UTILITY CONSTRUCTION

SHEET NO. PROJECT REFERENCE NO. UC-3 R-5752 DESIGNED BY: WPS DRAWN BY: KAP OFESSION 1 CHECKED BY: WPS '31/2017 SEAL APPROVED BY: MKS REVISED: NORTH CAROLINA DEPARTMENT OF TRANSPORTATION JTILITIES ENGINEERING SEC PHONE: (919)707-6690 FAX: (919)250-4151 PLANS ONLY

GENERAL NOTES:

- 1. THE PROPOSED UTILITY
 CONSTRUCTION SHALL MEET THE
 APPLICABLE REQUIREMENTS OF THE NC
 DEPARTMENT OF TRANSPORTATION'S
 "STANDARD SPECIFICATIONS FOR ROADS
 AND STRUCTURES" DATED JANUARY 2012.
- 2. THE EXISTING UTILITIES BELONG TO ROBESON COUNTY.
- 3. ALL WATER LINES TO BE INSTALLED WITHIN COMPLIANCE OF THE RULES AND REGULATIONS OF THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY, DIVISION OF WATER RESOURCES, PUBLIC WATER SUPPLY SECTION. ALL SEWER LINES TO BE INSTALLED WITHIN COMPLIANCE OF THE RULES AND REGULATIONS OF THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT QUALITY, DIVISION OF WATER RESOURCES, WATER QUALITY SECTION. PERFORM ALL WORK IN ACCORDANCE WITH THE APPLICABLE PLUMBING CODES.
- 4. THE UTILITY OWNER OWNS THE EXISTING UTILITY FACILITIES AND WILL OWN THE NEW UTILITY FACILITIES AFTER ACCEPTANCE BY THE DEPARTMENT. THE DEPARTMENT OWNS THE CONSTRUCTION CONTRACT AND HAS ADMINISTRATIVE AUTHORITY. COMMUNICATIONS AND DECISIONS BETWEEN THE CONTRACTOR AND UTILITY OWNER ARE NOT BINDING UPON THE DEPARTMENT OR THIS CONTRACT UNLESS AUTHORIZED BY THE ENGINEER. AGREEMENTS BETWEEN THE UTILITY OWNER AND CONTRACTOR FOR THE WORK THAT IS NOT PART OF THIS CONTRACT OR IS SECONDARY TO THIS CONTRACT ARE ALLOWED, BUT ARE NOT BINDING UPON THE DEPARTMENT.
- 5. PROVIDE ACCESS FOR THE
 DEPARTMENT PERSONNEL AND THE
 OWNER'S REPRESENTATIVES TO ALL
 PHASES OF CONSTRUCTION. NOTIFY
 DEPARTMENT PERSONNEL AND THE
 UTILITY OWNER TWO WEEKS PRIOR TO
 COMMENCEMENT OF ANY WORK AND ONE
 WEEK PRIOR TO SERVICE
 INTERRUPTION. KEEP UTILITY OWNERS'
 REPRESENTATIVES INFORMED OF WORK
 PROGRESS AND PROVIDE OPPORTUNITY
 FOR INSPECTION OF CONSTRUCTION AND
 TESTING.

- 6. THE PLANS DEPICT THE BEST AVAILABLE INFORMATION FOR THE LOCATION, SIZE, AND TYPE OF MATERIAL FOR ALL EXISTING UTILITIES. MAKE INVESTIGATIONS FOR DETERMINING THE EXACT LOCATION, SIZE, AND TYPE MATERIAL OF THE EXISTING FACILITIES AS NECESSARY FOR THE CONSTRUCTION OF THE PROPOSED UTILITIES AND FOR AVOIDING DAMAGE TO EXISTING FACILITIES. REPAIR ANY DAMAGE INCURRED TO EXISTING FACILITIES TO THE ORIGINAL OR BETTER CONDITION AT NO ADDITIONAL COST TO THE DEPARTMENT.
- 7. MAKE FINAL CONNECTIONS OF THE NEW WORK TO THE EXISTING SYSTEM WHERE INDICATED ON THE PLANS, AS REQUIRED TO FIT THE ACTUAL CONDITIONS, OR AS DIRECTED.
- 8. MAKE CONNECTIONS BETWEEN
 EXISTING AND PROPOSED UTILITIES AT
 TIMES MOST CONVENIENT TO THE
 PUBLIC, WITHOUT
 ENDANGERING THE UTILITY SERVICE,
 AND IN ACCORDANCE WITH THE UTILITY
 OWNER'S REQUIREMENTS. MAKE
 CONNECTIONS ON WEEKENDS, AT NIGHT,
 AND ON HOLIDAYS IF NECESSARY.
- 9. ALL UTILITY MATERIALS SHALL BE APPROVED PRIOR TO DELIVERY TO THE PROJECT. SEE 1500-7, "SUBMITTALS AND RECORDS" IN SECTION 1500 OF THE STANDARD SPECIFICATIONS.
- 10. GEOTECHNICAL BORING INFORMATION IS AVAILABLE UPON REQUEST.

