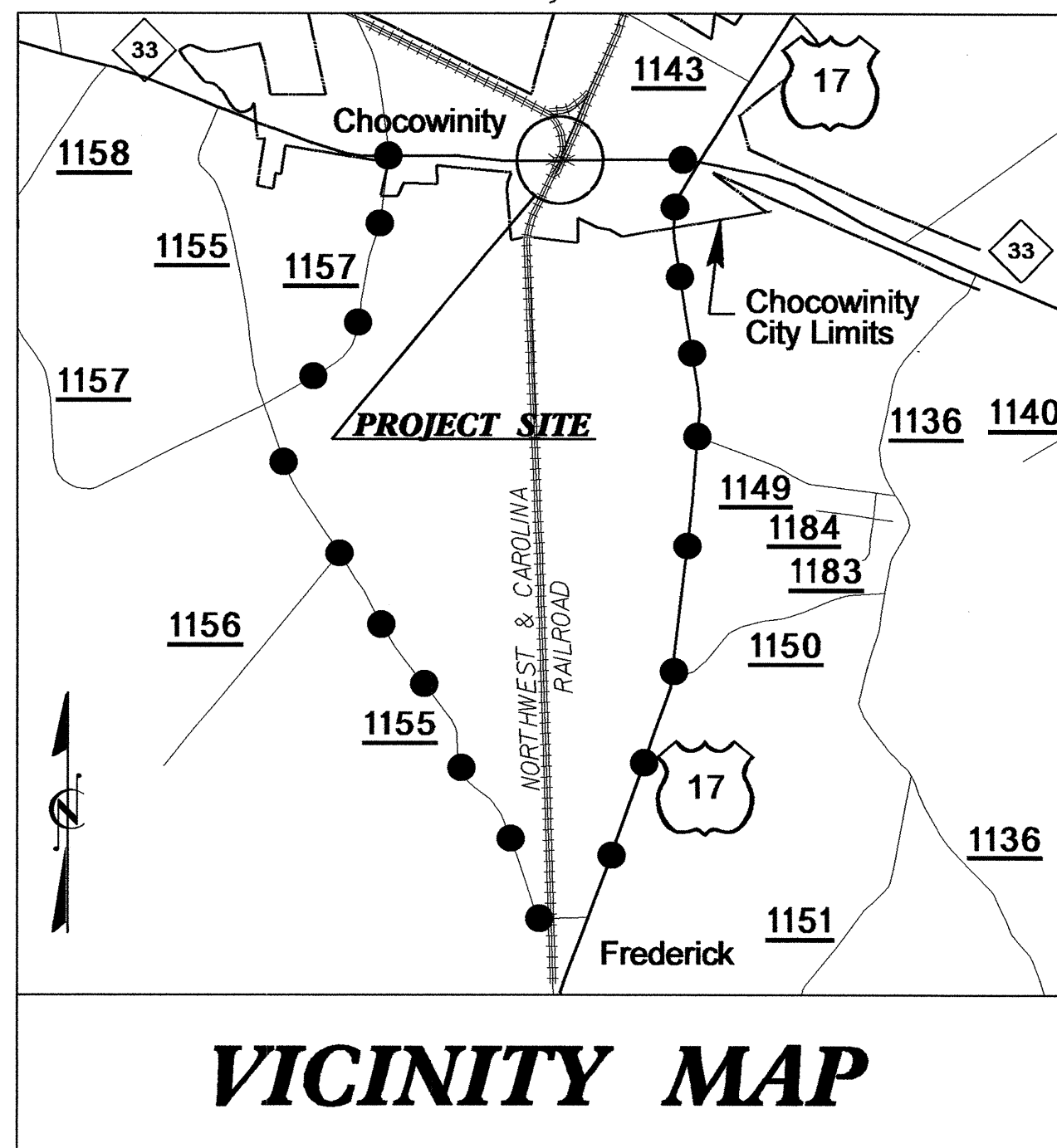


T.I.P. NO.	SHEET NO.
B-4416	UC-1

**TIP PROJECT: B-4416**

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

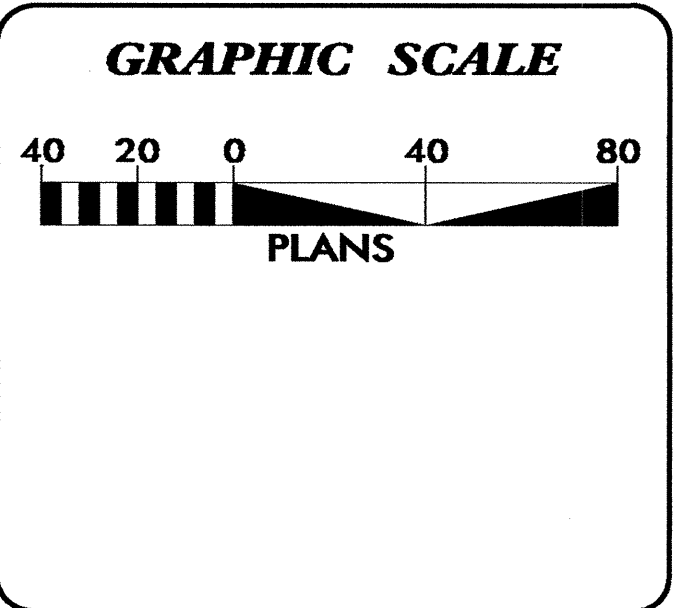
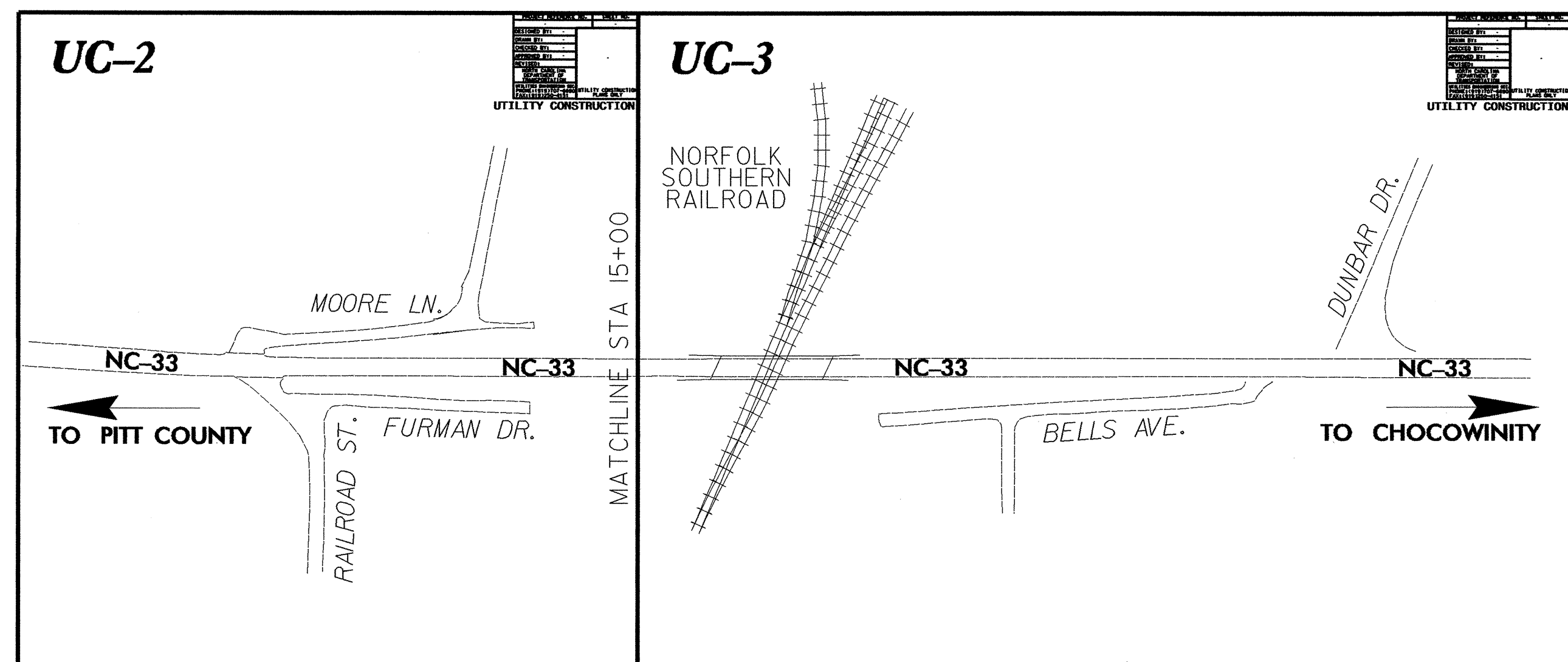
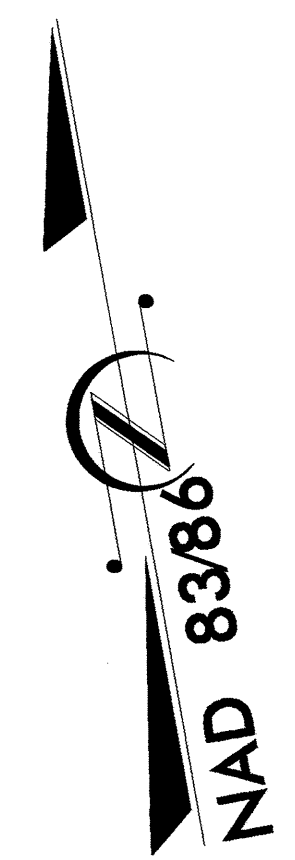


**VICINITY MAP**

●●●●● OFFSITE DETOUR

# UTILITY CONSTRUCTION PLANS BEAUFORT COUNTY TOWN OF CHOCOWINITY

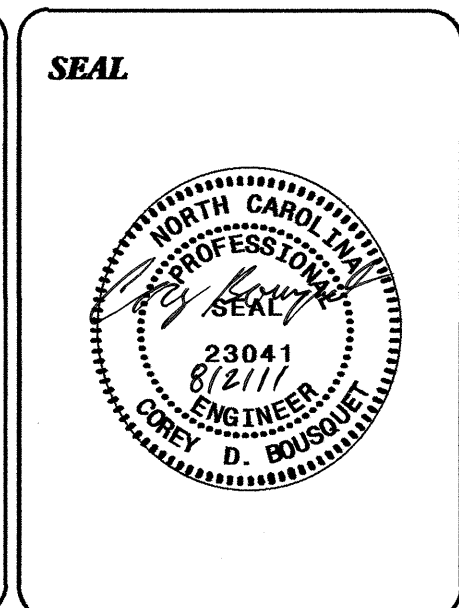
**LOCATION: NC-33 OVER NORFOLK SOUTHERN RAILROAD TRACKS**  
**TYPE OF WORK: WATER AND SANITARY SEWER RELOCATIONS**

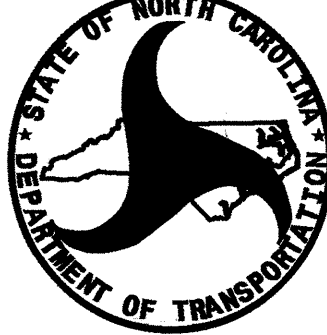


INDEX OF SHEETS	
SHEET NO.	DESCRIPTION
UC-1	TITLE SHEET
UC-2, UC-3	PLAN SHEETS
UC-4, UC-5	DETAIL SHEETS
UC-6	SIGNING SHEET

