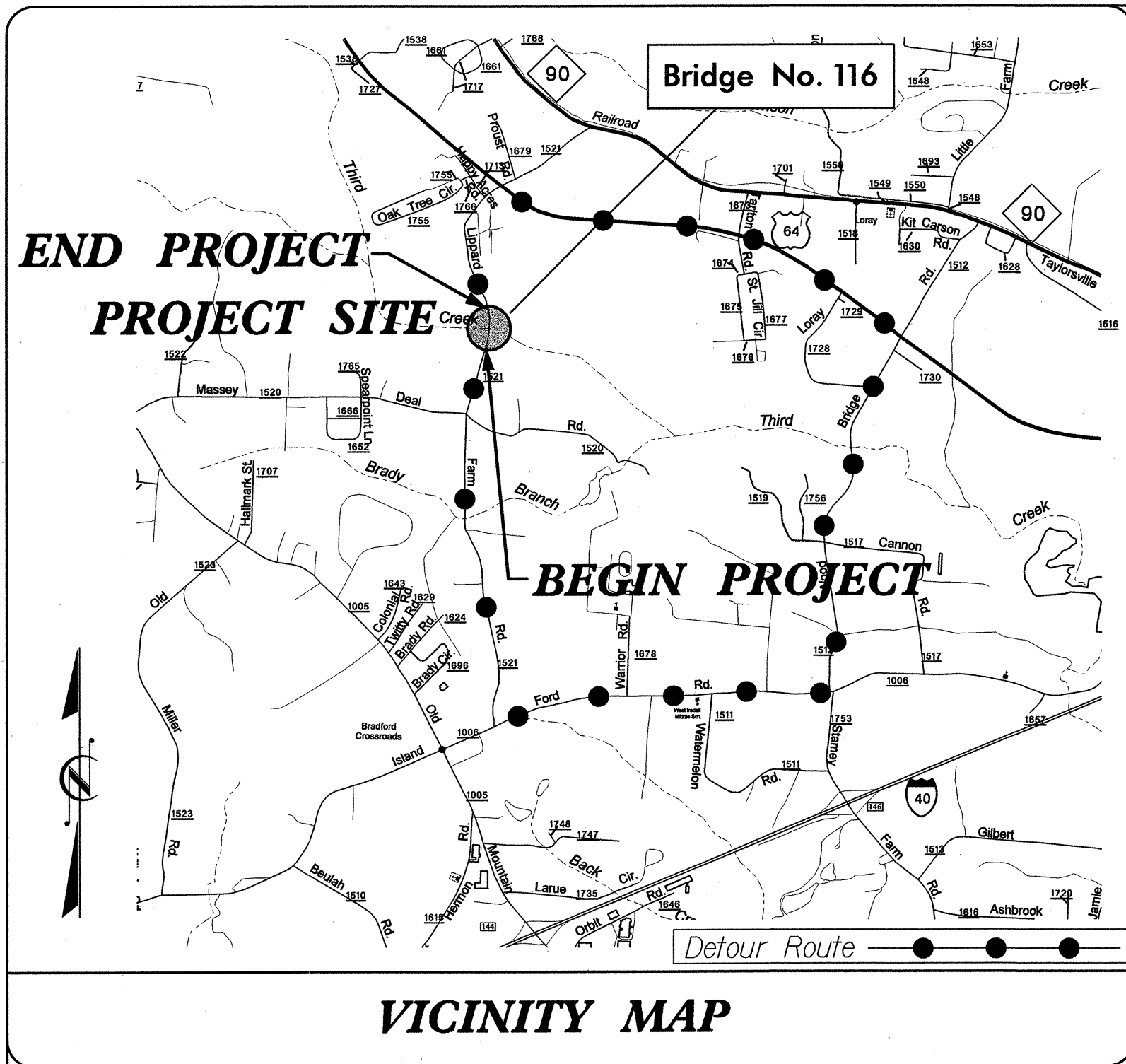


10/29/03

TIP PROJECT: B-4155

CONTRACT: C201548

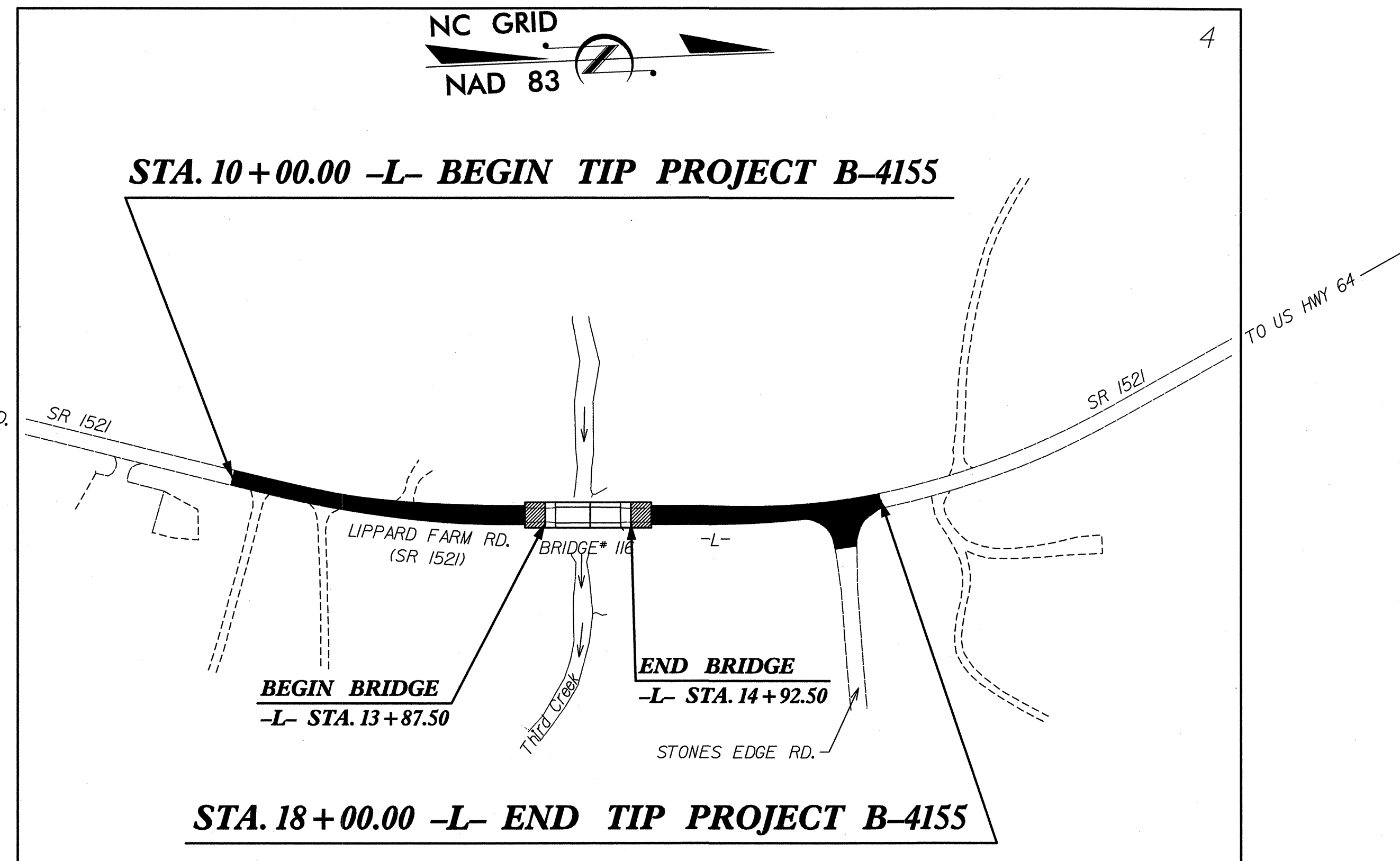


STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

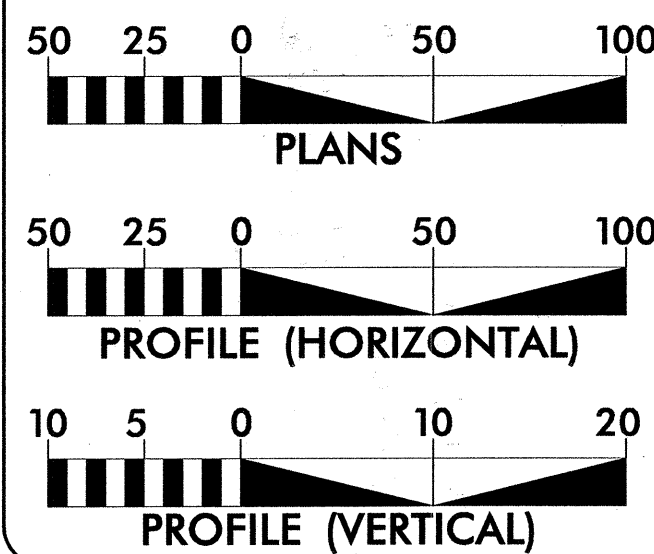
**IREDELL COUNTY**

**LOCATION: BRIDGE NO. 116 OVER THIRD CREEK  
ON SR 1521 (LIPPARD FARM ROAD)**  
**TYPE OF WORK: GRADING, PAVING, DRAINAGE, & STRUCTURE**

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	<b>B-4155</b>	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
33503.1.1	BRZ-1521(4)	PE	
33503.2.1	BRZ-1521(4)	RW, UTIL	
33503.3.1	BRZ-1521(5)	CONST	



**GRAPHIC SCALES**



**DESIGN DATA**

ADT 2007 = 1700  
ADT 2027 = 2700  
DHV = 12 %  
D = 60 %  
T = 5 % \*  
\* (TTST 1% & DUAL 4%)  
V = 50 MPH  
RURAL LOCAL

**PROJECT LENGTH**

LENGTH ROADWAY TIP PROJECT B-4155 = 0.132 MI  
LENGTH STRUCTURE TIP PROJECT B-4155 = 0.020 MI  
TOTAL LENGTH TIP PROJECT B-4155 = 0.152 MI

PLANS PREPARED BY:

**Mattern & Craig**  
CONSULTING ENGINEERS - SURVEYORS  
12 BROAD STREET  
ASHEVILLE, NORTH CAROLINA 28801  
PHONE 252-220-1820  
FAX 252-220-4562

FOR  
DIVISION OF HIGHWAYS

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:

JUNE 28, 2005

LETTING DATE:

MAY 15, 2007

JAMES B. VOSO, P.E.

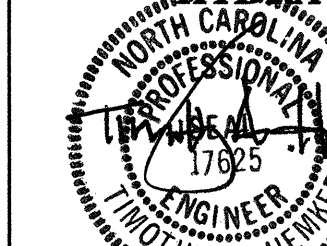
PROJECT ENGINEER

W. AUSTIN COLE, P.E.

PROJECT DESIGN ENGINEER

NCDOT CONTACT: B. Doug Taylor, P.E.  
Project Engineer - Roadway Design

HYDRAULICS ENGINEER

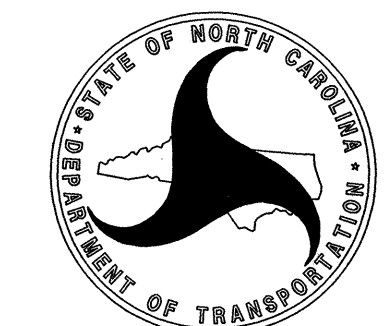


2-26-2007 P.E.



