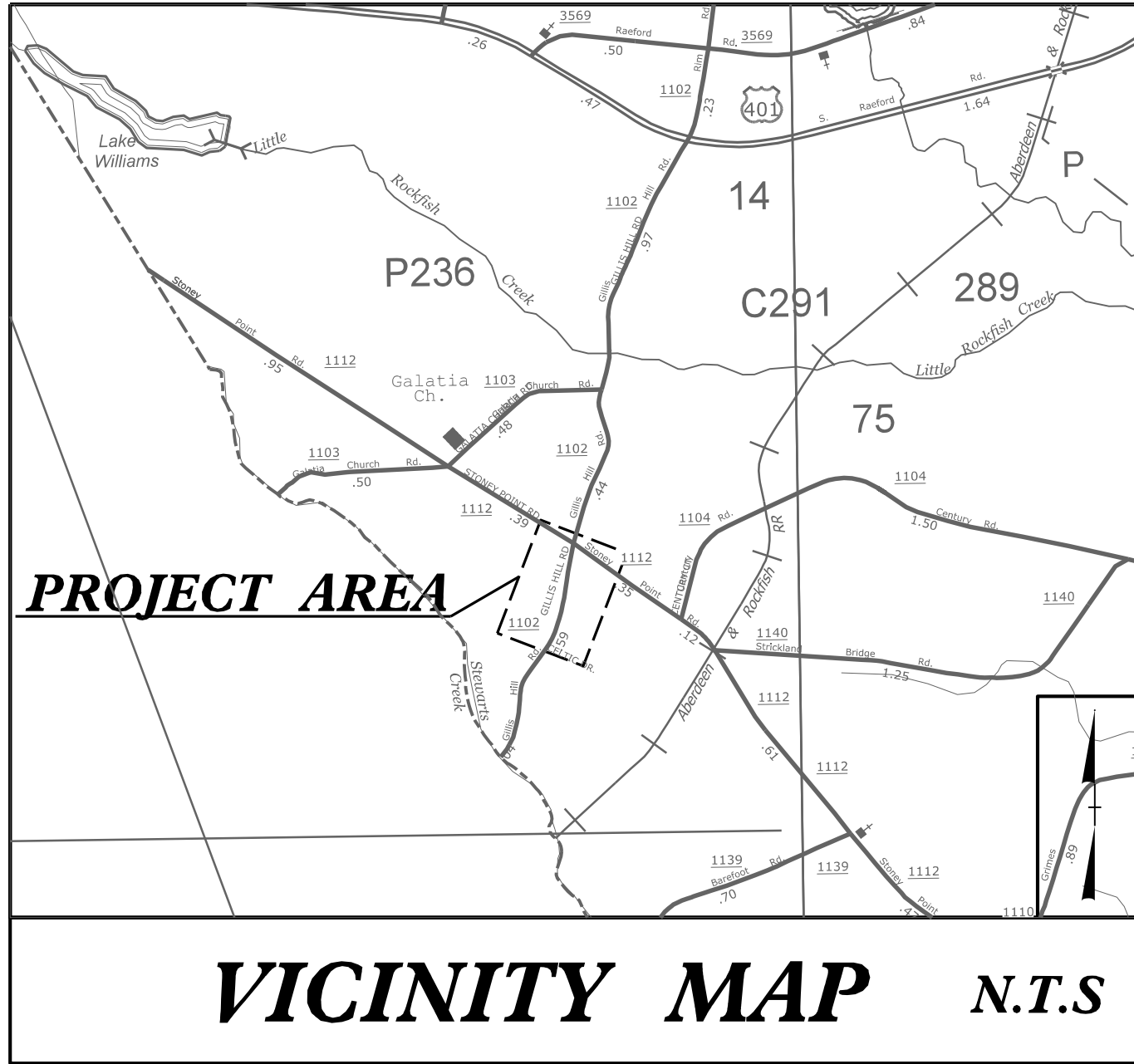


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TIP PROJECT: U-5798B



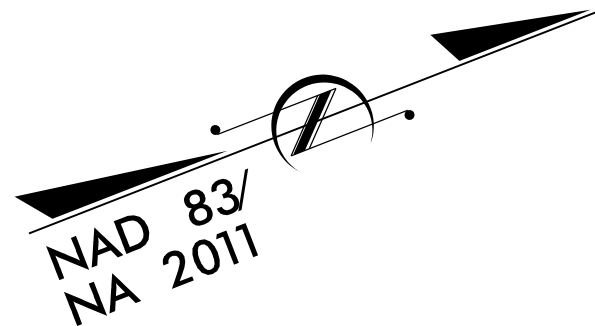
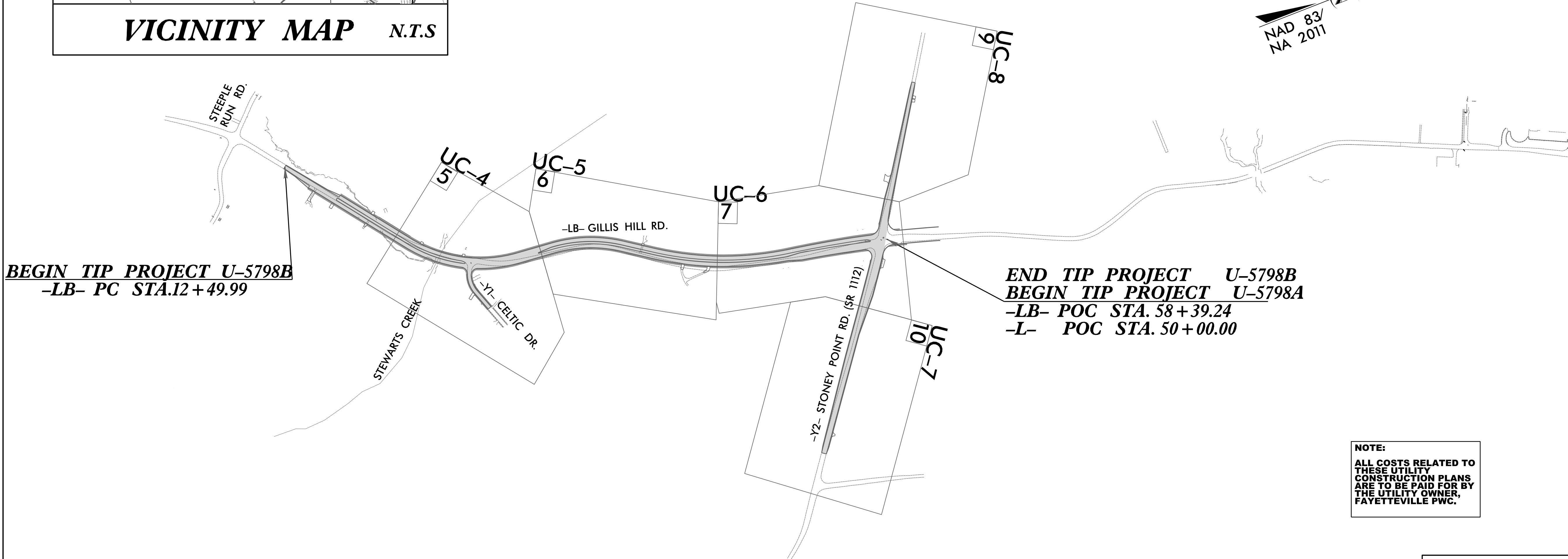
VICINITY MAP N.T.S

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

UTILITY CONSTRUCTION PLANS  
CUMBERLAND COUNTY

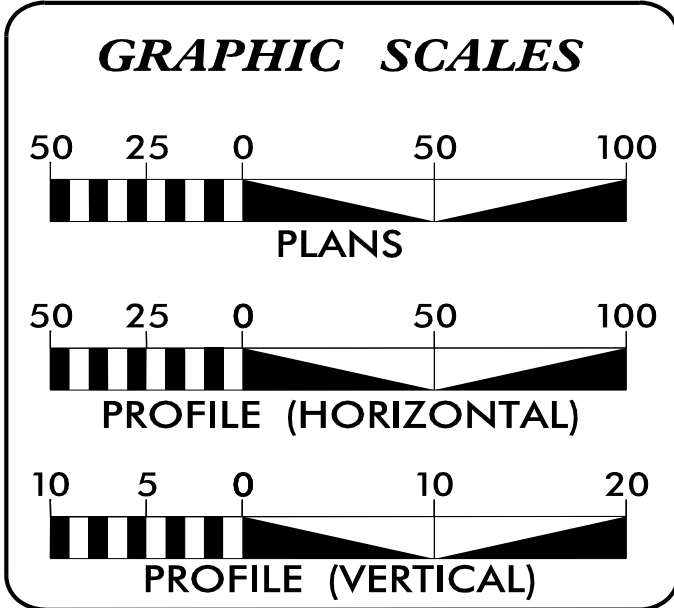
LOCATION: SR 1102 (GILLIS HILL ROAD) FROM SR 1418 (LINDSAY ROAD)  
TO NORTH OF SR 1112 (STONEY POINT ROAD). WIDEN TO MULTI-LANES.

TYPE OF WORK: WATER AND SEWER RELOCATION



NOTE:  
ALL COSTS RELATED TO  
THESE UTILITY  
CONSTRUCTION PLANS  
ARE TO BE PAID FOR BY  
THE UTILITY OWNER,  
FAYETTEVILLE PWC.

DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED



| INDEX OF SHEETS  |                             |
|------------------|-----------------------------|
| SHEET NO.:       | DESCRIPTION:                |
| UC-1             | TITLE SHEET                 |
| UC-2             | UTILITY SYMBOLOGY           |
| UC-3 THRU UC-3A  | NOTES                       |
| UC-3B THRU UC-3F | DETAILS                     |
| UC-4 THRU UC-8   | UTILITY CONSTRUCTION SHEETS |
| UC-9 THRU UC-14  | PROFILE SHEETS              |

WATER AND SEWER  
OWNERS ON PROJECT

(A) WATER: FAYETTEVILLE PWC  
(B) SANITARY SEWER: FAYETTEVILLE PWC

PREPARED IN THE OFFICE OF

**WK DICKSON**

AN ARDURRA COMPANY

720 CORPORATE CENTER DRIVE  
RALEIGH, NORTH CAROLINA 27607  
(919) 782-0495 NCBES #F-0374

MONROE HUCKABY, PE CONSULTANT CONTACT #1  
MICHAEL YOUNGBLOOD, PE CONSULTANT CONTACT #2

SEAL

Signed by:

6/25/2025

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

NABIL HAMDAN UTILITIES REGIONAL ENGINEER  
TEVIN ASAMOAH, EI UTILITIES ENGINEER  
TANGA SAMPSON REGIONAL UTILITIES COORDINATOR  
TEVIN ASAMOAH, EI UTILITIES COORDINATOR

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

UTILITIES PLAN SHEET SYMBOLS

Signed by:  
  
6/25/2025

PROJECT REFERENCE NO.  
U-5798B

SHEET NO.  
UC-2

PROPOSED WATER SYMBOLS

|                                 |  |
|---------------------------------|--|
| Water Line (Sized as Shown)     |  |
| 11¼ Degree Bend                 |  |
| 22½ Degree Bend                 |  |
| 45 Degree Bend                  |  |
| 90 Degree Bend                  |  |
| Plug                            |  |
| Tee                             |  |
| Cross                           |  |
| Reducer                         |  |
| Gate Valve                      |  |
| Butterfly Valve                 |  |
| Tapping Valve                   |  |
| Line Stop                       |  |
| Line Stop with Bypass           |  |
| Blow Off                        |  |
| Fire Hydrant                    |  |
| Relocate Fire Hydrant           |  |
| Remove Fire Hydrant             |  |
| 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     |  |

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                          |  |
| Power Manhole                          |  |
| Telephone Manhole                      |  |
| Sanitary Sewer Manhole                 |  |
| Hand Hole for Cable                    |  |
| Power Transformer                      |  |
| Telephone Pedestal                     |  |
| CATV Pedestal                          |  |
| Gas Valve                              |  |
| Gas Meter                              |  |
| Located Miscellaneous Utility Object   |  |
| Abandoned According to Utility Records |  |
| End of Information                     |  |

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

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

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5/14/99

REVISIONS

25-JUN-2025 12:00 Sheets\Title-Notes=Details sheets\U4900\_ut\_notes\_UC03A\_psh.dgn  
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25-JUN-2025 12:00 Sheets\Title-Notes=Details sheets\U4900\_ut\_notes\_UC03A\_psh.dgn

## GENERAL NOTES:

1. THE PROPOSED UTILITY CONSTRUCTION SHALL MEET THE APPLICABLE REQUIREMENTS OF THE NC DEPARTMENT OF TRANSPORTATION'S "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" DATED JANUARY 2024 AND THE CONTRACT SPECIAL PROVISIONS.
2. FAYETTEVILLE PWC OWNS AND OPERATES THE EXISTING WATER AND SEWER UTILITIES
3. ALL WATER LINES TO BE INSTALLED WITHIN COMPLIANCE OF THE RULES AND REGULATIONS OF THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY, DIVISION OF WATER RESOURCES, PUBLIC WATER SUPPLY SECTION. ALL SEWER LINES TO BE INSTALLED WITHIN COMPLIANCE OF THE RULES AND REGULATIONS OF THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT QUALITY, DIVISION OF WATER RESOURCES, WATER QUALITY SECTION. PERFORM ALL WORK IN ACCORDANCE WITH THE APPLICABLE PLUMBING CODES.
4. FAYETTEVILLE PWC 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. THE CONTRACTOR SHALL 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. 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.

7. THE PLANS DEPICT THE BEST AVAILABLE INFORMATION FOR THE LOCATION, SIZE, AND TYPE OF MATERIAL FOR ALL EXISTING UTILITIES. MAKE INVESTIGATIONS FOR DETERMINING THE EXACT LOCATION, SIZE, AND TYPE MATERIAL OF THE EXISTING FACILITIES AS NECESSARY FOR THE CONSTRUCTION OF THE PROPOSED UTILITIES AND FOR AVOIDING DAMAGE TO EXISTING FACILITIES. REPAIR ANY DAMAGE INCURRED TO EXISTING FACILITIES TO THE ORIGINAL OR BETTER CONDITION AT NO ADDITIONAL COST TO THE DEPARTMENT.
8. MAKE CONNECTIONS BETWEEN EXISTING AND PROPOSED UTILITIES AT TIMES MOST CONVENIENT TO THE PUBLIC, WITHOUT ENDANGERING THE UTILITY SERVICE, AND IN ACCORDANCE WITH THE UTILITY OWNER'S REQUIREMENTS. MAKE CONNECTIONS ON WEEKENDS, AT NIGHT, AND ON HOLIDAYS IF NECESSARY.
9. ALL UTILITY MATERIALS SHALL BE APPROVED PRIOR TO DELIVERY TO THE PROJECT. SEE 1500-7, " SUBMITTALS AND RECORDS" IN SECTION 1500 OF THE STANDARD SPECIFICATIONS.
10. PRIOR TO PLACEMENT OF PROPOSED SANITARY GRAVITY SEWER THE CONTRACTOR SHALL LOCATE ALL EXISTING SEWER SERVICE LATERALS (DEPTH, MATERIAL AND DIAMETER) AND NOTIFY THE RESIDENT ENGINEER IF THERE ARE COMPLICATIONS WITH CONNECTING TO THE PROPOSED SANITARY GRAVITY SEWER. THE CONTRACTOR'S COST FOR ALL WORK ASSOCIATED WITH SEWER SERVICES, IS INCIDENTAL TO SEWER SERVICE PAYMENT ITEM.
11. PRIOR TO PLACEMENT OF PROPOSED WATERLINE THE CONTRACTOR SHALL LOCATE ALL EXISTING WATER SERVICE LATERALS (DEPTH, MATERIAL AND DIAMETER) AND NOTIFY THE RESIDENT ENGINEER IF THERE ARE COMPLICATIONS WITH CONNECTING TO THE PROPOSED WATERLINE. THE CONTRACTOR'S COST FOR ALL WORK ASSOCIATED WITH WATER SERVICES, IS INCIDENTAL TO WATER SERVICE PAYMENT ITEM.
12. THE CONTRACTOR SHALL REFER TO THE "UTILITIES BY OTHERS" PLANS FOR PROPOSED GAS, TELECOMMUNICATIONS, AQUA AMERICA WATER, AND POWER UTILITY RELOCATIONS.
13. THE CONTRACTOR SHALL FIELD VERIFY THE LOCATION, SIZE AND TYPES OF VALVES ON THE EXISITNG WATER LINES THROUGHOUT THE PROJECT. IMMEDIATELY INFORM THE RESIDENT ENGINEER IF THERE ARE DISCREPANCIES BETWEEN THE FIELD CONDITIONS AND THE PLANS.

# UTILITY CONSTRUCTION

## PROJECT SPECIFIC NOTES:

1. ALL PROPOSED WATER LINE 2" IN DIAMETER SHALL BE SDR21, PRESSURE CLASS 200 IN ACCORDANCE WITH ASTM D 2241. ALL PROPOSED WATER LINE 4"-12" IN DIAMETER SHALL BE DI (DUCTILE IRON PUSH-ON) PC 350 PIPE, UNLESS SPECIFIED TO BE RESTRAINED JOINT PIPE AND/OR SPECIAL THICKNESS CLASS AS SHOWN ON THE PLAN/PROFILE. ALL PROPOSED WATERLINE LINE 16" IN DIAMETER AND LARGER SHALL BE DI (DUCTILE IRON PUSH-ON) PC 250 PIPE, UNLESS SPECIFIED TO BE RESTRAINED JOINT PIPE AND/OR SPECIAL THICKNESS CLASS AS SHOWN ON THE PLAN/PROFILE.
2. ALL PROPOSED GRAVITY SEWER LINES 12" IN DIAMETER AND SMALLER SHALL BE CERAMIC EPOXY LINED DI (DUCTILE IRON PUSH ON) PC 350 PIPE UNLESS OTHERWISE SPECIFIED. ALL PROPOSED GRAVITY SEWER LINES 16" IN DIAMETER AND GREATER SHALL BE CERAMIC EPOXY LINED DI (DUCTILE IRON PUSH ON) PC 250, UNLESS OTHERWISE SPECIFIED.
3. CONTRACTOR'S ATTENTION IS DIRECTED TO SECTIONS 102, 107, AND 1550 OF THE STANDARD SPECIFICATIONS CONCERNING TRENCHLESS INSTALLATION. IT IS CONTRACTOR'S RESPONSIBILITY TO HAVE BORE DESIGNED AND SEALED BY A LICENSED NORTH CAROLINA PROFESSIONAL ENGINEER. NO DAMAGE IS ALLOWED TO RIVER, WETLANDS, OR BUFFER ZONES.
4. TEMPORARY SHORING IF REQUIRED FOR BUILDING FOUNDATION PROTECTION OR MAINTENANCE OF TRAFFIC WILL BE PAID AS TEMPORARY SHORING IN SQUARE FEET BELOW GROUND SURFACE. THIS REQUIREMENT IS APPLICABLE TO ALL UTILITY CONSTRUCTION SHEETS.
5. WHERE PROPOSED SEWER LATERALS CONNECT TO THE EXISTING LATERALS, THE CONTRACTOR SHALL MATCH THE EXISTING SEWER LATERALS MATERIAL (DUCTILE IRON OR PVC) UNLESS APPROVED BY THE RESIDENT ENGINEER.

7. UTILITY CONSTRUCTION NOTE SHEETS PROVIDE SEQUENCE OPTIONS FOR THE CRITICAL INSTALLATIONS AND KILL OUTS OF THE PROPOSED WATER AND SEWER LINES. CONTRACTOR SHALL PROVIDE A CONSTRUCTION SEQUENCE FOR ALL WATER LINE AND SEWER LINE SEGMENTS AND KILLOUTS PRIOR TO INSTALLATION FOR REVIEW AND APPROVAL BY ENGINEER. CONTRACTOR SHALL UPDATE CONSTRUCTION SEQUENCES WHERE ACTUAL CONDITIONS REQUIRE AJDUSTMENTS OR ALTERATIONS TO THE PLANNED WORK. CONSTRUCTION SEQUENCE OPTIONS THAT ARE PROVIDED ARE INTENDED TO MINIMIZE IMPACTS TO WATER AND SEWER OPERATIONS. INSTALLATION SHALL NOT BEGIN UNTIL AN APPROVED SEQUENCE PLAN IS IN PLACE.
8. ALL EXISTING VALVES, AIR RELEASE VALVES, FIRE HYDRANTS AND MANHOLE RING AND COVERS TO BE REMOVED SHALL BE RETURNED TO PWC
9. SEE PROFILE SHEETS FOR REFERENCE TO PIPE MATERIALS AND VALVE TYPES.

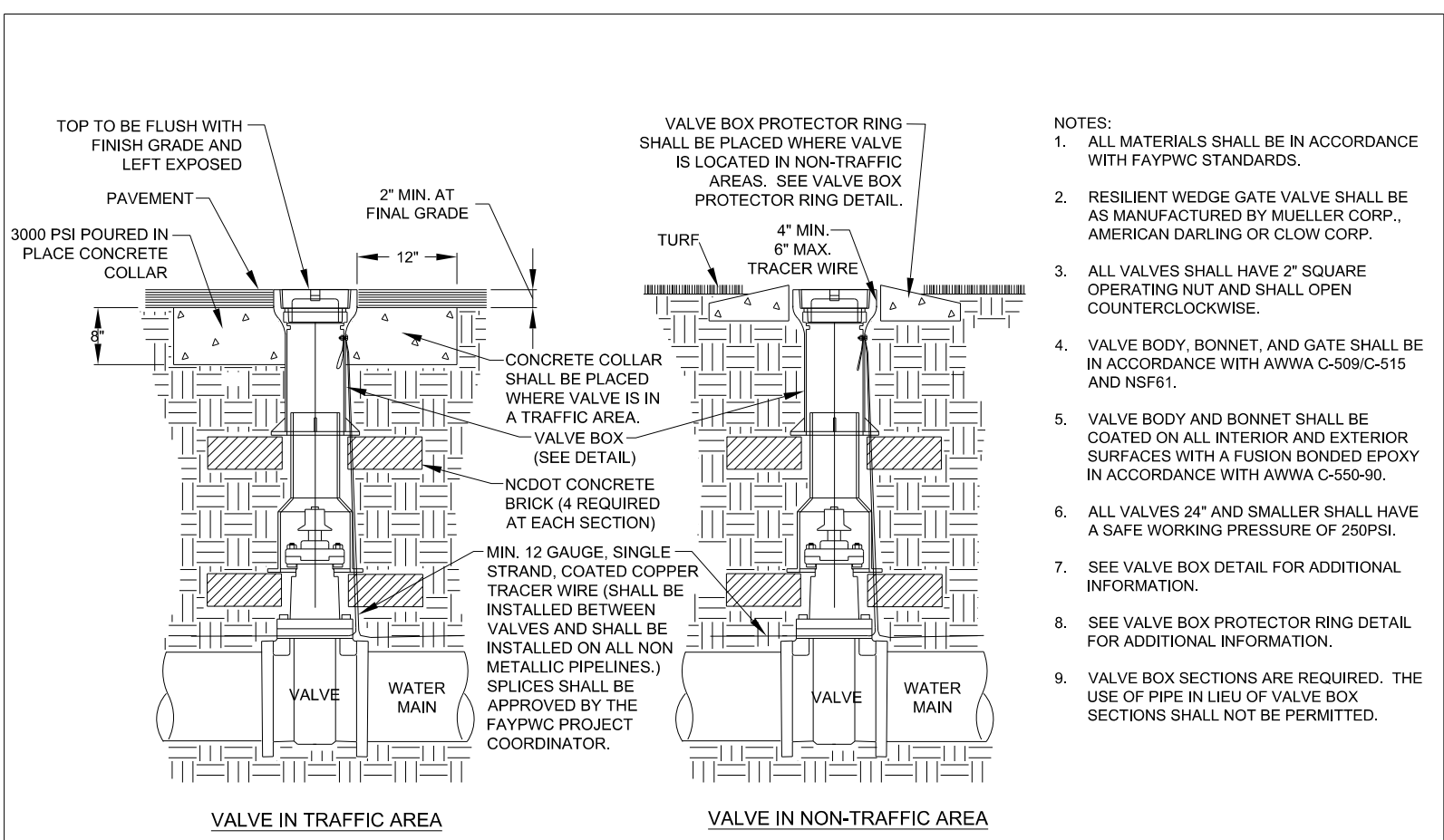
|                                                                                                                                                                                                                                                                                                                                                                        |                                                   |     |                                                                                                                                    |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------|-----|------------------------------------------------------------------------------------------------------------------------------------|
| <div>Prepared in the Office of:</div> <div><b>WK DICKSON</b></div> <div>AN  ARDURRA COMPANY</div> <div>720 CORPORATE CENTER DRIVE,<br/>RALEIGH, NC 27607<br/>(919)782-0495   NCBELS #F-0374</div> | PROJECT REFERENCE NO.                             |     | SHEET NO.                                                                                                                          |
|                                                                                                                                                                                                                                                                                                                                                                        | U-5798B                                           |     | UC-03A                                                                                                                             |
|                                                                                                                                                                                                                                                                                                                                                                        | DESIGNED BY:                                      | AMH | <div>Signed by:</div> <div><br/>6/25/2025</div> |
|                                                                                                                                                                                                                                                                                                                                                                        | DRAWN BY:                                         | EA  |                                                                                                                                    |
|                                                                                                                                                                                                                                                                                                                                                                        | CHECKED BY:                                       | MEY |                                                                                                                                    |
| APPROVED BY:                                                                                                                                                                                                                                                                                                                                                           | AR                                                |     |                                                                                                                                    |
| REVISED:                                                                                                                                                                                                                                                                                                                                                               | NORTH CAROLINA<br>DEPARTMENT OF<br>TRANSPORTATION |     | UTILITY CONSTRUCTION<br>PLANS ONLY                                                                                                 |
| UTILITIES ENGINEERING SEC.<br>PHONE: (919) 707-6690<br>FAX: (919) 250-4151                                                                                                                                                                                                                                                                                             |                                                   |     |                                                                                                                                    |
| <div>DOCUMENT NOT<br/>CONSIDERED FINAL<br/>UNTIL ALL SIGNATURES<br/>ARE COMPLETED</div>                                                                                                                                                                                                                                                                                |                                                   |     |                                                                                                                                    |

