

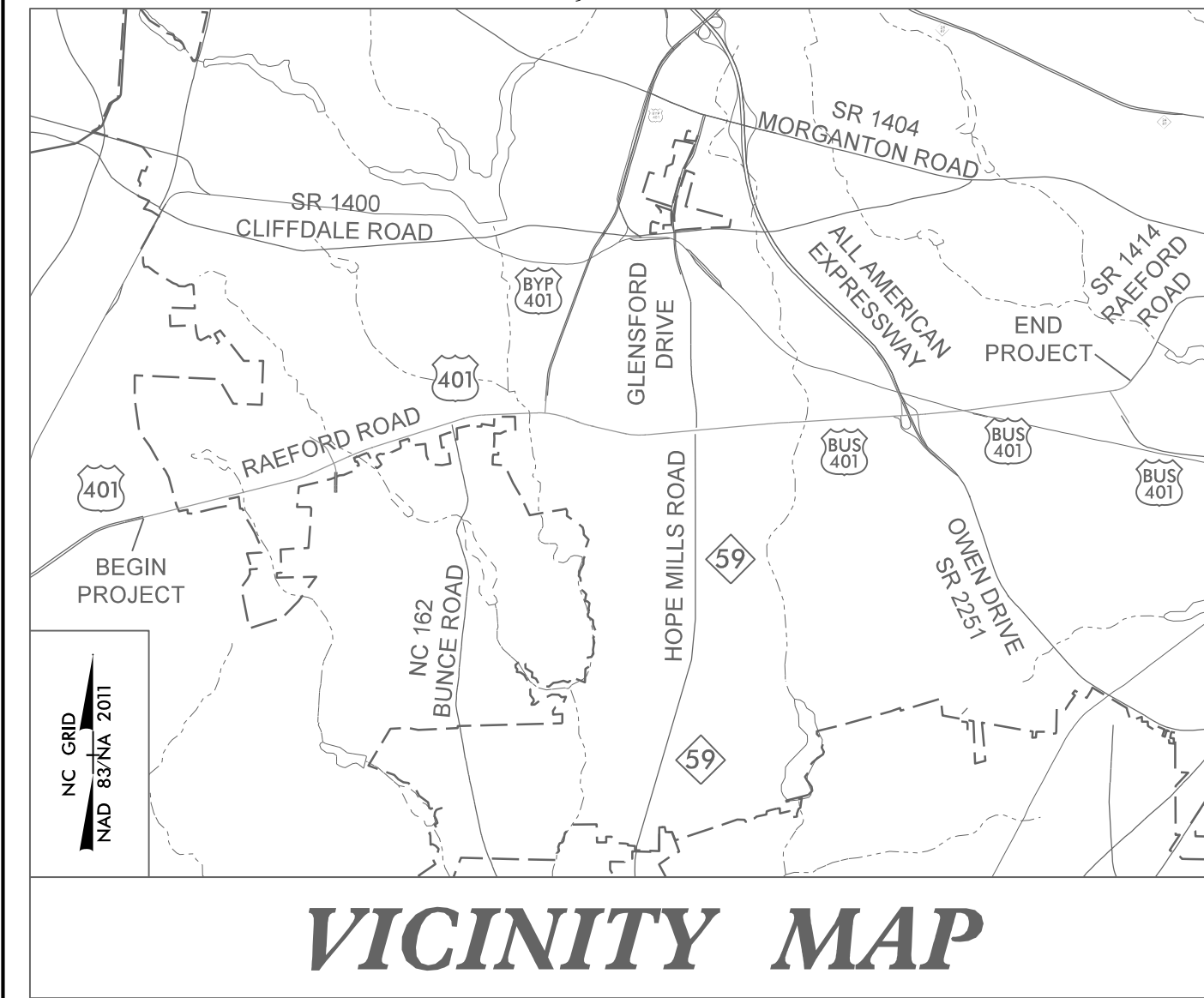
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T.I.P. NO.	SHEET NO.
U-4405	UC-1

See Sheet 1-A For Index of Sheets
See Sheet 1-B For Conventional Symbols



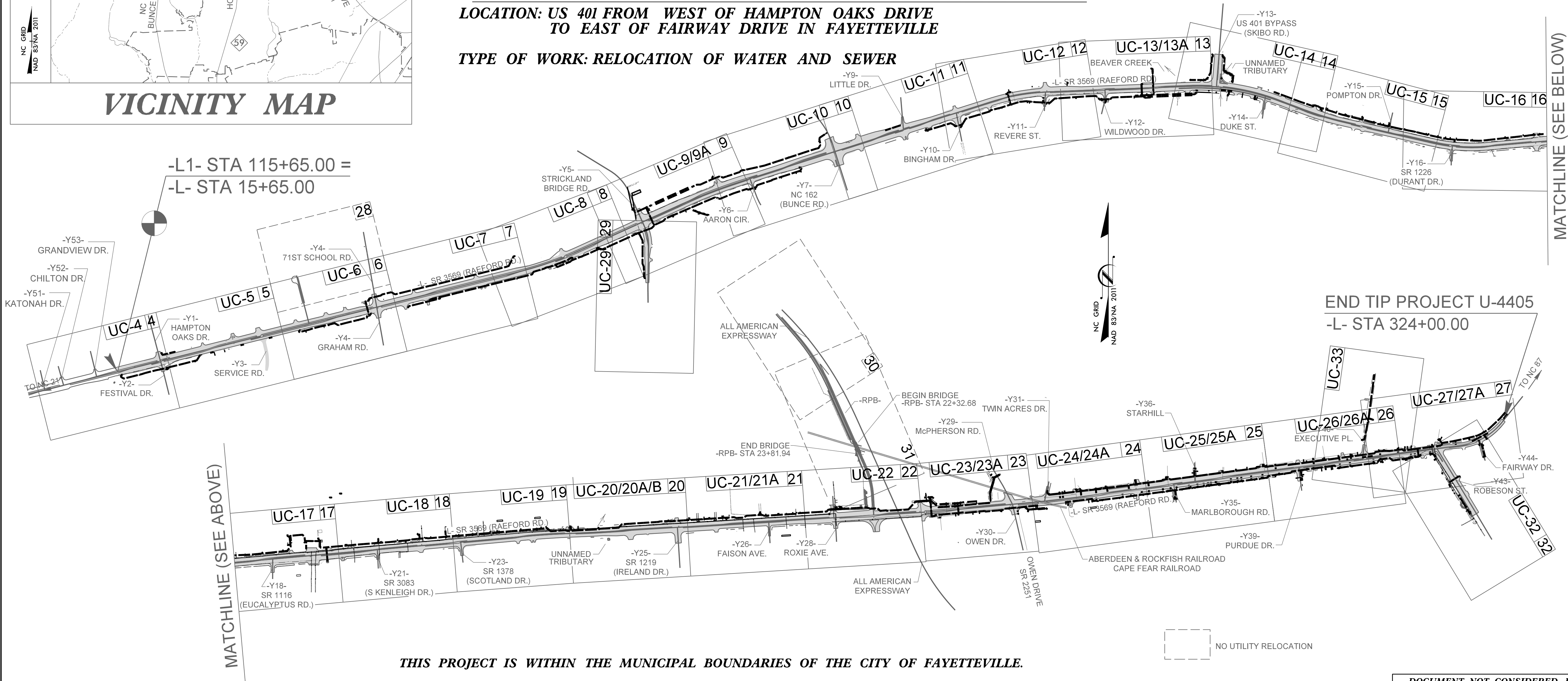
STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

UTILITY CONSTRUCTION PLANS CUMBERLAND COUNTY

**LOCATION: US 401 FROM WEST OF HAMPTON OAKS DRIVE
TO EAST OF FAIRWAY DRIVE IN FAYETTEVILLE**

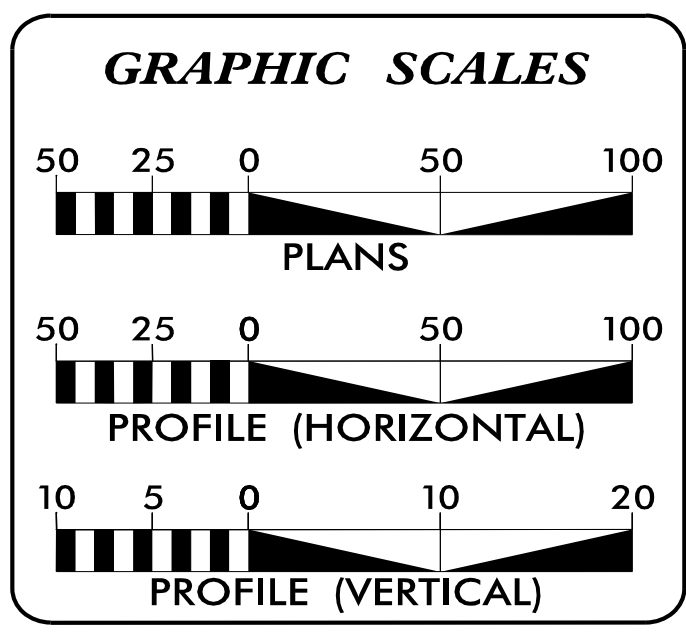
TYPE OF WORK: RELOCATION OF WATER AND SEWER

TIP PROJECT: U-4405



THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF THE CITY OF FAYETTEVILLE.
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD ____.

**DOCUMENT NOT CONSIDERED FINAL
UNTIL ALL SIGNATURES ARE COMPLETED**



INDEX OF SHEETS

SHEET NO.	DESCRIPTION
UC-1	TITLE SHEET
UC-2	UTILITY SYMBOLOGY
UC-3 THRU UC-3C	NOTES
UC-3D THRU UC-3M	DETAILS
UC-4 THRU UC-33	UTILITY CONSTRUCTION SHEETS
UC-34 THUR UC-60	PROFILE SHEETS

WATER AND SEWER OWNERS ON PROJECT

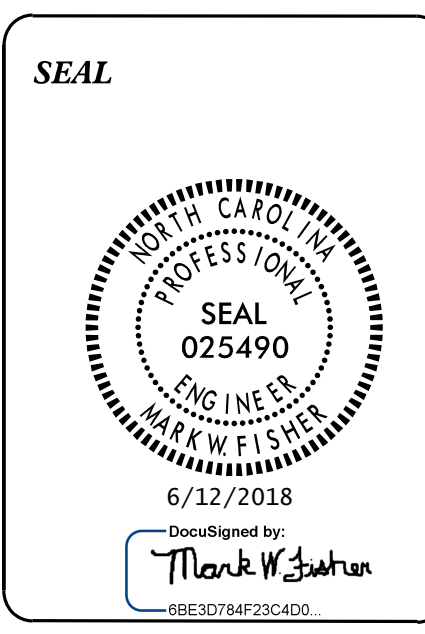
(1) WATER: FAYETTEVILLE PWC
(2) SANITARY SEWER: FAYETTEVILLE PWC

Prepared in the Office of:

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KYLE PLEASANT UTILITIES AREA COORDINATOR
LARRY M. JAMES UTILITIES COORDINATOR

05-JUN-2018 16:22 L:\Projects\Fayetteville Public Works Commission\2015017700RA Raeford Road NCDOT U 4405\CADD\NCDOT PLANS\Utilities\Engineering\UC\Proj\U4405_ut-fsh_UC01_psh.dgn ablermann AT WKD\jrf

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

UTILITIES PLAN SHEET SYMBOLS

PROPOSED WATER SYMBOLS

Water Line (Sized as Shown)	
11 1/4 Degree Bend	
22 1/2 Degree Bend	
45 Degree Bend	
90 Degree Bend	
Plug	
Tee	
Cross	
Reducer	
Gate Valve	
Butterfly Valve	
Tapping Valve	
Line Stop	
Line Stop with Bypass	
Blow Off	
Fire Hydrant	
Relocate Fire Hydrant	
Remove Fire Hydrant	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 MISCELLANEOUS UTILITIES SYMBOLS

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

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

EXISTING UTILITIES SYMBOLS

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

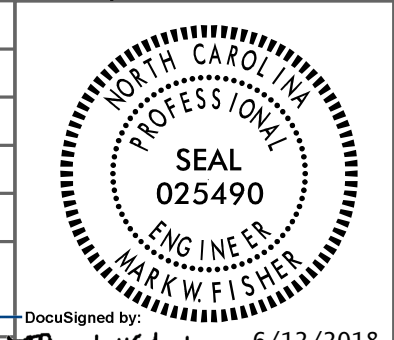
*For Existing Utilities
 Utility Line Drawn from Record (Type as Shown)
 Designated Utility Line (Type as Shown)

5/14/99
 PLANS\Utilities\Engineering\UC\Proj\U4405-ut-sym-UC02.psh.dgn
 Reeford Road NCDOT U-4405\CADD\NCDOT PLANS\Utilities\Engineering\UC\Proj\U4405-ut-sym-UC02.psh.dgn
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 REV: 2/1/2012

5/14/99
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UTILITY CONSTRUCTION

DOCUMENT NOT CONSIDERED FINAL
UNTIL ALL SIGNATURES ARE COMPLETED

PROJECT REFERENCE NO.	SHEET NO.
U-4405	UC-3A
DESIGNED BY: AMH	
DRAWN BY: AMH/AB	
CHECKED BY: AMH	
APPROVED BY: MWF	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SECTION	
PHONE: (919) 707-6650	
FAX: (919) 250-4151	
6/12/2018	
CONSTRUCTION PLANS ONLY	

UTILITY CONSTRUCTION

UC-4 UTILITY NOTES:

- FULLY GROUT MIN. 60LF OF 24" EXIST MAIN. PLUG EACH END OF ABANDONED MAIN PER PWC DETAIL W-22.
- KILL OUT OF BRANCH LINE SIDE OF TAPPING SLEEVE SHALL BE COORDINATED WITH 24" MAIN SHUTDOWN FOR LAYING BACK NEW 24" MAIN INTO EXIST ALIGNMENT (SEE SHEET UC-5)
- WL-2, WL-3 AND WL-1 BETWEEN TAP AT -WL-1- STA 0+00 AND VALVE AT APPROX -WL-1- STA. 8+95 SHALL BE INSTALLED AND OPERATIONAL BEFORE INSTALLING ANY OTHER PORTION OF WL-1
- PURSUANT TO TRAFFIC CONTROL REQUIREMENTS, CONTRACTOR MUST BE COMPLETE WITH THE PORTION OF WL-1 AND WL-2 AS DEFINED IN NOTE 3 BEFORE BEGINNING INSTALLATION OF WL-3. CONTRACTOR SHALL NOT BE PERFORMING WATER MAIN INSTALLATION LONGITUDINALLY TO THE ROAD ON BOTH SIDES.
- WL-3 TO BE CONNECTED TO EXISTING MAIN UNDER SERVICE INTERRUPTION. ADHERE TO PWC'S PROCEDURES FOR SHUTDOWN. EXISTING VALVES EV-2A AND EV-2B SHALL BE CRITICAL IN ISOLATING CONNECTING POINTS.
- KILL-OUT OF 24" SIDES OF 24"x24"x8"x8" CROSS TO BE FACILITATED BY SHUTDOWN WHEN KILLING OUT 24" MAIN AT TAPPING SLEEVE FOR WL-1. VALVES INCLUDING EV-1, EV-2A, EV-2B, EV-4 AND TAPPING VALVE FOR WL-1.

UC-5 UTILITY NOTES:

- CONTRACTOR SHALL LAY BACK INTO EXISTING 24" WATER MAIN WITH A MINIMUM OF 20 LF OF RESTRAINED JOINT UNDER PLANNED SERVICE INTERRUPTION.
- CONTRACTOR SHALL PROVIDE A TEMPORARY RESTRAINED PLUG AND TEMPORARY BLOW OFF ASSEMBLY FOR TESTING AND FLUSHING PURPOSES BEFORE RECONNECTING TO EXISTING 24" MAIN. NO SEPARATE PAYMENT SHALL BE MADE FOR TEMPORARY BLOW-OFF ASSEMBLIES.
- CONTRACTOR SHALL REMOVE TEMPORARY 24" PLUG AND SLEEVE TO EXISTING 24" WATER MAIN USING MJ x MJ FULL BODY SLEEVE AND RESTRAIN WITH RESTRAINING GLANDS.
- AFTER SLEEVEING OF PROPOSED 24" MAIN TO EXISTING 24" MAIN, CONTRACTOR SHALL ADHERE TO CUT IN CONSTRUCTION REQUIREMENTS (AWWA C651) WHEN REINSTATING THE 24" MAIN.
- WL-2, WL-3 AND WL-1 BETWEEN TAP AT -WL-1- STA 0+00 AND VALVE AT -WL-1- STA 8+95 SHALL BE INSTALLED AND OPERATIONAL BEFORE INSTALLING ANY OTHER PORTION OF WL-1.
- PURSUANT TO TRAFFIC CONTROL REQUIREMENTS, CONTRACTOR MUST BE COMPLETE WITH THE PORTION OF WL-1 AND WL-2 BEFORE BEGINNING INSTALLATION OF WL-3. CONTRACTOR SHALL NOT BE PERFORMING WATER MAIN INSTALLATION LONGITUDINALLY TO THE ROAD ON BOTH SIDES.
- SHUTDOWN TO CONNECT WL-1 TO EXISTING 24" MAIN AND PERFORM KILL-OUT OF EXISTING 24" MAIN AT TAPPING LOCATION SHALL BE FACILITATED THROUGH EV-1, EV-2A, EV-2C, EV-4 AND 24" TAPPING VALVE AND NEW IN-LINE VALVE AT STA. 8+95. WL-2 AND WL-3 SHALL BE INSTALLED AND OPERATIONAL PRIOR TO SHUTDOWN FOR WL-1 TO BACKFEED SKATEWAY DRIVE.
- PWC'S SAMPLING STATION SHALL NOT BE DISTURBED. PROVIDE NEW TAP AND LATERAL TO SAMPLING STATION IF 1" SERVICE LATERAL IS IN CONFLICT WITH PROPOSED DRAINAGE. SAMPLING STATION SHALL NOT BE INTERRUPTED DURING ANNUAL BURN OUT, WHICH OCCURS EVERY MARCH, OTHERWISE, SERVICE TO SAMPLING STATION MAY BE INTERRUPTED SHOULD PLANNED SHUTDOWNS IMPACT THIS SERVICE LATERAL.
- CITY OF FAYETTEVILLE HAS A 1" SERVICE FOR MEDIAN IRRIGATION. PROVIDE NEW TAP AND LATERAL TO RECONNECT 1" IRRIGATION SERVICE IF IT IS IN CONFLICT WITH PROPOSED DRAINAGE. CONTRACTOR SHALL REPLACE ALL DAMAGED IRRIGATION PIPING (INCIDENTAL AND THAT IS IN CONFLICT WITH WORK) AT NO ADDITIONAL COST.

UC-6 UTILITY NOTES:

- EXISTING METER AND SERVICE WAS NOT LOCATED. CONTRACTOR TO PROVIDE 1" METER SERVICE. COORDINATE LOCATION WITH PWC'S PROJECT COORDINATOR.
- INSTALL AND HAVE OPERATIONAL WL-5 BETWEEN TAPPING VALVE TO 24"x24"x24" TEE AT -WL-5- STA 8+37.33. STUB-OUT WL-5 FOR CONNECTION TO EXISTING 24" MAIN. INSTALL AND HAVE OPERATIONAL WL-6 BETWEEN WL-5 AND 24" TAPPING VALVE FOR WL-6. STUB-OUT WL-7.
- PURSUANT TO TRAFFIC CONTROL REQUIREMENTS, CONTRACTOR MUST BE COMPLETED WITH WORK ON WL-5 AS DEFINED IN ITEM 2 BEFORE BEGINNING INSTALLATION ON WL-6. CONTRACTOR SHALL NOT BE PERFORMING WATER MAIN INSTALLATION LONGITUDINALLY TO THE ROAD ON BOTH SIDES.
- CONNECT EXISTING METERS ON EXISTING 24" MAIN TO WL-5 BEFORE PERFORMING EXISTING MAIN AND HYDRANT LEG ADJUSTMENTS BETWEEN EV-4 AND EV-8.
- COORDINATE SHUTDOWN TO PERFORM EXISTING MAIN AND HYDRANT LEG ADJUSTMENTS BETWEEN EV-4 AND EV-8 WITH PWC'S PROJECT COORDINATOR AND KILLING OUT EXISTING MAIN AT TAPPING SLEEVE FOR WL-5 AT -WL-5- STA 0+00. EXISTING VALVES EV-4, EV-5, EV-8, AND TAPPING SLEEVE FOR WL-5 AT -WL-5- STA 0+00 SHALL FACILITATE SHUTDOWN AND MAINTAIN UNINTERRUPTED SERVICE TO CUSTOMERS.
- AFTER COMPLETING ALTERATIONS IN NOTE 5, COMPLETE CONNECTION OF WL-5 TO EXISTING 24" MAIN BY CUTTING IN AND KILLING OUT EXISTING MAIN AT TAPPING SLEEVE FOR WL-6 UNDER PLANNED SHUTDOWN. CONSTRUCTION TIME FOR THIS WORK SHALL BE LIMITED TO WEEKEND AND SHALL NOT BEGIN UNTIL 6:00 P.M. ON FRIDAY. ALL WORK MUST BE COMPLETED AND WATER MAIN BACK IN OPERATION BEFORE 7:00 A.M. MONDAY. EXISTING VALVES EV-4, EV-5, EV-8A AND EV-9 SHALL FACILITATE SHUTDOWN TO MINIMIZE SERVICE INTERRUPTIONS.
- WL-5 SLEEVE INTO EXISTING MAIN SHALL ENTAIL THE REMOVAL OF ONE 24" RJ BUTTERFLY VALVE AND ONE 24"x24"x24" RJ TEE. EV-8A IS RESTRAINED AND SHALL NOT BE DAMAGED SO WL-5 CAN BE RECONNECTED TO IT USING NIPPLE AND FULL BODY MJ SLEEVE AND RESTRAINING GLANDS.
- DURING INSTALLATION OF WL-5, CONTRACTOR SHALL REMOVE AND REPLACE 48 LF OF RCP AS SHOWN ON PLANS.
- TEMPORARY SHORING IF REQUIRED FOR BUILDING FOUNDATION PROTECTION OR MAINTENANCE OF TRAFFIC WILL BE PAID AS TEMPORARY SHORING IN SQUARE FEET BELOW GROUND SURFACE.

UC-7 UTILITY NOTES

- WL-8 SHALL BE BUILT OUT FROM TAPPING SLEEVE AND VALVE (SEE SHEET UC-8) TO TIE IN TO EXISTING 24" MAIN.
- SEE UTILITY NOTES ON SHEET UC-8 FOR SPECIAL SEQUENCING OF INSTALLATION AND CUT IN REQUIREMENTS FOR WL-8, WL-10, AND 24" MAIN ABANDONMENT.
- LAY BACK MINIMUM OF ONE FULL RESTRAINED JOINT.

UC-8 UTILITY NOTES:


- THE PORTION OF WL-8 WITHIN RAEFORD ROAD (BETWEEN APPROX. -WL-8- STA 12+00 AND APPROX. -WL-8- STA 17+00) SHALL BE INSTALLED DURING WEEKNIGHT TIMES TO FACILITATE MAXIMUM OF TWO LANES OF CLOSURE. WORK EACH NIGHT SHALL NOT BEGIN BEFORE 7:00 P.M. ALL WORK UTILITIZING THE SECOND LANE OF CLOSURE SHALL BE COMPLETED BEFORE 6:00 A.M.
- FULLY GROUT MIN. 60 LF OF 24" EXIST. MAIN. PLUG EACH END OF ABANDONED MAIN PER PWC DETAIL W-22.
- KILL OUT OF LINE SIDE OF TAPPING SLEEVE SHALL BE COORDINATED WITH 24" MAIN SHUTDOWN FOR LAYING BACK NEW 24" MAIN INTO EXISTING ALIGNMENT (SEE SHEET UC-7 AND UC-8 ; WL-8 AND WL-10).
- INSTALL WL-8 AND WL-10 AND HAVE EACH SEGMENT OPERATIONAL TO LAST IN LINE VALVE ON EACH SEGMENT (BETWEEN -WL-8- STA 1+10 AND APPROX. -WL-8- STA 17+10 AND BETWEEN APPROX. -WL-10- STA 1+00 AND -WL-10- STA 25+50). ALL EXISTING METERS THAT OVERLAP THESE RELOCATION SEGMENTS SHALL BE SWITCHED OVER TO THESE NEW SEGMENTS. ALL CROSS-LINES FOR WL-10 SHALL BE FULLY RESTRAINED THROUGH BRANCH VALVES. ARRAN CIRCLE AND STRICKLAND BRIDGE ROAD (WL-11 AND WL-12) RECONNECTION SHALL BE COMPLETED AND OPERATIONAL CONCURRENT WITH WL-10 INSTALLATION. EXISTING BRANCH VALVES FOR ARRAN CIRCLE AND STRICKLAND BRIDGE ROAD SHALL BE PERMANENTLY CLOSED AND PROPERLY ABANDONED. SEE UTILITY NOTES ON UC-9 FOR ADDITIONAL SEQUENCING PROVISIONS FOR UC-12 THAT SHALL BE PERFORMED BEFORE SHUTDOWN FOR WL-8 AND WL-10.
- PRIOR TO TAPPING THE EXISTING 24" WATER MAIN CONTRACTOR SHALL INSTALL SPLIT RING BELL HARNESSSES ON EXISTING PIPE EQUIVALENT TO 3 FULL JOINT LENGTHS. MJxMJ FULL BODY SOLID TAPPING SLEEVE WITH RESTRAINING GLANDS SHALL BE PLUGGED AND RESTRAINED ON EXISTING WATER LINE ADJACENT TO WL-8
- TEMPORARILY BURY TEMPORARY 6" MAIN AT ALL DRIVEWAY CROSSINGS TO MAINTAIN INGRESS/EGRESS FOR THESE PARCELS.
- RECONNECT WL-8 AND WL-10 TO EXISTING MAIN UNDER SERVICE INTERRUPTION. ADHERE TO PWC'S PROCEDURES FOR SHUTDOWN. EXISTING VALVES EV-8A, EV-12, EV-12A, EV-13, EV-20, EV-20A AND EV-22 IN ISOLATING EXISTING 24" MAIN. KILL-OUT OF 24" TAPPING SLEEVE (LINE SIDE OF 24"x24"x24") FOR WL-8 AND WL-10 TO BE FACILITATED UNDER SAME SHUTDOWN. AFTER COMPLETION OF KILLOUTS AND CUT IN CONSTRUCTION, RESUME OPERATION OF EXISTING 24" WATER MAIN BY OPENING EV-8A, EV-20, EV-20A AND EV-22 AND COMPLETE ABANDONMENT OF 24" ADJACENT TO WL-8 AND WL-10.
- EXISTING 24" WATER MAIN IS RESTRAINED AT DESIGNATED LOCATION OF CUT IN FOR WL-10. WL-10 CAN BE SLEEVED IN WITH FULL BODY SLEEVE AND RESTRAINING GLANDS WITHOUT LAYING BACK ONE FULLY JOINT INTO EXISTING SYSTEM.

UC-9 UTILITY NOTES:

- ADHERE TO SPECIAL PROVISIONS OF OPEN CUTTING EXISTING PAVEMENT.
 - EXISTING IN LINE VALVE TO FACILITATE SHUTDOWN FOR RECONENCTION OF THE EXISTING WATER MAIN IN OAK FOREST DR IS APPROXIMATELY 325 LF FROM PROPOSED RECONNECTION POINT
- FULLY GROUT MIN. 60 LF OF 12" EXIST. MAIN. PLUG EACH END OF ABANDONED MAIN PER PWC DETAIL W-22.
- KILL OUT OF LINE SIDE OF TAPPING SLEEVE SHALL BE COORDINATED WITH 12" MAIN SHUTDOWN.
- INSTALL WL-12 AND HAVE OPERATIONAL PRIOR TO PLANNED SHUTDOWN FOR CONNECTION OF WL-10 BACK TO EXISTING 24" MAIN. WL-12 SHALL BE CONNECTED AS SHOWN TO EXISTING 12" MAIN TO MAINTAIN OPERATION AND TO FACILITATE KILL OUT OF EXISTING 12" MAIN CROSSING OF RAEFORD ROAD.
- 12"x12"x12" TAPPING SLEEVE AND VALVE SHALL BE INSTALLED TO MAINTAIN OPERATION UNTIL WL-13 IS INSTALLED AND OPERATION; THIS SHORT LOOP BETWEEN WL-12 AND EXISTING 12" MAIN SHALL BE ABANDONED AFTER WL-13 IS IN OPERATION.
- KILL OUT OF PORTION OF EXISTING 12" MAIN THAT FEEDS STRICKLAND BRIDGE ROAD (NORTH) AND NORTH SIDE OF RAEFORD ROAD SHALL BE FACILITATED BY EV-13, EV-14 AND EV-15.
- PURSUANT TO TRAFFIC CONTROL REQUIREMENTS, NO WORK ON THE SOUTH SIDE SHALL BE IN PROGRESS WHILE INSTALLING WL-12 AND CONNECTING IT TO THE EXISTING 12" MAIN ON STRICKLAND BRIDGE ROAD. CONTRACTOR SHALL NOT BE PERFORMING WATER MAIN INSTALLATION LONGITUDINALLY TO THE ROAD ON BOTH SIDES.
- TEMPORARY SHORING IF REQUIRED FOR BUILDING FOUNDATION PROTECTION OR MAINTENANCE OF TRAFFIC WILL BE PAID AS TEMPORARY SHORING IN SQUARE FEET BELOW GROUND SURFACE

UC-9A UTILITY NOTES

- CONTRACTOR SHALL SUBMIT A DETAILED SEWAGE BYPASS PLAN FOR MAINTAINING ALL SEWAGE FLOWS THAT WILL BE IMPACTED BY THE SEWER RELOCATION AND ADHERE TO ALL REQUIREMENTS IN OWNER'S WASTE WATER CONTROL SPECIFICATIONS
- CONTRACTOR SHALL VERIFY EXISTING SEWER SERVICE LOCATION AND DEPTH PRIOR TO ORDERING MATERIALS.
- CONTRACTOR SHALL COORDINATE WITH PWC AND NCDOT PROJECT COORDINATORS TO DETERMINE IF PARCEL 87 IS CONNECTED TO EXISTING SEWER. IF CONNECTED, CONTRACTOR SHALL DETERMINE LOCATION AND DEPTH PRIOR TO ORDERING MATERIALS.

