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# UTILITY CONSTRUCTION

PROJECT REFERENCE NO.		SHEET NO.	
U-4405		UC-3G	
DESIGNED BY:	AMH		NORTH CAROLINA DEPARTMENT OF TRANSPORTATION UTILITIES ENGINEERING SECTION PHONE: (919) 707-6690 FAX: (919) 250-4751
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## UTILITY CONSTRUCTION

### UC-27 UTILITY NOTES:

1. PURSUANT TO TRAFFIC CONTROL REQUIREMENTS, CONTRACTOR MUST BE COMPLETE WITH WORK ON THE SOUTH SIDE OF RAEFORD ROAD BEFORE BEGINNING WORK ON THE NORTH SIDE. CONTRACTOR SHALL NOT BE PERFORMING WATER MAIN INSTALLATION LONGITUDINALLY TO THE ROAD ON BOTH SIDES.

2. WL-25 IS TO PROVIDE SOURCE WATER TO FACILITATE INSTALLATION SEQUENCE FOR WL-26 BETWEEN 12" IN-LINE VALVE AT STA. 40+15 TO 12" IN-LINE VALVE AT STA. 30+64.

3. WL-26 BETWEEN IN-LINE VALVE AT APPROX. STA. 30+64 TO THE IN-LINE VALVE AT APPROX. STA. 40+15 SHALL BE INSTALLED AND FULLY OPERATIONAL, INCLUDING FORSYTHE DRIVE CROSS-LINE CONNECTION, PRIOR TO CONNECTION TO PREVIOUSLY INSTALLED WL-25 SEGMENT. (SEE UTILITY NOTES FOR SHEET UC-32)

4. PROPOSED WL-26 BRANCH VALVE (APPROX. STA. 40+34) SHALL BE INSTALLED AND REMAIN CLOSED. THE INSTALLATION OF THE PORTION OF WL-26 CROSSING RAEFORD ROAD SHALL BE OPEN CUT SIMULTANIOUSLY WITH THE PROPOSED 24" PARALLEL DRAINAGE PIPE.

5. ALL EXISTING METERS THAT OVERLAP THIS RELOCATION SEGMENT SHALL BE SWITCHED OVER TO THIS NEW SEGMENT. CROSS LINE IN FORSYTHE ROAD SHALL BE FULLY RESTRAINED THROUGH BRANCH VALVES.

6. THE NEXT IN-LINE VALVE FOR EXISTING 6" WATER LINE LOCATED IN FORSYTHE DRIVE IS APPROX. 400 LF FROM TIE-IN CONNECTION AND HAS A LOOPED SYSTEM AND AN EXISTING VALVE AT THE INTERSECTION OF BREEZEWOOD AVE APPROX. 370 LF FROM TIE-IN LOCATION. CONTRACTOR TO COORDINATE WITH THE ENGINEER TO FACILITATE TEMPORARY SHUTDOWN.

7. CONTRACTOR SHALL CONNECT TO EXISTING 6" WATER MAIN USING FULLBODY SLEEVE AND RESTRAINING GLANDS. THIS PART OF THE CONNECTION SHALL BE SWABBED PRIOR TO RECONNECTION OF THE EXISTING 6" WATER MAIN. THE EXISTING CROSS LINE AT FORESYTHE DRIVE SHALL BE KILLED OUT BY PERMANENTLY CLOSING AND ABANDONING EXISTING VALVE EV-102. KILL OUT SHALL BE DONE BETWEEN 9:00 P.M. TO 6:00 A.M. TO COMPLY WITH TRAFFIC CONTROL REQUIREMENTS.

8. WL-26 FROM 12" BRANCH VALVE (APPROX. STA. 40+34) TO 12" IN-LINE VALVE (APPROX. STA. 41+10) AND 12" X12" X12" TEE (APPROX. STA. 42+25 WL-28) SHALL BE INSTALLED, RESTRAINED, AND FULLY OPERATIONAL PRIOR TO MOVING TO INSTALLATION OF WL-28.

9. WL-28 BETWEEN THE 12" X8" REDUCER (APPROX. STA. 41+95) TO 12" X12" X12" TEE (APPROX. STA. 45+22) SHALL BE INSTALLED AND FULLY OPERATIONAL PRIOR TO MOVING TO INSTALLATION OF WL-27. THIS INSTALLATION SHALL BE PERFORMED BETWEEN 9:00 P.M. AND 6:00 A.M. ALL OPEN EXCAVATIONS SHALL BE PLATED AND READY FOR TRAFFIC BY 6:00 A.M. UNLESS EXCAVATIONS ARE BACKFILLED/COMPACTED AND PATCHED BY 6:00 A.M.

10. WL-27 BETWEEN 12" IN-LINE VALVE (APPROX. STA. 0+13) TO 6" X6" X6" TAPPING SLEEVE AND VALVE ON AMIGO DRIVE (APPROX. STA. 8+67), INCLUDING WL-30 FROM 6" X6" X6" TAPPING SLEEVE & VALVE ON SOUTH SIDE OF RAEFORD ROAD SHALL BE INSTALLED AND OPERATIONAL PRIOR TO TIE-IN OF EXISTING 12" WATER MAIN IN MCPHEE DRIVE.

11. ALL EXISTING METERS THAT OVERLAP THIS RELOCATION SEGMENT SHALL BE SWITCHED OVER TO THIS NEW SEGMENT. CROSS LINE IN FORSYTHE ROAD SHALL BE FULLY RESTRAINED THROUGH BRANCH VALVES.

12. THE EXISTING 12" WATER MAIN LOCATED IN MCPHEE DRIVE HAS AN IN-LINE VALVE APPROX. 83 FEET FROM TIE-IN LOCATION. SINCE EXISTING 12-INCH WATER MAIN MAY NOT BE RESTRAINED, THERE IS A LOOPED SYSTEM AND FOUR EXISTING VALVES IN MCBAIN DRIVE (EV-118, EV-119, EV-120 AND EV-121) TO FACILITATE SHUTDOWN FOR KILL-OUT OF EXISTING 12" CI WATER MAIN. CONTRACTOR TO COORDINATE WITH THE ENGINEER TO FACILITATE TEMPORARY SHUTDOWN.

13. CONTRACTOR SHALL CONNECT TO EXISTING 12" WATER MAIN USING FULLBODY SLEEVE AND RESTRAINING GLANDS. THIS PART OF THE CONNECTION SHALL BE SWABBED PRIOR TO RECONNECTION OF THE EXISTING 12" WATER MAIN. THE EXISTING 12" WATER MAIN AT MCPHEE DRIVE SHALL BE KILLED OUT BY PERMANENTLY CLOSING AND ABANDONING EXISTING VALVE EV-107. KILL OUT SHALL BE DONE BETWEEN 9:00 P.M. TO 6:00 A.M. TO COMPLY WITH TRAFFIC CONTROL REQUIREMENTS AND MINIMIZE SERVICE INTERRUPTION.

14. EXISTING VALVES, EV-112, EV-113, EV-109, EV-111, EV-110 AND IN-LINE VALVE NEAR CLUB CIRCLE (APPROX. 578 FEET FROM EV-113) TO FACILITATE SHUTDOWN FOR KILL-OUT OF EXISTING 6" CI WATER MAIN. PLANNED SHUT DOWN SHALL BE COORDINATED WITH THE ENGINEER.

15. KILL OUT OF EXISTING WATER MAIN AT THE INTERSECTION OF AMIGO DRIVE AND RAEFORD ROAD SHALL INCLUDE THE ABANDONMENT OF 60 LF OF 6" PIPE AND SHALL BE PER PWC DETAIL W.22

16. WL-29 SHALL BE BUILT OUT FROM TAPPING SLEEVE & VALVE. NEXT IN-LINE VALVE TO FACILITATE SHUTDOWN OF WL-29 IS APPROXIMATELY 187 LF FROM PROPOSED RECONNECTION POINT.

17. CONNECT EXISTING 2" WATER MAIN TO NEW 8" WATER MAIN USING SADDLE TAP.

### UC-27 UTILITY NOTES

18. CONTRACTOR SHALL CONNECT TO EXISTING 6" WATER MAIN USING FULLBODY SLEEVE AND RESTRAINING GLANDS. THIS PART OF THE CONNECTION SHALL BE SWABBED PRIOR TO RECONNECTION OF THE EXISTING 6" WATER MAIN. THE EXISTING 6" WATER MAIN AT FAIRWAY DRIVE SHALL BE KILLED OUT BY PERMANENTLY CLOSING AND ABANDONING EXISTING VALVE EV-111. KILL OUT SHALL BE DONE BETWEEN 9:00 P.M. TO 6:00 A.M. TO COMPLY WITH TRAFFIC CONTROL REQUIREMENTS AND MINIMIZE SERVICE INTERRUPTION.

19. WL-28 BETWEEN THE 12" X8" REDUCER (APPROX. STA. 41+95) TO THE NEXT 8" IN-LINE VALVE (APPROX. STA. 37+58 ON SHEET UC-26) SHALL BE INSTALLED AND FULLY OPERATIONAL PRIOR TO INSTALLING WL-28 SECTION BETWEEN IN-LINE VALVES (APPROX. STA. 27+22 AND APPROX. STA. 37+58) ON SHEET UC-26. THE INSTALLATION BETWEEN HORIZONTAL 45 DEGREE BEND (APPROX. STA. 40+45) AND THE 12" X8" REDUCER (APPROX. STA. 41+95) SHALL BE PERFORMED BETWEEN 9:00 P.M. AND 6:00 A.M. ALL OPEN EXCAVATIONS SHALL BE PLATED AND READY FOR TRAFFIC BY 6:00 A.M. UNLESS EXCAVATIONS ARE BACKFILLED/COMPACTED AND PATCHED BY 6:00 A.M.

20. ALL EXISTING METERS THAT OVERLAP THIS RELOCATION SEGMENT SHALL BE SWITCHED OVER TO THIS NEW SEGMENT.

### UC-27A UTILITY NOTES:

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

2. CONTRACTOR SHALL SUBMIT A DETAILED SEWAGE BYPASS PLAN FOR MAINTAINING ALL SEWAGE FLOWS THAT WILL BE IMPACTED BY THE SEWER RELOCATION AND ADHERE TO ALL REQUIREMENTS IN OWNER'S WASTE WATER CONTROL SPECIFICATIONS.

3. CONTRACTOR SHALL VERIFY SEWER SERVICE DEPTH AND LOCATION PRIOR TO ORDERING MATERIALS.

4. CONTRACTOR SHALL REPLACE EXISTING CLEAN OUT AND SEWER SERVICE LINE AT SAME DEPTH AND SLOPE.

5. CONTRACTOR SHALL REMOVE EXISTING CLEAN OUT AND EXISTING SEWER SERVICE TO PROPOSED CLEAN OUT LOCATION. CONTRACTOR SHALL GROUT FILL EXISTING SERVICE CORE IN MANHOLE WITH NON-SHRINK GROUT.

6. CONTRACTOR SHALL COORDINATE WITH DRAINAGE INSTALLATION OF 15" AND 18" STORM PIPE BETWEEN DRAINAGE STRUCTURE 2734, 2724 AND 2725 TO REPLACE 200 FEET OF EXISTING 12" VCP PIPE WITH DIP AT SAME SLOPE.

### UC-32 UTILITY NOTES:

1. PURSUANT TO TRAFFIC CONTROL REQUIREMENTS, CONTRACTOR MUST BE COMPLETE WITH WORK ON THE SOUTH SIDE OF RAEFORD ROAD BEFORE BEGINNING WORK ON THE NORTH SIDE. CONTRACTOR SHALL NOT BE PERFORMING WATER MAIN INSTALLATION LONGITUDINALLY TO THE ROAD ON BOTH SIDES.

2. WL-25 FROM 12" X12" X12" TAPPING SLEEVE & VALVE ON ROBESON STREET, INCLUDING CROSS-LINE CONNECTION CWL-EY46 TO IN-LINE VALVE APPROX. STA. 40+15 ON WL-26 AND 12" BRANCH VALVE APPROX. STA. 40+34 ON WL-26 (SEE UTILITY NOTES ON UC-27) SHALL BE INSTALLED AND OPERATIONAL.

3. ALL EXISTING METERS THAT OVERLAP THIS RELOCATION SEGMENT SHALL BE SWITCHED OVER TO THIS NEW SEGMENT. CROSS-LINE IN CWL-EY46 SHALL BE FULLY RESTRAINED THROUGH BRANCH VALVES.

4. EXISTING IN-LINE VALVE, EV-106 (AT INTERSECTION OF RAEFORD RD AND ROBESON ST, AND EXISTING 12" IN-LINE VALVE LOCATED APPROX. 685 LF FROM APPROX. TIE-IN LOCATION TO FACILITATE SHUTDOWN FOR KILL-OUT OF EXISTING 12" AC WATER MAIN. PLANNED SHUT DOWN SHALL BE COORDINATED WITH THE ENGINEER.

5. KILL OUT OF EXISTING 12" AC WATER MAIN AT PROP. 12" TAPPING SLEEVE AND VALVE SHALL INCLUDE FULLY GROUT OF 60 LF OF 12" PIPE AND SHALL BE PER PWC DETAIL W.22

6. CWL-EY46 AN 8" CUT-IN VALVE SHALL BE INSTALLED BETWEEN 9:00 P.M. AND 6:00 A.M. TO MINIMIZE SERVICE INTERRUPTION. EXISTING IN-LINE VALVE EV-115 (IN FAIRWAY DRIVE), EV-114 (IN ROBESON ST), AND EXISTING BRANCH VALVES EV-116 AND EV117 TO FACILITATE SHUTDOWN FOR INSTALLATION OF 8" CUT-IN VALVE. PLANNED SHUT DOWN SHALL BE COORDINATED WITH THE ENGINEER.

7. AFTER INSTALLATION OF 8" CUT-IN VALVE, CONTRACTOR SHALL CONNECT TO EXISTING 8" WATER MAIN USING FULLBODY SLEEVE AND RESTRAINING GLANDS OUTSIDE OF EXISTING 16" ENCASMENT. THIS PART OF THE CONNECTION SHALL BE SWABBED PRIOR TO RECONNECTION OF THE EXISTING 8" WATER MAIN. THE CROSS-LINE SHALL BE KILLED OUT BY PERMANENTLY CLOSING AND ABANDONING EXISTING VALVE EV-106. IF THERE IS NOT ENOUGH EXISTING 8" WATER MAIN PIPE BETWEEN EXISTING ENCASMENT AND EXISTING 12" X 8" TAPPING SLEEVE AND VALVE (EV-114) TO CONNECT TO, CONTRACTOR SHALL PROPERLY REMOVE EXISTING 12" X 8" TAPPING SLEEVE (EV-114) AFTER KILL OUT OF EXISTING 12" WATER MAIN.

### UC-33 UTILITY NOTES:

1. CONTRACTOR SHALL SUBMIT A DETAILED SEWAGE BYPASS PLAN FOR MAINTAINING ALL SEWAGE FLOWS THAT WILL BE IMPACTED BY THE SEWER RELOCATION AND ADHERE TO ALL REQUIREMENTS IN OWNER'S WASTE WATER CONTROL SPECIFICATIONS.

2. CONTRACTOR SHALL VERIFY SEWER SERVICE DEPTH AND LOCATION PRIOR TO ORDERING MATERIALS.

3. SL-8 SHALL BE INSTALLED AND OPERATIONAL FROM EXIST MANHOLE AT STA. 0+00 TO PROP. MANHOLE MH-4 AT STA. 7+35.71 PRIOR TO INSTALLING 4" SEWER SERVICE IN PROP. MANHOLE MH-4, SL-9 AND SL-10.

4. CONTRACTOR SHALL RETAIN DOWNSTREAM PORTION OF EXISTING SEWER OF PROP. MH-4 SO EXISTING 4" SEWER SERVICE CAN REMAIN ACTIVE UNTIL NEW SEWER IS READY FOR SERVICE LATERAL RELOCATION.

5. INSTALLATION OF SL-9 AND SL-10 SHALL BE COORDINATED WITH INSTALLATION OF SL-8. MAINTAIN FLOW CONTROL PROVISIONS WHEN CONSTRUCTING SL-9 AND SL-10. BYPASS PUMP AND PIPING TO MAINTAIN SEWER FLOW DURING CUT IN CONSTRUCTION SHALL BE SITUATED TO MAINTAIN TRAFFIC FLOW.

6. AFTER SEWER IS INSTALLED AND OPERATIONAL WITHIN EXECUTIVE PLACE, CONTRACTOR SHALL PLUG INVERT OF 12" INSIDE EXISTING MANHOLE LOCATED IN RAEFORD ROAD. THIS WORK SHALL BE PERFORMED BETWEEN 9:00 P.M. AND 6:00 A.M. TO MINIMIZE TRAFFIC IMPACTS.

Shoring Location No.	Begin Station & Offset	End Station & Offset	Estimated		Shoring Location Type	Square Footage (ft)	Trench Length (ft)
			Average Height (ft)	Maximum Height (ft)			
No. 1	67+17.82 L-, 43.94' Right	67+66.02 L-, 37.17' Right	6.5	10.81	Roadway (Longitudinal Trench)	715	50
No. 2	74+01.08 L-, 182.28' Left	74+01.56 L-, 181.02' Left	9.55	9.71	Roadway Shoulder (Perpendicular Trench)	286.5	10
No. 3	86-92.49 L-, 221.06' Left	89+11.88 L-, 226.64' Left	6.75	6.75	Bore (Receiving) Within Roadway	270	10
No. 4	134+33.75 L-, 41.97' Left	134+33.75 L-, 52.97' Left	4.25	4.55	Bore (Receiving) Adjacent to Roadway	170	10
No. 5	135+62.47 L-, 74.20' Right	135+62.49 L-, 84.20' Right	10	10	Bore (Receiving) Adjacent to Roadway	400	10
No. 6	153+60.37 L-, 38.39' Right	154+94.88 L-, 46.14' Right	6	6	Roadway (Longitudinal Trench)	1500	120
No. 7	184+34.82 L-, 77.40' Right	185+44.40 L-, 57.10' Right	7	12	Roadway (Longitudinal Trench)	1820	125
No. 8	187+94.38 L-, 59.94' Right	188+60.72 L-, 90.74' Right	5	5	Roadway (Longitudinal Trench)	1300	125
No. 9	190+60.99 L-, 61.16' Right	190+61.05 L-, 71.16' Right	6.25	6.5	Bore (Receiving) Adjacent to Roadway	250	10
No. 10	190+60.30 L-, 65.72' Right	190+60.92 L-, 95.72' Right	5.3	5.3	Bore Lacking Adjacent to Roadway	636	40
No. 11	220+74.37 L-, 41.38' Left	220+47.04 L-, 62.55' Left	8	8	Roadway Shoulder (Perpendicular Trench)	640	20
No. 12	208+39.92 L-, 71.75' Left	208+59.92 L-, 71.65' Left	6.5	6.5	Roadway Shoulder (Longitudinal Trench)	325	20
No. 13	215-30.54 L-, 64.76' Left	223+33.67 L-, 51.76' Left	8	13	Roadway Shoulder (Longitudinal Trench)	13280	825
No. 14	253+62.17 L-, 41.37' Left	255+67.16 L-, 53.56' Left	9	9.5	Roadway (Longitudinal Trench)	3690	200
No. 15	258+67.39 L-, 67.23' Left	259+47.75 L-, 41.43' Left	6.5	6.5	Roadway (Longitudinal Trench)	1365	100
No. 16	257+96.91 L-, 46.56' Left	261+40.32 L-, 40.75' Left	8	8	Roadway (Longitudinal Trench)	5744	354
No. 17	260+63.82 L-, 18.16' Left	260+63.85 L-, 28.16' Left	14	14	Roadway (Perpendicular Trench)	280	5
No. 18	261+00.09 L-, 19.80' Left	261+01.34 L-, 59.78' Left	10	14	Bore Lacking Within Roadway	1200	40
No. 19	270+59.08 L-, 76.12' Right	270+66.67 L-, 75.80' Right	5.5	5.5	Roadway Shoulder (Longitudinal Trench)	1705	150
No. 20	279+30.51 L-, 24.79' Right	279+30.51 L-, 19.79' Right	10	10	Roadway (Perpendicular Trench)	200	5
No. 21	282+25.82 L-, 24.63' Right	282+25.82 L-, 19.63' Right	10	10	Roadway (Perpendicular Trench)	200	5
No. 22	284+69.72 L-, 24.56' Right	284+69.72 L-, 19.56' Right	8.9	8.9	Roadway (Perpendicular Trench)	178	5
No. 23	285+35.91 L-, 24.55' Right	285+35.91 L-, 19.55' Right	8.9	8.9	Roadway (Perpendicular Trench)	178	5
No. 24	287+70.59 L-, 24.69' Right	287+70.59 L-, 19.69' Right	10	10	Roadway (Perpendicular Trench)	200	5
No. 25	288+40.99 L-, 24.65' Right	288+40.99 L-, 19.65' Right	10	10	Roadway (Perpendicular Trench)	200	5
No. 26	288+89.31 L-, 24.65' Right	288+89.31 L-, 19.65' Right	10	10	Roadway (Perpendicular Trench)	200	5
No. 27	289+22.82 L-, 24.66' Right	289+22.82 L-, 19.66' Right	10	10	Roadway (Perpendicular Trench)	200	5
No. 28	289+75.82 L-, 24.68' Right	289+75.82 L-, 19.68' Right	13	13	Roadway (Perpendicular Trench)	260	5
No. 29	289+91.63 L-, 27.39' Right	289+91.63 L-, 27.39' Right	13	13	Roadway (Perpendicular Trench)	260	5
No. 29	291+42.33 L-, 16.03' Right	291+42.33 L-, 11.03' Right	12	12	Roadway (Perpendicular Trench)	240	5
No. 30	292+18.90 L-, 15.41' Right	292+18.90 L-, 10.41' Right	12	12	Roadway (Perpendicular Trench)	240	5
No. 31	292+64.20 L-, 16.06' Right	292+64.20 L-, 11.06' Right	12	12	Roadway (Perpendicular Trench)	240	5
No. 32	293+74.37 L-, 16.08' Right	293+74.37 L-, 11.08' Right	12	12	Roadway (Perpendicular Trench)	240	5
No. 33	295+01.74 L-, 16.08' Right	295+01.74 L-, 11.08' Right	11	11	Roadway (Perpendicular Trench)	220	5
No. 34	296+86.13 L-, 15.76' Right	296+86.13 L-, 10.76' Right	11	11	Roadway (Perpendicular Trench)	220	5
No. 35	300+02.08 L-, 15.62' Right	300+02.08 L-, 10.62' Right	11	11	Roadway (Perpendicular Trench)	220	5
No. 36	300+73.89 L-, 15.06' Right	300+73.89 L-, 10.66' Right	11	11	Roadway (Perpendicular Trench)	220	5
No. 37	303+69.68 L-, 15.32' Right	303+69.68 L-, 10.32' Right	11	11	Roadway (Perpendicular Trench)	220	5
No. 38	304+82.28 L-, 15.72' Right	304+82.28 L-, 10.72' Right	11	11	Roadway (Perpendicular Trench)	220	5
No. 39	308+20.09 L-, 15.47' Right	308+20.09 L-, 10.47' Right	12	12	Roadway (Perpendicular Trench)	240	5
No. 40	308+27.12 L-, 15.46' Right	308+27.12 L-, 10.46' Right	13	13	Roadway (Perpendicular Trench)	260	5
No. 41	304+91.28 L-, 299.05' Left	305+28.19 L-, 314.24' Left	11	11	Bore (Entry) Within Roadway	1320	40
No. 42	265+83.32 L-, 337.57' Left	266+01.74 L-, 345.43' Left	11	11	Bore (Receiving) Within Roadway	1100	40
No. 43							
Total Square Footage=						42892.50	

REVISIONS

UTILITY REV. - JULY 2008 - REVISED AL CONSTRUCTION NOTES  
 - AUG 1, 2008 - ADDED TEMPORARY SHORING TABLE

5/14/09

SHORING: 201510177000A - Reeford Road NCDOT U-4405\CADD\NCDOT PLANS\Utilities\Engineering\UC\_V\Pro\U4405\_ut\_notes\_UC03g\_psh.dgn  
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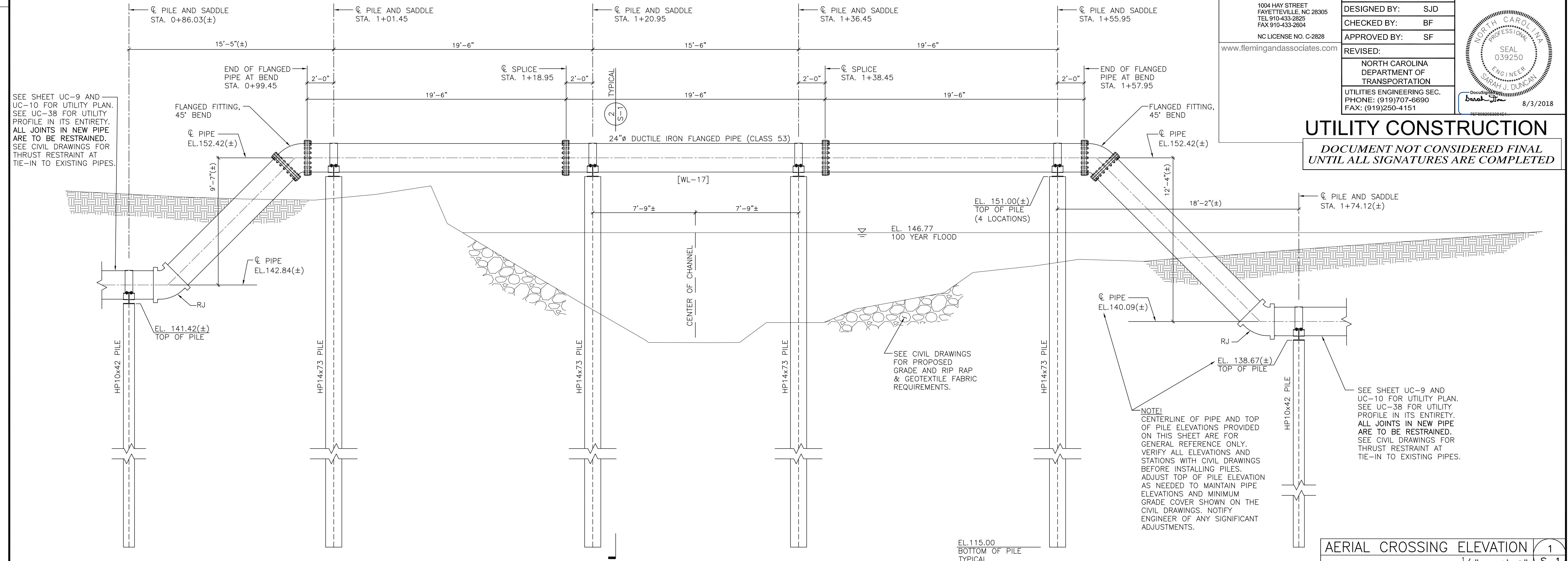


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PROJECT REFERENCE NO. U-4405	SHEET NO. UC-3H
DESIGNED BY: SJD	
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CHECKED BY: BF	
APPROVED BY: SF	
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**UTILITY CONSTRUCTION**

DOCUMENT NOT CONSIDERED FINAL  
 UNTIL ALL SIGNATURES ARE COMPLETED



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

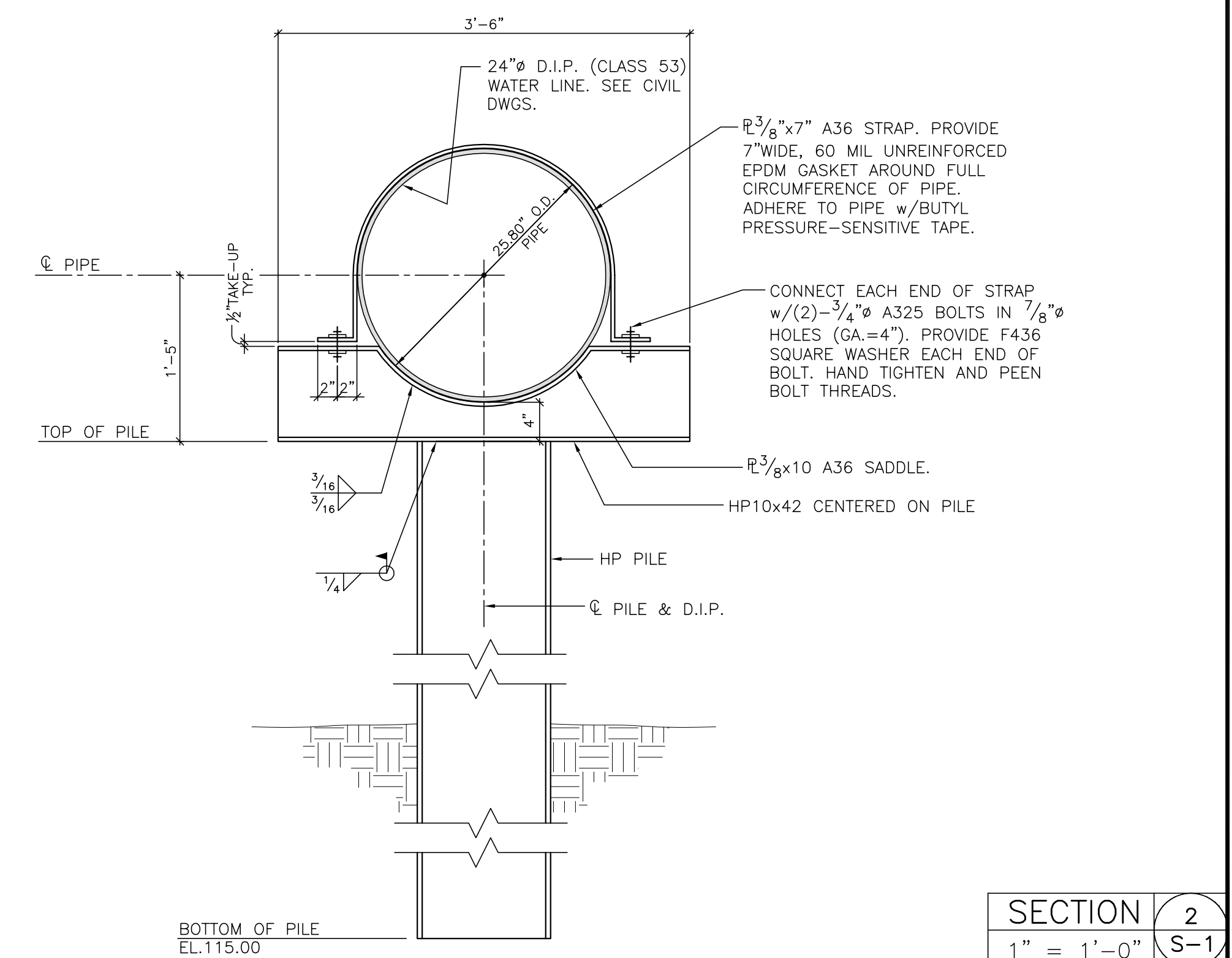
SEE SHEET UC-9 AND UC-10 FOR UTILITY PLAN. SEE UC-38 FOR UTILITY PROFILE IN ITS ENTIRETY. ALL JOINTS IN NEW PIPE ARE TO BE RESTRAINED. SEE CIVIL DRAWINGS FOR THRUST RESTRAINT AT TIE-IN TO EXISTING PIPES.

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

REVISIONS  
 JULY 27, 2018 - SHEET NUMBER CHANGED

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

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



GENERAL NOTES	3
NO SCALE	S-1

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



PROJECT REFERENCE NO.	SHEET NO.
U-4405	UC-031
DESIGNED BY: AMH	
DRAWN BY: AMH/AB	
CHECKED BY: AMH	
APPROVED BY: MWF	
REVISED:	NORTH CAROLINA DEPARTMENT OF TRANSPORTATION UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151
UTILITY CONSTRUCTION PLANS ONLY	

UTILITY CONSTRUCTION

- CONTRACTOR SHALL REPAIR ALL WATER LATERALS AND MAINS DAMAGED DURING CONSTRUCTION. THE CONTRACTOR SHALL REPORT IMMEDIATELY ALL WATER MAIN AND LATERAL BREAKS TO THE ENGINEER. THE CONTRACTOR SHALL INITIATE IMMEDIATE REPAIRS IN ACCORDANCE WITH THE SPECIAL PROVISIONS. CONTRACTOR SHALL NOT OPERATE WATER MAIN VALVES WITHOUT ENGINEER APPROVAL AND SHALL COORDINATE ALL VALVE CLOSINGS WITH ENGINEER.
- THE CONTRACTOR SHALL NOT USE HOUSE BIBBS OR ANY OTHER METHOD OF BLOW OFF WHICH ALLOWS DOMESTIC WATER CONTAINING SEDIMENTS OR HIGH LEVELS OF CHLORINE TO PASS THRU RESIDENTS METERS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DAMAGES RESULTING FROM ALLOWING "DIRTY" WATER TO ENTER RESIDENTS PLUMBING SYSTEM, SUCH AS WATER HEATERS, STAINED CLOTHING, CLOGGED SCREENS, ETC.
- WATER MAINS AND LATERALS SHALL BE INSTALLED UTILIZING AN APPROVED CUT SHEET INDICATING INSTALLATION DEPTH.
- TRANSFER OF WATER SERVICES SHALL BE ACCOMPLISHED AS FOLLOWS:
  - INSTALL, TEST AND STERILIZE NEW MAIN AND LATERALS. LATERALS SHALL BE INSTALLED 18" INSIDE RIGHT-OF-WAY UNLESS OTHERWISE DIRECTED BY ENGINEER.
  - TRANSFER EXISTING METER TO NEW METER BOX AND THE NEW WATER LATERAL TO EXISTING DOMESTIC WATER UTILIZING BRASS FITTINGS. SAME METER NUMBER SHALL BE INSTALLED ON SAME ADDRESS AND/OR CUSTOMER. BLOW OFF SERVICE AT HOSE BIBB ON HOUSE ONLY AFTER METER HAS BEEN TRANSFERRED.
  - AFTER ALL SERVICES ARE TRANSFERRED TO THE NEW SYSTEM, SHUT OFF VALVE ON EXISTING SYSTEM AND ABANDON EXISTING MAINS IN ACCORDANCE WITH DETAILS AND SPECIAL PROVISIONS.
  - CONTRACTOR SHALL SUPPLY NEW METER BOXES AND DISPOSE OF EXISTING METER BOXES.
  - WHEN MAIN IS NOT TO BE ABANDONED, CONTRACTOR SHALL UNCOVER OLD CORPORATION AT MAIN, CLOSE AND PLUG CORPORATION TO ABANDON OLD SERVICE.
  - CONTRACTOR SHALL ABANDON ("KILL-OUT") ANY EXISTING WATER SERVICES THAT WILL NOT BE UTILIZED BY THE SERVICE AT THE MAIN, PLUGGING THE CORPORATION, AND TURNING OFF THE CORPORATION. AT THE METER BOX, THE ABANDONED SERVICE IS TO BE CUT OR CRIMPED, AND BURIED A MINIMUM OF 3 FEET BELOW GRADE.
  - ALL EXISTING UTILITIES IMPACTED BY CONSTRUCTION SHALL BE ADJUSTED TO FINISHED GRADE, IN ACCORDANCE WITH PLAN REQUIREMENTS.
  - ALL WORK ON FAYPWC WATER UTILITIES (MAINS, LATERALS, ETC) SHALL BE PERFORMED BY A LICENSED UTILITY CONTRACTOR. THE ENGINEER SHALL OBSERVE AND APPROVE ALL WORK ON WATER UTILITIES. ALL WORK SHALL BE COMPLETED IN ACCORDANCE WITH THE UTILITY SPECIAL PROVISIONS.

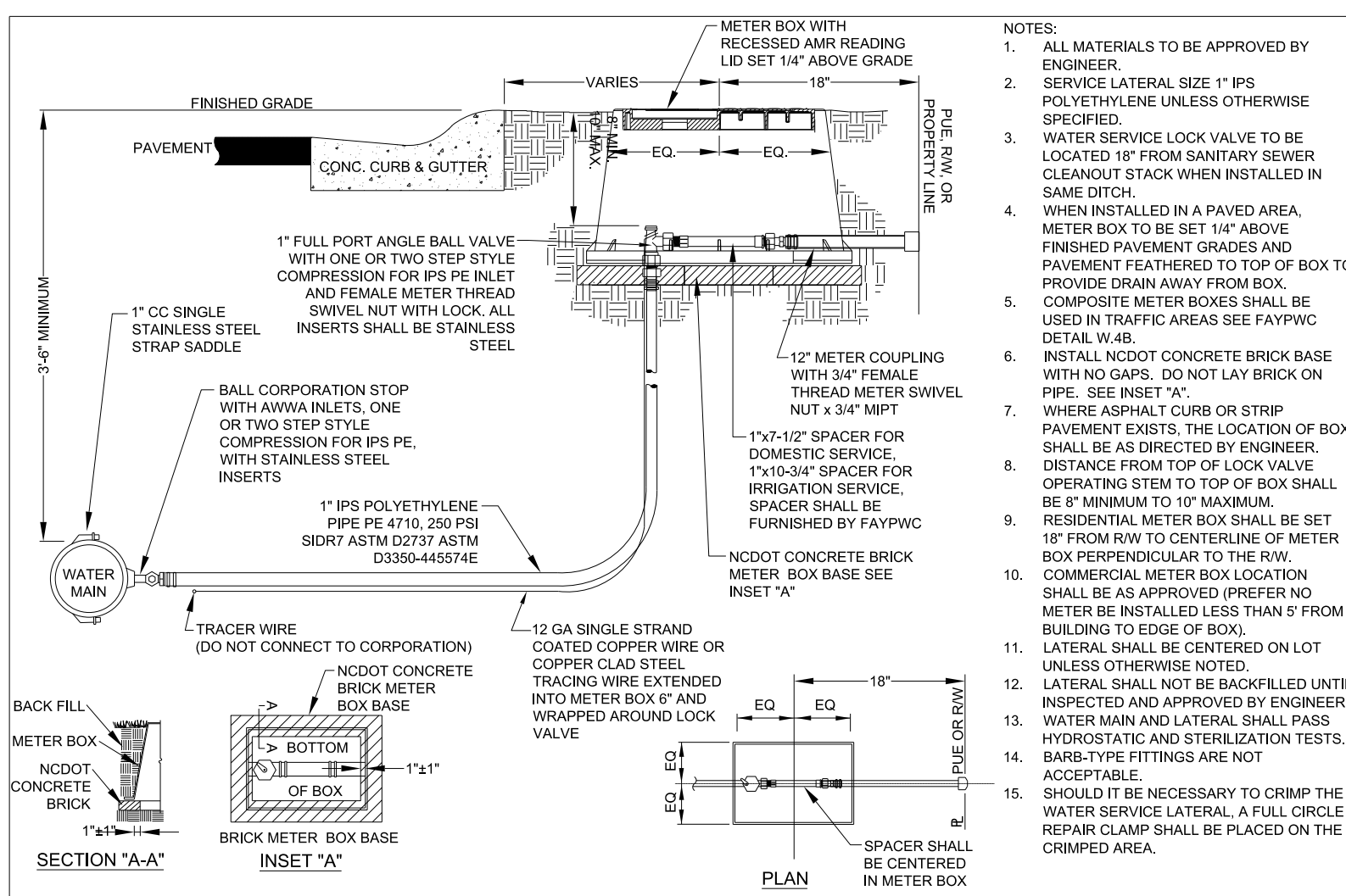
- SEPARATION REQUIREMENTS:
  - LATERAL SEPARATION OF SEWERS AND WATER MAINS: WATER MAINS SHALL BE LAID AT LEAST 10 FEET LATERALLY FROM EXISTING OR PROPOSED SEWER MAINLATERAL, UNLESS LOCAL CONDITIONS OR BARRIERS PREVENT A 10-FOOT LATERAL SEPARATION - IN WHICH CASE:
    - THE WATER MAIN IS LAID IN A SEPARATE TRENCH, WITH THE ELEVATION OF THE BOTTOM OF THE WATER MAIN AT LEAST 18 INCHES ABOVE THE TOP OF THE SEWER MAINLATERAL; OR
    - THE WATER MAIN IS LAID IN THE SAME TRENCH AS THE SEWER MAINLATERAL WITH THE WATER MAIN LOCATED ON ONE SIDE ON A BENCH OF UNDISTURBED EARTH AND WITH THE ELEVATION OF THE BOTTOM OF THE WATER MAIN AT LEAST 18 INCHES ABOVE THE TOP OF THE SEWER MAINLATERAL.
  - CROSSING A WATER MAIN OVER A SEWER: WHENEVER IT IS NECESSARY FOR A WATER MAIN TO CROSS OVER A SEWER MAINLATERAL, THE WATER MAIN SHALL BE LAID AT SUCH AN ELEVATION THAT THE BOTTOM OF THE WATER MAIN IS AT LEAST 18 INCHES ABOVE THE TOP OF THE SEWER MAINLATERAL, UNLESS LOCAL CONDITIONS OR BARRIERS PREVENT AN 18 INCH VERTICAL SEPARATION - IN WHICH CASE BOTH THE WATER MAIN AND SEWER MAINLATERAL SHALL BE DUCTILE IRON IN ACCORDANCE WITH UTILITY SPECIAL PROVISIONS.
  - CROSSING WATER MAIN UNDER A SEWER: WHENEVER IT IS NECESSARY FOR A WATER MAIN TO CROSS UNDER A SEWER MAINLATERAL, BOTH THE WATER MAIN AND THE SEWER MAINLATERAL SHALL BE DUCTILE IRON IN ACCORDANCE WITH UTILITY SPECIAL PROVISIONS. A FULL JOINT OF DUCTILE IRON PIPE SHALL BE INSTALLED ON THE WATER MAIN CENTERED AT THE POINT OF CROSSING.
  - CROSSING STORM DRAINAGE LINES: A MINIMUM OF 12 INCHES OF VERTICAL CLEARANCE SHALL BE MAINTAINED BETWEEN A WATER LINE CROSSING OVER A STORM DRAINAGE LINE UNLESS DUCTILE IRON PIPE IS USED. IN ADDITION, THREE AND A HALF (3.5) FEET OF COVER MUST BE MAINTAINED OVER WATER MAIN OR IT SHALL BE DUCTILE IRON. IF DUCTILE IRON PIPE IS USED THEN TWO AND A HALF (2.5) FEET OF COVER MUST BE MAINTAINED OVER THE WATER MAIN AND A MINIMUM OF 4 INCHES OF VERTICAL CLEARANCE SHALL BE MAINTAINED BETWEEN THE WATER MAIN AND THE STORM DRAINAGE LINE. WHERE A WATER MAIN CROSSES UNDER A STORM DRAINAGE LINE THE MINIMUM OF TWELVE (12) INCHES OF VERTICAL SEPARATION SHALL BE MAINTAINED AND THE WATER MAIN SHALL BE DUCTILE IRON FOR A DISTANCE OF 10 FEET ON EACH SIDE OF THE CROSSING.
- WATER OUTAGES: THE CONTRACTOR SHALL SCHEDULE A COORDINATION MEETING WITH THE ENGINEER A MINIMUM OF THREE (3) WORKING DAYS PRIOR TO ANY PLANNED WATER OUTAGE. THE COORDINATION MEETING SHALL BE CONDUCTED PRIOR TO ANY NOTICES BEING ISSUED. ADDITIONALLY, THE CONTRACTOR SHALL LOCATE VERTICALLY AND HORIZONTALLY ANY UTILITIES WITHIN THE WORK AREA, IN ACCORDANCE WITH THE SPECIAL PROVISIONS. THE LOCATIONS OF ALL UTILITIES WITHIN THE WORK AREA SHALL BE DETERMINED PRIOR TO THE COORDINATION MEETING. ANY CONFLICTS WITH THE PENDING WORK AND THE EXISTING UTILITIES SHALL BE IDENTIFIED AND A PLAN FOR RESOLVING ANY CONFLICTS SHALL BE PRESENTED. THE PURPOSE OF THIS COORDINATION MEETING IS TO ENSURE THAT THE CONTRACTOR HAS A GOOD UNDERSTANDING OF THE REQUIREMENTS RELATED TO THE PENDING OUTAGE. VERIFY THAT THERE ARE NO UTILITY CONFLICTS THAT WILL PREVENT THE WORK FROM BEING COMPLETED. ALL EQUIPMENT IS IN GOOD WORKING ORDER. ALL EQUIPMENT IS FUNCTIONAL. ALL MATERIALS ARE ON SITE. ALL NECESSARY TOOLS ARE ON SITE. DISCUSS ANY NECESSARY CONTINGENCY PLANS, AND ANY OTHER ITEMS NECESSARY TO ENSURE THAT THE ENGINEER HAS CONFIDENCE THAT THE WORK CAN BE ACCOMPLISHED WITHIN THE GIVEN TIME PERIOD. SHOULD, FOR ANY REASON, THE ENGINEER DEEM THAT THE CONTRACTOR IS NOT PREPARED FOR THE PROPOSED OUTAGE, THE OUTAGE NOTIFICATIONS WILL NOT BE DISTRIBUTED AND THE OUTAGE SHALL BE POSTPONED A MINIMUM OF TWO (2) WEEKS.
 

