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

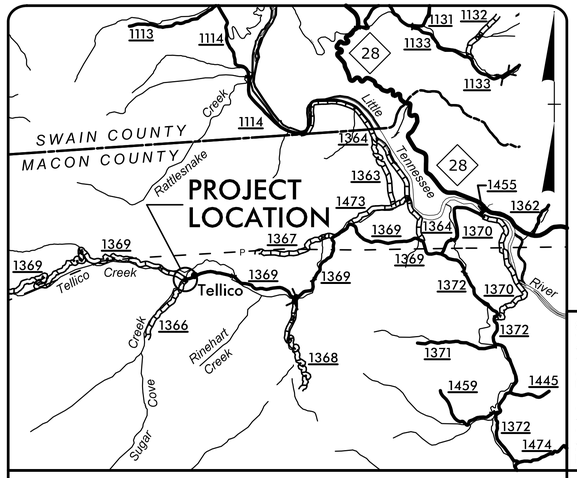
The documents contained herein were originally issued and sealed by the individuals whose names and license numbers appear on each page, on the dates appearing with their signature on that page.
This file or an individual page shall not be considered a certified document.

09/08/99

PROJECT: 17BP.14.R.208

CONTRACT: DN00600

See Sheet 1A For Index of Sheets



VICINITY MAP

FINAL PLANS

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

MACON COUNTY

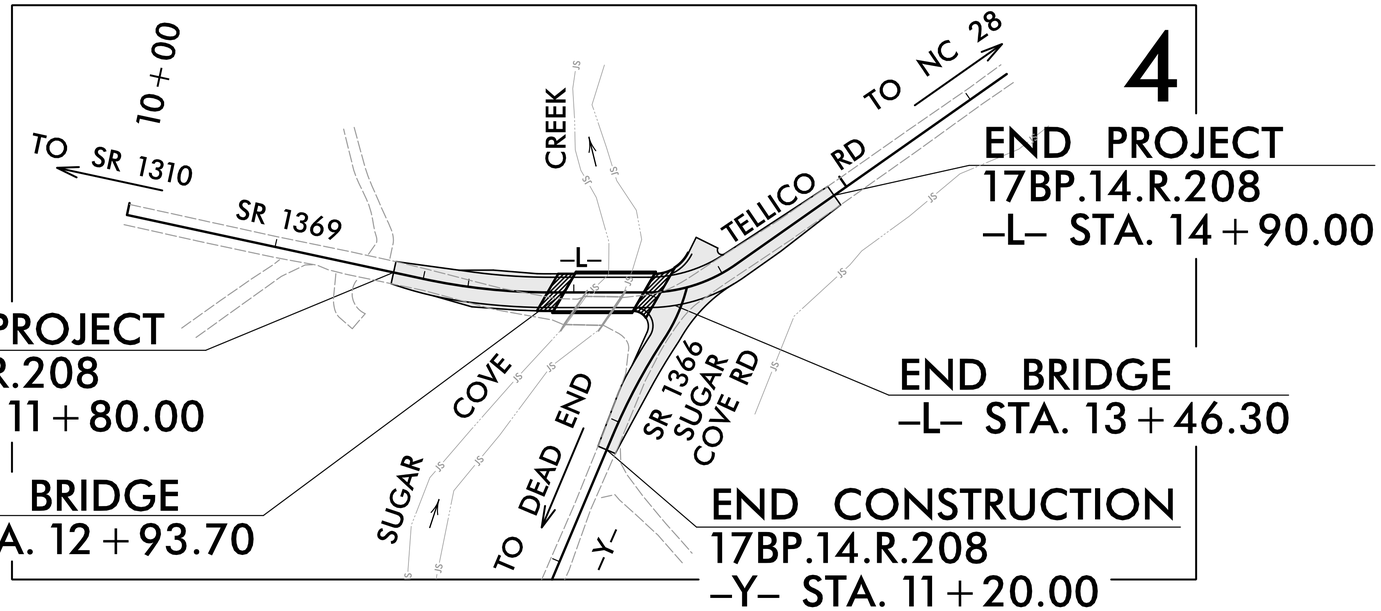
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.14.R.208	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
17BP.14.PE.208	N/A	PE
17BP.14.ROW.208	N/A	UTIL & R/W
17BP.14.R.208	N/A	CONST.

LOCATION: BRIDGE #550180 OVER SUGAR COVE CREEK ON SR 1369 (TELLICO RD)

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

NAD 83/2011



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES

PLANS 50 25 0 50 100

PROFILE (HORIZONTAL) 50 25 0 50 100

PROFILE (VERTICAL) 10 5 0 10 20

DESIGN DATA

ADT 2016 = 90
T = 6 % *
V = 25 MPH
* TTST = 3% DUAL = 3%

FUNC CLASS = LOCAL – RURAL

SUB–REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY PROJECT 17BP.14.R.208 #550180 = 0.049
LENGTH STRUCTURE PROJECT 17BP.14.R.208 #550180 = 0.010

TOTAL LENGTH PROJECT 17BP.14.R.208 #550180 = 0.059

NCDOT CONTACT: GARRETT HIGDON

PLANS PREPARED BY:	*PLANS PREPARED FOR:*
TGS ENGINEERS 804-C N. LAFAYETTE ST SHELBY, NC 28150 PH (704) 476-0003 CORP. LICENSE NO.: C-0275	NORTH CAROLINA DEPARTMENT OF TRANSPORATION DIVISION 14 345 Toot Hollow Rd Bryson City, NC 28713

RIGHT OF WAY DATE: FEB. 8, 2019

LETTING DATE: MAY 25, 2021

2018 STANDARD SPECIFICATIONS

JIMMY L. TERRY, PE
PROJECT ENGINEER

CLINTON PRUETT, EI
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 038697 DAVID B PETTY 4/13/2021

DocuSigned by: David B. Petty P.E.
SIGNATURE:

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 35018 JIMMY L TERRY 4/13/2021

DocuSigned by: Jimmy Terry P.E.
SIGNATURE:

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •

4/13/2021
X:\NCDOT\Division 14 - 2017\Macon 550180\Roadway\Proj\550180_Rdy_tsh.dgn
User:cpruett

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
17BPJ4,R,208	1A

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 35018 JIMMY L. TERRY

8/7/2019

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

INDEX OF SHEETS

SHEET NUMBER	SHEET
1	TITLE SHEET
1A	INDEX OF SHEETS, GENERAL NOTES, AND STANDARD DRAWINGS
1B	CONVENTIONAL SYMBOLS
RW-01 THRU RW-__	SURVEY CONTROL, ALIGNMENT CONTROL, RIGHT OF WAY CONTROL AND PROPERTY TIES
2A-1	PAVEMENT SCHEDULE AND TYPICAL SECTIONS
2C-1	SPECIAL DETAIL - W BEAM RAIL SECTION
2C-2	SPECIAL DETAIL - TYPE III STRUCTURE ANCHOR UNITS
2C-3	SPECIAL DETAIL - AT-1 END UNIT ASSEMBLY
2C-4	SPECIAL DETAIL - TYPE III SHOP CURVED STRUCTURE ANCHOR UNIT
2C-5	SPECIAL DETAIL - TYPE B-83 SHOP CURVED ANCHOR UNIT
2G-1	STANDARD TEMPORARY SHORING DETAIL
3B-1	EARTHWORK, PAVEMENT REMOVAL, AND GUARDRAIL SUMMARIES & LIST OF PIPES, ENDWALLS, ETC(FOR PIPES 48IN & UNDER)
3G-1	SUMMARY OF SUBSURFACE DRAINAGE, AND SUMMARY OF AGGREGATE SUBGRADE/STABILIZATION
4	PLAN AND PROFILE SHEET
TMP-1 THRU TMP-5	TRANSPORTATION MANAGEMENT PLANS
PMP-1 THRU PMP-2	PAVEMENT MARKING PLANS
EC-1 THRU EC-5	EROSION CONTROL PLANS
RF-1	REFORESTATION DETAIL SHEET
X-1A	CROSS-SECTION SUMMARY SHEET
X-1 THRU X-3	CROSS-SECTIONS
S-1 THRU S-32	STRUCTURE PLANS

GENERAL NOTES

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

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 NOT SHOWN ON THE PLANS WILL BE PAID FOR AT THE CONTRACT PRICE FOR "TEMPORARY SHORING".

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 CONTRACT.

STANDARD DRAWINGS

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

815.02 Subsurface Drain
840.00 Concrete Base Pad for Drainage Structures
840.25 Anchorage for Frames - Brick or Concrete or Precast
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 (Special Detail for Sheet 6 of 8)
862.03 Structure Anchor Units
(Special Detail for Type III Anchor Units Sheets 1 of 7 and 2 of 7)
862.04 Anchoring End of Guardrail - B-77 and B-83 Anchor Units
876.02 Guide for Rip Rap at Pipe Outlets
876.04 Drainage Ditches with Class 'B' Rip Rap

8/7/2019
K:\N2001\Division 14 - 2017\Macon 550180\Roadway\Proj\550180_Rdy_tsh.dgn
User:jmelvin

12/2/2016

PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.208	1-B

STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

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

BOUNDARIES AND PROPERTY:

- State Line
- County Line
- Township Line
- City Line
- Reservation Line
- Property Line
- Existing Iron Pin — EIP
- Computed Property Corner
- Property Monument — ECM
- Parcel/Sequence Number — 123
- Existing Fence Line
- 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 — FLOW
- False Sump

RAILROADS:

- Standard Gauge — CSX TRANSPORTATION
- 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 Easment 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 — RW
- New Right of Way Line with Pin and Cap — RW
- New Right of Way Line with Concrete or Granite R/W Marker — RW
- New Control of Access Line with Concrete C/A Marker — CA
- Existing Control of Access — CA
- New Control of Access — CA
- 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
- 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 — HH
- 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
- U/G Telephone Cable Hand Hole — HH
- 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 — C
- TV Tower
- U/G TV Cable Hand Hole — HH
- 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 — S
- 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.

6/2/99

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 ½" 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. APPROX. 8" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
R1	SHOULDER BERM GUTTER
T	EARTH MATERIAL

PAVEMENT EDGE SLOPES ARE 1:1 UNLESS OTHERWISE SHOWN.

MACON COUNTY
BRIDGE #550180

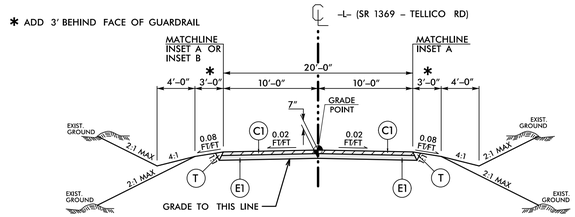
PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.208	2A-1

ROADWAY DESIGN ENGINEER

PAVEMENT DESIGN ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
804-C N LAFAYETTE ST
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275



NOTE:
AN ADDITIONAL LAYER OF 4" B25.0C SHALL BE PLACED UNDER TYPICAL SECTION NO.1 MATCHING THE STATIONS ON INSET B

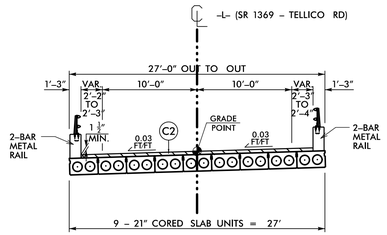
TYPICAL SECTION NO. 1

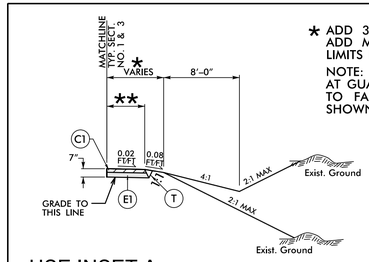
USE TYPICAL SECTION NO. 1

-L- STA. 12+30.00 TO -L- STA. 12+93.70 (BEGIN BRIDGE)
-L- STA. 13+46.30 (END BRIDGE) TO 14+40.00

NOTE: TRANSITION BETWEEN EXISTING AND TYP. SECT. NO.1 AS FOLLOWS:

-L- STA. 11+80.00 TO -L- STA. 12+30.00
-L- STA. 14+07.01 TO -L- STA. 14+90.00, LT
-L- STA. 14+40.00 TO -L- STA. 14+90.00, RT





* ADD 3' FOR GUARDRAIL LOCATIONS ADD MINIMUM 2' PAST PAVED SHOULDER LIMITS FOR ALL OTHER LOCATIONS

NOTE:
AT GUARDRAIL LOCATIONS PAVE TO FACE OF GUARDRAIL UNLESS SHOWN OTHERWISE ON PLANS.

INSET A

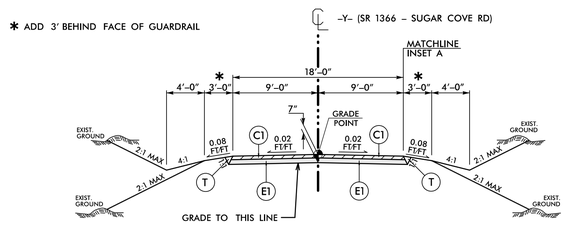
USE INSET A

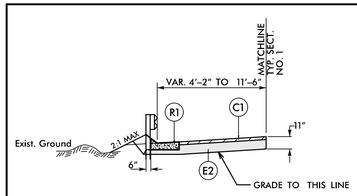
** FDPS WIDTH	STA. TO STA.
0'-0" TO 2'-10"	-L- STA. 12+22.22 TO -L- STA. 12+89.77 (BEGIN APPROACH SLAB) LT
	-L- STA. 12+08.88 TO -L- STA. 12+75.95 (BEGIN APPROACH SLAB) RT
0'-0" TO 3'-1"	-Y- STA. 10+31.53 (END APPROACH SLAB) TO -Y- STA. 10+62.86 RT

TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2

-L- STA. 12+93.70 TO -L- STA. 13+46.30





INSET B

USE INSET B

-L- STA. 13+69.56 (END APPROACH SLAB) TO -L- STA. 13+83.82 LT

TYPICAL SECTION NO. 3

USE TYPICAL SECTION NO. 3

-Y- STA. 10+11.59 TO -Y- STA. 10+70.00

NOTE: TRANSITION BETWEEN TYP. SECT. NO.3 AND EXISTING AS FOLLOWS:

-Y- STA. 10+70.00 TO -Y- STA. 11+20.00

3/16/2021
X:\NCDOT\Division 14 - 2017\Macon 550180\Roadway\Proj\550180_Rdy_typ.dgn
User:rmast

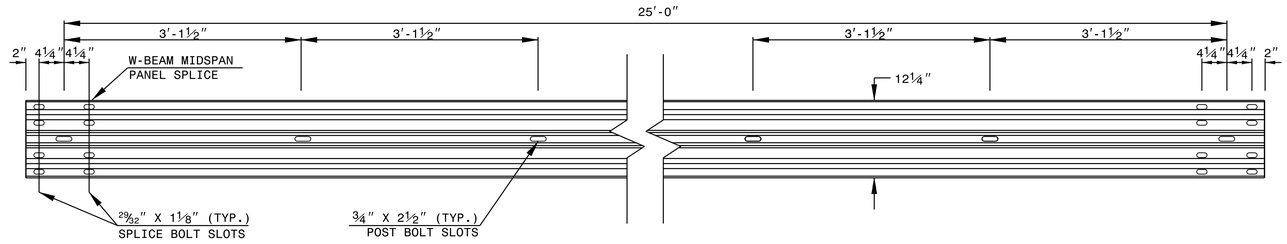
PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.208	2C-1

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

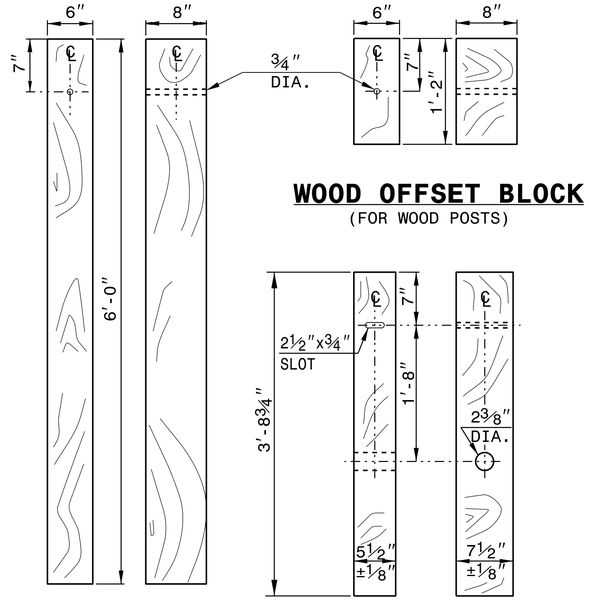
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

SHEET 6 OF 8
862D02



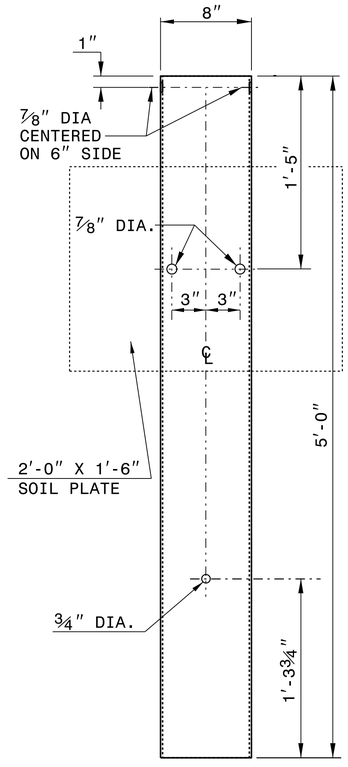
STANDARD W-BEAM GUARDRAIL



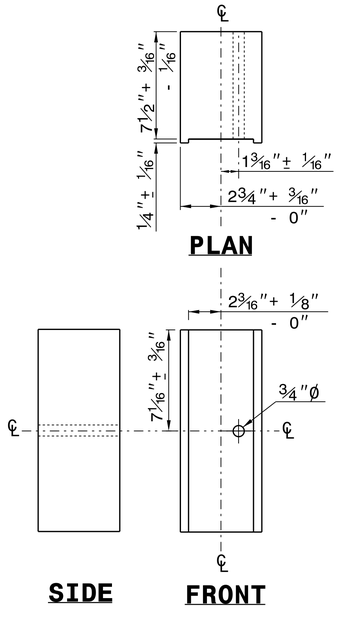
WOOD OFFSET BLOCK
(FOR WOOD POSTS)

STANDARD LINE POST

SHORT WOOD BREAKAWAY POST



STEEL TUBE
TS 6"x8"x0.1875"

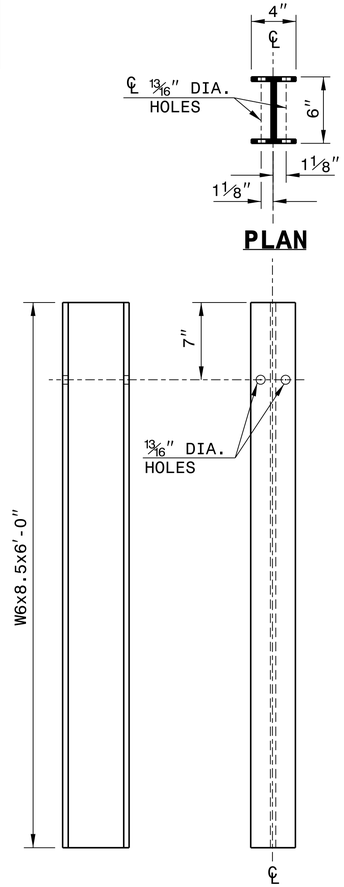


PLAN

SIDE

FRONT

ROUTED OFFSET BLOCK



"W6" STEEL POST

SYSTEM PARTS

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

ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

SHEET 6 OF 8
862D02

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 022966 JOHN S. HOWERTON
8/7/2019

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

SEE TITLE BLOCK

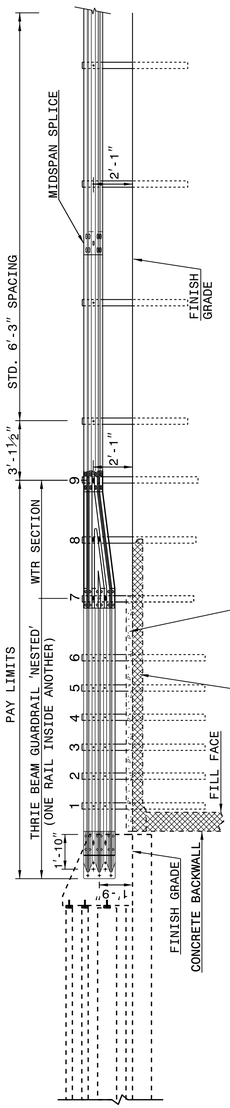
ORIGINAL BY: J.HOWERTON DATE: 3-7-2018
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC.:

PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.208	2C-2

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

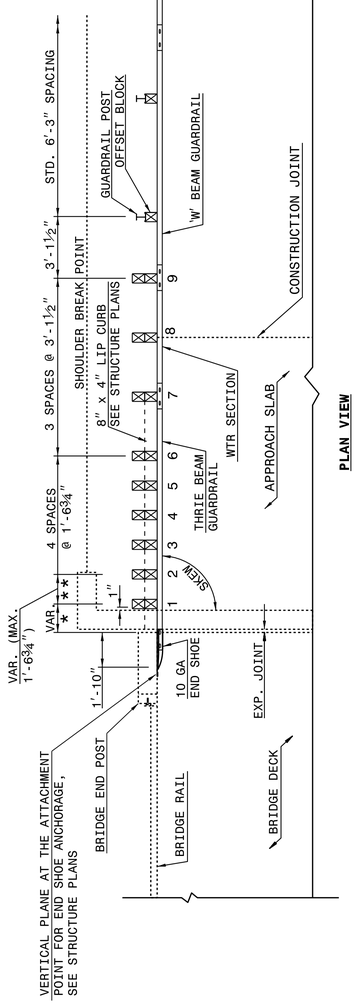
ROADWAY DETAIL DRAWING FOR
STRUCTURE ANCHOR UNITS
GUARDRAIL ANCHOR UNIT, TYPE III
FOR ATTACHMENT TO RAIL ON BRIDGE

SHEET 1 OF 7
862D03



ELEVATION

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.



