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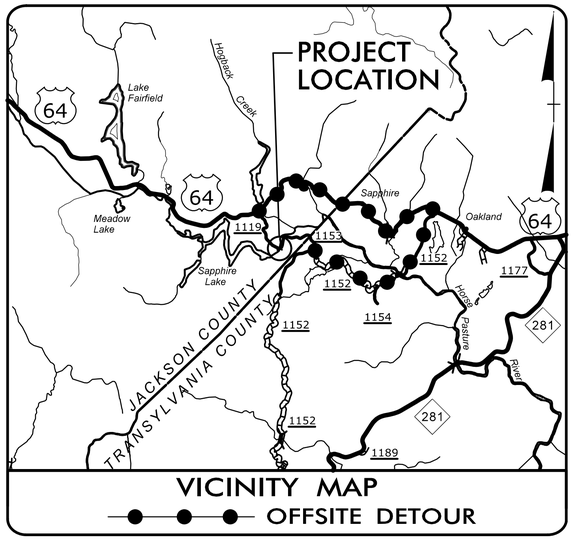
This file or an individual page shall not be considered a certified document.

09/08/99

PROJECT: 17BP.14.R.203

CONTRACT: DN00596

See Sheet 1A For Index of Sheets



VICINITY MAP

OFFSITE DETOUR

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

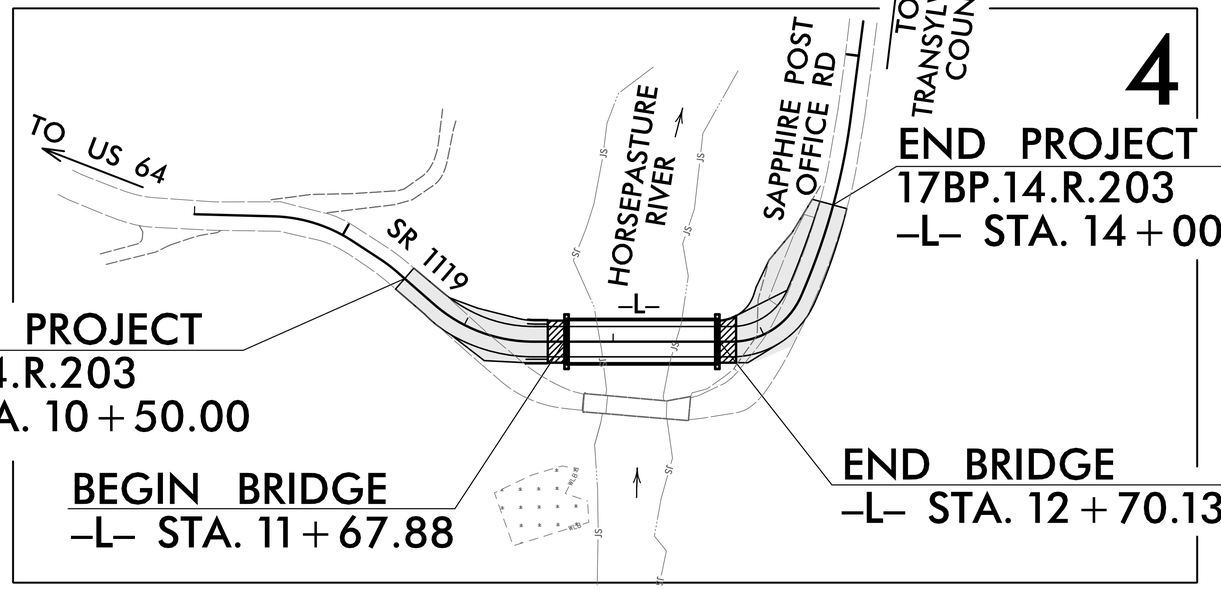
JACKSON COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.14.R.203	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
17BP.14.R.203	N/A	PE
17BP.14.R.203	N/A	UTIL & R/W
17BP.14.R.203	N/A	CONST.

LOCATION: BRIDGE #490001 ON SR 1119 (SAPPHIRE POST OFFICE RD) OVER HORSEPASTURE RIVER

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



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 2017 = 60
T = 6 % *
V = 25 MPH
* TTST = 3% DUAL = 3%
FUNC CLASS = LOCAL,RURAL
SUB–REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY PROJECT 17BP.14.R.203 = 0.047 MILES
LENGTH STRUCTURE PROJECT 17BP.14.R.203 = 0.019 MILES

TOTAL LENGTH PROJECT 17BP.14.R.203 = 0.066 MILES

NCDOT CONTACT: ADAM DOCKERY

PLANS PREPARED BY:

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

PLANS PREPARED FOR:

NORTH CAROLINA DEPARTMENT OF TRANSPORATION
DIVISION 14
345 Toot Hollow Rd
Bryson City, NC 28713

RIGHT OF WAY DATE:
JUNE 26, 2018

LETTING DATE:
JANUARY 22, 2019

2018 STANDARD SPECIFICATIONS

JIMMY L. TERRY, PE
PROJECT ENGINEER

SANDRA G. MELVIN
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

11/14/2018 6:32:34 AM EST

NORTH CAROLINA PROFESSIONAL SEAL 038697 ENGINEER DAVID B. PETTY

DocuSigned by: David B. Petty P.E.

SIGNATURE:

ROADWAY DESIGN ENGINEER

11/14/2018 6:19:10 AM EST

NORTH CAROLINA PROFESSIONAL SEAL 35018 ENGINEER JIMMY L. TERRY

DocuSigned by: Jimmy Terry P.E.

SIGNATURE:

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •

11/13/2018
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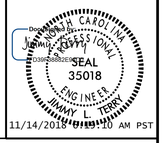
User:smelvin

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.203	1A

ROADWAY DESIGN ENGINEER



11/14/2018 8:59:10 AM PST

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-04	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-I END UNIT ASSEMBLY
2C-4	SPECIAL DETAIL - TYPE III SHOP CURVED
3B-1	ROADWAY SUMMARIES & DRAINAGE SUMMARIES
4	PLAN AND PROFILE SHEET
TMP-1 THRU TMP-4	TRANSPORTATION MANAGEMENT PLANS
PMP-1 THRU PMP-2	PAVEMENT MARKING PLANS
EC-1 THRU EC-5	EROSION CONTROL PLANS
RF-1	REFORESTATION PLANS
X-1A	CROSS-SECTION SUMMARY SHEET
X-1 THRU X-2	CROSS-SECTIONS
STRUCTURE TITLE	STRUCTURE PLANS TITLE SHEET
S-1 THRU S-20	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

SUBSURFACE DRAINS:

SUBSURFACE DRAINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 815.02 AT LOCATIONS DIRECTED BY THE ENGINEER.

GUARDRAIL:

THE GUARDRAIL LOCATIONS SHOWN ON THE PLANS MAY BE ADJUSTED DURING CONSTRUCTION AS DIRECTED BY THE ENGINEER. THE CONTRACTOR SHOULD CONSULT WITH THE ENGINEER PRIOR TO ORDERING GUARDRAIL MATERIAL.

TEMPORARY SHORING:

SHORING REQUIRED FOR THE MAINTENANCE OF TRAFFIC WILL BE PAID FOR AS "EXTRA WORK" IN ACCORDANCE WITH SECTION 104-7.

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 IN ACCORDANCE WITH SECTION 801 OF THE 2018 NORTH CAROLINA STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES.

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)
876.01 Rip Rap in Channels
876.02 Guide for Rip Rap at Pipe Outlets

11/3/2018
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USERNAME\vp

12/2/2016

PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.203	1B

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 Easement Pin and Cap
- New Permanent Easement Pin and Cap
- Vertical Benchmark
- Existing Right of Way Marker
- Existing Right of Way Line
- New Right of Way Line — 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

PROJECT REFERENCE NO.	SHEET NO.
17BPJ4R.203	2A-1
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 35018 ENGINEER JIMMY L. TERRY

11/14/2018 6:19:10 AM PST

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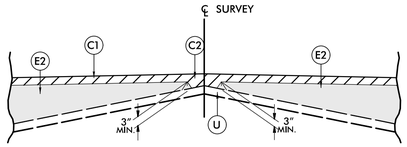
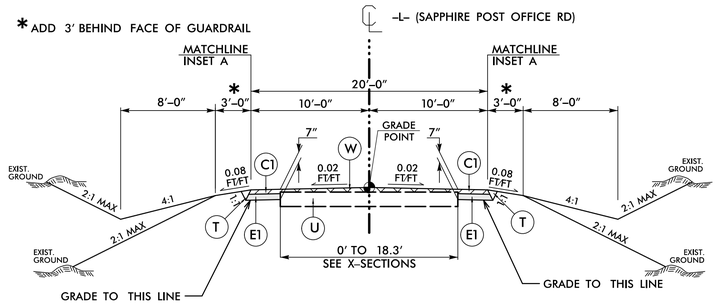
PAVEMENT SCHEDULE	
C1	PROP. APPROX. 3″ ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B AT AN AVERAGE RATE OF 165 BS. PER SQ. YD. IN EACH OF TWO LAYERS.
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1″ DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 1.5″ 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 5½″ IN DEPTH.
R1	SHOULDER BERM GUTTER
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAILS THIS SHEET)

PAVEMENT EDGE SLOPES ARE 1:1 UNLESS OTHERWISE SHOWN.



Detail Showing Method of Wedging



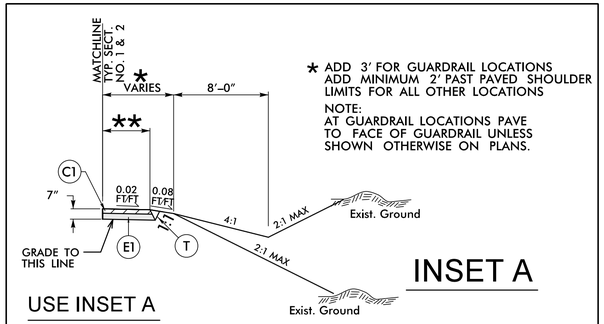
TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO. 1

-L- STA. 11+00.00 TO -L- STA. 11+36.20
-L- STA. 12+89.28 TO -L- STA. 13+50.00

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

-L- STA. 10+50.00 TO -L- STA. 11+00.00
-L- STA. 13+50.00 TO -L- STA. 14+00.00



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

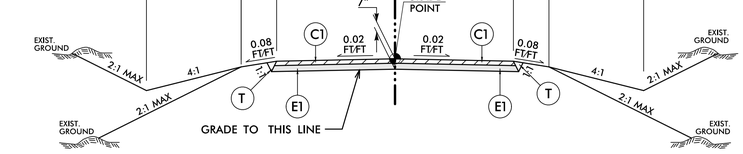
NOTE:
AT GUARDRAIL LOCATIONS PAVE TO FACE OF GUARDRAIL UNLESS SHOWN OTHERWISE ON PLANS.

INSET A

USE INSET A

** 0′-0″ TO 7′-3″

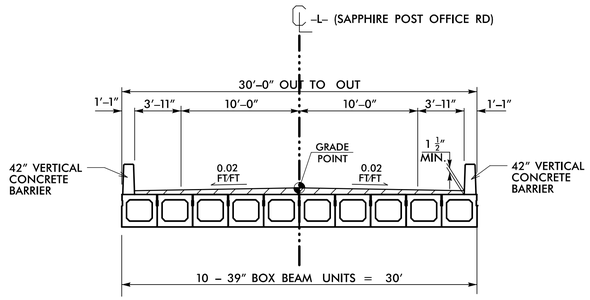
-L- STA. 10+81.02 TO -L- STA. 11+43.00 LT (BEGIN SBG)
-L- STA. 10+95.42 TO -L- STA. 11+43.00 RT (BEGIN SBG)
-L- STA. 12+81.01(END APPROACH SLAB) TO -L- STA. 13+36.03 LT
-L- STA. 12+81.01 (END APPROACH SLAB) TO -L- STA. 13+05.85 RT



TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2

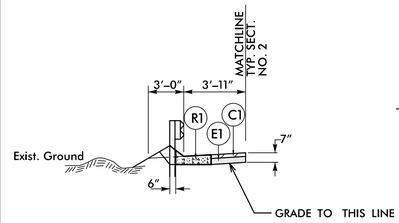
-L- STA. 11+36.20 TO -L- STA. 11+67.88 (BEGIN BRIDGE)
-L- STA. 12+70.13 (END BRIDGE) TO 12+89.28



TYPICAL SECTION NO. 3

USE TYPICAL SECTION NO. 3

-L- STA. 11+67.88 TO -L- STA. 12+70.13



INSET B

USE INSET B

-L- STA. 11+43.00 TO -L- STA. 11+57.00 LT (BEGIN APPROACH SLAB)
-L- STA. 11+43.00 TO -L- STA. 11+57.00 RT (BEGIN APPROACH SLAB)

PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.203	2C-1

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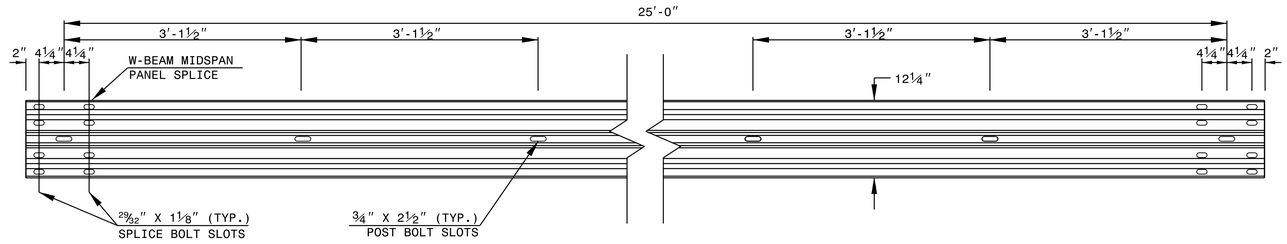
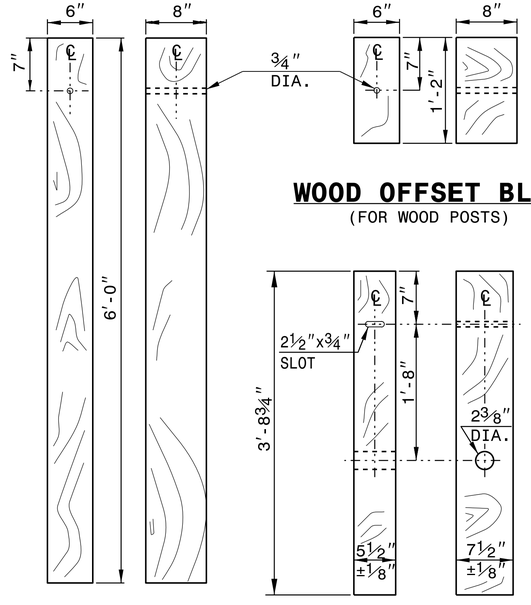
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