PROJECT SPECIFIC NOTES:

- 1. CONTRACTOR SHALL NOT IMPACT WATER SERVICE TO BUSINESSES OR RESIDENCES FOR MORE THAN 8 HOURS OR THE CONTRACTOR SHALL PROVIDE TEMPORARY WATER IN ACCORDANCE WITH ROBESON COUNTY PUBLIC WORKS TO IMPACTED CUSTOMERS AT THE CONTRACTOR'S EXPENSE.
- 2. CONTRACTOR SHALL COORDINATE WITH ROBESON COUNTY PUBLIC WORKS A MINIMUM OF 14 DAYS PRIOR TO PERFORMING ANY WATERLINE CONNECTIONS OR IMPACTING WATER SERVICE TO ANY RESIDENCES OR BUSINESSES.
- 3. ALL PIPE FOR OPEN TRENCH CONSTRUCTION SHALL BE SDR 21.
- 4. PVC PIPE JOINTS SHALL BE PUSH ON TYPE HAVING BELLS MADE AS AN INTEGRAL PART OF THE PIPE CONFORMING TO ASTM D3139.
- 5. RESTRAINED PVC PIPE SHALL BE RESTRAINED USING APPROVED HARNESS RESTRAINTS THAT ARE COMPATIBLE WITH ASTM 2241 PVC.
- 6. ALL FITTINGS SHALL BE MECHANICAL JOINT AND RESTRAINED WITH APPROVED RETAINER GLANDS THAT ARE COMPATIBLE WITH ASTM 2241 PVC.
- 7. REFER TO THE RESTRAINED JOINT DETAIL ON SHEET UC-3B FOR RESTRAINED JOINT LENGTHS.
- 8. ALL HDPE PIPE AND FITTINGS SHALL
 BE MANUFACTURED IN STRICT ACCORDANCE
 WITH AWWA C906 AND SHALL BE FROM A
 SINGLE MANUFACTURER WHO IS FULLY
 EXPERIENCED, REPUTABLE AND QUALIFIED
 IN THE MANUFACTURE OF THE
 POLYETHYLENE PIPE AND FITTINGS TO BE
 FURNISHED.
- 9. HDPE PIPE SHALL BE PE 4710 WITH A MINIMUM DR 9 SUITABLE FOR 250 PSI.
- 10. WATERLINE PIPING JOINT DEFLECTION SHALL BE LIMITED TO 75% OF THE MANUFACTURER'S ALLOWABLE DEFLECTION.

- 11. HORIZONTAL DIRECTIONAL DRILLING (HDD) WATER MAIN PIPE IS 10-INCH DIAMETER HDPE DR 9. TOTAL LENGTH OF THE HDD AS SHOWN ON THE DRAWINGS IS APPROXIMATELY 560 LF. THIS LENGTH IS BASED ON A DESIGN USING AVAILABLE SUBSURFACE INFORMATION. AS STATED BELOW THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ADDITIONAL SUBSURFACE DATA TO CONFIRM SUBSURFACE CONDITIONS AS PRESENTED ON THE DRAWINGS AND/OR MAKE MODIFICATIONS TO THE HDD ALIGNMENT OR PIPE STRENGTH REQUIREMENTS BASED ON THE ADDITIONAL INFORMATION OBTAINED.
- 12. ALL HDD DESIGN SUBMITTALS MUST BE SIGNED AND SEALED BY A LICENSED PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF NORTH CAROLINA.
- 13. SUBMITTALS FOR DESIGN OF HDD
- A. HDD DESIGN BY THE CONTRACTOR'S ENGINEER SHALL INCLUDE A GEOTECHNICAL EXPLORATION AND LABORATORY TESTING PROGRAM TO ADEQUATELY DEFINE THE SUBSURFACE CONDITIONS. THIS SUPPLEMENTAL INFORMATION TO THE INFORMATION PROVIDED IN THESE DOCUMENTS SHALL BE USED AS THE BASIS OF THE HDD DESIGN AND ANY MODIFICATIONS TO THE PROPOSED LAYOUT AS SHOWN.
- B. SUBMIT CALCULATIONS IDENTIFYING THE CRITICAL DOWNHOLE PRESSURE THAT WOULD CAUSE HYDROFRACTURE. THE CALCULATIONS SHALL IDENTIFY ALL PARAMETERS USED AND STATE ALL ASSUMPTIONS MADE IN THE CALCULATIONS. CALCULATIONS FOR PIPE STRESSES DUE TO PULLBACK, BENDING, FLUID BUCKLING LOADS, EARTH LOADS, GROUNDWATER LOADS. AND ANY OTHER INSTALLATION AND SERVICE LOADS. LIST ALL ASSUMPTIONS MADE IN THE CALCULATIONS, INCLUDING THE RADIUS OF CURVATURE, ASSUMED DRILLING FLUID WEIGHTS, WHETHER PIPE IS ASSUMED TO BE FILLED OR EMPTY DURING PULLBACK, AND TEMPERATURE.
- C. PROVIDE RECORDS OF EQUIPMENT CALIBRATIONS AND CERTIFICATIONS FOR ALL EQUIPMENT USED FOR DOWNHOLE SURVEYS AND TRACKING OF THE DRILL HEAD. PROCEDURES FOR OPERATING THE DOWNHOLE SURVEY TOOLS SHALL BE DESCRIBED, INCLUDING MEASURES TO VERIFY THE ACCURACY OF THE EQUIPMENT READINGS.

