

09/08/09

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

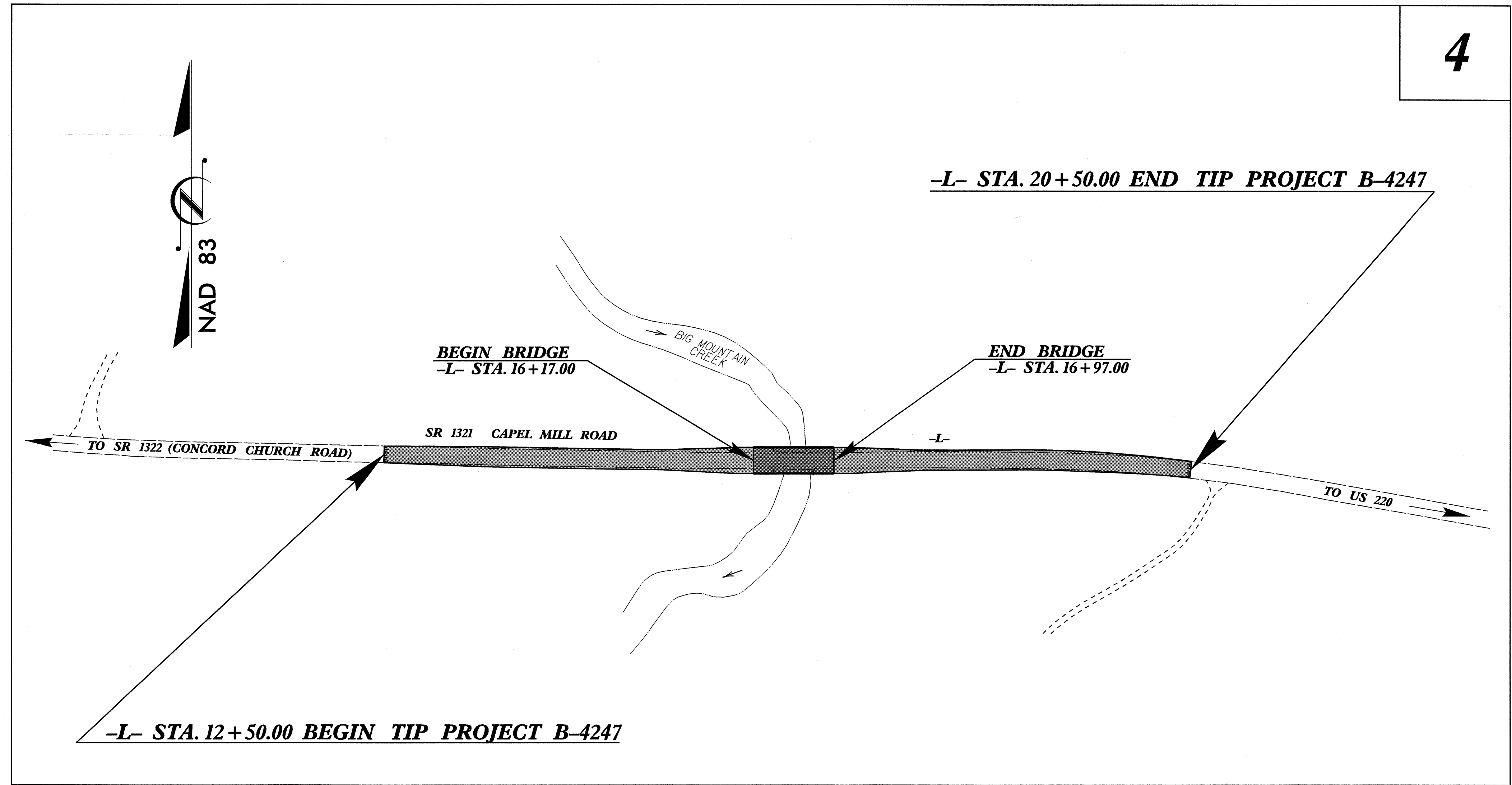
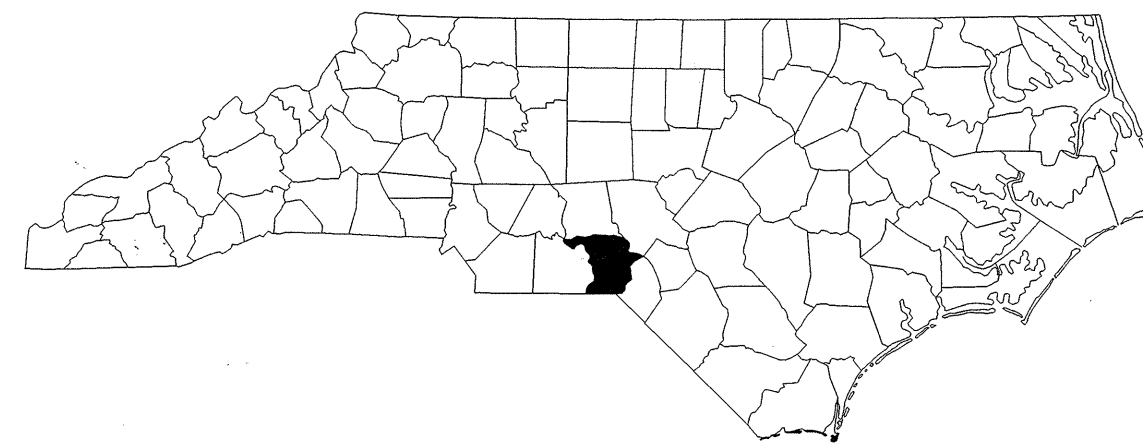
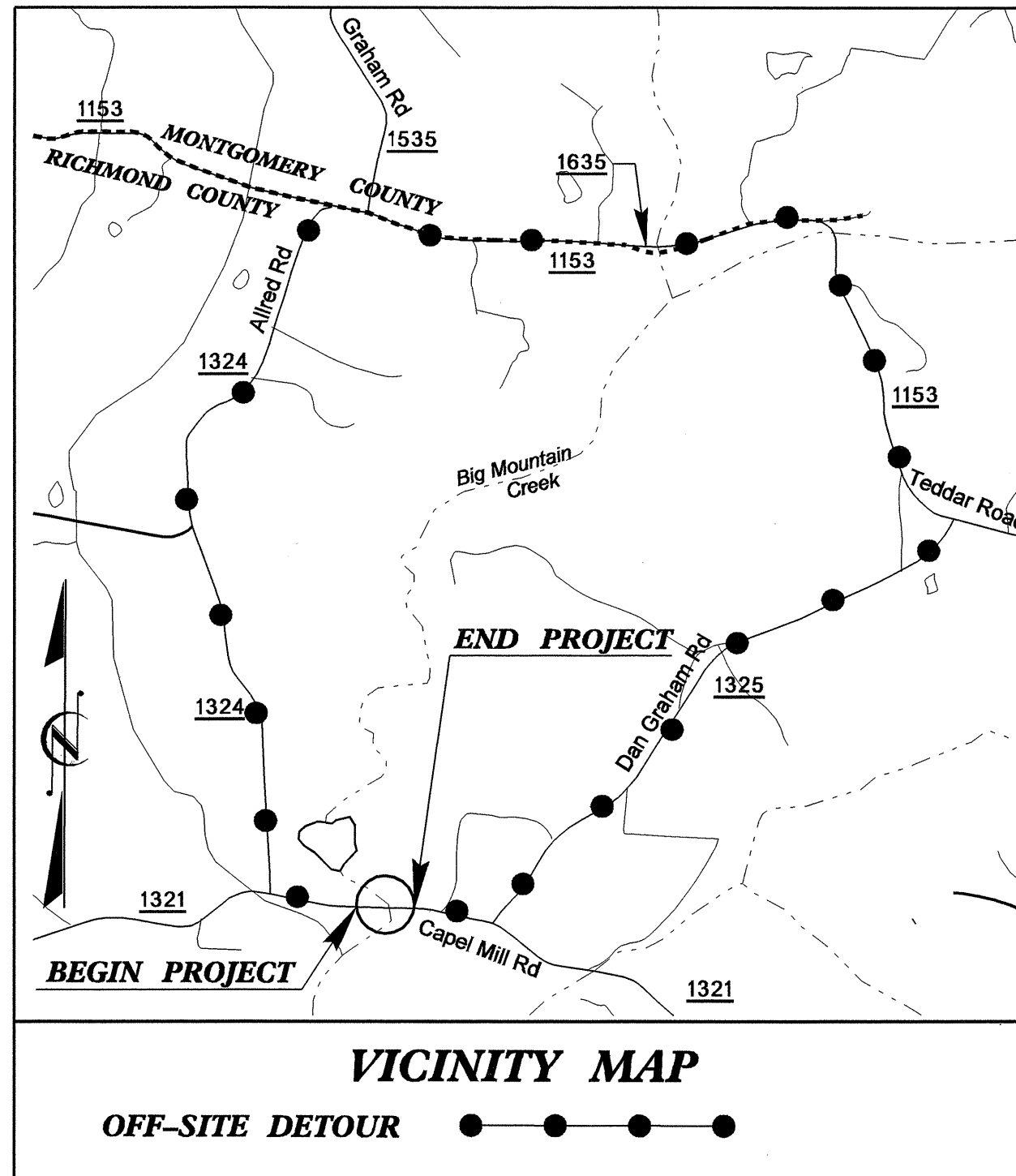
STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	<b>B-4247</b>	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
33590.1.1	BRZ-1321(2)	P.E.	
33590.2.1	BRZ-1321(2)	RW & UTIL.	
33590.3.1	BRZ-1321(2)	CONST.	