SHEET 6 OF 8
862D02



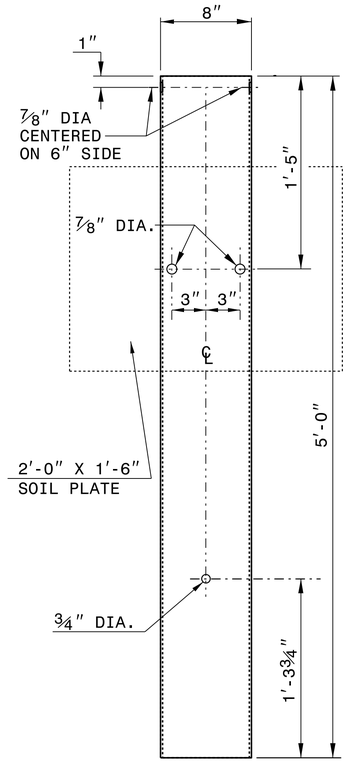
STANDARD W-BEAM GUARDRAIL



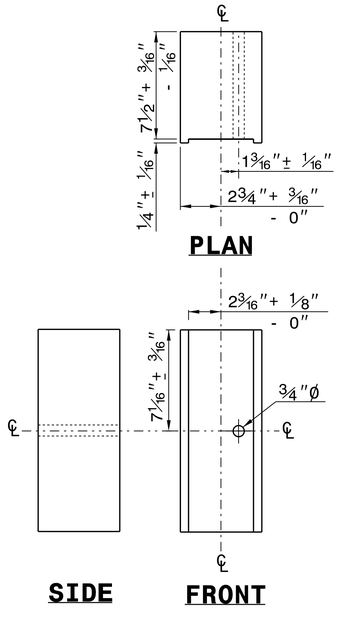
WOOD OFFSET BLOCK
(FOR WOOD POSTS)

STANDARD LINE POST

SHORT WOOD BREAKAWAY POST



STEEL TUBE
TS 6"x8"x0.1875"



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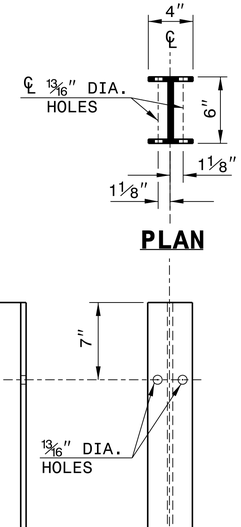
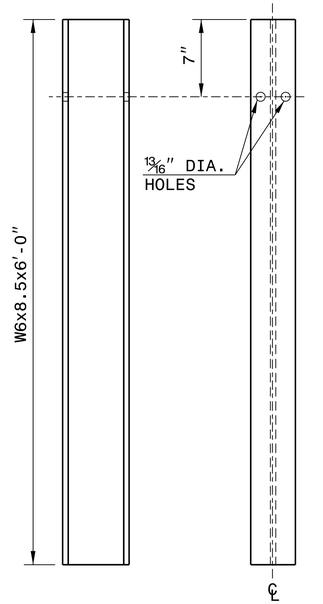




"W6" STEEL POST

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

11/14/2018 9:20:08 AM ES

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

SEE TITLE BLOCK

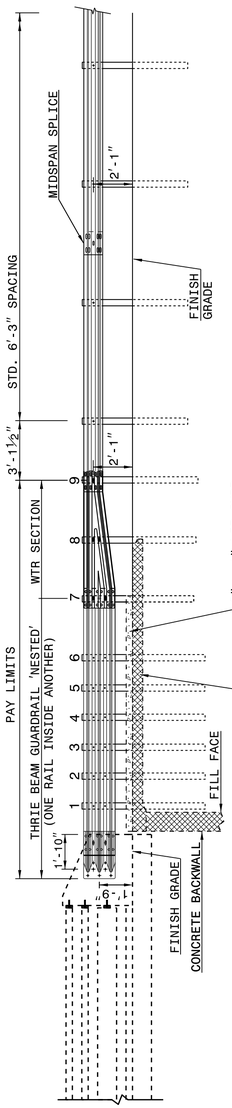
ORIGINAL BY: J.HOWERTON DATE: 3-7-2018
MODIFIED BY: _____ DATE: _____
CHECKED BY: _____ DATE: _____
FILE SPEC.: _____

PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.203	2C-2

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

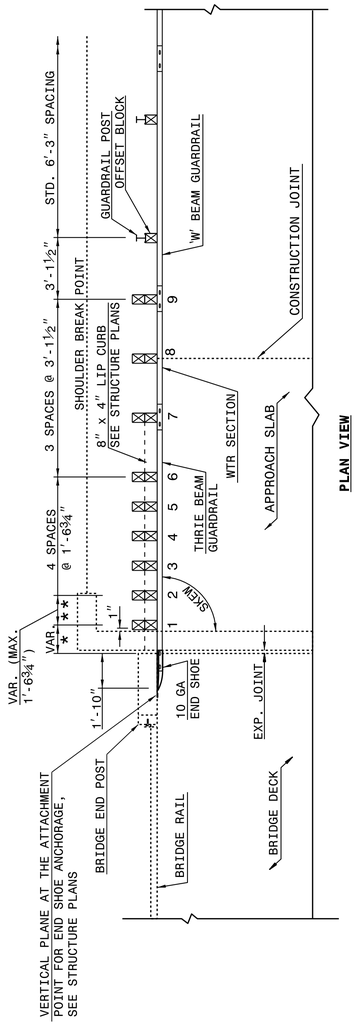
ROADWAY DETAIL DRAWING FOR
STRUCTURE ANCHOR UNITS
GUARDRAIL ANCHOR UNIT, TYPE III
FOR ATTACHMENT TO RAIL ON BRIDGE

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.



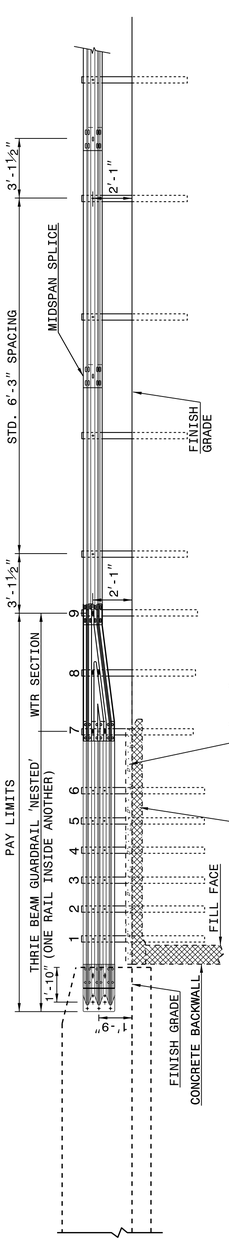
PLAN VIEW

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

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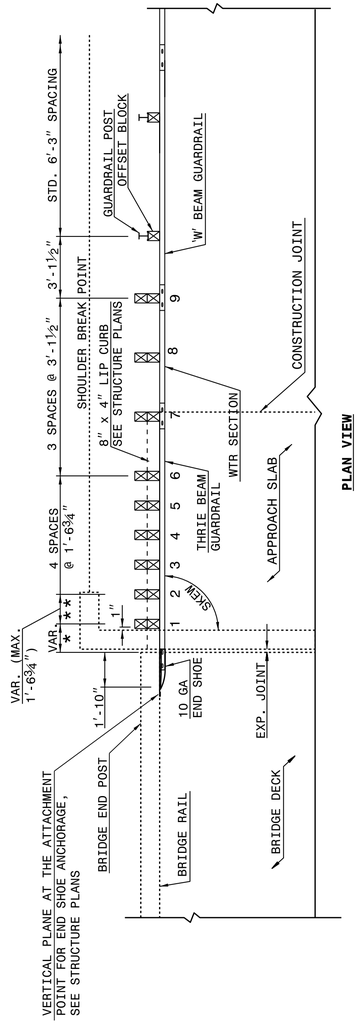
-LAP JOINTS IN THE DIRECTION OF TRAFFIC FLOW.
-SEE SHEET 3 FOR POST SECTIONS 1 THRU 9.



PLAN VIEW

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

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

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

SEE TITLE BLOCK

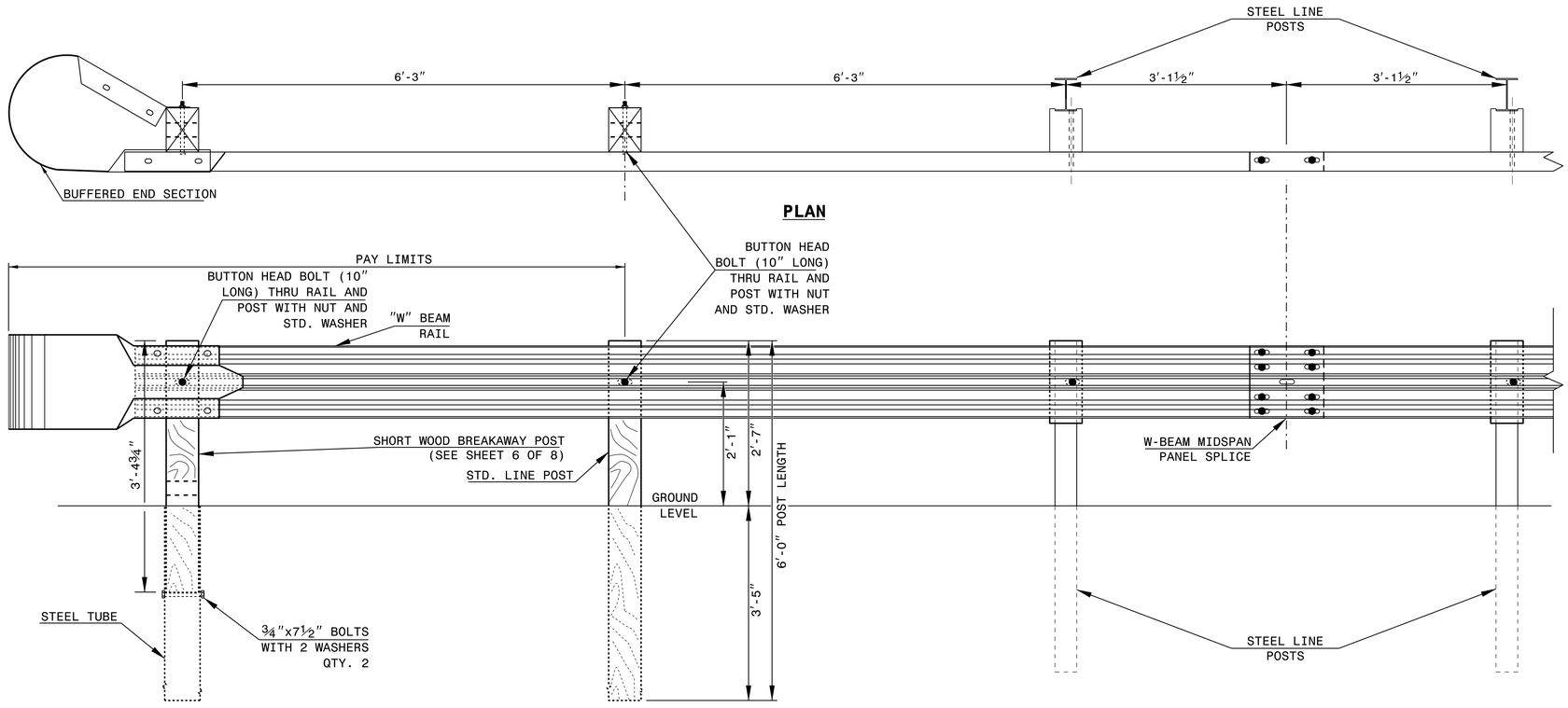
ORIGINAL BY: J HOWERTON DATE: 06-22-12
MODIFIED BY: _____ DATE: _____
CHECKED BY: _____ DATE: _____
FILE SPEC.: _____

14-DEC-2017 10:36
S:\Contracts\Contracts\Special Details\jhowerton\Standard Drawings\2018 Standard Drawings\Details in Lieu of Standards\Division 8\0862d0301.dgn
jhowerton AT CSD-2425965

PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.203	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

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 022966 DEREK S. HOWERTON

11/14/2018 9:20:08 AM EST

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.203	2C-4

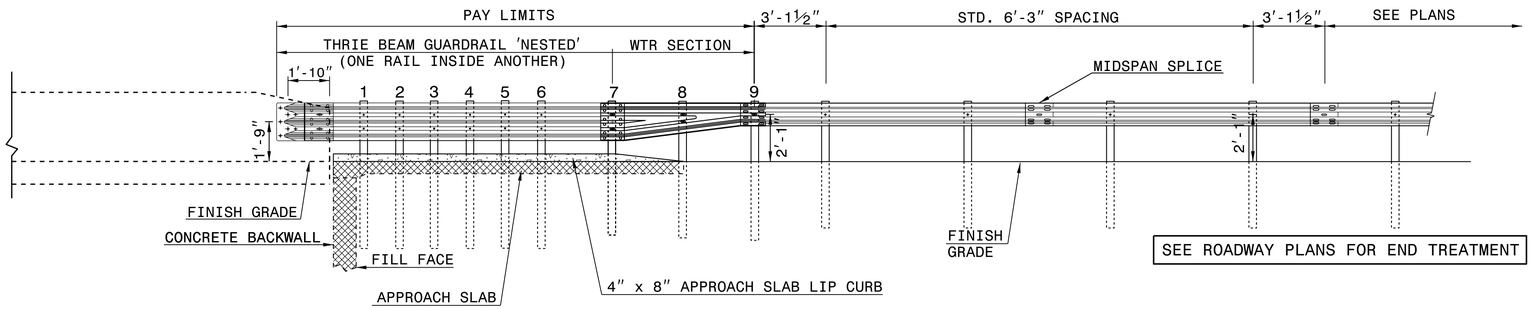
STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR

TYPE III - SHOP CURVED STRUCTURE ANCHOR UNIT

SHEET 1 OF 1

TYPE III SC



ELEVATION

NOTE:
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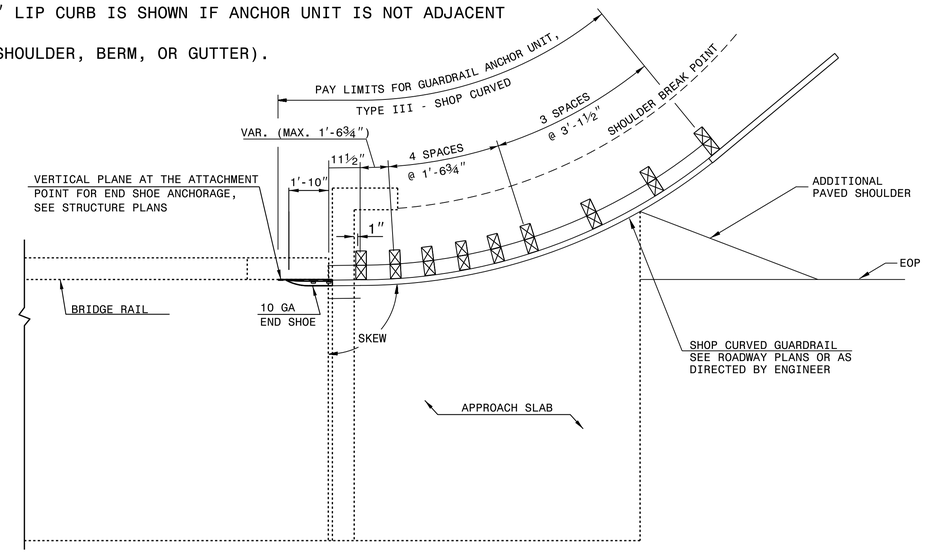
-SHOULDER BERM GUTTER MUST BE INSTALLED TO THE LIMITS 8" x 4" LIP CURB IS SHOWN IF ANCHOR UNIT IS NOT ADJACENT TO AN APPROACH SLAB.
-MEASURE GUARDRAIL HEIGHT FROM THE TOP OF ADJACENT SURFACE (SHOULDER, BERM, OR GUTTER).
-USE NO STEEL POSTS WITHIN THE GUARDRAIL ANCHOR UNIT LIMITS.
-LAP JOINTS IN THE DIRECTION 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

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

COMPUTED BY: SGM DATE: 9/17/2018
CHECKED BY: JLT DATE: 9/21/2018

PROJECT NO.	SHEET NO.
17BP.14.R.203	3B-1

STATE OF NORTH CAROLINA

SUMMARY OF EARTHWORK

IN CUBIC YARDS

Station	Station	Uncl. Excav.	Embank. +%	Borrow	Waste
-L- 10+50.00	-L- 11+67.88	139	309	170	
BRIDGE					
-L- 12+70.13	-L- 14+00.00	93	6		87
TOTALS:		232	315	170	87
WASTE IN LIEU OF BORROW				-87	-87
PROJECT TOTALS:		232	315	83	0
EST. 5% TO REPLACE TOP SOIL ON BORROW PIT				4	
GRAND TOTALS:		232	315	87	
SAY:		250		100	

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

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.

PAVEMENT REMOVAL SUMMARY

IN SQUARE YARDS

SURVEY LINE	Station	Station	LOCATION LT/RT/CL	ASPHALT REMOVAL	ASPHALT BREAKUP	CONCRETE REMOVAL	CONCRETE BREAKUP
-L-	10+86	11+80	RT	139.2			
-L-	12+50	13+26	RT	179.78			
-L-	13+20	13+89	LT	62.34			
			TOTAL:	381.32			
			SAY:	390			

EST. DDE = 10 CUBIC YARDS

EST. UNDERCUT = 100 CY
UNDERCUT EXCAVATION : 100 CY
SELECT GRANULAR MATERIAL: 100 CY
GEOTEXTILE FOR SOIL STABILIZATION: 100 SY
CLASS IV SUBGRADE STABILIZATION: 50 CY
INCIDENTAL STONE BASE: 100 TONS

"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:	IMP. ATTEN. TYPE 350: EA	IMP. ATTEN. TYPE 350: G	IMP. ATTEN. TYPE 350: NG	REMOVE EXISTING GUARDRAIL	REMOVE & RESET EXISTING GUARDRAIL	REMARKS
-L-	11+01.79	11+67.88	LT	43.75	12.5			11+67.88	3.91'	Varies					1	1									R=50'
-L-	11+17.92	11+67.88	RT	56.25			11+67.88	.	3.91'	Varies					1	1									
-L-	12+70.13	13+23.41	LT		37.5		12+70.13		3.91'	Varies							1	1							R=25'
-L-	12+70.13	12+96.20	RT	18.75	18.75			12+70.13	3.91'	Varies					1		1								R=25'
SUB-TOTALS				118.75	68.75										3	2	2	1							
LESS ANCHOR DEDUCTIONS																									
	GREU TL-2	2@25.00 ft		50.00																					
	TYPE III	3@18.75 ft		56.25																					
	TYPE III - Shop Curved	1@18.75 ft			18.75																				
	AT-1	2@6.25 ft			12.50																				
ANCHOR TOTALS				106.25	31.25																				
GRAND-TOTALS				12.50	37.50										3	2	2	1							
SAY				12.5	37.5										3	2	2	1							

ADDITIONAL GUARDRAIL POSTS = 5 EA

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: 7/12/2018
CHECKED BY: David B. Petty DATE: 7/12/2018

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- 11+53	RT	0401		3101.8															
		0401	0402		3098.4	3098.3													
-L- 11+53	LT	0402		3101.8															
		0402	0403		3098.2	3097.0			20										
TOTALS									20										

STATION / SIZE / THICKNESS OR GAUGE	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"
-L- 11+53																								
																	24							
-L- 11+53																								
TOTALS																	24							

STATION / SIZE / THICKNESS OR GAUGE	C.S. PIPE: .064	.064	.064	.064	.079	.079	.109	.109	** R.C. PIPE (CLASS V)	*** RC PIPE CULVERTS, CONTRACTOR DESIGN	**** RC PIPE CULVERTS, CONTRACTOR DESIGN	USE CMP PIPE	USE SMOOTH LINED CMP PIPE	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 (0' THRU 5.0')	"TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. "A + (1.3 X COL."B") LIN. 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	FRAMES AND NARROW SLOT FLAT GRATES STD. 840.29	CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71	CONC. COLLARS CL. "B" C.Y. STD. 840.72	PIPE REMOVAL LIN. FT.	REMARKS
-L- 11+53																	1							1	1				
-L- 11+53																	1							1	1				
TOTALS																	2							2	2				

ABBREVIATIONS

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

8/17/99

REVISIONS

JACKSON COUNTY
BRIDGE #490001

PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.203	4
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER — HYDRAULICS ENGINEER

Jimmy L. Terry — NORTH CAROLINA — PROFESSIONAL ENGINEER — SEAL 35018 — ENGINEER — JIMMY L. TERRY
11/14/2018 6:19:10 AM PST

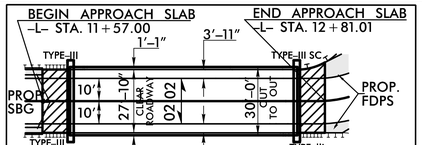
David B. Petty — NORTH CAROLINA — PROFESSIONAL ENGINEER — SEAL 038697 — ENGINEER — DAVID B. PETTY
11/14/2018 6:32:34 AM

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

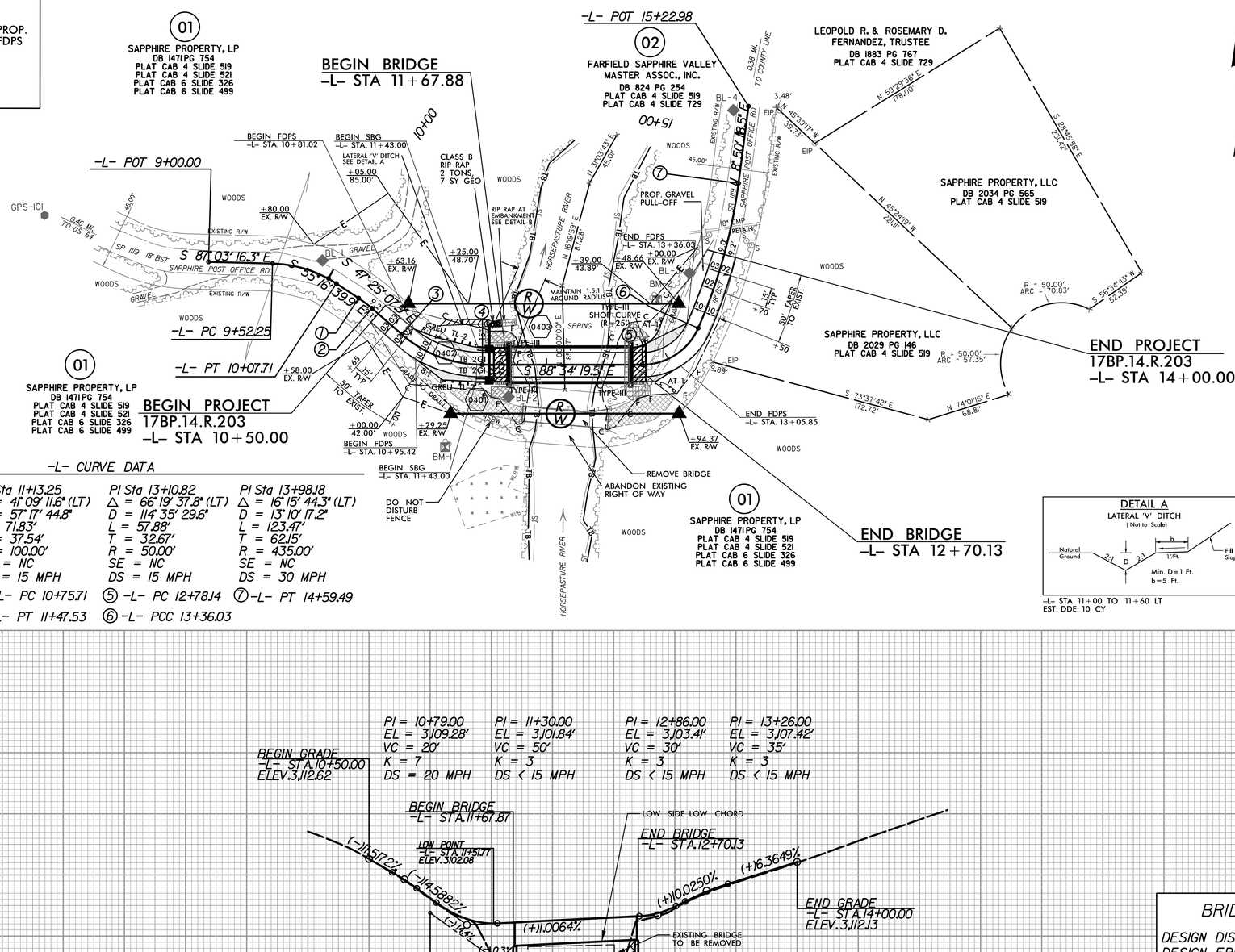
NAD 83/2011

BEGIN APPROACH SLAB –L– STA. 11+57.00 / END APPROACH SLAB –L– STA. 12+81.01



BRIDGE/ROADWAY RELATIONSHIP SKETCH

FOR STRUCTURE PLANS, SEE SHEET S-1 THRU S-20


01
SAPPHIRE PROPERTY, LP
DB 1471PG 754
PLAT CAB 4 SLIDE 519
PLAT CAB 4 SLIDE 521
PLAT CAB 6 SLIDE 499
BEGIN BRIDGE
–L– STA 11+67.88
–L– POT 9+00.00
–L– POT 15+22.98
02
FARFIELD SAPPHIRE VALLEY MASTER ASSOC., INC.
DB 824 PG 254
PLAT CAB 4 SLIDE 519
PLAT CAB 4 SLIDE 729
LEOPOLD R. & ROSEMARY D. FERNANDEZ, TRUSTEE
DB 1883 PG 767
PLAT CAB 4 SLIDE 729
SAPPHIRE PROPERTY, LLC
DB 2034 PG 565
PLAT CAB 4 SLIDE 519
SAPPHIRE PROPERTY, LLC
DB 2029 PG 146
PLAT CAB 4 SLIDE 519
BEGIN FDPS –L– STA. 10+81.02
BEGIN SBG –L– STA. 11+43.00
CLASS B RIP RAP 2 TONS, 7 SY GEO
RIP RAP AT EMBANKMENT SEE DETAIL B
LATERAL 'V' DITCH SEE DETAIL A
END FDPS –L– STA. 13+36.03
PROP. GRAVEL PULL-OFF
GPS-101
0.46 MI. TO US 64
0.38 MI. TO COUNTY LINE
SR 1119 SAPPHIRE POST OFFICE RD
EXISTING R/W
WOODS
GRAVEL
S 87°03'16.3" E
S 35°16'39.9" E
S 47°25'07" E
S 88°34'19.5" E
N 59°29'36" E 176.00'
N 45°45'17" W 39.73'
N 45°24'09" W 204.47'
S 28°45'59" E 230.42'
S 56°14'43" W 52.39'
S 73°37'42" E 172.72'
N 74°01'16" E 68.81'
R = 50.00' ARC = 70.83'
R = 50.00' ARC = 57.35'
R = 560.00'
R = 440.00'
R = 50.00'
BEGIN PROJECT 17BP.14.R.203 –L– STA 10+50.00
END PROJECT 17BP.14.R.203 –L– STA 14+00.00
END BRIDGE –L– STA 12+70.13
REMOVE BRIDGE
ABANDON EXISTING RIGHT OF WAY
DO NOT DISTURB FENCE
MAINTAIN 1.5:1 AROUND RADIUS
TYPE-III SHORT CURVE C (R=25') AT-1
SPRING
HORSEPASTURE RIVER
BM-1
BM-2
BM-3
BM-4
TB 2G1
TB 2G2
TB 2G3
TB 2G4
TB 2G5
TB 2G6
TB 2G7
TB 2G8
TB 2G9
TB 2G10
TB 2G11
TB 2G12
TB 2G13
TB 2G14
TB 2G15
TB 2G16
TB 2G17
TB 2G18
TB 2G19
TB 2G20
TB

