

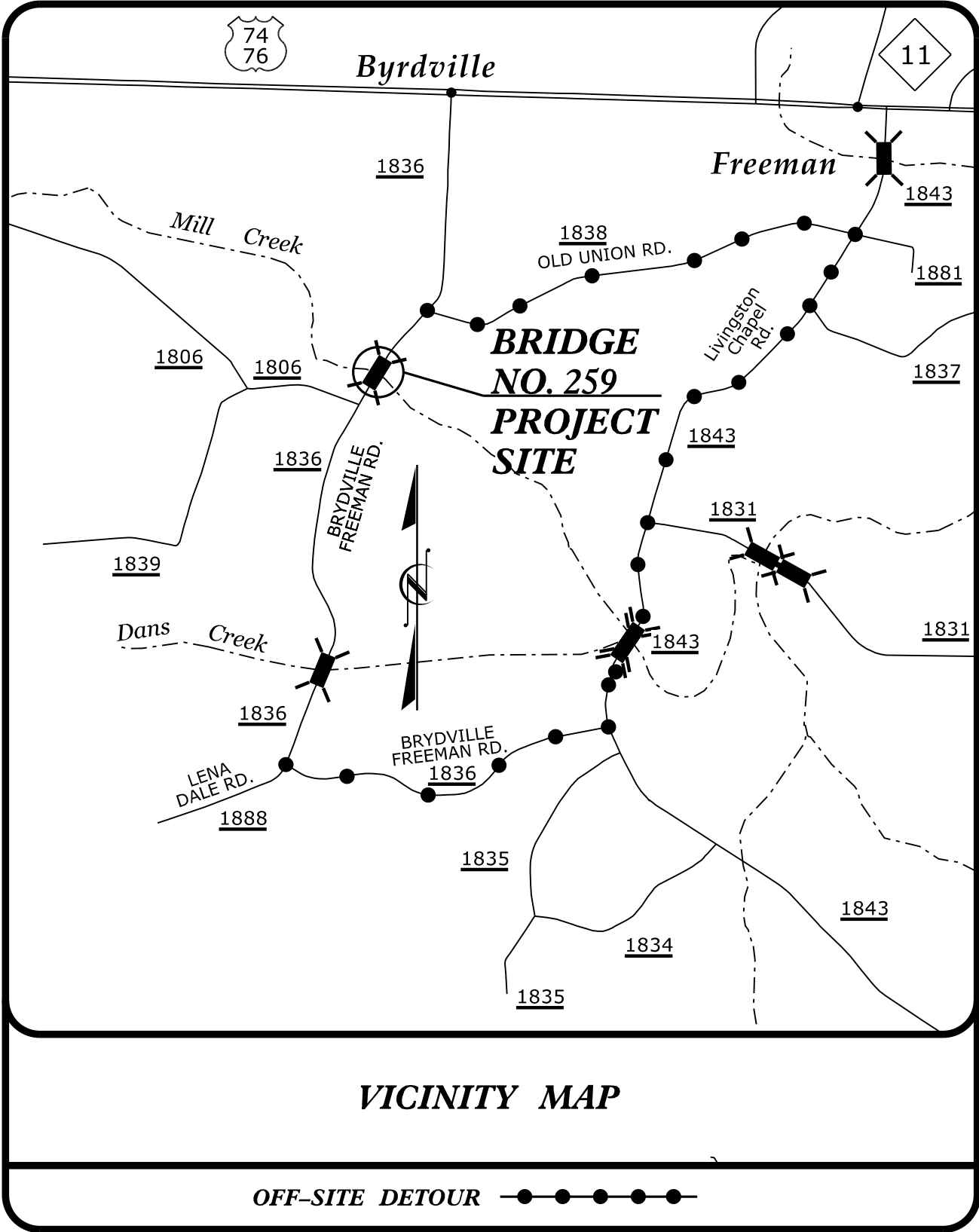
09/05/2017

5/30/2017  
\\N:\Proj\230259\_Rdy-fsh.dgn  
USER:R06ell

PROJECT: 17BP.6.R.79

CONTRACT:

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



STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

COLUMBUS COUNTY

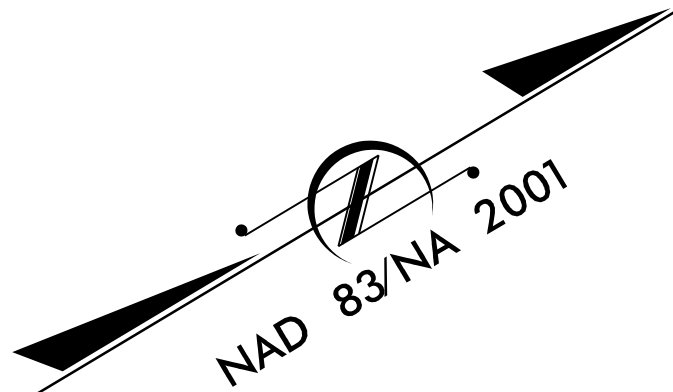
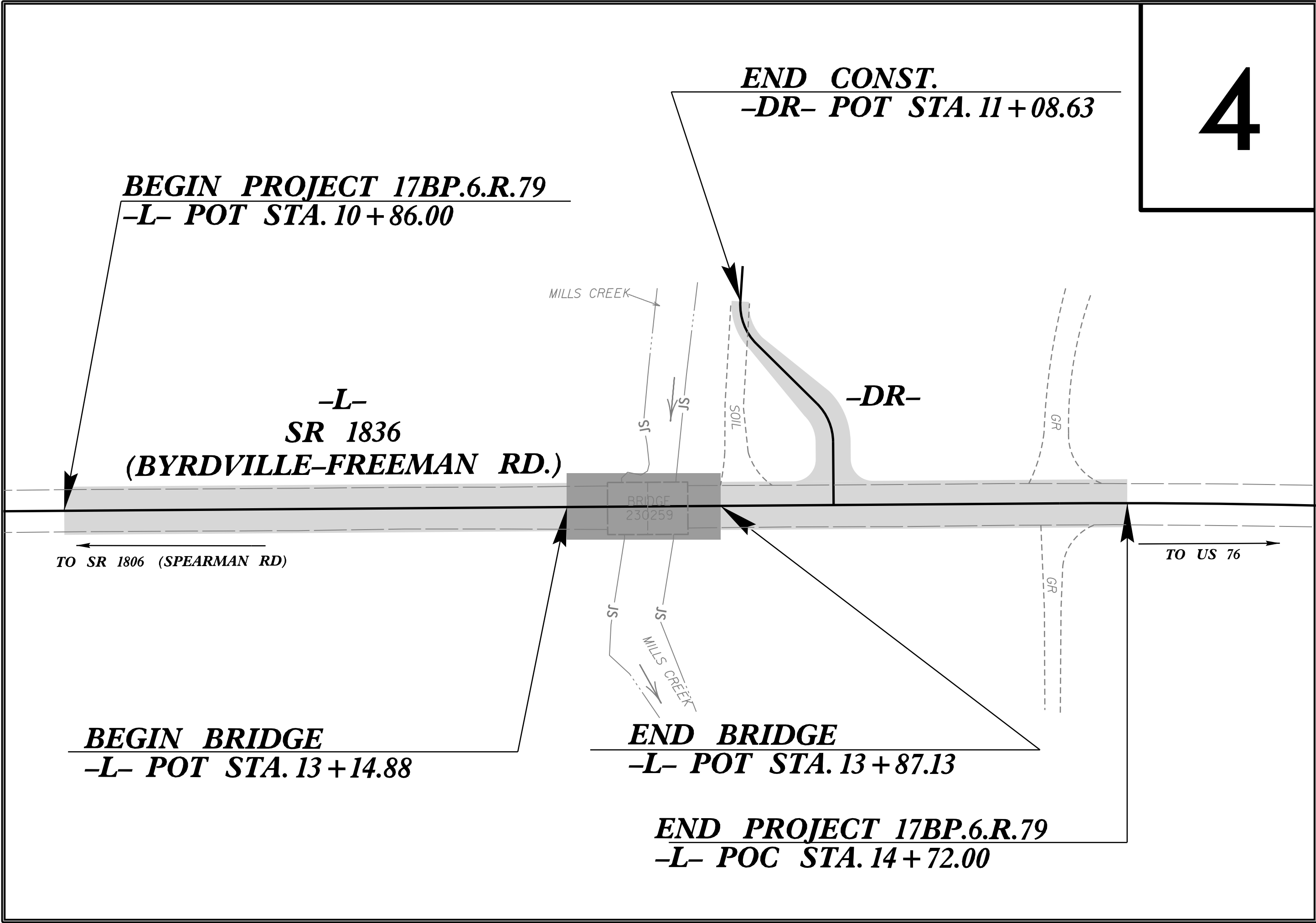
LOCATION: BRIDGE NO. 230259 OVER MILLS CREEK ON  
SR 1836 (BYRDVILLE-FREEMAN RD.)

TYPE OF WORK: GRADING, DRAINAGE, PAVING & STRUCTURE

| STATE           | STATE PROJECT REFERENCE NO. | SHEET NO.   | TOTAL SHEETS |
|-----------------|-----------------------------|-------------|--------------|
| N.C.            | 17BP.6.R.79                 | 1           |              |
| STATE PROJ. NO. | P. A. PROJ. NO.             | DESCRIPTION |              |
| 17BP.6.R.79     | N/A                         | PE          |              |
| 17BP.6.R.79     | N/A                         | RW, UTIL.   |              |
| 17BP.6.R.79     | N/A                         | CONST.      |              |
|                 |                             |             |              |
|                 |                             |             |              |
|                 |                             |             |              |
|                 |                             |             |              |

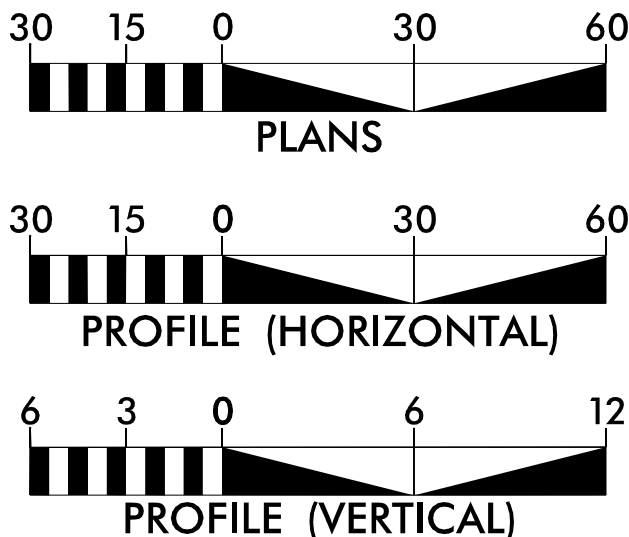
BRIDGE #230259

FINAL PLANS



DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES



DESIGN DATA

ADT 2016 = 350

T = 6 % \*

V = 55 MPH

\* TTST = 3% DUAL = 3%

FUNC. CLASS =  
LOCAL RURAL  
(SUBREGIONAL)

PROJECT LENGTH

LENGTH ROADWAY PROJECT 17BP.6.R.79 = 0.060 MILES

LENGTH STRUCTURE PROJECT 17BP.6.R.79 = 0.013 MILES

TOTAL LENGTH PROJECT 17BP.6.R.79 = 0.073 MILES

Prepared in the Office of:  
**WETHERILL ENGINEERING**  
1223 Jones Franklin Rd. Raleigh, N.C. 27606  
License No. F-0377  
Bus: 919.851.8077 Fax: 919.851.8107

2012 STANDARD SPECIFICATIONS  
**RIGHT OF WAY DATE:**  
APRIL 26, 2017

**LETTING DATE:**  
JUNE 21, 2017

**NCDOT CONTACT:**

Prepared for:  
**DIVISION OF HIGHWAYS  
DIVISION 6**  
558 Gillespie Street  
Fayetteville NC, 28301

**EDWARD G. WETHERILL, PE**  
PROJECT ENGINEER

**GREG S. PURVIS, PE**  
PROJECT DESIGN ENGINEER

**CHRISTY W. HUFF, PE**  
DIVISION 6 BRIDGE PROGRAM MANAGER

HYDRAULICS ENGINEER

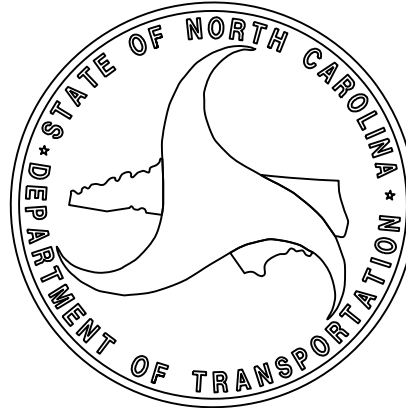
DocuSigned by:  
Anne D. Gambr  
SIGNATURE

**SEAL**  
23454  
5/31/2017  
ENGINEER  
NORTH CAROLINA  
PAUL D. GAMBR  
P.E.

ROADWAY DESIGN  
ENGINEER

DocuSigned by:  
Greg S. Purvis  
SIGNATURE

**SEAL**  
22999  
5/30/2017  
ENGINEER  
NORTH CAROLINA  
GREGORY S.  
P.E.





8/17/99

GENERAL NOTES

GENERAL NOTES: 2012 SPECIFICATIONS  
EFFECTIVE: 01-17-12  
REVISED: 07-30-2012

GRADING AND SURFACING OR RESURFACING AND WIDENING:

THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. WHERE NO GRADE LINES ARE SHOWN, THE PROFILES SHOWN DENOTE THE TOP ELEVATION OF THE EXISTING PAVEMENT ALONG THE CENTER LINE OF SURVEY ON WHICH THE PROPOSED RESURFACING WILL BE PLACED. GRADE LINES MAY BE ADJUSTED BY THE ENGINEER IN ORDER TO SECURE A PROPER TIE-IN.

CLEARING: CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II .

SUPERELEVATION:

ALL CURVES ON THIS PROJECT SHALL BE SUPERELEVATED IN ACCORDANCE WITH STD. NO. 225.04 USING THE RATE OF SUPERELEVATION AND RUNOFF SHOWN ON THE PLANS. SUPERELEVATION IS TO BE REVOLVED ABOUT THE GRADE POINTS SHOWN ON THE TYPICAL SECTIONS.

SHOULDER CONSTRUCTION:

ASPHALT, EARTH, AND CONCRETE SHOULDER CONSTRUCTION ON THE HIGH SIDE OF SUPERELEVATED CURVES SHALL BE IN ACCORDANCE WITH STD. NO. 560.01.

GUARDRAIL:

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

SUBSURFACE PLANS:

NO SUBSURFACE PLANS ARE AVAILABLE ON THIS PROJECT. THE CONTRACTOR SHOULD MAKE HIS OWN INVESTIGATION AS TO THE SUBSURFACE CONDITIONS.

END BENTS:

THE ENGINEER SHALL CHECK THE STRUCTURE END BENT PLANS, DETAIL, 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  
POWER – DUKE ENERGY TELEPHONE – AT&T

ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS

RIGHT OF WAY MARKERS:

ALL RIGHT OF WAY MARKERS ON THIS PROJECT SHALL BE PLACED BY OTHERS  
ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS

LIST OF ROADWAY STANDARD DRAWINGS

2012 ROADWAY ENGLISH STANDARD DRAWINGS  
EFF. 01-17-12  
REV. 02-29-2016

The following Roadway Standards as appear in "Roadway Standard Drawings" Highway Design Branch – N. C. Department of Transportation – Raleigh, N. C., Dated January, 2012 are applicable to this project and by reference hereby are considered a part of these plans:

STD.NO. TITLE

DIVISION 2 – EARTHWORK

200.02 Method of Clearing – Method II  
225.02 Guide for Grading Subgrade – Secondary and Local  
225.04 Method of Obtaining Superelevation – Two Lane Pavement

DIVISION 3 – PIPE CULVERTS

300.01 Method of Pipe Installation

DIVISION 4 – MAJOR STRUCTURES

422.10 Reinforced Bridge Approach Fills

DIVISION 5 – SUBGRADE, BASES AND SHOULDERS

560.01 Method of Shoulder Construction – High Side of Superelevated Curve – Method I

DIVISION 8 – INCIDENTALS

840.00 Concrete Base Pad for Drainage Structures

840.29 Frames and Narrow Slot Grates

840.35 Traffic Bearing Grated Drop Inlet

846.01 Concrete Curb, Gutter and Curb & Gutter  
862.01 Guardrail Placement  
862.02 Guardrail Installation  
862.03 Structure Anchor Units  
876.02 Guide for Rip Rap at Pipe Outlets  
876.04 Drainage Ditches with Class 'B' Rip Rap

INDEX OF SHEETS

SHEET NUMBER

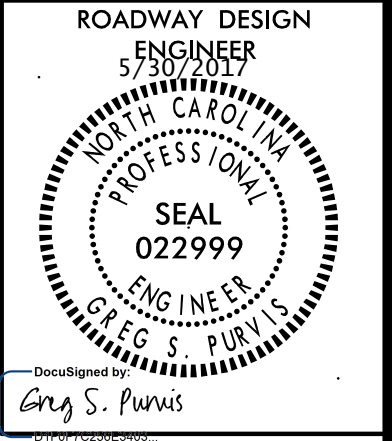
1  
1-A  
1-B  
2  
2-A  
3

4  
TMP-1 THRU TMP-2A  
PMP-1 THRU PMP-2  
EC-1 THRU EC-5  
FR-1  
UO-1 THRU UO-2  
X-1  
X-2 THRU X-5  
S-1 THRU S-13  
S-N

SHEET

TITLE SHEET  
INDEX OF SHEETS, GENERAL NOTES, AND LIST OF STANDARD DRAWINGS  
CONVENTIONAL SYMBOLS  
TYPICAL SECTIONS, PAVEMENT SCHEDULE, & MISCELLANEOUS DETAILS  
STRUCTURE ANCHOR UNIT DETAIL SHEETS 2 & 3 OF 7  
SUMMARY OF DRAINAGE QUANTITIES, GUARDRAIL SUMMARY, EARTHWORK  
SUMMARY, PAVEMENT REMOVAL SUMMARY , SHOULDER BERM GUTTER SUMMARY  
AND RIGHT OF WAY AREA DATA  
PLAN & PROFILE SHEET  
TEMPORARY PAVEMENT MARKING PLANS  
PAVEMENT MARKING PLANS  
EROSION CONTROL PLANS  
REFORESTATION PLANS  
UTILITIES BY OTHERS PLANS  
CROSS-SECTION SUMMARY SHEET  
CROSS-SECTIONS  
STRUCTURE PLANS  
STRUCTURE NOTES

| PROJECT REFERENCE NO. | SHEET NO. |
|-----------------------|-----------|
| 17BP6R79              | 1-A       |



BRIDGE #230259



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                     |  |
| Computed Property Corner              |  |
| Property Monument                     |  |
| Parcel/Sequence Number                |  |
| Existing Fence Line                   |  |
| Proposed Woven Wire Fence             |  |
| Proposed Chain Link Fence             |  |
| Proposed Barbed Wire Fence            |  |
| Existing Wetland Boundary             |  |
| Proposed Wetland Boundary             |  |
| Existing Endangered Animal Boundary   |  |
| Existing Endangered Plant Boundary    |  |
| Existing Historic Property Boundary   |  |
| Known Contamination Area: Soil        |  |
| Potential Contamination Area: Soil    |  |
| Known Contamination Area: Water       |  |
| Potential Contamination Area: Water   |  |
| Contaminated Site: Known or Potential |  |

BUILDINGS AND OTHER CULTURE:

|                               |  |
|-------------------------------|--|
| Gas Pump Vent or U/G Tank Cap |  |
| Sign                          |  |
| Well                          |  |
| Small Mine                    |  |
| Foundation                    |  |
| Area Outline                  |  |
| Cemetery                      |  |
| Building                      |  |
| School                        |  |
| Church                        |  |
| Dam                           |  |

HYDROLOGY:

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

RAILROADS:

|                    |  |
|--------------------|--|
| Standard Gauge     |  |
| RR Signal Milepost |  |
| Switch             |  |
| RR Abandoned       |  |
| RR Dismantled      |  |

RIGHT OF WAY & PROJECT CONTROL:

|                                                           |  |
|-----------------------------------------------------------|--|
| Secondary Horiz and Vert Control Point                    |  |
| Primary Horiz Control Point                               |  |
| Primary Horiz and Vert Control Point                      |  |
| Exist Permanent Easment Pin and Cap                       |  |
| New Permanent Easement Pin and Cap                        |  |
| Vertical Benchmark                                        |  |
| Existing Right of Way Marker                              |  |
| Existing Right of Way Line                                |  |
| New Right of Way Line                                     |  |
| New Right of Way Line with Pin and Cap                    |  |
| New Right of Way Line with Concrete or Granite R/W Marker |  |
| New Control of Access Line with Concrete C/A Marker       |  |
| Existing Control of Access                                |  |
| New Control of Access                                     |  |
| Existing Easement Line                                    |  |
| New Temporary Construction Easement                       |  |
| New Temporary Drainage Easement                           |  |
| New Permanent Drainage Easement                           |  |
| New Permanent Drainage /Utility Easement                  |  |
| New Permanent Utility Easement                            |  |
| New Temporary Utility Easement                            |  |
| New Aerial Utility Easement                               |  |

ROADS AND RELATED FEATURES:

|                            |  |
|----------------------------|--|
| Existing Edge of Pavement  |  |
| Existing Curb              |  |
| Proposed Slope Stakes Cut  |  |
| Proposed Slope Stakes Fill |  |
| Proposed Curb Ramp         |  |
| Existing Metal Guardrail   |  |
| Proposed Guardrail         |  |
| Existing Cable Guiderail   |  |
| Proposed Cable Guiderail   |  |
| Equality Symbol            |  |
| Pavement Removal           |  |

VEGETATION:

|              |  |
|--------------|--|
| Single Tree  |  |
| Single Shrub |  |

\*S.U.E. = Subsurface Utility Engineering

|            |  |
|------------|--|
| Hedge      |  |
| Woods Line |  |
| Orchard    |  |
| Vineyard   |  |

EXISTING STRUCTURES:

|                                          |  |
|------------------------------------------|--|
| MAJOR:                                   |  |
| Bridge, Tunnel or Box Culvert            |  |
| Bridge Wing Wall, Head Wall and End Wall |  |
| MINOR:                                   |  |
| Head and End Wall                        |  |
| Pipe Culvert                             |  |
| Footbridge                               |  |
| Drainage Box: Catch Basin, DI or JB      |  |
| Paved Ditch Gutter                       |  |
| Storm Sewer Manhole                      |  |
| Storm Sewer                              |  |

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.*) |  |
| U/G Power Line LOS C (S.U.E.*) |  |
| U/G Power Line LOS D (S.U.E.*) |  |

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.*)    |  |
| U/G Telephone Cable LOS C (S.U.E.*)    |  |
| U/G Telephone Cable LOS D (S.U.E.*)    |  |
| U/G Telephone Conduit LOS B (S.U.E.*)  |  |
| U/G Telephone Conduit LOS C (S.U.E.*)  |  |
| U/G Telephone Conduit LOS D (S.U.E.*)  |  |
| U/G Fiber Optics Cable LOS B (S.U.E.*) |  |
| U/G Fiber Optics Cable LOS C (S.U.E.*) |  |
| U/G Fiber Optics Cable LOS D (S.U.E.*) |  |

WATER:

|                                |  |
|--------------------------------|--|
| Water Manhole                  |  |
| Water Meter                    |  |
| Water Valve                    |  |
| Water Hydrant                  |  |
| U/G Water Line LOS B (S.U.E.*) |  |
| U/G Water Line LOS C (S.U.E.*) |  |
| U/G Water Line LOS D (S.U.E.*) |  |
| Above Ground Water Line        |  |

TV:

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

GAS:

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

SANITARY SEWER:

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

MISCELLANEOUS:

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



SURVEY CONTROL SHEET 230259

|                       |           |
|-----------------------|-----------|
| PROJECT REFERENCE NO. | SHEET NO. |
| 17BP.6.R.79           | 1C-1      |
| Location and Surveys  |           |

| FINAL ROW MARKER IRON PIN AND CAP-E |          |        |              |               |
|-------------------------------------|----------|--------|--------------|---------------|
| ALIGN                               | STATION  | OFFSET | NORTH        | EAST          |
| L                                   | 12+15.00 | -42.00 | 202234.83516 | 2206704.69275 |
| L                                   | 12+15.00 | -30.00 | 202228.74603 | 2206715.03309 |
| L                                   | 14+60.00 | -42.00 | 202445.95030 | 2206829.01250 |
| L                                   | 14+60.00 | -30.00 | 202439.86117 | 2206839.35283 |
| L                                   | 12+20.00 | 30.00  | 202202.60885 | 2206769.27189 |
| L                                   | 13+25.00 | 40.00  | 202288.01249 | 2206831.16872 |
| L                                   | 13+70.00 | 50.00  | 202321.71447 | 2206862.61991 |
| L                                   | 15+05.00 | 39.34  | 202443.45412 | 2206921.93402 |
| L                                   | 15+05.00 | 30.00  | 202448.19176 | 2206913.88874 |
| L                                   | 12+20.00 | 40.00  | 202197.53458 | 2206777.88883 |

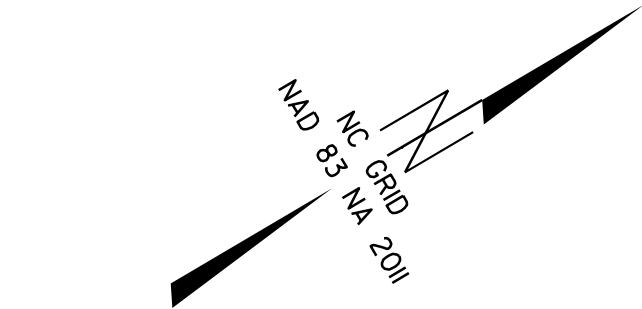
| FINAL ROW MARKER PERMANENT EASEMENT-E |          |        |              |               |
|---------------------------------------|----------|--------|--------------|---------------|
| ALIGN                                 | STATION  | OFFSET | NORTH        | EAST          |
| L                                     | 15+05.31 | -30.00 | 202478.90448 | 2206862.34433 |
| L                                     | 14+98.70 | -54.58 | 202485.68194 | 2206837.80935 |
| L                                     | 15+18.01 | -59.77 | 202504.95994 | 2206843.13465 |
| L                                     | 15+26.02 | -30.00 | 202496.75053 | 2206872.85337 |

| DR   |          |             |              |
|------|----------|-------------|--------------|
| TYPE | STATION  | NORTH       | EAST         |
| POT  | 10+00.00 | 202405.4656 | 2206853.9134 |
| PC   | 10+28.84 | 202420.1019 | 2206829.0587 |
| PT   | 10+48.44 | 202422.7712 | 2206810.1443 |
| PC   | 10+87.23 | 202413.1076 | 2206772.5808 |
| PT   | 11+08.63 | 202416.7471 | 2206752.1470 |
| POT  | 11+24.84 | 202425.9555 | 2206738.8113 |

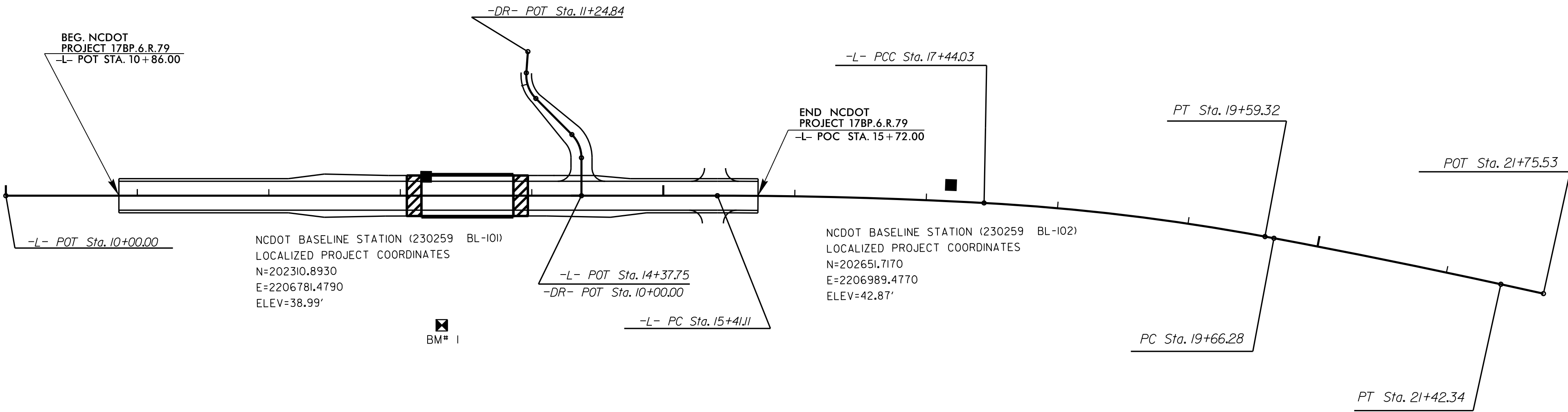
| L    |          |             |              |
|------|----------|-------------|--------------|
| TYPE | STATION  | NORTH       | EAST         |
| POT  | 10+00.00 | 202028.2589 | 2206631.7870 |
| PC   | 15+41.11 | 202494.5286 | 2206906.3600 |
| PCC  | 17+44.03 | 202666.5110 | 2207014.0148 |
| PT   | 19+59.32 | 202837.5955 | 2207144.4533 |
| PC   | 19+66.28 | 202842.8447 | 2207149.0240 |
| PT   | 21+42.34 | 202973.7728 | 2207266.7263 |
| POT  | 21+75.53 | 202998.0960 | 2207289.2990 |

| BL | POINT | DESC.        | NORTH       | EAST         | ELEVATION | L STATION              | OFFSET   |
|----|-------|--------------|-------------|--------------|-----------|------------------------|----------|
|    | 2     | 23-0259 GPS2 | 201766.7100 | 2206446.9900 | 45.28     | OUTSIDE PROJECT LIMITS |          |
|    | 101   | BL-101       | 202310.8930 | 2206781.4790 | 38.99     | 13+19.50               | 14.43 LT |
|    | 102   | BL-102       | 202651.7170 | 2206989.4770 | 42.87     | 17+18.21               | 12.34 LT |

\*\*\*\*\*  
BM1 ELEVATION = 36.11'  
N 202264 E 2206885  
L STATION 13+32.00 99' RIGHT  
BENCHLITE NAIL IN 18" PINE TREE  
\*\*\*\*\*



NCDOT BASELINE STATION (230259 GPS-2)  
LOCALIZED PROJECT COORDINATES  
N=201766.7100  
E=2206446.9900  
ELEV=45.28'



DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "230259 GPS-2" WITH NAD 83/NA 2011 STATE PLANE GRID COORDINATES OF NORTHING: 201766.71(±) EASTING: 2206446.99(±) ELEVATION: 45.28(±) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.9999881 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "230259 GPS-2" TO -L- STATION 10+00 IS N35°14'35.02"E 320.24' ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NAVD 88

NOTES:

⊙ INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL AND VERTICAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT. PROJECT CONTROL ESTABLISHED USING GNSS (GLOBAL NAVIGATION SATELLITE SYSTEM).

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

THE FILES TO BE FOUND ARE AS FOLLOWS:  
230259\_LS\_CONTROL.TXT

SITE CALIBRATION INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

NOTE: DRAWING NOT TO SCALE

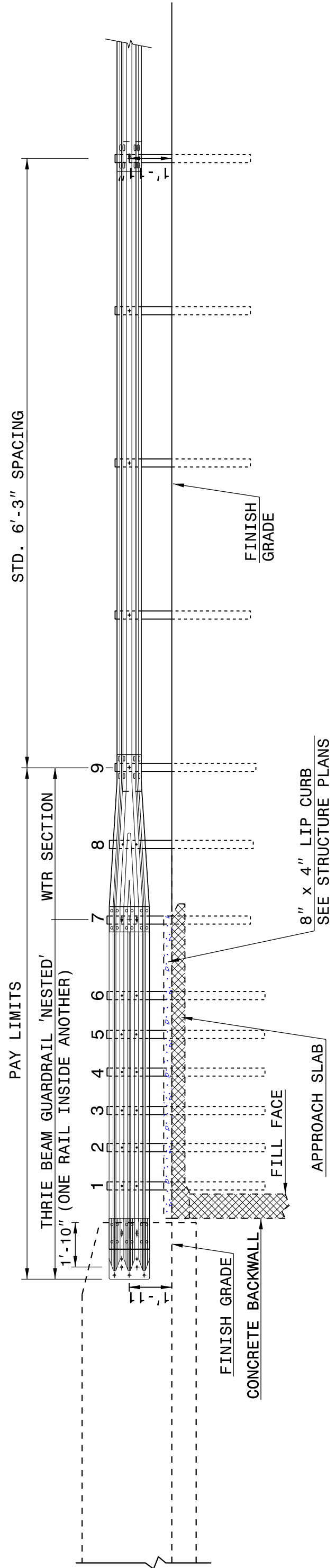


SECTION 8000 - STRUCTURES

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

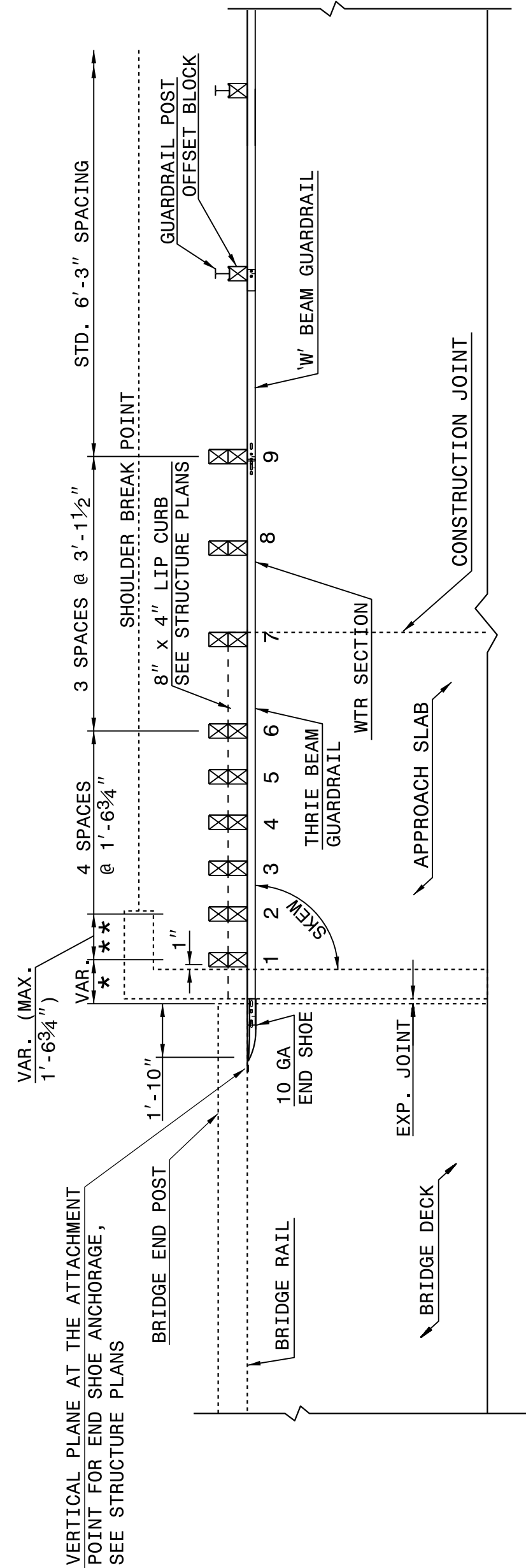
ENGLISH DETAIL DRAWING FOR  
**STRUCTURE ANCHOR UNITS**  
GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO  
RAIL ON BRIDGE - SUB REGIONAL TIER

SHEET 2 OF 7  
**862d03**



ELEVATION

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



PLAN VIEW

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

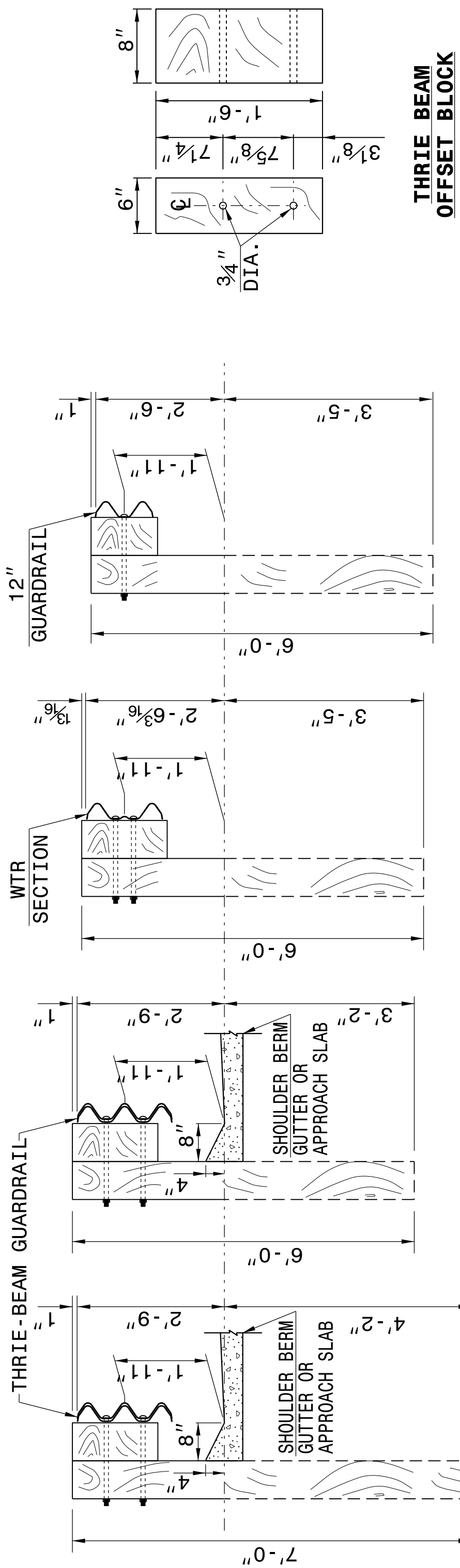
SHEET 2 OF 7  
**862d03**

ENGLISH DETAIL DRAWING FOR  
**STRUCTURE ANCHOR UNITS**  
GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO  
RAIL ON BRIDGE - SUB REGIONAL TIER  
STATE OF  
NORTH CAROLINA  
DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
RALEIGH, N.C.

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

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

SHEET 3 OF 7  
**862d03**

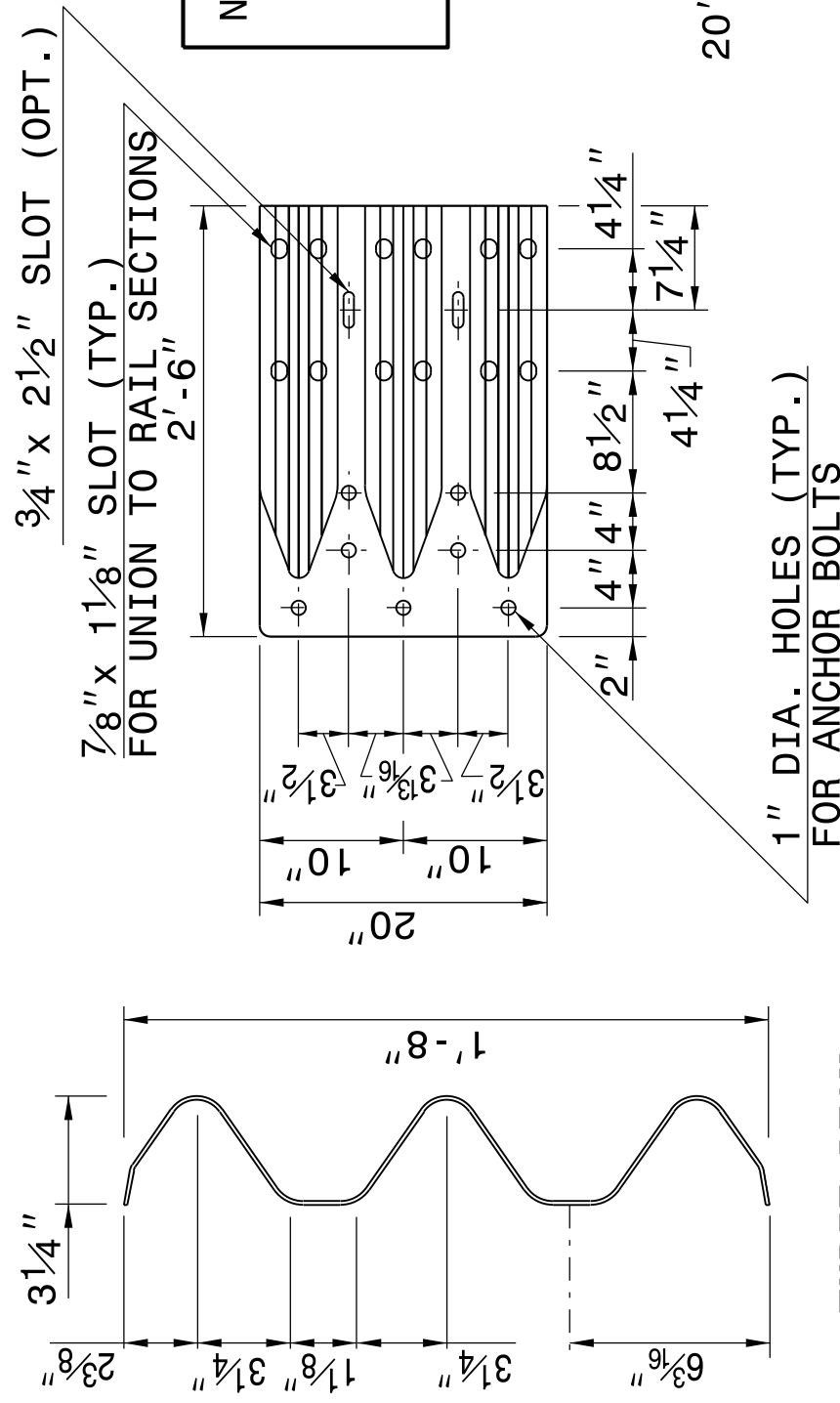


SECTION OF THRIE BEAM  
POSTS 1 THRU 6

SECTION OF THRIE  
BEAM POST 7

SECTION OF WTR  
BEAM POST 8

SECTION OF 'W'  
BEAM POST 9



THRIE-BEAM  
SECTION

END SHOE

WTR SECTION  
ELEVATION VIEW

THRIE BEAM  
LINE POST

SHEET 3 OF 7  
**862d03**

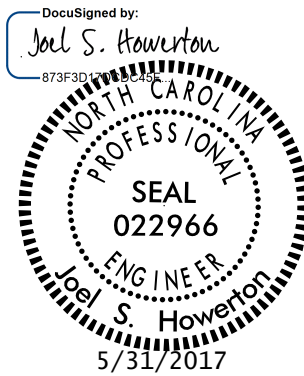
ENGLISH DETAIL DRAWING FOR  
**STRUCTURE ANCHOR UNITS**  
GUARDRAIL ANCHOR UNIT, TYPE III  
STATE OF  
NORTH CAROLINA  
DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
RALEIGH, N.C.

