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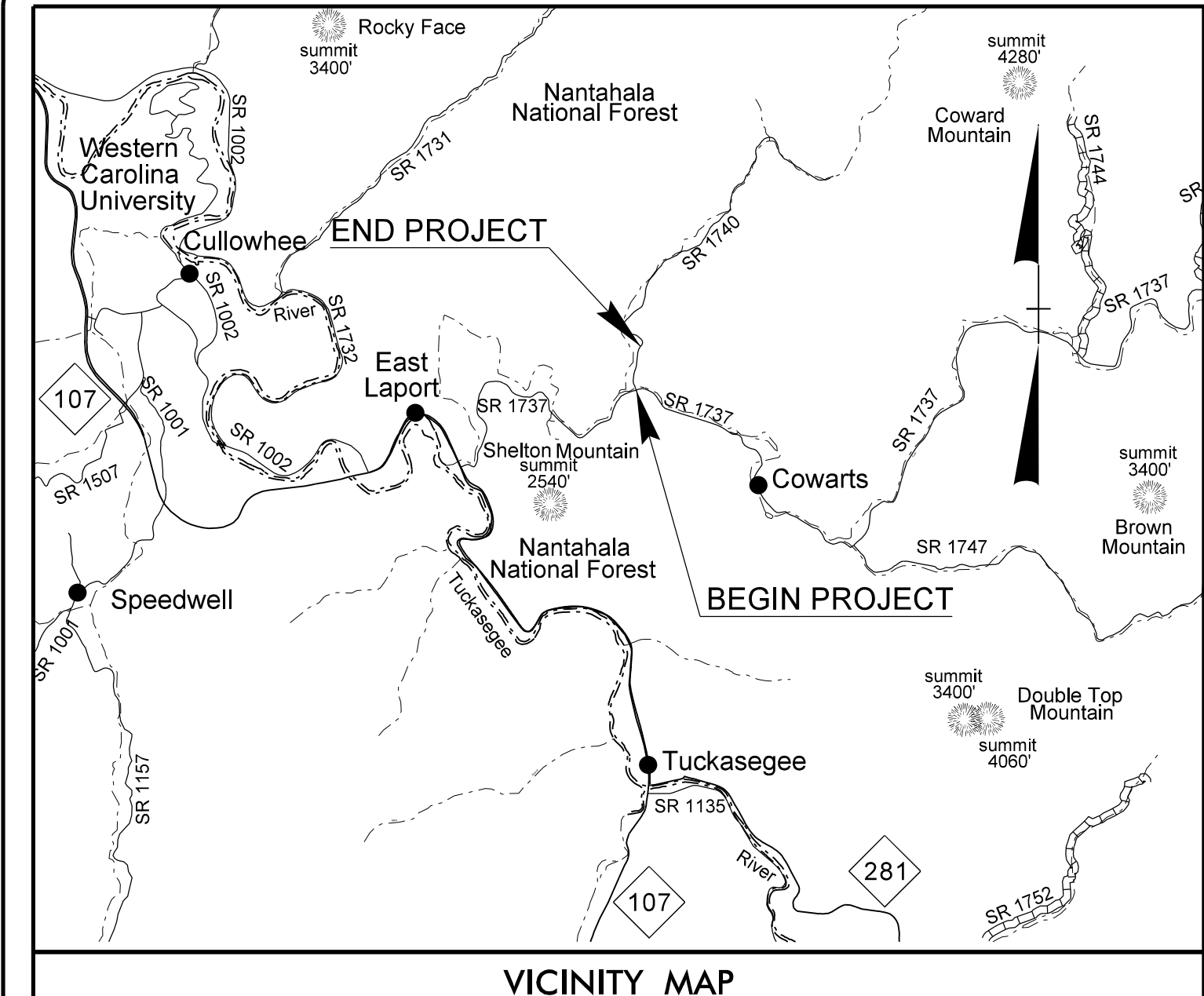
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09\_08/199

**CONTRACT: B-5159**

**T.I.P. PROJECT: B-5159**



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

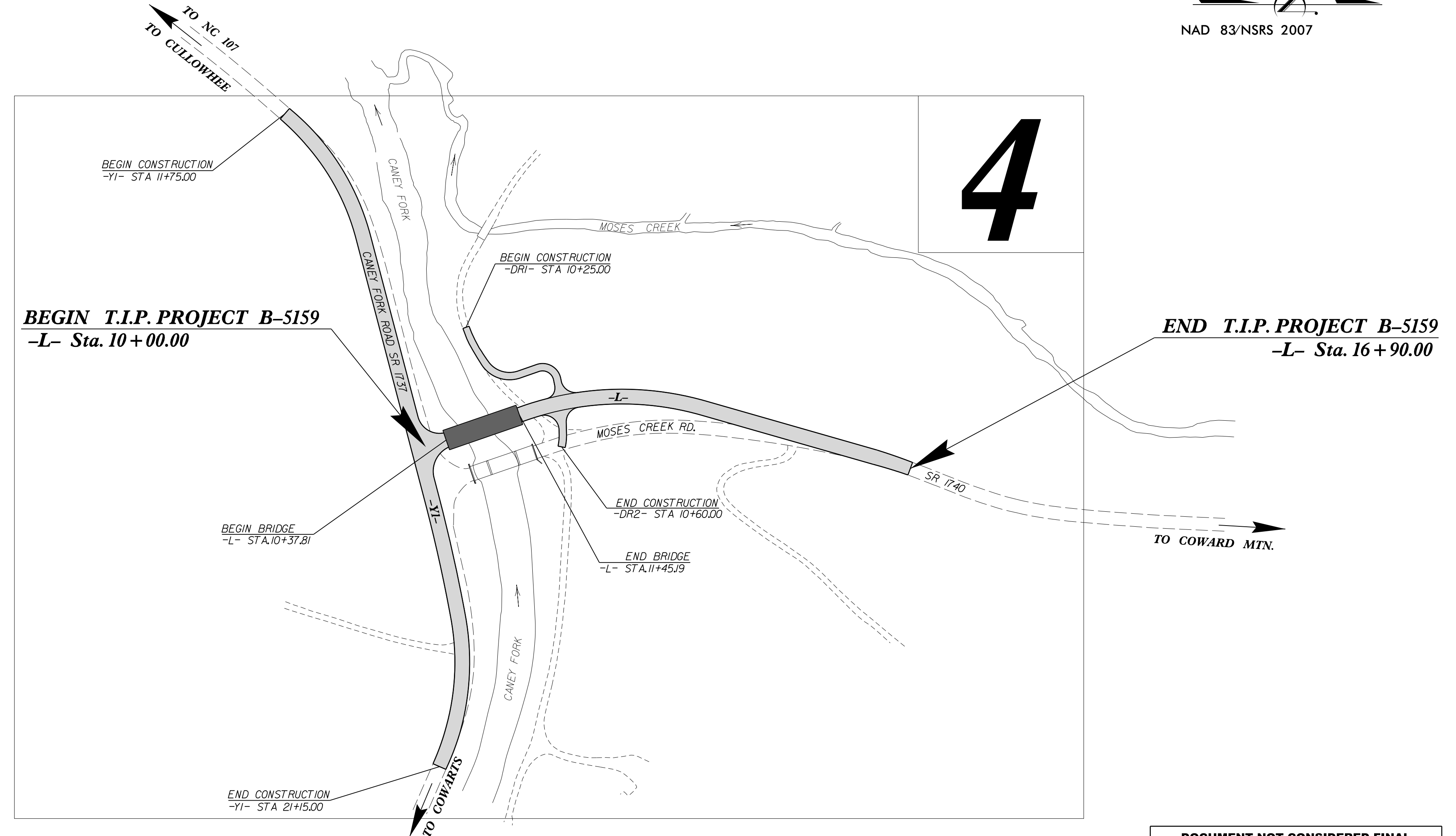
STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

# JACKSON COUNTY

**LOCATION: BRIDGE NO. 101 OVER CANEY FORK ON SR 1740**

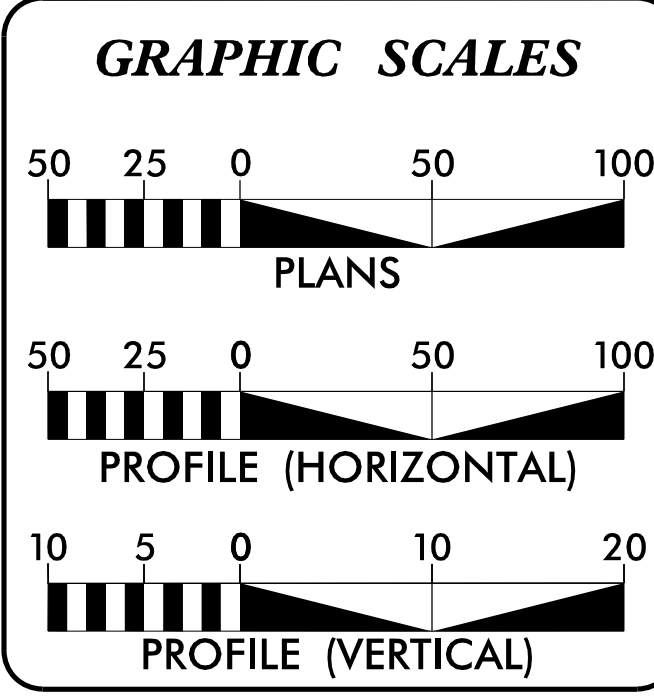
**TYPE OF WORK: GRADING, DRAINAGE, PAVING, AND STRUCTURE**

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	<b>B-5159</b>	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
42334.1.1	BRZ-1740(2)	PE	
42334.2.1		ROW & UTILITY	
42334.3.1		CONSTRUCTION	



**DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED**

**CONTRACT: C203939**



**DESIGN DATA**  
 2017 ADT = 208 VPD  
 2037 ADT = 288 VPD  
 K = 10%  
 D = 65%  
 T = 3% \*  
 V = 35 MPH  
 \* (TTST 1% + DUAL 2%)  
 FUNC. CLASS. = LOCAL RURAL  
 SUBREGIONAL TIER

**PROJECT LENGTH**

LENGTH ROADWAY TIP PROJECT B-5159 = 0.111 mi.  
 LENGTH STRUCTURES TIP PROJECT B-5159 = 0.020 mi.  
 TOTAL LENGTH TIP PROJECT B-5159 = 0.131 mi.

Prepared in the Offices of:

421 FAYETTEVILLE ST., STE 400  
RALEIGH, NC 27601  
1 919.380.8750

HNTB NORTH CAROLINA, P.C.  
343 E. Six Forks Road, Suite 200  
Raleigh, North Carolina 27609  
NC License No. C-1584

2012 STANDARD SPECIFICATIONS

**RIGHT OF WAY DATE:**  
SEPTEMBER 23, 2016

**LETTING DATE:**  
JUNE 20, 2017

**ANDY YOUNG, PE**  
PROJECT ENGINEER

**MICHAEL BURNS, EI**  
PROJECT DESIGN ENGINEER

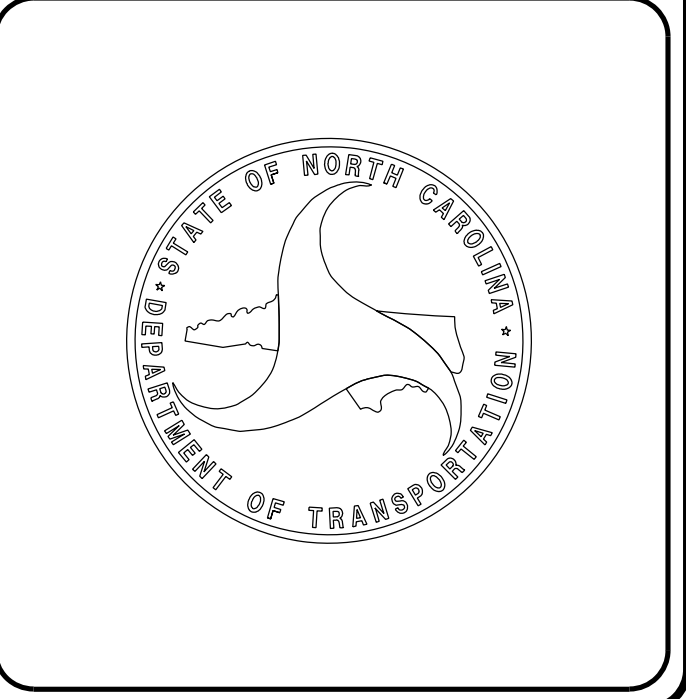
**GARY R. LOVERING, PE**  
NCDOT CONTACT

**HYDRAULICS ENGINEER**

DocuSigned by: James A. Byrd 3/30/2017 P.E.

**ROADWAY DESIGN ENGINEER**

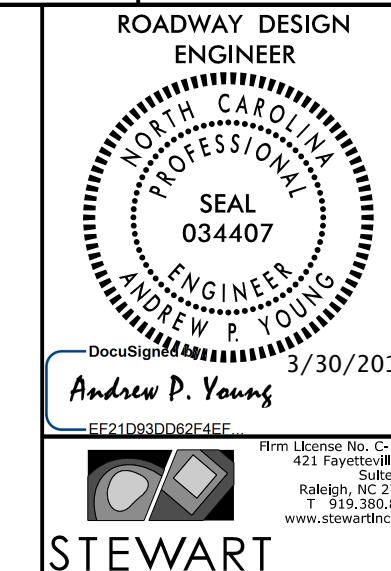
DocuSigned by: Andrew P. Young 3/30/2017 P.E.



STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

**INDEX OF SHEETS, GENERAL NOTES, AND LIST OF  
STANDARD DRAWINGS**

PROJECT REFERENCE NO. SHEET NO.  
B-5159 1A



**DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED**

SHEET NUMBER	SHEET	TITLE
1	TITLE SHEET	2012 ROADWAY ENGLISH STANDARD DRAWINGS
1A	INDEX OF SHEETS, GENERAL NOTES, AND LIST OF 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, 2012 are applicable to this project and by reference hereby are considered a part of these plans:
1B	CONVENTIONAL SYMBOLS	
1C-1	SURVEY CONTROL DATA SHEET	
2A-1 THRU 2A-2	PAVEMENT SCHEDULE, TYPICAL SECTIONS, AND WEDGING DETAILS	
2C-1	GUARDRAIL ANCHOR UNIT, TYPE III SHOP CURVED DETAIL	
2C-2	GUARDRAIL ANCHOR UNIT DETAIL	
3B-1	ROADWAY SUMMARIES	
3D-1	DRAINAGE SUMMARY	
3G-1	GEOTECHNICAL SUMMARY	
4	PLAN SHEET	
5 THRU 6	PROFILE SHEET	
TMP-1 THRU TMP-8	TRAFFIC CONTROL PLANS	
EC-1 THRU EC-5	EROSION CONTROL PLANS	
RF-1	REFORESTATION PLAN	
SIGN-1 THRU SIGN-2	SIGNING PLANS	
PMP-1	PAVEMENT MARKING PLAN	
UO-1 THRU UO-2	UTILITY BY OTHERS PLANS	
X-1	CROSS-SECTION SUMMARY SHEET	
X-2 THRU X-32	CROSS-SECTIONS	
S-1 THRU S-17	STRUCTURE PLANS	

EFF. 01-17-2012  
REV. 02-29-2016

GENERAL NOTES: 2012 SPECIFICATIONS  
EFFECTIVE: 01-17-2012  
REVISED: 10-31-2014

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 II.

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.

SUBSURFACE DRAINS:  
  
SUBSURFACE DRAINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 815.02 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.

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  
HAYWOOD EMC  
FRONTIER COMMUNICATION  
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.

# STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS

## CONVENTIONAL PLAN SHEET SYMBOLS

12/2/2016

### BOUNDARIES AND PROPERTY:

State Line	-----
County Line	-----
Township Line	-----
City Line	-----
Reservation Line	-----
Property Line	-----
Existing Iron Pin	○ EP
Computed 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
Existing Historic Property Boundary	----- HPB
Known Contamination Area: Soil	☠-S-☠
Potential Contamination Area: Soil	☠-S-☠
Known Contamination Area: Water	☠-W-☠
Potential Contamination Area: Water	☠-W-☠
Contaminated Site: Known or Potential	☠ ?

### 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	-----
False Sump	-----

### RAILROADS:

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

### RIGHT OF WAY & PROJECT CONTROL:

Secondary Horiz and Vert Control Point	◆
Primary Horiz Control Point	○
Primary Horiz and Vert Control Point	◆
Exist Permanent Easement Pin and Cap	◇
New Permanent Easement Pin and Cap	◆
Vertical Benchmark	⊠
Existing Right of Way Marker	△
Existing Right of Way Line	-----
New Right of Way Line	-----
New Right of Way Line with Pin and Cap	○ R/W
New Right of Way Line with Concrete or Granite R/W Marker	○ R/W
New Control of Access Line with Concrete C/A Marker	○ C/A
Existing Control of Access	○ C/A
New Control of Access	○ C/A
Existing Easement Line	----- E
New Temporary Construction Easement	----- E
New Temporary Drainage Easement	----- TDE
New Permanent Drainage Easement	----- PDE
New Permanent Drainage / Utility Easement	----- DUE
New Permanent Utility Easement	----- PUE
New Temporary Utility Easement	----- TUE
New Aerial Utility Easement	----- AUE

### ROADS AND RELATED FEATURES:

Existing Edge of Pavement	-----
Existing Curb	-----
Proposed Slope Stakes Cut	----- C
Proposed Slope Stakes Fill	----- F
Proposed Curb Ramp	----- CR
Existing Metal Guardrail	-----
Proposed Guardrail	-----
Existing Cable Guiderail	-----
Proposed Cable Guiderail	-----
Equality Symbol	⊕
Pavement Removal	-----

### VEGETATION:

Single Tree	☀
Single Shrub	☁

*Note: Not to Scale*      \*S.U.E. = *Subsurface Utility Engineering*

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	○ P
Power Line Tower	⊠
Power Transformer	⊠
U/G Power Cable Hand Hole	○
H-Frame Pole	●
U/G Power Line LOS B (S.U.E.*)	----- P
U/G Power Line LOS C (S.U.E.*)	----- P
U/G Power Line LOS D (S.U.E.*)	----- P

### TELEPHONE:

Existing Telephone Pole	●
Proposed Telephone Pole	○
Telephone Manhole	○ T
Telephone Pedestal	□ T
Telephone Cell Tower	⊠ T
U/G Telephone Cable Hand Hole	○ T
U/G Telephone Cable LOS B (S.U.E.*)	----- T
U/G Telephone Cable LOS C (S.U.E.*)	----- T
U/G Telephone Cable LOS D (S.U.E.*)	----- T
U/G Telephone Conduit LOS B (S.U.E.*)	----- TC
U/G Telephone Conduit LOS C (S.U.E.*)	----- TC
U/G Telephone Conduit LOS D (S.U.E.*)	----- TC
U/G Fiber Optics Cable LOS B (S.U.E.*)	----- T FO
U/G Fiber Optics Cable LOS C (S.U.E.*)	----- T FO
U/G Fiber Optics Cable LOS D (S.U.E.*)	----- T FO

### WATER:

Water Manhole	○ W
Water Meter	○
Water Valve	⊗
Water Hydrant	⊕
U/G Water Line LOS B (S.U.E.*)	----- W
U/G Water Line LOS C (S.U.E.*)	----- W
U/G Water Line LOS D (S.U.E.*)	----- W
Above Ground Water Line	----- A/G Water

### TV:

TV Pedestal	□ TV
TV Tower	⊗
U/G TV Cable Hand Hole	○ TV
U/G TV Cable LOS B (S.U.E.*)	----- TV
U/G TV Cable LOS C (S.U.E.*)	----- TV
U/G TV Cable LOS D (S.U.E.*)	----- TV
U/G Fiber Optic Cable LOS B (S.U.E.*)	----- TV FO
U/G Fiber Optic Cable LOS C (S.U.E.*)	----- TV FO
U/G Fiber Optic Cable LOS D (S.U.E.*)	----- TV FO

### GAS:

Gas Valve	◇
Gas Meter	⊕
U/G Gas Line LOS B (S.U.E.*)	----- G
U/G Gas Line LOS C (S.U.E.*)	----- G
U/G Gas Line LOS D (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
SS Forced Main Line LOS B (S.U.E.*)	----- FSS
SS Forced Main Line LOS C (S.U.E.*)	----- FSS
SS Forced Main Line LOS D (S.U.E.*)	----- FSS

### MISCELLANEOUS:

Utility Pole	●
Utility Pole with Base	□
Utility Located Object	○
Utility Traffic Signal Box	□
Utility Unknown U/G Line LOS B (S.U.E.*)	----- ?UTL
U/G Tank; Water, Gas, Oil	□
Underground Storage Tank, Approx. Loc.	□ UST
A/G Tank; Water, Gas, Oil	□
Geoenvironmental Boring	⊕
U/G Test Hole LOS A (S.U.E.*)	○
Abandoned According to Utility Records	AATUR
End of Information	E.O.I.

# SURVEY CONTROL SHEET B-5159

BL POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
1	BL-1	591451.2240	769428.2170	2200.95	10+28.47	81.07 RT
2	BL-2	591730.2370	769317.1570	2210.79	13+47.04	23.78 RT
3	BL-3	592092.9440	769381.7520	2219.69	17+15.23	14.89 LT

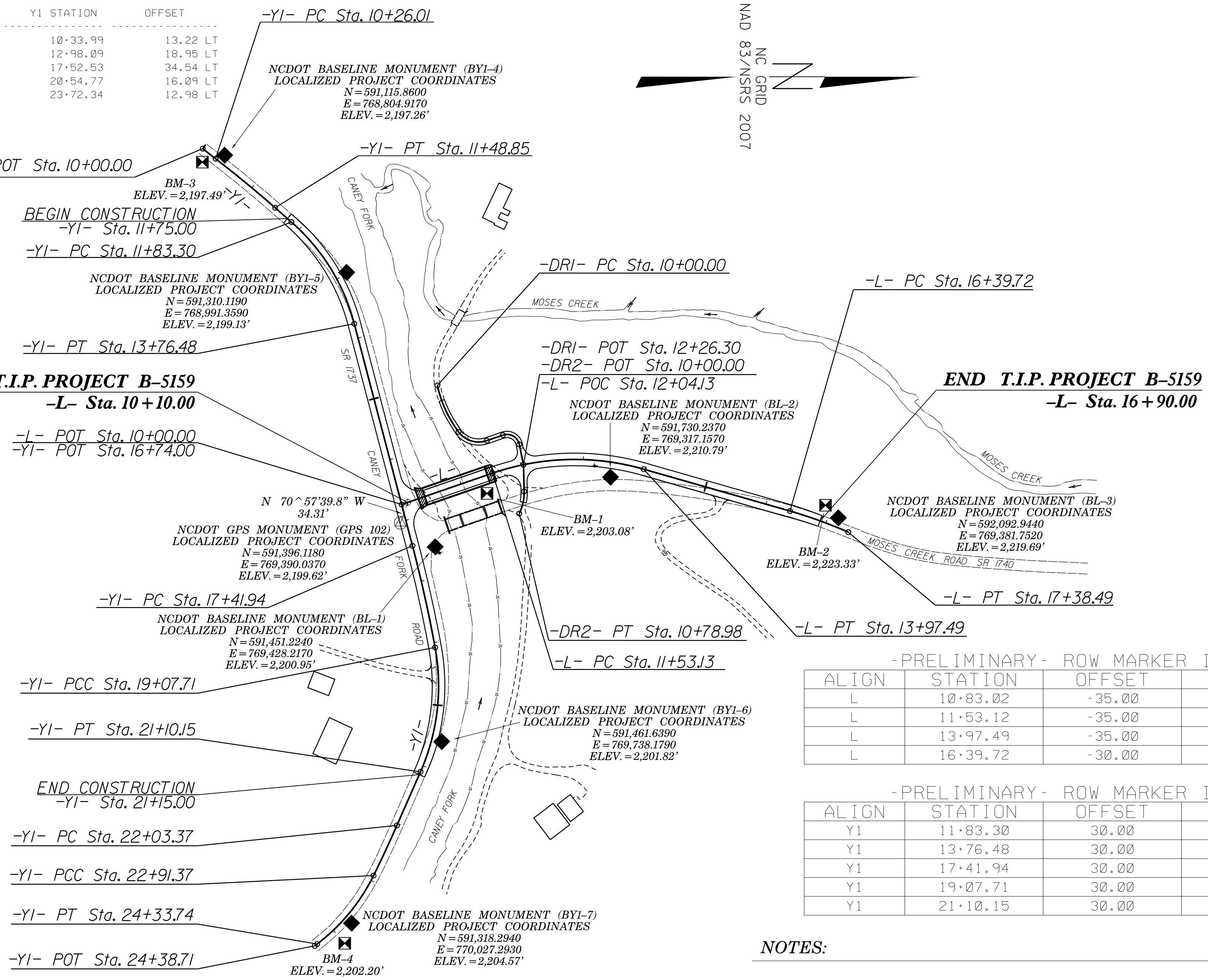
BY1 POINT	DESC.	NORTH	EAST	ELEVATION	Y1 STATION	OFFSET
4	BY1-4	591115.8600	768804.9170	2197.26	10+33.99	13.22 LT
5	BY1-5	591310.1190	768991.3590	2199.13	12+98.09	18.95 LT
11	BL-1	591451.2240	769428.2170	2200.95	17+52.53	34.54 LT
6	BY1-6	591461.6390	769738.1790	2201.82	20+54.77	16.09 LT
7	BY1-7	591318.2940	770027.2930	2204.57	23+72.34	12.98 LT

-L- PRELIMINARY

TYPE	STATION	NORTH	EAST
POT	10+00.00	591397.8564	769360.8704
PC	11+53.13	591542.6007	769310.9070
PT	13+97.49	591783.0989	769304.4318
PC	16+39.72	592015.9854	769371.0318
PT	17+38.49	592108.7999	769404.6111
POT	17+38.50	592108.7999	769404.6111

-Y1- PRELIMINARY

TYPE	STATION	NORTH	EAST
POT	10+00.00	591080.8553	768794.5374
PC	10+26.01	591101.4359	768810.4503
PT	11+48.85	591196.2395	768888.5191
PC	11+83.30	591222.1515	768911.2274
PT	13+76.48	591322.2918	769073.1057
PC	17+41.94	591415.1122	769426.5838
PCC	19+07.71	591451.1362	769588.3475
PT	21+10.15	591427.9985	769786.4648
PC	22+03.37	591390.4997	769871.8142
PCC	22+91.37	591353.3680	769951.5910
PT	24+33.74	591263.7274	770060.5592
POT	24+38.71	591259.7771	770063.5704



-PRELIMINARY- ROW MARKER IRON PIN AND CAP-E

ALIGN	STATION	OFFSET	NORTH	EAST
L	10+83.02	-35.00	591464.9134	769300.6969
L	11+53.12	-35.00	591531.1758	769277.8242
L	13+97.49	-35.00	591792.7223	769270.7807
L	16+39.72	-30.00	592024.2341	769342.1881

-PRELIMINARY- ROW MARKER IRON PIN AND CAP-E

ALIGN	STATION	OFFSET	NORTH	EAST
Y1	11+83.30	30.00	591202.3789	768933.7895
Y1	13+76.48	30.00	591293.2755	769080.7252
Y1	17+41.94	30.00	591386.0959	769434.2032
Y1	19+07.71	30.00	591421.6287	769593.7611
Y1	21+10.15	30.00	591400.5326	769774.3975

-PRELIMINARY- ROW MARKER PERMANENT EASEMENT-E

ALIGN	STATION	OFFSET	NORTH	EAST
Y1	12+88.00	-35.25	591318.9496	768973.8304
Y1	12+88.00	-65.00	591344.6329	768958.8152
Y1	13+12.00	-57.00	591351.0522	768987.7090
Y1	13+12.00	-36.51	591332.6448	768996.7190

**DATUM DESCRIPTION**

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "GPS 102" WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF NORTHING: 591,396.1180(ft) EASTING: 769,390.0370(ft) ELEVATION: 2,199.62(ft)

THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.9997228

THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "GPS 102" TO -L- STATION 10+10.00 IS N 70°57'39.8" W 34.31'

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

**NOTES:**

1. THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT: [HTTPS://CONNECT.NCDOT.GOV/RESOURCES/LOCATION](https://connect.ncdot.gov/resources/location)

THE FILES TO BE FOUND ARE AS FOLLOWS:  
B-5159\_LS\_CONTROL.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.