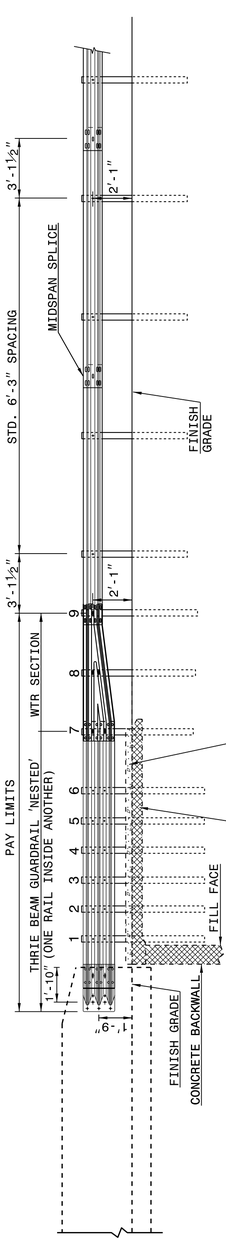
PLAN VIEW

GUARDRAIL ANCHOR UNIT, TYPE III
FOR ATTACHMENT TO RAIL ON BRIDGE

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

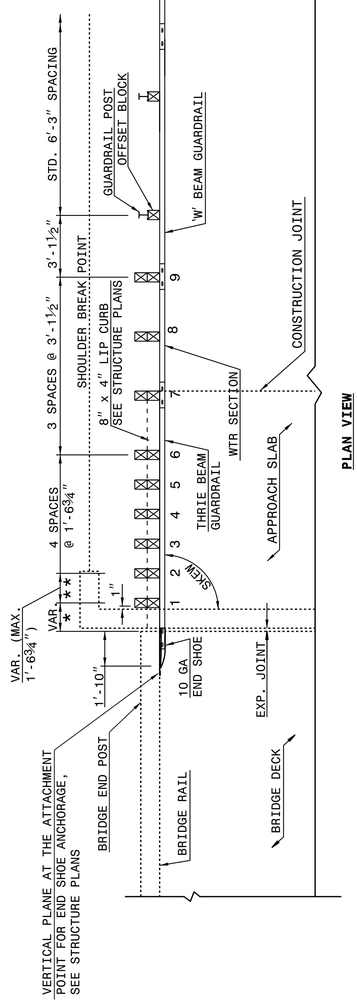
ROADWAY DETAIL DRAWING FOR
STRUCTURE ANCHOR UNITS
GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO
RAIL ON BRIDGE - SUB REGIONAL TIER

SHEET 2 OF 7
862D03



ELEVATION

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.



PLAN VIEW

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

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

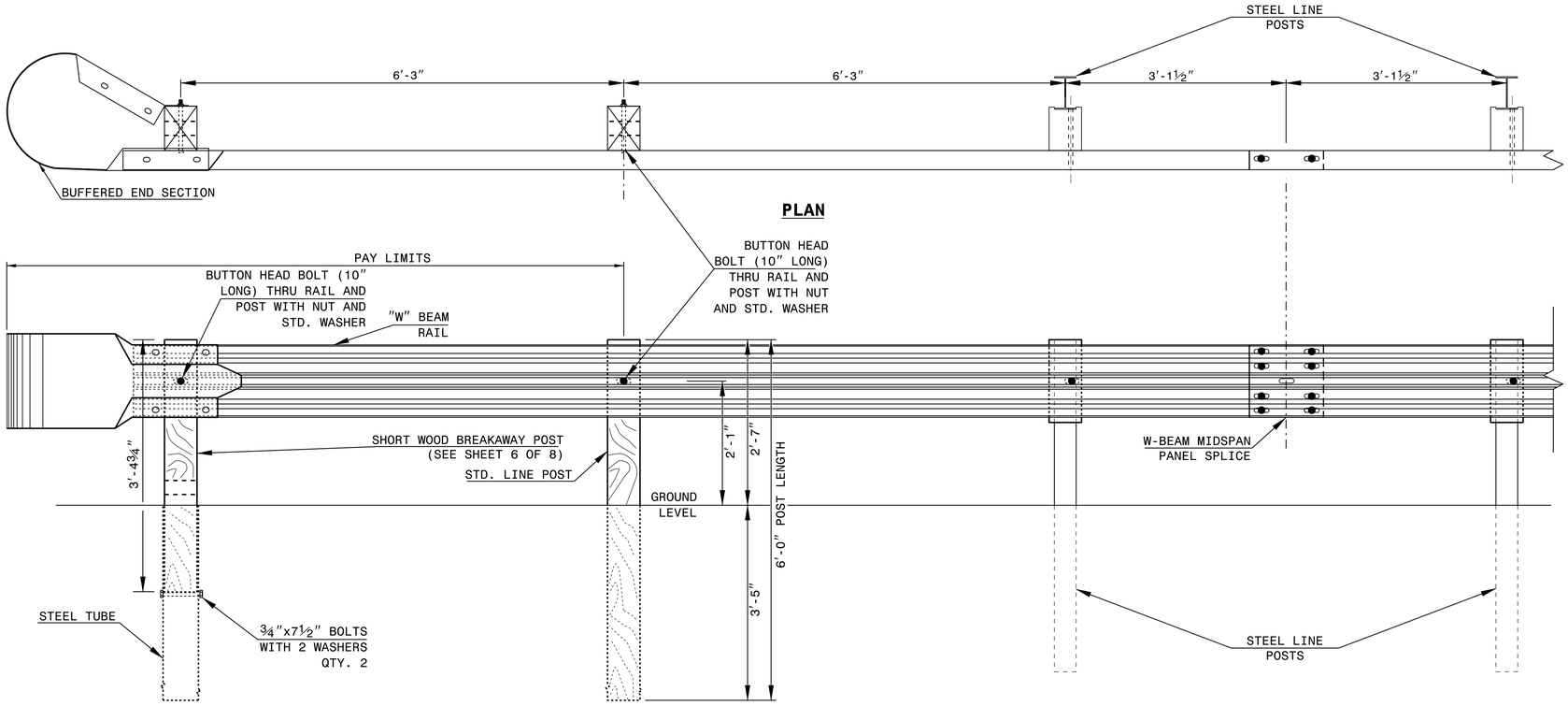
SEE TITLE BLOCK

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

PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.208	2C-3

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

ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION



TRAILING END UNIT ASSEMBLY

A.T.-1 SYSTEM

SHEET OF

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

ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

SHEET OF

DocuSigned by: NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 022966 ENGINEER DEREK S. HOWERTON
8/7/2019

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

A.T.-1 SYSTEM

ORIGINAL BY: _____ DATE: _____
MODIFIED BY: _____ DATE: _____
CHECKED BY: _____ DATE: _____
FILE SPEC.: _____

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.208	2C-4

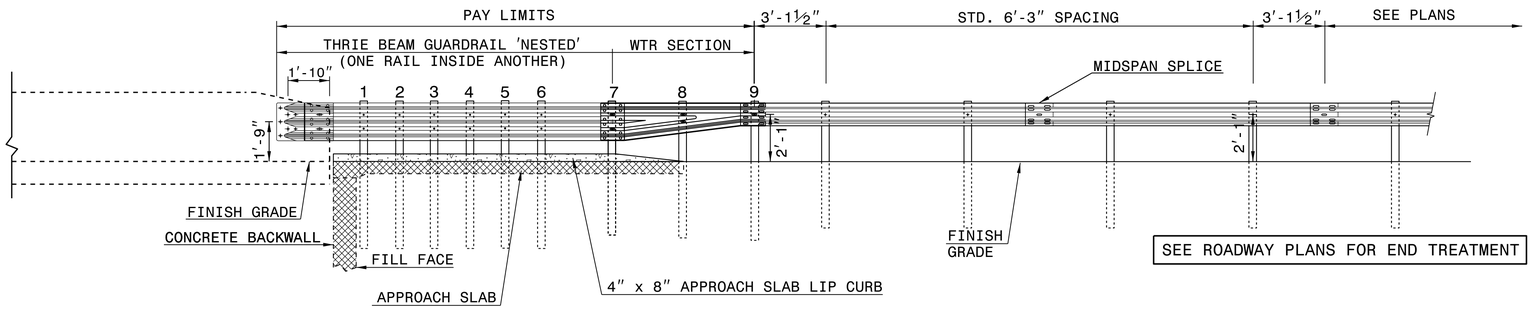
STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR

TYPE III - SHOP CURVED STRUCTURE ANCHOR UNIT

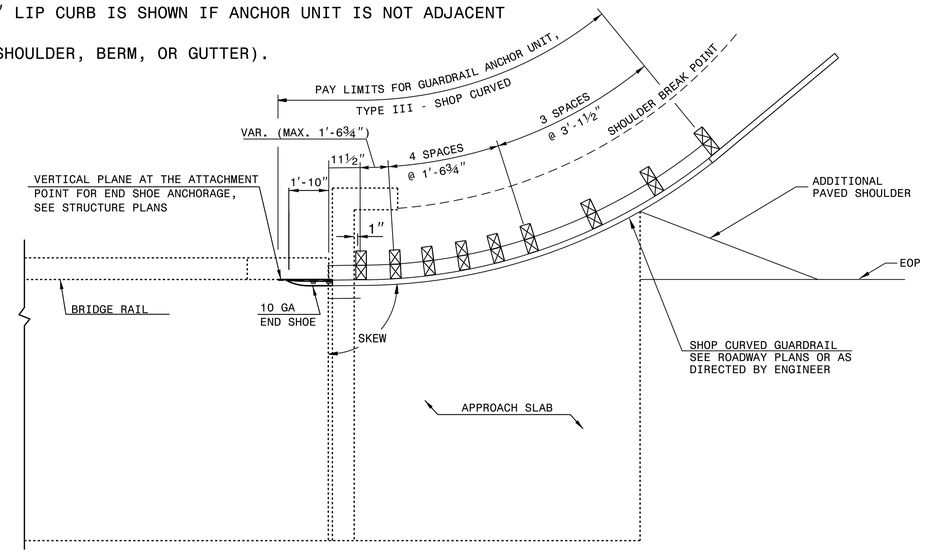
SHEET 1 OF 1

TYPE III SC



ELEVATION

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).
-USE NO STEEL POSTS WITHIN THE GUARDRAIL ANCHOR UNIT LIMITS.
-LAP JOINTS IN THE DIRECTION OF TRAFFIC FLOW.
-SEE STANDARD 862.03 SHEET 4 FOR POST SECTIONS 1 THRU 9.



PLAN VIEW

GUARDRAIL ANCHOR UNIT, TYPE III - SHOP CURVED FOR ATTACHMENT TO RAIL ON BRIDGE

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

ENGLISH DETAIL DRAWING FOR

TYPE III - SHOP CURVED STRUCTURE ANCHOR UNIT

SHEET 1 OF 1

TYPE III SC

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 022966 Joel S Howerton

8/7/2019

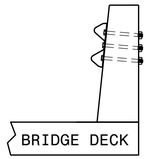
CONTRACT STANDARDS AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

SEE PLATE FOR TITLE

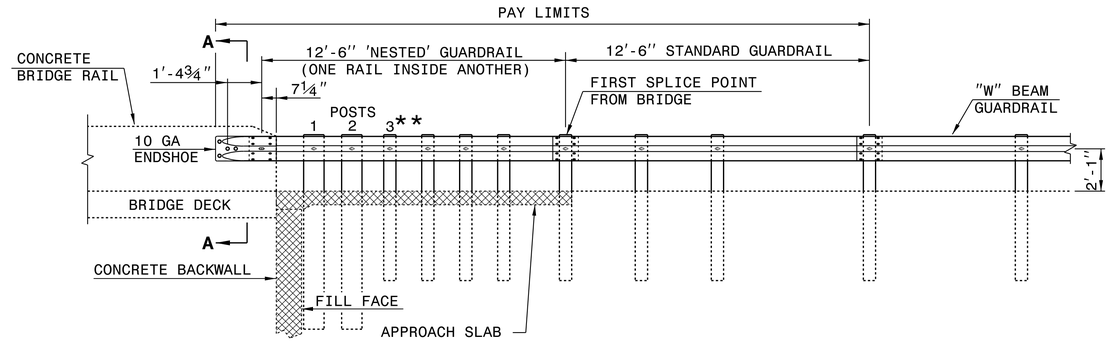
ORIGINAL BY: E.E.Ward DATE: 4-4-02
MODIFIED BY: T.S.Spell DATE: 2-01-18
CHECKED BY: DATE:
FILE SPEC.: \jhowerton\guardrail\31inguardrail\typeiiisc.dgn

01-FEB-2018 09:09
S:\Contracts\Contracts\Special Details\jhowerton\Guardrail\31 inch Guardrail\type_iii_sc.dgn
jhowerton AT CSD-232595

PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.208	2C-5

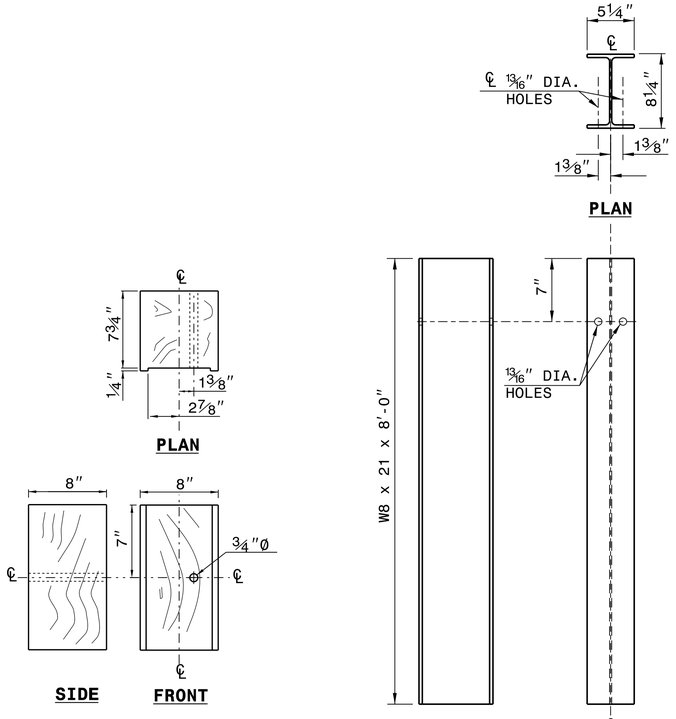


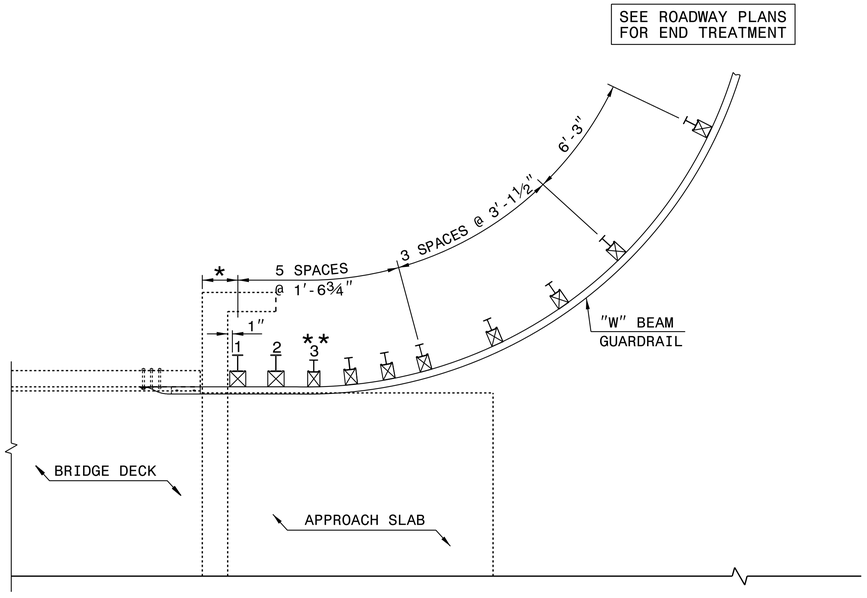
SECTION A-A



ELEVATION VIEW

NOTE:
**ELIMINATE POST 3 AND SHIFT POSTS 1 & 2 ON 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.
-MEASURE GUARDRAIL HEIGHT FROM THE TOP OF ADJACENT SURFACE (SHOULDER, BERM, OR GUTTER).
-USE NO WOOD POSTS WITHIN THE GUARDRAIL ANCHOR UNIT LIMITS.
-LAP JOINTS IN THE DIRECTION OF TRAFFIC FLOW.
-POSTS 1 AND 2 TO BE W8 x 21 X 8'-0" LONG STEEL POST AND 8" X 8" X 14" WOOD ROUTED OFFSET BLOCK.





