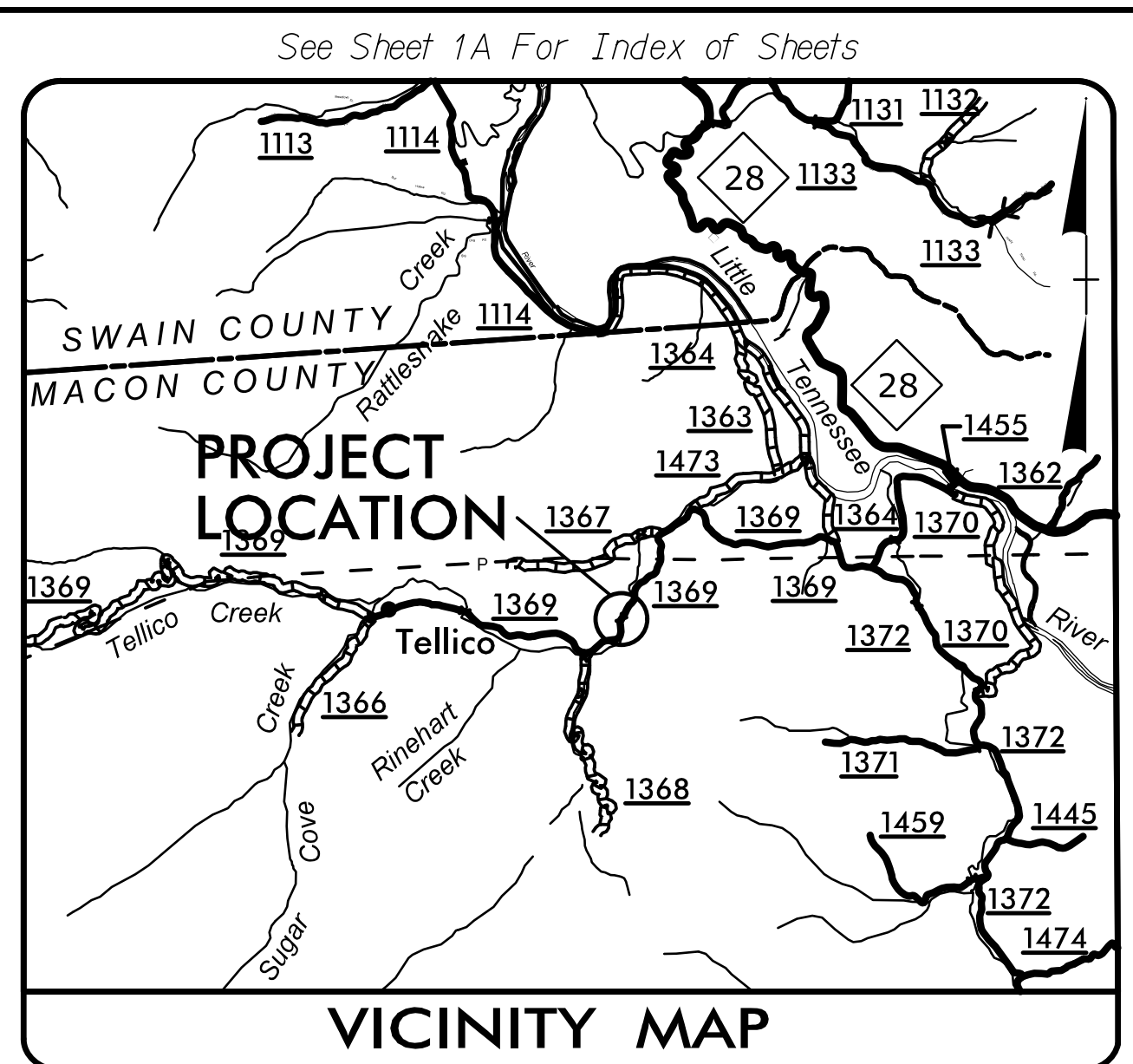


09.028/211

TIP PROJECT: 17BP.14.R.211

CONTRACT: DN00600



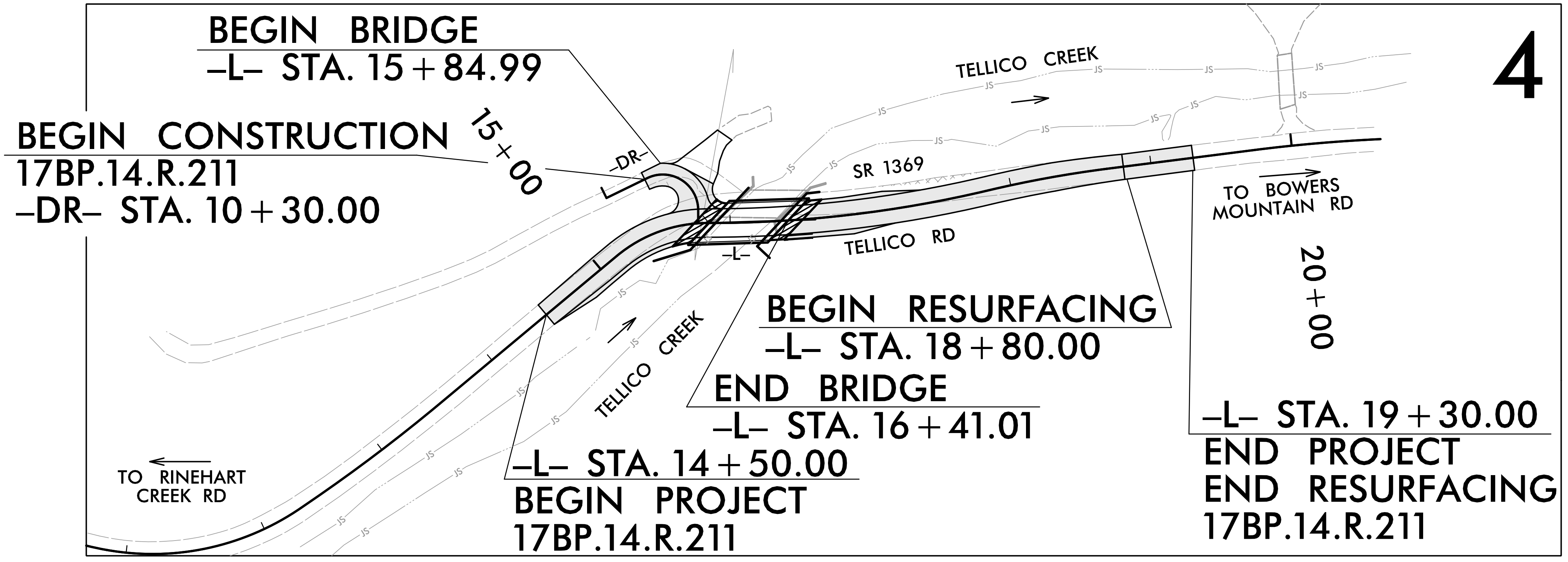
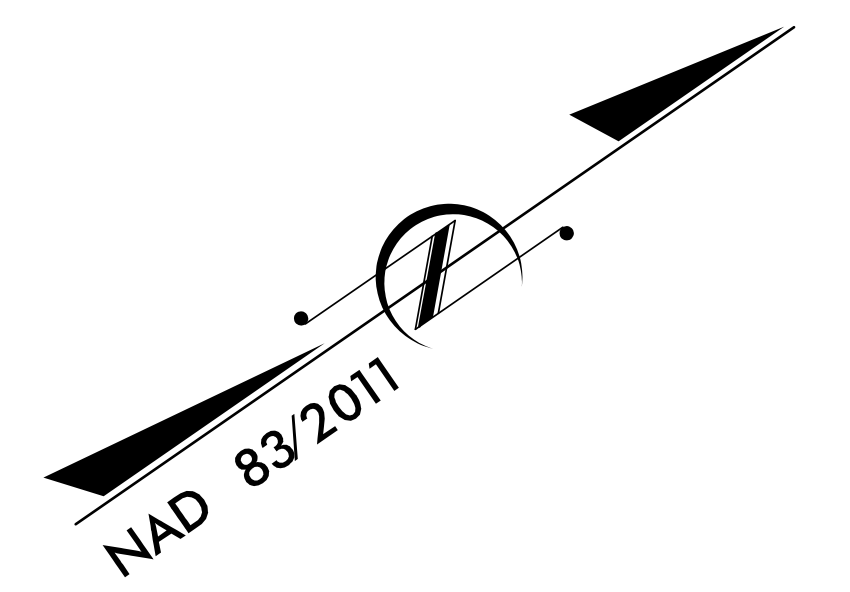
FINAL PLANS

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
MACON COUNTY

**LOCATION: BRIDGE #550079 OVER TELLICO CREEK
ON SR 1369 (TELLICO RD)**

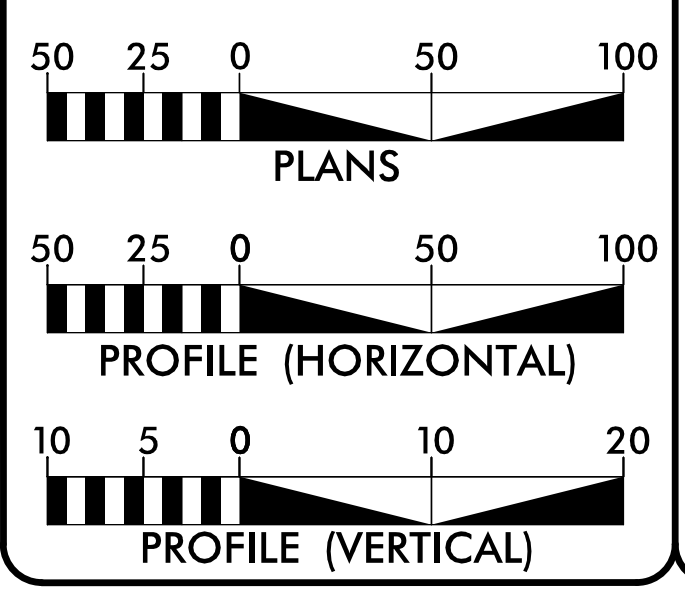
TYPE OF WORK: GRADING, DRAINAGE, PAVING, AND STRUCTURE

| STATE | STATE PROJECT REFERENCE NO. | SHEET NO. | TOTAL SHEETS |
|-----------------|-----------------------------|-------------|--------------|
| N.C. | 17BP.14.R.211 | 1 | |
| STATE PROJ. NO. | F.A. PROJ. NO. | DESCRIPTION | |
| 17BP.14.PE.211 | N/A | PE | |
| 17BP.14.ROW.211 | N/A | R/W & UTIL. | |
| 17BP.14.R.211 | N/A | CONST. | |



DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES



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.211 #550079 = 0.080
LENGTH STRUCTURE PROJECT 17BP.14.R.211 #550079 = 0.011
TOTAL LENGTH PROJECT 17BP.14.R.211 #550079 = 0.091

NCDOT CONTACT: GARRETT HIGDON

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 TRANSPORTATION
DIVISION 14
345 Toot Hollow Rd
Bryson City, NC 28713

RIGHT OF WAY DATE: MARCH 8, 2019

LETTING DATE: MAY 25, 2021

2018 STANDARD SPECIFICATIONS

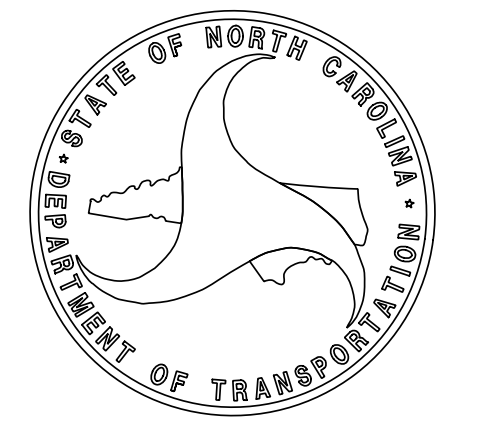
HYDRAULICS ENGINEER

Seal: BENJAMIN J. HENEGAR, ENGINEER, SEAL 044158
Signature: Benjamin J. Henegar, P.E.

Seal: JIMMY L. TERRY, ENGINEER, SEAL 35018
Signature: Jimmy Terry, P.E.


ROADWAY DESIGN ENGINEER

Seal: JIMMY L. TERRY, ENGINEER, SEAL 35018
Signature: Jimmy Terry, P.E.



| | |
|---|------------------------|
| PROJECT REFERENCE NO. <i>17BPJ4R.211</i> | SHEET NO. <i>1A</i> |
|---|------------------------|

ROADWAY DESIGN
ENGINEER



**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 - MODIFIED CONCRETE FLUME |
| 2C-2 | SPECIAL DETAIL - GUARDRAIL INSTALLATION - W BEAM RAIL SECTION |
| 2C-3 | SPECIAL DETAIL - TYPE III STRUCTURE ANCHOR UNITS |
| 2C-4 | SPECIAL DETAIL - A.T.-1 END UNIT ASSEMBLY |
| 2C-5 | SPECIAL DETAIL - TYPE III SHOP CURVED STRUCTURE ANCHOR UNIT |
| 2C-6 | 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 |
| UO-1 THRU UO-2 | UTILITIES BY OTHERS PLANS |
| X-1A | CROSS-SECTION INDEX SHEET |
| X-1B | CROSS-SECTION SUMMARY SHEET |
| X-1 THRU X-8 | CROSS-SECTIONS |
| S-1 THRU S-43 | 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.

UTILITIES:
UTILITY OWNERS ON THIS PROJECT ARE FRONTIER COMMUNICATIONS
ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS.

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

STANDARD DRAWINGS

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 |
| 310.10 | Driveway Pipe Construction |
| 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 6 - INCIDENTALS | |
| 654.01 | Pavement Repairs |
| DIVISION 8 - INCIDENTALS | |
| 815.02 | Subsurface Drain |
| 840.00 | Concrete Base Pad for Drainage Structures |
| 840.18 | Concrete Grated Drop Inlet Type 'B' - 12" thru 36" Pipe |
| 840.19 | Concrete Grated Drop Inlet Type 'D' - 12" thru 36" Pipe |
| 840.22 | Frames and Wide Slot Sag Grates |
| 840.25 | Anchorage for Frames - Brick or Concrete or Precast |
| 840.27 | Brick Grated Drop Inlet Type 'B' - 12" thru 36" Pipe |
| 840.28 | Brick Grated Drop Inlet Type 'D' - 12" thru 36" Pipe |
| 840.45 | Precast Drainage Structure |
| 840.66 | Drainage Structure Steps |
| 846.01 | Concrete Curb, Gutter and Curb & Gutter |
| 850.01 | Concrete Paved Ditches |
| 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 |
| 876.01 | Rip Rap in Channels |
| 876.02 | Guide for Rip Rap at Pipe Outlets |

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

BOUNDARIES AND PROPERTY:

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

BUILDINGS AND OTHER CULTURE:

| | |
|-------------------------------|-------|
| Gas Pump Vent or U/G Tank Cap | ○ |
| Sign | ○ S |
| Well | ○ W |
| Small Mine | ⊗ |
| Foundation | □ |
| Area Outline | □ |
| Cemetery | □ |
| Building | □ |
| School | □ |
| Church | □ |
| Dam | _____ |

HYDROLOGY:

| | |
|------------------------------------|--------------|
| Stream or Body of Water | _____ |
| Hydro, Pool or Reservoir | _____ |
| Jurisdictional Stream | --- JS --- |
| Buffer Zone 1 | --- BZ 1 --- |
| Buffer Zone 2 | --- BZ 2 --- |
| Flow Arrow | ← |
| Disappearing Stream | → |
| Spring | ○ |
| Wetland | _____ |
| Proposed Lateral, Tail, Head Ditch | _____ |
| False Sump | _____ |

RAILROADS:

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

RIGHT OF WAY & PROJECT CONTROL:

| | |
|---|--------------|
| Secondary Horiz and Vert Control Point | ◆ |
| Primary Horiz Control Point | ○ |
| Primary Horiz and Vert Control Point | ◆ |
| Exist Permanent Easement Pin and Cap | ◇ |
| New Permanent Easement Pin and Cap | ◆ |
| Vertical Benchmark | ⊠ |
| Existing Right of Way Marker | △ |
| Existing Right of Way Line | _____ |
| New Right of Way Line | _____ (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 | ○ |

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

| | |
|------------|------------------|
| Hedge | _____ |
| Woods Line | _____ |
| Orchard | _____ |
| Vineyard | _____ (Vineyard) |

EXISTING STRUCTURES:

| | |
|--|-----------------|
| MAJOR: | |
| Bridge, Tunnel or Box Culvert | _____ (CONC) |
| Bridge Wing Wall, Head Wall and End Wall | _____ (CONC WW) |
| MINOR: | |
| Head and End Wall | _____ (CONC HW) |
| Pipe Culvert | _____ |
| Footbridge | _____ |
| Drainage Box: Catch Basin, DI or JB | □ CB |
| Paved Ditch Gutter | _____ |
| Storm Sewer Manhole | ○ S |
| Storm Sewer | --- S --- |

UTILITIES:

| | |
|--------------------------------|-----------|
| POWER: | |
| Existing Power Pole | ● |
| Proposed Power Pole | ○ |
| Existing Joint Use Pole | ● |
| Proposed Joint Use Pole | ○ |
| Power Manhole | ⊕ |
| Power Line Tower | ⊠ |
| Power Transformer | ⊠ |
| U/G Power Cable Hand Hole | _____ |
| H-Frame Pole | _____ |
| U/G Power Line LOS B (S.U.E.*) | --- P --- |
| U/G Power Line LOS C (S.U.E.*) | --- P --- |
| U/G Power Line LOS D (S.U.E.*) | --- P --- |

TELEPHONE:

| | |
|--|--------------|
| Existing Telephone Pole | ● |
| Proposed Telephone Pole | ○ |
| Telephone Manhole | ⊕ |
| Telephone Pedestal | □ |
| Telephone Cell Tower | ⊕ |
| U/G Telephone Cable Hand Hole | _____ |
| 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 | ⊕ |
| Water Meter | ○ |
| Water Valve | ⊗ |
| Water Hydrant | ⊕ |
| U/G Water Line LOS B (S.U.E.*) | --- W --- |
| U/G Water Line LOS C (S.U.E.*) | --- W --- |
| U/G Water Line LOS D (S.U.E.*) | --- W --- |
| Above Ground Water Line | --- A/G Water --- |

TV:

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

GAS:

| | |
|------------------------------|-----------------|
| Gas Valve | ◇ |
| Gas Meter | ⊕ |
| U/G Gas Line LOS B (S.U.E.*) | --- G --- |
| U/G Gas Line LOS C (S.U.E.*) | --- G --- |
| U/G Gas Line LOS D (S.U.E.*) | --- G --- |
| Above Ground Gas Line | --- A/G Gas --- |

SANITARY SEWER:

| | |
|-------------------------------------|----------------------------|
| Sanitary Sewer Manhole | ⊕ |
| Sanitary Sewer Cleanout | ⊕ |
| U/G Sanitary Sewer Line | --- SS --- |
| Above Ground Sanitary Sewer | --- A/G Sanitary Sewer --- |
| SS Forced Main Line LOS B (S.U.E.*) | --- FSS --- |
| SS Forced Main Line LOS C (S.U.E.*) | --- FSS --- |
| SS Forced Main Line LOS D (S.U.E.*) | --- FSS --- |

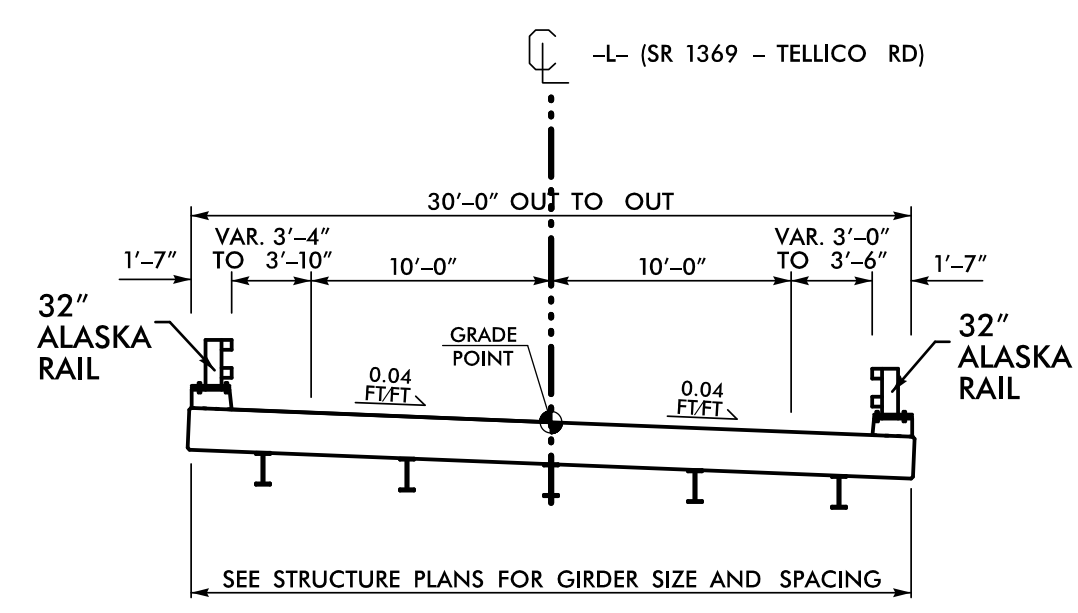
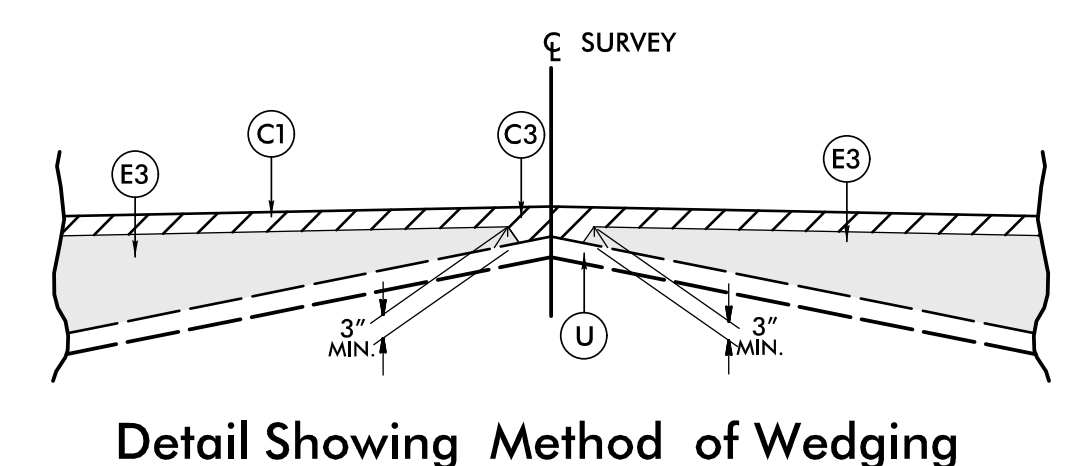
MISCELLANEOUS:

| | |
|--|--------------|
| Utility Pole | ● |
| Utility Pole with Base | □ |
| Utility Located Object | ○ |
| Utility Traffic Signal Box | ⊕ |
| Utility Unknown U/G Line LOS B (S.U.E.*) | --- 2UTL --- |
| 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. |

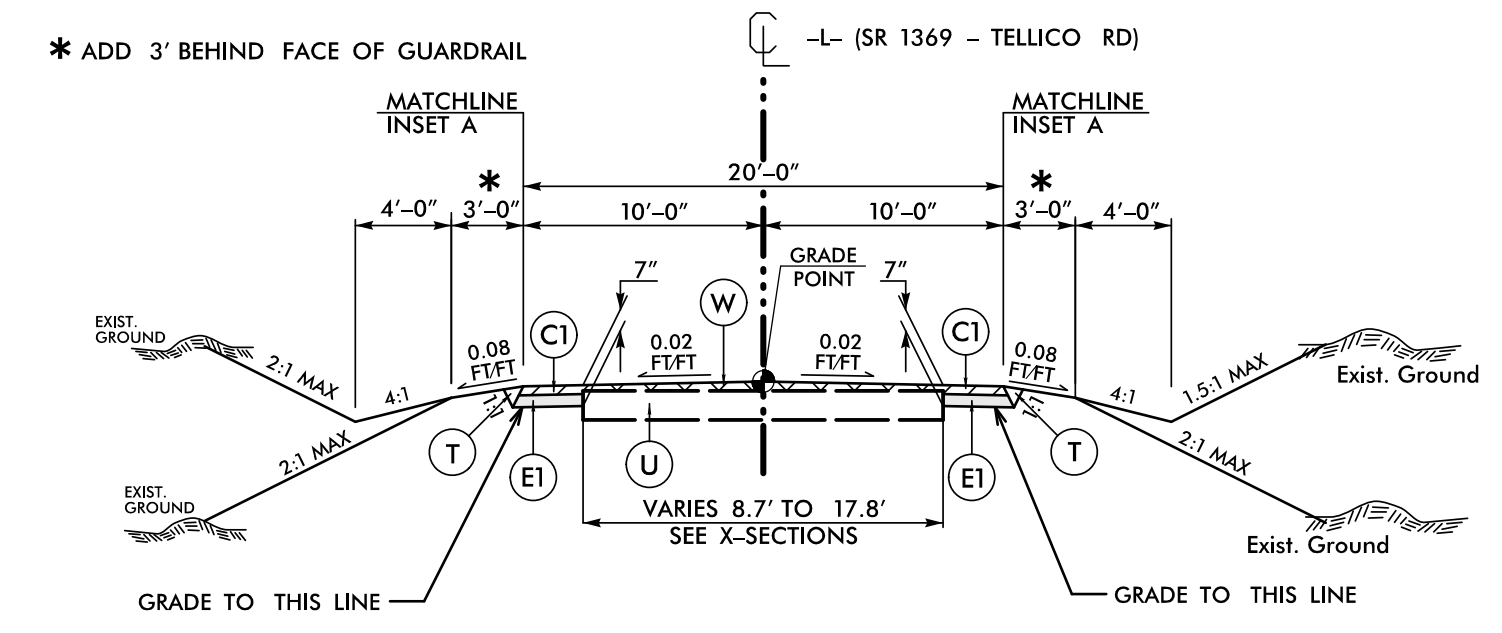
6/2/09

| 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. APPROX. 1 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD. IN ONE LAYER. |
| C3 | PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 1 1/2" IN DEPTH. |
| E1 | PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD. |
| E2 | PROP. APPROX. 8" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD. IN EACH OF TWO LAYERS. |
| E3 | PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5 1/2" IN DEPTH. |
| J | 6" AGGREGATE BASE COURSE. |
| 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.



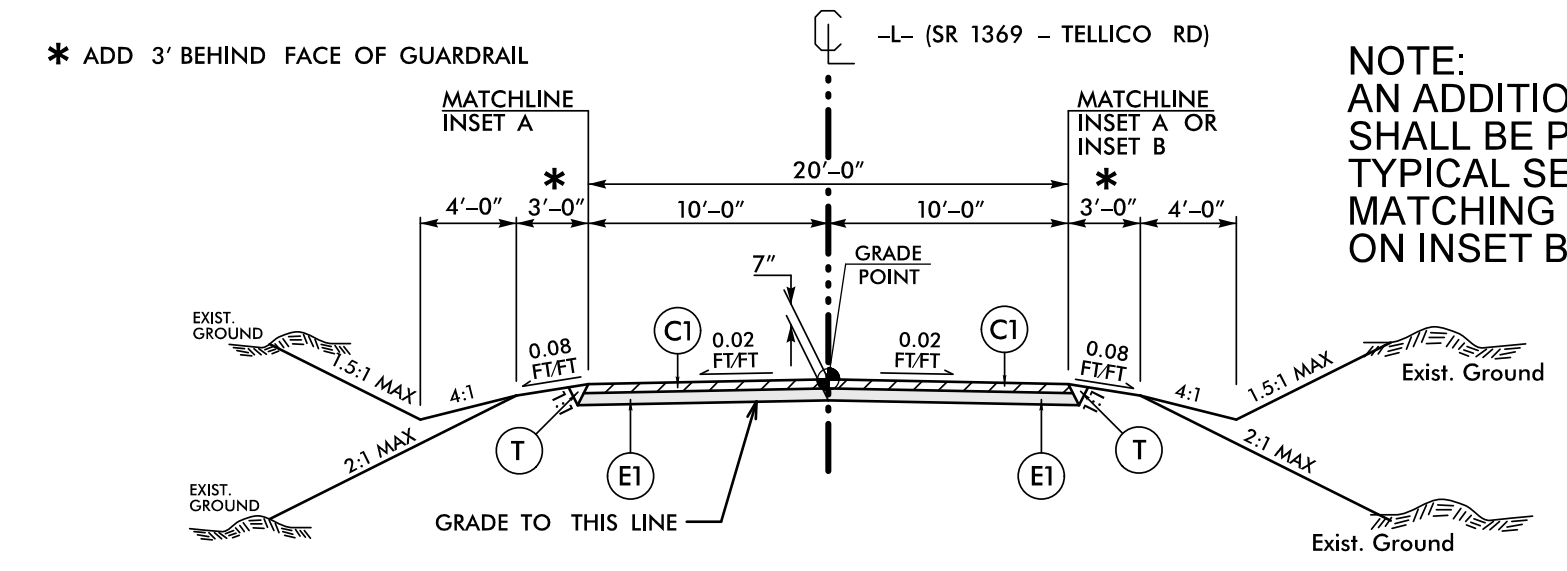
TYPICAL SECTION NO. 3
 USE TYPICAL SECTION NO. 3
 -L- STA. 15+84.99 TO -L- STA. 16+41.01



TYPICAL SECTION NO. 1
 USE TYPICAL SECTION NO. 1
 -L- STA. 15+00.00 TO -L- STA. 15+45.00
 -L- STA. 16+80.00 TO -L- STA. 18+30.00

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

-L- STA. 14+50.00 TO -L- STA. 15+00.00
 -L- STA. 18+30.00 TO -L- STA. 18+80.00



TYPICAL SECTION NO. 2
 USE TYPICAL SECTION NO. 2
 -L- STA. 15+45.00 TO -L- STA. 15+84.99 (BEGIN BRIDGE)
 -L- STA. 16+41.01 (END BRIDGE) TO 16+80.00

NOTE: AN ADDITIONAL LAYER OF 4" B25.0C SHALL BE PLACED UNDER TYPICAL SECTION NO.2 MATCHING THE STATIONS ON INSET B

INSET A

USE INSET A

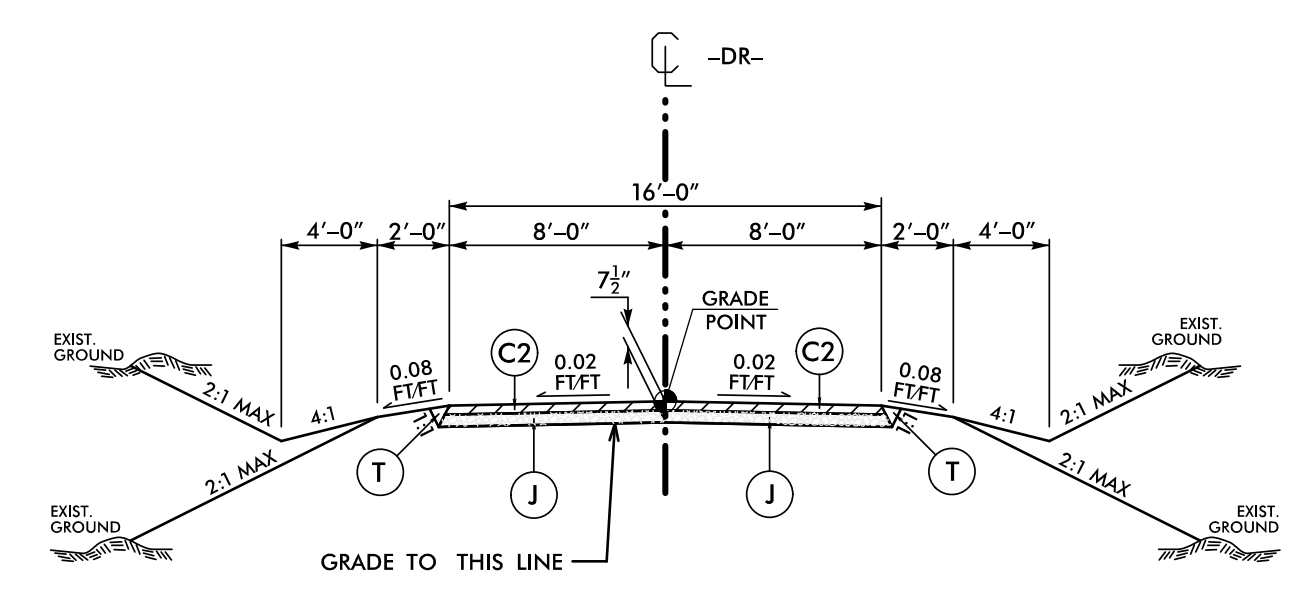
| ★ FDPS WIDTH | STA. TO STA. |
|----------------|---|
| 0'-0" TO 3'-6" | -L- STA. 14+50.00 TO -L- STA. 15+55.40 (BEGIN APPROACH SLAB) RT |
| 0'-0" TO 3'-5" | -L- STA. 16+57.10 (END SBG) TO -L- STA. 17+15.35 RT |
| 0'-0" TO 3'-3" | -L- STA. 16+65.79 (END APPROACH SLAB) TO -L- STA. 17+36.52 LT |
| 0'-0" TO 7'-2" | -DR- STA. 10+55.44 LT TO -L- STA. 15+90.66 LT (BEGIN APPROACH SLAB) |

★ 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.
 NOTE: USE 8' POSTS FOR ALL GUARDRAIL LOCATIONS IN FRONT OF PROPOSED WING WALLS.