**WATER AND SEWER OWNERS ON PROJECT**

(1) WATER...TOWN OF CHOCOWINITY  
(2) SANITARY SEWER...TOWN OF CHOCOWINITY





PREPARED IN THE OFFICE OF:  
**DIVISION OF HIGHWAYS**  
**UTILITIES ENGINEERING**  
**SECTION**

1591 MAIL SERVICES CENTER  
 RALEIGH NC 27699-1591  
 PHONE (919) 250-4128  
 FAX (919) 250-4119

**Roger Worthington, P.E.** UTILITIES SECTION ENGINEER  
**Corey Bousquet, P.E.** UTILITIES SQUAD LEADER PROJECT ENGINEER  
**Eric Hangaard** UTILITIES PROJECT DESIGNER

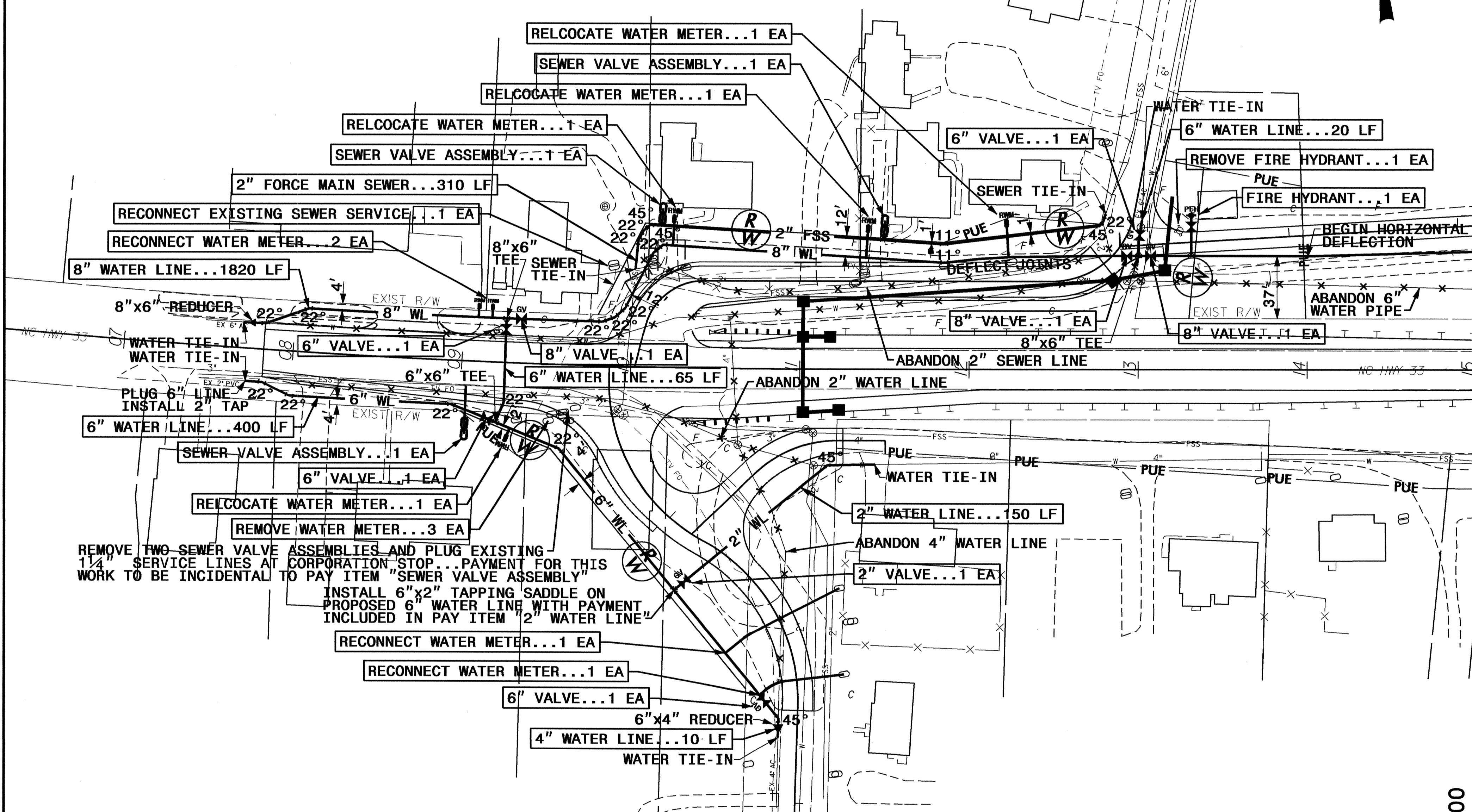
02-AUG-2011 12:59  
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 \$\$\$USERNAME\$\$\$

5/14/99

# B-4416 WATER AND SEWER LINE RELOCATIONS

## GENERAL NOTES:

- (1) CONTRACTOR TO RELOCATE/RECONNECT SEWER VALVE ASSEMBLIES JUST OUTSIDE OF RIGHT-OF-WAY SO THAT ENTIRE SEWER VALVE ASSEMBLY IS ON PRIVATE PROPERTY.
- (2) ALL PROPOSED WATER PIPE TO BE PVC/SDR-21 EXCEPT WHERE PIPE CROSSES UNDER RAILROAD TRACKS WHERE PIPE IS TO BE DUCTILE IRON, RESTRAINED-JOINT PIPE FOR A MINIMUM OF FIVE FULL-LENGTH PIPES EACH SIDE OF CASING.
- (3) ALL SEWER LINES TO BE INSTALLED WITH 4' COVER.
- (4) ALL WATER LINES TO BE INSTALLED WITH 3' COVER.
- (5) ALL SEWER VALVE ASSEMBLIES REQUIRING RELOCATION ARE TO BE ABANDONED AFTER NEW SEWER VALVE ASSEMBLIES ARE INSTALLED AND OPERATIONAL WITH PAYMENT FOR ABANDONING ASSEMBLIES INCIDENTAL TO INSTALLATION OF NEW ASSEMBLIES.



## GENERAL NOTES CONTINUED:

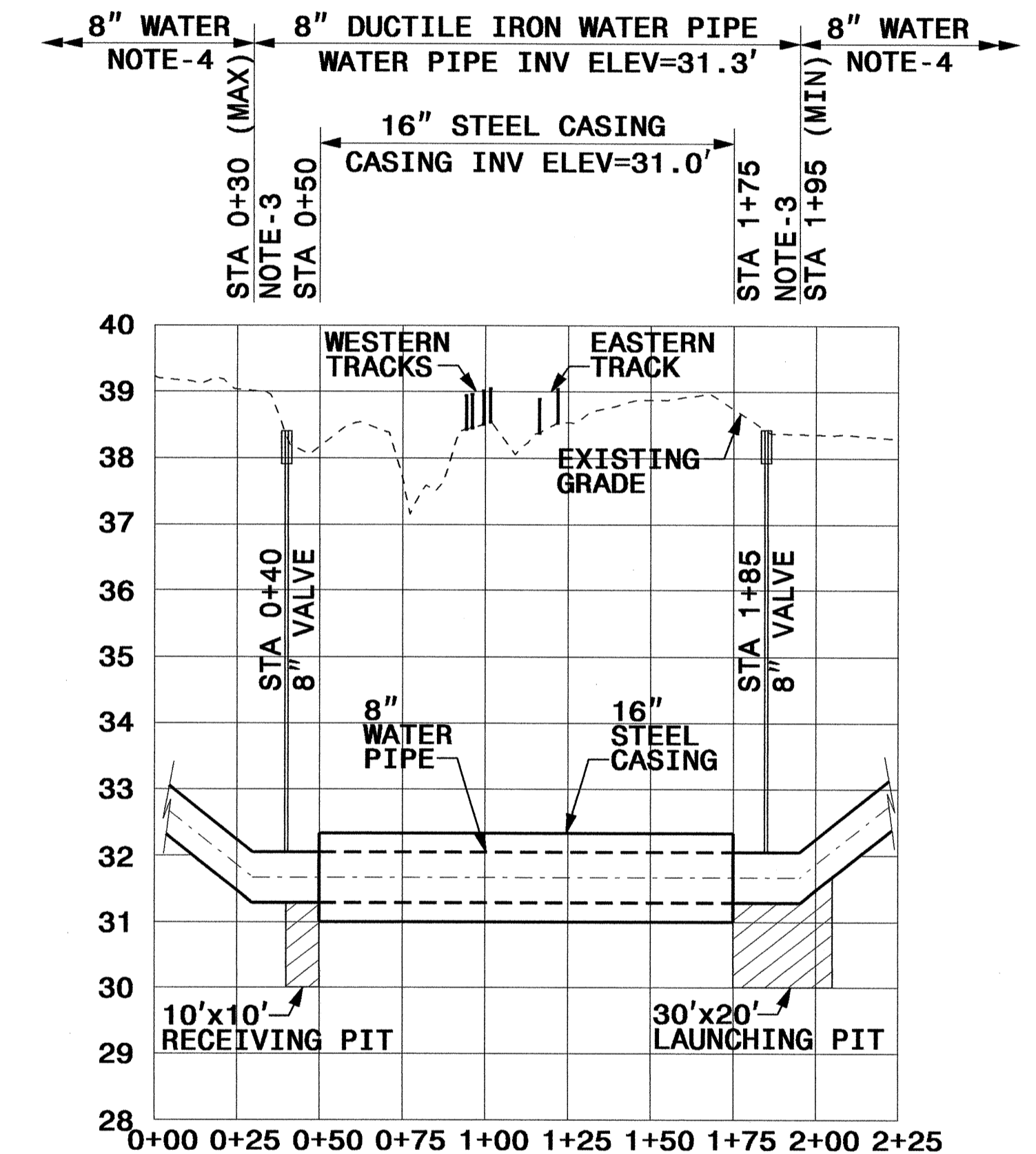
- (6) ALL WATER AND SEWER TIE-INS (PROPOSED PIPE TO EXISTING PIPE) TO USE NECESSARY FITTINGS FOR CONNECTION WHICH ARE INCIDENTAL TO THAT PARTICULAR UTILITY LINE.
- (7) INSTALL WARNING TAPE DIRECTLY ABOVE ALL WATER PIPE INSTALLED BY OPEN-TRENCH METHOD AT 2' BELOW GRADE.

PLAN SCALE:  
 1"=40' (FULL-SIZE SHEET)  
 1"=80' (HALF-SIZE SHEET)

PROJECT REFERENCE NO. <b>B-4416</b>	SHEET NO. <b>UC-2</b>
DESIGNED BY: <b>EWH</b>	
DRAWN BY: <b>EWH</b>	
CHECKED BY: <b>CDB</b>	
APPROVED BY: <b>CDB</b>	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION UTILITIES ENGINEERING SEC. PHONE: (919)250-4128 FAX: (919)250-4119	
UTILITY CONSTRUCTION PLANS ONLY	

## UTILITY CONSTRUCTION

### PROPOSED WATER MAIN PROFILE UNDER EXISTING RAILROAD TRACKS (FOR PLAN LOCATION SEE SHEET UC-3)



## PROFILE NOTES:

- (1) CASING PIPE TO BE INSTALLED BY BORE AND JACK METHOD.
- (2) WATER PIPE TO BE DUCTILE IRON, PRESSURE CLASS 350, RESTRAINED-JOINT TYPE THROUGH CASING AND FOR A MINIMUM OF FIVE FULL-LENGTH PIPES BEYOND EACH SIDE OF CASING.
- (3) INSTALL WATER PIPES AT INVERT ELEVATION (31.3') INSIDE CASING AND FOR A MINIMUM OF ONE FULL-LENGTH WATER PIPE OUTSIDE OF CASING (EACH SIDE).
- (4) DEFLECT WATER PIPE JOINTS (VERTICALLY) USING PIPE MANUFACTURER'S JOINT DEFLECTION CRITERIA TO TRANSITION FROM INVERT ELEVATION (31.3') UP TO 3' COVER (MINIMUM) ACROSS REMAINING NORFOLK SOUTHERN PROPERTY.
- (5) CONTRACTOR TO MEET ALL REQUIREMENTS GIVEN IN SECTIONS 5.1.3.A THROUGH SECTION 5.1.3.H OF NORFOLK SOUTHERN'S SPECIFICATIONS 'NSCE-8' (5/16/01) FOR THE TRENCHLESS INSTALLATION (BORE AND JACK) UNDER RAILROAD TRACKS.
- (6) 16" STEEL CASING TO HAVE MINIMUM 0.281" THICK WALLS WITH BITUMINOUS COATING, CONFORMING TO ASTM A-139, GRADE "B" STEEL.

