

TIP PROJECT: B-3677

CONTRACT: C201969

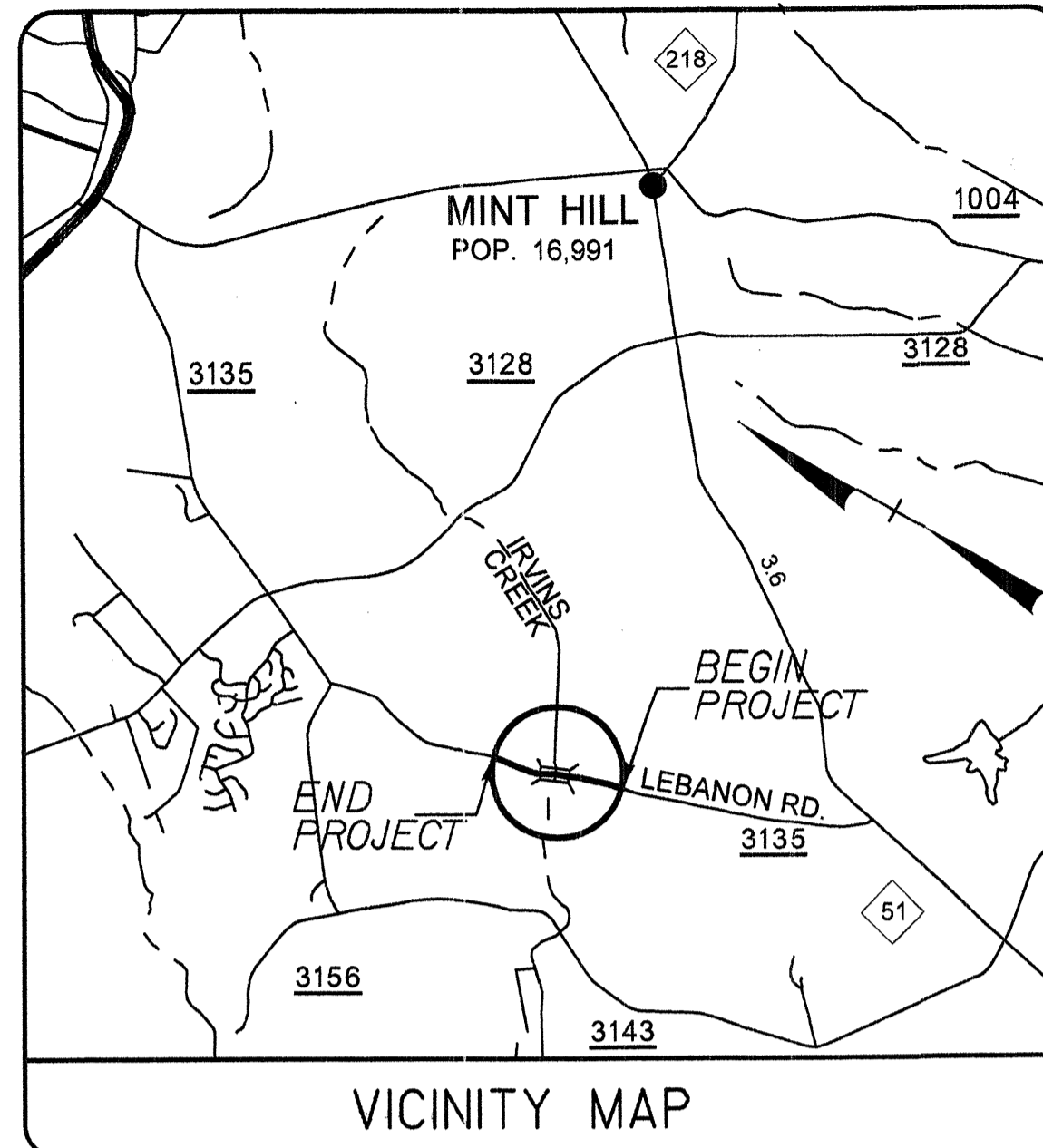
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-3677	UC-1	UC-6

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

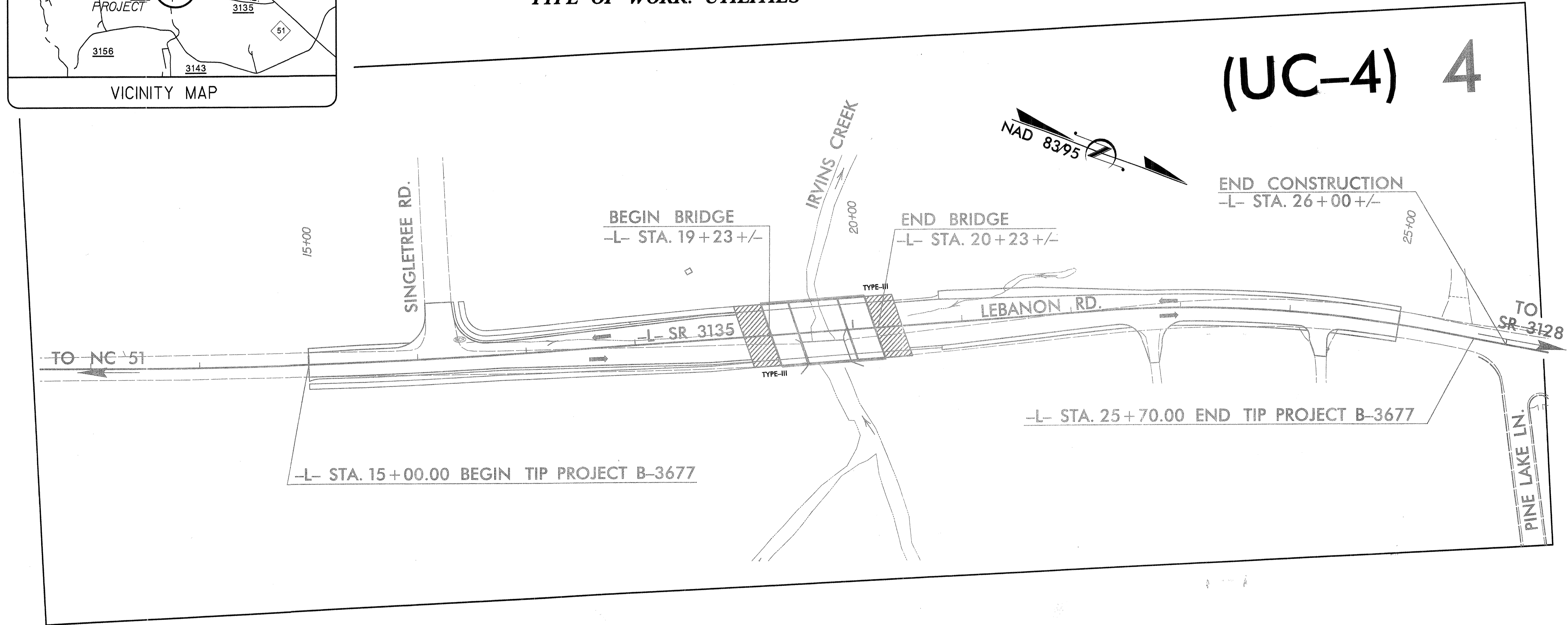
**UTILITY CONSTRUCTION PLANS  
MECKLENBURG COUNTY**

LOCATION: BRIDGE NO. 36 OVER IRVINS CREEK ON SR 3135  
(LEBANON ROAD)

TYPE OF WORK: UTILITIES



(UC-4) 4



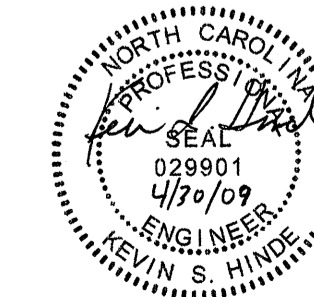
**INDEX OF SHEETS**

SHEET NO.	DESCRIPTION
UC-1	TITLE SHEET
UC-2	SYMBOLGY SHEET
UC-3	PERMIT SHEET
UC-4	UTILITY CONSTRUCTION PLAN SHEET
UC-5	PROFILE SHEET
UC-6	DETAIL SHEET

**WATER AND SEWER OWNERS ON PROJECT**

- (1) WATER - CMU
- (2) SANITARY SEWER - CMU

SEAL:



KEVIN S. HINDE, P.E.  
PROJECT ENGINEER

Prepared in the office of:

**Hinde Engineering, Inc.**

7520 EAST INDEPENDENCE BLVD., SUITE 230  
CHARLOTTE, NC 28227  
704-814-4407 (office)  
704-814-9042 (fax)

PROJECT REFERENCE NO. B-3677	SHEET NO. UC-2
DESIGNED BY: CLS	
DRAWN BY: JNA	
CHECKED BY: KSH	
APPROVED BY:	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
PROJECT SERVICES UNIT PHONE: (919) 250-4128 FAX: (919) 250-4119	
UTILITY CONSTRUCTION PLANS ONLY	

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

# UTILITIES PLAN SHEET SYMBOLS

UTILITY CONSTRUCTION

### Water

Proposed Back Flow Preventor		Proposed RPZ Back Flow Preventor	
Relocate Back Flow Preventor		Relocate RPZ Back Flow Preventor	
Existing Water Valve		Water Cross	
Proposed Valve		Water Plug	
Proposed Tapping Valve		Water Reducer	
Existing Water Meter		Water Tee	
Proposed Water Meter		Water Pump Station	
Proposed Water Meter/Vault		Water Thrust Block	
Relocate Water Meter		Blow Off Valve	
Remove Water Meter	REM WM	Air Release Valve	
Existing Hydrant		Water Line Stop	
Prop Hydrant		Water Line Stop w Bypass	
Relocate Hydrant			
Remove Hydrant	REM FH		

### Sewer

Existing Manhole		Sewer Cross	
Proposed UT Manhole		Sewer Plug	
Remove UT Manhole	REM UT MH	Sewer Reducer	
Abandon Utility Manhole	ABAND MH	Sewer Tee	
Sewer Line Stop		Sewer Pump Station	
Sewer Line Stop w Bypass		Sewer Thrust Block	

NORTH CAROLINA  
DEPT. OF TRANSPORTATION  
ENGINEERING DIVISION  
RALEIGH, NORTH CAROLINA

BRIDGE NO. 36 OVER IRVINS CREEK  
ON SR 3135 (LEBANON ROAD)

Designed By:	Checked By:	Date:	Sheet:	Of:
CLS	KSH	4-30-09	UC-2	UC-6

**Hinde Engineering, Inc.**

7520 EAST INDEPENDENCE BLVD, SUITE 230  
CHARLOTTE, NC 28227  
704-514-4407 (office)  
704-514-9042 (fax)

PROJECT REFERENCE NO.	SHEET NO.
B-3677	UC-3
DESIGNED BY: CLS	
DRAWN BY: JNA	
CHECKED BY: KSH	
APPROVED BY:	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
PROJECT SERVICES UNIT PHONE: (919) 250-4128 FAX: (919) 250-4119	
UTILITY CONSTRUCTION PLANS ONLY	

## UTILITY CONSTRUCTION

APPLICATION FOR NON-DISCHARGE PERMIT  
GRAVITY SEWER MAIN EXTENSION  
CHARLOTTE-MECKLENBURG UTILITIES

PROJECT NAME B-3677 Bridge No. 36 over Irvins Creek on Lebanon Road

CMUD PROJECT NO.: \_\_\_\_\_

PROJECT TYPE:  NEW CONSTRUCTION  RELOCATION  MODIFICATION OF PERMIT NO. \_\_\_\_\_  
OTHER \_\_\_\_\_

VOLUME OF WASTEWATER GENERATED BY THIS PROJECT: \_\_\_\_\_ GALLONS PER DAY BASED  
ON 190 GAL/DAY/SINGLE FAMILY HOUSEHOLD \_\_\_\_\_ HOUSEHOLDS OR  
135 GAL/DAY/MULTI-FAMILY UNIT X \_\_\_\_\_ UNITS OR IS BASED ON :

WASTEWATER TREATMENT PLANT RECEIVING WASTEWATER:  
 MGALPINE CR. (NC0024950)  IRWIN CR. (NC0024945)  McDOWELL CR. (NC0036277)  
 SUGAR CR. (NC0024937)  MALLARD CR. (NC0030210)

