

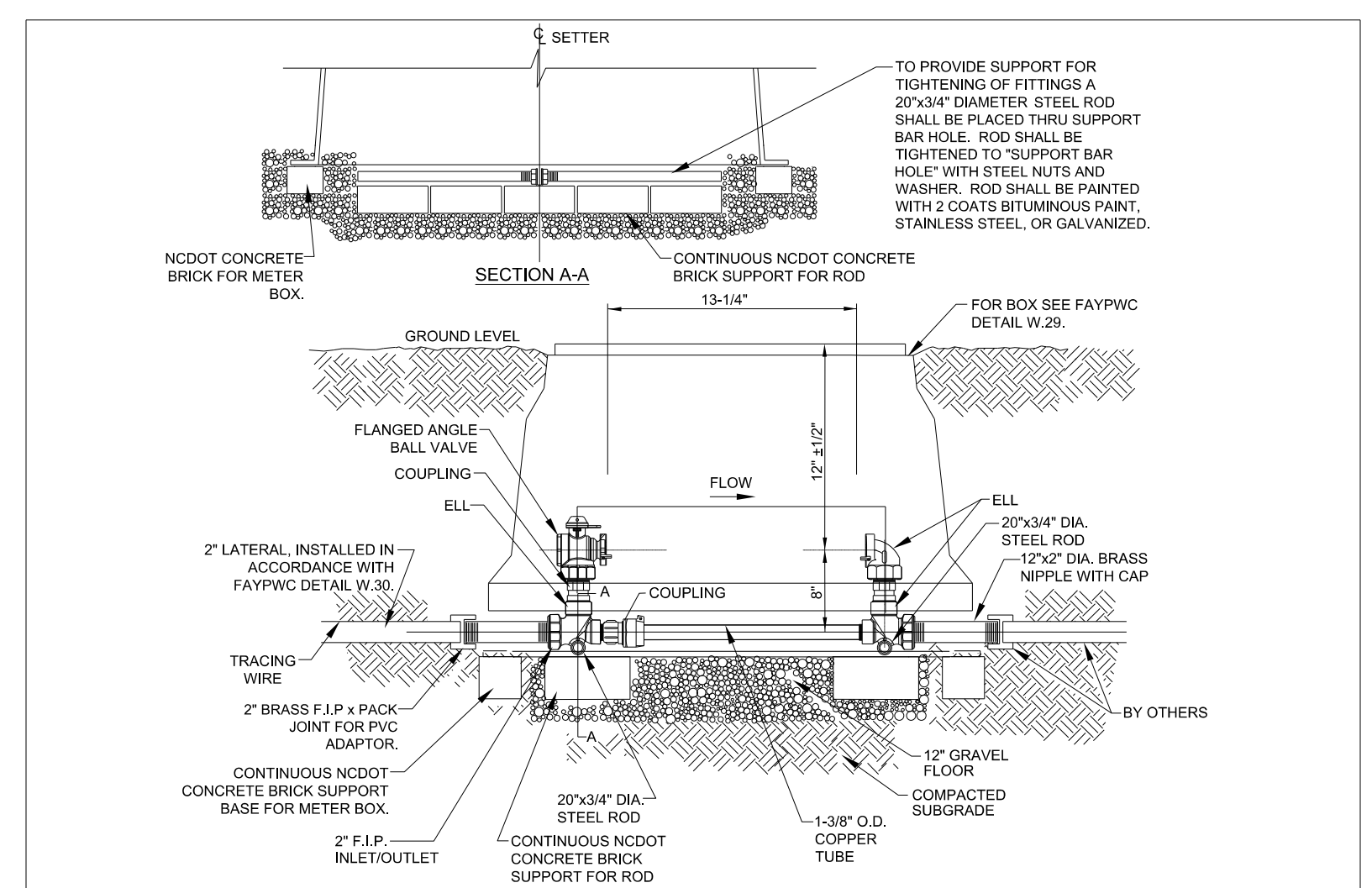
Prepared in the Office of:

720 CORPORATE CENTER DRIVE, RALEIGH, NC 27607 (919) 782-0495 | NCBELS #F-0374

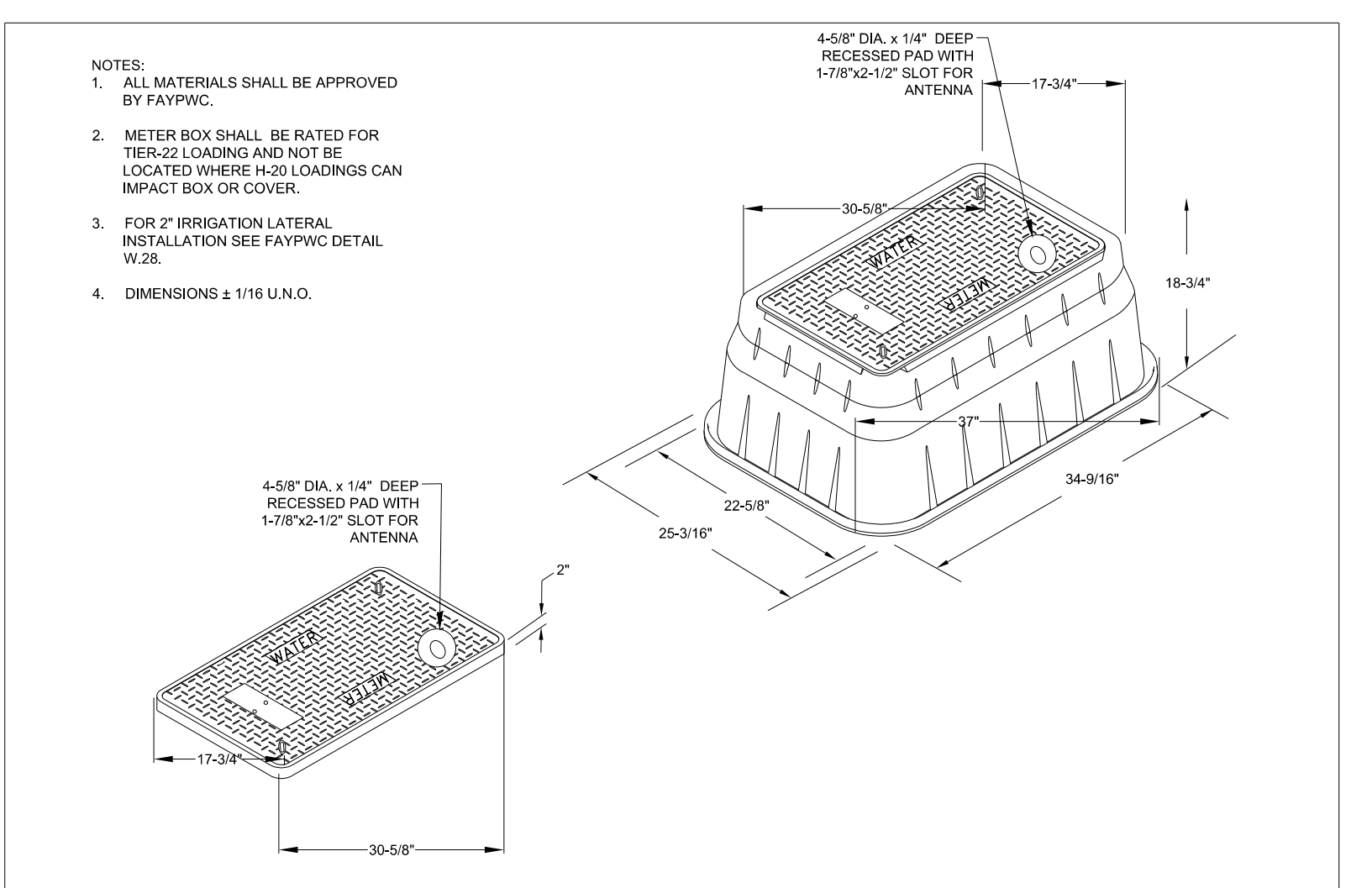
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PROJECT REFERENCE NO.	U-4405B
SHEET NO.	UC-03H
DESIGNED BY:	AAA
DRAWN BY:	DM
CHECKED BY:	RA
APPROVED BY:	BRO
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	
UTILITY CONSTRUCTION PLANS ONLY	

