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09/08/99

TIP PROJECT: W–5519

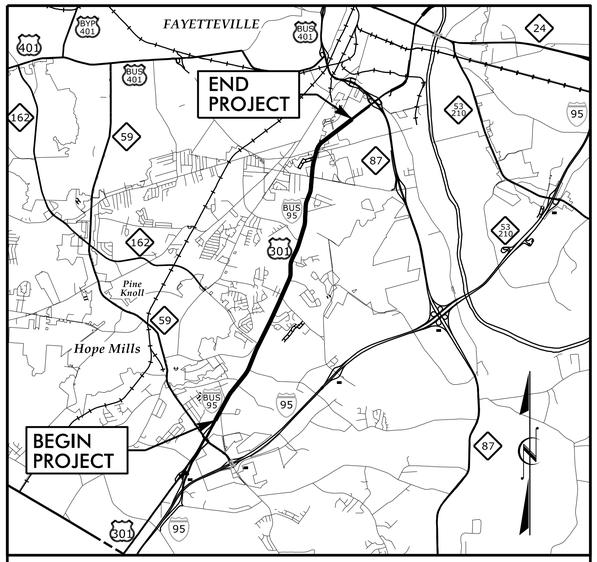
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

T.I.P. NO.	SHEET NO.
W–5519	UC–1

UTILITY CONSTRUCTION PLANS
CUMBERLAND COUNTY

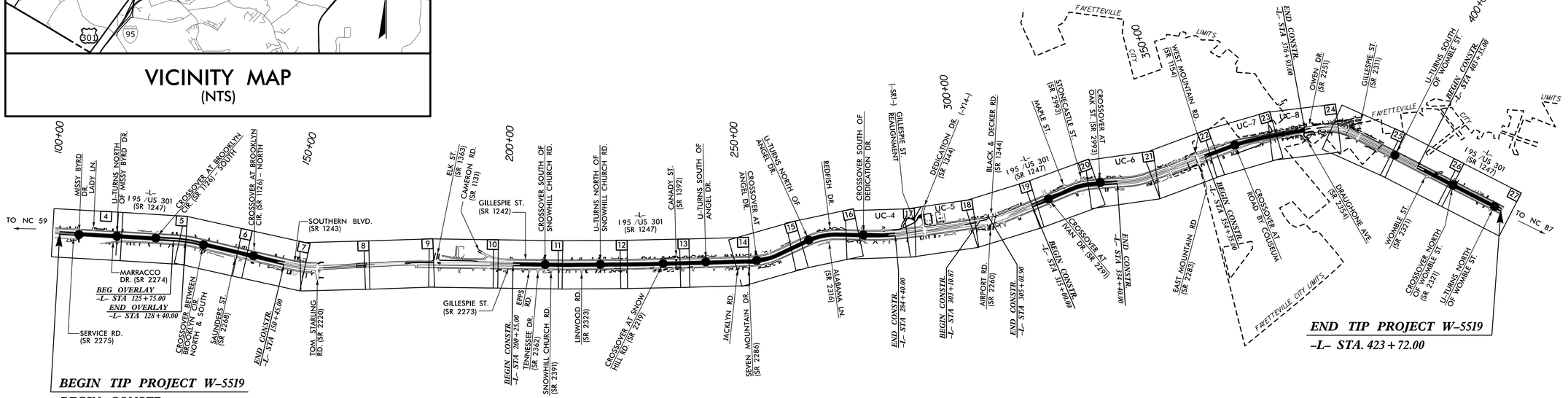
LOCATION: I–95 BUSINESS /US 301 FROM NC 87 SOUTH TO NC 59

TYPE OF WORK: WATER & SEWER UTILITY RELOCATIONS



VICINITY MAP
(NTS)

NAD 83
NC GRID



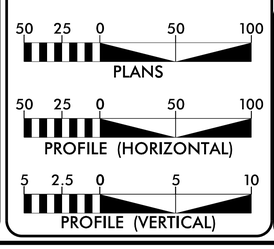
BEGIN TIP PROJECT W–5519
BEGIN CONSTR.
–L– STA. 101+02.53

END TIP PROJECT W–5519
–L– STA. 423+72.00

NCDOT CONTACT: SEAN MATUSZEWSKI
PROJECT ENGINEER – DIVISION DESIGN CONSTRUCTION

A PORTION OF THIS PROJECT IS WITHIN MUNICIPAL BOUNDARIES OF THE CITY OF FAYETTEVILLE, N.C.

GRAPHIC SCALES



INDEX OF SHEETS

WATER AND SEWER OWNERS ON PROJECT

WATER – FAYETTEVILLE PWC

SEWER – FAYETTEVILLE PWC

PREPARED IN THE OFFICE OF:
DAVIS • MARTIN • POWELL
ENGINEERS & SURVEYORS
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Randy McNeill, P.E.	UTILITIES PROJECT MANAGER
Andy Larrick, P.E.	UTILITIES PROJECT ENGINEER
Ralph Lowe	UTILITIES PROJECT DESIGNER

SEAL
DocuSigned by: Randy L. McNeill
NORTH CAROLINA PROFESSIONAL SEAL 10117 ENGINEER RANDY L. McNEILL
9/16/2015

DIVISION OF HIGHWAYS
UTILITIES UNIT
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1555 MAIL SERVICE CENTER
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PHONE (919) 707–6690
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Bo Hemphill, P.E.	UTILITIES SQUAD LEADER PROJECT ENGINEER
Kelvin Martin, E.I.	UTILITIES PROJECT DESIGN ENGINEER

$$$$SYSTIME$$$$ $$$$DGN$$$$ $$$$USERNAME$$$$

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
W-5519	UC-2

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

UTILITIES PLAN SHEET SYMBOLS

PROPOSED WATER SYMBOLS

- Water Line (Sized as Shown) — 12" WL
- 11¼ Degree Bend
- 22½ Degree Bend
- 45 Degree Bend
- 90 Degree Bend
- Plug
- Tee
- Cross
- Reducer
- Gate Valve — GV
- Butterfly Valve — BV
- Tapping Valve — TGV
- Line Stop — LS
- Line Stop with Bypass — LS/BP
- Blow Off — BO
- Fire Hydrant — PFH
- Relocate Fire Hydrant — RFH
- Remove Fire Hydrant — REM FH
- Water Meter — PWM
- Relocate Water Meter — RWM
- Remove Water Meter — REM WM
- Water Pump Station — PS(W)
- RPZ Backflow Preventer — PRPZ
- DCV Backflow Preventer — PBFP
- Relocate RPZ Backflow Preventer — RRPZ
- Relocate DCV Backflow Preventer — RBFP

PROPOSED SEWER SYMBOLS

- Gravity Sewer Line (Sized as Shown) — 12" SS
- Force Main Sewer Line (Sized as Shown) — 12" FSS
- Manhole (Sized per Note)
- Sewer Pump Station — PS(SS)

PROPOSED MISCELLANOUS UTILITIES SYMBOLS

- Power Pole
- Telephone Pole
- Joint Use Pole
- Telephone Pedestal — TEL PED
- Utility Line by Others (Type as Shown) — PROP O/H POW LINES
- Trenchless Installation — 12" TL INSTALL
- Encasement by Open Cut — 24" ENCAS BY OC
- Encasement — 24" ENCASEMENT

- Thrust Block
- Air Release Valve — AR
- Utility Vault — UV
- Concrete Pier — CP
- Steel Pier — SP
- Plan Note — NOTE
- Pay Item Note — PAY ITEM

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 — W
- Power Manhole — P
- Telephone Manhole — T
- Sanitary Sewer Manhole — SS
- Hand Hole for Cable — HH
- Power Transformer — PT
- Telephone Pedestal — T
- CATV Pedestal — C
- Gas Valve
- Gas Meter
- Located Miscellaneous Utility Object
- Abandoned According to Utility Records — AATUR
- End of Information — E.O.I.

- *Underground Power Line — P
- *Underground Telephone Cable — T
- *Underground Telephone Conduit — TC
- *Underground Fiber Optics Telephone Cable — T FO
- *Underground TV Cable — TV
- *Underground Fiber Optics TV Cable — TV FO
- *Underground Gas Pipeline — G
- Aboveground Gas Pipeline — A/G Gas
- *Underground Water Line — W
- Aboveground Water Line — A/G Water
- *Underground Gravity Sanitary Sewer Line — SS
- Aboveground Gravity Sanitary Sewer Line — A/G Sanitary Sewer
- *Underground SS Forced Main Line — FSS
- Underground Unknown Utility Line — ?UTL
- SUE Test Hole
- Water Meter
- Water Valve
- Fire Hydrant
- Sanitary Sewer Cleanout

*For Existing Utilities

- Utility Line Drawn from Record (Type as Shown) — W
- Designated Utility Line (Type as Shown) — W

REV: 2/1/2012

PROJECT REFERENCE NO.	SHEET NO.
W-5519	UC-3

DESIGNED BY: DMP
DRAWN BY: DMP
CHECKED BY: DMP
APPROVED BY:
REVISED:

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

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

UTILITY CONSTRUCTION PLANS ONLY

9/16/2015
NORTH CAROLINA PROFESSIONAL SEAL ENGINEER RANDY L. MCNEILL

UTILITY CONSTRUCTION

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 2012.

2. THE EXISTING WATER AND SEWER UTILITIES BELONG TO THE CITY OF FAYETTEVILLE PUBLIC WORKS COMMISSION.

3. ALL WATER LINES TO BE INSTALLED WITHIN COMPLIANCE OF THE RULES AND REGULATIONS OF THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL AND NATURAL RESOURCES, DIVISION OF ENVIRONMENTAL HEALTH. ALL SEWER LINES TO BE INSTALLED WITHIN COMPLIANCE OF THE RULES AND REGULATIONS OF THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES, DIVISION OF WATER QUALITY. 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 ADDITONAL 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.

PROJECT SPECIFIC NOTES:

1. PIPE AND FITTINGS FOR PROPOSED WATER LINES 4" AND LARGER SHALL BE DUCTILE IRON, PC 350, UNLESS OTHERWISE NOTED, AND SHALL CONFORM TO ANSI A21.5 (AWWA C151).

2. PIPE AND FITTINGS FOR PROPOSED SEWER LINES 8" AND LARGER SHALL BE DUCTILE IRON, PC 350, UNLESS OTHERWISE NOTED, AND SHALL CONFORM TO ANSI A21.11 (AWWA C111). PIPE AND FITTINGS SHALL BE INTERNALLY COATED WITH CERAMIC EPOXY AT A MINIMUM DRY FILM THICKNESS OF 40 MILS.

3. WATER LINE VALVES SHALL BE RESILIENT-SEAT GATE VALVES CONFORMING TO ANSI/AWWA C509, RATED FOR 200 PSI MINIMUM WORKING PRESSURE.

4. THE CONTRACTOR SHALL REPLACE ANY DAMAGED SEWER LATERALS AND/OR CLEANOUTS AS DIRECTED BY THE ENGINEER. THE NECESSARY QUANTITIES HAVE BEEN ADDED TO THE CONTRACT TO FACILITATE THIS PROCEDURE.

5. SEE ROADWAY SHEET 2C-1 FOR SPECIAL DETAIL OF CONCRETE JUNCTION BOX WITH SEWER PIPE PASSING THROUGH, FOR STORM PIPING-SEWER LINE CONFLICTS SHOWN ON SHEETS UC-7, UC-8, & PROFILES ON UC-9.

LIST OF PWC STANDARD DRAWINGS

S.1 - GENERAL NOTES SANITARY SEWER UTILITY
S.10 - SEWER SERVICE LATERAL
S.11 - SEWER SERVICE LATERAL NOTES
S.13 - SEWER BEDDING
W.1 - WATER UTILITY NOTES
W.4 - 1" METER BOX DETAILS
W.6 - GATE VALVE
W.7 - VALVE BOX
W.8 - VALVE BOX PROTECTOR RING
W.9 - TAPPING VALVE
W.10 - DUCTILE IRON TAPPING SLEEVE
W.11 - STAINLESS STEEL TAPPING SLEEVE
W.12 - FIRE HYDRANT ADDITIONAL GENERAL NOTES
W.13 - FIRE HYDRANT AND VALVE INSTALLATION
W.17 - CONCRETE THRUST BLOCK DETAIL
W.18 - ALTERNATE RESTRAINT DETAIL (D.I. PIPE ONLY)
W.19 - WATER MAIN BEDDING DETAIL
W.22 - WATER MAIN KILL-OUT
W.24 - 1" COPPER WATER SERVICE DETAIL
W.26 - PIPE RELOCATION DETAIL

UTILITY CONSTRUCTION PLANS PREPARED BY:
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8/17/99
$$$$$$$$SYSTIME$$$$$
$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
W-5519	UC-3A

DESIGNED BY: DMP
DRAWN BY: DMP
CHECKED BY: DMP
APPROVED BY:
REVISED:

9/16/2015
NORTH CAROLINA PROFESSIONAL SEAL 19017 ENGINEER RANDY L. McNEILL

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

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

UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION

1. CONTRACTOR SHALL REPAIR ALL SEWER LATERALS AND MAINS DAMAGED DURING CONSTRUCTION. THE CONTRACTOR SHALL IMMEDIATELY REPORT ALL SEWER MAIN AND LATERAL BREAKS TO THE FAYPWC PROJECT COORDINATOR. THE CONTRACTOR SHALL INITIATE IMMEDIATE REPAIRS IN ACCORDANCE WITH FAYPWC STANDARDS.

2. SEWER MAINS, LATERALS, AND MANHOLES SHALL BE INSTALLED UTILIZING A FAYPWC APPROVED CUT-SHEET, INDICATING INSTALLATION DEPTH.

3. TRANSFER OF SEWER SERVICES SHALL BE ACCOMPLISHED AS FOLLOWS:
   A. INSTALL AND TEST NEW MAINS, MANHOLES, AND LATERALS. CLEANOUTS SHALL BE INSTALLED 18" INSIDE R/W UNLESS OTHERWISE DIRECTED BY FAYPWC.
   B. CONNECT EXISTING PLUMBING TO NEW LATERAL UTILIZING THE NECESSARY FITTINGS AS DIRECTED BY FAYPWC.
   C. AFTER ALL SERVICES HAVE BEEN TRANSFERRED TO THE NEW MAIN, THE EXISTING SEWER SYSTEM SHALL BE ABANDONED IN ACCORDANCE WITH FAYPWC REQUIREMENTS.

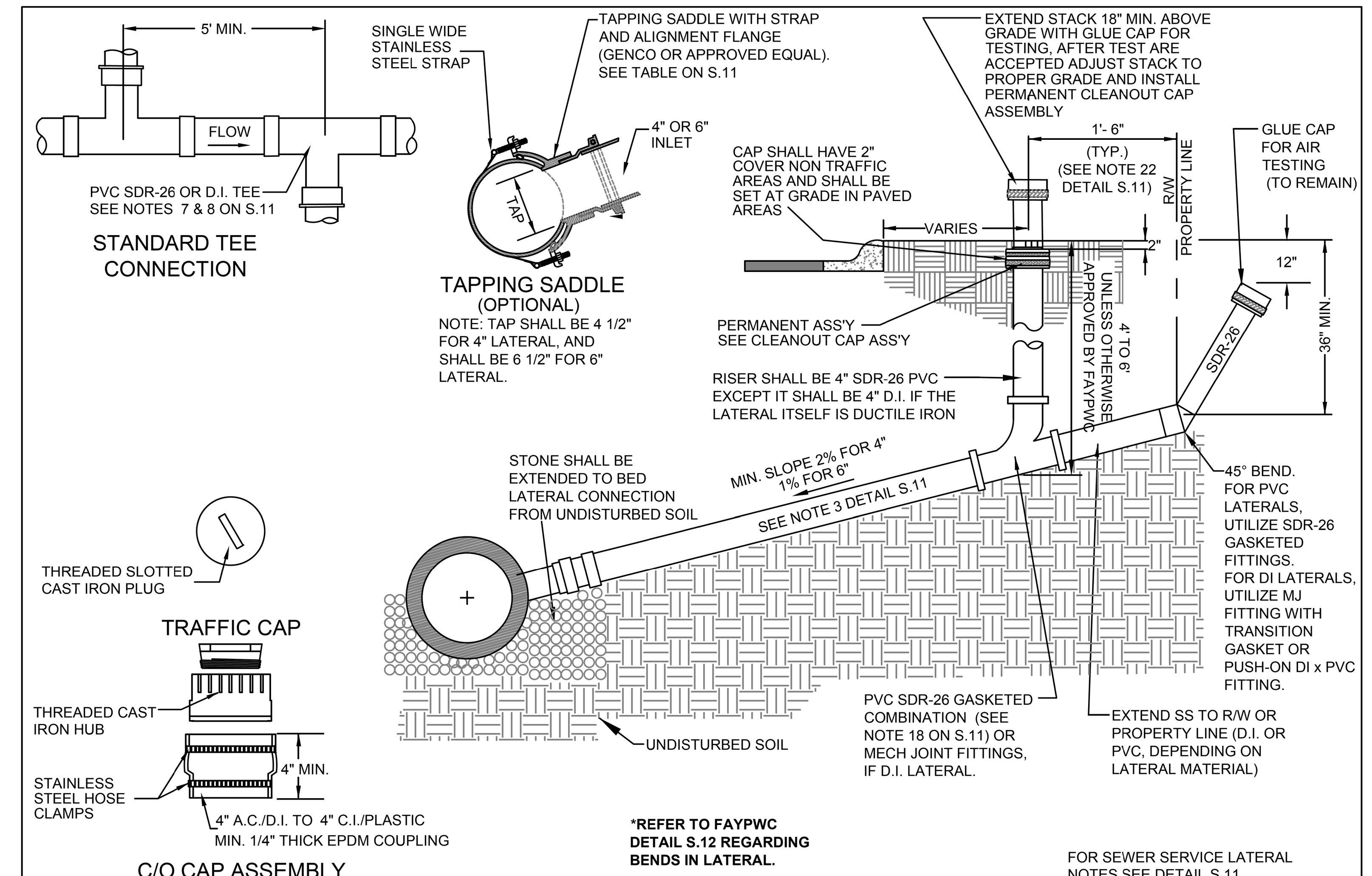
4. WHEN THE EXISTING MAIN IS NOT TO BE ABANDONED, THE CONTRACTOR SHALL UNCOVER THE EXISTING LATERAL AT THE MAIN, CUT AND PLUG BOTH ENDS, REMOVE THE EXISTING CLEANOUT AND COMBINATION, AND PLUG THE LATERAL TO ABANDON THE OLD SERVICE.

5. SEWER PLUGS SHALL BE INSTALLED TO ELIMINATE ANY DEBRIS OR OTHER MATERIAL FROM ENTERING THE ACTIVE SEWER SYSTEM. UPON ACCEPTANCE OF THE NEW SEWER SYSTEM, THE CONTRACTOR SHALL CLEAN THE NEW MAINS, REMOVE ALL DEBRIS, AND THEN REMOVE THE PLUG.

6. SEPARATION REQUIREMENTS:
   A. **LATERAL SEPARATION OF SEWERS AND WATER MAINS:** WATER MAINS SHALL BE LAID AT LEAST 10 FEET LATERALLY FROM EXISTING OR PROPOSED SEWER MAIN/LATERAL, UNLESS LOCAL CONDITIONS OR BARRIERS PREVENT A 10-FOOT LATERAL SEPARATION - IN WHICH CASE:
      i. THE WATER MAIN IS LAID IN A SEPARATE TRENCH, WITH THE ELEVATION OF THE BOTTOM OF THE WATER MAIN AT LEAST 18 INCHES ABOVE THE TOP OF THE SEWER MAIN/LATERAL; OR
      ii. THE WATER MAIN IS LAID IN THE SAME TRENCH AS THE SEWER MAIN/LATERAL WITH THE WATER MAIN LOCATED AT ONE SIDE ON A BENCH OF UNDISTURBED EARTH AND WITH THE ELEVATION OF THE BOTTOM OF THE WATER MAIN AT LEAST 18 INCHES ABOVE THE TOP OF THE SEWER MAIN/LATERAL
   B. **CROSSING A WATER MAIN OVER A SEWER:** WHENEVER IT IS NECESSARY FOR A WATER MAIN TO CROSS OVER A SEWER MAIN/LATERAL, THE WATER MAIN SHALL BE LAID AT SUCH AN ELEVATION THAT THE BOTTOM OF THE WATER MAIN IS AT LEAST 18 INCHES ABOVE THE TOP OF THE SEWER MAIN/LATERAL, UNLESS LOCAL CONDITIONS OR BARRIERS PREVENT AN 18 INCH VERTICAL SEPARATION - IN WHICH CASE BOTH THE WATER MAIN AND SEWER MAIN/LATERAL SHALL BE CONSTRUCTED OF FERROUS MATERIAL AND WITH JOINTS THAT ARE EQUIVALENT TO WATER MAIN STANDARDS FOR A DISTANCE OF 10 FEET ON EACH SIDE OF THE POINT OF CROSSING.
   C. **CROSSING WATER MAIN UNDER A SEWER:** WHENEVER IT IS NECESSARY FOR A WATER MAIN TO CROSS UNDER A SEWER MAIN/LATERAL, BOTH THE WATER MAIN AND THE SEWER MAIN/LATERAL SHALL BE CONSTRUCTED OF DUCTILE IRON MATERIAL AND WITH JOINTS EQUIVALENT TO WATER MAIN STANDARDS FOR A DISTANCE OF 10 FEET ON EACH SIDE OF THE POINT OF CROSSING. A SECTION OF WATER MAIN PIPE SHALL BE CENTERED AT THE POINT OF CROSSING.
   D. **CROSSING STORM DRAINAGE LINES:** A MINIMUM OF 24-INCHES OF VERTICAL CLEARANCE SHALL BE MAINTAINED BETWEEN A SEWER MAIN/LATERAL CROSSING UNDER A STORM DRAINAGE LINE UNLESS DUCTILE IRON PIPE IS USED. IF DUCTILE IRON PIPE IS USED, A MINIMUM OF SIX(6) INCHES OF SEPARATION SHALL BE MAINTAINED, UNLESS OTHERWISE APPROVED BY PWC.

