

**This electronic collection of documents is provided
for the convenience of the user
and is Not a Certified Document –**

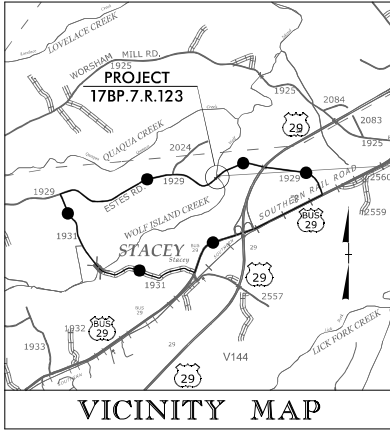
**The documents contained herein were originally issued
and sealed by the individuals whose names and license
numbers appear on each page, on the dates appearing
with their signature on that page.**

**This file or an individual page
shall not be considered a certified document.**

07/18/17

CONTRACT: TIP PROJECT: 17BP.7.R.123

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



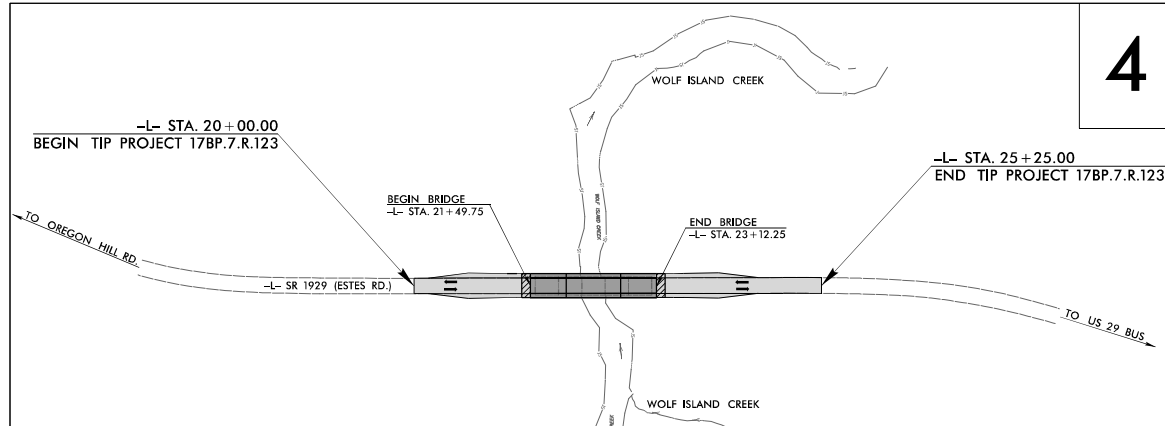
DETOUR ROUTE

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
ROCKINGHAM COUNTY

LOCATION: BRIDGE NO. 80 OVER WOLF ISLAND CREEK
ON SR 1929 (ESTES ROAD)

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

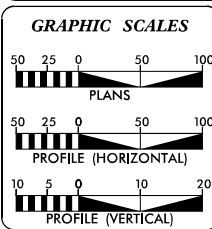
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.7.R.123	1	
STATE PROJ. NO.	K.A. PROJ. NO.	DESCRIPTION	
38441.1.2	BRZ-1929(3)	PE	
38441.2.1		RW & UTILITIES	
17BP.7.R.123		CONSTRUCTION	



NOTE: PROJECT FORMERLY KNOWN AS "B-4624"

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

CONTRACT: TIP PROJECT: 17BP.7.R.123



DESIGN DATA

ADT 2018 =	245
ADT 2035 =	400
K =	10 %
D =	60 %
T =	5 % *
V =	50 MPH
* TTST =	2% DUAL = 3%
FUNC CLASS=RURAL LOCAL "SUBREGIONAL TIER"	

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT 17BP.7.R.123 =	0.068 MILES
LENGTH STRUCTURE TIP PROJECT 17BP.7.R.123 =	0.031 MILES
TOTAL LENGTH OF TIP PROJECT 17BP.7.R.123 =	0.099 MILES

NC DOT CONTACT: TIM POWERS, PE
DIV 7 BRIDGE PROJECT MANAGER

Prepared in the Office of:

504 Meadowland Drive
Hillsborough, NC 27278-6551
Voice: (919) 732-3893
Fax: (919) 732-4776
www.summitdesignengineer.com

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
MAY 19, 2017

LETTING DATE:
February 3, 2022

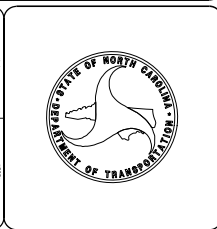
JAMES A. SPEER, PE
PROJECT ENGINEER

JEFF P. MUHLBAUER, PE
PROJECT DESIGN ENGINEER

TIM POWERS, PE
DIVISION BRIDGE PROGRAM MANAGER

HYDRAULICS ENGINEER
9/17/2019

ROADWAY DESIGN ENGINEER
9/17/2019



8/17/19

PROJECT REFERENCE NO. <i>17BP7.RJ23</i>	SHEET NO. <i>1A</i>
ROADWAY DESIGN ENGINEER	
9/17/2019	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
Prepared in the Office of:	
	<small>NC FIRM LICENSE No. P-0339 504 Meadowslands Drive Hillsborough, NC 27278 (919) 732-3883 (919) 732-6676 (FAX)</small>

SHEET NUMBER	INDEX OF SHEETS SHEET
1	TITLE SHEET
1A	INDEX OF SHEETS, GENERAL NOTES, AND STANDARD DRAWINGS
1B	CONVENTIONAL SYMBOLS
1C-1	SURVEY CONTROL SHEET
2A-1	PAVEMENT SCHEDULE AND TYPICAL SECTIONS
3B-1	ROADWAY SUMMARIES
3D-1	DRAINAGE SUMMARIES
3G-1	GEOTECHNICAL SUMMARIES
4 THRU 5	PLAN AND PROFILE SHEET
TMP-1 THRU TMP-4	TRAFFIC MANAGEMENT PLANS
PMP-1	PAVEMENT MARKING PLANS
EC-1 THRU EC-4	EROSION CONTROL PLANS
X-1	CROSS-SECTION SUMMARY SHEET
X-2 THRU X-8	CROSS-SECTIONS
S-1 THRU S-21	STRUCTURE PLANS

EFF. 01-16-2018
REV.

2018 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, 2018 are applicable to this project and by reference hereby are considered a part of these plans:

STD. NO.	TITLE
DIVISION 2 - EARTHWORK	
200.02	Method of Clearing - Method II
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	
422.02	Bridge Approach Fills - Type II Modified Approach Fill
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
DIVISION 8 - INCIDENTALS	
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
876.01	Rip Rap in Channels
876.02	Guide for Rip Rap at Pipe Outlets

GENERAL NOTES: 2018 SPECIFICATIONS EFFECTIVE: 01-16-2018 REVISED:

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 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

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.

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.

