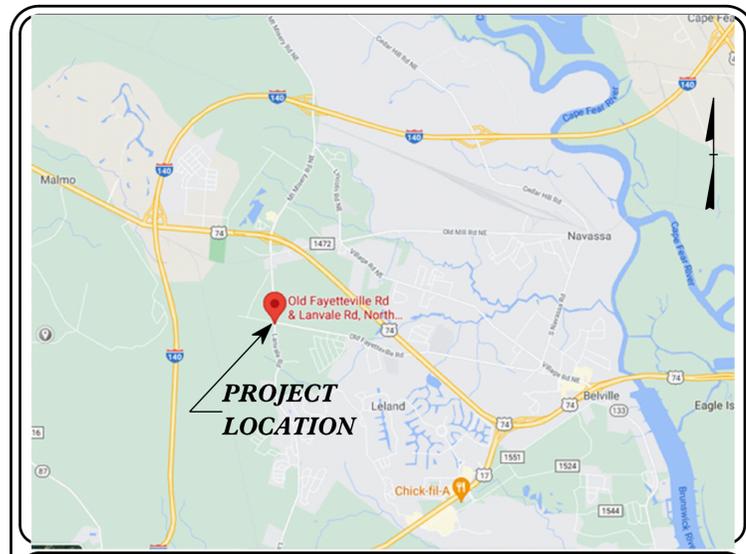
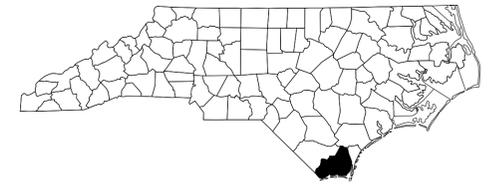


STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

T.I.P. NO.	SHEET NO.
WBS 48861	UC-1

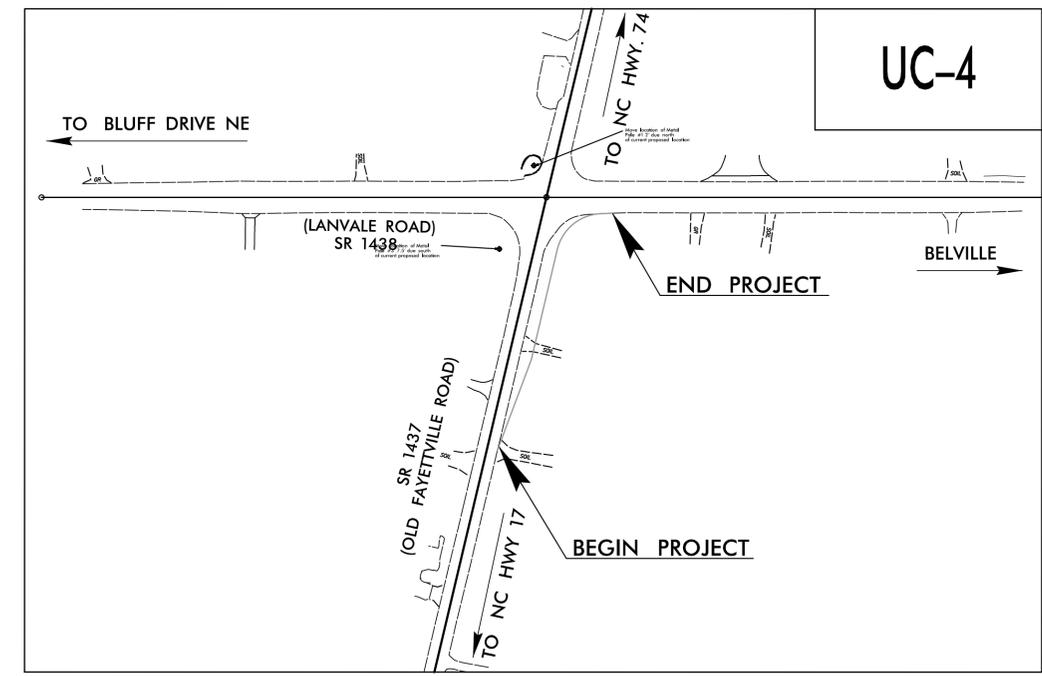
**UTILITIES CONSTRUCTION PLANS
BRUNSWICK COUNTY**



