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12/15/15

See Sheet 1A For Index of Sheets  
See Sheet 1B For Conventional Symbols

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

T.I.P. NO.	SHEET NO.
B-5300	UC-1

UTILITY CONSTRUCTION PLANS DESIGNED BY:



**THE WOOTEN COMPANY**  
ENGINEERING | PLANNING | ARCHITECTURE  
120 North Baylan Avenue, Raleigh, NC 27603-1423  
919.828.0531, fax 919.834.3589  
License Number: F-0115

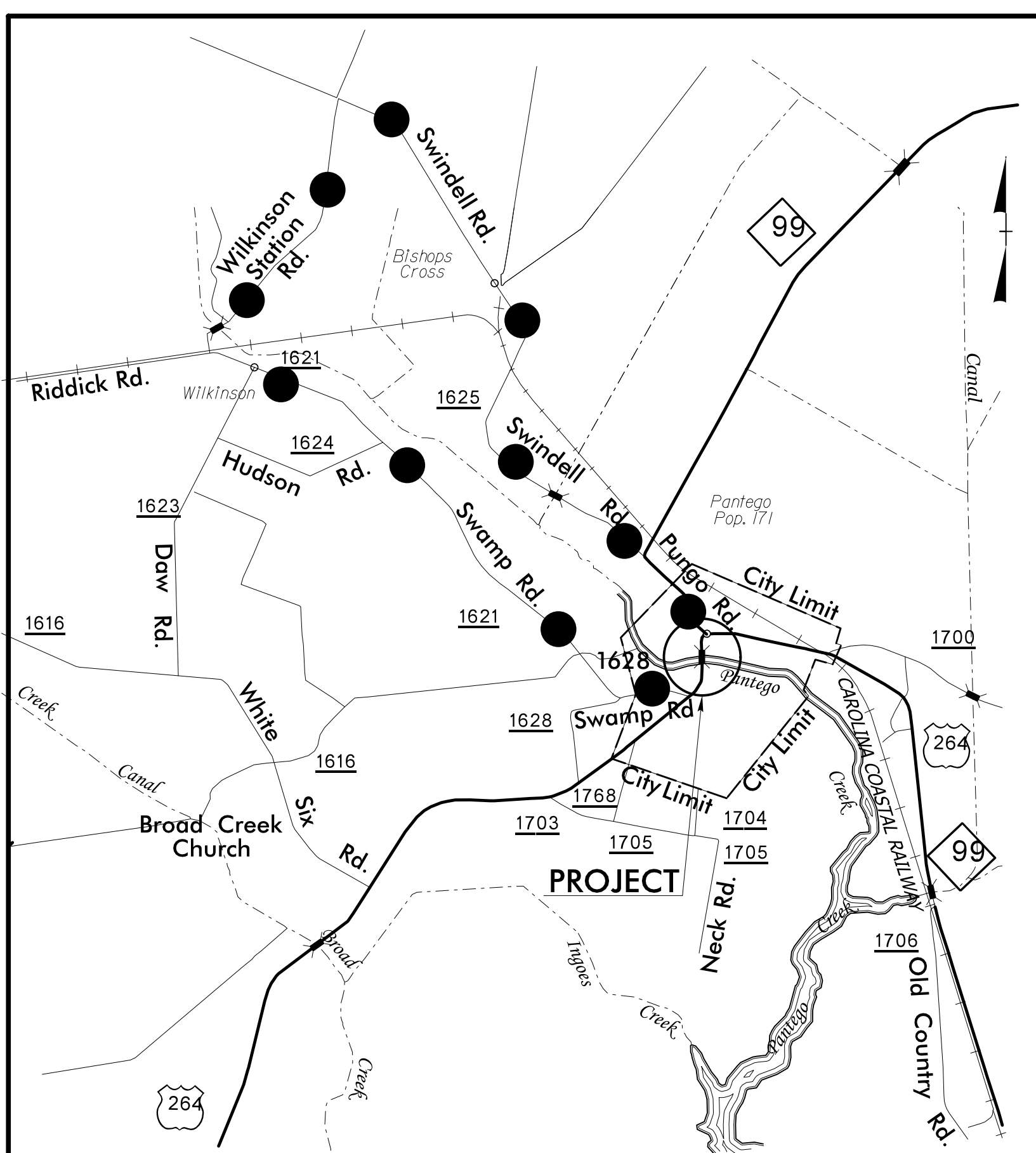
James R. Gregg UTILITIES PROJECT MANAGER

**TIP PROJECT: B-5300**

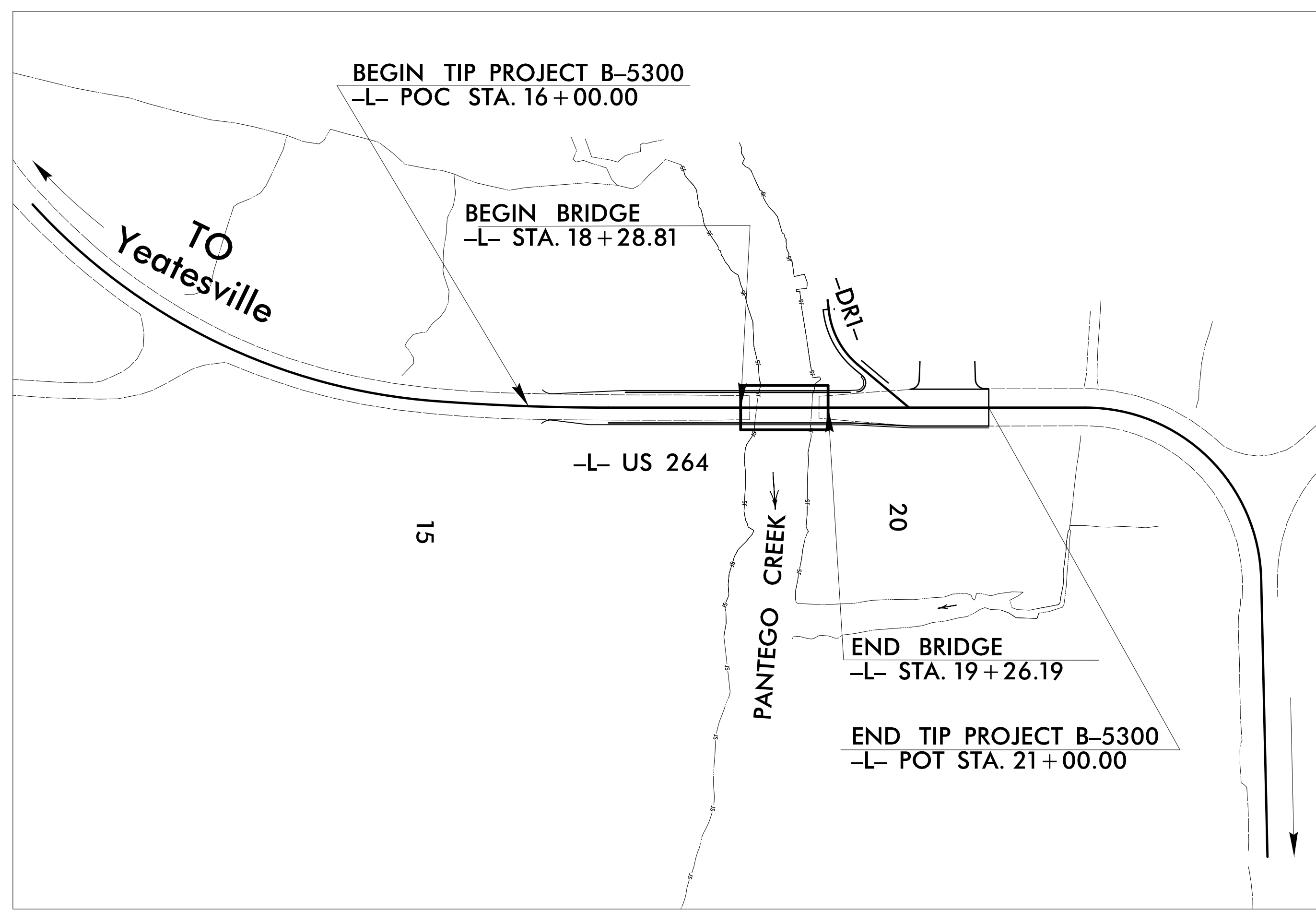
# UTILITY CONSTRUCTION PLANS BEAUFORT COUNTY & BELHAVEN

**LOCATION: REPLACE BRIDGE NO. 55 OVER PANTEGO CREEK ON US 264**

**TYPE OF WORK: UTILITY RELOCATION**

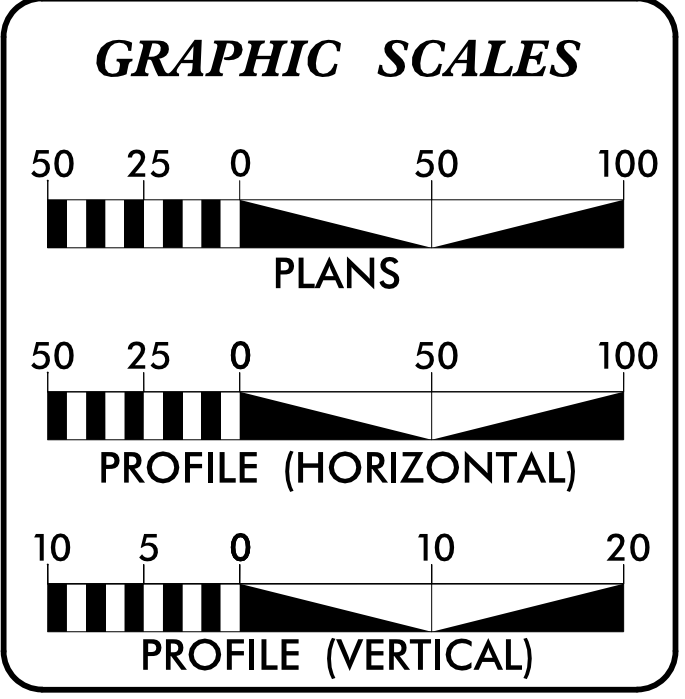


**VICINITY MAP**  
● ● ● DETOUR ROUTE



THERE IS NO CONTROL OF ACCESS ON THIS PROJECT.

**CONTRACT:**



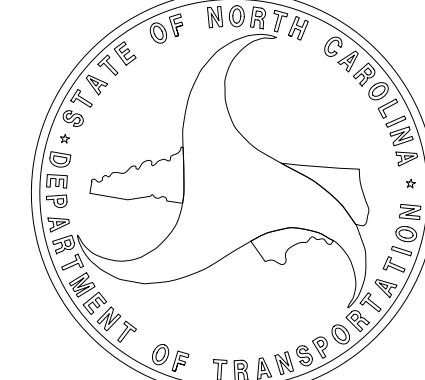
**INDEX OF SHEETS**

SHEET NO.	DESCRIPTION
UC-1	TITLE SHEET
UC-2	UTILITY SYMBOLOGY
UC-3	NOTES
UC-3A & UC-3B	DETAILS
UC-4	UTILITY CONSTRUCTION SHEET
UC-5	PROFILE SHEET

- WATER AND SEWER OWNERS ON PROJECT**
- BEAUFORT COUNTY (WATER)
  - TOWN OF BELHAVEN (SEWER)

SEAL

Document Not Considered Final Unless All Signatures Completed



PREPARED IN THE OFFICE OF:  
DIVISION OF HIGHWAYS  
UTILITIES UNIT  
UTILITIES ENGINEERING

1591 MAIL SERVICES CENTER  
RALEIGH NC 27699-1591  
PHONE (919) 707-6690  
FAX (919) 250-4151

Roger Worthington, P.E. UTILITIES SECTION ENGINEER  
Bo Hemphill, P.E. UTILITIES SQUAD LEADER  
Kifah Kamil SENIOR UTILITIES ENGINEER

\$\$\$\$\$ COST TIME \$\$\$  
\$\$\$\$\$ DON'T DOWNSIDE \$\$\$  
\$\$\$\$\$ USE RENAME \$\$\$

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

UTILITIES PLAN SHEET SYMBOLS

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 .....	
Water Meter .....	
Relocate Water Meter .....	
Remove Water Meter .....	
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 .....	