NATURE OF WASTEWATER 100% % DOMESTIC 0 % % INDUSTRIAL  
0 % % COMMERCIAL 0 % % OTHER

ORIGIN OF WASTEWATER  SUBDIVISION \_\_\_\_\_ COMMERCIAL  
 SCHOOL \_\_\_\_\_ INDUSTRIAL  
 APARTMENTS/CONDO'S \_\_\_\_\_ OTHER

LIST ANY PARAMETER AND ITS CONCENTRATION THAT WILL BE GREATER THAN NORMAL DOMESTIC LEVELS:  
N/A

IF WASTEWATER IS NON-DOMESTIC, DESCRIBE LEVEL OF PRETREATMENT:  
N/A

IF A PRETREATMENT PERMIT IS REQUIRED, HAS ONE BEEN ISSUED? YES \_\_\_\_\_ NO \_\_\_\_\_ N/A

HAS ENGINEER DETERMINED THAT DOWNSTREAM SEWERS ARE CAPABLE TO HANDLE THIS FLOW? YES  NO \_\_\_\_\_  
PERMIT NO. FOR SEWERS IMMEDIATELY DOWNSTREAM \_\_\_\_\_  
PIPE DIAMETER OF SEWERS IMMEDIATELY DOWNSTREAM 30"

HAS ENGINEER DETERMINED THAT NC DEM AND CMU MINIMUM DESIGN STANDARDS ARE MET BY THIS PROJECT?  YES \_\_\_\_\_ NO \_\_\_\_\_

COMPLETE NAME AND ADDRESS OF ENGINEERING DESIGN FIRM:  
HINDE ENGINEERING, INC.  
7520 EAST INDEPENDENCE BLVD., SUITE 230  
CHARLOTTE, N.C. 28227

TELEPHONE 704-814-4407

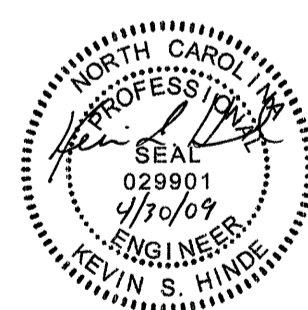
PROFESSIONAL ENGINEER'S CERTIFICATION:  
I, KEVIN S. HINDE, P.E., ATTEST THAT THIS APPLICATION FOR THE RELOCATION AND NEW CONSTRUCTION OF SEWER LINES WITHIN THE AFOREMENTIONED PROJECT HAS BEEN REVIEWED BY ME AND IS ACCURATE AND COMPLETE TO THE BEST OF MY KNOWLEDGE. I FURTHER ATTEST THAT TO THE BEST OF MY KNOWLEDGE THE PROPOSED DESIGN HAS BEEN PREPARED IN ACCORDANCE WITH THE APPLICABLE REGULATIONS, ALTHOUGH CERTAIN PORTIONS OF THIS SUBMITTAL PACKAGE MAY HAVE BEEN DEVELOPED BY OTHER PROFESSIONALS, INCLUSION OF THESE MATERIALS UNDER MY SIGNATURE AND SEAL SIGNIFIES THAT I HAVE REVIEWED THIS MATERIAL AND HAVE JUDGED IT TO BE CONSISTENT WITH THE PROPOSED DESIGN.

NORTH CAROLINA PROFESSIONAL ENGINEER'S SEAL, SIGNATURE, AND DATE:

CMU PERMIT NO. \_\_\_\_\_ ISSUED \_\_\_\_\_

PLANT FLOW ALLOCATION RECORDED BY: \_\_\_\_\_

PERMIT APPROVED BY: BARRY SHEARIN, P.E., CHIEF ENGINEER



APPLICATION FOR PERMIT FOR WATER MAIN EXTENSION

PROJECT NAME: B-3677 Bridge No. 36 over Irvins Creek on Lebanon Road

CMU PROJECT NO.: \_\_\_\_\_

PROJECT DESCRIPTION: 6.1 LF 8" DI WATER PIPE - WATER MAIN AND FITTINGS

DESIGNED BY: FIRM: HINDE ENGINEERING, INC.

ENGINEER: KEVIN S. HINDE, P.E. DESIGNED BY: CLINT L. STEVENS

ADDRESS: 7520 EAST INDEPENDENCE BLVD., SUITE 230  
CHARLOTTE, NORTH CAROLINA 28227

PHONE: 704-814-4407

THIS APPLICATION IS MADE UNDER AND IN FULL ACCORD WITH THE PROVISIONS OF CHAPTER 130A-317 OF THE NORTH CAROLINA GENERAL STATUTES, AND SUCH OTHER STATUTES AS RELATED TO PUBLIC WATER SYSTEMS. CMU HAS BEEN GRANTED AUTHORITY TO ISSUE PERMITS FOR EXTENSION OF WATER MAINS PURSUANT TO ISA NCAC 18C.1801. THE APPLICANT AGREES THAT NO SIGNIFICANT CHANGE OR DEVIATION FROM THE PLANS AND SPECIFICATIONS APPROVED BY CMU WILL BE MADE WITHOUT THE WRITTEN CONSENT AND APPROVAL OF CMU OR ITS AUTHORIZED REPRESENTATIVE. A PROFESSIONAL ENGINEER LICENSED TO PRACTICE IN THE STATE OF NORTH CAROLINA SHALL SUBMIT A STATEMENT REFLECTING THAT ADEQUATE OBSERVATIONS DURING AND UPON COMPLETION OF CONSTRUCTION INDICATES THAT CONSTRUCTION WAS COMPLETED IN ACCORDANCE WITH APPROVED PLANS AND SPECIFICATIONS.

PERMIT NO. \_\_\_\_\_ DATE \_\_\_\_\_  
APPROVED: \_\_\_\_\_

BARRY SHEARIN, P.E., CHIEF ENGINEER  
CHARLOTTE MECKLENBURG UTILITIES  
5100 BROOKSHIRE BLVD.  
CHARLOTTE, NORTH CAROLINA 28216

NORTH CAROLINA  
DEPT. OF TRANSPORTATION  
ENGINEERING DIVISION  
RALEIGH, NORTH CAROLINA

BRIDGE NO. 36 OVER IRVINS CREEK  
ON SR 3135 (LEBANON ROAD)

Designed By:	Checked By:	Date:	Sheet:	Of:
CLS	KSH	4-30-09	UC-3	UC-6

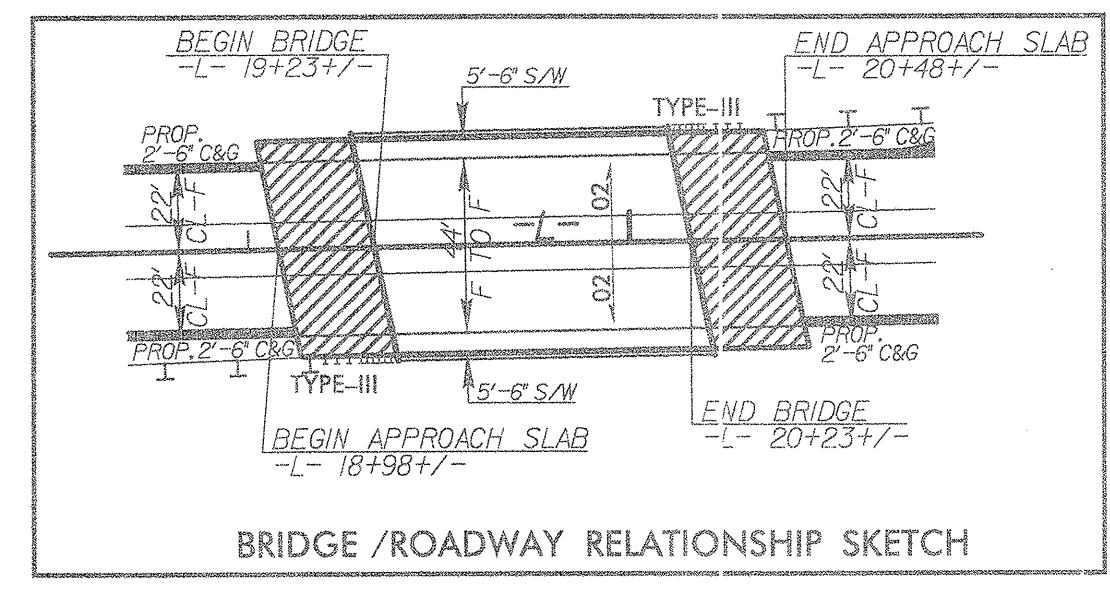
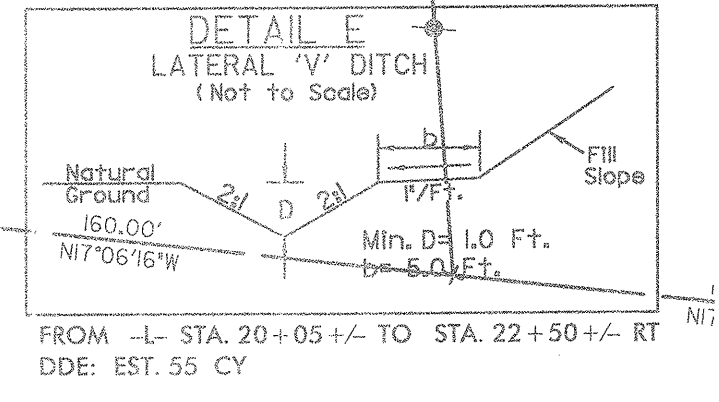
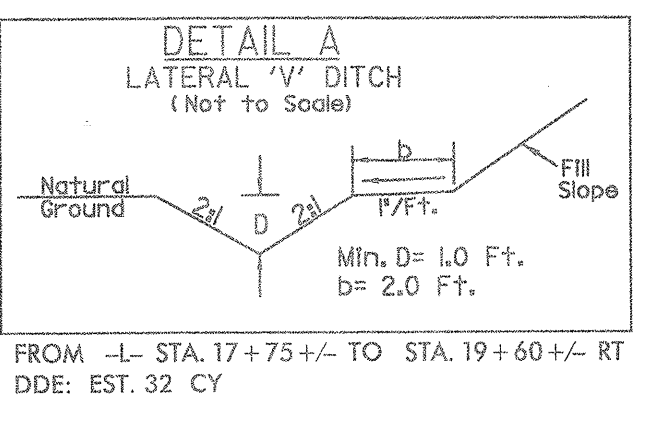
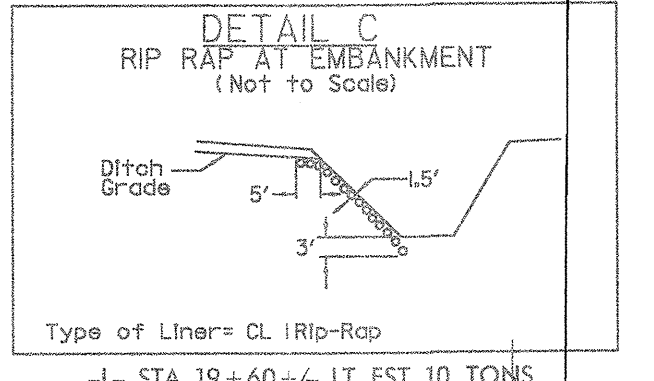
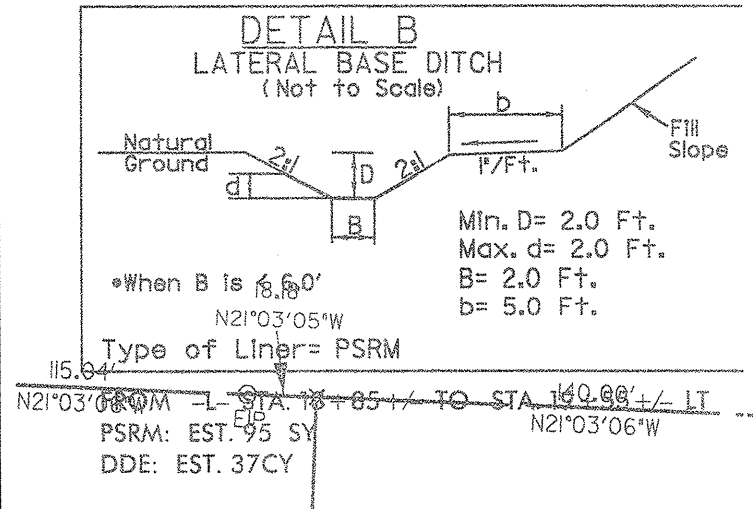
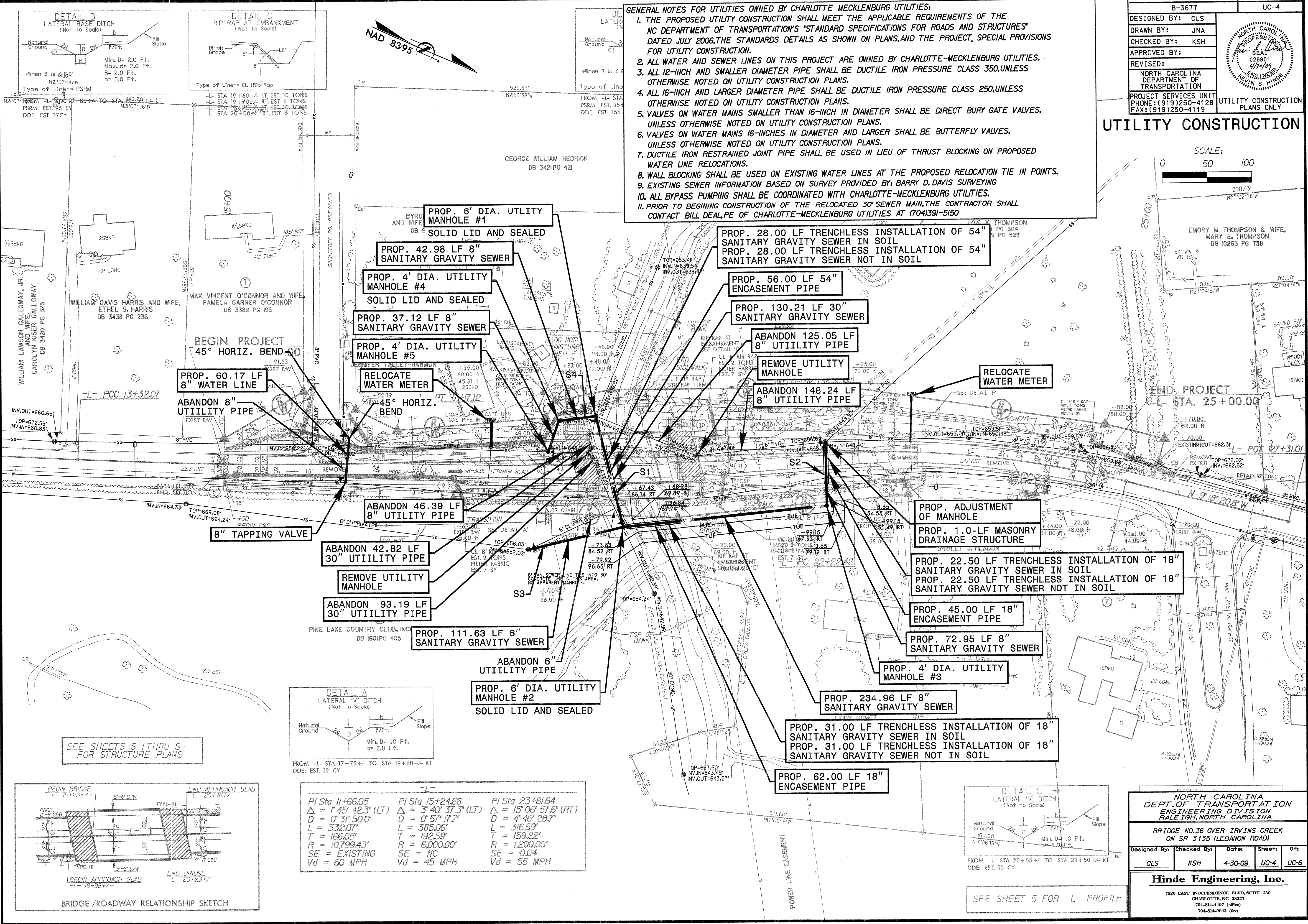
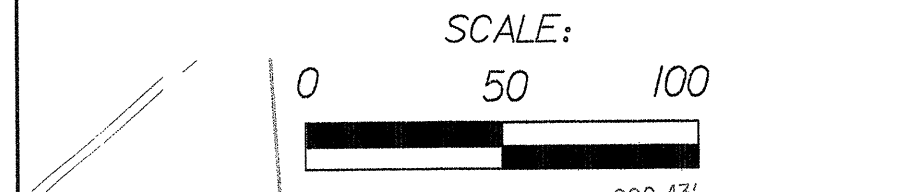
**Hinde Engineering, Inc.**  
7520 EAST INDEPENDENCE BLVD, SUITE 230  
CHARLOTTE, NC 28227  
704-814-4407 (office)  
704-814-9042 (fax)