VICINITY MAP
NOT TO SCALE

LOCATION: INTERSECTION OF SR 1437 AND SR 1438 (OLD FAYETTEVILLE ROAD) AND 1438 (LANVALE ROAD)

TYPE OF WORK: WATER MAIN RELOCATION



DOCUMENT NOT CONSIDERED FINAL
UNTIL ALL SIGNATURES ARE COMPLETED

GRAPHIC SCALES

PLANS

INDEX OF SHEETS

SHEET NO.:	DESCRIPTION:
UC-1	TITLE SHEET
UC-2	UTILITY SYMBOLOGY
UC-3	NOTES
UC-3A THRU UC-3B	DETAILS
UC-4	UTILITY CONSTRUCTION SHEET

WATER AND SEWER OWNERS ON PROJECT

(A) WATER: BRUNSWICK REGIONAL WATER AND SEWER H2GO

PREPARED IN THE OFFICE OF

AECOM

AECOM TECHNICAL SERVICES OF NORTH CAROLINA, INC.
5438 WADE PARK BOULEVARD, SUITE 200, RALEIGH, NC 27607
919-461-1100
F - 0342

Steven Scruggs, PE UTILITY PROJECT MANAGER
Rene Remy PROJECT UTILITY DESIGNER

SEAL

11/22/2021

DocuSigned by:
D. Stephen Scruggs
957A10CE3D5E477...

**DIVISION OF HIGHWAYS
DIVISION 3**

5501 BARBADOS BLVD.
CASTLE HAYNE, NC 28429
PHONE (919) 341-2000
FAX (919) 675-0143

Chad Kimes DIVISION ENGINEER
Jessi Leonard DIVISION PROJECT ENGINEER
Lonny A. Sleeper DIVISION UTILITIES ENGINEER
Steve Davis DIVISION UTILITIES COORDINATOR

DATE: 11/22/2021
TIME: 10:32:32 AM
DGN: SR1437_SRA43B.dwg

PROPOSED WATER SYMBOLS

Water Line (Sized as Shown)	
11 1/4 Degree Bend	
22 1/2 Degree Bend	
45 Degree Bend	
90 Degree Bend	
Plug	
Tee	
Cross	
Reducer	
Gate Valve	
Butterfly Valve	
Tapping Valve	
Line Stop	
Line Stop with Bypass	
Blow Off	
Fire Hydrant	
Relocate Fire Hydrant	
Remove Fire Hydrant	REM FH
Water Meter	
Relocate Water Meter	
Remove Water Meter	REM 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	

PROPOSED MISCELLANEOUS UTILITIES SYMBOLS

Power Pole	
Telephone Pole	
Joint Use Pole	
Telephone Pedestal	
Utility Line by Others (Type as Shown)	
Trenchless Installation	
Encasement by Open Cut	
Encasement	

Thrust Block	
Air Release Valve	
Utility Vault	
Concrete Pier	
Steel Pier	
Plan Note	
Pay Item Note	

NOTE

PAY ITEM

EXISTING UTILITIES SYMBOLS

Power Pole	
Telephone Pole	
Joint Use Pole	
Utility Pole	
Utility Pole with Base	
H-Frame Pole	
Power Transmission Line Tower	
Water Manhole	
Power Manhole	
Telephone Manhole	
Sanitary Sewer Manhole	
Hand Hole for Cable	
Power Transformer	
Telephone Pedestal	
CATV Pedestal	
Gas Valve	
Gas Meter	
Located Miscellaneous Utility Object	
Abandoned According to Utility Records	
End of Information	

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

*For Existing Utilities

Utility Line Drawn from Record (Type as Shown)

Designated Utility Line (Type as Shown)

DATE: 9/22/2011
 TIME: 2:45:52 PM
 DWR: SHW37_SPH438.uc:UC2a1p

REV: 2/1/2012

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 2018.

