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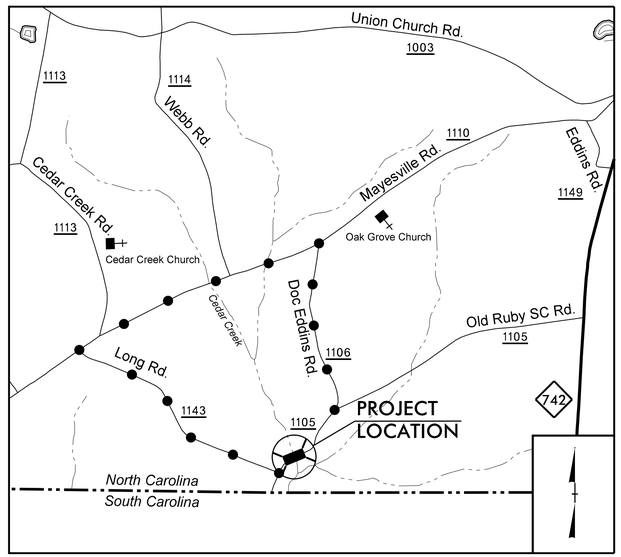
09/08/99

STATE PROJECT: 17BP.10.R.58

CONTRACT: DJ00232

See Sheet 1A For Index of Sheets



DETOUR ROUTE

VICINITY MAP
(NOT TO SCALE)

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

ANSON COUNTY

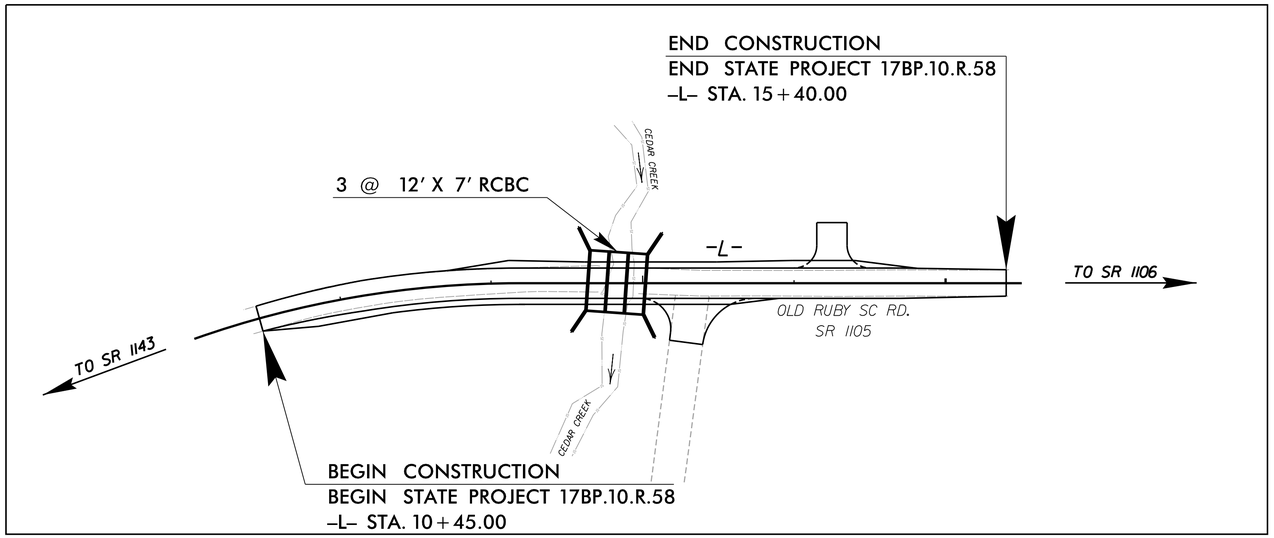
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.10.R.58	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
17BP.10.R.58		P.E., R/W, CONSTR.

LOCATION: BRIDGE NO. 86 ON SR 1105 OVER CEDAR CREEK BETWEEN SR 1143 AND SR 1106

TYPE OF WORK: GRADING, DRAINAGE, PAVING AND STRUCTURE

NAD 83/
NA 2011



LOCATION SKETCH

HDR Engineering, Inc. of the Carolinas
555 Fayetteville St, Suite 900 Raleigh, N.C. 27601
N.C.B.E.L.S. License Number: F-0116

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES

PLANS: 20 10 0 20 40

PROFILE (HORIZONTAL): 20 10 0 20 40

PROFILE (VERTICAL): 4 2 0 4 8

DESIGN DATA

ADT 2011 = 110
ADT 2025 = 220
DHV = %
D = %
T = 6 %
V = 55 MPH

FUNC CLASS =
LOCAL RURAL
SUBREGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY STATE PROJECT 17BP.10.R.58 = 0.087 MILES

LENGTH STRUCTURES STATE PROJECT 17BP.10.R.58 = 0.007 MILES

TOTAL LENGTH STATE PROJECT 17BP.10.R.58 = 0.094 MILES

Prepared for the Office of:
DIVISION OF HIGHWAYS
1000 Birch Ridge Dr., Raleigh NC, 27610

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
MAY 22, 2015

LETTING DATE:
OCTOBER 4, 2017

DOMINIC M. WAINWRIGHT, P.E.
PROJECT ENGINEER

JAMES R. RICE, P.E.
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER
8/29/2017
DocuSigned by: 082E8F7759FE47A...
NORTH CAROLINA PROFESSIONAL SEAL 31986 ENGINEER JAMES R. RICE
P.E.
SIGNATURE:

ROADWAY DESIGN ENGINEER
8/29/2017
DocuSigned by: Dominic M. Wainwright 7EC83DF0FA4543D...
NORTH CAROLINA PROFESSIONAL SEAL 026441 ENGINEER DOMINIC M. WAINWRIGHT
P.E.
SIGNATURE:

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

LOUIS MITCHELL P.E.
DIVISION ENGINEER

8/29/2017
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8/17/99

PROJECT REFERENCE NO.	SHEET NO.
17BP.10.R.58	1A

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 026441 ENGINEER DOMINIC M. WAINWRIGHT 8/29/2017

DocuSigned by: Dominic M. Wainwright

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HDR Engineering, Inc. of the Carolinas
555 Fayetteville St, Suite 900 Raleigh, N.C. 27601
N.C.B.E.L.S. License Number: F-0116

INDEX OF SHEETS

EFF. 01-17-2012
REV. 02-29-2016

2012 ROADWAY ENGLISH STANDARD DRAWINGS

The following Roadway Standards as appear in "Roadway Standard Drawings" Highway Design Branch - N. C. Department of Transportation - Raleigh, N. C., Dated January, 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
310.10	Driveway Pipe Construction
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
DIVISION 8 - INCIDENTALS	
848.02	Driveway Turnout - Radius Type
876.01	Rip Rap in Channels
876.04	Drainage Ditches with Class 'B' Rip Rap

GENERAL NOTES:

2012 SPECIFICATIONS
EFFECTIVE: 01-17-2012
REVISED: 01-24-2017

GRADE LINE:
GRADING AND SURFACING:

THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. GRADE LINES MAY BE ADJUSTED AT THEIR BEGINNING AND ENDING AND AT STRUCTURES AS DIRECTED BY THE ENGINEER IN ORDER TO SECURE A PROPER TIE-IN.

CLEARING:

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

SUPERELEVATION:

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

SHOULDER CONSTRUCTION:

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

SIDE ROADS:

THE CONTRACTOR WILL BE REQUIRED TO DO ALL NECESSARY WORK TO PROVIDE SUITABLE CONNECTIONS WITH ALL ROADS, STREETS, AND DRIVES ENTERING THIS PROJECT. THIS WORK WILL BE PAID FOR AT THE CONTRACT UNIT PRICE FOR THE PARTICULAR ITEMS INVOLVED.

DRIVEWAYS:

DRIVEWAYS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. 848.02 USING 15 FOOT RADII OR RADII AS SHOWN ON THE PLANS. LOCATIONS OF DRIVES WILL BE AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

GUARDRAIL:

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

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE WINDSTREAM AND PEE DEE EMC.

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.

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PROJECT REFERENCE NO.	SHEET NO.
17BP.10.R.58	1B

STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

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

BOUNDARIES AND PROPERTY:

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

BUILDINGS AND OTHER CULTURE:

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

HYDROLOGY:

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

RAILROADS:

- Standard Gauge — CSX TRANSPORTATION
- RR Signal Milepost — MILEPOST 35
- Switch — SWITCH
- RR Abandoned
- RR Dismantled

RIGHT OF WAY:

- Baseline Control Point
- Existing Right of Way Marker
- Existing Right of Way Line
- Proposed Right of Way Line — RW
- Proposed Right of Way Line with Iron Pin and Cap Marker — RW
- Proposed Right of Way Line with Concrete or Granite R/W Marker — RW
- Proposed Control of Access Line with Concrete C/A Marker — CA
- Existing Control of Access — CA
- Proposed Control of Access — CA
- Existing Easement Line — E
- Proposed Temporary Construction Easement — E
- Proposed Temporary Drainage Easement — TDE
- Proposed Permanent Drainage Easement — PDE
- Proposed Permanent Drainage / Utility Easement — DUE
- Proposed Permanent Utility Easement — PUE
- Proposed Temporary Utility Easement — TUE
- Proposed Aerial Utility Easement — AUE
- Proposed Permanent Easement with Iron Pin and Cap Marker

ROADS AND RELATED FEATURES:

- Existing Edge of Pavement
- Existing Curb
- Proposed Slope Stakes Cut — C
- Proposed Slope Stakes Fill — F
- Proposed Curb Ramp — CR
- Existing Metal Guardrail
- Proposed Guardrail
- Existing Cable Guiderail
- Proposed Cable Guiderail
- Equality Symbol
- Pavement Removal

VEGETATION:

- Single Tree
- Single Shrub
- Hedge
- Woods Line
- Orchard
- Vineyard — Vineyard

EXISTING STRUCTURES:

MAJOR:

- Bridge, Tunnel or Box Culvert — CONC
- Bridge Wing Wall, Head Wall and End Wall — CONC WW

MINOR:

- Head and End Wall — CONC HW
- Pipe Culvert
- Footbridge
- Drainage Box: Catch Basin, DI or JB — CB
- Paved Ditch Gutter
- Storm Sewer Manhole — S
- Storm Sewer — S

UTILITIES:

POWER:

- Existing Power Pole
- Proposed Power Pole
- Existing Joint Use Pole
- Proposed Joint Use Pole
- Power Manhole — P
- Power Line Tower
- Power Transformer
- U/G Power Cable Hand Hole
- H-Frame Pole
- U/G Power Line LOS B (S.U.E.*) — P
- U/G Power Line LOS C (S.U.E.*) — P
- U/G Power Line LOS D (S.U.E.*) — P

TELEPHONE:

- Existing Telephone Pole
- Proposed Telephone Pole
- Telephone Manhole — T
- Telephone Pedestal — T
- Telephone Cell Tower
- U/G Telephone Cable Hand Hole — HH
- U/G Telephone Cable LOS B (S.U.E.*) — T
- U/G Telephone Cable LOS C (S.U.E.*) — T
- U/G Telephone Cable LOS D (S.U.E.*) — T
- U/G Telephone Conduit LOS B (S.U.E.*) — TC
- U/G Telephone Conduit LOS C (S.U.E.*) — TC
- U/G Telephone Conduit LOS D (S.U.E.*) — TC
- U/G Fiber Optics Cable LOS B (S.U.E.*) — T FO
- U/G Fiber Optics Cable LOS C (S.U.E.*) — T FO
- U/G Fiber Optics Cable LOS D (S.U.E.*) — T FO

WATER:

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

TV:

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

GAS:

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

SANITARY SEWER:

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

MISCELLANEOUS:

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

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PROJECT REFERENCE NO.	SHEET NO.
17BPJ0.R.58	2A-1
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 026441 ENGINEER DOMINIC M. WAINWRIGHT

8/29/2017

DocuSigned by: Dominic M. Wainwright 7EC83DF0FA4543D...

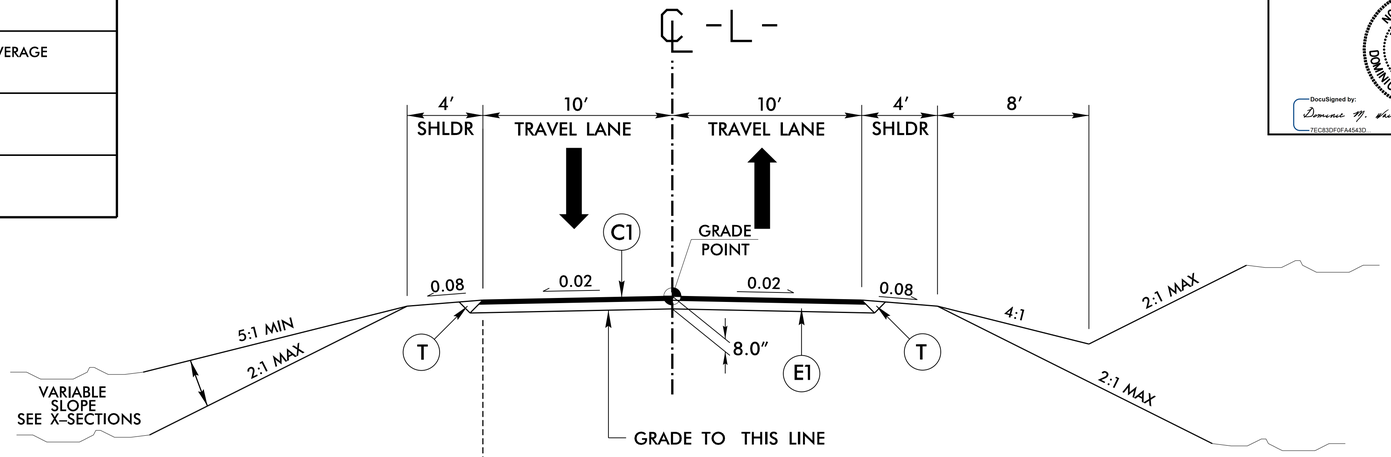
REVISIONS

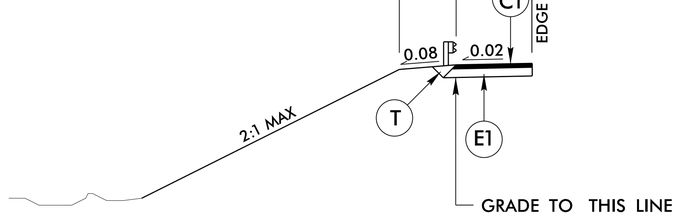
8/17/99

PAVEMENT SCHEDULE

C1	PROP. APPROX. 2.5" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 Lbs PER SQUARE YARD IN EACH OF TWO LAYERS.
E1	PROP. APPROX. 5.5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 627 Lbs PER SQUARE YARD.
T	EARTH MATERIAL
V	8" INCIDENTAL STONE BASE

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





F.D.P.S. = FULL DEPTH PAVED SHOULDER

TYPICAL SECTION NO. 1

LINE	FROM STATION	TO STATION
-L-	10+45.00	15+40.00

NOTE: PAVE DRIVEWAYS AT -L- STA. 13+32 RT AND -L- STA. 14+25 LT WITH (V) BEYOND FULL DEPTH PAVED SHOULDER LIMITS.

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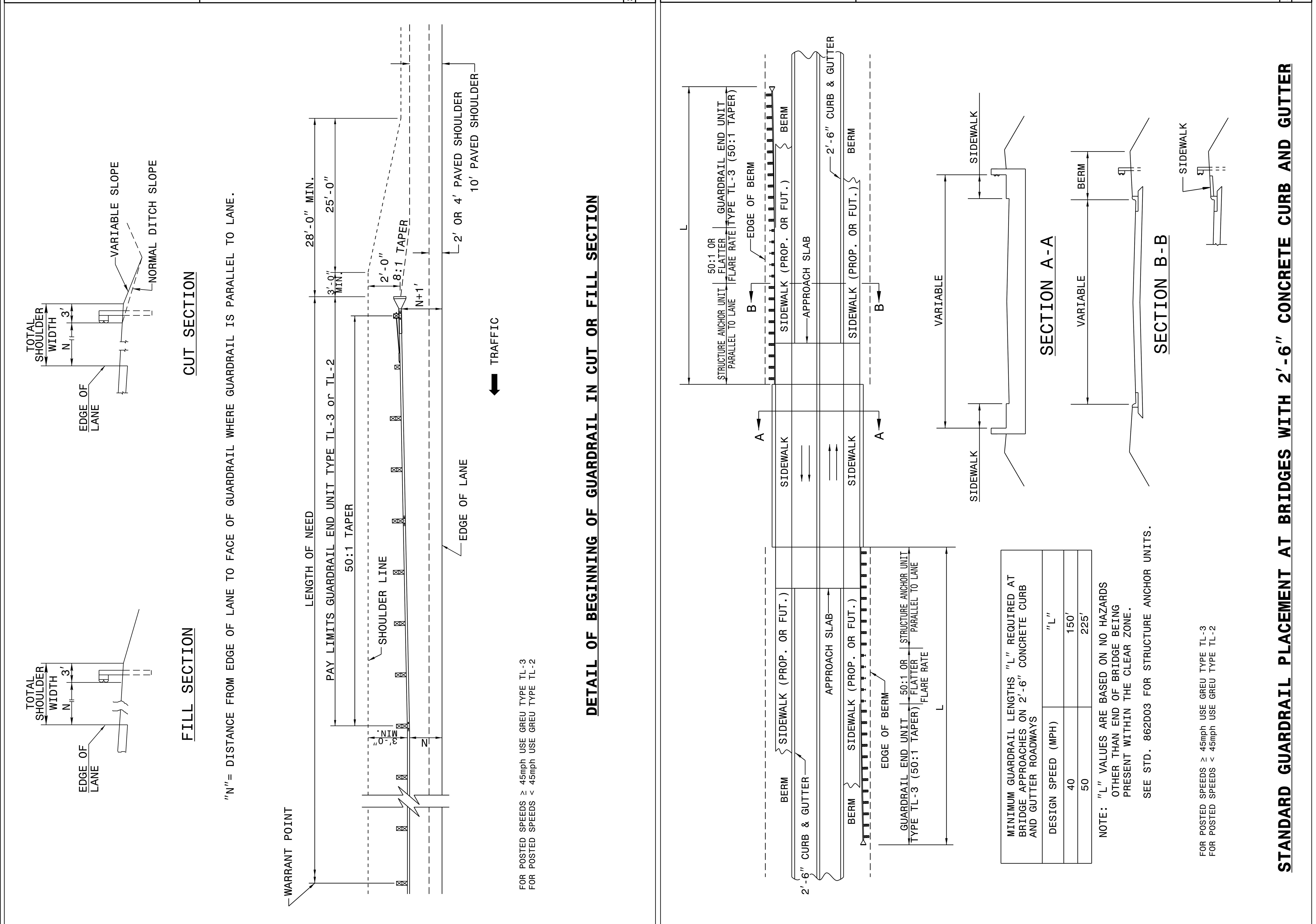
PROJECT REFERENCE NO.	SHEET NO.
17BP.10.R.58	2C-1

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.
ROADWAY DETAIL DRAWING FOR GUARDRAIL PLACEMENT
SHEET 6 OF 11 862D01
STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.
ROADWAY DETAIL DRAWING FOR GUARDRAIL PLACEMENT
SHEET 5 OF 11 862D01


CUT SECTION
FILL SECTION
TOTAL SHOULDER WIDTH
N
3'
EDGE OF LANE
VARIABLE SLOPE
NORMAL DITCH SLOPE
"N"= DISTANCE FROM EDGE OF LANE TO FACE OF GUARDRAIL WHERE GUARDRAIL IS PARALLEL TO LANE.
WARRANT POINT
LENGTH OF NEED
28'-0" MIN.
25'-0"
PAY LIMITS GUARDRAIL END UNIT TYPE TL-3 or TL-2
50:1 TAPER
3'-0" MIN.
2'-0"
8:1 TAPER
N+1'
N
SHOULDER LINE
EDGE OF LANE
2' OR 4' PAVED SHOULDER
10' PAVED SHOULDER
TRAFFIC
FOR POSTED SPEEDS ≥ 45mph USE GREU TYPE TL-3
FOR POSTED SPEEDS < 45mph USE GREU TYPE TL-2
DETAIL OF BEGINNING OF GUARDRAIL IN CUT OR FILL SECTION
L
STRUCTURE ANCHOR UNIT PARALLEL TO LANE
50:1 OR FLATTER FLARE RATE
GUARDRAIL END UNIT TYPE TL-3 (50:1 TAPER)
EDGE OF BERM
BERM
2'-6" CURB & GUTTER
SIDEWALK (PROP. OR FUT.)
APPROACH SLAB
SIDEWALK
A
B
SECTION A-A
SECTION B-B
VARIABLE
MINIMUM GUARDRAIL LENGTHS "L" REQUIRED AT BRIDGE APPROACHES ON 2'-6" CONCRETE CURB AND GUTTER ROADWAYS
DESIGN SPEED (MPH) | "L"
40 | 150'
50 | 225'
NOTE: "L" VALUES ARE BASED ON NO HAZARDS OTHER THAN END OF BRIDGE BEING PRESENT WITHIN THE CLEAR ZONE.
SEE STD. 862D03 FOR STRUCTURE ANCHOR UNITS.
STANDARD GUARDRAIL PLACEMENT AT BRIDGES WITH 2'-6" CONCRETE CURB AND GUTTER

8/31/2017

SEAL 022966 NORTH CAROLINA PROFESSIONAL ENGINEER Joel S. Howerton

DocuSigned by: Joel S. Howerton 873F3D17DCDC45F...

