

09, 08, 09

See Sheet 1-A For Index of Sheets

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

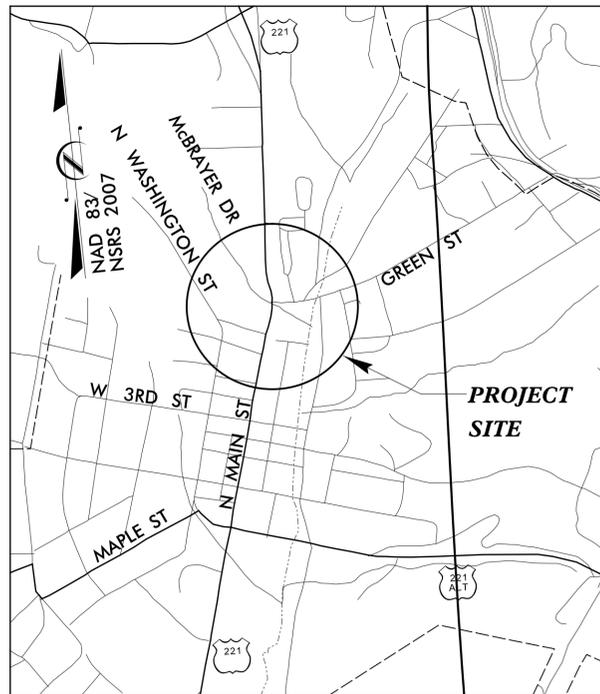
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	US 221	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
13B.108111		PE	

# RUTHERFORD COUNTY

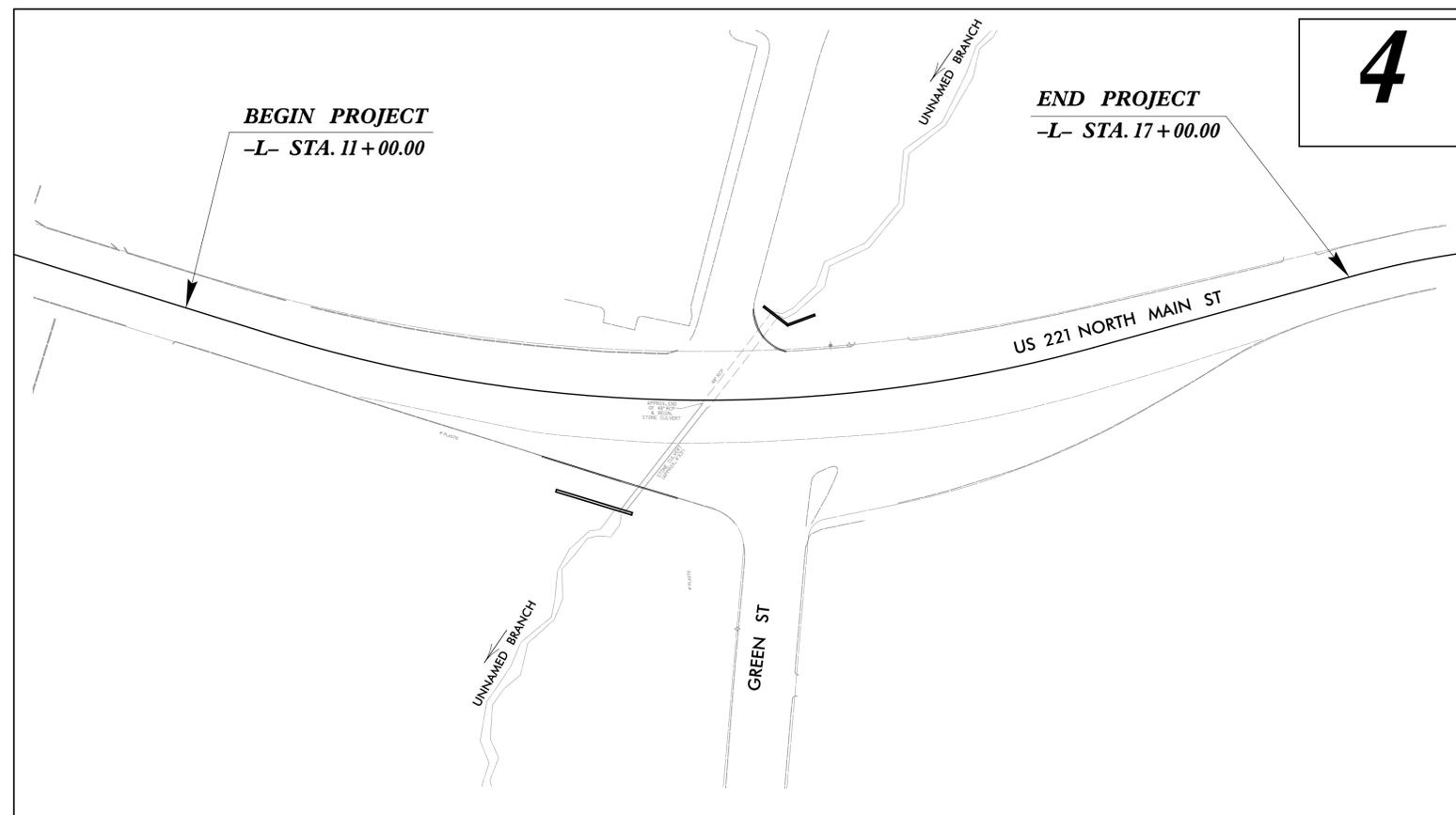
LOCATION: US 221 (NORTH MAIN STREET & GREEN STREET)  
TYPE OF WORK: GRADING, DRAINAGE, PAVING AND STRUCTURE



PROJECT: 13B.108111



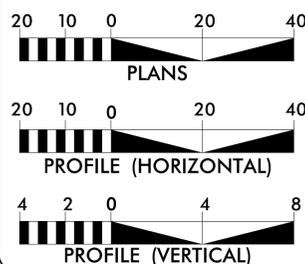
VICINITY MAP  
NOT TO SCALE



4

THIS PROJECT IS LOCATED WITHIN THE TOWN OF RUTHERFORDTON

### GRAPHIC SCALES



### DESIGN DATA

ADT = 3,050  
 ADT = 6,000  
 DHV = — %  
 D = — %  
 T = 3 % \*  
 V = 35 MPH  
 \* TTST 3% DUAL—%  
 FUNC = MAJOR  
 CLASS COLLECTOR

### PROJECT LENGTH

LENGTH OF ROADWAY PROJECT 13B.108111 = 0.114 MI.

Prepared In the Office of:

**VAUGHN & MELTON, INC.**

1318-F PATTON AVENUE ASHEVILLE, NC 28806 PHONE(828) 253-2796

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:  
SEPTEMBER 24, 2012

LETTING DATE:  
NOVEMBER , 2013

REECE M. SCHULER, P.E.  
PROJECT ENGINEER

HARDY WILLIS, P.E.  
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER



Bradley S. Rimmer, PE 10/16/12 P.E.  
SIGNATURE:

ROADWAY DESIGN  
ENGINEER



10/16/12

SIGNATURE:

DIVISION OF HIGHWAYS  
STATE OF NORTH CAROLINA



\$\$\$\$\$ SYSTEM \$\$\$\$\$\$  
\$\$\$\$\$ DGN \$\$\$\$\$\$  
\$\$\$\$\$ USERNAME \$\$\$\$\$\$



Note: Not to Scale

\*S.U.E. = Subsurface Utility Engineering

STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

BOUNDARIES AND PROPERTY:

Table listing symbols for boundaries and property: State Line, County Line, Township Line, City Line, Reservation Line, Property Line, Existing Iron Pin, Property Corner, Property Monument, Parcel/Sequence Number, Existing Fence Line, Proposed Woven Wire Fence, Proposed Chain Link Fence, Proposed Barbed Wire Fence, Existing Wetland Boundary, Proposed Wetland Boundary, Existing Endangered Animal Boundary, Existing Endangered Plant Boundary.

BUILDINGS AND OTHER CULTURE:

Table listing symbols for buildings and other culture: Gas Pump Vent or U/G Tank Cap, Sign, Well, Small Mine, Foundation, Area Outline, Cemetery, Building, School, Church, Dam.

HYDROLOGY:

Table listing symbols for hydrology: Stream or Body of Water, Hydro, Pool or Reservoir, Jurisdictional Stream, Buffer Zone 1, Buffer Zone 2, Flow Arrow, Disappearing Stream, Spring, Wetland, Proposed Lateral, Tail, Head Ditch, False Sump.

RAILROADS:

Table listing symbols for railroads: Standard Gauge, RR Signal Milepost, Switch, RR Abandoned, RR Dismantled.

RIGHT OF WAY:

Table listing symbols for right of way: Baseline Control Point, Existing Right of Way Marker, Existing Right of Way Line, Proposed Right of Way Line, Proposed Right of Way Line with Iron Pin and Cap Marker, Proposed Right of Way Line with Concrete or Granite Marker, Existing Control of Access, Proposed Control of Access, Existing Easement Line, Proposed Temporary Construction Easement, Proposed Temporary Drainage Easement, Proposed Permanent Drainage Easement, Proposed Permanent Utility Easement.

ROADS AND RELATED FEATURES:

Table listing symbols for roads and related features: Existing Edge of Pavement, Existing Curb, Proposed Slope Stakes Cut, Proposed Slope Stakes Fill, Proposed Wheel Chair Ramp, Proposed Wheel Chair Ramp Curb Cut, Curb Cut for Future Wheel Chair Ramp, Existing Metal Guardrail, Proposed Guardrail, Existing Cable Guiderail, Proposed Cable Guiderail, Equality Symbol, Pavement Removal.

VEGETATION:

Table listing symbols for vegetation: Single Tree, Single Shrub, Hedge, Woods Line, Orchard, Vineyard.

EXISTING STRUCTURES:

Table listing symbols for existing structures: MAJOR: Bridge, Tunnel or Box Culvert, Bridge Wing Wall, Head Wall and End Wall; MINOR: Head and End Wall, Pipe Culvert, Footbridge, Drainage Box: Catch Basin, DI or JB, Paved Ditch Gutter, Storm Sewer Manhole, Storm Sewer.

UTILITIES:

Table listing symbols for utilities: POWER: Existing Power Pole, Proposed Power Pole, Existing Joint Use Pole, Proposed Joint Use Pole, Power Manhole, Power Line Tower, Power Transformer, U/G Power Cable Hand Hole, H-Frame Pole, Recorded U/G Power Line, Designated U/G Power Line (S.U.E.\*); TELEPHONE: Existing Telephone Pole, Proposed Telephone Pole, Telephone Manhole, Telephone Booth, Telephone Pedestal, Telephone Cell Tower, U/G Telephone Cable Hand Hole, Recorded U/G Telephone Cable, Designated U/G Telephone Cable (S.U.E.\*), Recorded U/G Telephone Conduit, Designated U/G Telephone Conduit (S.U.E.\*), Recorded U/G Fiber Optics Cable, Designated U/G Fiber Optics Cable (S.U.E.\*).

WATER:

Table listing symbols for water: Water Manhole, Water Meter, Water Valve, Water Hydrant, Recorded U/G Water Line, Designated U/G Water Line (S.U.E.\*), Above Ground Water Line.

TV:

Table listing symbols for TV: TV Satellite Dish, TV Pedestal, TV Tower, U/G TV Cable Hand Hole, Recorded U/G TV Cable, Designated U/G TV Cable (S.U.E.\*), Recorded U/G Fiber Optic Cable, Designated U/G Fiber Optic Cable (S.U.E.\*).

GAS:

Table listing symbols for gas: Gas Valve, Gas Meter, Recorded U/G Gas Line, Designated U/G Gas Line (S.U.E.\*), Above Ground Gas Line.

SANITARY SEWER:

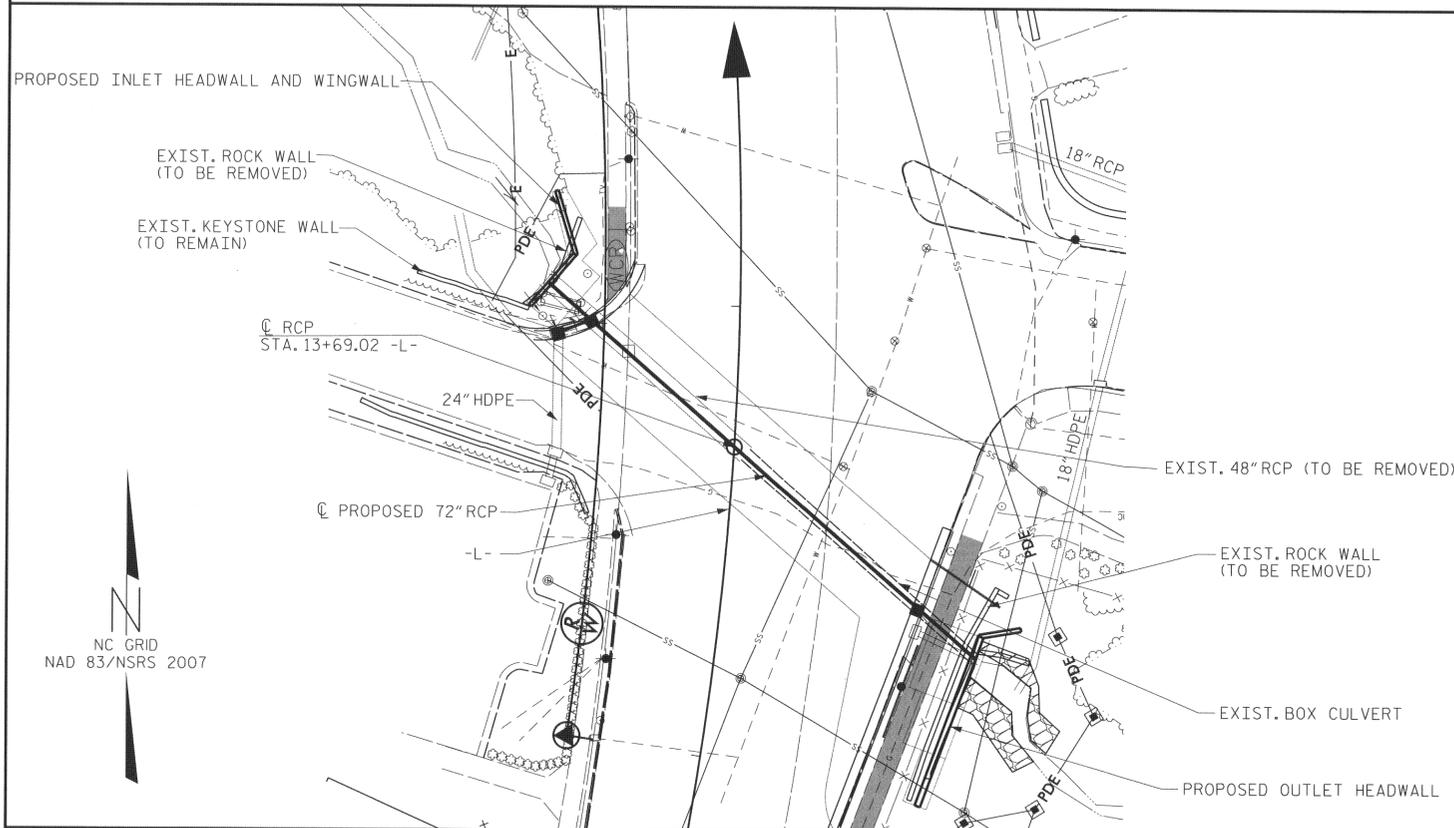
Table listing symbols for sanitary sewer: Sanitary Sewer Manhole, Sanitary Sewer Cleanout, U/G Sanitary Sewer Line, Above Ground Sanitary Sewer, Recorded SS Forced Main Line, Designated SS Forced Main Line (S.U.E.\*).

MISCELLANEOUS:

Table listing symbols for miscellaneous: Utility Pole, Utility Pole with Base, Utility Located Object, Utility Traffic Signal Box, Utility Unknown U/G Line, U/G Tank; Water, Gas, Oil, A/G Tank; Water, Gas, Oil, U/G Test Hole (S.U.E.\*), Abandoned According to Utility Records, End of Information.