09/08/99

TIP PROJECT: 17BP.14.R.203

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.14.R.203	RW01	

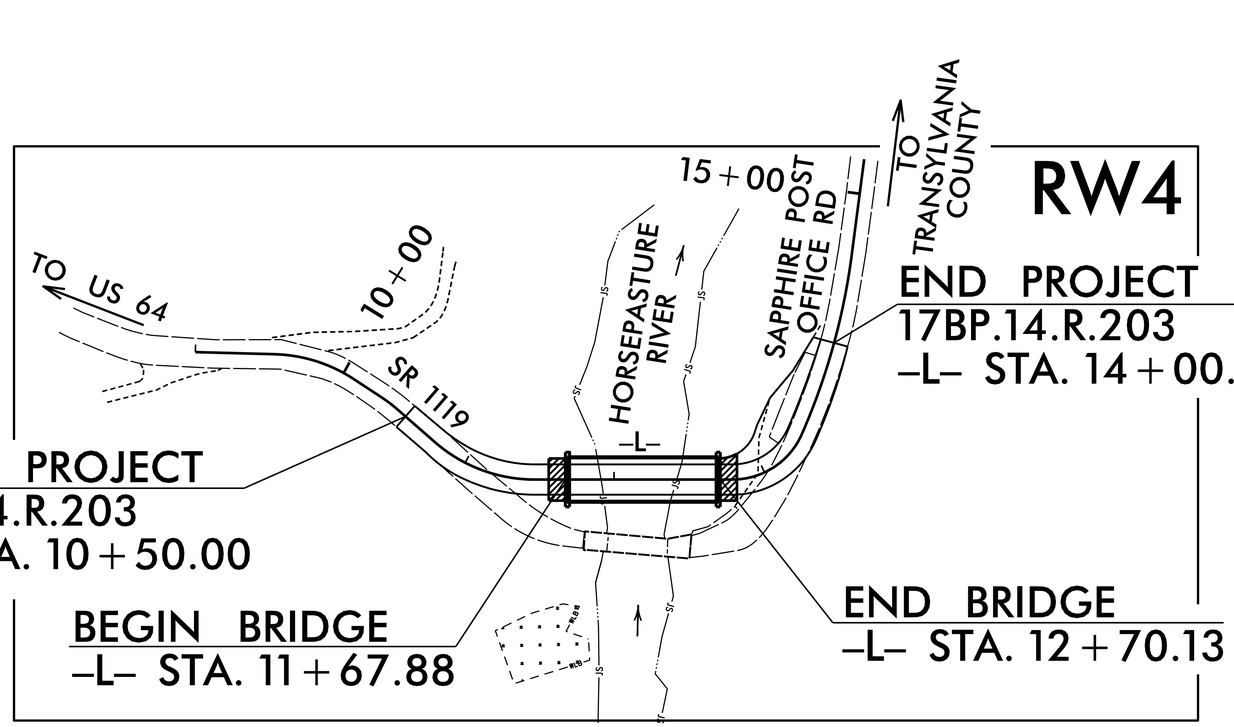
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

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

JACKSON COUNTY

LOCATION: BRIDGE #490001 ON SR 1119 (SAPPHIRE POST OFFICE RD) OVER HORSEPASTURE RIVER

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



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 NCGS FOR MONUMENT "GPS-101"
WITH NAD 83/NA 2011 STATE PLANE GRID COORDINATES OF
NORTHING: 519,086.512(ft) EASTING: 800,521.316(ft)
ELEVATION: 3,113.81(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999730376
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "GPS-101" TO -L- STATION 10+50.00 IS
S 72°07'51.0" E 284.33(ft)
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

Prepared in the Office of:

DIVISION OF HIGHWAYS

1000 Birch Ridge Dr., Raleigh NC, 27610

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
JUNE 26, 2018

LETTING DATE:
JANUARY 22, 2019

PROFESSIONAL LAND SURVEYOR

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

DocuSigned by: Brian Barwatt 11/8/2018
SIGNATURE:

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •

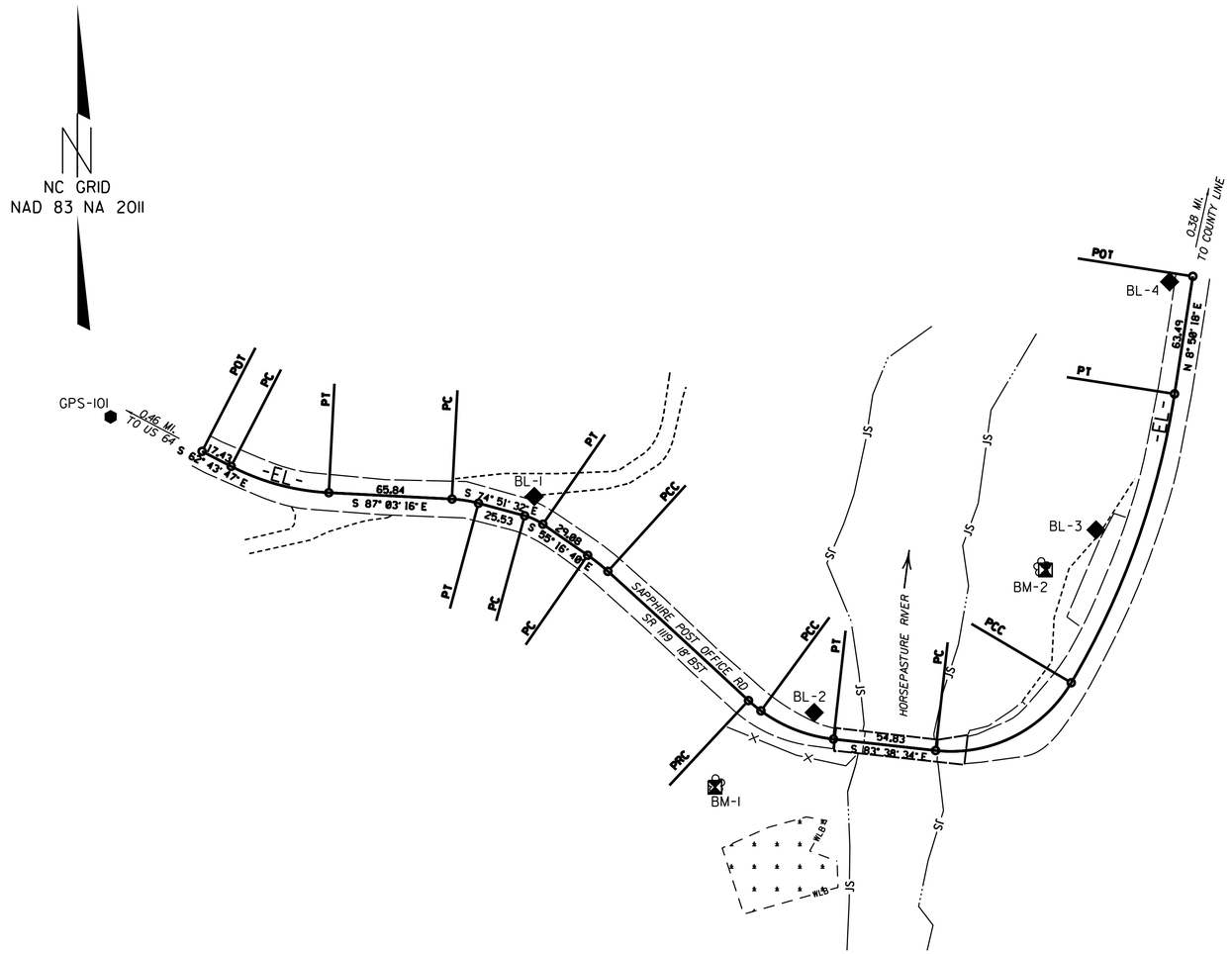
PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.203	RW02C-1
Location and Surveys	

REVISIONS

6/2/99

SURVEY CONTROL SHEET

W/ EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION



BASELINE

BL

POINT	DESC.	NORTH	EAST	ELEVATION
GPS101	GPS 101	519086.5120	800521.3160	3113.55
1	BL-1	519044.0170	800747.3620	3117.20
2	BL-2	518928.7160	800896.7270	3097.73
3	BL-3	519026.1660	801047.1240	3109.23
4	BL-4	519158.5350	801086.3540	3119.77

****

BM1 ELEVATION - 3100.94
N 518889 E 800844
RR SPIKE IN BASE OF TREE

****

****

BM2 ELEVATION - 3106.70
N 519005 E 801020
RR SPIKE IN BASE 8" MAPLE

****

EL

POINT	N	E	BEARING	DIST	DELTA	D	L	T	R
POT	519068.097	800570.136							
LINE			S 62°43'46.6" E	17.43					
PC	519060.110	800585.630							
CURVE			S 74°53'31.5" E	53.98	24°19'29.6"(LT)	44°43'17.9"	54.39	27.61	128.12
PT	519046.040	800637.748							
LINE			S 87°03'16.3" E	65.84					
PC	519042.656	800703.498							
CURVE			S 80°57'24.4" E	14.29	12°11'43.8"(RT)	85°11'11.9"	14.32	7.19	67.26
PT	519040.410	800717.610							
LINE			S 74°51'32.5" E	25.53					
PC	519033.741	800742.257							
CURVE			S 65°04'06.2" E	10.73	19°34'52.6"(RT)	181°40'58.8"	10.78	5.44	31.54
PT	519029.220	800751.983							
LINE			S 55°16'39.9" E	29.08					
PC	519012.656	800775.885							
CURVE			S 51°33'54.7" E	13.79	07°25'30.4"(RT)	53°48'42.0"	13.80	6.91	106.47
PCC	519004.085	800786.685							
CURVE			S 47°25'07.9" E	101.88	00°52'03.2"(RT)	00°51'05.6"	101.88	50.94	6728.32
PCC	518935.151	800861.700							
CURVE			S 50°22'42.8" E	8.63	06°47'13.0"(LT)	78°36'42.1"	8.63	4.32	72.88
PCC	518929.648	800868.347							
CURVE			S 68°42'26.8" E	41.54	29°52'15.0"(LT)	71°06'19.8"	42.01	21.49	80.58
PT	518914.565	800907.046							
LINE			S 83°38'34.3" E	54.83					
PC	518908.494	800961.543							
CURVE			N 63°26'39.4" E	80.91	65°49'32.5"(LT)	76°57'32.4"	85.53	48.19	74.45
PCC	518944.665	801033.914							
CURVE			N 19°41'05.9" E	163.65	21°41'34.7"(LT)	13°10'36.8"	164.63	83.31	434.82
PT	519098.748	801089.038							
LINE			N 08°50'18.5" E	63.49					
POT	519161.484	801098.793							

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.

REVISIONS

PROPOSED ALIGNMENT CONTROL SHEET

PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.203	RW02D-1
Location and Surveys	

L

TYPE	STATION	NORTH	EAST
POT	9+00.00	519045.1869	800654.3181
PC	9+52.25	519042.5019	800706.5019
PT	10+07.71	519024.8263	800758.3232
PC	10+29.50	519012.4155	800776.2318
PT	10+43.22	519003.8552	800786.9353
PC	10+75.71	518981.8714	800810.8582
PT	11+47.53	518955.5345	800876.0297
PC	12+78.14	518952.2797	801006.5995
PCC	13+36.03	518981.0536	801053.1236
PT	14+59.49	519098.7482	801089.0382
POT	15+22.98	519161.4838	801098.7934

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 INFORMATINO REGARDING PROJECT CONTROL IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

6/2/99

REVISIONS

SYSTEMS ENGINEERING

RIGHT OF WAY CONTROL SHEET

PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.203	RW03E-1
Location and Surveys	

PROJECT SURVEYOR

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

DocuSigned by: Brian Barwatt

I, Brian Barwatt, a Professional Land Surveyor in the state of North Carolina hereby certify to the best of my knowledge and belief that the following work item(s) (Base map Compilation, R/W Staking) performed under my responsible charge meet NCDOT Survey Standards as directed in the NCDOT Location & Surveys guidelines and procedures.

I further 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.

I further certify that the right of way and permanent easement points shown herein and outlined in the tables shown hereon (localized coordinates, station/offset) have been checked and are accurate representations of the right of way and permanent easement points depicted on the corresponding highway plans. I also certify that the right of way and permanent easement points shown herein have been field monumented under my supervision from existing survey control provided by others; that the depicted property data shown herein were surveyed by others; and these monuments denote the right of way and easement boundaries at the time of staking which may be subject to change due to right of way revisions (See deeds for final determination).

Witness my original signature, registration number and seal this 30th day of July, 2018.

DocuSigned by: Brian Barwatt

Professional Land Surveyor L-4727 PLS # Seal

ROW MARKER IRON PIN AND CAP-E

ALIGN	STATION	OFFSET	NORTH	EAST
L	10+63.16	-22.62	519007.0234	800816.9225
L	13+48.66	-22.51	519001.5208	801037.6666
L	12+94.37	44.95	518911.5379	801035.8596
L	11+29.25	42.37	518916.1922	800849.1464

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.

PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.203	RW04

Location and Surveys

PROJECT SURVEYOR

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

DocuSigned by: Brian Barwatt A9355FE84A8A4CE...

I, Brian Barwatt, a Professional Land Surveyor in the state of North Carolina hereby certify to the best of my knowledge and belief that the following work item(s) (Base map Compilation, R/W Staking) performed under my responsible charge meet NCDOT Survey Standards as directed in the NCDOT Location & Surveys guidelines and procedures.

I further 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.

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Witness my original signature, registration number and seal this 30th day of July, 2018.

DocuSigned by: Brian Barwatt A9355FE84A8A4CE...