2. THE EXISTING WATER UTILITIES BELONG TO BRUNSWICK REGIONAL WATER AND SEWER H2GO.

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.

PROJECT SPECIFIC NOTES:

1. INSTALL, TEST AND DISINFECT THE NEW WATER MAIN PRIOR TO MAKING THE CONNECTION TO THE EXISTING WATER MAIN. PROVIDE H2GO 72 HOURS NOTICE PRIOR BY CALLING THE OPERATIONS AND MAINTENANCE OFFICE AT 910 -371-9949 TO MAKING THE CONNECTIONS. THE NEW WATER MAIN SHALL BE INSTALLED COMPLETE EXCEPT FOR MAKING THE CONNECTIONS. FLUSH, PRESSURE TEST AND STERILIZE THE NEW WATER MAIN PRIOR TO MAKING THE CONNECTIONS. THE CONNECTIONS SHALL BE MADE AT NIGHT BETWEEN 10:00 PM AND 5:00 AM. THE CONNECTION PIPE'S INTERIOR SHALL BE CLEANED AND STERILIZED WITH 200 PPM CHLORINE. COORDINATE WITH RUSS LANE AND BRANDON FAIRCLOTH WITH H2GO FOR SCHEDULING SHUT-DOWNS, FLUSHING, TESTING AND DISINFECTION OF THE WATER MAIN.

2. THE RELOCATED METER BOXES SHALL BE LOCATED OUTSIDE, BUT AT THE RIGHT-OF-WAY LINE IN ACCORDANCE WITH THE METER INSTALLATION DETAILS.

3. FIELD VERIFY VALVE LOCATIONS WITH H2GO LOCATORS PRIOR TO BEGINNING CONSTRUCTION. CONTACT RUSS LANE AND/OR BRANDON FAIRCLOTH WITH H2GO FOR SCHEDULING.

Prepared In the Office of:

AECOM

AECOM TECHNICAL SERVICES OF NORTH CAROLINA, INC.
701 CORPORATE CENTER DRIVE, SUITE 475, RALEIGH, NC 27607
919-854-6200 919-854-6259 (fax)
F - 0342

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

PROJECT REFERENCE NO.	SHEET NO.
WBS 48861	UC-3
DESIGNED BY:	
DRAWN BY:	
CHECKED BY:	
APPROVED BY:	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	

UTILITY CONSTRUCTION

Prepared In the Office of:

AECOM

AECOM TECHNICAL SERVICES OF NORTH CAROLINA, INC.
701 CORPORATE CENTER DRIVE, SUITE 475, RALEIGH, NC 27607
919-854-6200 919-854-6259 (fax)
F - 0342

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

PROJECT REFERENCE NO. WBS 48861	SHEET NO. UC-3A
DESIGNED BY:	11/19/2008
DRAWN BY:	
CHECKED BY:	
APPROVED BY:	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	

D. Stephen Scruggs
UTILITY CONSTRUCTION
PLANS ONLY

UTILITY CONSTRUCTION

PIPE INSTALLATION - PAVEMENT REPAIR
NTS SD 2-30

NOTES:
1. REFERENCE SPECIFICATIONS FOR BACKFILLING AND COMPACTION REQUIREMENTS.
2. CUT-BACK TO BE PERFORMED AFTER TRENCH BACK-FILLING AND COMPACTION.
3. NEW PAVEMENT TO MEET ALL NCDOT REQUIREMENTS.

NORTH BRUNSWICK SANITARY DISTRICT	STANDARD DETAIL: SD 2-30 Not To Scale	DATE: 01/01/08 ...
P.O. BOX 2230 516 VILLAGE ROAD NE LELAND, N.C. 28451-2230 TEL (910) 371-9949 FAX (910) 371-6441	PIPE INSTALLATION - PAVEMENT REPAIR	

PAVEMENT REPAIR
NTS SD 2-34

USE MATERIALS PER NCDOT REQUIREMENTS ON NCDOT DRIVEWAYS AND ROADWAYS.