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

17-SEP-2019 07:56
B4924_R01_10.dgn
scc@hok.com

STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS CONVENTIONAL PLAN SHEET SYMBOLS

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

04/06/15

BOUNDARIES AND PROPERTY:

State Line	-----
County Line	-----
Township Line	-----
City Line	-----
Reservation Line	-----
Property Line	-----
Existing Iron Pin	○ EIP
Property Corner	-----
Property Monument	□ ECM
Parcel/Sequence Number	①23
Existing Fence Line	-x-x-x-
Proposed Woven Wire Fence	○
Proposed Chain Link Fence	□
Proposed Barbed Wire Fence	◇
Existing Wetland Boundary	-WLB-
Proposed Wetland Boundary	-WLB-
Existing Endangered Animal Boundary	-EAB-
Existing Endangered Plant Boundary	-EPB-
Existing Historic Property Boundary	-HPB-
Known Contamination Area: Soil	☠ ☠
Potential Contamination Area: Soil	☒ ☒
Known Contamination Area: Water	☠ ☠
Potential Contamination Area: Water	☒ ☒
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:

Baseline Control Point	◇
Existing Right of Way Marker	△
Existing Right of Way Line	-----
Proposed Right of Way Line	○ RW
Proposed Right of Way Line with Iron Pin and Cap Marker	○ RW ▲
Proposed Right of Way Line with Concrete or Granite RW Marker	▲ RW
Proposed Control of Access Line with Concrete C/A Marker	▲ C/A
Existing Control of Access	○ C/A
Proposed Control of Access	○ C/A
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	◇

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	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	○ 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	□
Telephone Cell Tower	⌋
U/G Telephone Cable Hand Hole	○ TH
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.*)	-----
U/G Water Line LOS C (S.U.E.*)	-----
U/G Water Line LOS D (S.U.E.*)	-----
Above Ground Water Line	----- A/G Water

TV:

TV Pedestal	□
TV Tower	⊗
U/G TV Cable Hand Hole	○ TH
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

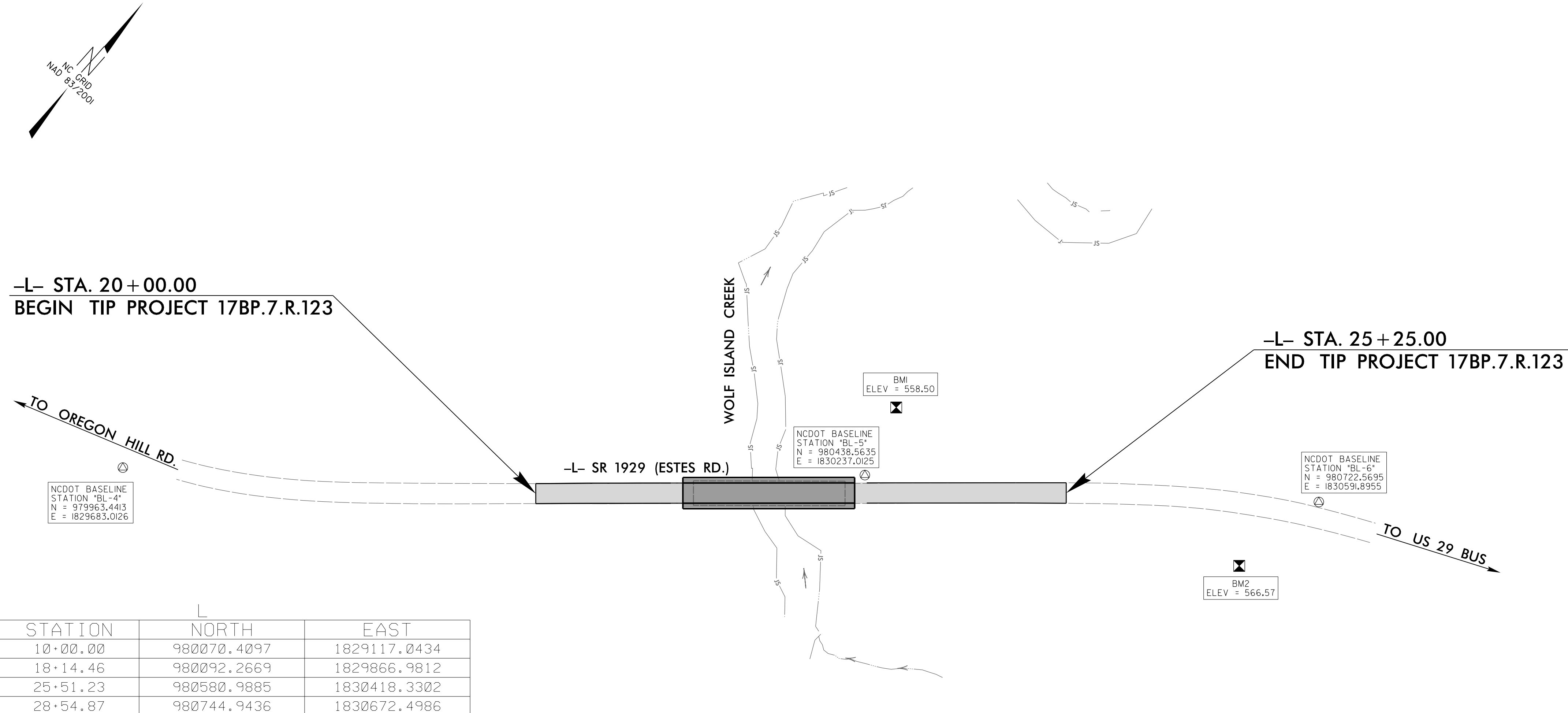
MISCELLANEOUS:

Utility Pole	●
Utility Pole with Base	□
Utility Located Object	○
Utility Traffic Signal Box	□
Utility Unknown U/G Line LOS B (S.U.E.*)	----- 7UTL
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.

12/01/2005

17BP.7.R.123 SURVEY CONTROL SHEET

PROJECT REFERENCE NO.	SHEET NO.
17BP.7.R.123	1C-1
Location and Surveys	



TYPE	STATION	NORTH	EAST
PC	10+00.00	980070.4097	1829117.0434
PT	18+14.46	980092.2669	1829866.9812
PC	25+51.23	980580.9885	1830418.3302
PT	28+54.87	980744.9436	1830672.4986

-L- PRELIMINARY NEW R/W MONUMENTS

ALIGN	STATION	OFFSET	NORTH	EAST
L	21+15.00	-45.00	980325.29844	1830062.03481
L	21+15.00	-30.00	980314.07350	1830071.98471
L	21+15.00	45.00	980257.94880	1830121.73426
L	21+15.00	30.00	980269.17374	1830111.78435
L	23+47.00	-45.00	980479.19037	1830235.64723
L	23+47.00	-30.00	980467.96543	1830245.59714
L	23+47.00	45.00	980411.84073	1830295.34669
L	23+47.00	30.00	980423.06567	1830285.39678

BASILINE DATA

BL POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
1	B4624-1	980516.3500	1827614.7960	672.84	OUTSIDE PROJECT LIMITS	
2	B4624-2	980456.6810	1828588.5610	625.90	OUTSIDE PROJECT LIMITS	
3	BL-3	979965.4825	1829275.1814	586.52	11+87.56	15.20 RT
4	BL-4	979963.4413	1829683.0126	562.11	15+92.43	17.23 RT
5	BL-5	980438.5635	1830237.0125	564.56	23+21.07	13.69 LT
6	BL-6	980722.5695	1830591.8955	568.94	27+73.36	15.87 LT

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:
 b4624_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.