W. Austin Cole P.E.  
SIGNATURE: 2-26-07

DIVISION OF HIGHWAYS  
STATE OF NORTH CAROLINA



Aut smillan P.E.  
STATE HIGHWAY DESIGN ENGINEER

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO. B-4155	SHEET NO. 1-A
ROADWAY DESIGN ENGINEER	

# INDEX OF SHEETS - GENERAL NOTES - LIST OF STANDARDS

## INDEX OF SHEETS

SHEET NUMBER	SHEET
1	TITLE SHEET
1-A	INDEX OF SHEETS, GENERAL NOTES, AND LIST OF STANDARDS
1-B	CONVENTIONAL SYMBOLS
1-C	SURVEY CONTROL SHEET
2	PAVEMENT SCHEDULE AND TYPICAL SECTIONS
2A	DETAIL OF ANCHORAGE OF FRAMES
3	SUMMARY OF QUANTITIES
3-A	DRAINAGE SUMMARY (FOR PIPES 48" AND UNDER) AND GUARDRAIL SUMMARY
3-B	SUMMARY OF EARTHWORK, SUMMARY OF PAVEMENT REMOVAL, AND RW ACQUISITION TABLE
4	PLAN SHEET
5	PROFILE SHEET
TCP-1 THRU TCP-3	TRAFFIC CONTROL PLANS
EC-1 THRU EC-4	EROSION CONTROL PLANS
SIGN-1 THRU SIGN-3	SIGNING PLANS
UC-1 THRU UC-3	UTILITY CONSTRUCTION PLANS
UO-1 THRU UO-2	UTILITY BY OTHERS PLANS
X-0	CROSS SECTION SUMMARY
X-1 THRU X-4	CROSS SECTIONS
5-1 THRU 5-18	STRUCTURE PLANS

## 2006 ROADWAY STANDARD DRAWINGS

The following Roadway Standards as appear in "Roadway Standard Drawings" Highway Design Branch - N. C. Department of Transportation - Raleigh, N. C., Dated July 18, 2006 are applicable to this project and by reference hereby are considered a part of these plans:

STD.NO.	TITLE
<b>DIVISION 2 - EARTHWORK</b>	
200.03	Method of Clearing - Method III
225.02	Guide for Grading Subgrade - Secondary and Local
225.04	Method of Obtaining Superelevation - Two Lane Pavement
<b>DIVISION 3 - PIPE CULVERTS</b>	
300.01	Method of Pipe Installation - Method 'A'
310.10	Driveway Pipe Construction
<b>DIVISION 4 - MAJOR STRUCTURES</b>	
422.10	Reinforced Bridge Approach Fills
<b>DIVISION 5 - SUBGRADE, BASES AND SHOULDERS</b>	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
<b>DIVISION 8 - INCIDENTALS</b>	
840.00	Concrete Base Pad for Drainage Structures
840.29	Frames and Narrow Slot Flat Grates
840.35	Traffic Bearing Grated Drop Inlet - for Cast Iron Double Frame and Grates
840.46	Traffic Bearing Precast Drainage Structure
840.66	Drainage Structure Steps
846.01	Concrete Curb, Gutter and Curb & Gutter
846.04	Drop Inlet Installation in Shoulder Berm Gutter
862.01	Guardrail Placement
862.02	Guardrail Installation
862.03	Structure Anchor Units
876.02	Guide for Rip Rap at Pipe Outlets
876.04	Drainage Ditches with Class 'B' Rip Rap

GENERAL NOTES: 2006 SPECIFICATIONS

EFFECTIVE: 07-18-06  
REVISED: 07-18-06

GRADING AND SURFACING OR RESURFACING AND WIDENING:

THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. WHERE NO GRADE LINES ARE SHOWN, THE PROFILES SHOWN DENOTE THE TOP ELEVATION OF THE EXISTING PAVEMENT ALONG THE CENTER LINE OF SURVEY ON WHICH THE PROPOSED RESURFACING WILL BE PLACED. GRADE LINES MAY BE ADJUSTED BY THE ENGINEER IN ORDER TO SECURE A PROPER TIE-IN.

CLEARING:

CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.

SUPERELEVATION:

ALL CURVES ON THIS PROJECT SHALL BE SUPERELEVATED IN ACCORDANCE WITH STD. NO. 225.04 USING THE RATE OF SUPERELEVATION AND RUNOFF SHOWN ON THE PLANS. SUPERELEVATION IS TO BE REVOLVED ABOUT THE GRADE POINTS SHOWN ON THE TYPICAL SECTIONS.

SHOULDER CONSTRUCTION:

ASPHALT, EARTH, AND CONCRETE SHOULDER CONSTRUCTION ON THE HIGH SIDE OF SUPERELEVATED CURVES SHALL BE IN ACCORDANCE WITH STD. NO. 560.01.

SIDE ROADS:

THE CONTRACTOR WILL BE REQUIRED TO DO ALL NECESSARY WORK TO PROVIDE SUITABLE CONNECTIONS WITH ALL ROADS, STREETS, AND DRIVES ENTERING THIS PROJECT. THIS WORK WILL BE PAID FOR AT THE CONTRACT UNIT PRICE FOR THE PARTICULAR ITEMS INVOLVED.

GUARDRAIL:

THE GUARDRAIL LOCATIONS SHOWN ON THE PLANS MAY BE ADJUSTED DURING CONSTRUCTION AS DIRECTED BY THE ENGINEER. THE CONTRACTOR SHOULD CONSULT WITH THE ENGINEER PRIOR TO ORDERING GUARDRAIL MATERIAL.

TEMPORARY SHORING:

SHORING REQUIRED FOR THE MAINTENANCE OF TRAFFIC WILL BE PAID FOR AS "EXTRA WORK" IN ACCORDANCE WITH SECTION 104-7.

SUBSURFACE PLANS:

NO SUBSURFACE PLANS ARE AVAILABLE ON THIS PROJECT. THE CONTRACTOR SHOULD MAKE HIS OWN INVESTIGATION AS TO THE SUBSURFACE CONDITIONS.

END BENTS:

THE ENGINEER SHALL CHECK THE STRUCTURE END BENT PLANS, DETAILS, AND CROSS-SECTION PRIOR TO SETTING OF THE SLOPE STAKES FOR THE EMBANKMENT OR EXCAVATION APPROACHING A BRIDGE.

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE Energy United EMC (Power) Bellsouth (Telephone), West Iredell Water Corporation and Time Warner Cable (Cable Television) ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS, EXCEPT AS SHOWN ON THE PLANS.

RIGHT-OF-WAY MARKERS:

ALL RIGHT-OF-WAY MARKERS ON THIS PROJECT SHALL BE PLACED BY OTHERS.

5/28/09

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Note: Not to Scale

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

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

# CONVENTIONAL PLAN SHEET SYMBOLS

## BOUNDARIES AND PROPERTY:

State Line	-----
County Line	-----
Township Line	-----
City Line	-----
Reservation Line	-----
Property Line	-----
Existing Iron Pin	○ EIP
Property Corner	-----
Property Monument	□ ECM
Parcel/Sequence Number	⑫③
Existing Fence Line	-x-x-x-
Proposed Woven Wire Fence	○-----
Proposed Chain Link Fence	□-----
Proposed Barbed Wire Fence	◇-----
Existing Wetland Boundary	-WLB-
Proposed Wetland Boundary	-WLB-
Existing High Quality Wetland Boundary	-HQ WLB-
Existing Endangered Animal Boundary	-EAB-
Existing Endangered Plant Boundary	-EPB-

## BUILDINGS AND OTHER CULTURE:

Gas Pump Vent or U/G Tank Cap	○
Sign	○ S
Well	○ W
Small Mine	⊗
Foundation	□
Area Outline	□
Cemetery	⊕
Building	□
School	⊕
Church	⊕
Dam	▬

## HYDROLOGY:

Stream or Body of Water	-----
Hydro, Pool or Reservoir	□
River Basin Buffer	-RBB-
Flow Arrow	←
Disappearing Stream	→
Spring	○
Swamp Marsh	⊕
Proposed Lateral, Tail, Head Ditch	▬
False Sump	▽

## RAILROADS:

Standard Gauge	-----
RR Signal Milepost	○ MILEPOST 35
Switch	□ SWITCH
RR Abandoned	-----
RR Dismantled	-----

## RIGHT OF WAY:

Baseline Control Point	◆
Existing Right of Way Marker	△
Existing Right of Way Line	-----
Proposed Right of Way Line	○ R/W
Proposed Right of Way Line with Iron Pin and Cap Marker	○ R/W ▲
Proposed Right of Way Line with Concrete or Granite Marker	○ R/W ▲
Existing Control of Access	○ CA
Proposed Control of Access	○ CA
Existing Easement Line	E-----
Proposed Temporary Construction Easement	E-----
Proposed Temporary Drainage Easement	TDE-----
Proposed Permanent Drainage Easement	PDE-----
Proposed Permanent Utility Easement	PUE-----

## ROADS AND RELATED FEATURES:

Existing Edge of Pavement	-----
Existing Curb	-----
Proposed Slope Stakes Cut	C-----
Proposed Slope Stakes Fill	F-----
Proposed Wheel Chair Ramp	○ WCR
Curb Cut for Future Wheel Chair Ramp	○ CCFR
Existing Metal Guardrail	-----
Proposed Guardrail	-----
Existing Cable Guiderail	-----
Proposed Cable Guiderail	-----
Equality Symbol	⊕
Pavement Removal	⊗

## VEGETATION:

Single Tree	○
Single Shrub	○
Hedge	-----
Woods Line	-----
Orchard	⊕
Vineyard	□ Vineyard

## EXISTING STRUCTURES:

MAJOR:	
Bridge, Tunnel or Box Culvert	CONC
Bridge Wing Wall, Head Wall and End Wall	CONC WW
MINOR:	
Head and End Wall	CONC HW
Pipe Culvert	-----
Footbridge	-----
Drainage Box: Catch Basin, DI or JB	□ CB
Paved Ditch Gutter	-----
Storm Sewer Manhole	○ S
Storm Sewer	S-----

## 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	P-----
Designated U/G Power Line (S.U.E.*)	P-----

## 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	T-----
Designated U/G Telephone Cable (S.U.E.*)	T-----
Recorded U/G Telephone Conduit	TC-----
Designated U/G Telephone Conduit (S.U.E.*)	TC-----
Recorded U/G Fiber Optics Cable	T FO-----
Designated U/G Fiber Optics Cable (S.U.E.*)	T FO-----

## WATER:

Water Manhole	⊕
Water Meter	○
Water Valve	⊗
Water Hydrant	⊕
Recorded U/G Water Line	W-----
Designated U/G Water Line (S.U.E.*)	W-----
Above Ground Water Line	A/G Water

## TV:

TV Satellite Dish	⊕
TV Pedestal	⊕
TV Tower	⊗
U/G TV Cable Hand Hole	⊕
Recorded U/G TV Cable	TV-----
Designated U/G TV Cable (S.U.E.*)	TV-----
Recorded U/G Fiber Optic Cable	TV FO-----
Designated U/G Fiber Optic Cable (S.U.E.*)	TV FO-----

## GAS:

Gas Valve	◇
Gas Meter	⊕
Recorded U/G Gas Line	G-----
Designated U/G Gas Line (S.U.E.*)	G-----
Above Ground Gas Line	A/G Gas

## SANITARY SEWER:

Sanitary Sewer Manhole	⊕
Sanitary Sewer Cleanout	⊕
U/G Sanitary Sewer Line	SS-----
Above Ground Sanitary Sewer	A/G Sanitary Sewer
Recorded SS Forced Main Line	FSS-----
Designated SS Forced Main Line (S.U.E.*)	FSS-----

## MISCELLANEOUS:

Utility Pole	●
Utility Pole with Base	□
Utility Located Object	○
Utility Traffic Signal Box	⊕
Utility Unknown U/G Line	ZUL-----
U/G Tank; Water, Gas, Oil	□
AG Tank; Water, Gas, Oil	□
U/G Test Hole (S.U.E.*)	⊕
Abandoned According to Utility Records	AATUR
End of Information	E.O.I.

