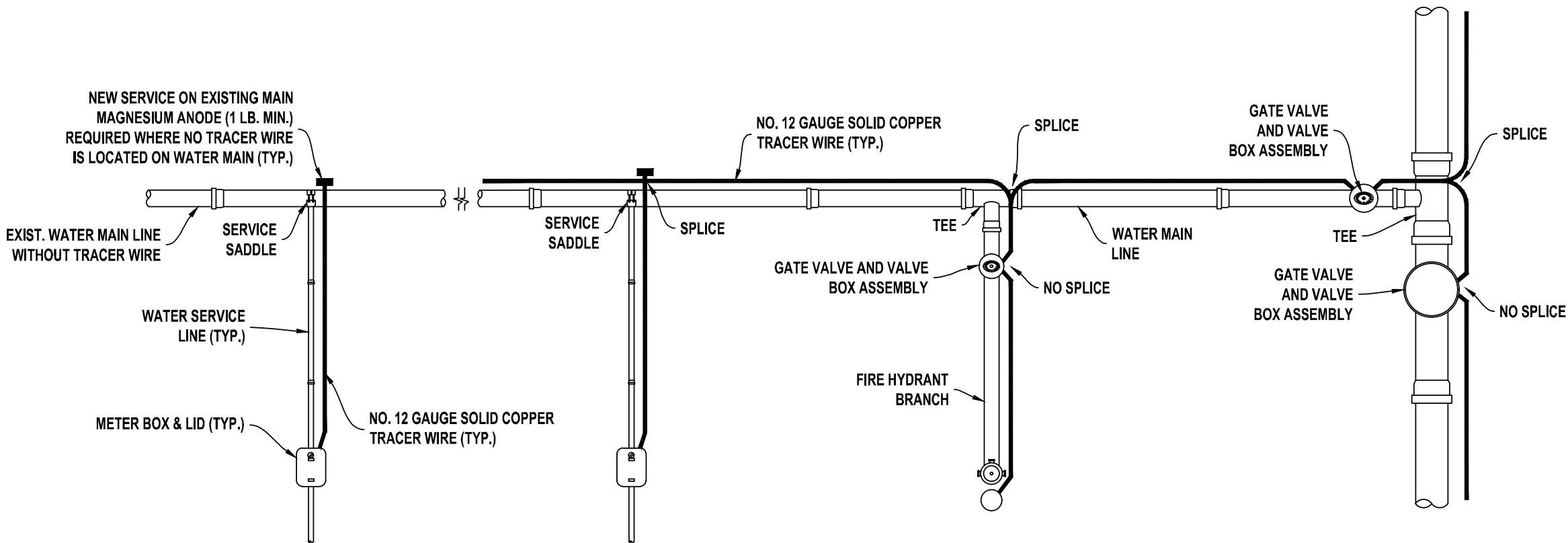
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Fax (828) 433-5662
NC License No. P-0210
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SHEET NO.
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DRAWN BY: JTC
CHECKED BY: BBT
APPROVED BY:
REVISED:
NORTH CAROLINA
DEPARTMENT OF
TRANSPORTATION
UTILITIES ENGINEERING SEC.
PHONE: (919) 707-6690
FAX: (919) 250-4151

TOWN OF SAWMILLS

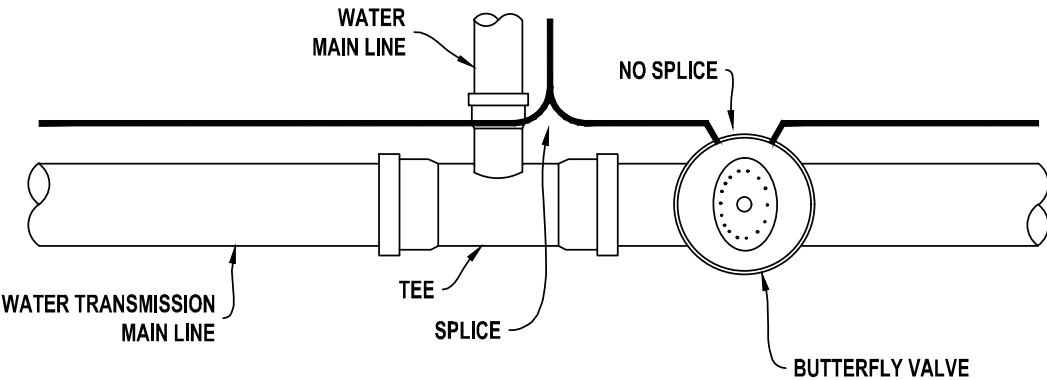
Benjamin B. Thomas, P.E.
Professional Engineer
No. 20757
Benjamin B. Thomas, P.E.
Professional Engineer
No. 20757

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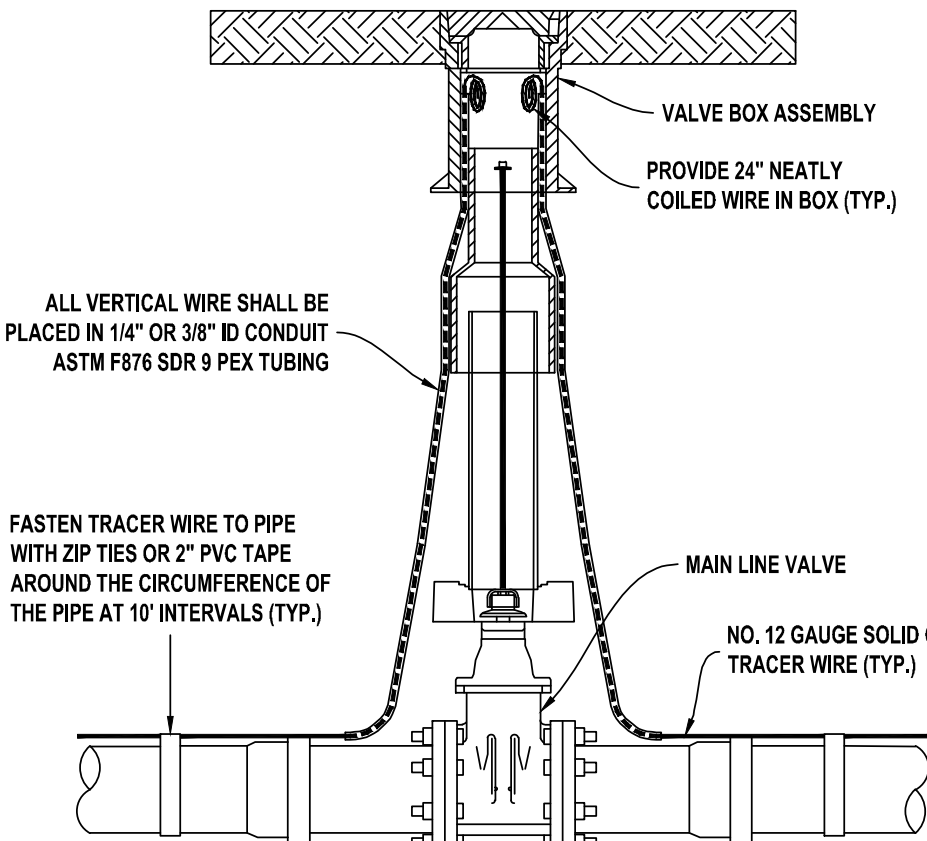
- WATER LINE TRACER WIRE GENERAL NOTES:
1. GENERALLY, TRACER WIRE SHALL BE AWG NO. 12 GAUGE SOLID COPPER WITH 30 MILS BLUE HDPE INSULATION. SEE SPECIFICATIONS FOR TRACER WIRE TO BE USED FOR BORING & JACKING.
 2. THE TRACER WIRE SHALL BE CONTINUOUS TO THE GREATEST EXTENT POSSIBLE. WHERE SPLICES ARE NECESSITATED IN THE WIRE, THE SPLICES SHALL BE SECURELY BONDED TOGETHER WITH AN APPROVED INDUSTRIAL CONNECTOR TO PROVIDE ELECTRICAL CONTINUITY. CONNECTOR SHALL BE COPPER AND INSULATION SHALL BE REPAIRED AS DETAILED TO SEAL OUT MOISTURE AND CORROSION AND SHALL BE INSTALLED SO AS TO PREVENT ANY UNINSULATED WIRE EXPOSURE. SEE APPLICABLE SPLICE DETAIL. SPLICED CONNECTIONS SHALL BE ALLOWED BETWEEN THE MAIN TRACER WIRE AND THE WATER SERVICE TRACER WIRE.
 3. TRACER WIRE SHALL BE PROTECTED FROM DAMAGE DURING THE EXECUTION OF THE WORK. NO BREAKS OR CUTS IN THE TRACER WIRE OR INSULATION SHALL BE PERMITTED.
 4. PRIOR TO ACCEPTANCE, EACH WIRE SEGMENT SHALL PASS A CONDUCTIVITY TEST WITNESSED BY THE ENGINEER.
 5. WHERE 2 OR MORE WIRES ENTER A VALVE BOX ASSEMBLY, AFTER ACCEPTANCE TESTING, CONNECT ENDS OF ALL WIRES WITH WATER PROOF WIRE CONNECTOR NUT AND 3" BARE #12 PIGTAIL.
 6. SPLICES IN THE PRIMARY TRACER WIRE ALONG THE WATER MAIN SHALL INCLUDE 3 FEET OF SLACK WIRE ON EACH SIDE OF EACH SPLICE.
 7. FOR INSTALLING A NEW SERVICE LINE ON AN EXISTING MAIN WITH TRACER WIRE, ONLY SPLICE TO EXISTING WIRE WITH 3 FEET OF SLACK ON NEW SERVICE LINES.

NOTE: TRACER WIRE DETAILS ARE BASED ON
CHARLOTTE WATER STANDARD DETAILS
TW1, TW2, AND TW3 DATED 7/21/2017.

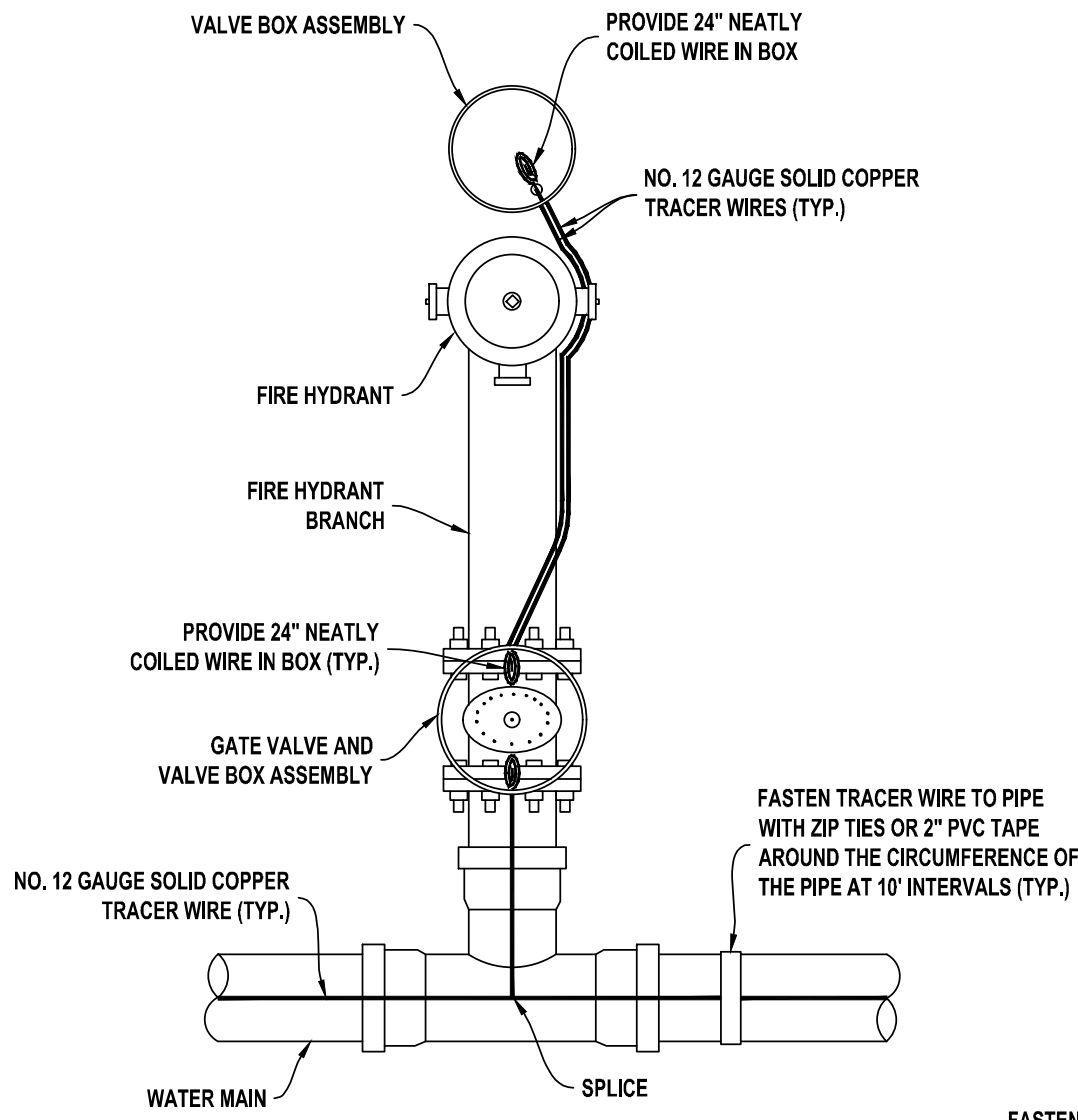


WATER MAIN TRACER WIRE
PLAN VIEW

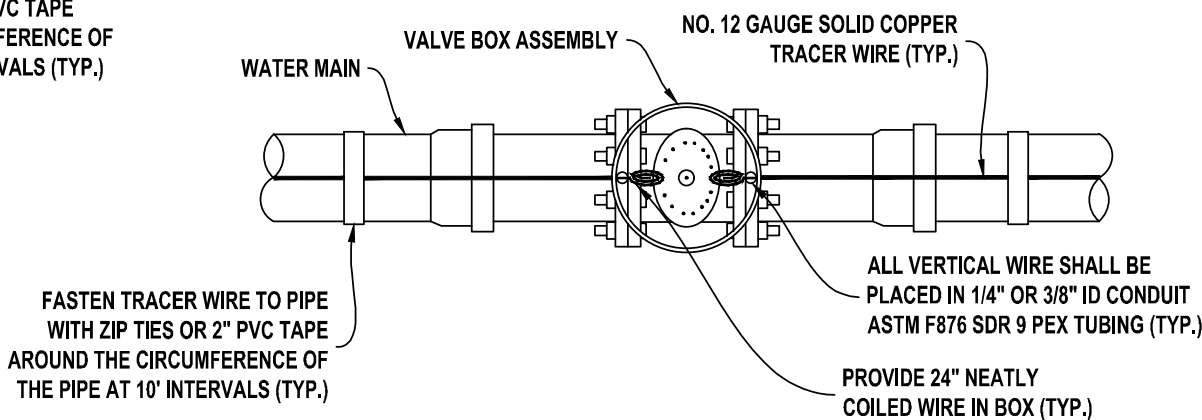
- NOTES:
1. TRACER WIRE SHOWN AWAY FROM PIPE FOR CLARITY. TRACER WIRE SHALL BE INSTALLED IMMEDIATELY ADJACENT TO THE WATER PIPE. TRACER WIRE SHALL BE FASTENED TO THE PIPE WITH ZIP TIES OR 2" PVC TAPE AT 10 FOOT INTERVALS.