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

**SEE TITLE BLOCK**

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

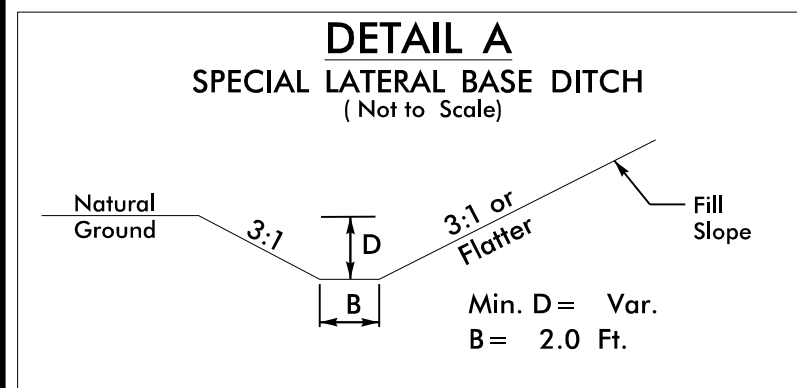
DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED



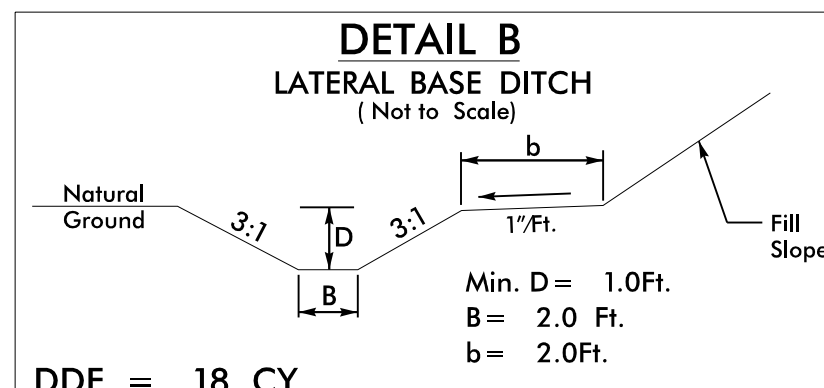


| PAVEMENT SCHEDULE |                                                                                                                                                                                                     |   |                                                      |
|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|------------------------------------------------------|
| C1                | PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.                                                                    | S | SHOULDER BERM GUTTER                                 |
| C2                | PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 1½" IN DEPTH.                          | T | EARTH MATERIAL.                                      |
| E1                | PROP. APPROX. 5½" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD.                                                                                             | U | EXISTING PAVEMENT.                                   |
| E2                | PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5½" IN DEPTH. | V | MILLING BITUMINOUS PAVEMENT. (SEE MILLING DETAIL)    |
| J1                | PROP. APPROX. 6" AGGREGATE BASE COURSE                                                                                                                                                              | W | VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAIL) |

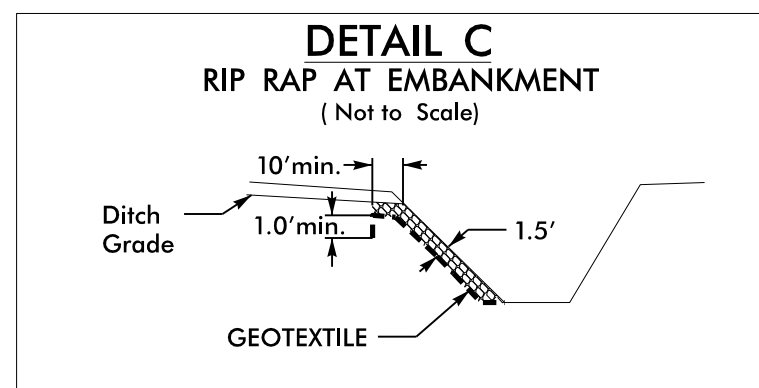
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



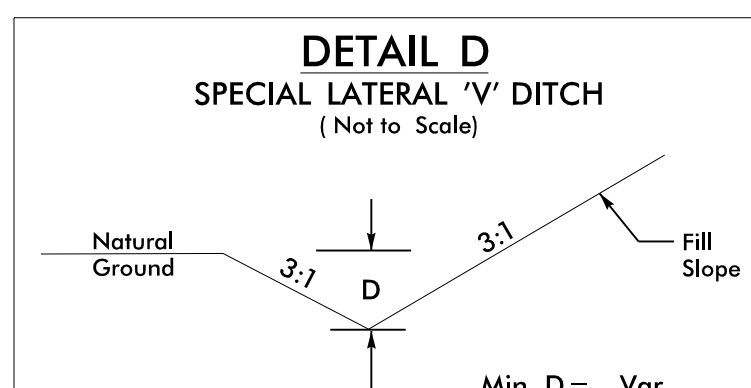
- L- STA. 12+00 TO STA. 12+65 (LT)



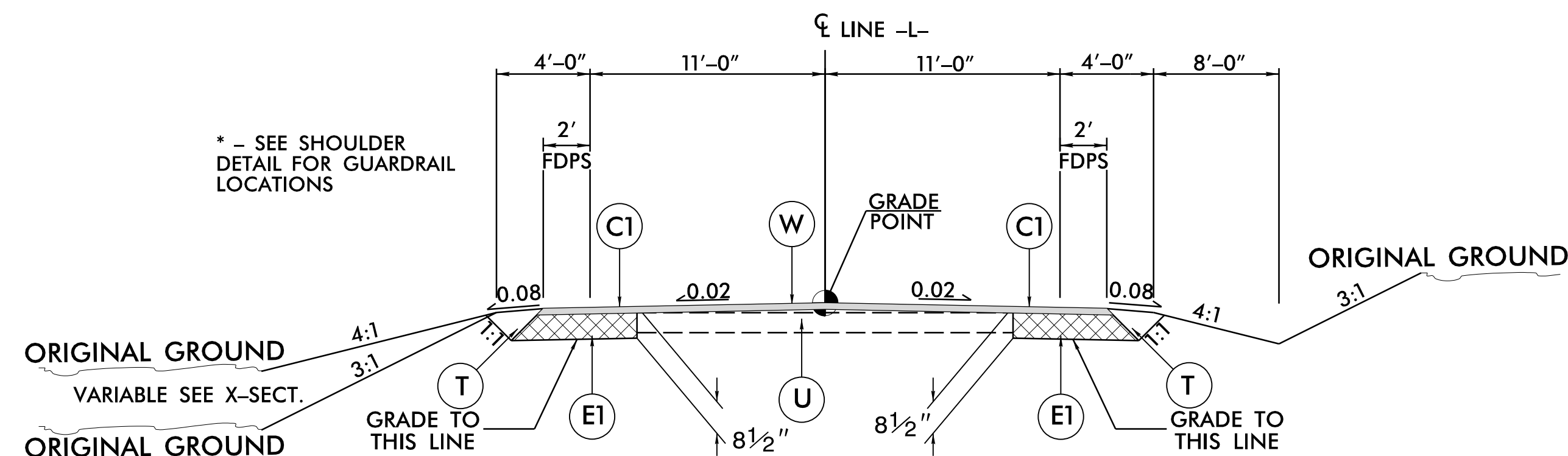
DDE = 18 CY  
FROM STA. 13+60 TO STA. 15+00 (RT)



Type of Liner= 11 TONS,CL I Rip-Rap  
Geotextile= 16 sy  
-L- STA. 13+60 (RT)



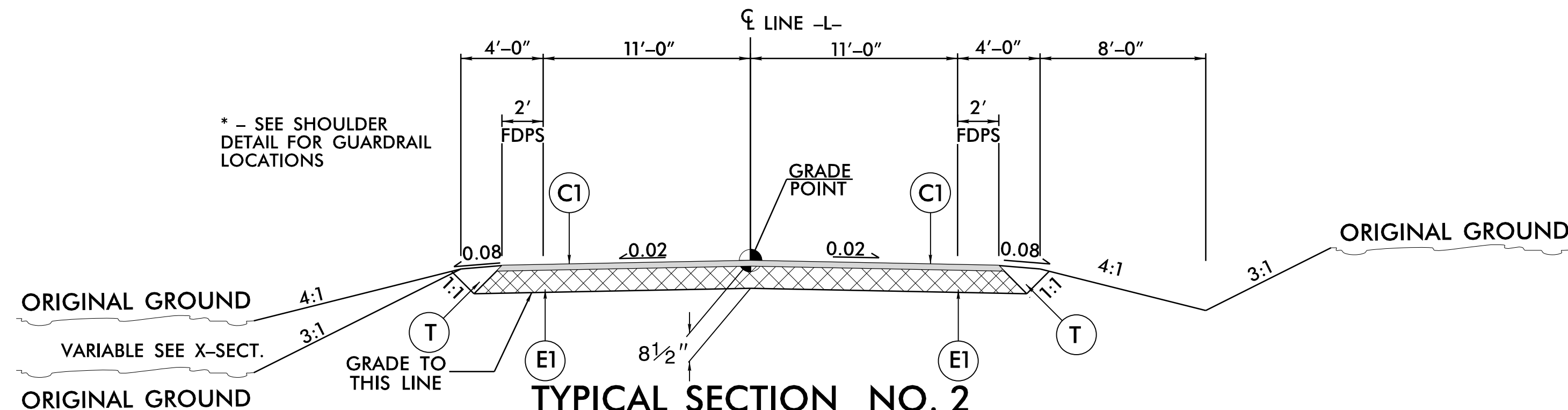
-DR- STA. 10+50 TO STA. 11+02 (LT)



## TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO. 1 AS FOLLOWS:

|                      |                   |
|----------------------|-------------------|
| -L- STA. 10+86.00 TO | -L- STA. 12+66.00 |
| -L- STA. 14+36.00 TO | -L- STA. 15+72.00 |



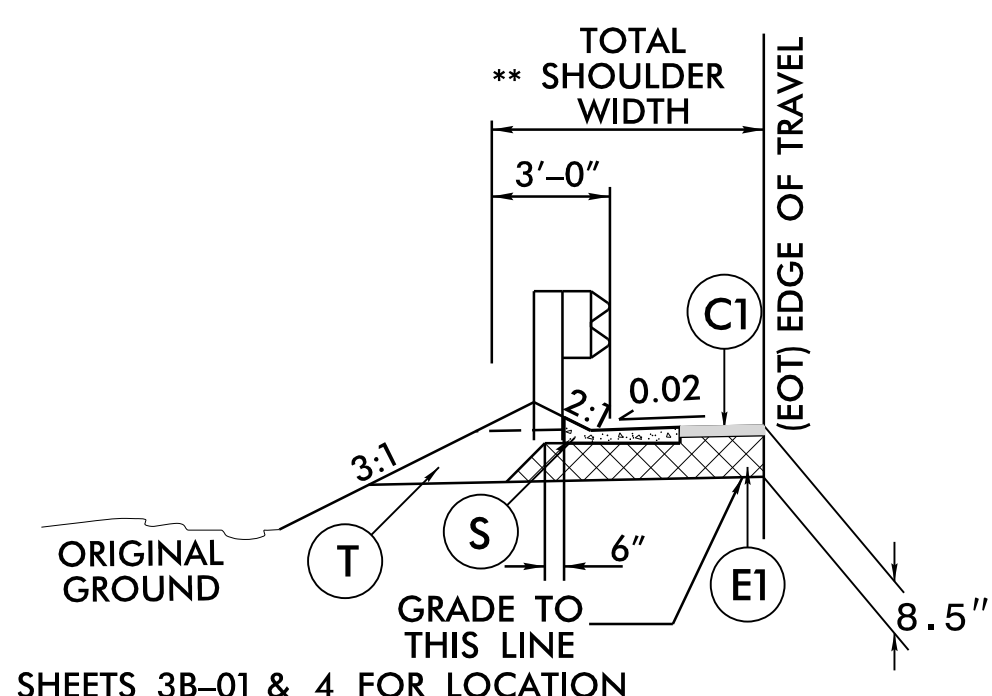
TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2 AS FOLLOWS:

-L- STA. 12+66.00 -L- STA. 13+14.88 (BEGIN BRIDGE)  
 -L- STA. 13+87.13 (END BRIDGE) TO -L- STA. 14+36.00

### SHOULDER BERM GUTTER DETAIL

NOTE: ALSO SEE NCDOT ROADWAY STD. 846.01 THROUGH 846.04

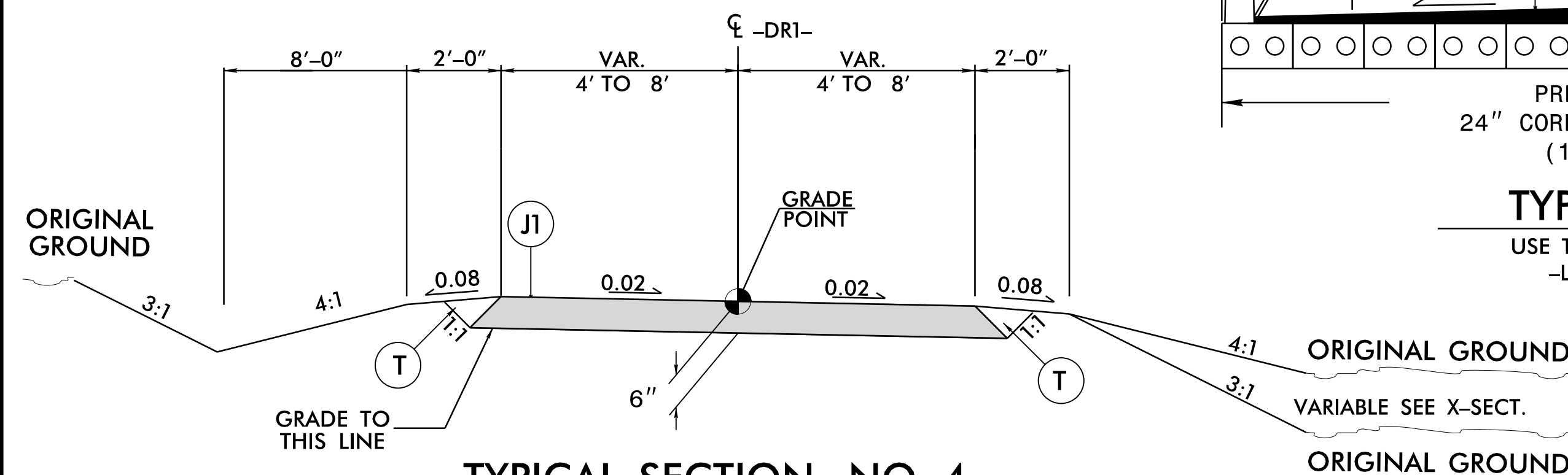
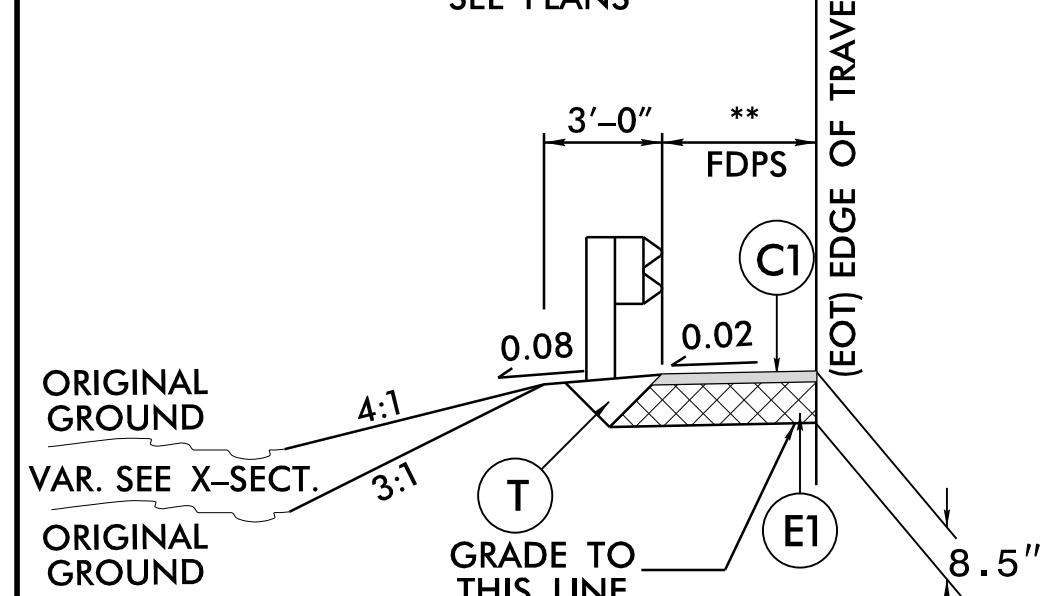


\*\* SEE SHEETS 3B-01 & 4 FOR LOCATION

## SHOULDER DETAIL

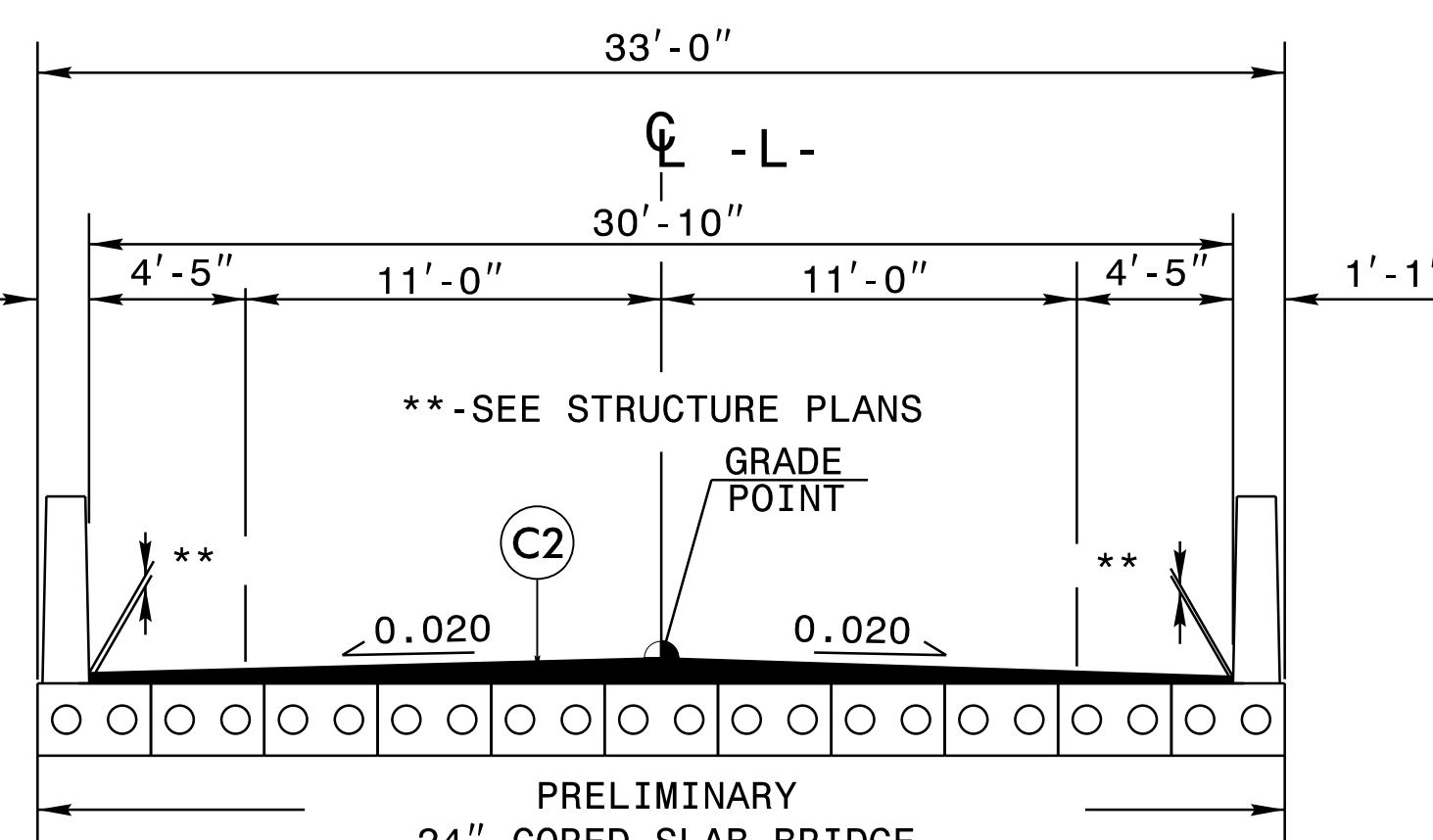
-L STA. 12 + 69.88 TO -L STA. 13 + 14.88 LT.  
 -L STA. 13 + 87.13 TO -DR- STA. 10 + 44.60 LT.  
 -L STA. 12 + 69.88 TO -L STA. 13 + 14.88 RT.  
 -L STA. 13 + 87.13 TO -L STA. 14 + 62.13 RT.

USE SHOULDER DETAIL IN  
CONJUNCTION WITH TYPICAL SECTIONS NO. 1 & 2:  
\*\* SEE PLANS



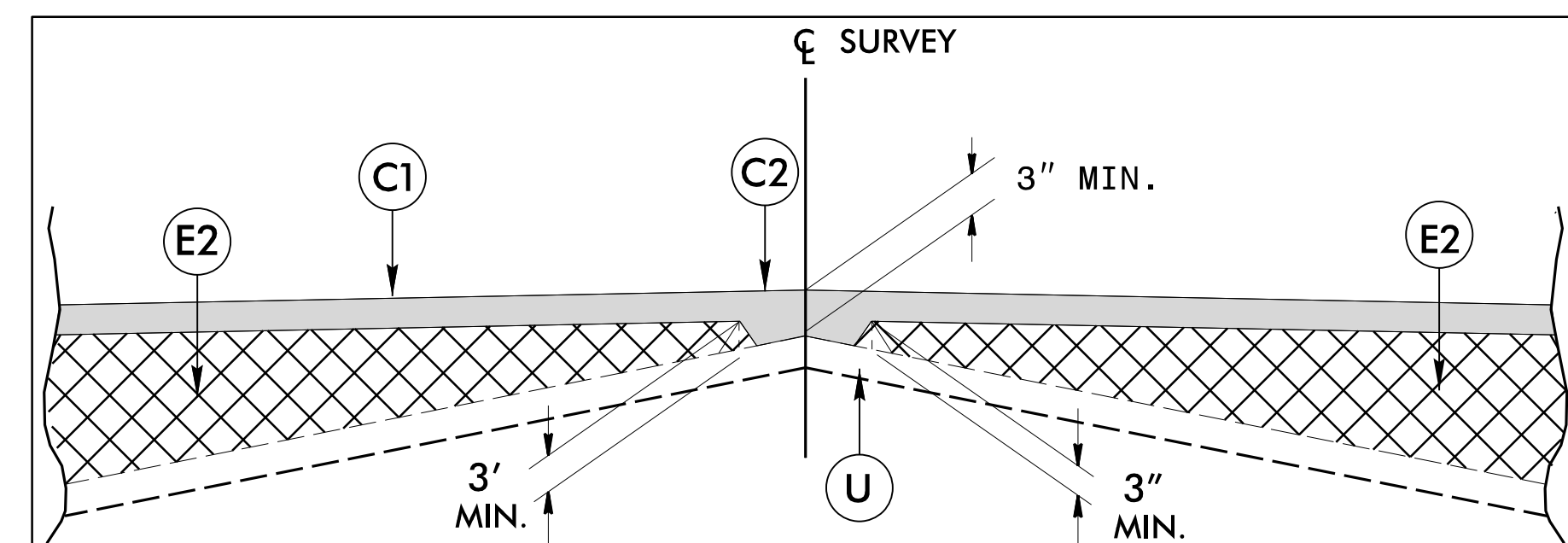
### TYPICAL SECTION NO. 4

USE TYPICAL SECTION NO. 4 AS FOLLOWS:  
-DR1- STA. 10+11.00 TO STA. 11+08.63



### TYPICAL SECTION NO. 3

USE TYPICAL SECTION NO. 3 AS FOLLOWS.



## W: Detail Showing Method of Wedging



## SHOULDER BERM GUTTER SUMMARY

| SURVEY LINE | STATION    | STATION    | LOCATION LV/RV/CL | YD <sup>2</sup> |
|-------------|------------|------------|-------------------|-----------------|
| -L-         | 13 + 00.00 | 13 + 34.00 | CL                | 74.56           |
| -L-         | 13 + 71.00 | 14 + 00.00 | CL                | 61.44           |
|             |            |            |                   |                 |
|             |            |            |                   |                 |
|             |            |            |                   |                 |
|             |            |            |                   |                 |
|             |            |            |                   |                 |
|             |            |            | TOTAL:            | 136.00          |
|             |            |            | SAY:              | 140.00          |

| SURVEY LINE | STATION    | STATION    | LENGTH |
|-------------|------------|------------|--------|
| -L- LT.     | 12 + 90.00 | 13 + 16.00 | 26.0   |
| -L- RT.     | 12 + 90.00 | 13 + 16.00 | 26.0   |
|             |            |            |        |
|             | TOTAL:     |            | 52.0   |
|             | SAY:       |            | 52.0   |

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.

[illegible]

## GUARDRAIL SUMMARY

[illegible]



## A map of North Carolina showing its county boundaries. Johnston County, located in the southeastern part of the state, is highlighted in black. The map shows the state's outline and the internal divisions between counties.



|                                          |                                         |
|------------------------------------------|-----------------------------------------|
| <u>STATE TRAFFIC MANAGEMENT ENGINEER</u> |                                         |
| J. S. KITE, P.E.                         | TRAFFIC CONTROL PROJECT ENGINEER        |
| M. SPRINGER, P.E.                        | TRAFFIC CONTROL PROJECT DESIGN ENGINEER |
| S. B. JENNINGS                           | TRAFFIC CONTROL DESIGN ENGINEER         |



| <u>SHEET NO.</u> | <u>TITLE</u>                                                            |
|------------------|-------------------------------------------------------------------------|
| TMP-1            | TITLE SHEET, VICINITY MAP, LEGEND AND INDEX OF SHEETS                   |
| TMP-1A           | LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS, GENERAL NOTES AND PHASING |
| TMP-2            | SPECIAL SIGN DESIGN(S)                                                  |
| TMP-2A           | DETOUR BYRDVILLE FREEMAN RD. (SR 1836)                                  |

## 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

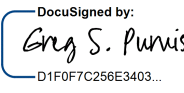
-  PORTABLE SIGN  
 STATIONARY SIGN  
 STATIONARY OR PORTABLE SIGN

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UNLESS ALL SIGNATURES COMPLETED**

|                                        |                                                                                                                                |                                                                                                                                 |
|----------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|
| <b>PLAN PREPARED<br/>FOR NCDOT BY:</b> | <br><b>WENTZ THERRILL<br/>ENGINEERING</b> | 1225 John Franklin Dr.<br>Raleigh, NC 27601<br>Phone No. 919.233.8800<br>Fax No. 919.233.8801<br>E-Mail: info@wentztherrill.com |
|                                        |                                                                                                                                | TRANSPORTATION PLANNING DESIGN - BRIDGE/STRUCTURE DESIGN<br>CIVIL/SEWER DESIGN - EROSION CONTROL - CONSTRUCTION OBSERVATION     |

**APPROVED:** \_\_\_\_\_  
**DATE:** \_\_\_\_\_

**SEAL**



SHEET NO.

TMP-1

**17BP.6.R.79**

# PROJECT:



THE FOLLOWING ROADWAY STANDARDS AS SHOWN IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2012 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

## 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) 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 A DROP-OFF AS FOLLOWS:

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

## TRAFFIC PATTERN ALTERATIONS

- ## SIGNING

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

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

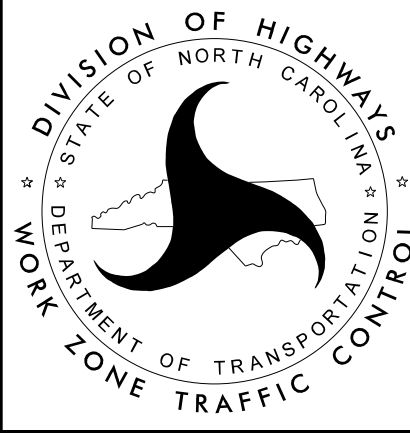
NOTE: CONSTRUCT BRIDGE NO. 230262 BEFORE BRIDGE NO. 230259.

STEP 4: - OPEN BYRDVILLE FREEMAN ROAD (SR 1836) TO TRAFFIC AND REMOVE ALL TRAFFIC CONTROL DEVICES FROM THE PROJECT.



TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN  
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

DATE: \_\_\_\_\_



# ROADWAY STANDARD DRAWINGS, LEGEND, GENERAL NOTES AND PHASING



SPECIAL  
SIGN  
DESIGN(S)

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

**W**ETHERILL  
ENGINEERING

1223 Jones Franklin Rd.  
Raleigh, N.C. 27606  
License No. F-0377  
Bus: 919 851 8077  
Fax: 919 851 8107

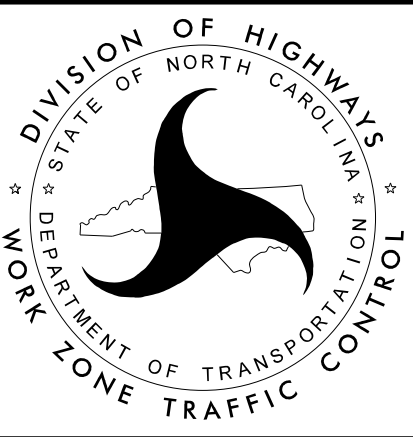
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN  
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

APPROVED: \_\_\_\_\_ DATE: \_\_\_\_\_

SEAL

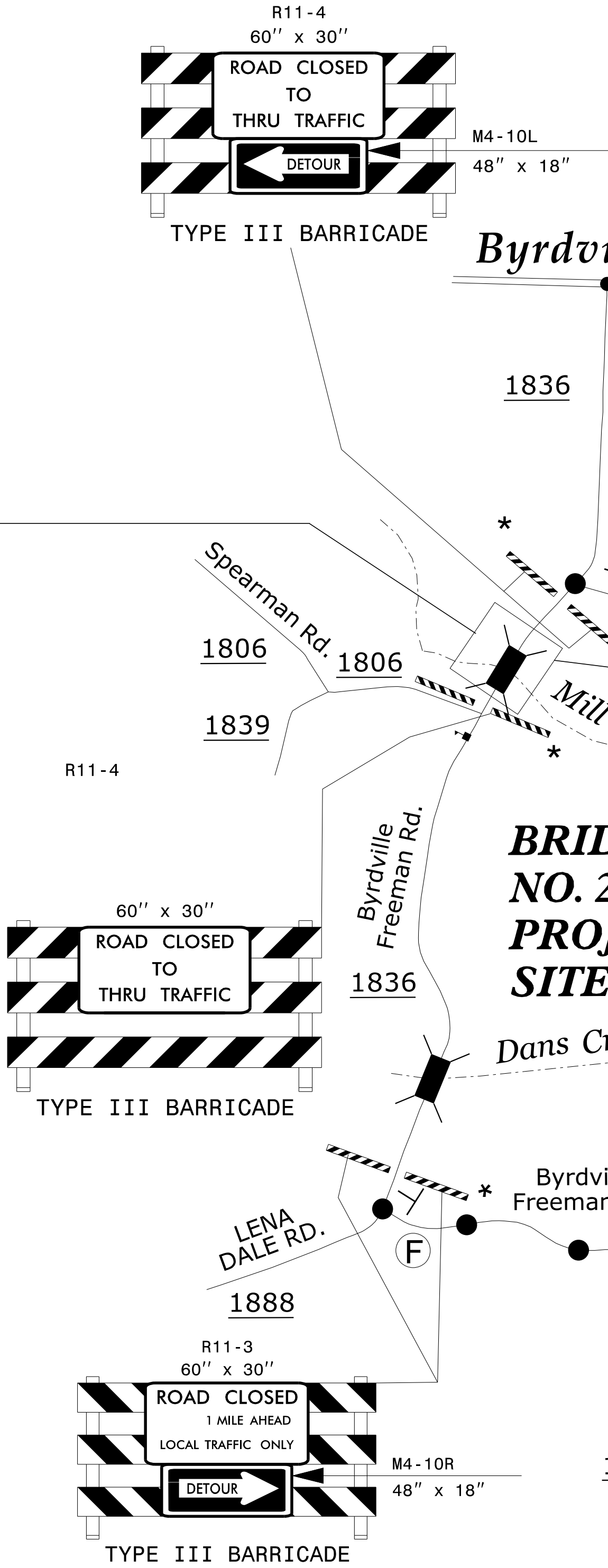
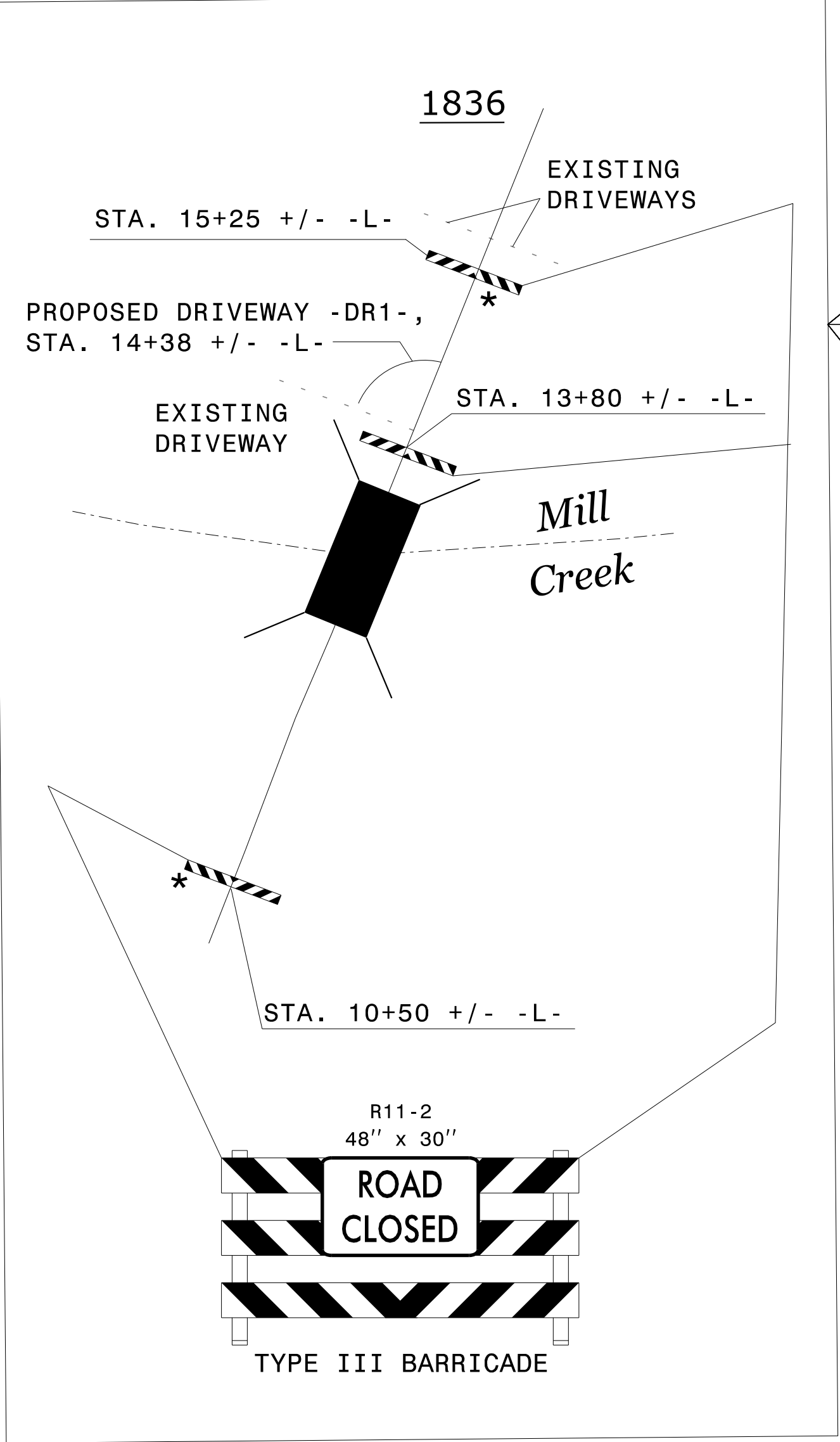
North Carolina  
Professional  
SEAL  
22999  
5/30/2017  
Engineer  
Greg S. Purvis

Desecified by:  
*Greg S. Purvis*

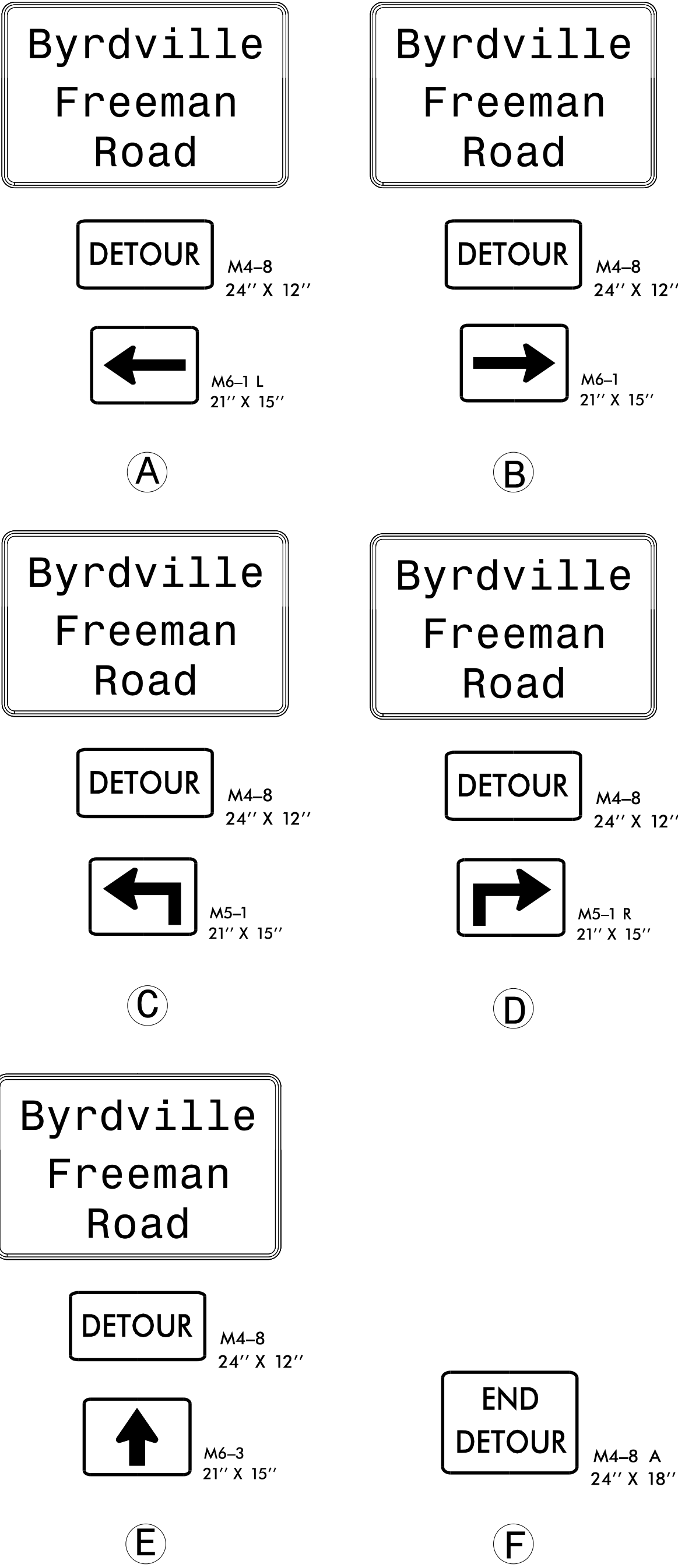




| PROJ. REFERENCE NO. | SHEET NO. |
|---------------------|-----------|
| 17BP.6.R.79         | TMP-2A    |



DETOUR SIGNING



DETOUR ROUTE

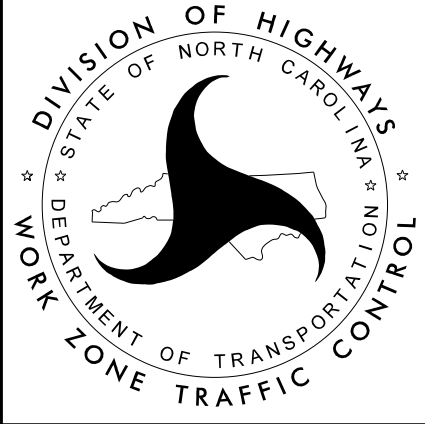
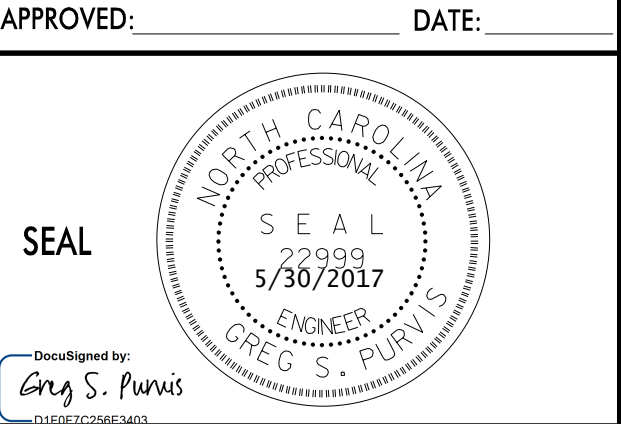
\* NOTES: SEE TMP-2 FOR "BYRDVILLE FREEMAN ROAD" SPECIAL SIGN DESIGN.  
ALL DETOUR SIGN LOCATIONS ARE APPROXIMATE.  
SEE RSD 1101.03, SHEET 1 OF 9, FOR TYPE III BARRICADE LOCATION  
WITH ATTACHED SIGNING & ADDITIONAL SIGNING FOR ROAD CLOSURE.



TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN  
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

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Fax: 919 851 8107

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DETOUR  
BYRDVILLE FREEMAN  
ROAD  
(SR 1836)







5/24/2017  
P:\2016\16148.01\_COLUMBUS.259\TrafficControl\TCP\230259\_TC\_PMP\_PSH\_01.dgn  
User:skennedy

17BP.6.R.79

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION

PAVEMENT MARKING PLAN  
COLUMBUS COUNTY

LOCATION: REPLACEMENT OF BRIDGE NO.230259 OVER MILL CREEK  
ON SR 1836 (BYRDVILLE-FREEMAN ROAD)

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 2012 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE  
CONSIDERED A PART OF THESE PLANS:

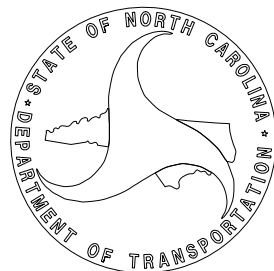
| STD. NO. | TITLE                                                    |
|----------|----------------------------------------------------------|
| 1205.01  | PAVEMENT MARKINGS - LINE TYPES AND OFFSETS               |
| 1205.02  | PAVEMENT MARKINGS - TWO-LANE AND MULTILANE ROADWAYS      |
| 1205.12  | PAVEMENT MARKINGS - BRIDGES                              |
| 1250.01  | RAISED PAVEMENT MARKERS - INSTALLATION SPACING           |
| 1251.01  | RAISED PAVEMENT MARKERS - PERMANENT AND TEMPORARY        |
| 1261.01  | GUARDRAIL AND BARRIER DELINEATORS - INSTALLATION SPACING |
| 1261.02  | GUARDRAIL AND BARRIER DELINEATORS - TYPES AND MOUNTING   |
| 1262.01  | GUARDRAIL END DELINEATION                                |

INDEX

| SHEET NO. | DESCRIPTION                                         |
|-----------|-----------------------------------------------------|
| PMP-1     | PAVEMENT MARKING PLAN TITLE                         |
| PMP-2     | PAVEMENT MARKING DETAIL (SR 1836) BRIDGE NO. 230259 |

PLAN PREPARED BY: N.C.D.O.T. SIGNING AND DELINEATION UNIT

A.I. ALQUDWAH, PE SIGNING & DELINEATION REGIONAL ENGINEER  
MITCH EATON SIGNING & DELINEATION PROJECT DESIGN ENGINEER/TECHNICIAN



|                                                                  |           |
|------------------------------------------------------------------|-----------|
| TIP NO.                                                          | SHEET NO. |
| 17BP.6.R.79                                                      | PMP - 1   |
| APPROVED: _____                                                  |           |
| DATE: _____                                                      |           |
| SEAL                                                             |           |
|                                                                  |           |
| DOCUMENT NOT CONSIDERED FINAL<br>UNLESS ALL SIGNATURES COMPLETED |           |

|                             |  |                                                                                        |
|-----------------------------|--|----------------------------------------------------------------------------------------|
| PLAN PREPARED FOR NCDOT BY: |  | <br>1023 Jones Road<br>Raleigh, N.C. 27604<br>Phone: 919.855.8077<br>Fax: 919.855.8077 |
| GREG S. PURVIS, P.E.        |  | PROJECT ENGINEER                                                                       |
| JESSE W. GILSTRAP           |  | TRAFFIC CONTROL ENGINEER                                                               |
| SCOTT L. KENNEDY            |  | TRAFFIC CONTROL ENGINEER                                                               |

GENERAL NOTES

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

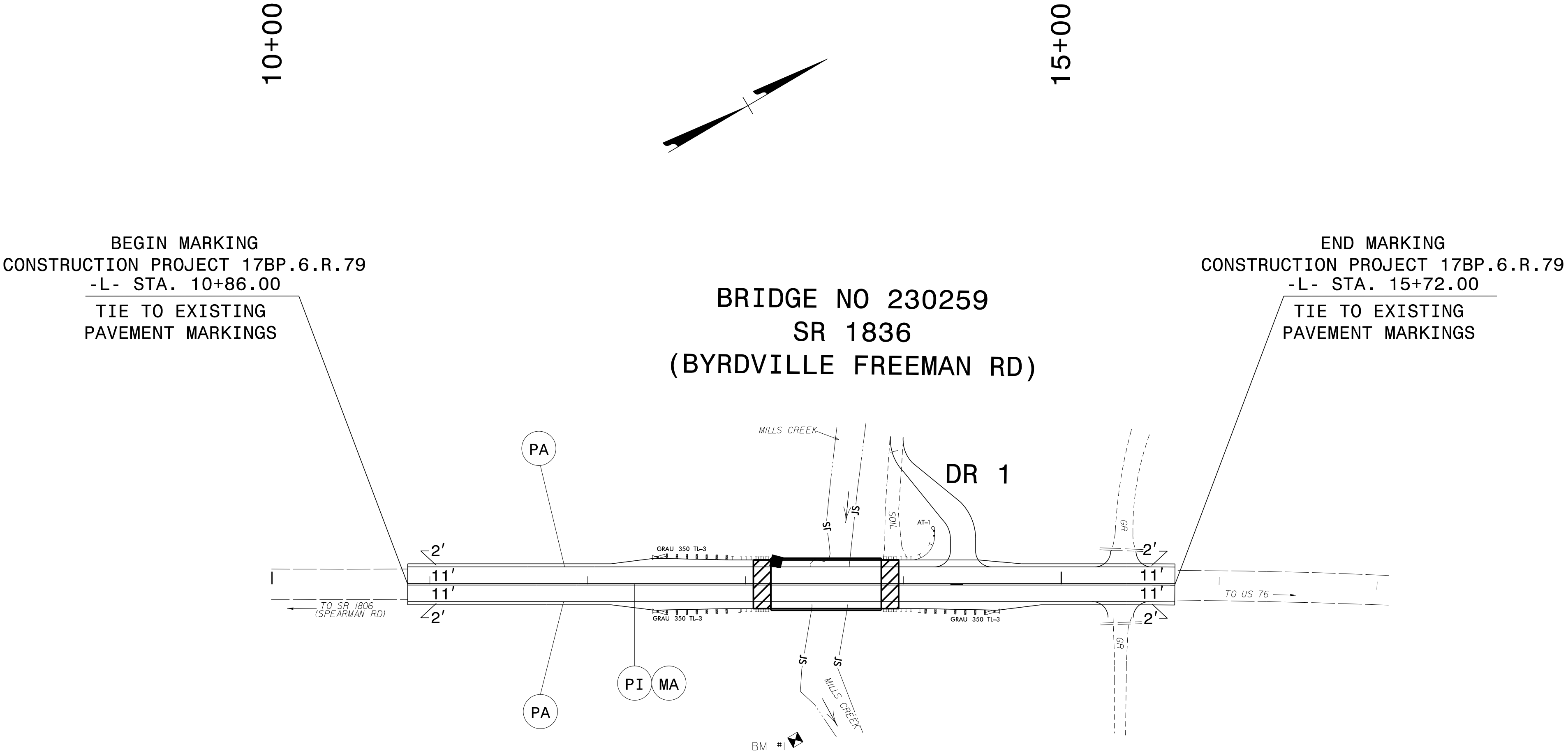
A) INSTALL PAVEMENT MARKINGS AND PAVEMENT MARKERS ON THE FINAL SURFACE  
AS FOLLOWS:

| ROAD NAME                                               | MARKING | MARKER           |
|---------------------------------------------------------|---------|------------------|
| BRIDGE NO. 230259<br>SR 1836<br>(BYRDVILLE FREEMAN RD.) | PAINT   | PERMANENT RAISED |
| SR 1836<br>BRIDGE, (BYRDVILLE FREEMAN RD.)              | PAINT   | PERMANENT RAISED |

- 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.
- E) PASSING ZONES WILL BE DETERMINED IN THE FIELD AND MUST BE APPROVED BY  
THE ENGINEER.



| PROJ. REFERENCE NO. | SHEET NO. |
|---------------------|-----------|
| 17BP.6.R.79         | PMP-2     |



PAVEMENT MARKING SCHEDULE

| SYBOL | DESCRIPTION          | PAY ITEM                   |
|-------|----------------------|----------------------------|
|       |                      | FINAL<br>PAVEMENT MARKINGS |
|       |                      | <u>PAINT (4")</u>          |
| PA    | WHITE EDGELINE       |                            |
| PI    | YELLOW DOUBLE CENTER |                            |
|       |                      | <u>MARKERS</u>             |
| MA    | YELLOW/YELLOW        |                            |

5/24/2017  
P:\2016\16148.01.COLUMBUS.259.TrafficControl\TCP\230259\_TC\_PMP\_PSH\_02.dgn  
User:skennedy



TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN  
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

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Fax: 919 851 8107

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APPROVED: \_\_\_\_\_

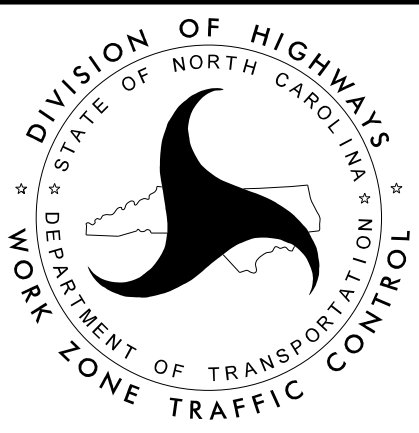
DATE: \_\_\_\_\_

SEAL

Designed by:  
Greg S. Purvis

018187C29E3403

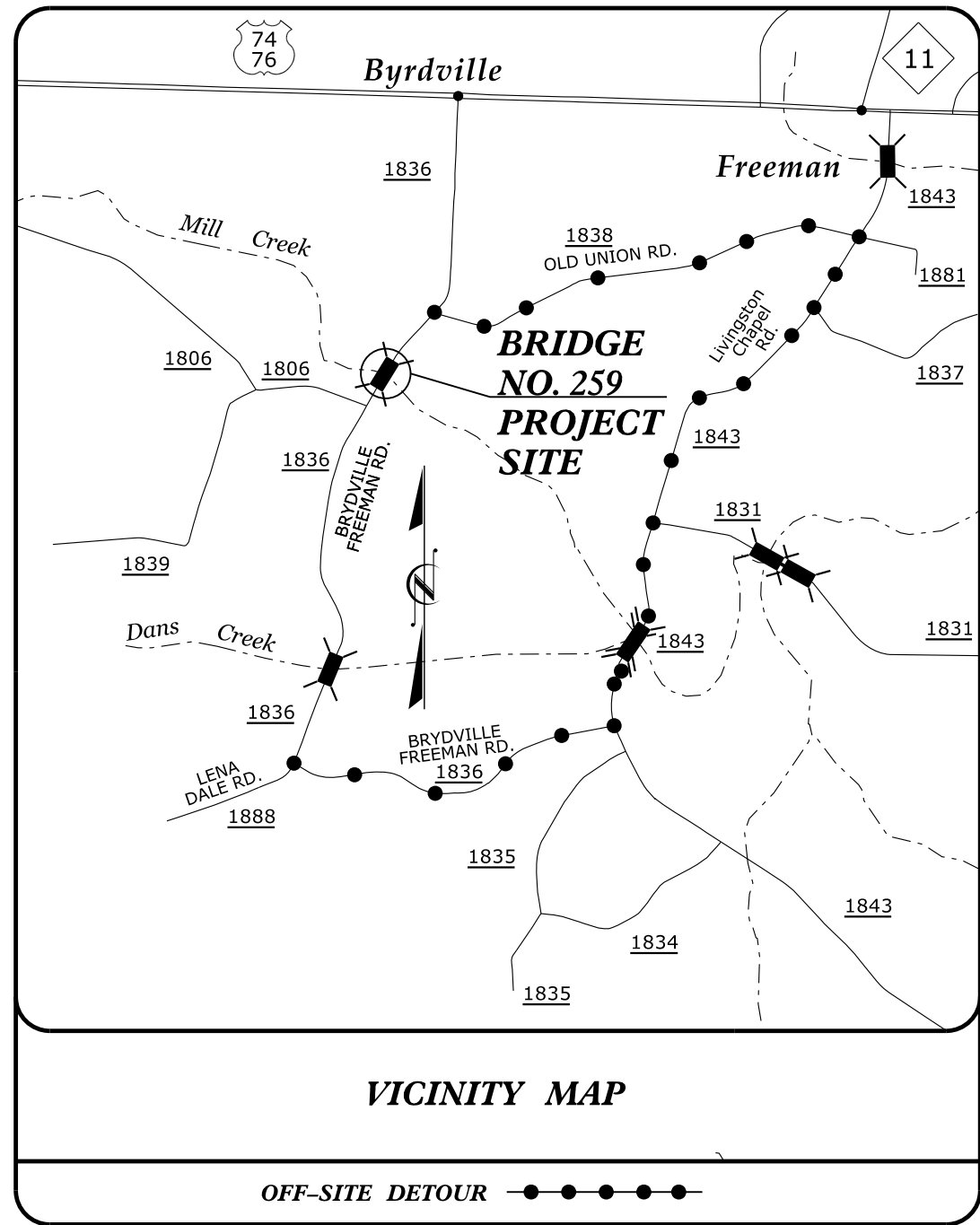
NORTH CAROLINA  
PROFESSIONAL  
SEAL  
22999  
5/30/2017  
ENGINEER  
GREG S. PURVIS



FINAL PAVEMENT  
MARKING PLAN  
AND SCHEDULE



TIP PROJECT: SF-230259

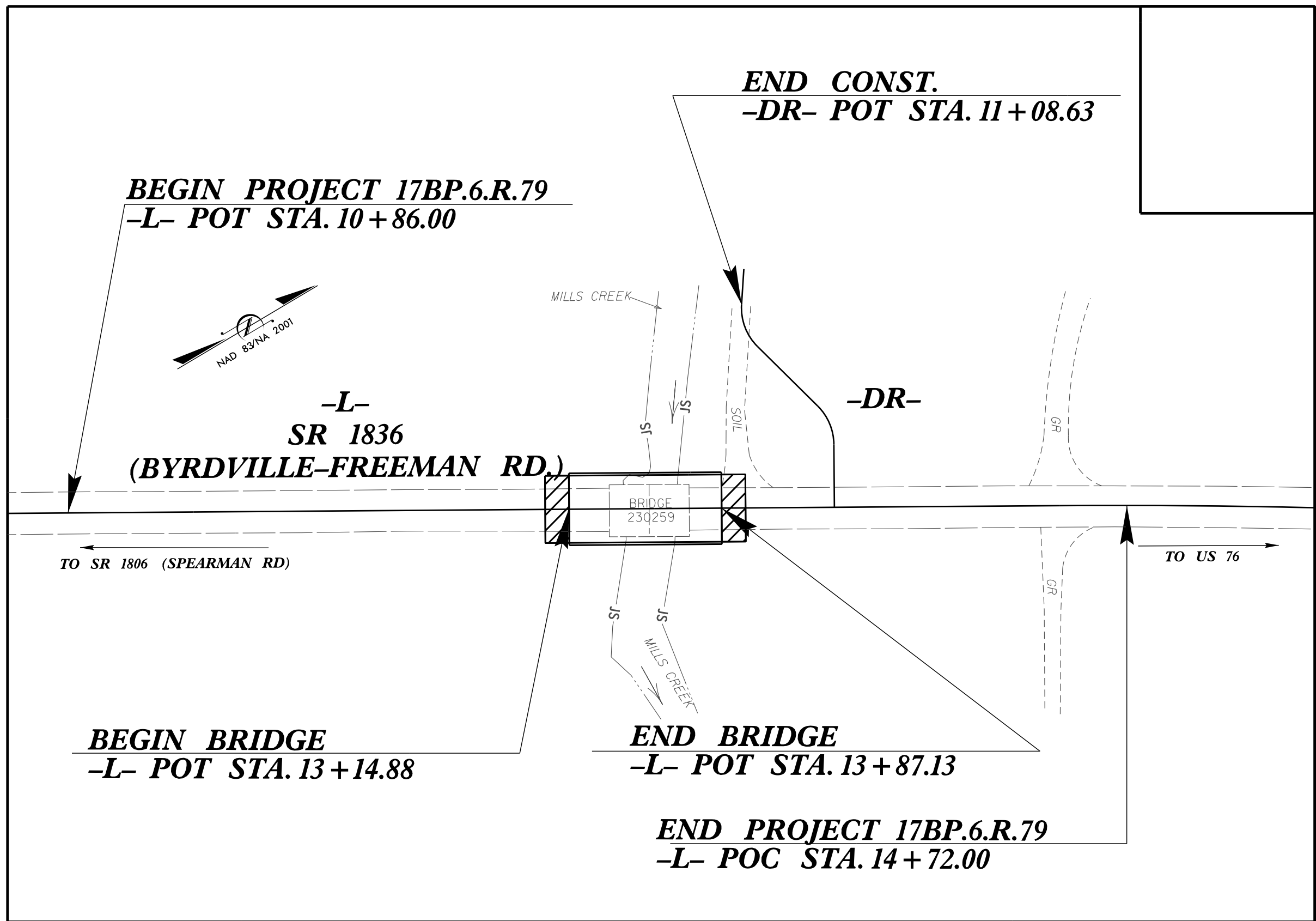


STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS  
PLAN FOR PROPOSED  
HIGHWAY EROSION CONTROL

COLUMBUS COUNTY

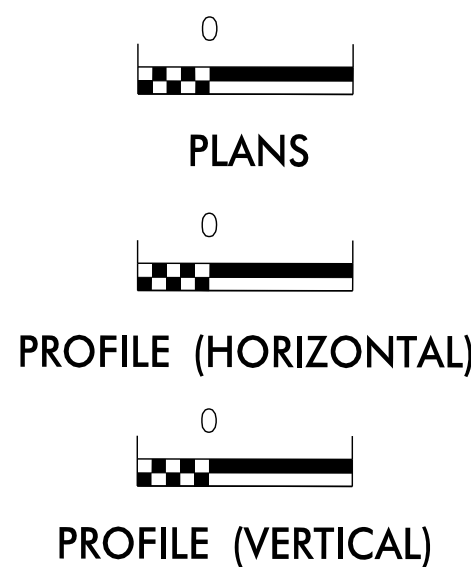
LOCATION: BRIDGE NO. 230259 OVER MILLS CREEK ON  
SR 1836 (BYRDVILLE-FREEMAN RD.)

TYPE OF WORK: GRADING, DRAINAGE, PAVING & STRUCTURE



THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.  
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II .

GRAPHIC SCALE



THESE EROSION AND SEDIMENT  
CONTROL PLANS COMPLY WITH  
THE REGULATIONS SET FORTH  
BY THE NCG-010000 GENERAL  
CONSTRUCTION PERMIT EFFECTIVE  
AUGUST 3, 2011 AND ISSUED BY  
THE NORTH CAROLINA DEPARTMENT  
OF ENVIRONMENT AND NATURAL  
RESOURCES DIVISION OF WATER  
RESOURCES.

Prepared in the Office of:

**WETHERILL ENGINEERING**

1223 Jones Franklin Rd.  
Raleigh, N.C. 27606  
License No. F-0377  
Bus: 919 851 8077  
Fax: 919 851 8107

TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN  
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

Designed by:

**ANNE D. GAMBER, PE, CFM** 3022

NAME LEVEL III CERTIFICATION NO.

Reviewed in the Office of:

**ROADSIDE ENVIRONMENTAL UNIT**

1 South Wilmington St.  
Raleigh, NC 27611

2012 STANDARD SPECIFICATIONS

Reviewed by:

XXXX XXXX

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 2012 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             |         |                                      |

| STATE          | STATE PROJECT REFERENCE NO. | SHEET NO.   | TOTAL SHEETS |
|----------------|-----------------------------|-------------|--------------|
| N.C.           | SF-230259                   | EC-1        |              |
| STATE PROJ.NO. | F.A.PROJ.NO.                | DESCRIPTION |              |
|                |                             |             |              |
|                |                             |             |              |
|                |                             |             |              |
|                |                             |             |              |

EROSION AND SEDIMENT CONTROL MEASURES

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

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



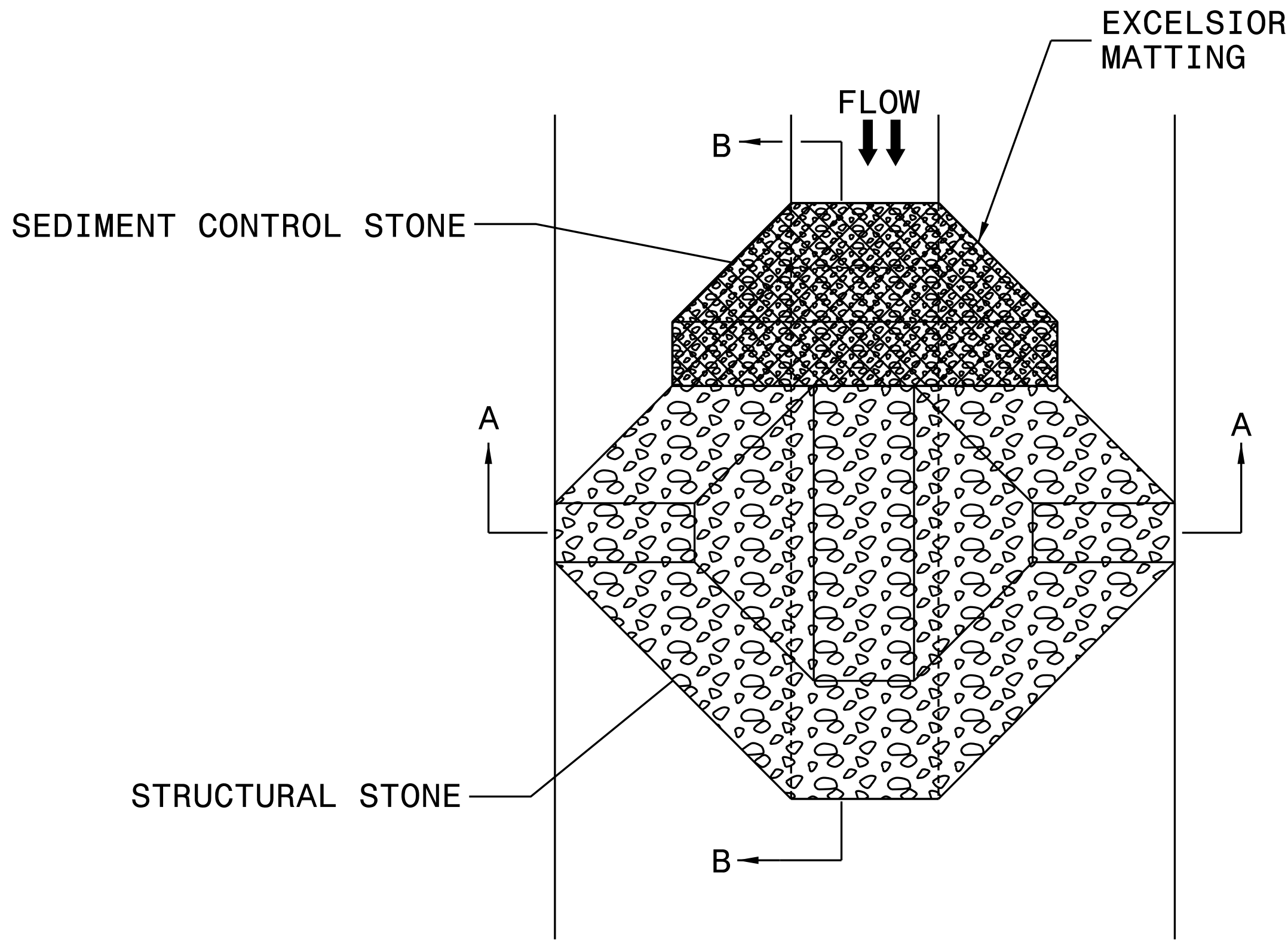
DIVISION OF HIGHWAYS  
STATE OF NORTH CAROLINA

SOIL STABILIZATION TIMEFRAMES

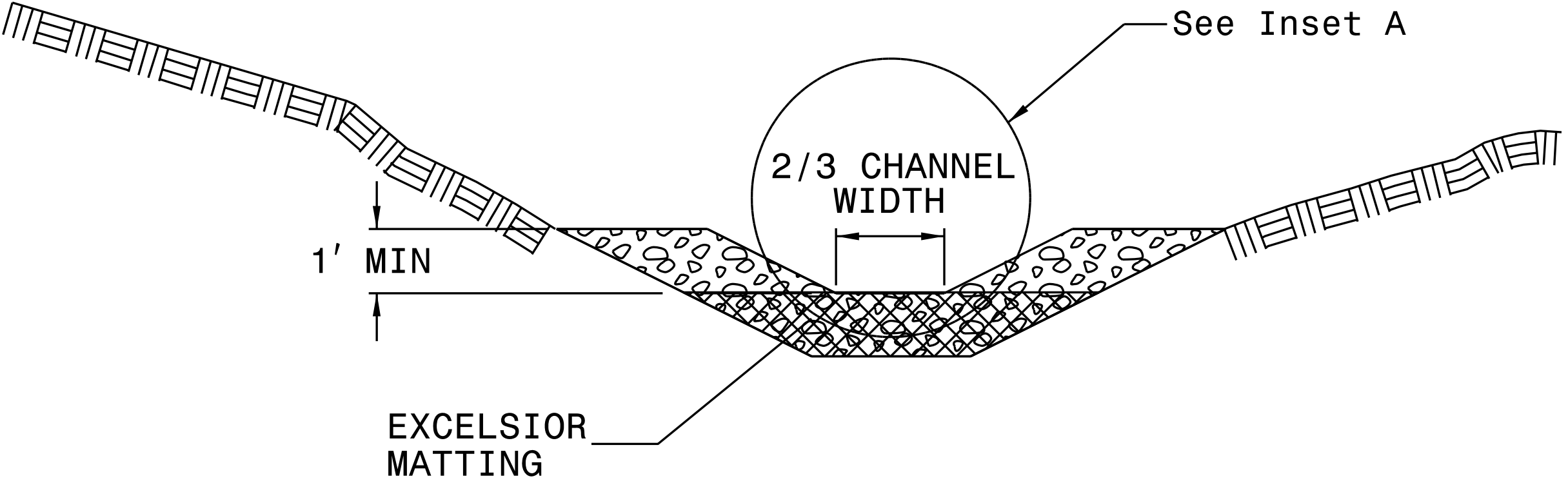
| SITE DESCRIPTION                             | STABILIZATION TIME | TIMEFRAME EXCEPTIONS                                                                   |
|----------------------------------------------|--------------------|----------------------------------------------------------------------------------------|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



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



PLAN



SECTION A-A

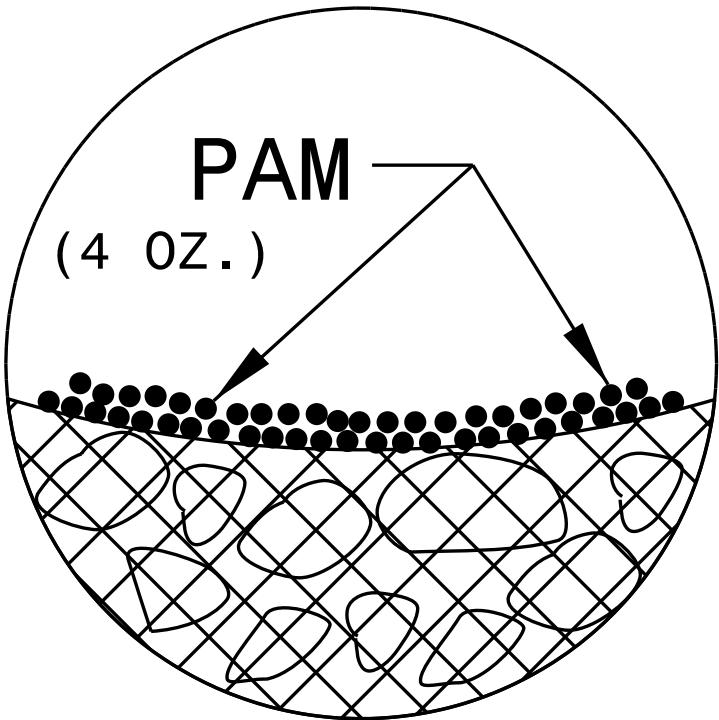
## NOTES:

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

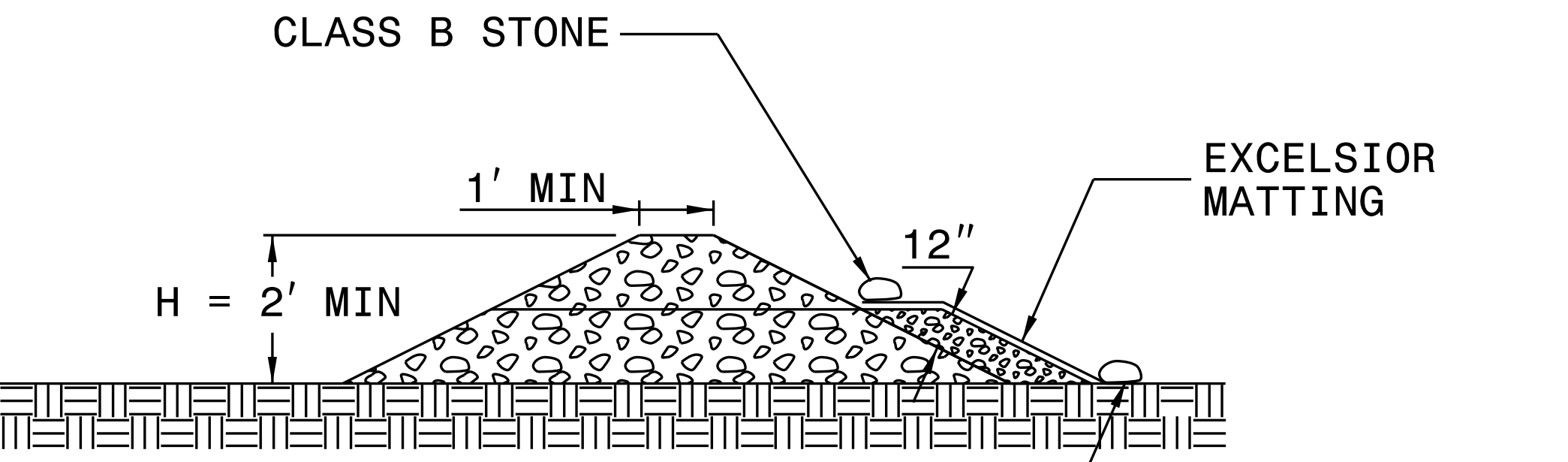
USE EXCELSIOR FOR MATTING MATERIAL AND ANCHOR MATTING SECTION AT TOP AND BOTTOM WITH CLASS B STONE.

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

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



INSET A



SECTION B-B

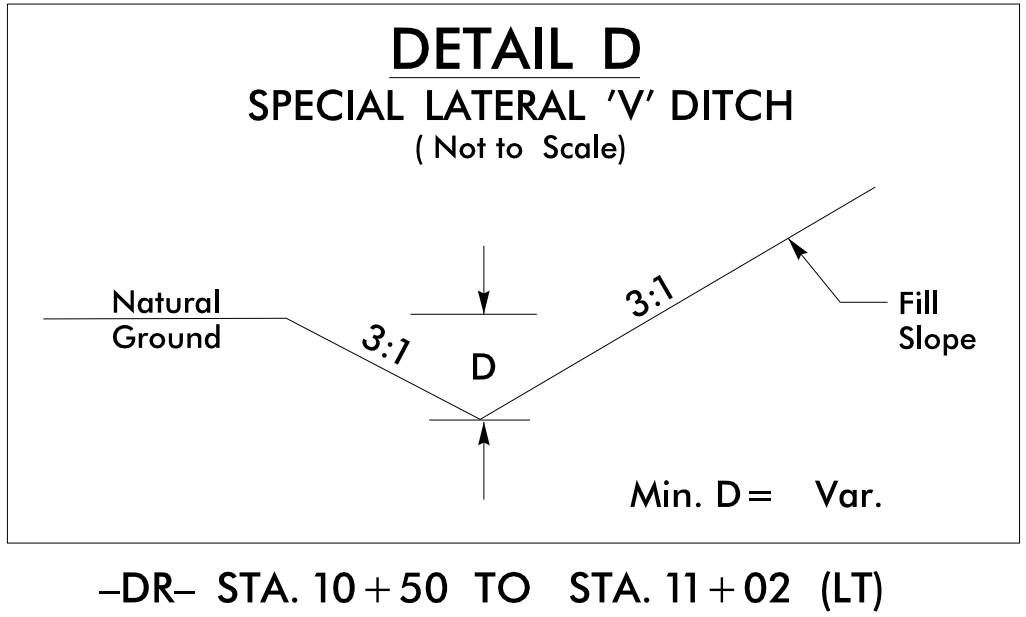
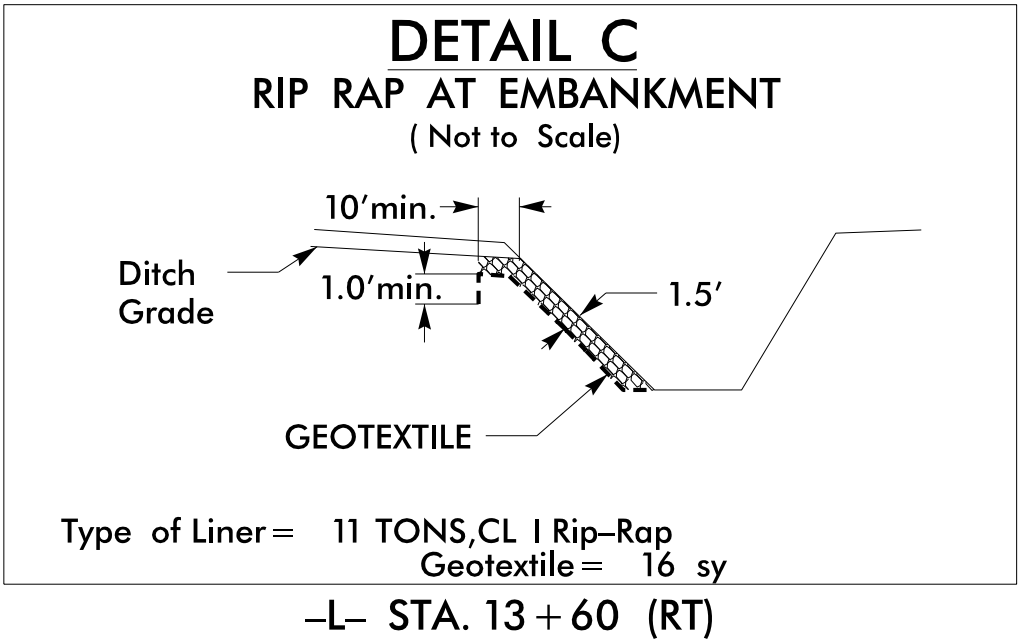
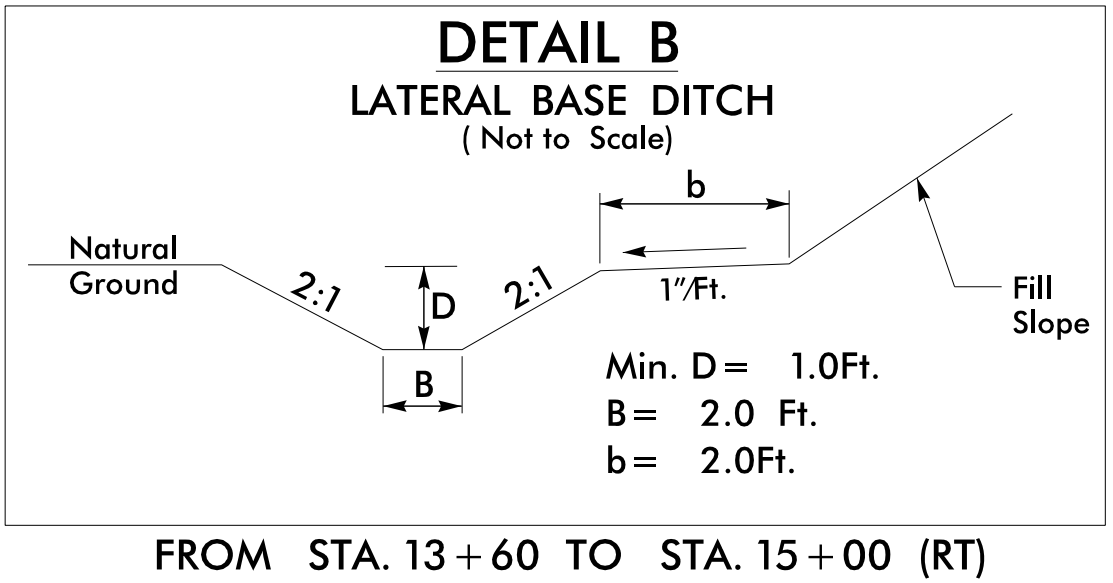
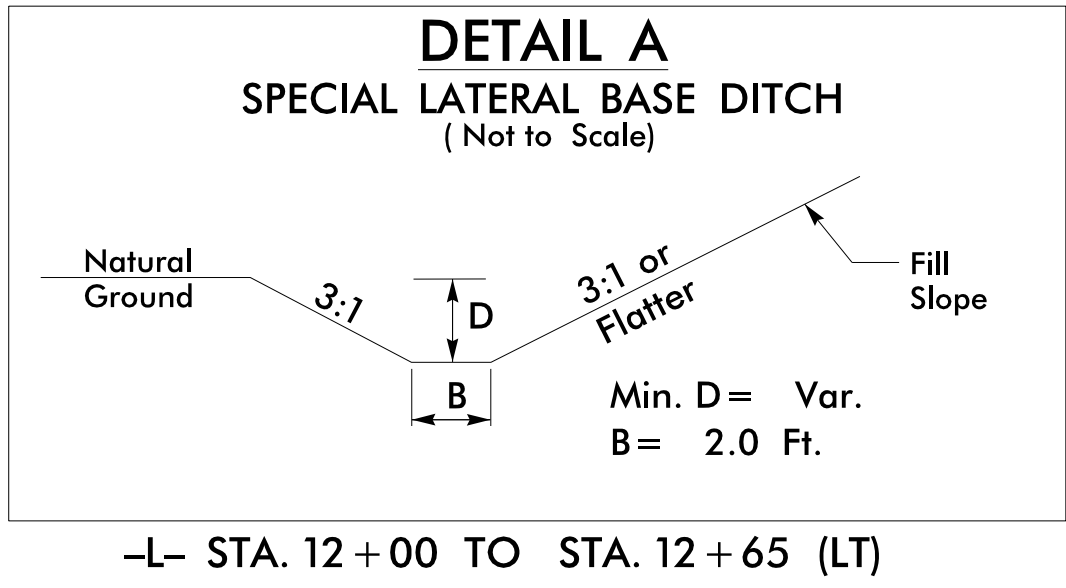
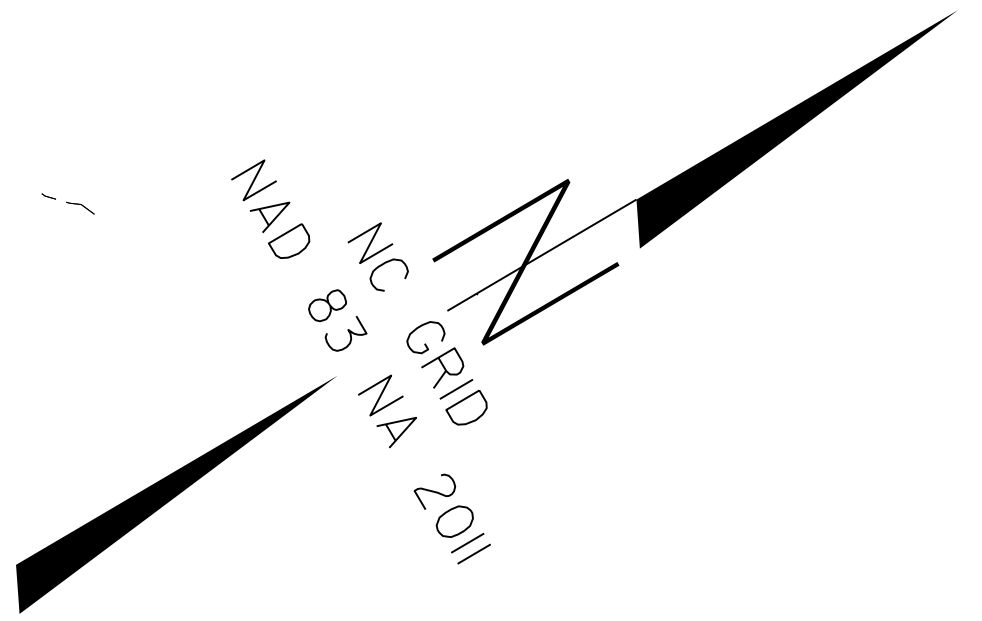
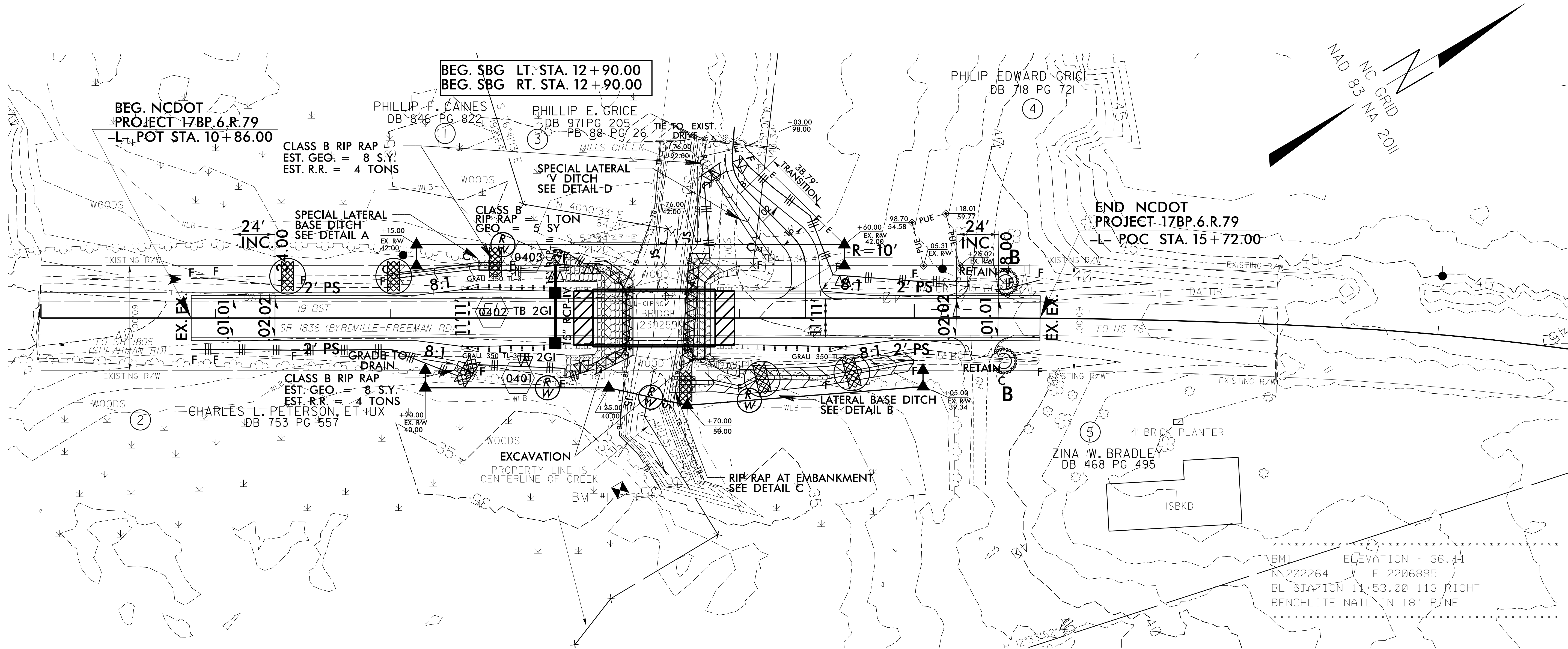
NOT TO SCALE



NOTE: THE OUTSIDE BUFFER, WETLAND OR WATER BOUNDARY SHALL BE CLEARLY MARKED BY HIGHLY VISIBLE FENCING (ORANGE SAFETY FENCE).

