STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

U-5746

UTILITY CONSTRUCTION PLANS WAKE COUNTY

LOCATION: US 401 (FAYETTEVILLE RD) FROM SR 1467/2839 (ALLEN ST) TO NORTH OF SR 1010 (TEN-TEN RD)

TYPE OF WORK: SANITARY SEWER IMPROVEMENTS

BEGIN CONSTRUCTION -Y6- STA. 15+64.38

T.I.P. NO.

TO RALEIGH

UC-1

END TIP PROJECT U-5746 -L-STA.45+78.48

END TIP PROJECT R-2721B BY OTHERS

BEGIN TIP PROJECT U-5746 -L-STA.12+08.22

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES PROFILE (HORIZONTAL) *UC-5*

See Sheet 2 For Conventional Symbols

END PROJECT

BEGIN PROJECT

VICINITY MAP (NOT TO SCALE)

> SHEET NO.: **DESCRIPTION:** TITLE SHEET UTILITY SYMBOLOGY **NOTES** UC-3A THRU UC-3C **DETAILS** *UC-4* PLAN SHEET

> > PROFILE SHEET

WATER AND SEWER OWNER ON PROJECT

(A) WATER – TOWN OF FUQUAY–VARINA PUBLIC UTILITIES DEPARTMENT

HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116

PREPARED IN THE OFFICE OF

CASEY HARRIS PROJECT ENGINEER JOE LANGSTON



US 401 (FAYETTEVILLE RD.)

DIVISION OF HIGHWAYS
DIVISION 5
PROJECT DELIVERTY UNIT
2612 N. DUKE STREET
DURHAM, NC 27704
PHONE: 919–317–4700
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Beth Quinn, PE TEAM LEAD PROJECT MANAGER Lamin Jah DIVISON 5 UTILITIES ENGINEER Don Proper

UTILITIES ENGINEER James Swinson

INDEX OF SHEETS

(B) SANITARY – TOWN OF FUQUAY–VARINA PUBLIC UTILITIES DEPARTMENT

> UTILITY ENGINEER MATTHEW W WATT UTILITY DESIGN ENGINEER

8/15/2024

SEAL

Docusign Envelope ID: 7CFD7B19-5CB8-474A-A219-594B2004E463

STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

UTILITIES PLAN SHEET SYMBOLS

U-5/46		UC-2
DESIGNED BY:		animinana.
DRAWN BY:	111111 1111111111111111111111111111111	CARO,
CHECKED BY:		OV.
APPROVED BY:	A COL	SEAL
REVISED:	Jou.	l langston Jr.
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	1,1,1,1,1	LANGSTONEEL STATE
UTILITIES ENGINEERING SEC. PHONE: (919)707-6690 FAX: (919)250-4151	8/15/202 UT IL I	TY CONSTRUCTION PLANS ONLY
DOCUMENT NOT O	ONGIE	EDED FINAL

UNLESS ALL SIGNATURES COMPLETED

UTILITY CONSTRUCTION

PROPOSED WATER SYMBOLS

Water Line (Sized as Shown) ····································	•
11½ Degree Bend ····································	
22½ Degree Bend+→	
45 Degree Bend ····································	
90 Degree Bend ····································	
Plug	
•	
Tee ······· -ti-	
Cross 	
Reducer ·····	
Gate Valve····································	
Butterfly Valve ····································	
Tapping Valve ····································	
Line Stop	
LS/BP	
Line Stop with Bypass ·······	
Blow Off	
Fire Hydrant····································	
Relocate Fire Hydrant ······	
Remove Fire Hydrant ····································	
Water Meter ···································	
Relocate Water Meter ···································	
Remove Water MeterREM WM	
Water Pump Station ····································	
RPZ Backflow Preventer ····································	
DCV Backflow Preventer	
Relocate RPZ Backflow Preventer	
Relocate DCV Backflow Preventer	
PROPOSED SEWER SYMBOLS	
Gravity Sewer Line	
(Sized as Shown) Force Main Sewer Line	_
(Sized as Shown)	
Manhole (Sized per Note)	
Sewer Pump Station ·····Ps(SS)	

Power Pole ······				Thrust Block ······			UTI
Telephone Pole ····································				Air Release Valve		•	
Joint Use Pole ·······				Utility Vault		107	
Telephone Pedestal ·······				Concrete Pier		CB	
Utility Line by Others						22	
(Type as Snown)				Steel Pier		GV	
Trenchless Installation				Gate Valve ······			
Water Main			c	Plan Note ·····		NC NC)TE
Encasement by Open Cut		24" ENCASEMENT		Pay Item Note		··· ~ _	AY ITEM
Encasement		r				ت ا	<u> </u>
		t	:XI211IV	G UTILITIES SYME			
Power Pole	∳			*Underground Power Line			
Telephone Pole				*Underground Telephone C			
Joint Use Pole	···· 			*Underground Telephone C	onduit	— — — — то	- — — —
Utility Pole				*Underground Fiber Optic	s Telephone Cab	ole	
Utility Pole with Base	⊡			*Underground TV Cable ·····		— — тv— —	
H-Frame Pole ······				*Underground Fiber Optic	s TV Cable	— — тv ғо— -	
Power Transmission Line Tower	🖂			*Underground Gas Pipelin	e	c -	
Water Manhole	···· W			Aboveground Gas Pipelin	e	A/G Ga	s
Power Manhole ·····	®			*Underground Water Line			
Telephone Manhole ·····	····			Aboveground Water Line			ter
Sanitary Sewer Manhole	···· 📵			*Underground Gravity San			
Hand Hole for Cable	Ну			Aboveground Gravity San	itary Sewer Lin	e — A/G Sanitar	y Sewer
Power Transformer	···· 🛮			*Underground SS Forced M			
Telephone Pedestal ······	····			Underground Unknown Uti			
CATV Pedestal				SUE Test Hole			
Gas Valve ······	···· ♦			Water Meter			
Gas Meter ······	···· •			Water Valve			
Located Miscellaneous Utility Object				Fire Hydrant ·····			
Abandoned According to Utility Records		JR		Sanitary Sewer Cleanout			
End of Information				Well			
			TIONS	Septic			
BC BACK OF CURB	אטטו/[. v I/A	110113	1			
B.H BUILDING HEIGHT		FOD		FULL OF DEBRIS	RRS	···· RAILROAD	SPIKE
	ATA4ENIT	РВ		PLAT BOOK	R/W	···· RIGHT-OF-\	WAY
BST BITUMINOUS SURFACE TRE	A I WEIN I	PG		PAGE	SE	SIGHT EASE	MENT

PROPOSED MISCELLANOUS UTILITIES SYMBOLS

Gravity Sewer Line (Sized as Shown)
Force Main Sewer Line(Sized as Shown)
Manhole (Sized per Note)
Sewer Pump Station ·····PS(SS)