## UTILITY CONSTRUCTION

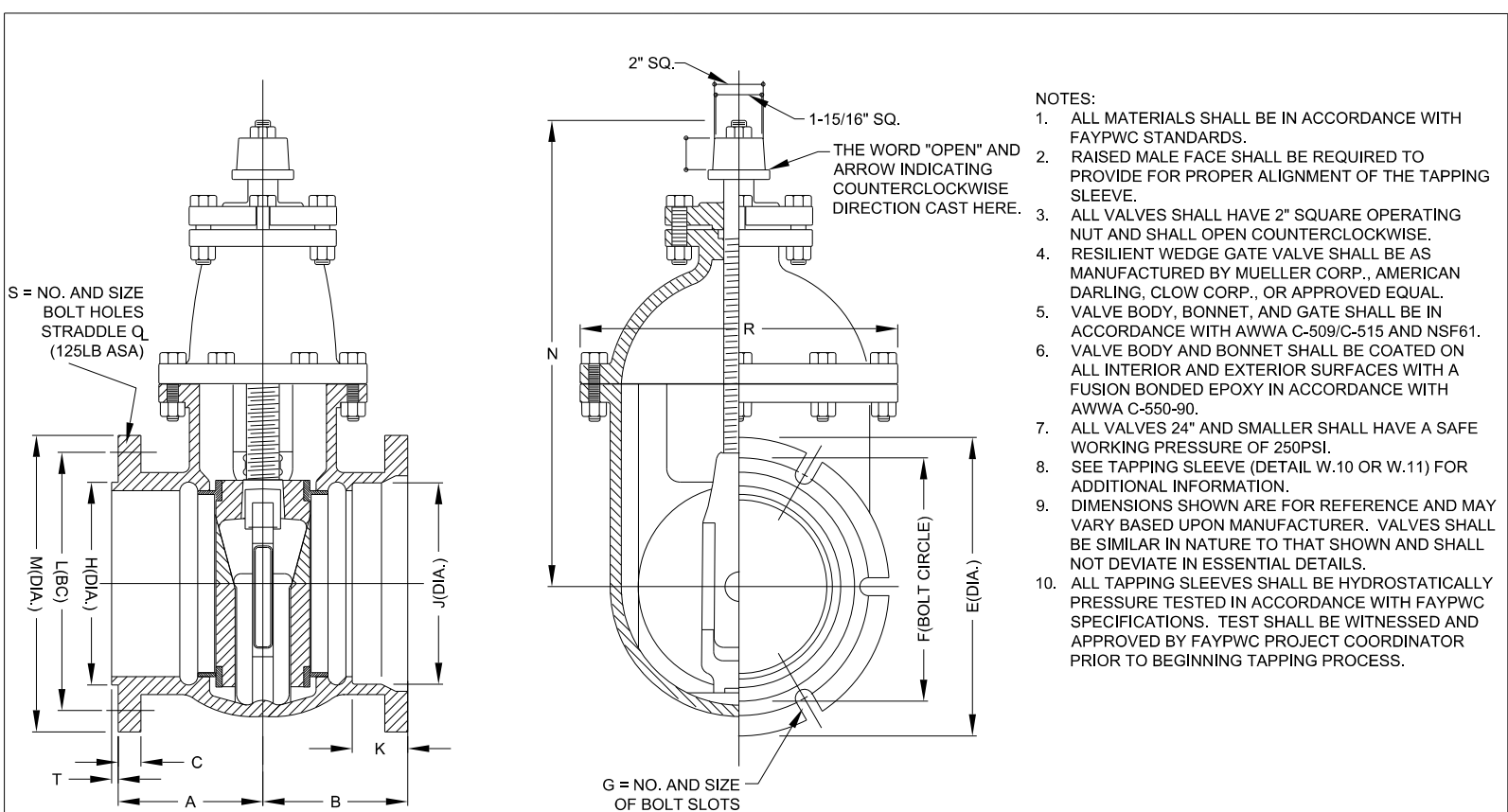
## UTILITY CONSTRUCTION

1. ALL WATER MAINS, LATERALS AND APPURTENANCES SHALL BE INSTALLED AND TESTED IN ACCORDANCE WITH FAYATF SPECIFICATIONS STANDARDS.
2. CONTRACTOR SHALL FELD VERIFY THE LOCATION OF EXISTING UTILITIES PRIOR TO CONSTRUCTION.
3. CONTRACTOR SHALL PROVIDE A MINIMUM OF 48 HOURS NOTICE TO ALL WATER OUTAGES.
4. CONSTRUCTION STAKING IS REQUIRED FOR ALL FAYFVIC WATER AND SEWER UTILITY INSTALLATIONS, CUT SHEETS, SIGNED AND SEALED BY AN P.C.S. SHALL BE PROVIDED TO THE FAYFVIC WATER MAINS COORDINATOR. THE FAYFVIC WATER MAINS COORDINATOR IN CHARGE OF CONSTRUCTION FOR FAYFVIC WATER AND SEWER UTILITIES.
5. CONTRACTOR SHALL MAINTAIN A COPY OF THE SIGNED AND SEALED CUT SHEET ON THE JOB SITE. CONSTRUCTION ON FAYFVIC WATER AND SEWER UTILITIES SHOULD BEGIN UNTIL THE CONTRACTOR POSSESSES ON SITE A SIGNED AND SEALED CUT SHEET FROM THE PROFESSIONAL LAND SURVEYOR.
6. ALL NEW WATER AND SEWER MAINS, LATERALS, AND APPURTENANCES SHALL BE TESTED (CONDUCTED) UNBENEFITED IN ACCORDANCE WITH FAYFVIC STANDARDS PRIOR TO PLACING INTO SERVICE.
7. CONTRACTOR SHALL COORDINATE TESTING AND INSPECTION WITH THE FAYFVIC PROJECT COORDINATOR.
8. CONTRACTOR SHALL REPAIR ALL WATER MAINS AND MAINS DAMAGED DURING CONSTRUCTION. THE CONTRACTOR SHALL REPORT IMMEDIATELY ALL WATER MAIN AND LATERAL BREAKS TO THE FAYFVIC PROJECT COORDINATOR. THE CONTRACTOR SHALL IMMEDIATE INITIATE REPAIRS TO ALL WATER MAINS AND LATERALS. THE CONTRACTOR SHALL MAINTAIN OPERATING FAYFVIC WATER MAIN VALVES WITHOUT FAYFVIC APPROVAL AND SHALL COORDINATE ALL VALVE OPERATIONS WITH THE FAYFVIC PROJECT COORDINATOR.
9. 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 ENTER THE SEWER MAINS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO SEWERS RESULTING FROM ALLOWING "DIRTY" WATER TO ENTER RESIDENTS PLUMBING SYSTEM, SUCH AS WATER HEATERS, STAINED CLOTHING, CLOGGED SEWERS, ETC.
10. TRANSFER OF WATER SERVICE SHALL BE ACCOMPLISHED AS FOLLOWS:
  - A. INITIAL, TEST AND SLOPE NEW MAINS AND LATERALS. LATERALS SHALL BE INSTALLED IN INSIDE RIGHT-OF-WAY UNLESS OTHERWISE DIRECTED BY FAYFVIC.
  - B. TRANSFER EXISTING METER TO NEW METER BOX AND THE 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 HOUSE 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 ABANDON EXISTING MAINS IN ACCORDANCE WITH FAYFVIC REQUIREMENTS.
  - D. CONTRACTOR SHALL SUPPLY NEW METER BOXES AND DISPOSE OF EXISTING METER BOXES.
11. CONTRACTOR SHALL ABANDON (NOL-OUT) ANY EXISTING WATER SERVICES THAT WILL NOT BE UTILIZED BY CUTTING THE SERVICE AT THE MAIN, PLUGGING THE CORPORATION, AND TURNING OFF THE CORPORATION AT THE MAIN. THE ABANDONED SERVICE IS TO BE CUT OR CRIMPED, AND BURIED A MINIMUM OF 3 FEET BELOW GRADE.
12. ALL EXISTING UTILITIES IMPACTED BY CONSTRUCTION SHALL BE ADJUSTED TO FINISHED GRADE. IN ACCORDANCE WITH FAYFVIC REQUIREMENTS.
13. ALL WORK ON FAYFVIC WATER UTILITIES (MAINS, LATERALS, ETC.) SHALL BE PERFORMED BY A LICENSED UTILITY PERSONNEL. THE FAYFVIC PUBLIC WORKS COMMISSION SHALL OBSERVE AND APPROVE ALL WORK ON FAYFVIC WATER UTILITIES. ALL WORK SHALL BE COMPLETED IN ACCORDANCE WITH FAYFVIC REQUIREMENTS.
14. SEPARATION REQUIREMENTS:
  - A. **LATERAL SEPARATION OF SEWERS AND WATER MAINS:** WATER MAINS SHALL BE LAID AT LEAST 1 FEET LATERALLY FROM EXISTING OR PROPOSED SEWER MAINS/LATERAL, UNLESS LOCAL CONDITIONS OR BARRIERS (E.G., EXISTING SEWER MAINS/LATERAL) REQUIRE A GREATER SEPARATION.
  - I. THE WATER MAIN IS/LAND 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/LAND IN THE SAME TRENCH AS THE SEWER MAIN/LATERAL, WITH THE WATER MAIN LOCATED ON ONE SIDE ON A BENCH OF UNDISTURBED EARTH AND WITH THE ELEVATION ON 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 8 INCHES ABOVE THE TOP OF THE SEWER MAIN/LATERAL.
  - C. **CROSSING WATER MAIN UNDER A SEWER:** WHENEVER IT IS NECESSARY FOR A WATER MAIN TO CROSS UNDER A SEWER MAIN/LATERAL, THE WATER MAIN SHALL BE LAID AT SUCH AN ELEVATION THAT THE BOTTOM OF THE WATER MAIN IS AT LEAST 8 INCHES ABOVE THE TOP OF THE SEWER MAIN/LATERAL.

| WATER UTILITY NOTES |                                           |               |                     | FAYETTEVILLE<br>PUBLIC WORKS COMMISSION<br>FAYETTEVILLE, N.C. |   |  | NO.                            | DATE             | REVISION |
|---------------------|-------------------------------------------|---------------|---------------------|---------------------------------------------------------------|---|-----------------------------------------------------------------------------------|--------------------------------|------------------|----------|
| SHEET NO.<br>1 OF 2 | DWG. NO.                                  | W.1           | DWG. BY: FAYPWC     |                                                               |   |                                                                                   |                                |                  |          |
|                     | DATE:                                     | JAN. 01, 2025 | APPROVED BY: K.A.H. |                                                               |   |                                                                                   |                                |                  |          |
|                     | WATER RESOURCES<br>ENGINEERING DEPARTMENT |               |                     |                                                               | 1 |                                                                                   | 01/01/18                       | ADDED NOTES 6, 8 |          |
|                     |                                           |               |                     |                                                               | 2 | 06/01/21                                                                          | ADDED NOTES 1-7 AND RENUMBERED |                  |          |
|                     |                                           |               |                     |                                                               | 3 | 11/23                                                                             | REVISED NOTES NO. 10, 14       |                  |          |



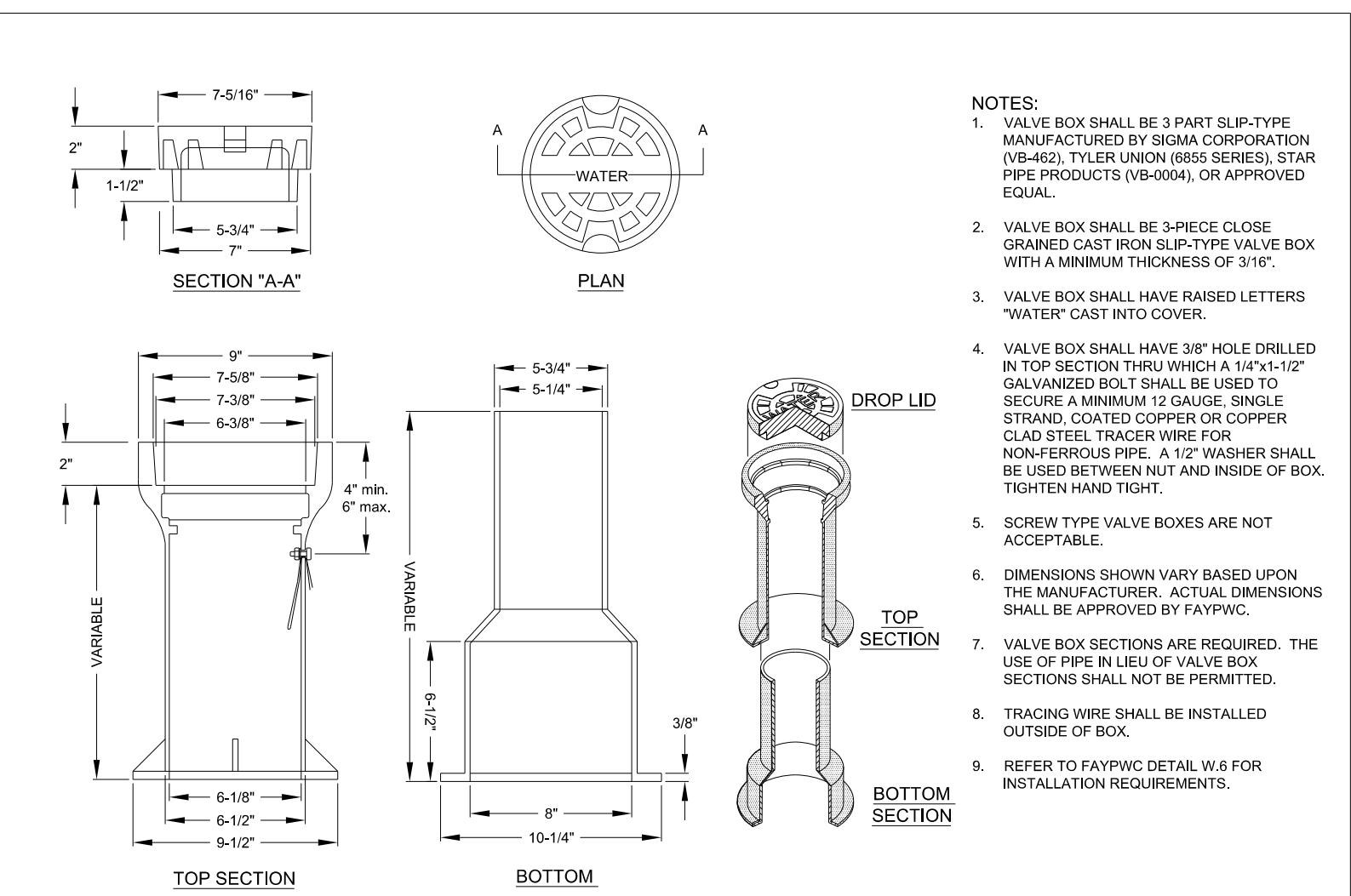
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| GATE VALVE<br>N.T.S. |                     |                     | FAYETTEVILLE<br>PUBLIC WORKS COMMISSION<br>FAYETTEVILLE, N.C. |  |  | NO. | DATE | REVISION         |
| SHEET NO.<br>1 OF 1  | DWG. NO. <b>W.6</b> | DWG. BY: FAYPWC     | WATER RESOURCES<br>ENGINEERING DEPARTMENT                     |  |                                                                                     | 1   | 6/06 | ADDED NOTE NO. 9 |
|                      | DATE: JAN. 01, 2025 | APPROVED BY: K.A.H. |                                                               |  |                                                                                     | 2   | 7/09 | CLARIFIED NOTES  |

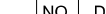
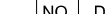


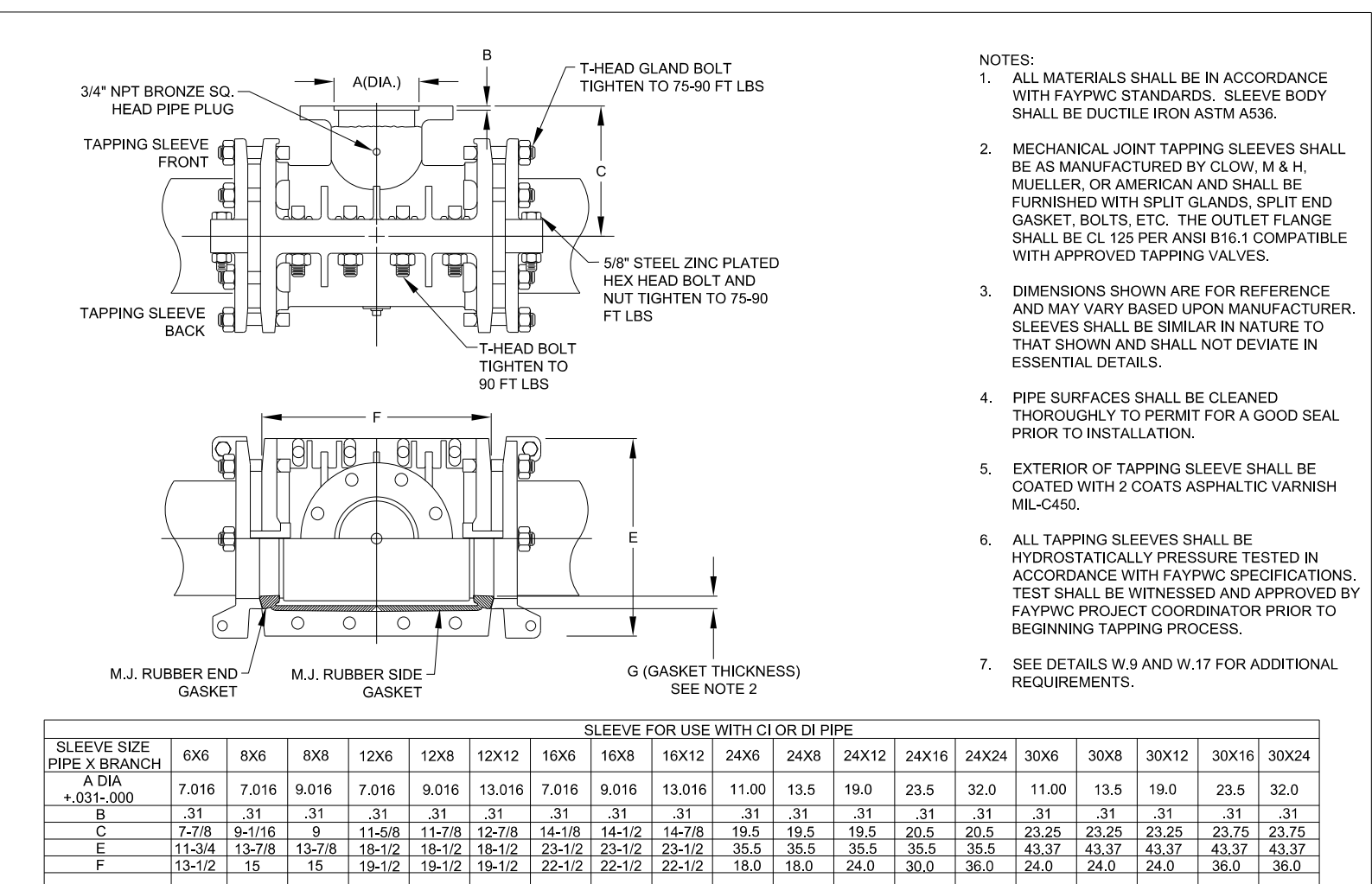
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|-------------------------|---------------------|---------------------|---------------------------------------------------------------|--|-------------------------------------------------------------------------------------|-----|-------|--------------------------------|
| TAPPING VALVE<br>N.T.S. |                     |                     | FAYETTEVILLE<br>PUBLIC WORKS COMMISSION<br>FAYETTEVILLE, N.C. |  |  | NO. | DATE  | REVISION                       |
| SHEET NO.<br>1 OF 1     | DWG. NO. <b>W.9</b> | DWG. BY: FAYPWIC    | WATER RESOURCES<br>ENGINEERING DEPARTMENT                     |  |                                                                                     | 1   | 07/09 | ADDED NOTE 10, REVISED 4 AND 5 |
|                         | DATE: JAN. 01, 2025 | APPROVED BY: K.A.H. |                                                               |  |                                                                                     | 2   | 07/13 | REVISED NOTES 4, 8, 10         |

- CROSSING STORM DRAINAGE LINES:** A MINIMUM OF 12-INCHES OF VERTICAL CLEARANCE SHALL BE MAINTAINED BETWEEN THE STORM DRAINAGE PIPE AND THE STORM DRAIN LINE. UNLESS DUCTILE IRON PIPE IS USED, IN ADDITION, THREE AND A HALF (3 1/2) FEET OF COVER MUST BE MAINTAINED OVER THE DRAIN. IF DUCTILE IRON PIPE IS USED, TWO FEET OF COVER MUST BE MAINTAINED OVER THE DRAIN. TWO AND A HALF (2 1/2) FEET OF COVER MUST BE MAINTAINED OVER THE DRAIN. THE COVER SHALL BE MAINTAINED AT THE SAME ELEVATION AS THE STORM DRAIN LINE. ALL STORM DRAINAGE LINES SHALL BE MAINTAINED AT THE SAME ELEVATION AS THE STORM DRAIN LINE. A MINIMUM OF TWELVE (12) INCHES OF VERTICAL SEPARATION SHALL BE MAINTAINED BETWEEN THE DUCTILE IRON PIPE FOR A DISTANCE OF 10-FOOT ON EACH SIDE OF THE CROSSING.
15. **WATER OUTAGES:** THE CONTRACTOR SHALL SCHEDULE A COORDINATION MEETING WITH THE FAYATPVC PUBLIC WORKS COMMISSION AND PROJECT ENGINEER (PE) PRIOR TO THE BEGINNING OF THREE (3) WORKING DAYS PRIOR TO ANY PLANNED WATER OUTAGE. THE CONTRACTOR SHALL PROVIDE THE FAYATPVC PUBLIC WORKS COMMISSION WITH A WRITTEN NOTICE OF THE WATER OUTAGE TO BE ISSUED. ADDITIONALLY, THE CONTRACTOR SHALL LOCATE VERTICALLY AND HORIZONTALLY ALL UTILITIES WITHIN THE PROJECT AREA PRIOR TO THE BEGINNING OF THE WATER OUTAGE. IN THESE CONTRACT DOCUMENTS, THE LOCATIONS OF ALL UTILITIES WITHIN THE PROJECT AREA SHALL BE DETERMINED PRIOR TO THE COORDINATION MEETING. ANY CONFLICTS WITHIN THE PROJECT AREA OF THE EXISTING UTILITIES SHALL BE IDENTIFIED AND A PLAN FOR RESOLVING ANY CONFLICTS SHALL BE PRESENTED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE EXISTING UTILITIES. THE CONTRACTOR HAS A GOOD UNDERSTANDING OF THE REQUIREMENTS RELATED TO THE WATER OUTAGE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PRESENT WORK FROM BEING COMPLETED. ALL EQUIPMENT IS IN GOOD WORKING ORDER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PRESENT WORK. ALL NECESSARY TOOLS ARE ON SITE. DISCUSS ANY NECESSARY CONTINGENCY PLAN AND OTHER INFORMATION PRIOR TO THE COORDINATION MEETING. THE FAYATPVC PUBLIC WORKS COMMISSION HAS CONFERENCE THAT THE WORK CAN BE COMPLETED WITHIN THE PREVIOUS PERIOD. SHOULD FOR ANY REASON, THE FAYATPVC PUBLIC WORKS COMMISSION DEEM THAT THE CONTRACTOR IS NOT PREPARED FOR THE WATER OUTAGE, THE OUT NOTIFICATION SHALL BE WITHHELD AND THE OUTAGE SHALL BE POSTPONED A MINIMUM OF TWO (2) WEEKS. THE FAYATPVC PUBLIC WORKS COMMISSION WILL PROVIDE WRITTEN NOTIFICATION TO THE CONTRACTOR OF THIS DELAY. NO ADDITIONAL CONTRACT TIME WILL BE GRANTED FOR THIS DELAY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE OUTAGE AT TWO (2) WEEKS PRIOR. THE FAYATPVC PUBLIC WORKS COMMISSION RESERVES THE RIGHT TO ASSESS LIQUIDATED DAMAGES, AS OUTLINED IN THESE CONTRACT DOCUMENTS.
- ONCE THE WATER OUTAGE NOTIFICATIONS HAVE BEEN ISSUED, A FOLLOW-UP COORDINATION MEETING WITH THE FAYATPVC PUBLIC WORKS COMMISSION AND PROJECT ENGINEER SHALL BE HELD A MINIMUM OF 24 HOURS PRIOR TO THE SCHEDULED PURPOSE OF THIS MEETING TO VERIFY THAT THE CONTRACTOR IS PREPARED TO PROCEED WITH THE OUTAGE AND THAT ALL EQUIPMENT, MATERIALS, TOOLS, AND ALL OTHER NECESSITIES ARE ON THE PROJECT SITE AND FUNCTIONING. FOR ANY REASON, IF THE CONTRACTOR IS NOT PREPARED, THE OUTAGE SHALL BE POSTPONED AND ALL CUSTOMERS IMMEDIATELY ADVISED OF THE POSTPONEMENT. THE OUTAGE SHALL BE POSTPONED A MINIMUM OF TWO (2) WEEKS. NO ADDITIONAL CONTRACT TIME WILL BE GRANTED FOR THIS DELAY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE OUTAGE AT TWO (2) WEEKS PRIOR. THE FAYATPVC PUBLIC WORKS COMMISSION RESERVES THE RIGHT TO ASSESS LIQUIDATED DAMAGES, AS OUTLINED IN THESE CONTRACT DOCUMENTS.
- THE CONTRACTOR SHALL COMPLETE THE REQUIRED WORK AND RESTORE WATER SERVICE WITHIN THE PREVIOUS PERIOD. SHOULD FOR ANY REASON, THE CONTRACTOR DETERMINES THAT THE CONTRACTOR WILL NOT RESTORE WATER SERVICE WITHIN THE PROVIDED PERIOD, THE FAYATPVC PUBLIC WORKS COMMISSION SHALL BE NOTIFIED. TO RESTORE WATER SERVICE, THE CONTRACTOR SHALL ADHERE TO ALL INSTRUCTIONS GIVEN BY THE FAYATPVC PROJECT COORDINATOR.
- SHOULD THE CONTRACTOR FAIL TO COMPLETE THE WORK WITHIN THE ALLOTTED TIME, THE FAYATPVC PUBLIC WORKS COMMISSION SHALL ASSESS A PENALTY OF FIFTY (\$50,000) PER HOUR FOR ANY PORTION THEREOF UNTIL WATER SERVICE IS RESTORED. THIS PENALTY SHALL BE DEDUCTED FROM THE CONTRACTOR'S PAY APPLICATION OR BE BILLED DIRECTLY TO THE CONTRACTOR. THE PENALTY MAY BE FORFEITED FOR CONTRACTORS WHO DO NOT RESTORE WATER SERVICE AS REQUIRED BY THE FAYATPVC PUBLIC WORKS COMMISSION. THE FAYATPVC PROJECT COORDINATOR AND THE FAYATPVC PUBLIC WORKS COMMISSION SHALL BE NOTIFIED OF THE POSTPONE THE OUTAGE AT ANY GIVEN TIME, IF DEEMED NECESSARY.