5/14/99

# SURVEY CONTROL SHEET B-4155

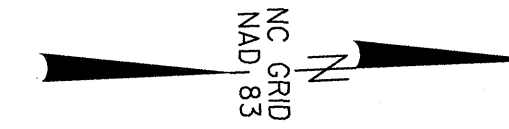
BM#1-BL-  
8" Spike in base of PP  
N 755692.00  
E 1405873.00  
ELEV.=866.95'

PROJECT REFERENCE NO.	SHEET NO.
B-4155	1-C
LOCATION AND SURVEYS	

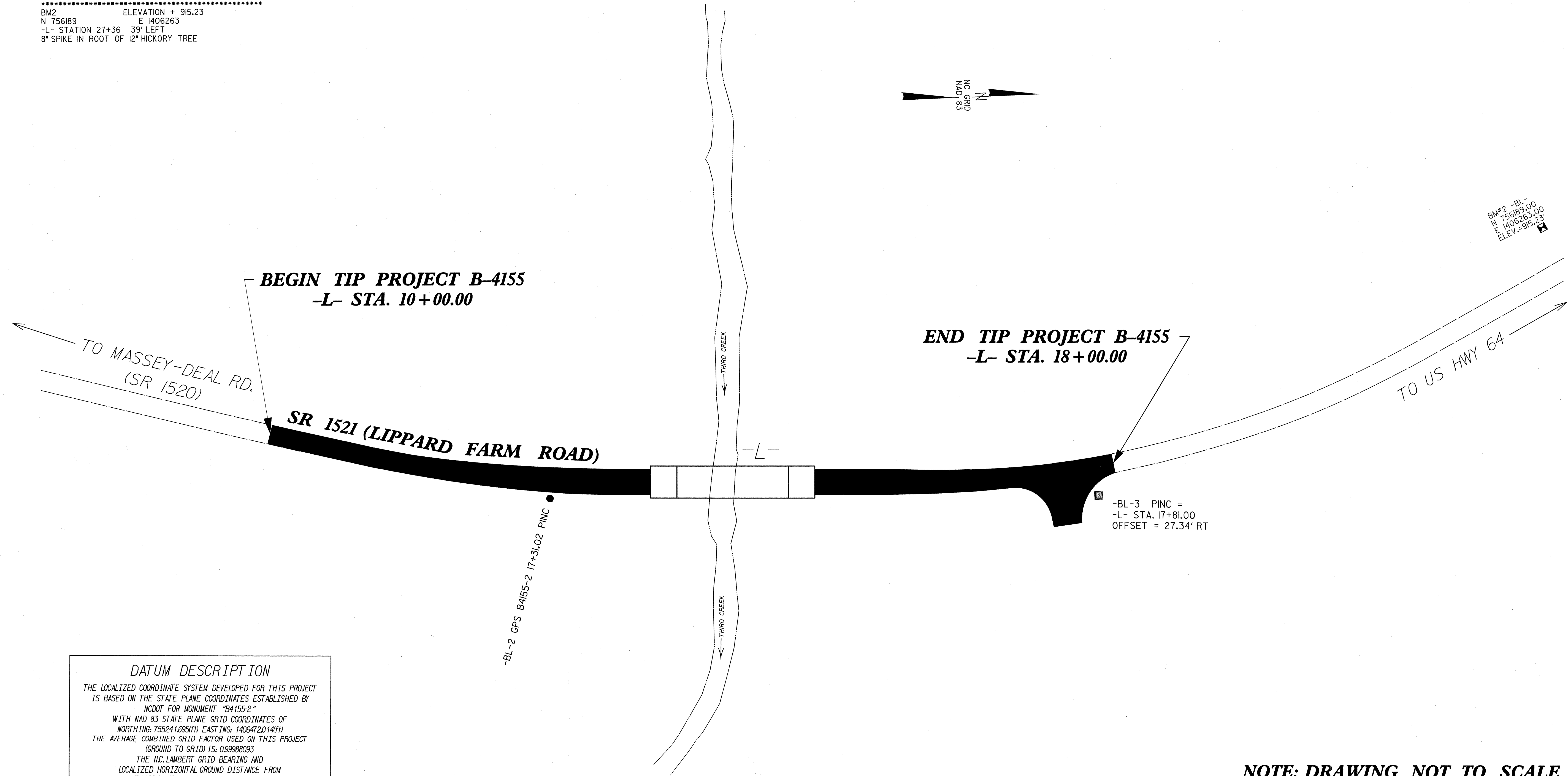
BL	POINT	DESC.	NORTH	EAST	ELEVATION	EL STATION	OFFSET
1		GPS B4155-1	754,068.7400	1,406,098.4100	950.47	5+00.00	OUTSIDE PROJECT LIMITS
2		GPS B4155-2	755,241.6950	1,406,472.0140	875.03	17+31.02	
3		BL-3	755,758.2807	1,406,495.2956	875.60	22+48.13	
4		BL-4	756,626.9822	1,406,113.7302	937.27	31+96.93	

BM1 ELEVATION + 866.95  
 N 755692 E 1405873  
 -L- STATION 24+38 595' LEFT  
 8" SPIKE IN BASE OF POWER POLE

BM2 ELEVATION + 915.23  
 N 756189 E 1406263  
 -L- STATION 27+36 39' LEFT  
 8" SPIKE IN ROOT OF 12" HICKORY TREE



BM#2-BL-  
8" Spike in base of PP  
N 756189.00  
E 1406263.00  
ELEV.=915.23'



**DATUM DESCRIPTION**

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B4155-2" WITH NAD 83 STATE PLANE GRID COORDINATES OF NORTHING: 755241.695(1) EASTING: 1406472.014(1). THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99988093. THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B4155-2" TO -L- STATION 10+00.00 IS S15°44'44" W 270.64'. ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES. VERTICAL DATUM USED IS NAVD 88.

**NOTE: DRAWING NOT TO SCALE**

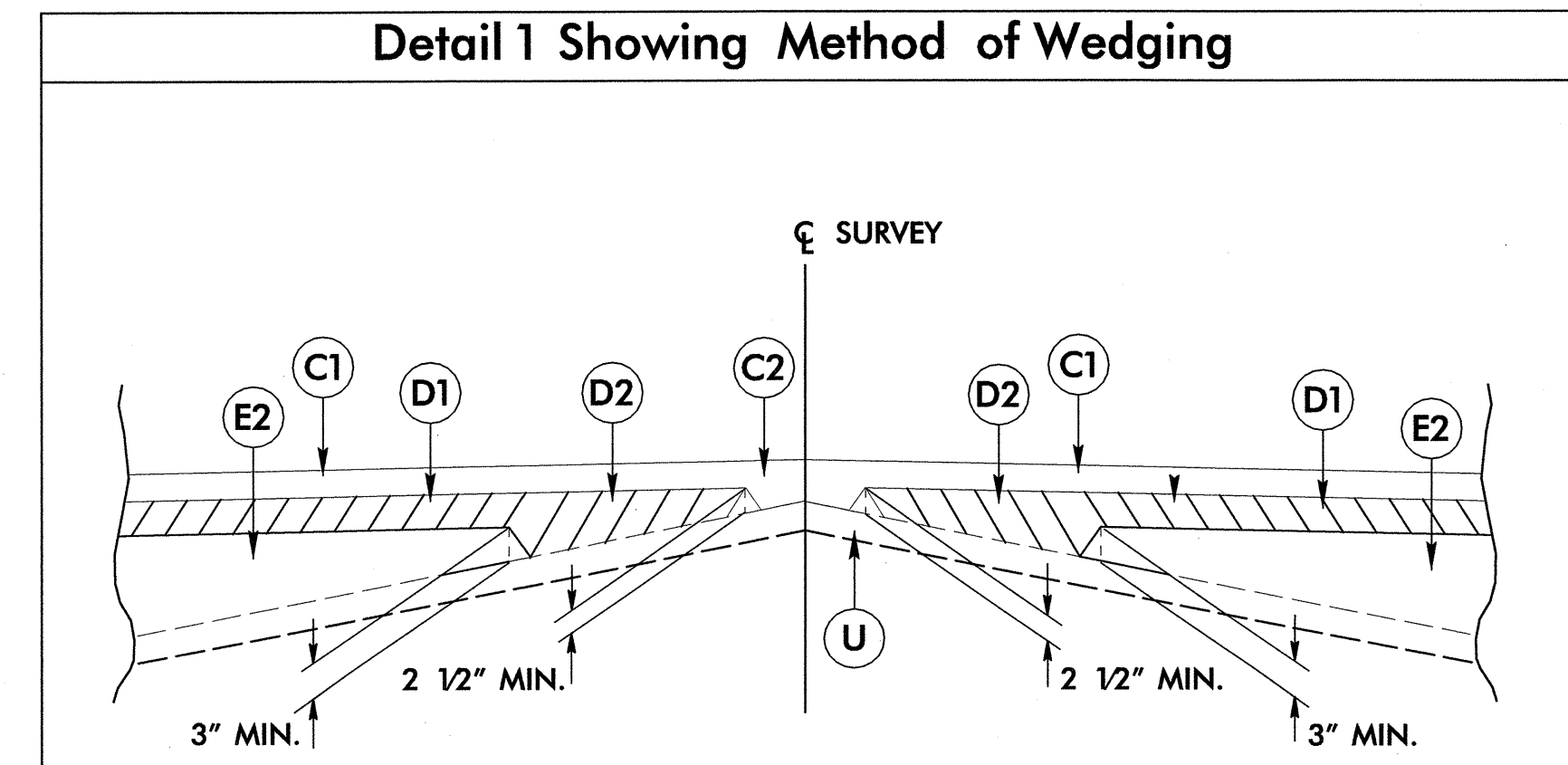
PLANS PREPARED BY:

**Mattern & Craig**  
CONSULTING ENGINEERS • SURVEYORS  
12 BROAD STREET  
ASHEVILLE, NORTH CAROLINA 28801  
(828) 254-2201  
FAX (828) 254-4562

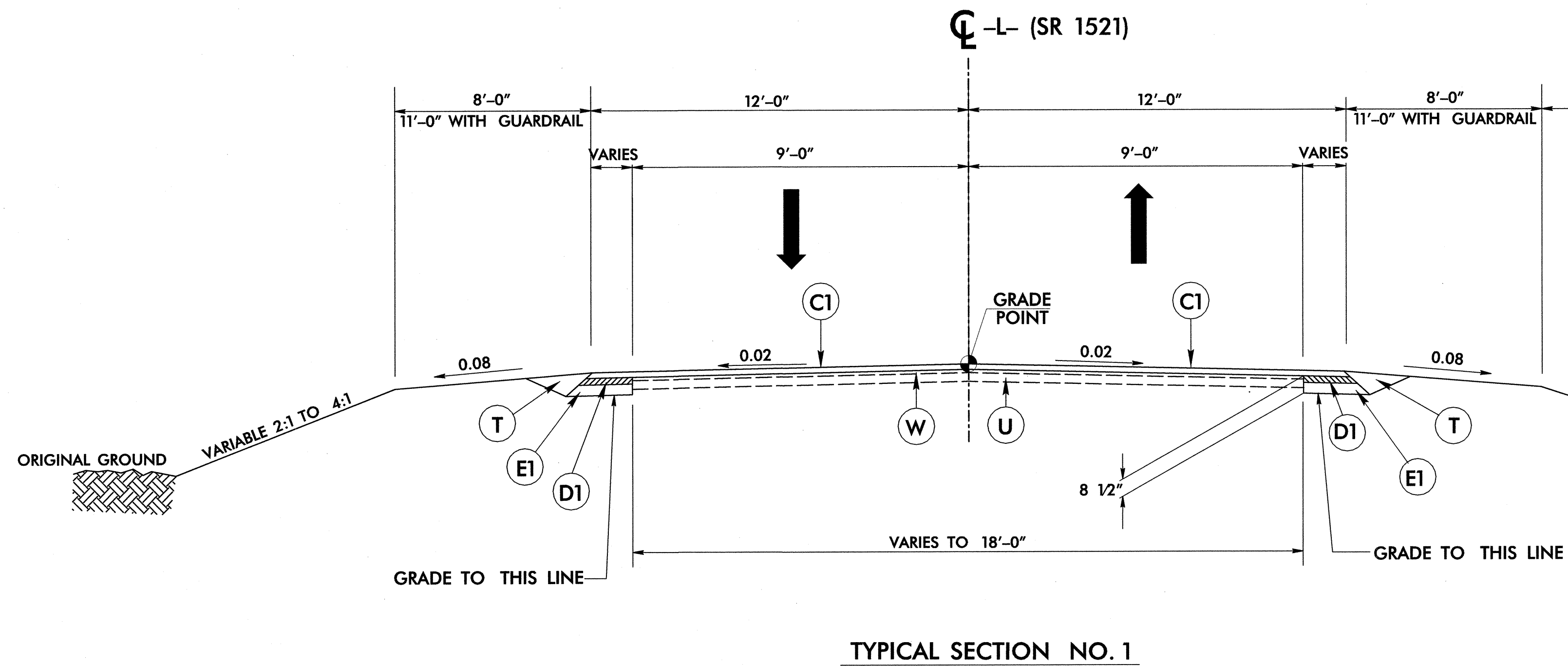
FOR  
DIVISION OF HIGHWAYS

PAVEMENT SCHEDULE			
ITEM	DESCRIPTION	ITEM	DESCRIPTION
C1	PROP. APPROX. 1 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD.	E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5 1/2" IN DEPTH
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH TO BE PLACED IN LAYERS NOT TO EXCEED 1 1/2" IN DEPTH.	T	EARTH MATERIAL.
D1	PROP. APPROX. 2.5" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.	U	EXISTING PAVEMENT.
D2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH TO BE PLACED IN LAYERS NOT LESS THAN 2 1/2" IN DEPTH OR GREATER THAN 4" IN DEPTH	W	WEDGING (SEE DETAIL)
E1	PROP. APPROX. 4.5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 513 LBS. PER SQ. YD.		

NOTE: ALL PAVEMENT EDGE SLOPES ARE TO BE 1:1



PROJECT REFERENCE NO. B-4155	SHEET NO. 2
RW SHEET NO.	
ROADWAY DESIGN W. J. COLE NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 19704 03/01/2007	PAVEMENT DESIGN CLARK S. MORRISON NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 22896 03-8-07

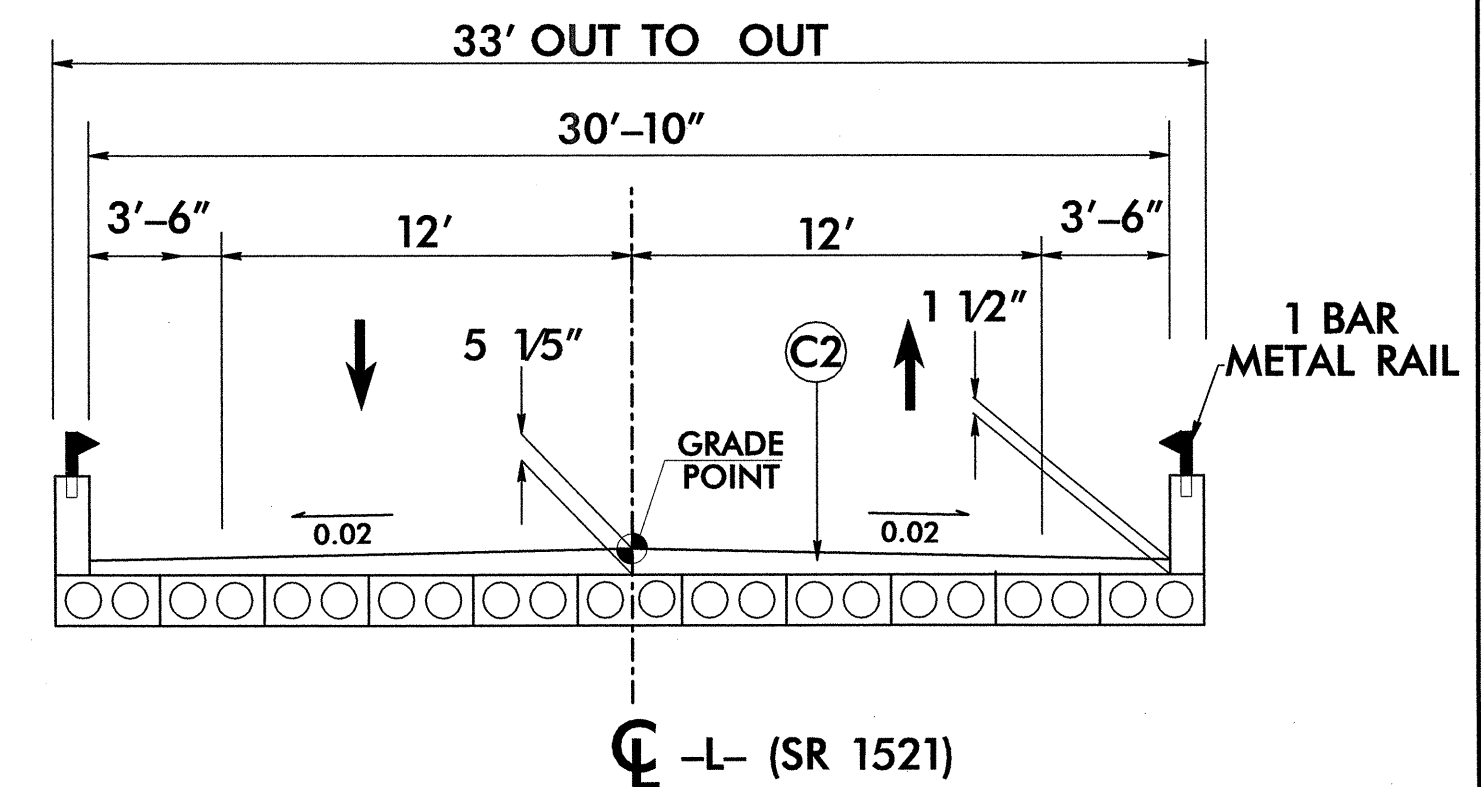


NOTE: TRANSITION FROM EXIST. TO TYPICAL SECTION 1  
-L- STA. 10+00 TO STA. 10+65

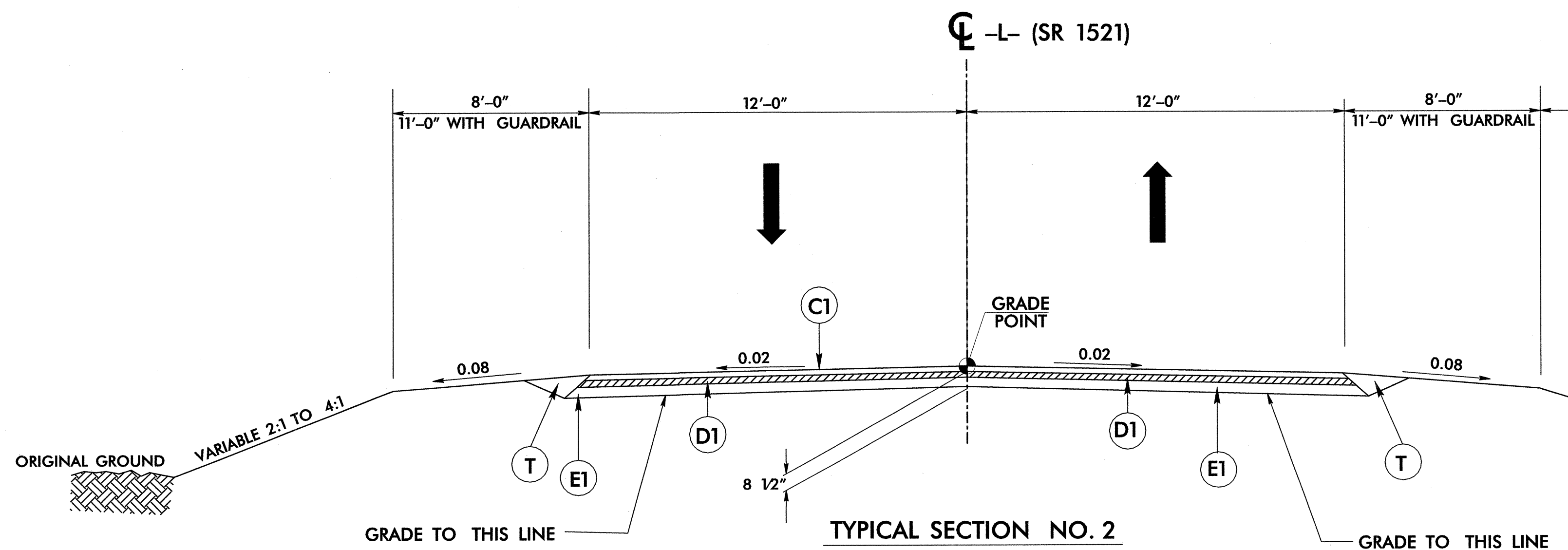
**USE TYPICAL SECTION No. 1**

-L- STA. 10+65.00 TO STA. 13+12.46  
-L- STA. 15+67.46 TO STA. 17+50.00

NOTE: TRANSITION FROM EXIST. TO TYPICAL SECTION 1  
-L- STA. 17+50 TO STA. 18+00



**USE TYPICAL SECTION No. 2**  
-L- STA. 13+12.46 TO STA. 13+87.50 (Begin Bridge)  
-L- STA. 14+92.50 (End of Bridge) TO STA. 15+67.46