PLAN VIEW

8/7/2019

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

GUARDRAIL ANCHOR UNIT TYPE B-83 SHOP CURVED

ORIGINAL BY: E.E. WARD DATE: 6-10-02
MODIFIED BY: E.E. WARD DATE: 7-14-04
CHECKED BY: DATE:
FILE SPEC.:

19-NOV-2018 08:26
S:\Contracts\Contracts\Special Details\Leeward\Misc guardrail\NCHRP350 Approved\b-83 mnndot.dgn
jhowerton AT CSD-292595

PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.208	2G-1

GEOTECHNICAL ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 29869 ENGINEER DUANE C CLARK

8/7/2019

SIGNATURE DATE

SIGNATURE DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

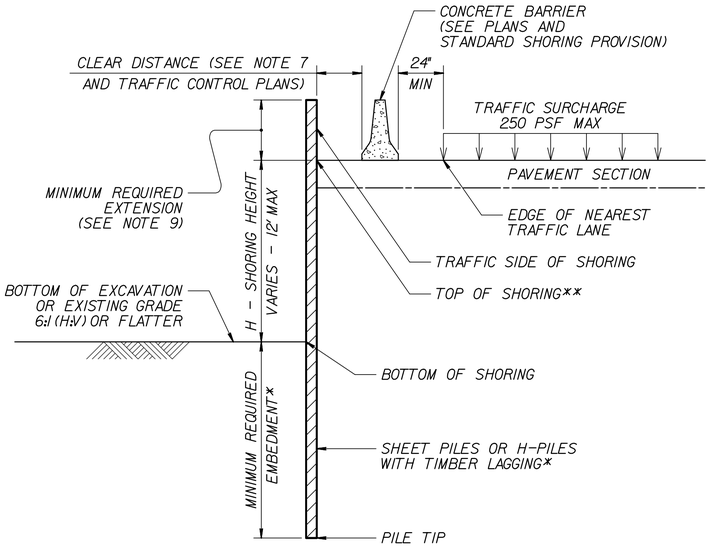
GROUNDWATER CONDITION (SEE NOTE 6)	H SHORING HEIGHT (FT)	SLOPE OR SURCHARGE CASE WITH NO TRAFFIC IMPACT					SURCHARGE CASE WITH TRAFFIC IMPACT				
		SHEET PILES		H-PILES WITH TIMBER LAGGING			SHEET PILES		H-PILES WITH TIMBER LAGGING		
		MINIMUM REQUIRED EMBEDMENT (FT)	MINIMUM REQUIRED SECTION MODULUS (IN^3/FT)	MINIMUM REQUIRED EMBEDMENT* (FT) (SEE NOTE 10)			MINIMUM REQUIRED EMBEDMENT (FT)	MINIMUM REQUIRED SECTION MODULUS (IN^3/FT)	MINIMUM REQUIRED EMBEDMENT* (FT) (SEE NOTE 10)		
				HP 10x42	HP 12x53	HP 14x73			HP 10x42	HP 12x53	HP 14x73
GROUNDWATER ELEVATION BEWTEEN BOTTOM OF SHORING AND PILE TIP	< 6	11.5	4.5	11.5	11.5	11.5	16.0	12.0	13.0	13.0	13.0
	7	13.0	7.0	13.0	13.0	13.0	17.0	14.5	14.5	14.5	14.5
	8	15.0	10.0	--	15.0	15.0	18.0	17.0	--	15.5	15.5
	9	17.0	14.0	--	17.0	17.0	19.0	20.0	--	17.0	17.0
	10	18.5	19.5	--	--	18.5	20.0	23.5	--	--	18.5
	11	20.5	26.0	--	--	--	21.0	28.0	--	--	20.0
	12	22.5	33.0	--	--	--	22.0	33.0	--	--	21.5
GROUNDWATER ELEVATION BELOW PILE TIP	< 6	7.5	3.0	8.0	8.0	8.0	11.0	10.0	9.5	9.5	9.5
	7	8.5	4.5	9.5	9.5	9.5	12.0	12.0	10.5	10.5	10.5
	8	10.0	6.5	10.5	10.5	10.5	12.5	14.0	11.5	11.5	11.5
	9	11.0	9.5	--	12.0	12.0	13.5	16.5	--	12.5	12.5
	10	12.5	13.0	--	--	13.5	14.0	19.5	--	13.5	13.5
	11	13.5	17.0	--	--	14.5	15.0	22.5	--	--	14.5
	12	15.0	21.5	--	--	16.0	16.0	25.5	--	--	15.5

MINIMUM REQUIRED EMBEDMENT AND SECTION MODULUS

*DO NOT USE H-PILES WITH TIMBER LAGGING FOR GROUNDWATER CONDITION, SHORING HEIGHT AND H-PILE SIZE SHOWN IF MINIMUM REQUIRED EMBEDMENT IS "--".

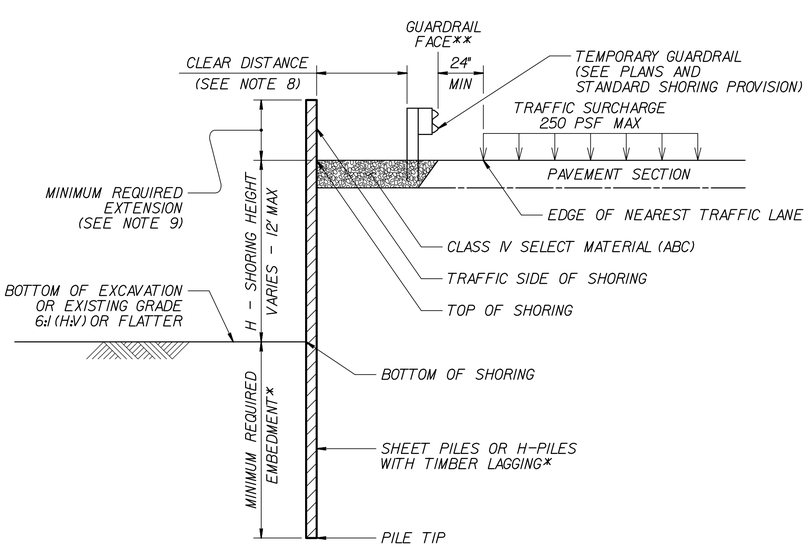
NOTES:

1. AT THE CONTRACTOR'S OPTION, USE STANDARD TEMPORARY SHORING AS NOTED IN THE PLANS.
2. FOR STANDARD TEMPORARY SHORING, SEE STANDARD SHORING PROVISION.
3. STANDARD TEMPORARY SHORING IS BASED ON THE FOLLOWING IN-SITU ASSUMED SOIL PARAMETERS:
   UNIT WEIGHT, γ = 120 PCF
   FRICTION ANGLE, ϕ = 30 DEGREES
   COHESION, c = 0 PSF
4. DO NOT USE STANDARD TEMPORARY SHORING IF ASSUMED SOIL PARAMETERS ARE NOT APPLICABLE.
5. DO NOT USE STANDARD TEMPORARY SHORING WHEN VERY LOOSE OR SOFT SOIL OR MUCK IS WITHIN THE EMBEDMENT DEPTH.
6. USE GROUNDWATER ELEVATION NOTED IN THE PLANS. IF NO GROUNDWATER ELEVATION IS SHOWN IN THE PLANS, USE "GROUNDWATER ELEVATION BETWEEN BOTTOM OF SHORING AND PILE TIP" FOR GROUNDWATER CONDITION. DO NOT USE STANDARD TEMPORARY SHORING IF GROUNDWATER IS ABOVE BOTTOM OF SHORING.
7. AT THE CONTRACTOR'S OPTION OR IF AVAILABLE CLEAR DISTANCE IS LESS THAN THE MINIMUM REQUIRED FOR CONCRETE BARRIER, SET BARRIER NEXT TO AND UP AGAINST TRAFFIC SIDE OF PILES AND USE "SURCHARGE CASE WITH TRAFFIC IMPACT".
8. AT THE CONTRACTOR'S OPTION OR IF AVAILABLE CLEAR DISTANCE IS LESS THAN 4' FOR TEMPORARY GUARDRAIL, ATTACH GUARDRAIL TO TRAFFIC SIDE OF PILES AS SHOWN IN THE PLANS AND USE "SURCHARGE CASE WITH TRAFFIC IMPACT".
9. MINIMUM REQUIRED EXTENSION IS 6" FOR "SLOPE OR SURCHARGE CASE WITH NO TRAFFIC IMPACT" AND 32" FOR "SURCHARGE CASE WITH TRAFFIC IMPACT".
10. MINIMUM REQUIRED EMBEDMENT FOR H-PILES WITH TIMBER LAGGING IS BASED ON DRIVEN H-PILES AT MAXIMUM 6' SPACING. AT THE CONTRACTOR'S OPTION, EMBEDMENT DEPTHS MAY BE REDUCED BY 25% FOR DRILLED-IN H-PILES.
11. SUBMIT A "STANDARD TEMPORARY SHORING SELECTION FORM" AT LEAST 7 DAYS BEFORE STARTING TEMPORARY SHORING CONSTRUCTION. UP TO 3 SHORING LOCATIONS MAY BE INCLUDED ON EACH FORM. STANDARD SHORING SELECTION FORMS ARE AVAILABLE FROM: connect.ncdot.gov/resources/Geological/Pages/Geotech_Forms_Details.aspx
12. CONTACT THE ENGINEER IF PILES DO NOT ATTAIN THE MINIMUM REQUIRED EMBEDMENT.



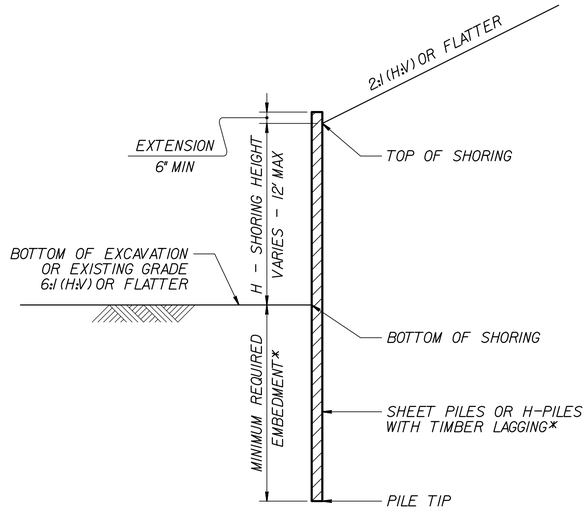
CONCRETE BARRIER

**TOP OF SHORING = EDGE OF PAVEMENT



TEMPORARY GUARDRAIL

**GUARDRAIL FACE = EDGE OF PAVEMENT



STANDARD TEMPORARY SHORING

(SLOPE CASE)

*SEE TABLE ABOVE.

STANDARD TEMPORARY SHORING

(SURCHARGE CASE)

*SEE TABLE ABOVE.

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS

GEOTECHNICAL ENGINEERING UNIT

STANDARD DETAIL NO. 1801.01

STANDARD TEMPORARY SHORING

DATE: 11-19-13

COMPUTED BY: SGM DATE:5/13/2019
CHECKED BY: JLT DATE: 5/17/2019

PROJECT NO.	SHEET NO.
17BP.14.R.208	3B-1

STATE OF NORTH CAROLINA

SUMMARY OF EARTHWORK

IN CUBIC YARDS

Station	Station	Uncl. Excav.	Embank. +%	Borrow	Waste
-L- 11+80.00	-L- 12+93.70	83	22		61
BRIDGE					
-L- 13+46.30	-L-14+90.00	166	6		160
-Y- 10+11.59	-Y- 11+20.00	115	9		106
TOTALS:		364	37		327
GRAND TOTALS:		364	37		
SAY:		400			

Note: Approximate quantities only. Unclassified Excavation, Fine Grading, and Clearing and Grubbing will be paid for at the contract lump sum price for grading.

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.

EST. SHALLOW UNDERCUT = 100 CY

SELECT GRANULAR MATERIAL = 400 CY

GEOTEXTILE FOR SOIL STABILIZATION = 600 SY

CLASS IV SUBGRADE STABILIZATION = 200 TON

PER GEOTECH RECOMMENDATION, ESTIMATED 450 CUBIC YARDS OF UNDERCUT TO BE USED IN THE DISCRETION OF THE RESIDENT ENGINEER.

"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

IN FEET

LINE	BEG. STA.	END STA.	LOC.	LENGTH: STRAIGHT	LENGTH: SHOP CURVED	LENGTH: DOUBLE FACED	WARRANT POINT: APPR. END	WARRANT POINT: TRAIL. END	"N" DIST. FROM E.O.L.	TOTAL SHLDR WIDTH	FLAIR LENGTH: APPR. END	FLAIR LENGTH: TRAIL. END	W: APPR. END	W: TRAIL. END	ANCHORS: III	ANCHORS: GREU TL-2	ANCHORS: AT-1	ANCHORS: III SC	ANCHORS: B-83 SC	IMP. ATTEN. TYPE 350: EA	IMP. ATTEN. TYPE 350: G	IMP. ATTEN. TYPE 350: NG	REMOVE EXISTING GUARDRAIL	REMOVE & RESET EXISTING GUARDRAIL	REMARKS
-L-	12+50.77	13+00.77	LT	50.00				13+00.77	2.25'	5.25'		25'		0.5'	1	1									
-L-	12+36.63	12+86.63	RT	50.00			12+86.63		2.25'	5.25'	25'		0.5'		1	1									
-L-	13+53.96	13+91.55	LT		37.5		13+53.96		2.25'	5.25'							1	1							R=25'
-L-	13+39.23	10+50 -Y	RT		31.25			13+39.23	2.25'	5.25'							1		1						R=10'
SUB-TOTALS				100.00	68.75										2	2	2	1	1						
LESS ANCHOR DEDUCTIONS																									
	GREU TL-2	2@25.00 ft		50.00																					
	TYPE III	2@18.75 ft		37.50																					
	TYPE III SC	1@18.75 ft			18.75																				
	B-83 SC	1@25.00 ft			25.00																				
	AT-1	2@6.25 ft			12.50																				
ANCHOR TOTALS				87.50	56.25																				
GRAND-TOTALS				12.50	12.50										2	2	2	1	1						
SAY				18.75	18.75										2	2	2	1	1						
ADDITIONAL GUARDRAIL POSTS = 5 EA																									
TEMPORARY GUARDRAIL																									
-L-	12+65+/-	13+72+/-	RT	100.00												2									Temporary Guardrail and Anchors
-L-	12+73+/-	13+50+/-	RT	68.75	25.00											1	1								Temporary Guardrail and Anchors
SUB-TOTALS				187.50	25.00											3	1								
LESS ANCHOR DEDUCTIONS																									
	TEMP. GREU TL-2	3@25.00 ft		75.00																					
	AT-1	1@6.25 ft			6.25																				
GRAND-TOTALS (TEMP)				112.50	18.75											3	1								
SAY				118.75	18.75											3	1								

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".

COMPUTED BY: Zachary J. Richard, PE DATE: 7/16/2018
CHECKED BY: David B. Petty, PE DATE: 8/9/2018

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

STATION / SIZE / THICKNESS OR GAUGE	LOCATION (LT, RT, OR CL)	STRUCTURE NO. FROM	STRUCTURE NO. TO	TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	DRAINAGE PIPE (RCP, CSP, CAAP, HDPE, or PVC): 12"	15"	18"	24"	30"	36"	42"	48"	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE
-L- 13+80	LT	0401		2295.8															
		0401	0402		2293.0	2292.8		24											
-L- 11+29	CL																		
TOTALS								24											

C.S. PIPE: 12"	15"	18"	24"	30"	36"	42"	48"	R.C. PIPE CLASS III: 12"	15"	18"	24"	30"	36"	42"	48"	R.C. PIPE CLASS IV: 12"	15"	18"	24"	30"	36"	42"	48"
.064	.064	.064	.064	.079	.079	.109	.109																

* R.C. PIPE (CLASS V)
** CONC. PIPE CULVERTS, CONTRACTOR DESIGN
*** RC PIPE CULVERTS, CONTRACTOR DESIGN
15" SIDE DRAIN PIPE
18" SIDE DRAIN PIPE

ENDWALLS: STD. 838.01 838.11 OR STD. 838.80 (UNLESS NOTED OTHERWISE) CU. YARDS: R.C.P.	C.S.P.	QUANTITIES FOR DRAINAGE STRUCTURES: PER EACH (1' THRU 5.0')	"TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. "A" +1'3 X COL. "B") L.IN. FT.: A: 5.0' THRU 10.0'	B: 10.0' AND ABOVE	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STANDARD 840.03 TYPE OF GRATE: E	F	G	CONCRETE TRANSITIONAL SECTION: DROP INLET	CATCH BASIN	T.B.D.I STD. 840.35	FRAME AND NARROW FLAT GRATE STD. 840.29	PIPE CLEAN OUT (EA)	CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71	CONC. COLLARS CL. "B" C.Y. STD. 840.72	PIPE REMOVAL LIN. FT.	REMARKS
		1									1	1						
											1							
TOTALS		1									1	1		1				

ABBREVIATIONS

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

COMPUTED BY: __ JCK	10/8/2018
CHECKED BY: ___ SCC	10/8/2018

(5-15-18)

PROJECT NO.	SHEET NO.
17BP.14.R.208	3G-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	200
				TOTAL LF:	200

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

SUMMARY OF AGGREGATE SUBGRADE/STABILIZATION

LINE	Station	Station	Aggregate Type* ASU(1/2)/ AST	Aggregate Thickness INCHES [8" for ASU(2)]	Shallow Undercut CY	Class IV Subgrade Stabilization TONS	Geotextile for Soil Stabilization SY	Stabilizer Aggregate TONS	Class IV Aggregate Stabilization TONS
CONTINGENCY			AST	18	100	200	400		
			TOTAL CY/TONS/SY:		100	200**	400**	0	0

*ASU(1/2) = Aggregate Subgrade (Type 1 or 2)
*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(1/2)/AST and may only represent a portion of the subgrade stabilization and geotextile quantities shown in the Item Sheets of the Proposal.