**RICHMOND COUNTY**

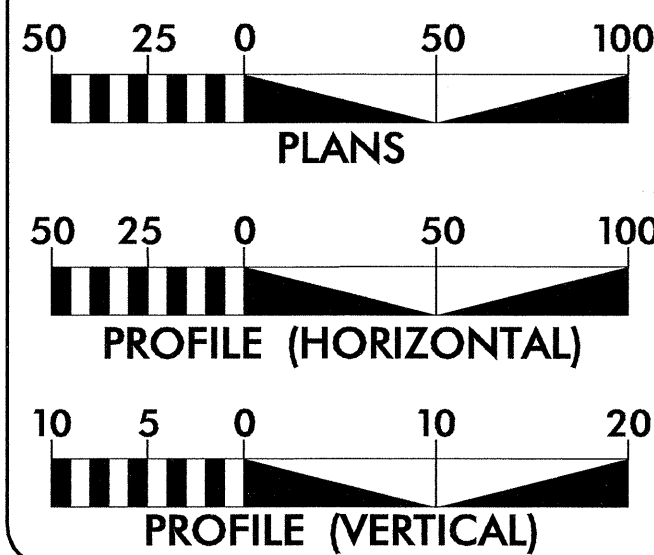
**LOCATION: BRIDGE NO. 129 OVER BIG MOUNTAIN CREEK  
AND APPROACHES ON SR 1321 (CAPEL MILL ROAD)**  
**TYPE OF WORK: GRADING, PAVING, DRAINAGE AND STRUCTURE**

**TIP PROJECT: B-4247**



THIS PROJECT IS DESIGNED USING THE SUBREGIONAL TIER DESIGN GUIDELINES FOR NCDOT BRIDGE PROJECTS. THE ELEMENTS REQUIRING MINIMUM VALUES FOR DESIGN ARE LANE WIDTH, SHOULDER WIDTH, BRIDGE WIDTH, VERTICAL ALIGNMENT AND VERTICAL STOPPING SIGHT DISTANCE.

**GRAPHIC SCALES**



**DESIGN DATA**

ADT 2009 = 270 VPD  
ADT 2030 = 450 VPD  
DHV = 13 %  
D = 60 %  
\* T = 3 %  
V = 60 MPH  
\*(TTST 1% + DUAL 2%)  
FUNC. CLASS. = RURAL LOCAL

**PROJECT LENGTH**

LENGTH ROADWAY TIP PROJECT B-4247 = 0.137 MILE  
LENGTH STRUCTURE TIP PROJECT B-4247 = 0.015 MILE  
TOTAL LENGTH TIP PROJECT B-4247 = 0.152 MILE

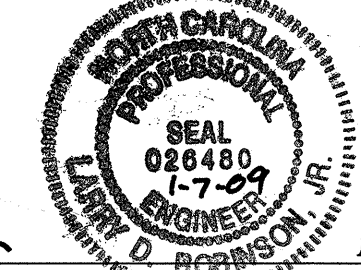
Prepared In the Office of:  
**DIVISION OF HIGHWAYS**  
1000 Birch Ridge Dr., Raleigh NC, 27610

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: **GLENN W. MUMFORD, P.E.**  
PROJECT ENGINEER  
**MARCH 7, 2008**

LETTING DATE: **JEFFREY L. TEAGUE, P.E.**  
PROJECT DESIGN ENGINEER  
**MARCH 17, 2009**

HYDRAULICS ENGINEER

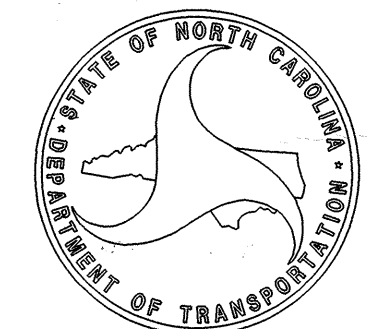


Signature: *Glenn W. Mumford*  
ROADWAY DESIGN ENGINEER



Signature: *Jeffrey L. Teague* 12/29/08  
STATE HIGHWAY DESIGN ENGINEER

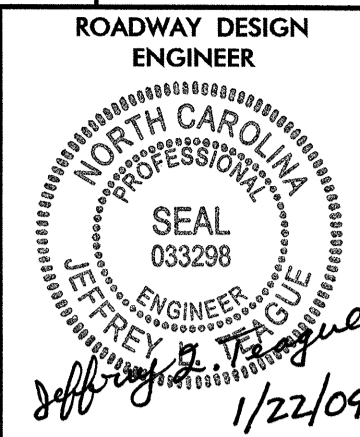
DIVISION OF HIGHWAYS  
STATE OF NORTH CAROLINA



Signature: *Jeffrey L. Teague*  
STATE HIGHWAY DESIGN ENGINEER

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**CONTRACT: C202098**



INDEX OF SHEETS

SHEET NUMBER	SHEET
1	TITLE SHEET
1-A	INDEX OF SHEETS, GENERAL NOTES, AND LIST OF STANDARD DRAWINGS
1-B	CONVENTIONAL SYMBOLS
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2	FINAL PAVEMENT SCHEDULE, TYPICAL SECTIONS, AND WEDGING DETAILS
2-A	DETAIL OF ANCHORAGE FOR FRAMES
2-B	DETAIL OF BRIDGE APPROACH FILLS, SUB REGIONAL TIER
3	SUMMARY OF QUANTITIES
3-A	SUMMARY OF DRAINAGE QUANTITIES, AND GUARDRAIL SUMMARY, SUMMARY OF EARTHWORK AND ASPHALT PAVEMENT REMOVAL
4	PLAN SHEET
5	PROFILE SHEET
TCP-1 THROUGH TCP-3	TRAFFIC CONTROL PLANS
SD-1	SPECIAL SIGN DESIGN
EC-1 THROUGH EC- 5	EROSION CONTROL PLANS
UO-1 THROUGH UO-2	UTILITIES BY OTHERS PLANS
X-1A	CROSS-SECTION SUMMARY
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GENERAL NOTES:

2006 SPECIFICATIONS  
EFFECTIVE: 07-18-06  
REVISED: 09-12-08

2006 ROADWAY ENGLISH STANDARD DRAWINGS

EFF. 07-18-06  
REV. 01-02-07

GRADE LINE:  
GRADING AND SURFACING:

THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. GRADE LINES MAY BE ADJUSTED AT THEIR BEGINNING AND ENDING AND AT STRUCTURES AS DIRECTED 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.

UNDERDRAINS:

UNDERDRAINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 815.03 AT LOCATIONS DIRECTED BY THE ENGINEER.

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.

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 IS ELLERBE TELEPHONE.  
ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS.

RIGHT-OF-WAY MARKERS:

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

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'
<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>	
806.01	Concrete Right-of-Way Marker
806.02	Granite Right-of-Way Marker
815.03	Pipe Underdrain and Blind Drain
816.04	Markers for Drainage Structure and Concrete Pad
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

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3/15/06

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	(23)
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 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	□
Jurisdictional Stream	----- JS
Buffer Zone 1	----- BZ 1
Buffer Zone 2	----- BZ 2
Flow Arrow	←
Disappearing Stream	-----
Spring	○
Wetland	-----
Proposed Lateral, Tail, Head Ditch	----- PLD
False Sump	▽

### RAILROADS:

Standard Gauge	-----
RR Signal Milepost	○ CSX TRANSPORTATION 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	-----
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	----- 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
Proposed Wheel Chair Ramp Curb Cut	WCC
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	⊕
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:

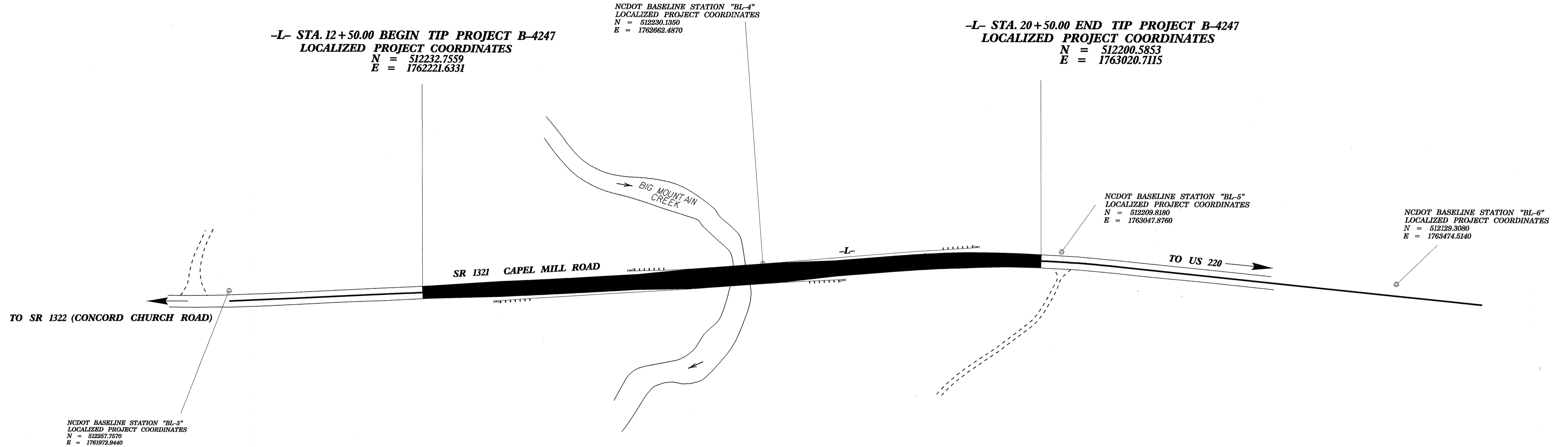
Sanitary Sewer Manhole	⊕
Sanitary Sewer Cleanout	⊕
U/G Sanitary Sewer Line	----- SS
Above Ground Sanitary Sewer	----- A/G Sanitary Sewer
Recorded SS Forced Main Line	----- FSS
Designated SS Forced Main Line (S.U.E.*)	----- FSS