PROJECT REFERENCE NO.	SHEET NO.
U-4405	UC-3B
DESIGNED BY: AMH	
DRAWN BY: AMH/AB	
CHECKED BY: AMH	
APPROVED BY: MWF	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SECTION	
PHONE: (919) 707-6690	
FAX: (919) 250-4751	

UTILITY CONSTRUCTION

UC-10 UTILITY NOTES:

- EXISTING IN LINE VALVE TO FACILITATE SHUTDOWN FOR RECONNECTION OF THE EXISTING WATER MAIN IN ARRAN CIRCLE IS APPROXIMATELY 760 LF FROM PROPOSED RECONNECTION POINT.
- CONTRACTOR SHALL LAY BACK A MINIMUM OF 1 FULL JOINT OF RESTRAINED DUCTILE IRON PIPE.
- FULLY GROUT MIN. 60LF OF 24" EXIST MAIN. PLUG EACH END OF ABANDONED MAIN PER PWC DETAIL W-22
- KILL OUT OF BRANCH SIDE OF TAPPING SLEEVE SHALL BE COORDINATED WITH 24" MAIN SHUTDOWN FOR LAYING BACK NEW 24" MAIN INTO EXIST ALIGNMENT
- REFERENCE UTILITY NOTES ON SHEET UC-8 FOR SEQUENCE OF WL-10 AND ABANDONMENT OF EXISTING 24" MAIN.
- WL-13 UP TO PROPOSED IN LINE VALVE NEAR STATION -WL-13- STA 24+00 AND THE EXISTING CROSS-LINE THAT SERVES OAK FOREST DRIVE SHALL BE INSTALLED AND IN OPERATION PRIOR TO RECONNECTING TO THE EXISTING 12" IN BUNCE ROAD. ADHERE TO PROVISIONS FOR OPEN CUTTING PAVEMENT AND WORKING WITHIN TRAFFIC TO RECONNECT PROPOSED 12" MAIN TO EXISTING MAIN. EXISTING MAIN AT POINT OF CONNECTION IS RESTRAINED. CONNECT TO EXISTING RESTRAINED JOINT PIPE WITH FULL BODY MJ x MJ SLEEVE AND RESTRAINING GLANDS.
- CONNECT WL-13 TO EXISTING MAIN UNDER SERVICE INTERRUPTION. ADHERE TO PWC'S PROCEDURES FOR SHUTDOWN. EXISTING VALVES EV-20, BRANCH VALVE AT EV-21, EXISTING IN LINE VALVE AT EV-21A, NEW TAPPING VALVE ON WL-12 THAT LOOPED TO EXISTING MAIN (SEE PREVIOUS SHEET) TO FACILITATE SHUTDOWN. SHUTDOWN SHALL BE PERFORMED BETWEEN 11:00 P.M. AND 5:00 A.M. SERVICE SHALL BE RESTORED TO EXISTING 12" MAIN TO MINIMIZE SERVICE DISRUPTION TO EXISTING CUSTOMERS BETWEEN 1103 BUNCE RD AND 1165 BUNCE RD.
- AFTER RECONNECTION, ABANDON CROSS-OVER LINE FROM WL-12 TO EXISTING WATER MAIN. SEE PREVIOUS SHEET AND KILL OUT EXISTING 12" MAIN AT VALVE EV-20.
- TEMPORARY SHORING IF REQUIRED FOR BUILDING FOUNDATION PROTECTION OR MAINTENANCE OF TRAFFIC WILL BE PAID AS TEMPORARY SHORING IN SQUARE FEET BELOW GROUND SURFACE

UC-11 UTILITY NOTES:

- FULLY GROUT MIN. 60 LF OF 24" EXIST. MAIN. PLUG EACH END OF ABANDONED MAIN PER PWC DETAIL W-22.
- KILL OUT OF LINE SIDE OF TAPPING SLEEVE SHALL BE COORDINATED WITH 24" MAIN SHUTDOWN FOR LAYING BACK NEW 24" MAIN INTO EXISTING ALIGNMENT (SEE SHEET UC-13).
- INSTALL AND HAVE OPERATIONAL THE FOLLOWING SEGMENTS: WL-14 TO LAST IN LINE VALVE, WL-15, WL-17 AND CROSS LINES AT BINGHAM DRIVE, REVERE STREET AND WILDWOOD DRIVE. RECONNECT ALL METERS TO WL-14 AND WL-17. SEE ADDITIONAL SEQUENCING FOR WL-15 ON SHEET UC-12 AND WL-17 ON SHEET UC-13 AND UC-14.
- KILL OUT OF LINE SIDE OF TAPPING SLEEVE FOR WL-14 SHALL BE COORDINATED WITH CUT IN CONSTRUCTION (SLEEVE IN) OF WL-14 TO EXISTING 24" MAIN (SEE SHEET UC-13). KILL OUT SHALL BE PERFORMED UNDER PLANNED SHUTDOWN OF EXISTING 24" MAIN AND SHALL BE PERFORMED BETWEEN 6:00 P.M. AND 9:00 A.M. ON SUNDAY. EXISTING 4" MAIN SHALL BE BACK IN OPERATION SO WATER SERVICE TO PARCELS 107, 112, 113 AND 115 ARE NOT IMPACTED DURING NORMAL BUSINESS HOURS. ADHERE TO PWC'S PROCEDURES FOR SHUTDOWN. EXISTING VALVES EV-22, EV-28, EV-31 AND EV-28A SHALL FACILITATE SHUTDOWN. AFTER COMPLETION OF KILLOUTS AND CUT IN CONSTRUCTION, RESUME OPERATION OF EXISTING 24" WATER MAIN BY RE-OPENING EV-22 AND EV-31.
- RECONNECTION OF EXISTING 24" MAIN ON BINGHAM DRIVE SHALL BE BY PLANNED SHUTDOWN. EXISTING VALVES TO FACILITATE SHUTDOWN INCLUDE EV-23A AND EV-23B. LAY BACK 20 LF OF RESTRAINED JOINT DUCTILE IRON PIPE AND RECONNECT TO EXISTING MAIN USING FULL BODY MJ SLEEVE WITH RESTRAINING GLANDS. RECONNECTION SHALL BE PERFORMED BETWEEN 6:00 P.M. AND 6:00 A.M. ONLY ON A WEEKNIGHT.

UC-12 UTILITY NOTES:

- CONNECTION OF WL-15 TO EXISTING WATER MAIN SHALL BE UNDER PLANNED SHUTDOWN. EXISTING VALVE EV-28 AND EV-28A SHALL FACILITATE SERVICE INTERRUPTION. REMOVE PLUG AND CONNECT TO EXISTING MAIN USING FULL BODY MJ SLEEVE AND RESTRAINING GLANDS. WL-15 SHALL BE INSTALLED AND OPERATIONAL TO MAINTAIN SERVICE TO THE NORTH SIDE AND FACILITATE KILL OUT OF THE 24" MAIN ON THE SOUTH SIDE.
- PURSUANT TO TRAFFIC CONTROL REQUIREMENTS, NO WORK ON THE SOUTH SIDE SHALL BE IN PROGRESS WHILE INSTALLING WL-15 AND CONNECTING IT TO THE EXISTING ON THE NORTH SIDE. CONTRACTOR SHALL NOT BE PERFORMING WATER MAIN INSTALLATION LONGITUDINALLY TO THE ROAD ON BOTH SIDES.
- TEMPORARY SHORING IF REQUIRED FOR BUILDING FOUNDATION PROTECTION OR MAINTENANCE OF TRAFFIC WILL BE PAID AS TEMPORARY SHORING IN SQUARE FEET BELOW GROUND SURFACE

UC-13 UTILITY NOTES:

- INSTALL WL-14 AND HAVE IT OPERATIONAL TO LAST IN LINE VALVE. ALL EXISTING METERS THAT OVERLAP THESE RELOCATION SEGMENTS SHALL BE SWITCHED OVER TO THESE NEW SEGMENTS. ALL CROSS-LINES FOR WL-14 SHALL BE FULLY RESTRAINED THROUGH BRANCH VALVES. BINGHAM DRIVE, WL-15, WL-15A AND WILDWOOD DRIVE RECONNECTIONS SHALL BE COMPLETED AND OPERATIONAL CONCURRENT WITH WL-14 INSTALLATION. EXISTING BRANCH VALVES FOR THESE CROSS LINES SHALL BE PERMANENTLY CLOSED AND PROPERLY ABANDONED. SEE UTILITY NOTES ON UC-12 FOR ADDITIONAL SEQUENCING PROVISIONS FOR WL-15 THAT SHALL BE PERFORMED BEFORE SHUTDOWN FOR WL-14.
 - PRIOR TO SHUTTING DOWN 24" MAIN TO FACILITATE KILL OUT OF EXISTING 24" MAIN AT WL-14 TAPPING SLEEVE AND CUT IN CONSTRUCTION FOR WL-14 TIE BACK TO EXISTING 24" MAIN, INSTALL WL-16 AND HAVE IT OPERATIONAL. RECONNECT ALL SERVICES TO WL-16. SEE UC-13 FOR ADDITIONAL SEQUENCING PROVISIONS FOR WL-16 THAT SHALL BE PERFORMED BEFORE SHUTDOWN FOR WL-14.
 - BORE AND JACK FOR WL-15A SHALL BE INSTALLED AHEAD OF WL-14 SO BORE PIT WILL NOT BE IN CONFLICT WITH WL-14. BORE INSTALLATION IS ANTICIPATED TO BE IN CONFLICT WITH EXISTING SEWER. INSTALL TEMPORARY DOGHOUSE SSMH FOR RECEIVING SEWAGE BYPASS. READY SEWER BYPASS TO MAINTAIN SEWER SERVICE. UPON COMPLETION OF ENGAGEMENT INSTALLATION AND THREADING OF 2-INCH MAIN, COMPLETE SEWER REPLACEMENT AS SHOWN ON UC-13A WHILE SEWER FLOW IS UNDER BYPASS. SEE ADDITIONAL PROVISIONS ON SHEET UC-13A.
 - PROTECT WORK AREA TO MAINTAIN INGRESS/EGRESS TO BUSINESS AND STORE FRONT PARKING.
 - REMOVE INSITU MATERIAL COMPLETELY FOR 2" WATER MAIN ACROSS PARCEL 140 DUE TO POTENTIAL OF PRIOR CONTAMINATION. MINIMUM TRENCH WIDTH FOR INSITU MATERIAL AND SELECT BACKFILL SHALL BE 2 FEET WIDE BY 4 FEET DEEP.
 - TEMPORARY SHORING IF REQUIRED FOR BUILDING FOUNDATION PROTECTION OR MAINTENANCE OF TRAFFIC WILL BE PAID AS TEMPORARY SHORING IN SQUARE FEET
- METER RECONNECTION NOTES FOR PARCEL NO. 136
- PROVIDE 2" TAP WITH 2" CURB STOP AND 2" BLOW OFF ASSEMBLY. 4-1" STD. PWC METER ASSEMBLIES SHALL BE PROVIDED.
 - RECONNECT TO CUSTOMER'S EXIST. 3-1" PVC WATER LATERALS. FIELD COORDIANTE WATER SERVICE PIPING ROUTE.
 - RECONNECT PROPOSED IRRIGATION METER TO CUSTOMERS EXIST. RPZ. FIELD COORDINATE IRRIGATION PIPING TO ENCLOSURE.

UC-13A UTILITY NOTES:

- PLUG EXISTING 8" OPENING IN SSMH AFTER PROPOSED SEWER IS OPERATIONAL.
- PROP. SSMH SHALL BE CUT IN (DOG-HOUSE STYLE). EXISTING LINE FOR TEMPORARY SEWAGE BYPASS. IT SHALL BE OPERATIONAL PRIOR TO INITIATING BORE AND JACK AND SETTING PROPOSED UPSTREAM SSMH. PROP. SSMH SHALL BE ABANDONED AFTER NEW SEWER IS OPERATIONAL AND BYPASS PUMPING CAN BE DISCONTINUED.
- PROP. SSMH SHALL BE 4' DIA. RECONNECT EXISTING DI AT SAME SLOPE USING DI COUPLING RATED FOR SEWER SERVICE.
- CONNECTION TO EXISTING SSMH SHALL BE BY FIELD CORE. CORE SHALL BE NEAT AND EQUIPPED WITH BOOTED CONNECTION.
- LOCATE ELECTRICAL CIRCUITRY TO LIGHTS PRIOR TO SEWER INSTALLATION. ALL CIRCUITRY SHALL BE PROTECTED. ANY DAMAGE SHALL BE REPAIRED AND SHALL MEET LOCAL ELECTRICAL REQUIREMENTS.
- REMOVE INSITU MATERIAL COMPLETELY FOR 2" WATER MAIN ACROSS PARCEL 140 DUE TO POTENTIAL OF PRIOR CONTAMINATION. MINIMUM TRENCH WIDTH FOR INSITU MATERIAL AND SELECT BACKFILL SHALL BE 2 FEET WIDE BY 4 FEET DEEP.
- TEMPORARY SHORING IF REQUIRED FOR BUILDING FOUNDATION PROTECTION OR MAINTENANCE OF TRAFFIC WILL BE PAID AS TEMPORARY SHORING IN SQUARE FEET BELOW GROUND SURFACE
- CONTRACTOR SHALL VERIFY SEWER SERVICE DEPTH AND LOCATION PRIOR TO ORDERING MATERIALS.
- CONTRACTOR SHALL REPLACE EXISTING CLEAN OUT AND SEWER SERVICE LINE AT SAME DEPTH AND SLOPE.
- CONTRACTOR SHALL REMOVE EXISTING CLEAN OUT AND EXISTING SEWER SERVICE TO PROPOSED CLEAN OUT LOCATION. CONTRACTOR SHALL GROUT FILL EXISTING SERVICE CORE IN MANHOLE WITH NON-SHRINK GROUT.

UC-14 UTILITY NOTES:

- CONNECTION OF WL-16 TO EXISTING 8" SHALL BE PERFORMED UNDER PLANNED SERVICE INTERRUPTION. LENGTH OF BURIED PIPE BETWEEN DEAD END PLUG AND EV-33A IS LESS THAN 95 LF FOR BURIAL DEPTH OF 3 FEET. EXISTING VALVE EV-33A, EV-33B AND EXISTING HYDRANT BETWEEN THESE TWO VALVES SHALL FACILITATE SHUTDOWN TO REMOVE EXISTING DEAD END PLUG. INSTALL PROPOSED 8" RJ GATE VALVE AND MINIMUM OF THREE JOINTS OF PROPOSED PIPE. PROPOSED VALVE AND MINIMUM OF THREE JOINTS OF PIPE INSTALLATION SHALL BE PERFORMED DURING NON-BUSINESS HOURS (BETWEEN 10:00 P.M. AND 6:00 A.M.). COORDINATE WITH PWC PROJECT COORDINATOR. EV-33A AND EV-33B SHALL BE TEMPORARILY CLOSED AND EXISTING HYDRANT SHALL BE UTILIZED TO LOWER PRESSURE SO EXISTING 8" PLUG CAN BE SAFELY REMOVED AND CONNECTION CAN BE MADE. REFERENCE PWC DETAIL M.15.
- AFTER INSTALLATION OF 8" RJ GATE VALVE AND MINIMUM OF 60 LF OF PIPE, COORDINATE WITH PWC PROJECT COORDINATOR TO RESTORE OPERATION OF EV-33B. MAINTAIN CLOSURE OF EV-33A UNTIL WATER MAIN LENGTH EXCEEDS 125 LF FROM NEW 8" RJ VALVE. AT THAT POINT, DISINFECT EXISTING MAIN BETWEEN EV-33A AND NEW VALVE AND PERFORM BACTERIOLOGICAL TESTING BEFORE PLACING IT BACK IN OPERATION. UTILIZE EXISTING 2" BLOW ASSEMBLY TO FLUSH EXISTING MAIN. MAINTAIN CLOSURE OF NEW 8" RJ GATE VALVE AND RESUME OPERATION OF EV-33A AND CONTINUE INSTALLATION OF WL-16.
- AFTER EXISTING SEGMENT BETWEEN EV-33A AND NEW VALVE HAS BEEN PLACED BACK IN SERVICE, ABANDON EXISTING 2" TAP AND REMOVED BLOW ASSEMBLY.
- WL-16 SHALL BE IN OPERATION BEFORE CUT IN CONSTRUCTION FOR WL-14. SEE SEQUENCE NOTES ON UC-13.
- ADHERE TO NCDOT TRAFFIC CONTROL PROVISIONS. WL-16 INSTALLATION SHALL BE COORDINATED SO THAT IT IS PERFORMED WHEN LONGITUDINAL WORK ON THE SOUTH SIDE OF RAEFORD ROAD IS NOT OCCURRING.
- COORDINATE WITH PWC'S PROJECT COORDINATOR FOR EXISTING VALVES TO FACILITATE TEMPORARY SHUT DOWN.
- PROP. 8" GATE VALVE SHALL BE CUT IN AND MIN. 40 LF OF 8" PVC PIPE SHALL BE REMOVED AND REPLACED WITH RESTRAINED JOINT DIP AND SLEEVED BACK TO EXISTING PVC. WORK SHALL BE PERFORMED UNDER SERVICE INTERRUPTION. SERVICE INTERRUPTION SHALL BE CONSISTENT WITH PWC'S REQUIREMENTS. THIS WORK SHALL BE PERFORMED AND COMPLETED PRIOR TO BEGINNING WORK ON EXTENSION OF EXISTING 84" CMP AND TRENCHLESS 72" STORM CROSSINGS.
- CUT IN VALVE AND EXISTING 8" VALVE AT 8" CONNECTION TO EXISTING 24" MAIN SHALL BE UTILIZED TO ISOLATE EXISTING 8" FOR DRAINAGE WORK.
- WL-18 SHALL BE INSTALLED AND OPERATIONAL PRIOR TO EXTENDING 84" CULVERTS AND INSTALLING 72". WL-18 WILL BE REQUIRED TO BACK FEED CUSTOMERS WHEN ISOLATING EXISTING 8" MAIN AS DEFINED IN NOTE 3.
- FULLY GROUT MIN. 60 LF OF 24" EXIST. MAIN. PLUG EACH END OF ABANDONED MAIN PER PWC DETAIL W-22.
- KILL OUT OF LINE SIDE OF TAPPING SLEEVE SHALL BE COORDINATED WITH 24" MAIN SHUTDOWN FOR LAYING BACK NEW 24" MAIN INTO EXISTING ALIGNMENT (SEE SHEET UC-14).

UC-15 UTILITY NOTES:

- FULLY GROUT MIN. 60LF OF 24" EXIST MAIN. PLUG EACH END OF ABANDONED MAIN PER PWC DETAIL W-22.
- KILL OUT OF BRANCH LINE SIDE OF TAPPING SLEEVE SHALL BE COORDINATED WITH 24" MAIN SHUTDOWN FOR LAYING BACK NEW 24" MAIN INTO EXIST ALIGNMENT

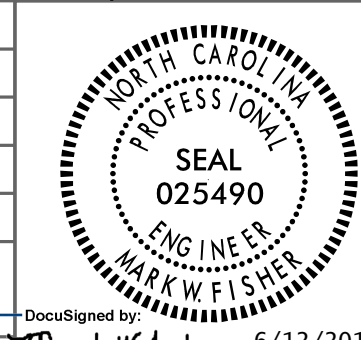
UC-17 UTILITY NOTES:

- PRIOR TO BEGINNING WORK ON PORTION OF WL-18 BETWEEN EUCALYPTUS AND HOPE MILLS ROAD, CONTRACTOR SHALL COMPLETE FOLLOWING:
 - WL-18 BETWEEN SANDALWOOD AND EUCALYPTUS SHALL BE OPERATIONAL.
 - WL-19 BETWEEN HOPE MILLS ROAD AND CONNECTION TO EXISTING 8" AT FRED ANDERSON SHALL BE OPERATIONAL.
 - TEMPORARY 2" MAIN TO MAINTAIN WATER SERVICES FOR PARCEL 21 SHALL BE OPERATIONAL.
- PARCEL 25 HAS 2-1" METERS AND 6" FIRELINE THAT WILL NEED TO BE REPLACED AND RECONNECTED
- TEMPORARY SHORING IF REQUIRED FOR BUILDING FOUNDATION PROTECTION OR MAINTENANCE OF TRAFFIC WILL BE PAID AS TEMPORARY SHORING IN SQUARE FEET BELOW GROUND SURFACE

UTILITY CONSTRUCTION

5/14/99
F:\MAY-2018\430
P:\Projects\Public Works Commission\2015\017700RA_Reeford_Road_NCDOT_U_4405\CADD\NCDOT_PLANS\Utilities\Engineering\UC\Proj\U4405_ut_notes_UC03c_psh.dgn

UTILITY CONSTRUCTION

PROJECT REFERENCE NO.	SHEET NO.
U-4405	UC-3C
DESIGNED BY: AMH	
DRAWN BY: AMH/AB	
CHECKED BY: AMH	
APPROVED BY: MWF	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. 1	DocuSigned by: Mark W. Fisher 6/12/2018
PHONE: (919) 707-6650	CONSTRUCTION PLANS ONLY
FAX: (919) 250-4151	

UC-19 UTILITY NOTES:

- EXIST. 2" MAIN CONFLICTS WITH TRENCH FOR PROP. 8" MAIN. CONTRACTOR SHALL MAINTAIN EXIST. 2" SERVICE WHILE INSTALLING PROP. 8". CONTRACTOR SHALL COORDINATE WITH PWC PROJECT COORDINATOR WHEN INSTALLING TEMPORARY SERVICE LATERAL TO 2" METER.
- PRIOR TO PERFORMING BORE AND JACK OF WL-19A, CONTRACTOR SHALL PROVIDE TEMPORARY 1" SERVICE TO NEW METER. TEMPORARY 1" SERVICE SHALL BE TAPPED OFF OF THE EXISTING 12". ONCE WL-20 IS OPERATIONAL, RECONNECT METER TO 30"
- CONTRACTOR SHALL RE-ROUTE 4" LATERAL ON PARCEL 213 TO CLEAR ISLAND FOR PROP. HYDRANT. RE-ROUTE 4" LATERAL BEFORE INSTALLING WL-20.
- CONTRACTOR SHALL RE-ROUTE 1" SERVICE FOR PARCEL 215 BEFORE INSTALLING WL-20.
- CONTRACTOR SHALL SAFEGUARD EXIST. 12" AC DURING INSTALLATION OF 30" BY IMPLEMENTING THE FOLLOWING SPECIAL PROVISION:
 - CONTRACTOR SHALL INSTALL WL-20R2 FROM HOPE MILLS ROAD TO PROP. MAIN LINE VALVE NEAR STATION 24+35. HAVE OPERATIONAL AND RECONNECT ALL SERVICES AND EXISTING CROSS-LINES.
 - CONTRACTOR SHALL ALSO INSTALL WL-20R2 FROM MAIN LINE VALVE AT APPROX .WL-20R2- STA 33+12 TO WL-22 (APPROX .WL-20R2- STA 53+50). HAVE OPERATIONAL AND RECONNECT ALL SERVICES AND EXISTING CROSS-LINES.
 - CONTRACTOR SHALL COORDINATE WITH PWC'S PROJECT COORDINATOR TO ISOLATE EXISTING 12" VALVE, EV-45, WEST OF HOPE MILLS ROAD INTERSECTION AND STATION .WL-20R2- STA 40+75 (EAST OF IRELAND DRIVE) SO 12" CAN BE TAKEN OFF LINE AND TO CONNECT ENDS OF PROPOSED 30".
- CONSTRUCTION SHALL SUBMIT A DETAILED SEWAGE BYPASS PLAN FOR MAINTAINING ALL SEWAGE FLOWS THAT WILL BE IMPACTED BY THE SEWER RELOCATION AND ADHERE TO ALL REQUIREMENTS IN OWNERS'S WASTEWATER FLOW CONTROL SPECIFICATIONS
- CONTRACTOR SHALL PROPERLY BARRICADE BYPASS PUMP MANHOLE AND ADHERE TO MUTCD FOR BARARICADE PLACEMENT AND SIGNAGE. TRAFFIC FLOW IN RAEFORD ROAD SHALL NOT BE OBSTRUCTED BY BYPASS PUMP OPERATION.
- CONTRACTOR SHALL SECURE BYPASS PIPING ACROSS IRELAND DRIVE AND MAINTAIN TRAFFIC FLOW. TRAFFIC RATED RAMP OR OTHER ACCEPTABLE TEMPORARY MEANS SHALL BE PROVIDED TO MAINTAIN TRAFFIC FLOW FOR IRELAND DRIVE.
- TEMPORARY SHORING IF REQUIRED FOR BUILDING FOUNDATION PROTECTION OR MAINTENANCE OF TRAFFIC WILL BE PAID AS TEMPORARY SHORING IN SQUARE FEET BELOW GROUND SURFACE

UC-20 UTILITY NOTES:

- 2" SERVICE IS ASSUMED TO BE IRRIGATION TAP FOR BYRAN HONDA. CONTRACTOR TO COORDINATE WITH PWC PROJECT COORDINATOR PRIOR TO PROVIDING NEW SERVICE AND ORDERING MATERIAL.
- RIGHT OF ENTRY NOTE:
- CONTRACTOR SHALL BE RESPONSIBLE FOR SECURING RIGHT OF ENTRY TO RECONNECT NEW MAIN TO EXISTING FIRE LINE IF RECONNECTION CANNOT BE MADE WITHIN PUE

UC-20A UTILITY NOTES:

- TEMPORARY SHORING IF REQUIRED FOR BUILDING FOUNDATION PROTECTION OR MAINTENANCE OF TRAFFIC WILL BE PAID AS TEMPORARY SHORING IN SQUARE FEET BELOW GROUND SURFACE

UC-20B UTILITY NOTES:

- 2" SERVICE IS ASSUMED TO BE IRRIGATION TAP FOR BYRAN HONDA. CONTRACTOR TO COORDINATE WITH PWC PROJECT COORDINATOR PRIOR TO PROVIDING NEW SERVICE AND ORDERING MATERIAL.
- RIGHT OF ENTRY NOTE:
- CONTRACTOR SHALL BE RESPONSIBLE FOR SECURING RIGHT OF ENTRY TO RECONNECT NEW MAIN TO EXISTING FIRE LINE IF RECONNECTION CANNOT BE MADE WITHIN PUE

UC-21 UTILITY NOTES:

- CONTRACTOR SHALL COORDINATE WITH BRYAN HONDA PRIOR TO CONSTRUCTION TO COORDINATE TRENCHING THROUGH PARKING LOT. CONTRACTOR SHALL POTHOLE IN ADVANCE OF CONSTRUCTION AND IDENTIFY ALL LIGHTING CIRCUITRY AND CONTROL CONDUIT. LOCATIONS ON DRAWINGS ARE APPROXIMATE AND SHALL BE VERIFIED.
- CONTRACTOR SHALL NOT DISTURB ANY CONDUIT FOR POWER AND CONTROL WIRING FOR LIGHT POLE AND DRIVEWAY SENSORS. CONTRACTOR SHALL TAKE PRECAUTIONS AND MEASURES TO PROTECT EXISTING CONDUITS.
- CONTRACTOR SHALL PROTECT LIGHT POLES FROM TRENCHING OF WATER MAIN. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION AND ALL COSTS ASSOCIATED WITH DISMANTLING AND REINSTALLING LIGHT POLES DURING INSTALLATION OF WATER MAIN, ACCORDING TO DRAWINGS PROVIDED BY DEALERSHIP, POLE BASES ARE 2'-6" SQUARE AND INSTALLED 7' DEEP.
- COORDINATE METER PLACEMENTS WITH 6" CONDUIT THAT POWERS AND CONTROLS DRIVEWAY SENSORS.
- 3" WATER SERVICE AND 8" SPRINKLER LINE ARE BASED ON RECORDS OBTAINED FROM DEALERSHIP. COORDINATE WITH PWC PROJECT COORDINATOR AND DEALERSHIP TO VERIFY IF MAINS NEED TO BE RECONNECTED. QUANTITIES ARE INCLUDED IN BID ESTIMATES. VERIFY MATERIAL PRIOR TO ORDERING MATERIAL FOR RECONNECTION.
- BACKFLOW FOR 8" FIRE LINE IS PRESUMABLY IN BUILDING.

UC-32 UTILITY NOTES:

- FULLY GROUT MIN. 60LF OF 24" EXIST MAIN. PLUG EACH END OF ABANDONED MAIN PER PWC DETAIL W-22.

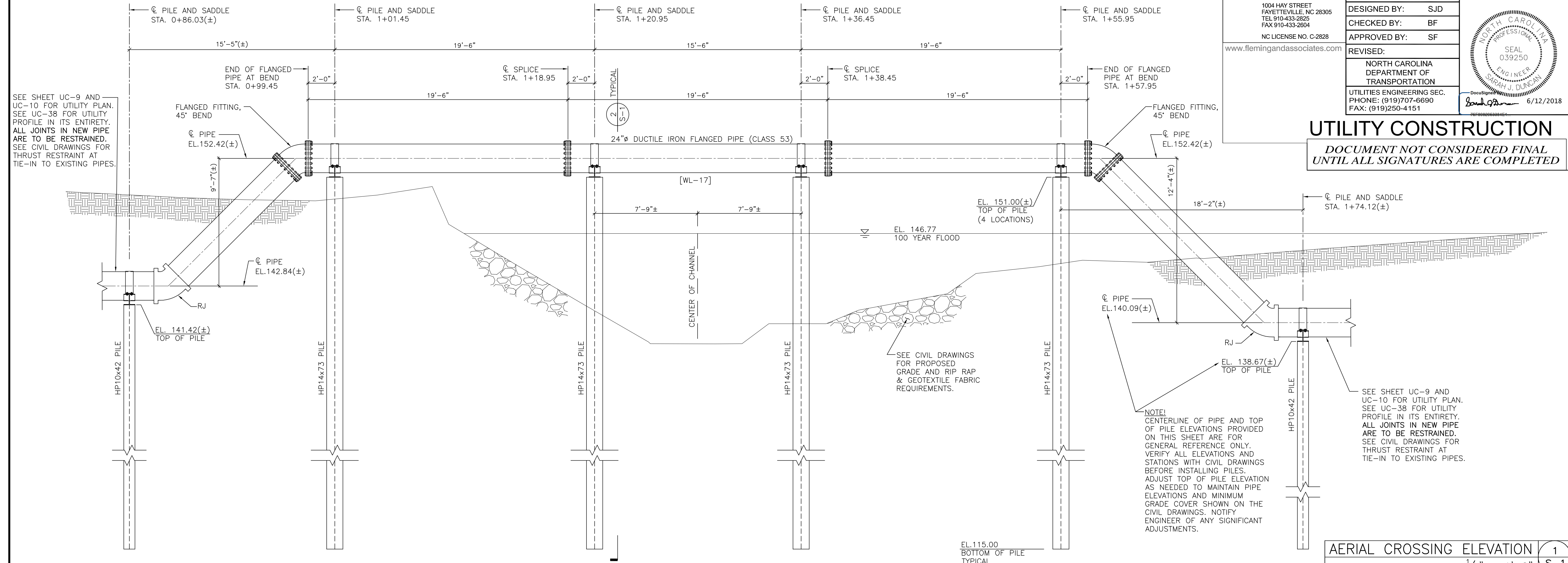
UTILITY CONSTRUCTION
DOCUMENT NOT CONSIDERED FINAL
UNTIL ALL SIGNATURES ARE COMPLETED

FA FLEMING & ASSOCIATES, P.A.
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PROJECT REFERENCE NO. U-4405	SHEET NO. UC-3D
DESIGNED BY: SJD	
DESIGNED BY: SJD	
CHECKED BY: BF	
APPROVED BY: SF	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE: (919)707-6690 FAX: (919)250-4151	

UTILITY CONSTRUCTION

DOCUMENT NOT CONSIDERED FINAL
 UNTIL ALL SIGNATURES ARE COMPLETED



SEE SHEET UC-9 AND UC-10 FOR UTILITY PLAN. SEE UC-38 FOR UTILITY PROFILE IN ITS ENTIRETY. ALL JOINTS IN NEW PIPE ARE TO BE RESTRAINED. SEE CIVIL DRAWINGS FOR THRUST RESTRAINT AT TIE-IN TO EXISTING PIPES.