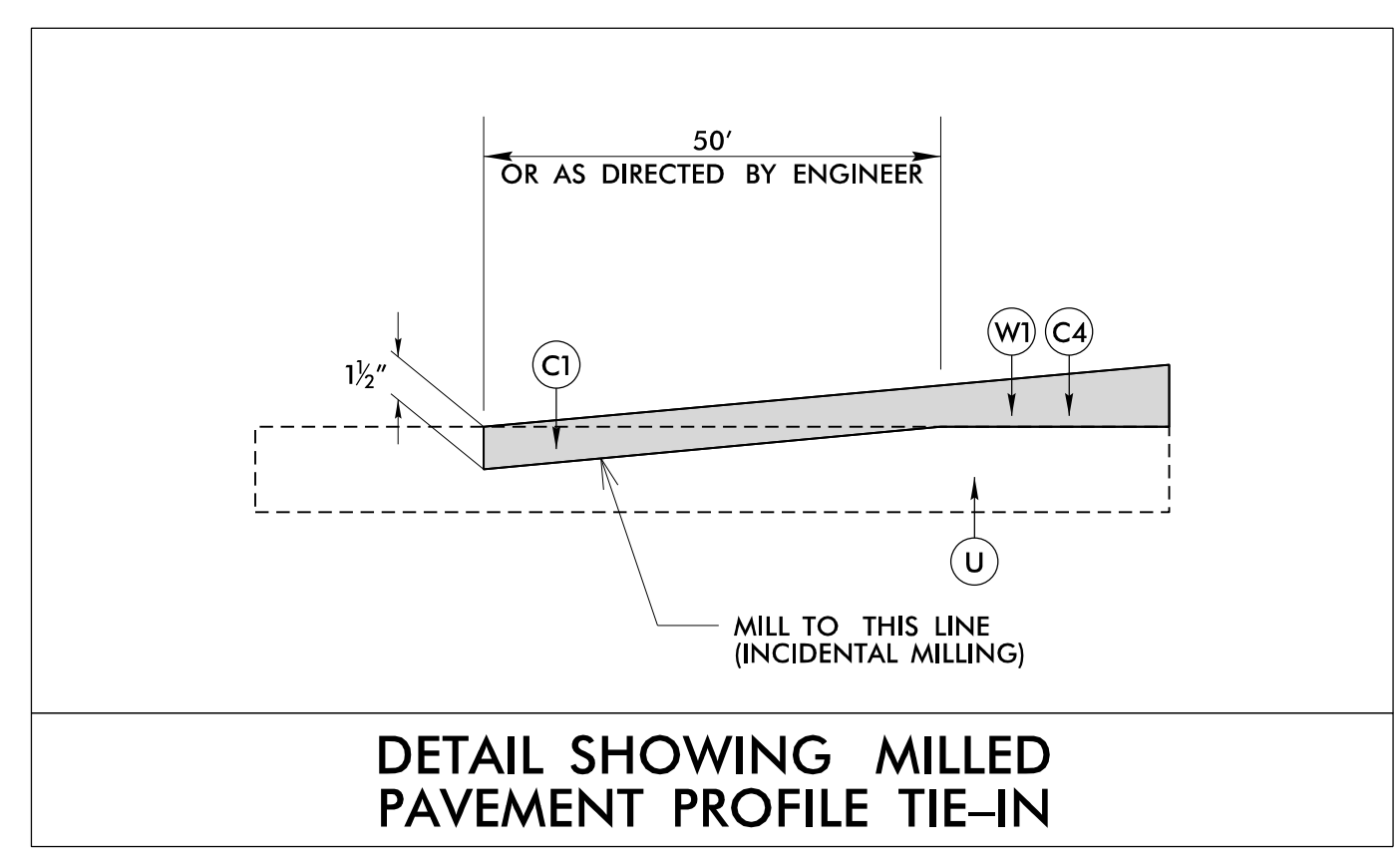
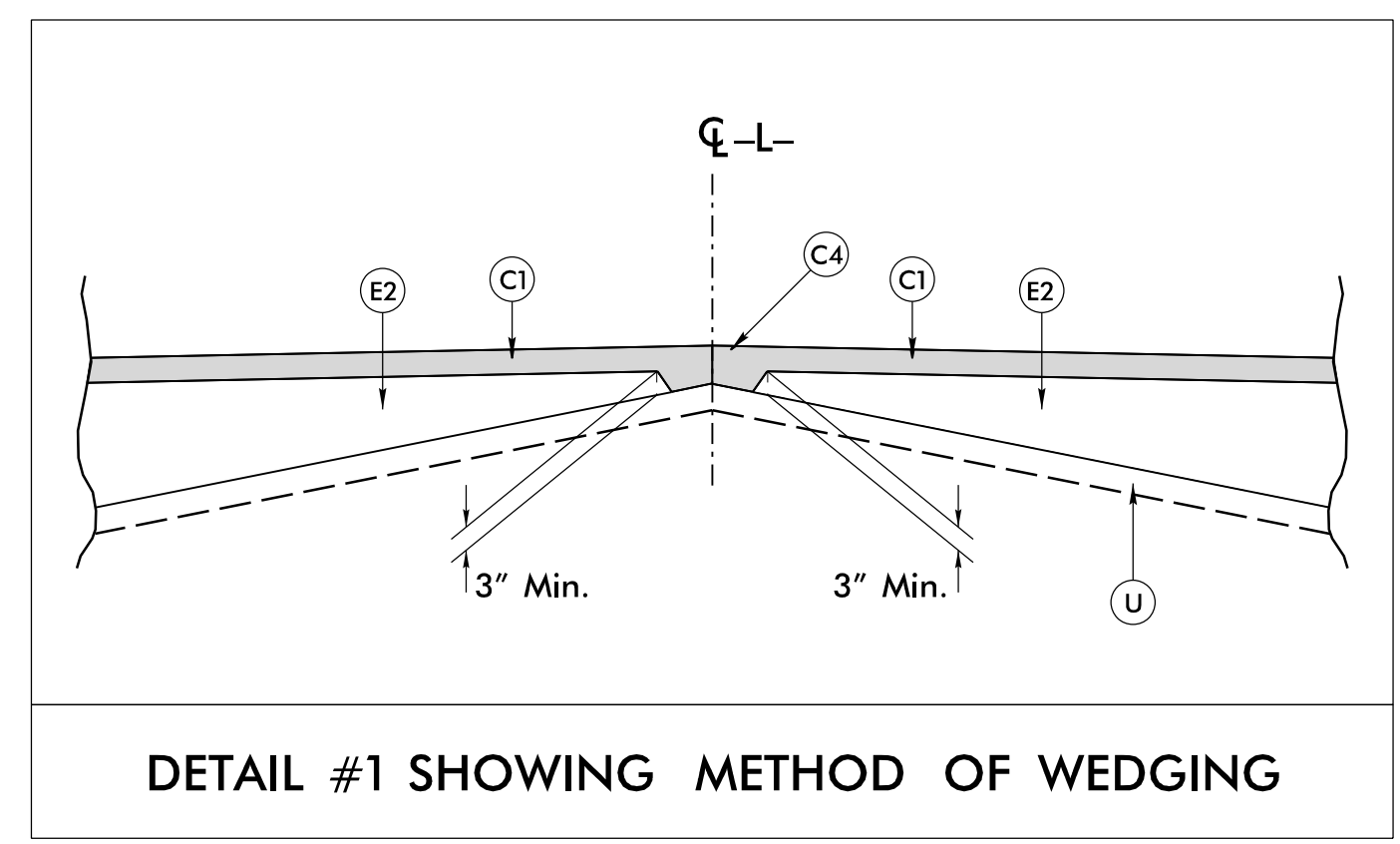
GEOID MODEL: G03NC  
NOTE: DRAWING NOT TO SCALE

6/2/09

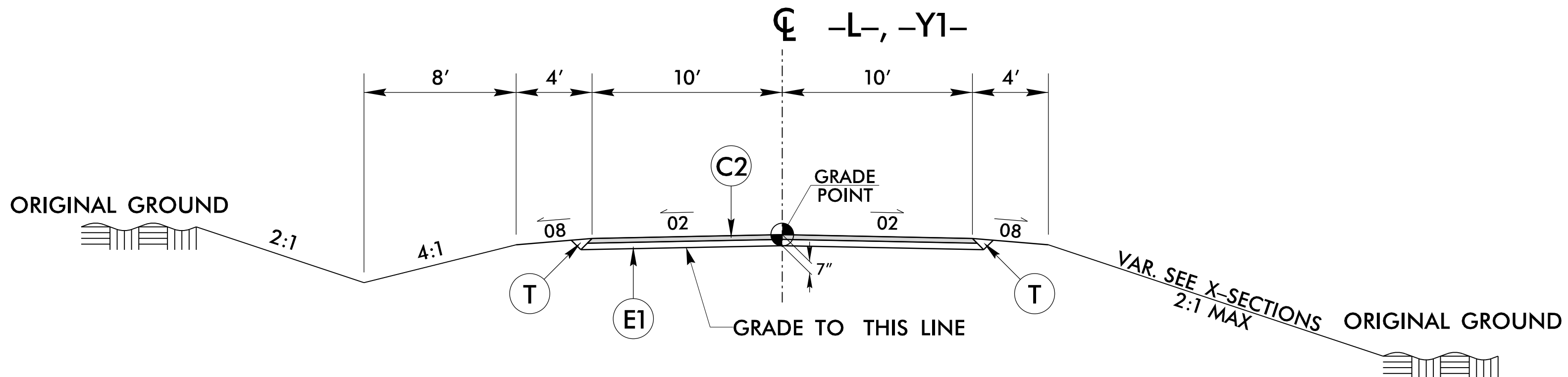
REVISIONS

PAVEMENT SCHEDULE <i>(FINAL PAVEMENT DESIGN)</i>	
C1	PROP. APPROX. 1 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD.
C2	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C3	PROP. APPROX. 2 3/4" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 151.25 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C4	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.
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.
R1	SHOULDER BERM GUTTER
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W1	SEE WEDGING DETAIL 1
W2	SEE WEDGING DETAIL 2

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

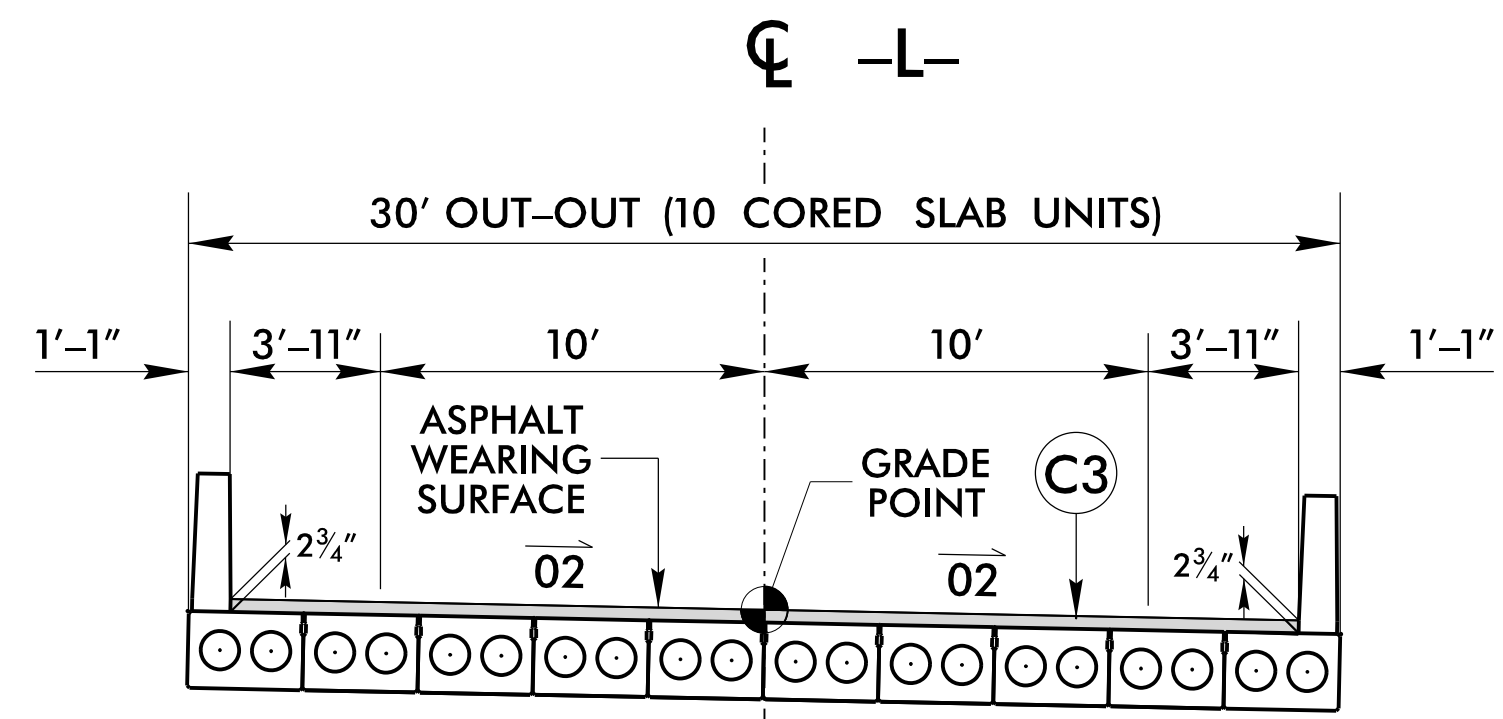


PROJECT REFERENCE NO. B-5159	SHEET NO. 2A-1
ROADWAY DESIGN ENGINEER ANDREW P. YOUNG SEAL 034407 3/30/2017	PAVEMENT DESIGN ENGINEER CLARK MORRISON SEAL 22896 3/31/2017
STEWART	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