INSET B

USE INSET B

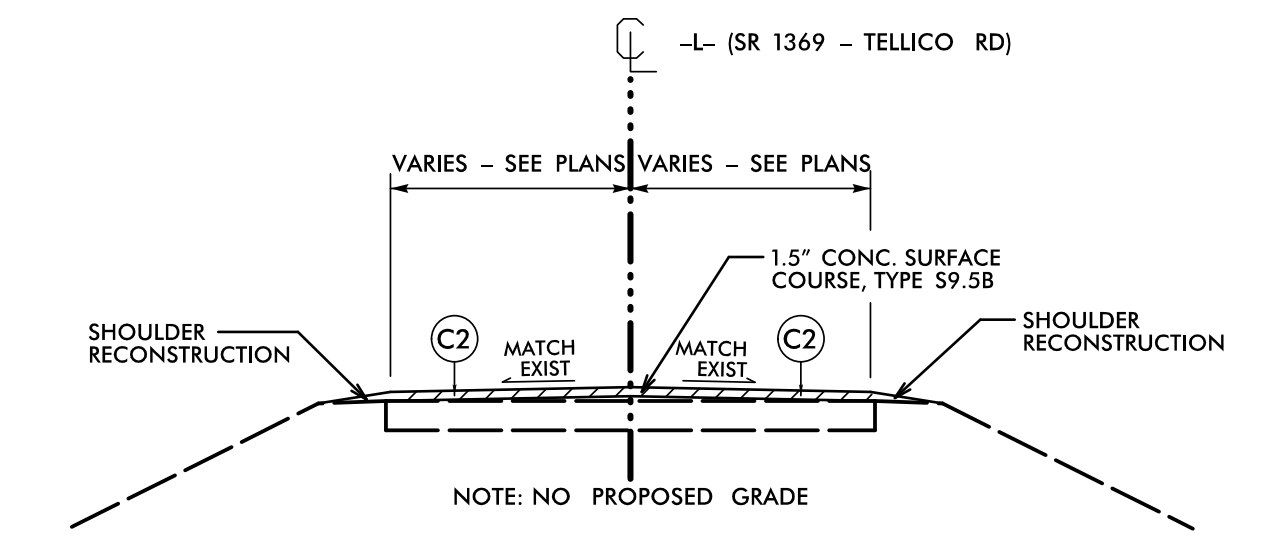
-L- STA. 16+37.40 (END APPROACH SLAB) TO -L- STA. 16+57.10 RT



TYPICAL SECTION NO. 4
 USE TYPICAL SECTION NO. 4
 -DR- STA. 10+42.02 TO -DR- STA. 10+81.86

NOTE: TRANSITION EXISTING TO TYP. SECT. NO.4 AS FOLLOWS:

-DR- STA. 10+30.00 TO -DR- STA. 10+42.02



TYPICAL SECTION NO. 5
 USE TYPICAL SECTION NO. 5
 -L- STA. 18+80.00 TO -L- STA. 19+30.00

PROJECT REFERENCE NO. **17BP14R211** SHEET NO. **2A-1**

MACON COUNTY BRIDGE #550079

ROADWAY DESIGN ENGINEER
 SEAL 35018
 DATE 12/14/2008
 MICHAEL L. TERRELL

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

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

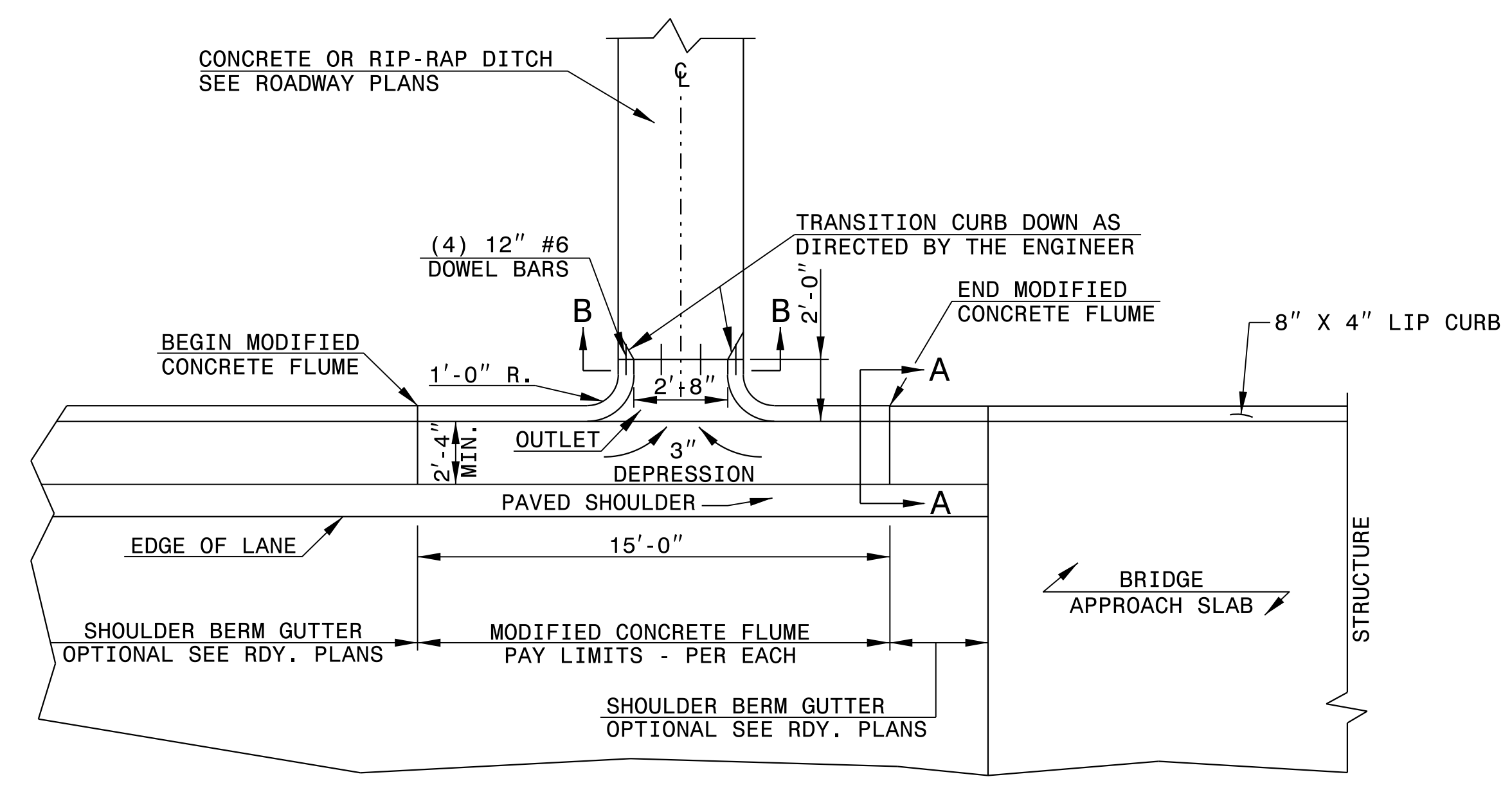
ENGLISH DETAIL DRAWING FOR
MODIFIED CONCRETE FLUME
WITH CONCRETE OR RIP-RAP DITCH

SHEET 1 OF 1
MODFLMDTCH

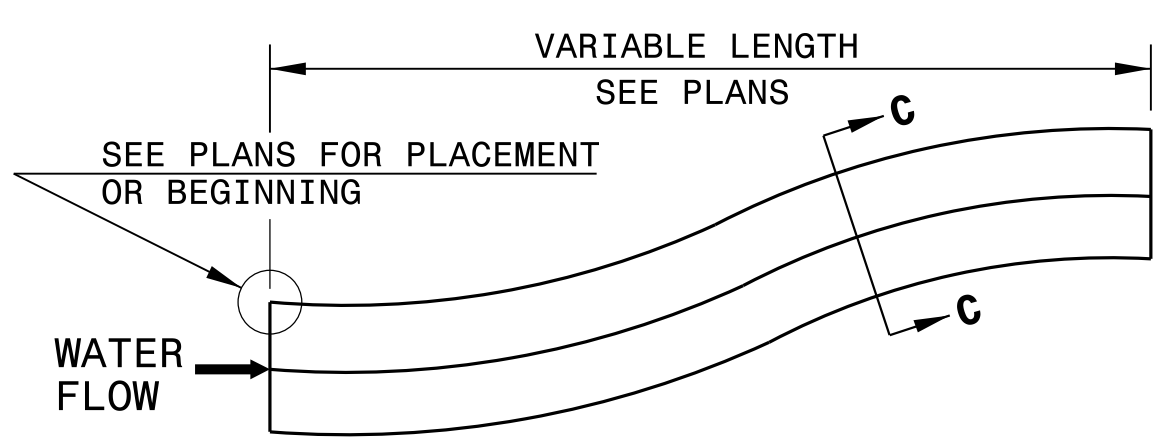
STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

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

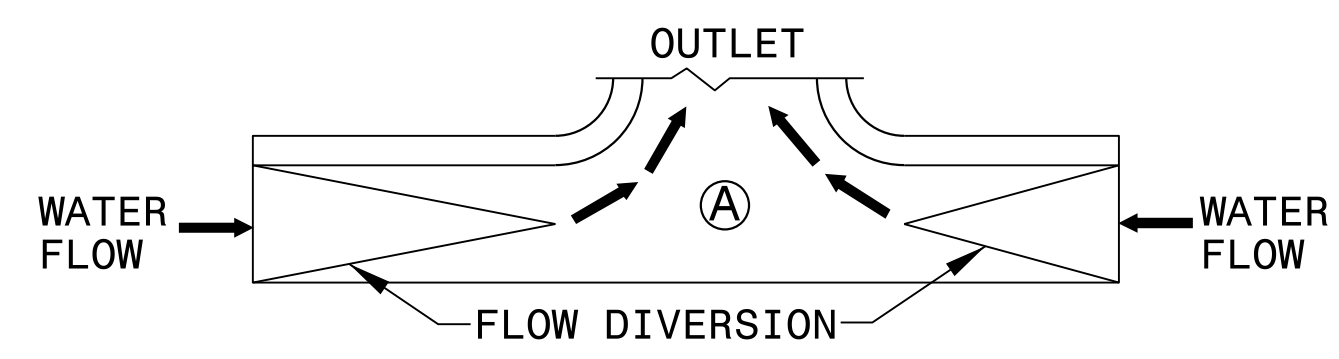
SHEET 1 OF 1
MODFLMDTCH



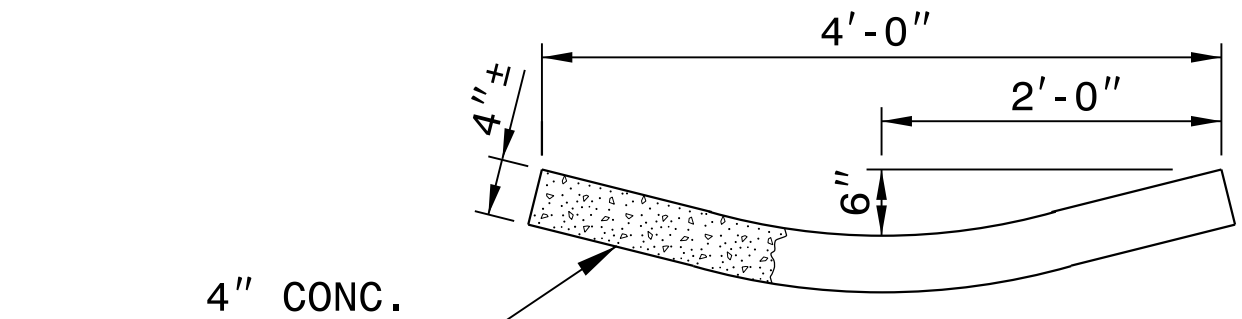
PLAN VIEW



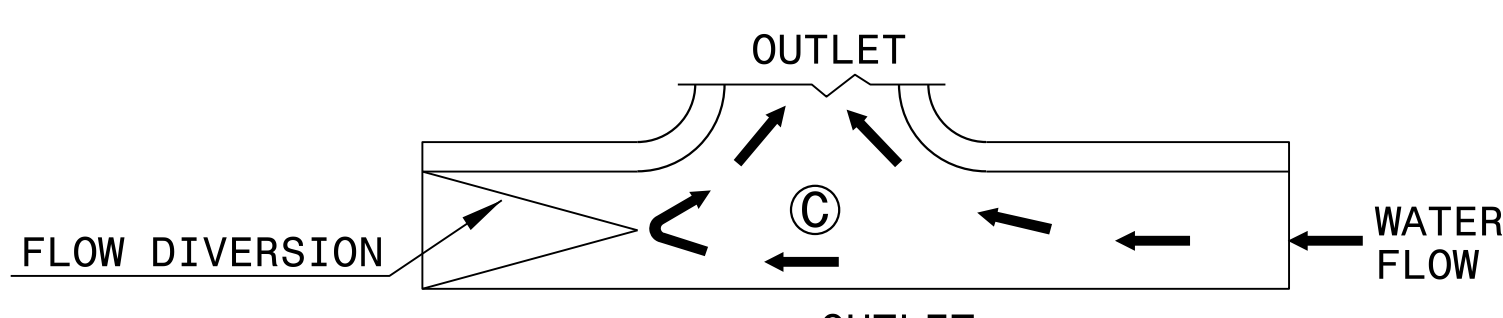
DOWNGRADE OR SAG



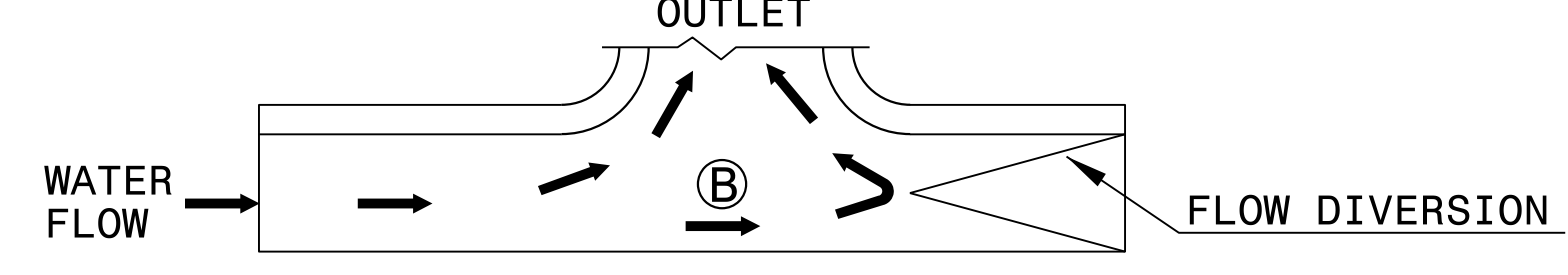
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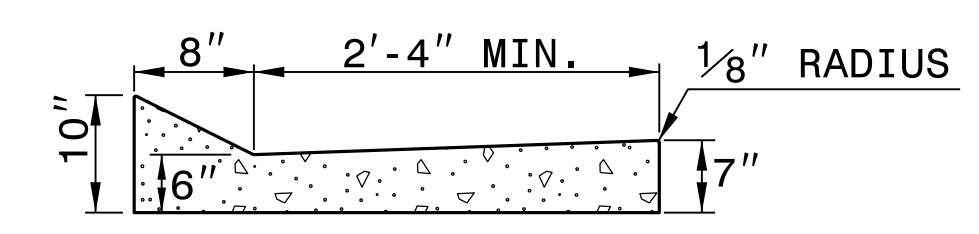
SECTION C-C



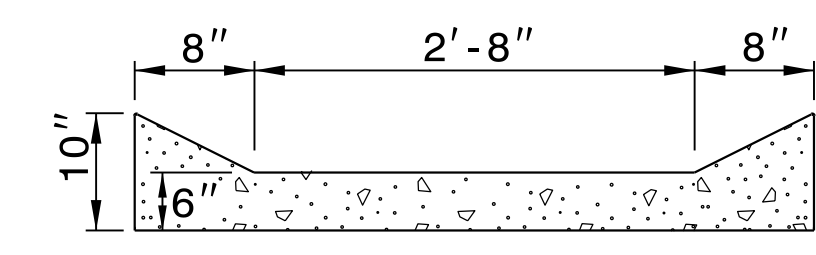
FLOW DIVERSION EXAMPLES



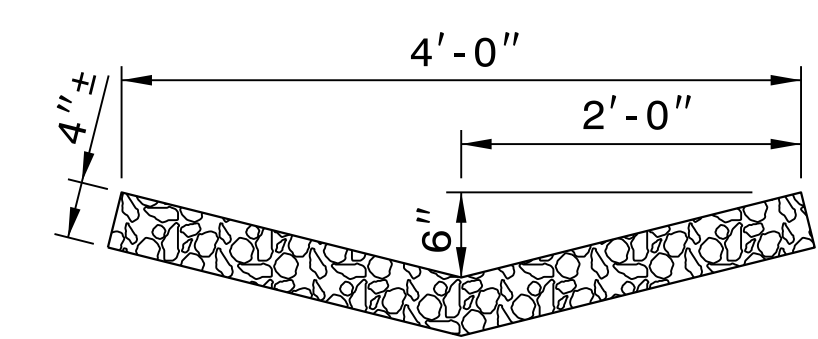
DOWN GRADE



SECTION A-A



SECTION B-B

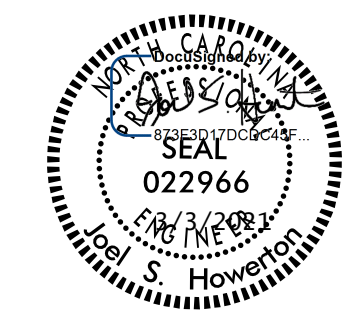


RIP-RAP LINED DITCH

NOTES:

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

18-QCT-2017 1417
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Jhowerton AI CS0-2/2/95



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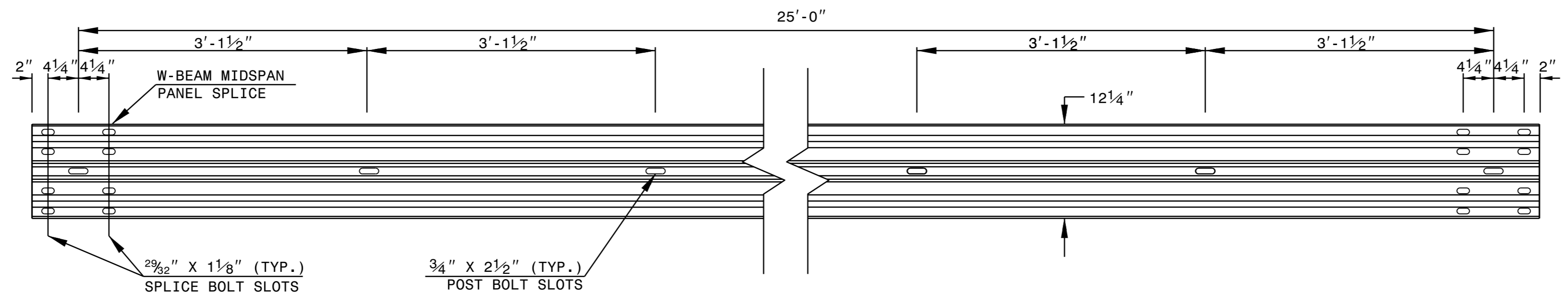
SEE PLATE FOR TITLE

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 MODIFIED BY: J.S. Howerton DATE: October 2017
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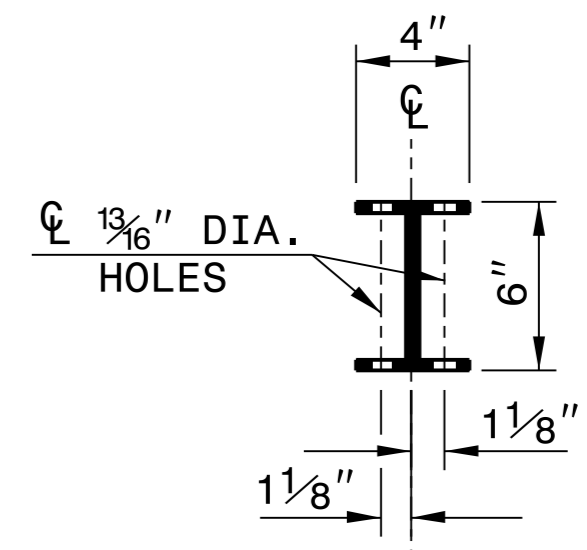
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

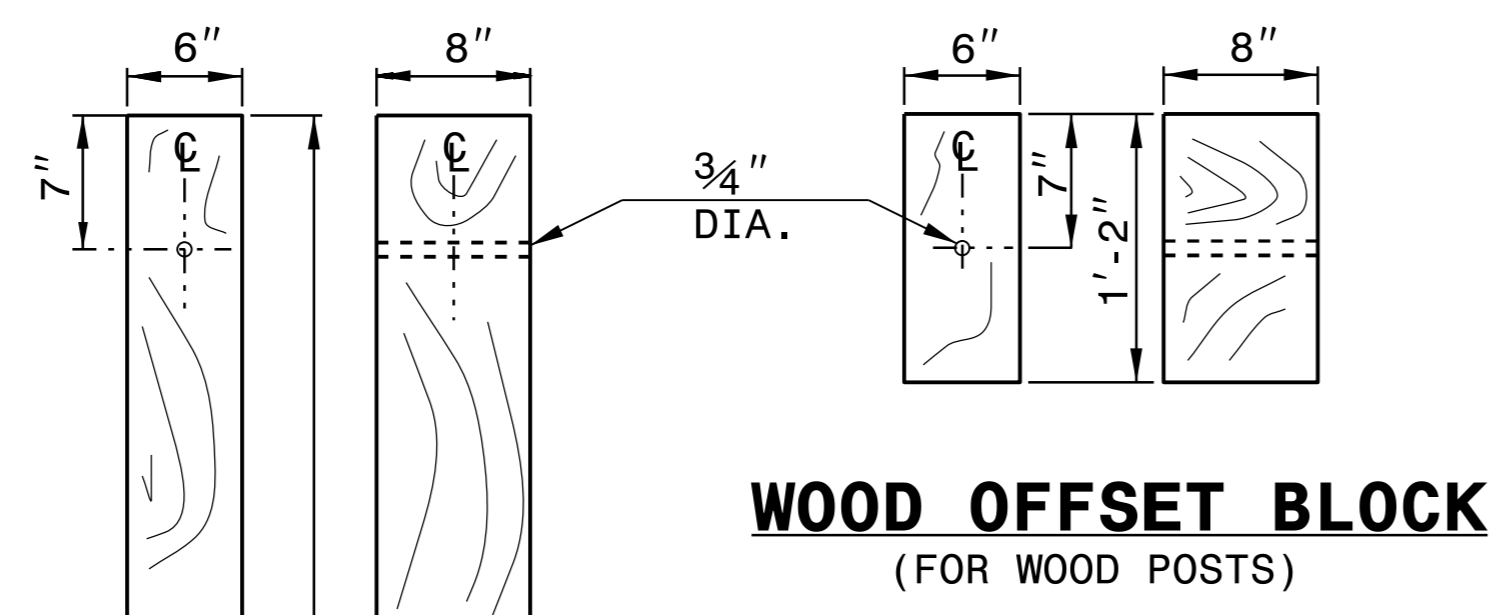
SHEET 6 OF 8
862D02



STANDARD W-BEAM GUARDRAIL



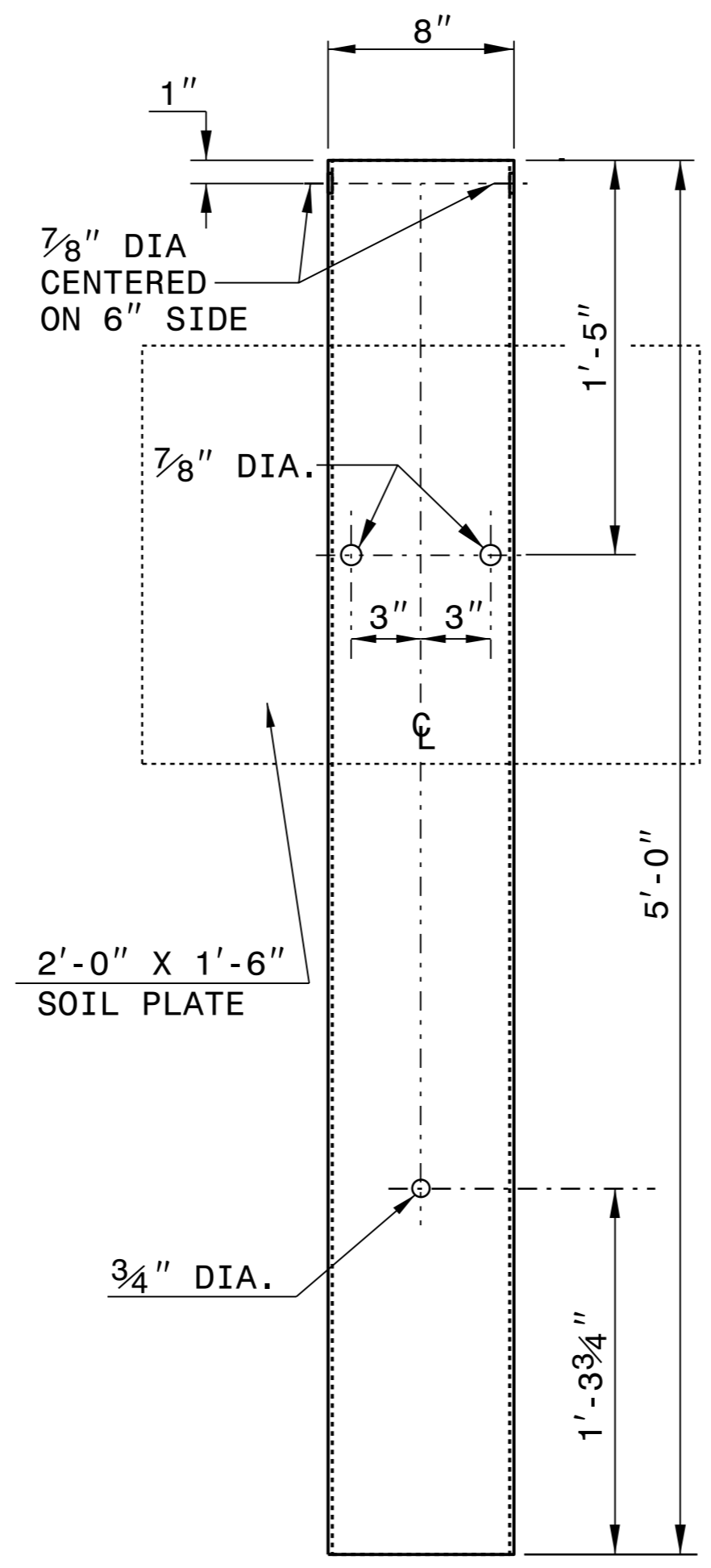
PLAN



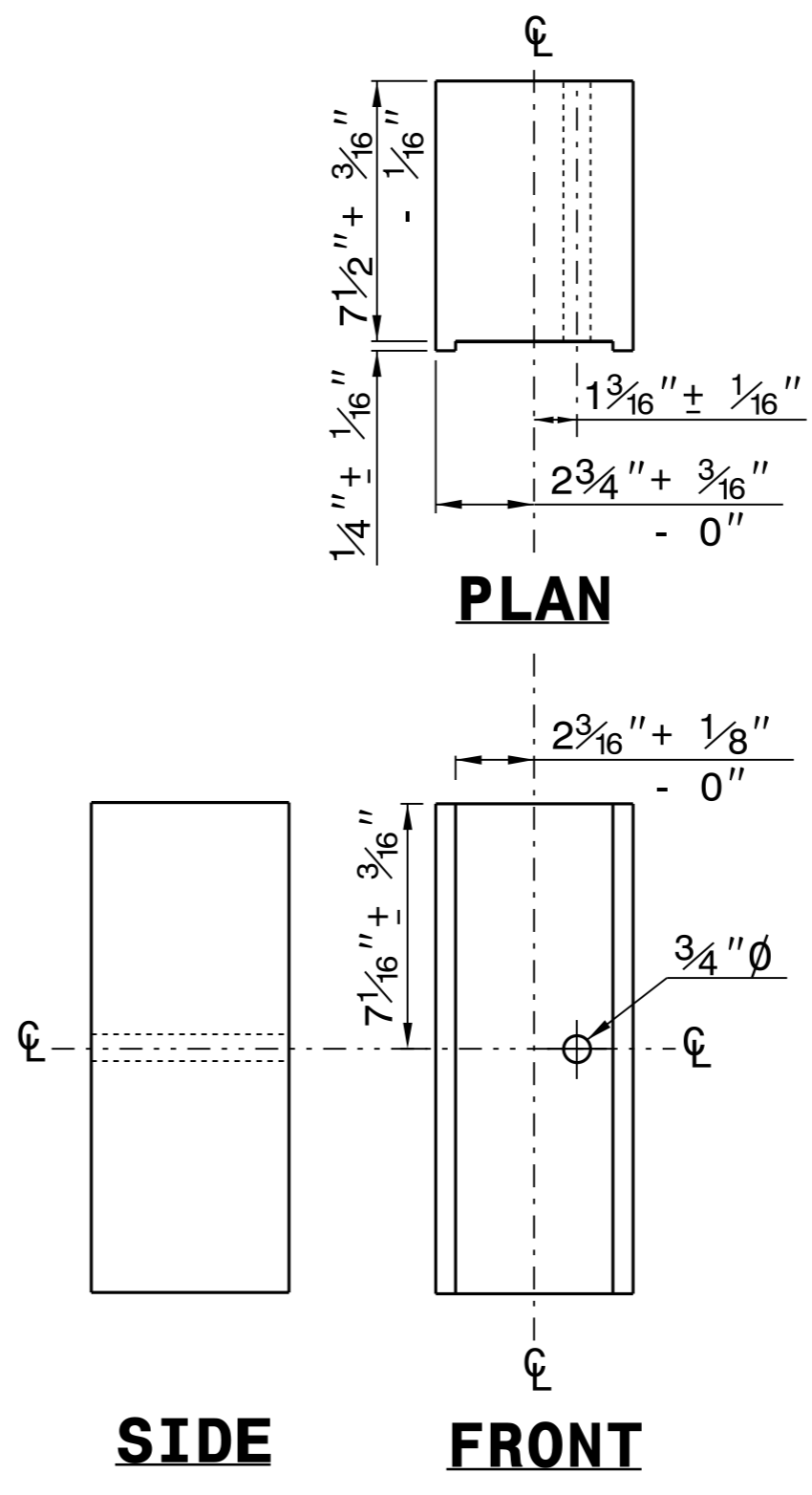
**WOOD OFFSET BLOCK
(FOR WOOD POSTS)**

**STANDARD
LINE POST**

**SHORT WOOD
BREAKAWAY POST**



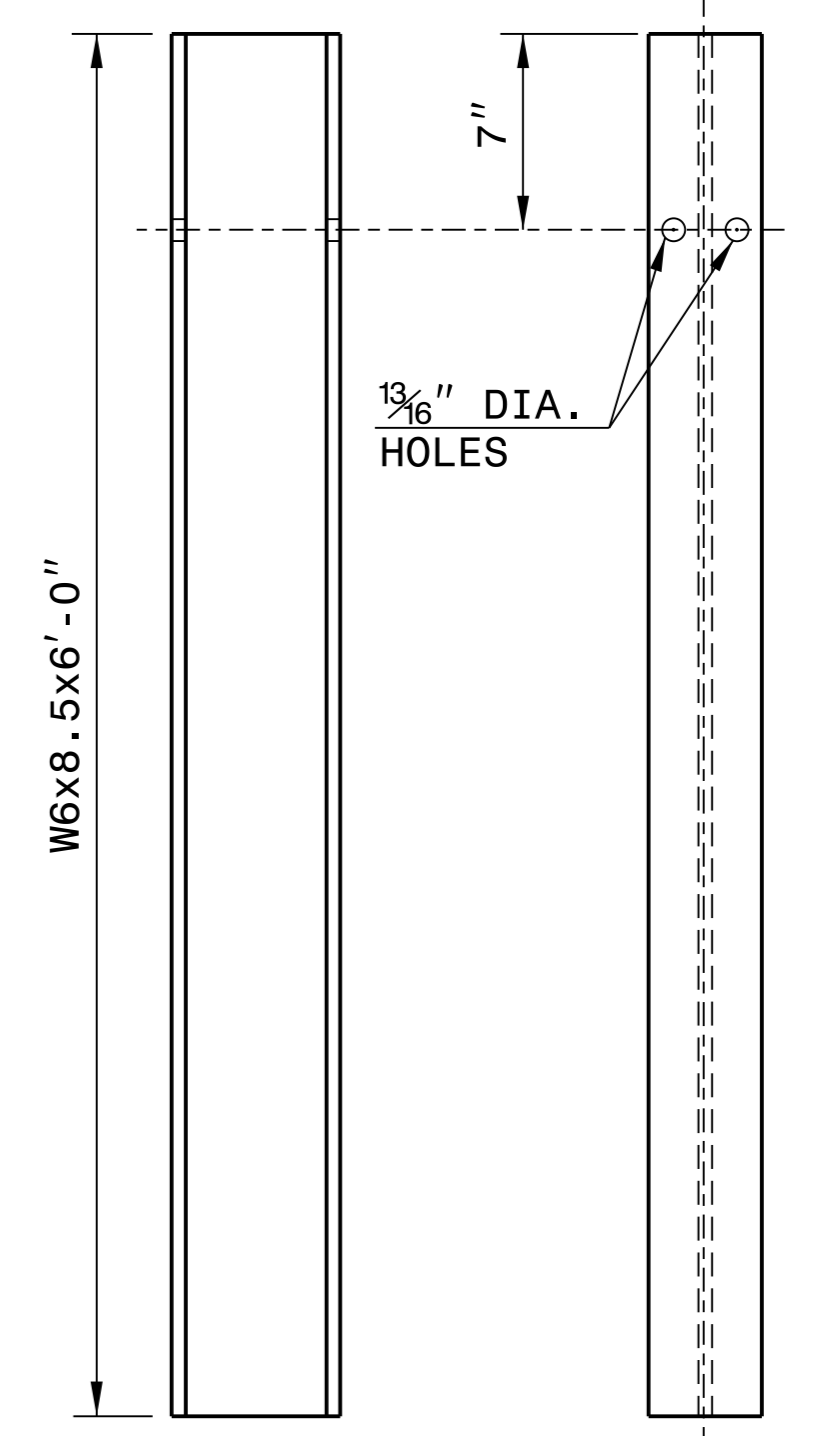
**STEEL TUBE
TS 6"x8"x0.1875"**



SIDE

FRONT

**ROUTED
OFFSET BLOCK**



SIDE

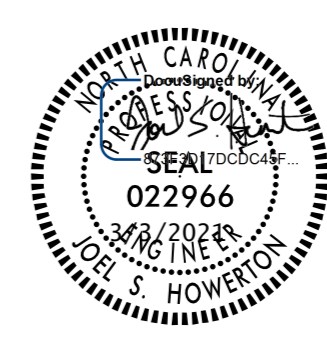
FRONT

"W6" STEEL POST

STATE OF NORTH CAROLINA
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ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

SHEET 6 OF 8
862D02



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SEE TITLE BLOCK

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

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 Jhowerton AT: USD-292595

STATE OF
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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

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

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 11 1/2" 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.

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

SHEET 1 OF 7
862D03

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

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 11 1/2" IF CONCRETE BACKWALL IS NOT PRESENT.
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- 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.

STATE OF
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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

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

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 11 1/2" IF CONCRETE BACKWALL IS NOT PRESENT.
- SHOULDER BERM GUTTER MUST BE INSTALLED TO THE LIMITS 8" x 4" LIP CURB IS SHOWN IF ANCHOR UNIT IS NOT ADJACENT TO AN APPROACH SLAB.
- MEASURE GUARDRAIL HEIGHT FROM THE TOP OF ADJACENT SURFACE (SHOULDER, BERM, OR GUTTER).
- LAP JOINTS IN THE DIRECTION OF TRAFFIC FLOW.
- SEE SHEET 3 FOR POST SECTIONS 1 THRU 9.