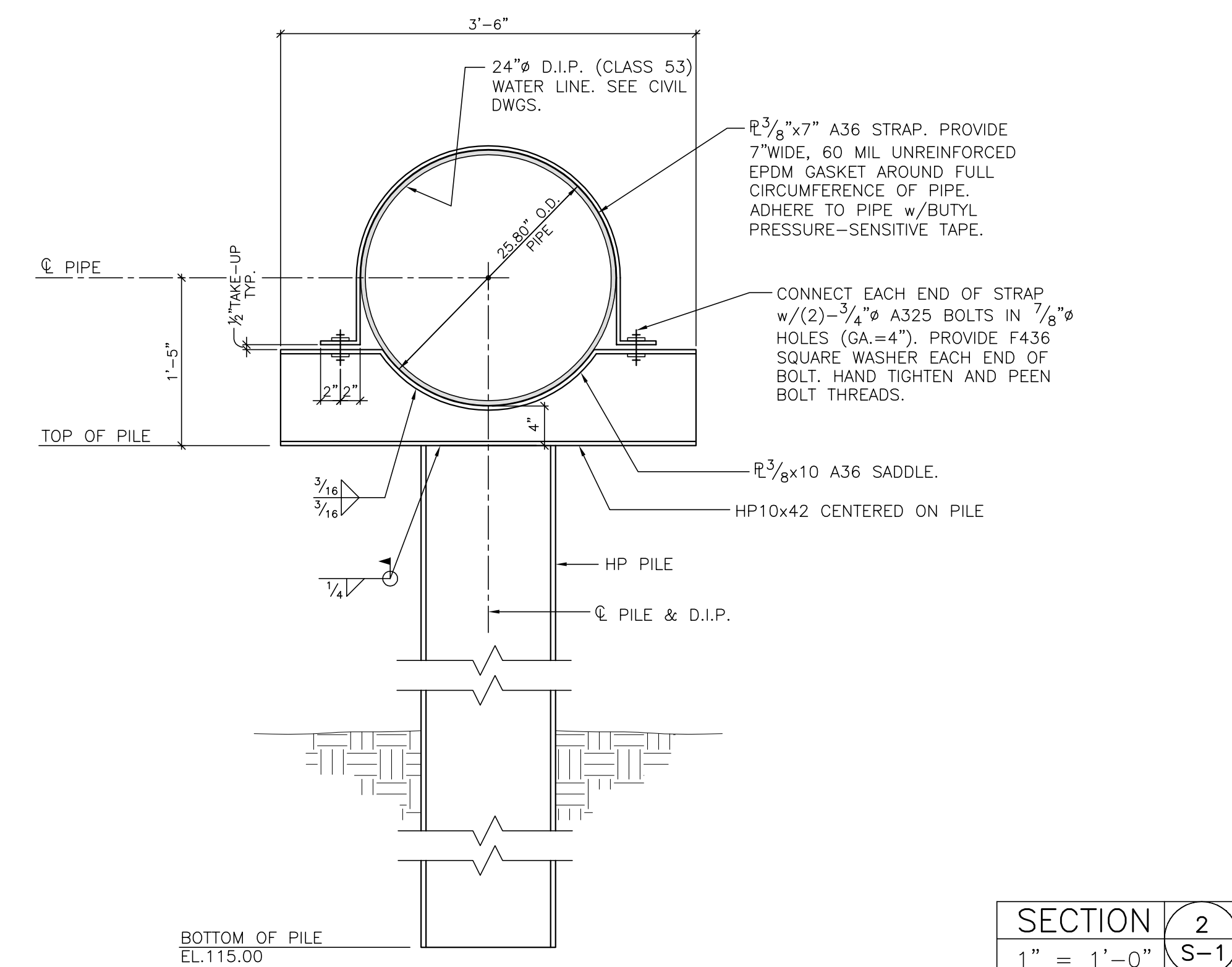
NOTE: CENTERLINE OF PIPE AND TOP OF PILE ELEVATIONS PROVIDED ON THIS SHEET ARE FOR GENERAL REFERENCE ONLY. VERIFY ALL ELEVATIONS AND STATIONS WITH CIVIL DRAWINGS BEFORE INSTALLING PILES. ADJUST TOP OF PILE ELEVATION AS NEEDED TO MAINTAIN PIPE ELEVATIONS AND MINIMUM GRADE COVER SHOWN ON THE CIVIL DRAWINGS. NOTIFY ENGINEER OF ANY SIGNIFICANT ADJUSTMENTS.

SEE SHEET UC-9 AND UC-10 FOR UTILITY PLAN. SEE UC-38 FOR UTILITY PROFILE IN ITS ENTIRETY. ALL JOINTS IN NEW PIPE ARE TO BE RESTRAINED. SEE CIVIL DRAWINGS FOR THRUST RESTRAINT AT TIE-IN TO EXISTING PIPES.

AERIAL CROSSING ELEVATION 1
 1/4" = 1'-0" S-1

- Design Loads
 - Wind Load:
 - Basic Wind Speed (3-second gust) 100 mph (ASCE 7-05/2012 NC Building Code)
 - Exposure Category C
 - Estimated stream flow at flood stage: 8 ft/sec.
- Materials
 - Structural Steel
 - ASTM A-36 U.N.O.
 - ASTM A-572 Grade 50 at HP shapes (Hot-dip galvanized per ASTM A123)
 - Bolts
 - ASTM A-325N (Hot-dip galvanized per ASTM A153)
 - Weld Electrodes
 - E70
 - Pile Driving Equipment:
 - All piles shall be driven to the specified embed depth with a steam, air, or hydraulically operated powered pile hammer having a rated energy of not less than 30,000 ft. lbs. of energy per blow. The capacity of the driving equipment shall be such that the number of blows per minute during and at the completion of driving of the pile can be maintained at approximately the normal rate given by the manufacturer of the hammer.
 - The pile driving rig shall be of adequate size and capacity to permit driving the piles at the locations shown on the drawings and with required axial alignment.
 - All piles shall be driven with a hammer operating in fixed leaders or other approved methods shall be used to hold the hammer and pile in accurate alignment. Leaders shall be equipped with extensions to hold the hammer and pile in alignment when the hammer operates below the bottom of the leader. The use of swinging or spud type leaders will not be permitted.
 - The cap block or hammer cushion shall consist of aluminum and mica discs stacked alternately in a steel housing with steel top and bottom plates, except that a one-piece hardwood block with grain parallel to the pile axis and enclosed in a close-fitting steel housing may be used, provided a satisfactory driving criterion has been established with such a cap block and a new cap block is not used during the final driving of the pile. The use of a cap block consisting of wood chips, small wood blocks, wood shavings, wire rope, or other materials with high elastic properties shall not be permitted.
 - Provide cast steel "H" pile driving points with cutting teeth if required to properly install piles to embed depth shown on the drawings.
- Quality Assurance
 - Comply with all pertinent federal, state, and local laws and codes. In addition, pile foundation work shall comply with the latest edition of the North Carolina State Building Code. Where Provisions of pertinent codes conflict with these drawings and notes, the more stringent provisions shall govern.
 - The inspector employed by the Owner shall overview the installation of the entire piling operation and advise the Owner of any extraordinary circumstances that need resolution and suggest measures as warranted to produce a sound foundation system.
 - Unless otherwise specifically approved by the Owner, the pile contractor shall have been successfully engaged in installing similar types of piling in the general area for a period of not less than five (5) years prior to performing this work.
- Pile Installation Notes
 - All pile locations shall be staked and surveyed as part of the construction staking process.
 - Subsurface parameters are based on the Report of Subsurface Exploration and Geotechnical Engineering Evaluation performed by Froehling & Robertson, Inc. (F&R Project No. 66U-0375) dated September 1, 2017.
 - Prior to installation, carefully inspect the site and verify that the piles can be installed as specified. Piles shall not be placed in the center of the stream. Contractor to verify dimensions and elevations shown on this drawing and on UC-9, UC-10, and UC-38 with existing conditions before placing piles. Verify that piles can be installed in accordance with all pertinent codes and regulations. Notify Engineer of any significant discrepancies.
 - Piles are to be cut off square at the required finish elevation and prepared for weld to saddle beam.
 - Pile Tolerances: plumbness = 1" total, alignment = 2" maximum, elevation = ±0.01'. The pile contractor shall be responsible for installing, at his expense, any piles which may be downgraded or rejected because of misalignment or misplacement.

- Superstructure
 - All structural bolts will have heavy hex nuts and (2) F436 square washers.
 - All welders, shop and field, will be certified for the type of work involved. Field welders must be certified for overhead welding.
 - All detailing, fabricating, and erection shall conform to the following specifications (latest editions), except as otherwise indicated:
 - AISC - "Specification for Structural Steel Buildings."
 - AISC - "Code of Standard Practice for Steel Buildings and Bridges."
 - Paragraph 4.4.1 of the above code is hereby modified by deletion of the following sentence:
 - "Confirmation that the Fabricator has correctly interpreted the Contract Documents in the preparation of those submittals."
 - AWS - "Structural Welding Code - Steel."
 - All steel saddle beams and straps will be power tool cleaned to a minimum of SSPC-SP3 and hot dip galvanized per ASTM A123. Similarly, power tool clean the (4)-HP14x73 piles and hot-dip galvanize the top 15 feet. Bolts and washers will be hot-dip galvanized per ASTM A153. All field welds will be grinded and coated with (2) coats of a cold applied galvanizing paint. Touch up any damaged galvanizing.
 - Contractor shall have sole responsibility for site safety.
- Submittals
 - Submit mill certificate on all structural steel shapes.
 - Equipment Data: Submit a detailed description of the equipment proposed to be used to install piles.
 - Steel shop drawings for saddle beam, straps, and bolts.
 - Pile inspector's report to include:
 - Actual installed depth elevation of each pile and the cut off elevation of each pile.
 - Any unusual conditions and/or obstructions encountered while driving pile.
 - Hammer blows per foot at not less than 5 feet intervals and continuous count during the last 6" of driving.
 - Elevations before and after cut off.
- Miscellaneous
 - The structural drawing UC-S-1 takes precedence when a conflict occurs between the structural drawing, the civil drawings, and the specifications concerning the aerial crossing. Notify Engineer in writing for clarification prior to bidding. The term unless noted otherwise (U.N.O.), means unless noted otherwise on the structural drawings. If there is a conflict on the structural drawings or specifications the most stringent requirement will control.
 - Construction of aerial crossing shall be sequenced so that it does not conflict with storm drainage installation and channel grading. Sequence installation so that the aerial crossing is performed after storm drainage work, specifically the trenchless installation of 72" RCP and 72" RCP extensions and concrete collar.
 - Coordinate placement of Class II Rip Rap and geotextile fabric with piles and exposed piping. Carefully place Class II Rip Rap to avoid any damage of installed facilities.
 - Installation of piles and any other work to install aerial crossing that shall come into contact with stream shall be performed in a dry condition. Provide coffer dam and pump around.



GENERAL NOTES 3
 NO SCALE S-1

SECTION 2
 1" = 1'-0" S-1

UTILITY CONSTRUCTION

1-INCH COMPOSITE METER BOX & COVER
N.T.S.

FAYETTEVILLE PUBLIC WORKS COMMISSION
FAYETTEVILLE, N.C.

WATER RESOURCES DEPARTMENT

NO. DATE REVISION
1 03/10 CHANGED BOX & LID DIMENSIONS
2 12/15 REPLACED CI BOX WITH COMPOSITE BOX
3 05/29/18 ADDED NOTE FOR METER LID CONFORMANCE TO AWWA

DATE: JAN. 01, 2018 APPROVED BY: J.E.G.

W4B-METERBOX-LID.dwg

1-INCH COMPOSITE METER BOX & COVER
N.T.S.

FAYETTEVILLE PUBLIC WORKS COMMISSION
FAYETTEVILLE, N.C.

WATER RESOURCES DEPARTMENT

NO. DATE REVISION
1 12/15 REPLACED CI BOX WITH COMPOSITE BOX

DATE: JAN. 01, 2018 APPROVED BY: J.E.G.

W4B-METERBOX-LID.dwg

2" CUPPER SETTER w/BYPASS
23-1/2" METER SPACING
N.T.S.

FAYETTEVILLE PUBLIC WORKS COMMISSION
FAYETTEVILLE, N.C.

WATER RESOURCES ENGINEERING DEPARTMENT

NO. DATE REVISION
1 07/13 REVISED, UPDATED NOTES
2 07/17 REVISED NOTES

DATE: JAN. 01, 2018 APPROVED BY: J.E.G.

W5-2-METER-SETTER.dwg

1-1/2" & 2" BY-PASS METER BOX
N.T.S.

FAYETTEVILLE PUBLIC WORKS COMMISSION
FAYETTEVILLE, N.C.

WATER RESOURCES ENGINEERING DEPARTMENT

NO. DATE REVISION
1 12/15 REVISED LID

DATE: JAN. 01, 2018 APPROVED BY: J.E.G.

W5-2-METER-SETTER.dwg

GATE VALVE
N.T.S.

FAYETTEVILLE PUBLIC WORKS COMMISSION
FAYETTEVILLE, N.C.

WATER RESOURCES ENGINEERING DEPARTMENT

NO. DATE REVISION
1 6/06 ADDED NOTE NO. 9
2 7/09 CLARIFIED NOTES

DATE: JAN. 01, 2018 APPROVED BY: J.E.G.

W6-GATEVALVE.dwg

VALVE BOX
N.T.S.

FAYETTEVILLE PUBLIC WORKS COMMISSION
FAYETTEVILLE, N.C.

WATER RESOURCES ENGINEERING DEPARTMENT

NO. DATE REVISION
1 07/09 ADDED NOTES 7, 8, AND CLARIFIED NOTES
2 01/14 REVISED NOTES 1, 4, 6

DATE: JAN. 01, 2018 APPROVED BY: J.E.G.

W7-VALVEBOX.dwg

VALVE BOX PROTECTOR RING
N.T.S.

FAYETTEVILLE PUBLIC WORKS COMMISSION
FAYETTEVILLE, N.C.

WATER RESOURCES ENGINEERING DEPARTMENT

NO. DATE REVISION

DATE: JAN. 01, 2018 APPROVED BY: J.E.G.

W8-CONC-PROTECTOR-RING.dwg

TAPPING VALVE
N.T.S.

FAYETTEVILLE PUBLIC WORKS COMMISSION
FAYETTEVILLE, N.C.

WATER RESOURCES ENGINEERING DEPARTMENT

NO. DATE REVISION
1 07/09 ADDED NOTE 10, REVISED 4 AND 5
2 07/13 REVISED NOTES 4, 8, 10

DATE: JAN. 01, 2018 APPROVED BY: J.E.G.

W8-M.J.-TAPPING-VALVE.dwg

VALVE SIZE	A	B	C	D	E	F	G	H	J	K	L	M	N	R	S	T	TURN TO OPEN	WEIGHT W/ACC
4	4-3/8	6-7/8	16-1/2	1-1/2	9	7-1/2	4-7/8	4-6/8	4-20/32	2-1/2	7-1/2	9	14-1/8	9	8-3/4	1/4	14	115
6	6-7/8	8-1/4	1	1-5/8	11	8-1/2	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	8-1/2	1-1/8	1-3/4	13-1/4	11-3/4	8-7/8	6-63/64	6-63/64	8-5/8	2-1/2	11-3/4	13-1/2	21	14-3/4	8-7/8	1/4	28	215
12	7	8-1/4	1-1/4	13-3/4	17-7/8	10-1/4	8-7/8	12-63/64	13-5/16	2-1/2	17	19	28-1/4	19-1/8	12-1/4	1/4	39	370
16	8-1/2	8-1/8	1-7/8	17-1/8	21	12-7/8	10-15/16	17-30/64	3-1/2	21-1/8	23-1/2	25-5/8	36-1/8	26-1/8	14	1/4	55	1140
24	10-1/2	14-1/4	1-7/8	21-1/2	31-3/4	30	12-7/8	24-15/16	25-16/16	3-1/2	28-1/2	34	44-5/8	35-1/8	20-1/8	1/4	79	3225

5/14/99
 U-4405-CADD-NCDDOT PLANS-Utilities Engineering UC-Proj\U4405-ut.dtl UC03E.dgn
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 6/12/2018

UTILITY CONSTRUCTION

NOTES:

- ALL MATERIALS SHALL BE IN ACCORDANCE WITH FAYPWC STANDARDS. SLEEVE BODY SHALL BE DUCTILE IRON ASTM A536.
- MECHANICAL JOINT TAPPING SLEEVES SHALL BE AS MANUFACTURED BY CLOW, H & 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.
- 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.
- PIPE SURFACES SHALL BE CLEANED THOROUGHLY TO PERMIT FOR A GOOD SEAL PRIOR TO INSTALLATION.
- EXTERIOR OF TAPPING SLEEVE SHALL BE COATED WITH 2 COATS ASPHALTIC VARNISH MIL-C450.
- 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.
- SEE DETAILS W.9 AND W.17 FOR ADDITIONAL REQUIREMENTS.

SLEEVE SIZE PIPE 2 BRANCH	8X8	8X8	8X8	12X8	12X8	12X12	16X8	16X8	16X12	24X8	24X8	24X12	24X16	24X24	30X8	30X8	30X12	30X16	30X24
A DIA.	7.916	7.916	9.016	7.016	9.016	13.016	7.016	9.016	13.016	11.000	13.5	19.0	23.5	32.0	11.000	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	7.75	9.116	9	11.58	11.78	12.78	14.18	14.12	14.78	19.5	19.5	19.5	20.5	20.5	23.25	23.25	23.25	23.75	23.75
D	11.34	13.78	13.78	18.12	18.12	18.12	23.12	23.12	23.12	35.5	35.5	35.5	35.5	35.5	43.37	43.37	43.37	43.37	43.37
E	13.12	15	15	19.12	19.12	19.12	24.12	24.12	24.12	38.0	38.0	38.0	38.0	38.0	46.0	46.0	46.0	46.0	46.0

DUCTILE IRON TAPPING SLEEVE N.T.S.		FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO.	DATE	REVISION
DWG. NO. W.10		DWG. BY: FAYPWC		1	07/09	REVISED NOTE 6/REMOVED NOTE 8
DATE: JAN. 01, 2018		APPROVED BY: J.E.G.		2	07/13	REVISED NOTES 6, 7

NOTES:

- FIRE HYDRANT SHALL BE MODELS MANUFACTURED BY MUELLER CO. (CENTURIAN), AMERICAN VALVE AND HYDRANT CO. (MODEL MARK 73), CLOW MEDALLION OR APPROVED EQUAL.
- ALL VALVES AND HYDRANTS SHALL HAVE M.J. CONNECTIONS WITH IRON RETAINING GLAND M.J. RESTRAINT.
- 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 ENGINEER.
- HYDRANT BRANCH SHALL NOT BE BACK FILLED UNTIL INSPECTED AND APPROVED BY ENGINEER.
- GATE VALVE AND BOX SHALL BE IN ACCORDANCE WITH FAYPWC STANDARD DETAIL.
- HYDRANT EXTENSIONS AND/OR OFFSETS SHALL BE APPROVED BY ENGINEER.
- 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 STARTING THE TAP IN THE PRESENCE OF THE ENGINEER.
- THE PROPOSED LOCATION MAY BE RELOCATED BY THE ENGINEER IF CONFLICTS EXIST (I.E. GAS SERVICES, UGE, TELEPHONE, ETC.).
- THE CONTRACTOR SHALL FIELD VERIFY THE EXISTING WATER MAIN MATERIAL, SIZE, AND DEPTH FOR EACH FIRE HYDRANT LOCATION PRIOR TO ORDERING MATERIALS. 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). ADDITIONAL FITTINGS AND/OR HYDRANT EXTENSIONS OR OFFSET CONNECTORS MAY BE REQUIRED TO MAINTAIN PROPER COVER AS APPROVED BY THE ENGINEER.
- CONTRACTOR SHALL NOTIFY THE APPROPRIATE FIRE DEPARTMENT OF OUT OF SERVICE FIRE HYDRANTS PRIOR TO CONSTRUCTION.
- FIRE HYDRANT SHALL BE FIELD PAINTED IN ACCORDANCE WITH SPECIAL PROVISIONS. BEFORE PROJECT IS ACCEPTED, HYDRANTS SHALL BE PAINTED WITH A GREEN BONNET AND YELLOW BODY. PAINT SHALL BE IN ACCORDANCE WITH SPECIAL PROVISIONS. THE CONTRACTOR SHALL PAINT ALL EXPOSED EXTERIOR FIRE HYDRANT SURFACES PRIOR TO FINAL ACCEPTANCE BY ENGINEER. ALL PAINTING SHALL BE DONE IN STRICT ACCORDANCE WITH THE PAINT MANUFACTURER'S RECOMMENDATIONS AND SHALL BE SATISFACTORY TO THE ENGINEER.
- PROTECTIVE COVERING SHALL BE UTILIZED, AS NECESSARY FOR PROTECTION OF ADJACENT AREAS, EQUIPMENT, SHRUBBERY, OR OTHER ITEMS. AFTER PAINTING IS COMPLETE, THE ENTIRE AREA SHALL BE THOROUGHLY CLEANED UP.
- ALL PAINT MATERIALS SHALL BE IN THE ORIGINAL SEALED CONTAINERS BEARING THE MANUFACTURER'S NAME.
- WHERE NECESSARY, THINNING SHALL BE DONE IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS, AND AS APPROVED BY ENGINEER.
- ALL SURFACES TO BE PAINTED SHALL BE CLEAN AND DRY.
- THE BONNET OF THE FIRE HYDRANT SHALL BE PAINTED A DARK GREEN, UTILIZING AN ALKID OR POLYURETHANE ENAMEL, WITH A FINAL DRY MIL THICKNESS OF 4 TO 6 MILS. MULTIPLE COATS MAY BE NECESSARY TO ACHIEVE THE FINAL REQUIRED DRY MIL THICKNESS. THE PAINT SHALL BE FOREST GREEN. SAMPLES SHALL BE SUBMITTED IN ORDER FOR ENGINEER TO CONSIDER ALTERNATIVE PAINT MANUFACTURERS.
- THE REMAINDER OF THE FIRE HYDRANT SHALL BE PAINTED SAFETY YELLOW, UTILIZING AN ALKID OR POLYURETHANE ENAMEL, WITH A FINAL DRY MIL THICKNESS OF 4 TO 6 MILS. MULTIPLE COATS MAY BE NECESSARY TO ACHIEVE THE FINAL REQUIRED DRY MIL THICKNESS. THE PAINT SHALL BE YELLOW. BY THE SHERWIN-WILLIAMS COMPANY, PART NUMBER 3186, OR APPROVED EQUAL. SAMPLES SHALL BE SUBMITTED IN ORDER FOR ENGINEER TO APPROVE PAINT MANUFACTURERS.

FIRE HYDRANT AND VALVE INSTALLATION N.T.S.		FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO.	DATE	REVISION
DWG. NO. W.13		DWG. BY: FAYPWC		1	10/23/03	REVISED NOTE NO. 4
DATE: JAN. 01, 2018		APPROVED BY: J.E.G.		2	07/01/09	REVISED NOTE NO. 2, REMOVED NOTE NO. 3 AND ALTERED RESTRAINT DETAIL
				3	07/01/16	REVISED NOTES
				4	05/29/19	REVISED NOTES FOR NCDOT U-4405 AND INCLUDE PLACEMENT INSIDE PUE

NOTES:

- SEE FIRE HYDRANT DETAIL W.13 FOR ADDITIONAL REQUIREMENTS.
- ALL VALVES AND HYDRANTS SHALL HAVE M.J. CONNECTIONS WITH IRON RETAINING GLAND M.J. RESTRAINT.
- FIRE HYDRANT OFFSET CONNECTOR SHALL BE PLACED AS APPROVED BY THE ENGINEER.
- OFFSET CONNECTOR SHALL NOT BE BACK FILLED UNTIL INSPECTED AND APPROVED BY ENGINEER.

RESTRAINED JOINT FIRE HYDRANT OFFSET CONNECTOR (STEEP BANK) N.T.S.		FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO.	DATE	REVISION
DWG. NO. W.14		DWG. BY: FAYPWC		1	07/09	REVISED NOTES 1, 2, AND 3
DATE: JAN. 01, 2018		APPROVED BY: J.E.G.		2	05/29/19	REVISED NOTES 3 AND 4 FOR NCDOT U-4405

NOTES:

- SEE FIRE HYDRANT DETAIL W.13 FOR ADDITIONAL REQUIREMENTS.
- ALL VALVES AND HYDRANTS SHALL HAVE M.J. CONNECTIONS WITH IRON RETAINING GLAND M.J. RESTRAINT.
- FIRE HYDRANT OFFSET CONNECTOR SHALL BE PLACED AS APPROVED BY THE ENGINEER.
- OFFSET CONNECTOR SHALL NOT BE BACK FILLED UNTIL INSPECTED AND APPROVED BY THE ENGINEER.

FIRE HYDRANT AND VALVE INSTALLATION N.T.S.		FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO.	DATE	REVISION
DWG. NO. W.13		DWG. BY: FAYPWC		1	10/23/03	REVISED NOTE NO. 4
DATE: JAN. 01, 2018		APPROVED BY: J.E.G.		2	07/01/09	REVISED NOTE NO. 2, REMOVED NOTE NO. 3 AND ALTERED RESTRAINT DETAIL
				3	07/01/16	REVISED NOTES
				4	05/29/19	REVISED NOTES 3, 4, 6, 7, 8, 9, 11, 16 AND 17

NOTES:

- SEE FIRE HYDRANT DETAIL W.13 FOR ADDITIONAL REQUIREMENTS.
- SEE FIRE HYDRANT DETAIL W.13 FOR ADDITIONAL REQUIREMENTS.
- SEE FIRE HYDRANT DETAIL W.13 FOR ADDITIONAL REQUIREMENTS.
- SEE FIRE HYDRANT DETAIL W.13 FOR ADDITIONAL REQUIREMENTS.

RESTRAINED JOINT FIRE HYDRANT OFFSET CONNECTOR @ DITCH (N.T.S.)		FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO.	DATE	REVISION
DWG. NO. W.14		DWG. BY: FAYPWC		1	01/05	ADDED NOTES
DATE: JAN. 01, 2018		APPROVED BY: J.E.G.		2	07/09	REVISED NOTES 1, 2, AND 3
				3	05/29/19	REVISED NOTES 3 AND 4 FOR NCDOT U-4405

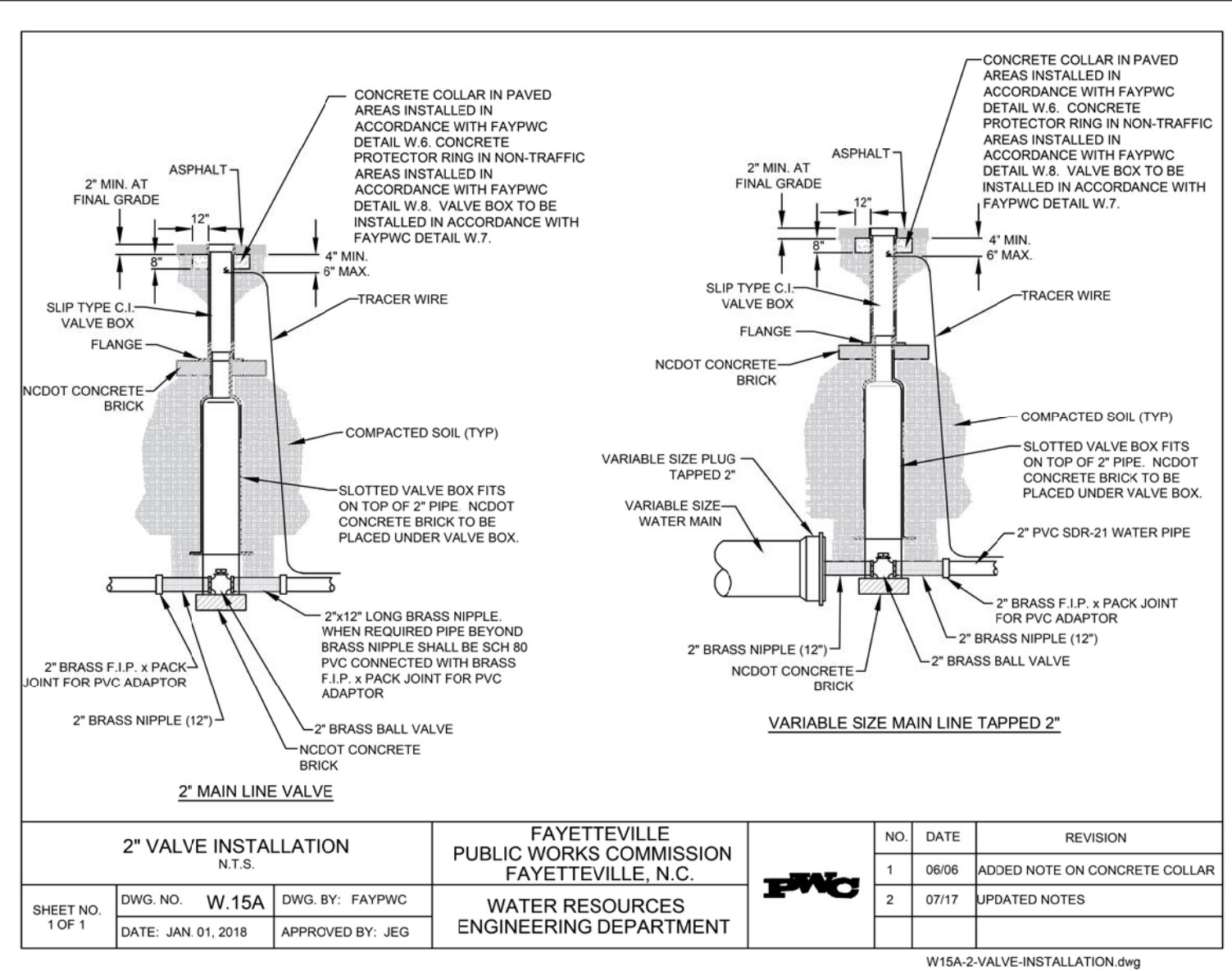
NOTES:

- ALL MATERIAL SHALL BE APPROVED BY ENGINEER.
- WHEN INSTALLED IN A PAVED AREA METER BOX SHALL BE SET 1\"/>
- METER BOX SHALL BE IN ACCORDANCE WITH SPECIAL PROVISIONS. PROVIDE SOLID BRICK.
- BLOW-OFF ASSEMBLY NOT TO BE RE-USED UNLESS APPROVED BY ENGINEER.
- REMOVE ENTIRE ASSEMBLY FROM BELL OF WATER MAIN PIPE WHEN EXTENDING THE MAIN.
- CENTER 2\"/>
- INSTALLATION SHALL BE INSPECTED AND APPROVED BY ENGINEER PRIOR TO BACKFILL.
- CONTRACTOR SHALL INSTALL TRACING WIRE INTO THE BOX.
- A MINIMUM OF 2\"/>
- VALVE BOX TO BE INSTALLED IN ACCORDANCE WITH FAYPWC DETAIL W.7.