**GENERAL NOTES FOR UTILITIES OWNED BY CHARLOTTE MECKLENBURG UTILITIES:**

- THE PROPOSED UTILITY CONSTRUCTION SHALL MEET THE APPLICABLE REQUIREMENTS OF THE NC DEPARTMENT OF TRANSPORTATION'S "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" DATED JULY 2006, THE STANDARDS DETAILS AS SHOWN ON PLANS, AND THE PROJECT SPECIAL PROVISIONS FOR UTILITY CONSTRUCTION.
- ALL WATER AND SEWER LINES ON THIS PROJECT ARE OWNED BY CHARLOTTE-MECKLENBURG UTILITIES.
- ALL 12-INCH AND SMALLER DIAMETER PIPE SHALL BE DUCTILE IRON PRESSURE CLASS 350, UNLESS OTHERWISE NOTED ON UTILITY CONSTRUCTION PLANS.
- ALL 16-INCH AND LARGER DIAMETER PIPE SHALL BE DUCTILE IRON PRESSURE CLASS 250, UNLESS OTHERWISE NOTED ON UTILITY CONSTRUCTION PLANS.
- VALVES ON WATER MAINS SMALLER THAN 16-INCH IN DIAMETER SHALL BE DIRECT BURY GATE VALVES, UNLESS OTHERWISE NOTED ON UTILITY CONSTRUCTION PLANS.
- VALVES ON WATER MAINS 16-INCHES IN DIAMETER AND LARGER SHALL BE BUTTERFLY VALVES, UNLESS OTHERWISE NOTED ON UTILITY CONSTRUCTION PLANS.
- DUCTILE IRON RESTRAINED JOINT PIPE SHALL BE USED IN LIEU OF THRUST BLOCKING ON PROPOSED WATER LINE RELOCATIONS.
- WALL BLOCKING SHALL BE USED ON EXISTING WATER LINES AT THE PROPOSED RELOCATION TIE IN POINTS.
- EXISTING SEWER INFORMATION BASED ON SURVEY PROVIDED BY BARRY D. DAVIS SURVEYING
- ALL BYPASS PUMPING SHALL BE COORDINATED WITH CHARLOTTE-MECKLENBURG UTILITIES.

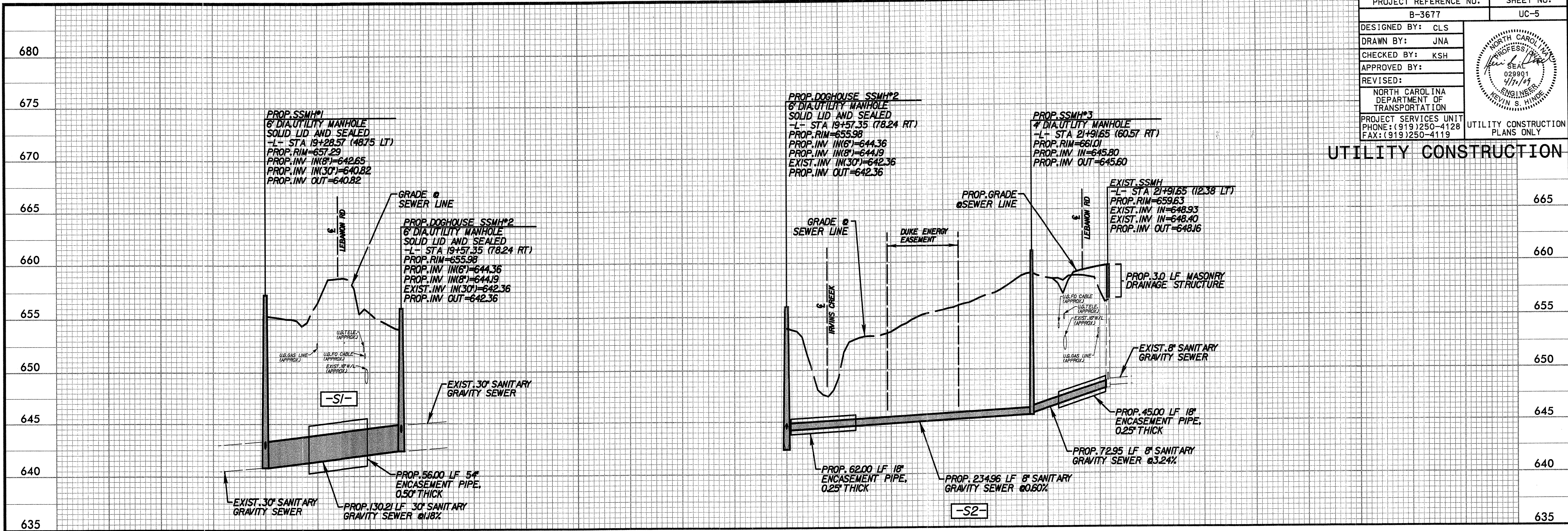
II. PRIOR TO BEGINNING CONSTRUCTION OF THE RELOCATED 30" SEWER MAIN, THE CONTRACTOR SHALL CONTACT BILL DEALPE OF CHARLOTTE-MECKLENBURG UTILITIES AT (704) 391-5150



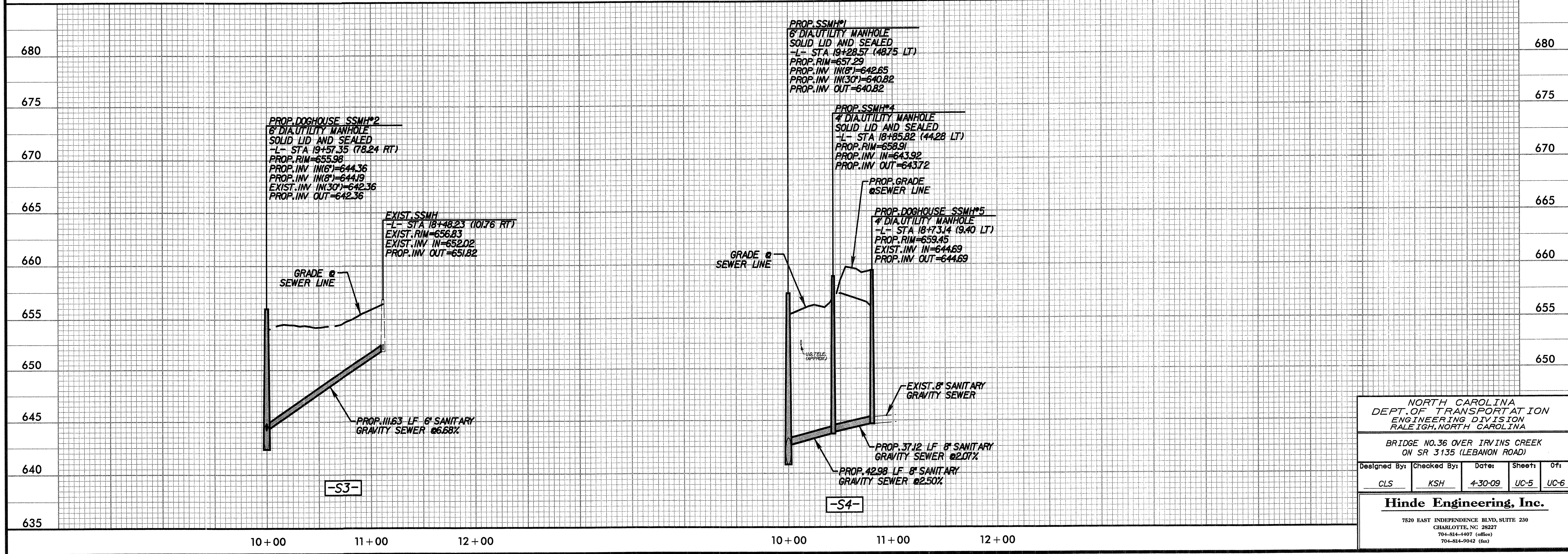
PI Sta	Δ	D	L	T	R	SE	Vd
11+66.05	1° 45' 42.3" (LT)	0' 31' 50.0"	332.07'	166.05'	10,799.43'	EXISTING	60 MPH
15+24.66	Δ = 3° 40' 37.3" (LT)	D = 0' 57' 17.7"	L = 385.06'	T = 192.59'	R = 6,000.00'	NC	45 MPH
23+81.64	Δ = 15° 06' 57.6" (RT)	D = 4' 46' 28.7"	L = 316.59'	T = 159.22'	R = 1,200.00'	0.04	55 MPH