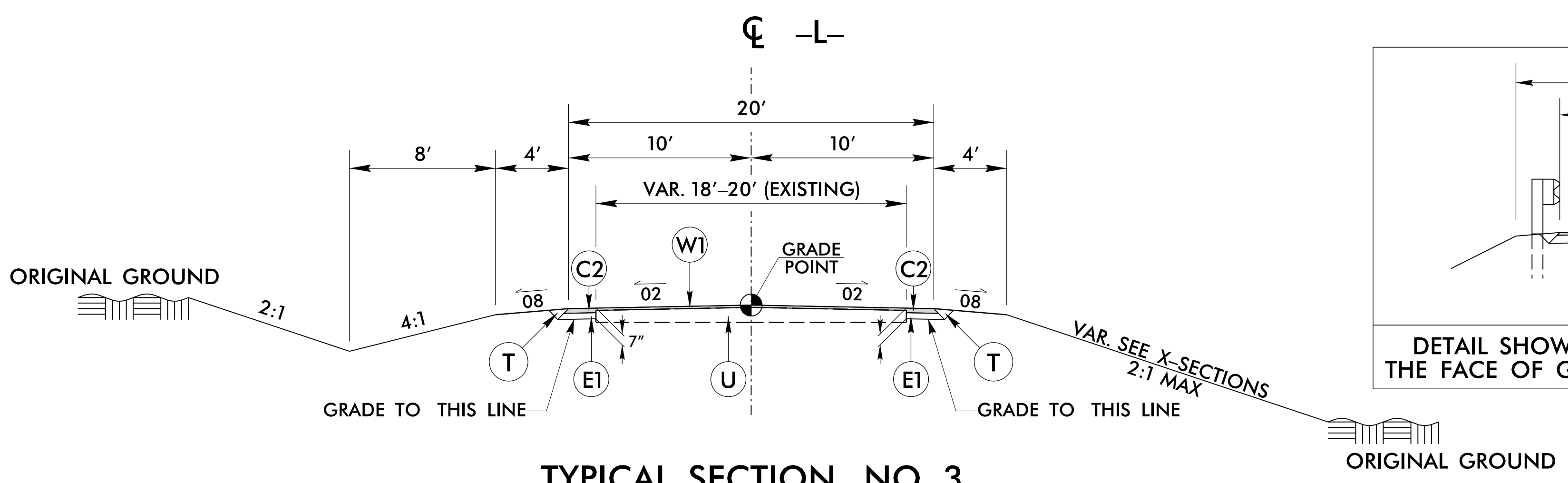
**TYPICAL SECTION NO. 1**

-L- STA. 10+10.00 TO 10+37.81 (BEGIN BRIDGE)  
 -L- STA. 11+45.19 (END BRIDGE) TO 15+15.43  
 -Y1- STA. 14+25.00 TO 15+75.00  
 -Y1- STA. 17+50.00 TO 21+15.00



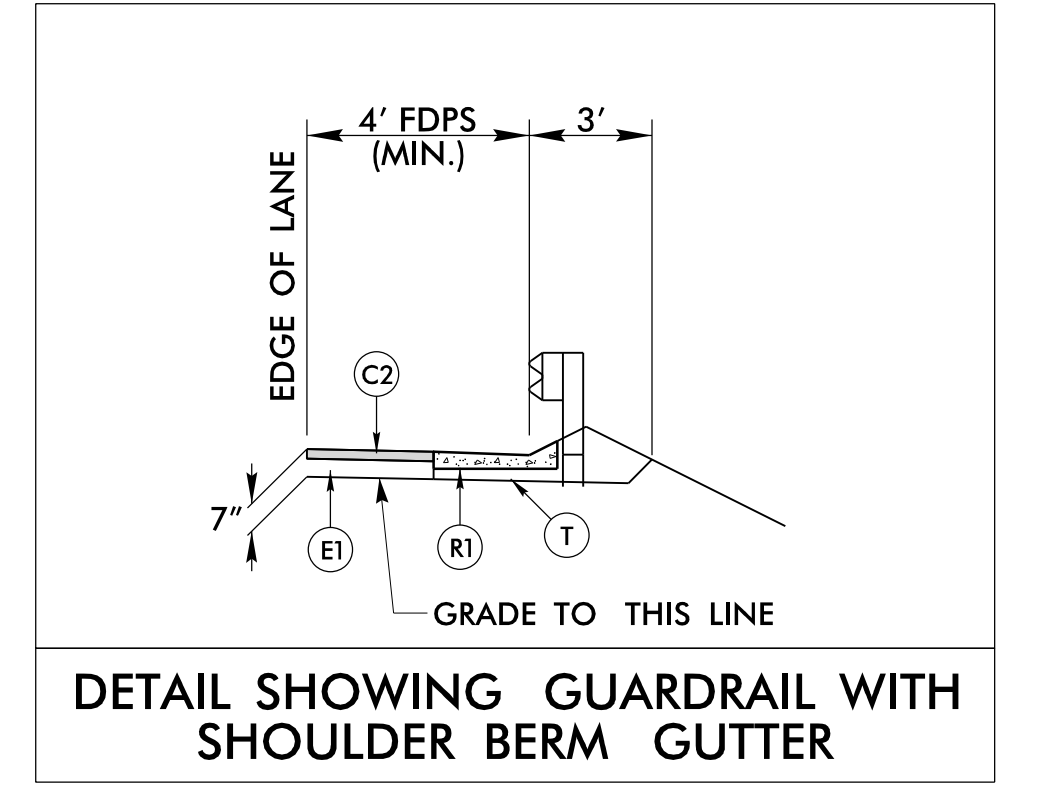
**TYPICAL SECTION NO. 2**

-L- STA. 10+37.81 (BEGIN BRIDGE) TO 11+45.19 (END BRIDGE)

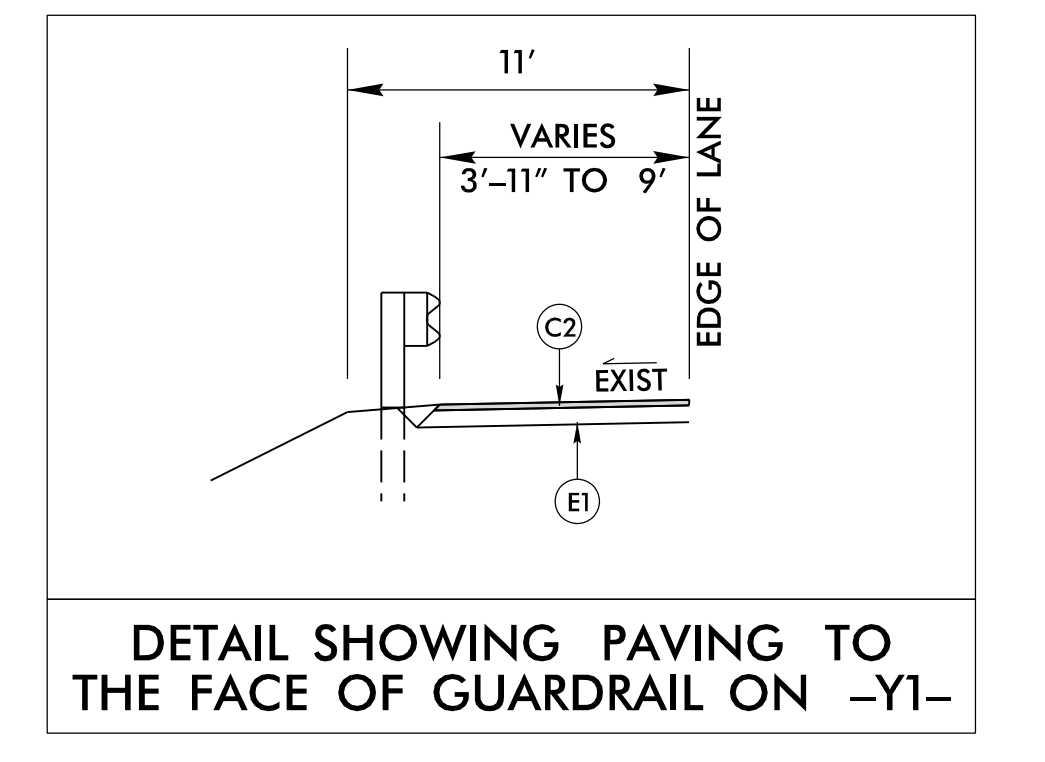
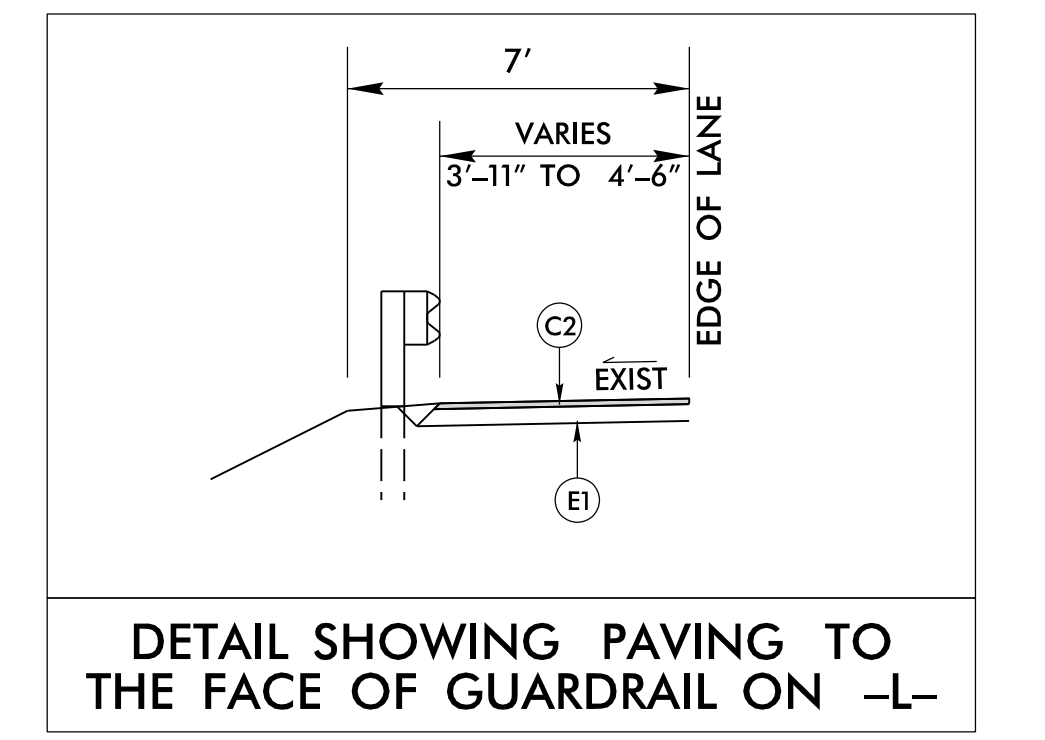


