

09/08/99

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

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

**CURRITUCK COUNTY**

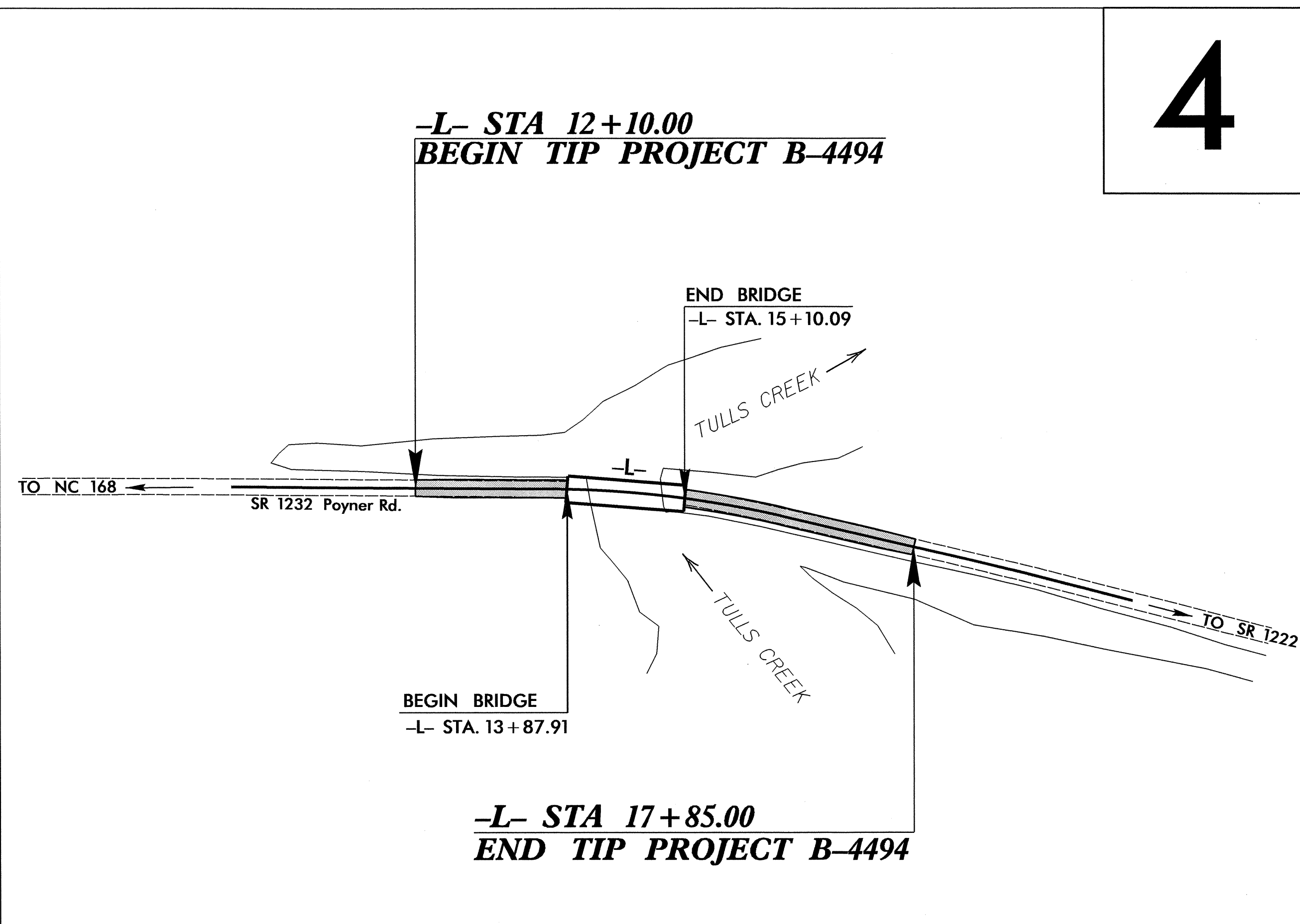
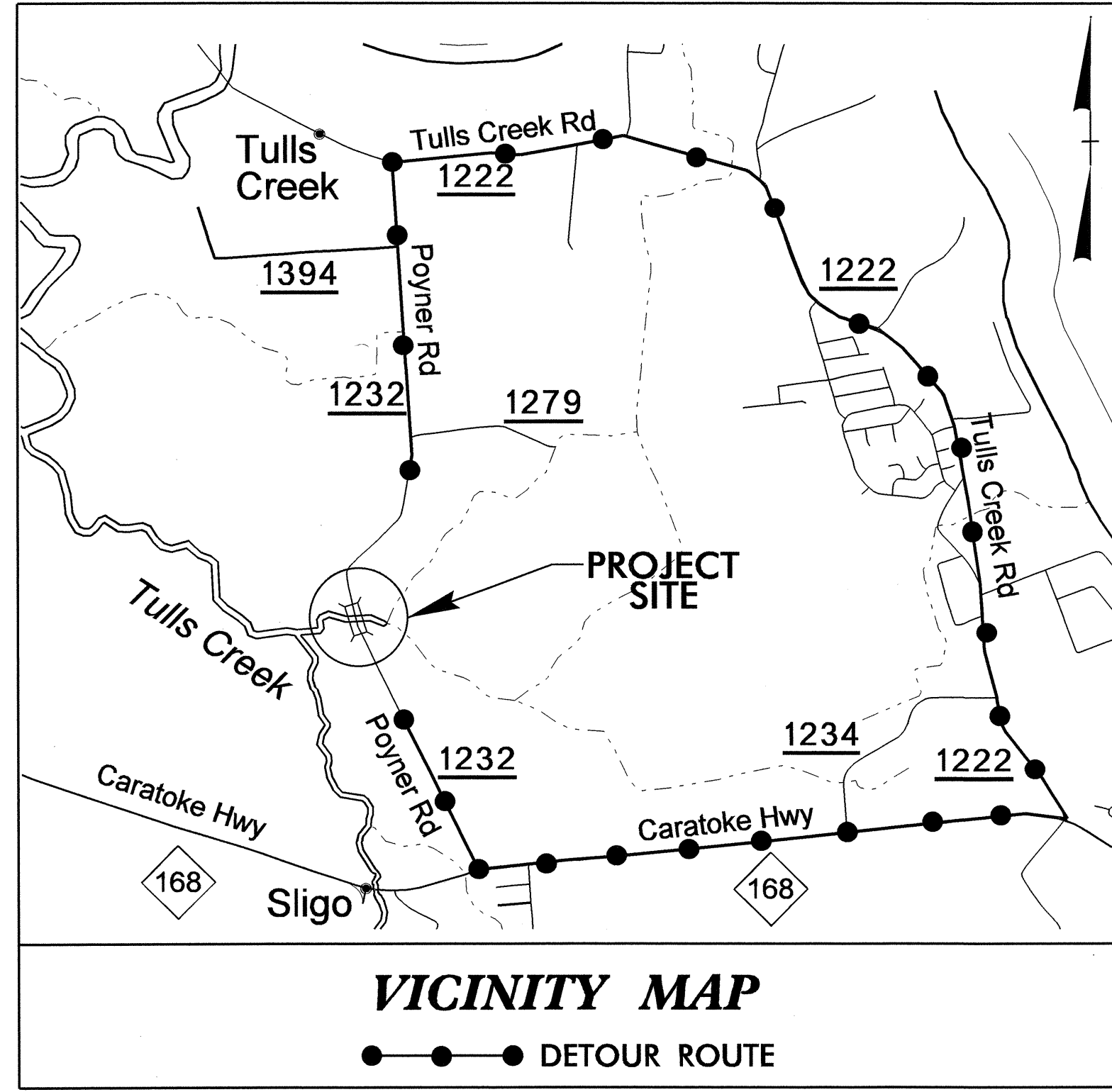
LOCATION: BRIDGE NO. 3 OVER TULLS CREEK ON SR 1232 (POYNER RD)

TYPE OF WORK: GRADING, DRAINAGE, PAVING, AND STRUCTURE

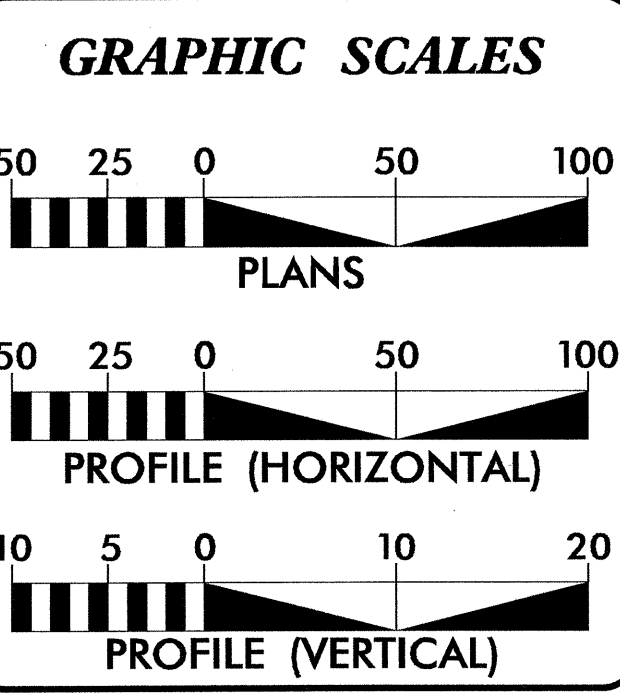
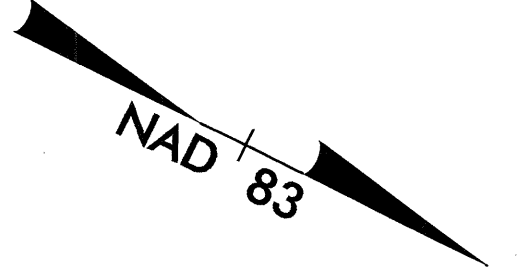
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4494	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
33730.1.1	BRZ-1232(4)	PE	
33730.2.1	BRZ-1232(4)	R/W & UTIL.	
33730.3.1	BRZ-1232(4)	CONST.	

TIP PROJECT: B-4494

CONTRACT: C202999



4



**DESIGN DATA**

ADT 2012	=	1275
ADT 2032	=	1970
DHV	=	10 %
D	=	60 %
T	=	3 % *
V	=	50 MPH
FUNC. CLASS	=	RURAL LOCAL
SUB-REGIONAL TIER	=	
* TTST 1%		DUAL 2%

**PROJECT LENGTH**

LENGTH OF ROADWAY TIP PROJECT B-4494	=	0.086 MILES
LENGTH OF STRUCTURE TIP PROJECT B-4494	=	0.023 MILES
TOTAL LENGTH OF TIP PROJECT B-4494	=	0.109 MILES

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

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: JANUARY 21, 2011

LETTING DATE: MARCH 20, 2012

GARY R. LOVERING, PE  
PROJECT ENGINEER

ANTHONY C. WEST  
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: [Signature] 10-17-11 P.F.

ROADWAY DESIGN ENGINEER

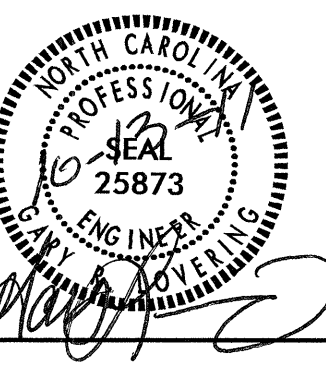
SIGNATURE: [Signature] P.E.