	DUILDING LIFICUT	_			_	
• • •	BUILDING HEIGHT	РВ		PLAT BOOK	R/W	RIGHT-OF-WAY
•••	BITUMINOUS SURFACE TREATMENT	PG		PAGE	SE	SIGHT EASEMENT
	CURB CUT	PIN		TAX PARCEL ID NUMBER	S.F	SQUARE FEET
	COMBINED GRID FACTOR				TW	-
	CHORD			POLYVINYL CHLORIDE PIPE	(M) ······	
	CONCRETE MONUMENT			REINFORCED CONCRETE PIPE	,	RECORDED INVERT ELEVATION
	CORRUGATED METAL PIPE	1101	1		(11)	THE CONDED HAVEN LEEVAHON
	CONCRETE			*For Existing Utilities		

DEED BOOK

FFE FINISHED FLOOR ELEVATION

DUCTILE IRON PIPE

*For Existing Utilities
Utility Line Drawn from Record
Designated Utility Line

UTILITY CONSTRUCTION

GENERAL NOTES:

1. THE PROPOSED UTILITY CONSTRUCTION SHALL MEET THE APPLICABLE REQUIREMENTS OF THE NC DEPARTMENT OF TRANSPORTATION'S "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" DATED JANUARY 2024 OR TOWN OF FUQUAY-VARINA PUBLC UTILITIES SPECIFICATIONS WITHEVER IS MORE STRINGENT

2. THE EXISTING UTILITIES BELONG TO THE TOWN OF FUQUAY-VARINA (UTILITY OWNER/OWNER). CONTACT IS MICHAEL WAGNER, PE AT (919) 567-3911.

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, CONTRACTOR SHALL DETERMINE DEPTH OF EXISTING UTILITIES (WATER AND FORCE MAIN) PRIOR TO CONSTRUCTION. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING NECESSARY ADJUSTMENTS TO CONNECT TO THE EXISTING INFRASTRUCTURE PER THE TOWN'S AND NCDEQ

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. 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.

9. PROPOSED WATER LINE SHALL BE D.I. (DUCTILE IRON PIPE).

10. CONTRACTOR'S ATTENTION IS DIRECTED TO SECTIONS 102, 107, AND 1550 OF THE STANDARD SPECIFICATIONS CONCERNING TRENCHLESS INSTALLATION, IT IS CONTRACTOR'S RESPONSIBILITY TO HAVE BORE DESIGNED AND SEALED BY A LICENSED NORTH CAROLINA PROFESSIONAL ENGINEER. NO DAMAGE IS ALLOWED TO RIVER, WETLANDS, OR BUFFER ZONES.

11. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR SITE SAFETY ASSOCIATED WITH THE WORK UNDER THIS PROJECT AND FOR COMPLIANCE WITH ALL FEDERAL, STATE, AND LOCAL HEALTH AND SAFETY LAWS, CODES, REGULATIONS, AND ORDINANCES INCLUDING BUT NOT LIMITED TO THOSE CURRENTLY MANDATED BY THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA).

12. ALL EROSION CONTROL DEVICES SHALL BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH THE MOST CURRENT STANDARDS OF THE LAND QUALITY SECTION OF THE NCDEQ.

13. STABILIZATION STONE UNDER PIPING TO BE PLACED AS REQUIRED BY TOWN INSPECTOR WHEN CONDITIONS WARRANT

14. AS A MINIMUM REQUIREMENT. ALL GRADED AREAS NOT UNDER PAVEMENT AND WITHIN THE RIGHT-OF-WAY AND/OR EASEMENTS SHALL BE PREPARED, FERTILIZED AND LIMED, SEEDED, AND MULCHED IMMEDIATELY UPON COMPLETION OF CONSTRUCTION AS FOLLOWS (APPLICATION RATE PER 1,000 SQUARE FEET):

15. PRIOR TO REQUESTING A FINAL INSPECTION, THE CONTRACTOR MUST SUBMIT RECORD DRAWINGS AND ENGINEER'S CERTIFICATION TO THE ENGINEERING DIVISION'S RECORD CENTER. THE OWNER MUST ALSO SUBMIT THE CONSTRUCTION CHECKLIST TO THE CITY INSPECTOR.

16. ALL WORK MUST CARRY A ONE-YEAR WARRANTY TO COVER ALL DEFECTS IN MATERIALS AND WORKMANSHIP.

17. A CITY INSPECTOR SHALL BE PRESENT WHEN MAKING OR TERMINATING WATER AND SEWER CONNECTIONS INTO NEW OR EXISTING WATER AND SEWER LINES.

18. CROSS-CONNECTION CONTROL PROTECTION DEVICES ARE REQUIRED BASED ON DEGREE OF HEALTH HAZARD INVOLVED AS LISTED IN APPENDIX B OF THE RULES GOVERNING PUBLIC WATER SYSTEMS IN NORTH CAROLINA. THESE GUIDELINES ARE THE MINIMUM REQUIREMENTS. THE DEVICES SHALL MEET AMERICAN SOCIETY OF SANITARY ENGINEERING (ASSE) STANDARDS OR BE ON THE UNIVERSITY OF SOUTHERN CALIFORNIA APPROVAL LIST. THE DEVICES SHALL BE INSTALLED AND TESTED (BOTH INITIAL AND PERIODIC TESTING THERAFTER) IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS OR THE LOCAL CROSS-CONNECTION CONTROL PROGRAM, WHICHER IS MORE STRINGENT.

PROJECT SPECIFIC NOTES:

1. REMOVAL OF EXCAVATED MATERIALS AND DAILY CLEANUP OPERATIONS SHALL BE PERFORMED IN COMPLIANCE WITH THE SPECIFICATIONS AND TO THE SATISFACTION OF THE OWNER/ENGINEER, AND/OR NCDOT.

2. ALL DEBRIS SHALL BE REMOVED FROM THE

3. ALL TREE PROTECTION AND EROSION AND SEDIMENTATION CONTROLS SHALL BE IMPLEMENTED BEFORE CONSTRUCTION COMMENCES AND SHALL NOT BE REMOVED UNTIL RE-VEGETATION HAS BEEN ESTABLISHED.

4. ANY AGREEMENT BETWEEN THE CONTRACTOR AND PROPERTY OWNERS SHALL BE MADE IN WRITING AND COPIED TO THE OWNER.

5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING THE ENGINEER WITH A SET OF SURVEY RECORD (AS-BUILT) DRAWINGS PREPARED BY A NORTH CAROLINA REGISTERED LAND SURVEYOR CERTIFYING THE ACCURACY OF THE SURVEY HORIZONTAL AND VERTICAL LOCATIONS TO ONE TENTH (0.10) OF A FOOT. SURVEY SHALL BE TIED TO THE NORTH CAROLINA STATE PLANE COORDINATE SYSTEM (NAD83 FEET) HORIZONTALLY, AND ELEVATIONS SHALL BE NORTH AMERICAN VERTICAL DATUM (NAVD88). SURVEY POINT INFORMATION SHALL BE PROVIDED IN AN ELECTRONIC FORMAT FILE OR AN ASCII POINT TEXT FILE [X-Y-Z COORDINATES].

THESE DRAWINGS SHALL AT A MINIMUM SHOW THE FINAL ELEVATIONS AND HORIZONTAL LOCATIONS FOR THE FOLLOWING:

ALL RELOCATIONS, INCLUDING VAULTS, BELOW GRADE FITTINGS, VALVES, WATER METERS AND BACKFLOW PREVENTION DEVICES ALONG THE WATER LINE ALIGNMENT. CONTRACTOR SHALL PROVIDE THE ENGINEER WITH A LETTER CERTIFYING TO THEIR COMPLIANCE WITH THE CONTRACT DRAWINGS.