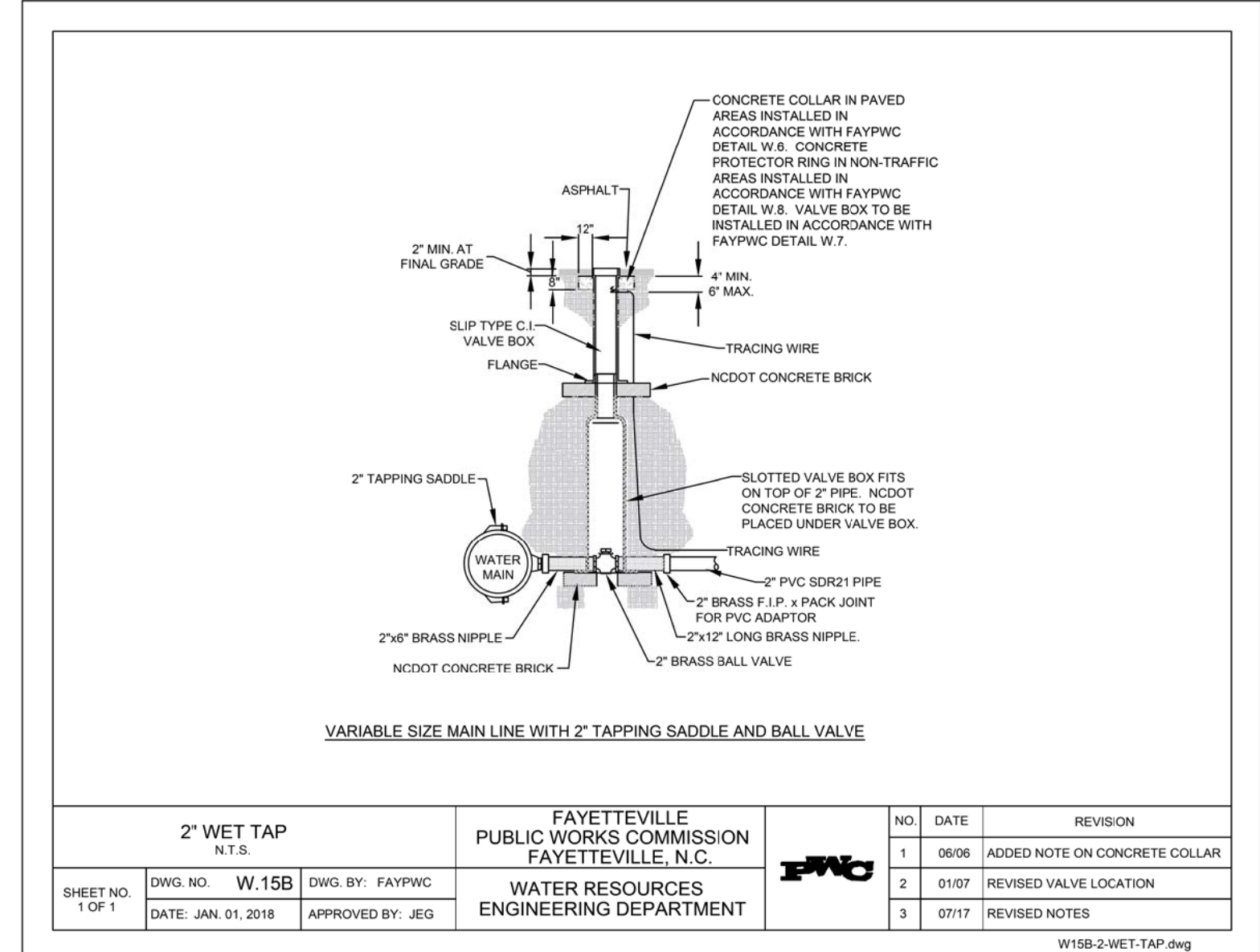
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FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		
NO.	DATE	REVISION
1	08/06	CHANGED FITTINGS TO SCHED 80
2	11/08	REVISED CONFIGURATION
3	07/17	REVISED NOTES
4	05/29/19	REVISED NOTES 1, 3, 4 AND 7 AND INCLUDE PUE FOR NCDOT U-4405

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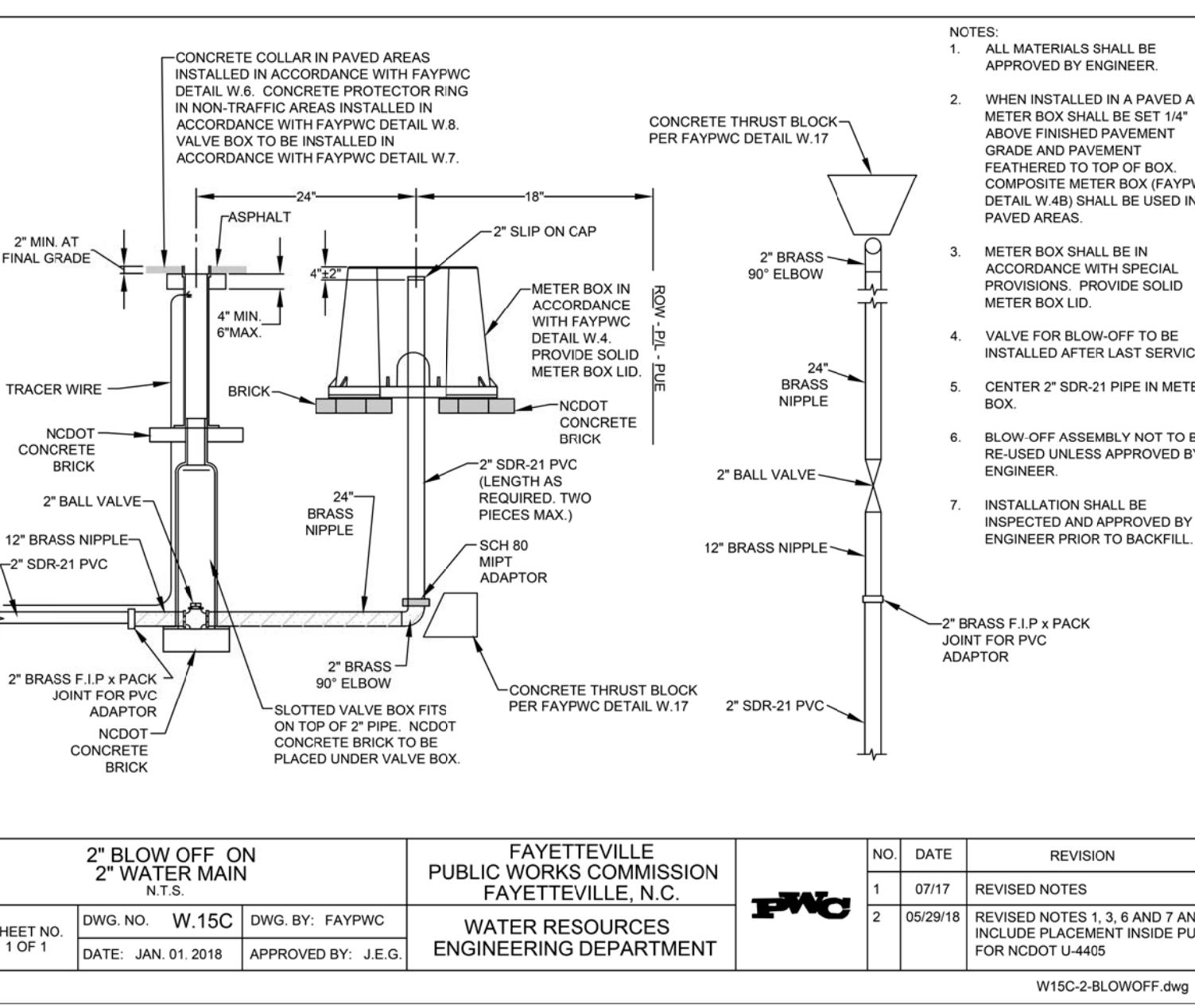
UTILITY CONSTRUCTION



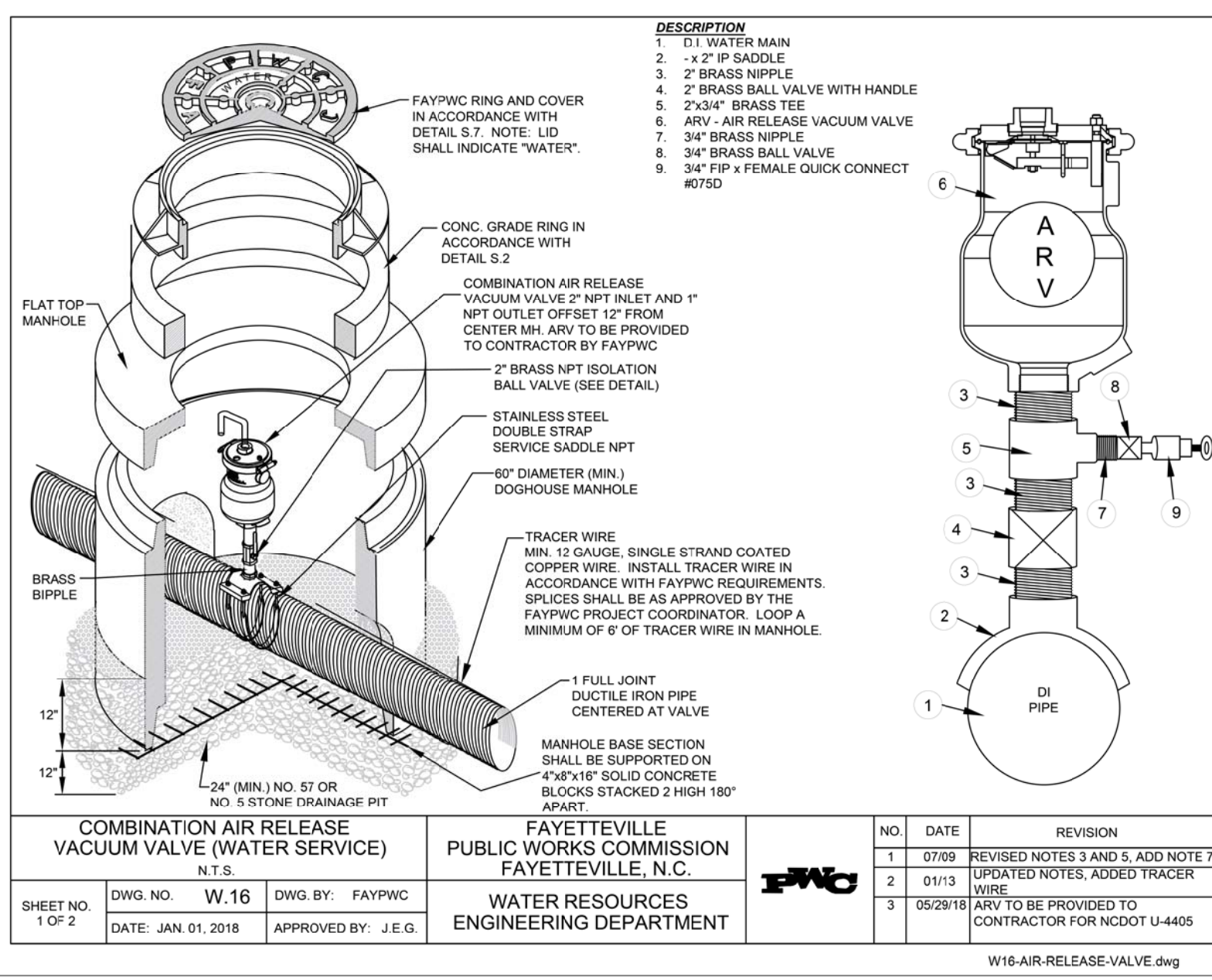
SHEET NO. 1 OF 1	DWG. NO. W.15A	DWG. BY: FAYFWC	FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.	NO. DATE REVISION	1 0608 ADDED NOTE ON CONCRETE COLLAR
	DATE: JAN 01, 2018	APPROVED BY: J.E.G.			2 0717 UPDATED NOTES
WATER RESOURCES ENGINEERING DEPARTMENT			FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		



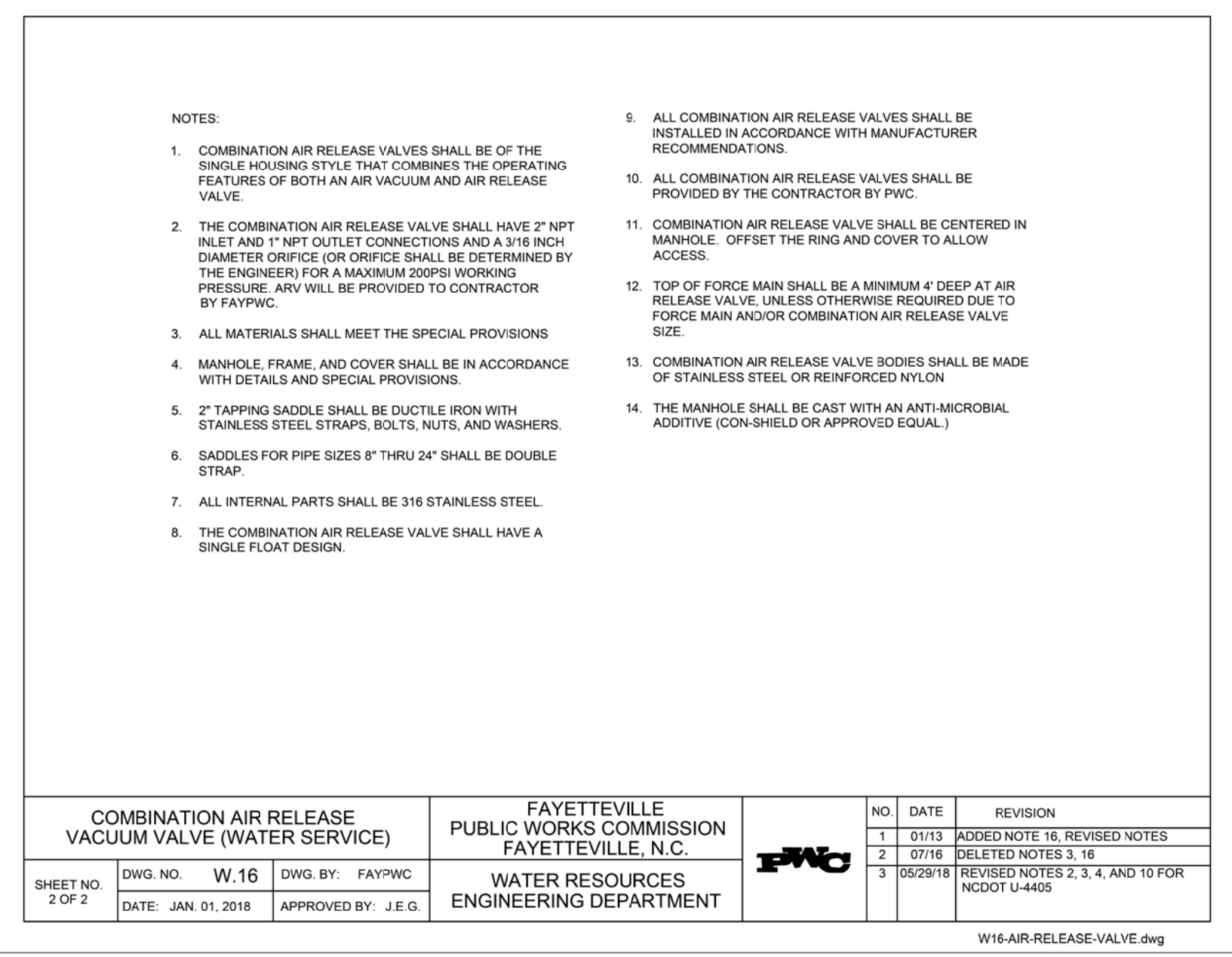
SHEET NO. 1 OF 1	DWG. NO. W.15B	DWG. BY: FAYFWC	FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.	NO. DATE REVISION	1 0608 ADDED NOTE ON CONCRETE COLLAR
	DATE: JAN 01, 2018	APPROVED BY: J.E.G.			2 0107 REVISED VALVE LOCATION
WATER RESOURCES ENGINEERING DEPARTMENT			FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		



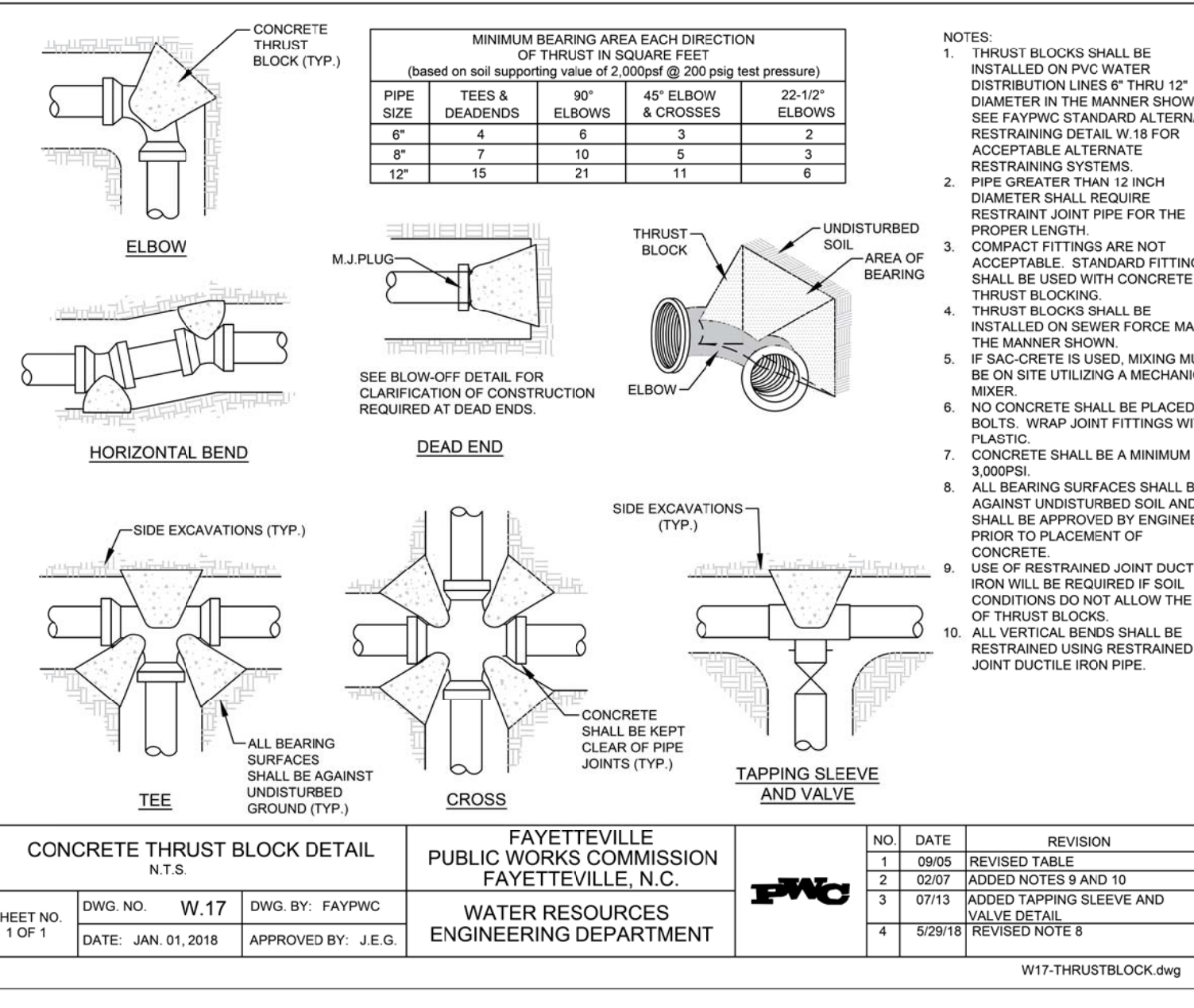
SHEET NO. 1 OF 1	DWG. NO. W.15C	DWG. BY: FAYFWC	FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.	NO. DATE REVISION	1 0717 REVISED NOTES
	DATE: JAN 01, 2018	APPROVED BY: J.E.G.			2 05/29/18 REVISED NOTES 1, 3, 6 AND 7 AND INCLUDE PLACEMENT INSIDE PUE FOR NCDOT U-4405.
WATER RESOURCES ENGINEERING DEPARTMENT			FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		



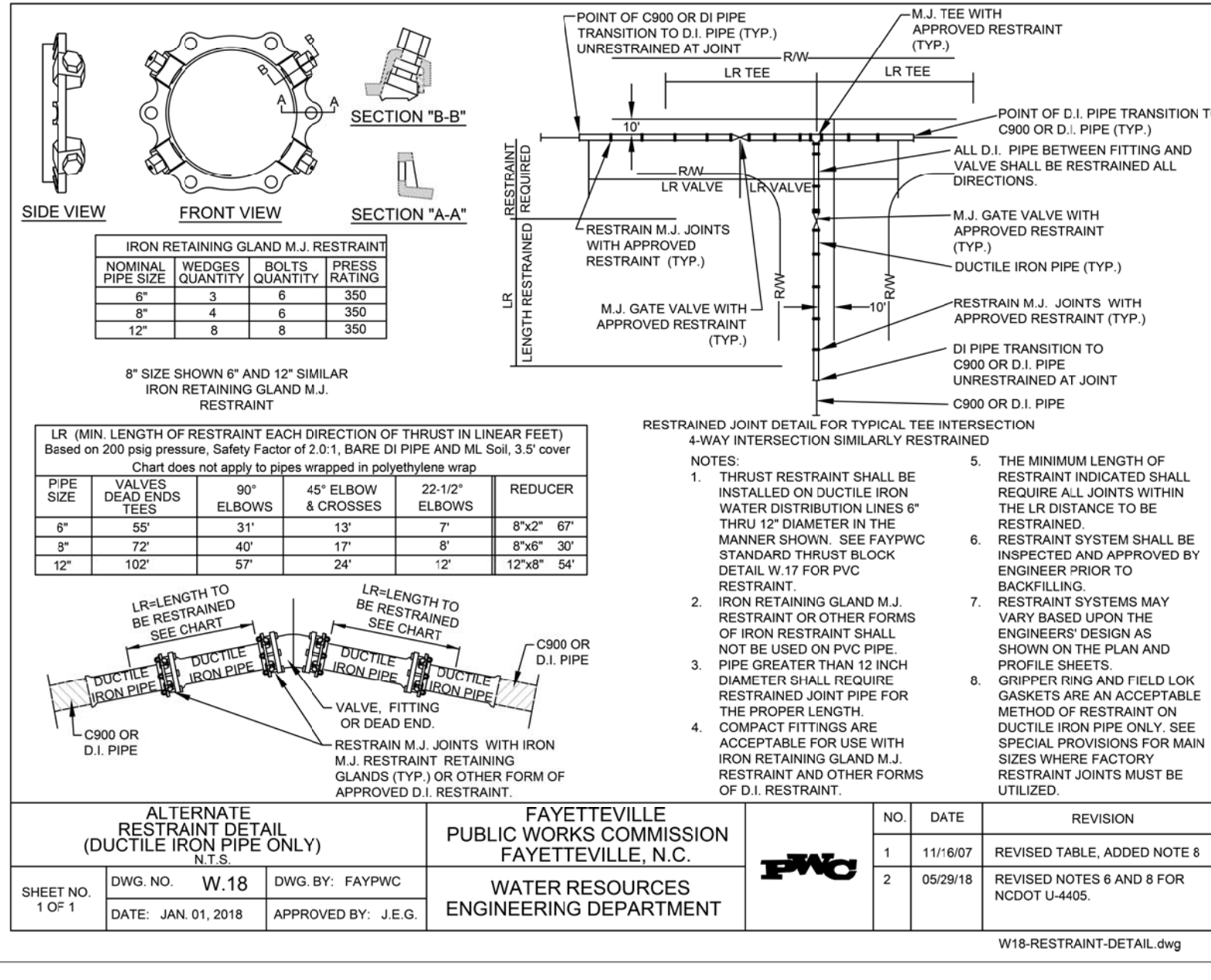
SHEET NO. 1 OF 2	DWG. NO. W.16	DWG. BY: FAYFWC	FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.	NO. DATE REVISION	1 0709 REVISED NOTES 3 AND 5, ADD NOTE 7
	DATE: JAN 01, 2018	APPROVED BY: J.E.G.			2 0113 UPDATED NOTES, ADDED TRACER WIRE
WATER RESOURCES ENGINEERING DEPARTMENT			FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		



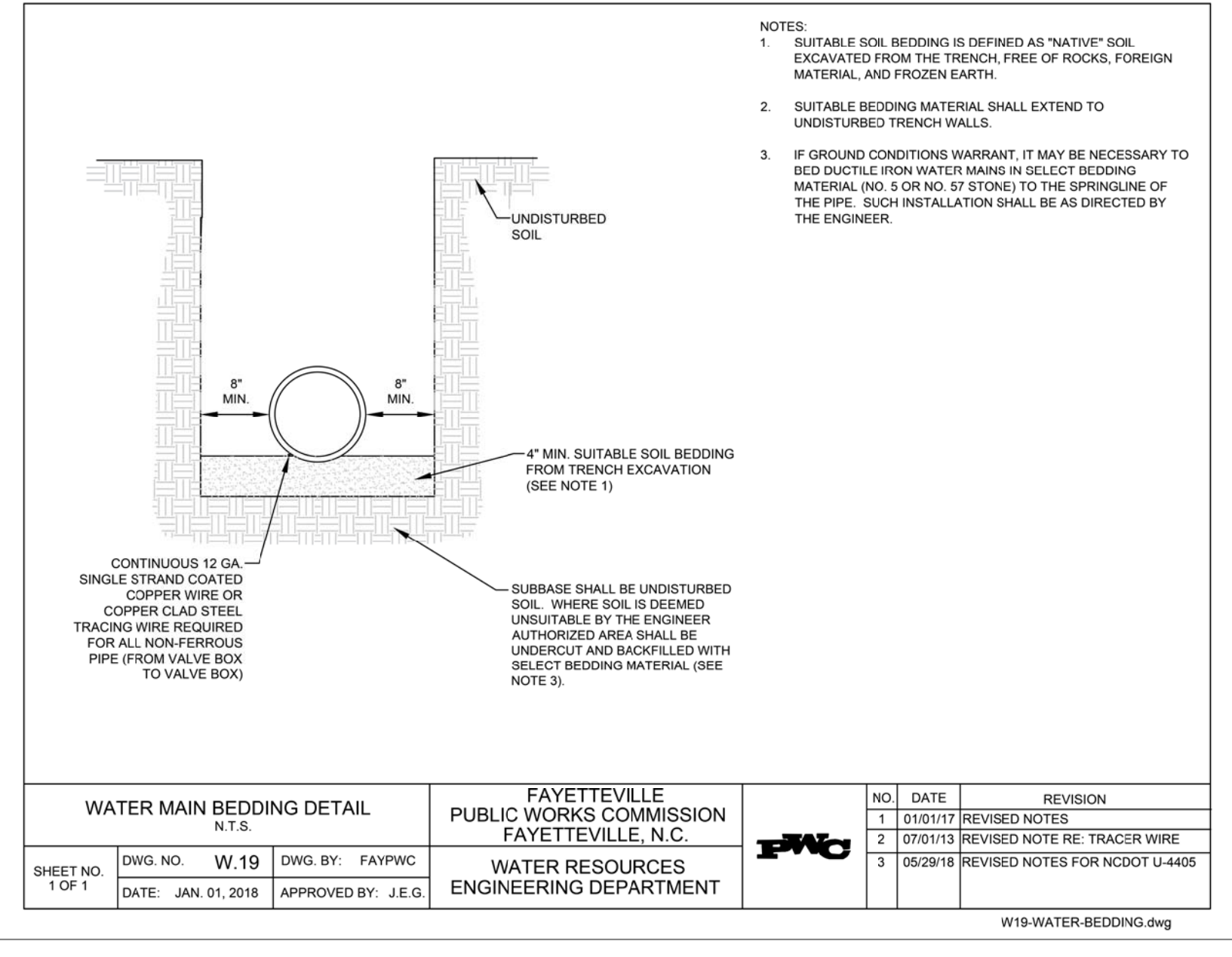
SHEET NO. 2 OF 2	DWG. NO. W.16	DWG. BY: FAYFWC	FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.	NO. DATE REVISION	1 0713 REVISED NOTES 3, 6
	DATE: JAN 01, 2018	APPROVED BY: J.E.G.			2 05/29/18 REVISED NOTES 2, 3, 4, AND 10 FOR NCDOT U-4405
WATER RESOURCES ENGINEERING DEPARTMENT			FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		



SHEET NO. 1 OF 1	DWG. NO. W.17	DWG. BY: FAYFWC	FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.	NO. DATE REVISION	1 0905 REVISED TABLE
	DATE: JAN 01, 2018	APPROVED BY: J.E.G.			2 0207 ADDED NOTES 9 AND 10
WATER RESOURCES ENGINEERING DEPARTMENT			FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		



SHEET NO. 1 OF 1	DWG. NO. W.18	DWG. BY: FAYFWC	FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.	NO. DATE REVISION	1 11/6/07 REVISED TABLE, ADDED NOTE 8
	DATE: JAN 01, 2018	APPROVED BY: J.E.G.			2 05/29/18 REVISED NOTES 6 AND 7 FOR NCDOT U-4405.
WATER RESOURCES ENGINEERING DEPARTMENT			FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		

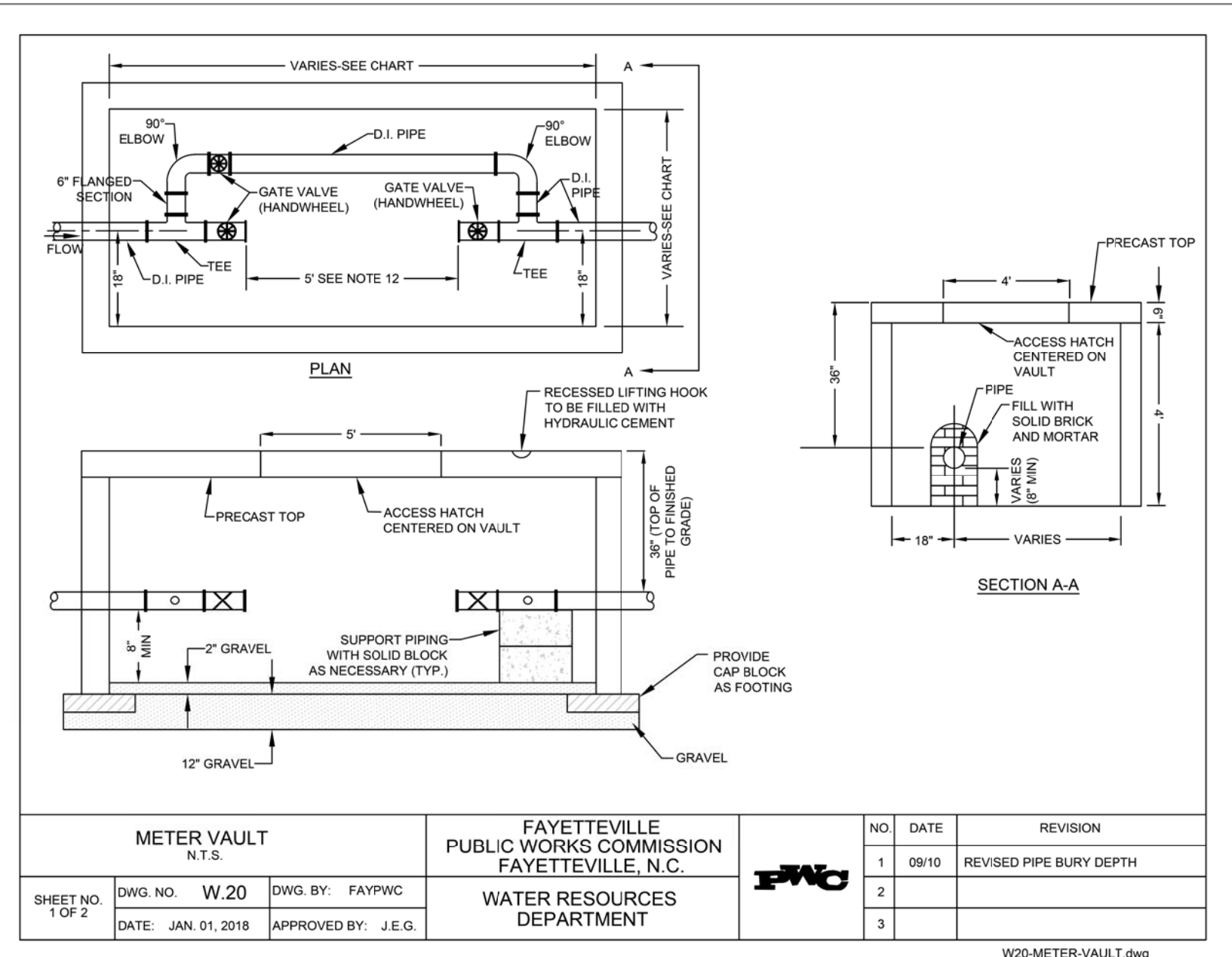


SHEET NO. 1 OF 1	DWG. NO. W.19	DWG. BY: FAYFWC	FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.	NO. DATE REVISION	1 01/01/17 REVISED NOTES
	DATE: JAN 01, 2018	APPROVED BY: J.E.G.			2 07/01/13 REVISED NOTE RE: TRACER WIRE
WATER RESOURCES ENGINEERING DEPARTMENT			FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		