**TYPICAL SECTION NO. 3**

-L- STA. 15+15.43 TO 16+90.00



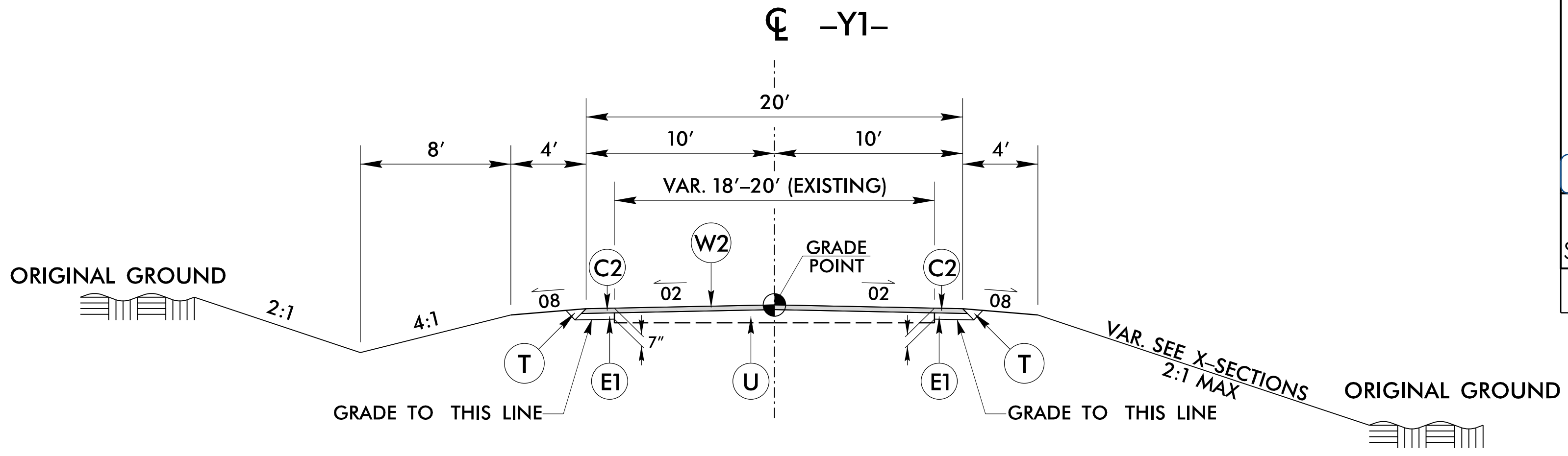
-L- STA. 10+28.00 (RIGHT) TO -Y1- STA. 17+15.00 (LEFT)



-Y1- STA. 17+15.00 TO 21+15.00

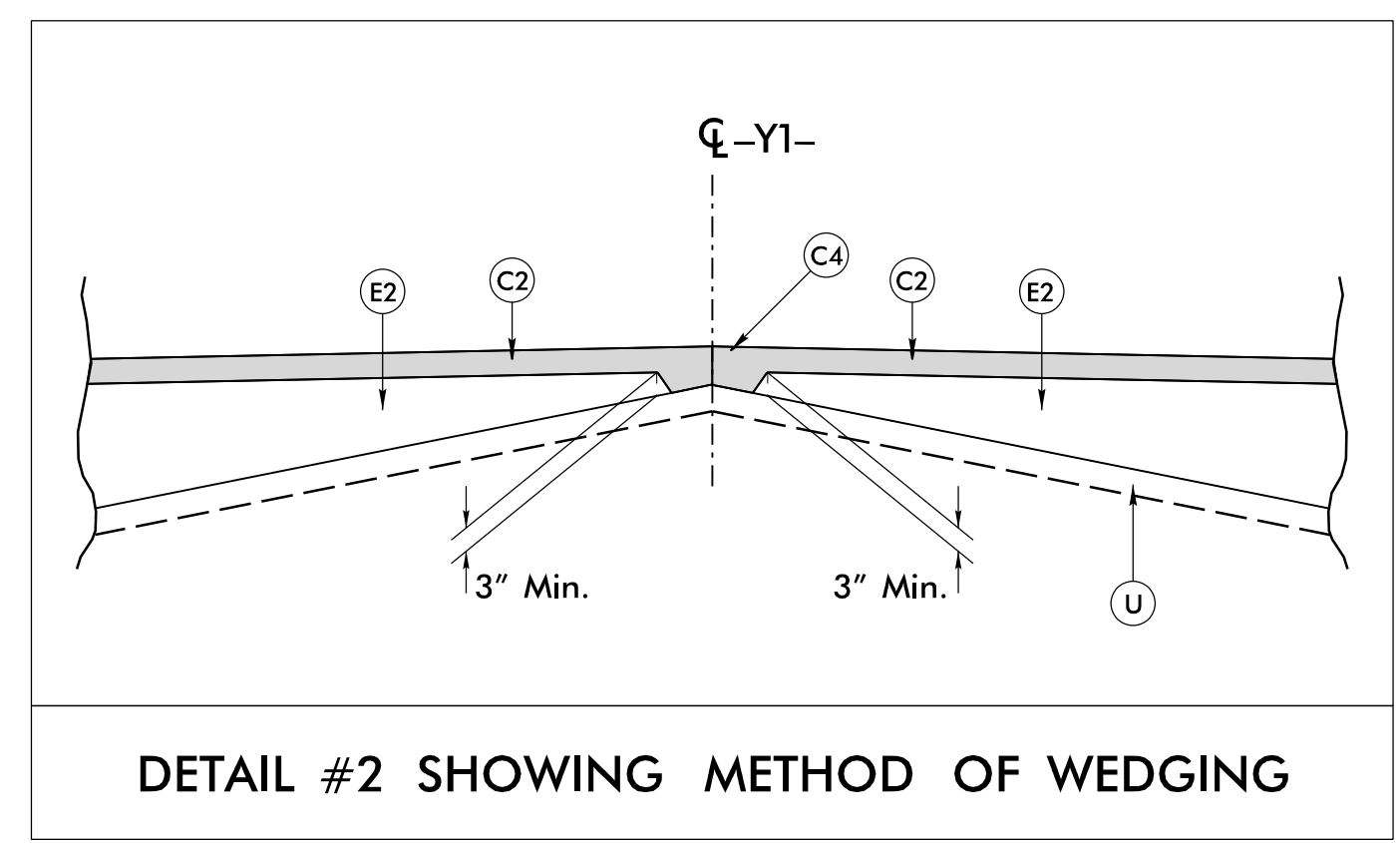
3/29/2017 10:52:00 AM B-5159\_RdJ\_tjup.dgn

C1	1 1/2" SF9.5A
C2	3" SF9.5A
E1	4" B25.0B
R1	SBG
T	EARTH MATERIAL
U	EXIST. PAVEMENT
W1	WEDGING
W2	WEDGING

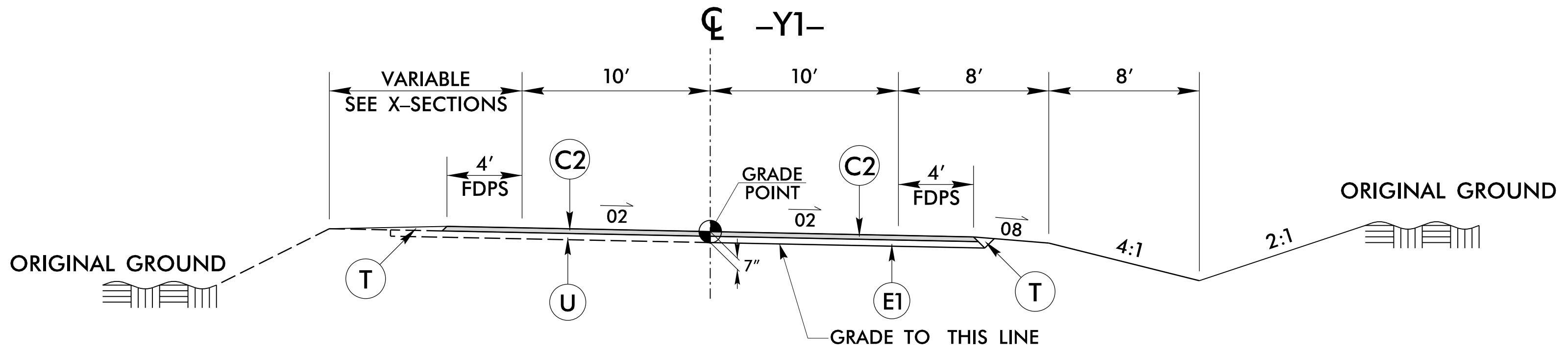


**TYPICAL SECTION NO. 4**

-Y1- STA. 11+75.00 TO 13+88.38

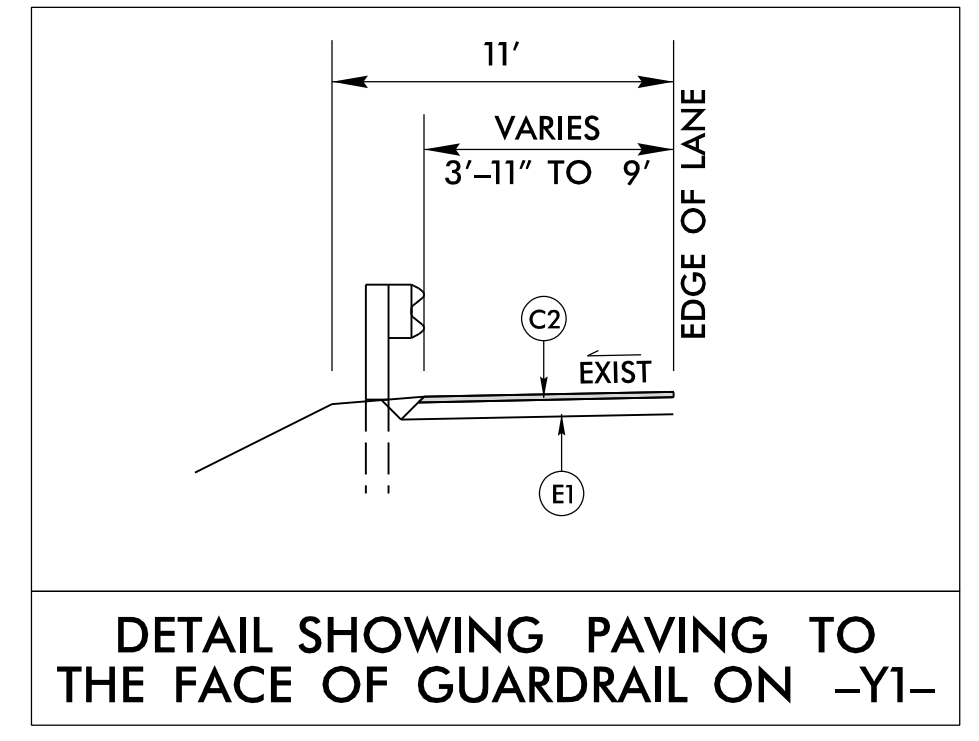


**DETAIL #2 SHOWING METHOD OF WEDGING**

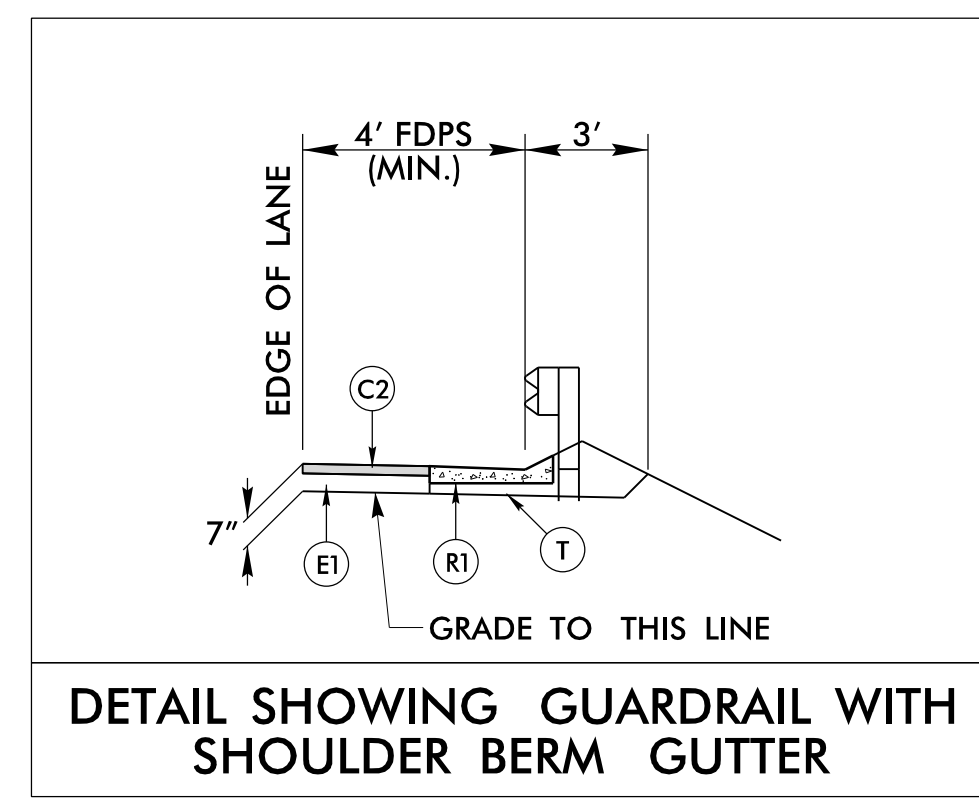


**TYPICAL SECTION NO. 5**

-Y1- STA. 13+88.38 TO 14+25.00  
-Y1- STA. 15+75.00 TO 17+50.00

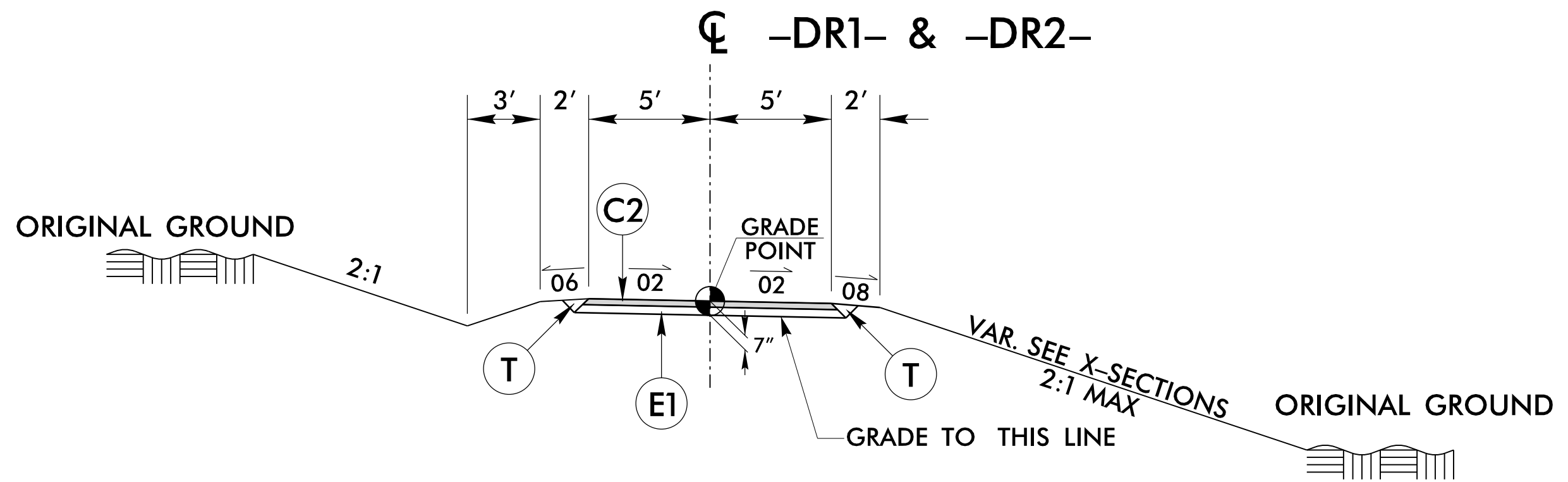


**DETAIL SHOWING PAVING TO THE FACE OF GUARDRAIL ON -Y1-**



**DETAIL SHOWING GUARDRAIL WITH SHOULDER BERM GUTTER**

-L- STA. 10+28.00 (RIGHT) TO -Y1- STA. 17+15.00 (LEFT)