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

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ORIGINAL BY: J HOWERTON
MODIFIED BY:
CHECKED BY:
FILE SPEC.:

DATE: 06-22-12
DATE:
DATE:
DATE:

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RALEIGH, N.C.

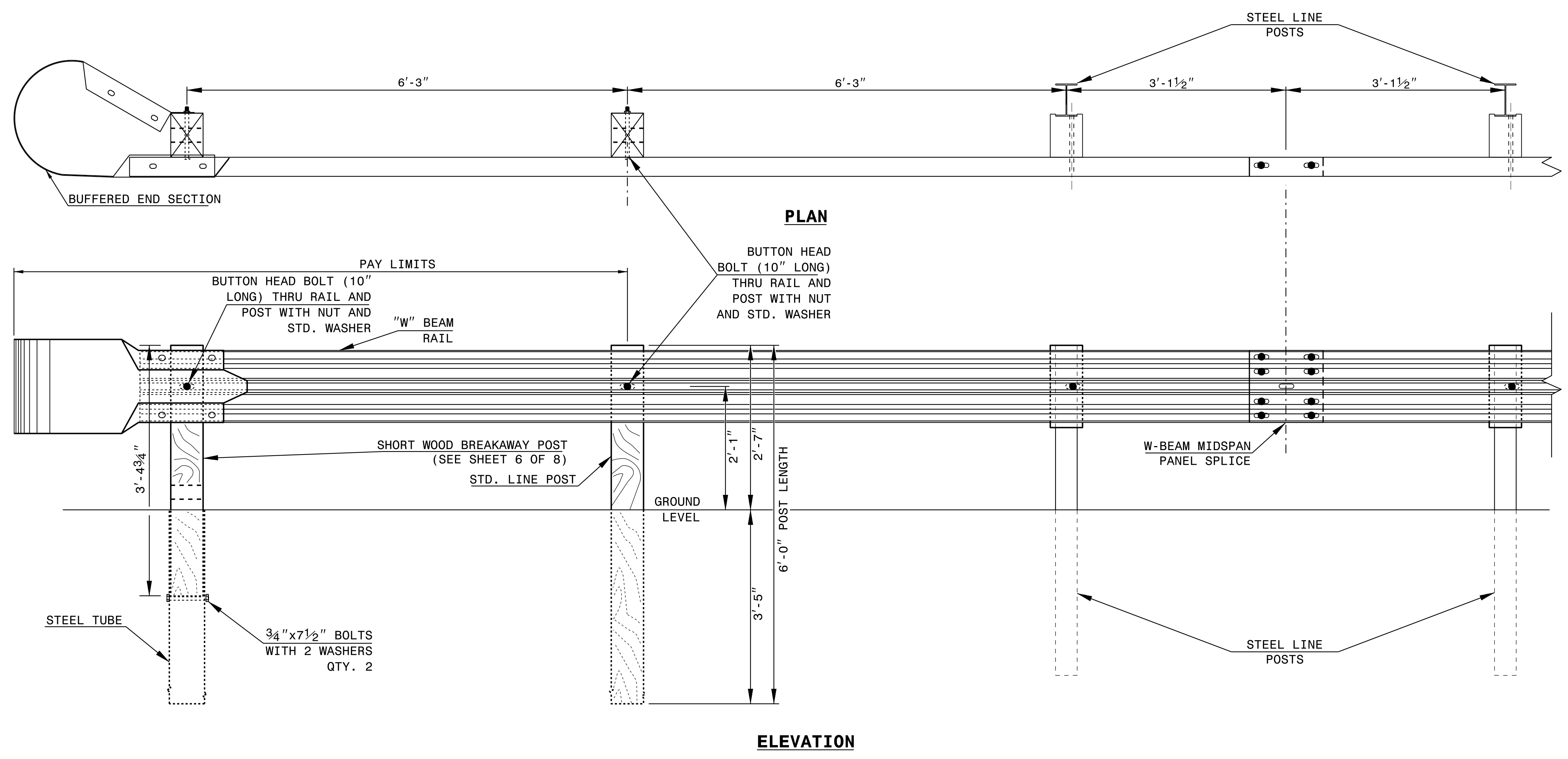
ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

SHEET OF

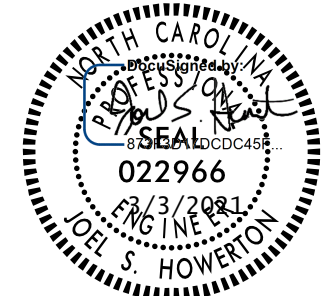
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NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

SHEET OF



TRAILING END UNIT ASSEMBLY
A.T. - 1 SYSTEM



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Office 919-707-6950 FAX 919-250-4119

A.T. - 1 SYSTEM

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DIVISION OF HIGHWAYS
RALEIGH, N.C.

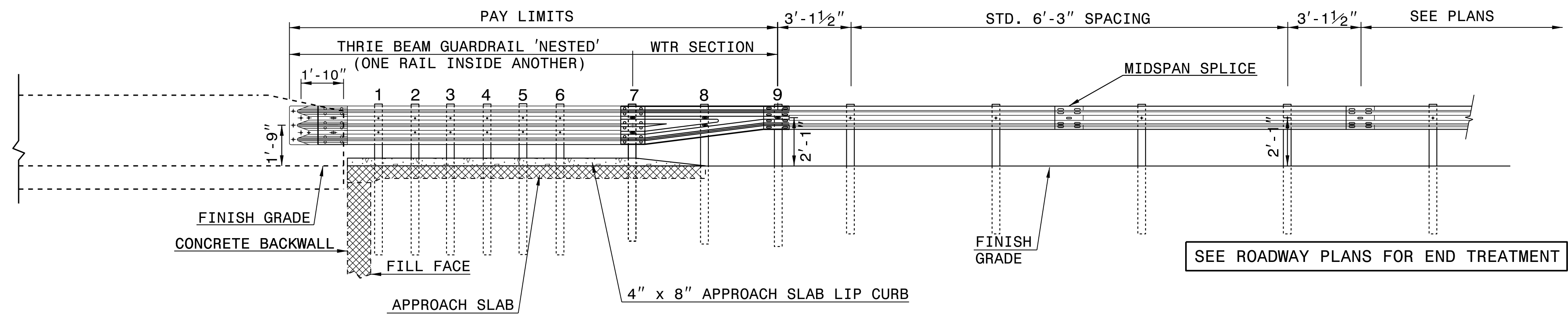
ENGLISH DETAIL DRAWING FOR
**TYPE III - SHOP CURVED
STRUCTURE ANCHOR UNIT**

SHEET 1 OF 1
TYPE III SC

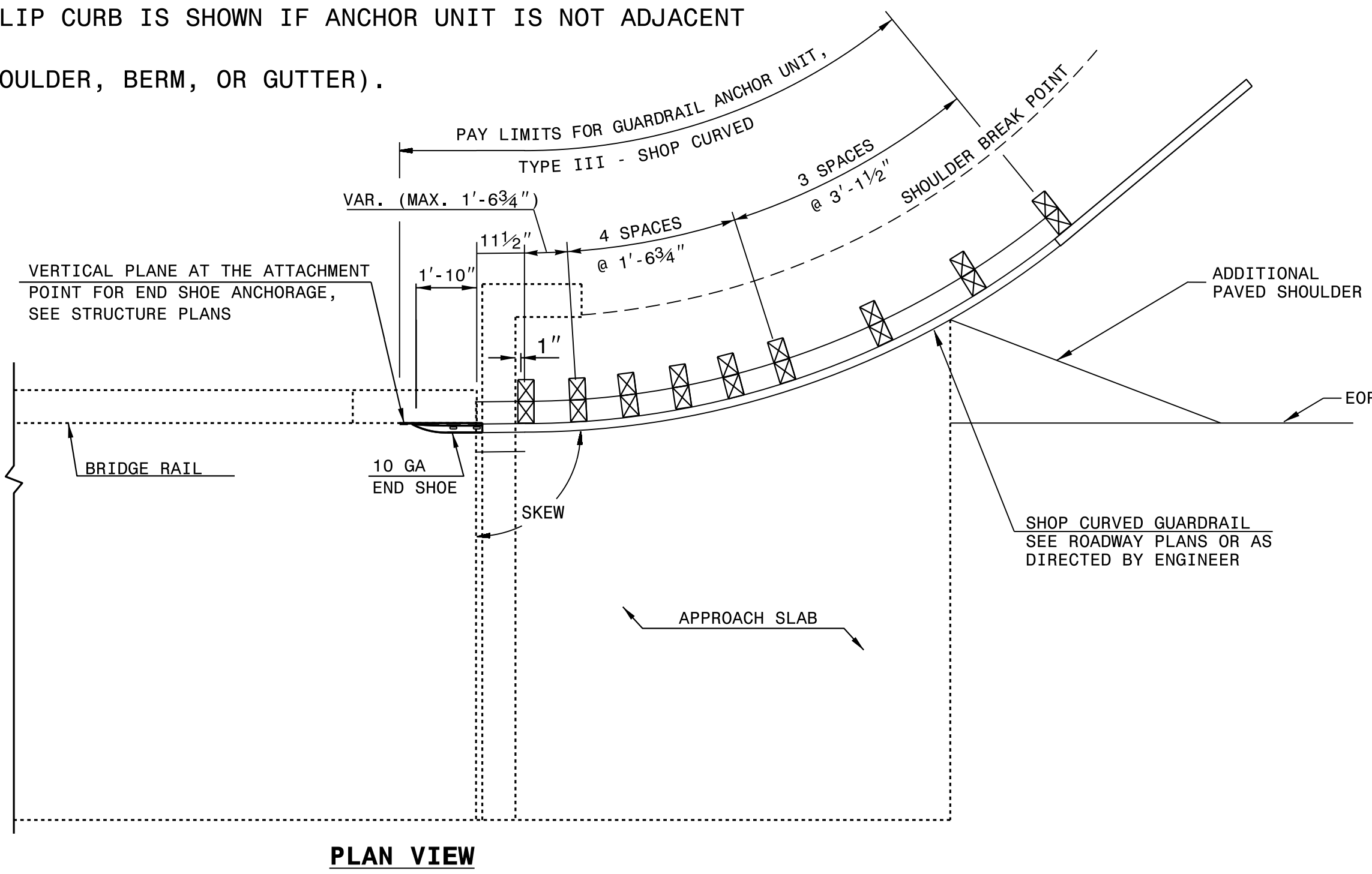
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DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR
**TYPE III - SHOP CURVED
STRUCTURE ANCHOR UNIT**

SHEET 1 OF 1
TYPE III SC



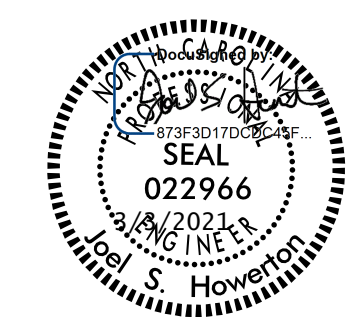
- NOTE:
- **POST NOT REQUIRED FOR SKEW ANGLES GREATER THAN 150° OR LESS THAN 30° UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
 - *THE DISTANCE FROM END OF BRIDGE RAIL TO CENTER LINE OF THE FIRST POST SHOULD BE 11 1/2" IF CONCRETE BACKWALL IS NOT PRESENT.
 - SHOULDER BERM GUTTER MUST BE INSTALLED TO THE 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.



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

01-FEB-2018 09:49 S:\Contracts\Special Details\Howerton\Guardrail\31 inch Guardrail\type_iii_sc.dgn Jhowerton AT CSD-292595

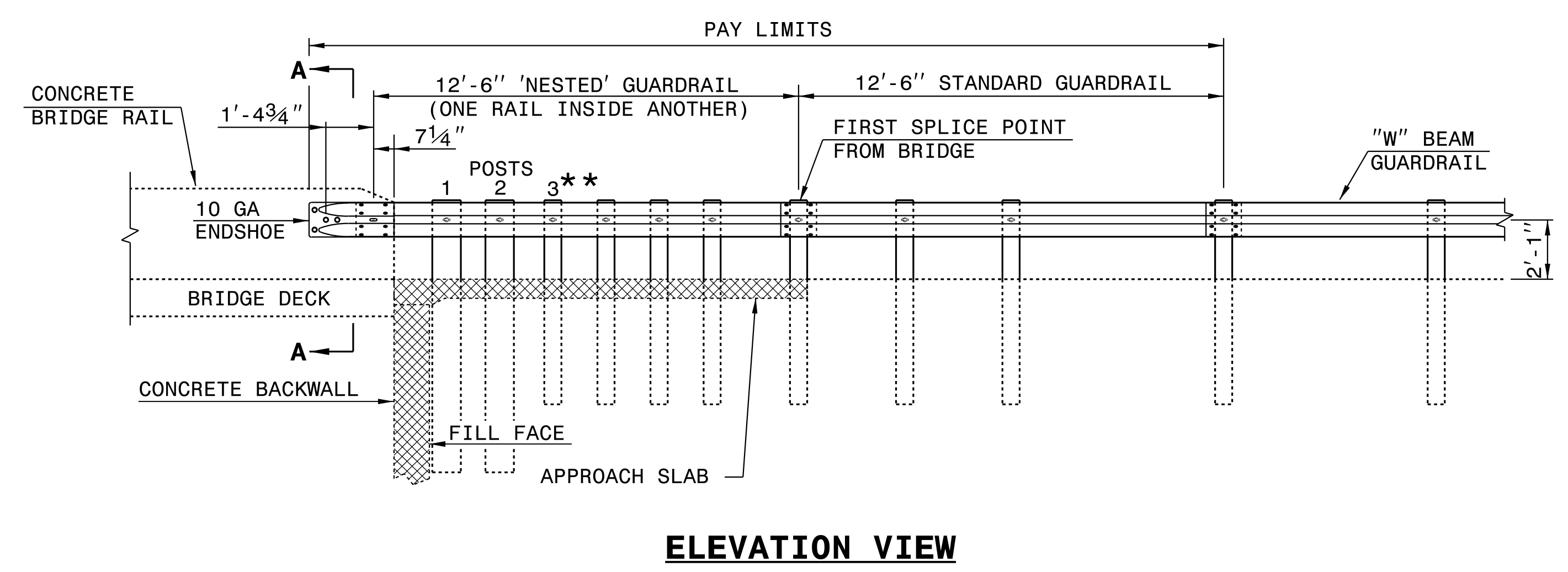
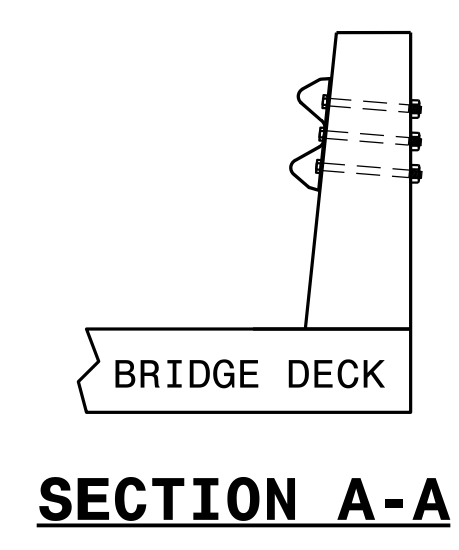
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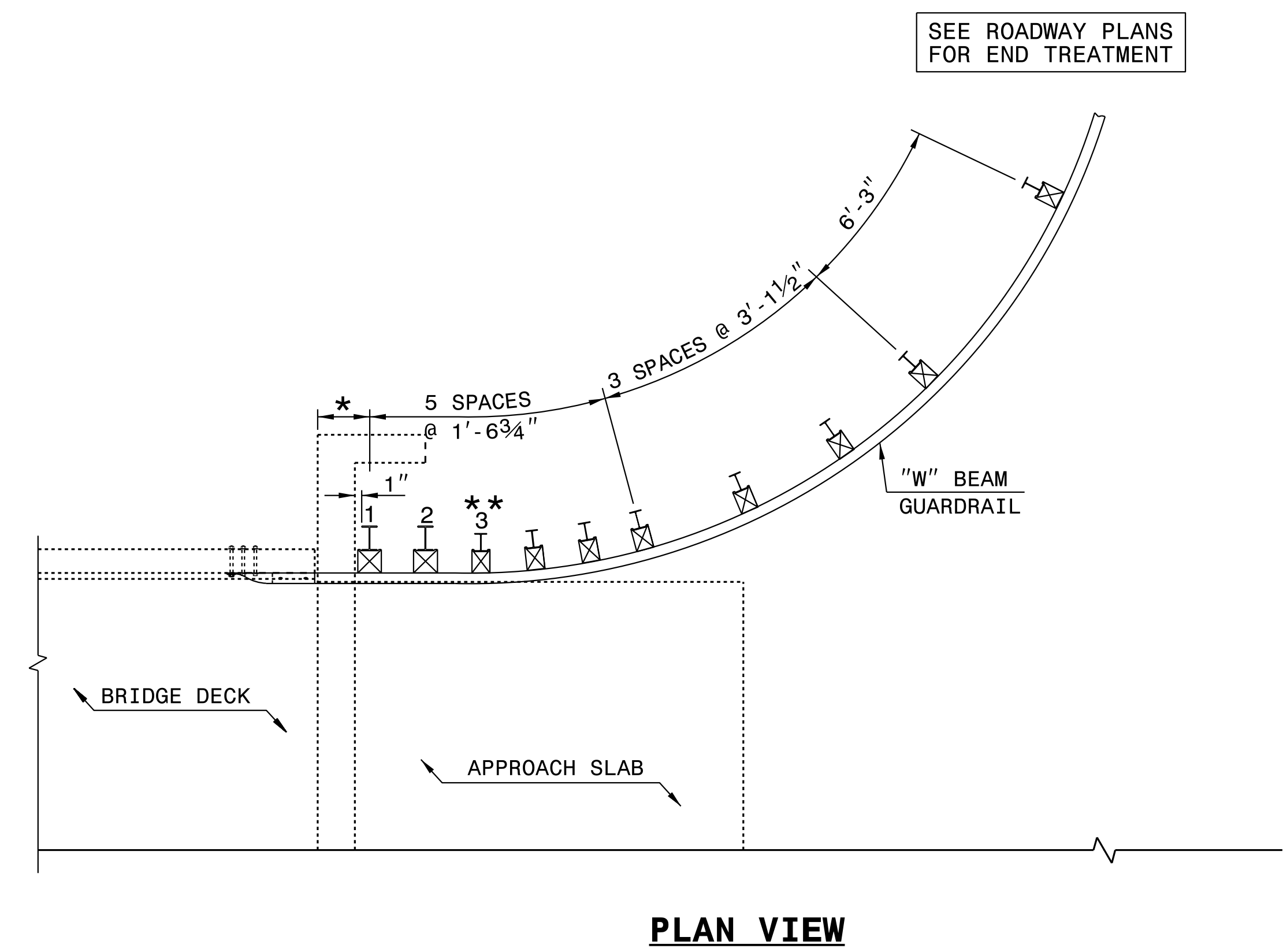
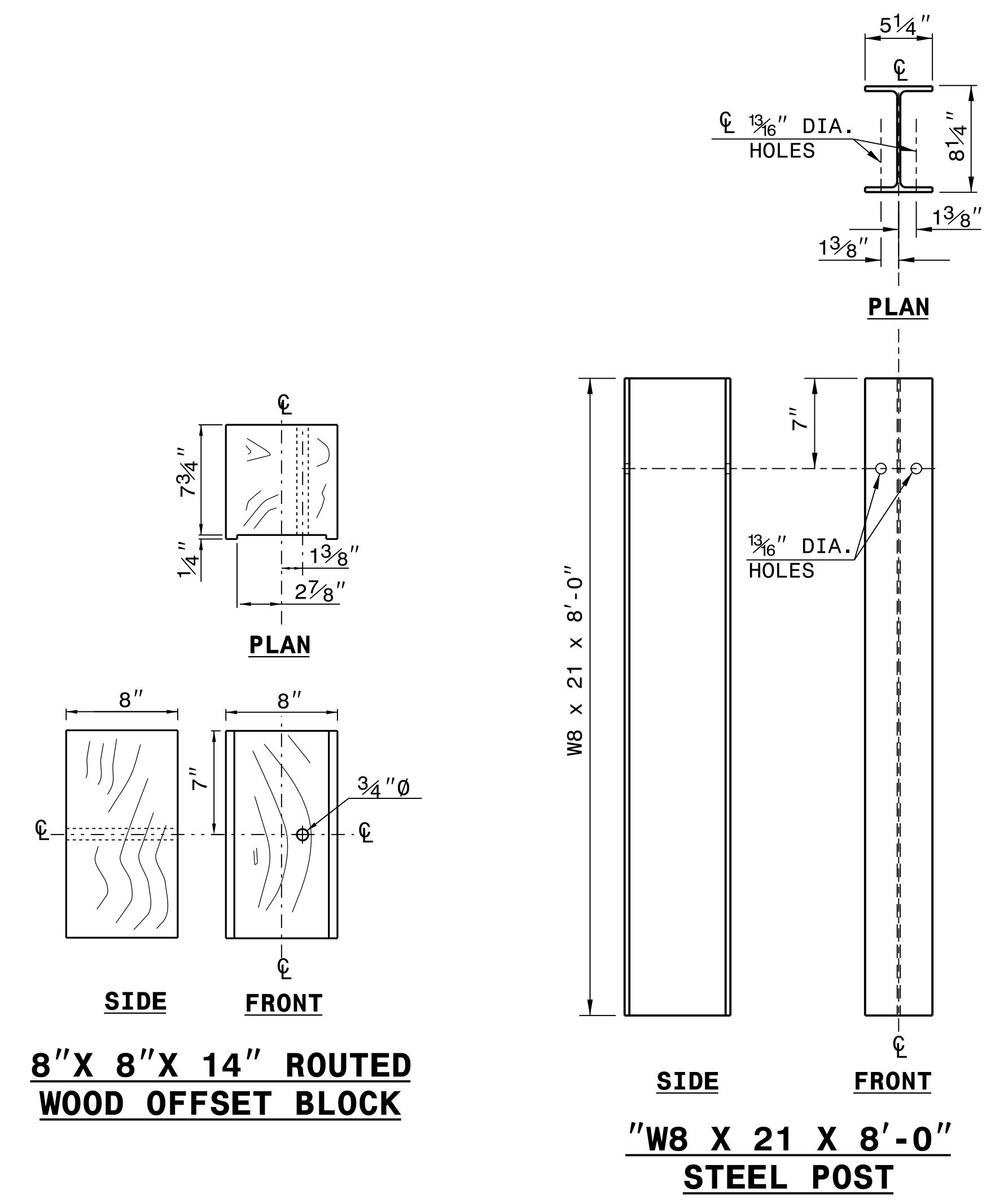
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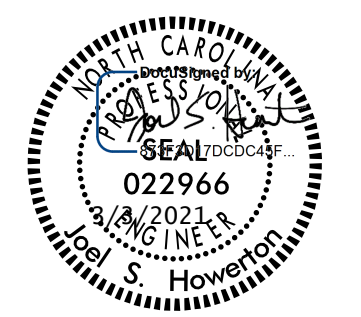


NOTE:

- **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 11 1/2" 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.




19-NOV-2018 08:26
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 J.Hoverton AT USD-292595



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| | |
|--|---------------|
| 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.: | |

| | |
|--|--|
| PROJECT REFERENCE NO. 17BP.14.R.211 | SHEET NO. 2G-1 |
| GEOTECHNICAL ENGINEER  SIGNATURE _____ DATE _____ | ENGINEER SIGNATURE _____ DATE _____ |
| DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED | |

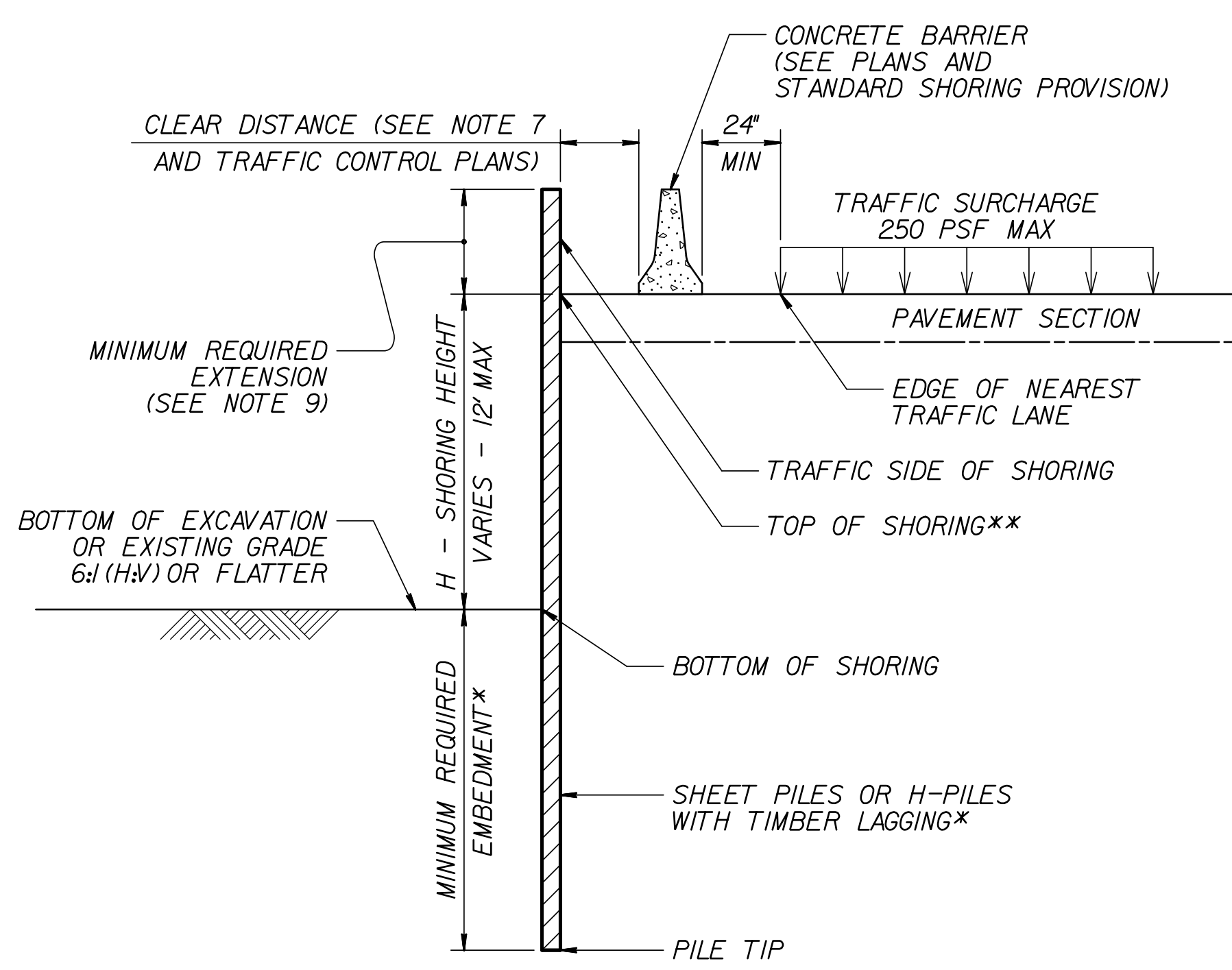
| GROUNDWATER CONDITION (SEE NOTE 6) | H SHORING HEIGHT (FT) | SLOPE OR SURCHARGE CASE WITH NO TRAFFIC IMPACT | | | | | | SURCHARGE CASE WITH TRAFFIC IMPACT | | | | | | | | | | |
|--|-----------------------|--|--|--|----------|---------------------------------|------|------------------------------------|--|--|----------|---------------------------------|------|------|------|------|------|------|
| | | 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 EMBEDMENT (FT) | MINIMUM REQUIRED SECTION MODULUS (IN ³ /FT) | MINIMUM REQUIRED EMBEDMENT* (FT) (SEE NOTE 10) | | MINIMUM REQUIRED EMBEDMENT (FT) | | | | | | |
| | | | | HP 10x42 | HP 12x53 | HP 14x73 | | | HP 10x42 | HP 12x53 | HP 14x73 | | | | | | | |
| GROUNDWATER ELEVATION BETWEEN 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 | 13.0 | 13.0 | 13.0 | 13.0 | 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 | 14.5 | 14.5 | 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 | 15.5 | 15.5 | 15.5 | 15.5 | 15.5 | 15.5 | |
| | 9 | 17.0 | 14.0 | -- | 17.0 | 17.0 | 19.0 | 20.0 | -- | 17.0 | 17.0 | 17.0 | 17.0 | 17.0 | 17.0 | 17.0 | 17.0 | |
| | 10 | 18.5 | 19.5 | -- | -- | 18.5 | 20.0 | 23.5 | -- | -- | 18.5 | 18.5 | 18.5 | 18.5 | 18.5 | 18.5 | 18.5 | |
| | 11 | 20.5 | 26.0 | -- | -- | -- | 21.0 | 28.0 | -- | -- | 20.0 | 20.0 | 20.0 | 20.0 | 20.0 | 20.0 | 20.0 | |
| | 12 | 22.5 | 33.0 | -- | -- | -- | 22.0 | 33.0 | -- | -- | 21.5 | 21.5 | 21.5 | 21.5 | 21.5 | 21.5 | 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 | 9.5 | 9.5 | 9.5 | 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 | 10.5 | 10.5 | 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 | 11.5 | 11.5 | 11.5 | 11.5 | 11.5 | | |
| | 9 | 11.0 | 9.5 | -- | 12.0 | 12.0 | 13.5 | 16.5 | -- | 12.5 | 12.5 | 12.5 | 12.5 | 12.5 | 12.5 | 12.5 | | |
| | 10 | 12.5 | 13.0 | -- | -- | 13.5 | 14.0 | 19.5 | -- | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | | |
| | 11 | 13.5 | 17.0 | -- | -- | 14.5 | 15.0 | 22.5 | -- | -- | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | 14.5 | | |
| | 12 | 15.0 | 21.5 | -- | -- | 16.0 | 16.0 | 25.5 | -- | -- | 15.5 | 15.5 | 15.5 | 15.5 | 15.5 | 15.5 | | |

MINIMUM REQUIRED EMBEDMENT AND SECTION MODULUS

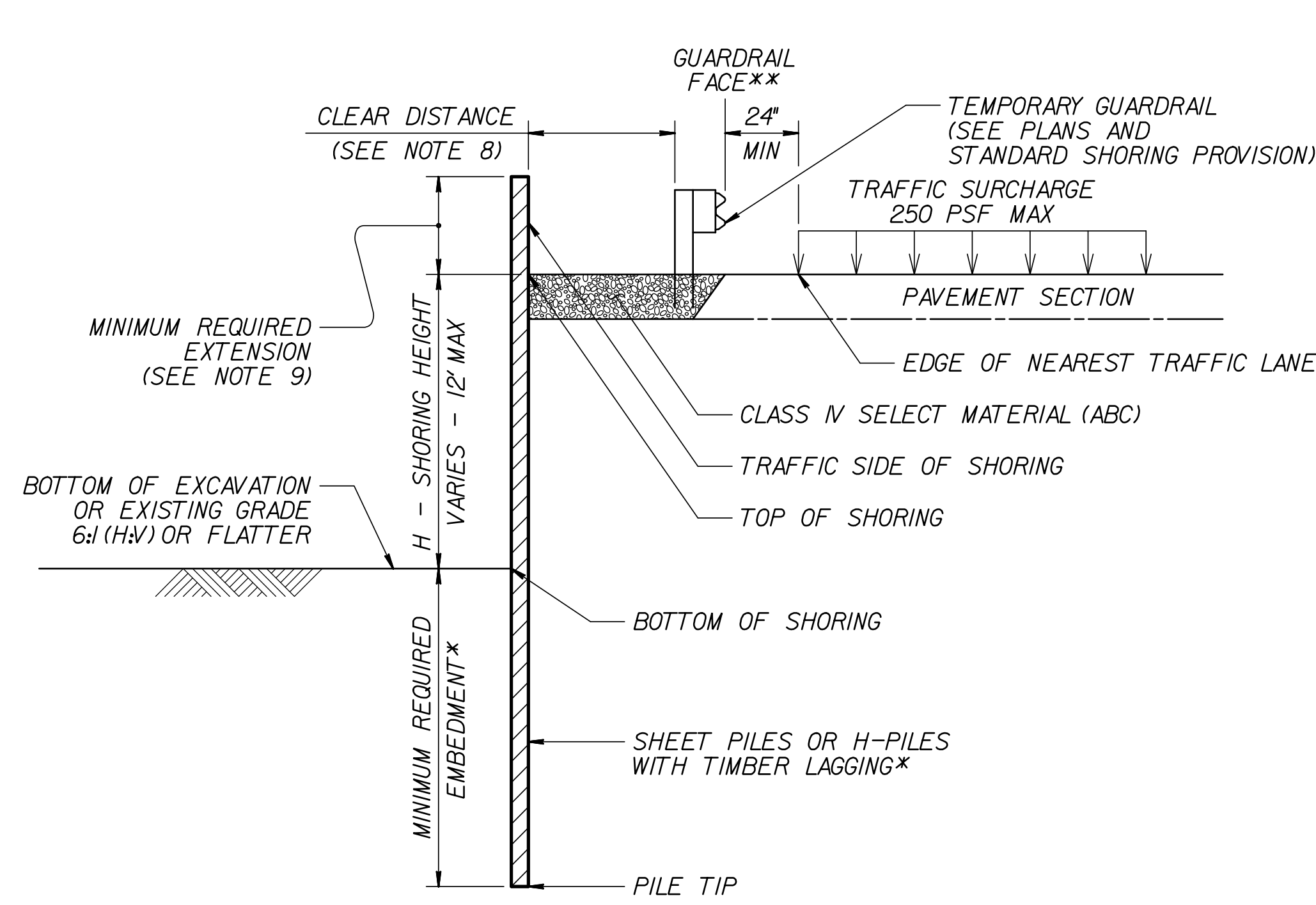
*DO NOT USE H-PILES WITH TIMBER LAGGING FOR GROUNDWATER CONDITION, SHORING HEIGHT AND H-PILE SIZE SHOWN IF MINIMUM REQUIRED EMBEDMENT IS "--".