### MISCELLANEOUS:

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

# SURVEY CONTROL SHEET B-4247

6/2/09



**-L- STA. 12+50.00 BEGIN TIP PROJECT B-4247**  
**LOCALIZED PROJECT COORDINATES**  
 N = 512232.7559  
 E = 1762221.6331

NCDOT BASELINE STATION "BL-4"  
 LOCALIZED PROJECT COORDINATES  
 N = 512230.1350  
 E = 1762662.4870

**-L- STA. 20+50.00 END TIP PROJECT B-4247**  
**LOCALIZED PROJECT COORDINATES**  
 N = 512200.5853  
 E = 1763020.7115

NCDOT BASELINE STATION "BL-5"  
 LOCALIZED PROJECT COORDINATES  
 N = 512209.8180  
 E = 1763047.8760

NCDOT BASELINE STATION "BL-6"  
 LOCALIZED PROJECT COORDINATES  
 N = 512229.3080  
 E = 1763474.5140

NCDOT BASELINE STATION "BL-3"  
 LOCALIZED PROJECT COORDINATES  
 N = 512257.7570  
 E = 1761972.9440

### DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B4247-1"  
 WITH NAD 83 STATE PLANE GRID COORDINATES OF  
 NORTHING: 512073.910(ft) EASTING: 1763769.901(ft)  
 THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT  
 (GROUND TO GRID) IS: 0.99985977  
 THE N.C. LAMBERT GRID BEARING AND  
 LOCALIZED HORIZONTAL DISTANCE FROM  
 "B4247-1" TO -L- STATION 12+50.00 IS  
 N 84 08 31.9 W 1556.395'  
 ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES  
 VERTICAL DATUM USED IS NAVD 88

BL POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
3	BL-3	512257.7570	1761972.9440	352.96	10+00.44	13.77 LT
4	BL-4	512230.1350	1762662.4870	347.23	16+90.91	13.12 LT
5	BL-5	512209.8180	1763047.8760	360.20	20+75.49	12.96 LT
6	BL-6	512129.3080	1763474.5140	388.18	25+09.05	15.68 LT
*****						
BM1	ELEVATION - 358.35					
N 512222	E 1761854					
L STATION 10+00						
S 79° 23' 14.8" W	DIST 120.30					
RR SPIKE SET IN 16" PINE						
*****						
BM2	ELEVATION - 345.81					
N 512312	E 1762597					
L STATION 16+23 94 LEFT						
RR SPIKE SET IN 20" OAK						
*****						

### NOTES:

1. THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:  
[HTTP://WWW.DOH.DOT.STATE.NC.US/PRECONSTRUCT/HIGHWAY/LOCATION/PROJECT/](http://www.doh.dot.state.nc.us/preconstruct/highway/location/project/)

THE FILES TO BE FOUND ARE AS FOLLOWS:  
**B4247\_LS\_CONTROL\_070703.TXT**

SITE CALIBRATION INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

Ⓢ INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.  
 PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.  
 NETWORK ESTABLISHED FROM EXISTING HARN MONUMENTATION

NOTE: DRAWING NOT TO SCALE

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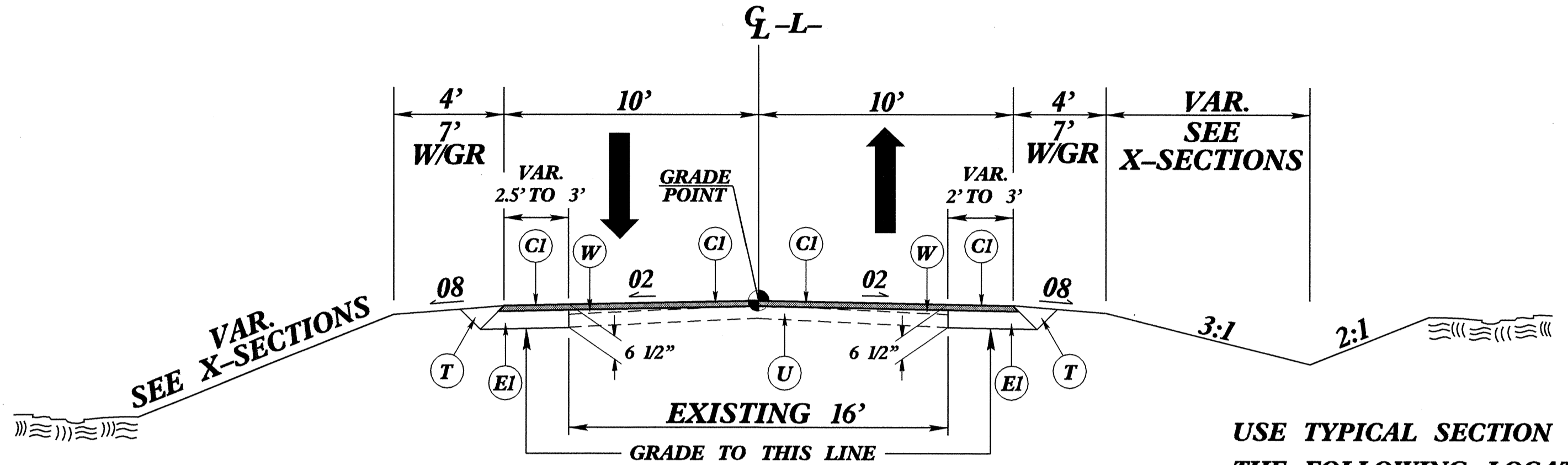
8/17/99

THIS PROJECT IS DESIGNED USING THE SUBREGIONAL TIER DESIGN GUIDELINES FOR NCDOT BRIDGE PROJECTS. THE ELEMENTS REQUIRING MINIMUM VALUES FOR DESIGN ARE LANE WIDTH, SHOULDER WIDTH, BRIDGE WIDTH, VERTICAL ALIGNMENT AND VERTICAL STOPPING SIGHT DISTANCE.

PROJECT REFERENCE NO. <b>B-4247</b>	SHEET NO. <b>2</b>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER <b>JEFFREY L. TEAGUE</b> SEAL 033298 12/29/08	PAVEMENT DESIGN ENGINEER <b>CLARK S. MORRISON</b> SEAL 22896 12/28/08

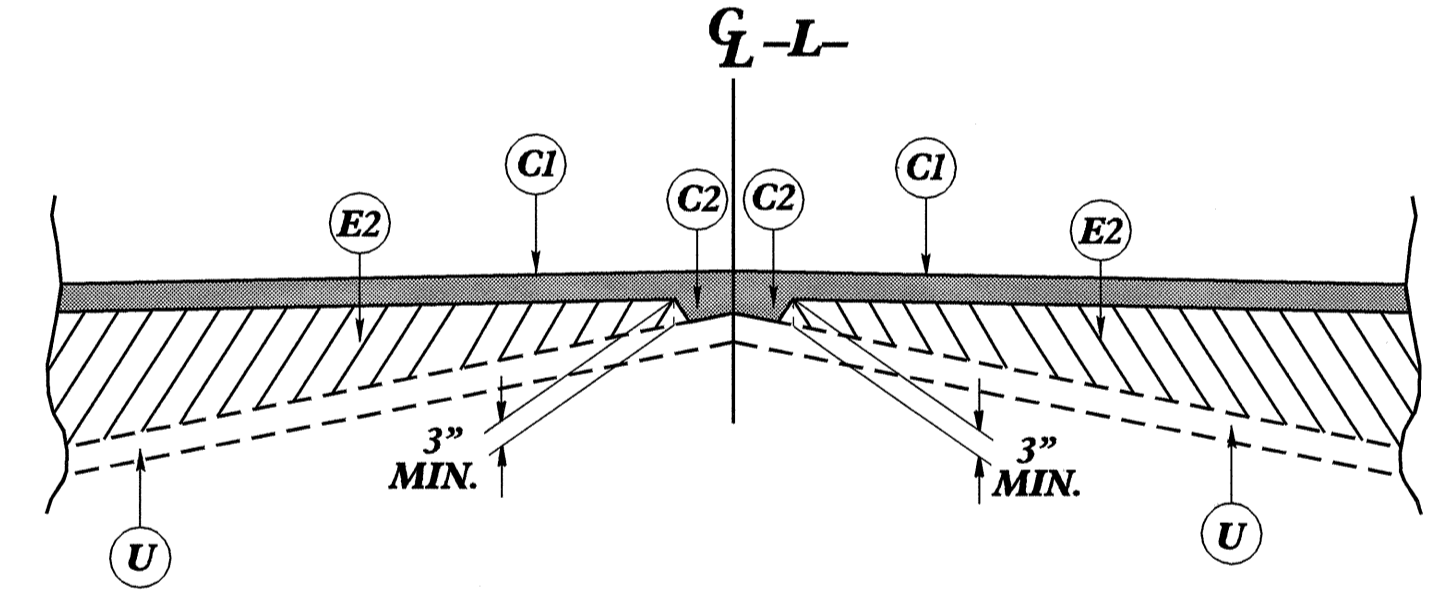
FINAL PAVEMENT SCHEDULE	
C1	PROP. APPROX. 2 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 1" IN DEPTH OR GREATER THAN 1 1/2" IN DEPTH.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 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.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL).

NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.

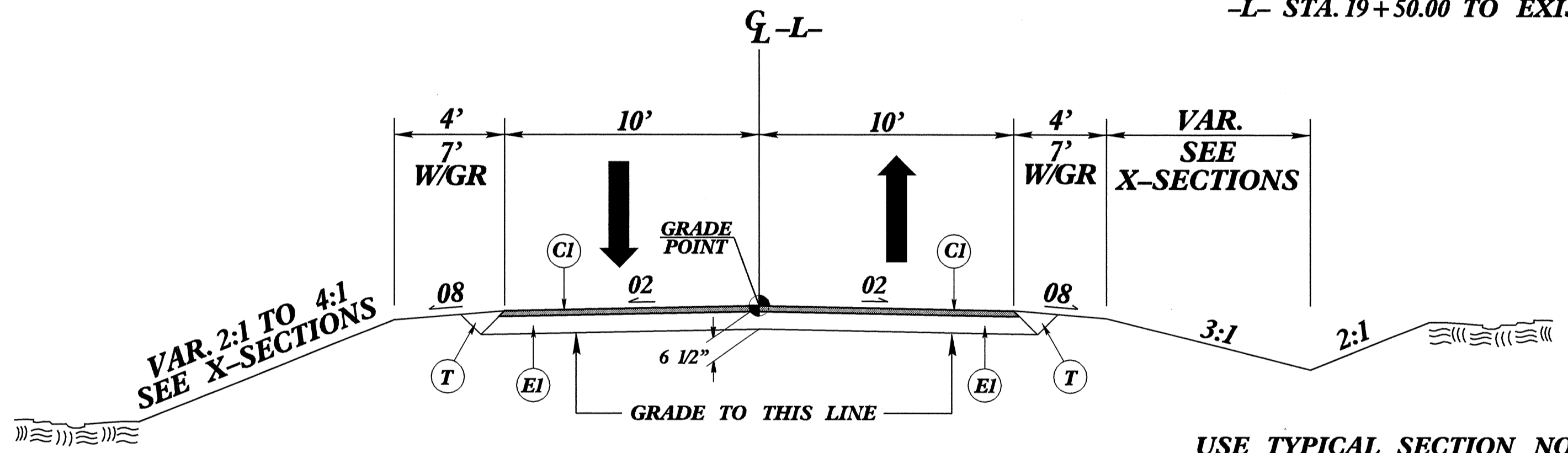


TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO. 1 AT THE FOLLOWING LOCATIONS:  
 TRANSITION FROM EXISTING @ -L- STA. 12+50.00 TO TYPICAL SECTION NO. 1 @ -L- STA. 13+50.00  
 -L- STA. 13+50.00 TO -L- STA. 15+50.00  
 TRANSITION FROM TYPICAL SECTION NO. 1 @ -L- STA. 19+50.00 TO EXISTING @ -L- STA. 20+50.00