6. CONTRACTOR IS RESPONSIBLE FOR ALL CONSTRUCTION STAKING.

7. BORE PITS, TRENCHES AND ALL OTHER EXCAVATIONS WHERE SLOPE IS 1:1 OR STEEPER FROM EDGE OF ROADWAY MUST INCLUDE POSITIVE SHORING MEETING NCDOT AND OSHA REQUIREMENTS. ALL SHORING SYSTEMS MUST BE DESIGNED AND SEALED BY A REGISTERED PROFESSIONAL ENGINEER LICENSED IN NORTH CAROLINA.

8. NOT ALL TREES OR VEGETATION ARE SHOWN ON DRAWINGS. DO NOT REMOVE VEGETATION OUTSIDE LIMITS OF DISTURBANCE. ANY TREES SCARRED DURING CONSTRUCTION SHALL HAVE THE SCARS TRIMMED AND PAINTED WITH ASPHALT-BASE

9. BASE TOPOGRAPHIC SURVEY AND SUE SERVICES PROVIDED BY NODOT.

TRFF PAINT

10. BASE GEOTECHNICAL INVESTIGATION SERVICES PROVIDED BY NCDOT.

11. RELOCATE ALL MAIL BOXES WITHIN LIMITS OF DISTURBANCE AS REQUIRED BY SECTION 107-12 OF THE NCDOT STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES. COORDINATE THIS WORK WITH THE U.S. POSTAL SERVICE.

12. REMOVE AND RESET FENCES AS NOTED ON THE PLANS AND/OR AS DIRECTED BY THE

13. PROTECT ALL TREES AND SHRUBS OUTSIDE OF CUT/FILL LINES, IN ADDITION TO THOSE THAT RECEIVE TREE/SHRUB PROTECTION BARRIERS. THE CONTRACTOR IS ALSO REQUESTED TO SAVE OTHER EXISTING TREES AND SHRUBS AS DIRECTED BY THE ENGINEER. WHEN ROOT PRUNING IS NECESSARY, CUT ROOTS CLEANLY USING A DISC TRENCHER. ALL TREE PROTECTION AND EROSION AND SEDIMENTATION CONTROLS SHALL BE IMPLEMENTED BEFORE CONSTRUCTION COMMENCES AND SHALL NOT BE REMOVED UNTIL RE-VEGETATION HAS BEEN ESTABLISHED.

14. SAWCUT EXISTING ASPHALT AND/OR CONCRETE SURFACES PRIOR TO REMOVAL UNLESS OTHERWISE DIRECTED BY THE ENGINEER. SAW CUT WIDTH SHALL BE 1 FOOT MINIMUM FROM THE EXISTING EDGE OF PAVEMENT. SAW CUT PAVEMENT SHALL BE REPLACED AS WELL AS ADDITIONAL PAVEMENT REQUIRED TO TIE-IN TO FACE OF CURB AND GUTTER.

15. REPLACE ANY DISTURBED PAVEMENT FROM FINISHED GRADE TO THE SUB-GRADE. THE CONTRACTOR WILL CONSTRUCT THE BASE AND BINDER COURSES IN ACCORDANCE WITH THE TYPICAL PAVEMENT SECTION. THE CONTRACTOR SHALL PROVIDE TRANSITIONS (RAMPED ASPHALT) TO THE FINISH GRADE, TO PREVENT ABRUPT CHANGES IN THE RIDING SURFACE, IN CASE THE PLANTS ARE CLOSED AND ASPHALT IS UNAVAILABLE FOR THE FINAL SURFACE COURSE UNTIL LATE WINTER/EARLY SPRING. CONTRACTOR SHALL BE RESPONSIBLE FOR FINAL SURFACE COURSE.

16. TRAFFIC CONTROL SHALL BE IN ACCORDANCE WITH THE PLANS AND NOTES HEREIN, CITY CRITERIA INCLUDING NCDOT STANDARDS, AND THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).

17. CONTRACTOR SHALL INCLUDE REPLACEMENT OF DRIVEWAYS IN THE LIMITS OF DISTURBANCE BACK TO EDGE OF RIGHT-OF-WAY.

18. CONTRACTOR SHALL USE ADEQUATE SHORING METHODS TO ENSURE: A. COMPLIANCE WITH OSHA REGULATIONS. B. PROTECTION OF EXISTING PAVEMENT AND ROAD SHOULDERS. C. CONSTRUCTION ACTIVITIES ARE CONFINED TO RIGHTS-OF-WAY OR EASEMENTS AS INDICATED.

19. CONTRACTOR TO REPAIR/REPLACE ALL MAINTAINED PAVEMENT DAMAGED BY CONSTRUCTION ACTIVITIES TO SATISFACTION OF NCDOT AND TOWN OF FUQUAY-VARINA

20. THE CONTRACTOR SHALL RECONSTRUCT ALL ROAD SHOULDERS, DRAINAGE DITCHES AND SWALES DISTURBED BY CONSTRUCTION ACTIVITIES TO THEIR ORIGINAL GRADE AND LOCATION.

21. TRAFFIC CONTROL SHALL BE MAINTAINED IN ACCORDANCE WITH NCDOT SPECIFICATIONS AND REQUIREMENTS.

22. ALL HOLES, TRENCHES, AND OTHER HAZARDOUS AREAS SHALL BE ADEQUATELY PROTECTED BY BARRICADES, LIGHTS OR OTHER PROTECTIVE DEVICES.

23 TAKE PROPER PRECAUTIONS NOT TO DISTURB EXISTING PROPERTY CORNERS. ANY NECESSARY REMOVAL AND RESETTING OF PROPERTY IRONS SHALL BE DONE BY A REGISTERED LAND SURVERYOR.

1. PRIOR TO CONSTRUCTION, NOTIFY ALL UTILITY OWNERS WHOSE FACILITIES MAY BE AFFECTED TO DETERMINE UTILITY LOCATIONS. THE CONTRACTOR SHALL CAUSED BY HIS OPERATIONS OR THOSE OF HIS AGENTS. THE CONTRACTOR SHALL HOLD THE CITY HARMLESS FOR ANY THIRD-PARTY INCONVENIENCE CREATED BY WORK OF HIS OWN FORCES OR THAT OF HIS AGENTS.

2. IN THE EVENT OF DAMAGE TO EXISTING UTILITIES, CONTRACTOR SHALL STOP WORK IMMEDIATELY, TAKE NECESSARY PRECAUTIONS TO PREVENT INJURY OR FURTHER DAMAGE, AND NOTIFY PROPER AUTHORITIES. CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORING/REPAIRING ALL EXISTING STRUCTURES, CONDUITS, OR OTHER UTILITIES DAMAGED BY CONTRACTOR'S OPERATIONS.