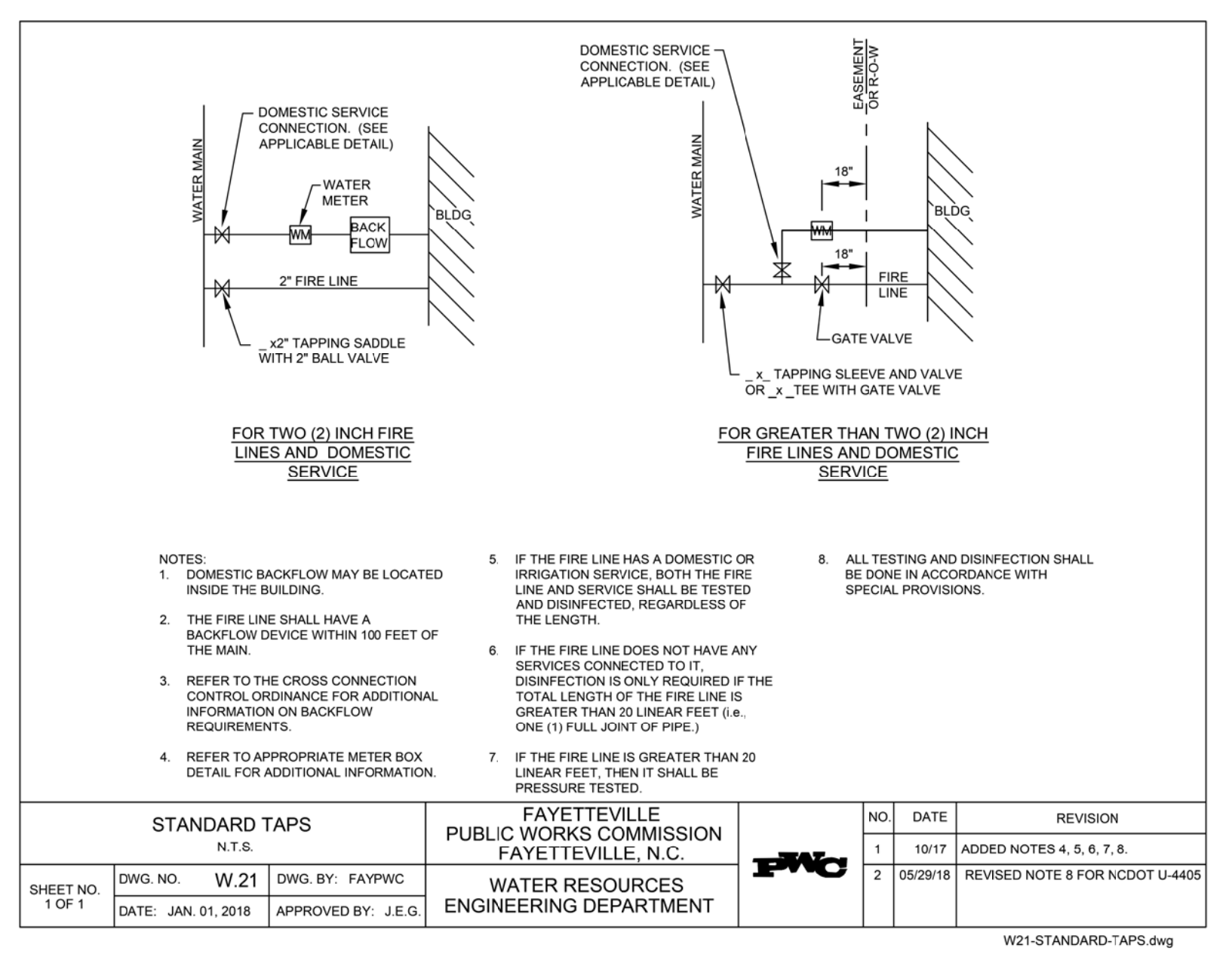
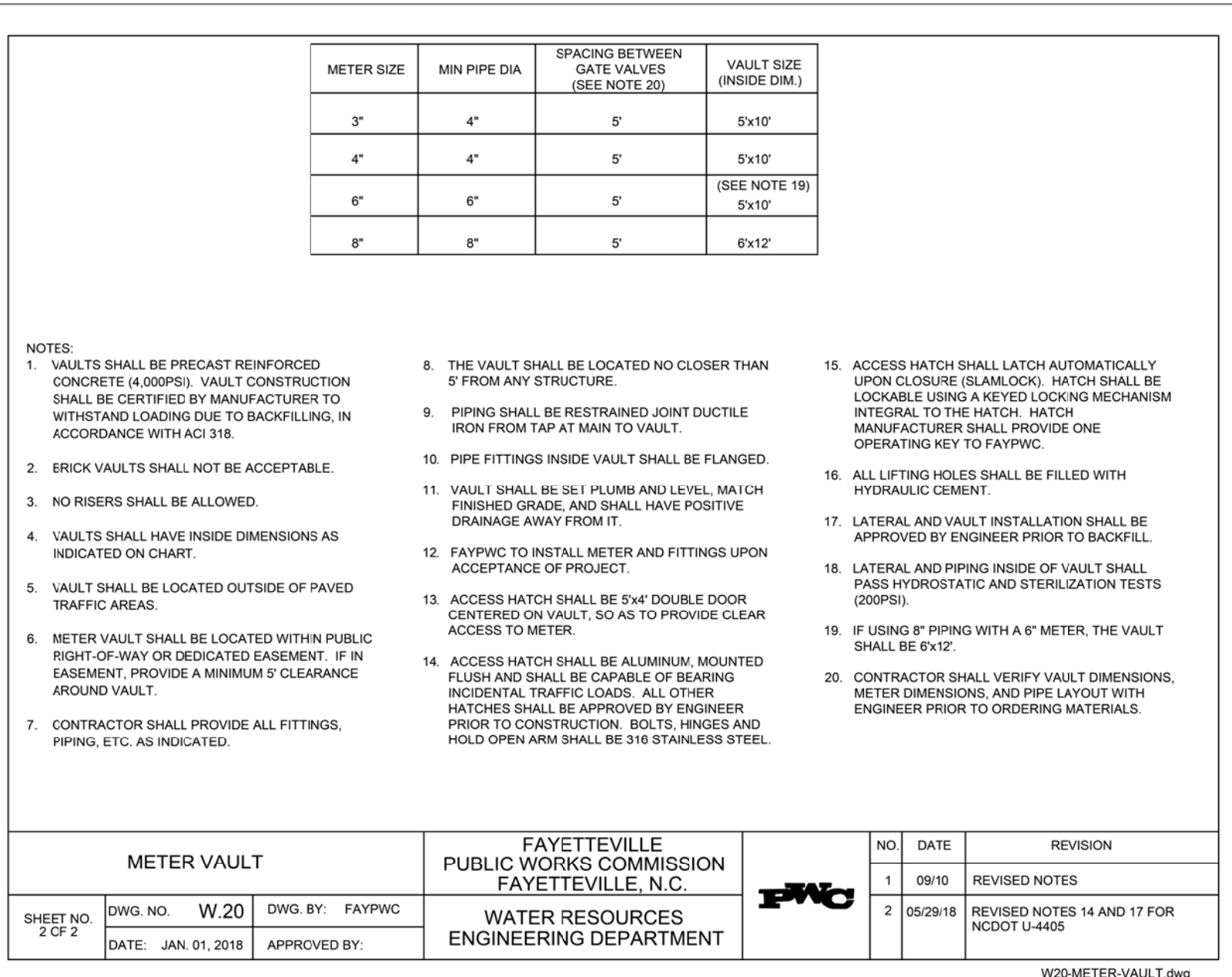
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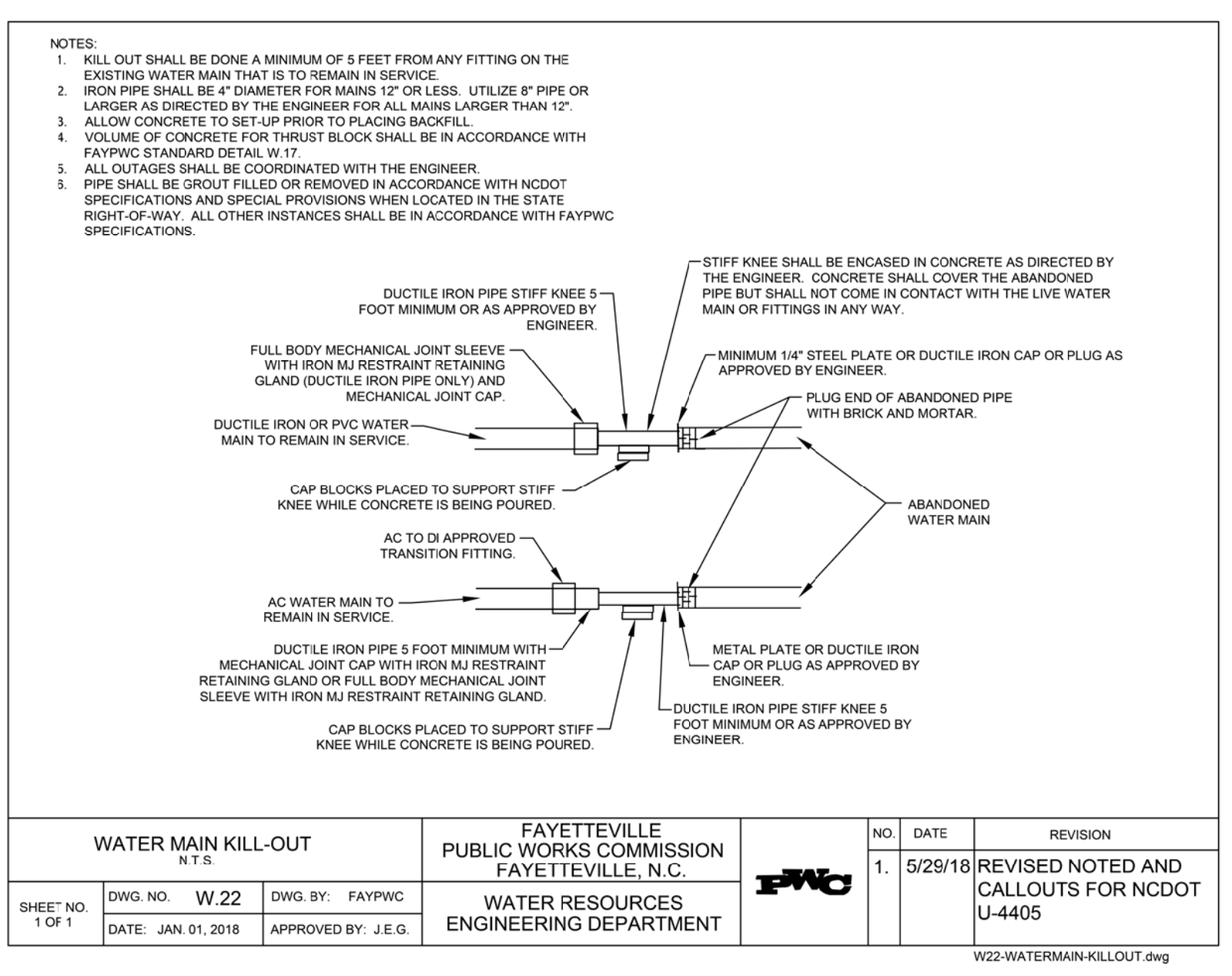
UTILITY CONSTRUCTION



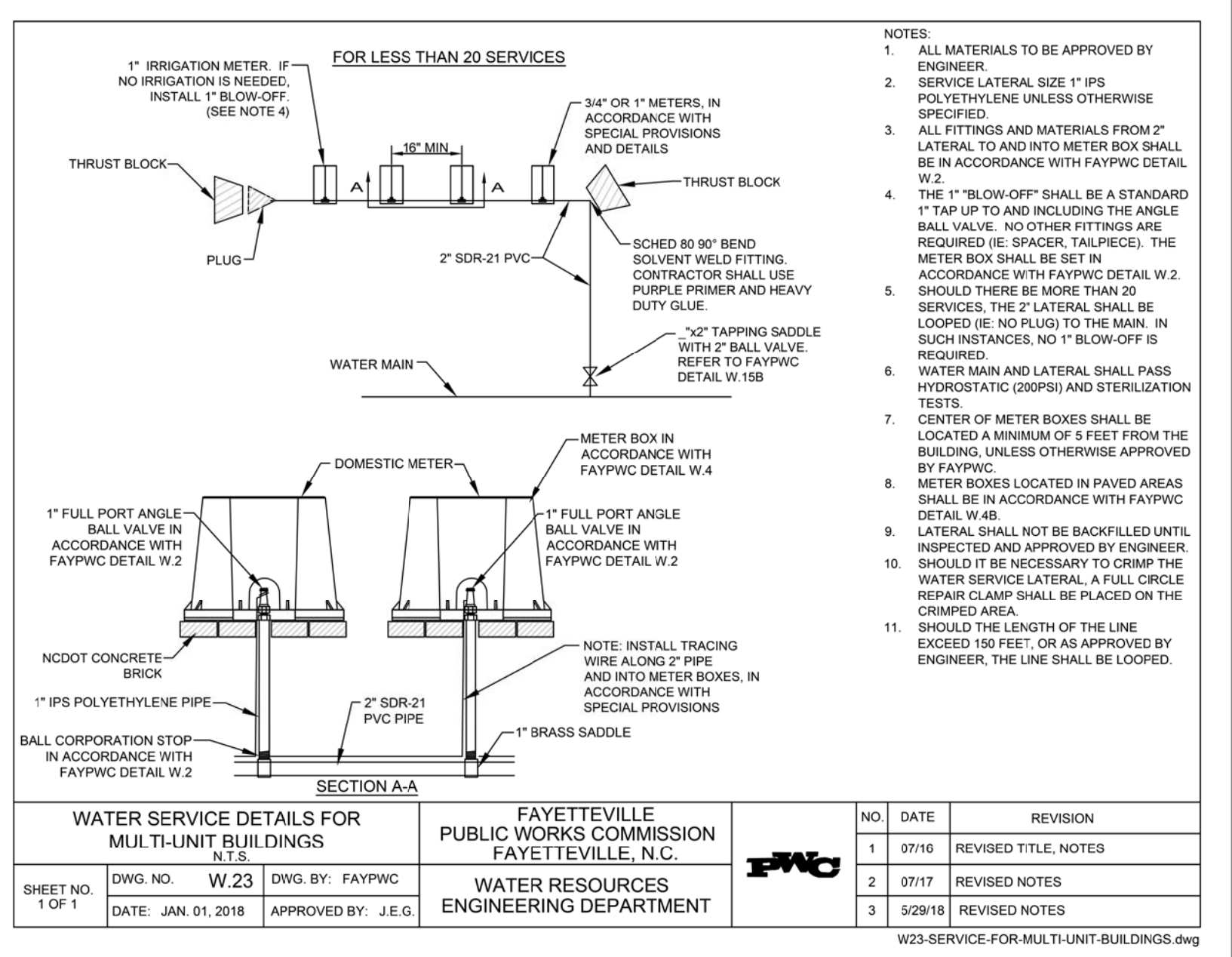
METER VAULT N.T.S.		FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO.	DATE	REVISION
1	09/10	REVISED PIPE BURY DEPTH				
2						
3						



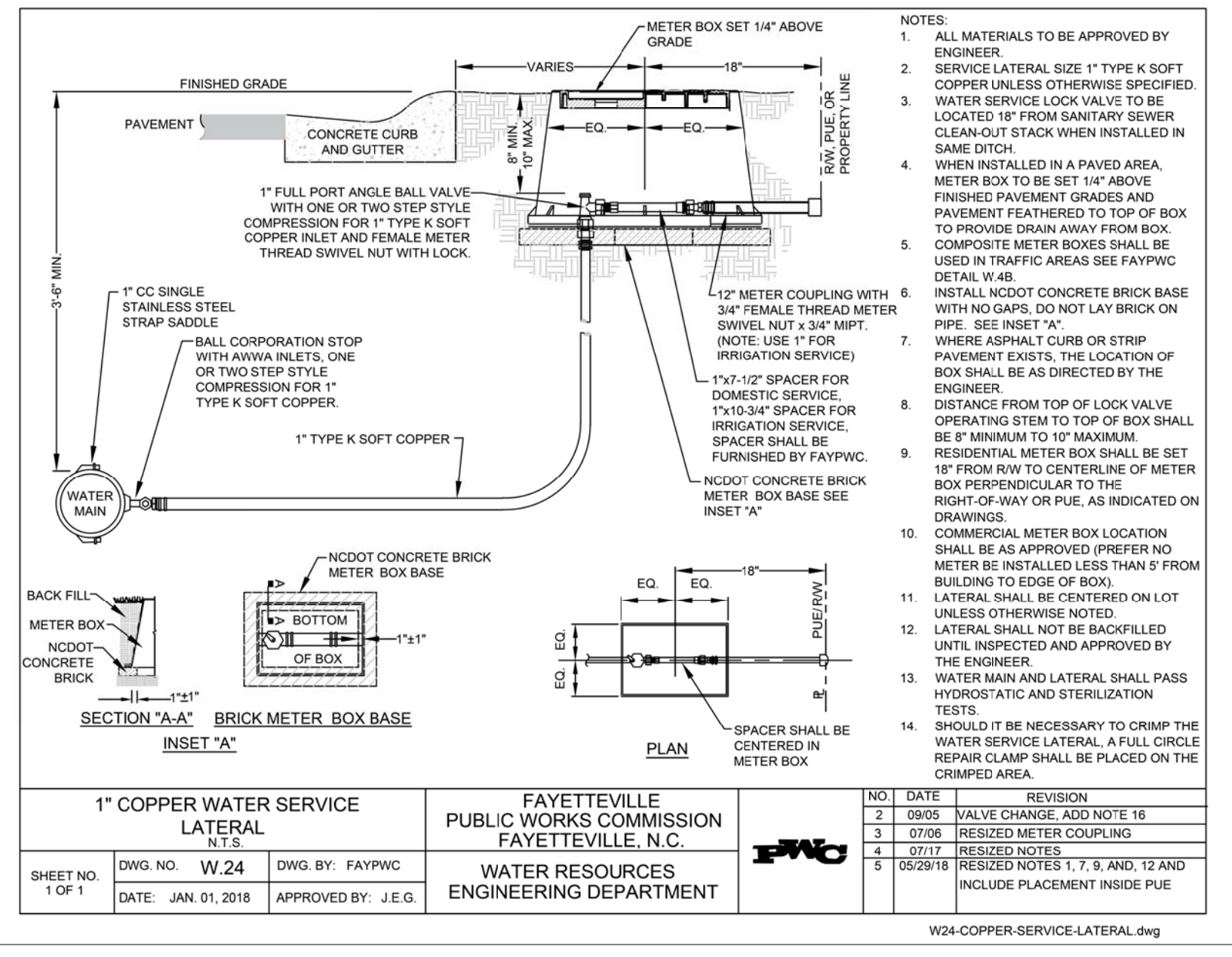
STANDARD TAPS N.T.S.		FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO.	DATE	REVISION
1	10/17	ADDED NOTES 4, 5, 6, 7, 8.				
2	05/29/18	REVISED NOTE 8 FOR NCDOT U-4405				



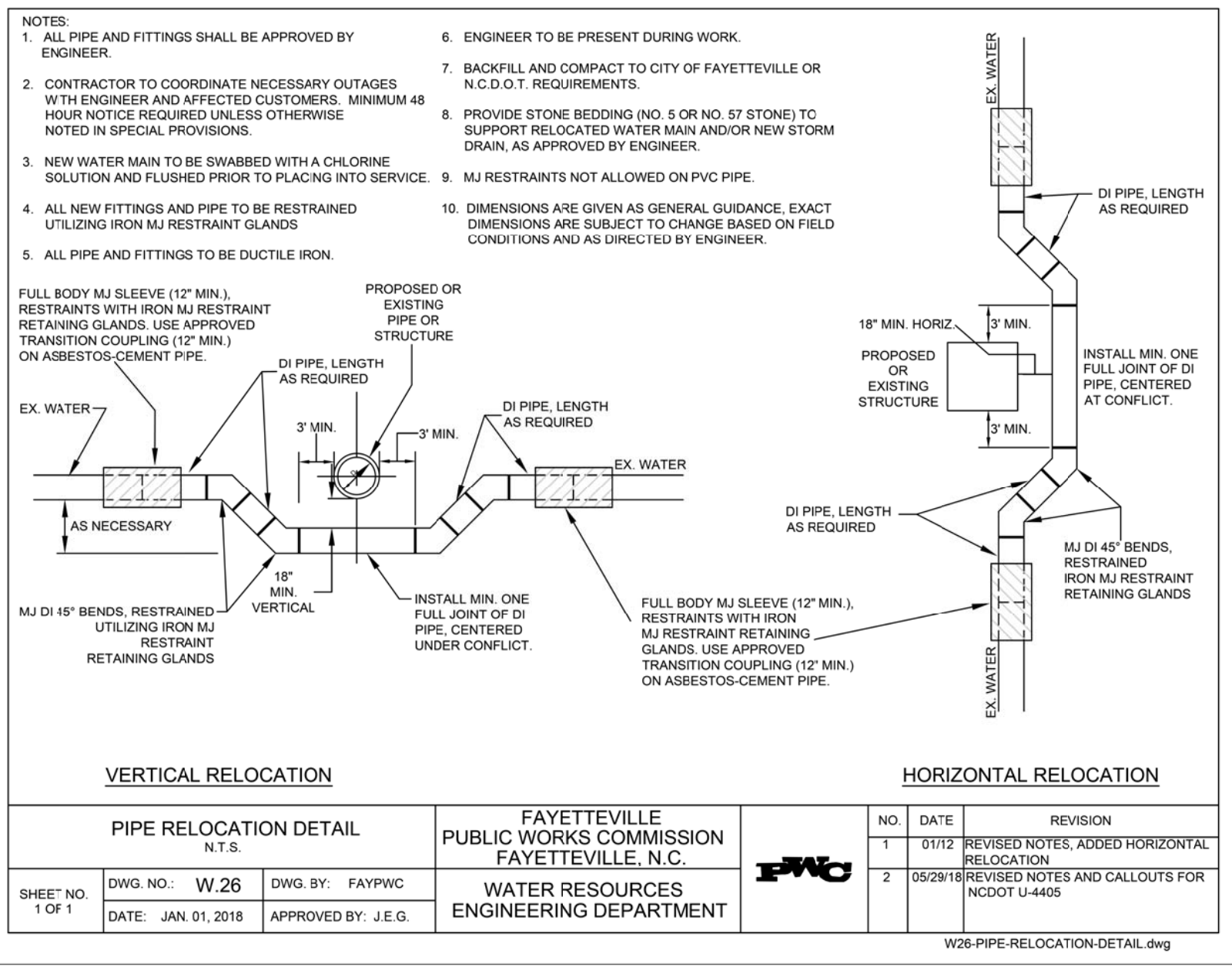
WATER MAIN KILL-OUT N.T.S.		FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO.	DATE	REVISION
1	5/29/18	REVISED NOTED AND CALLOUTS FOR NCDOT U-4405				



WATER SERVICE DETAILS FOR MULTI-UNIT BUILDINGS N.T.S.		FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO.	DATE	REVISION
1	07/16	REVISED TITLE, NOTES				
2	07/17	REVISED NOTES				
3	5/29/18	REVISED NOTES				



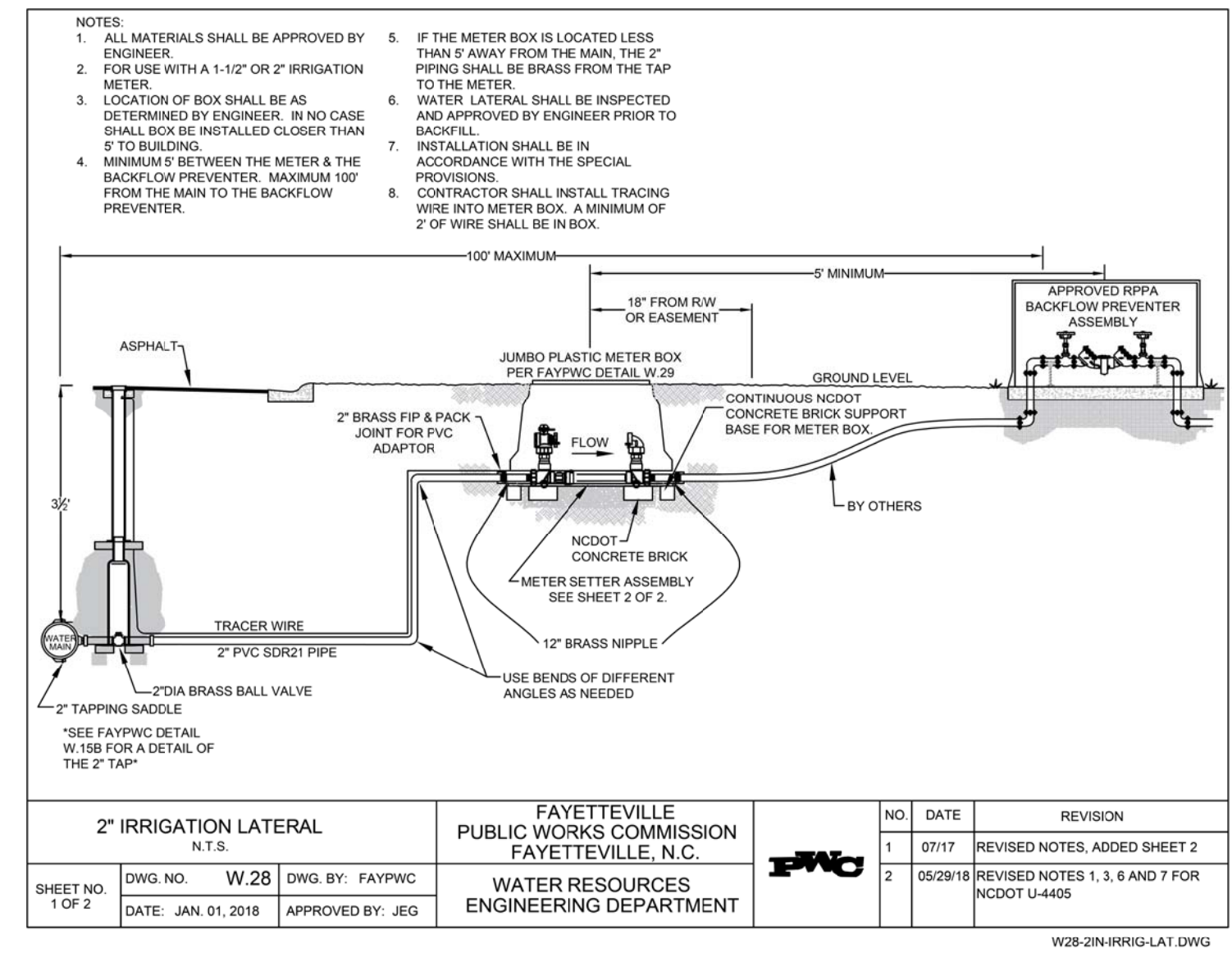
1" COPPER WATER SERVICE LATERAL N.T.S.		FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO.	DATE	REVISION
1	07/06	RESIZED METER COUPLING				
2	07/17	RESIZED NOTES				
3	05/29/18	RESIZED NOTES 1, 7, 8, 9, 12 AND INCLUDE PLACEMENT INSIDE PUE				



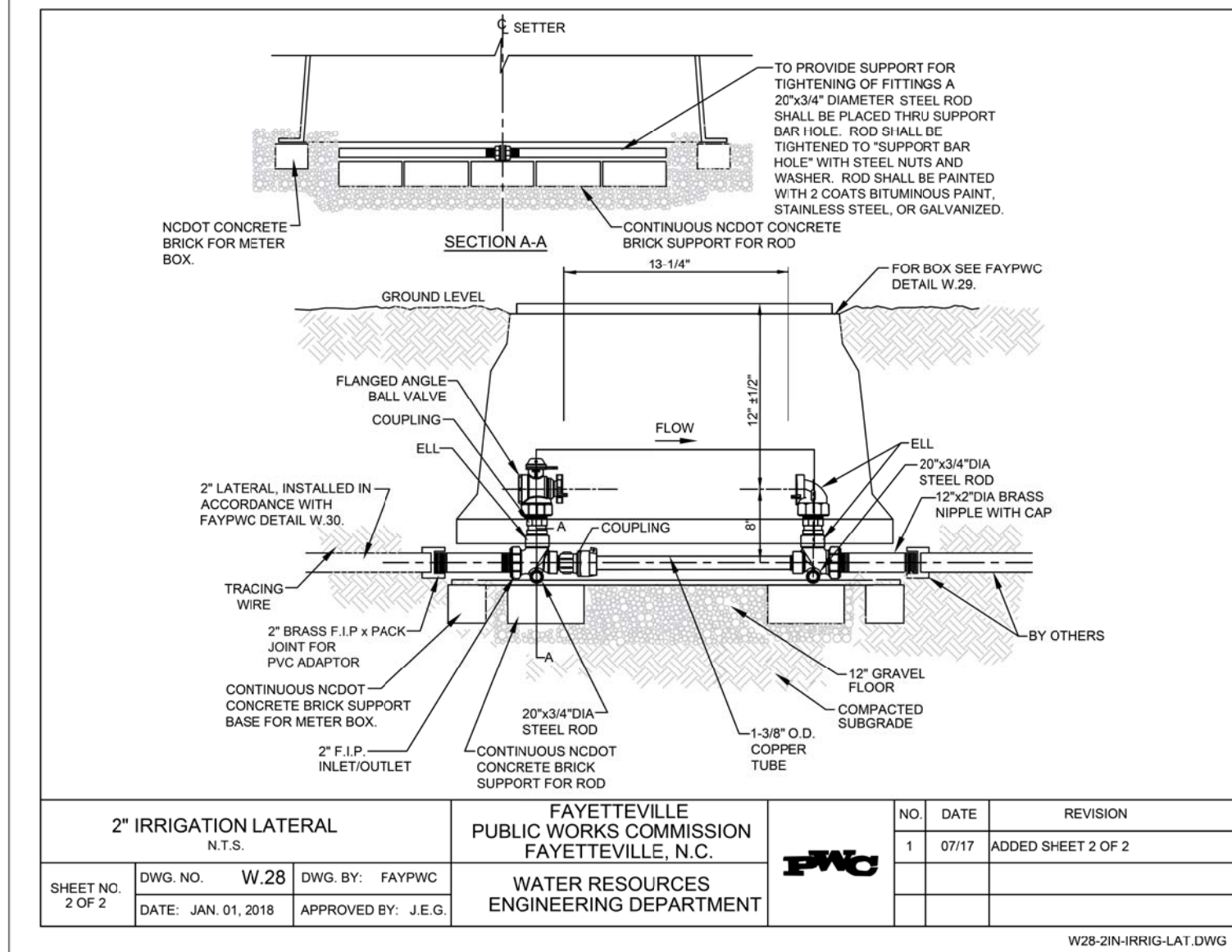
PIPE RELOCATION DETAIL N.T.S.		FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO.	DATE	REVISION
1	01/12	REVISED NOTES, ADDED HORIZONTAL RELOCATION				
2	05/29/18	REVISED NOTES AND CALLOUTS FOR NCDOT U-4405				