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B4624-2" WITH NAD 83/2001 STATE PLANE GRID COORDINATES OF NORTHING: 980456.6810(±) EASTING: 1828588.5610(±) ELEVATION: 625.90(±) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 1.0000637686 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B4624-2" TO -L- STATION 20+00.00 IS S 80°20'10" E 1,437.67' ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NAVD 88

BENCHMARK DATA

.....
 BM1 ELEVATION - 558.50
 N 980515 E 1830217
 L STATION 23+57.00 85 LEFT
 R/R SPIKE IN BASE OF 27" GUM

 BM2 ELEVATION - 566.57
 N 980623 E 1830575
 L STATION 27+06.00 61 RIGHT
 R/R SPIKE IN BASE OF 18" POPLAR

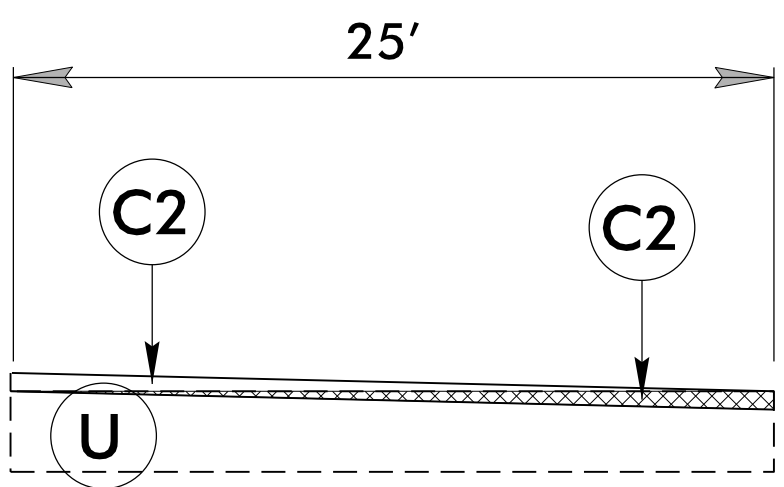
NOTE: DRAWING NOT TO SCALE

07_AUG_2008 15:25
 b4624_ls_control.dgn
 saved

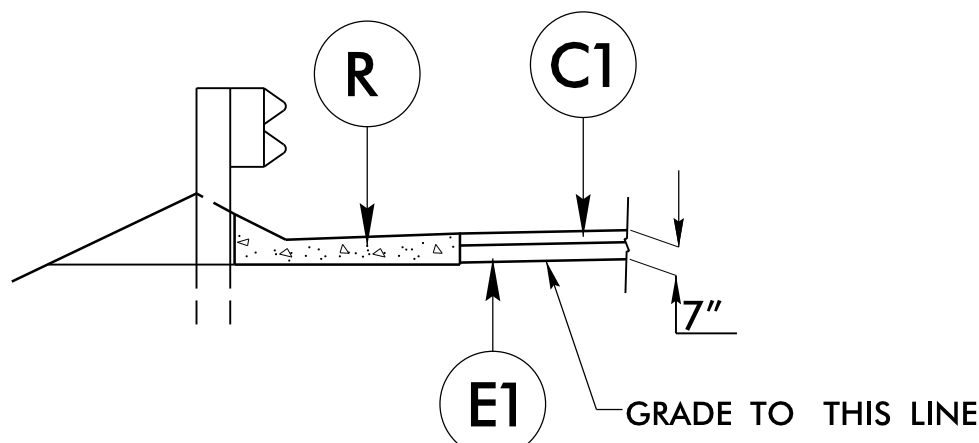
6/2/2019

FINAL PAVEMENT SCHEDULE	
C1	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, 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 B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, 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.
R	SHOULDER BERM GUTTER.
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.

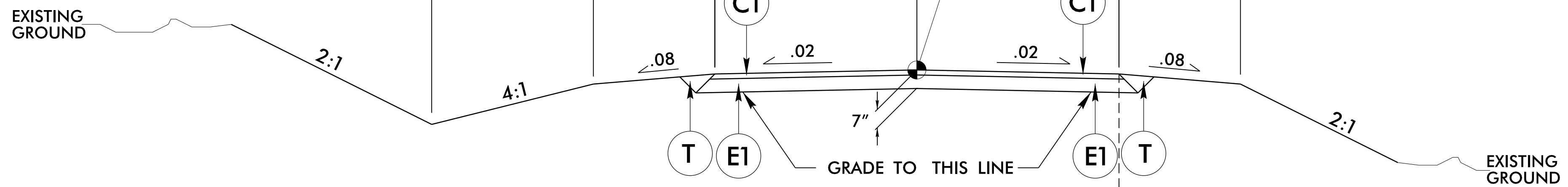


INCIDENTAL MILLING DETAIL (0" TO 3")
 -L- STA. 20+00.00 TO STA. 20+25.00
 -L- STA. 25+00.00 TO STA. 25+25.00



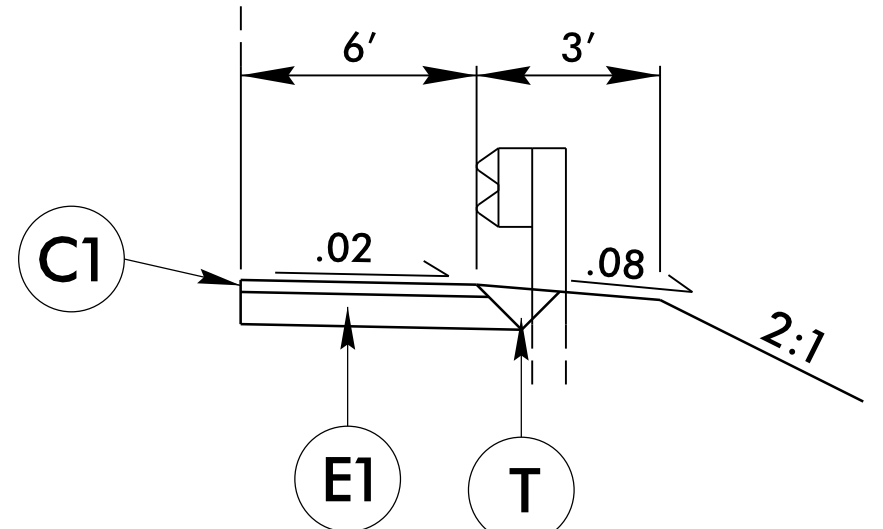
DETAIL SHOWING SHOULDER BERM GUTTER (SBG) ON TOP OF SUBGRADE

-L- STA. 23+23.25 (END APPROACH SLAB) TO -L- STA. 23+38.00 (LT & RT)