·FOR UTILITY LOCATE MEMBERS, CALL NORTH CAROLINA ONE-CALL @ 1-800-632-4949. ·FOR LOCATES OF UTILITIES NOT MEMBERS OF NORTH CAROLINA ONE-CALL CONTACT THE

SPECIFIC UTILITY COMPANY. 3. CONTRACTOR SHALL ANTICIPATE HAND DIGGING AROUND EXISTING WATER SERVICES, SANITARY SEWER LATERALS, AND OTHER

4. FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS. SUBMITTED SEPARATELY.

UTILITIES.

5. FOR TRAFFIC CONTROL PLANS, SEE TRANSPORTATION MANAGEMENT PLANS. SUBMITTED SEPARATELY.

6. WATER DISTRIBUTION SHALL BE INSTALLED AT A MINIMUM OF 3' DEEP.

7. CONTRACTOR SHALL COORDINATE WATER AND SEWER SERVICE CONNECTIONS AND ANY SERVICE SHUT DOWNS AND PROVIDE 24 HOURS OF NOTICE TO TOWN OF FUQUAY-VARINA.

8. DUE TO CLOSE PROXIMITY OF OTHER UTLITIES, WATER MAIN SHALL BE RESTRAINED JOINT UNLESS OTHERWISE DIRECTED BY THE TOWN (IN WRITING) PRIOT TO CONSTRUCTION.

9. MAINTAIN SANITARY SEWER SERVICES AT ALL TIMES.

10. PLUG ALL PIPE OPENINGS AND FILL ANY EXPOSED TRENCHES AT THE END OF THE DAY.

11. EXISTING SEWER SERVICES ARE ANTICIPATED TO BE 4" AND 6" IN DIAMETER. THERE IS A POTENTIAL PRIVATE PUMP STATION FORCE MAIN THAT MAY BE REQUIRED TO BE CONNECTED TO NEW SANITARY SEWER INFRASTRUCTURE (PARCEL 19), CONTRACTOR SHALL COORDINATE WITH PARCEL OWNER. IF IT IS REQUIRED TO BE CONNECTED. THE FORCE MAIN SHALL BE CONNECTED TO MH 07-150 (UNLESS OTHERWISE DIRECTED BY THE TOWN), CONFORMIING TO THE TOWN'S SPECIFICATIONS.

WATER AND SEWER

 ALL MATERIAL & CONSTRUCTION METHODS SHALL BE IN ACCORDANCE WITH TOWN OF FUQUAY-VARINA, OR NCDOT DESIGN STANDARDS, DETAILS & SPECIFICATIONS LATEST EDITION.

2. UTILITY SEPARATION REQUIREMENTS:

a) A DISTANCE OF 100' SHALL BE MAINTAINED BETWEEN SANITARY SEWER & ANY PRIVATE OR PUBLIC WATER SUPPLY SOURCE SUCH AS AN IMPOUNDED RESERVIOR USED AS A SOURCE OF DRINKING WATER, IF ADEQUATE LATERAL SEPERATION CANNOT BE ACHIEVED, FERROUS SANITARY SEWER PIPE SHALL BE SPECIFIED & INSTALLED TO WATERLINE SPECIFICATIONS. HOWEVER, THE MINIMUM SEPERATION SHALL NOT BE LESS THAN 25' FROM A PRIVATE WELL OR 50' FROM A PUBLIC WELL.

b) WHEN INSTALLING WATER &/OR SEWER MAINS, THE HORIZONTAL SEPARATION BETWEEN UTILITIES SHALL BE 10'. IF THIS EQUATION CANNOT BE MAINTAINED DUE TO EXISTING CONDITIONS, THE VARIATION ALLOWED IS THE WATER MAIN IN A SEPARATE TRENCH WITH THE ELEVATION OF THE WATER MAIN AT LEAST 18" ABOVE THE TOP OF THE SEWER & MUST BE APPROVED BY THE TOWN OF FUQUAY-VARINA. ALL DISTANCES ARE MEASURED FROM OUTSIDE DIAMETER TO OUTSIDE DIAMETER.

c) WHERE IT IS IMPOSSIBLE TO OBTAIN PROPER SEPARATION, OR ANYTIME A SANITARY SEWER PASSES OVER A WATERMAIN, DIP MATERIALS OR STEEL ENCASEMENT EXTENDED 10' ON EACH SIDE OF CROSSING MUST BE SPECIFIED & INSTALLED TO WATERLINE SPECIFICATIONS.

d) 5.0' MINIMUM HORIZONTAL SEPARATION IS REQUIRED BETWEEN ALL SANITARY SEWER & STORM SEWER FACILITIES, UNLESS DIP MATERIAL IS SPECIFIED FOR SANITARY

e) MAINTAIN 18" MIN. VERTICAL SEPARATION AT ALL WATERMAIN & RCP STORM DRAIN CROSSINGS; MAINTAIN 24" MIN. VERTICAL SEPARATION AT ALL SANITARY SEWER & RCP STORM DRAIN CROSSINGS. WHERE ADEQUATE SEPARATIONS CANNOT BE ACHIEVED, SPECIFY DIP MATERIALS & A CONCRETE CRADLE HAVING 6" MIN. CLEARANCE.

f) ALL OTHER UNDERGROUND UTILITIES SHALL CROSS WATER & SEWER FACILITIES WITH 18" MIN. VERTICAL SEPARATION REQUIRED.

3. ANY NECESSARY FIELD REVISIONS ARE SUBJECT TO REVIEW & APPROVAL OF AN AMENDED PLAN &/OR PROFILE BY THE TOWN OF FUQUAY-VARINA, PRIOR TO CONSTRUCTION.

4. CONTRACTOR SHALL MAINTAIN CONTINOUS WATER & SEWER SERVICE TO EXISTING RESIDENCES & BUSINESSES THROUGHOUT CONSTRUCTION PF PROJECT . ANY NECESSARY SERVICE INTERRRUPTIONS SHALL BE PRECEDED BY A 24 HOUR ADVANCE NOTICE TO THE TOWN OF FUQUAY-VARINA.

5. 3.0' MINIMUM COVER IS REQUIRED ON ALL WATER MAINS & SEWER FORCEMAINS.

6. IT IS THE DEVELOPER'S RESPONSIBILITY TO ABANDON OR REMOVE EXISTING WATER & SEWER SERVICES NOT BEING USED IN REDEVELOPMENT OF A SITE UNLESS OTHERWISE DIRECTED BY TOWN OF FUQUAY-VARINA. THIS INCLUDES ABANDONING TAP AT MAIN & REMOVAL OF SERVICE FROM ROW OR ENCASEMENT.

7. RELOCATE WATER SERVICES WITH METERS LOCATED AT ROW OR IMMEDIATELY ADJACENT TOWN OF FUQUAY-VARINA STD DETAIL

8. CONNECT EXISTING SEWER SERVICES TO NEW SANITARY SEWER AND/OR MANHOLES PER THE TOWN'S REQUIREMENTS. CONNECTION SIZE SHALL MATCH EXISTING. THE NEW WATER MAIN SHALL BE ADJUSTED (AS REQUIRED) TO ALLOW EXISTING SEWER SERVICES TO BE CONNECTED TO NEW SANITARY SEWER. DEPTH OF WATER MAIN MAY NEED TO BE INSTALLED DEEPER FOR CONNECTIONS TO BE CONNECTED AS REQUIRED PER TOWN CRITERIA.