GENERAL NOTES SANITARY SEWER UTILITY	PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.	NO.	DATE	REVISION
SHEET NO. 1 OF 1; DWG. NO. S.1; DWG. BY: FAYPWC; DATE: JULY 01, 2015; APPROVED BY: J.E.G.	WATER RESOURCES ENGINEERING DEPARTMENT			

2015-S1 SEWER NOTES.dwg



SEWER SERVICE LATERAL (4-INCH AND 6-INCH) N.T.S.	PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.	NO.	DATE	REVISION
		1	JAN. 13	REVISED NOTES
SHEET NO. 1 OF 1; DWG. NO. S.10; DWG. BY: FAYPWC	WATER RESOURCES ENGINEERING DEPARTMENT	2	JAN. 14	ADDED TAILPIECE, NOTES
DATE: JULY 01, 2015; APPROVED BY: JEG		3	JAN. 15	REVISED NOTES RE: TAILPIECE

2015-S10 resslat.dwg

SEWER SERVICE LATERAL NOTES

1. HOLE IN SANITARY SEWER MAIN MUST BE CUT WITH SHELL CUTTER NO HAMMER TAPS ALLOWED.
2. LATERAL SHALL CONFORM TO ASTM SPECS. D-3034 SDR-26 UNLESS OTHERWISE INDICATED AS D.I.
3. ALL PIPE & FITTINGS SHALL BE 4" OR 6" UNLESS OTHERWISE SPECIFIED.
4. ALL D.I. PIPE SHALL HAVE AN INTERIOR LINING OF CERAMIC EPOXY (PROTECTO 401). THE ENTIRE D.I. LATERAL SHALL BE COMPRISED OF D.I. PIPE & MECHANICAL JOINT FITTINGS.
5. ALL CONNECTIONS SHALL HAVE RUBBER GASKET SEALS INSTALLED.
6. SANITARY SEWER SERVICE C/O STACK SHALL BE LOCATED 18" FROM WATER SERVICE LOCK VALVE WHEN IN THE SAME DITCH.
7. INSTALLATION OTHER THAN AS SHOWN MUST BE APPROVED BY THE FAYPWC.
8. CONNECTIONS TO THE TOP OF MAIN SHALL NOT BE ALLOWED, UNLESS OTHERWISE APPROVED BY THE FAYPWC PROJECT COORDINATOR.
9. SLOPE AND DEPTH OF THE SERVICE LATERAL SHALL BE DETERMINED BY THE TOPOGRAPHY OF THE LOT AS APPROVED BY THE FAYPWC ENGINEER OR AS INDICATED ON THE DRAWINGS.
10. LATERAL SHALL CONFORM TO THE 2% MINIMUM SLOPE FOR THE 4" OR THE 1% MINIMUM SLOPE FOR THE 6". MAXIMUM CLEAN OUT SPACING FOR 4" PIPE 75', 6" PIPE 100'.
11. SEE INTERIOR DROP STRUCTURE OR SLIDE, MORTAR SLIDE & SHELF DETAIL FOR VERTICAL DROPS OF MAINS AND LATERALS.
12. LATERALS LESS THAN 3' IN DEPTH OR GREATER THAN 20' DEPTH SHALL UTILIZE DUCTILE IRON PIPE AND FITTINGS WITH CERAMIC EPOXY (PROTECTO 401), OR WHEN SEPARATION REQUIREMENTS CANNOT BE MET.
13. ENTIRE SEWER LATERAL ASSEMBLY SHALL BE AIR TESTED CONCURRENTLY WITH SEWER MAIN.
14. INDIVIDUAL LATERALS SHALL BE CLEANED AND FLUSHED PRIOR TO FLUSHING SANITARY SEWER MAINS.
15. LATERAL SHALL NOT BE BACK-FILLED UNTIL INSPECTED BY THE FAYPWC PROJECT COORDINATOR.
16. WYE CONNECTIONS SHALL NOT BE USED TO TIE LATERALS INTO A MANHOLE.
17. IF BENDS ARE APPROVED BY THE PROJECT COORDINATOR, STONE BEDDING IS REQUIRED TO BE INSTALLED FROM UNDISTURBED (SEE DETAIL S.12) SOIL TO BOTTOM OF BEND.
18. PVC COMBINATION SHALL BE A MOLDED WYE AND BEND, GASKETED, SDR-26, AS MANUFACTURED BY HARCO, GPK OR APPROVED EQUAL.
19. NO MORE THAN 4, FOUR INCH LATERALS OR 3, SIX INCH LATERALS SHALL ENTER A 4' DIAMETER TERMINAL MANHOLE. NO MORE THAN 2 LATERALS (REGARDLESS OF SIZE) SHALL ENTER ALL OTHER 4' DIAMETER MANHOLES. ALL LATERALS SHALL HAVE AN INDIVIDUAL TROUGH. 5' DIAMETER MANHOLES SHALL BE USED IF THE ABOVE CONDITIONS ARE NOT MET.
20. ALL LATERALS (4" AND 6") SHALL UTILIZE A 4" RISER (STACK).
21. REFER TO DETAIL S.12 FOR SEPARATION REQUIREMENTS.
22. FOR SINGLE FAMILY RESIDENTIAL LOTS, CLEAN-OUT SHALL BE LOCATED 18" FROM R/W OR EASEMENT. FOR ALL NON-SINGLE FAMILY LOTS, CLEAN-OUT SHALL BE NO CLOSER THAN 10' TO FRONT OF BUILDING, UNLESS OTHERWISE APPROVED BY FAYPWC.

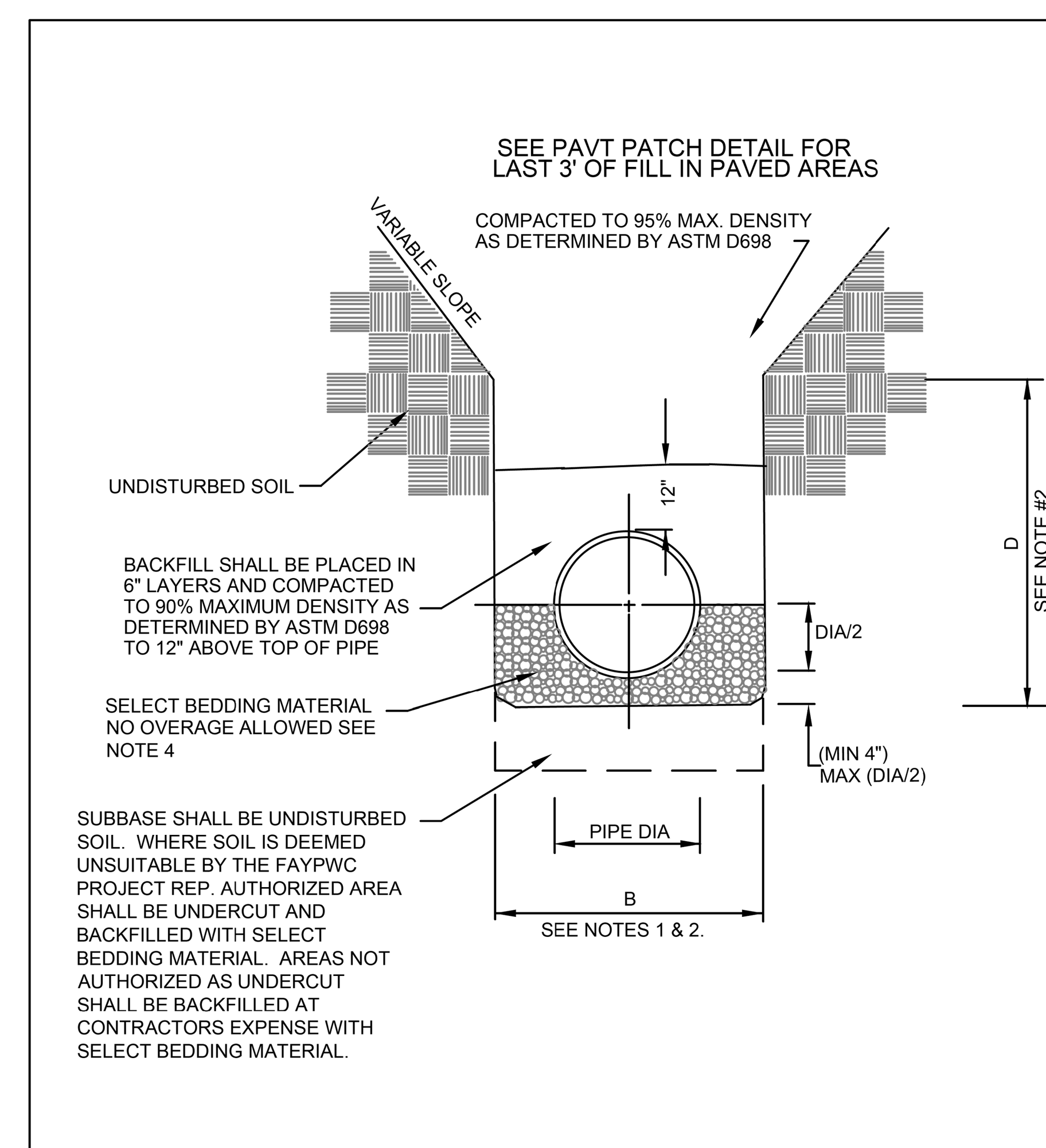
THE FOLLOWING TABLE SUMMARIZES THE MATERIALS TO BE UTILIZED FOR SEWER MAIN TO LATERAL CONNECTIONS:

	PVC Main	DI Main
DI Lateral	**DI fitting or approved saddle**	**MJ fitting or approved saddle**
PVC Lateral	**PVC fitting or approved saddle**	**MJ fitting with transition gasket or approved saddle**

NOTE: REFER TO FAYPWC TECHNICAL SPECIFICATIONS FOR ADDITIONAL INFORMATION.

SEWER SERVICE LATERAL NOTES (4-INCH AND 6-INCH)	PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.	NO.	DATE	REVISION
		2	OCT 11	REVISED NOTES
SHEET NO. 1 OF 1; DWG. NO. S.11; DWG. BY: FAYPWC	WATER RESOURCES ENGINEERING DEPARTMENT	3	JAN. 13	REVISED NOTES AND ADDED TABLE
DATE: JULY 01, 2015; APPROVED BY: JEG		4	JAN. 15	REVISED NOTE 22, TABLE

2015-S11 RESSLAT notes.dwg



NOTES:

1. ALL EXCAVATIONS SHALL COMPLY WITH THE TERMS AND CONDITIONS OF THE CONSTRUCTION STANDARDS FOR EXCAVATIONS IN OSHA "SAFETY AND HEALTH REGULATIONS FOR CONSTRUCTION", CHAPTER XV11 OF TITLE 29, CFR, PART 1926. THE CONTRACTOR SHALL HAVE A COMPETENT PERSON ON THE JOB AT ALL TIMES AND SHALL EMPLOY A PROFESSIONAL ENGINEER TO ACT UPON ALL PERTINENT MATTERS OF THE WORK.
2. BEDDING MATERIAL QUANTITIES ARE CALCULATED BASED ON THE FOLLOWING TRENCH WIDTHS. BEDDING MATERIAL SHALL BE INSTALLED REGARDLESS OF PIPE MATERIAL.

   FOR 48" RCP/DI B=6', D=6'
   FOR 42" RCP/DI B=6', D=5'-6"
   FOR 30" RCP/DI B=4'-6", D=4'-6"
   FOR 24" RCP/DI B=4', D=4'-0"
   FOR 18" PVC/DI B=3', D=3'
   FOR 15" PVC/DI B=3', D=3'
   FOR 12" PVC/DI B=2', D=3'-0"
   FOR 8" PVC/DI B=2', D=3'-0"
3. THE BEDDING MATERIAL SHALL BE GRANULAR, CLEAN, COARSE PEA GRAVEL, OR WELL GRADED CRUSHED ROCK PLACED IN LAYERS NOT TO EXCEED 6" LOOSE LIFTS FOR THE FULL WIDTH OF THE TRENCH.
4. BEDDING MATERIAL SHALL BE INSTALLED AND PAID FOR IN ACCORDANCE WITH THE FOLLOWING CHART TO PRODUCE CLASS B BEDDING.

   FOR 8" PIPE .067yd3/ft. OF PIPE
   FOR 12" PIPE .09yd3/ft. OF PIPE
   FOR 15" PIPE .11yd3/ft. OF PIPE
   FOR 18" PIPE .13yd3/ft. OF PIPE
   FOR 24" PIPE .15yd3/ft. OF PIPE
   FOR 30" PIPE .19yd3/ft. OF PIPE
   FOR 36" PIPE .25yd3/ft. OF PIPE
   FOR 42" PIPE .32yd3/ft. OF PIPE
   FOR 48" PIPE .36yd3/ft. OF PIPE
5. BEDDING MATERIAL SHALL EXTEND TO UNDISTURBED TRENCH WALLS AND TRENCH BOTTOM. OVERAGE OF BEDDING MATERIAL WILL NOT BE PAID FOR UNLESS SPECIFICALLY APPROVED BY THE PROJECT REPRESENTATIVE AND SHALL ONLY BE PAID FOR IN THE AMOUNT OF THE AUTHORIZED QUANTITY.
6. BEDDING MATERIAL SHALL BE PROPERLY RODDED AROUND THE PIPE HAUNCHES.
7. CONTRACTOR SHALL USE TRENCH BOX SHORING IN ALL OPEN CUTS IN PAVED AREAS. TRENCH WIDTH SHALL BE MAINTAINED AT THE MINIMUM PRACTICAL WIDTH.

SEWER BEDDING N.T.S.	PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.	NO.	DATE	REVISION
		1	JAN 05	REVISED NOTES
SHEET NO. 1 OF 1; DWG. NO. S.13; DWG. BY: FAYPWC	WATER RESOURCES ENGINEERING DEPARTMENT			
DATE: JULY 01, 2015; APPROVED BY: J.E.G.				

2015-S13 SEWER BEDDING.dwg

UTILITY CONSTRUCTION PLANS PREPARED BY:
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WWW.DMP-INC.COM LICENSE: F-0245

8/17/99
$$$$SYSTIME$$$$
$$$$USERNAME$$$$
$$$$DGN$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

PROJECT REFERENCE NO.	SHEET NO.
W-5519	UC-3B

DESIGNED BY: DMP
DRAWN BY: DMP
CHECKED BY: DMP
APPROVED BY:
REVISED:

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

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

9/16/2015
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 10117 RANDY L. McNEILL
DocuSigned by: Randy L. McNeill 3953F9845A2A40E...

UTILITY CONSTRUCTION PLANS ONLY

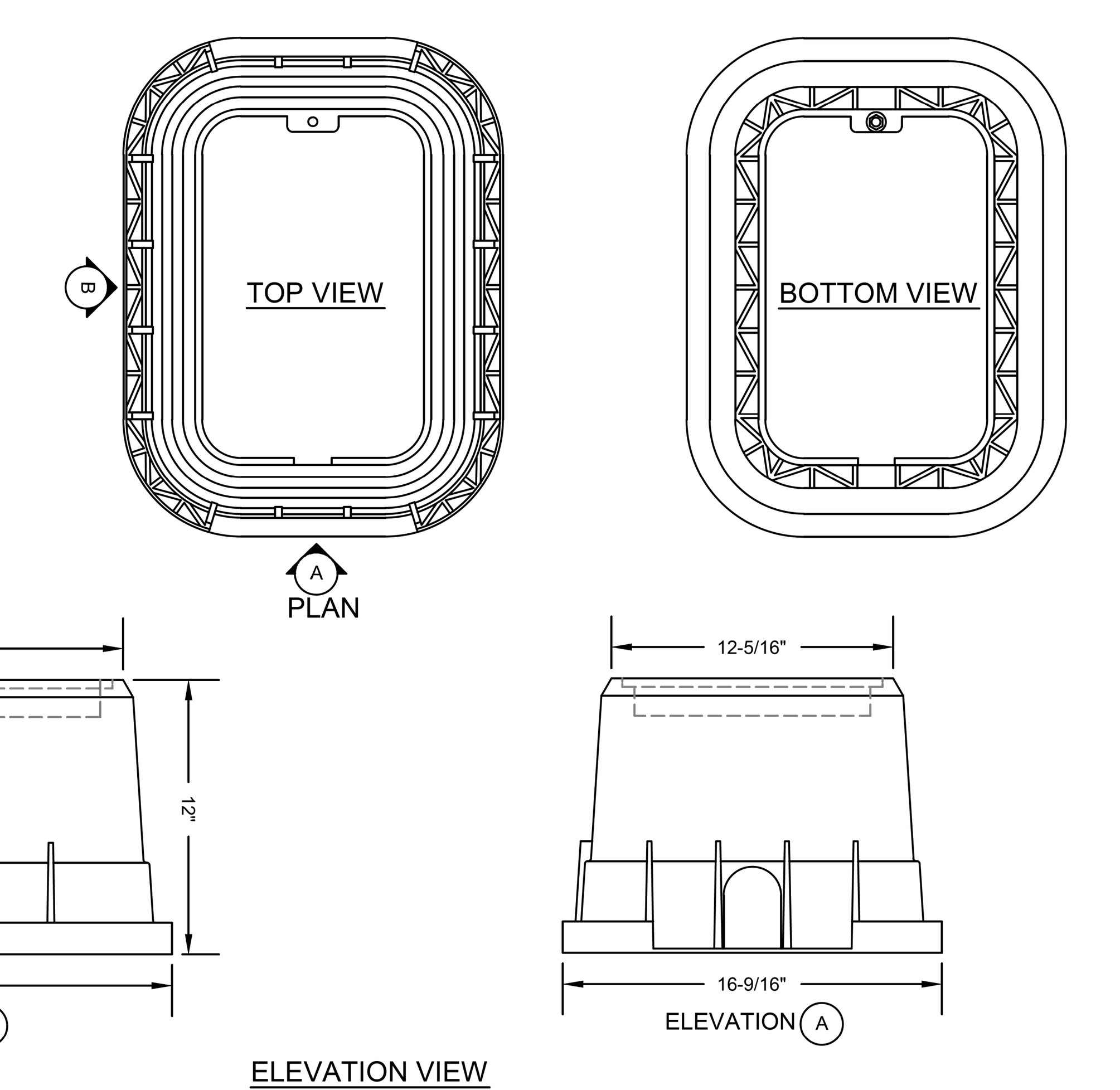
UTILITY CONSTRUCTION

1. CONTRACTOR SHALL REPAIR ALL WATER LATERALS AND MAINS DAMAGED DURING CONSTRUCTION. THE CONTRACTOR SHALL REPORT IMMEDIATELY ALL WATER MAIN AND LATERAL BREAKS TO THE FAYPWC PROJECT COORDINATOR. THE CONTRACTOR SHALL INITIATE IMMEDIATE REPAIRS IN ACCORDANCE WITH FAYPWC STANDARDS. CONTRACTOR SHALL NOT OPERATE FAYPWC WATER MAIN VALVES WITHOUT FAYPWC APPROVAL AND SHALL COORDINATE ALL VALVE CLOSINGS WITH FAYPWC.
2. THE CONTRACTOR SHALL NOT USE HOUSE HOSE BIBBS OR ANY OTHER METHOD OF BLOW OFF WHICH ALLOWS DOMESTIC WATER CONTAINING SEDIMENTS OR HIGH LEVELS OF CHLORINE TO PASS THRU RESIDENT'S METERS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DAMAGES RESULTING FROM ALLOWING "DIRTY" WATER TO ENTER RESIDENT'S PLUMBING SYSTEM, SUCH AS WATER HEATERS, STAINED CLOTHING, CLOGGED SCREENS, ETC.
3. WATER MAINS AND LATERALS SHALL BE INSTALLED UTILIZING A FAYPWC APPROVED CUT-SHEET INDICATING INSTALLATION DEPTH.
4. TRANSFER OF WATER SERVICES SHALL BE ACCOMPLISHED AS FOLLOWS:
   A. INSTALL, TEST AND STERILIZE NEW MAIN AND LATERALS. LATERALS SHALL BE INSTALLED 18" INSIDE R/W UNLESS OTHERWISE DIRECTED BY FAYPWC.
   B. TRANSFER EXISTING METER TO NEW METER BOX AND TIE NEW WATER LATERAL TO EXISTING DOMESTIC SERVICE UTILIZING BRASS FITTINGS. SAME METER NUMBER SHALL BE INSTALLED ON SAME ADDRESS AND/OR CUSTOMER. BLOW OFF SERVICE AT HOSE BIBB ON HOUSE ONLY AFTER METER HAS BEEN TRANSFERRED.
   C. AFTER ALL SERVICES ARE TRANSFERRED TO THE NEW SYSTEM, SHUT OFF VALVE ON EXISTING SYSTEM AND ABANDON EXISTING MAINS IN ACCORDANCE WITH FAYPWC DETAILS.
   D. CONTRACTOR SHALL SUPPLY NEW METER BOXES AND DISPOSE OF EXISTING METER BOXES.
5. WHEN MAIN IS NOT TO BE ABANDONED, CONTRACTOR SHALL UNCOVER OLD CORPORATION AT MAIN, CLOSE AND PLUG CORPORATION TO ABANDON OLD SERVICE.
6. SEPARATION REQUIREMENTS:
   A. **LATERAL SEPARATION OF SEWERS AND WATER MAINS:** WATER MAINS SHALL BE LAID AT LEAST 10 FEET LATERALLY FROM EXISTING OR PROPOSED SEWER MAIN/LATERAL, UNLESS LOCAL CONDITIONS OR BARRIERS PREVENT A 10-FOOT LATERAL SEPARATION - IN WHICH CASE:
      i. THE WATER MAIN IS LAID IN A SEPARATE TRENCH, WITH THE ELEVATION OF THE BOTTOM OF THE WATER MAIN AT LEAST 18 INCHES ABOVE THE TOP OF THE SEWER MAIN/LATERAL; OR
      ii. THE WATER MAIN IS LAID IN THE SAME TRENCH AS THE SEWER MAIN/LATERAL WITH THE WATER MAIN LOCATED AT ONE SIDE ON A BENCH OF UNDISTURBED EARTH AND WITH THE ELEVATION OF THE BOTTOM OF THE WATER MAIN AT LEAST 18 INCHES ABOVE THE TOP OF THE SEWER MAIN/LATERAL.
   B. **CROSSING A WATER MAIN OVER A SEWER:** WHENEVER IT IS NECESSARY FOR A WATER MAIN TO CROSS OVER A SEWER MAIN/LATERAL, THE WATER MAIN SHALL BE LAID AT SUCH AN ELEVATION THAT THE BOTTOM OF THE WATER MAIN IS AT LEAST 18 INCHES ABOVE THE TOP OF THE SEWER MAIN/LATERAL, UNLESS LOCAL CONDITIONS OR BARRIERS PREVENT AN 18 INCH VERTICAL SEPARATION - IN WHICH CASE BOTH THE WATER MAIN AND SEWER MAIN/LATERAL SHALL BE DUCTILE IRON IN ACCORDANCE WITH FAYPWC REQUIREMENTS.
   C. **CROSSING WATER MAIN UNDER A SEWER:** WHENEVER IT IS NECESSARY FOR A WATER MAIN TO CROSS UNDER A SEWER MAIN/LATERAL, BOTH THE WATER MAIN AND THE SEWER MAIN/LATERAL SHALL BE DUCTILE IRON IN ACCORDANCE WITH FAYPWC REQUIREMENTS. A FULL JOINT OF DUCTILE IRON PIPE SHALL BE INSTALLED ON THE WATER MAIN CENTERED AT THE POINT OF CROSSING.
   D. **CROSSING STORM DRAINAGE LINES:** A MINIMUM OF ~~12~~ 24-INCHES OF VERTICAL CLEARANCE SHALL BE MAINTAINED BETWEEN A WATER LINE CROSSING OVER A STORM DRAINAGE LINE UNLESS DUCTILE IRON PIPE IS USED. IN ADDITION, THREE AND A HALF (3.5) FEET OF COVER MUST BE MAINTAINED OVER THE WATER MAIN OR IT SHALL BE DUCTILE IRON. IF DUCTILE IRON PIPE IS USED THEN TWO AN A HALF (2.5) FEET OF COVER MUST BE MAINTAINED OVER THE WATER MAIN AND A MINIMUM OF 4-INCHES OF VERTICAL CLEARANCE SHALL BE MAINTAINED BETWEEN THE WATER MAIN AND THE STORM DRAINAGE LINE. WHERE A WATER MAIN CROSSES UNDER A STORM DRAINAGE LINE THE MINIMUM OF TWELVE (12) INCHES OF VERTICAL SEPARATION SHALL BE MAINTAINED AND THE WATER MAIN SHALL BE DUCTILE IRON FOR A DISTANCE OF 10-FEET ON EACH SIDE OF THE CROSSING.