**TYPICAL SECTION NO. 6**

-DR1- STA. 10+25.00 TO 11+98.95  
-DR2- STA. 10+29.87 TO 10+60.00

REVISIONS

6/2/99 3/28/2017 B-5159\_Rdwy\_tup.dgn

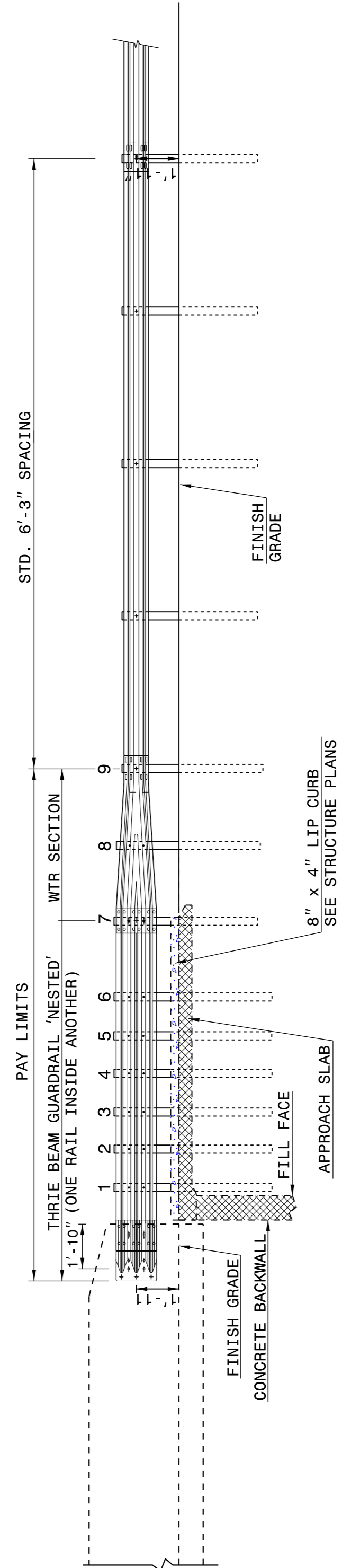




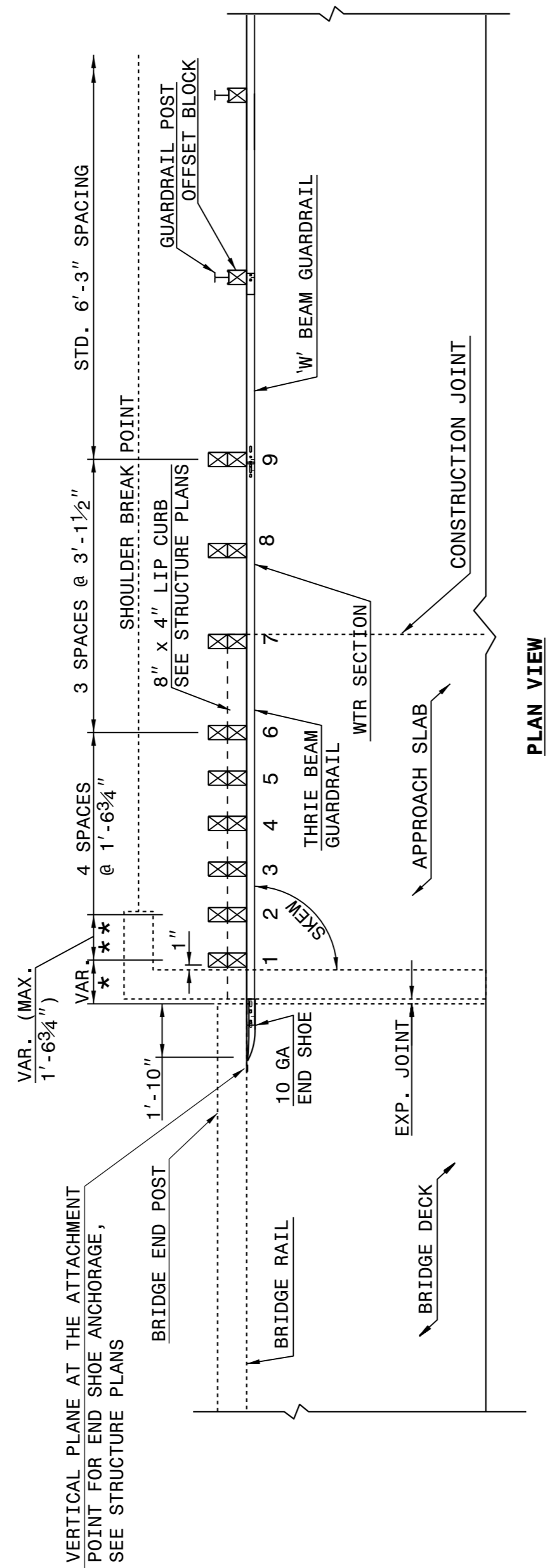
STATE OF  
NORTH CAROLINA  
DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR  
**STRUCTURE ANCHOR UNITS**  
GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO  
RAIL ON BRIDGE - SUB REGIONAL TIER

SHEET 2 OF 7  
**862d03**



**NOTE:**  
 \*\*POST NOT REQUIRED FOR SKEW ANGLES GREATER THAN 150° OR LESS THAN 30° UNLESS OTHERWISE DIRECTED BY THE ENGINEER.  
 \*THE DISTANCE FROM END OF BRIDGE RAIL TO CENTER LINE OF THE FIRST POST SHOULD BE 11½". IF CONCRETE BACKWALL IS NOT PRESENT.  
 -SHOULDER BERM GUTTER MUST BE INSTALLED TO THE LIMITS 8" x 4" LIP CURB IS SHOWN IF ANCHOR UNIT IS NOT ADJACENT TO AN APPROACH SLAB.  
 -MEASURE GUARDRAIL HEIGHT FROM THE TOP OF ADJACENT SURFACE (SHOULDER, BERM, OR GUTTER).  
 -LAP JOINTS IN THE DIRECTION OF TRAFFIC FLOW.  
 -SEE SHEET 3 FOR POST SECTIONS 1 THRU 9.



**GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO  
RAIL ON BRIDGE - SUB REGIONAL TIER**

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

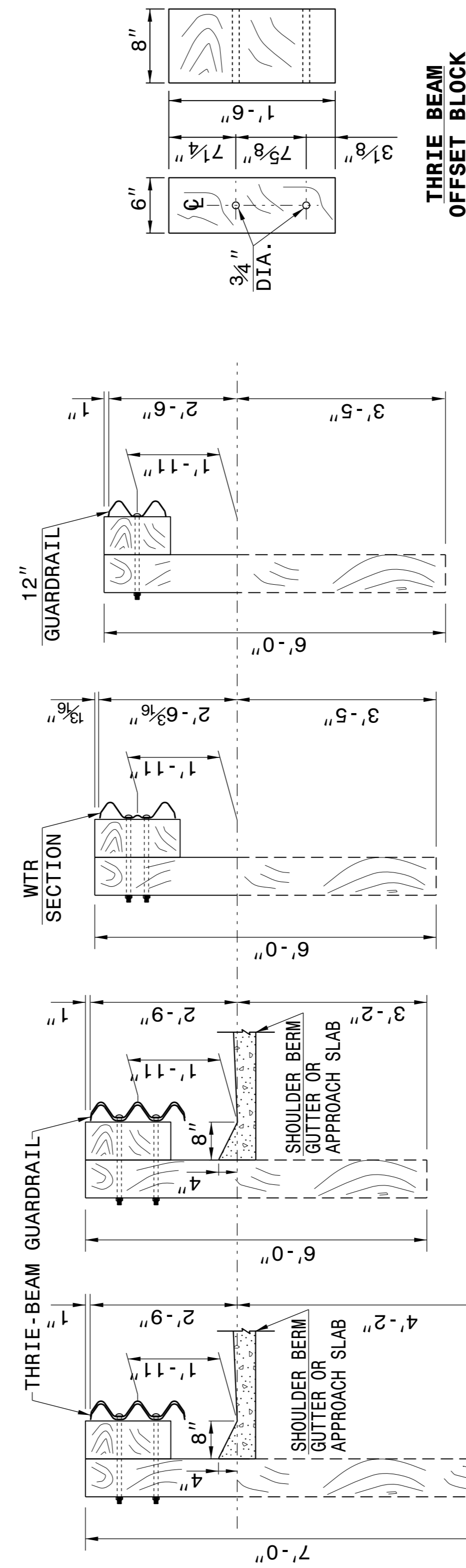
ENGLISH DETAIL DRAWING FOR  
**STRUCTURE ANCHOR UNITS**  
GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO  
RAIL ON BRIDGE - SUB REGIONAL TIER

SHEET 2 OF 7  
**862d03**

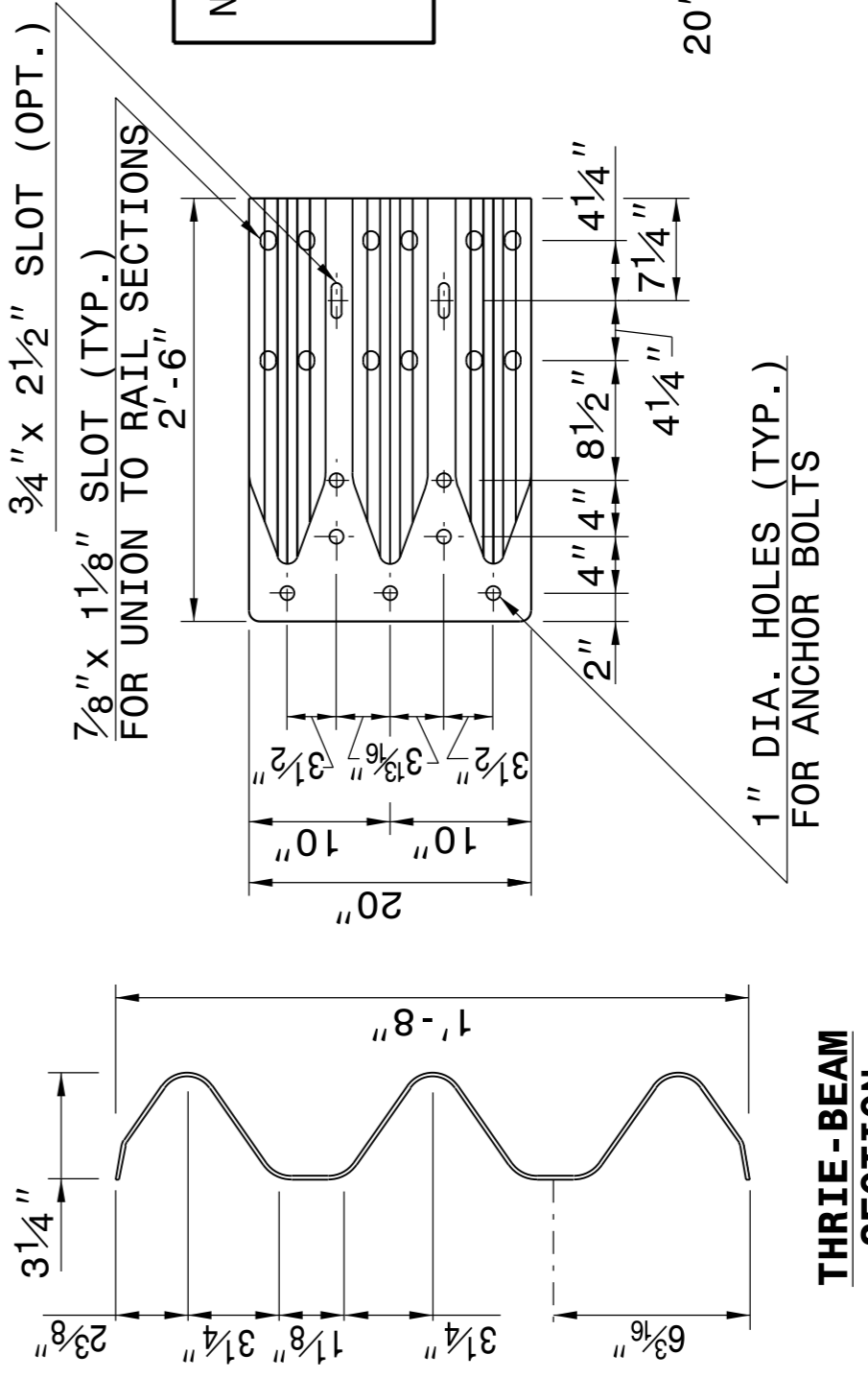
STATE OF  
NORTH CAROLINA  
DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR  
**STRUCTURE ANCHOR UNITS**  
GUARDRAIL ANCHOR UNIT, TYPE III

SHEET 3 OF 7  
**862d03**



**SECTION OF THRIE BEAM POSTS 1 THRU 6**  
**SECTION OF THRIE BEAM POST 7**  
**SECTION OF WTR BEAM POST 8**  
**SECTION OF WTR BEAM POST 9**



**NOTE:** THE MID POST AND OFFSET BLOCK OF THE WTR SECTION WILL REQUIRE SPECIAL BOLT HOLE DRILLING IN THE THRIE BEAM OFFSET BLOCK AND LINE POST.