DIVISION OF HIGHWAYS  
STATE OF NORTH CAROLINA

ant m-miller  
STATE HIGHWAY DESIGN ENGINEER

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\$\$\$\$\$USER\$NAME\$\$\$\$\$

ROADWAY DESIGN ENGINEER



EFF. 01-17-12  
REV. 08-31-11

SHEET NUMBER	SHEET
1	TITLE SHEET
1-A	INDEX OF SHEETS, GENERAL NOTES, AND LIST OF STANDARD DRAWINGS
1-B	CONVENTIONAL SYMBOLS
1-C & D	SURVEY CONTROL SHEET
2	TYPICAL SECTIONS, PAVEMENT SCHEDULE, AND WEDGING DETAIL
2-A	DETAIL OF ROCK PLATING & ROCK EMBANKMENT
2-B	DETAIL OF MODIFIED CONCRETE FLUME
3	SUMMARY OF QUANTITIES
3-A	SUMMARY OF EARTHWORK, SUMMARY OF PAVEMENT REMOVAL, SUMMARY OF SHOULDER BERM GUTTER, SUMMARY OF RIP RAP, AND GUARDRAIL SUMMARY
3-B	SUMMARY OF DRAINAGE QUANTITIES
4	PLAN SHEET
5	PROFILE SHEET
TMP-1 TO TMP-3	TRAFFIC MANAGEMENT PLANS
SD-1	SIGN DESIGN PLANS
PMP-1 TO PMP-2	PAVEMENT MARKING PLANS
SIGN-1 TO SIGN-2	SIGNING PLANS
EC-1 TO EC-4	EROSION CONTROL PLANS
UO-1 TO UO-2	UTILITIES BY OTHERS
X-0	CROSS SECTION SUMMARY SHEET
X-1 TO X-3	CROSS-SECTIONS
S-1 TO S-20	STRUCTURE PLANS

GENERAL NOTES: 2012 SPECIFICATIONS  
EFFECTIVE: 01-17-12  
REVISED: 08-31-11

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.

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 ARE CenturyLink and Mediacom. 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 OTHERS.

2012 ROADWAY ENGLISH STANDARD DRAWINGS

The following Roadway Standards as appear in "Roadway Standard Drawings" Highway Design Branch - N. C. Department of Transportation - Raleigh, N. C., Dated January 17, 2012 are applicable to this project and by reference hereby are considered a part of these plans:

STD.NO.	TITLE
DIVISION 2 - EARTHWORK	
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
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation
DIVISION 4 - MAJOR STRUCTURES	
422.10	Reinforced Bridge Approach Fills
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
DIVISION 8 - INCIDENTALS	
815.03	Pipe Underdrain and Blind Drain
840.00	Concrete Base Pad for Drainage Structures
840.25	Anchorage for Frames - Brick or Concrete
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

8/17/09

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R:\CCT-2011\402\B4494\_Rdwy\_tsh\_sfr.dgn  
\$\$\$\$\$

Note: Not to Scale

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

# CONVENTIONAL PLAN SHEET SYMBOLS

## BOUNDARIES AND PROPERTY:

State Line	-----
County Line	-----
Township Line	-----
City Line	-----
Reservation Line	-----
Property Line	-----
Existing Iron Pin	○ EP
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 Endangered Animal Boundary	-EAB-
Existing Endangered Plant Boundary	-EPB-
Known Soil Contamination: Area or Site	☠ ☠
Potential Soil Contamination: Area or Site	☠ ?

## 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	← FLOW
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 Drainage / Utility Easement	-DUE-
Proposed Permanent Utility Easement	-PUE-
Proposed Temporary Utility Easement	-TUE-
Proposed Aerial Utility Easement	-AUE-
Proposed Permanent Easement with Iron Pin and Cap Marker	-E-

## ROADS AND RELATED FEATURES:

Existing Edge of Pavement	-----
Existing Curb	-----
Proposed Slope Stakes Cut	-C-
Proposed Slope Stakes Fill	-F-
Proposed Curb Ramp	○ CR
Curb Cut Future Ramp	○ CCFR
Existing Metal Guardrail	T T T T
Proposed Guardrail	T T T T
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-

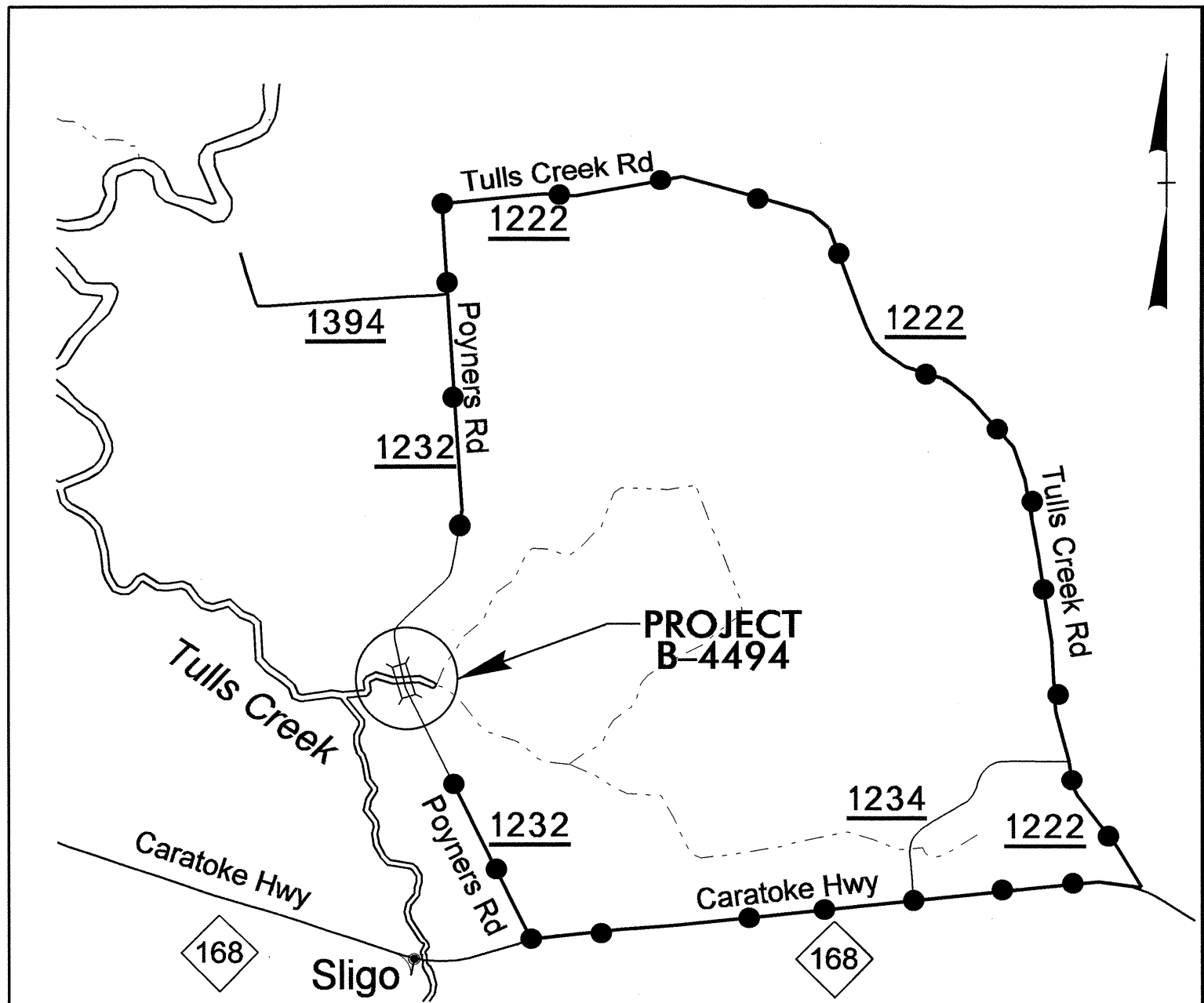
## SANITARY SEWER:

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	-?UTL-
U/G Tank; Water, Gas, Oil	□
Underground Storage Tank, Approx. Loc.	⊕
A/G Tank; Water, Gas, Oil	□
Geoenvironmental Boring	⊕
U/G Test Hole (S.U.E.*)	⊕
Abandoned According to Utility Records	AATUR
End of Information	E.O.I.

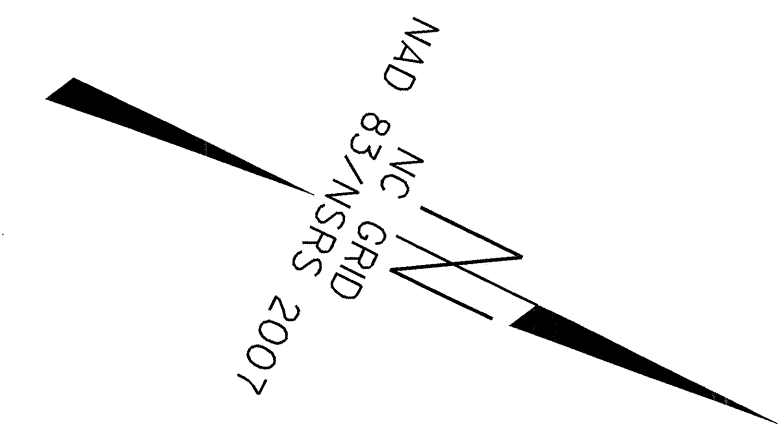
# SURVEY CONTROL SHEET B-4494



**VICINITY MAP**  
●-●-●-● DETOUR ROUTE

**CONTROL DATA**

BL	POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
BL3		BL3	1000734.8350	2860186.4050	0.61'	OUTSIDE PROJECT LIMITS	
B44942		GPS MON (B4494-2)	1001165.4800	2859941.8520	1.31'	10+86.24	14.53 LT
B44941		GPS MON (B4494-1)	1001625.6610	2859741.4890	1.27'	15+86.30	14.59 LT
BL4		BL4	1002591.4440	2859557.1850	2.96'	OUTSIDE PROJECT LIMITS	