9. PRESSURE REDUCING VALVES ARE REQUIRED ON ALL WATER SERVICES EXCEEDING 80 PSI; BACKWATER VALVES ARE REQUIRED ON ALL SANITARY SEWER SERVICES HAVING BUILDING DRAINS LOWER THAN 1.0' ABOVE THE NEXT UPSTREAM MANHOLE.

10. ALL ENVIRONMENTAL PERMITS APPLICABLE TO THE PROJECT MUST BE OBTAINED FROM NCDWQ, USACE &/OR FEMA FOR ANY RIPARIAN BUFFER, WETLAND &/OR FLOODPLAIN IMPACTS (RESPECTIVELY) PRIOR TO CONSTRUCTION.

11. NCDOT/ RAILROAD ENCOACHMENT AGREEMENTS ARE REQUIRED FOR ANY UTILITY WORK (INCLUDING MAIN EXTENSIONS & SERVICE TAPS) WITHIN STATE OR RAILROAD ROW PRIOR TO CONTSRUCTION.

12. GREASE INTERCEPTOR/OIL WATER SEPARATOR SIZING CALCULATIONS & INSTALLATION SPECIFICATIONS SHALL BE APPROVED BY THE CORPUD FOG PROGRAM COORDINATOR PRIOR TO ISSUANCE OF A BUILDING PERMIT. CONTACT MICHAEL WAGNER, PE AT (919) 567-3911 FOR MORE INFORMATION.

13. CROSS-CONNECTION CONTROL PROTECTION DEVICES ARE REQUIRED BASED ON DEGREE OF HEALTH HAZARD INVOLVED AS LISTED IN APPENDIX-B OF THE RULES GOVERNING PUBLIC WATER SYSTEMS IN NORTH CAROLINA. THESE GUIDELINES ARE THE MINIMUM REQUIREMENTS. THE DEVICES SHALL MEET AMERICAN SOCIETY OF SANITARY ENGINEERING (ASSE) STANDARDS OR BE THE UNIVERSITY OF SOUTHERN CALIFORNIA APPROVAL LIST. THE DEVICES SHALL BE INSTALLED AND TESTED (BOTH INITIAL AND PERIODIC TESTING THEREAFTER) IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS OR THE LOCAL CROSS-CONNECTION CONTROL PROGRAM WHICHEVER IS MORE STRINGENT. CONTACT MICHAEL WAGNER, PE AT (919) 567-3911 FOR MORE INFORMATION.

WATER

1. CONTRACTOR SHALL ABANDON EXISTING WATER MAIN IN PLACE EXCEPT WHERE REMOVAL IS REQUIRED FOR PROPOSED WORK OR WHERE NOTED. WITHIN THE RIGHT-OF- ${\sf w}$ OF NCDOT MAINTAINED ROADS, CONTRACTOR SHALL FILL ABANDONED WATER MAINS WITH FLOWABLE FILL. ABANDON EXISTING WATER MAINS PER NCDOT 2024 STANDARD SPECIFICATION SECTION 1530.

2. EXISTING WATER MAIN SHALL REMAIN IN SERVICE UNTIL PROPOSED WATER MAIN HAS BEEN TESTED, DISINFECTED AND APPROVED.

3. EXISTING WATER SERVICES AND FIRE HYDRANTS SHALL BE CONNECTED TO PROPOSED WATER MAIN AFTER PROPOSED WATER MAIN HAS BEEN TESTED, DISINFECTED AND APPROVED

4. FOR ALL WATER SERVICES TO BE CONNECTED TO THE PROPOSED WATER MAIN, CONTRACTOR SHALL REPLACE ALL WATER SERVICE PIPING WHICH IS NOT TYPE K COPPER OR IS IN POOR CONDITION, AS DIRECTED BY THE ENGINEER. TO DETERMINE WATER SERVICE PIPING MATERIAL AND CONDITION, CONTRACTOR SHALL EXPOSE, IN THE PRESENCE OF THE ENGINEER, EACH WATER SERVICE AT THE TIE TO THE EXISTING MAIN, APPROXIMATELY TWO FEET FROM THE METER ON THE WATER MAIN SIDE, AND APPROXIMATELY TWO FEET FROM THE METER BOXES ON THE SERVICE SIDE.

5. WATER VALVES ABANDONED IN PLACE SHALL BE ABANDONED IN THE CLOSED

6. PROVIDE CONCRETE THRUST BLOCKS AT ALL WATER MAIN BENDS, TEES, AND CAPS UNLESS OTHERWISE NOTED.

7. FOR ALL WATER SERVICES DISTURBED BY CONSTRUCTION, IF THE WATER SERVICE IS ACTIVE, THEN RECONNECT; IF THE WATER SERVICE IS INACTIVE. THEN REMOVE. REMOVAL SHALL INCLUDE TURNING OFF CORPORATION STOP AT THE MAIN AND PHYSICALLY CUTTING THE PIPE AT THE MAIN.

PROJECT REFERENCE NO. SHEET NO. U-5746 UC-3 DESIGNED BY: %. \$6.53.03. CHECKED BY: SEAL APPROVED BY: .l langston REVISED: FOX MOINEER NORTH CAROLINA DEPARTMENT OF LANGSTO TRANSPORTATION UTILITIES ENGINEERING SEC. PHONE: (919)707-6690 UTILITY CONSTRUCTION PLANS ONLY FAX: (919)250-4151 **DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED**

555 Fayetteville St, Suite 900 Raleigh, N.C. 2760 N.C.B.E.L.S. License Number: F-0116 UTILITY CONSTRUCTION

HDR Engineering, Inc. of the Carolinas

LIST OF TOWN OF **FUQUAY-VARINA** STANDARD DRAWINGS

120.11 120.02 150.04 120.03 120.07 150.05 120.06 120.08 150.12 160.04 150.17 150.16