ONCE THE WATER OUTAGE NOTIFICATIONS HAVE BEEN ISSUED, A FOLLOW-UP COORDINATION MEETING WITH THE ENGINEER SHALL BE HELD A MINIMUM OF 24 HOURS PRIOR TO THE SCHEDULED OUTAGE. THE PURPOSE OF THIS MEETING IS TO VERIFY THAT THE CONTRACTOR IS PREPARED TO PROCEED WITH THE OUTAGE, AND THAT ALL EQUIPMENT, MATERIALS, TOOLS, AND ALL OTHER INCIDENTALS ARE ON THE PROJECT SITE AND FUNCTIONING. IF FOR ANY REASON THE ENGINEER DEEMS THAT THE CONTRACTOR IS NOT PREPARED, THE OUTAGE SHALL BE POSTPONED AND ALL CUSTOMERS IMMEDIATELY NOTIFIED OF THE CANCELLATION.

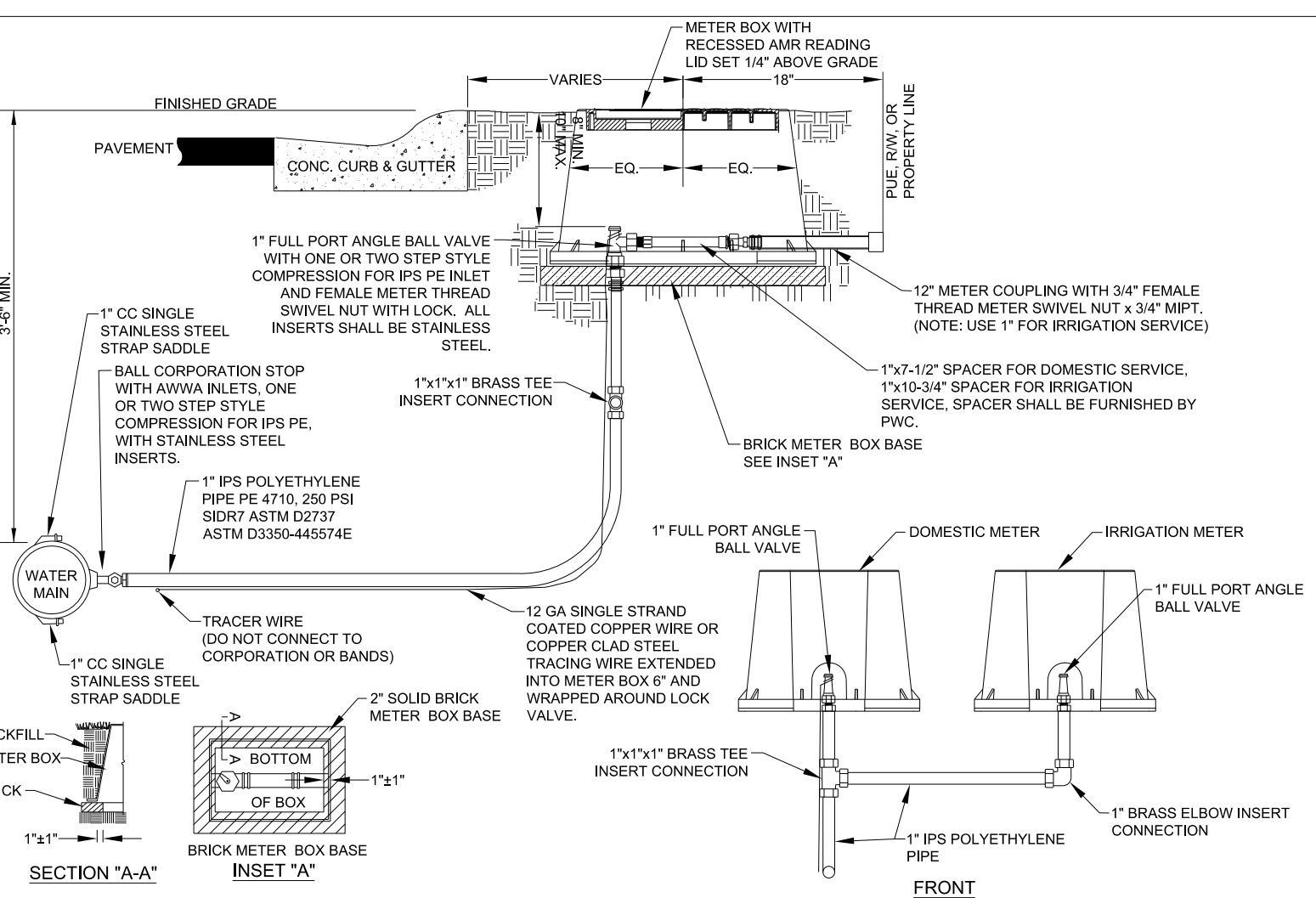
NOTE:  
 ANY REFERENCE TO FAYPWC PROJECT COORDINATOR, PWC COORDINATOR OR FAYPWC (FAYETTEVILLE PUBLIC WORKS COMMISSION) SHALL BE INTERPRETED AS A REFERENCE TO THE ENGINEER.

WATER UTILITY NOTES		FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		WATER RESOURCES ENGINEERING DEPARTMENT	
NO.	DATE	REVISION	NO.	DATE	REVISION
1	07/11	REVISED NOTES AND ADDED NOTE 6	1	07/11	REVISED NOTES AND ADDED NOTE 6
2	07/01/16	ADDED NOTE 6	2	07/01/16	ADDED NOTE 6
3	01/01/16	REVISED NOTES 5, 6, 8	3	01/01/16	REVISED NOTES 5, 6, 8
4	05/29/18	REVISED NOTES 1, 2, 3, 4, C, 7 AND 10 FOR NCDOT U-4405	4	05/29/18	REVISED NOTES 1, 2, 3, 4, C, 7 AND 10 FOR NCDOT U-4405
5	07/24/18	REVISED PER NCDOT COMMENTS	5	07/24/18	REVISED PER NCDOT COMMENTS

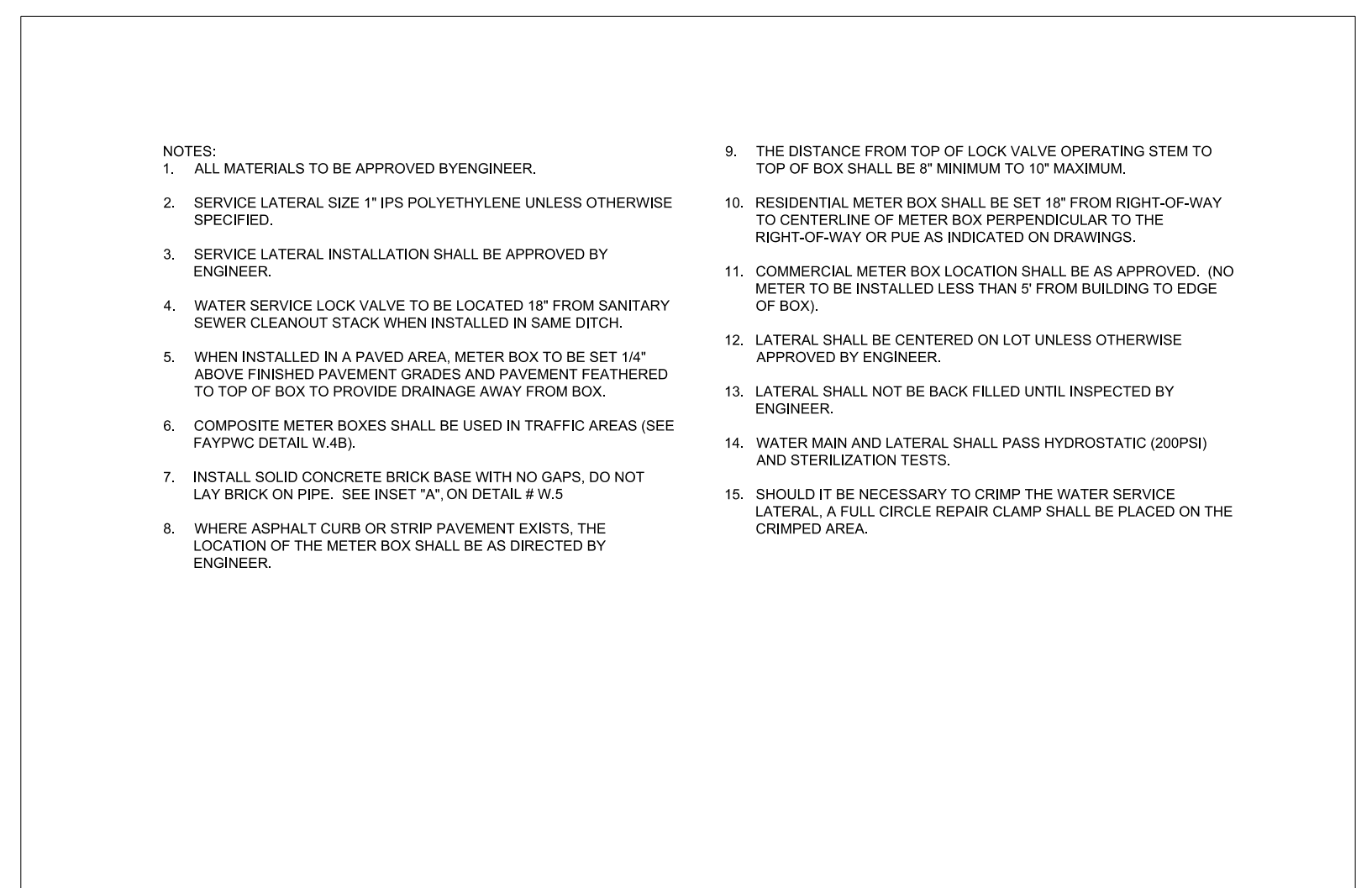
WATER UTILITY NOTES		FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		WATER RESOURCES ENGINEERING DEPARTMENT	
NO.	DATE	REVISION	NO.	DATE	REVISION
1	07/11	REVISED NOTES AND ADDED NOTE 6	1	07/11	REVISED NOTES AND ADDED NOTE 6
2	07/01/16	ADDED NOTE 6	2	07/01/16	ADDED NOTE 6
3	01/01/16	REVISED NOTES 5, 6, 8	3	01/01/16	REVISED NOTES 5, 6, 8
4	05/29/18	REVISED NOTES 1, 2, 3, 4, C, 7 AND 10 FOR NCDOT U-4405	4	05/29/18	REVISED NOTES 1, 2, 3, 4, C, 7 AND 10 FOR NCDOT U-4405



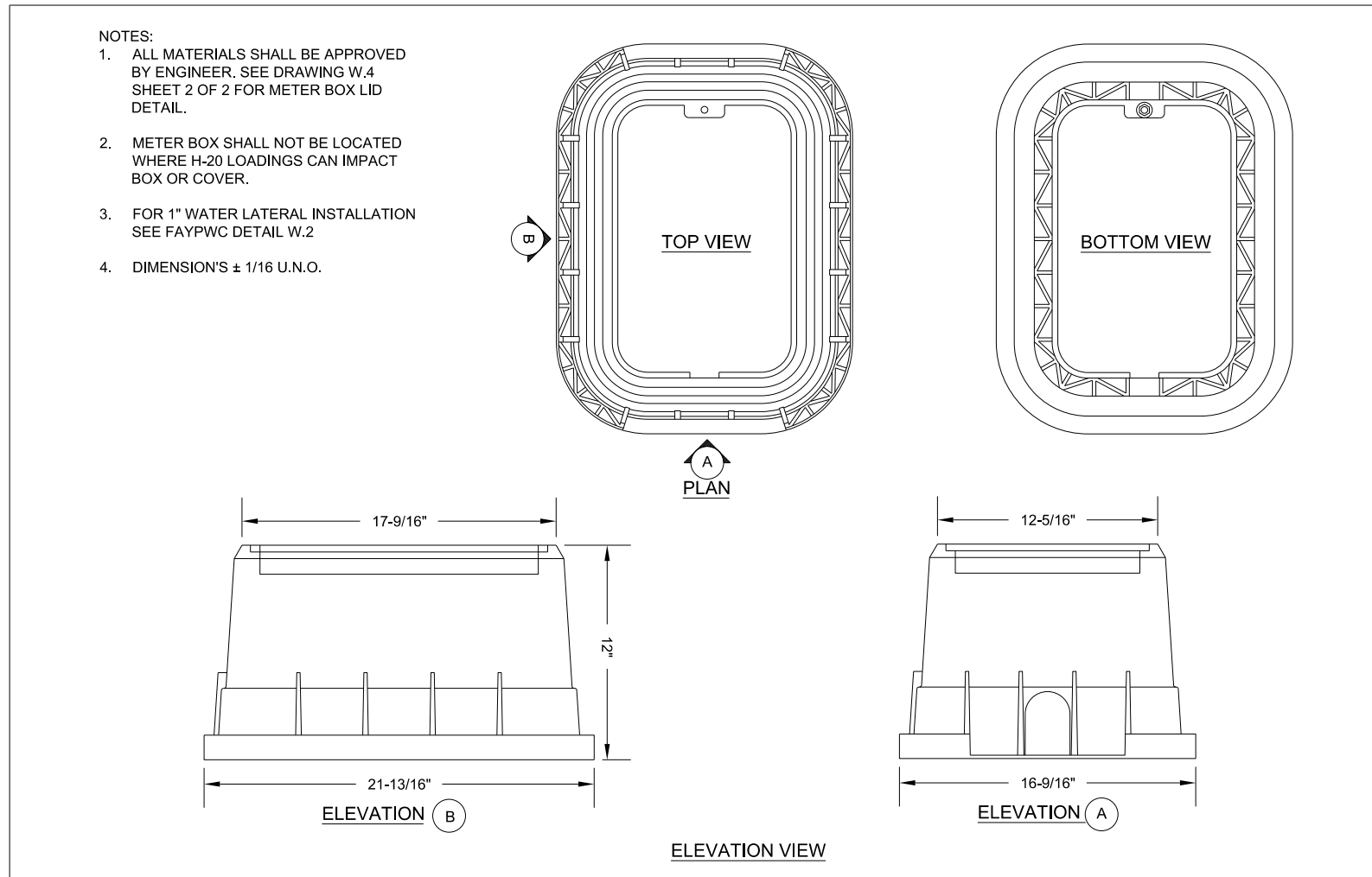
1" WATER SERVICE LATERAL N.T.S.		FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		WATER RESOURCES ENGINEERING DEPARTMENT	
NO.	DATE	REVISION	NO.	DATE	REVISION
1	07/06	ADDED FRONT VIEW AND MOVED NOTES TO SHEET 2	1	07/06	ADDED FRONT VIEW AND MOVED NOTES TO SHEET 2
2	07/13	REVISED NOTE RE: TRACER WIRE	2	07/13	REVISED NOTE RE: TRACER WIRE
3	07/17	REVISED NOTES	3	07/17	REVISED NOTES
4	05/29/18	REVISED NOTES 1, 7, AND 12 AND INCLUDE PLACEMENT OF BOX 18" WITHIN PUE ON SECTION AND PLAN VIEWS	4	05/29/18	REVISED NOTES 1, 7, AND 12 AND INCLUDE PLACEMENT OF BOX 18" WITHIN PUE ON SECTION AND PLAN VIEWS



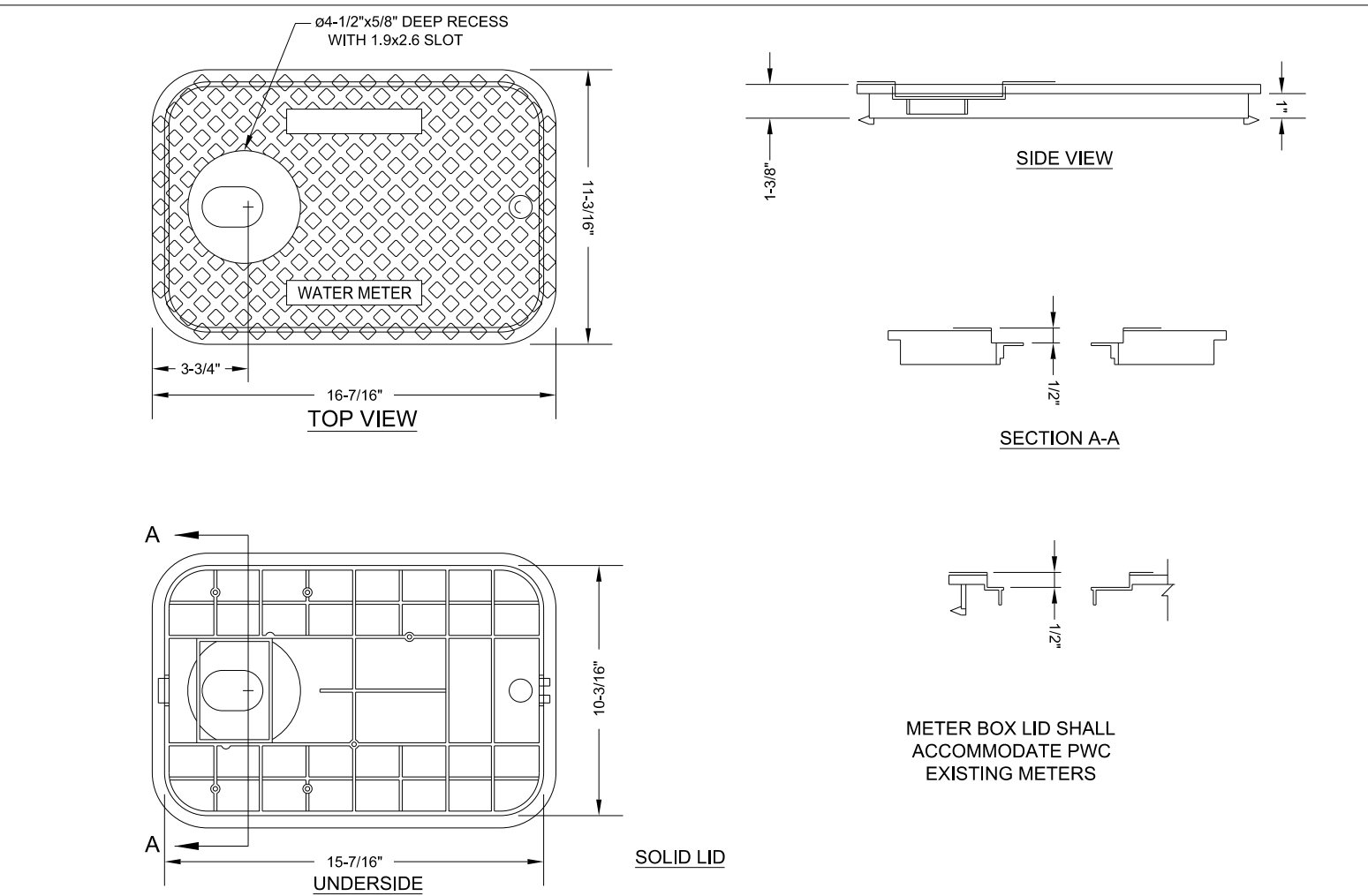
1" SPLIT WATER SERVICE LATERAL N.T.S.		FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		WATER RESOURCES ENGINEERING DEPARTMENT	
NO.	DATE	REVISION	NO.	DATE	REVISION
1	07/06	ADDED FRONT VIEW AND MOVED NOTES TO SHEET 2	1	07/06	ADDED FRONT VIEW AND MOVED NOTES TO SHEET 2
2	07/13	REVISED NOTES	2	07/13	REVISED NOTES
3	05/29/18	INCLUDE PLACEMENT OF BOX 18" WITHIN PUE ON SECTION AND PLAN VIEWS	3	05/29/18	INCLUDE PLACEMENT OF BOX 18" WITHIN PUE ON SECTION AND PLAN VIEWS



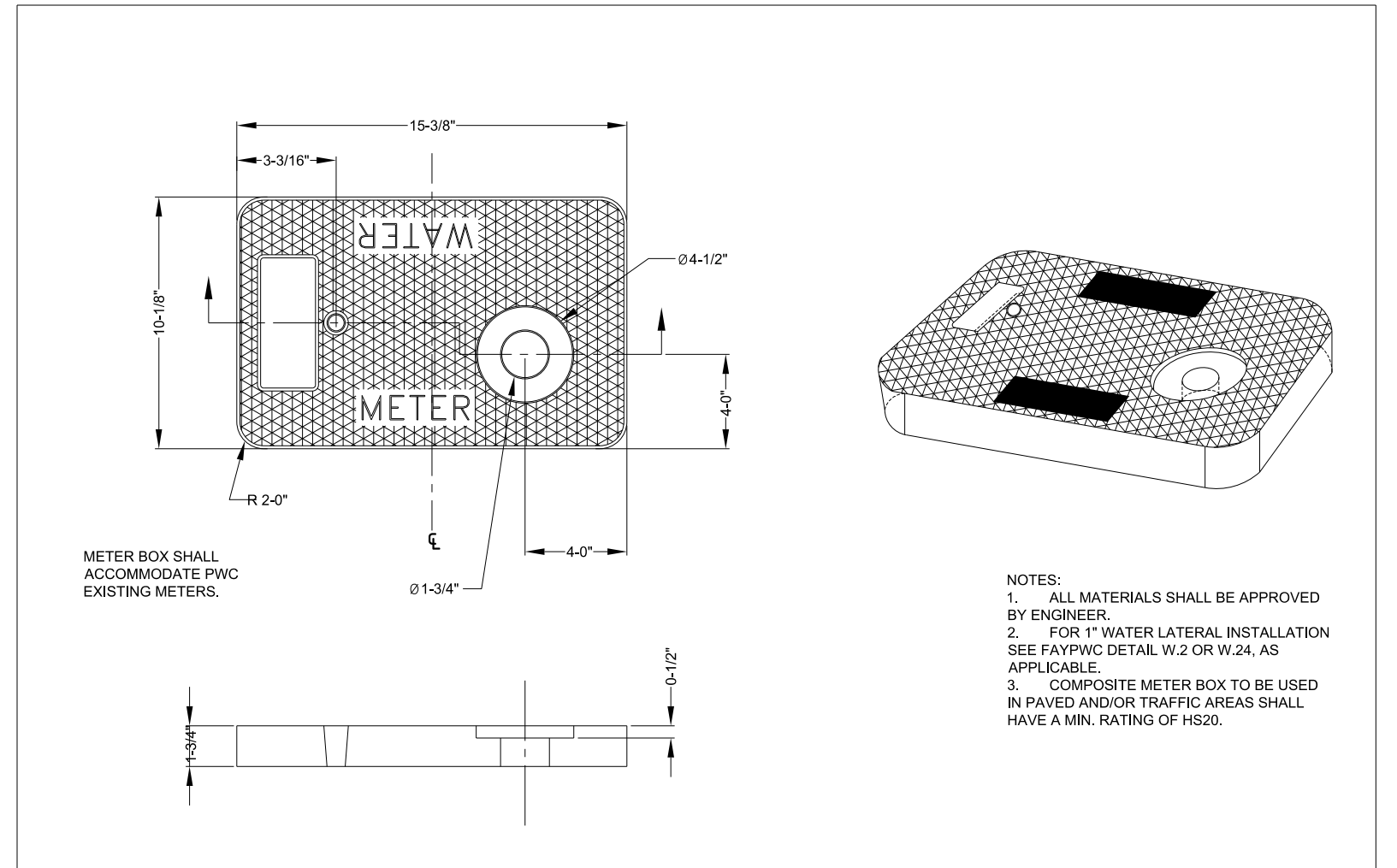
1" SPLIT WATER SERVICE LATERAL NOTES		FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		WATER RESOURCES ENGINEERING DEPARTMENT	
NO.	DATE	REVISION	NO.	DATE	REVISION
1	07/06	ADDED FRONT VIEW AND MOVED NOTES TO SHEET 2	1	07/06	ADDED FRONT VIEW AND MOVED NOTES TO SHEET 2
2	02/16	UPDATED NOTES	2	02/16	UPDATED NOTES
3	05/29/18	REVISED NOTES 1, 3, 8, 10, 12 AND 13 FOR NCDOT U-4405	3	05/29/18	REVISED NOTES 1, 3, 8, 10, 12 AND 13 FOR NCDOT U-4405



1-INCH METER BOX DETAILS N.T.S.		FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		WATER RESOURCES ENGINEERING DEPARTMENT	
NO.	DATE	REVISION	NO.	DATE	REVISION
1	03/10	CHANGED BOX DIMENSIONS	1	03/10	CHANGED BOX DIMENSIONS
2	05/29/18	REVISED NOTES 1 FOR NCDOT U-4405	2	05/29/18	REVISED NOTES 1 FOR NCDOT U-4405



1-INCH METER BOX LID N.T.S.		FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		WATER RESOURCES ENGINEERING DEPARTMENT	
NO.	DATE	REVISION	NO.	DATE	REVISION
1	07/07	REVISED LID	1	07/07	REVISED LID
2	03/10	CHANGED BOX AND LID DIMENSIONS	2	03/10	CHANGED BOX AND LID DIMENSIONS
3	01/15	REVISED LID	3	01/15	REVISED LID
4	05/29/18	ADDED NOTE FOR METER LID CONFORMANCE TO AMRs	4	05/29/18	ADDED NOTE FOR METER LID CONFORMANCE TO AMRs



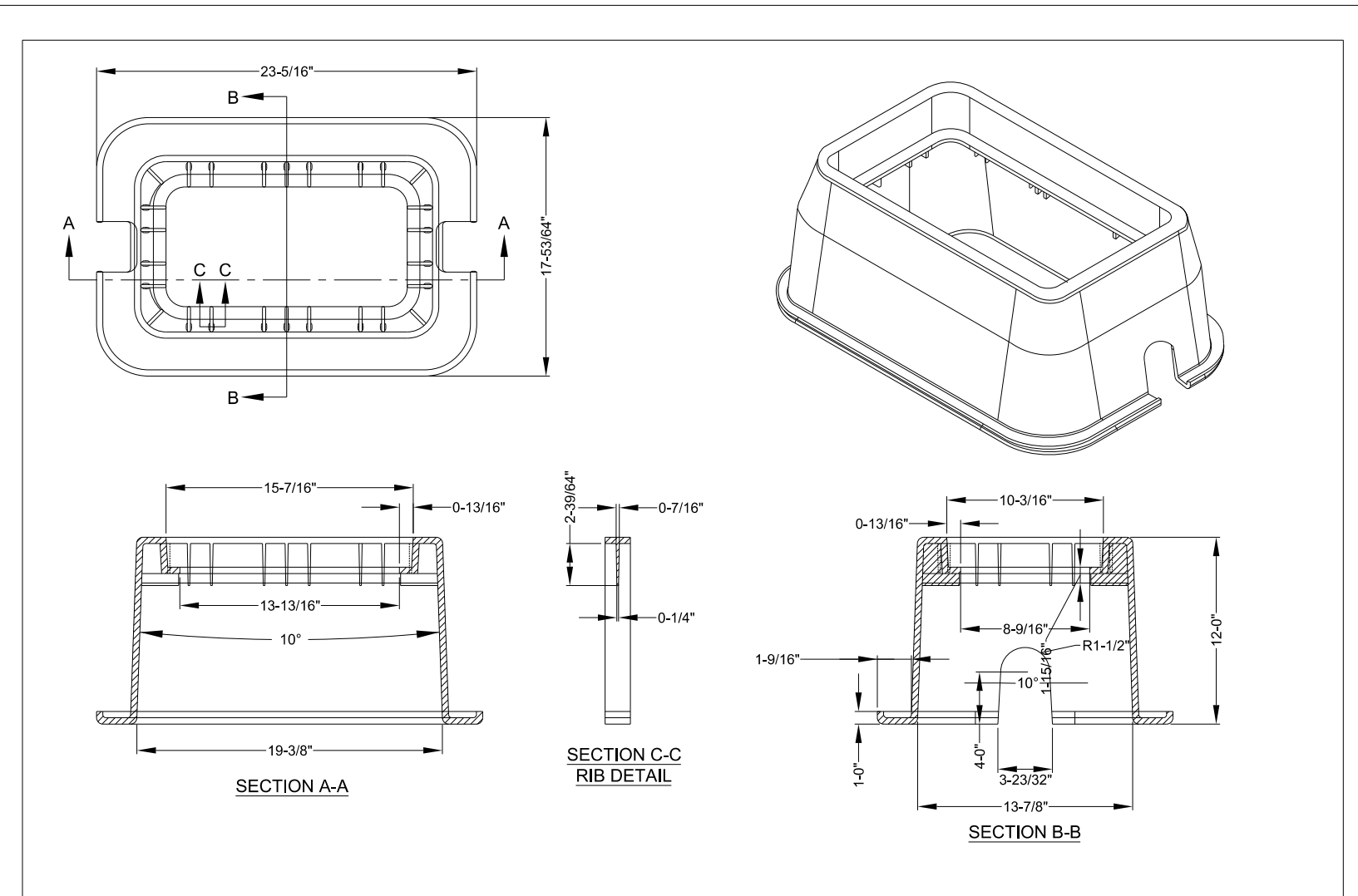
1-INCH COMPOSITE METER BOX & COVER N.T.S.		FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		WATER RESOURCES ENGINEERING DEPARTMENT	
NO.	DATE	REVISION	NO.	DATE	REVISION
1	03/10	CHANGED BOX & LID DIMENSIONS	1	03/10	CHANGED BOX & LID DIMENSIONS
2	12/15	REPLACED CI BOX w/COMPOSITE BOX	2	12/15	REPLACED CI BOX w/COMPOSITE BOX
3	05/29/18	ADDED NOTE FOR METER LID CONFORMANCE TO AMRs	3	05/29/18	ADDED NOTE FOR METER LID CONFORMANCE TO AMRs

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 5/14/99  
 UTILITY REV. - JULY 24, 2018 - REVISIONS TO DETAIL SHEETS

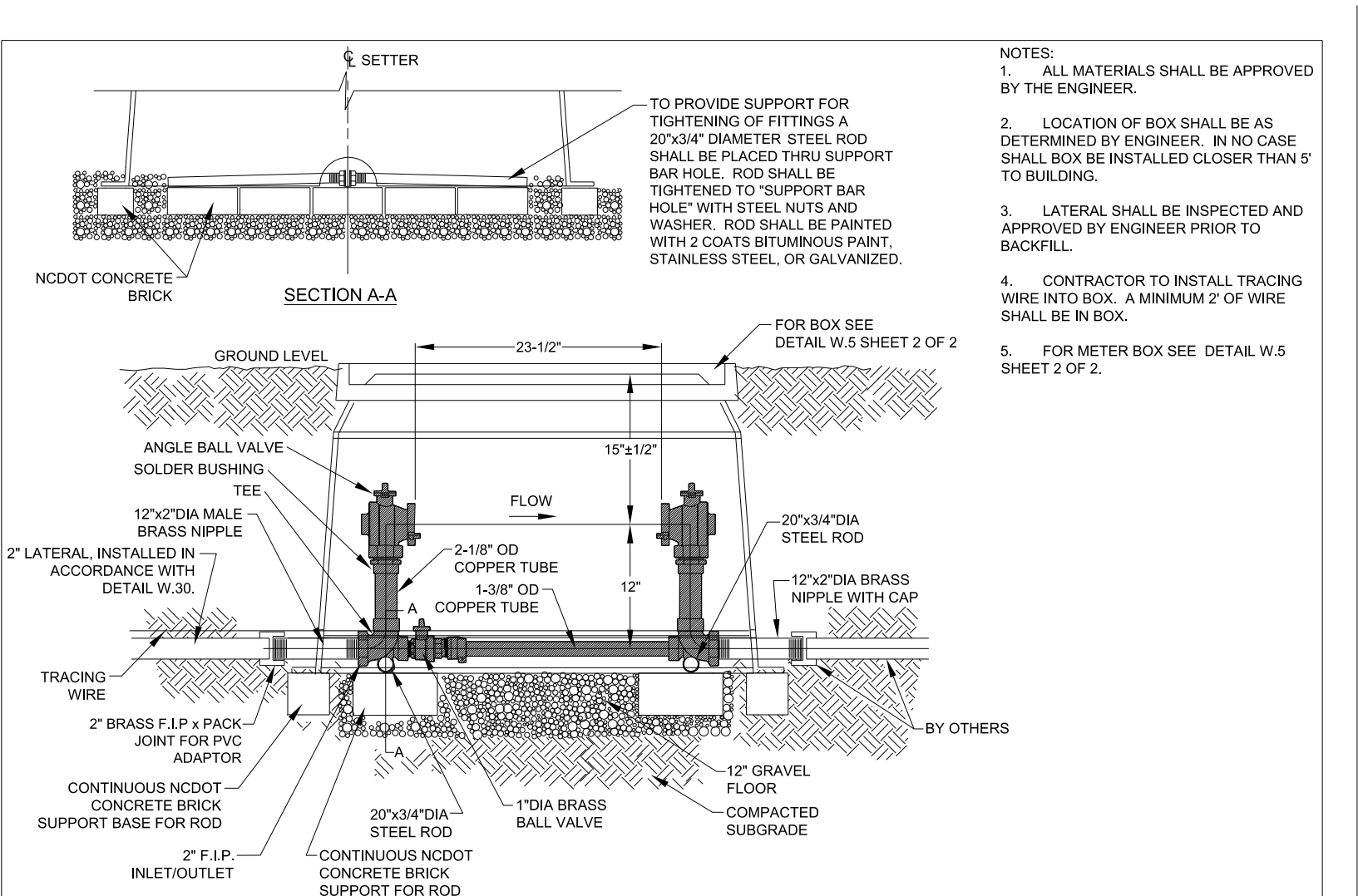
REVISIONS



UTILITY CONSTRUCTION

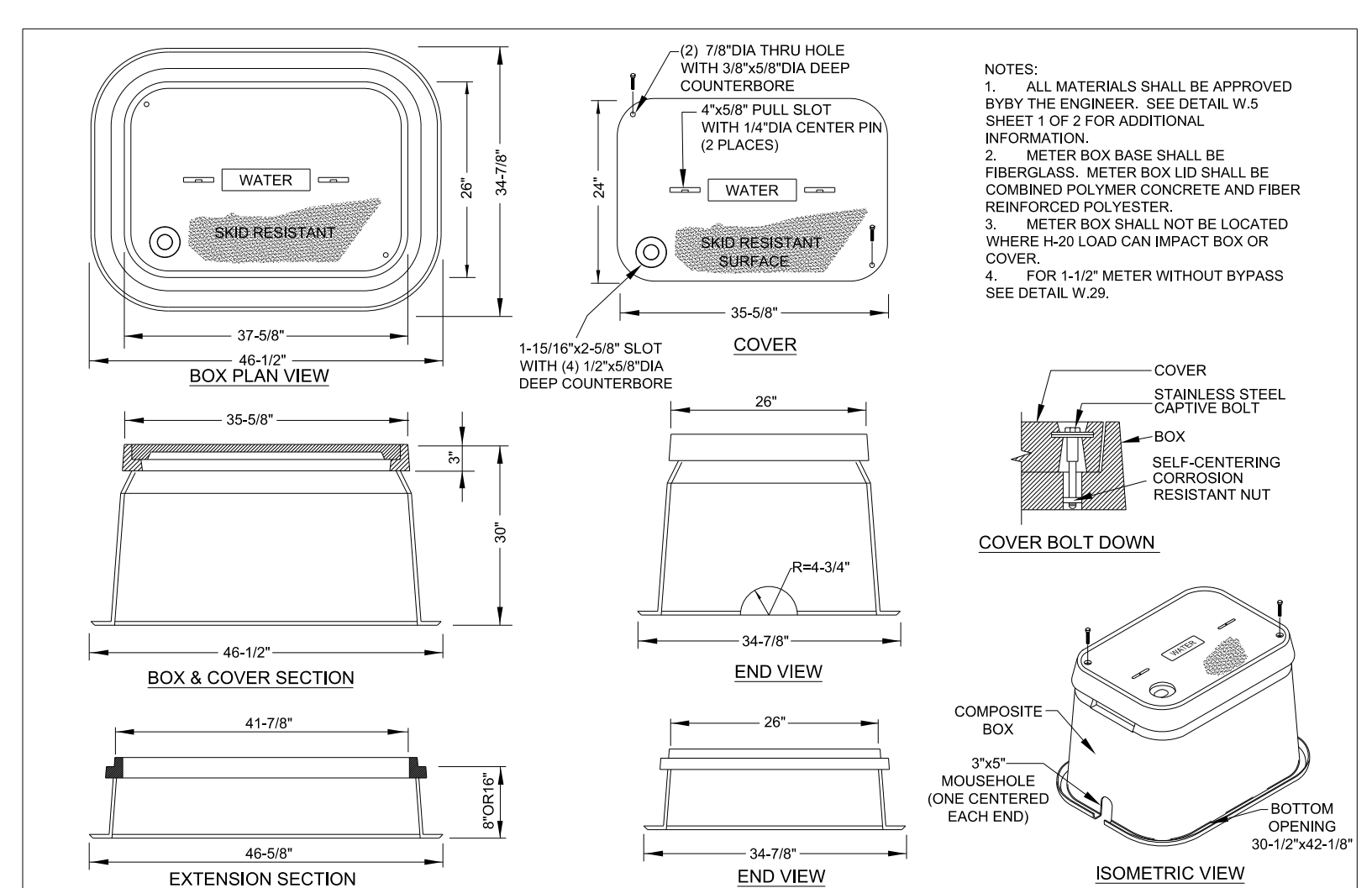


1-INCH COMPOSITE METER BOX & COVER N.T.S.		FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.	NO.	DATE	REVISION
SHEET NO. 2 OF 2		WATER RESOURCES DEPARTMENT	1	12/15	REPLACED CI BOX WITH COMPOSITE BOX
DWG. NO. W.4B	DWG. BY: FAYPWC				
DATE: JAN. 01, 2018	APPROVED BY: J.E.G.				