EXISTING UTILITIES SYMBOLS


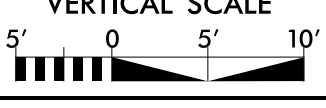
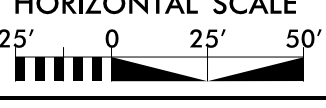
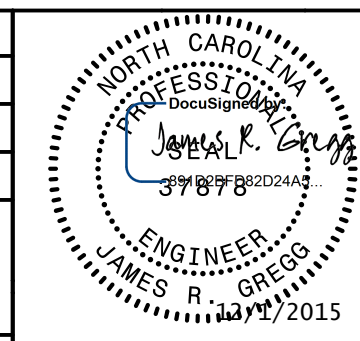
Power Pole .....		*Underground Power Line .....	
Telephone Pole .....		*Underground Telephone Cable .....	
Joint Use Pole .....		*Underground Telephone Conduit .....	
Utility Pole .....		*Underground Fiber Optics Telephone Cable .....	
Utility Pole with Base .....		*Underground TV Cable .....	
H-Frame Pole .....		*Underground Fiber Optics TV Cable .....	
Power Transmission Line Tower .....		*Underground Gas Pipeline .....	
Water Manhole .....		Aboveground Gas Pipeline .....	
Power Manhole .....		*Underground Water Line .....	
Telephone Manhole .....		Aboveground Water Line .....	
Sanitary Sewer Manhole .....		*Underground Gravity Sanitary Sewer Line .....	
Hand Hole for Cable .....		Aboveground Gravity Sanitary Sewer Line .....	
Power Transformer .....		*Underground SS Forced Main Line .....	
Telephone Pedestal .....		Underground Unknown Utility Line .....	
CATV Pedestal .....		SUE Test Hole .....	
Gas Valve .....		Water Meter .....	
Gas Meter .....		Water Valve .....	
Located Miscellaneous Utility Object .....		Fire Hydrant .....	
Abandoned According to Utility Records .....		Sanitary Sewer Cleanout .....	
End of Information .....			

\*For Existing Utilities  
 Utility Line Drawn from Record (Type as Shown) ..... W .....  
 Designated Utility Line (Type as Shown) ..... - - - - - W - - - - -

5/14/99  
REV: 2/1/2012

5/14/19

# UTILITY CONSTRUCTION

PREPARED IN THE OFFICE OF:  <b>THE WOOTEN COMPANY</b> <small>ENGINEERING   PLANNING   ARCHITECTURE</small> <small>129 North Rye Road, Raleigh, NC 27615-1423</small> <small>919.878.0511 fax 919.878.5199</small> <small>License Number: F-4015</small>	PROJECT REFERENCE NO. <b>B-5300</b>	SHEET NO. <b>UC-3</b>
	DESIGNED BY: JRG DRAWN BY: TK CHECKED BY: JRG APPROVED BY: MDS REVISED:	
VERTICAL SCALE 	HORIZONTAL SCALE 	
<b>WATER AND SEWER LINE CONSTRUCTION SHOWN ON THIS SHEET</b>		
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151		NORTH CAROLINA DEPARTMENT OF TRANSPORTATION <small>Document Not Considered Final Unless All Signatures Completed</small> UTILITY CONSTRUCTION PLANS ONLY

## UTILITY CONSTRUCTION

### NCDOT GENERAL NOTES:

- THE EXISTING UTILITIES BELONG TO BEAUFORT COUNTY (WATER) AND TOWN OF BELHAVEN (SEWER FORCE MAIN).
- THE PROPOSED UTILITY CONSTRUCTION IN BEAUFORT COUNTY AND TOWN OF BELHAVEN SHALL MEET THE APPLICABLE REQUIREMENTS OF THE NC DEPARTMENT OF TRANSPORTATION'S "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" DATED JANUARY 2012.
- ALL WATER LINES TO BE INSTALLED WITHIN COMPLIANCE OF THE RULES AND REGULATIONS OF THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL AND NATURAL RESOURCES, 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 AND NATURAL RESOURCES, DIVISION OF WATER RESOURCES, WATER QUALITY SECTION. PERFORM ALL WORK IN ACCORDANCE WITH THE APPLICABLE PLUMBING CODES.
- THE UTILITY OWNER OWNS THE EXISTING UTILITY FACILITIES AND WILL OWN THE NEW UTILITY FACILITIES AFTER ACCEPTANCE BY THE DEPARTMENT AND THE UTILITY OWNER. 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.
- 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 A MINIMUM OF ONE WEEK PRIOR TO SERVICE INTERRUPTIONS AND TESTING. KEEP UTILITY OWNERS' REPRESENTATIVES INFORMED OF WORK PROGRESS AND PROVIDE OPPORTUNITY FOR INSPECTION OF CONSTRUCTION AND TESTING.
- 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.
- 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.
- 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.
- 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.

### NCDOT PROJECT SPECIFIC NOTES:

- PROPOSED WATER LINE SHALL BE PVC C900 DR-18, RJDI CLASS 350 (RESTRAINED JOINT DUCTILE IRON), AND HDPE DR-9 (FOR HORIZONTAL DIRECTIONAL DRILL (HDD)) AS INDICATED ON THE CONSTRUCTION DRAWINGS. PROPOSED SEWER FORCE MAIN SHALL BE PVC C900 DR-18, RJDI CLASS 350 PROTECTO 401 LINED, AND FUSIBLE PVC C900 (FOR HDD) AS INDICATED ON THE CONSTRUCTION DRAWINGS.
- CONTRACTOR'S ATTENTION IS DIRECTED TO SECTIONS 102, 107, AND 1550 OF THE STANDARD SPECIFICATIONS AND APPLICABLE BEAUFORT COUNTY AND TOWN OF BELHAVEN STANDARDS 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.
- IF HDPE PIPE IS INSTALLED BY DIRECTIONAL DRILL, IT SHALL BE FILLED WITH WATER AND NOT BE CONNECTED TO ANY OTHER PIPE OR FITTINGS FOR ONE WEEK FROM THE TIME OF INSTALLATION. THE INNER DIAMETER OF THE WATER PIPE INSTALLED BY TRENCHLESS INSTALLATION MUST BE AT LEAST AS LARGE AS THE WATER LINE IT IS CONNECTED TO.
- TRACER WIRE AND WARNING TAPE SHALL BE INSTALLED WITH ALL PLASTIC PIPE UTILITIES. WIRE, TAPE, AND PIPE SHALL BE COLOR CODED ACCORDING TO UTILITY (BLUE FOR WATER, GREEN FOR SEWER) AND SHALL BE IN ACCORDANCE WITH NCDOT SPECIFICATIONS.
- EXISTING CONDITIONS SURVEY AND PROPOSED ROADWAY PLANS PROVIDED TO THE WOOTEN COMPANY BY NCDOT, OCTOBER 12, 2015.
- ALL DUCTILE IRON PIPE USED FOR SEWER FORCE MAIN INSTALLATIONS SHALL BE LINED WITH PROTECTO 401.
- FUSED PVC PIPE LENGTHS THAT HAVE BEEN INSTALLED IN THE TRENCH SHALL NOT BE BENT OR JOCKEYED INTO POSITION WITH HEAVY EQUIPMENT IN ORDER TO CONNECT TO FITTINGS. ALL ALIGNMENTS CORRECTIONS SHALL TAKE PLACE IN THE DIP FITTINGS.

5/14/19

# PROJECT TYPICAL WATER DETAILS

PREPARED IN THE OFFICE OF:



**THE WOOTEN COMPANY**  
ENGINEERING | PLANNING | ARCHITECTURE  
129 North Broyde Avenue - Raleigh, NC 27615-1423  
919.828.0211 fax 919.828.0369  
License Number: F-0115

PROJECT REFERENCE NO.

B-5300

SHEET NO.

UC-3A

DESIGNED BY: JRG

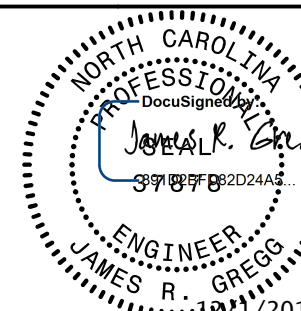
DRAWN BY: TK

CHECKED BY: JRG

APPROVED BY: MDS

REVISED:

**NORTH CAROLINA  
DEPARTMENT OF  
TRANSPORTATION**



**VERTICAL SCALE**  
0 5' 10'

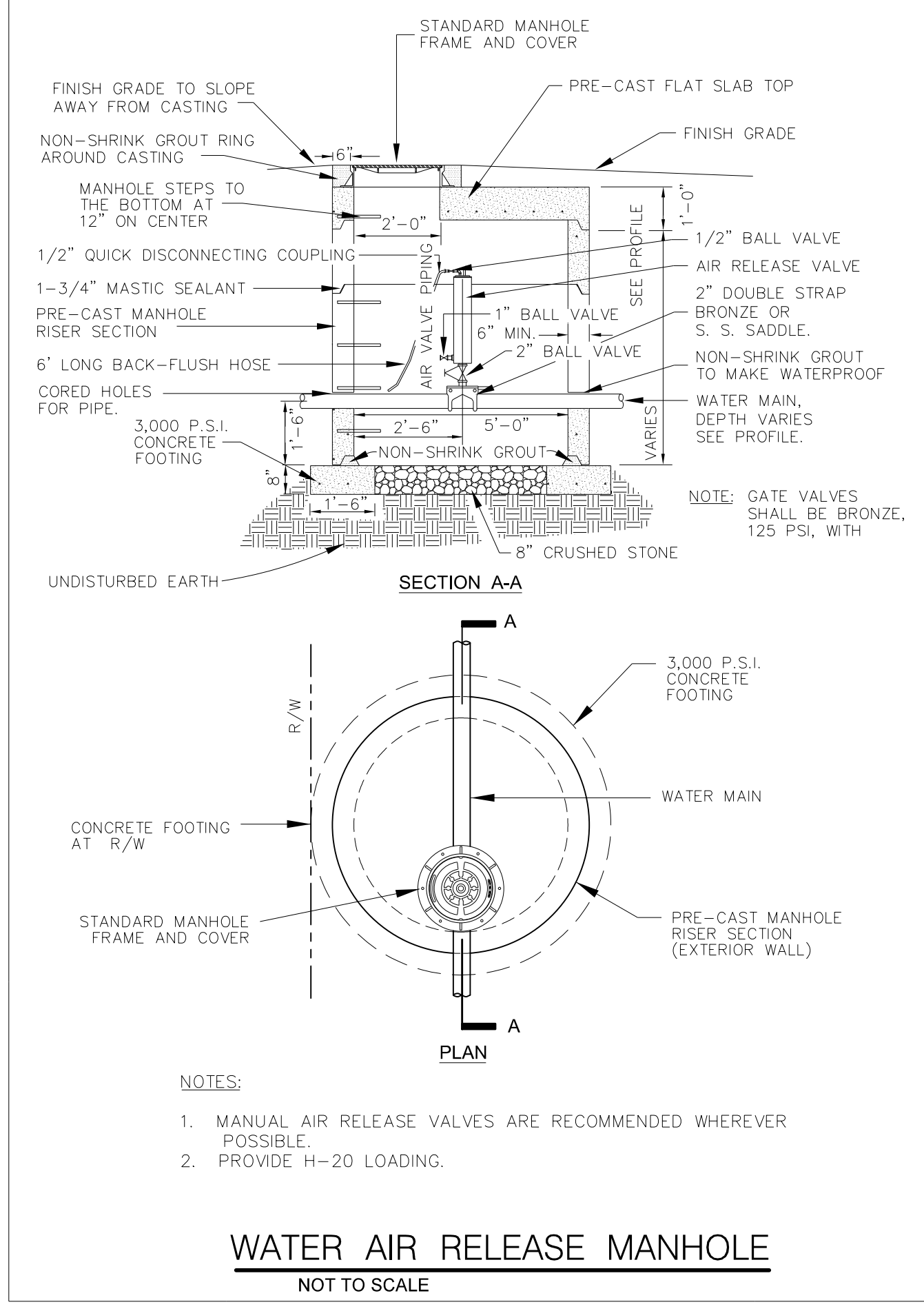
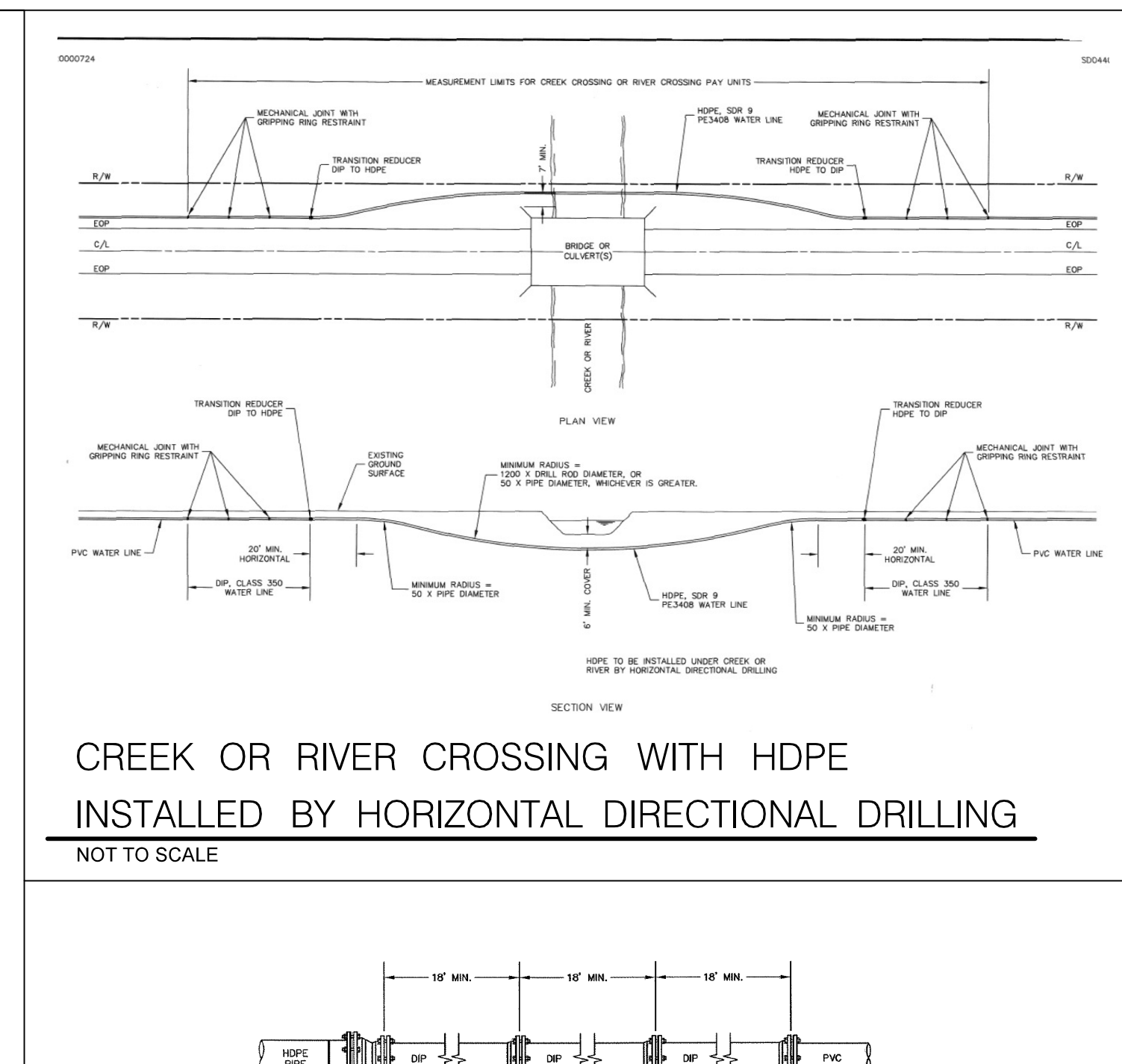
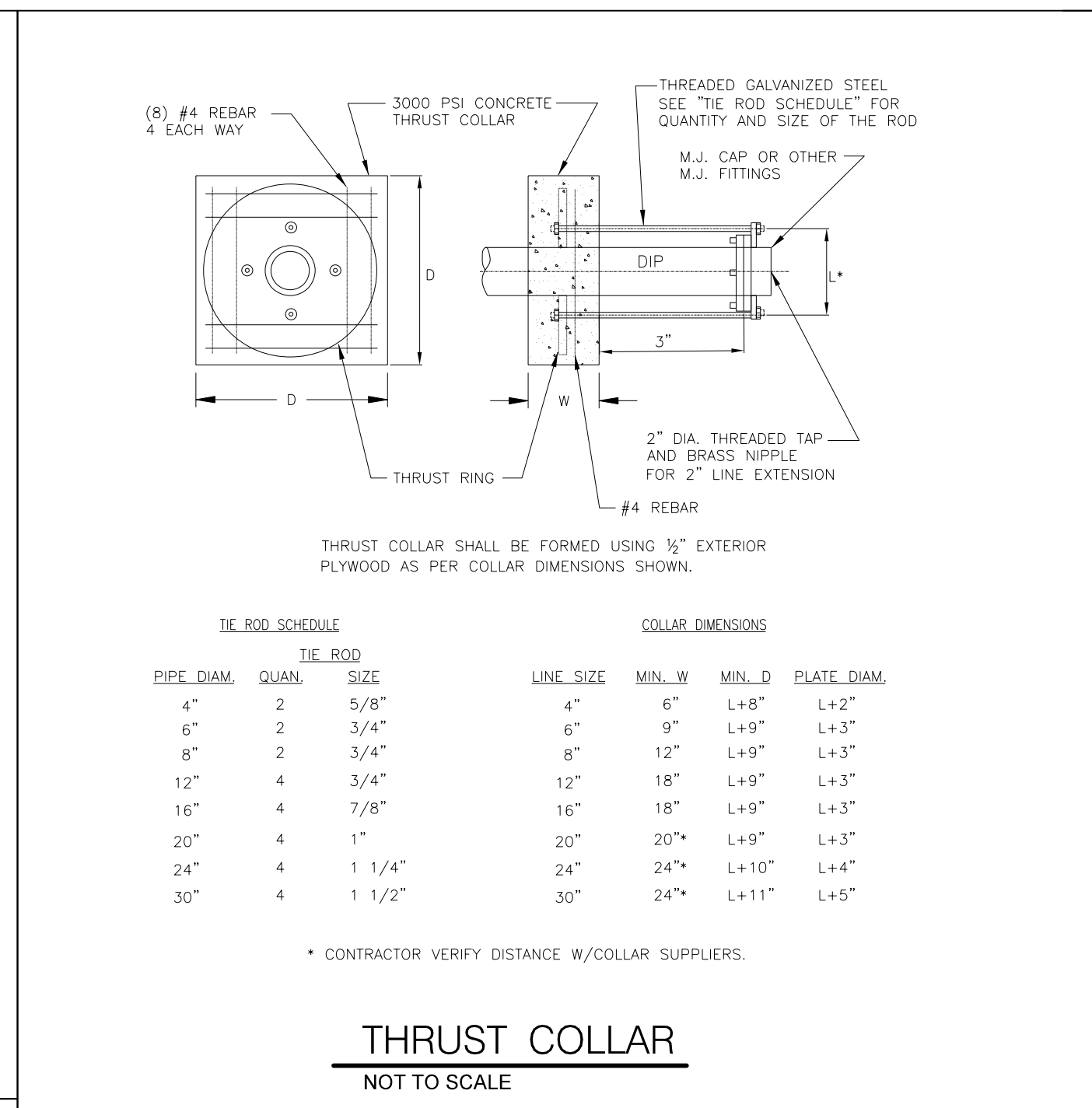
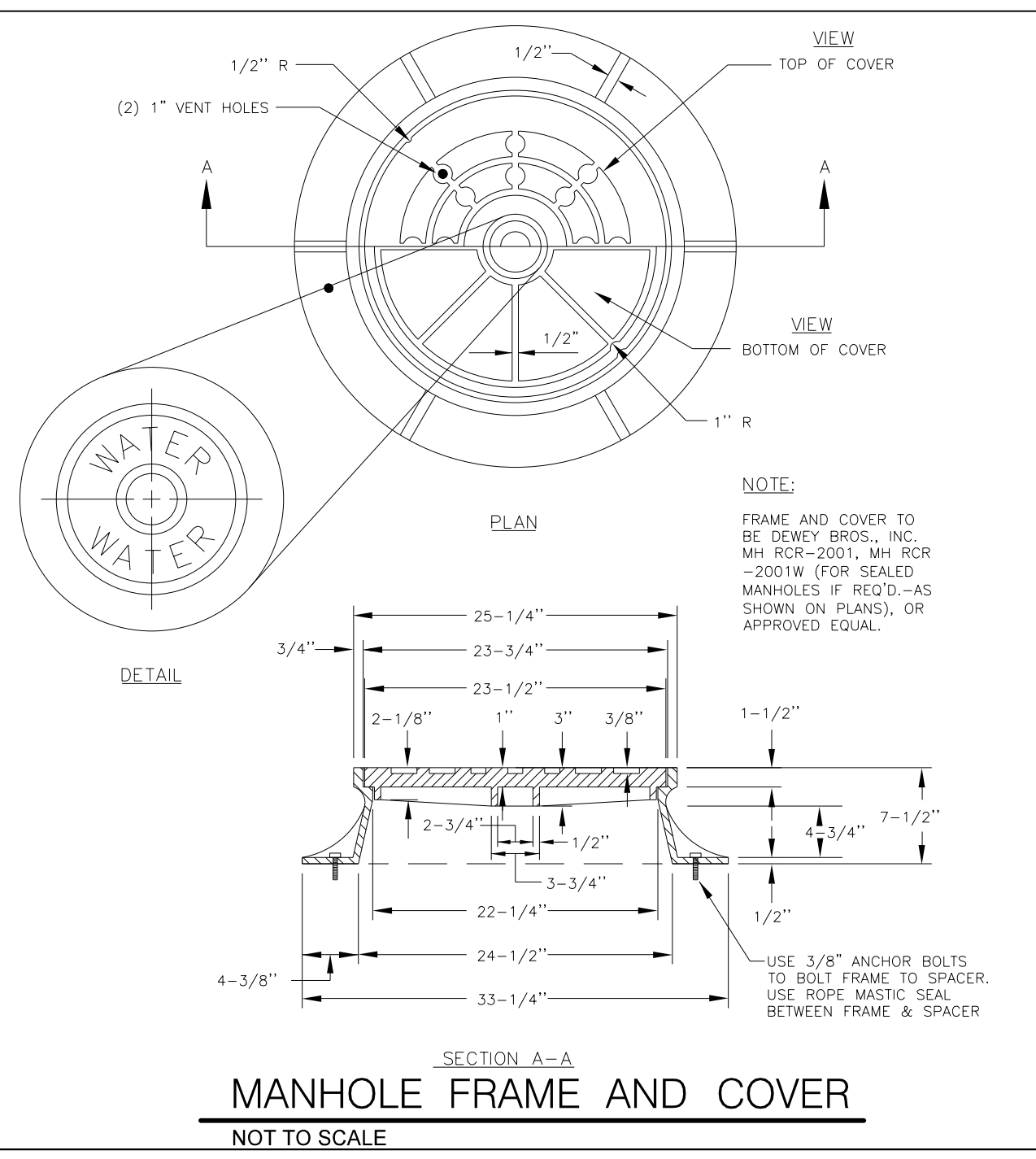
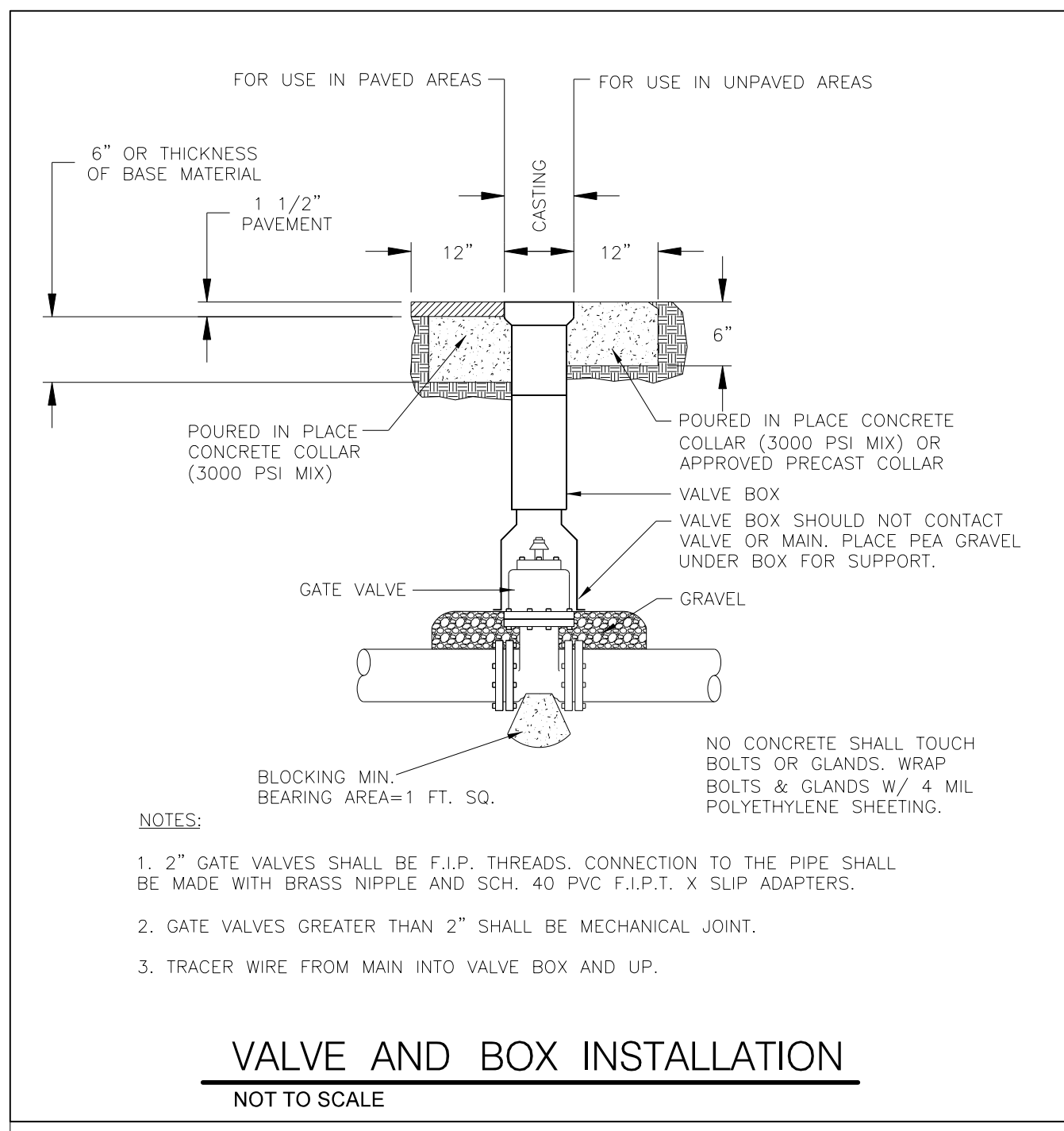
**HORIZONTAL SCALE**  
0 25' 50'