**STA 12+10.00 -L- BEGIN TIP PROJECT B-4494**

**LOCALIZED PROJECT COORDINATES**

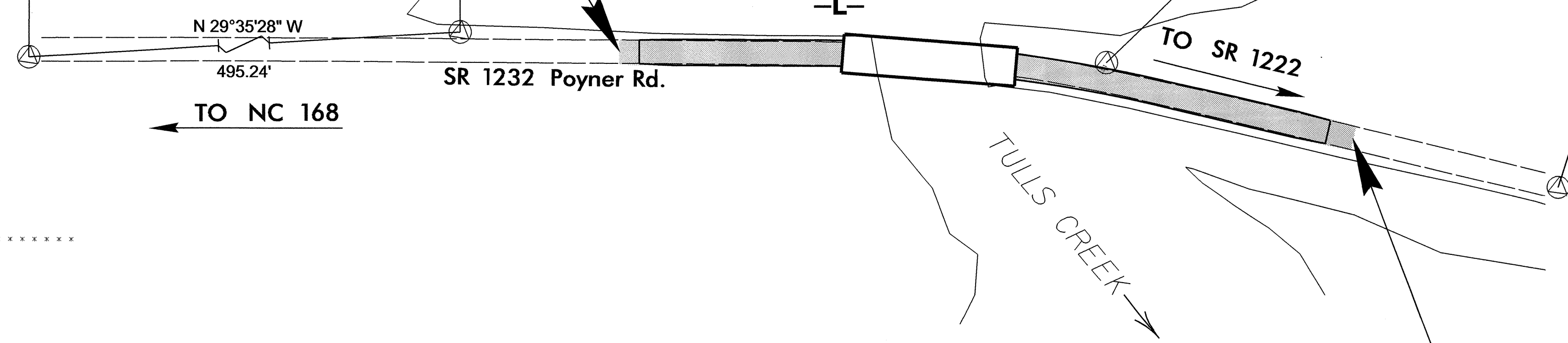
N = 1,001,283.1638  
E = 2,859,900.8731

NCDOT GPS STATION "B4494-2"  
LOCALIZED PROJECT COORDINATES  
N = 1,001,165.4800  
E = 2,859,941.8520

NCDOT GPS STATION "B4494-1"  
LOCALIZED PROJECT COORDINATES  
N = 1,001,625.6610  
E = 2,859,741.4890

NCDOT BASELINE STATION "BL3"  
LOCALIZED PROJECT COORDINATES  
N = 1,000,734.8350  
E = 2,860,186.4050

NCDOT BASELINE STATION "BL4"  
LOCALIZED PROJECT COORDINATES  
N = 1,002,591.4440  
E = 2,859,557.1850



**BENCHMARK DATA**  
\*\*\*\*\*  
BM5 ELEVATION = 2.60'  
N 1000648 E 2860154  
L STATION 10+00  
S 19° 53' 26.3" E DIST 474.45'  
R/R SPIKE SET IN BASE OF 15" PINE  
\*\*\*\*\*  
BM6 ELEVATION = 4.23'  
N 1002324 E 2859526  
L STATION 20+42  
N 27° 03' 14.6" W DIST 281.09'  
R/R SPIKE SET IN BASE OF 24" PINE  
\*\*\*\*\*

**STA 17+85.00 -L- END TIP PROJECT B-4494**

**LOCALIZED PROJECT COORDINATES**

N = 1,001,822.8165  
E = 2,859,709.6280

**DATUM DESCRIPTION**  
THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B4494-1"  
WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF NORTHING: 1001625.661(ft) EASTING: 2859741.489(ft)  
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 1.00010361  
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B4494-1" TO -L- L STATION 12+10.00 IS  
S 24° 57' 19" E 377.76 ( ft )  
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES  
VERTICAL DATUM USED IS NAVD 88

**NOTE: DRAWING NOT TO SCALE**

**NOTES:**

- THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING [HTTP://WWW.NCDOT.ORG/DOH/PRECONSTRUCT/HIGHWAY/LOCATION/PROJECT](http://www.ncdot.org/doh/preconstruct/highway/location/project)  
FILE: b4494\_ls\_control\_081009.txt
- SITE CALIBRATION PARAMETERS HAVE NOT BEEN DETERMINED 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 UTILIZING GLOBAL POSITIONING SYSTEM.  
NETWORK FOR GPS "B4494-1" ESTABLISHED FROM NGS ONLINE POSITIONING USER SERVICE (OPUS)

# SURVEY CONTROL SHEET B-4494

## DESIGN ALIGNMENT

		L	
TYPE	STATION	NORTH	EAST
POT	10+00.00	1001094.2483	2859992.5843
PC	13+63.99	1001421.6921	2859833.6230
PT	16+31.52	1001673.3451	2859744.4690
PC	17+91.62	1001829.2638	2859708.1252
PT	20+41.98	1002073.6905	2859653.9589

## ROW MARKER IRON PIN AND CAP

ALIGN	STATION	OFFSET	NORTH	EAST
L	12+10.00	-40.00	1001265.6950	2859864.8892
L	12+10.00	-21.00	1001273.9927	2859881.9816
L	12+10.00	30.00	1001296.2654	2859927.8611
L	12+10.00	40.00	1001300.6326	2859936.8570
L	13+63.99	40.00	1001439.1609	2859869.6069
L	13+63.99	-40.00	1001404.2233	2859797.6391
L	16+31.52	-40.00	1001664.2647	2859705.5133
L	16+31.52	40.00	1001682.4254	2859783.4247
L	17+91.62	40.00	1001838.3441	2859747.0809
L	17+91.62	22.50	1001834.3715	2859730.0378
L	17+91.62	-21.00	1001824.4966	2859687.6734
L	17+91.62	-40.00	1001820.1834	2859669.1695

### DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B4494-1" WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF NORTHING: 1001625.661(±) EASTING: 2859741.489(±) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 1.00010361 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B4494-1" TO -L- L STATION 12+10.00 IS S 24°57'19" E 377.76 ( ± ) ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NAVD 88

### NOTES:

THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING [HTTP://WWW.NCDOT.ORG/DOH/PRECONSTRUCT/HIGHWAY/LOCATION/PROJECT](http://www.ncdot.org/DOH/PRECONSTRUCT/HIGHWAY/LOCATION/PROJECT)

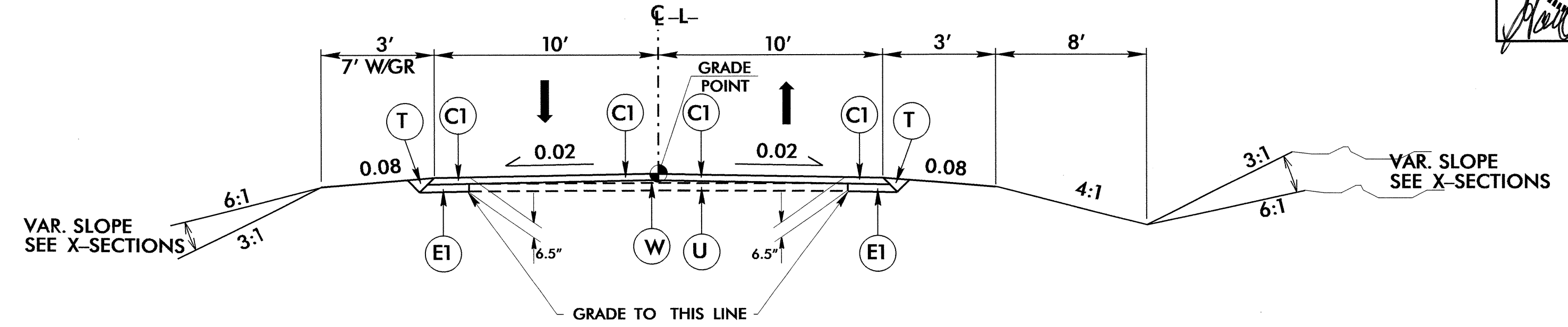
FILE: b4494\_ls\_control\_081009.txt

SITE CALIBRATION PARAMETERS HAVE NOT BEEN DETERMINED 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 UTILIZING GLOBAL POSITIONING SYSTEM. NETWORK FOR GPS "B4494-1" ESTABLISHED FROM NGS ONLINE POSITIONING USER SERVICE (OPUS)

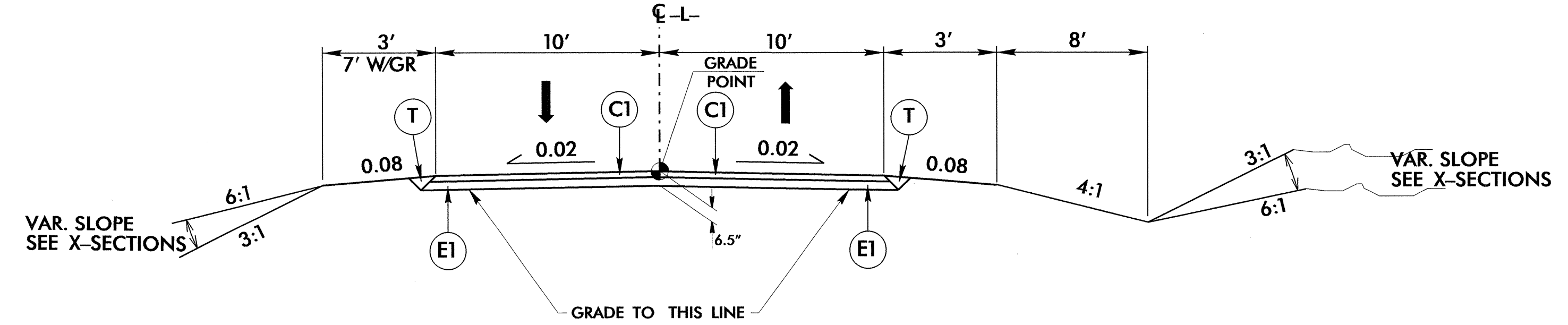
PAVEMENT SCHEDULE FINAL DESIGN	
C1	PROP. APPROX. 2½" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 1½" 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 4" IN DEPTH OR GREATER THAN 5½" IN DEPTH.
R	SHOULDER BERM GUTTER
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL THIS SHEET.)