NORTH BRUNSWICK SANITARY DISTRICT	STANDARD DETAIL: SD 2-34 Not To Scale	DATE: 01/01/08 ...
P.O. BOX 2230 516 VILLAGE ROAD NE LELAND, N.C. 28451-2230 TEL (910) 371-9949 FAX (910) 371-6441	PAVEMENT REPAIR	

GANG METER ASSEMBLY
NTS SD 1-06

EXISTING TAPS MADE OF P.V.C. AND CLASS 50 AND 51 DUCTILE IRON PIPE SHALL BE MADE USING A TAPPING SADDLE. NEW MAINS USE MECHANICAL TEE.

METERED SERVICES	SIZE T" (O.D.)
11-16	2"
3-10	1 1/2"
2	1"

SEE DETAIL FOR STANDARD WATER SERVICE INSTALLATION.

NORTH BRUNSWICK SANITARY DISTRICT	STANDARD DETAIL: SD 1-06 Not To Scale	DATE: 01/01/08 ...
P.O. BOX 2230 516 VILLAGE ROAD NE LELAND, N.C. 28451-2230 TEL (910) 371-9949 FAX (910) 371-6441	GANG METER ASSEMBLY	

M.J. VALVE AND VALVE BOX
NTS SD 1-14

NO CONCRETE SHALL TOUCH BOLTS OR GLANDS. WRAP BOLTS & GLANDS W/ PLASTIC.

NOTES:
1. 2" GATE VALVES SHALL F.I.P. THREADS. CONNECTION TO THE PIPE SHALL BE MADE WITH BRASS NIPPLE AND SCH. 40 PVC F.I.P.T. X SLIP ADAPTERS.
2. GATE VALVES GREATER THAN 2" SHALL BE MECHANICAL JOINT.
3. WIRE FROM MAIN INTO VALVE BOX AND UP.

NORTH BRUNSWICK SANITARY DISTRICT	STANDARD DETAIL: SD 1-14 Not To Scale	DATE: 01/01/08 ...
P.O. BOX 2230 516 VILLAGE ROAD NE LELAND, N.C. 28451-2230 TEL (910) 371-9949 FAX (910) 371-6441	M.J. VALVE AND VALVE BOX	

WATER & STORM DRAIN INTERSECTION
NTS SD 1-20

NORTH BRUNSWICK SANITARY DISTRICT	STANDARD DETAIL: SD 1-20 Not To Scale	DATE: 01/01/08 ...
P.O. BOX 2230 516 VILLAGE ROAD NE LELAND, N.C. 28451-2230 TEL (910) 371-9949 FAX (910) 371-6441	WATER & STORM DRAIN INTERSECTION	

PIPE SIZE	90° BEND		45° BEND		22-1/2° BEND		11-1/4° BEND		TEE		PLUG	
	A	B	A	B	A	B	A	B	A	B	C	D
4"	18"	12"	10"	13"	7"	10"	7"	10"	12"	14"	13"	6"
6"	18"	12"	10"	13"	7"	10"	7"	10"	12"	14"	19"	9"
8"	24"	18"	13"	18"	10"	12"	10"	12"	16"	18"	25"	11"
10"	28"	22"	15"	22"	12"	15"	12"	15"	20"	22"	31"	14"
12"	32"	28"	19"	28"	14"	18"	14"	18"	22"	28"	37"	17"
16"	54"	38"	30"	36"	18"	36"	18"	36"	36"	42"	54"	24"

2000 PSF SOIL (SAND & GRAVEL WITH CLAY)

NOTES:
1. BASED ON 200 PSI STATIC PRESSURE PLUS AWWA WATER HAMMER ALLOWANCE.
2. ALL BEARING SURFACES TO BE CARRIED TO UNDISTURBED GROUND.
3. THRUST BLOCKS TO BE USED AT ALL LINES OPERATING UNDER PRESSURE.
4. KEEP ALL PIPING JOINTS CLEAR OF CONCRETE THRUST BLOCKS.
5. WRAP ALL FITTINGS IN PLASTIC.