Professional Land Surveyor — L-4727 PLS # — Seal

-L- CURVE DATA

PI Sta 9+80.72
△ = 31° 46' 36.4" (RT)
D = 57° 17' 44.8"
L = 55.46'
T = 28.46'
R = 100.00'

PI Sta 10+36.37
△ = 7° 51' 32.0" (RT)
D = 57° 17' 44.8"
L = 13.72'
T = 6.87'
R = 100.00'
① -L- PC 10+29.50
② -L- PT 10+43.22

PI Sta 11+13.25
△ = 41° 09' 11.6" (LT)
D = 57° 17' 44.8"
L = 71.83'
T = 37.54'
R = 100.00'
SE = NC
DS = 15 MPH
③ -L- PC 10+75.71
④ -L- PT 11+47.53

PI Sta 13+10.82
△ = 66° 19' 37.8" (LT)
D = 114° 35' 29.6"
L = 57.88'
T = 32.67'
R = 50.00'
SE = NC
DS = 15 MPH
⑤ -L- PC 12+78.14
⑥ -L- PCC 13+36.03

PI Sta 13+98.18
△ = 16° 15' 44.3" (LT)
D = 13° 10' 17.2"
L = 123.47'
T = 62.15'
R = 435.00'
SE = NC
DS = 30 MPH
⑦ -L- PT 14+59.49

NC GRID
NAD 83 NA 2011

01
SAPPHIRE PROPERTY, LP
DB 1471 PG 754
PLAT CAB 4 SLIDE 519
PLAT CAB 4 SLIDE 521
PLAT CAB 6 SLIDE 326
PLAT CAB 6 SLIDE 499

-L- POT 9+00.00

-L- POT 15+22.98

02
FARFIELD SAPPHIRE VALLEY MASTER ASSOC., INC.
DB 824 PG 254
PLAT CAB 4 SLIDE 519
PLAT CAB 4 SLIDE 729

LEOPOLD R. & ROSEMARY D. FERNANDEZ, TRUSTEE
DB 1883 PG 767
PLAT CAB 4 SLIDE 729

SAPPHIRE PROPERTY, LLC
DB 2034 PG 565
PLAT CAB 4 SLIDE 519

SAPPHIRE PROPERTY, LLC
DB 2029 PG 146
PLAT CAB 4 SLIDE 519

01
SAPPHIRE PROPERTY, LP
DB 1471 PG 754
PLAT CAB 4 SLIDE 519
PLAT CAB 4 SLIDE 521
PLAT CAB 6 SLIDE 326
PLAT CAB 6 SLIDE 499

01
SAPPHIRE PROPERTY, LP
DB 1471 PG 754
PLAT CAB 4 SLIDE 519
PLAT CAB 4 SLIDE 521
PLAT CAB 6 SLIDE 326
PLAT CAB 6 SLIDE 499

S 87°03'16.3" E
S 55°16'39.9" E
S 47°25'07.9" E
S 88°34'19.5" E
N 3°03'43" E 45.01'
N 16°19'59" E 87.28'
N 0°00'00" E 85.27'
N 59°29'36" E 178.00'
N 45°39'17" W 39.73'
S 28°45'58" E 231.42'
N 45°24'19" W 221.11'
S 73°37'42" E 172.72'
N 74°01'16" E 68.81'
S 56°34'43" W 52.39'
R = 50.00' ARC = 70.83'
R = 50.00' ARC = 57.35'

+05.00 85.00'
+80.00 EX. R/W
+25.00 48.70'
+63.16 EX. R/W
+39.00 43.89'
+00.00 EX. R/W
+48.66 EX. R/W
+22.06 24.93'
+58.00 EX. R/W
+00.00 42.00'
+29.25 EX. R/W
+94.37 EX. R/W
+22.98 25.33'
3.48'
9.89'
0.38 MI. TO COUNTY LINE
0.46 MI. TO US 64
45.00'
EXISTING R/W
SR 1119 18' BST
SAPPHIRE POST OFFICE RD
GRAVEL
WOODS
EIP
-L- PC 9+52.25
-L- PT 10+07.71

NOTES:

1. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

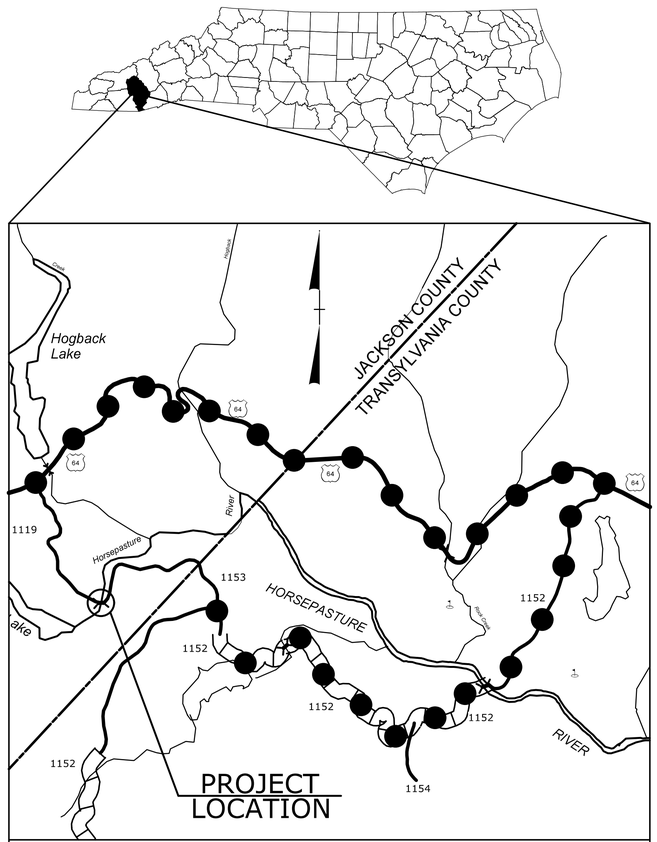
2. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.

REVISIONS
6/2/99
SYSTEM SECTIONS

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

JACKSON COUNTY
BRIDGE #490001



VICINITY MAP
OFFSITE DETOUR

INDEX OF SHEETS

SHEET NO.
TMP-1

PROJECT: 17BP.14.R.203

NCDOT CONTACT INFORMATION:
Phone: 828 488 0902
ADAM DOCKERY
Assistant Bridge Program Manager
Division 14 Bridge Management

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

TOMMY REGISTER, PE — *PROJECT ENGINEER*
PAUL SCHULKEN, EI — *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: Tommy Register 8DAF86CB042E4F8...
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SEAL

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 028392 CLIFTON T. REGISTER

11/13/2018
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User:smelvin

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
1101.03	TEMPORARY ROAD CLOSURES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1110.02	PORTABLE WORK ZONE SIGNS
1130.01	DRUM
1135.01	CONES
1145.01	BARRICADES
1150.01	FLAGGING DEVICES
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO-LANE AND MULTI-LANE ROADWAYS
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

Jackson County
Bridge #490001

PROJ. REFERENCE NO.	SHEET NO.
17BP.14.R.203	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

TEMPORARY PAVEMENT MARKING

SYMBOL	DESCRIPTION
COLD APPLIED PLASTIC (4")	
CA	WHITE EDGELINE
PAINT (4")	
PA	WHITE EDGELINE
PAINT (24")	
P2	WHITE STOPBAR
EXISTING MARKINGS	
X	YELLOW DOUBLE CENTER

APPROVED: DocuSigned by: Jimmy Jagatia 8DAF86CB942E4F8...
DATE: 11/14/2018 9:50:12 AM EST
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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 028392 CLIFTON T. REGISTER

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

ROADWAY STANDARD DRAWINGS & LEGEND

Jackson County
Bridge #490001

PROJ. REFERENCE NO.	SHEET NO.
17BP.14.R.203	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 PLAN 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 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.

WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO A DIVIDED FACILITY AND WITHIN 10 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.

C) 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.

D) 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.

E) PROVIDE TRAFFIC CONTROL FOR APPROPRIATE LANE CLOSURES FOR SURVEYING DONE BY THE DEPARTMENT.

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) 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.

GENERAL NOTES

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

K) INSTALL BLACK ON ORANGE "DIP" SIGNS (W8-2) AND/OR "BUMP" SIGNS (W8-1) 200 FT IN ADVANCE OF THE UNEVEN AREA, OR AS DIRECTED BY THE ENGINEER.

TRAFFIC CONTROL DEVICES

L) 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.

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

PAVEMENT MARKINGS AND MARKERS

N) INSTALL TEMPORARY PAVEMENT MARKINGS AND TEMPORARY PAVEMENT MARKERS ON INTERIM LAYERS OF PAVEMENT AS FOLLOWS:

ROAD NAME	MARKING	MARKER
SR 1119	PAINT	NONE

O) PLACE ONE APPLICATION OF PAINT FOR TEMPORARY TRAFFIC PATTERNS. PLACE A SECOND APPLICATION OF PAINT SIX (6) MONTHS AFTER THE INITIAL APPLICATION AND EVERY SIX MONTHS AS DIRECTED BY THE ENGINEER.

P) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.

Q) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS BY THE END OF EACH DAY'S OPERATION.

MANAGEMENT STRATEGIES

THE FOLLOWING LISTED STRATEGIES DERIVE FROM DETAILED DESIGN LEVEL ASSESSMENTS OF THE WORK ZONE IMPACTS CONDUCTED DURING THE DEVELOPMENTAL STAGES OF THE TRANSPORTATION MANAGEMENT PLAN (TMP).

RECOMMENDED MANAGEMENT STRATEGIES RELATIVE TO THIS TMP ARE AS FOLLOWS:

- ONE-LANE, TWO-WAY TRAFFIC:
  TRAFFIC TO BE MAINTAINED ON SR 1119 (SAPPHIRE POST OFFICE RD.) UTILIZING PORTABLE TRAFFIC SIGNALS AND FLAGGERS AS NECESSARY.

LOCAL NOTES

1) EMERGENCY VEHICLE ACCESS MUST BE MAINTAINED AT ALL TIMES.

2) NOTIFY THE JACKSON COUNTY SCHOOL BOARD 30 DAYS PRIOR TO ANY LANE CLOSURES.

3) MAINTAIN ACCESS TO DRIVEWAYS DURING CONSTRUCTION.

APPROVED: DocuSigned by: Tommy Register 8DAF58CB942E4F8...
DATE: 11/14/2018 9:50:12 AM EST
SEAL

NORTH CAROLINA PROFESSIONAL SEAL 028392 ENGINEER CLIFTON T. REGISTER

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

TRANSPORTATION OPERATIONS PLAN

Jackson County
Bridge #490001

PROJ. REFERENCE NO.	SHEET NO.
17BP.14.R.203	TMP-2

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

PHASING NOTES

STEP 1:

INSTALL ALL ADVANCE WORK ZONE WARNING SIGNS ON -L-
IN ACCORDANCE WITH NCDOT STD DRAWING 1101.01, SHEET 3 OF 3.

STEP 2:

USING TEMPORARY LANE CLOSURES AND PORTABLE TRAFFIC SIGNALS,
PLACE TRAFFIC IN TWO-WAY ONE-LANE PATTERN. CONSTRUCT
THE PROPOSED ROADWAY AS SHOWN ON PLANS UP TO BUT NOT INCLUDING
THE FINAL LAYER OF PAVEMENT: -L- STA. 10+50+/- TO 14+00+/-

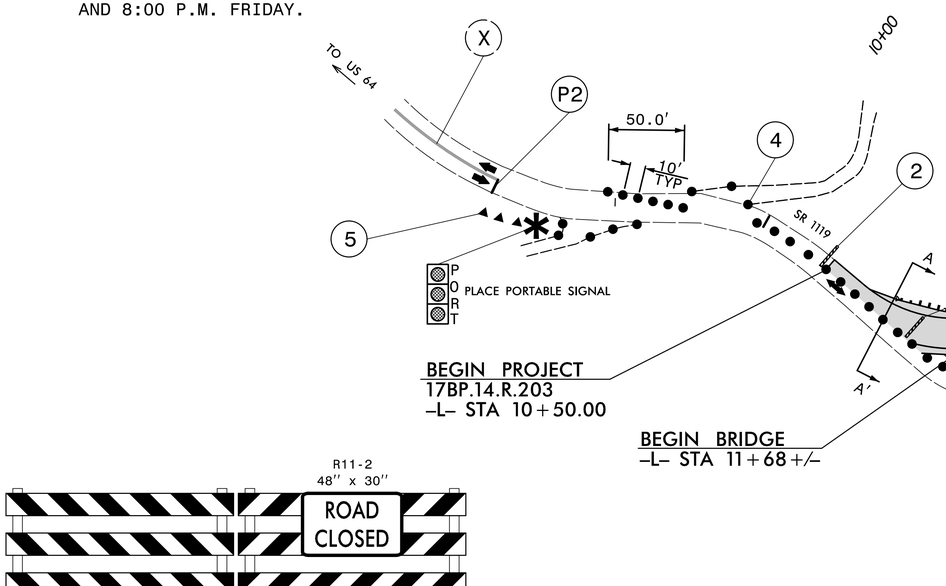
SEE TMP-2 AND NCDOT STD DRAWING 1101.02, SHEET 14 OF 14.

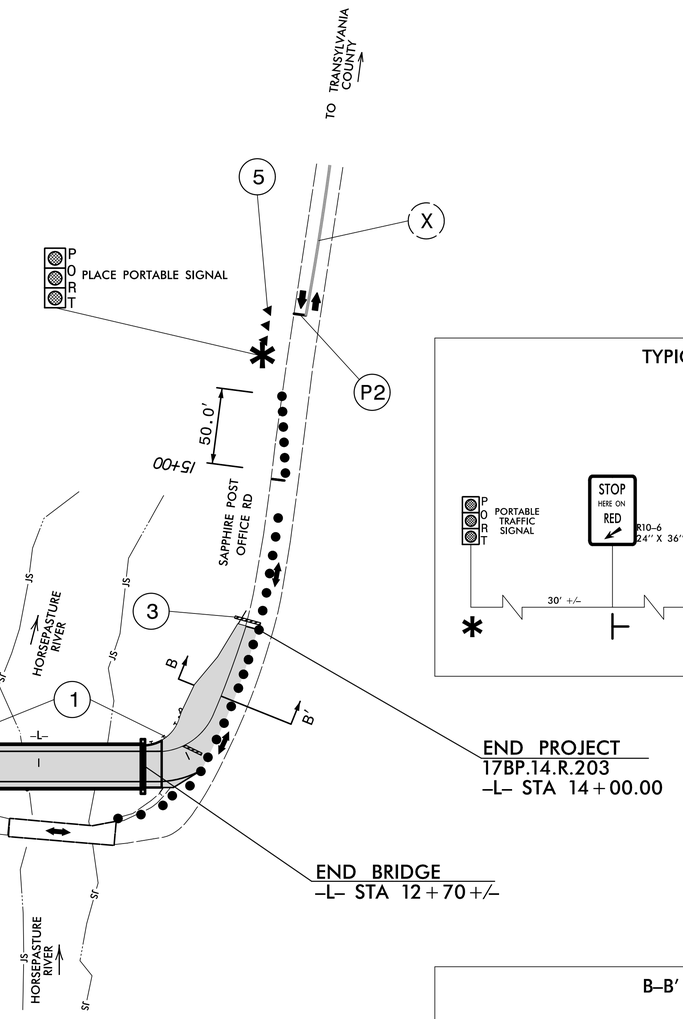
STEP 3:

USING TEMPORARY ROAD CLOSURES AS NECESSARY, DIRECT TRAFFIC TO
PROPOSED DETOUR AND SET BOX BEAMS FOR PROPOSED BRIDGE 490001.

SEE TMP-3, AND NCDOT STD DRAWING 1101.03, SHEET 1 OF 9.

NOTE: DO NOT CLOSE SR 1119 BETWEEN THE HOURS OF 6:00 A.M. MONDAY
AND 8:00 P.M. FRIDAY.