WATER UTILITY NOTES		PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.	NO.	DATE	REVISION
SHEET NO. 1 OF 2	DWG. NO. W.1 / DWG. BY: FAYPWC	WATER RESOURCES ENGINEERING DEPARTMENT	1	JAN 05	REVISED NOTE 5A
	DATE: JULY 01, 2015 / APPROVED BY: J.E.G.		2	JUL 11	REVISED NOTES & ADDED NOTE 6

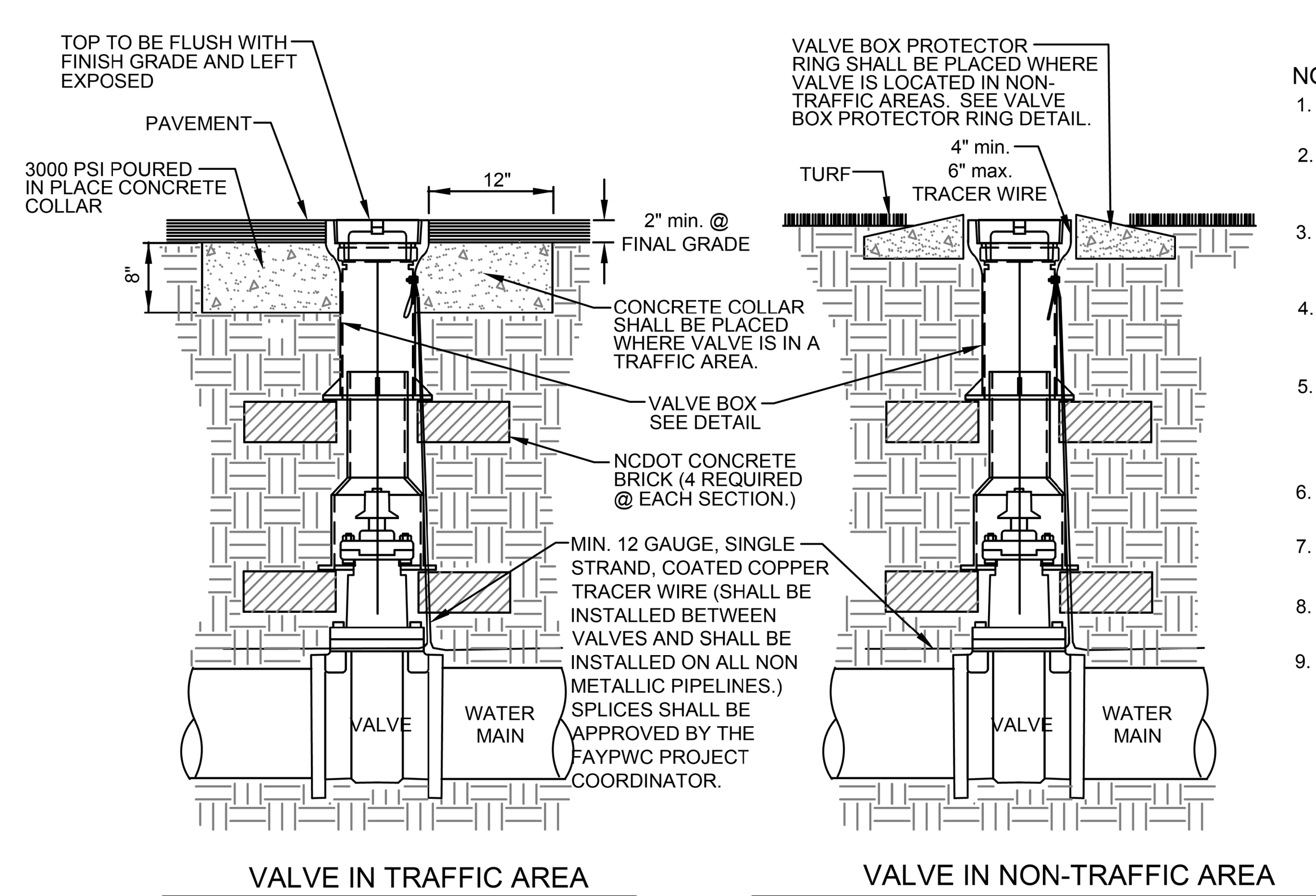
2015-W1 WATER UTILITY NOTES.dwg

NOTES:
1. ALL MATERIALS SHALL BE APPROVED BY FAYPWC. SEE DWG. W.4 SHEET 2 OF 2 FOR METER BOX LID DETAIL.
2. METER BOX SHALL NOT BE LOCATED WHERE H-20 LOADINGS CAN IMPACT BOX OR COVER.
3. FOR 1" WATER LATERAL INSTALLATION SEE FAYPWC DETAIL W.2
4. DIM'S ± 1/16 U.N.O.



1-INCH METER BOX DETAILS N.T.S.		PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.	NO.	DATE	REVISION
SHEET NO. 1 OF 2	DWG. NO. W.4 / DWG. BY: FAYPWC	WATER RESOURCES ENGINEERING DEPARTMENT	1	3/10	CHANGED BOX DIMENSIONS
	DATE: JULY 01, 2015 / APPROVED BY: J.E.G.				

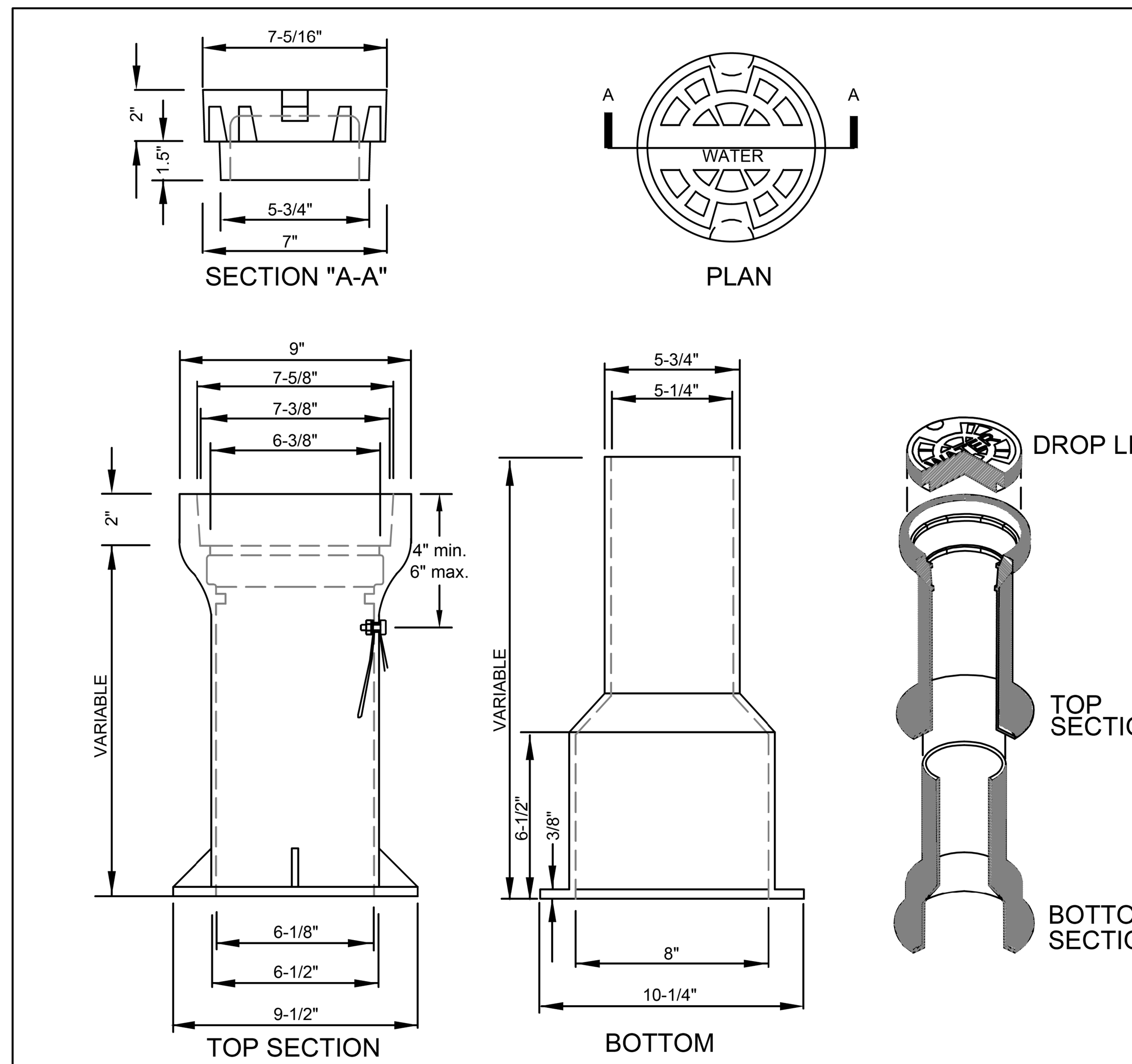
2015-W4 1IN METERBOX.dwg



NOTES:
1. ALL MATERIALS SHALL BE IN ACCORDANCE WITH FAYPWC STANDARDS.
2. RESILIENT WEDGE GATE VALVE SHALL BE AS MANUFACTURED BY MUELLER CORP., AMERICAN DARLING OR CLOW CORP.
3. ALL VALVES SHALL HAVE 2" SQUARE OPERATING NUT AND SHALL OPEN COUNTERCLOCKWISE.
4. VALVE BODY, BONNET AND GATE SHALL BE IN ACCORDANCE WITH AWWA C-509/C-515 AND NSF61.
5. VALVE BODY AND BONNET SHALL BE COATED ON ALL INTERIOR AND EXTERIOR SURFACES WITH A FUSION BONDED EPOXY IN ACCORDANCE WITH AWWA C-550-90.
6. ALL VALVES 24" AND SMALLER SHALL HAVE A SAFE WORKING PRESSURE OF 250 PSI.
7. SEE VALVE BOX DETAIL FOR ADDITIONAL INFORMATION.
8. SEE VALVE BOX PROTECTOR RING DETAIL FOR ADDITIONAL INFORMATION.
9. VALVE BOX SECTIONS ARE REQUIRED. THE USE OF PIPE IN LIEU OF VALVE BOX SECTIONS SHALL NOT BE PERMITTED.

GATE VALVE N.T.S.		PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.	NO.	DATE	REVISION
SHEET NO. 1 OF 1	DWG. NO. W.6 / DWG. BY: FAYPWC	WATER RESOURCES ENGINEERING DEPARTMENT	1	6/06	ADDED NOTE #9
	DATE: JULY 01, 2015 / APPROVED BY: J.E.G.		2	7/09	CLARIFIED NOTES

2015-W6 GATEVALVE.dwg



NOTES:
1. VALVE BOX SHALL BE 3 PART SLIP-TYPE MANUFACTURED BY SIGMA CORPORATION (VB-462), TYLER UNION (6855 SERIES), STAR PIPE PRODUCTS (VB-0004), OR APPROVED EQUAL.
2. VALVE BOX SHALL BE 3-PIECE CLOSE GRAINED CAST IRON SLIP-TYPE VALVE BOX WITH A MINIMUM THICKNESS OF 3/16".
3. VALVE BOX SHALL HAVE RAISED LETTERS "WATER" CAST INTO COVER.
4. VALVE BOX SHALL HAVE 3/8" HOLE DRILLED IN TOP SECTION THRU WHICH A 1/4"x1-1/2" GALVANIZED BOLT SHALL BE USED TO SECURE A MINIMUM 12 GAUGE, SINGLE STRAND, COATED COPPER OR COPPER CLAD STEEL TRACER WIRE FOR NON-FERROUS PIPE. A 1/2" WASHER SHALL BE USED BETWEEN NUT AND INSIDE OF BOX. TIGHTEN HAND TIGHT.
5. SCREW TYPE VALVE BOXES ARE NOT ACCEPTABLE.
6. DIMENSIONS SHOWN VARY BASED UPON THE MANUFACTURER. ACTUAL DIMENSIONS SHALL BE APPROVED BY FAYPWC.
7. VALVE BOX SECTIONS ARE REQUIRED. THE USE OF PIPE IN LIEU OF VALVE BOX SECTIONS SHALL NOT BE PERMITTED.
8. TRACING WIRE SHALL BE INSTALLED OUTSIDE OF BOX.
9. REFER TO FAYPWC DETAIL W.6 FOR INSTALLATION REQUIREMENTS.

VALVE BOX N.T.S.		PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.	NO.	DATE	REVISION
SHEET NO. 1 OF 1	DWG. NO. W.7 / DWG. BY: FAYPWC	WATER RESOURCES ENGINEERING DEPARTMENT	1	7/09	ADDED NOTES 7, 8 & CLARIFIED NOTES
	DATE: JULY 01, 2015 / APPROVED BY: J.E.G.		2	1/14	REVISED NOTES 1, 4, 6

2015-W7 VALVEBOX.dwg

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PROJECT REFERENCE NO.	SHEET NO.
W-5519	UC-3C

DESIGNED BY: DMP
DRAWN BY: DMP
CHECKED BY: DMP
APPROVED BY:
REVISED:

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

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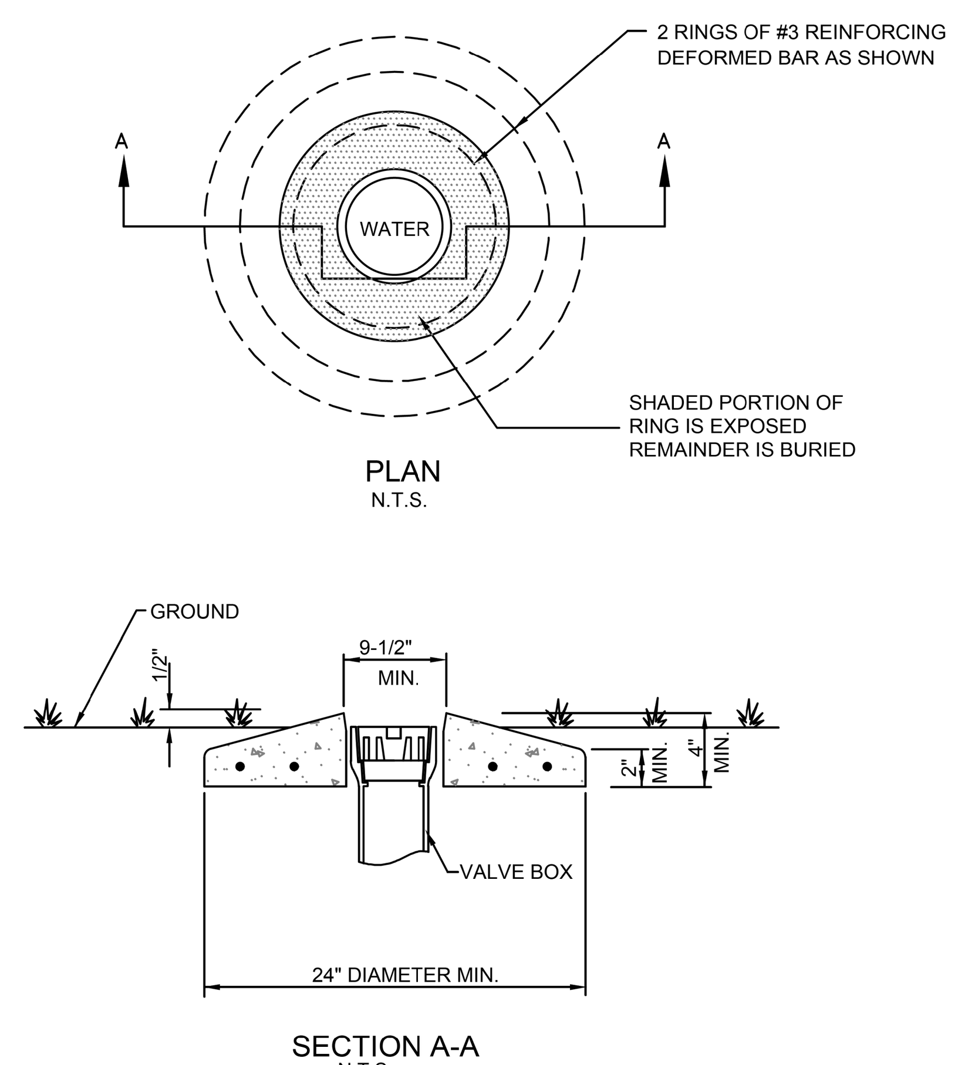
UTILITY CONSTRUCTION PLANS ONLY

9/16/2015

NORTH CAROLINA PROFESSIONAL SEAL 18117 ENGINEER RANDY L. MCNEILL

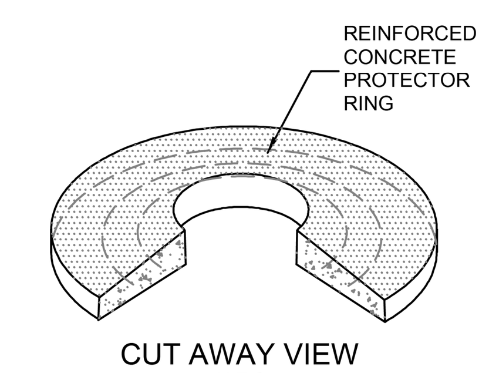
UTILITY CONSTRUCTION



PLAN
N.T.S.

SECTION A-A
N.T.S.

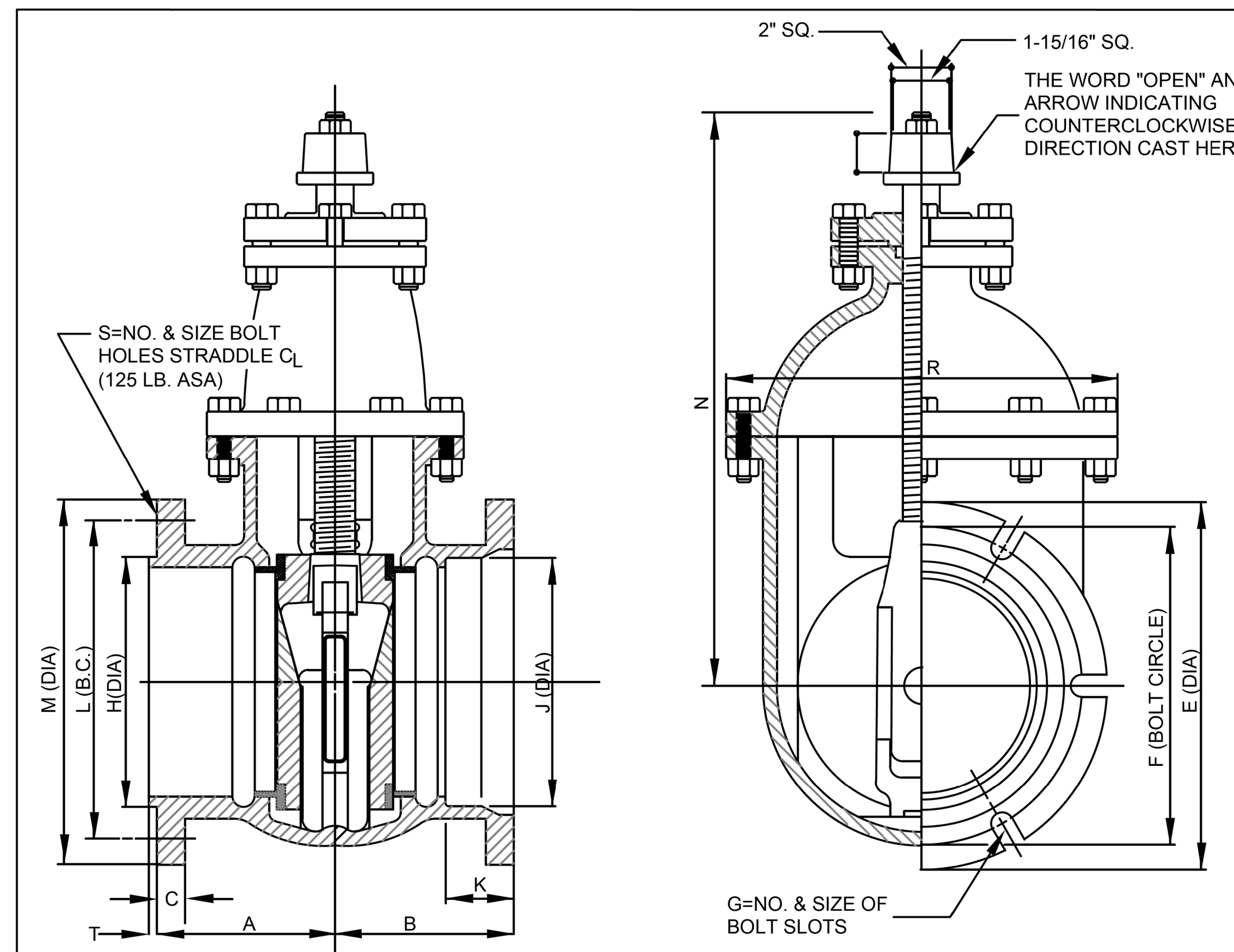
NOTES:
1. CONCRETE PROTECTOR RING SHALL BE 2500 P.S.I. PRECAST REINFORCED CONCRETE
2. VALVE BOX SHALL BE AT GRADE W/PROTECTOR RING EXTENDING 1/2" ABOVE GRADE
3. SEE GATE VALVE AND BOX DETAIL
4. VALVE BOX PROTECTOR RINGS SHALL BE INSTALLED AROUND VALVE BOX IN UNPAVED NON-TRAFFIC AREAS. AND SHALL NOT CREATE A HINDERANCE TO MOWING OPERATIONS.



CUT AWAY VIEW
N.T.S.