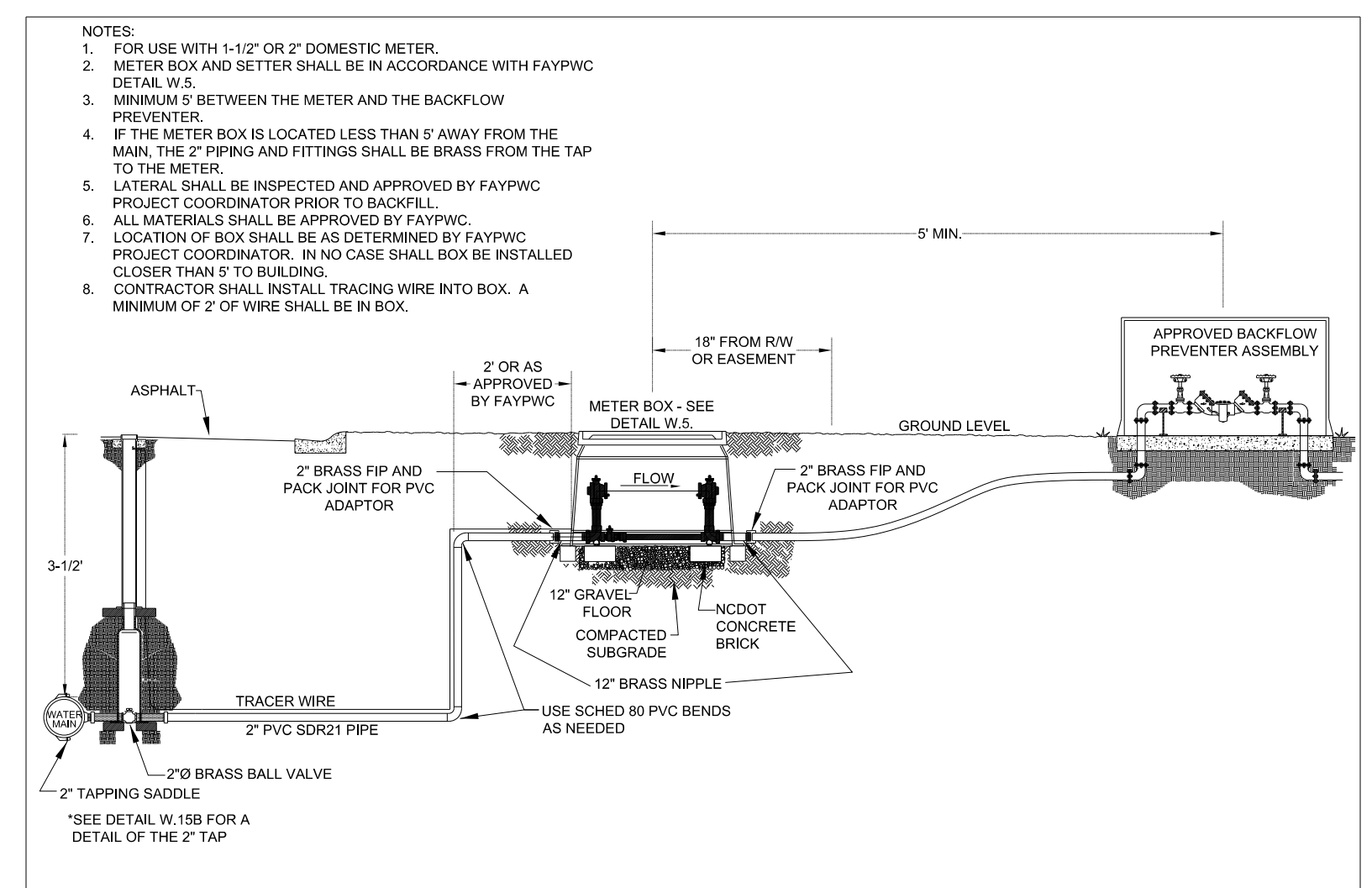
11/26/2024



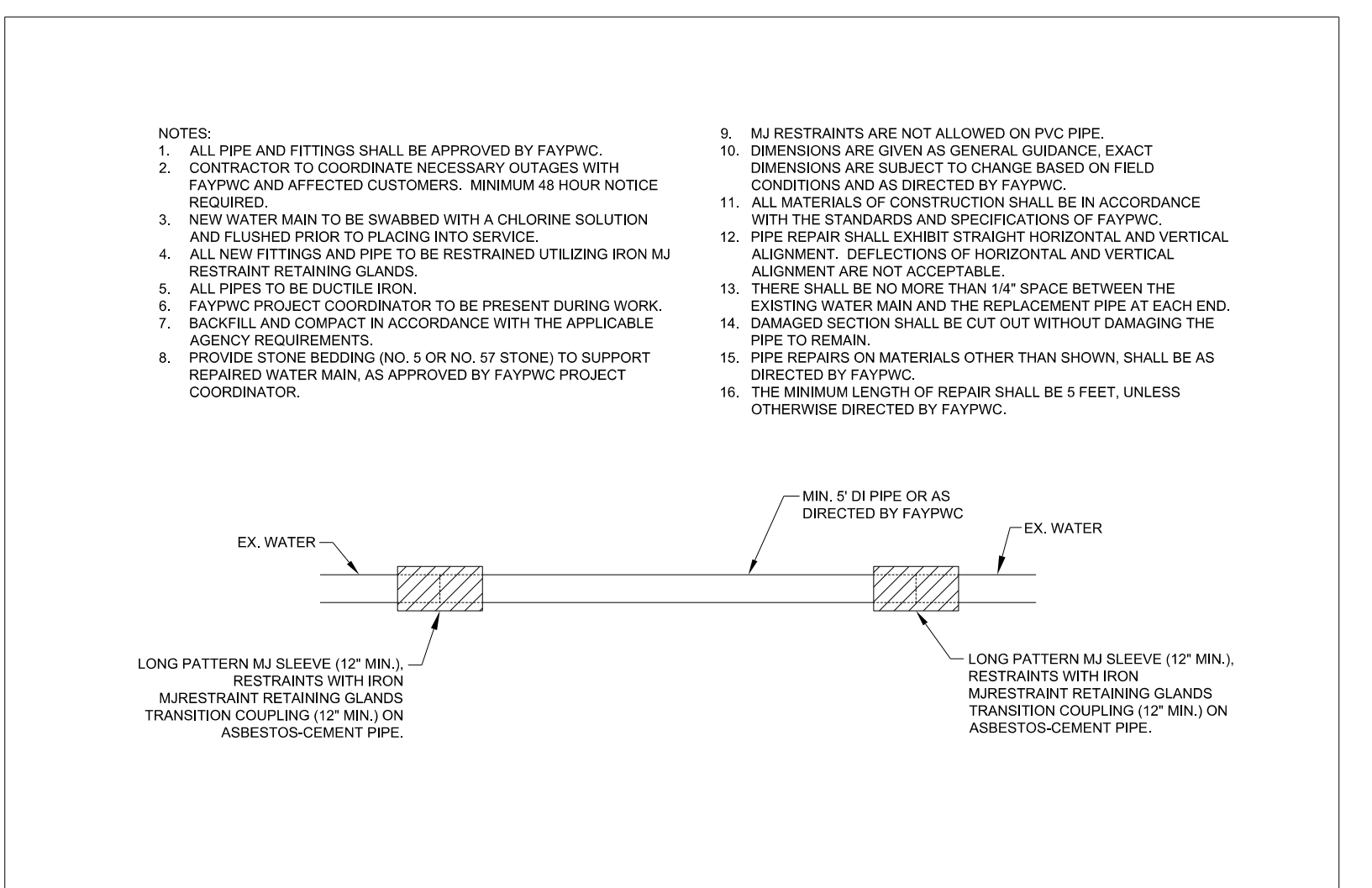
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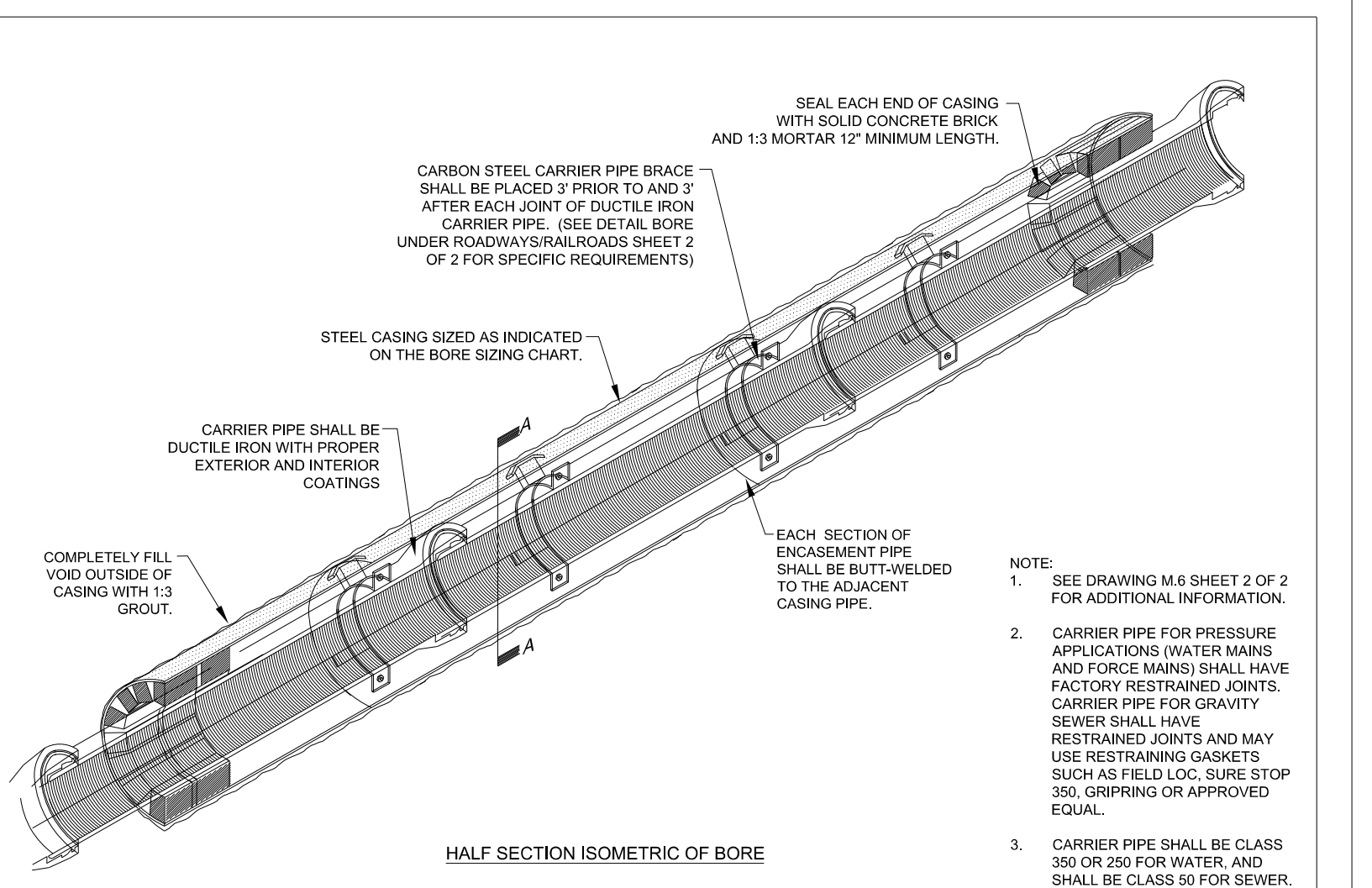
JUMBO METER BOX FOR IRRIGATION		
N.T.S.		
FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		
WATER RESOURCES ENGINEERING DEPARTMENT		
NO.	DATE	REVISION
1	07/17	ADDED SHEET 2 OF 2



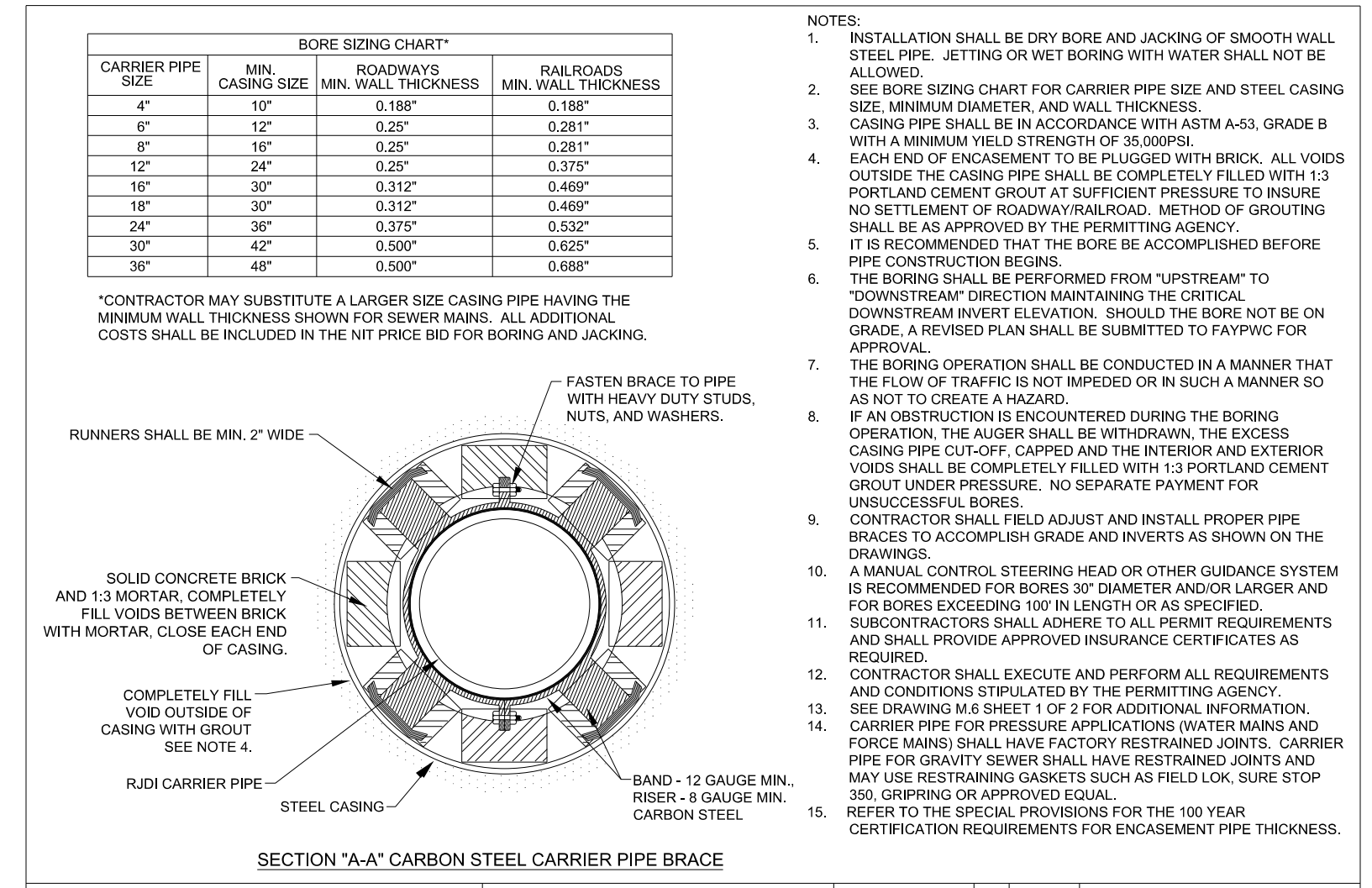
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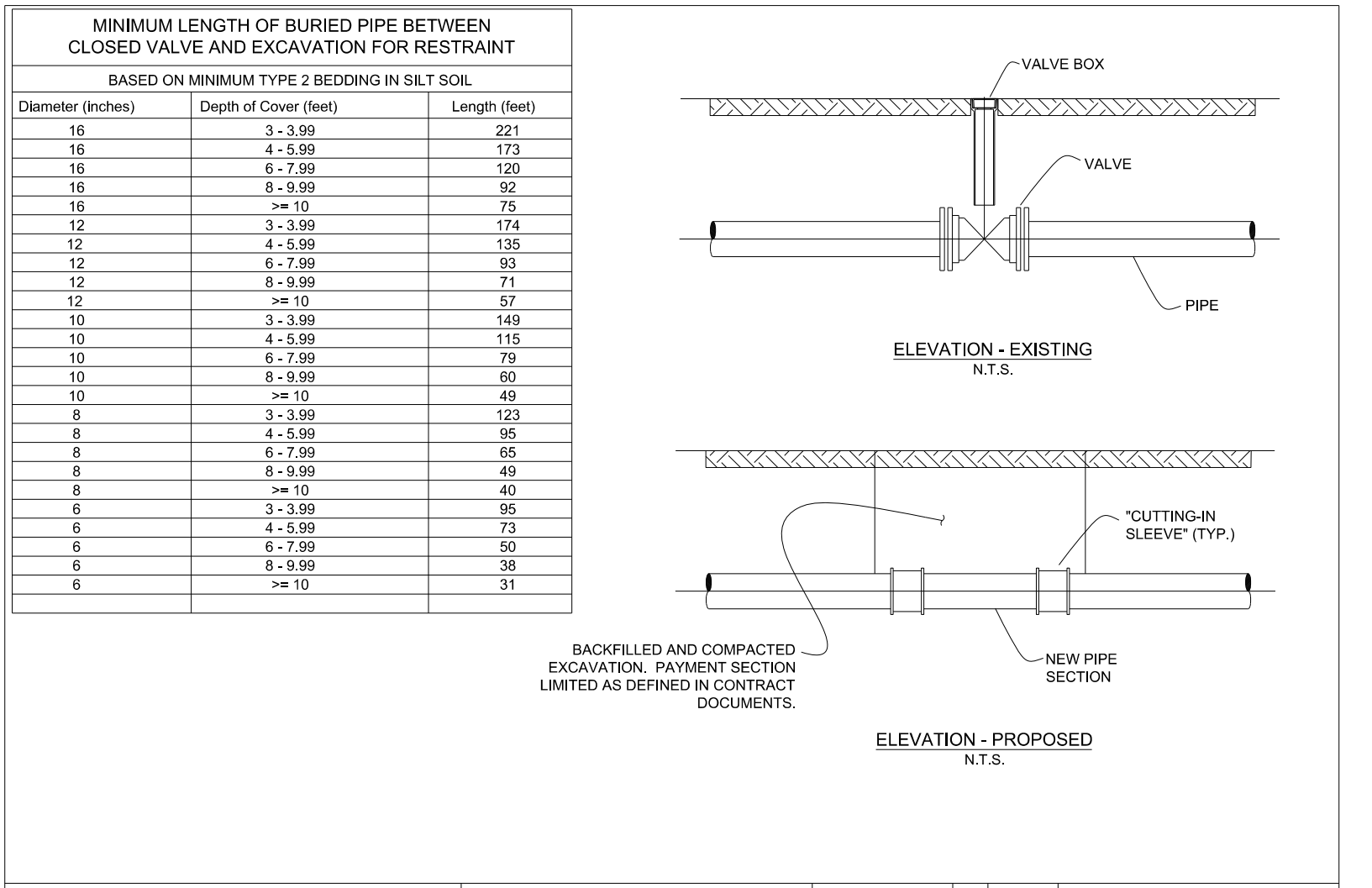
PIPE REPAIR DETAIL		
N.T.S.		
FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		
WATER RESOURCES ENGINEERING DEPARTMENT		
NO.	DATE	REVISION
1	07/01/17	REVISED NOTES



BORE UNDER ROADWAYS/RAILROADS		
N.T.S.		
FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		
WATER RESOURCES ENGINEERING DEPARTMENT		
NO.	DATE	REVISION
1	01/05	ADDED NOTES 2 AND 3
2	10/09	CLARIFIED RESTRAINT REQUIREMENTS



BORE UNDER ROADWAYS/RAILROADS		
N.T.S.		
FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		
WATER RESOURCES ENGINEERING DEPARTMENT		
NO.	DATE	REVISION
1	02/11/04	ADDED 6\"/>



VALVE REMOVAL WITH EXCAVATION		
N.T.S.		
FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		
WATER RESOURCES ENGINEERING DEPARTMENT		
NO.	DATE	REVISION
1	07/10	REVISED NOTES, SIZING CHART

BORE SIZING CHART*

CARRIER PIPE SIZE	MIN. CASING SIZE	ROADWAYS MIN. WALL THICKNESS	RAILROADS MIN. WALL THICKNESS
4"	10"	0.188"	0.188"
6"	12"	0.25"	0.281"
8"	16"	0.281"	0.281"
12"	24"	0.25"	0.375"
18"	30"	0.312"	0.489"
18"	30"	0.312"	0.489"
24"	36"	0.375"	0.532"
30"	42"	0.500"	0.625"
36"	48"	0.500"	0.688"

*CONTRACTOR MAY SUBSTITUTE A LARGER SIZE CASING PIPE HAVING THE MINIMUM WALL THICKNESS SHOWN FOR SEWER MAINS. ALL ADDITIONAL COSTS SHALL BE INCLUDED IN THE NET PRICE BID FOR BORING AND JACKING.

NOTES:

- INSTALLATION SHALL BE DRY BORE AND JACKING OF SMOOTH WALL STEEL PIPE. JETTING OR WET BORING WITH WATER SHALL NOT BE ALLOWED.
- SEE BORE SIZING CHART FOR CARRIER PIPE SIZE AND STEEL CASING SIZE, MINIMUM DIAMETER, AND WALL THICKNESS.
- CASING PIPE SHALL BE IN ACCORDANCE WITH ASTM A-53, GRADE B WITH A MINIMUM YIELD STRENGTH OF 35,000PSI.
- EACH END OF ENCASUREMENT TO BE PLUGGED WITH BRICK. ALL VOIDS OUTSIDE THE CASING PIPE SHALL BE COMPLETELY FILLED WITH 1:3 PORTLAND CEMENT GROUT AT SUFFICIENT PRESSURE TO INSURE NO SETTLEMENT OF ROADWAY/RAILROAD. METHOD OF GROUTING SHALL BE AS APPROVED BY THE PERMITTING AGENCY.
- IT IS RECOMMENDED THAT THE BORE BE ACCOMPLISHED BEFORE PIPE CONSTRUCTION BEGINS.
- THE BORING SHALL BE PERFORMED FROM "UPSTREAM" TO "DOWNSTREAM" DIRECTION MAINTAINING THE CRITICAL DOWNSTREAM INVERT ELEVATION. SHOULD THE BORE NOT BE ON GRADE, A REVISED PLAN SHALL BE SUBMITTED TO FAYPWC FOR APPROVAL.
- THE BORING OPERATION SHALL BE CONDUCTED IN A MANNER THAT THE FLOW OF TRAFFIC IS NOT IMPEDED OR IN SUCH A MANNER SO AS NOT TO CREATE A HAZARD.
- IF AN OBSTRUCTION IS ENCOUNTERED DURING THE BORING OPERATION, THE AUGER SHALL BE WITHDRAWN, THE EXCESS CASING PIPE CUT-OFF, CAPPED AND THE INTERIOR AND EXTERIOR VOIDS SHALL BE COMPLETELY FILLED WITH 1:3 PORTLAND CEMENT GROUT UNDER PRESSURE. NO SEPARATE PAYMENT FOR UNSUCCESSFUL BORES.
- CONTRACTOR SHALL FIELD ADJUST AND INSTALL PROPER PIPE BRACKETS TO ACCOMPLISH GRADE AND INVERTS AS SHOWN ON THE DRAWINGS.
- A MANUAL CONTROL STEERING HEAD OR OTHER GUIDANCE SYSTEM IS RECOMMENDED FOR BORES 30" DIAMETER AND/OR LARGER AND FOR BORES EXCEEDING 100' IN LENGTH OR AS SPECIFIED.
- SUBCONTRACTORS SHALL ADHERE TO ALL PERMIT REQUIREMENTS AND SHALL PROVIDE APPROVED INSURANCE CERTIFICATES AS REQUIRED.
- CONTRACTOR SHALL EXECUTE AND PERFORM ALL REQUIREMENTS AND CONDITIONS STIPULATED BY THE PERMITTING AGENCY.
- SEE DRAWING M-6 SHEET 1 OF 2 FOR ADDITIONAL INFORMATION.
- CARRIER PIPE FOR PRESSURE APPLICATIONS (WATER MAINS AND FORCE MAINS) SHALL HAVE FACTORY RESTRAINED JOINTS. CARRIER PIPE FOR GRAVITY SEWER SHALL HAVE RESTRAINED JOINTS AND MAY USE RESTRAINING GASKETS SUCH AS FIELD LOK, SURE STOP 350, GRIPPING OR APPROVED EQUAL.
- REFER TO THE SPECIAL PROVISIONS FOR THE 100 YEAR CERTIFICATION REQUIREMENTS FOR ENCASUREMENT PIPE THICKNESS.