8/17/99

REVISIONS

MACON COUNTY
BRIDGE #550180

PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.208	4
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 35018 JIMMY L. TERRY
1/20/2021

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 038697 DAVID B. PETTY
1/20/2021

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
804-C N. LAFAYETTE ST
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

NAD 1983

BEGIN APPROACH SLAB
–L– STA. 12+83.00
VAR. 2'-2" TO 2'-3"
1'-3"
TYPE-III
TYPE-III SC
PROP. SBG
PROP. FDPS
10' CLEAR ROADWAY
10'
2%
6"
27'-10" OUT TO OUT
PROP. FDPS
TYPE-III 1'-3"
B-83 SC
VAR. 2'-3" TO 2'-4"
END APPROACH SLAB
–L– STA. 13+57.00
BRIDGE/ROADWAY RELATIONSHIP SKETCH

FOR STRUCTURE PLANS, SEE SHEET S-1 THRU S-32

–L– CURVE DATA

PI Sta 12+42.31
Δ = 12° 10' 25.4" (LT)
D = 14° 19' 26.2"
L = 84.99'
T = 42.65'
R = 400.00'
SE = 0.03
DS = 20 MPH

PI Sta 13+80.74
Δ = 35° 06' 36.2" (LT)
D = 57° 17' 44.8"
L = 61.28'
T = 31.64'
R = 100.00'
SE = 0.03
DS = 15 MPH

–Y– CURVE DATA

PI Sta 10+18.62
Δ = 19° 12' 38.0" (RT)
D = 52° 05' 13.5"
L = 36.88'
T = 18.62'
R = 110.00'

PI Sta 10+73.49
Δ = 10° 27' 31.4" (LT)
D = 14° 19' 26.2"
L = 73.02'
T = 36.61'
R = 400.00'

BEGIN PROJECT
17BP.14.R.208
–L– STA 11+80.00

–L– POT 10+00.00

END PROJECT
17BP.14.R.208
–L– STA 14+90.00

–L– POT 16+29.35

BEGIN BRIDGE
–L– STA 12+93.70

END CONSTRUCTION
17BP.14.R.208 WOODS
–Y– STA 11+20.00

END BRIDGE
–L– STA 13+46.30

–L– PT 12+84.64
–L– PC 11+99.65
–L– PC 13+49.11
–L– PT 14+10.39
–L– POC 13+75.00
–Y– POC 10+00.00
–Y– PRC 10+36.88
–Y– PT 11+09.90
END FDPS –Y– STA. 10+62.86
BEGIN FDPS –L– STA. 12+22.22
BEGIN FDPS –L– STA. 12+08.88

01 JAMES CLINTON RAMSEY DB I-25 PG 517

02 DION SENA DB H-33 PG 1350

03 DEAN R. SENA CHERYL J. SENA DB I-31 PG 1694

RETAIN & CLEAN OUT
8" CMP & GRAVEL RETAIN
12" CMP
15" CMP
SHED
MAILBOX
SEPTIC TANK
DO NOT DISTURB SEPTIC FIELD AND DRAIN LINES
TOE PROTECTION SEE DETAIL A
RELOCATE FENCE (BY OWNER)
GRADE TO DRAIN IN ORDER TO NOT DISTURB FENCE OR STONE WALL
TAPER TO EXIST. –L– STA. 14+07.01 TO –L– STA. 14+90.00, LT
PROP. 16' ASPHALT DRIVE
GRADE TO DRAIN
CLASS B RIP RAP 2 TONS, 7 SY GEO
SBG BEGIN –L– STA. 13+69.56 END –L– STA. 13+83.82
SHOP CURVE (R=25')
B-83 SHOP CURVE (R=10')
CLASS II RIPRAP (TYP.) (STRUCTURES ITEM)
REMOVE EXISTING ABUTMENT, CUT SLOPE BACK AT 1.5(H):1(V) & LINE W/CLASS II RIPRAP (24" THICK, KEYED-IN)
SUGAR CREEK
UT TO TELLICO CREEK
TO SR 1310
TO NC 28
SR 1309 TELLICO ROAD
MAINTAINED R/W
ICY GRAVEL
GRAVEL
WOODS
MTL
TB
BM-1
BM-2
S 59° 07' 40.8" E
S 77° 18' 00" E
N 13° 35' 17" E
S 43° 36' 46" W
S 32° 05' 39" E
N 33° 21' 51" E
N 59.56' N 45° 26' 27" E
N 25° 58' 49" E

HISTORIC SITE 31MA779

DETAIL A
TOE PROTECTION
(Not to Scale)
Natural Ground
2:1 or Flatter Fill Slope
b
d
Geotextile
d = 1 Ft.
b = 5 Ft.
Type of Liner = 10 Tons, Class B Rip-Rap
Geotextile = 20 SY
–L– STA. 12+50 TO STA. 12+70 RT

–L–

PI = 12+10.00
EL = 2,300.58'
VC = 50'
K = 63
DS = 45 MPH

PI = 12+60.00
EL = 2,299.03'
VC = 50'
K = 29
DS = 25 MPH

PI = 13+62.00
EL = 2,297.62'
VC = 50'
K = 10
DS = 20 MPH

PI = 14+42.00
EL = 2,292.35'
VC = 50'
K = 44
DS = 30 MPH

BEGIN GRADE
–L– STA.11+80.00
ELEV.2,301.27

BEGIN BRIDGE
–L– STA.12+93.70

END BRIDGE
–L– STA.13+46.30

END GRADE
–L– STA.14+90.00
ELEV.2,289.73

EXISTING BRIDGE TO BE REMOVED
LOW SIDE LOW CHORD
–L– STA.13+75.00= –Y– STA.10+00.00
(–)12.3000%
(–)13.1000%
(–)11.3787%
(–)16.5921%
(–)16.5921%
(–)15.4679%
CLASS II RIP RAP KEY-IN 3.0' (TYP.)
PROP. EXCAVATION TO ELEV. 2293.0'
APPROX. W.S. ELEV. ON DATE OF SITE VISIT (3/7/18) = 2290.4'
PROP. EXCAVATION TO ELEV. 2292.0'
1.5:1 NORMAL SLOPE W/CLASS II RIP RAP (TYP.)
REMOVE EXISTING ABUTMENT, CUT SLOPE BACK AT 1.5(H):1(V) & LINE W/CLASS II RIPRAP (24" THICK, KEYED-IN)

–Y–

PI = 10+25.00
EL = 2,297.99'
VC = 25'
K = 12
DS = 15 MPH

PI = 10+88.00
EL = 2,302.71'
VC = 50'
K = 32
DS = 35 MPH

BEGIN GRADE
–Y– STA.10+11.59 =
–L– STA.13+69.42, 10' RT
ELEV.2,297.27

END GRADE
–Y– STA.11+20.00
ELEV.2,304.61

03
(+)5.3691%
(+)7.4921%
(+)5.9375%

BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	=	950 CFS
DESIGN FREQUENCY	=	25 YRS
DESIGN HW ELEVATION	=	2297.4 FT
BASE DISCHARGE	=	1400 CFS
BASE FREQUENCY	=	100 YRS
BASE HW ELEVATION	=	2298.5 FT
OVERTOPPING DISCHARGE	=	1800++*
OVERTOPPING FREQUENCY	=	500++ YRS
OVERTOPPING ELEVATION	=	2298.9 FT**

*OVERTOPPING EXCEEDS 500 YR FLOOD EVENT.
**OVERTOPPING ELEVATION REPRESENTS LOWEST HIGH POINT ON DECK/ROADWAY WHICH OCCURS AT –L– STA.13+48

DATE OF SITE VISIT = 3/7/2018
APPROX. W.S. ELEVATION ON DATE OF SITE VISIT = 2290.4 FT

09/08/99

PROJECT: 17BP.14.R.208

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.14.R.208	RW01	5

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

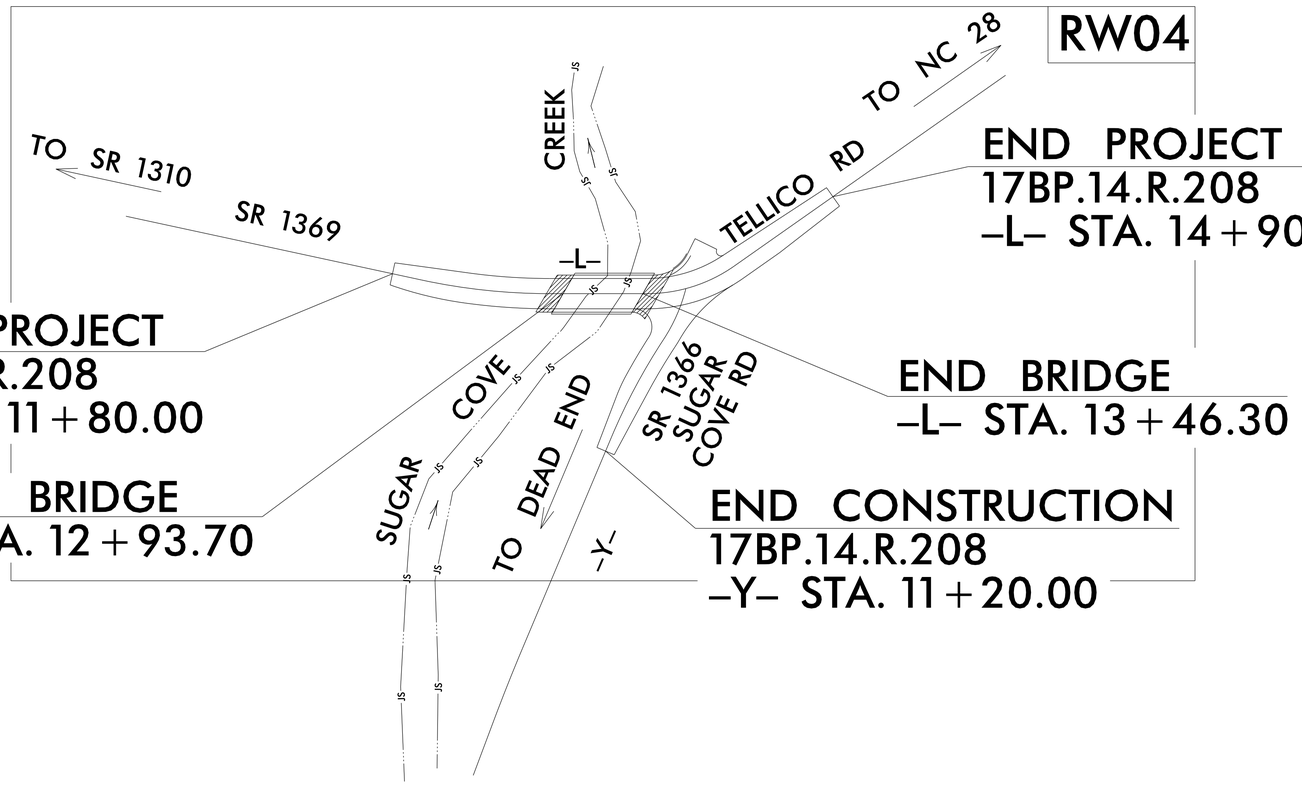
SURVEY CONTROL, EXISTING CENTERLINES, RIGHT OF WAY, EASEMENTS AND PROPERTY TIES

MACON COUNTY

LOCATION: BRIDGE #550180 OVER SUGAR COVE CREEK ON SR 1369 (TELLICO RD)

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

NAD 83/2011



GRAPHIC SCALE

50 25 0 50 100

PLANS

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "GPS100" WITH NAD 83/NA 2011 STATE PLANE GRID COORDINATES OF NORTHING: 585,962.351(ft) EASTING: 649,985.036(ft) ELEVATION: 2,172.19(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.9997728872
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "GPS100" TO -L- STATION 11+80.00 IS S 86-06'39.8" W 2,562.20(ft)
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

Prepared In the Office of:

LOCATION AND SURVEYS, DIVISION 14
122 BONNIE LANE
SYLVA, NC 28779

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:	*LETTING DATE:*
FEB. 8, 2019	MAY 11, 2021

PROFESSIONAL LAND SURVEYOR

NORTH CAROLINA PROFESSIONAL SEAL L-4727 LAND SURVEYOR BRIAN A. BARWATT

DocuSigned by: Brian Barwatt 3/30/2021
SIGNATURE: *Date:*

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •

$$$$$SYSTIME$$$$$
$$$$$USERNAME$$$$$DGN$$$$$

6/2/99

REVISIONS

SURVEY CONTROL SHEET

W/ EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION

PROJECT REFERENCE NO.	SHEET NO.
17BP.R.14.208	RW02C-1

Location and Surveys

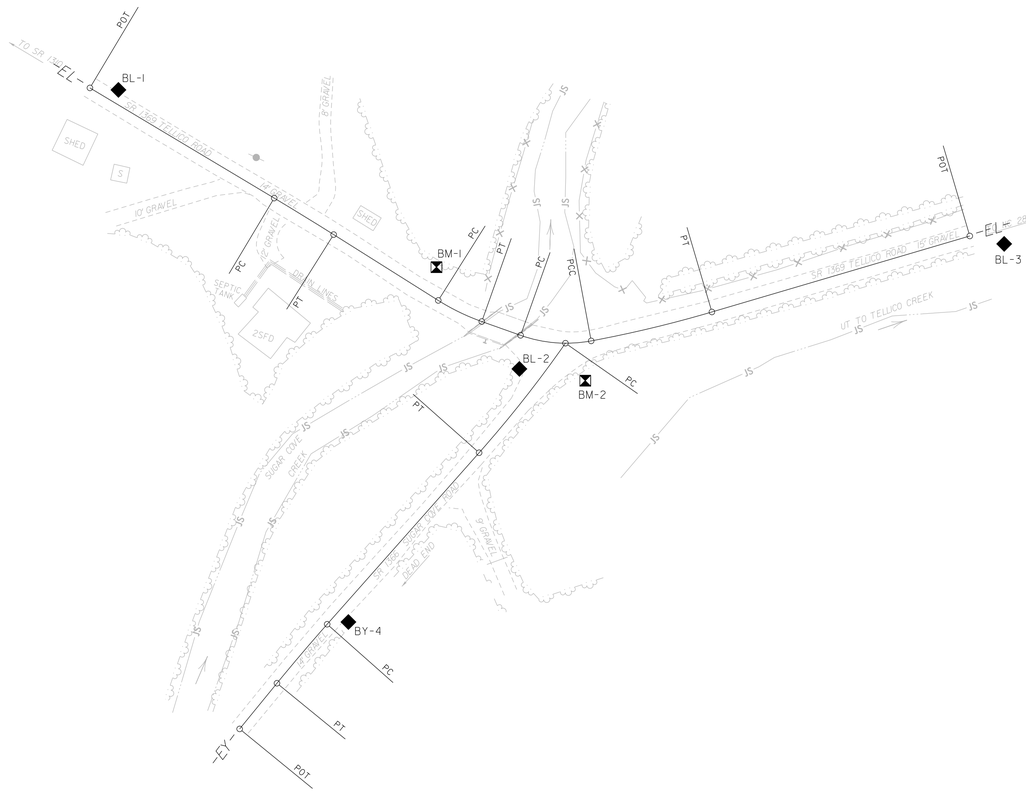
LOCATION AND SURVEYS, DIVISION 14
122 BONNIE LANE
SYLVA, NC 28779

PROJECT SURVEYOR

NORTH CAROLINA PROFESSIONAL SEAL L-4727 LAND SURVEYOR BRIAN A. BARWATT

DocuSigned by:
Brian Barwatt
A9255FE8A6A4ACE...

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



EL

POINT	N	E	BEARING	DIST	DELTA	D	L	T	R
POT	585880.937	647274.241							
LINE			S 59°07'40.8" E	141.71					
PC	585808.221	647395.875							
CURVE			S 58°28'06.7" E	46.04	01°19'08.1"(RT)	02°51'53.2"	46.04	23.02	2000.00
PT	585784.145	647435.115							
LINE			S 57°48'32.7" E	81.59					
PC	585740.679	647504.162							
CURVE			S 64°07'36.5" E	31.91	12°38'07.5"(LT)	39°30'51.6"	31.98	16.05	145.00
PT	585726.754	647532.875							
LINE			S 70°26'40.2" E	27.20					
PC	585717.648	647558.508							
CURVE			S 85°29'34.1" E	46.73	30°05'47.8"(LT)	63°39'43.1"	47.28	24.20	90.00
PCC	585713.976	647605.098							
CURVE			N 76°31'24.7" E	81.93	05°52'14.4"(LT)	07°09'43.1"	81.97	41.02	800.00
PT	585733.070	647684.776							
LINE			N 73°35'17.6" E	177.44					
POT	585783.205	647854.990							

EY

POINT	N	E	BEARING	DIST	DELTA	D	L	T	R
PC	585712.459	647588.109							
CURVE			S 38°14'43.3" W	92.05	06°35'47.0"(RT)	07°09'43.1"	92.10	46.10	800.00
PT	585640.164	647531.126							
LINE			S 41°32'36.8" W	151.22					
PC	585526.986	647430.841							
CURVE			S 40°23'56.4" W	51.14	02°17'20.8"(LT)	04°28'34.4"	51.14	25.57	1280.00
PT	585488.044	647397.700							
LINE			S 39°15'16.0" W	38.93					
POT	585457.896	647373.064							

BL

POINT	DESC.	NORTH	EAST	ELEVATION
1	BL-1	585879.6150	647293.0310	2300.55
2	BL-2	585695.4770	647557.6810	2298.67
3	BL-3	585777.9800	647877.6690	2281.27

BY

POINT	DESC.	NORTH	EAST	ELEVATION
Y2	BL-2	585695.4770	647557.6810	2298.67
4	BY-4	585528.4410	647444.8250	2312.96

BM1 ELEVATION = 2297.94
N 585763 E 647503
10" SPIKE IN 24" DOUBLE ASH

BM2 ELEVATION = 2299.89
N 585688 E 647601
10" SPIKE IN 16" POPLAR

NOTES:

1. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.
2. THE SURVEY CONTROL DATA FOR THIS PROJECT HAS BEEN COMPILED FROM VARIOUS SOURCES. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

25-MAR-2021 10:51
C:\sylva\Bridge\550180\Rw Sheets\17BP.14.R.208.1s-rw02c-1.dgn
babarwatt AT LS-317902

PROPOSED ALIGNMENT CONTROL SHEET

PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.208	RW02D-1

Location and Surveys

LOCATION AND SURVEYS, DIVISION 14
122 BONNIE LANE
SYLVA, NC 28779

PROJECT SURVEYOR

NORTH CAROLINA PROFESSIONAL SEAL L-4727 LAND SURVEYOR BRIAN A. BARWATT

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

I, Brian Barwatt, PLS, certify that the data compiled came from available surveys/mapping performed by others and provided to me by NCDOT and do not certify to the accuracy or quality of the individual data sources.

This 31st day of March, 2021.

DocuSigned by:
Brian Barwatt
A9355FE8AA8A4CE...

Professional Land Surveyor L-4727

L

TYPE	STATION	NORTH	EAST
POT	10+00.00	585880.9370	647274.2410
PC	11+99.65	585778.4906	647445.6065
PT	12+84.64	585742.9289	647522.6215
PC	13+49.11	585722.2625	647583.6837
PT	14+10.39	585721.0589	647643.9960
POT	16+29.35	585782.9247	647854.0385

Y

TYPE	STATION	NORTH	EAST
PC	10+00.00	585717.2116	647609.0060
PRC	10+36.88	585690.1023	647584.2544
PT	11+09.90	585640.1638	647531.1257
PC	12+61.11	585526.9864	647430.8412
PT	13+12.25	585488.0437	647397.6996
POT	13+51.19	585457.8960	647373.0640

NOTES:

1. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.

2. THE PROPOSED ALIGNMENT CONTROL DATA FOR THIS PROJECT HAS BEEN COMPILED FROM VARIOUS SOURCES. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

REVISIONS

6/2/99

30-MAR-2021 11:22
C:\Work\17BP.14.R.208\RW Sheets\To Send\17BP14.R.208.ls_rw02d-1.dgn
bbarwatt
Alt CS-317902

RIGHT OF WAY CONTROL SHEET

PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.208	RW03E-1

Location and Surveys

LOCATION AND SURVEYS, DIVISION 14
122 BONNIE LANE
SYLVA, NC 28779

PROJECT SURVEYOR

NORTH CAROLINA PROFESSIONAL SEAL L-4727 LAND SURVEYOR BRIAN A. BARWATT

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

I, Brian Barwatt, certify that the right of way and permanent easement monumentation for this project shown herein was completed under my direct and responsible charge from an actual survey made under my supervision; that all horizontal closures had a minimum ratio of precision of 1:10,000 (Class A). Field work was performed from 3/30/2021 to 4/5/2021, and all coordinates are based on NAD83/2011; That this survey was performed to meet the requirements of 21NCAC 56.1600 as applicable.

This 6th day of April, 2021.