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

ROADWAY DETAIL DRAWING FOR
GUARDRAIL PLACEMENT

SHEET 6 OF 11 **862D01**

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

ROADWAY DETAIL DRAWING FOR
GUARDRAIL PLACEMENT

SHEET 5 OF 11 **862D01**

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.:

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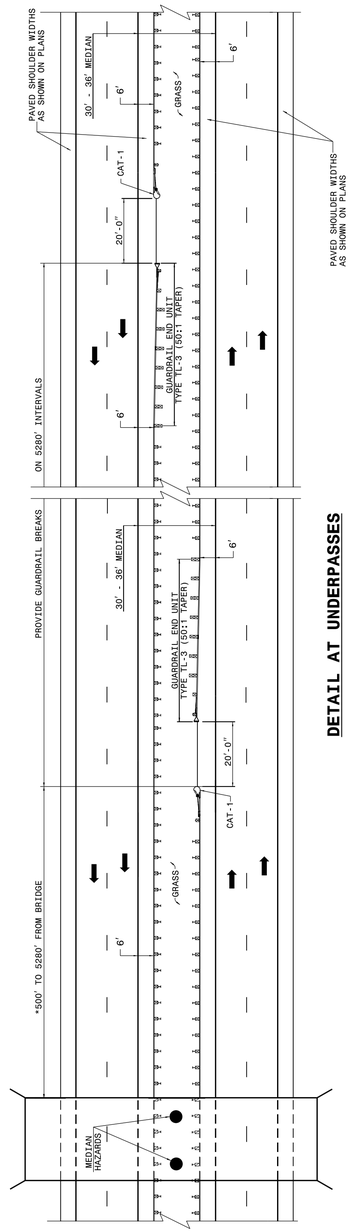
jhowerton AT CSD-292595

PROJECT REFERENCE NO.	SHEET NO.
17BP.10.R.58	2C-2

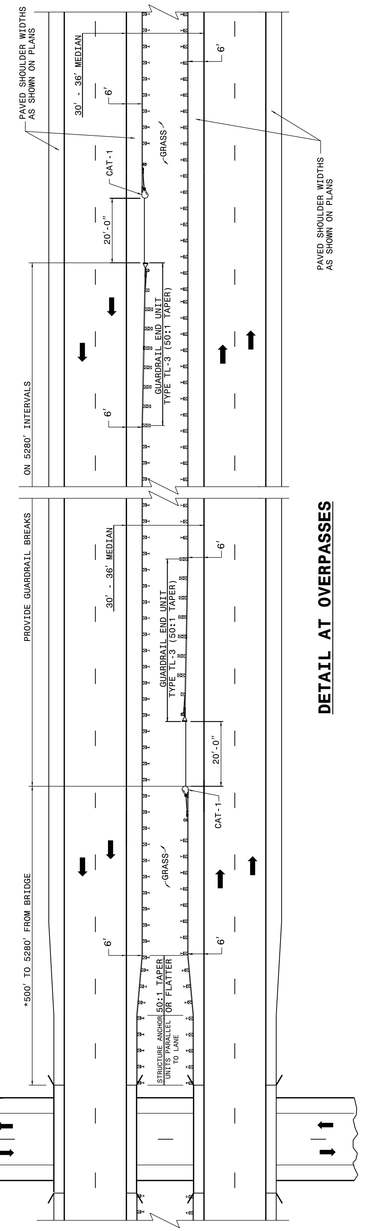
STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ROADWAY DETAIL DRAWING FOR
GUARDRAIL PLACEMENT

SHEET 7 OF 11
862D01



DETAIL AT UNDERPASSES



DETAIL AT OVERPASSES

* GUARDRAIL OPENING MAY BE SPACED AS CLOSE AS 350 FT. FROM STRUCTURE IF NECCESSARY TO ALLOW MOWER ACCESS TO MEDIAN

FOR POSTED SPEEDS ≥ 45mph USE GREU TYPE TL-3
FOR POSTED SPEEDS < 45mph USE GREU TYPE TL-2

GUARDRAIL BREAK INTERVALS WITH 30' - 36' MEDIANS

STATE OF
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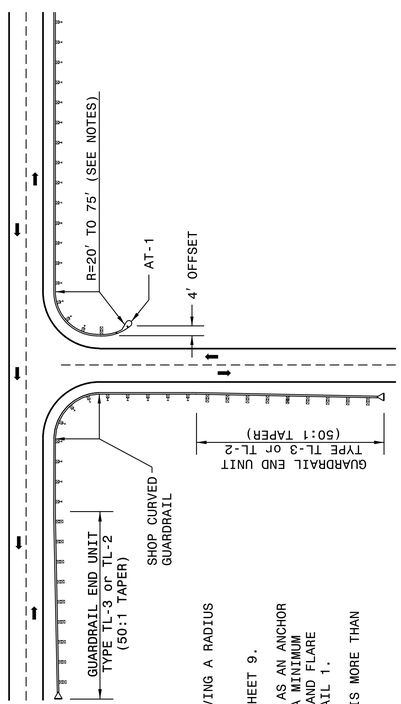
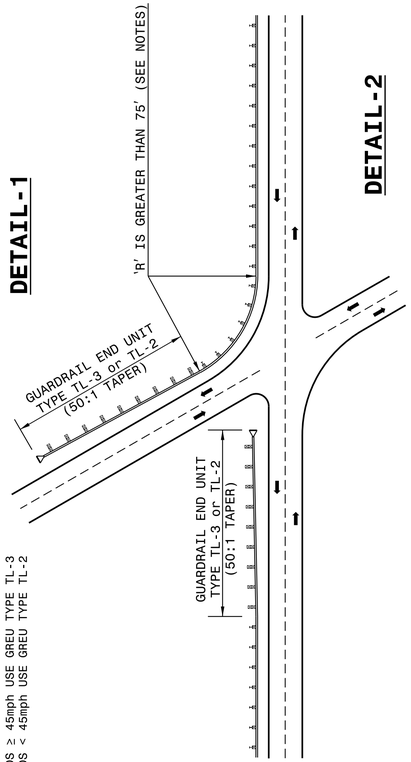
RALEIGH, N.C.

ROADWAY DETAIL DRAWING FOR
GUARDRAIL PLACEMENT

SHEET 8 OF 11
862D01



DETAIL-1



DETAIL-2

NOTES:

SHOP CURVED GUARDRAIL IS DEFINED AS HAVING A RADIUS OF 150' OR LESS.

WHEN RADIUS IS LESS THAN 20' REFER TO SHEET 9.

WHENEVER SHOP CURVED GUARDRAIL IS USED AS AN ANCHOR AND THE RADIUS IS FROM 20' TO 75', USE A MINIMUM LENGTH OF 50' OF SHOP CURVED GUARDRAIL AND FLARE WITH AN AT-1 ANCHOR UNIT. REFER TO DETAIL 1.

WHENEVER SHOP CURVED GUARDRAIL RADIUS IS MORE THAN 75', REFER TO DETAIL 2.

MAINTAIN CLEAR SIGHT DISTANCE.

FOR POSTED SPEEDS ≥ 45mph USE GREU TYPE TL-3
FOR POSTED SPEEDS < 45mph USE GREU TYPE TL-2

GUARDRAIL TREATMENT AT INTERSECTIONS

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

ROADWAY DETAIL DRAWING FOR
GUARDRAIL PLACEMENT

SHEET 8 OF 11
862D01

8/31/2017

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER Joel S. Howerton

DocuSigned by:
Joel S. Howerton
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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.: _____

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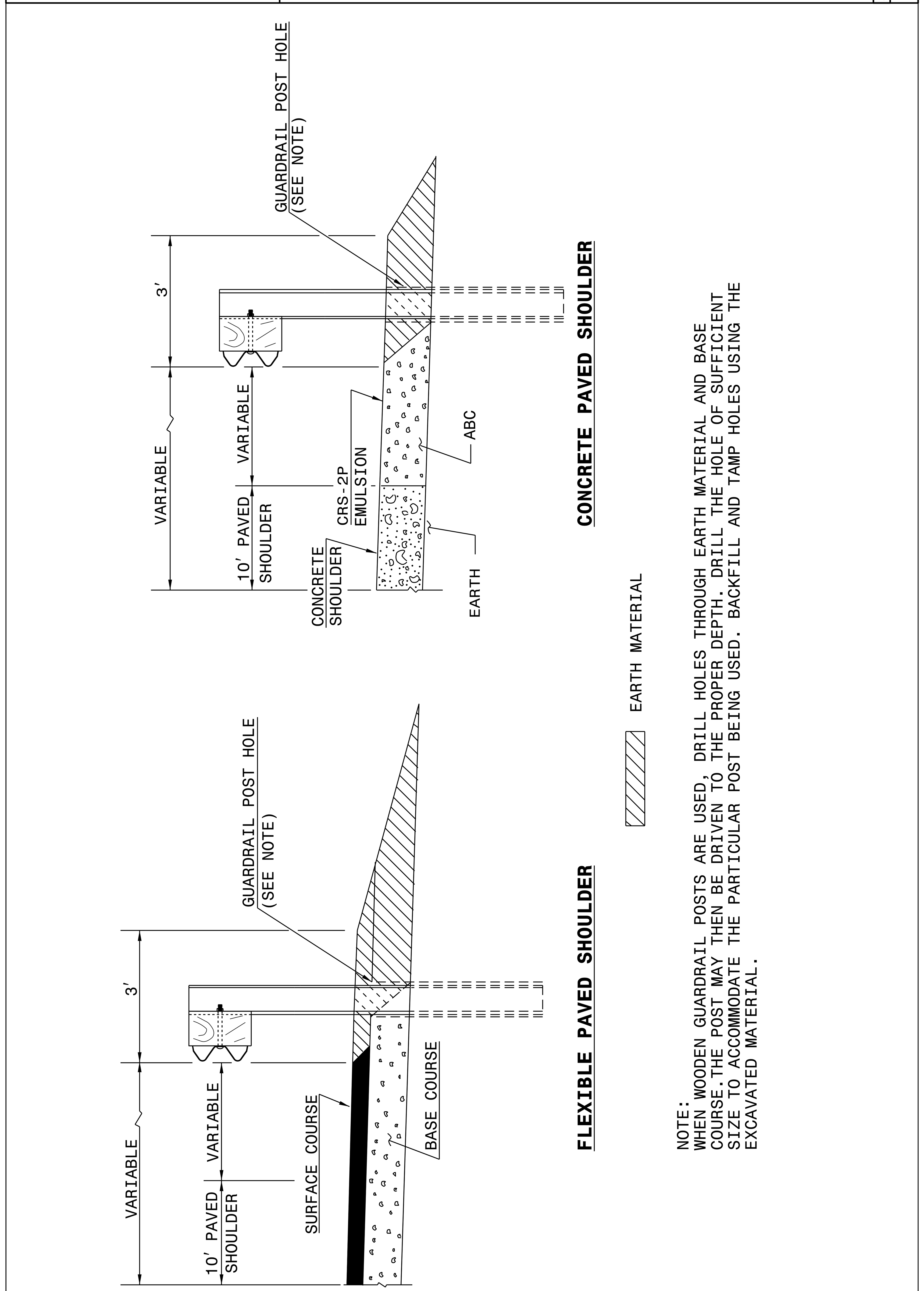
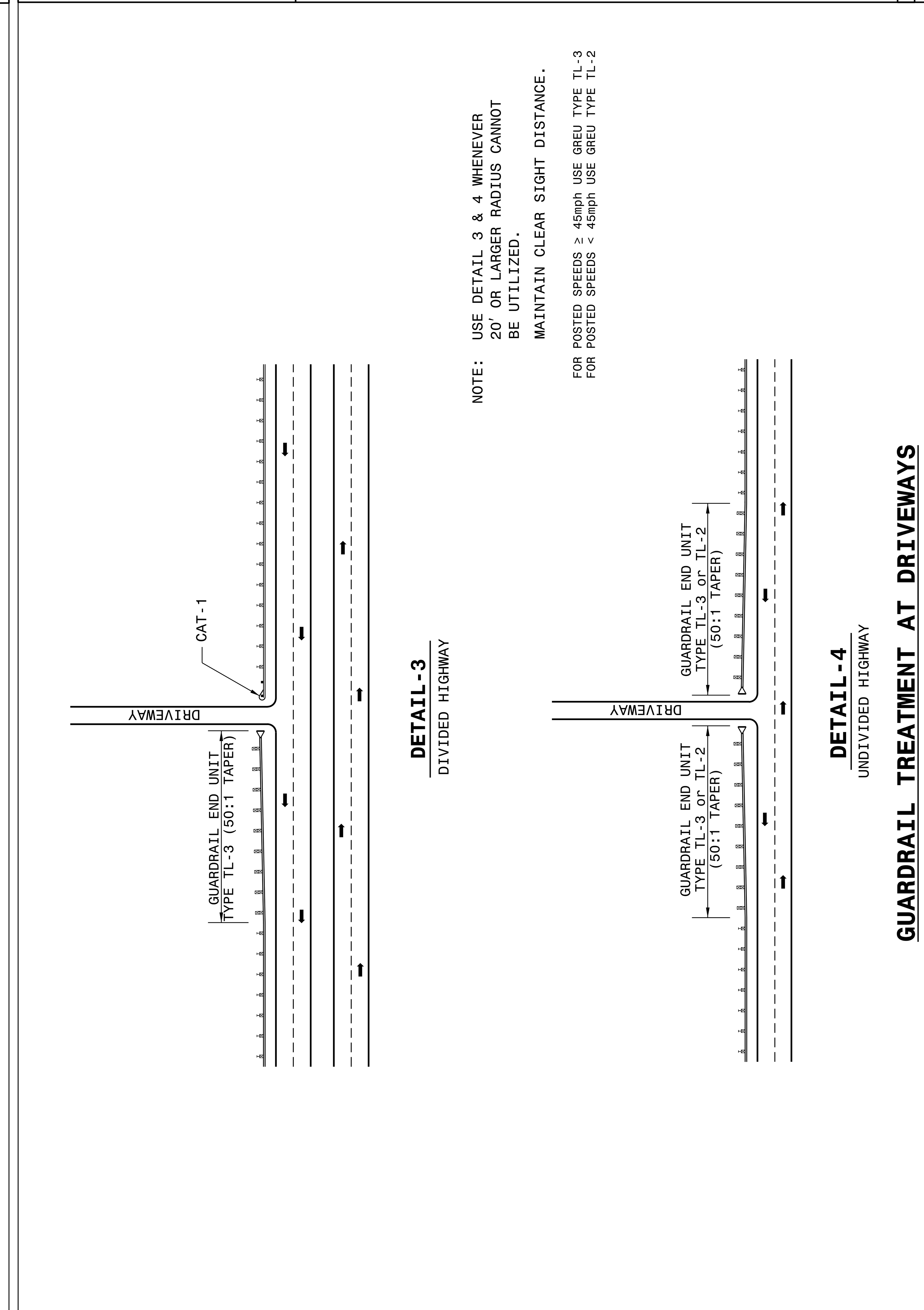
PROJECT REFERENCE NO.	SHEET NO.
17BP.10.R.58	2C-3


GUARDRAIL POST HOLE (SEE NOTE)
3'
VARIABLE
VARIABLE
10' PAVED SHOULDER
CONCRETE SHOULDER
CRS-2P EMULSION
ABC
EARTH
CONCRETE PAVED SHOULDER
GUARDRAIL POST HOLE (SEE NOTE)
3'
VARIABLE
VARIABLE
10' PAVED SHOULDER
SURFACE COURSE
BASE COURSE
FLEXIBLE PAVED SHOULDER
EARTH MATERIAL
NOTE:
WHEN WOODEN GUARDRAIL POSTS ARE USED, DRILL HOLES THROUGH EARTH MATERIAL AND BASE COURSE.THE POST MAY THEN BE DRIVEN TO THE PROPER DEPTH. DRILL THE HOLE OF SUFFICIENT SIZE TO ACCOMMODATE THE PARTICULAR POST BEING USED. BACKFILL AND TAMP HOLES USING THE EXCAVATED MATERIAL.