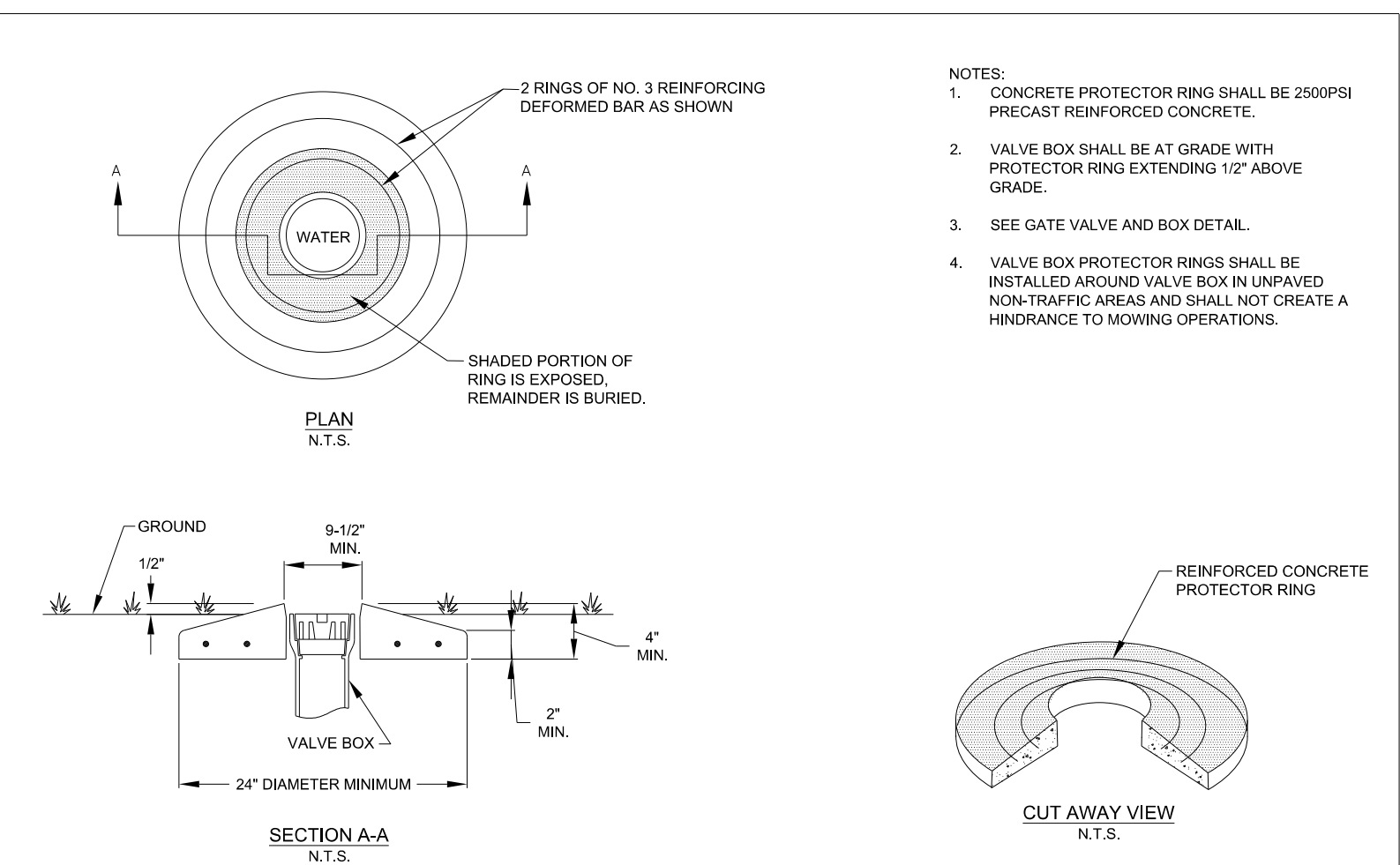
| WATER UTILITY NOTES |          |               |                     | FAYETTEVILLE<br>PUBLIC WORKS COMMISSION<br>FAYETTEVILLE, N.C. |  |  | NO. | DATE     | REVISION                       |
|---------------------|----------|---------------|---------------------|---------------------------------------------------------------|--|-------------------------------------------------------------------------------------|-----|----------|--------------------------------|
| SHEET NO.<br>2 OF 2 | DWG. NO. | W.1           | DWG. BY: FAYPWC     | WATER RESOURCES<br>ENGINEERING DEPARTMENT                     |  |                                                                                     | 1   | 01/01/16 | ADDED NOTES 6, 8               |
|                     | DATE:    | JAN. 01, 2025 | APPROVED BY: K.A.H. |                                                               |  |                                                                                     | 2   | 06/01/21 | ADDED NOTES 1-7 AND RENUMBERED |
|                     |          |               |                     |                                                               |  |                                                                                     | 3   | 11/23    | REVISED NOTES 10, 14           |



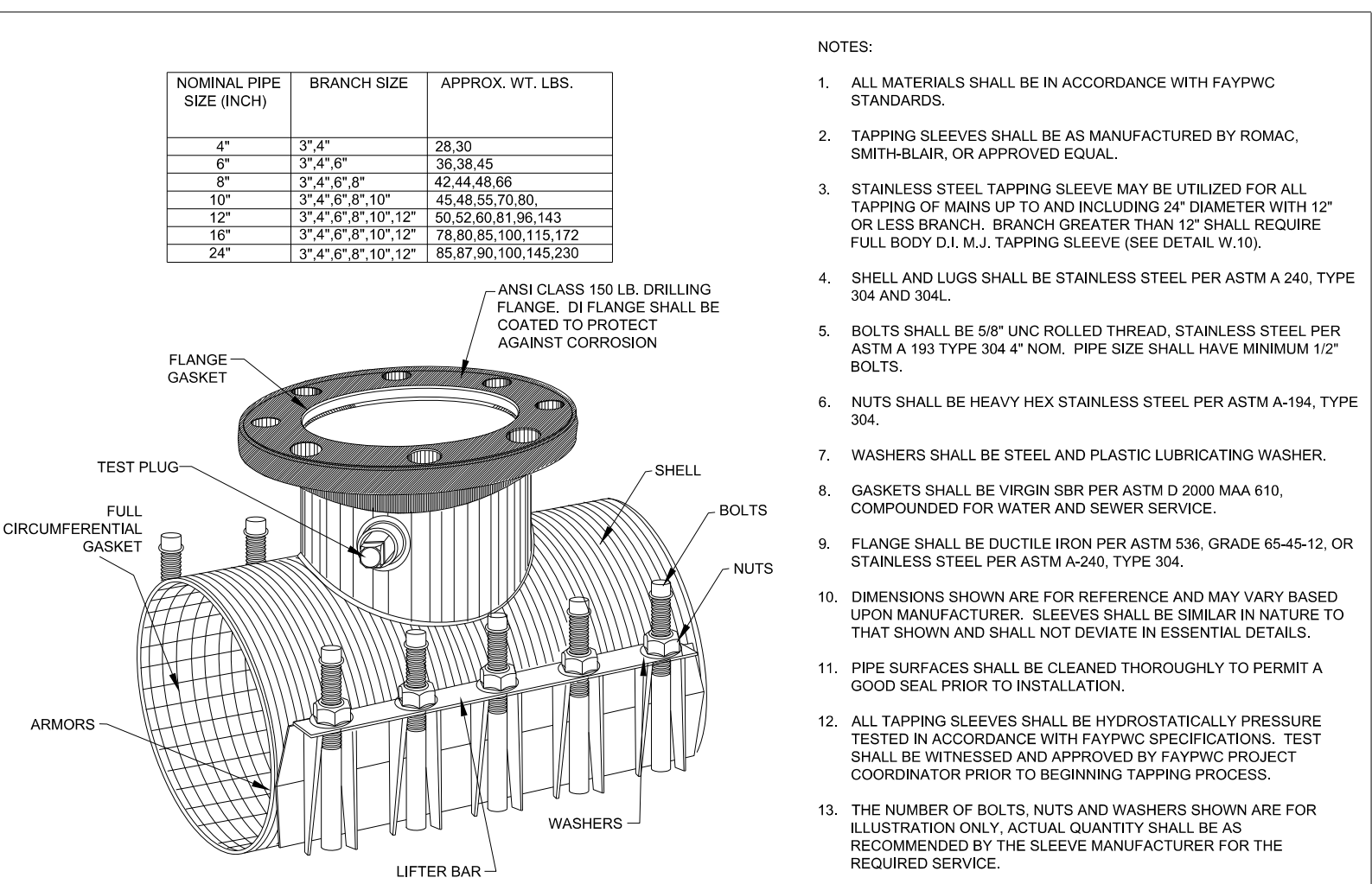
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| SHEET NO.<br>1 OF 1 | VALVE BOX<br>N.T.S. |                     | FAYETTEVILLE<br>PUBLIC WORKS COMMISSION<br>FAYETTEVILLE, N.C.                         |  | NO. | DATE  | REVISION                              |
|                     | DWG. NO. <b>W.7</b> | DWG. BY: FAY/PWC    |  |                                                                                       | 1   | 07/09 | ADDED NOTES 7, 8, AND CLARIFIED NOTES |
|                     | DATE: JAN. 01, 2025 | APPROVED BY: K.A.H. |                                                                                       |                                                                                       | 2   | 07/14 | REVISED NOTES 1, 4, 6                 |
|                     |                     |                     | WATER RESOURCES<br>ENGINEERING DEPARTMENT                                             |                                                                                       |     |       |                                       |



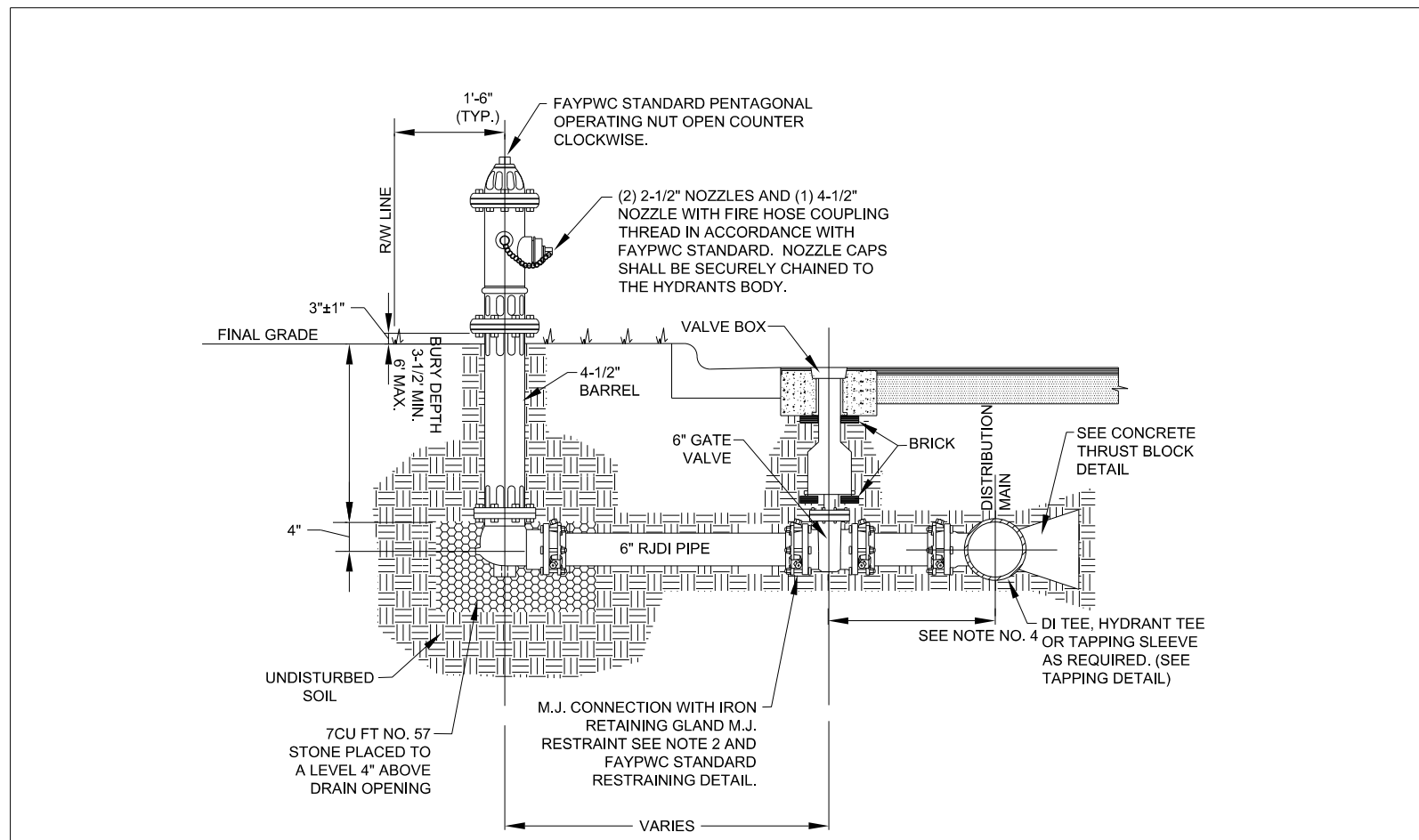
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| DUCTILE IRON TAPPING SLEEVE<br>N.T.S. |                      |                     | FAYETTEVILLE<br>PUBLIC WORKS COMMISSION<br>FAYETTEVILLE, N.C. |  |  | NO. | DATE  | REVISION                      |
| SHEET NO.<br>1 OF 1                   | DWG. NO. <b>W.10</b> | DWG. BY: FAYPWC     | WATER RESOURCES<br>ENGINEERING DEPARTMENT                     |  |                                                                                       | 1   | 07/09 | REVISED NOTE 6 REMOVED NOTE 8 |
|                                       | DATE: JAN. 01, 2025  | APPROVED BY: K.A.H. |                                                               |  |                                                                                       | 2   | 07/13 | REVISED NOTES 6, 7            |



|                                    |                     |                     |                                                               |                                                                                       |     |      |          |
|------------------------------------|---------------------|---------------------|---------------------------------------------------------------|---------------------------------------------------------------------------------------|-----|------|----------|
| VALVE BOX PROTECTOR RING<br>N.T.S. |                     |                     | FAYETTEVILLE<br>PUBLIC WORKS COMMISSION<br>FAYETTEVILLE, N.C. |  | NO. | DATE | REVISION |
| SHEET NO.<br>1 OF 1                | DWG. NO. <b>W.8</b> | DWG. BY: FAY/PWC    | WATER RESOURCES<br>ENGINEERING DEPARTMENT                     |                                                                                       |     |      |          |
|                                    | DATE: JAN. 01, 2025 | APPROVED BY: K.A.H. |                                                               |                                                                                       |     |      |          |

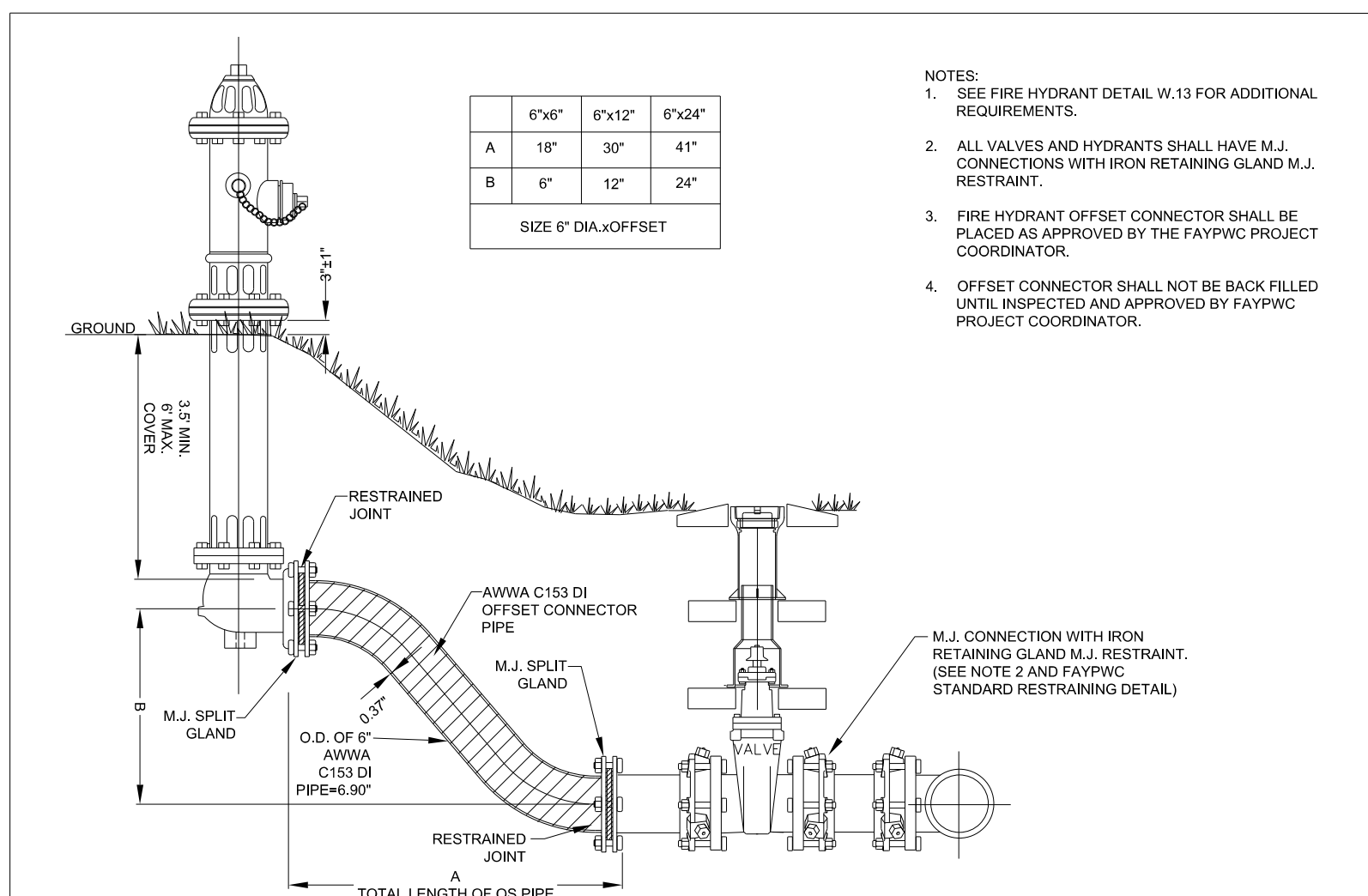


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|------------------------------------------|----------------------|---------------------|---------------------------------------------------------------|---|---------------------------------------------------------------------------------------|-------|-------------------------------------------|----------|
| STAINLESS STEEL TAPPING SLEEVE<br>N.T.S. |                      |                     | FAYETTEVILLE<br>PUBLIC WORKS COMMISSION<br>FAYETTEVILLE, N.C. |   |  | NO.   | DATE                                      | REVISION |
| SHEET NO.<br>1 OF 1                      | DWG. NO. <b>W.11</b> | DWG. BY: FAYPWC     | WATER RESOURCES<br>ENGINEERING DEPARTMENT                     | 1 |                                                                                       | 07/09 | ADDED NOTES 2, 12, AND CLARIFIED<br>NOTES |          |
|                                          | DATE: JAN. 01, 2025  | APPROVED BY: K.A.H. |                                                               | 2 |                                                                                       | 07/13 | REVISED NOTES 2, 12, 14                   |          |



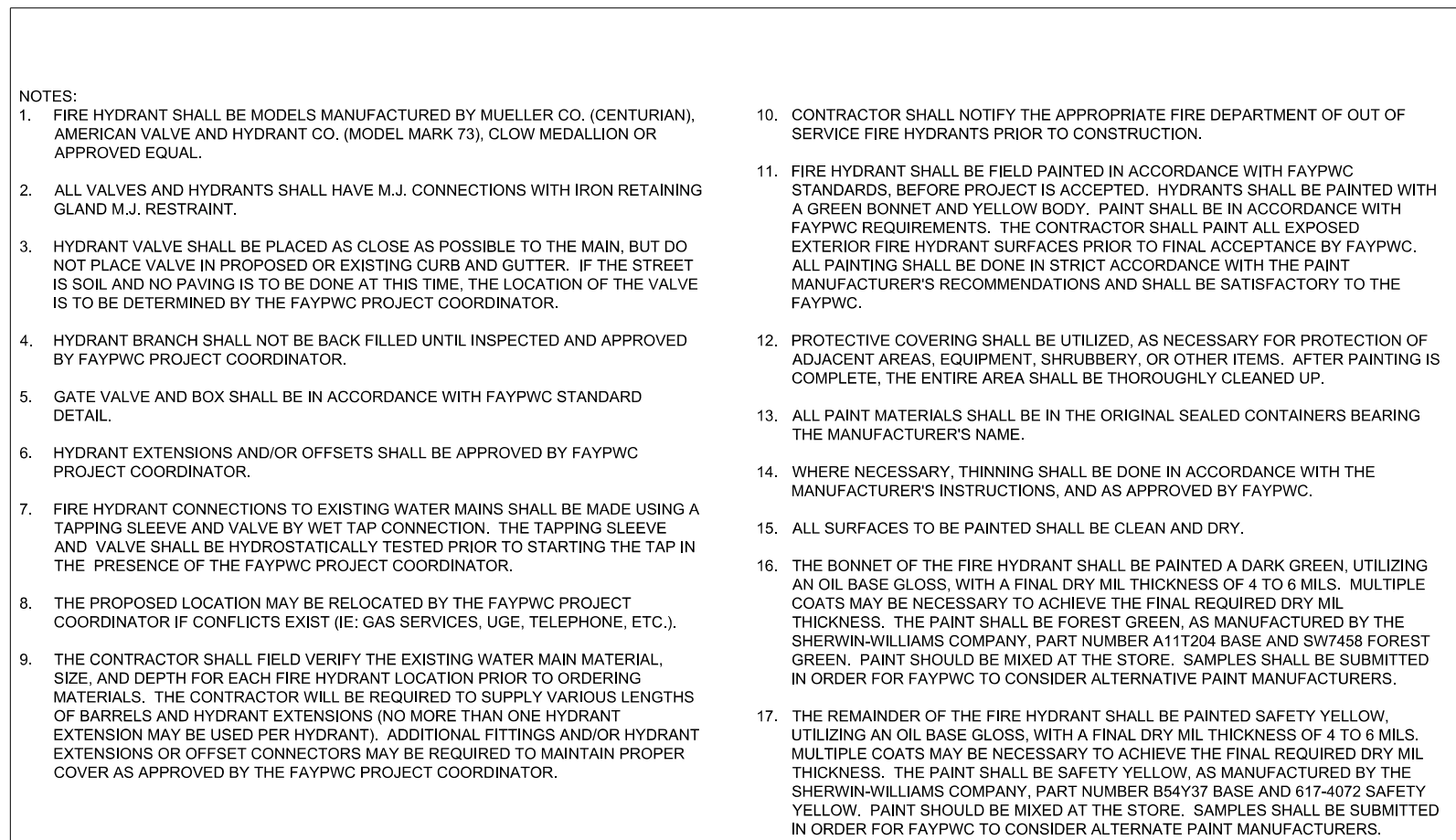
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| FIRE HYDRANT AND VALVE INSTALLATION<br>N.T.S. |                      | FAYETTEVILLE<br>PUBLIC WORKS COMMISSION<br>FAYETTEVILLE, N.C. |                                           |  | NO. | DATE     | REVISION                                                   |
| SHEET NO.<br>1 OF 2                           | DWG. NO. <b>W.13</b> | DWG. BY: FAYPWC                                               | WATER RESOURCES<br>ENGINEERING DEPARTMENT |                                                                                   | 1   | 08/25/23 | REVISED NOTES 16 AND 17                                    |
|                                               | DATE: JAN. 01, 2025  | APPROVED BY: K.A.H.                                           |                                           |                                                                                   | 2   | 07/01/09 | REVISED NOTE 2, REMOVED NOTE NO. 3, AND ALTERED REVISION 1 |
|                                               |                      |                                                               |                                           |                                                                                   | 3   | 07/01/16 | REVISED NOTES                                              |
|                                               |                      |                                                               |                                           |                                                                                   |     |          | W13-FHCC.dwg                                               |