CLEARING AND GRUBBING  
EROSION CONTROL FOR  
CONSTRUCTION SHEET 4

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

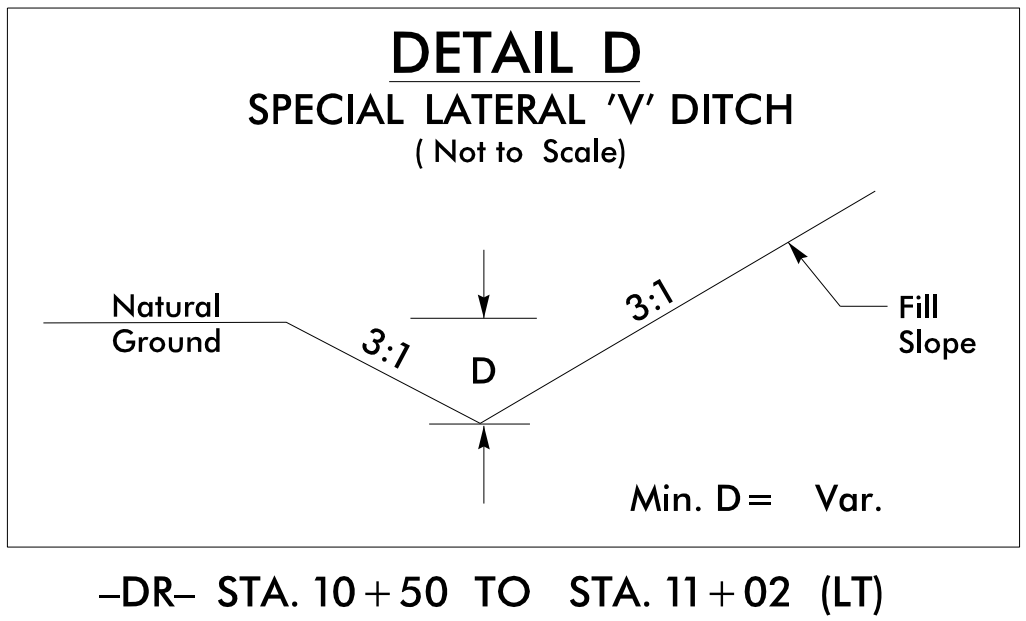
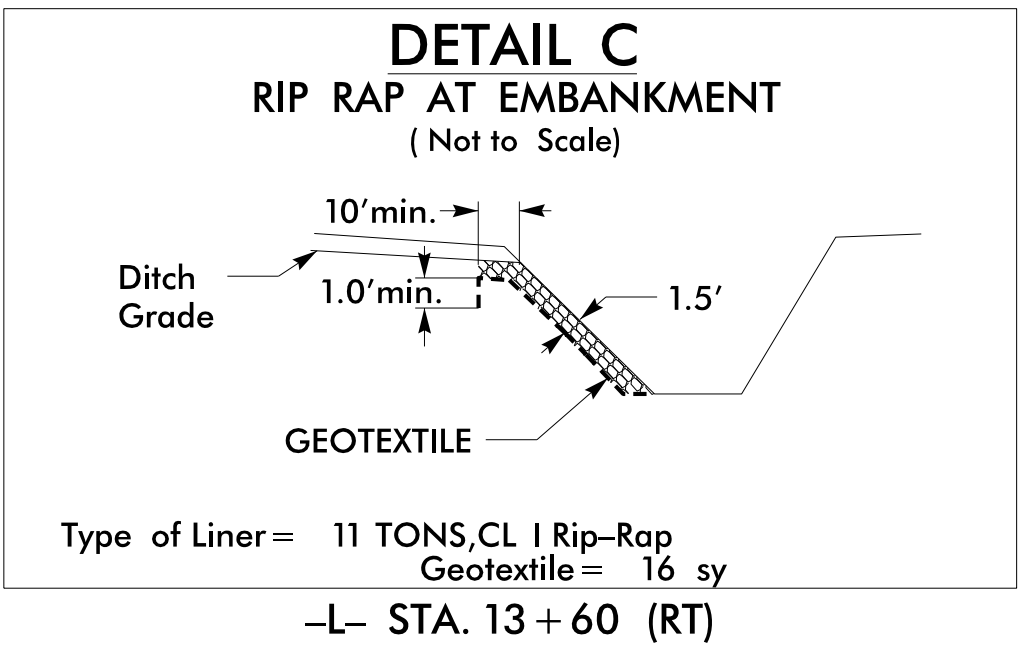
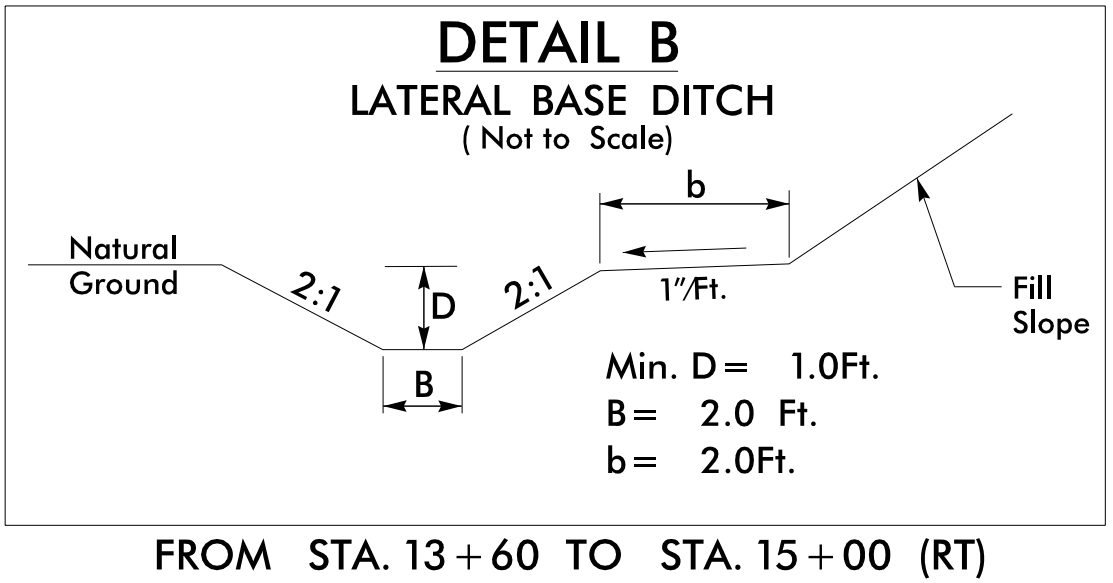
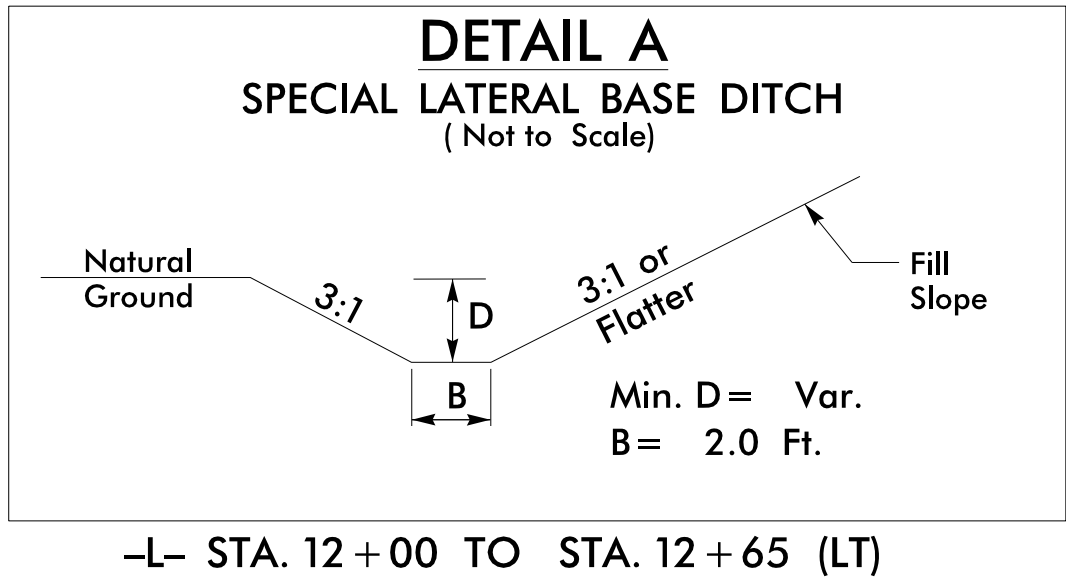
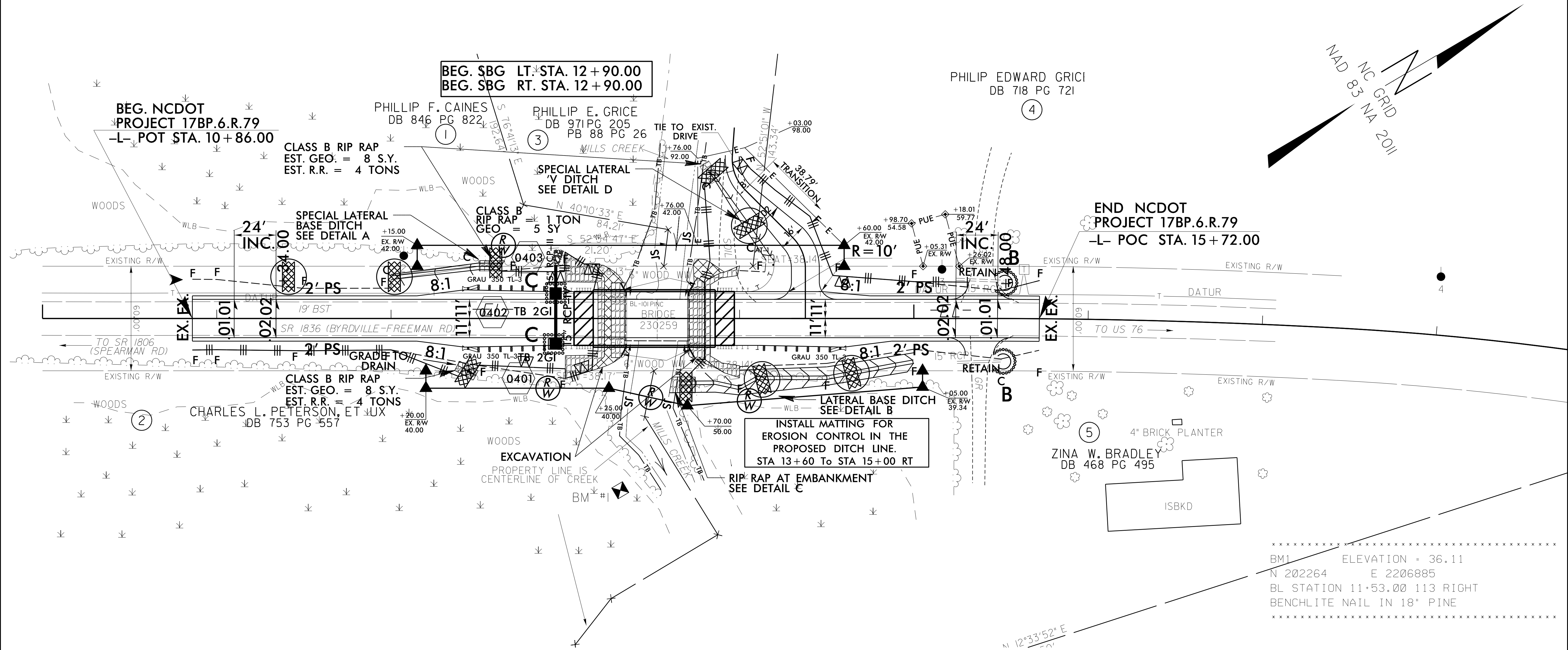




NOTE: THE OUTSIDE BUFFER, WETLAND OR WATER BOUNDARY SHALL BE CLEARLY MARKED BY HIGHLY VISIBLE FENCING (ORANGE SAFETY FENCE).

| PROJECT REFERENCE NO. | SHEET NO.      |
|-----------------------|----------------|
| SF-230259             | EC-05/CONST.04 |

Place Matting for Erosion Control on Slopes Adjacent to Permitted Wetlands as Work Allows.

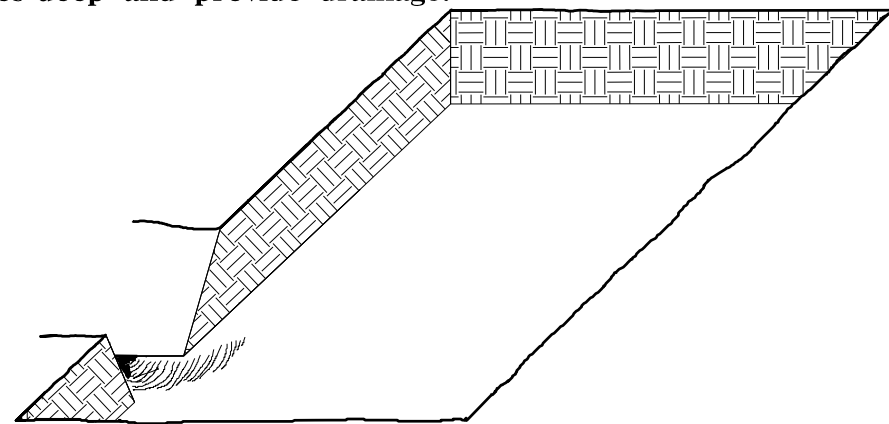




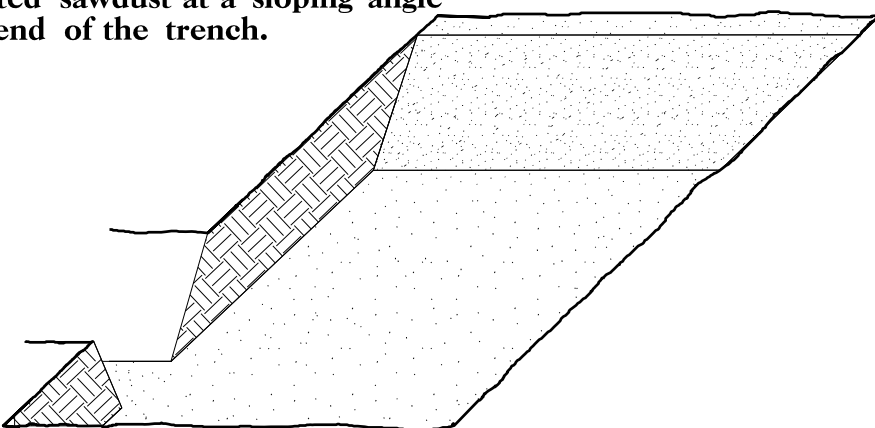
PLANTING DETAILS  
SEEDLING / LINER BAREROOT PLANTING DETAIL

HEALING IN

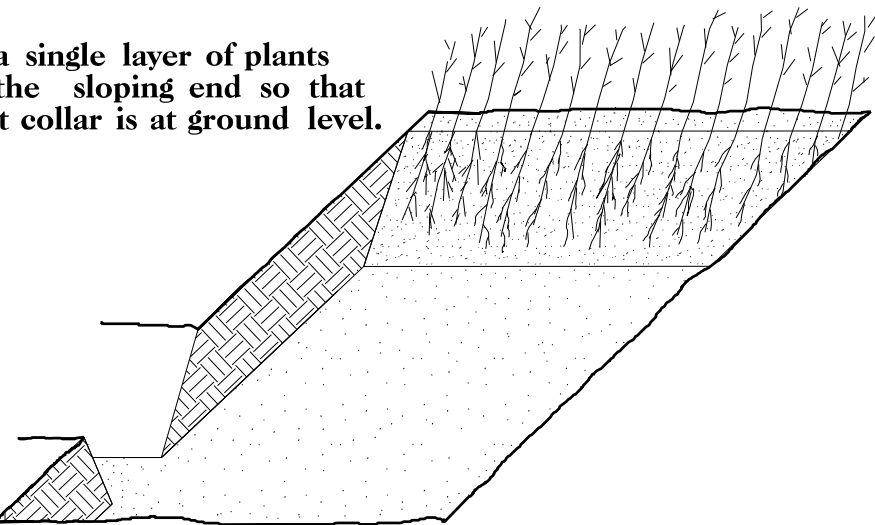
1. Locate a healing-in site in a shady, well protected area.  
2. Excavate a flat bottom trench 12 inches deep and provide drainage.



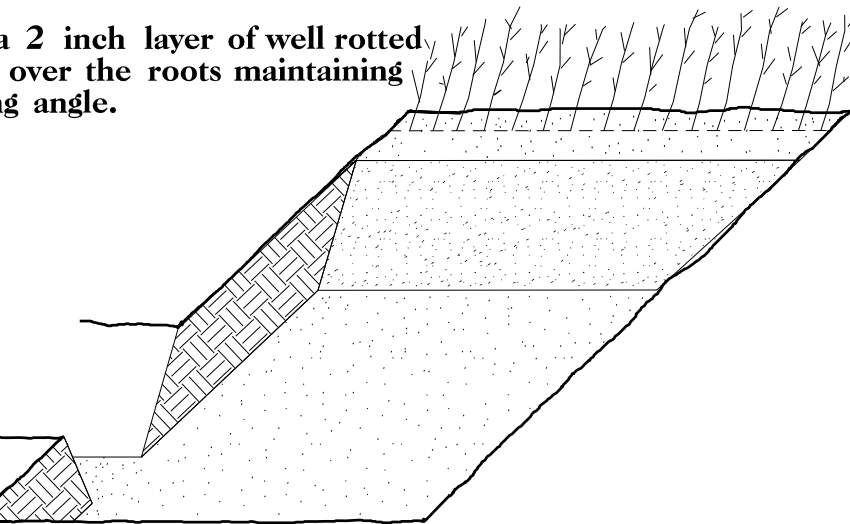
3. Backfill the trench with 2 inches well rotted sawdust. Place a 2 inch layer of well rotted sawdust at a sloping angle at one end of the trench.



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

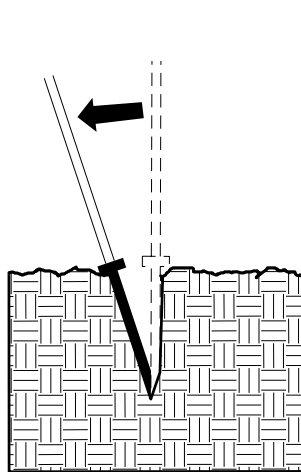


5. Place a 2 inch layer of well rotted sawdust over the roots maintaining a sloping angle.

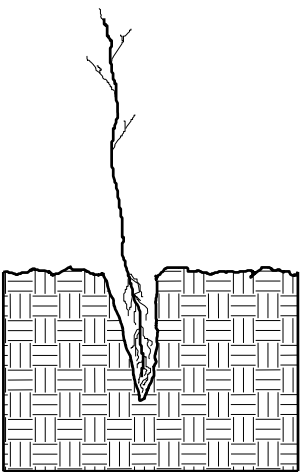


6. Repeat layers of plants and sawdust as necessary and water thoroughly.

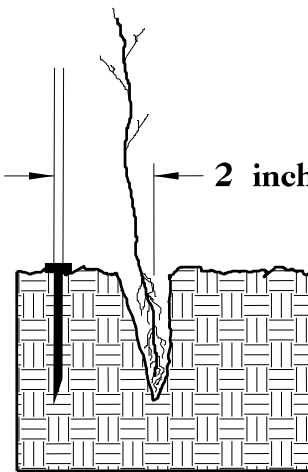
DIBBLE PLANTING METHOD  
USING THE KBC PLANTING BAR



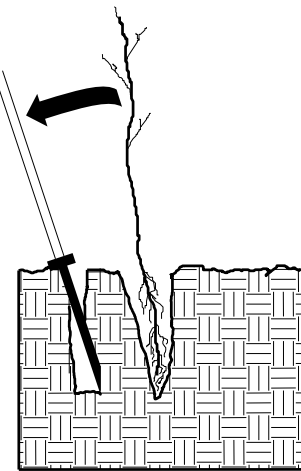
1. Insert planting bar as shown and pull handle toward planter.



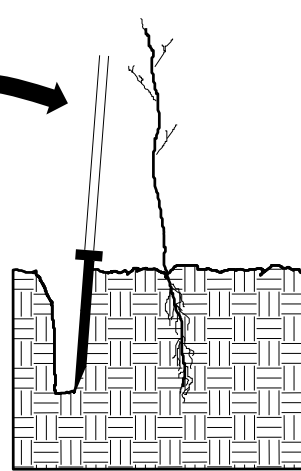
2. Remove planting bar and place seedling at correct depth.



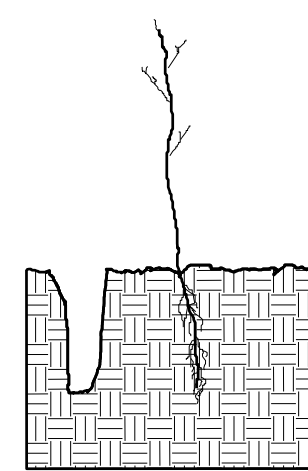
3. Insert planting bar 2 inches toward planter from seedling.



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



5. Push handle forward firming soil at top.



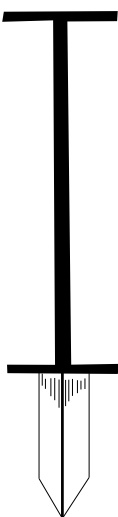
6. Leave compaction hole open. Water thoroughly.

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   | AMERICAN SYCAMORE | 12 in - 18 in BR |
| 25% FRAXINUS PENNSYLVANICA  | GREEN ASH         | 12 in - 18 in BR |
| 25% BETULA NIGRA            | RIVER BIRCH       | 12 in - 18 in BR |

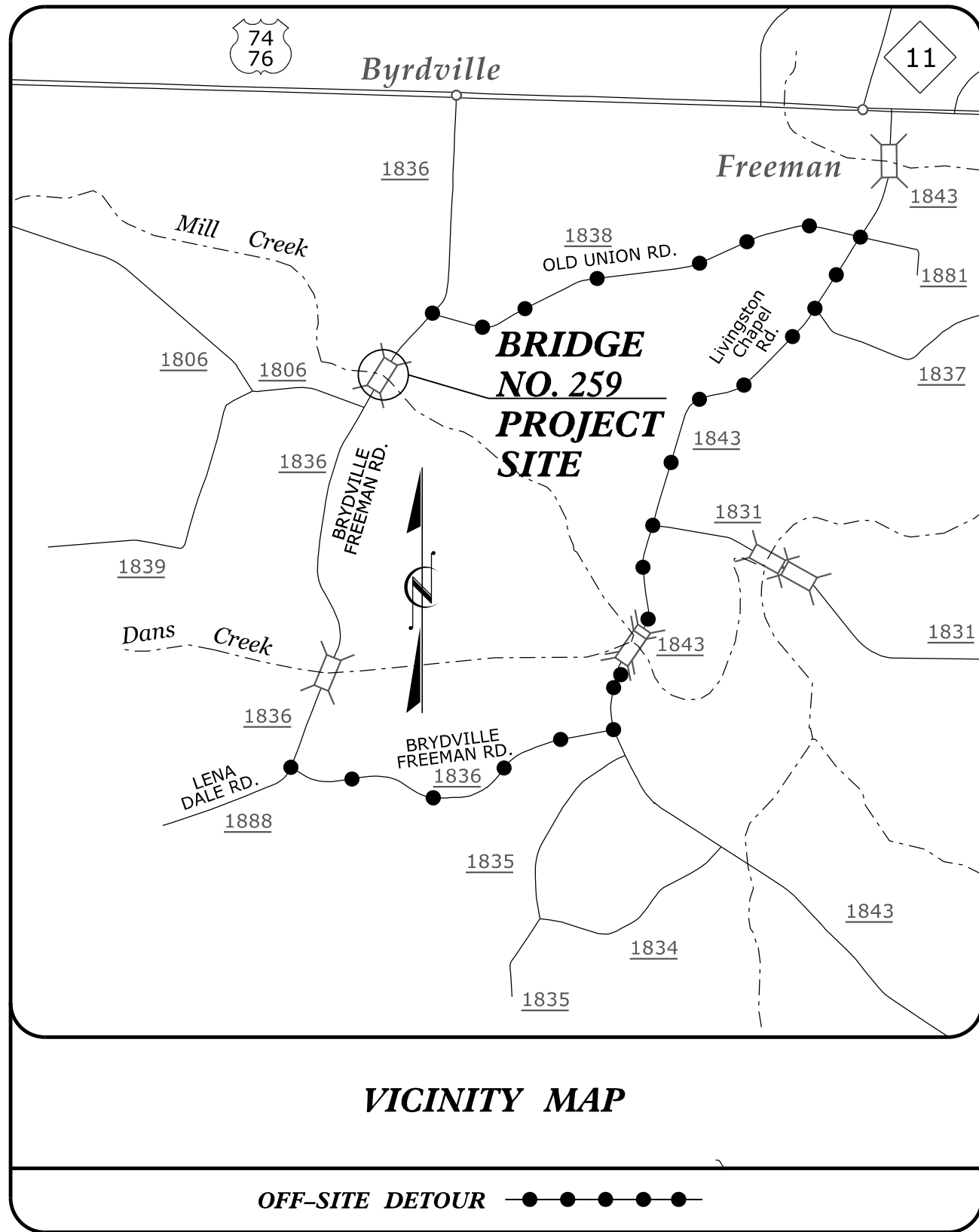
REFORESTATION DETAIL SHEET

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



09.08/99

TIP PROJECT: 17BP.6.R.79

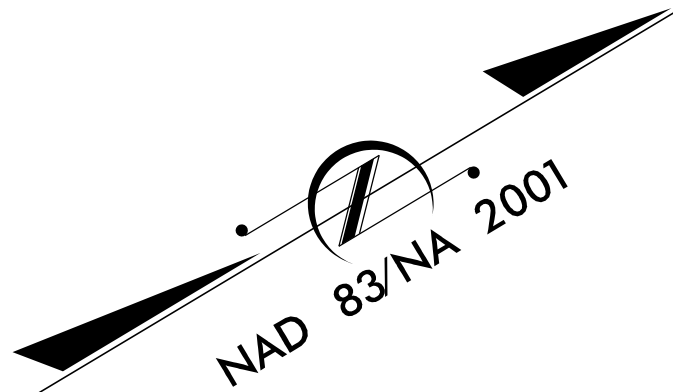
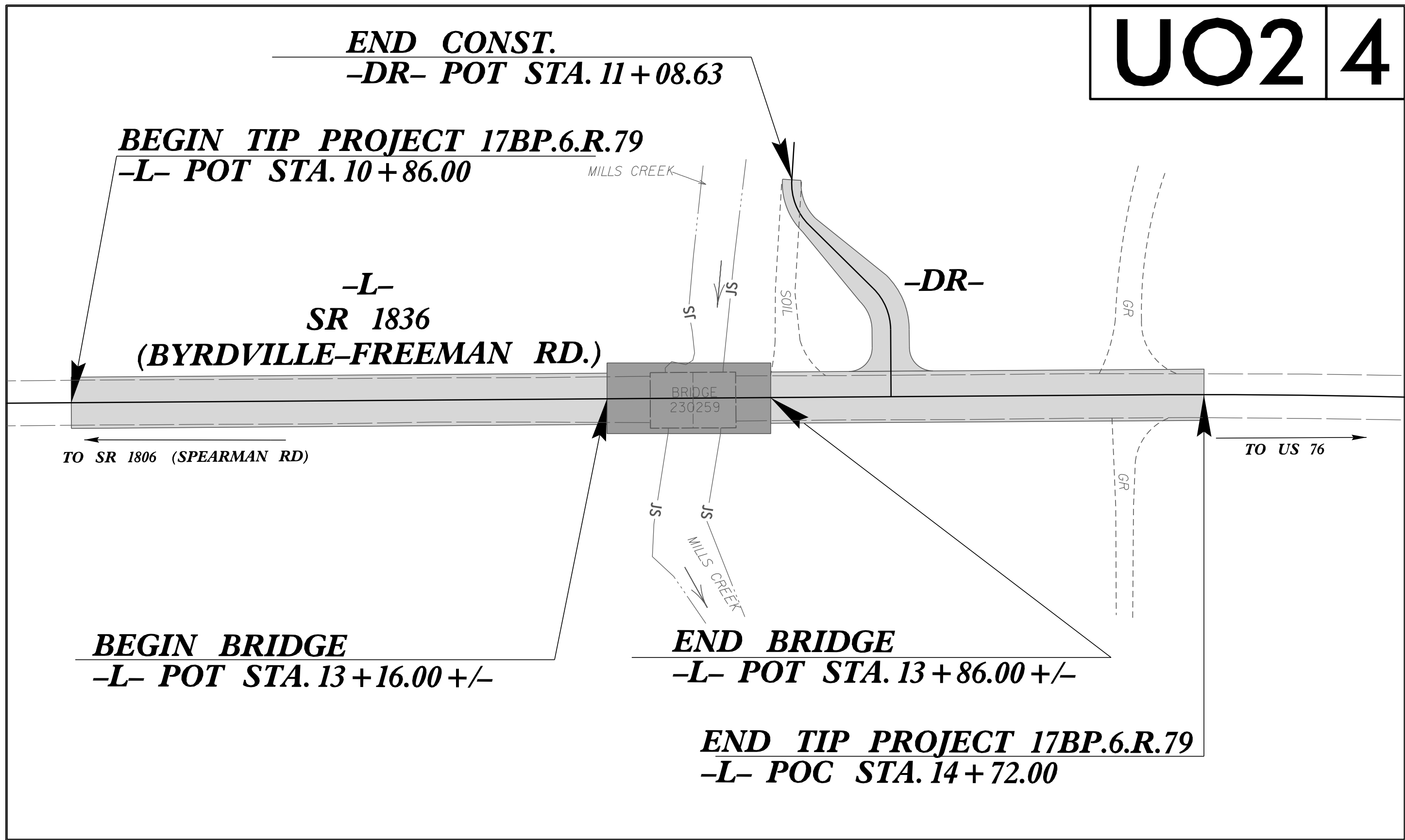


STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

# UTILITIES BY OTHERS PLANS COLUMBUS COUNTY

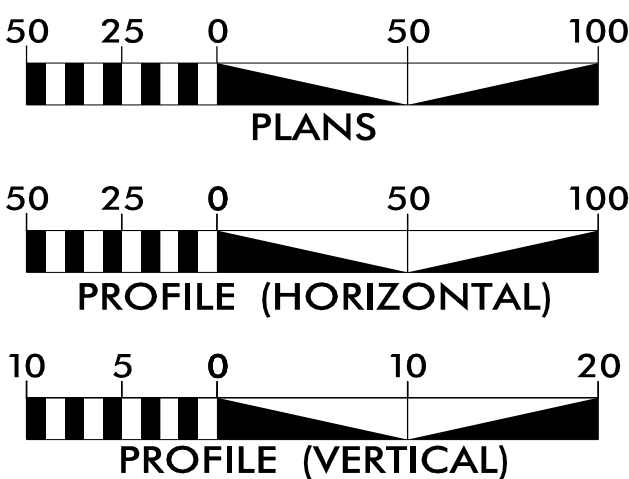
LOCATION: BRIDGE NO. 230259 OVER DAN'S CREEK ON  
SR 1836 (BYRDVILLE-FREEMAN RD.)

TYPE OF WORK: POWER & TELEPHONE RELOCATION



CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II MODIFIED.  
THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.

### GRAPHIC SCALES



### INDEX OF SHEETS

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

### UTILITY OWNERS WITH CONFLICTS

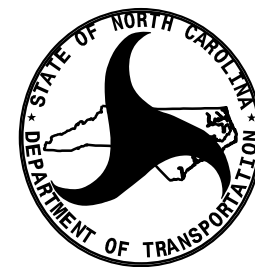
- (A) POWER - DUKE ENERGY  
(B) TELEPHONE - AT&T

Prepared in the Office of:



1223 Jones Franklin Rd. Raleigh, N.C. 27606  
License No. F-0377  
Bus: 919.851.8077 Fax: 919.851.8107

John D. Schriener, PLS UTILITY PROJECT MANAGER  
Sonny Upole, PE PROJECT UTILITY COORDINATOR



DIVISION OF HIGHWAYS  
DIVISION 6

558 Gillespie Street  
Fayetteville NC, 28301

Christy W. Huff, PE DIVISION 6 BRIDGE PROGRAM  
MANAGER



5/14/99

\\l22138-AM\Engineering\UBO\Proj\230259-ut-rdy4-L02-esk.dgn  
30 May 99

BRIDGE NO. 230259

PROJECT REFERENCE NO.

17BP.6.R.79

SHEET NO.

UO-2

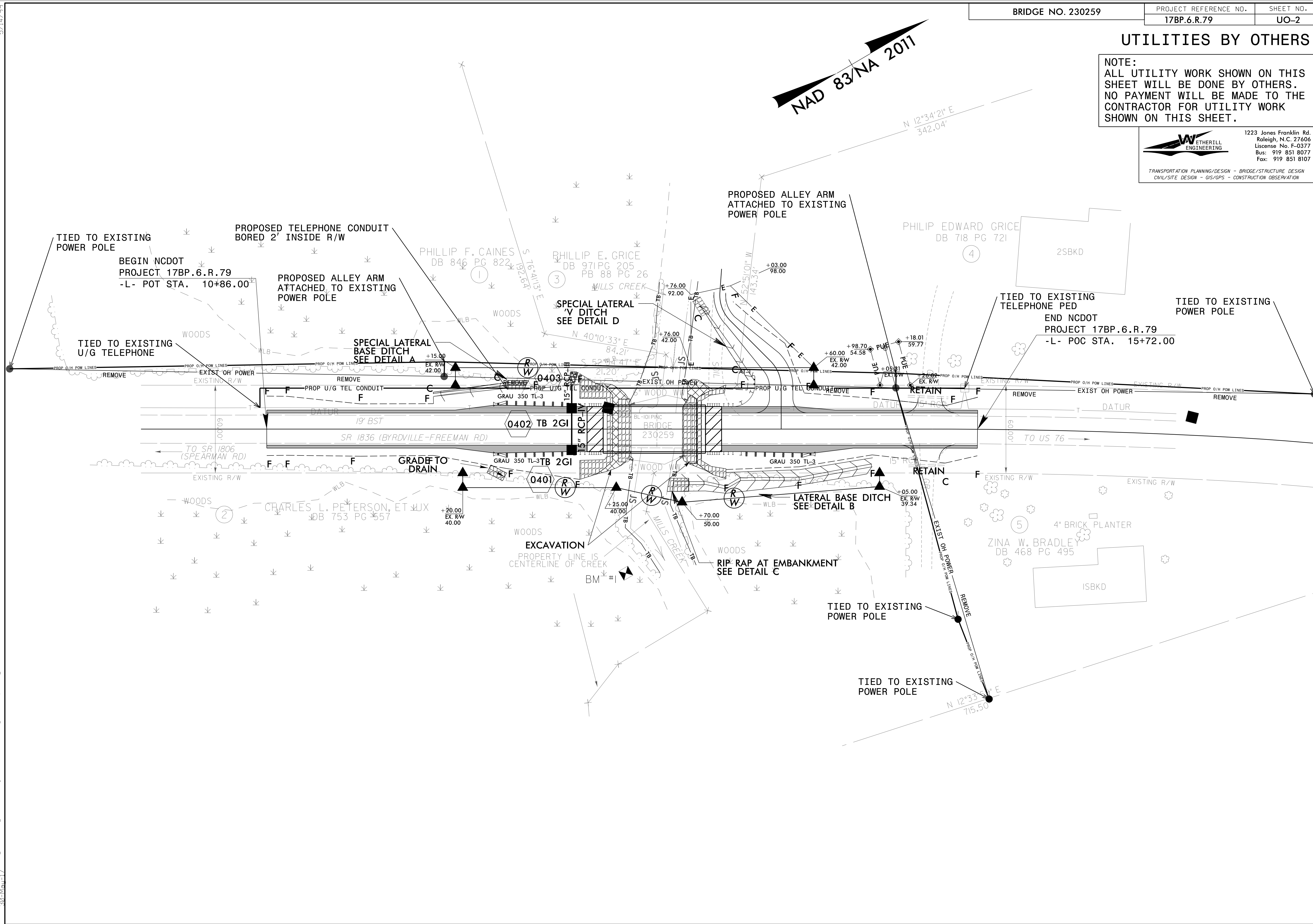
## UTILITIES BY OTHERS

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.



TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN  
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

1223 Jones Franklin Rd.  
Raleigh, N.C. 27606  
License No. F-0377  
Bus: 919 851 8077  
Fax: 919 851 8107



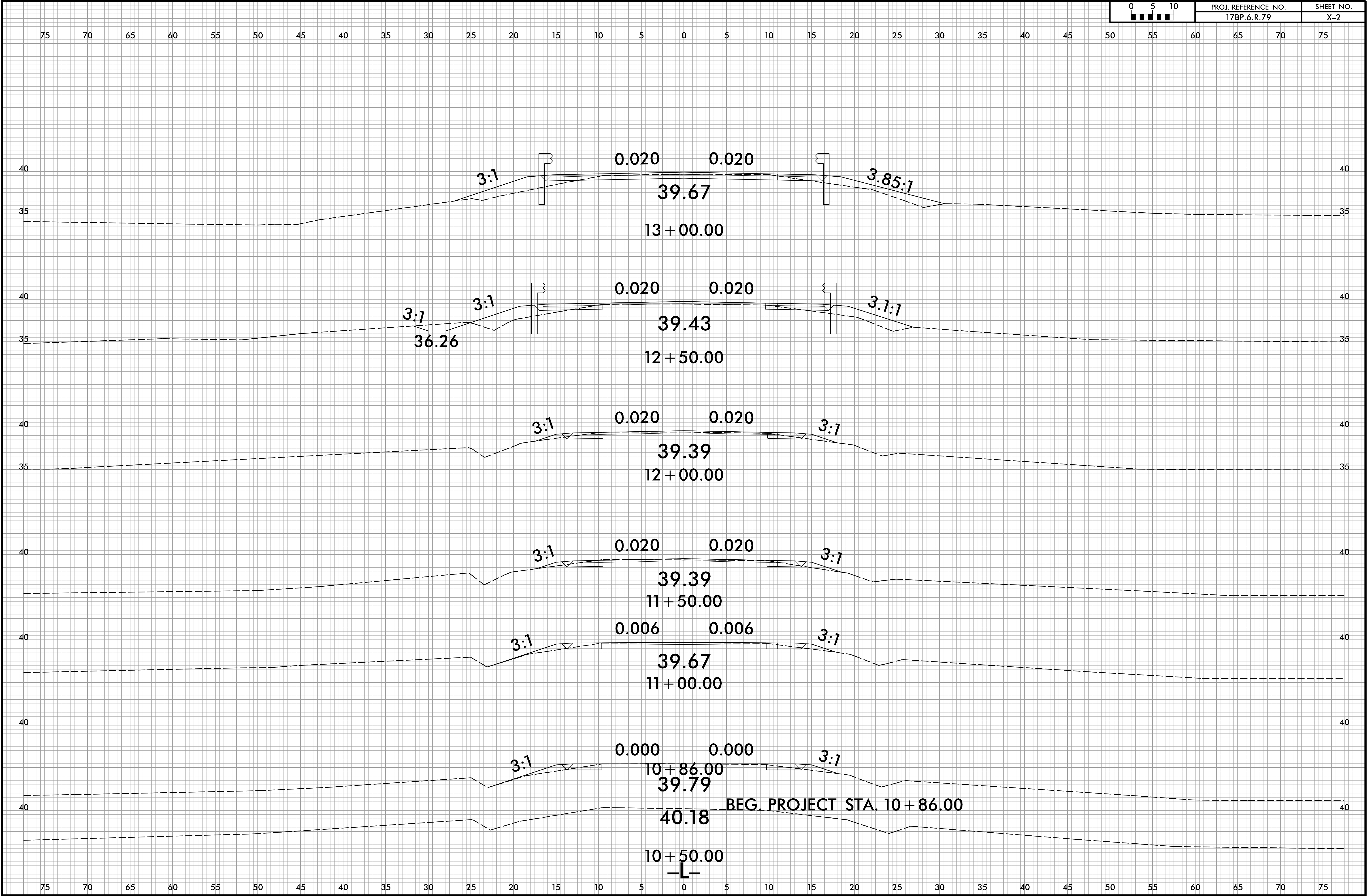






8/23/99

5/23/2017  
1157260591\_rdu\_XPL.dgn  
[User:Gee]

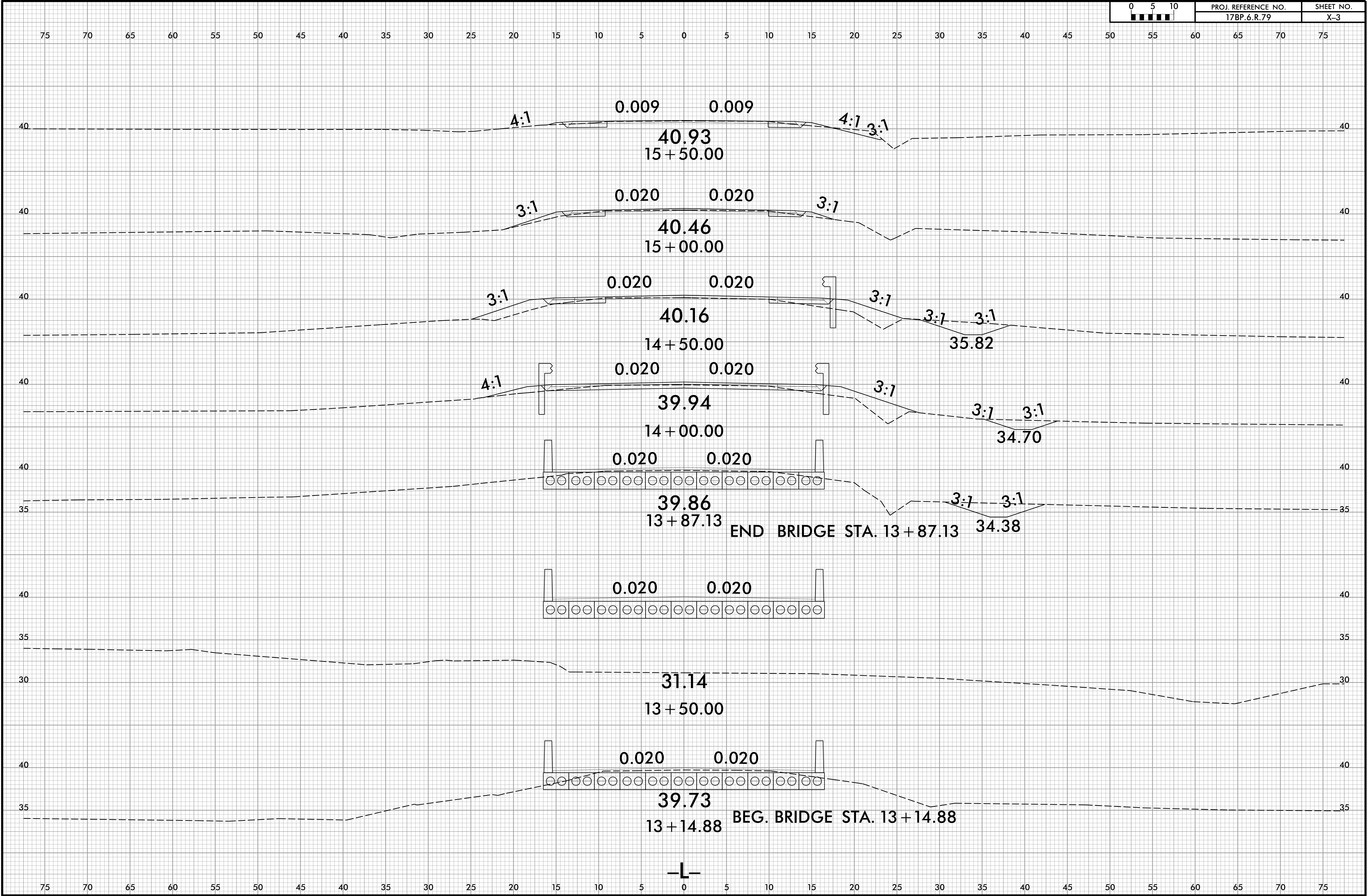


| 0 5 10<br>[Scale Bar] | PROJ. REFERENCE NO. | SHEET NO. |
|-----------------------|---------------------|-----------|
|                       | 17BP.6.R.79         | X-2       |