**WATER LINE CONSTRUCTION SHOWN ON THIS SHEET**

UTILITIES ENGINEERING SEC.  
PHONE: (919) 707-6690  
FAX: (919) 250-4151

Document Not Considered Final  
Unless All Signatures Completed  
**UTILITY CONSTRUCTION PLANS ONLY**

**UTILITY CONSTRUCTION**



**THRUST BLOCKING**  
NOT TO SCALE

PLAN-BENDS  
PLAN-TEES  
SECTION X-X-BENDS & TEES  
PLAN & ELEVATION FLANGES

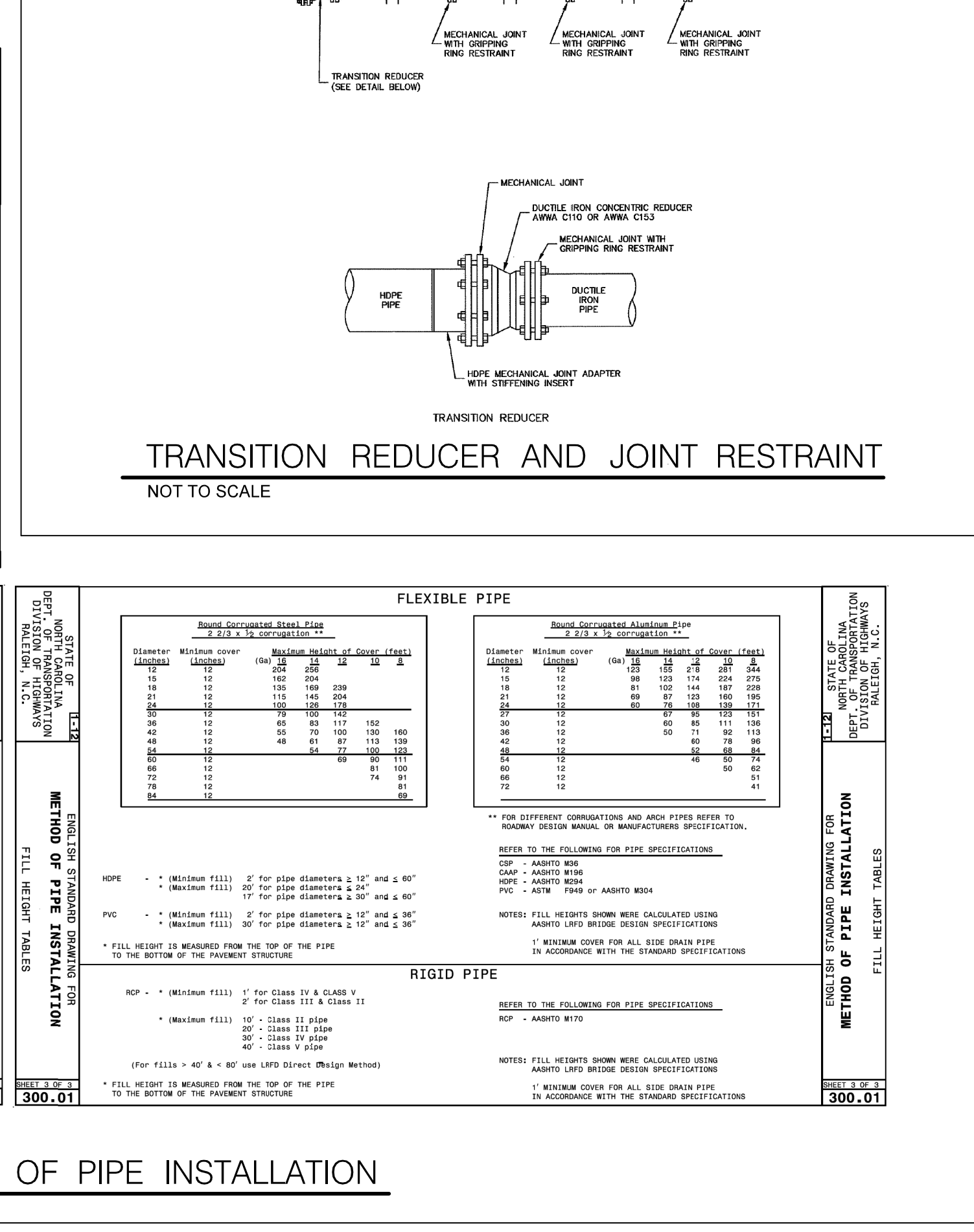
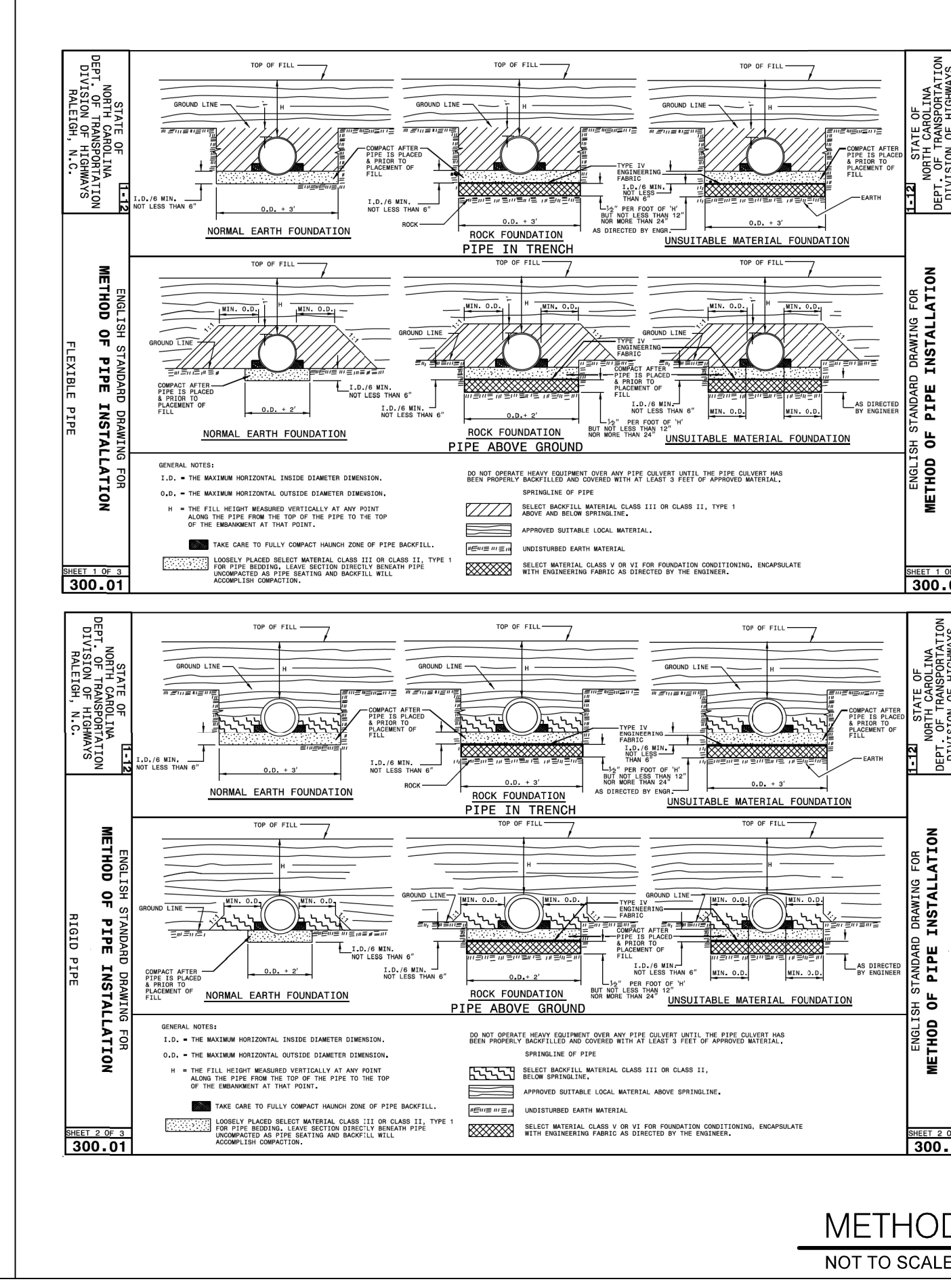
18" MIN. 10" DIA. OR LESS  
24" MIN. 12" DIA. OR UP