**USE TYPICAL SECTION No. 2**

-L- STA. 13+12.46 TO STA. 13+87.50 (Begin Bridge)  
-L- STA. 14+92.50 (End of Bridge) TO STA. 15+67.46

PLANS PREPARED BY:

**Mattern & Craig**  
CONSULTING ENGINEERS • SURVEYORS  
12 BROAD STREET  
ASHEVILLE, NORTH CAROLINA 28801  
(828) 254-2201  
FAX (828) 254-4562

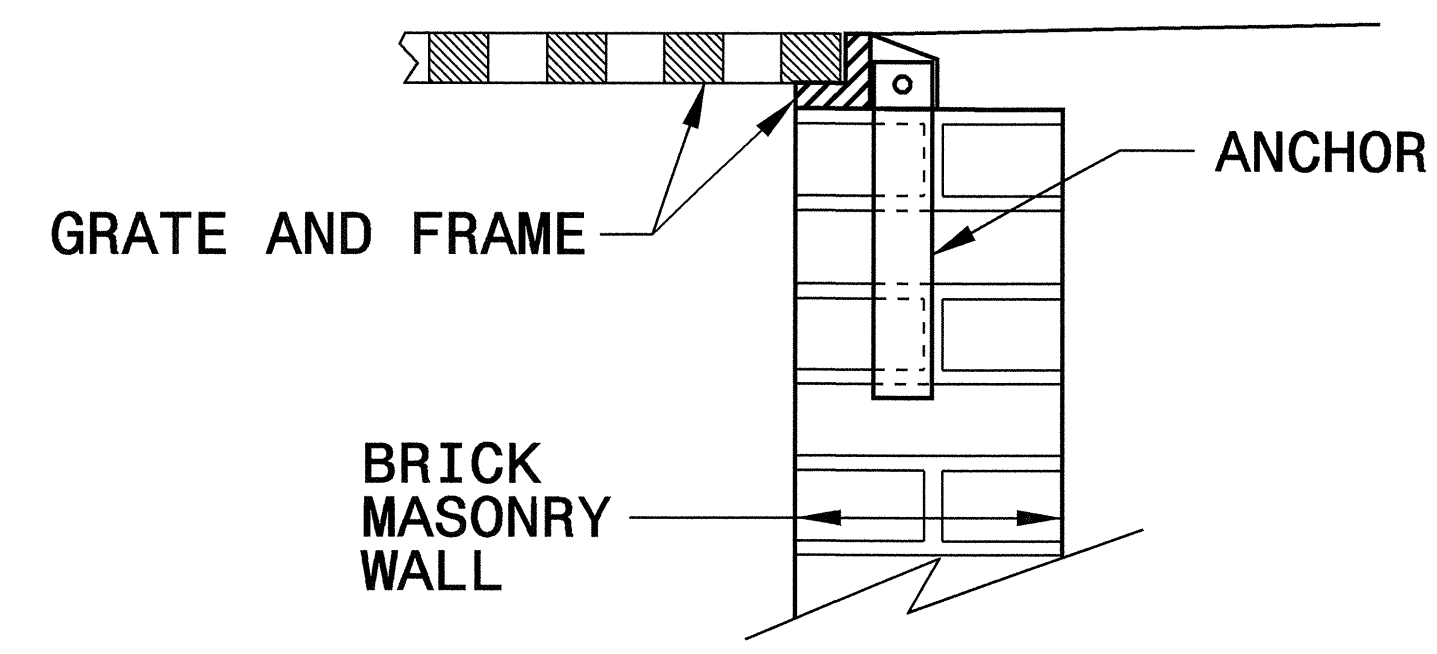
FOR  
DIVISION OF HIGHWAYS

I:\2367\DCN\B4155.R01.TYP.DGN

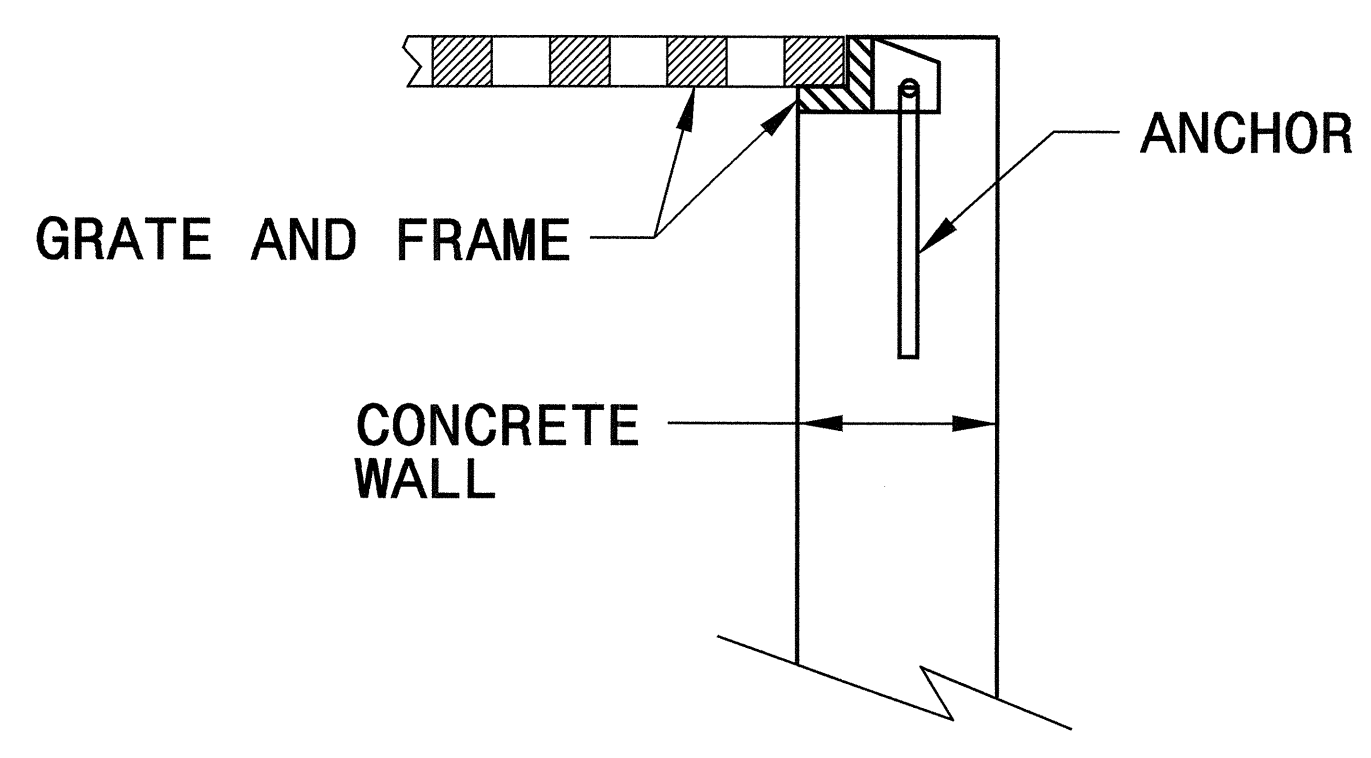
STATE OF NORTH CAROLINA  
DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR  
**ANCHORAGE FOR FRAMES**  
BRICK/CONCRETE/PRECAST CONCRETE