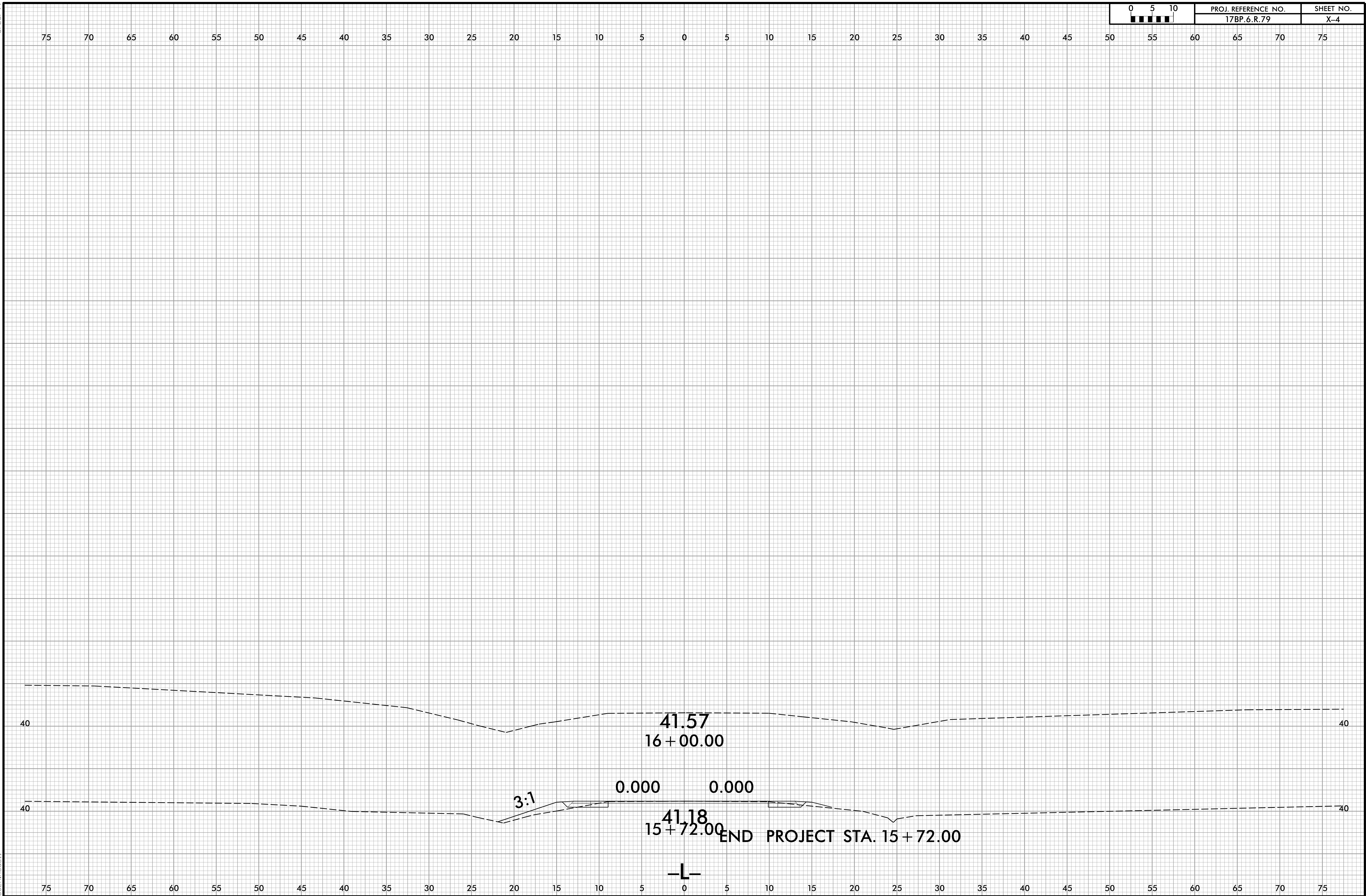


8/23/99

5/23/2017  
13BP6.R.79  
13BP6.R.79.dgn





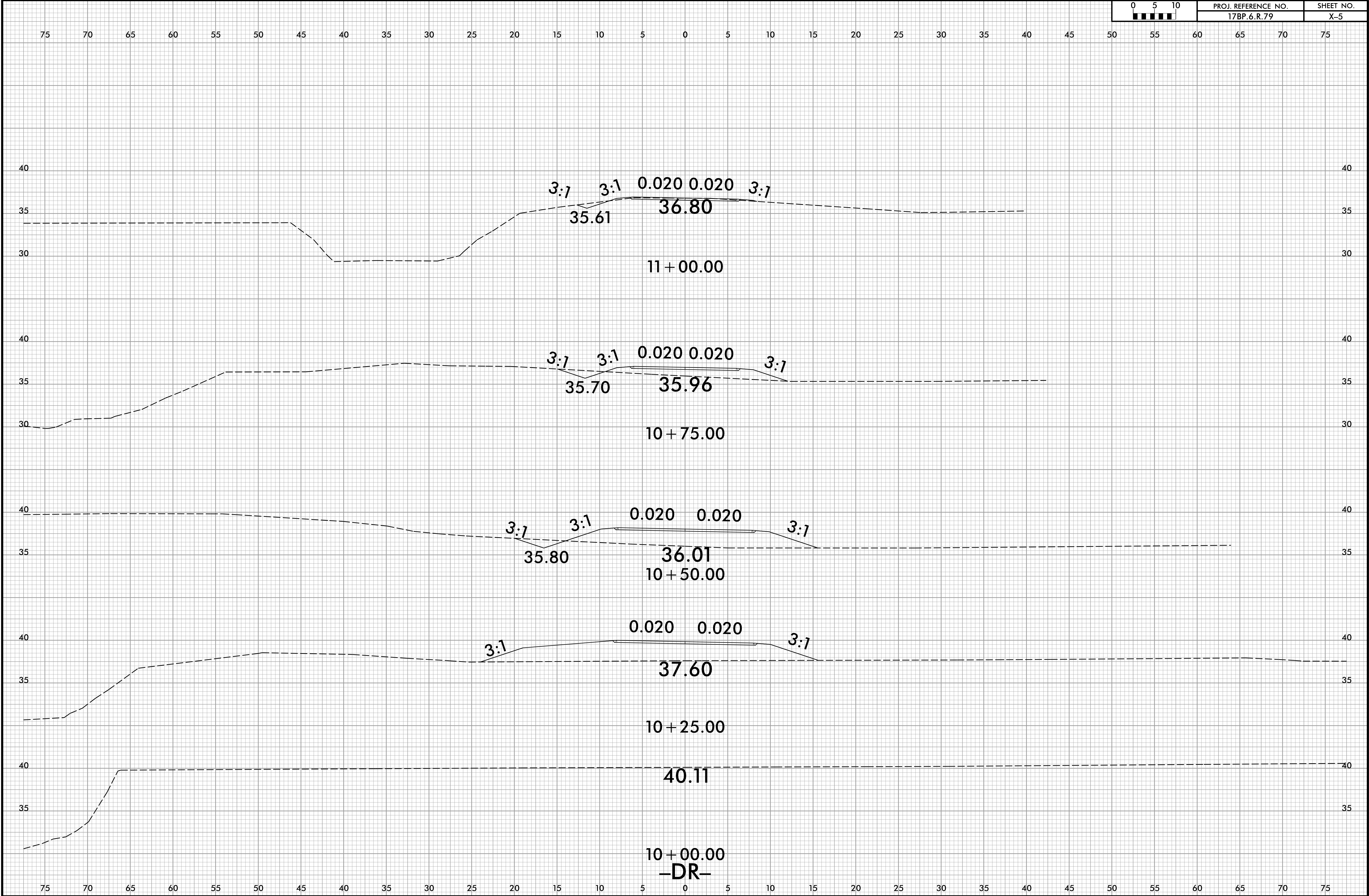




8/23/99

5/23/2017  
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|            | 17BP.6.R.79         | X-5       |



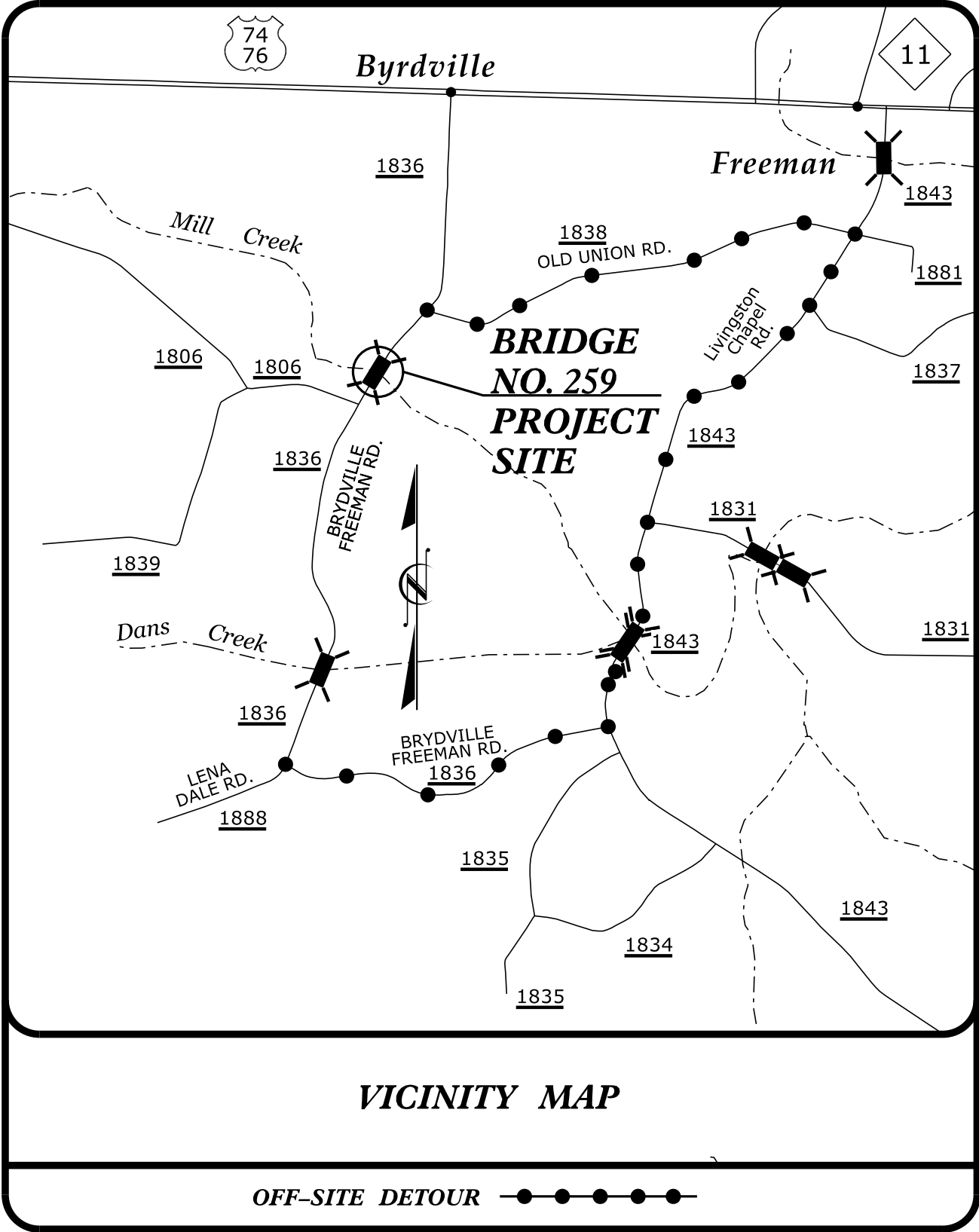


09.08/299

TIP PROJECT: 17BP.6.R.79

CONTRACT: DF00170

5/17/2017 2:35:22 PM P:\2016\16148.01-COLUMBUS\_259\Structures\DCN\COLUMBUS\_259\_TSH.dgn



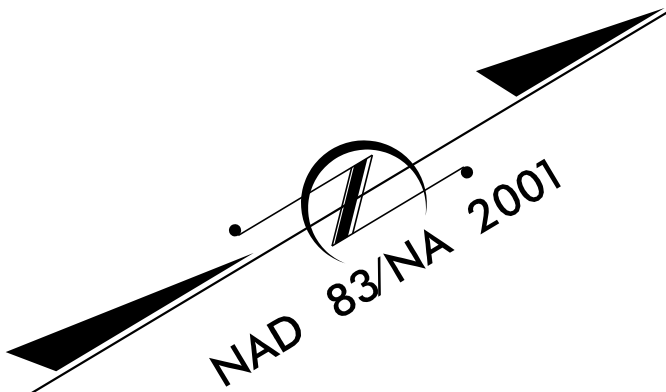
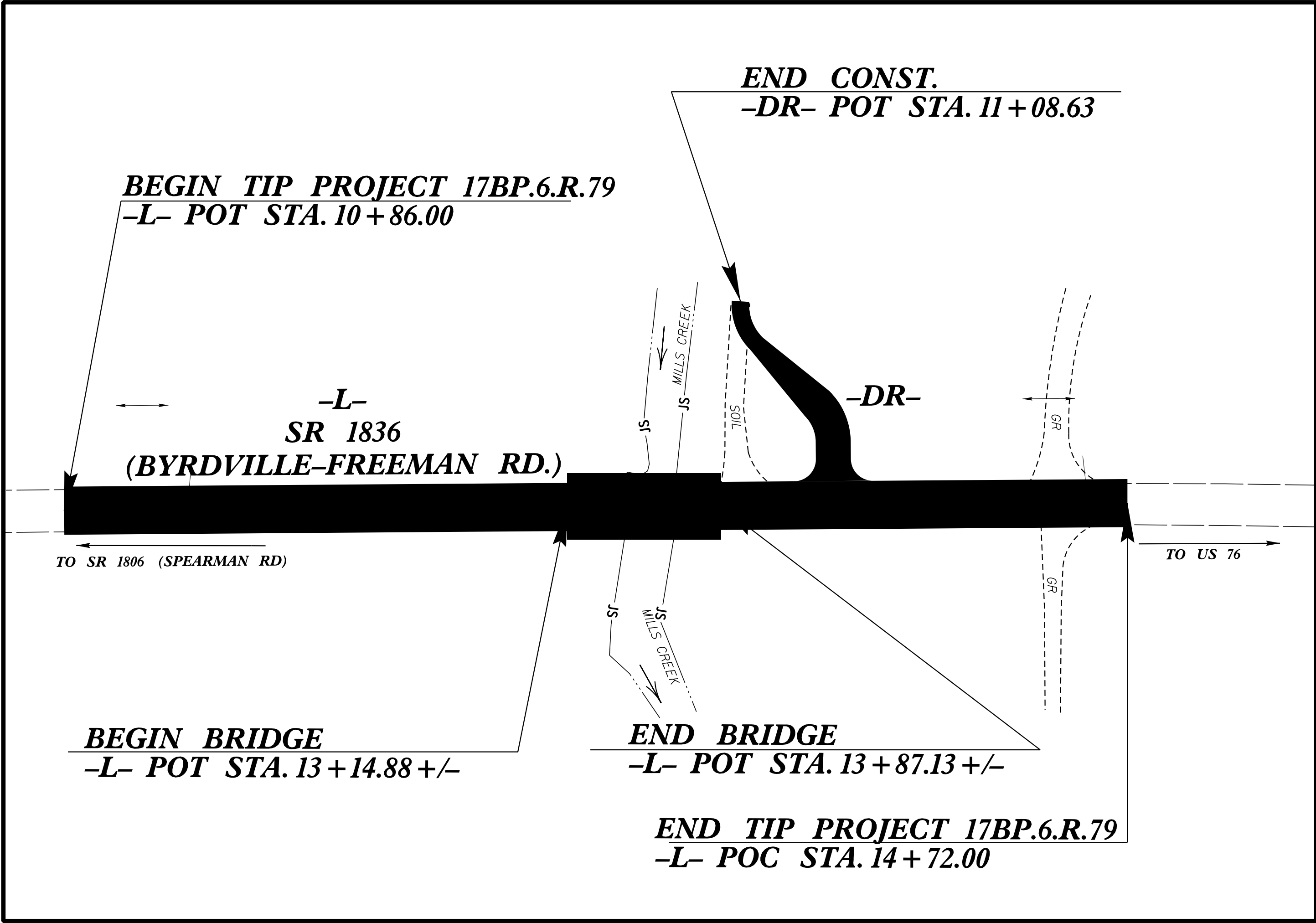
STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

COLUMBUS COUNTY

LOCATION: BRIDGE NO. 230259 OVER MILL CREEK ON  
SR 1836 (BYRDVILLE-FREEMAN RD.)

TYPE OF WORK: GRADING, DRAINAGE, PAVING & STRUCTURE

STRUCTURE PLANS



| STATE           | STATE PROJECT REFERENCE NO. | SHEET NO.   | TOTAL SHEETS |
|-----------------|-----------------------------|-------------|--------------|
| N.C.            | 17BP.6.R.79                 |             |              |
| STATE PROJ. NO. | F.A. PROJ. NO.              | DESCRIPTION |              |
| 17BP.6.R.79     | N/A                         | PE          |              |
| 17BP.6.R.79     | N/A                         | RW /UTIL.   |              |
| 17BP.6.R.79     |                             | CONST.      |              |
|                 |                             |             |              |
|                 |                             |             |              |
|                 |                             |             |              |
|                 |                             |             |              |

BRIDGE #230259

GRAPHIC SCALES

DESIGN DATA

ADT 2016 = 350

T = 6 % \*

V = 55 MPH

\* TTST = 3% DUAL = 3%

FUNC. CLASS = MINOR  
COLLECTOR, RURAL  
(SUBREGIONAL)

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT 17BP.6.R.79 = 0.060 MILES  
LENGTH STRUCTURE PROJECT 17BP.6.R.79 = 0.013 MILES

TOTAL LENGTH TIP PROJECT 17BP.6.R.79 = 0.073 MILES

Prepared in the Office of:

**WETHERILL  
ENGINEERING**  
1223 Jones Franklin Rd., Raleigh, N.C. 27606  
License No. F-0377  
Bus: 919.851.8077 Fax: 919.851.8107

2012 STANDARD SPECIFICATIONS

LETTING DATE:

NCDOT CONTACT:

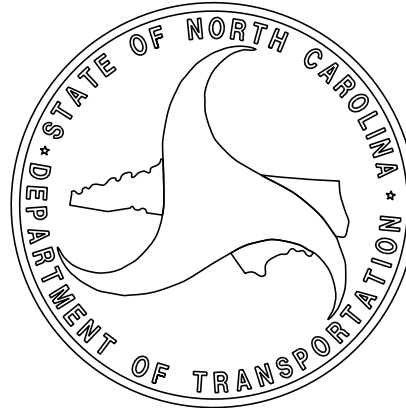
Prepared for:

**DIVISION OF HIGHWAYS  
DIVISION 6**  
558 Gillespie Street  
Fayetteville NC, 28301

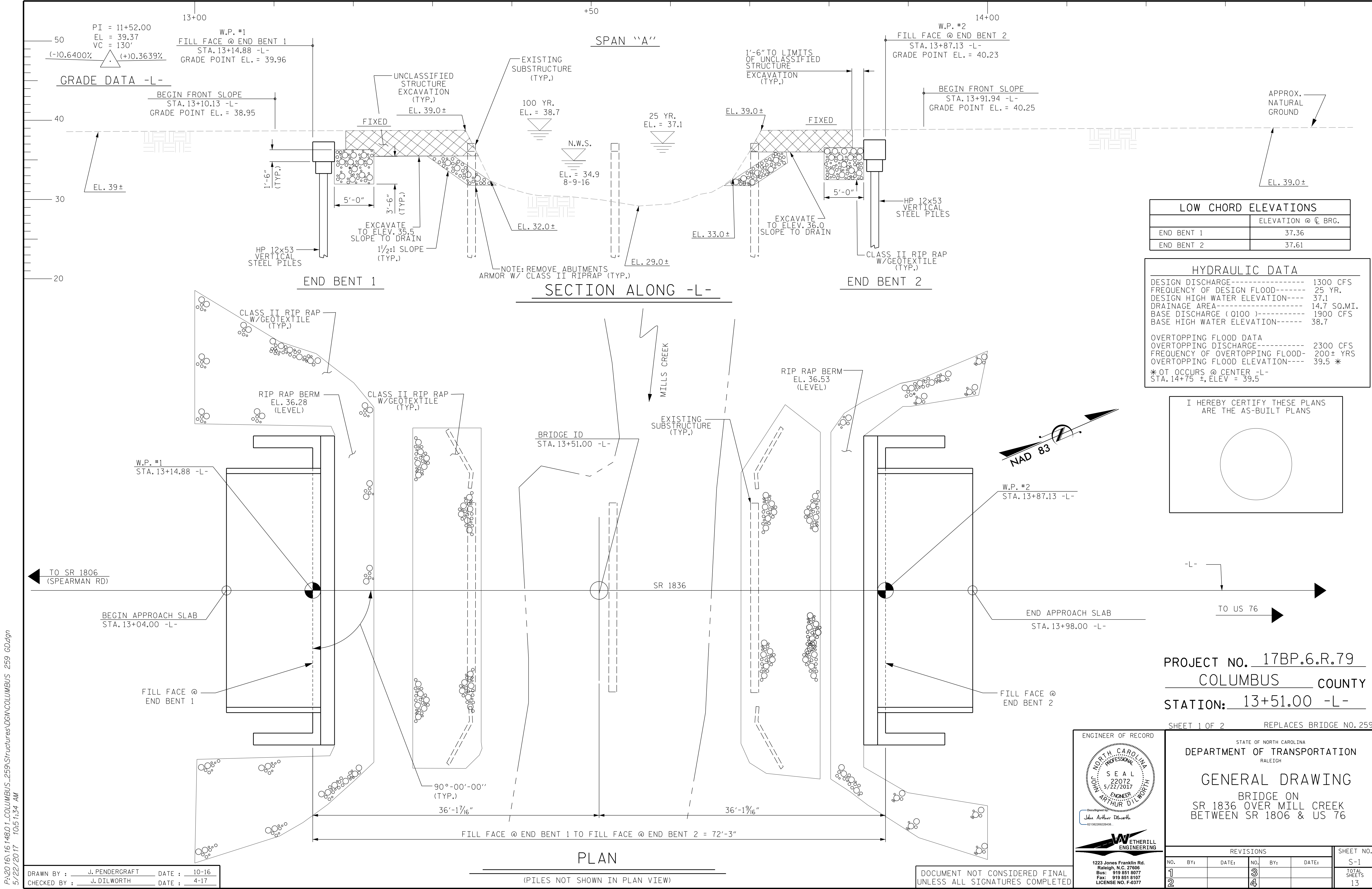
**EDWARD G. WETHERILL, PE**  
PROJECT ENGINEER

**JOHN A. DILWORTH, PE**  
PROJECT DESIGN ENGINEER

**BRICE BELL, PE**  
DIVISION 6 BRIDGE PROGRAM MANAGER







| LOW CHORD ELEVATIONS |                     |
|----------------------|---------------------|
|                      | ELEVATION @ C. BRG. |
| END BENT 1           | 37.36               |
| END BENT 2           | 37.61               |

| HYDRAULIC DATA                                     |             |
|----------------------------------------------------|-------------|
| DESIGN DISCHARGE-----                              | 1300 CFS    |
| FREQUENCY OF DESIGN FLOOD-----                     | 25 YR.      |
| DESIGN HIGH WATER ELEVATION----                    | 37.1        |
| DRAINAGE AREA-----                                 | 14.7 SQ.MI. |
| BASE DISCHARGE ( Q100 )-----                       | 1900 CFS    |
| BASE HIGH WATER ELEVATION-----                     | 38.7        |
| OVERTOPPING FLOOD DATA                             |             |
| OVERTOPPING DISCHARGE-----                         | 2300 CFS    |
| FREQUENCY OF OVERTOPPING FLOOD----                 | 200± YRS    |
| OVERTOPPING FLOOD ELEVATION----                    | 39.5 *      |
| * OT OCCURS @ CENTER -L- STA. 14+75 ±, ELEV = 39.5 |             |

I HEREBY CERTIFY THESE PLANS ARE THE AS-BUILT PLANS

-L- TO SR 1806 (SPEARMAN RD) TO US 76

PROJECT NO. 17BP.6.R.79  
COLUMBUS COUNTY  
STATION: 13+51.00 -L-

SHEET 1 OF 2 REPLACES BRIDGE NO. 259

ENGINEER OF RECORD

**SEAL**

22072  
5/22/2017  
ENGINEER  
ARTHUR D. DILWORTH

DocuSign Envelope ID: 919 851 8077  
John Arthur Dilworth  
421382260258438

**WETHERILL ENGINEERING**

1223 Jones Franklin Rd.  
Raleigh, N.C. 27606  
Bus: 919 851 8077  
Fax: 919 851 8107  
LICENSE NO. F-4377

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

**GENERAL DRAWING**

BRIDGE ON  
SR 1836 OVER MILL CREEK  
BETWEEN SR 1806 & US 76

| REVISIONS |     |       |     |     |       | SHEET NO.                 |
|-----------|-----|-------|-----|-----|-------|---------------------------|
| NO.       | BY: | DATE: | NO. | BY: | DATE: |                           |
| 1         |     |       | 3   |     |       | S-1<br>TOTAL SHEETS<br>13 |
| 2         |     |       | 4   |     |       |                           |

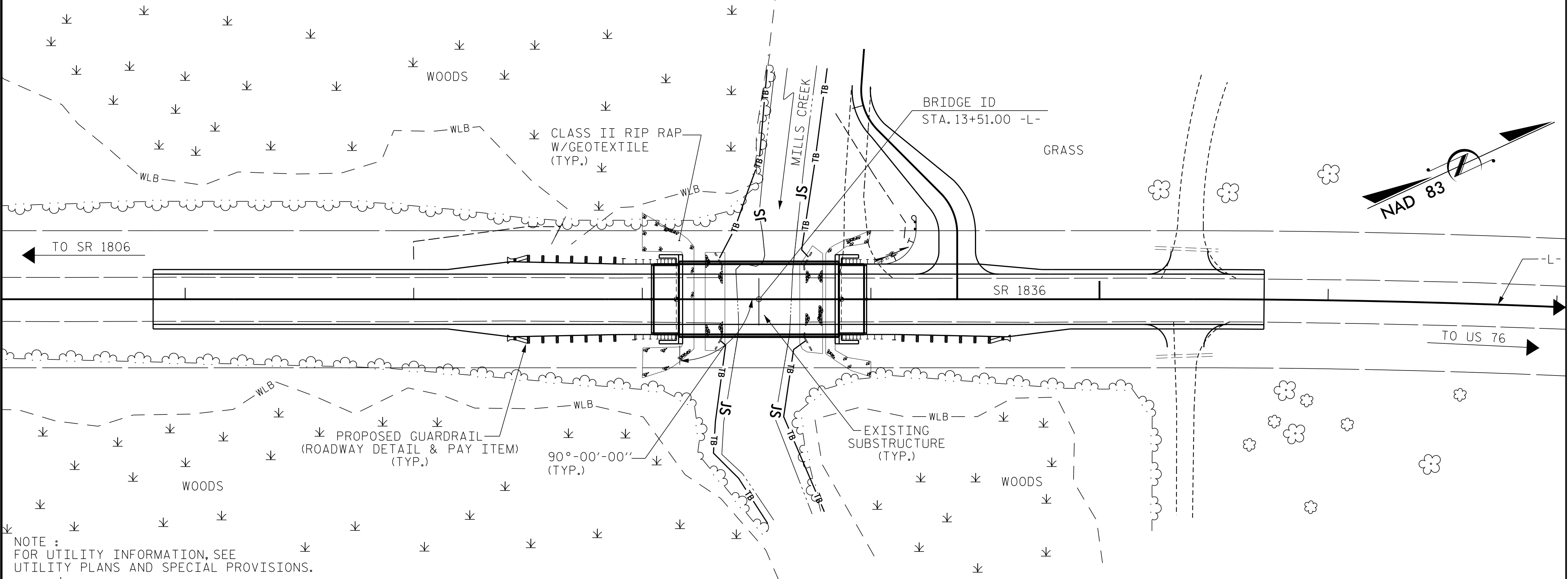
DRAWN BY : J. PENDERGRAFT DATE : 10-16  
CHECKED BY : J. DILWORTH DATE : 4-17

DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

PLAN  
(PILES NOT SHOWN IN PLAN VIEW)



BM 1: BENCHLITE NAIL IN 18”PINE, 98.57’ RT OF -L- STA 13+31.50; N 202264 E 2206885, EL. 36.11



LOCATION SKETCH

TOTAL BILL OF MATERIAL

|                | REMOVAL OF EXISTING STRUCTURE | PDA TESTING | UNCLASSIFIED STRUCTURE EXCAVATION | CLASS A CONCRETE | BRIDGE APPROACH SLABS | REINFORCING STEEL | PILE DRIVING EQUIPMENT SETUP FOR HP 12 x 53 STEEL PILES | HP 12 x 53 STEEL PILES |          | PILE REDRIVES | VERTICAL CONCRETE BARRIER RAIL | RIP RAP CLASS II | GEOTEXTILE FOR DRAINAGE | ELASTOMERIC BEARINGS | 3'-0" X 2'-0" PRESTRESSED CONCRETE CORED SLABS |          | ASBESTOS ASSESSMENT |
|----------------|-------------------------------|-------------|-----------------------------------|------------------|-----------------------|-------------------|---------------------------------------------------------|------------------------|----------|---------------|--------------------------------|------------------|-------------------------|----------------------|------------------------------------------------|----------|---------------------|
|                | LUMP SUM                      | EA.         | LUMP SUM                          | CU. YDS.         | LUMP SUM              | LBS.              | EA.                                                     | NO.                    | LIN. FT. | EA.           | LIN. FT.                       | TONS             | SQ. YD.                 | LUMP SUM             | NO.                                            | LIN. FT. | LUMP SUM            |
| SUPERSTRUCTURE |                               |             |                                   |                  |                       |                   |                                                         |                        |          |               | 140.00                         |                  |                         | LUMP SUM             | 11                                             | 770.00   |                     |
| END BENT 1     |                               |             |                                   | 14.4             |                       | 2115              | 7                                                       | 7                      | 392      | 4             |                                | 120              | 120                     |                      |                                                |          |                     |
| END BENT 2     |                               |             |                                   | 14.4             |                       | 2115              | 7                                                       | 7                      | 392      | 4             |                                | 95               | 95                      |                      |                                                |          |                     |
| TOTAL          | LUMP SUM                      | 1           | LUMP SUM                          | 28.8             | LUMP SUM              | 4230              | 14                                                      | 14                     | 784      | 8             | 140.00                         | 215              | 215                     | LUMP SUM             | 11                                             | 770.00   | LUMP SUM            |

FOUNDATION NOTES:

FOR PILES,SEE SPECIAL PROVISIONS AND SECTION 450 OF STANDARD SPECIFICATIONS.

PILES AT END BENT 1 AND END BENT 2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 85 TONS PER PILE.

DRIVE PILES AT END BENT 1 AND END BENT 2 TO A REQUIRED DRIVING RESISTANCE OF 145 TONS PER PILE.

TESTING PILES WITH THE PDA DURING DRIVING, RESTRIKING, OR REDRIVING MAY BE REQUIRED. THE ENGINEER WILL DETERMINE THE NEED FOR PDA TESTING. FOR PDA TESTING,SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

NOTES:

ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.

THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.

THIS BRIDGE IS LOCATED IN SEISMIC ZONE 2.

FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE SHEET SN.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

INASMUCH AS THE PAINT SYSTEM ON THE EXISTING STRUCTURAL STEEL CONTAINS LEAD, THE CONTRACTOR'S ATTENTION IS DIRECTED TO ARTICLE 107-1 OF THE STANDARD SPECIFICATIONS. ANY COSTS RESULTING FROM COMPLIANCE WITH APPLICABLE STATE OR FEDERAL REGULATIONS PERTAINING TO HANDLING OF MATERIALS CONTAINING LEAD BASED PAINT SHALL BE INCLUDED IN THE BID PRICE FOR "REMOVAL OF EXISTING STRUCTURE AT STATION 13+51.00 -L-."

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA ON SHEET S-1 SHALL BE EXCAVATED FOR A DISTANCE OF 30 FT. EACH SIDE OF CENTERLINE ROADWAY AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR UNCLASSIFIED STRUCTURE EXCAVATION. SEE SECTION 412 OF THE STANDARD SPECIFICATIONS.

THE EXISTING STRUCTURE CONSISTING OF 2 SPANS @ 18'-4", WITH A REINFORCED CONCRETE FLOOR ON AN I-BEAM SUPERSTRUCTURE AND A CLEAR ROADWAY WIDTH OF 24.0' ON A SUBSTRUCTURE CONSISTING OF REINFORCED CONCRETE CAPS ON TIMBER PILES AND LOCATED AT THE PROPOSED STRUCTURE LOCATION SHALL BE REMOVED.

THE SUBSTRUCTURE OF THE EXISTING BRIDGE INDICATED ON THE PLANS IS FROM THE BEST INFORMATION AVAILABLE. SINCE THIS INFORMATION IS SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR, THE CONTRACTOR SHALL HAVE NO CLAIM WHATSOEVER AGAINST THE DEPARTMENT OF TRANSPORTATION FOR ANY DELAYS OR ADDITIONAL COST INCURRED BASED ON DIFFERENCE BETWEEN THE EXISTING BRIDGE SUBSTRUCTURE SHOWN ON THE PLANS AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

REMOVAL OF THE EXISTING BRIDGE SHALL BE PERFORMED SO AS NOT TO ALLOW DEBRIS TO FALL INTO THE WATER. THE CONTRACTOR SHALL REMOVE THE BRIDGE AND SUBMIT PLANS FOR DEMOLITION IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS.

THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH "HEC 18-EVALUATING SCOUR AT BRIDGES".

FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

ASPHALT WEARING SURFACE IS INCLUDED IN ROADWAY QUANTITY ON ROADWAY PLANS.

FOR ASBESTOS ASSESSMENT FOR BRIDGE DEMOLITION AND RENOVATION ACTIVITIES, SEE SPECIAL PROVISIONS.

AT THE CONTRACTOR'S OPTION, PRESTRESSED CONCRETE END BENT CAPS MAY BE SUBSTITUTED IN PLACE OF THE CAST-IN-PLACE CAPS. THE CONTRACTOR SHALL COORDINATE WITH THE RESIDENT ENGINEER TO RECEIVE REVISED PLANS AND DETAILS FROM THE STRUCTURES MANAGEMENT UNIT. THE REDESIGN AND ANY ADDITIONAL MATERIALS NEEDED WILL BE AT NO ADDITIONAL COST TO THE CONTRACTOR.

PROJECT NO. 17BP.6.R.79

COLUMBUS COUNTY

STATION: 13+51.00 -L-

SHEET 2 OF 2

DRAWN BY : J. PENDERGRAFT DATE : 4-17

CHECKED BY : J. DILWORTH DATE : 4-17

DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

ENGINEER OF RECORD

STATE OF NORTH CAROLINA

DEPARTMENT OF TRANSPORTATION

RALEIGH

GENERAL DRAWING

BRIDGE ON  
SR 1836 OVER MILL CREEK  
BETWEEN SR 1806 & US 76

REVISIONS

| NO. | BY: | DATE: | NO. | BY: | DATE: |
|-----|-----|-------|-----|-----|-------|
| 1   |     |       | 3   |     |       |
| 2   |     |       | 4   |     |       |

SHEET NO.

S-2

TOTAL SHEETS

13

1223 Jones Franklin Rd.  
Raleigh, N.C. 27606  
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Fax: 919 851 8107  
LICENSE NO. F-4377

ETHERILL  
ENGINEERING



+

| LOAD AND RESISTANCE FACTOR RATING (LRFD) SUMMARY FOR PRESTRESSED CONCRETE GIRDERS |            |                      |                            |                                   |               |                        |                              |               |      |                 |                                           |                              |               |      |                 |                                           |                         |                              |               |      |                 |                                           |                |  |
|-----------------------------------------------------------------------------------|------------|----------------------|----------------------------|-----------------------------------|---------------|------------------------|------------------------------|---------------|------|-----------------|-------------------------------------------|------------------------------|---------------|------|-----------------|-------------------------------------------|-------------------------|------------------------------|---------------|------|-----------------|-------------------------------------------|----------------|--|
| LEVEL                                                                             | VEHICLE    | WEIGHT (W)<br>(TONS) | CONTROLLING<br>LOAD RATING | MINIMUM<br>RATING FACTORS<br>(RF) | TONS = W X RF | STRENGTH I LIMIT STATE |                              |               |      |                 |                                           |                              |               |      |                 |                                           | SERVICE III LIMIT STATE |                              |               |      |                 |                                           | COMMENT NUMBER |  |
|                                                                                   |            |                      |                            |                                   |               | LIVELOAD<br>FACTORS    | MOMENT                       |               |      |                 |                                           | SHEAR                        |               |      |                 |                                           | LIVELOAD<br>FACTORS     | MOMENT                       |               |      |                 |                                           |                |  |
|                                                                                   |            |                      |                            |                                   |               |                        | DISTRIBUTION<br>FACTORS (DF) | RATING FACTOR | SPAN | GIRDER LOCATION | DISTANCE FROM<br>LEFT END OF<br>SPAN (ft) | DISTRIBUTION<br>FACTORS (DF) | RATING FACTOR | SPAN | GIRDER LOCATION | DISTANCE FROM<br>LEFT END OF<br>SPAN (ft) |                         | DISTRIBUTION<br>FACTORS (DF) | RATING FACTOR | SPAN | GIRDER LOCATION | DISTANCE FROM<br>LEFT END OF<br>SPAN (ft) |                |  |
| DESIGN<br>LOAD<br>RATING                                                          | HL-93(Inv) | N/A                  | 1                          | 1.006                             | --            | 1.75                   | 0.273                        | 1.03          | 70'  | EL              | 34.5                                      | 0.507                        | 1.32          | 70'  | EL              | 6.9                                       | 0.80                    | 0.273                        | 1.01          | 70'  | EL              | 34.5                                      |                |  |
|                                                                                   | HL-93(0pr) | N/A                  | --                         | 1.341                             | --            | 1.35                   | 0.273                        | 1.34          | 70'  | EL              | 34.5                                      | 0.507                        | 1.72          | 70'  | EL              | 6.9                                       | N/A                     | --                           | --            | --   | --              | --                                        |                |  |
|                                                                                   | HS-20(Inv) | 36.000               | 2                          | 1.306                             | 47.02         | 1.75                   | 0.273                        | 1.34          | 70'  | EL              | 34.5                                      | 0.507                        | 1.65          | 70'  | EL              | 6.9                                       | 0.80                    | 0.273                        | 1.31          | 70'  | EL              | 34.5                                      |                |  |
|                                                                                   | HS-20(0pr) | 36.000               | --                         | 1.74                              | 62.64         | 1.35                   | 0.273                        | 1.74          | 70'  | EL              | 34.5                                      | 0.507                        | 2.14          | 70'  | EL              | 6.9                                       | N/A                     | --                           | --            | --   | --              | --                                        |                |  |
| LEGAL<br>LOAD<br>RATING                                                           | SV         | SNSH                 | 13.500                     | --                                | 2.917         | 39.379                 | 1.4                          | 0.273         | 3.75 | 70'             | EL                                        | 34.5                         | 0.507         | 4.87 | 70'             | EL                                        | 6.9                     | 0.80                         | 0.273         | 2.92 | 70'             | EL                                        | 34.5           |  |
|                                                                                   |            | SNGARBS2             | 20.000                     | --                                | 2.187         | 43.741                 | 1.4                          | 0.273         | 2.81 | 70'             | EL                                        | 34.5                         | 0.507         | 3.47 | 70'             | EL                                        | 6.9                     | 0.80                         | 0.273         | 2.19 | 70'             | EL                                        | 34.5           |  |
|                                                                                   |            | SNAGRIS2             | 22.000                     | --                                | 2.077         | 45.69                  | 1.4                          | 0.273         | 2.67 | 70'             | EL                                        | 34.5                         | 0.507         | 3.23 | 70'             | EL                                        | 6.9                     | 0.80                         | 0.273         | 2.08 | 70'             | EL                                        | 34.5           |  |
|                                                                                   |            | SNCOTTS3             | 27.250                     | --                                | 1.452         | 39.565                 | 1.4                          | 0.273         | 1.87 | 70'             | EL                                        | 34.5                         | 0.507         | 2.43 | 70'             | EL                                        | 6.9                     | 0.80                         | 0.273         | 1.45 | 70'             | EL                                        | 34.5           |  |
|                                                                                   |            | SNAGGRS4             | 34.925                     | --                                | 1.218         | 42.554                 | 1.4                          | 0.273         | 1.57 | 70'             | EL                                        | 34.5                         | 0.507         | 2.03 | 70'             | EL                                        | 6.9                     | 0.80                         | 0.273         | 1.22 | 70'             | EL                                        | 34.5           |  |
|                                                                                   |            | SNS5A                | 35.550                     | --                                | 1.191         | 42.346                 | 1.4                          | 0.273         | 1.53 | 70'             | EL                                        | 34.5                         | 0.507         | 2.06 | 70'             | EL                                        | 6.9                     | 0.80                         | 0.273         | 1.19 | 70'             | EL                                        | 34.5           |  |
|                                                                                   |            | SNS6A                | 39.950                     | --                                | 1.095         | 43.747                 | 1.4                          | 0.273         | 1.41 | 70'             | EL                                        | 34.5                         | 0.507         | 1.88 | 70'             | EL                                        | 6.9                     | 0.80                         | 0.273         | 1.10 | 70'             | EL                                        | 34.5           |  |
|                                                                                   |            | SNS7B                | 42.000                     | --                                | 1.043         | 43.801                 | 1.4                          | 0.273         | 1.34 | 70'             | EL                                        | 34.5                         | 0.507         | 1.85 | 70'             | EL                                        | 6.9                     | 0.80                         | 0.273         | 1.04 | 70'             | EL                                        | 34.5           |  |
|                                                                                   | TTST       | TNAGRIT3             | 33.000                     | --                                | 1.336         | 44.087                 | 1.4                          | 0.273         | 1.72 | 70'             | EL                                        | 34.5                         | 0.507         | 2.23 | 70'             | EL                                        | 6.9                     | 0.80                         | 0.273         | 1.34 | 70'             | EL                                        | 34.5           |  |
|                                                                                   |            | TNT4A                | 33.075                     | --                                | 1.342         | 44.401                 | 1.4                          | 0.273         | 1.72 | 70'             | EL                                        | 34.5                         | 0.507         | 2.17 | 70'             | EL                                        | 6.9                     | 0.80                         | 0.273         | 1.34 | 70'             | EL                                        | 34.5           |  |
|                                                                                   |            | TNT6A                | 41.600                     | --                                | 1.1           | 45.746                 | 1.4                          | 0.273         | 1.41 | 70'             | EL                                        | 34.5                         | 0.507         | 1.98 | 70'             | EL                                        | 6.9                     | 0.80                         | 0.273         | 1.10 | 70'             | EL                                        | 34.5           |  |
|                                                                                   |            | TNT7A                | 42.000                     | --                                | 1.106         | 46.462                 | 1.4                          | 0.273         | 1.42 | 70'             | EL                                        | 34.5                         | 0.507         | 1.94 | 70'             | EL                                        | 6.9                     | 0.80                         | 0.273         | 1.11 | 70'             | EL                                        | 34.5           |  |
|                                                                                   |            | TNT7B                | 42.000                     | --                                | 1.147         | 48.18                  | 1.4                          | 0.273         | 1.47 | 70'             | EL                                        | 34.5                         | 0.507         | 1.8  | 70'             | EL                                        | 6.9                     | 0.80                         | 0.273         | 1.15 | 70'             | EL                                        | 34.5           |  |
|                                                                                   |            | TNAGRIT4             | 43.000                     | --                                | 1.089         | 46.838                 | 1.4                          | 0.273         | 1.4  | 70'             | EL                                        | 34.5                         | 0.507         | 1.74 | 70'             | EL                                        | 6.9                     | 0.80                         | 0.273         | 1.09 | 70'             | EL                                        | 34.5           |  |
|                                                                                   |            | TNAGT5A              | 45.000                     | --                                | 1.026         | 46.175                 | 1.4                          | 0.273         | 1.32 | 70'             | EL                                        | 34.5                         | 0.507         | 1.74 | 70'             | EL                                        | 6.9                     | 0.80                         | 0.273         | 1.03 | 70'             | EL                                        | 34.5           |  |
|                                                                                   |            | TNAGT5B              | 45.000                     | 3                                 | 1.013         | 45.579                 | 1.4                          | 0.273         | 1.3  | 70'             | EL                                        | 34.5                         | 0.507         | 1.66 | 70'             | EL                                        | 6.9                     | 0.80                         | 0.273         | 1.01 | 70'             | EL                                        | 34.5           |  |

LOAD FACTORS:

| DESIGN<br>LOAD<br>RATING<br>FACTORS | LIMIT STATE | $\gamma_{DC}$ | $\gamma_{DW}$ |
|-------------------------------------|-------------|---------------|---------------|
|                                     | STRENGTH I  | 1.25          | 1.50          |
|                                     | SERVICE III | 1.00          | 1.00          |

NOTES:

MINIMUM RATING FACTORS ARE BASED ON THE STRENGTH I AND SERVICE III LIMIT STATES.

ALLOWABLE STRESSES FOR SERVICE III LIMIT STATE ARE AS REQUIRED FOR DESIGN.