THRUST BLOCKING DETAILS
NTS SD 1-26

NORTH BRUNSWICK SANITARY DISTRICT	STANDARD DETAIL: SD 1-26 Not To Scale	DATE: 01/01/08 ...
P.O. BOX 2230 516 VILLAGE ROAD NE LELAND, N.C. 28451-2230 TEL (910) 371-9949 FAX (910) 371-6441	THRUST BLOCKING DETAILS	

DATE: 9/22/2008
TIME: 10:53 PM
DGN: SRH3T_SPH48B_UC-3A.dgn

Prepared In the Office of:

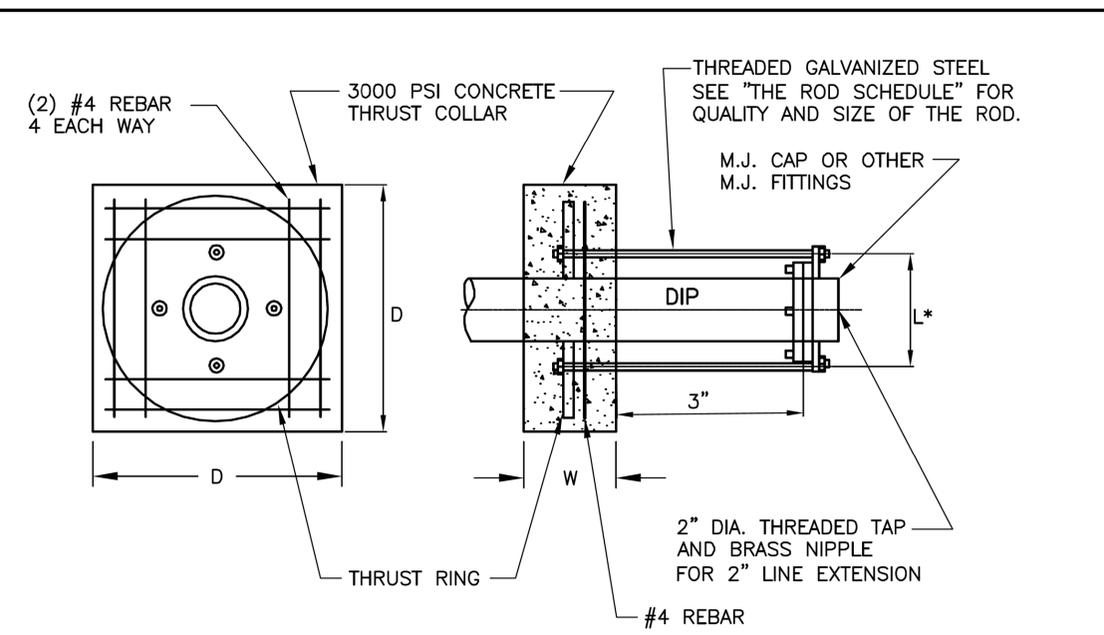


AECOM TECHNICAL SERVICES OF NORTH CAROLINA, INC.
701 CORPORATE CENTER DRIVE, SUITE 475, RALEIGH, NC 27607
919-854-6200 919-854-6259 (fax)
F - 0342

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

PROJECT REFERENCE NO. WBS 48861	SHEET NO. UC-3B
DESIGNED BY:	
DRAWN BY:	
CHECKED BY:	
APPROVED BY:	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	