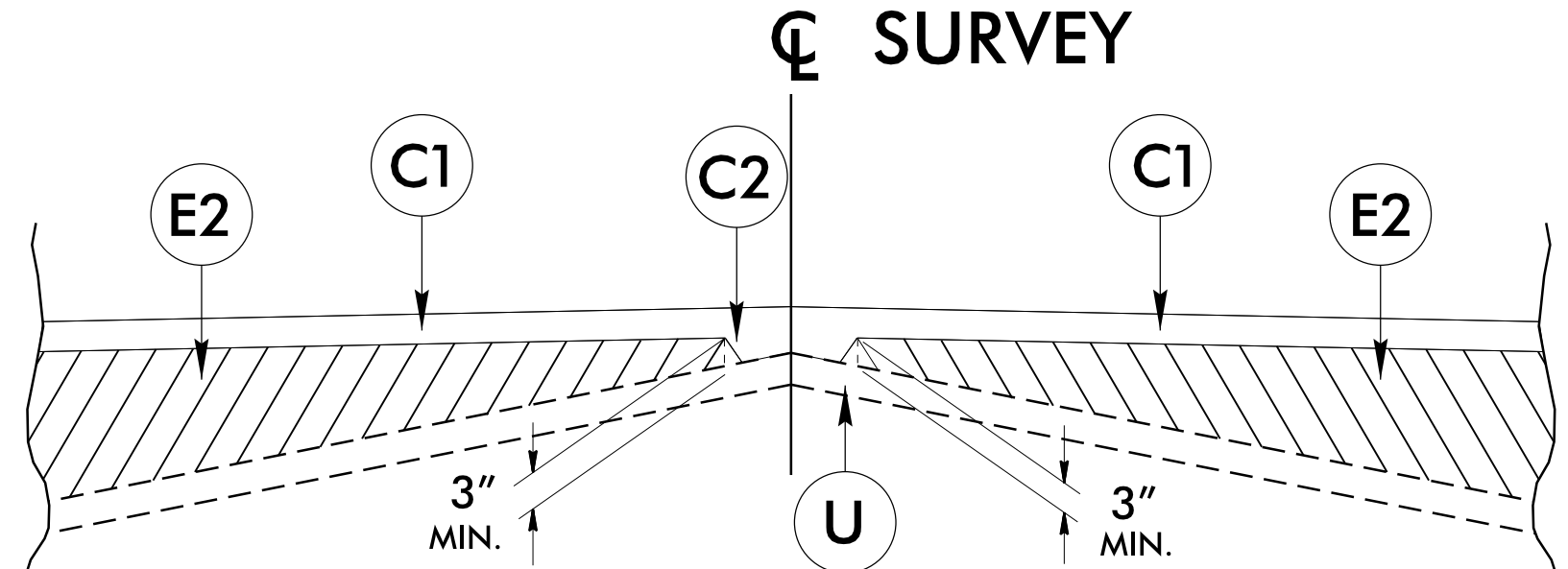


TYPICAL SECTION NO. 1

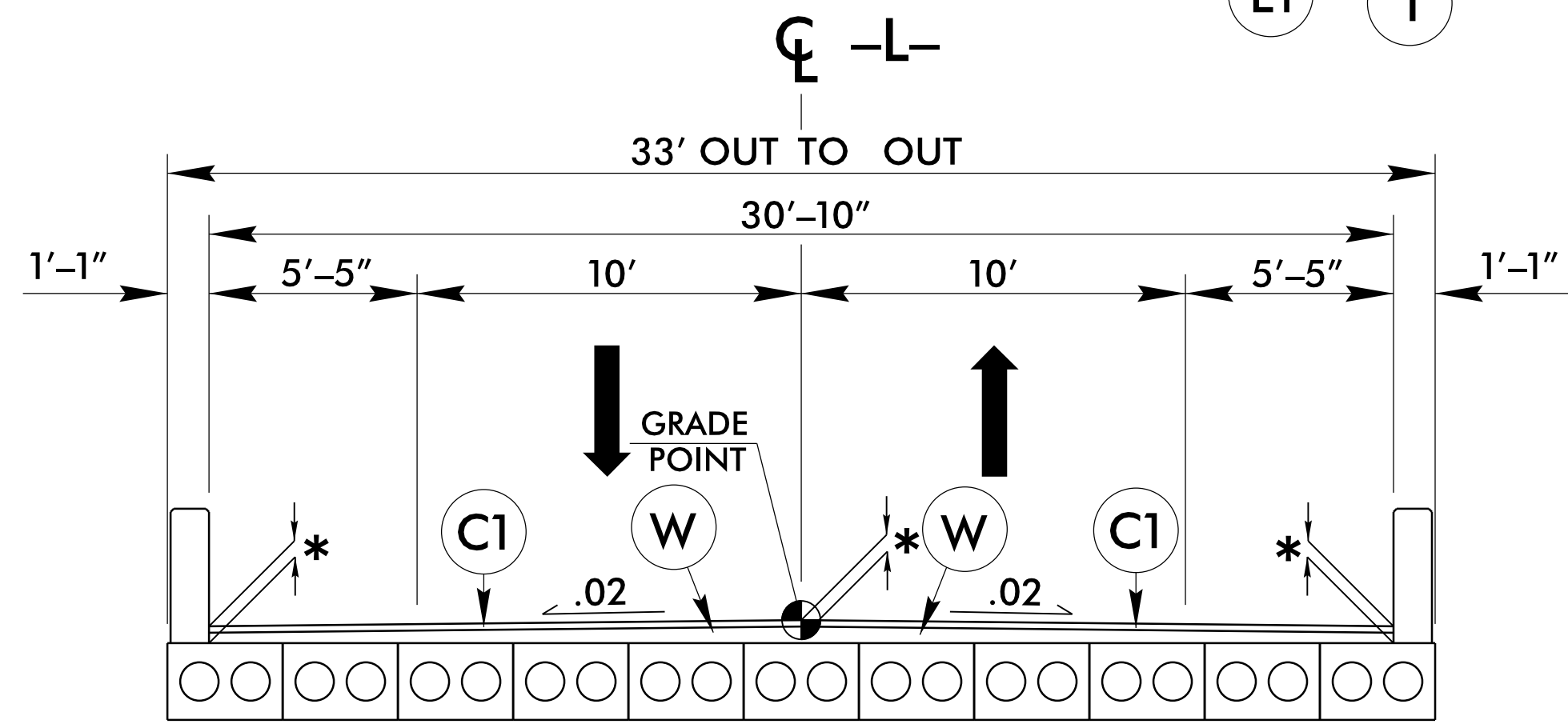
USE TYPICAL SECTION NO. 1
 -L- STA. 20+00.00 TO STA. 21+49.75 (BEGIN BRIDGE)
 -L- STA. 23+12.25 (END BRIDGE) TO STA. 25+25.00



* PAVE TO FACE OF GUARDRAIL
 SEE PLAN SHEET 4 FOR LOCATIONS



DETAIL SHOWING METHOD OF WEDGING



DETAIL FOR WEARING SURFACE ON CORED SLAB BRIDGE

TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2
 -L- STA. 21+49.75 (BEGIN BRIDGE) TO STA. 23+12.25 (END BRIDGE)
 SPANS A AND C USE 21" CS UNITS
 SPAN B USES 24" CS UNITS

* SEE STRUCTURE PLANS

PROJECT REFERENCE NO. 17BP.7.RJ23	SHEET NO. 2A-1
ROADWAY DESIGN ENGINEER 9/18/2019 JAMES A. SPEER	PAVEMENT DESIGN ENGINEER 9/19/2019 CLARK S. MORRISON
Professional Seal: JAMES A. SPEER, ENGINEER, SEAL 014571, NORTH CAROLINA	Professional Seal: CLARK S. MORRISON, ENGINEER, SEAL 022896, NORTH CAROLINA
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
Prepared in the Office of: SUMMIT	NC FIRM LICENSE No: P-0339 504 Meadowlands Drive Wilmington, NC 27407 (919) 732-5885 • (919) 732-0616 (FAX)

18 SEP 2019 13:40
 18 SEP 2019 13:40
 18 SEP 2019 13:40

COMPUTED BY: _ DATE:

CHECKED BY: DATE:

PROJECT NO.

17BP.7.R.123

SHEET NO.

3G-1

STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

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
-L-	20+70.00	21+45.00					100		
CONTINGENCY					100	200	400		
TOTAL CY/TONS/SY:					100	200**	500**	0	0

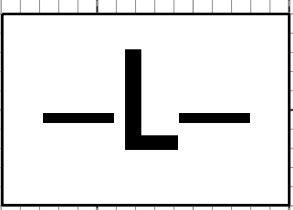
*ASU = Aggregate Subgrade

*AST = Aggregate Stabilization

**Total tons of "Class IV Subgrade Stabilization" and total square yards of "Geotextile for Soil Stabilization" are only the estimated quantities for ASU/AST and may only represent a portion of the subgrade stabilization and geotextile quantities shown in the Item Sheets of the Proposal.