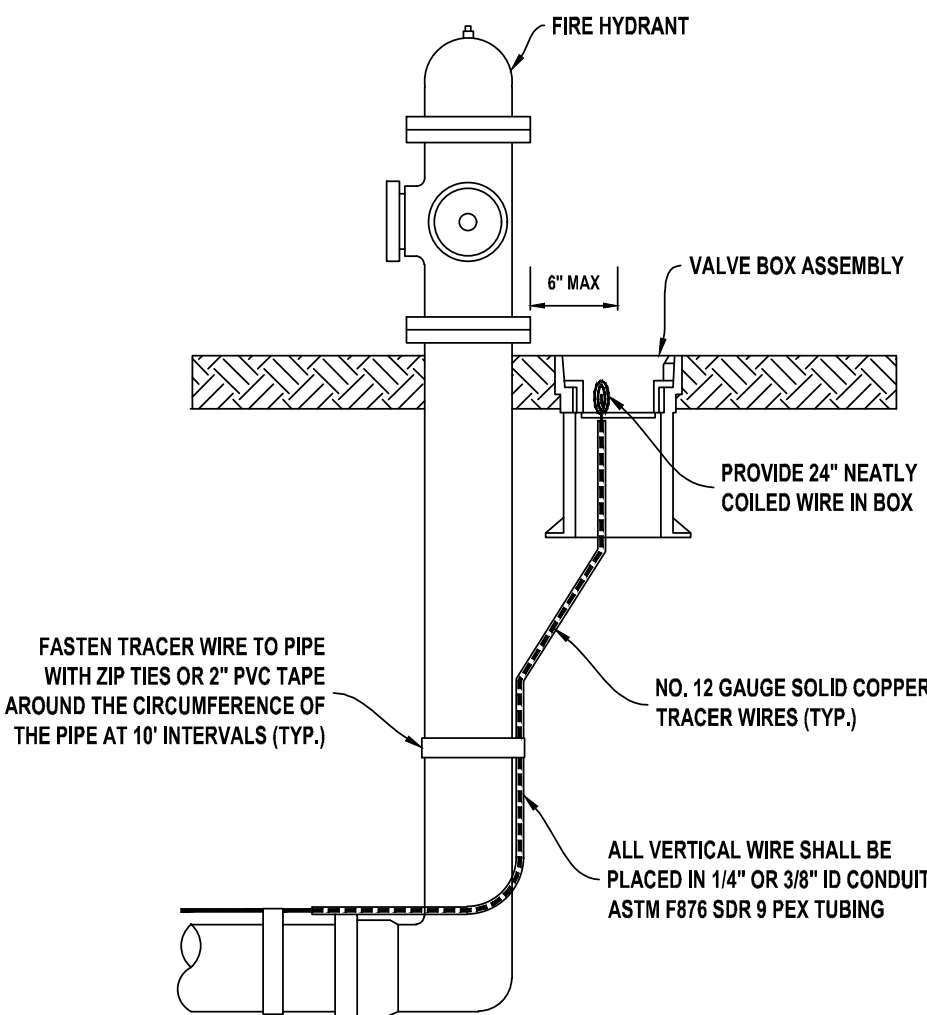
MAIN LINE VALVE
SECTION VIEW



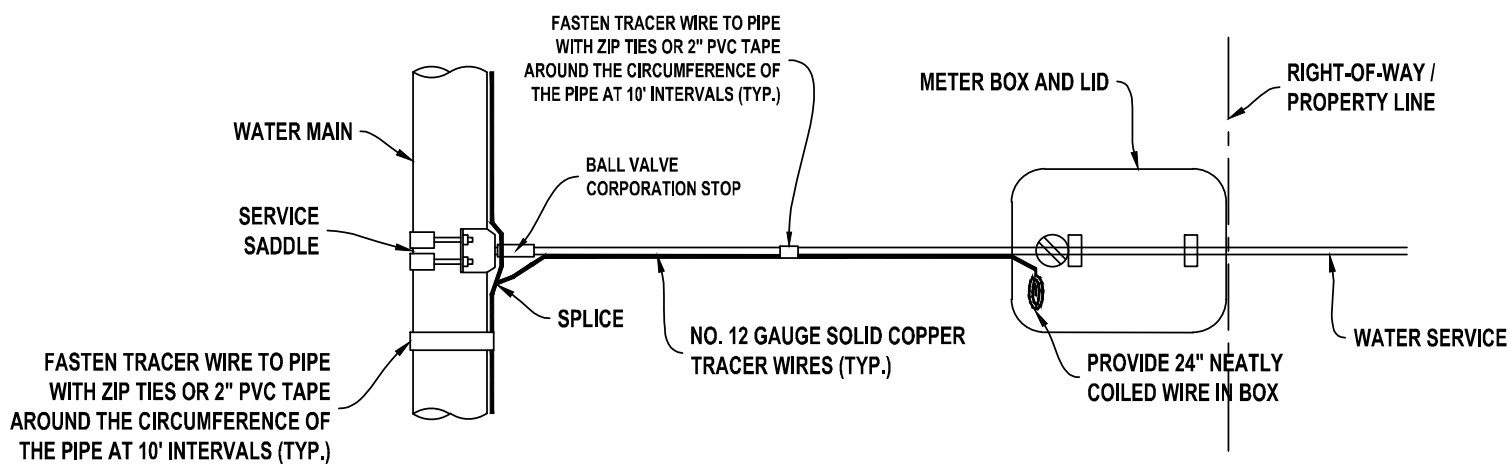
FIRE HYDRANT
PLAN VIEW



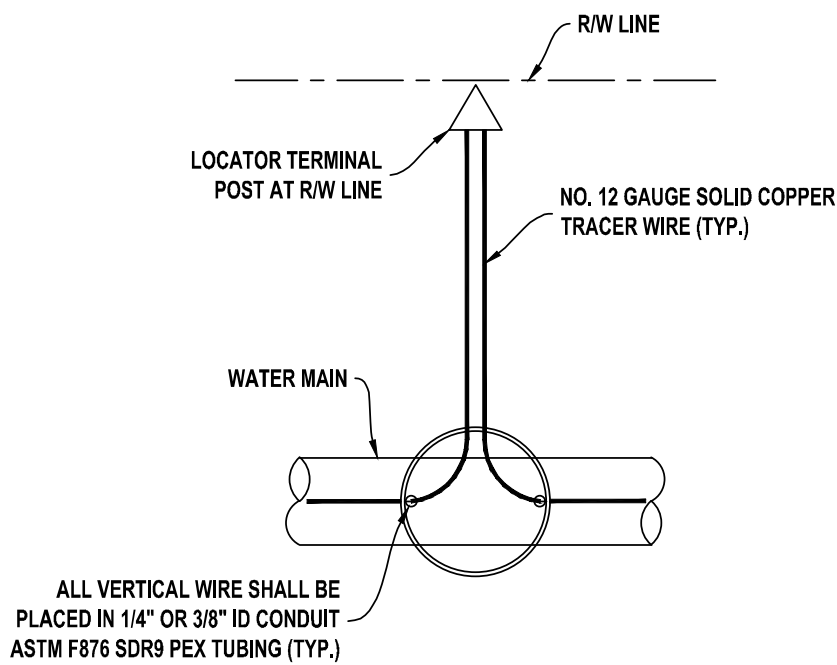
MAIN LINE VALVE
PLAN VIEW



FIRE HYDRANT
SECTION VIEW

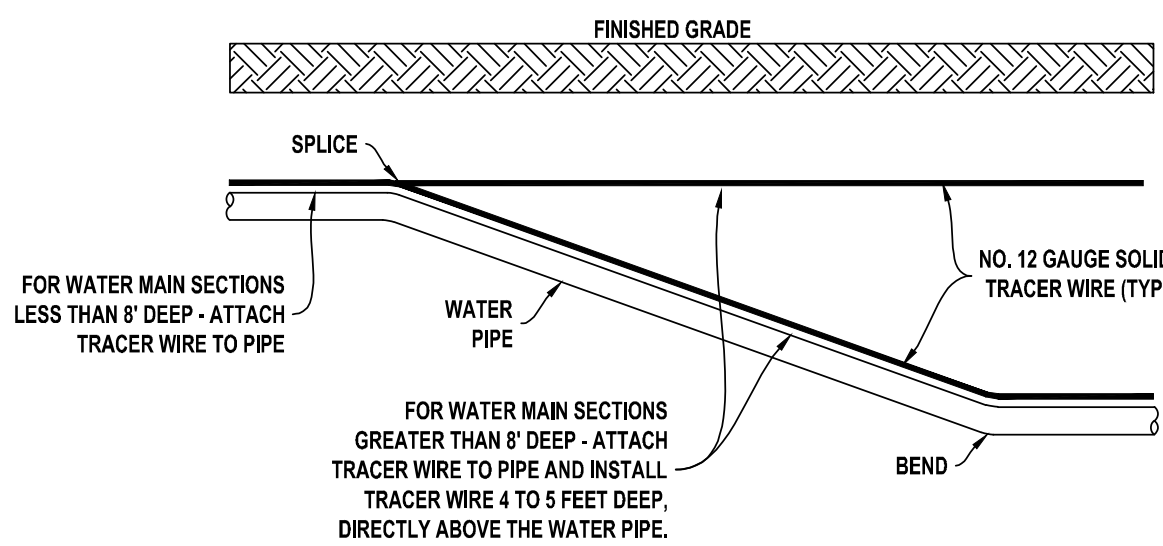


SERVICE CONNECTION
PLAN VIEW

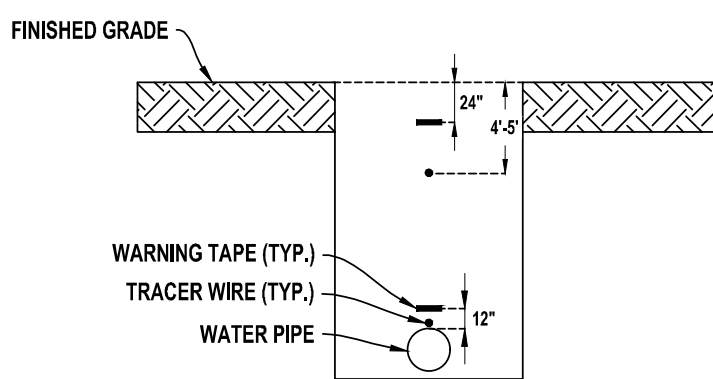


LOCATOR POST
PLAN VIEW

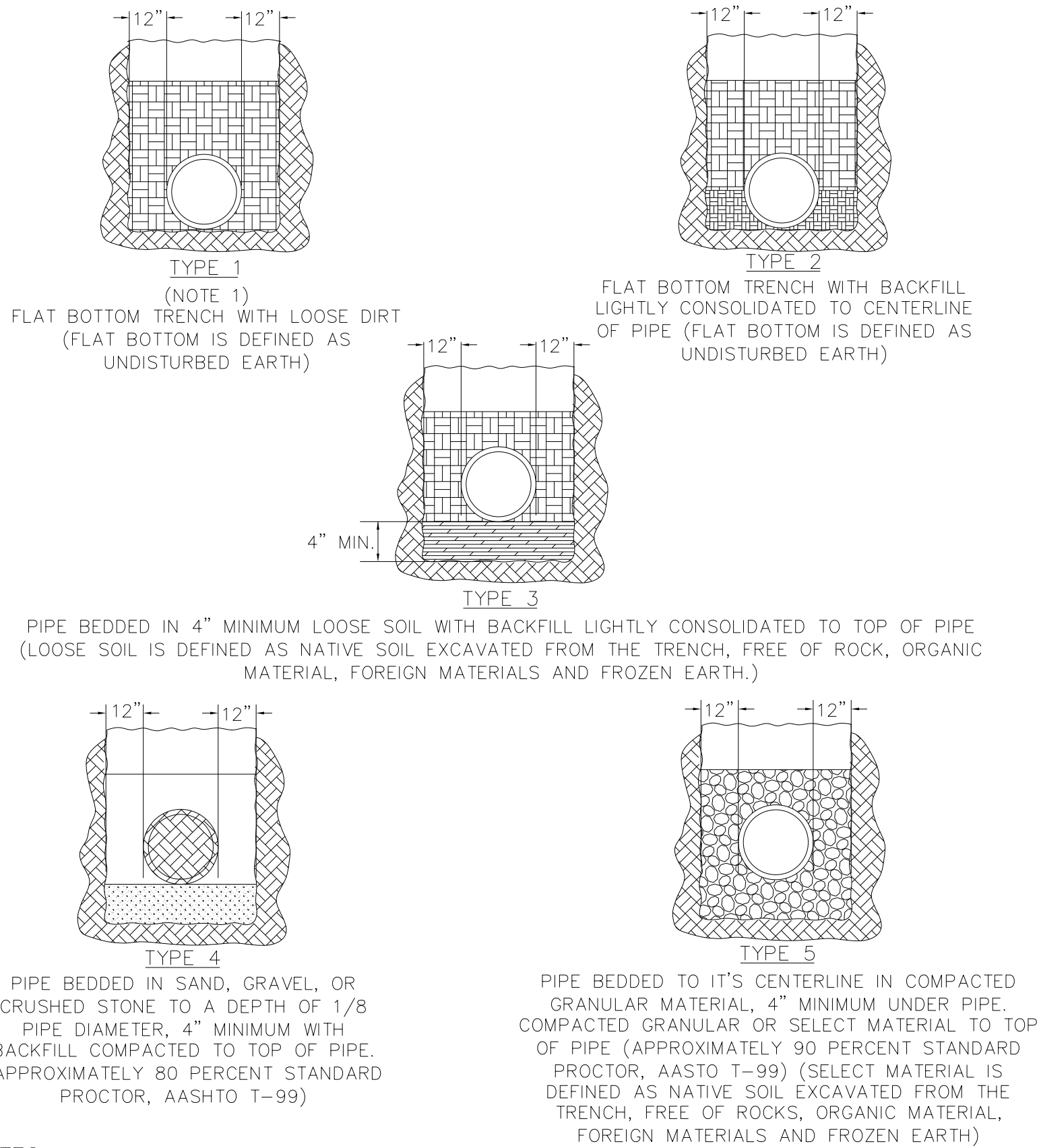
- NOTES:
1. LOCATOR POST SHALL BE A BLUE TRIANGULAR TRACER WIRE TERMINAL POST, 54 INCHES TALL.
 2. POST SHALL BE "RHINO ULTIMATE LOCATE POST" AS MANUFACTURED BY RHINO MARKING AND PROTECTION SYSTEMS OR APPROVED EQUAL.
 3. TRACER WIRES FROM MAIN TO LOCATOR POST SHALL BE INSTALLED IN 1" PVC CONDUITS.
 4. PROVIDE LOCATOR POST EVERY 1,000 FEET WHERE NO VALVE OR SERVICE CONNECTION OCCURS.



TRACER WIRE FOR WATER MAINS DEEPER THAN 8 FEET
SECTION VIEW



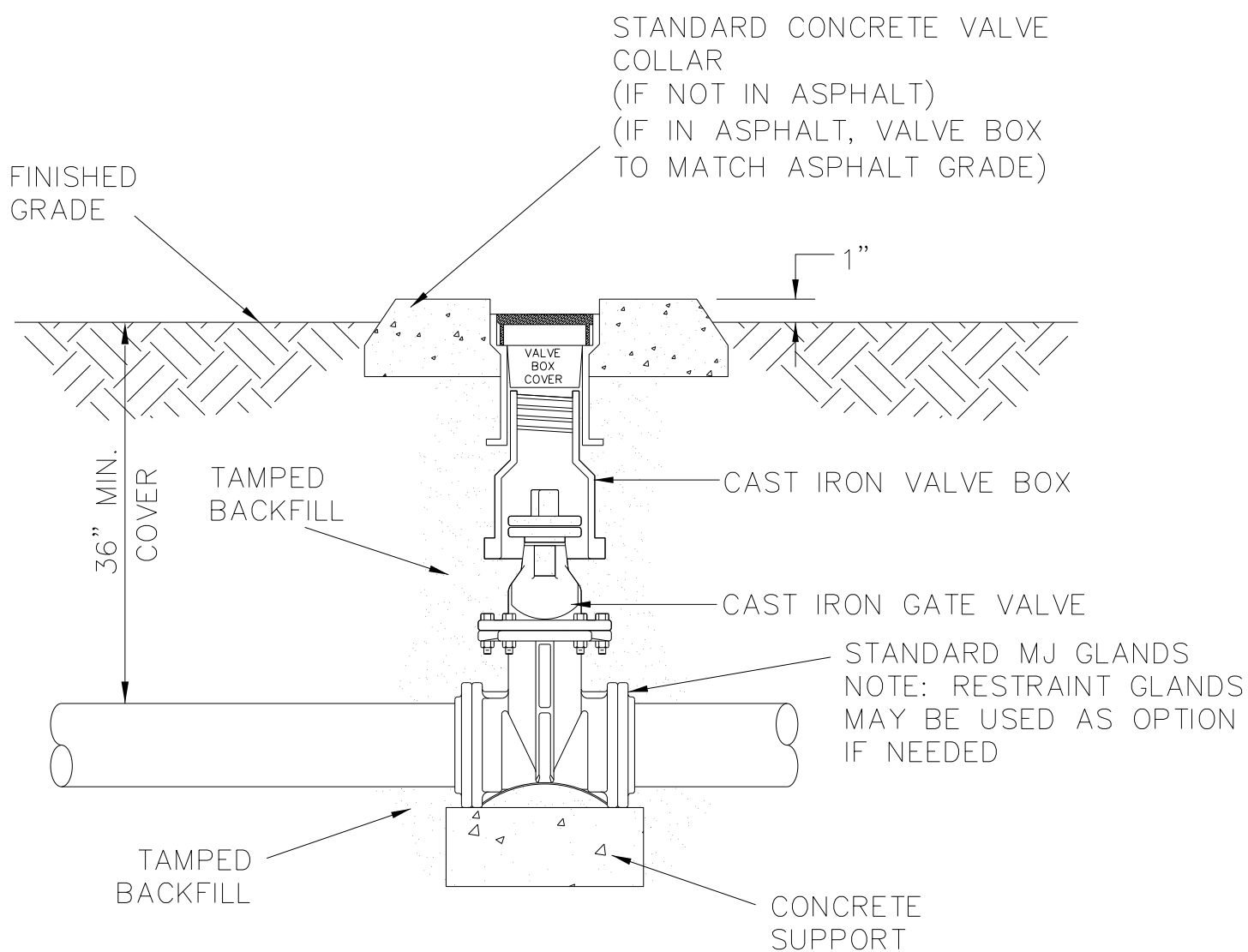
TRENCH DETAIL
SECTION VIEW



- NOTES:
- FOR NORMAL PIPE SIZES 14 INCH AND LARGER, CONSIDERATION SHOULD BE GIVEN TO THE USE OF LAYING CONDITIONS OTHER THAN TYPE 1.
 - CONSIDERATION OF THE PIPE-ZONE EMBEDMENT CONDITIONS INCLUDED IN THIS FIGURE MAY BE INFLUENCED BY FACTORS OTHER THAN PIPE STRENGTH. FOR ADDITIONAL INFORMATION ON PIPE BEDDING AND BACKFILL, SEE ANSI/AWWA C600.