DocuSigned by:
Brian Barwatt
Professional Land Surveyor L-4727

ROW MARKER IRON PIN AND CAP-E

ALIGN	STATION	OFFSET	NORTH	EAST	
L	11+75.00	-6.72	585796.9119	647427.8964	
L	11+75.00	-30.00	585816.8901	647439.8399	
L	11+75.00	20.00	585773.9743	647414.1838	
L	11+75.00	7.28	585784.8938	647420.7117	
L	11+99.65	-30.00	585804.2400	647461.0001	
L	11+99.65	20.00	585761.3242	647435.3440	
L	12+45.00	30.00	585730.1502	647473.3806	
L	12+45.00	20.00	585739.2587	647477.5079	
L	12+84.64	-30.00	585771.3455	647532.2390	
L	12+84.64	30.00	585714.5123	647513.0039	NOT SET (IN WATER)
L	13+24.75	30.00	585701.6531	647550.9985	
L	13+49.11	-30.00	585750.6791	647593.3012	
L	13+88.23	30.00	585687.2578	647624.1672	8" SPIKE SET
L	14+10.39	30.00	585692.2812	647652.4722	
L	14+10.39	-30.00	585749.8366	647635.5198	
L	14+10.39	-11.00	585731.6107	647640.8881	
L	14+95.00	-11.00	585755.5177	647722.0554	8" SPIKE SET
L	14+95.00	30.00	585716.1882	647733.6395	
L	14+95.00	8.00	585737.2918	647727.4236	REBAR SET NO CAP
L	14+95.00	-8.00	585752.6399	647722.9030	

ROW MARKER IRON PIN AND CAP-E

ALIGN	STATION	OFFSET	NORTH	EAST	
Y	10+36.88	-30.00	585666.4612	647602.7233	CONC. NAIL IN ROOT SET
Y	11+09.90	-30.00	585620.2682	647553.5793	
Y	11+09.90	30.00	585660.0595	647508.6722	
Y	11+20.00	-30.00	585612.7068	647546.8793	
Y	11+20.00	-7.00	585627.9602	647529.6649	
Y	11+20.00	30.00	585652.4982	647501.9722	8" SPIKE SET
Y	11+20.00	7.00	585637.2448	647519.1866	

PDE

ROW MARKER PERMANENT EASEMENT-E

ALIGN	STATION	OFFSET	NORTH	EAST
L	12+48.00	-30.00	585783.6655	647500.6764
L	12+93.00	-43.00	585780.9798	647544.3236

NOTES:

1. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.
2. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.
3. RIGHT OF WAY MONUMENTATION ESTABLISHED 3/30/2021 TO 4/5/2021.

REVISIONS

6/2/99

06-APR-2021 11:03
User:bbarwatt
C:\Projects\550180\RW Sheets\To Send\17BP.14.R.208.ls_rw03e-1.dgn
AT LS-37902

6/2/99

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.208	RW04

Location and Surveys

LOCATION AND SURVEYS, DIVISION 14
122 BONNIE LANE
SYLVA, NC 28779

PROJECT SURVEYOR

NORTH CAROLINA PROFESSIONAL SEAL L-4727 LAND SURVEYOR BRIAN A. BARWATT

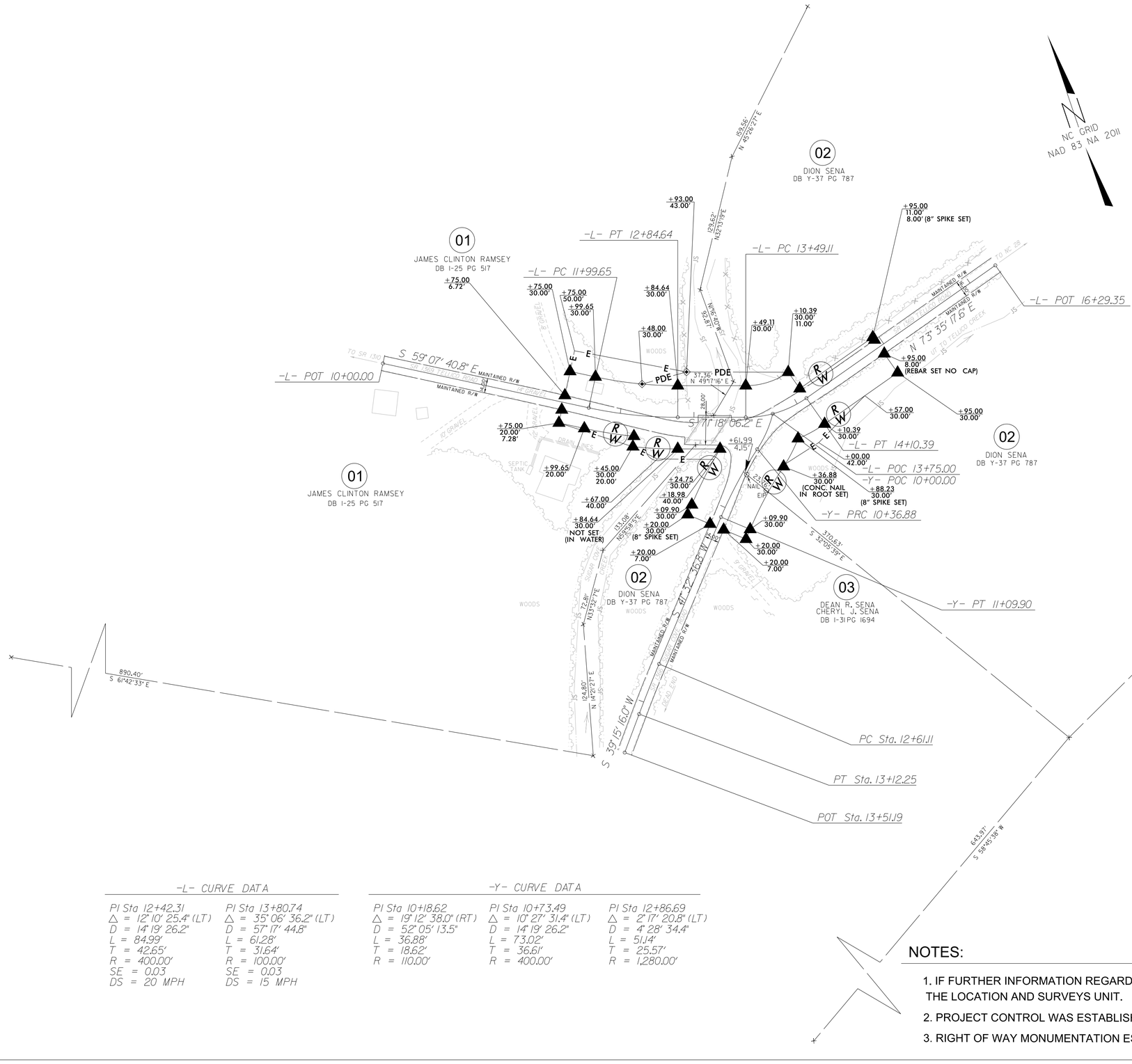
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

I, Brian Barwatt, certify that the right of way and permanent easement monumentation for this project shown herein was completed under my direct and responsible charge from an actual survey made under my supervision; that all horizontal closures had a minimum ratio of precision of 1:10,000 (Class A). Field work was performed from 3/30/2021 to 4/5/2021, and all coordinates are based on NAD83/2011; That this survey was performed to meet the requirements of 21NCAC 56.1600 as applicable.

This 6th day of April, 2021.

DocuSigned by:
Brian Barwatt
A8B3F19A8F4E4D...

Professional Land Surveyor L-4727



-L- CURVE DATA

PI Sta 12+42.31	PI Sta 13+80.74
△ = 12° 10' 25.4" (LT)	△ = 35° 06' 36.2" (LT)
D = 14° 19' 26.2"	D = 57° 17' 44.8"
L = 84.99'	L = 61.28'
T = 42.65'	T = 31.64'
R = 400.00'	R = 100.00'
SE = 0.03	SE = 0.03
DS = 20 MPH	DS = 15 MPH

-Y- CURVE DATA

PI Sta 10+18.62	PI Sta 10+73.49	PI Sta 12+86.69
△ = 19° 12' 38.0" (RT)	△ = 10° 27' 31.4" (LT)	△ = 2° 17' 20.8" (LT)
D = 52° 05' 13.5"	D = 14° 19' 26.2"	D = 4° 28' 34.4"
L = 36.88'	L = 73.02'	L = 51.14'
T = 18.62'	T = 36.61'	T = 25.57'
R = 110.00'	R = 400.00'	R = 1,280.00'

NOTES:

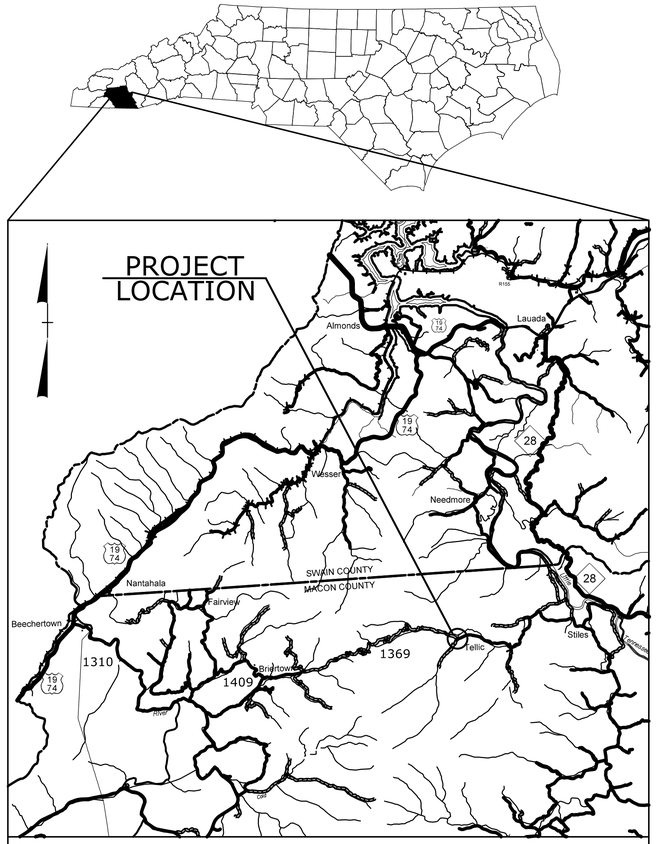
1. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.
2. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.
3. RIGHT OF WAY MONUMENTATION ESTABLISHED 3/30/2021 TO 4/5/2021.

06-APR-2021 11:30
C:\Projects\55018\RW Sheets\To Send\17BP.14.R.208_ls_rw04.dgn
bobby.watt
Active LS-317902

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

MACON COUNTY



VICINITY MAP

INDEX OF SHEETS

SHEET NO.
TMP-1

PROJECT: 17BP.14.R.208

NCDOT CONTACT INFORMATION:
Phone: 828 488 0902 Fax: 828 488 3518
GARRETT HIGDON
Division Bridge Program Manager

WORK ZONE SAFETY & MOBILITY
"from the MOUNTAINS to the COAST"

PLAN PREPARED FOR N.C.D.O.T. BY:

TGS ENGINEERS
804-C N. LAFAYETTE ST
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

JIMMY TERRY, PE — *PROJECT ENGINEER*
SANDRA MELVIN — *DESIGN ENGINEER*

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

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

APPROVED: DocuSigned by: Jimmy Terry F065F0666E9480...

DATE: 3/5/2021

NORTH CAROLINA PROFESSIONAL SEAL 35018 ENGINEER JIMMY L. TERRY

3/5/2021
X:\NCDOT\Division 14 - 2017\Macon 55018O\Traffic\TrafficControl\TCP\Macon_55018O_TC_TMP_OITSHI.dgn
User:cpridett

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:

STD. NO.	TITLE
1101.01	WORK ZONE ADVANCE WARNING SIGNS
1101.02	TEMPORARY LANE CLOSURES
1101.04	TEMPORARY SHOULDER CLOSURES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1110.02	PORTABLE WORK ZONE SIGNS
1130.01	DRUMS
1135.01	CONES
1145.01	BARRICADES
1150.01	FLAGGING DEVICES
1180.01	SKINNY-DRUMS
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO-LANE AND MULTI-LANE ROADWAYS
1205.04	PAVEMENT MARKINGS - INTERSECTIONS
1205.12	PAVEMENT MARKINGS - BRIDGES
1261.01	GUARDRAIL AND BARRIER DELINEATORS - INSTALLATION SPACING
1261.02	GUARDRAIL AND BARRIER DELINEATORS - TYPES AND MOUNTING
1262.01	GUARDRAIL END DELINEATION

Macon County
Bridge #550180

PROJ. REFERENCE NO.	SHEET NO.
17BP.14.R.208	TMP-1A

TGS ENGINEERS
804-C N. LAFAYETTE ST
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

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

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

APPROVED: _____

DATE: _____

SEAL
8/7/2019

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 35018 JIMMY L. TERRY

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

ROADWAY STANDARD DRAWINGS & LEGEND

8/7/2019
X:\NCDOT\Division 14 - 2017\Macon 550180\Traffic\TrafficControl\TCP\Macon_550180_TC_TMP_01A(STA & Legend).dgn
User:smelvin

Macon County
Bridge #550180

PROJ. REFERENCE NO.	SHEET NO.
17BP.14.R.208	TMP-1B

TGS ENGINEERS
804-C N. LAFAYETTE ST
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

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 UNDESIRED 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 PLANS OR DIRECTED BY THE ENGINEER.

LANE AND SHOULDER CLOSURE REQUIREMENTS

A) REMOVE LANE CLOSURE DEVICES FROM THE LANE WHEN WORK IS NOT BEING PERFORMED BEHIND THE LANE CLOSURE OR WHEN A LANE CLOSURE IS NO LONGER NEEDED OR AS DIRECTED BY THE ENGINEER.

B) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN 15 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN SHOULDER USING ROADWAY STANDARD DRAWING NO. 1101.04 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL OR A LANE CLOSURE IS INSTALLED.

C) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO AN UNDIVIDED FACILITY AND WITHIN 5 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN TRAVEL LANE USING ROADWAY STANDARD DRAWING NO. 1101.02 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.

D) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN A LANE OF TRAVEL OF AN UNDIVIDED OR DIVIDED FACILITY, CLOSE THE LANE ACCORDING TO THE TRAFFIC CONTROL PLANS, ROADWAY STANDARD DRAWINGS, OR AS DIRECTED BY THE ENGINEER. CONDUCT THE WORK SO THAT ALL PERSONNEL AND/OR EQUIPMENT REMAIN WITHIN THE CLOSED TRAVEL LANE.

E) DO NOT WORK SIMULTANEOUSLY WITHIN 15 FT ON BOTH SIDES OF AN OPEN TRAVELWAY, RAMP, OR LOOP WITHIN THE SAME LOCATION UNLESS PROTECTED WITH GUARDRAIL OR BARRIER.

PAVEMENT EDGE DROP OFF REQUIREMENTS

F) BACKFILL AT A 6:1 SLOPE UP TO THE EDGE AND ELEVATION OF EXISTING PAVEMENT IN AREAS ADJACENT TO AN OPENED TRAVEL LANE THAT HAS AN EDGE OF PAVEMENT DROP-OFF AS FOLLOWS:

BACKFILL DROP-OFFS THAT EXCEED 2 INCHES ON ROADWAYS WITH POSTED SPEED LIMITS OF 45 MPH OR GREATER.

BACKFILL DROP-OFFS THAT EXCEED 3 INCHES ON ROADWAYS WITH POSTED SPEED LIMITS LESS THAN 45 MPH.

BACKFILL WITH SUITABLE COMPACTED MATERIAL, AS APPROVED BY THE ENGINEER, AT NO EXPENSE TO THE DEPARTMENT.

G) DO NOT EXCEED A DIFFERENCE OF 2 INCHES IN ELEVATION BETWEEN OPEN LANES OF TRAFFIC FOR NOMINAL LIFTS OF 1.5 INCHES. INSTALL ADVANCE WARNING "UNEVEN LANES" SIGNS (W8-11) 100 FT IN ADVANCE AND A MINIMUM OF EVERY HALF MILE THROUGHOUT THE UNEVEN AREA.

TRAFFIC PATTERN ALTERATIONS

H) NOTIFY THE ENGINEER THIRTY (30) CALENDAR DAYS PRIOR TO ANY TRAFFIC PATTERN ALTERATION.

SIGNING

I) INSTALL ADVANCE WORK ZONE WARNING SIGNS WHEN WORK IS WITHIN 40 FT FROM THE EDGE OF TRAVEL LANE AND NO MORE THAN THREE (3) DAYS PRIOR TO THE BEGINNING OF CONSTRUCTION.

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

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

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

M) INSTALL BLACK ON ORANGE "DIP" SIGNS (W8-2) AND/OR "BUMP" SIGNS (W8-1) 100 FT IN ADVANCE OF THE UNEVEN AREA, OR AS DIRECTED BY THE ENGINEER.

TRAFFIC CONTROL DEVICES

N) WHEN LANE CLOSURES ARE NOT IN EFFECT SPACE CHANNELIZING DEVICES IN WORK AREAS NO GREATER IN FEET THAN TWICE THE POSTED SPEED LIMIT (MPH) EXCEPT, 10 FT ON-CENTER IN RADII, AND 3 FT OFF THE EDGE OF AN OPEN TRAVELWAY. REFER TO STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES SECTIONS 1130 (DRUMS), 1135 (CONES) AND 1180 (SKINNY DRUMS) FOR ADDITIONAL REQUIREMENTS.

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

PAVEMENT MARKINGS AND MARKERS

P) INSTALL PAVEMENT MARKINGS AND PAVEMENT MARKERS ON THE FINAL SURFACE.

MISCELLANEOUS

Q) IN THE EVENT A TIE-IN CANNOT BE MADE IN ONE DAY'S TIME, BRING THE TIE-IN AREA TO AN APPROPRIATE ROADWAY ELEVATION AS DETERMINED BY THE ENGINEER. PLACE BLACK ON ORANGE "LOOSE GRAVEL" SIGNS (W8-7) AND BLACK ON ORANGE "PAVEMENT ENDS" SIGNS (W8-3) AND RESPECTIVELY IN ADVANCE OF THE UNEVEN AREAS. USE DRUMS TO DELINEATE THE EDGE OF ROADWAY ALONG UNPAVED AREAS.

LOCAL NOTES

ACCESS TO ALL DRIVEWAYS ANS SIDE STREETS MUST BE PROVIDED AT ALL TIMES WITHIN THE PROJECT LIMITS.

MANAGEMENT STRATEGIES

PROPOSED SR 1369 (TELLICO RD)WILL BE CONSTRUCTED USING A COMBINATION OF TEMPORARY LANE SHIFTS USING A TEMPORARY PORTABLE TRAFFIC SIGNAL SYSTEM, LANE CLOSURES UTILIZING FLAGGERS AS NEEDED AND STAGED BRIDGE CONSTRUCTION.

APPROVED: _____

DATE: _____

SEAL
8/7/2019

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 35018 JIMMY L. TERRY

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

TRANSPORTATION OPERATIONS PLAN

8/7/2019
X:\NCDOT\Division 14 - 2017\Macon 550180\Traffic\TrafficControl\TCP\Macon_550180_TC_TMP_01B(TOP).dgn
User:smelvin

Macon County
Bridge #550180

PROJ. REFERENCE NO.	SHEET NO.
17BP.14.R.208	TMP-2

TGS ENGINEERS
804-C N. LAFAYETTE ST
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

PHASING

NOTE: UNLESS OTHERWISE STATED ACCESS TO LOCAL DRIVES MUST BE MAINTAINED AT ALL TIMES.

PHASE I:

STEP 1:

PLACE ALL ADVANCED WORK WARNING SIGNS IN ACCORDANCE TO NCDOT RDWY. STD. 1101.01, SHT. 3 OF 3.

STEP 2:

USING TEMPORARY LANE CLOSURES AND FLAGGERS, AS NEEDED, INSTALL PORTABLE TRAFFIC SIGNALS, AND INSTALL THE APPROPRIATE SIGNAGE.
(SEE TMP- 3 AND RDWY. STD. 1101.02, SHT 1 OF 14).

STEP 3:

AFTER ACTIVATING THE TEMPORARY TRAFFIC SIGNAL AND OPENING TRAFFIC IN A ONE-LANE TWO-WAY PATTERN INSTALL TEMPORARY GUARDRAIL ONTO THE EXISTING BRIDGE.
(SEE TMP-3 AND STRUCTURE PLANS).

PLACE TEMPORARY SHORING AS NEEDED AND REMOVE A SECTION OF THE EXISTING BRIDGE.
(SEE TMP-3 AND STRUCTURE PLANS).