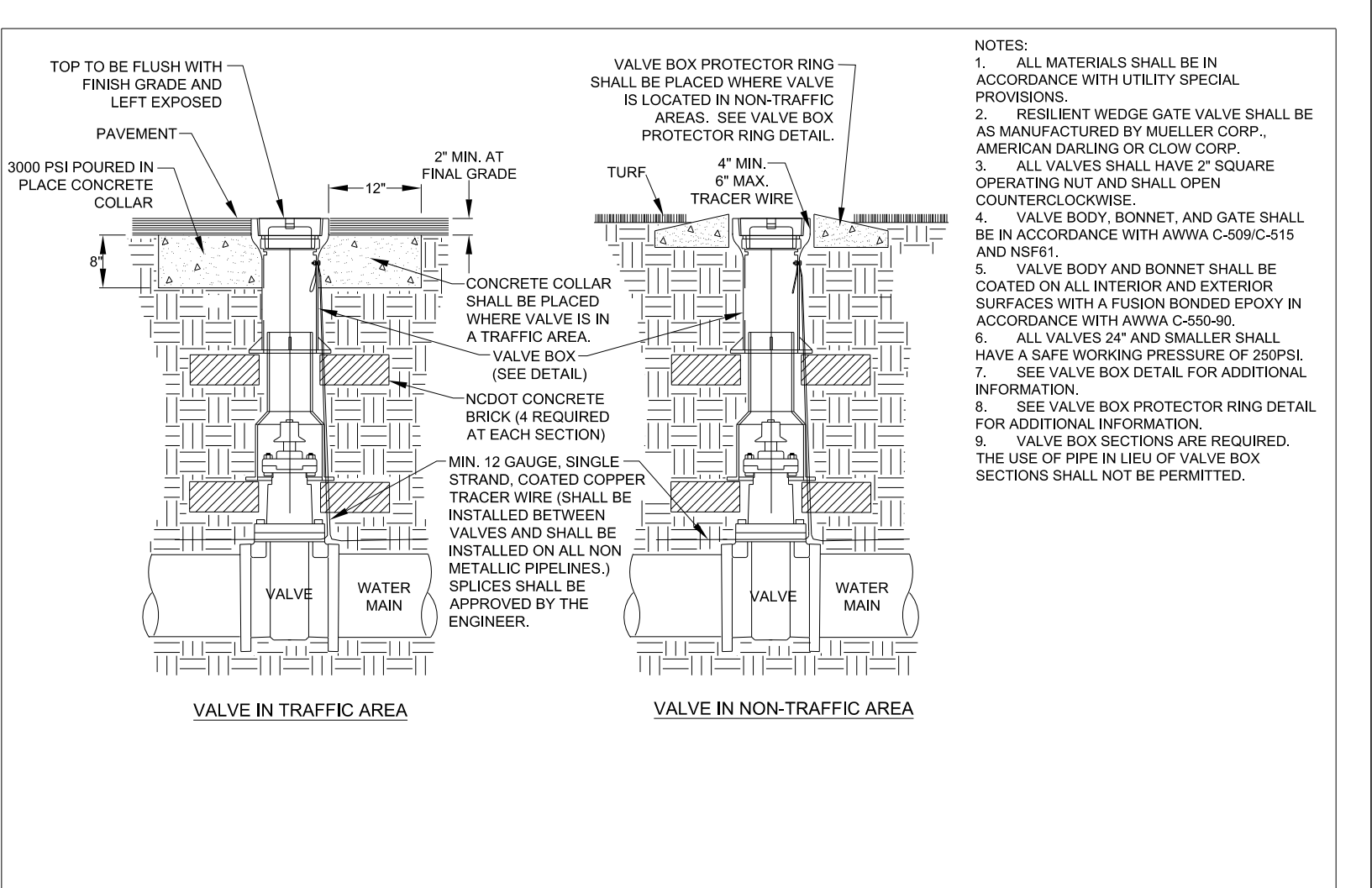


2" COPPER SETTER w/BYPASS 23-1/2" METER SPACING N.T.S.		FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.	NO.	DATE	REVISION
SHEET NO. 1 OF 2		WATER RESOURCES ENGINEERING DEPARTMENT	1	07/13	REVISED, UPDATED NOTES
DWG. NO. W.5	DWG. BY: FAYPWC				
DATE: JAN. 01, 2018	APPROVED BY: J.E.G.				

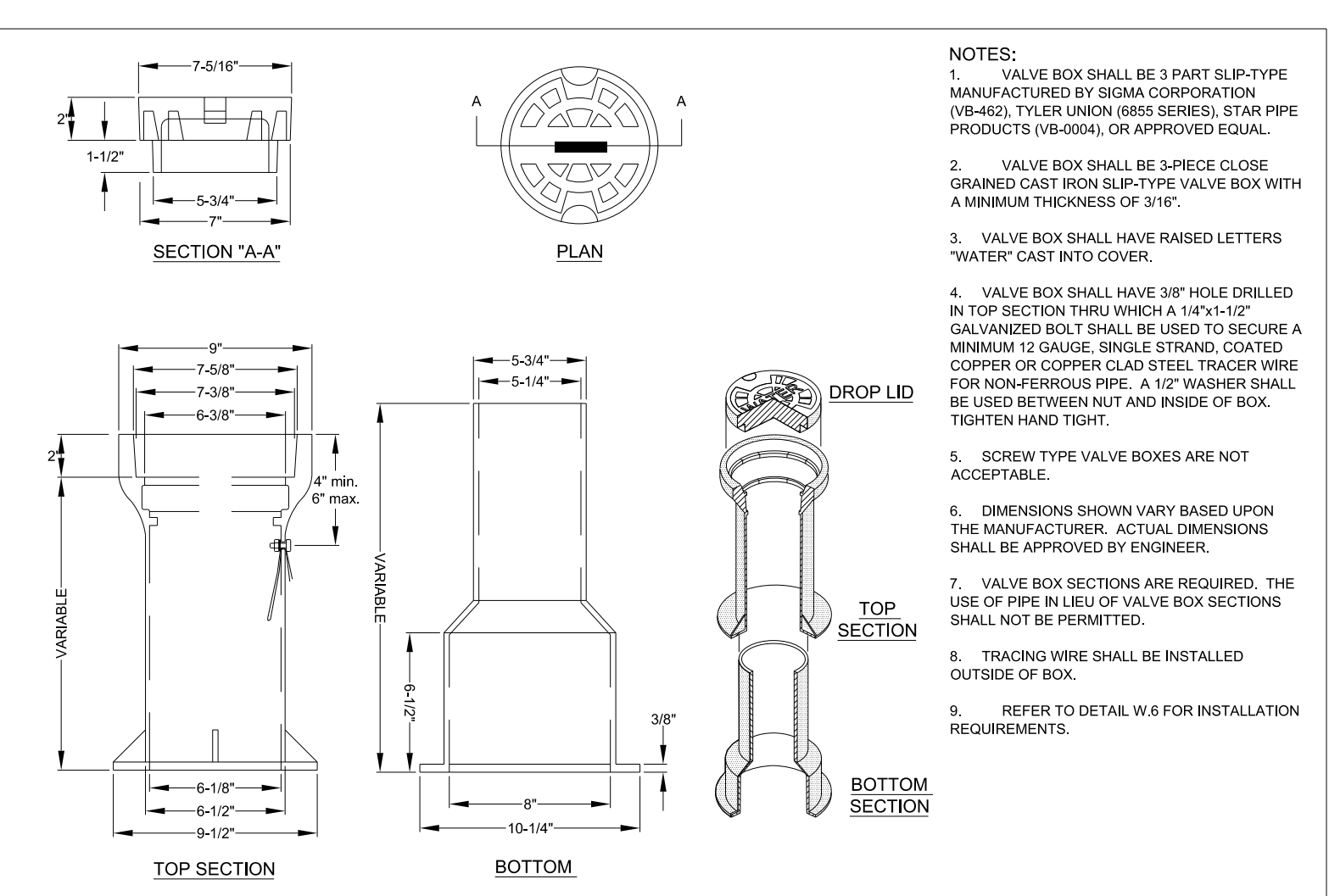
NOTE:  
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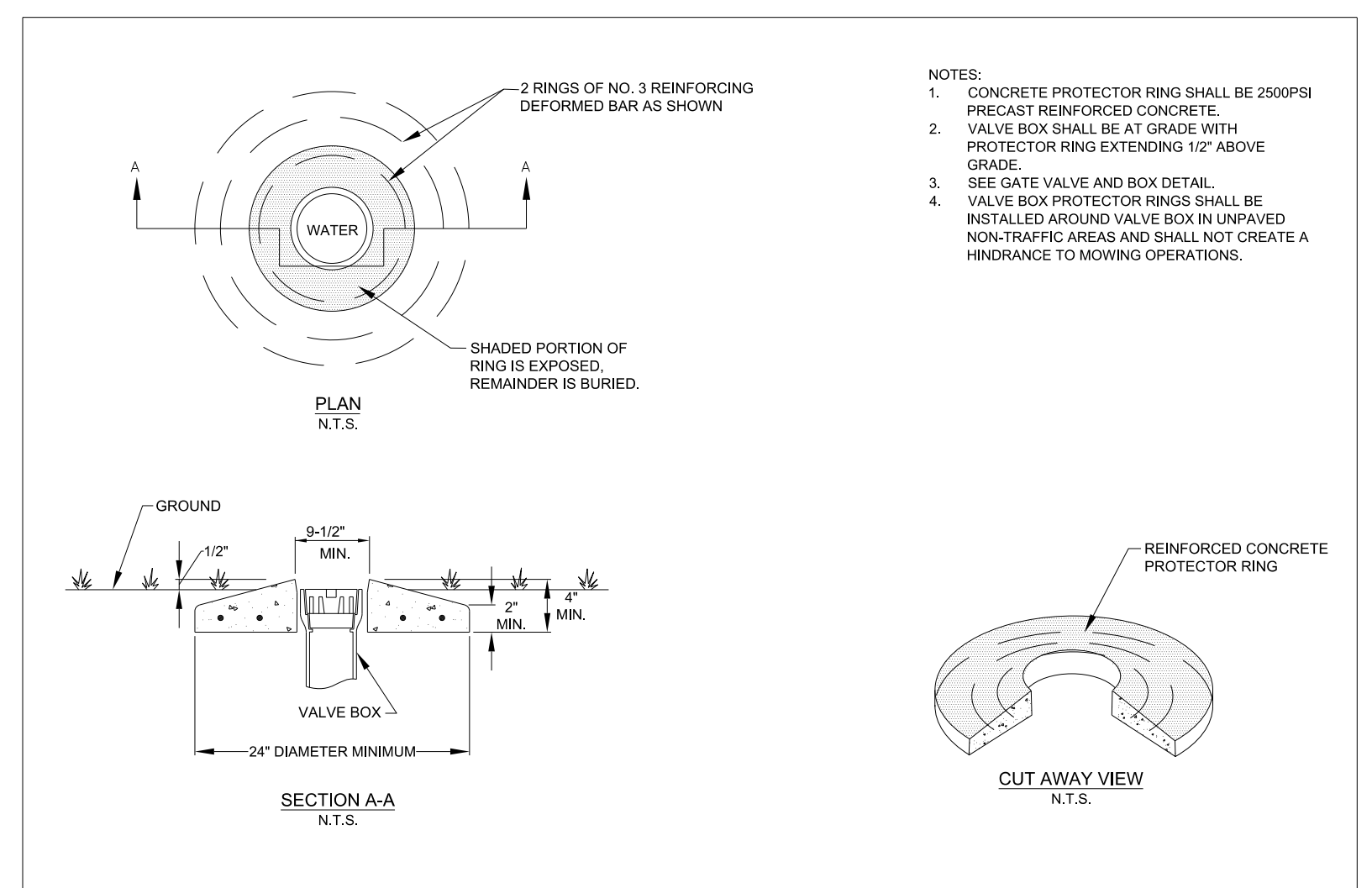
1-1/2" & 2" BY-PASS METER BOX N.T.S.		FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.	NO.	DATE	REVISION
SHEET NO. 2 OF 2		WATER RESOURCES ENGINEERING DEPARTMENT	1	12/15	REVISED LID
DWG. NO. W.5	DWG. BY: FAYPWC				
DATE: JAN. 01, 2018	APPROVED BY: J.E.G.				



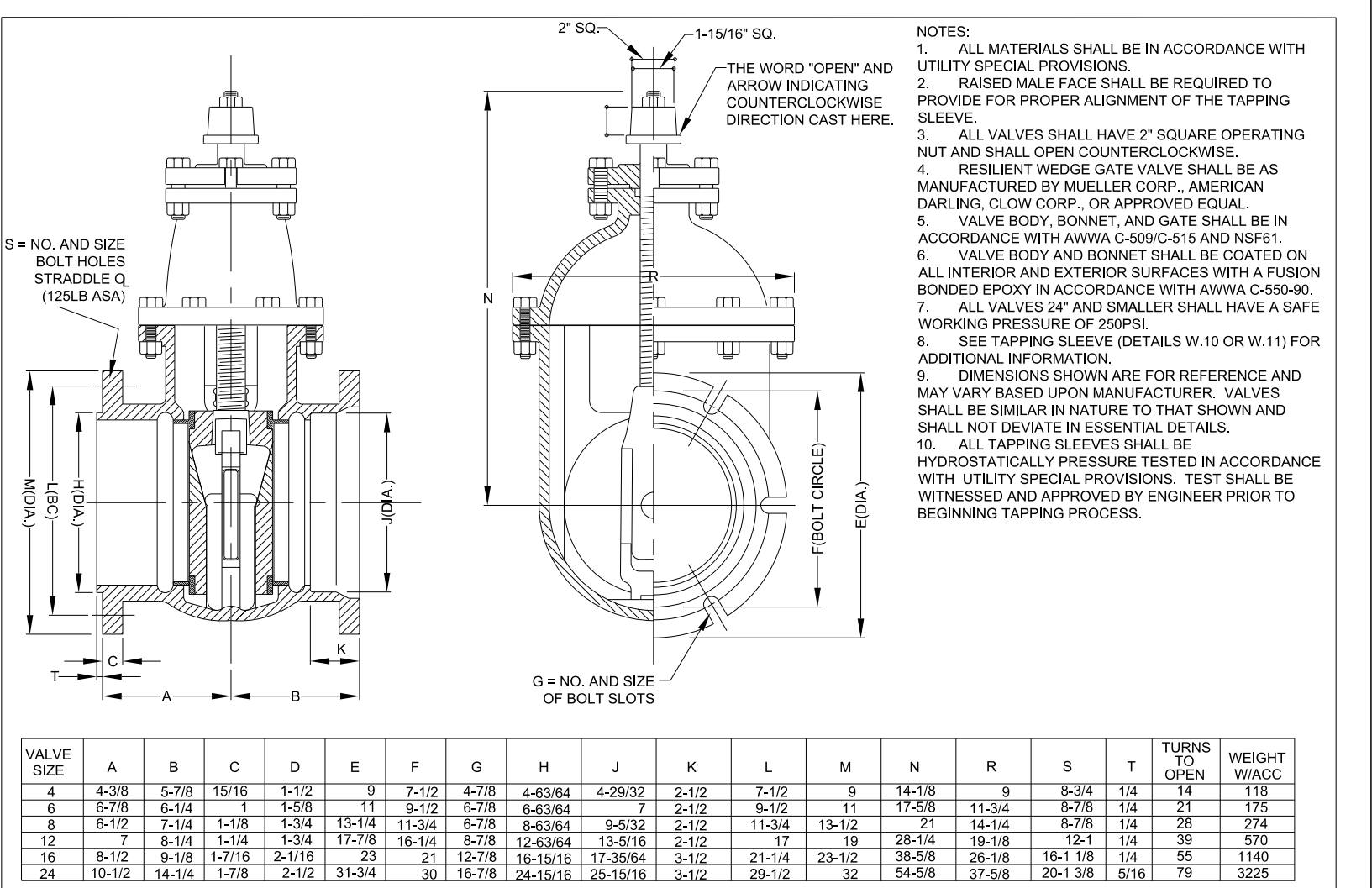
GATE VALVE N.T.S.		FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.	NO.	DATE	REVISION
SHEET NO. 1 OF 1		WATER RESOURCES ENGINEERING DEPARTMENT	1	6/06	ADDED NOTE NO. 9
DWG. NO. W.6	DWG. BY: FAYPWC				
DATE: JAN. 01, 2018	APPROVED BY: J.E.G.				



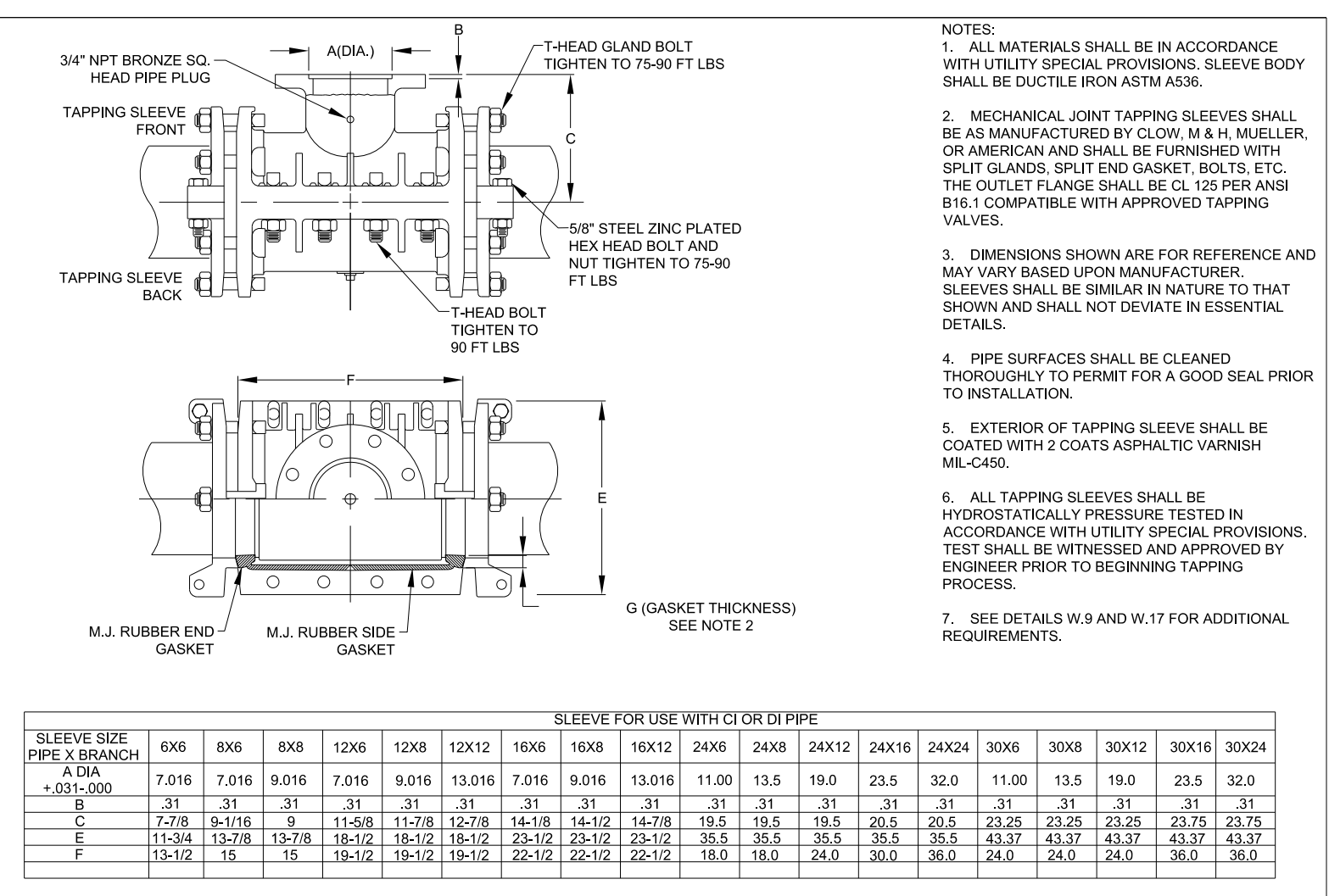
VALVE BOX N.T.S.		FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.	NO.	DATE	REVISION
SHEET NO. 1 OF 1		WATER RESOURCES ENGINEERING DEPARTMENT	1	07/09	ADDED NOTES 7, 8, AND CLARIFIED NOTES
DWG. NO. W.7	DWG. BY: FAYPWC				
DATE: JAN. 01, 2018	APPROVED BY: J.E.G.				



VALVE BOX PROTECTOR RING N.T.S.		FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.	NO.	DATE	REVISION
SHEET NO. 1 OF 1		WATER RESOURCES ENGINEERING DEPARTMENT			
DWG. NO. W.8	DWG. BY: FAYPWC				
DATE: JAN. 01, 2018	APPROVED BY: J.E.G.				



TAPPING VALVE N.T.S.		FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.	NO.	DATE	REVISION
SHEET NO. 1 OF 1		WATER RESOURCES ENGINEERING DEPARTMENT	1	07/09	ADDED NOTE 10, REVISED 4 AND 5
DWG. NO. W.9	DWG. BY: FAYPWC				
DATE: JAN. 01, 2018	APPROVED BY: J.E.G.				

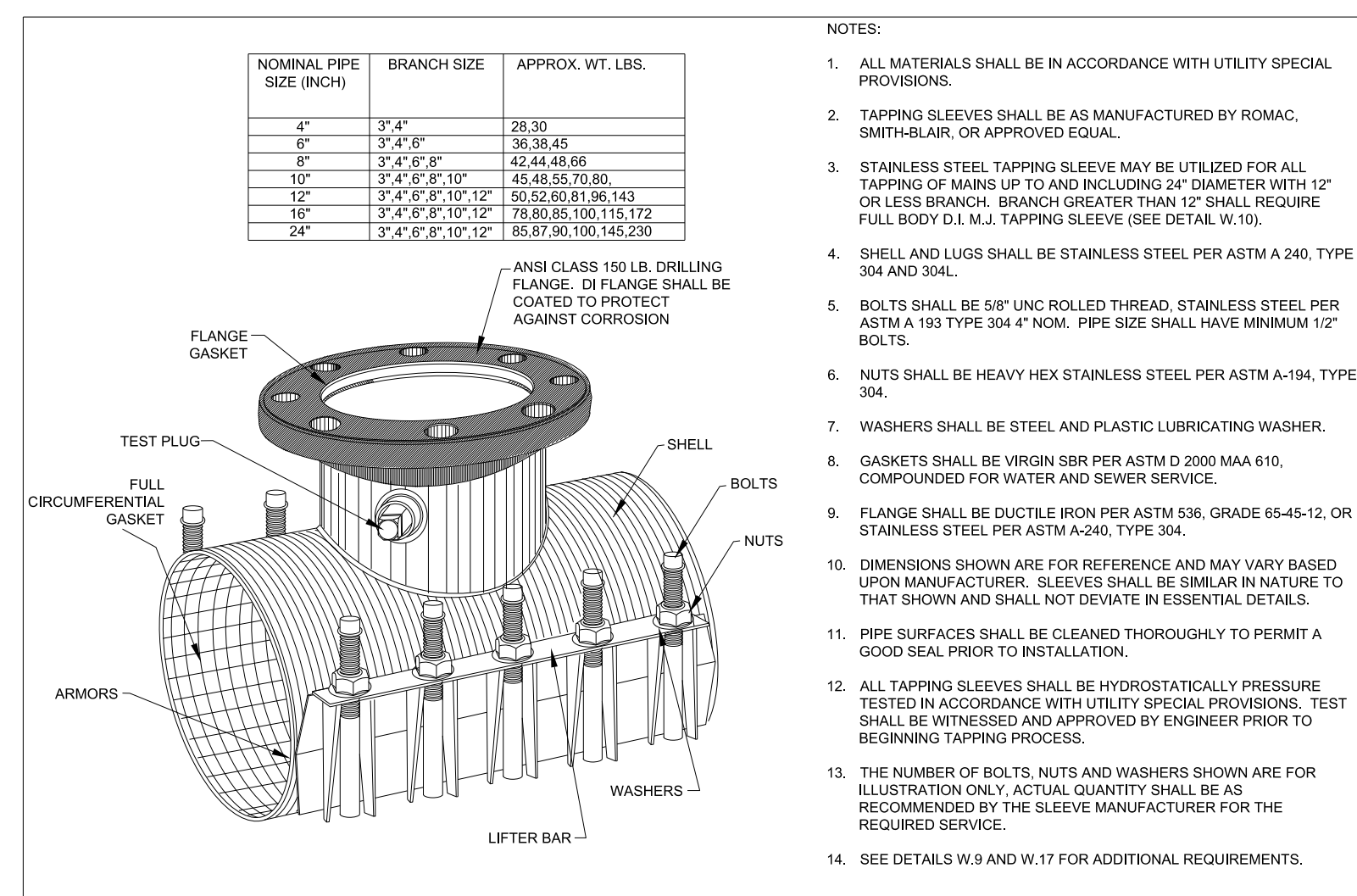


DUCTILE IRON TAPPING SLEEVE N.T.S.		FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.	NO.	DATE	REVISION
SHEET NO. 1 OF 1		WATER RESOURCES ENGINEERING DEPARTMENT	1	07/09	REVISED NOTE 6, 7
DWG. NO. W.10	DWG. BY: FAYPWC				
DATE: JAN. 01, 2018	APPROVED BY: J.E.G.				

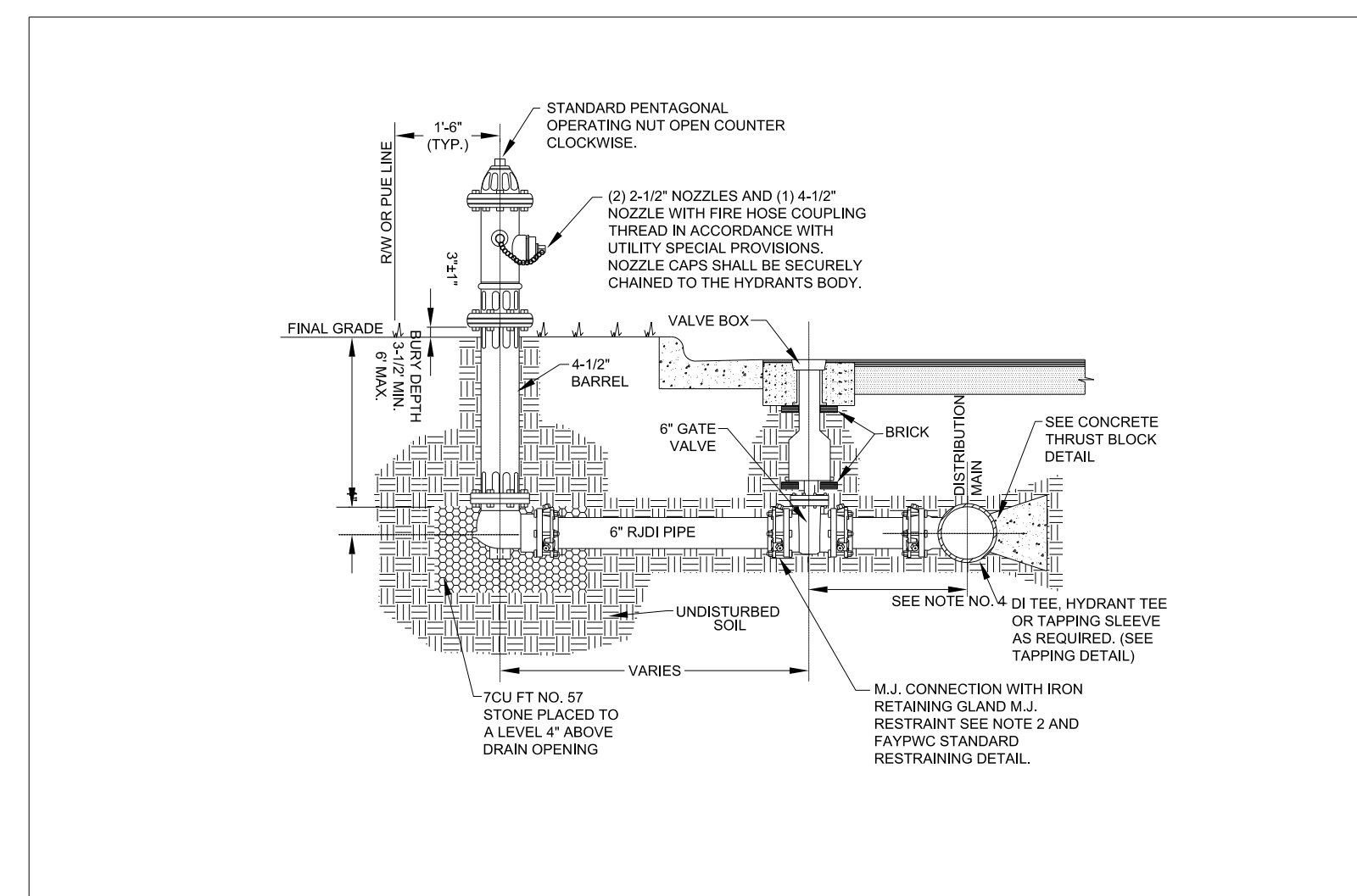
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 5/14/99  
 UTILITY REV. - JULY 24, 2008 - REVISIONS TO DETAIL SHEETS



# UTILITY CONSTRUCTION

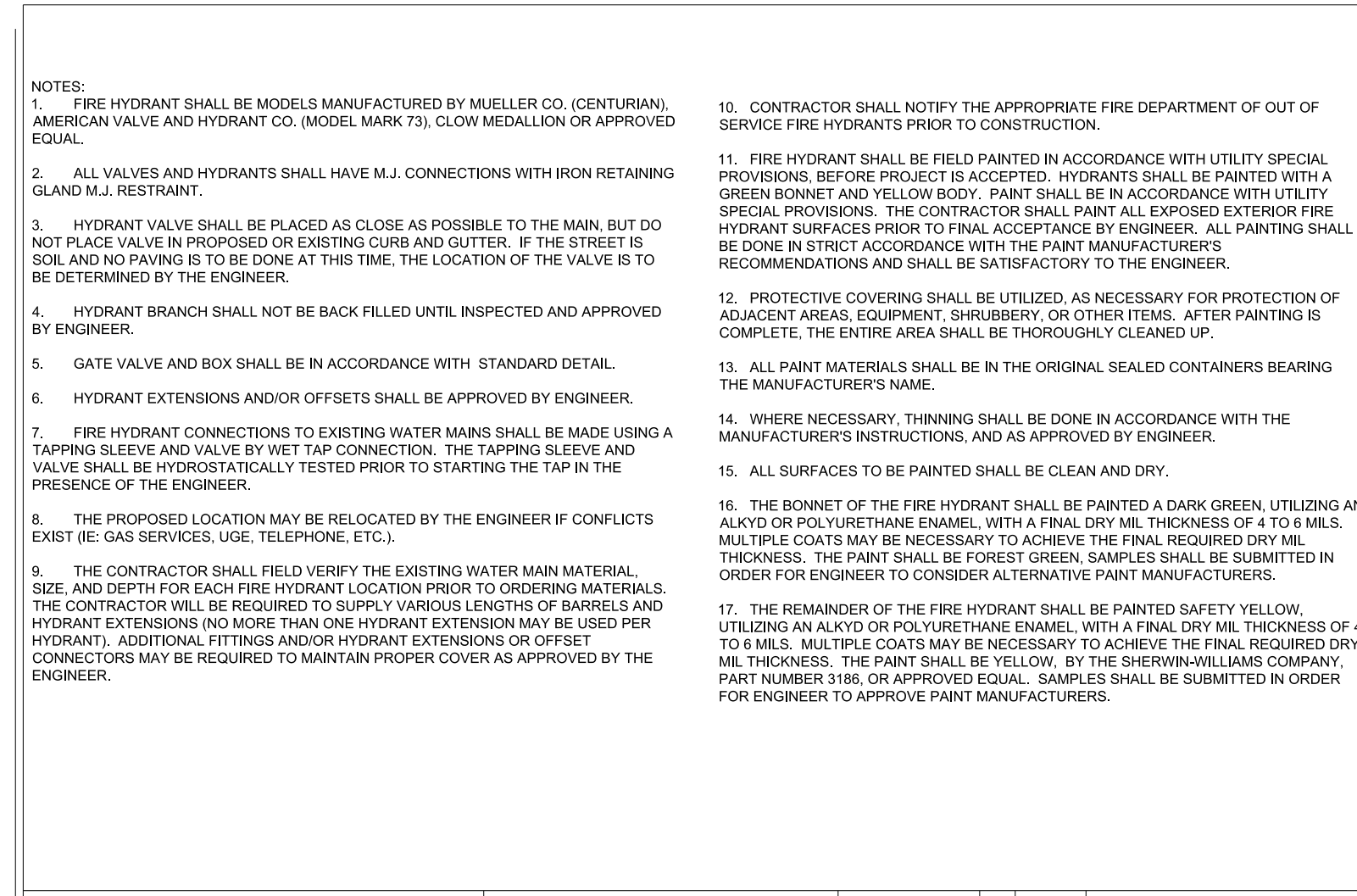


STAINLESS STEEL TAPPING SLEEVE N.T.S.		FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO. DATE REVISION	
DWG. NO. W.11		DWG. BY: FAYPWC		1	07/09
DATE: JAN. 01, 2018		APPROVED BY: J.E.G.		2	07/13
				2	7/24/18

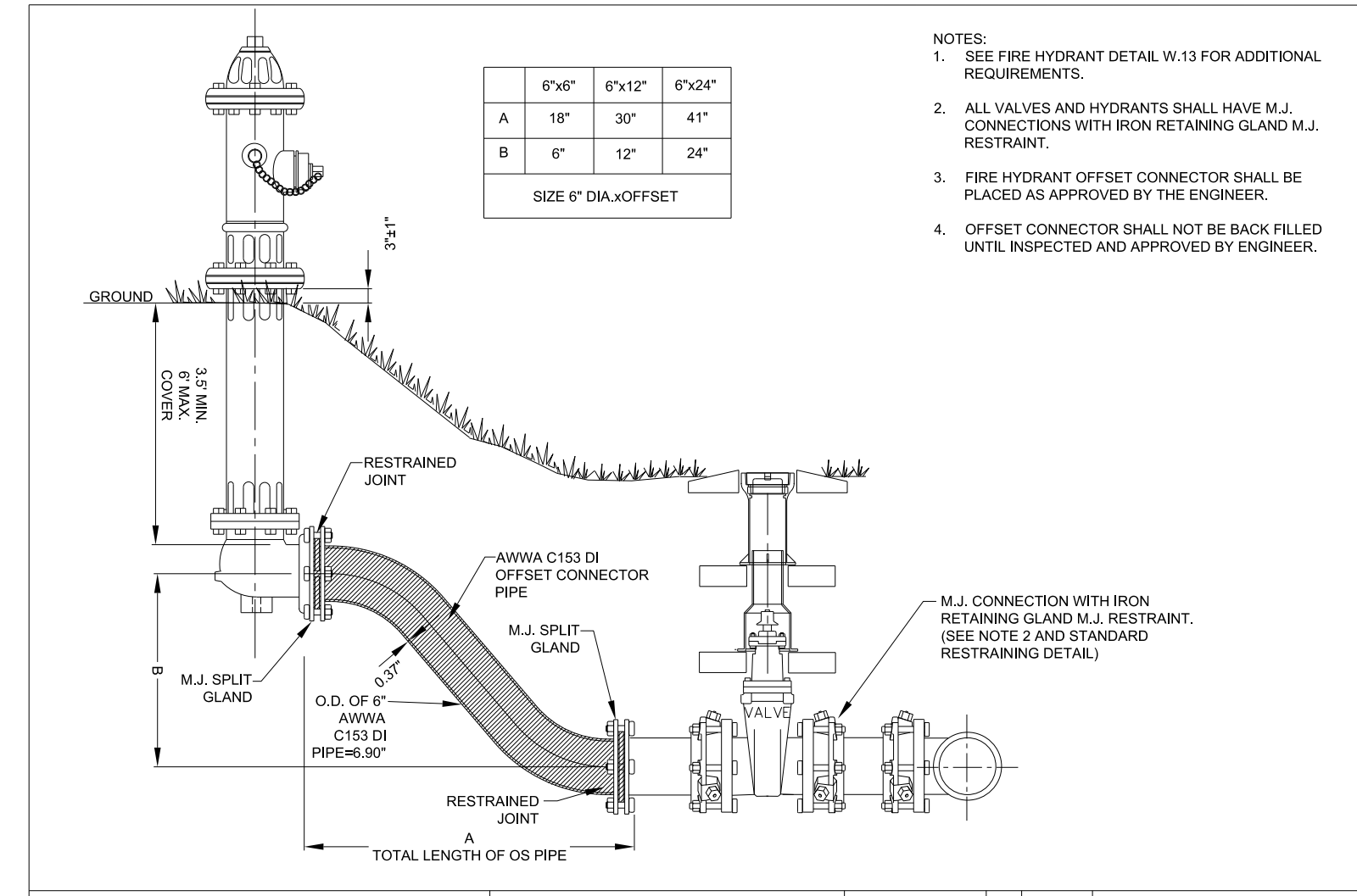


FIRE HYDRANT AND VALVE INSTALLATION N.T.S.		FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO. DATE REVISION	
DWG. NO. W.13		DWG. BY: FAYPWC		1	07/09
DATE: JAN. 01, 2018		APPROVED BY: J.E.G.		2	07/10/09
				3	07/01/16
				4	07/24/18

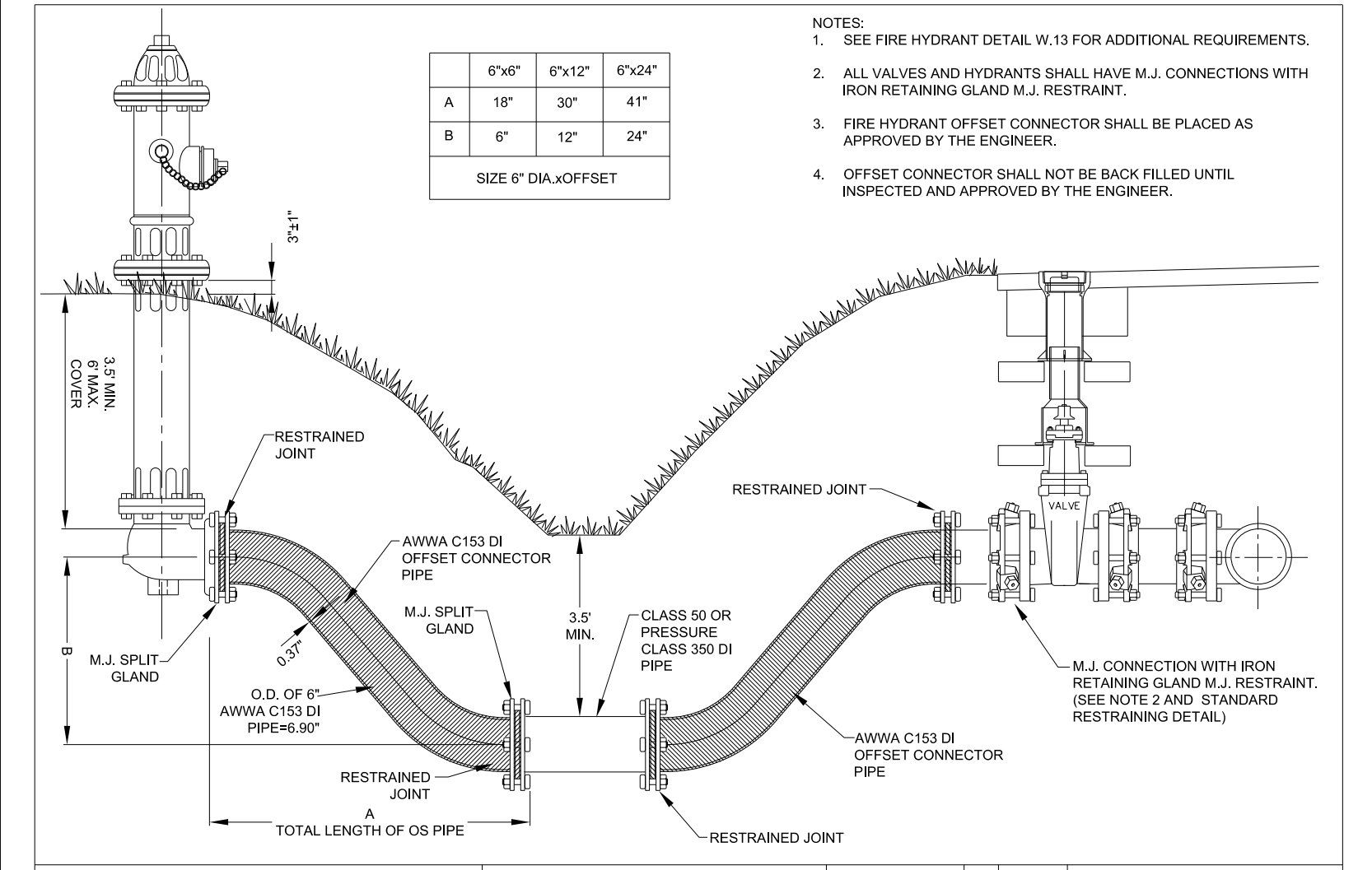
NOTE:  
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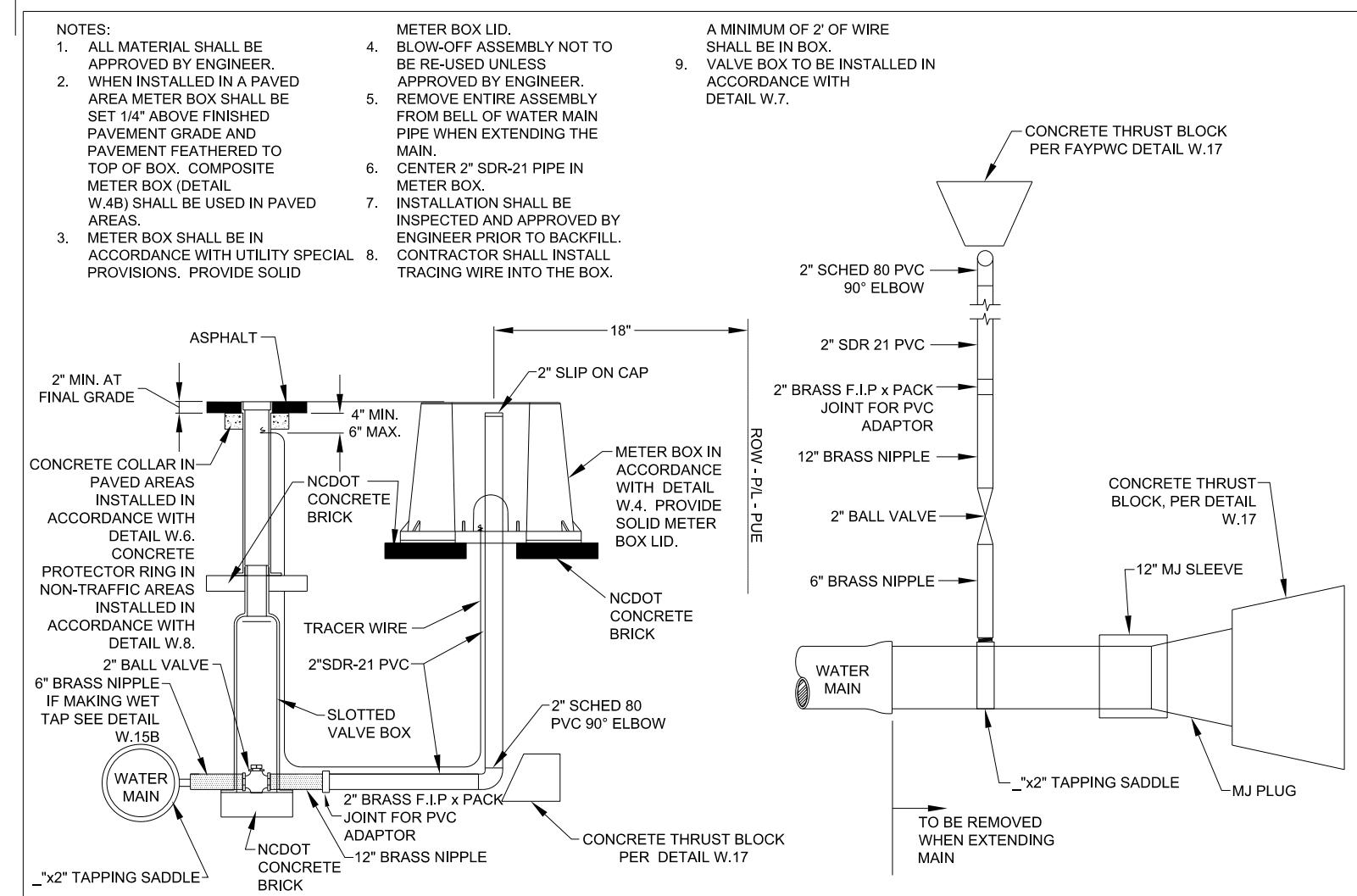
FIRE HYDRANT AND VALVE INSTALLATION N.T.S.		FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO. DATE REVISION	
DWG. NO. W.13		DWG. BY: FAYPWC		1	07/09
DATE: JAN. 01, 2018		APPROVED BY: J.E.G.		2	07/10/09
				3	07/01/16
				4	07/24/18