W13-FHCC.dwy



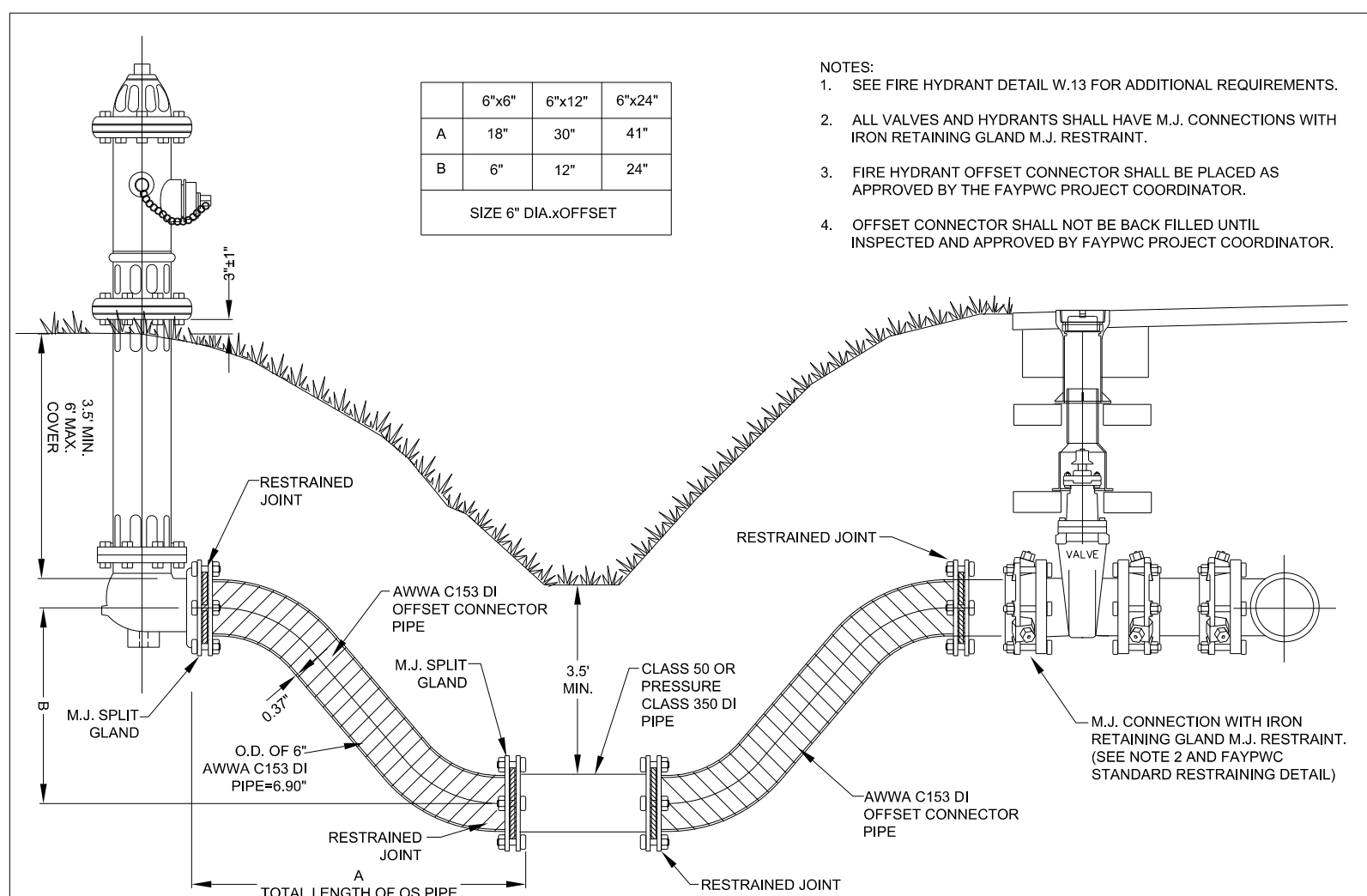
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| RESTRAINED JOINT FIRE HYDRANT<br>OFFSET CONNECTOR (STEEP BANK)<br>N.T.S. |  | FAYETTEVILLE<br>PUBLIC WORKS COMMISSION<br>FAYETTEVILLE, N.C. |  |  | NO. | DATE  | REVISION                  |
| SHEET NO.<br>1 OF 2                                                      |  | WATER RESOURCES<br>ENGINEERING DEPARTMENT                     |  |                                                                                     | 1   | 07/09 | REVISED NOTES 1, 2, AND 3 |
| DWG. NO. <b>W.14</b><br>DATE: JAN. 01, 2025                              |  | DWG. BY: FAY/PWC<br>APPROVED BY: K.A.H.                       |  |                                                                                     |     |       |                           |

W14-FH-OFFSET.dwg



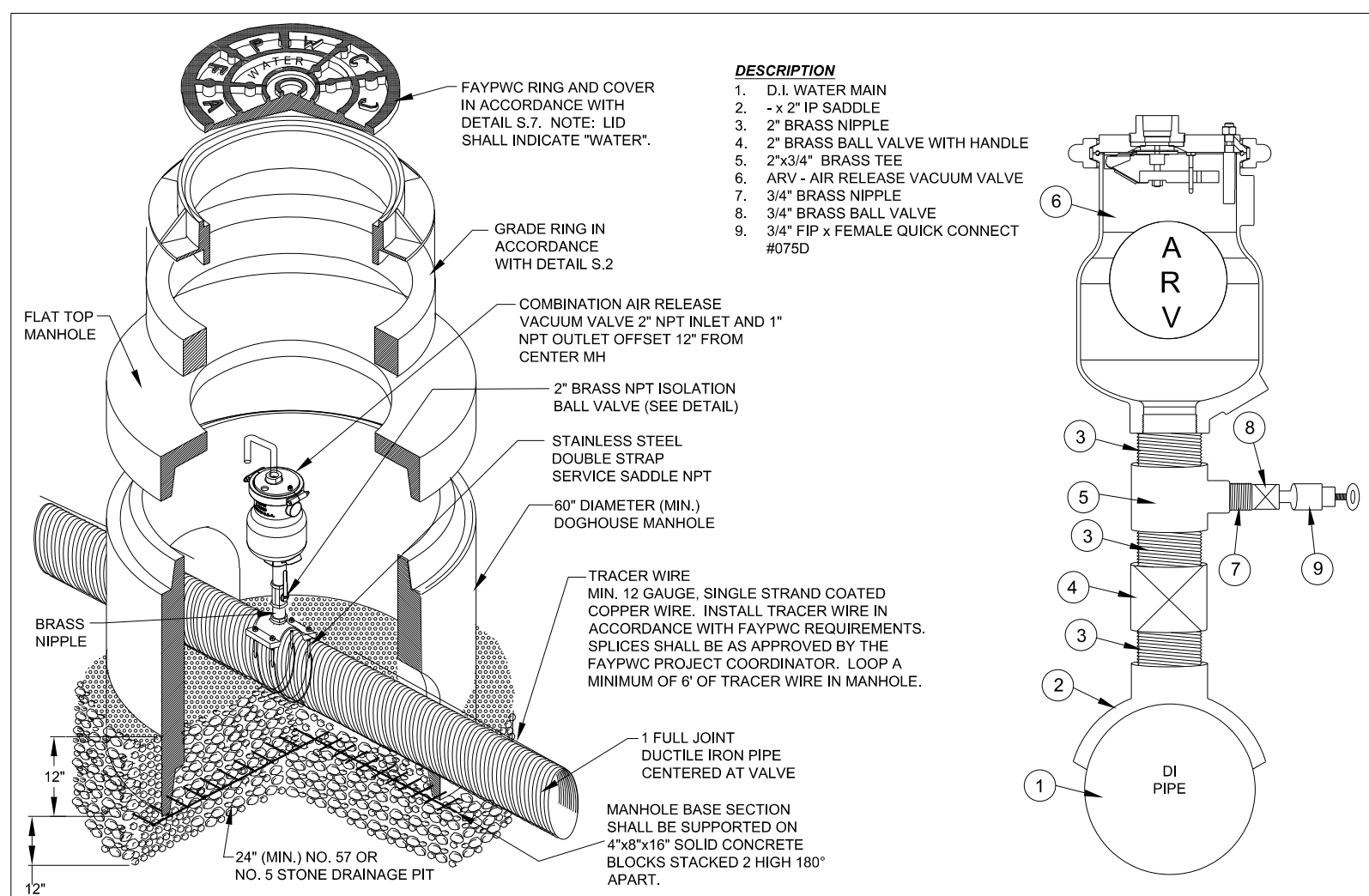
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| FIRE HYDRANT AND VALVE INSTALLATION<br>N.T.S. |                      |                     | FAYETTEVILLE<br>PUBLIC WORKS COMMISSION<br>FAYETTEVILLE, N.C. |  |  | NO. DATE REVISION |          |                                                                        |
| SHEET NO.<br>2 OF 2                           | DWG. NO. <b>W-13</b> | DWG. BY: FAY/PWC    | WATER RESOURCES<br>ENGINEERING DEPARTMENT                     |  |                                                                                     | 1                 | 08/25/23 | REVISED NOTES 16 AND 17                                                |
|                                               | DATE: JAN. 01, 2025  | APPROVED BY: K.A.H. |                                                               |  |                                                                                     | 2                 | 07/01/09 | REVISED NOTE NO. 2, REMOVED NOTE NO. 3, AND ALTERED RESERVOIR AND TAIL |
|                                               |                      |                     |                                                               |  |                                                                                     | 3                 | 07/01/16 | REVISED NOTES                                                          |
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W13-FHCC.dwg



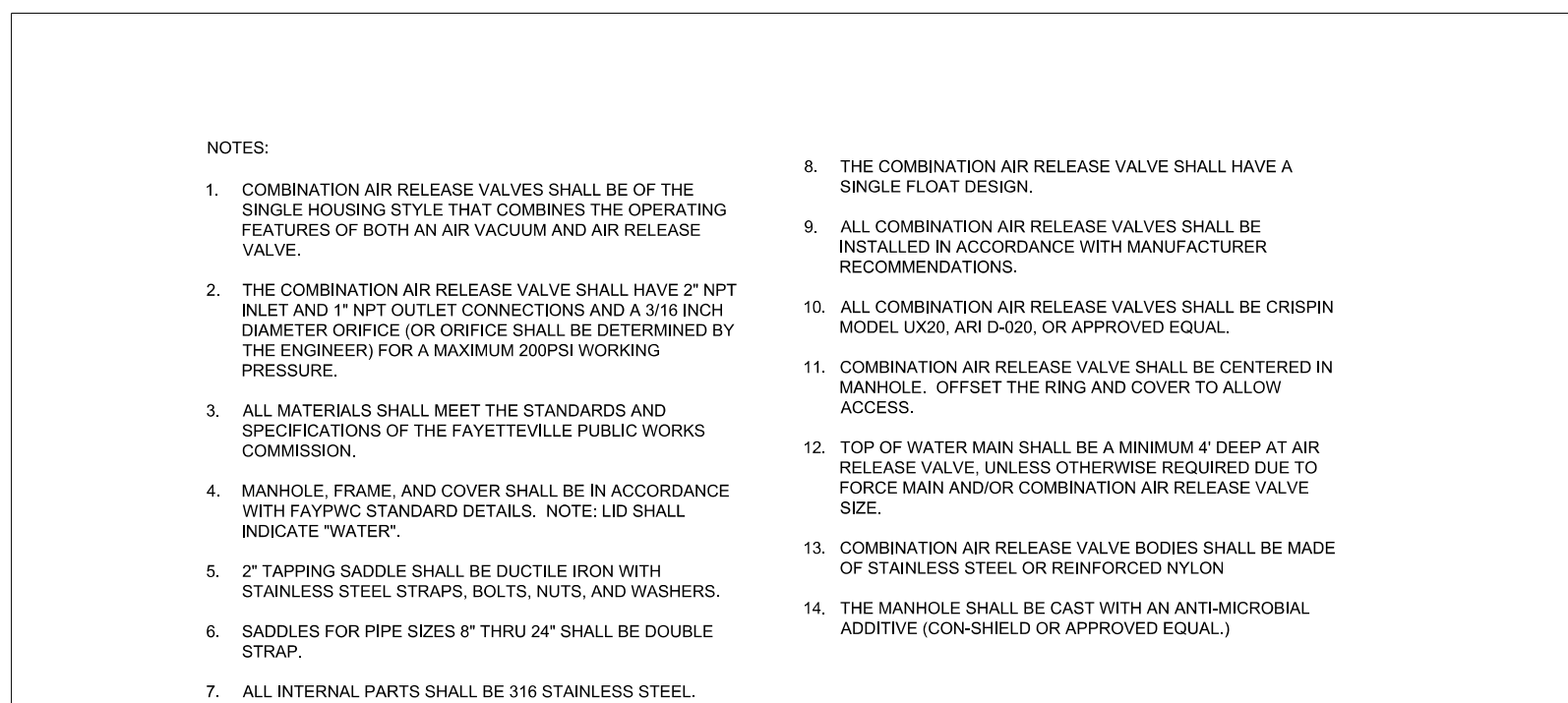
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| RESTRAINED JOINT FIRE HYDRANT<br>OFFSET CONNECTOR AT DITCH<br>N.T.S. |                      |                     | FAYETTEVILLE<br>PUBLIC WORKS COMMISSION<br>FAYETTEVILLE, N.C. |  |  | NO. | DATE  | REVISION                  |
| SHEET NO.<br>2 OF 2                                                  | DWG. NO. <b>W.14</b> | DWG. BY: FAY/PWC    | WATER RESOURCES<br>ENGINEERING DEPARTMENT                     |  |                                                                                       | 1   | 01/05 | ADDED NOTES               |
|                                                                      | DATE: JAN. 01, 2025  | APPROVED BY: K.A.H. |                                                               |  |                                                                                       | 2   | 07/09 | REVISED NOTES 1, 2, AND 3 |
|                                                                      |                      |                     |                                                               |  |                                                                                       |     |       |                           |

W14-FH-OFFSET.dwg



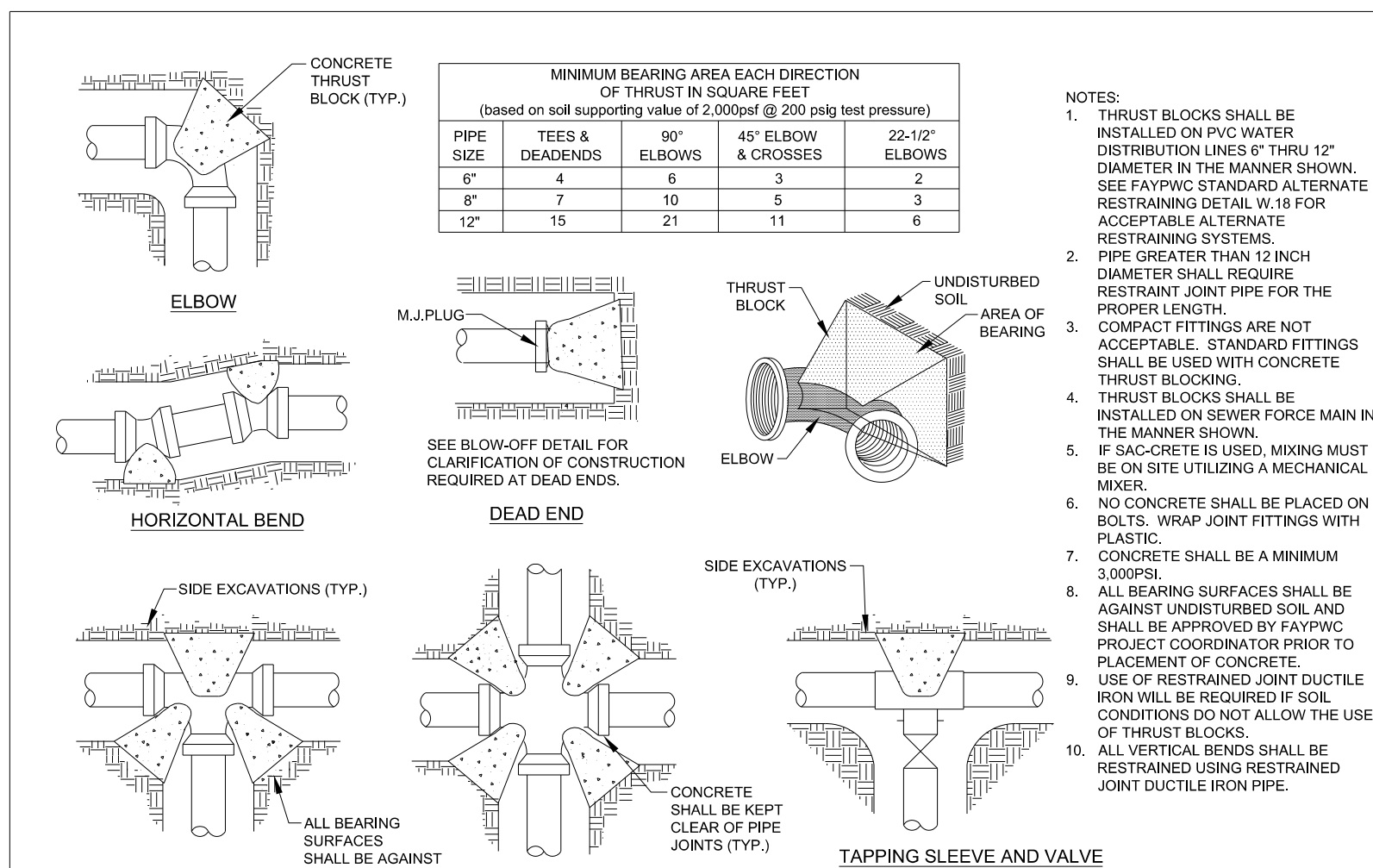
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| COMBINATION AIR RELEASE<br>VACUUM VALVE (WATER SERVICE)<br>N.T.S. |               |              | FAYETTEVILLE<br>PUBLIC WORKS COMMISSION<br>FAYETTEVILLE, N.C. |   |  | NO.   | DATE                              | REVISION |
| SHEET NO.<br>1 OF 2                                               | DWG. NO.      | DWG. BY:     | WATER RESOURCES<br>ENGINEERING DEPARTMENT                     | 1 |                                                                                       | 07/09 | REVISED NOTES 3 AND 5, ADD NOTE 7 |          |
|                                                                   | DATE:         | APPROVED BY: |                                                               | 2 |                                                                                       | 01/13 | UPDATED NOTES, ADDED TRACER WIRE  |          |
|                                                                   | W.16          | PAYPWC       |                                                               |   |                                                                                       |       |                                   |          |
|                                                                   | JAN. 01, 2025 | K.A.H.       |                                                               |   |                                                                                       |       |                                   |          |

W16-AIR-RELEASE-VALVE.dwg



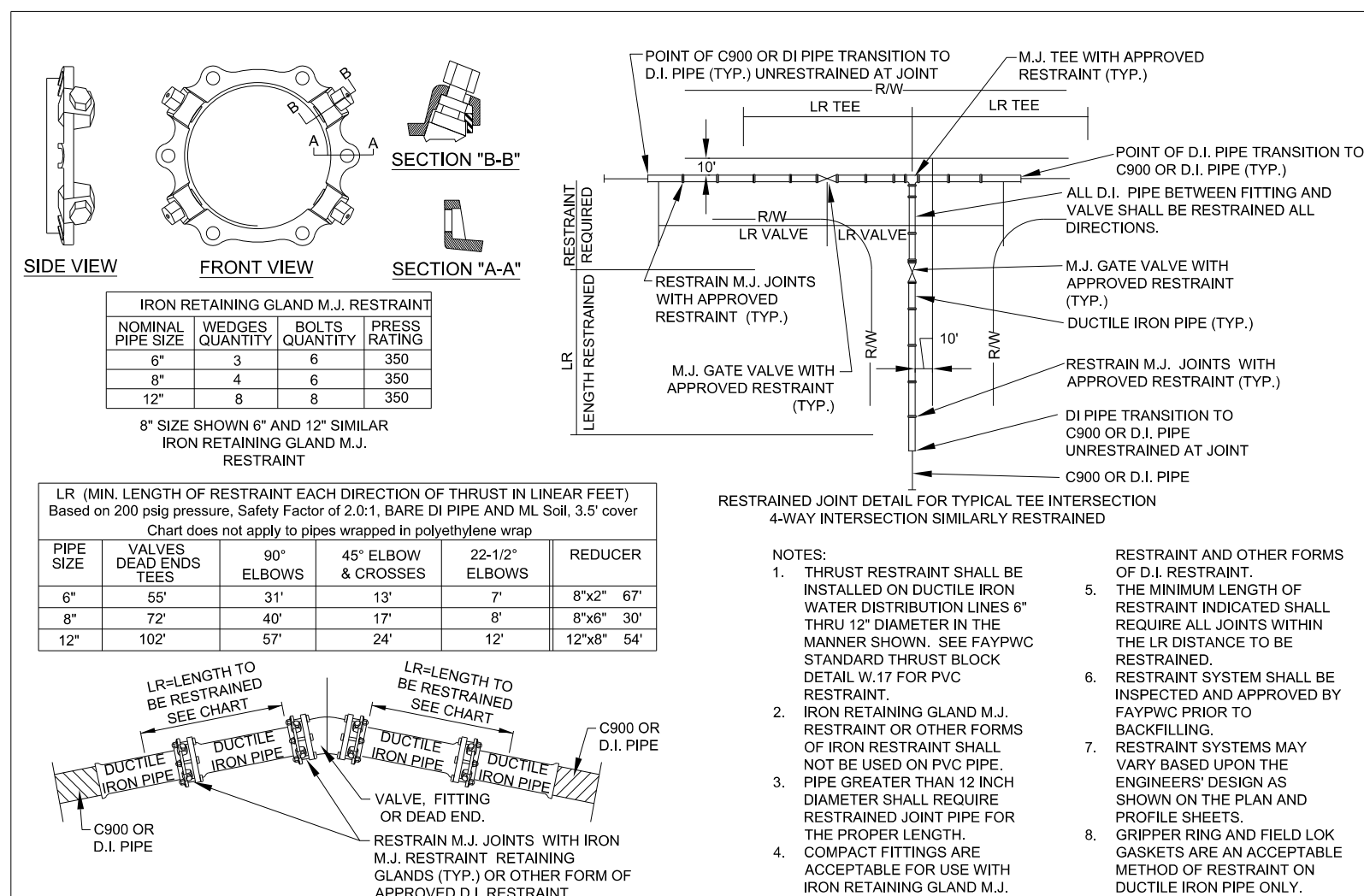
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| COMBINATION AIR RELEASE<br>VACUUM VALVE (WATER SERVICE) |                      |                     | FAYETTEVILLE<br>PUBLIC WORKS COMMISSION<br>FAYETTEVILLE, N.C. |  |  | NO. | DATE  | REVISION                     |
| SHEET NO.<br>2 OF 2                                     | DWG. NO. <b>W.16</b> | DWG. BY: FAY/PWC    | WATER RESOURCES<br>ENGINEERING DEPARTMENT                     |  |                                                                                     | 1   | 01/13 | ADDED NOTE 16, REVISED NOTES |
|                                                         | DATE: JAN. 01, 2025  | APPROVED BY: K.A.H. |                                                               |  |                                                                                     | 2   | 07/16 | DELETED NOTES 3, 16          |