ALL PAVEMENT EDGE SLOPES ARE 1:1



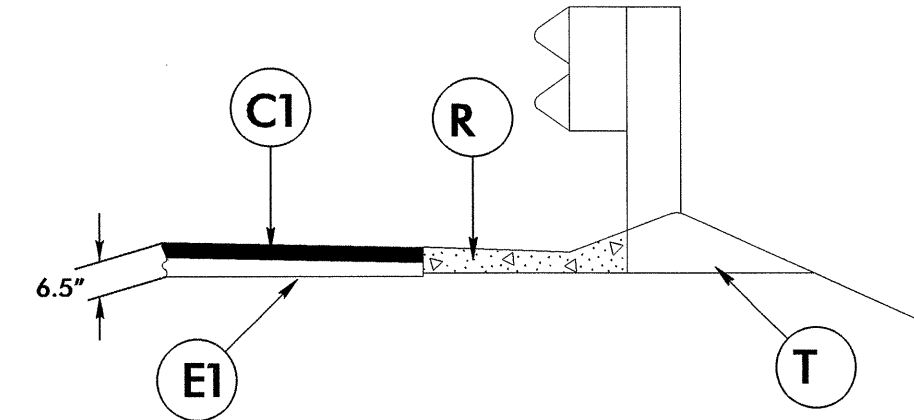
**ROADWAY TYPICAL SECTION NO. 1**

-L- STA. 12+10.00 TO STA. 13+00.00  
-L- STA. 16+80.00 TO STA. 17+85.00



**ROADWAY TYPICAL SECTION NO. 2**

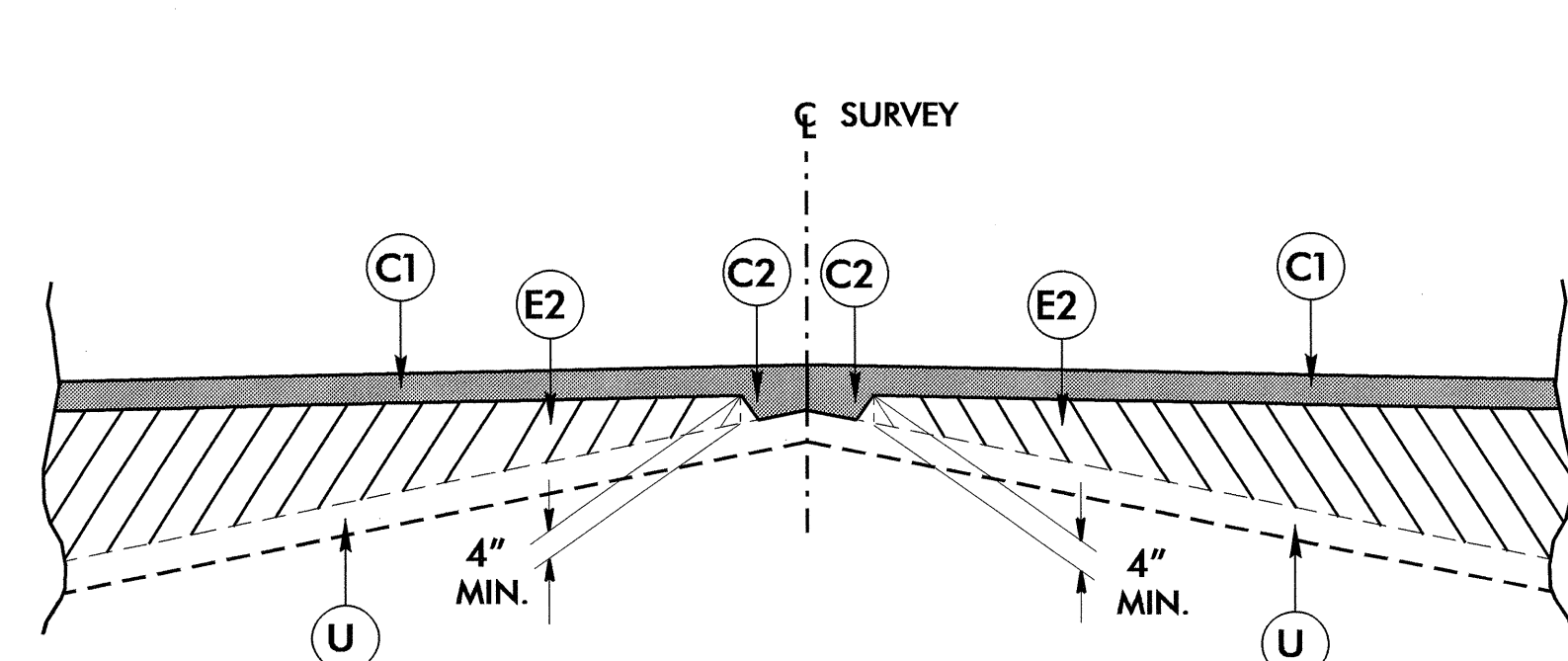
-L- STA. 13+00.00 TO STA. 13+87.91 (BEGIN BRIDGE)  
-L- STA. 15+10.09 (END BRIDGE) TO STA. 16+80.00



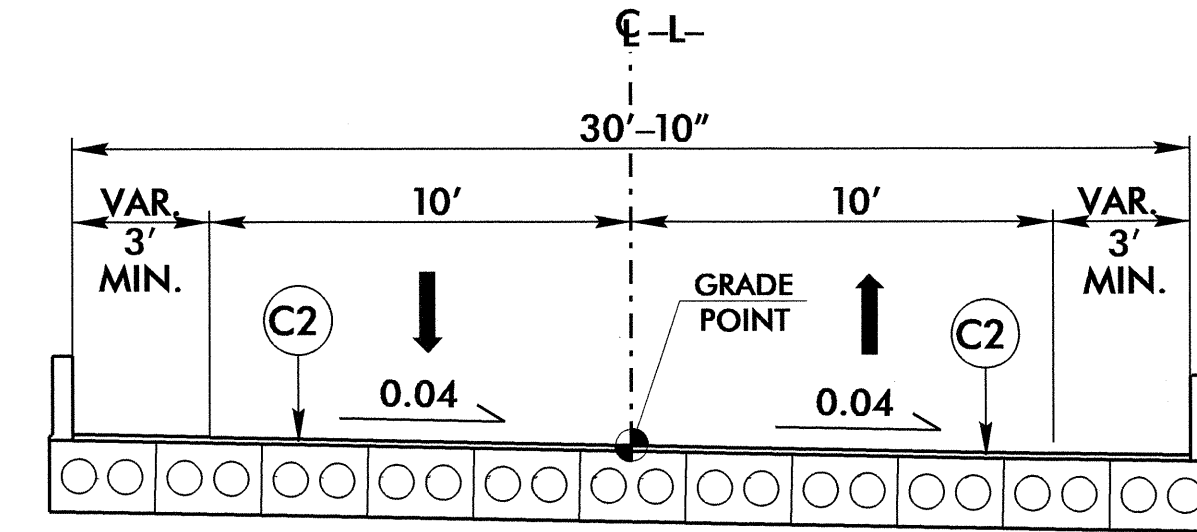
**SHOULDER BERM GUTTER DETAIL**

USE SHOULDER BERM GUTTER DETAIL

-L- STA. 13+60.00 TO -L- STA. 13+76.18 (RT.)  
-L- STA. 15+21.83 TO -L- STA. 16+00.00 (RT.)



**Detail Showing Method of Wedging**

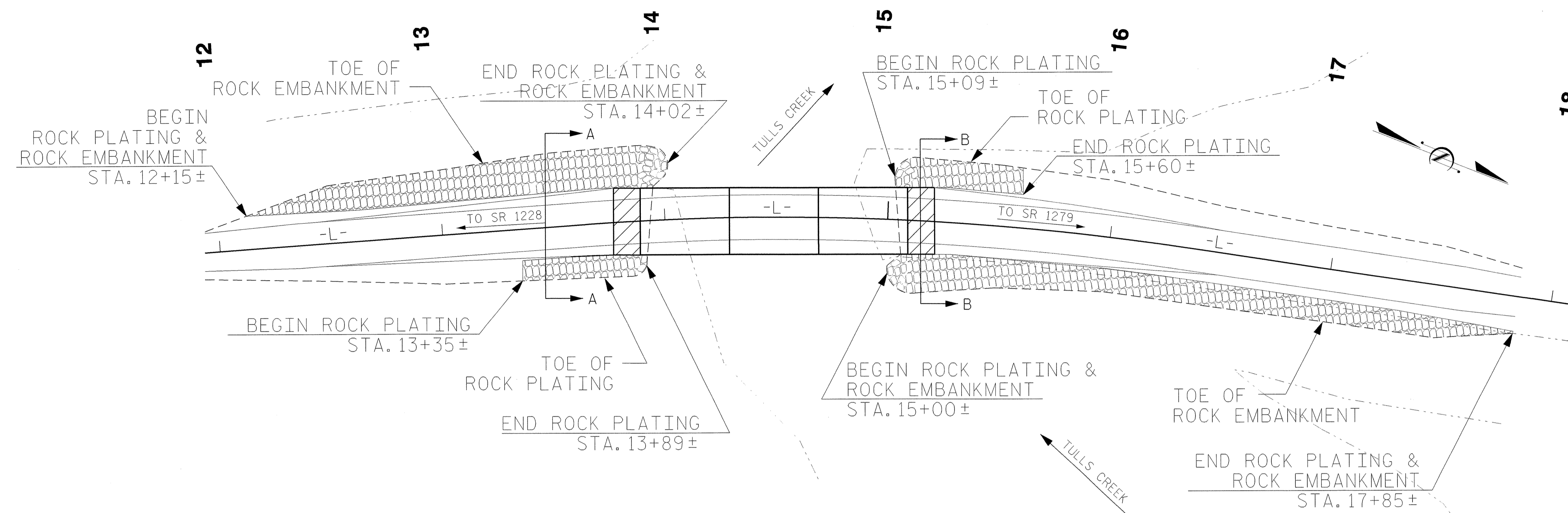
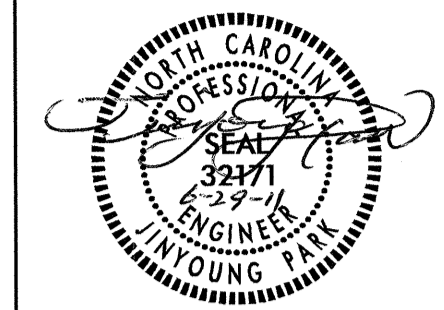


**TYPICAL SECTION ON STRUCTURE**

-L- STA. 13+87.91 (BEGIN BRIDGE) TO 15+10.09 (END BRIDGE)

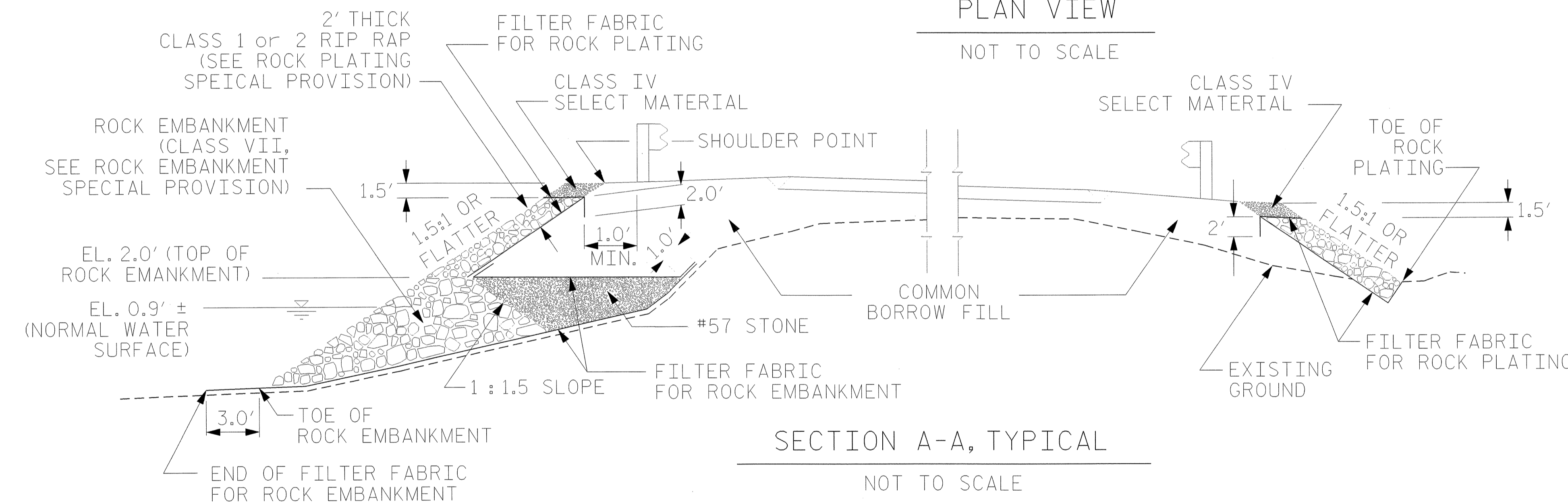
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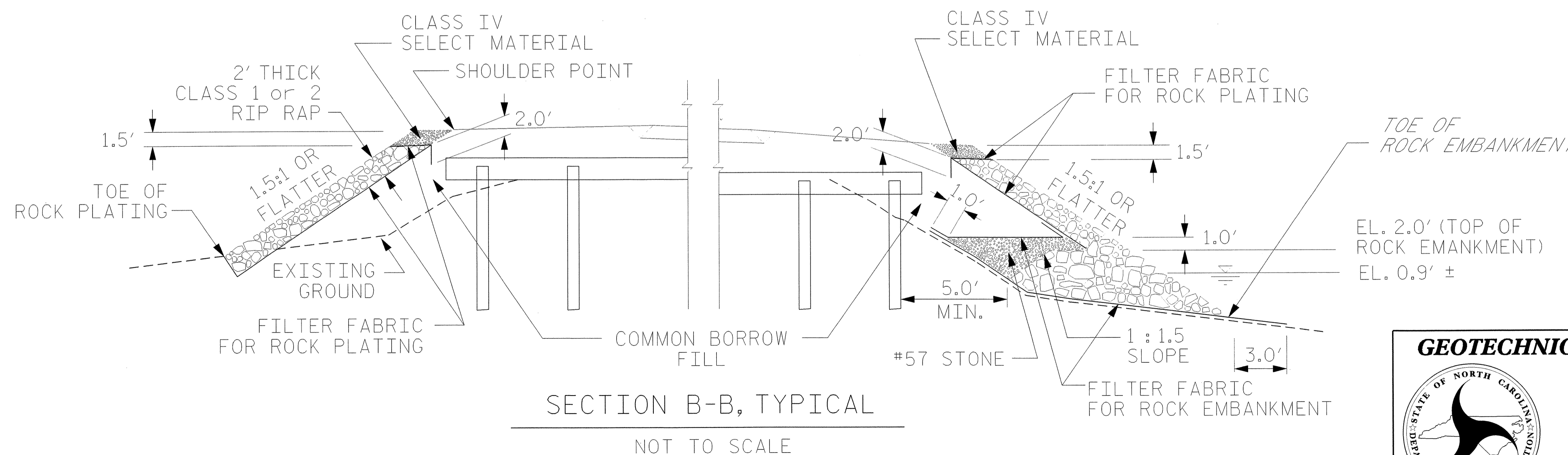
PLAN VIEW