UTILITY CONSTRUCTION

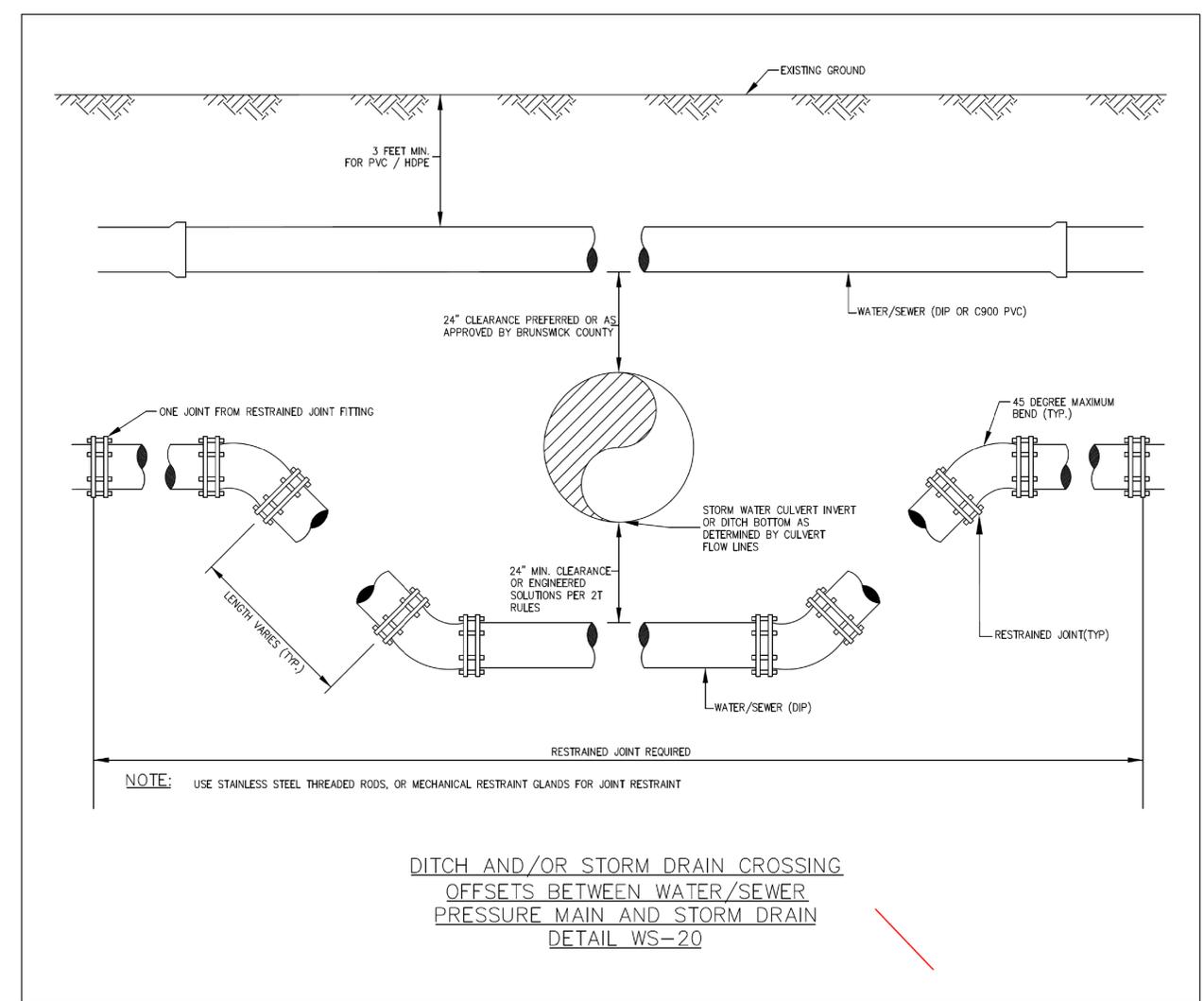


THRUST COLLAR SHALL BE FORMED USING 1/2" EXTERIOR PLYWOOD AS PER COLLAR DIMENSIONS SHOWN.

TIE ROD SCHEDULE			COLLAR DIMENSIONS			
PIPE DIAM.	QUAN.	SIZE	LINE SIZE	MIN. W	MIN. D	PLATE DIAM.
4"	2	5/8"	4"	6"	L+8"	L+2"
6"	2	3/4"	6"	9"	L+9"	L+3"
8"	2	3/4"	8"	12"	L+9"	L+3"
12"	4	3/4"	12"	18"	L+9"	L+3"
16"	4	7/8"	16"	18"	L+9"	L+3"
20"	4	1"	20"	20"?	L+9"	L+3"
24"	4	1 1/4"	24"	24"?	L+10"	L+4"
30"	4	1 1/2"	30"	24"?	L+11"	L+5"

* CONTRACTOR VERIFY DISTANCE W/COLLAR SUPPLIERS.