COMMENTS:

- 
- 
- 
- 

# CONTROLLING LOAD RATING

1 DESIGN LOAD RATING (HL-93)

2 DESIGN LOAD RATING (HS-20)

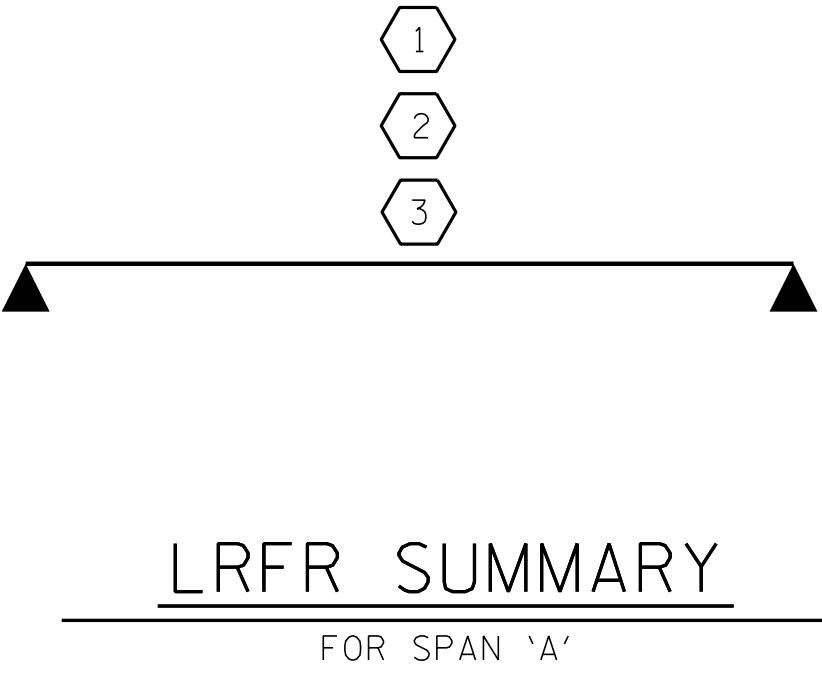
3 LEGAL LOAD RATING \*\*

\*\* SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

I - INTERIOR GIRDER  
EL - EXTERIOR LEFT GIRDER  
ER - EXTERIOR RIGHT GIRDER

PROJECT NO. 17BP.6.R.79  
COLUMBUS COUNTY  
STATION: 13+51.00 -L-



|                              |             |
|------------------------------|-------------|
| ASSEMBLED BY : J PENDERGRAFT | DATE : 1-17 |
| CHECKED BY : J DILWORTH      | DATE : 3-17 |
| DRAWN BY : CVC               | 6/10        |
| CHECKED BY : DNS             | 6/10        |

DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

ENGINEER OF RECORD

1223 Jones Franklin Rd.  
Raleigh, N.C. 27606  
Bus: 919 851 8077  
Fax: 919 851 8107  
LICENSE NO. F-4377

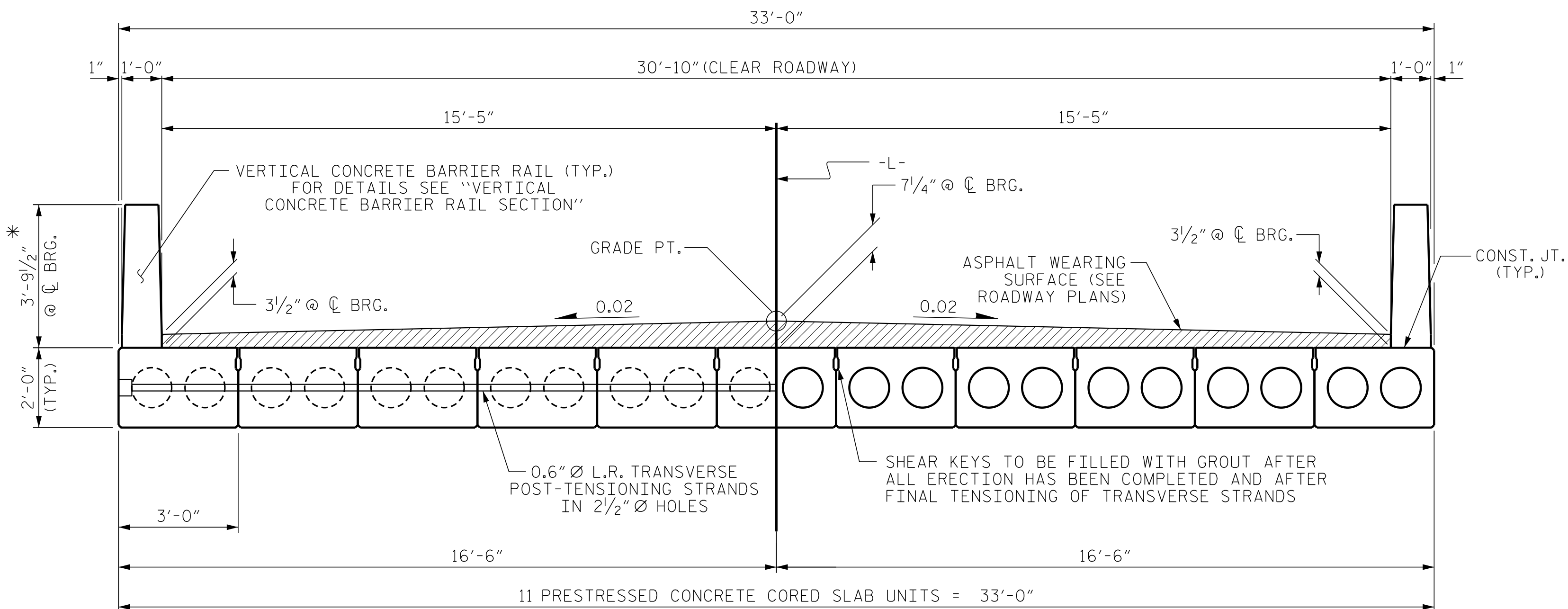
STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
STANDARD  
LRFR SUMMARY FOR  
70' CORED SLAB UNIT  
90° SKEW  
(NON-INTERSTATE TRAFFIC)

| REVISIONS |     |       |     |     |       | SHEET NO.    |
|-----------|-----|-------|-----|-----|-------|--------------|
| NO.       | BY: | DATE: | NO. | BY: | DATE: | S-3          |
| 1         |     |       | 3   |     |       | TOTAL SHEETS |
| 2         |     |       | 4   |     |       | 13           |

STD. NO. 24LRFR1-90S-70L

+





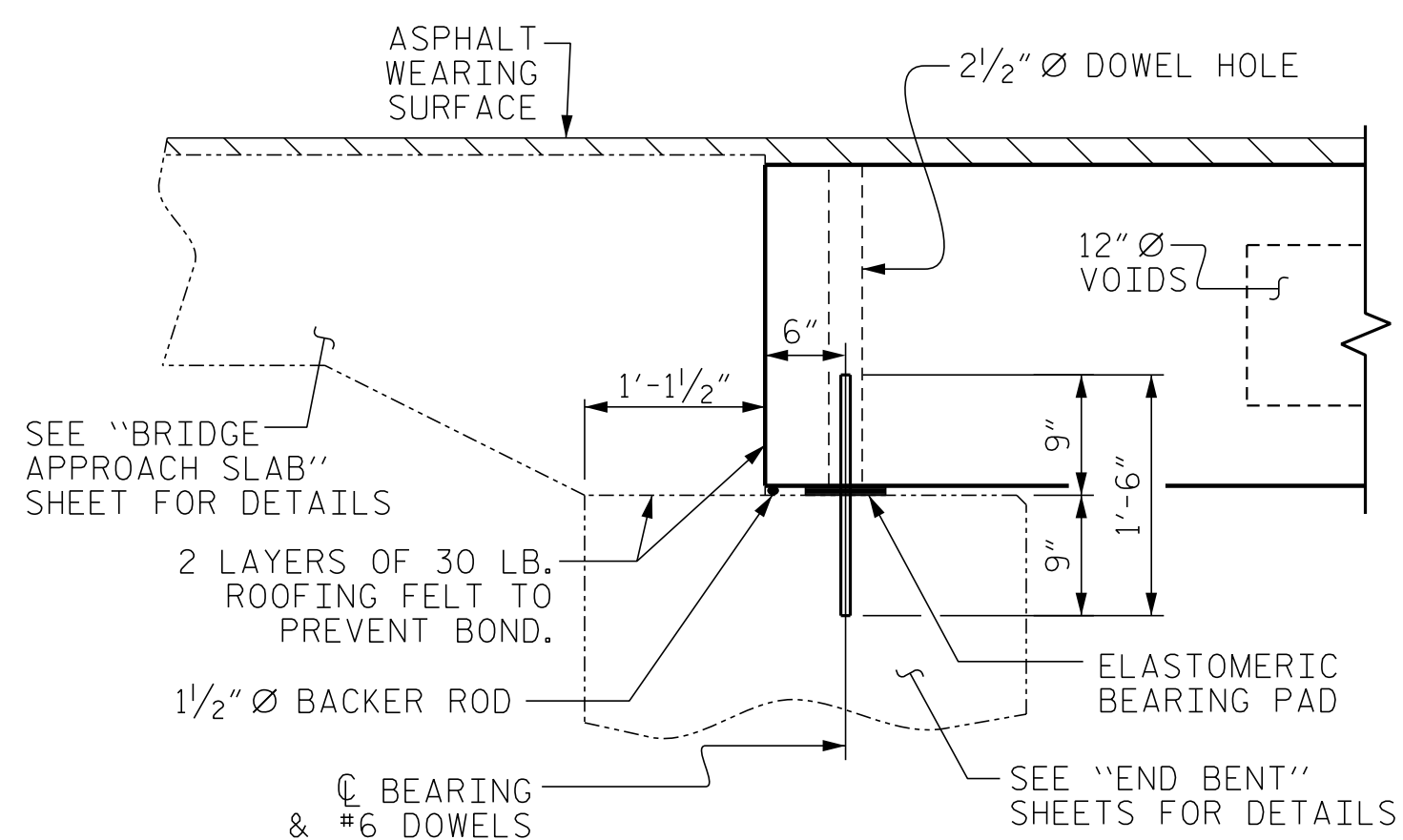
HALF SECTION  
AT INTERMEDIATE DIAPHRAGMS

## TYPICAL SECTION

HALF SECTION  
THROUGH VOIDS

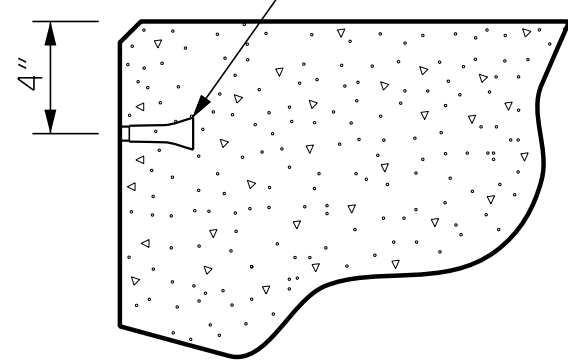
\* - THE MAXIMUM BARRIER RAIL HEIGHT AND ASPHALT THICKNESS IS SHOWN. THE HEIGHT OF THE BARRIER RAIL AND ASPHALT THICKNESS VARIES WHILE THE TOP OF THE BARRIER RAIL FOLLOWS THE PROFILE OF THE GUTTERLINE. FOR RAIL HEIGHT DETAILS AND ASPHALT THICKNESS, SEE THE "VERTICAL CONCRETE BARRIER RAIL SECTION" DETAIL.

FIXED END

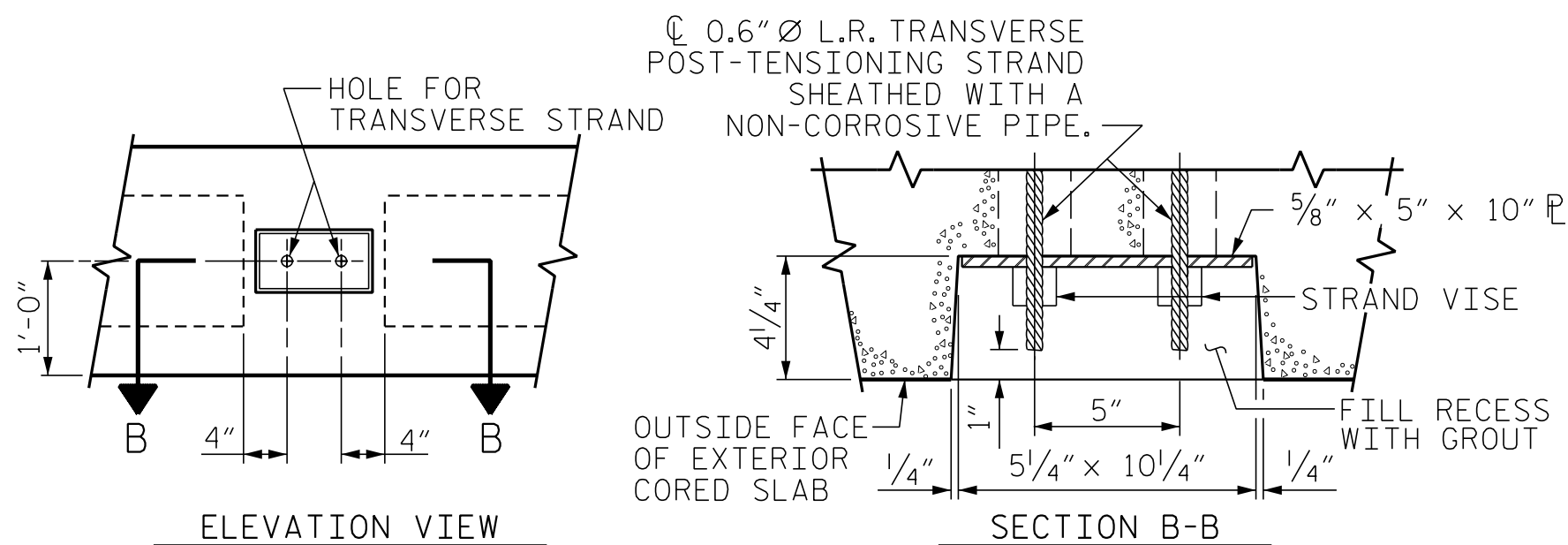


SECTION AT END BENT

PERMITTED THREADED INSERT  
CAST IN OUTSIDE FACE OF  
EXTERIOR UNIT AND  
RECESSED  $\frac{3}{8}$ " SIZE TO BE  
DETERMINED  
BY CONTRACTOR. —



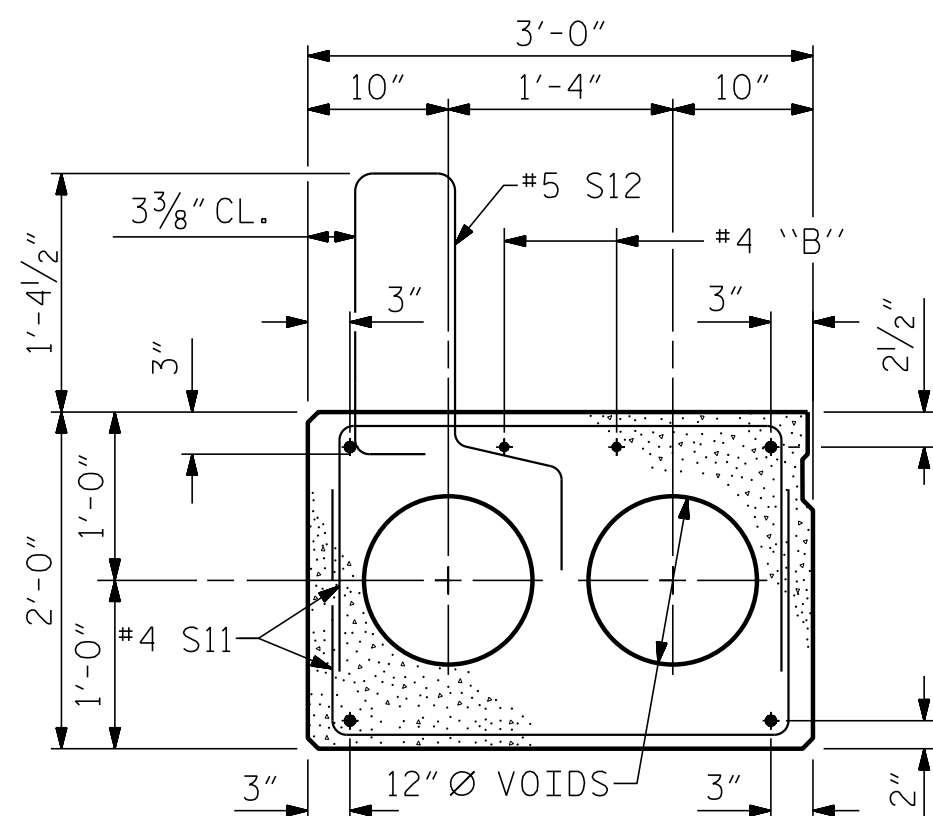
THREADED INSERT DETAIL



ELEVATION VIEW

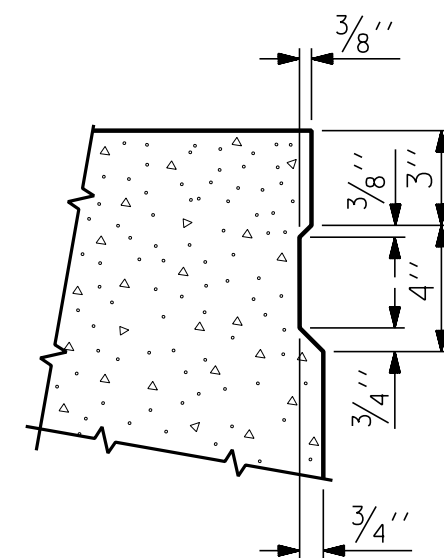
SECTION B-B

GROUTED RECESS AT END OF  
POST-TENSIONED STRAND-CORED SLABS



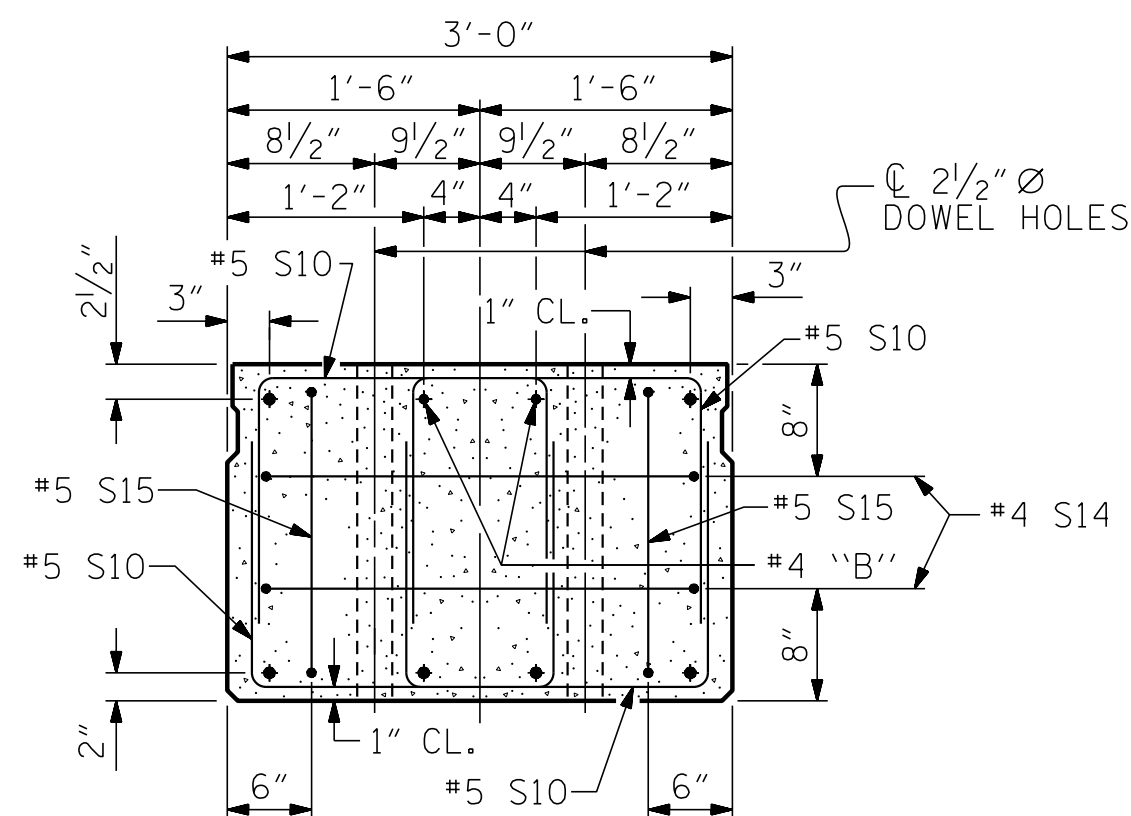
# EXTERIOR SLAB SECTION

(FOR PRESTRESSED STRAND LAYOUT, SEE  
INTERIOR SLAB SECTION.)



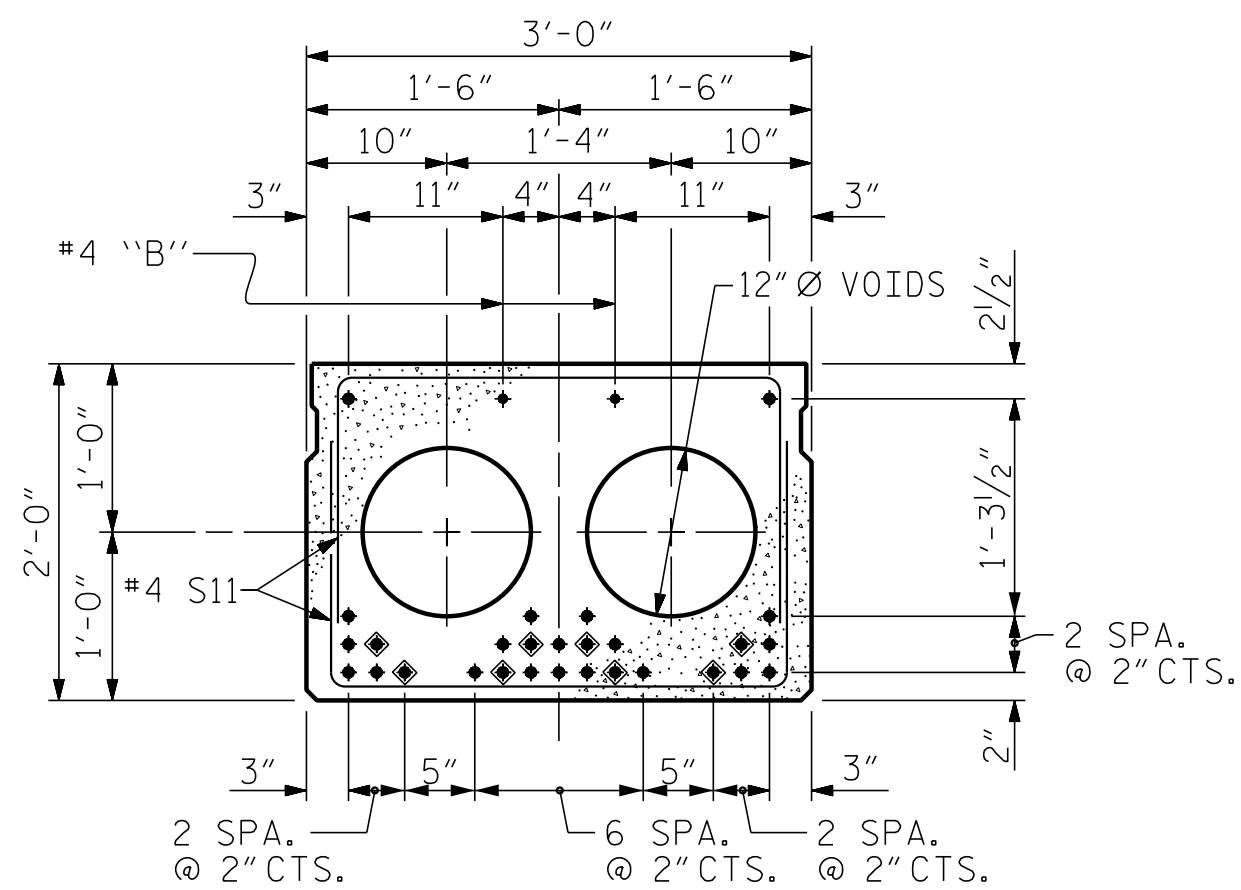
SHEAR KEY DETAIL

NOTE: OMIT SHEAR KEY ON OUTSIDE FACE  
OF EXTERIOR CORED SLABS.



END ELEVATION

SHOWING PLACEMENT OF DOUBLE STIRRUPS  
AND LOCATION OF DOWEL HOLES.  
(STRAND LAYOUT NOT SHOWN.)  
INTERIOR SLAB UNIT SHOWN-EXTERIOR SLAB  
UNIT SIMILAR EXCEPT SHEAR KEY LOCATION.



INTERIOR SLAB SECTION (70' UNIT)

(28 STRANDS REQUIRED)

0.6'' Ø LOW  
RELAXATION STRAND LAYOUT

 BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 12'-0" FROM END OF CORED SLAB UNIT. SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7.

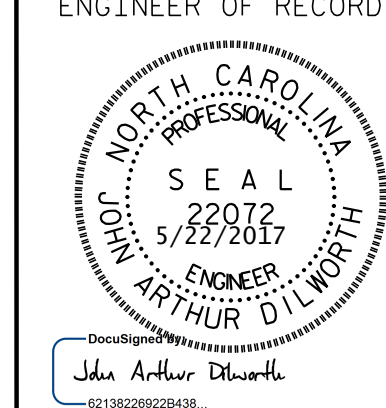
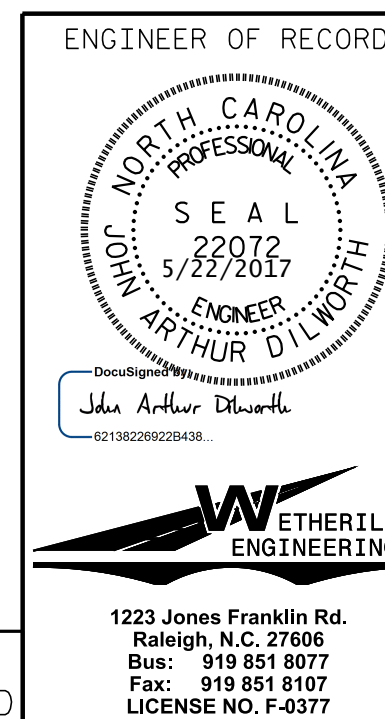
## DEBONDING LEGEND

PROJECT NO. 17BP.6.R.79

COLUMBUS COUNTY

STATION: 13+51.00 -L-

SHEET 1 OF 3



**1223 Jones Franklin Rd  
Raleigh, N.C. 27606  
Bus: 919 851 8077  
Fax: 919 851 8107  
LICENSE NO. F-0377**

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
STANDARD  
3'-0" X 2'-0"  
PRESTRESSED CONCRETE  
CORED SLAB UNIT

| REVISIONS |     |       |     |     |       | SHEET NO.          |
|-----------|-----|-------|-----|-----|-------|--------------------|
| NO.       | BY: | DATE: | NO. | BY: | DATE: |                    |
| 1         |     |       | 3   |     |       | TOTAL SHEETS<br>13 |
| 2         |     |       | 4   |     |       |                    |

SHEET NO.

S-4

TOTAL

SHEETS  
17

---

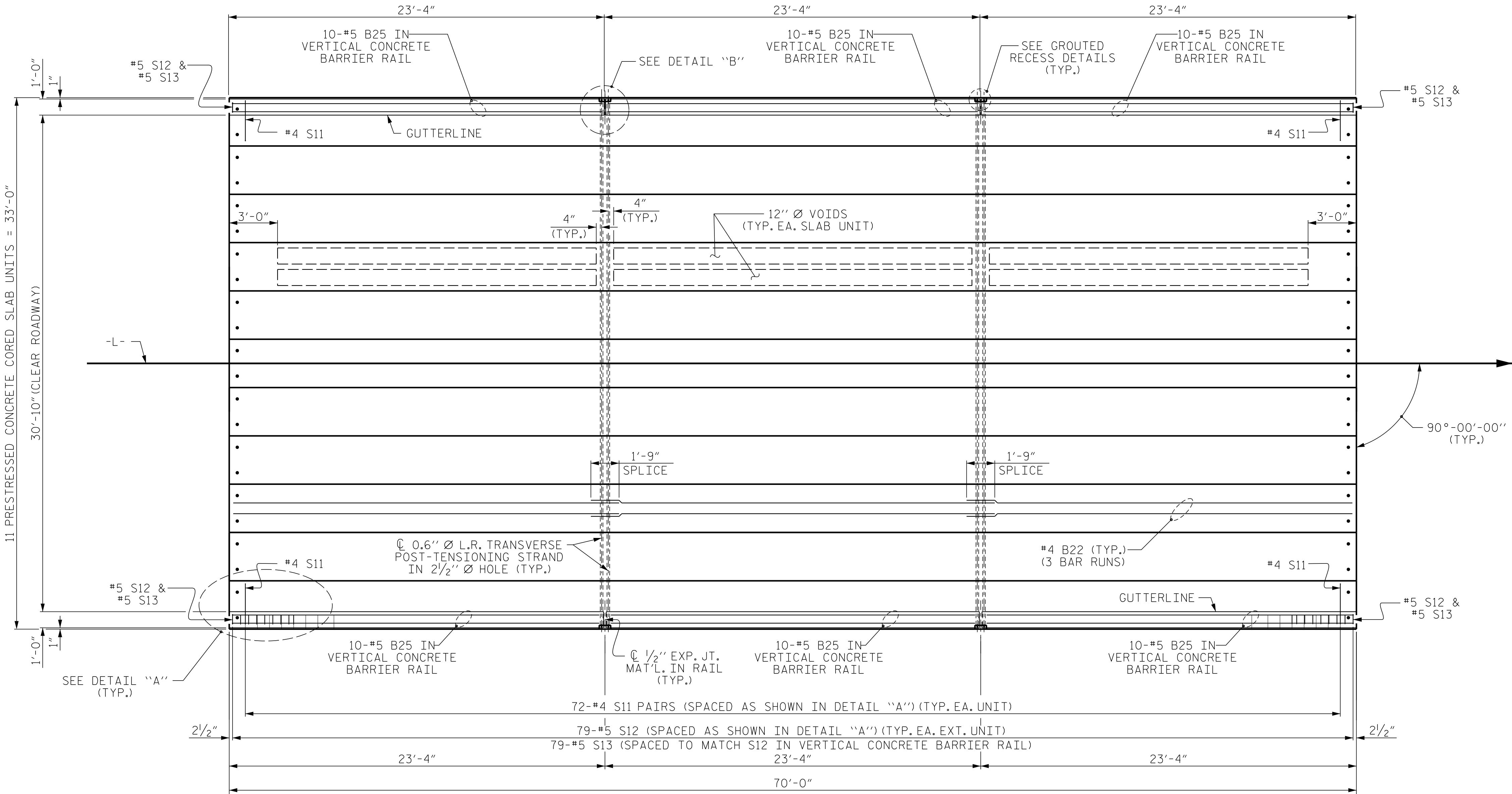
13

DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

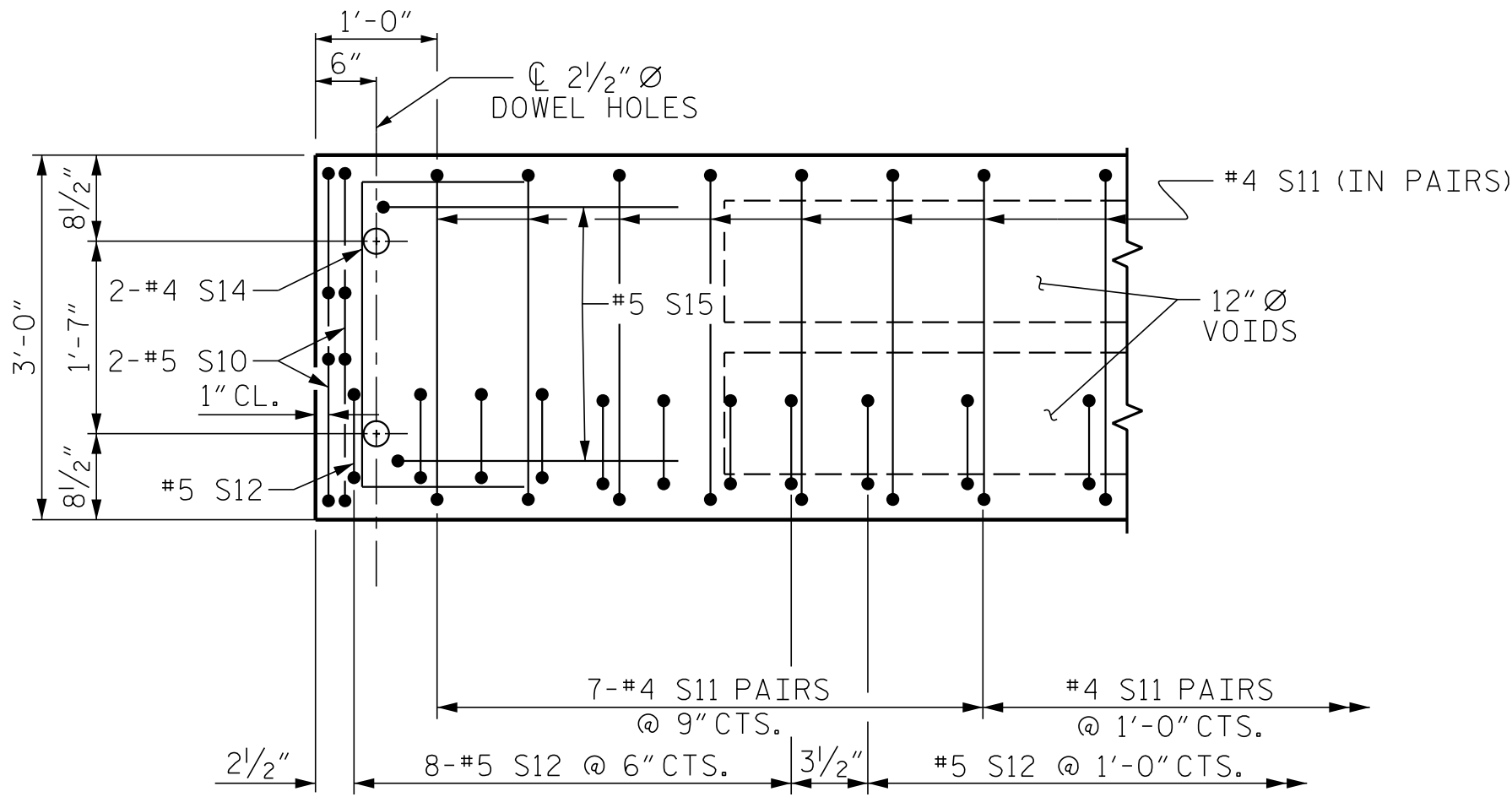
STD. NO. 24PCS4\_33\_90S



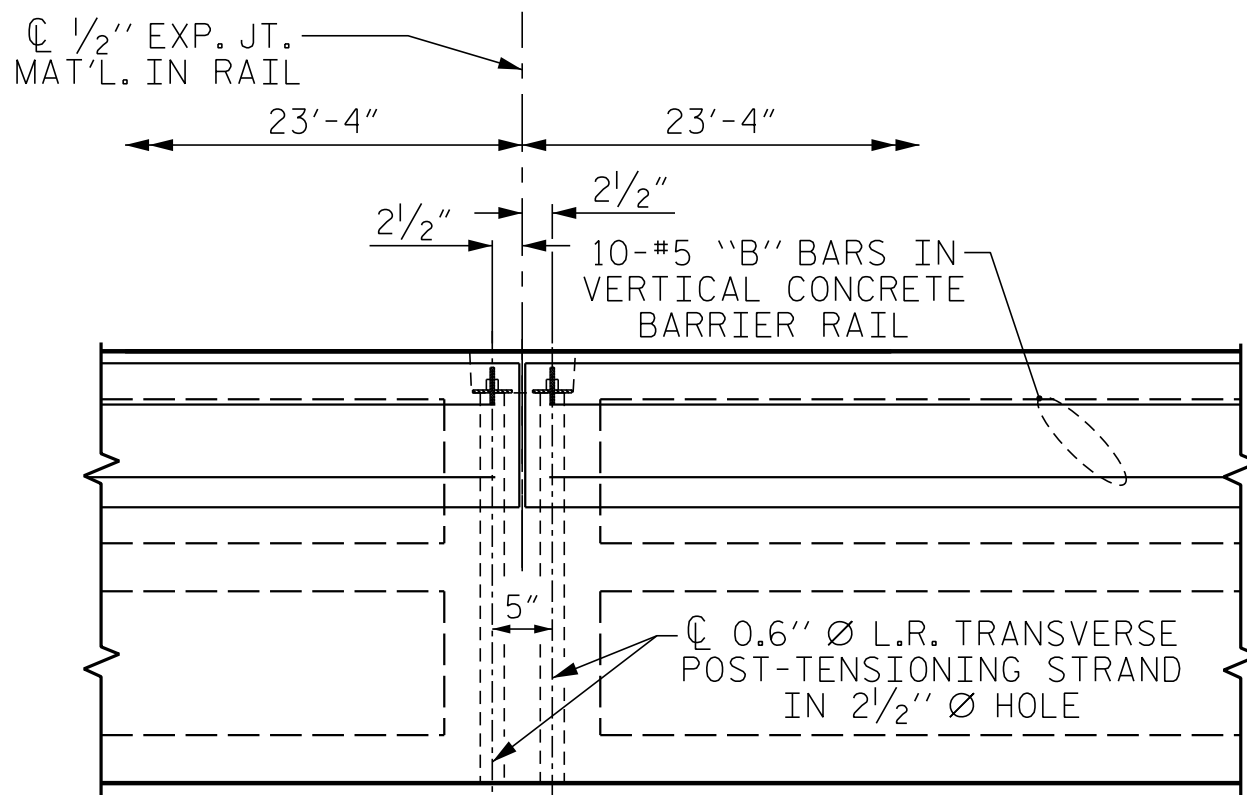
P:\2016\16148.01\_COLUMBUS\_259Structures\DWG\COLUMBUS 259\_PS.dgn  
5/17/2017 2:02:50 PM



PLAN OF UNIT



DETAIL "A"



DETAIL "B"

#4 S11 BARS MAY BE SHIFTED AS NECESSARY  
TO MAINTAIN 1" CLEAR TO GROUTED RECESS AND  
2 1/2" Ø TRANSVERSE POST-TENSIONING STRAND HOLES

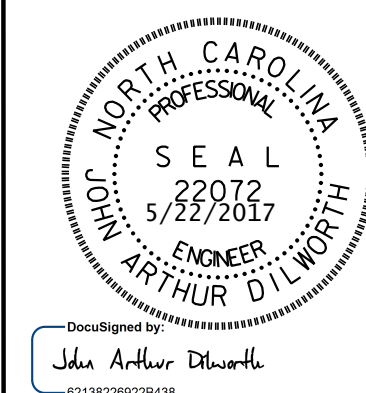
PROJECT NO. 17BP.6.R.79

COLUMBUS COUNTY

STATION: 13+51.00 -L-

SHEET 2 OF 3

ENGINEER OF RECORD



1223 Jones Franklin Rd.  
Raleigh, N.C. 27606  
Bus: 919 851 8077  
Fax: 919 851 8107  
LICENSE NO. F-4377

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

PLAN OF 70' UNIT  
30'-10" CLEAR ROADWAY  
90° SKEW

REVISIONS

| NO. | BY: | DATE: | NO. | BY: | DATE: | SHEET NO.       |
|-----|-----|-------|-----|-----|-------|-----------------|
| 1   |     |       | 3   |     |       | S-5             |
| 2   |     |       | 4   |     |       | TOTAL SHEETS 13 |

DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

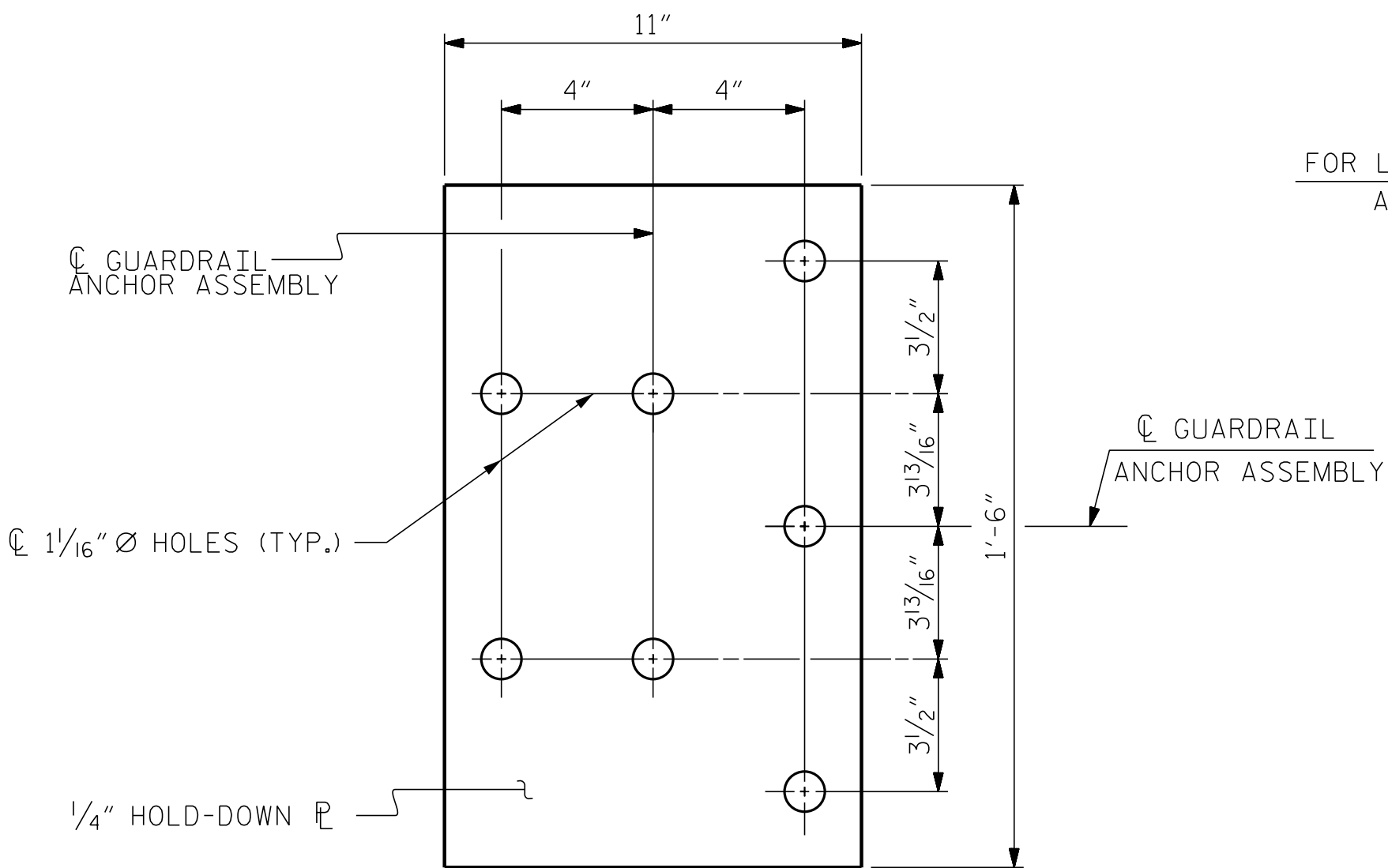






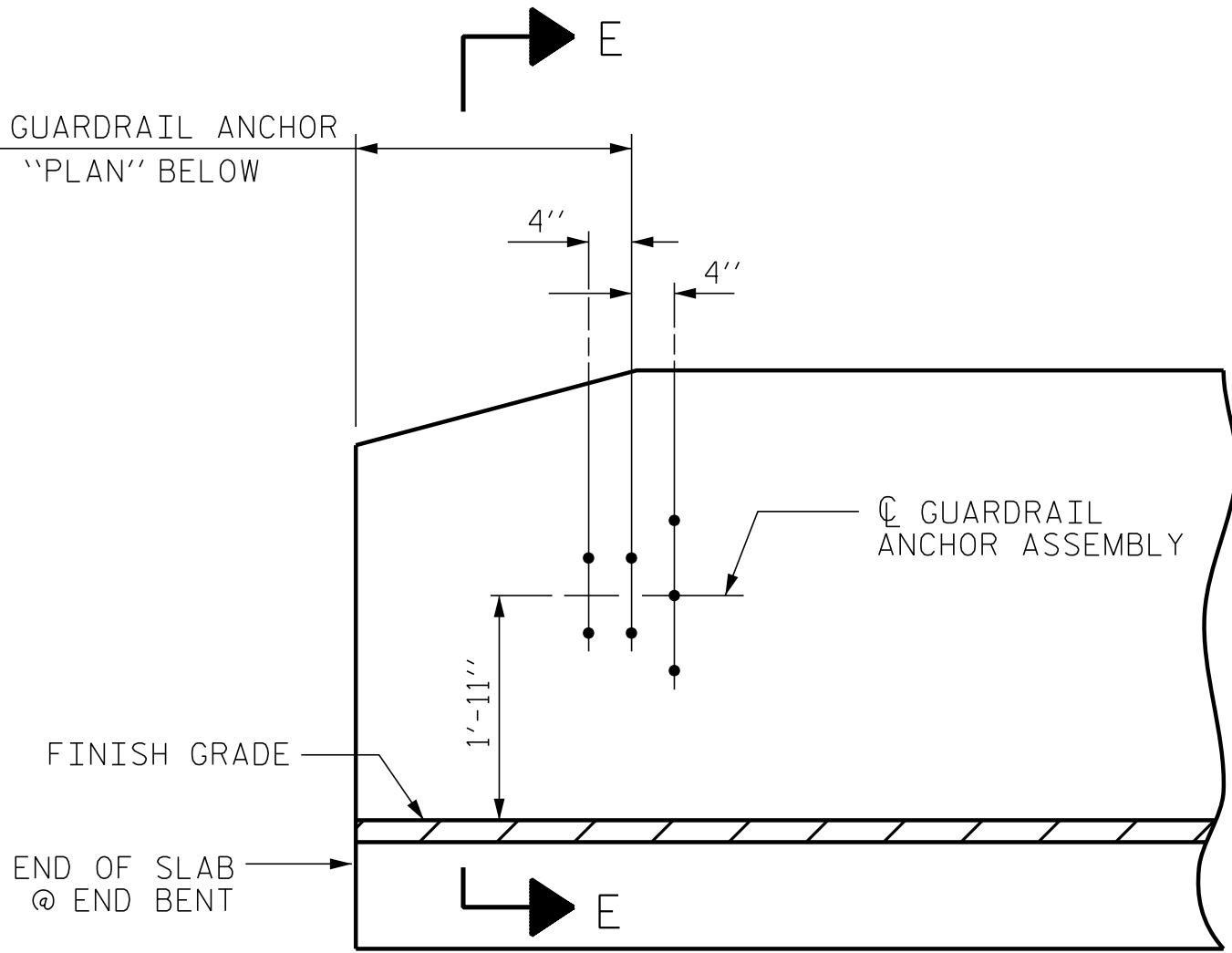
P:\2016\16148\01\_COLUMBUS\_259Structures\DWG\COLUMBUS\_259\_GRA.dgn  
5/17/2017 2:06:51 PM