B.M.: 13B.108111, BL-2, 70.20' RIGHT OF STA. 13+71.95, EL. 916.045

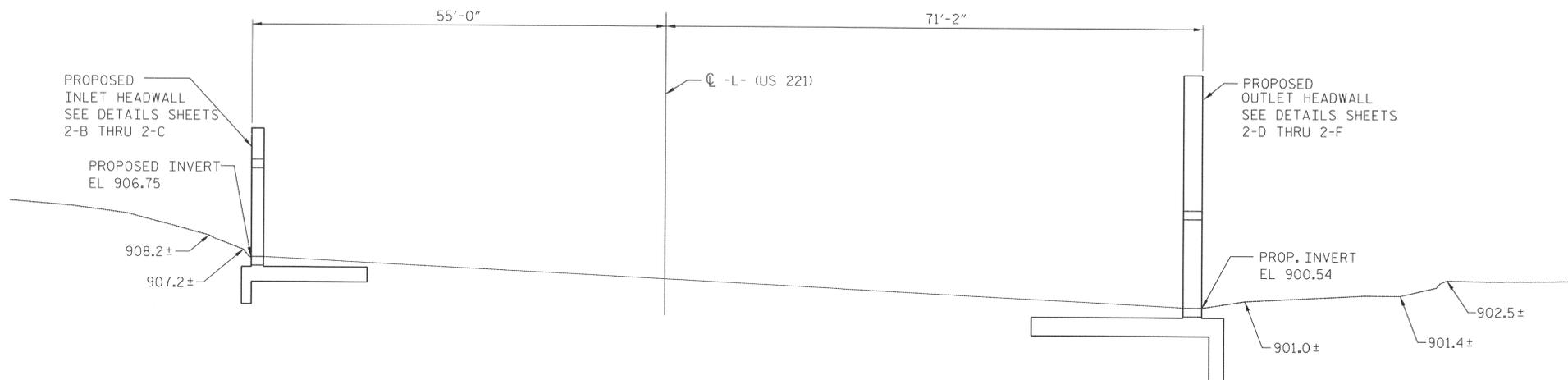


LOCATION SKETCH

GENERAL NOTES

- ALL CONCRETE SHALL BE CLASS "A".
  - ALL EXPOSED CORNERS SHALL BE CHAMFERED 1".
  - ALL DIMENSIONS RELATIVE TO PLACEMENT OF REINFORCING STEEL ARE TO CENTERS OF BARS.
  - THE RESIDENT ENGINEER SHALL CHECK THE LENGTH OF PIPE BEFORE STAKING IT OUT TO MAKE CERTAIN THAT IT WILL PROPERLY TAKE CARE OF THE FILL.
  - FOR MAINTENANCE OF TRAFFIC, SEE TRAFFIC CONTROL PLANS.
  - FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.
  - FOR UTILITY INFORMATION, SEE UTILITY PLANS AND SPECIAL PROVISIONS.
  - FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE SHEET SN.
  - FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.
- THE CONTRACTOR SHALL UNDERCUT THE EXISTING SUBGRADE SOILS A MINIMUM OF 3 FEET BELOW THE PROPOSED BEARING ELEVATIONS AT BOTH THE INLET AND OUTLET SIDES OF THE PIPE, ENCOMPASSING THE ENTIRE AREA OF THE HEADWALL, WINGWALL AND STEPPED FOOTINGS. THE RESULTING UNDERCUTS SHALL BE BACKFILLED TO THE PLANNED BEARING ELEVATION USING CLASS V (#78M STONE) OR VI (#57 STONE) SELECT MATERIAL (AS REFERENCED IN ARTICLE 1016-3 OF THE STANDARD SPECIFICATIONS). WRAP THE FOUNDATION CONDITIONING MATERIAL WITH A GEOTEXTILE MEETING TYPE 2 GEOTEXTILE SPECIFICATIONS (AS REFERENCED IN ARTICLE 1056-2 OF THE STANDARD SPECIFICATIONS). THE STONE LAYER THICKNESS SHALL NOT EXCEED 12 INCHES BEFORE THE SURFACE OF THE STONE IS DENSIFIED WITH A HEAVY VIBRATORY PLATE COMPACTOR TO THE SATISFACTION OF THE GEOTECHNICAL ENGINEER OR HIS REPRESENTATIVE PRIOR TO PLACING SUBSEQUENT LIFTS.
- STRUCTURES ARE DESIGNED TO A NET ALLOWABLE SOIL BEARING PRESSURE OF 3,000 POUNDS PER SQUARE FOOT (PSF), AND AN INTERNAL ANGLE OF FRICTION OF 30 DEGREES.

TOTAL STRUCTURE QUANTITIES	
CLASS A CONCRETE	
TOTAL	68.6 C.Y.
REINFORCING STEEL	
TOTAL	6,457 LBS.



PROFILE ALONG C RCP



PROJECT NO. 13B.108111  
 RUTHERFORD COUNTY  
 STATION: 13+69.02

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

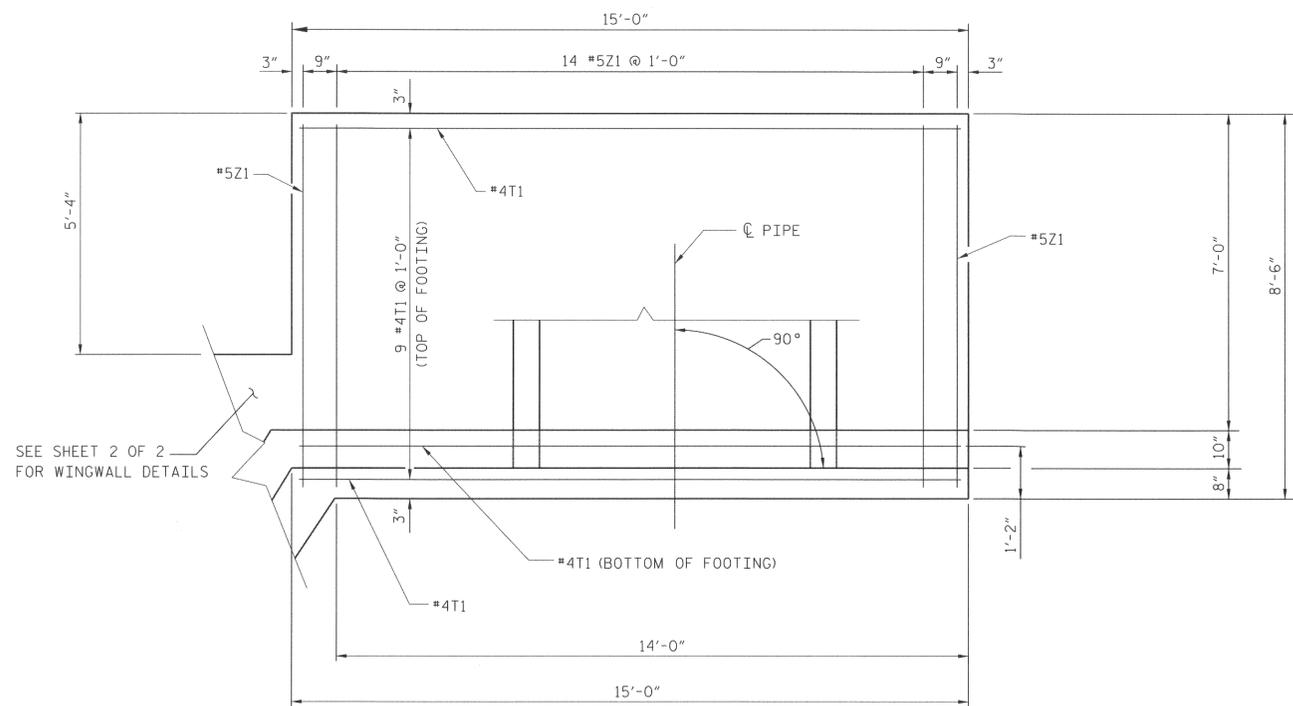
HEADWALL LAYOUT

FOR PIPE along UNNAMED BRANCH  
 on US 221 (N. MAIN STREET)

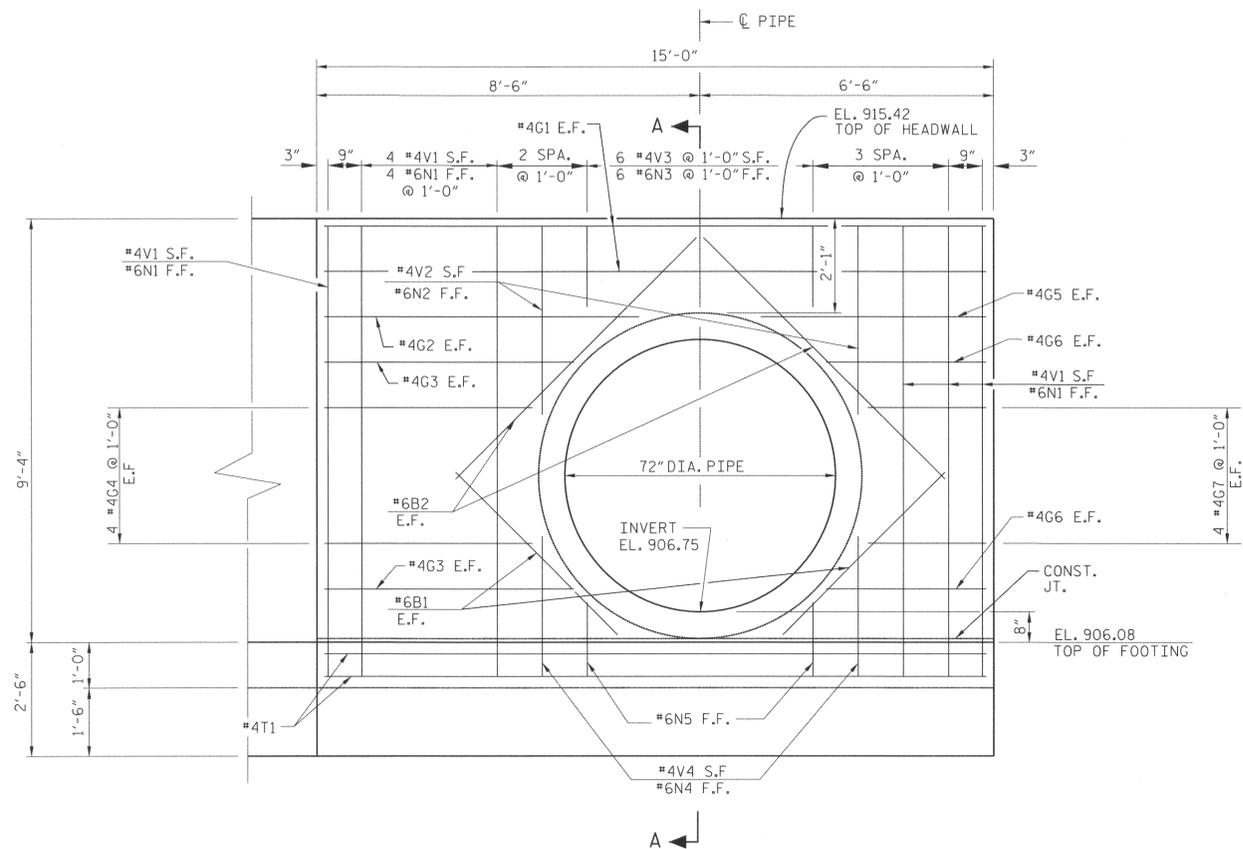


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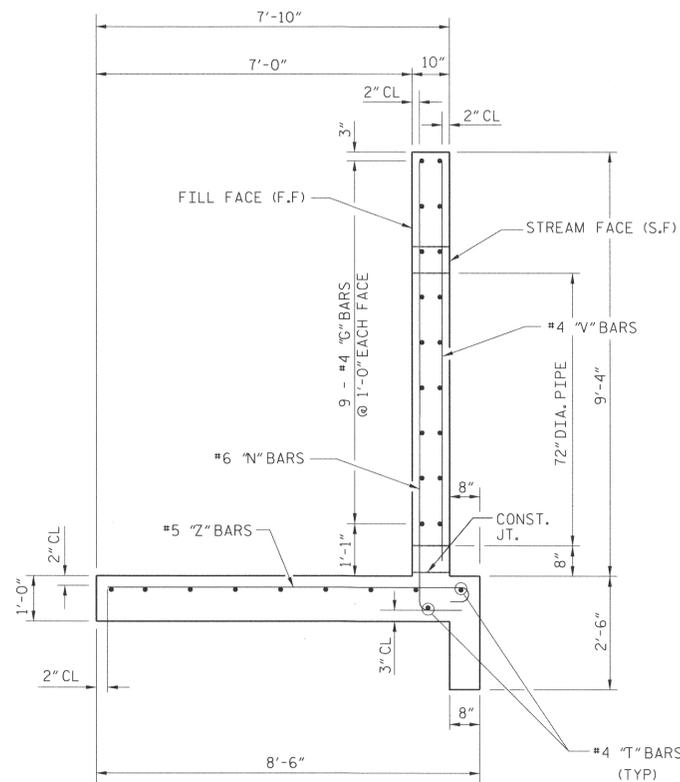
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	2-A
1			3			TOTAL SHEETS
2			4			6



HEADWALL PLAN VIEW AT PIPE OUTLET



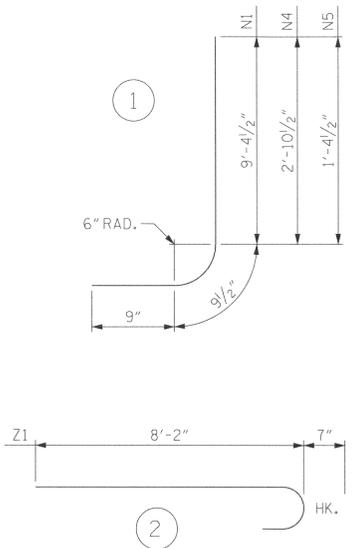
HEADWALL ELEVATION VIEW AT PIPE OUTLET



HEADWALL SECTION A-A AT PIPE INLET

BAR TYPES

ALL BAR DIMENSIONS ARE OUT TO OUT.



BILL OF MATERIAL

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	4	#6	STR	5'-8"	34
B2	4	#6	STR	7'-9"	47
G1	4	#4	STR	14'-8"	39
G2	2	#4	STR	7'-0"	10
G3	4	#4	STR	5'-6"	15
G4	8	#4	STR	4'-5"	24
G5	2	#4	STR	5'-0"	7
G6	4	#4	STR	3'-6"	10
G7	8	#4	STR	2'-6"	13
N1	8	#6	1	10'-11"	131
N2	2	#6	STR	4'-2"	13
N3	6	#6	STR	1'-9"	16
N4	2	#6	1	4'-5"	13
N5	2	#6	1	2'-11"	9
T1	10	#4	STR	14'-8"	98
V1	8	#4	STR	9'-0"	48
V2	2	#4	STR	4'-2"	6
V3	6	#4	STR	1'-9"	7
V4	2	#4	STR	2'-0"	3
Z1	16	#5	2	8'-9"	146
REINFORCING STEEL					689 LBS
CLASS A CONCRETE (DOES NOT INCLUDE WING)					9.6 CY

PROJECT NO. 13B.108111  
 RUTHERFORD COUNTY  
 STATION: 13+69.02  
 SHEET 1 OF 2



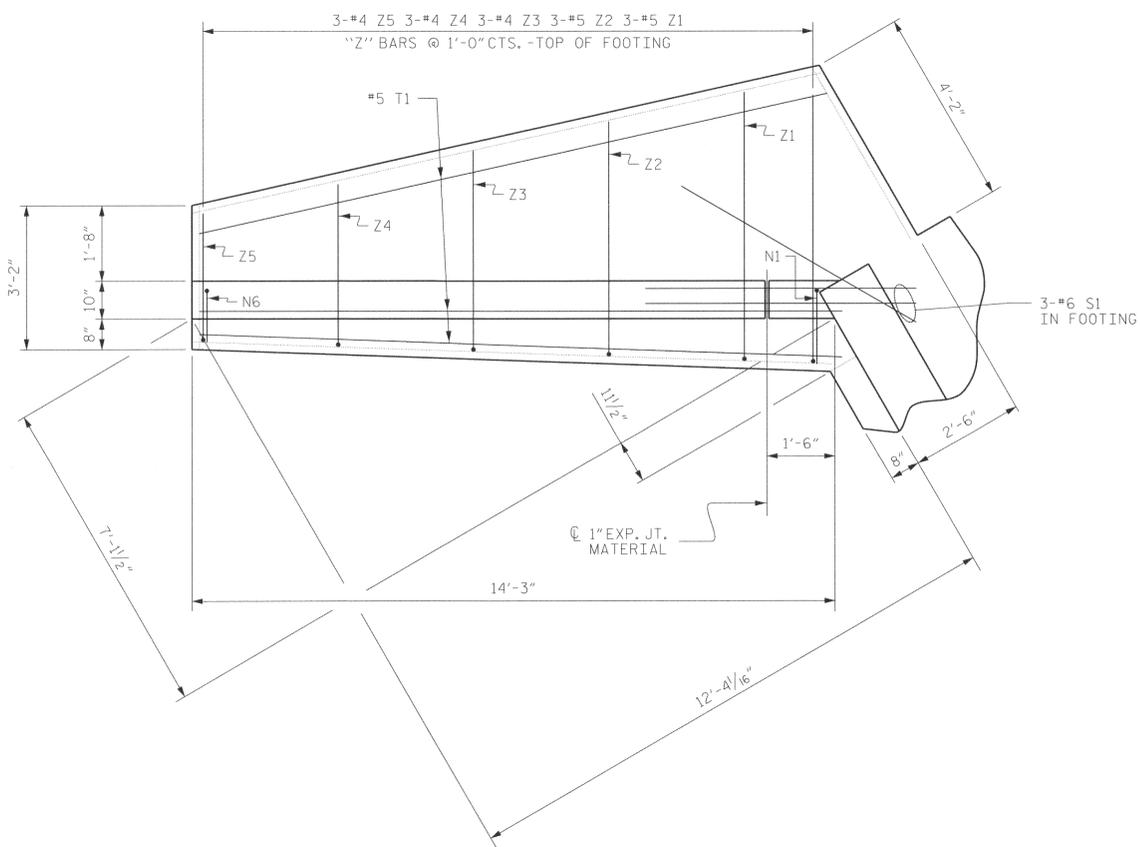
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