NOT TO SCALE



SECTION A-A, TYPICAL

NOT TO SCALE



SECTION B-B, TYPICAL

NOT TO SCALE

ROCK PLATING		
BEGIN	END	LOCATION
-L- STA. 12+15±	-L- STA. 14+02±	LEFT
-L- STA. 13+35±	-L- STA. 13+89±	RIGHT
-L- STA. 15+09±	-L- STA. 15+60±	LEFT
-L- STA. 15+00±	-L- STA. 17+85±	RIGHT

ROCK EMBANKMENT		
BEGIN	END	LOCATION
-L- STA. 12+15±	-L- STA. 14+02±	LEFT
-L- STA. 15+00±	-L- STA. 17+85±	RIGHT

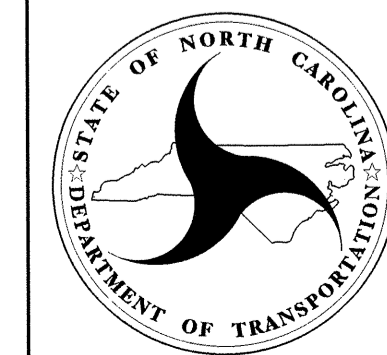
ESTIMATED QUANTITIES	
ROCK EMBANKMENTS	2,150 TONS
#57 STONE	380 TONS
FILTER FABRIC FOR ROCK EMBANKMENTS	1,980 SY
ROCK PLATING	190 SY

FOR ROCK PLATING AND ROCK EMBANKMENT, SEE SPECIAL PROVISIONS.

FOR ROCK PLATING AND ROCK EMBANKMENT SLOPES, SEE ROADWAY CROSS SECTIONS.

THE ESTIMATED QUANTITIES OF ROCK EMBANKMENTS AND FILTER FABRIC FOR ROCK EMBANKMENTS INCLUDE ADDITIONAL AMOUNTS FOR THE ANTICIPATED SETTLEMENT OF SOIL LAYER UNDERNEATH THE ROCK EMBANKMENT.

**GEOTECHNICAL ENGINEERING UNIT**



- EASTERN REGIONAL OFFICE
- WESTERN REGIONAL OFFICE
- CONTRACT OFFICE

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

**ROCK PLATING & ROCK EMBANKMENT DETAILS**

REVISIONS

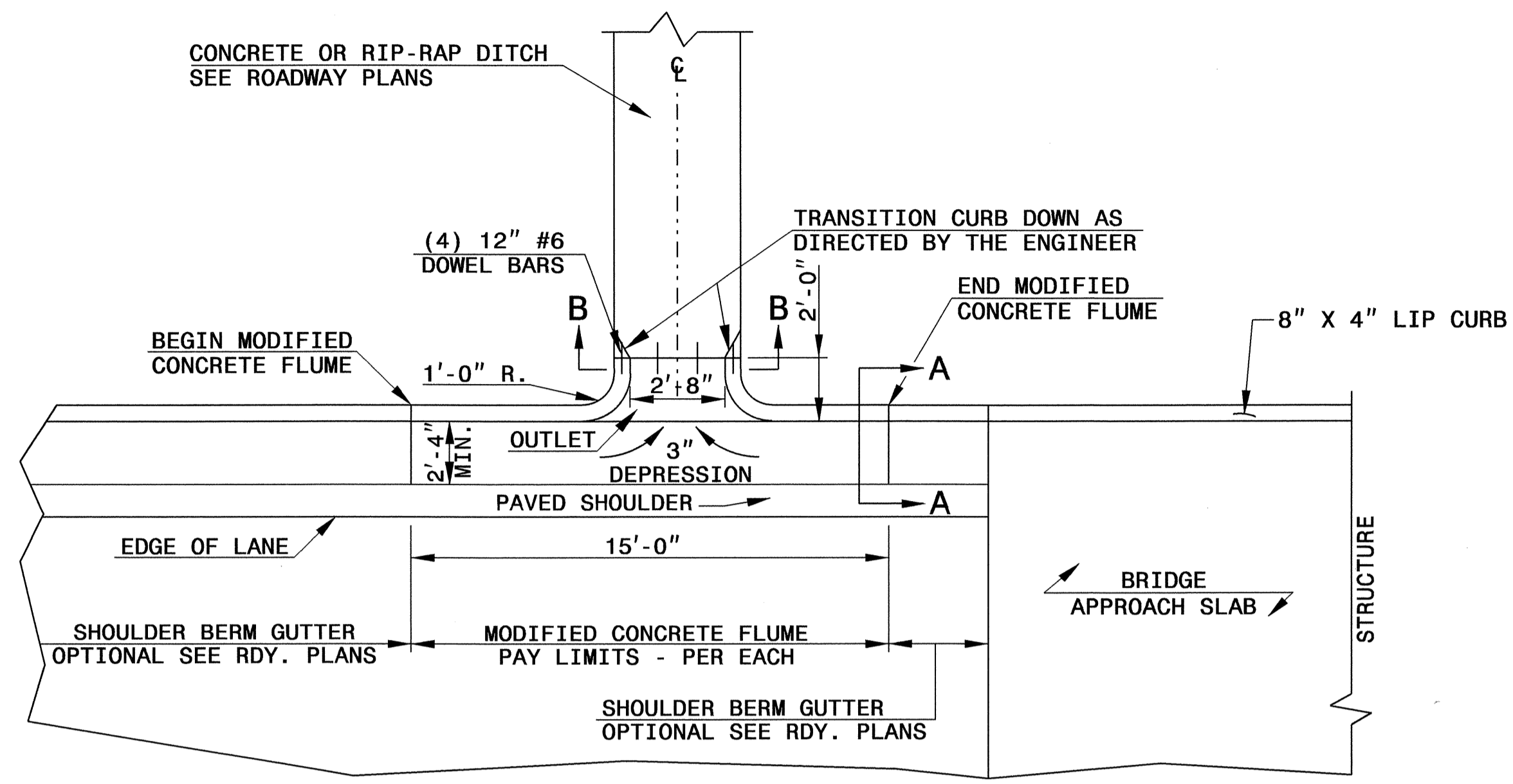
NO.	BY	DATE	NO.	BY	DATE
1	-	-	3	-	-
2	-	-	4	-	-