CONSTRUCT THE FIRST SECTION OF THE PROPOSED STRUCTURE FROM -L- STA. 12+93.70 TO 13+46.30, INCLUDING THE BITUMINIOUS CONCRETE OVERLAY. (SEE TMP-3)

CONSTRUCT THE FOLLOWING UP TO BUT NOT INCLUDING THE FINAL LAYER OF SURFACE COURSE:
-L- STA. 11+80 TO 12+93.70 (BEGIN BRIDGE)
-L- STA. 13+46.30(END BRIDGE) TO 14+90. (SEE TMP-3)
-Y- STA. 10+11.59 TO 11+20

INSTALL TEMPORARY GUARDRAIL ONTO THE PROPOSED BRIDGE. (INSTALL ANCHOR SECTION JUST PRIOR TO OPENING TO TRAFFIC.)
SEE TMP-3 AND STRUCTURE PLANS).

PHASE II:

STEP 1:

REVISE SIGNAGE AS NECESSARY TO SHIFT ALL TRAFFIC TO THE BRIDGE CONSTRUCTED IN PHASE 1.
(SEE TMP- 4 AND RDWY. STD. 1101.02, SHT 1 OF 14).

STEP 2:

SHIFT TRAFFIC IN A ONE-LANE TWO-WAY PATTERN ONTO THE NEW BRIDGE.

REMOVE THE REMAINING SECTION OF THE EXISTING BRIDGE. (SEE TMP-4 AND STRUCTURE PLANS).

CONSTRUCT THE SECOND SECTION OF THE PROPOSED STRUCTURE FROM -L- STA. 12+93.70 TO 13+46.30 INCLUDING THE BITUMINIOUS CONCRETE OVERLAY.

CONSTRUCT THE FOLLOWING UP TO BUT NOT INCLUDING THE FINAL LAYER OF SURFACE COURSE:
-L- STA. 11+80 TO 12+93.70(BEGIN BRIDGE)
-L- 13+46.30 (END BRIDGE) TO 14+90 (SEE TMP-4).

USING TEMPORARY LANE CLOSURES AND FLAGGERS, AS NEEDED, CONSTRUCT SUGAR COVE RD FORM -Y- STA. 10+11.59 TO -Y- STA. 11+20.

REMOVE THE TEMPORARY GUARDRAIL. (SEE TMP-4 AND STRUCTURE PLANS)

PHASE III

STEP 1:

DEACTIVATE THE TEMPORARY TRAFFIC SIGNALS, REMOVE ALL SIGNAGE, AND PLACE THE TRAFFIC IN ITS ORIGINAL PATTERN. USING LANE CLOSURES AND FLAGGERS AS NEEDED PLACE THE FINAL LAYER OF SURFACE COURSE:
-L- STA 11+80 TO 12+93.70 (BEGIN BRIDGE)
-L- STA 13+46.30 (END BRIDGE) TO 14+90
-Y- STA 10+11.59 TO -Y- STA 11+20

STEP 2:

USING TEMPORARY LANE CLOSURES AND FLAGGERS AS NEEDED INSTALL THE FINAL PAVEMENT MARKINGS AS SHOWN ON THE PAVEMENT MARKING PLANS.
(SEE PMP-1, PMP-2 AND NCDOT RDWY. STD. 1101.02, SHT 1 OF 14).

REMOVE ALL TRAFFIC CONTROL DEVICES.

APPROVED: _____

DATE: _____

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 35018 JIMMY L. TERRY
8/7/2019

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

PHASING

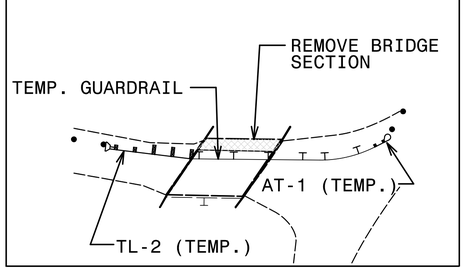
8/7/2019
X:\NCDOT\Division 14 - 2017\Macon 550180\Traffic\TrafficControl\TCP\Macon_550180_TC_TMP_02(PHASING).dgn
User:smelvin

PROJ. REFERENCE NO.	SHEET NO.
17BP.14.R.208	TMP-3

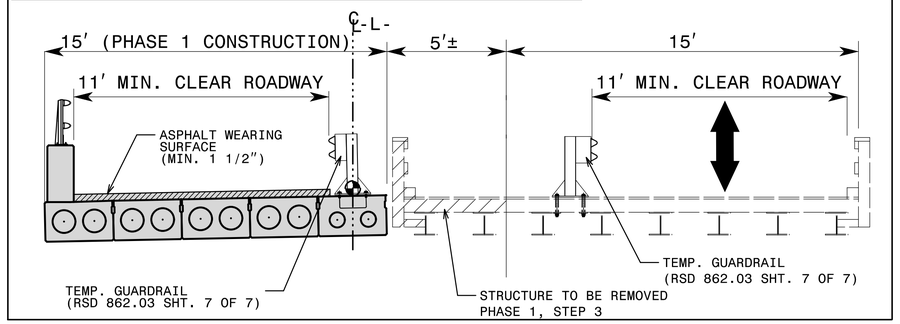
TGS ENGINEERS
804-C N. LAFAYETTE ST
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

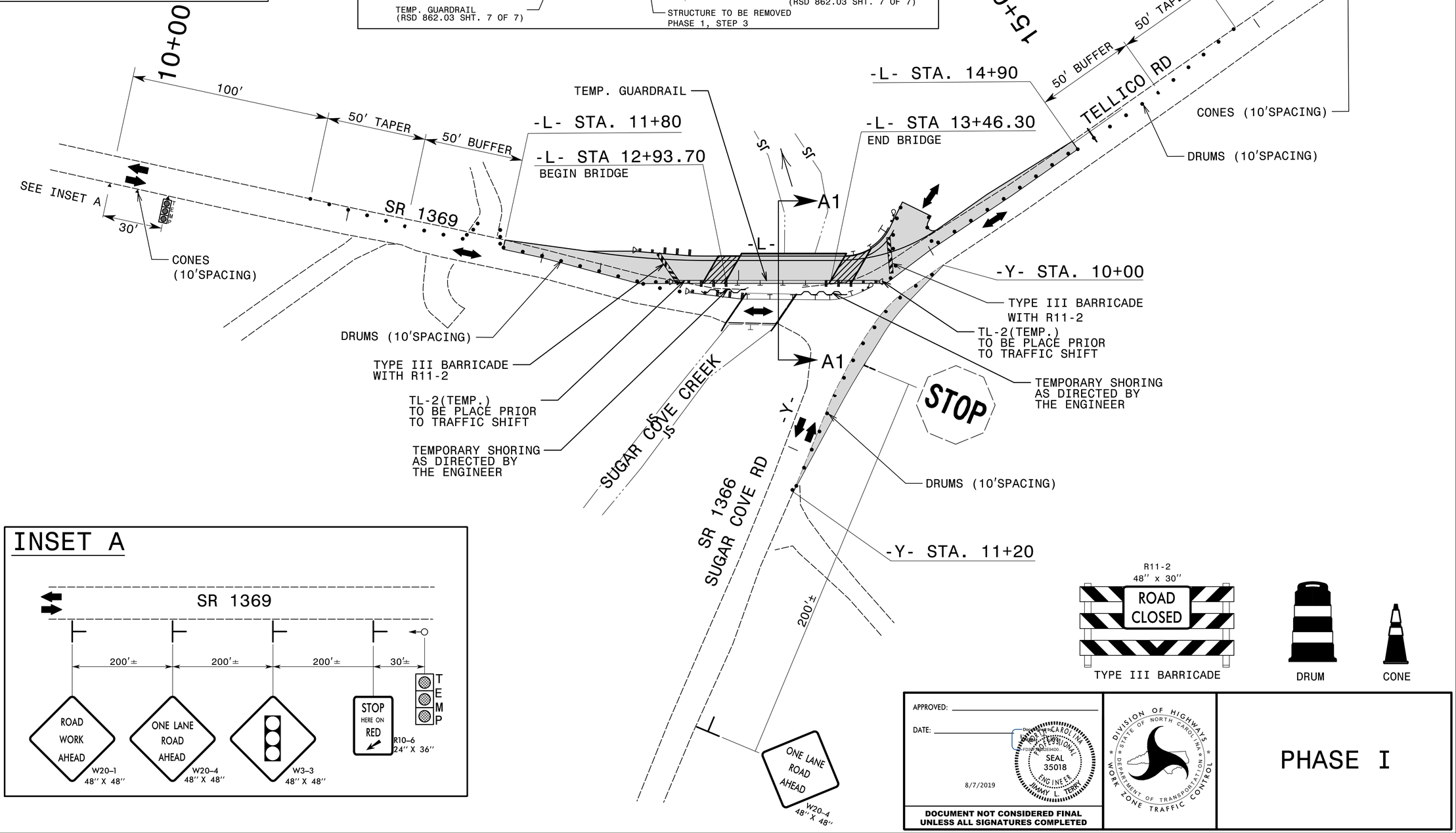
Macon County
Bridge #550180

PHASE 1, STEP 3



SECTION A1 - A1 -L- STA 13+20±





INSET A

TYPE III BARRICADE

DRUM

CONE

APPROVED: _____

DATE: _____

8/7/2019

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PHASE I

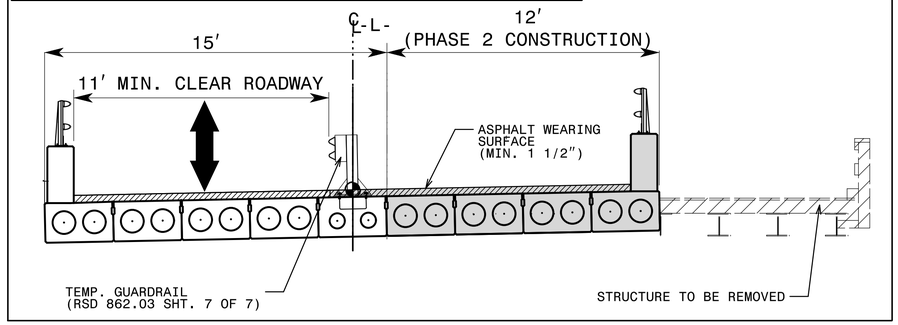
8/7/2019
X:\NCDOT\Division 14 - 2017\Macon 550180\Traffic\TrafficControl\TCP\Macon_550180_TC_TMP_03(PHASE II.dgn
User:smelvin

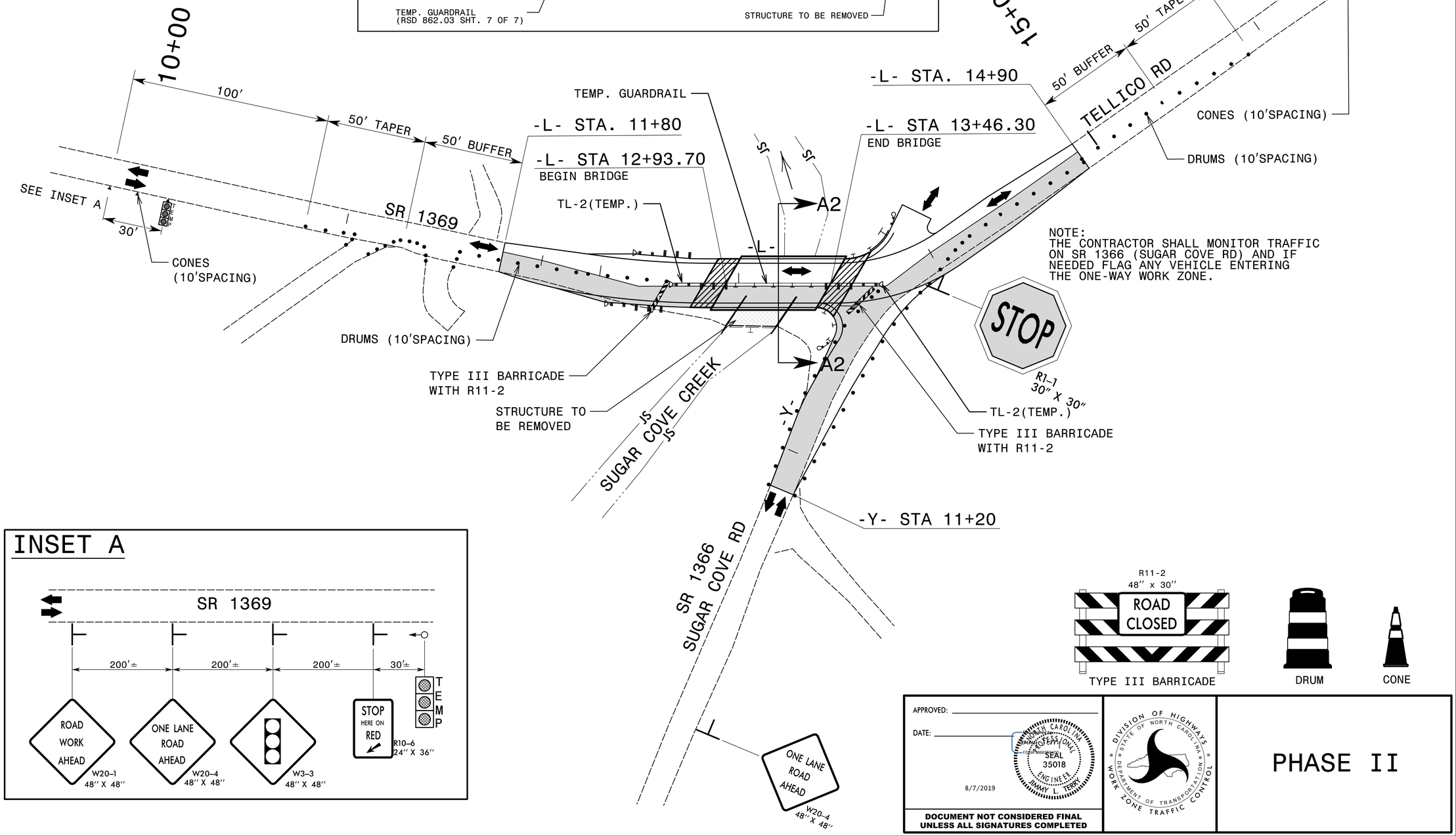
PROJ. REFERENCE NO.	SHEET NO.
17BP.14.R.208	TMP-4

TGS ENGINEERS
804-C N. LAFAYETTE ST
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

Macon County
Bridge #550180

SECTION A2 - A2 -L- STA 13+20±





NOTE:
THE CONTRACTOR SHALL MONITOR TRAFFIC ON SR 1366 (SUGAR COVE RD) AND IF NEEDED FLAG ANY VEHICLE ENTERING THE ONE-WAY WORK ZONE.

INSET A

TYPE III BARRICADE

DRUM

CONE

APPROVED: _____

DATE: _____

NORTH CAROLINA PROFESSIONAL SEAL 35018 ENGINEER JIMMY L. TERRY

8/7/2019

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

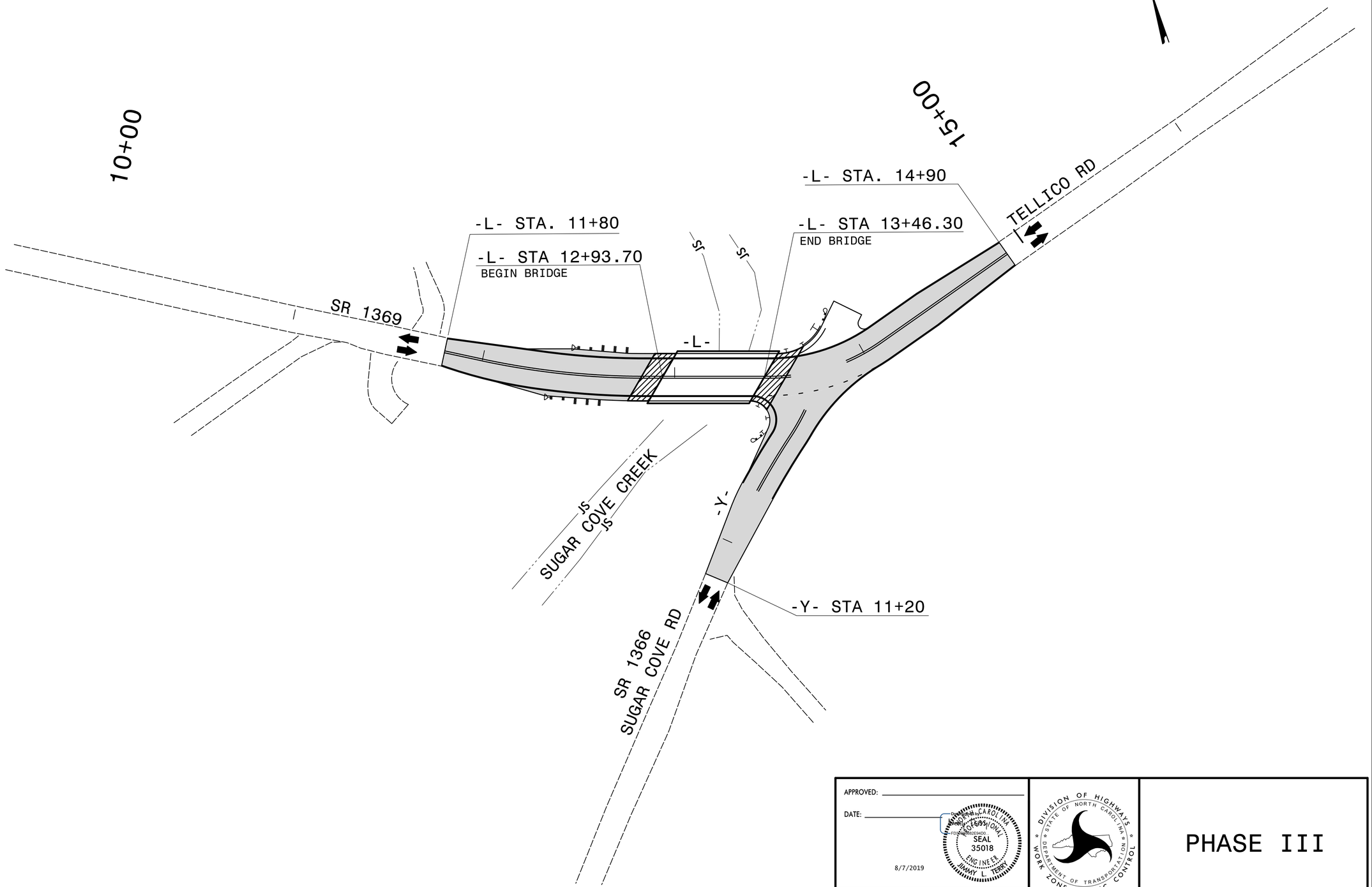
PHASE II

8/7/2019
X:\NCDOT\Division 14 - 2017\Macon 550180\Traffic\TrafficControl\TCP\Macon_550180_TC_TMP_04(PHASE 2).dgn
User:smelvin

Macon County
Bridge #550180

PROJ. REFERENCE NO.	SHEET NO.
17BP.14.R.208	TMP-5

TGS ENGINEERS
804-C N. LAFAYETTE ST
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275



APPROVED: _____

DATE: _____

8/7/2019

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

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

PHASE III

8/7/2019
X:\NCDOT\Division 14 - 2017\Macon 550180\Traffic\TrafficControl\TCP\Macon_550180_TC_TMP_05(PHASE 3).dgn
User:rsmelvin

PROJECT.: 17BP.14.R.208

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAVEMENT MARKING PLAN

MACON COUNTY

LOCATION: BRIDGE #550180 OVER SUGAR COVE CREEK ON SR 1369 (TELLICO RD)

PROJECT NO.	SHEET NO.
17BP.14.R.208	PMP-1

APPROVED: _____

DATE: _____

SEAL

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 35018 ENGINEER JIMMY L. TERRY

8/7/2019

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
804-C N. LAFAYETTE ST
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

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
1205.04	PAVEMENT MARKINGS - INTERSECTIONS
1205.12	PAVEMENT MARKINGS - BRIDGES
1261.01	GUARDRAIL AND BARRIER DELINEATORS - INSTALLATION SPACING
1261.02	GUARDRAIL AND BARRIER DELINEATORS - TYPES AND MOUNTING
1262.01	GUARDRAIL END DELINEATION

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 ON THE FINAL SURFACE AS FOLLOWS:

ROAD NAME	MARKING	MARKER
SR 1369 TELLICO RD	PAINT	NONE
SR 1366 SUGAR COVE RD	PAINT	NONE

B) PLACE TWO APPLICATIONS OF PAINT PAVEMENT MARKINGS ON THE FINAL WEARING SURFACE. PLACE THE SECOND APPLICATION OF PAINT UPON SUFFICIENT DRYING TIME OF THE FIRST.