INLET WALL DETAILS

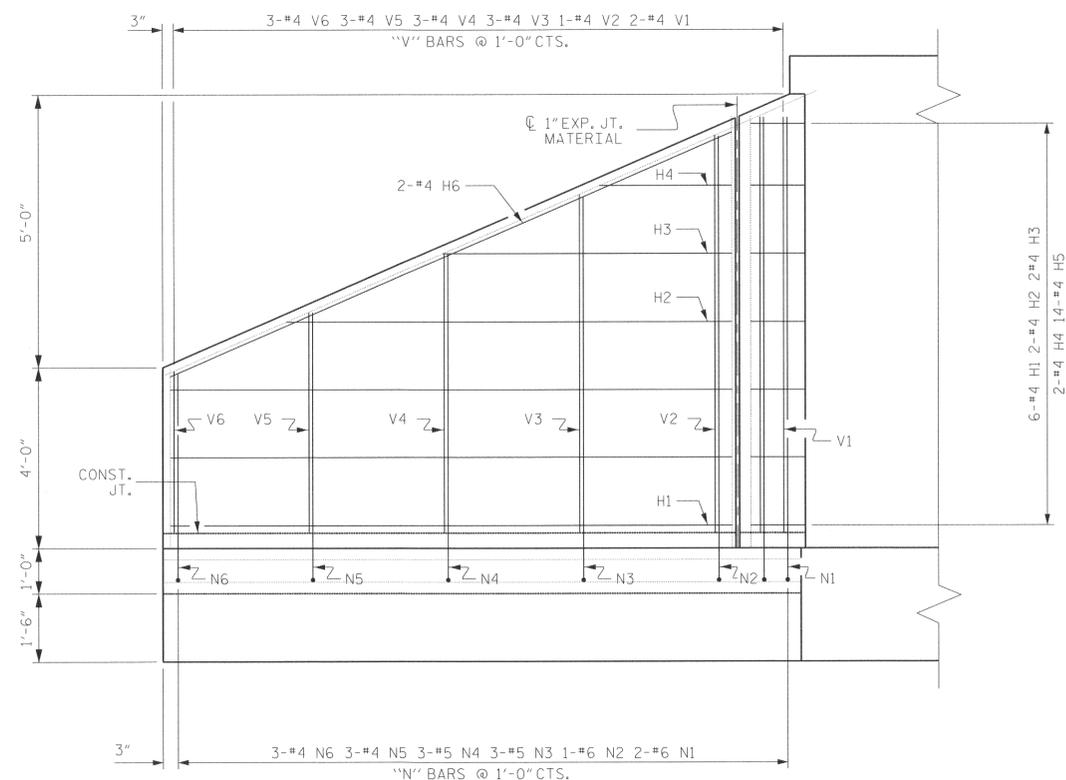


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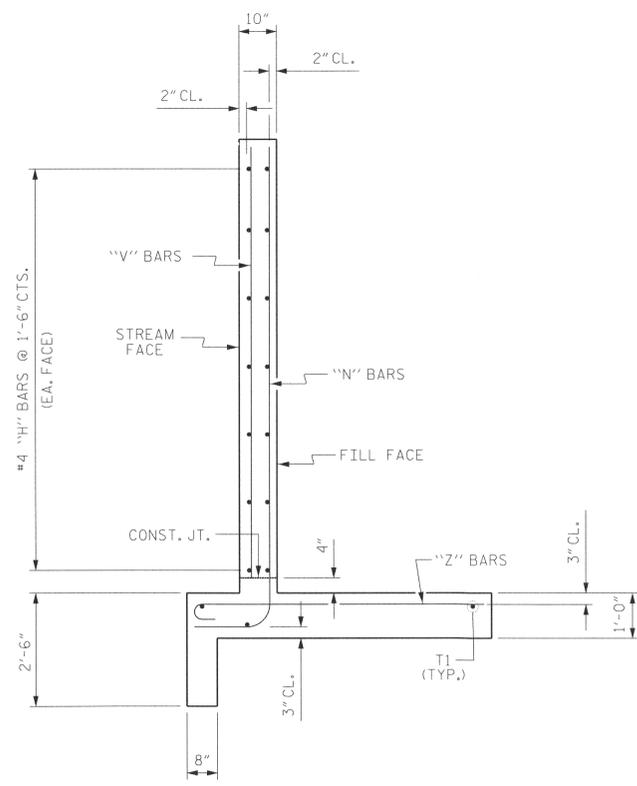
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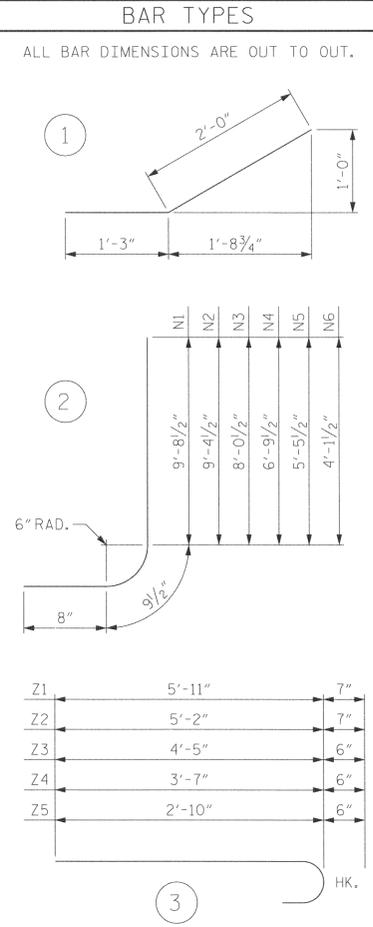
PLAN - WINGWALL



ELEVATION - WINGWALL



TYPICAL WING SECTION



BILL OF MATERIAL					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
H1	6	#4	STR	12'-5"	50
H2	2	#4	STR	9'-10"	13
H3	2	#4	STR	6'-5"	9
H4	2	#4	STR	2'-11"	4
H5	14	#4	1	3'-3"	31
H6	2	#4	STR	13'-6"	18
N1	2	#6	2	11'-2"	33
N2	1	#6	2	10'-10"	16
N3	3	#5	2	9'-6"	30
N4	3	#5	2	8'-3"	26
N5	3	#4	2	6'-11"	14
N6	3	#4	2	5'-7"	11
S1	3	#6	STR	6'-0"	27
T1	3	#5	STR	14'-3"	44
V1	2	#4	STR	9'-2"	12
V2	1	#4	STR	8'-9"	6
V3	3	#4	STR	7'-5"	15
V4	3	#4	STR	6'-2"	12
V5	3	#4	STR	4'-10"	10
V6	3	#4	STR	3'-7"	7
Z1	3	#5	3	6'-6"	20
Z2	3	#5	3	5'-9"	18
Z3	3	#4	3	4'-11"	10
Z4	3	#4	3	4'-1"	8
Z5	3	#4	3	3'-4"	7
REINFORCING STEEL FOR WING					451 LBS
CLASS A CONCRETE WING					6.6 CY
TOTAL					6.6 CY



PROJECT NO. 13B.108111  
 RUTHERFORD COUNTY  
 STATION: 13+69.02  
 SHEET 2 OF 2

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

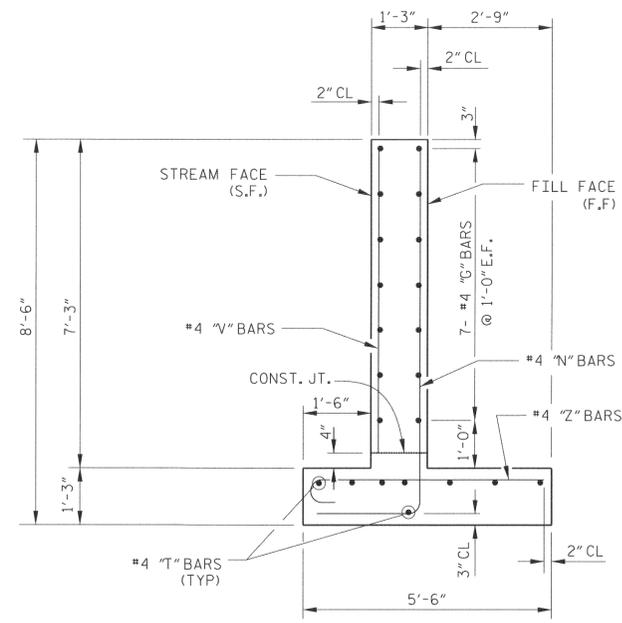
INLET WALL DETAILS

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 CHECKED BY: HLW DATE: OCT. 2012

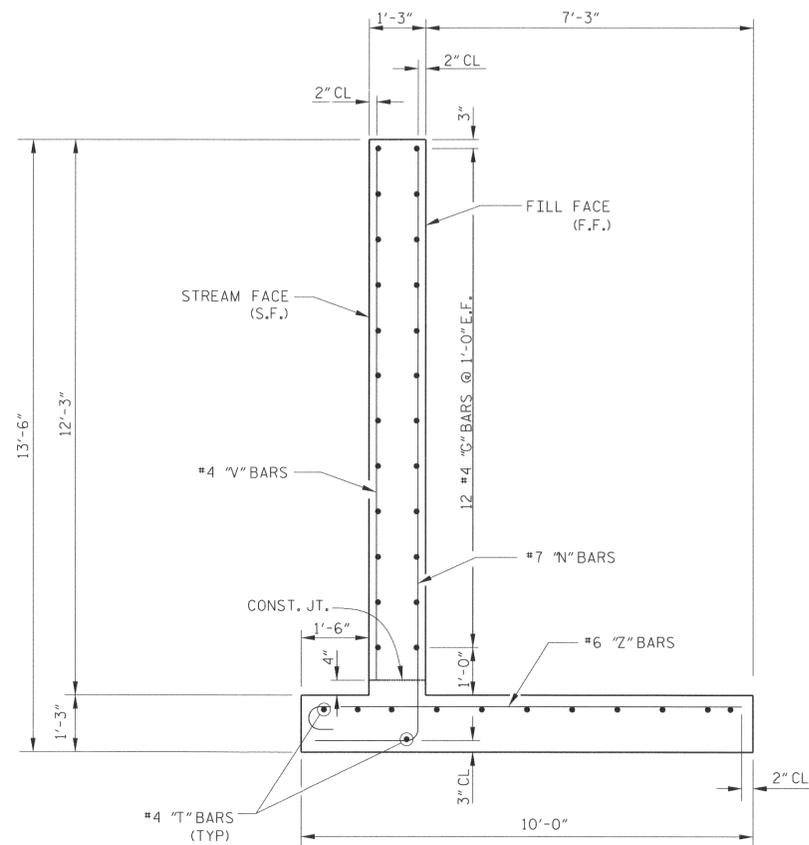
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NO.	BY:	DATE:	NO.	BY:	DATE:	6
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2			4			

SHEET NO. 2-C

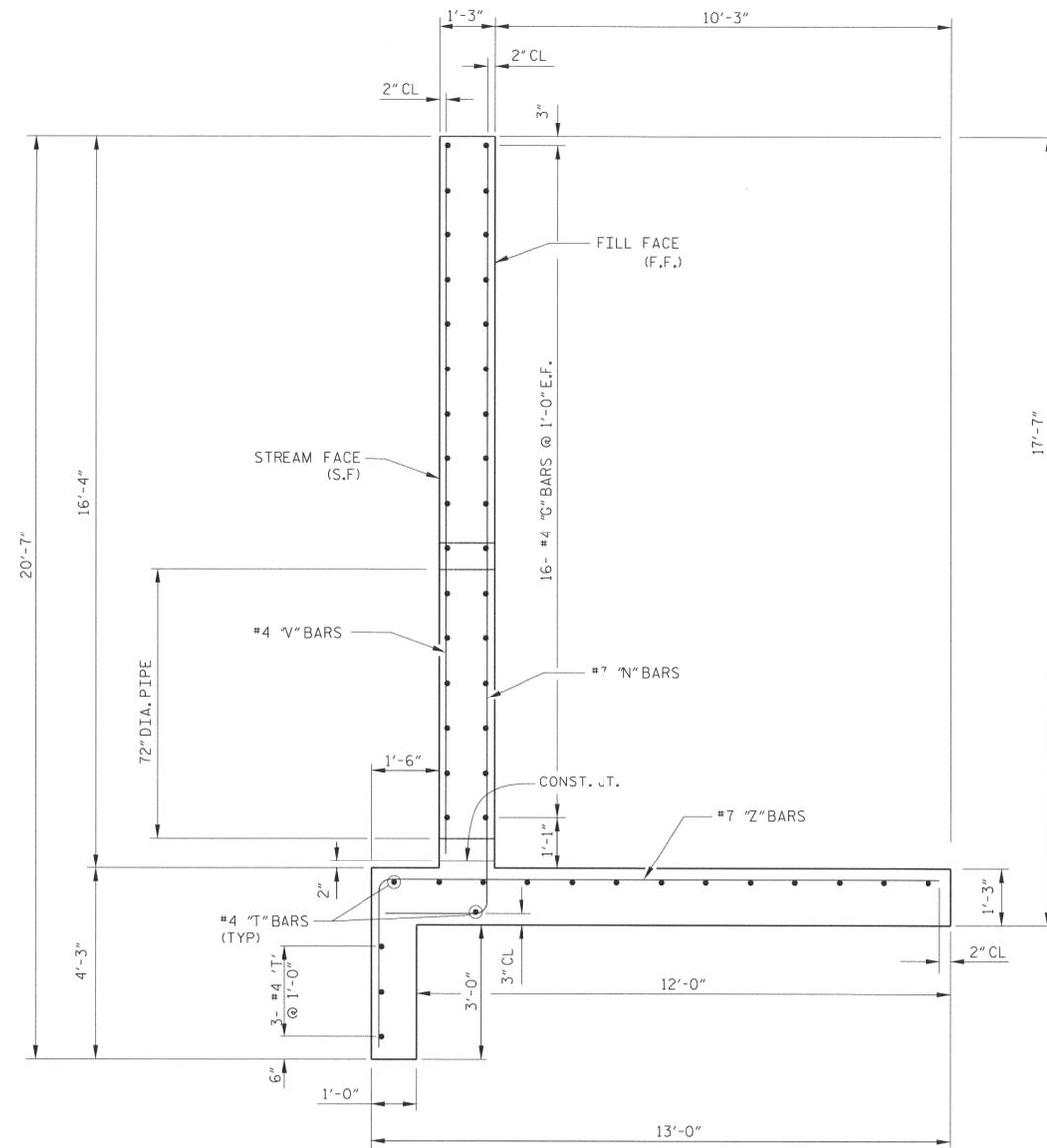




HEADWALL SECTION A-A



HEADWALL SECTION B-B



HEADWALL SECTION C-C



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 CHECKED BY: HLW DATE: OCT. 2012