5/14/99

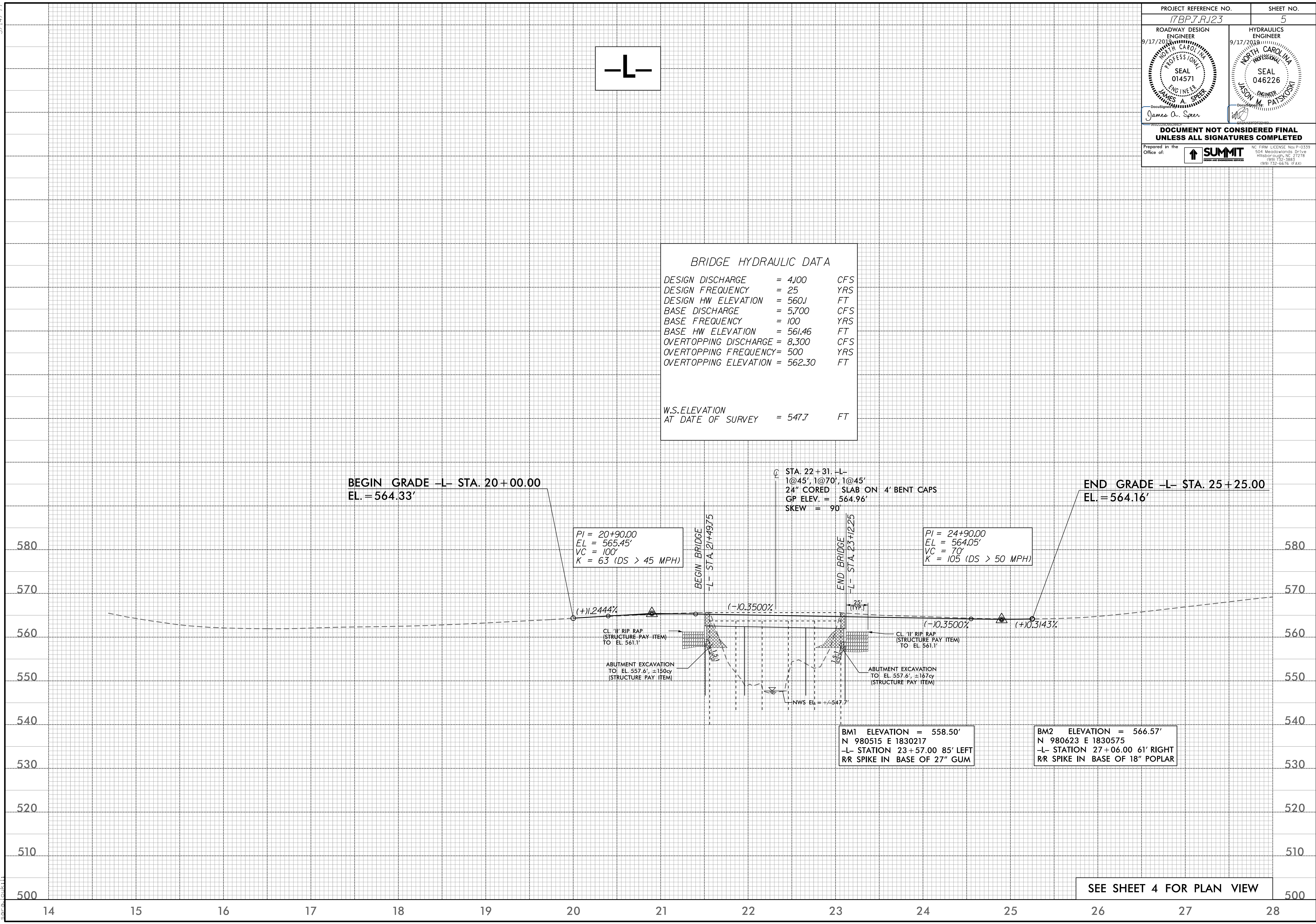
PROJECT REFERENCE NO. 17BP.7.R.123	SHEET NO. 5
ROADWAY DESIGN ENGINEER 9/17/2013 NORTH CAROLINA PROFESSIONAL SEAL 014571 JAMES A. SPER	HYDRAULICS ENGINEER 9/17/2013 NORTH CAROLINA PROFESSIONAL SEAL 046226 JASON M. PATSKOSKI
<p>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</p> <p>Prepared in the Office of:  SUMMIT ROADWAY AND ENGINEERING SERVICES</p> <p>NC FIRM LICENSE No. P-0339 504 Woodlawn Drive Hillsborough, NC 27278 (919) 732-3883 (919) 732-6676 (FAX)</p>	



BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE = 4,100 CFS
DESIGN FREQUENCY = 25 YRS
DESIGN HW ELEVATION = 560J FT
BASE DISCHARGE = 5,700 CFS
BASE FREQUENCY = 100 YRS
BASE HW ELEVATION = 561.46 FT
OVERTOPPING DISCHARGE = 8,300 CFS
OVERTOPPING FREQUENCY = 500 YRS
OVERTOPPING ELEVATION = 562.30 FT

W.S. ELEVATION AT DATE OF SURVEY = 547.7 FT



SEE SHEET 4 FOR PLAN VIEW

12 SEP 2019 11:10
17BP.7.R.123.dgn

ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS SHOWN IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2018 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

<u>STD. NO.</u>	<u>TITLE</u>
1101.03	TEMPORARY ROAD CLOSURES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1145.01	BARRICADES - TYPE III

LEGEND

GENERAL

- DIRECTION OF TRAFFIC FLOW
- DIRECTION OF PEDESTRIAN TRAFFIC FLOW
- EXIST. PVMT.
- NORTH ARROW
- PROPOSED PVMT.
- TEMP. SHORING (LOCATION PURPOSES ONLY)

WORK AREA

REMOVAL

USER DEFINED (IF NEEDED)

USER DEFINED (IF NEEDED)

SIGNALS

- EXISTING
- PROPOSED
- TEMPORARY

PAVEMENT MARKINGS

- EXISTING LINES
- TEMPORARY LINES

TRAFFIC CONTROL DEVICES

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

TEMPORARY SIGNING

- PORTABLE SIGN
- STATIONARY SIGN
- STATIONARY OR PORTABLE SIGN

PAVEMENT MARKERS

- CRYSTAL/CRYSTAL
- CRYSTAL/RED
- YELLOW/YELLOW

PAVEMENT MARKING SYMBOLS

- PAVEMENT MARKING SYMBOLS

I:\22\2017\X:\2016\TRIG.006.00 NCDOT 2016 Traffic LSA\TRIG.006.12 (B-4624)\TMP\NB-4624 TMP-1A.dgn
 mishdk

SEPI

ENGINEERING & CONSTRUCTION

1025 Wade Avenue
Raleigh, NC 27605
Tel: 919-789-9977
Fax: 919-789-9591
License: C-2197

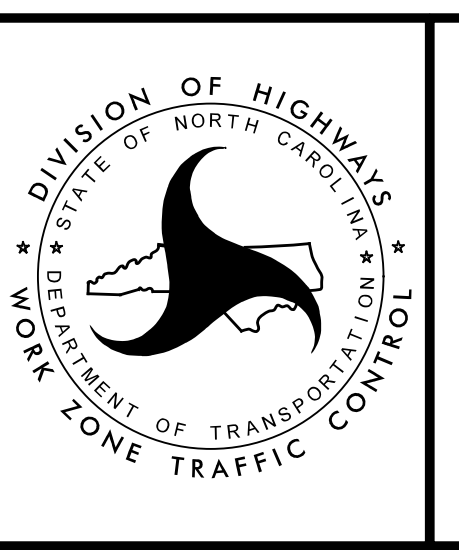
APPROVED:

DATE: 2/20/2018

SEAL

NORTH CAROLINA
PROFESSIONAL
ENGINEERS
STEVEN D. MILLER
037026

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



ROADWAY STANDARD
DRAWINGS & LEGEND

MANAGEMENT STRATEGIES

- CLOSE SR 1929 (ESTES ROAD) AND DETOUR TRAFFIC OFF-SITE VIA SR 1914 (OREGON HILL RD.), SR 1925 (WORSHAM MILL RD.), AND US 29 BUSINESS
- LOCAL ACCESS TO ALL RESIDENCES AND BUSINESSES WILL BE MAINTAINED BETWEEN CLOSURE POINTS AT ALL TIMES DURING CONSTRUCTION
- PROVIDE ONE MONTH NOTICE TO THE ENGINEER, ROCKINGHAM COUNTY EMERGENCY SERVICES, AND ROCKINGHAM COUNTY SCHOOL OFFICIALS PRIOR TO ROAD CLOSURE

GENERAL NOTES

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

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

TRAFFIC PATTERN ALTERATIONS

- A) NOTIFY THE ENGINEER ONE MONTH PRIOR TO ANY TRAFFIC PATTERN ALTERATION.