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

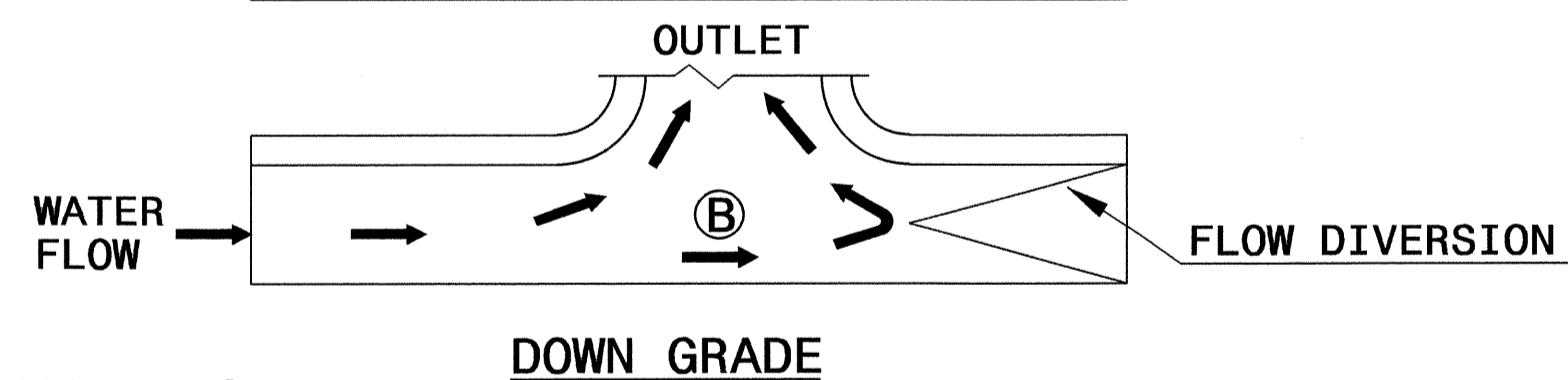
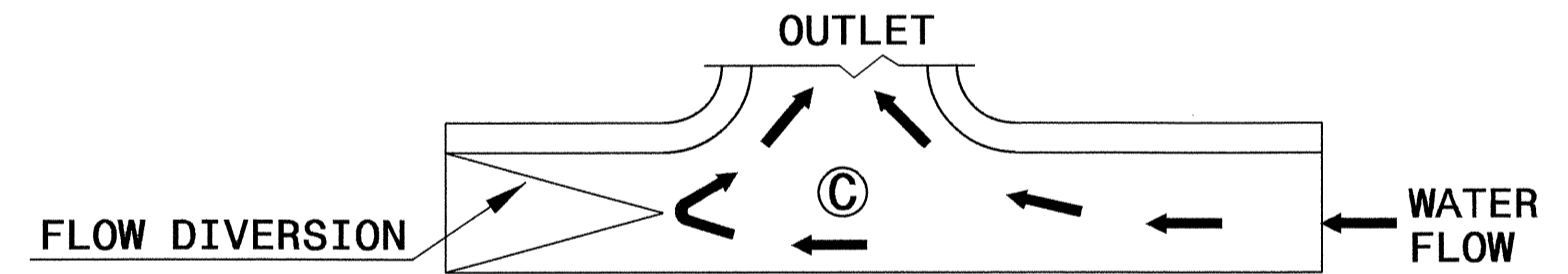
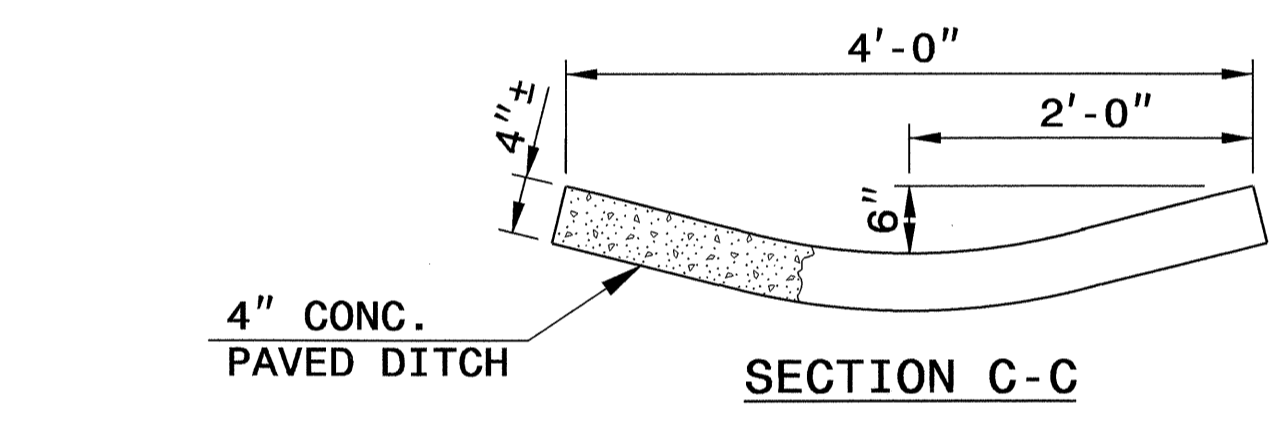
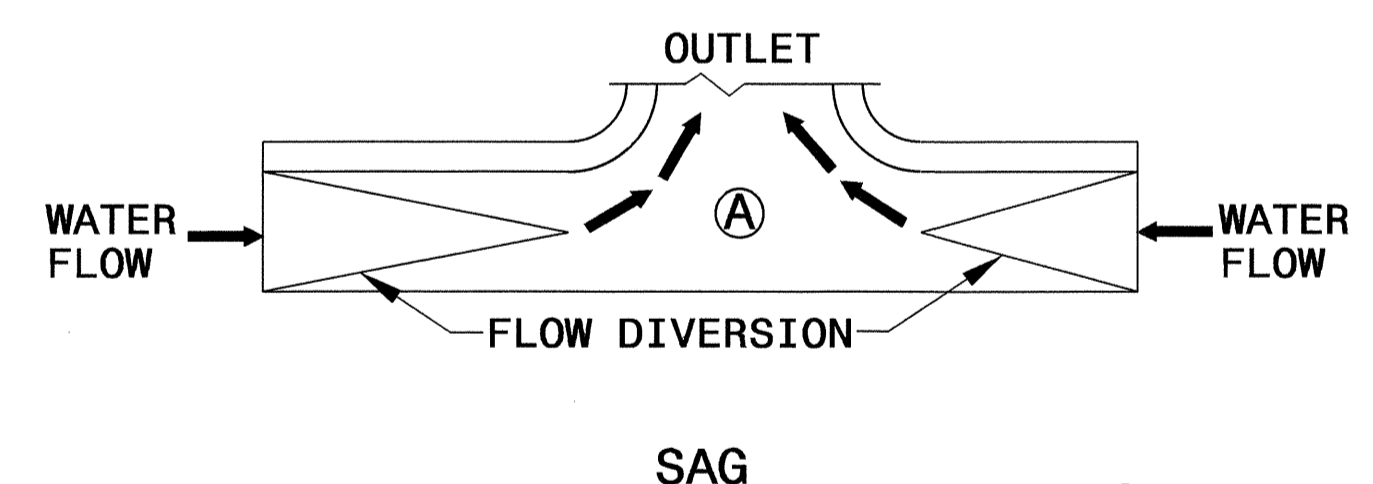
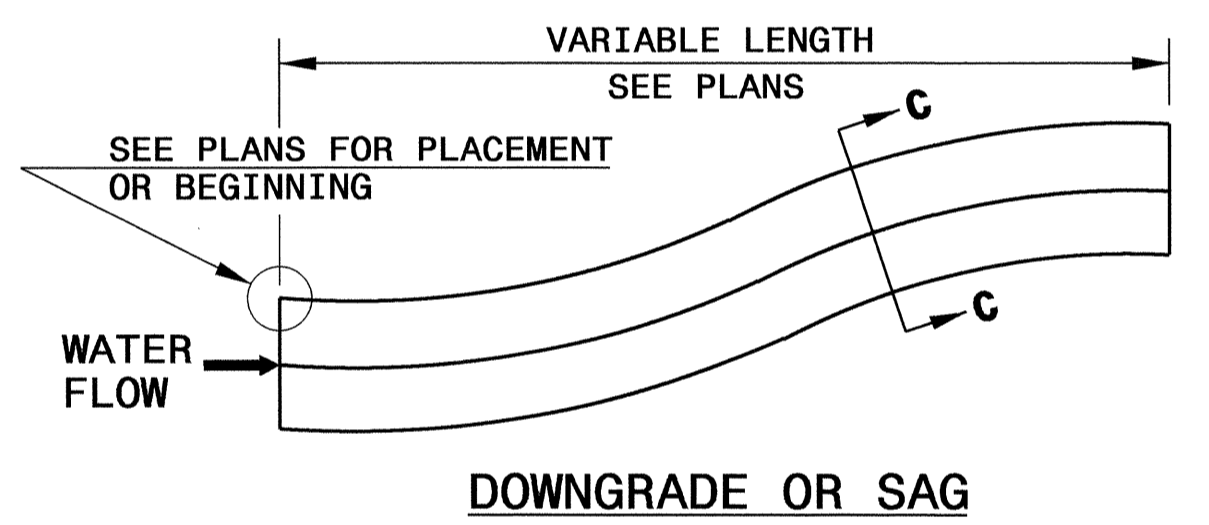
ENGLISH DETAIL DRAWING FOR  
**MODIFIED CONCRETE FLUME**  
WITH CONCRETE OR RIP-RAP DITCH

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

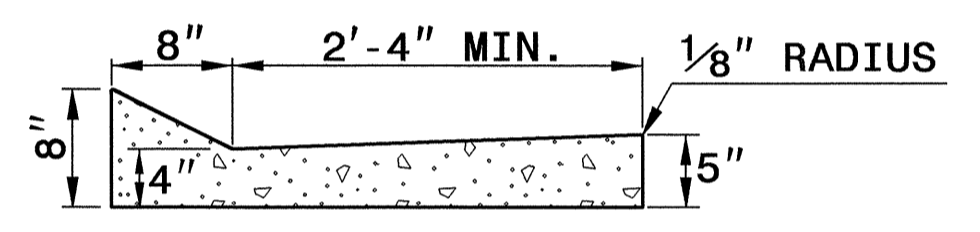
ENGLISH DETAIL DRAWING FOR  
**MODIFIED CONCRETE FLUME**  
WITH CONCRETE OR RIP-RAP DITCH



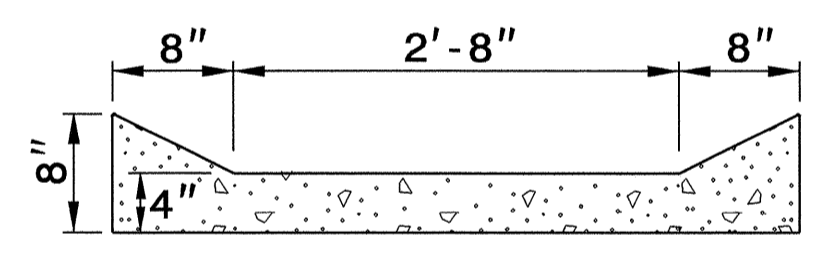
PLAN VIEW



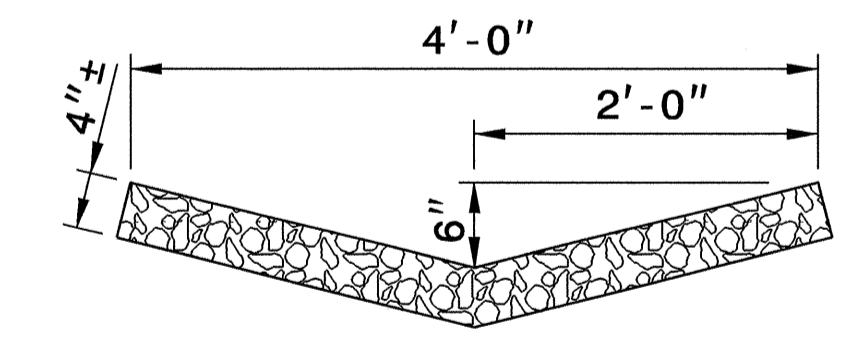
FLOW DIVERSION EXAMPLES



SECTION A-A



SECTION B-B



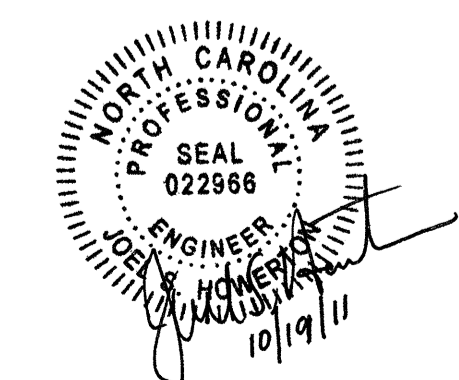
RIP-RAP LINED DITCH

NOTES:

- CONSTRUCT MODIFIED CONCRETE FLUME AND SHOULDER BERM GUTTER IN ACCORDANCE WITH THIS DETAIL.
- CONSTRUCT CONCRETE DITCH IN ACCORDANCE WITH STD. DWG. NO. 850.01.
- CONSTRUCT RIP RAP LINED DITCH IN ACCORDANCE WITH THIS DETAIL, IF CALLED FOR IN PLANS.
- CONCRETE OR RIP RAP LINED DITCH SHALL BE THE TYPE AND LENGTH SPECIFIED BY THE ROADWAY PLANS. THE DITCH SHALL TERMINATE AS SHOWN ON THE PLANS. IF NO TERMINATION IS INDICATED PLACE RIP-RAP AT THE END OF THE DITCH AS INDICATED BY STD. DWG. 876.02 FOR AN 18" PIPE. TRANSITIONS FROM THE DITCH TO TERMINATION SHALL BE AS DIRECTED BY THE ENGINEER.
- MODIFICATIONS SHALL BE AS DICTATED BY SITE CONDITIONS AND DIRECTED BY THE ENGINEER.