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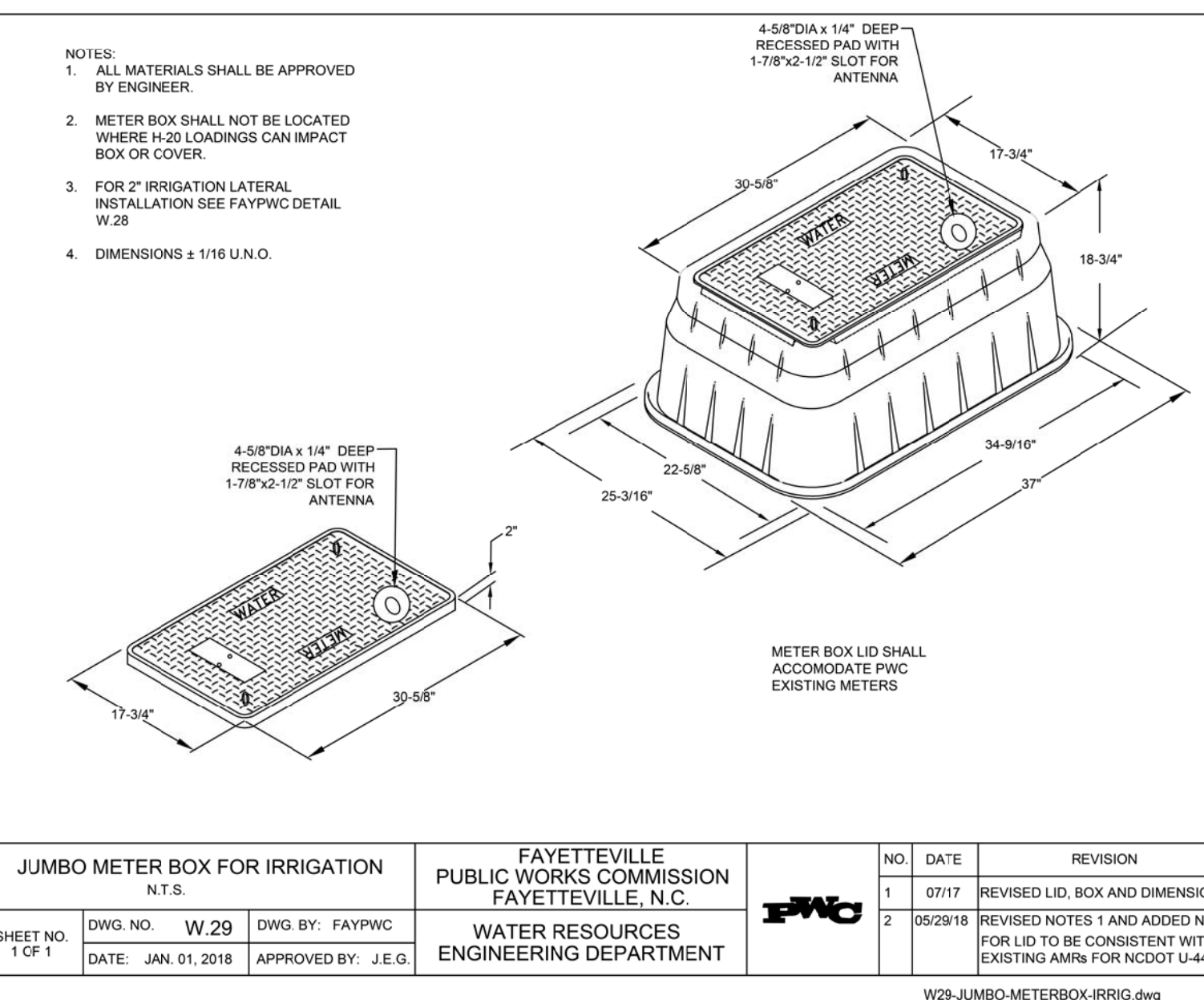
UTILITY CONSTRUCTION



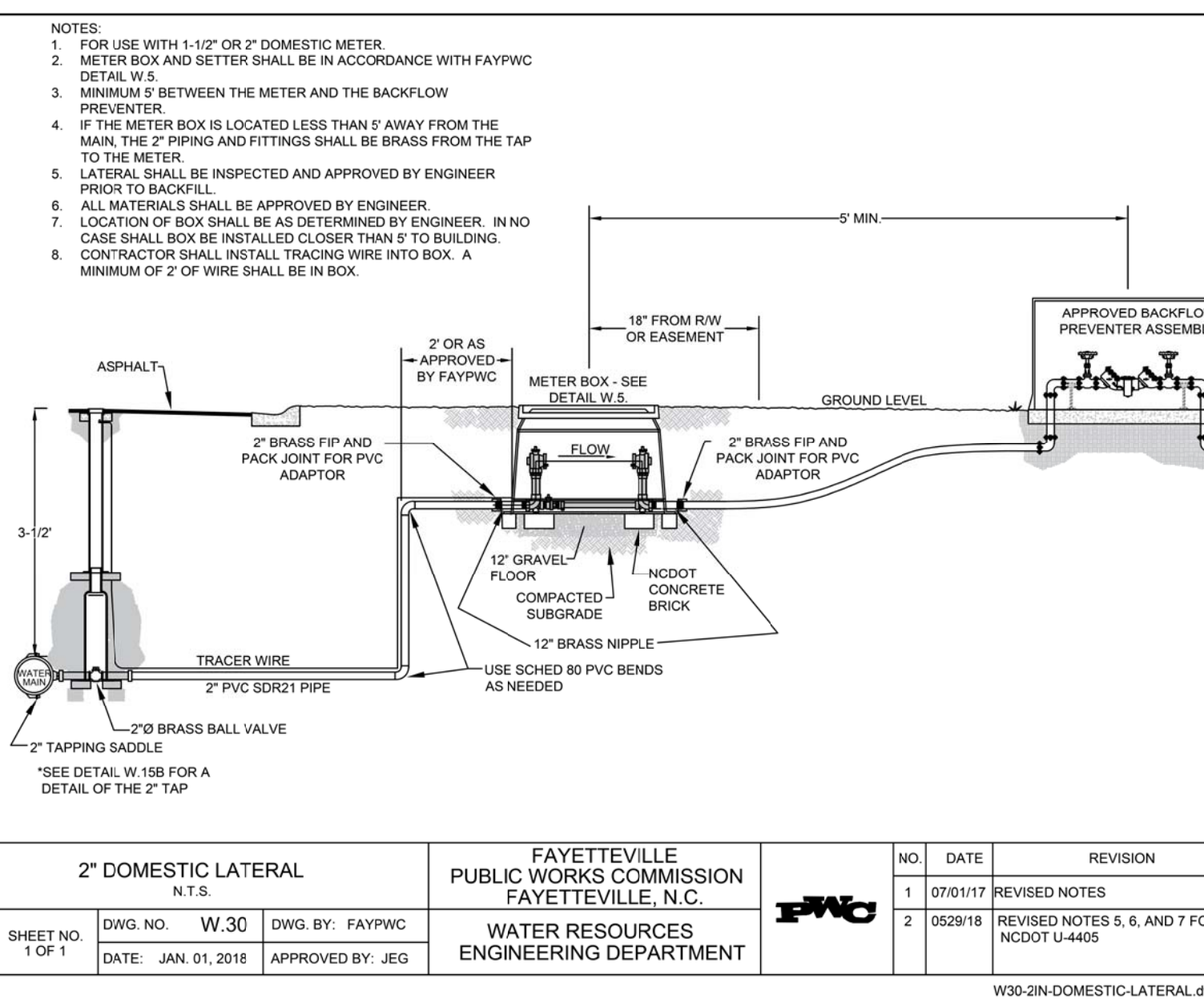
2" IRRIGATION LATERAL N.T.S.		FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO.	DATE	REVISION
				1	07/17	REVISED NOTES, ADDED SHEET 2
				2	05/29/18	REVISED NOTES 1, 3, 6 AND 7 FOR NCDOT U-4405
SHEET NO. 1 OF 2	DWG. NO. W.28	DWG. BY: FAYPWC	APPROVED BY: J.E.G.	WATER RESOURCES ENGINEERING DEPARTMENT		



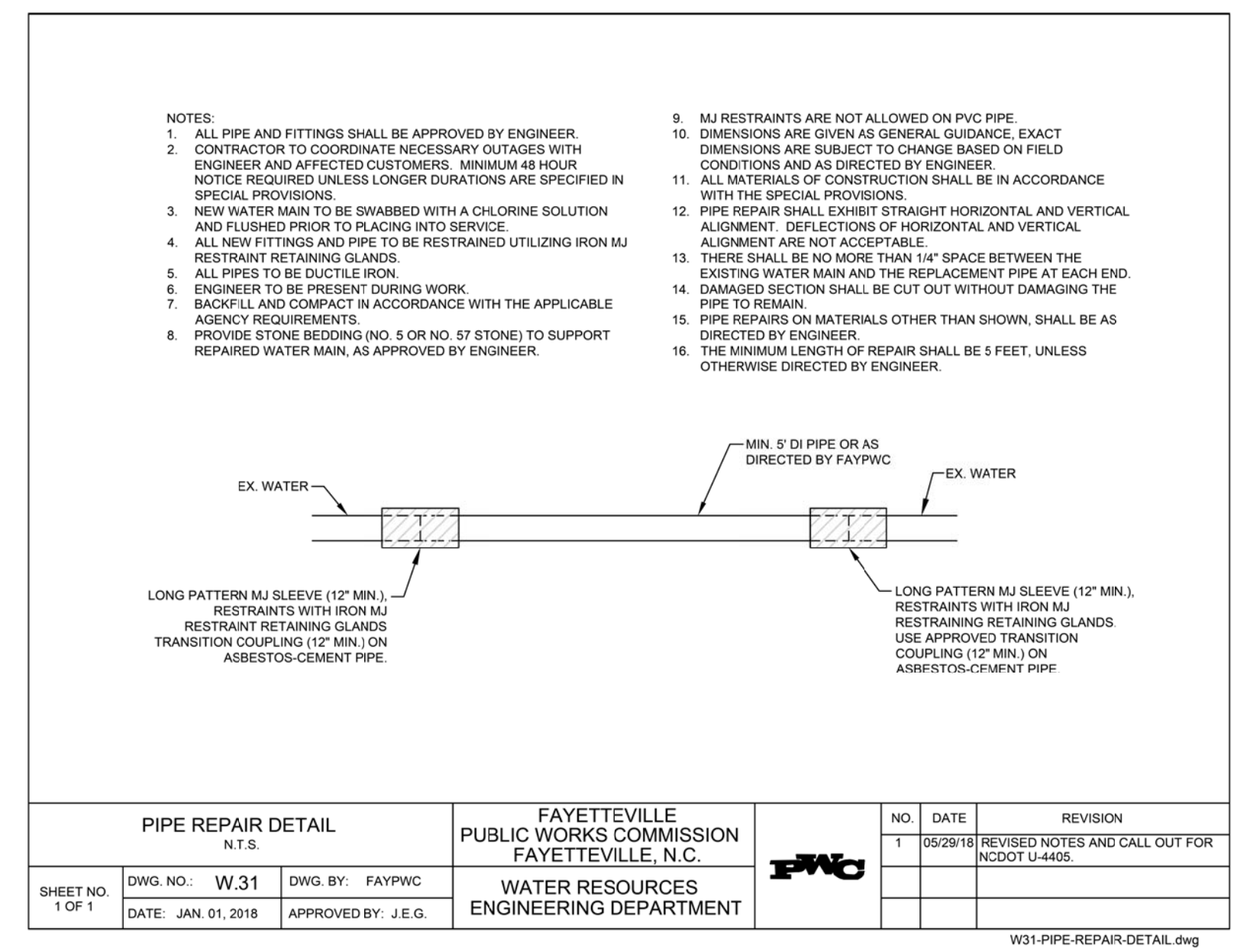
2" IRRIGATION LATERAL N.T.S.		FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO.	DATE	REVISION
				1	07/17	ADDED SHEET 2 OF 2
SHEET NO. 2 OF 2	DWG. NO. W.28	DWG. BY: FAYPWC	APPROVED BY: J.E.G.	WATER RESOURCES ENGINEERING DEPARTMENT		



JUMBO METER BOX FOR IRRIGATION N.T.S.		FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO.	DATE	REVISION
				1	07/17	REVISED LID, BOX AND DIMENSIONS
				2	05/29/18	REVISED NOTES 1 AND ADDED NOTE FOR LID TO BE CONSISTENT WITH EXISTING AMR FOR NCDOT U-4405
SHEET NO. 1 OF 1	DWG. NO. W.29	DWG. BY: FAYPWC	APPROVED BY: J.E.G.	WATER RESOURCES ENGINEERING DEPARTMENT		



2" DOMESTIC LATERAL N.T.S.		FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO.	DATE	REVISION
				1	07/01/17	REVISED NOTES
				2	05/29/18	REVISED NOTES 5, 6, AND 7 FOR NCDOT U-4405
SHEET NO. 1 OF 1	DWG. NO. W.30	DWG. BY: FAYPWC	APPROVED BY: J.E.G.	WATER RESOURCES ENGINEERING DEPARTMENT		



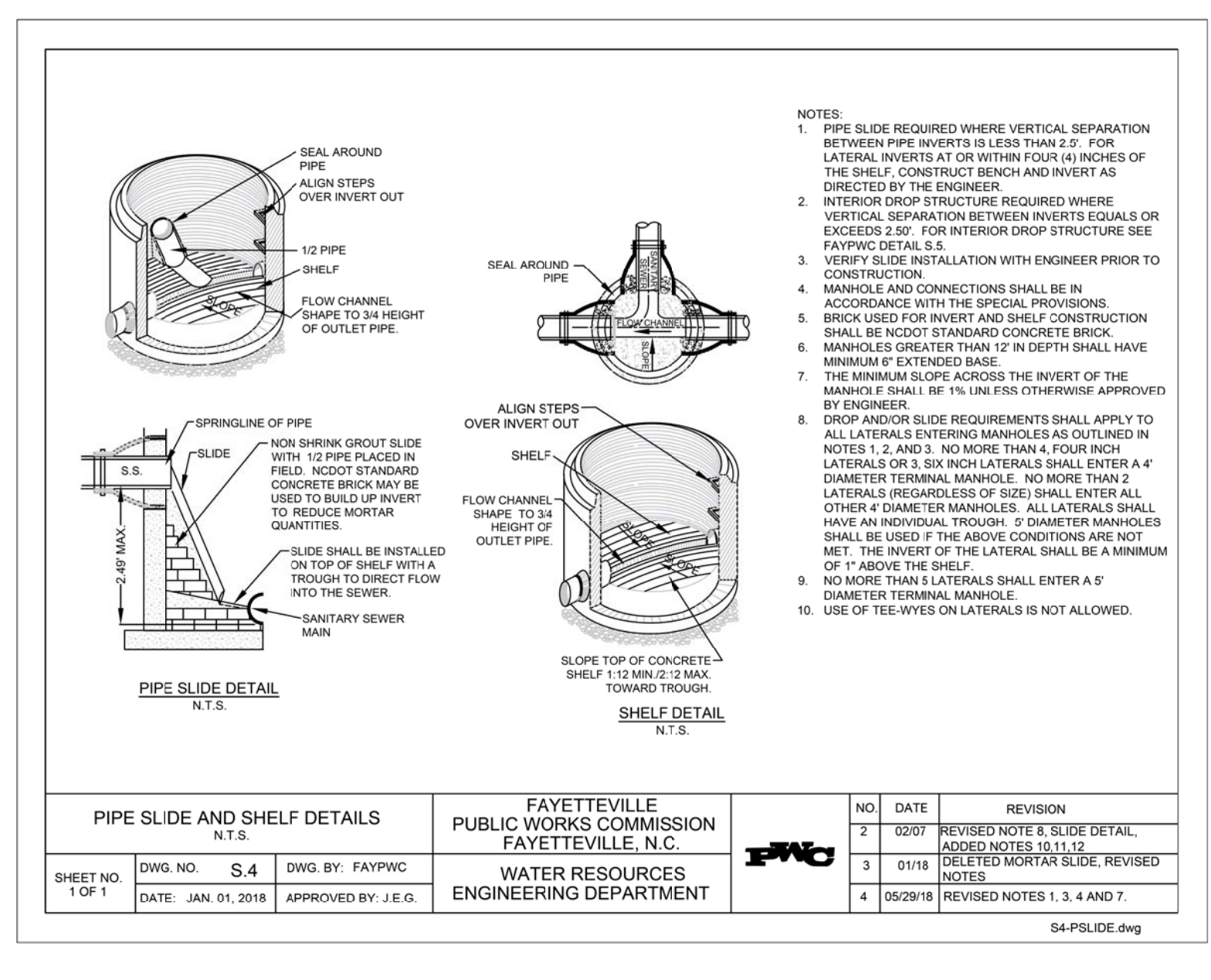
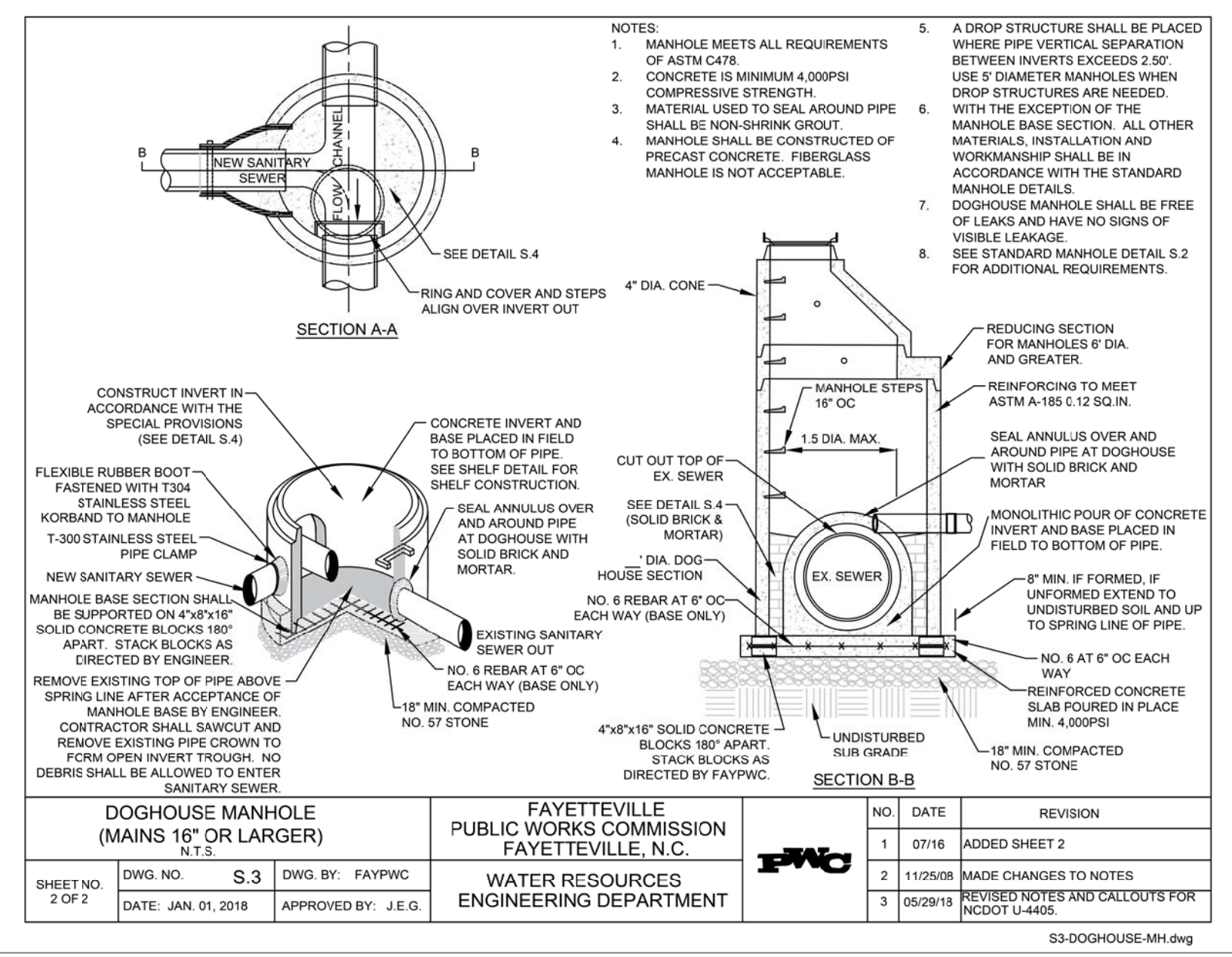
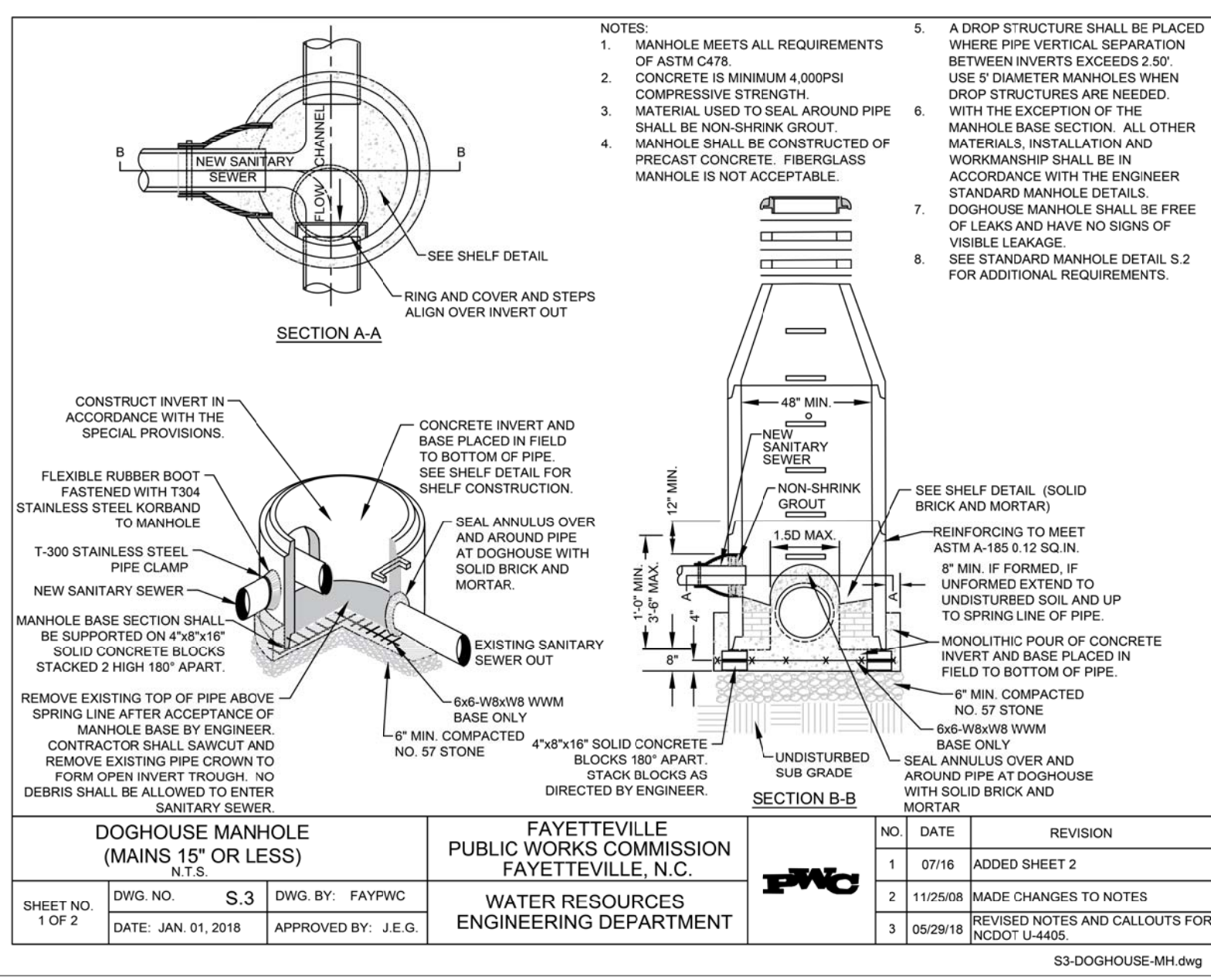
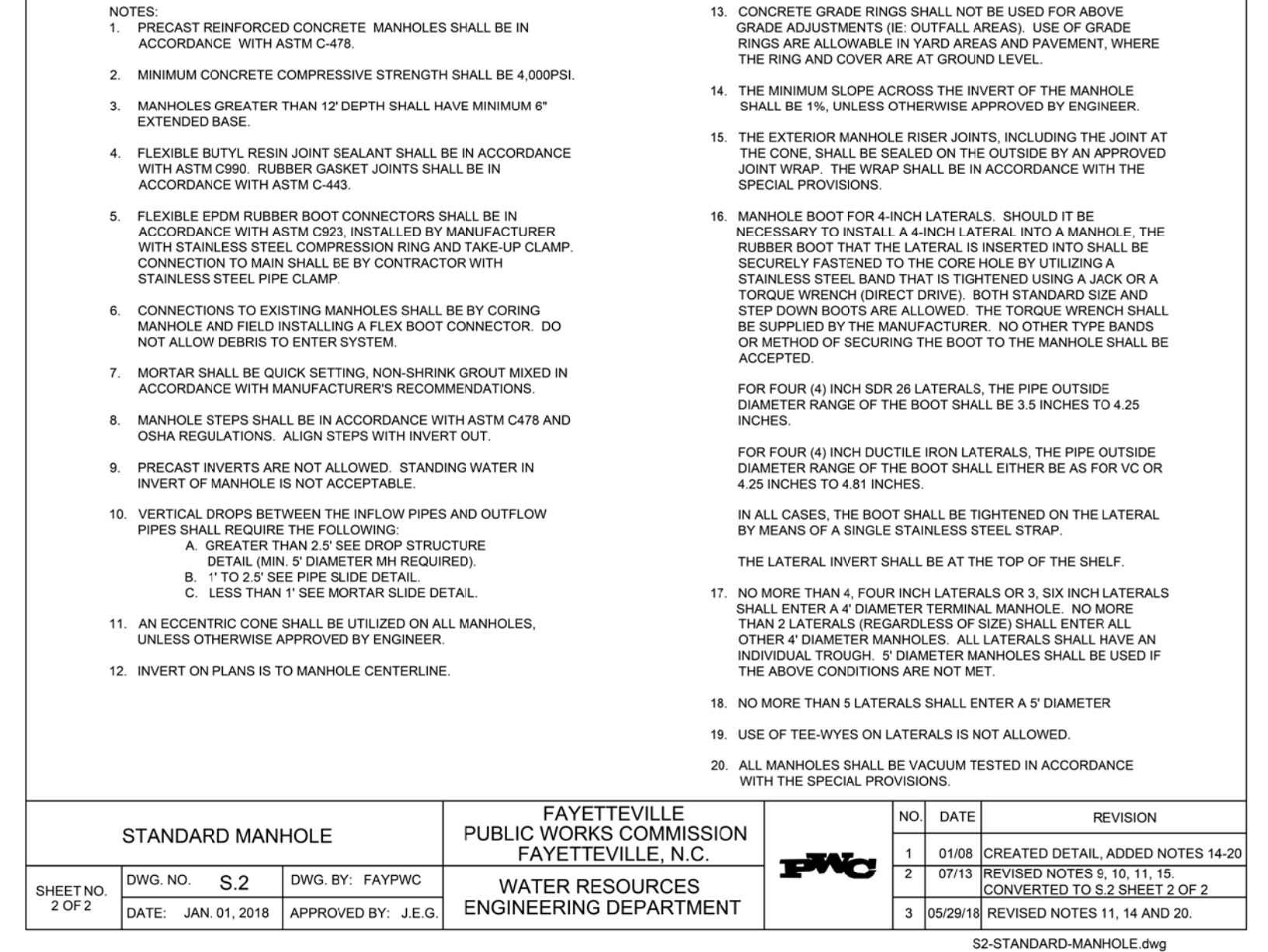
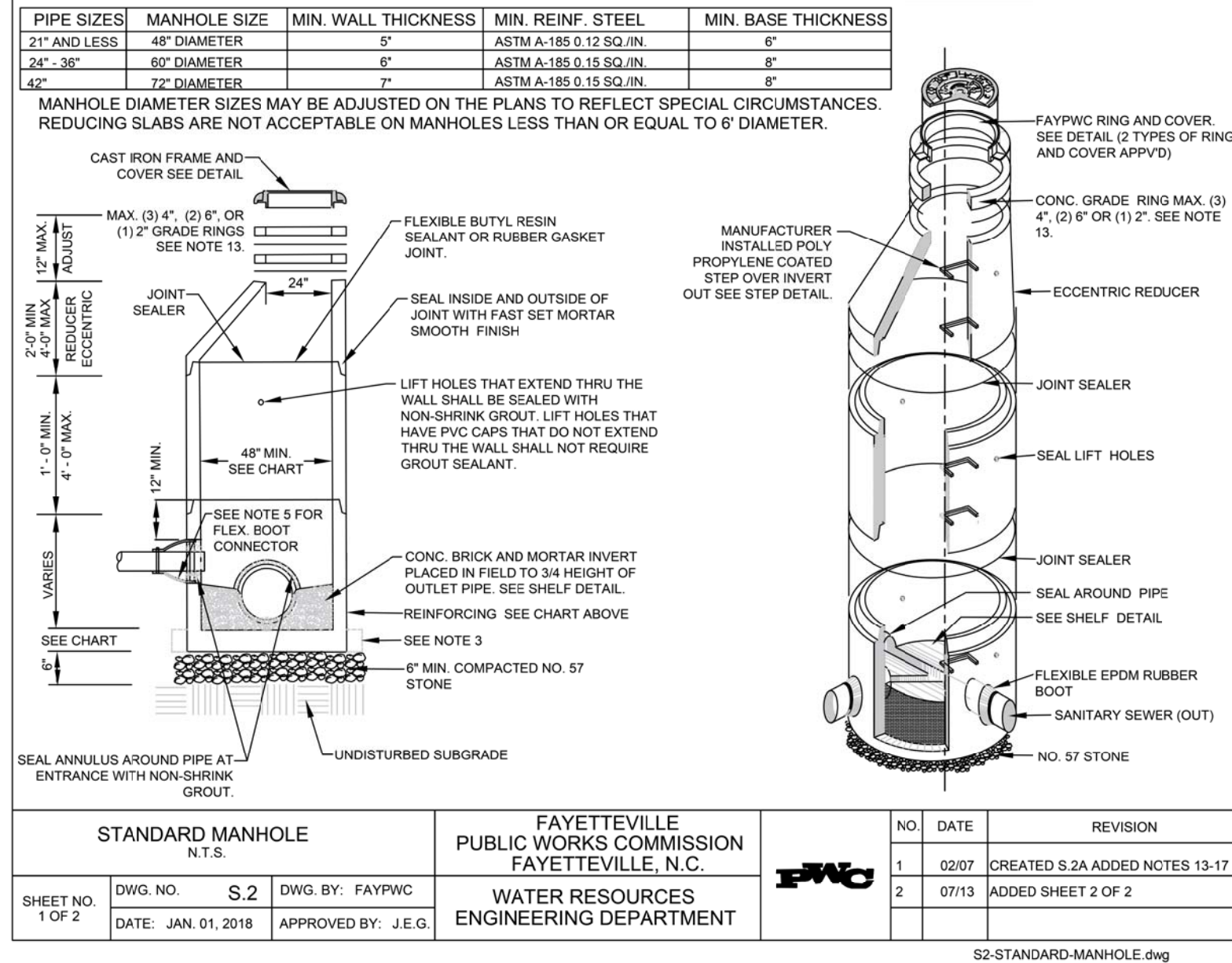
PIPE REPAIR DETAIL N.T.S.		FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO.	DATE	REVISION
				1	05/29/18	REVISED NOTES AND CALL OUT FOR NCDOT U-4405
SHEET NO. 1 OF 1	DWG. NO. W.31	DWG. BY: FAYPWC	APPROVED BY: J.E.G.	WATER RESOURCES ENGINEERING DEPARTMENT		