W16-AIR-RELEASE-VALVE, dwy



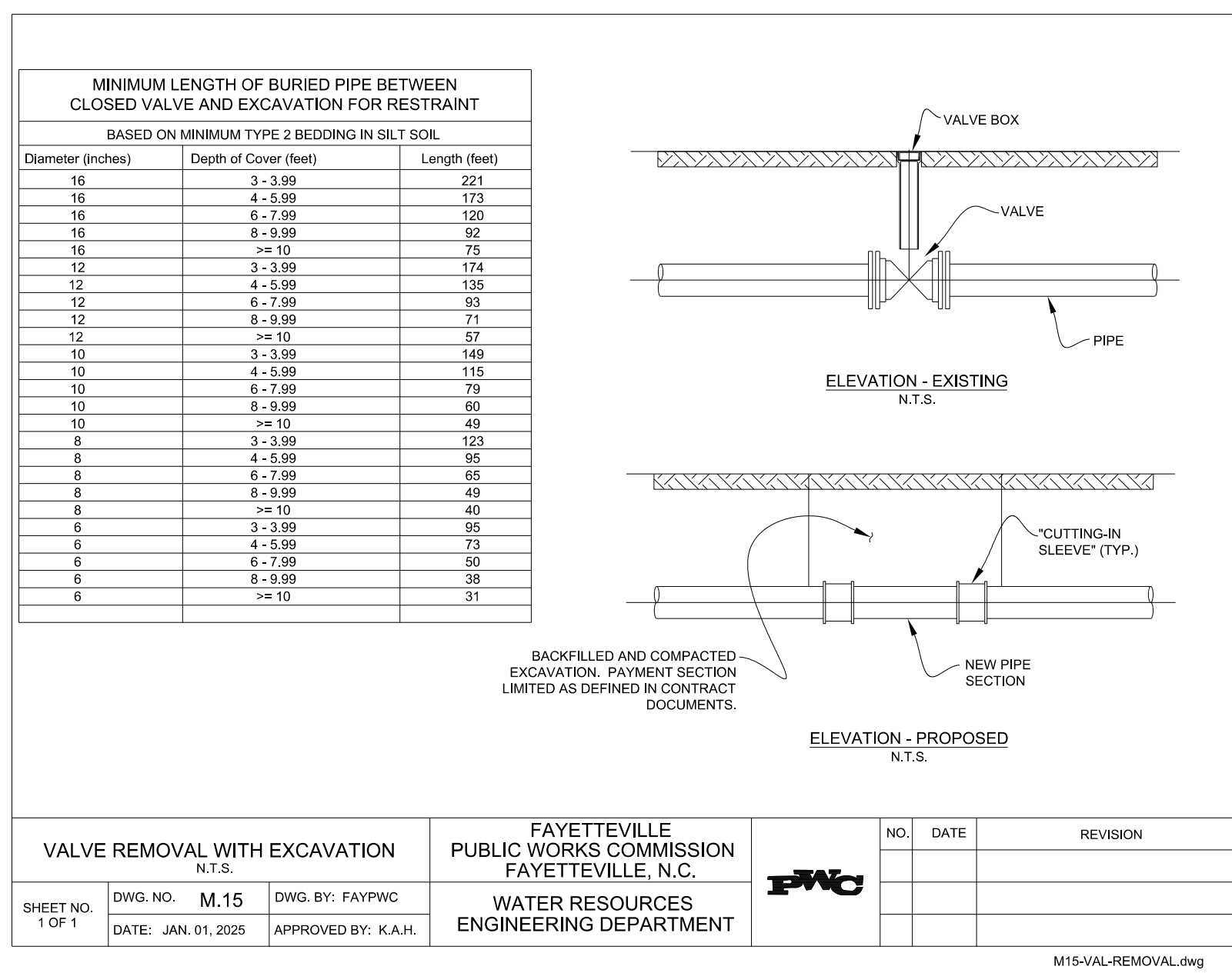
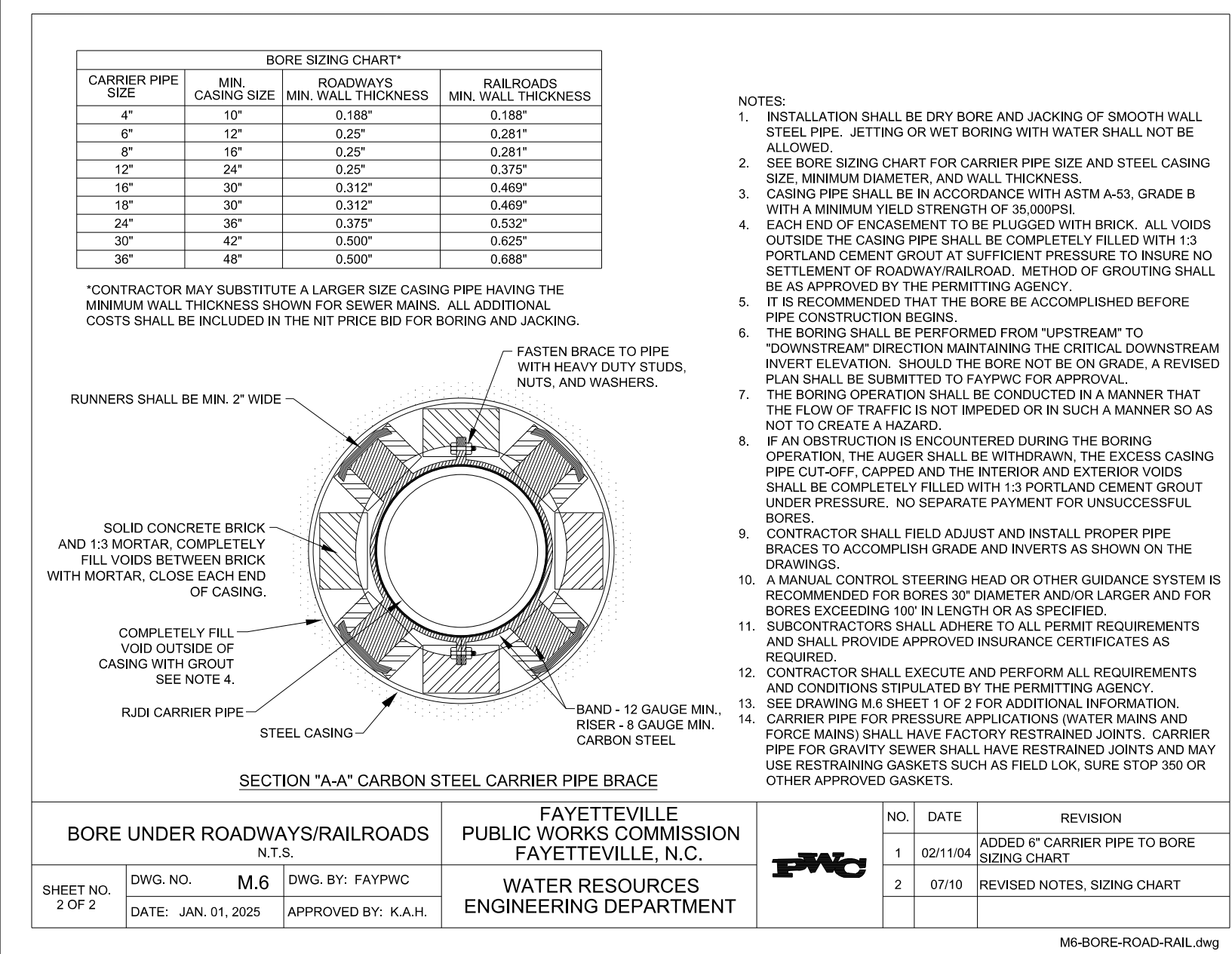
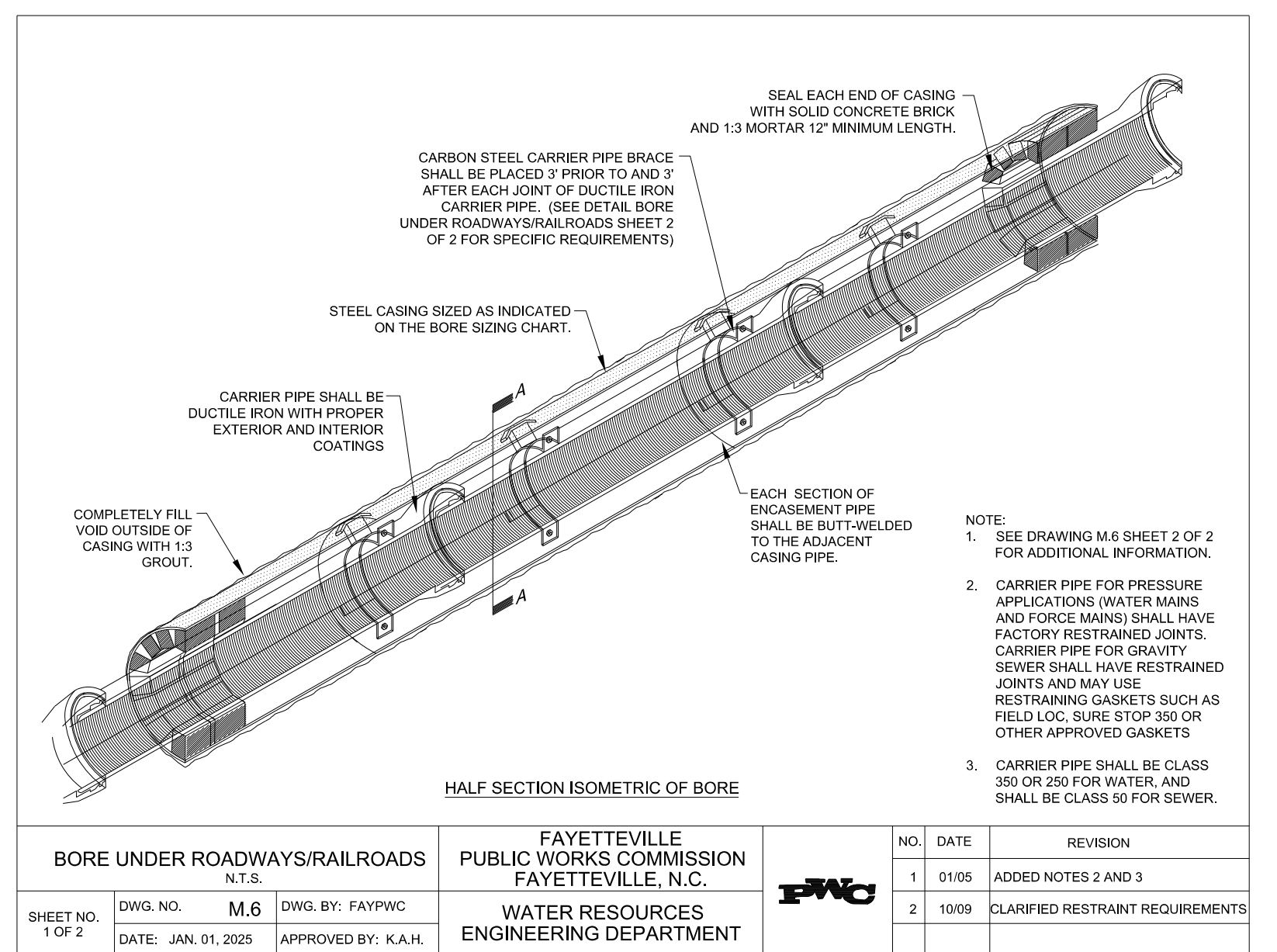
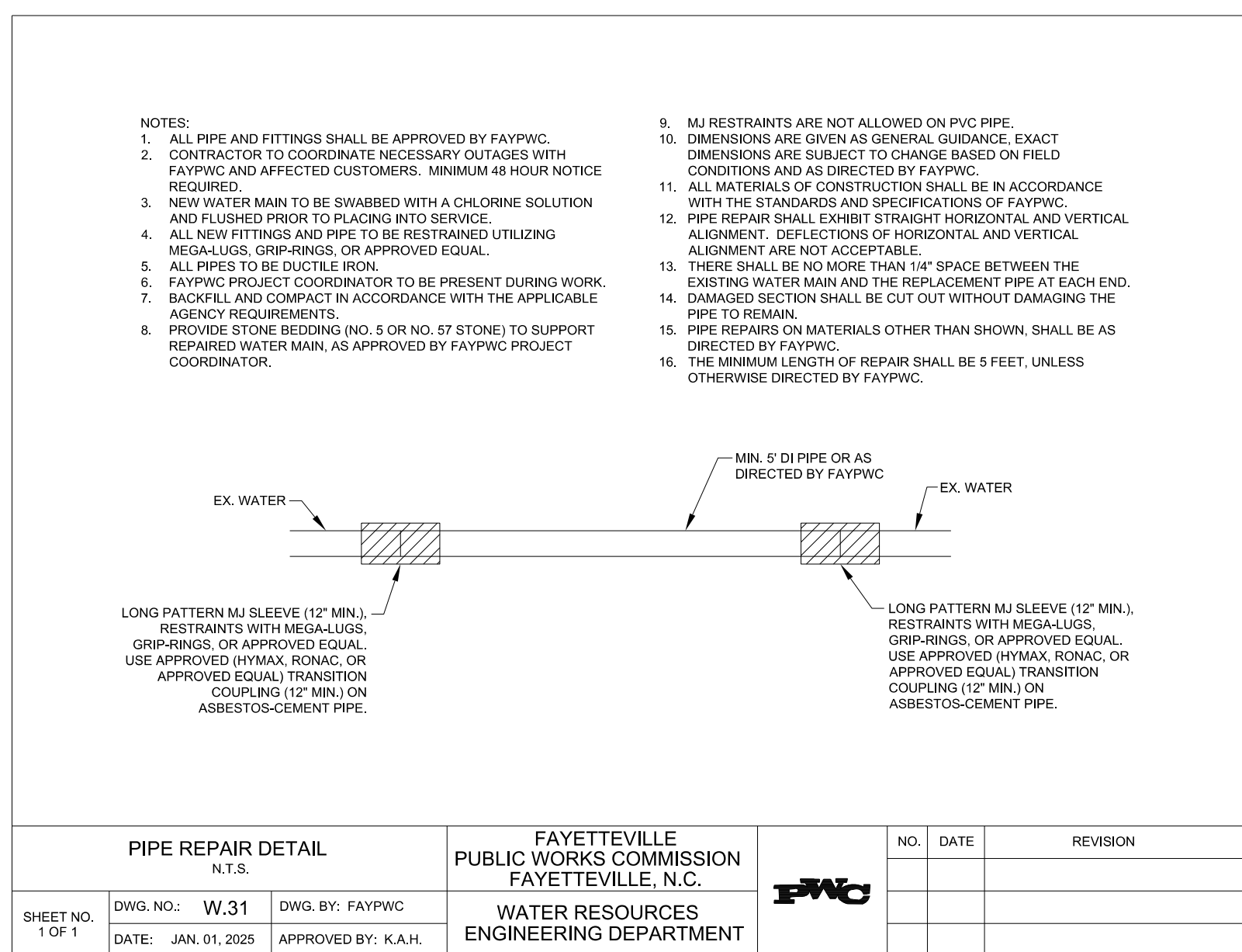
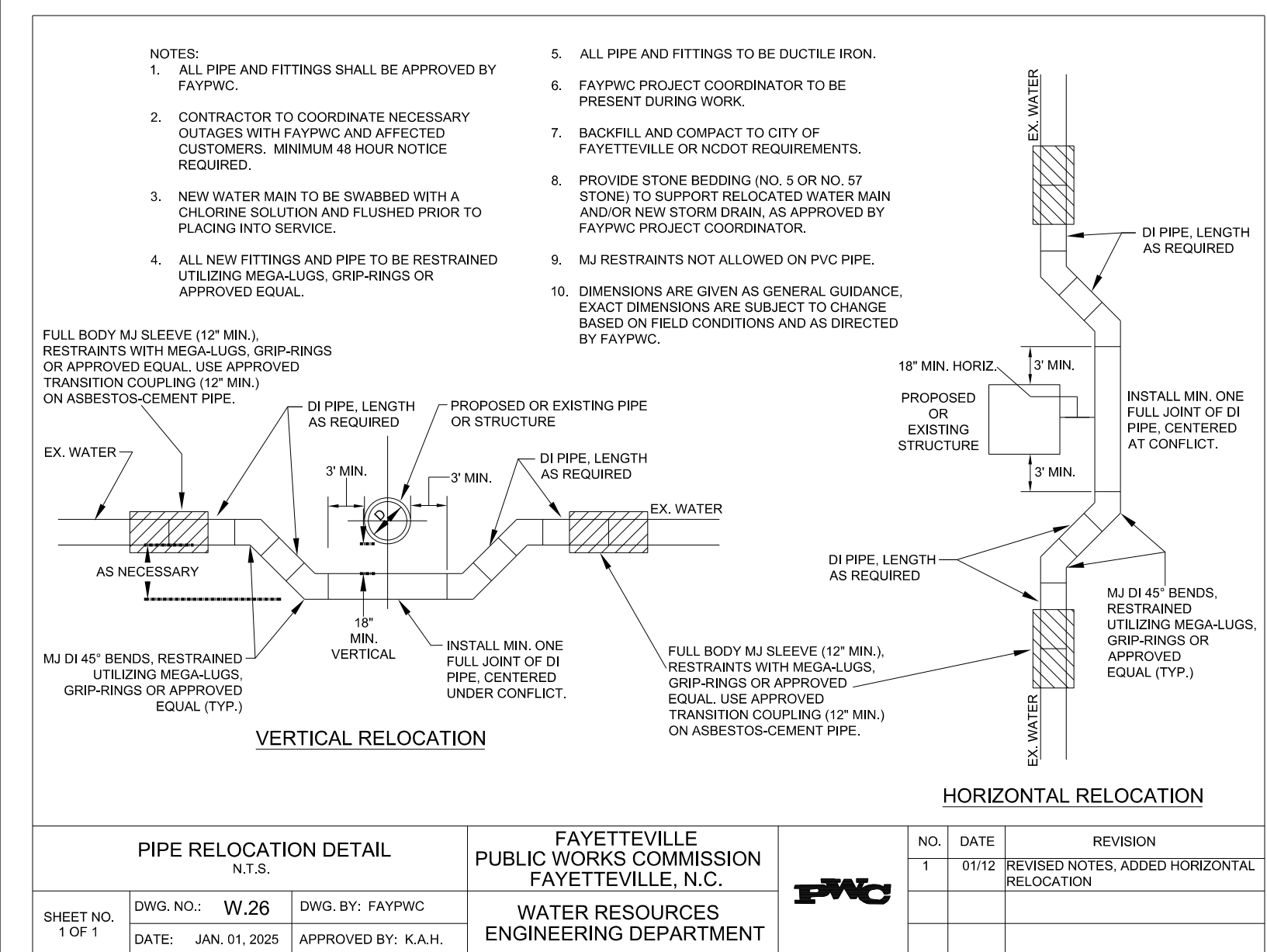
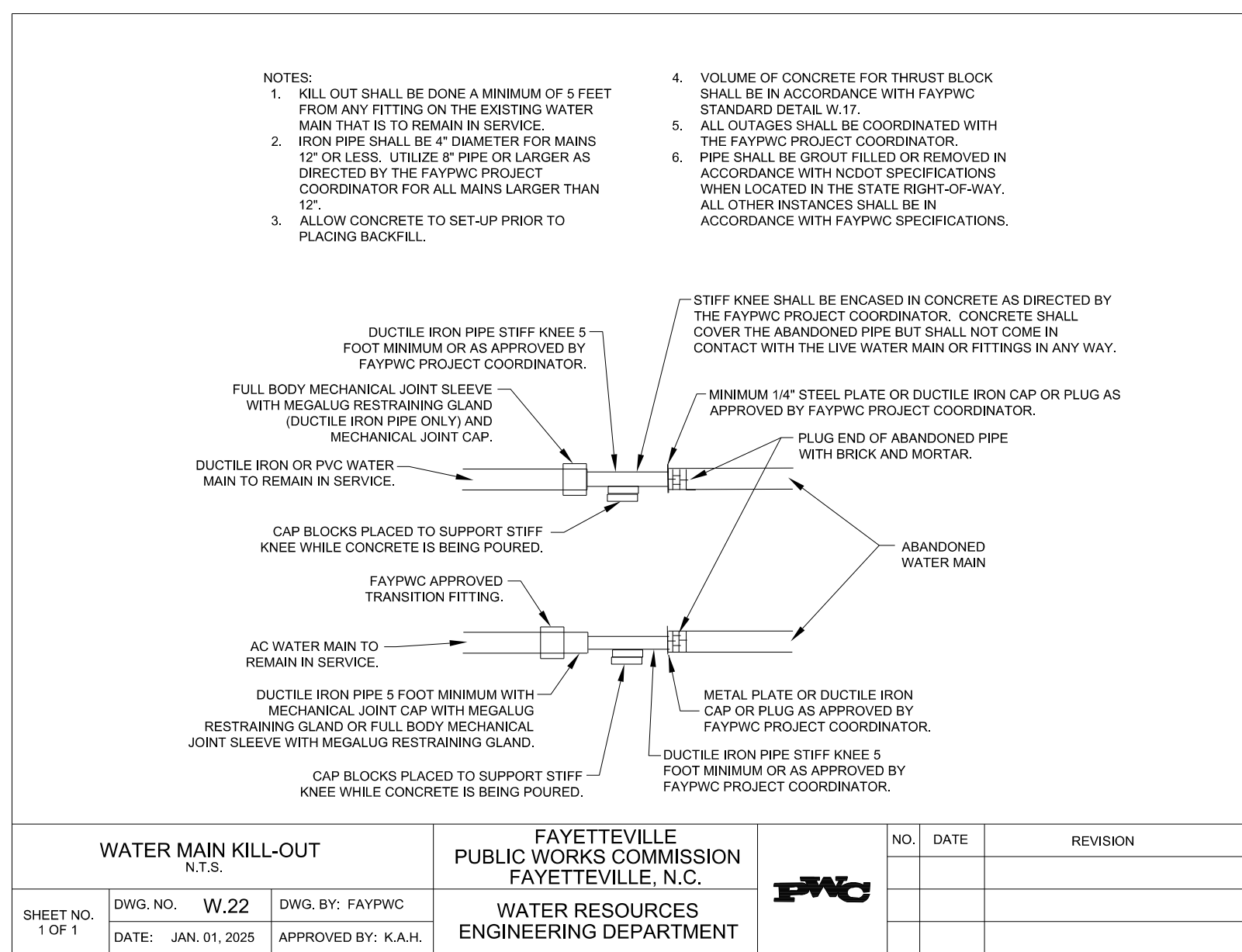
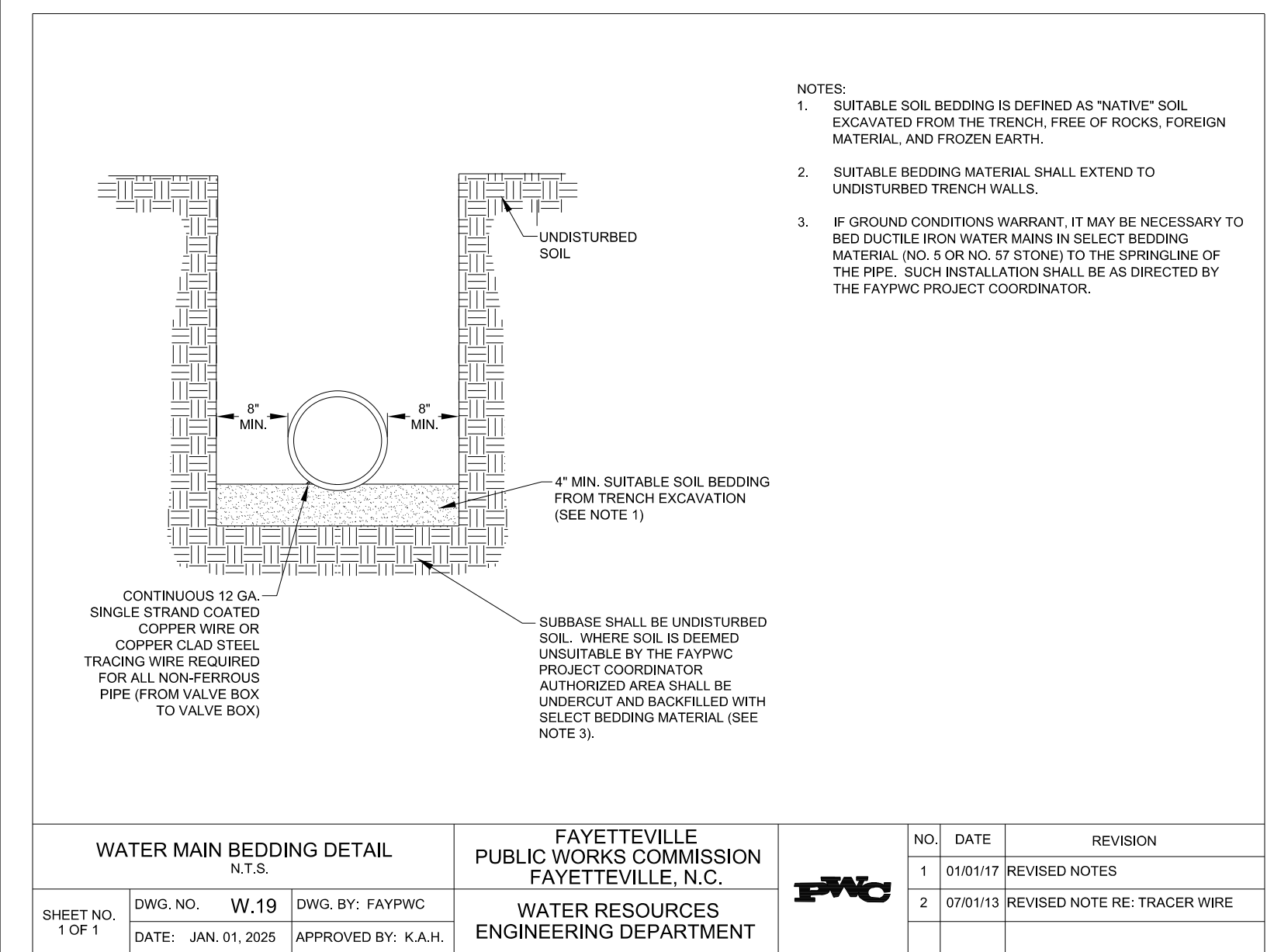
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|----------------------------------------|----------------------|---------------------|---------------------------------------------------------------|--|---------------------------------------------------------------------------------------|----------|---------------------------------------|
| CONCRETE THRUST BLOCK DETAIL<br>N.T.S. |                      |                     | FAYETTEVILLE<br>PUBLIC WORKS COMMISSION<br>FAYETTEVILLE, N.C. |  |  | NO. DATE | REVISION                              |
| SHEET NO.<br>1 OF 1                    | DWG. NO. <b>W.17</b> | DWG. BY: FAY/PWC    | <b>WATER RESOURCES<br/>ENGINEERING DEPARTMENT</b>             |  |                                                                                       | 1 09/05  | REVISED TABLE                         |
|                                        | DATE: JAN. 01, 2025  | APPROVED BY: K.A.H. |                                                               |  |                                                                                       | 2 07/13  | ADDED NOTES 9 AND 10                  |
|                                        |                      |                     |                                                               |  |                                                                                       | 3 07/13  | ADDED TAPPING SLEEVE AND VALVE DETAIL |

W17-THRUSTBLOCK.dwg



|                                                                     |                              |                                |                                                               |  |                                                                                       |     |          |                             |
|---------------------------------------------------------------------|------------------------------|--------------------------------|---------------------------------------------------------------|--|---------------------------------------------------------------------------------------|-----|----------|-----------------------------|
| ALTERNATE<br>RESTRAINT DETAIL<br>(DUCTILE IRON PIPE ONLY)<br>N.T.S. |                              |                                | FAYETTEVILLE<br>PUBLIC WORKS COMMISSION<br>FAYETTEVILLE, N.C. |  |  | NO. | DATE     | REVISION                    |
| SHEET NO.<br>1 OF 1                                                 | DWG. NO.                     | DWG. BY:                       | WATER RESOURCES<br>ENGINEERING DEPARTMENT                     |  |                                                                                       | 1   | 11/16/07 | REVISED TABLE, ADDED NOTE 8 |
|                                                                     | W. 18<br>DATE: JAN. 01, 2025 | FAY/PWC<br>APPROVED BY: K.A.H. |                                                               |  |                                                                                       |     |          |                             |