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

ENGLISH DETAIL DRAWING FOR
GUARDRAIL PLACEMENT

SHEET 10 OF 11 862D01


CAT-1
DRIVEWAY
GUARDRAIL END UNIT TYPE TL-3 (50:1 TAPER)
DETAIL-3
DIVIDED HIGHWAY
NOTE: USE DETAIL 3 & 4 WHENEVER 20' OR LARGER RADIUS CANNOT BE UTILIZED.
MAINTAIN CLEAR SIGHT DISTANCE.
FOR POSTED SPEEDS ≥ 45mph USE GREU TYPE TL-3
FOR POSTED SPEEDS < 45mph USE GREU TYPE TL-2
GUARDRAIL END UNIT TYPE TL-3 or TL-2 (50:1 TAPER)
DRIVEWAY
GUARDRAIL END UNIT TYPE TL-3 or TL-2 (50:1 TAPER)
DETAIL-4
UNDIVIDED HIGHWAY
GUARDRAIL TREATMENT AT DRIVEWAYS

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ROADWAY DETAIL DRAWING FOR
GUARDRAIL PLACEMENT

SHEET 9 OF 11 862D01

8/31/2017

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 022966 Joel S. Howerton

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jhowerton AT CSD-292595

PROJECT REFERENCE NO.	SHEET NO.
17BP.10.R.58	2C-4

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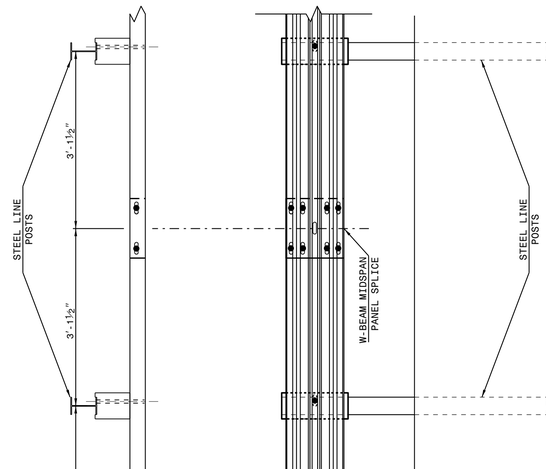
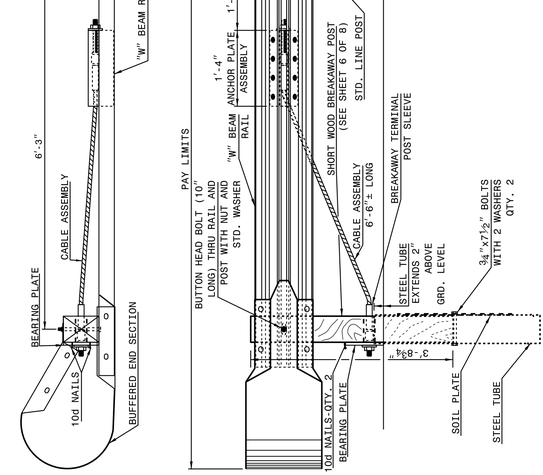
ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

SHEET 1 OF 8
862D02



TRAILING END UNIT ASSEMBLY

C.A.T.-1 SYSTEM



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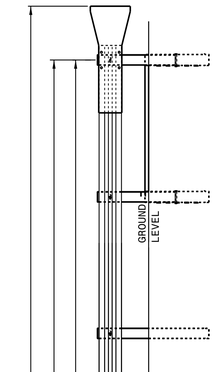
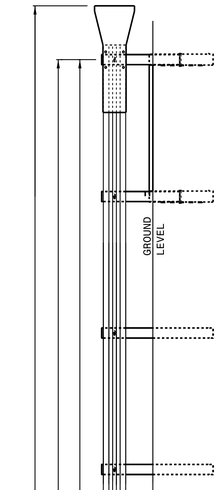
ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

SHEET 2 OF 8
862D02



FLARED AND TANGENT
ELEVATION VIEW

* **WHEN INSTALLING GUARDRAIL END UNITS THAT ARE 2'-1" MOUNTING HEIGHT TO EXISTING GUARDRAIL, REMOVE THE EXISTING GUARDRAIL TO TRANSITION FROM THE EXISTING HEIGHT TO THE PROPOSED 2'-1" HEIGHT. SEE 862.02, SHEET 4 OF 8 FOR TRANSITION DETAILS.**



FLARED AND TANGENT
ELEVATION VIEW

APPROACH END UNITS

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ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

SHEET 2 OF 8
862D02

STATE OF
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ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION
SHEET 4 OF 8
862D02

STATE OF
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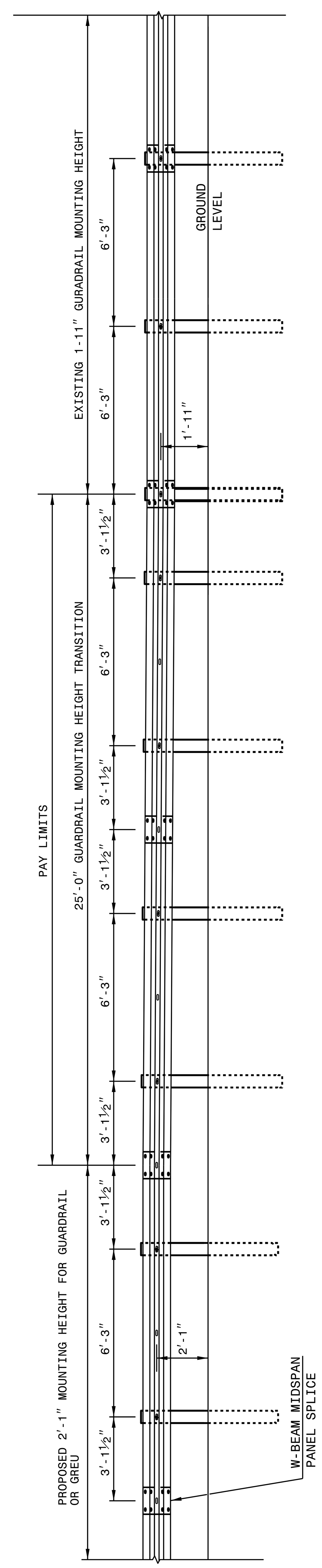
ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION
SHEET 3 OF 8
862D02

NOTE: IF EXISTING GUARDRAIL IS LOWER THAN 1'-11", USE AN ADDITIONAL 12'-6" LONG SECTION OF GUARDRAIL, FOR EVERY 1" OF HEIGHT DIFFERENCE, TO TRANSITION FROM EXISTING GUARDRAIL TO PROPOSED 2'-1" GUARDRAIL.



ELEVATION VIEW

TRANSITION FROM OR 1'-11" TO 2'-1" W-BEAM GUARDRAIL MOUNTING HEIGHT

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ROADWAY DETAIL DRAWING FOR
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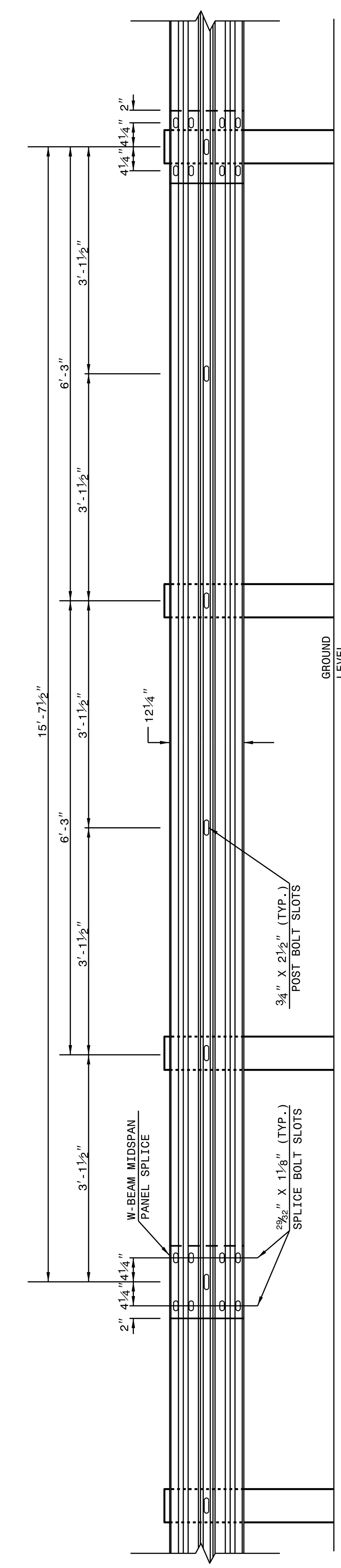
SHEET 4 OF 8
862D02



15'-7½" W-BEAM GUARDRAIL PANEL

NOTE: USE 5-SPACE 15'-7½" W-BEAM GUARDRAIL PANEL AT THE DOWNSTREAM END OF AN END UNIT OR EXISTING GUARDRAIL THAT DOES NOT OFFSET THE W-BEAM PANEL SPLICE TO MIDSPAN

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ROADWAY DETAIL DRAWING FOR
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SHEET 3 OF 8
862D02

8/31/2017

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17BP.10.R.58	2C-6

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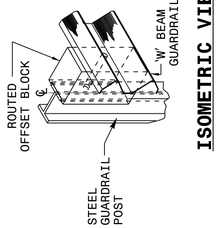
GUARDRAIL INSTALLATION

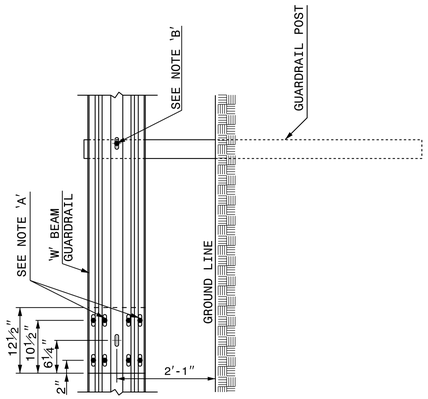
ROADWAY DETAIL DRAWING FOR

SHEET 5 OF 8 — 862D02

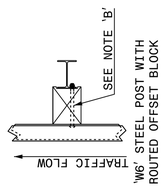
ISOMETRIC VIEW



FRONT - MID SPAN SPLICE

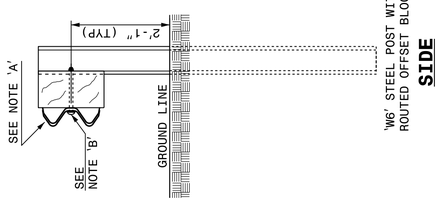


TYPICAL GUARDRAIL AND GUARDRAIL POST ALTERNATIVES



'W6' STEEL POST WITH
ROUTED OFFSET BLOCK

PLAN



'W6' STEEL POST WITH
ROUTED OFFSET BLOCK

SIDE

NOTES:
A - 5/8" DIA. BUTTON HEAD SPLICE BOLT 1¼" LONG (8 REQ. PER SPLICE JOINT).
B - 5/8" DIA. BUTTON HEAD BOLT 7½"/9" LONG WITH NUT FOR BOLTING 6"/8" ROUTED OFFSET BLOCK TO STEEL POSTS.
C - FIELD PUNCHING OF HOLES INTO GUARDRAIL AS DIRECTED BY THE ENGINEER.

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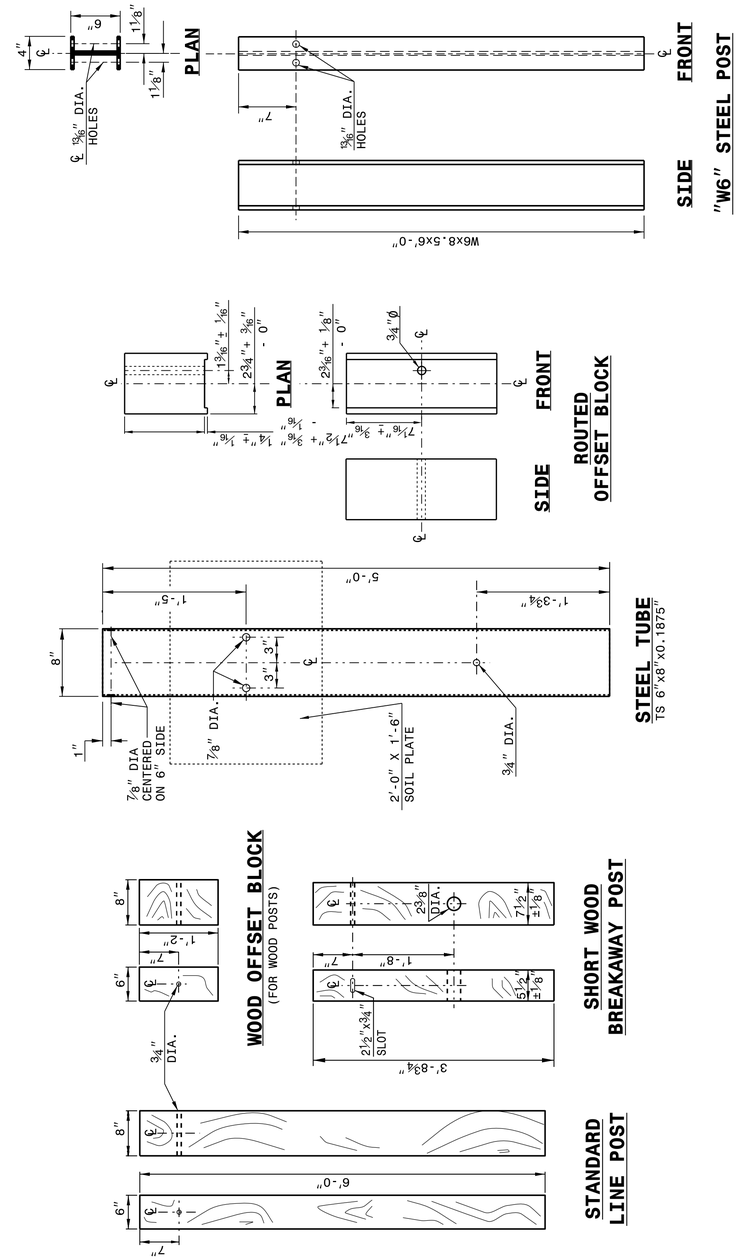
GUARDRAIL INSTALLATION

ROADWAY DETAIL DRAWING FOR

SHEET 6 OF 8 — 862D02

SYSTEM PARTS



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ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

SHEET 6 OF 8 — 862D02

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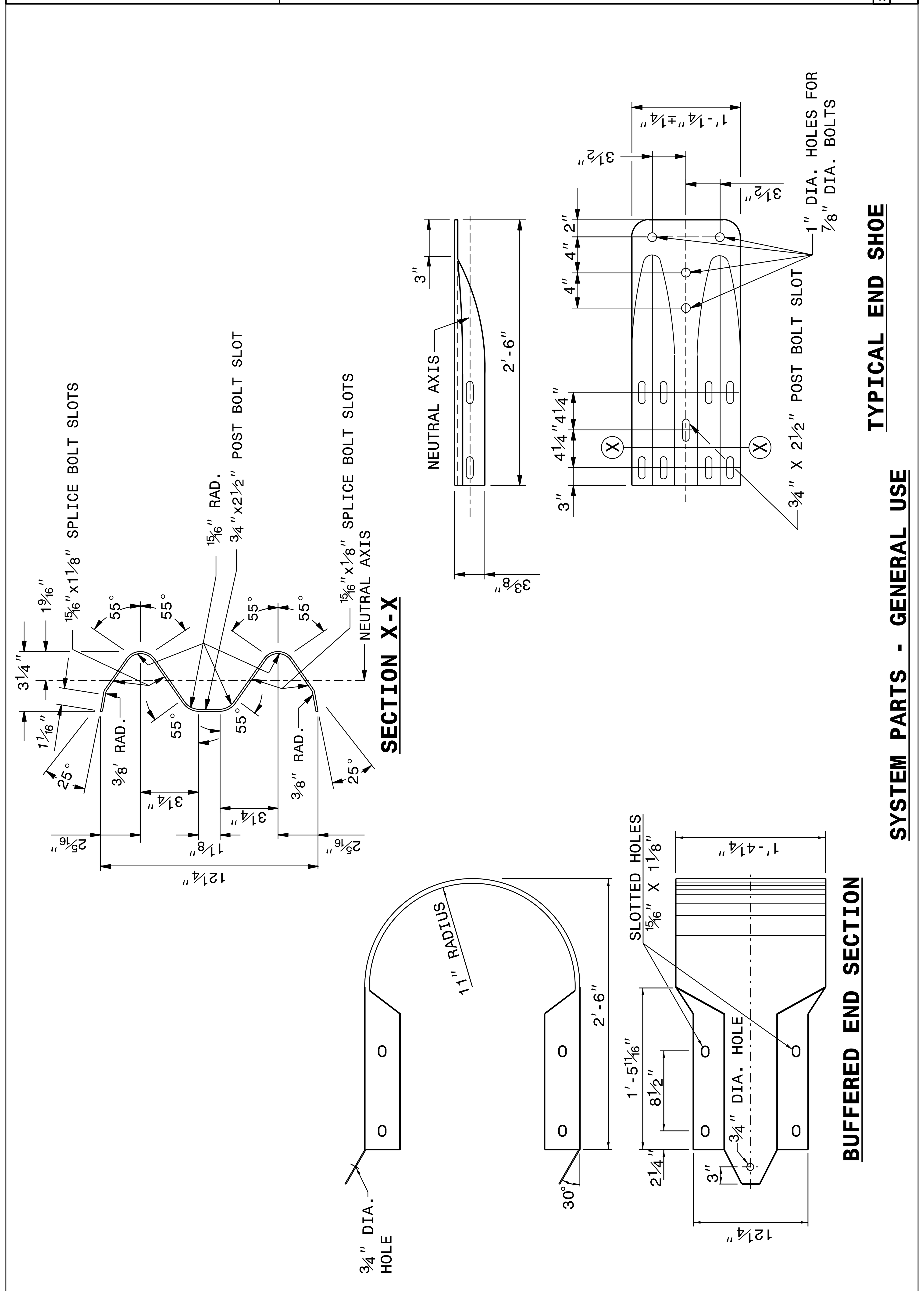
RALEIGH, N.C.

ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

SHEET 8 OF 8
862D02



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ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

SHEET 8 OF 8
862D02

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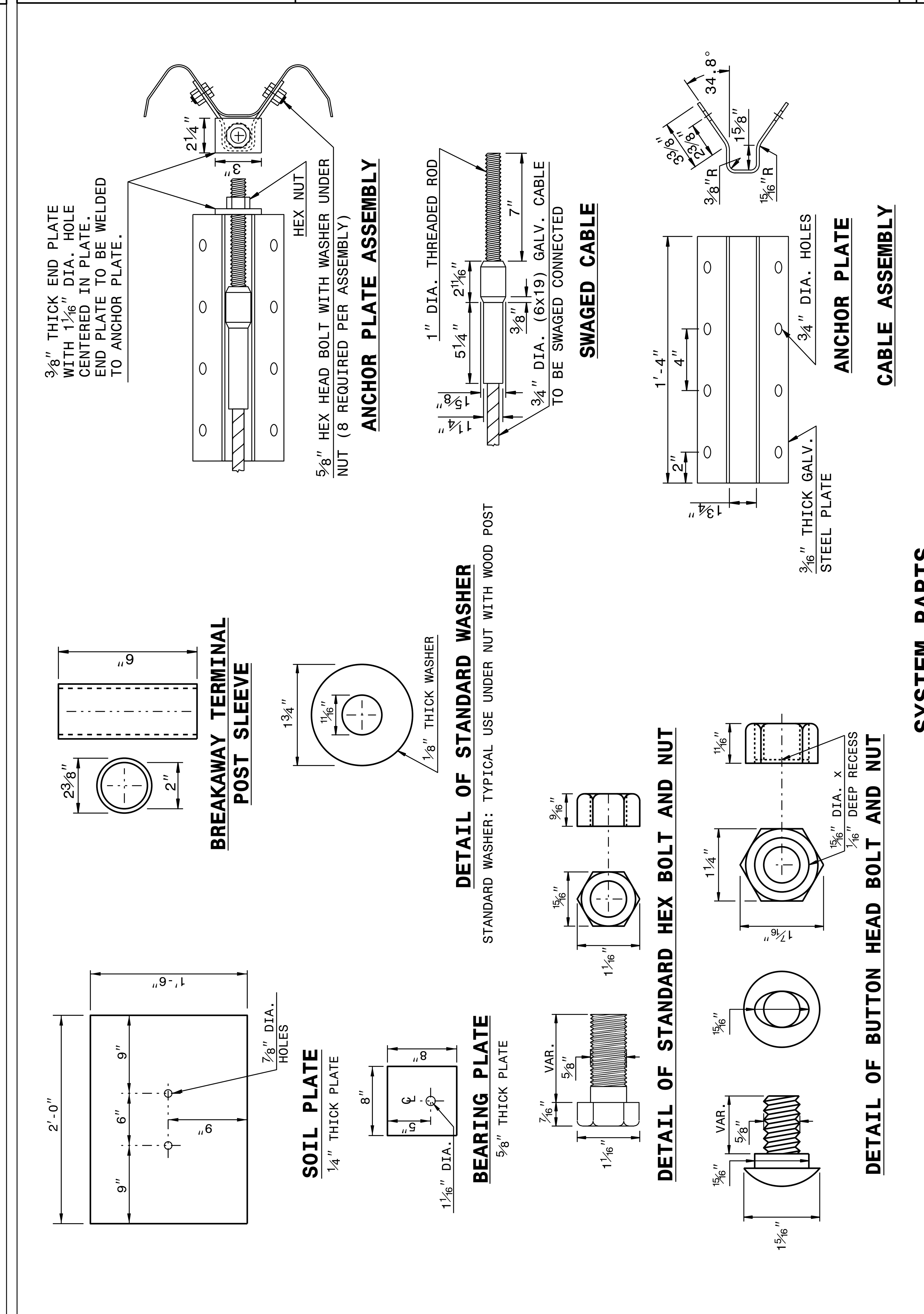
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

SHEET 7 OF 8
862D02



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ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

SHEET 7 OF 8
862D02

8/31/2017

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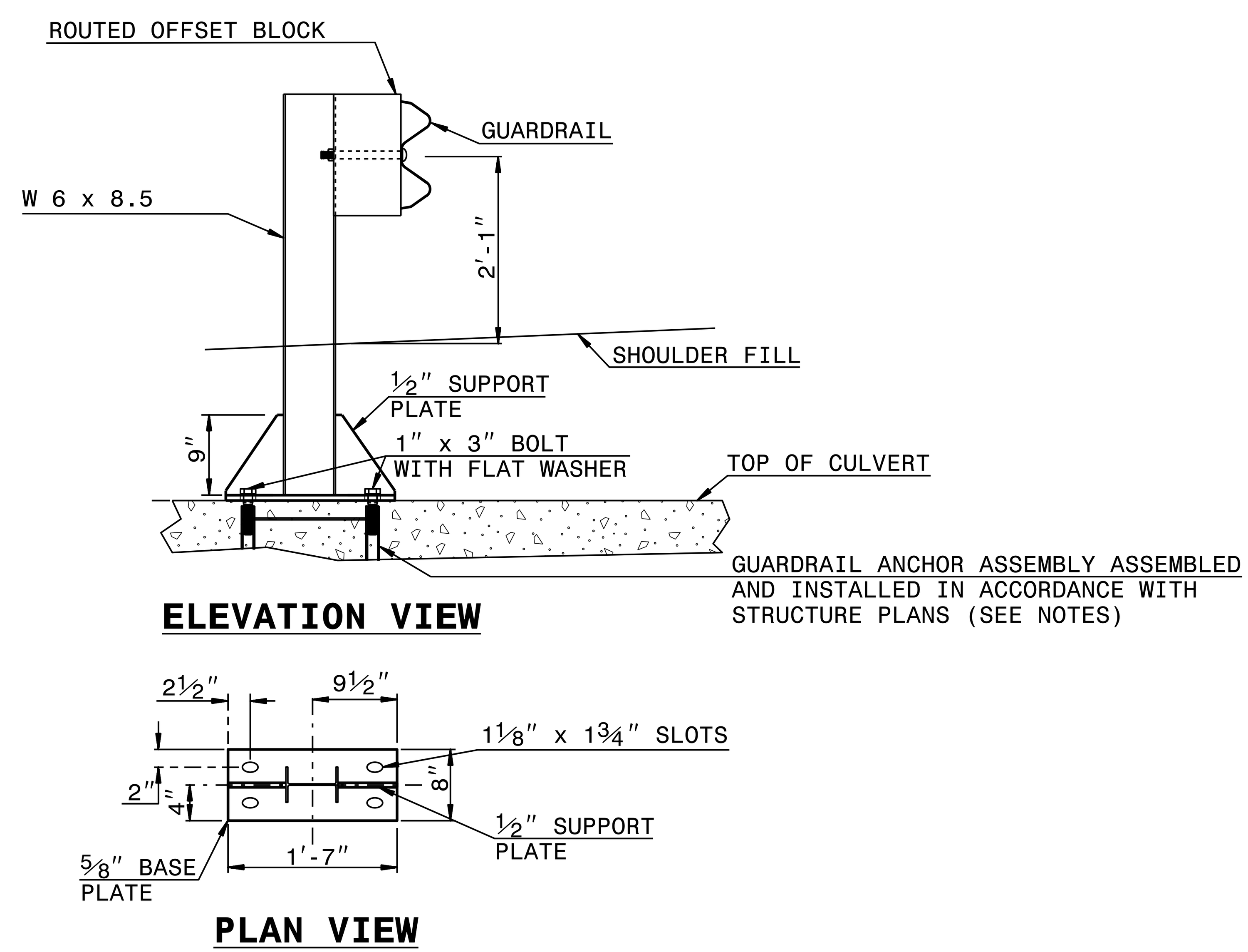
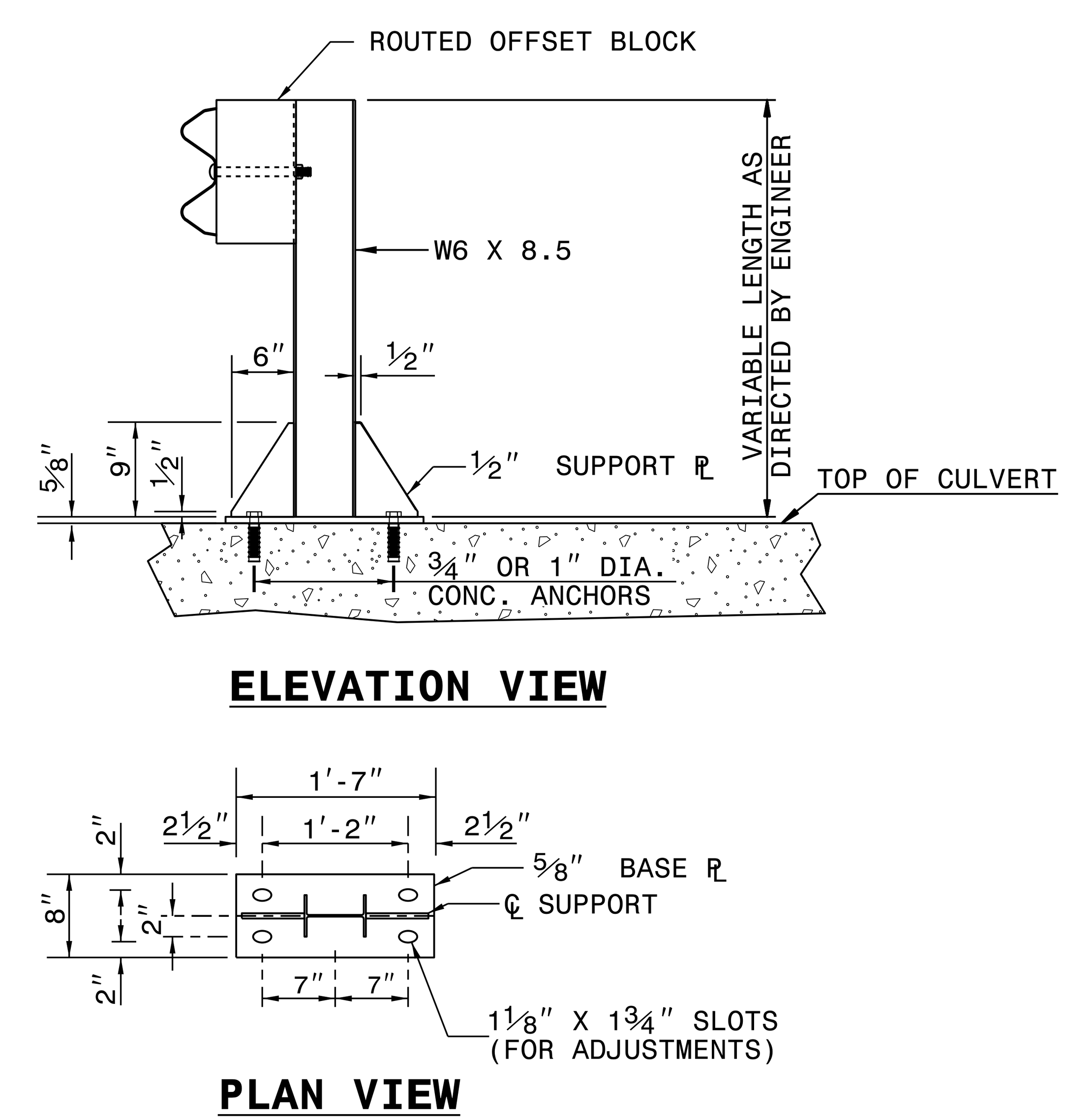
RALEIGH, N.C.

ROADWAY DETAIL DRAWING FOR
STRUCTURE ANCHOR UNITS
ANCHORAGE FOR GUARDRAIL POST ON BOX CULVERT

SHEET 7 OF 7
862D03





NOTES FOR:
GUARDRAIL POST ANCHORED TO STRUCTURE:
- USE FULL LENGTH ¼" BUTT WELDS AT ALL LOCATIONS OF CONTACT BETWEEN THE BASE PLATE, SUPPORT PLATES AND STEEL POST.
- USE POST AND POST BASE PLATES CONFORMING TO THE REQUIREMENTS OF A.S.T.M. A-36 AND GALVANIZED AFTER FABRICATION TO CONFORM TO A.S.T.M. A-123.

NEW STRUCTURES:
- ATTACH POST TO INSERT ASSEMBLY UNITS (USING ANCHOR BOLTS SUPPLIED WITH INSERTS) WHICH HAVE BEEN CAST INTO THE STRUCTURE DURING CONSTRUCTION.

EXISTING STRUCTURES:
- USE CONCRETE ANCHORS CONSISTING OF A STUD BOLT WITH NUT AND WASHER. USE STUDS THREADED ON ONE END AND HAVING AN EXPANDED WEDGE ASSEMBLY POSITIONED AROUND A TAPERED AREA AT THE OTHER END. USE ANCHORS WHICH PROVIDE A MINIMUM SAFE HOLDING POWER OF 2875 LBS. FOR A ¾" OR 1" DIAMETER BOLT. CALCULATE HOLDING POWER BASED ON ¼ THE ACTUAL HOLDING POWER OF THE ANCHOR IN 3500 PSI CONCRETE AS DETERMINED BY AN APPROVED COMMERCIAL TESTING LABORATORY.

- USE ANCHORS GALVANIZED IN ACCORDANCE WITH A.S.T.M. A-153. SIZE HOLES FOR THE CONCRETE ANCHORS IN ACCORDANCE WITH THE ANCHOR MANUFACTURER'S RECOMMENDATIONS. DRILL HOLES WITH A CARBIDE OR DIAMOND TIPPED MASONRY BIT POWERED BY A ROTARY OR ROTARY IMPACT DRILL. NO OTHER IMPACT TOOLS WILL BE PERMITTED. DRILL HOLES VERTICALLY. FURNISH DOCUMENTATION OF HOLE SIZE RECOMMENDED FOR THE SPECIFIED ANCHOR TO THE ENGINEER BEFORE DRILLING HOLES. THOROUGHLY CLEAN HOLES FOR ANCHORS OF ALL CONCRETE CHIPS, DUST, GREASE, OIL, ETC. BEFORE ANCHORS ARE INSTALLED. REPAIR ALL DAMAGE CAUSED BY THIS WORK TO THE SATISFACTION OF THE ENGINEER.

ANCHORAGE FOR GUARDRAIL POST ON BOX CULVERT

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ROADWAY DETAIL DRAWING FOR
STRUCTURE ANCHOR UNITS
ANCHORAGE FOR GUARDRAIL POST ON BOX CULVERT

SHEET 7 OF 7
862D03

8/31/2017
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ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

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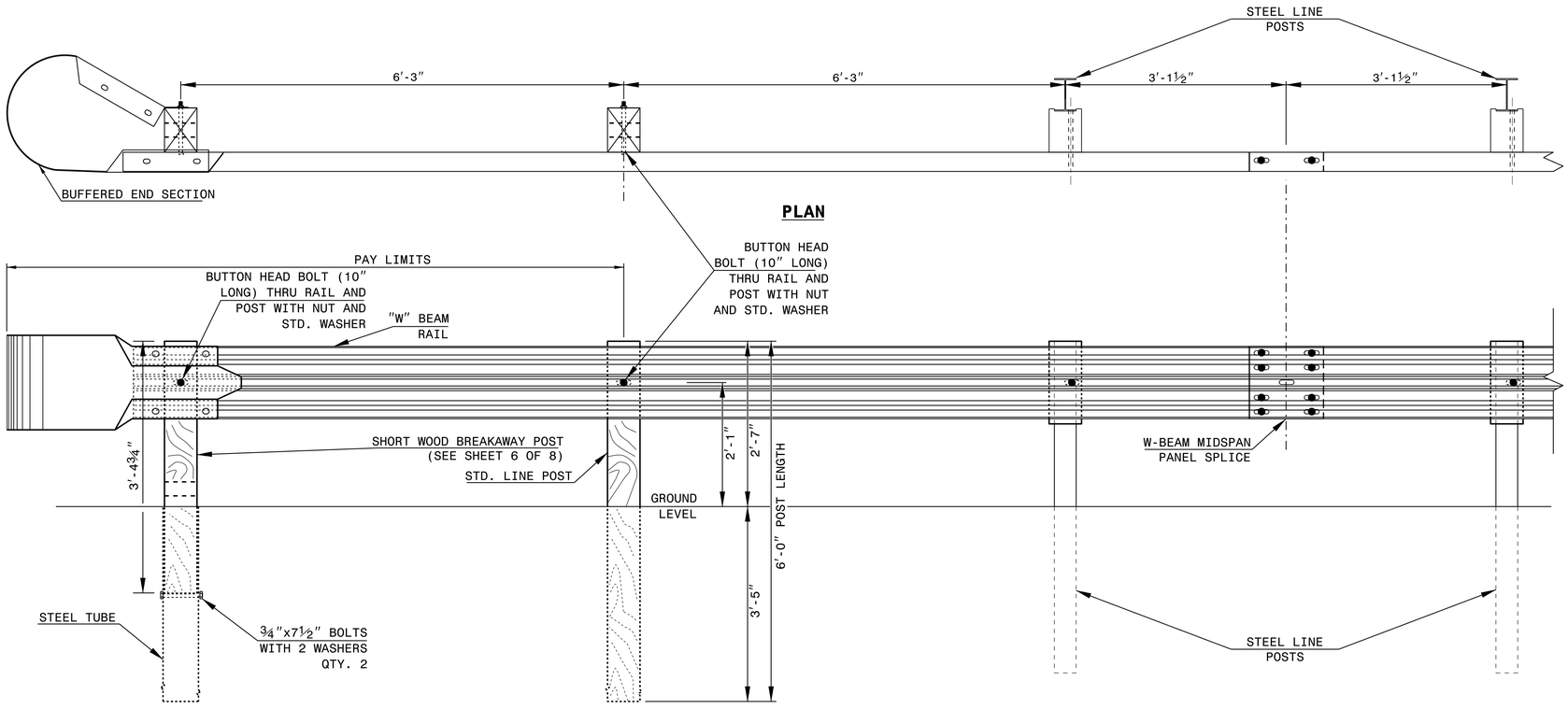

TRAILING END UNIT ASSEMBLY

A.T.-1 SYSTEM

8/31/2017

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER JOEL S. HOWERTON

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A.T.-1 SYSTEM

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REVISIONS

*NATIVE MATERIAL CONSISTS OF MATERIAL THAT IS EXCAVATED FROM THE STREAM BED OR FLOODPLAIN AT THE PROJECT SITE DURING CULVERT INSTALLATION. RIP RAP MAY BE USED TO SUPPLEMENT THE NATIVE MATERIAL
IN THE HIGH FLOW CULVERT BARREL(S). IF RIP RAP IS USED TO LINE THE HIGH FLOW CULVERT BARREL(S), NATIVE MATERIAL SHOULD BE PLACED ON TOP TO FILL VOIDS AND PROVIDE A FLAT SURFACE FOR ANIMAL PASSAGE.
NATIVE MATERIAL IS SUBJECT TO APPROVAL BY THE ENGINEER AND MAY BE SUBJECT TO PERMIT CONDITIONS.

DETAIL

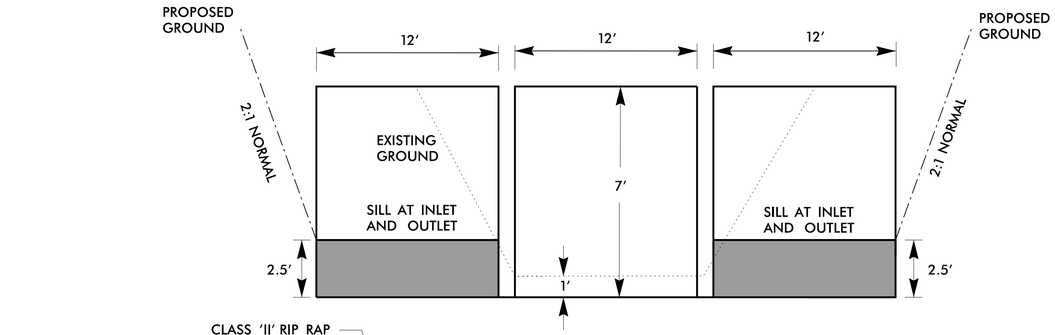
*NOT TO SCALE

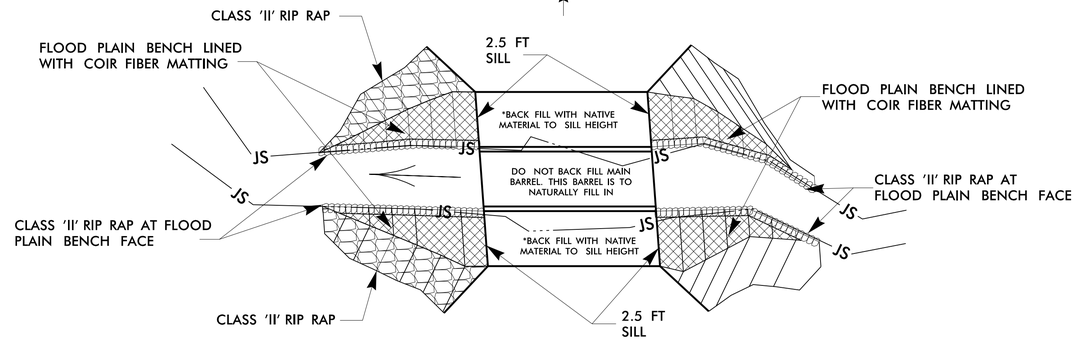
MULTI–BARREL – GENERAL DETAIL LOW FLOW CHANNEL AND FLOOD PLAIN SILL

*NOTES:

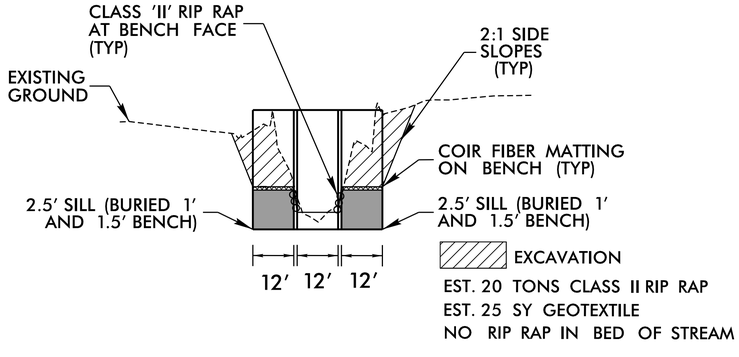
1) FLOOD PLAIN BENCH SHOULD BE CONSTRUCTED WITH NATIVE BED MATERIAL. CONSTRUCT BENCH TO THE TOP OF THE SILL AND LINE BENCH WITH COIR FIBER MATTING.