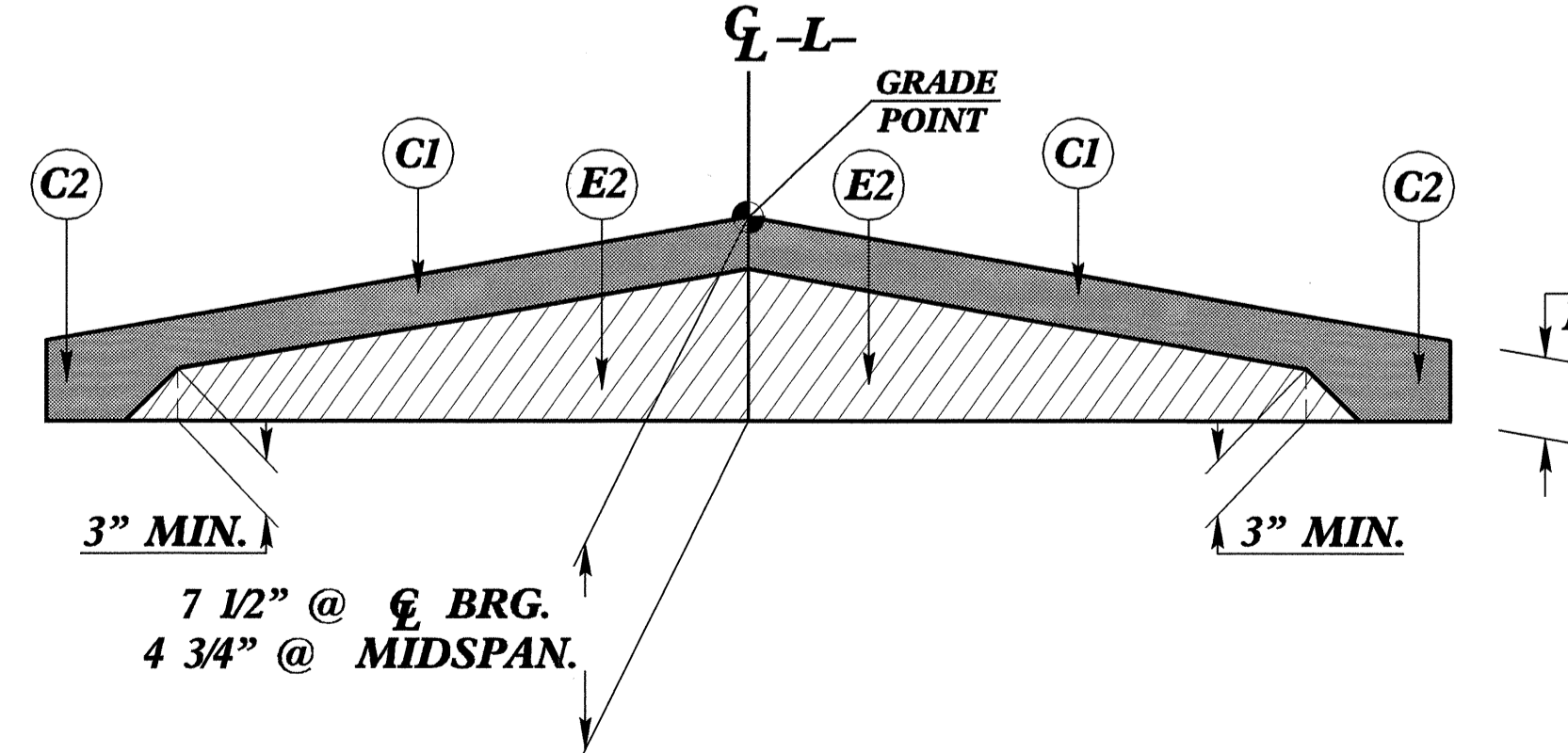


DETAIL SHOWING METHOD OF WEDGING  
 USE IN CONJUNCTION WITH TYPICAL SECTION NO. 1

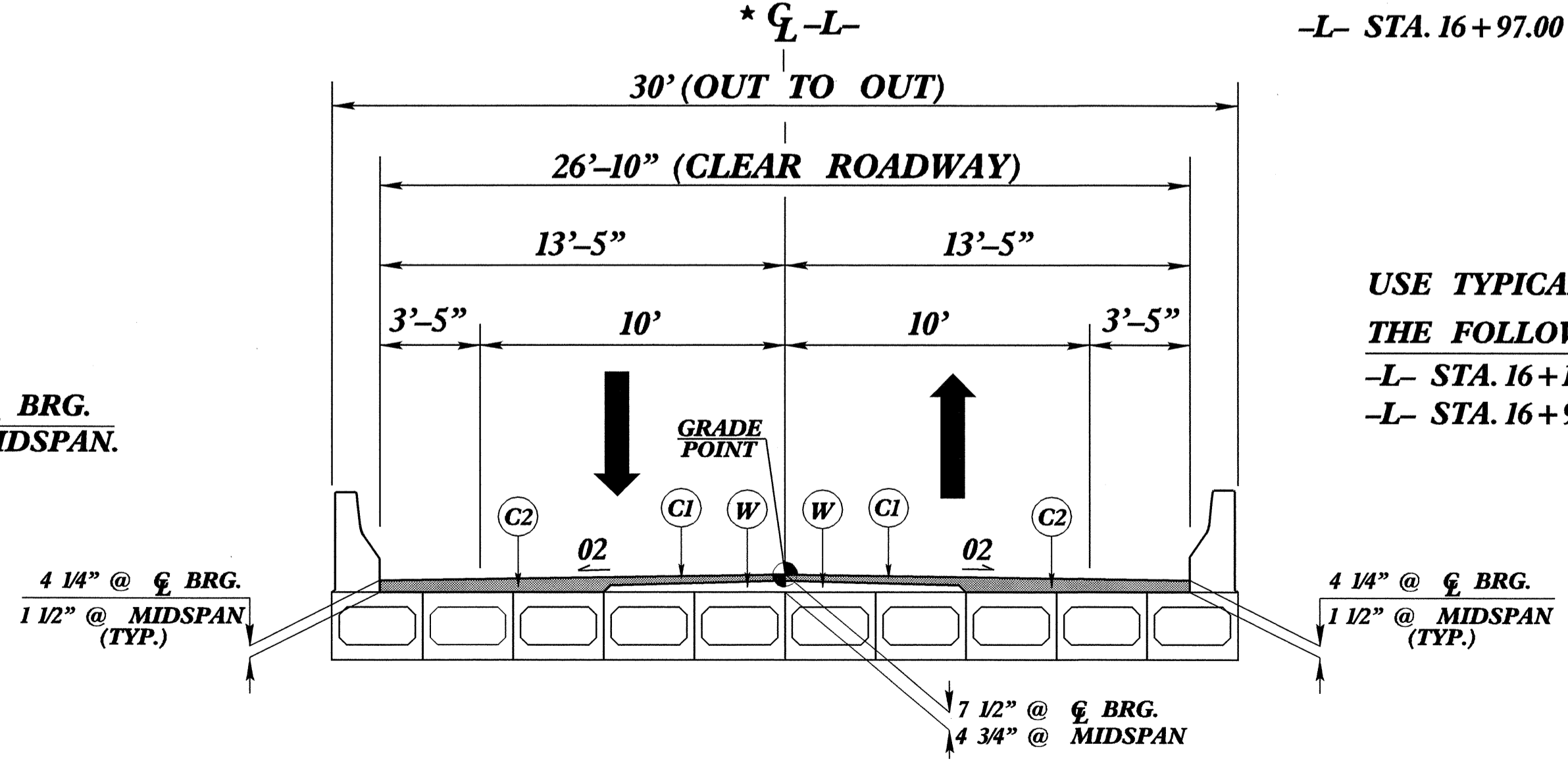


TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2 AT THE FOLLOWING LOCATIONS:  
 -L- STA. 15+50.00 TO -L- STA. 16+17.00 (BEGIN BRIDGE)  
 -L- STA. 16+97.00 (END BRIDGE) TO -L- STA. 19+50.00



DETAIL SHOWING METHOD OF WEDGING ON BRIDGE  
 USE IN CONJUNCTION WITH TYPICAL SECTION NO. 3



TYPICAL SECTION NO. 3  
 BOX BEAM BRIDGE  
 SEE STRUCTURE PLANS

\* NOTE: THE BRIDGE IS DESIGNED ON THE LONG CHORD TO THE CURVE SET BY STRUCTURE DESIGN. THE CENTERLINE OF SURVEY DEVIATES FROM THE LONG CHORD OF THE BRIDGE BY A MAXIMUM OF 1" ACROSS THE BRIDGE, SEE STRUCTURE PLANS.

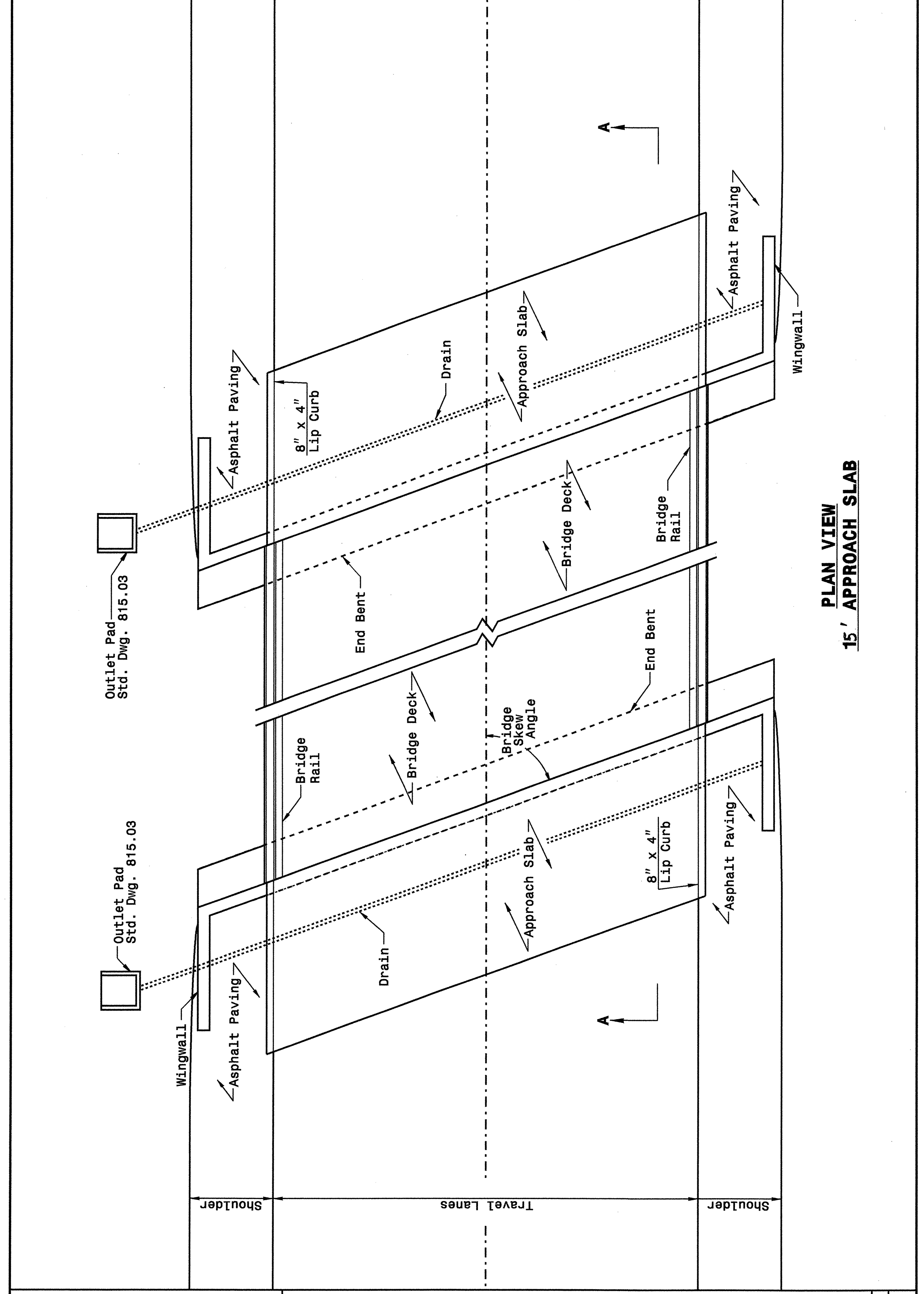
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STATE OF NORTH CAROLINA  
DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR  
**BRIDGE APPROACH FILLS**  
CORED SLAB & BOX BEAM BRIDGES  
SUB REGIONAL TIER

SHEET 1 OF 2  
**422D11**



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

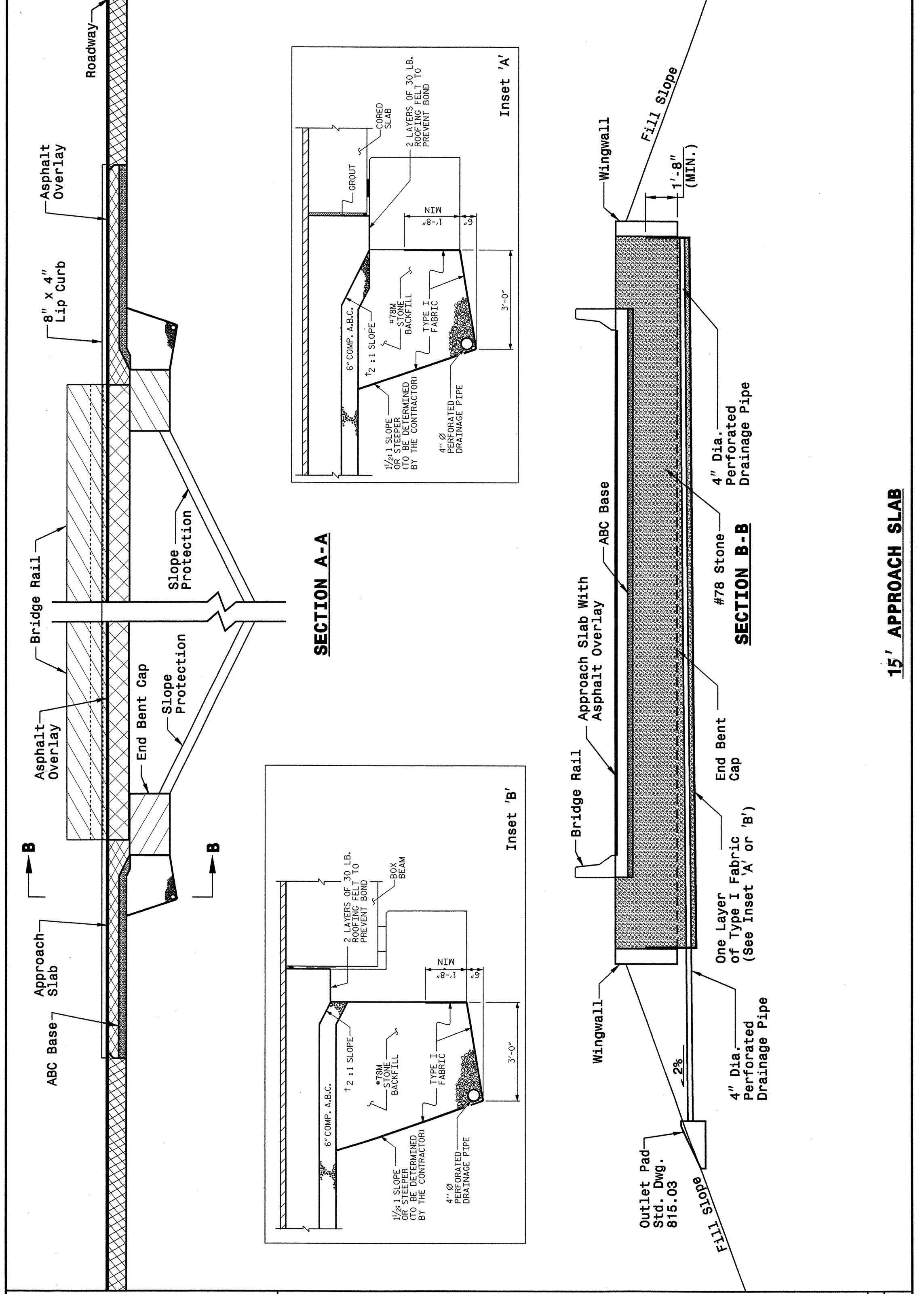
ENGLISH DETAIL DRAWING FOR  
**BRIDGE APPROACH FILLS**  
CORED SLAB & BOX BEAM BRIDGES  
SUB REGIONAL TIER