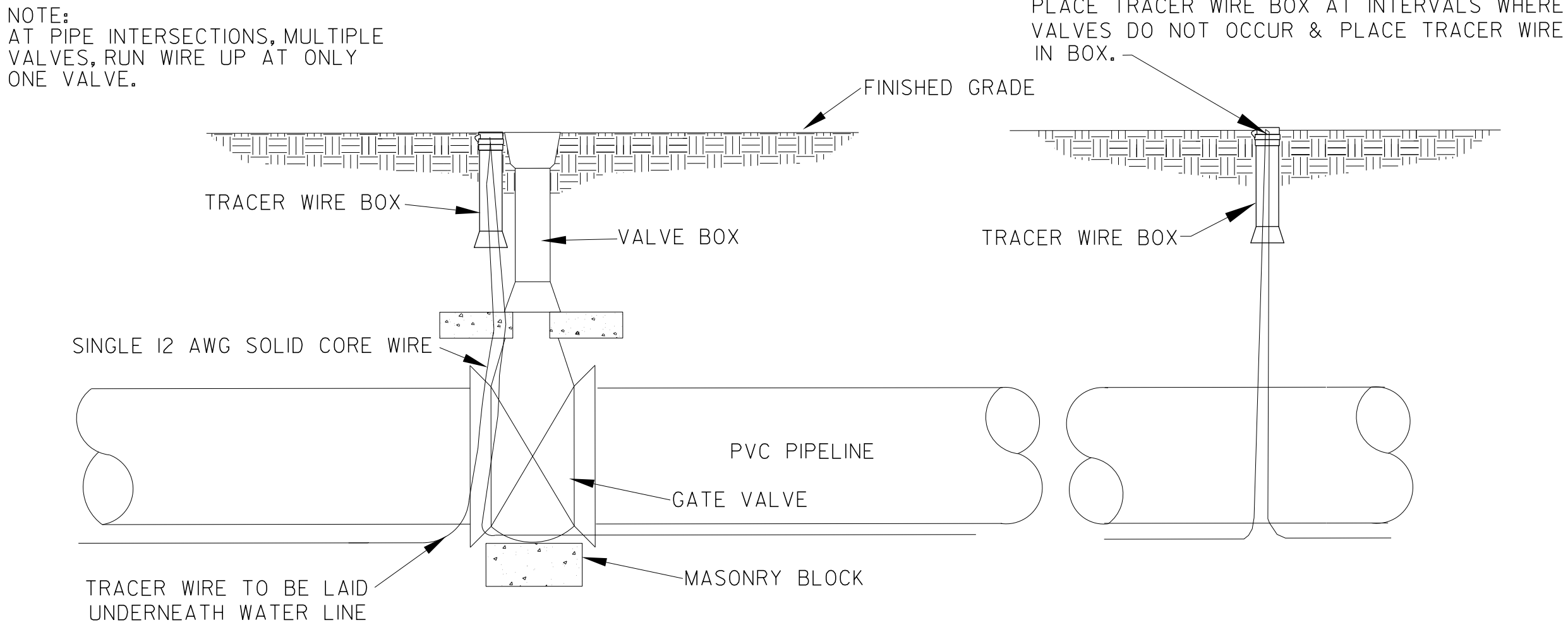
WATER MAIN EMBEDMENT DETAILS

NOT TO SCALE



INLINE VALVE DETAIL

NOT TO SCALE

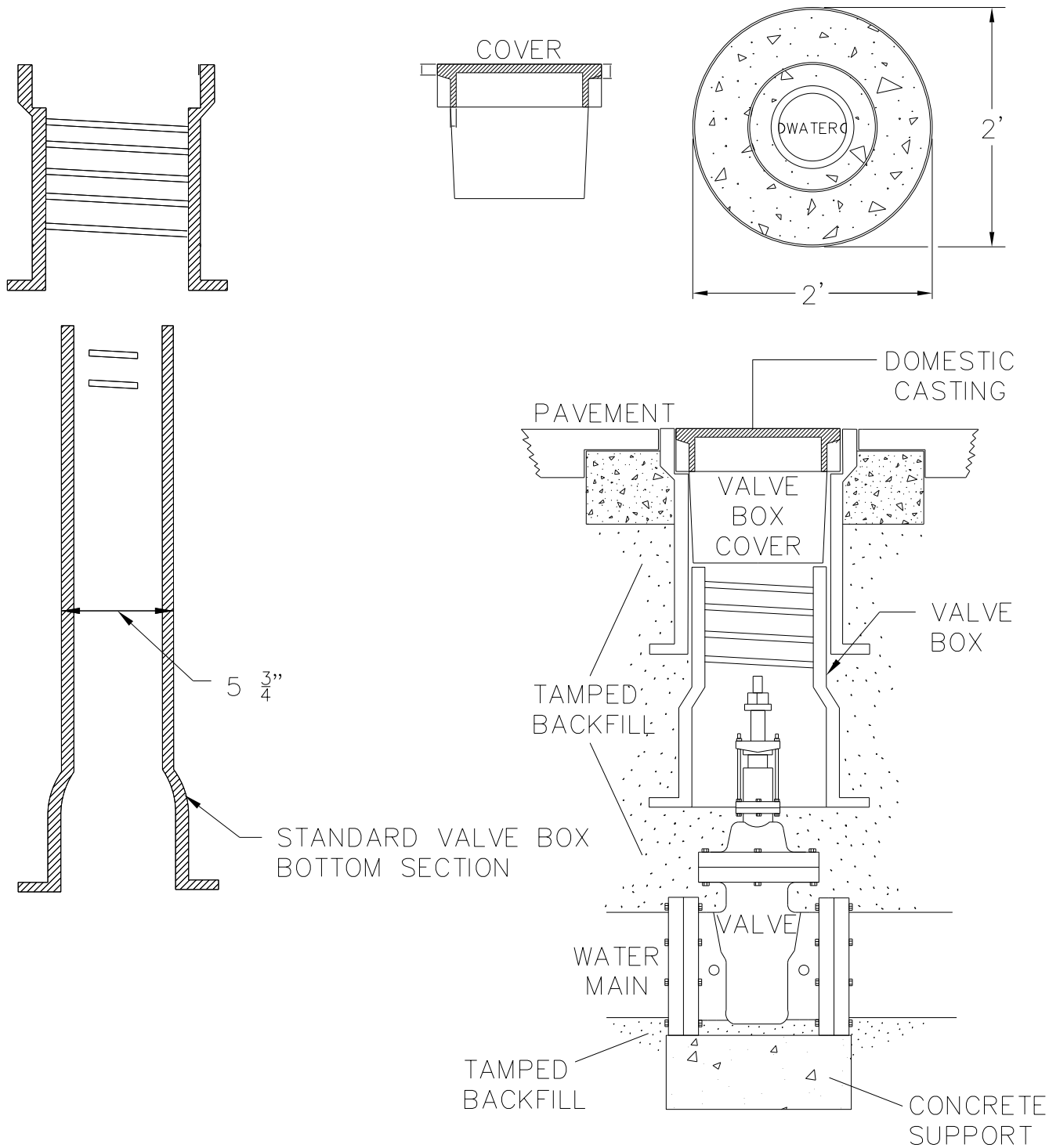


- NOTES:
- PLACE TRACER WIRE IN TRACER WIRE BOX AS SHOWN.
 - NO UNDERGROUND SPLICING WILL BE ALLOWED. DO NOT SPLICE WIRE WHEN BEGINNING A NEW SPOOL. INSTEAD INSTALL A TRACER WIRE BOX AND ATTACH EACH WIRE TO THE BOX.

TYPICAL TRACER WIRE INSTALLATION DETAIL

NOT TO SCALE

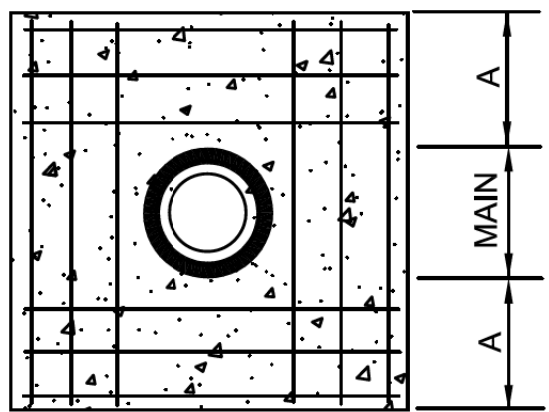
APPROVED METHOD FOR EXTENSION OF VALVE BOX



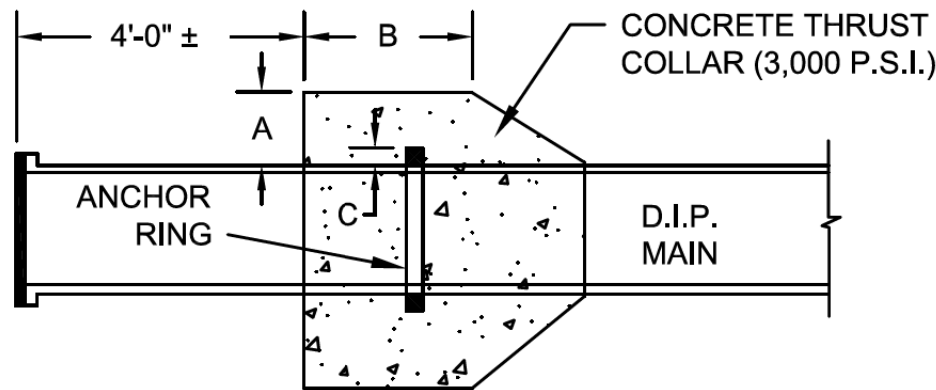
NOTE:
VALVE BOX SHALL BE PER OWNER'S SPECIFICATIONS.

VALVE BOX INSTALLATION

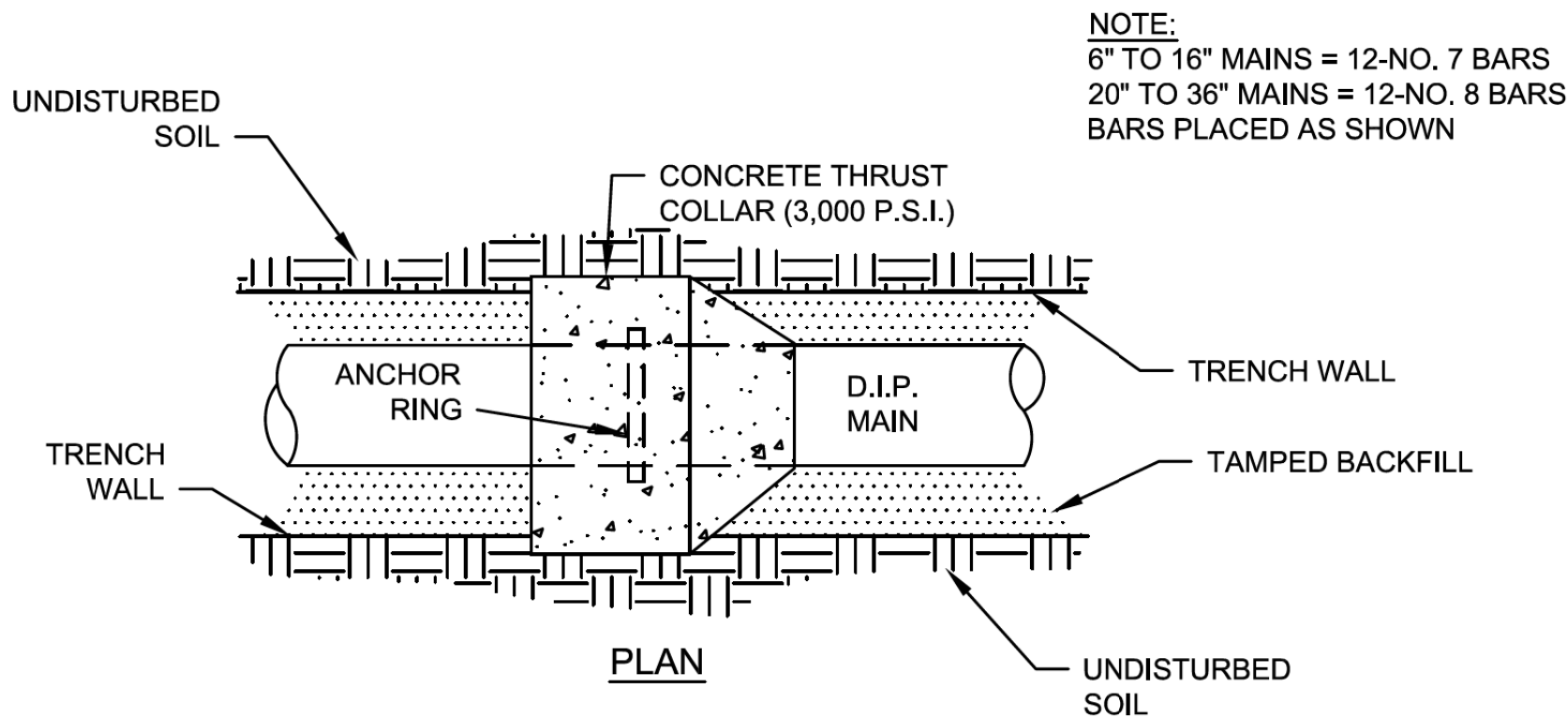
NOT TO SCALE



REINFORCING



SECTION

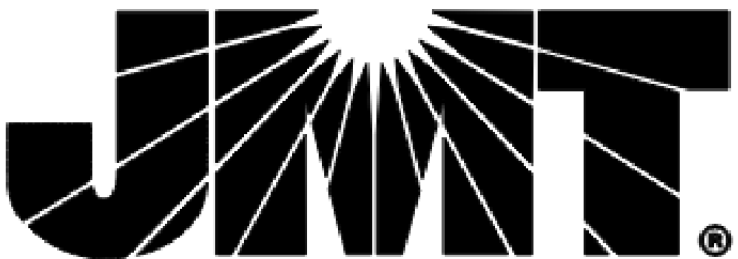


NOTE:
6" TO 16" MAINS = 12-NO. 7 BARS
20" TO 36" MAINS = 12-NO. 8 BARS
BARS PLACED AS SHOWN

SCHEDULE				
PIPE DIAMETER	CONCRETE THRUST COLLAR	ANCHOR COLLAR	RINGS REQUIRED	
	A	B	C	
6", 8", 12"	1'-0"	1'-0"	2"	ONE
16"	1'-4"	1'-0"	2"	ONE
20"	1'-4"	1'-0"	3"	ONE
24"	1'-4"	1'-0"	3"	TWO
30"	1'-4"	1'-2"	4"	TWO
36"	1'-4"	1'-4"	4"	TWO

THRUST COLLAR INSTALLATION

NOT TO SCALE



CALDWELL COUNTY

PROJECT REFERENCE NO.	SHEET NO.
U-4700CC	UC-3E
DESIGNED BY: MRD	
DRAWN BY: ND	
CHECKED BY: JDN	
APPROVED BY: JDN	
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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UTILITY CONSTRUCTION	