NOTES:

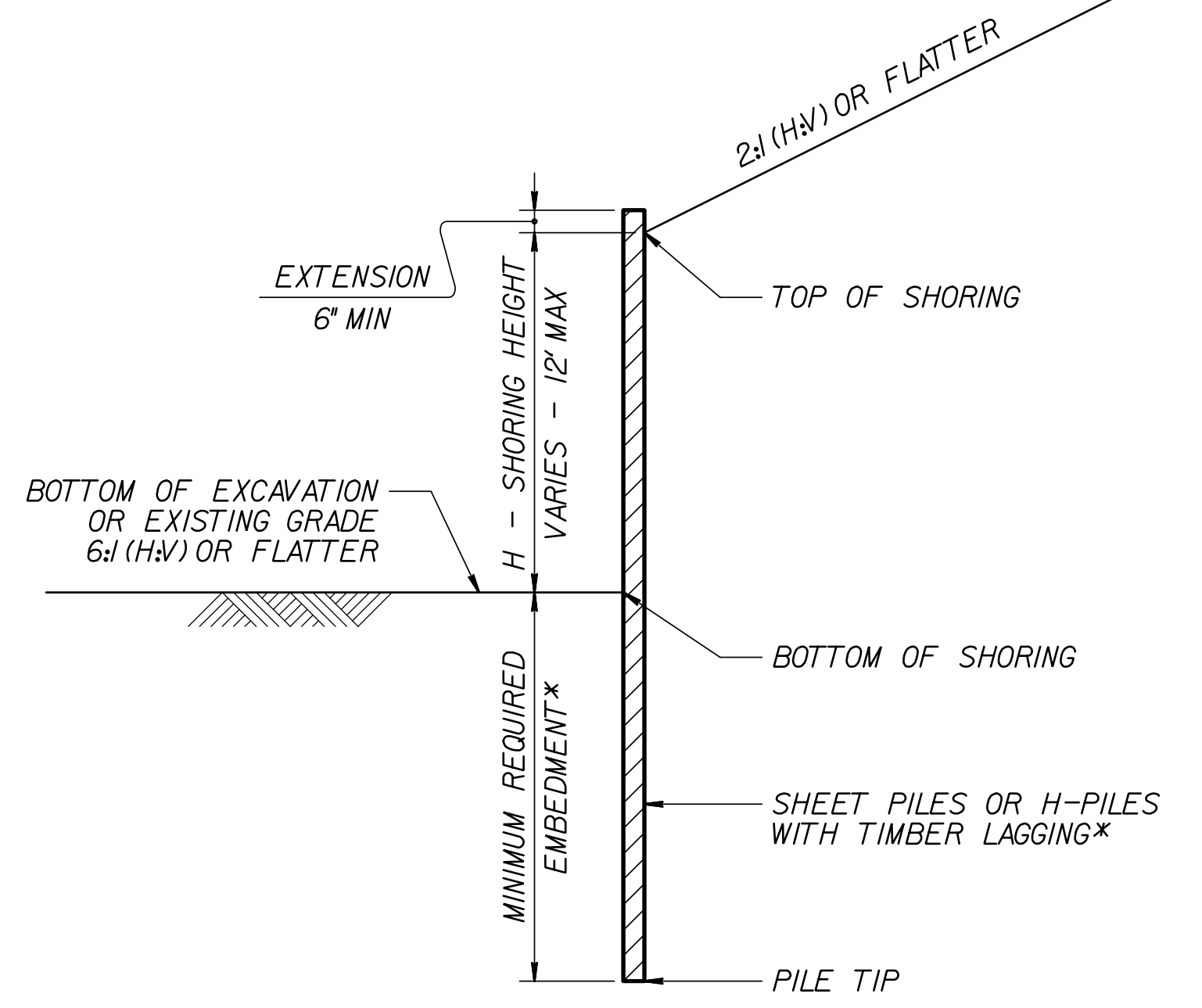
1. AT THE CONTRACTOR'S OPTION, USE STANDARD TEMPORARY SHORING AS NOTED IN THE PLANS.
2. FOR STANDARD TEMPORARY SHORING, SEE STANDARD SHORING PROVISION.
3. STANDARD TEMPORARY SHORING IS BASED ON THE FOLLOWING IN-SITU ASSUMED SOIL PARAMETERS:
UNIT WEIGHT, $\gamma = 120$ PCF
FRICTION ANGLE, $\phi = 30$ 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

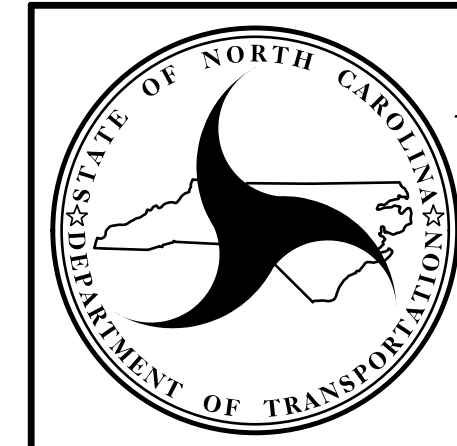


TEMPORARY GUARDRAIL
**GUARDRAIL FACE =
EDGE OF PAVEMENT



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

STATE OF NORTH CAROLINA

SUMMARY OF EARTHWORK

Table with columns: Station, Station, Uncl. Excav., Embank. +%, Borrow, Waste. Includes Grand Totals: 501, 260, 250, 491 and SAY: 520, 260, 250, 491.

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.

EST. SHALLOW UNDERCUT = 100 CY
SELECT GRANULAR MATERIAL = 400 CY
GEOTEXTILE FOR SOIL STABILIZATION = 700 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

PAVEMENT REMOVAL SUMMARY

Table with columns: SURVEY LINE, Station, Station, LOCATION LT/RT/CL, ASPHALT REMOVAL, ASPHALT BREAKUP, CONCRETE REMOVAL, CONCRETE BREAKUP. Includes TOTAL: 253.35 and SAY: 260.

GUARDRAIL SUMMARY

Main Guardrail Summary Table with columns: LINE, BEG. STA., END STA., LOC., LENGTH (STRAIGHT, SHOP CURVED, DOUBLE FACED), WARRANT POINT (APPR. END, TRAIL. END), N" DIST. FROM E.O.L., TOTAL SHLDR WIDTH, FLAIR LENGTH (APPR. END, TRAIL. END), W (APPR. END, TRAIL. END), ANCHORS (III, GREU TL-2, AT-1, III SC, B-83 SC, IMP. ATTEN. TYPE 350 EA, G, NG), REMOVE EXISTING GUARDRAIL, REMOVE & RESET EXISTING GUARDRAIL, REMARKS. Includes Grand Totals and SAY values.

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: BJH DATE: 10/31/2018
CHECKED BY: BJH DATE: 8/7/2019

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

Large table listing pipe details: STATION, LOCATION (LT, RT, OR CL), STRUCTURE NO., TOP ELEVATION, INVERT ELEVATION, SLOPE, CRITICAL, DRAINAGE PIPE (RCP, CSP, CAAP, HDPE, or PVC), C.S. PIPE, R.C. PIPE CLASS III, R.C. PIPE CLASS IV, ENDWALLS (STD. 338.81, 338.81 OR STD. 338.80), QUANTITIES PER EACH (W/ THRU 15', 10' AND ABOVE), FRAME, GRATES, AND HOOD STANDARD 840.03, CONCRETE TRANSITIONAL SECTION, DROP INLET, CATCH BASIN, G.D.I. TYPE 'B', G.D.I. TYPE 'D', G.D.I. TYPE 'U', MODIFIED CONC. FLUME, FLOWABLE FILL, C.Y., PIPE REMOVAL LIN. FT., ABBREVIATIONS, REMARKS.

COMPUTED BY: DMM _____ DATE: 1/24/2019 ___
 CHECKED BY: JCK _____ DATE: 1/24/2019 _

(5-15-18)

| | |
|------------------------------|-------------------|
| PROJECT NO. 17BP.14.R.211 | SHEET NO. 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 |

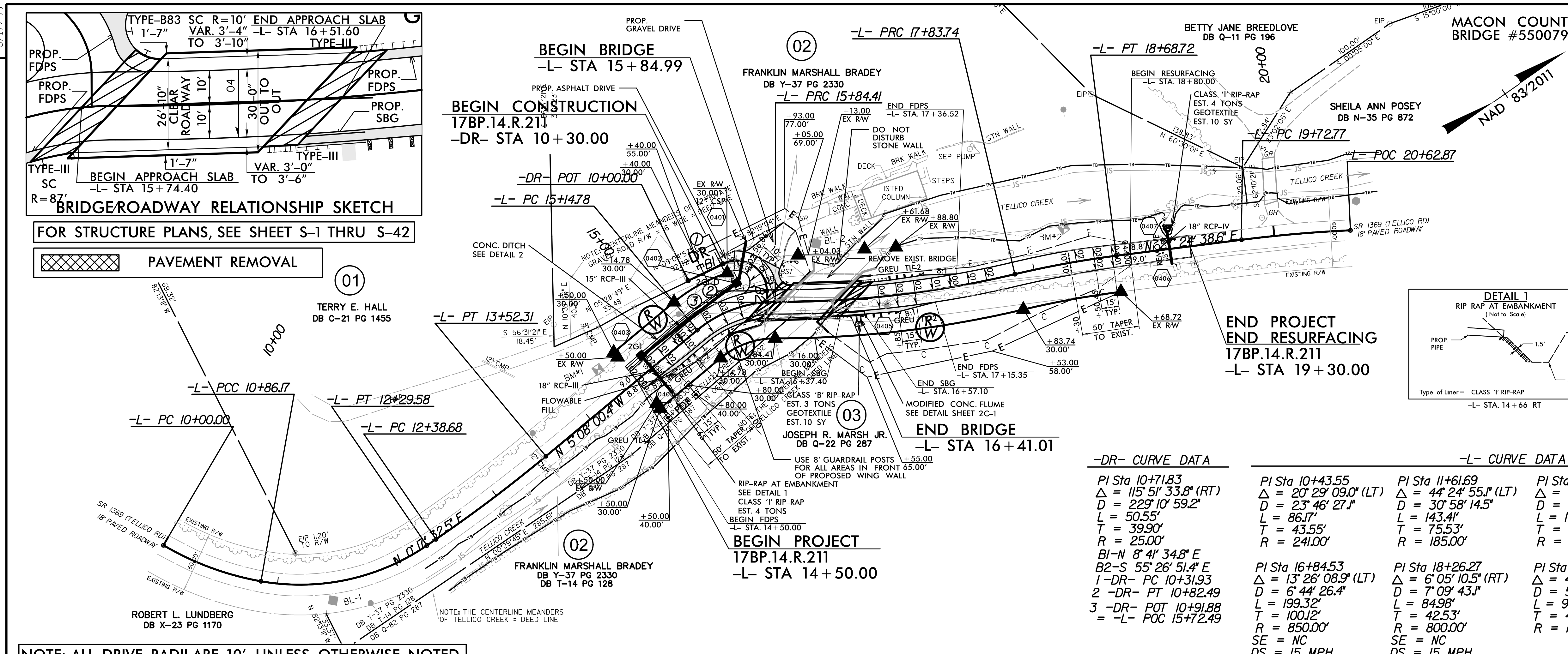
*UD = Underdrain
 *BD = Blind Drain
 *SD = Subsurface Drain

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 | | | | 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.

| | |
|--|--|
| PROJECT REFERENCE NO. 17BP.14.R.211 | SHEET NO. 4 |
| ROADWAY DESIGN ENGINEER JIMMY L. TERRY SEAL 35018 JANUARY 15, 2021 | HYDRAULICS ENGINEER BRUCE W. HENNING SEAL 044158 JANUARY 15, 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 | |

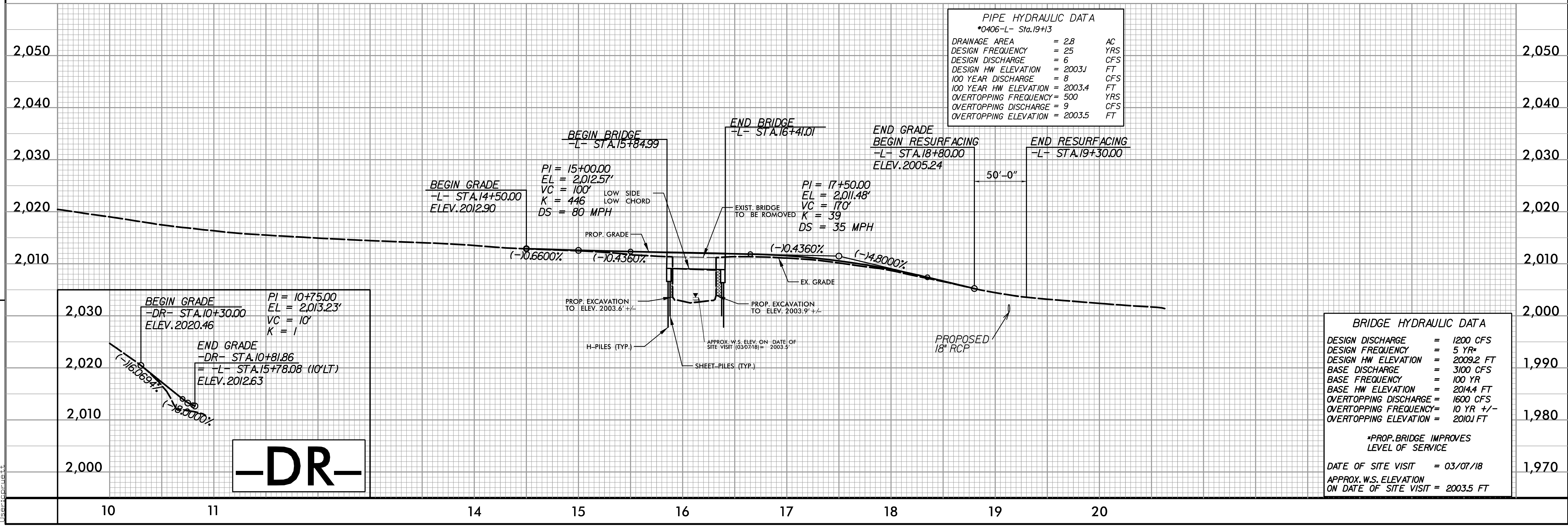


NOTE: ALL DRIVE RADII ARE 10', UNLESS OTHERWISE NOTED.

| -DR- CURVE DATA | | -L- CURVE DATA | | | |
|----------------------|--------------------------------------|-------------------|-------------------------------------|-------------------|-------------------------------------|
| PI Sta 10+71.83 | $\Delta = 115^\circ 51' 33.8''$ (RT) | PI Sta 10+43.55 | $\Delta = 20^\circ 29' 09.0''$ (LT) | PI Sta 11+61.69 | $\Delta = 44^\circ 24' 55.1''$ (LT) |
| D = 229' 10' 59.2" | L = 50.55' | D = 23' 46' 27.1" | L = 86.17' | D = 30' 58' 14.5" | L = 143.41' |
| T = 39.90' | R = 25.00' | T = 43.55' | R = 185.00' | T = 75.53' | R = 185.00' |
| BI-N 8' 4' 34.8" E | | PI Sta 16+84.53 | $\Delta = 13^\circ 26' 08.9''$ (LT) | PI Sta 18+26.27 | $\Delta = 6^\circ 05' 10.5''$ (RT) |
| B2-S 55' 26' 51.4" E | | D = 6' 44' 26.4" | L = 199.32' | D = 7' 09' 43.1" | L = 84.98' |
| 1-DR- PC 10+31.93 | | L = 199.32' | T = 100.12' | L = 90.10' | T = 45.07' |
| 2-DR- PT 10+82.49 | | R = 850.00' | R = 800.00' | R = 1125.00' | |
| 3-DR- POT 10+91.88 | | SE = NC | DS = 15 MPH | | |
| = -L- POC 15+72.49 | | | | | |

PIPE HYDRAULIC DATA
*0406-L- Sta. 19+13

| | | |
|-----------------------|----------|-----|
| DRAINAGE AREA | = 2.8 | AC |
| DESIGN FREQUENCY | = 25 | YRS |
| DESIGN DISCHARGE | = 6 | CFS |
| DESIGN HW ELEVATION | = 2003.1 | FT |
| 100 YEAR DISCHARGE | = 8 | CFS |
| 100 YEAR HW ELEVATION | = 2003.4 | FT |
| OVERTOPPING FREQUENCY | = 500 | YRS |
| OVERTOPPING DISCHARGE | = 9 | CFS |
| OVERTOPPING ELEVATION | = 2003.5 | FT |



BRIDGE HYDRAULIC DATA

| | | |
|-----------------------|----------|--------|
| DESIGN DISCHARGE | = 1200 | CFS |
| DESIGN FREQUENCY | = 5 | YR |
| DESIGN HW ELEVATION | = 2009.2 | FT |
| BASE DISCHARGE | = 3100 | CFS |
| BASE FREQUENCY | = 100 | YR |
| BASE HW ELEVATION | = 2014.4 | FT |
| OVERTOPPING DISCHARGE | = 1600 | CFS |
| OVERTOPPING FREQUENCY | = 10 | YR +/- |
| OVERTOPPING ELEVATION | = 2010.1 | FT |

*PROP. BRIDGE IMPROVES LEVEL OF SERVICE

DATE OF SITE VISIT = 03/07/18
APPROX. W.S. ELEVATION ON DATE OF SITE VISIT = 2003.5 FT

-DR-

REVISIONS

3/15/2021 Division 14 - 2017\mcon_550079\Roadway\Proj_550079_Rdy_psh.dgn

09/06/19

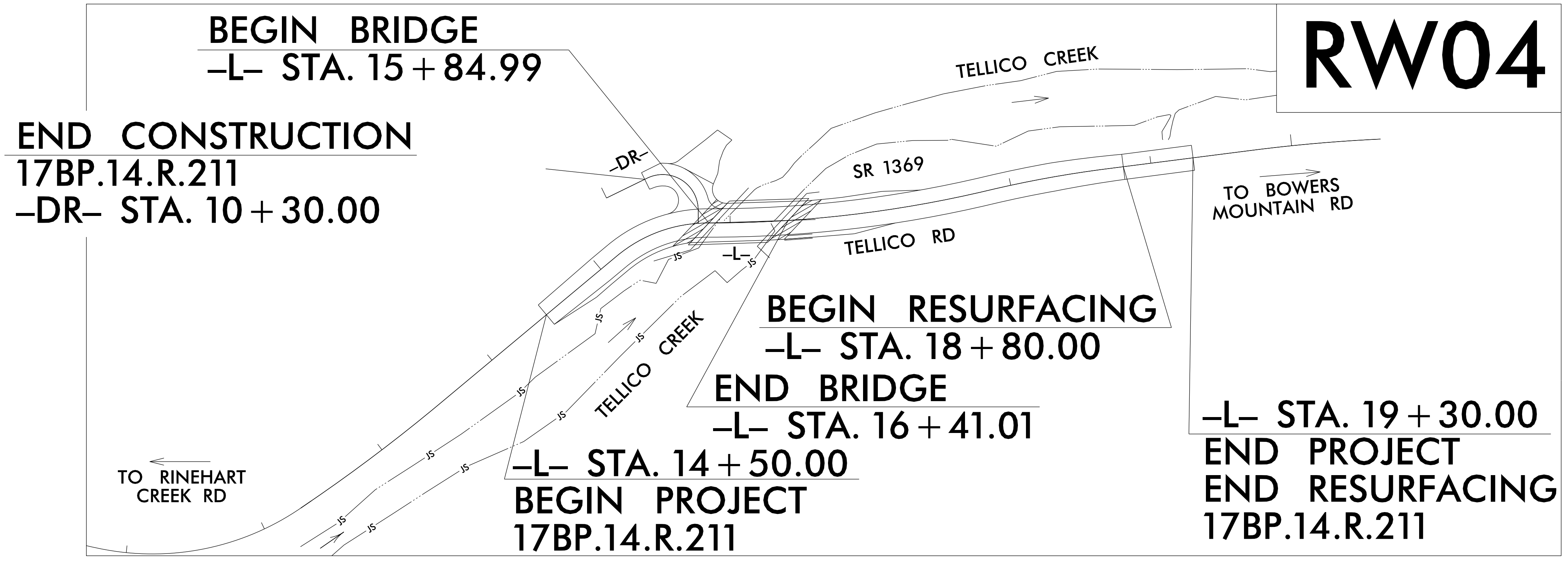
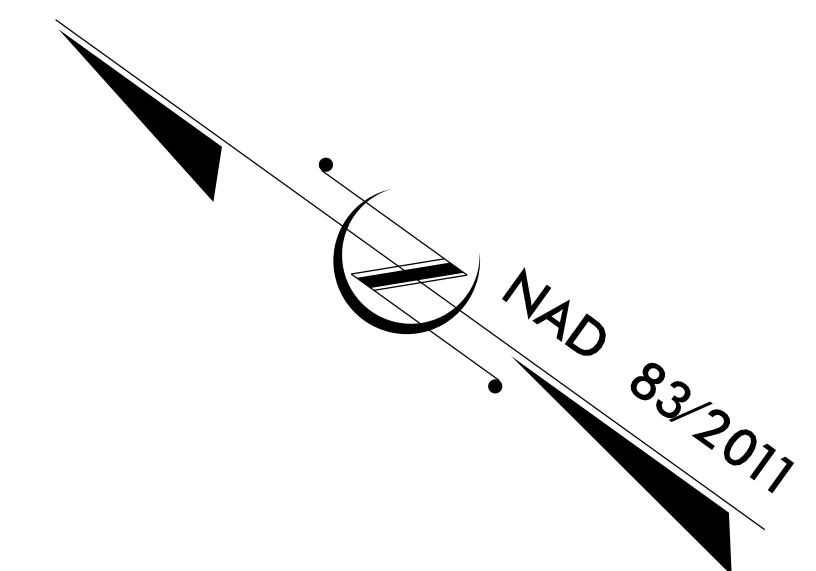
PROJECT: 17BP.14.R.211

| | | | |
|-------|-----------------------------|-----------|--------------|
| STATE | STATE PROJECT REFERENCE NO. | SHEET NO. | TOTAL SHEETS |
| N.C. | 17BP.14.R.211 | RW01 | 5 |

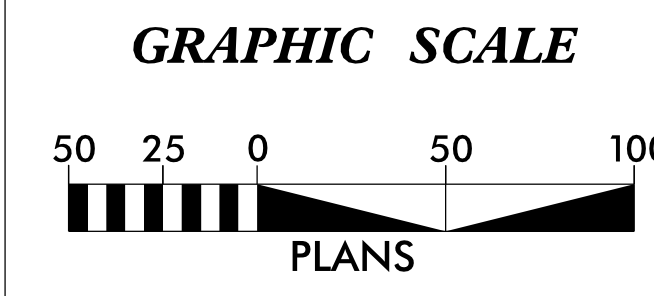
STATE OF NORTH CAROLINA
 DIVISION OF HIGHWAYS
 SURVEY CONTROL, EXISTING CENTERLINES,
 RIGHT OF WAY, EASEMENTS AND PROPERTY TIES

MACON COUNTY

GRADING, DRAINAGE, PAVING, AND STRUCTURE
 BRIDGE #550079 OVER TELLICO CREEK
 ON SR 1369 (TELLICO RD)



\$\$\$\$\$ SYSTEM \$\$\$\$\$\$
 \$\$\$ DDN \$\$\$
 \$\$\$ USERNAME \$\$\$



DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCGS FOR MONUMENT "G 102" WITH NAD 83/NA 2011 STATE PLANE GRID COORDINATES OF NORTHING: 586,066.594(ft) EASTING: 654,977.325(ft) ELEVATION: 1,998.16(ft) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99978181395 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "G 102" TO -L- STATION 14+50.00 IS S 20-39'25.2"W 610.80(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:
 MARCH 8, 2019

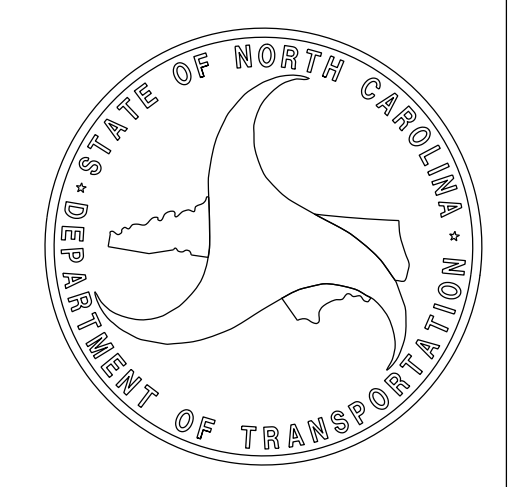
LETTING DATE:
 MAY 11, 2021

PROFESSIONAL LAND SURVEYOR



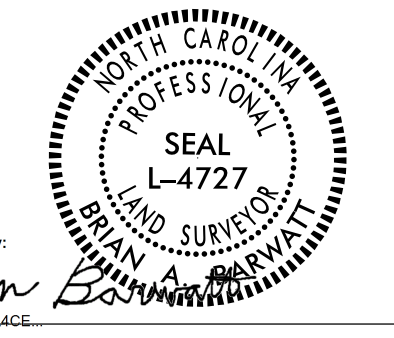
DocuSigned by:
 Brian Barwatt
 ABSORPTION
 SIGNATURE:

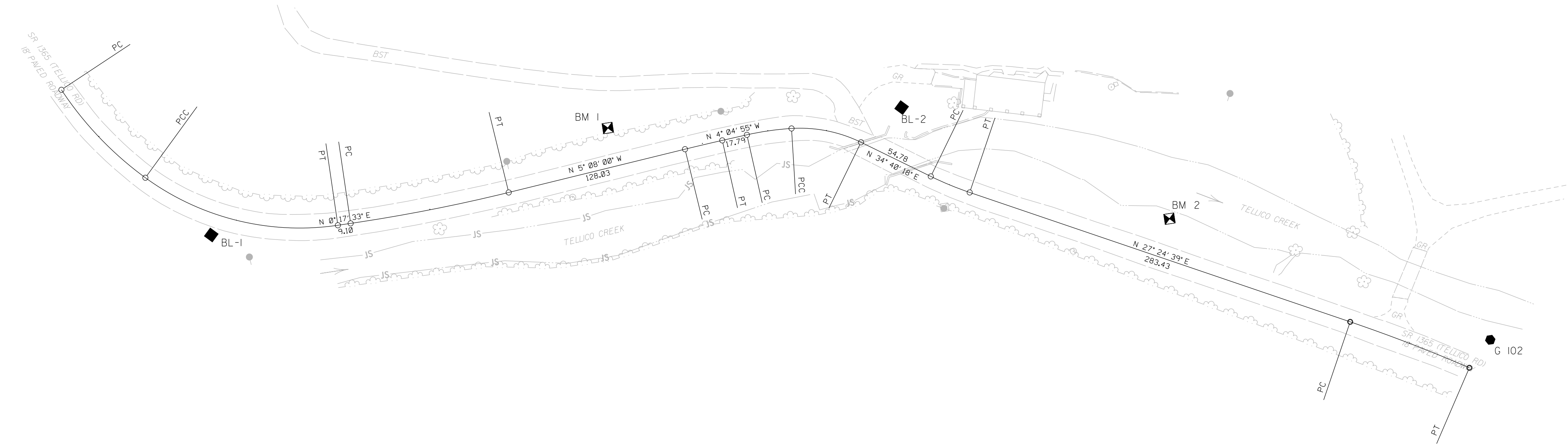
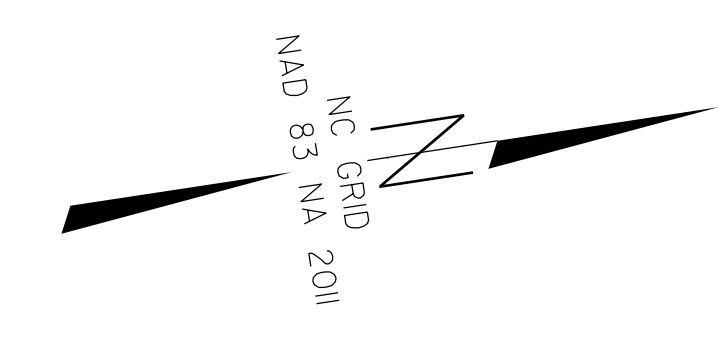
3/31/2021
 Date:



SURVEY CONTROL SHEET

W/ EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION

| | |
|---|----------------------|
| PROJECT REFERENCE NO. 17BP.14.R.211 | SHEET NO. RW02C-1 |
| Location and Surveys | |
| LOCATION AND SURVEYS, DIVISION 14 122 BONNIE LANE SYLVA, NC 28779 | |
| PROJECT SURVEYOR  SEAL L-4727 B. B. WATT NORTH CAROLINA PROFESSIONAL LAND SURVEYOR | |
| DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED | |



REVISIONS

| EL POINT | N | E | BEARING | DIST | DELTA | D | L | T | R |
|----------|------------|------------|-----------------|--------|-----------------|-------------|--------|-------|---------|
| PC | 585096.757 | 654651.660 | | | | | | | |
| CURVE | | | N 54°57'02.1" E | 85.71 | 20°29'09.0"(LT) | 23°46'27.1" | 86.17 | 43.55 | 241.00 |
| PCC | 585145.979 | 654721.827 | | | | | | | |
| CURVE | | | N 22°30'00.1" E | 139.85 | 44°24'55.1"(LT) | 30°58'14.5" | 143.41 | 75.53 | 185.00 |
| PT | 585275.181 | 654775.344 | | | | | | | |
| LINE | | | N 00°17'32.5" E | 9.10 | | | | | |
| PC | 585284.278 | 654775.391 | | | | | | | |
| CURVE | | | N 02°25'13.9" W | 113.60 | 05°25'32.9"(LT) | 04°46'28.7" | 113.64 | 56.86 | 1200.00 |
| PT | 585397.772 | 654770.593 | | | | | | | |
| LINE | | | N 05°08'00.4" W | 128.03 | | | | | |
| PC | 585525.285 | 654759.138 | | | | | | | |
| CURVE | | | N 04°36'27.8" W | 27.01 | 01°03'05.2"(RT) | 03°53'31.6" | 27.02 | 13.51 | 1472.10 |
| PT | 585552.212 | 654756.968 | | | | | | | |
| LINE | | | N 04°04'55.1" W | 17.79 | | | | | |
| PC | 585569.957 | 654755.702 | | | | | | | |
| CURVE | | | N 00°31'27.1" E | 31.80 | 09°12'44.5"(RT) | 28°56'14.1" | 31.84 | 15.95 | 198.00 |
| PCC | 585601.757 | 654755.993 | | | | | | | |
| CURVE | | | N 19°54'03.8" E | 49.97 | 29°32'28.9"(RT) | 58°27'54.3" | 50.53 | 25.84 | 98.00 |
| PT | 585648.743 | 654773.002 | | | | | | | |
| LINE | | | N 34°40'18.3" E | 54.78 | | | | | |
| PC | 585693.793 | 654804.164 | | | | | | | |
| CURVE | | | N 31°02'28.5" E | 29.66 | 07°15'39.6"(LT) | 24°27'37.4" | 29.68 | 14.86 | 234.24 |
| PT | 585719.210 | 654819.460 | | | | | | | |
| LINE | | | N 27°24'38.6" E | 283.43 | | | | | |
| PC | 585970.816 | 654949.941 | | | | | | | |
| CURVE | | | N 29°42'18.3" E | 90.08 | 04°35'19.4"(RT) | 05°05'34.6" | 90.10 | 45.07 | 1125.00 |
| PT | 586049.054 | 654994.576 | | | | | | | |

| BL POINT | DESC. | NORTH | EAST | ELEVATION |
|----------|-------|-------------|-------------|-----------|
| 1 | BL 1 | 585185.8588 | 654768.6800 | 2016.78 |
| 2 | BL 2 | 585680.7391 | 654753.0987 | 2007.08 |
| 102 | G 102 | 586066.5936 | 654977.3252 | 1998.16 |
| 101 | G 101 | 586348.3212 | 655031.2247 | 1995.68 |

.....
 BM1 ELEVATION = 2017.42
 N 585474 E 654736
 BM 1 20 IN TREE


 BM2 ELEVATION = 2004.23
 N 585856 E 654859
 BM 2 HICKORY 161N

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.

31-MAR-2020 08:57
 C:\sulvo\B-rdgs\550079\17BP.14.R.211.ls.rw02c-1.dgn
 bobar-watt AT LS-317902

PROPOSED ALIGNMENT CONTROL SHEET

| | |
|---|----------------------|
| PROJECT REFERENCE NO. 17BP.14.R.211 | SHEET NO. RW02D-1 |
| Location and Surveys | |
| LOCATION AND SURVEYS, DIVISION 14 122 BONNIE LANE SYLVA, NC 28779 | |
| PROJECT SURVEYOR  | |
| 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
Professional Land Surveyor L-4727

L

| TYPE | STATION | NORTH | EAST |
|------|----------|-------------|-------------|
| PC | 10+00.00 | 585096.7571 | 654651.6601 |
| PCC | 10+86.17 | 585145.9790 | 654721.8273 |
| PT | 12+29.58 | 585275.1806 | 654775.3445 |
| PC | 12+38.68 | 585284.2784 | 654775.3909 |
| PT | 13+52.31 | 585397.7724 | 654770.5933 |
| PC | 15+14.78 | 585559.5903 | 654756.0563 |
| PRC | 15+84.41 | 585625.5522 | 654773.5007 |
| PRC | 17+83.74 | 585801.0730 | 654866.9934 |
| PT | 18+68.72 | 585878.4464 | 654902.0388 |
| PC | 19+72.77 | 585970.8162 | 654949.9407 |
| PT | 20+62.87 | 586049.0542 | 654994.5761 |

DR


| TYPE | STATION | NORTH | EAST |
|------|----------|-------------|-------------|
| POT | 10+00.00 | 585576.6873 | 654718.2964 |
| PC | 10+31.93 | 585608.2531 | 654723.1227 |
| PT | 10+82.49 | 585625.0648 | 654762.0145 |
| POT | 10+91.88 | 585619.7346 | 654769.7547 |

REVISIONS

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.