18" MIN. 10" DIA. OR LESS  
24" MIN. 12" DIA. OR GREATER

2000 PSF SOIL (SAND & GRAVEL WITH CLAY)

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"

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 UNRESTRAINED LINES OPERATING UNDER PRESSURE.  
4. KEEP ALL PIPING JOINTS CLEAR OF CONCRETE THRUST BLOCKS.  
5. WRAP ALL FITTINGS IN 4 MIL POLYETHYLENE SHEETING.



5/14/99

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# PROJECT TYPICAL FORCE MAIN DETAILS

PREPARED IN THE OFFICE OF:

**THE WOOTEN COMPANY**  
ENGINEERING | PLANNING | ARCHITECTURE  
120 North Rouse Avenue Raleigh, NC 27603-1423  
919.848.6100 License Number: F-0105

PROJECT REFERENCE NO. **B-5300** SHEET NO. **UC-3B**

DESIGNED BY: JRG  
DRAWN BY: TK  
CHECKED BY: JRG  
APPROVED BY: MDS

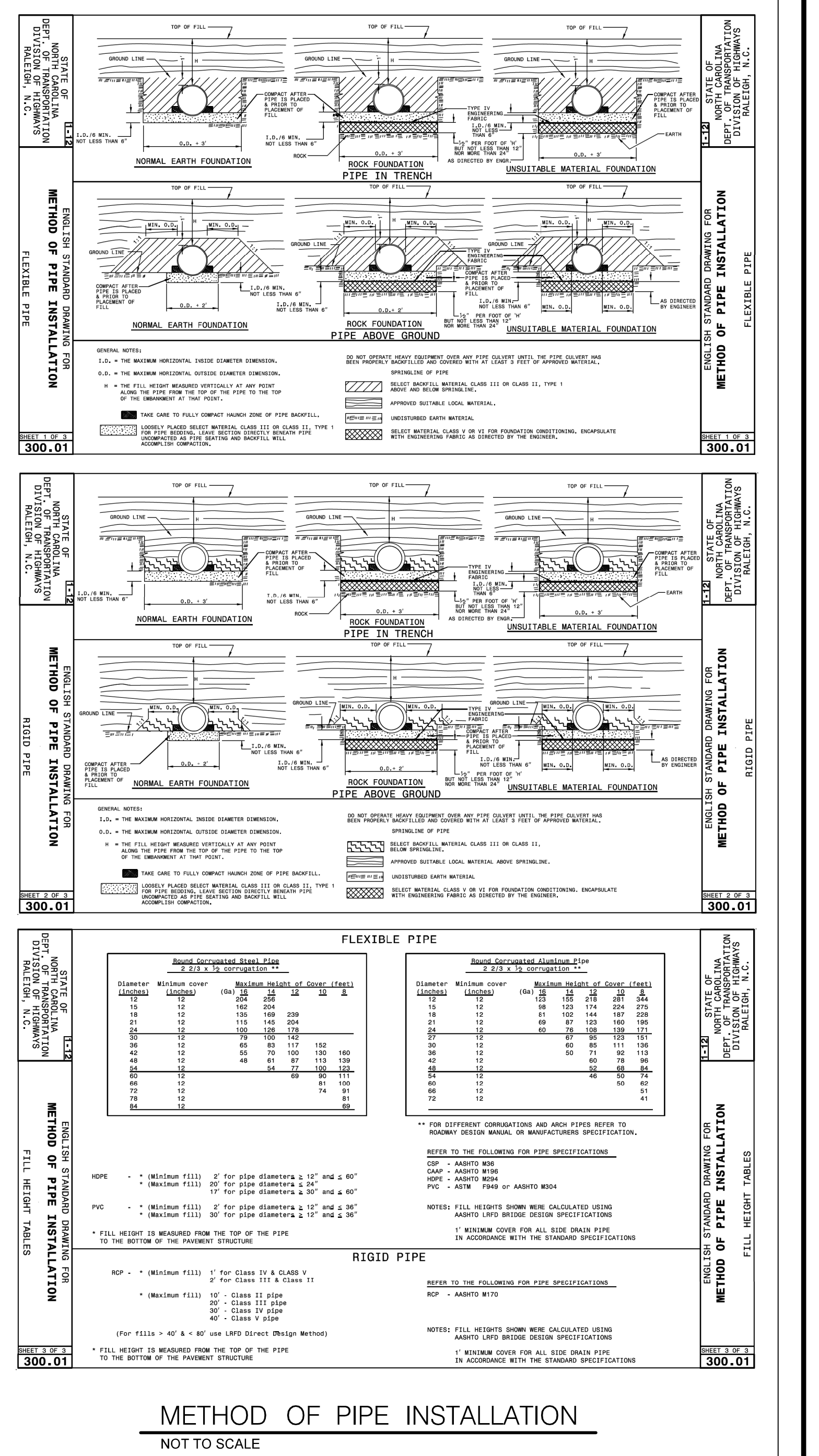
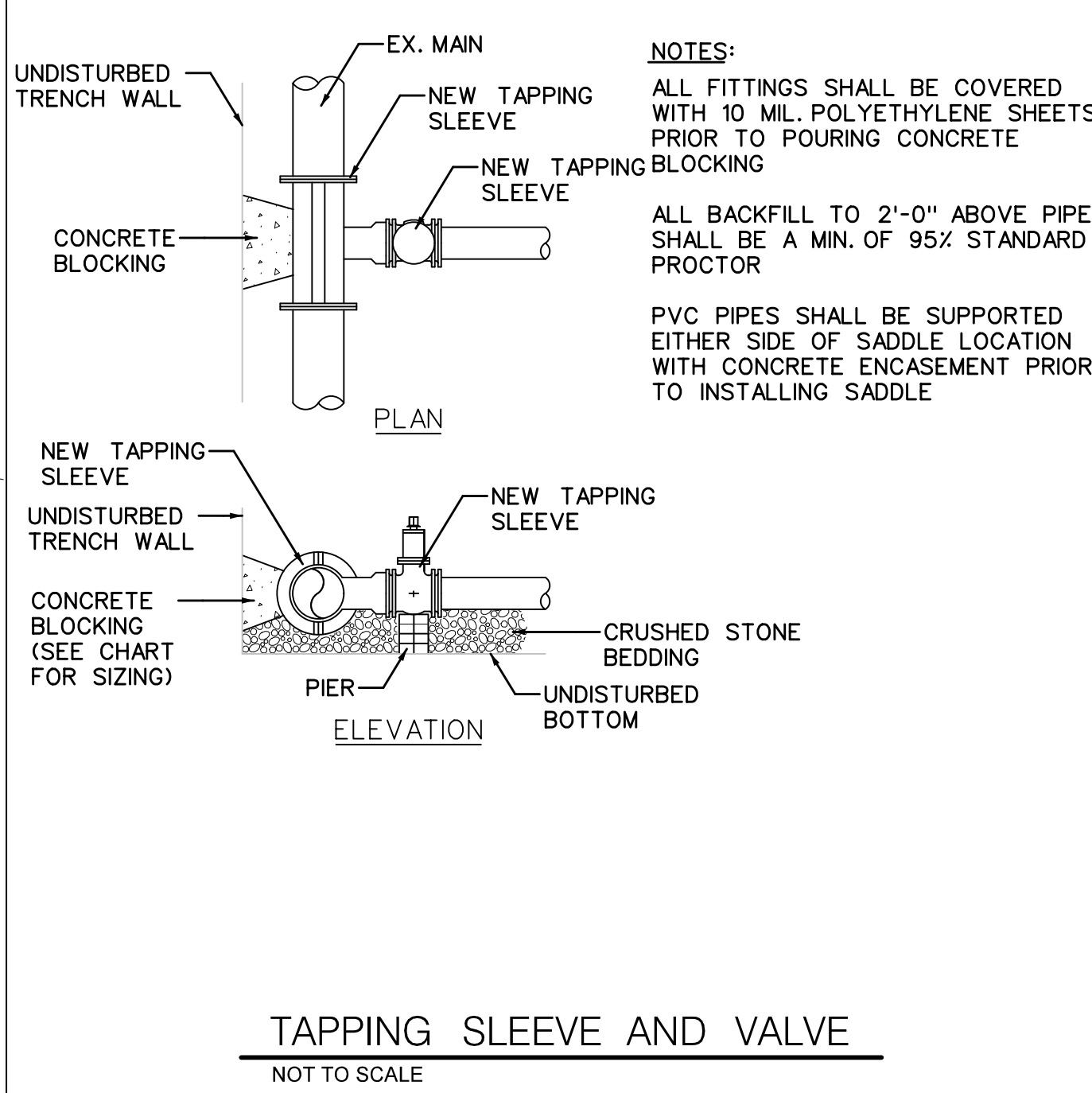
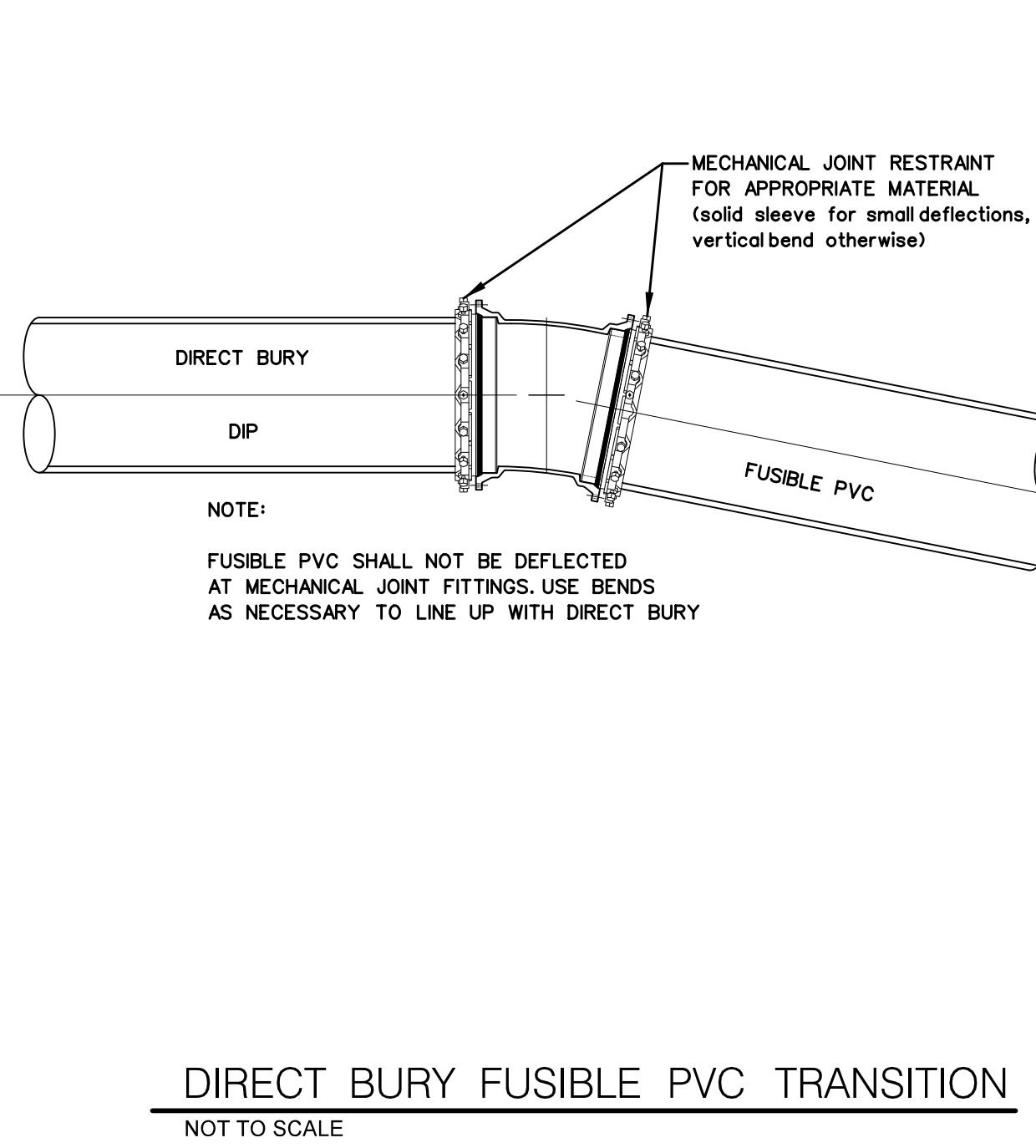
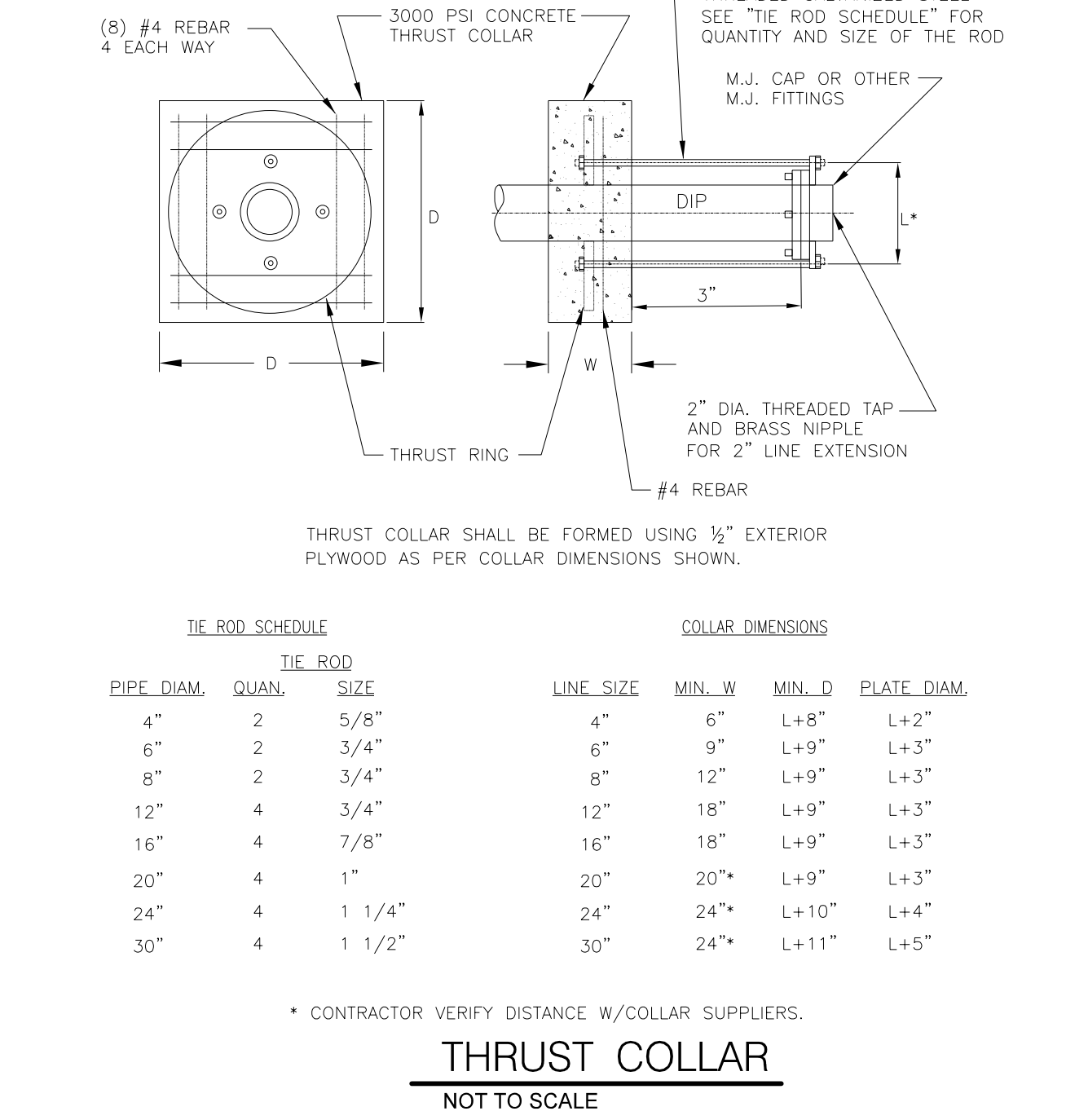
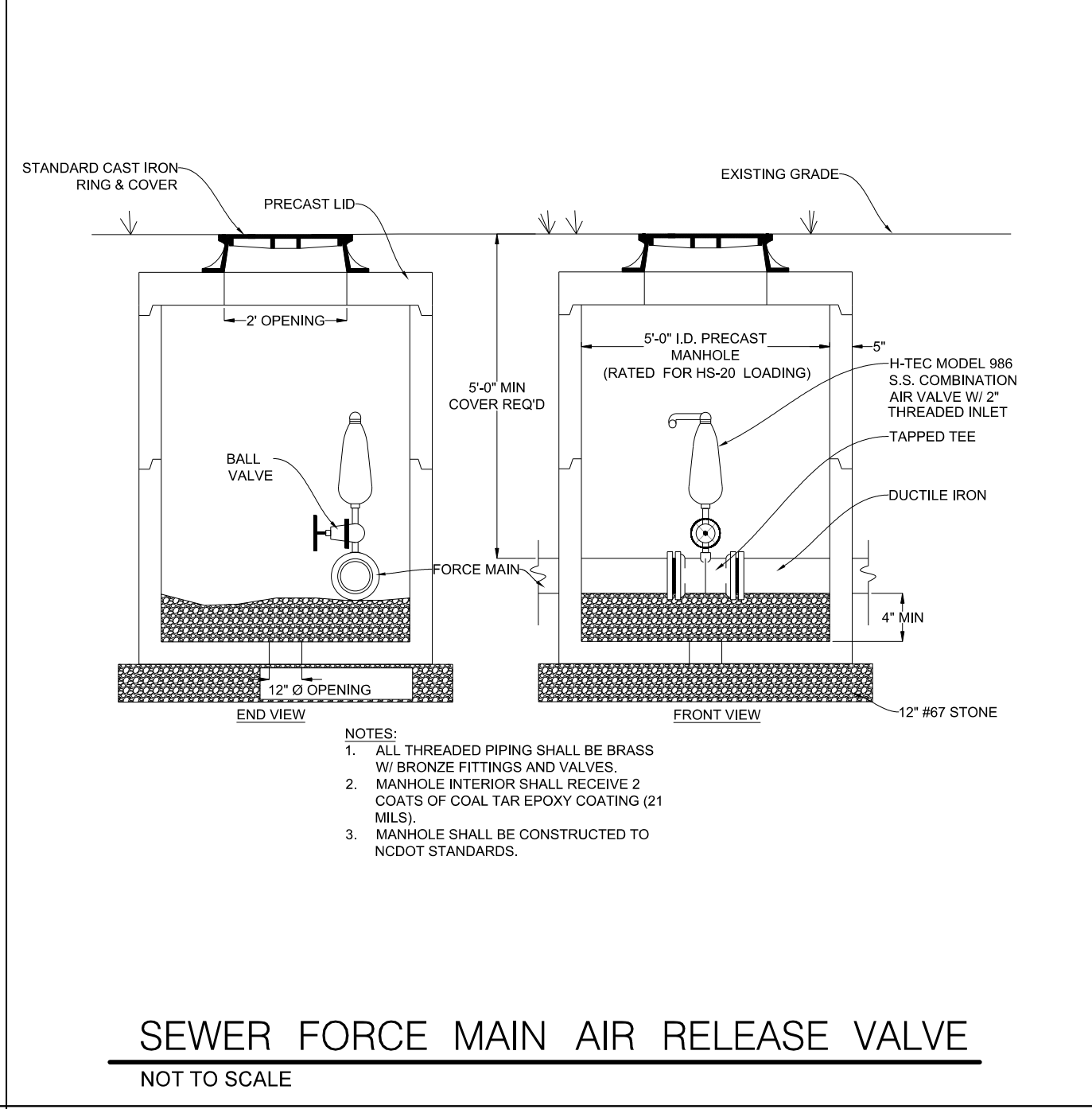
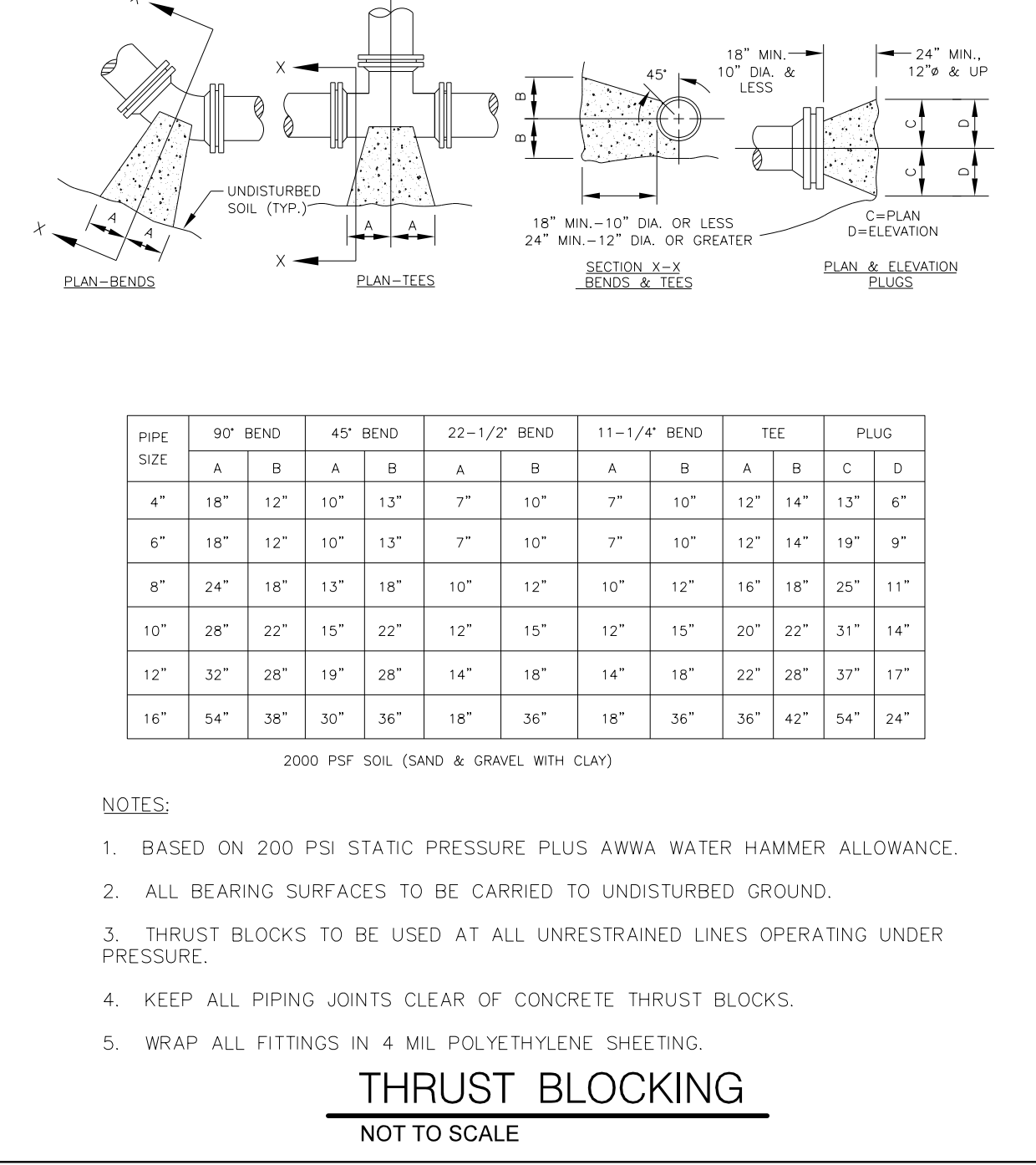
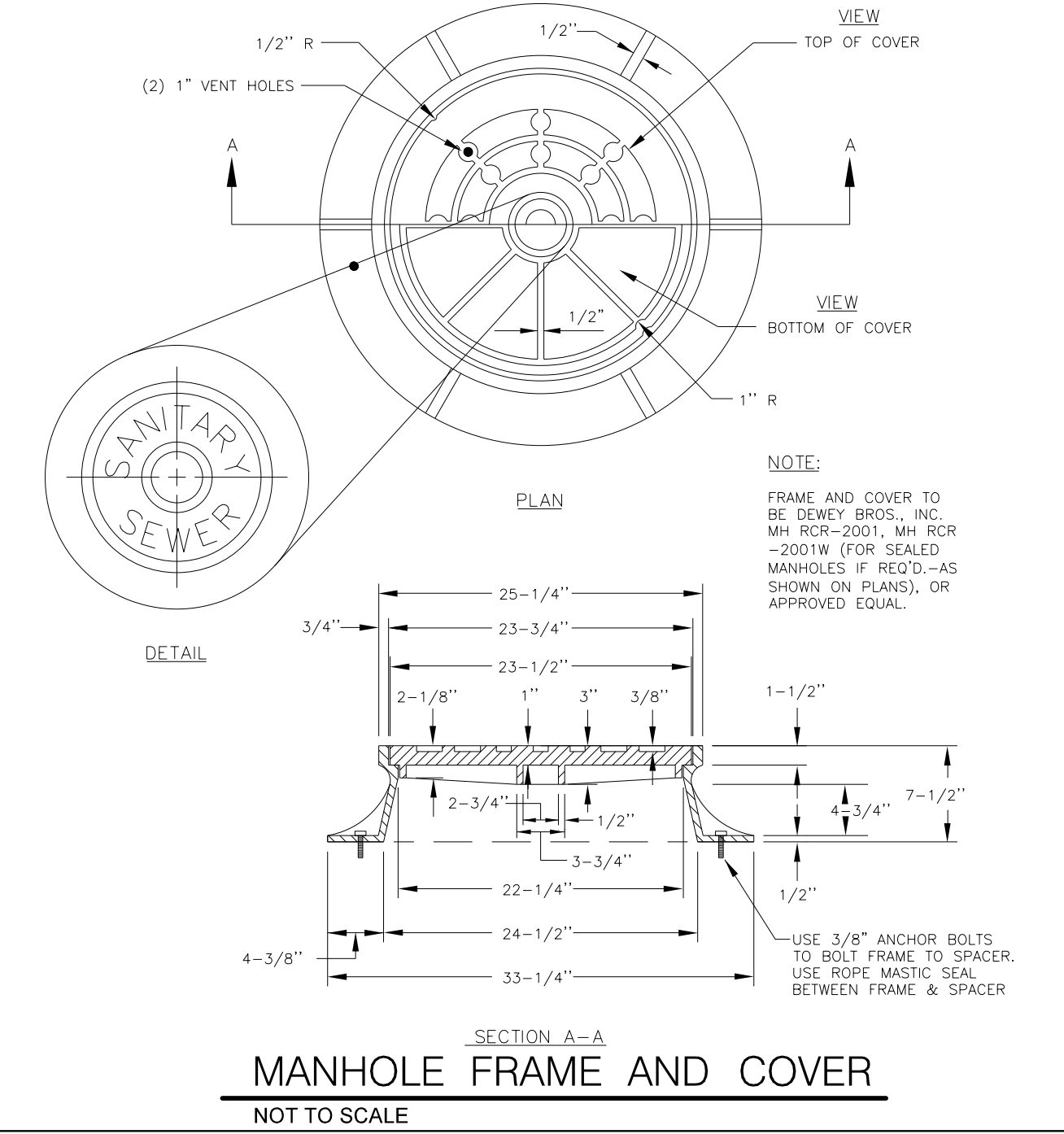
REVIS: **NORTH CAROLINA DEPARTMENT OF TRANSPORTATION**  
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151