2/24/24

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TEST PRESSURE = 150 PSI					
PIPE SIZE	TYPE FITTING	DIMENSIONS (FT)			VOLUME CONCRETE CU. YD.
		"L"	"H"	"T"	
<4 INCHES	11 1/4"	-----	-----	-----	-----
	22 1/2"	1.00	1.00	1.50	0.06
	45"	1.00	1.00	1.50	0.06
	90"	1.00	1.00	2.50	0.09
	TEE	1.00	1.00	2.00	0.07
4 INCHES	11 1/4"	1.00	1.00	2.50	0.09
	22 1/2"	1.00	1.00	2.50	0.09
	45"	1.00	1.00	2.50	0.09
	90"	1.50	1.50	2.50	0.15
	TEE	1.50	1.50	2.00	0.12
6 INCHES	11 1/4"	1.50	1.50	2.50	0.15
	22 1/2"	1.50	1.50	2.50	0.15
	45"	1.50	1.50	2.50	0.15
	90"	2.00	2.00	3.00	0.28
	TEE	2.00	2.00	2.50	0.23
8 INCHES	11 1/4"	2.00	2.00	2.50	0.23
	22 1/2"	2.00	2.00	2.50	0.23
	45"	2.00	2.00	2.75	0.25
	90"	3.00	2.00	3.00	0.39
	TEE	3.00	2.00	2.50	0.32
12 INCHES	11 1/4"	2.00	2.00	3.00	0.28
	22 1/2"	2.00	2.00	3.00	0.28
	45"	3.00	2.50	3.00	0.47
	90"	4.50	3.00	3.50	0.94
	TEE	4.50	3.00	3.00	0.81
16 INCHES	11 1/4"	2.00	2.00	3.00	0.28
	22 1/2"	3.00	2.00	3.00	0.39
	45"	4.00	3.00	3.50	0.84
	90"	6.50	3.50	3.50	1.54
	TEE	6.50	3.50	3.00	1.32

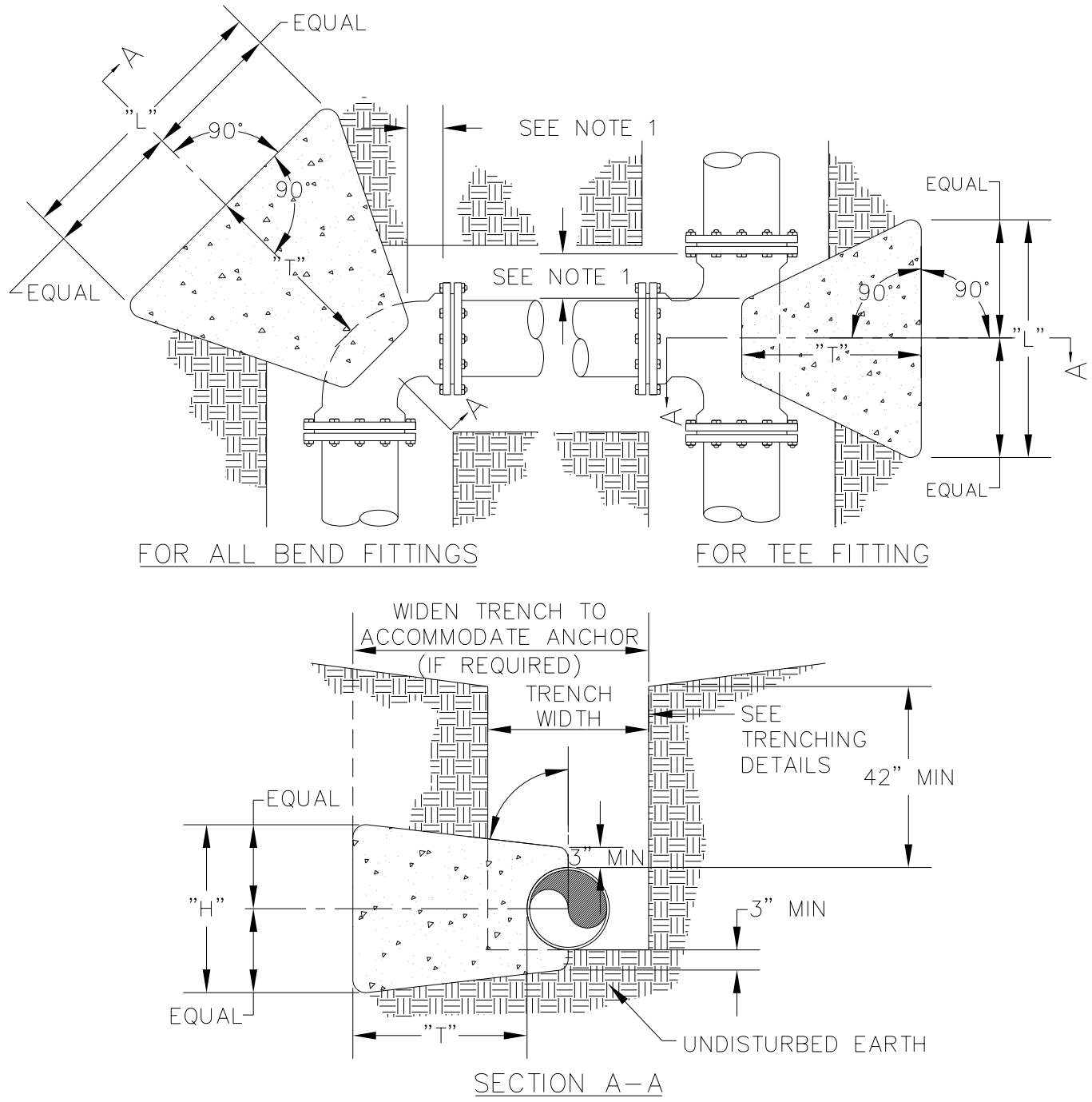
TEST PRESSURE = 200 PSI					
PIPE SIZE	TYPE FITTING	DIMENSIONS (FT)			VOLUME CONCRETE CU. YD.
		"L"	"H"	"T"	
<4 INCHES	11 1/4"	1.00	1.00	1.00	0.04
	22 1/2"	1.00	1.00	1.50	0.06
	45"	1.00	1.00	1.50	0.06
	90"	1.50	1.50	2.50	0.15
	TEE	1.50	1.50	2.00	0.12
4 INCHES	11 1/4"	1.00	1.00	2.50	0.09
	22 1/2"	1.00	1.00	2.50	0.09
	45"	1.50	1.50	2.50	0.15
	90"	1.50	1.50	2.50	0.15
	TEE	1.50	1.50	2.00	0.12
6 INCHES	11 1/4"	1.50	1.50	2.50	0.15
	22 1/2"	1.50	1.50	2.50	0.15
	45"	1.50	1.50	2.50	0.15
	90"	2.50	2.00	3.00	0.33
	TEE	2.50	2.00	2.50	0.28
8 INCHES	11 1/4"	2.00	2.00	2.50	0.23
	22 1/2"	2.00	2.00	2.50	0.23
	45"	2.00	2.00	2.75	0.23
	90"	4.00	2.00	3.00	0.50
	TEE	4.00	2.00	2.50	0.42
12 INCHES	11 1/4"	2.00	2.00	3.00	0.28
	22 1/2"	3.00	2.00	3.00	0.39
	45"	4.00	2.50	3.00	0.61
	90"	5.50	3.00	3.50	1.13
	TEE	5.50	3.00	3.00	0.97
16 INCHES	11 1/4"	2.00	2.00	3.00	0.28
	22 1/2"	4.00	2.00	3.00	0.50
	45"	5.50	3.00	3.50	1.13
	90"	7.50	4.00	3.50	2.01
	TEE	7.50	4.00	3.00	1.72

CHART NOTES:

- IF BLOCKING EXCAVATION IS IN LIGHTLY COMPACTED FILL AREAS, OR IN AREAS WHERE BOULDERS OR STUMPS HAVE BEEN REMOVED, BLOCKING SIZE MUST BE RE-SIZED FOR THE SPECIFIC LOCATION/CIRCUMSTANCE BY A NC LICENSED PROFESSIONAL ENGINEER.
- BLOCKING SIZES SHOWN IN THESE TABLES ASSUME THE FOLLOWING:
 - BLOCKING IS CONSTRUCTED IN RESIDUAL SOILS AS SHOWN IN DETAIL
 - SOIL BEARING PRESSURE = 2000 PSF
 - VELOCITY OF FLOW = 15 FPS
- THIS DETAIL NOT APPLICABLE TO REDUCING BENDS.
- NEITHER THE WEIGHT OF THE CONCRETE BLOCKING NOR FRICTION BETWEEN CONCRETE BLOCKING AND SOIL WAS ADDED INTO BLOCKING SIZES COMPUTATION. THEREFORE, BLOCKING SIZE IS CONSERVATIVE.

THRUST BLOCKING TABLE

NOT TO SCALE

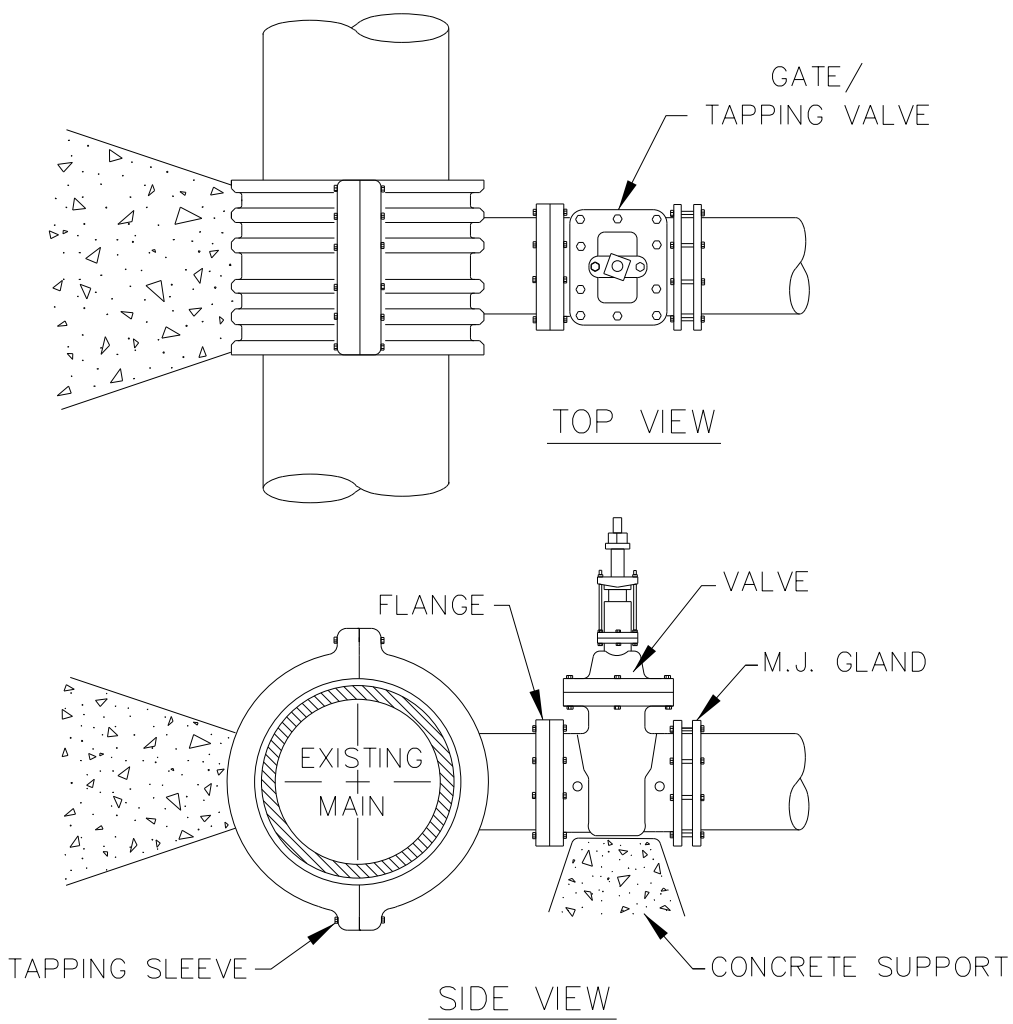


NOTES:

- CONCRETE BLOCKING IS TO BE FORMED TO ENSURE ACCESSIBILITY TO FITTINGS AND POURED AGAINST UNDISTURBED EARTH.
- ALL FITTINGS SHALL BE WRAPPED IN POLYETHYLENE TO PREVENT CONCRETE FROM CONTACTING FITTINGS, BOLTS OR ENDS OF MECHANICAL JOINT BENDS.
- CONCRETE TO BE MINIMUM 3,000 PSI @ 28 DAYS.
- WHEN SACKRETE IS TO BE USED, IT SHALL BE PROPERLY MIXED PER MANUFACTURER SPECIFICATIONS.
- FOR REQUIRED DIMENSIONS, SEE THRUST BLOCKING TABLE.

THRUST BLOCKING

NOT TO SCALE

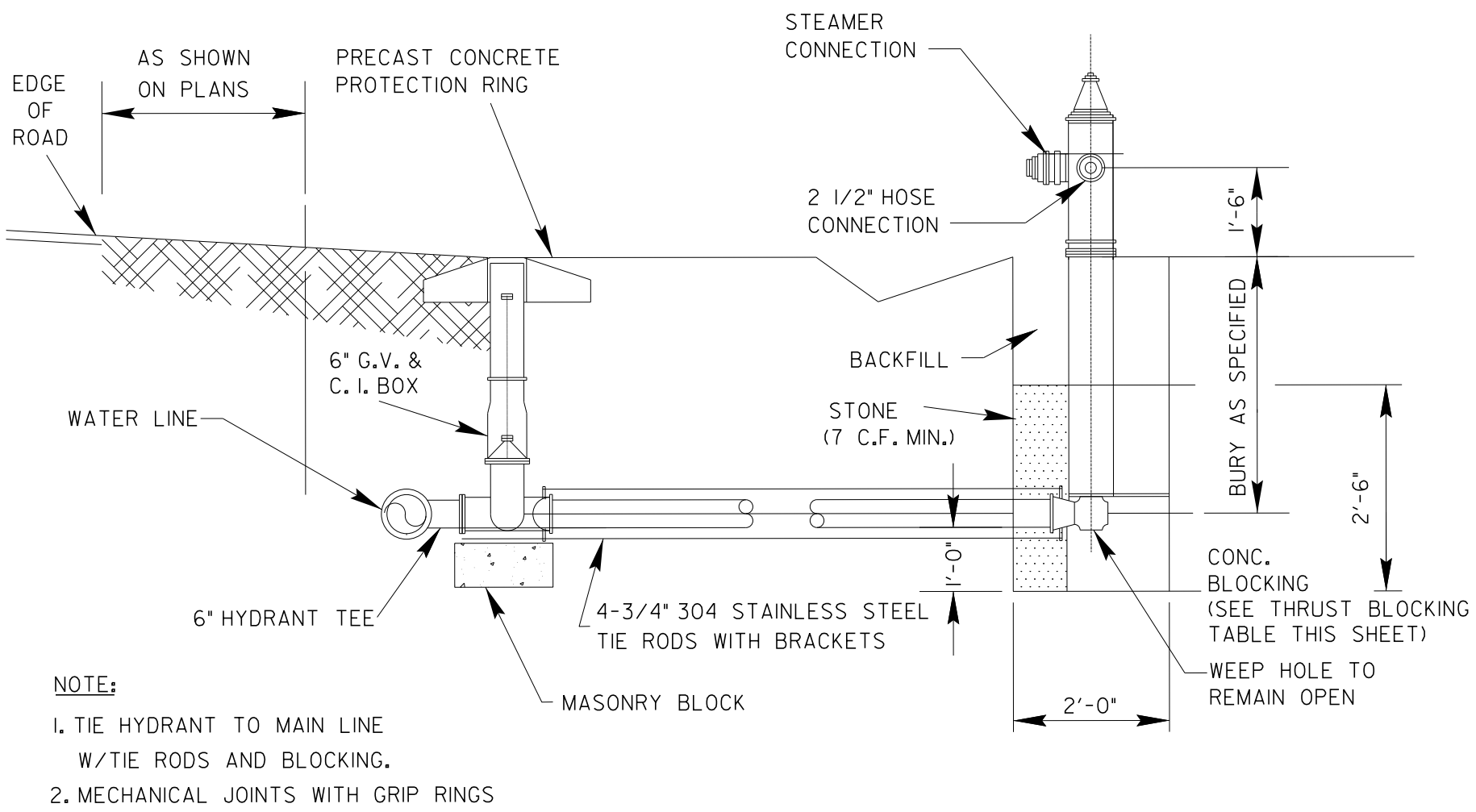


NOTES:

- CONCRETE SHALL NOT CONTACT GLANDS, BOLTS OR ENDS OF MECHANICAL BOLTS, OR ENDS OF MECHANICAL JOINT FITTINGS. TAPPING SLEEVE AND BOTTOM OF VALVE SHALL BE WRAPPED IN POLYETHYLENE.
- SEE STANDARD THRUST BLOCK TABLE FOR AREA OF CONCRETE REQUIRED.
- TAPPING SLEEVE SHALL BE TESTED IN ACCORDANCE WITH OWNER REQUIREMENTS.
- TAPS ON SDR26 PIPE SHALL REQUIRE LONG SS TAPPING SLEEVES.