MINIMUM LENGTH OF BURIED PIPE BETWEEN CLOSED VALVE AND EXCAVATION FOR RESTRAINT

BASED ON MINIMUM TYPE 2 BEDDING IN SILT SOIL

Diameter (inches)	Depth of Cover (feet)	Length (feet)
16	3 - 3.99	221
16	4 - 5.99	173
16	6 - 7.99	120
16	8 - 9.99	92
16	>= 10	75
12	3 - 3.99	174
12	4 - 5.99	135
12	6 - 7.99	93
12	8 - 9.99	71
12	>= 10	57
10	3 - 3.99	148
10	4 - 5.99	115
10	6 - 7.99	79
10	8 - 9.99	60
10	>= 10	49
8	3 - 3.99	123
8	4 - 5.99	95
8	6 - 7.99	65
8	8 - 9.99	49
8	>= 10	40
6	3 - 3.99	95
6	4 - 5.99	73
6	6 - 7.99	50
6	8 - 9.99	38
6	>= 10	31

ELEVATION - EXISTING N.T.S.

ELEVATION - PROPOSED N.T.S.

5/14/2024 11:46:25 AM Fayetteville Public Works Commission \2015017700RA RefFor.dwg Road NCDOT U_4405B\CADD\NCDOT_PLANS\Utilities\Engineering\UC\Proje\U4405B\U4405B.ut.dtl UC031_psh.dwg

- CONTRACTOR SHALL REPAIR ALL SEWER LATERALS AND MAINS DAMAGED DURING CONSTRUCTION. THE CONTRACTOR SHALL IMMEDIATELY REPORT ALL SEWER MAIN AND LATERAL BREAKS TO THE FAYFWP PROJECT COORDINATOR. THE CONTRACTOR SHALL INITIATE IMMEDIATE REPAIRS IN ACCORDANCE WITH FAYFWP STANDARDS.
- SEWER MAINS, LATERALS, AND MANHOLES SHALL BE INSTALLED UTILIZING A FAYFWP APPROVED OUT-SHEET, INDICATING INSTALLATION DEPTH.
- TRANSFER OF SEWER SERVICES SHALL BE ACCOMPLISHED AS FOLLOWS:
 - A. INSTALL AND TEST NEW MAINS, MANHOLES, AND LATERALS. CLEANOUTS SHALL BE INSTALLED 18" INSIDE R/W UNLESS OTHERWISE DIRECTED BY FAYFWP.
 - B. CONNECT EXISTING PLUMBING TO NEW LATERAL UTILIZING THE NECESSARY FITTINGS AS DIRECTED BY FAYFWP.
 - C. AFTER ALL SERVICES HAVE BEEN TRANSFERRED TO THE NEW MAIN, THE EXISTING SEWER SYSTEM SHALL BE ABANDONED IN ACCORDANCE WITH CONTRACT SPECIAL PROVISIONS AND NCDOT SPECIFICATIONS.
- 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 TOP 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 DERRIS 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 DERRIS, AND THEN REMOVE THE PLUGS.
- ALL EXISTING UTILITIES IMPACTED BY CONSTRUCTION SHALL BE ADJUSTED TO FINISHED GRADE, IN ACCORDANCE WITH FAYFWP REQUIREMENTS.

- ALL WORK ON FAYFWP SEWER UTILITIES (MAINS, LATERALS, ETC) SHALL BE PERFORMED BY A LICENSED UTILITY CONTRACTOR. THE FAYFWP PUBLIC WORKS COMMISSION SHALL OBSERVE AND APPROVE ALL WORK ON FAYFWP SEWER UTILITIES. ALL WORK SHALL BE COMPLETED IN ACCORDANCE WITH FAYFWP REQUIREMENTS.

GENERAL NOTES SANITARY SEWER UTILITY			
SHEET NO.	DWG. NO.	DWG. BY:	FAYFWP
1 OF 1	S.1	FAYFWP	
	DATE: JAN 01, 2023	APPROVED BY: M.M.M.	

FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.			
WATER RESOURCES ENGINEERING DEPARTMENT			
NO.	DATE	REVISION	
1	07/16	ADDED NOTE 6	
2	01/18	ADDED NOTES 5, 8	

NOTES:

- 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 C990. RUBBER GASKET JOINTS SHALL BE IN ACCORDANCE WITH ASTM C-443.
- 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 FLEXIBLE EPDM RUBBER 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.
- VERTICAL DROPS BETWEEN THE INFLOW PIPES AND OUTFLOW PIPES SHALL REQUIRE THE FOLLOWING:
 - A. GREATER THAN 2' SEE DROP STRUCTURE DETAIL (MIN. 6" DIAMETER MH REQUIRED).
 - B. LESS THAN 2' SEE PIPE SLIDE DETAIL.
- AN ECCENTRIC CONE SHALL BE UTILIZED ON ALL MANHOLES, UNLESS OTHERWISE APPROVED BY FAYFWP.
- NO MORE THAN 2' CONCRETE GRADE RINGS SHALL NOT BE USED FOR ABOVE GRADE ADJUSTMENTS (IE: OUTFALL AREAS). USE OF 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 FAYFWP.
- 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 FAYFWP SPECIFICATIONS.
- 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 SUPPORTED 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 3.5 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 FAYFWP STANDARDS.

STANDARD MANHOLE			
SHEET NO.	DWG. NO.	DWG. BY:	FAYFWP
2 OF 2	S.2	FAYFWP	
	DATE: JAN 01, 2023	APPROVED BY: M.M.M.	

FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.			
WATER RESOURCES ENGINEERING DEPARTMENT			
NO.	DATE	REVISION	
1	01/08	CREATED DETAIL, ADDED NOTES 14-20	
2	07/13	REVISED NOTES 9, 10, 11, 15 CONVERTED TO S.2 SHEET 2 OF 2	
3	01/01/19	REVISED NOTES 10, 18	

NOTES:

- PIPE SLIDE REQUIRED WHERE VERTICAL SEPARATION BETWEEN PIPE INVERTS IS LESS THAN 2.5'. FOR LATERAL INVERTS 1" OR WITHIN 4" INCHES OF THE SHELF, CONSTRUCT BENCH AND INVERT AS DIRECTED BY THE FAYFWP PROJECT COORDINATOR.
- INTERIOR DROP STRUCTURE REQUIRED WHERE VERTICAL SEPARATION BETWEEN INVERTS EQUALS OR EXCEEDS 2.50'. FOR INTERIOR DROP STRUCTURE SEE FAYFWP DETAIL S.5.
- VERIFY SLIDE INSTALLATION WITH PROJECT COORDINATOR PRIOR TO CONSTRUCTION.
- MANHOLE AND CONNECTIONS SHALL BE IN ACCORDANCE WITH FAYFWP REQUIREMENTS.
- BRICK USED FOR INVERT AND SHELF CONSTRUCTION SHALL BE NCDOT STANDARD CONCRETE BRICK.
- MANHOLE GREATER THAN 12" IN DEPTH SHALL HAVE MINIMUM 6" EXTENDED BASE.
- THE MINIMUM SLOPE ACROSS THE INVERT OF THE MANHOLE SHALL BE 1%, UNLESS OTHERWISE APPROVED BY FAYFWP.
- BRICK AND/OR SLIDE REQUIREMENTS SHALL APPLY TO ALL LATERALS ENTERING MANHOLES AS OUTLINED IN NOTES 1, 2 AND 3. 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. THE INVERT OF THE LATERAL SHALL BE A MINIMUM OF 1" ABOVE THE SHELF.
- NO MORE THAN 3 LATERALS SHALL ENTER A 5" DIAMETER TERMINAL MANHOLE.
- USE OF TEE-WYES ON LATERALS IS NOT ALLOWED.

PIPE SLIDE AND SHELF DETAILS			
SHEET NO.	DWG. NO.	DWG. BY:	FAYFWP
1 OF 1	S.4	FAYFWP	
	DATE: JAN 01, 2023	APPROVED BY: M.M.M.	

FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.			
WATER RESOURCES ENGINEERING DEPARTMENT			
NO.	DATE	REVISION	
1	01/05	ADDED NOTE 8	
2	02/07	REVISED NOTE 8, SLIDE DETAIL, ADDED NOTES 10, 11, 12	
3	01/18	DELETED MORTAR SLIDE, REVISED NOTES	

PIPE SIZES	MANHOLE SIZE	MIN. WALL THICKNESS	MIN. REINF. STEEL	MIN. BASE THICKNESS
24" AND LESS	45" DIAMETER	5"	ASTM A-1064 0.12 SQ. IN.	8"
24"-38"	55" 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			
SHEET NO.	DWG. NO.	DWG. BY:	FAYFWP
1 OF 2	S.2	FAYFWP	
	DATE: JAN 01, 2023	APPROVED BY: M.M.M.	

FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.			
WATER RESOURCES ENGINEERING DEPARTMENT			
NO.	DATE	REVISION	
1	02/07	CREATED S.2A ADDED NOTES 13-17	
2	07/13	ADDED SHEET 2 OF 2	

NOTES:

- MANHOLE MEETS ALL REQUIREMENTS OF ASTM C478.
- CONCRETE IS MINIMUM 4,000PSI COMPRESSIVE STRENGTH.
- MATERIAL USED TO SEAL AROUND PIPE SHALL BE NON-SHRINK GROUT.
- MANHOLE SHALL BE CONSTRUCTED OF PRECAST CONCRETE. FIBERGLASS MANHOLE IS NOT ACCEPTABLE.
- A DROP STRUCTURE SHALL BE PLACED WHERE PIPE VERTICAL SEPARATION BETWEEN INVERTS EXCEEDS 2.50'. USE 6" DIAMETER MANHOLES WHEN DROP STRUCTURES ARE NEEDED.
- WITH THE EXCEPTION OF THE MANHOLE BASE SECTION, ALL OTHER MATERIALS, INSTALLATION AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE FAYFWP STANDARD MANHOLE DETAILS.
- DOGHOUSE MANHOLE SHALL BE FREE OF LEAKS.
- SEE STANDARD MANHOLE DETAIL S.2 FOR ADDITIONAL REQUIREMENTS.

DOGHOUSE MANHOLE (MAINS 15" OR LESS)			
SHEET NO.	DWG. NO.	DWG. BY:	FAYFWP
1 OF 2	S.3	FAYFWP	
	DATE: JAN 01, 2023	APPROVED BY: M.M.M.	

FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.			
WATER RESOURCES ENGINEERING DEPARTMENT			
NO.	DATE	REVISION	
1	07/16	ADDED SHEET 2	
2	11/25/08	MADE CHANGES TO NOTES	

NOTES:

- MANHOLE SHALL BE IN ACCORDANCE WITH FAYFWP STANDARDS. SEE MANHOLE DETAIL FOR ADDITIONAL INFORMATION.
- ALL PVC FITTINGS FOR DROP STRUCTURE SHALL BE SDR-35 PVC WITH SOLVENT WELD JOINTS.
- MANHOLES GREATER THAN 12" IN DEPTH SHALL HAVE MINIMUM 6" EXTENDED BASE.
- DROP STRUCTURE SHALL BE PLACED WHERE SEWER MAIN OR LATERAL VERTICAL DROP BETWEEN INVERTS EQUALS OR EXCEEDS 2.50'. SEE PIPE SLIDE DETAIL FOR DROPS LESS THAN 2.50' VERTICAL SEPARATION.
- DROP STRUCTURE MANHOLE SHALL BE A MINIMUM OF 5" DIAMETER. DROP STRUCTURE SHALL BE INSTALLED AGAINST WALL OF MANHOLE AS SHOWN IF THE GRADE DOES NOT ALLOW, THEN INSTALL AS DIRECTED BY FAYFWP.
- 6" DIA. MANHOLES REQUIRED FOR ALL DROPS 6" AND GREATER IN DIAMETER, AND WHEN 3 OR MORE 4" LATERALS ENTER MANHOLES. ALL LATERALS (REGARDLESS OF SIZE) 4" INTERIOR DROPS ARE ALLOWED IN A 5" MANHOLE. NO MORE THAN 4, FOUR INCH LATERALS OR 3, SIX INCH LATERALS SHALL ENTER A 4" DIAMETER TERMINAL MANHOLE. ALL LATERALS SHALL HAVE AN INDIVIDUAL TROUGH. 5" DIAMETER MANHOLES SHALL BE USED IF THE ABOVE CONDITIONS ARE NOT MET. THE LATERAL INVERT SHALL BE AT THE TOP OF THE SHELF.
- NO MORE THAN 5 LATERALS SHALL ENTER A 5" DIAMETER TERMINAL MANHOLE.
- EXIBLE BOOT SHALL BE CONNECTED TO MANHOLE WITH STAINLESS STEEL EXPANSION RING. FLEXIBLE BOOT CONNECTORS SHALL CONFORM TO ASTM C423 SPEC.
- NO MORE THAN 4 LATERALS SHALL ENTER A 5" DIAMETER TERMINAL MANHOLE.
- EXIBLE BOOT SHALL BE CONNECTED TO MANHOLE WITH STAINLESS STEEL EXPANSION RING. FLEXIBLE BOOT CONNECTORS SHALL CONFORM TO ASTM C423 SPEC.
- CONNECTIONS TO EXISTING MANHOLES SHALL HAVE CORE AND BOOT ONLY UNLESS APPROVED OTHERWISE BY FAYFWP PROJECT COORDINATOR.
- ALL MANHOLES SHALL BE VACUUM TESTED IN ACCORDANCE WITH FAYFWP STANDARDS.

INTERIOR DROP STRUCTURE SEWER MAINS AND LATERALS			
SHEET NO.	DWG. NO.	DWG. BY:	FAYFWP
1 OF 1	S.5	FAYFWP	
	DATE: JAN 01, 2023	APPROVED BY: M.M.M.	

FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.			
WATER RESOURCES ENGINEERING DEPARTMENT			
NO.	DATE	REVISION	
4	11/08	REVISED FITTING MATERIAL	
5	07/12	REVISED NOTES 5, 6, AND HUB ON INVERT	
6	07/14	ADDED FORCE MAIN NOTE	

Prepared in the Office of:

AN ARDURRA COMPANY
720 CORPORATE CENTER DRIVE,
RALEIGH, NC 27607
(919) 782-0495 | NCBELS #F-0374

DOCUMENT NOT CONSIDERED FINAL UNTIL ALL SIGNATURES ARE COMPLETED

PROJECT REFERENCE NO.		SHEET NO.	
U-4405B		UC-031	
DESIGNED BY:	AA	DRAWN BY:	DM
CHECKED BY:	RA	APPROVED BY:	BRO
REVISED:			
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION		11/26/2024	
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151		UTILITY CONSTRUCTION PLANS ONLY	

NOTES:

- MANHOLE FRAME AND COVER TO BE MADE OF GRAY CAST IRON CONFORMING TO ASTM SPEC. A88-83, CLASS 35, MANUFACTURED BY SAME MANUFACTURER. ALL CASTINGS SHALL CONFORM TO THE SHAPE AND DIMENSIONS SHOWN. ALL CASTINGS SHALL BE CLEAN AND FREE FROM DEFECTS.
- CASTINGS SHALL BE UNPAINTED AND SHALL HAVE THE LETTERS "FAYFWP-FAYNC" AND "SANITARY SEWER" CAST INTO COVER. LETTERS SHALL BE RAISED AND CLEARLY VISIBLE.
- MANHOLE RING AND COVER SHALL WITHSTAND H=20 VEHICULAR TRAFFIC.
- MINIMUM AVERAGE WEIGHT: PLUS OR MINUS 5% RING 150 LBS. COVER 160 LBS. UNIT 315 LBS.
- PERFORATED COVERS WILL NOT BE ALLOWED.
- SUPPLY SOCKET FOR TURNING CAM LOCK MECHANISM. ONE SOCKET PER PROJECT.
- USE OF CONCRETE GRADE RINGS ARE NOT ALLOWED UNLESS APPROVED BY THE FAYFWP PROJECT COORDINATOR. FOR MANHOLES OUTSIDE OF YARD OR LANDSCAPED AREAS, THE USE OF GRADE RINGS ARE NOT ALLOWED.
- FOR MANHOLES IN YARD OR LANDSCAPED AREAS, THE RING AND COVER SHALL BE SET TO FINISHED GRADE. THE USE OF GRADE RINGS ARE ALLOWED TO SET THE MANHOLE TO FINISHED GRADE. FOR GRADE RINGS 4" OR LESS, THE RING AND COVER SHALL BE ANCHORED TO THE CONE USING 5/8" DIA. TERMINAL STAINLESS STEEL BOLTS WITH WEDGE ANCHORS. FOR GRADE RINGS OVER 4", THE RING AND COVER SHALL BE ANCHORED TO THE GRADE RING USING 5/8" DIA. TERMINAL STAINLESS STEEL BOLTS WITH WEDGE ANCHORS.
- FOR OUTFALL AREAS, THE RING AND COVER SHALL BE SET A MINIMUM OF 15" ABOVE FINISHED GRADE, UNLESS OTHERWISE APPROVED.
- THIS DETAIL IS TO BE USED ON ALL MANHOLES LOCATED OUTSIDE OF PAVED AREAS, UNLESS OTHERWISE APPROVED.
- REFER TO FAYFWP STANDARD DETAIL S.17 FOR INSTALLATION OF VENT STACK.

STANDARD NON-TRAFFIC AREA MANHOLE RING AND COVER WITH WIPER GASKET AND CAM LOCK			
SHEET NO.	DWG. NO.	DWG. BY:	FAYFWP
1 OF 1	S.6	FAYFWP	
	DATE: JAN 01, 2023	APPROVED BY: M.M.M.	

FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.			
WATER RESOURCES ENGINEERING DEPARTMENT			
NO.	DATE	REVISION	
1	07/09	REVISED NOTES ON FRAME SECTION (REVISED NOTE 3)	
2	07/17	ADDED NOTE ON WEDGE CAM LOCKS	
3	01/18	UPDATED NOTES 7 AND 8	

5/14/2024

26-NOV-2024 10:16 AM Fayetteville Public Works Commission\2015017700RA_Reeford_Road NCDOT_U_44055\CADD\NCDOT_PLANS\Utilities\Engineering\UC\Proc\U44055B\U44055B_ut_dtl_UC03J_psh.dgn

STANDARD TRAFFIC AREA MANHOLE RING AND COVER
N.T.S.
DWG. NO. S.7 DWG. BY: FAYPWC
DATE: JAN 01, 2023 APPROVED BY: M.M.M.

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

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

SHEET NO. 1 OF 1

STRUCTURE STEP
N.T.S.
DWG. NO. S.8 DWG. BY: FAYPWC
DATE: JAN 01, 2023 APPROVED BY: M.M.M.

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

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

SHEET NO. 1 OF 1

Prepared in the Office of:

AN ARDURRA COMPANY
720 CORPORATE CENTER DRIVE, RALEIGH, NC 27607
(919) 782-0495 | NCBELS #F-0374

DOCUMENT NOT CONSIDERED FINAL UNTIL ALL SIGNATURES ARE COMPLETED

PROJECT REFERENCE NO. U-4405B
SHEET NO. UC-03J

DESIGNED BY: AAA
DRAWN BY: DM
CHECKED BY: RA
APPROVED BY: BRO

REVISED:

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
11/26/2024

UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION

SEWER LATERAL (4-INCH AND 6-INCH)
N.T.S.
DWG. NO. S.10 DWG. BY: FAYPWC
DATE: JAN 01, 2023 APPROVED BY: M.M.M.

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

NO.	DATE	REVISION
2	01/14	ADDED TAILPIECE, NOTES
3	01/15	REVISED NOTES RE: TAILPIECE
4	07/18	REVISED NOTE RE: LATERAL DEPTH

SHEET NO. 1 OF 1

SEWER LATERAL NOTES

- HOLE IN SANITARY SEWER MAIN MUST BE CUT WITH SHEEL CUTTER NO HAMMER TAPS ALLOWED.
- LATERAL SHALL CONFORM TO ASTM SPECS. D-3034 SDR-26 UNLESS OTHERWISE INDICATED AS DI.
- ALL PIPE AND FITTINGS SHALL BE 4" OR 6" UNLESS OTHERWISE SPECIFIED.
- ALL DI PIPE SHALL HAVE AN INTERIOR LINING OF CERAMIC EPOXY. THE ENTIRE DI LATERAL SHALL BE COMPRISED OF DI PIPE AND MECHANICAL JOINT FITTINGS.
- ALL CONNECTIONS SHALL HAVE RUBBER GASKET SEALS INSTALLED.
- SANITARY SEWER LATERAL CLEANOUT STACK SHALL BE LOCATED 18" FROM WATER LATERAL LOCK VALVE WHEN IN THE SAME DITCH.
- INSTALLATION OTHER THAN AS SHOWN MUST BE APPROVED BY THE FAYPWC.
- CONNECTIONS TO THE TOP OF MAIN SHALL NOT BE ALLOWED, UNLESS OTHERWISE APPROVED BY THE FAYPWC PROJECT COORDINATOR.
- THE DESIGN ENGINEER SHALL DETERMINE THE SLOPE AND DEPTH OF THE LATERAL BASED ON THE TOPOGRAPHY OF THE LOT.
- LATERAL SHALL CONFORM TO 2% MINIMUM SLOPE FOR 4" OR 1% MINIMUM SLOPE FOR 6". THE MAXIMUM LENGTH OF A SEWER LATERAL SHALL BE 60 FEET, UNLESS OTHERWISE APPROVED BY FAYPWC.
- SEE INTERIOR DROP STRUCTURE OR SLIDE, MORTAR SLICE AND SHELF DETAIL FOR VERTICAL DROPS OF MAINS AND LATERALS.
- LATERALS LESS THAN 3' IN DEPTH OR GREATER THAN 20' DEPTH SHALL UTILIZE DUCTILE IRON PIPE AND FITTINGS WITH CERAMIC EPOXY, OR WHEN SEPARATION REQUIREMENTS CANNOT BE MET.
- ENTIRE SEWER LATERAL ASSEMBLY SHALL BE AIR TESTED CONCURRENTLY WITH SEWER MAIN.
- INDIVIDUAL LATERALS SHALL BE CLEANED AND FLUSHED PRIOR TO FLUSHING SANITARY SEWER MAINS.
- LATERAL SHALL NOT BE BACK-FILLED UNTIL INSPECTED BY THE FAYPWC PROJECT COORDINATOR.
- WIE CONNECTIONS SHALL NOT BE USED TO THE LATERALS INTO A MANHOLE.
- IF BENDS ARE APPROVED BY THE PROJECT COORDINATOR, STONE BEDDING IS REQUIRED TO BE INSTALLED FROM UNDISTURBED (SEE DETAIL S.12) SOIL TO BOTTOM OF BEND.
- PVC COMBINATION SHALL BE A MOLDED WYE AND BEND, GASKETED, SDR-26, AS MANUFACTURED BY PLASTIC TRENDS, HARCO, GPK OR APPROVED EQUAL.
- NO MORE THAN 4, FOUR INCH LATERALS OR 3, SIX INCH 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.
- ALL LATERALS 4" AND 6" SHALL UTILIZE 4" RISER (STACK).
- REFER TO DETAIL S.12 FOR SEPARATION REQUIREMENTS.
- FOR SINGLE FAMILY RESIDENTIAL LOTS, CLEANOUT SHALL BE LOCATED 18" FROM RIGHT-OF-WAY OR EASEMENT. FOR ALL NON-SINGLE FAMILY LOTS, CLEANOUT SHALL BE NO CLOSER THAN 10' TO FRONT OF BUILDING, UNLESS OTHERWISE APPROVED BY FAYPWC.

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

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

NOTE: REFER TO FAYPWC TECHNICAL SPECIFICATIONS FOR ADDITIONAL INFORMATION.

SEWER LATERAL NOTES (4-INCH AND 6-INCH)
N.T.S.
DWG. NO. S.11 DWG. BY: FAYPWC
DATE: JAN 01, 2023 APPROVED BY: M.M.M.

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

NO.	DATE	REVISION
3	01/13	REVISED NOTES AND ADDED TABLE
4	01/15	REVISED NOTE 22, TABLE
5	07/18	REVISED NOTES 6, 9

SHEET NO. 1 OF 1

SEWER LATERAL SEPARATION REQUIREMENTS
N.T.S.
DWG. NO. S.12 DWG. BY: FAYPWC
DATE: JAN 01, 2023 APPROVED BY: M.M.M.

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

NO.	DATE	REVISION
1	01/05	REVISED NOTES 1 AND 6
2	11/06	ADDED NOTE ON LATERALS
3	03/10	ADDED SEWER AND DI SEPARATION

SHEET NO. 1 OF 1

SEWER BEDDING
N.T.S.
DWG. NO. S.13 DWG. BY: FAYPWC
DATE: JAN 01, 2023 APPROVED BY: M.M.M.

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

NO.	DATE	REVISION
1	01/05	REVISED NOTES
2	01/01/16	REVISED NOTES

SHEET NO. 1 OF 1

GRAVITY SANITARY SEWER PIPE REPAIR
N.T.S.
DWG. NO. S.15 DWG. BY: FAYPWC
DATE: JAN 01, 2023 APPROVED BY: M.M.M.

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

NO.	DATE	REVISION
1	01/05	REVISED REPLACEMENT PIPE
2	07/11	REVISED NOTES

SHEET NO. 1 OF 3

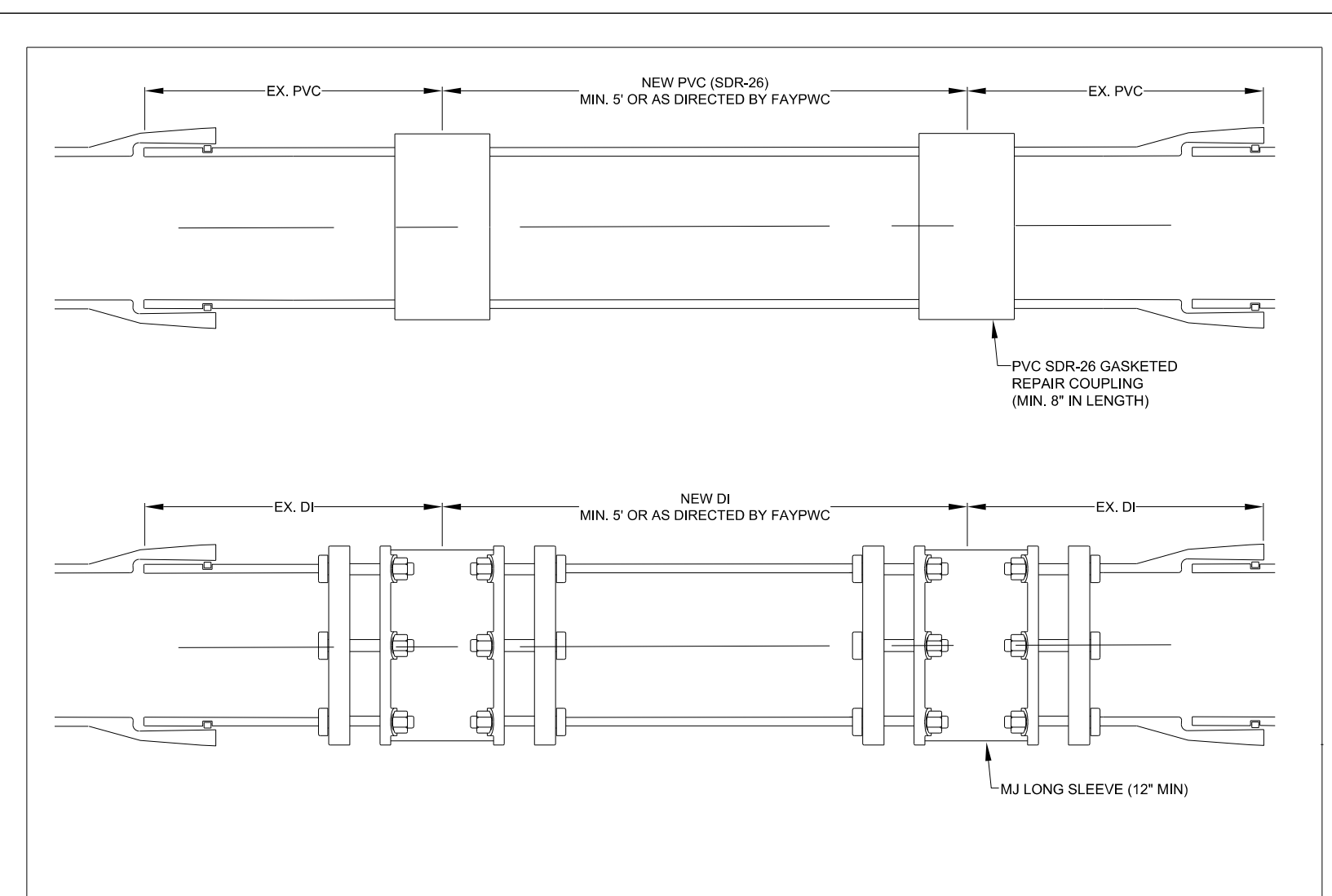
GRAVITY SANITARY SEWER PIPE REPAIR
N.T.S.
DWG. NO. S.15 DWG. BY: FAYPWC
DATE: JAN 01, 2023 APPROVED BY: M.M.M.