SHEET 1 OF 1  
MODFLMDTCH

SHEET 1 OF 1  
MODFLMDTCH



CONTRACT STANDARDS  
AND DEVELOPMENT UNIT  
Office 919-707-6950 FAX 919-250-4119

**SEE PLATE FOR TITLE**

ORIGINAL BY: E.E. Ward DATE: Apr. 2002  
 MODIFIED BY: E.E. Ward DATE: July 2004  
 CHECKED BY: [Signature] DATE: 10/11/11  
 FILE SPEC.: [Path]

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STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS  
**SUMMARY OF QUANTITIES**

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS  
ROADWAY SUMMARY OF QUANTITIES FOR CONTRACT - C202746

ItemNumber	Sec #	Quantity	Unit	Description	ItemNumber	Sec #	Quantity	Unit	Description	ItemNumber	Sec #	Quantity	Unit	Description
0000100000-N	800	Lump Sum		MOBILIZATION	2367000000-N	840	1	EA	FRAME WITH TWO GRATES, STD 840.29	6036000000-E	1631	1,500	SY	MATTING FOR EROSION CONTROL
0029000000-N	SP	Lump Sum		REINFORCED BRIDGE APPROACH FILL STATION ***** (14+49.00-L)	2556000000-E	846	100	LF	SHOULDER BERM GUTTER	6042000000-E	1632	370	LF	1/4" HARDWARE CLOTH
0043000000-N	226	Lump Sum		GRADING	2570000000-N	SP	1	EA	MODIFIED CONCRETE FLUME	6048000000-E	SP	150	SY	FLOATING TURBIDITY CURTAIN
0050000000-E	226	1	ACR	SUPPLEMENTARY CLEARING & GRUB-BING	3030000000-E	862	337.5	LF	STEEL BM GUARDRAIL	6071030000-E	1640	10	LF	COIR FIBER BAFFLE
0057000000-E	226	500	CY	UNDERCUT EXCAVATION	3150000000-N	862	5	EA	ADDITIONAL GUARDRAIL POSTS	6084000000-E	1660	1.5	ACR	SEEDING & MULCHING
0195000000-E	265	500	CY	SELECT GRANULAR MATERIAL	3165000000-N	SP	2	EA	GUARDRAIL ANCHOR UNITS, TYPE ***** (350 TL-2)	6087000000-E	1660	1.5	ACR	MOWING
0196000000-E	270	500	SY	GEOTEXTILE FOR SOIL STABILIZATION	3215000000-N	862	4	EA	GUARDRAIL ANCHOR UNITS, TYPE III	6090000000-E	1661	50	LB	SEED FOR REPAIR SEEDING
0220000000-E	SP	2,150	TON	ROCK EMBANKMENTS	3270000000-N	SP	2	EA	GUARDRAIL ANCHOR UNITS, TYPE 350	6093000000-E	1661	0.25	TON	FERTILIZER FOR REPAIR SEEDING
0241000000-E	SP	1,980	SY	GENERIC GRADING ITEM FILTER FABRIC FOR ROCK EMBANKMENTS	3649000000-E	876	5	TON	RIP RAP, CLASS B	6096000000-E	1662	50	LB	SEED FOR SUPPLEMENTAL SEEDING
0241000000-E	SP	190	SY	GENERIC GRADING ITEM ROCK PLATING	3656000000-E	876	465	SY	GEOTEXTILE FOR DRAINAGE	6108000000-E	1665	0.75	TON	FERTILIZER TOPDRESSING
0318000000-E	300	5	TON	FOUNDATION CONDITIONING MATERIAL, MINOR STRUCTURES	4158000000-N	907	6	EA	DISPOSAL OF SIGN SYSTEM, WOOD	6114500000-N	1667	10	MHR	SPECIALIZED HAND MOWING
0320000000-E	300	20	SY	FOUNDATION CONDITIONING GEOTEXTILE	4400000000-E	1110	270	SF	WORK ZONE SIGNS (STATIONARY)	6117000000-N	SP	18	EA	RESPONSE FOR EROSION CONTROL
0448200000-E	310	40	LF	15" RC PIPE CULVERTS, CLASS IV	4410000000-E	1110	94	SF	WORK ZONE SIGNS (BARRICADE MOUNTED)					
0996000000-N	350	1	EA	PIPE CLEAN-OUT	4445000000-E	1145	80	LF	BARRICADES (TYPE III)					
1077000000-E	SP	380	TON	#57 STONE	4810000000-E	1205	4,600	LF	PAINT PAVEMENT MARKING LINES (4")					
1489000000-E	610	210	TON	ASPHALT CONC BASE COURSE, TYPE B25.0B	6000000000-E	1605	1,255	LF	TEMPORARY SILT FENCE					
1525000000-E	610	240	TON	ASPHALT CONC SURFACE COURSE, TYPE SF9.5A	6006000000-E	1610	225	TON	STONE FOR EROSION CONTROL, CLASS A					
1575000000-E	620	30	TON	ASPHALT BINDER FOR PLANT MIX	6009000000-E	1610	25	TON	STONE FOR EROSION CONTROL, CLASS B					
2022000000-E	815	22.4	CY	SUBDRAIN EXCAVATION	6012000000-E	1610	85	TON	SEDIMENT CONTROL STONE					
2033000000-E	815	16.8	CY	SUBDRAIN FINE AGGREGATE	6015000000-E	1615	1.5	ACR	TEMPORARY MULCHING					
2044000000-E	815	100	LF	6" PERFORATED SUBDRAIN PIPE	6018000000-E	1620	50	LB	SEED FOR TEMPORARY SEEDING					
2070000000-N	815	1	EA	SUBDRAIN PIPE OUTLET	6021000000-E	1620	0.25	TON	FERTILIZER FOR TEMPORARY SEEDING					
2077000000-E	815	6	LF	6" OUTLET PIPE	6024000000-E	1622	200	LF	TEMPORARY SLOPE DRAINS					
2286000000-N	840	1	EA	MASONRY DRAINAGE STRUCTURES	6029000000-E	SP	475	LF	SAFETY FENCE					
					6030000000-E	1630	30	CY	SILT EXCAVATION					

5/28/99  
PROJECT: 20110903 \b4494\_rdy\_sum.dgn

STATE OF NORTH CAROLINA  
 DIVISION OF HIGHWAYS

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

**SUMMARY OF EARTHWORK  
 IN CUBIC YARDS**

LOCATION	TOTAL UNCLASS. EXCAV.	UNDERCUT	EMBANKMENT + %	BORROW	TOTAL WASTE
-L- 12+10 TO 13+87.91 (BEGIN BRIDGE)	2		558	556	
<b>SUBTOTAL</b>	<b>2</b>		<b>558</b>	<b>556</b>	
-L- 15+10.09 (END BRIDGE) TO 17+85	1		655	654	
<b>SUBTOTAL</b>	<b>1</b>		<b>655</b>	<b>654</b>	
<b>PROJECT SUBTOTAL</b>	<b>3</b>		<b>1213</b>	<b>1210</b>	
EST. 5% TO REPLACE TOPSOIL ON BORROW PIT			61	61	
<b>PROJECT TOTAL</b>	<b>3</b>		<b>1274</b>	<b>1271</b>	
<b>SAY</b>	<b>5</b>			<b>1280</b>	
CONTINGENCY UNDERCUT	500				

**SUMMARY OF SHOULDER BERM GUTTER**

LINE	STATION TO STATION	LOCATION	LENGTH FT.
-L-	13+60 TO 13+76.18	RIGHT	16.18'
-L-	15+21.83 TO 16+00	RIGHT	78.17'
		<b>TOTAL</b>	<b>94.35'</b>
		<b>SAY</b>	<b>100.00'</b>

**SUMMARY OF RIP RAP**

LINE	STATION	STATION	LOC	RIP RAP CLASS			RR (TON)	FF (SY)	DDE (CY)	DETAIL	COMMENT
				I	II	A					
-L-	13+60.00		RT.				X	2	7		AT MODIFIED CONCRETE FLUME
-L-	16+00.00		LT.				X	2	7		AT OUTLET, WITHOUT DITCH, 15" PIPE

	TOTAL (TON)	SAY
CLASS I		
CLASS II		
CLASS A		
CLASS B	4	5
FILTER FABRIC	14	15
DDE		

ABBREVIATIONS	
CY	CUBIC YARD
DDE	DRAINAGE DITCH EXCAVATION
FF	FILTER FABRIC
LOC	LOCATION
RR	RIP RAP
SY	SQUARE YARD

**SUMMARY OF PAVEMENT REMOVAL**

LINE	STATION TO STATION	LOCATION	YD <sup>2</sup>
-L-	13+00.00 TO 14+04.00	CENTER	208
-L-	14+94.00 TO 16+50.00	CENTER	312
		<b>TOTAL</b>	<b>520</b>
		<b>SAY</b>	<b>550</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.

"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**

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			SINGLE FACED GUARDRAIL	REMOVE EXISTING GUARDRAIL	REMOVE AND STOCKPILE EXISTING GUARDRAIL	REMARKS								
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	XI MOD	TYPE III	GRAU 350	M-350	TEMP GRAU 350	TERMINAL SECTIONS	VI MOD	GRAU 350 TL-2	AT-1	EA	G	NG												
	12+33.59	13+88.72 (Bridge)	LEFT	155.13'				13+00.00	4.00'	8.00'	107'		1.65'				1																			
	13+00.00	13+87.16 (Bridge)	RIGHT	87.16'			13+87.16 (Bridge)		4.00'	8.00'	50'		0.60'				1	1																		
	15+09.28 (Bridge)	15+84.21	LEFT	74.93'			15+09.28 (Bridge)		4.00'	8.00'	50'		0.45'				1	1																		
	15+10.84 (Bridge)	17+61.35	RIGHT	250.51'			16+27.00	17+31.50	4.00'	8.00'	103'		0.32'				1																			
			<b>SUBTOTAL</b>	<b>567.73'</b>																																
			<b>LESS ANCHOR DEDUCTIONS</b>																																	
			GRAU 350 TL-2	2 @ 28.50' =	-57.00'																															
			GRAU 350	2 @ 50.00' =	-100.00'																															
			TYPE III	4 @ 18.75' =	-75.00'																															
			<b>ANCHOR DEDUCTION TOTAL</b>		<b>-232'</b>																															
			<b>PROJECT TOTAL</b>		<b>335.73'</b>												4	2																		
			<b>SAY</b>		<b>337.50'</b>																															

ADDITIONAL GUARDRAIL POSTS = 5

RD248696

COMPUTED BY: BCS DATE: 7/12/2010  
CHECKED BY: ACW DATE: 7/14/2010

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS

PROJECT NO. SHEET NO.  
B-4494 3-B

Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout.  
See "Standard Specifications For Roads and Structures, Section 300-5".

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

Table with columns for STATION, LOCATION (LT, RT, OR CLY), STRUCTURE NO., TOP ELEVATION, INVERT ELEVATION, SLOPE CRITICAL, DRAINAGE PIPE (RCP, CSP, CAAP, HDPE, or PVC), C.S. PIPE, R.C. PIPE CLASS III, R.C. PIPE CLASS IV, ENDWALLS, QUANTITIES FOR DRAINAGE STRUCTURES, FRAME, GRATES, AND HOOD STANDARD 840.03, CONCRETE TRANSITIONAL SECTION, and ABBREVIATIONS. Includes a grid for item entry and a SHEET TOTALS row at the bottom.