Document Not Considered Final Unless All Signatures Completed  
UTILITY CONSTRUCTION PLANS ONLY

VERTICAL SCALE: 0 5' 10'  
HORIZONTAL SCALE: 0 25' 50'

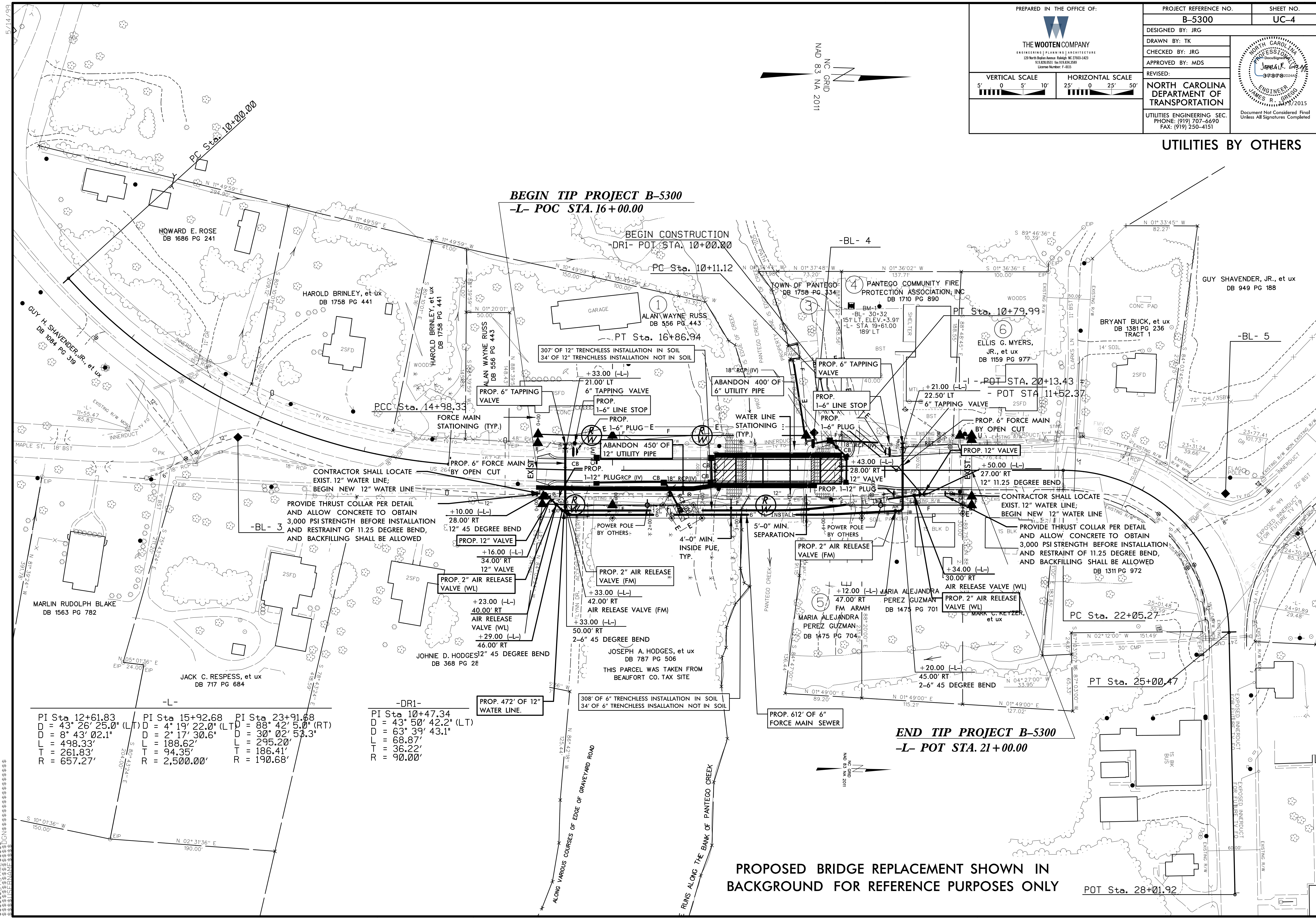
SEWER LINE CONSTRUCTION SHOWN ON THIS SHEET