PROJECT NO. 13B.108111

RUTHERFORD COUNTY

STATION: 13+69.02

SHEET 2 OF 3

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

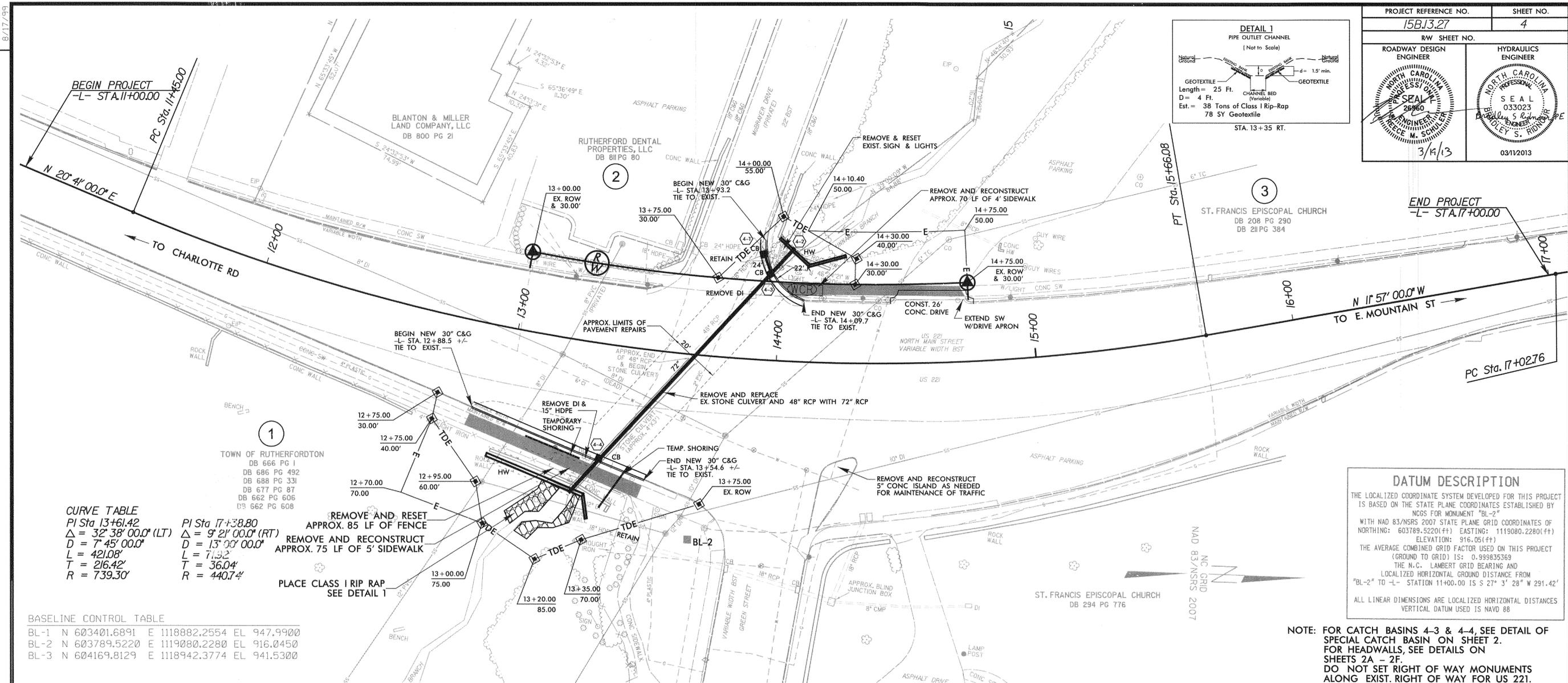
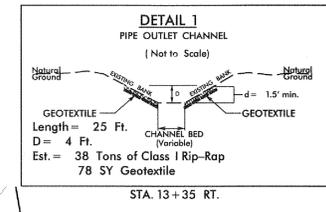
OUTLET WALL DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	2-E
1			3			TOTAL SHEETS
2			4			6









**CURVE TABLE**

PI Sta 13+61.42 Δ = 32° 38' 00.0" (LT) D = 7° 45' 00.0" L = 421.08' T = 216.42' R = 739.30'	PI Sta 17+38.80 Δ = 9° 21' 00.0" (RT) D = 13° 00' 00.0" L = 71.32' T = 36.04' R = 440.74'
--	--

**BASELINE CONTROL TABLE**

BL-1	N 603401.6891	E 1118882.2554	EL 947.9900
BL-2	N 603789.5220	E 1119080.2280	EL 916.0450
BL-3	N 604169.8129	E 1118942.3774	EL 941.5300

**DATUM DESCRIPTION**

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCGS FOR MONUMENT "BL-2" WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF NORTHING: 603789.5220(FF) EASTING: 1119080.2280(FF) ELEVATION: 916.05(FF)

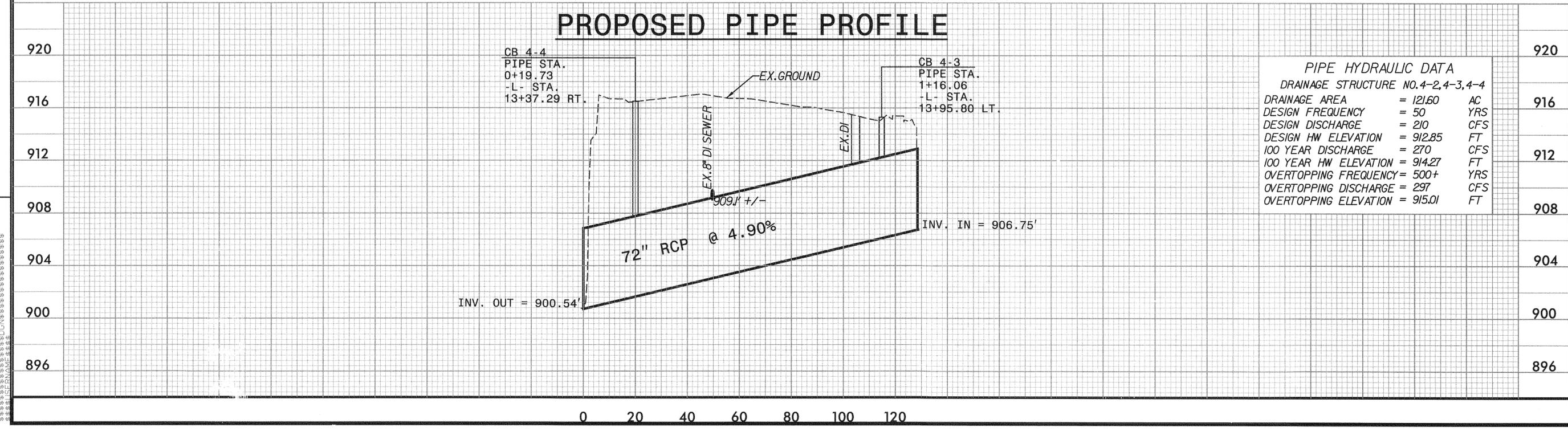
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999835369

THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "BL-2" TO -L- STATION 11+00.00 IS S 27° 3' 28" W 291.42'

ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NAVD 88

**NOTE:** FOR CATCH BASINS 4-3 & 4-4, SEE DETAIL OF SPECIAL CATCH BASIN ON SHEET 2. FOR HEADWALLS, SEE DETAILS ON SHEETS 2A - 2F. DO NOT SET RIGHT OF WAY MONUMENTS ALONG EXIST. RIGHT OF WAY FOR US 221.

## PROPOSED PIPE PROFILE



**PIPE HYDRAULIC DATA**

DRAINAGE STRUCTURE NO. 4-2, 4-3, 4-4

DRAINAGE AREA	= 121.60	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 210	CFS
DESIGN HW ELEVATION	= 912.85	FT
100 YEAR DISCHARGE	= 270	CFS
100 YEAR HW ELEVATION	= 914.27	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 297	CFS
OVERTOPPING ELEVATION	= 915.01	FT

REVISIONS

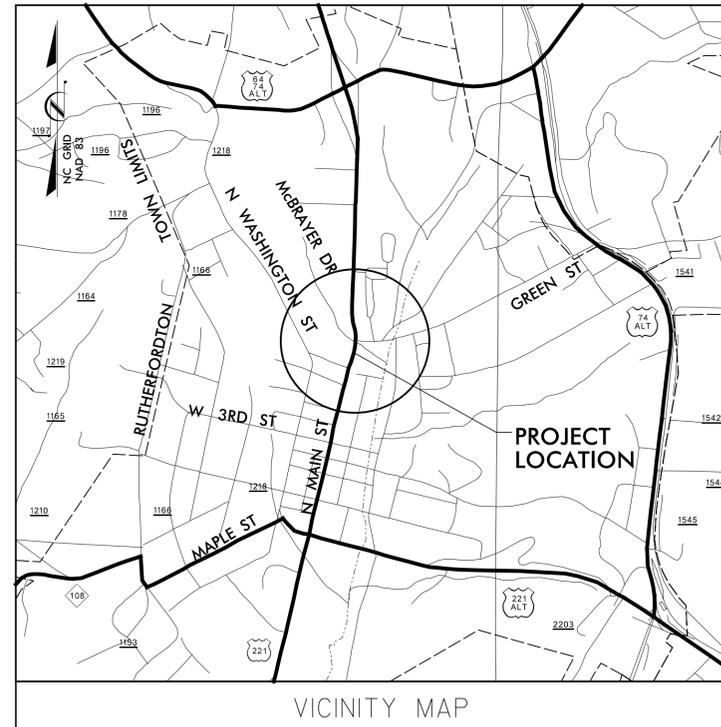
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STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

**TRANSPORTATION MANAGEMENT PLAN**

**RUTHERFORD COUNTY**  
**DIVISION 13**



**LOCATION: US 221 (NORTH MAIN STREET & GREEN STREET)**

**INDEX OF SHEETS**

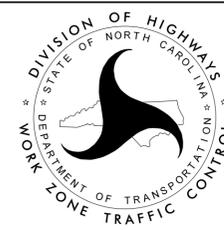
SHEET NO.	TITLE
TMP-1	TITLE SHEET, AND INDEX OF SHEETS
TMP-1A	LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS, LEGEND, AND TEMPORARY PAVEMENT MARKING
TMP-1B	TRANSPORTATION OPERATIONS PLAN: (MANAGEMENT STRATEGIES, GENERAL NOTES AND LOCAL NOTES)
TMP-2	TEMPORARY TRAFFIC CONTROL PHASING
TMP-3	TEMPORARY TRAFFIC CONTROL PHASE I DETAIL
TMP-4	TEMPORARY TRAFFIC CONTROL PHASE II DETAIL
PM-1	FINAL PAVEMENT MARKING PLAN

SHEET NO.

TMP-1

**PROJECT: 13B.108111**

\$\$\$\$\$SYTIME\$\$\$\$\$  
\$\$\$\$\$DON\$\$\$\$\$  
\$\$\$\$\$SERNAME\$\$\$\$\$



**V&M** - Asheville, North Carolina 828-253-2796  
Charlotte, North Carolina 704-357-0488  
Consulting Engineers  
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**PROJECT ENGINEER** REECE M. SCHULER, PE  
**DESIGN ENGINEER** L. DeWAYNE BROWN, PE

**APPROVED:** \_\_\_\_\_  
**DATE:** 10/16/2012



SEAL

# ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS SHOWN IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2012 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO.	TITLE
1101.01	WORK ZONE ADVANCE WARNING SIGNS
1101.02	TEMPORARY LANE CLOSURES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1110.02	PORTABLE WORK ZONE SIGNS
1130.01	DRUMS
1145.01	BARRICADES
1150.01	FLAGGING DEVICES
1170.01	PORTABLE CONCRETE BARRIER
1205.01	PAVEMENT MARKINGS - LINE TYPES & OFFSETS
1205.04	PAVEMENT MARKINGS - INTERSECTIONS
1205.08	PAVEMENT MARKINGS - SYMBOLS & WORD MESSAGES

# LEGEND

## GENERAL

- DIRECTION OF TRAFFIC FLOW
- DIRECTION OF PEDESTRIAN TRAFFIC FLOW
- EXIST. PVMT.
- NORTH ARROW
- PROPOSED PVMT.
- WORK AREA
- TEMPORARY PAVEMENT

## TEMPORARY PAVEMENT MARKING

SYMBOL	DESCRIPTION	QUANTITY
TAPE		
TA	WHITE EDGE LINE (4")	1965 LF
TI	YELLOW DOUBLE CENTER (4")	2390 LF
T4	STOP BAR (24"WHITE)	42 LF

## PERMANENT PAVEMENT MARKING

PAINT		
SYMBOL	DESCRIPTION	QUANTITY
PA	WHITE EDGE LINE (4")	824 LF
PI	YELLOW DOUBLE CENTER (4")	3100 LF
P2	SOLID YELLOW DIAGONAL (6")	436 LF
P3	WHITE SKIP 13 FT (4")	40 LF
P4	STOP BAR (24"WHITE)	42 LF
PS	PAVEMENT MARKING SYMBOLS	4 EA

## TRAFFIC CONTROL DEVICES

- BARRICADE (TYPE III)
- CONE
- DRUM SKINNY DRUM TUBULAR MARKER
- TEMPORARY CRASH CUSHION
- FLASHING ARROW PANEL (TYPE C)
- FLAGGER
- LAW ENFORCEMENT
- TRUCK MOUNTED IMPACT ATTENUATOR (TMIA)
- CHANGEABLE MESSAGE SIGN

## TEMPORARY SIGNING

- PORTABLE SIGN
- STATIONARY SIGN
- STATIONARY OR PORTABLE SIGN

## SIGNALS

- EXISTING
- PROPOSED
- TEMPORARY
- PORTABLE TRAFFIC SIGNAL

## PAVEMENT MARKINGS

- EXISTING LINES
- TEMPORARY LINES

## PAVEMENT MARKING SYMBOLS

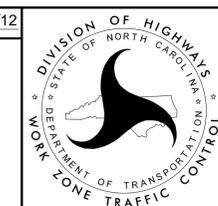
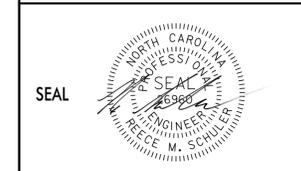
- PAVEMENT MARKING SYMBOLS

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ROADWAY STANDARD DRAWINGS & LEGEND

\$\$\$\$\$ SYSTEMS \$\$\$  
\$\$\$\$\$ DONORS \$\$\$  
\$\$\$\$\$ USERNAME \$\$\$

# GENERAL NOTES / LOCAL NOTES

CHANGES MAY BE REQUIRED WHEN PHYSICAL DIMENSIONS IN THE DETAIL DRAWINGS, STANDARD DETAILS, AND ROADWAY DETAILS ARE NOT ATTAINABLE TO MEET FIELD CONDITIONS OR RESULT IN DUPLICATE OR UNDESIRE OVERLAPPING OF DEVICES. MODIFICATION MAY INCLUDE: MOVING, SUPPLEMENTING, COVERING, OR REMOVAL OF DEVICES AS DIRECTED BY THE ENGINEER.

THE FOLLOWING GENERAL NOTES APPLY AT ALL TIMES FOR THE DURATION OF THE CONSTRUCTION PROJECT EXCEPT WHEN OTHERWISE NOTED IN THE PLAN OR DIRECTED BY THE ENGINEER.

**TIME RESTRICTIONS**

- A) DO NOT CLOSE OR NARROW TRAVEL LANES ON US-221 DURING HOLIDAYS AND SPECIAL EVENTS AS FOLLOWS:
- FOR ANY UNEXPECTED OCCURRENCE THAT CREATES UNUSUALLY HIGH TRAFFIC VOLUMES, AS DIRECTED BY THE ENGINEER.
  - FOR NEW YEAR'S, BETWEEN THE HOURS OF 8:00 A.M. DECEMBER 31st TO 9:00 P.M. JANUARY 2ND. IF NEW YEAR'S DAY IS ON A FRIDAY, SATURDAY, SUNDAY, OR MONDAY THEN UNTIL 9:00 P.M. THE FOLLOWING TUESDAY.
  - FOR EASTER, BETWEEN THE HOURS OF 6:00 A.M. THURSDAY AND 9:00 P.M. MONDAY.
  - FOR MEMORIAL DAY, BETWEEN THE HOURS OF 6:00 A.M. FRIDAY TO 9:00 P.M. TUESDAY.
  - FOR INDEPENDENCE DAY, BETWEEN THE HOURS OF 6:00 A.M. THE DAY BEFORE INDEPENDENCE DAY AND 9:00 P.M. THE DAY AFTER INDEPENDENCE DAY. IF INDEPENDENCE DAY IS ON A FRIDAY, SATURDAY, SUNDAY OR MONDAY THEN BETWEEN THE HOURS OF 6:00 A.M. THE THURSDAY BEFORE INDEPENDENCE DAY AND 9:00 P.M. THE TUESDAY AFTER INDEPENDENCE DAY.
  - FOR LABOR DAY, BETWEEN THE HOURS OF 6:00 A.M. FRIDAY AND 9:00 P.M. TUESDAY.
  - FOR THANKSGIVING DAY, BETWEEN THE HOURS OF 6:00 A.M. TUESDAY TO 9:00 P.M. MONDAY.
  - FOR CHRISTMAS, BETWEEN THE HOURS OF 6:00 A.M. THE FRIDAY BEFORE THE WEEK OF CHRISTMAS DAY AND 6:00 A.M. THE FOLLOWING TUESDAY AFTER THE WEEK OF CHRISTMAS.