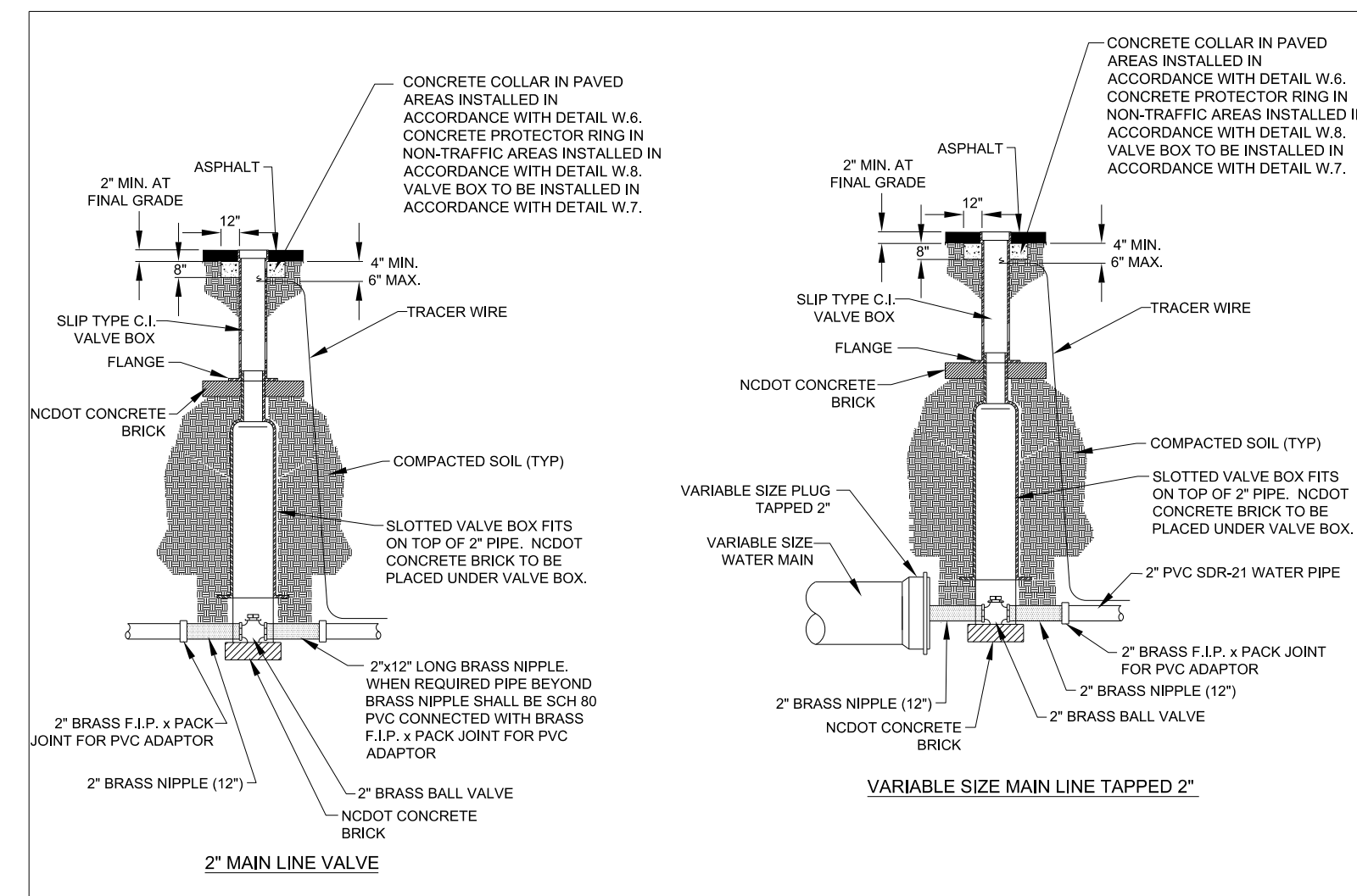
RESTRAINED JOINT FIRE HYDRANT OFFSET CONNECTOR @ DITCH N.T.S.		FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO. DATE REVISION	
DWG. NO. W.14		DWG. BY: FAYPWC		1	07/09
DATE: JAN. 01, 2018		APPROVED BY: J.E.G.		2	07/24/18



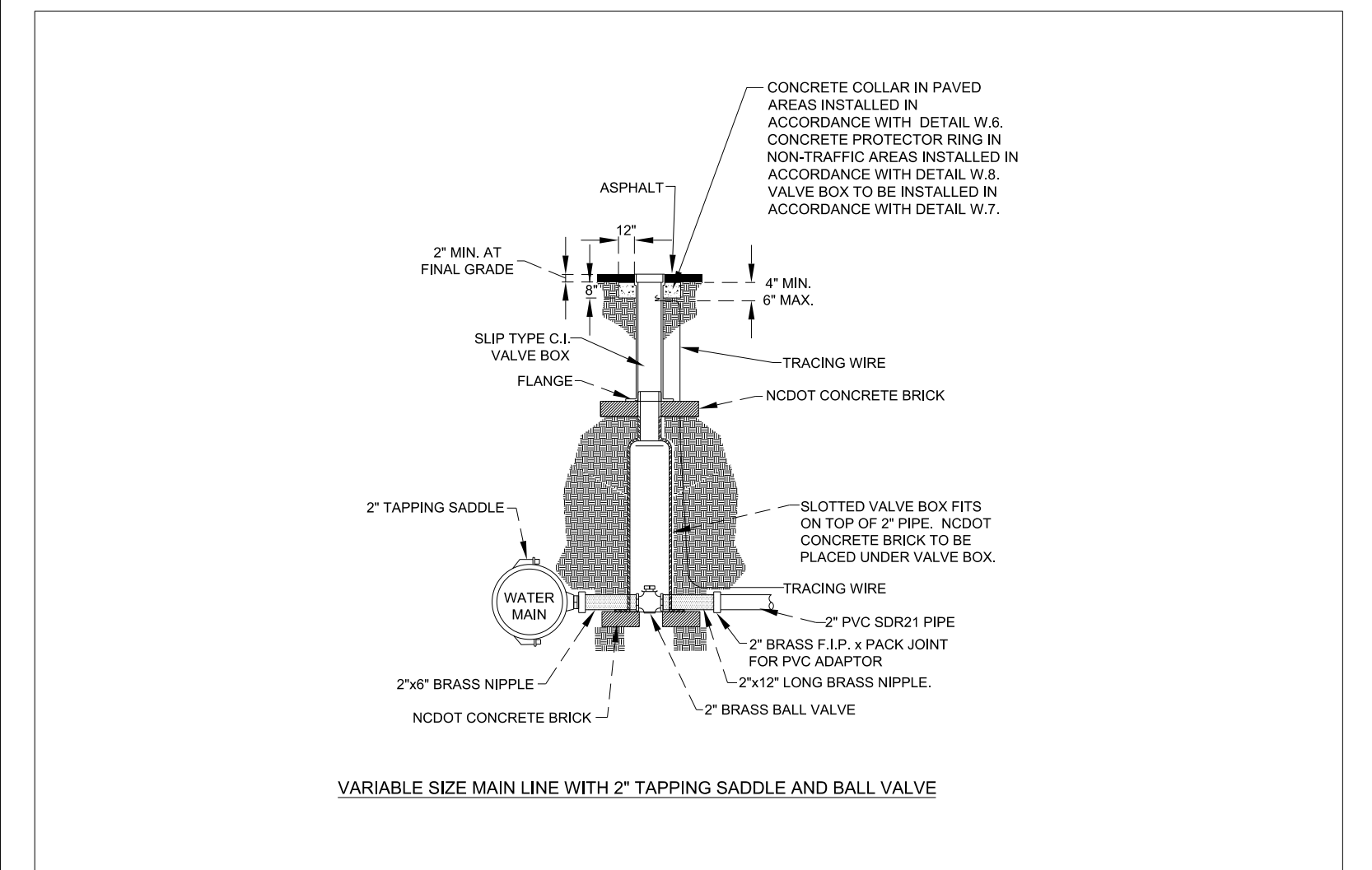
RESTRAINED JOINT FIRE HYDRANT OFFSET CONNECTOR @ DITCH N.T.S.		FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO. DATE REVISION	
DWG. NO. W.14		DWG. BY: FAYPWC		1	01/05
DATE: JAN. 01, 2018		APPROVED BY: J.E.G.		2	07/09
				3	07/24/18



2" BLOW OFF N.T.S.		FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO. DATE REVISION	
DWG. NO. W.15		DWG. BY: FAYPWC		1	06/06
DATE: JAN. 01, 2018		APPROVED BY: J.E.G.		2	11/06
				3	07/17
				4	07/24/18



2" VALVE INSTALLATION N.T.S.		FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO. DATE REVISION	
DWG. NO. W.15A		DWG. BY: FAYPWC		1	06/06
DATE: JAN. 01, 2018		APPROVED BY: J.E.G.		2	07/17
				2	07/24/18

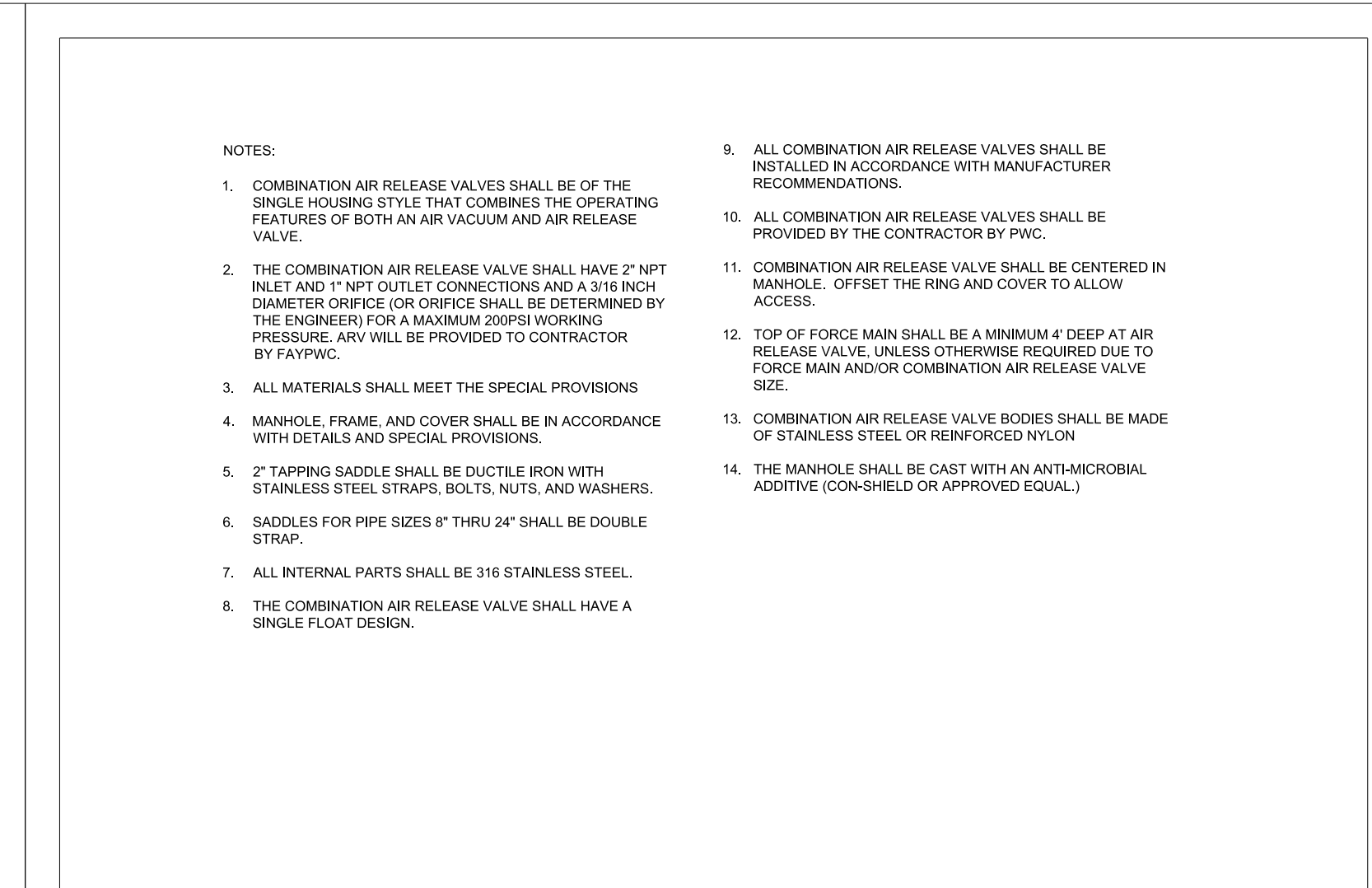
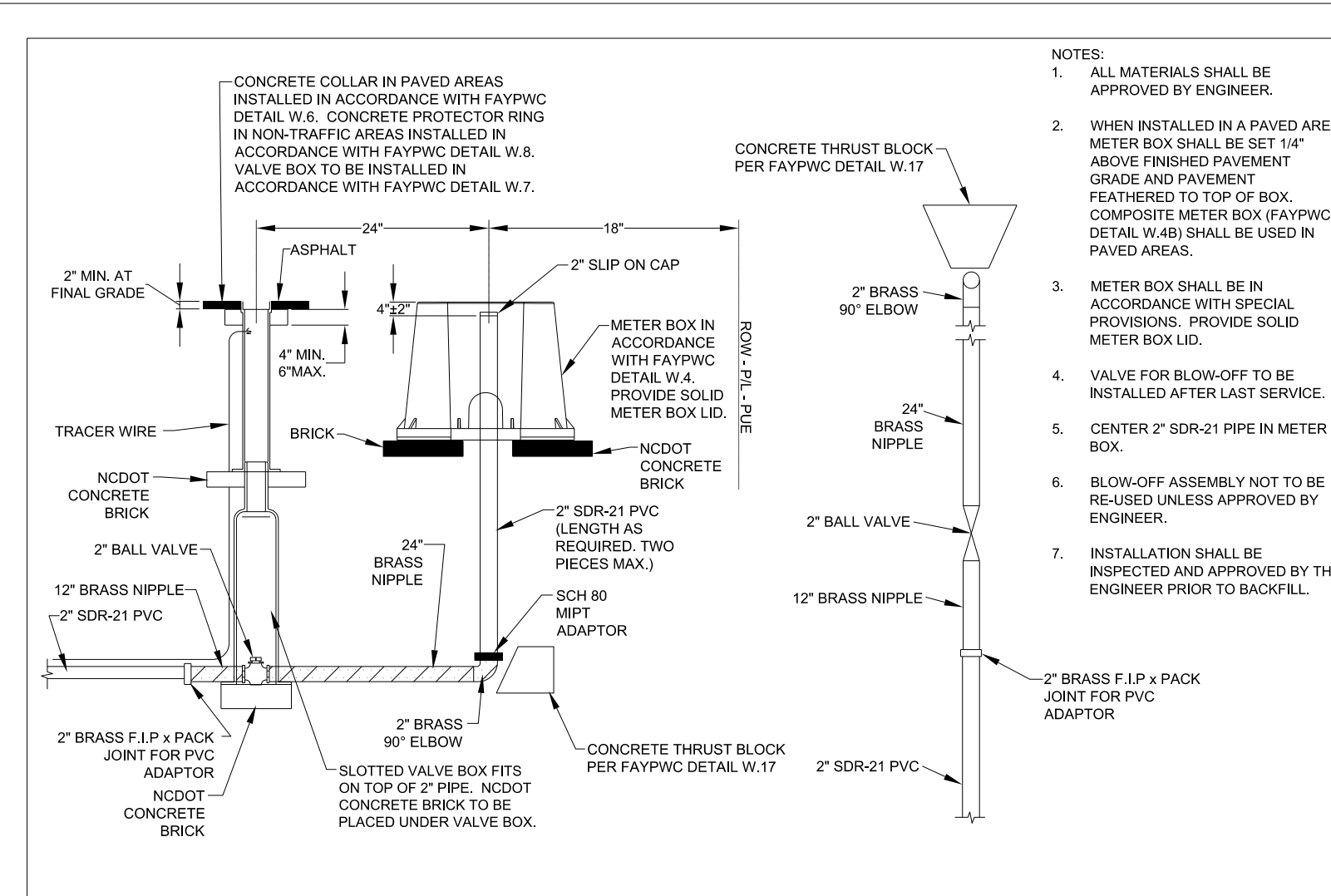


2" WET TAP N.T.S.		FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO. DATE REVISION	
DWG. NO. W.15B		DWG. BY: FAYPWC		1	06/06
DATE: JAN. 01, 2018		APPROVED BY: J.E.G.		2	01/07
				3	07/17
				4	07/24/18

REVISIONS  
 UTILITY REV. - JULY 24, 2018 - REVISIONS TO DETAIL SHEETS  
 02-AUG-2018 13:11 Fayetteville Public Works Commission\2015\017700RA\_Reeford\_Road\_NCDOT\_U-4405\CADD\NCDOT\_PLANS\Utilities\Engineering\UC\Proc\Detail\_Sheets\4405\_ut\_dtl\_UC031-0.dgn  
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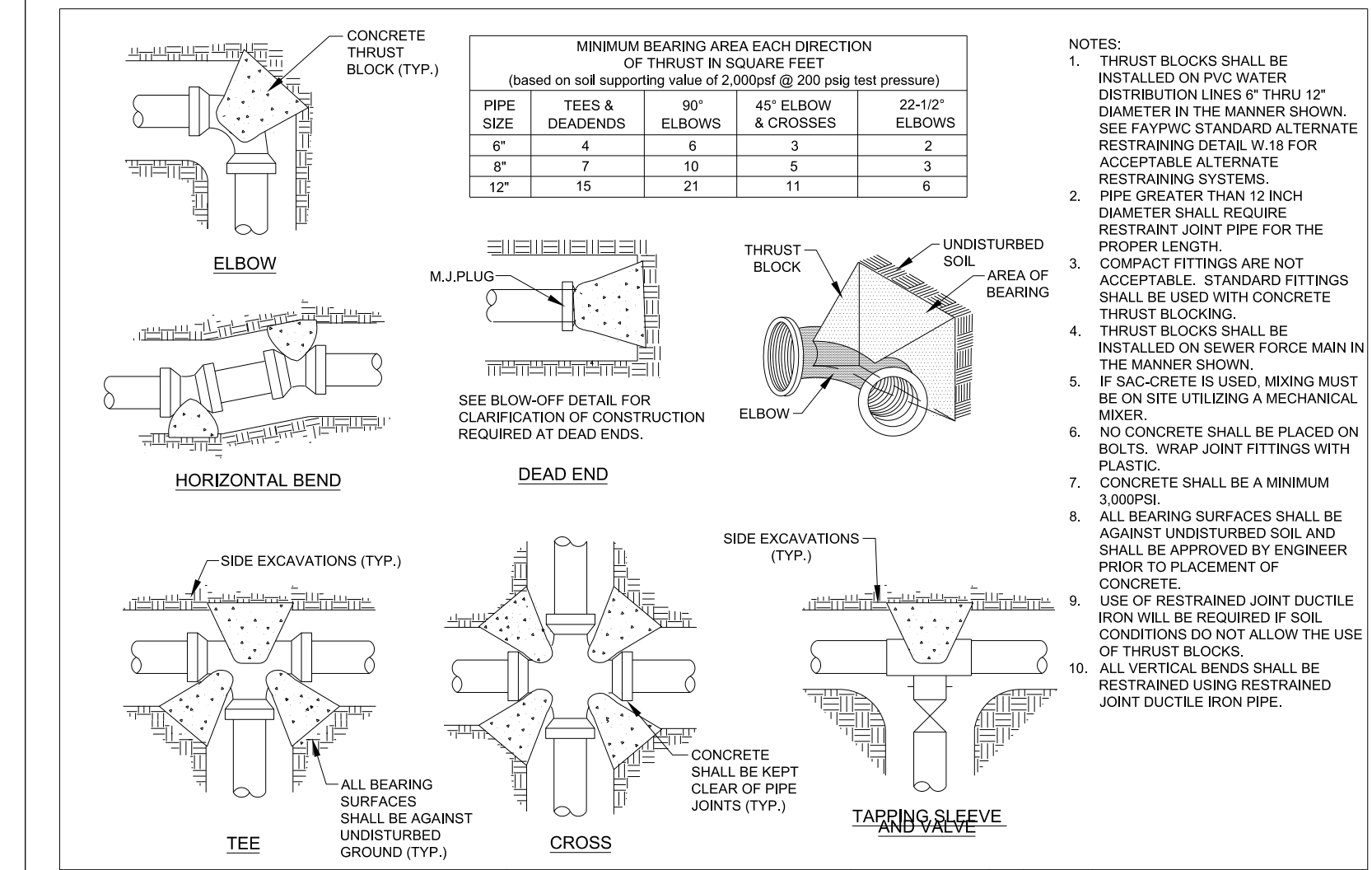
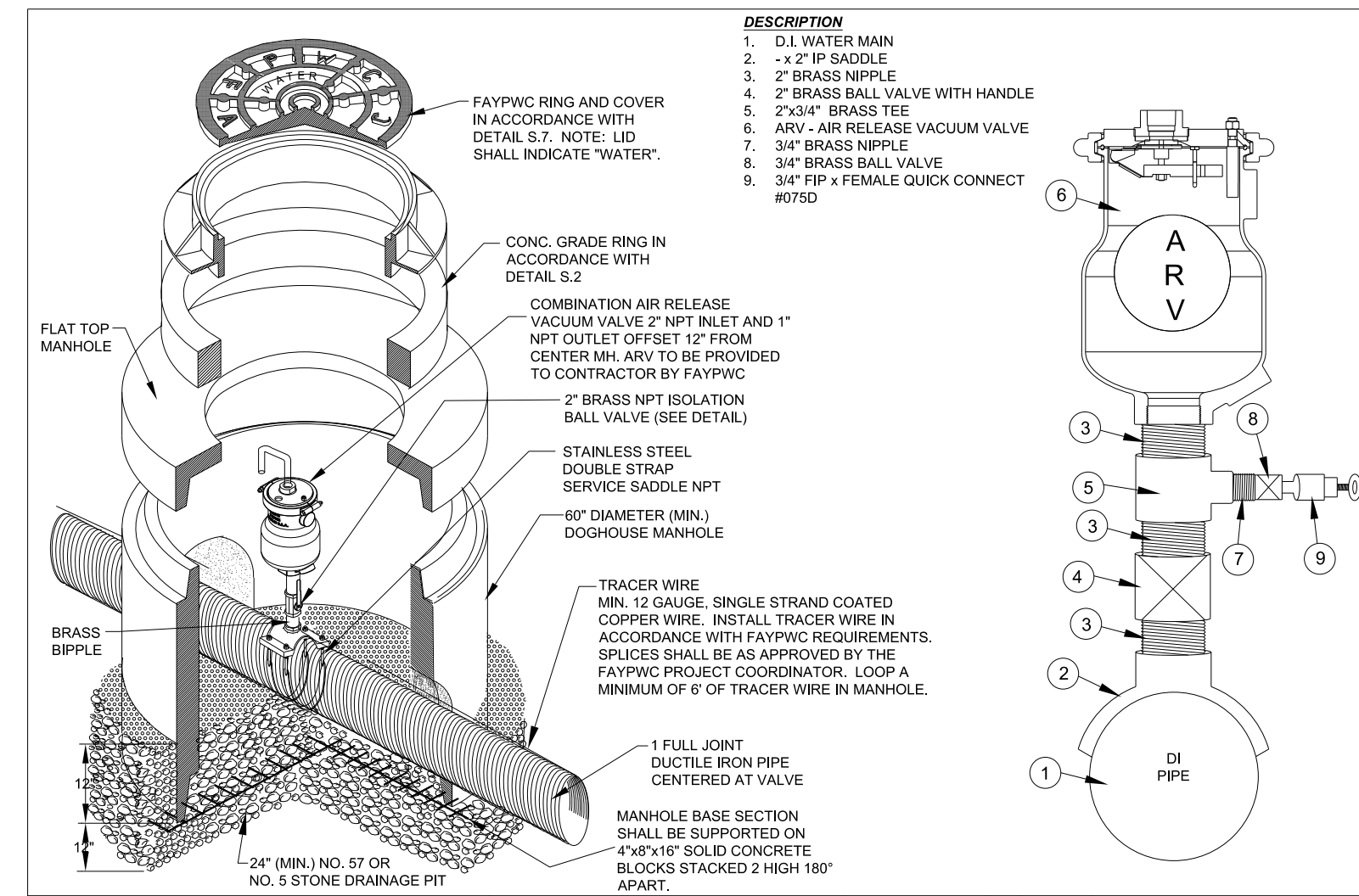
UTILITY CONSTRUCTION



2" BLOW OFF ON 2" WATER MAIN N.T.S.		FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO. DATE REVISION	
DWG. NO. W.15C		DWG. BY: FAYPWC		1 07/17 REVISED NOTES	
DATE: JAN. 01, 2018		APPROVED BY: J.E.G.		2 05/29/18 REVISED NOTES 1, 3, 6 AND 7 AND INCLUDE PLACEMENT INSIDE PIPE FOR NCDOT U-4405	
SHEET NO. 1 OF 1		WATER RESOURCES ENGINEERING DEPARTMENT		W15C-2-BLOWOFF.dwg	

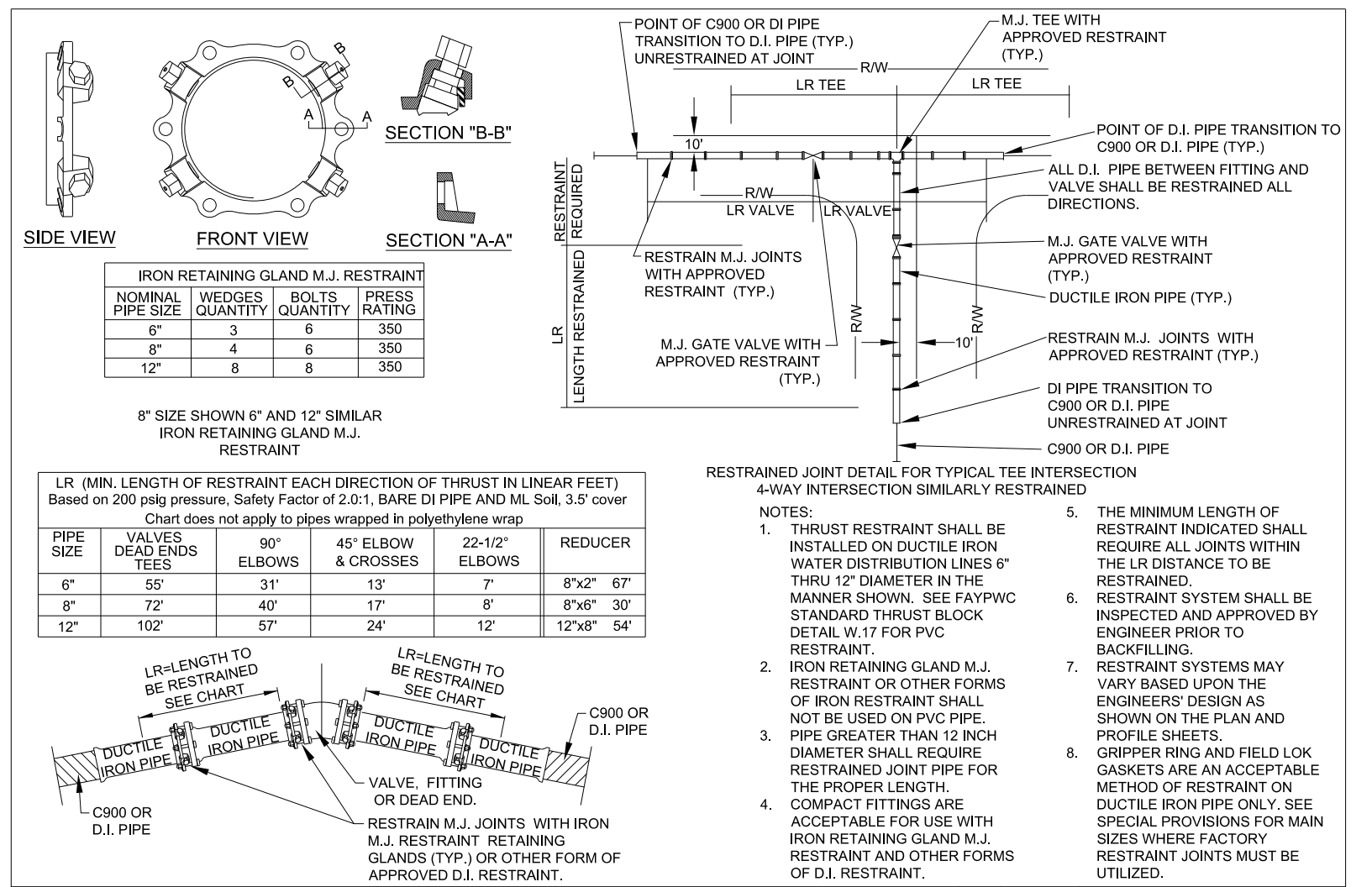
COMBINATION AIR RELEASE VACUUM VALVE (WATER SERVICE)		FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO. DATE REVISION	
DWG. NO. W.16		DWG. BY: FAYPWC		1 01/13 ADDED NOTE 16, REVISED NOTES	
DATE: JAN. 01, 2018		APPROVED BY: J.E.G.		2 07/16 DELETED NOTES 3, 16	
SHEET NO. 2 OF 2		WATER RESOURCES ENGINEERING DEPARTMENT		3 05/29/18 REVISED NOTES 2, 3, 4, AND 10 FOR NCDOT U-4405	

NOTE:  
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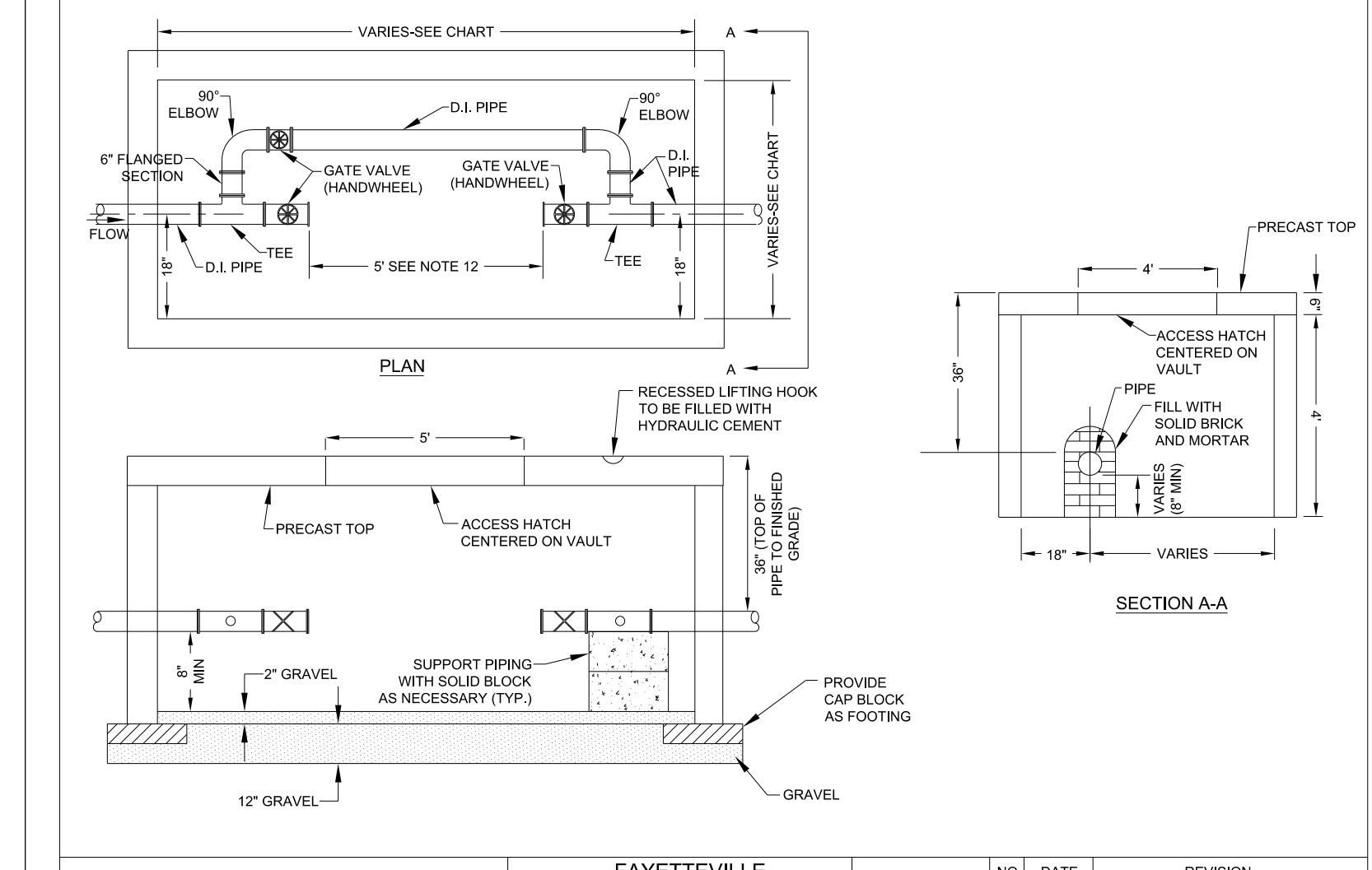
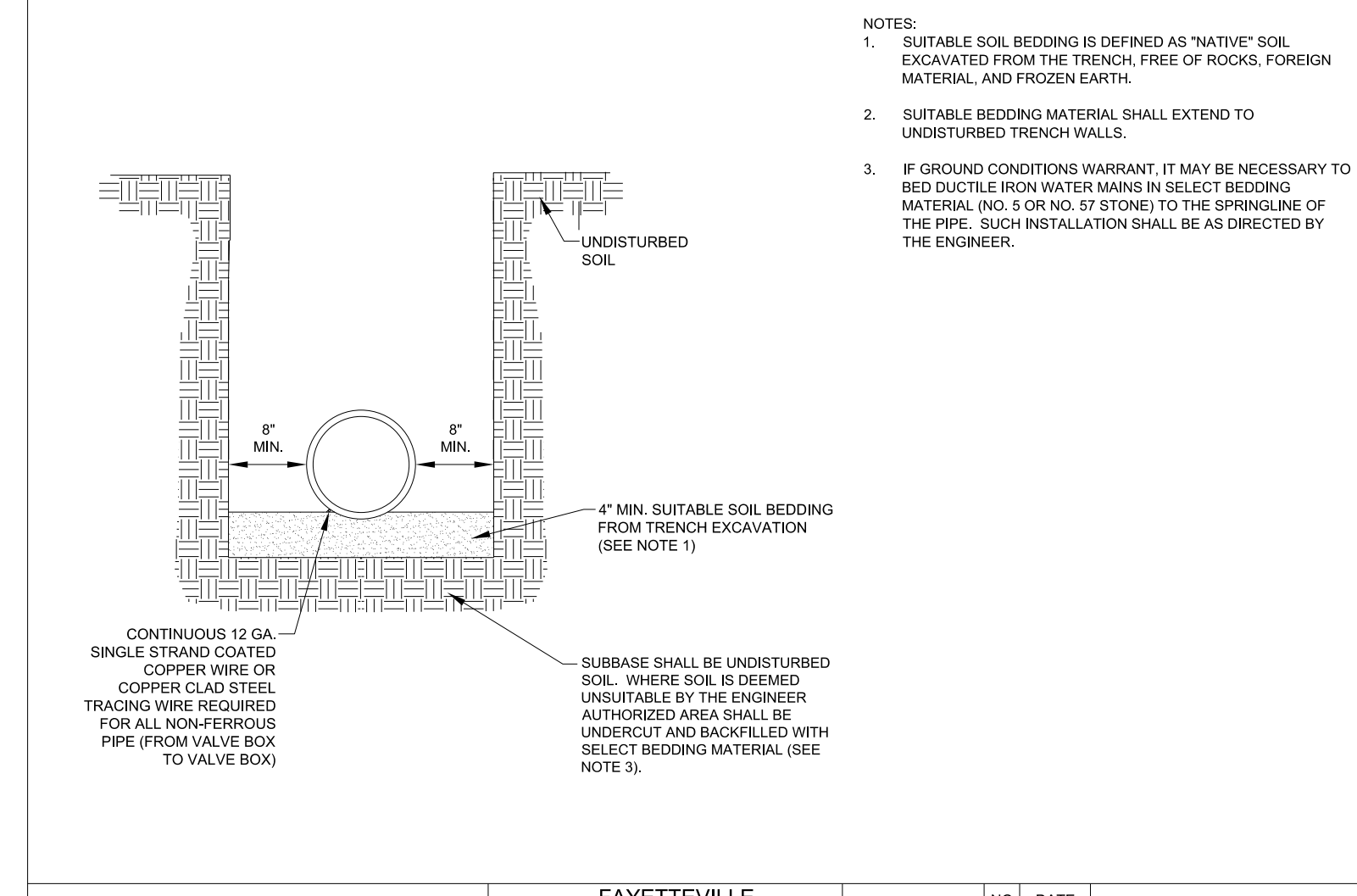


COMBINATION AIR RELEASE VACUUM VALVE (WATER SERVICE)		FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO. DATE REVISION	
DWG. NO. W.16		DWG. BY: FAYPWC		1 07/09 REVISED NOTES 3 AND 5, ADD NOTE 7	
DATE: JAN. 01, 2018		APPROVED BY: J.E.G.		2 01/13 UPDATED NOTES, ADDED TRACER WIRE	
SHEET NO. 1 OF 2		WATER RESOURCES ENGINEERING DEPARTMENT		3 05/29/18 ARV TO BE PROVIDED TO CONTRACTOR FOR NCDOT U-4405	

CONCRETE THRUST BLOCK DETAIL		FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO. DATE REVISION	
DWG. NO. W.17		DWG. BY: FAYPWC		1 09/05 REVISED TABLE	
DATE: JAN. 01, 2018		APPROVED BY: J.E.G.		2 02/07 ADDED NOTES 9 AND 10	
SHEET NO. 1 OF 1		WATER RESOURCES ENGINEERING DEPARTMENT		3 07/13 ADDED TAPPING SLEEVE AND VALVE DETAIL	