RIGHT OF WAY CONTROL SHEET

| | |
|---|----------------------|
| PROJECT REFERENCE NO. 17BP.14.R.211 | SHEET NO. RW03E-1 |
| Location and Surveys | |
| LOCATION AND SURVEYS, DIVISION 14 122 BONNIE LANE SYLVA, NC 28779 | |
|  | |
| DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED | |

ROW MARKER IRON PIN AND CAP-E

| ALIGN | STATION | OFFSET | NORTH | EAST |
|-------|----------|--------|-------------|-------------|
| L | 14+50.00 | -25.00 | 585492.8288 | 654736.9532 |
| L | 14+50.00 | -30.00 | 585492.3814 | 654731.9732 |
| L | 14+50.00 | 25.00 | 585497.3026 | 654786.7526 |
| L | 14+50.00 | 30.00 | 585497.7499 | 654791.7326 |
| L | 15+14.78 | -30.00 | 585556.9060 | 654726.1766 |
| L | 15+14.78 | 30.00 | 585562.2745 | 654785.9359 |
| L | 15+53.47 | -30.00 | 585606.6147 | 654731.3565 |
| L | 15+84.41 | 30.00 | 585608.4479 | 654798.1471 |
| L | 16+04.03 | -38.42 | 585662.9648 | 654752.4417 |
| L | 16+61.68 | -40.37 | 585710.8592 | 654779.4909 |
| L | 16+88.80 | -39.29 | 585733.0207 | 654792.8286 |
| L | 17+83.74 | 30.00 | 585790.1635 | 654894.9394 |
| L | 18+68.72 | 30.00 | 585864.6355 | 654928.6707 |

PT NOT SET (IN WATER)

PT NOT SET (IN WATER)

PT NOT SET (IN WATER)

PUNCH HOLE IN ROCK

PDE

ROW MARKER PERMANENT EASEMENT-E

| ALIGN | STATION | OFFSET | NORTH | EAST |
|-------|----------|--------|-------------|-------------|
| L | 14+50.00 | 40.00 | 585498.6447 | 654801.6925 |
| L | 14+50.00 | 30.00 | 585497.7499 | 654791.7326 |
| L | 14+80.00 | 40.00 | 585528.5244 | 654799.0082 |
| L | 14+80.00 | 30.00 | 585527.6296 | 654789.0483 |

PT NOT SET (IN WATER)

PT NOT SET (IN WATER)

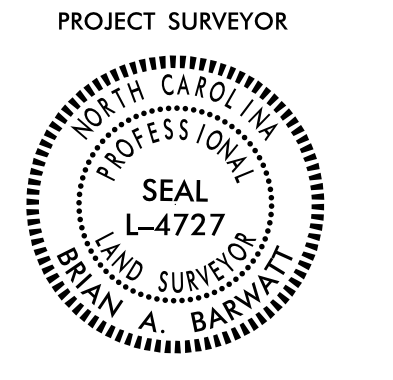
NOTES:

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 ON 3/29/2021.

REVISIONS

Location and Surveys

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



DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

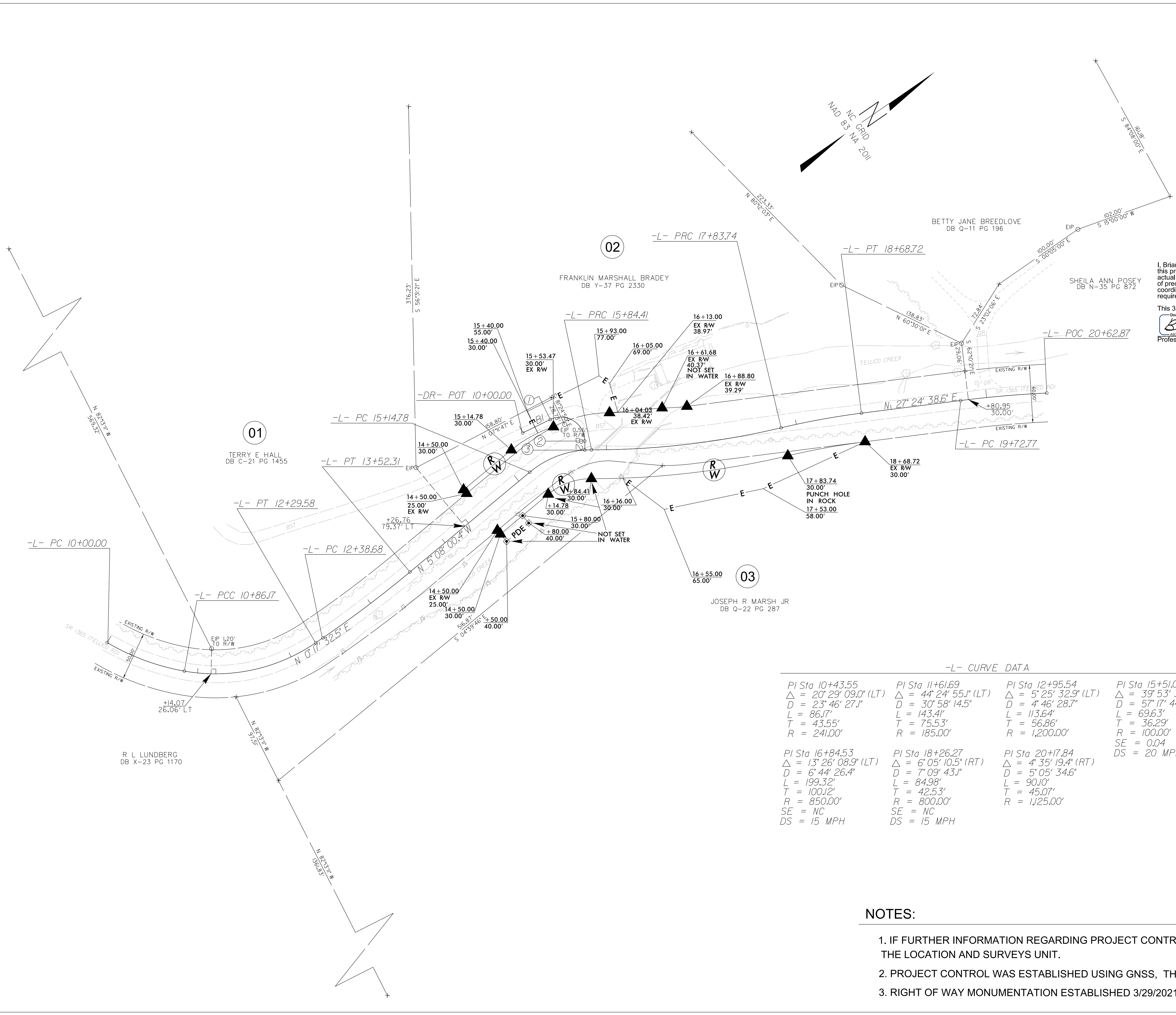
I, Brian Barwatt, certify that the right of way and permanent easement monumentation for this project shown herein was completed under my direct and responsible charge from an actual survey made under my supervision; that all horizontal closures had a minimum ratio of precision of 1:10,000 (Class A). Field work was performed on 3/29/2021, and all coordinates are based on NAD83/2011; That this survey was performed to meet the requirements of 21NCAC 56.1600 as applicable.

This 31st day of March, 2021.
Designed by:
Brian Barwatt
Professional Land Surveyor L-4727

6/2/09

REVISIONS

3-MAR-2021 11:56 AM 550079.RW Sheets\17BP.14.R.211-1s-rw04.dgn
bbarwatt LS-317902



| -L- CURVE DATA | | | | -DR- CURVE DATA | |
|---------------------------------------|---------------------------------------|--------------------------------------|---------------------------------------|--|--|
| PI Sta 10+43.55 | PI Sta 11+61.69 | PI Sta 12+95.54 | PI Sta 15+51.08 | PI Sta 10+71.83 | |
| $\Delta = 20^{\circ} 29' 09.0''$ (LT) | $\Delta = 44^{\circ} 24' 55.1''$ (LT) | $\Delta = 5^{\circ} 25' 32.9''$ (LT) | $\Delta = 39^{\circ} 53' 37.4''$ (RT) | $\Delta = 115^{\circ} 51' 33.8''$ (RT) | |
| D = 23' 46' 27.1" | D = 30' 58' 14.5" | D = 4' 46' 28.7" | D = 57' 17' 44.8" | D = 229' 10' 59.2" | |
| L = 86.17' | L = 143.41' | L = 113.64' | L = 69.63' | L = 50.55' | |
| T = 43.55' | T = 75.53' | T = 56.86' | T = 36.29' | T = 39.90' | |
| R = 241.00' | R = 185.00' | R = 1,200.00' | R = 100.00' | R = 25.00' | |
| | | | SE = 0.04 | BI-N 8' 41' 34.8" E | |
| | | | DS = 20 MPH | B2-S 55' 26' 51.4" E | |
| PI Sta 16+84.53 | PI Sta 18+26.27 | PI Sta 20+17.84 | | 1 -DR- PC 10+31.93 | |
| $\Delta = 13^{\circ} 26' 08.9''$ (LT) | $\Delta = 6^{\circ} 05' 10.5''$ (RT) | $\Delta = 4^{\circ} 35' 19.4''$ (RT) | | 2 -DR- PT 10+82.49 | |
| D = 6' 44' 26.4" | D = 7' 09' 43.1" | D = 5' 05' 34.6" | | 3 -DR- POT 10+91.88 | |
| L = 199.32' | L = 84.98' | L = 90.10' | | = -L- POC 15+72.49 | |
| T = 100.12' | T = 42.53' | T = 45.07' | | | |
| R = 850.00' | R = 800.00' | R = 1,125.00' | | | |
| SE = NC | SE = NC | | | | |
| DS = 15 MPH | DS = 15 MPH | | | | |

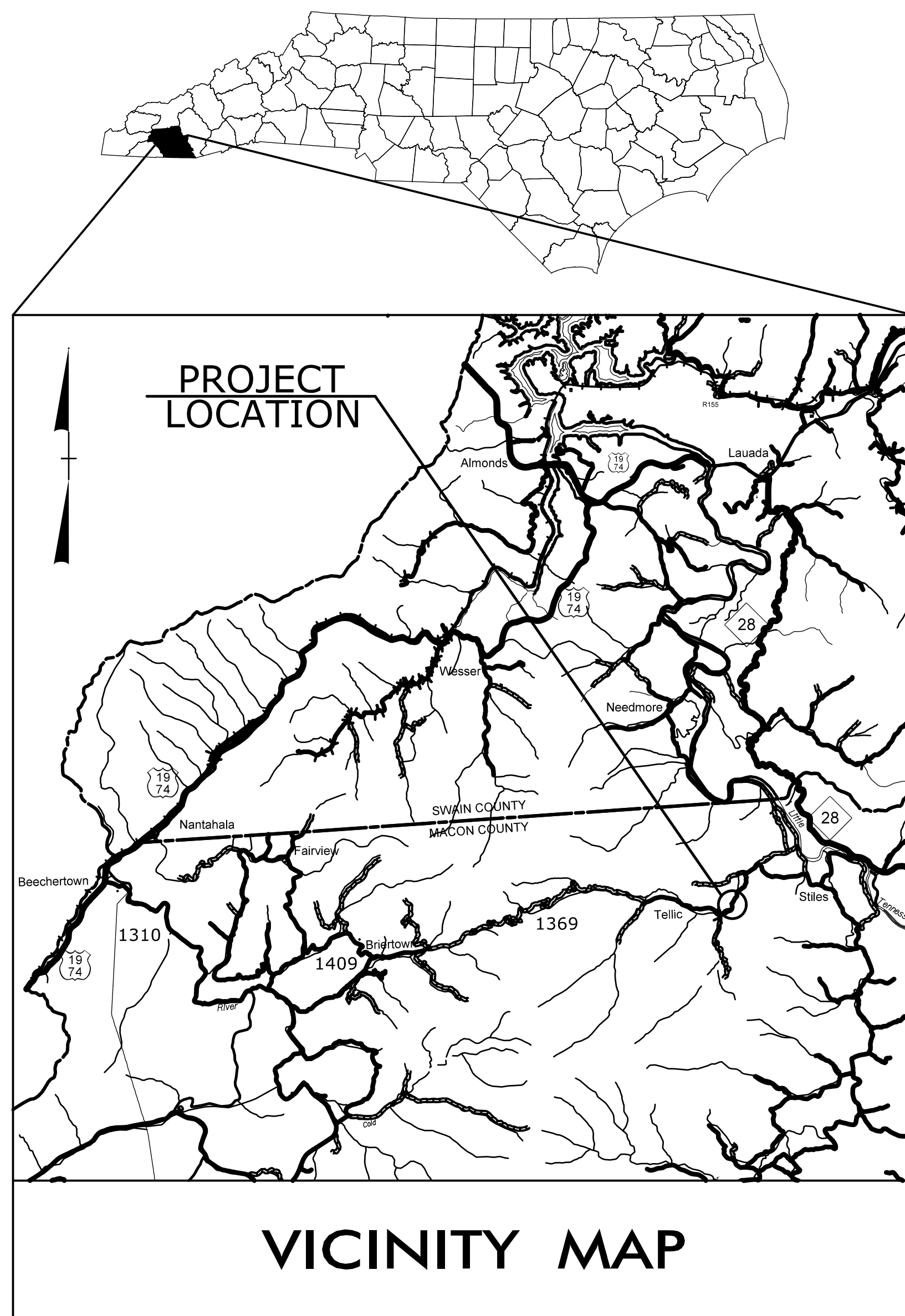
NOTES:

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 3/29/2021.

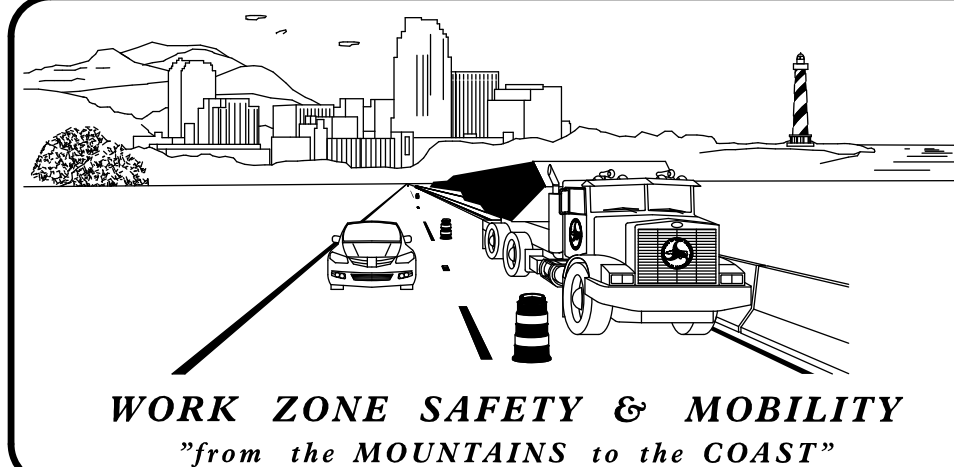
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

MACON COUNTY



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



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



INDEX OF SHEETS

| <u>SHEET NO.</u> | <u>TITLE</u> |
|------------------|---|
| TMP-1 | TITLE SHEET, VICINITY MAP, AND INDEX OF SHEETS |
| TMP-1A | LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS, AND LEGEND |
| TMP-1B | TRANSPORTATION OPERATIONS PLAN: (MANAGEMENT STRATEGIES, GENERAL NOTES, AND LOCAL NOTES) |
| TMP-2 | PHASING |
| TMP-3 | PHASE I |
| TMP-4 | PHASE II |
| TMP-5 | PHASE III |

SHEET NO.
TMP-1

PROJECT: 17BP.14.R.211

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

APPROVED: Jimmy Terry
DATE: 3/5/2021



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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 |
| 1101.04 | TEMPORARY SHOULDER 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 |
| 1160.01 | TEMPORARY CRASH CUSHION |
| 1170.01 | POSITIVE PROTECTION |
| 1180.01 | SKINNY-DRUM |
| 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 |

LEGEND

GENERAL

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



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

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| | | | |
|--|--|--|---------------------------------------|
| APPROVED: DATE: 3/3/2021 SEAL | | | ROADWAY STANDARD DRAWINGS & LEGEND |
| DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED | | | |

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 UNDESIRABLE 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 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.

PAVEMENT EDGE DROP OFF REQUIREMENTS

- E) 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.
- F) 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

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

SIGNING

- H) 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.
- I) PROVIDE SIGNING AND DEVICES REQUIRED TO CLOSE THE ROAD ACCORDING TO THE ROADWAY STANDARD DRAWINGS AND TRAFFIC CONTROL PLANS.
- J) COVER OR REMOVE ALL SIGNS AND DEVICES REQUIRED TO CLOSE THE ROAD WHEN ROAD CLOSURE IS NOT IN OPERATION.
- K) ENSURE ALL NECESSARY SIGNING IS IN PLACE PRIOR TO ALTERING ANY TRAFFIC PATTERN.
- L) 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 BARRIER

- M) INSTALL TEMPORARY BARRIER ACCORDING TO THE TRANSPORTATION MANAGEMENT PLANS A MAXIMUM OF TWO (2) WEEKS PRIOR TO BEGINNING WORK IN ANY LOCATION. ONCE TEMPORARY BARRIER IS INSTALLED AT ANY LOCATION PROCEED IN A CONTINUOUS MANNER TO COMPLETE THE PROPOSED WORK IN THAT LOCATION UNLESS OTHERWISE STATED IN THE TRANSPORTATION MANAGEMENT PLANS OR AS DIRECTED BY THE ENGINEER.

DO NOT PLACE BARRIER DIRECTLY ON ANY SURFACE OTHER THAN ASPHALT OR CONCRETE.

ONCE TEMPORARY BARRIER IS INSTALLED AT ANY LOCATION AND NO WORK IS PERFORMED BEHIND THE TEMPORARY BARRIER FOR A PERIOD LONGER THAN TWO (2) MONTHS, REMOVE / RESET TEMPORARY BARRIER AT NO COST TO THE DEPARTMENT UNLESS OTHERWISE STATED IN THE TRANSPORTATION MANAGEMENT PLANS, TEMPORARY BARRIER IS PROTECTING A HAZARD, OR AS DIRECTED BY THE ENGINEER.

INSTALL TEMPORARY BARRIER WITH THE TRAFFIC FLOW BEGINNING WITH THE UPSTREAM SIDE OF TRAFFIC. REMOVE TEMPORARY BARRIER AGAINST THE TRAFFIC FLOW BEGINNING WITH THE DOWNSTREAM SIDE OF TRAFFIC.

INSTALL AND SPACE DRUMS NO GREATER THAN TWICE THE POSTED SPEED LIMIT (MPH) TO CLOSE OR KEEP THE SECTION OF THE ROADWAY CLOSED UNTIL THE TEMPORARY BARRIER CAN BE PLACED OR AFTER THE TEMPORARY BARRIER IS REMOVED.

- N) PROTECT THE APPROACH END OF MOVABLE/PORTABLE CONCRETE BARRIER AT ALL TIMES DURING THE INSTALLATION AND REMOVAL OF THE BARRIER BY EITHER A TRUCK MOUNTED ATTENUATOR (MAXIMUM 72 HOURS) OR A TEMPORARY CRASH CUSHION.

PROTECT THE APPROACH END OF MOVABLE/PORTABLE CONCRETE BARRIER FROM ONCOMING TRAFFIC AT ALL TIMES BY A TEMPORARY CRASH CUSHION UNLESS THE APPROACH END OF MOVABLE/PORTABLE CONCRETE BARRIER IS OFFSET FROM ONCOMING TRAFFIC AS FOLLOWS OR AS SHOWN IN THE PLANS: (SEE ALSO 1101.05)

| POSTED SPEED LIMIT | MINIMUM OFFSET |
|--------------------|----------------|
| 40 OR LESS | 15 FT |
| 45 - 50 | 20 FT |
| 55 | 25 FT |
| 60 MPH or HIGHER | 30 FT |

TRAFFIC CONTROL DEVICES

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

PAVEMENT MARKINGS AND MARKERS

- Q) INSTALL PAVEMENT MARKINGS AND PAVEMENT MARKERS ON THE FINAL SURFACE.
- R) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.
- S) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS BY THE END OF EACH DAY'S OPERATION.

Macon County
Bridge #550079

| | |
|--------------------------------------|---------------------|
| PROJ. REFERENCE NO. 17BP.14.R.211 | SHEET NO. TMP-1B |
|--------------------------------------|---------------------|



LOCAL NOTES


ACCESS TO ALL DRIVEWAYS AND 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.

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| | | | |
|--|--|--|--|
| APPROVED: _____ DATE: 3/3/2021 SEAL | | | <h1 style="margin: 0;">TRANSPORTATION OPERATIONS PLAN</h1> |
| DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED | | | |

| | |
|--|-----------|
| PROJ. REFERENCE NO. | SHEET NO. |
| 17BP.14.R.211 | 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 TEMPORARY 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. 15+84.99 TO 16+41.01. (SEE TMP-3)

CONSTRUCT THE FOLLOWING UP TO BUT NOT INCLUDING THE FINAL LAYER OF SURFACE COURSE:
 -L- STA. 14+50.00 TO 15+84.99 (BEGIN BRIDGE)
 -L- STA. 16+41.01 (END BRIDGE) TO 18+80.00. (SEE TMP-3)

INSTALL TEMPORARY PORTABLE CONCRETE BARRIER, INCLUDING TEMPORARY CRASH CUSHION, ONTO THE PROPOSED BRIDGE. (SEE TMP-3 AND STRUCTURE PLANS).

PHASE II:

STEP 1:

REMOVE THE TEMPORARY GUARDRAIL , 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. 15+84.99 TO 16+41.01.

CONSTRUCT THE FOLLOWING UP TO BUT NOT INCLUDING THE FINAL LAYER OF SURFACE COURSE:
 -L- STA. 14+50.00 TO 15+84.99 (BEGIN BRIDGE)
 -L- STA. 16+41.01 (END BRIDGE) TO 18+80.00. (SEE TMP-4).

USING TEMPORARY LANE CLOSURES AND FLAGGERS, AS NEEDED, CONSTRUCT -DR- AS FOLLOWS:
 -DR- STA. 10+30.00 TO 10+81.86
 CONSTRUCT THE GRAVEL DRIVEAWAY LT OF -DR- STA . 10+60+/- (TMP-4)

AFTER BRIDGE CONSTRUCTION IS COMPLETED, REMOVE THE TEMPORARY PORTABLE CONCRETE BARRIER. (SEE TMP-4 AND STRUCTURE PLANS)

PHASE III

STEP 1:

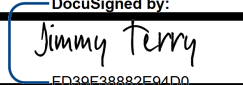

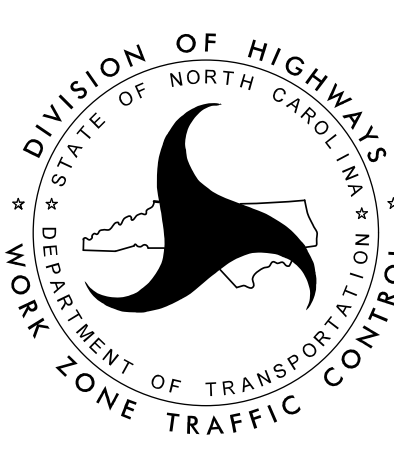
DEACTIVATE THE TEMPORARY TRAFFIC SIGNALS, REMOVE ALL SIGNAGE, AND PLACE THE TRAFFIC IN ITS FINAL PATTERN. USING LANE CLOSURES AND FLAGGERS AS NEEDED PLACE THE FINAL LAYER OF SURFACE COURSE:
 -L- STA 14+50.00 TO 19+30.00
 (SEE TMP-5)


STEP 2:

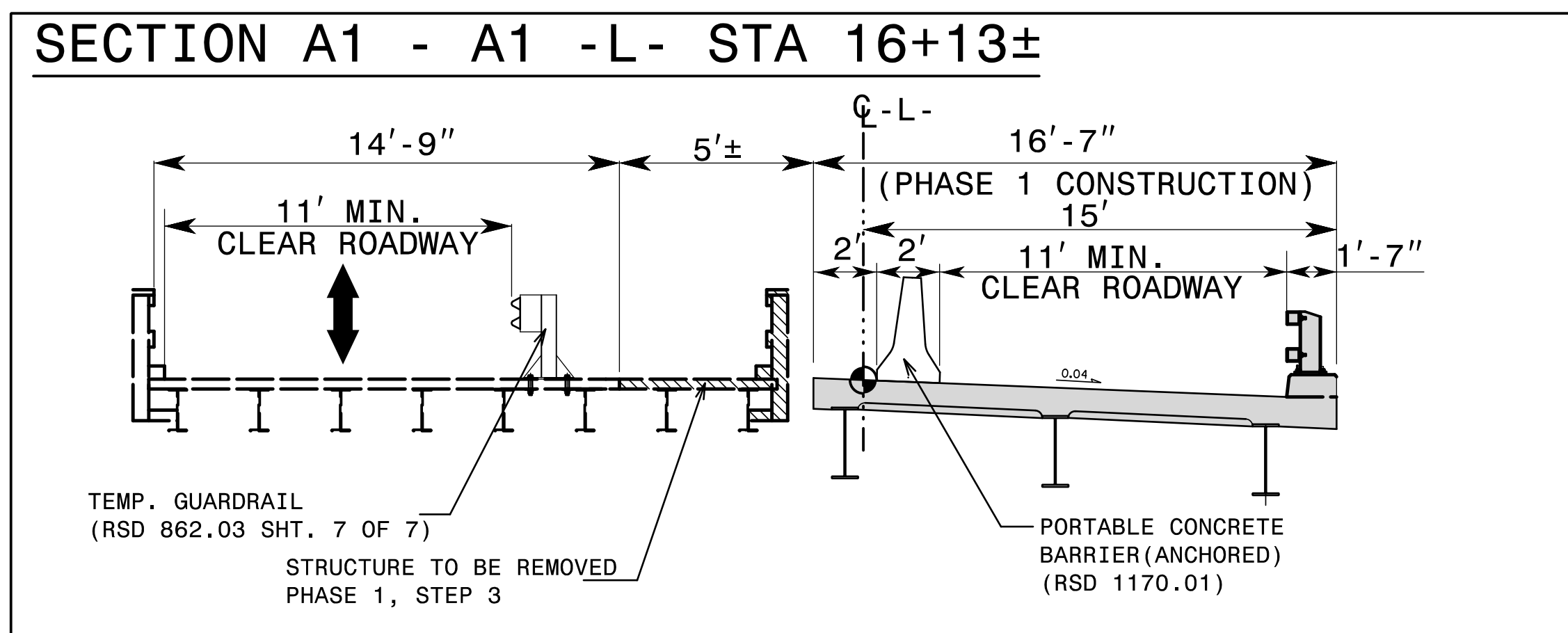
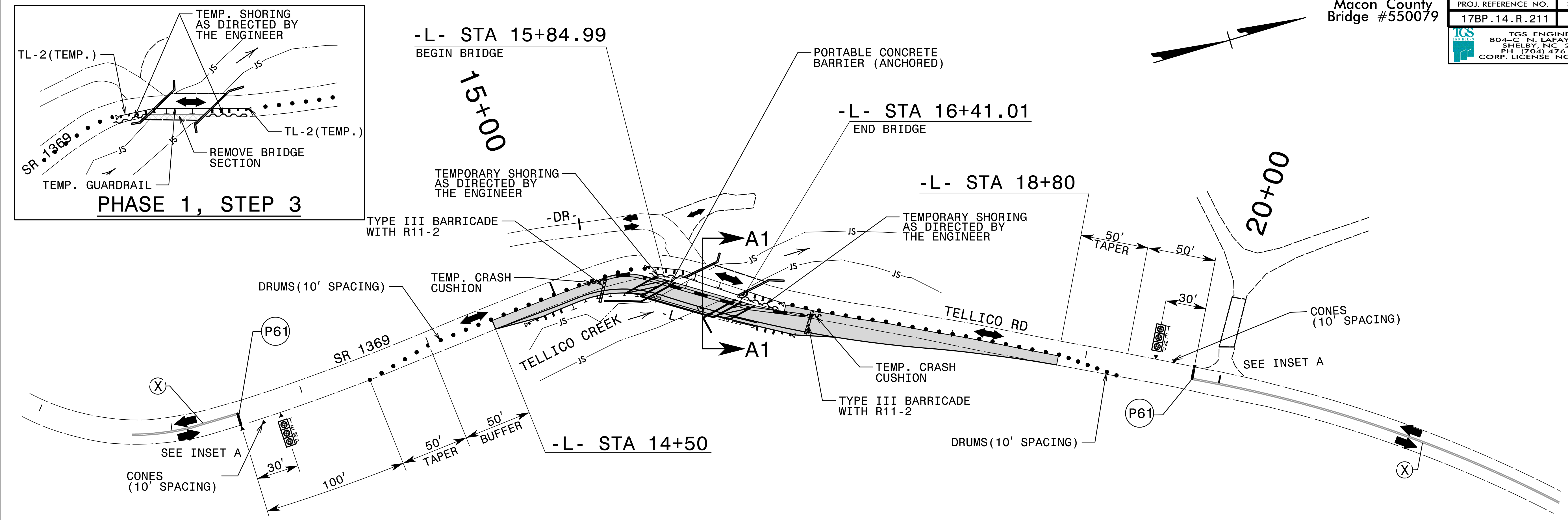
USING TEMPORARY LANE CLOSURES AND FLAGGERS AS NEEDED INSTALL THE FINAL PAVEMENT MARKINGS AS SHOWN ON THE PAVEMENT MARKING PLANS. (SEE PMP-2 AND NCDOT RDWY. STD. 1101.02, SHT 1 OF 14).

REMOVE ALL TRAFFIC CONTROL DEVICES.

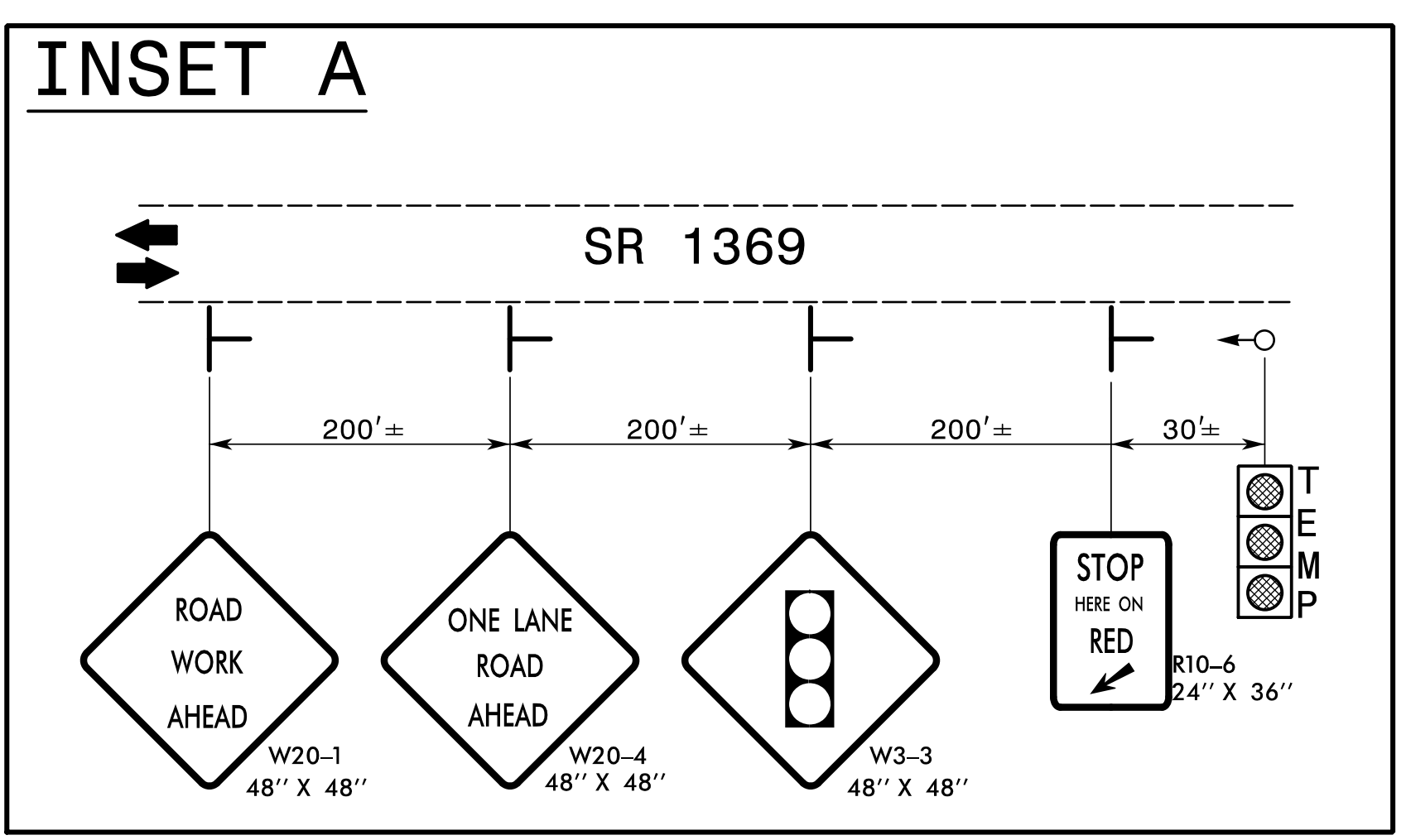
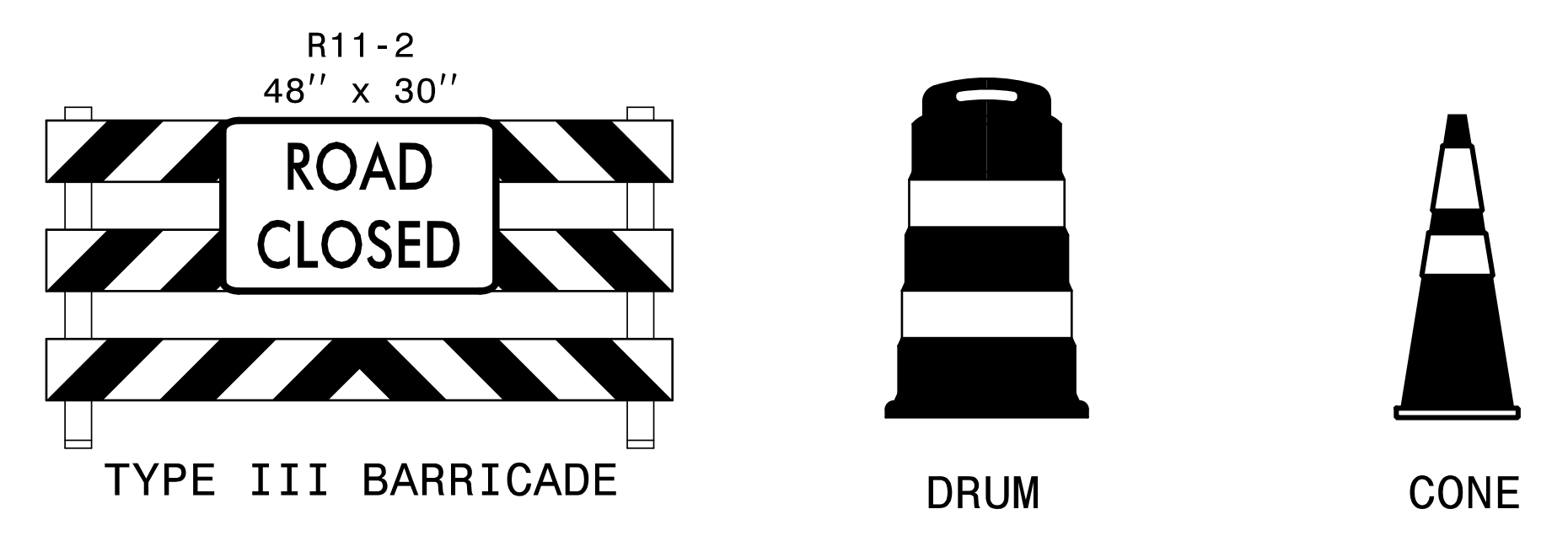
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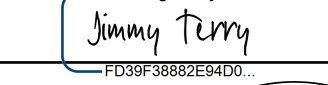
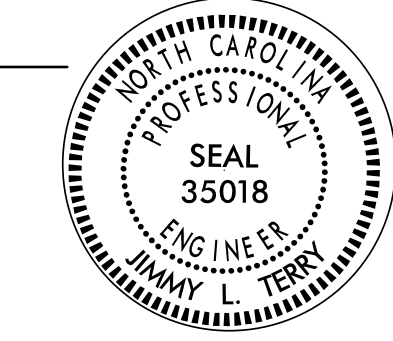
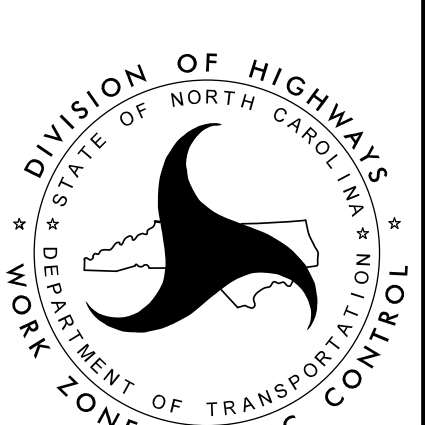
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| APPROVED:  DATE: 3/3/2021 |  |  | PHASING |
| DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED | | | |

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|---|--------------------|
| PROJ. REFERENCE NO. 17BP.14.R.211 | SHEET NO. TMP-3 |
|  TGS ENGINEERS 804-C N. LAFAYETTE ST SHELBY, NC 28150 PH. (704) 476-0003 CORP. LICENSE NO.: C-0275 | |

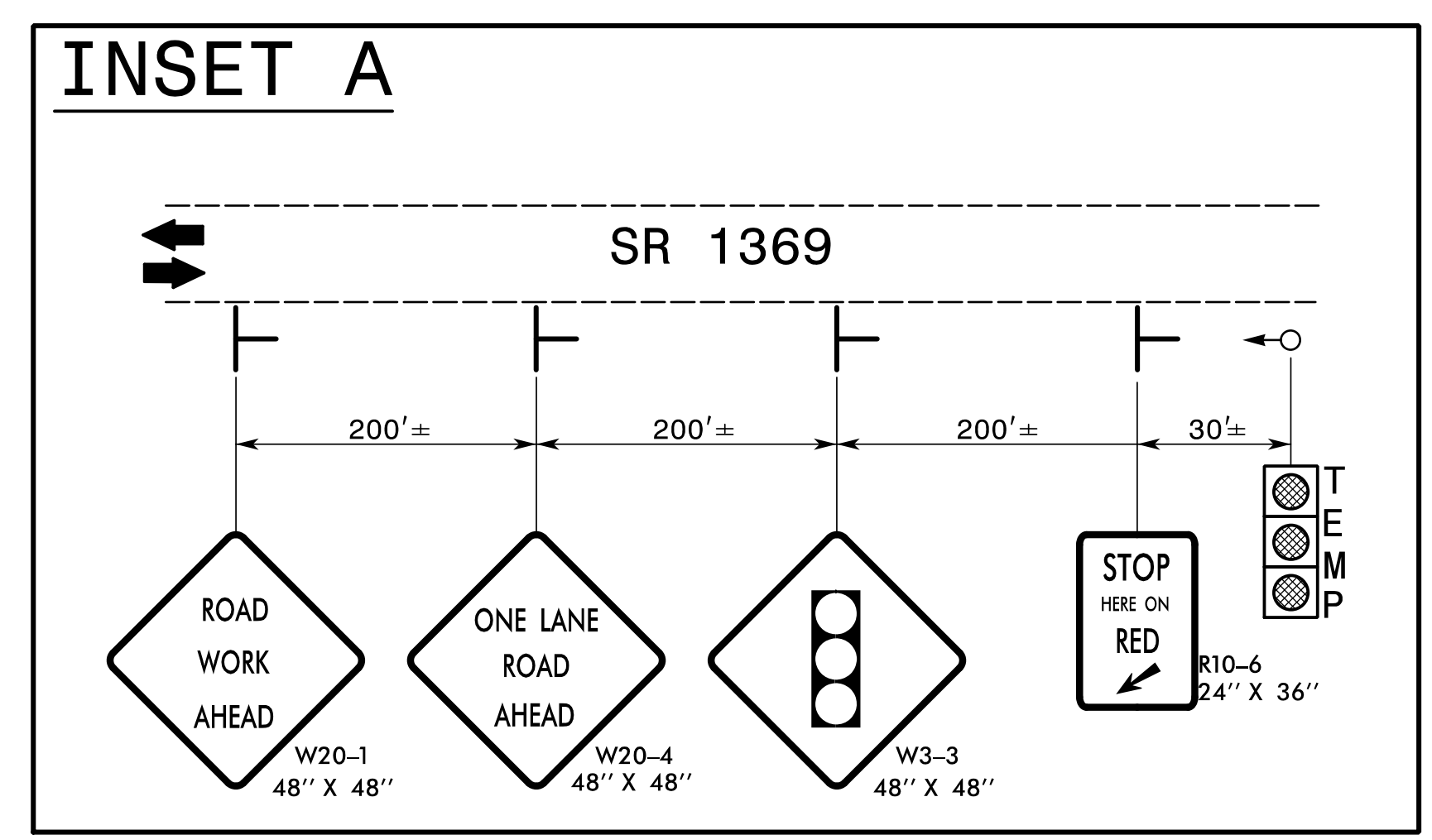
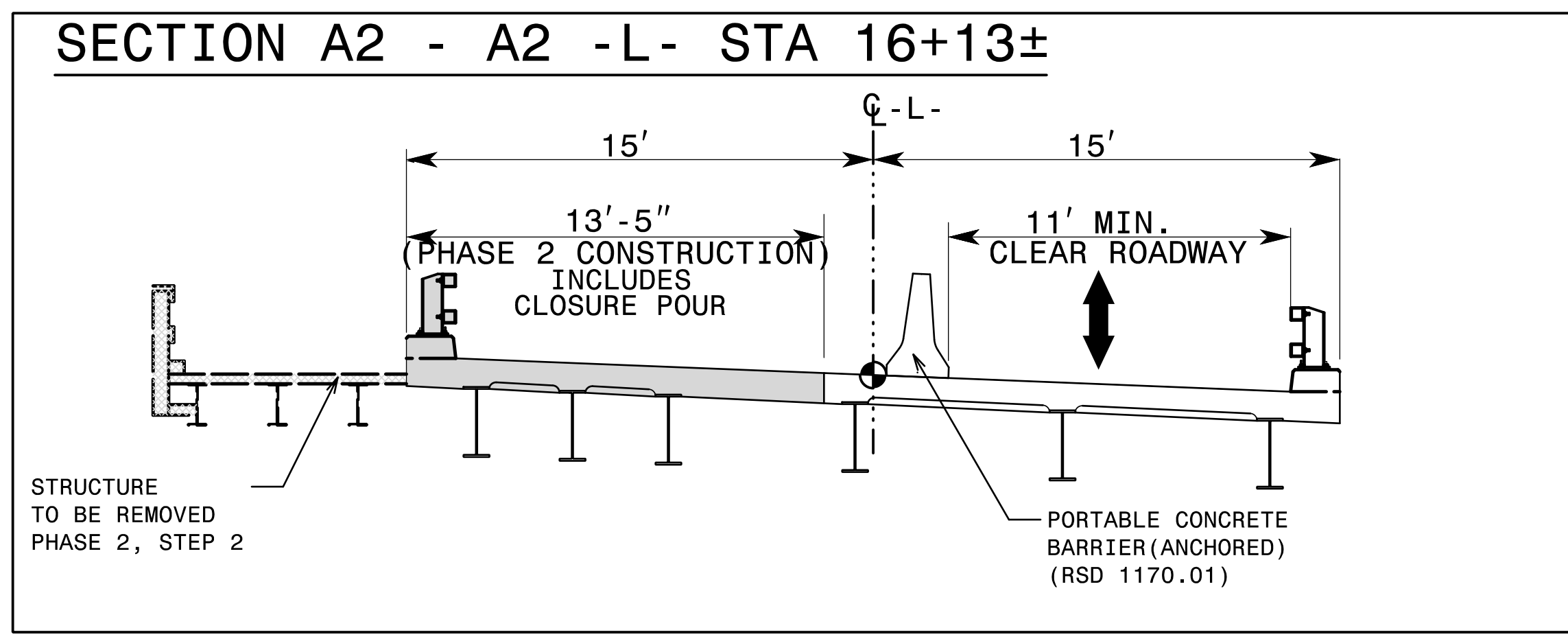
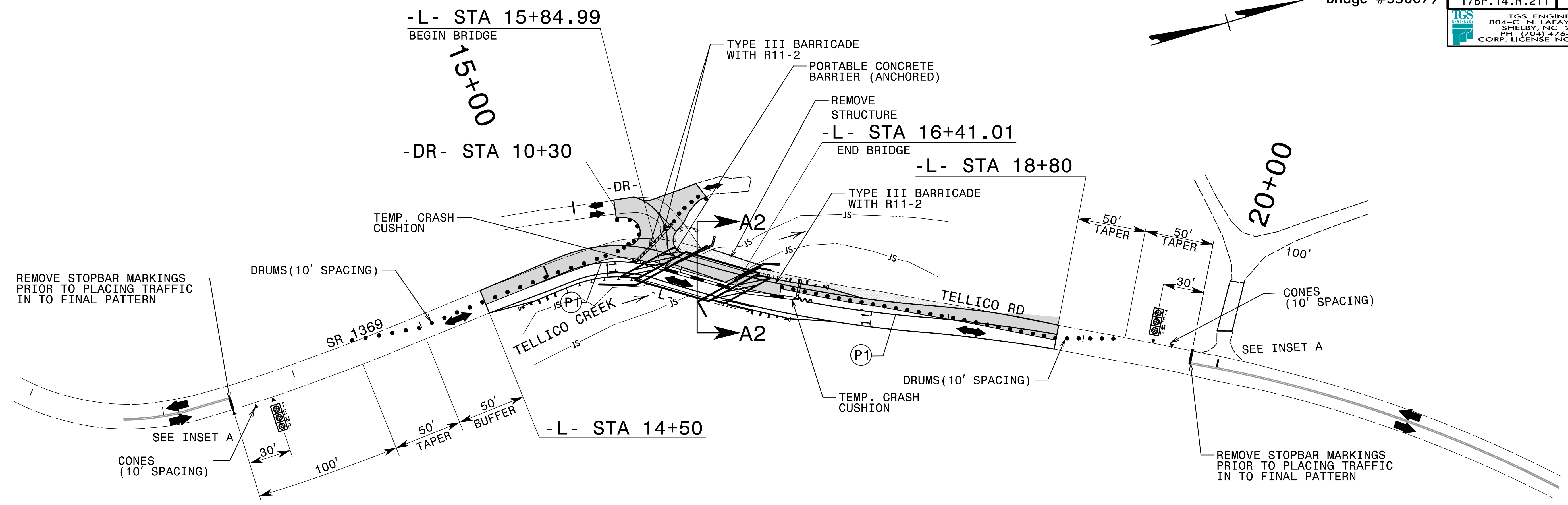


- (P61) 24" PAINT - WHITE STOPBAR
- (X) EXISTING PAVEMENT MARKINGS (DOUBLE YELLOW)



| | | | |
|---|---|---|------------------|
| APPROVED:  |  |  | <h1>PHASE I</h1> |
| DATE: 3/3/2021 | | | |
| <p>SEAL</p> <p>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</p> | | | |

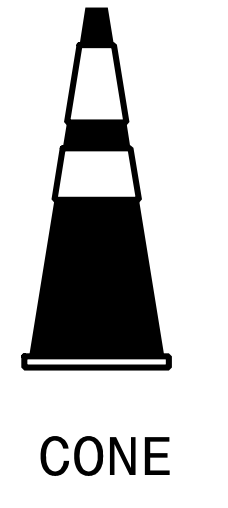
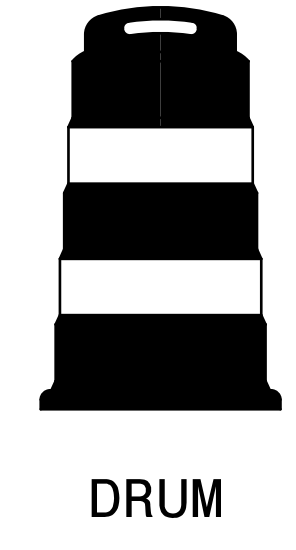
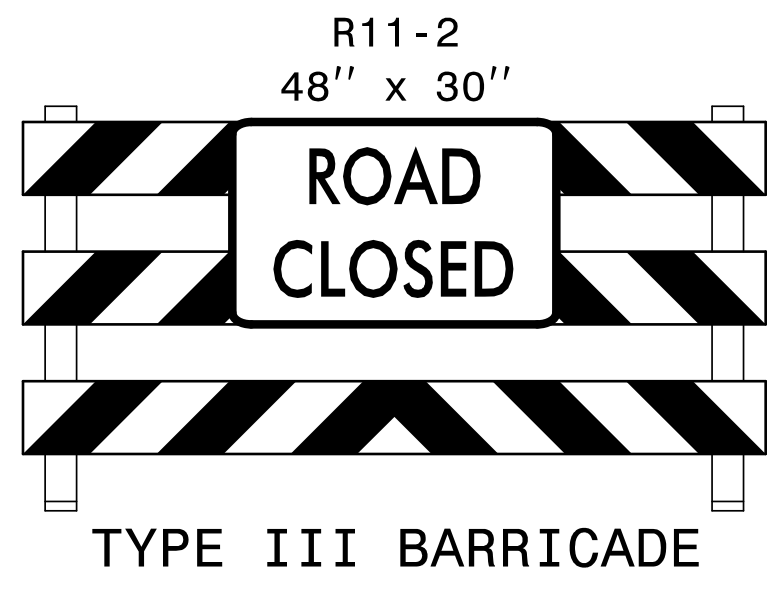
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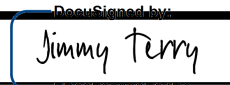


(P1) 4" PAINT, WHITE EDGELINE

 REMOVAL OF STRUCTURE

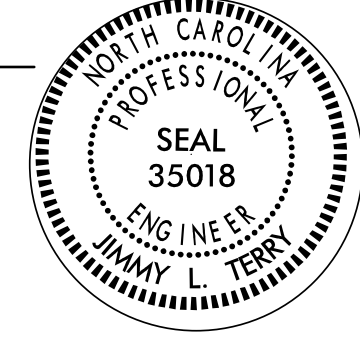
 PAVEMENT REMOVAL



APPROVED: 

DATE: 3/3/2021


SEAL

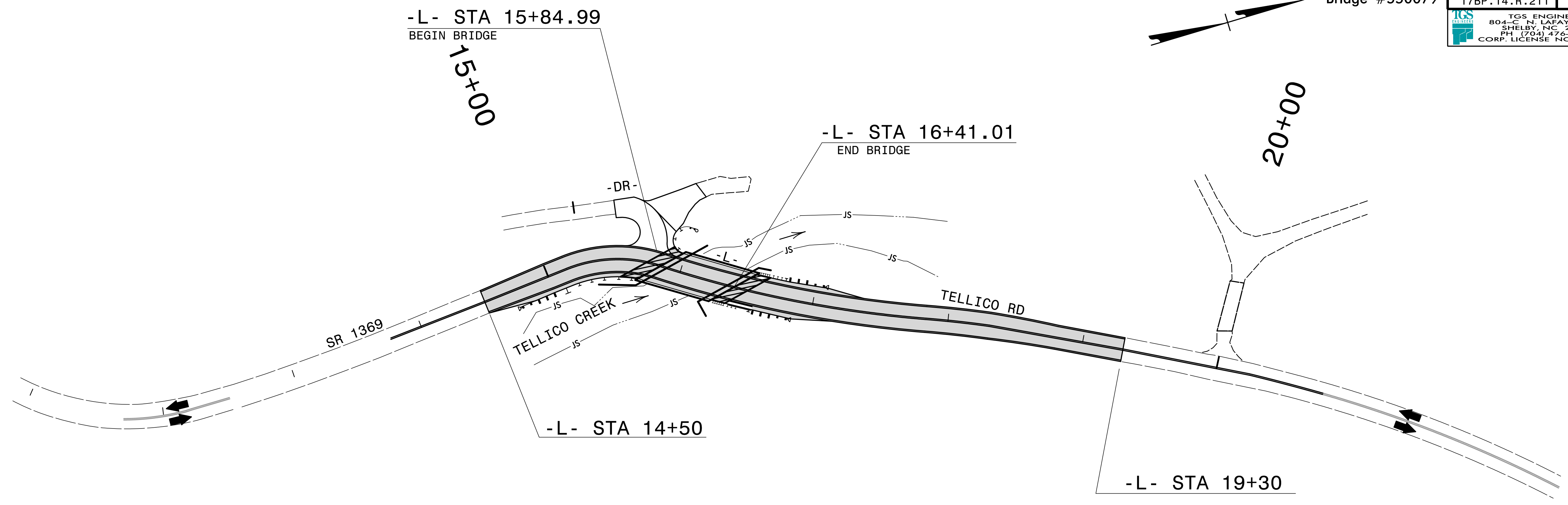



PHASE II

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

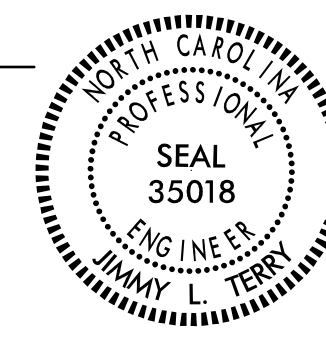
3/3/2021 X:\NGDOT\Division 14 - 2017\Macon 550079\TrafficControl\TCP\Macon-550079_TC_TMP_04\Phase 2.dgn User:smelvin

| | |
|---|-----------|
| PROJ. REFERENCE NO. | SHEET NO. |
| 17BP.14.R.211 | TMP-5 |
|  TGS ENGINEERS 804-C N. LAFAYETTE ST SHELBY, NC 28150 PH: (704) 476-0003 CORP. LICENSE NO.: C-0275 | |

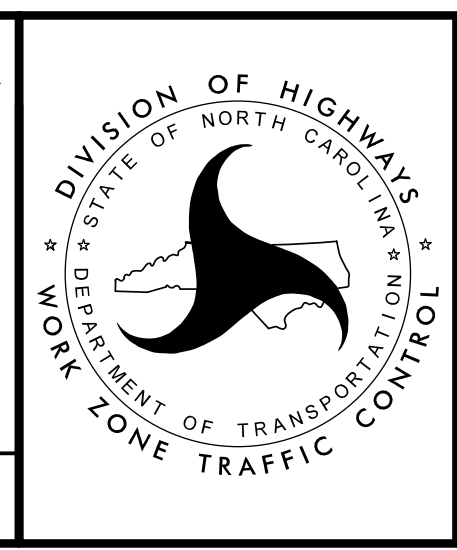


SEE FINAL PAVEMENT MARKING PLANS FOR PAVEMENT MARKING SCHEDULE AND LAYOUT.

APPROVED: Jimmy Terry
 DATE: 3/3/2021



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



PHASE III

3/3/2021
X:\NCDOT\Division 14 - 2017\Macon 550079\Traffic\TrafficControl\TCP\Macon-550079_TC_TMP_05\Phase 3.dgn
User:smelvin

PROJECT: 17BP.14.R.211

**STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION**

**PAVEMENT MARKING PLAN
MACON COUNTY**

LOCATION: BRIDGE #550079 OVER TELlico CREEK ON SR 1369 (TELLICO RD)

| | |
|---|--------------------|
| PROJECT NO. 17BP.14.R.211 | SHEET NO. PMP-1 |
| APPROVED: <small>FD398368262402</small> | |
| DATE: 3/3/2021 | |
| SEAL | |
| 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 |
| 1205.12 | 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 |

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.

INDEX

| SHEET NO. | DESCRIPTION |
|-----------|--|
| PMP-1 | PAVEMENT MARKING PLAN TITLE AND SCHEDULE SHEET |
| PMP-2 | PAVEMENT MARKING DETAIL |

FINAL PAVEMENT MARKING SCHEDULE

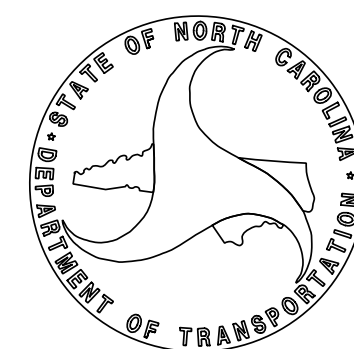
| SYMBOL | DESCRIPTION |
|-------------------|----------------------|
| PAVEMENT MARKINGS | |
| PAINT (4") | |
| (P1) | WHITE EDGELINE |
| (P13) | YELLOW DOUBLE CENTER |

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



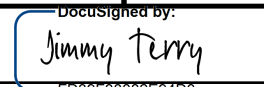


TGS ENGINEERS
804-C N. LAFAYETTE ST
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

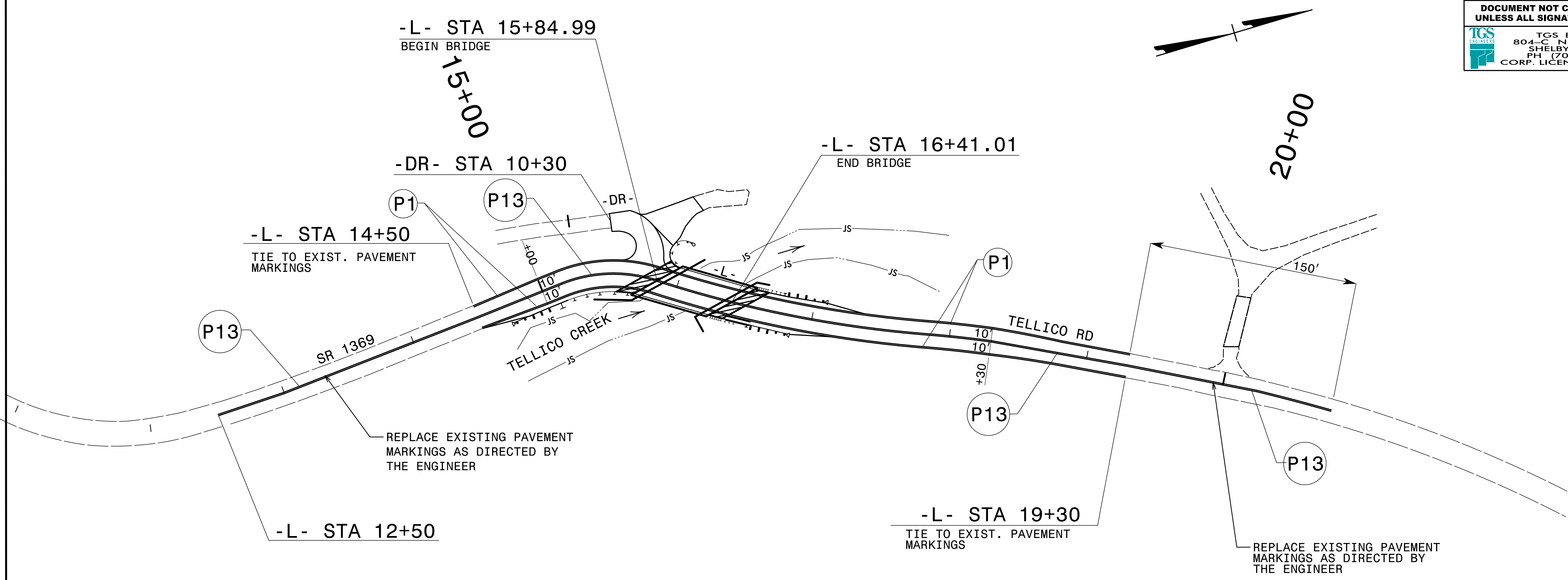
JIMMY TERRY, PE PROJECT ENGINEER
SANDRA MELVIN DESIGN TECHNICIAN



SEE SHEET PMP-1 FOR PAVEMENT MARKING SCHEDULE

Macon County
Bridge #550079

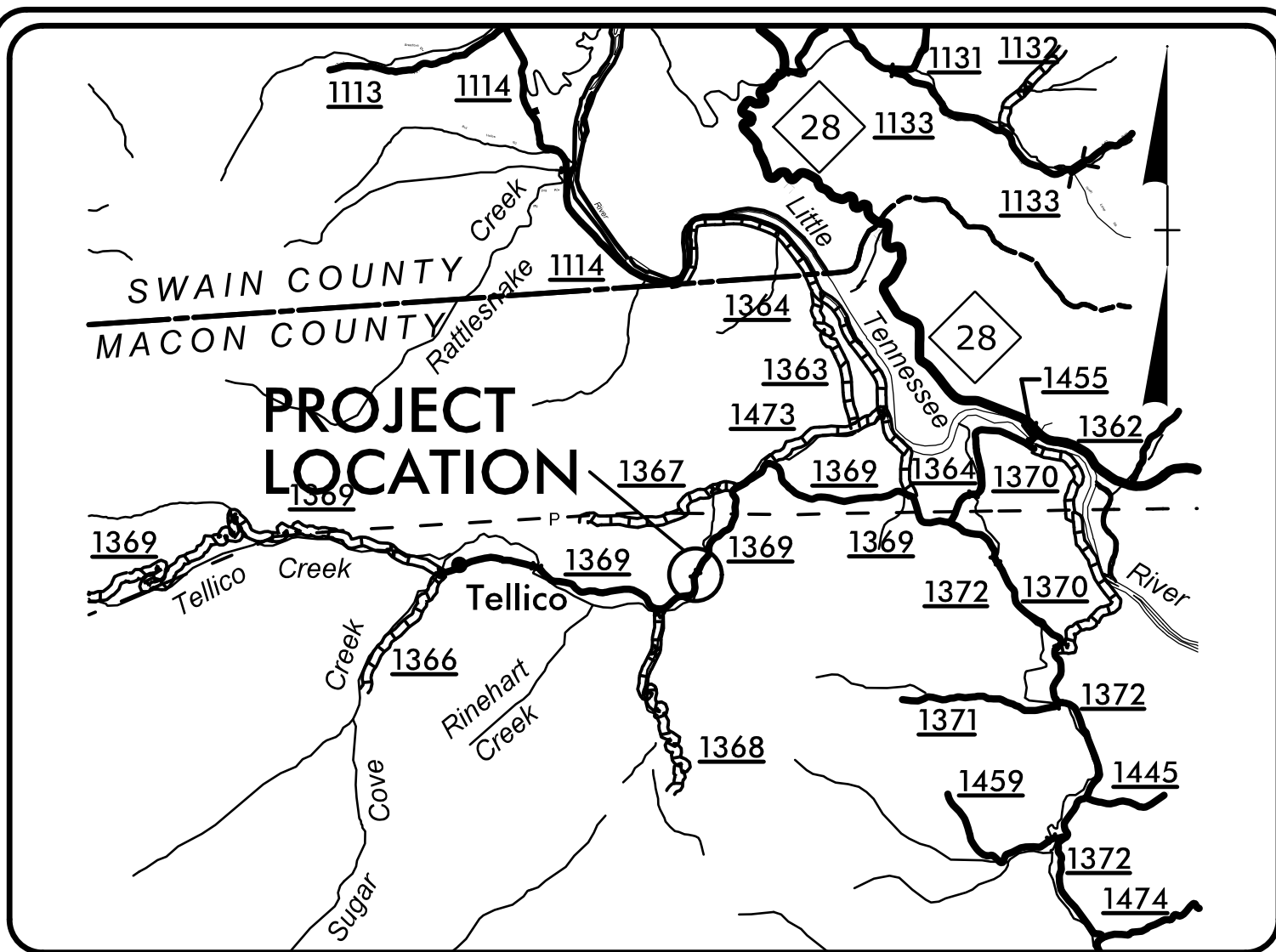
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|---|--------------------|
| TIP NO. 17BP.14.R.211 | SHEET NO. PMP-2 |
| APPROVED:  | |
| DATE: 3/3/2021 | |
|  | |
| DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED | |
|  TGS ENGINEERS 804-C N. LAFAYETTE ST SHELBY, NC 28150 PH (704) 476-0003 CORP. LICENSE NO.: C-0275 | |



3/1/2021
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User:smelvin

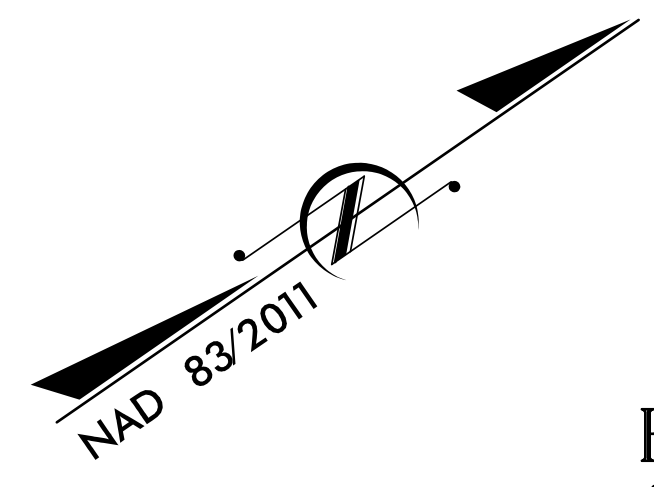
PAVEMENT MARKING DETAIL

PROJECT: 17BP.14.R.211



VICINITY MAP
NOT TO SCALE

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL



MACON COUNTY

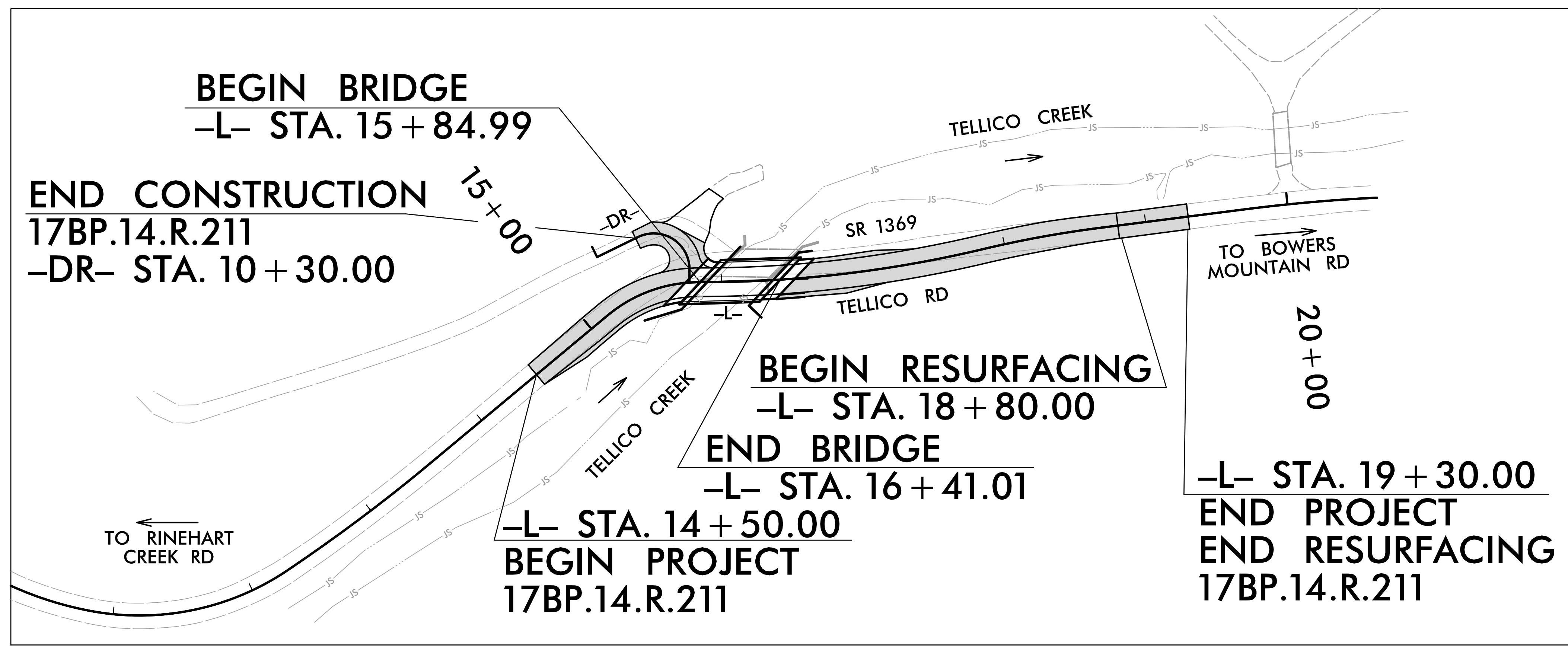
**LOCATION: BRIDGE NO. 550079 OVER TELLICO CREEK
ON SR 1369 (TELLICO ROAD)**

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

| STATE | STATE PROJECT REFERENCE NO. | SHEET NO. | TOTAL SHEETS |
|-----------------|-----------------------------|-------------|--------------|
| N.C. | 17BP.14.R.211 | EC-1 | |
| STATE PROJ. NO. | F.A. PROJ. NO. | DESCRIPTION | |
| 17BP.14.PE.211 | N/A | PE | |
| 17BP.14.ROW.211 | N/A | R/W & UTIL. | |
| 17BP.14.R.211 | N/A | CONST. | |

EROSION AND SEDIMENT CONTROL MEASURES

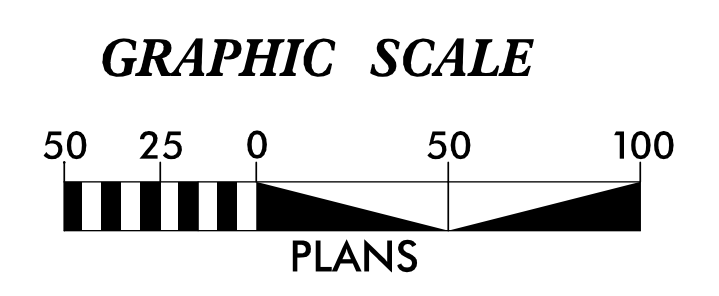
| Std. # | Description | Symbol |
|---------|--|-----------|
| 1630.03 | Temporary Silt Ditch | TD |
| 1630.05 | Temporary Diversion | TD |
| 1605.01 | Temporary Silt Fence | TSF |
| 1606.01 | Special Sediment Control Fence | SSCF |
| 1622.01 | Temporary Berms and Slope Drains | TBSD |
| 1630.02 | Silt Basin Type B | SB |
| 1633.01 | Temporary Rock Silt Check Type-A | TRSCA |
| | Temporary Rock Silt Check Type-A with Matting and Polyacrylamide (PAM) | TRSCA-PAM |
| 1633.02 | Temporary Rock Silt Check Type-B | TRSCB |
| | Wattle / Coir Fiber Wattle | W |
| | Wattle / Coir Fiber Wattle with Polyacrylamide (PAM) | W-PAM |
| 1634.01 | Temporary Rock Sediment Dam Type-A | TRSDA |
| 1634.02 | Temporary Rock Sediment Dam Type-B | TRSDB |
| 1635.01 | Rock Pipe Inlet Sediment Trap Type-A | RPIST-A |
| 1635.02 | Rock Pipe Inlet Sediment Trap Type-B | RPIST-B |
| 1630.04 | Stilling Basin | SB |
| 1630.06 | Special Stilling Basin | SSB |
| | Rock Inlet Sediment Trap: | |
| 1632.01 | Type A | A |
| 1632.02 | Type B | B |
| 1632.03 | Type C | C |
| | Skimmer Basin | SKB |
| | Tiered Skimmer Basin | TSKB |
| | Infiltration Basin | IB |



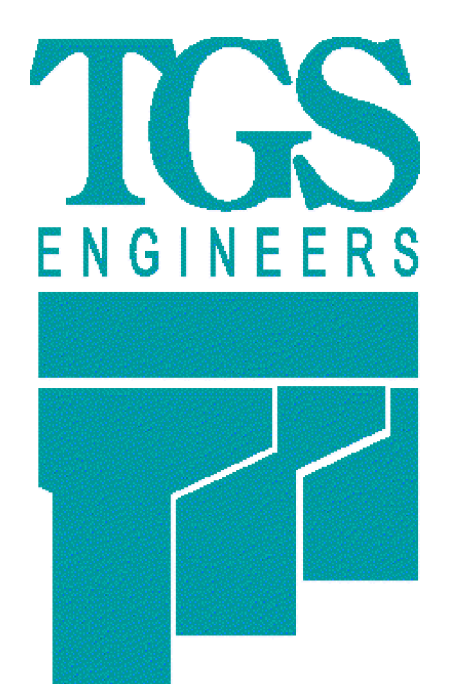
THIS PROJECT CONTAINS EROSION CONTROL PLANS FOR CLEARING AND GRUBBING PHASE OF CONSTRUCTION.