INDEX

FINAL PAVEMENT MARKING SCHEDULE

SYMBOL	DESCRIPTION
PAVEMENT MARKINGS	
PAINT (4")	
P8	2FT. -6FT./SP WHITE MINISKIP
PA	WHITE EDGELINE
PI	YELLOW DOUBLE CENTER

PLAN PREPARED FOR N.C.D.O.T. BY:

TGS ENGINEERS
804-C N. LAFAYETTE ST
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

JIMMY TERRY, PE PROJECT ENGINEER

SANDRA MELVIN DESIGN TECHNICIAN

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

8/7/2019
X:\NCDOT\Division 14 - 2017\Macon 550180\Traffic\Signing\Pavement Markings\Macon 550180_Sgn_PMP_01.dgn
User:smelvin

Macon County
Bridge #550180

PROJECT NO.	SHEET NO.
17BP.14.R.208	PMP-2

APPROVED: _____

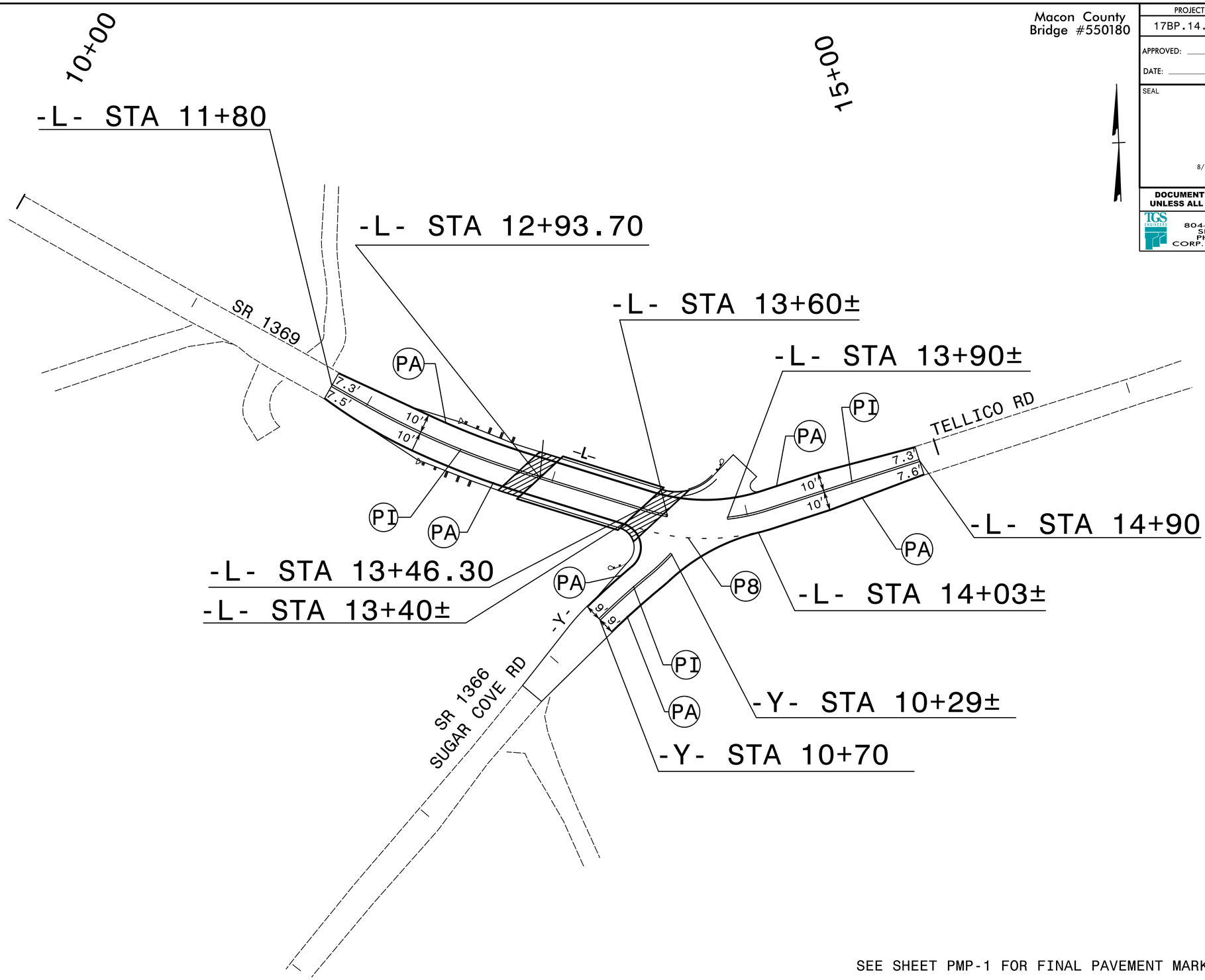
DATE: _____

SEAL

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 35018 JIMMY L. TERRY
8/7/2019

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
804-C N. LAFAYETTE ST
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

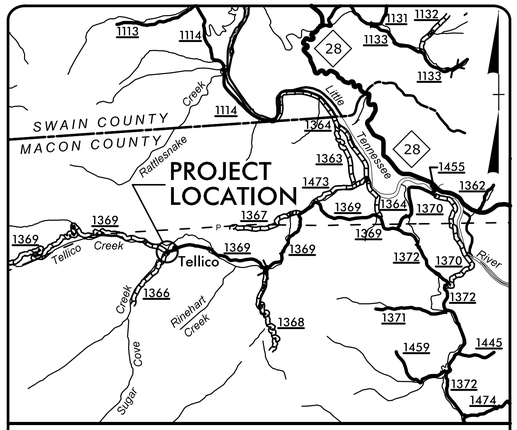


SEE SHEET PMP-1 FOR FINAL PAVEMENT MARKING SCHEDULE

PAVEMENT MARKING DETAIL

8/7/2019
X:\NCDOT\Division 14 - 2017\Macon 55080\Traffic\Signing\Pavement Markings\Macon 55080_Sgn_PMP_02.dgn
User:smelvin

PROJECT: 17BP.14.R.208



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

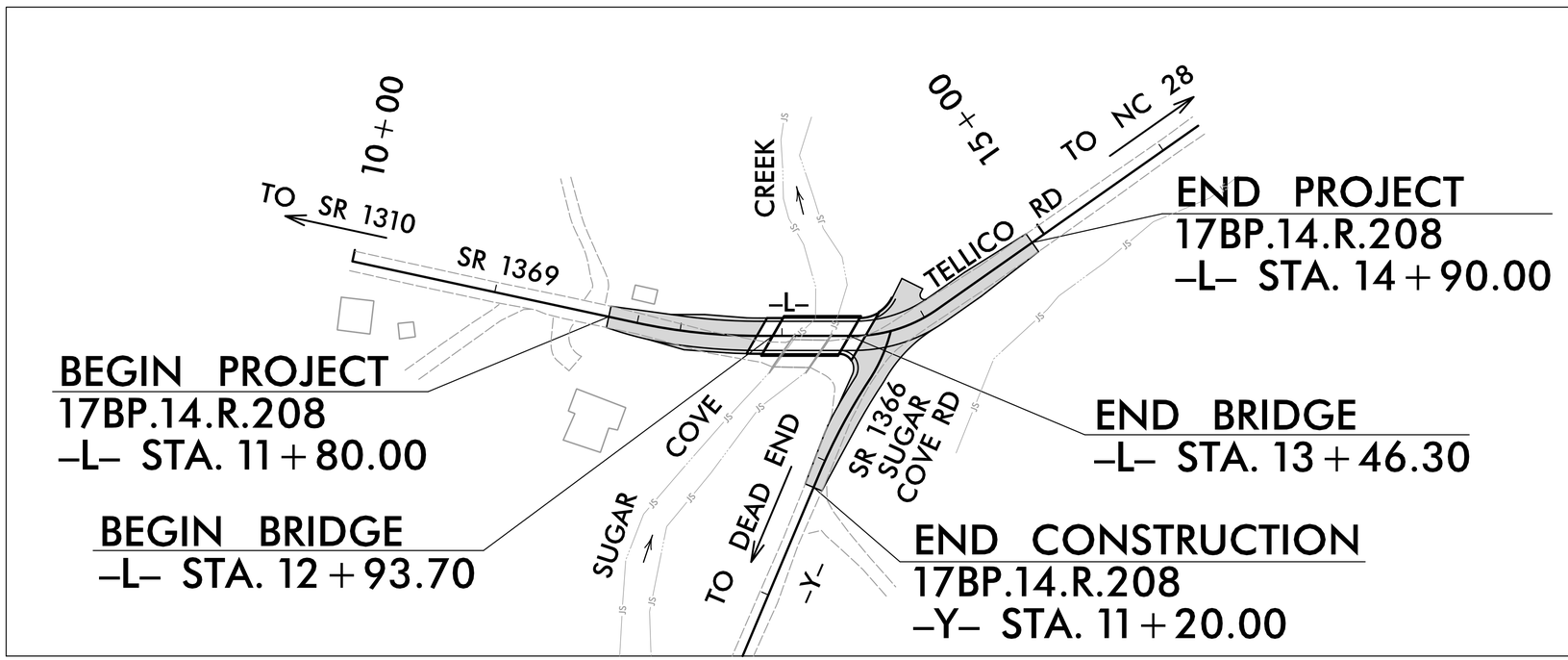
PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL

MACON COUNTY

LOCATION: BRIDGE NO. 550180 OVER SUGAR COVE CREEK ON SR 1369 (TELLICO ROAD)

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

NAD 83/2011



STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.14.R.208	EC-1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
17BP.14.PE.208	N/A	PE
17BP.14.ROW.208	N/A	UTIL & RW
17BP.14.R.208	N/A	CONST.

EROSION AND SEDIMENT CONTROL MEASURES

Std. #	Description	Symbol
1630.03	Temporary Silt Ditch	TSD
1630.05	Temporary Diversion	TD
1605.01	Temporary Silt Fence	
1606.01	Special Sediment Control Fence	
1622.01	Temporary Berms and Slope Drains	
1630.02	Silt Basin Type B	
1633.01	Temporary Rock Silt Check Type-A	
	Temporary Rock Silt Check Type-A with Matting and Polyacrylamide (PAM)	
1633.02	Temporary Rock Silt Check Type-B	
	Wattle / Coir Fiber Wattle	RW CFW
	Wattle / Coir Fiber Wattle with Polyacrylamide (PAM)	
1634.01	Temporary Rock Sediment Dam Type-A	
1634.02	Temporary Rock Sediment Dam Type-B	
1635.01	Rock Pipe Inlet Sediment Trap Type-A	
1635.02	Rock Pipe Inlet Sediment Trap Type-B	
1630.04	Stilling Basin	
1630.06	Special Stilling Basin	
	Rock Inlet Sediment Trap:	
1632.01	Type A	A
1632.02	Type B	B
1632.03	Type C	C
	Skimmer Basin	SK
	Tiered Skimmer Basin	SK
	Infiltration Basin	

THIS PROJECT CONTAINS EROSION CONTROL PLANS FOR CLEARING AND GRUBBING PHASE OF CONSTRUCTION.

THIS PROJECT HAS BEEN DESIGNED TO SENSITIVE WATERSHED STANDARDS.

ENVIRONMENTALLY SENSITIVE AREA(S) EXIST ON THIS PROJECT

Refer To E. C. Special Provisions for Special Considerations.

GRAPHIC SCALE

25 0 50

PLANS

THESE EROSION AND SEDIMENT CONTROL PLANS COMPLY WITH THE REGULATIONS SET FORTH BY THE NCG-010000 GENERAL CONSTRUCTION PERMIT EFFECTIVE APRIL 1, 2019 AND ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY DEPARTMENT OF WATER RESOURCES.

Prepared In the Office of:

TGS ENGINEERS

804-C N. LAFAYETTE ST.
SHELBY, NC 28150

2018 STANDARD SPECIFICATIONS

Designed by:

Andrew H. Cochrane, PE — *3015*

NAME — *LEVEL III CERTIFICATION NO.*

Reviewed In the Office of:

ROADSIDE ENVIRONMENTAL UNIT

1 South Wilmington St.
Raleigh, NC 27611

2018 STANDARD SPECIFICATIONS

Reviewed by:

Reid Whitehead, PE, CPESC

Roadway Standard Drawings

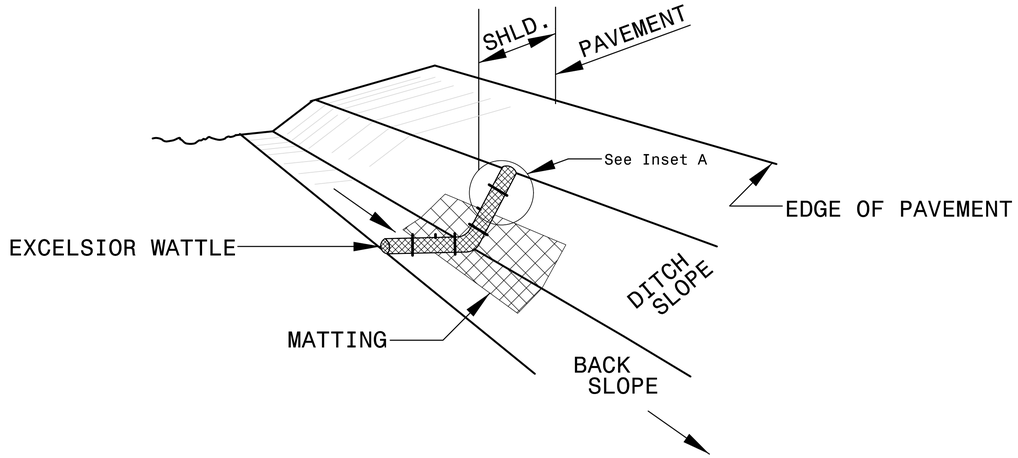
The following roadway english standards as appear in "Roadway Standard Drawings"– Roadway Design Unit – N. C. Department of Transportation – Raleigh, N. C., dated January 2018 and the latest revison thereto are applicable to this project and by reference hereby are considered a part of these plans.

1604.01	Railroad Erosion Control Detail	1632.01	Rock Inlet Sediment Trap Type A
1605.01	Temporary Silt Fence	1632.02	Rock Inlet Sediment Trap Type B
1606.01	Special Sediment Control Fence	1632.03	Rock Inlet Sediment Trap Type C
1607.01	Gravel Construction Entrance	1633.01	Temporary Rock Silt Check Type A
1622.01	Temporary Berms and Slope Drains	1633.02	Temporary Rock Silt Check Type B
1630.01	Riser Basin	1634.01	Temporary Rock Sediment Dam Type A
1630.02	Silt Basin Type B	1634.02	Temporary Rock Sediment Dam Type B
1630.03	Temporary Silt Ditch	1635.01	Rock Pipe Inlet Sediment Trap Type A
1630.04	Stilling Basin	1635.02	Rock Pipe Inlet Sediment Trap Type B
1630.05	Temporary Diversion	1640.01	Coir Fiber Baffle
1630.06	Special Stilling Basin	1645.01	Temporary Stream Crossing
1631.01	Matting Installation		

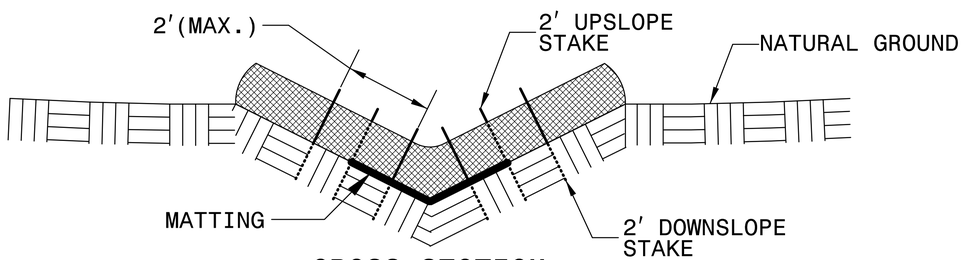
3/5/2021
2017\Macon_550180\Drainage\Erosion Control\Macon 550180_EC_dan_TSH.dgn

PROJECT REFERENCE NO.	SHEET NO.
17BPJ4.R.208	EC-2
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

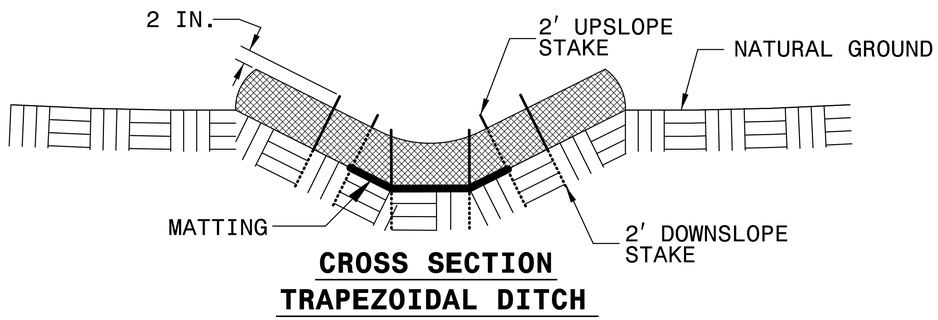
WATTLE DETAIL



ISOMETRIC VIEW



CROSS SECTION VEE DITCH



CROSS SECTION TRAPEZOIDAL DITCH

NOTES:

USE MINIMUM 12 IN. DIAMETER EXCELSIOR WATTLE.

USE 2 FT. WOODEN STAKES WITH A 2 IN. BY 2 IN. NOMINAL CROSS SECTION.

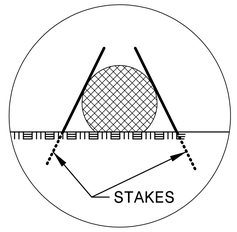
ONLY INSTALL WATTLE(S) TO A HEIGHT IN DITCH SO FLOW WILL NOT WASH AROUND WATTLE AND SCOUR DITCH SLOPES AND AS DIRECTED.

INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.

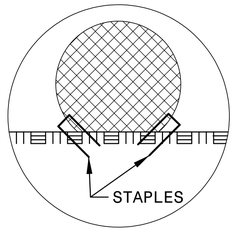
PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12″ IN LENGTH.

INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.