VALVE BOX PROTECTOR RING N.T.S.	PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.	NO.	DATE	REVISION
SHEET NO. 1 OF 1 · DWG. NO. W.8 · DWG. BY: FAYPWC · DATE: JULY 01, 2015 · APPROVED BY: J.E.G.	WATER RESOURCES ENGINEERING DEPARTMENT			

2015-W8 CONC PROTECTOR RING.dwg

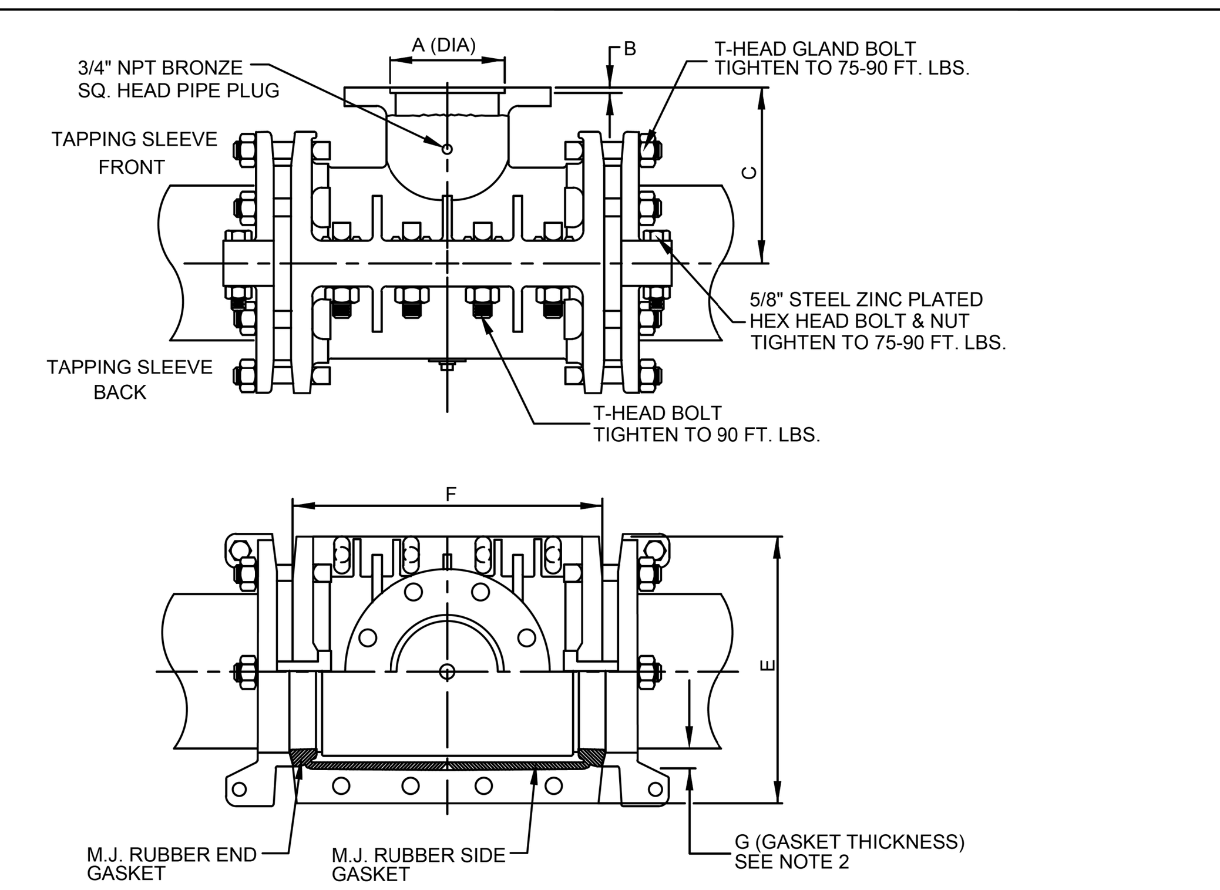


NOTES:
1. ALL MATERIALS SHALL BE IN ACCORDANCE WITH FAYPWC STANDARDS.
2. RAISED MALE FACE SHALL BE REQUIRED TO PROVIDE FOR PROPER ALIGNMENT OF THE TAPPING SLEEVE.
3. ALL VALVES SHALL HAVE 2" SQUARE OPERATING NUT AND SHALL OPEN COUNTERCLOCKWISE.
4. RESILIENT WEDGE GATE VALVE SHALL BE AS MANUFACTURED BY MUELLER CORP., AMERICAN DARLING, CLOW CORP., OR APPROVED EQUAL.
5. VALVE BODY, BONNET AND GATE SHALL BE IN ACCORDANCE WITH AWWA C-509/C-515 AND NSF61.
6. VALVE BODY AND BONNET SHALL BE COATED ON ALL INTERIOR AND EXTERIOR SURFACES WITH A FUSION BONDED EPOXY IN ACCORDANCE WITH AWWA C-550-90.
7. ALL VALVES 24" AND SMALLER SHALL HAVE A SAFE WORKING PRESSURE OF 250 PSI.
8. SEE TAPPING SLEEVE (DETAILS W.10 OR W.11) FOR ADDITIONAL INFORMATION.
9. DIMENSIONS SHOWN ARE FOR REFERENCE AND MAY VARY BASED UPON MANUFACTURER. VALVES SHALL BE SIMILAR IN NATURE TO THAT SHOWN AND SHALL NOT DEVIATE IN ESSENTIAL DETAILS.
10. ALL TAPPING SLEEVES SHALL BE HYDROSTATICALLY PRESSURE TESTED IN ACCORDANCE WITH FAYPWC SPECIFICATIONS. TEST SHALL BE WITNESSED AND APPROVED BY FAYPWC PROJECT COORDINATOR PRIOR TO BEGINNING TAPPING PROCESS.

VALVE SIZE	A	B	C	D	E	F	G	H	J	K	L	M	N	R	S	T	TURNS TO OPEN	WEIGHT W/ACC
4	4-3/8	5-7/8	15/16	1-1/2	9	7-1/2	4-7/8	4-63/64	4-29/32	2-1/2	7-1/2	9	14-1/8	9	8-3/4	1/4	14	118
6	6-7/8	6-1/4	1	1-5/8	11	9-1/2	6-7/8	6-63/64	7	2-1/2	9-1/2	11	17-5/8	11-3/4	8-7/8	1/4	21	175
8	6-1/2	7-1/4	1-1/8	1-3/4	13-1/4	11-3/4	6-7/8	8-63/64	9-5/32	2-1/2	11-3/4	13-1/2	21	14-1/4	8-7/8	1/4	28	274
12	7	8-1/4	1-1/4	1-3/4	17-7/8	16-1/4	8-7/8	12-63/64	13-5/16	2-1/2	17	19	28-1/4	19-1/8	12-1	1/4	39	570
16	8-1/2	9-1/8	1-7/16	2-1/16	23	21	12-7/8	16-15/16	17-35/64	3-1/2	21-1/4	23-1/2	38-5/8	26-1/8	16-1 1/8	1/4	55	1140
24	10-1/2	14-1/4	1-7/8	2-1/2	31-3/4	30	16-7/8	24-15/16	25-15/16	3-1/2	29-1/2	32	54-5/8	37-5/8	20-1 3/8	5/16	79	3225

TAPPING VALVE N.T.S.	PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.	NO.	DATE	REVISION
SHEET NO. 1 OF 1 · DWG. NO. W.9 · DWG. BY: FAYPWC · DATE: JULY 01, 2015 · APPROVED BY: J.E.G.	WATER RESOURCES ENGINEERING DEPARTMENT	1	7/09	ADDED NOTE 10, REVISED 4 & 5
		2	7/13	REVISED NOTES 4, 8, 10

2015-W9 M.J.TAPPING VALVE.dwg



NOTES:
1. ALL MATERIALS SHALL BE IN ACCORDANCE WITH FAYPWC STANDARDS. SLEEVE BODY SHALL BE DUCTILE IRON ASTM A536.
2. MECHANICAL JOINT TAPPING SLEEVES SHALL BE AS MANUFACTURED BY CLOW, M & H, MUELLER, OR AMERICAN AND SHALL BE FURNISHED WITH SPLIT GLANDS, SPLIT END GASKET, BOLTS, ETC. THE OUTLET FLANGE SHALL BE CL 125 PER ANSI B16.1 COMPATIBLE WITH APPROVED TAPPING VALVES.
3. DIMENSIONS SHOWN ARE FOR REFERENCE AND MAY VARY BASED UPON MANUFACTURER. SLEEVES SHALL BE SIMILAR IN NATURE TO THAT SHOWN AND SHALL NOT DEVIATE IN ESSENTIAL DETAILS.
4. PIPE SURFACES SHALL BE CLEANED THOROUGHLY TO PERMIT FOR A GOOD SEAL PRIOR TO INSTALLATION.
5. EXTERIOR OF TAPPING SLEEVE SHALL BE COATED w/2 COATS ASPHALTIC VARNISH MIL-C450.
6. ALL TAPPING SLEEVES SHALL BE HYDROSTATICALLY PRESSURE TESTED IN ACCORDANCE WITH FAYPWC SPECIFICATIONS. TEST SHALL BE WITNESSED AND APPROVED BY FAYPWC PROJECT COORDINATOR PRIOR TO BEGINNING TAPPING PROCESS.
7. SEE DETAILS W.9 AND W.17 FOR ADDITIONAL REQUIREMENTS.
8. TAPPING SLEEVES SHALL BE PRESSURE RATED AT 200 PSI.

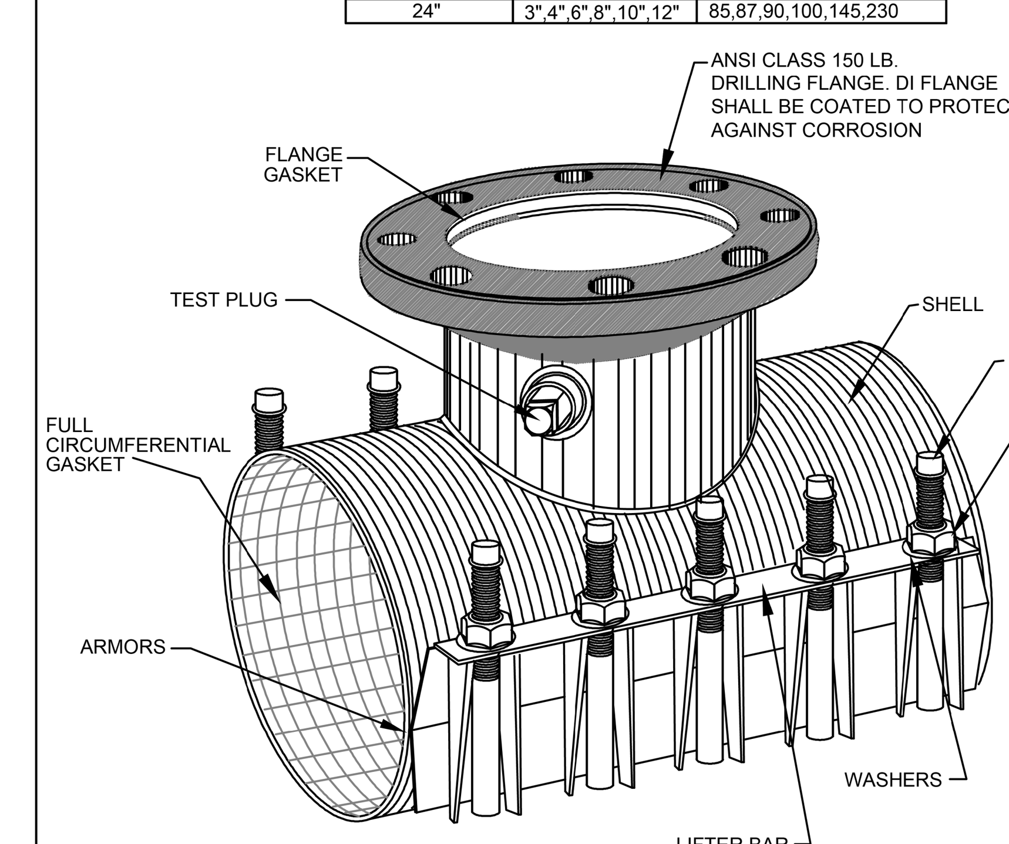
SLEEVE FOR USE WITH CI OR DI PIPE

SLEEVE SIZE PIPE X BRANCH	6X6	8X6	8X8	12X6	12X8	12X12	16X6	16X8	16X12	24X6	24X8	24X12	24X16	24X24	30X6	30X8	30X12	30X16	30X24
A DIA +.031-.000	7.016	7.016	9.016	7.016	9.016	13.016	7.016	9.016	13.016	11.00	13.5	19.0	23.5	32.0	11.00	13.5	19.0	23.5	32.0
B	.31	.31	.31	.31	.31	.31	.31	.31	.31	.31	.31	.31	.31	.31	.31	.31	.31	.31	.31
C	7-7/8	9-1/16	9	11-5/8	11-7/8	12-7/8	14-1/8	14-1/2	14-7/8	19.5	19.5	19.5	20.5	20.5	23.25	23.25	23.25	23.75	23.75
E	11-3/4	13-7/8	13-7/8	18-1/2	18-1/2	18-1/2	23-1/2	23-1/2	23-1/2	35.5	35.5	35.5	35.5	35.5	43.37	43.37	43.37	43.37	43.37
F	13-1/2	15	15	19-1/2	19-1/2	19-1/2	22-1/2	22-1/2	22-1/2	18.0	18.0	24.0	30.0	36.0	24.0	24.0	24.0	36.0	36.0

DUCTILE IRON TAPPING SLEEVE N.T.S.	PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.	NO.	DATE	REVISION
SHEET NO. 1 OF 1 · DWG. NO. W.10 · DWG. BY: FAYPWC · DATE: JULY 01, 2015 · APPROVED BY: J.E.G.	WATER RESOURCES ENGINEERING DEPARTMENT	1	7/09	REVISED NOTE 6/REMOVED NOTE 8.
		2	7/13	REVISED NOTES 6, 7.

2015-W10 TAPPING SLEEVE.dwg

NOMINAL PIPE SIZE (INCH)	BRANCH SIZE	APPROX. WT. LBS.
4"	3",4"	28,30
6"	3",4",6"	36,38,45
8"	3",4",6",8"	42,44,48,66
10"	3",4",6",8",10"	45,48,55,70,80,
12"	3",4",6",8",10",12"	50,52,60,81,96,143
16"	3",4",6",8",10",12"	78,80,85,100,115,172
24"	3",4",6",8",10",12"	85,87,90,100,145,230



NOTES:
1. ALL MATERIALS SHALL BE IN ACCORDANCE WITH FAYPWC STANDARDS.
2. TAPPING SLEEVES SHALL BE AS MANUFACTURED BY ROMAC, SMITH-BLAIR, OR APPROVED EQUAL.
3. STAINLESS STEEL TAPPING SLEEVE MAY BE UTILIZED FOR ALL TAPPING OF MAINS UP TO AND INCLUDING 24" DIAMETER WITH 12" OR LESS BRANCH. BRANCH GREATER THAN 12" SHALL REQUIRE FULL BODY D.I. M.J. TAPPING SLEEVE (SEE DETAIL W.10).
4. SHELL AND LUGS SHALL BE STAINLESS STEEL PER ASTM A 240, TYPE 304 AND 304L.
5. BOLTS SHALL BE 5/8" UNC ROLLED THREAD, STAINLESS STEEL PER ASTM A 193 TYPE 304 4" NOM. PIPE SIZE SHALL HAVE MIN. 1/2" BOLTS.
6. NUTS SHALL BE HEAVY HEX STAINLESS STEEL PER ASTM A-194, TYPE 304.
7. WASHERS SHALL BE STEEL AND PLASTIC LUBRICATING WASHER.
8. GASKETS SHALL BE VIRGIN SBR PER ASTM D 2000 MAA 610, COMPOUNDED FOR WATER AND SEWER SERVICE.
9. FLANGE SHALL BE DUCTILE IRON PER ASTM 536, GRADE 65-45-12, OR STAINLESS STEEL PER ASTM A-240, TYPE 304.
10. DIMENSIONS SHOWN ARE FOR REFERENCE AND MAY VARY BASED UPON MANUFACTURER. SLEEVES SHALL BE SIMILAR IN NATURE TO THAT SHOWN AND SHALL NOT DEVIATE IN ESSENTIAL DETAILS.
11. PIPE SURFACES SHALL BE CLEANED THOROUGHLY TO PERMIT A GOOD SEAL PRIOR TO INSTALLATION.
12. ALL TAPPING SLEEVES SHALL BE HYDROSTATICALLY PRESSURE TESTED IN ACCORDANCE WITH FAYPWC SPECIFICATIONS. TEST SHALL BE WITNESSED AND APPROVED BY FAYPWC PROJECT COORDINATOR PRIOR TO BEGINNING TAPPING PROCESS.
13. THE NUMBER OF BOLTS, NUTS AND WASHERS SHOWN ARE FOR ILLUSTRATION ONLY, ACTUAL QUANTITY SHALL BE AS RECOMMENDED BY THE SLEEVE MANUFACTURER FOR THE REQUIRED SERVICE.
14. SEE DETAILS W.9 AND W.17 FOR ADDITIONAL REQUIREMENTS.
15. TAPPING SLEEVES SHALL BE PRESSURE RATED AT 200 PSI.

STAINLESS STEEL TAPPING SLEEVE N.T.S.	PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.	NO.	DATE	REVISION
SHEET NO. 1 OF 1 · DWG. NO. W.11 · DWG. BY: FAYPWC · DATE: JULY 01, 2015 · APPROVED BY: J.E.G.	WATER RESOURCES ENGINEERING DEPARTMENT	1	7/09	ADDED NOTES 2, 12 & CLARIFIED NOTES
		2	7/13	REVISED NOTES 3, 12, 14

2015-W11 SSTAPPING SLEEVE.dwg

UTILITY CONSTRUCTION PLANS PREPARED BY:
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WWW.DMP-INC.COM LICENSE: F-0245

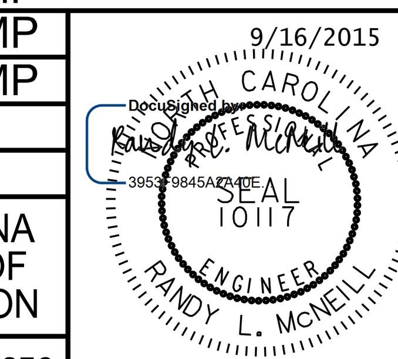
8/17/99

$$$$SYSTIME$$$$ $$$$USERNAME$$$$ $$$$DGN$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
W-5519	UC-3D

DESIGNED BY: DMP
DRAWN BY: DMP
CHECKED BY: DMP
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

(TYPICAL - NEW FIRE HYDRANTS CONNECTED TO EXISTING WATER MAINS)

1. PROPOSED FIRE HYDRANTS SHALL BE INSTALLED IN ADVANCE OF SEWER MAIN CONSTRUCTION. THE CONTRACTOR SHALL SEQUENCE THE HYDRANT INSTALLATION TO PROVIDE AND/OR SUPPLEMENT WATER MAIN FLUSHING IF BREAKS OCCUR.

2. FIRE HYDRANT CONNECTIONS TO EXISTING WATER MAINS SHALL BE MADE USING A TAPPING SLEEVE AND VALVE BY WET TAP CONNECTION. THE TAPPING SLEEVE AND VALVE SHALL BE HYDROSTATICALLY TESTED PRIOR TO THE COMPLETION OF THE TAP IN THE PRESENCE OF THE OWNER.

3. THE CONTRACTOR SHALL HAVE THE EXISTING UTILITIES LOCATED IN THE VICINITY OF THE PROPOSED FIRE HYDRANT PRIOR TO REQUESTING CONSTRUCTION STAKES. THE PROPOSED LOCATION MAY BE SHIFTED OR RELOCATED BY THE OWNER IF CONFLICTS EXIST (I.E. GAS SERVICES, UGE, TELEPHONE, ETC.).

4. THE CONTRACTOR SHALL VERIFY (BY DIGGING), IN ADVANCE OF INSTALLATION AND MATERIAL PROCUREMENT, THE EXISTING WATER MAIN MATERIAL, SIZE, CLASS, DEPTH AND LOCATION FOR EACH INDIVIDUAL FIRE HYDRANT LOCATION IN ORDER TO SUPPLY PROPER SLEEVE TYPES, BARREL LENGTHS AND OTHER REQUIRED MATERIALS TO ACCOMMODATE EXISTING MATERIALS ENCOUNTERED AND SITE CONDITIONS.

5. THE INFORMATION CONTAINED IN THE "FIRE HYDRANT DATA CHART" WAS PRODUCED USING EXISTING FAYPWC RECORDS AND AVAILABLE FIELD INFORMATION. THE INFORMATION IS INTENDED TO ASSIST THE CONTRACTOR, BUT IS NOT GUARANTEED. THE CONTRACTOR IS ENCOURAGED TO VERIFY ALL THE PROVIDED INFORMATION. THIS INFORMATION IS APPROXIMATE AND MAY NOT BE ACCURATE.

6. THE CONTRACTOR WILL BE REQUIRED TO SUPPLY VARIOUS LENGTHS OF BARRELS AND HYDRANT EXTENSIONS (NO MORE THAN ONE HYDRANT EXTENSION MAY BE USED PER HYDRANT) TO ADJUST FOR WATER MAIN DEPTHS IN RELATION TO TOP OF EXISTING CURB GRADE, TOP OF PAVEMENT, EXISTING DITCH GRADE AND/OR RIGHT-OF-WAY GROUND ELEVATIONS AS NECESSARY. ADDITIONAL FITTINGS AND/OR HYDRANT EXTENSIONS OR OFFSET CONNECTORS MAY BE REQUIRED TO MAINTAIN PROPER COVER AS APPROVED BY THE FAYPWC PROJECT COORDINATOR. (NO SEPARATE PAYMENT).

7. EXISTING VALVE DEPTHS ARE MEASURED FROM EXISTING ASPHALT AND/OR VALVE COVER TO THE TOP OF THE OPERATING NUT. THE BARREL INFORMATION SHOWN IS CALCULATED USING AN INTERPOLATION BETWEEN THE TWO NEAREST VALVES. THE GROUND ELEVATION AND/OR CURB FOR THE PROPOSED FIRE HYDRANT IS INTERPOLATED FROM CROSS SECTIONS AND THE FLANGE ELEVATION SHOWN IS APPROXIMATE. FIRE HYDRANT SHALL BE INSTALLED IN ACCORDANCE WITH THE FIRE HYDRANT AND VALVE INSTALLATION DETAIL.

8. THE CONTRACTOR SHALL SUBSTITUTE VARIOUS BARREL DEPTHS WITHIN THE PROJECT (I.E. FIRE HYDRANT NO. 1 INDICATES A 5'-0" DEPTH OF BURY, ACTUAL CONDITIONS CALL FOR A 6'-0" DEPTH OF BURY, FIRE HYDRANT NO. 2 INDICATES A 6'-0" DEPTH OF BURY, ACTUAL CONDITIONS REQUIRE A 5'-0" DEPTH OF BURY, THEN A SUBSTITUTION WILL BE REQUIRED). ALL EXTENSIONS SHALL BE APPROVED BY THE FAYPWC PROJECT COORDINATOR PRIOR TO INSTALLATION AND ONLY AFTER ALL EFFORTS OF SUBSTITUTION ARE EXHAUSTED.