SHEET TOTALS

40'

1

1

1

1

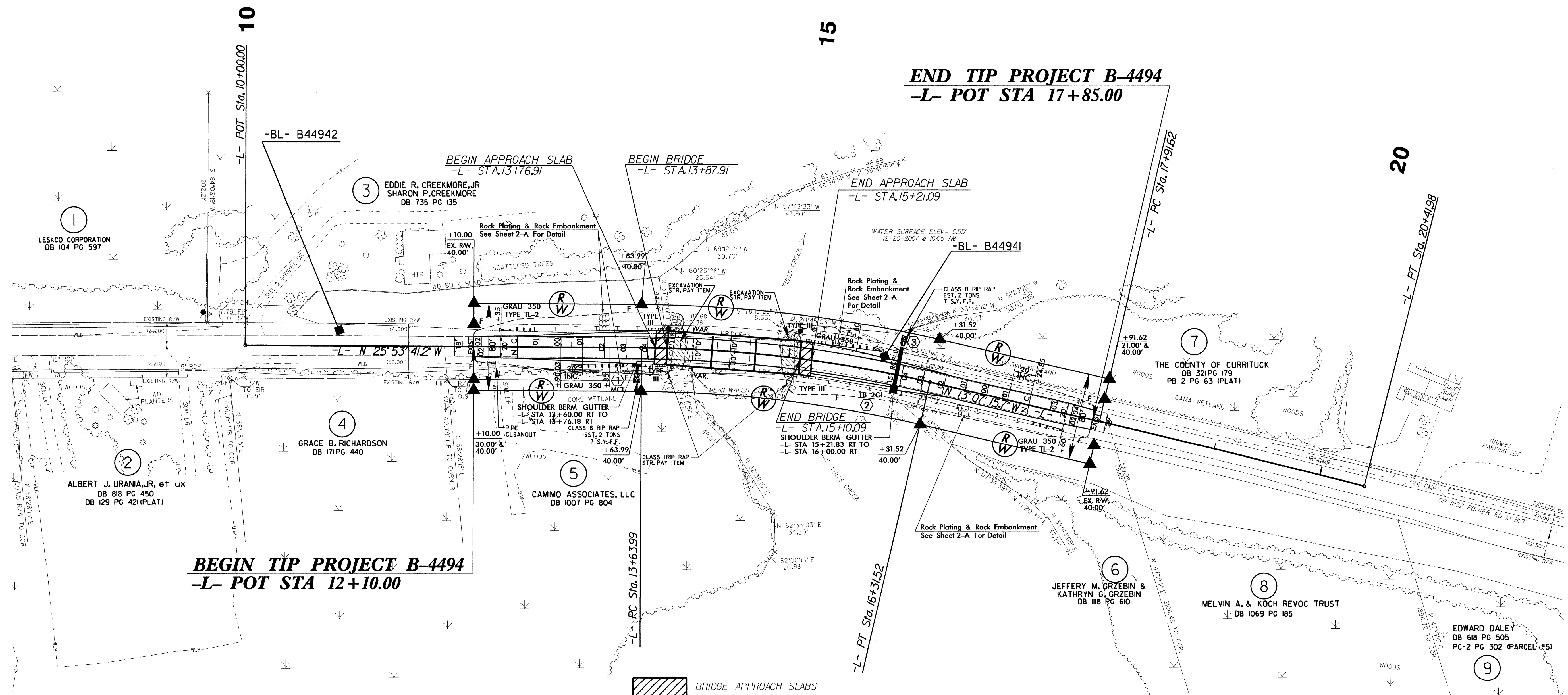
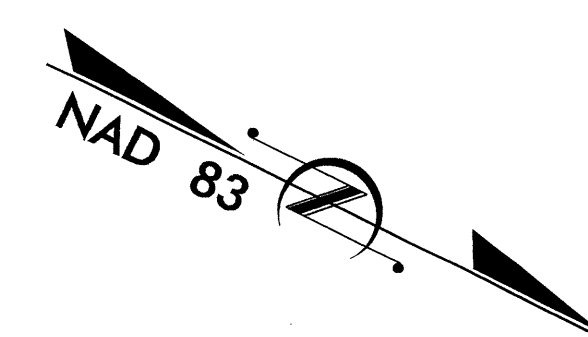
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REMARKS  
Pipe Clean-Out at -L- Sta. 12+31

ABBREVIATIONS  
C.B. CATCH BASIN  
N.D.I. NARROW DROP INLET  
D.I. DROP INLET  
G.D.I. GRATED DROP INLET (NARROW SLOT)  
J.B. JUNCTION BOX  
M.H. MANHOLE  
T.B.D.I. TRAFFIC BEARING DROP INLET  
T.B.J.B. TRAFFIC BEARING JUNCTION BOX

PROJECT REFERENCE NO. B-4494	SHEET NO. 4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

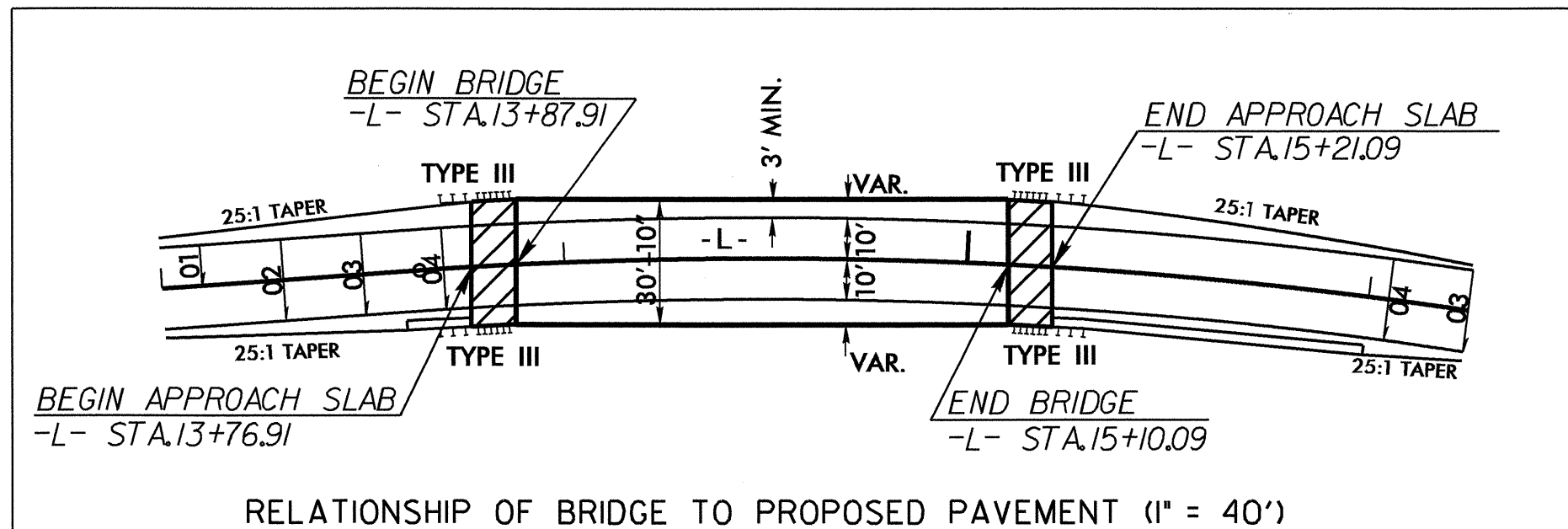
FOR -L- PROFILE, SEE SHEET 5  
FOR STRUCTURE PLANS, SEE SHEETS S-1 TO S-20



**BEGIN TIP PROJECT B-4494**  
**-L- POT STA 12+10.00**

**END TIP PROJECT B-4494**  
**-L- POT STA 17+85.00**

-L- PI Sta 14+98.31 Δ = 12° 46' 25.4" (RT) D = 4' 46" 28.7" L = 267.53' T = 134.32' R = 1,200.00' SE = .04 RUNOFF = SEE PLANS	-L- PI Sta 19+16.81 Δ = 1° 15' 06.5" (RT) D = 0' 30" 00.0" L = 250.36' T = 125.19' R = 11,459.16'
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RELATIONSHIP OF BRIDGE TO PROPOSED PAVEMENT (1" = 40')

8/17/09

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5/14/99

BM #6 R/R SPIKE SET IN BASE OF 24" PINE  
-BL- STA 22+24, 81' LEFT  
EL = 4.23'

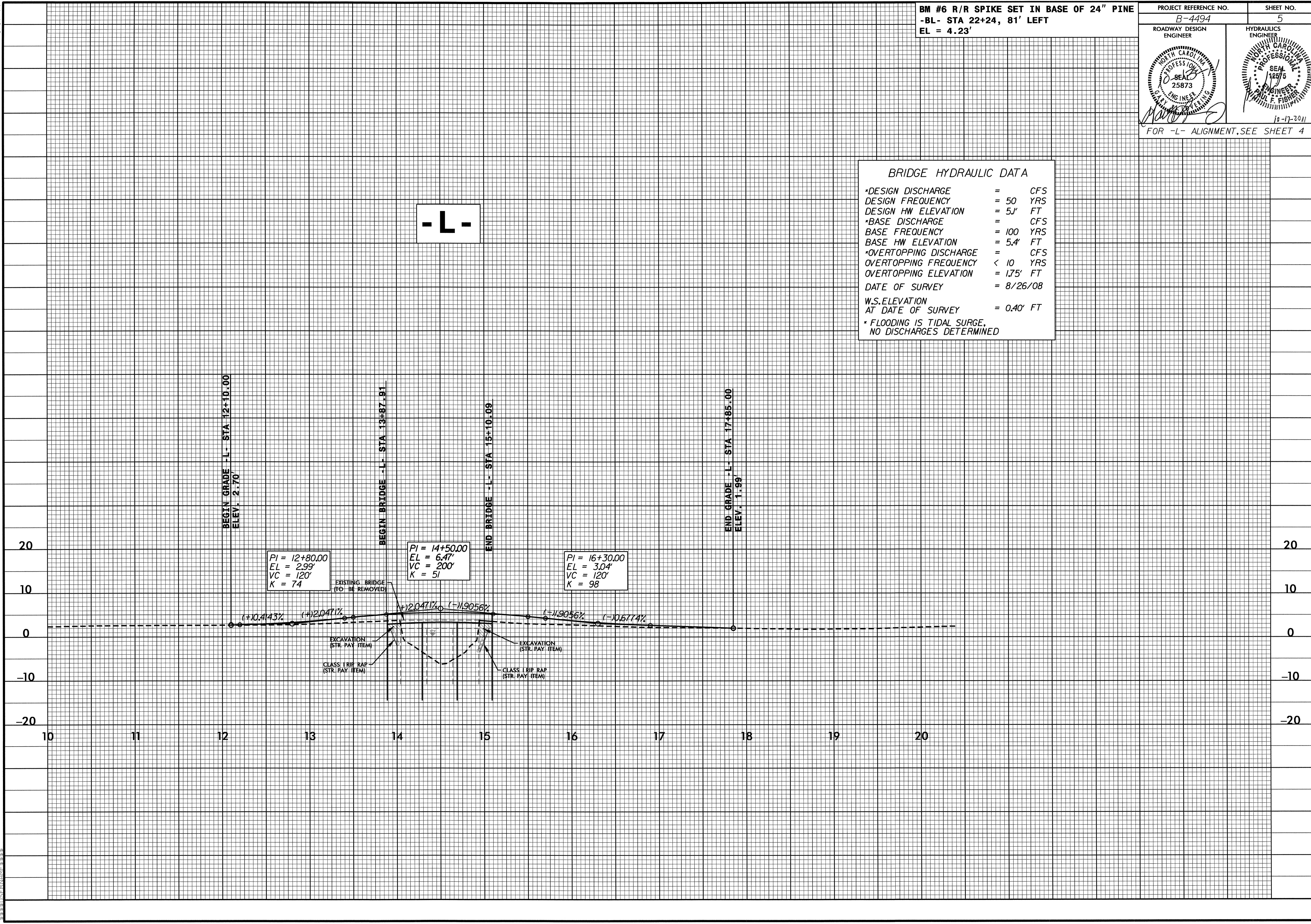
PROJECT REFERENCE NO. B-4494	SHEET NO. 5
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
FOR -L- ALIGNMENT, SEE SHEET 4	

-L-

BRIDGE HYDRAULIC DATA

*DESIGN DISCHARGE	=	CFS
DESIGN FREQUENCY	=	50 YRS
DESIGN HW ELEVATION	=	5.1' FT
*BASE DISCHARGE	=	CFS
BASE FREQUENCY	=	100 YRS
BASE HW ELEVATION	=	5.4' FT
*OVERTOPPING DISCHARGE	=	CFS
OVERTOPPING FREQUENCY	<	10 YRS
OVERTOPPING ELEVATION	=	1.75' FT
DATE OF SURVEY	=	8/26/08
W.S. ELEVATION AT DATE OF SURVEY	=	0.40' FT

\* FLOODING IS TIDAL SURGE.  
NO DISCHARGES DETERMINED



12-OCT-2011 09:03  
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