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.



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



Prepared In the Office of:
TGS ENGINEERS
201 W. MARION ST
SHELBY, NC 28150

Designed by:
Andrew H. Cochran, PE 3015
NAME LEVEL III CERTIFICATION NO.

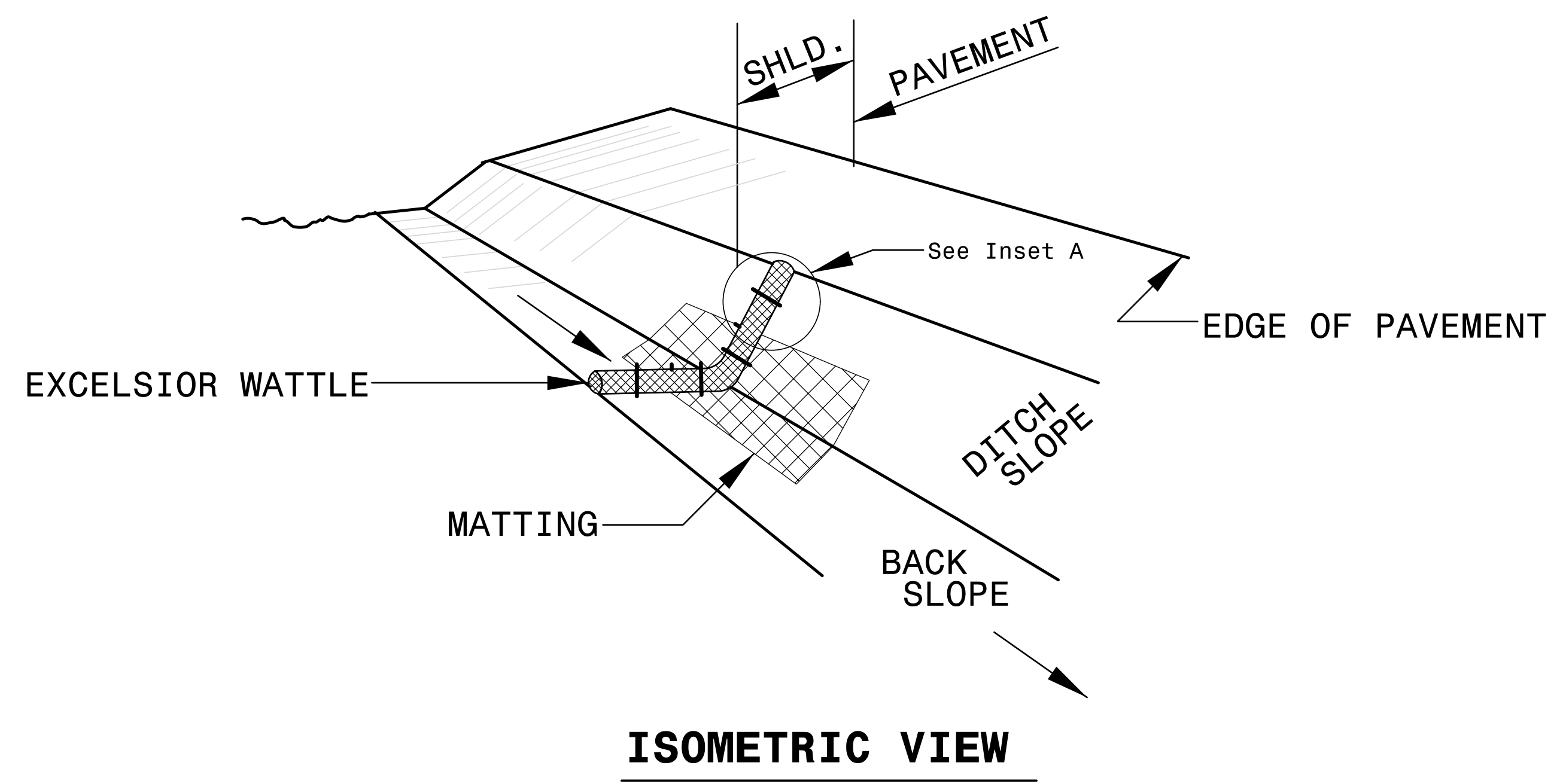
Roadway Standard Drawings

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 revision 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 | |

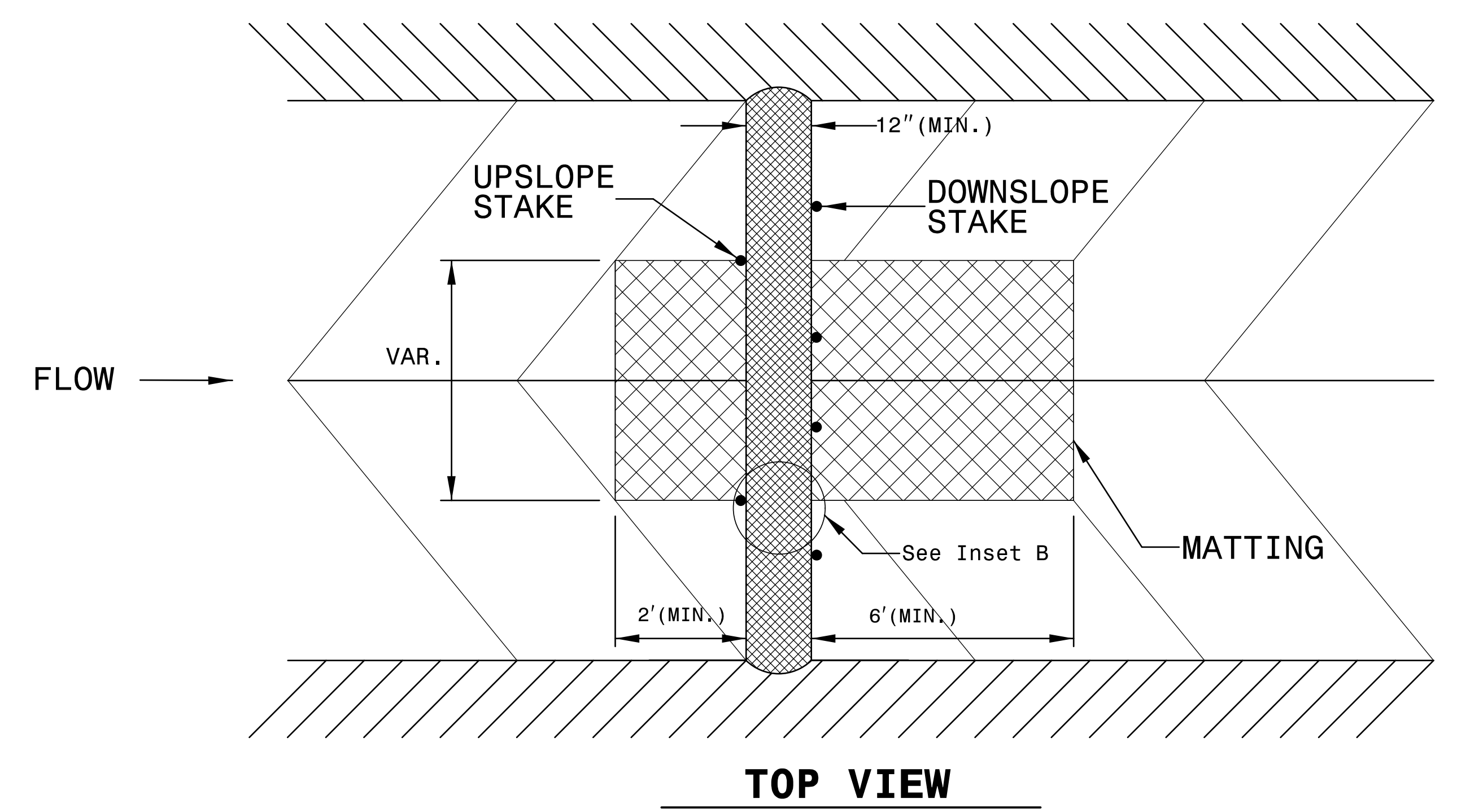
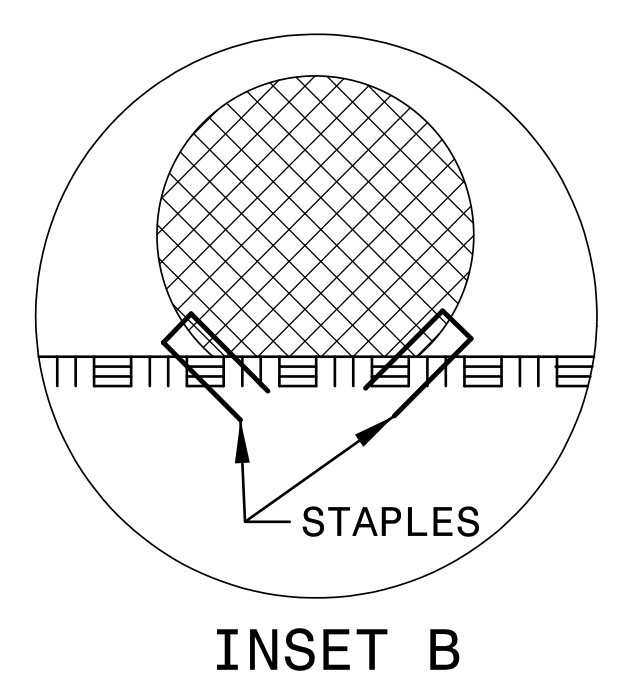
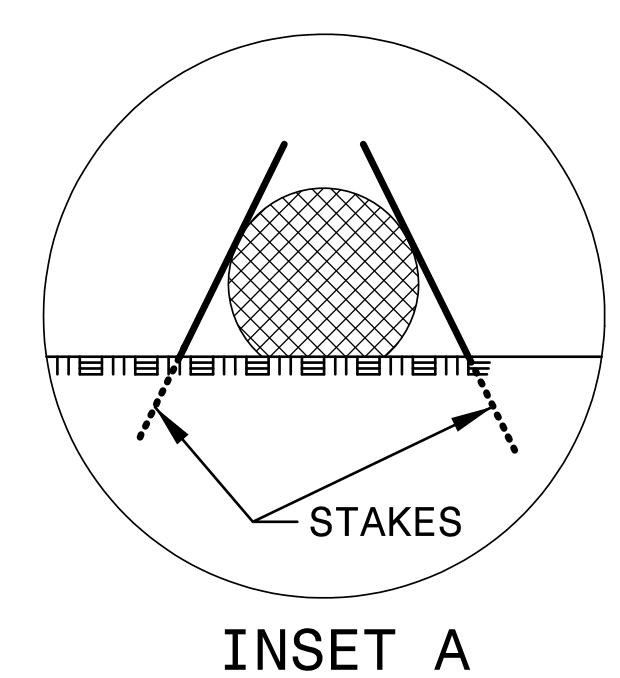
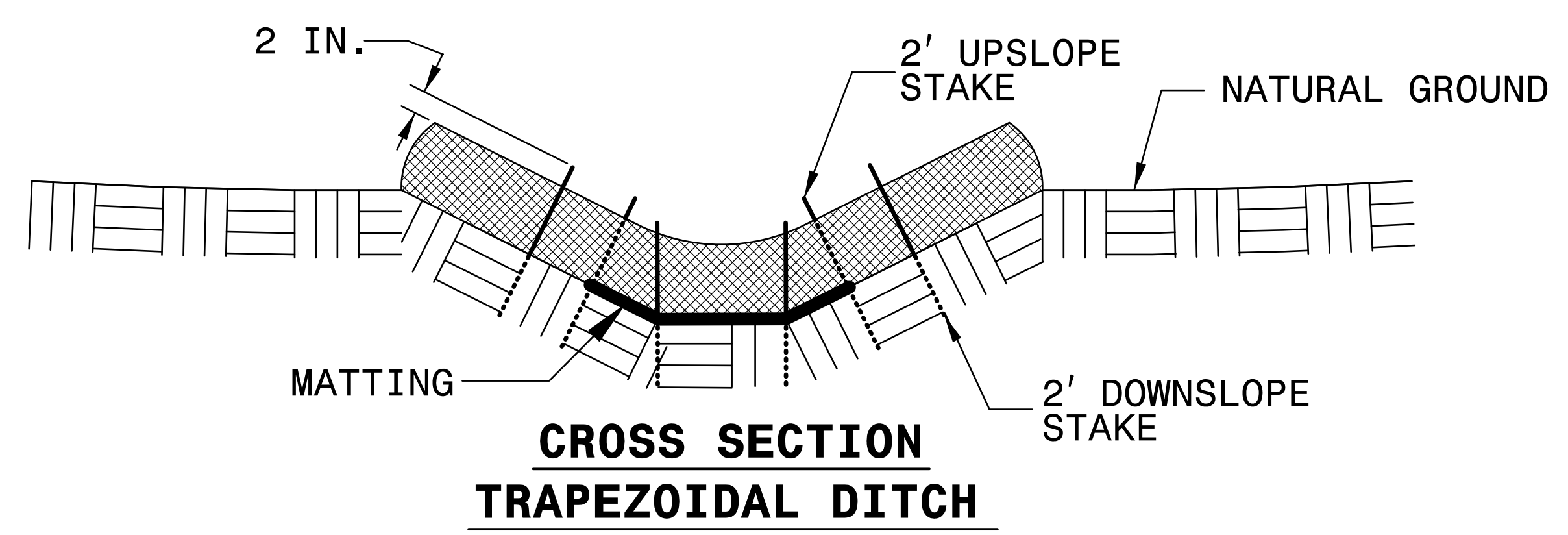
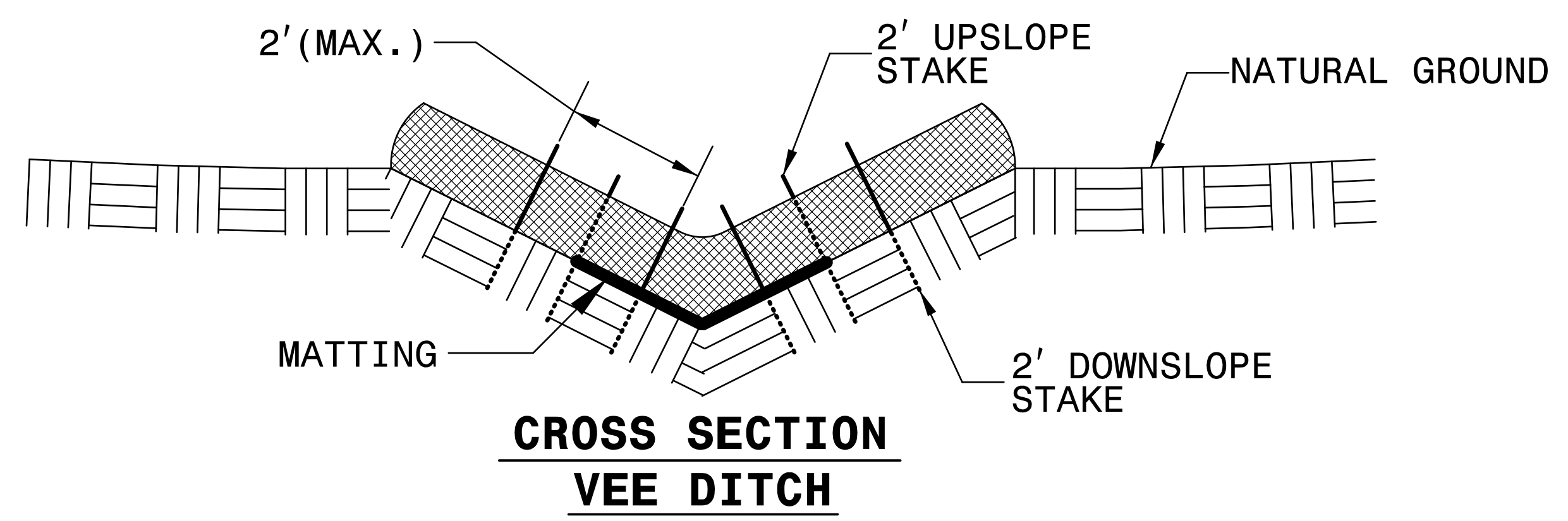
| | |
|--|--------------------------|
| PROJECT REFERENCE NO. <i>17BPJ4.R.211</i> | SHEET NO. <i>EC-2</i> |
| RW SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

WATTLE DETAIL



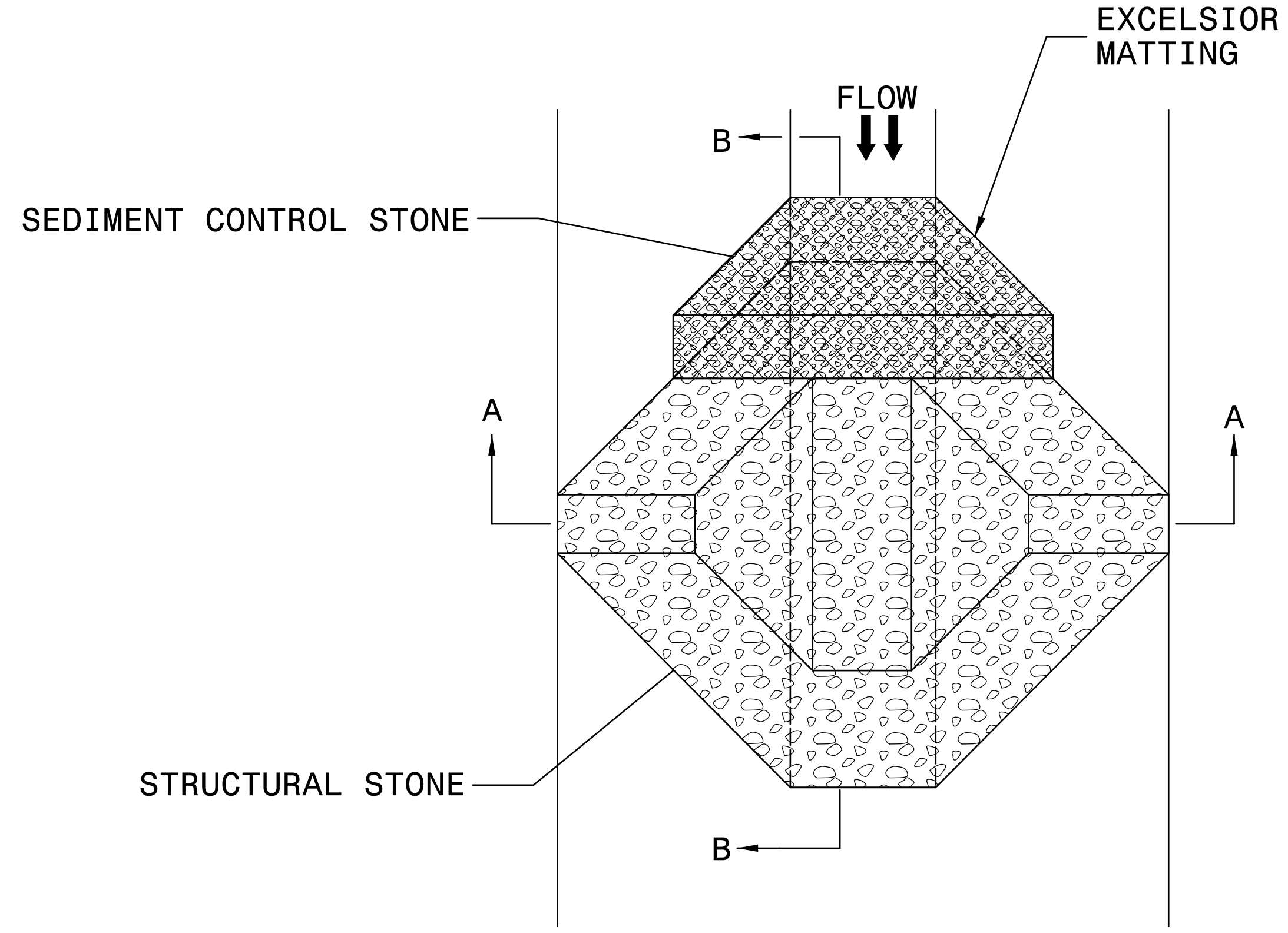
NOTES:

- 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.



| | |
|---------------------------------------|---------------------|
| PROJECT REFERENCE NO. 17BPJ4.R.211 | SHEET NO. EC-2A |
| RW SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

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



PLAN

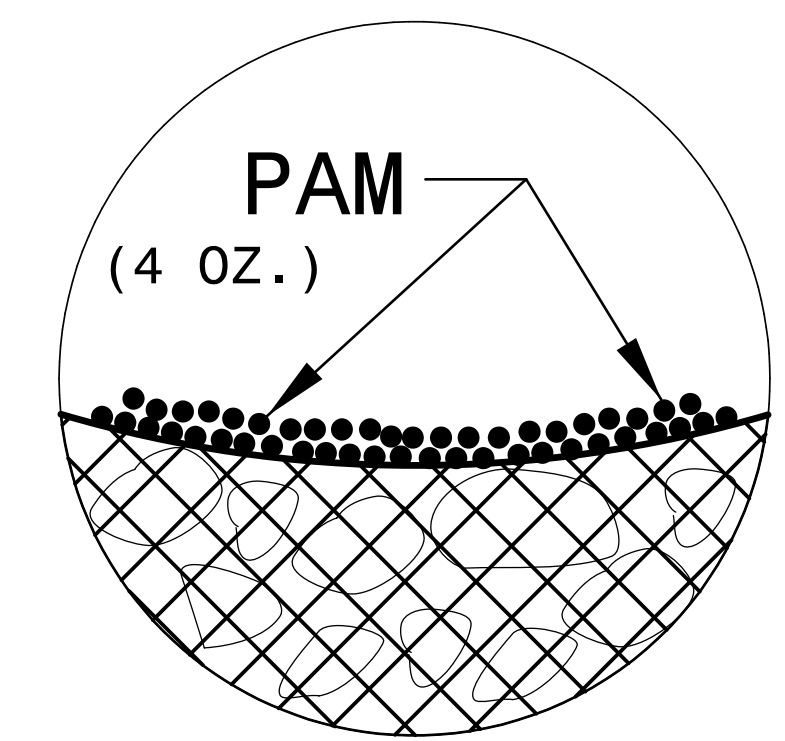
NOTES:

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

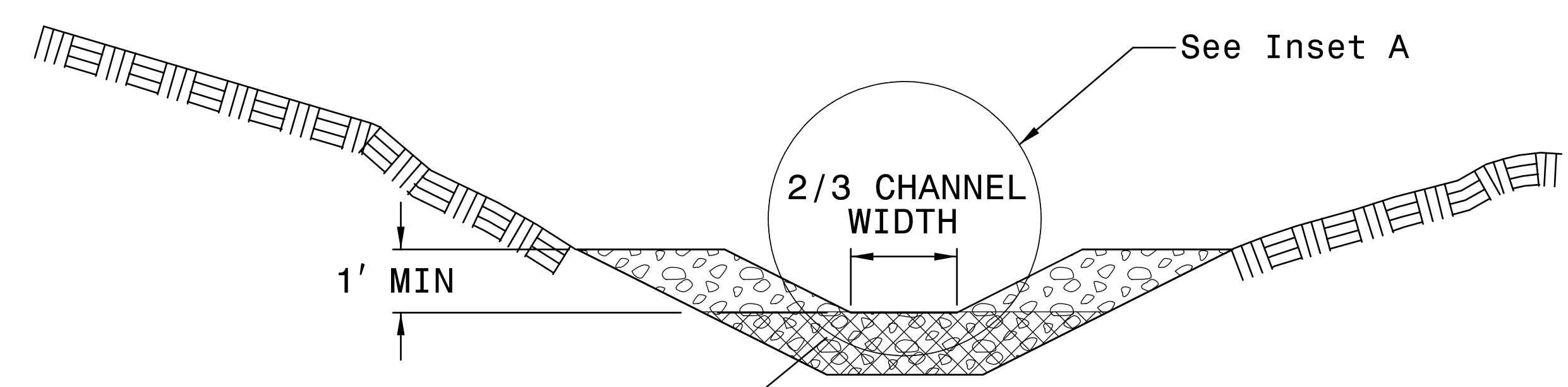
USE EXCELSIOR FOR MATTING MATERIAL AND ANCHOR MATTING SECTION AT TOP AND BOTTOM WITH CLASS B STONE.

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.

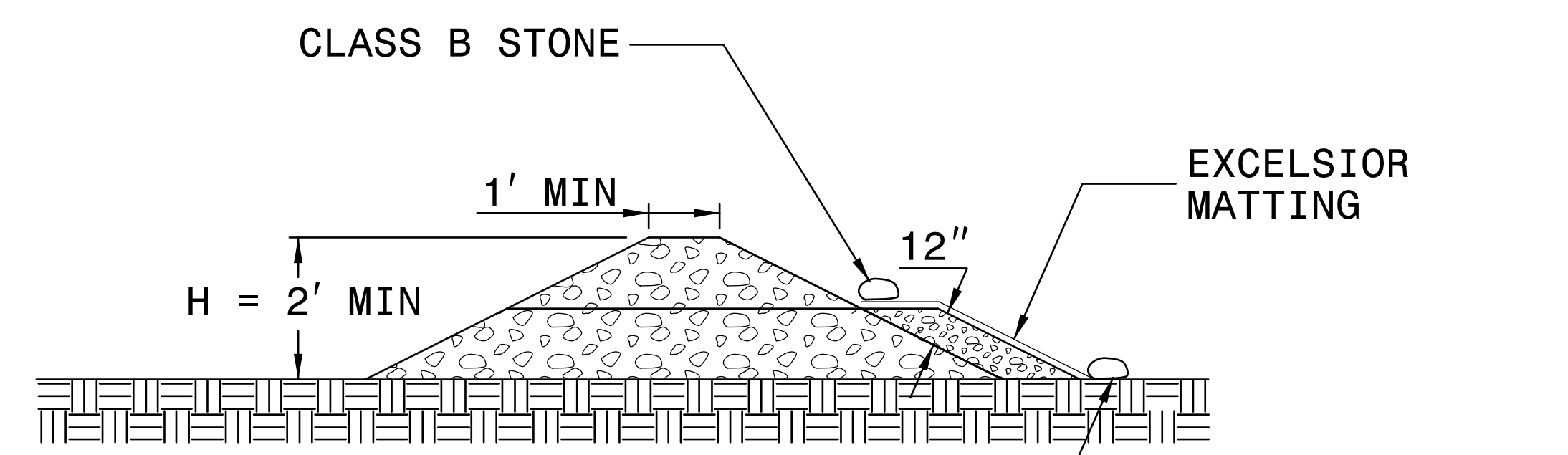
INITIALLY APPLY 4 OUNCES OF POLYACRYLAMIDE (PAM) TO TOP OF MATTING SECTION AND AFTER EVERY RAINFALL EVENT THAT EQUALS OR EXCEEDS 0.50 INCHES.



INSET A



SECTION A-A



SECTION B-B

NOT TO SCALE

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

| | |
|--|--------------------------|
| PROJECT REFERENCE NO. <i>17BPJ4R211</i> | SHEET NO. <i>EC-3</i> |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

SOIL STABILIZATION TIMEFRAMES

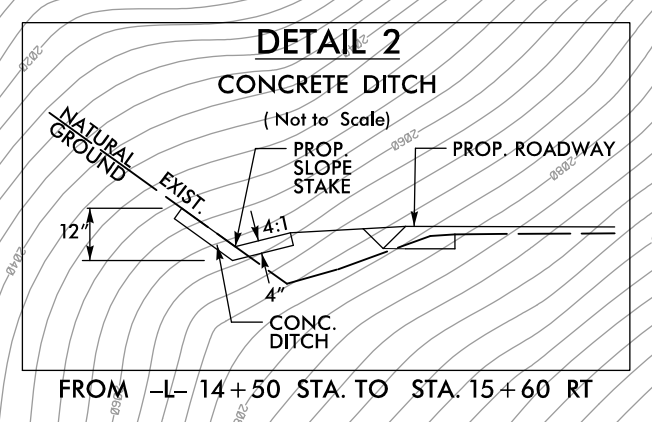
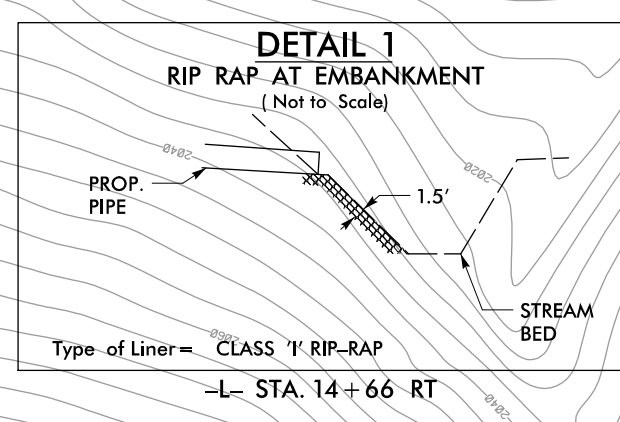
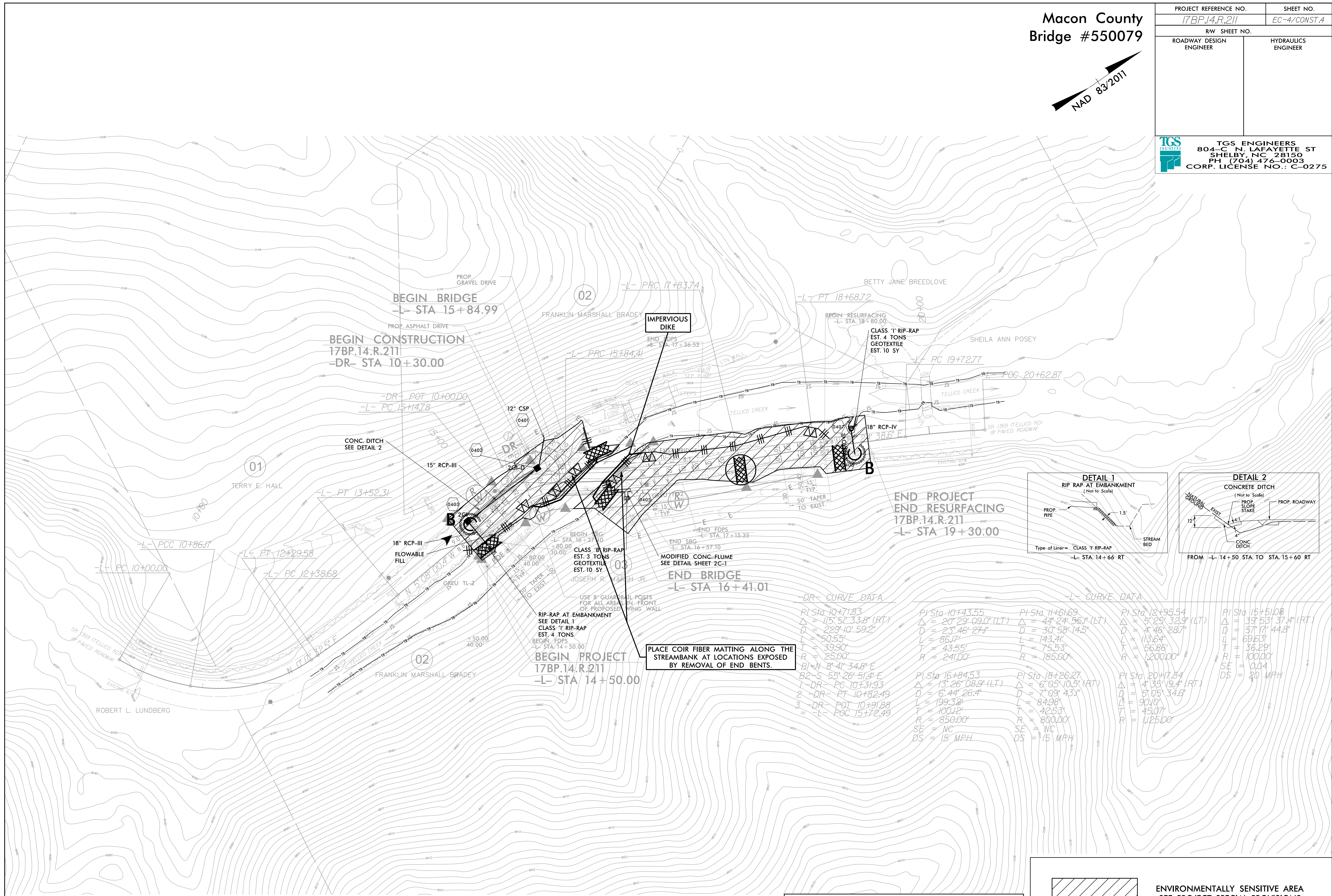
| <i>SITE DESCRIPTION</i> | <i>STABILIZATION TIME</i> | <i>TIMEFRAME EXCEPTIONS</i> |
|--|---------------------------|--|
| PERIMETER DIKES, SWALES, DITCHES AND SLOPES | 7 DAYS | NONE |
| HIGH QUALITY WATER (HQW) ZONES | 7 DAYS | NONE |
| SLOPES STEEPER THAN 3:1 | 7 DAYS | IF SLOPES ARE 10' OR LESS IN 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 #550079



| | |
|--|---------------------------|
| PROJECT REFERENCE NO. 17BP.14.R.211 | SHEET NO. EC-4/CONST.4 |
| RW SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

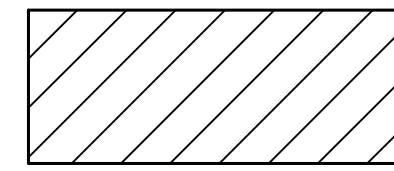
TGS ENGINEERS
 804-C N. LAFAYETTE ST
 SHELBY, NC 28150
 PH (704) 476-0003
 CORP. LICENSE NO.: C-0275



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.