9. WHERE INDICATED TO TIE EXISTING FIRE HYDRANT TO NEW MAIN, CONTRACTOR SHALL PROVIDE ALL LABOR, TOOLS, EQUIPMENT, MATERIALS, ETC. NECESSARY TO PROVIDE A COMPLETE INSTALLATION. FIRE HYDRANT SHALL BE TRANSFERRED TO NEW MAIN BRANCH LINE AFTER MAIN IS ACCEPTED. HYDRANTS SHALL NOT BE OUT OF SERVICE FOR GREATER THAN 24 HOURS. CONTRACTOR SHALL NOTIFY THE APPROPRIATE FIRE DEPARTMENT OF OUT OF SERVICE FIRE HYDRANTS PRIOR TO CONSTRUCTION.

10. SOD SHALL BE REPLACED WHERE APPLICABLE. DAMAGE TO PROPERTY OWNERS LANDSCAPING, FENCES, ETC. SHALL BE REPAIRED OR REPLACED TO THE PROPERTY OWNER'S SATISFACTION, TO INCLUDE WITHIN RIGHT-OF-WAY. (NO SEPARATE PAYMENT).

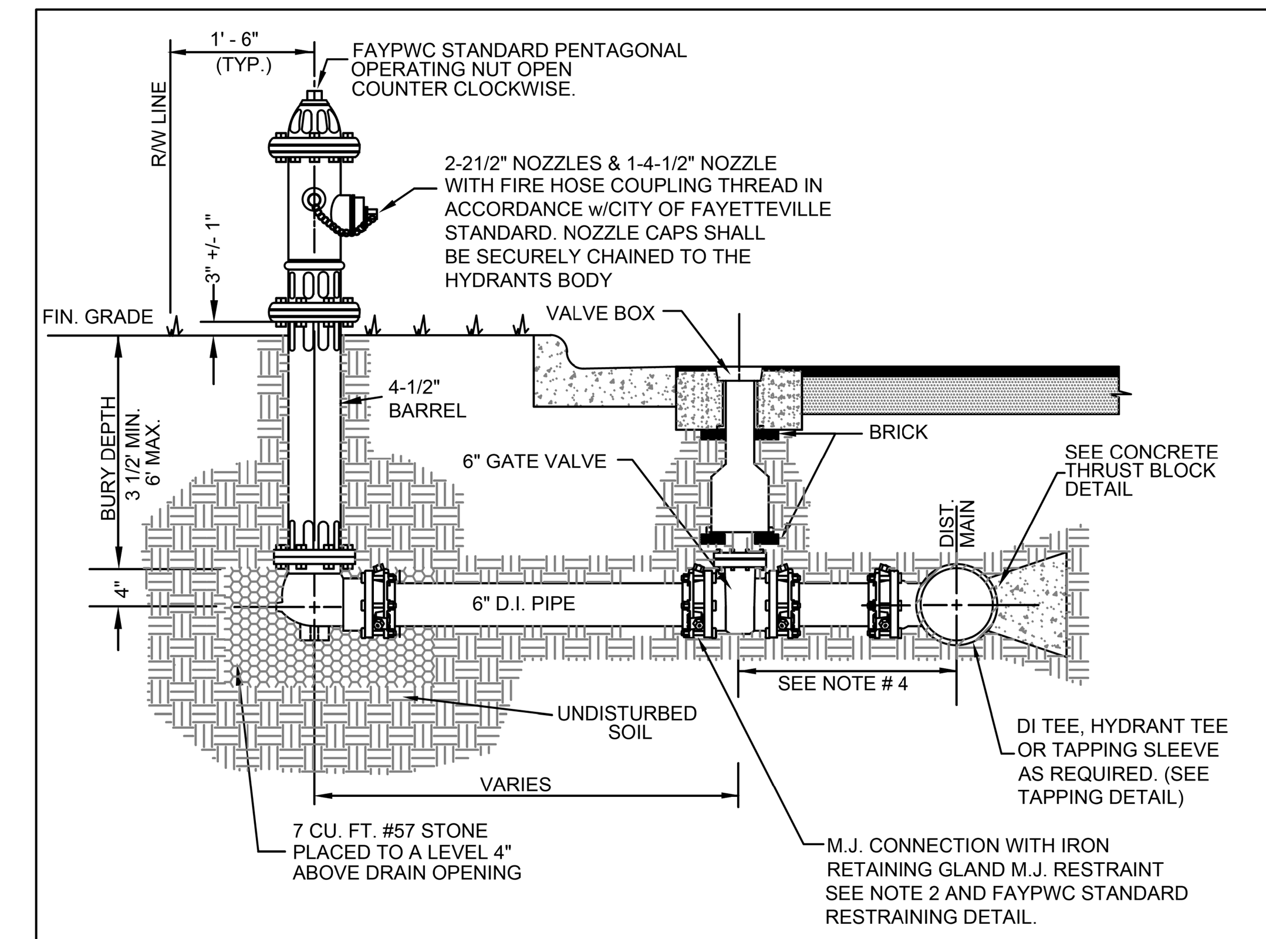
FIRE HYDRANT ADDITIONAL GENERAL NOTES

PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.
WATER RESOURCES ENGINEERING DEPARTMENT

SHEET NO. 1 OF 1 | DWG. NO. W.12 | DWG. BY: FAYPWC | DATE: JULY 01, 2015 | APPROVED BY: J.E.G.

NO.	DATE	REVISION
1	7/09	REVISED NOTES 2, 3, 6, & 9. REMOVED NOTE 11.

2015-W12 FH NOTES.dwg



NOTES:
1. FIRE HYDRANT SHALL BE MODELS MANUFACTURED BY MUELLER CO. (CENTURIAN), AMERICAN VALVE AND HYDRANT CO. (MODEL MARK 73), CLOW MEDALLION OR APPROVED EQUAL.

2. ALL VALVES AND HYDRANTS SHALL HAVE M.J. CONNECTIONS WITH IRON RETAINING GLAND M.J. RESTRAINT.

3. FIRE HYDRANT SHALL BE FIELD PAINTED IN ACCORDANCE WITH FAYPWC STANDARDS, BEFORE PROJECT IS ACCEPTED.

4. HYDRANT VALVE SHALL BE PLACED AS CLOSE AS POSSIBLE TO THE MAIN, BUT DO NOT PLACE VALVE IN PROPOSED OR EXISTING CURB AND GUTTER. IF THE STREET IS SOIL AND NO PAVING IS TO BE DONE AT THIS TIME, THE LOCATION OF THE VALVE IS TO BE DETERMINED BY THE FAYPWC PROJECT COORDINATOR.

5. FIRE HYDRANTS SHALL BE PLACED AS DIRECTED BY THE FAYPWC PROJECT COORDINATOR.

6. HYDRANT BRANCH SHALL NOT BE BACK FILLED UNTIL INSPECTED AND APPROVED BY FAYPWC PROJECT COORDINATOR.

7. GATE VALVE AND BOX SHALL BE IN ACCORDANCE WITH FAYPWC STANDARD DETAIL.

8. HYDRANT EXTENSIONS AND/OR OFFSETS SHALL BE APPROVED BY FAYPWC PROJECT COORDINATOR.

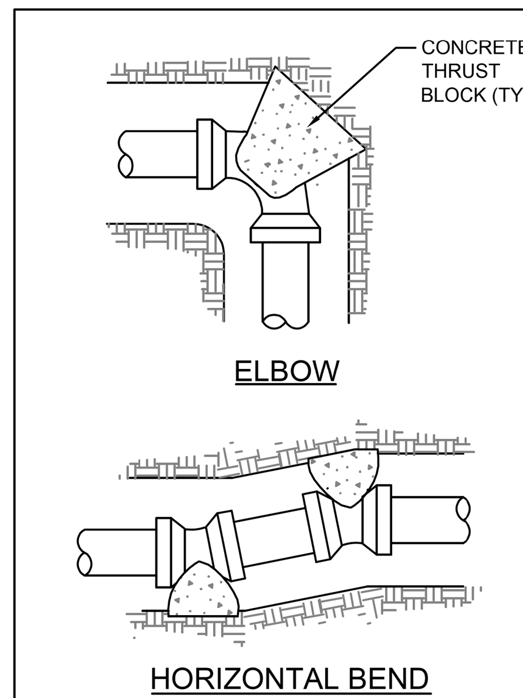
FIRE HYDRANT AND VALVE INSTALLATION
N.T.S.

PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.
WATER RESOURCES ENGINEERING DEPARTMENT

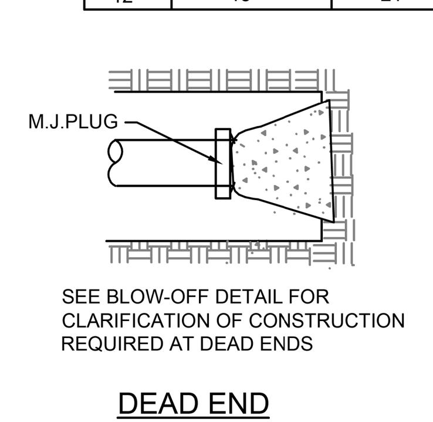
SHEET NO. 1 OF 1 | DWG. NO. W.13 | DWG. BY: FAYPWC | DATE: JULY 01, 2015 | APPROVED BY: J.E.G.

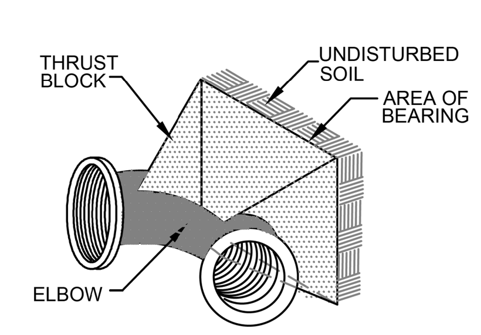
NO.	DATE	REVISION
1	10/23/03	REVISED NOTE #4
2	7/1/09	REVISED NOTE #2, REMOVED NOTE #3 & ALTERED RESTRAINT DETAIL

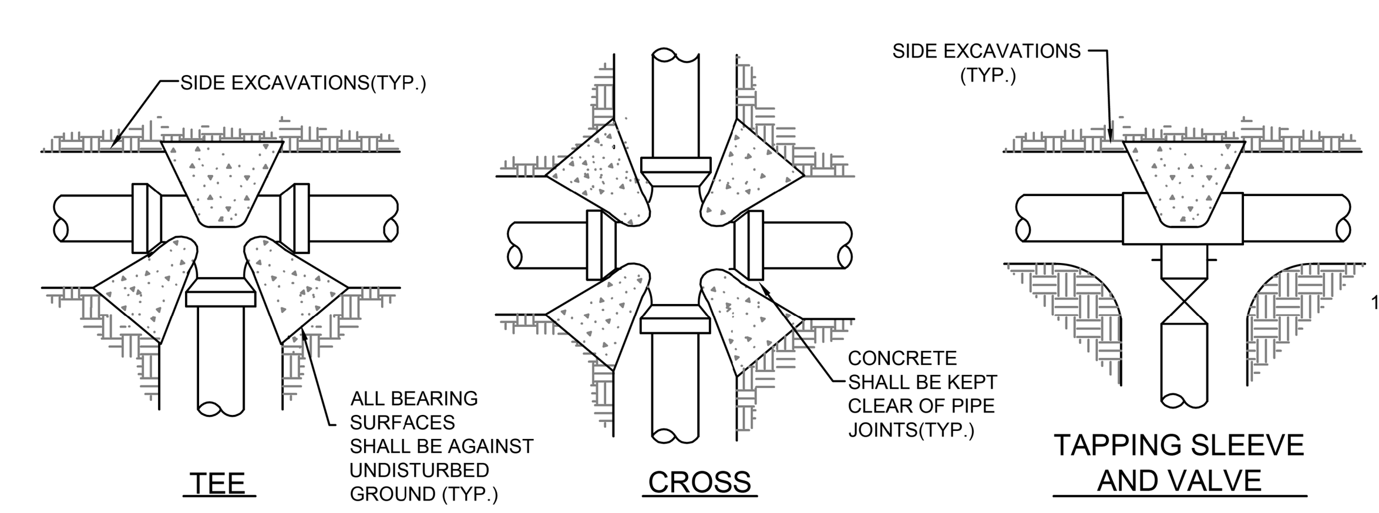
2015-W13 FHCC.dwg



MIN. BEARING AREA EACH DIRECTION OF THRUST IN SQUARE FEET (based on soil supporting value of 2000 psf @ 200 psig test pressure)				
PIPE SIZE	TEES & DEADENDS	90° ELBOWS	45° ELBOW & CROSSES	22-1/2° ELBOWS
6"	4	6	3	2
8"	7	10	5	3
12"	15	21	11	6







NOTES:
1. THRUST BLOCKS SHALL BE INSTALLED ON PVC WATER DISTRIBUTION LINES 6" THRU 12" DIA. IN THE MANNER SHOWN. SEE FAYPWC STANDARD ALT. RESTRAINING DETAIL W.18 FOR ACCEPTABLE ALTERNATE RESTRAINING SYSTEMS.
2. PIPE GREATER THAN 12 INCH DIAMETER SHALL REQUIRE RESTRAINT JOINT PIPE FOR THE PROPER LENGTH.
3. COMPACT FITTINGS ARE NOT ACCEPTABLE. STANDARD FITTINGS SHALL BE USED WITH CONCRETE THRUST BLOCKING.
4. THRUST BLOCKS SHALL BE INSTALLED ON SEWER FORCE MAIN IN THE MANNER SHOWN.
5. IF SAC-CRETE IS USED, MIXING MUST BE ON SITE UTILIZING A MECHANICAL MIXER.
6. NO CONCRETE SHALL BE PLACED ON BOLTS. WRAP JOINT FITTINGS WITH PLASTIC.
7. CONCRETE SHALL BE A MINIMUM 3,000 psi.
8. ALL BEARING SURFACES SHALL BE AGAINST UNDISTURBED SOIL AND SHALL BE APPROVED BY FAYPWC PROJECT COORDINATOR PRIOR TO PLACEMENT OF CONCRETE.
9. USE OF RESTRAINED JOINT DUCTILE IRON WILL BE REQUIRED IF SOIL CONDITIONS DO NOT ALLOW THE USE OF THRUST BLOCKS.
10. ALL VERTICAL BENDS SHALL BE RESTRAINED USING RESTRAINED JOINT DUCTILE IRON PIPE.

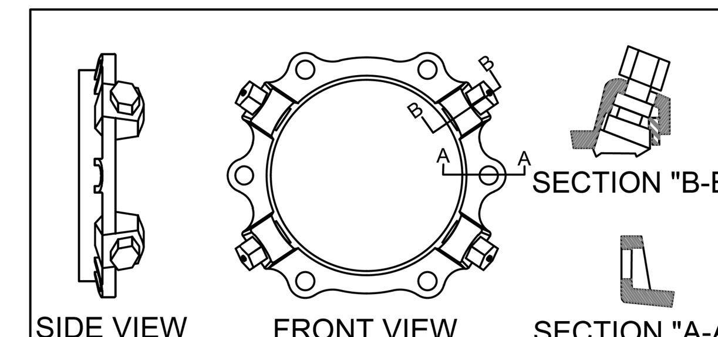
CONCRETE THRUST BLOCK DETAIL
N.T.S.

PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.
WATER RESOURCES ENGINEERING DEPARTMENT

SHEET NO. 1 OF 1 | DWG. NO. W.17 | DWG. BY: FAYPWC | DATE: JULY 01, 2015 | APPROVED BY: J.E.G.

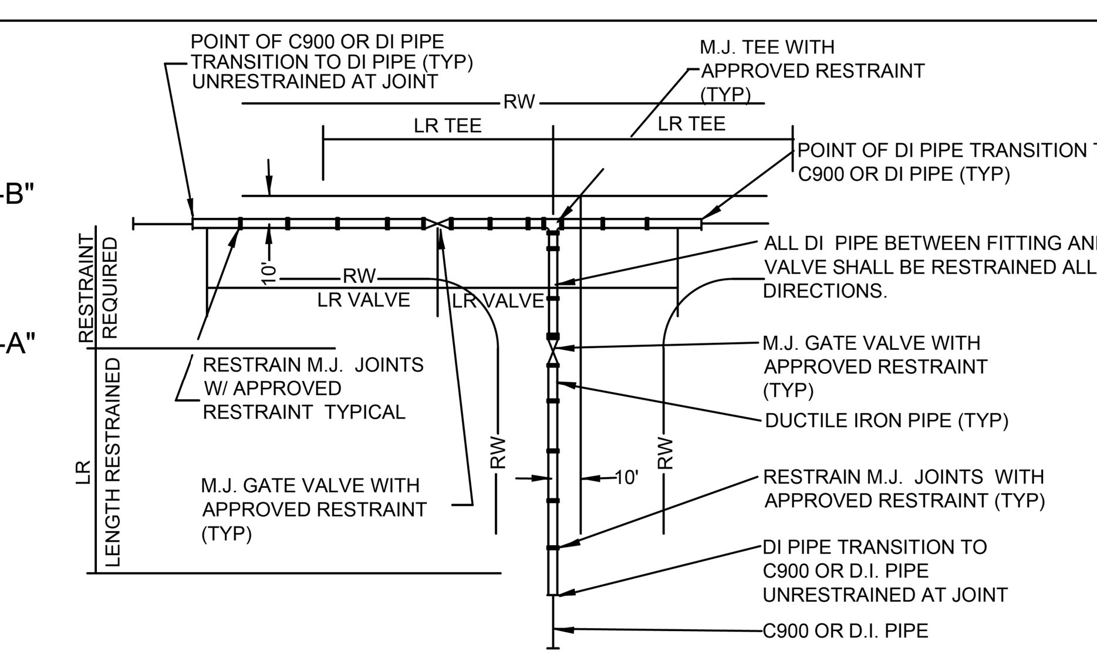
NO.	DATE	REVISION
1	SEPT 05	REVISED TABLE
2	FEB 07	ADDED NOTES 9&10
3	JULY 13	ADDED TAPPING SLEEVE AND VALVE DETAIL

2015-W17 THRUSTBLOCK.dwg



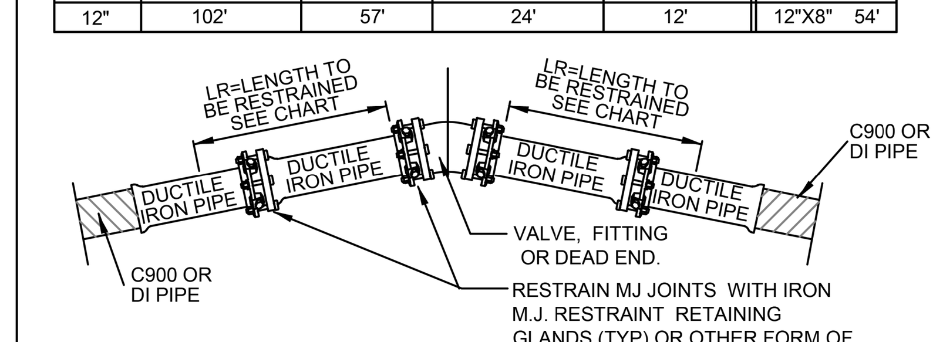
IRON RETAINING GLAND M.J. RESTRAINT			
NOMINAL PIPE SIZE	WEDGES QUANTITY	BOLTS QUANTITY	PRESS RATING
6"	3	6	350
8"	4	6	350
12"	8	8	350

8" SIZE SHOWN 6" & 12" SIMILAR
IRON RETAINING GLAND M.J. RESTRAINT



RESTRAINED JOINT DETAIL FOR TYPICAL TEE INTERSECTION
4 WAY INTERSECTION SIMILARLY RESTRAINED

LR (MIN. LENGTH OF RESTRAINT EACH DIRECTION OF THRUST IN LINEAR FEET) Based on 200 psig pressure, Safety Factor of 2.0:1, BARE DI PIPE AND ML Soil, 3.5' cover. Chart does not apply to pipes wrapped in polyethylene wrap					
PIPE SIZE	VALVES DEAD ENDS TEES	90° ELBOWS	45° ELBOW & CROSSES	22-1/2° ELBOWS	REDUCER
6"	55'	31'	13'	7'	8"X2" 67'
8"	72'	40'	17'	8'	8"X6" 30'
12"	102'	57'	24'	12'	12"X8" 54'



NOTES:
1.) THRUST RESTRAINT SHALL BE INSTALLED ON DUCTILE IRON WATER DISTRIBUTION LINES 6" THRU 12" DIAMETER IN THE MANNER SHOWN. SEE FAYPWC STANDARD THRUST BLOCK DETAIL W.17 FOR PVC RESTRAINT.
2.) IRON RETAINING GLAND M.J. RESTRAINT OR OTHER FORMS OF IRON RESTRAINT SHALL NOT BE USED ON PVC PIPE.
3.) PIPE GREATER THAN 12 INCH DIAMETER SHALL REQUIRE RESTRAINED JOINT PIPE FOR THE PROPER LENGTH.
4.) COMPACT FITTINGS ARE ACCEPTABLE FOR USE WITH IRON RETAINING GLAND M.J. RESTRAINT AND OTHER FORMS OF DI RESTRAINT.
5.) THE MINIMUM LENGTH OF RESTRAINT INDICATED SHALL REQUIRE ALL JOINTS WITHIN THE LR DISTANCE TO BE RESTRAINED.
6.) RESTRAINT SYSTEM SHALL BE INSPECTED AND APPROVED FAYPWC PRIOR TO BACKFILLING.
7.) RESTRAINT SYSTEMS MAY VARY BASED UPON THE ENGINEERS' DESIGN AS SHOWN ON THE PLAN AND PROFILE SHEETS.
8) GRIPPER RING AND FIELD LOK GASKETS ARE AN ACCEPTABLE METHOD OF RESTRAINT ON DUCTILE IRON PIPE ONLY.

ALTERNATE RESTRAINT DETAIL (DUCTILE IRON PIPE ONLY)
N.T.S.

PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.
WATER RESOURCES ENGINEERING DEPARTMENT

SHEET NO. 1 OF 1 | DWG. NO. W.18 | DWG. BY: FAYPWC | DATE: JULY 01, 2015 | APPROVED BY: J.E.G.