SHEET 1 OF 2  
**422D11**

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

ENGLISH DETAIL DRAWING FOR  
**BRIDGE APPROACH FILLS**  
CORED SLAB & BOX BEAM BRIDGES  
SUB REGIONAL TIER

SHEET 2 OF 2  
**422D11**



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

ENGLISH DETAIL DRAWING FOR  
**BRIDGE APPROACH FILLS**  
CORED SLAB & BOX BEAM BRIDGES  
SUB REGIONAL TIER

SHEET 2 OF 2  
**422D11**

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

**BRIDGE APPROACH FILLS**  
CORED SLAB & BOX BEAM BRIDGES  
SUB REGIONAL TIER

ORIGINAL BY: K. A. Kempf DATE: 6-10-08  
 MODIFIED BY: *[Signature]* DATE: *[Blank]*  
 CHECKED BY: *[Signature]* DATE: 4/27/02  
 FILE SPEC.: k Kempf/english/bridge approach fills.dgn

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 k Kempf AT P3237489

# SUMMARY OF QUANTITIES

STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS ROADWAY SUMMARY OF QUANTITIES FOR CONTRACT - C202098														
ItemNumber	Sec #	Quantity	Unit	Description	ItemNumber	Sec #	Quantity	Unit	Description	ItemNumber	Sec #	Quantity	Unit	Description
000100000-N	800	Lump Sum		MOBILIZATION	315000000-N	862	5	EA	ADDITIONAL GUARDRAIL POSTS	604200000-E	1632	40	LF	1/4" HARDWARE CLOTH
003000000-N	SP	Lump Sum		BRIDGE APPROACH FILL - SUB REGIONAL TIER, STATION ***** (16+57.00)	327000000-N	SP	4	EA	GUARDRAIL ANCHOR UNITS, TYPE 350	607103000-E	SP	200	LF	COIR FIBER BAFFLES
004300000-N	226	Lump Sum		GRADING	331700000-N	862	4	EA	GUARDRAIL ANCHOR UNITS, TYPE B-77	607105000-E	SP	5	EA	*** SKIMMER (1-1/2")
005000000-E	226	1	ACR	SUPPLEMENTARY CLEARING & GRUB-BING	364900000-E	876	4	TON	RIP RAP, CLASS B	608400000-E	1660	9.5	ACR	SEEDING & MULCHING
005700000-E	226	600	CY	UNDERCUT EXCAVATION	365600000-E	876	364	SY	FILTER FABRIC FOR DRAINAGE	608700000-E	1660	1	ACR	MOWING
008000000-E	SP	650	TON	CLASS IV SUBGRADE STABILIZATION	365900000-N	SP	2	EA	PREFORMED SCOUR HOLES WITH LEVEL SPREADER APRON	609000000-E	1661	50	LB	SEED FOR REPAIR SEEDING
019500000-E	265	250	CY	SELECT GRANULAR MATERIAL	440000000-E	1110	268	SF	WORK ZONE SIGNS (STATIONARY)	609300000-E	1661	0.25	TON	FERTILIZER FOR REPAIR SEEDING
019600000-E	270	1,000	SY	FABRIC FOR SOIL STABILIZATION	441000000-E	1110	44	SF	WORK ZONE SIGNS (BARRICADE MOUNTED)	609600000-E	1662	50	LB	SEED FOR SUPPLEMENTAL SEEDING
031800000-E	300	5	TON	FOUNDATION CONDITIONING MATERIAL, MINOR STRS	444500000-E	1145	64	LF	BARRICADES (TYPE III)	610800000-E	1665	0.75	TON	FERTILIZER TOPDRESSING
036600000-E	310	40	LF	15" RC PIPE CULVERTS, CLASS III	468500000-E	1205	1,770	LF	THERMOPLASTIC PAVEMENT MARKING LINES (4", 90 MILS)	611400000-N	SP	5	HR	SPECIALIZED HAND MOWING
148900000-E	610	350	TON	ASPHALT CONC BASE COURSE, TYPE B25.0B	468600000-E	1205	1,770	LF	THERMOPLASTIC PAVEMENT MARKING LINES (4", 120 MILS)	611700000-N	SP	12	EA	RESPONSE FOR EROSION CONTROL
152500000-E	610	300	TON	ASPHALT CONC SURFACE COURSE, TYPE SF9.5A	490000000-N	1251	13	EA	PERMANENT RAISED PAVEMENT MARKERS					
156000000-E	620	35	TON	ASPHALT BINDER FOR PLANT MIX, GRADE PG 64-22	600000000-E	1605	625	LF	TEMPORARY SILT FENCE					
200000000-N	806	14	EA	RIGHT OF WAY MARKERS	600600000-E	1610	125	TON	STONE FOR EROSION CONTROL, CLASS A					
202200000-E	815	112	CY	SUBDRAIN EXCAVATION	600900000-E	1610	100	TON	STONE FOR EROSION CONTROL, CLASS B					
203300000-E	815	84	CY	SUBDRAIN FINE AGGREGATE	601200000-E	1610	30	TON	SEDIMENT CONTROL STONE					
204400000-E	815	500	LF	6" PERFORATED SUBDRAIN PIPE	601500000-E	1615	1.5	ACR	TEMPORARY MULCHING					
205500000-E	815	15	EA	6" SUBDRAIN PIPE WYES, TEES, & ELBOWS	601800000-E	1620	50	LB	SEED FOR TEMPORARY SEEDING					
206600000-N	815	1	EA	CONCRETE PAD FOR SUBDRAIN PIPE OUTLET	602100000-E	1620	2.25	TON	FERTILIZER FOR TEMPORARY SEEDING					
207700000-E	815	6	LF	6" OUTLET PIPE (SUBDRAINS)	602400000-E	1622	60	LF	TEMPORARY SLOPE DRAINS					
228600000-N	840	2	EA	MASONRY DRAINAGE STRUCTURES	602900000-E	SP	250	LF	SAFETY FENCE					
236700000-N	840	2	EA	FRAME WITH TWO GRATES, STD 840.29	603000000-E	1630	460	CY	SILT EXCAVATION					
255600000-E	846	270	LF	SHOULDER BERM GUTTER	603600000-E	1631	1,900	SY	MATTING FOR EROSION CONTROL					
303000000-E	862	550	LF	STEEL BM GUARDRAIL	603700000-E	SP	30	SY	COIR FIBER MAT					
					603800000-E	SP	100	SY	PERMANENT SOIL REINFORCEMENT MAT					



12/06/07

COMPUTED BY: DVN DATE: 12/08  
CHECKED BY: JLT DATE: 12/08

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO. B-4247  
SHEET NO. 3-A

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

Main table listing pipe details including station, size, thickness, location, invert elevations, pipe material (Class III R.C. Pipe, Bituminous Coated C.S. Pipe, etc.), endwalls, and grates.

"N" = DISTANCE FROM EDGE OF LANE TO FACE OF GUARDRAIL.  
TOTAL SHOULDER WIDTH = DISTANCE FROM EDGE OF TRAVEL LANE TO SHOULDER BREAK POINT.  
FLARE LENGTH = DISTANCE FROM LAST SECTION OF PARALLEL GUARDRAIL TO END OF GUARDRAIL.  
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

Table summarizing guardrail details: Survey Line, Beg. Sta., End Sta., Location, Length (Straight, Shop Curved, Double Faced), Warrant Point, Flare Length, W, Anchors, and Remarks.

SUMMARY OF EARTHWORK  
IN CUBIC YARDS

Table showing earthwork quantities: Location, Unclassified Excavation, Undercut, Embankment (+%), Borrow, and Waste.

EST. UNDERCUT EXCAVATION = 600 CU. YDS.