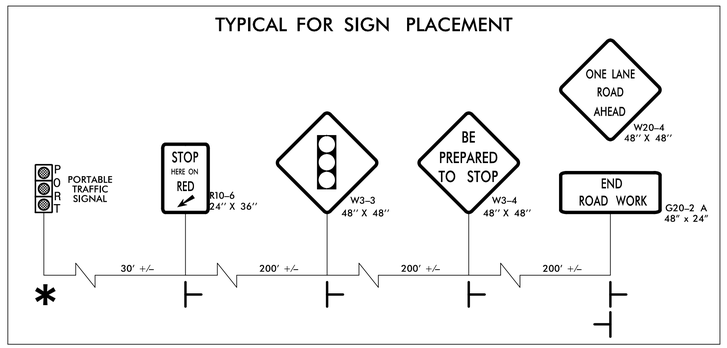


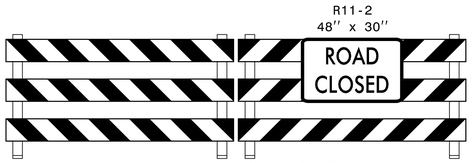


PORTABLE SIGNAL

NAD 83/2011

TYPICAL FOR SIGN PLACEMENT





TYPE III BARRICADE(S)

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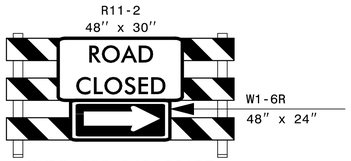

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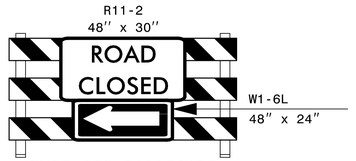

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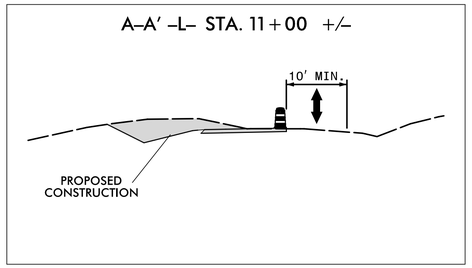

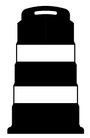

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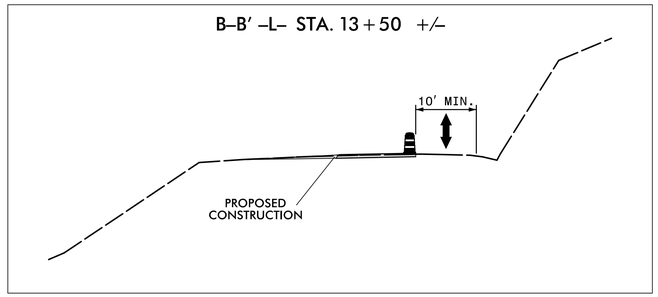

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SEAL

NORTH CAROLINA PROFESSIONAL SEAL 028392 ENGINEER CLIFTON T. REGISTER

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

OVERVIEW AND PHASING PHASE I DETAIL I

11/13/2018
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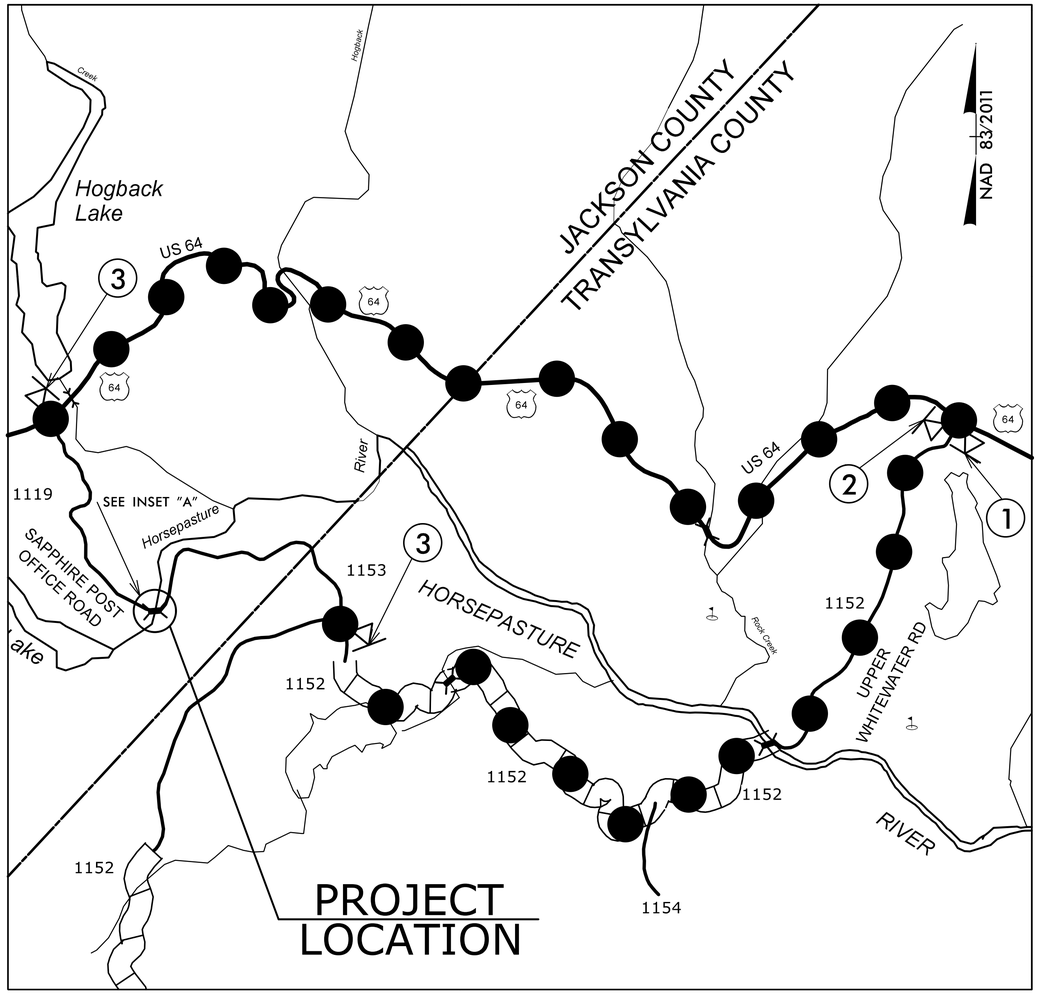
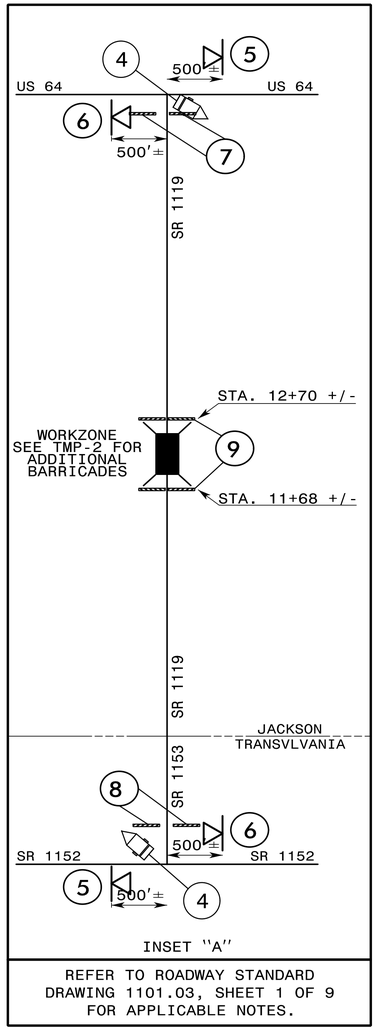
User:smelvin

Jackson County
Bridge #490001

PROJ. REFERENCE NO.	SHEET NO.
17BP.14.R.203	TMP-3

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





REFER TO ROADWAY STANDARD DRAWING 1101.03, SHEET 1 OF 9 FOR APPLICABLE NOTES.

MESSAGE NO. 1	MESSAGE NO. 2
SAPPHIRE POST ROAD CLOSED	____ TO ____

(14 DAYS IN ADVANCE)

CHANGEABLE MESSAGE SIGN

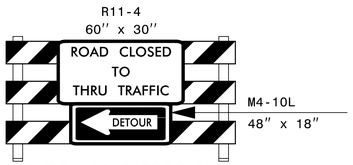
4

W20-3
48" x 48"
SP-4L
42" X 12"

5

W20-3
48" x 48"
SP-4R
42" X 12"

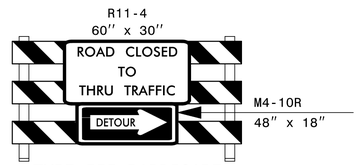
6



M4-10L
48" x 18"

TYPE III BARRICADE

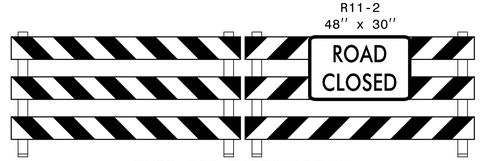
7



M4-10R
48" x 18"

TYPE III BARRICADE

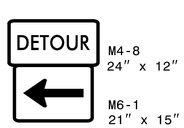
8



TYPE III BARRICADE(S)

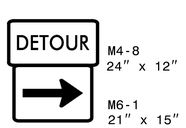
9

OFFSITE DETOUR ROUTE



M4-8
24" x 12"
M6-1
21" x 15"

1



M4-8
24" x 12"
M6-1
21" x 15"

2

M4-8 A
48" x 18"

3

APPROVED: DocuSigned by: Tommy Jaquess 8DAF86CB942E4F8...
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DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION WORK ZONE TRAFFIC CONTROL

OFFSITE DETOUR ROUTE AND BARRICADE PLACEMENT

11/13/2018
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User:smelvin

Jackson County
Bridge #490001

PROJ. REFERENCE NO.	SHEET NO.
17BP.14.R.203	TMP-4

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

PHASING NOTES

STEP 1:

SHIFT TRAFFIC TO NEW PATTERN. USING TEMPORARY LANE CLOSURES CONSTRUCT THE REMAINING ROADWAY UP TO BUT NOT INCLUDING THE FINAL LAYER OF SURFACE COURSE: -L- STA. 10+50+/- TO 11+86+/- AND -L- STA. 12+46+/- TO 14+00+/-

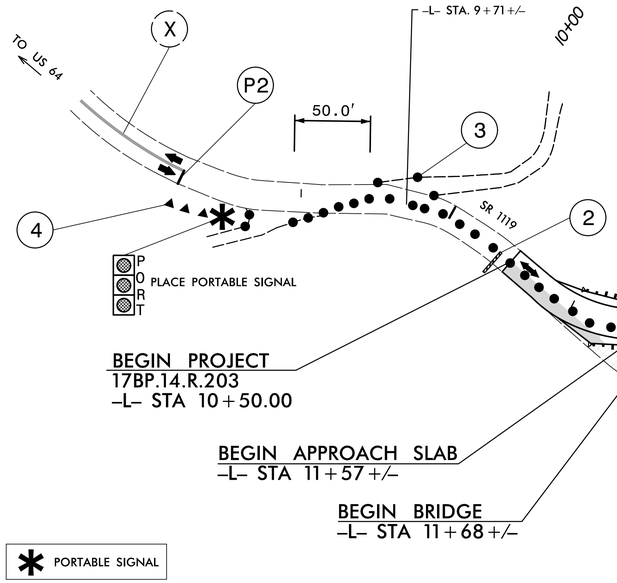
SEE TMP-3 AND NCDOT STD DRAWING 1101.02, SHEET 14 OF 14.

STEP 3:

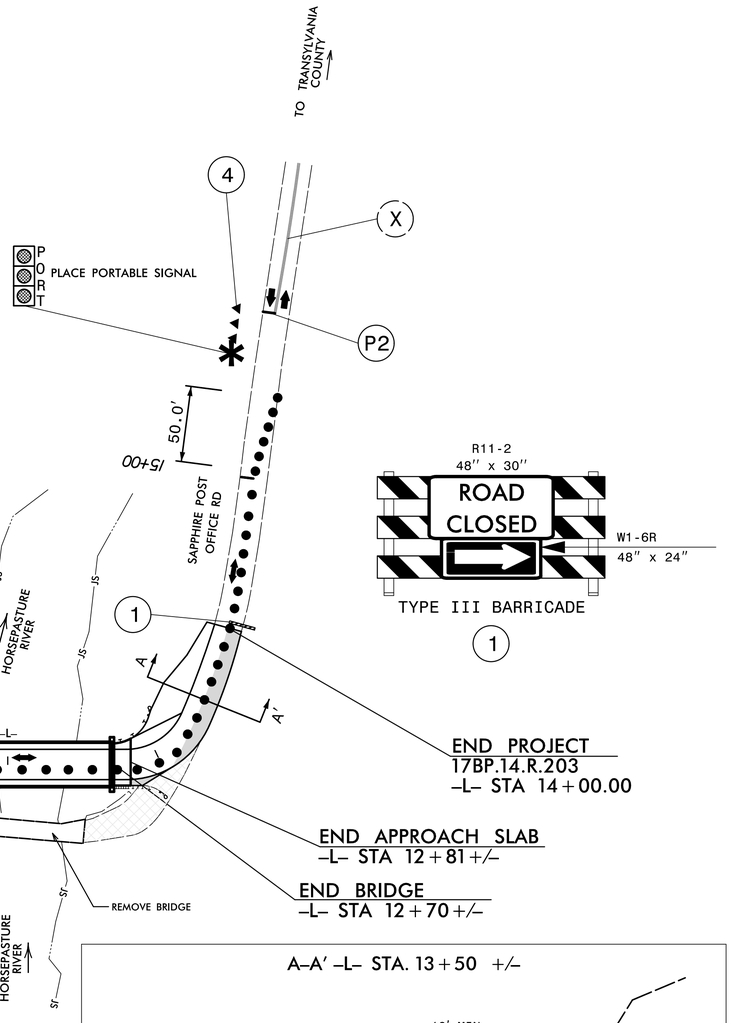
USING TEMPORARY LANE CLOSURES AND FLAGGERS AS NECESSARY PLACE THE FINAL LAYER OF SURFACE COURSE.

USING TEMPORARY LANE CLOSURES AND FLAGGERS AS NECESSARY PLACE FINAL PAVEMENT MARKINGS. (SEE PAVEMENT MARKING PLANS)

REMOVE ALL TRAFFIC CONTROL DEVICES AND OPEN -L- SR 1119 (SAPPHIRE POST OFFICE RD) TO TRAFFIC.