PROJECT REFERENCE NO.	B-3677	SHEET NO.	UC-5
DESIGNED BY:	CLS		
DRAWN BY:	JNA		
CHECKED BY:	KSH		
APPROVED BY:			
REVISED:			
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION		UTILITY CONSTRUCTION PLANS ONLY	
PROJECT SERVICES UNIT		PHONE: (919)250-4128	
FAX: (919)250-4119			

**UTILITY CONSTRUCTION**



10+00 11+00 12+00 10+00 11+00 12+00 13+00



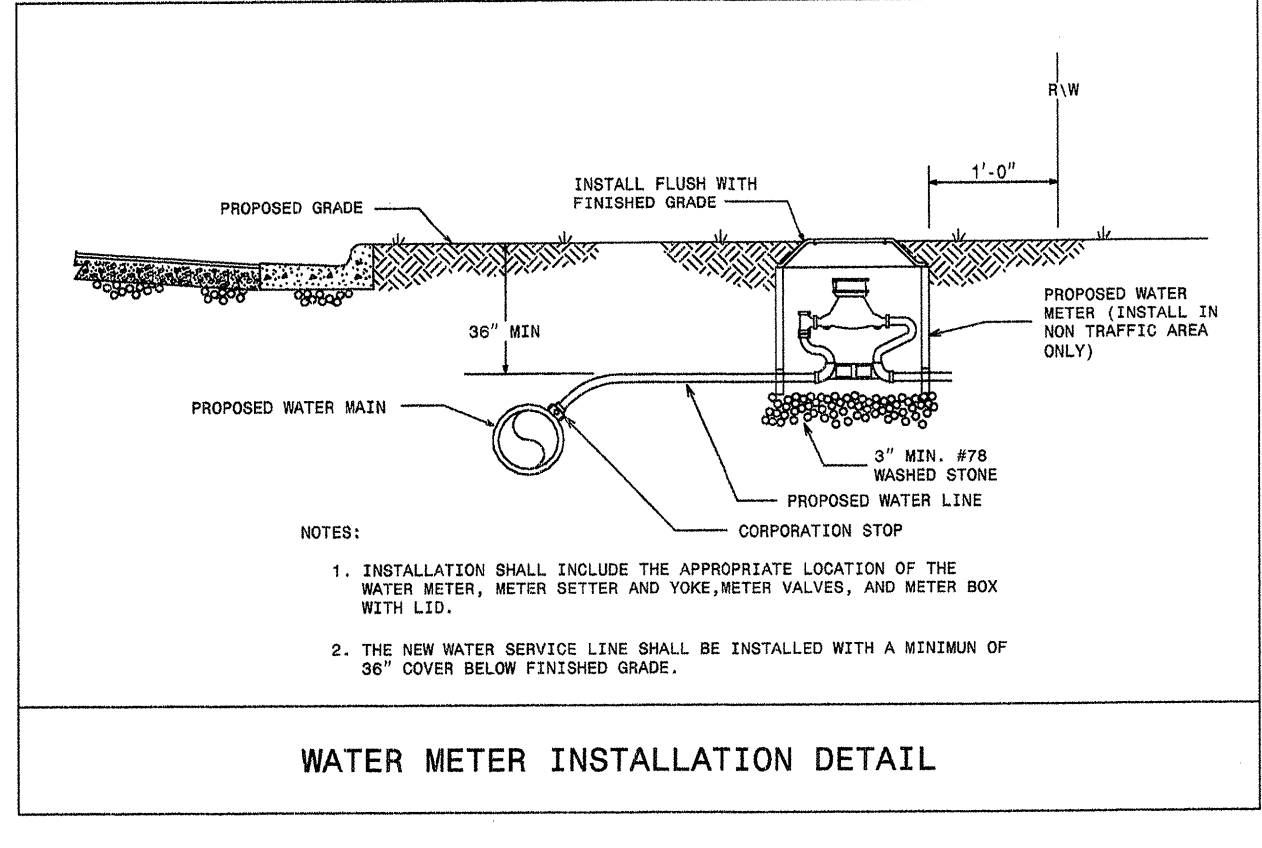
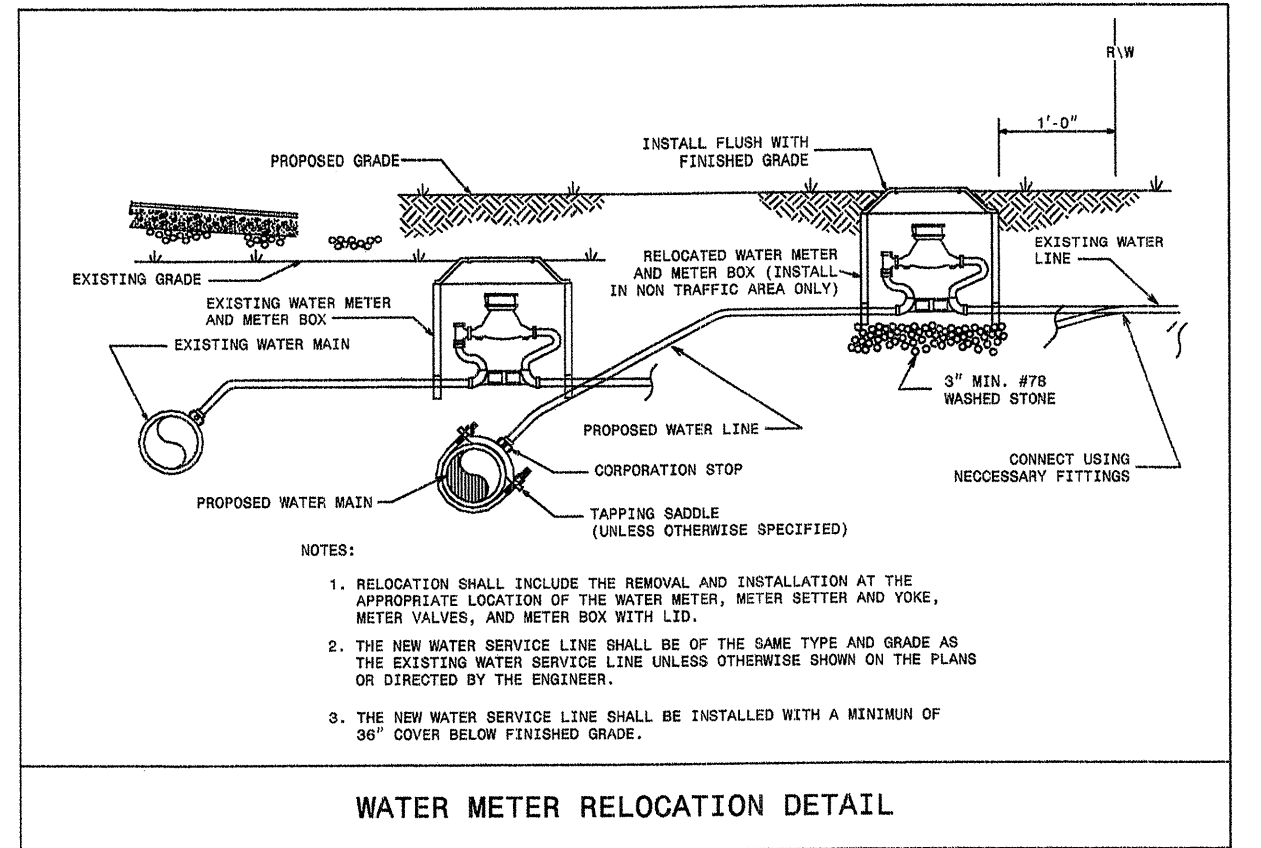
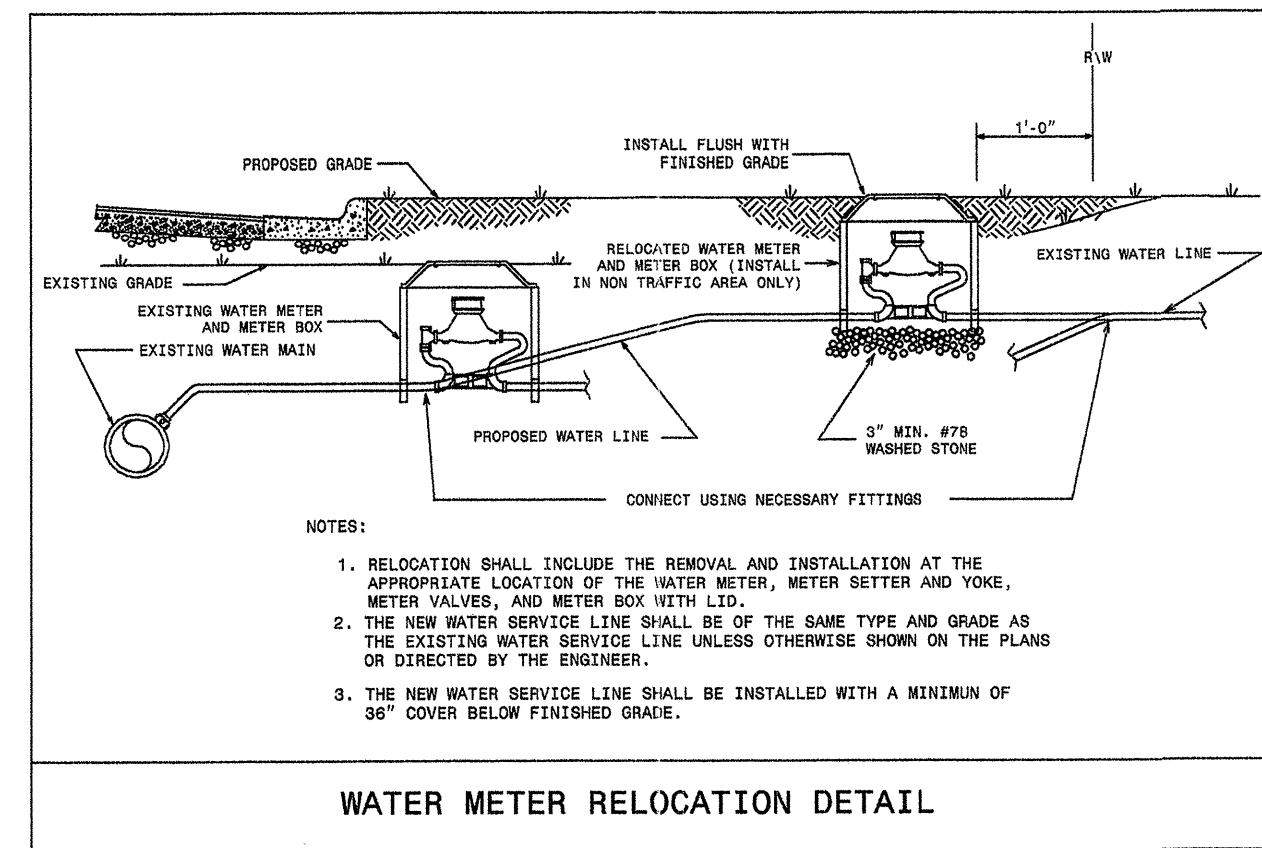
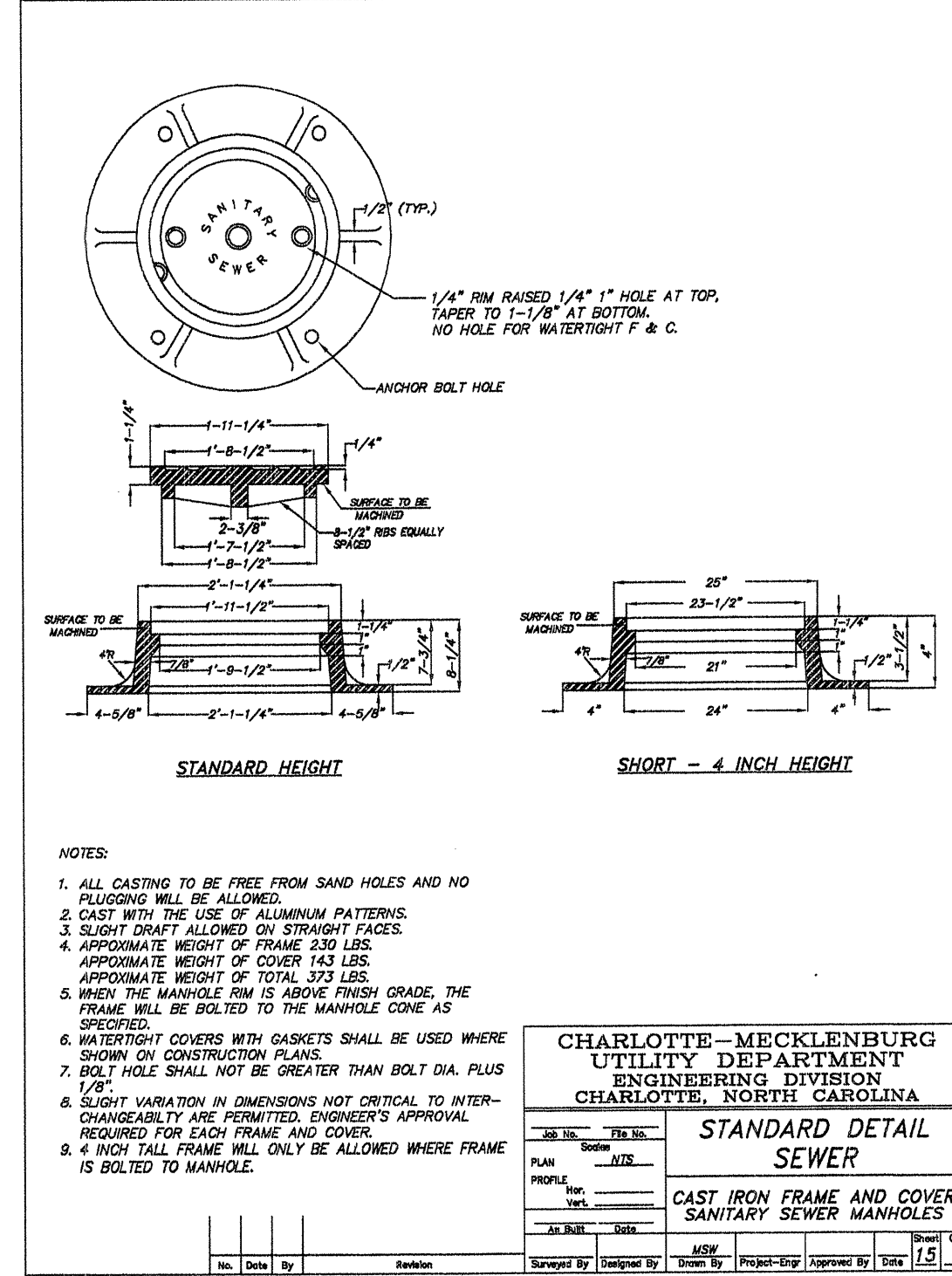