**LANE AND SHOULDER CLOSURE REQUIREMENTS**

- B) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN 15 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN SHOULDER USING ROADWAY STANDARD DRAWING NO. 1101.04 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL OR A LANE CLOSURE IS INSTALLED.
- C) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO AN UNDIVIDED FACILITY AND WITHIN 5 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN TRAVEL LANE USING ROADWAY STANDARD DRAWING NO. 1101.02 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.
- WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO A DIVIDED FACILITY AND WITHIN 10 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN TRAVEL LANE USING ROADWAY STANDARD DRAWING NO. 1101.02 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.
- D) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN A LANE OF TRAVEL OF AN UNDIVIDED OR DIVIDED FACILITY, CLOSE THE LANE ACCORDING TO THE TRAFFIC CONTROL PLANS, ROADWAY STANDARD DRAWINGS, OR AS DIRECTED BY THE ENGINEER. CONDUCT THE WORK SO THAT ALL PERSONNEL AND/OR EQUIPMENT REMAIN WITHIN THE CLOSED TRAVEL LANE.
- E) DO NOT WORK SIMULTANEOUSLY WITHIN 15 FT ON BOTH SIDES OF AN OPEN TRAVELWAY, RAMP, OR LOOP WITHIN THE SAME LOCATION UNLESS PROTECTED WITH GUARDRAIL OR BARRIER.

**PAVEMENT EDGE DROP OFF REQUIREMENTS**

- F) BACKFILL AT A 6:1 SLOPE UP TO THE EDGE AND ELEVATION OF EXISTING PAVEMENT IN AREAS ADJACENT TO AN OPENED TRAVEL LANE THAT HAS AN EDGE OF PAVEMENT DROP-OFF AS FOLLOWS:
- BACKFILL DROP-OFFS THAT EXCEED 2 INCHES ON ROADWAYS WITH POSTED SPEED LIMITS OF 45 MPH OR GREATER.
- BACKFILL DROP-OFFS THAT EXCEED 3 INCHES ON ROADWAYS WITH POSTED SPEED LIMITS LESS THAN 45 MPH.
- BACKFILL WITH SUITABLE COMPACTED MATERIAL, AS APPROVED BY THE ENGINEER, AT NO EXPENSE TO THE DEPARTMENT.

- G) DO NOT EXCEED A DIFFERENCE OF 2 INCHES IN ELEVATION BETWEEN OPEN LANES OF TRAFFIC FOR NOMINAL LIFTS OF 1.5 INCHES. INSTALL ADVANCE WARNING "UNEVEN LANES" SIGNS (W8-11) IN ADVANCE AND A MINIMUM OF EVERY HALF MILE THROUGHOUT THE UNEVEN AREA.

**TRAFFIC PATTERN ALTERATIONS**

- H) NOTIFY THE ENGINEER TWENTY ONE (21) CALENDAR DAYS PRIOR TO ANY TRAFFIC PATTERN ALTERATION.

**SIGNING**

- I) INSTALL ADVANCE WORK ZONE WARNING SIGNS WHEN WORK IS WITHIN 40 FT FROM THE EDGE OF TRAVEL LANE AND NO MORE THAN THREE (3) DAYS PRIOR TO THE BEGINNING OF CONSTRUCTION.
- J) ENSURE ALL NECESSARY SIGNING IS IN PLACE PRIOR TO ALTERING ANY TRAFFIC PATTERN.

**TRAFFIC BARRIER**

- K) INSTALL TEMPORARY BARRIER ACCORDING TO THE TRANSPORTATION MANAGEMENT PLANS A MAXIMUM OF TWO (2) WEEKS PRIOR TO BEGINNING WORK IN ANY LOCATION. ONCE TEMPORARY BARRIER IS INSTALLED AT ANY LOCATION PROCEED IN A CONTINUOUS MANNER TO COMPLETE THE PROPOSED WORK IN THAT LOCATION UNLESS OTHERWISE STATED IN THE TRANSPORTATION MANAGEMENT PLANS OR AS DIRECTED BY THE ENGINEER.

DO NOT PLACE BARRIER DIRECTLY ON ANY SURFACE OTHER THAN ASPHALT OR CONCRETE.

ONCE TEMPORARY BARRIER IS INSTALLED AT ANY LOCATION AND NO WORK IS PERFORMED BEHIND THE TEMPORARY BARRIER FOR A PERIOD LONGER THAN TWO (2) MONTHS, REMOVE / RESET TEMPORARY BARRIER AT NO COST TO THE DEPARTMENT UNLESS OTHERWISE STATED IN THE TRANSPORTATION MANAGEMENT PLANS, TEMPORARY BARRIER IS PROTECTING A HAZARD, OR AS DIRECTED BY THE ENGINEER.

INSTALL TEMPORARY BARRIER WITH THE TRAFFIC FLOW BEGINNING WITH THE UPSTREAM SIDE OF TRAFFIC. REMOVE TEMPORARY BARRIER AGAINST THE TRAFFIC FLOW BEGINNING WITH THE DOWNSTREAM SIDE OF TRAFFIC.

INSTALL AND SPACE DRUMS NO GREATER THAN TWICE THE POSTED SPEED LIMIT (MPH) TO CLOSE OR KEEP THE SECTION OF THE ROADWAY CLOSED UNTIL THE TEMPORARY BARRIER CAN BE PLACED OR AFTER THE TEMPORARY BARRIER IS REMOVED.

- L) PROTECT THE APPROACH END OF MOVABLE/PORTABLE CONCRETE BARRIER AT ALL TIMES DURING THE INSTALLATION AND REMOVAL OF THE BARRIER BY EITHER A TRUCK MOUNTED ATTENUATOR (MAXIMUM 72 HOURS) OR A TEMPORARY CRASH CUSHION.

PROTECT THE APPROACH END OF MOVABLE/PORTABLE CONCRETE BARRIER FROM ONCOMING TRAFFIC AT ALL TIMES BY A TEMPORARY CRASH CUSHION UNLESS THE APPROACH END OF MOVABLE/PORTABLE CONCRETE BARRIER IS OFFSET FROM ONCOMING TRAFFIC AS FOLLOWS OR AS SHOWN IN THE PLANS: (SEE ALSO 1101.05)

POSTED SPEED LIMIT	MINIMUM OFFSET
40 OR LESS	15 FT
45 - 50	20 FT
55	25 FT
60 MPH or HIGHER	30 FT

**TRAFFIC CONTROL DEVICES**

- M) WHEN LANE CLOSURES ARE NOT IN EFFECT SPACE CHANNELIZING DEVICES IN WORK AREAS NO GREATER IN FEET THAN TWICE THE POSTED SPEED LIMIT (MPH) EXCEPT, 10 FT ON-CENTER IN RADII, AND 3 FT OFF THE EDGE OF AN OPEN TRAVELWAY. REFER TO STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES SECTIONS 1130 (DRUMS), 1135 (CONES) AND 1180 (SKINNY DRUMS) FOR ADDITIONAL REQUIREMENTS.
- N) PLACE TYPE III BARRICADES, WITH "ROAD CLOSED" SIGN R11-2 ATTACHED, OF SUFFICIENT LENGTH TO CLOSE ENTIRE ROADWAY.

**PAVEMENT MARKING**

- O) INSTALL TEMPORARY PAVEMENT MARKINGS AND TEMPORARY PAVEMENT MARKERS ON INTERIM LAYERS OF PAVEMENT AS FOLLOWS:

ROAD NAME	MARKING	MARKER
US 221	TAPE	RAISED

- P) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.

- Q) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS BY THE END OF EACH DAY'S OPERATION.

**MISCELLANEOUS**

- R) CONTRACTOR SHALL MAINTAIN SIDEWALK ACCESS AT ALL TIMES AS STATED IN THE PHASING. CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE TEMPORARY SIDEWALKS (CONCRETE, ASPHALT, OR OTHER SUITABLE MATERIAL AS APPROVED BY THE ENGINEER) AT ALL LOCATIONS WHERE THE OPEN PEDESTRIAN TRAVELWAY HAS BEEN REMOVED FOR CONSTRUCTION OPERATIONS (UTILITIES, DRAINAGE, ETC.).

## MANAGEMENT STRATEGIES

TRAFFIC WILL BE MAINTAINED ON THE EXISTING ROAD, BUT REDUCED TO 2 11' LANES USING TEMPORARY PAVEMENT MARKINGS . A FLAGGING OPERATION WILL BE USED TO CONSTRUCT THE NEW TIE-INS.

**LOCAL NOTES:**

- EMERGENCY VEHICLE ACCESS MUST BE MAINTAINED AT ALL TIMES.
- NOTIFY THE RUTHERFORD COUNTY SCHOOL BOARD 30 DAYS BEFORE ANY LANE CLOSURES.

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 Knoxville, Tennessee 865-546-9800  
 Asheville, North Carolina 828-253-2796  
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**TRANSPORTATION OPERATIONS PLAN**  
(MANAGEMENT STRATEGIES & GENERAL NOTES)

\$\$\$\$\$ TIME\$\$\$\$\$ DON'T WASTE\$\$\$\$\$ SERVANTS\$\$\$\$\$

# PROJECT PHASING

## PHASE I

STEP 1: - ERECT WORK ZONE ADVANCED WARNING SIGNS USING DETAIL DRAWINGS FOR WORK ZONE SIGNS. (SEE RDWY STD. 1101.01)

NOTE: STEP 2 SHALL BE COMPLETED IN A CONTINUOUS MANNER.

STEP 2: - USING RDWY STD. 1101.02, SHEET 1 OF 15, AND FLAGGERS, REMOVE CONFLICTING EXISTING PAVEMENT MARKINGS AND THE CONCRETE ISLAND AT THE NORTHEAST QUADRANT OF THE INTERSECTION OF L- AND GREEN STREET, AND PLACE TEMPORARY PAVEMENT MARKINGS (TAPE) AND MARKERS(RAISED) FROM:  
 -STA. 10+90 -L- TO STA. 16+70 -L-,  
 AND ALONG GREEN STREET TO LIMITS SHOWN (SEE TMP-3).

- SHIFT EXISTING TRAFFIC ONTO NEW TRAFFIC PATTERN FROM:  
 -STA. 10+50 -L- TO 17+00 -L-. (SEE TMP-3).

- USING RDWY STD. 1101.02, SHEET 1 OF 15, AND FLAGGERS, PLACE PORTABLE CONCRETE BARRIER (PCB) ON THE EAST SIDE OF NEW TRAFFIC PATTERN FROM:  
 -STA. 12+70 EASTSIDE -L- TO STA. 13+90 EASTSIDE -L- (SEE TMP-3).

STEP 3: - REMOVE OUTLET END OF EXISTING 48" PIPE/BOX CULVERT TO LIMITS SHOWN ON TMP-3, REMOVE EXISTING WALL AT OUTLET END.

- CONSTRUCT PROPOSED WALL & 72" PIPE AND ASSOCIATED DRAINAGE TO LIMITS SHOWN ON TMP-3.

- CONSTRUCT NECESSARY UTILITIES PER UC PLANS.

- CONSTRUCT CURB & GUTTER AND NEW SIDEWALK AND REPAVE AT OUTLET END OF PROPOSED PIPE.

NOTE: WORK ON THE PIPE CULVERT, WALL AND SIDEWALK MUST BE COORDINATED WITH NECESSARY UTILITY WORK. SEE UTILITIES BY OTHERS PLANS.

## PHASE II

NOTE: STEP 1 SHALL BE COMPLETED IN A CONTINUOUS MANNER.

STEP 1: - USING RDWY STD. 1101.02, SHEET 1 OF 15, AND FLAGGERS, REMOVE CONFLICTING EXISTING PAVEMENT MARKINGS AND MARKERS, AND PLACE TEMPORARY PAVEMENT MARKINGS (TAPE) AND MARKERS(RAISED) FROM:  
 -STA. 10+90 -L- TO STA. 16+70 -L- (SEE TMP-4),  
 -STA. 12+20 (LEFT) L- TO STA. 13+70 (LEFT) L-  
 TO ACCESS BUSINESS DRIVEWAY AT STA. 13+65 (LEFT) L- (SEE TMP-4).

- SHIFT EXISTING TRAFFIC ONTO NEW TRAFFIC PATTERN FROM:  
 -STA. 10+50 -L- TO 17+00 -L-. (SEE TMP-4).  
 -STA. 12+40 L- TO STA. 13+65 L-  
 (DRIVE ACCESS TO BUSINESS AT STA. 13+65 (LEFT) L- (SEE TMP-4).

- USING RDWY STD. 1101.02, SHEET 1 OF 15, AND FLAGGERS, PLACE PORTABLE CONCRETE BARRIER (PCB) ON THE WEST SIDE OF NEW TRAFFIC PATTERN FROM:  
 -STA. 12+50 WESTSIDE -L- TO STA. 14-45 WESTSIDE -L- (SEE TMP-4).  
 -STA. 12+90 L- TO STA. 13+90 L-  
 ALONG DRIVE ACCESS TO BUSINESS AT STA. 13+65 (LEFT) L- (SEE TMP-4).

STEP 2: - REMOVE REMAINING INLET END OF EXISTING 48" PIPE/BOX CULVERT AS SHOWN ON TMP-4.

- CONSTRUCT REMAINDER OF PROPOSED 72" PIPE, HEADWALL AND ASSOCIATED DRAINAGE AS SHOWN ON TMP-4.

- CONSTRUCT NECESSARY UTILITIES PER UC PLANS.

- CONSTRUCT NEW CURB & GUTTER, SIDEWALK AND REPAVE AT INLET END OF PROPOSED PIPE.

## PHASE III

NOTE: STEP 1 SHALL BE COMPLETED IN A CONTINUOUS MANNER.

STEP 1: - AFTER CULVERT, WALL, SIDEWALK AND CURB & GUTTER CONSTRUCTION HAVE BEEN COMPLETED, REMOVE PORTABLE CONCRETE BARRIER USING RDWY STD. 1101.02, SHEET 1 OF 15, AND FLAGGERS.

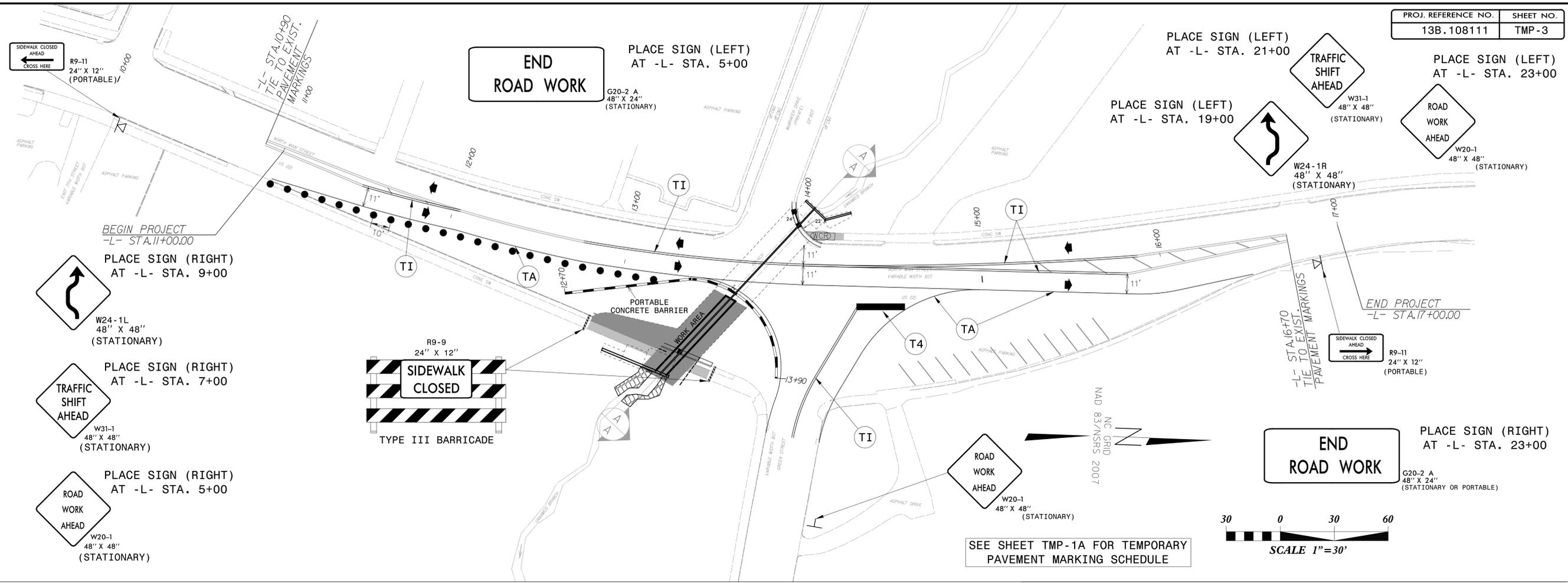
- USING RDWY STD. 1101.02, SHEET 1 OF 15, AND FLAGGERS, REMOVE TEMPORARY PAVEMENT MARKINGS AND MARKERS, PLACE THE FINAL PAVEMENT MARKINGS (PAINT), AND RESTORE TRAFFIC TO ORIGINAL PATTERN. (SEE PM-1).