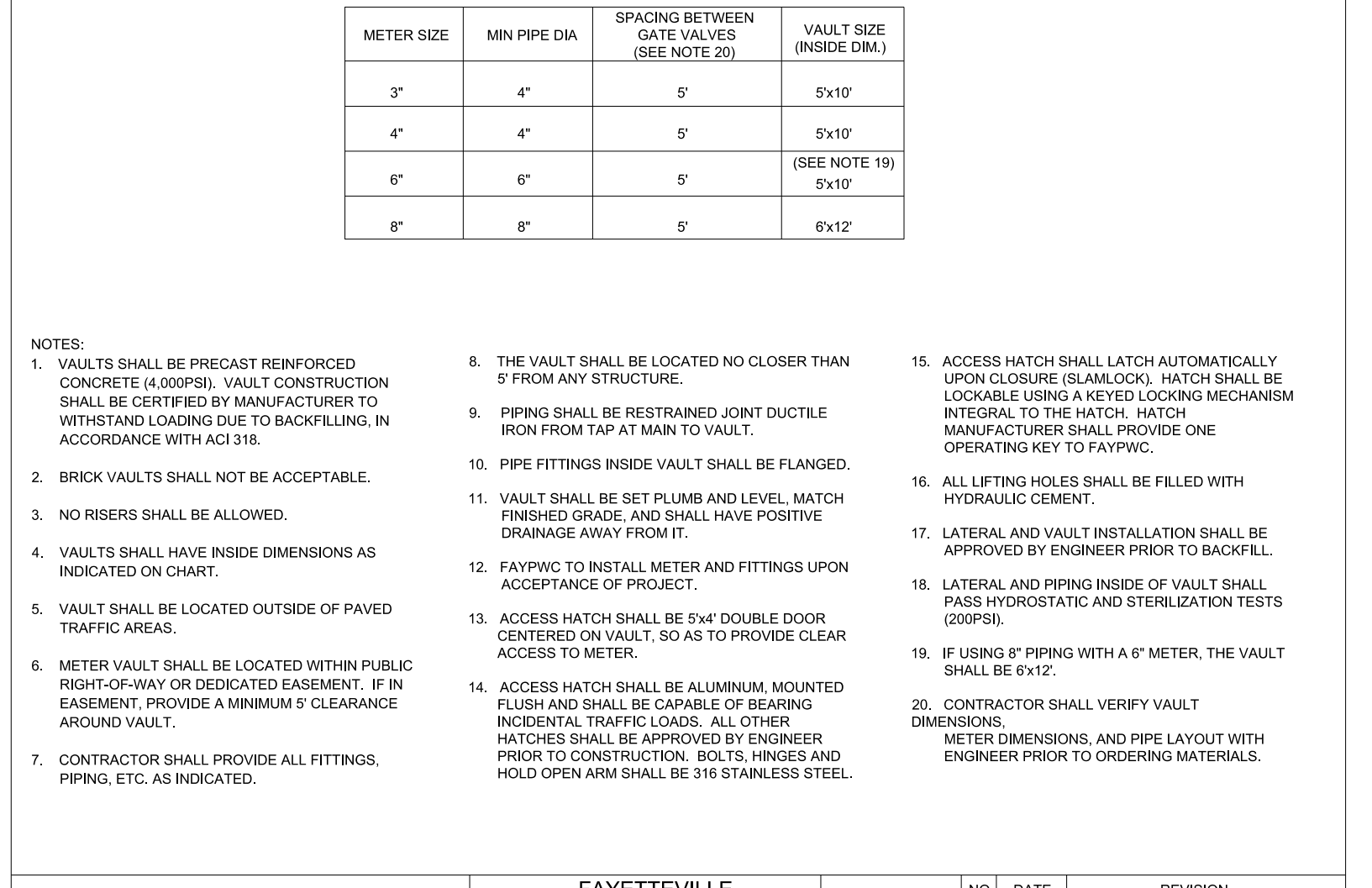


ALTERNATE RESTRAINT DETAIL (DUCTILE IRON PIPE ONLY)		FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO. DATE REVISION	
DWG. NO. W.18		DWG. BY: FAYPWC		1 11/16/07 REVISED TABLE, ADDED NOTE 8	
DATE: JAN. 01, 2018		APPROVED BY: J.E.G.		2 05/29/18 REVISED NOTES 6 AND 8 FOR NCDOT U-4405.	
SHEET NO. 1 OF 1		WATER RESOURCES ENGINEERING DEPARTMENT		W18-RESTRAINT-DETAIL.dwg	



WATER MAIN BEDDING DETAIL		FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO. DATE REVISION	
DWG. NO. W.19		DWG. BY: FAYPWC		1 01/01/17 REVISED NOTES	
DATE: JAN. 01, 2018		APPROVED BY: J.E.G.		2 07/01/13 REVISED NOTE RE: TRACER WIRE	
SHEET NO. 1 OF 1		WATER RESOURCES ENGINEERING DEPARTMENT		3 05/29/18 REVISED NOTES FOR NCDOT U-4405	

METER VAULT		FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO. DATE REVISION	
DWG. NO. W.20		DWG. BY: FAYPWC		1 08/10 REVISED PIPE BURY DEPTH	
DATE: JAN. 01, 2018		APPROVED BY: J.E.G.		2	
SHEET NO. 1 OF 2		WATER RESOURCES ENGINEERING DEPARTMENT		3	



METER VAULT		FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO. DATE REVISION	
DWG. NO. W.20		DWG. BY: FAYPWC		1 08/10 REVISED NOTES	
DATE: JAN. 01, 2018		APPROVED BY: J.E.G.		2 05/29/18 REVISED NOTES 14 AND 17 FOR NCDOT U-4405	
SHEET NO. 2 OF 2		WATER RESOURCES ENGINEERING DEPARTMENT		3	

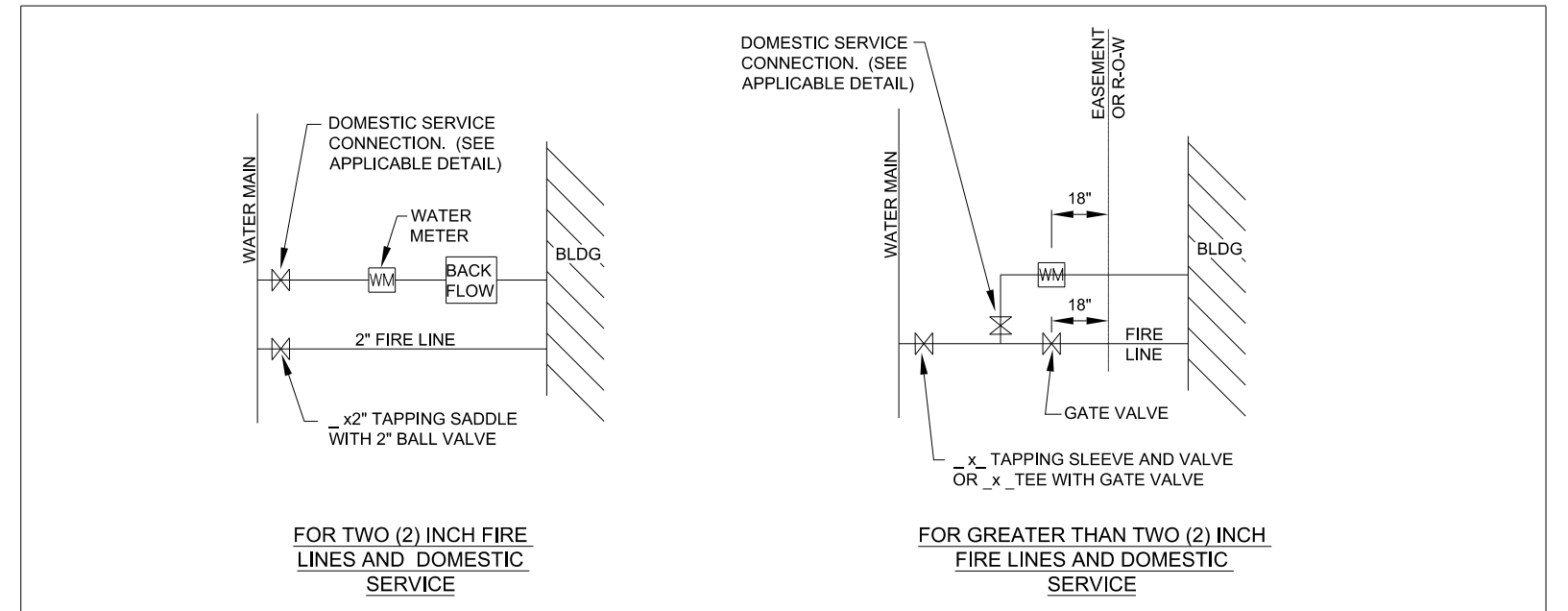
REVISIONS

UTILITY REV. - JULY 24, 2018 - REVISIONS TO DETAIL SHEETS

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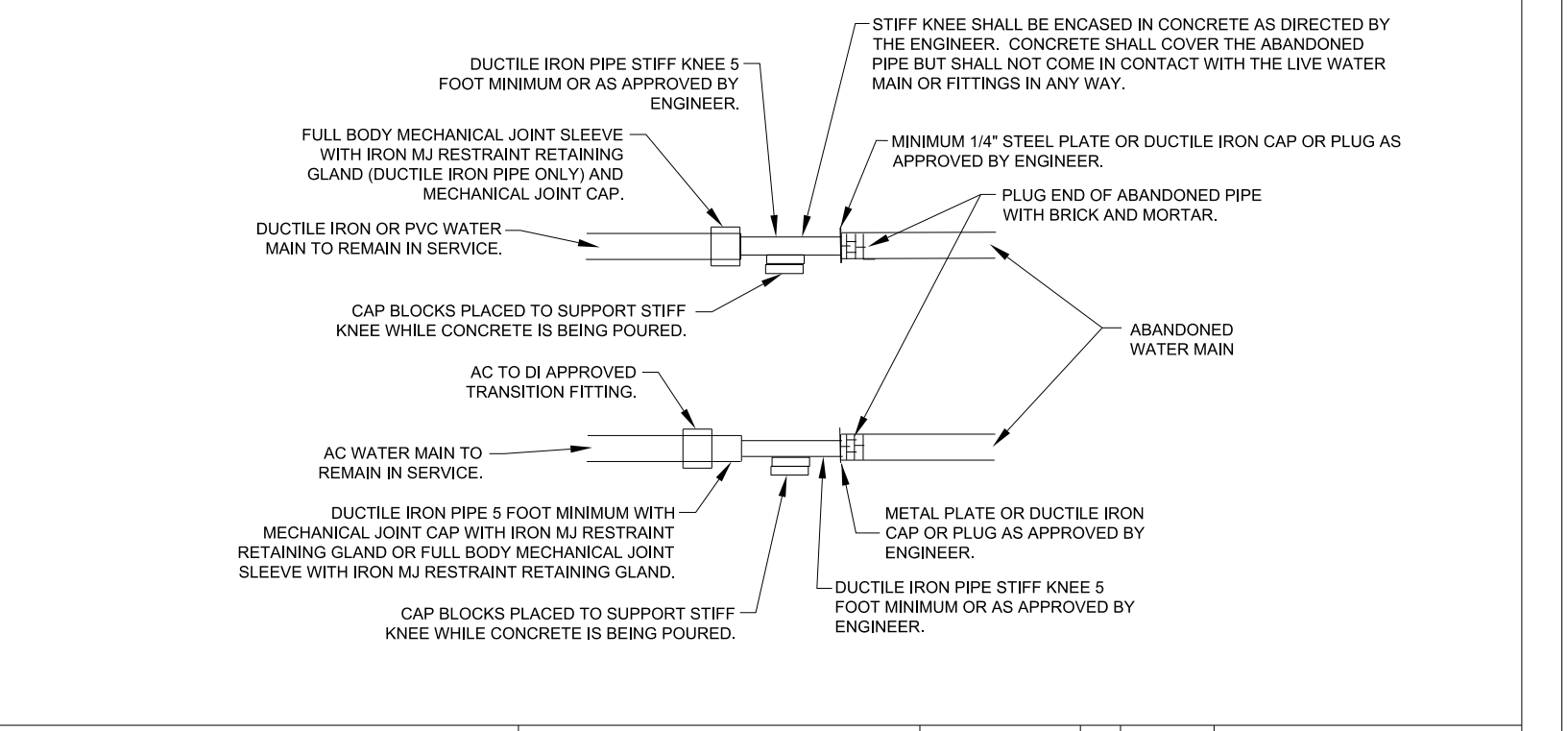
# UTILITY CONSTRUCTION



- NOTES:**
- DOMESTIC BACKFLOW MAY BE LOCATED INSIDE THE BUILDING.
  - THE FIRE LINE SHALL HAVE A BACKFLOW DEVICE WITHIN 100 FEET OF THE MAIN.
  - REFER TO THE CROSS CONNECTION CONTROL ORDINANCE FOR ADDITIONAL INFORMATION ON BACKFLOW REQUIREMENTS.
  - REFER TO APPROPRIATE METER BOX DETAIL FOR ADDITIONAL INFORMATION.
  - IF THE FIRE LINE HAS A DOMESTIC OR IRRIGATION SERVICE, BOTH THE FIRE LINE AND SERVICE SHALL BE TESTED AND DISINFECTED, REGARDLESS OF THE LENGTH.
  - IF THE FIRE LINE DOES NOT HAVE ANY SERVICES CONNECTED TO IT, DISINFECTION IS ONLY REQUIRED IF THE TOTAL LENGTH OF THE FIRE LINE IS GREATER THAN 20 LINEAR FEET (i.e., ONE (1) FULL JOINT OF PIPE).
  - IF THE FIRE LINE IS GREATER THAN 20 LINEAR FEET, THEN IT SHALL BE PRESSURE TESTED.
  - ALL TESTING AND DISINFECTION SHALL BE DONE IN ACCORDANCE WITH SPECIAL PROVISIONS.

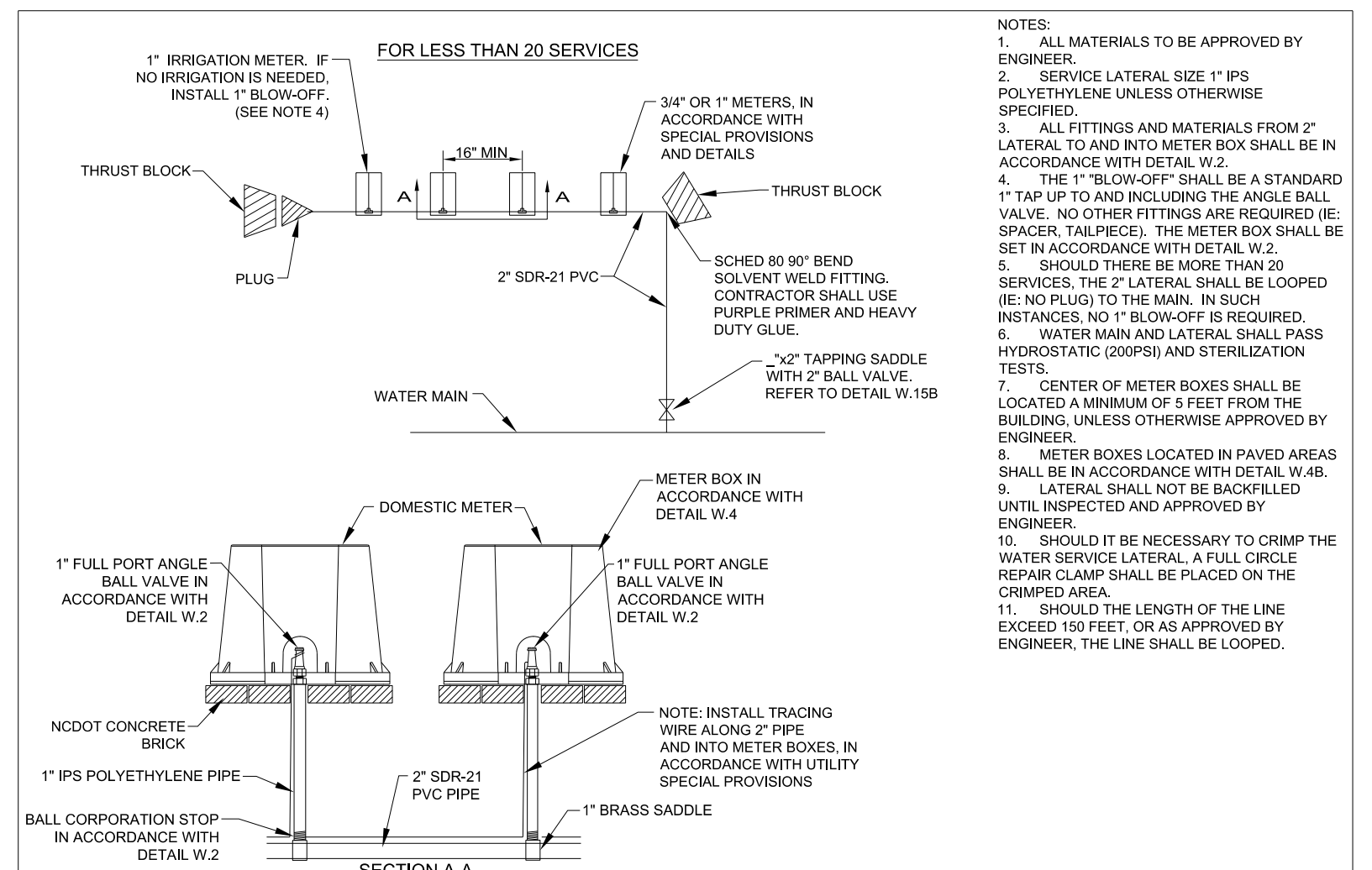
STANDARD TAPS		FAYETTEVILLE PUBLIC WORKS COMMISSION		NO. DATE REVISION	
N.T.S.		FAYETTEVILLE, N.C.			
SHEET NO. 1 OF 1	DWG. NO. W.21	DWG. BY: FAYPWC	WATER RESOURCES ENGINEERING DEPARTMENT	1	10/17
DATE: JAN. 01, 2018	APPROVED BY: J.E.G.			2	05/29/18
				REVISED NOTE 6 FOR NCDOT U-4405	

- NOTES:**
- KILL OUT SHALL BE DONE A MINIMUM OF 5 FEET FROM ANY FITTING ON THE EXISTING WATER MAIN THAT IS TO REMAIN IN SERVICE.
  - IRON PIPE SHALL BE 4" DIAMETER FOR MAINS 12" OR LESS, UTILIZE 8" PIPE OR LARGER AS DIRECTED BY THE ENGINEER FOR ALL MAINS LARGER THAN 12".
  - ALLOW CONCRETE TO SET 48 HOURS PRIOR TO PLACING BACKFILL.
  - VOLUME OF CONCRETE FOR THURST BLOCK SHALL BE IN ACCORDANCE WITH FAYPWC STANDARD DETAIL W.17.
  - ALL OUTAGES SHALL BE COORDINATED WITH THE ENGINEER.
  - PIPE SHALL BE GROUT FILLED OR REMOVED IN ACCORDANCE WITH NCDOT SPECIFICATIONS AND SPECIAL PROVISIONS WHEN LOCATED IN THE STATE RIGHT-OF-WAY. ALL OTHER INSTANCES SHALL BE IN ACCORDANCE WITH FAYPWC SPECIFICATIONS.

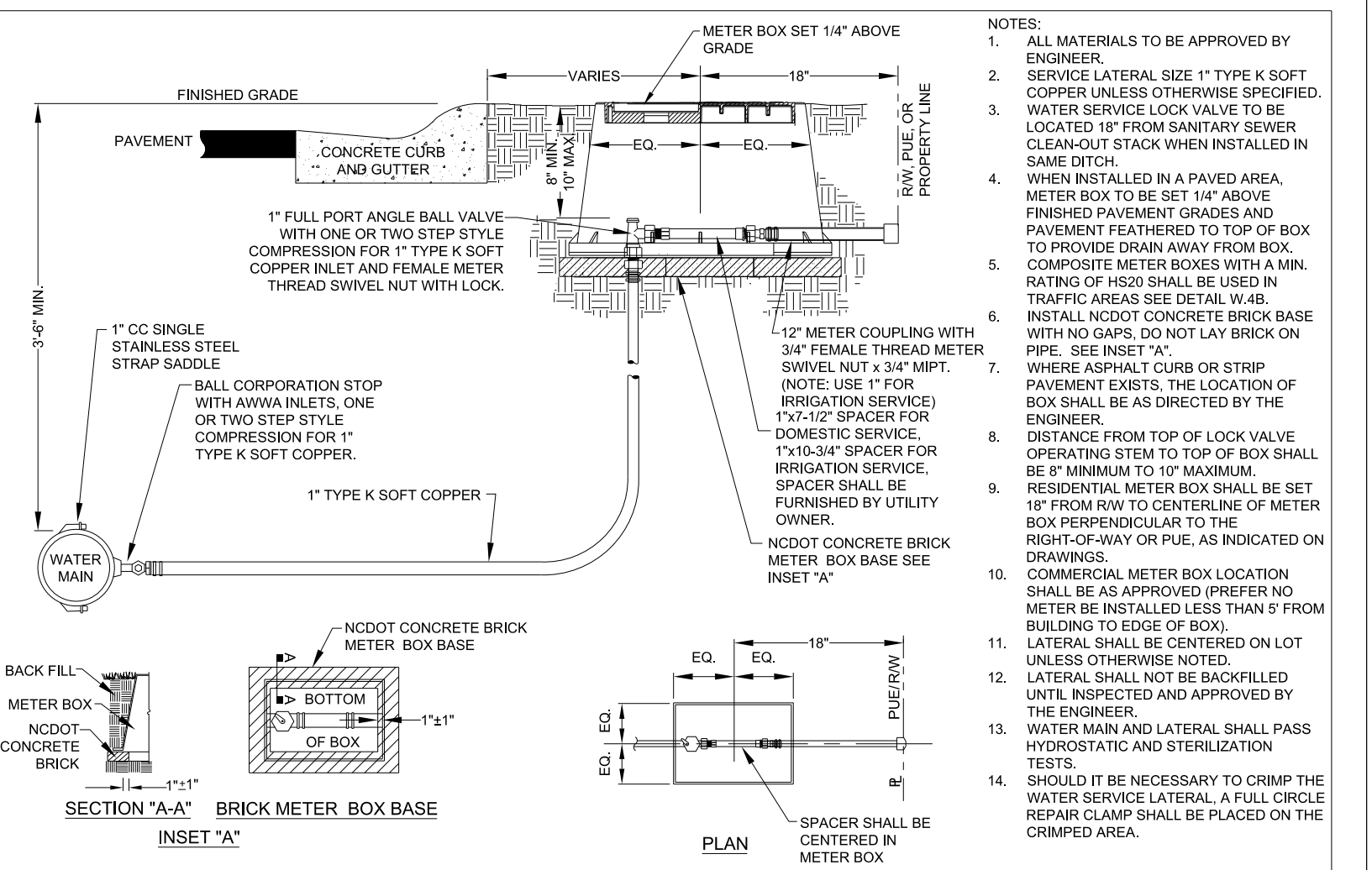


WATER MAIN KILL-OUT		FAYETTEVILLE PUBLIC WORKS COMMISSION		NO. DATE REVISION	
N.T.S.		FAYETTEVILLE, N.C.			
SHEET NO. 1 OF 1	DWG. NO. W.22	DWG. BY: FAYPWC	WATER RESOURCES ENGINEERING DEPARTMENT	1	5/29/18
DATE: JAN. 01, 2018	APPROVED BY: J.E.G.			REVISED NOTE AND CALLOUTS FOR NCDOT U-4405	

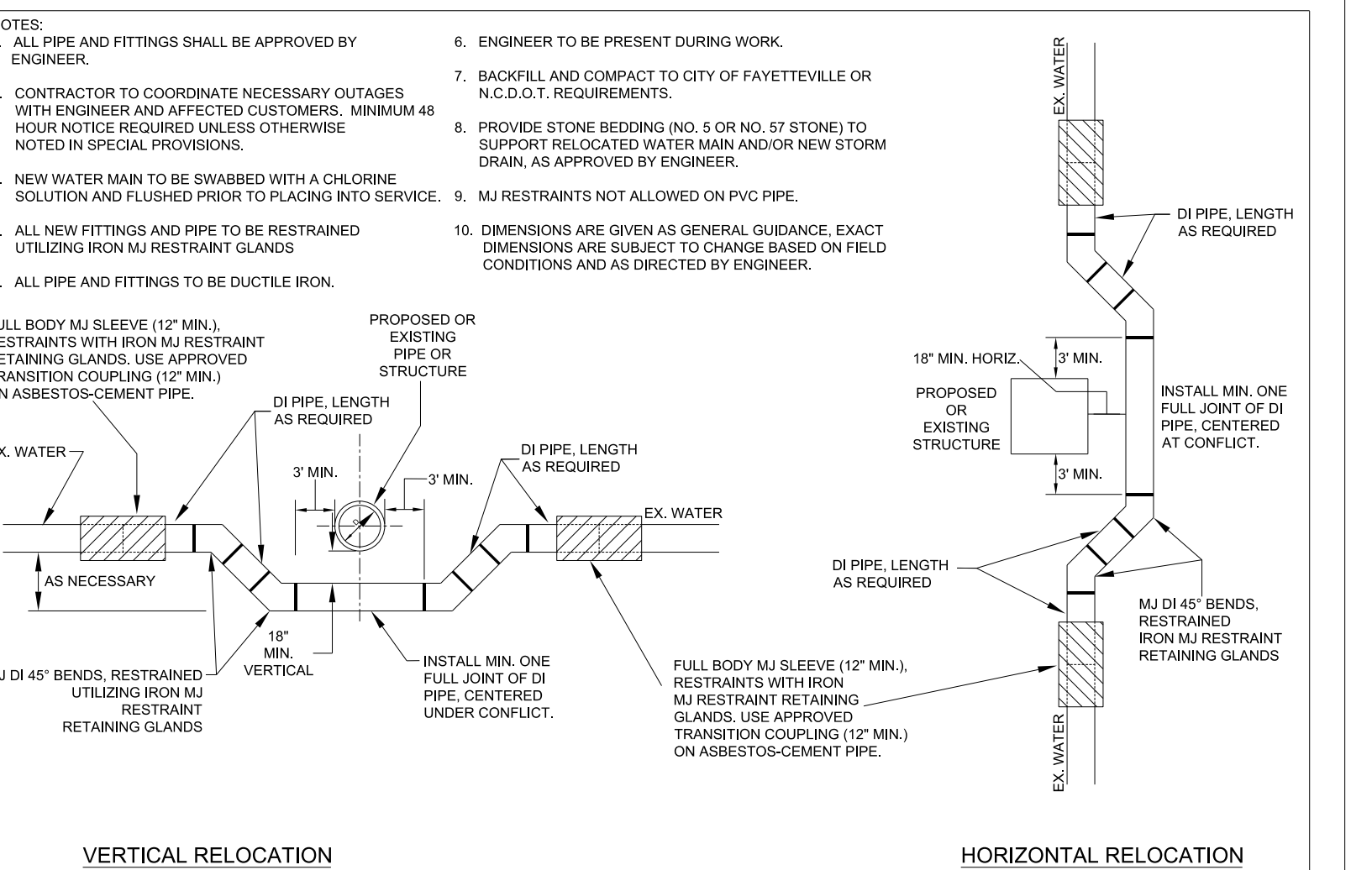
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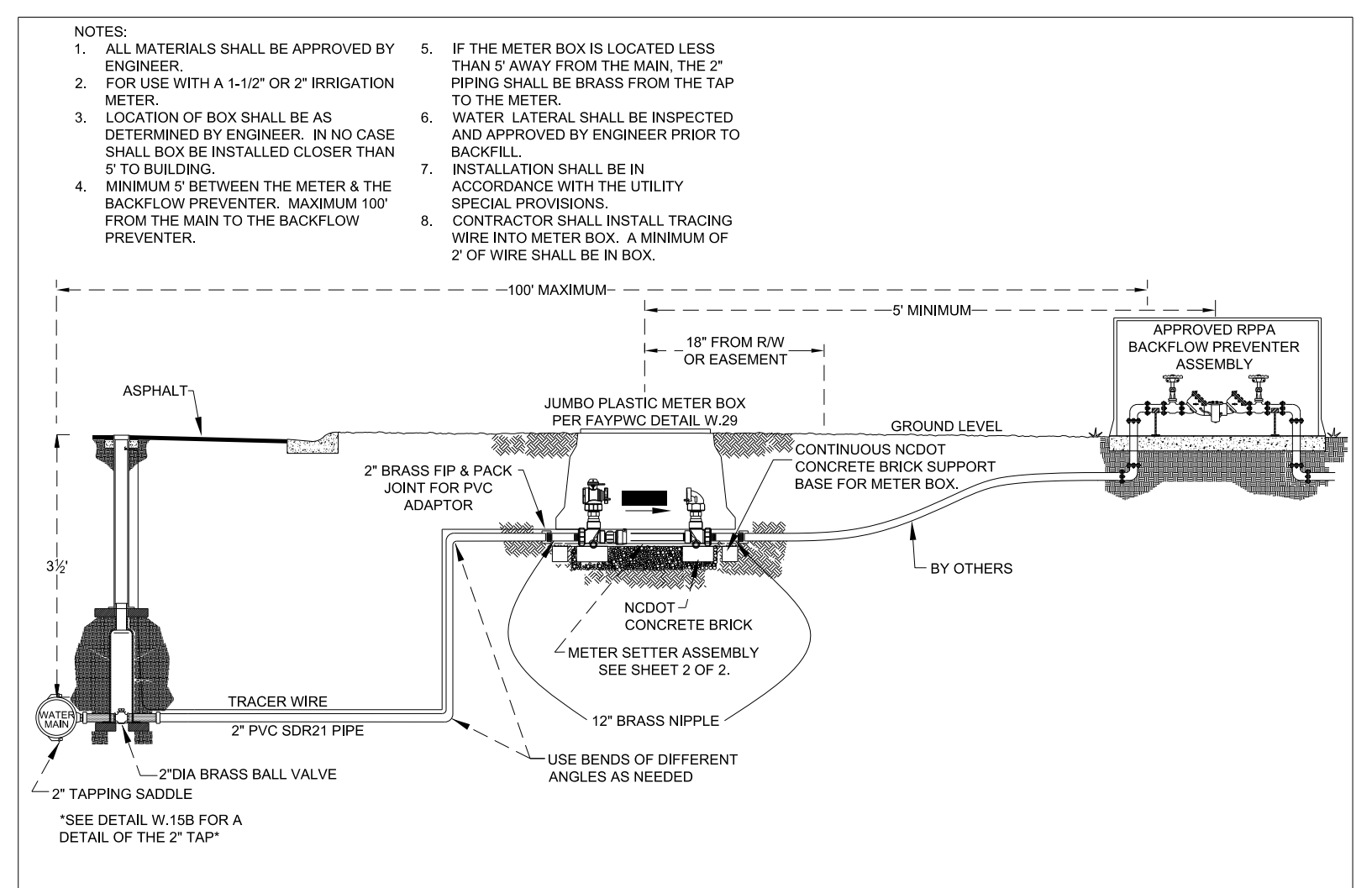
WATER SERVICE DETAILS FOR MULTI-UNIT BUILDINGS		FAYETTEVILLE PUBLIC WORKS COMMISSION		NO. DATE REVISION	
N.T.S.		FAYETTEVILLE, N.C.			
SHEET NO. 1 OF 1	DWG. NO. W.23	DWG. BY: FAYPWC	WATER RESOURCES ENGINEERING DEPARTMENT	1	07/16
DATE: JAN. 01, 2018	APPROVED BY: J.E.G.			REVISED TITLE NOTES	
				2 07/17 REVISED NOTES	
				3 7/24/18 REVISED PER NCDOT COMMENTS (U-4405)	



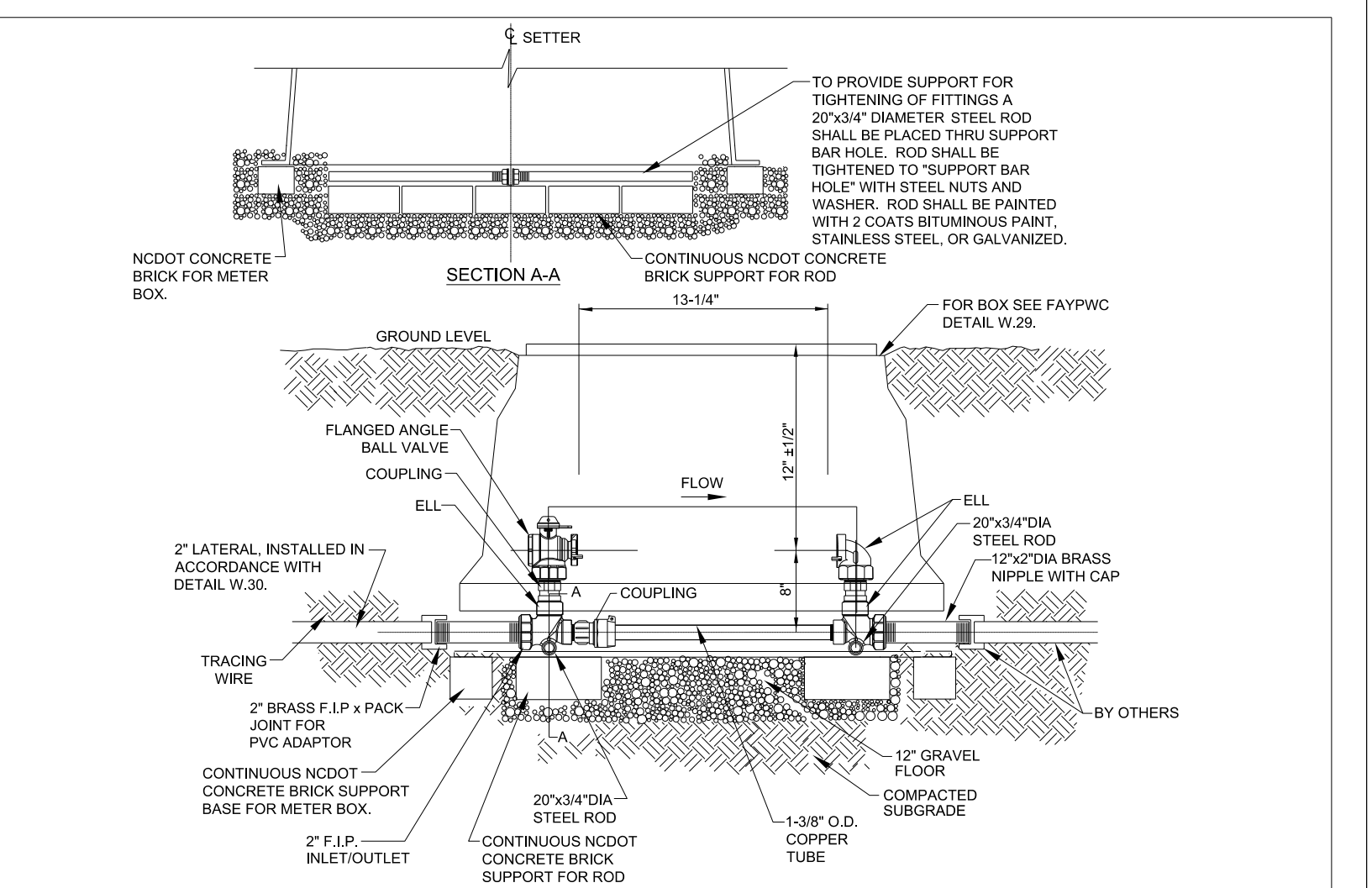
1" COPPER WATER SERVICE LATERAL		FAYETTEVILLE PUBLIC WORKS COMMISSION		NO. DATE REVISION	
N.T.S.		FAYETTEVILLE, N.C.			
SHEET NO. 1 OF 1	DWG. NO. W.24	DWG. BY: FAYPWC	WATER RESOURCES ENGINEERING DEPARTMENT	1	09/05
DATE: JAN. 01, 2018	APPROVED BY: J.E.G.			2 07/06 VALVE CHANGE ADD NOTE 16	
				3 07/17 REVISED NOTES	
				4 07/17 REVISED NOTES	
				5 05/29/18 REVISED NOTES 1, 7, 9, AND 12 AND INCLUDE PLACEMENT INSIDE PIPE	
				6 07/24/18 REVISED PER NCDOT COMMENTS (U-4405)	



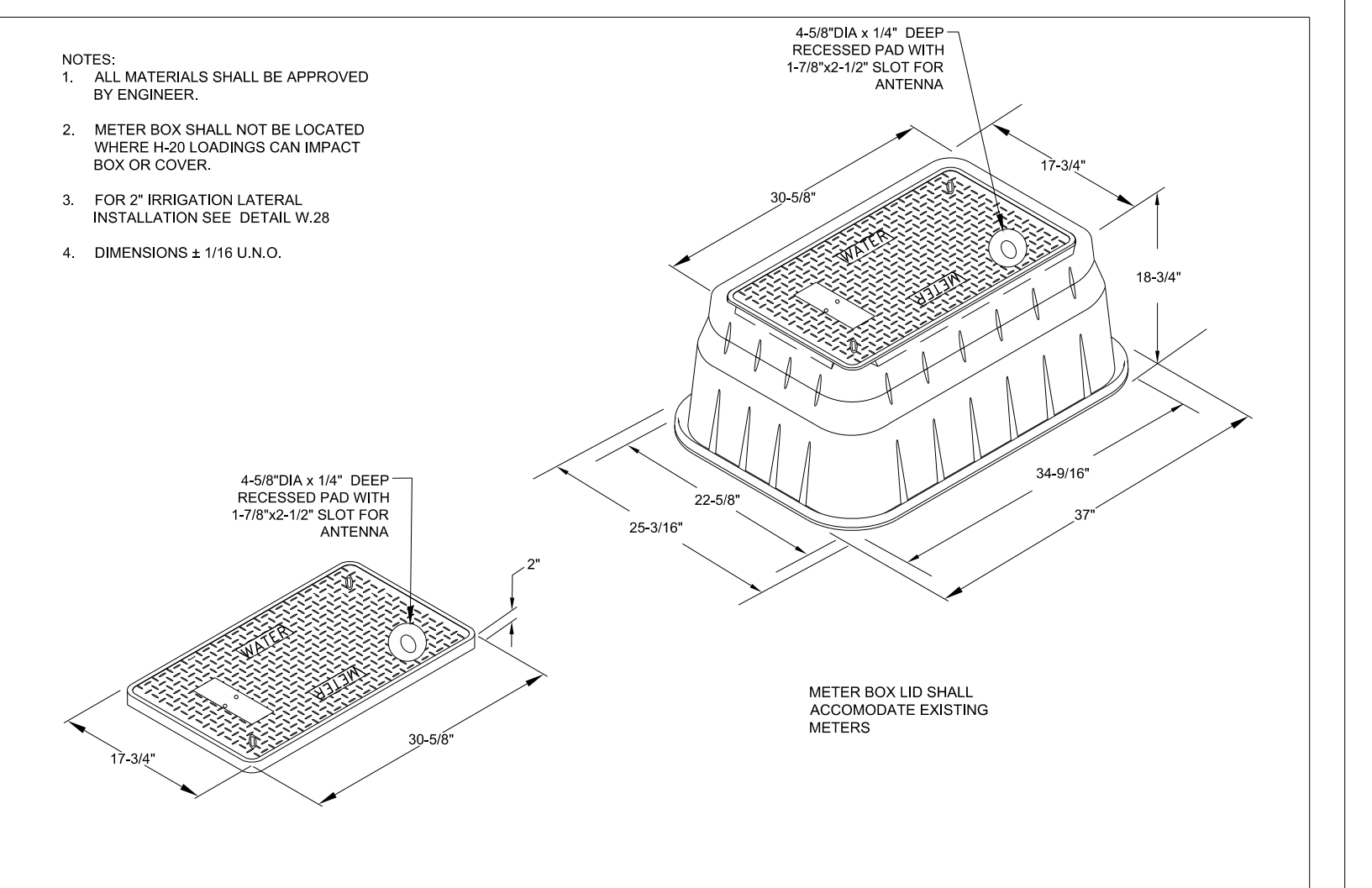
PIPE RELOCATION DETAIL		FAYETTEVILLE PUBLIC WORKS COMMISSION		NO. DATE REVISION	
N.T.S.		FAYETTEVILLE, N.C.			
SHEET NO. 1 OF 1	DWG. NO. W.26	DWG. BY: FAYPWC	WATER RESOURCES ENGINEERING DEPARTMENT	1	05/12
DATE: JAN. 01, 2018	APPROVED BY: J.E.G.			REVISED NOTES, ADDED HORIZONTAL RELOCATION	
				2 05/29/18 REVISED NOTES AND CALLOUTS FOR NCDOT U-4405	
				3 07/24/18 REVISED PER NCDOT COMMENTS (U-4405)	



2" IRRIGATION LATERAL		FAYETTEVILLE PUBLIC WORKS COMMISSION		NO. DATE REVISION	
N.T.S.		FAYETTEVILLE, N.C.			
SHEET NO. 1 OF 2	DWG. NO. W.28	DWG. BY: FAYPWC	WATER RESOURCES ENGINEERING DEPARTMENT	1	07/17
DATE: JAN. 01, 2018	APPROVED BY: J.E.G.			REVISED NOTES, ADDED SHEET 2	
				2 05/29/18 REVISED NOTES 1, 3, 6 AND 7 FOR NCDOT U-4405	
				3 07/24/18 REVISED PER NCDOT COMMENTS (U-4405)	



2" IRRIGATION LATERAL		FAYETTEVILLE PUBLIC WORKS COMMISSION		NO. DATE REVISION	
N.T.S.		FAYETTEVILLE, N.C.			
SHEET NO. 2 OF 2	DWG. NO. W.28	DWG. BY: FAYPWC	WATER RESOURCES ENGINEERING DEPARTMENT	1	07/17
DATE: JAN. 01, 2018	APPROVED BY: J.E.G.			ADDED SHEET 2 OF 2	