W18-RESTRAINT-DETAIL.dwg



|                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                     |                                                                                                                                                                                             |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Prepared in the Office of:</p> <div style="text-align: center;">  <p><b>WK DICKSON</b></p> <p>AN  <b>ARDURRA COMPANY</b></p> </div> <p>720 CORPORATE CENTER DRIVE,<br/>RALEIGH, NC 27607<br/>(919) 782-0495   NCBELS #F-0374</p> | <p style="text-align: center;"><b>PROJECT REFERENCE NO.</b></p> <p style="text-align: center; border: 1px solid black;">U-5798B</p> | <p style="text-align: center;"><b>SHEET NO.</b></p> <p style="text-align: center; border: 1px solid black;">UC-03D</p>                                                                      |
| <p><b>SIGNED BY:</b> AMH</p> <p><b>DRAWN BY:</b> EA</p> <p><b>CHECKED BY:</b> MEY</p> <p><b>APPROVED BY:</b> AR</p> <p><b>REVISED:</b></p>                                                                                                                                                                                                                                                            |                                                                                                                                     | <p>Signed by:</p> <div style="text-align: center;">  </div> <p style="text-align: center;">6/25/2025</p> |
| <p style="text-align: center;"><b>NORTH CAROLINA</b><br/>DEPARTMENT OF<br/>TRANSPORTATION</p>                                                                                                                                                                                                                                                                                                         |                                                                                                                                     | <p style="text-align: center;"><b>UTILITY CONSTRUCTION</b><br/>PLANS ONLY</p>                                                                                                               |
| <p>UTILITIES ENGINEERING SEC.<br/>PHONE: (919) 707-6690<br/>FAX: (919) 250-4151</p>                                                                                                                                                                                                                                                                                                                   |                                                                                                                                     |                                                                                                                                                                                             |

## UTILITY CONSTRUCTION

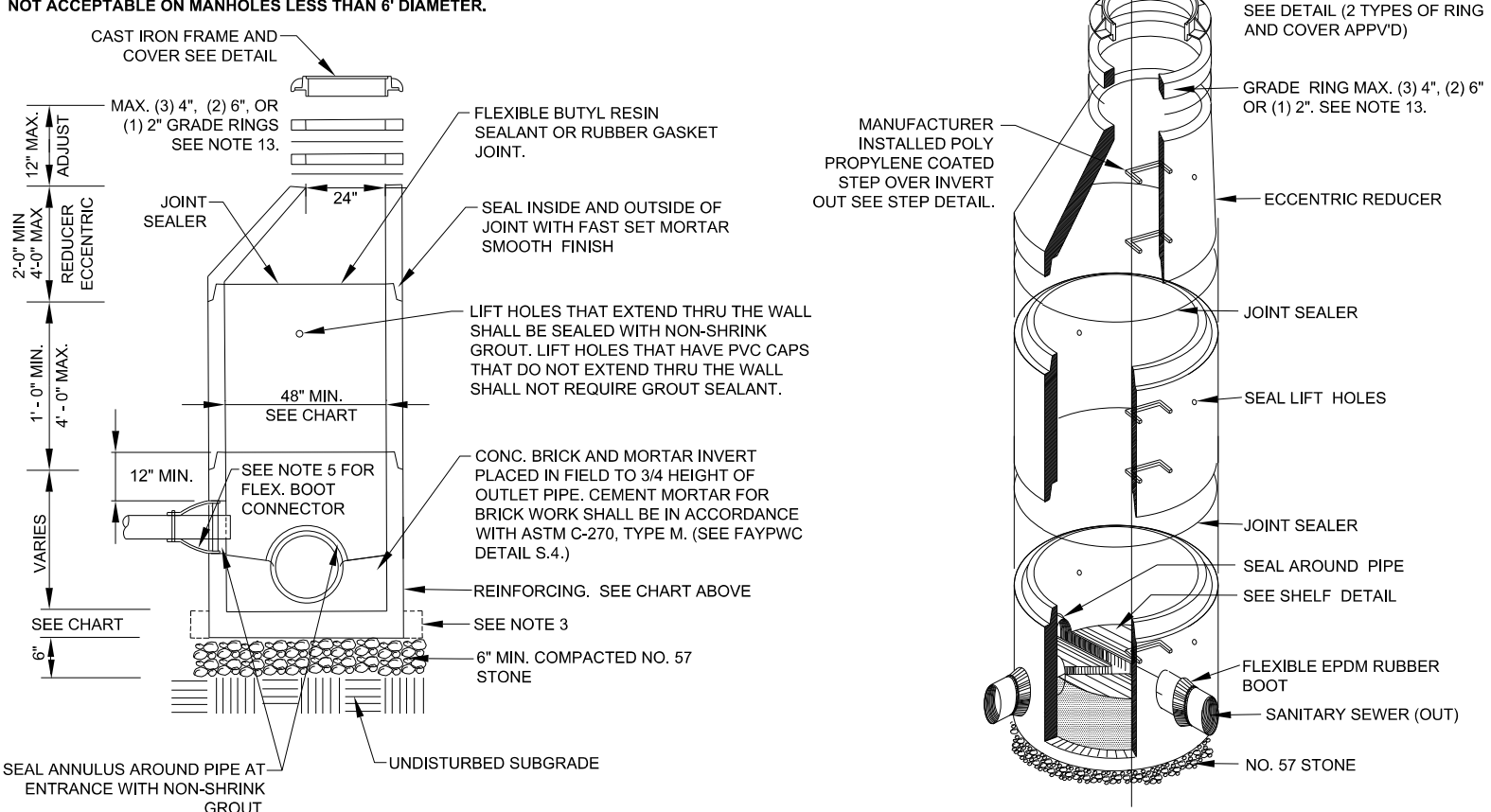
1. ALL SEWER MAINS, LATERALS, AND APPURTENANCES SHALL BE INSTALLED AND TESTED IN ACCORDANCE WITH THE FAYETTEVILLE FAYPCW STANDARDS.
2. CONTRACTOR SHALL YIELD VELOCITY THE LOCATION OF EXISTING UTILITIES PRIOR TO CONSTRUCTION.
3. CONSTRUCTION STAKING IS REQUIRED FOR ALL FAYPCW WATER AND SEWER UTILITY LOCATIONS. CONTRACTOR SHALL COORDINATE WITH THE CITY ENGINEER TO OBTAIN THE FAYPCW WATER RESOURCES ENGINEERING DEPARTMENT AND THE CONTRACTOR IN ADVANCE OF CONSTRUCTION FOR FAYPCW WATER AND SEWER UTILITIES.
4. CONTRACTOR SHALL MAINTAIN A COPY OF THE SIGNED AND SEALED CUT SHEET ON THE JOB SITE. CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING UTILITY LOCATIONS POSSESSED, ON SITE. A SIGNED AND SEALED CUT SHEET FROM THE FAYETTEVILLE WATER RESOURCES ENGINEERING DEPARTMENT SHALL BE REQUIRED.
5. ALL NEW WATER AND SEWER MAINS, LATERALS, AND APPURTENANCES SHALL BE TESTED AND/or INSPECTED IN ACCORDANCE WITH FAYETTEVILLE FAYPCW STANDARDS PRIOR TO ACCEPTANCE AND SURVEY.
6. CONTRACTOR SHALL COORDINATE TESTING AND INSPECTION WITH THE FAYETTEVILLE FAYPCW PROJECT COORDINATOR.
7. ALL DUCTILE IRON PIPE IN SANITARY SEWER SERVICE SHALL HAVE AN INTERIOR LINING OF PROTECTED RIB OR GPOV DISPOSED VENT.
8. ALL NEW MANHOLES ARE TO BE VULCANIZED IN ACCORDANCE WITH FAYETTEVILLE FAYPCW STANDARDS.
9. CONTRACTOR SHALL REPAIR ALL SEWER LATERALS AND MAINS DAMAGED DURING THE CONSTRUCTION. CONTRACTOR SHALL IMMEDIATELY REPORT ALL SEWER MAINS AND BREAKS TO THE FAYPCW PROJECT COORDINATOR. THE CONTRACTOR SHALL INITIATE IMMEDIATE REPAIRS TO ALL SEWER MAINS AND BREAKS.
10. TRANSFER OF SEWER SERVICES SHALL BE ACCOMPLISHED AS FOLLOWS:
  - A. INSTALL AND TEST NEW MAINS, MANHOLES, AND LATERALS, CLEANOUTS SHALL BE INSTALLED AND TESTED IN ACCORDANCE WITH FAYPCW STANDARDS.
  - B. CONNECT EXISTING PLUMBING TO NEW LATERAL UTILIZING THE NECESSARY FITTINGS AS DIRECTED BY FAYPCW.
  - C. ALL EXISTING SEWER MAINS TO BE TRANSFERRED TO THE NEW MAIN, THE EXISTING SEWER SERVICE SHALL BE ABANDONED IN ACCORDANCE WITH ALL CITY REQUIREMENTS.

1. **CONTRACTOR SHALL ABANDON ("KILL-OUT") ANY EXISTING SEWER SERVICES THAT WILL NOT BE UTILIZED BY UNCOVERING THE EXISTING LATERAL AT THE MAIN, CUT AND FLARE AT BOTH ENDS AND REPAIR OR REPLACE THE EXISTING LATERAL WITH NEW 12" DUCTILE IRON PIPE FOR LATERALS THAT CONNECT TO A MANHOLE AND ARE TO BE ABANDONED ("KILL-OUT"). THE MAIN SHALL BE REPAIRED AND THE SERVICE LATERAL AND THE REMAINING 10" IN THE MANHOLE SHALL BE FILLED WITH BLOCK AND MORTAR.**
2. **SEWER PIPES SHALL BE INSTALLED TO ELIMINATE ANY DEBRIS OR OTHER MATERIAL FROM ENTERING THE SEWER SYSTEM. THE CONTRACTOR SHALL ABANDON ALL EXISTING LATERALS. THE CONTRACTOR SHALL CLEAN THE NEW MAINS, REMOVE ALL OBSTACLES, AND THEN REMOVE THE MAINS.**
3. **ALL EXISTING UTILITY LOCATIONS IDENTIFIED BY CONSTRUCTION SHALL BE ADJUSTED TO FINISH GRADE IN ACCORDANCE WITH FAYATWEC REQUIREMENTS.**
4. **ALL WORK ON FAYATWEC SEWER UTILITIES (MAINS, LATERALS, ETC) SHALL BE PERFORMED BY A LICENSED PROFESSIONAL ENGINEER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING AND OBTAINING AND APPROVAL FOR ALL WORK ON FAYATWEC SEWER UTILITIES. ALL WORK SHALL BE COMPLETED IN ACCORDANCE WITH FAYATWEC REQUIREMENTS.**
5. **SEPARATION REQUIREMENTS:**
  - A. LATERAL SEPARATION OF SEWER AND WATER MAINS:** WATER MAINS SHALL BE LAID AT LEAST 18" FROM THE BOTTOM OF THE SEWER MAINS. LATERAL MAINS, UNLESS LAID UNDER CONDITIONS OR BARRIERS PROVIDES A 10'-0" LATERAL SEPARATION - IN WHICH CASE:
    - i. THE WATER MAIN IS LAID IN A SEPARATE TRENCH WITH THE ELEVATION OF THE BOTTOM OF THE MAINS LOCATED 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 MAINS LOCATED AT LEAST 18" INCHES ABOVE THE TOP OF THE SEWER MAIN/LATERAL WITH THE ELEVATION OF THE BOTTOM OF THE WATER MAIN AT LEAST 18" INCHES ABOVE THE BOTTOM OF THE SEWER MAIN/LATERAL.**
6. **CROSSING WATER MAIN OVER 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 AT LEAST 18" INCHES ABOVE THE TOP OF THE SEWER MAIN/LATERAL.
7. **CROSSING WATER MAIN UNDER A SEWER:** WHENEVER IT IS NECESSARY FOR A WATER MAIN TO CROSS UNDER A SEWER MAIN/LATERAL, A MINIMUM OF 18" INCHES OF SEPARATION SHALL BE MAINTAINED. THE WATER MAIN SHALL BE LAID AT SUCH AN ELEVATION THAT THE BOTTOM OF THE DUCTILE IRON MATERIAL, AND WITH JOINTS EXPOSED TO WATER MAIN STANDARDS FOR ALL JOINTS, SHALL BE AT LEAST 18" INCHES ABOVE THE TOP OF THE SEWER MAIN/LATERAL. THE PIPE SHALL BE CENTERED AT THE POINT OF CROSSING.
8. **CROSSING STORM DRAINAGE LINES:** A MINIMUM OF 24" INCHES OF VERTICAL CLEARANCE SHALL BE MAINTAINED BETWEEN THE BOTTOM OF THE WATER MAIN AND THE TOP OF THE STORM DRAINAGE LINES, UNLESS DUCTILE IRON PIPE IS USED. IF DUCTILE IRON PIPE IS USED, A MINIMUM OF (36") INCHES OF VERTICAL CLEARANCE SHALL BE MAINTAINED BETWEEN THE BOTTOM OF THE WATER MAIN AND THE TOP OF THE STORM DRAINAGE LINES.

|                                         |                     |     |                                                               |        |                                                                                   |     |       |                                |
|-----------------------------------------|---------------------|-----|---------------------------------------------------------------|--------|-----------------------------------------------------------------------------------|-----|-------|--------------------------------|
| GENERAL NOTES<br>SANITARY SEWER UTILITY |                     |     | FAYETTEVILLE<br>PUBLIC WORKS COMMISSION<br>FAYETTEVILLE, N.C. |        |  | NO. | DATE  | REVISION                       |
| SHEET NO.<br>1 OF 1                     | DWG. NO.            | S.1 | DWG. BY:                                                      | FAYPCW |                                                                                   | 1   | 01/18 | ADDED NOTES 5, 8               |
|                                         | DATE: JAN. 01, 2025 |     | APPROVED BY: K.A.H.                                           |        |                                                                                   | 2   | 06/21 | ADDED NOTES 1-5 AND RENUMBERED |
|                                         |                     |     |                                                               |        |                                                                                   | 3   | 11/23 | REVISED NOTE 1-5               |
|                                         |                     |     | WATER RESOURCES<br>ENGINEERING DEPARTMENT                     |        |                                                                                   |     |       |                                |

| PIPE SIZES   | MANHOLE SIZE | MIN. WALL THICKNESS | MIN. REINF. STEEL        | MIN. BASE THICKNESS |
|--------------|--------------|---------------------|--------------------------|---------------------|
| 21" AND LESS | 48" DIAMETER | 5"                  | ASTM A-1064 0.12 SQ./IN. | 6"                  |
| 24" - 36"    | 60" DIAMETER | 6"                  | ASTM A-1064 0.15 SQ./IN. | 8"                  |
| 42"          | 72" DIAMETER | 7"                  | ASTM A-1064 0.15 SQ./IN. | 8"                  |

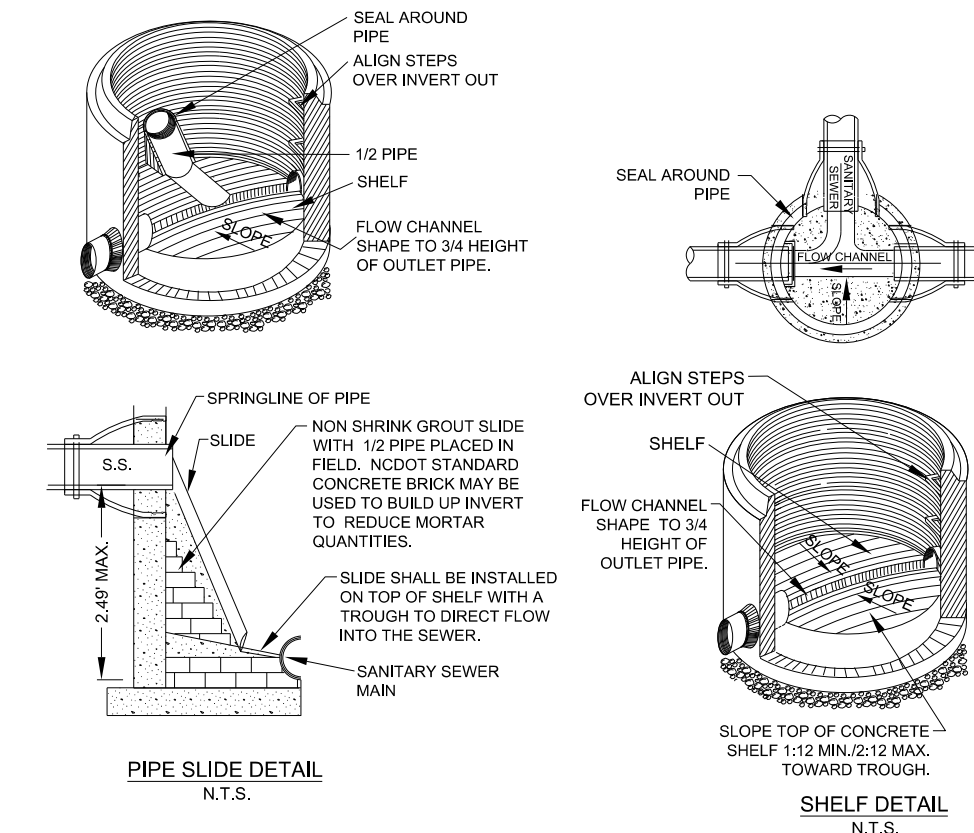
MANHOLE DIAMETER SIZES MAY BE ADJUSTED ON THE PLANS TO REFLECT SPECIAL CIRCUMSTANCES. REDUCING SLABS ARE NOT ACCEPTABLE ON MANHOLES LESS THAN 6' DIAMETER.



|                            |                     |     |                     |                                                               |  |                                                                                     |     |          |                                                           |
|----------------------------|---------------------|-----|---------------------|---------------------------------------------------------------|--|-------------------------------------------------------------------------------------|-----|----------|-----------------------------------------------------------|
| STANDARD MANHOLE<br>N.T.S. |                     |     |                     | FAYETTEVILLE<br>PUBLIC WORKS COMMISSION<br>FAYETTEVILLE, N.C. |  |  | NO. | DATE     | REVISION                                                  |
| SHEET NO.<br>1 OF 2        | DWG. NO.            | S.2 | DWG. BY: FAYPWC     | WATER RESOURCES<br>ENGINEERING DEPARTMENT                     |  |                                                                                     | 1   | 02/07    | CREATED S.2A ADDED NOTES 13-17                            |
|                            | DATE: JAN. 01, 2025 |     | APPROVED BY: K.A.H. |                                                               |  |                                                                                     | 2   | 07/13    | ADDED SHEET 2 OF 2                                        |
|                            |                     |     |                     |                                                               |  |                                                                                     | 3   | 01/01/24 | CLARIFIED NOTES REGARDING<br>MORTAR FOR BENCH AND INVERT. |

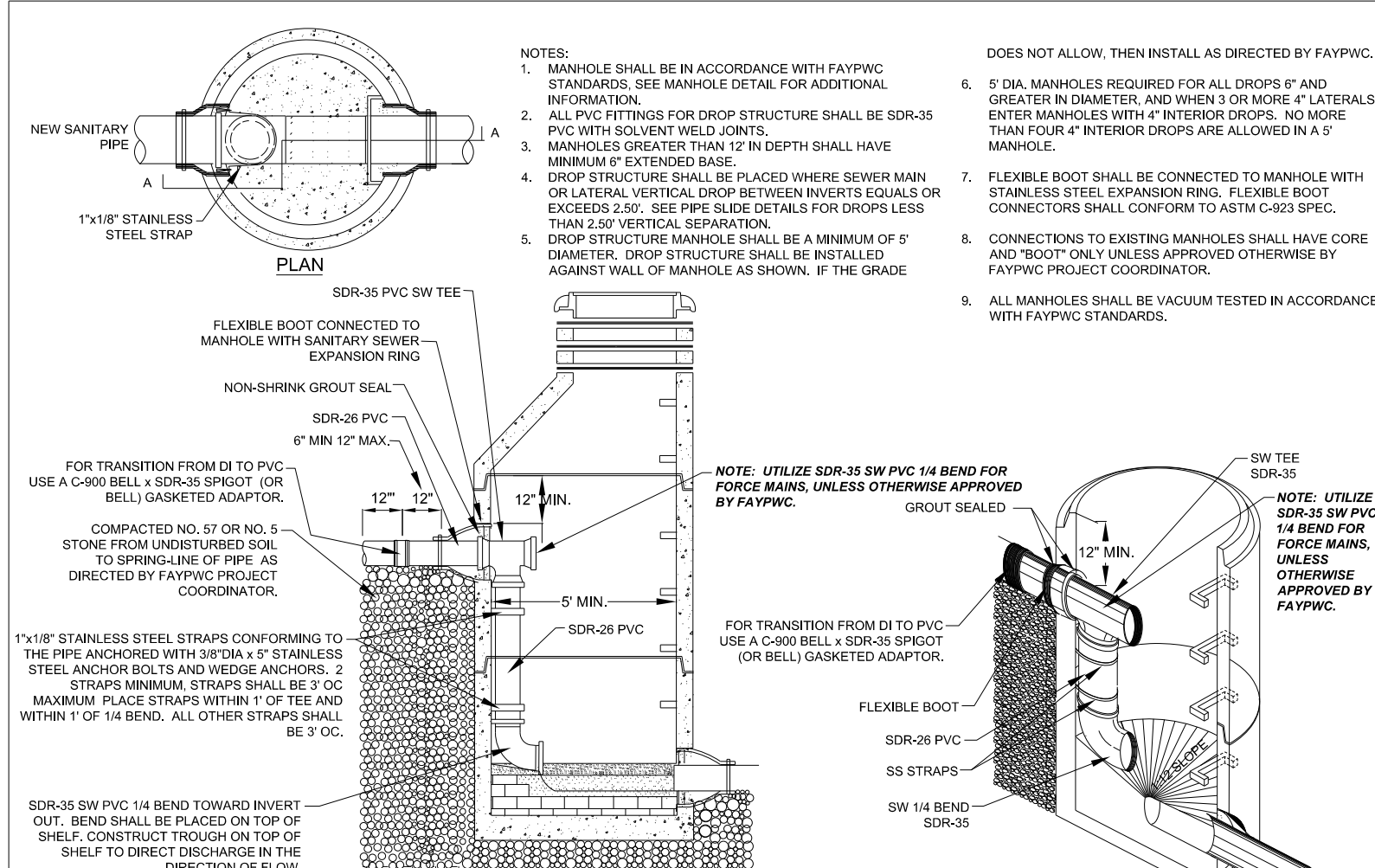
- NOTES:
1. PRECAST REINFORCED CONCRETE MANHOLES SHALL BE IN ACCORDANCE WITH ASTM C-478.
2. MINIMUM CONCRETE COMPRESSIVE STRENGTH SHALL BE 4,000PSI.
3. MANHOLES GREATER THAN 12" DEPTH SHALL HAVE MINIMUM 6" EXTENDED BASE.
4. FLEXIBLE BUTYL RESIN JOINT SEALANT SHALL BE IN ACCORDANCE WITH ASTM C919 RUBBER GASKET JOINTS SHALL BE IN ACCORDANCE WITH ASTM C-443.
5. FLEXIBLE EPDM RUBBER BOOT CONNECTORS SHALL BE IN ACCORDANCE WITH ASTM C-443. THE BOOT SHALL BE MANUFACTURED WITH STAINLESS STEEL COMPRESSION RINGS AND TAKE-UP CLAMP. THE FLEXIBLE BOOT CONNECTOR SHALL BE TIGHTENED ON THE MAIN BY MEANS OF A SINGLE STAINLESS STEEL PIPE CLAMP.
6. CONNECTIONS TO EXISTING MANHOLES SHALL BE BY CORING MANHOLE AND FIELD INSTALLING A FLEXIBLE EPDM RUBBER BOOT CONNECTOR. DO NOT ALLOW DEBRIS TO ENTER EXISTING MANHOLE.
7. MORTAR USED FOR SEALING JOINTS AND LIFT HOLES SHALL BE QUICK SETTING, NON-SHRINK GROUT MIXED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. MORTAR USED TO CONSTRUCT INVERTS AND SHALL BE JOINTS SHALL BE IN ACCORDANCE WITH ASTM C-270, TYPE II, IN ACCORDANCE WITH FAYAT'S SPECIFICATION SECTION 03301.
8. MANHOLE STEPS SHALL BE IN ACCORDANCE WITH ASTM C478 AND OSHA REGULATIONS. ALIGN STEPS WITH INVERT OUT.
9. PRECAST INVERTS ARE NOT ALLOWED.
10. VERTICAL DROPS BETWEEN THE INFLOW PIPES AND OUTFLOW PIPES SHALL REQUIRE THE FOLLOWING:
  - A. GREATER THAN 2.5" SEE DROP STRUCTURE DETAIL (MIN. 5" DIAMETER HUB REQUIRED).
  - B. LESS THAN 2.5" SEE PIPE SIZE DETAIL.
11. AN ECCENTRIC CONE SHALL BE UTILIZED ON ALL MANHOLES, UNLESS OTHERWISE SPECIFIED BY PAYNOR.
12. INVERT ON PLANS IS TO MANHOLE CENTERLINE.
13. GRADE RINGS SHALL NOT BE USED FOR ABOVE GRADE ADJUSTMENTS (IE: OUTFALL AREAS). GRADE RINGS ARE TO BE AVAILABLE IN WARD AREAS AND PARKING AREAS WHERE THE RINGS AND COVER ARE AT GRADE LEVEL. GRADE RINGS ARE TO BE AVAILABLE FOR ALL OTHER AREAS.