\$\$\$ CUSTOMER \$\$\$  
 \$\$\$ DONOR \$\$\$  
 \$\$\$ SERVANTS \$\$\$

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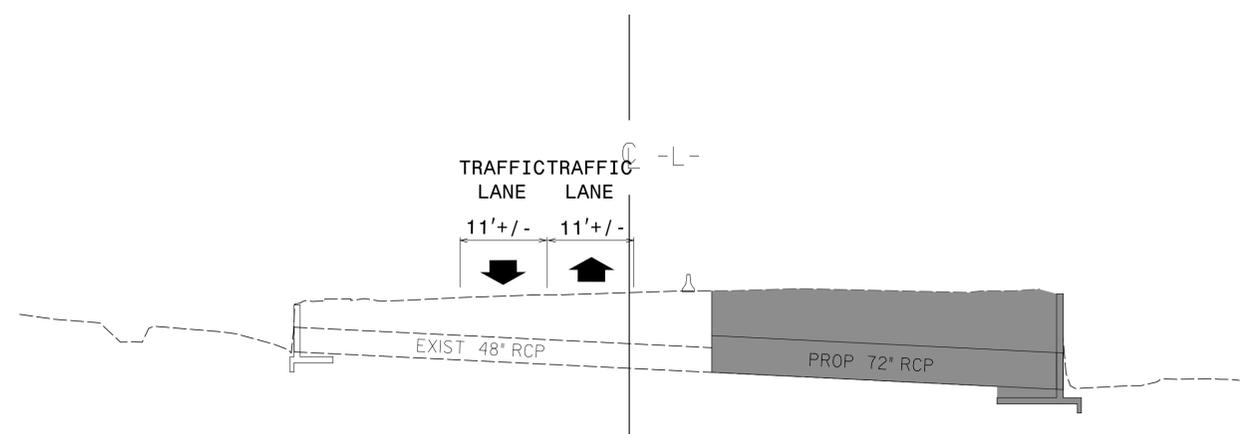
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PHASING



# SECTION A-A

-L- STA 13+69



\$\$\$\$\$SYTIME\$\$\$\$\$  
 \$\$\$DDGN\$\$\$\$\$  
 \$\$\$USERNAME\$\$\$\$\$

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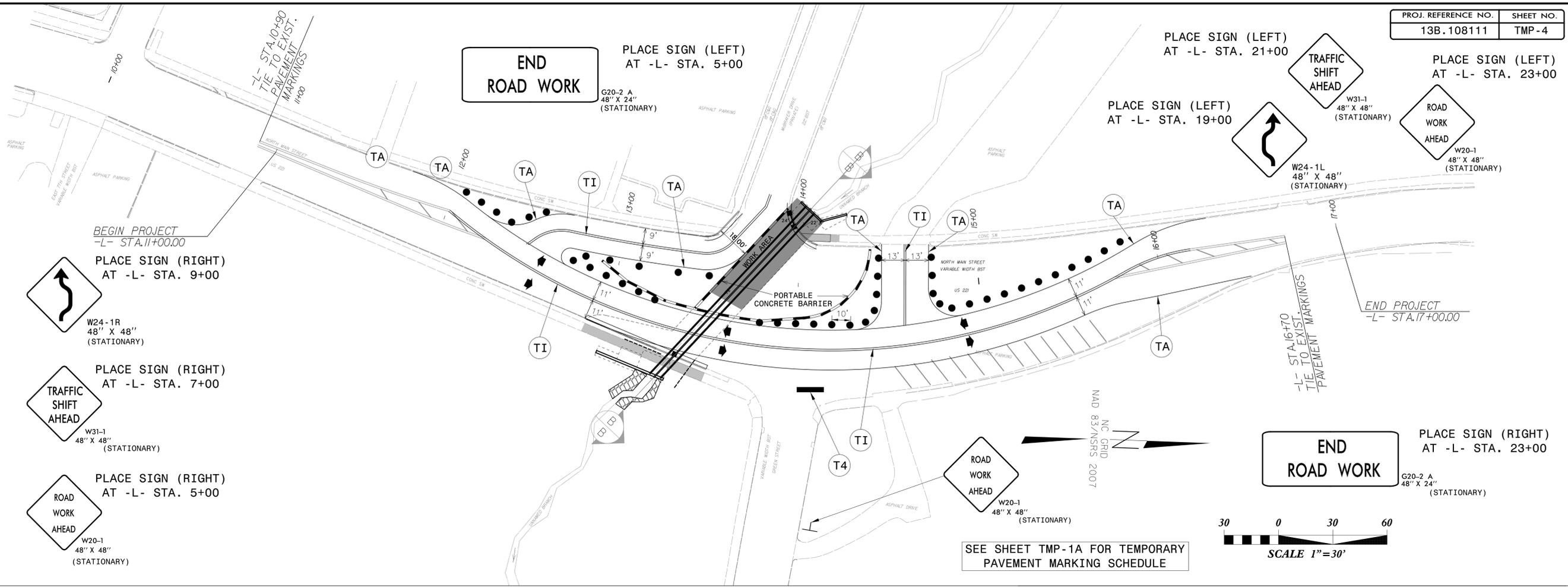
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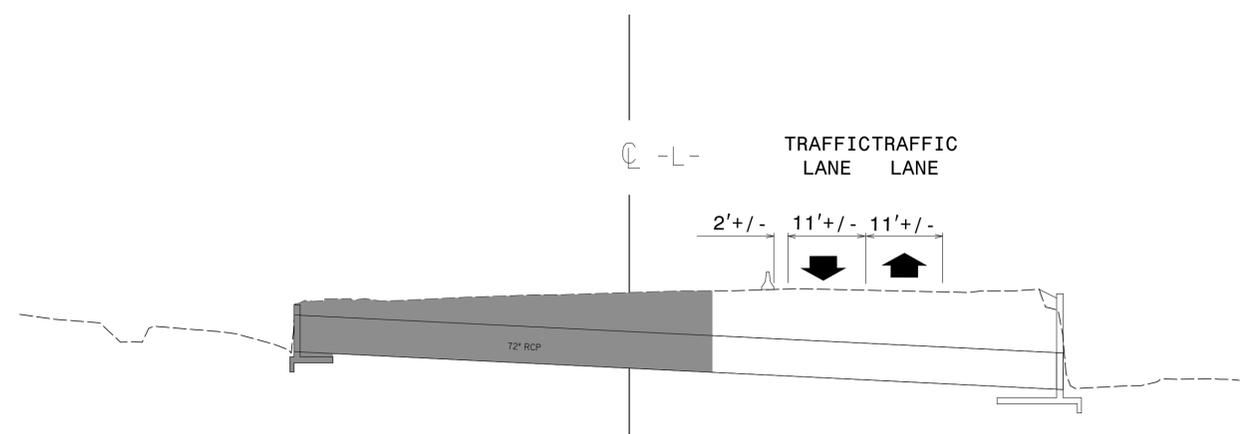
SEAL

**PHASE 1**



## SECTION B-B

-L- STA 13+69



\$\$\$\$\$SYTIME\$\$\$\$\$  
 \$\$\$DDGN\$\$\$\$\$  
 \$\$\$USERNAME\$\$\$\$\$

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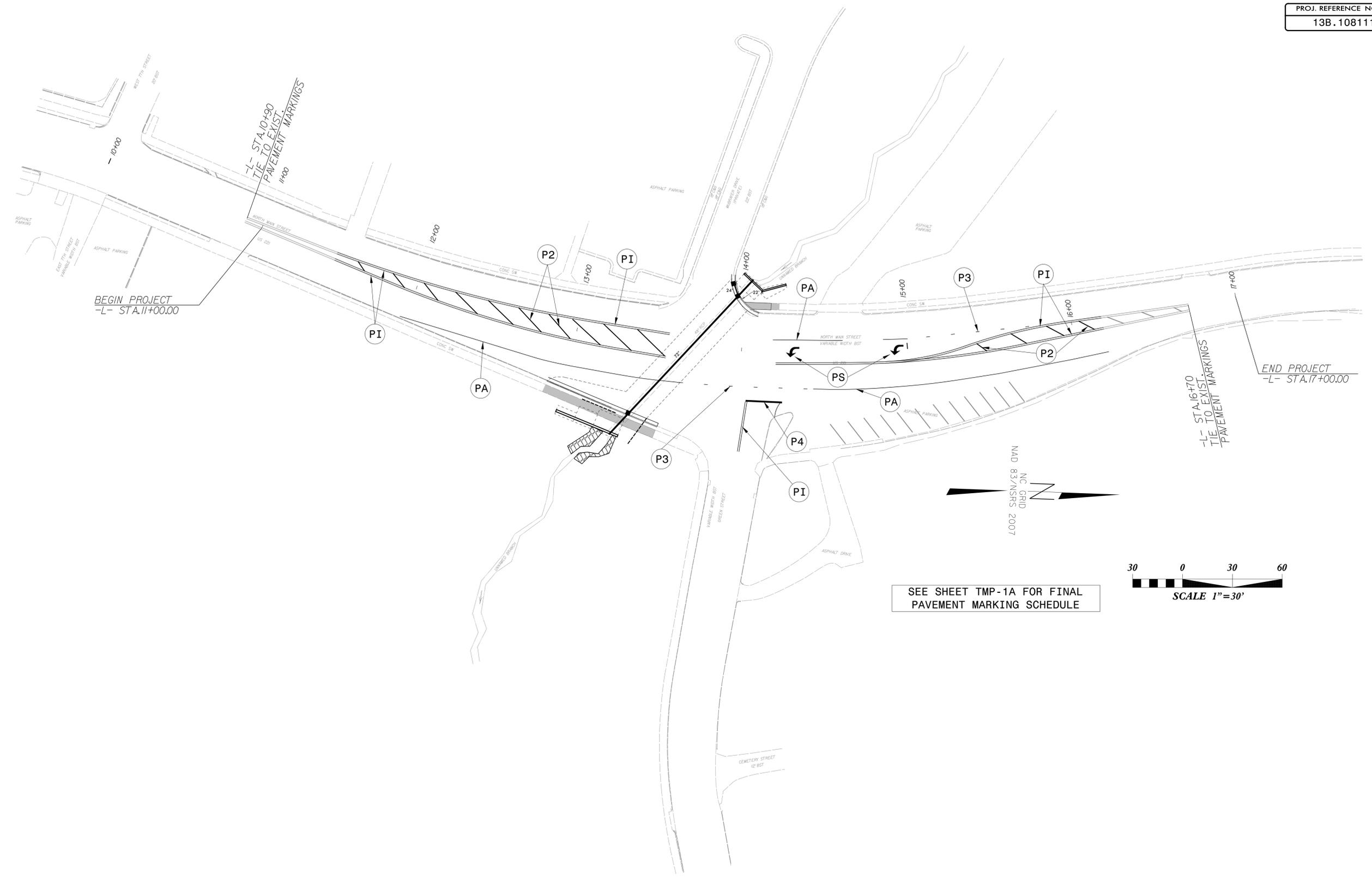
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SEAL

PROF. ENGINEER  
 REF. M. SCHULZE

DIVISION OF HIGHWAYS  
 STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 WORK ZONE TRAFFIC CONTROL

PHASE 2



\$\$\$\$\$SYTIME\$\$\$\$\$  
 \$\$\$DDGN\$\$\$\$\$  
 \$\$\$USERNAME\$\$\$\$\$

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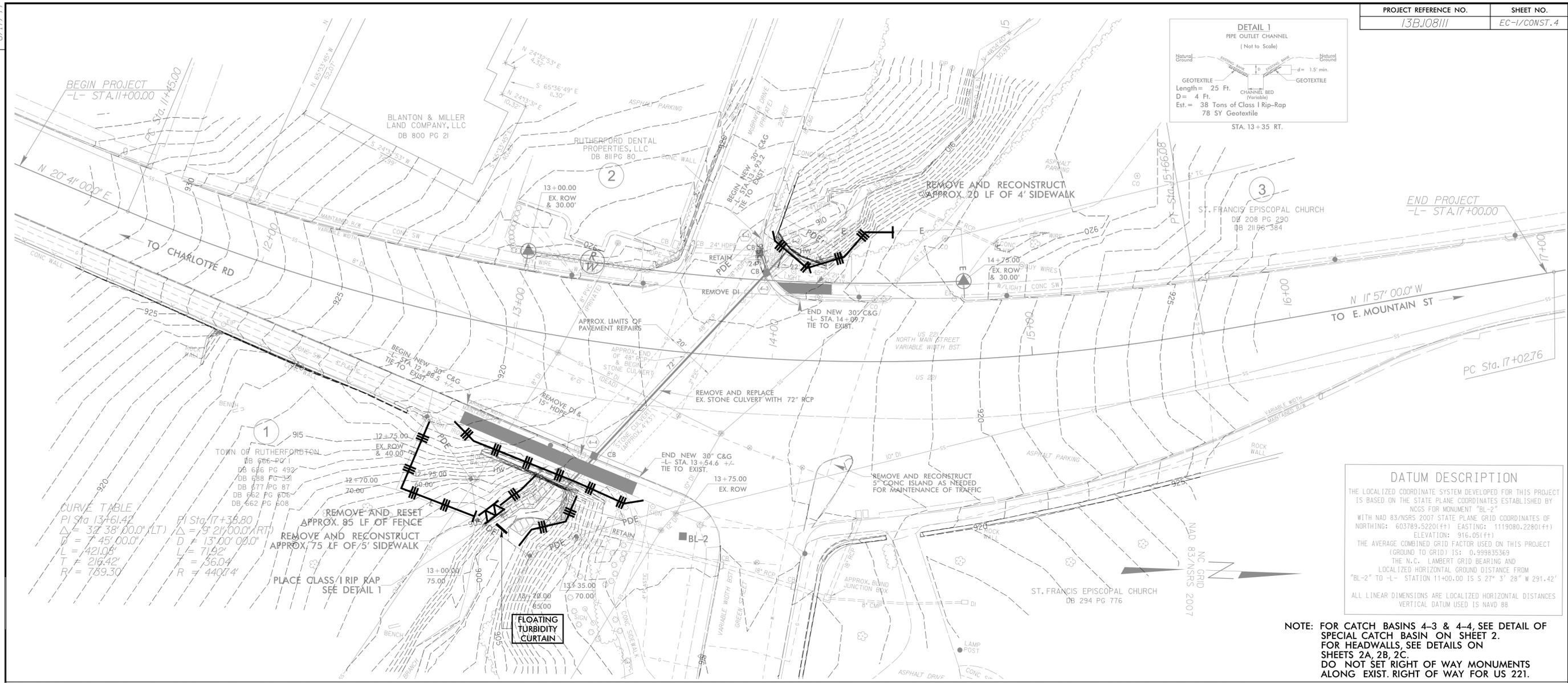
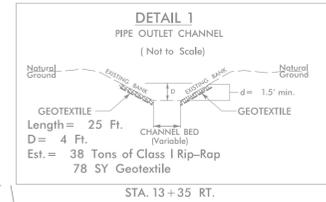
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SEAL

**FINAL PAVEMENT MARKING PLAN**



**DATUM DESCRIPTION**  
 THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCGS FOR MONUMENT "BL-2" WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF NORTHING: 603789.5220(Ft) EASTING: 1119080.2280(Ft) ELEVATION: 916.05(FF)  
 THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999835369  
 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GRID DISTANCE FROM "BL-2" TO "L" STATION 11+00.00 IS S 27° 3' 28" W 291.42'  
 ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NAVD 88

**NOTE:** FOR CATCH BASINS 4-3 & 4-4, SEE DETAIL OF SPECIAL CATCH BASIN ON SHEET 2. FOR HEADWALLS, SEE DETAILS ON SHEETS 2A, 2B, 2C. DO NOT SET RIGHT OF WAY MONUMENTS ALONG EXIST. RIGHT OF WAY FOR US 221.