SIGNING

- B) PROVIDE SIGNING AND DEVICES REQUIRED TO CLOSE THE ROAD ACCORDING TO THE ROADWAY STANDARD DRAWINGS AND TRAFFIC CONTROL PLANS.

PROVIDE SIGNING REQUIRED FOR THE OFF-SITE DETOUR ROUTE.

- C) COVER OR REMOVE ALL SIGNS AND DEVICES REQUIRED TO CLOSE THE ROAD WHEN ROAD CLOSURE IS NOT IN OPERATION.

COVER OR REMOVE ALL SIGNS REQUIRED FOR THE OFF-SITE DETOUR WHEN THE DETOUR IS NOT IN OPERATION.

- D) ENSURE ALL NECESSARY SIGNING IS IN PLACE PRIOR TO ALTERING ANY TRAFFIC PATTERN.

TRAFFIC CONTROL DEVICES

- E) PLACE TYPE III BARRICADES, WITH "ROAD CLOSED" SIGN R11-2 ATTACHED, OF SUFFICIENT LENGTH TO CLOSE ENTIRE ROADWAY.

PHASING

- STEP 1: USING RSD 1101.03 SHEET 1 OF 9, CLOSE SR 1929 (ESTES ROAD) AND DETOUR TRAFFIC OFF-SITE AS SHOWN ON TMP-3. MAINTAIN ACCESS TO ALL RESIDENCES AND BUSINESSES BETWEEN CLOSURE POINTS.
- STEP 2: REMOVE THE EXISTING STRUCTURE AND CONSTRUCT THE PROPOSED STRUCTURE AND ROADWAY.
- STEP 3: PLACE FINAL PAVEMENT MARKINGS ACCORDING TO THE PAVEMENT MARKING PLANS.
- STEP 4: OPEN SR 1929 (ESTES ROAD) TO TRAFFIC AND REMOVE ALL WORK ZONE TRAFFIC CONTROL DEVICES.

11/22/2017
 X:\2016\TRIG.006.00 NCDOT 2016 Traffic LSA\TRIG.006.12 (B-4624)\TMP\NB-4624 TMP-1B.dgn
 mishdk

SEPI

ENGINEERING & CONSTRUCTION

1025 Wade Avenue
 Raleigh, NC 27605
 Tel: 919-789-9977
 Fax: 919-789-9591
 License: C-2197

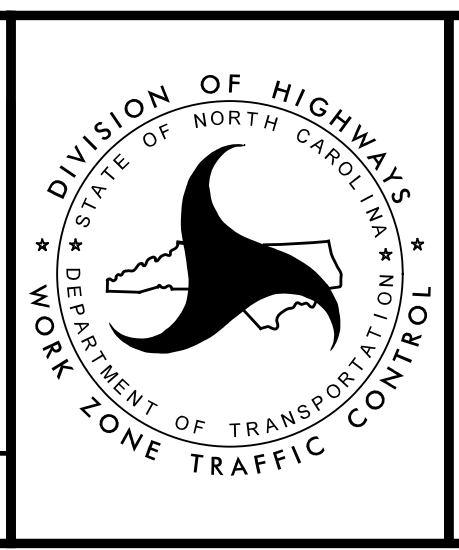
APPROVED: Steve Miller
DocuSigned by: Steve Miller
9FB0C15CCEEB486

DATE: 2/20/2018

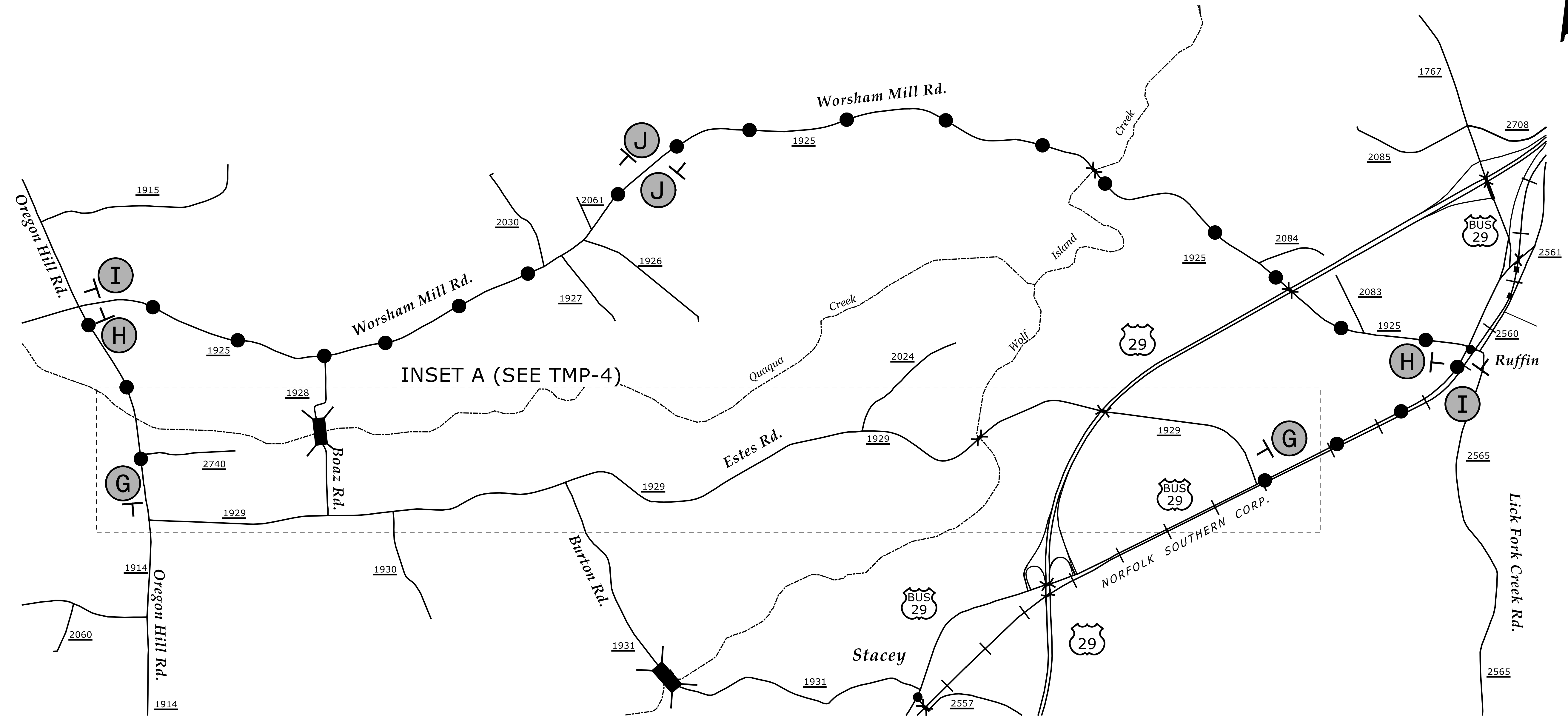
SEAL

NORTH CAROLINA
PROFESSIONAL
ENGINEER
STEVEN D. MILLER
037026

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED



TRANSPORTATION OPERATIONS PLAN



●●●●●
 OFF-SITE DETOUR ROUTE
 SEE TMP-4 FOR SIGN LEGEND

4/17/2017
 X:\2016\TRIG.006.00 NCDOT 2016 Traffic LSA\TRIG.006.12 (B-4624)\TMP-NB-4624 TMP-3.dgn
 jbauman