NO.	DATE	REVISION
1	11/16/2007	REVISED TABLE, ADDED NOTE 8

2015-W18 RESTRAINT DETAIL.dwg

UTILITY CONSTRUCTION PLANS PREPARED BY:
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ENGINEERS & SURVEYORS
6415 OLD PLANK RD, HIGH POINT, NC 27265
PHONE: (336)886-4821 FAX: (336)886-4458
WWW.DMP-INC.COM LICENSE: F-0245

$$$$SYSTIME$$$$
$$$$USERNAME$$$$
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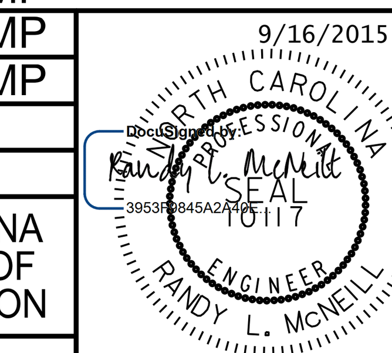
PROJECT REFERENCE NO.	SHEET NO.
W-5519	UC-3E

DESIGNED BY: DMP
DRAWN BY: DMP
CHECKED BY: DMP
APPROVED BY:
REVISED:



NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

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PHONE: (919) 707-6690
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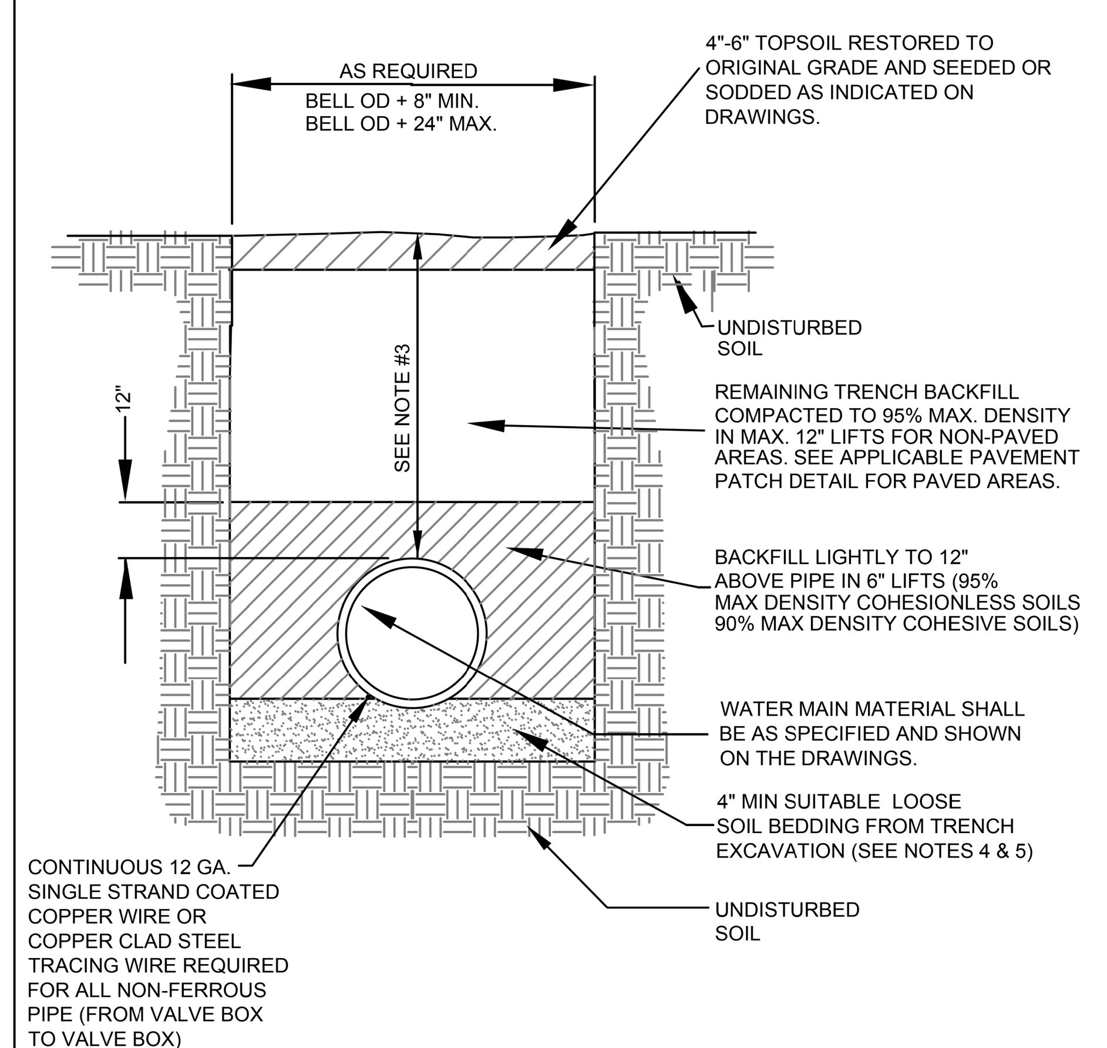
UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION



NOTES:

1. ALL EXCAVATIONS SHALL COMPLY WITH THE TERMS AND CONDITIONS OF THE CONSTRUCTION STANDARDS FOR EXCAVATIONS IN OSHA "SAFETY AND HEALTH REGULATIONS FOR CONSTRUCTION", CHAPTER XV11 OF TITLE 29, CFR, PART 1926. THE CONTRACTOR SHALL HAVE A COMPETENT PERSON ON SITE AT ALL TIMES DURING EXCAVATION AND BACKFILLING.
2. CONTRACTOR SHALL USE TRENCH BOX SHORING IN ALL OPEN CUTS IN PAVED AREAS. TRENCH WIDTH SHALL BE MAINTAINED AT THE MINIMUM PRACTICAL WIDTH.
3. TYPE 3 TRENCH CONDITIONS AND A MINIMUM OF 4' OF COVER MUST BE MAINTAINED WHERE RESTRAINT JOINT PIPE IS SPECIFIED AND 3.5' OF COVER IN ALL OTHER LOCATIONS UNLESS SHOWN OTHERWISE ON THE PLAN PROFILE.
4. LOOSE SOIL OR SELECT MATERIAL IS DEFINED AS "NATIVE" SOIL EXCAVATED FROM THE TRENCH, FREE OF ROCKS, FOREIGN MATERIAL, AND FROZEN EARTH.
5. BEDDING MATERIAL SHALL EXTEND TO UNDISTURBED TRENCH WALLS AND TRENCH BOTTOM. BEDDING MATERIAL WILL NOT BE PAID FOR UNLESS SPECIFICALLY APPROVED BY THE PROJECT REPRESENTATIVE AND ONLY FOR THE AUTHORIZED QUANTITY.
6. BEDDING MATERIAL SHALL BE PROPERLY RODDED AND COMPACTED AROUND THE PIPE HAUNCHES.
7. TEST FOR DENSITY OF COMPACTION MAY BE MADE AT THE OPTION OF THE ENGINEER AND DEFICIENCIES SHALL BE CORRECTED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER. THE ENGINEER MAY HAVE COMPACTION TEST PERFORMED AFTER THE BACKFILL IS COMPLETE. CONTRACTOR SHALL BE REQUIRED TO EXCAVATE TO VARIOUS ELEVATIONS FOR DENSITY TESTING EXCAVATION, BACKFILL AND RECOMPACTION SHALL BE PERFORMED AT NO ADDITIONAL COSTS TO THE OWNER.

TYPE 3 TRENCH WATER MAIN BEDDING DETAIL
N.T.S.

PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.
WATER RESOURCES ENGINEERING DEPARTMENT

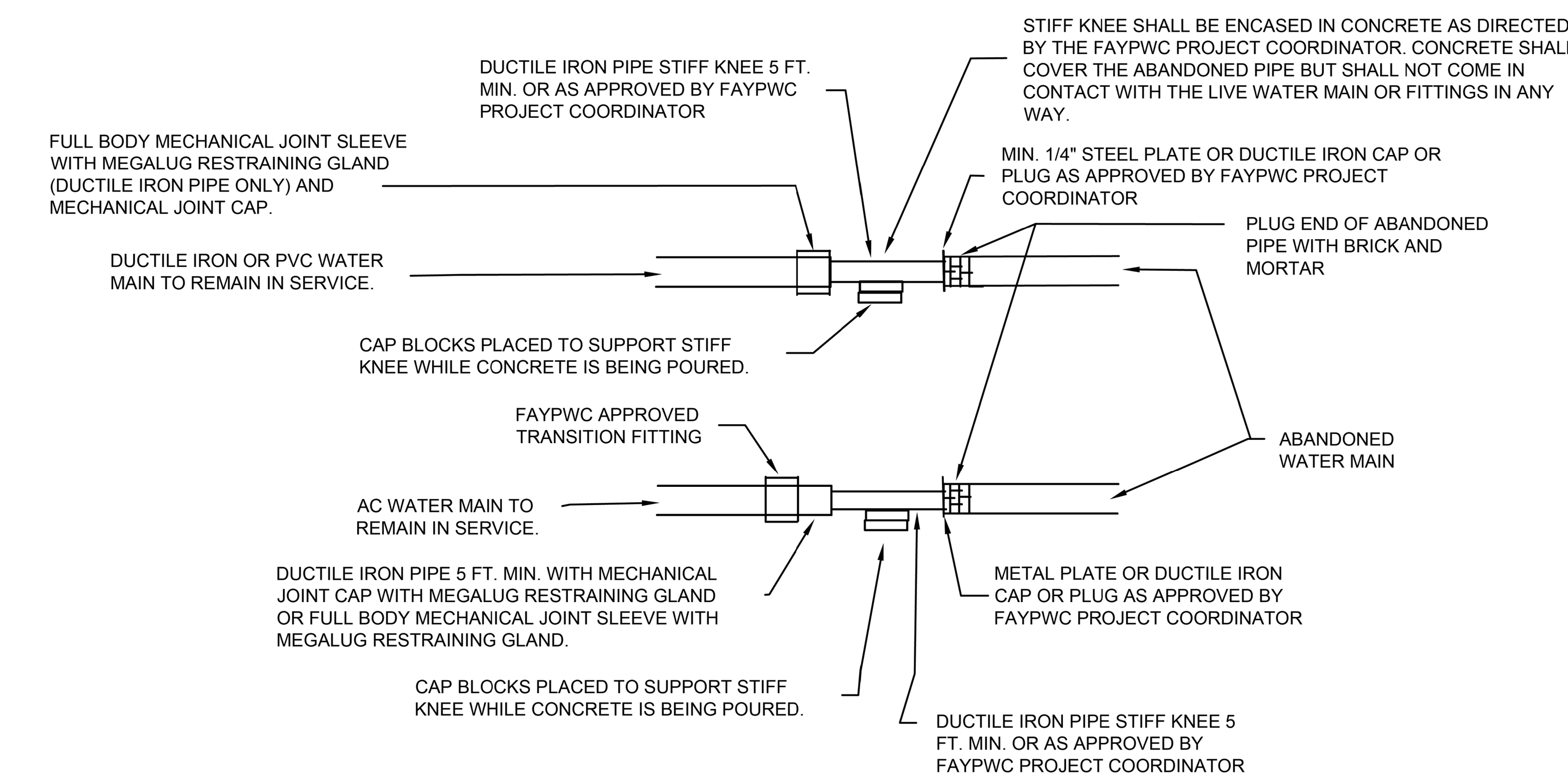
SHEET NO. 1 OF 1 | DWG. NO. W.19 | DWG. BY: FAYPWC | DATE: JULY 01, 2015 | APPROVED BY: J.E.G.

NO.	DATE	REVISION
1	7/1/13	REVISED NOTE RE: TRACER WIRE

2015-W19 WATER BEDDING.dwg

NOTES:

1. KILL OUT SHALL BE DONE A MIN. OF 5 FT. FROM ANY FITTING ON THE EXISTING WATER MAIN THAT IS TO REMAIN IN SERVICE.
2. IRON PIPE SHALL BE 4" DIAMETER FOR MAINS 12" OR LESS. UTILIZE 8" PIPE OR LARGER AS DIRECTED BY THE FAYPWC COORDINATOR FOR ALL MAINS LARGER THAN 12".
3. ALLOW CONCRETE TO SET-UP PRIOR TO PLACING BACKFILL.
4. VOLUME OF CONCRETE FOR THRUST BLOCK SHALL BE IN ACCORDANCE WITH FAYPWC STANDARD DETAIL W.17.
5. ALL OUTAGES SHALL BE COORDINATED WITH THE FAYPWC PROJECT COORDINATOR.
6. PIPE SHALL BE GROUT OR REMOVED IN ACCORDANCE WITH NCDOT SPECIFICATIONS WHEN LOCATED IN THE STATE RIGHT OF WAY. ALL OTHER INSTANCES SHALL BE IN ACCORDANCE WITH FAYPWC SPECIFICATIONS.



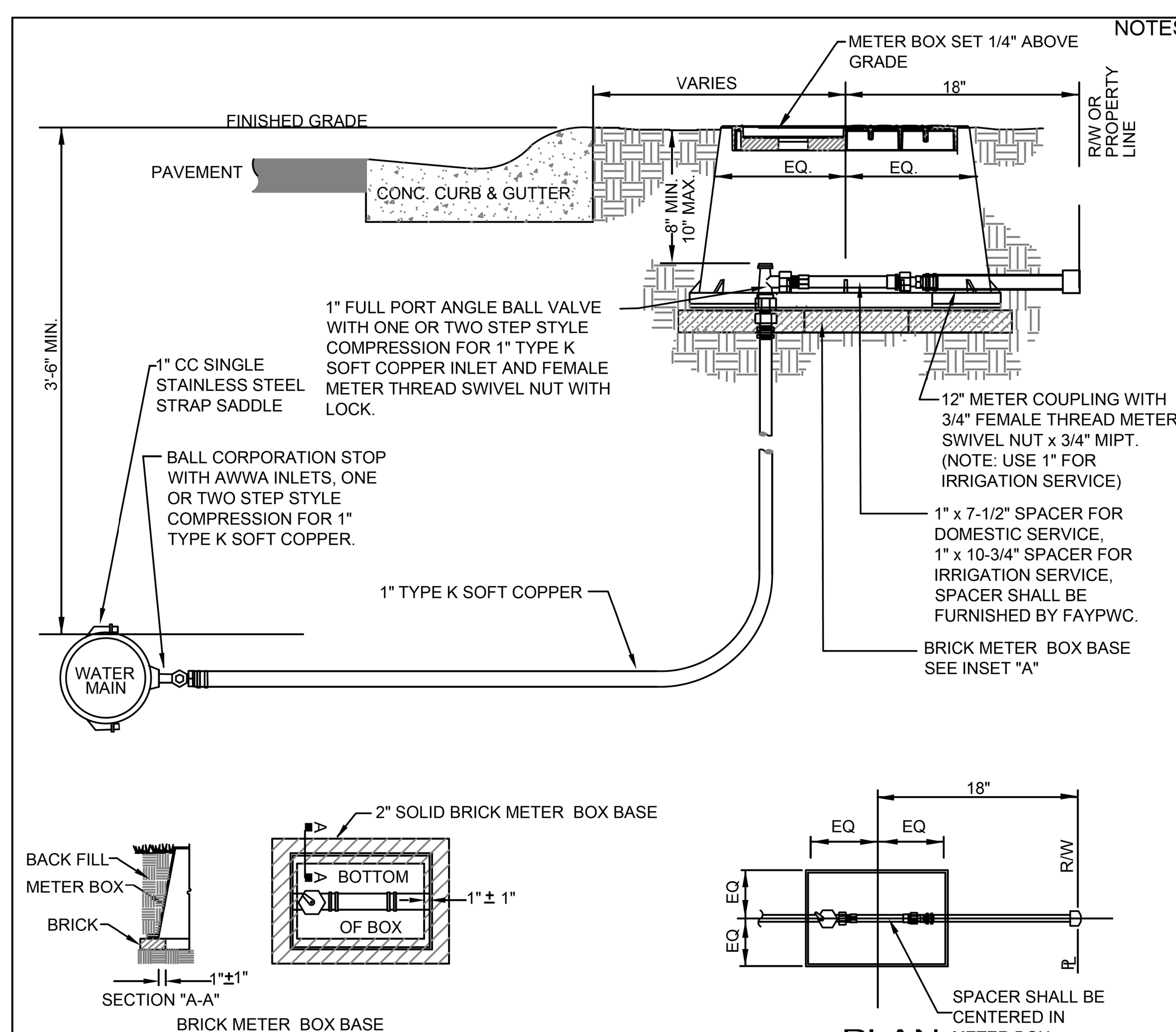
WATER MAIN KILL-OUT
N.T.S.

PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.
WATER RESOURCES ENGINEERING DEPARTMENT

SHEET NO. 1 OF 1 | DWG. NO. W.22 | DWG. BY: FAYPWC | DATE: JULY 01, 2015 | APPROVED BY: J.E.G.

NO.	DATE	REVISION

2015-W22 WATERMAIN KILLOUT.dwg



NOTES:

1. ALL MATERIALS TO BE APPROVED BY FAYPWC.
2. SERVICE LATERAL SIZE 1" TYPE K SOFT COPPER UNLESS OTHERWISE SPECIFIED.
3. SERVICE LATERAL INSTALLATION SHALL BE APPROVED BY FAYPWC.
4. WATER SERVICE LOCK VALVE TO BE LOCATED 18" FROM SANITARY SEWER CLEAN OUT STACK WHEN INSTALLED IN SAME DITCH.
5. WHEN INSTALLED IN A PAVED AREA, METER BOX TO BE SET 1/4" ABOVE FINISHED PAVEMENT GRADES AND PAVEMENT FEATHERED TO TOP OF BOX TO PROVIDE DRAIN AWAY FROM BOX
6. C.I. METER BOXES SHALL BE USED IN TRAFFIC AREAS SEE W.4B.
7. PERIMETER SOLID CONCRETE BRICK BASE WITH NO GAPS, DO NOT LAY BRICK ON PIPE. SEE INSET "A"
8. WHERE ASPHALT CURB OR STRIP PAVEMENT EXIST, THE LOCATION OF BOX SHALL BE AS DIRECTED BY FAYPWC REPRESENTATIVE.
9. DISTANCE FROM TOP OF LOCK VALVE OPERATING STEM TO TOP OF BOX SHALL BE 8" MIN. TO 10" MAX.
10. RESIDENTIAL METER BOX SHALL BE SET 18" FROM R/W TO CENTERLINE OF METER BOX PERPENDICULAR TO THE R/W.
11. COMMERCIAL METER BOX LOCATION SHALL BE AS APPROVED (PREFER NO METER BE INSTALLED LESS THAN 5' FROM BLDG. TO EDGE OF BOX).
12. LATERAL SHALL BE CENTERED ON LOT UNLESS OTHERWISE NOTED.
13. LATERAL SHALL NOT BE BACK FILLED UNTIL INSPECTED BY FAYPWC PROJECT COORDINATOR.
14. WATER MAIN AND LATERAL SHALL PASS HYDROSTATIC, LEAKAGE AND STERILIZATION TESTS (200 PSI).
15. SHOULD IT BE NECESSARY TO CRIMP THE WATER SERVICE LATERAL, A FULL CIRCLE REPAIR CLAMP SHALL BE PLACED ON THE CRIMPED AREA.

1" COPPER WATER SERVICE LATERAL
N.T.S.

PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.
WATER RESOURCES ENGINEERING DEPARTMENT

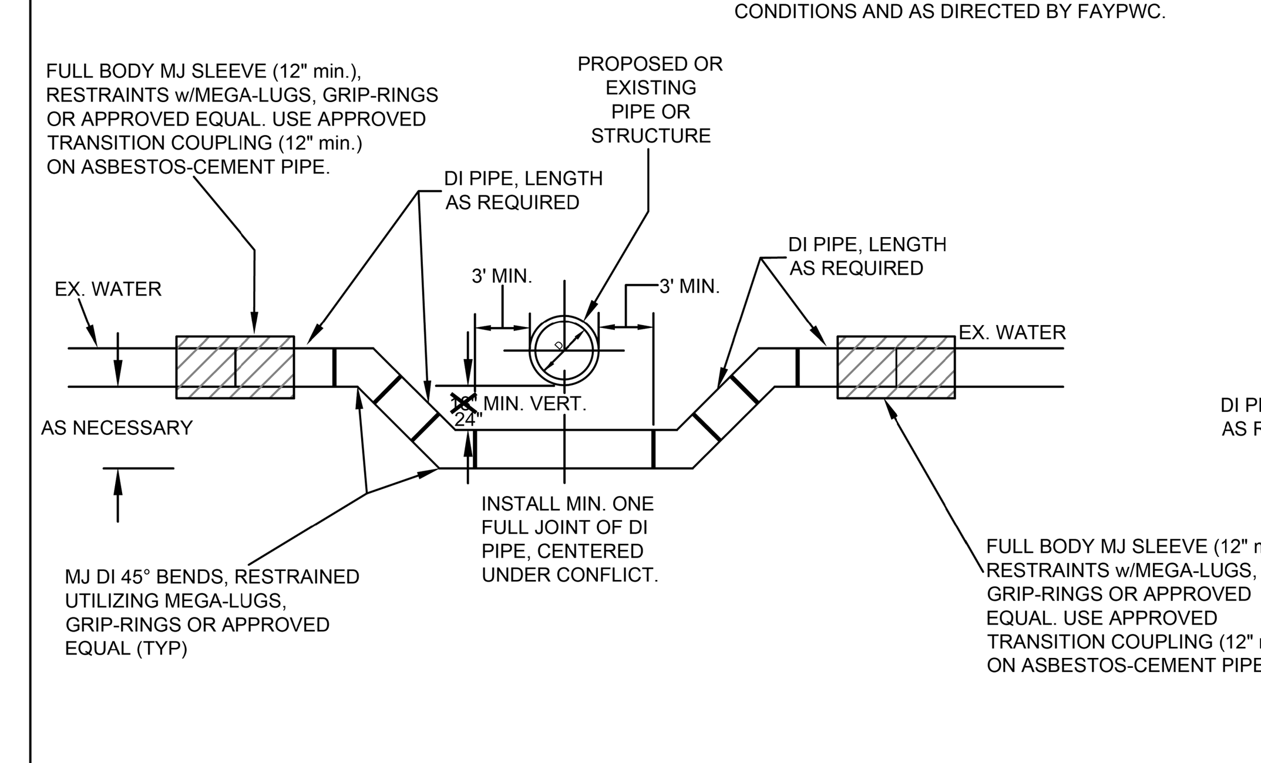
SHEET NO. 1 OF 1 | DWG. NO. W.24 | DWG. BY: FAYPWC | DATE: JULY 01, 2015 | APPROVED BY: J.E.G.