**EROSION AND SEDIMENT CONTROL MEASURES**

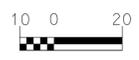
Std. #	Description	Symbol
1605.01	Temporary Silt Fence	
1606.01	Special Sediment Control Fence	▤ ▤ ▤ ▤ ▤ ▤ ▤ ▤ ▤ ▤

Roadway Standard Drawings  
 The following roadway english standards as appear in "Roadway Standard Drawings"- Roadway Design Unit - N. C. Department of Transportation - Raleigh, N. C., dated July 18, 2006 and the latest revision thereto are applicable to this project and by reference hereby are considered a part of

- 1605.01 Temporary Silt Fence
- 1606.01 Special Sediment Control Fence

Level III-B: Designer of Erosion and Sediment Control Plans  
 Frank Gioscio, P.E.  
 Date Issued: May 3, 2007  
 Date Expires: December 31, 2013  
 Certification Number: 239

**GRAPHIC SCALE**



PLANS

**NOTES:** ANY DEVIATION FROM OPTIONS GIVEN WILL REQUIRE PRIOR APPROVAL BY ENGINEER.

ADDITIONAL EROSION CONTROL DEVICES MAY NEED TO BE INSTALLED AS DIRECTED BY THE ENGINEER.

ROADSIDE ENVIRONMENTAL UNIT  
 DEPARTMENT OF TRANSPORTATION  
 DIVISION OF HIGHWAYS  
 RALEIGH, N.C.  
 2012 STANDARD SPECIFICATIONS

THESE EROSION AND SEDIMENT CONTROL PLANS COMPLY WITH THE REGULATIONS SET FORTH BY THE NCC-010000 GENERAL CONSTRUCTION PERMIT EFFECTIVE AUGUST 3, 2011 ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES DIVISION OF WATER QUALITY.

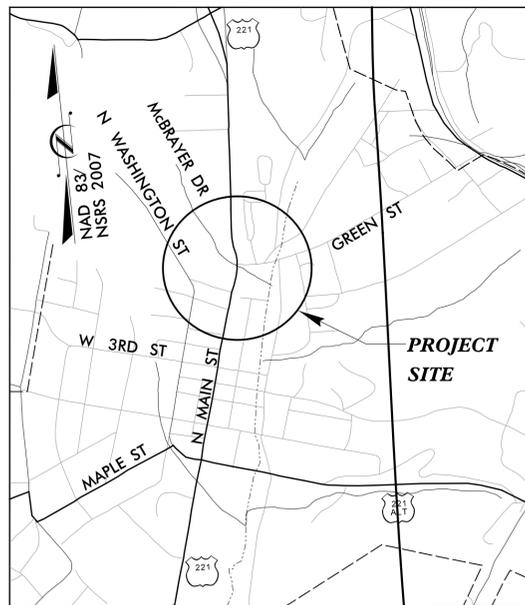
Prepared in the Office of:  
**VAUGHN & MELTON, INC.**  
 1318-F PATTON AVE. ASHEVILLE, NC 28806 PHONE(828) 253-2796

REVISIONS

8.17.99

09.08/99

**PROJECT: 13B.108111**



VICINITY MAP  
NOT TO SCALE

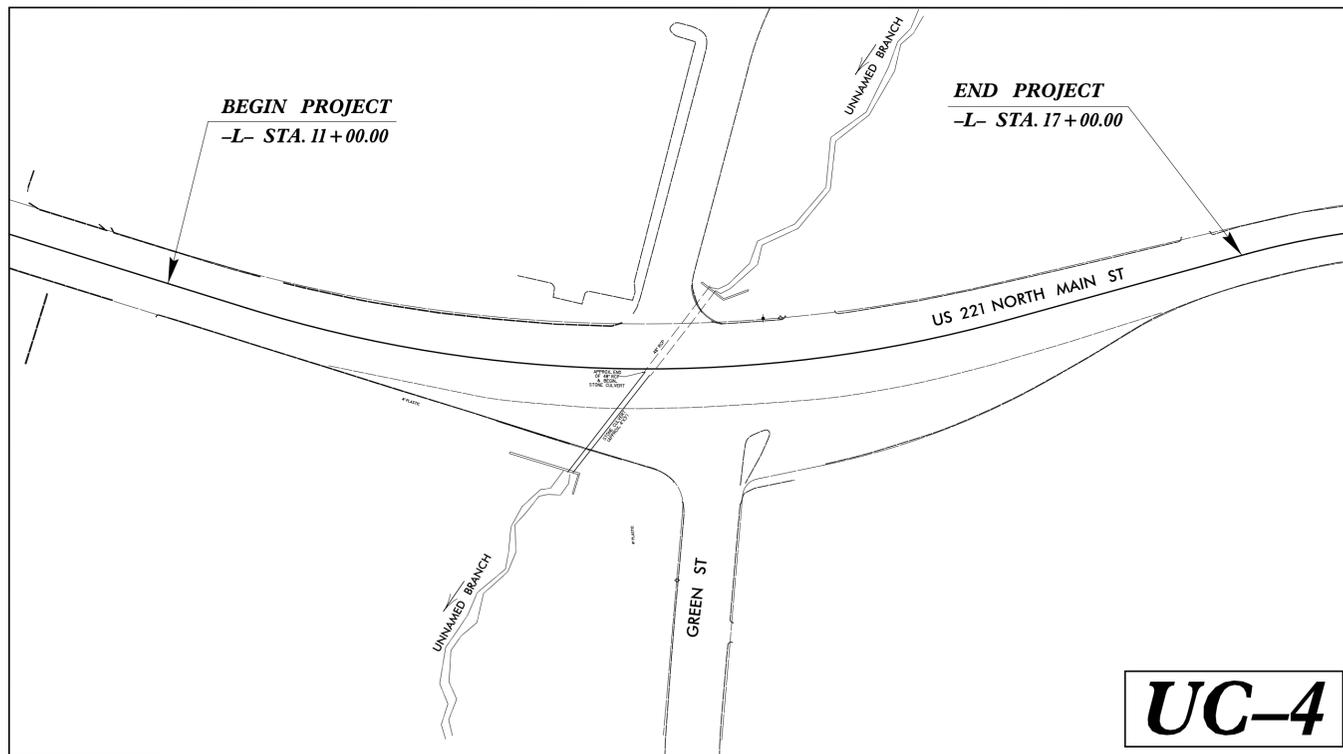
STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

**UTILITY CONSTRUCTION PLANS  
RUTHERFORD COUNTY**

**LOCATION: US 221 (NORTH MAIN ST. & GREEN ST.)**

**TYPE OF WORK: WATER AND SEWER**

PROJECT NO.	SHEET NO.
13B.108111	UC-1



**UC-4**



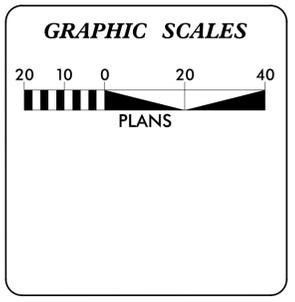
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10/16/12



SHEET NO.	DESCRIPTION
UC-1	TITLE SHEET
UC-2	SYMBOLY SHEET
UC-3	NOTES AND DETAIL SHEET
UC-4	UTILITY CONSTRUCTION PLAN SHEET

UTILITY OWNERS ON PROJECT
(1) WATER - BROAD RIVER WATER AUTHORITY (828) 286-0640
(2) SEWER - TOWN OF RUTHERFORDTON (828) 429-7910

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION

PREPARED FOR 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  
Xxxxx Xxxxx, P.E. UTILITIES SQUAD LEADER PROJECT ENGINEER  
Reece Schuler, PE UTILITIES PROJECT DESIGNER

\$\$\$\$\$ SYSTEM \$\$\$\$\$\$  
\$\$\$\$\$ DGN \$\$\$\$\$\$  
\$\$\$\$\$ USERNAME \$\$\$\$\$\$

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	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	

## 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	AATUR	Sanitary Sewer Cleanout	
End of Information	E.O.I.		

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

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5/14/99

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

# UTILITIES NOTES AND DETAILS SHEET

Asheville, North Carolina 828-253-2796  
 Tri-Cities, Tennessee 423-467-8401  
 Knoxville, Tennessee 865-546-5800  
 Middlesboro, Kentucky 606-246-4600  
 Spartanburg, South Carolina 864-574-4775  
 Charlotte, North Carolina 704-357-0488  
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PROJECT REFERENCE NO. <b>13B.108111</b>	SHEET NO. <b>UC-3</b>
DESIGNED BY: <b>RMS</b>	
DRAWN BY: <b>NVA</b>	
CHECKED BY: <b>RMS</b>	
APPROVED BY:	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION UTILITIES ENGINEERING SEC. PHONE: (919) 250-4128 FAX: (919) 250-4119	
10/16/12 UTILITY CONSTRUCTION PLANS ONLY	

## GENERAL NOTES:

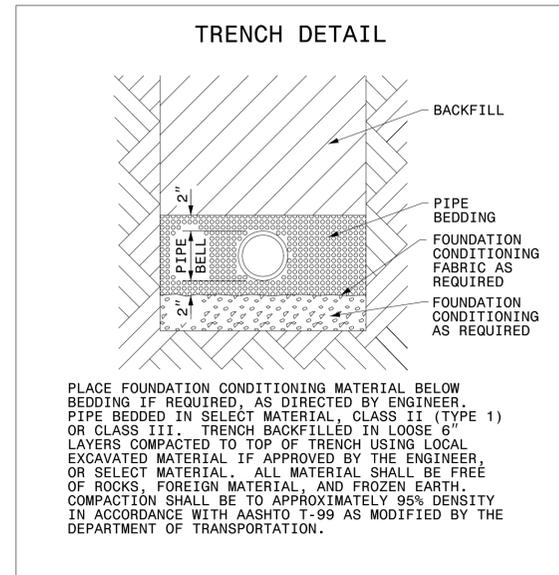
1. THE PROPOSED UTILITY CONSTRUCTION SHALL MEET THE APPLICABLE REQUIREMENTS OF THE NC DEPARTMENT OF TRANSPORTATION'S "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" DATED JANUARY 2012.
2. THE EXISTING WATERLINE BELONGS TO BROAD RIVER WATER AUTHORITY. THE EXISTING SEWER BELONGS TO THE TOWN OF RUTHERFORDTON.
3. 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 ENVIRONMENTAL HEALTH. 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 QUALITY. 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 OPPROTUNITY 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. CONTACT BROAD RIVER WATER AUTHORITY AT (828) 286-0640.
2. CONTACT THE TOWN OF RUTHERFORDTON AT (828) 429-7910.

## UTILITY CONSTRUCTION



8/17/99

**V&M**  
**Vaughn & Melton**  
 Consulting Engineers

Asheville, North Carolina  
 828-253-2756

Charlotte, North Carolina  
 704-351-0488

Tri-Cities, Tennessee  
 423-461-8400

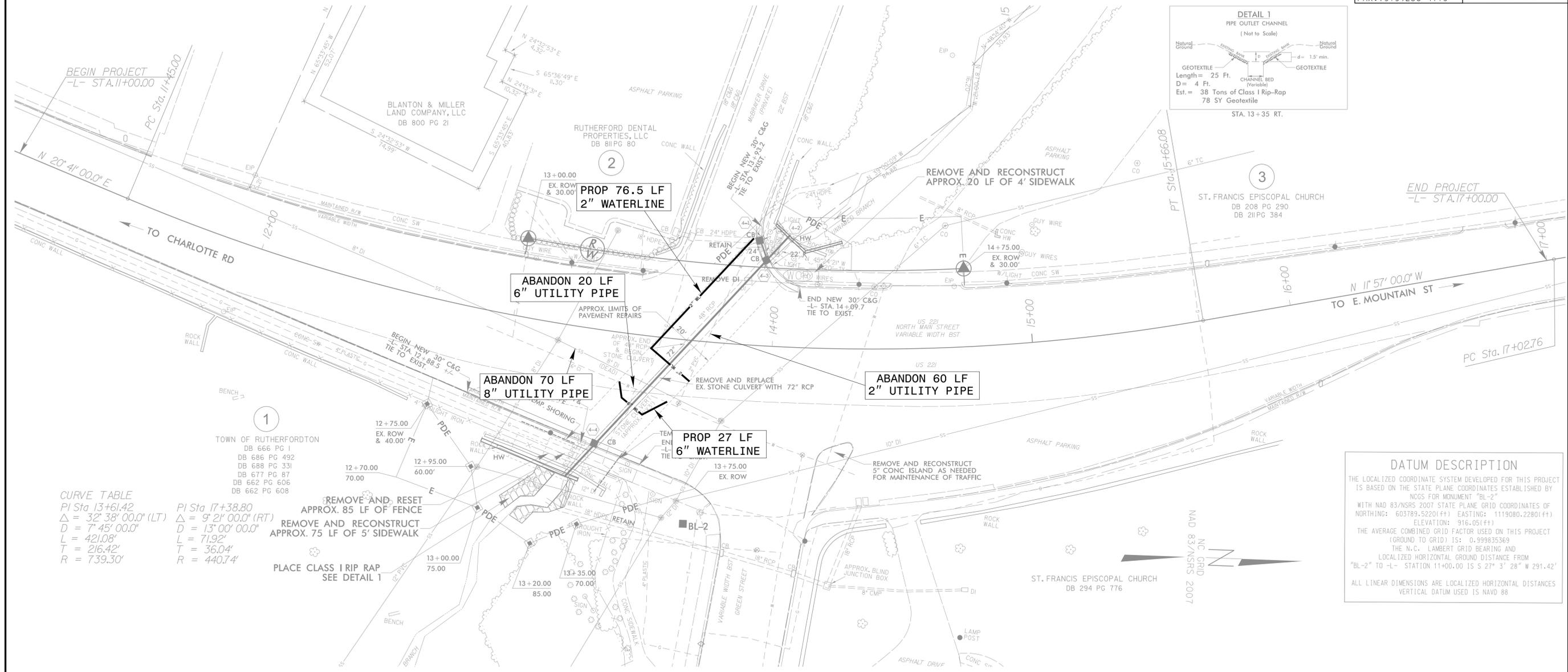
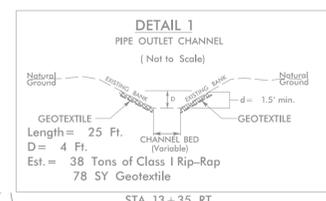
Knoxville, Tennessee  
 865-546-1800

Middlesboro, Kentucky  
 606-248-4600

Spartanburg, South Carolina  
 864-514-4715

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PROJECT REFERENCE NO.	SHEET NO.
13B.108111	UC-4
DESIGNED BY: RMS	
DRAWN BY: NVA	
CHECKED BY: RMS	
APPROVED BY:	
REVISED:	10/16/12
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE: (919) 250-4128 FAX: (919) 250-4119	UTILITY CONSTRUCTION PLANS ONLY



**CURVE TABLE**

PI Sta 13+61.42	PI Sta 17+38.80
$\Delta = 32^\circ 38' 00.0''$ (LT)	$\Delta = 9^\circ 21' 00.0''$ (RT)
D = 7' 45" 00.0"	D = 13' 00" 00.0"
L = 421.08'	L = 71.92'
T = 216.42'	T = 36.04'
R = 739.30'	R = 440.74'

REMOVE AND RESET APPROX. 85 LF OF FENCE  
 REMOVE AND RECONSTRUCT APPROX. 75 LF OF 5' SIDEWALK  
 PLACE CLASS I RIP RAP SEE DETAIL 1

**DATUM DESCRIPTION**

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCGS FOR MONUMENT "BL-2" WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF NORTHING: 603789.5220(ft) EASTING: 1119080.2280(ft) ELEVATION: 916.05(ft+)

THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999835369

THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "BL-2" TO -L- STATION 11+00.00 IS S 27° 3' 28" W 291.42'

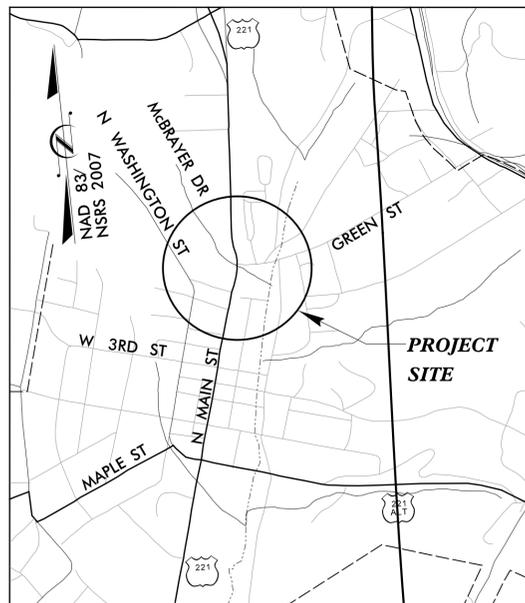
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NAVD 88