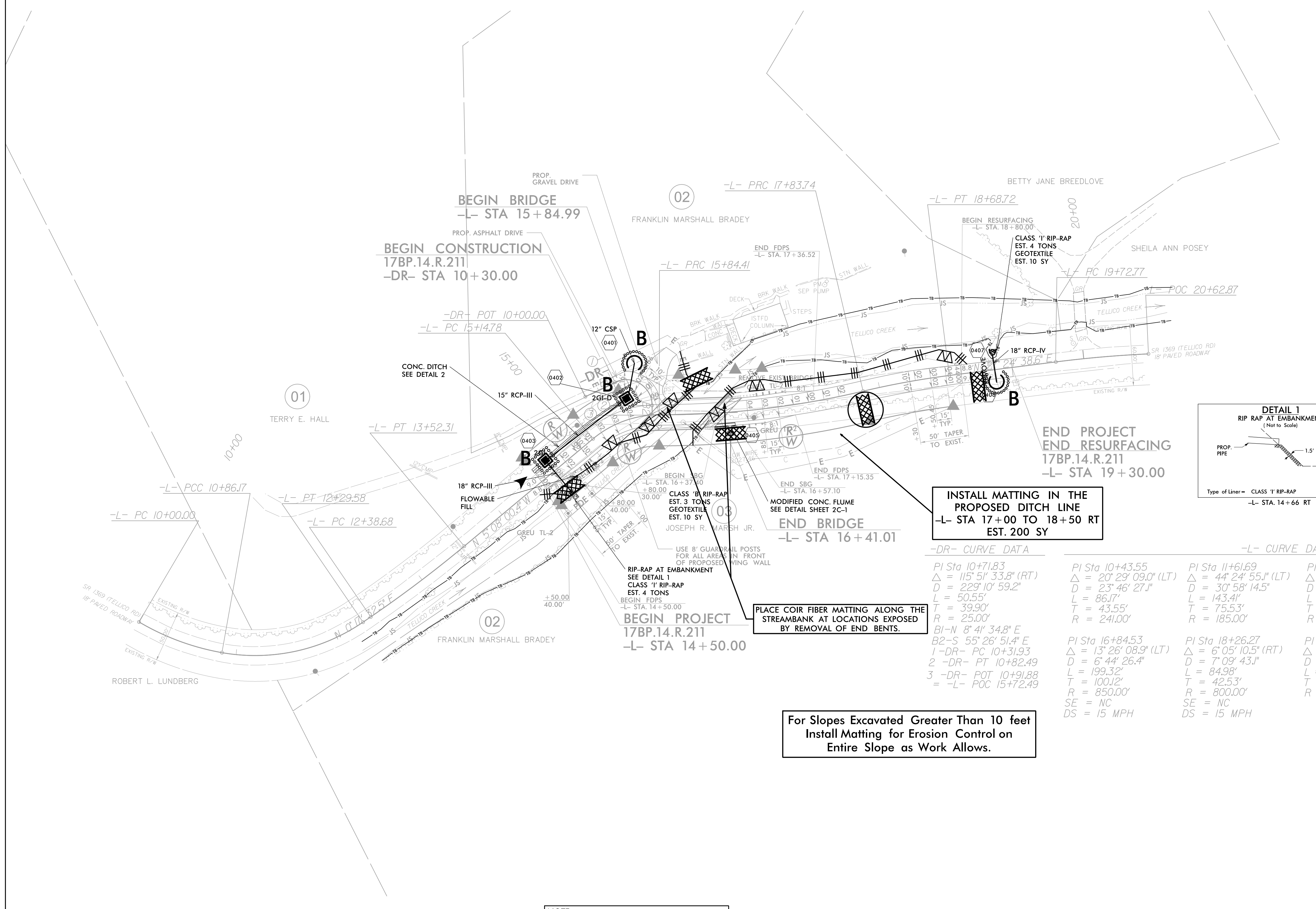
ENVIRONMENTALLY SENSITIVE AREA
SEE PROJECT SPECIAL PROVISIONS

Macon County Bridge #550079



| | |
|--|---------------------------|
| PROJECT REFERENCE NO. 17BP.14.R.211 | SHEET NO. EC-5/CONST.4 |
| RW SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

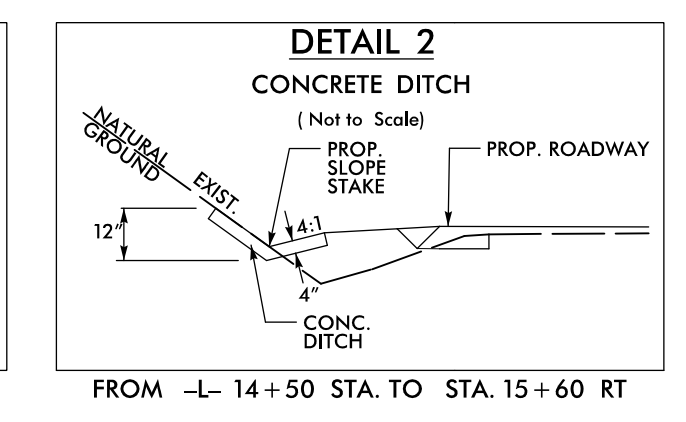
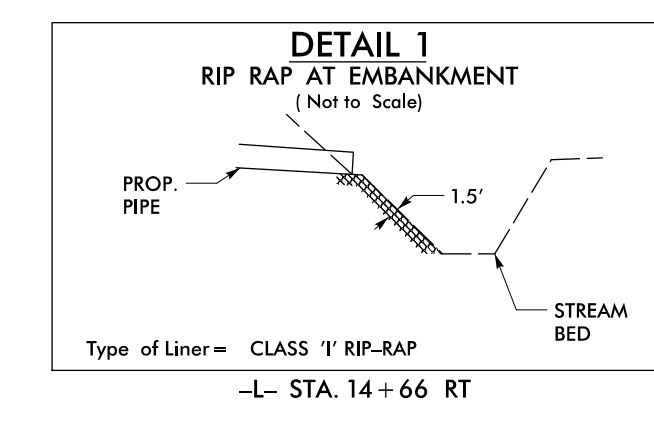
TGS ENGINEERS
804-C N. LAFAYETTE ST
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275



INSTALL MATTING IN THE PROPOSED DITCH LINE
-L- STA 17+00 TO 18+50 RT
EST. 200 SY

PLACE COIR FIBER MATTING ALONG THE STREAMBANK AT LOCATIONS EXPOSED BY REMOVAL OF END BENTS.

**For Slopes Excavated Greater Than 10 feet
Install Matting for Erosion Control on
Entire Slope as Work Allows.**



-DR- CURVE DATA

| | | | | |
|--|---|--|--|---|
| PI Sta 10+71.83 Δ = 115° 51' 33.8" (RT) D = 229° 10' 59.2" L = 50.55' T = 39.90' R = 25.00' | PI Sta 10+43.55 Δ = 20° 29' 09.0" (LT) D = 23° 46' 27.1" L = 86.17' T = 43.55' R = 241.00' | PI Sta 11+61.69 Δ = 44° 24' 55.1" (LT) D = 30° 58' 14.5" L = 143.41' T = 75.53' R = 185.00' | PI Sta 12+95.54 Δ = 5° 25' 32.9" (LT) D = 4° 46' 28.7" L = 113.64' T = 56.86' R = 1,200.00' | PI Sta 15+51.08 Δ = 39° 53' 37.4" (RT) D = 57° 17' 44.8" L = 69.63' T = 36.29' R = 100.00' SE = 0.04 DS = 20 MPH |
| PI Sta 16+84.53 Δ = 13° 26' 08.9" (LT) D = 6° 44' 26.4" L = 199.32' T = 100.12' R = 850.00' SE = NC DS = 15 MPH | PI Sta 18+26.27 Δ = 6° 05' 10.5" (RT) D = 7° 09' 43.1" L = 84.98' T = 42.53' R = 800.00' SE = NC DS = 15 MPH | PI Sta 20+17.84 Δ = 4° 35' 19.4" (RT) D = 5° 05' 34.6" L = 90.10' T = 45.07' R = 1,125.00' | | |

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

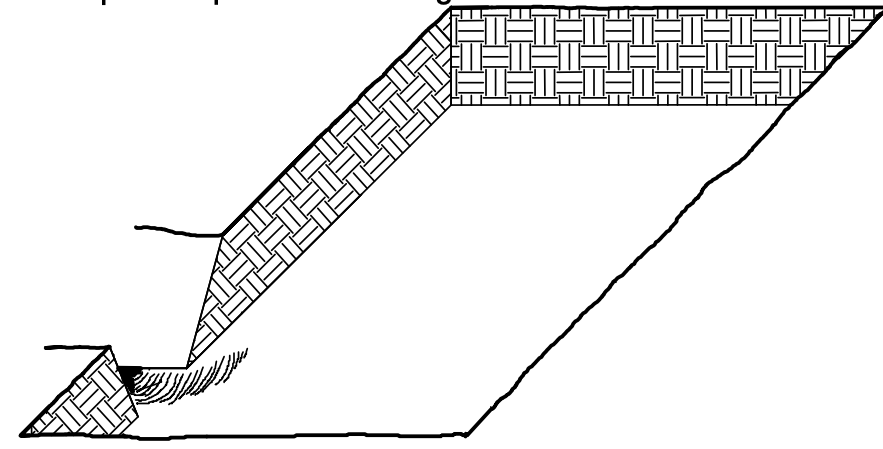
| | | | |
|-----------------|-----------------------------|-------------|---------|
| STATE | STATE PROJECT REFERENCE NO. | SHEET | SQUARES |
| N.C. | 17BP.14.R.211 | RF-1 | |
| STATE PROJ. NO. | F. A. PROJ. NO. | DESCRIPTION | |
| | | | |

PLANTING DETAILS

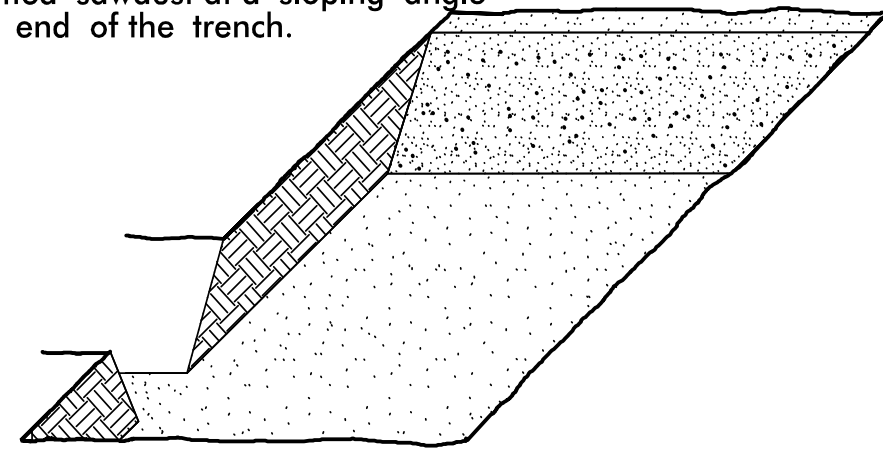
SEEDLING / LINER BAREROOT PLANTING DETAIL

HEALING IN

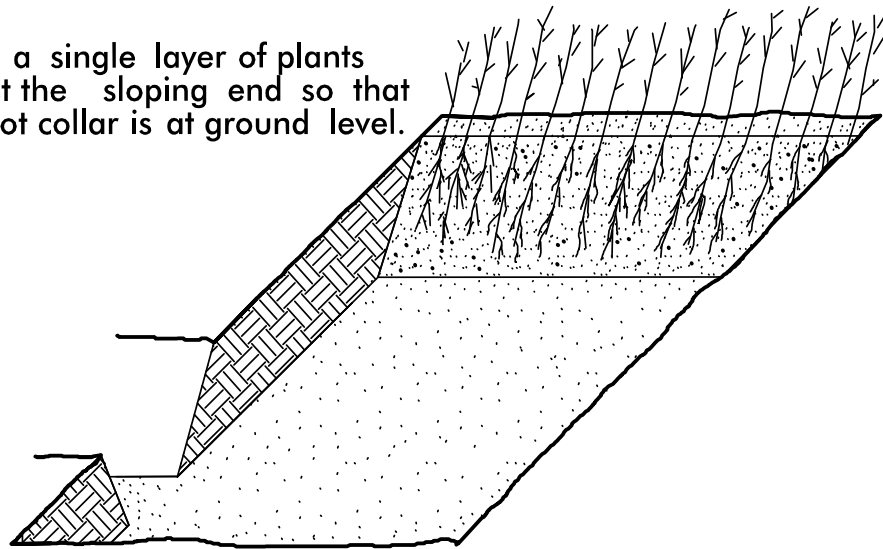
1. Locate a healing-in site in a shady, well protected area.
2. Excavate a flat bottom trench 12 inches deep and provide drainage.



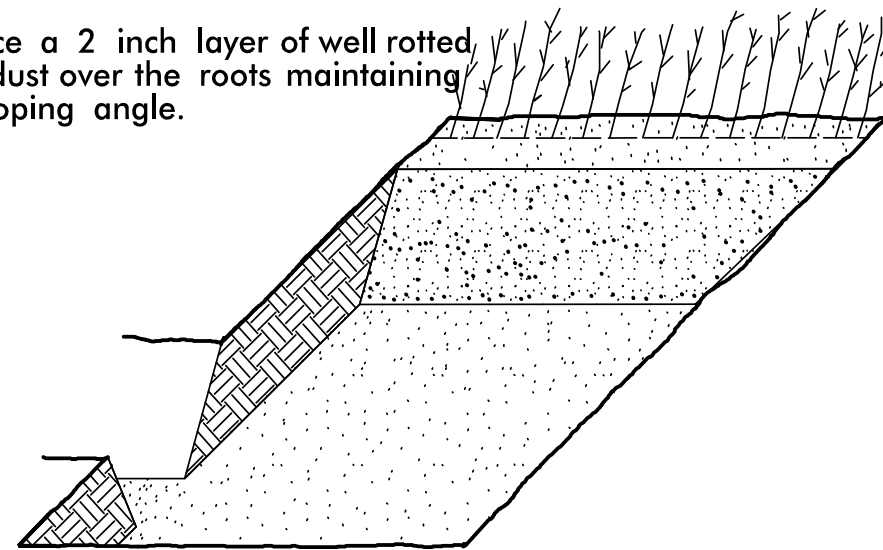
3. Backfill the trench with 2 inches well rotted sawdust. Place a 2 inch layer of well rotted sawdust at a sloping angle at one end of the trench.



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

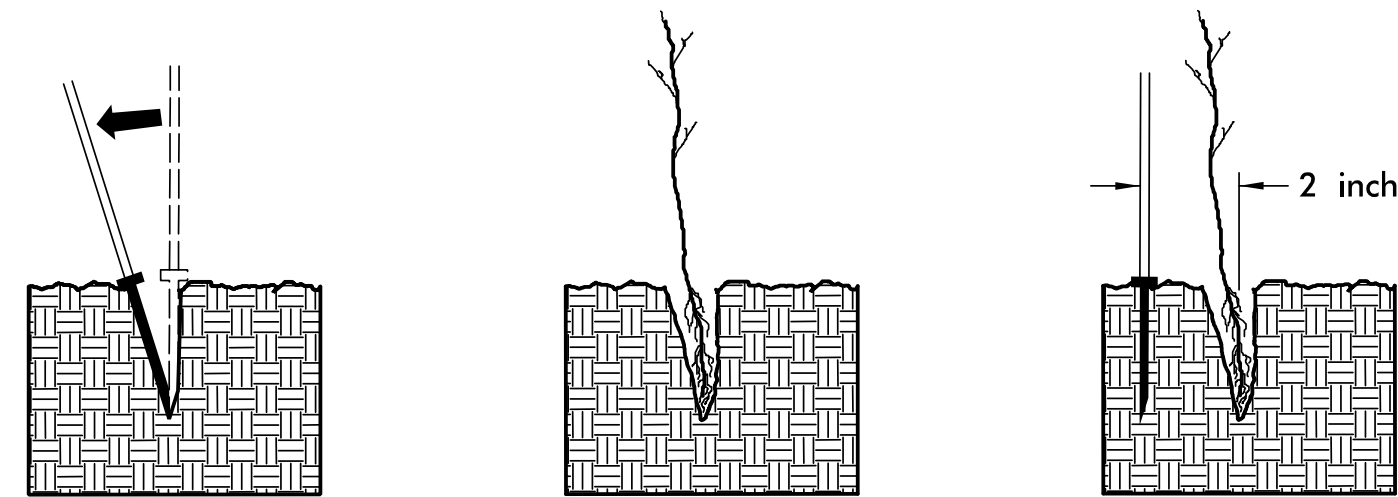


5. Place a 2 inch layer of well rotted sawdust over the roots maintaining a sloping angle.

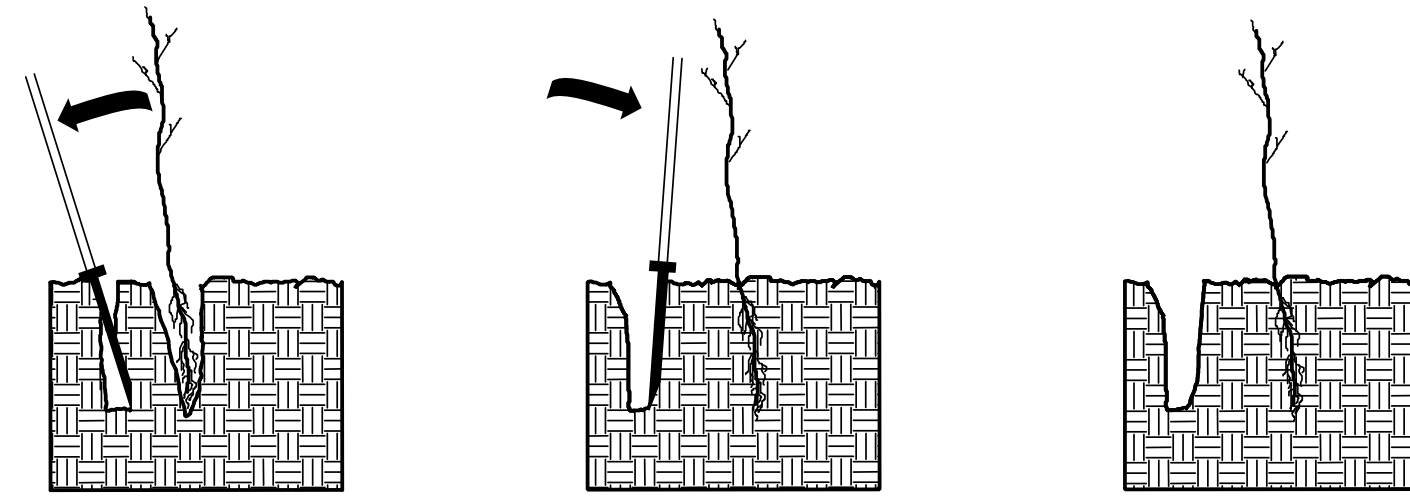


6. Repeat layers of plants and sawdust as necessary and water thoroughly.

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.



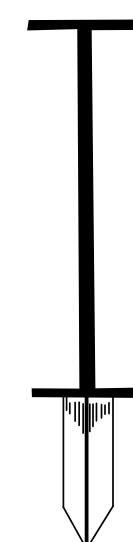
4. Pull handle of bar toward planter, firming soil at bottom.
5. Push handle forward firming soil at top.
6. Leave compaction hole open. Water thoroughly.

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:

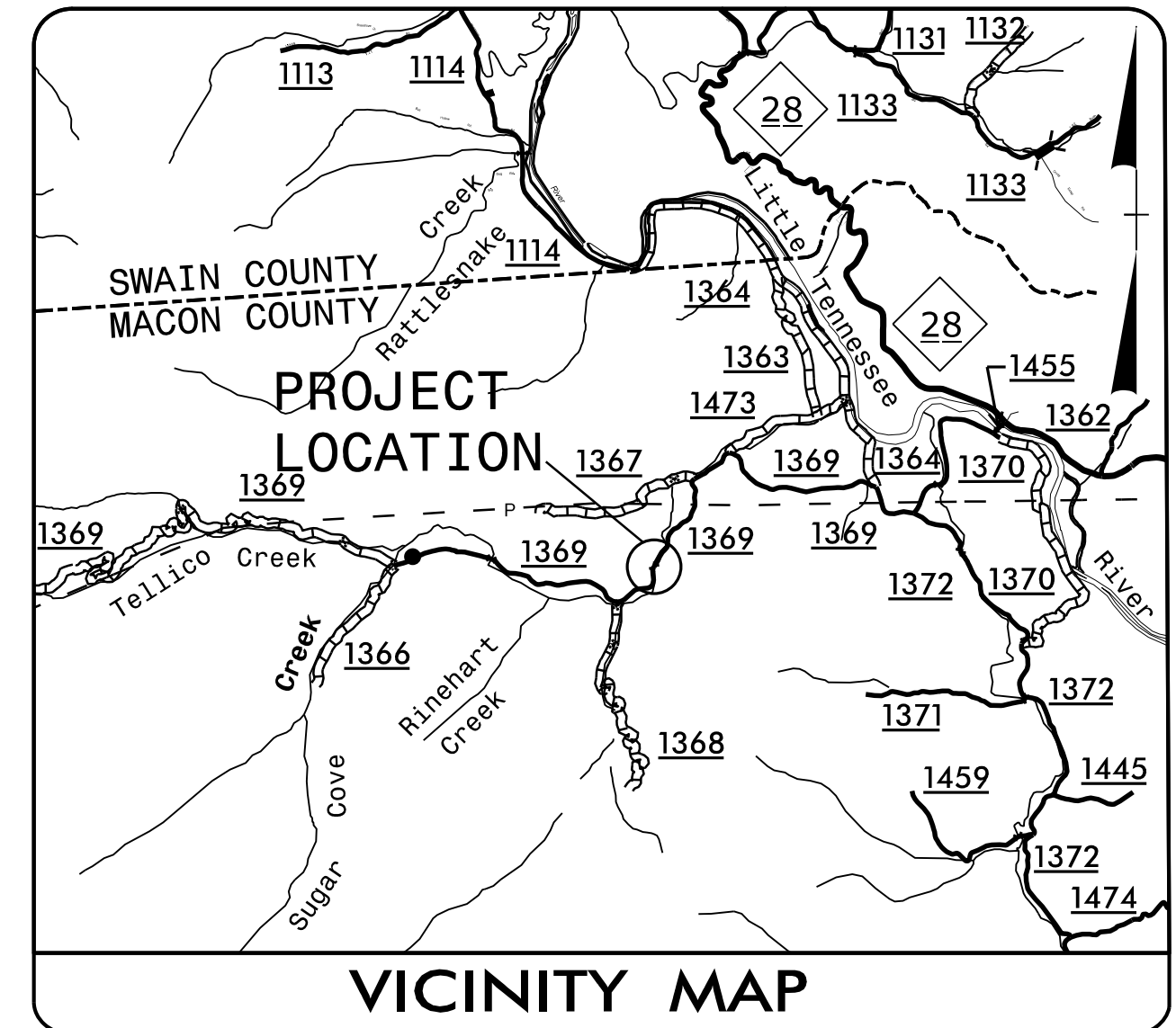
| | | | |
|-----|-------------------------|--------------|------------------|
| 25% | LIRIODENDRON TULIPIFERA | TULIP POPLAR | 12 in - 18 in BR |
| 25% | PLATANUS OCCIDENTALIS | SYCAMORE | 12 in - 18 in BR |
| 25% | BETULA NIGRA | RIVER BIRCH | 12 in - 18 in BR |
| 25% | NYSSA SYLVATICA | BLACK GUM |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

REFORESTATION DETAIL SHEET

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

09_08/2011

PROJECT: 17BP.14.R.211



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

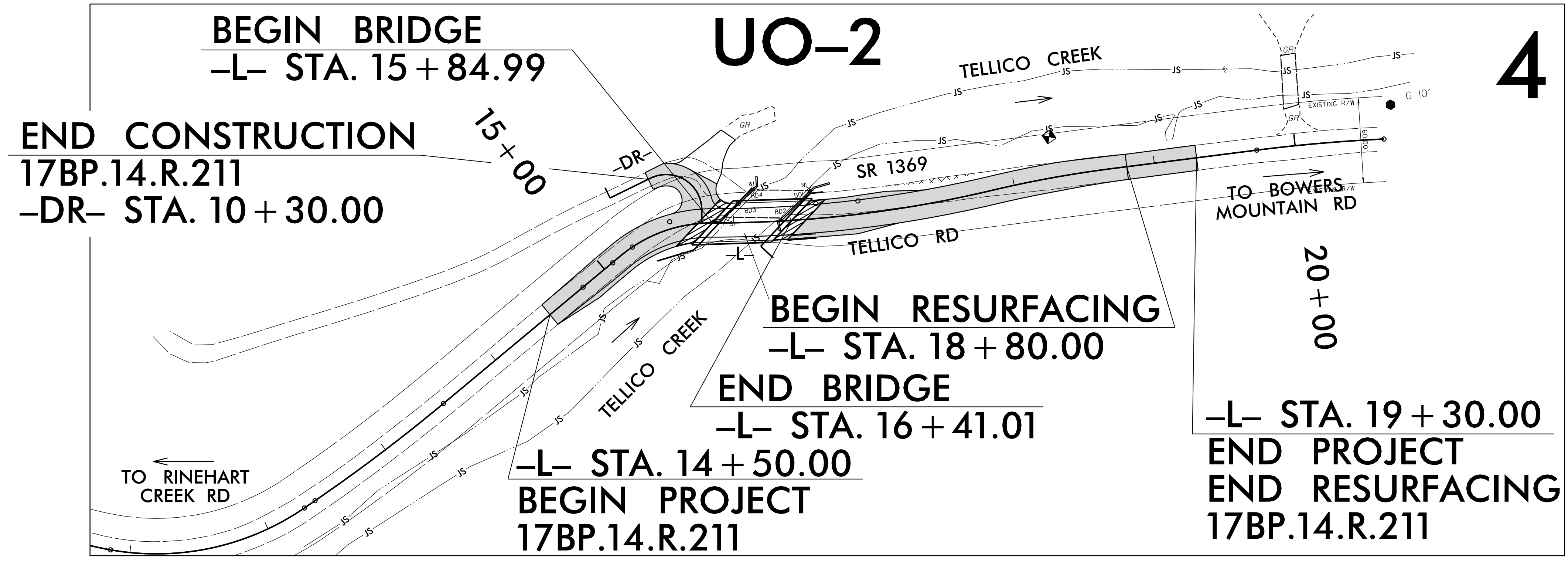
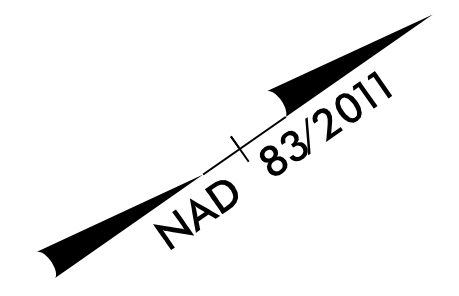
**UTILITIES BY OTHERS PLANS
MACON COUNTY**

**LOCATION: BRIDGE #550079 OVER TELLICO CREEK
ON SR 1369 (TELLICO RD)**

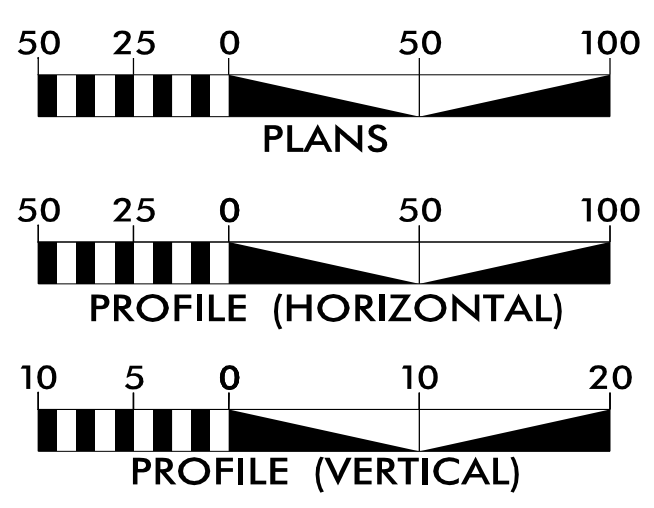
TYPE OF WORK: TELEPHONE RELOCATION

| | |
|---------------|-----------|
| T.I.P. NO. | SHEET NO. |
| 17BP.14.R.211 | UO-1 |

NOTE:
ALL UTILITY WORK SHOWN ON THIS SHEET WILL BE DONE BY OTHERS. NO PAYMENT WILL BE MADE TO THE CONTRACTOR FOR UTILITY WORK SHOWN ON THIS SHEET.



GRAPHIC SCALES



INDEX OF SHEETS

| SHEET NO.: | DESCRIPTION: |
|------------|-----------------|
| UO-1 | TITLE SHEET |
| UO-2 | UBO PLAN SHEETS |

UTILITY OWNERS WITH CONFLICTS

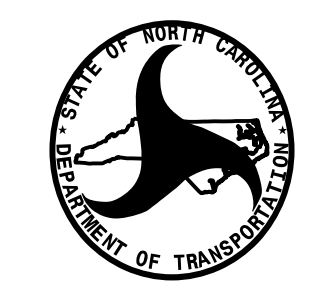
(A) COMMUNICATIONS - FRONTIER COMMUNICATIONS

PREPARED IN THE OFFICE OF:

TELICS

849 SOUTH LAUREL ST
LINCOLNTON, NC 28092
PHONE (704) 732-3241

STEVE MODE UTILITY PROJECT MANAGER
JAMES MELTON PROJECT UTILITY COORDINATOR



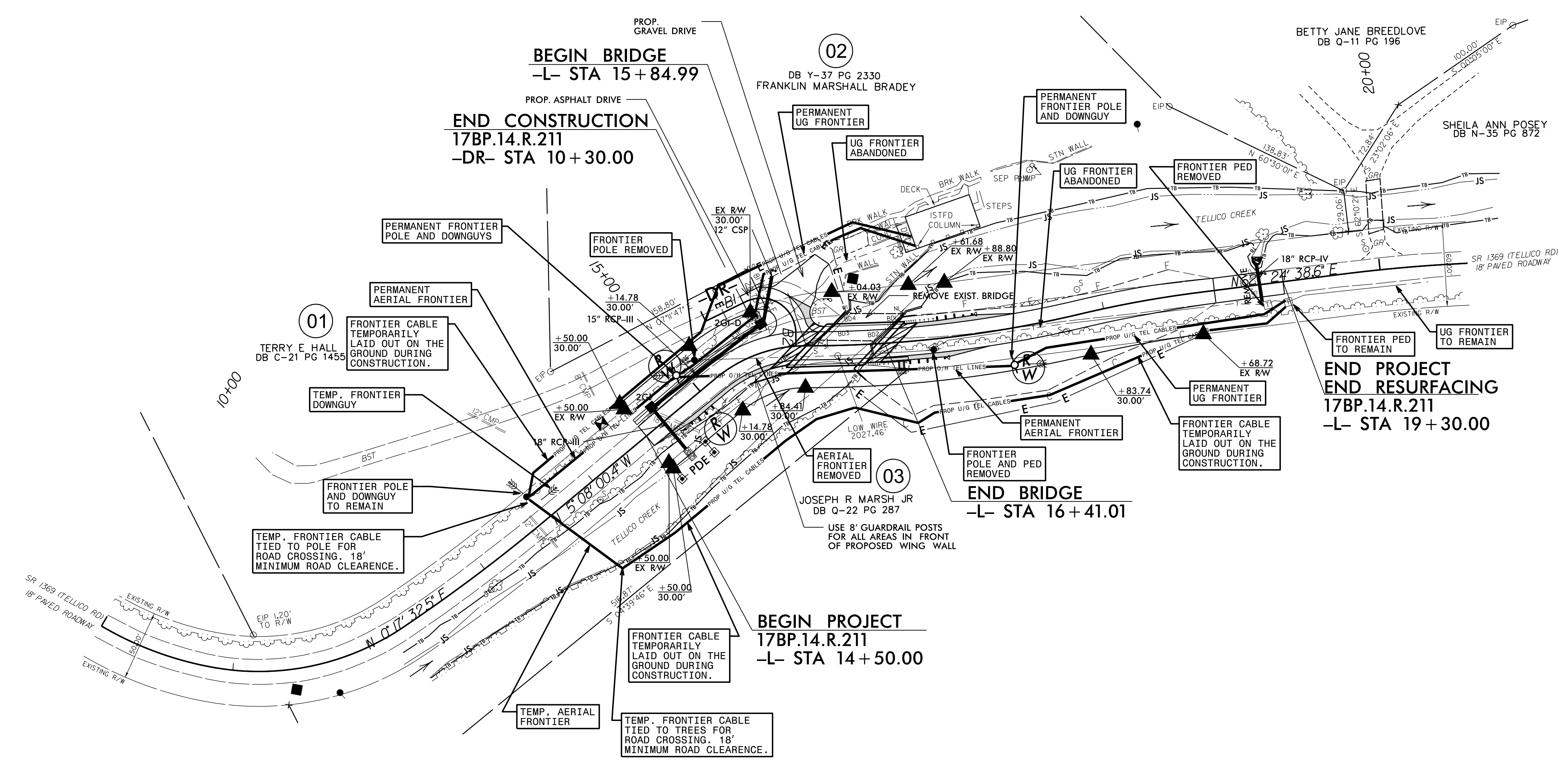
**DIVISION OF HIGHWAYS
UTILITIES UNIT**
253 WEBSTER RD
SILVA, NC 28779
PHONE (828) 586-2141
FAX (828) 586-4043

BRIAN BURCH UTILITIES REGIONAL ENGINEER
BOB GOLDING UTILITIES ENGINEER
VACANT UTILITIES AREA COORDINATOR
BILL GREEN UTILITIES COORDINATOR

15-JAN-2011 05:39
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\$\$\$\$\$SERNAME\$\$\$\$\$

UTILITIES BY OTHERS

ALL PROPOSED UTILITY WORK SHOWN ON THIS SHEET WILL BE DONE BY OTHERS. NO PAYMENT WILL BE MADE TO THE CONTRACTOR FOR PROPOSED UTILITY WORK SHOWN ON THIS SHEET.



5/14/09

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