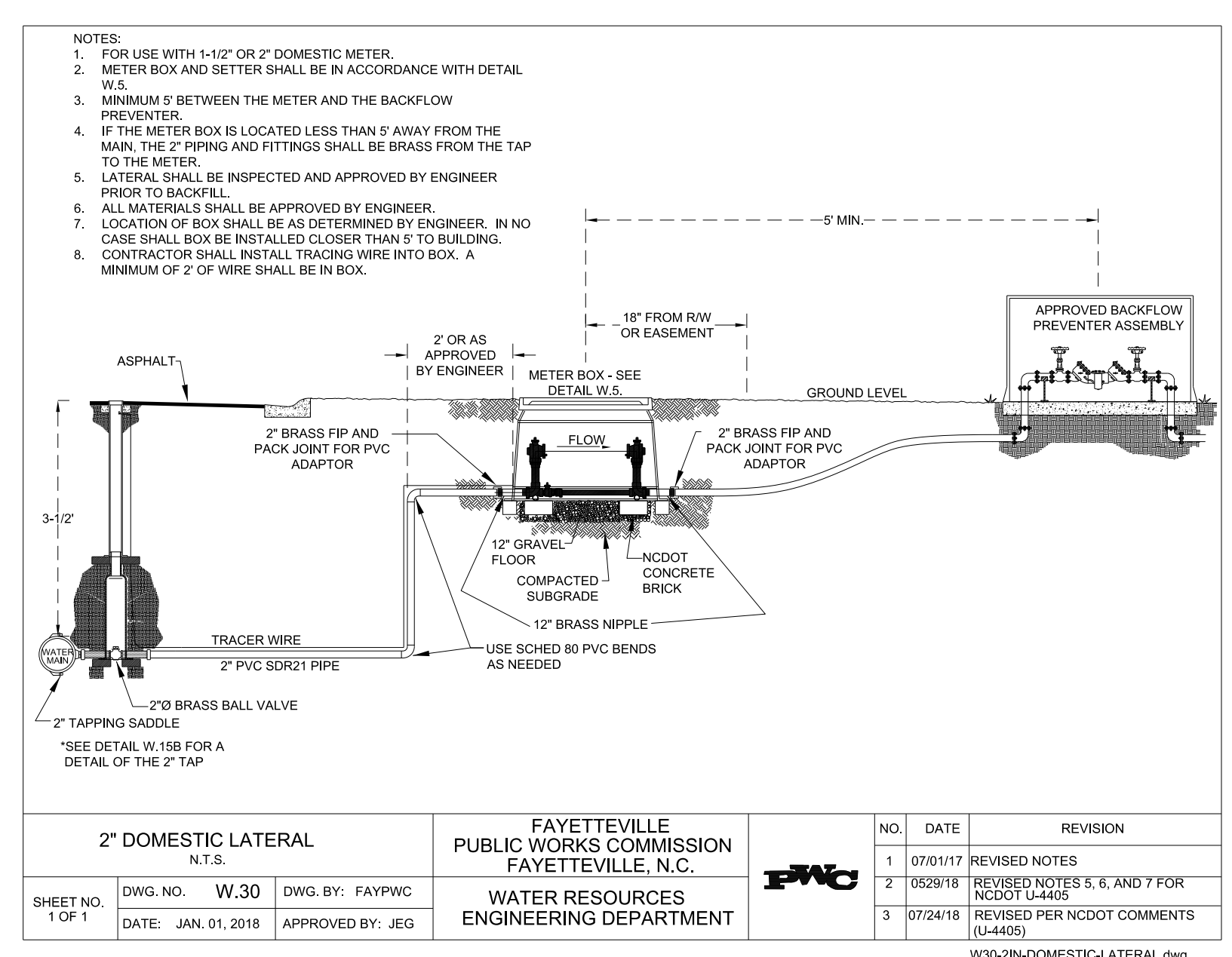
JUMBO METER BOX FOR IRRIGATION		FAYETTEVILLE PUBLIC WORKS COMMISSION		NO. DATE REVISION	
N.T.S.		FAYETTEVILLE, N.C.			
SHEET NO. 1 OF 1	DWG. NO. W.29	DWG. BY: FAYPWC	WATER RESOURCES ENGINEERING DEPARTMENT	1	07/17
DATE: JAN. 01, 2018	APPROVED BY: J.E.G.			REVISED LID, BOX AND DIMENSIONS	
				2 05/29/18 REVISED NOTES 1 AND ADDED NOTE FOR LID TO BE CONSISTENT WITH EXISTING AMRS FOR NCDOT U-4405	
				3 07/24/18 REVISED PER NCDOT COMMENTS	

REVISIONS  
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 UTILITY REV. - JULY 24, 2018 - REVISIONS TO DETAIL SHEETS

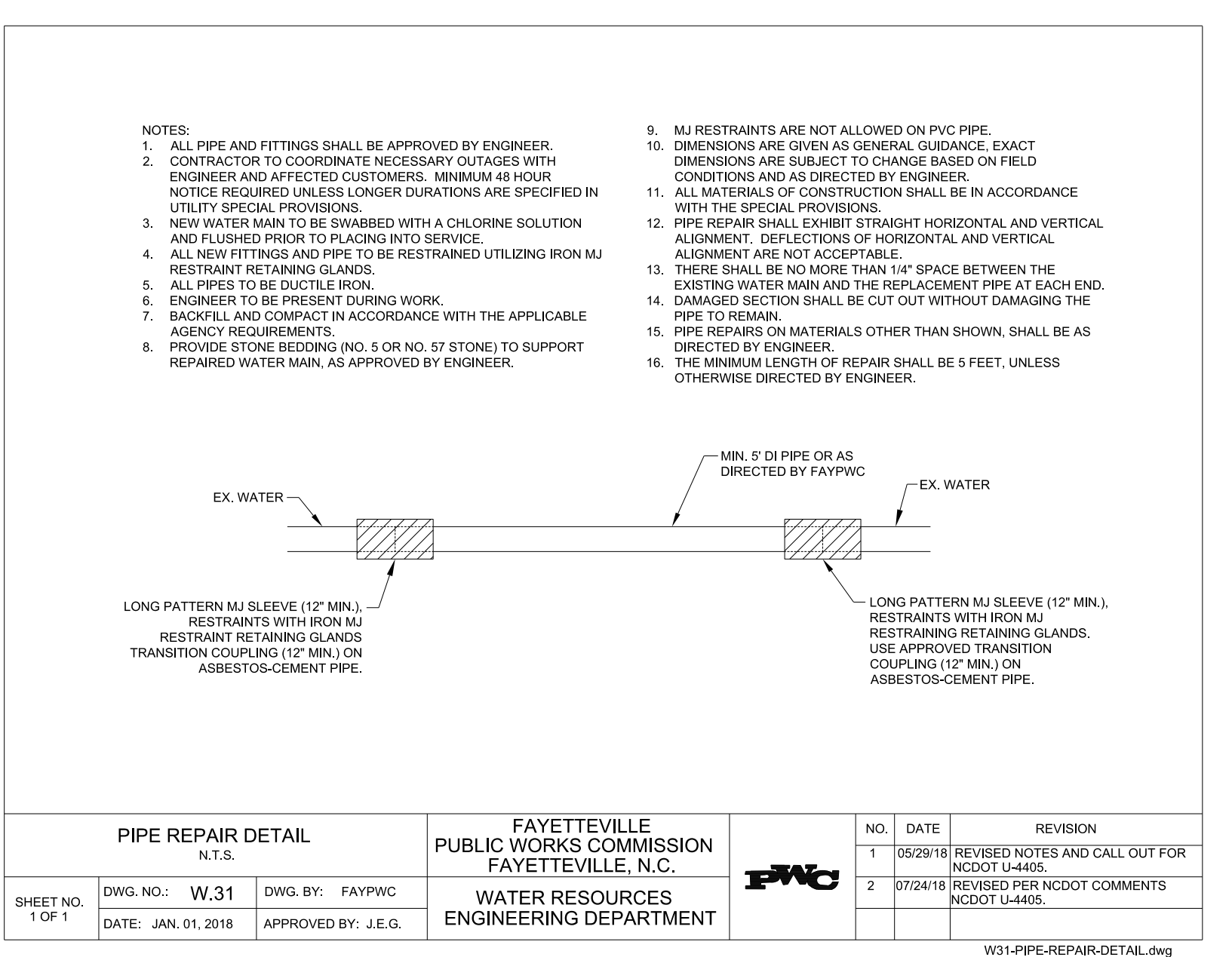




UTILITY CONSTRUCTION

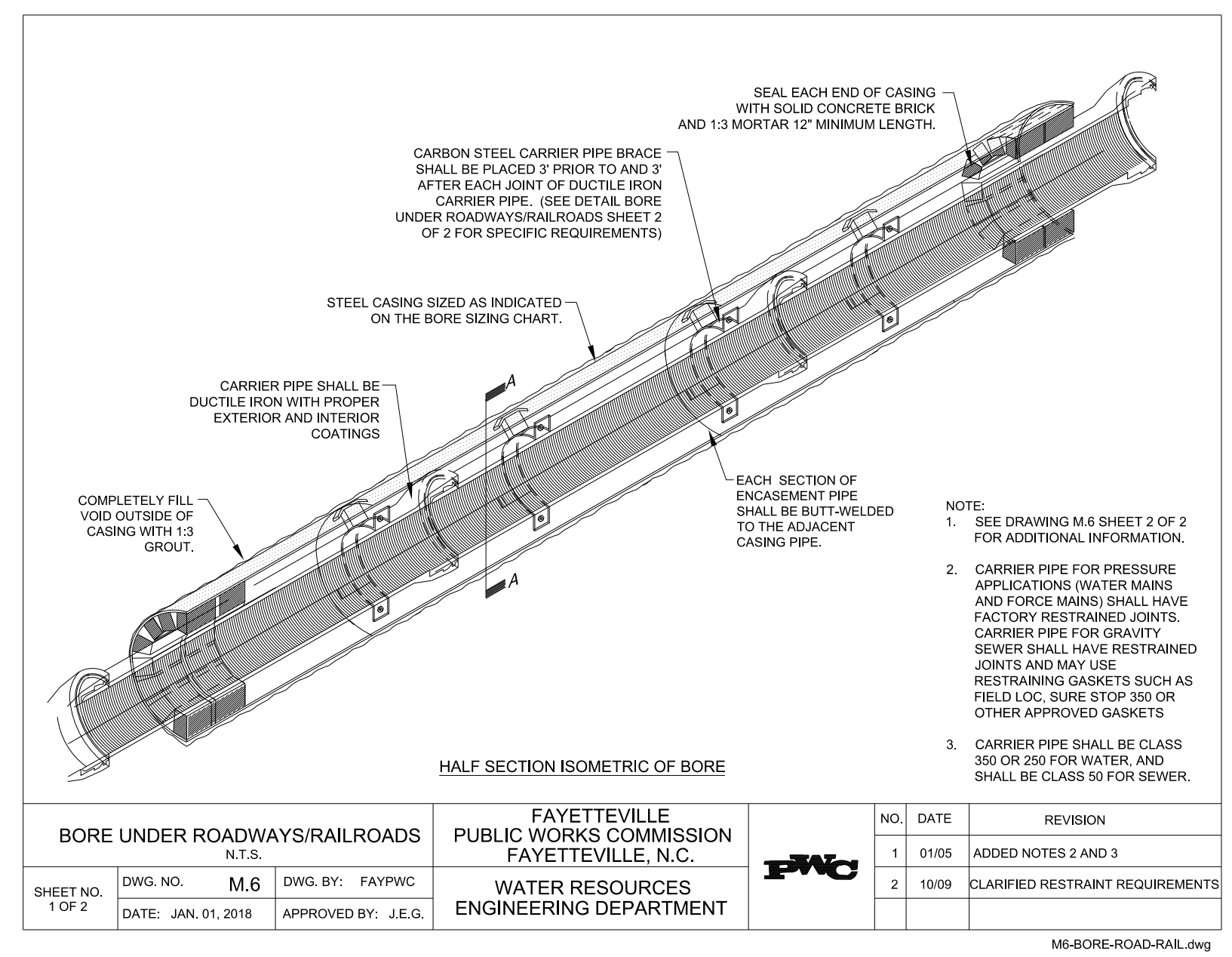


2" DOMESTIC LATERAL		FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO. DATE REVISION	
SHEET NO. 1 OF 1	DWG. NO. W.30	DWG. BY: FAYPWC	DATE: JAN. 01, 2018	APPROVED BY: J.E.G.	1 07/01/17 REVISED NOTES
					2 05/29/18 REVISED NOTES 5, 6, AND 7 FOR NCDOT U-4405
					3 07/24/18 REVISED PER NCDOT COMMENTS (U-4405)

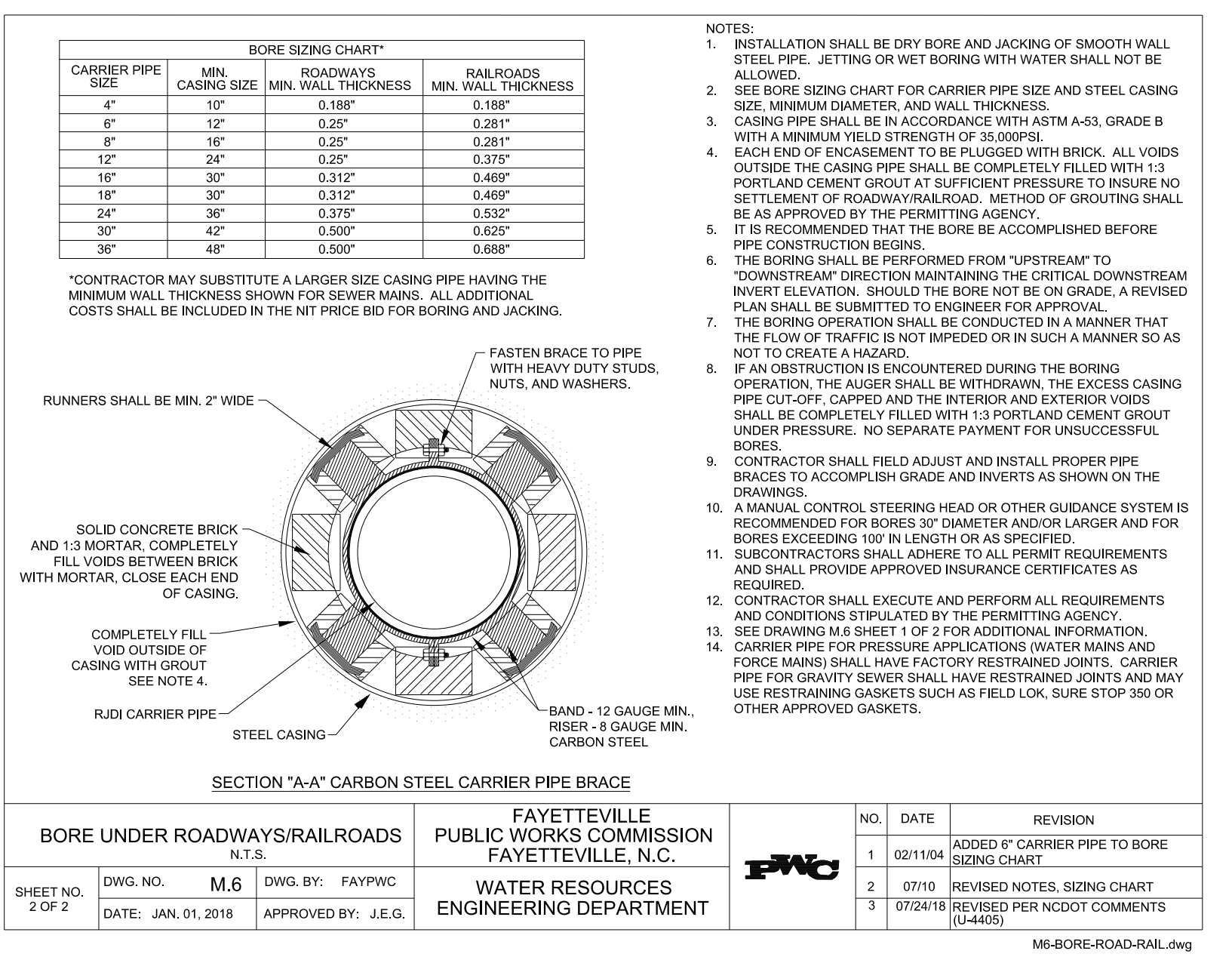


PIPE REPAIR DETAIL		FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO. DATE REVISION	
SHEET NO. 1 OF 1	DWG. NO. W.31	DWG. BY: FAYPWC	DATE: JAN. 01, 2018	APPROVED BY: J.E.G.	1 05/29/18 REVISED NOTES AND CALL OUT FOR NCDOT U-4405
					2 07/24/18 REVISED PER NCDOT COMMENTS NCDOT U-4405

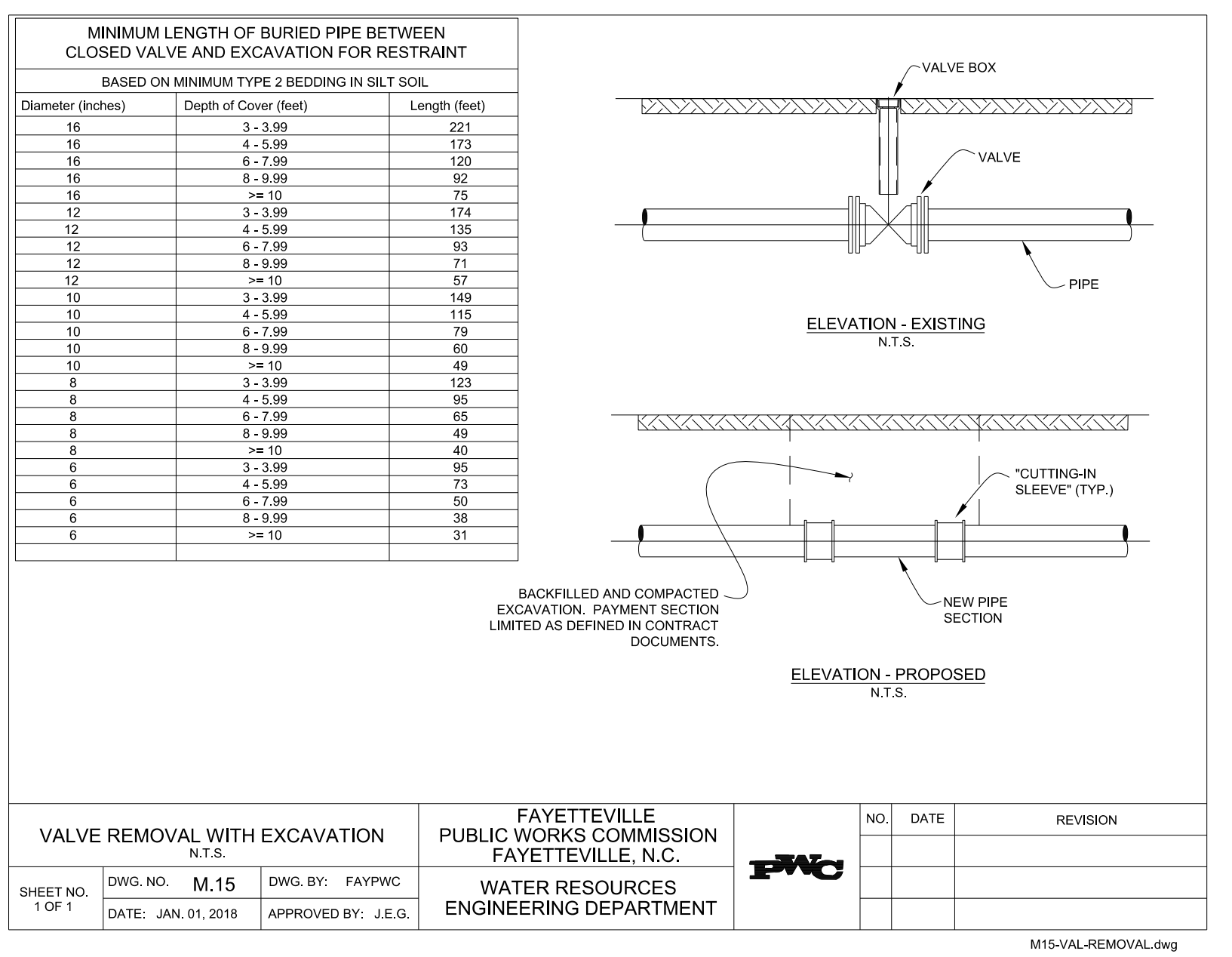
NOTE:  
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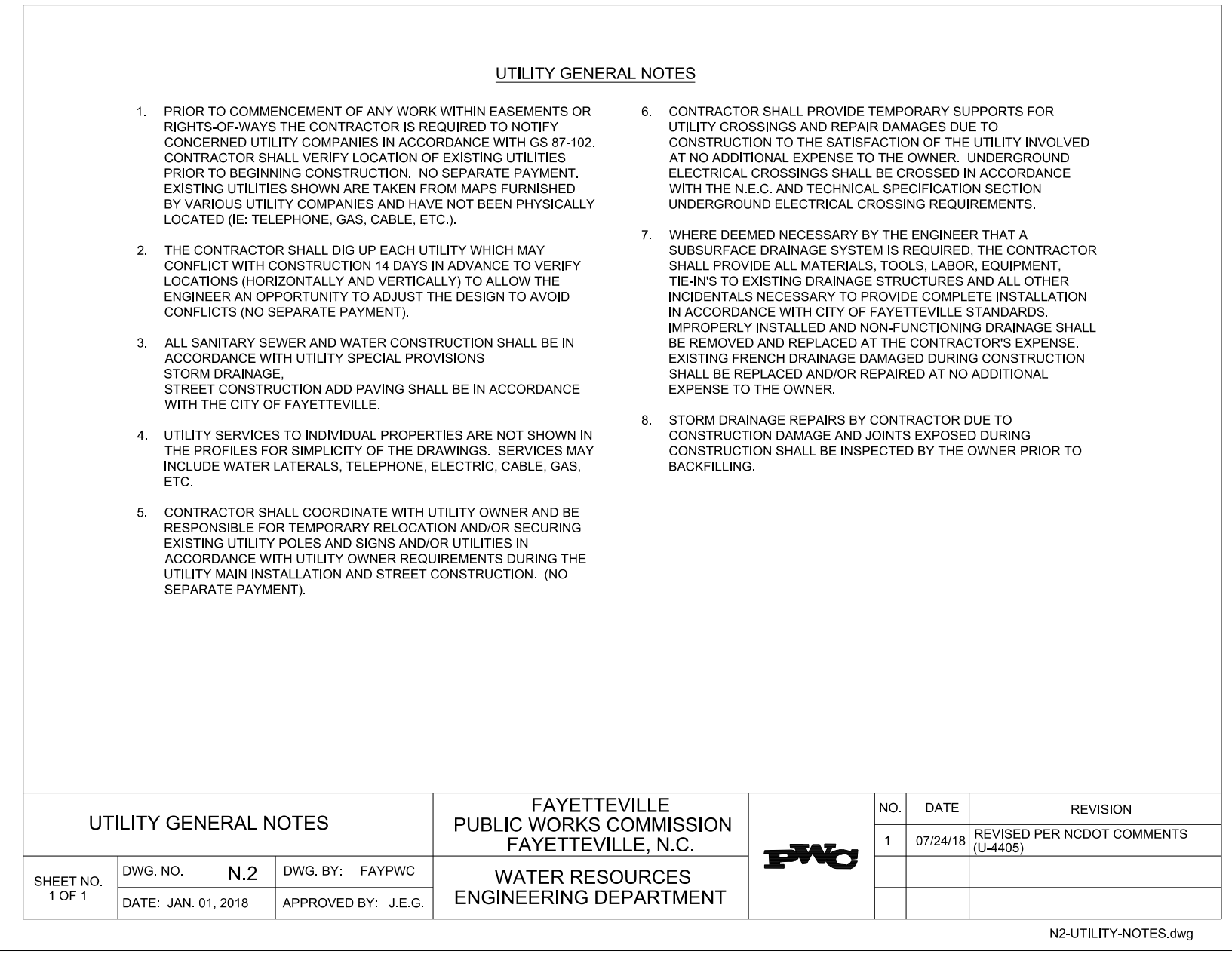
BORE UNDER ROADWAYS/RAILROADS		FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO. DATE REVISION	
SHEET NO. 1 OF 2	DWG. NO. M.6	DWG. BY: FAYPWC	DATE: JAN. 01, 2018	APPROVED BY: J.E.G.	1 01/05 ADDED NOTES 2 AND 3
					2 10/09 CLARIFIED RESTRAINT REQUIREMENTS



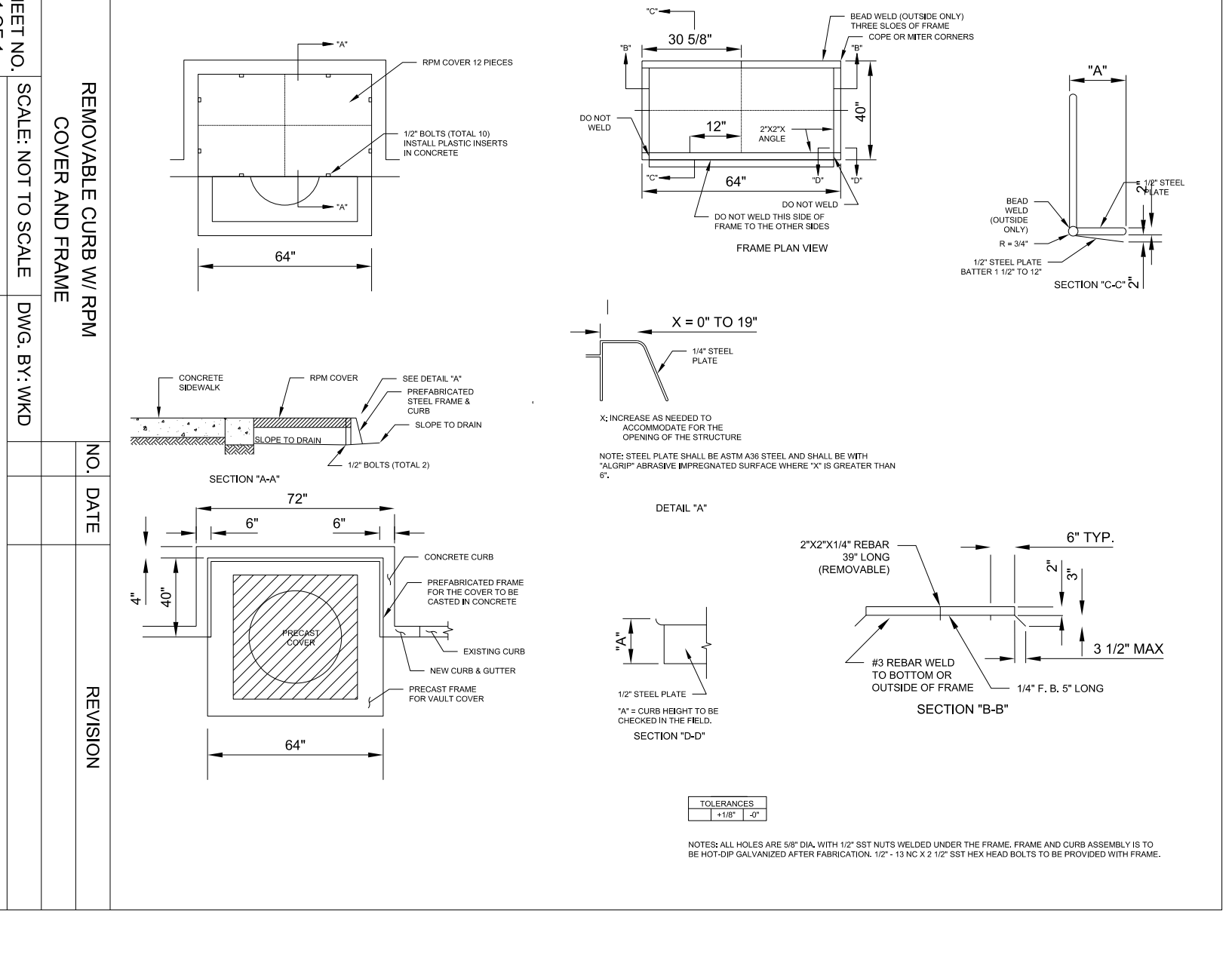
BORE UNDER ROADWAYS/RAILROADS		FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO. DATE REVISION	
SHEET NO. 2 OF 2	DWG. NO. M.6	DWG. BY: FAYPWC	DATE: JAN. 01, 2018	APPROVED BY: J.E.G.	1 02/11/04 ADDED 6" CARRIER PIPE TO BORE SIZING CHART
					2 07/10 REVISED NOTES, SIZING CHART
					3 07/24/18 REVISED PER NCDOT COMMENTS (U-4405)



VALVE REMOVAL WITH EXCAVATION		FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO. DATE REVISION	
SHEET NO. 1 OF 1	DWG. NO. M.15	DWG. BY: FAYPWC	DATE: JAN. 01, 2018	APPROVED BY: J.E.G.	



UTILITY GENERAL NOTES		FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO. DATE REVISION	
SHEET NO. 1 OF 1	DWG. NO. N.2	DWG. BY: FAYPWC	DATE: JAN. 01, 2018	APPROVED BY: J.E.G.	1 07/24/18 REVISED PER NCDOT COMMENTS (U-4405)



REMOVABLE CURB W/ RPM COVER AND FRAME		FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO. DATE REVISION	
SHEET NO. 1 OF 1	DWG. NO. W.32	DWG. BY: WMD	DATE: 5/18/2015		

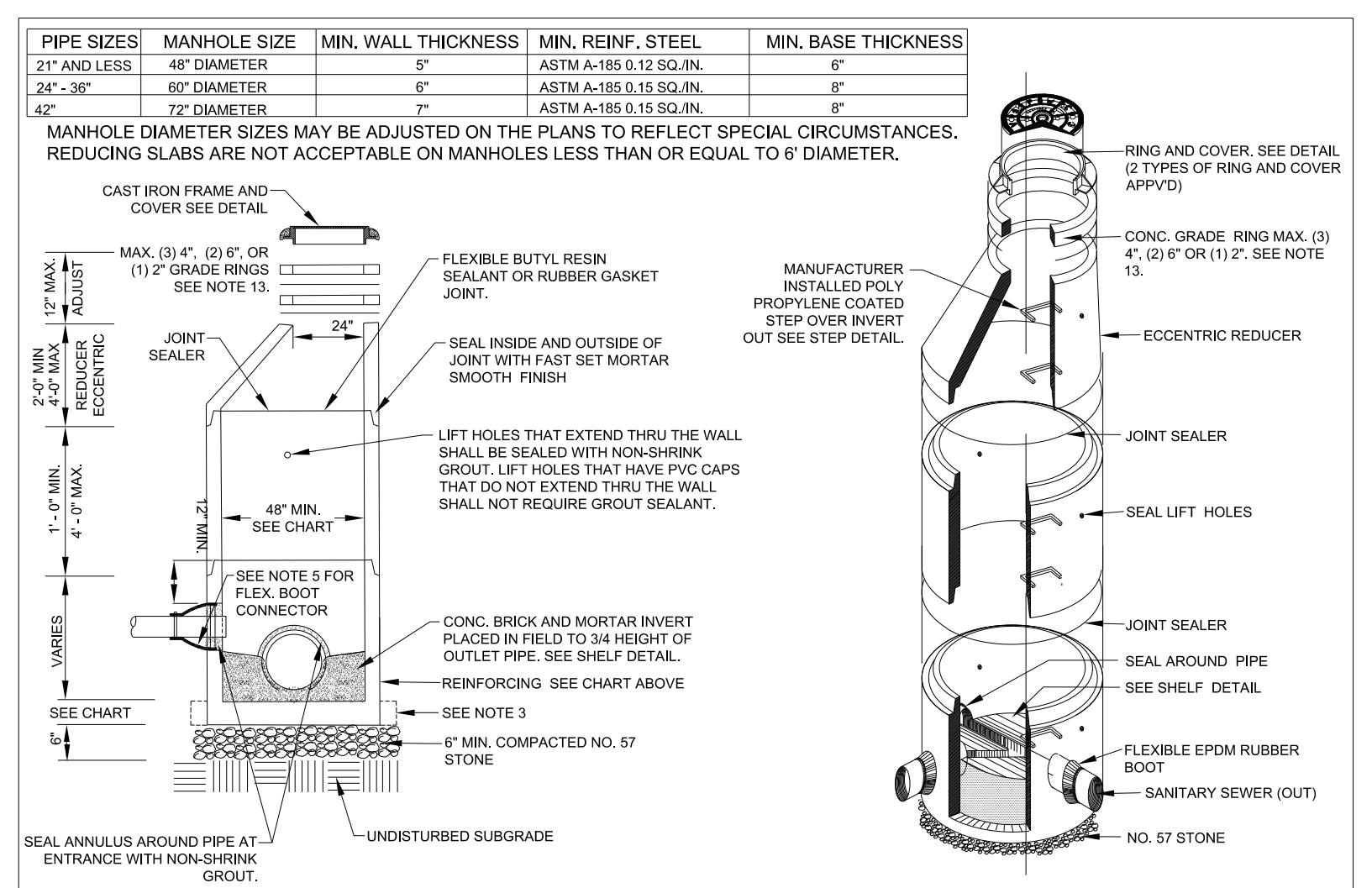
REVISIONS  
 UTILITY REV. - JULY 24, 2018 - REVISIONS TO DETAIL SHEETS

U:\P\2018\10\_36\10\_36 Fayetteville Public Works Commission\2018\07\00RA Reeford Road NCDOT U-4405\CADD\NCDOT PLANS\Utilities\Engineering\4405\ut\_dtl\_UC031-0.dgn 5/14/19



# UTILITY CONSTRUCTION

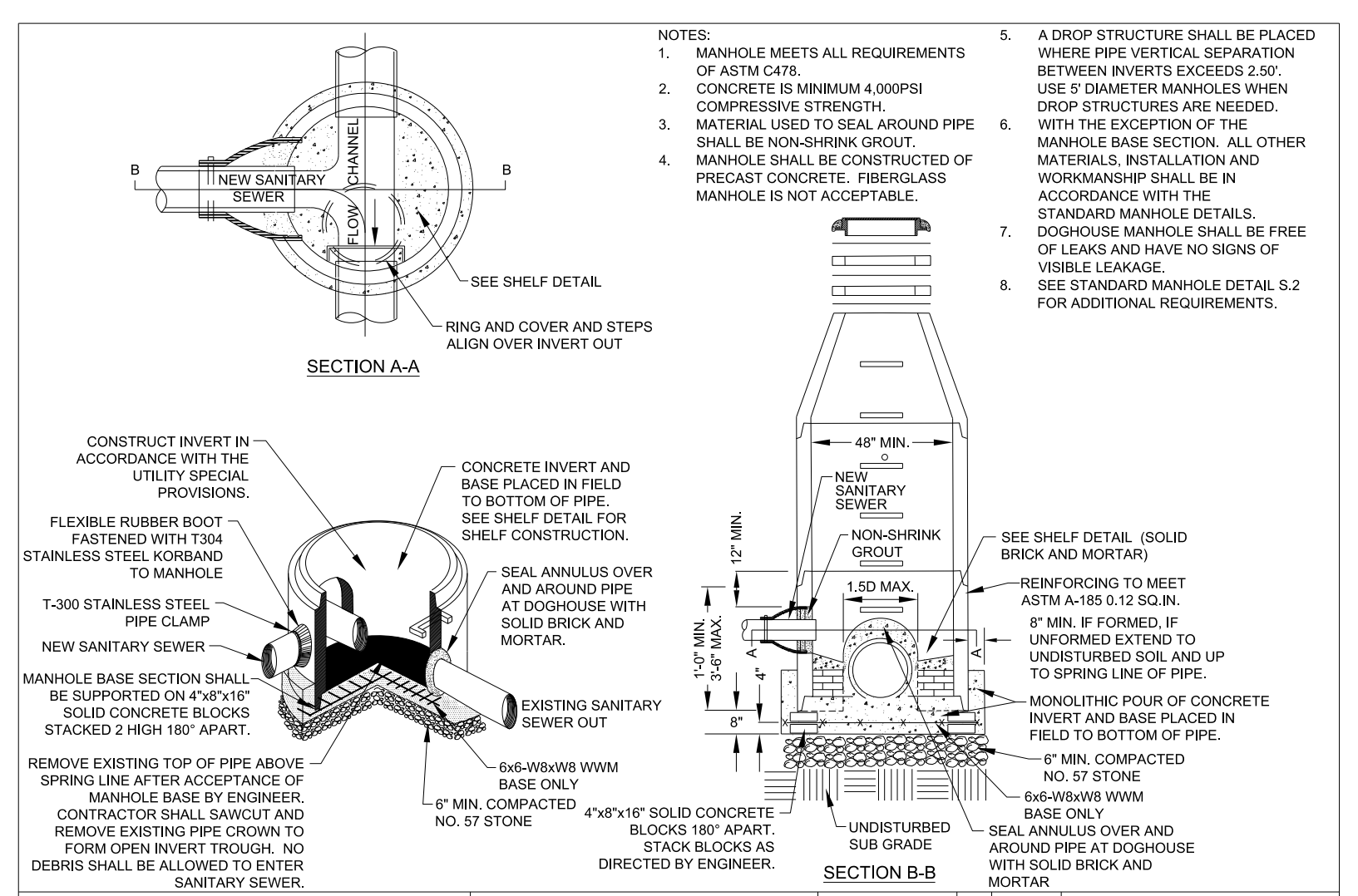
- CONTRACTOR SHALL REPAIR ALL SEWER LATERALS AND MAINS DAMAGED DURING CONSTRUCTION. THE CONTRACTOR SHALL IMMEDIATELY REPORT ALL SEWER MAIN AND LATERAL BREAKS TO THE ENGINEER. THE CONTRACTOR SHALL INITIATE IMMEDIATE REPAIRS IN ACCORDANCE WITH THE UTILITY SPECIAL PROVISIONS.
- SEWER MAINS, LATERALS, AND MANHOLES SHALL BE INSTALLED UTILIZING AN APPROVED OUT-SHEET, INDICATING INSTALLATION DEPTH.
- TRANSFER OF SEWER SERVICES SHALL BE ACCOMPLISHED AS FOLLOWS:
  - INSTALL AND TEST NEW MAINS, MANHOLES, AND LATERALS. CLEANOUTS SHALL BE INSTALLED 18" INSIDE R/W OR PUE UNLESS OTHERWISE DIRECTED BY ENGINEER.
  - CONNECT EXISTING PLUMBING TO NEW LATERAL UTILIZING THE NECESSARY FITTINGS AS DIRECTED BY ENGINEER.
  - AFTER ALL SERVICES HAVE BEEN TRANSFERRED TO THE NEW MAIN, THE EXISTING SEWER SYSTEM SHALL BE ABANDONED IN ACCORDANCE WITH THE UTILITY SPECIAL PROVISIONS.
- WHEN THE EXISTING MAIN IS NOT TO BE ABANDONED, THE CONTRACTOR SHALL UNCOVER THE EXISTING LATERAL AT THE MAIN, CUT AND PLUG BOTH ENDS, REMOVE THE EXISTING CLEANOUT AND COMBINATION, AND PLUG THE LATERAL TO ABANDON THE OLD SERVICE.
- CONTRACTOR SHALL ABANDON ("KILL-OUT") ANY EXISTING SEWER SERVICES THAT WILL NOT BE UTILIZED BY UNCOVERING THE EXISTING LATERAL AT THE MAIN, CUT AND PLUG AT BOTH ENDS, REMOVE THE EXISTING CLEANOUT AND COMBINATION, AND PLUG THE TAP OR TEE AT THE MAIN. FOR LATERALS THAT CONNECT TO A MANHOLE AND ARE TO BE ABANDONED ("KILLED-OUT"), THE LATERAL SHALL BE REMOVED FROM THE MANHOLE AND THE REMAINING VOID IN THE MANHOLE SHALL BE FILLED WITH BLOCK AND MORTAR.
- SEWER PLUGS SHALL BE INSTALLED TO ELIMINATE ANY DEBRIS OR OTHER MATERIAL FROM ENTERING THE ACTIVE SEWER SYSTEM. UPON ACCEPTANCE OF THE NEW SEWER SYSTEM, THE CONTRACTOR SHALL CLEAN THE NEW MAINS, REMOVE ALL DEBRIS, AND THEN REMOVE THE PLUG.
- ALL EXISTING UTILITIES IMPACTED BY CONSTRUCTION SHALL BE ADJUSTED TO FINISHED GRADE, IN ACCORDANCE WITH ELEVATIONS INDICATED OR SHOWN ON DRAWINGS.
- ALL WORK ON SEWER UTILITIES (MAINS, LATERALS, ETC) SHALL BE REFERENCED BY A LICENSED UTILITY CONTRACTOR. THE ENGINEER SHALL OBSERVE AND APPROVE ALL WORK ON SEWER UTILITIES. ALL WORK SHALL BE COMPLETED IN ACCORDANCE WITH THE UTILITY SPECIAL PROVISIONS.
- SEPARATION REQUIREMENTS:
  - LATERAL SEPARATION OF SEWERS AND WATER MAINS:** WATER MAINS SHALL BE LAID AT LEAST 10 FEET LATERALLY FROM EXISTING OR PROPOSED SEWER MAIN/LATERAL, UNLESS LOCAL CONDITIONS OR BARRIERS PREVENT A 10-FOOT LATERAL SEPARATION - IN WHICH CASE:
    - THE WATER MAIN IS LAID IN A SEPARATE TRENCH, WITH THE ELEVATION OF THE BOTTOM OF THE WATER MAIN AT LEAST 18 INCHES ABOVE THE TOP OF THE SEWER MAIN/LATERAL; OR
    - THE WATER MAIN IS LAID IN THE SAME TRENCH AS THE SEWER MAIN/LATERAL WITH THE WATER MAIN LOCATED AT ONE SIDE ON A BENCH OF UNDISTURBED EARTH AND WITH THE ELEVATION OF THE BOTTOM OF THE WATER MAIN AT LEAST 18 INCHES ABOVE THE TOP OF THE SEWER MAIN/LATERAL.
  - CROSSING A WATER MAIN OVER A SEWER:** WHENEVER IT IS NECESSARY FOR A WATER MAIN TO CROSS OVER A SEWER MAIN/LATERAL, THE WATER MAIN SHALL BE LAID AT SUCH AN ELEVATION THAT THE BOTTOM OF THE WATER MAIN IS AT LEAST 18 INCHES ABOVE THE TOP OF THE SEWER MAIN/LATERAL, UNLESS LOCAL CONDITIONS OR BARRIERS PREVENT AN 18 INCH VERTICAL SEPARATION - IN WHICH CASE BOTH THE WATER MAIN AND SEWER MAIN/LATERAL SHALL BE CONSTRUCTED OF FERROUS MATERIAL AND WITH JOINTS THAT ARE EQUIVALENT TO WATER MAIN STANDARDS FOR A DISTANCE OF 10 FEET ON EACH SIDE OF THE POINT OF CROSSING.
  - CROSSING WATER MAIN UNDER A SEWER:** WHENEVER IT IS NECESSARY FOR A WATER MAIN TO CROSS UNDER A SEWER MAIN/LATERAL, BOTH THE WATER MAIN AND THE SEWER MAIN/LATERAL SHALL BE CONSTRUCTED OF DUCTILE IRON MATERIAL AND WITH JOINTS EQUIVALENT TO WATER MAIN STANDARDS FOR A DISTANCE OF 10 FEET ON EACH SIDE OF THE POINT OF CROSSING. A SECTION OF WATER MAIN PIPE SHALL BE CENTERED AT THE FRONT OF CROSSING.
  - CROSSING STORM DRAINAGE LINES:** A MINIMUM OF 24-INCHES OF VERTICAL CLEARANCE SHALL BE MAINTAINED BETWEEN A SEWER MAIN/LATERAL CROSSING UNDER A STORM DRAINAGE LINE UNLESS DUCTILE IRON PIPE IS USED. IF DUCTILE IRON PIPE IS USED, A MINIMUM OF SIX(6) INCHES OF SEPARATION SHALL BE MAINTAINED, UNLESS OTHERWISE APPROVED BY THE ENGINEER.