4" AND LARGER TAPPING SLEEVE AND VALVE ASSEMBLY

NOT TO SCALE




NOTE:

- TIE HYDRANT TO MAIN LINE W/TIE RODS AND BLOCKING.
- MECHANICAL JOINTS WITH GRIP RINGS

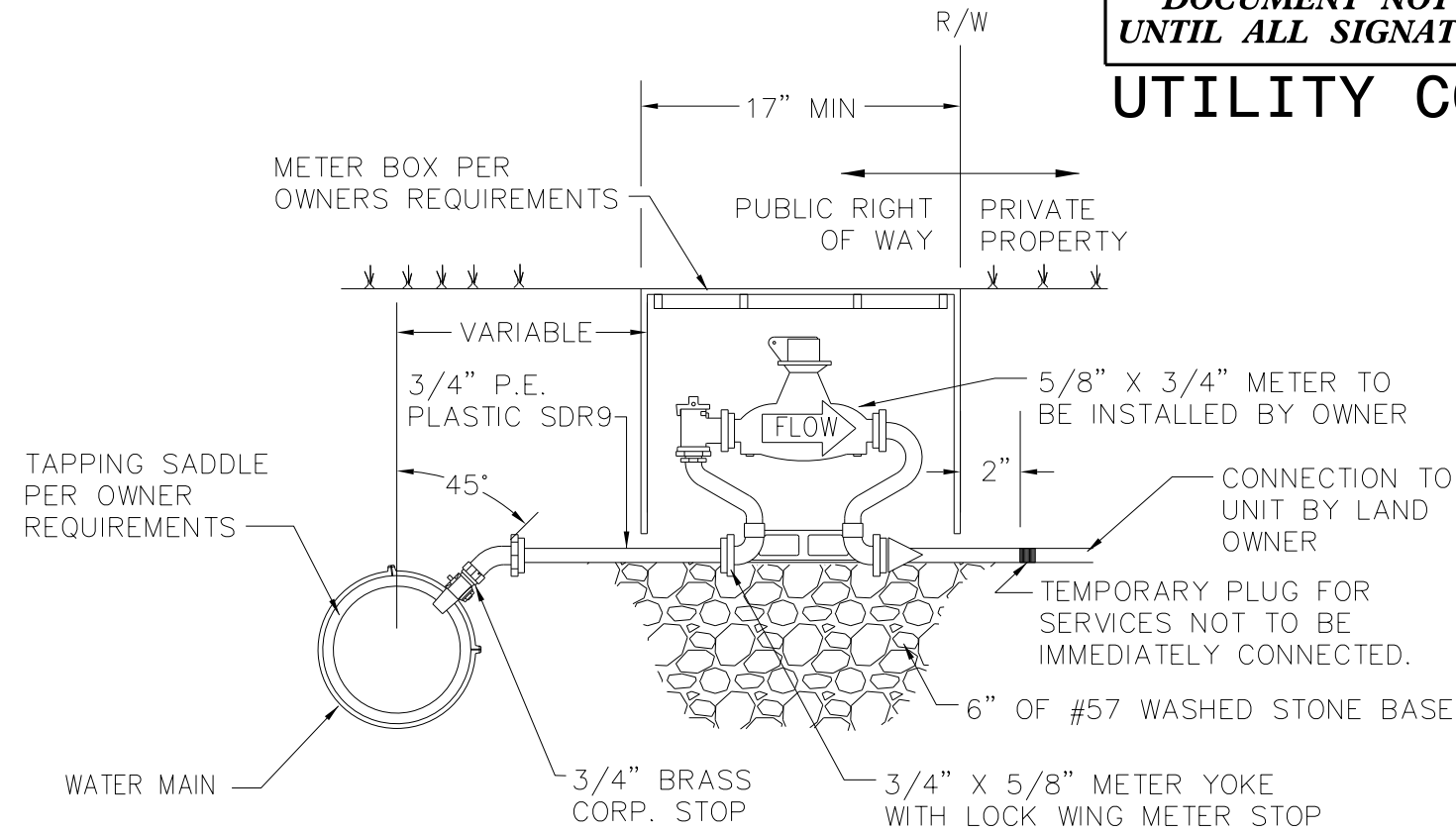
TYPICAL FIRE HYDRANT INSTALLATION DETAIL

NOT TO SCALE

CALDWELL COUNTY

PROJECT REFERENCE NO.		SHEET NO.	
U-4700CC		UC-3F	
DESIGNED BY: MRD		UTILITY CONSTRUCTION PLANS ONLY	
DRAWN BY: ND			
CHECKED BY: JDN			
APPROVED BY: JDN			
REVISED:			
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION		5/28/2025 4:12:51 PM EDT	
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151			
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UTILITY CONSTRUCTION



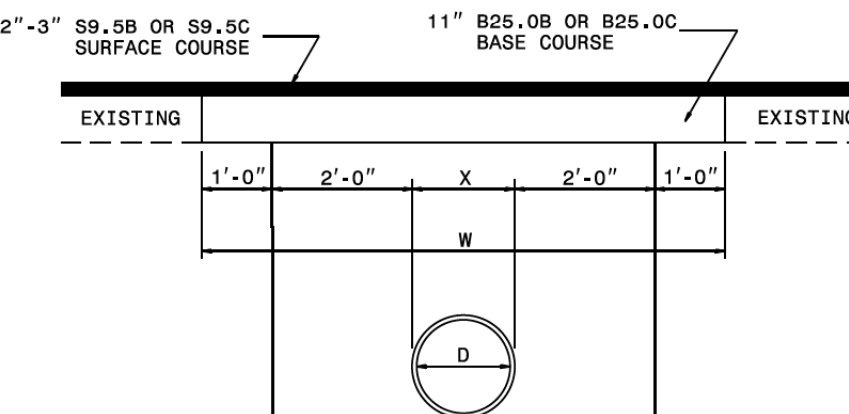
NOTES:

- WATER METER TO BE INSTALLED IN NON-TRAFFIC AREAS ONLY.
- METER BOX TO BE SUPPORTED ON BRICK OR BLOCK

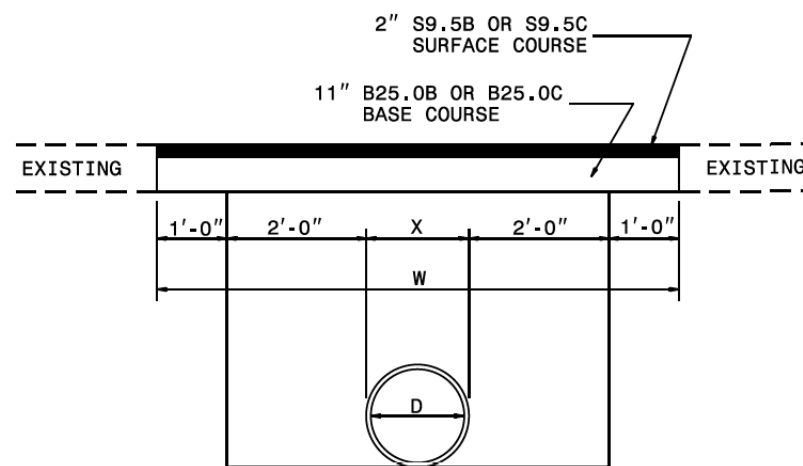
3/4" TO 1" SERVICE CONNECTION AND METER

NOT TO SCALE

D	X	W
12"	1'-4"	7'-4"
15"	1'-7"	7'-7"
18"	1'-10"	7'-10"
24"	2'-6"	8'-6"
30"	3'-1"	9'-1"
36"	3'-8"	9'-8"
42"	4'-5"	10'-5"
48"	5'-0"	11'-0"



PAVEMENT REPAIRS ON ROADS TO BE RESURFACED (PIPE IS PLACED UNDER EXISTING PAVEMENT)



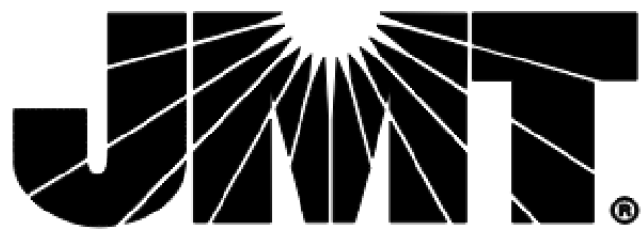
PAVEMENT REPAIRS ON ROADS NOT TO BE RESURFACED (PIPE IS TO BE PLACED UNDER EXISTING PAVEMENT)


NOTES:

- THE PAVEMENT SHALL BE DEFINED BY A STRAIGHT EDGE, PREFERABLY A MACHINED SAW CUT.
- THE TRENCH SUBGRADE MATERIAL SHALL BE BACKFILLED WITH DRY SOIL OR ABC STONE TO THE BOTTOM OF THE PROPOSED SUBGRADE. THE BACKFILL SHALL BE PLACED AND COMPACTED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.
- WITHIN ROADS MAINTAINED BY NCDOT, THE TRENCH SHALL BE BACKFILLED AND COMPACTED IN ACCORDANCE WITH NCDOT STANDARDS.
- THE ENTIRE THICKNESS/VERTICAL EDGE OF THE CUT SHALL BE TACKED.
- THE SAME DEPTH OF PAVEMENT MATERIAL WHICH EXISTS SHALL BE REINSTALLED, BUT IN NO CASE SHALL THE ASPHALT BE LESS THAN 2" THICK.
- THE ASPHALT PAVEMENT MATERIAL SHALL BE INSTALLED AND COMPACTED THOROUGHLY TO ACHIEVE A SMOOTH LEVEL PATCH.

STANDARD PAVEMENT CUT AND PATCH DETAILS

NOT TO SCALE

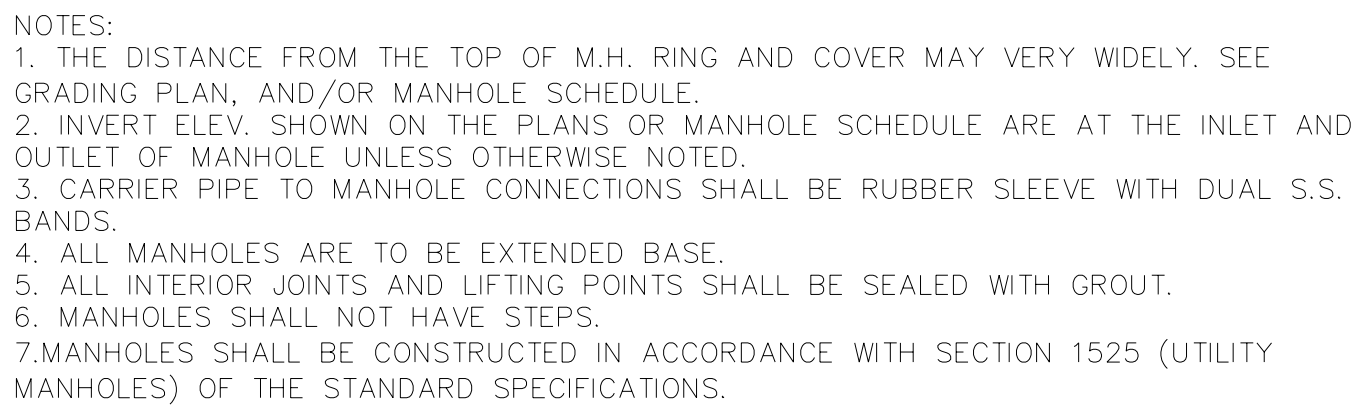


PROJECT REFERENCE NO.		SHEET NO.	
U-4700CC		UC-3G	
DESIGNED BY: MRD			
DRAWN BY: ND			
CHECKED BY: JDN			
APPROVED BY: JDN			
REVISED:			
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION		5/28/2025 12:31:58 PM EDT UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151 UTILITY CONSTRUCTION PLANS ONLY	

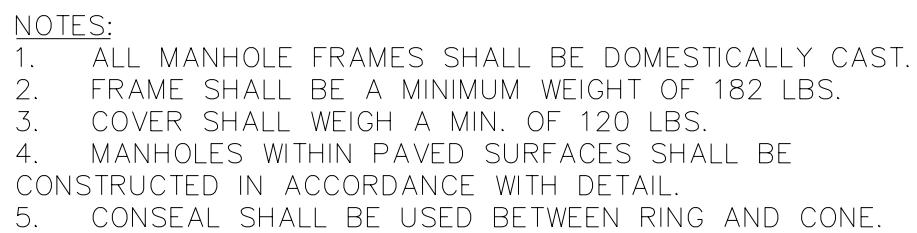
UTILITY CONSTRUCTION



NOT TO SCALE

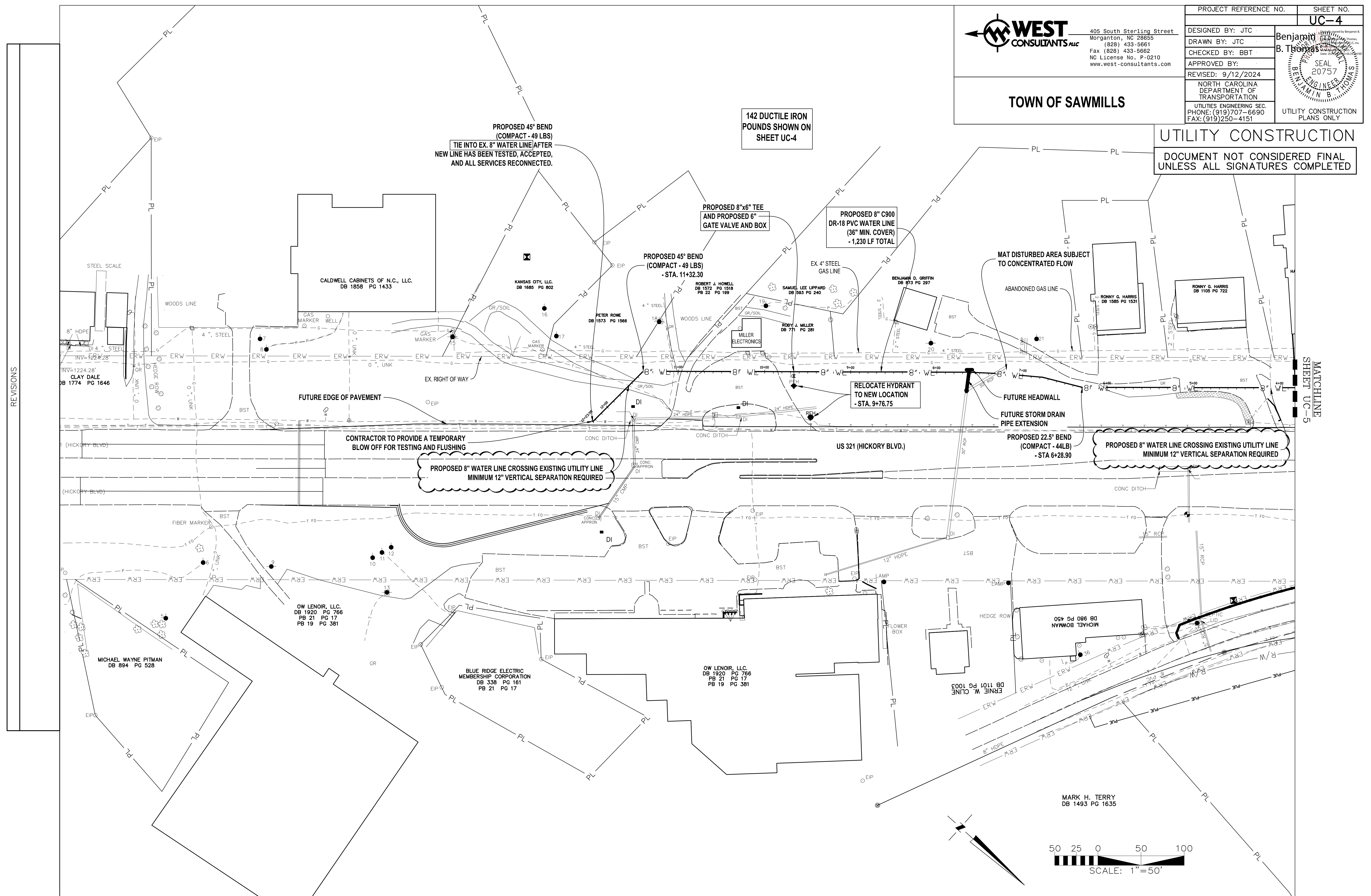



NOT TO SCALE



NOT TO SCALE







WEST
CONSULTANTS INC.

405 South Sterling Street
Morganton, NC 28655
(828) 433-5661
Fax (828) 433-5662
NC License No. P-0210
www.west-consultants.com

PROJECT REFERENCE NO.

SHEET NO.