NO.	DATE	REVISION
1	MAY 05	VALVE CHANGE
2	SEPT 05	VALVE CHANGE, ADD NOTE 16.
3	JULY 06	RESIZED METER COUPLING

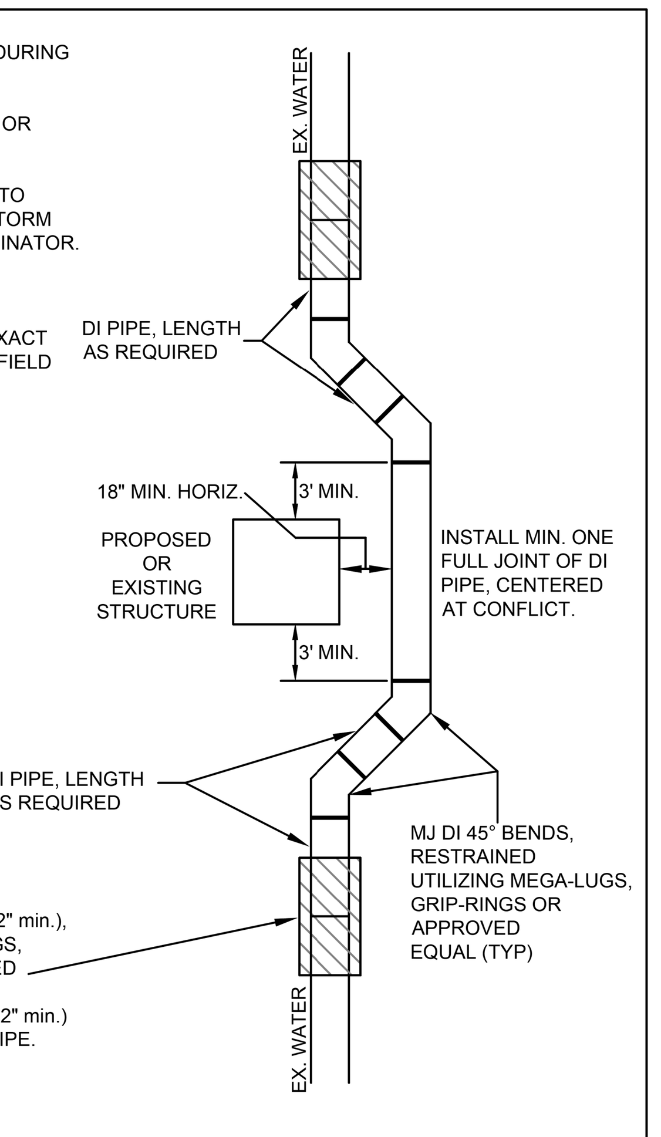
2015-W24 COPPER SERVICE LATERAL.dwg

NOTES:

1. ALL PIPE AND FITTINGS SHALL BE APPROVED BY FAYPWC.
2. CONTRACTOR TO COORDINATE NECESSARY OUTAGES WITH FAYPWC AND AFFECTED CUSTOMERS. MINIMUM 48 HOUR NOTICE REQUIRED.
3. NEW WATER MAIN TO BE SWABBED WITH A CHLORINE SOLUTION AND FLUSHED PRIOR TO PLACING INTO SERVICE.
4. ALL NEW FITTINGS AND PIPE TO BE RESTRAINED UTILIZING MEGA-LUGS, GRIP-RINGS OR APPROVED EQUAL.
5. ALL PIPE AND FITTINGS TO BE DUCTILE IRON.
6. FAYPWC PROJECT COORDINATOR TO BE PRESENT DURING WORK.
7. BACKFILL AND COMPACT TO CITY OF FAYETTEVILLE OR N.C.D.O.T. REQUIREMENTS.
8. PROVIDE STONE BEDDING (NO. 5 OR NO. 57 STONE) TO SUPPORT RELOCATED WATER MAIN AND/OR NEW STORM DRAIN, AS APPROVED BY FAYPWC PROJECT COORDINATOR.
9. MJ RESTRAINTS NOT ALLOWED ON PVC PIPE.
10. DIMENSIONS ARE GIVEN AS GENERAL GUIDANCE, EXACT DIMENSIONS ARE SUBJECT TO CHANGE BASED ON FIELD CONDITIONS AND AS DIRECTED BY FAYPWC.



VERTICAL RELOCATION



HORIZONTAL RELOCATION

PIPE RELOCATION DETAIL
N.T.S.

PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.
WATER RESOURCES ENGINEERING DEPARTMENT

SHEET NO. 1 OF 1 | DWG. NO.: W.26 | DWG. BY: FAYPWC | DATE: JULY 01, 2015 | APPROVED BY: J.E.G.

NO.	DATE	REVISION
1	01/12	REVISED NOTES, ADDED HORIZ. RELOCATION

2015-W26 PIPE RELOCATION DETAIL.dwg

UTILITY CONSTRUCTION PLANS PREPARED BY:
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DocuSign Envelope ID: CEC3E1CD-296A-45EC-B134-34CDA36E93E0

PROJECT REFERENCE NO.	SHEET NO.
W-5519	UC-4

DESIGNED BY: DMP
DRAWN BY: DMP
CHECKED BY: DMP
APPROVED BY:
REVISED:

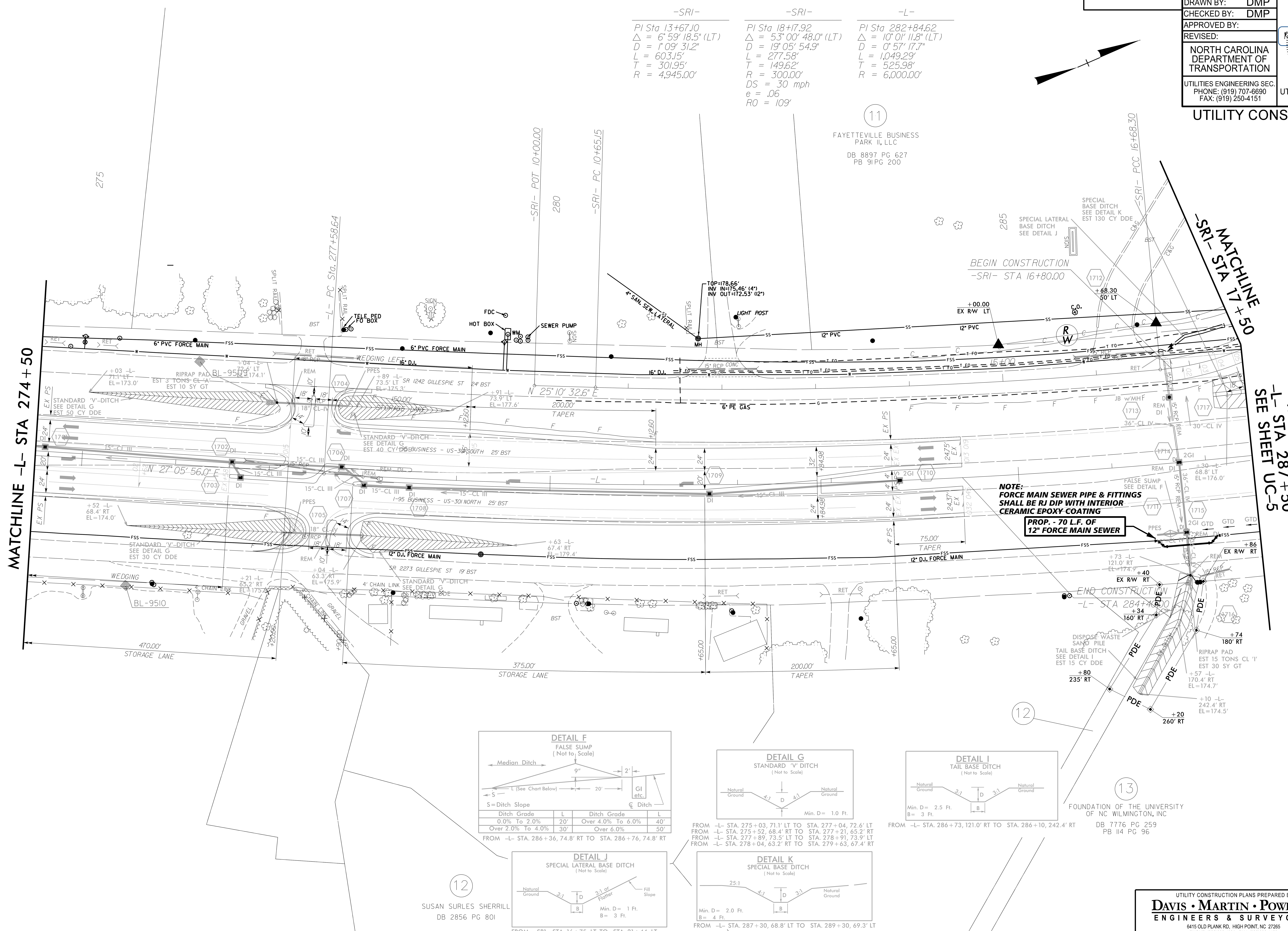
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

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

UTILITY CONSTRUCTION PLANS ONLY

9/16/2015
NORTH CAROLINA PROFESSIONAL SEAL 0117 ENGINEER RANDY L. McNEILL

UTILITY CONSTRUCTION



UTILITY CONSTRUCTION PLANS PREPARED BY:
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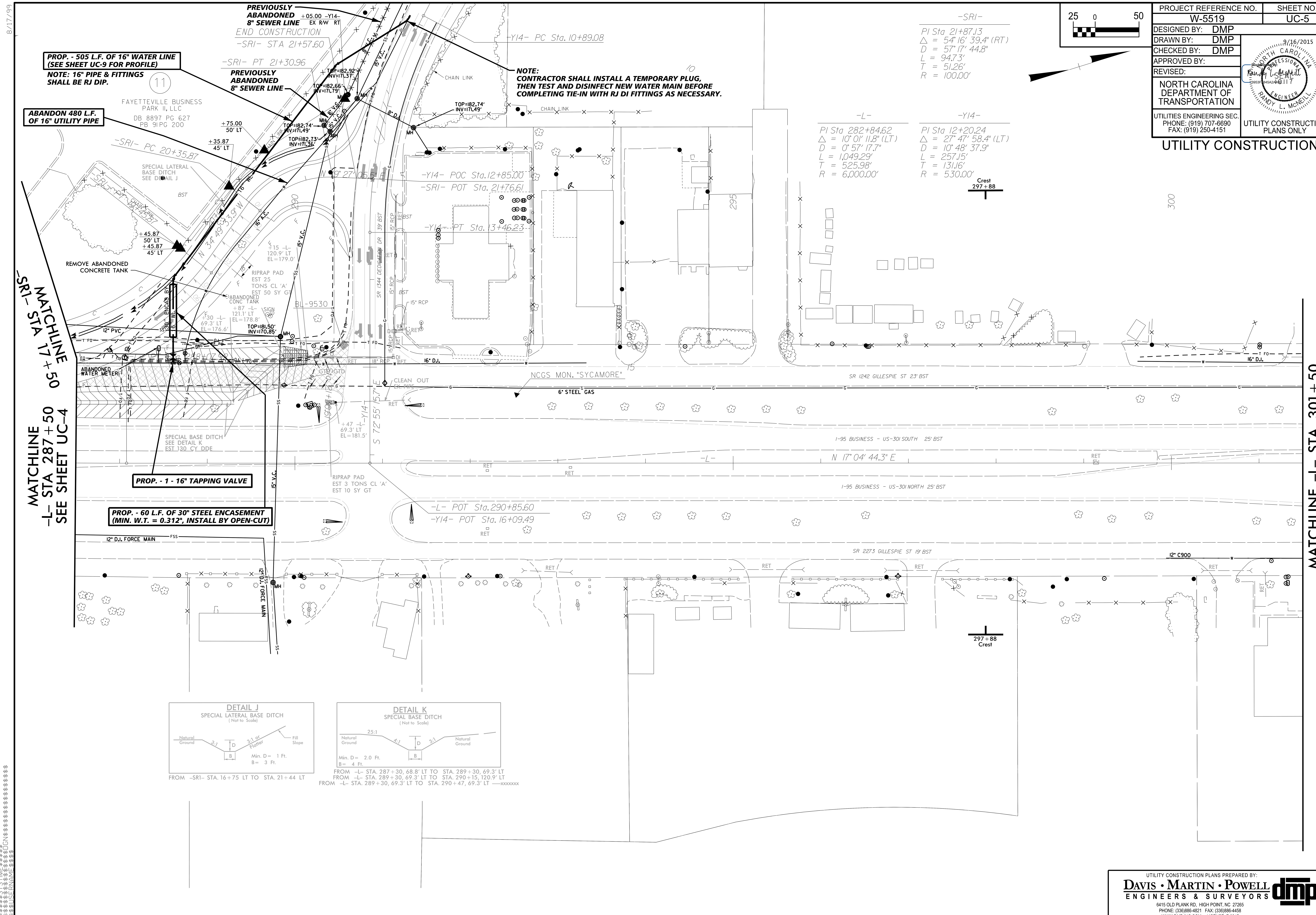
WWW.DMP-INC.COM LICENSE: F-0245

8/17/99



PROJECT REFERENCE NO.	SHEET NO.
W-5519	UC-6

DESIGNED BY: DMP
DRAWN BY: DMP
CHECKED BY: DMP
APPROVED BY:
REVISED:

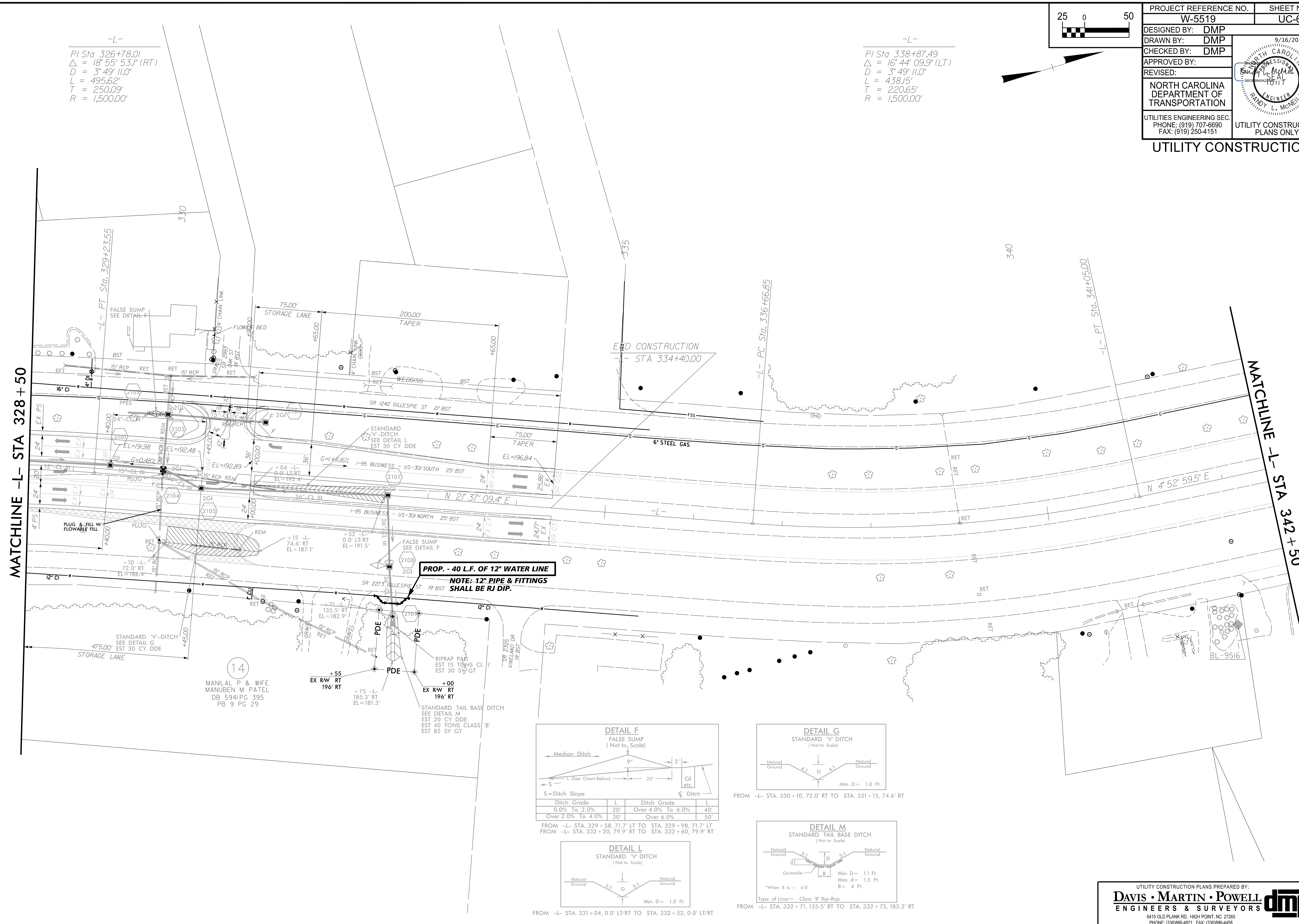
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

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

UTILITY CONSTRUCTION PLANS ONLY

9/16/2015
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 16117 RANDY L. McNEILL

UTILITY CONSTRUCTION



25 0 50
-L-
PI Sta 326+78.01
△ = 18° 55' 53.1" (RT)
D = 3° 49' 11.0"
L = 495.62'
T = 250.09'
R = 1,500.00'
-L-
PI Sta 338+87.49
△ = 16° 44' 09.9" (LT)
D = 3° 49' 11.0"
L = 438.15'
T = 220.65'
R = 1,500.00'
MATCHLINE -L- STA 328+50
MATCHLINE -L- STA 342+50
-L- PT Sta. 329+23.55
-L- PC Sta. 336+66.85
-L- PT Sta. 341+05.00
END CONSTRUCTION
-L- STA 334+40.00
FALSE SUMP
SEE DETAIL F
75.00'
STORAGE LANE
200.00'
TAPER
75.00'
TAPER
SR 1242 GILLESPIE ST 21' BST
6" STEEL GAS
I-95 BUSINESS - US-301 SOUTH 25' BST
I-95 BUSINESS - US-301 NORTH 25' BST
N 21° 37' 09.4" E
N 4° 52' 59.5" E
STANDARD
'V'-DITCH
SEE DETAIL L
EST 30 CY DDE
PLUG & FILL W/ FLOWABLE FILL
FALSE SUMP
SEE DETAIL F
PROP. - 40 L.F. OF 12" WATER LINE
NOTE: 12" PIPE & FITTINGS SHALL BE RJ DIP.
SR 2273 GILLESPIE ST 19' BST
SR 2325 VINELAND DR 19' BST
STANDARD 'V'-DITCH
SEE DETAIL G
EST 30 CY DDE
475.00'
STORAGE LANE
14
MANILAL P & WIFE
MANUBEN M PATEL
DB 5941 PG 395
PB 9 PG 29
RIPRAP PAD
EST 15 TONS CL 'I'
EST 30 SY GT
STANDARD TAIL BASE DITCH
SEE DETAIL M
EST 20 CY DDE
EST 40 TONS CLASS 'B'
EST 85 SY GT
+55
EX R/W RT
196' RT
+00
EX R/W RT
196' RT
PDE
BL-9516
DETAIL F
FALSE SUMP
(Not to Scale)
S=Ditch Slope
Ditch Grade | L | Ditch Grade | L
0.0% To 2.0% | 20' | Over 4.0% To 6.0% | 40'
Over 2.0% To 4.0% | 30' | Over 6.0% | 50'
FROM -L- STA. 329+58, 71.7' LT TO STA. 329+98, 71.7' LT
FROM -L- STA. 332+20, 79.9' RT TO STA. 332+60, 79.9' RT
DETAIL G
STANDARD 'V' DITCH
(Not to Scale)
Min. D= 1.0 Ft.
FROM -L- STA. 330+10, 72.0' RT TO STA. 331+15, 74.6' RT
DETAIL L
STANDARD 'V' DITCH
(Not to Scale)
Min. D= 1.0 Ft.
FROM -L- STA. 331+04, 0.0' LT/RT TO STA. 332+52, 0.0' LT/RT
DETAIL M
STANDARD TAIL BASE DITCH
(Not to Scale)
Min. D= 1.1 Ft.
Max. d= 1.5 Ft.
B= 4 Ft.
Type of Liner= Class 'B' Rip-Rap
FROM -L- STA. 332+71, 135.5' RT TO STA. 332+75, 185.3' RT

UTILITY CONSTRUCTION PLANS PREPARED BY:
DAVIS • MARTIN • POWELL
ENGINEERS & SURVEYORS
6415 OLD PLANK RD, HIGH POINT, NC 27265
PHONE: (336)886-4821 FAX: (336)886-4458
WWW.DMP-INC.COM LICENSE: F-0245

8/17/99

$$$$$$SYSTIME$$$$$$ $$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$ $$$$$$USERNAME$$$$$$

PROJECT REFERENCE NO.	SHEET NO.
W-5519	UC-7

DESIGNED BY: DMP
DRAWN BY: DMP
CHECKED BY: DMP
APPROVED BY:
REVISED:

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

UTILITIES ENGINEERING SEC.
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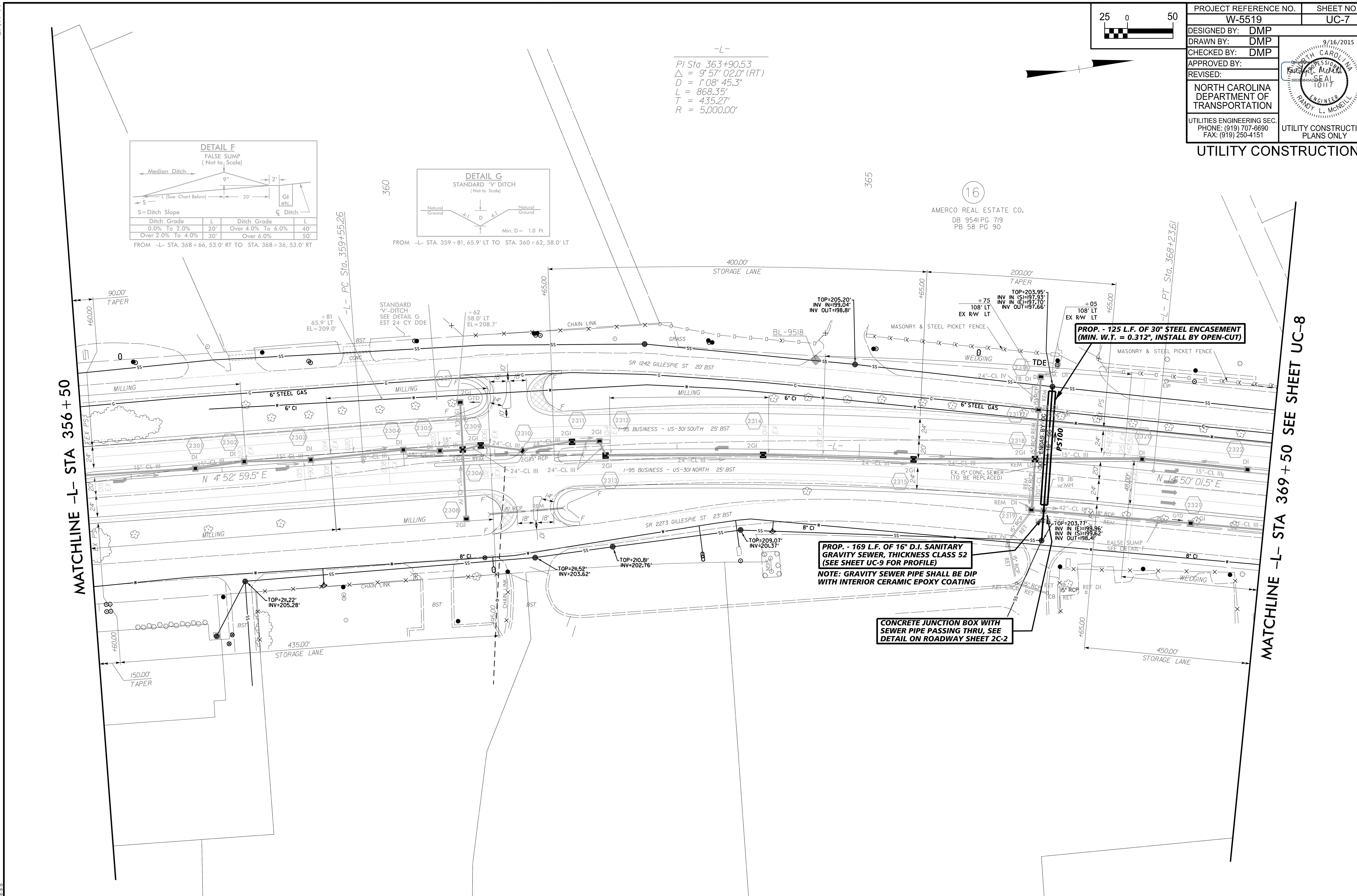
UTILITY CONSTRUCTION PLANS ONLY