UTILITY CONSTRUCTION



5/14/2015

**UTILITIES BY OTHERS**



**BEGIN TIP PROJECT B-5300**  
**-L- POC STA. 16+00.00**

**END TIP PROJECT B-5300**  
**-L- POT STA. 21+00.00**

PI Sta 12+61.83 D = 43° 26' 25.0" (LT) D = 8° 43' 02.1" L = 498.33' T = 261.83' R = 657.27'	PI Sta 15+92.68 D = 4° 19' 22.0" (LT) D = 2° 17' 30.6" L = 188.62' T = 94.35' R = 2,500.00'	PI Sta 23+91.68 D = 88° 42' 5.0" (RT) D = 30° 02' 5.3" L = 295.20' T = 186.41' R = 190.68'
--	--	---

-DR1- PI Sta 10+47.34 D = 43° 50' 42.2" (LT) D = 63° 39' 43.1" L = 68.87' T = 36.22' R = 90.00'
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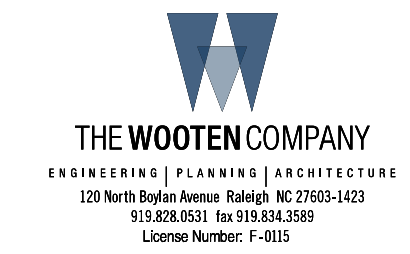
**PROPOSED BRIDGE REPLACEMENT SHOWN IN BACKGROUND FOR REFERENCE PURPOSES ONLY**

POT Sta. 28+01.92

5/28/19

### WATER LINES OWNED BY BEAUFORT COUNTY SEWER LINES OWNED BY TOWN OF BELHAVEN

PREPARED IN THE OFFICE OF:



PROJECT REFERENCE NO.

B-5300

SHEET NO.

UC-5

DESIGNED BY: JRG

DRAWN BY: TK

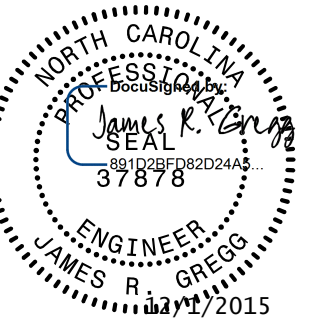
CHECKED BY: JRG

APPROVED BY: MDS

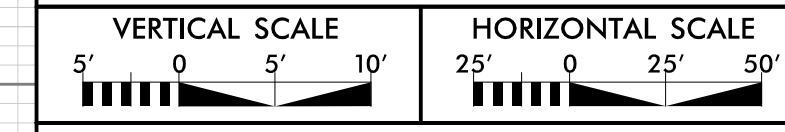
REVISED:

NORTH CAROLINA  
DEPARTMENT OF  
TRANSPORTATION

UTILITIES ENGINEERING SEC.  
PHONE: (919) 707-6690  
FAX: (919) 250-4151



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UTILITY CONSTRUCTION  
PLANS ONLY



WATER AND SEWER LINE  
CONSTRUCTION SHOWN  
ON THIS SHEET

UTILITY CONSTRUCTION

10

0

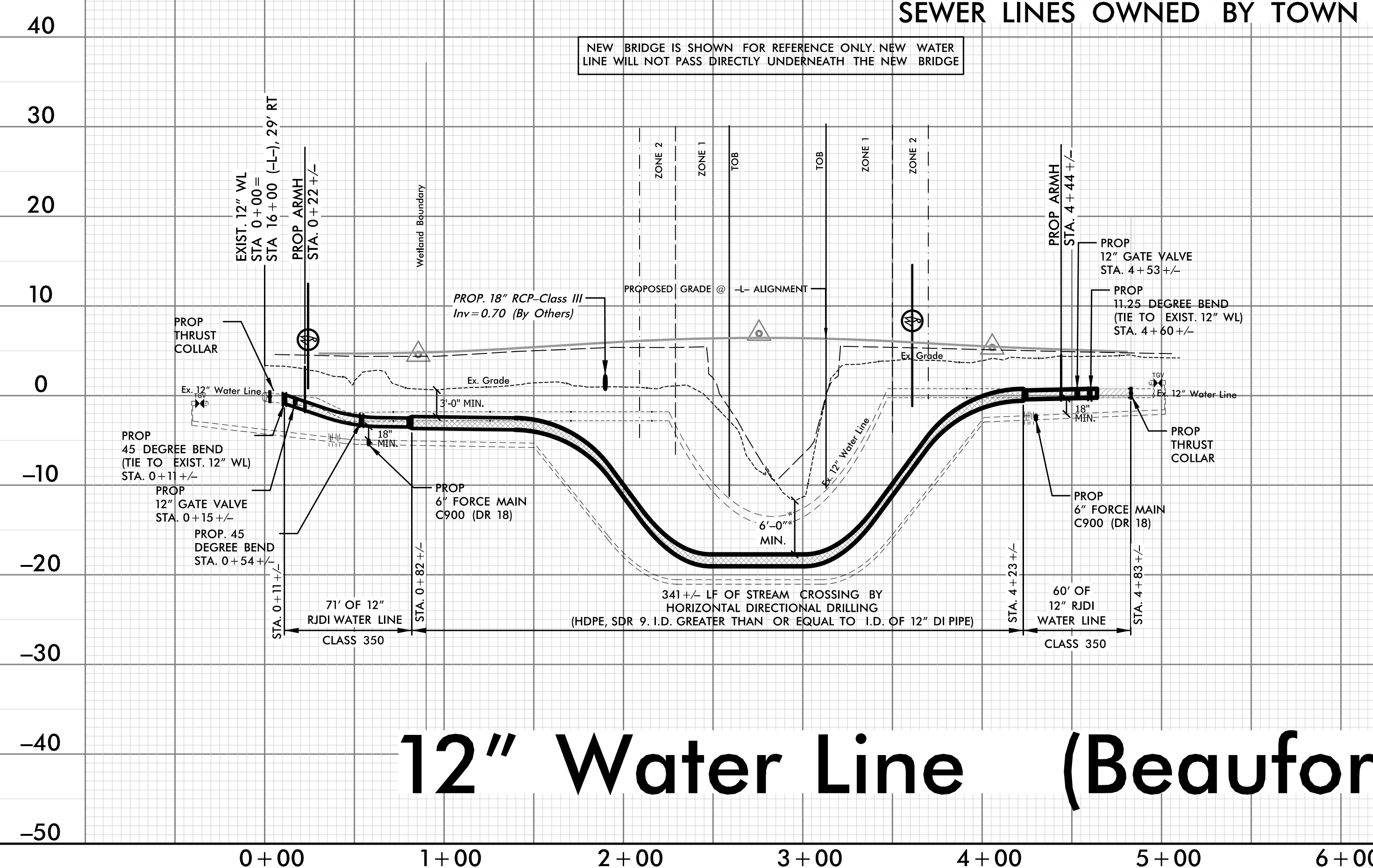
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PROFILE SHOWN IS BASED ON STATIONING ALONG  
PROPOSED WATER LINE ALIGNMENT ALONG  
ROADWAY ALIGNMENT -L-  
(SEE SHEET UC-4)

## 12" Water Line (Beaufort County)

0+00 1+00 2+00 3+00 4+00 5+00 6+00

40

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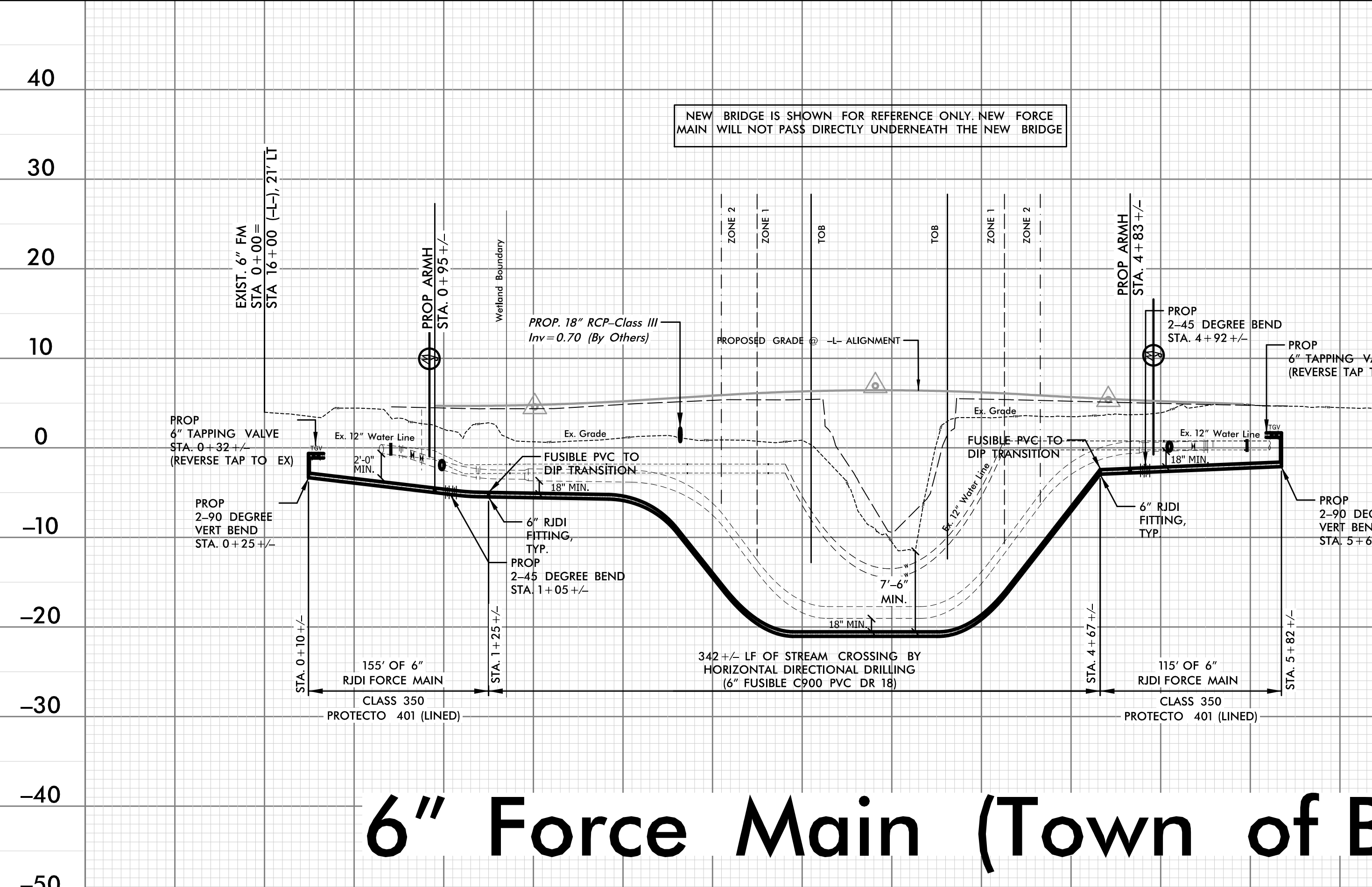
-10

-20

-30

-40

-50



PROFILE SHOWN IS BASED ON STATIONING ALONG  
PROPOSED FORCE MAIN ALIGNMENT ALONG  
ROADWAY ALIGNMENT -L-  
(SEE SHEET UC-4)

## 6" Force Main (Town of Belhaven)

0+00 1+00 2+00 3+00 4+00 5+00 6+00

5/28/19