DRAWN BY : J. PENDERGRAFT DATE : 1-17  
CHECKED BY : J. A. DILWORTH DATE : 3-17

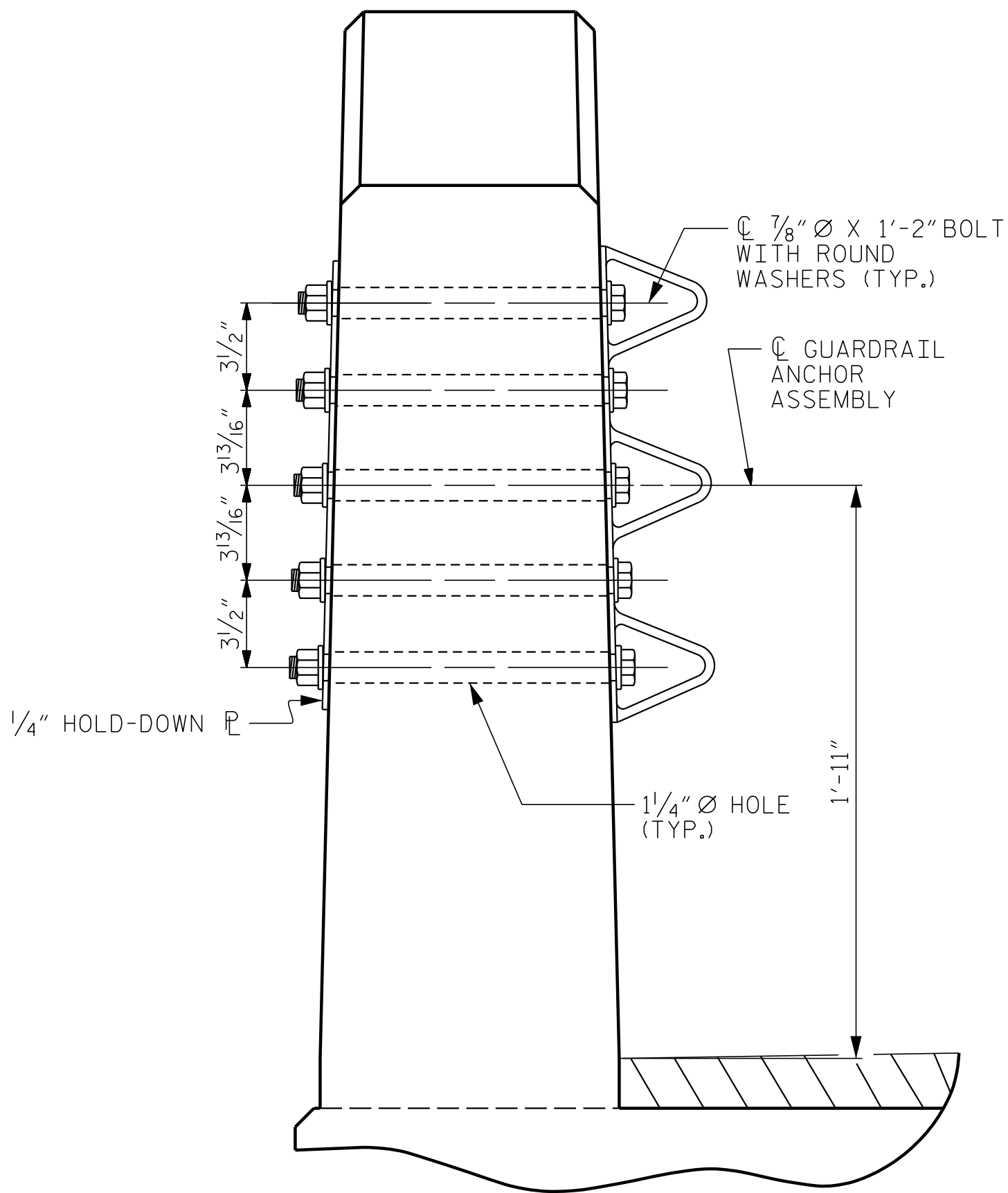


PLAN

FOR LOCATION OF GUARDRAIL ANCHOR ASSEMBLY, SEE "PLAN" BELOW

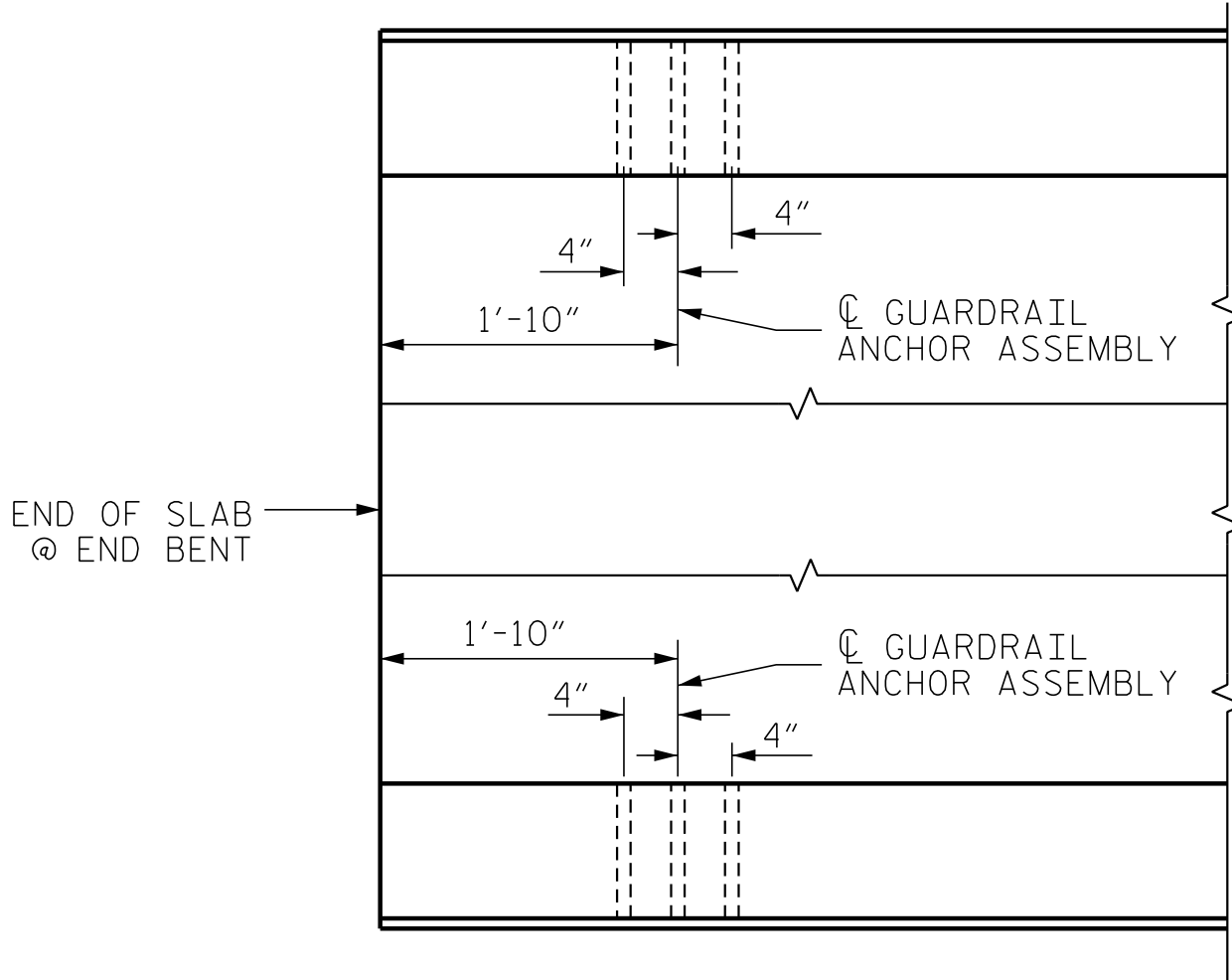


ELEVATION



SECTION E-E

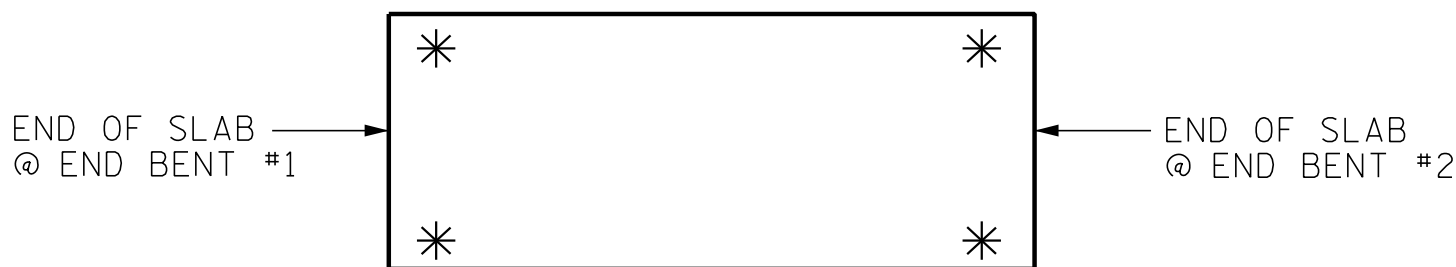
GUARDRAIL ANCHOR ASSEMBLY DETAILS



PLAN

LOCATION OF ANCHORS FOR GUARDRAIL

END BENT #1 SHOWN, END BENT #2 SIMILAR.



SKETCH SHOWING POINTS OF ATTACHMENT

\* DENOTES GUARDRAIL ANCHOR ASSEMBLY

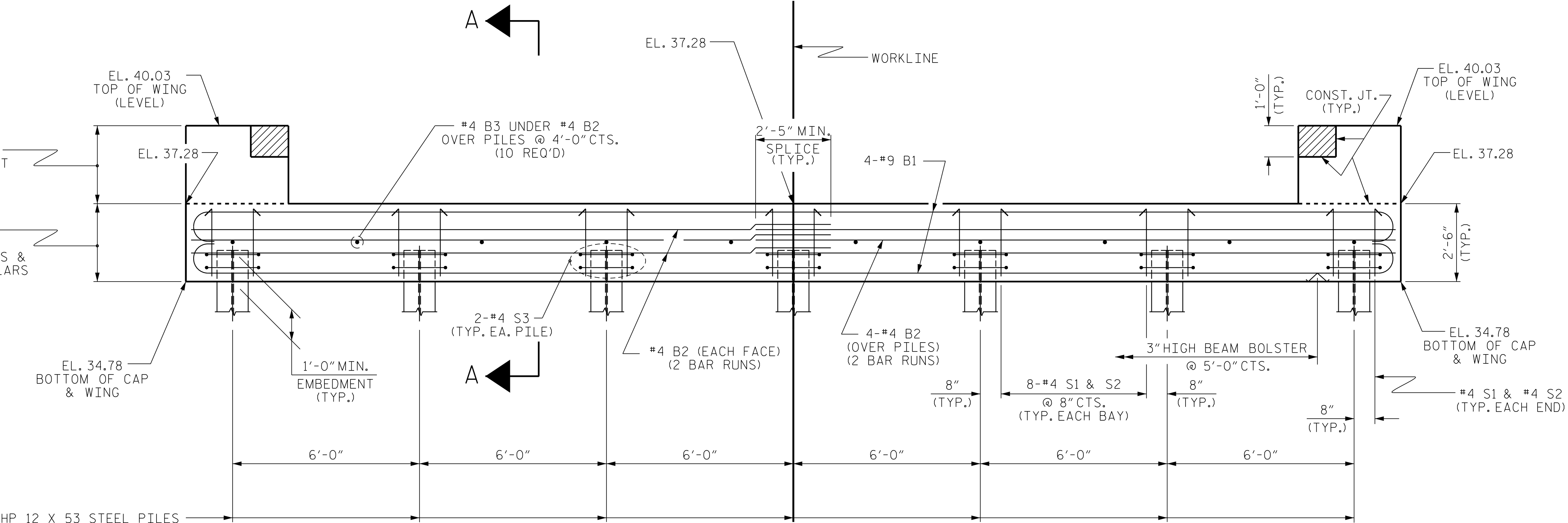
PROJECT NO. 17BP.6.R.79  
COLUMBUS COUNTY  
STATION: 13+51.00 -L-

|                                                                                                                |     |                                                                                     |     |     |       |
|----------------------------------------------------------------------------------------------------------------|-----|-------------------------------------------------------------------------------------|-----|-----|-------|
| ENGINEER OF RECORD                                                                                             |     | STATE OF NORTH CAROLINA<br>DEPARTMENT OF TRANSPORTATION<br>RALEIGH                  |     |     |       |
|                                                                                                                |     | STANDARD<br>GUARDRAIL ANCHORAGE<br>DETAILS<br>FOR VERTICAL CONCRETE<br>BARRIER RAIL |     |     |       |
| 1223 Jones Franklin Rd.<br>Raleigh, N.C. 27606<br>Bus: 919 851 8077<br>Fax: 919 851 8107<br>LICENSE NO. F-4377 |     | REVISIONS                                                                           |     |     |       |
| NO.                                                                                                            | BY: | DATE:                                                                               | NO. | BY: | DATE: |
| 1                                                                                                              |     |                                                                                     | 3   |     |       |
| 2                                                                                                              |     |                                                                                     | 4   |     |       |
| SHEET NO.                                                                                                      |     |                                                                                     |     |     | S-7   |
| TOTAL SHEETS                                                                                                   |     |                                                                                     |     |     | 13    |

DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

(SHT 1) STD. NO. GRA3





WINGS NOT SHOWN FOR CLARITY.  
FOR SECTION A-A, SEE SHEET 4 OF 4.  
CONCRETE COLLARS FOR STEEL PILES NOT SHOWN IN PLAN AND ELEVATION VIEWS FOR CLARITY.  
SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL", SHEET 4 OF 4.

DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

FOR WING DETAILS, SEE SHEET 3 OF 4.

SHEET 1 OF 4

STD. NO. EB\_33\_90S



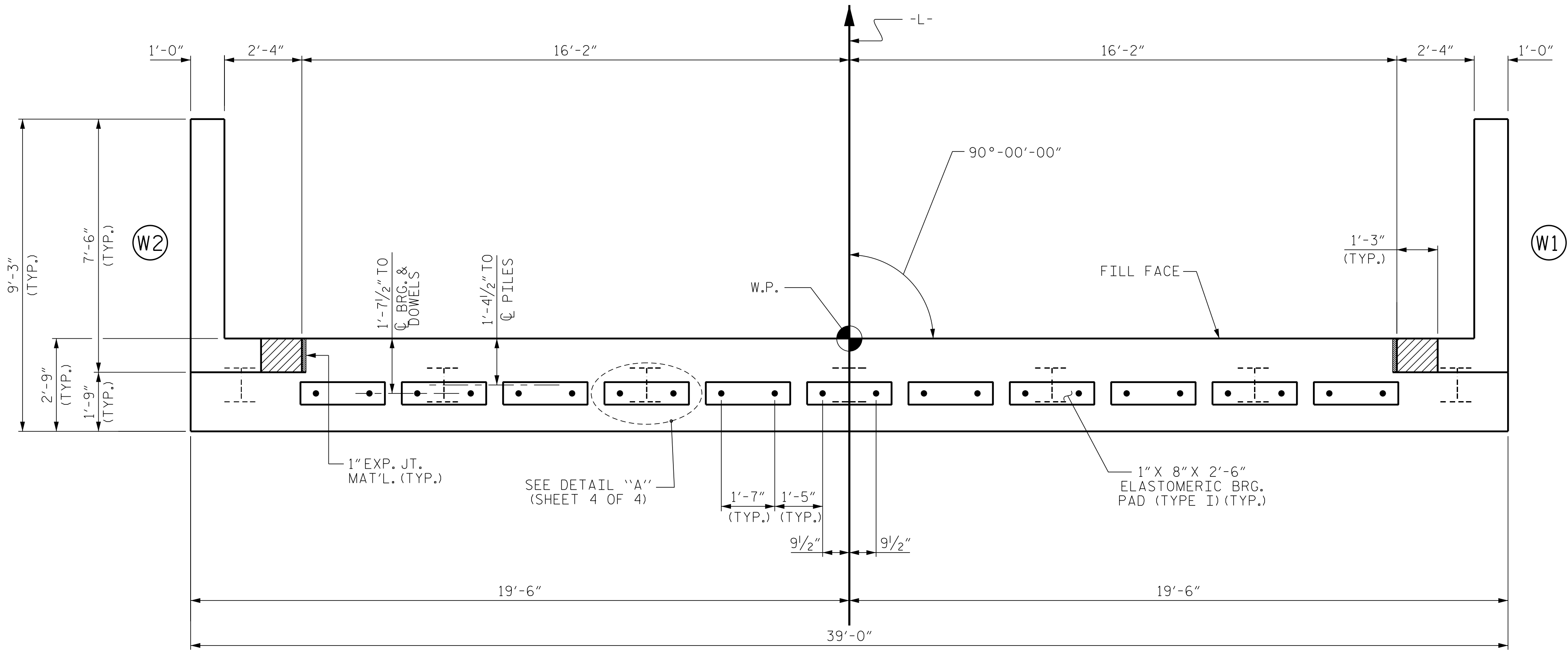
NOTES

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.

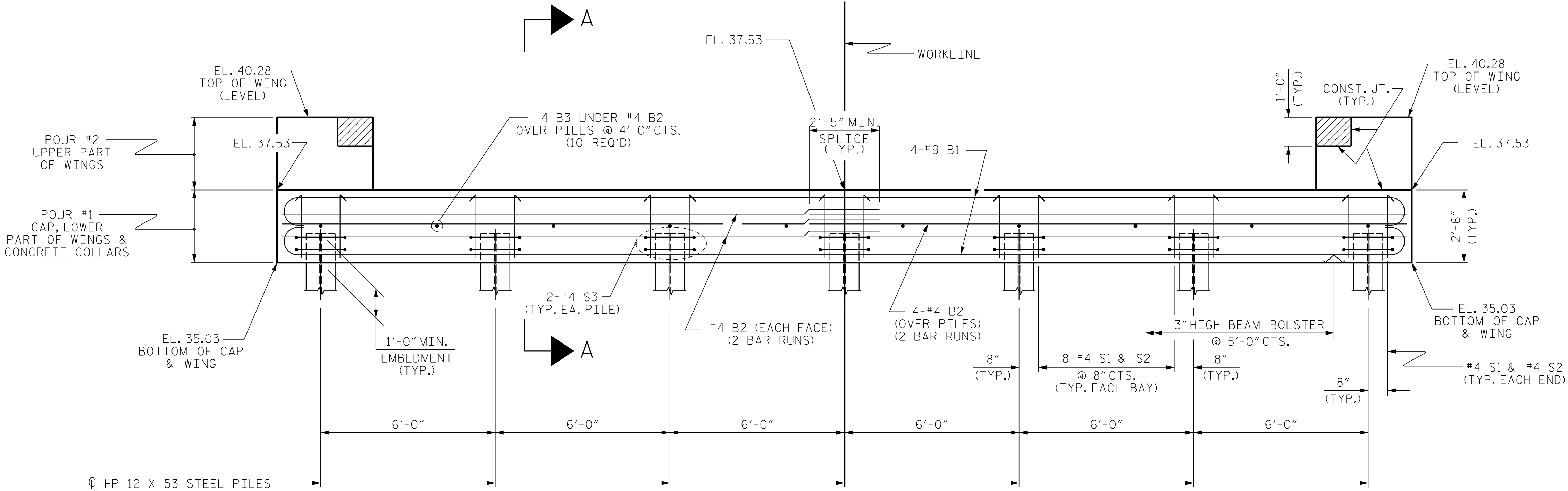
THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE VERTICAL CONCRETE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.

FOR PILE SPlice DETAILS, SEE SHEET 4 OF 4.

FOR WING DETAILS, SEE SHEET 3 OF 4.



PLAN



ELEVATION

WINGS NOT SHOWN FOR CLARITY.  
FOR SECTION A-A, SEE SHEET 4 OF 4.  
CONCRETE COLLARS FOR STEEL PILES NOT SHOWN IN PLAN AND ELEVATION VIEWS FOR CLARITY.  
SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL", SHEET 4 OF 4.

PROJECT NO. 17BP.6.R.79  
COLUMBUS COUNTY  
STATION: 13+51.00 -L-

SHEET 2 OF 4

ENGINEER OF RECORD  
  
Arthur Dilworth  
1223 Jones Franklin Rd.  
Raleigh, N.C. 27606  
Bus: 919 851 8077  
Fax: 919 851 8107  
LICENSE NO. F-4377

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
  
SUBSTRUCTURE  
END BENT No. 2  
  
REVISIONS  

| NO. | BY: | DATE: | NO. | BY: | DATE: |
|-----|-----|-------|-----|-----|-------|
| 1   |     |       | 3   |     |       |
| 2   |     |       | 4   |     |       |

  
SHEET NO.  
S-9  
TOTAL SHEETS  
13

DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED





## WING DETAILS

DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

PROJECT NO. 17BP.6.R.79  
          COLUMBUS           COUNTY  
STATION: 13+51.00 -L-

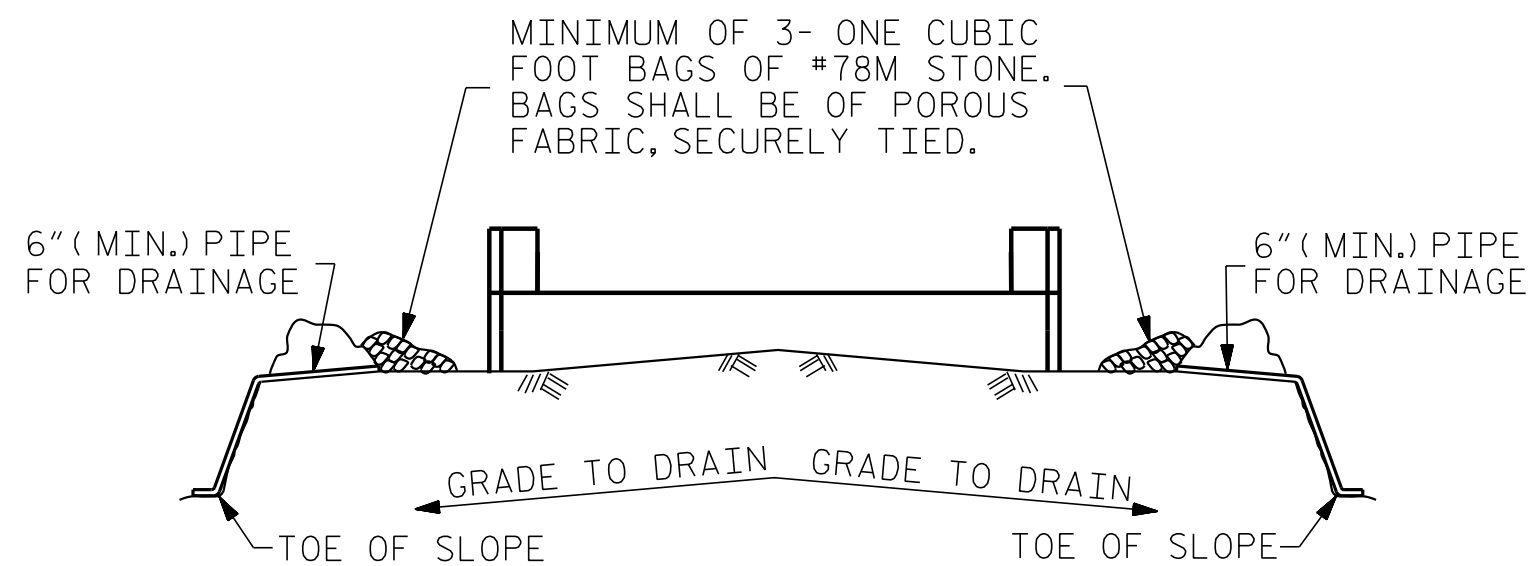
STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

SUBSTRUCTURE  
END BENT  
WING DETAILS

| REVISIONS |     |       |     |     |       | SHEET NO.                                                                                                                                                                                    |
|-----------|-----|-------|-----|-----|-------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| NO.       | BY: | DATE: | NO. | BY: | DATE: | <div style="font-size: 2em; font-weight: bold;">S-10</div> <div style="font-size: 0.8em; font-weight: normal;">TOTAL SHEETS</div> <div style="font-size: 1.5em; font-weight: bold;">13</div> |
| 1         |     |       | 3   |     |       |                                                                                                                                                                                              |
| 2         |     |       | 4   |     |       |                                                                                                                                                                                              |

STD. NO. EB\_33\_90S



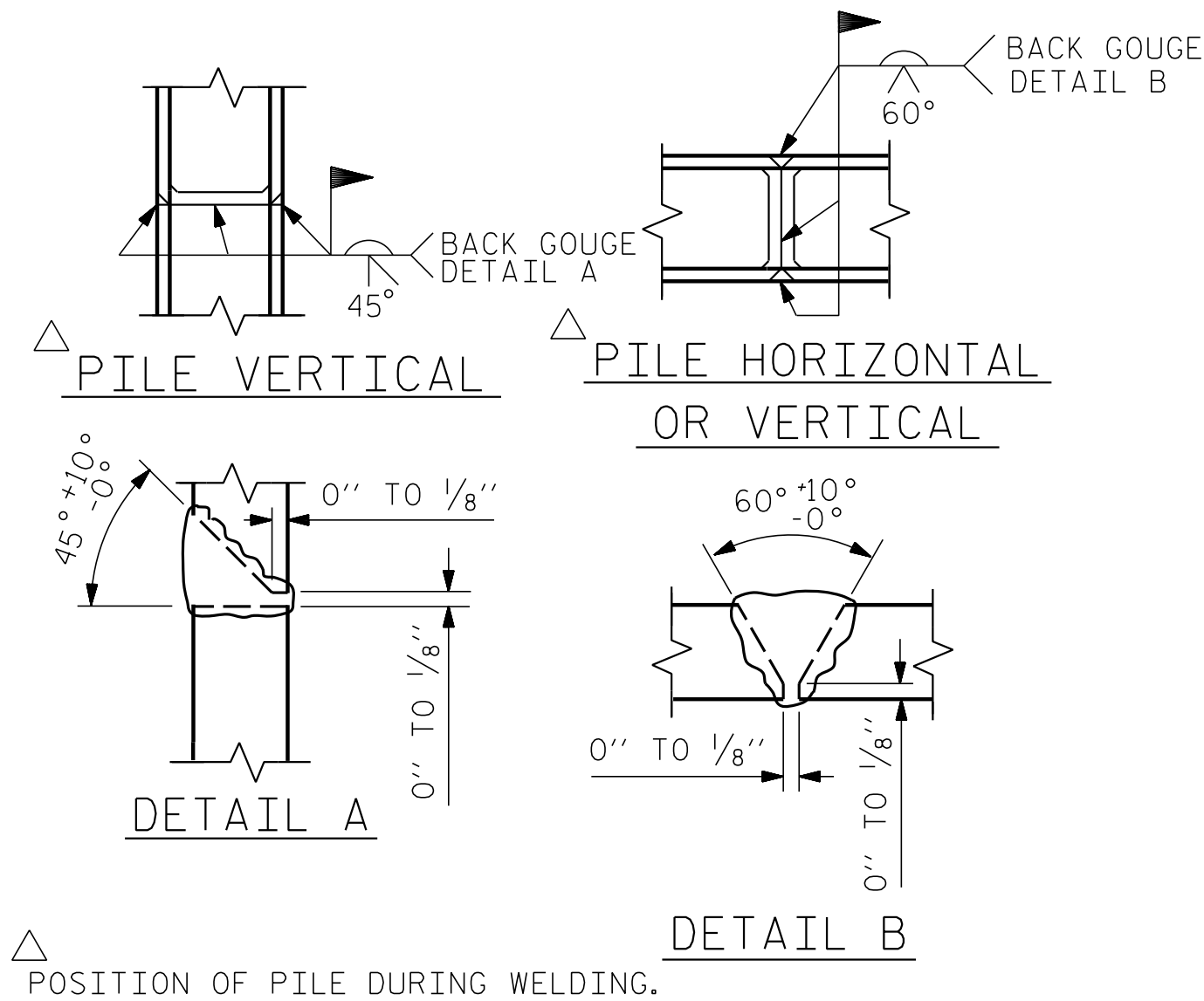


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

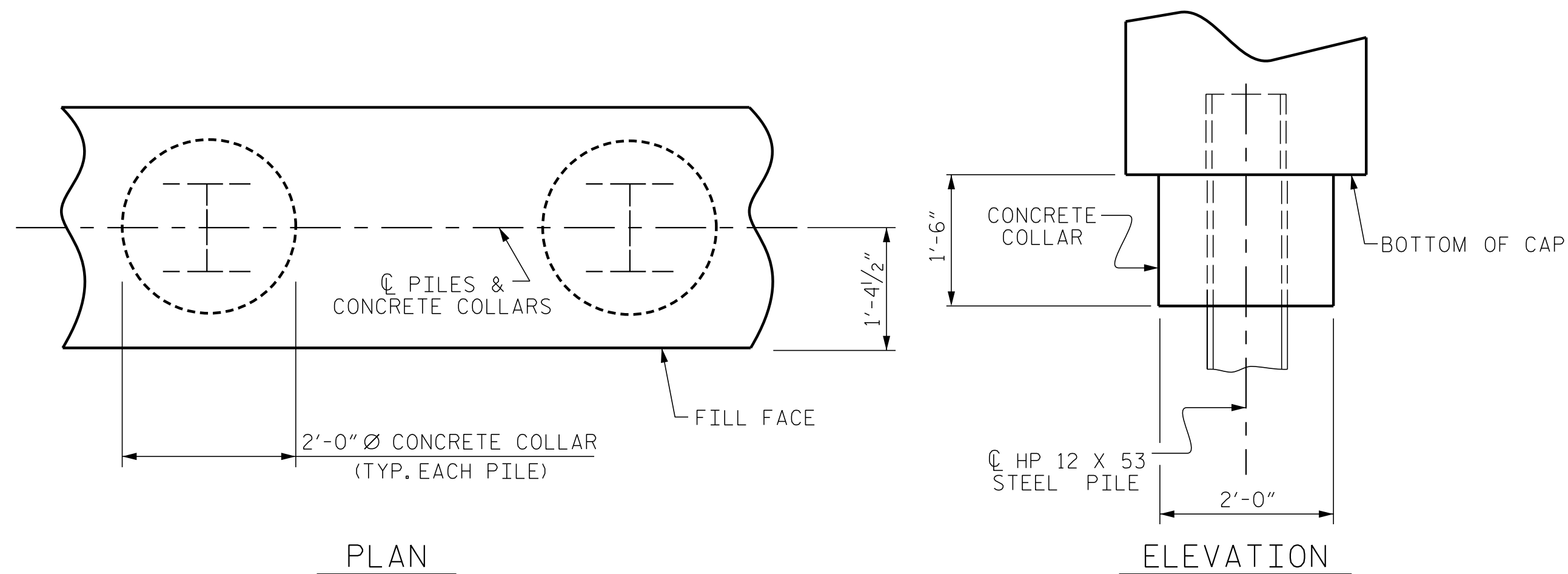
BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR EFFECTIVENESS.

NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

## TEMPORARY DRAINAGE AT END BENT

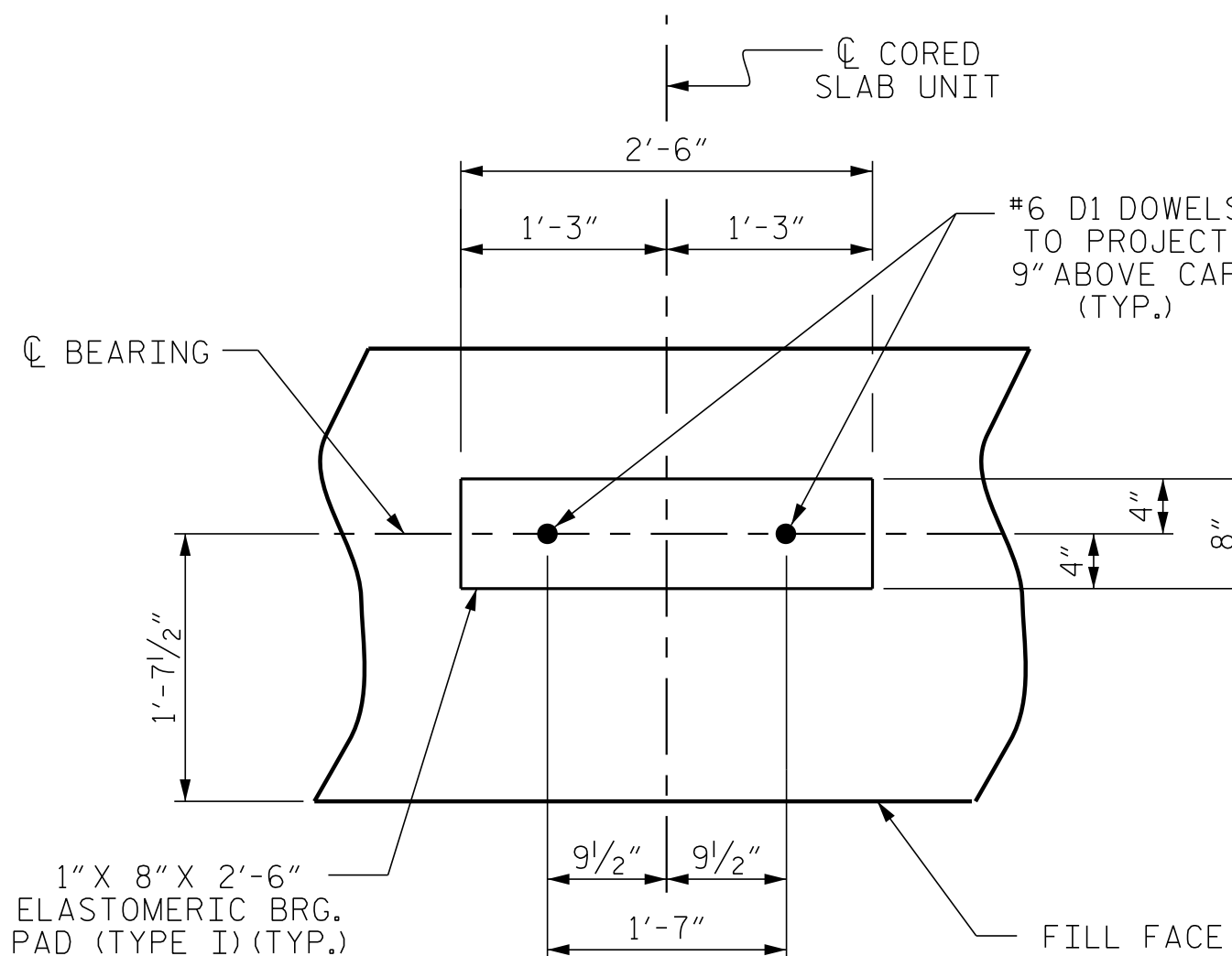


## PILE SPLICE DETAILS



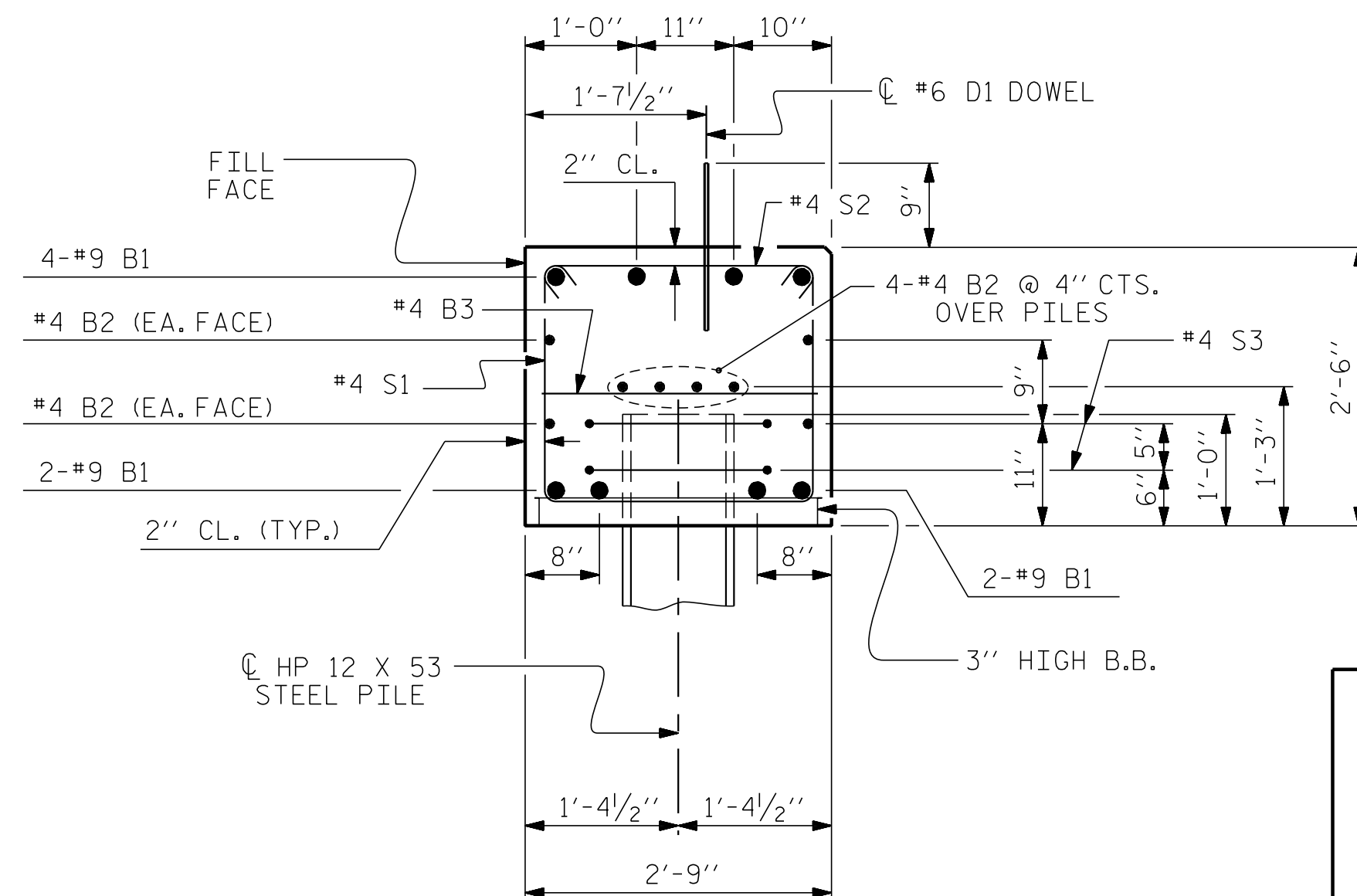
## CORROSION PROTECTION FOR STEEL PILES DETAIL

(END BENT No. 1 SHOWN, END BENT No. 2 SIMILAR BY ROTATION)



DETAIL "A"

(END BENT No.1 SHOWN,END BENT No.2 SIMILAR BY ROTATION)



## SECTION A-A

(CONCRETE COLLAR NOT SHOWN FOR CLARITY.  
SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL.")

DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

**BAR TYPES**

ALL BAR DIMENSIONS ARE OUT TO OUT.

**BILL OF MATERIAL**  
**FOR ONE END BENT**

| BAR                                              | NO. | SIZE                                  | TYPE | LENGTH | WEIGHT    |
|--------------------------------------------------|-----|---------------------------------------|------|--------|-----------|
| B1                                               | 8   | #9                                    | 1    | 41'-0" | 1115      |
| B2                                               | 16  | #4                                    | STR  | 20'-7" | 220       |
| B3                                               | 10  | #4                                    | STR  | 2'-5"  | 16        |
| D1                                               | 22  | #6                                    | STR  | 1'-6"  | 50        |
| H1                                               | 24  | #4                                    | 2    | 7'-10" | 126       |
| K1                                               | 12  | #4                                    | STR  | 2'-11" | 23        |
| S1                                               | 50  | #4                                    | 3    | 7'-5"  | 248       |
| S2                                               | 50  | #4                                    | 4    | 3'-2"  | 106       |
| S3                                               | 14  | #4                                    | 5    | 6'-6"  | 61        |
| V1                                               | 48  | #4                                    | STR  | 4'-8"  | 150       |
| REINFORCING STEEL<br>(FOR ONE END BENT)          |     |                                       |      |        | 2115 LBS. |
| CLASS A CONCRETE BREAKDOWN<br>(FOR ONE END BENT) |     |                                       |      |        |           |
| POUR #1                                          |     | CAP, LOWER PART<br>OF WINGS & COLLARS |      |        | 12.4 C.Y. |
| POUR #2                                          |     | UPPER PART OF<br>WINGS                |      |        | 2.0 C.Y.  |
| TOTAL CLASS A CONCRETE                           |     |                                       |      |        | 14.4 C.Y. |

END BENT No. 1  
HP 12 X 53 STEEL PILES  
NO: 7 LIN. FT.= 392

PILE DRIVING EQUIPMENT SETUP  
FOR HP 12 X 53 STEEL PILES  
= 7 EA.

PILE REDRIVES = 4 EA.

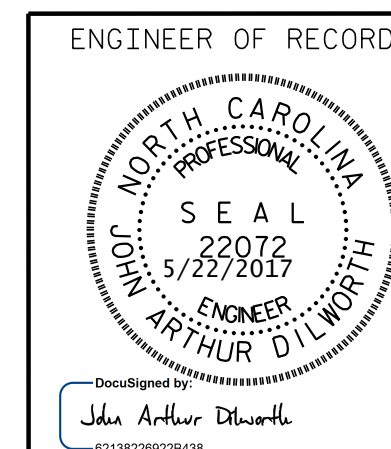
END BENT No. 2  
HP 12 X 53 STEEL PILES  
NO: 7 LIN. FT.= 392

PILE DRIVING EQUIPMENT SETUP  
FOR HP 12 X 53 STEEL PILES  
= 7 EA.