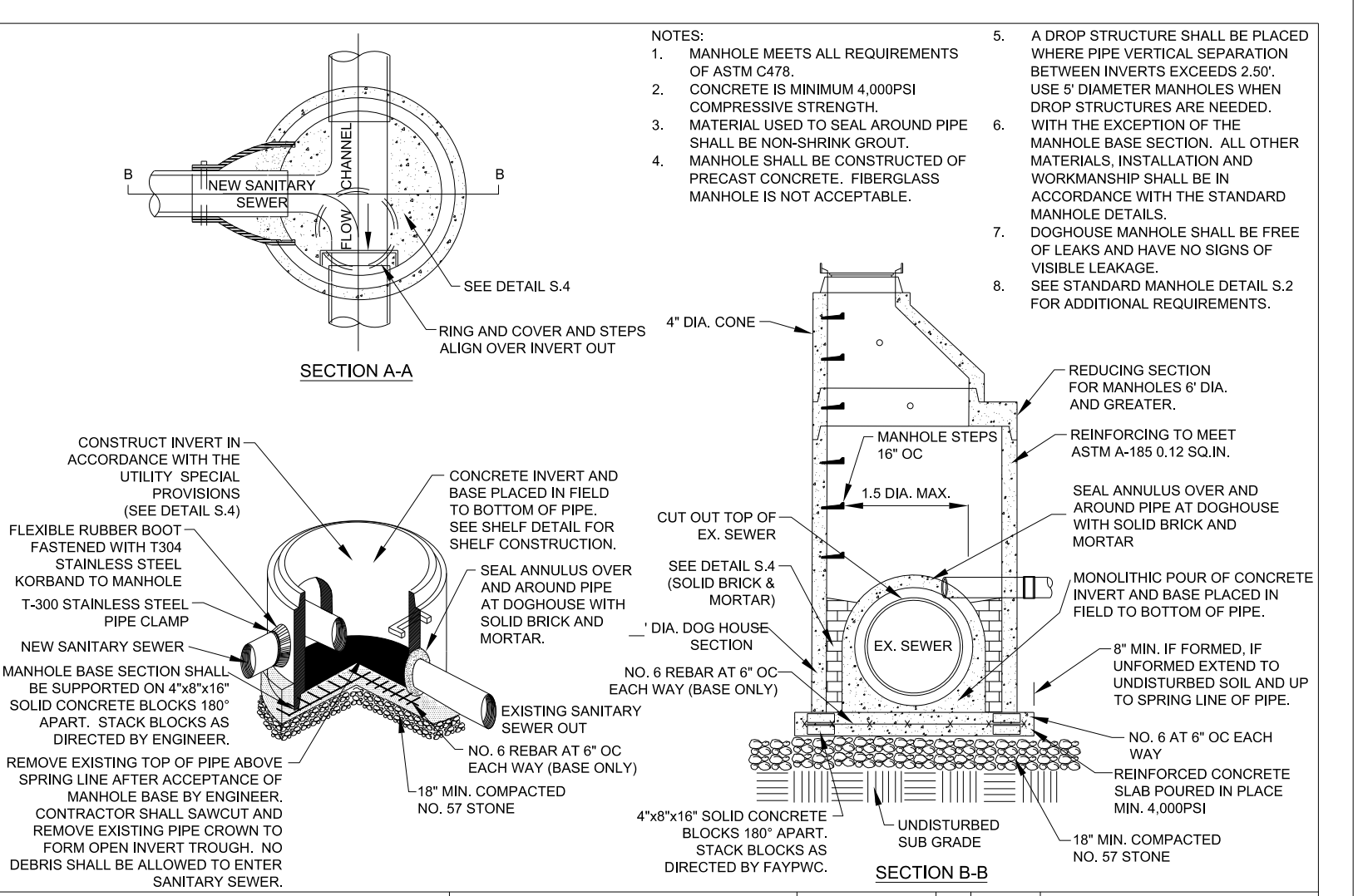
GENERAL NOTES		FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO.	DATE	REVISION
S.1		S.2		1	07/16	ADDED NOTE 6
S.2		S.3		2	01/18	ADDED NOTES 5, 8
S.3		S.4		3	07/24/18	REVISED NOTES 1, 2a, 2b, 7 AND 8 FOR NCDOT U-4405.

**NOTE:**  
ANY REFERENCE TO FAYPWC PROJECT COORDINATOR, PWC COORDINATOR OR FAYPWC (FAYETTEVILLE PUBLIC WORKS COMMISSION) SHALL BE INTERPRETED AS A REFERENCE TO THE ENGINEER.

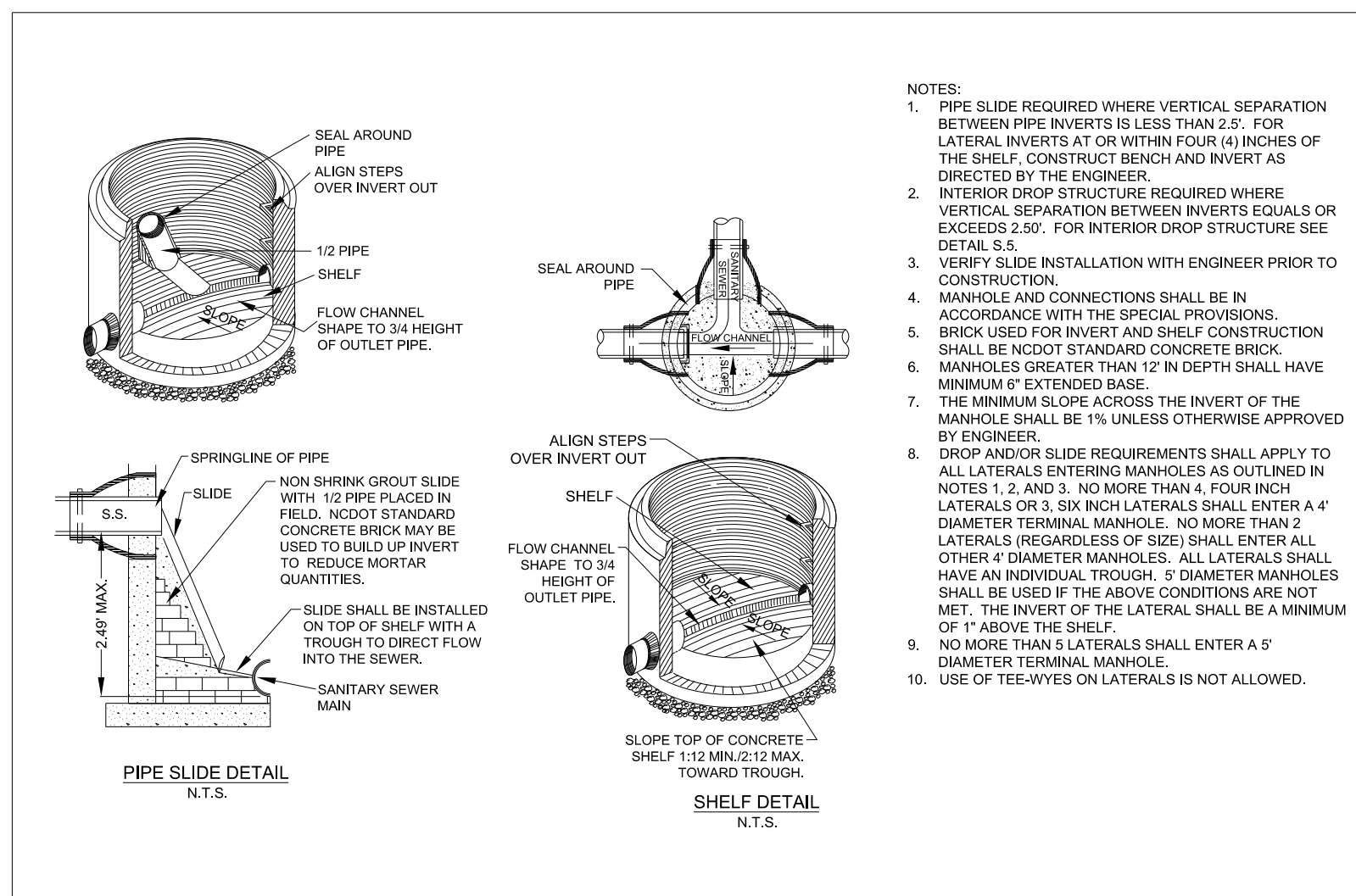
- PRECAST REINFORCED CONCRETE MANHOLES SHALL BE IN ACCORDANCE WITH ASTM C478.
- MINIMUM CONCRETE COMPRESSIVE STRENGTH SHALL BE 4,000PSI.
- MANHOLES GREATER THAN 12" DEPTH SHALL HAVE MINIMUM 6" EXTENDED BASE.
- FLEXIBLE BUTYL RESIN JOINT SEALANT SHALL BE IN ACCORDANCE WITH ASTM C999. RUBBER GASKET JOINTS SHALL BE IN ACCORDANCE WITH ASTM C443.
- FLEXIBLE EPDM RUBBER BOOT CONNECTORS SHALL BE IN ACCORDANCE WITH ASTM C923. INSTALLED BY MANUFACTURER WITH STAINLESS STEEL COMPRESSION RING AND TAKE-UP CLAMP. CONNECTION TO MAIN SHALL BE BY CONTRACTOR WITH STAINLESS STEEL PIPE CLAMP.
- CONNECTIONS TO EXISTING MANHOLES SHALL BE BY CORING MANHOLE AND FIELD INSTALLING A FLEX BOOT CONNECTOR. DO NOT ALLOW DEBRIS TO ENTER SYSTEM.
- MORTAR SHALL BE QUICK SETTING, NON-SHRINK GROUT MIXED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
- MANHOLE STEPS SHALL BE IN ACCORDANCE WITH ASTM C478 AND OSHA REGULATIONS. ALIGN STEPS WITH INVERT OUT.
- PRECAST INVERTS ARE NOT ALLOWED. STANDING WATER IN INVERT OF MANHOLE IS NOT ACCEPTABLE.
- VERTICAL DROPS BETWEEN THE INFLOW PIPES AND OUTFLOW PIPES SHALL REQUIRE THE FOLLOWING:
  - GREATER THAN 2" SEE DROP STRUCTURE DETAIL (MIN. 5" DIAMETER MH REQUIRED).
  - 1" TO 2.5" SEE PIPE SLIDE DETAIL.
  - LESS THAN 1" SEE MORTAR SLIDE DETAIL.
- AN ECCENTRIC CONE SHALL BE UTILIZED ON ALL MANHOLES. DIAMETER MANHOLES SHALL BE APPROVED BY ENGINEER. 5" DIAMETER MANHOLES SHALL BE USED IF THE ABOVE CONDITIONS ARE NOT MET.
- INVERT ON PLANS IS TO MANHOLE CENTERLINE.
- CONCRETE GRADE RINGS SHALL NOT BE USED FOR ABOVE GRADE ADJUSTMENTS (8" OR MORE). CONCRETE GRADE RINGS ARE ALLOWABLE IN YARD AREAS AND PAVEMENT, WHERE THE RING AND COVER ARE AT GROUND LEVEL.
- THE MINIMUM SLOPE ACROSS THE INVERT OF THE MANHOLE SHALL BE 1%, UNLESS OTHERWISE APPROVED BY ENGINEER.
- 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 THE UTILITY SPECIAL PROVISIONS.
- 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 SECURELY FASTENED TO THE CORE HOLE BY UTILIZING A 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 TORQUE WRENCH SHALL BE SUPPLIED BY THE MANUFACTURER. NO OTHER TYPE BANDS OR METHOD OF SECURING THE BOOT TO THE MANHOLE SHALL BE ACCEPTED.
- FOR FOUR (4) INCH SDR 26 LATERALS, THE PIPE OUTSIDE DIAMETER RANGE OF THE BOOT SHALL BE 5.5 INCHES TO 4.25 INCHES.
- FOR FOUR (4) INCH DUCTILE IRON LATERALS, THE PIPE OUTSIDE DIAMETER RANGE OF THE BOOT SHALL EITHER BE AS FOR VC OR 4.25 INCHES TO 4.81 INCHES.
- IN ALL CASES, THE BOOT SHALL BE TIGHTENED ON THE LATERAL BY MEANS OF A SINGLE STAINLESS STEEL STRAP.
- THE LATERAL INVERT SHALL BE AT THE TOP OF THE SHELF.
- NO MORE THAN 4, FOUR INCH LATERALS OR 3, SIX INCH LATERALS SHALL ENTER A 4" DIAMETER TERMINAL MANHOLE. NO MORE THAN 2 LATERALS (REGARDLESS OF SIZE) SHALL ENTER ALL OTHER 4" DIAMETER MANHOLES. ALL LATERALS SHALL HAVE AN INDIVIDUAL TROUGH. 5" DIAMETER MANHOLES SHALL BE USED IF THE ABOVE CONDITIONS ARE NOT MET.
- NO MORE THAN 5 LATERALS SHALL ENTER A 5" DIAMETER MANHOLE.
- USE OF TEE-WYES ON LATERALS IS NOT ALLOWED.
- ALL MANHOLES SHALL BE VACUUM TESTED IN ACCORDANCE WITH THE UTILITY SPECIAL PROVISIONS.



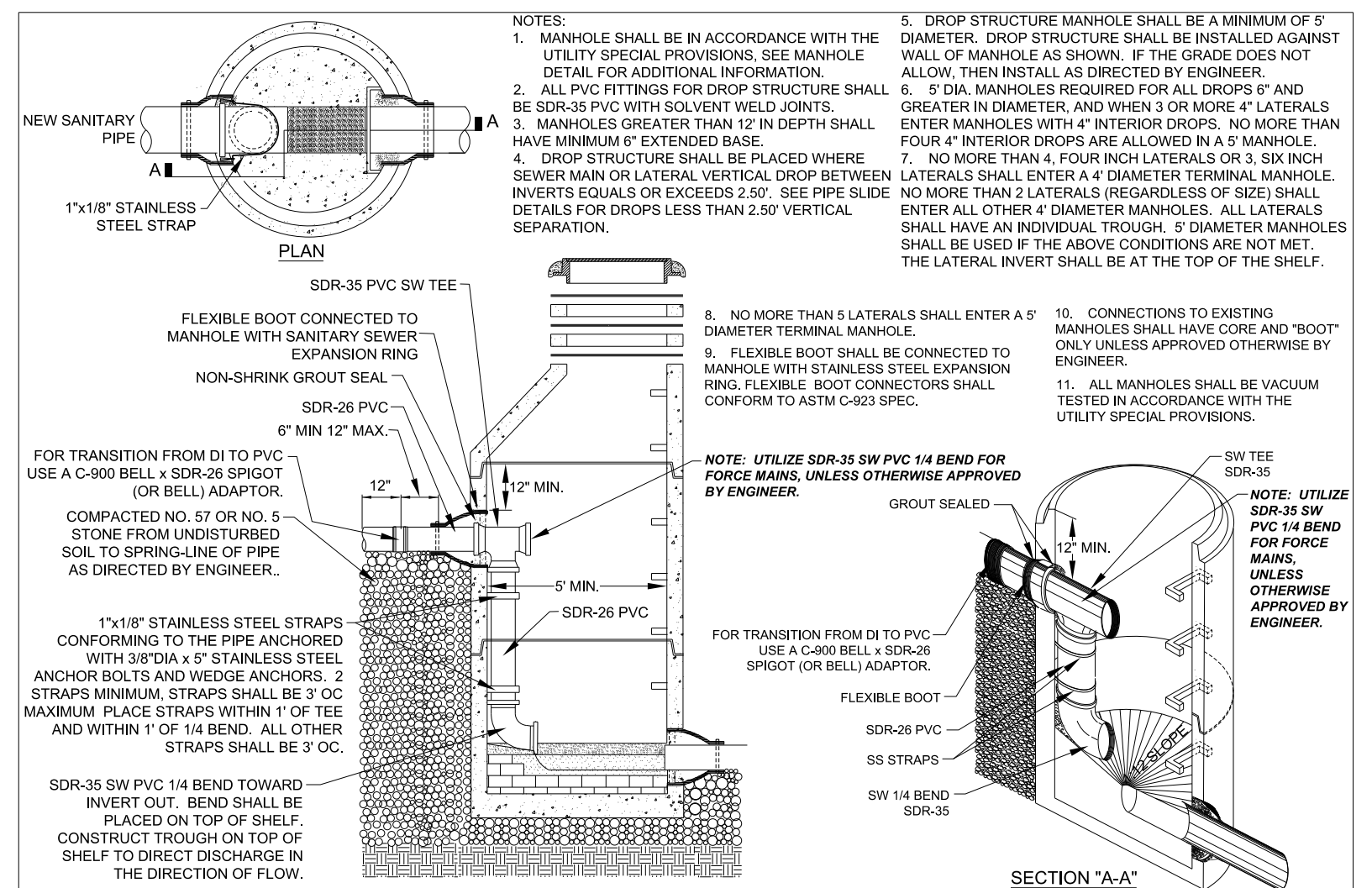
GENERAL NOTES		FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO.	DATE	REVISION
S.3		S.4		1	07/16	ADDED SHEET 2
S.4		S.5		2	11/25/08	MADE CHANGES TO NOTES
S.5		S.6		3	07/24/18	REVISED NOTES AND CALLOUTS FOR NCDOT U-4405.



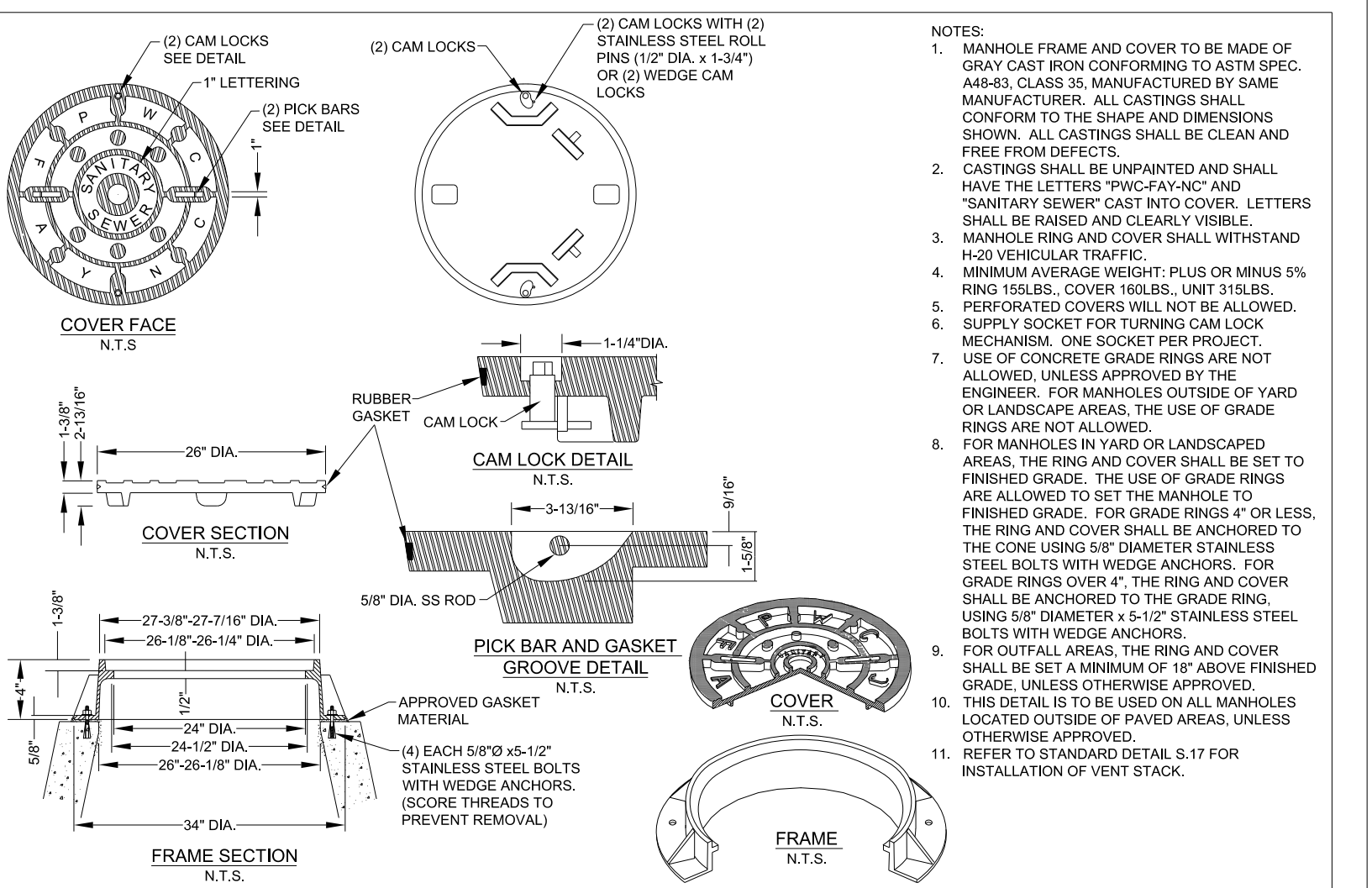
GENERAL NOTES		FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO.	DATE	REVISION
S.3		S.4		1	07/16	ADDED SHEET 2
S.4		S.5		2	11/25/08	MADE CHANGES TO NOTES
S.5		S.6		3	07/24/18	REVISED NOTES AND CALLOUTS FOR NCDOT U-4405.



GENERAL NOTES		FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO.	DATE	REVISION
S.4		S.5		2	02/07	REVISED NOTE 5, SLIDE DETAIL, ADDED NOTES 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12
S.5		S.6		3	01/18	DELETED MORTAR SLIDE, REVISED NOTES
S.6		S.7		4	07/24/18	REVISED PER NCDOT COMMENTS (U-4405)



GENERAL NOTES		FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO.	DATE	REVISION
S.5		S.6		5	07/12	REVISED NOTES 5, 6, AND 7. SHUB ON TOP OF MANHOLE
S.6		S.7		6	07/14	ADDED FORCE MAIN NOTE
S.7		S.8		7	07/24/18	REVISED NOTES AND CALLOUTS FOR NCDOT U-4405.



GENERAL NOTES		FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO.	DATE	REVISION
S.6		S.7		2	07/17	ADDED NOTE ON WEDGE CAM LOCKS
S.7		S.8		3	01/18	UPDATED NOTES 7 AND 8
S.8		S.9		4	07/24/18	REVISED PER NCDOT COMMENTS (U-4405)

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 UTILITY REV. - JULY 24, 2018 - REVISIONS TO DETAIL SHEETS  
 5/14/2019

REVISIONS

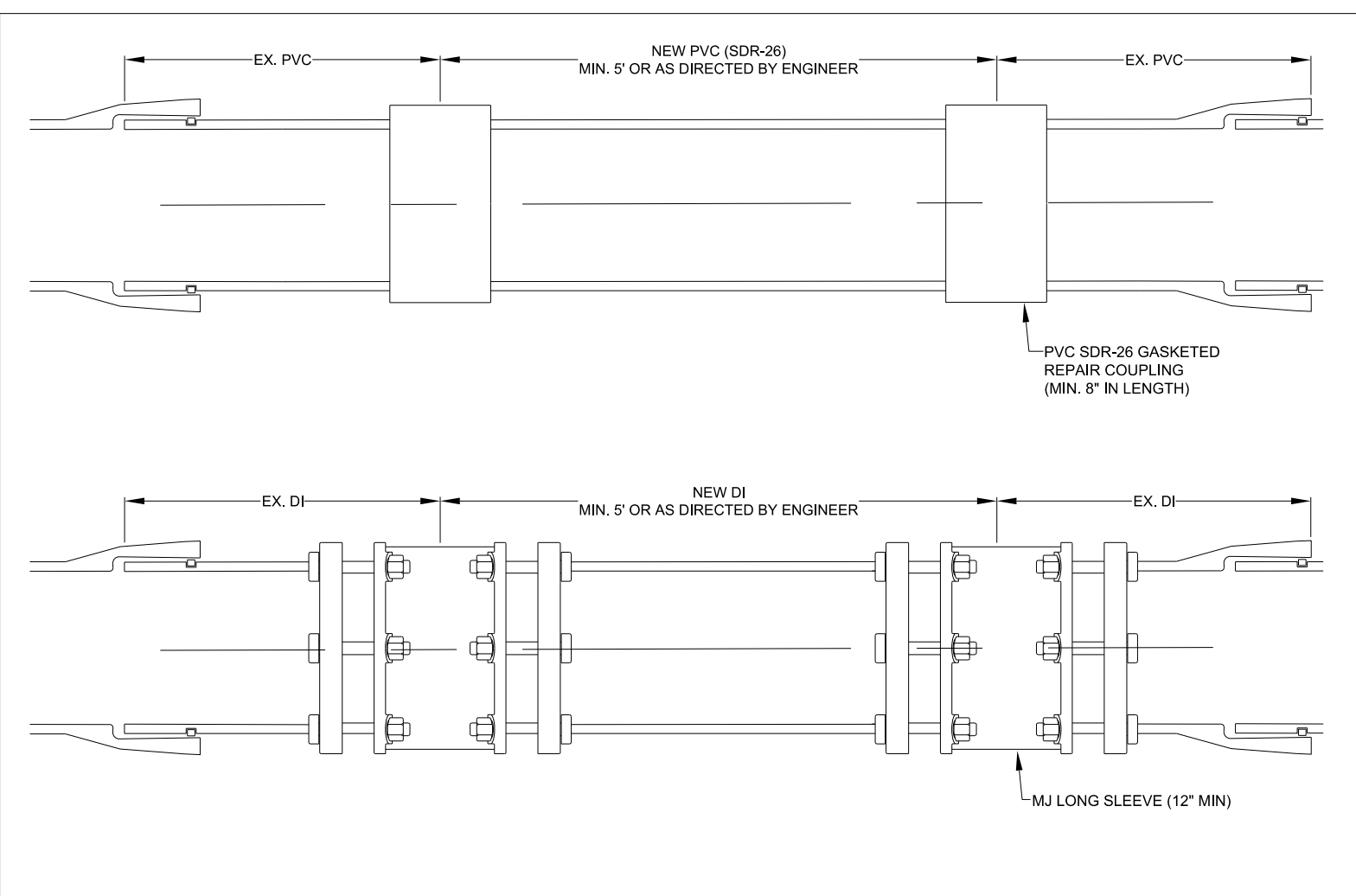
REVISIONS TO DETAIL SHEETS



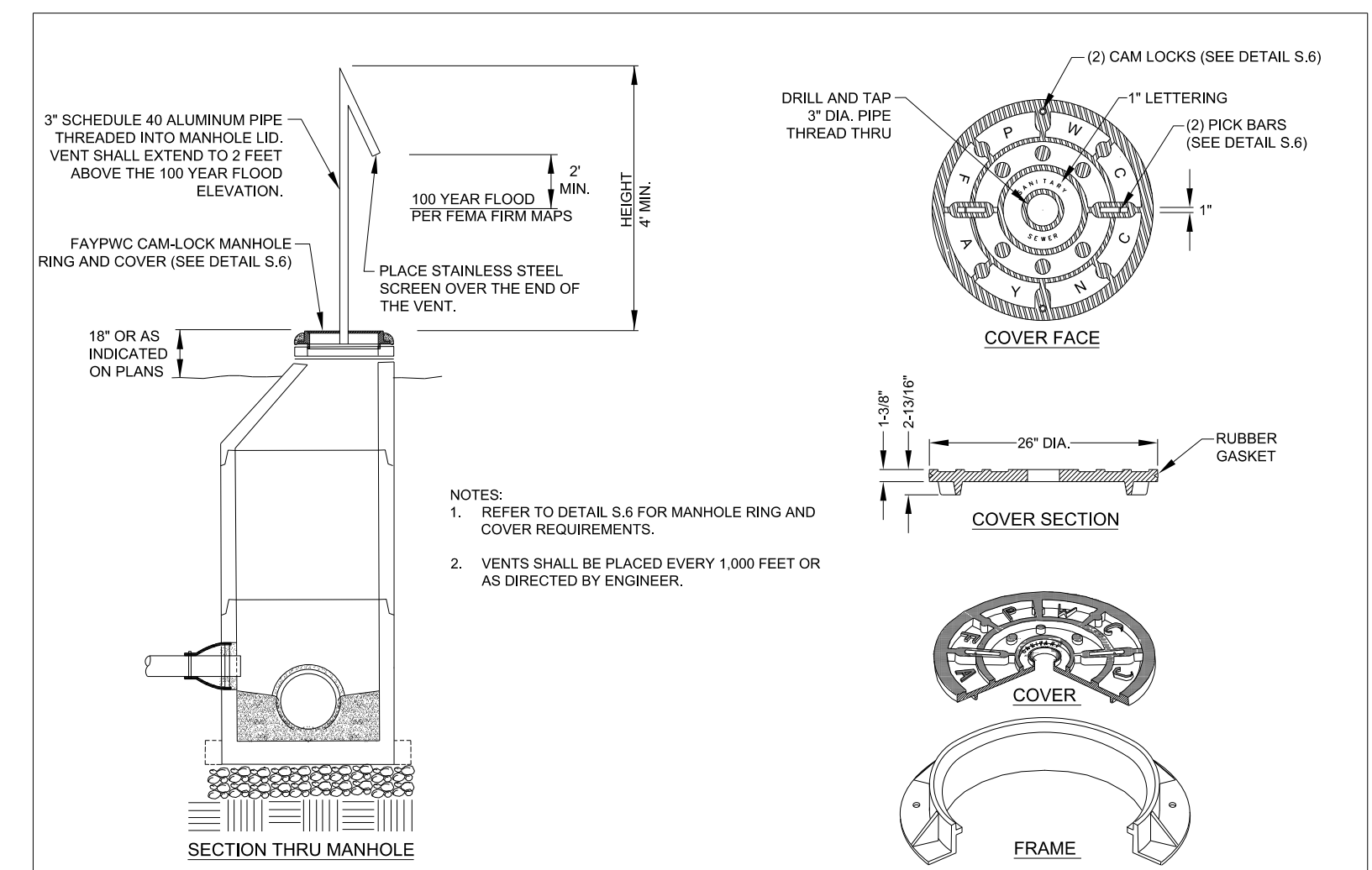




# UTILITY CONSTRUCTION

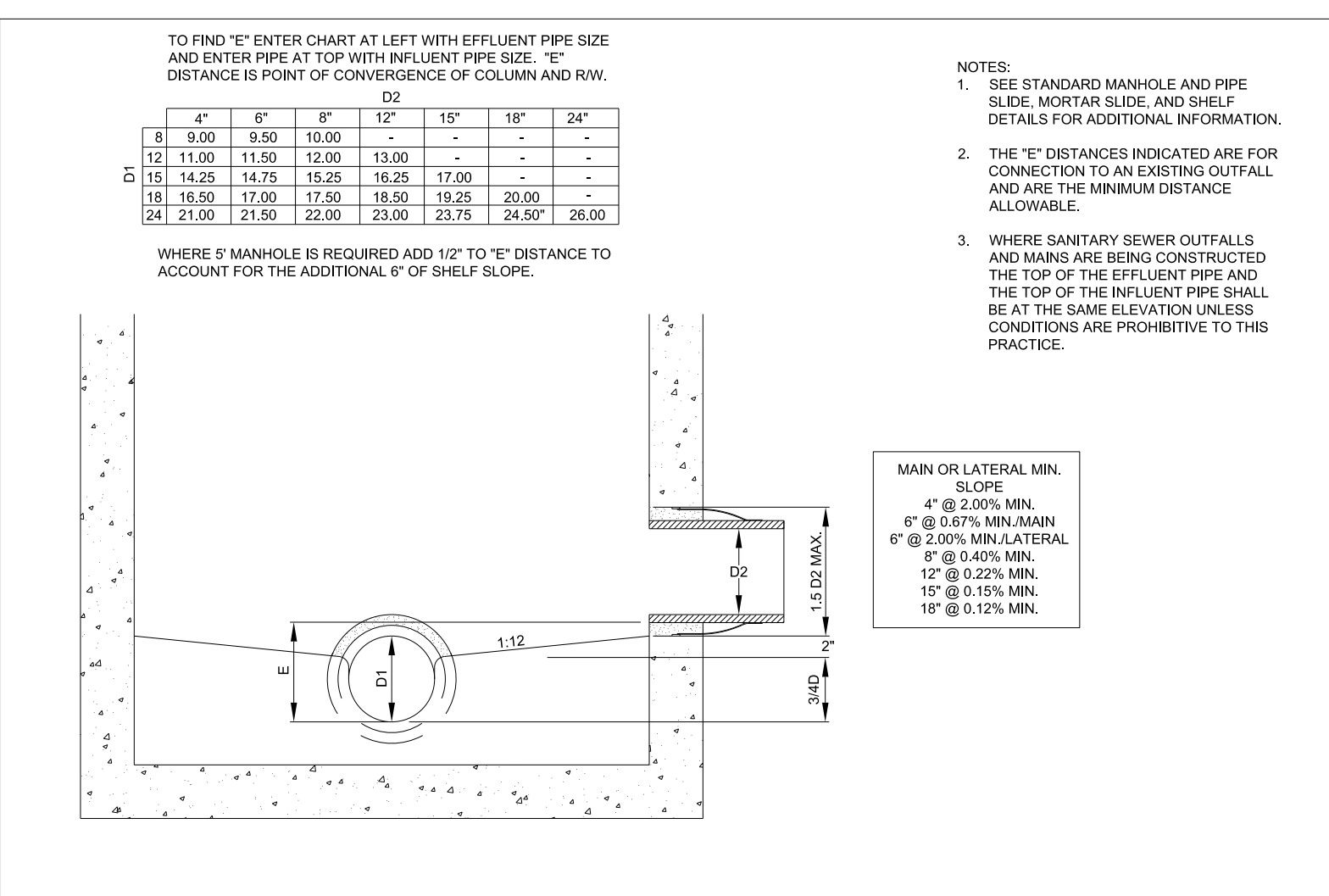


GRAVITY SANITARY SEWER PIPE REPAIR		FAYETTEVILLE PUBLIC WORKS COMMISSION		NO. DATE REVISION		
N.T.S.		FAYETTEVILLE, N.C.				
SHEET NO. 3 OF 3	DWG. NO. S.15	DWG. BY: FAYPWC		1	01/05	REVISED REPLACEMENT PIPE
DATE: JAN. 01, 2018	APPROVED BY: J.E.G.	WATER RESOURCES ENGINEERING DEPARTMENT		2	07/11	REVISED NOTES, REPAIRS
				3	03/29/18	REVISED CALLOUTS FOR NCDOT U-4405.

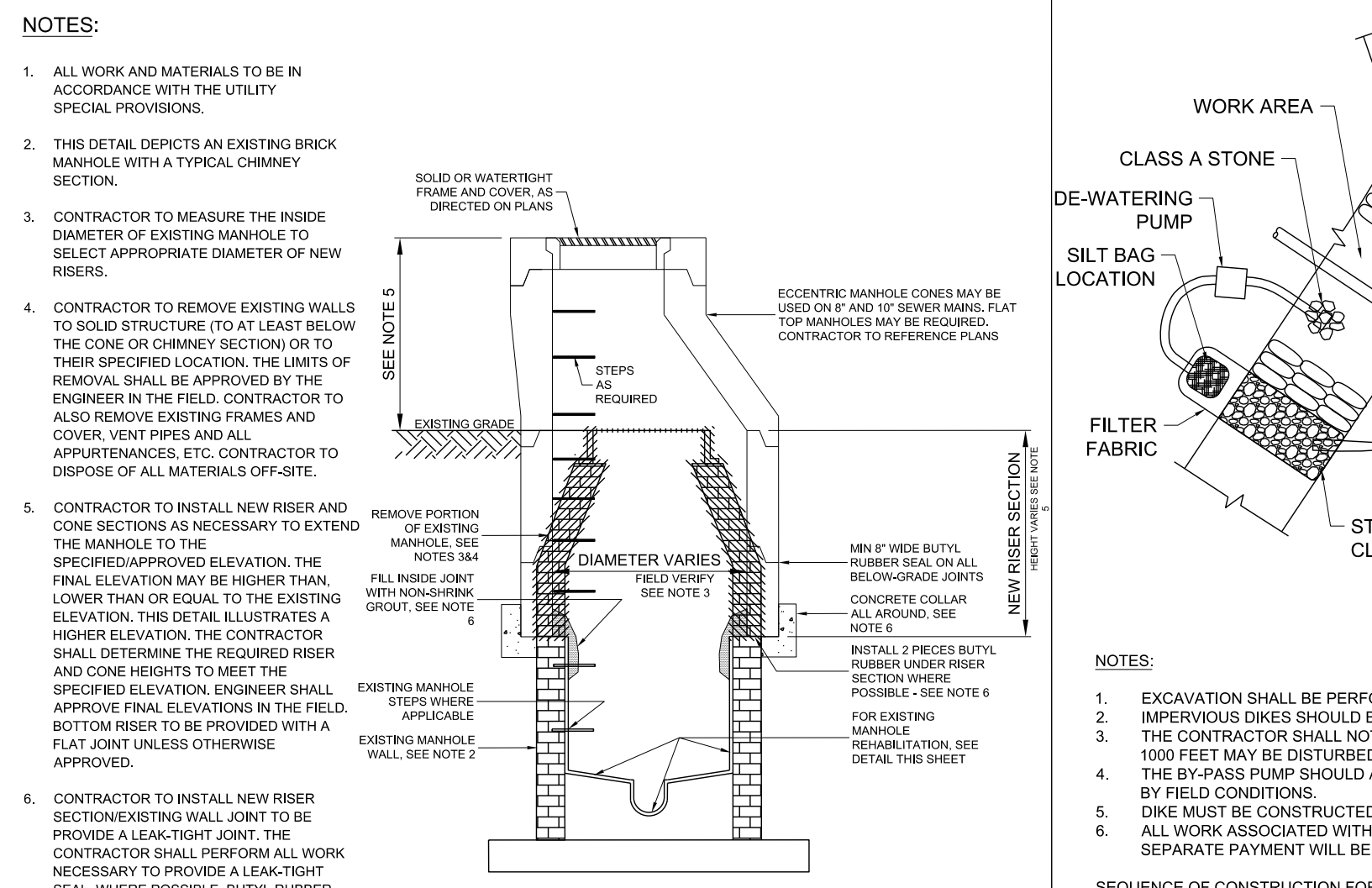


MANHOLE VENT		FAYETTEVILLE PUBLIC WORKS COMMISSION		NO. DATE REVISION		
N.T.S.		FAYETTEVILLE, N.C.				
SHEET NO. 1 OF 1	DWG. NO. S.17	DWG. BY: FAYPWC		1	05/29/18	REVISED NOTES 2 FOR NCDOT U-4405
DATE: JAN. 01, 2018	APPROVED BY: J.E.G.	WATER RESOURCES ENGINEERING DEPARTMENT				

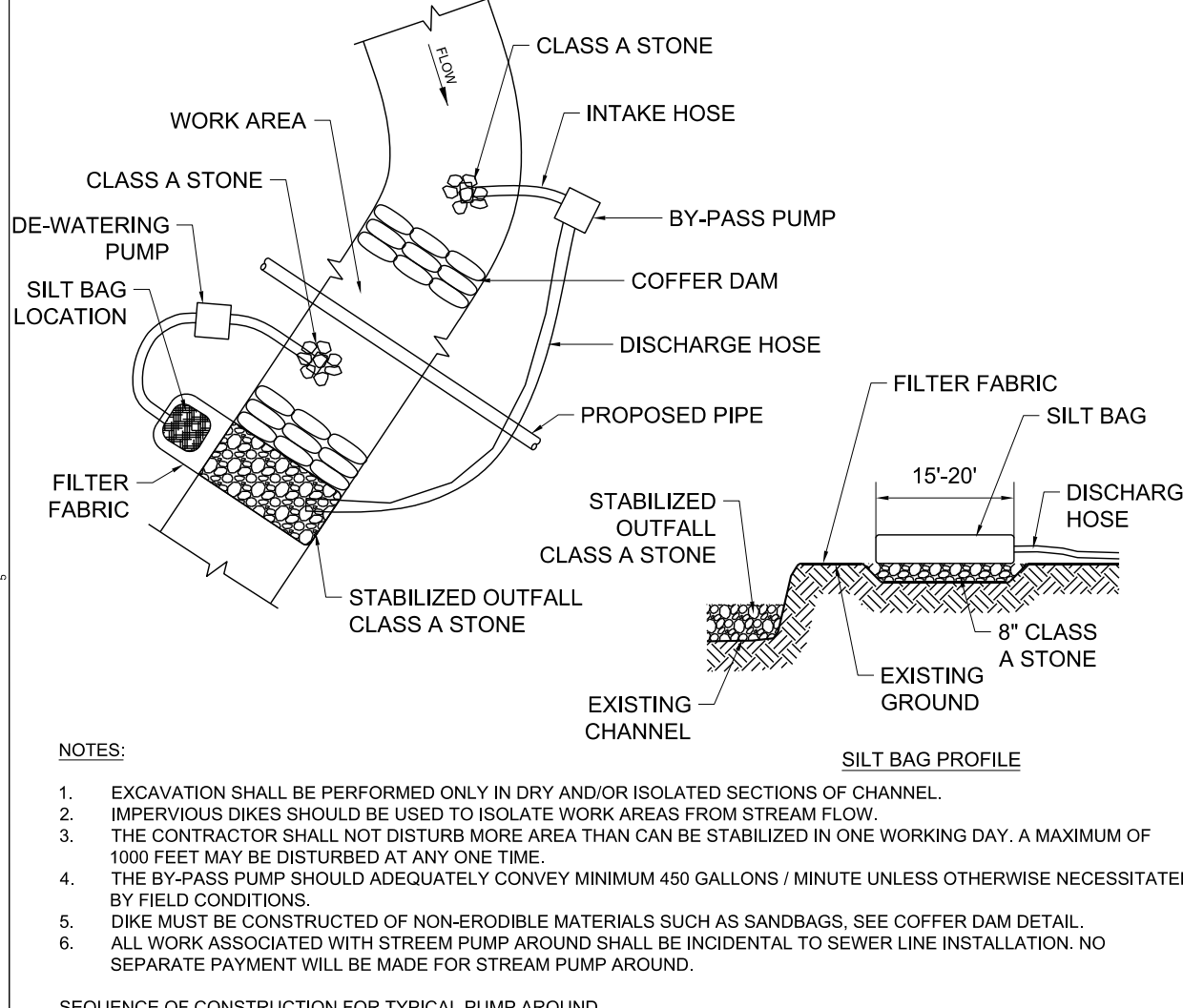
**NOTE:**  
 ANY REFERENCE TO FAYPWC PROJECT COORDINATOR, PWC COORDINATOR OR FAYPWC (FAYETTEVILLE PUBLIC WORKS COMMISSION) SHALL BE INTERPRETTED AS A REFERENCE TO THE ENGINEER.