2) PLACE CLASS 'II' RIP RAP ON FACE OF FLOOD PLAIN BENCH AND CHANNEL SIDE SLOPES.



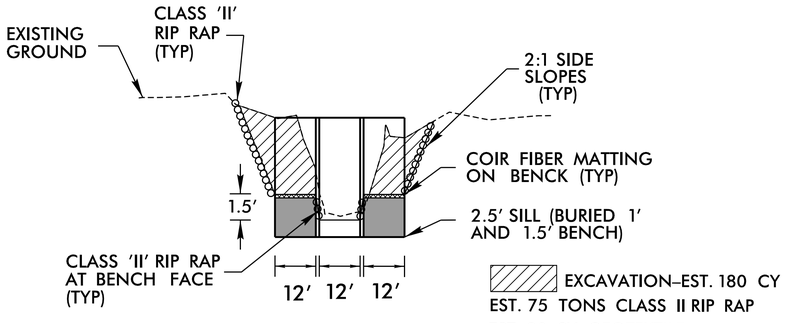


PLAN VIEW



EST. 20 TONS CLASS II RIP RAP
EST. 25 SY GEOTEXTILE
NO RIP RAP IN BED OF STREAM

UPSTREAM AT CULVERT OUTLET (NTS)



EST. 75 TONS CLASS II RIP RAP
EST. 80 SY GEOTEXTILE
EST. 210 SY COIR FIBER MATTING
NO RIP RAP IN BED OF STREAM

DOWNSTREAM AT CULVERT OUTLET (NTS)

PROJECT REFERENCE NO.	SHEET NO.
17BPJ0.R.58	2D-1
R/W SHEET NO.	

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 31986 ENGINEER JAMES R. RICE
DocuSigned by: 08DE8F7759FE47A
8/29/2017

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555 Fayetteville St, Suite 900 Raleigh, N.C. 27601
N.C.B.E.L.S. License Number: F-0116

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6/21/00

COMPUTED BY: T.N. BEDENBAUGH DATE: JUNE 2014
CHECKED BY: D.M. WAINWRIGHT DATE: OCTOBER 2015

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DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.	SHEET NO.
17BP.10.R.58	3

REVISIONS

RIGHT OF WAY AREA DATA

PARCEL NO.	PROPERTY OWNERS NAMES	TOTAL ACREAGE	AREA TAKEN	AREA REMAINING RT.	AREA REMAINING LT.	CONST. EASE.	PERM. DRAIN. EASE.	TEMP. DRAIN. EASE.	PERM. UTILITY EASE.	PERM. DRAINAGE / UTILITY EASE.
1A	JAMES T. GRICE & DENA C. GRICE	15.264	0.100		15.164		0.023			
1B	JAMES T. GRICE & DENA C. GRICE	8.114	0.120	7.994		0.021				
2	PHILLIP L. SIMPSON JR. & RICHARD B. SIMPSON	12.745	0.110		12.635	0.021	0.015			
3	JOSEPH M. GOODWIN & DEBBIE S. GOODWIN	10.652	0.048	10.604		0.022				
4	PHILLIP L. SIMPSON JR. & RICHARD B. SIMPSON	6.542				0.022				

*NOTE: ALL AREAS ARE IN ACRES

SUMMARY OF PAVEMENT REMOVAL

IN SQUARE YARDS

LOCATION	ASPHALT REMOVAL	ASPHALT BREAK UP	CONCRETE REMOVAL	CONCRETE BREAK UP
–L– STA. 10+45.00 TO EXIST. BRIDGE	427			
EXIST. BRIDGE TO –L– STA. 15+40.00	461			
PROJECT TOTALS	888			

SUMMARY OF EARTHWORK

IN CUBIC YARDS

LOCATION	UNCLASSIFIED EXCAVATION	UNDERCUT	EMBT+20%	BORROW	WASTE
–L– STA. 10+45.00 TO 15+40.00	239		426	187	
PROJECT TOTALS	239		426	187	
SAY	240				

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

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

STATION (SIZE / THICKNESS OR GAUGE)	LOCATION (LT,RT, OR CL)	STRUCTURE NO. FROM	STRUCTURE NO. TO	TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL
14+25 –L–	LT	0401			268.05	267.08	

CLASS IV R.C. PIPE (UNLESS OTHERWISE NOTED) 12"	15"	18"	24"	30"	36"	42"	48"

C.S. PIPE (UNLESS NOTED OTHRWISE) 12"	15"	18"	24"	24"	30"	30"	36"	36"	42"	42"	48"	48"
.064	.064	.064	.064		.079		.079		.109		.109	

CLASS III R.C. PIPE (UNLESS OTHERWISE NOTED) 12"	15"	18"	24"	30"	36"	42"	48"	15" SIDE DRAIN PIPE	18" SIDE DRAIN PIPE	24" SIDE DRAIN PIPE
	28									

ENDWALLS STD. 838.01, STD. 838.11 OR STD. 838.80 (UNLESS NOTED OTHERWISE) CU. YDS. R.C.P.	C.S.P.	QUANTITIES FOR DRAINAGE STRUCTURES * TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL. 'B') PER EACH (0' THRU 5.0')	LIN. *FT. A 5.0' THRU 10.0'	LIN. *FT. B 10.0' AND ABOVE	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES AND HOOD STANDARD 840.03 TYPE OF GRATE E	F	G	

D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME & GRATE STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR 840.26	G.D.I. TYPE "B" STD. 840.18 OR 840.27	G.D.I. TYPE "D" STD. 840.19 OR 840.28	G.D.I. FRAME WITH GRATE STD. 840.22	G.D.I. FRAME WITH TWO GRATES STD. 840.22	G.D.I. (N.S.) FRAME WITH GRATE STD. 840.24	G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24	J.B. STD. 840.31 OR 840.32	G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.29	T.B.D.I. STD. 840.35						CORR. STEEL ELBOWS NO. & SIZE	CONC. COLLARS CL. "B" C.Y. STD 840.72	CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71	PIPE REMOVAL LIN.FT.	REMARKS
																					DRIVEWAY PIPE

ABBREVIATIONS

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

NOTE: Invert Elevations are for Bid Purposes only and shall not be used for project construction stakeout.
See "Standard Specifications For Roads and Structures, Section 300–5".

"N" = DISTANCE FROM EDGE OF LANE TO FACE OF GUARDRAIL.
TOTAL SHOULDER WIDTH = DISTANCE FROM EDGE OF TRAVEL LANE TO SHOULDER BREAK POINT.
FLARE LENGTH = DISTANCE FROM LAST SECTION OF PARALLEL GUARDRAIL TO END OF GUARDRAIL.
W = TOTAL WIDTH OF FLARE FROM BEGINNING OF TAPER TO END OF GUARDRAIL.
G = GATING IMPACT ATTENUATOR TYPE 350
NG = NON–GATING IMPACT ATTENUATOR TYPE 350

GUARDRAIL SUMMARY

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH STRAIGHT	LENGTH SHOP CURVED	LENGTH DOUBLE FACED	WARRANT POINT APPROACH END	WARRANT POINT TRAILING END	"N" DIST. FROM E.O.L.	TOTAL SHOUL. WIDTH	FLARE LENGTH APPROACH END	FLARE LENGTH TRAILING END	W APPROACH END	W TRAILING END	ANCHORS XI MOD	XI	GREU TL–3	M–350	XIII	CAT–1	VI MOD	TYPE III	AT–1	IMPACT ATTENUATOR TYPE 350 EA	G	NG	SINGLE FACED GUARDRAIL	REMOVE EXISTING GUARDRAIL	REMOVE AND STOCKPILE EXISTING GUARDRAIL	REMARKS
–L–	10+82	13+10	RT	212.50	50.00		12+56	13+01	4	7	50	–	1.0	–			1						1							
–L–	12+12	13+99	LT	187.50			13+08	12+65	4	7	50	50	1.0	1.0			2													
		SUBTOTAL		400.00	50.00																									
		GREU TL–3 @ 50'X3		–150.00																										
		AT–1 @ 6.25'X1			–6.25																									
		TOTAL		250.00	43.75												3						1							

8/29/2017 ...\Proj\17BP-10R58_RDY_SUM.dgn 3:23:01 PM

PROJECT REFERENCE NO.	SHEET NO.
17BPJ0.R.58	4
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER — SEAL 026441 — DOMINIC M. WAINWRIGHT — 8/29/2017

HYDRAULICS ENGINEER — SEAL 31986 — JAMES R. RICE — 8/29/2017

HDR Engineering, Inc. of the Carolinas
555 Fayetteville St, Suite 900 Raleigh, N.C. 27601
N.C.B.E.L.S. License Number: F-0116

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

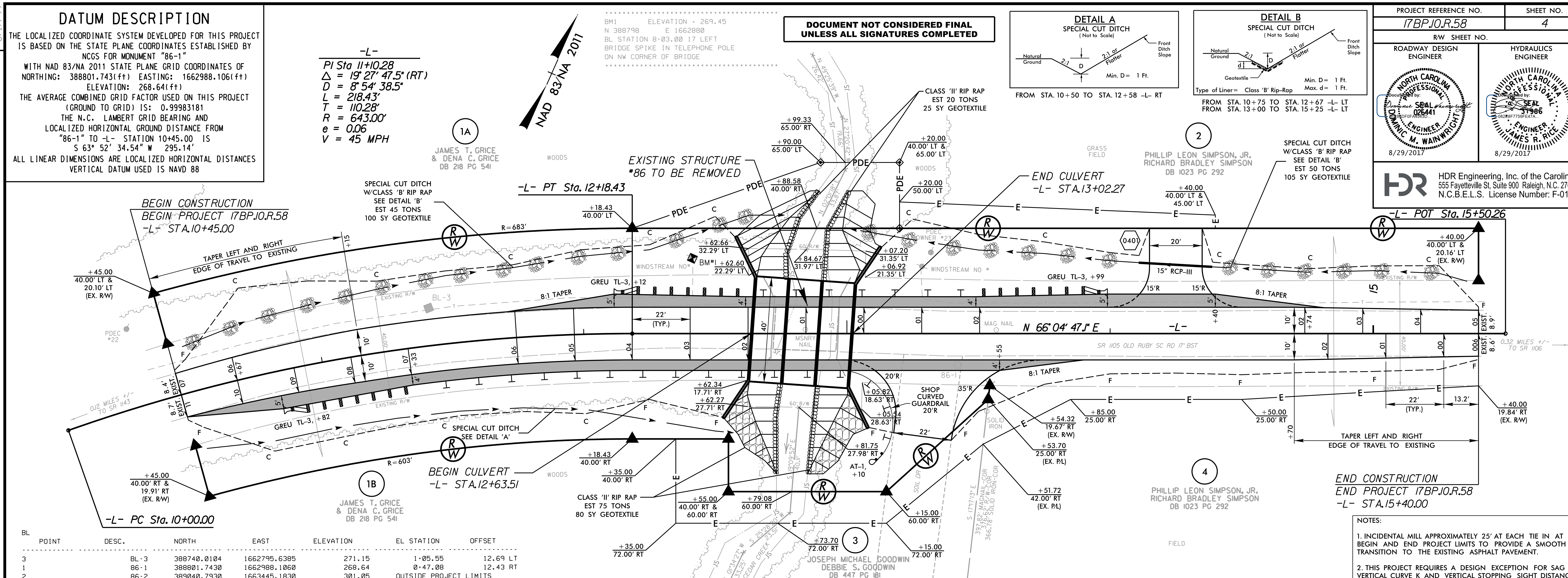
DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCGS FOR MONUMENT "86-1"
WITH NAD 83/NA 2011 STATE PLANE GRID COORDINATES OF NORTHING: 388801.743(ft) EASTING: 1662988.106(ft)
ELEVATION: 268.64(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99983181
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "86-1" TO -L- STATION 10+45.00 IS S 63° 52' 34.54" W 295.14'
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

-L-
PI Sta 11+10.28
Δ = 19° 27' 47.5" (RT)
D = 8° 54' 38.5"
L = 218.43'
T = 110.28'
R = 643.00'
e = 0.06
V = 45 MPH

DETAIL A — SPECIAL CUT DITCH (Not to Scale) — FROM STA. 10+50 TO STA. 12+58 -L- RT

DETAIL B — SPECIAL CUT DITCH (Not to Scale) — Type of Liner= Class 'B' Rip-Rap — FROM STA. 10+75 TO STA. 12+67 -L- LT; FROM STA. 13+00 TO STA. 15+25 -L- LT

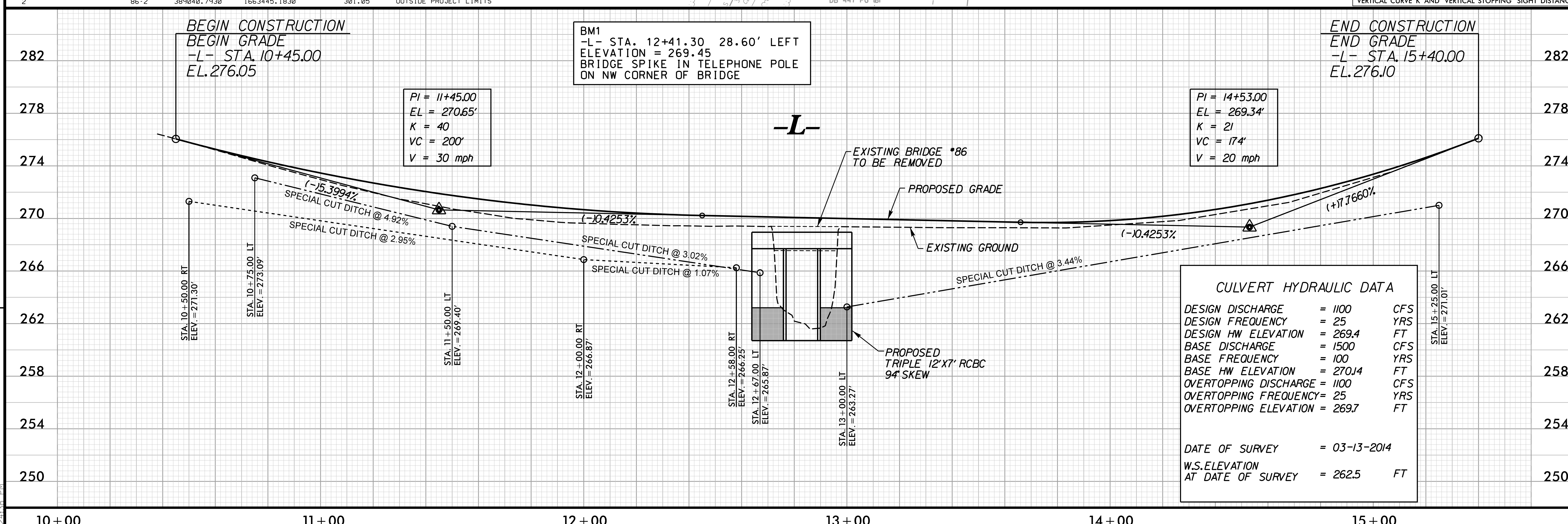


BL POINT	DESC.	NORTH	EAST	ELEVATION	EL STATION	OFFSET
3	BL-3	388740.0104	1662795.6385	271.15	1-05.55	12.69 LT
1	86-1	388801.7430	1662988.1060	268.64	0-47.08	12.43 RT
2	86-2	389040.7930	1663445.1830	301.05	OUTSIDE PROJECT LIMITS	

NOTES:

1. INCIDENTAL MILL APPROXIMATELY 25' AT EACH TIE IN AT BEGIN AND END PROJECT LIMITS TO PROVIDE A SMOOTH TRANSITION TO THE EXISTING ASPHALT PAVEMENT.

2. THIS PROJECT REQUIRES A DESIGN EXCEPTION FOR SAG VERTICAL CURVE K AND VERTICAL STOPPING SIGHT DISTANCE.



CULVERT HYDRAULIC DATA

DESIGN DISCHARGE	= 1100	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 269.4	FT
BASE DISCHARGE	= 1500	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 270.14	FT
OVERTOPPING DISCHARGE	= 1100	CFS
OVERTOPPING FREQUENCY	= 25	YRS
OVERTOPPING ELEVATION	= 269.7	FT
DATE OF SURVEY	= 03-13-2014	
W.S.ELEVATION AT DATE OF SURVEY	= 262.5	FT

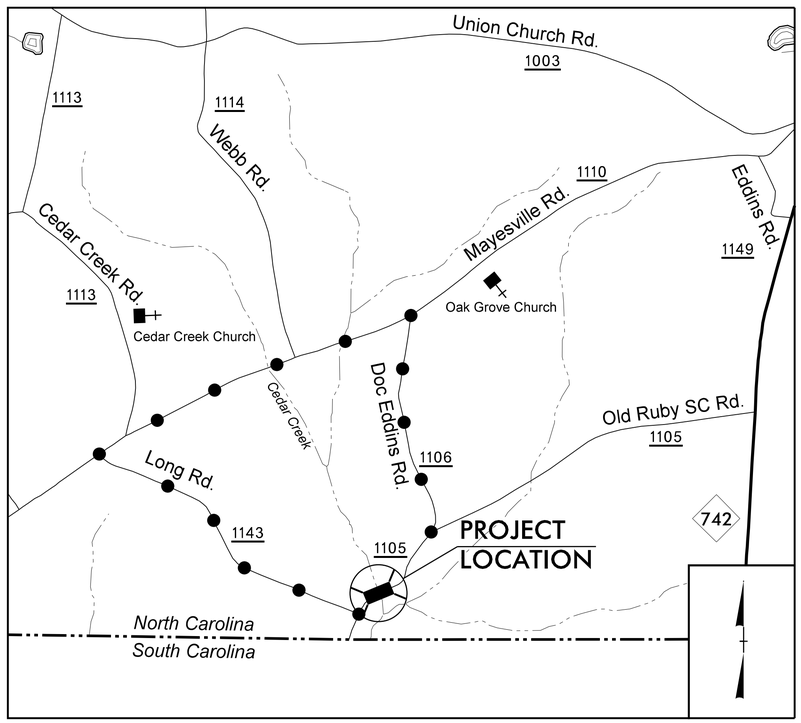
REVISIONS

8/29/2017 ...\17BP-10R58_RDY_PSH.DGN

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

ANSON COUNTY



DETOUR ROUTE

VICINITY MAP
(NOT TO SCALE)

INDEX OF SHEETS

SHEET NO.
TMP-1

17BP.10.R.58

STATE PROJECT:

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

N.C.D.O.T. WORK ZONE TRAFFIC CONTROL
1561 MAIL SERVICE CENTER (MSC) RALEIGH, NC 27699-1561
750 N. GREENFIELD PARKWAY, GARNER, NC 27529 (DELIVERY)
PHONE: (919) 773-2800 FAX: (919) 771-2745

J. S. BOURNE, P.E. — *STATE TRAFFIC MANAGEMENT ENGINEER*
DOMINIC WAINWRIGHT, P.E. — *ROADWAY PROJECT ENGINEER*
MICHELLE WARD, P.E. — *TRAFFIC CONTROL PROJECT DESIGN ENGINEER*
T. NATHAN BEDENBAUGH, P.E. — *TRAFFIC CONTROL DESIGN ENGINEER*

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

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PLAN PREPARED BY:

HDR Engineering, Inc. of the Carolinas
555 Fayetteville St, Suite 900 Raleigh, N.C. 27601
N.C.B.E.L.S. License Number: F-0116

APPROVED: DocuSigned by: Michelle Ward F83857568926486...