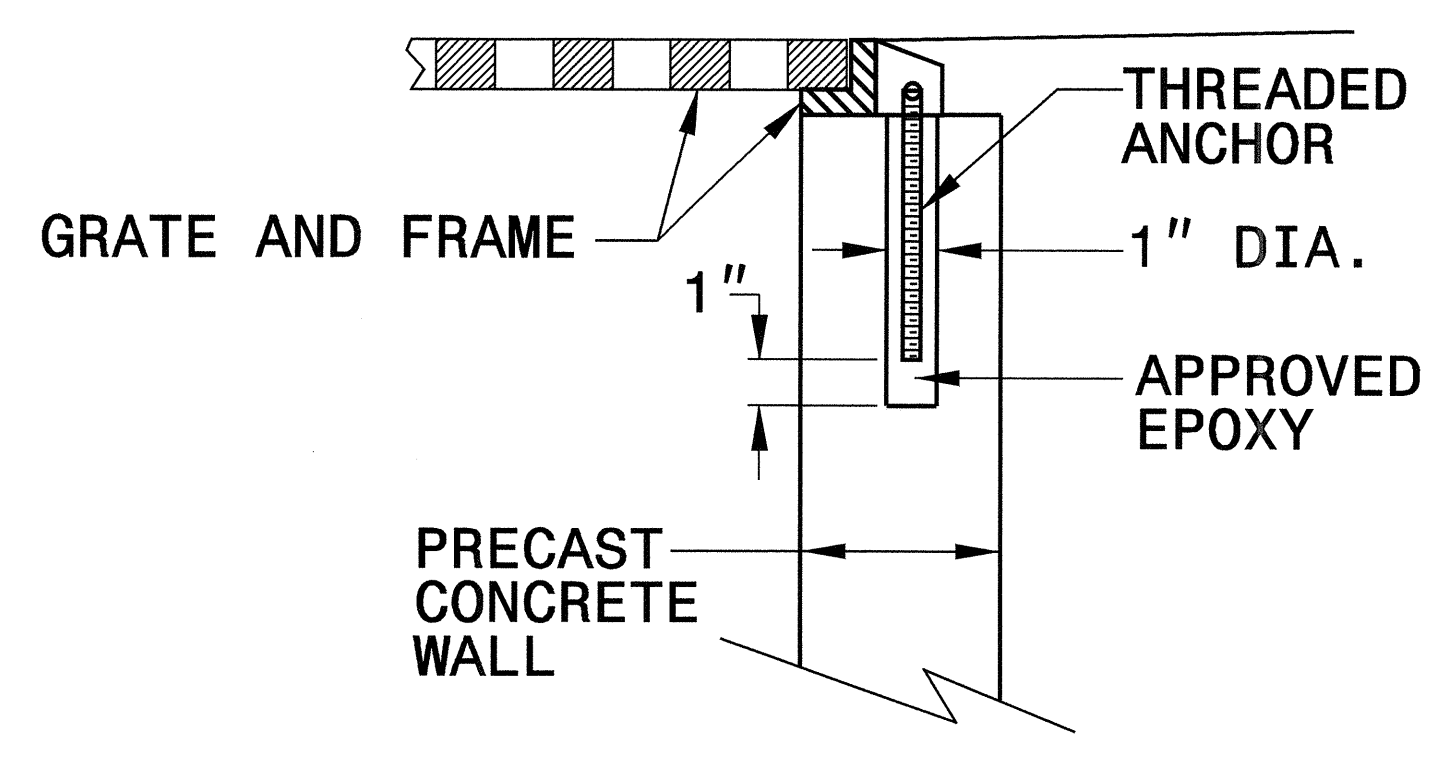
SHEET 1 OF 1  
**840D25**



**BRICK MASONRY CONSTRUCTION**



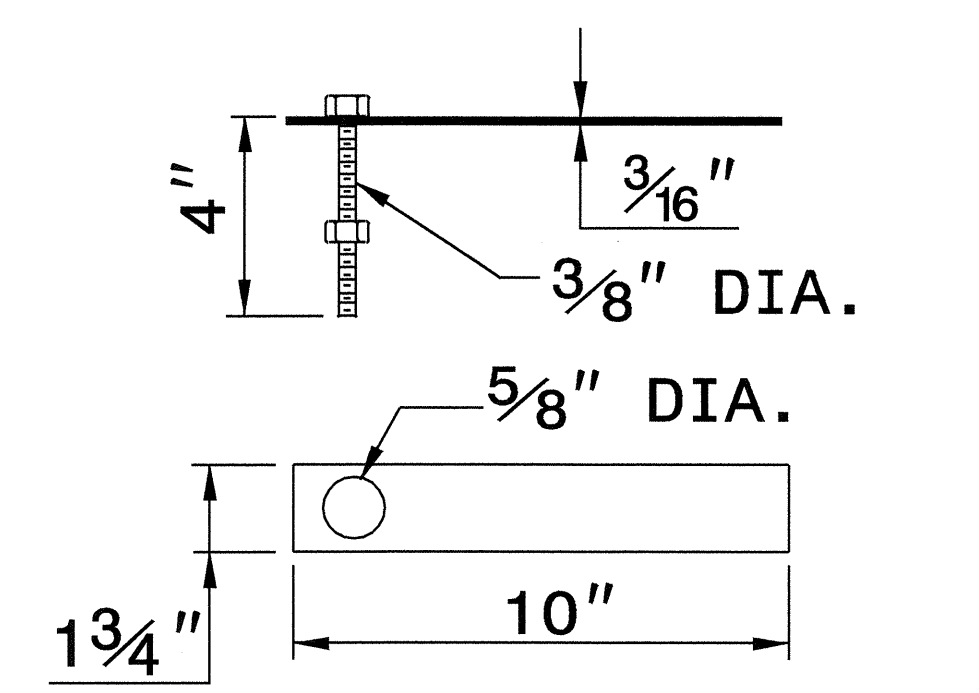
**CONCRETE CONSTRUCTION**



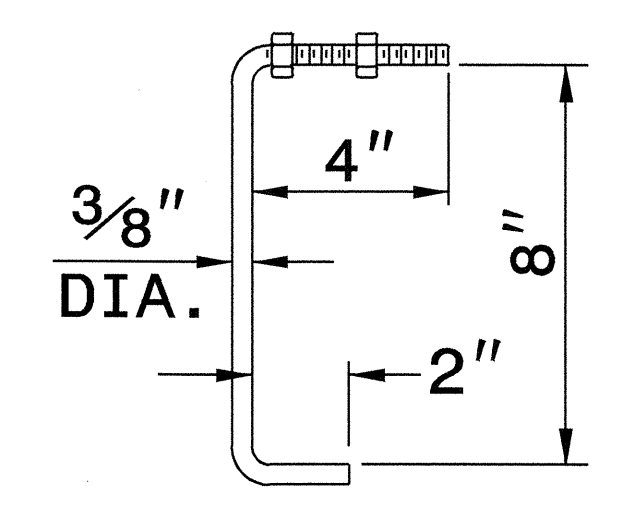
**PRECAST CONCRETE CONSTRUCTION**

**DETAIL SHOWING ANCHORAGE OF FRAME FOR GRATED DROP INLET**

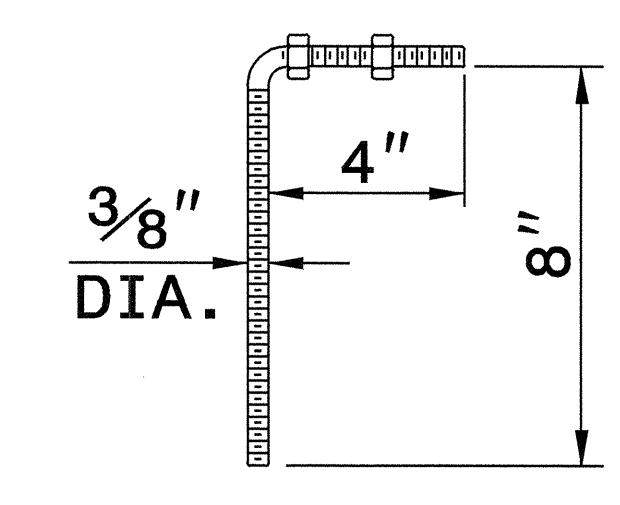
NOTE:  
CONSTRUCT GRATED DROP INLET TO COINCIDE WITH NORMAL OR SUPERELEVATED SHOULDER OR PAVEMENT SLOPE.



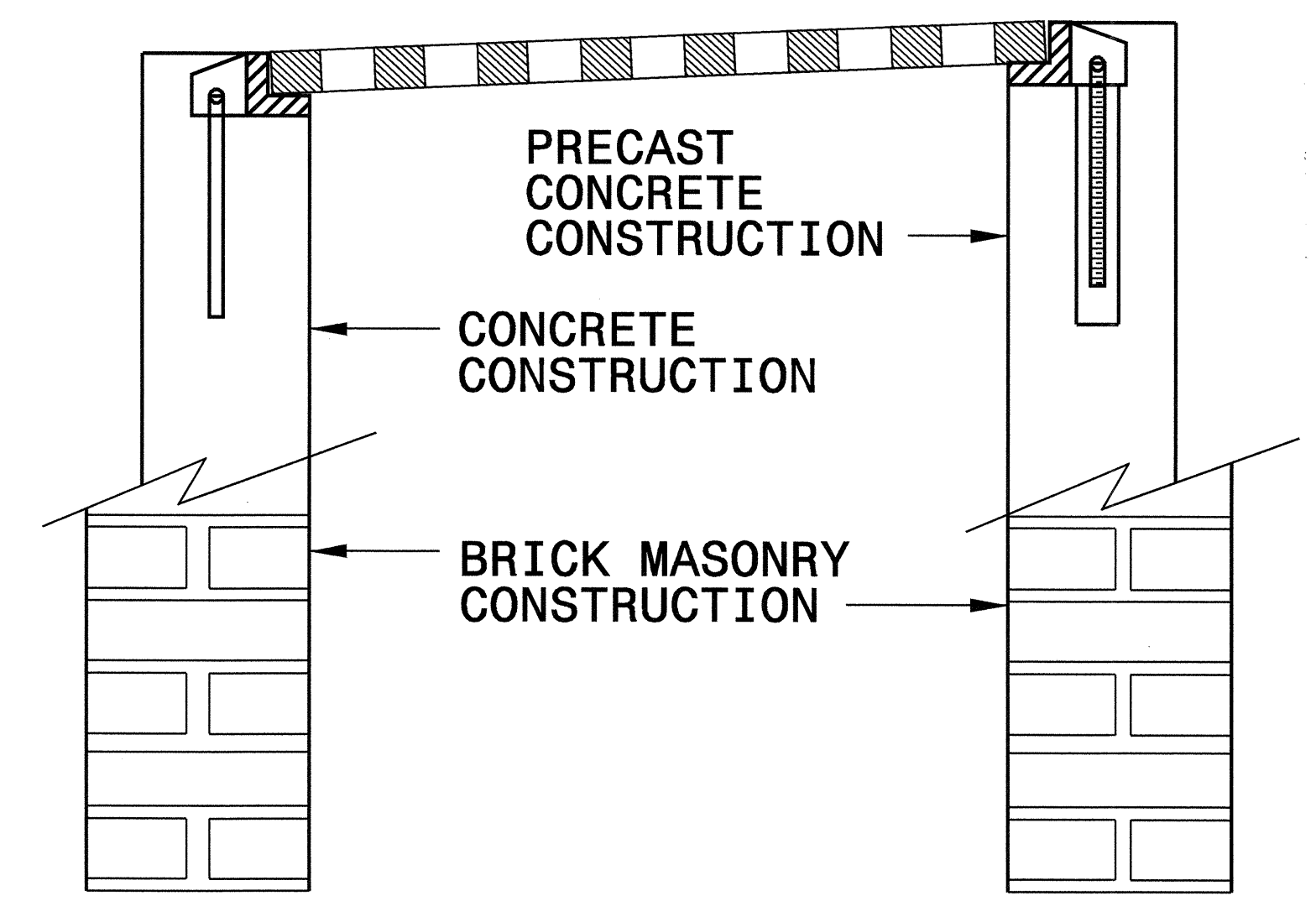
**MASONRY ANCHOR**  
3/8" DIA. BOLT WITH PLATE



**CONCRETE ANCHOR**  
3/8" DIA. BENT BAR



**PRECAST CONCRETE ANCHOR**  
3/8" DIA. BENT BAR

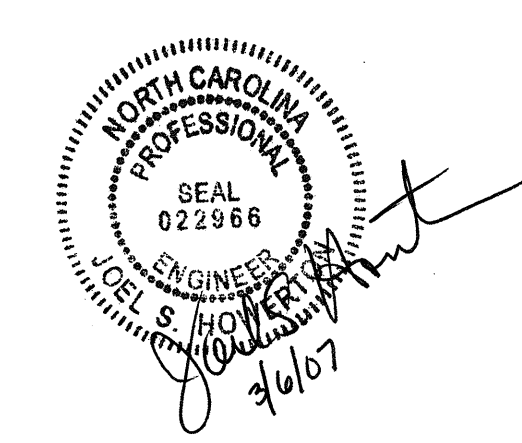


**FRAME AND GRATE INSTALLATION FOR NORMAL CROWN AND SUPERELEVATED SECTIONS**

STATE OF NORTH CAROLINA  
DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR  
**ANCHORAGE FOR FRAMES**  
BRICK/CONCRETE/PRECAST CONCRETE

SHEET 1 OF 1  
**840D25**



PROJECT SERVICES UNIT  
STANDARDS AND SPECIAL DESIGN  
Office 919-250-4128 FAX 919-250-4119

**SEE PLATE FOR TITLE**

ORIGINAL BY: 2006 STD 840.25 DATE: 07/18/06  
MODIFIED BY: E.E. WARD DATE: 9/25/06  
CHECKED BY: [Signature] DATE: 7/27/06  
FILE SPEC.: [Signature]

27-SEP-2006 09:01 S:\Projects\Centraccts\Special Details\enricward\stds\06' stds to Special Details\84025 Anchorage for Frames\0840d25.dgn

STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

SUMMARY OF QUANTITIES

Table with columns: ItemNumber, Sec #, Quantity, Unit, Description. Contains items such as MOBILIZATION, REINFORCED BRIDGE APPROACH, GRADING, SUPPLEMENTARY CLEARING & GRUBBING, UNDERCUT EXCAVATION, DRAINAGE DITCH EXCAVATION, etc.