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

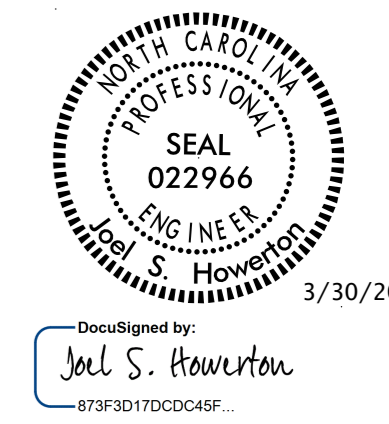
ENGLISH DETAIL DRAWING FOR  
**STRUCTURE ANCHOR UNITS**  
GUARDRAIL ANCHOR UNIT, TYPE III

SHEET 3 OF 7  
**862d03**

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

**SEE TITLE BLOCK**

ORIGINAL BY: J. HOWERTON DATE: 06-22-12  
 MODIFIED BY: DATE:  
 CHECKED BY: DATE:  
 FILE SPEC.: DATE:



DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED





COMPUTED BY: PQL 2/22/2017  
 CHECKED BY: SCC 2/22/2017

(2-16-16)

PROJECT NO. SHEET NO.  
 B-5159 38-1

STATE OF NORTH CAROLINA  
 DIVISION OF HIGHWAYS

SUMMARY OF SUBSURFACE DRAINAGE

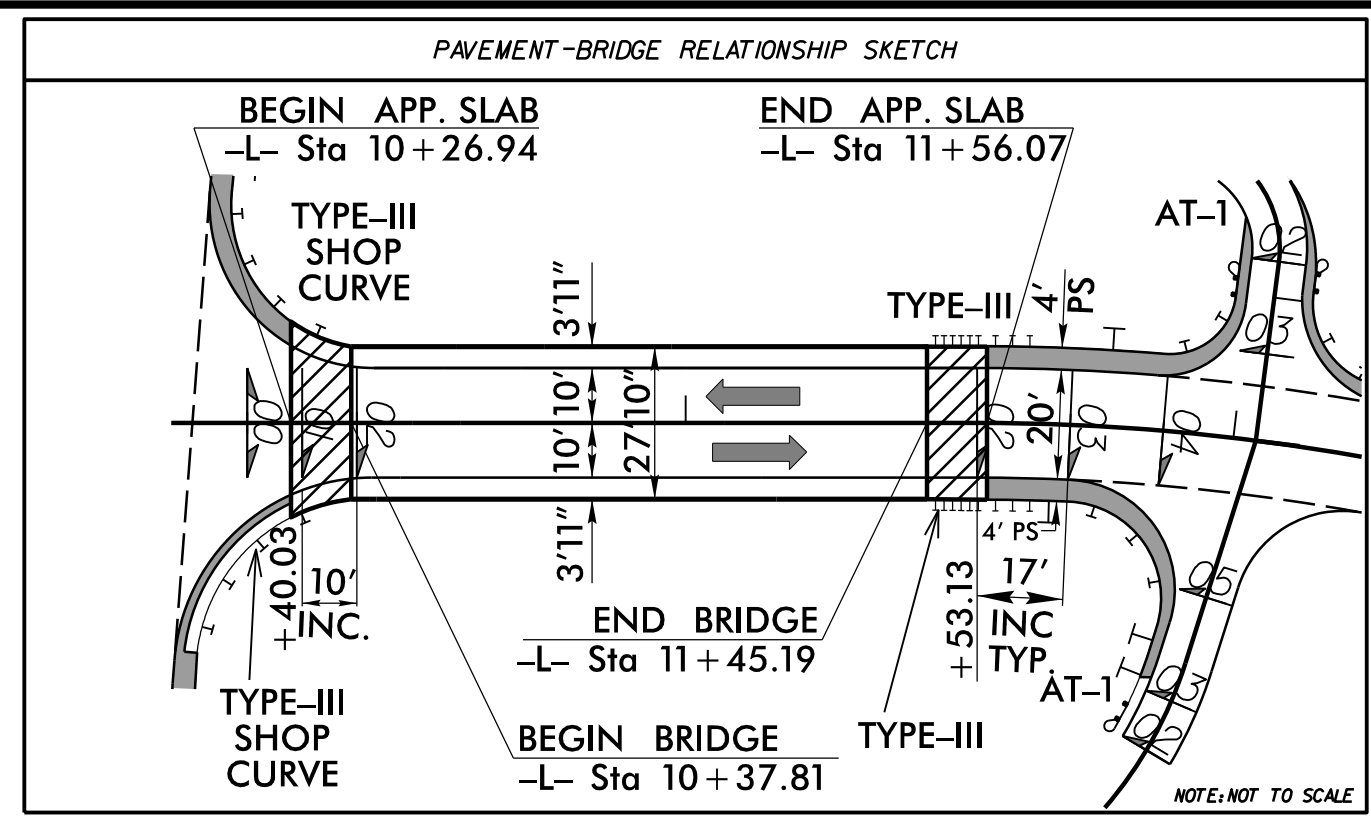
LINE	Station	Station	Location LT/RT/CL	Drain Type* UD/BD/SD	LF
CONTINGENCY				SD	300
				<b>TOTAL LF:</b>	300

\*UD = Underdrain  
 \*BD = Blind Drain  
 \*SD = Subsurface Drain

SUMMARY OF AGGREGATE SUBGRADE/STABILIZATION

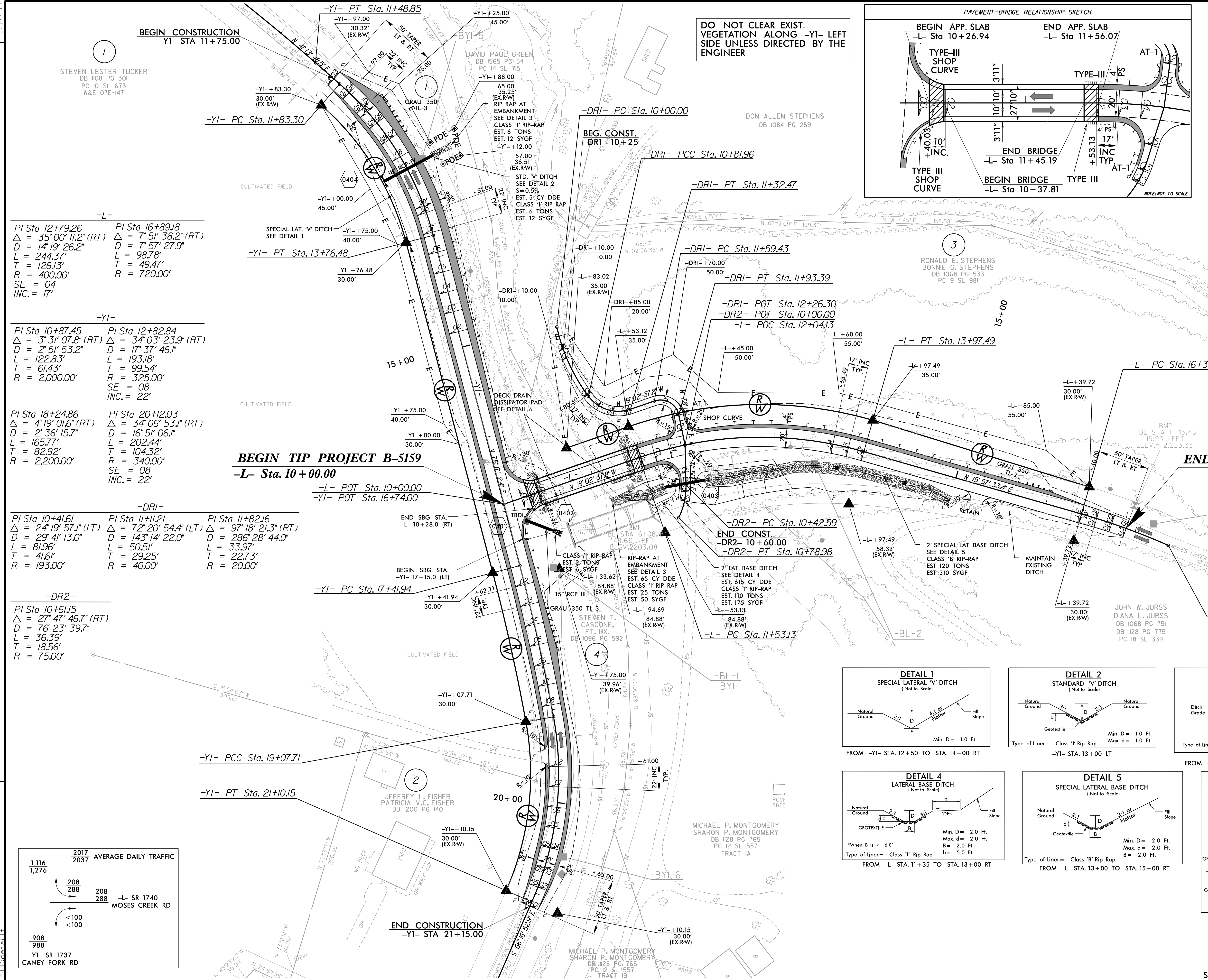
LINE	Station	Station	Aggregate Type* ASU/AST	Aggregate Thickness INCHES	Shallow Undercut CY	Class IV Subgrade Stabilization TONS	Geotextile for Soil Stabilization SY	Stabilizer Aggregate TONS	Class IV Aggregate Stabilization TONS
CONTINGENCY			ASU		50	80	100		
			<b>TOTAL CY/TONS/SY:</b>		50	80	100**	0	0

\*ASU = Aggregate Subgrade  
 \*AST = Aggregate Stabilization  
 \*\*Total square yards of "Geotextile for Soil Stabilization" is only the estimated quantity for ASU/AST and may only represent a portion of the geotextile quantity shown in the Item Sheets of the Proposal.



DO NOT CLEAR EXIST. VEGETATION ALONG -Y1- LEFT SIDE UNLESS DIRECTED BY THE ENGINEER

NAD 83/NRSR 2007



-L-

PI Sta 12+79.26 Δ = 35° 00' 11.2" (RT) D = 14' 19" 26.2" L = 244.37' T = 126.13' R = 400.00' SE = 04 INC. = 17'	PI Sta 16+89.18 Δ = 7° 51' 38.2" (RT) D = 7° 51' 27.9" L = 98.78' T = 49.47' R = 720.00'
--	---

-Y1-

PI Sta 10+87.45 Δ = 3° 31' 07.8" (RT) D = 2° 51' 53.2" L = 122.83' T = 61.43' R = 2,000.00'	PI Sta 12+82.84 Δ = 34° 03' 23.9" (RT) D = 17° 37' 46.1" L = 193.18' T = 99.54' R = 325.00' SE = 08 INC. = 22'
--	---

-DR1-

PI Sta 10+41.61 Δ = 24° 19' 57.1" (LT) D = 29° 41' 13.0" L = 81.96' T = 41.61' R = 193.00'	PI Sta 11+11.21 Δ = 72° 18' 54.4" (LT) D = 143° 14' 22.0" L = 50.51' T = 29.25' R = 40.00'	PI Sta 11+82.16 Δ = 97° 18' 21.3" (RT) D = 286° 28' 44.0" L = 33.97' T = 22.73' R = 20.00'
---	---	---