DESIGNED BY: JTC

DRAWN BY: JTC

CHECKED BY: BBT

APPROVED BY:

REVISED:

NORTH CAROLINA
DEPARTMENT OF
TRANSPORTATION

UTILITIES ENGINEERING SEC.
PHONE: (919) 707-6690
FAX: (919) 250-4151

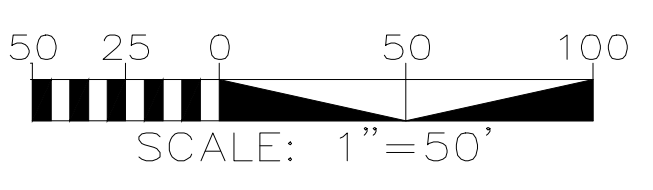
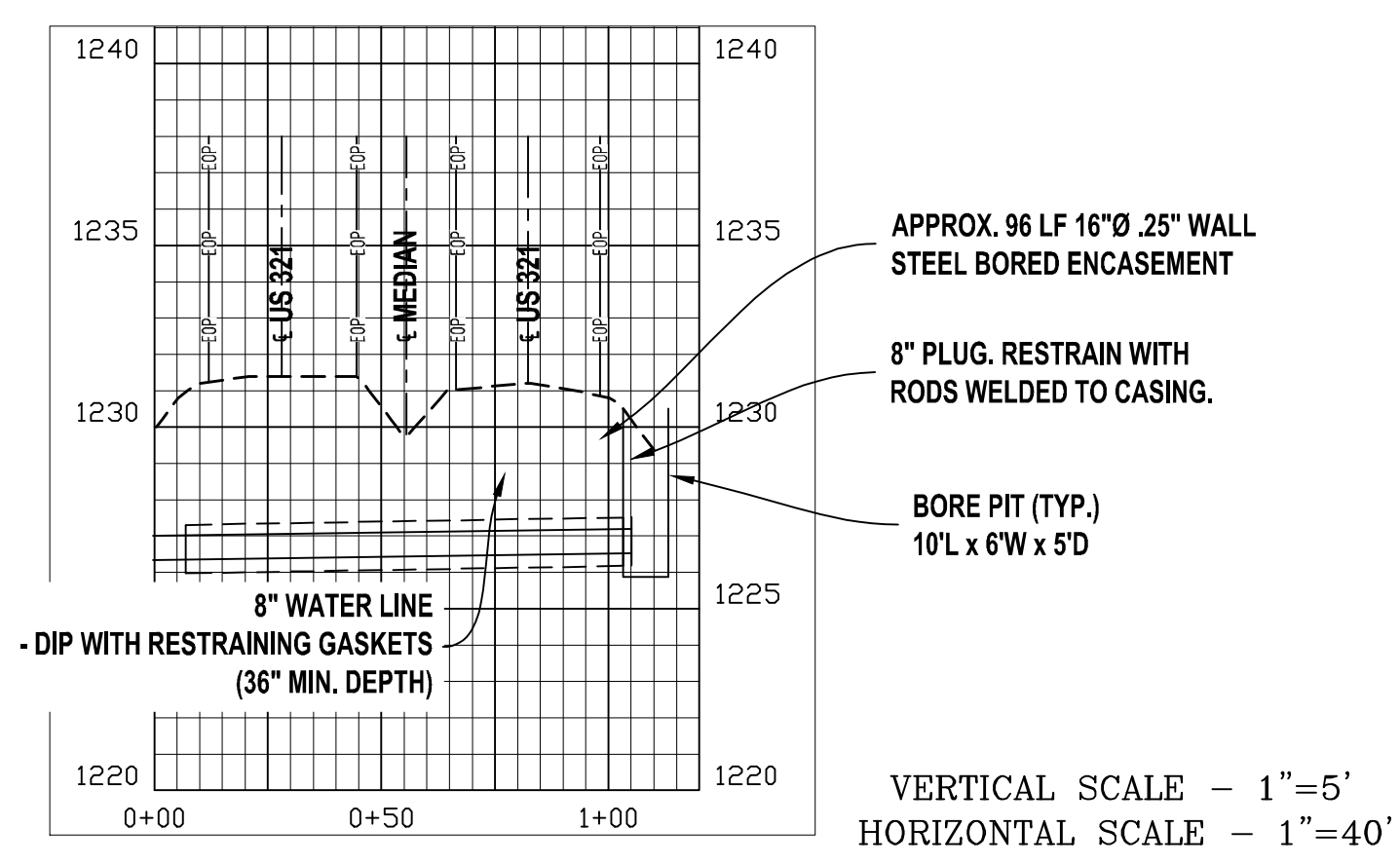
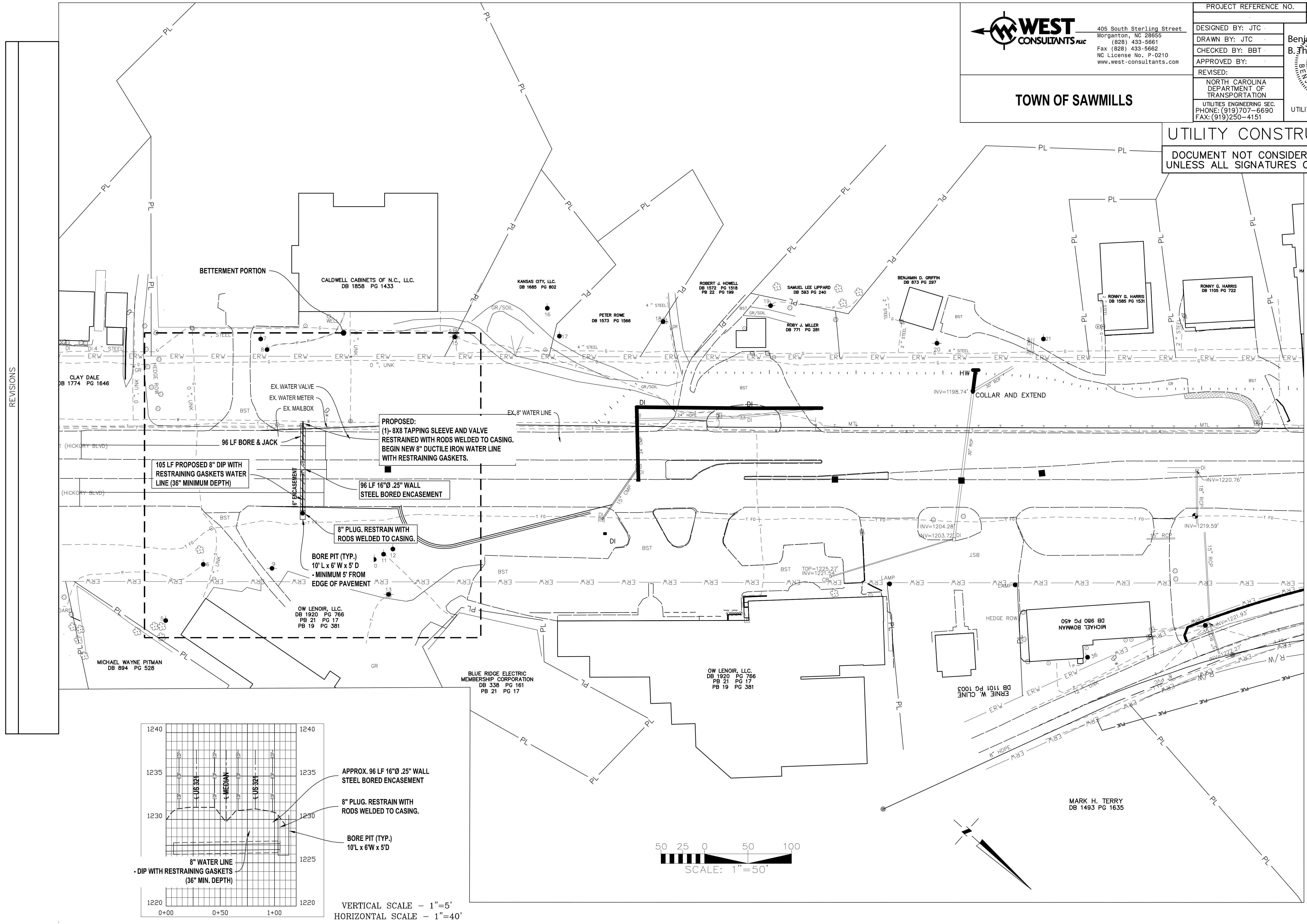
Benjamin B. Thomas
Professional Engineer
No. 20757
State of North Carolina

UTILITY CONSTRUCTION
PLANS ONLY

TOWN OF SAWMILLS

UTILITY CONSTRUCTION


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2/24/24

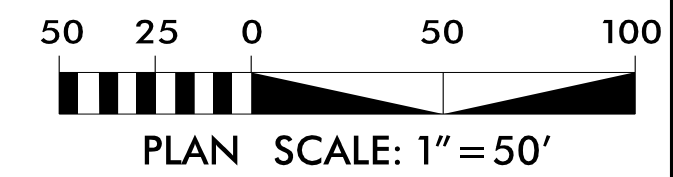
PI Sta 26+10.02
 $\Delta = 38^{\circ} 30' 18.8''$ (LT)
 $D = 7^{\circ} 32' 20.1''$
 $L = 510.75'$
 $T = 265.44'$
 $R = 760.00'$
 $DS = 35$ MPH
 $SE = .05$
 $RO = 120'$

CALDWELL COUNTY


 NORTH CAROLINA
 PROFESSIONAL
 SEAL
 047349
 DocuSigned by:
 Jamie Dunn
 C05F7F851954BA

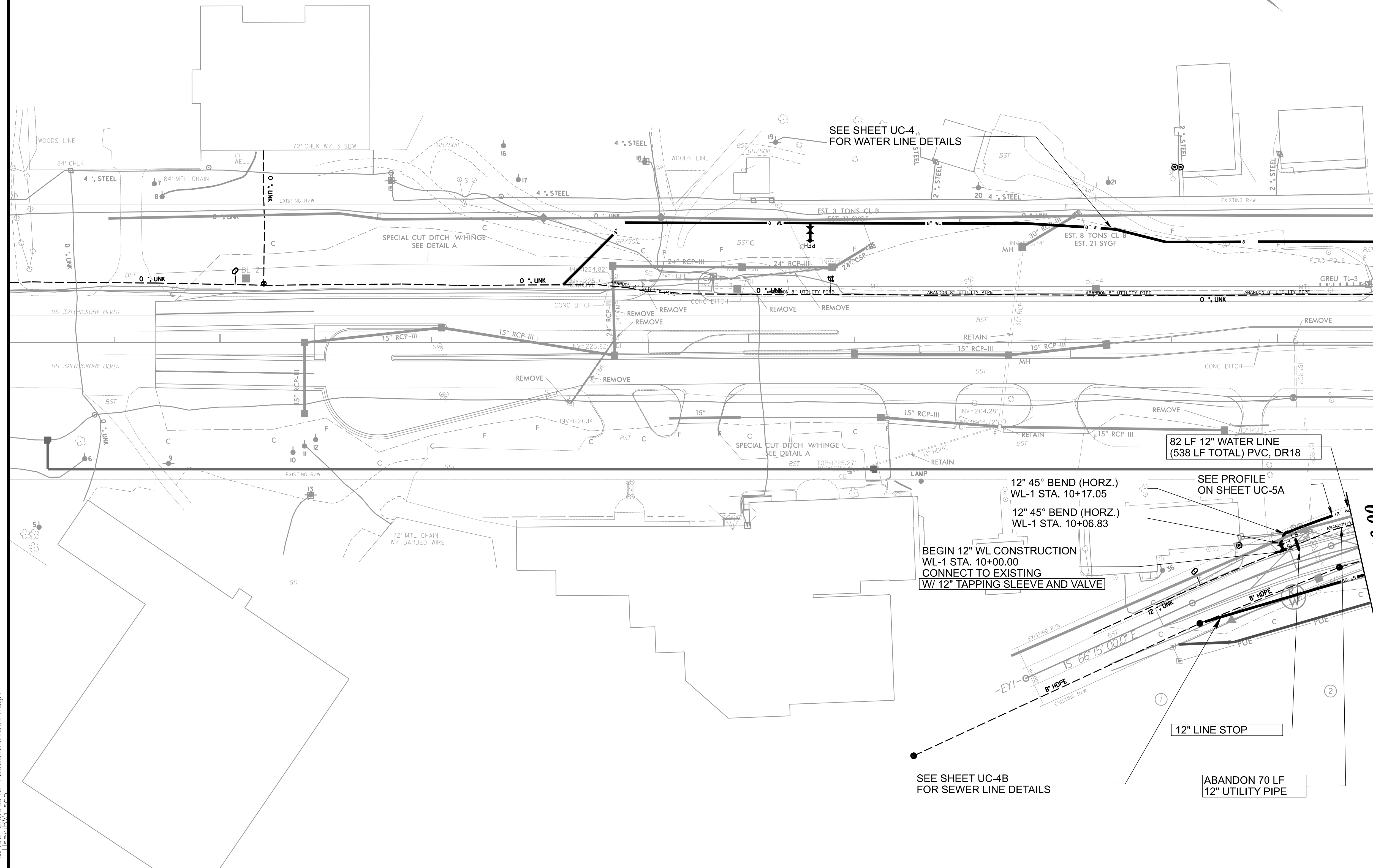
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UTILITY CONSTRUCTION

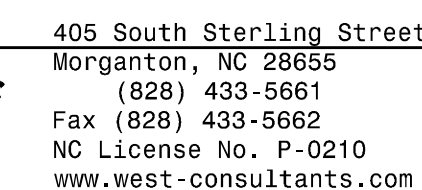
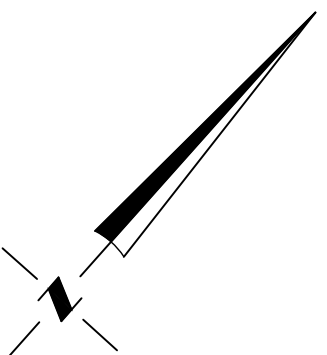


**MATCHLINE -L- STA. 541+00.00
SEE SHEET 5**

MATCHLINE -Y36- STA. 27+00.00 SEE SHEET 5
-WL-1 STA. 10+83.00



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User: Bwilson



UTILITY CONSTRUCTION

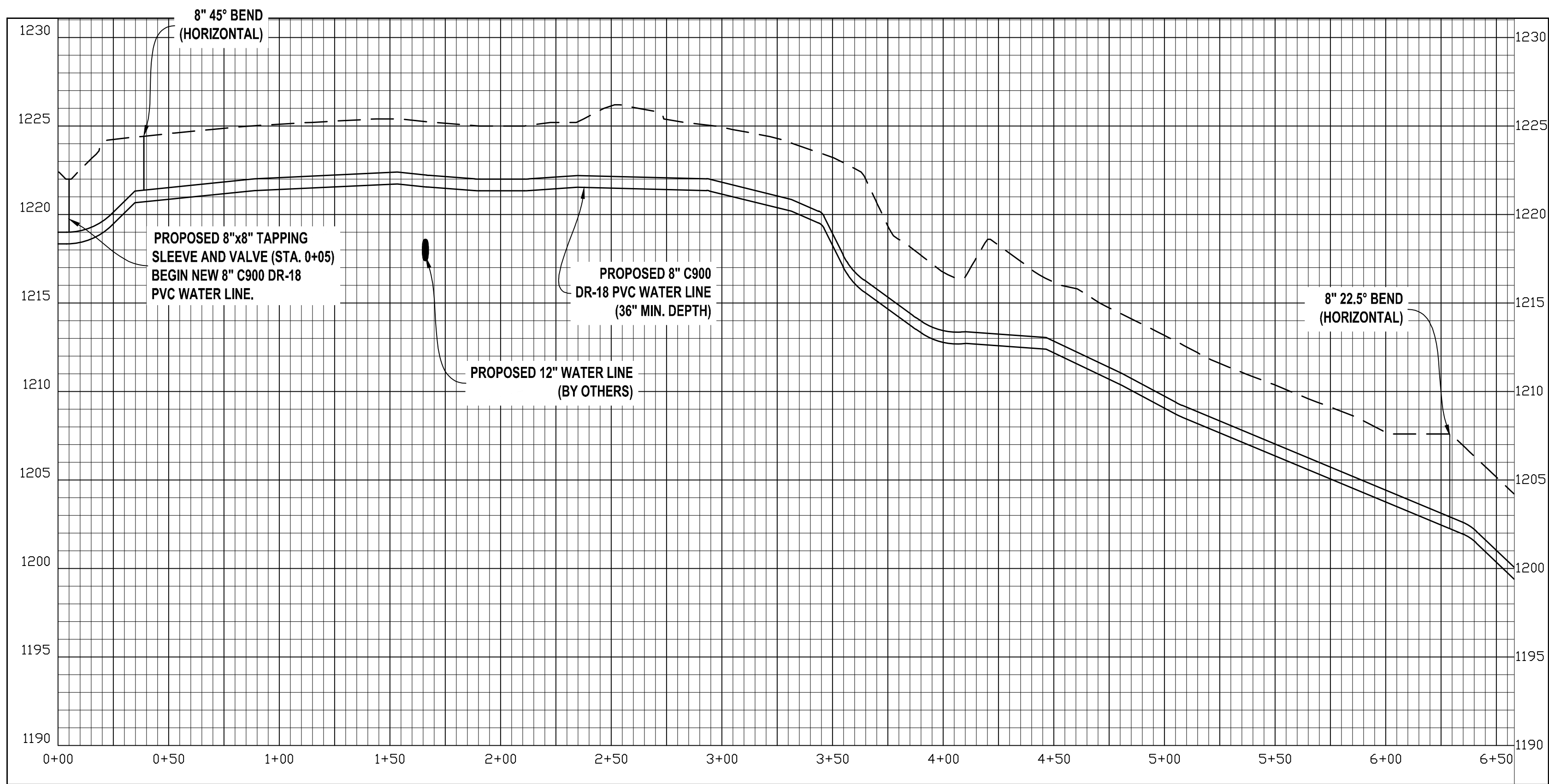
DOCUMENT NOT CONSIDERED FINAL
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PROJECT REFERENCE NO.		SHEET NO.	
		UC-5	
DESIGNED BY: JTC		Benjamin B. Thomas	
DRAWN BY: JTC		B. Thomas	
CHECKED BY: BBT		Thomas	
APPROVED BY:		SEAL 20757	
REVISED: 9/12/2024		NORTH CAROLINA REGISTERED PROFESSIONAL ENGINEER EXPIRATION DATE: 12/31/2025 BENJAMIN B. THOMAS	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION		UTILITY CONSTRUCTION PLANS ONLY	
UTILITIES ENGINEERING SEC. PHONE: (919) 707-5690 FAX: (919) 707-4153			