Docusign Envelope ID: 7CFD7B19-5CB8-474A-A219-594B2004E463 PROJECT REFERENCE NO. SHEET NO. UC-3A U-5746 DESIGNED BY: CARO! DRAWN BY: SOR ESSIONA CHECKED BY: SEAL APPROVED BY: Joe 1 langston Jr. REVISED: - ON KNO'NEER S NORTH CAROLINA DEPARTMENT OF TRANSPORTATION UTILITIES ENGINEERING SEC. PHONE: (919)707-6690 UTILITY CONSTRUCTION PLANS ONLY FAX: (919)250-4151 DOCUMENT NOT CONSIDERED FINAL **UNLESS ALL SIGNATURES COMPLETED** HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116 UTILITY CONSTRUCTION 5/8"X 3/4" WATER METER — VERTICALLY ALIGNED CARTRIDGE DUAL TOWN MAINTENANCE TOP OF LOCKABLE ANGLE BALL VALVE SHALL BE LOCATED CHECK VALVE WITHIN 5" TO 7" OF SURFACE AND CLEAR OF LID ---(ASSE APPROVED) METER BOX 1. INLFOW DISHES SHALL BE INSTALLED IN SAGS. LOCKABLE ANGLE BALL VALVE -SET BOX ON 4"X8"X16" WATERTIGHT COVER LOCKLUG ASSEMBLY DETAIL WATERTIGHT COVER PICKBAR & LOCKLUG HOLE DETAIL SOLID CONCRETE BLOCKS -(TYP.) STANDARD _ 4' MIN. DEPTH UP TO SIDEWALK ⊚ SW TRANSITION TO 18" DEPTH — CRIMPED 12" #57 WASHED JNDISTURBED SOIL-— 3/4" ТҮРЕ "K" SOFT MUELLER CORPORATION WATER METER SHALL NOT BE LOCATED IN AREAS SUBJECT TO VEHICULAR TRAFFIC. WATERTIGHT COVER PLAN - MCDONALD COPPER PIPE, WITH NO STANDARD COVER PICKHOLE DETAIL COPPERSETTER FOR 5/8" X 3/4" JOINTS OR COUPLINGS. CAST IRON WATERMETER BOXES ARE TO BE OF THE MBX-1 TYPE. LIDS MUST BE MARKED WATER. METER, BRACE PIPE REQUIRED ALL SERVICE LINES, VALVES AND FITTINGS SHALL COMPLY WITH AWWA C800. 24" MIN CLEAR OPENING FOR NON-RESIDENTIAL APPLICATIONS THAT REQUIRE AN ABOVE-GROUND BACKFLOW PREVENTER, AN APPROVED METER SETTER WITHOUT THE DUAL CHECK ASSEMBLY MAY BE UTILIZED. RING SECTION STANDARD COVER SECTION WATERTIGHT COVER SECTION METER BOX SHALL BE FREE OF DIRT/DEBRIS. DIRECT TAPS ARE PROHIBITED - SADDLES REQUIRED. WATER METER BOX LID SHALL BE PRE—CONFIGURED TO ACCEPT THE ITRON 100W THROUGH THE LID WATER COMMUNICATION MODULE. LID SHALL HAVE PRE—DRILLED 1.75 — 2.0 INCH HOLE AND UP TO 1.75 INCH MAXIMUM LID THICKNESS. 3/4 INCH AND 1 INCH WATER SERVICE TOWN OF FUQUAY-VARINA TOWN OF FUQUAY-VARINA MANHOLE RING AND COVER 150.05 AND METER BOX INSTALLATION STANDARD DETAILS STANDARD DETAILS north carolina north carolina 15'-0" MAX. HYDRANT TO BE PLACED WITH PUMPER NOZZLE FACING THE 2'-0" MIN. 5'-0" MAX. TRAVEL/FIRE LANE. | 명 | | RING TO BE BOLTED TO -CONCRETE STRUCTURE USING CONCRETE SIDEWALK 5" STORZ CONNECTOR -(IF APPLICABLE) -CAST IRON RING & COVER 3/8" ANCHOR BOLTS AND CURB & GUTTER — ROPE MASTIC SEALANT CONCRETE ENCASEMENT FINISHED - 4000 PSI CONCRETE GRADE RINGS AS REQUIRED. (REINF. NOT SHOWN)
MIN As = 0.12 IN²/FT GRADE NO MORE THAN 2 RINGS.
MAX. HEIGHT OF RINGS 12" ROADWAY TOTAL (NOT PER RING). PREFORMED BUTYL MASTIC SEALANT TAMPED CAST IRON VALVE BOX -CONE SECTION -NOTES:

1. FOR DEAD—END MANHOLES, THE INVERT SHALL BE EXTENDED THROUGH THE MANHOLE.

2. ON THE EXTERIOR OF ALL MANHOLES, ALL JOINTS BETWEEN SECTIONS SHALL BE CONTINUOUSLY WRAPPED WITH 12" WIDE BUTYL JOINT WRAP.

3. ALL MANHOLE PENETRATIONS SHALL BE PREFABRICATED OR CORED WITH A CONCRETE CORING MACHINE.

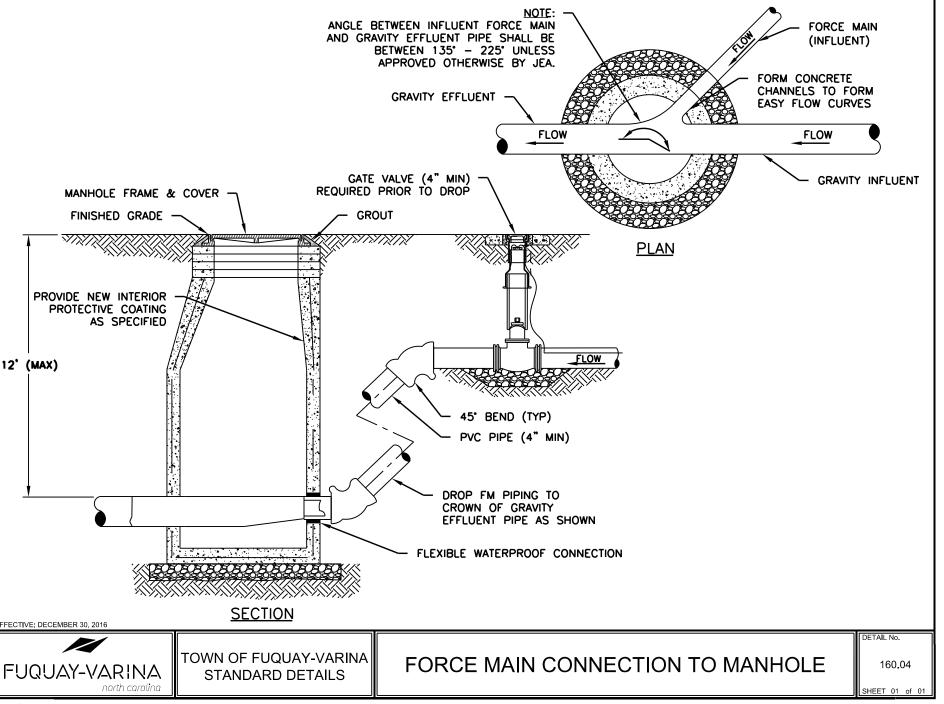
4. PIPE SHALL BE CONNECTED TO MANHOLE UTILIZING A FLEXIBLE WATERTIGHT BOOT CONNECTION. BACKFILL 2'MIN 4'MAX BACKFILL SIDEWALK RISER SECTION ----WHEELCHAIR - MANHOLE OPENINGS AS PER PLANS (BY MANUFACTURER) 1'MIN 4'MAX UNDISTURBED: 3/4" BRIDLE ROD & ROD COLLAR PROPOSED PIPE CONNECTOR MECHANICAL JOIN1 CONCRETE THRUST BLOCK 1/3 CY AT 3000 P.S.I. 6" GATE VALVE MECHANICAL JOINT -CONCRETE OR GROUT CONCRETE BLOCKING 5' MAX. PLAN VIEW MINIMUM 1/3 CY AT MONOLITHIC LOWER — BARREL & BASE SLAB SECTION 2' MIN — DUCTILE IRON PIPE-3000 P.S.I. CURB AND GUTTER MAIN LINE TEE / 6" MIN BASE (IF REQUIRED) NO OBSTRUCTIONS IN THIS AREA (INCLUDING LANDSCAPING) NOTES: SECTION VIEW 14' MIN. 4. IF HYDRANT IS LOCATED ON A DOT ROADWAY USE 1. TOP OF BLOCKING TO BE 2" FROM 30' MAX. HYDRANT WEEP HOLES. DOT STANDARDS FOR LOCATION OF HYDRANT 5. PAINT HYDRANT ONE COAT AFTER INSTALLATION. PAINT 2. HYDRANT TEE MAY BE SUBSTITUTED FOR BARREL RED, CAPS AND BONNET SILVER. D.I.P. NIPPLE AND RODDING TO VALVE. NOTE: LOCATION SHOULD BE COORDINATED WITH NCDOT ALONG STATE MAINTAINED ROADWAYS. 3. TAPPING SADDLES MAY BE USED INSTEAD OF A TEE 6. TRACER WIRE SHALL BE INSTALLED ALONG HYDRANT LEG AND FOR WATER LINES LARGER THAN 16 INCHES. TEST STATION SHALL BE INSTALLED NEXT TO HYDRANT AND ECTIVE: DECEMBER 30, 2016 ECTIVE: DECEMBER 30, 2016 /// TOWN OF FUQUAY-VARINA TOWN OF FUQUAY-VARINA TOWN OF FUQUAY-VARINA HYDRANT INSTALLATION PRECAST CONCRETE MANHOLE HYDRANT LOCATION FUQUAY-VARINA 150.04 FUQUAY-VARINA 120.08 120.07 FUQUAY-VARINA STANDARD DETAILS STANDARD DETAILS STANDARD DETAILS north carolina north carolina north carolina SHEET 01 of 01