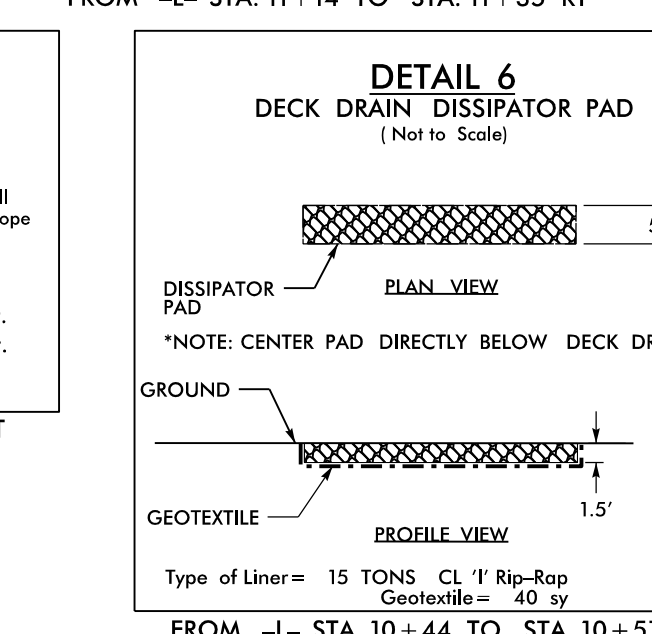
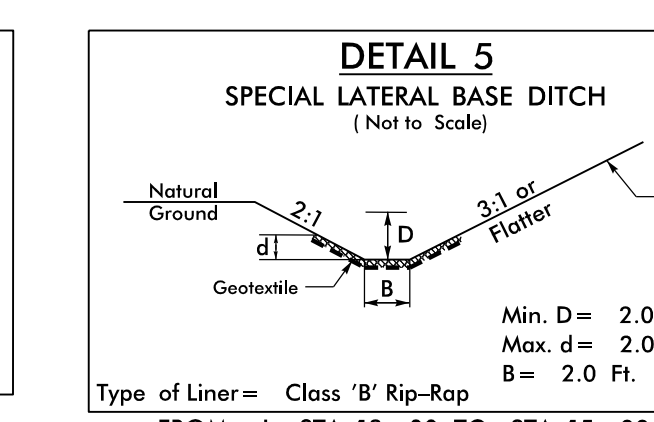
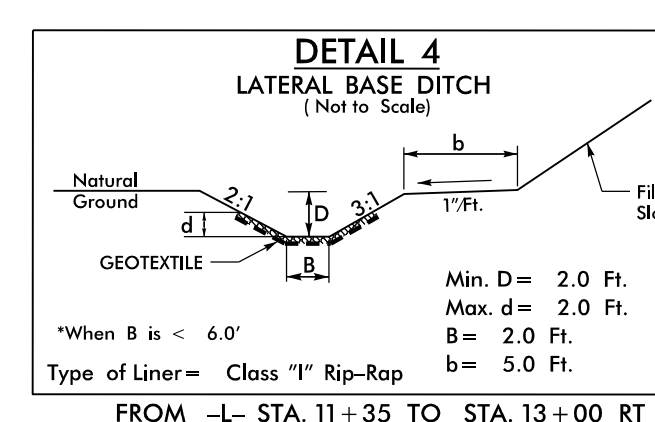
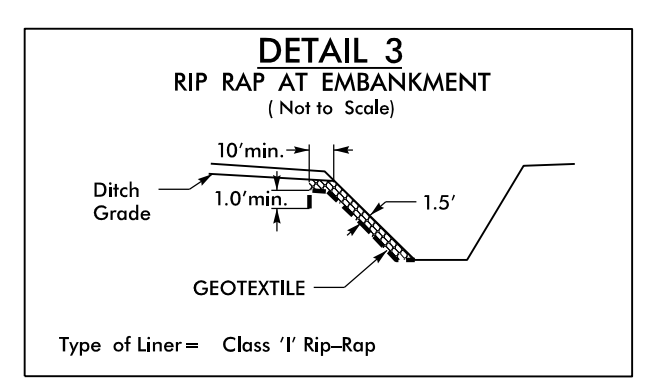
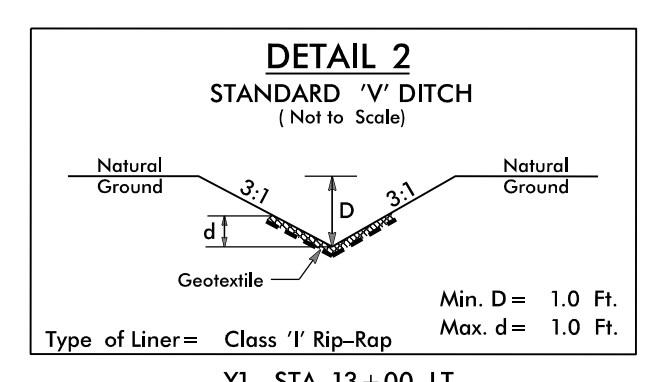
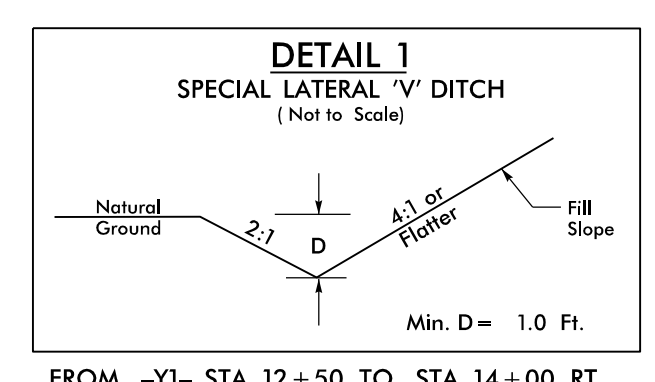
-DR2-

PI Sta 10+61.15 Δ = 27° 47' 46.7" (RT) D = 76° 23' 39.7" L = 36.39' T = 18.56' R = 75.00'
--

2017 AVERAGE DAILY TRAFFIC

1,116	208	208
1,276	288	288
	<100	<100

SR 1740 MOSES CREEK RD  
SR 1737 CANEY FORK RD



SEE SHEET 5 FOR -L- PROFILE  
SEE SHEET 5 FOR -Y1- PROFILE  
SEE SHEET 6 FOR -DR1- PROFILE  
SEE SHEET 6 FOR -DR2- PROFILE  
SEE SHEET S-1 TO S-17 FOR STRUCTURE PLANS

5/14/19

**BRIDGE HYDRAULIC DATA**

DESIGN DISCHARGE	= 5,800	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 2,201.8	FT
BASE DISCHARGE	= 8,000	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 2,202.36	FT
OVERTOPPING DISCHARGE	= 3,600	CFS
OVERTOPPING FREQUENCY	= 10 (-)	YRS
OVERTOPPING ELEVATION	= 2,201.03	FT
DATE OF SURVEY	= 11/11/15	
W.S. ELEVATION AT DATE OF SURVEY	= 2,194.1	FT

### -L- SR 1740

**BM#2** ELEV. 2223.33'  
 -L- Sta. 16+90.12 26.15' LT  
 8" SPIKE SET IN BASE OF 18" WHITEOAK

PROJECT REFERENCE NO.	B-5159	SHEET NO.	5
ROADWAY DESIGN ENGINEER	ANDREW P. YOUNG	HYDRAULICS ENGINEER	JAMES A. BYRD
PROFESSIONAL SEAL	034407	PROFESSIONAL SEAL	15764
DATE	3/30/2017	DATE	3/30/2017
STEWART		HNTB	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			

2,230  
2,220  
2,210  
2,200  
2,190  
2,180  
2,170  
2,160

2,210  
2,200  
2,190  
2,180  
2,170  
2,160

**BEGIN GRADE**  
 -L- STA. 10+10.00  
 ELEV. = 2,201.03'

**BEGIN BRIDGE**  
 -L- Sta. 10+37.81

**BEGIN APPROACH SLAB**  
 -L- Sta. 10+26.94

**END BRIDGE**  
 -L- Sta. 11+45.19

**END APPROACH SLAB**  
 -L- Sta. 11+36.07

PI = 14+00.00  
 EL = 2,213.97'  
 VC = 175'  
 K = 76  
 V = 45MPH

PI = 16+00.00  
 EL = 2,219.57'  
 VC = 160'  
 K = 77  
 V = 45MPH

**END GRADE**  
 -L- STA. 16+90.00  
 ELEV. = 2,220.21'

OVERTOPPING STA. -L- 10+10.00  
 ELEV. = 2,201.03'

5'-W x 3'-D  
 (CL. RIP RAP)  
 (STR. PAY ITEM)

THEORETICAL OT SCOUR  
 BED MATERIAL: SAND  
 W/ COBBLE

**BEGIN DITCH GRADE**  
 -L- Sta. 11+13.50  
 ELEV. = 2,195.30'

-L- Sta. 11+50.00  
 ELEV. = 2,195.30'

**END DITCH GRADE**  
 -L- Sta. 15+00.00  
 ELEV. = 2,215.00'

EXISTING BRIDGE OPENING BELOW LOW CHORD = 438 sf  
 PROPOSED BRIDGE OPENING BELOW LOW CHORD = 554 sf  
 MATERIAL TO BE REMOVED = 500 cy

**BM#1** ELEV. 2203.08'  
 -L- Sta. 11+34.28 27.51' RT  
 8" SPIKE SET IN BASE OF 20" SYCAMORE

RIGHT DITCH -----

FOR PLAN VIEW, SEE SHEET 4

FOR STRUCTURE PLANS, SEE SHEETS S-1 THRU S-17

10 11 12 13 14 15 16 17

### -YI- SR 1737

**BEGIN GRADE**  
 -YI- STA. 11+75.00  
 ELEV. = 2,198.67'

PI = 12+75.00  
 EL = 2,199.17'  
 VC = 200'  
 K = 1351  
 V > 55MPH

PI = 15+25.00  
 EL = 2,200.05'  
 VC = 200'  
 K = 1153  
 V > 55MPH

**END GRADE**  
 -YI- STA. 21+15.00  
 ELEV. = 2,203.15'

2,210  
2,200  
2,190  
2,180  
2,170  
2,160  
2,150

2,210  
2,200  
2,190  
2,180  
2,170  
2,160  
2,150

**BEGIN DITCH GRADE**  
 -YI- Sta. 12+50.00  
 ELEV. = 2,195.50'

**END DITCH GRADE**  
 -YI- Sta. 14+00.00  
 ELEV. = 2,196.50'

-YI- Sta. 13+00.00  
 ELEV. = 2,194.50'

-L- Sta. 10+00.00  
 -YI- Sta. 16+74.00

RIGHT DITCH -----

FOR PLAN VIEW, SEE SHEET 4

10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

REVISIONS

3/28/2017  
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 JES:cal

5/14/99

REVISIONS

3/29/2017  
B-5159\_Rdy.plt\_06.dgn  
11:58:10 AM

**-DRI-**

**BEGIN GRADE**  
**-DRI- STA. 10+25.00**  
**ELEV. = 2,197.76'**

PI = 11+90.00  
EL = 2,206.06'  
VC = 50'  
K = 6

PROJECT REFERENCE NO. B-5159	SHEET NO. 6
ROADWAY DESIGN ENGINEER ANDREW P. YOUNG SEAL 034407 NORTH CAROLINA PROFESSIONAL ENGINEER DocuSign 3/30/2017	HYDRAULICS ENGINEER JAMES A. BYRD SEAL 15764 NORTH CAROLINA PROFESSIONAL ENGINEER DocuSign 3/30/2017
STEWART 421 Fayetteville St. Raleigh, NC 27601 www.stewartinc.com	<b>HNTB</b> HNTB NORTH CAROLINA, P.C. 243 S. Salisbury Street, Suite 1100 Raleigh, North Carolina 27609 NC License No. C-15521

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2,200

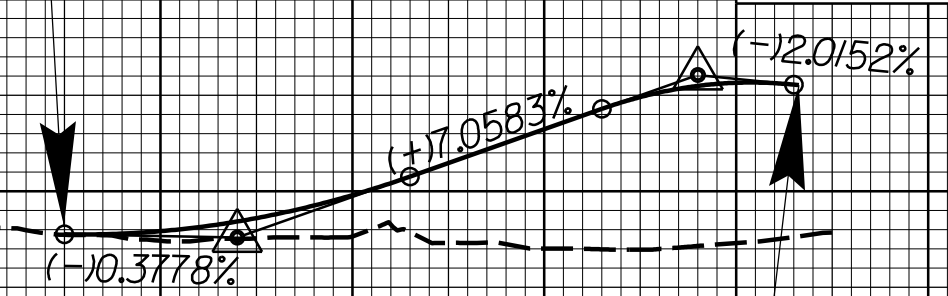
2,190

2,180

2,170

2,160

2,150



PI = 10+70.00  
EL = 2,197.59'  
VC = 90'  
K = 12

**END GRADE**  
**-DRI- STA. 12+16.30**  
**ELEV. = 2,205.53'**

FOR PLAN VIEW, SEE SHEET 4

10 11 12

**-DR2-**

PI = 10+40.00  
EL = 2,202.46'  
VC = 40'  
K = 8

**BEGIN GRADE**  
**-DR2- STA. 10+10.00**  
**ELEV. = 2,204.68'**

**END GRADE**  
**-DR2- STA. 10+60.00**  
**ELEV. = 2,202.00'**

2,210

2,200

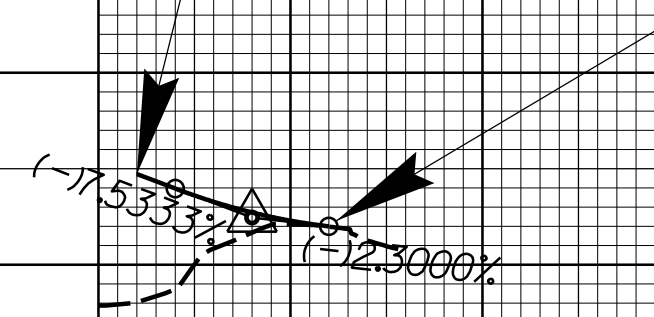
2,190

2,180

2,170

2,160

2,150



FOR PLAN VIEW, SEE SHEET 4

10