PROFILE SCALE:  
 FULL-SIZE SHEET  
 1"=40' (HORIZONTAL)  
 1"=2' (VERTICAL)

PROFILE SCALE:  
 HALF-SIZE SHEET  
 1"=80' (HORIZONTAL)  
 1"=1' (VERTICAL)

MATCHLINE STA 15+00


MATCHLINE STA 15+00

02-AUG-2011 13:43  
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5/14/99

MATCHLINE STA 15+00

# B-4416 WATER AND SEWER LINE RELOCATIONS

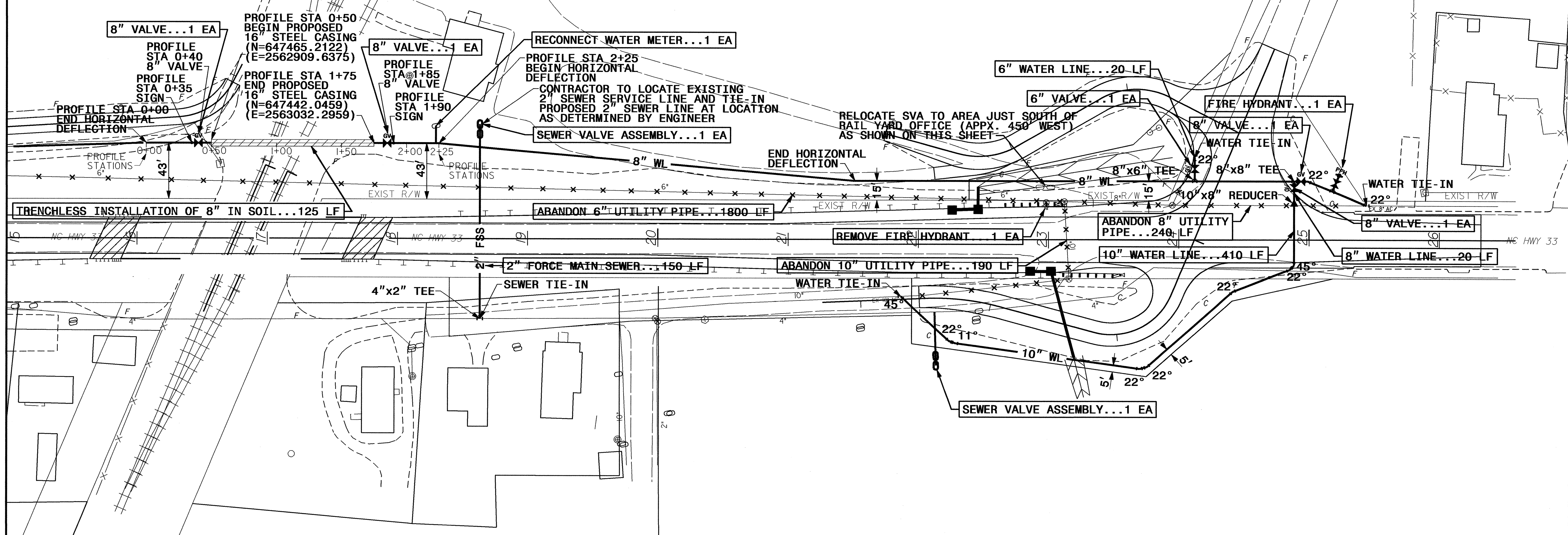
PROJECT REFERENCE NO.	SHEET NO.
B-4416	UC-3
DESIGNED BY: EWH	
DRAWN BY: EWH	
CHECKED BY: CDB	
APPROVED BY: CDB	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE: (919) 250-4128 FAX: (919) 250-4119	
UTILITY CONSTRUCTION PLANS ONLY	

## UTILITY CONSTRUCTION

FOR PROFILE OF PROPOSED WATER LINE UNDER TRACKS SEE SHEET UC-2

NORFOLK SOUTHERN RAIL YARD MILEPOST "NB-0.2"

NAD 83/86

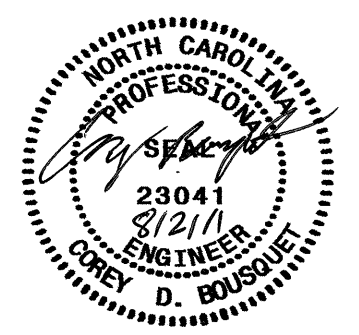


MATCHLINE STA 15+00

PLAN SCALE:  
1"=40' (FULL-SIZE SHEET)  
1"=80' (HALF-SIZE SHEET)

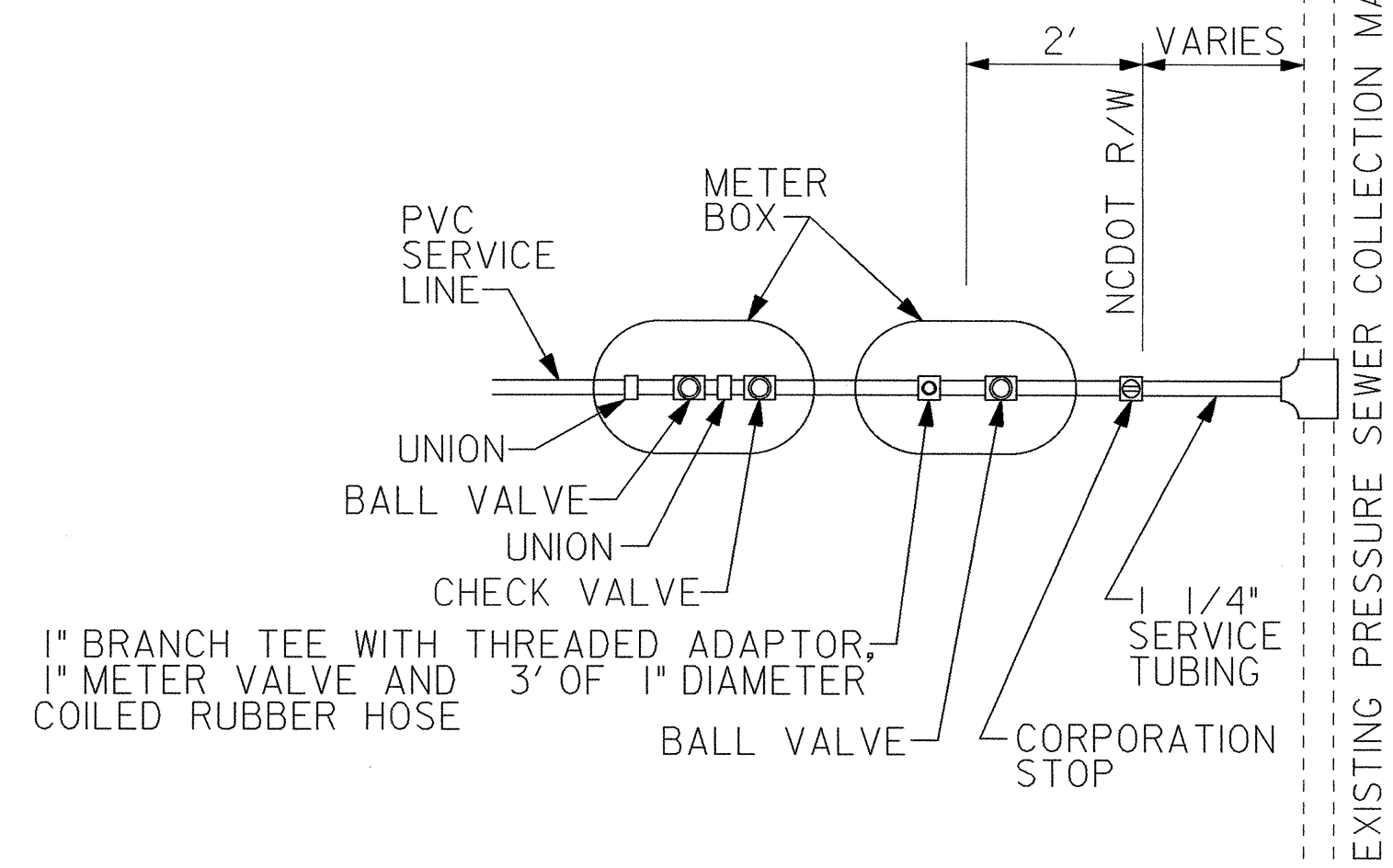
02-UC-20111116\_16\_ewh\_plan\_sheet\_UC3\_08-02-11.dgn

5/14/99

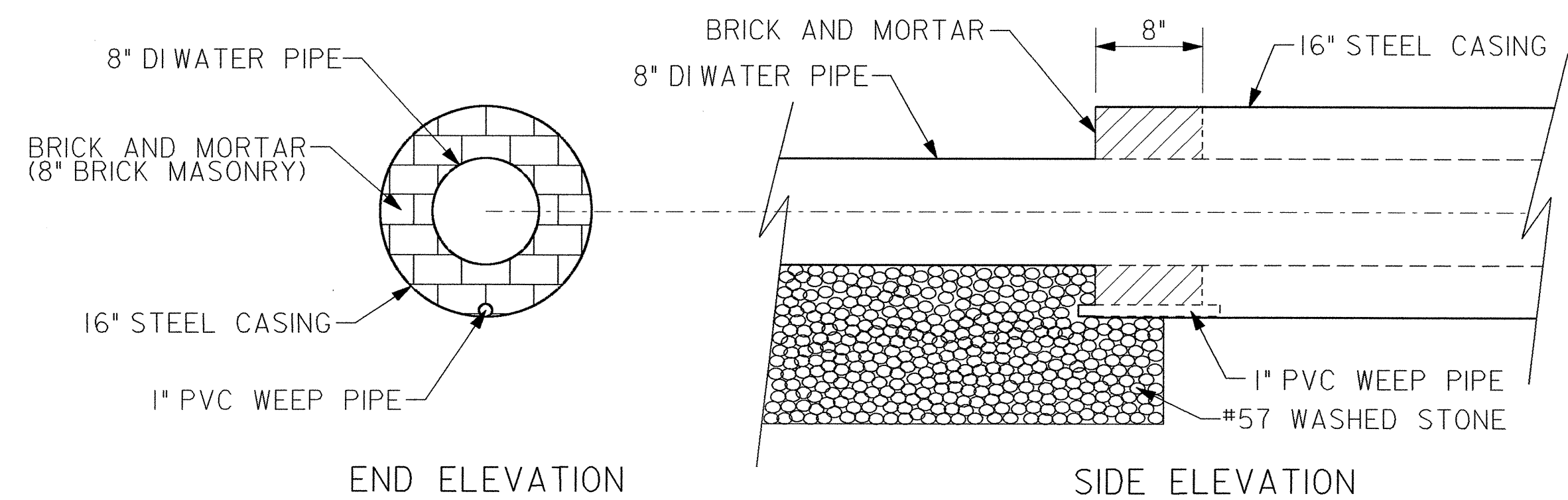
PROJECT REFERENCE NO.	SHEET NO.
<b>B-4416</b>	<b>UC-4</b>
DESIGNED BY: <b>EWH</b>	
DRAWN BY: <b>EWH</b>	
CHECKED BY: <b>CDB</b>	
APPROVED BY: <b>CDB</b>	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION COREY D. BOUSH ENGINEER 23041 8/21/11	
UTILITIES ENGINEERING SEC. PHONE: (919) 250-4128 FAX: (919) 250-4119	UTILITY CONSTRUCTION PLANS ONLY