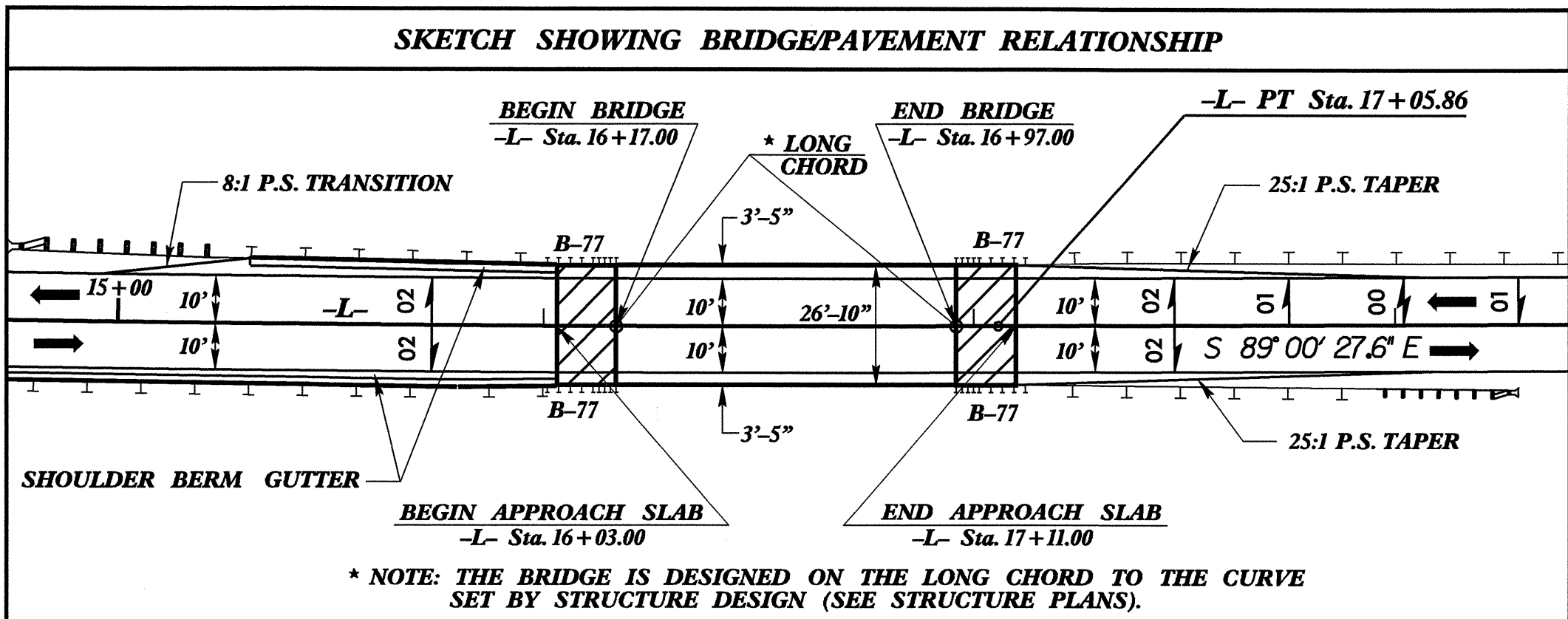
Earthwork quantities are calculated by the Roadway Design Unit. These earthwork quantities are based in part on subsurface data provided by the Geotechnical Engineering Unit.

ASPHALT PAVEMENT REMOVAL  
IN SQUARE YARDS

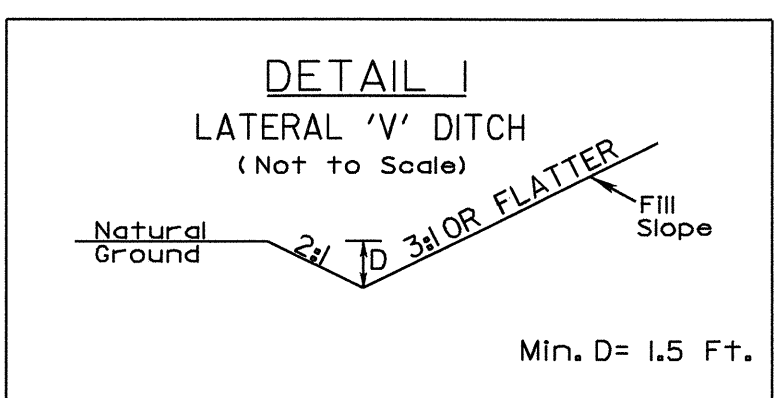
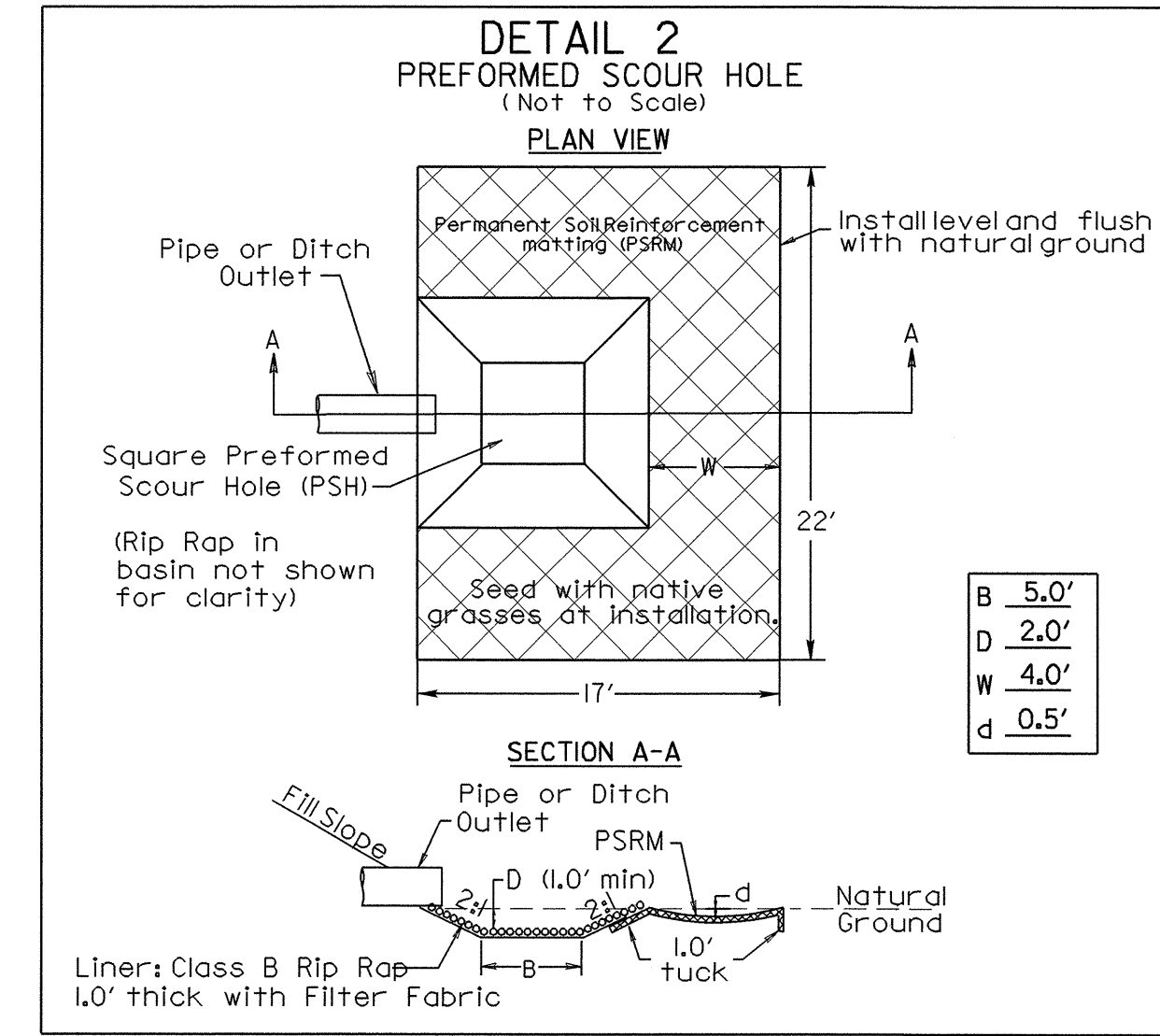
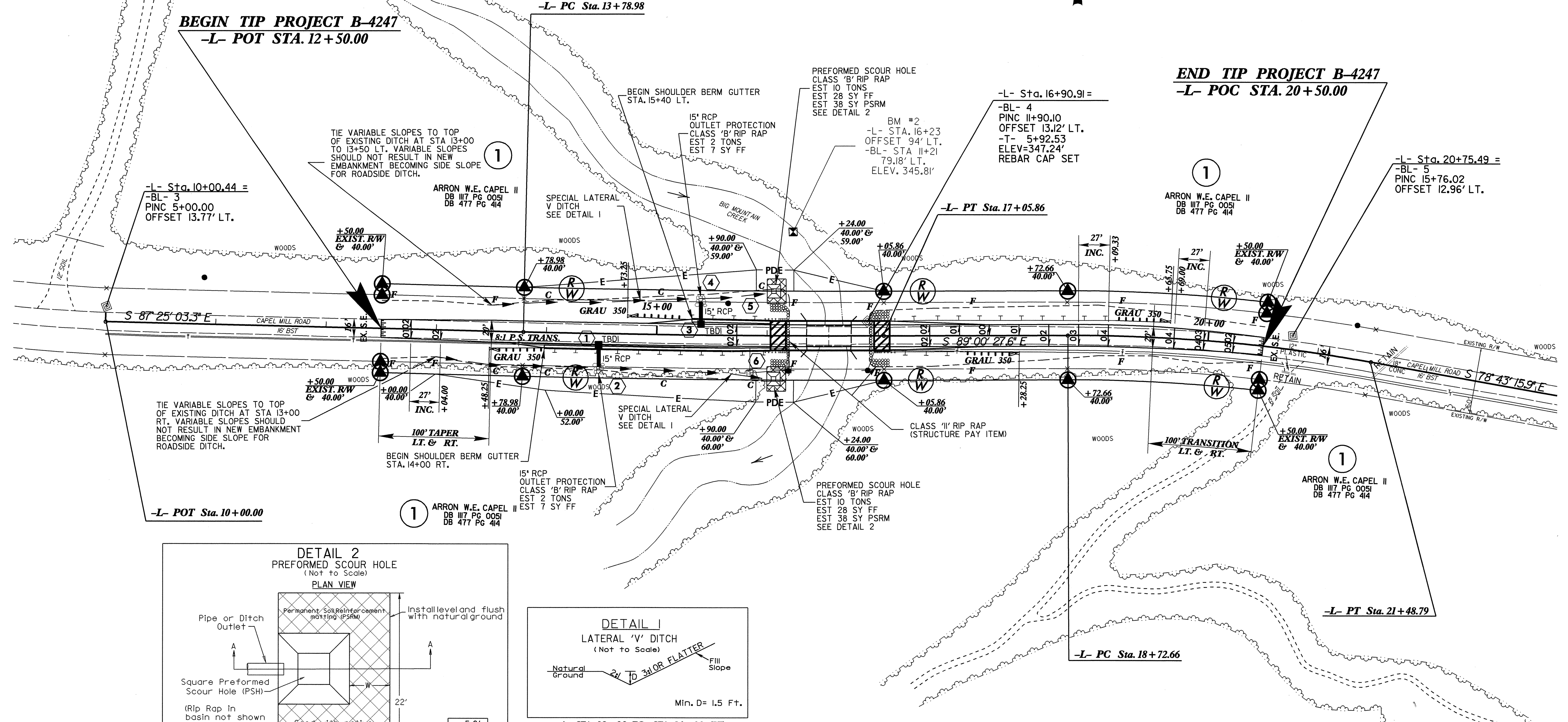
Table showing asphalt removal quantities: Line, Station to Station, Location, and Removal.