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

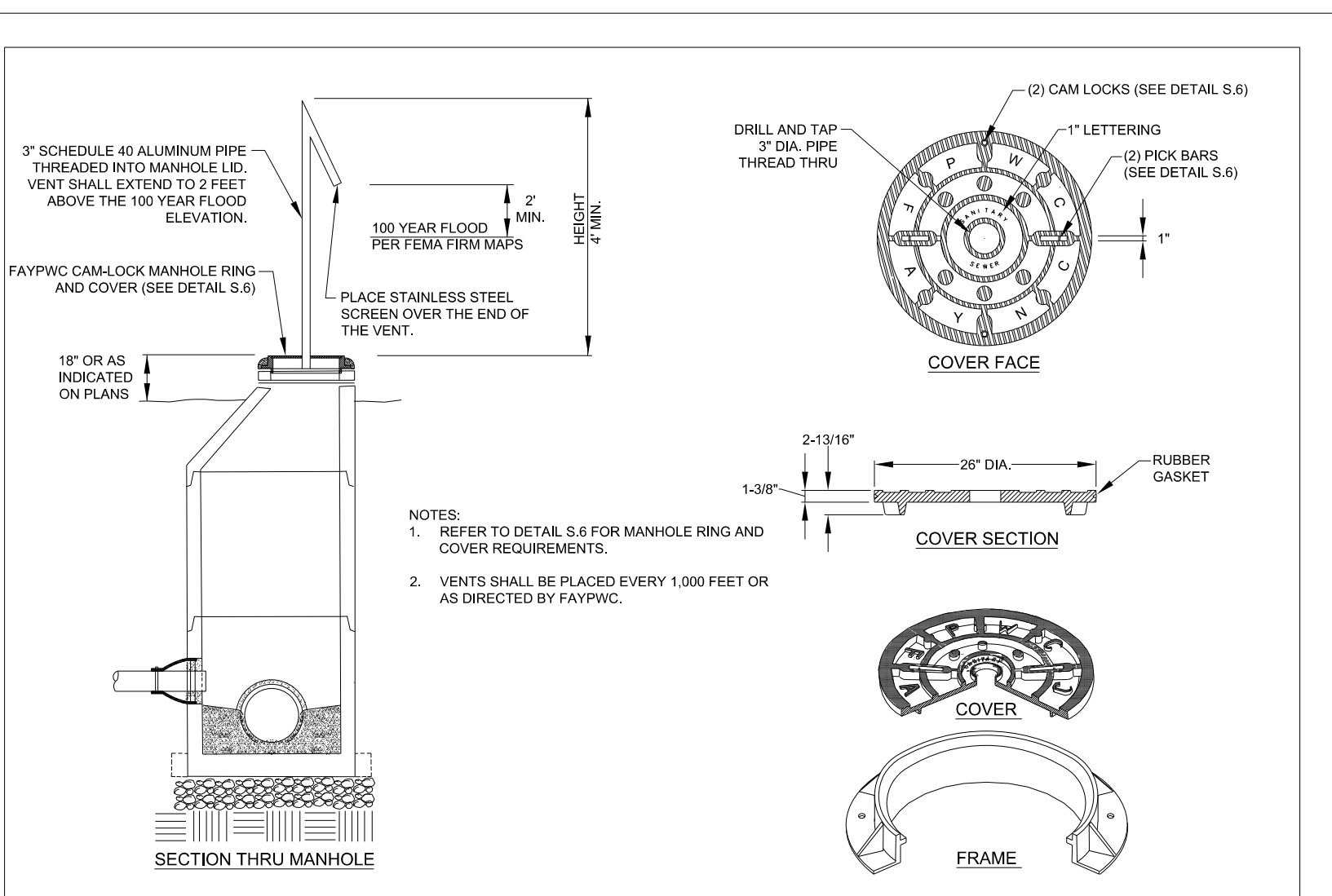
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2	07/11	REVISED NOTES

SHEET NO. 2 OF 3

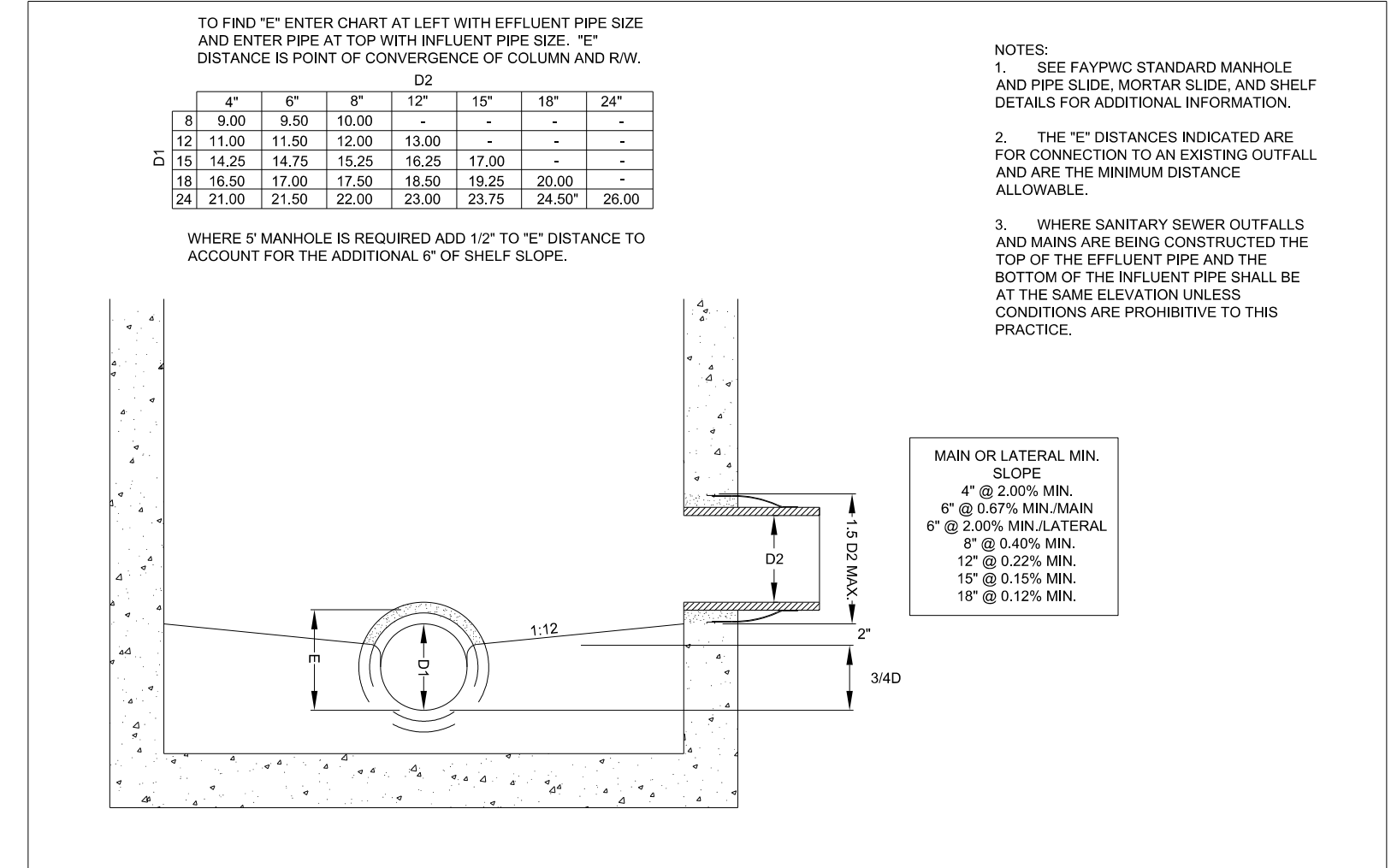
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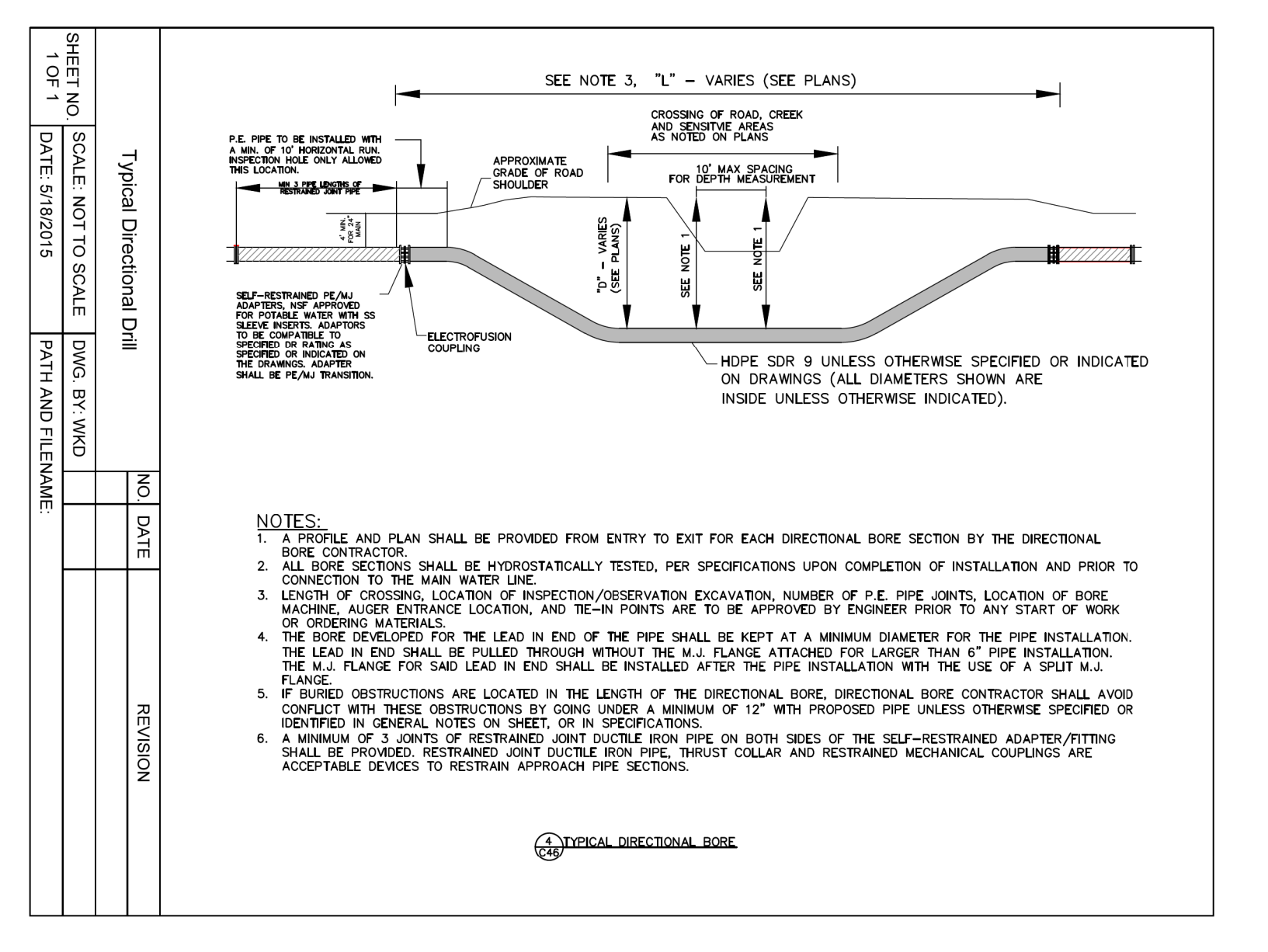
GRAVITY SANITARY SEWER PIPE REPAIR N.T.S.		FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO.	DATE	REVISION
DWG. NO. S.15 DWG. BY: FAYPWC		WATER RESOURCES ENGINEERING DEPARTMENT		1	01/05	REVISED REPLACEMENT PIPE
DATE: JAN 01, 2023 APPROVED BY: M.M.M.				2	07/11	REVISED NOTES, REPAIRS
SHEET NO. 3 OF 3				S15-VCP-REPAIR.dwg		



MANHOLE VENT N.T.S.		FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO.	DATE	REVISION
DWG. NO. S.17 DWG. BY: FAYPWC		WATER RESOURCES ENGINEERING DEPARTMENT				
DATE: JAN 01, 2023 APPROVED BY: M.M.M.				S17-MH-VENT.dwg		



MH CONNECTION DESIGN GUIDE N.T.S.		FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO.	DATE	REVISION
DWG. NO. S.18 DWG. BY: FAYPWC		WATER RESOURCES ENGINEERING DEPARTMENT				
DATE: JAN 01, 2023 APPROVED BY: M.M.M.				S18-PENETRATION-DETAIL.dwg		



SHEET NO. 1 OF 1	SCALE: NOT TO SCALE	DWG. BY: WMD	NO.	DATE	REVISION
DATE: 5/18/2015					
PATH AND ELEVATION:					

Prepared in the Office of:

WK DICKSON
AN ARDURRA COMPANY
720 CORPORATE CENTER DRIVE,
RALEIGH, NC 27607
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PROJECT REFERENCE NO.	SHEET NO.
U-4405B	UC-03K
DESIGNED BY: AAA	
DRAWN BY: DM	
CHECKED BY: RA	
APPROVED BY: BRO	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
11/26/2024	
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION

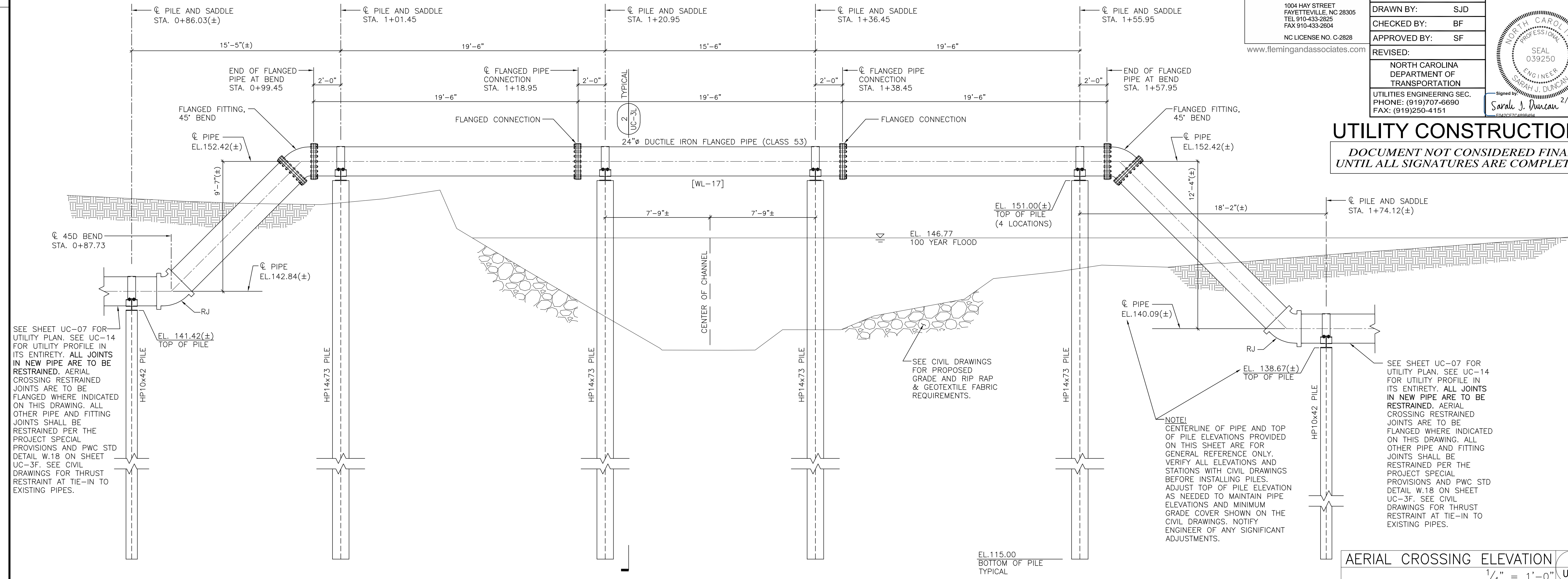


FA FLEMING & ASSOCIATES, P.A.
1004 HAY STREET
FAVETTEVILLE, NC 28305
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FAX 910-433-2604
NC LICENSE NO. C-2828
www.flemingandassociates.com

PROJECT REFERENCE NO. U-4405B	SHEET NO. UC-3L
DESIGNED BY: SJD	
DRAWN BY: SJD	
CHECKED BY: BF	
APPROVED BY: SF	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE: (919)707-6690 FAX: (919)250-4151	

UTILITY CONSTRUCTION

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SEE SHEET UC-07 FOR UTILITY PLAN. SEE UC-14 FOR UTILITY PROFILE IN ITS ENTIRETY. ALL JOINTS IN NEW PIPE ARE TO BE RESTRAINED. AERIAL CROSSING RESTRAINED JOINTS ARE TO BE FLANGED WHERE INDICATED ON THIS DRAWING. ALL OTHER PIPE AND FITTING JOINTS SHALL BE RESTRAINED PER THE PROJECT SPECIAL PROVISIONS AND PWC STD DETAIL W.18 ON SHEET UC-3F. SEE CIVIL DRAWINGS FOR THRUST RESTRAINT AT TIE-IN TO EXISTING PIPES.