DATE: 3/15/2017

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 033789 ENGINEER MICHELLE WARD

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PROJ. REFERENCE NO.	SHEET NO.
17BP.10.R.58	TMP-1A

HDR Engineering, Inc. of the Carolinas
555 Fayetteville St. Suite 900 Raleigh, N.C. 27601
N.C.B.E.L.S. License Number: F-0116

ROADWAY STANDARD DRAWINGS

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

STD. NO.	TITLE
1101.01	WORK ZONE WARNING SIGNS
1101.03	TEMPORARY ROAD CLOSURES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1145.01	BARRICADES
1261.01	GUARDRAIL AND BARRIER DELINEATORS - INSTALLATION SPACING
1261.02	GUARDRAIL AND BARRIER DELINEATORS - TYPES AND MOUNTING
1262.01	GUARDRAIL END DELINEATION

LEGEND

GENERAL

- DIRECTION OF TRAFFIC FLOW
- DIRECTION OF PEDESTRIAN TRAFFIC FLOW
- EXIST. PVMT.
- NORTH ARROW
- PROPOSED PVMT.
- WORK AREA
- REMOVAL

TRAFFIC CONTROL DEVICES

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

TEMPORARY SIGNING

- PORTABLE SIGN
- STATIONARY SIGN
- STATIONARY OR PORTABLE SIGN

SIGNALS

EXISTING PROPOSED TEMPORARY

PAVEMENT MARKINGS

- EXISTING LINES
- TEMPORARY LINES

PAVEMENT MARKERS

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

PAVEMENT MARKING SYMBOLS

PAVEMENT MARKING SYMBOLS

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DATE: 3/15/2017

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NORTH CAROLINA PROFESSIONAL SEAL 033789 ENGINEER MICHELLE WARD

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

ROADWAY STANDARD DRAWINGS & LEGEND

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PROJ. REFERENCE NO.	SHEET NO.
17BP.10.R.58	TMP-1B

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GENERAL NOTES

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

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

TRAFFIC PATTERN ALTERATIONS

A) NOTIFY THE ENGINEER TWENTY ONE (21) CALENDAR DAYS PRIOR TO ANY TRAFFIC PATTERN ALTERATION.

SIGNING

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

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

PROVIDE SIGNING REQUIRED FOR THE OFFSITE DETOUR ROUTE AS SHOWN IN THE TRAFFIC CONTROL PLANS.

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

COVER OR REMOVE ALL SIGNS REQUIRED FOR THE OFFSITE DETOUR WHEN THE DETOUR IS NOT IN OPERATION.

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

TRAFFIC CONTROL DEVICES

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

PAVEMENT MARKINGS AND MARKERS

G) STATE FORCES WILL INSTALL PAVEMENT MARKINGS AND PAVEMENT MARKERS ON THE FINAL SURFACE.

PHASING

TRAFFIC CONTROL PHASING

NOTE: COORDINATE WITH THE ENGINEER FOR INSTALLATION AND REMOVAL OF ALL SIGNING AND TRAFFIC CONTROL DEVICES.

NOTE: MAINTAIN ACCESS TO DRIVEWAYS WITHIN PROJECT LIMITS AT ALL TIMES.

STEP 1: USING RSD 1101.01, SHEET 3 OF 3, INSTALL ADVANCE WORK ZONE WARNING SIGNS ON OLD RUBY SC ROAD (SR 1105).

STEP 2: USING RSD 1101.03, SHEETS 1 AND 2 OF 9 AND SHEET TMP-2, INSTALL DETOUR SIGNS AND BARRICADES AND CLOSE OLD RUBY SC ROAD (SR 1105).

STEP 3: REMOVE EXISTING BRIDGE NO. 86 AND CONSTRUCT PROPOSED BOX CULVERT AND ROADWAY, UP TO AND INCLUDING THE FINAL LAYER OF SURFACE COURSE. (NOTE: COORDINATE WITH STATE FORCES TO INSTALL FINAL PAVEMENT MARKINGS AND MARKERS ONCE CONSTRUCTION IS COMPLETE.)

STEP 4: REMOVE ALL ADVANCE WORK ZONE DETOUR SIGNS, AND TRAFFIC CONTROL DEVICES AND OPEN OLD RUBY SC ROAD (SR 1105) TO TRAFFIC.

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DATE: 3/15/2017

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 033789 ENGINEER MICHELLE WARD

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

GENERAL NOTES AND PHASING

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PROJ. REFERENCE NO.	SHEET NO.
17BP.10.R.58	TMP-2

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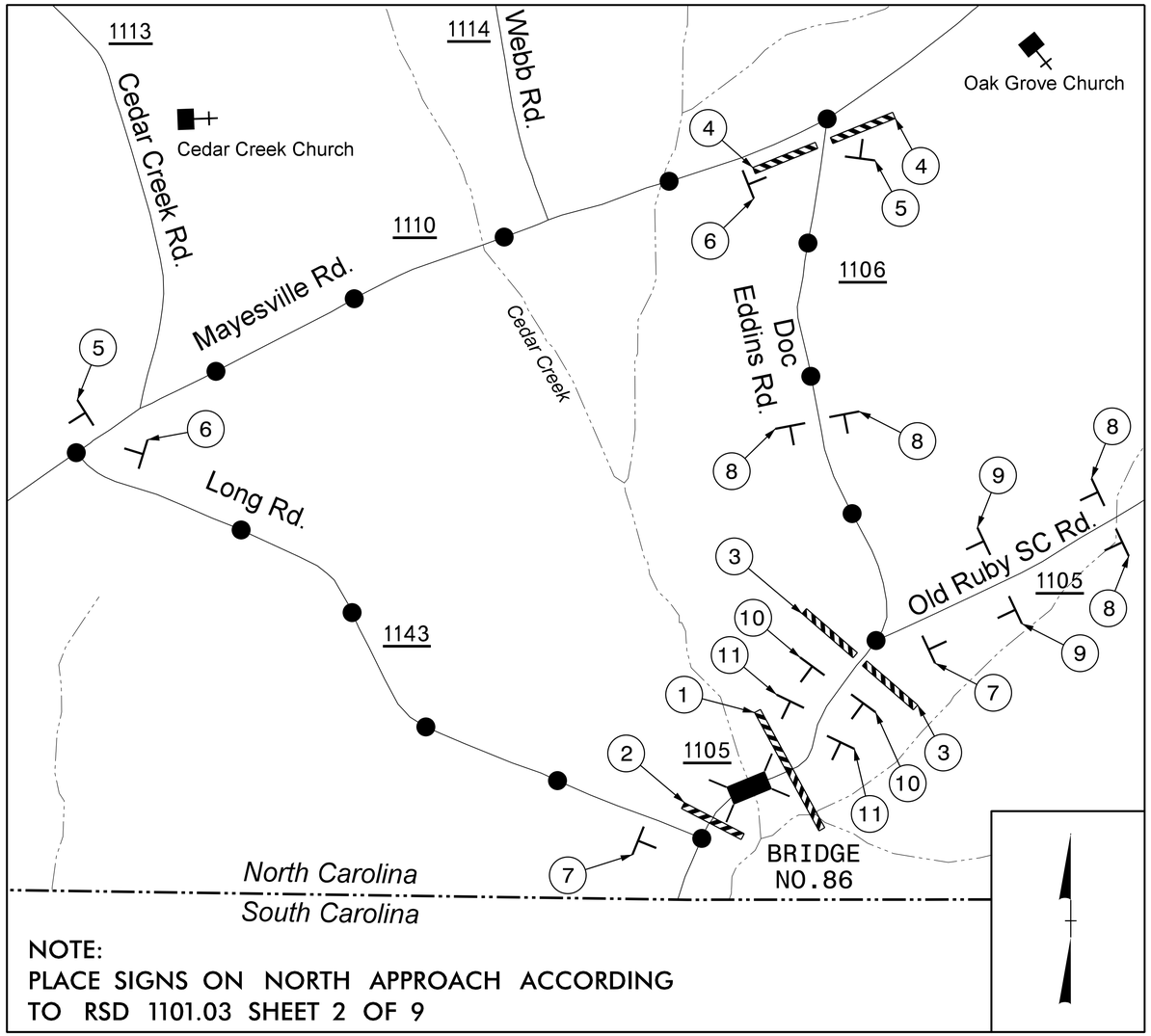
N.C.B.E.L.S. License Number: F-0116



NOTE:
PLACE SIGNS ON NORTH APPROACH ACCORDING TO RSD 1101.03 SHEET 2 OF 9

DETOUR ROUTE

REFER TO RSD 1101.03 SHEETS 1 AND 2 OF 9 FOR GENERAL NOTES, ADDITIONAL SIGNS, AND BARRICADE PLACEMENT.

USE 24" PAINT PAVEMENT MARKING FOR STOP BAR ON RSD 1101.03, SHEET 2 OF 9.

SEE SHEET SD-01 FOR SPECIAL SIGN DESIGN DETAIL.

1. R11-2 48" x 30" — ROAD CLOSED — TYPE III BARRICADE(S)
2. R11-2 48" x 30" — ROAD CLOSED — DETOUR — M4-10L 48" x 18" — TYPE III BARRICADE
3. R11-3 60" x 30" — ROAD CLOSED 1500 FT AHEAD LOCAL TRAFFIC ONLY — DETOUR — M4-10R 48" x 18" — TYPE III BARRICADE
4. Old Ruby SC Rd SD-01 60" x 12" — R11-3 60" x 30" — ROAD CLOSED 1 MILE AHEAD LOCAL TRAFFIC ONLY — DETOUR — M4-10R 48" x 18" — TYPE III BARRICADE
5. Old Ruby SC Rd SD-01 60" x 12" — DETOUR M4-8 24" x 12" — M6-1 21" x 15"
6. Old Ruby SC Rd SD-01 60" x 12" — DETOUR M4-8 24" x 12" — M6-1 21" x 15"
7. Old Ruby SC Rd SD-01 60" x 12" — END DETOUR M4-8 A 24" X 18"
8. ROAD CLOSED AHEAD W20-3 48" X 48"
9. DETOUR AHEAD W20-2 48" X 48"
10. ROAD CLOSED 1000 FT W20-3 48" x 48"
11. ROAD CLOSED 500 FT W20-3 48" x 48"

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DATE: 3/15/2017
SEAL
NORTH CAROLINA PROFESSIONAL SEAL 033789 ENGINEER MICHELLE WARD

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

OFFSITE DETOUR PLAN
OLD RUBY SC ROAD
(SR 1105)

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PROJ. REFERENCE NO.	SHEET NO.
17BP.10.R.58	SD-01

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N.C.B.E.L.S. License Number: F-0116

SIGN NUMBER:
TYPE: D
QUANTITY: 1

SIGN WIDTH: 5′-0″
HEIGHT: 1′-0″
TOTAL AREA: 5.0 Sq.Ft.

BORDER TYPE: FLUSH
RECESS: 0.38″
WIDTH: 0.38″
RADII: 1.5″

NO. Z BARS:
LENGTH:

BACKG COLOR: Orange
COPY COLOR: Black

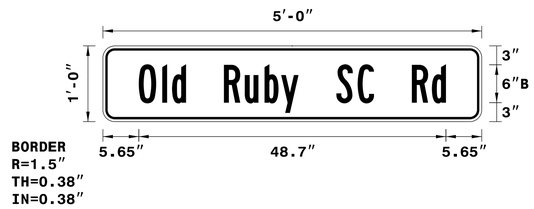
SYMBOL	X	Y	WID	HT

MAT′L: 0.125″ (3.2 mm) ALUMINUM

USE NOTES:

1. Legend and border shall be direct applied non-reflective sheeting.
2. Background shall be Grade B reflective sheeting.

DESIGN BY: D KERNS
PROJECT ID: ID
CHECKED BY:
DIV: DIV
DATE: Dec 18, 2013



BORDER
R=1.5″
TH=0.38″
IN=0.38″

Spacing Factor is 1 unless specified otherwise

LETTER POSITIONS

Letter spacings are to start of next letter

Series/Size
Text Length

		O	l	d		R	u	b	y		S	C		R	d											B 2000
	5.7	3.7	1.6	2.2	6	3.3	3.1	2.6	2.8	6	3.4	2.6	6	3.2	2.2	5.7										48.7

FILENAME: DWSignDesigns

NORTH CAROLINA D.O.T. SIGN DETAIL

APPROVED: DocuSigned by: David H Kerns 851F0FE9CE4447A...
DATE: 3/15/2017
SEAL

NORTH CAROLINA PROFESSIONAL SEAL 030881 ENGINEER DAVID H. KERNS

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

SIGN DESIGN
OLD RUBY SC RD

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09/08/99

STATE PROJECT: 17BP.10.R.58

HDR Engineering, Inc. of the Carolinas
555 Fayetteville St, Suite 900 Raleigh, N.C. 27601
N.C.B.E.L.S. License Number: F-0116

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

JOSHUA MASSROCK
LEVEL III NAME

3573
LEVEL III CERTIFICATION NO.

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.10.R.58	EC-1	

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
17BP.10.R.58		P.E., R/W, CONSTR.

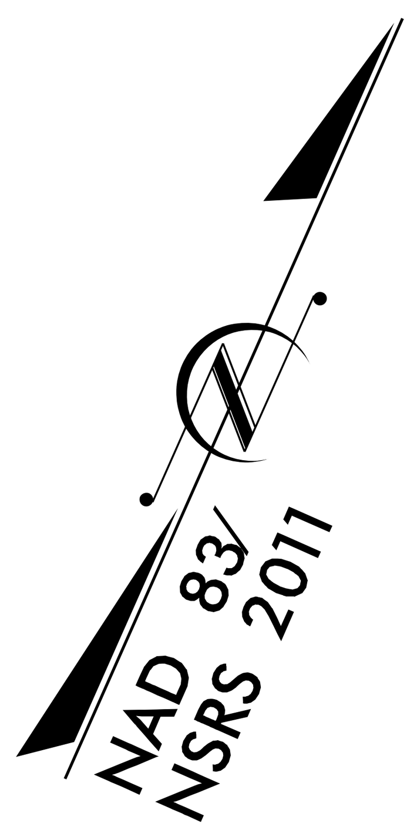
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

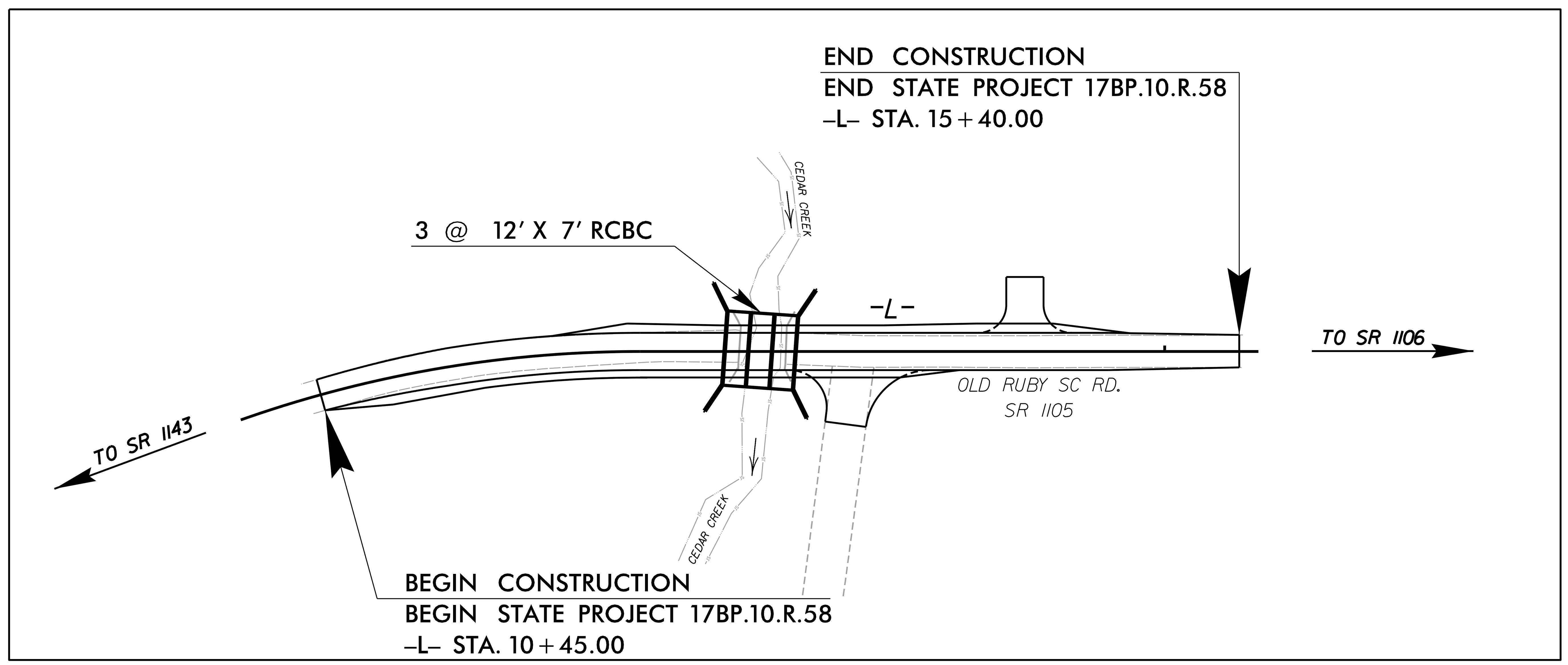
PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL

ANSON COUNTY

LOCATION: BRIDGE NO. 86 ON SR 1105 OVER CEDAR CREEK BETWEEN SR 1143 AND SR 1106

TYPE OF WORK: GRADING, DRAINAGE, PAVING AND STRUCTURE





LOCATION SKETCH

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

EROSION AND SEDIMENT CONTROL MEASURES

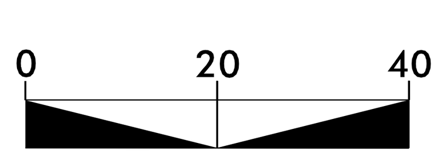
Std. #	Description	Symbol
1630.03	Temporary Silt Ditch	TSD
1630.05	Temporary Diversion	TD
1605.01	Temporary Silt Fence	
1606.01	Special Sediment Control Fence	
1622.01	Temporary Berms and Slope Drains	
1630.02	Silt Basin Type B	
1633.01	Temporary Rock Silt Check Type-A	
	Temporary Rock Silt Check Type-A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

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

NOTES: ANY DEVIATION FROM OPTIONS GIVEN WILL REQUIRE PRIOR APPROVAL BY ENGINEER.

ADDITIONAL EROSION CONTROL DEVICES MAY NEED TO BE INSTALLED AS DIRECTED BY THE ENGINEER.

GRAPHIC SCALE



PLANS

ROADSIDE ENVIRONMENTAL UNIT
DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

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

Prepared In the Office of:

ROADSIDE ENVIRONMENTAL UNIT

1 South Wilmington St.
Raleigh, NC 27611

2012 STANDARD SPECIFICATIONS

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 revison thereto are applicable to this project and by reference hereby are considered a part of these plans.