PROJECT REFERENCE NO. SHEET NO. U-5746 UC-3B DESIGNED BY: CARO SOF ESSION TO CHECKED BY: SEAL APPROVED BY: , 0241,28 REVISED: :[, [angston]r LON SUCINEER S NORTH CAROLINA · LANGSTON DEPARTMENT OF TRANSPORTATION UTILITIES ENGINEERING SEC. PHONE: (919)707-6690 UTILITY CONSTRUCTION PLANS ONLY FAX: (919)250-4151 **DOCUMENT NOT CONSIDERED FINAL**

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UNLESS ALL SIGNATURES COMPLETED

UTILITY CONSTRUCTION



NOTE: 160.04.02.06 WET WELLS AND GRINDER WELLS, WET WELL PIPING SHALL BE COATED WITH AN APPROVED EPOXY COATING AT 500-MILS. CARE SHALL BE TAKEN TO ENSURE NO EPOXY COATING IS APPLIED TO THE PUMP COUPLING FACE, THE GUIDE RAILS, OR ANY OTHER PART THAT NEEDS TO ALLOW MOVEMENT OR REPLACEMENT ON A REGULAR BASIS. SEE SECTION 100 AND THE APPROVED MANUFACTURERS LIST FOR MORE INFORMATION ON EPOXY COATINGS.

160.04.02.07 INTERIOR CORROSION PROTECTION: THE SURFACE PREPARATION METHOD SHALL PRODUCE A CLEANED, ABRADED AND SOUND SURFACE WITH NO EVIDENCE OF LAITANCE, LOOSE CONCRETE, LOOSE BRICK, LOOSE MORTAR, CONTAMINANTS OR DEBRIS, AND SHALL DISPLAY A SURFACE PROFILE SUITABLE FOR APPLICATION OF THE LINER SYSTEM IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. AFTER COMPLETION OF SURFACE PREPARATION, PERFORM THE SEVEN-POINT CHECK LIST, INSPECTING FOR: LEAKS, RING AND COVER CONDITION, CRACKS, INVERT CONDITION, HOLES, INLET AND OUTLET PIPE CONDITION, AND EXPOSED REBAR. AFTER THE DEFECTS IN THE STRUCTURE ARE IDENTIFIED, REPAIR ALL LEAKS AND SEVERE CRACKS WITH SPECTRA-GROUT, OR OTHER METHODS APPROVED BY THE MANUFACTURER. UPON COMPLETION OF LEAK AND CRACK REPAIR, THE SURFACE SHALL BE PRIMED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. AFTER THE INTERIOR PATCHING HAS THOROUGHLY DRIED, THE ENTIRE SURFACE OF THE WET WELL INTERIOR SHALL RECEIVE 2 COATS SPECTRA SHIELD OR EQUIVALENT WITH A TOTAL DRY FILM THICKNESS OF 500 MILS, AND ALL NICKS AND SCRATCHES SHALL BE TOUCHED UP PRIOR TO ACCEPTANCE. IF MATERIAL OTHER THAN SPECTRA SHIELD IS PROPOSED, IT SHALL BE APPROVED BY THE PUBLIC UTILITIES DIRECTOR PRIOR TO USE. ALTERNATIVES TO THIS COATING SYSTEM MAY BE ADDED TO THE APPROVED MANUFACTURER'S LIST IN THE APPENDIX. THE MANUFACTURER'S RECOMMENDATIONS FOR THE COATING SHALL SUPERSEDE THESE REQUIREMENTS UPON APPROVAL FROM THE PUBLIC UTILITIES DIRECTOR.

100.02.02.06.01 MANHOLES WILL RECEIVE INTERIOR COATINGS IF INDICATED IN THESE STANDARD SPECIFICATIONS OR AS DIRECTED BY THE DIRECTOR OF PUBLIC UTILITIES. TYPICALLY, WASTEWATER MANHOLES THAT CONTAIN HYDRAULIC JUMPS, WASTEWATER ENTERING FROM 12 INCH OR LARGER MAINS MORE THAN 12 INCHES ABOVE THE BENCH, LOCATED IN A WETLAND, OR A FORCE MAIN DISCHARGE, WILL REQUIRE INTERIOR COATING. INTERIOR COATINGS FOR MANHOLES SHALL BE FIELD APPLIED AFTER INSTALLATION TO ALLOW FOR A MONOLITHIC HOLIDAY FREE COATING. FACTORY APPLICATION MAY BE ALLOWED ON A PRE-APPROVED BASIS CONTINGENT UPON THE JOINTS RECEIVING A FIELD APPLICATION. THE COATING SHALL BE APPLIED TO THE ENTIRE MANHOLE INTERIOR, INCLUDING THE BENCH. THE EPOXY SHALL BE AS LISTED IN THE APPROVED MANUFACTURER'S LIST AND SHALL BE APPLIED TO A MINIMUM THICKNESS OF 500 MILS. DESIGN PROFESSIONAL SHALL PLACE A NOTE ON THE PLANS SHOWING THE REQUIRED COATING FOR EACH MANHOLE.