✱ PORTABLE SIGNAL



TYPE III BARRICADE
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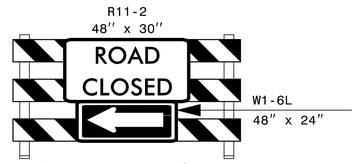
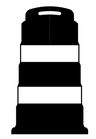


TYPE III BARRICADE
2

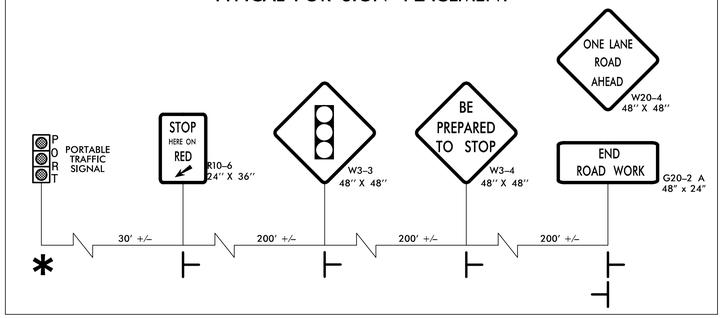
NAD 83/2011



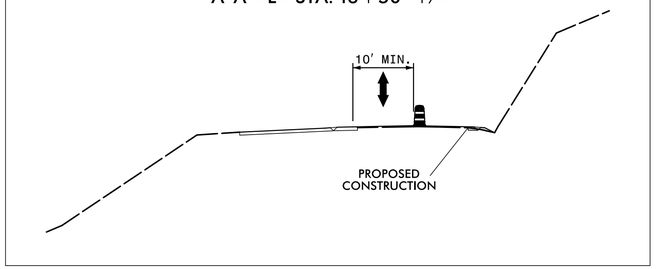
3

4

TYPICAL FOR SIGN PLACEMENT



A–A' –L– STA. 13+50 +/–



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SEAL 028392 NORTH CAROLINA PROFESSIONAL ENGINEER CLINTON T. REGISTER

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

OVERVIEW AND PHASING PHASE II DETAIL I

11/13/2018
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User:smelvin

PROFECT: 17BP.14.R.203

CONTRACT: DN00596

Jackson County
Bridge #490001

TIP NO.	SHEET NO.
17BP.14.R.203	PMP-1

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NORTH CAROLINA PROFESSIONAL SEAL 028392 ENGINEER CLIFTON T. REGISTER

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAVEMENT MARKING PLAN

JACKSON COUNTY

LOCATION: BRIDGE #490001 ON SR 1119 (SAPPHIRE POST OFFICE RD) OVER HORSEPASTUE RIVER

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
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 AND PAVEMENT MARKERS ON THE FINAL SURFACE AS FOLLOWS:

ROAD NAME	MARKING	MARKER
SR 1119 SAPPHIRE POST 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.

C) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.

D) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS.

FINAL PAVEMENT MARKING SCHEDULE

SYMBOL	DESCRIPTION
	PAVEMENT MARKINGS
PAINT (4")	
PA	WHITE EDGELINE (2X)
PI	YELLOW DOUBLE CENTER (2X)

INDEX

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

TOMMY REGISTER, PE PROJECT ENGINEER

PAUL SCHULKEN, EI DESIGN TECHNICIAN

STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION

11/13/2018
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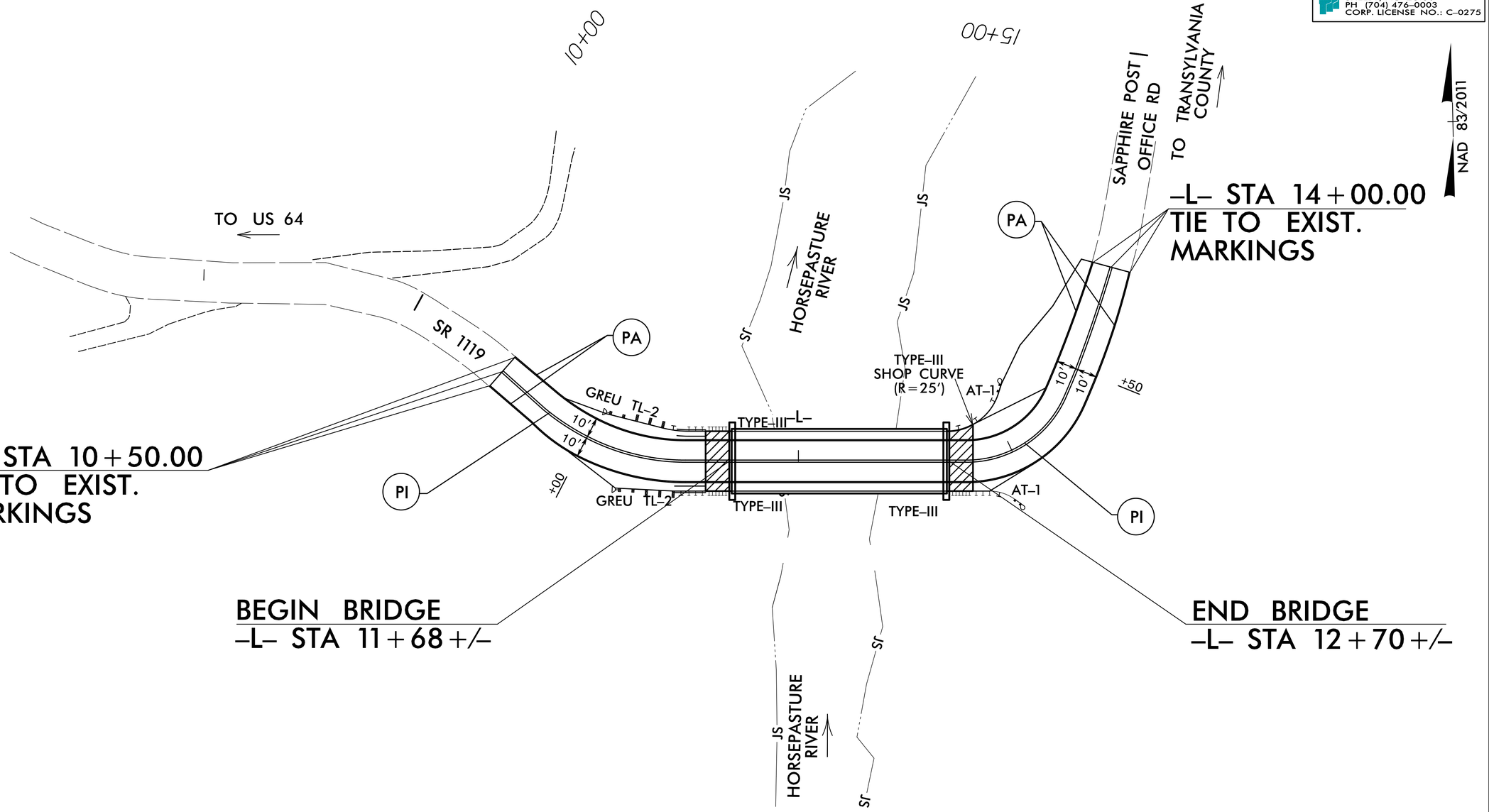
User:smelvin

SEE SHEET PMP–1 FOR FINAL PAVEMENT MARKING SCHEDULE

Jackson County
Bridge #490001

PROJ. REFERENCE NO.	SHEET NO.
17BP.14.R.203	PMP-2

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



25′ 0′ 25′ 50′
12.5′

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SEAL

NORTH CAROLINA PROFESSIONAL SEAL 028392 ENGINEER CLIFTON T. REGISTER

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

FINAL PAVEMENT MARKING PLAN

11/13/2018
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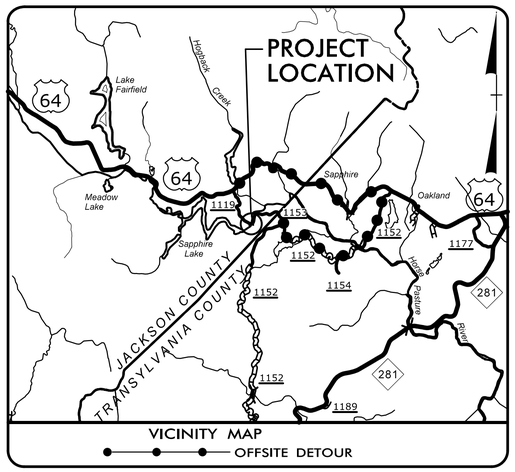
User:rsnelvin

PROJECT: 17BP.14.R.203

CONTRACT: DN00596



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL

JACKSON COUNTY

LOCATION: BRIDGE NO. 490001 OVER HORSEPASTURE RIVER ON SR 1119 (SAPPHIRE POST OFFICE ROAD)

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

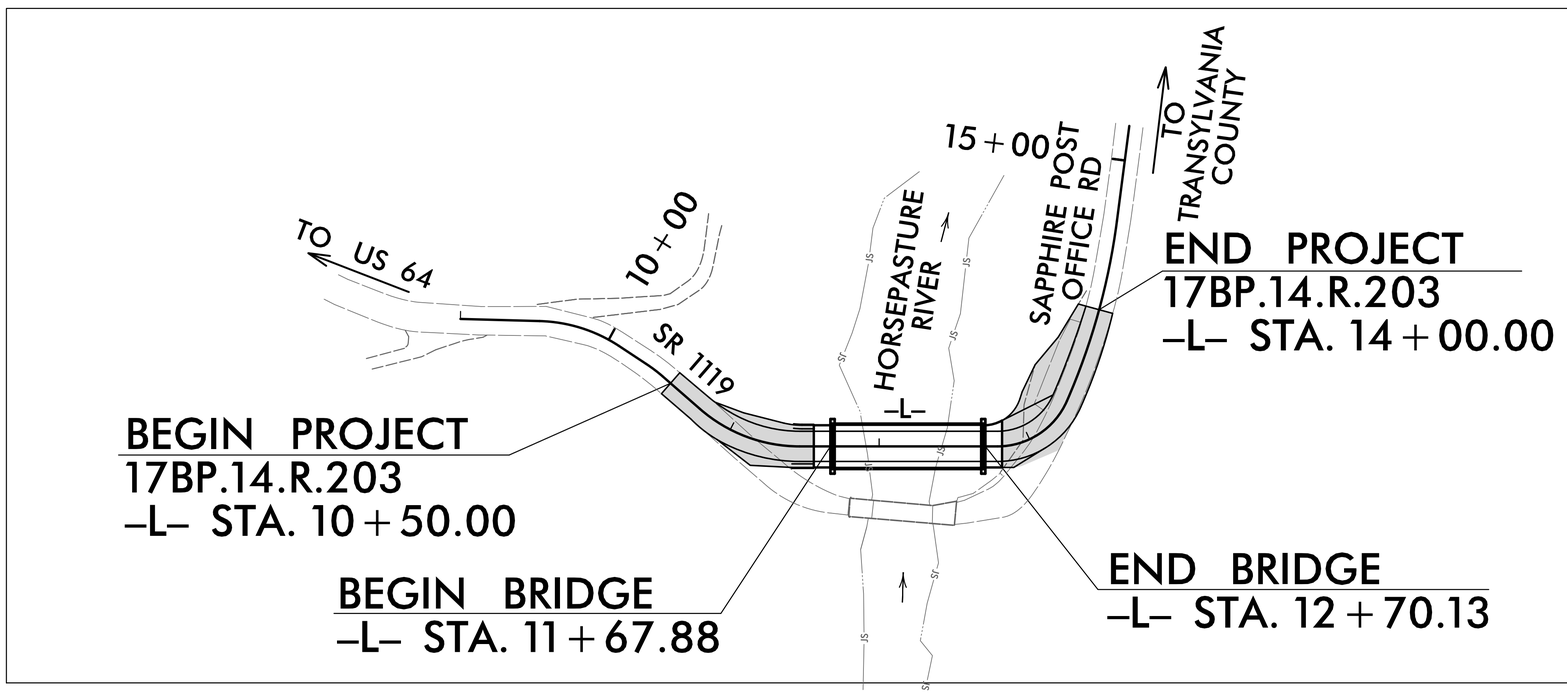
NAD 83/2011

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.14.R.203	EC-1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
17BP.14.R.203	N/A	PE
17BP.14.R.203	N/A	UTIL & R/W
17BP.14.R.203	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	SW 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	SK



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 AUGUST 1, 2016 AND ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY.

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
DIVISION 14

345 Toot Hollow Rd
Bryson City, NC 28713

2018 STANDARD SPECIFICATIONS

Reviewed by:

Reid Whitehead, PE, CPESC

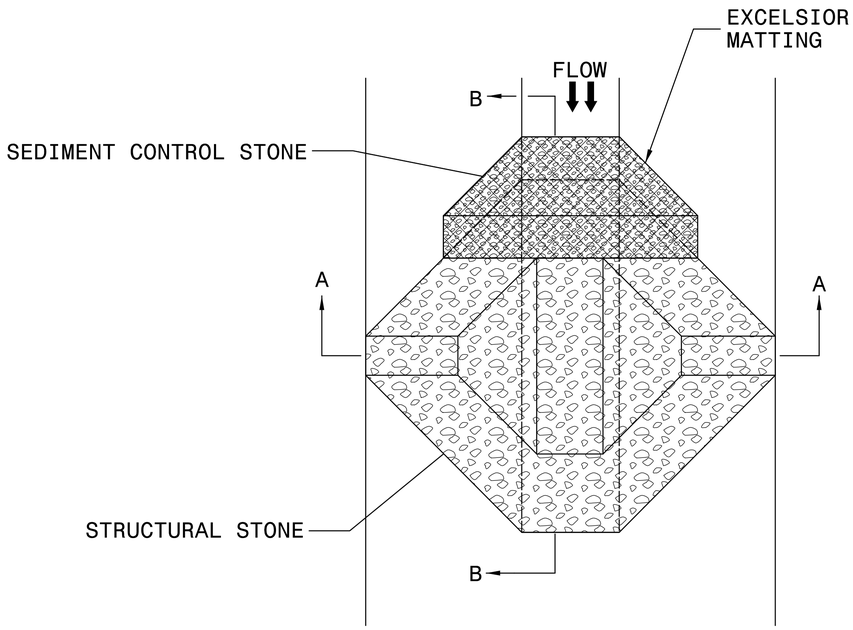
Roadway Standard Drawings

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.