5/14/09
 12 JUN 2016 08:43
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UTILITY CONSTRUCTION

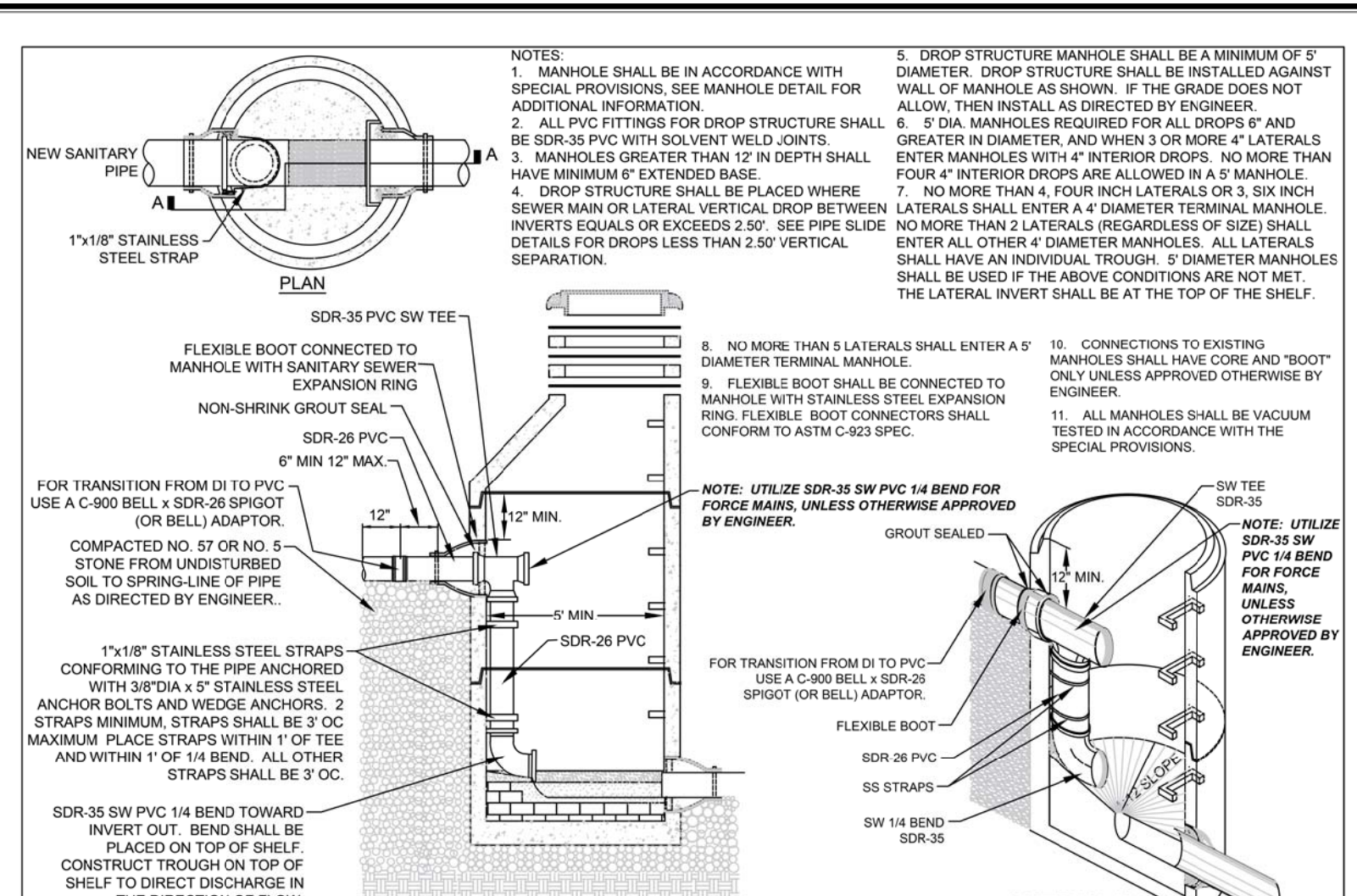
- CONTRACTOR SHALL REPAIR ALL SEWER LATERALS AND MAINS DAMAGED DURING CONSTRUCTION. THE CONTRACTOR SHALL IMMEDIATELY REPORT ALL SEWER MAIN AND LATERAL BREAKS TO THE ENGINEER. THE CONTRACTOR SHALL INITIATE IMMEDIATE REPAIRS IN ACCORDANCE WITH THE SPECIAL PROVISIONS.
- SEWER MAINS, LATERALS, AND MANHOLES SHALL BE INSTALLED UTILIZING AN APPROVED CUT-SHEET, INDICATING INSTALLATION DEPTH.
- TRANSFER OF SEWER SERVICES SHALL BE ACCOMPLISHED AS FOLLOWS:
 - INSTALL AND TEST NEW MAINS, MANHOLES, AND LATERALS. CLEANOUTS SHALL BE INSTALLED 18" INSIDE R/W OR PUE UNLESS OTHERWISE DIRECTED BY ENGINEER.
 - CONNECT EXISTING PLUMBING TO NEW LATERAL UTILIZING THE NECESSARY FITTINGS AS DIRECTED BY ENGINEER.
 - AFTER ALL SERVICES HAVE BEEN TRANSFERRED TO THE NEW MAIN, THE EXISTING SEWER SYSTEM SHALL BE ABANDONED IN ACCORDANCE WITH SPECIAL PROVISIONS.
- 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.
- CONTRACTOR SHALL ABANDON ("KILL-OUT") ANY EXISTING SEWER SERVICES THAT WILL NOT BE UTILIZED BY UNCOVERING THE EXISTING LATERAL AT THE MAIN, CUT AND PLUG AT BOTH ENDS, REMOVE THE EXISTING CLEANOUT AND COMBINATION, AND PLUG THE TAP OR TEE AT THE MAIN. FOR LATERALS THAT CONNECT TO A MANHOLE AND ARE TO BE ABANDONED ("KILLED-OUT"), THE LATERAL SHALL BE REMOVED FROM THE MANHOLE AND THE REMAINING VOID IN THE MANHOLE SHALL BE FILLED WITH BLOCK AND MORTAR.
- 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.
- ALL EXISTING UTILITIES IMPACTED BY CONSTRUCTION SHALL BE ADJUSTED TO FINISHED GRADE, IN ACCORDANCE WITH ELEVATIONS INDICATED OR SHOWN ON DRAWINGS.
- ALL WORK ON FAYPWC SEWER UTILITIES (MAINS, LATERALS, ETC) SHALL BE PERFORMED BY A LICENSED UTILITY CONTRACTOR. THE ENGINEER SHALL OBSERVE AND APPROVE ALL WORK ON FAYPWC SEWER UTILITIES. ALL WORK SHALL BE COMPLETED IN ACCORDANCE WITH THE SPECIAL PROVISIONS.
- SEPARATION REQUIREMENTS:
 - 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:
 - 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
 - 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.
 - 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.
 - 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.
 - 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 36 INCHES OF SEPARATION SHALL BE MAINTAINED, UNLESS OTHERWISE APPROVED BY FAYPWC.

GENERAL NOTES		FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO.	DATE	REVISION
SANITARY SEWER UTILITY		FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		1	07/16	ADDED NOTE 6
SHEET NO. 1 OF 1		WATER RESOURCES ENGINEERING DEPARTMENT		2	01/18	ADDED NOTES 5, 8
DWG. NO. S.1		DWG. BY: FAYPWC		3	05/29/18	REVISED NOTES 1, 2, 4, 2b, 7 AND 8 FOR NCDOT U-4405.
DATE: JAN. 01, 2018		APPROVED BY: J.E.G.		S1-SEWER-NOTES.dwg		

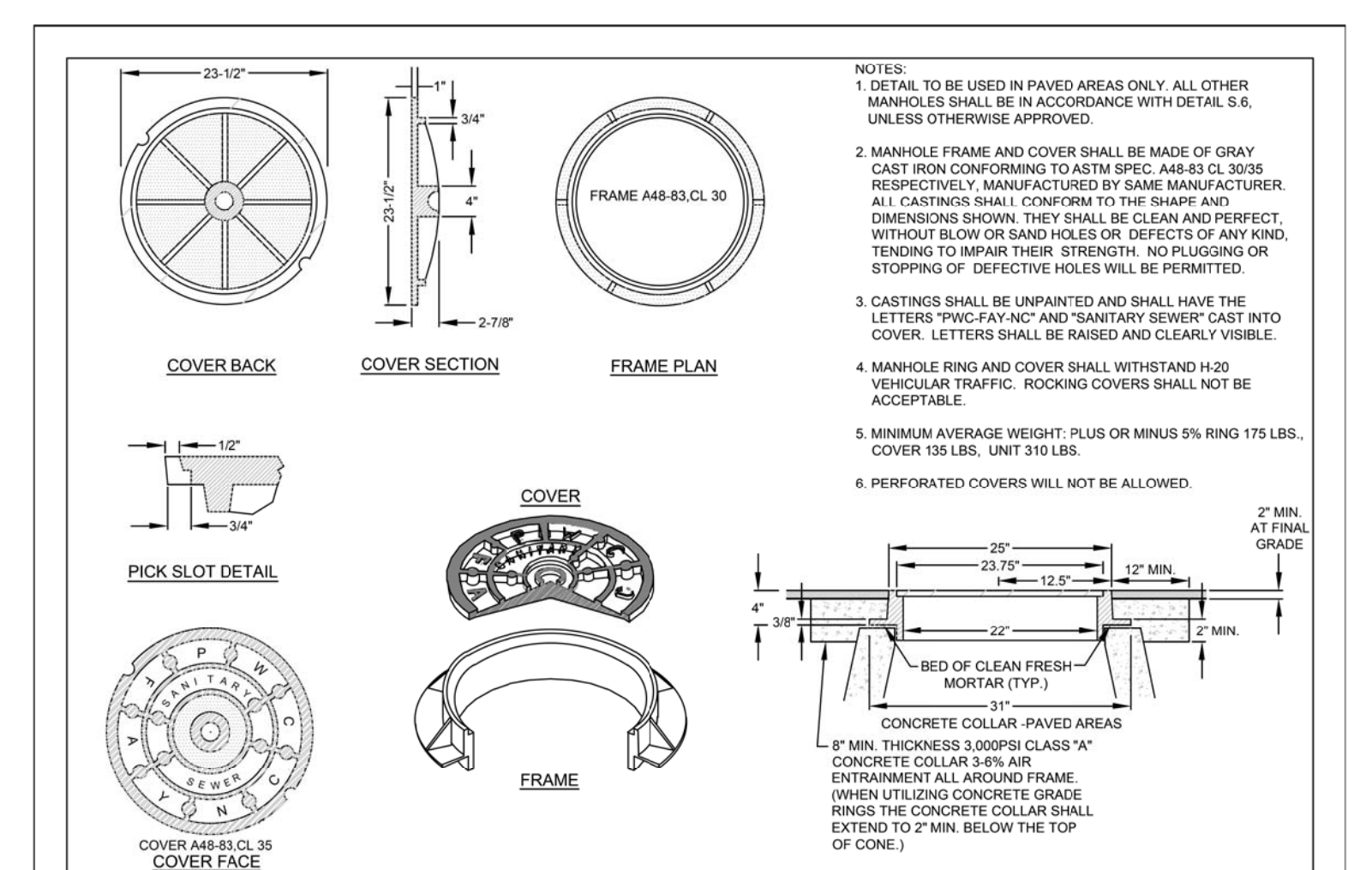


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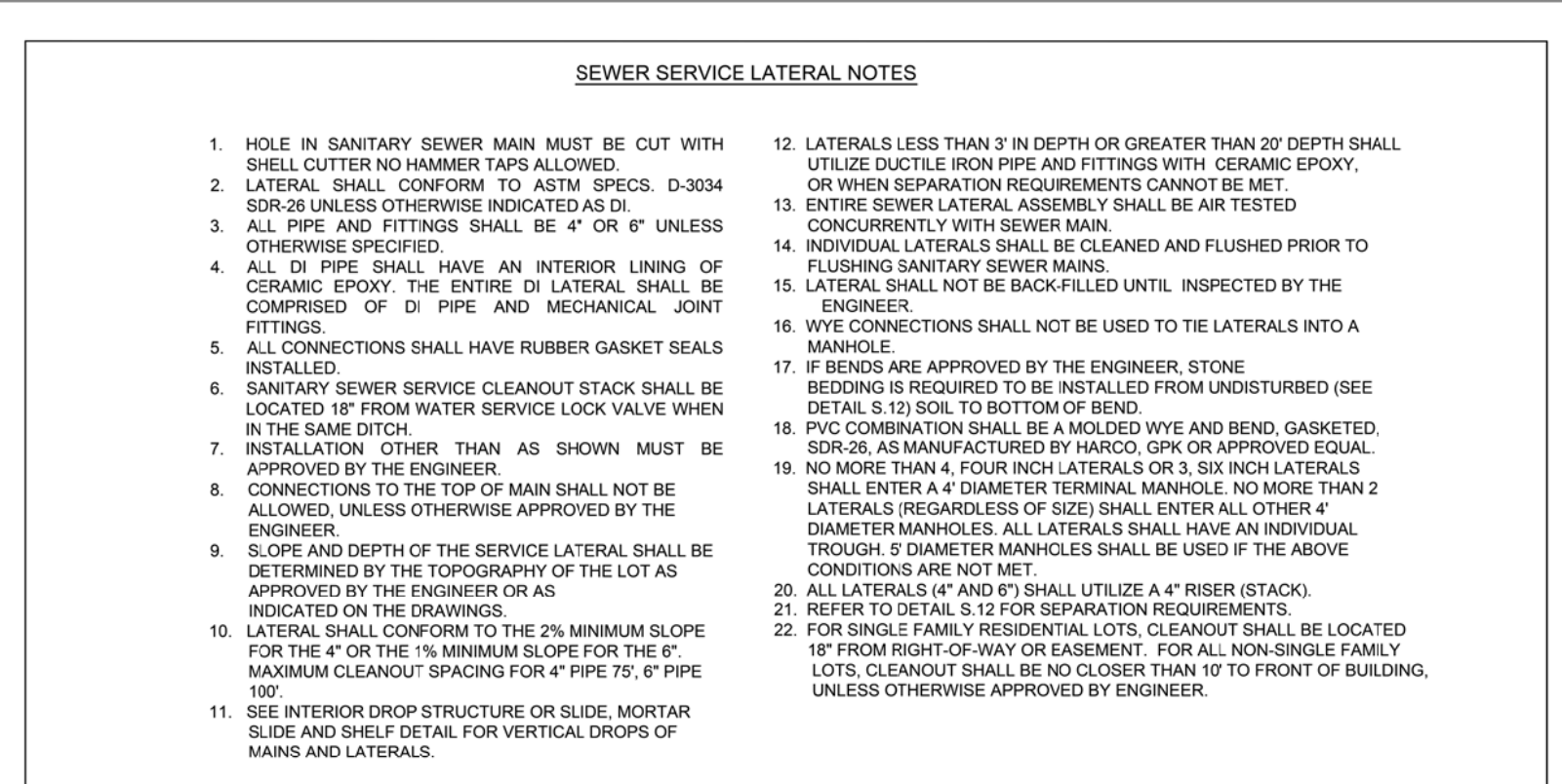
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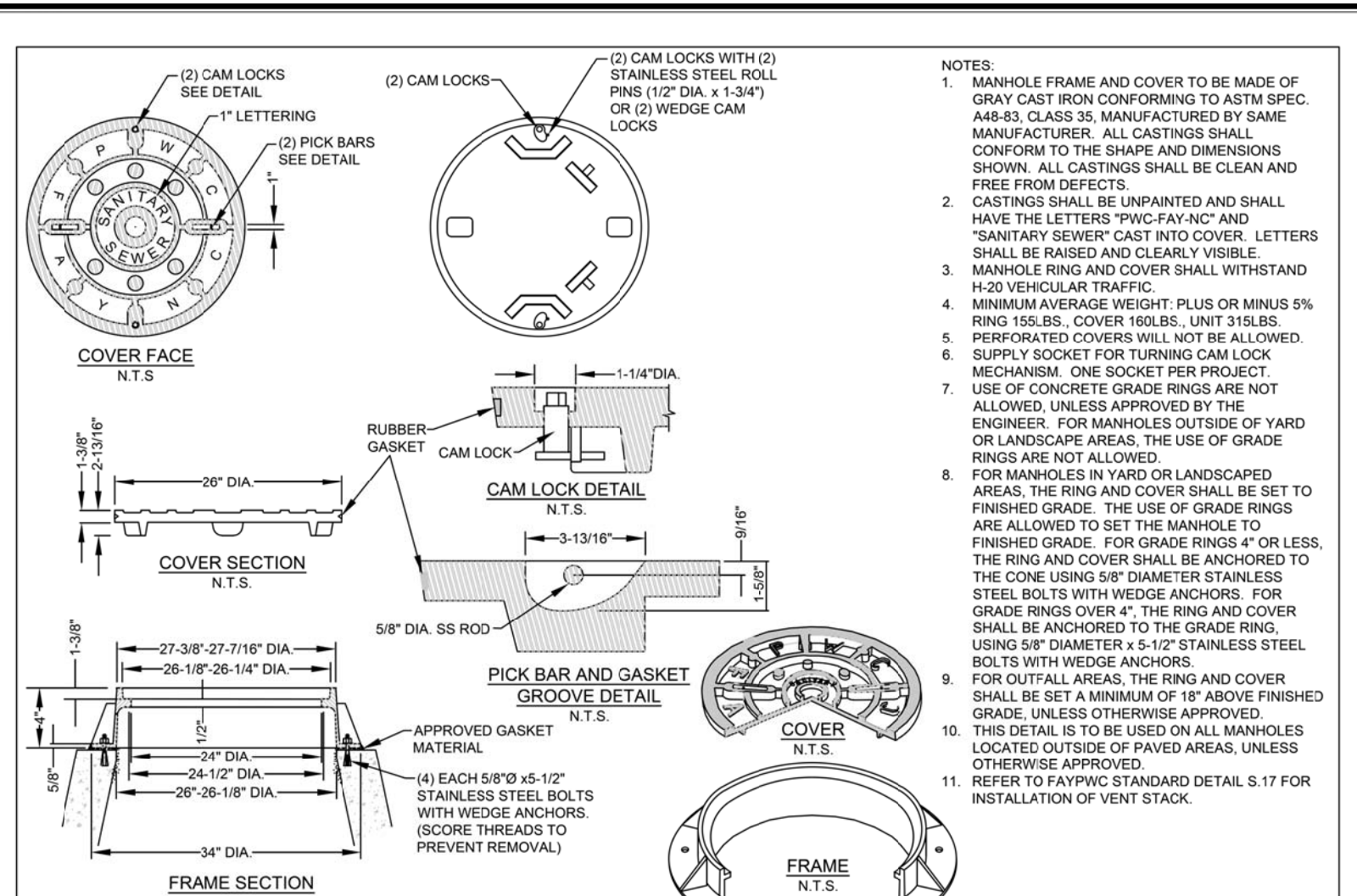
INTERIOR DROP STRUCTURE SEWER MAINS & LATERALS		FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.	
DWG. NO. S.5	DWG. BY: FAYPWC	NO. 5	DATE: 07/12
DATE: JAN. 01, 2018	APPROVED BY: J.E.G.	REVISION	REVISED NOTES 5, 6, AND HUB ON INVERT
WATER RESOURCES ENGINEERING DEPARTMENT		NO. 6	DATE: 07/14
		REVISION	ADDED FORCE MAIN NOTE
		NO. 7	DATE: 05/29/18
		REVISION	REVISED NOTES AND CALLOUTS FOR NCDOT U-4405.



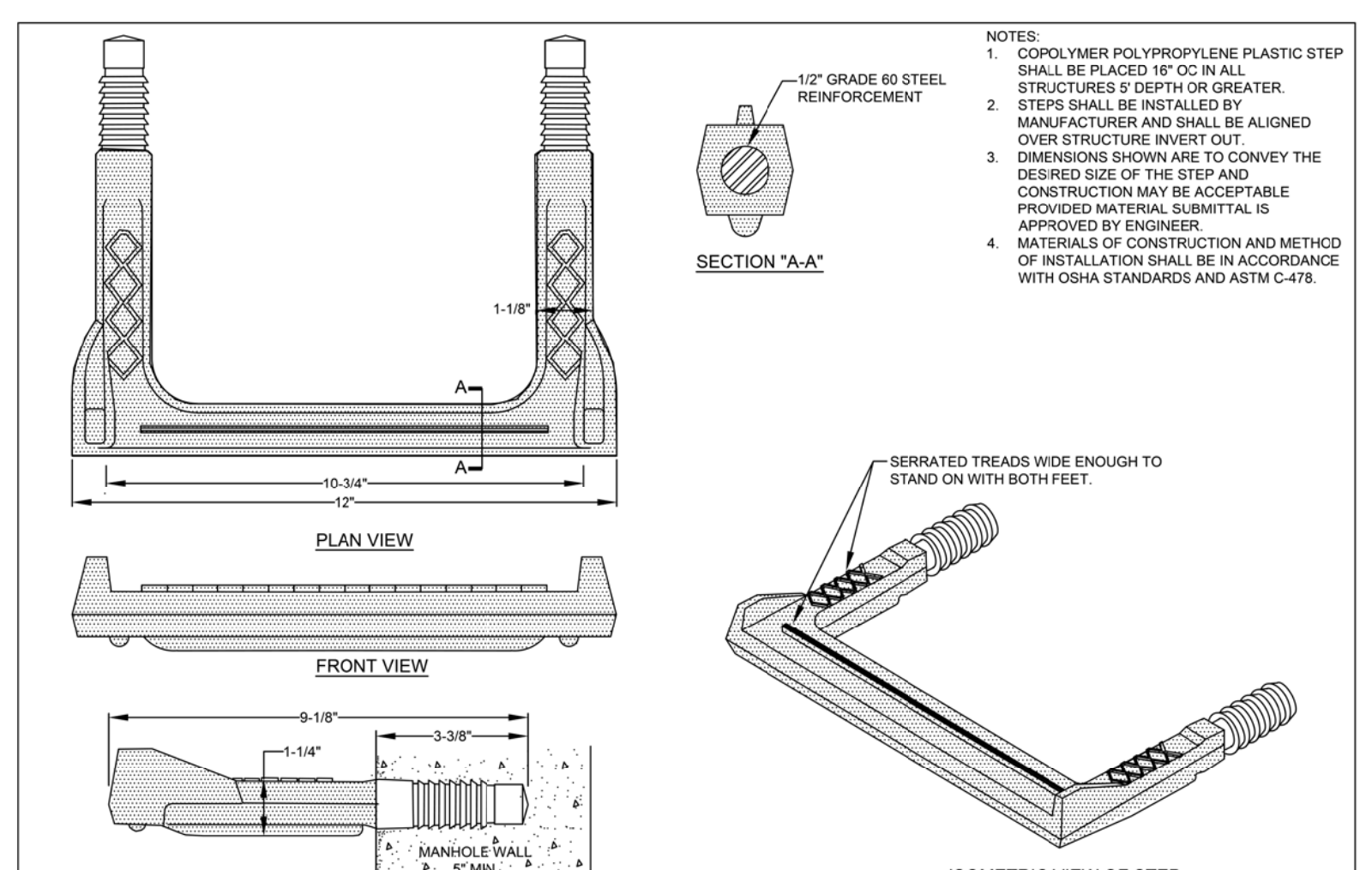
STANDARD NON-TRAFFIC AREA MANHOLE RING AND COVER		FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.	
DWG. NO. S.7	DWG. BY: FAYPWC	NO. 1	DATE: 01/02
DATE: JAN. 01, 2018	APPROVED BY: J.E.G.	REVISION	CHANGED NON-TRAFFIC DETAIL
WATER RESOURCES ENGINEERING DEPARTMENT		NO. 2	DATE: 07/06
		REVISION	ADDED NOTE ON CONCRETE COLLAR
		NO. 3	DATE: 02/07
		REVISION	REMOVED NON-TRAFFIC AREA AND REVISED NOTES
		NO. 4	DATE: 07/06
		REVISION	REVISED ASPHALT THICKNESS



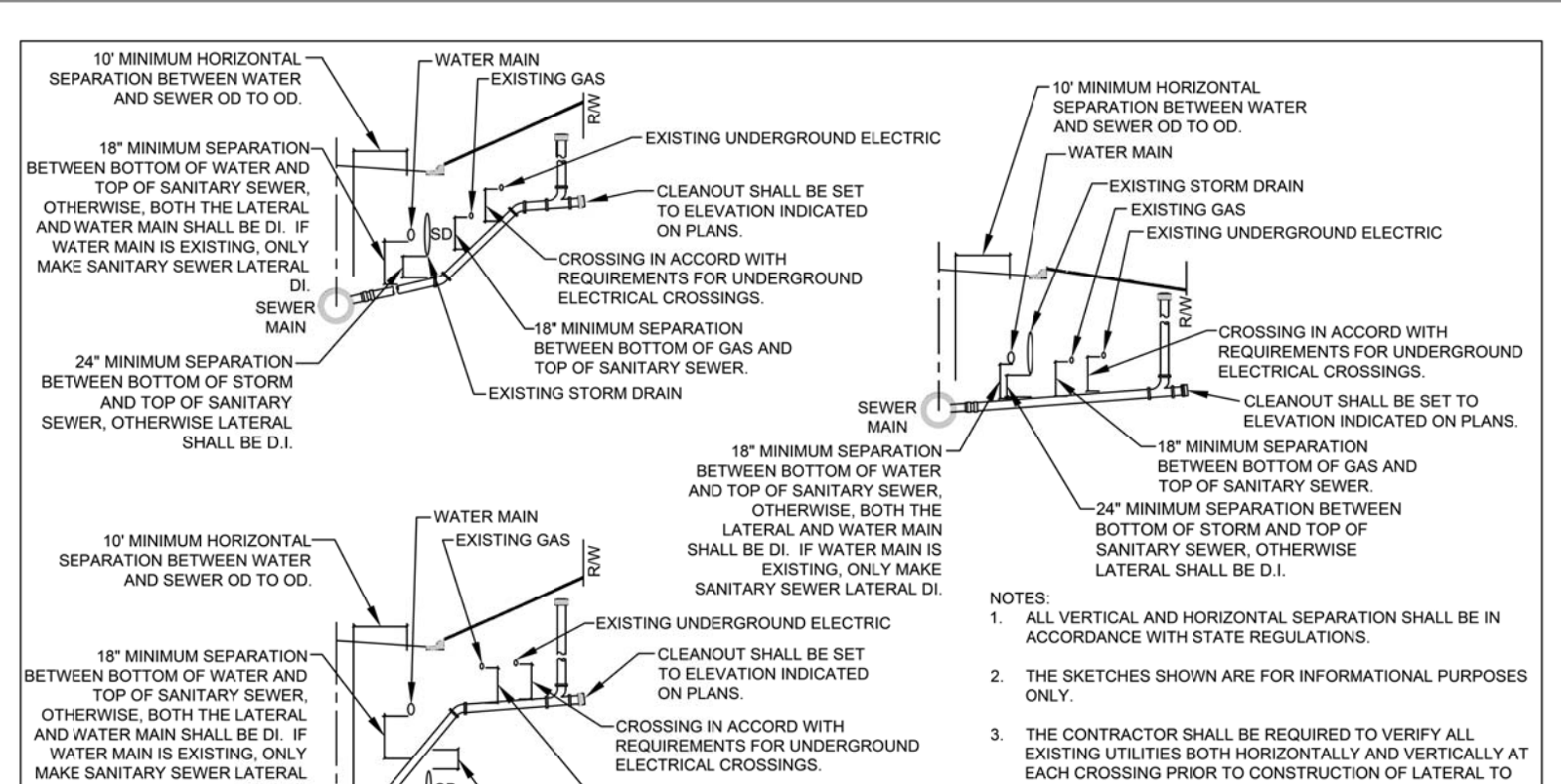
SEWER SERVICE LATERAL NOTES (4-INCH AND 6-INCH)		FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.	
DWG. NO. S.11	DWG. BY: FAYPWC	NO. 3	DATE: 01/13
DATE: JAN. 01, 2018	APPROVED BY: J.E.G.	REVISION	ADDED NOTE ON DI LATERALS
WATER RESOURCES ENGINEERING DEPARTMENT		NO. 4	DATE: 01/15
		REVISION	REVISED NOTE 22, TABLE
		NO. 5	DATE: 05/29/18
		REVISION	REVISED NOTE 4, 7, 8, 12, 17 AND 22 FOR NCDOT U-4405



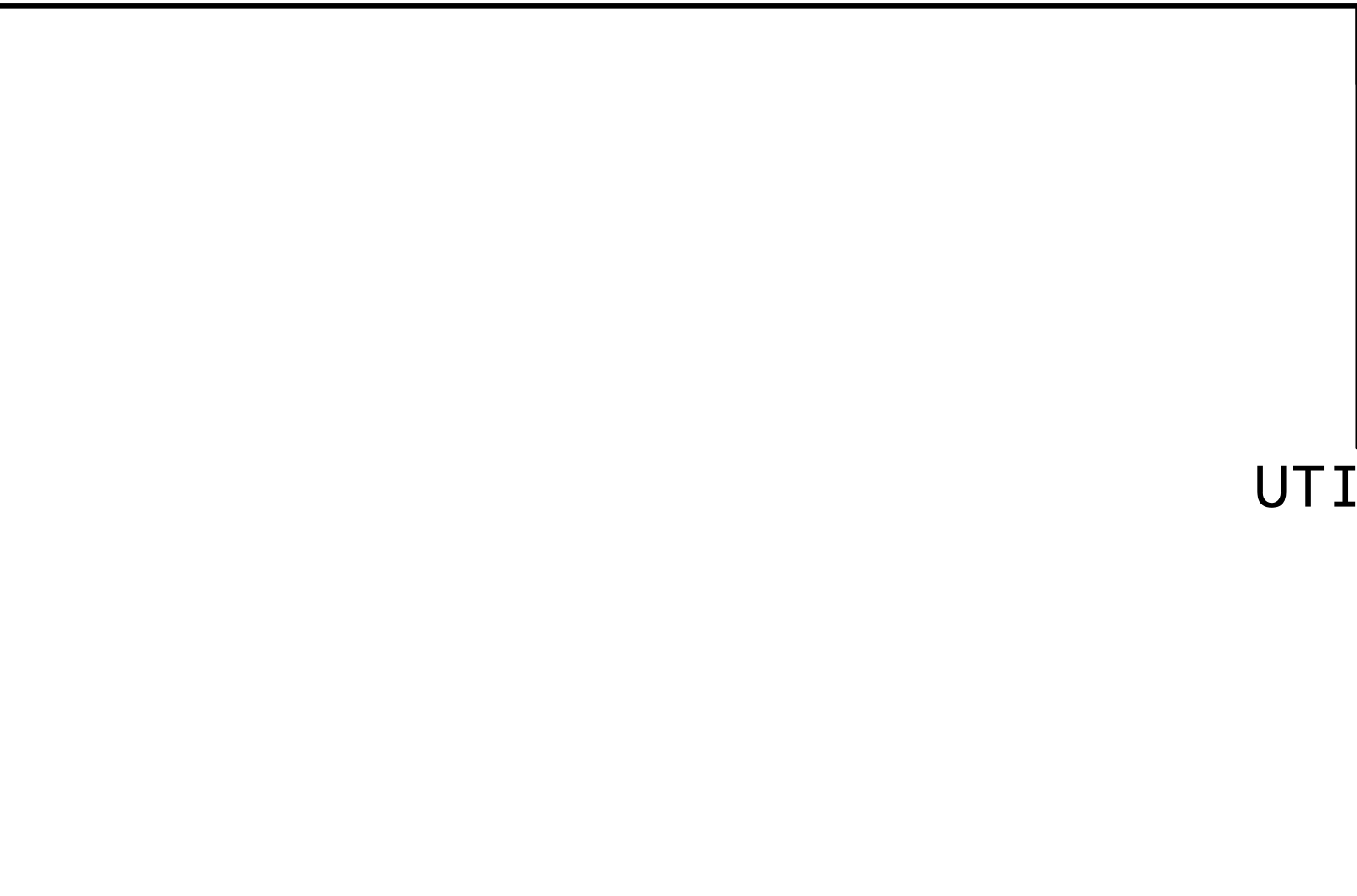
STANDARD NON-TRAFFIC AREA MANHOLE RING AND COVER WITH WIPER GASKET AND CAM LOCK		FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.	
DWG. NO. S.6	DWG. BY: FAYPWC	NO. 2	DATE: 07/17
DATE: JAN. 01, 2018	APPROVED BY: J.E.G.	REVISION	ADDED NOTE ON WEDGE CAM LOCKS
WATER RESOURCES ENGINEERING DEPARTMENT		NO. 3	DATE: 01/18
		REVISION	UPDATED NOTES 7 AND 8
		NO. 4	DATE: 05/29/18
		REVISION	REVISED NOTE 7 FOR NCDOT U-4405.