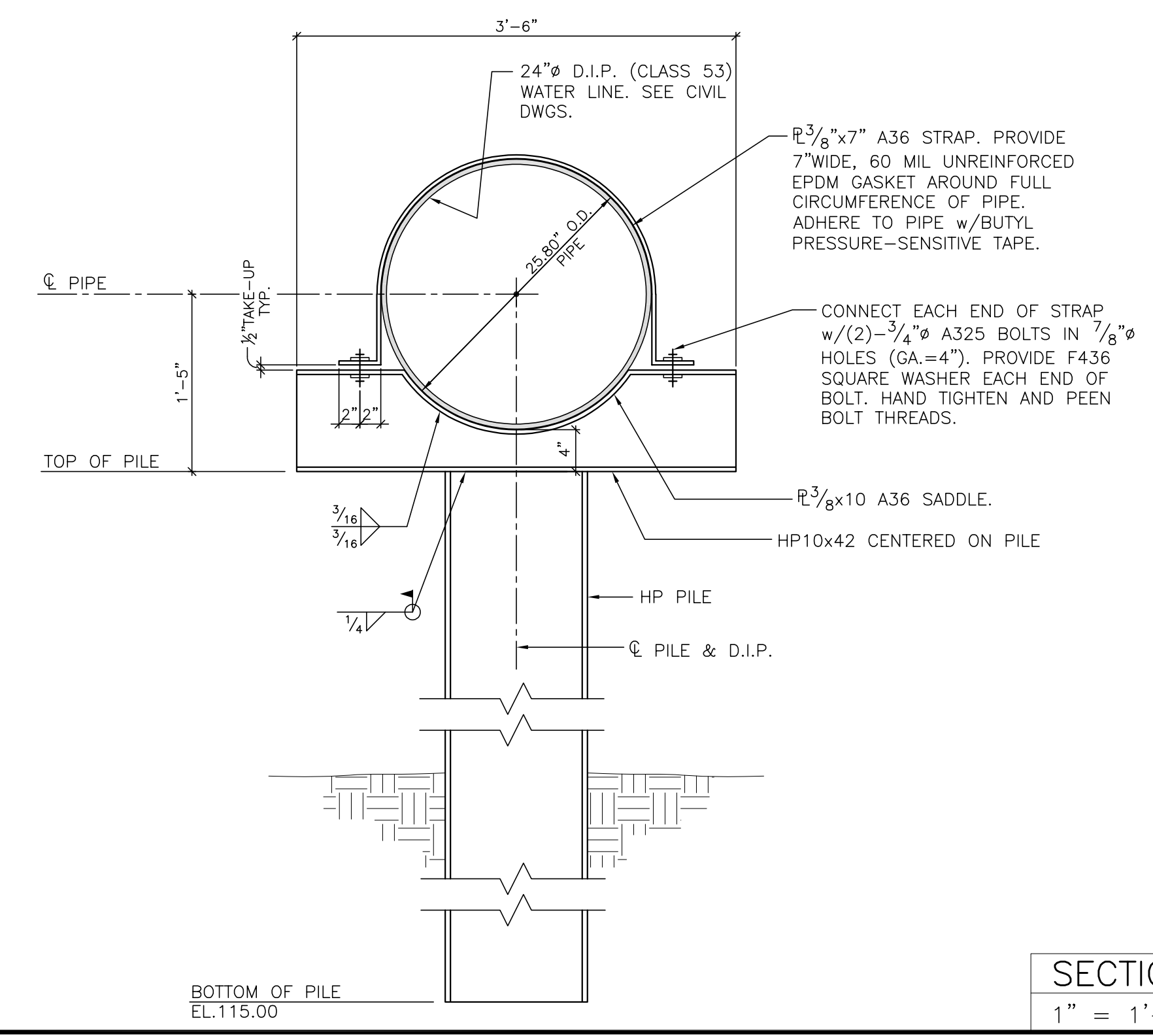
NOTE: CENTERLINE OF PIPE AND TOP OF PILE ELEVATIONS PROVIDED ON THIS SHEET ARE FOR GENERAL REFERENCE ONLY. VERIFY ALL ELEVATIONS AND STATIONS WITH CIVIL DRAWINGS BEFORE INSTALLING PILES. ADJUST TOP OF PILE ELEVATION AS NEEDED TO MAINTAIN PIPE ELEVATIONS AND MINIMUM GRADE COVER SHOWN ON THE CIVIL DRAWINGS.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

SEE SHEET UC-07 FOR UTILITY PLAN. SEE UC-14 FOR UTILITY PROFILE IN ITS ENTIRETY. ALL JOINTS IN NEW PIPE ARE TO BE RESTRAINED. AERIAL CROSSING RESTRAINED JOINTS ARE TO BE FLANGED WHERE INDICATED ON THIS DRAWING. ALL OTHER PIPE AND FITTING JOINTS SHALL BE RESTRAINED PER THE PROJECT SPECIAL PROVISIONS AND PWC STD DETAIL W.18 ON SHEET UC-3F. SEE CIVIL DRAWINGS FOR THRUST RESTRAINT AT TIE-IN TO EXISTING PIPES.

AERIAL CROSSING ELEVATION	1
$\frac{1}{4}'' = 1'-0''$	UC-3L

- Design Loads**
 - Wind Load: Ultimate Design Wind Speed, Vult (3-second gust) 133 mph (ASCE 7-10/2018 NC Building Code) Exposure Category C
- Materials**
 - A. Structural Steel: ASTM A-36 U.N.O. ASTM A-572 Grade 50 at HP shapes (Hot-dip galvanized per ASTM A123)
 - B. Bolts: ASTM A-325N (Hot-dip galvanized per ASTM A153)
 - C. Weld Electrodes: E70
 - D. Pile Driving Equipment:
 - a. 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.
 - b. 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.
 - c. 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.
 - d. 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.
 - E. 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**
 - A. 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.
 - B. 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.
 - C. 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**
 - A. All pile locations shall be staked and surveyed as part of the construction staking process.
 - B. 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.
 - C. 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-7 and UC-14 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.
 - D. Piles are to be cut off square at the required finish elevation and prepared for weld to saddle beam.
 - E. 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**
 - A. All structural bolts will have heavy hex nuts and (2) F436 square washers.
 - B. All welders, shop and field, will be certified for the type of work involved. Field welders must be certified for overhead welding.
 - C. 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**
 - A. Submit mill certificate on all structural steel shapes.
 - B. Equipment Data: Submit a detailed description of the equipment proposed to be used to install piles.
 - C. Steel shop drawings for saddle beam, straps, and bolts.
 - D. Pile inspector's report to include:
 - a. Actual installed depth elevation of each pile and the cut off elevation of each pile.
 - b. Any unusual conditions and/or obstructions encountered while driving pile.
 - c. Hammer blows per foot at not less than 5 feet intervals and continuous count during the last 6" of driving.
 - d. Elevations before and after cut off.
- Miscellaneous**
 - A. The structural drawing UC-3L 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.
 - B. 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.
 - C. 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.
 - D. 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	UC-3L

SECTION	2
1" = 1'-0"	UC-3L

REVISIONS

25-NOV-2024 10:40
C:\Projects\Environmental\Fayetteville Public Works Commission\2015017700RA Raeford Road NCDOT U 4405\CADD\NCDOT PLANS\Utilities\Engineering\UC\Proc\U4405B\U4405B.ut_r.dwg UC04B.psh.dgn
5/14/2024
10:40

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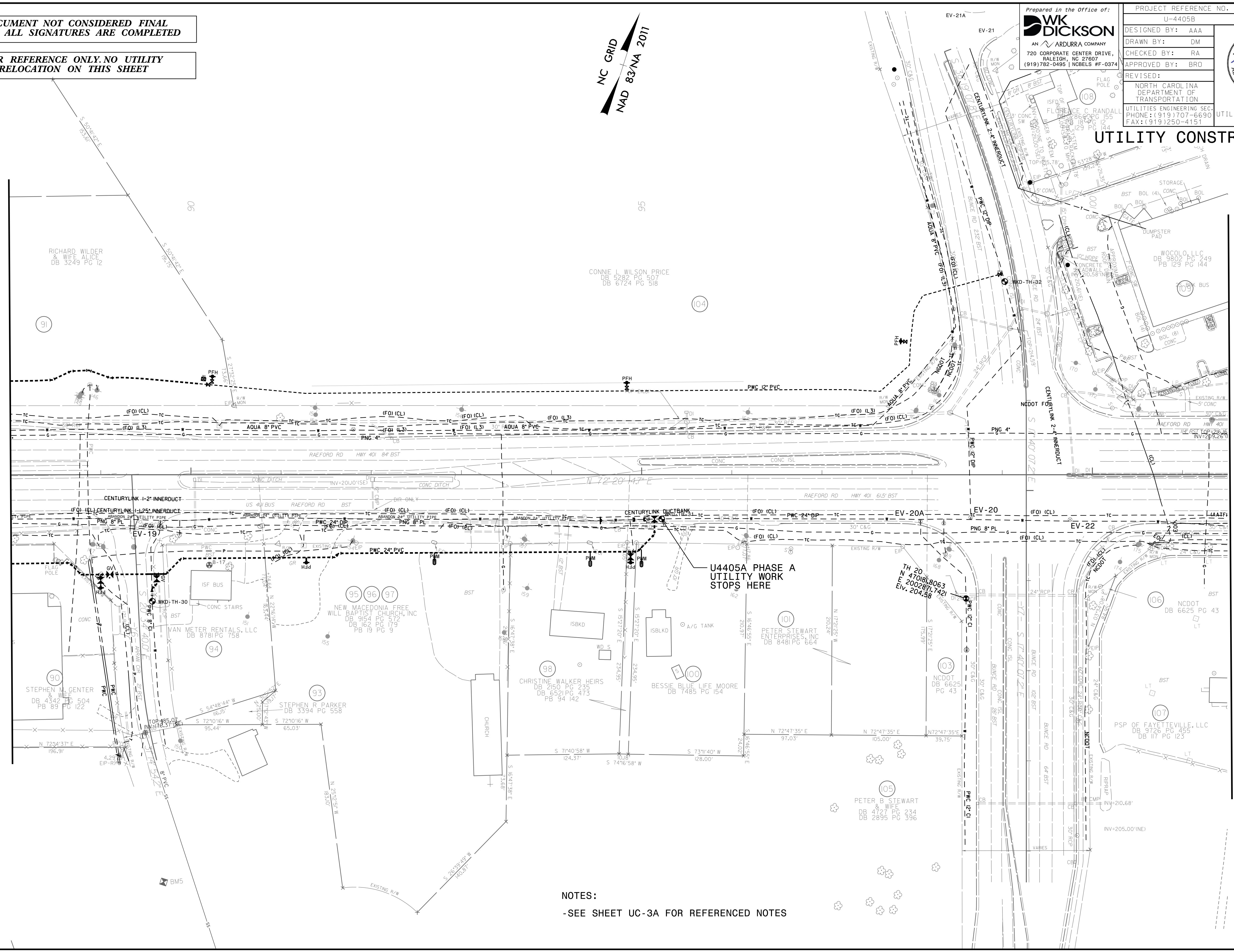
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RELOCATION ON THIS SHEET**

NC GRID
NAD 83/NA 2011

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AN ARDURRA COMPANY
720 CORPORATE CENTER DRIVE,
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PROJECT REFERENCE NO.	U-4405B	SHEET NO.	UC-04B
DESIGNED BY:	AAA		
DRAWN BY:	DM		
CHECKED BY:	RA		
APPROVED BY:	BRO		
REVISED:		NORTH CAROLINA DEPARTMENT OF TRANSPORTATION 11/26/2024	
UTILITIES ENGINEERING SEC.		UTILITY CONSTRUCTION	
PHONE: (919) 707-6690		PLANS ONLY	
FAX: (919) 250-4151			

UTILITY CONSTRUCTION



MATCHLINE SEE SHEET UC-04
-L- STA 101+50


NOTES:
-SEE SHEET UC-3A FOR REFERENCED NOTES

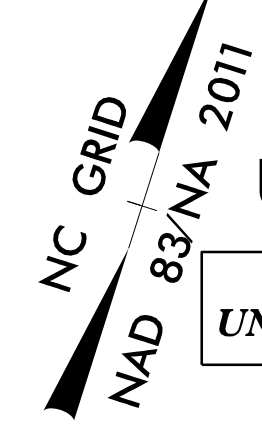
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Prepared in the Office of:



AN ARDURRA COMPANY
720 CORPORATE CENTER DRIVE,
RALEIGH, NC 27607
(919) 782-0495 | NCBELS #F-0374

PROJECT REFERENCE NO.	U-4405B	SHEET NO.	UC-04
DESIGNED BY:	AAA	 NORTH CAROLINA PROFESSIONAL ENGINEER ALEXANDER A. ADEN 045331 11/26/2024	
DRAWN BY:	DM		
CHECKED BY:	RA		
APPROVED BY:	BRO		
REVISED:			
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151		UTILITY CONSTRUCTION PLANS ONLY	