APPROXIMATE QUANTITIES ONLY. UNCLASSIFIED EXCAVATION, BORROW EXCAVATION, FINE GRADING, CLEARING AND GRUBBING AND REMOVAL OF EXISTING PAVEMENT WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR "GRADING".

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**THIS PROJECT IS DESIGNED USING THE SUBREGIONAL TIER DESIGN GUIDELINES FOR NCDOT BRIDGE PROJECTS. THE ELEMENTS REQUIRING MINIMUM VALUES FOR DESIGN ARE LANE WIDTH, SHOULDER WIDTH, BRIDGE WIDTH, VERTICAL ALIGNMENT AND VERTICAL STOPPING SIGHT DISTANCE.**



-L-	
PI Sta 15+42.43	PI Sta 20+11.0
$\Delta = 1' 35' 24.3''$ (LT)	$\Delta = 10' 17' 11.7''$ (RT)
$D = 0' 29' 11.2''$	$D = 3' 43' 31.0''$
$L = 326.87'$	$L = 276.13'$
$T = 163.45'$	$T = 138.44'$
$R = 11,778.37'$	$R = 1,538.03'$
$SE = NC$	$SE = 0.04$
	$RO = \text{SEE PLANS}$

**NOTES:**  
 1.) FOR -L- PROFILE SEE SHEET 5.  
 2.) FOR STRUCTURE PLANS SEE SHEETS S-1 THRU S-16.

REVISIONS

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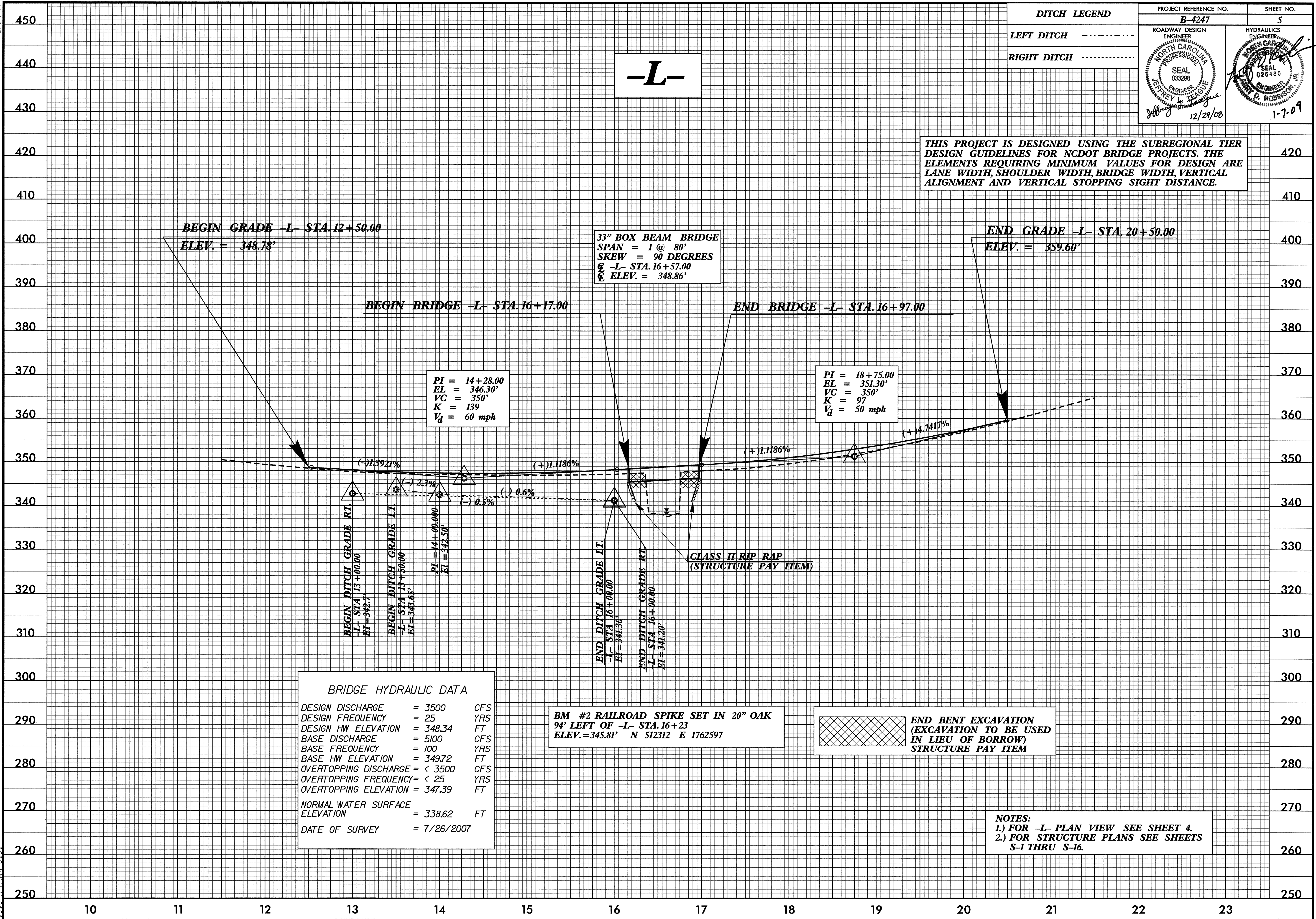
5/14/99

DITCH LEGEND

LEFT DITCH - - - - -  
RIGHT DITCH - - - - -

PROJECT REFERENCE NO. <b>B-4247</b>	SHEET NO. <b>5</b>
ROADWAY DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 033298 JEFFREY D. JENKINS 12/29/08	HYDRAULICS ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 026480 W. D. ROBINSON, JR. 1-7-09

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BEGIN GRADE -L- STA. 12+50.00  
ELEV. = 348.78'

END GRADE -L- STA. 20+50.00  
ELEV. = 359.60'

33" BOX BEAM BRIDGE  
SPAN = 1 @ 80'  
SKEW = 90 DEGREES  
C -L- STA. 16+57.00  
ELEV. = 348.86'

BEGIN BRIDGE -L- STA. 16+17.00

END BRIDGE -L- STA. 16+97.00

PI = 14+28.00  
EL = 346.30'  
VC = 350'  
K = 139  
Vd = 60 mph

PI = 18+75.00  
EL = 351.30'  
VC = 350'  
K = 97  
Vd = 50 mph

BEGIN DITCH GRADE RT  
-L- STA. 13+00.00  
EI = 342.7'

BEGIN DITCH GRADE LT  
-L- STA. 13+50.00  
EI = 343.65'

PI = 14+00.00  
EI = 342.50'

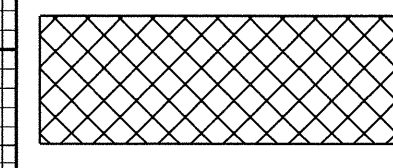
END DITCH GRADE LT  
-L- STA. 16+00.00  
EI = 341.50'

END DITCH GRADE RT  
-L- STA. 16+00.00  
EI = 341.20'

CLASS II RIP RAP  
(STRUCTURE PAY ITEM)

BRIDGE HYDRAULIC DATA		
DESIGN DISCHARGE	= 3500	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 348.34	FT
BASE DISCHARGE	= 5100	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 349.72	FT
OVERTOPPING DISCHARGE	= < 3500	CFS
OVERTOPPING FREQUENCY	= < 25	YRS
OVERTOPPING ELEVATION	= 347.39	FT
NORMAL WATER SURFACE ELEVATION	= 338.62	FT
DATE OF SURVEY	= 7/26/2007	

BM #2 RAILROAD SPIKE SET IN 20" OAK  
94' LEFT OF -L- STA. 16+23  
ELEV. = 345.81' N 512312 E 1762597

 END BENT EXCAVATION  
(EXCAVATION TO BE USED  
IN LIEU OF BORROW)  
STRUCTURE PAY ITEM

NOTES:  
1.) FOR -L- PLAN VIEW SEE SHEET 4.  
2.) FOR STRUCTURE PLANS SEE SHEETS S-1 THRU S-16.

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