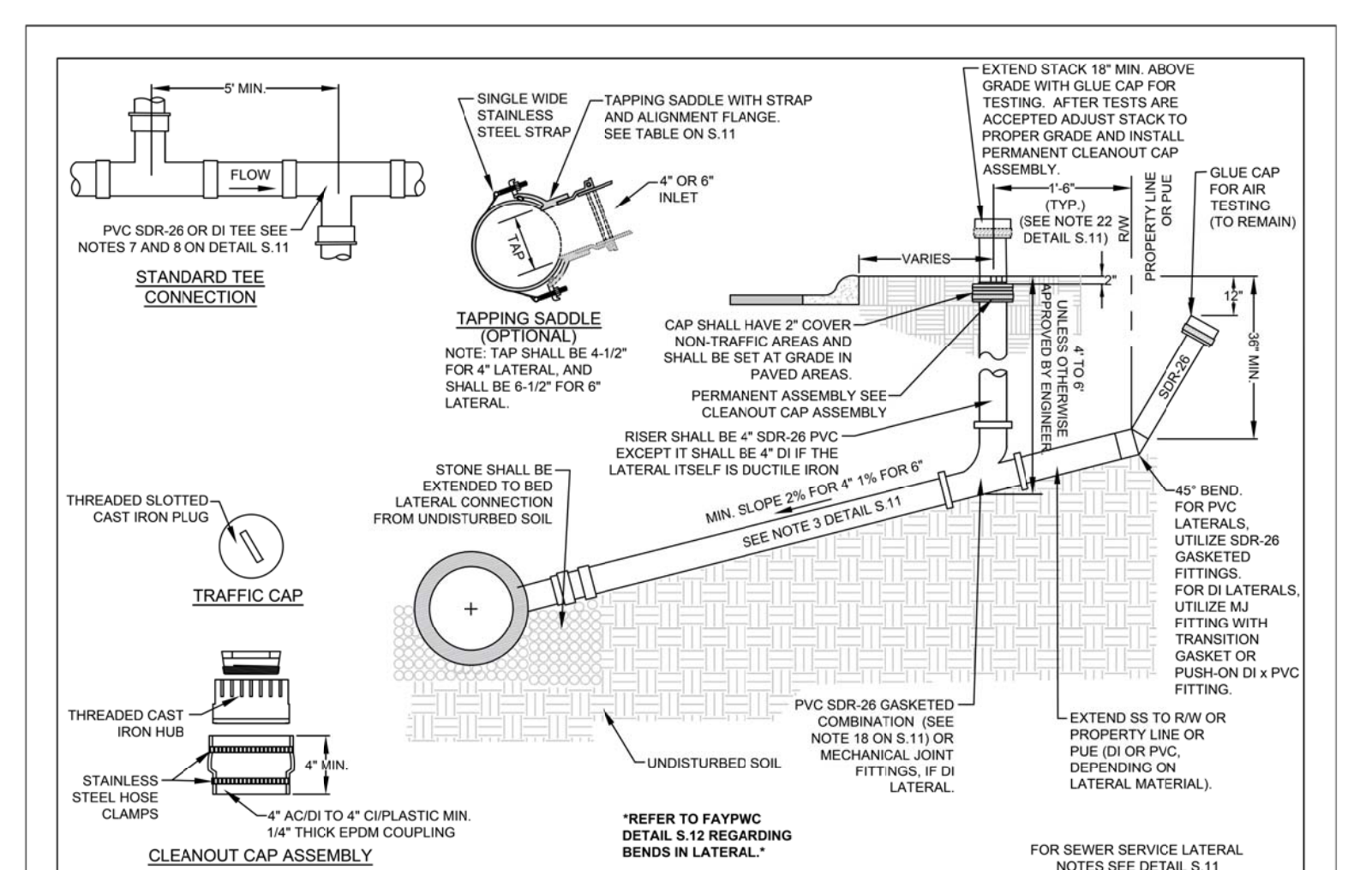
STRUCTURE STEP		FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.	
DWG. NO. S.8	DWG. BY: FAYPWC	NO. 1	DATE: 05/29/18
DATE: JAN. 01, 2018	APPROVED BY: J.E.G.	REVISION	REVISED NOTE 3 FOR NCDOT U-4405.
WATER RESOURCES ENGINEERING DEPARTMENT		NO. 2	DATE: 07/17
		REVISION	ADDED NOTE ON WEDGE CAM LOCKS



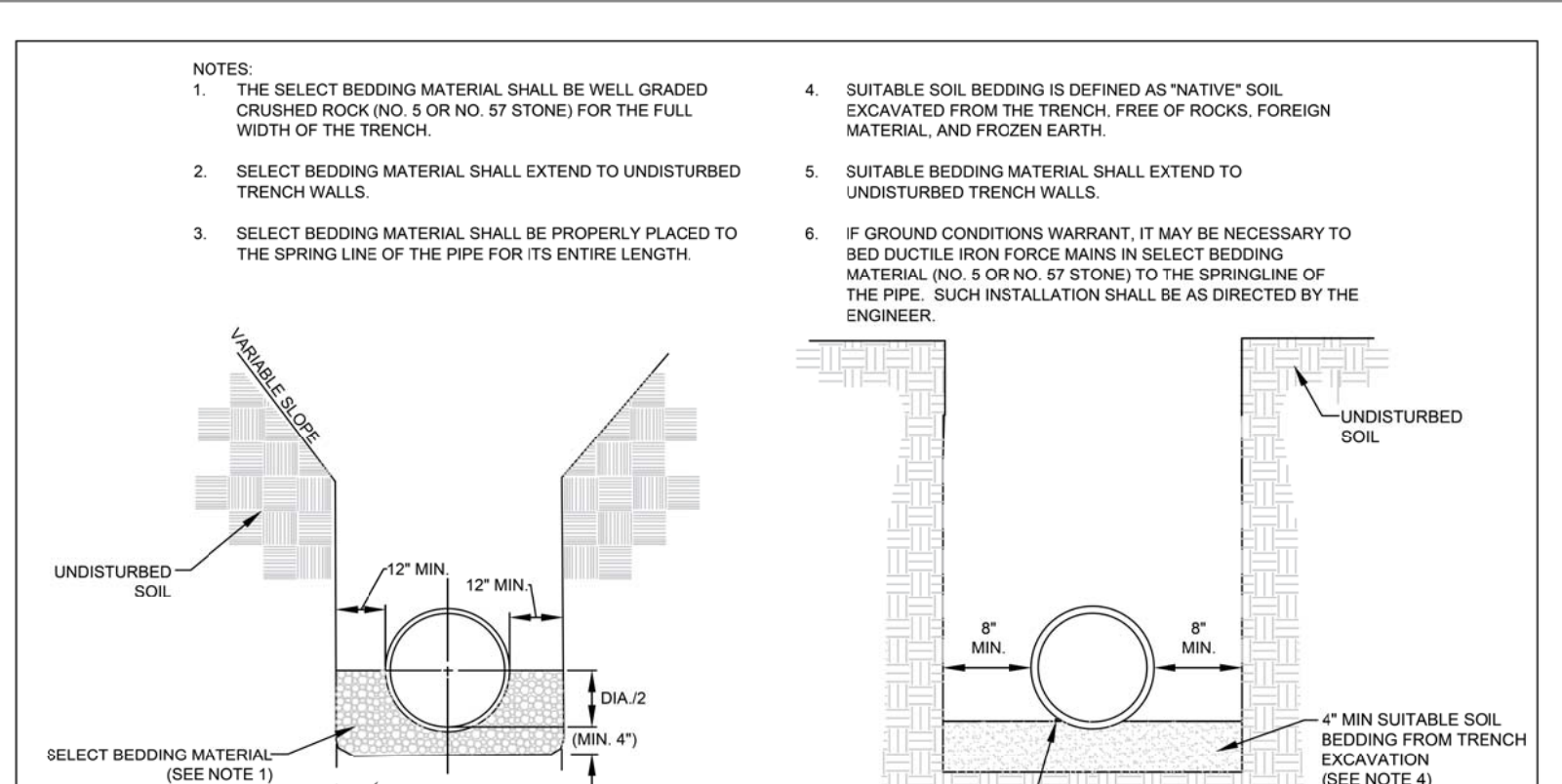
SEWER SERVICE LATERAL UTILITY CONFLICT SEPARATION REQUIREMENTS		FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.	
DWG. NO. S.12	DWG. BY: FAYPWC	NO. 2	DATE: 11/08
DATE: JAN. 01, 2018	APPROVED BY:	REVISION	ADDED NOTE ON DI LATERALS
WATER RESOURCES ENGINEERING DEPARTMENT		NO. 3	DATE: 03/10
		REVISION	ADDED LATERAL AND W/S SEPARATION
		NO. 4	DATE: 05/29/18
		REVISION	REVISED NOTE 4 FOR NCDOT U-4405



SEWER BEDDING		FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.	
DWG. NO. S.13	DWG. BY: FAYPWC	NO. 1	DATE: 01/01/05
DATE: JAN. 01, 2018	APPROVED BY: J.E.G.	REVISION	REVISED NOTES
WATER RESOURCES ENGINEERING DEPARTMENT		NO. 2	DATE: 01/01/16
		REVISION	REVISED NOTES
		NO. 3	DATE: 05/29/18
		REVISION	REVISED NOTES AND CALL OUTS FOR NCDOT U-4405.



SEWER SERVICE LATERAL (4-INCH AND 6-INCH)		FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.	
DWG. NO. S.10	DWG. BY: FAYPWC	NO. 2	DATE: 01/14
DATE: JAN. 01, 2018	APPROVED BY: J.E.G.	REVISION	ADDED TAILPIECE NOTES
WATER RESOURCES ENGINEERING DEPARTMENT		NO. 3	DATE: 01/15
		REVISION	REVISED NOTES RE: TAILPIECE
		NO. 4	DATE: 05/29/18
		REVISION	REVISED CALLOUTS FOR NCDOT U-4405



SEWER BEDDING		FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.	
DWG. NO. S.13	DWG. BY: FAYPWC	NO. 1	DATE: 01/01/05
DATE: JAN. 01, 2018	APPROVED BY: J.E.G.	REVISION	REVISED NOTES
WATER RESOURCES ENGINEERING DEPARTMENT		NO. 2	DATE: 01/01/16
		REVISION	REVISED NOTES
		NO. 3	DATE: 05/29/18
		REVISION	REVISED NOTES AND CALL OUTS FOR NCDOT U-4405.

PROJECT REFERENCE NO. U-4405 SHEET NO. UC-03K

DESIGNED BY: AMH
 DRAWN BY: AMH/AB
 CHECKED BY: AMH
 APPROVED BY: MWF
 REVISED:

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

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

6/12/2018

SEAL 025490
 PROFESSIONAL ENGINEER
 MARK W. FISHER

UTILITY CONSTRUCTION

UTILITY CONSTRUCTION

NOTES:

- SANITARY SEWER REPAIR SHALL BE APPROVED BY ENGINEER PRIOR TO MAKING THE REPAIR. IF THE REPAIR IS WITHIN 20' OF AN EXISTING MANHOLE, THE CONTRACTOR SHALL BE REQUIRED TO REMOVE AND RELAY PIPE TO NEAREST MANHOLE, UNLESS OTHERWISE DIRECTED BY ENGINEER.
- ALL MATERIALS OF CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE SPECIAL PROVISIONS.
- CONTRACTOR SHALL PROVIDE ALL NECESSARY PUMPS, HEADER PIPE, PUMPING EQUIPMENT, ETC. PRIOR TO BEGINNING CONSTRUCTION. DUPLICATE SEWAGE HANDLING PUMPS, PIPING, ETC. SHALL BE ON-SITE AND AVAILABLE FOR IMMEDIATE USE SHOULD PRIMARY PUMP OR FORCE MAIN FAIL. INSURE PUMPS, HEADER PIPING, ETC. ARE PROPERLY SIZED AND OPERATIONAL BEFORE BEGINNING WORK.
- PIPE REPAIR SHALL EXHIBIT STRAIGHT HORIZONTAL ALIGNMENT AND INVERT SHALL BE THE SAME AS THE EXISTING PIPE SLOPE. DEFLECTIONS OF HORIZONTAL AND VERTICAL ALIGNMENT ARE NOT ACCEPTABLE.
- PIPE SHALL BE BACKFILLED AND COMPACTED IN ACCORDANCE WITH THE SPECIAL PROVISIONS.
- REPLACEMENT PIPE SHALL BE PROPERLY BEDDED IN ACCORDANCE WITH FAYPWC STANDARD DETAIL S.13.
- THERE SHALL BE NO MORE THAN 1/4" SPACE BETWEEN THE EXISTING SEWER MAIN AND THE REPLACEMENT PIPE AT EACH END.
- DAMAGED SECTION SHALL BE CUT OUT WITHOUT DAMAGING THE PIPE TO REMAIN.
- DI SEWER PIPE AND FITTINGS SHALL HAVE AN INTERIOR COATING OF CERAMIC EPOXY.
- DI PIPE SHALL BE UTILIZED WHEN STATE MINIMUM SEPARATION REQUIREMENTS CANNOT BE MET OR AS DIRECTED BY ENGINEER.
- PIPE REPAIRS ON MATERIALS OTHER THAN SHOWN, SHALL BE AS DIRECTED BY ENGINEER.
- THE MINIMUM LENGTH OF REPAIR SHALL BE 5 FEET, UNLESS OTHERWISE DIRECTED BY ENGINEER.

GRAVITY SANITARY SEWER PIPE REPAIR		FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO. DATE REVISION	
DWG. NO. S.15		FAYPWC		1 01/05 REVISED REPLACEMENT PIPE	
DWG. BY: FAYPWC		WATER RESOURCES ENGINEERING DEPARTMENT		2 07/11 REVISED NOTES	
DATE: JAN. 01, 2018		APPROVED BY: J.E.G.		3 05/29/18 REVISED NOTES 1, 2, 5, 9, 10, 11 AND 12 FOR NCDOT U-4405	

S15-VCP-REPAIR.dwg

GRAVITY SANITARY SEWER PIPE REPAIR		FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO. DATE REVISION	
DWG. NO. S.15		FAYPWC		1 01/05 REVISED REPLACEMENT PIPE	
DWG. BY: FAYPWC		WATER RESOURCES ENGINEERING DEPARTMENT		2 07/11 REVISED NOTES, REPAIRS	
DATE: JAN. 01, 2018		APPROVED BY: J.E.G.		3 05/29/18 REVISED CALLOUTS FOR NCDOT U-4405.	

S15-VCP-REPAIR.dwg

GRAVITY SANITARY SEWER PIPE REPAIR		FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO. DATE REVISION	
DWG. NO. S.15		FAYPWC		1 01/05 REVISED REPLACEMENT PIPE	
DWG. BY: FAYPWC		WATER RESOURCES ENGINEERING DEPARTMENT		2 07/11 REVISED NOTES	
DATE: JAN. 01, 2018		APPROVED BY: J.E.G.		3 05/29/18 REVISED CALLOUTS FOR NCDOT U-4405.	

S15-VCP-REPAIR.dwg

MANHOLE VENT		FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO. DATE REVISION	
DWG. NO. S.17		FAYPWC		1 05/29/18 REVISED NOTES 2 FOR NCDOT U-4405	
DWG. BY: FAYPWC		WATER RESOURCES ENGINEERING DEPARTMENT			
DATE: JAN. 01, 2018		APPROVED BY: J.E.G.			

S17-MH-VENT.dwg

TO FIND "E" ENTER CHART AT LEFT WITH EFFLUENT PIPE SIZE AND ENTER PIPE AT TOP WITH INFLUENT PIPE SIZE. "E" DISTANCE IS POINT OF CONVERGENCE OF COLUMN AND RW.

		DIA						
		4"	6"	8"	12"	15"	18"	24"
D	8"	9.00	9.50	10.00	-	-	-	-
	12"	11.00	11.50	12.00	13.00	-	-	-
	15"	14.25	14.75	15.25	16.25	17.00	-	-
	18"	16.50	17.00	17.50	18.50	19.25	20.00	-
	24"	21.00	21.50	22.00	23.00	23.75	24.50	26.00

WHERE 5' MANHOLE IS REQUIRED ADD 1/2" TO "E" DISTANCE TO ACCOUNT FOR THE ADDITIONAL 6" OF SHELF SLOPE.

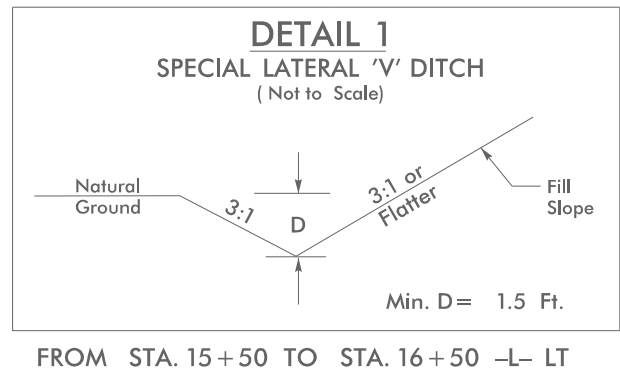
MAIN OR LATERAL MIN. SLOPE:
 4" @ 2.00% MIN.
 6" @ 0.75% MIN./MAIN
 6" @ 2.00% MIN./LATERAL
 8" @ 0.40% MIN.
 12" @ 0.22% MIN.
 15" @ 0.15% MIN.
 18" @ 0.12% MIN.

MH CONNECTION DESIGN GUIDE		FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO. DATE REVISION	
DWG. NO. S.18		FAYPWC			
DWG. BY: FAYPWC		WATER RESOURCES ENGINEERING DEPARTMENT			
DATE: JAN. 01, 2018		APPROVED BY: J.E.G.			

S18-PENETRATION-DETAIL.dwg

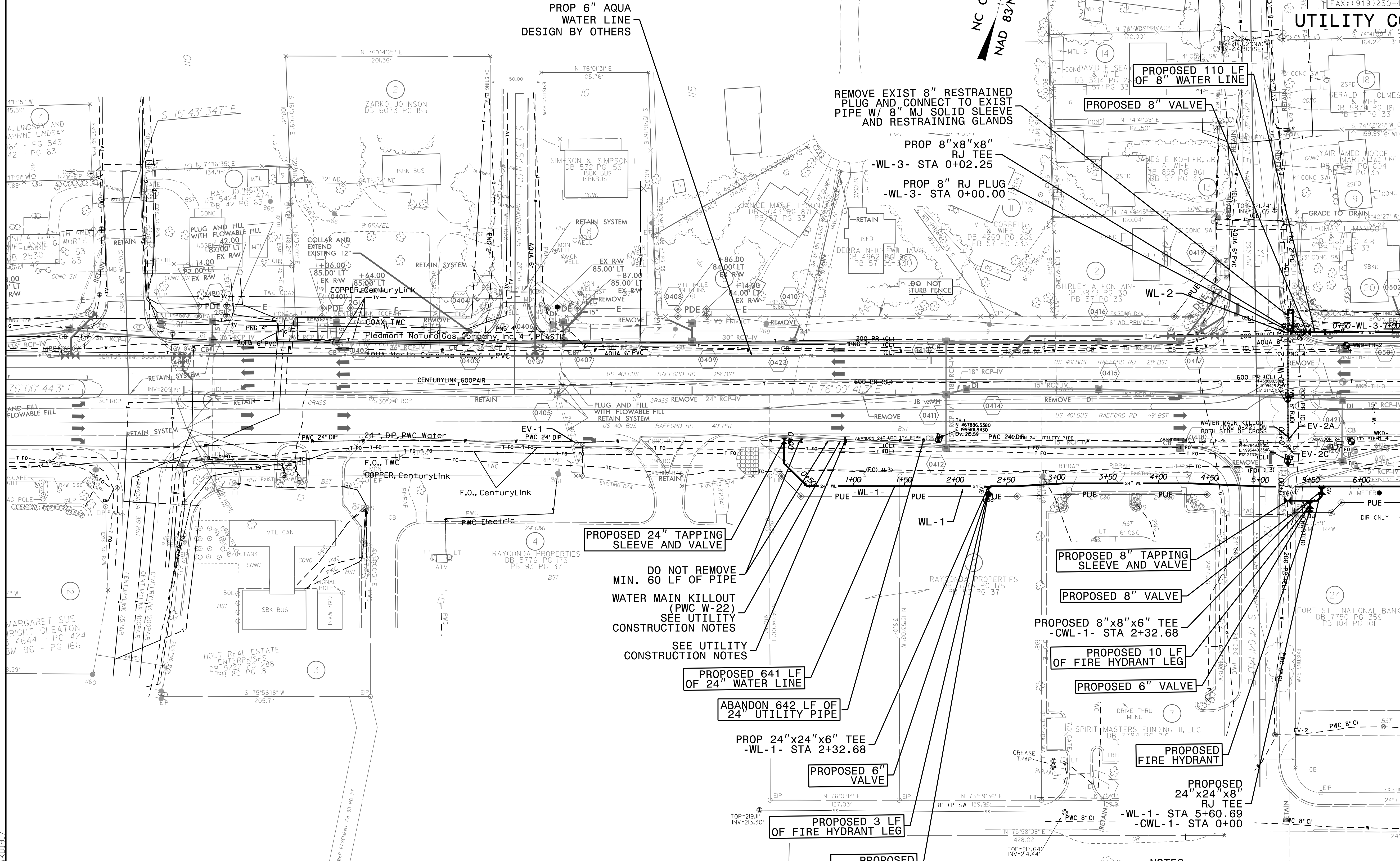
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 5/14/2018



**DOCUMENT NOT CONSIDERED FINAL
UNTIL ALL SIGNATURES ARE COMPLETED**

PROJECT REFERENCE NO.	U-4405	SHEET NO.	UC-4
DESIGNED BY:	AMH		
DRAWN BY:	AMH/AE		
CHECKED BY:	AMH		
APPROVED BY:	MWF		
REVISED:			
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION UTILITIES ENGINEERING SECTION PHONE: (919) 707-6690 FAX: (919) 250-4151		6/12/2018 UTILITY CONSTRUCTION PLANS ONLY	

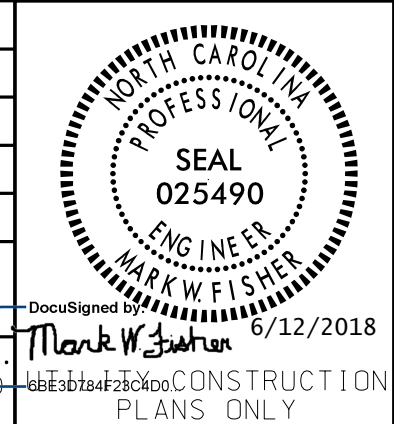


**PROPOSED 7,880 POUNDS OF
DUCTILE IRON WATER PIPE FITTINGS**

NOTES:
 SEE SHEET UC-3A FOR REFERENCED NOTES
 SEE SHEET UC-34 FOR -WL-1- PROFILE
 SEE SHEET UC-34 FOR -WL-2- PROFILE
 SEE SHEET UC-34 FOR -WL-3- PROFILE

**MATCHLINE SEE SHEET UC-5
-L- STA 22+00**

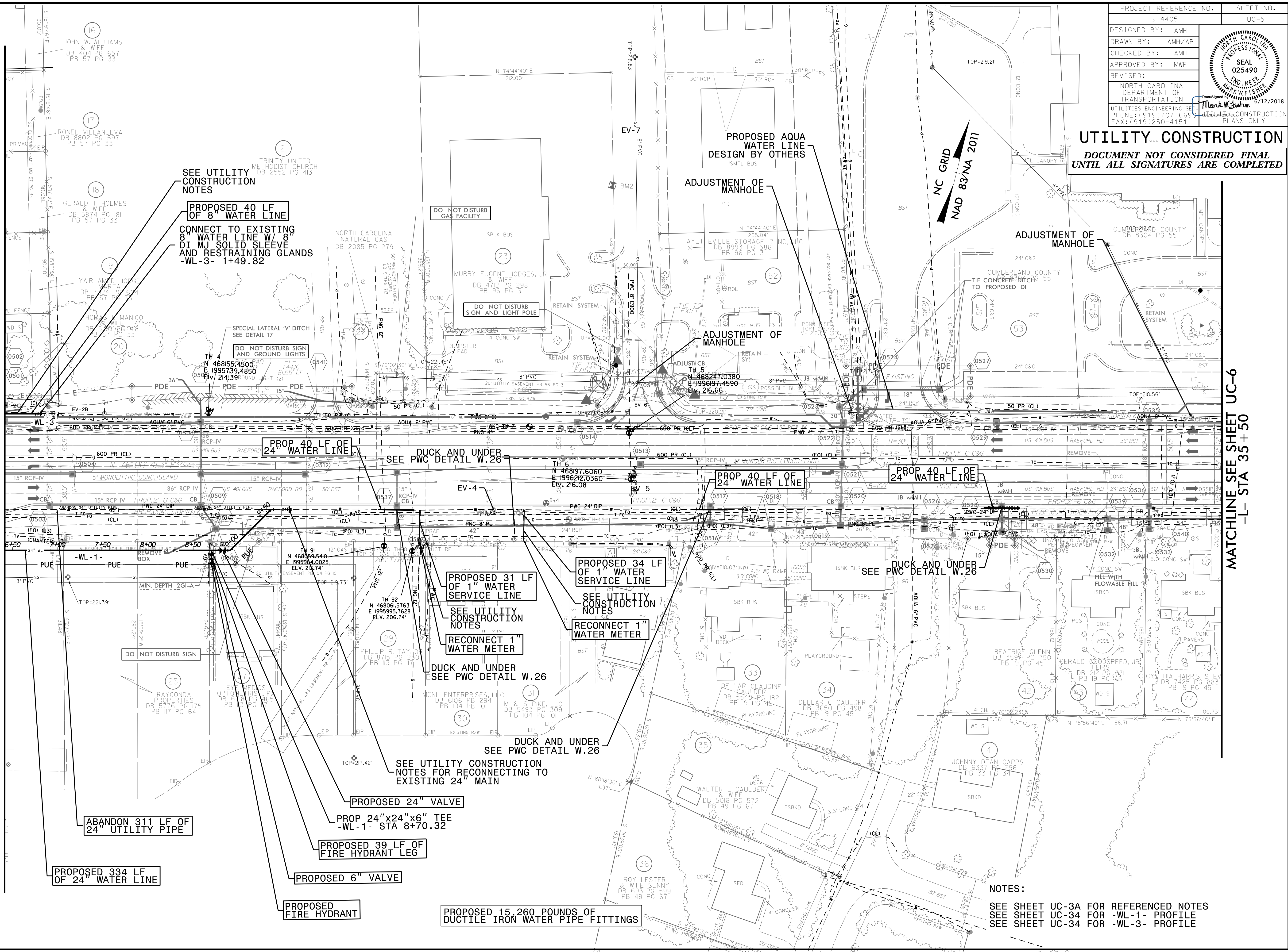
PROJECT REFERENCE NO.	UC-5
DESIGNED BY:	AMH
DRAWN BY:	AMH/AB
CHECKED BY:	AMH
APPROVED BY:	MWF
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SECTION PHONE: (919) 707-6698 FAX: (919) 250-4151	



UTILITY CONSTRUCTION
DOCUMENT NOT CONSIDERED FINAL
UNTIL ALL SIGNATURES ARE COMPLETED

MATCHLINE SEE SHEET UC-4
-L- STA 22+00

MATCHLINE SEE SHEET UC-6
-L- STA 35+50



NOTES:
SEE SHEET UC-3A FOR REFERENCED NOTES
SEE SHEET UC-34 FOR -WL-1- PROFILE
SEE SHEET UC-34 FOR -WL-3- PROFILE

5/14/2018 11:43:38 AM
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