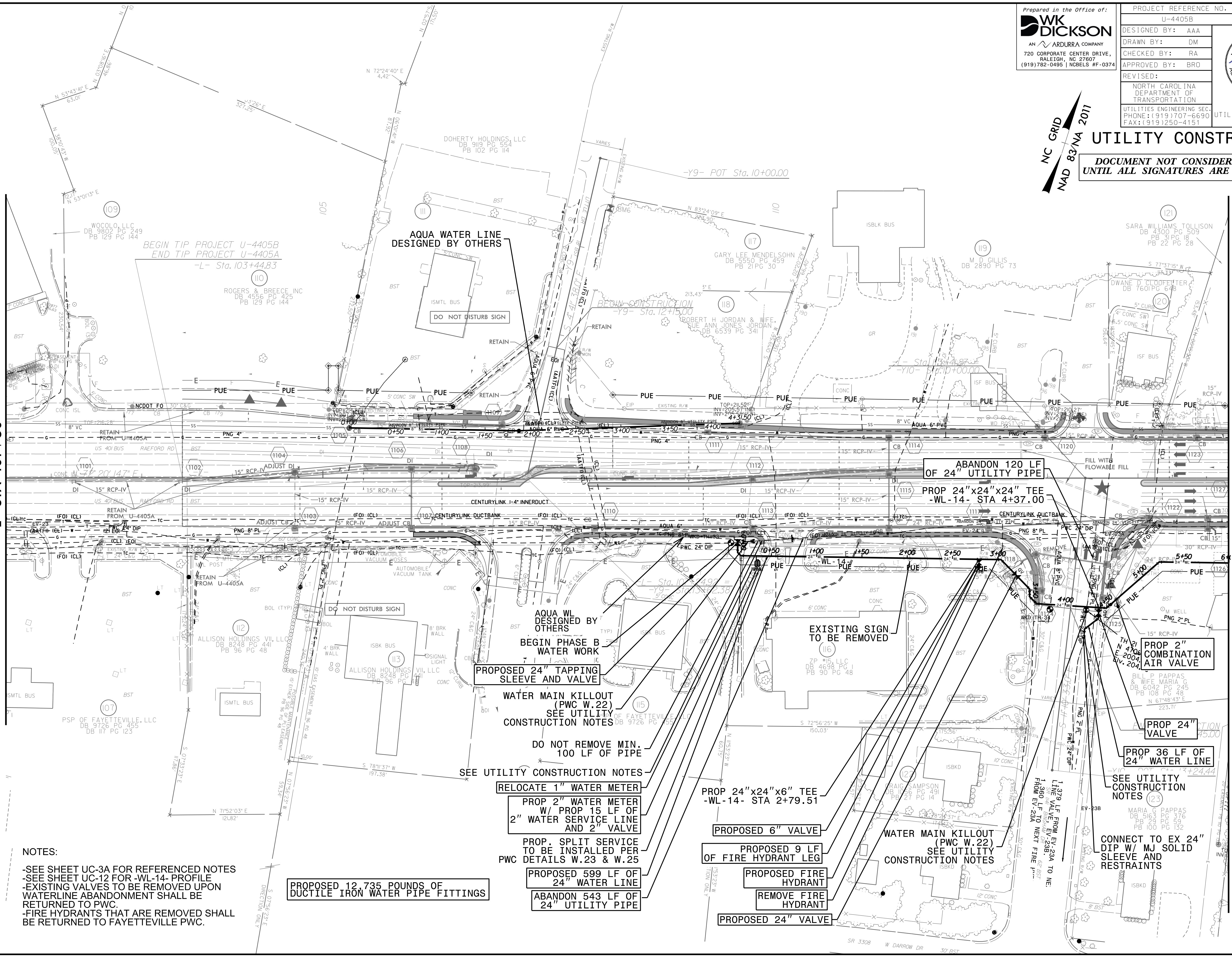


UTILITY CONSTRUCTION

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MATCHLINE SEE SHEET UC-04B
L- STA 101+50

MATCHLINE SEE SHEET UC-05
L- STA 115+00



- NOTES:**
- SEE SHEET UC-3A FOR REFERENCED NOTES
 - SEE SHEET UC-12 FOR -WL-14- PROFILE
 - EXISTING VALVES TO BE REMOVED UPON WATERLINE ABANDONMENT SHALL BE RETURNED TO PWC.
 - FIRE HYDRANTS THAT ARE REMOVED SHALL BE RETURNED TO FAYETTEVILLE PWC.

PROPOSED 12,735 POUNDS OF DUCTILE IRON WATER PIPE FITTINGS

PROPOSED 24" TAPPING SLEEVE AND VALVE

WATER MAIN KILLOUT (PWC W.22) SEE UTILITY CONSTRUCTION NOTES

DO NOT REMOVE MIN. 100 LF OF PIPE SEE UTILITY CONSTRUCTION NOTES

**RELOCATE 1" WATER METER
PROP 2" WATER METER W/ PROP 15 LF OF 2" WATER SERVICE LINE AND 2" VALVE**

PROP. SPLIT SERVICE TO BE INSTALLED PER PWC DETAILS W.23 & W.25

PROPOSED 599 LF OF 24" WATER LINE

ABANDON 543 LF OF 24" UTILITY PIPE

PROP 24"x24"x6" TEE -WL-14- STA 2+79.51

PROPOSED 6" VALVE

PROPOSED 9 LF OF FIRE HYDRANT LEG

PROPOSED FIRE HYDRANT

REMOVE FIRE HYDRANT

PROPOSED 24" VALVE

ABANDON 120 LF OF 24" UTILITY PIPE

PROP 24"x24"x24" TEE -WL-14- STA 4+37.00

EXISTING SIGN TO BE REMOVED

PROP 2" COMBINATION AIR VALVE

PROP 24" VALVE

PROP 36 LF OF 24" WATER LINE

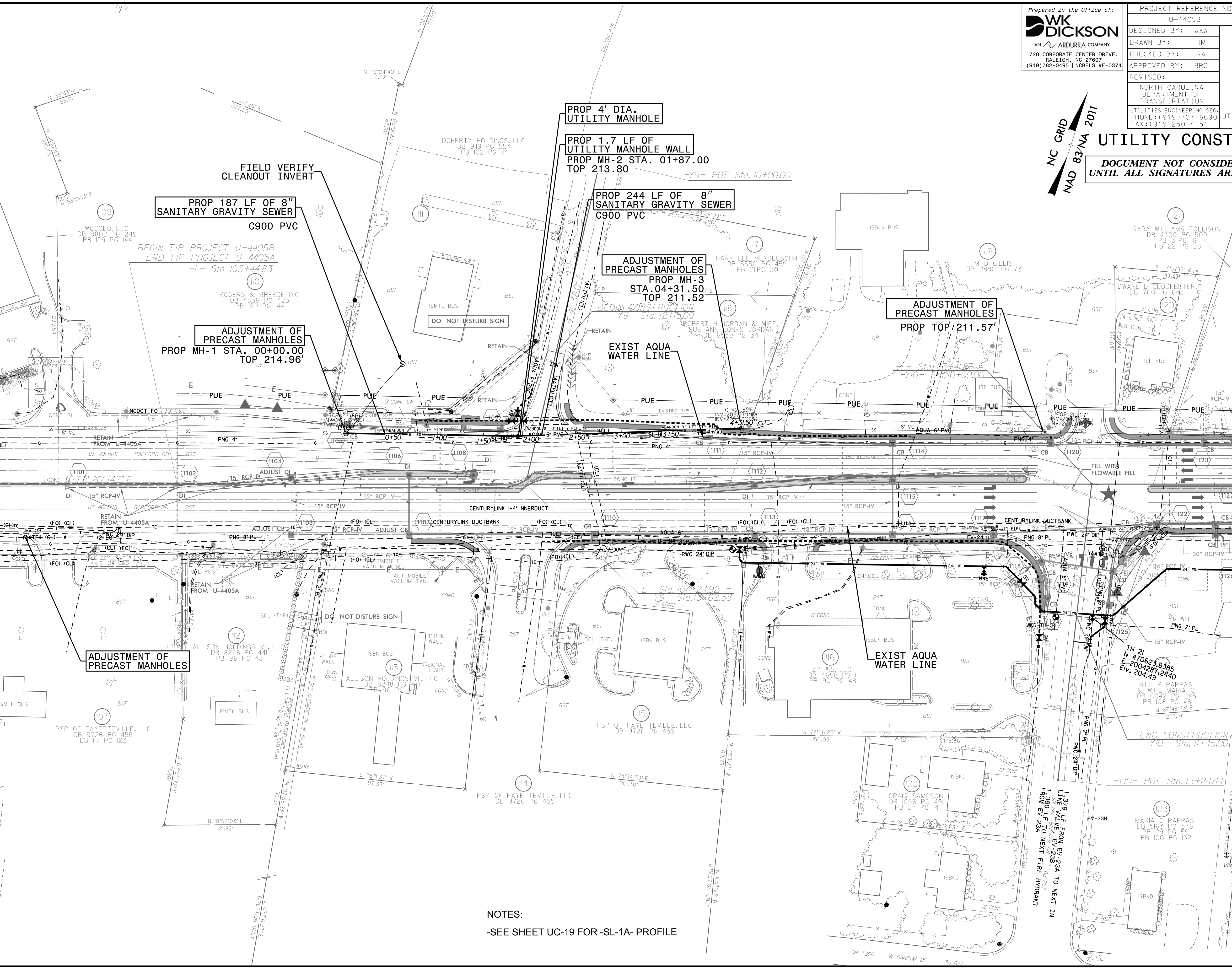
SEE UTILITY CONSTRUCTION NOTES (23)

CONNECT TO EX 24" DIP W/ MJ SOLID SLEEVE AND RESTRAINTS

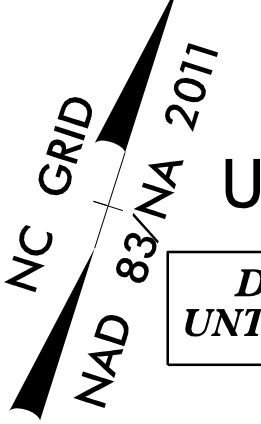
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11/26/2024 11:14:39

MATCHLINE SEE SHEET UC-04B
-L- STA 101+50

MATCHLINE SEE SHEET UC-05A
-L- STA 115+00



WK DICKSON AN ARDURRA COMPANY 720 CORPORATE CENTER DRIVE, RALEIGH, NC 27607 (919) 782-0495 NCBELS #F-0374	PROJECT REFERENCE NO.	U-4405B
	DESIGNED BY:	AAA
	DRAWN BY:	DM
	CHECKED BY:	RA
	APPROVED BY:	BRO
REVISER:		
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151		UTILITY CONSTRUCTION PLANS ONLY




UTILITY CONSTRUCTION
 DOCUMENT NOT CONSIDERED FINAL
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NOTES:
 -SEE SHEET UC-19 FOR -SL-1A- PROFILE


5/14/2024
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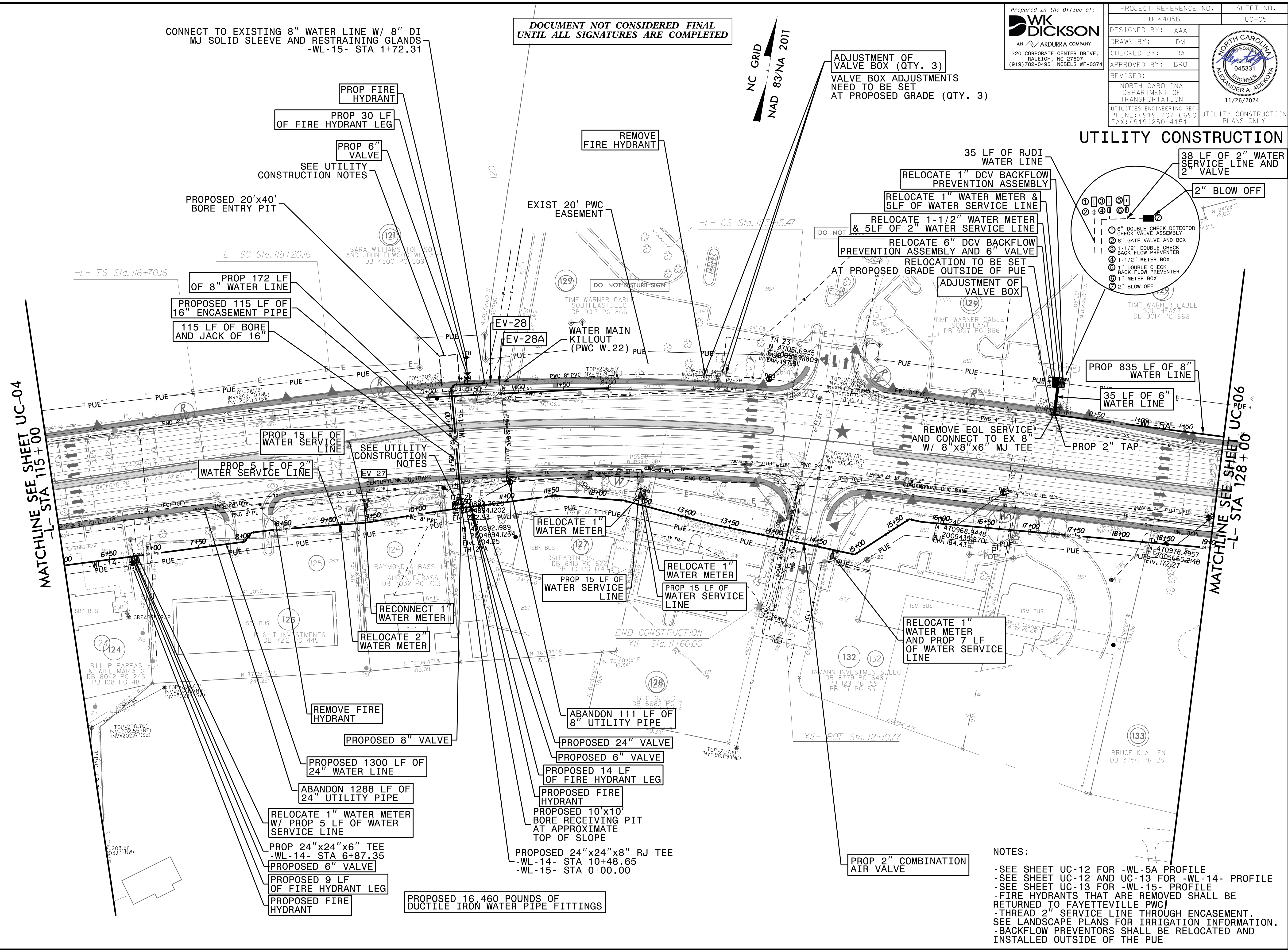


AN ARDURRA COMPANY
720 CORPORATE CENTER DRIVE,
RALEIGH, NC 27607
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PROJECT REFERENCE NO.	U-4405B	SHEET NO.	UC-05
DESIGNED BY:	AAA		
DRAWN BY:	DM		
CHECKED BY:	RA		
APPROVED BY:	BRO		
REVISED:			
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION		11/26/2024	
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151		UTILITY CONSTRUCTION PLANS ONLY	



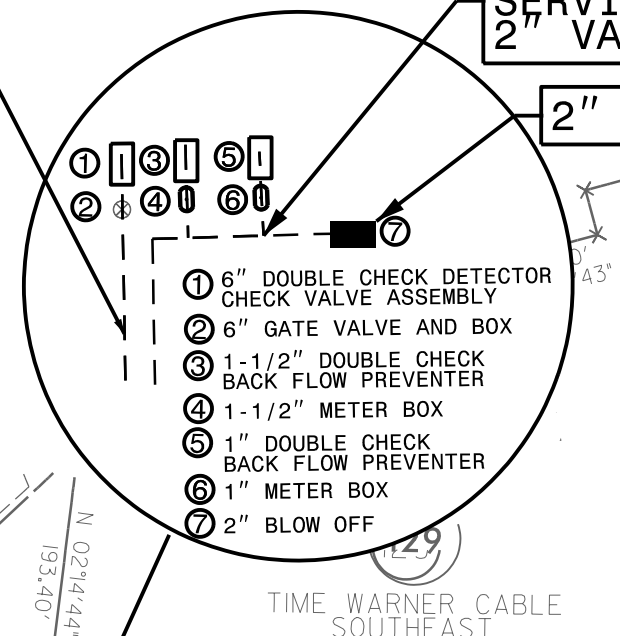
UTILITY CONSTRUCTION



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NC GRID
NAD 83/NA 2011

ADJUSTMENT OF VALVE BOX (QTY. 3)
VALVE BOX ADJUSTMENTS NEED TO BE SET AT PROPOSED GRADE (QTY. 3)



NOTES:

- SEE SHEET UC-12 FOR -WL-5A PROFILE
- SEE SHEET UC-12 AND UC-13 FOR -WL-14- PROFILE
- SEE SHEET UC-13 FOR -WL-15- PROFILE
- FIRE HYDRANTS THAT ARE REMOVED SHALL BE RETURNED TO FAYETTEVILLE PWC
- THREAD 2" SERVICE LINE THROUGH ENCASUREMENT. SEE LANDSCAPE PLANS FOR IRRIGATION INFORMATION.
- BACKFLOW PREVENTORS SHALL BE RELOCATED AND INSTALLED OUTSIDE OF THE PUE