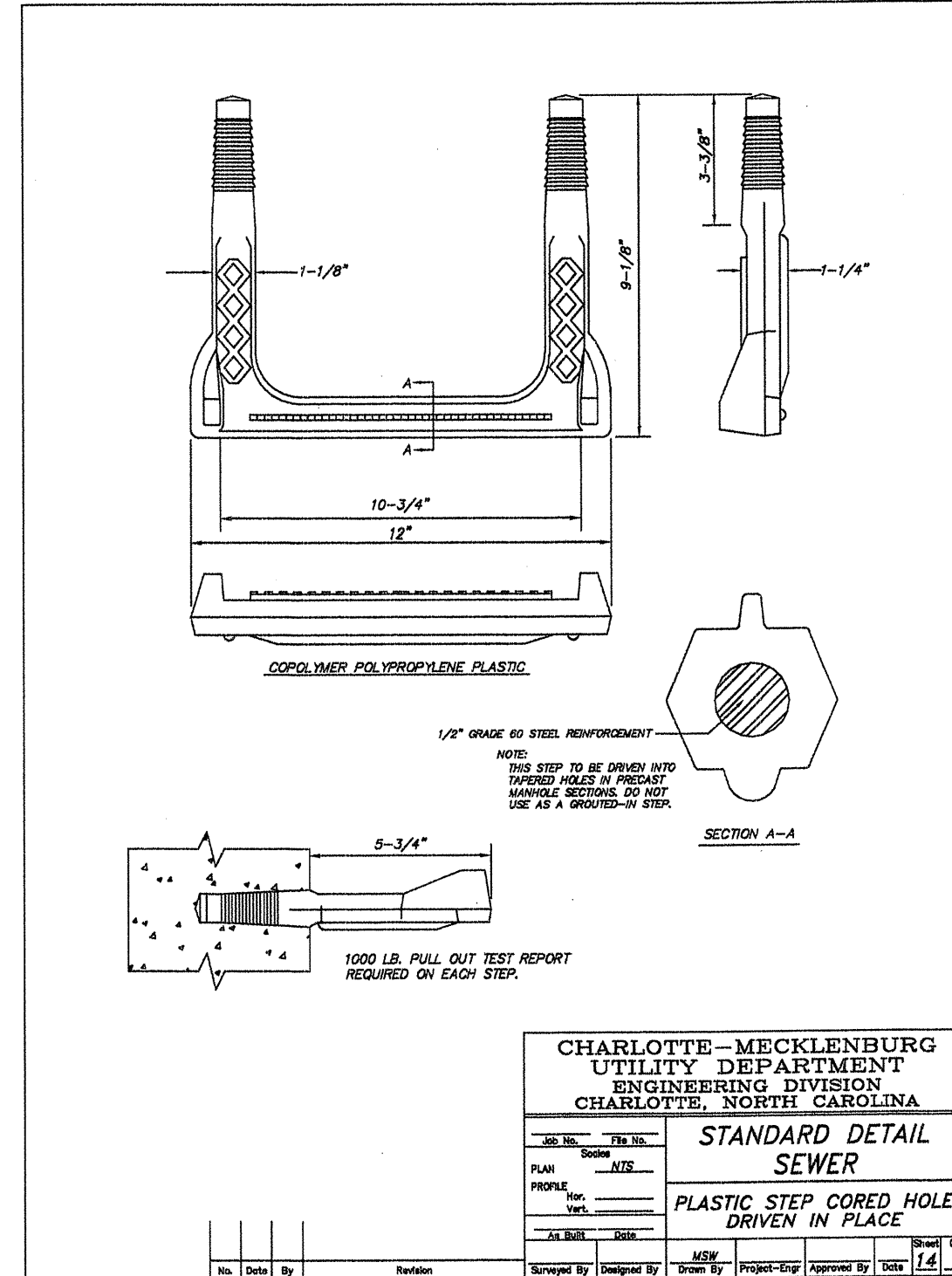
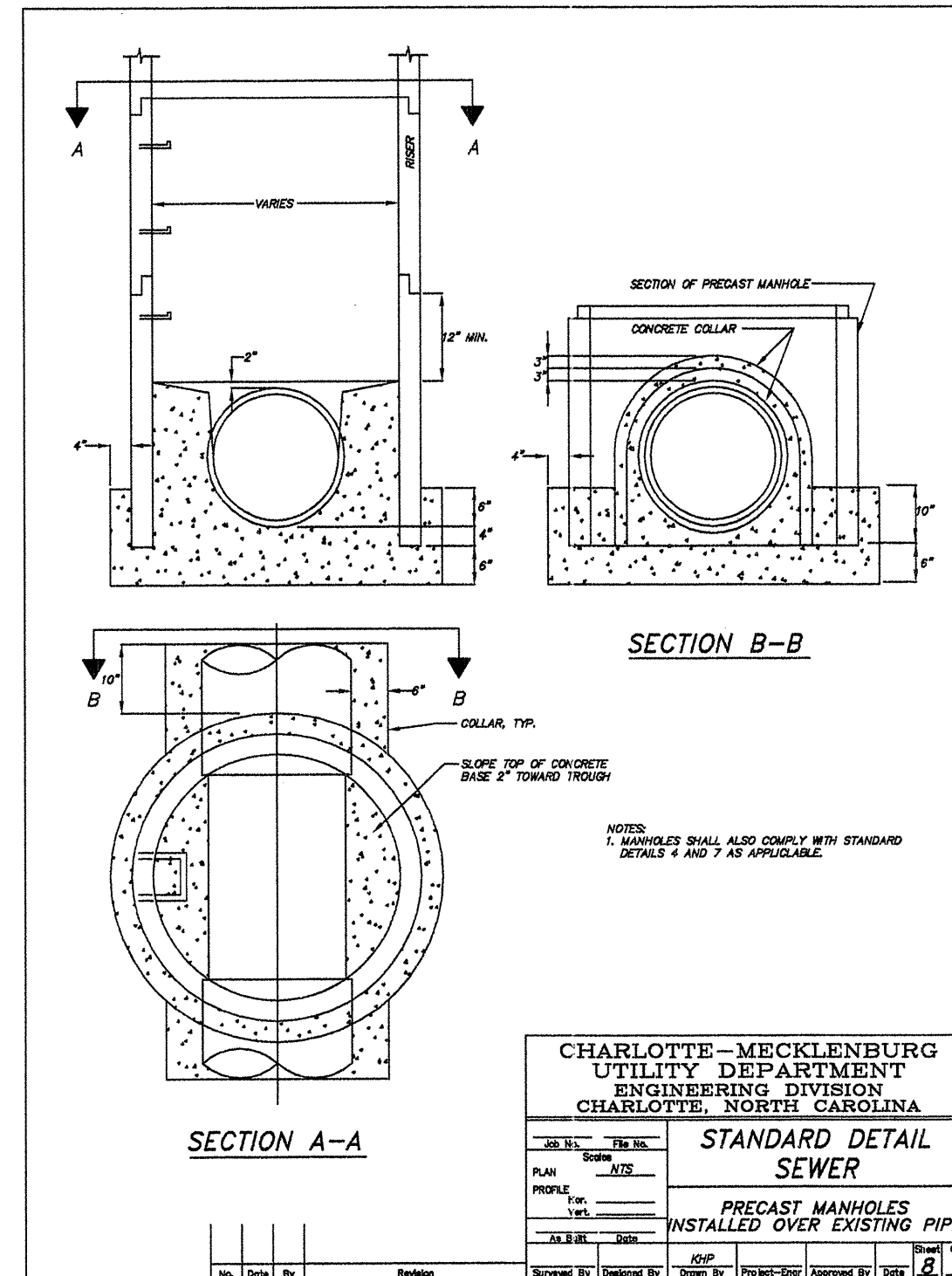
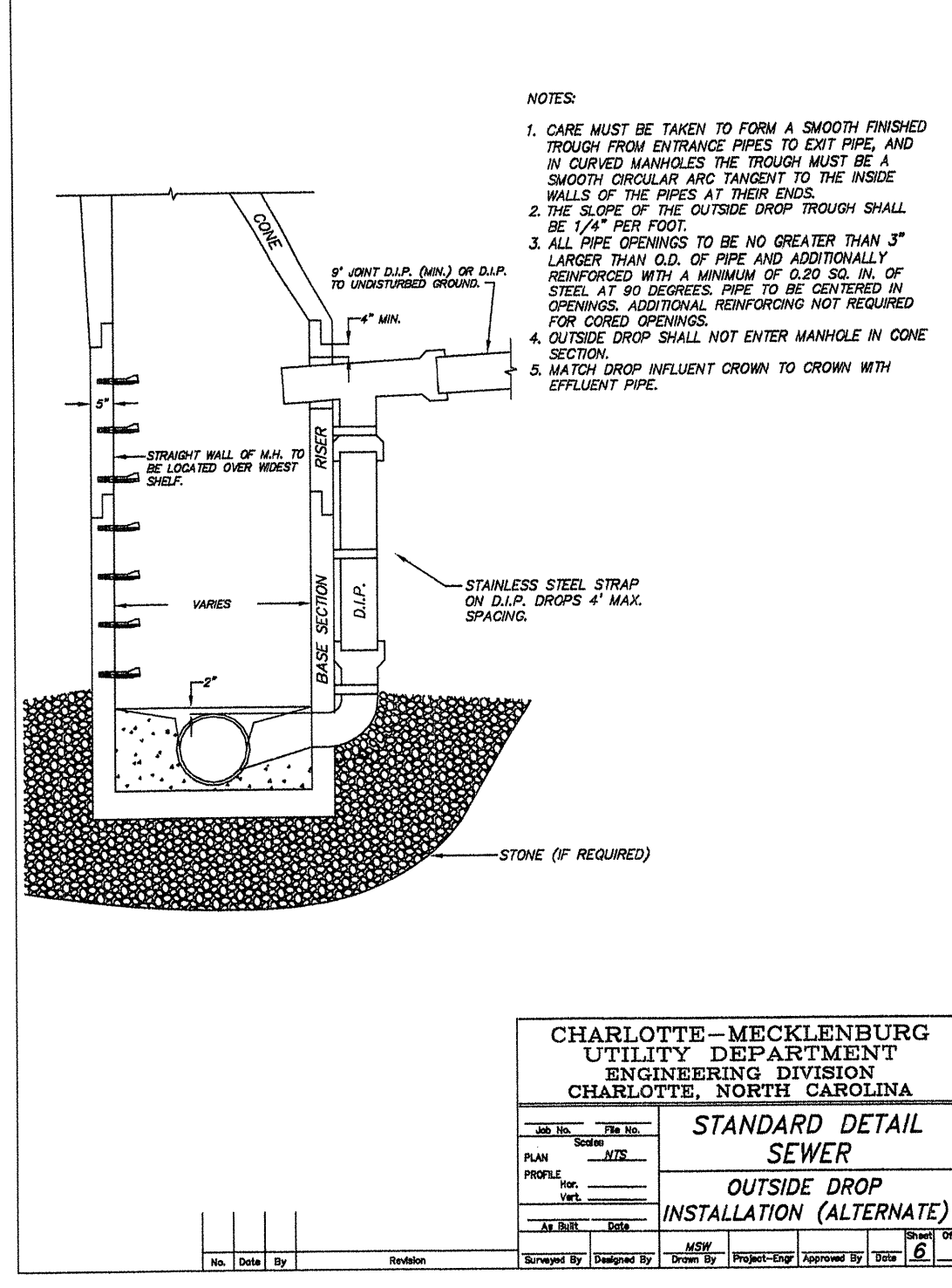
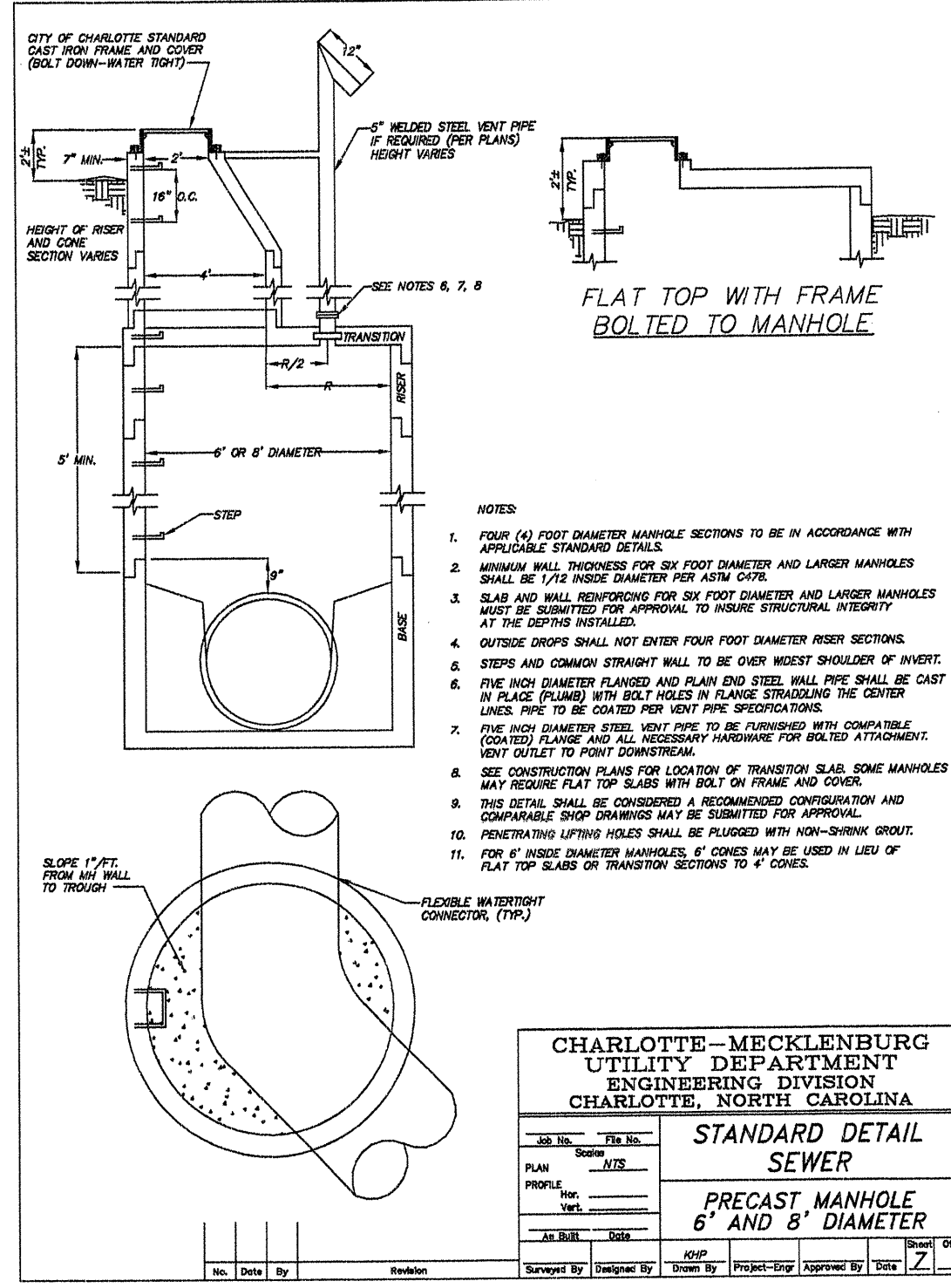
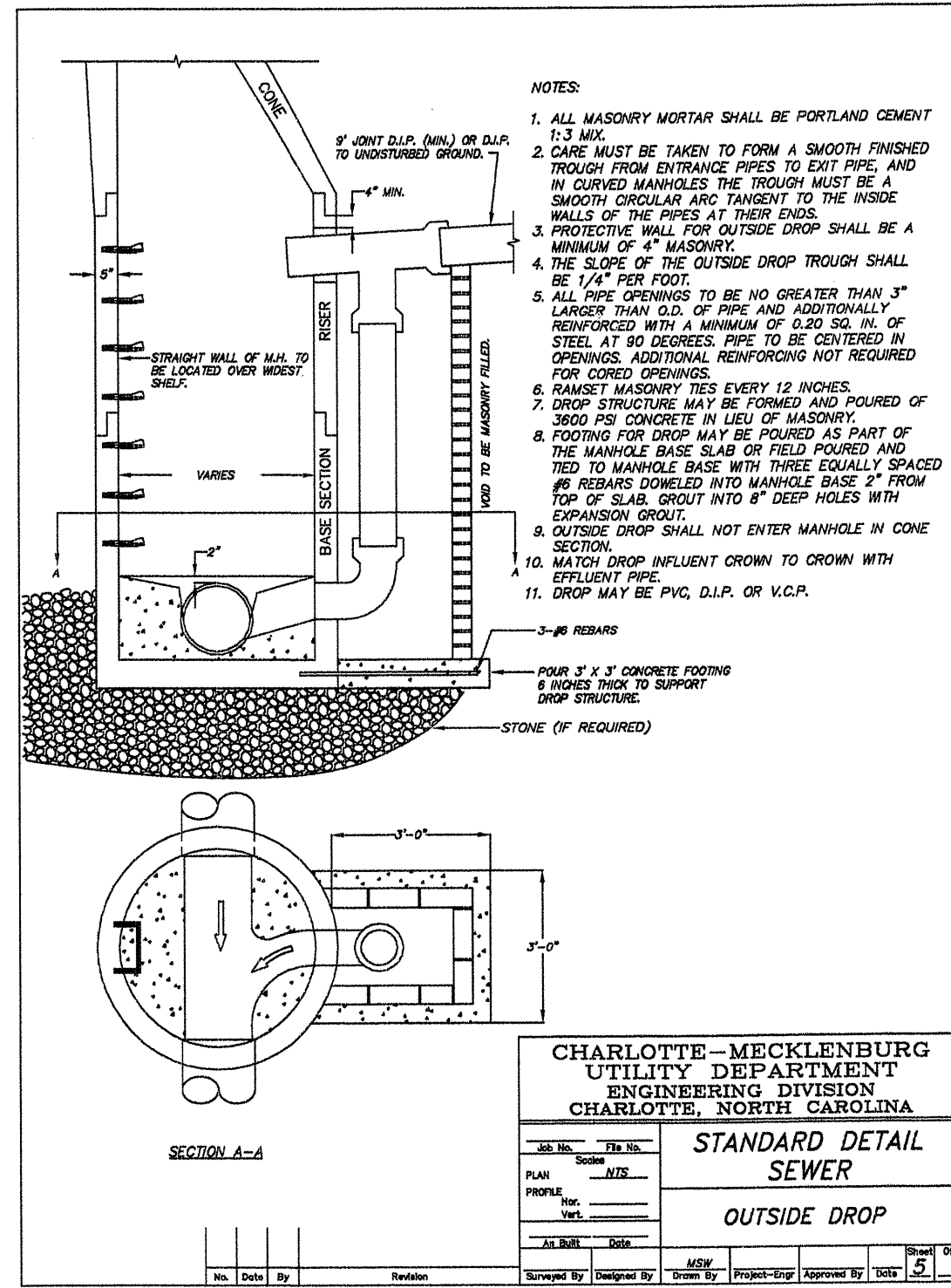
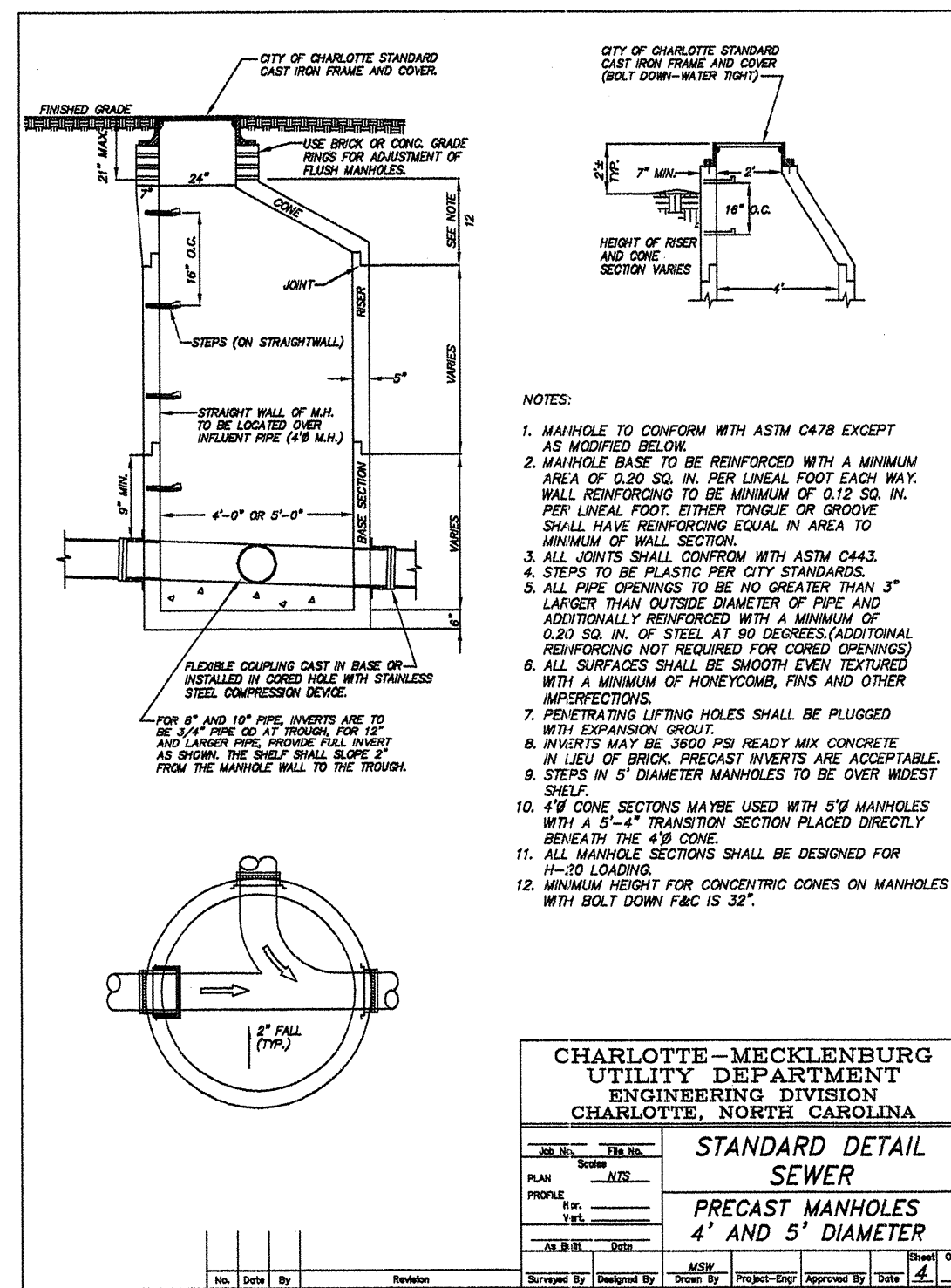
10+00 11+00 12+00 10+00 11+00 12+00