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

PROJECT REFERENCE NO.	SHEET NO.
17BPJ0.R.58	EC-2

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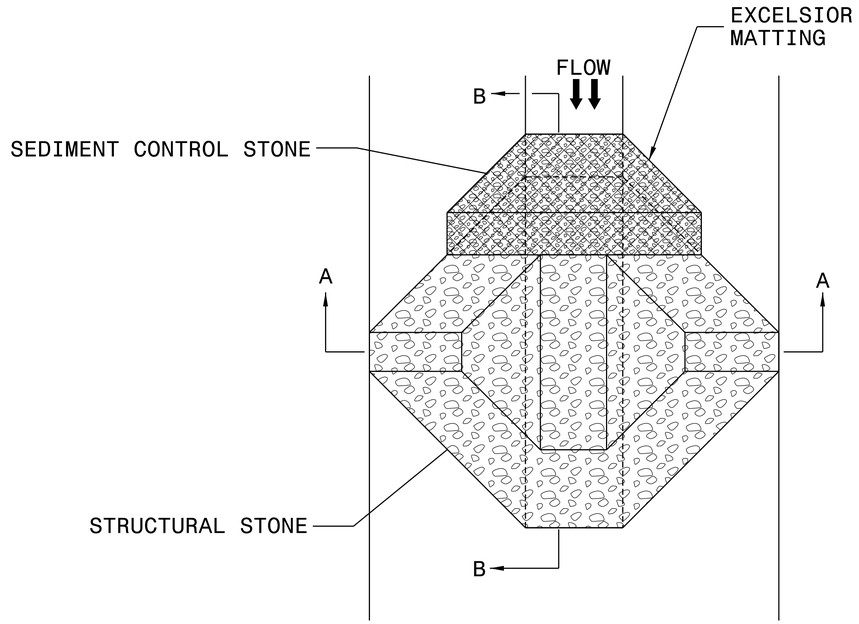
N.C.B.E.L.S. License Number: F-0116

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



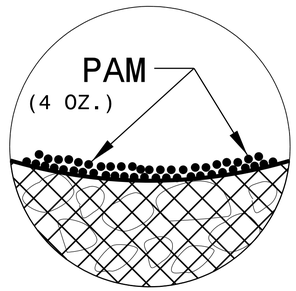
PLAN

NOTES

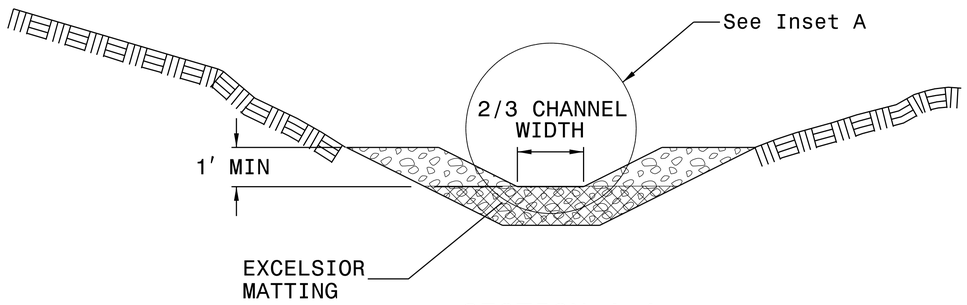
USE EXCELSIOR FOR MATTING MATERIAL AND ANCHOR MATTING SECTION AT TOP AND BOTTOM WITH CLASS B STONE.

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

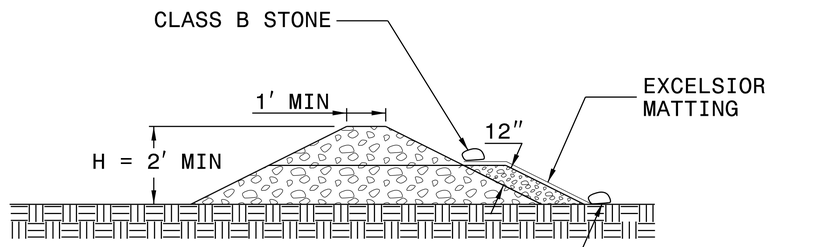
INITIALLY APPLY 4 OUNCES OF POLYACRYLAMIDE (PAM) TO TOP OF MATTING SECTION AND AFTER EVERY RAINFALL EVENT THAT EQUALS OR EXCEEDS 0.50 INCHES.



INSET A



SECTION A-A



SECTION B-B

NOT TO SCALE

PROJECT REFERENCE NO.	SHEET NO.
17BPJ0.R.58	EC-3

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N.C.B.E.L.S. License Number: F-0116

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SOIL STABILIZATION SUMMARY SHEET

MATTING FOR EROSION CONTROL

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
4	-L-	10+50	12+00	RT	75
				SUBTOTAL	75

MATTING FOR 2:1 CUT AND FILL SLOPES

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
4	-L-	10+75	12+67	LT	110
4	-L-	12+00	12+50	RT	13
4	-L-	13+00	15+25	RT	129
				SUBTOTAL	252
				TOTAL	327
				SAY	330

PROJECT REFERENCE NO.	SHEET NO.
17BPJ0.R.58	EC-3A

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N.C.B.E.L.S. License Number: F-0116

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

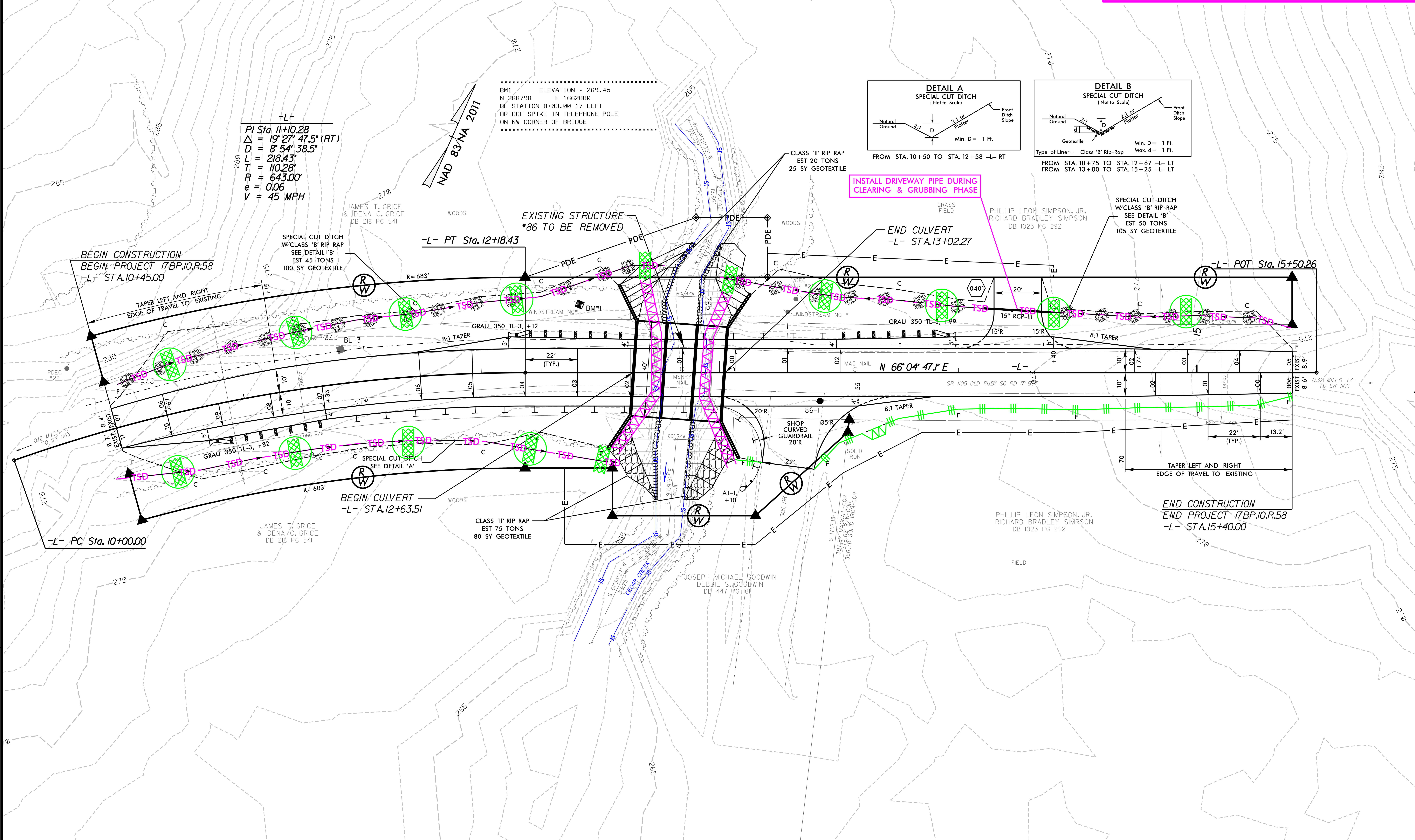
SOIL STABILIZATION TIMEFRAMES

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.

PROJECT REFERENCE NO.	SHEET NO.
17BP.10.R.58	EC-4/CONST.4

HDR Engineering, Inc. of the Carolinas
555 Fayetteville St, Suite 900 Raleigh, N.C. 27601
N.C.B.E.L.S. License Number: F-0116

CLEARING AND GRUBBING EROSION CONTROL FOR CONSTRUCTION SHEET 4



PROJECT REFERENCE NO.	SHEET NO.
17BPJ0.R.58	EC-5/CONST.4

HDR Engineering, Inc. of the Carolinas
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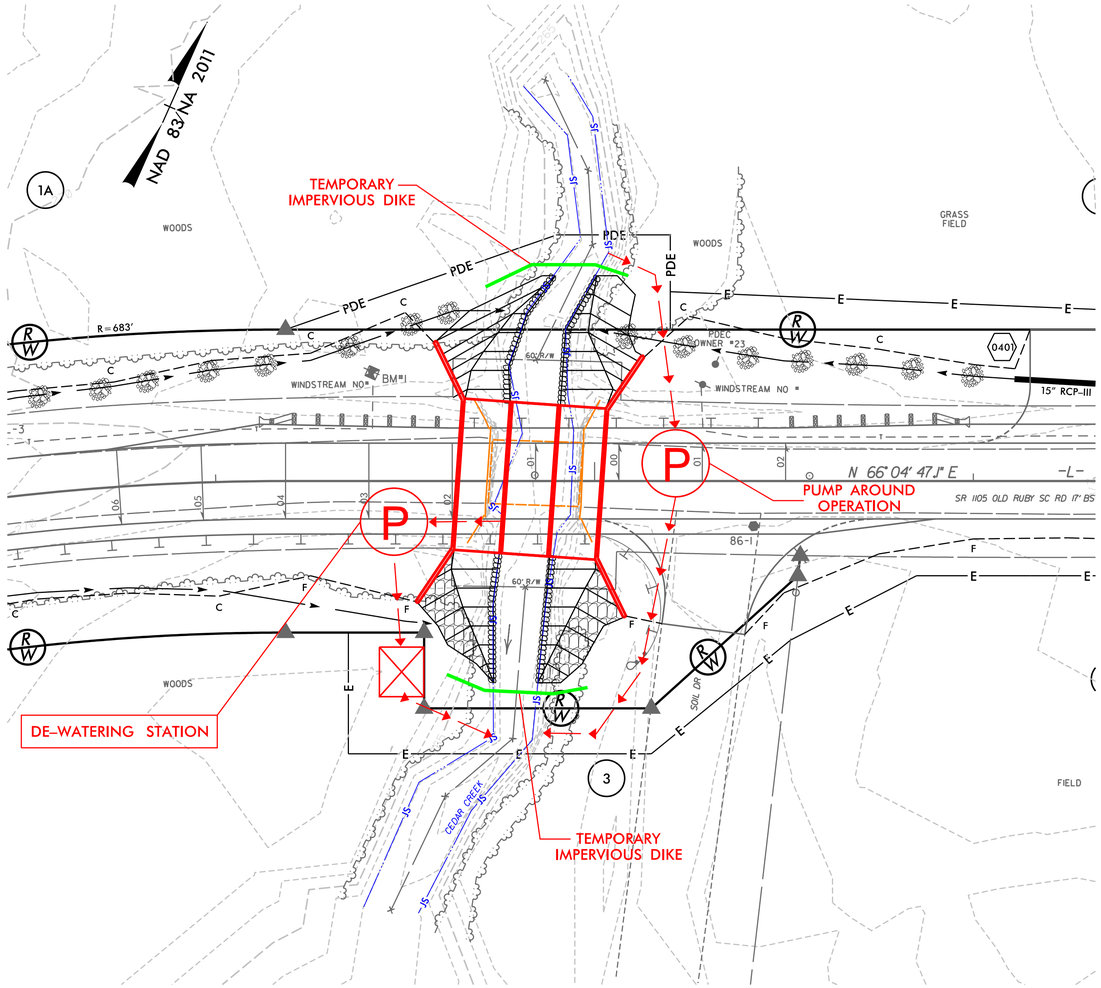
N.C.B.E.L.S. License Number: F-0116

TRIPLE 12' X 7' RCBC CULVERT CONSTRUCTION SEQUENCE

1. INSTALL IMPERVIOUS DIKES UPSTREAM AND DOWNSTREAM OF THE PROPOSED CULVERT.
2. INSTALL PUMP AROUND OPERATION TO CARRY CLEAN WATER AROUND THE WORK AREA TO ALLOW FOR CULVERT CONSTRUCTION.
3. PROVIDE PUMP AND STILLING BASIN FOR DEWATERING THE WORK ZONE.
4. CONSTRUCT CULVERT INCLUDING WINGWALLS AND OUTLET STABILIZATION ASSOCIATED WITH THE BARRELS.
5. CONSTRUCT FLOODPLAIN BENCH WITH NATIVE BED MATERIAL AND STABILIZE BENCH FACE WITH CLASS 'II' RIP RAP.
6. REMOVE IMPERVIOUS DIKES, DEWATERING STATION, AND PUMP AROUND AFTER WORK AREA HAS BEEN STABILIZED.
7. REMOVE EROSION CONTROL DEVICES AND BEGIN ROADWAY IMPROVEMENTS.



REVISION 9-18-2017: REVISED CONSTRUCTION SEQUENCE TO ELIMINATE TEMPORARY 54" PIPE.

PROJECT REFERENCE NO.	SHEET NO.
17BPJ0.R.58	EC-6/CONST.4

HDR Engineering, Inc. of the Carolinas
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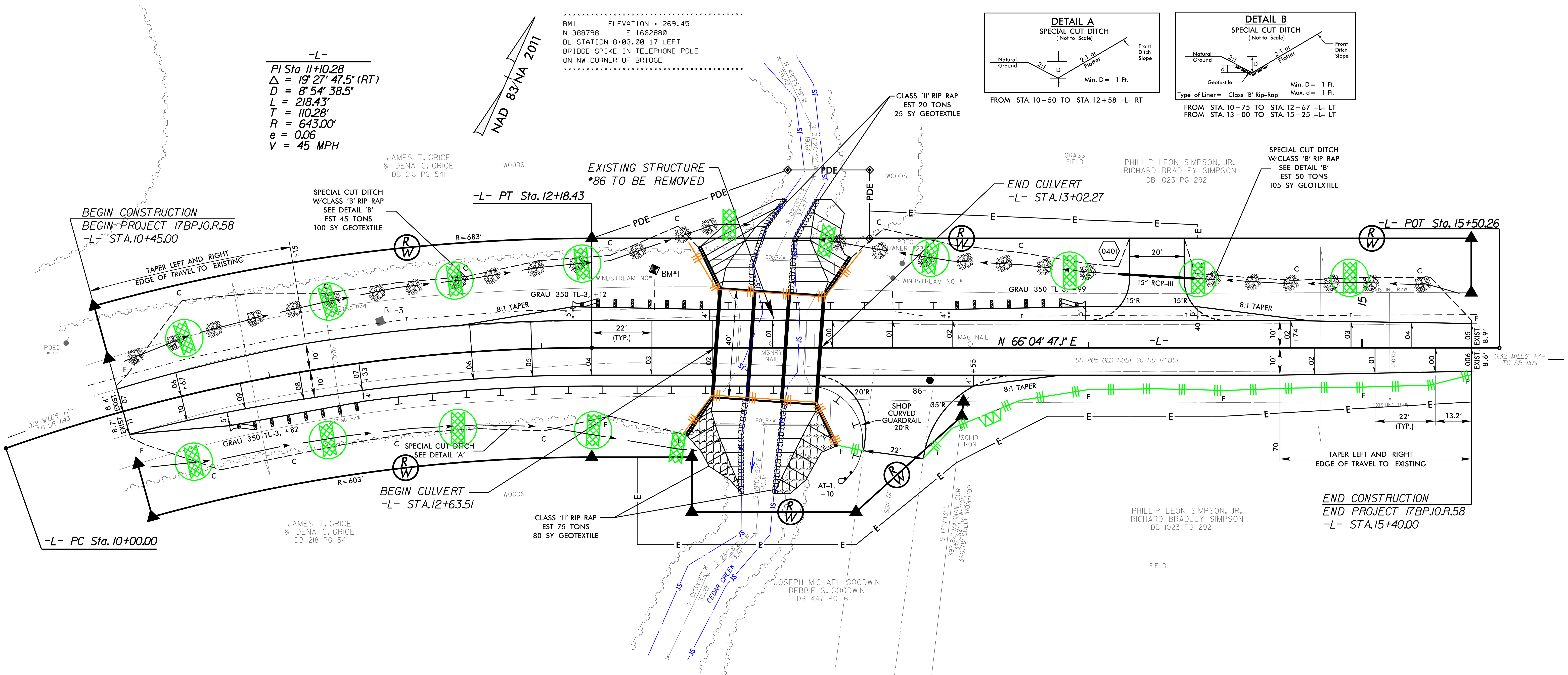
N.C.B.E.L.S. License Number: F-0116

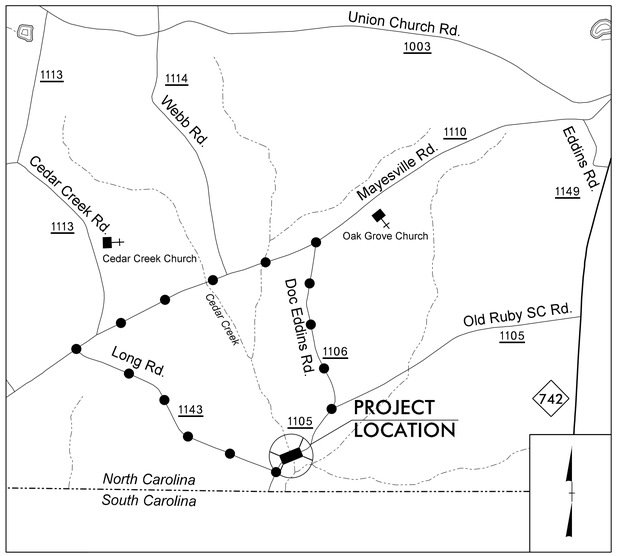


09/08/99

STATE PROJECT: 17BP.10.R.58

CONTRACT: –

See Sheet 1-A For Index of Sheets



DETOUR ROUTE

VICINITY MAP
(NOT TO SCALE)