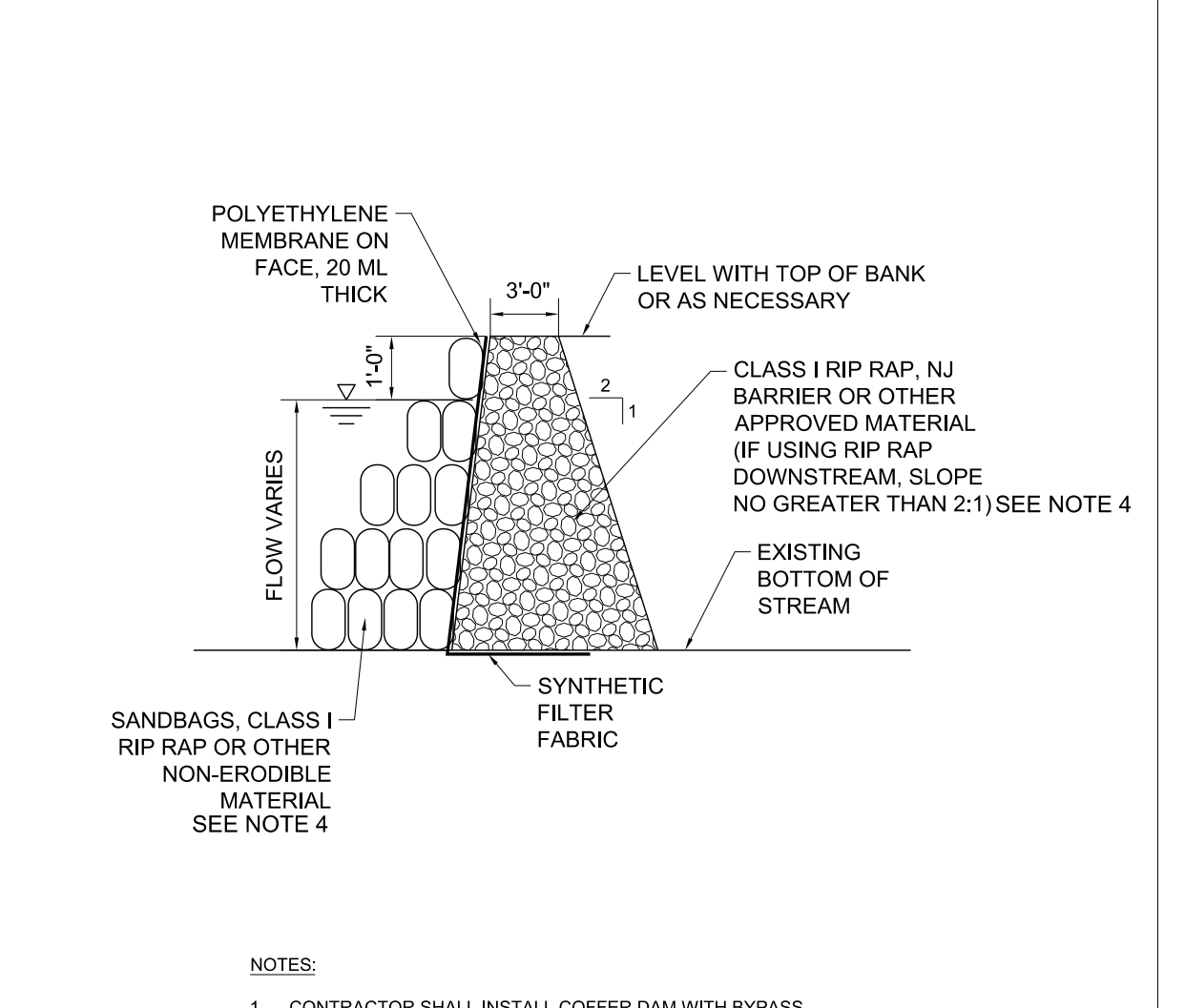
MH CONNECTION DESIGN GUIDE		FAYETTEVILLE PUBLIC WORKS COMMISSION		NO. DATE REVISION		
N.T.S.		FAYETTEVILLE, N.C.				
SHEET NO. 1 OF 1	DWG. NO. S.18	DWG. BY: FAYPWC		1	7/24/2018	REVISED PER NCDOT COMMENTS (U-4405)
DATE: JAN. 01, 2018	APPROVED BY: J.E.G.	WATER RESOURCES ENGINEERING DEPARTMENT				



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

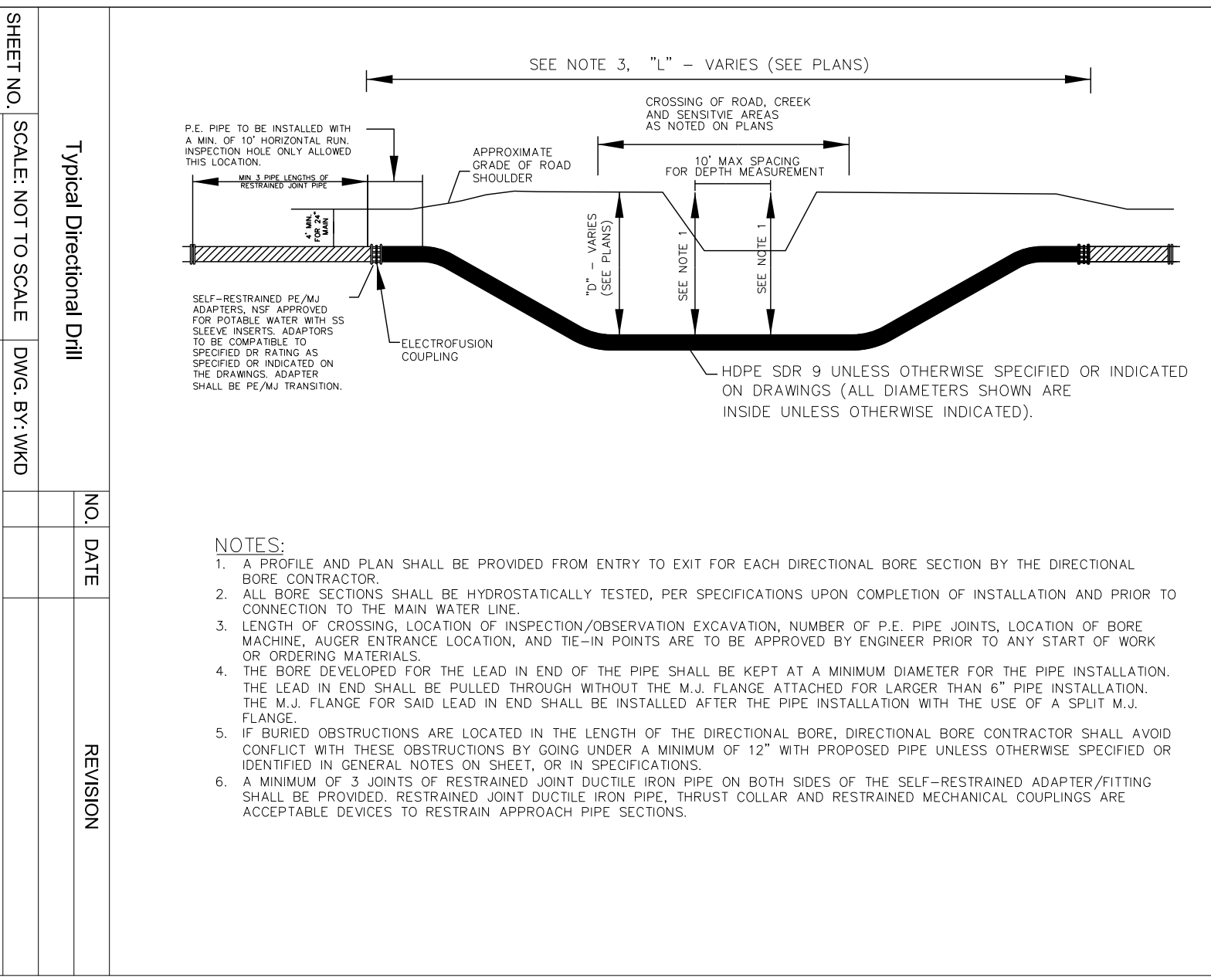


STREAM PUMP AROUND		FAYETTEVILLE PUBLIC WORKS COMMISSION		NO. DATE REVISION		
N.T.S.		FAYETTEVILLE, N.C.				
SHEET NO. 1 OF 1	DWG. NO. S.17	DWG. BY: WKD		1	7/24/2018	REVISED PER NCDOT COMMENTS (U-4405)
DATE: 5/18/2015	APPROVED BY: J.E.G.	WATER RESOURCES ENGINEERING DEPARTMENT				



COFFER DAM DETAIL		FAYETTEVILLE PUBLIC WORKS COMMISSION		NO. DATE REVISION		
N.T.S.		FAYETTEVILLE, N.C.				
SHEET NO. 1 OF 1	DWG. NO. S.17	DWG. BY: WKD		1	7/24/2018	REVISED PER NCDOT COMMENTS (U-4405)
DATE: 5/18/2015	APPROVED BY: J.E.G.	WATER RESOURCES ENGINEERING DEPARTMENT				

**NOTE:**  
 COFFER DAM AND STREAM BYPASS PUMP AROUND SHALL BE INCIDENTAL TO THE SEWER LINE CONSTRUCTION. NO SEPARATE PAYMENT SHALL BE MADE FOR ITS INSTALLATION, UPKEEP AND REMOVAL.

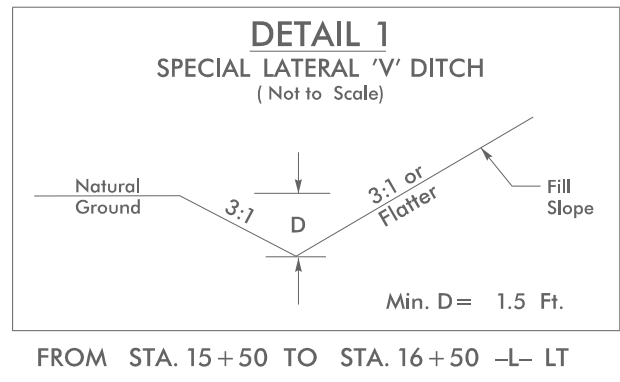


TYPICAL DIRECTIONAL DRILL		FAYETTEVILLE PUBLIC WORKS COMMISSION		NO. DATE REVISION		
N.T.S.		FAYETTEVILLE, N.C.				
SHEET NO. 1 OF 1	DWG. NO. S.17	DWG. BY: WKD		1	7/24/2018	REVISED PER NCDOT COMMENTS (U-4405)
DATE: 5/18/2015	APPROVED BY: J.E.G.	WATER RESOURCES ENGINEERING DEPARTMENT				

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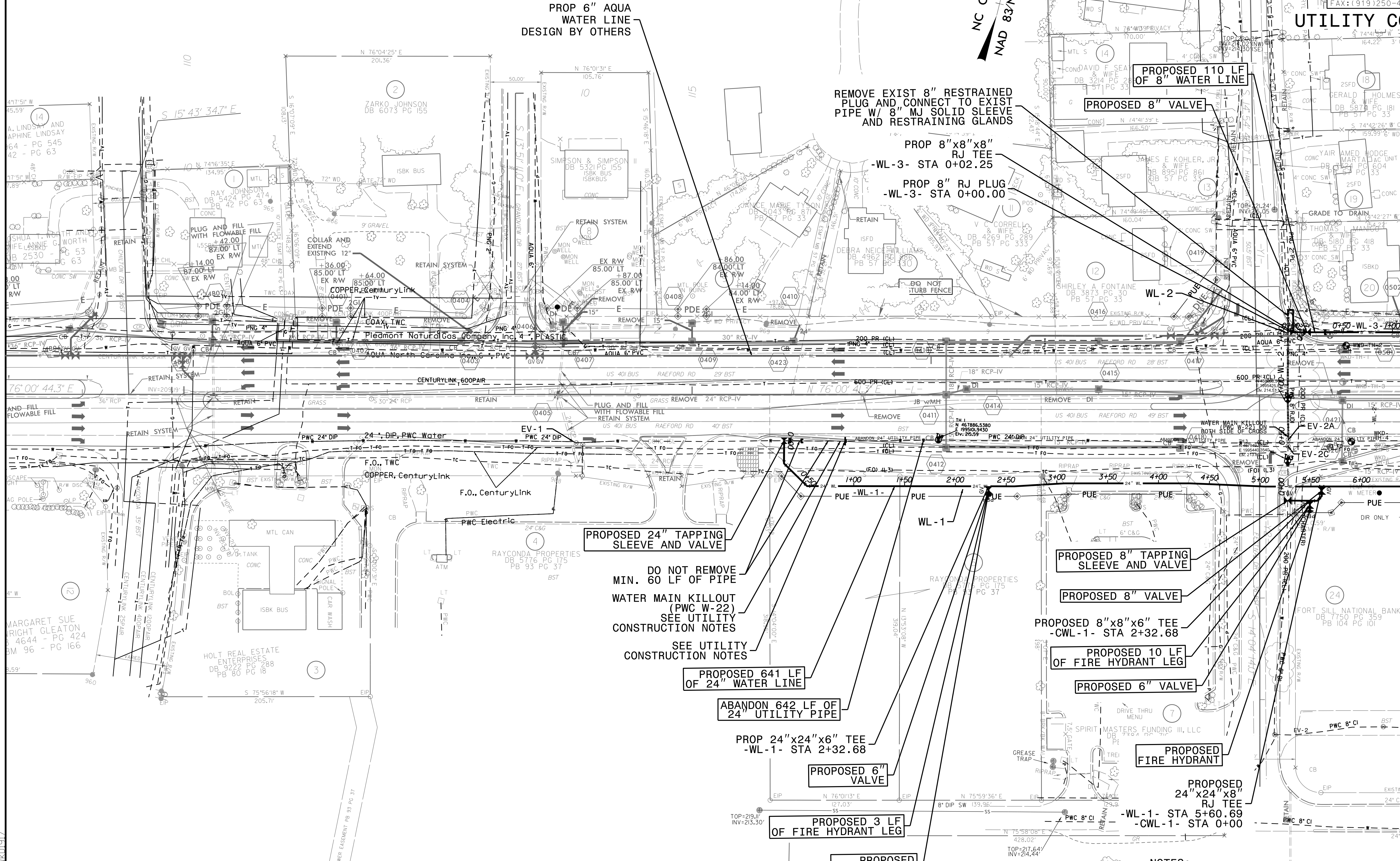


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 5/14/2018



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

PROJECT REFERENCE NO.	U-4405	SHEET NO.	UC-4
DESIGNED BY:	AMH		
DRAWN BY:	AMH/AB		
CHECKED BY:	AMH		
APPROVED BY:	MWF		
REVISED:			
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION		UTILITY CONSTRUCTION PLANS ONLY	
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151		PRONEL VILLANUEVA DB 8802 PG 597 PB 57 PG 33	



PROP 6" AQUA WATER LINE DESIGN BY OTHERS

REMOVE EXIST 8" RESTRAINED PLUG AND CONNECT TO EXIST PIPE W/ 8" MJ SOLID SLEEVE AND RESTRAINING GLANDS

PROP 8"x8"x8" RJ TEE -WL-3- STA 0+02.25

PROP 8" RJ PLUG -WL-3- STA 0+00.00

PROPOSED 110 LF OF 8" WATER LINE

PROPOSED 8" VALVE

PROPOSED 24" TAPPING SLEEVE AND VALVE

DO NOT REMOVE MIN. 60 LF OF PIPE WATER MAIN KILLOUT (PWC W-22) SEE UTILITY CONSTRUCTION NOTES

SEE UTILITY CONSTRUCTION NOTES

PROPOSED 641 LF OF 24" WATER LINE

ABANDON 642 LF OF 24" UTILITY PIPE

PROP 24"x24"x6" TEE -WL-1- STA 2+32.68

PROPOSED 6" VALVE

PROPOSED 3 LF OF FIRE HYDRANT LEG

PROPOSED FIRE HYDRANT

PROPOSED 8" TAPPING SLEEVE AND VALVE

PROPOSED 8" VALVE

PROPOSED 8"x8"x6" TEE -CWL-1- STA 2+32.68

PROPOSED 10 LF OF FIRE HYDRANT LEG

PROPOSED 6" VALVE

PROPOSED FIRE HYDRANT

PROPOSED 24"x24"x8" RJ TEE -WL-1- STA 5+60.69 -CWL-1- STA 0+00

PROPOSED 7,880 POUNDS OF DUCTILE IRON WATER PIPE FITTINGS

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

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

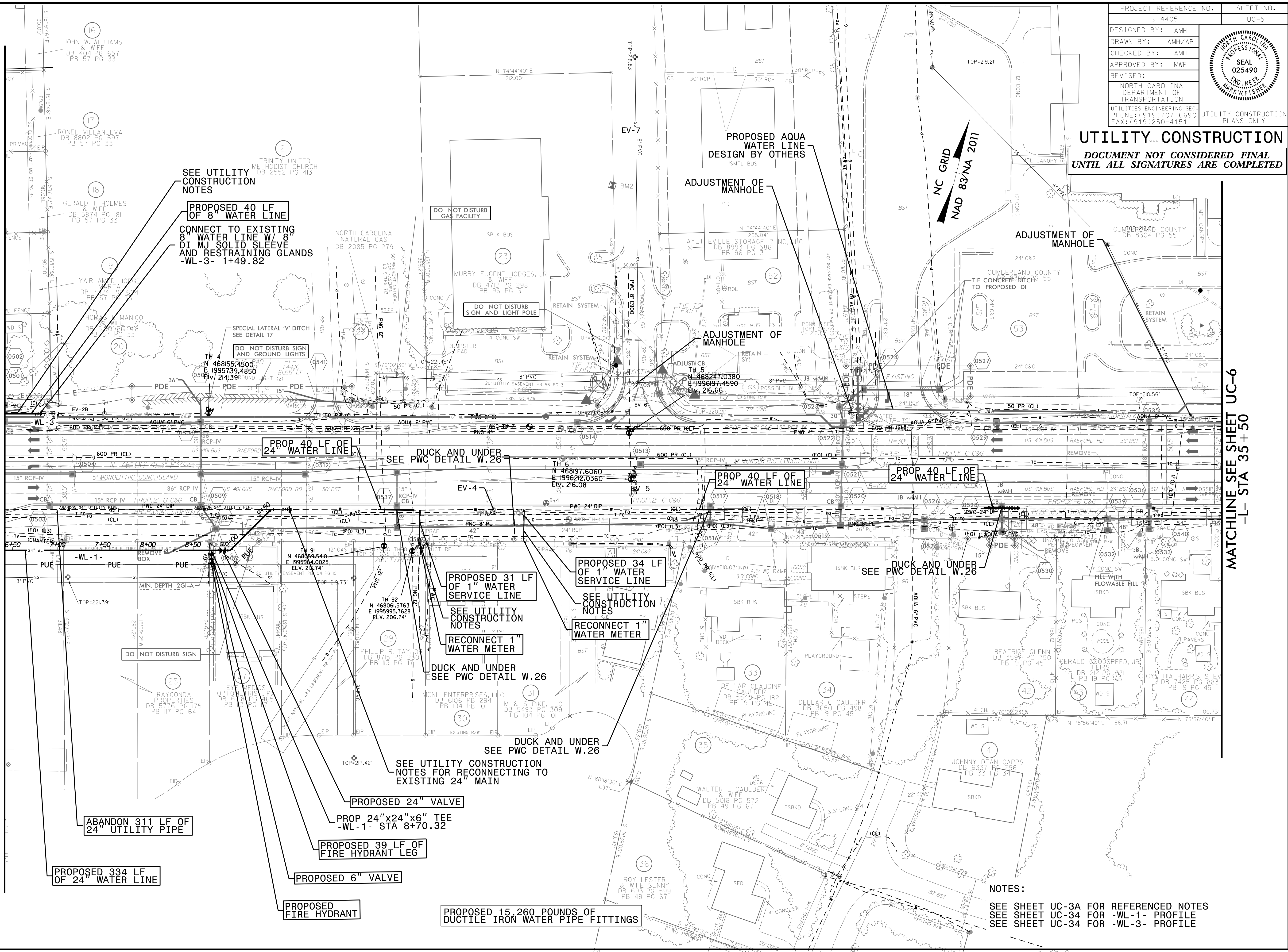


PROJECT REFERENCE NO.	UC-5
DESIGNED BY:	AMH
DRAWN BY:	AMH/AB
CHECKED BY:	AMH
APPROVED BY:	MWF
REVISED:	
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 025490 MARK W. FISHER	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	
UTILITY CONSTRUCTION PLANS ONLY	

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

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

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




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

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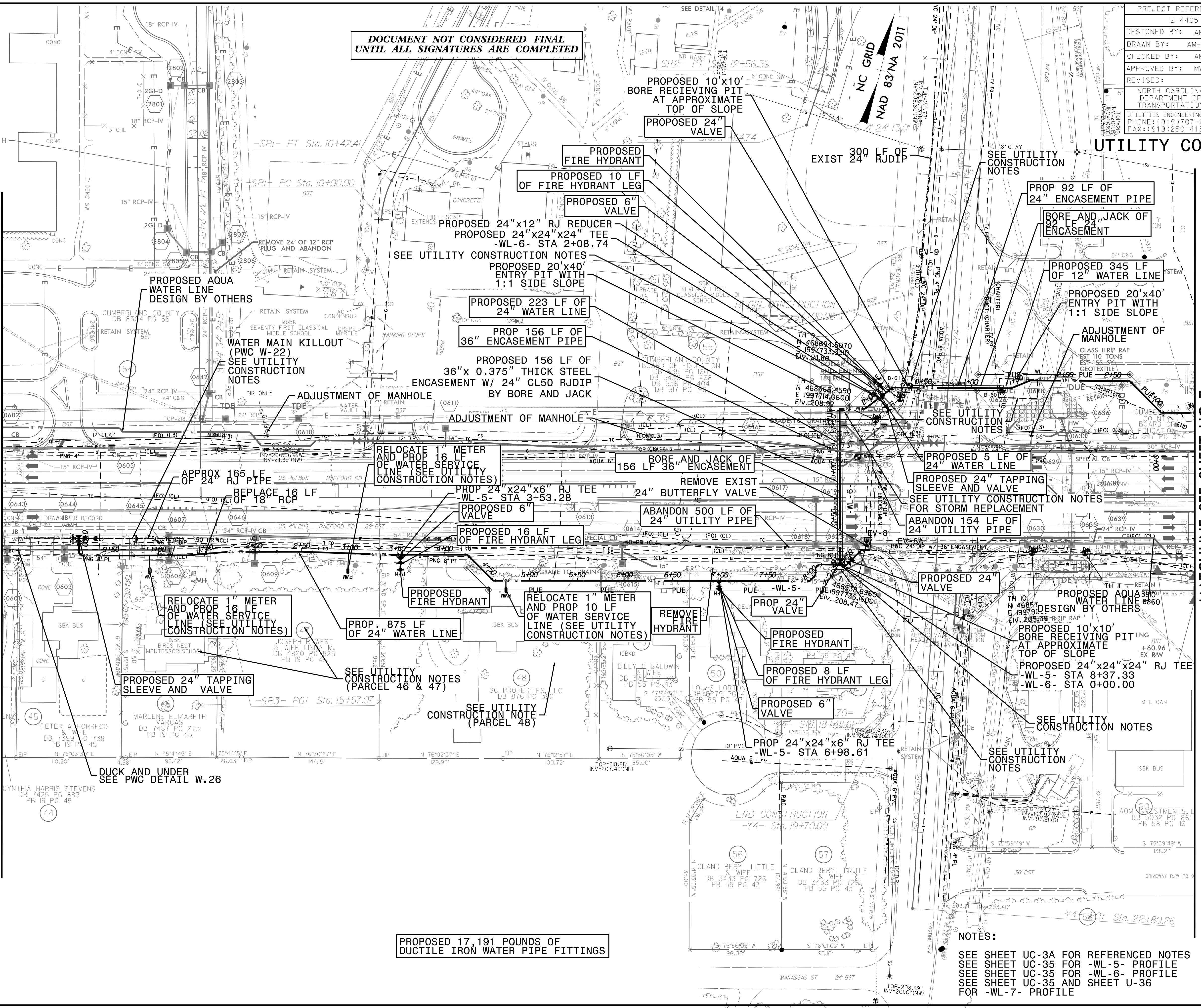
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5/14/99

DOCUMENT NOT CONSIDERED FINAL  
UNTIL ALL SIGNATURES ARE COMPLETED

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

MATCHLINE SEE SHEET UC-5  
-L- STA 35+50

MATCHLINE SEE SHEET UC-7  
-L- STA 48+00



PROPOSED 17,191 POUNDS OF  
DUCTILE IRON WATER PIPE FITTINGS

NOTES:  
SEE SHEET UC-3A FOR REFERENCED NOTES  
SEE SHEET UC-35 FOR -WL-5- PROFILE  
SEE SHEET UC-35 FOR -WL-6- PROFILE  
SEE SHEET UC-35 AND SHEET U-36  
FOR -WL-7- PROFILE

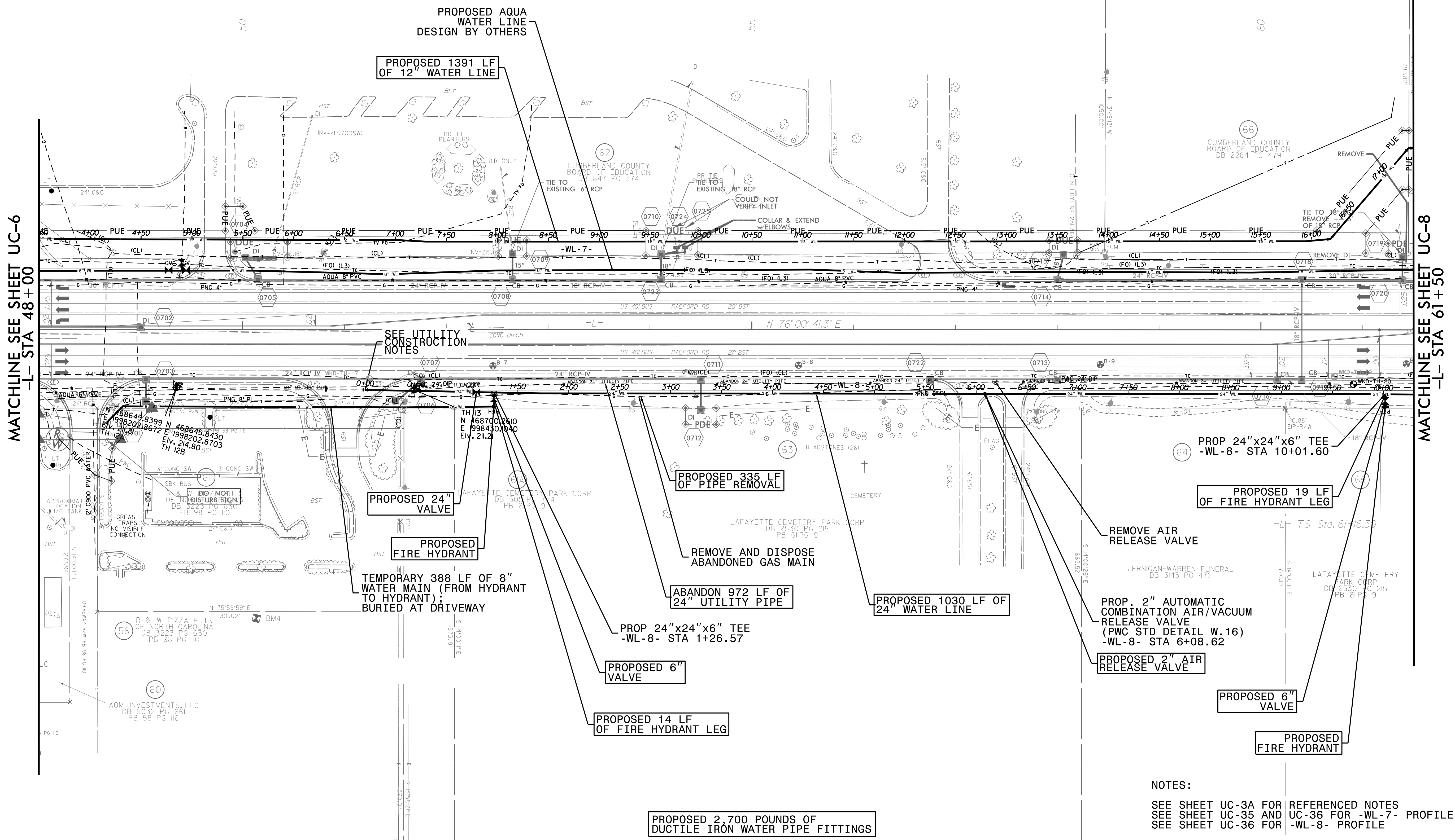


PROJECT REFERENCE NO.	UC-7
DESIGNED BY:	AMH
DRAWN BY:	AMH/AB
CHECKED BY:	AMH
APPROVED BY:	MWF
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	
UTILITY CONSTRUCTION PLANS ONLY	



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**UTILITY CONSTRUCTION**  
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UNTIL ALL SIGNATURES ARE COMPLETED



MATCHLINE SEE SHEET UC-6  
-L- STA 48+00

MATCHLINE SEE SHEET UC-8  
-L- STA 61+50

NOTES:  
SEE SHEET UC-3A FOR REFERENCED NOTES  
SEE SHEET UC-35 AND UC-36 FOR -WL-7- PROFILE  
SEE SHEET UC-36 FOR -WL-8- PROFILE

3-MAY-2018 14:39  
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 5/14/19



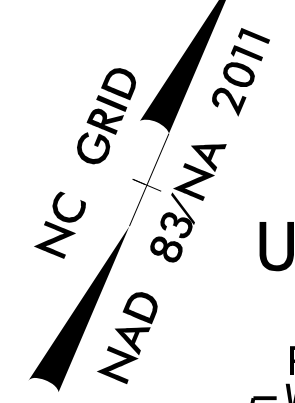




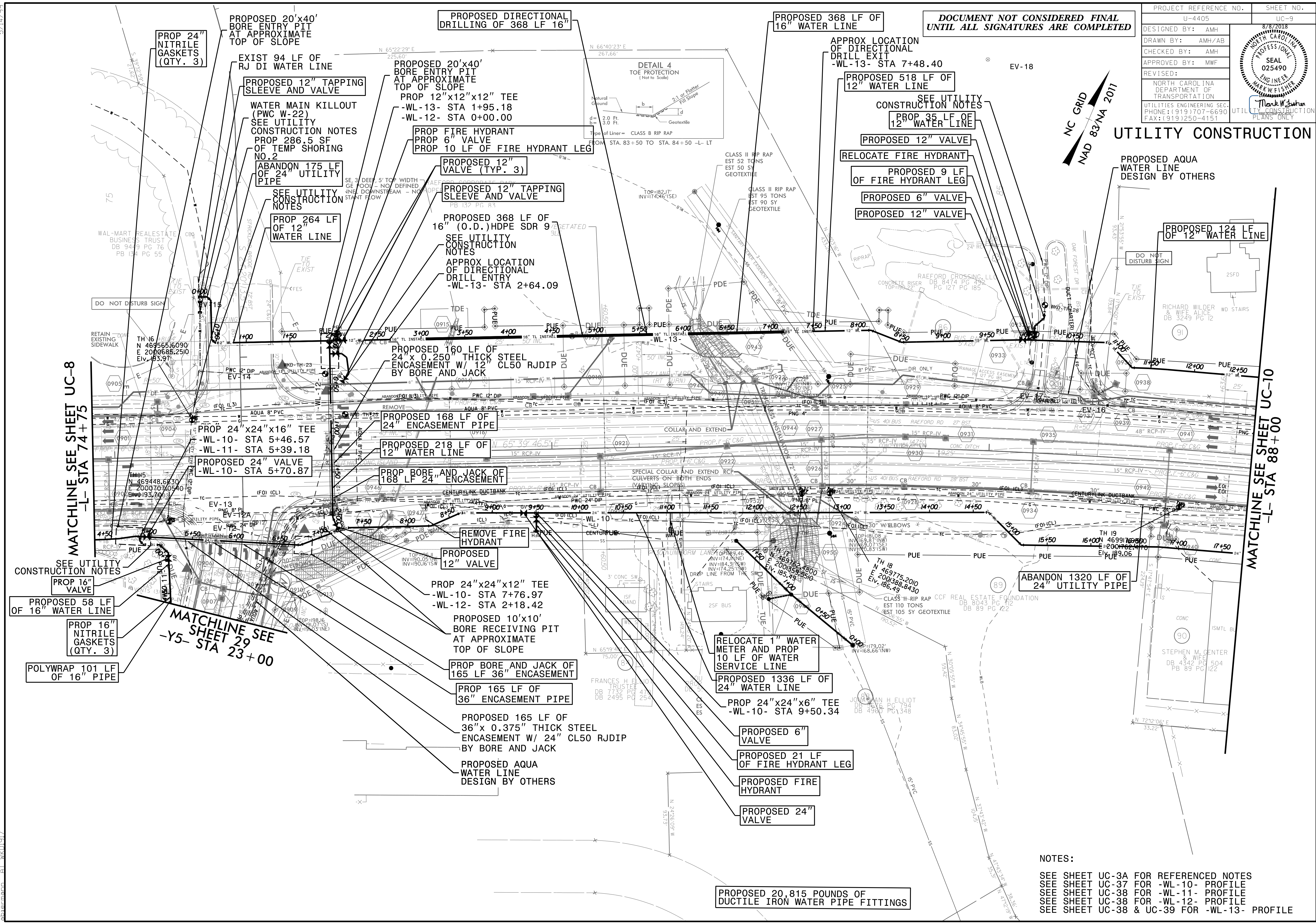
PROJECT REFERENCE NO.	UC-9
SHEET NO.	UC-9
DESIGNED BY:	AMH
DRAWN BY:	AMH/AB
CHECKED BY:	AMH
APPROVED BY:	MWF
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	



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**UTILITY CONSTRUCTION**



MATCHLINE SEE SHEET UC-8 -L- STA 74+75


MATCHLINE SEE SHEET UC-10 -L- STA 88+00

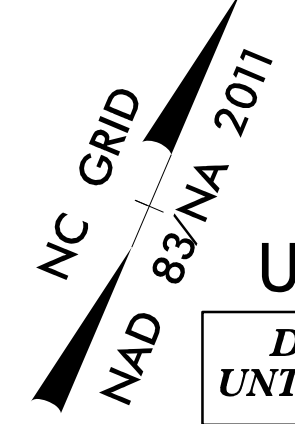
SEE UTILITY CONSTRUCTION NOTES  
 PROP 16" VALVE  
 PROPOSED 58 LF OF 16" WATER LINE  
 PROP 16" NITRILE GASKETS (QTY. 3)  
 POLYWRAP 101 LF OF 16" PIPE  
 MATCHLINE SEE SHEET 29 -Y5- STA 23+00

**NOTES:**  
 SEE SHEET UC-3A FOR REFERENCED NOTES  
 SEE SHEET UC-37 FOR -WL-10- PROFILE  
 SEE SHEET UC-38 FOR -WL-11- PROFILE  
 SEE SHEET UC-38 FOR -WL-12- PROFILE  
 SEE SHEET UC-38 & UC-39 FOR -WL-13- PROFILE

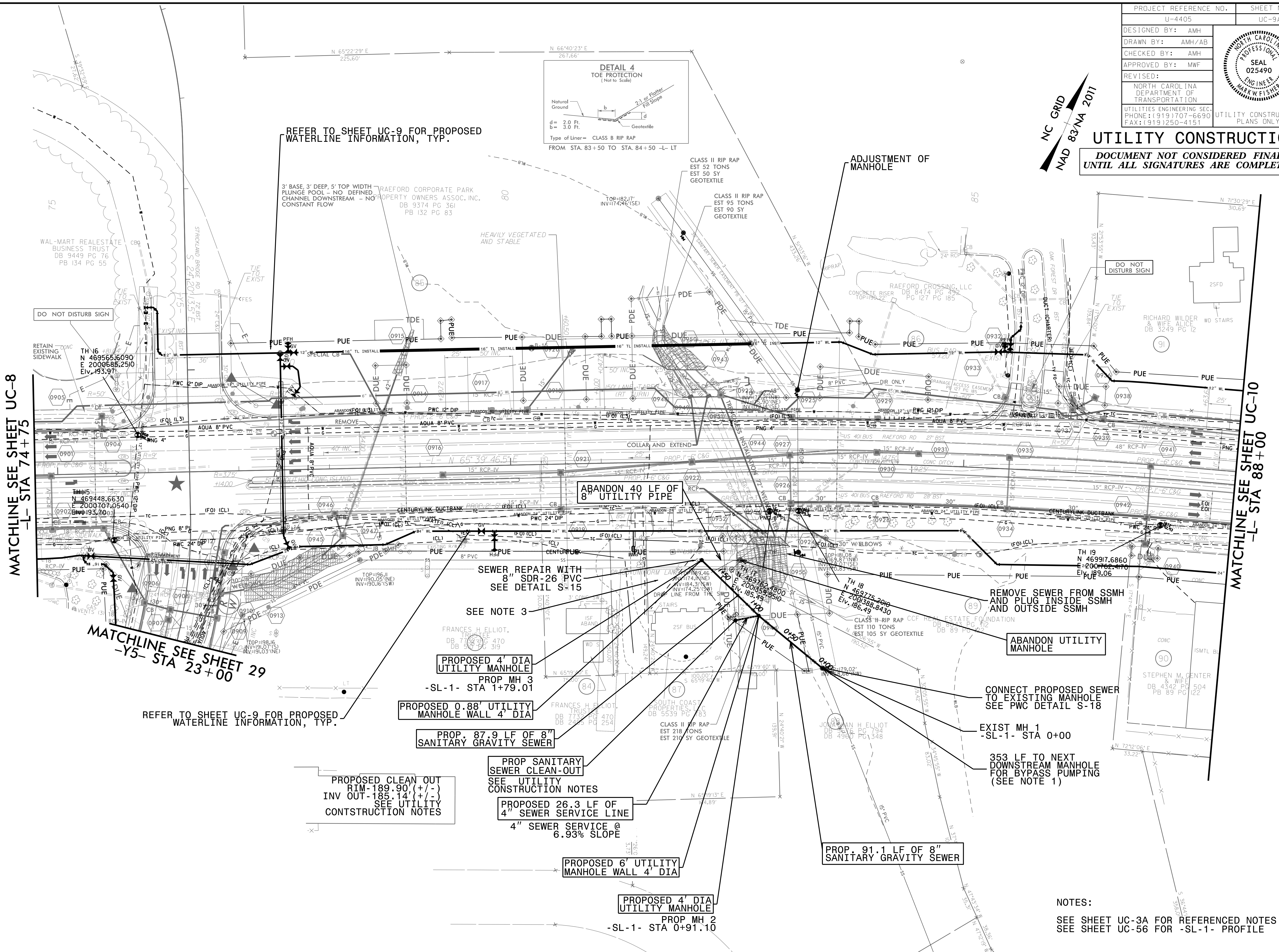
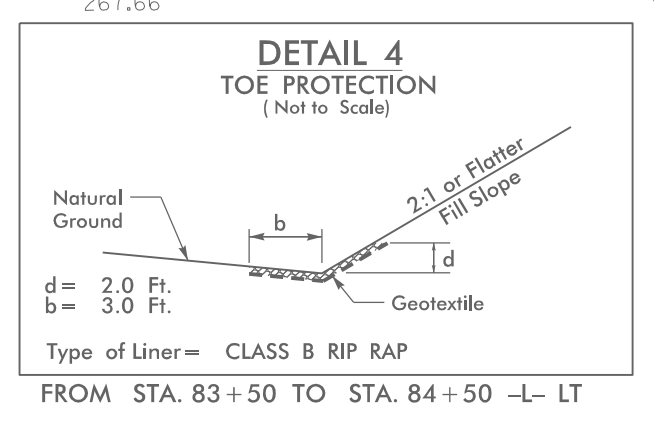
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PROJECT REFERENCE NO.	SHEET NO.
U-4405	UC-9A
DESIGNED BY: AMH	
DRAWN BY: AMH/AB	
CHECKED BY: AMH	
APPROVED BY: MWF	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	
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 UNTIL ALL SIGNATURES ARE COMPLETED



MATCHLINE SEE SHEET UC-8  
-L- STA 74 + 75

MATCHLINE SEE SHEET UC-10  
-L- STA 88 + 00

REFER TO SHEET UC-9 FOR PROPOSED WATERLINE INFORMATION, TYP.

REFER TO SHEET UC-9 FOR PROPOSED WATERLINE INFORMATION, TYP.

MATCHLINE SEE SHEET 29  
-Y5- STA 23 + 00

NOTES:  
 SEE SHEET UC-3A FOR REFERENCED NOTES  
 SEE SHEET UC-56 FOR -SL-1- PROFILE

5/14/99  
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