NORTH CAROLINA DEPT. OF TRANSPORTATION ENGINEERING DIVISION RALEIGH, NORTH CAROLINA

BRIDGE NO. 36 OVER IRVINS CREEK ON SR 3135 (LEBANON ROAD)

Designed By:	Checked By:	Date:	Sheet:	Of:
CLS	KSH	4-30-09	UC-5	UC-6

**Hinde Engineering, Inc.**  
 7820 EAST INDEPENDENCE BLVD, SUITE 230  
 CHARLOTTE, NC 28227  
 704-514-4407 (office)  
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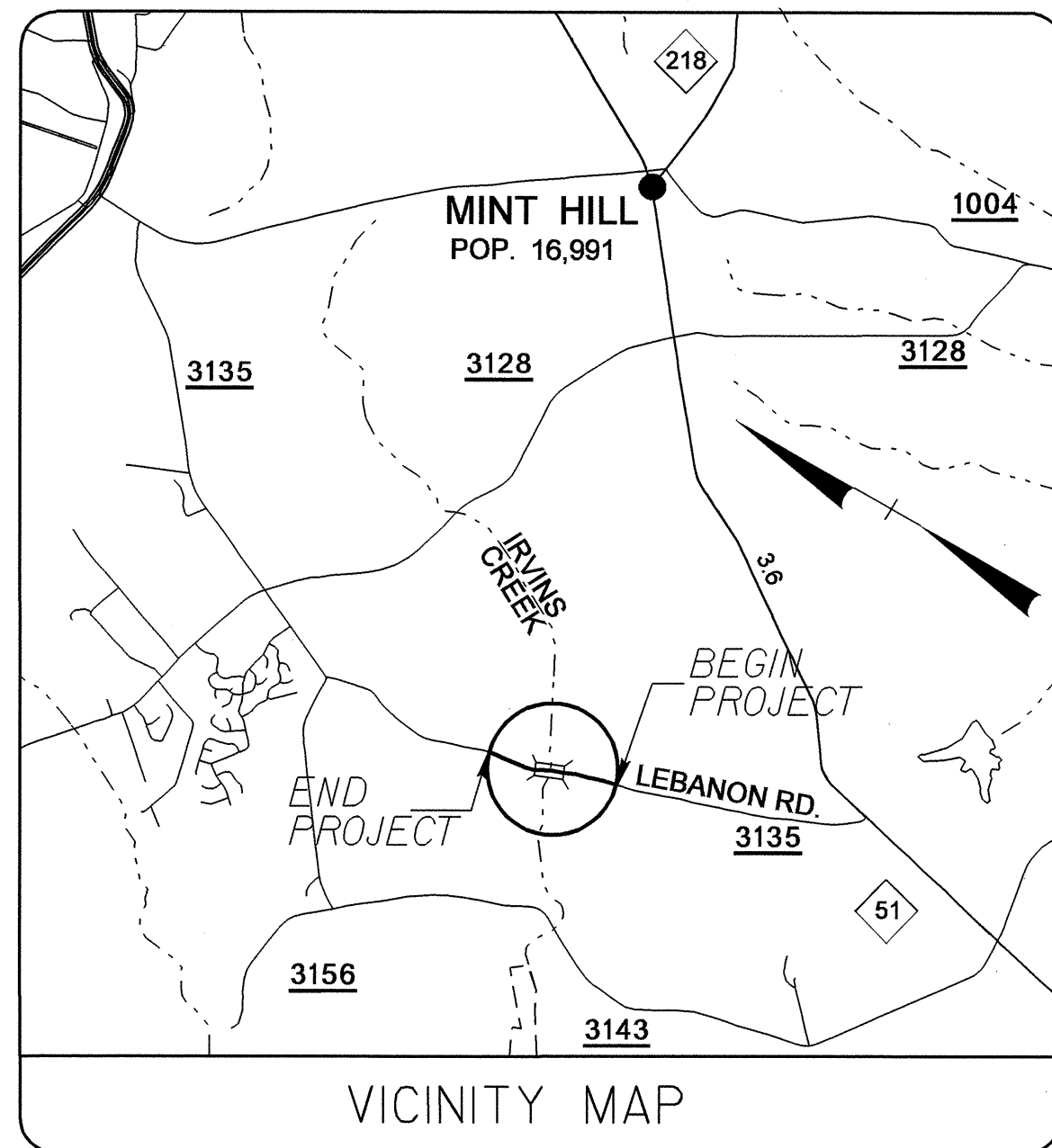
STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

T.I.P. NO.	SHEET NO.
B-3677	UO-1

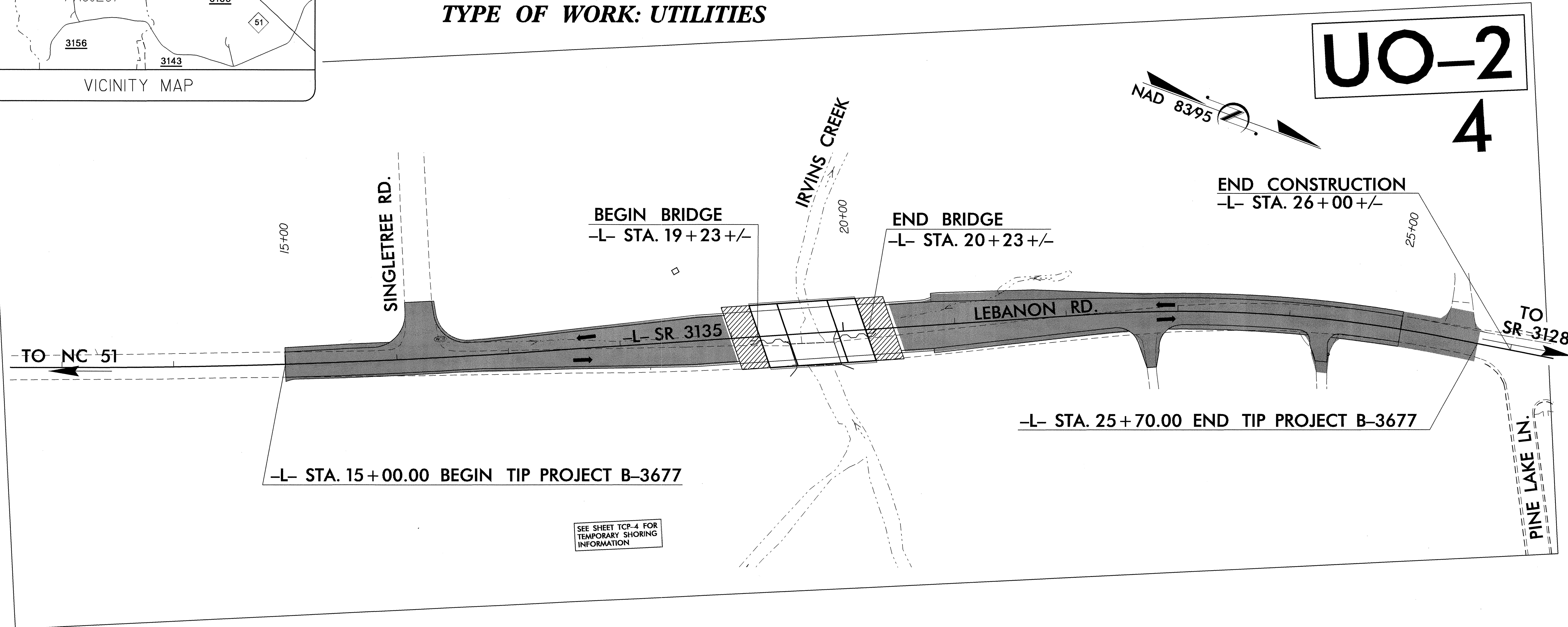
**UTILITIES BY OTHERS PLANS  
MECKLENBURG COUNTY**

**LOCATION: BRIDGE NO. 36 OVER IRVINS CREEK  
ON SR 3135 (LEBANON ROAD)**

**TYPE OF WORK: UTILITIES**



**TIP B-3677**



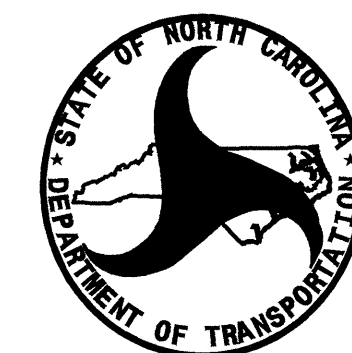
SEE SHEET TCP-4 FOR  
TEMPORARY SHORING  
INFORMATION

**INDEX OF SHEETS**

SHEET NO.	DESCRIPTION
UO-1	TITLE SHEET
UO-2	UTILITIES BY OTHERS PLAN SHEET

**UTILITY OWNERS ON PROJECT**

- (1) DUKE ENERGY (DISTRIBUTION)
- (2) DUKE ENERGY (TRANSMISSION)
- (3) AT&T
- (4) PIEDMONT NATURAL GAS
- (5) TIME WARNER