- ENTER CONCRETE OR HOPE. HOPE GRADE RINGS SHALL MEET THE REQUIREMENTS OF ASTM A375 FOR MATERIAL, QUALITY, AND PERFORMANCE. HOPE GRADE RINGS SHALL BE SUBSTITUTED BY ANOTHER TYPE OF HOPE OR APPROVED ALTERNATE.
14. THE MINIMUM SLOPE ACROSS THE INVERT OF THE MANHOLE SHALL BE 1% UNLESS OTHERWISE APPROVED BY FAYATW. STANDING WATER IN INVERT OF MANHOLE IS NOT ACCEPTABLE.
15. THE EXTERIOR MANHOLE RISER JOINTS, INCLUDING THE JOINT AT THE CONE, SHALL BE SEALED ON THE OUTSIDE BY AN APPROVED JOINT WRAP. THE WRAP SHALL BE IN ACCORDANCE WITH FAYATW SPECIFICATIONS.
16. MANHOLE BOOT FOR 4-INCH LATERALS, SHOULD IT BE NECESSARY TO INSTALL A 4-INCH LATERAL INTO A MANHOLE, THE RUBBER BOOT THAT THE LATERAL IS INSERTED INTO SHALL BE MADE OF A HIGH QUALITY, NON-DEGRADABLE, NON-TOXIC, STAINLESS STEEL BAND THAT IS TIGHTENED USING A JACK OR A TORQUE WRENCH (DIRECT DRIVE), BOTH STANDARD SIZE AND STEP DOWN BOOTS ARE ALLOWED. THE TOP OF THE BOOT SHALL BE SECURED BY THE MANUFACTURER. NO OTHER TYPE, BRAND OR METHOD OF SECURING THE BOOT TO THE MANHOLE SHALL BE ACCEPTED.
17. FOR FOUR (4) INCH SDR 26 LATERALS, THE PIPE OUTSIDE DIAMETER RANGE OF THE BOOT SHALL BE 3.5-INCHES TO 4.25-INCHES.
18. FOR FOUR (4) INCH DUCTILE IRON LATERALS, THE PIPE OUTSIDE DIAMETER RANGE OF THE BOOT SHALL BE EITHER 3.5 IN OR 4.25 INCHES TO 4.81 INCHES.
19. IN ALL CASES, THE BOOT SHALL BE TIGHTENED ON THE LATERAL BY MEANS OF A SINGLE 1/2 INCH STEEL BOLT.
20. THE LATERAL INVERT SHALL BE AT THE TOP OF THE SHELVE.
21. 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 INVERT NOT LESS THAN 5' ABOVE THE MANHOLE INVERT. THE USE OF THE ABOVE CONDITIONS ARE NOT MET.
22. NO MORE THAN 5 LATERALS SHALL ENTER A 5- DIAMETER MANHOLE.
23. USE OF TEE-WYES ON LATERALS IS NOT ALLOWED.
24. ALL MANHOLES SHALL BE VACUUM TESTED IN ACCORDANCE WITH FAYATW STANDARDS.

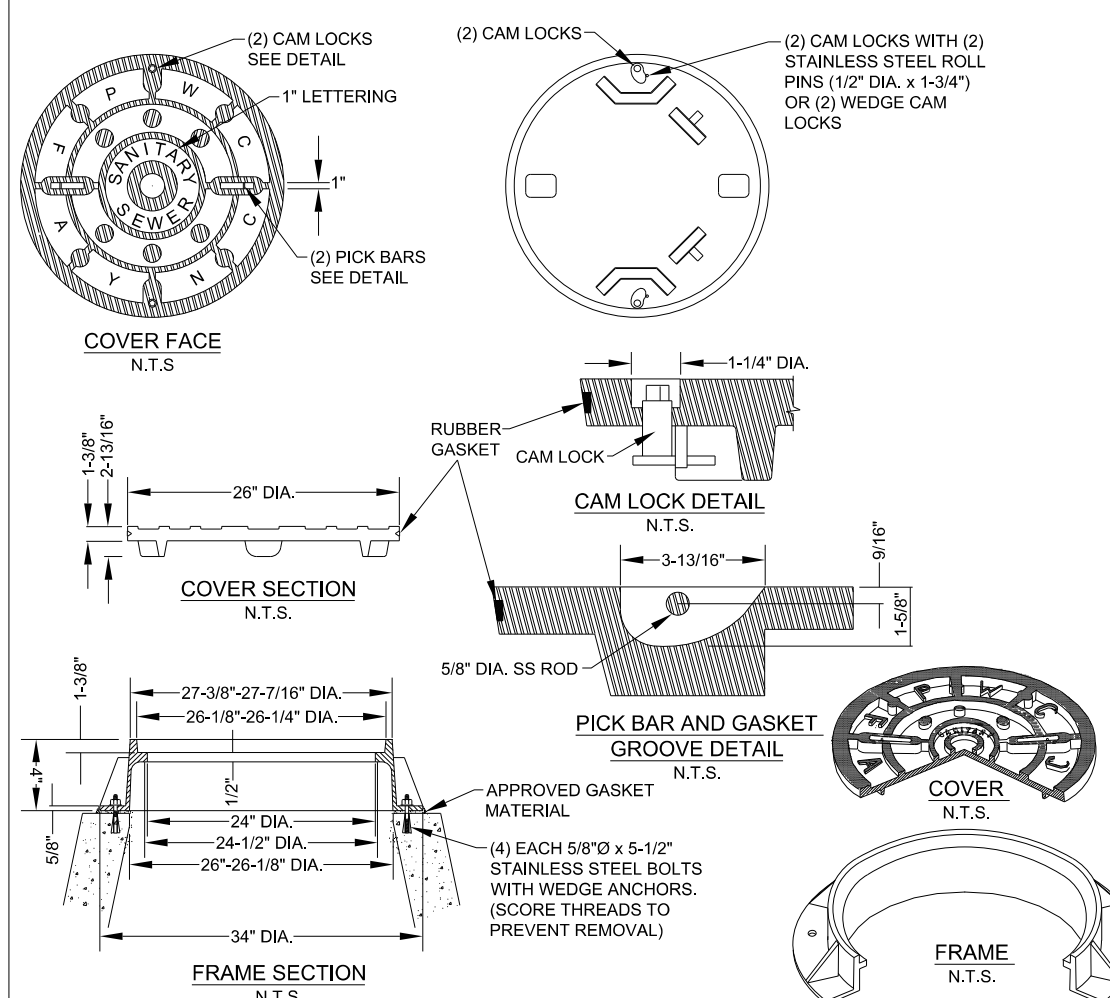


|                     |                     |                 |                                                               |                                           |                                                                                     |       |                                                           |                         |
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| STANDARD MANHOLE    |                     |                 | FAYETTEVILLE<br>PUBLIC WORKS COMMISSION<br>FAYETTEVILLE, N.C. |                                           |  | NO.   | DATE                                                      | REVISION                |
| SHEET NO.<br>2 OF 2 | DWG. NO. S.2        | DWG. BY: FAYPWC |                                                               | 1                                         |                                                                                     | 07/13 | REVISED NOTES 9, 10, 11, 15,<br>CONVERTED TO SHEET 2 OF 2 |                         |
|                     | DATE: JAN. 01, 2025 |                 | APPROVED BY: K.A.H.                                           | WATER RESOURCES<br>ENGINEERING DEPARTMENT |                                                                                     | 2     | 01/01/19                                                  | REVISED NOTES 10, 18    |
|                     |                     |                 |                                                               |                                           |                                                                                     | 3     | 01/01/24                                                  | REVISED NOTES 5, 7, 16. |

| PIPE SLIDE AND SHELF DETAILS<br>N.T.S. |                                            |     | FAYETTEVILLE<br>PUBLIC WORKS COMMISSION<br>FAYETTEVILLE, N.C. |  |  | NO. | DATE  | REVISION                                                |
|----------------------------------------|--------------------------------------------|-----|---------------------------------------------------------------|--|---------------------------------------------------------------------------------------|-----|-------|---------------------------------------------------------|
| SHEET NO.<br>1 OF 1                    | DWG. NO.                                   | 5.4 | WATER RESOURCES<br>ENGINEERING DEPARTMENT                     |  |                                                                                       | 1   | 01/05 | ADDED NOTE 8                                            |
|                                        | DATE: JAN. 01, 2025<br>APPROVED BY: K.A.H. |     |                                                               |  |                                                                                       | 2   | 02/07 | REVISED NOTE 8, SLIDE DETAIL,<br>ADDED NOTES 10, 11, 12 |
|                                        |                                            |     |                                                               |  |                                                                                       | 3   | 01/18 | NOTED<br>DELETED MORTAR SLIDE, REVISED                  |

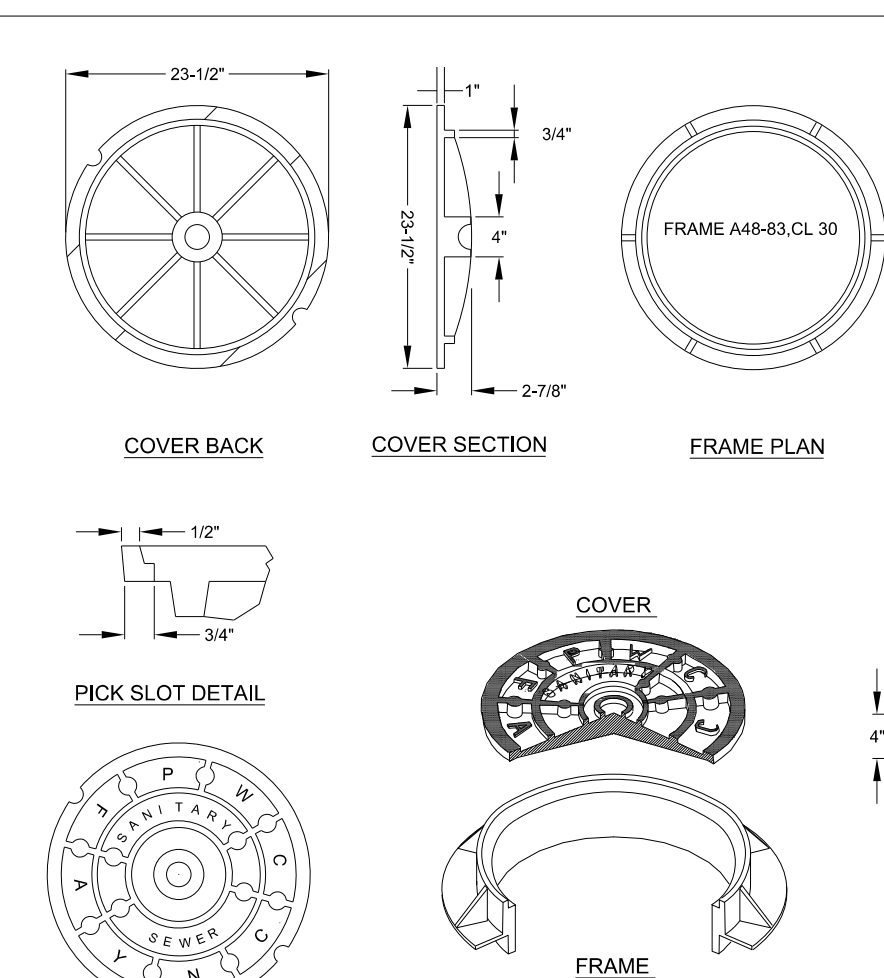


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| INTERIOR DROP STRUCTURE<br>SEWER MAINS AND LATERALS |                     |     |                     | FAYETTEVILLE<br>PUBLIC WORKS COMMISSION<br>FAYETTEVILLE, N.C. |                                           |  | NO. | DATE  | REVISION                              |
| SHEET NO.<br>1 OF 1                                 | DWG. NO.            | S.5 | DWG. BY:            | PAYNCE                                                        |                                           |                                                                                       | 4   | 11/08 | REVISED FITTING MATERIAL              |
|                                                     | DATE: JAN. 01, 2025 |     | APPROVED BY: K.A.H. |                                                               | WATER RESOURCES<br>ENGINEERING DEPARTMENT |                                                                                       | 5   | 07/12 | REVISED NOTES 5, 6, AND HUB ON INVERT |
|                                                     |                     |     |                     |                                                               |                                           |                                                                                       | 6   | 07/14 | ADDED FORCE MAIN NOTE                 |



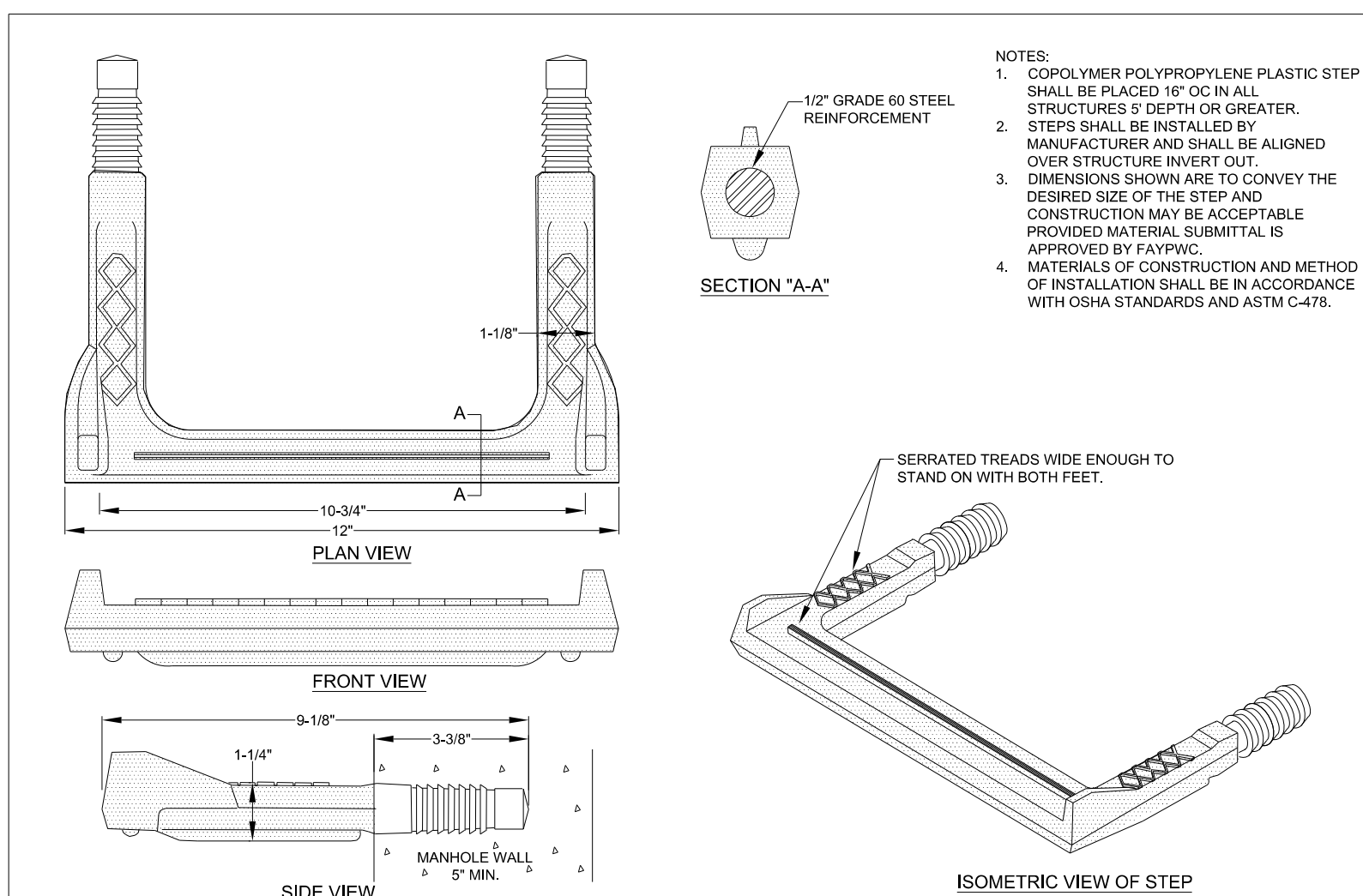
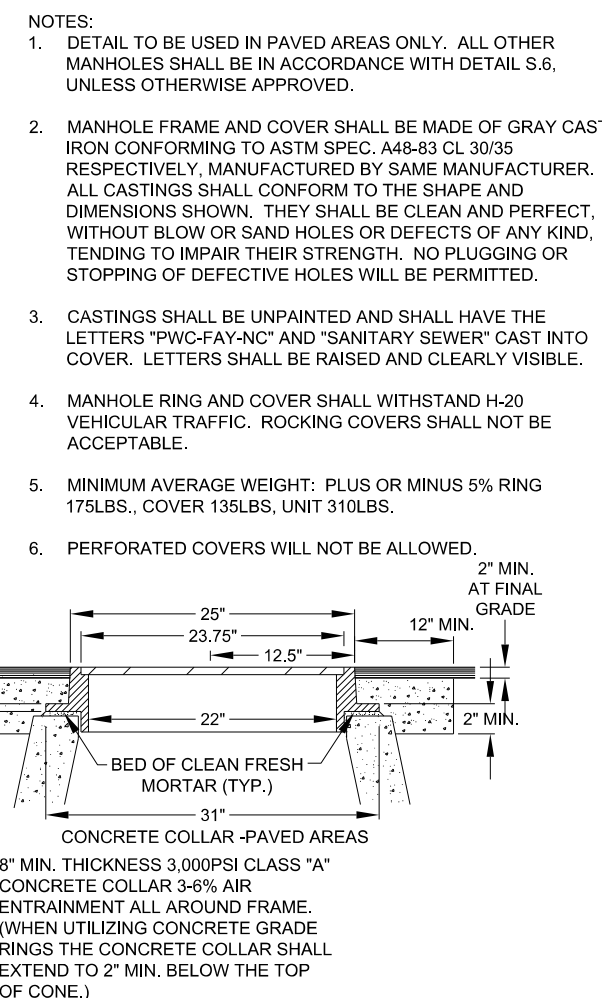
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| STANDARD NON-TRAFFIC AREA<br>MANHOLE RING AND COVER<br>WITH WIPER GASKET AND CAM LOCK<br>N.T.S. |                     |     | FAYETTEVILLE<br>PUBLIC WORKS COMMISSION<br>FAYETTEVILLE, N.C. |        |  | NO. | DATE  | REVISION                                         |
| SHEET NO.<br>1 OF 1                                                                             | DWG. NO.            | 5.6 | DWG. BY:                                                      | FAYPWK |                                                                                     | 1   | 07/09 | REVISED NOTES ON FRAME<br>SECTION/REVISED NOTE 3 |
|                                                                                                 | DATE: JAN. 01, 2026 |     | APPROVED BY: K.A.H.                                           |        |                                                                                     | 2   | 07/17 | ADDED NOTE ON WEDGE CAM LOCK                     |
|                                                                                                 |                     |     |                                                               |        |                                                                                     | 3   | 07/18 | UPDATED NOTES 7 AND 8                            |

| NO. | DATE  | REVISION                                      |
|-----|-------|-----------------------------------------------|
| 1   | 07/09 | REVISED NOTES ON FRAME SECTION/REVISED NOTE 3 |
| 2   | 07/17 | ADDED NOTE ON WEDGE CAM LOCK                  |
| 3   | 01/18 | UPDATED NOTES 7 AND 8                         |



|                                                           |                                           |     |          |                                                               |      |                                                                                       |                                              |                               |          |
|-----------------------------------------------------------|-------------------------------------------|-----|----------|---------------------------------------------------------------|------|---------------------------------------------------------------------------------------|----------------------------------------------|-------------------------------|----------|
| STANDARD TRAFFIC AREA MANHOLE<br>RING AND COVER<br>N.T.S. |                                           |     |          | FAYETTEVILLE<br>PUBLIC WORKS COMMISSION<br>FAYETTEVILLE, N.C. |      |  | NO.                                          | DATE                          | REVISION |
| SHEET NO.<br>1 OF 1                                       | DWG. NO.                                  | S.7 | DWG. BY: | PAYWC                                                         | 1    |                                                                                       | 0105                                         | CHANGED NON TRAFFIC DETAIL    |          |
|                                                           | DATE: JAN. 01, 2025                       |     |          | APPROVED BY: K.A.H.                                           | 2    |                                                                                       | 0706                                         | ADDED NOTE ON CONCRETE COLLAR |          |
|                                                           | WATER RESOURCES<br>ENGINEERING DEPARTMENT |     |          | 3                                                             | 0207 |                                                                                       | REMOVED NON TRAFFIC AREA AND<br>REVISED NOTE |                               |          |
|                                                           |                                           |     |          | 4                                                             | 0708 |                                                                                       | REVISED ASPHALT THICKNESS                    |                               |          |

|                                                                                                                                                                                                                                                                                                                  |     |       |                                            |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-------|--------------------------------------------|
| <div style="display: flex; align-items: center;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">             SECTION<br/>             1.           </div> <div style="margin: 0 10px;">  </div> </div> | NO. | DATE  | REVISION                                   |
|                                                                                                                                                                                                                                                                                                                  | 1   | 01/05 | CHANGED NON TRAFFIC DETAIL                 |
|                                                                                                                                                                                                                                                                                                                  | 2   | 07/06 | ADDED NOTE ON CONCRETE COLLAR              |
|                                                                                                                                                                                                                                                                                                                  | 3   | 02/07 | REMOVED NON TRAFFIC AREA AND REVISED NOTES |
|                                                                                                                                                                                                                                                                                                                  | 4   | 07/08 | REVISED ASPHALT THICKNESS                  |



|                          |                                            |                 |                                                               |                                                                                       |     |      |          |
|--------------------------|--------------------------------------------|-----------------|---------------------------------------------------------------|---------------------------------------------------------------------------------------|-----|------|----------|
| STRUCTURE STEP<br>N.T.S. |                                            |                 | FAYETTEVILLE<br>PUBLIC WORKS COMMISSION<br>FAYETTEVILLE, N.C. |  | NO. | DATE | REVISION |
| SHEET NO.<br>1 OF 1      | DWG. NO. <b>S.8</b>                        | DWG. BY: FAYPWC | WATER RESOURCES<br>ENGINEERING DEPARTMENT                     |                                                                                       |     |      |          |
|                          | DATE: JAN. 01, 2025    APPROVED BY: K.A.H. |                 |                                                               |                                                                                       |     |      |          |

Prepared in the Office of:

**WK DICKSON**

AN  ARDURRA COMPANY

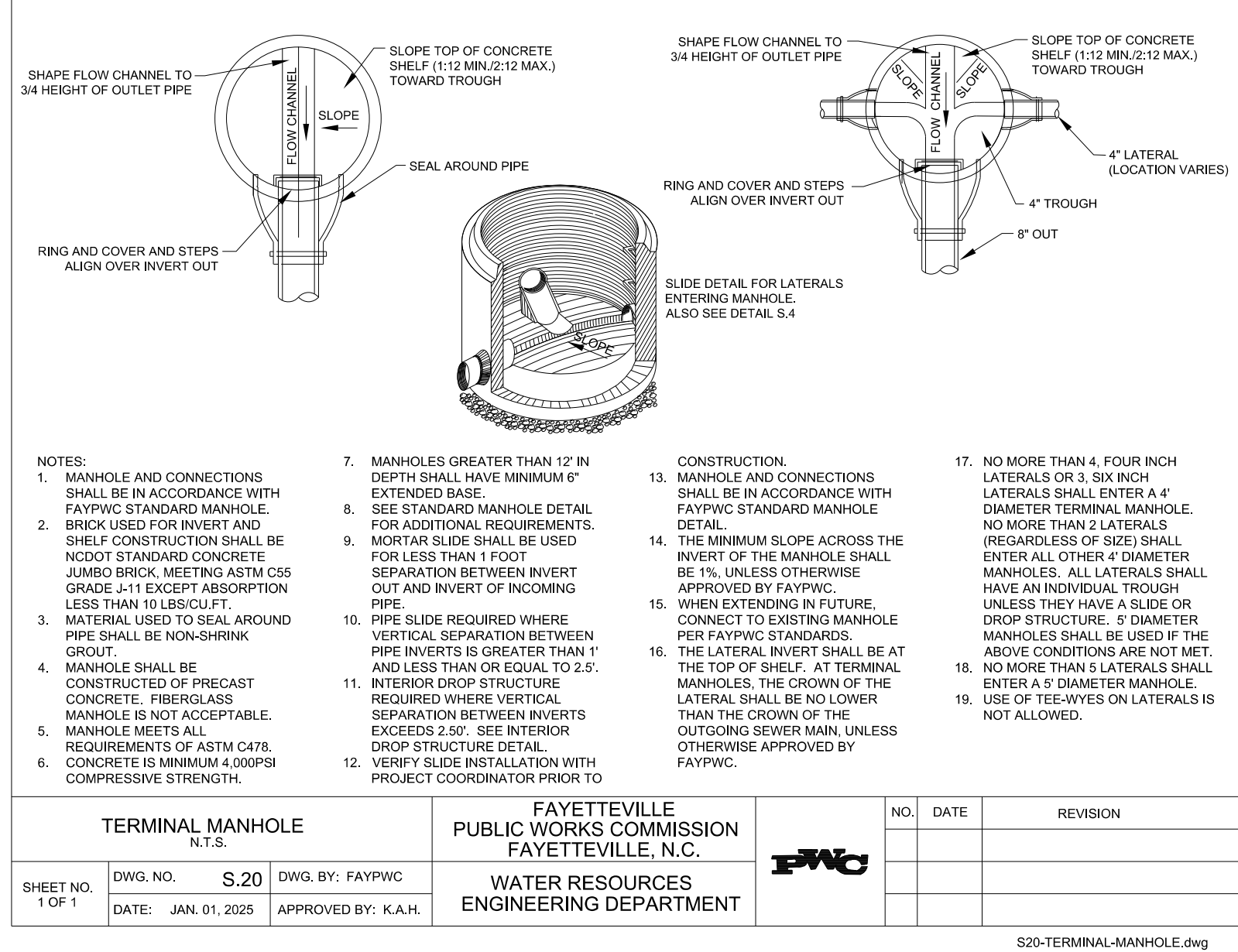
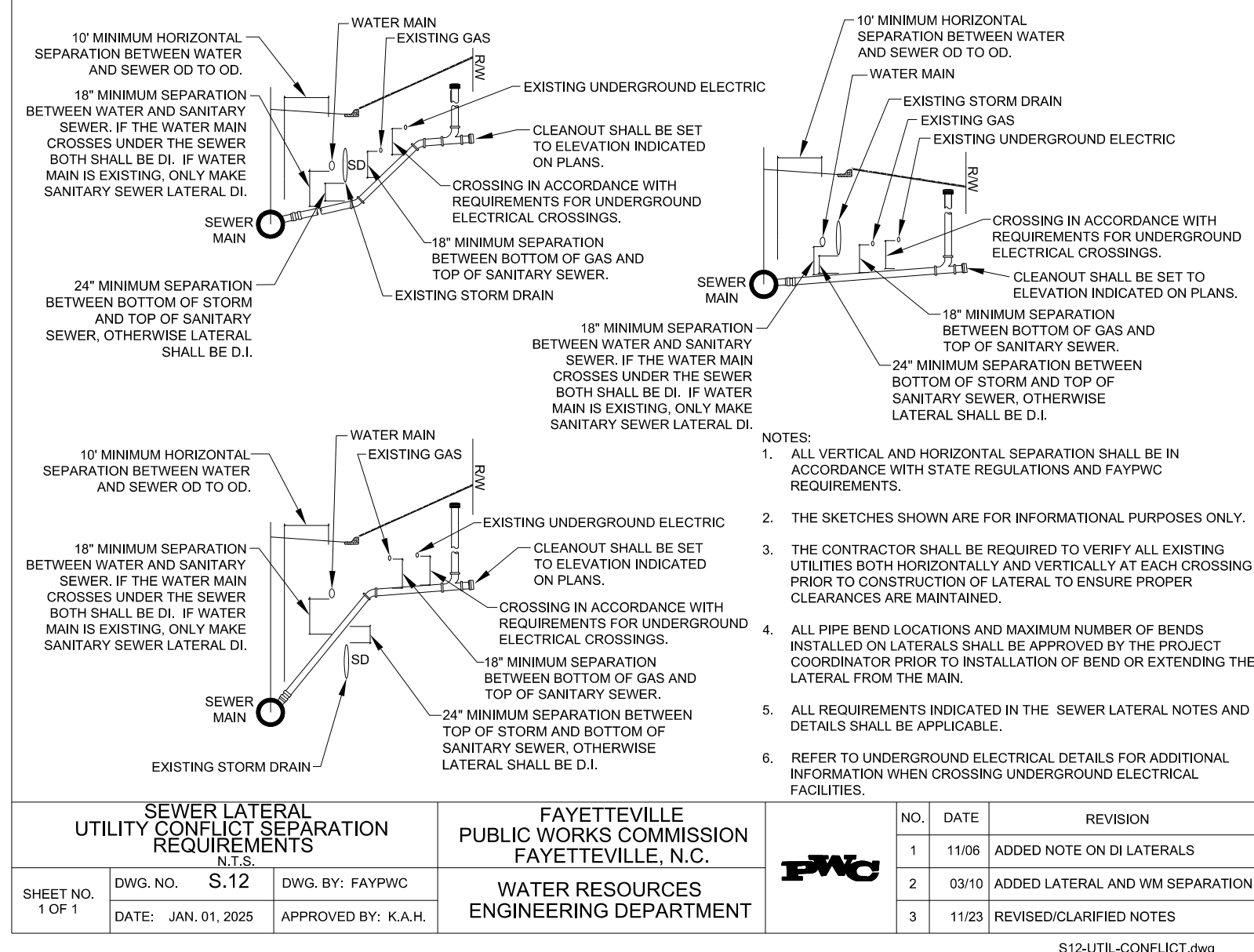
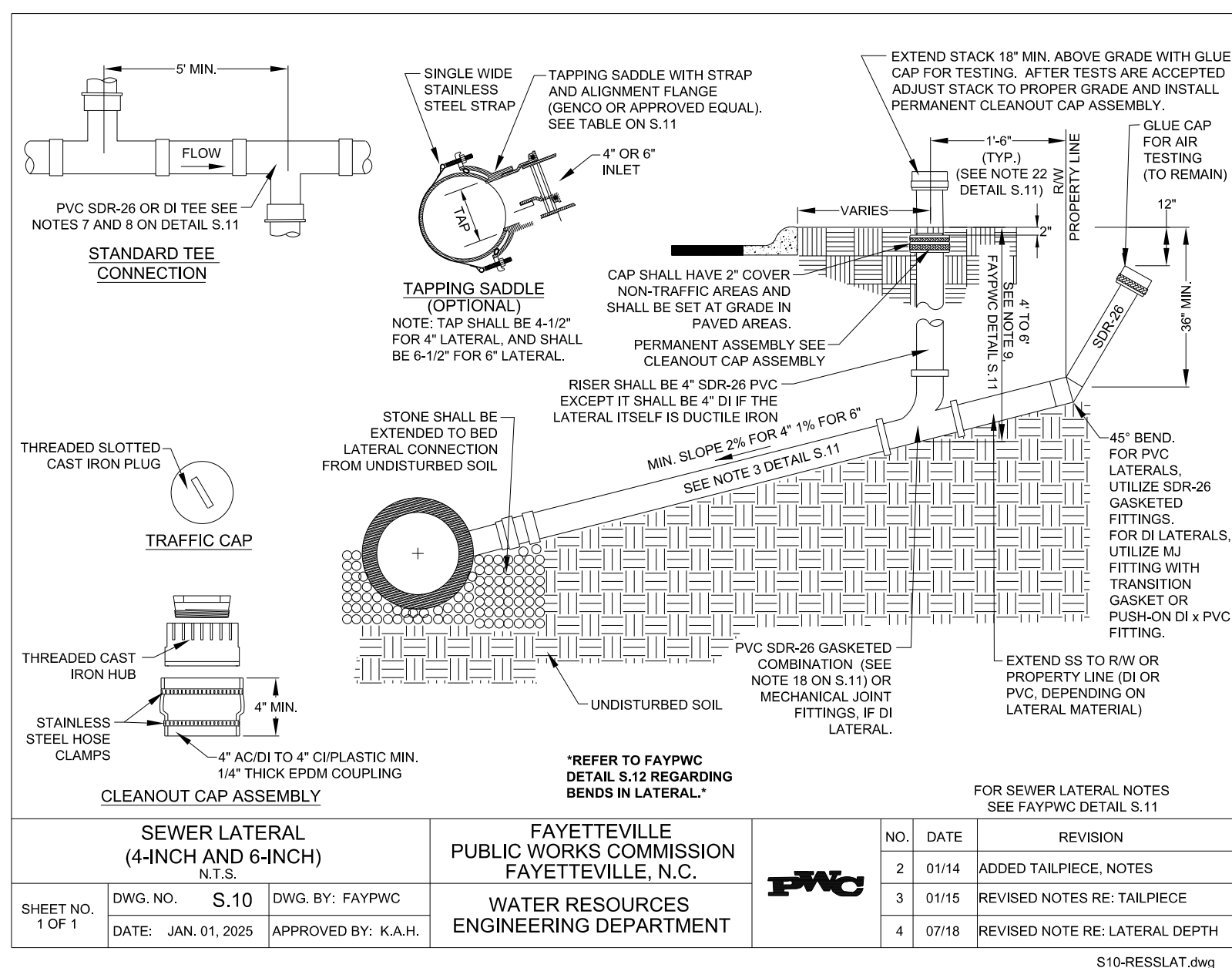
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UNTIL ALL SIGNATURES  
ARE COMPLETED

## UTILITY CONSTRUCTION

|                                                   |     |                                                                                                   |  |
|---------------------------------------------------|-----|---------------------------------------------------------------------------------------------------|--|
| PROJECT REFERENCE NO.                             |     | SHEET NO.                                                                                         |  |
| U-5798B                                           |     | UC-03E                                                                                            |  |
| DESIGNED BY:                                      | AMH | Signed by:<br> |  |
| DRAWN BY:                                         | EA  |                                                                                                   |  |
| CHECKED BY:                                       | MEY |                                                                                                   |  |
| APPROVED BY:                                      | AR  |                                                                                                   |  |
| REVISED:                                          |     |                                                                                                   |  |
| NORTH CAROLINA<br>DEPARTMENT OF<br>TRANSPORTATION |     | 6/25/2025<br><br>UTILITIES ENGINEERING SEC.<br>PHONE: (919) 707-6690<br>FAX: (919) 250-4151       |  |
|                                                   |     | UTILITY CONSTRUCTION<br>PLANS ONLY                                                                |  |

UTILITY CONSTRUCTION  
PLANS ONLY



## SEWER LATERAL NOTES

10. IN SANITARY SEWER LATERAL SHALL BE CUT WITH SHELL CUTTER NO HAMMER TAPS ALLOWED.
11. ALL SLOPE SHALL CONFORM TO ASTM SPEC. D-3034 9-DSD UNLESS OTHERWISE INDICATED AS DI
12. ALL PIPE AND FITTINGS SHALL BE OF 6" UNLESS OTHERWISE SPECIFIED
13. ALL DI PIPE SHALL HAVE AN INTERIOR LINING OF CERAMIC POXY REPAIR TYPE 1 OR EQUIVALENT. LATERAL SHALL BE COMPRISED OF DI PIPE AND MECHANICAL JOINT FITTINGS.
14. ALL CONNECTIONS SHALL HAVE RUBBER GASKET SEALS
15. SANITARY SEWER LATERAL CLEANOUT SHALL BE LOCATED AT EACH CHANGEOVER POINT AND SHALL NOT BE DELETED FROM INSTALLATION OTHER THAN AS SHOWN MUST BE APPROVED BY THE FAYATW.
16. ACCESS TO TOP OF MAIN SHALL NOT BE ALLOWED UNLESS OTHERWISE APPROVED BY THE FAYATW.
17. THE DESIGN ENGINEER SHALL DETERMINE THE SLOPE AND DEPTH OF THE LATERAL BASED ON THE PROPOSED USE OF THE LOT
18. LATERAL SHALL CONFORM TO MINIMUM SLOPE FOR  
FOR 4' OR 1X MINIMUM SLOPE FOR 6'  
FOR 8' OR 1X MINIMUM SLOPE FOR 10' 40 FEET.  
UNLESS OTHERWISE APPROVED BY FAYATW.
19. ALL CHANGEOVER STRUCTURES SHALL BE CONSTRUCTED WITH SLIDE AND SHELF DETAIL FOR VERTICAL DROPS OF MAINS AND LATERALS.
20. LATERALS LESS THAN 2' 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:
21. ENTIRE SEWER LATERAL ASSEMBLY SHALL BE AIR TESTED CONCURRENTLY WITH SEWER MAN.
22. ALL EXISTING LATERALS SHALL BE CLEANED AND FLUSHED PRIOR TO PLUSHING SANITARY SEWER MAINS.
23. LATERAL SHALL NOT BE BACKFILLED INTO INSPECTED BY THE FAYATW PROJECT COORDINATOR.
24. WYE CONNECTIONS SHALL NOT BE USED TO THE LATERALS INTO A MAINLINE.
25. IF BENDS ARE APPROVED BY THE PROJECT COORDINATOR, STONE BENDING IS REQUIRED TO BE INSTALLED FROM UNDISTURBED (SEE DETAIL S-12 SOL) TO BOTTOM OF BEND.
26. PVC COMBINATION SHALL BE A MOLDED WYE AND BEND. ALL MATERIAL SHALL BE AS MANUFACTURED BY HARKCO, GPIR, OR APPROVED EQUAL.
27. NO MORE THAN 4 FOUR-INCH LATERALS OR 3 SIX-INCH LATERALS SHALL ENTER A 4' DIA. MAINLINE MANHOLE. THERE SHALL NOT 2 LATERALS (REGARDLESS OF SIZE) SHALL ENTER ANY OTHER 4' DIA. MANHOLE MANHOLES SHALL BE 4' DIA. MANHOLES. 6" DIA. TROUGH, 5" DIA. MANHOLES SHALL BE USED IF THE ABOVE CONDITIONS ARE NOT MET.
28. ALL LATERALS OF 4" OR SMALLER UTILIZE 4' Riser (STACK).
29. REFER TO DETAIL S-12 FOR SEPARATION REQUIREMENTS.
30. FOR SINGLE FAMILY RESIDENTIAL LOTS, CLEANOUT SHALL BE LOCATED 15' FROM FRONT PROPERTY LINE. FOR LARGE NON-SINGLE FAMILY LOTS, CLEANOUT SHALL BE NO CLOSER THAN 4' TO FOOTPRINT OF BUILDING, UNLESS OTHERWISE APPROVED BY FAYATW.

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

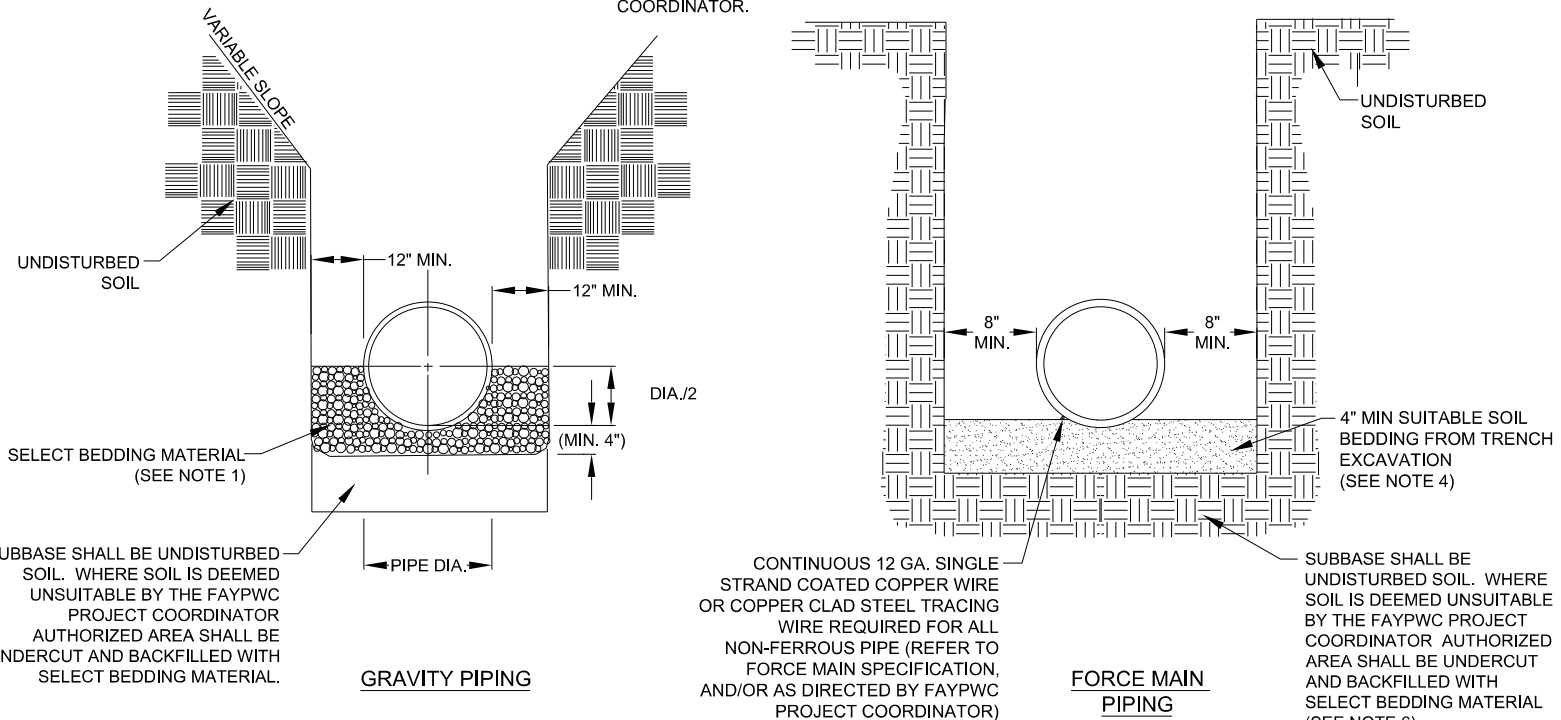
|             |                                |                                                      |
|-------------|--------------------------------|------------------------------------------------------|
|             | PVC Main                       | DI Main                                              |
| 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 LATERAL NOTES<br>(4-INCH AND 6-INCH) |                                           | FAYETTEVILLE<br>PUBLIC WORKS COMMISSION<br>FAYETTEVILLE, N.C. |         |  | NO. DATE                      | REVISION |
| SHEET NO.<br>1 OF 1                        | DWG. NO. S.11                             | DWG. BY: FAY/PWC                                              | 3 01/13 |                                                                                     | REVISED NOTES AND ADDED TABLE |          |
|                                            | WATER RESOURCES<br>ENGINEERING DEPARTMENT |                                                               | 4 01/14 |                                                                                     | REVISED NOTE 22, TABLE        |          |
|                                            | DATE: JAN 01, 2025                        | APPROVED BY: K.A.H.                                           | 5 07/18 |                                                                                     | REVISED NOTES 6, 9            |          |
| S11-RES-LAT-NOTES.dwg                      |                                           |                                                               |         |                                                                                     |                               |          |

S11-RESSLAT-NOTES.dwg

- NOTES:
- |                                                                                                                              |                                                                                                                                                                                                                                                             |
|------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. SELECT BEDDING MATERIAL SHALL BE WELL<br>GRADED CRUSHED ROCK (NO. 5 OR NO. 57 STONE) FOR<br>THE FULL WIDTH OF THE TRENCH. | 4. SUITABLE SOIL BEDDING IS DEFINED AS "NATIVE" SOIL<br>EXCAVATED FROM THE TRENCH, FREE OF ROCKS,<br>FOREIGN MATERIAL, AND FROZEN EARTH.                                                                                                                    |
| 2. SELECT BEDDING MATERIAL SHALL EXTEND TO<br>UNDISTURBED TRENCH WALLS.                                                      | 5. SUITABLE BEDDING MATERIAL SHALL EXTEND TO<br>UNDISTURBED TRENCH WALLS.                                                                                                                                                                                   |
| 3. SELECT BEDDING MATERIAL SHALL BE PROPERLY<br>PLACED TO THE SPRING LINE OF THE PIPE FOR ITS<br>ENTIRE LENGTH.              | 6. IF GROUND CONDITIONS WARRANT, IT MAY BE<br>NECESSARY TO BED DUCTILE IRON FORCE MAINS IN<br>SELECT BEDDING MATERIAL, 5 OR NO. 57 STONE TO<br>THE SPRINGLINE OF THE PIPE. SUCH INSTALLATION<br>SHALL AS BE DIRECTED BY THE FAYATPC PROJECT<br>COORDINATOR. |



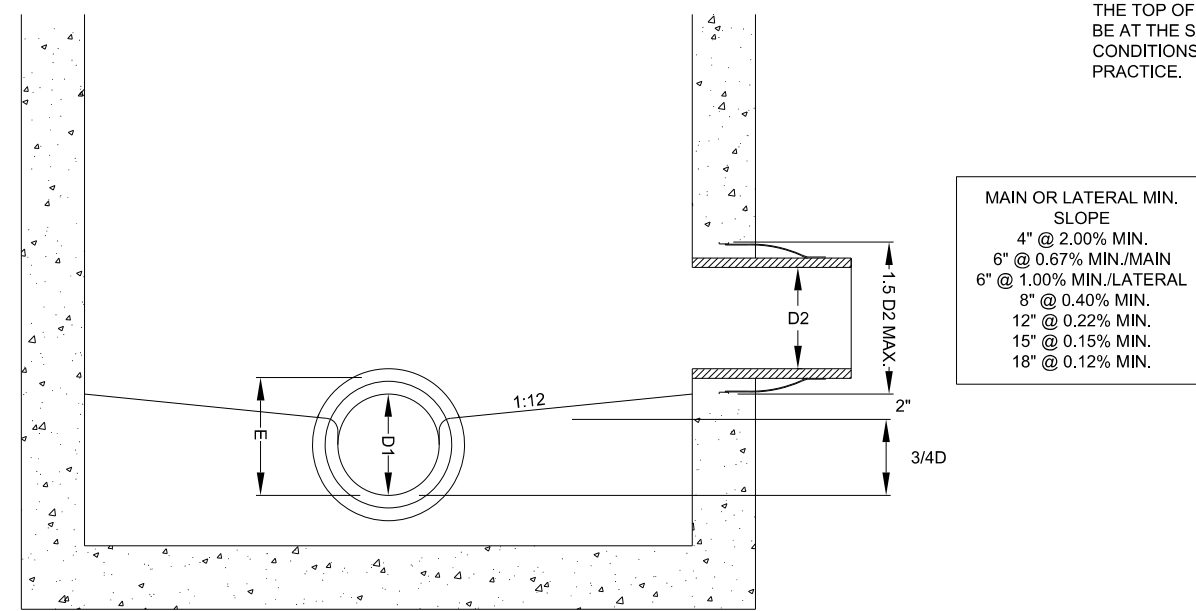
|                         |                      |                     |                                                               |  |                                                                                       |                   |          |               |
|-------------------------|----------------------|---------------------|---------------------------------------------------------------|--|---------------------------------------------------------------------------------------|-------------------|----------|---------------|
| SEWER BEDDING<br>N.T.S. |                      |                     | FAYETTEVILLE<br>PUBLIC WORKS COMMISSION<br>FAYETTEVILLE, N.C. |  |  | NO. DATE REVISION |          |               |
| SHEET NO.<br>1 OF 1     | DWG. NO. <b>S.13</b> | DWG. BY: FAYPWC     | WATER RESOURCES<br>ENGINEERING DEPARTMENT                     |  |                                                                                       | 1                 | 01/01/05 | REVISED NOTES |
|                         | DATE: JAN. 01, 2025  | APPROVED BY: K.A.H. |                                                               |  |                                                                                       | 2                 | 01/01/16 | REVISED NOTES |
| S13-SEWER-BEDDING.dwg   |                      |                     |                                                               |  |                                                                                       |                   |          |               |

S13-SEWER-BEDDING.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 ROW.

|    |    | D2    |       |       |       |       |        |       |
|----|----|-------|-------|-------|-------|-------|--------|-------|
|    |    | 4"    | 6"    | 8"    | 12"   | 15"   | 18"    | 24"   |
| D1 | 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.



- NOTES:**
1. SEE FAYPWC STANDARD MANHOLE AND PIPE SLIDE, MORTAR SLIDE, AND SHELF DETAILS FOR ADDITIONAL INFORMATION.
  2. THE "E" DISTANCES INDICATED ARE FOR CONNECTION TO AN EXISTING OUTFALL AND ARE THE MINIMUM DISTANCE ALLOWABLE.
  3. WHERE SANITARY SEWER OUTFALLS AND MAINS ARE BEING CONSTRUCTED THE TOP OF THE EFFLUENT PIPE AND THE TOP OF THE INFLUENT PIPE SHALL BE AT THE SAME ELEVATION UNLESS CONDITIONS ARE PROHIBITIVE TO THIS PRACTICE.

|                                      |                      |                     |                                                               |  |                                                                                       |     |      |          |
|--------------------------------------|----------------------|---------------------|---------------------------------------------------------------|--|---------------------------------------------------------------------------------------|-----|------|----------|
| MH CONNECTION DESIGN GUIDE<br>N.T.S. |                      |                     | FAYETTEVILLE<br>PUBLIC WORKS COMMISSION<br>FAYETTEVILLE, N.C. |  |  | NO. | DATE | REVISION |
| SHEET NO.<br>1 OF 1                  | DWG. NO. <b>S.18</b> | DWG. BY: FAYPWC     | WATER RESOURCES<br>ENGINEERING DEPARTMENT                     |  |                                                                                       |     |      |          |
|                                      | DATE: JAN. 01, 2025  | APPROVED BY: K.A.H. |                                                               |  |                                                                                       |     |      |          |

S18:PENETRATION-DETAIL.dwg

S18-PENETRATION-DETAIL.dwg

DOCUMENT NOT  
CONSIDERED FINAL  
UNTIL ALL SIGNATURES  
ARE COMPLETED

## UTILITY CONSTRUCTION

|                                                                            |  |                                                                                                   |  |
|----------------------------------------------------------------------------|--|---------------------------------------------------------------------------------------------------|--|
| PROJECT REFERENCE NO.                                                      |  | SHEET NO.                                                                                         |  |
| U-57998                                                                    |  | UC-03F                                                                                            |  |
| DESIGNED BY: AMH                                                           |  | Signed by:<br> |  |
| DRAWN BY: EA                                                               |  |                                                                                                   |  |
| CHECKED BY: MEY                                                            |  |                                                                                                   |  |
| APPROVED BY: AR                                                            |  |                                                                                                   |  |
| REVISED:                                                                   |  |                                                                                                   |  |
| NORTH CAROLINA<br>DEPARTMENT OF<br>TRANSPORTATION                          |  | 6/25/2025                                                                                         |  |
| UTILITIES ENGINEERING SEC.<br>PHONE: (919) 707-6690<br>FAX: (919) 250-4151 |  | UTILITY CONSTRUCTION<br>PLANS ONLY                                                                |  |

UTILITY CONSTRUCTION  
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