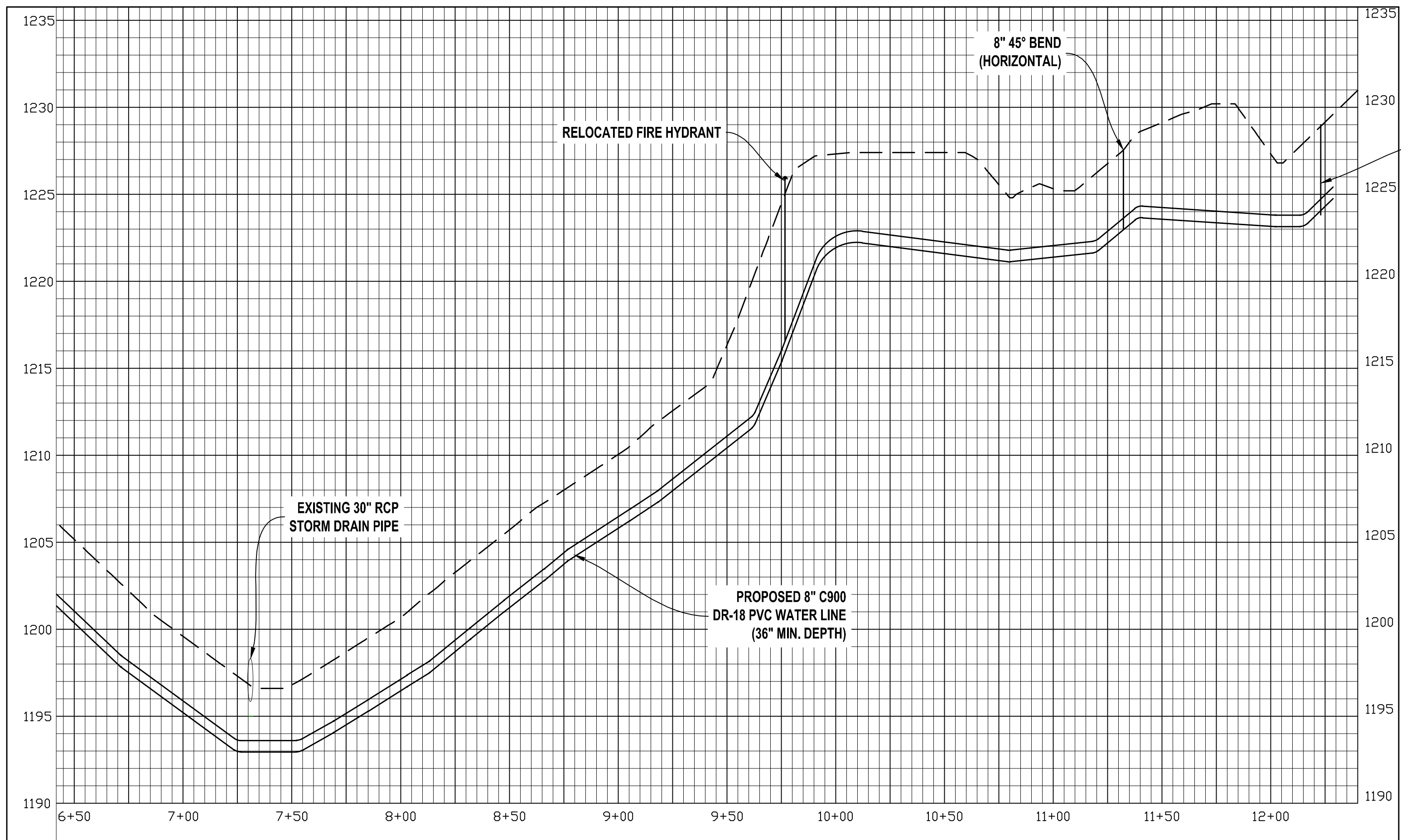
REVISIONS

MATCHLINE
SHEET UC-

REVISIONS



VERTICAL SCALE - 1"=5'
HORIZONTAL SCALE - 1"=40'



VERTICAL SCALE - 1"=5'
HORIZONTAL SCALE - 1"=40'



405 South Sterling Street
Morganton, NC 28655
(828) 433-5661
Fax (828) 433-5662
NC License No. P-0210
www.west-consultants.com

TOWN OF SAWMILLS

PROJECT REFERENCE NO.

SHEET NO.

UC-5A

DESIGNED BY: JTC

DRAWN BY: JTC

CHECKED BY: BBT

APPROVED BY:

REVISED:

NORTH CAROLINA

DEPARTMENT OF

TRANSPORTATION

UTILITIES ENGINEERING SEC.

PHONE: (919)707-6690

FAX: (919)250-4151

Benjamin

n B

Thomas

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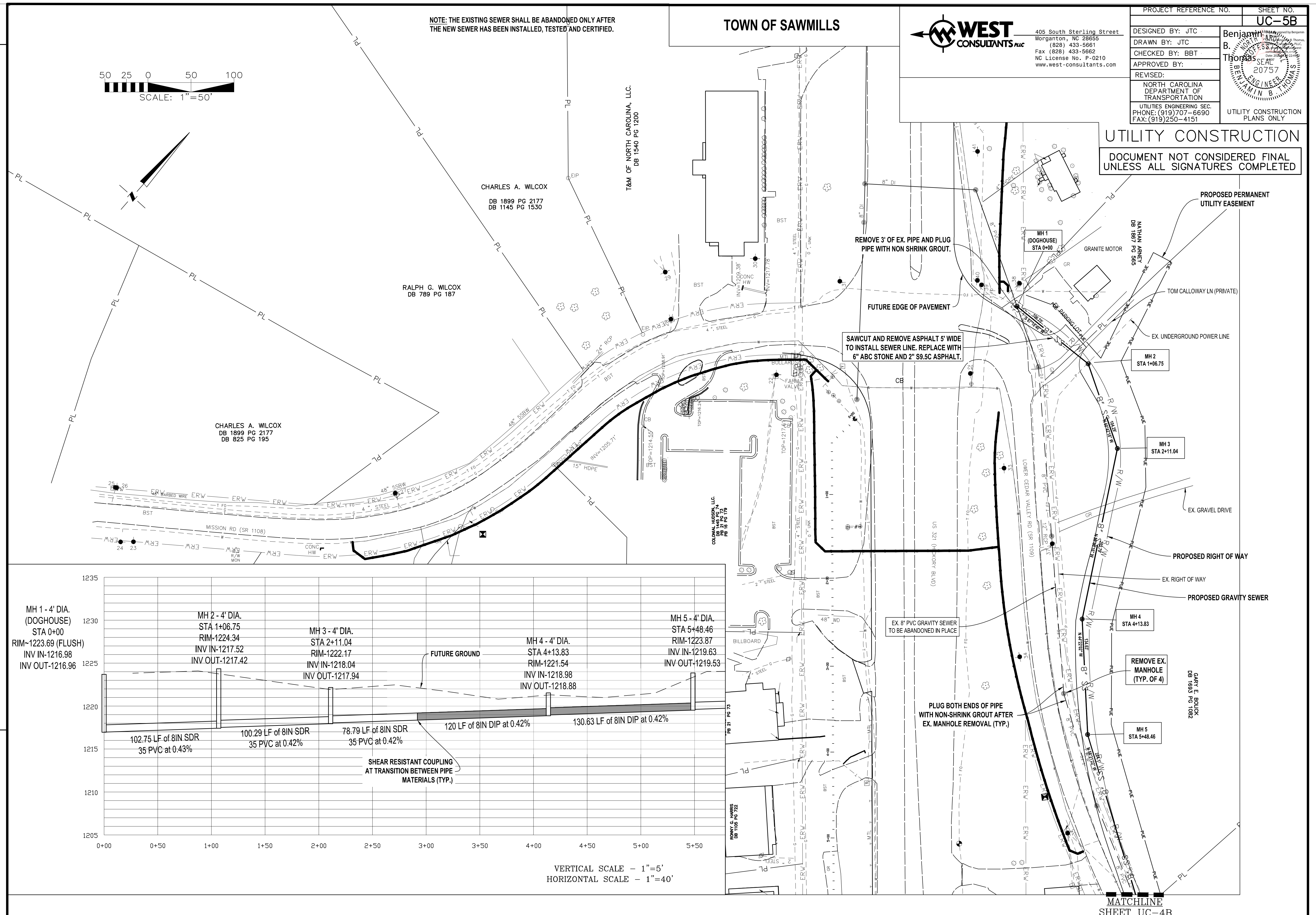
20757

20757

20757

20757

PROPOSED 45° BEND
(COMPACT - 49 LBS)
TIE INTO EX. 8" WATER LINE AFTER
NEW LINE HAS BEEN TESTED, ACCEPTED,
AND ALL SERVICES RECONNECTED.



2/24/24

12" 45° BEND (HORZ.)
WL-3 STA. 10+36.11

12" 45° BEND (HORZ.)
WL-2 STA. 14+11.43

12" VALVE
WL-2 STA. 14+16.36

12"x12"x12" TEE
WL-2 STA. 14+21.14
WL-3 STA. 10+19.06

12"x8" REDUCER
WL-3 STA. 10+08.08

REMOVE
FIRE HYDRANT

END 12" WL CONSTRUCTION,
WL-3 STA. 16+40.61
CONNECT TO EXISTING
W/ 12" TAPPING SLEEVE AND VALVE

12" LINE STOP

12"x6"x12" TEE
6" VALVE
FIRE HYDRANT
8 LF FIRE HYDRANT LEG
WL-3 STA. 10+29.90

641 LF 12" WATER LINE
(641 LF TOTAL) PVC, DR18

ABANDON 1,322 LF
12" UTILITY PIPE

BEGIN 12" WL CONSTRUCTION
WL-3 STA. 10+00.00
CONNECT TO EXISTING
W/ 8" TAPPING SLEEVE AND VALVE

421 LF 12" WATER LINE
(421 LF TOTAL) PVC, DR18

12" 45° BEND (HORZ.)
WL-2 STA. 12+17.74

12" 45° BEND (HORZ.)
WL-2 STA. 12+02.45

SEE SHEET UC-5
FOR WATER LINE DETAILS


130 LF 24" BORE & JACK
130 LF 24" STEEL ENCASEMENT PIPE
0.5" MIN. WALL THICKNESS

12" VALVE
WI -2 STA 11+74.37

12" HDPE TRANSITION
COUPLING

20' X 20' RECEIVING I
FOR BORE & JACK

456 LF 12" WATER LINE
(538 LF TOTAL) PVC DR18

DIRECTIONAL DRILLING OF 16"
140 LF 16" WATER LINE 
(140 LF TOTAL) HDPE, DR7

LINE STOP

END 4" WL CONSTRUCTION
WL-4 STA. 10+18.20 TONS
CONNECT TO EXISTING
W/ 4" TAPPING SLEEVE AND VALVE

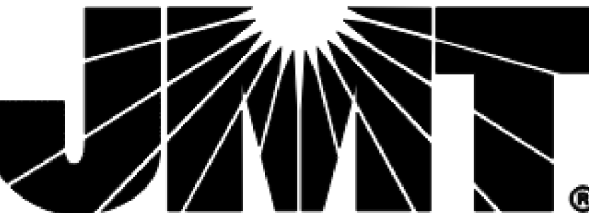
12" VALVE
WL-1 STA. 16+97.38

45° BEND (HORZ.)
-4 STA. 10+05.01

END (HORZ.)
A. 10+11.79

8 LF 4" WATER LINE
18 LF TOTAL) PVC, DR18

PLAN SCALE: 1" = 50'



UTILITY CONSTRUCTION

FA 27 + 00.00

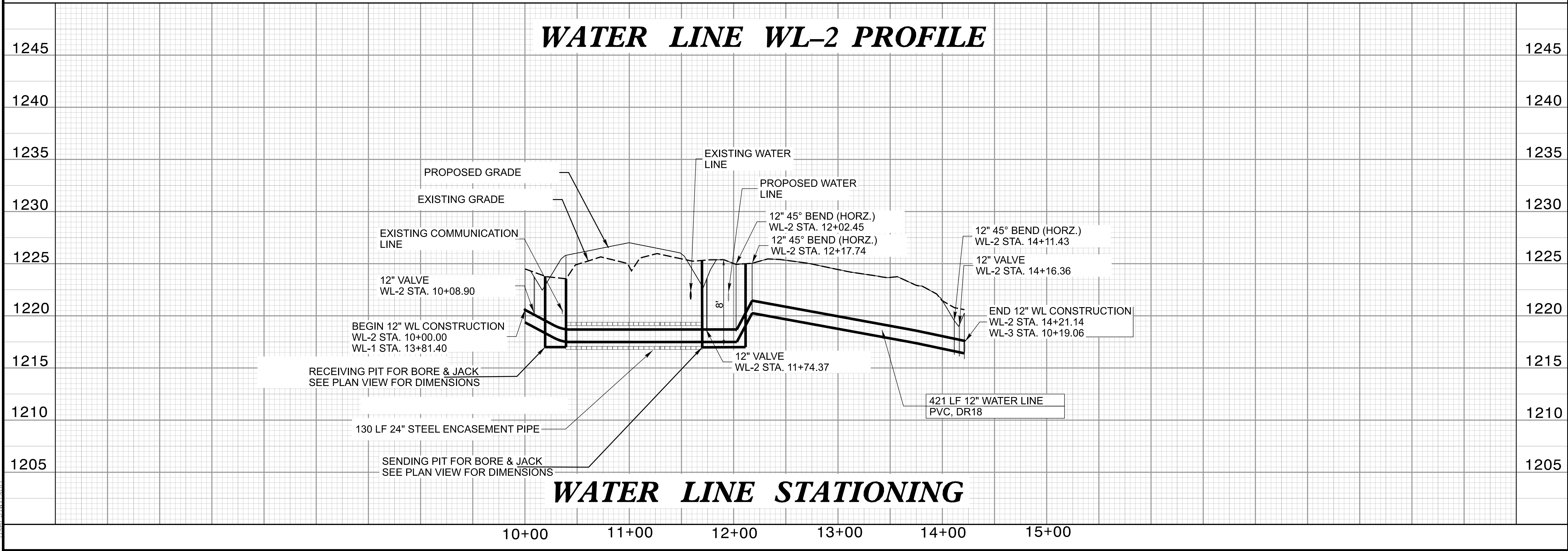
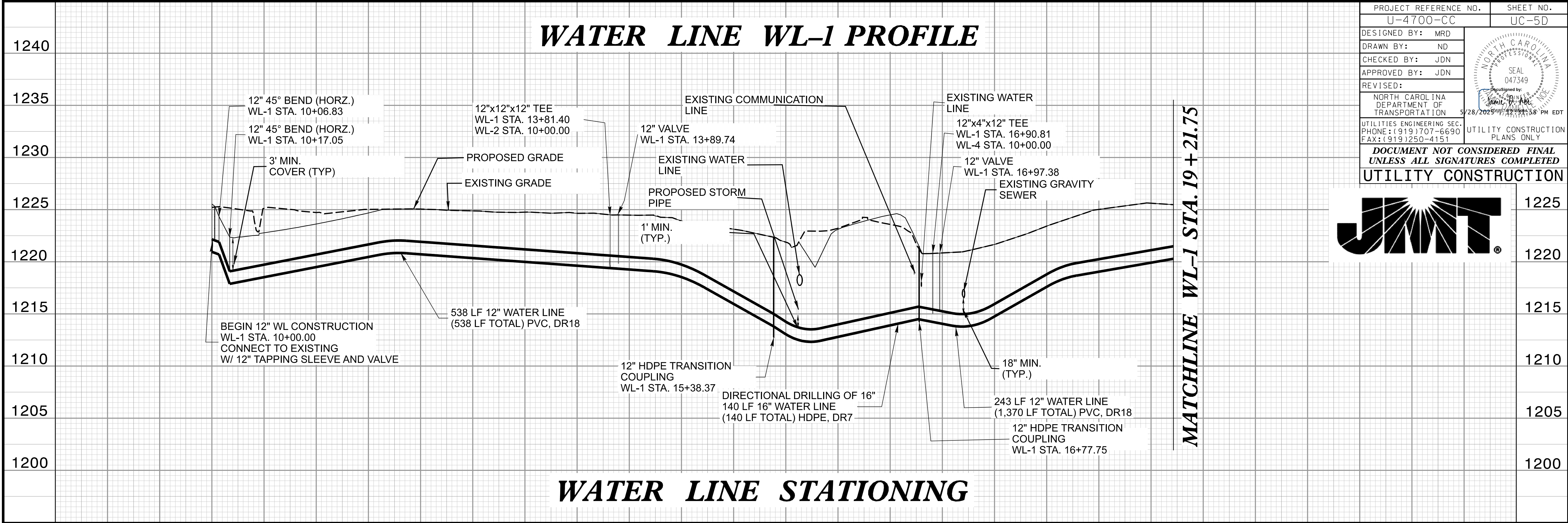
ATTACHLINE -Y36- \$110+83.00