SEPI
 ENGINEERING &
 CONSTRUCTION

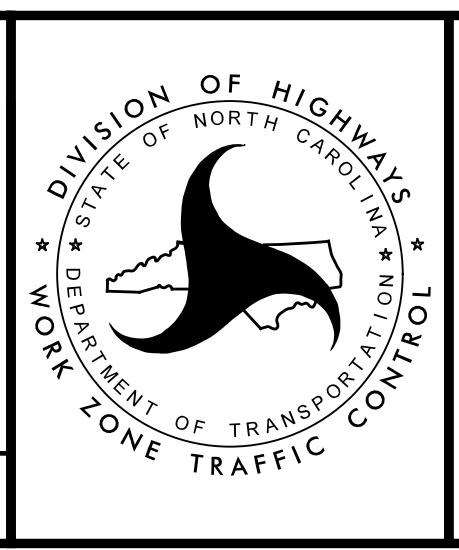
1025 Wade Avenue
 Raleigh, NC 27605
 Tel: 919-789-9977
 Fax: 919-789-9591
 License: C-2197

APPROVED: *Steve Miller*
DocuSigned by:
 9FB0C18CCEEB486

DATE: 2/20/2018

SEAL

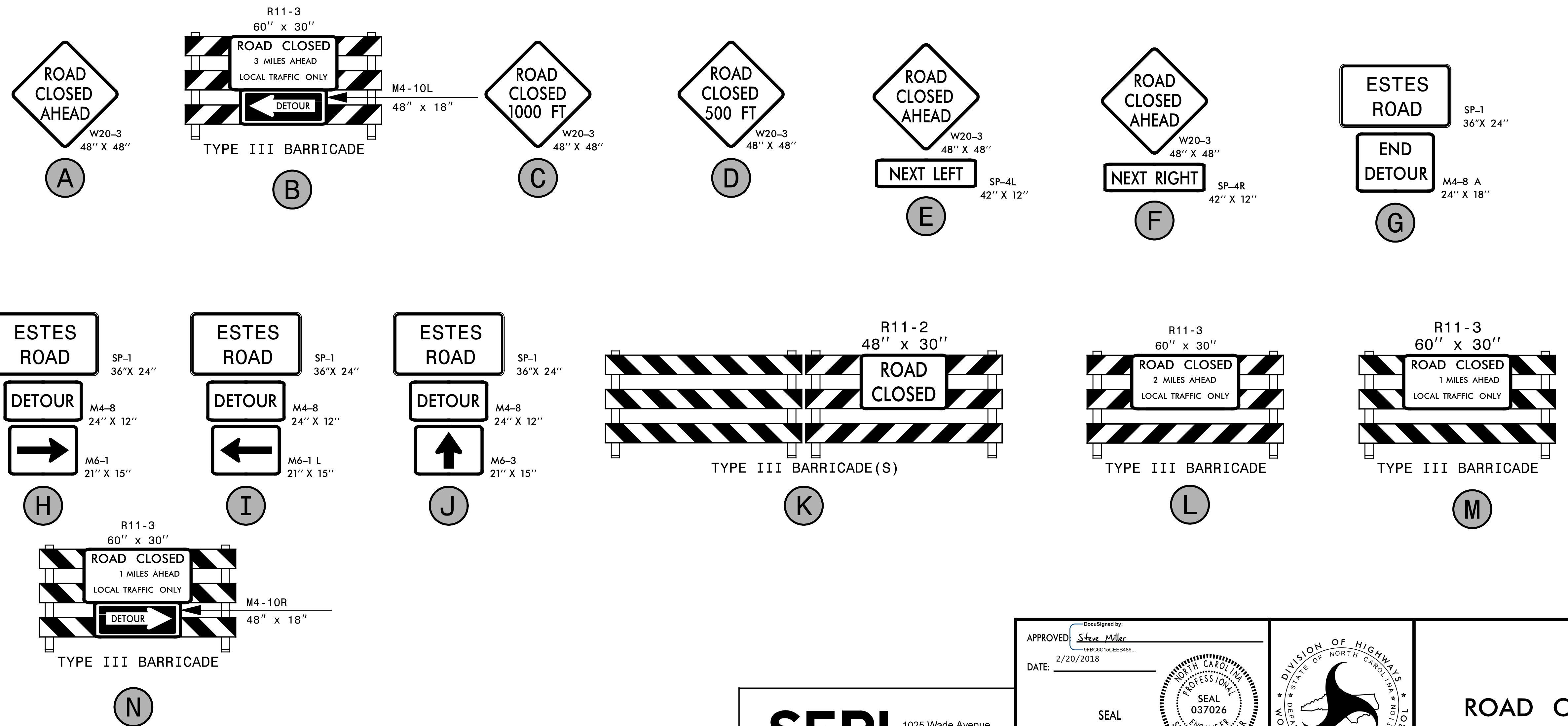
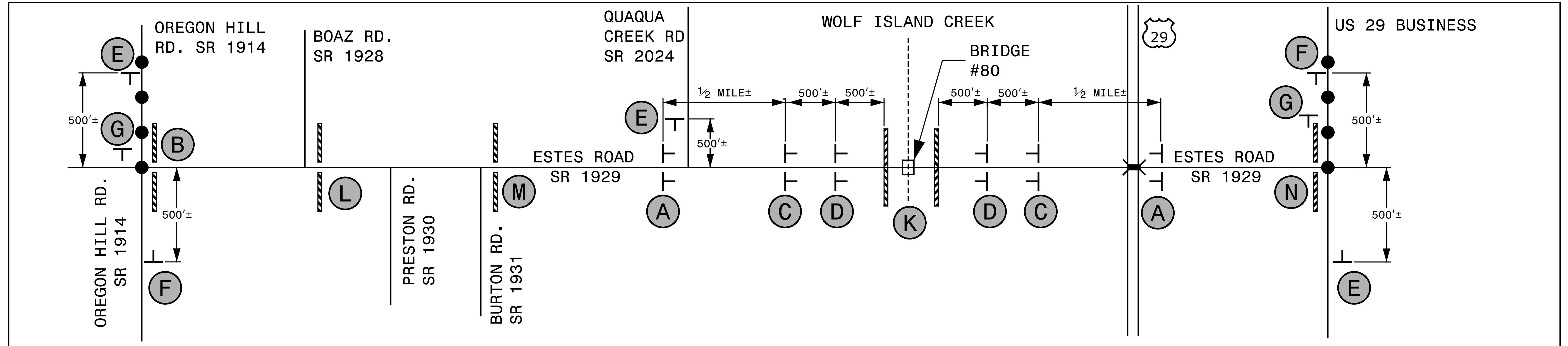
**DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED**



OFF-SITE DETOUR

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

INSET A



4/20/2017
X:\2016\TRIG.006.00 NCDOT 2016 Traffic LSA\TRIG.006.12 (B-4624)\TMP-NB-4624 TMP-4.dgn
jbauman