9/16/2015
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 10117 RANDY L. McNEILL

UTILITY CONSTRUCTION



25 0 50
-L-
PI Sta 363+90.53
△ = 9° 57' 02.0" (RT)
D = 1° 08' 45.3"
L = 868.35'
T = 435.27'
R = 5,000.00'
DETAIL F
FALSE SUMP
(Not to Scale)
Median Ditch
S=Ditch Slope
Ditch Grade | L | Ditch Grade | L
0.0% To 2.0% | 20' | Over 4.0% To 6.0% | 40'
Over 2.0% To 4.0% | 30' | Over 6.0% | 50'
FROM -L- STA. 368+66, 53.0' RT TO STA. 368+36, 53.0' RT
DETAIL G
STANDARD 'V' DITCH
(Not to Scale)
Min. D= 1.0 Ft.
FROM -L- STA. 359+81, 65.9' LT TO STA. 360+62, 58.0' LT
16
AMERCO REAL ESTATE CO.
DB 9541 PG 719
PB 58 PG 90
400.00' STORAGE LANE
200.00' TAPER
90.00' TAPER
-L- PC Sta. 359+55.26
-L- PT Sta. 368+23.61
SR 1242 GILLESPIE ST 20' BST
I-95 BUSINESS - US-301 SOUTH 25' BST
I-95 BUSINESS - US-301 NORTH 25' BST
SR 2273 GILLESPIE ST 23' BST
N 4° 52' 59.5" E
N 14° 50' 01.5" E
TOP=205.20' INV IN=199.04' INV OUT=198.81'
TOP=203.95' INV IN (S)=197.93' INV IN (E)=197.70' INV OUT=197.66'
TOP=203.77' INV IN (E)=199.96' INV IN (S)=199.62' INV OUT=198.41'
TOP=209.07' INV=201.37'
TOP=210.81' INV=202.76'
TOP=211.52' INV=203.62'
TOP=211.22' INV=205.28'
PROP. - 125 L.F. OF 30" STEEL ENCASEMENT (MIN. W.T. = 0.312", INSTALL BY OPEN-CUT)
PROP. - 169 L.F. OF 16" D.I. SANITARY GRAVITY SEWER, THICKNESS CLASS 52 (SEE SHEET UC-9 FOR PROFILE)
NOTE: GRAVITY SEWER PIPE SHALL BE DIP WITH INTERIOR CERAMIC EPOXY COATING
CONCRETE JUNCTION BOX WITH SEWER PIPE PASSING THRU, SEE DETAIL ON ROADWAY SHEET 2C-2
MASONRY & STEEL PICKET FENCE
6" STEEL GAS
6" CI
8" CI
MILLING
WEDGING
CHAIN LINK
BL-9518
435.00' STORAGE LANE
150.00' TAPER
450.00' STORAGE LANE
FALSE SUMP SEE DETAIL F
EX. 15" CONC. SEWER (TO BE REPLACED)
MATCHLINE -L- STA 356+50
MATCHLINE -L- STA 369+50 SEE SHEET UC-8

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PROJECT REFERENCE NO.	SHEET NO.
W-5519	UC-8

DESIGNED BY: DMP
DRAWN BY: DMP
CHECKED BY: DMP
APPROVED BY:
REVISED:

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

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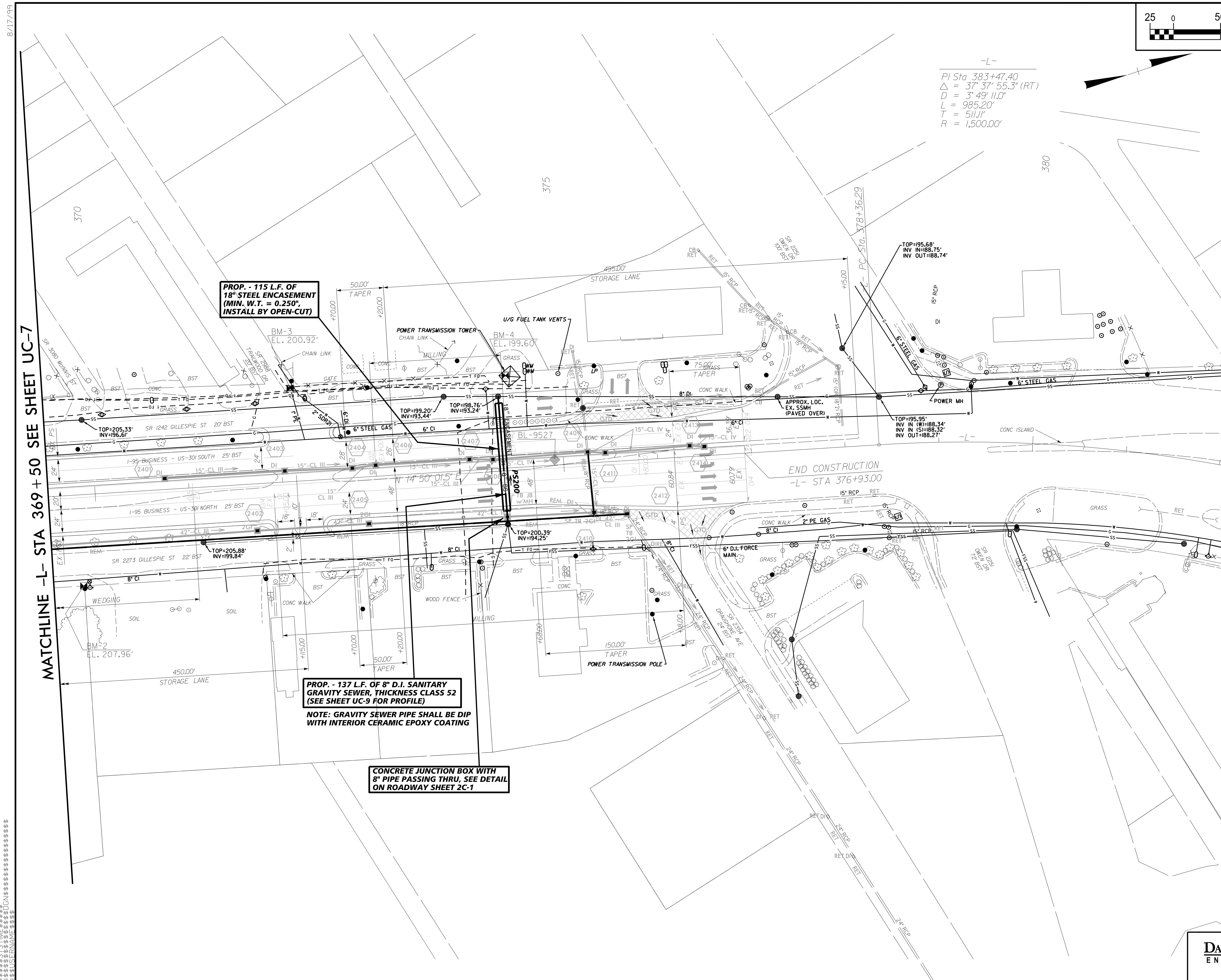
UTILITY CONSTRUCTION PLANS ONLY

9/16/2015

NORTH CAROLINA PROFESSIONAL ENGINEER RANDY L. McNEILL 10117

UTILITY CONSTRUCTION



25 0 50
8/17/99
-L-
PI Sta 383+47.40
Δ = 37° 37' 55.3" (RT)
D = 3° 49' 11.0"
L = 985.20'
T = 511.11'
R = 1,500.00'
MATCHLINE -L- STA 369+50 SEE SHEET UC-7
MATCHLINE -L- STA 383+50
PROP. - 115 L.F. OF 18" STEEL ENCASEMENT (MIN. W.T. = 0.250", INSTALL BY OPEN-CUT)
PROP. - 137 L.F. OF 8" D.I. SANITARY GRAVITY SEWER, THICKNESS CLASS 52 (SEE SHEET UC-9 FOR PROFILE)
NOTE: GRAVITY SEWER PIPE SHALL BE DIP WITH INTERIOR CERAMIC EPOXY COATING
CONCRETE JUNCTION BOX WITH 8" PIPE PASSING THRU, SEE DETAIL ON ROADWAY SHEET 2C-1
END CONSTRUCTION -L- STA 376+93.00
BM-3 EL. 200.92'
BM-4 EL. 199.60'
BM-2 EL. 207.96'
POWER TRANSMISSION TOWER
POWER TRANSMISSION POLE
U/G FUEL TANK VENTS
APPROX. LOC. EX. SSMH (PAVED OVER)
TOP=205.33' INV=196.61'
TOP=199.20' INV=193.44'
TOP=198.76' INV=193.24'
TOP=200.39' INV=194.25'
TOP=205.88' INV=199.84'
TOP=195.68' INV IN=188.75' INV OUT=188.74'
TOP=195.95' INV IN (W)=188.34' INV IN (S)=188.32' INV OUT=188.27'
TOP=194.66' INV IN=186.45' INV OUT=186.39'
SR 1242 GILLESPIE ST
SR 2273 GILLESPIE ST
I-95 BUSINESS - US-301 SOUTH
I-95 BUSINESS - US-301 NORTH
6" STEEL GAS
2" PE GAS
6" D.I. FORCE MAIN
495.00' STORAGE LANE
450.00' STORAGE LANE
150.00' TAPER
75.00' TAPER
50.00' TAPER
CONC ISLAND
POWER MH

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PROJECT REFERENCE NO.	SHEET NO.
W-5519	UC-9

25 0 50
1" = 50' H, 1" = 5' V

DESIGNED BY: DMP
DRAWN BY: DMP
CHECKED BY: DMP
APPROVED BY:
REVISED:

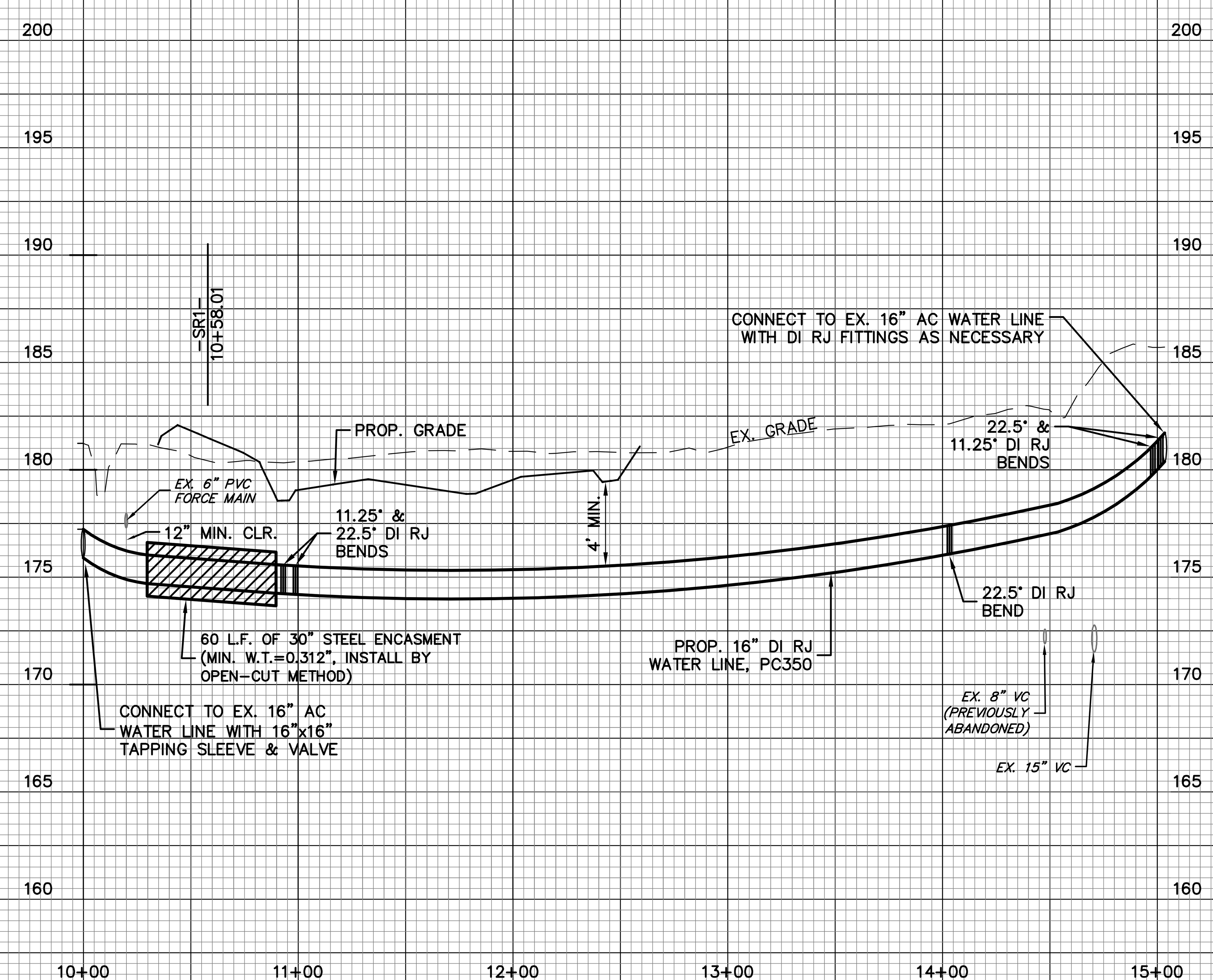
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

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

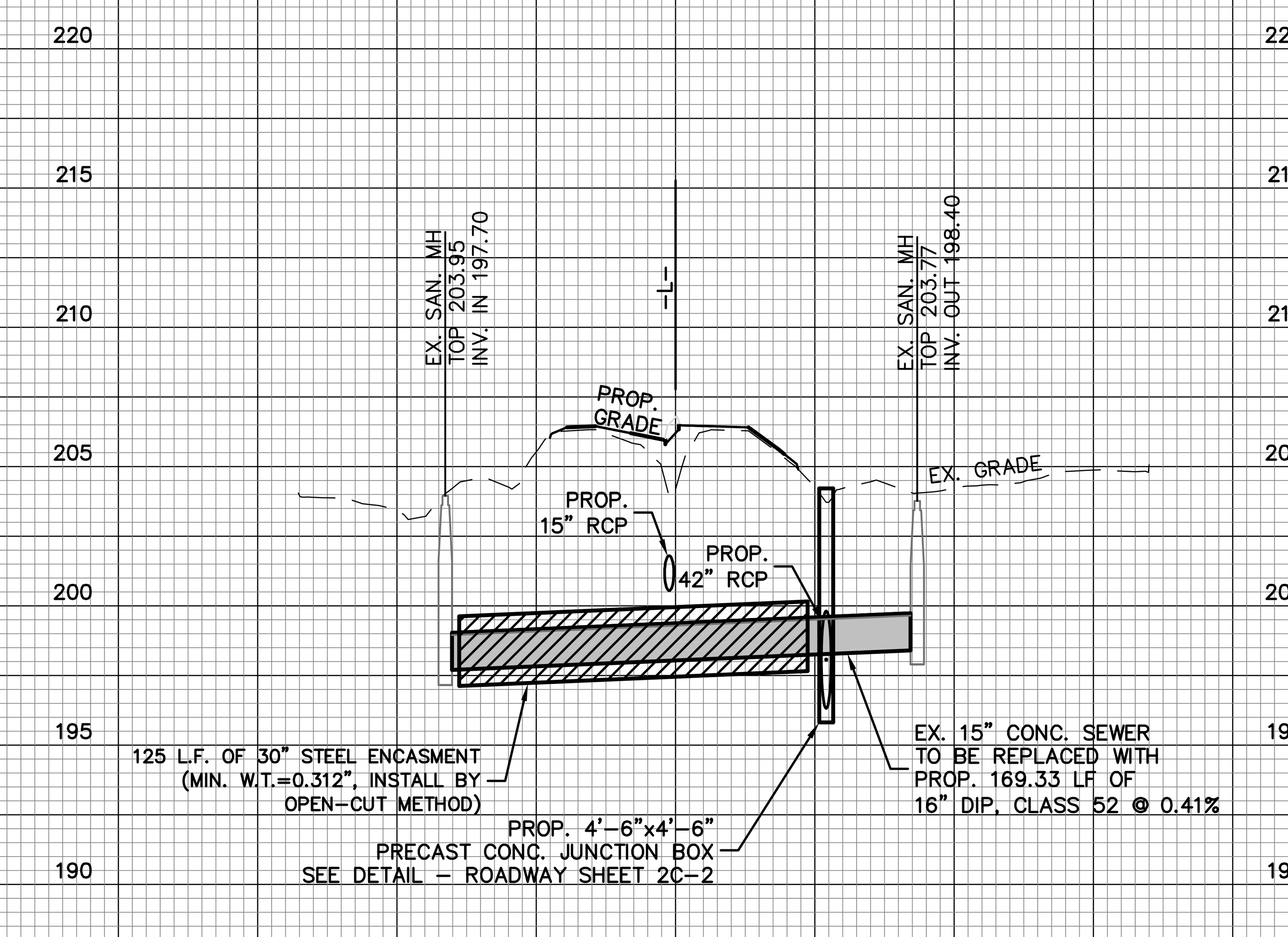
9/16/2015
DocuSigned by: Randy L. McNeill
395379845A2A40E...
NORTH CAROLINA PROFESSIONAL SEAL 10117 ENGINEER RANDY L. McNEILL

UTILITY CONSTRUCTION PLANS ONLY

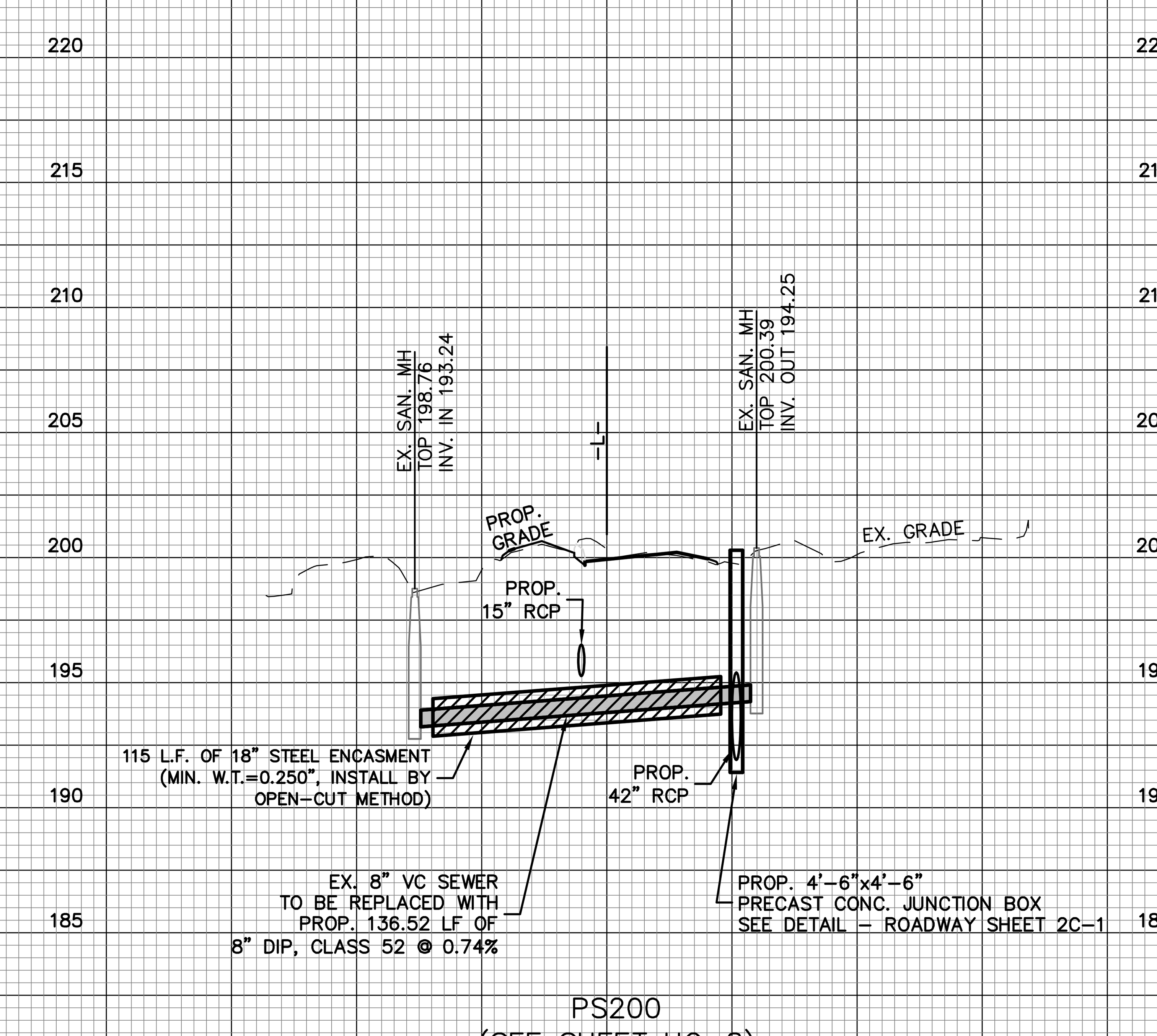
UTILITY CONSTRUCTION



PW100
(SEE SHEET UC-5)



PS100
(SEE SHEET UC-7)



PS200
(SEE SHEET UC-8)

$$$$$$$$SYSTIME$$$$$
$$$$$$$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$
$$$$$$$USERNAME$$$$

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