# B-4416 WATER AND SEWER LINE RELOCATIONS DETAIL SHEET

SEWER VALVE ASSEMBLY



ENCASEMENT END SEAL



UTILITY CONSTRUCTION

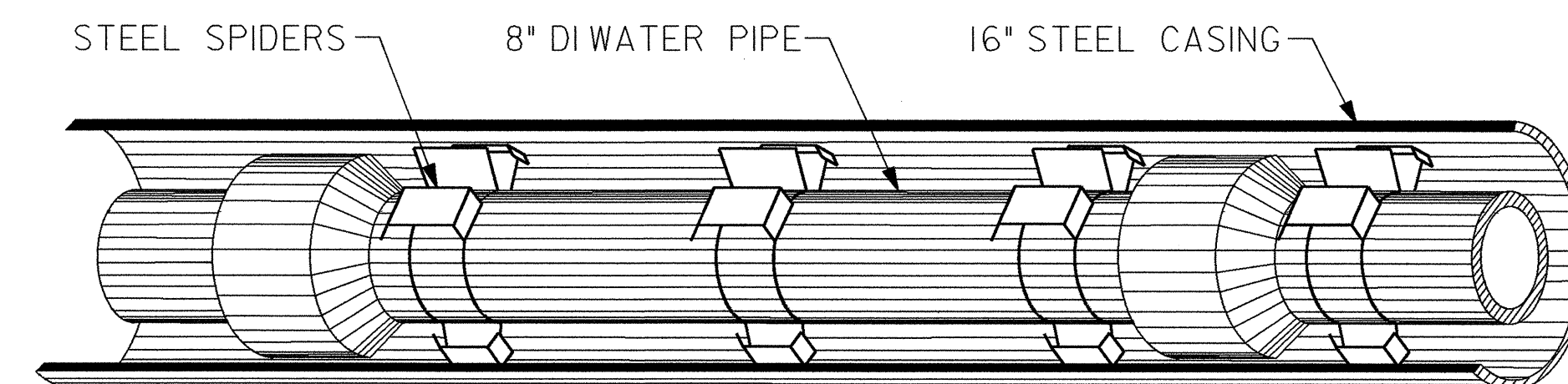
ENCASEMENT END SEAL NOTES:

- (1) GROUT MASONRY AND AROUND WEEP PIPE AS REQUIRED FOR WATERTIGHT SEAL.
- (2) PLACE 5 CUBIC YARDS OF #57 WASHED STONE AT EACH END OF CASING WITH APPROXIMATE DIMENSIONS OF STONE DRAINAGE BED TO BE 10'x10'x1.5' (DEEP).
- (3) ALL WORK ASSOCIATED WITH ENCASEMENT END SEALS TO BE INCLUDED IN PAY ITEM "TRENCHLESS INSTALLATION OF 8" IN SOIL."

WATER AND SEWER TRENCH NOTES

PLACE FOUNDATION CONDITIONING MATERIAL BELOW BEDDING IF REQUIRED, AS DIRECTED BY ENGINEER. PIPE BEDDED IN SELECT MATERIAL, CLASS IV. TRENCH BACKFILLED IN LOOSE 6" LAYERS COMPACTED TO TOP OF TRENCH USING LOCAL EXCAVATED MATERIAL IF APPROVED BY THE ENGINEER, OR SELECT MATERIAL. ALL MATERIAL SHALL BE FREE OF ROCKS, FOREIGN MATERIAL, AND FROZEN EARTH. COMPACTION SHALL BE TO APPROX. 95% DENSITY IN ACCORDANCE WITH AASHTO T-99 AS MODIFIED BY THE DEPARTMENT OF TRANSPORTATION.

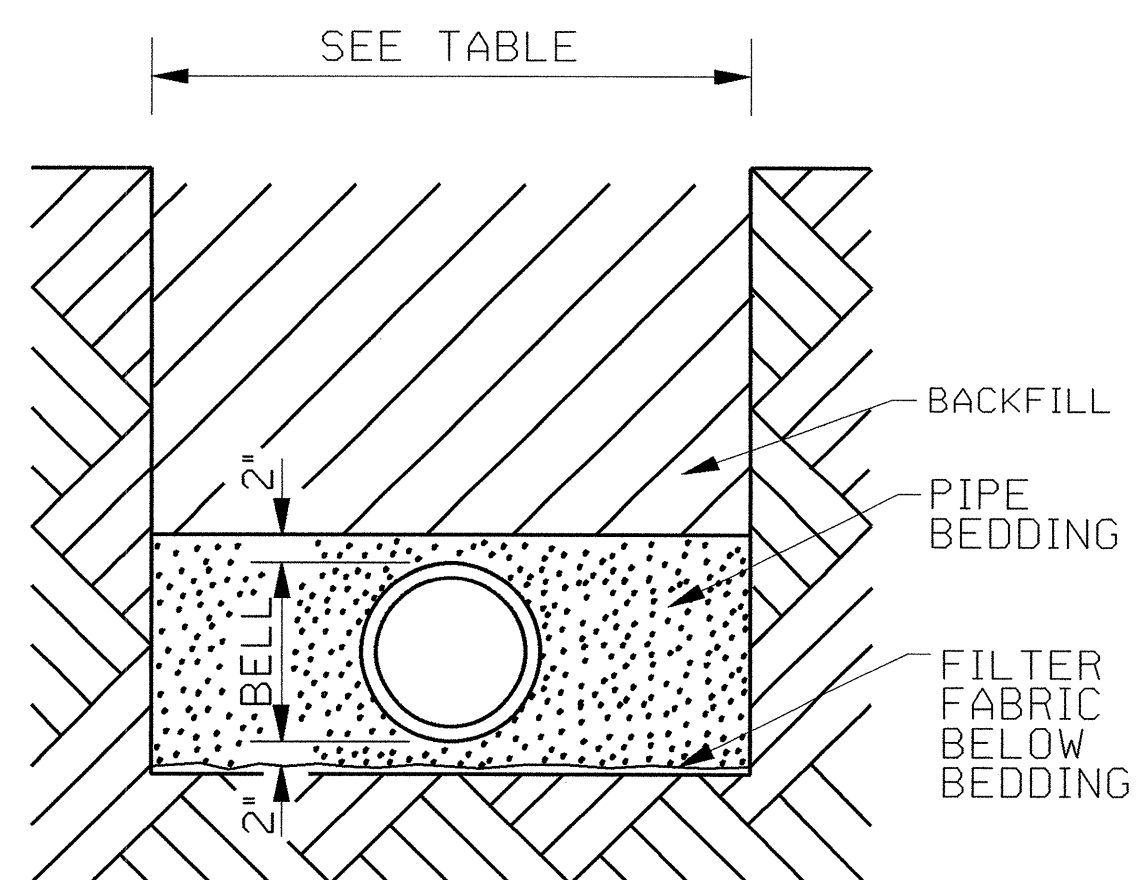
ENCASEMENT INTERIOR



ENCASEMENT INTERIOR NOTES:

- (1) ONE SPIDER SHALL BE PLACED NOT MORE THAN 24" FROM EACH END OF CASING. SUBSEQUENT SPIDERS SHALL BE PLACED ON EACH SIDE OF CARRIER (I.E. 8" WATER) PIPE JOINTS (WITHIN 24" OF JOINT) AND ONE SPIDER SHALL BE PLACED AT MID-SPAN OF EACH CARRIER (I.E. 8" WATER) PIPE.
- (2) INSTALL BRICK MASONRY END SEAL (DETAIL THIS SHEET) EACH END OF CASING PIPE.
- (3) ALL WORK ASSOCIATED WITH INSTALLATION OF CARRIER (I.E. 8" WATER) PIPE AND SPIDERS TO BE INCLUDED IN PAY ITEM "TRENCHLESS INSTALLATION OF 8" IN SOIL."

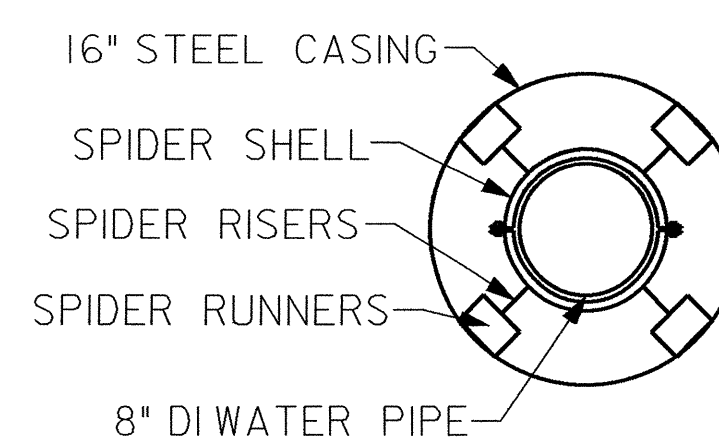
WATER AND SEWER  
TRENCH DETAIL



WATER AND SEWER  
MAXIMUM TRENCH  
WIDTHS AT TOP  
OF PIPES

NOMINAL PIPE SIZE (INCHES)	TRENCH WIDTH (INCHES)
4	28
6	30
8	32
10	34

SPIDER PIPE SUPPORTS



SPIDER PIPE SUPPORT NOTES:

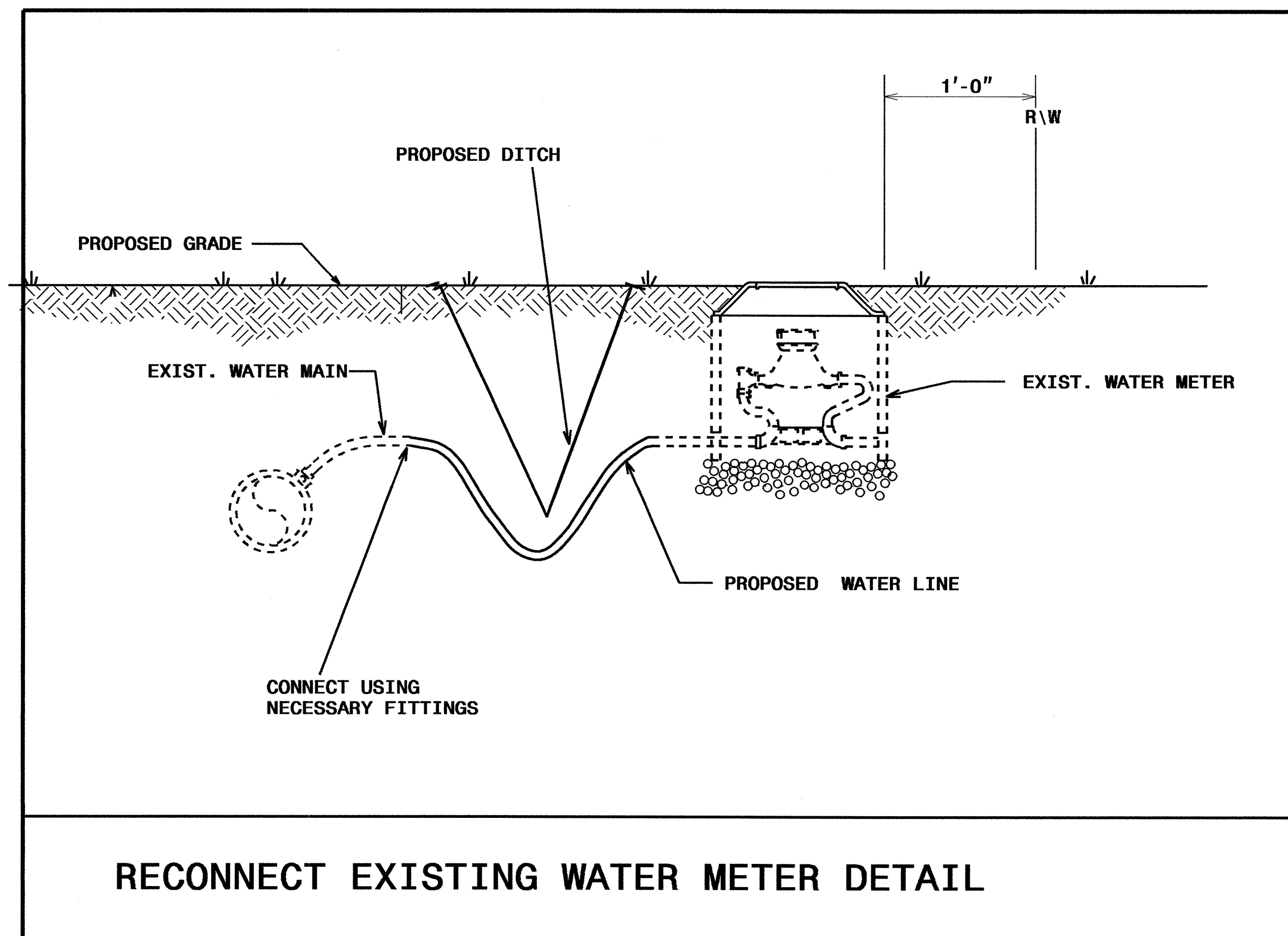
- (1) SPIDERS SHALL BE MADE OF T-304 STAINLESS STEEL WITH A MINIMUM 1/4 GAGE THICKNESS. CONNECTING FLANGES SHALL HAVE A MINIMUM OF THREE 3/8" DIAMETER, T-304 BOLTS.
- (2) THE SHELL SHALL BE LINED WITH A RIBBED PVC EXTRUSION WITH A RETAINING SECTION THAT OVERLAPS THE EDGES OF THE SHELL AND PREVENTS SLIPPAGE.
- (3) RISERS SHALL BE MADE OF T-304 STAINLESS STEEL WITH A MINIMUM 1/4 GAGE THICKNESS.
- (4) RUNNERS SHALL BE MADE OF ULTRA-HIGH MOLECULAR WEIGHT POLYMER WITH A LOW COEFFICIENT OF FRICTION.
- (5) CENTER SPIDER (AND WATER PIPE) INSIDE CASING.

02 AUG 2011 12:17:27 ewh\_detail\_sheet\_UC4\_08-02-11.dgn  
 333331 157 100 100 100 100

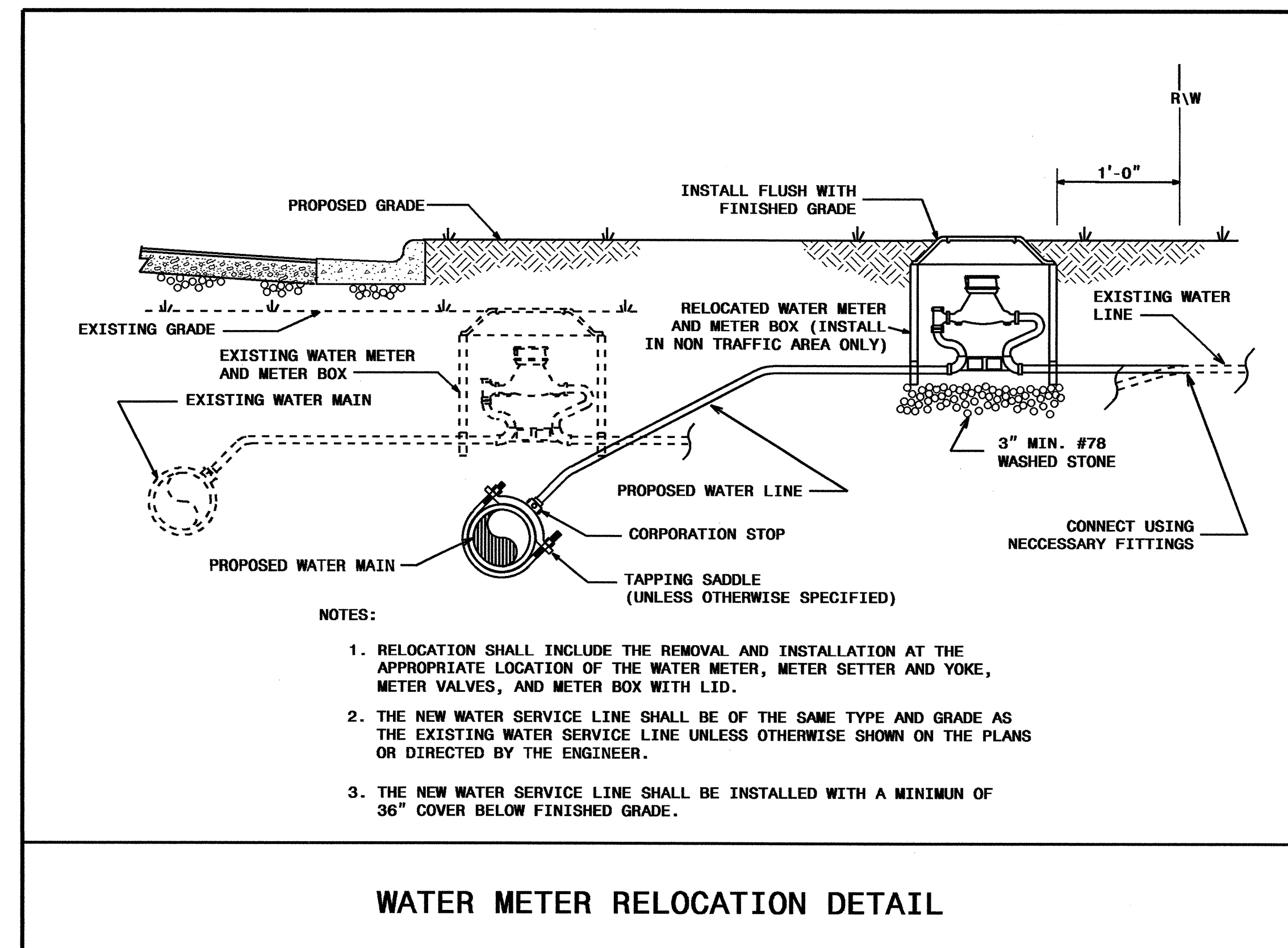
# B-4416 WATER AND SEWER LINE RELOCATIONS DETAIL SHEET

PROJECT REFERENCE NO.	SHEET NO.
<b>B-4416</b>	<b>UC-5</b>
DESIGNED BY: <b>EWH</b>	
DRAWN BY: <b>EWH</b>	
CHECKED BY: <b>CDB</b>	
APPROVED BY: <b>CDB</b>	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION UTILITIES ENGINEERING SEC. PHONE: (919)250-4128 FAX: (919)250-4119	
UTILITY CONSTRUCTION PLANS ONLY	

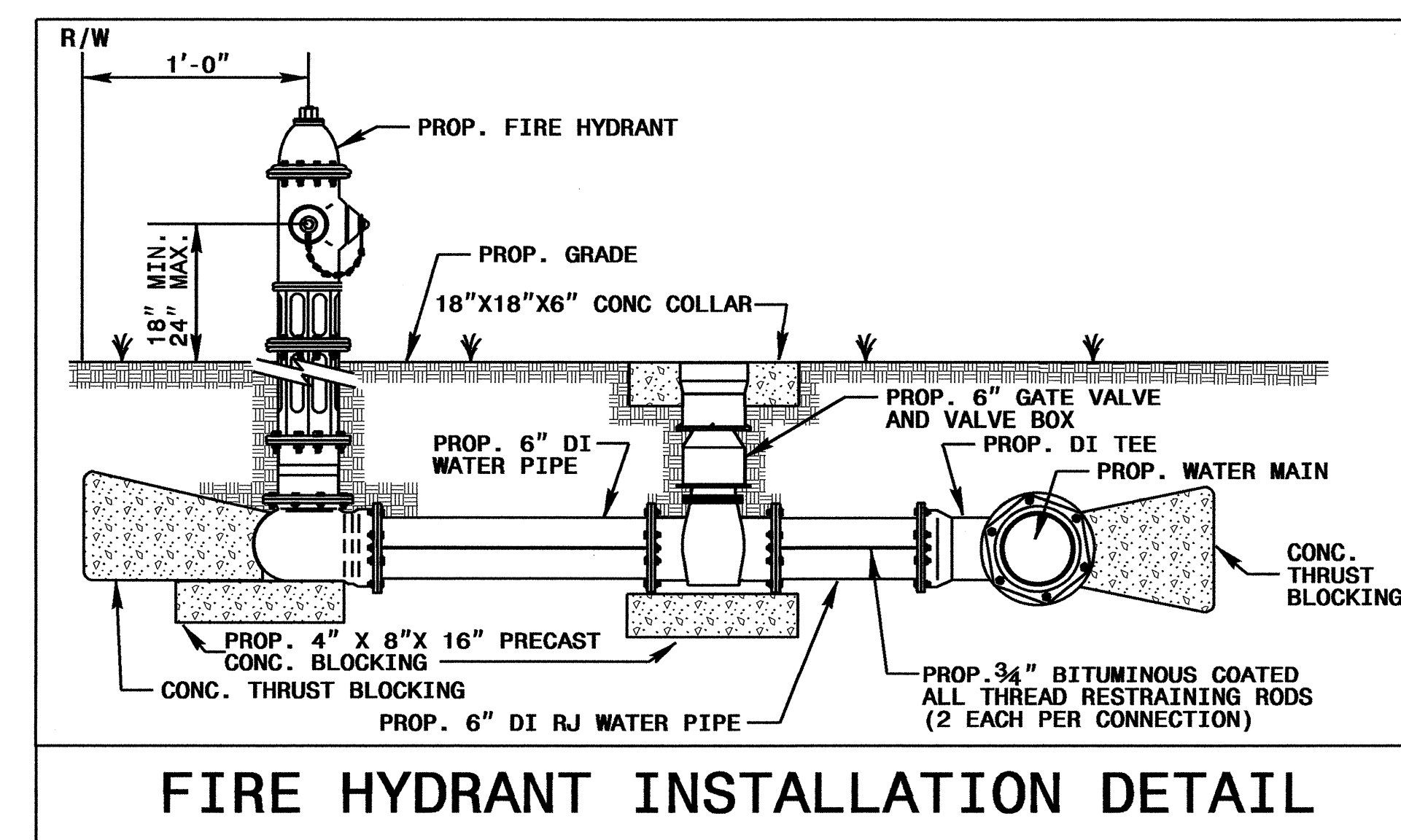
UTILITY CONSTRUCTION



RECONNECT EXISTING WATER METER DETAIL



WATER METER RELOCATION DETAIL



FIRE HYDRANT INSTALLATION DETAIL

5/14/99

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 \$\$\$\$ LARRY BOJESCU

5/14/99

# B-4416 WATER AND SEWER LINE RELOCATIONS SIGNING SHEET

PROJECT REFERENCE NO. <b>B-4416</b>	SHEET NO. <b>UC-6</b>
DESIGNED BY: <b>EWB</b>	
DRAWN BY: <b>EWB</b>	
CHECKED BY: <b>CDB</b>	
APPROVED BY: <b>CDB</b>	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION UTILITIES ENGINEERING SEC. PHONE: (919)250-4128 FAX: (919)250-4119	
UTILITY CONSTRUCTION PLANS ONLY	