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DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

- D. SUBMIT PLANS FOR DISPOSAL OF WASTE MATERIALS RESULTING FROM THE PIPELINE CONSTRUCTION, INCLUDING DRILLING FLUIDS, CUTTINGS, WASTE OIL, FUEL, DISCHARGE WATER, ETC. IDENTIFY THE DISPOSAL SITE AND SUBMIT A LETTER INDICATING WILLINGNESS AND LEGAL AUTHORITY OF RECIPIENT TO ACCEPT THE DESCRIBED AND ANTICIPATED WASTE PRODUCTS.
- E. SUBMIT A CONTINGENCY PLAN FOR REMEDIATION OF POTENTIAL PROBLEMS THAT MAY BE ENCOUNTERED DURING THE DRILLING OPERATIONS. THE CONTINGENCY PLANS SHALL ADDRESS THE OBSERVATIONS THAT WOULD LEAD TO THE DISCOVERY OF THE PROBLEM AND THE METHODS THAT WOULD BE USED TO MITIGATE THE PROBLEM. CONTRACTOR SHALL BE CAPABLE OF IMPLEMENTING THE PLAN IMMEDIATELY SHOULD AN INADVERTENT RETURN OR SURFACE SPILL OCCUR DURING THE HDD WORK.
- 14. SUBMITTALS AND AS-BUILT HDD SUBMITTALS
- A. THE CONTRACTOR SHALL DOCUMENT ANY VARIATIONS BETWEEN THE ACTUAL CONTRACT DRAWINGS AND PROFILE OF THE BORE PATH AND THE LOCATION SHOWN ON THE CONTRACT DRAWINGS. THE CONTRACTOR SHALL NOTIFY IN WRITING AND BY TELEPHONE THE ENGINEER IMMEDIATELY UPON DISCOVERY OF ANY DEVIATIONS. SUBMIT DESCRIPTIONS OF METHODS, EQUIPMENT, AND MATERIALS TO BE USED FOR CONTACT GROUTING ANY AREAS WHERE OVER-EXCAVATION. ANNULUS BETWEEN THE FINAL REAMED BORE DIAMETER AND THE CARRIER PIPE. ABORTED BORES, VOIDS, OR CAVITIES ARE CREATED OR ENCOUNTERED DURING CONSTRUCTION.
- B. THE FOLLOWING SHALL BE SUBMITTED AS CONSTRUCTION PROGRESSES AND AT THE COMPLETION OF CONSTRUCTION: MAXIMUM DRILLING SPEEDS AND REAMING RATES FOR PILOT BORE AND EACH REAMING PASS: MEASURED MUD AND/OR DRILLING FLUID WEIGHTS USED DURING PILOT BORING AND REAMING OF THE BORE MEASURED AT A MINIMUM OF THREE TIMES PER SHIFT OR AT LEAST ONCE PER 200 FEET OF DRILLED OR REAMED LENGTH. WHICHEVER IS MORE FREQUENT, WITH AT LEAST TWO (2) HOURS BETWEEN READINGS; ALL PRESSURE TEST RECORDS FOR BOTH THE PRE-INSTALLATION AND POST-INSTALLATION TESTS; AS-BUILT PROFILE OF THE PILOT BORE WITHIN 24 HOURS OF COMPLETION OF THE PILOT BORE.