Table with columns: ItemNumber, Sec #, Quantity, Unit, Description. Contains items such as GUARDRAIL ANCHOR UNITS, TYPE 350, RIP RAP, CLASS I, RIP RAP, CLASS B, FILTER FABRIC FOR DRAINAGE, CONTRACTOR FURNISHED, TYPE \*\*\* SIGN (E), etc.

Table with columns: ItemNumber, Sec #, Quantity, Unit, Description. Contains items such as SAFETY FENCE, SILT EXCAVATION, MATTING FOR EROSION CONTROL, COIR FIBER MAT, 1/4" HARDWARE CLOTH, SPECIAL STILLING BASINS, COIR FIBER BAFFLES, \*\* SKIMMER (2"), SEEDING & MULCHING, MOWING, SEED FOR REPAIR SEEDING, FERTILIZER FOR REPAIR SEEDING, SEED FOR SUPPLEMENTAL SEEDING, FERTILIZER TOPDRESSING, SPECIALIZED HAND MOWING, RESPONSE FOR EROSION CONTROL.

REVISIONS

Vertical text at the bottom left corner of the page, possibly containing a list of revisions.

STATE OF NORTH CAROLINA  
 DIVISION OF HIGHWAYS

**LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48" & UNDER)**

STATION	LOCATION (L.T., RT., OR C.I.)	STRUCTURE NO.	TOP ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	CLASS III R.C. PIPE (UNLESS NOTED OTHERWISE)								BITUMINOUS COATED C.S. PIPE TYPE B (UNLESS NOTED OTHERWISE)								ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE)	QUANTITIES FOR DRAINAGE STRUCTURES * TOTAL LF. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B')	FRAME, GRATES AND HOOD STANDARD 840.03	MASONRY DRAINAGE STRUCTURE	PIPE REMOVAL LIN. FT.	REMARKS													
						12"	15"	18"	24"	30"	36"	42"	48"	12"	15"	18"	24"	30"	36"	42"	48"							CU. YDS.	R.C.P.	C.S.F.	PER EACH (0' THRU 5.0')	5.0' THRU 10.0'	10.0' AND ABOVE	C.B. STD. 840.01 OR STD. 840.02	E	F	G			
-L-12+20	LT	1																																						
-L-15+37	LT	2	3	874.44	871.69	869.60																																		
-L-15+37	RT	4	5	874.44	870.69	868.20																																		
SHEET TOTAL																																								

"N" = DISTANCE FROM EDGE OF LANE TO FACE OF GUARDRAIL.  
 FLARE LENGTH = DISTANCE FROM LAST SECTION OF PARALLEL GUARDRAIL TO END OF GUARDRAIL.  
 TOTAL SHOULDER WIDTH = DISTANCE FROM EDGE OF TRAVEL LANE TO SHOULDER BREAK POINT.  
 W = TOTAL WIDTH OF FLARE FROM BEGINNING OF TAPER TO END OF GUARDRAIL.  
 G = GATING IMPACT ATTENUATOR TYPE 350  
 NG = NON-GATING IMPACT ATTENUATOR TYPE 350

**GUARDRAIL SUMMARY**

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHOULDER WIDTH	FLARE LENGTH		W		ANCHORS						IMPACT ATTENUATOR TYPE 350			REMOVE EXISTING GUARDRAIL	REMOVE AND RESET LENGTH	REMARKS														
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	MELT	CAT-I	GRAU 350	AT-1	TYPE III	TYPE III MOD. (SHOP CURVED) P&B	EA	G	NG																	
-L-	11+75.00	13+87.50	RT	212.50'	-	-	13+87.50		3.4'	VARIES	193.75'		3.88'			1		1																						
-L-	14+92.50	15+80.00	RT	87.50'	-	-			3.4'	VARIES		68.75'		1.38'		1		1																						
-L-	13+00.00	13+87.50	LT	87.50'	-	-			3.4'	VARIES		68.75'		1.38'		1		1																						
-L-	14+92.50	17+05.00	LT	212.50'	-	-	14+92.50		3.4'	VARIES	193.75'		3.88'			1		1																						
SUBTOTALS				600'																																				
LESS ANCHOR DEDUCTIONS																																								
ANCHOR TOTAL DEDUCTION				-275'																																				
TOTAL STEEL BEAM GUARDRAIL SAY				325'																																				
				337.50'																																				
					ADDITIONAL GUARDRAIL POSTS = 5 EACH																																			

6/20/00



STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

**SUMMARY OF EARTHWORK  
IN CUBIC YARDS**

LOCATION	UNCLASSIFIED EXCAVATION	UNDERCUT	EMBT %	BORROW	WASTE
<b>SUMMARY NO. 1</b>					
-L- 10+65 (Beg. Const.) TO 13+87.50 (Beg. Bridge) LT	90		397	307	
-L- 14+92.50 (End Bridge) TO 17+50 (End Const.) LT	16		252	236	
<b>SUBTOTAL</b>	<b>106</b>		<b>650</b>	<b>544</b>	
<b>SUMMARY NO. 2</b>					
-L- 10+65 (Beg. Const.) TO 13+87.50 (Beg. Bridge) RT	0		406	406	
-L- 14+92.50(End Bridge) TO 17+50 (End Const.) RT.	10		329	319	
<b>SUBTOTAL</b>	<b>10</b>		<b>735</b>	<b>725</b>	
<b>PROJECT SUBTOTAL</b>	<b>116</b>		<b>1384</b>	<b>1254</b>	
LOSS OF UNCLASS. DUE TO CLEAR AND GRUBBING IN CUT	-75			75	
EST. FOR REPLACING TOPSOIL ON BORROW PITS				67	
<b>GRAND TOTAL</b>	<b>41</b>			<b>1410</b>	
<b>SAY</b>	<b>45</b>			<b>1410</b>	

Note: Earthwork quantities are calculated by the Roadway Design Unit. These earthwork quantities are based in part on subsurface data provided by the Geotechnical Engineering Unit.

**SUMMARY OF PAVEMENT REMOVAL  
IN SQUARE YARDS**

LOCATION	ASPHALT REMOVAL	ASPHALT BREAK-UP	CONCRETE REMOVAL	CONCRETE BREAK-UP
-L- STA. 13+62.46 TO -L- STA. 13+87.46	146			
-L- STA. 14+92.46 TO -L- STA. 15+17.46	146			
<b>TOTAL</b>	<b>292</b>			
<b>SAY</b>	<b>300</b>			

**R/W ACQUISITION TABLE**

PARCEL NO.	PROPERTY OWNER NAME	TOTAL ACERAGE	AREA TAKEN	AREA REMAINING RT	AREA REMAINING LT	PERMANENT DRAINAGE EASEMENT
1	ELOISE G. WILSON, TRUST & K.G. LACKEY	11.89 AC.	0.13 AC./5509 S.F.		11.76 AC.	
2	KEITH G. & JANET C. LACKEY	6.54 AC.	0.18 AC./7712 S.F.		6.36 AC.	0.04 AC./1820 S.F.
3	ROBERT J. & NINA F. D'ANDRADE	6.50 AC.	0.30 AC./13,064 S.F.	6.20 AC.		
4	KENNETH A. GRAY	29.42 AC.	0.23 AC./10,188 S.F.	29.19 AC.		
5	JAMES R.GRAY,SR., & PEGGY B. GRAY	58.75 AC.	0.29 AC./12,529 S.F.		58.46 AC.	

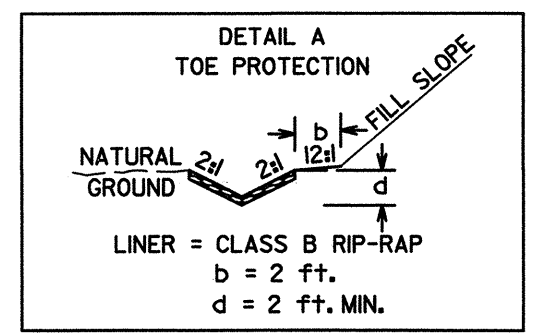
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REVISIONS

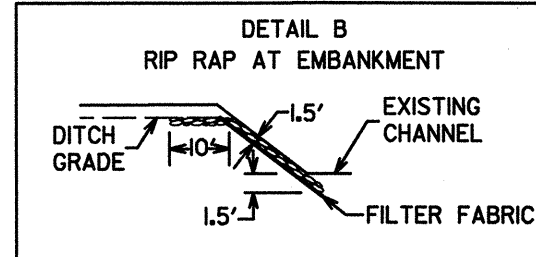
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5/14/99

PROJECT REFERENCE NO. B-4155	SHEET NO. 4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL ENGINEER SEP 1974 W. Chris Cole 2-26-07	HYDRAULICS ENGINEER NORTH CAROLINA PROFESSIONAL ENGINEER SEP 1974 TIMOTHY A. HENNER 2-26-07