MATCHLINE -L- STA. 541 + 00.00
SEE SHEET 4

**MATCHLINE -L- STA. 549 + 00.00
-WL- STA. 19 + 21.75 SEE SHEET 6**

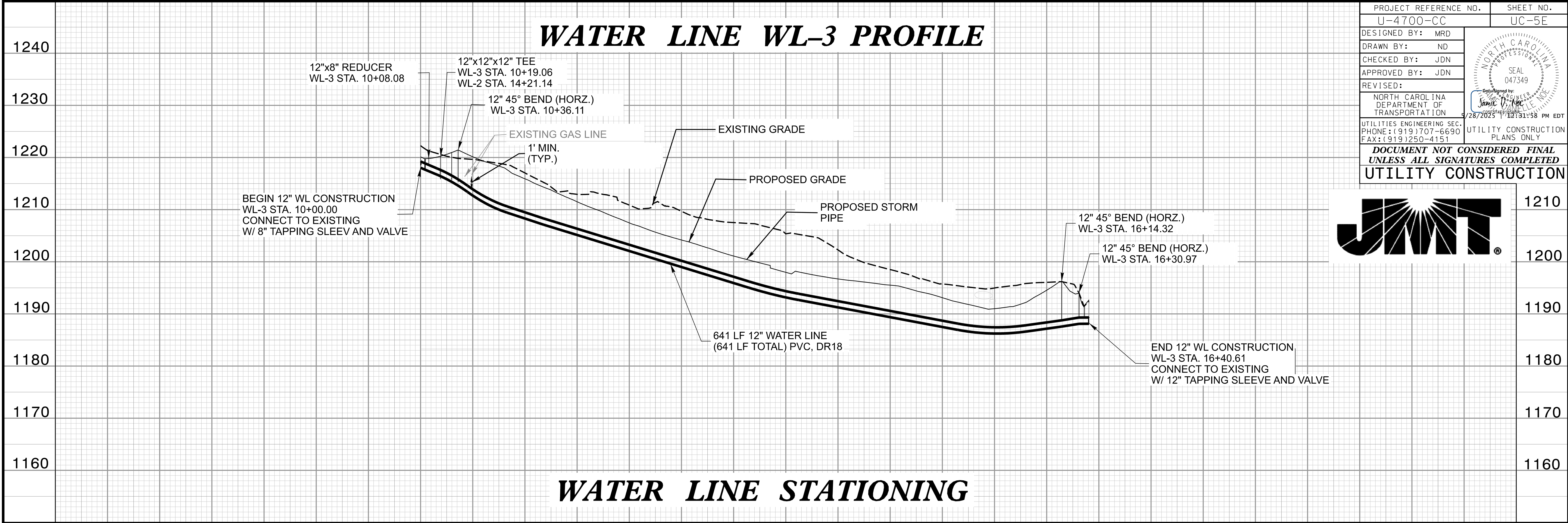
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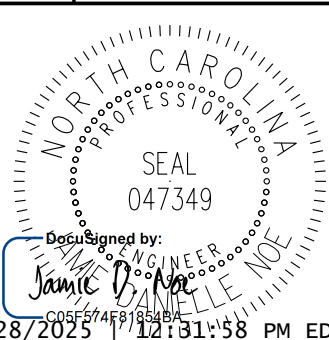
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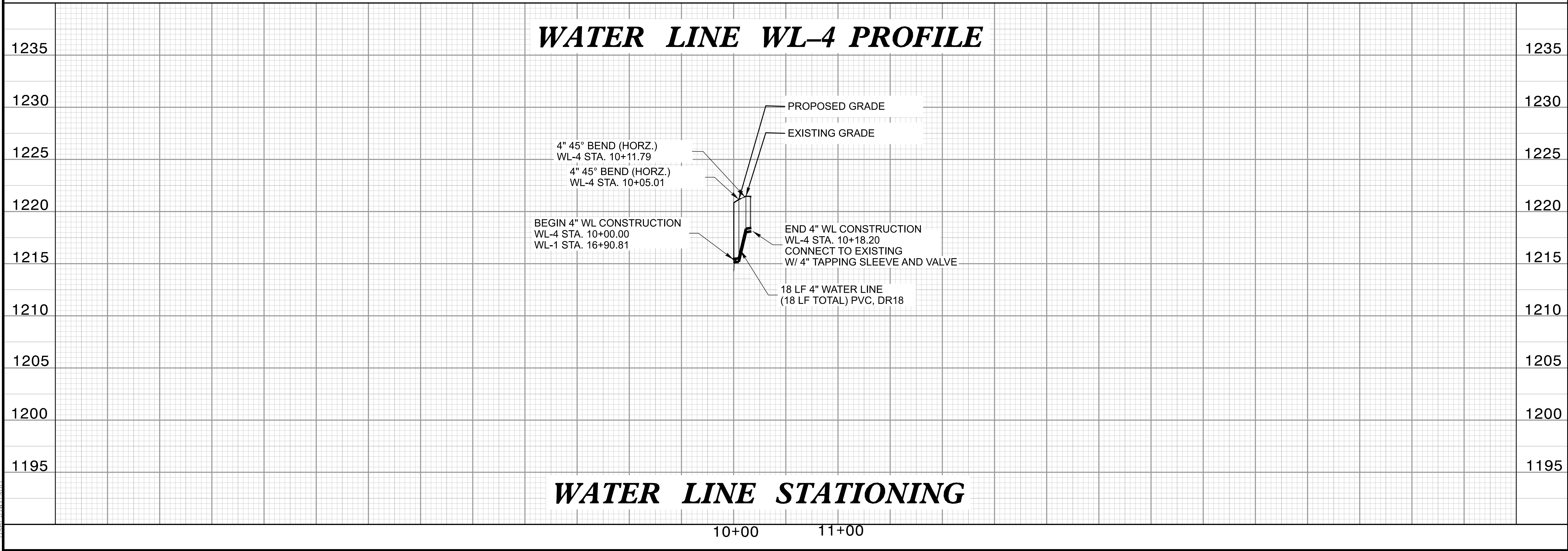
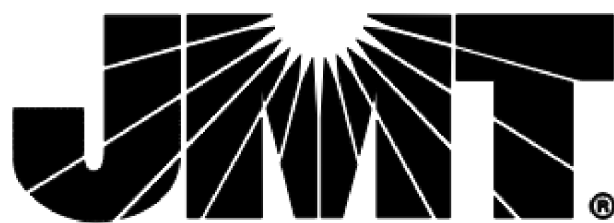


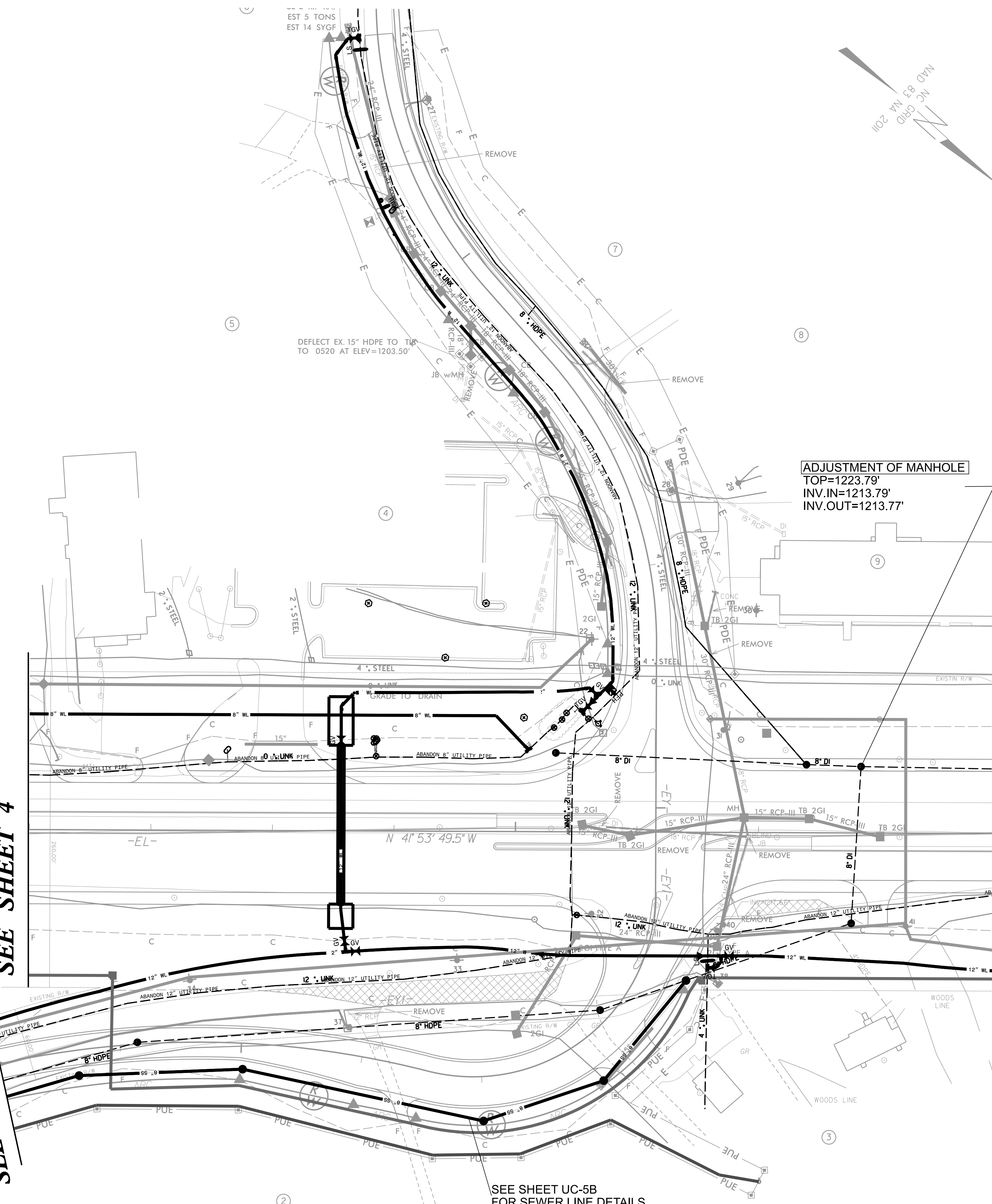
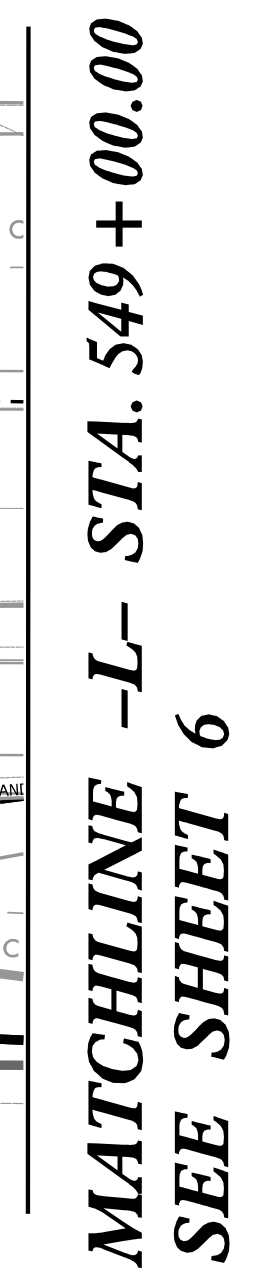
2/24/24

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User: j4700cc



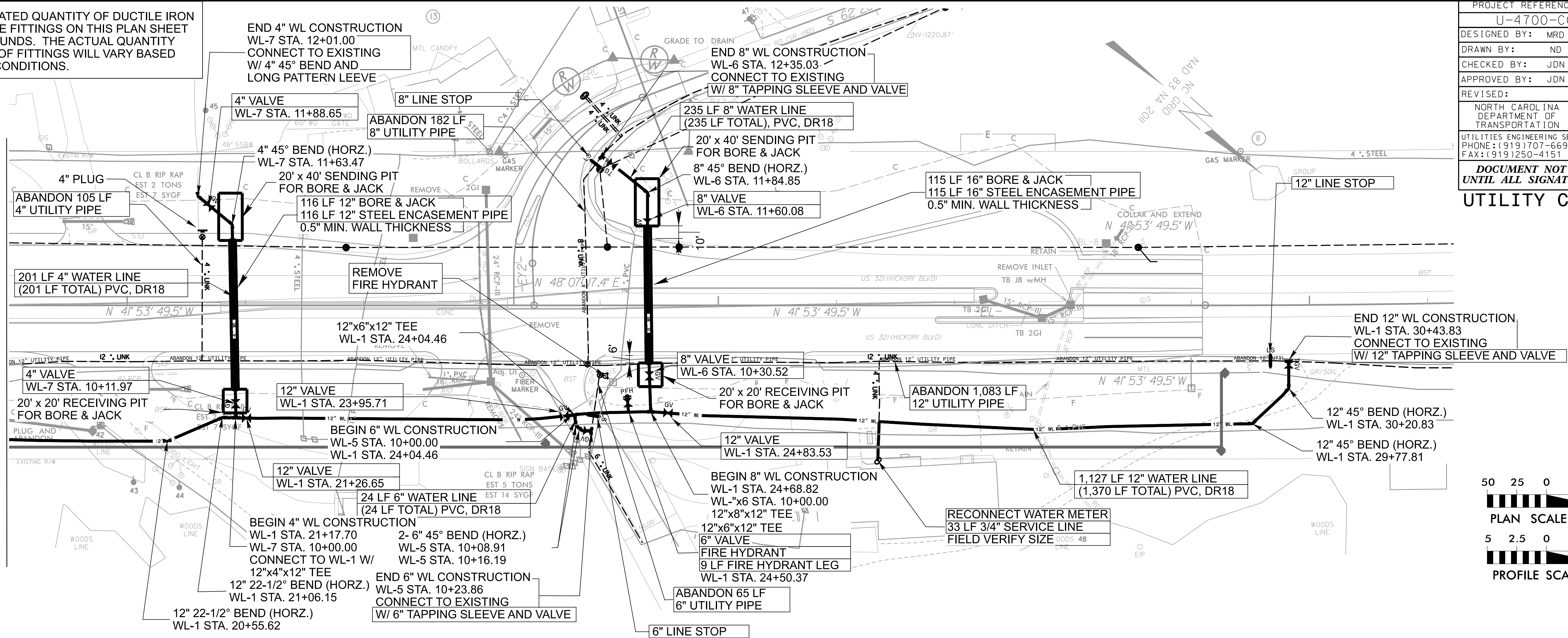
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DESIGNED BY: MRD		NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
DRAWN BY: ND		UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	
CHECKED BY: JDN		UTILITY CONSTRUCTION PLANS ONLY	
APPROVED BY: JDN		REVIS: 047349	
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UTILITY CONSTRUCTION			





THE ESTIMATED QUANTITY OF DUCTILE IRON WATER PIPE FITTINGS ON THIS PLAN SHEET IS 3,035 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.

**MATCHLINE -L- STA. 459+00.00
-WL-1 STA. 19+21.75 SEE SHEET 5**



PROJECT REFERENCE NO.		SHEET NO.	
U-4700-CC		UC-6	
DESIGNED BY:	MRD		
DRAWN BY:	ND		
CHECKED BY:	JDN		
APPROVED BY:	JDN		
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<h1 align="center">UTILITY CONSTRUCTION</h1>			