THRUST COLLAR
NTS SD 1-22



**DITCH AND/OR STORM DRAIN CROSSING
OFFSETS BETWEEN WATER/SEWER
PRESSURE MAIN AND STORM DRAIN
DETAIL WS-20**

NORTH BRUNSWICK SANITARY DISTRICT	STANDARD DETAIL: SD 1-22 Not To Scale	DATE: 01/01/08 ...
P.O. BOX 2230 516 VILLAGE ROAD NE LELAND, N.C. 28451-2230 TEL (910) 371-9949 FAX (910) 371-6441	THRUST COLLAR	

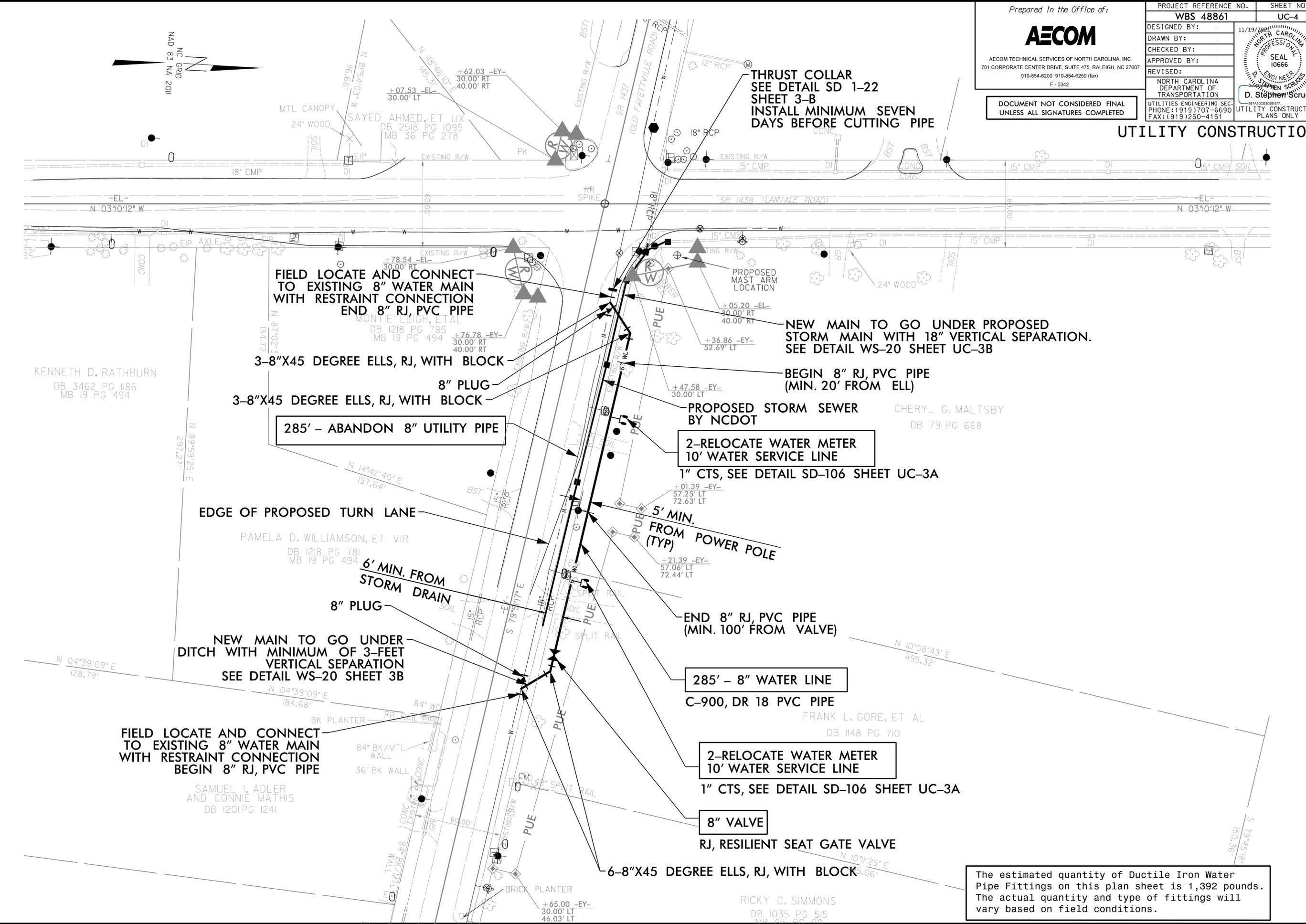


AECOM TECHNICAL SERVICES OF NORTH CAROLINA, INC.
701 CORPORATE CENTER DRIVE, SUITE 475, RALEIGH, NC 27607
919-854-6200 919-854-6259 (fax)
F-0342

PROJECT REFERENCE NO.	WBS 48861	SHEET NO.	UC-4
DESIGNED BY:		DATE:	11/19/2001
DRAWN BY:		SCALE:	AS SHOWN
CHECKED BY:		SEAL:	10666
APPROVED BY:		PROFESSOR:	
REVISED:		REGISTERED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION		UTILITY CONSTRUCTION PLANS ONLY	
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151		D. Stephen Scruggs	

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

UTILITY CONSTRUCTION



FIELD LOCATE AND CONNECT TO EXISTING 8" WATER MAIN WITH RESTRAINT CONNECTION END 8" RJ, PVC PIPE

3-8"X45 DEGREE ELLS, RJ, WITH BLOCK

285' - ABANDON 8" UTILITY PIPE

EDGE OF PROPOSED TURN LANE

NEW MAIN TO GO UNDER DITCH WITH MINIMUM OF 3- FEET VERTICAL SEPARATION SEE DETAIL WS-20 SHEET 3B