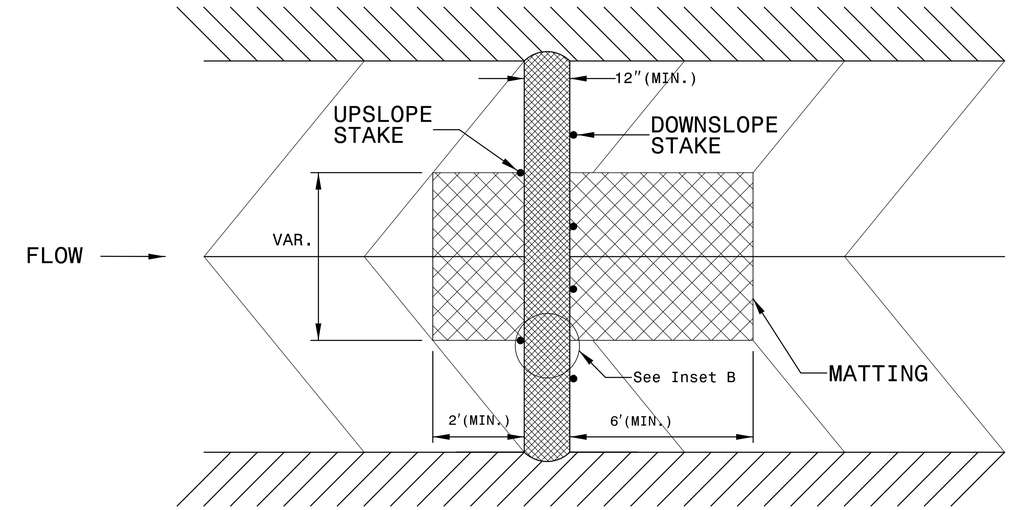
INSTALL MATTING IN ACCORDANCE WITH SECTION 1631 OF THE STANDARD SPECIFICATIONS.



INSET A



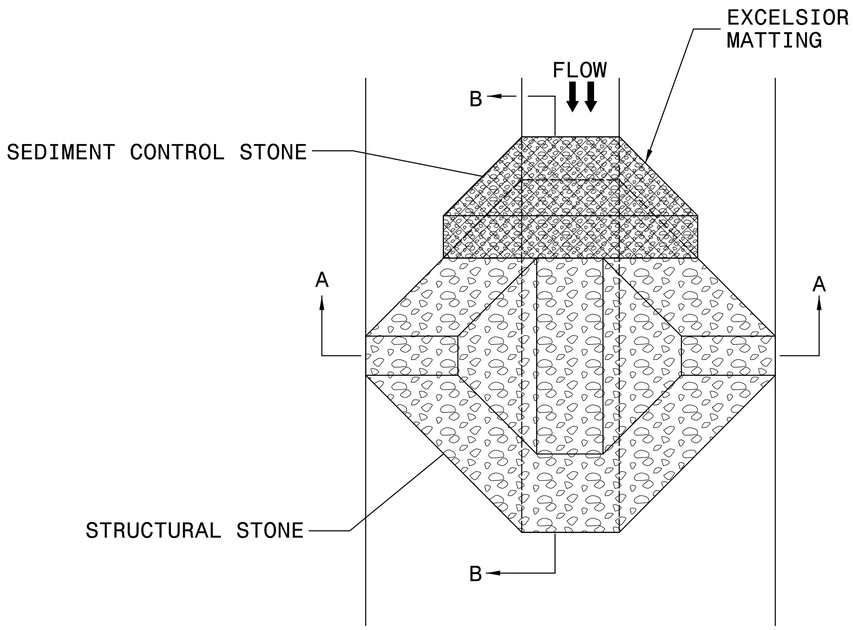
INSET B



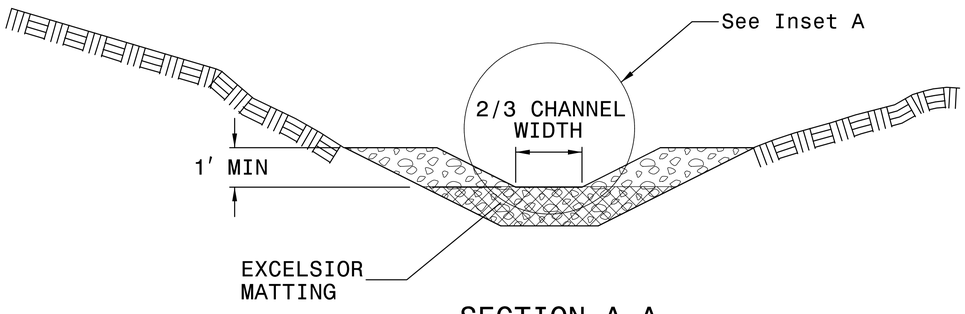
TOP VIEW

PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.208	EC-2A
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

TEMPORARY ROCK SILT CHECK TYPE 'A' WITH EXCELSIOR MATTING AND POLYACRYLAMIDE (PAM)



PLAN



SECTION A-A

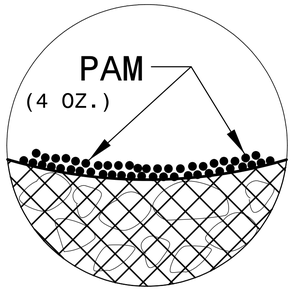
NOTES:

INSTALL TEMPORARY ROCK SILT CHECK TYPE A IN ACCORDANCE WITH ROADWAY STANDARD DRAWING NO. 1633.01.

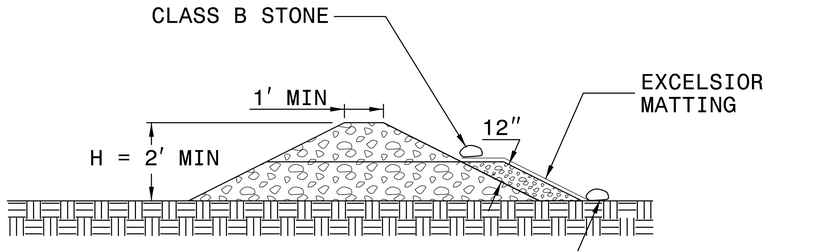
USE EXCELSIOR FOR MATTING MATERIAL AND ANCHOR MATTING SECTION AT TOP AND BOTTOM WITH CLASS B STONE.

PRIOR TO POLYACRYLAMIDE (PAM) APPLICATION, OBTAIN A SOIL SAMPLE FROM PROJECT LOCATION, AND FROM OFFSITE MATERIAL, AND ANALYZE FOR APPROPRIATE PAM FLOCCULANT TO BE APPLIED TO EACH ROCK SILT CHECK.

INITIALLY APPLY 4 OUNCES OF POLYACRYLAMIDE (PAM) TO TOP OF MATTING SECTION AND AFTER EVERY RAINFALL EVENT THAT EQUALS OR EXCEEDS 0.50 INCHES.



INSET A



SECTION B-B

NOT TO SCALE

PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.208	EC-3
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SOIL STABILIZATION TIMEFRAMES

SITE DESCRIPTION	STABILIZATION TIME	TIMEFRAME EXCEPTIONS
PERIMETER DIKES, SWALES, DITCHES AND SLOPES	7 DAYS	NONE
HIGH QUALITY WATER (HQW) ZONES	7 DAYS	NONE
SLOPES STEEPER THAN 3:1	7 DAYS	IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED.
SLOPES 3:1 OR FLATTER	14 DAYS	7 DAYS FOR SLOPES GREATER THAN 50' IN LENGTH.
ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1	14 DAYS	NONE, EXCEPT FOR PERIMETERS AND HQW ZONES.

Macon County
Bridge #550180

PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.208	EC-4/CONST.4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

TGS ENGINEERS
804-C N. LAFAYETTE ST
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

NAD 83/2011

PLACE COIR FIBER MATTING ALONG THE STREAMBANK AT LOCATIONS WHICH WILL NOT BE PLATED IN CLASS II RIP RAP, BUT WILL BE EXPOSED BY REMOVAL OF END BENTS.

-L- CURVE DATA

PI Sta 12+42.31
Δ = 12° 10' 25.4" (LT)
D = 14° 19' 26.2"
L = 84.98'
T = 42.65'
R = 400.00'
SE = 0.03
DS = 20 MPH

PI Sta 13+80.74
Δ = 35° 06' 36.2" (LT)
D = 57° 17' 44.8"
L = 61.28'
T = 31.64'
R = 100.00'
SE = 0.03
DS = 15 MPH

-Y- CURVE DATA

PI Sta 10+18.62
Δ = 19° 12' 38.0" (RT)
D = 52° 05' 13.5"
L = 36.88'
T = 18.62'
R = 110.00'

PI Sta 10+73.49
Δ = 10° 27' 31.4" (LT)
D = 14° 19' 26.2"
L = 73.02'
T = 36.61'
R = 400.00'

-L- PT 12+84.64

-L- PC 11+99.65

BEGIN FDPS
-L- STA. 12+22.22

BEGIN PROJECT
17BP.14.R.208
-L- STA 11+80.00

-L- POT 10+00.00

S 59° 07' 08" E
108.38'

RETAIN & CLEAN OUT

RETAIN

BEGIN FDPS
-L- STA. 12+08.88

DO NOT DISTURB SEPTIC FIELD AND DRAIN LINES

TOE PROTECTION
SEE DETAIL A

BEGIN BRIDGE
-L- STA 12+93.70

REMOVE EXISTING ABUTMENT, CUT SLOPE BACK AT 1.5(H):1(V) & LINE W/CLASS II RIPRAP (24" THICK, KEYED-IN)

END CONSTRUCTION
17BP.14.R.208
-Y- STA 11+20.00

RELOCATE FENCE (BY OWNER)

END BRIDGE
-L- STA 13+46.30

CLASS B RIP RAP
2 TONS, 7 SY GEO

-L- PC 13+49.11

SBG
BEGIN -L- STA 13+69.56
END -L- STA 13+83.82

PROP. 16' ASPHALT DRIVE
TOP=2295.8
INV=2293.0

+48.00
30.00'
INV=2292.8

TAPER TO EXIST.
-L- STA. 14+07.01 TO
-L- STA. 14+90.00, LT

GRADE TO DRAIN IN ORDER TO NOT DISTURB FENCE OR STONE WALL

GRADE TO DRAIN

GRADE TO DRAIN

ISRA TO BE MIN.

TB 2(s)

-L- POT 16+29.35

END PROJECT
17BP.14.R.208
-L- STA 14+90.00

-L- PT 14+10.39

-L- POC 13+75.00
-Y- POC 10+00.80

-Y- PRC 10+36.88

B-83
SHOP CURVE
(R=10')

CLASS II RIPRAP (TYP.)
(STRUCTURES ITEM)

END FDPS
-Y- STA. 10+62.86

-Y- PT 11+09.90

IMPERVIOUS DIKE

PI Sta 12+86.89
Δ = 27° 23' 23" (LT)
D = 28° 39' 4"
L = 50.14'
T = 25.57'
R = 200.00'

PC Sta. 12+61.11

PT Sta. 13+12.25

POT Sta. 13+51.19

01 JAMES CLINTON RAMSEY

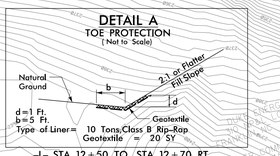
02 DION SENA

03 DEAN R. SENA
CHERYL J. SENA

FRONTIER

DION SENA

DETAIL A
TOE PROTECTION
(Not to Scale)



d = 1 Ft.
b = 5 Ft.
Type of Liner = 10 Tons Class B Rip-Rap
Geotextile = 20 SY

-L- STA. 12+50 TO STA. 12+70 RT

NOTE:
UTILIZE SPECIAL STILLING BASIN(S) AS STILLING BASIN WHERE APPLICABLE.

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 4

NOTE:
PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE – B AND TEMPORARY ROCK SILT CHECKS TYPE – A AT DRAINAGE OUTLETS.

ENVIRONMENTALLY SENSITIVE AREA
SEE PROJECT SPECIAL PROVISIONS

Macon County
Bridge #550180

PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.208	EC-5/CONST.4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

TGS ENGINEERS
804-C N. LAFAYETTE ST
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

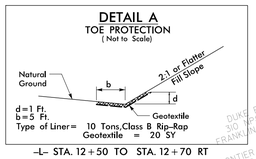
NAD 83/2011

PLACE COIR FIBER MATTING ALONG THE STREAMBANK AT LOCATIONS WHICH WILL NOT BE PLATED IN CLASS II RIP RAP, BUT WILL BE EXPOSED BY REMOVAL OF END BENTS.

INSTALL MATTING IN THE PROPOSED DITCH LINE
-L- STA 12+00 TO 12+50 RT
EST. 35 SY

INSTALL COIR FIBER MATTING IN THE PROPOSED DITCH LINE
-Y- STA 10+30 TO 11+00 LT
EST. 50 SY

DETAIL A
TOE PROTECTION
(Not to Scale)



d = 1 Ft.
b = 5 Ft.
Type of Liner = 10 Tons, Class B Rip-Rap
Geotextile = 20 SY

-L- STA. 12+50 TO STA. 12+70 RT

-L- CURVE DATA

PI Sta 12+42.31
Δ = 12° 10' 25.4" (LT)
D = 14° 19' 26.2"
L = 84.99'
T = 42.65'
R = 400.00'
SE = 0.03
DS = 20 MPH

PI Sta 13+80.74
Δ = 35° 06' 36.2" (LT)
D = 57° 17' 44.8"
L = 61.28'
T = 31.64'
R = 100.00'
SE = 0.03
DS = 15 MPH

-Y- CURVE DATA

PI Sta 10+18.62
Δ = 19° 12' 38.0" (RT)
D = 52° 05' 13.5"
L = 36.88'
T = 18.62'
R = 110.00'

PI Sta 10+73.49
Δ = 10° 27' 31.4" (LT)
D = 14° 19' 26.2"
L = 73.02'
T = 36.61'
R = 400.00'

BEGIN PROJECT
17BP.14.R.208
-L- STA 11+80.00

END PROJECT
17BP.14.R.208
-L- STA 14+90.00

BEGIN BRIDGE
-L- STA 12+93.70

END BRIDGE
-L- STA 13+46.30

END CONSTRUCTION
17BP.14.R.208
-Y- STA 11+20.00

-L- POT 10+00.00
-L- POT 16+29.35
-L- PC 11+99.65
-L- PT 12+84.64
-L- PC 13+49.11
-L- PT 14+10.39
-L- POC 13+75.00
-Y- POC 10+00.00
-Y- PRC 10+36.88
-Y- PT 11+09.90

PC Sta. 12+61.11
PT Sta. 13+12.25
POT Sta. 13+51.19

PI Sta 12+86.69
Δ = 21° 17' 28.8" (LT)
D = 4° 28' 34.4"
L = 51.14'
T = 25.57'
R = 1,280.00'

01 JAMES CLINTON RAMSEY
02 DION SENA
03 DEAN R. SENA
CHERYL J. SENA

BEGIN FDPS -L- STA. 12+22.22
BEGIN FDPS -L- STA. 12+08.88
END FDPS -Y- STA. 10+62.86
SBG BEGIN -L- STA. 13+69.56 END -L- STA. 13+83.82

CLASS B RIP RAP
2 TONS, 7 SY GEO

CLASS II RIPRAP (TYP.)
(STRUCTURES ITEM)

REMOVE EXISTING ABUTMENT, CUT SLOPE BACK AT 1.5(H):1(V) & LINE W/CLASS II RIPRAP (24" THICK, KEYED-IN)

TOE PROTECTION SEE DETAIL A

RELOCATE FENCE (BY OWNER)

TAPER TO EXIST. -L- STA. 14+07.01 TO -L- STA. 14+90.00, LT

GRADE TO DRAIN IN ORDER TO NOT DISTURB FENCE OR STONE WALL

PROP. 16' ASPHALT DRIVE

RETAIN & CLEAN OUT

DO NOT DISTURB SEPTIC FIELD AND DRAIN LINES

TO SR 1310

TO NC 28

UT TO TELICO CREEK

DUKE ENERGY
30 TIPPERAL LOOP
FRANKLIN, NC 28734

FRONTIER COMMUNICATIONS
155 E. MAIN ST.
FRANKLIN, NC 28734

NOTE:
UTILIZE SPECIAL STILLING BASIN(S) AS STILLING BASIN WHERE APPLICABLE.

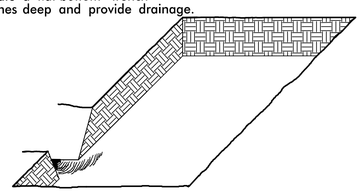
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.14.R.208	RF–1	
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION	

PLANTING DETAILS

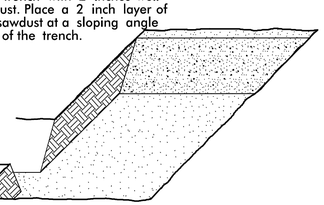
SEEDLING / LINER BAREROOT PLANTING DETAIL

HEALING IN

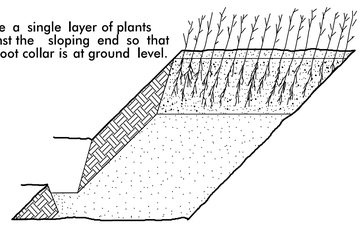
1. Locate a healing–in site in a shady, well protected area.
2. Excavate a flat bottom trench 12 inches deep and provide drainage.



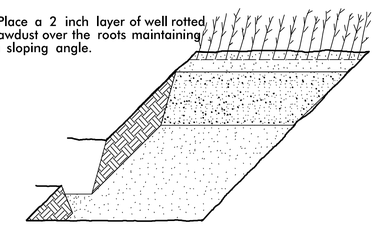
3. Backfill the trench with 2 inches well rotted sawdust. Place a 2 inch layer of well rotted sawdust at a sloping angle at one end of the trench.



4. Place a single layer of plants against the sloping end so that the root collar is at ground level.

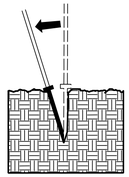


5. Place a 2 inch layer of well rotted sawdust over the roots maintaining a sloping angle.

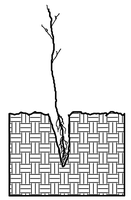


6. Repeat layers of plants and sawdust as necessary and water thoroughly.

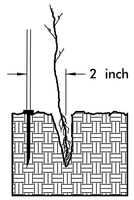
DIBBLE PLANTING METHOD
USING THE KBC PLANTING BAR



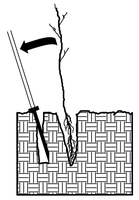
1. Insert planting bar as shown and pull handle toward planter.



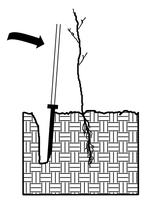
2. Remove planting bar and place seedling at correct depth.



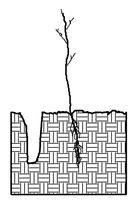
3. Insert planting bar 2 inches toward planter from seedling.



4. Pull handle of bar toward planter, firming soil at bottom.



5. Push handle forward firming soil at top.



6. Leave compaction hole open. Water thoroughly.

PLANTING NOTES:

PLANTING BAG
During planting, seedlings shall be kept in a moist canvas bag or similar container to prevent the root systems from drying.

KBC PLANTING BAR
Planting bar shall have a blade with a triangular cross section, and shall be 12 inches long, 4 inches wide and 1 inch thick at center.

ROOT PRUNING
All seedlings shall be root pruned, if necessary, so that no roots extend more than 10 inches below the root collar.

REFORESTATION

☐ TREE REFORESTATION SHALL BE PLANTED 6 FT. TO 10 FT. ON CENTER, RANDOM SPACING, AVERAGING 8 FT. ON CENTER, APPROXIMATELY 680 PLANTS PER ACRE.

REFORESTATION

MIXTURE, TYPE, SIZE, AND FURNISH SHALL CONFORM TO THE FOLLOWING:

25%	LIRIODENDRON TULIPIFERA	TULIP POPLAR	12 in – 18 in BR
25%	PLATANUS OCCIDENTALIS	SYCAMORE	12 in – 18 in BR
25%	BETULA NIGRA	RIVER BIRCH	12 in – 18 in BR
25%	NYSSA SYLVATICA	BLACK GUM	12 in – 18 in BR

REFORESTATION DETAIL SHEET

N.C.D.O.T. – ROADSIDE ENVIRONMENTAL UNIT