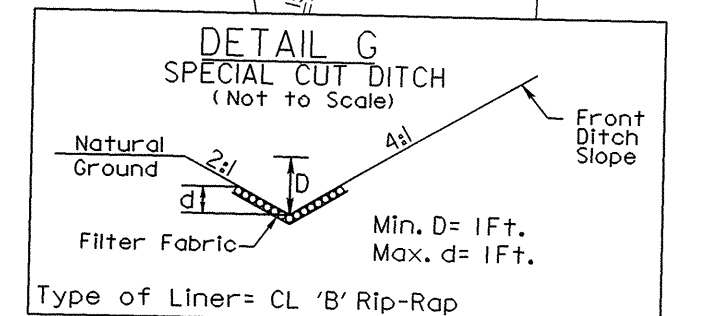
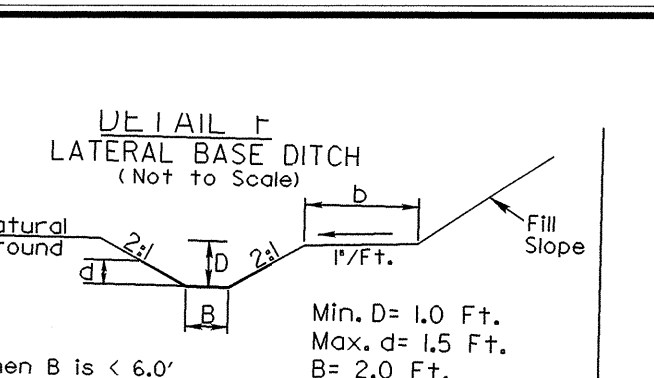
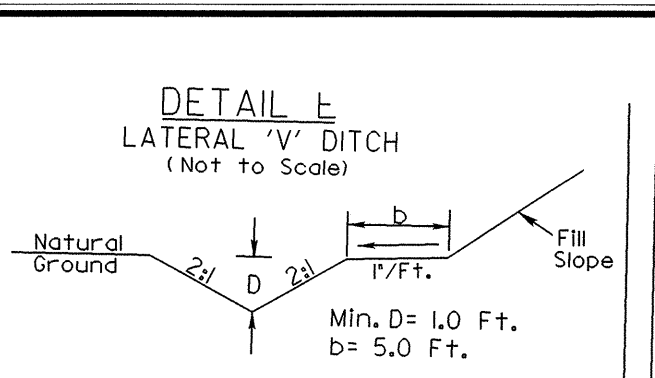
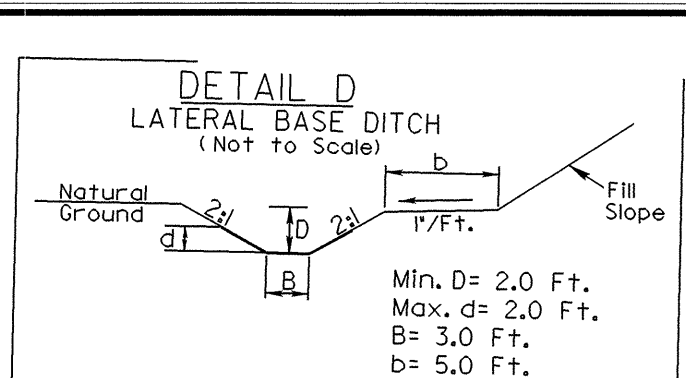
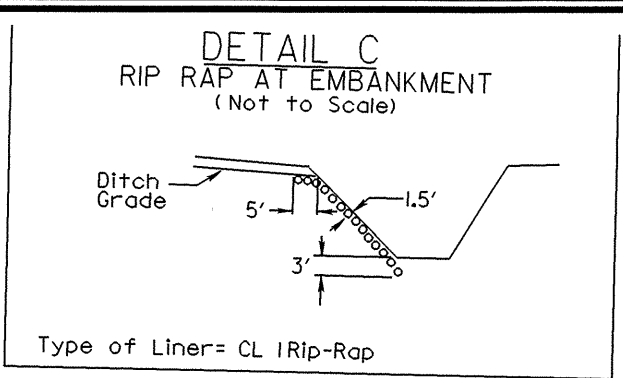
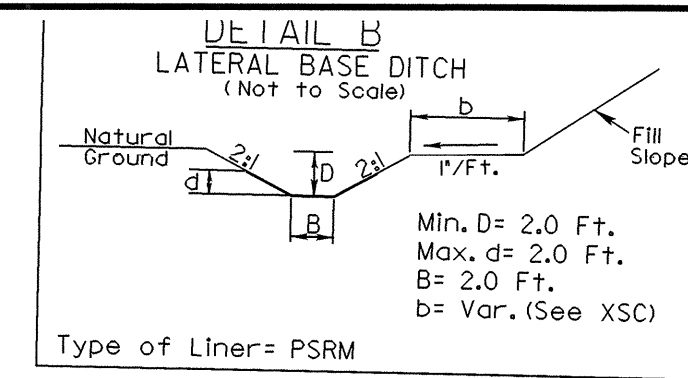
PREPARED IN THE OFFICE OF:  
**DIVISION OF HIGHWAYS  
DESIGN SERVICES  
UTILITY SECTION**

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

**Roger Worthington, P.E.** UTILITIES SECTION ENGINEER  
**Steve Mckee, P.E.** UTILITIES SQUAD LEADER PROJECT ENGINEER  
**Alonza Yancey** UTILITIES PROJECT DESIGNER

UTILITIES BY OTHERS

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



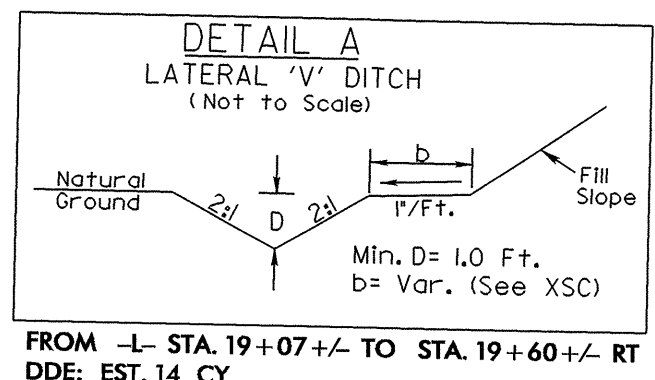
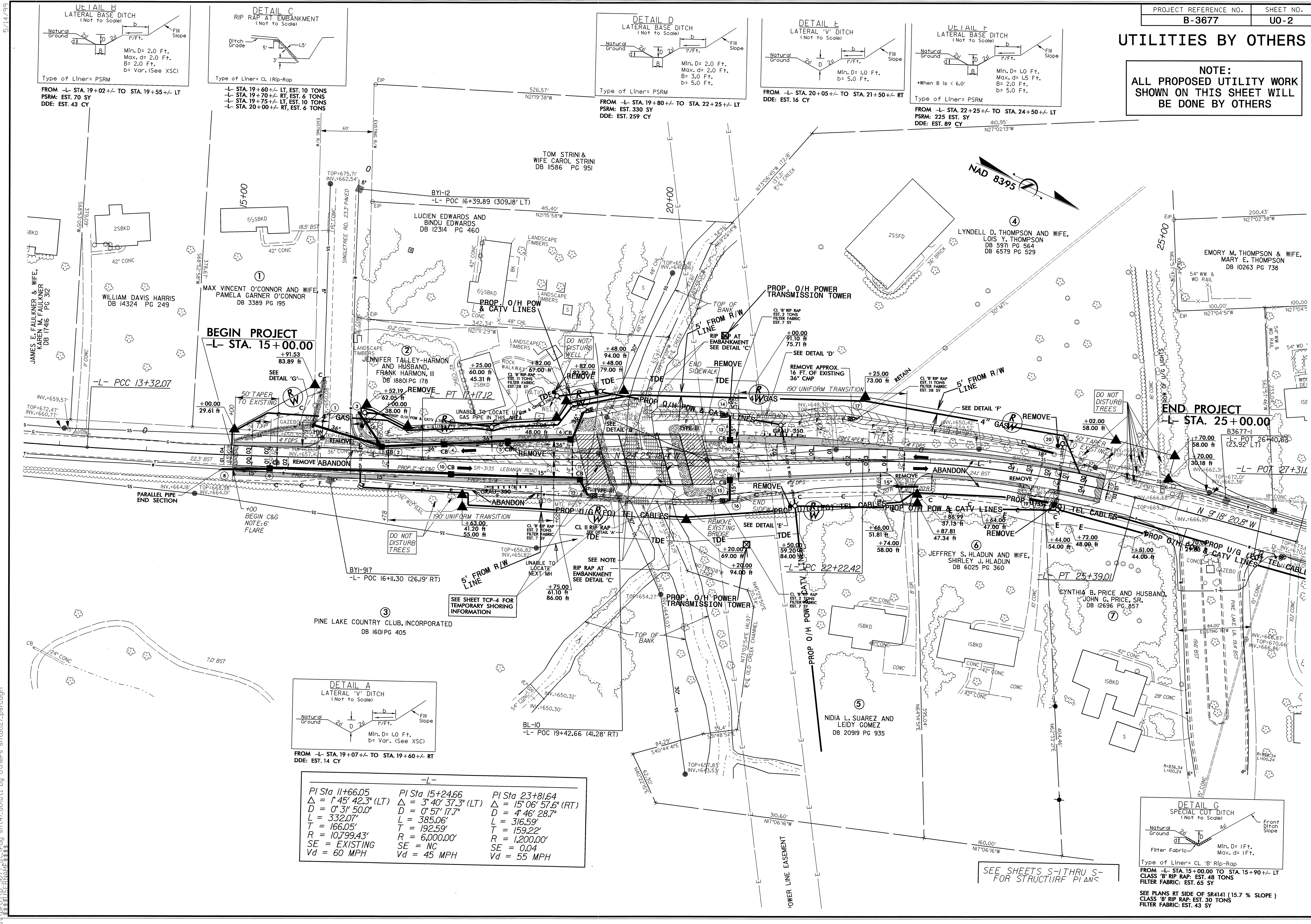
FROM -L- STA. 19+02+/- TO STA. 19+55+/- LT  
PSRM: EST. 70 SY  
DDE: EST. 43 CY

Type of Liner= CL 'B' Rip-Rap  
-L- STA. 19+60+/- LT, EST. 10 TONS  
-L- STA. 19+70+/- RT, EST. 6 TONS  
-L- STA. 19+75+/- LT, EST. 10 TONS  
-L- STA. 20+00+/- RT, EST. 6 TONS

Type of Liner= PSRM  
FROM -L- STA. 19+80+/- TO STA. 22+25+/- LT  
PSRM: EST. 330 SY  
DDE: EST. 259 CY

FROM -L- STA. 20+05+/- TO STA. 21+50+/- RT  
DDE: EST. 16 CY

Type of Liner= PSRM  
FROM -L- STA. 22+25+/- TO STA. 24+50+/- LT  
PSRM: 225 EST. SY  
DDE: EST. 89 CY



-L-		
PI Sta 11+66.05	PI Sta 15+24.66	PI Sta 23+81.64
$\Delta = 1^{\circ} 45' 42.3"$ (LT)	$\Delta = 3^{\circ} 40' 37.3"$ (LT)	$\Delta = 15^{\circ} 06' 57.6"$ (RT)
D = 0' 31' 50.0"	D = 0' 57' 17.7"	D = 4' 46' 28.7"
L = 332.07'	L = 385.06'	L = 316.59'
T = 166.05'	T = 192.59'	T = 159.22'
R = 10,799.43'	R = 6,000.00'	R = 1,200.00'
SE = EXISTING	SE = NC	SE = 0.04
Vd = 60 MPH	Vd = 45 MPH	Vd = 55 MPH

SEE SHEETS S-1 THRU S-4 FOR STRUCTURE PLANS

DETAIL G SPECIAL CUT DITCH (Not to Scale)  
Type of Liner= CL 'B' Rip-Rap  
FROM -L- STA. 15+00.00 TO STA. 15+90+/- LT  
CLASS 'B' RIP RAP, EST. 48 TONS  
FILTER FABRIC: EST. 65 SY

SEE PLANS RT SIDE OF SR414 (15.7% SLOPE)  
CLASS 'B' RIP RAP, EST. 30 TONS  
FILTER FABRIC: EST. 43 SY

08-MAY-2009 14:15 p:\p\c\10-3677\ut\cdy\shd\shd.dgn by others shtuc2\_1\_psh.dgn