FIELD LOCATE AND CONNECT TO EXISTING 8" WATER MAIN WITH RESTRAINT CONNECTION BEGIN 8" RJ, PVC PIPE

NEW MAIN TO GO UNDER PROPOSED STORM MAIN WITH 18" VERTICAL SEPARATION. SEE DETAIL WS-20 SHEET UC-3B

BEGIN 8" RJ, PVC PIPE (MIN. 20' FROM ELL)

2-RELOCATE WATER METER 10' WATER SERVICE LINE

1" CTS, SEE DETAIL SD-106 SHEET UC-3A

5' MIN. FROM POWER POLE (TYP)

END 8" RJ, PVC PIPE (MIN. 100' FROM VALVE)

285' - 8" WATER LINE C-900, DR 18 PVC PIPE

2-RELOCATE WATER METER 10' WATER SERVICE LINE

1" CTS, SEE DETAIL SD-106 SHEET UC-3A

8" VALVE

RJ, RESILIENT SEAT GATE VALVE

6-8"X45 DEGREE ELLS, RJ, WITH BLOCK

The estimated quantity of Ductile Iron Water Pipe Fittings on this plan sheet is 1,392 pounds. The actual quantity and type of fittings will vary based on field conditions.

DATE: 11/19/2001
TIME: 4:14:46 PM
DGN: SRH37_SPH38_UC_psh_C4dgn

RICKY C. SIMMONS
DB 1035 PG 515
MB 1035 PG 515

FRANK L. GORE, ET AL
DB 1148 PG 710

CHERYL G. MALTSBY
DB 791 PG 668

KENNETH D. RATHBURN
DB 3462 PG 1186
MB 19 PG 494

PAMELA D. WILLIAMSON, ET VIR
DB 1218 PG 781
MB 19 PG 494

SAMUEL I. ADLER AND CONNIE MATHIS
DB 1201 PG 1241

SAYED AHMED, ET UX
DB 2518 PG 1095
MB 36 PG 278

MONTIE LEIGH, ET AL
DB 1218 PG 785
MB 19 PG 494