MATCHLINE SEE SHEET UC-04
-L- STA 115+00

MATCHLINE SEE SHEET UC-06
-L- STA 128+00


-L-		
Pls Sta 117+70.17 Θs = 1° 47' 25.8" Ls = 150.00' LT = 100.01' ST = 50.00'	PI Sta 120+68.70 Δ = 1° 49' 28.7" (RT) D = 2° 23' 14.4" L = 495.31' T = 248.54' R = 2,400.00' SE = 0.03	Pls Sta 123+65.48 Θs = 1° 47' 25.8" Ls = 150.00' LT = 100.01' ST = 50.00'

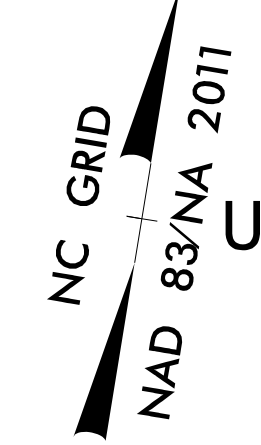
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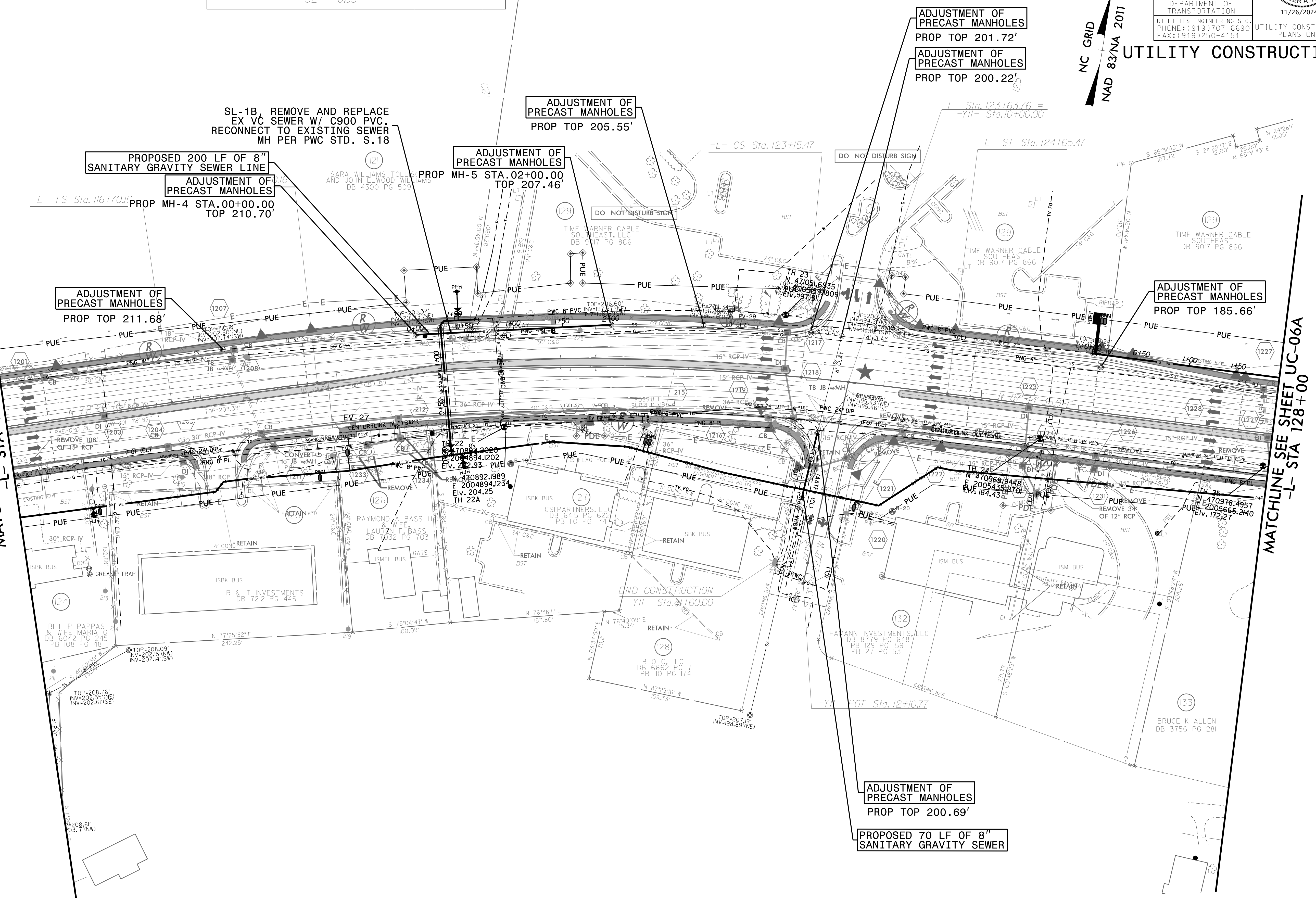
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DESIGNED BY: AAA	 NORTH CAROLINA DEPARTMENT OF TRANSPORTATION 11/26/2024
DRAWN BY: DM	
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APPROVED BY: BRO	
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UTILITY CONSTRUCTION

MATCHLINE SEE SHEET UC-04A
-L- STA 115+00

MATCHLINE SEE SHEET UC-06A
-L- STA 128+00



ADJUSTMENT OF
PRECAST MANHOLES
PROP TOP 200.69'

PROPOSED 70 LF OF 8"
SANITARY GRAVITY SEWER

NOTES:
-SEE UC-19 FOR SL-1B PROFILE

25-NOV-2024 10:01
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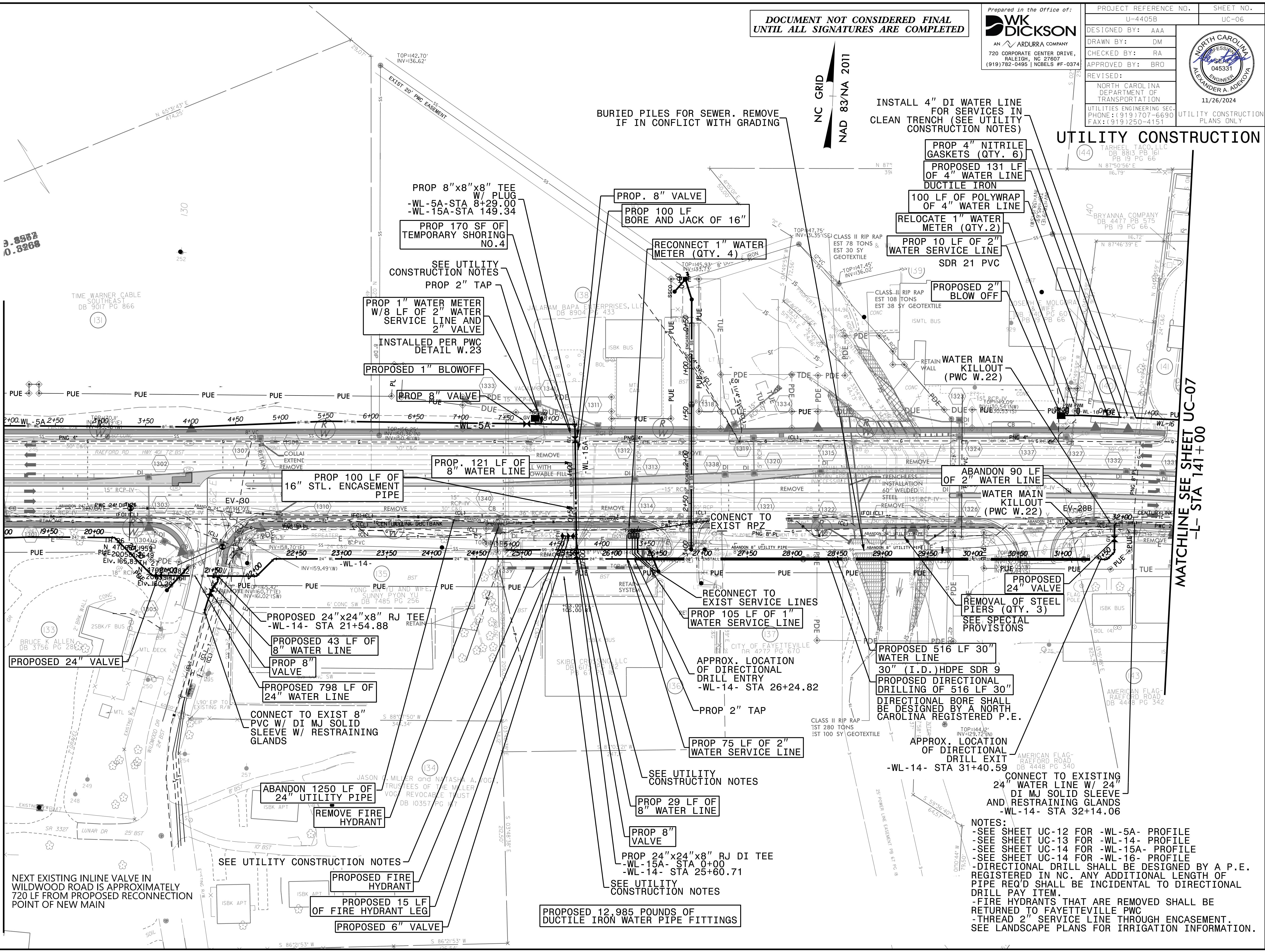
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SHEET NO.	UC-06
DESIGNED BY:	AAA
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APPROVED BY:	BRO
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NC GRID
NAD 83/NA 2011

MATCHLINE SEE SHEET UC-05
-L- STA 128+00

MATCHLINE SEE SHEET UC-07
-L- STA 141+00



NEXT EXISTING INLINE VALVE IN WILDWOOD ROAD IS APPROXIMATELY 720 LF FROM PROPOSED RECONNECTION POINT OF NEW MAIN

PROPOSED 12,985 POUNDS OF DUCTILE IRON WATER PIPE FITTINGS

PROPOSED 6" VALVE

PROPOSED 15 LF OF FIRE HYDRANT LEG

PROPOSED FIRE HYDRANT

ABANDON 1250 LF OF 24" UTILITY PIPE

CONNECT TO EXIST 8" PVC W/ DI MJ SOLID SLEEVE W/ RESTRAINING GLANDS

PROPOSED 798 LF OF 24" WATER LINE

PROP 8" VALVE

PROPOSED 43 LF OF 8" WATER LINE

PROPOSED 24"x24"x8" RJ TEE -WL-14- STA 21+54.88

PROP 100 LF OF 16" STL. ENCASEMENT PIPE

PROP. 121 LF OF 8" WATER LINE

PROPOSED 1" BLOWOFF

INSTALLED PER PWC DETAIL W.23

PROP 1" WATER METER W/ 8 LF OF 2" WATER SERVICE LINE AND 2" VALVE

SEE UTILITY CONSTRUCTION NOTES

PROP 2" TAP

PROP 170 SF OF TEMPORARY SHORING NO.4

PROP 8"x8"x8" TEE W/ PLUG -WL-5A- STA 8+29.00 -WL-15A- STA 149.34

PROP. 8" VALVE

PROP 100 LF BORE AND JACK OF 16"

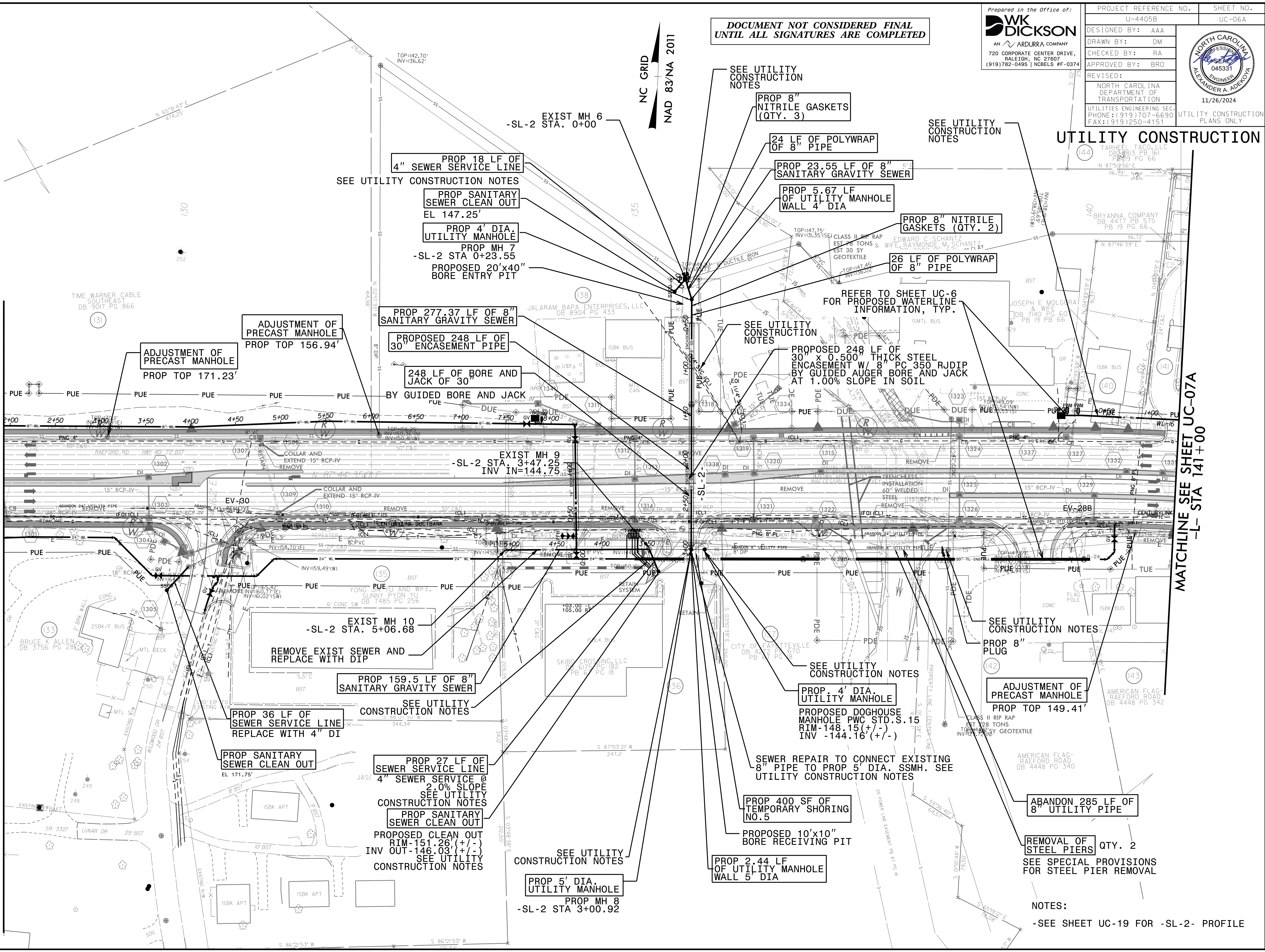
RECONNECT 1" WATER METER (QTY. 4)

BURIED PILES FOR SEWER. REMOVE IF IN CONFLICT WITH GRADING

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5/14/99

MATCHLINE SEE SHEET UC-05A
-L- STA 128+00

MATCHLINE SEE SHEET UC-07A
-L- STA 141+00



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RALEIGH, NC 27607
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PROJECT REFERENCE NO.	U-4405B	SHEET NO.	UC-06A
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11/26/2024			

UTILITY CONSTRUCTION

NOTES:
-SEE SHEET UC-19 FOR -SL-2- PROFILE