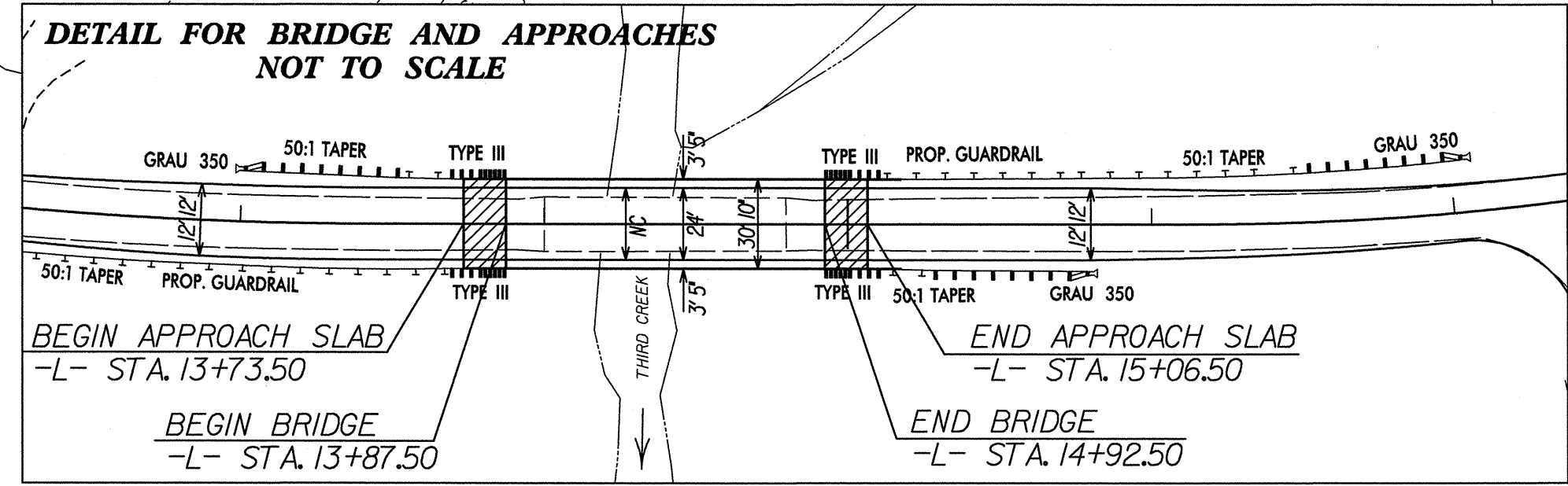
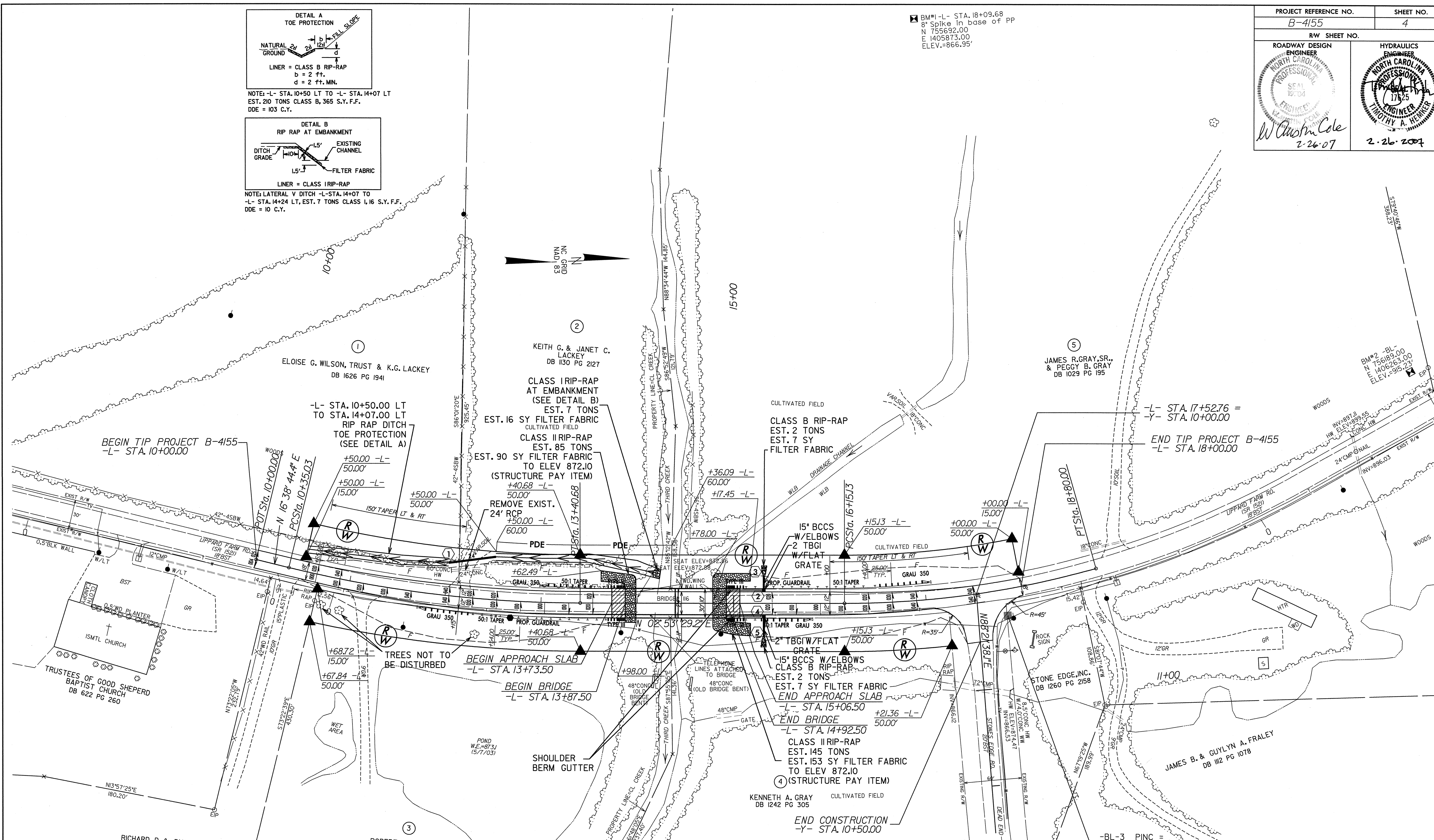


NOTE: -L- STA. 10+50.00 LT TO -L- STA. 14+07.00 LT  
EST. 210 TONS CLASS B, 365 S.Y.F.F.  
DDE = 103 C.Y.



NOTE: LATERAL V DITCH -L- STA. 14+07 TO  
-L- STA. 14+24 LT, EST. 7 TONS CLASS I, 16 S.Y.F.F.  
DDE = 10 C.Y.

BM#1 -L- STA. 18+09.68  
8" Spike in base of PP  
N 755692.00  
E 1405873.00  
ELEV.=866.95'



-L-	
PI Sta 11+88.59	PI Sta 17+48.43
$\Delta = 13^\circ 45' 15.2''$ (LT)	$\Delta = 15^\circ 53' 32.0''$ (LT)
$D = 4^\circ 30' 00.0''$	$D = 6^\circ 00' 00.0''$
$L = 305.65'$	$L = 264.87'$
$T = 153.56'$	$T = 133.29'$
$R = 1,273.24'$	$R = 954.93'$
$RO = 150'$	$RO = 150'$
$S.E. = 4.0\%$	$S.E. = 4.0\%$
$DS = 50$ mph	$DS = 50$ mph

SEE SHEET 5 FOR -L- PROFILE  
SEE SHEET S-1 THRU S-21 FOR STRUCTURE PLANS

PLANS PREPARED BY:

**Mattern & Craig**  
CONSULTING ENGINEERS • SURVEYORS  
12 BROAD STREET  
ASHEVILLE, NORTH CAROLINA 28801  
(828) 254-2201  
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FOR  
DIVISION OF HIGHWAYS

5/14/99

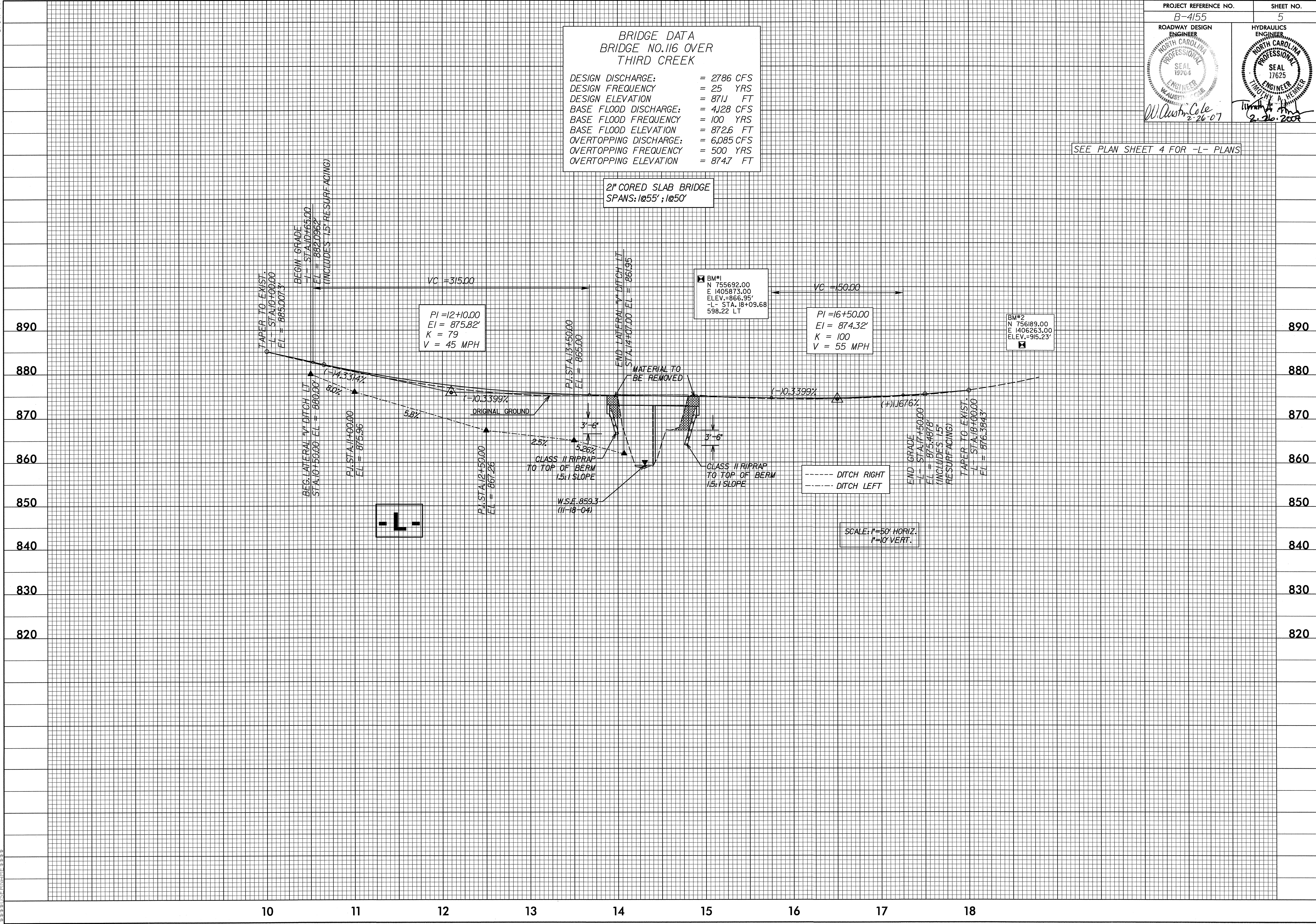
PROJECT REFERENCE NO. B-4155	SHEET NO. 5
ROADWAY DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 19704 W. Austin Cole 2-26-07	HYDRAULICS ENGINEER NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 17625 T. K. A. HENNER 2-26-07

**BRIDGE DATA**  
**BRIDGE NO. 116 OVER**  
**THIRD CREEK**

DESIGN DISCHARGE: = 2786 CFS  
 DESIGN FREQUENCY = 25 YRS  
 DESIGN ELEVATION = 871.1 FT  
 BASE FLOOD DISCHARGE: = 4,128 CFS  
 BASE FLOOD FREQUENCY = 100 YRS  
 BASE FLOOD ELEVATION = 872.6 FT  
 OVERTOPPING DISCHARGE: = 6,085 CFS  
 OVERTOPPING FREQUENCY = 500 YRS  
 OVERTOPPING ELEVATION = 874.7 FT

SEE PLAN SHEET 4 FOR -L- PLANS

2" CORED SLAB BRIDGE  
SPANS: 1@55'; 1@50'



5/14/99