**SIGN NUMBER:** name  
**TYPE:** D  
**QUANTITY:** 2

**BACKG COLOR:** White  
**COPY COLOR:** Black

SYMBOL	X	Y	WID	HT

**SIGN WIDTH:** 2'-0"  
**HEIGHT:** 1'-6"  
**TOTAL AREA:** 3.0 Sq.Ft.

**BORDER TYPE:** FLUSH  
**RECESS:** 0.38"  
**WIDTH:** 0.63"  
**RADII:** 1.13"

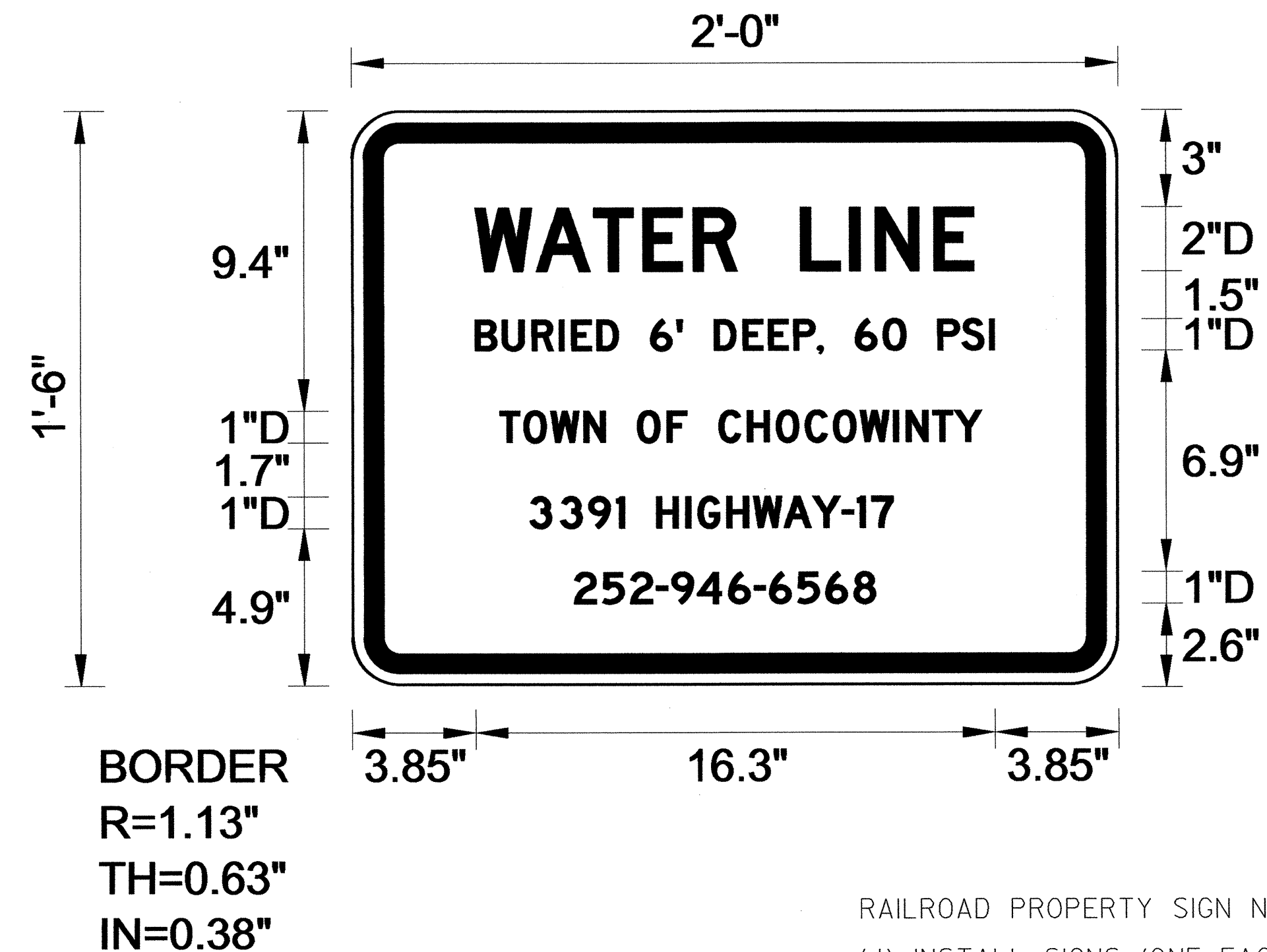
**NO. Z BARS:**  
**LENGTH:**

**MAT'L:** 0.125" (3.2 mm) ALUMINUM

**USE NOTES:** 1,2

- Legend and border(except those that are colored black) shall be direct applied Grade C sheeting.
- Background shall be Grade C reflective sheeting.

RAILROAD PROPERTY SIGN



UTILITY CONSTRUCTION

RAILROAD PROPERTY SIGN NOTES:  
 (1) INSTALL SIGNS (ONE EACH SIDE OF RAILROAD TRACKS) AT LOCATIONS SHOWN ON PLAN SHEET UC-3.

**LETTER POSITIONS**

Letter spacings are to start of next letter																							Series/Size Text Length	
	W	A	T	E	R		L	I	N	E													D 2000 15.6	
3.9	1.9	1.8	1.5	1.6	1.4	2	1.5	0.8	1.8	1.2	4.5													
	B	U	R	I	E	D		6	'		D	E	E	P	,	6	0		P	S	I		D 2000 16.3	
3.9	0.8	0.9	0.9	0.4	0.8	0.7	1	0.8	0.2	1	0.9	0.8	0.8	0.7	0.2	1	0.9	0.7	1	0.8	0.9	0.2	3.9	
	T	O	W	N		O	F		C	H	O	C	O	W	I	N	T	Y						D 2000 15.1
4	0.8	0.8	1	0.7	1	0.9	0.6	1	0.9	0.9	0.9	0.9	0.8	1	0.4	0.8	0.7	0.9	4.9					
	3	3	9	1		H	I	G	H	W	A	Y	-	1	7									D 2000 11.4
5.6	1	0.9	0.9	0.3	1	0.9	0.4	0.9	0.8	0.9	0.9	0.9	0.5	0.4	0.7	7								
	2	5	2	-	9	4	6	-	6	5	6	8												D 2000 9.4
7	0.9	0.9	0.8	0.5	0.8	1	0.8	0.5	0.9	0.9	0.9	0.7	7.6											