APPROVED MANUFACTURERS LIST 180.01.01 PAGE (2 OF 4)

120.06

MANHOLE COATINGS INTERIOR COATING - SPECTRASHIELD, SPRAY WALL BY SPRAY ROQ, SHERWIN WILLIAMS DURA PLATE

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- COMPACTED BACK FILL UNDISTURBED TRENCH WALL TOP OF PIPE BACKFILL HAUNCHING EMBEDMENT HAUNCHING BEDDING 4" BEDDING MINIMUN STANDARD BEDDING SPECIAL BEDDING FOR 12'-20' DEPTHS FOR 3' TO 12' DEPTHS <u>NOTES</u> 1. EMBEDMENT MATERIAL MUST BE CLASS I (NO. 67 OR NO. 78M WASHED STONE IS TYPICALLY USED). 2. EMBEDMENT MATERIAL SHALL BE COMPACTED TO A MINIMUM 95% STANDARD PROCTOR DENSITY FOR CLASS I MATERIAL. STANDARD BEDDING SHALL BE UTILIZED FOR ALL CASES WHERE TRENCH BOTTOMS ARE UNSTABLE DUE TO SOIL TYPE, OR MOISTURE CONDITIONS. 4. ALL SANITARY SEWER LINES LESS THAN 3 FEET AND OVER 20 FEET IN DEPTH MUST BE D.I.P. EFFECTIME: MAY 1, 2017 BEDDING FOR FLEXIBLE AND OWN OF FUQUAY-VARINA 150.12 FUQUAY-VARINA SEMI-RIGID SANITARY SEWER STANDARD DETAILS

COMPACTED BACK FILL

PRIOR TO BEING APPROVED FOR SERVICE, ALL NEW MANHOLES SHALL BE VACUUM TESTED BY THE INSTALLER. EQUIPMENT USED FOR VACUUM TESTING SHALL BE MANUFACTURED AND INTENDED SPECIFICALLY FOR MANHOLE VACUUM TESTING AND SHALL BE USED AND OPERATED PER MANUFACTURER'S RECOMMENDATIONS. THE VACUUM TEST SHALL BE PERFORMED BY FIRST PLUGGING ALL SEWER MAINS COMING INTO THE MANHOLE (SERVICE LATERALS WILL BE INCLUDED IN VACUUM TESTS) AND THEN APPLYING A VACUUM OF 10 INCHES OF MERCURY. THE TEST SHALL THEN CONSIST OF OBSERVING THE TIME FOR THE VACUUM TO FALL TO 9 INCHES. THIS TIME SHALL BE COMPARED TO THE CHART BELOW TO DETERMINE ACCEPTABILITY. IF THE TIME TO FALL TO 9 INCHES IS AT LEAST AS SHOWN IN THE CHART BELOW, THE MANHOLE PASSES THE VACUUM TEST. IF NOT, THE MANHOLE FAILS THE VACUUM TEST. IF THE MANHOLE FAILS THE VACUUM TEST, NECESSARY REPAIRS SHALL BE MADE USING NON-SHRINK GROUT, MAINTAINING AS MUCH VACUUM AS POSSIBLE. MANHOLE DIAMETER 10' OR LESS 75 SEC. 90 SEC. 10' TO 15' 75 SEC. 90 SEC. 105 SEC. 15' OR GREATER 90 SEC. 105 SEC. 120 SEC. -LCINE: DECEMBER 30, 2016 TOWN OF FUQUAY-VARINA MANHOLE VACUUM TESTING 150.16 FUQUAY-VARINA STANDARD DETAILS

SPECIFICATION TIME (MIN:SEC) REQUIRED FOR PRESSURE DROP FROM 3-1/2 TO 2-1/2 PSIG NOMINAL PIPE DIAMETER (INCHES) 9:26 | 11:20 | 13:13 | 14:10 | 15:11 | 17:00 | 18:53 | 19:48 | 22:40 | 25:30 | 28:19 | 34:00 | 39:40 9:26 | 11:20 | 13:13 | 14:10 | 15:11 | 17:00 | 18:53 | 19:48 | 22:40 | 25:30 | 28:19 | 34:00 | 39:40 9:26 | 11:20 | 13:13 | 14:10 | 15:11 | 17:00 | 18:53 | 19:48 | 22:40 | 25:30 | 28:19 | 34:00 | 52:35 9:26 | 11:20 | 13:13 | 14:10 | 15:11 | 17:00 | 18:53 | 19:48 | 22:47 | 28:51 | 35:37 | 51:17 | 69:48 9:26 | 11:20 | 13:13 | 14:10 | 15:11 | 17:00 | 19:47 | 21:48 | 28:29 | 36:03 | 44:31 | 64:06 | 87:15 9:26 | 11:20 | 13:13 | 14:10 | 15:12 | 19:14 | 23:44 | 26:10 | 34:11 | 43:16 | 53:25 | 76:55 | 104:42 9:26 | 11:20 | 13:34 | 15:35 | 17:44 | 22:26 | 27:42 | 30.32 | 39:53 | 50:28 | 62:19 | 89:45 | 122:10 9:26 | 11:24 | 15:31 | 17:48 | 20:16 | 25:39 | 31:39 | 34:54 | 45:35 | 57:42 | 71:13 | 102:36 | 139:36 L 225 7:33 9:26 12:49 17:27 20:02 22:48 28:51 35:37 39:16 51:17 64:54 80:08 115:24 157:03 250 | 7:33 | 9:53 | 14:15 | 19:23 | 22:16 | 25:20 | 32:03 | 39:34 | 43:37 | 56:58 | 72:07 | 89:02 | 128:12 | 174:30 275 7:33 10:52 15:40 21:20 24:29 27:52 35:16 43:31 47:59 62:40 79:19 97:56 141:00 191:57 300 | 7:35 | 11:52 | 17:06 | 23:16 | 26:43 | 30:23 | 38:28 | 47.29 | 52:21 | 68:22 | 86:32 | 106:48 | 153:54 | 209:25 350 8:52 | 13:51 | 19:57 | 27:09 | 31:10 | 35:27 | 44:52 | 55:24 | 61:05 | 79:46 | 101:00 | 124:42 | 179:30 | 244:19 400 | 10:07 | 15:50 | 22:48 | 31:01 | 35:37 | 40:31 | 51:17 | 63:19 | 69:48 | 91:10 | 115:24 | 142:30 | 205:06 | 279:13 | 450 | 11:23 | 17:48 | 25:39 | 34:54 | 40:04 | 45:35 | 57:42 | 71:13 | 78:31 | 102:36 | 129:48 | 160:18 | 230:48 | 314:07 500 | 12:39 | 19:47 | 28:30 | 38:47 | 44:31 | 50:39 | 64:06 | 79:08 | 87:15 | 114:00 | 144:12 | 178:06 | 256:24 | 349:02

FUQUAY-VARINA

FFECTIVE: DECEMBER 30, 2016

TOWN OF FUQUAY-VARINA STANDARD DETAILS

LOW PRESSURE AIR TEST TABLE

north carolina

150.17

SHEET NO. PROJECT REFERENCE NO. UC-3C U-5746 DESIGNED BY: CARO! SOFESSION A CHECKED BY: SEAL APPROVED BY: Joe Langston Jr. REVISED: FION NO INEER S NORTH CAROLINA · LANGSTON! DEPARTMENT OF TRANSPORTATION UTILITIES ENGINEERING SEC. PHONE: (919)707-6690 UTILITY CONSTRUCTION PLANS ONLY FAX:(919)250-4151 DOCUMENT NOT CONSIDERED FINAL **UNLESS ALL SIGNATURES COMPLETED**

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