PILE REDRIVES = 4 EA.

PROJECT NO. 17BP.6.R.79  
COLUMBUS COUNTY  
 STATION: 13+51.00 -L-

SHEET 4 OF 4



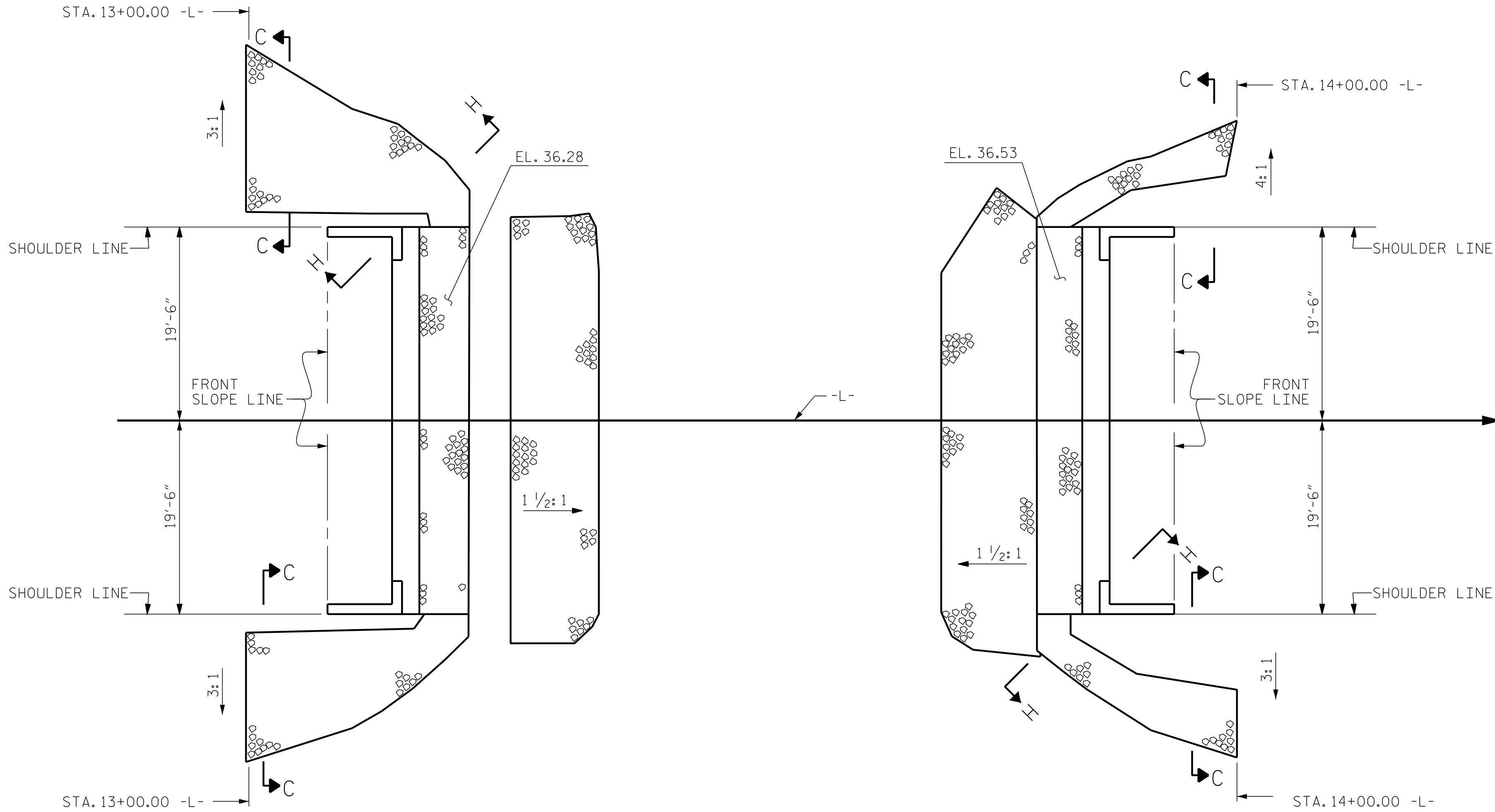
**1223 Jones Franklin Rd  
Raleigh, N.C. 27606  
Bus: 919 851 8077  
Fax: 919 851 8107  
LICENSE NO. F-0377**

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

# SUBSTRUCTURE

## END BENT No. 1 & 2 DETAILS



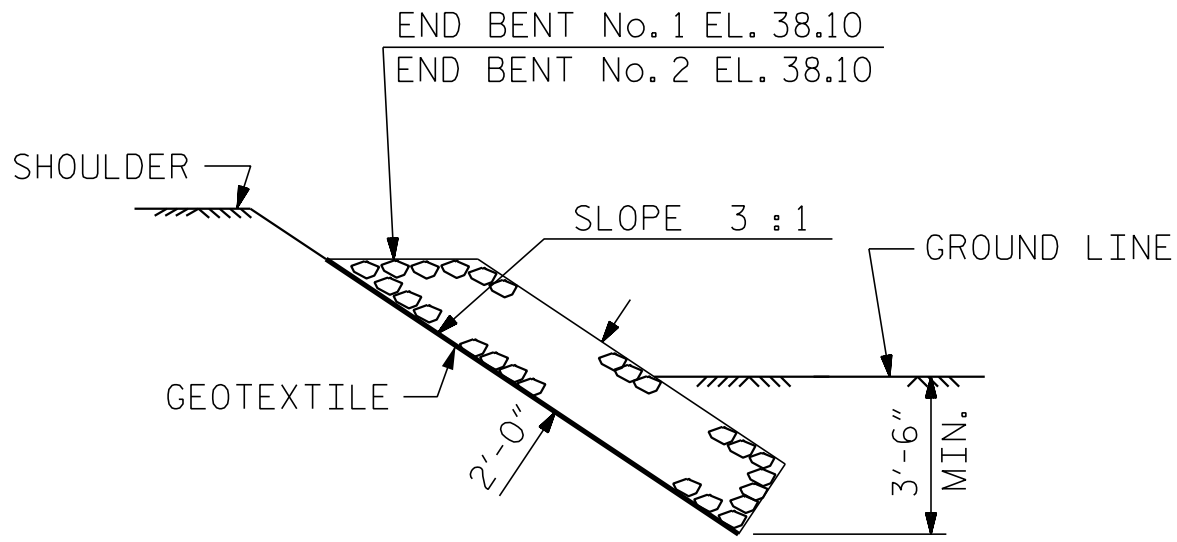


Ⓚ END BENT 1

Ⓚ END BENT 2

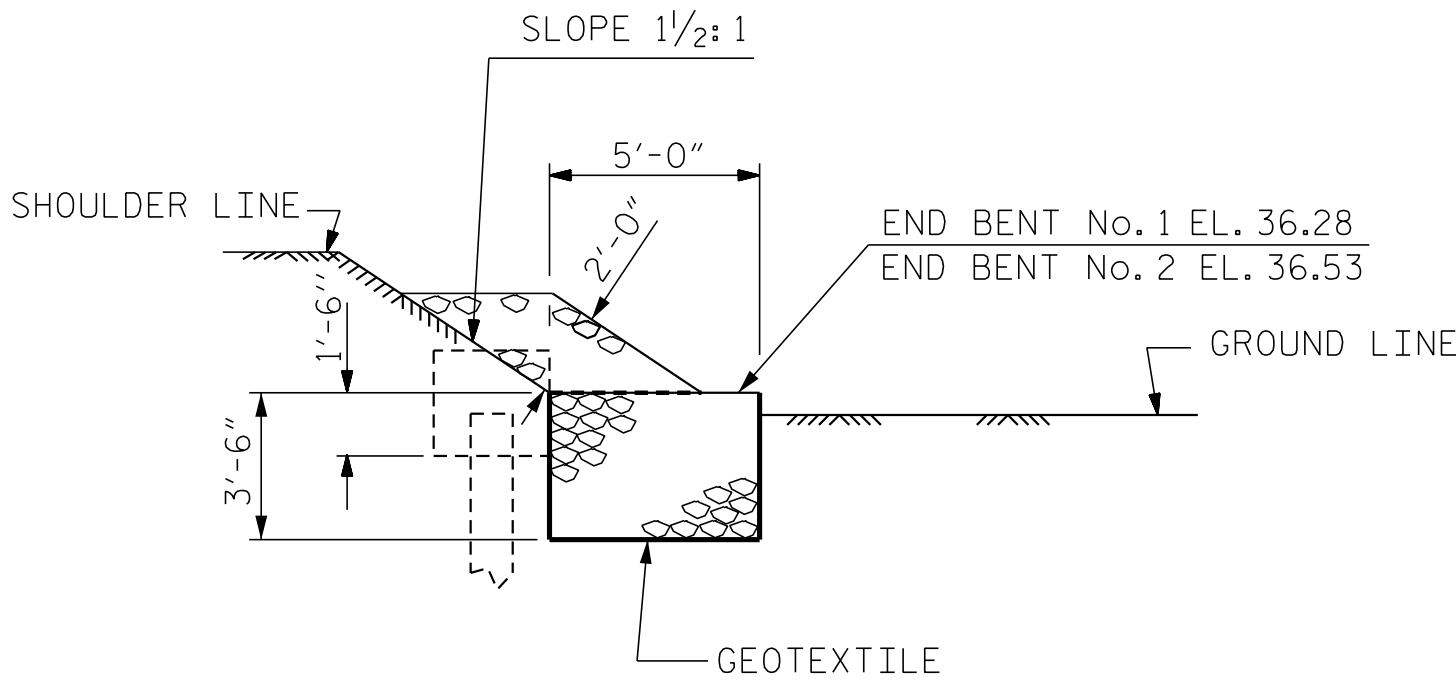
PLAN OF RIP RAP

| ESTIMATED QUANTITIES      |                     |                            |
|---------------------------|---------------------|----------------------------|
| BRIDGE @<br>STA. 13+51.00 | RIP RAP<br>CLASS II | GEOTEXTILE<br>FOR DRAINAGE |
|                           | TONS                | SQUARE YARDS               |
| END BENT No. 1            | 120                 | 120                        |
| END BENT No. 2            | 95                  | 95                         |

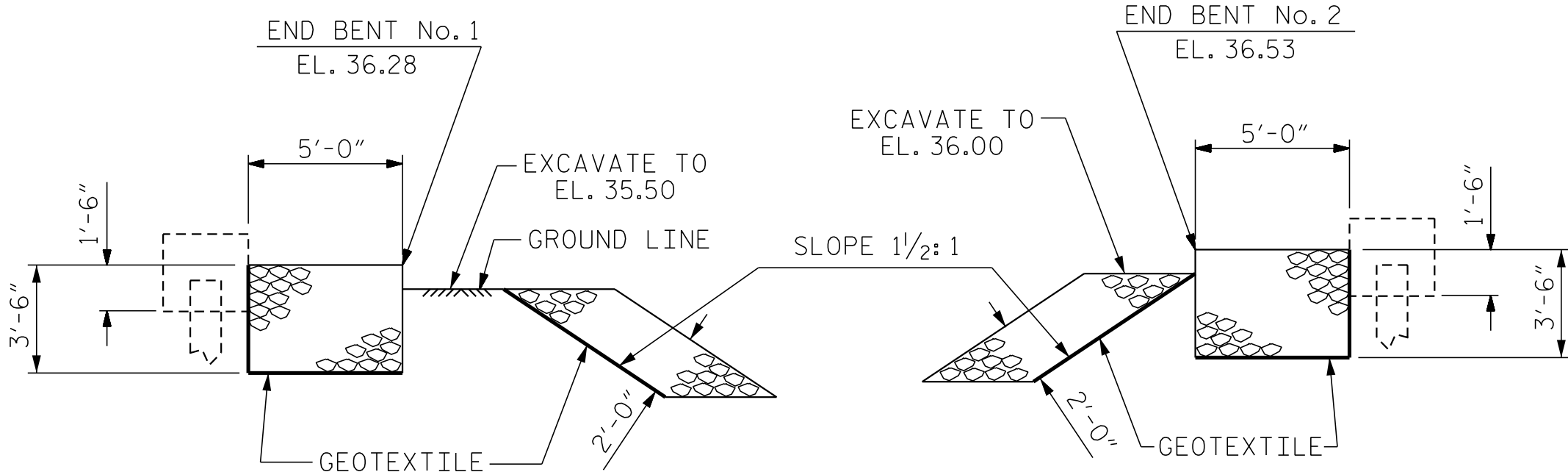


SECTION C-C

PROJECT NO. 17BP.6.R.79  
COLUMBUS COUNTY  
STATION: 13+51.00 -L-



SECTION H-H



END BENT No. 1

END BENT No. 2

Ⓚ SECTION  
BERM RIP RAPPED

|                                  |      |               |        |
|----------------------------------|------|---------------|--------|
| ASSEMBLED BY : J PENDERGRAFT/DAH |      | DATE : 3/17   |        |
| CHECKED BY : J DILWORTH          |      | DATE : 4/17   |        |
| DRAWN BY : REK                   | 1/84 | REV. 5/1/06R  | TLA/GM |
| CHECKED BY : RDU                 | 1/84 | REV. 10/1/11  | MAA/GM |
|                                  |      | REV. 12/21/11 | MAA/GM |

DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

ENGINEER OF RECORD

**SEAL**

22072  
5/22/2017

ENGINEER  
ARTHUR DILWORTH

DocuSigned by:  
John Arthur Dilworth  
021362289208488...

**WETHERILL ENGINEERING**

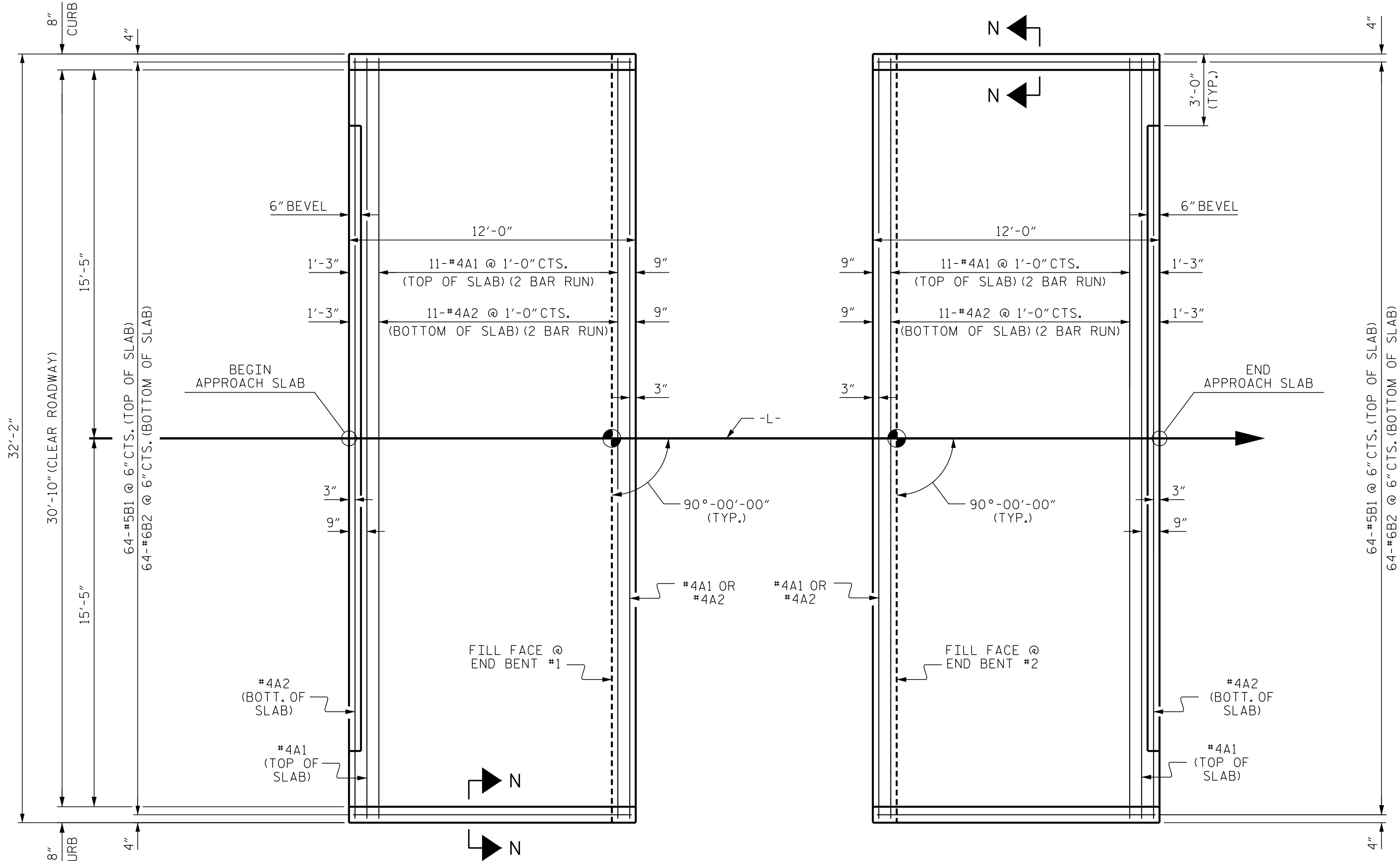
1223 Jones Franklin Rd.  
Raleigh, N.C. 27606  
Bus: 919 851 8077  
Fax: 919 851 8107  
LICENSE NO. F-4377

| REVISIONS    |     |       |     |     |       | SHEET NO. |
|--------------|-----|-------|-----|-----|-------|-----------|
| NO.          | BY: | DATE: | NO. | BY: | DATE: |           |
| 1            |     |       | 3   |     |       | S-12      |
| 2            |     |       | 4   |     |       |           |
| TOTAL SHEETS |     |       |     |     |       | 13        |

STD. NO. RR1

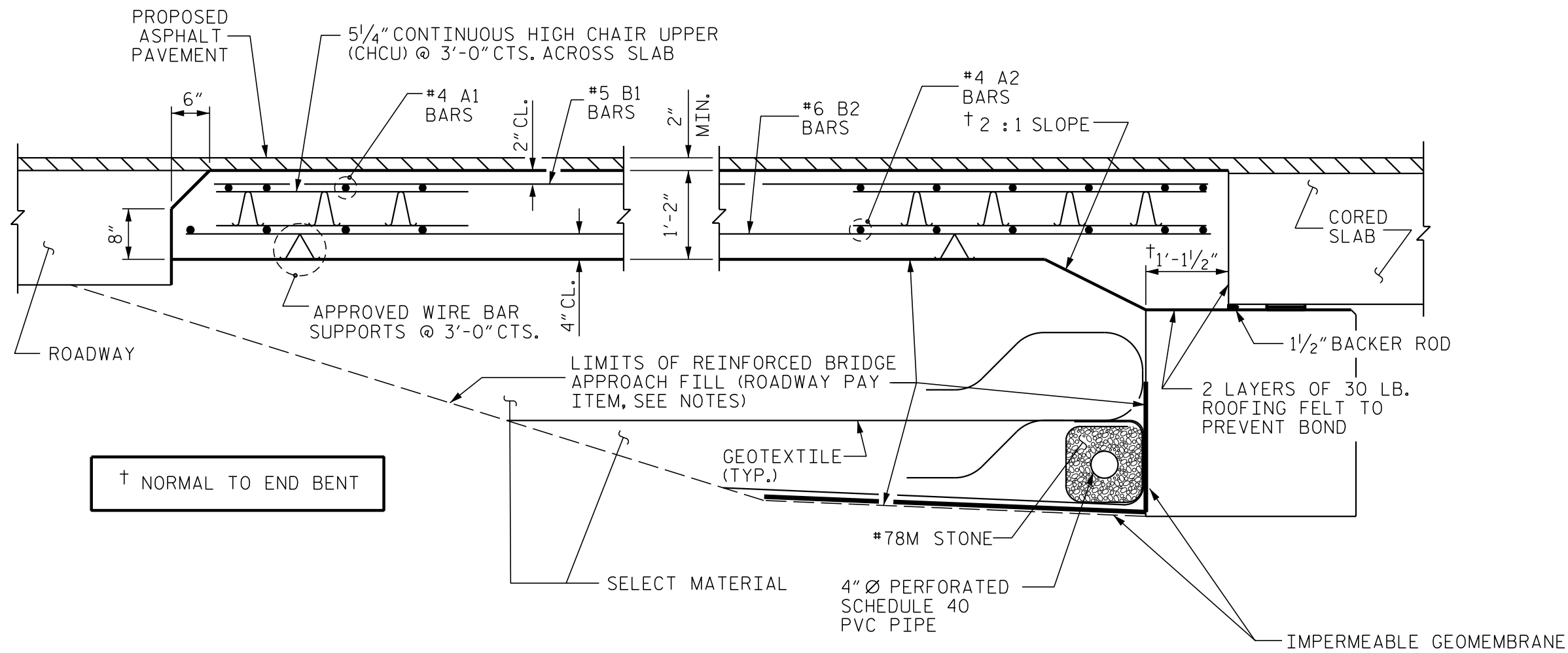


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5/17/2017 2:25:25 PM



PLAN @ END BENT #1 PLAN @ END BENT #2

DIMENSIONS SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS



SECTION THRU SLAB

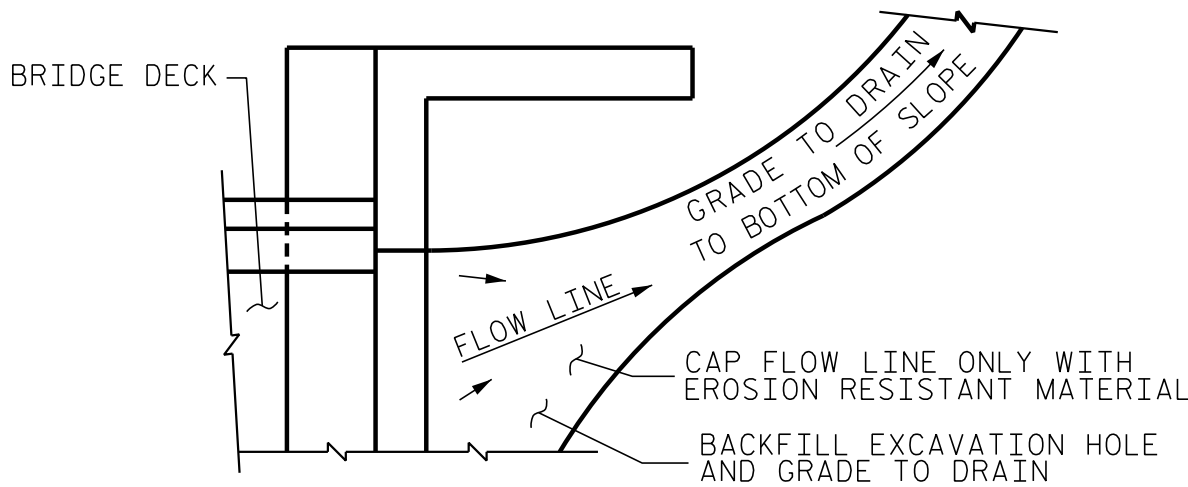
|                               |             |
|-------------------------------|-------------|
| ASSEMBLED BY : J. PENDERGRAFT | DATE : 3-17 |
| CHECKED BY : J. DILWORTH      | DATE : 3-17 |
| DRAWN BY : SHS/MAA            | 5-09        |
| CHECKED BY : BCH              | 5-09        |
| REV. 9-15                     | MAA/TMG     |

## NOTES

FOR REINFORCED BRIDGE APPROACH FILL INCLUDING GEOTEXTILE, IMPERMEABLE GEOMEMBRANE, 4"Ø DRAINAGE PIPE, #78M STONE, AND SELECT MATERIAL, SEE ROADWAY PLANS.

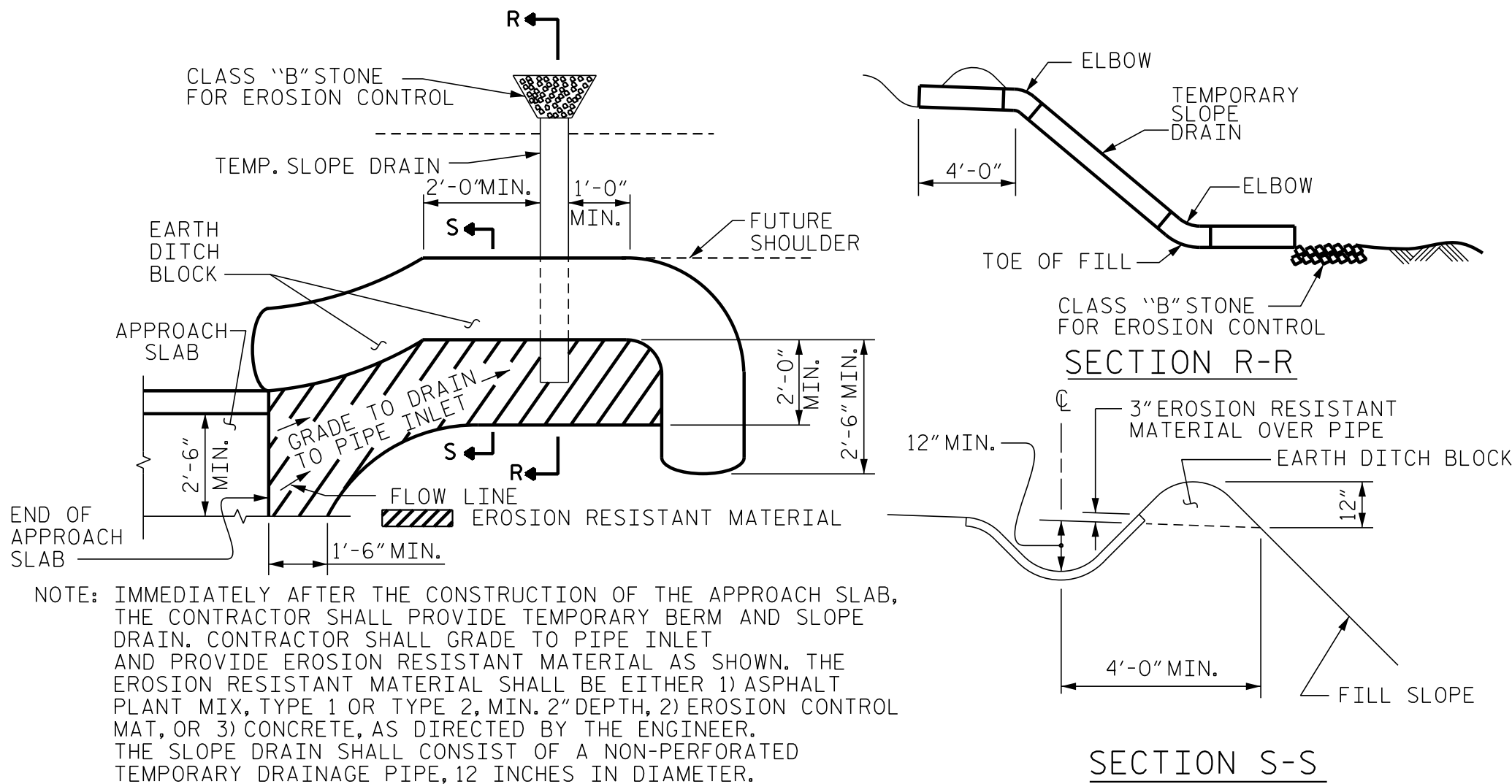
AREA BETWEEN THE WINGWALL AND APPROACH SLAB SHALL BE GRADED TO DRAIN THE WATER AWAY FROM THE FILL FACE OF THE BRIDGE AND SHALL BE PAVED. SEE ROADWAY PLANS.

APPROACH SLAB GROOVING IS NOT REQUIRED.



NOTE: IF THE APPROACH SLAB IS NOT CONSTRUCTED IMMEDIATELY AFTER THE BACKFILLING OF THE END BENT EXCAVATION, GRADE TO DRAIN TO THE BOTTOM OF THE SLOPE AND PROVIDE EROSION RESISTANT MATERIAL, SUCH AS FIBERGLASS ROVING OR AS DIRECTED BY THE ENGINEER TO PREVENT SOIL EROSION AND TO PROTECT THE AREA ADJACENT TO THE STRUCTURE. THE CONTRACTOR WILL BE REQUIRED TO REMOVE THESE MATERIALS PRIOR TO CONSTRUCTION OF THE APPROACH SLAB.

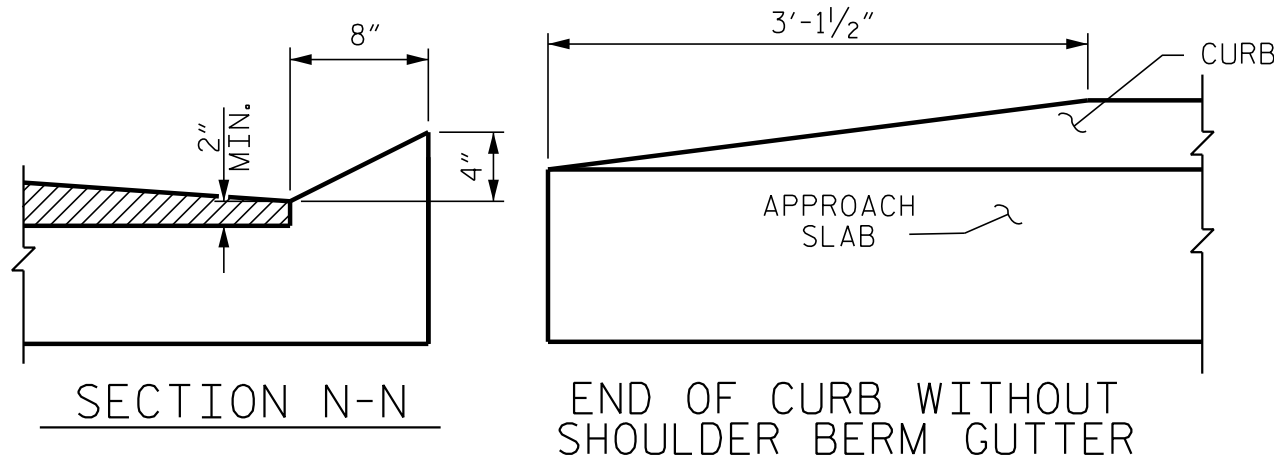
## TEMPORARY DRAINAGE DETAIL



## PLAN VIEW

## TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)



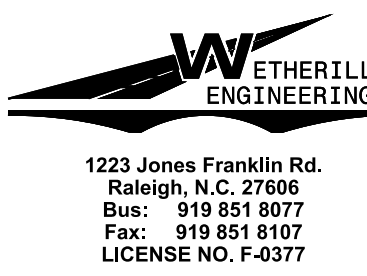
## CURB DETAILS

| SPlice LENGTHS |              |          |
|----------------|--------------|----------|
| BAR SIZE       | EPOXY COATED | UNCOATED |
| #4             | 2'-0"        | 1'-9"    |
| #5             | 2'-6"        | 2'-2"    |
| #6             | 3'-10"       | 2'-7"    |

DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

| BILL OF MATERIAL                 |     |      |      |         |        |
|----------------------------------|-----|------|------|---------|--------|
| APPROACH SLAB AT EB #1           |     |      |      |         |        |
| BAR                              | NO. | SIZE | TYPE | LENGTH  | WEIGHT |
| * A1                             | 26  | #4   | STR  | 16'-11" | 294    |
| A2                               | 26  | #4   | STR  | 16'-9"  | 291    |
| * B1                             | 64  | #5   | STR  | 11'-2"  | 745    |
| B2                               | 64  | #6   | STR  | 11'-8"  | 1121   |
| REINFORCING STEEL                |     |      |      | LBS.    | 1412   |
| * EPOXY COATED REINFORCING STEEL |     |      |      | LBS.    | 1039   |
| CLASS AA CONCRETE                |     |      |      | C. Y.   | 19.5   |
| APPROACH SLAB AT EB #2           |     |      |      |         |        |
| BAR                              | NO. | SIZE | TYPE | LENGTH  | WEIGHT |
| * A1                             | 26  | #4   | STR  | 16'-11" | 294    |
| A2                               | 26  | #4   | STR  | 16'-9"  | 291    |
| * B1                             | 64  | #5   | STR  | 11'-2"  | 745    |
| B2                               | 64  | #6   | STR  | 11'-8"  | 1121   |
| REINFORCING STEEL                |     |      |      | LBS.    | 1412   |
| * EPOXY COATED REINFORCING STEEL |     |      |      | LBS.    | 1039   |
| CLASS AA CONCRETE                |     |      |      | C. Y.   | 19.5   |

PROJECT NO. 17BP.6.R.79  
COLUMBUS COUNTY  
STATION: 13+51.00 -L-



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
STANDARD  
BRIDGE APPROACH SLAB  
FOR PRESTRESSED CONCRETE  
CORED SLAB UNIT  
(SUB-REGIONAL TIER)  
90° SKEW

| REVISIONS |     |       |     | SHEET NO.    |       |
|-----------|-----|-------|-----|--------------|-------|
| NO.       | BY: | DATE: | NO. | BY:          | DATE: |
| 1         |     |       | 3   |              |       |
| 2         |     |       | 4   |              |       |
|           |     |       |     | TOTAL SHEETS | 13    |

STD. NO. BAS\_33\_90S



STANDARD NOTES

DESIGN DATA:

|                                                 |           |                                  |
|-------------------------------------------------|-----------|----------------------------------|
| SPECIFICATIONS                                  | - - - - - | A.A.S.H.T.O. (CURRENT)           |
| LIVE LOAD                                       | - - - - - | SEE PLANS                        |
| IMPACT ALLOWANCE                                | - - - - - | SEE A.A.S.H.T.O.                 |
| STRESS IN EXTREME FIBER OF                      |           |                                  |
| STRUCTURAL STEEL - AASHTO M270 GRADE 36         | -         | 20,000 LBS. PER SQ. IN.          |
| - AASHTO M270 GRADE 50W                         | -         | 27,000 LBS. PER SQ. IN.          |
| - AASHTO M270 GRADE 50                          | -         | 27,000 LBS. PER SQ. IN.          |
| REINFORCING STEEL IN TENSION                    |           |                                  |
| GRADE 60                                        | - -       | 24,000 LBS. PER SQ. IN.          |
| CONCRETE IN COMPRESSION                         | - - - - - | 1,200 LBS. PER SQ. IN.           |
| CONCRETE IN SHEAR                               | - - - - - | SEE A.A.S.H.T.O.                 |
| STRUCTURAL TIMBER - TREATED OR                  |           |                                  |
| UNTREATED - EXTREME FIBER STRESS                | - - - - - | 1,800 LBS. PER SQ. IN.           |
| COMPRESSION PERPENDICULAR TO GRAIN<br>OF TIMBER | - - - -   | 375 LBS. PER SQ. IN.             |
| EQUIVALENT FLUID PRESSURE OF EARTH              | - - - - - | 30 LBS. PER CU. FT.<br>(MINIMUM) |

MATERIAL AND WORKMANSHIP:

EXCEPT AS MAY OTHERWISE BE SPECIFIED ON PLANS OR IN THE SPECIAL PROVISIONS, ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE 2012 "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" OF THE N. C. DEPARTMENT OF TRANSPORTATION.

STEEL SHEET PILING FOR PERMANENT OR TEMPORARY APPLICATIONS SHALL BE HOT ROLLED.

CONCRETE:

UNLESS OTHERWISE REQUIRED ON PLANS, CLASS A CONCRETE SHALL BE USED FOR ALL PORTIONS OF ALL STRUCTURES WITH THE EXCEPTION THAT: CLASS AA CONCRETE SHALL BE USED IN BRIDGE SUPERSTRUCTURES, ABUTMENT BACKWALLS, AND APPROACH SLABS; AND CLASS B CONCRETE SHALL BE USED FOR SLOPE PROTECTION AND RIP RAP.

CONCRETE CHAMFERS:

UNLESS OTHERWISE NOTED ON THE PLANS, ALL EXPOSED CORNERS ON STRUCTURES SHALL BE CHAMFERED 3/4" WITH THE FOLLOWING EXCEPTIONS: TOP CORNERS OF CURBS MAY BE ROUNDED TO 1-1/2" RADIUS WHICH IS BUILT INTO CURB FORMS; CORNERS OF TRANSVERSE FLOOR EXPANSION JOINTS SHALL BE ROUNDED WITH A 1/4" FINISHING TOOL UNLESS OTHERWISE REQUIRED ON PLANS; AND CORNERS OF EXPANSION JOINTS IN THE ROADWAY FACES AND TOPS OF CURBS AND SIDEWALKS SHALL BE ROUNDED TO A 1/4" RADIUS WITH A FINISHING STONE OR TOOL UNLESS OTHERWISE REQUIRED ON PLANS.

DOWELS:

DOWELS WHEN INDICATED ON PLANS AS FOR CULVERT EXTENSIONS, SHALL BE EMBEDDED AT LEAST 12" INTO THE OLD CONCRETE AND GROUTED INTO PLACE WITH 1:2 CEMENT MORTAR.

ALLOWANCE FOR DEAD LOAD DEFLECTION, SETTLEMENT, ETC. IN CASTING SUPERSTRUCTURES:

BRIDGES SHALL BE BUILT ON THE GRADE OR VERTICAL CURVE SHOWN ON PLANS. SLABS, CURBS AND PARAPETS SHALL CONFORM TO THE GRADE OR CURVE. ALL DIMENSIONS WHICH ARE GIVEN IN SECTION AND ARE AFFECTED BY DEAD LOAD DEFLECTIONS ARE DIMENSIONS AT CENTER LINE OF BEARING UNLESS OTHERWISE NOTED ON PLANS. IN SETTING FORMS FOR STEEL BEAM BRIDGES AND PRESTRESSED CONCRETE GIRDER BRIDGES, ADJUSTMENTS SHALL BE MADE DUE TO THE DEAD LOAD DEFLECTIONS FOR THE ELEVATIONS SHOWN. WHERE BLOCKS ARE SHOWN OVER BEAMS FOR BUILDING UP TO THE SLAB, THE VERTICAL DIMENSIONS OF THE BLOCKS SHALL BE ADJUSTED BETWEEN BEARINGS TO COMPENSATE FOR DEAD LOAD DEFLECTIONS, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER. WHERE BOTTOM OF SLAB IS IN LINE WITH BOTTOM OF TOP FLANGES, DEPTH OF SLAB BETWEEN BEARINGS SHALL BE ADJUSTED TO COMPENSATE FOR DEAD LOAD DEFLECTION, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER. IN SETTING FALSEWORK AND FORMS FOR REINFORCED CONCRETE SPANS, AN ALLOWANCE SHALL BE MADE FOR DEAD LOAD DEFLECTIONS, SETTLEMENT OF FALSEWORK, AND PERMANENT CAMBER WHICH SHALL BE PROVIDED FOR IN ADDITION TO THE ELEVATIONS SHOWN. AFTER REMOVAL OF THE FALSEWORK, THE FINISHED STRUCTURES SHALL CONFORM TO THE PROFILE AND ELEVATIONS SHOWN ON THE PLANS AND CONSTRUCTION ELEVATIONS FURNISHED BY THE ENGINEER. DETAILED DRAWINGS FOR FALSEWORK OR FORMS FOR BRIDGE SUPERSTRUCTURE AND ANY STRUCTURE OR PARTS OF A STRUCTURE AS NOTED ON THE PLANS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL BEFORE CONSTRUCTION OF THE FALSEWORK OR FORMS IS STARTED.

REINFORCING STEEL:

ALL REINFORCING STEEL SHALL BE DEFORMED. DIMENSIONS RELATIVE TO PLACEMENT OF REINFORCING ARE TO CENTERS OF BARS UNLESS OTHERWISE INDICATED IN THE PLANS. DIMENSIONS ON BAR DETAILS ARE TO CENTERS OF BARS OR ARE OUT TO OUT AS INDICATED ON PLANS. WIRE BAR SUPPORTS SHALL BE PROVIDED FOR REINFORCING STEEL WHERE INDICATED ON THE PLANS. WHEN BAR SUPPORT PIECES ARE PLACED IN CONTINUOUS LINES, THEY SHALL BE SO PLACED THAT THE ENDS OF THE SUPPORTING WIRES SHALL BE LAPPED TO LOCK LEGS ON ADJOINING PIECES.

STRUCTURAL STEEL:

AT THE CONTRACTOR'S OPTION, HE MAY SUBSTITUTE 7/8" Ø SHEAR STUDS FOR THE 3/4" Ø STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 - 7/8" Ø STUDS FOR 4 - 3/4" Ø STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF 7/8" Ø STUDS ALONG THE BEAM AS SHOWN FOR 3/4" Ø STUDS BASED ON THE RATIO OF 3 - 7/8" Ø STUDS FOR 4 - 3/4" Ø STUDS. STUDS OF THE LENGTH SPECIFIED ON THE PLANS MUST BE PROVIDED. THE MAXIMUM SPACING SHALL BE 2'-0". EXCEPT AT THE INTERIOR SUPPORTS OF CONTINUOUS BEAMS WHERE THE COVER PLATE IS IN CONTACT WITH BEARING PLATE, THE CONTRACTOR MAY, AT HIS OPTION, SUBSTITUTE FOR THE COVER PLATES DESIGNATED ON THE PLANS COVER PLATES OF THE EQUIVALENT AREA PROVIDED THESE PLATES ARE AT LEAST 5/16" IN THICKNESS AND DO NOT EXCEED A WIDTH EQUAL TO THE FLANGE WIDTH LESS 2" OR A THICKNESS EQUAL TO 2 TIMES THE FLANGE THICKNESS. THE SIZE OF FILLET WELDS SHALL CONFORM TO THE REQUIREMENTS OF THE CURRENT ANSI/AASHTO/AWS "BRIDGE WELDING CODE". ELECTROSLAG WELDING WILL NOT BE PERMITTED. WITH THE SOLE EXCEPTION OF EDGES AT SURFACES WHICH BEAR ON OTHER SURFACES, ALL SHARP EDGES AND ENDS OF SHAPES AND PLATES SHALL BE SLIGHTLY ROUNDED BY SUITABLE MEANS TO A RADIUS OF APPROXIMATELY 1/16 INCH OR EQUIVALENT FLAT SURFACE AT A SUITABLE ANGLE PRIOR TO PAINTING, GALVANIZING, OR METALLIZING.

HANDRAILS AND POSTS:

METAL STANDARDS AND FACES OF THE CONCRETE END POSTS FOR THE METAL RAIL SHALL BE SET NORMAL TO THE GRADE OF THE CURB, UNLESS OTHERWISE SHOWN ON PLANS. THE METAL RAIL AND TOPS OF CONCRETE POSTS USED WITH THE ALUMINUM RAIL SHALL BE BUILT PARALLEL TO THE GRADE OF THE CURB. METAL HANDRAILS SHALL BE IN ACCORDANCE WITH THE PLANS. RAILS SHALL BE AS MANUFACTURED FOR BRIDGE RAILING. CASTINGS SHALL BE OF A UNIFORM APPEARANCE. FINIS AND OTHER DEFORMATIONS RESULTING FROM CASTING OR OTHERWISE SHALL BE REMOVED IN A MANNER SO THAT A UNIFORM COLORING OF THE COMPLETED CASTING SHALL BE OBTAINED. CASTINGS WITH DISCOLORATIONS OR OF NON-UNIFORM COLORING WILL NOT BE ACCEPTED. CERTIFIED MILL REPORTS ARE REQUIRED FOR METAL RAILS AND POSTS.

SPECIAL NOTES:

GENERALLY, IN CASE OF DISCREPANCY, THIS STANDARD SHEET OF NOTES SHALL GOVERN OVER THE SPECIFICATIONS, BUT THE REMAINDER OF THE PLANS SHALL GOVERN OVER NOTES HEREON, AND SPECIAL PROVISIONS SHALL GOVERN OVER ALL. SEE SPECIFICATIONS ARTICLE 105-4.

ENGLISH

JANUARY, 1990

STD. NO. SN