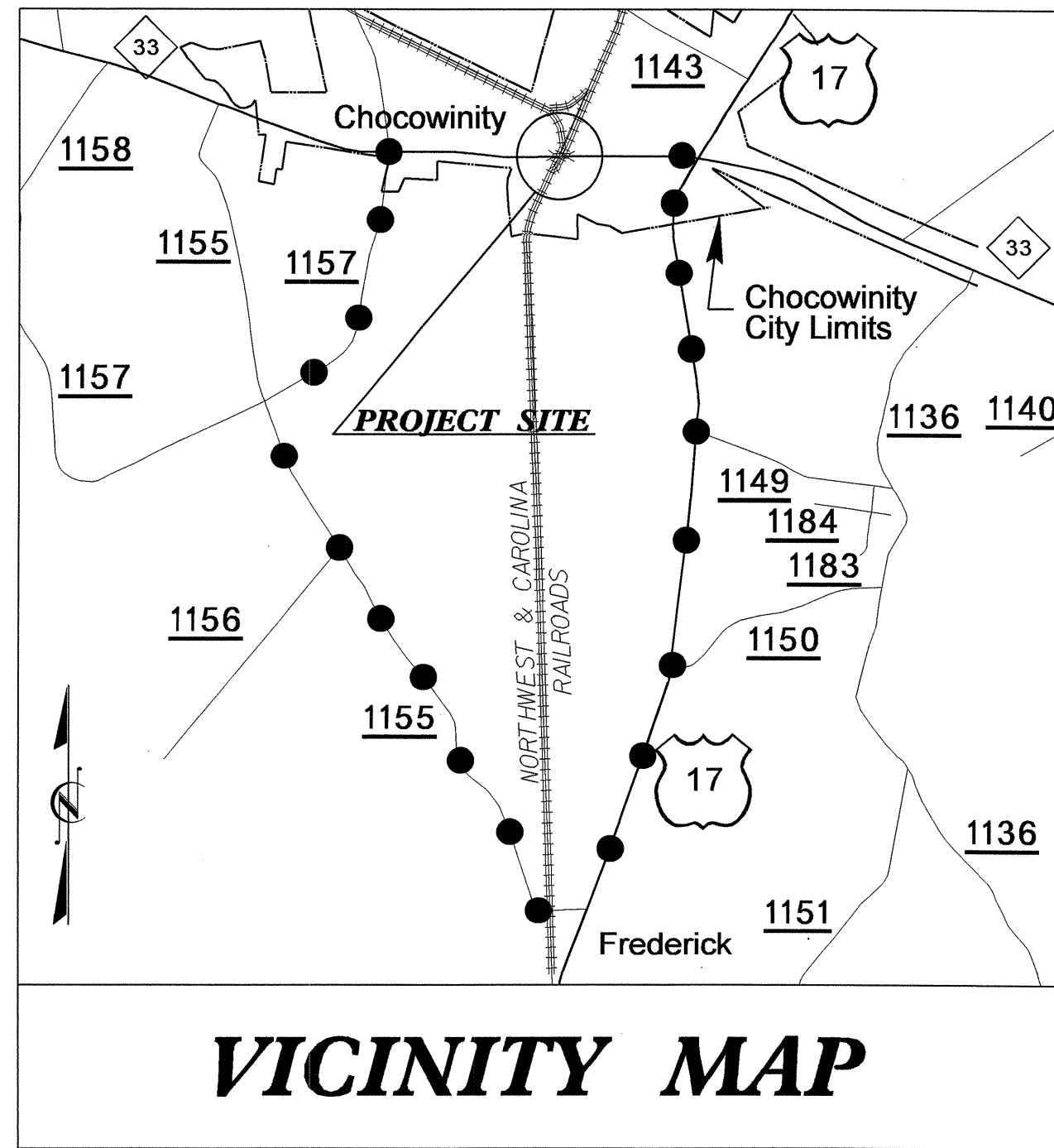
FILENAME: WATER LINE

NORTH CAROLINA D.O.T. SIGN DETAIL

03-AUG-2011 15:17 \\P01\Users\ewb\working\sheet\_UC6\_108-02-11.dgn

09/08/99

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



**VICINITY MAP**

●●●●● OFFSITE DETOUR

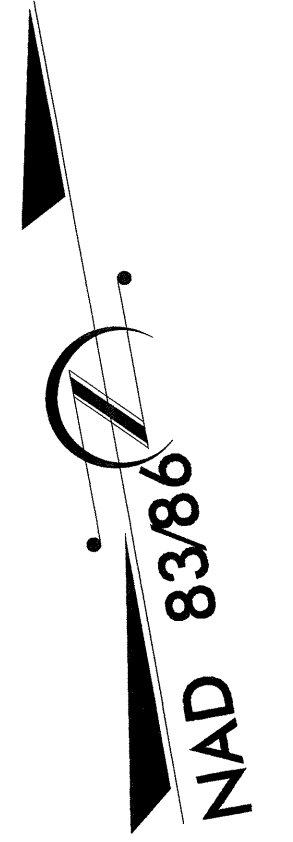
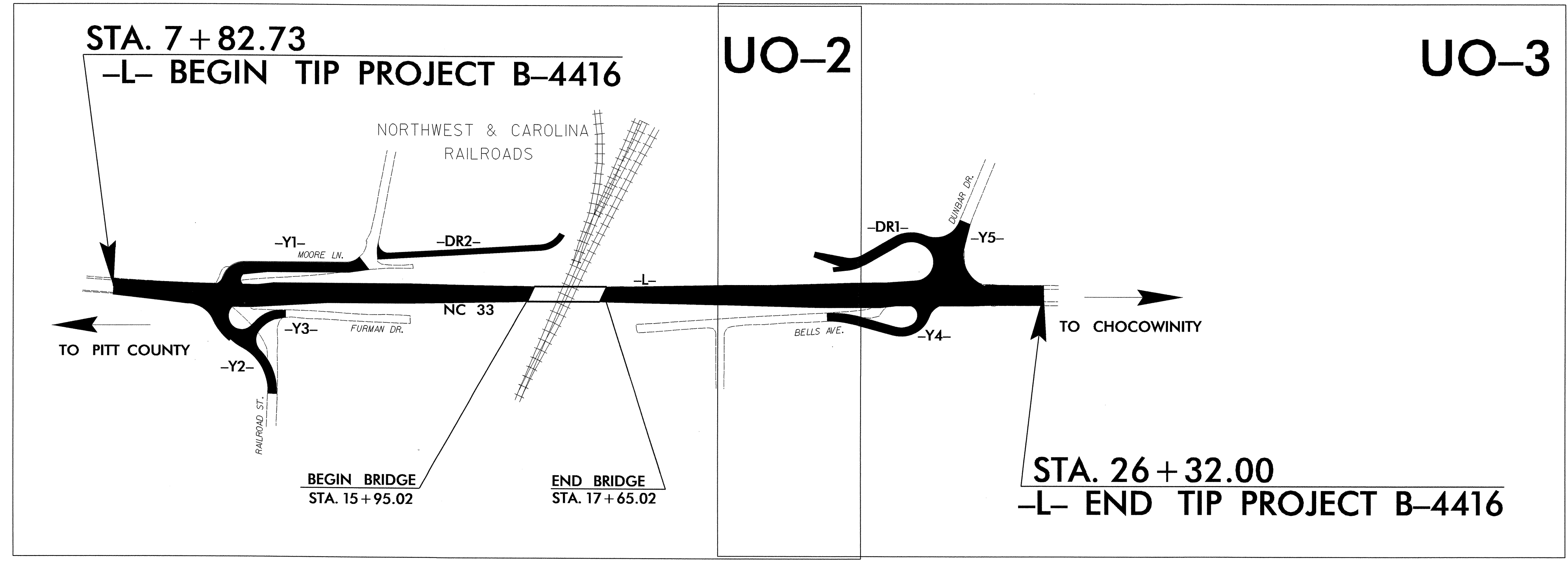
STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

**UTILITIES BY OTHERS PLANS  
BEAUFORT COUNTY**

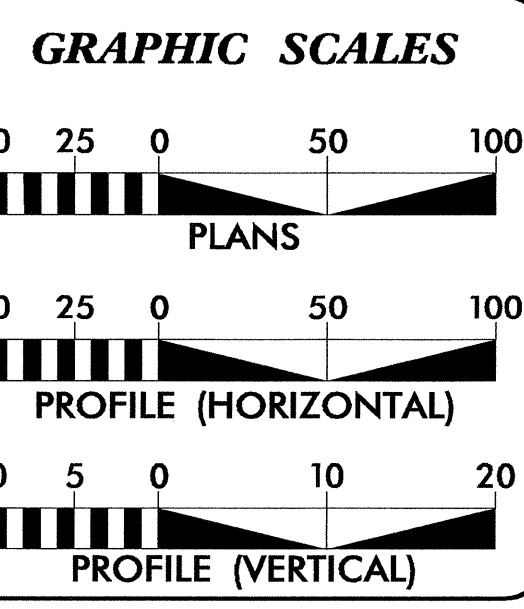
**LOCATION: BRIDGE 76 OVER THE CAROLINA &  
NORTHWEST RAILROADS ON NC 33**

**TYPE OF WORK: UTILITY BY OTHERS RELOCATION**

T.I.P. NO.	SHEET NO.
B-4416	UO-1



**TIP PROJECT: B-4416**



**INDEX OF SHEETS**

SHEET NO.	DESCRIPTION
UO-1	TITLE SHEET
UO-2 THRU UO-3	UTILITY BY OTHERS PLAN SHEETS

**UTILITY OWNERS ON PROJECT**

- (1) CENTURYLINK - TELEPHONE
- (2) PROGRESS ENERGY - POWER
- (3) SUDDENLINK - CABLE

PREPARED IN THE OFFICE OF:  
**DIVISION OF HIGHWAYS  
UTILITIES ENGINEERING  
SECTION**

1555 MAIL SERVICES CENTER  
RALEIGH NC 27699-1555  
PHONE (919) 707-6690  
FAX (919) 250-4151

**Roger Worthington, P.E.** UTILITIES SECTION ENGINEER  
**Corey Bousquet, P.E.** UTILITIES SQUAD LEADER PROJECT ENGINEER  
**Stephanie Athey** UTILITIES PROJECT DESIGNER

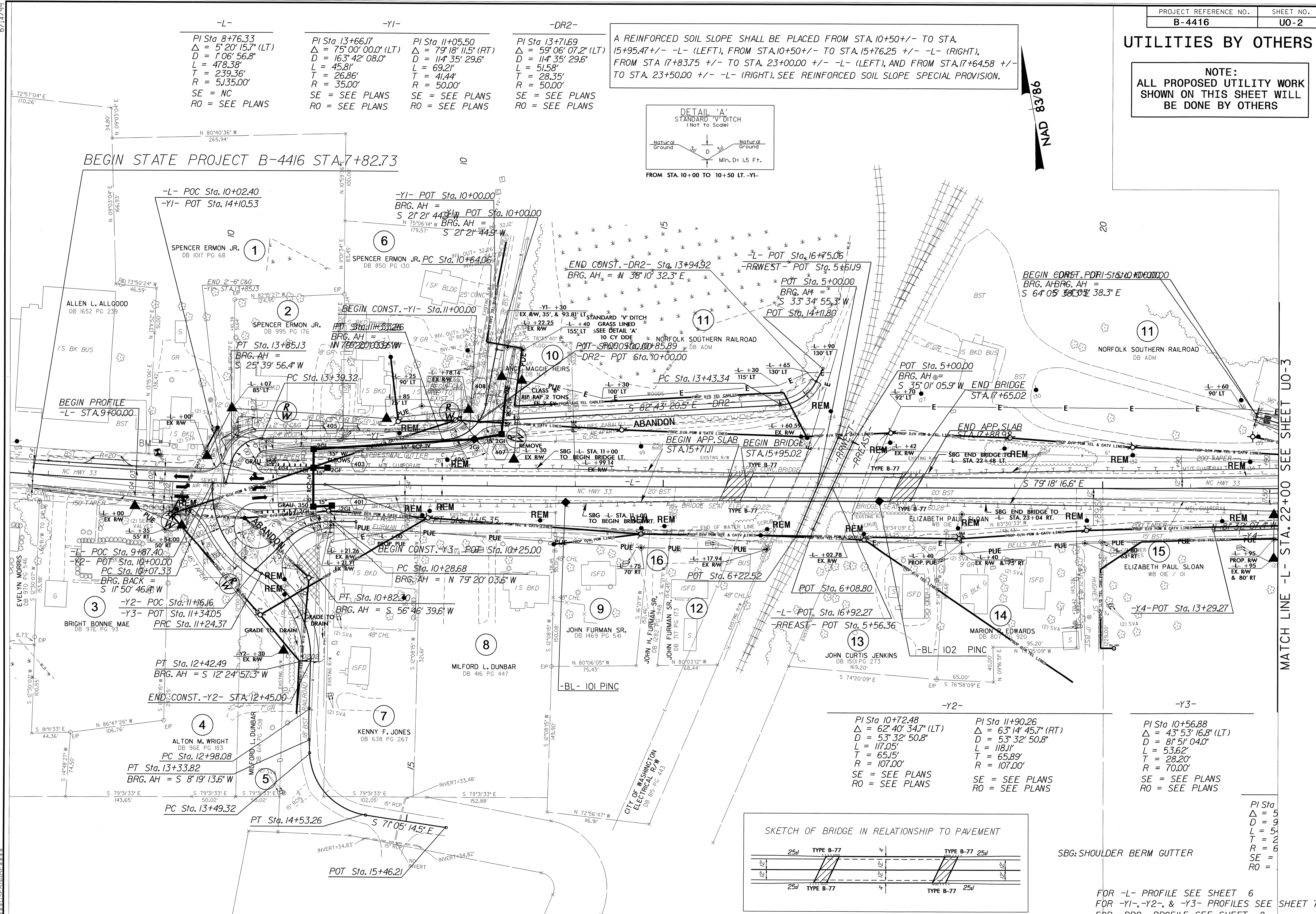
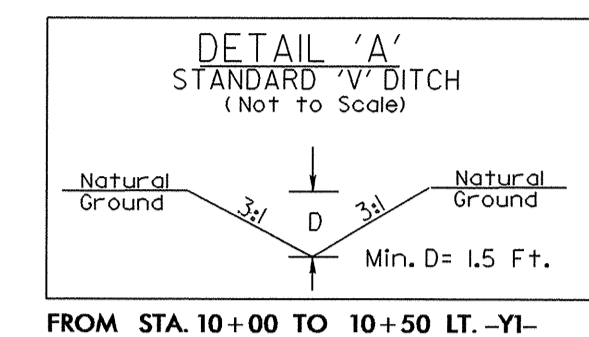
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\$\$\$\$\$USERNAME\$\$\$\$\$

### UTILITIES BY OTHERS

**NOTE:**  
ALL PROPOSED UTILITY WORK SHOWN ON THIS SHEET WILL BE DONE BY OTHERS

-L-	-Y1-	-DR2-
PI Sta 8+76.33 Δ = 5° 20' 15.7" (LT) D = 1'06" 56.8" L = 478.38' T = 239.36' R = 5135.00' SE = NC RO = SEE PLANS	PI Sta 13+66.17 Δ = 75° 00' 00.0" (LT) D = 163' 42' 08.0" L = 45.81' T = 26.86' R = 35.00' SE = SEE PLANS RO = SEE PLANS	PI Sta 11+05.50 Δ = 79° 18' 11.5" (RT) D = 114' 35' 29.6" L = 69.21' T = 41.44' R = 50.00' SE = SEE PLANS RO = SEE PLANS
		PI Sta 13+71.69 Δ = 59° 06' 07.2" (LT) D = 114' 35' 29.6" L = 51.58' T = 28.35' R = 50.00' SE = SEE PLANS RO = SEE PLANS