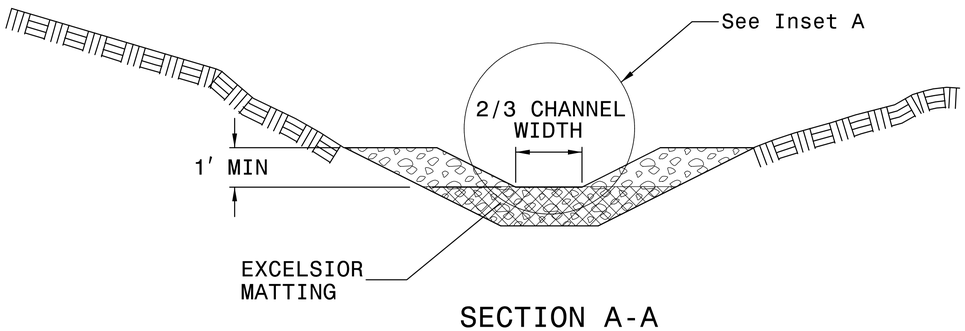
1604.01	Railroad Erosion Control Detail	1632.01	Rock Inlet Sediment Trap Type A
1605.01	Temporary Silt Fence	1632.02	Rock Inlet Sediment Trap Type B
1606.01	Special Sediment Control Fence	1632.03	Rock Inlet Sediment Trap Type C
1607.01	Gravel Construction Entrance	1633.01	Temporary Rock Silt Check Type 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		

PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.203	EC-2
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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



PLAN



SECTION A-A

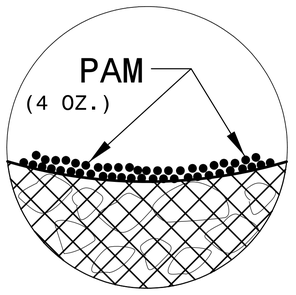
NOTES:

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

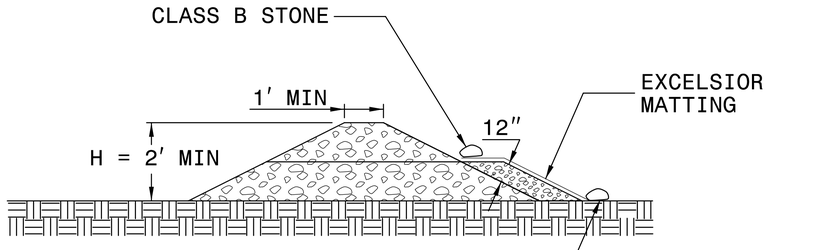
USE EXCELSIOR FOR MATTING MATERIAL AND ANCHOR MATTING SECTION AT TOP AND BOTTOM WITH CLASS B STONE.

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.203	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.

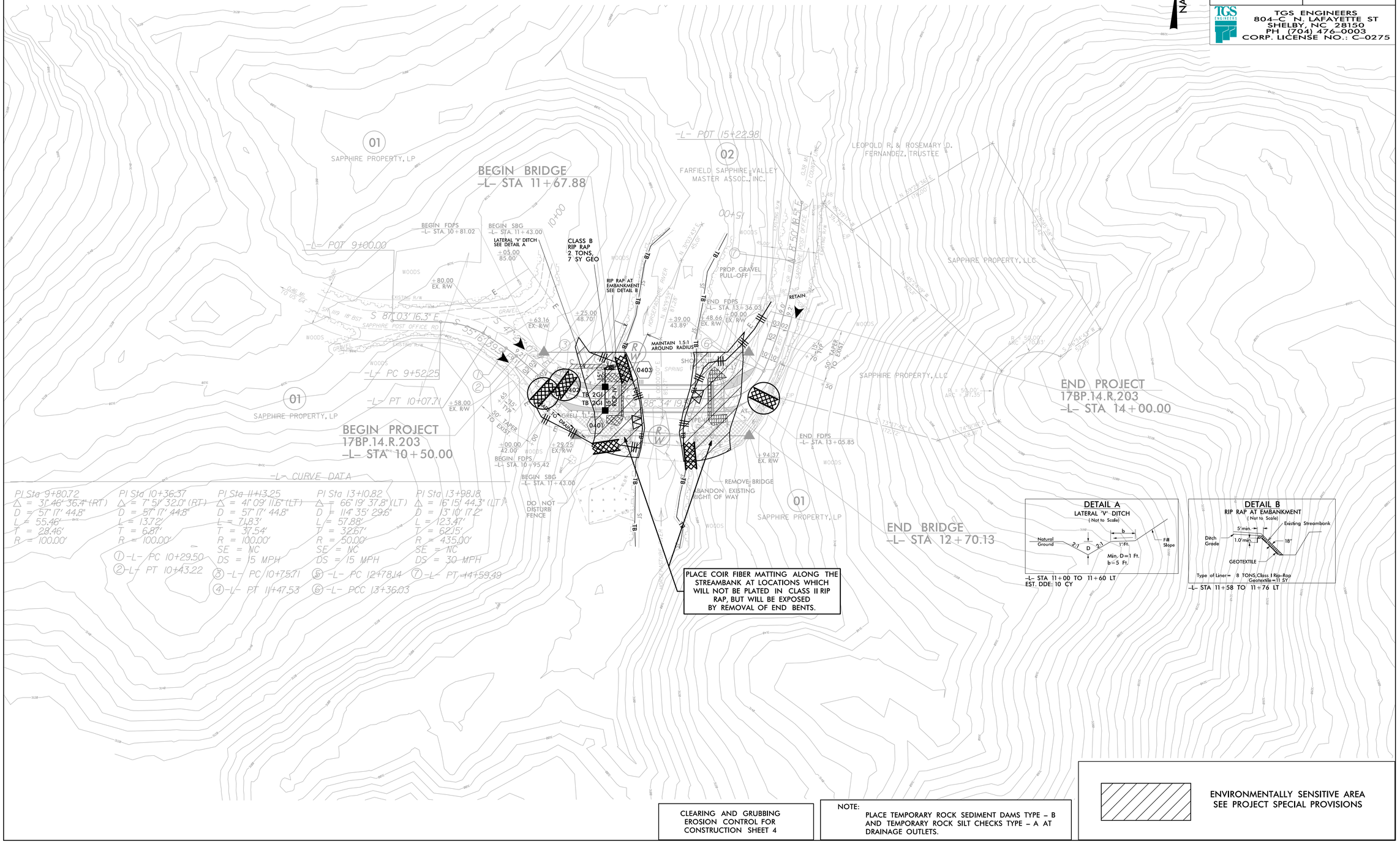
Jackson County Bridge #490001

PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.203	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

NOTE:
PERIMETER EROSION CONTROL MEASURES SHALL BE INSTALLED DURING CLEARING AND GRUBBING PHASE.



DETAIL A
LATERAL 'V' DITCH
(Not to Scale)

-L- STA 11+00 TO 11+60 LT
EST. DDE: 10 CY

DETAIL B
RIP RAP AT EMBANKMENT
(Not to Scale)

Type of Liner= 8 TONS,Class I Rip-Rap
Geotextile =11 SY
-L- STA 11+58 TO 11+76 LT

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

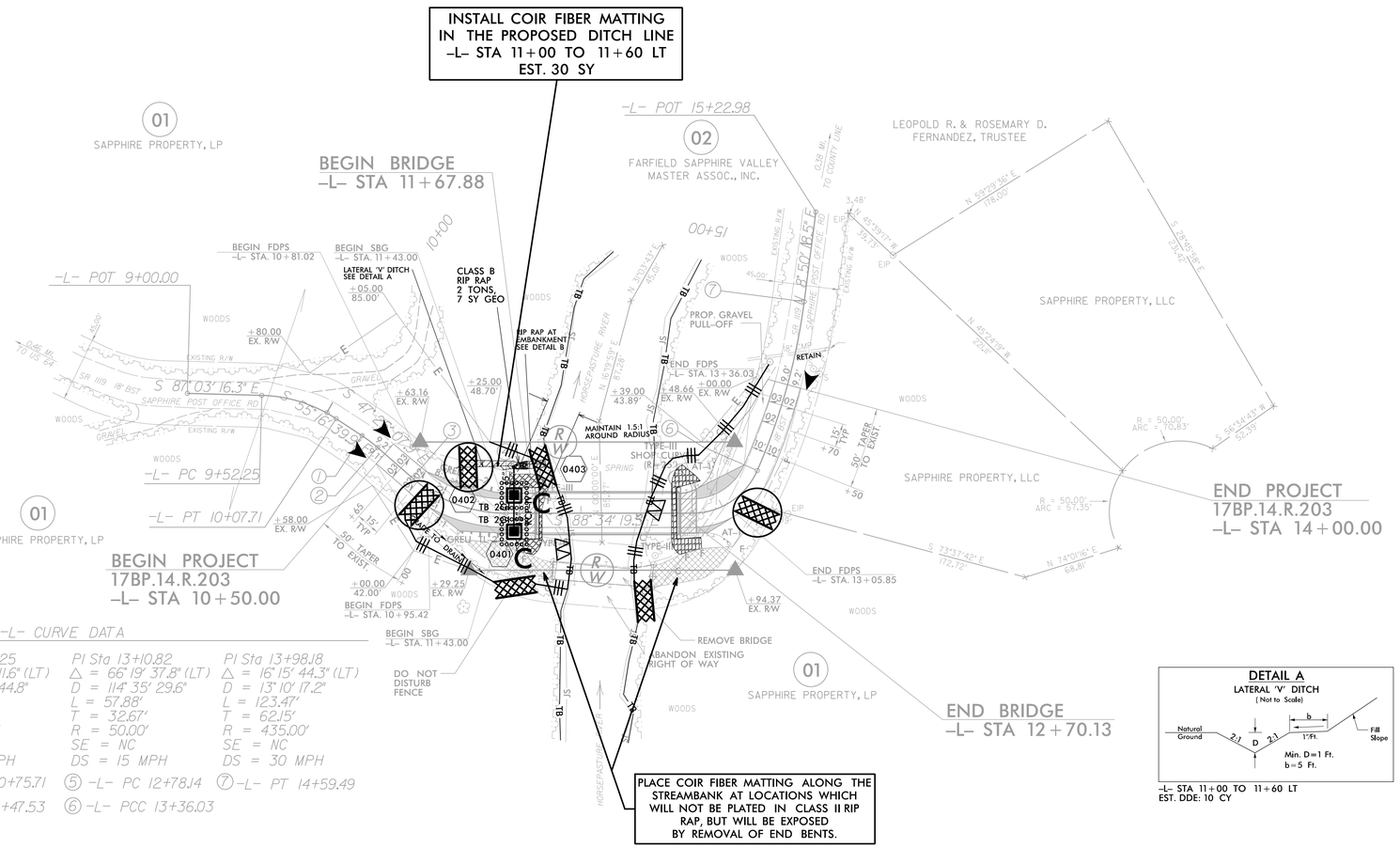
Jackson County
Bridge #490001

PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.203	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

INSTALL COIR FIBER MATTING IN THE PROPOSED DITCH LINE -L- STA 11+00 TO 11+60 LT EST. 30 SY



-L- CURVE DATA

PI Sta 9+80.72
△ = 31° 46' 36.4" (RT)
D = 57° 17' 44.8"
L = 55.46'
T = 28.46'
R = 100.00'

PI Sta 10+36.37
△ = 7° 51' 32.0" (RT)
D = 57° 17' 44.8"
L = 13.72'
T = 6.87'
R = 100.00'
①-L- PC 10+29.50
②-L- PT 10+43.22

PI Sta 11+13.25
△ = 41° 09' 11.6" (LT)
D = 57° 17' 44.8"
L = 71.83'
T = 37.54'
R = 100.00'
SE = NC
DS = 15 MPH
③-L- PC 10+75.71
④-L- PT 11+47.53

PI Sta 13+10.82
△ = 66° 19' 37.8" (LT)
D = 114° 35' 29.6"
L = 57.88'
T = 32.67'
R = 50.00'
SE = NC
DS = 15 MPH
⑤-L- PC 12+78.14
⑥-L- PCC 13+36.03

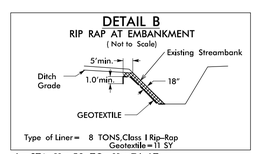
PI Sta 13+98.18
△ = 16° 15' 44.3" (LT)
D = 13° 10' 17.2"
L = 123.47'
T = 62.15'
R = 435.00'
SE = NC
DS = 30 MPH
⑦-L- PT 14+59.49

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.

DETAIL A
LATERAL 'V' DITCH
(Not to Scale)

-L- STA 11+00 TO 11+60 LT
EST. DDE: 10 CY

DETAIL B
RIP RAP AT EMBANKMENT
(Not to Scale)



Type of Liner= 8 TONS,Class I Rip-Rap
Geotextile=11 SY
-L- STA 11+58 TO 11+76 LT

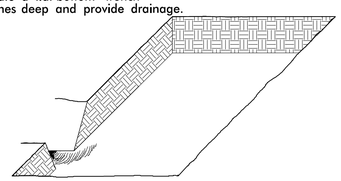
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.14.R.203	RF–1	
STATE PROJ.NO.	F.A. PROJ.NO.	DESCRIPTION	

PLANTING DETAILS

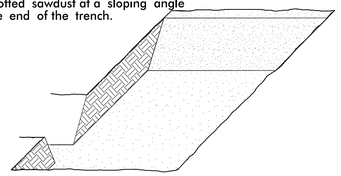
SEEDLING / LINER BAREROOT PLANTING DETAIL

HEALING IN

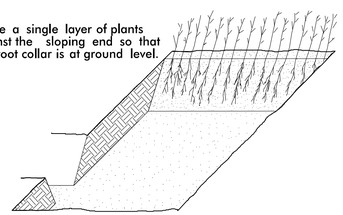
1. Locate a healing–in site in a shady, well protected area.
2. Excavate a flat bottom trench 12 inches deep and provide drainage.



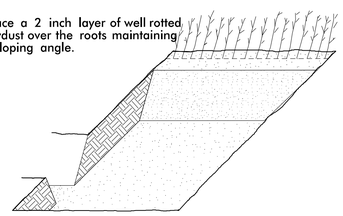
3. Backfill the trench with 2 inches well rotted sawdust. Place a 2 inch layer of well rotted sawdust at a sloping angle at one end of the trench.



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

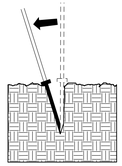


5. Place a 2 inch layer of well rotted sawdust over the roots maintaining a sloping angle.

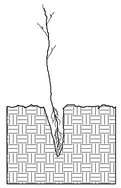


6. Repeat layers of plants and sawdust as necessary and water thoroughly.

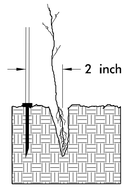
DIBBLE PLANTING METHOD
USING THE KBC PLANTING BAR



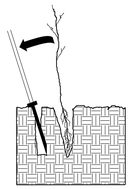
1. Insert planting bar as shown and pull handle toward planter.



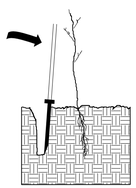
2. Remove planting bar and place seedling at correct depth.



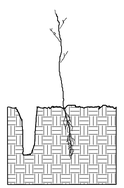
3. Insert planting bar 2 inches toward planter from seedling.



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%	FRAXINUS PENNSYLVANICA	GREEN ASH	12 in – 18 in BR
25%	BETULA NIGRA	RIVER BIRCH	12 in – 18 in BR

REFORESTATION DETAIL SHEET

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