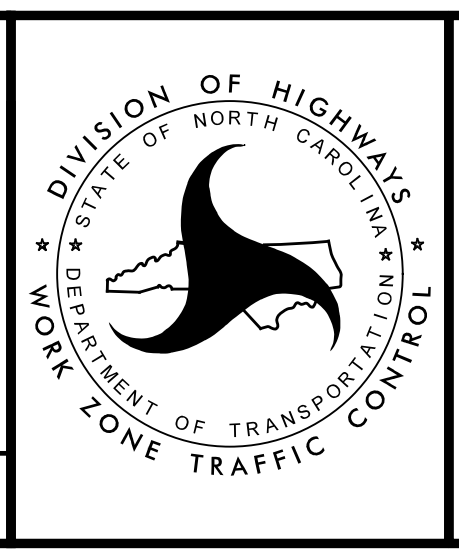
SEPI
ENGINEERING & CONSTRUCTION

1025 Wade Avenue
Raleigh, NC 27605
Tel: 919-789-9977
Fax: 919-789-9591
License: C-2197

APPROVED: *Steve Miller*
DATE: 2/20/2018

SEAL
NORTH CAROLINA PROFESSIONAL ENGINEER
STEVEN D. MILLER
037026

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED



ROAD CLOSURE

PROJECT: 17BP.7.R.123

CONTRACT:

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

ROCKINGHAM COUNTY

LOCATION: BRIDGE NO. 80 ON SR 1929 (ESTES RD.)

OVER WOLF ISLAND CREEK

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

TIP NO. 17BP.7.R.123	SHEET NO. PMP-1
APPROVED:	
DATE: 9/18/2019	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

ROADWAY STANDARD DRAWING

THE FOLLOWING ROADWAY STANDARDS AS APPEAR IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2018 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO.	TITLE
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO-LANE AND MULTILANE ROADWAYS
1205.12	PAVEMENT MARKINGS - BRIDGES
1251.08	RAISED PAVEMENT MARKERS
1261.01	GUARDRAIL AND BARRIER DELINEATORS - INSTALLATION SPACING
1261.02	GUARDRAIL & BARRIER DELINEATORS - TYPES AND MOUNTING
1262.01	GUARDRAIL END DELINEATION

PAVEMENT MARKING SCHEDULE

SYMBOL	DESCRIPTION	QUANTITY
THERMO (4", 90 MILS)		
TA	WHITE EDGE LINE	1050 LF
TB	YELLOW DOUBLE CENTER	1050 LF
	RAISED MARKERS	7 EA

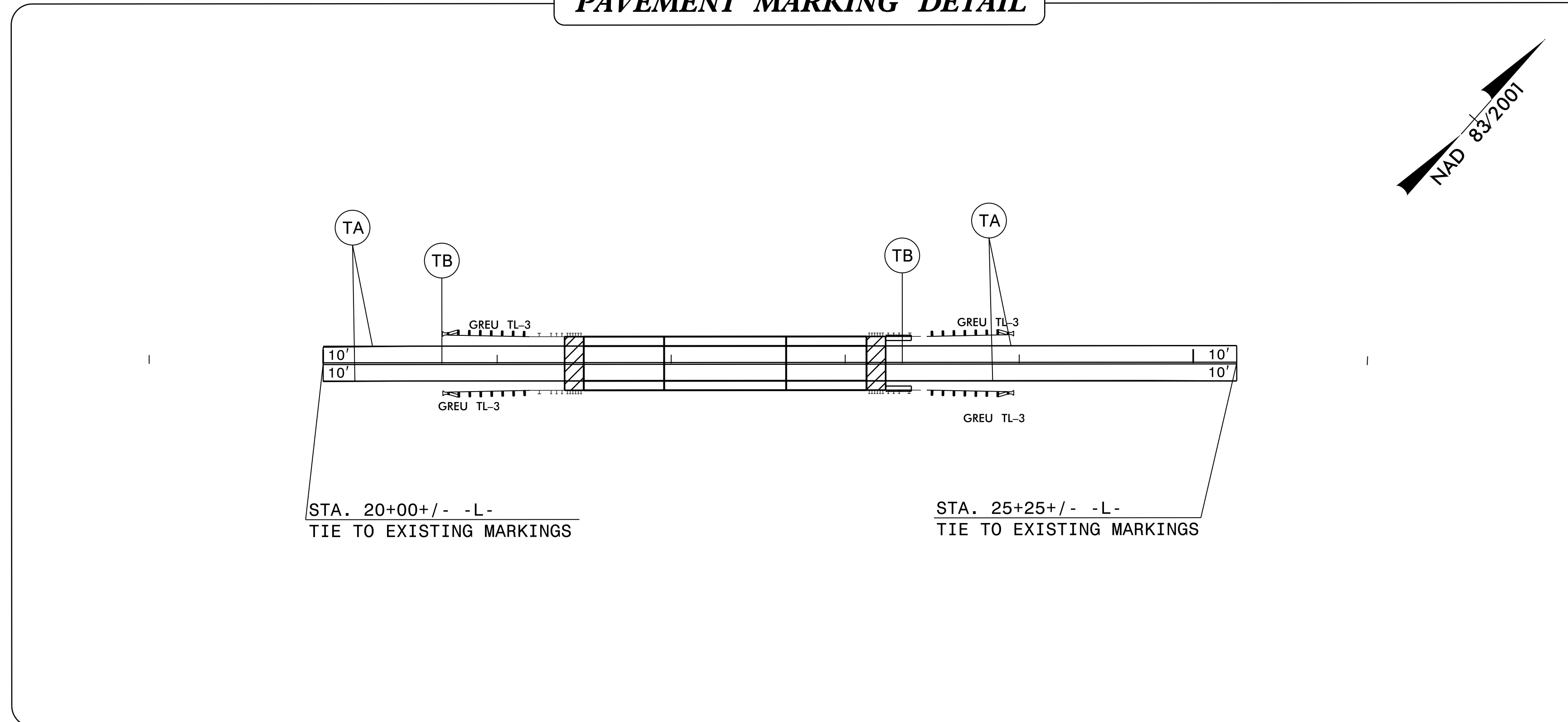
GENERAL NOTES

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

- A) INSTALL PAVEMENT MARKINGS AND PAVEMENT MARKERS ON THE FINAL SURFACE AS FOLLOWS:

<u>ROAD NAME</u>	<u>MARKING</u>	<u>MARKER</u>
ESTES RD	THERMO	RAISED
- B) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.
- C) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS.
- D) PASSING ZONES WILL BE DETERMINED IN THE FIELD AND MUST BE APPROVED BY THE ENGINEER.

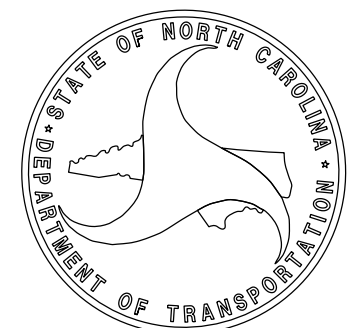
PAVEMENT MARKING DETAIL



Prepared in the Office of:



NC FIRM LICENSE No: P-0339
504 Meadowlands Drive
Hillsborough, NC 27278
(919) 732-3883
(919) 732-6676 (FAX)



J. STUART BOURNE, PE PROJECT ENGINEER

SARA S. LOUKILI PROJECT DESIGNER

INDEX

PMP-1 PAVEMENT MARKING PLAN TITLE, SCHEDULE,
QUANTITIES AND PAVEMENT MARKING DETAIL.