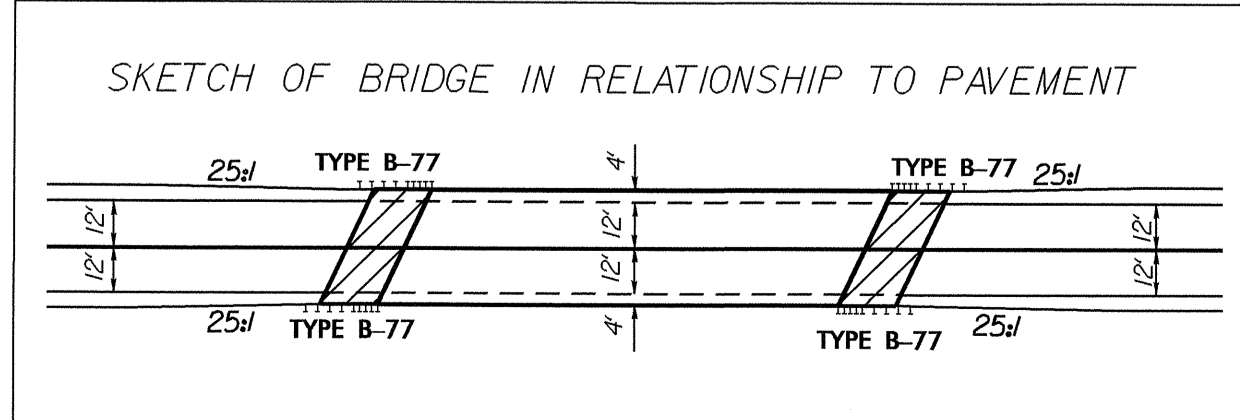
A REINFORCED SOIL SLOPE SHALL BE PLACED FROM STA. 10+50 +/- TO STA. 15+95.47 +/- -L- (LEFT), FROM STA. 10+50 +/- TO STA. 15+76.25 +/- -L- (RIGHT), FROM STA. 17+83.75 +/- TO STA. 23+00.00 +/- -L- (LEFT), AND FROM STA. 17+64.58 +/- TO STA. 23+50.00 +/- -L- (RIGHT). SEE REINFORCED SOIL SLOPE SPECIAL PROVISION.



NAD 83/86

MATCH LINE -L- STA. 22+00 SEE SHEET U0-3

-Y2-	-Y3-
PI Sta 10+72.48 Δ = 62° 40' 34.7" (LT) D = 53' 32' 50.8" L = 117.05' T = 65.15' R = 107.00' SE = SEE PLANS RO = SEE PLANS	PI Sta 11+90.26 Δ = 63° 14' 45.7" (RT) D = 53' 32' 50.8" L = 118.11' T = 65.89' R = 107.00' SE = SEE PLANS RO = SEE PLANS
	PI Sta 10+56.88 Δ = 43° 53' 16.8" (LT) D = 81' 51' 04.0" L = 53.62' T = 28.20' R = 70.00' SE = SEE PLANS RO = SEE PLANS



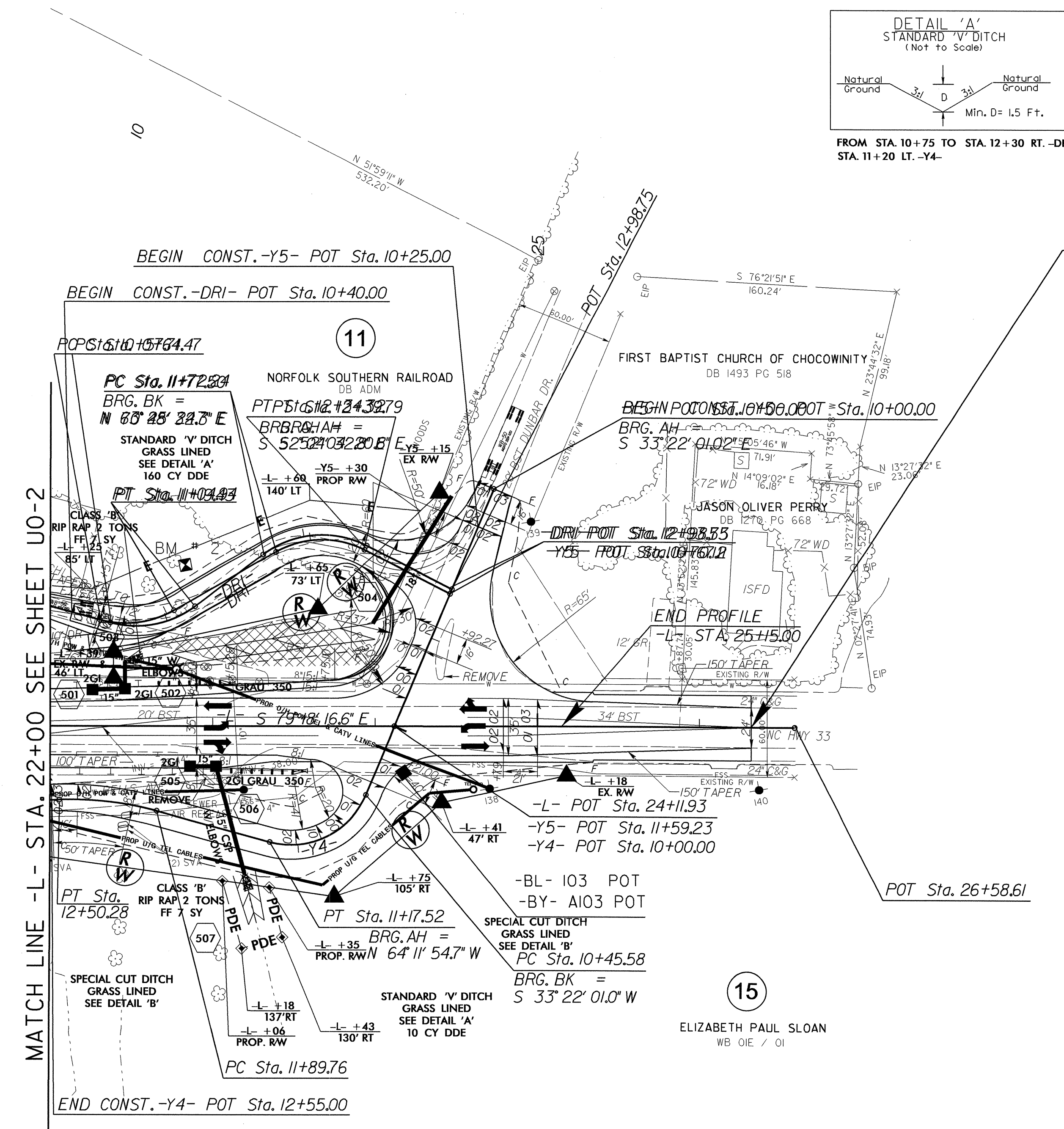
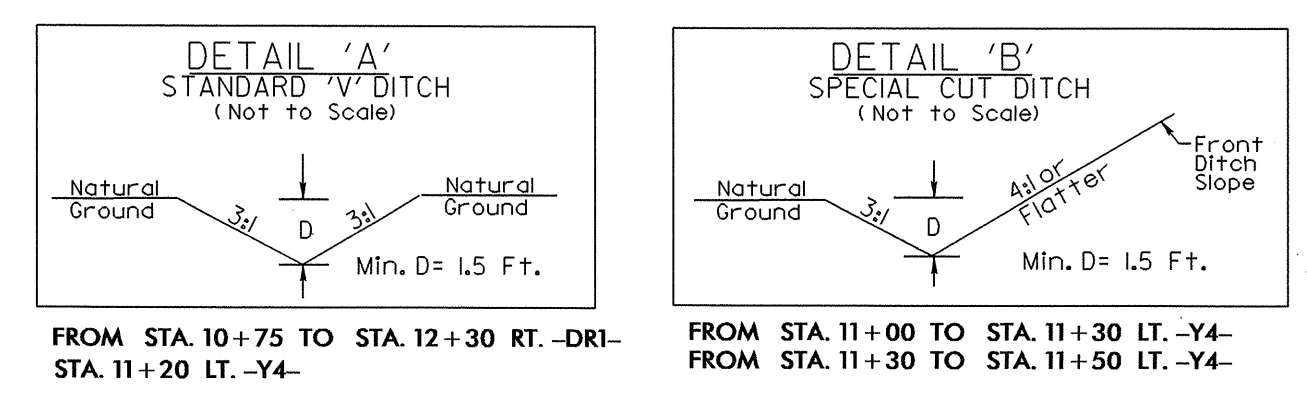
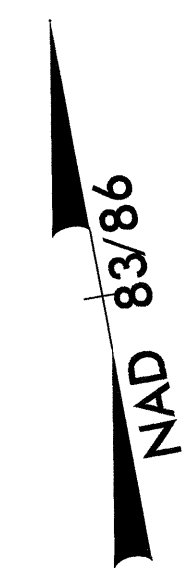
FOR -L- PROFILE SEE SHEET 6  
FOR -Y1-, -Y2-, & -Y3- PROFILES SEE SHEET 7  
FOR -DR2- PROFILE SEE SHEET 8

8/17/99  
01-AUG-2011 10:41:00  
C:\Users\NROU\Documents\Projects\B-4416\Drawings\U0-2.dgn  
11:11:11 AM



# UTILITIES BY OTHERS

NOTE:  
ALL PROPOSED UTILITY WORK  
SHOWN ON THIS SHEET WILL  
BE DONE BY OTHERS



END STATE PROJECT B-4416 STA. 26+32.00

A REINFORCED SOIL SLOPE SHALL BE PLACED FROM STA. 10+50 +/- TO STA. 15+95.47 +/- -L- (LEFT), FROM STA. 10+50 +/- TO STA. 15+76.25 +/- -L- (RIGHT), FROM STA. 17+83.75 +/- TO STA. 23+00.00 +/- -L- (LEFT), AND FROM STA. 17+64.58 +/- TO STA. 23+50.00 +/- -L- (RIGHT). SEE REINFORCED SOIL SLOPE SPECIAL PROVISION.

MATCH LINE -L- STA. 22+00 SEE SHEET UO-2

-DRI-		-Y4-	
10+94.04	PI Sta 12+10.10	PI Sta 10+89.38	PI Sta 12+20.25
2' 28" 57.0" (LT)	$\Delta = 64' 30" 14.5" (RT)$	$\Delta = 82' 26" 04.2" (RT)$	$\Delta = 17' 20" 12.7" (LT)$
5' 29' 34.7"	$D = 95' 29' 34.7"$	$D = 114' 35' 29.6"$	$D = 28' 38' 52.4"$
1.96'	$L = 67.55'$	$L = 71.94'$	$L = 60.52'$
9.58'	$T = 37.86'$	$T = 43.80'$	$T = 30.49'$
0.00'	$R = 60.00'$	$R = 50.00'$	$R = 200.00'$
SEE PLANS	SE = SEE PLANS	SE = SEE PLANS	SE = SEE PLANS
SEE PLANS	RO = SEE PLANS	RO = SEE PLANS	RO = SEE PLANS

FOR -L- PROFILE SEE SHEET 6  
FOR -Y4-, -Y5- & -DRI- PROFILES SEE SHEET 7

5/14/99  
01-AUG-2010 09:13 UO-plans\B4416-rdy-ut\_uo-3.dgn