REVISIONS

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09.08/99

PROJECT: 13B.108111



VICINITY MAP  
NOT TO SCALE

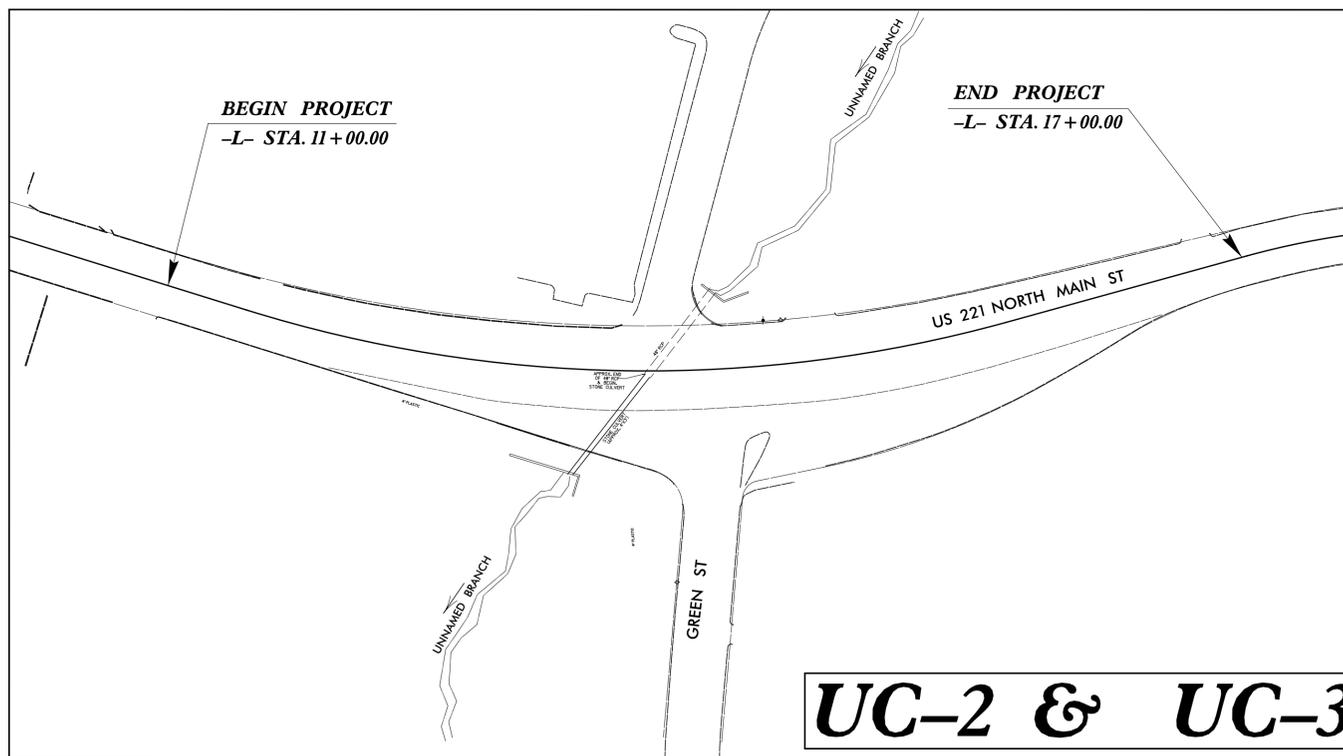
STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

**UTILITIES BY OTHERS PLANS  
RUTHERFORD COUNTY**

**LOCATION: US 221 (NORTH MAIN ST. & GREEN ST.)**

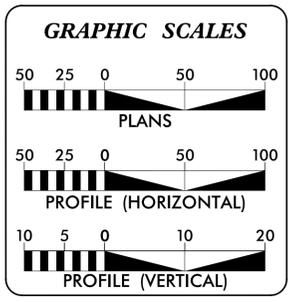
**TYPE OF WORK: AERIAL POWER, CABLE TV, and NATURAL GAS**

PROJECT NO.	SHEET NO.
13B.108111	UO-1



Charlotte, North Carolina 704-551-0488  
 Tri-Cities, Tennessee 423-461-8448  
 Knoxville, Tennessee 865-546-5800  
 Asheville, North Carolina 828-253-2196  
 Middlesboro, Kentucky 606-268-6600  
 Spartanburg, South Carolina 864-514-4715

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

- UTILITY OWNERS ON PROJECT**
- DUKE ENERGY - DICK BROWN (864) 764-4978
  - PSNC ENERGY - KENNETH OWENBY (828) 670-3527
  - NORHLAND COMM. - RONNIE PARKER (828) 245-1633
  - AT&T - STEVE MODE (704) 617-6525

PREPARED FOR 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

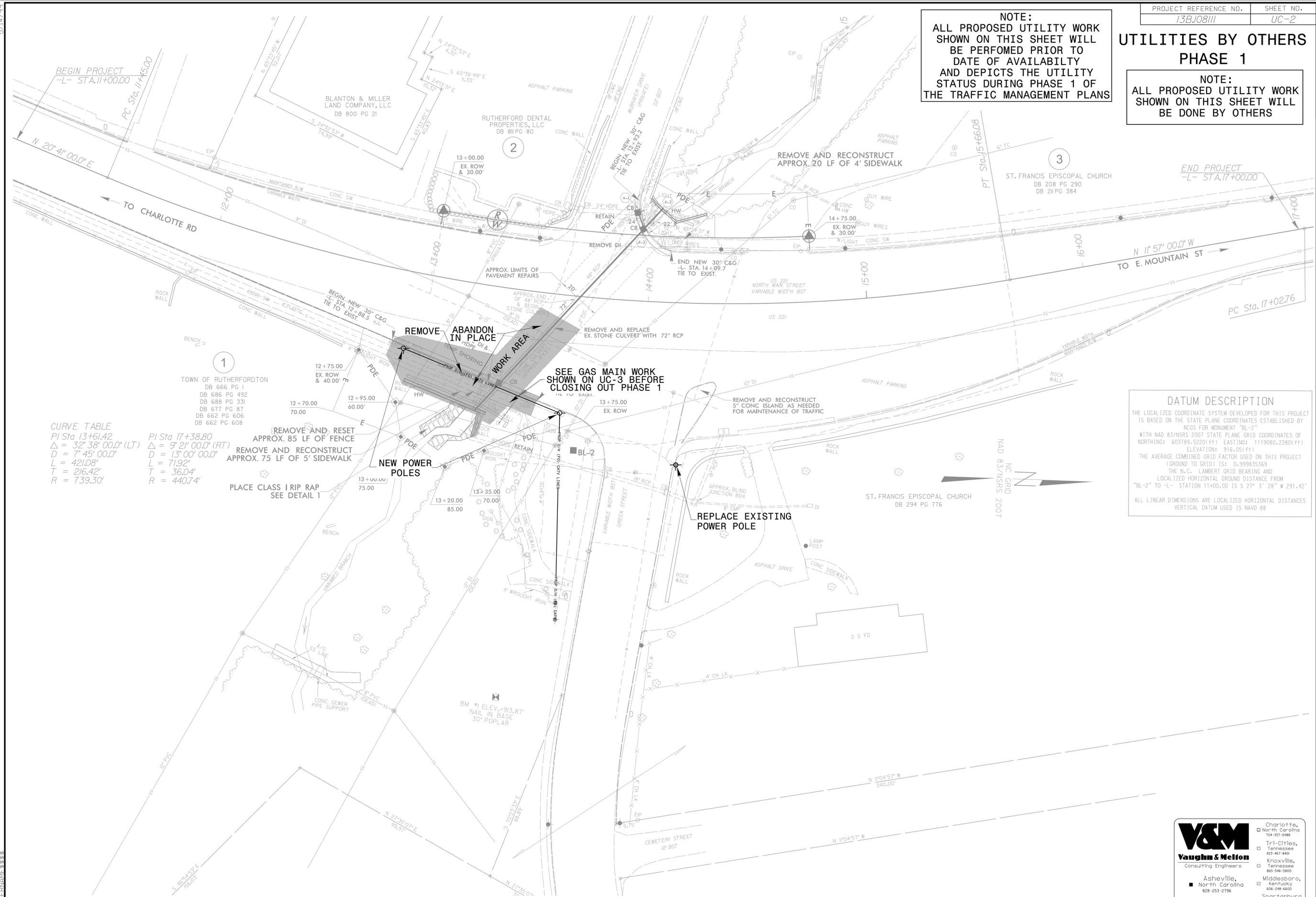
Roger Worthington, P.E. UTILITIES SECTION ENGINEER  
 Xxxxx Xxxxx, P.E. UTILITIES SQUAD LEADER PROJECT ENGINEER  
 Reece Schuler, PE UTILITIES PROJECT DESIGNER

\$\$\$\$\$ SYSTEM \$\$\$\$\$\$  
 \$\$\$\$\$\$ DGN \$\$\$\$\$\$  
 \$\$\$\$\$\$ USERNAME \$\$\$\$\$\$

**UTILITIES BY OTHERS  
PHASE 1**

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

**NOTE:**  
ALL PROPOSED UTILITY WORK SHOWN ON THIS SHEET WILL BE PERFORMED PRIOR TO DATE OF AVAILABILITY AND DEPICTS THE UTILITY STATUS DURING PHASE 1 OF THE TRAFFIC MANAGEMENT PLANS



**CURVE TABLE**

PI Sta 13+61.42	PI Sta 17+38.80
$\Delta = 32^{\circ} 38' 00.0''$ (LT)	$\Delta = 9^{\circ} 21' 00.0''$ (RT)
$D = 7' 45' 00.0''$	$D = 13' 00' 00.0''$
$L = 421.08'$	$L = 71.92'$
$T = 216.42'$	$T = 36.04'$
$R = 739.30'$	$R = 440.74'$

REMOVE AND RESET APPROX. 85 LF OF FENCE  
REMOVE AND RECONSTRUCT APPROX. 75 LF OF 5' SIDEWALK  
PLACE CLASS I RIP RAP SEE DETAIL 1

SEE GAS MAIN WORK SHOWN ON UC-3 BEFORE CLOSING OUT PHASE 1

**DATUM DESCRIPTION**  
THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCGS FOR MONUMENT "BL-2" WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF NORTHING: 603789.5220(ft) EASTING: 1119080.2280(ft) ELEVATION: 916.05(ft)  
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999835369  
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "BL-2" TO "L" STATION 11+00.00 IS S 27° 3' 28" W 291.42'  
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NAVD 88

**V&M**  
Vaughn & Melton  
Consulting Engineers

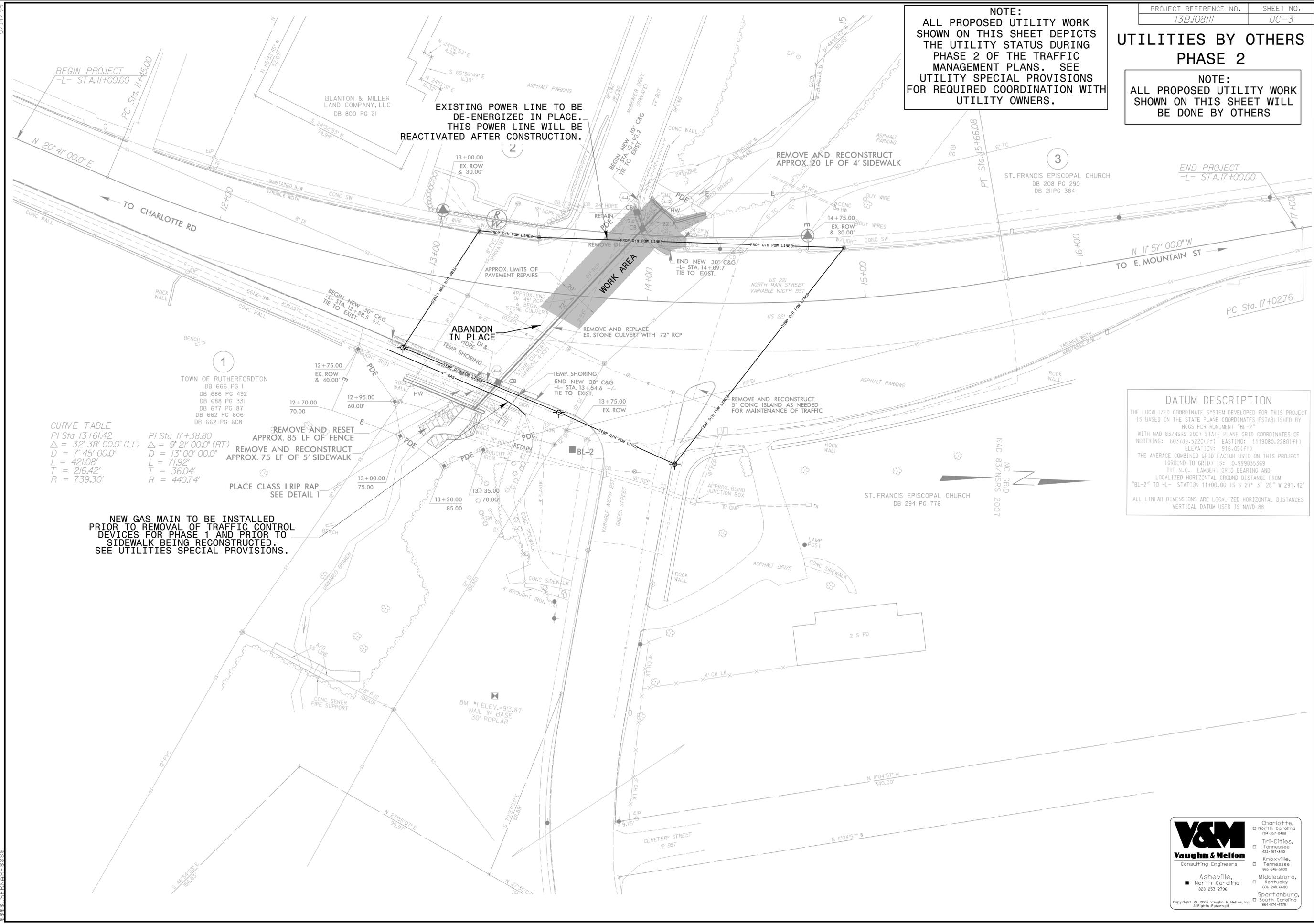
<ul style="list-style-type: none"> <li>Asheville, North Carolina</li> <li>828-253-2796</li> </ul>	<ul style="list-style-type: none"> <li>Charlotte, North Carolina</li> <li>704-351-0488</li> </ul>	<ul style="list-style-type: none"> <li>Tri-Cities, Tennessee</li> <li>423-467-8400</li> </ul>	<ul style="list-style-type: none"> <li>Knoxville, Tennessee</li> <li>865-546-5800</li> </ul>
<ul style="list-style-type: none"> <li>Middlesboro, Kentucky</li> <li>606-248-6600</li> </ul>	<ul style="list-style-type: none"> <li>Spartanburg, South Carolina</li> <li>864-574-4775</li> </ul>	<p>Copyright © 2006 Vaughn &amp; Melton, Inc. All Rights Reserved</p>	

5/14/09

## UTILITIES BY OTHERS PHASE 2

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

**NOTE:**  
ALL PROPOSED UTILITY WORK SHOWN ON THIS SHEET DEPICTS THE UTILITY STATUS DURING PHASE 2 OF THE TRAFFIC MANAGEMENT PLANS. SEE UTILITY SPECIAL PROVISIONS FOR REQUIRED COORDINATION WITH UTILITY OWNERS.



**CURVE TABLE**

PI Sta 13+61.42	PI Sta 17+38.80
$\Delta = 32^\circ 38' 00.0''$ (LT)	$\Delta = 9^\circ 21' 00.0''$ (RT)
$D = 7' 45' 00.0''$	$D = 13' 00' 00.0''$
$L = 421.08'$	$L = 71.92'$
$T = 216.42'$	$T = 36.04'$
$R = 739.30'$	$R = 440.74'$

**NEW GAS MAIN TO BE INSTALLED PRIOR TO REMOVAL OF TRAFFIC CONTROL DEVICES FOR PHASE 1 AND PRIOR TO SIDEWALK BEING RECONSTRUCTED. SEE UTILITIES SPECIAL PROVISIONS.**

**DATUM DESCRIPTION**  
THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCGS FOR MONUMENT "BL-2" WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF NORTHING: 603789.5220(FT) EASTING: 1119080.2280(FT) ELEVATION: 916.05(FT)  
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999835369  
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "BL-2" TO "L" STATION 11+00.00 IS S 27° 3' 28" W 291.42'  
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES  
VERTICAL DATUM USED IS NAVD 88

**V&M**  
Vaughn & Melton  
Consulting Engineers

Charlotte, North Carolina 704-357-0488	Tri-Cities, Tennessee 423-461-9400
Knoxville, Tennessee 865-546-5800	Middlesboro, Kentucky 606-248-6600
Asheville, North Carolina 828-253-2796	Spartanburg, South Carolina 864-574-4775

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