T.I.P. NO.	SHEET NO.
17BP.10.R.58	UO–1

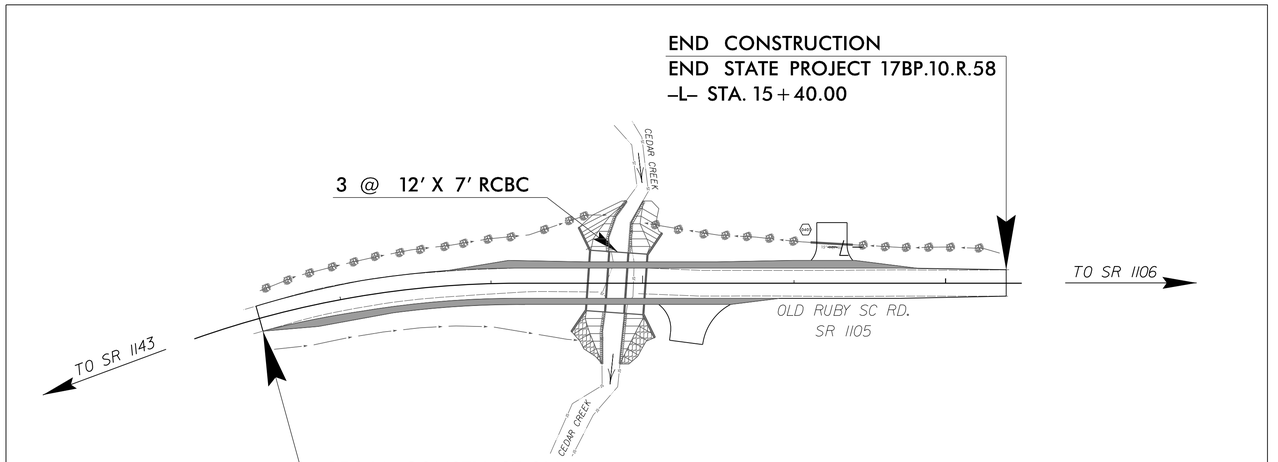
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

UTILITIES BY OTHERS PLANS
ANSON COUNTY

LOCATION: BRIDGE NO. 86 ON SR 1105 OVER CEDAR CREEK BETWEEN SR 1143 AND SR 1106

TYPE OF WORK: UTILITY RELOCATION

NAD 83/
NA 2011



LOCATION SKETCH

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

HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

RELEASE FOR CONSTRUCTION
DATE: 11/03/15

GRAPHIC SCALES

PLANS: 20 10 0 20 40

PROFILE (HORIZONTAL): 20 10 0 20 40

PROFILE (VERTICAL): 4 2 0 4 8

INDEX OF SHEETS

UTILITY OWNERS ON PROJECT

(A) POWER– PEE DEE EMC
(B) PHONE– WINDSTREAM

Prepared for NCDOT Division of Highways in the Office of:

WETHERILL ENGINEERING
559 JONES FRANKLIN ROAD
SUITE 164
Raleigh, N.C. 27606
License No. F-0377
Bus: 919 851 8077
Fax: 919 851 8107

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:

LETTING DATE:

DOMINIC M. WAINWRIGHT, P.E.
PROJECT ENGINEER

JAMES R. RICE, P.E.
PROJECT DESIGN ENGINEER

JOHN D. SCHRINER, PLS
UTILITY COORDINATOR

NCDOT CONTACT:
PRIORITY PROJECT OFFICE

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

LOUIS MITCHELL *P.E.*
DIVISION ENGINEER

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

PROJECT REFERENCE NO.	SHEET NO.
17BP.10.R.58	U0-2

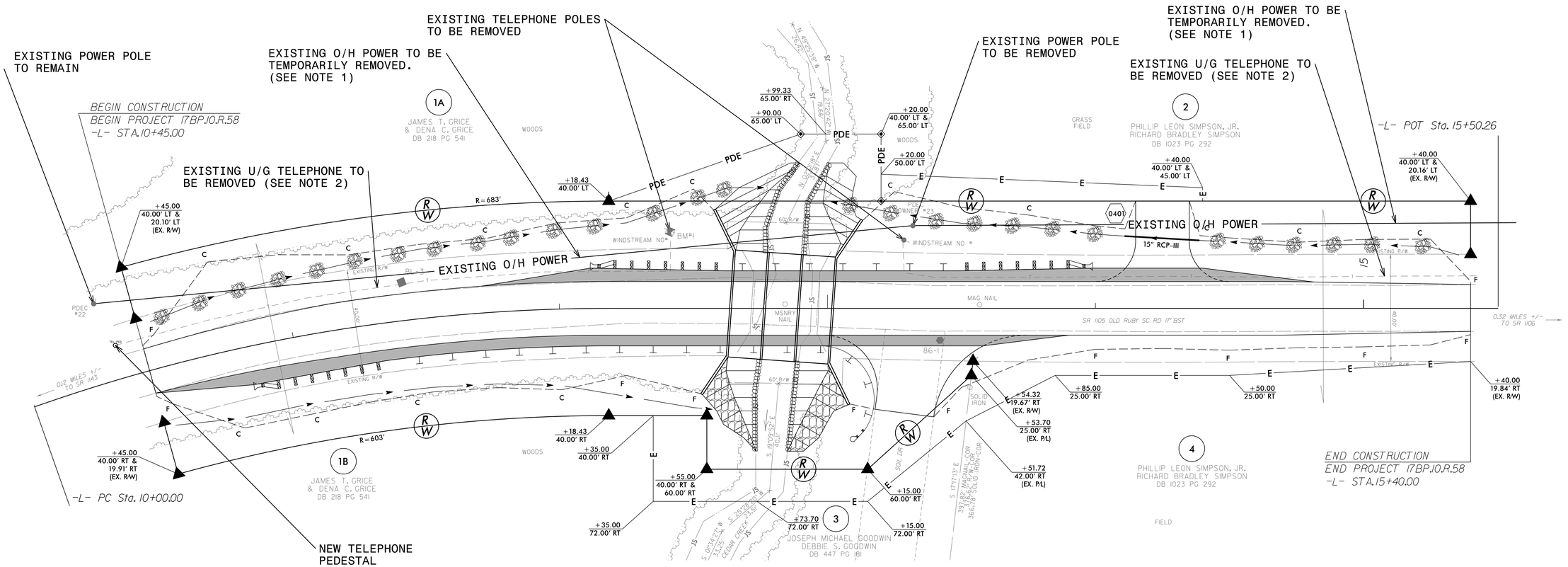
UTILITIES BY OTHERS

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

NAD 83/NA 2011

HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

REVISIONS
110315 New driveway added on parcel 2

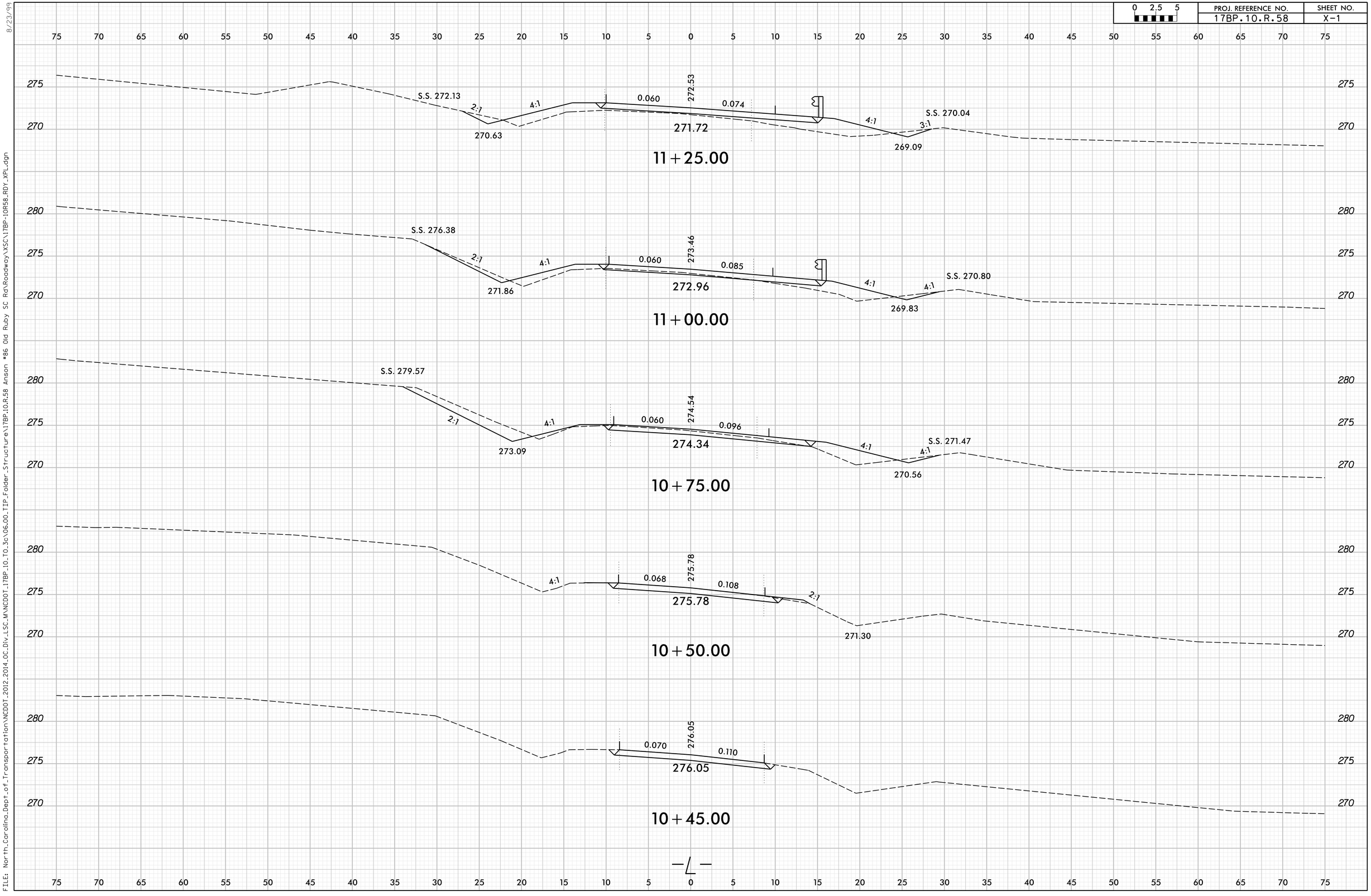


NOTES:

1. OVERHEAD POWER TO BE REMOVED DURING CONSTRUCTION. POWER TO BE RESTORED TO ITS ORIGINAL CONFIGURATION WHEN CONSTRUCTION IS COMPLETE.
2. EXISTING U/G PHONE TO BE REMOVED. NEW PHONE WILL BE INSTALLED, IF NEEDED, AFTER CONSTRUCTION IS COMPLETE UNDER SEPARATE AGREEMENT.

RELEASE FOR CONSTRUCTION
DATE: 11/03/15

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	17BP.10.R.58	X-1



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8/23/99

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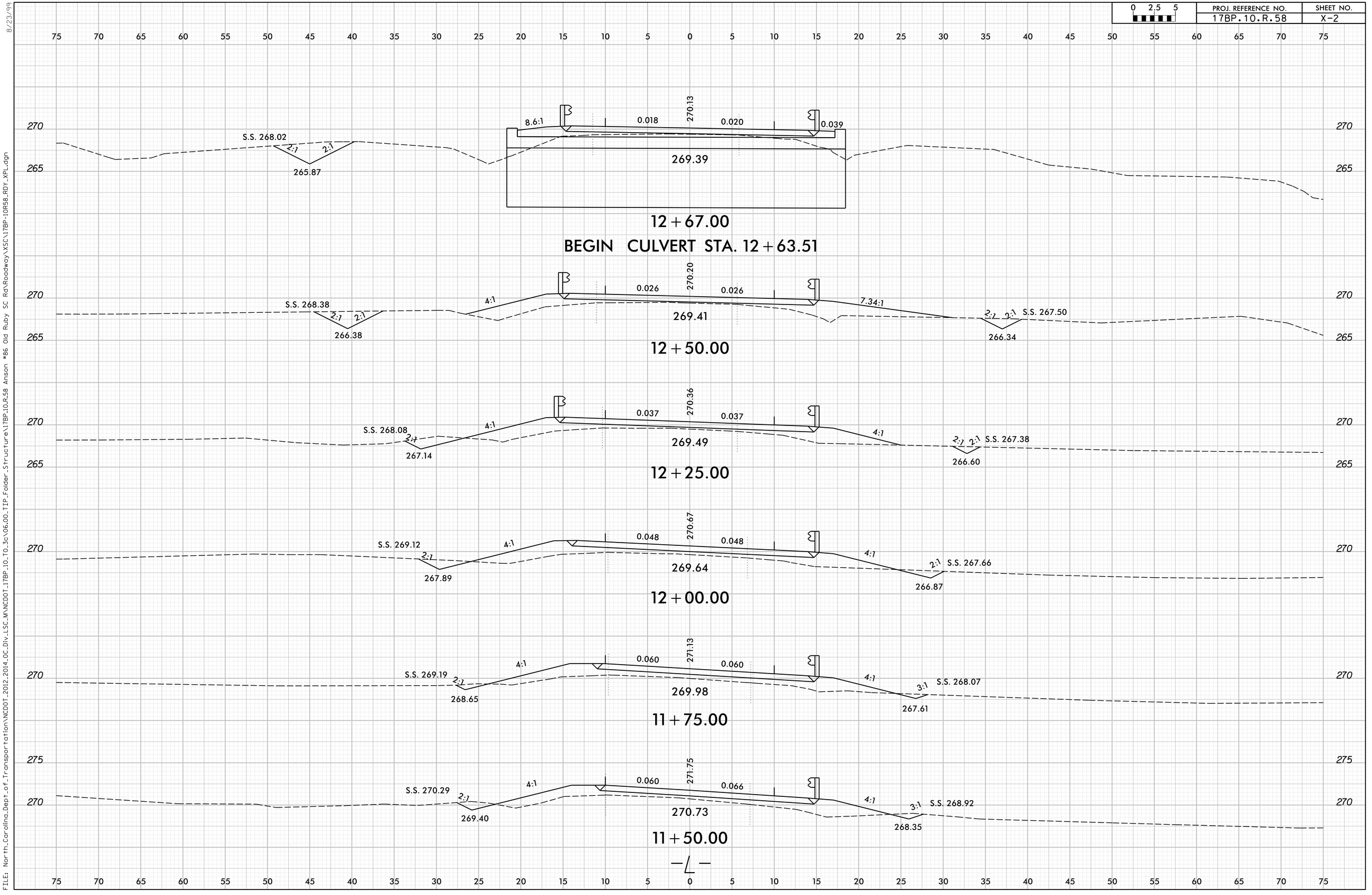

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	17BP.10.R.58	X-3

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

270 265

S.S. 268.12 — 2:1 — 265.85 — 4:1 — 0.020 — 269.69 — 0.020 — 269.29 — 4:1 — S.S. 268.23

13+75.00

270 265

S.S. 267.95 — 2:1 — 264.99 — 3.45:1 — 0.020 — 269.78 — 0.020 — 4' F.D.P.S. — DRIVEWAY — 269.30 — 4:1 — S.S. 267.28

13+50.00

270 265

S.S. 268.04 — 2:1 — 264.13 — 3.44:1 — 0.008 — 269.88 — 0.020 — 4' F.D.P.S. — 2.5% DRIVEWAY — 269.32

13+25.00

END CULVERT STA. 13+02.27

270 265

2:1 — 263.27 — 2:1 — 0.044 — 0.003 — 269.99 — 0.020 — 0.020 — 269.37

13+00.00

270 265 260

11:1 — 0.011 — 270.06 — 0.020 — 0.020 — 262.04

12+83.00

—℄—

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8/23/99

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PROJ. REFERENCE NO.	SHEET NO.
17BP.10.R.58	X-4

0 2.5 5

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275
270

S.S. 272.46
3:1
271.01
0.043
274.98
0.001
8:1
S.S. 274.64
274.93

15+25.00

275
270

S.S. 271.05
2:1
270.15
4:1
0.032
273.37
0.012
4:1
S.S. 272.72
273.13

15+00.00

275
270

S.S. 269.96
2:1
269.29
4:1
0.020
272.04
0.020
4:1
S.S. 271.32
271.64

14+75.00

270

S.S. 269.16
2:1
268.43
4:1
0.020
271.01
0.020
4:1
S.S. 270.09
270.63

14+50.00

270

13′
12′
5′
F.D.P.S.
8 % DRIVEWAY
2 % DRIVEWAY
267.57
0.020
270.28
0.020
4:1
S.S. 269.51
269.82

14+25.00

270
265

S.S. 268.26
2:1
266.71
4:1
0.020
269.84
0.020
4:1
S.S. 269.00
269.50

14+00.00

—℄—

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8/23/99

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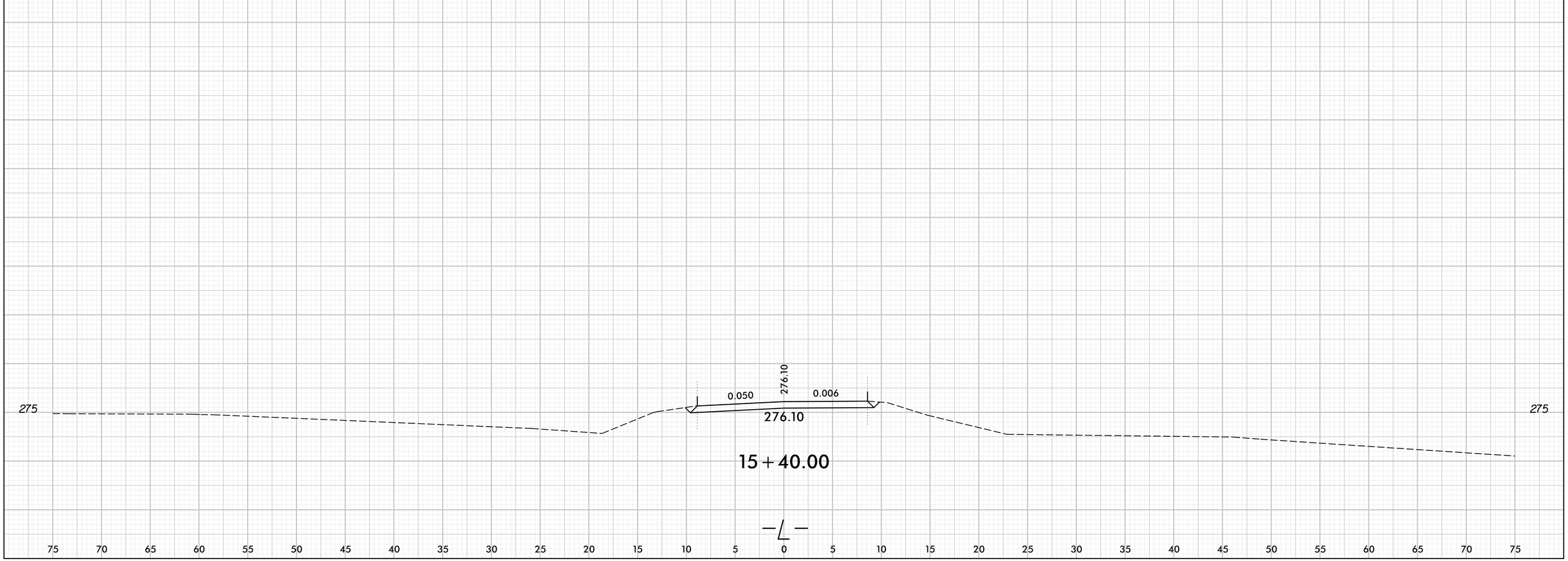

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