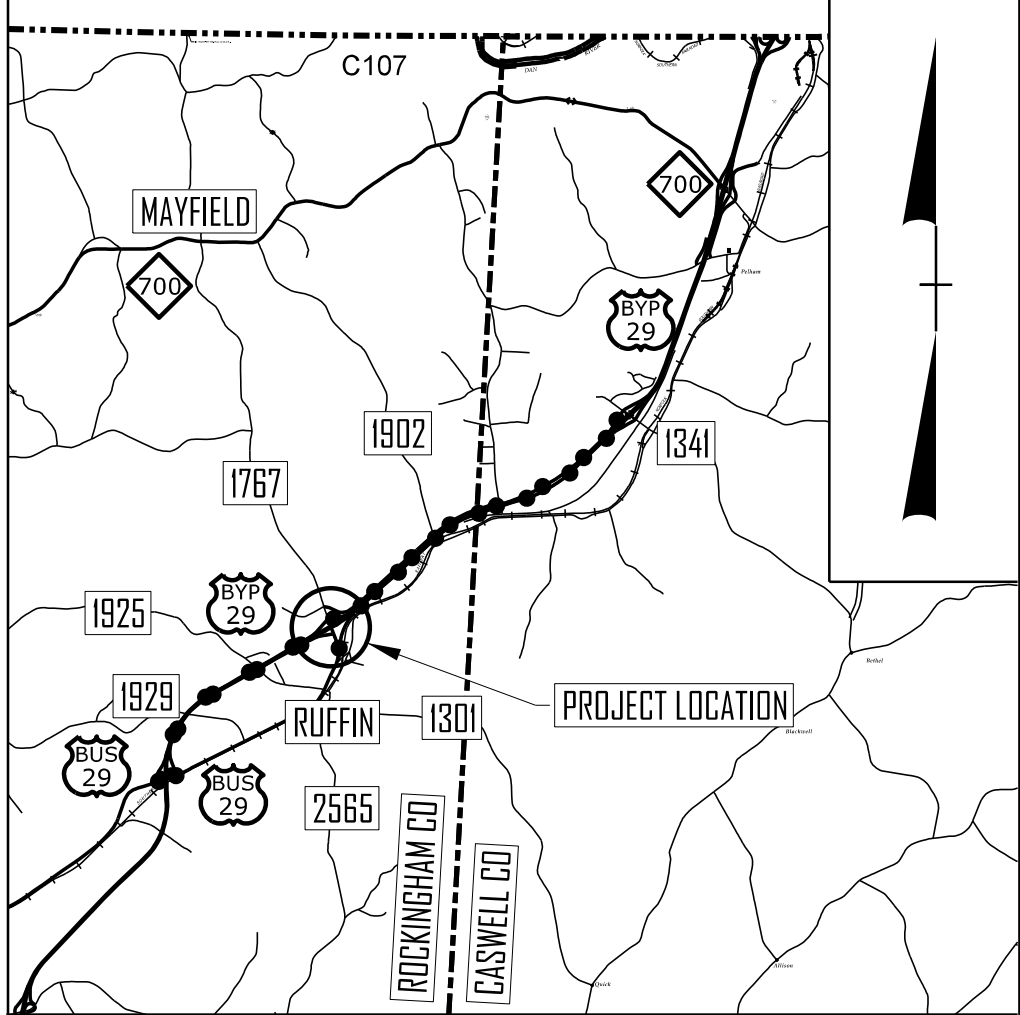


TIP PROJECT: BR-0098

CONTRACT: C205116

See Sheet 1A For Index of Sheets
See Sheet 1B For Conventional Symbols



VICINITY MAP (NTS)

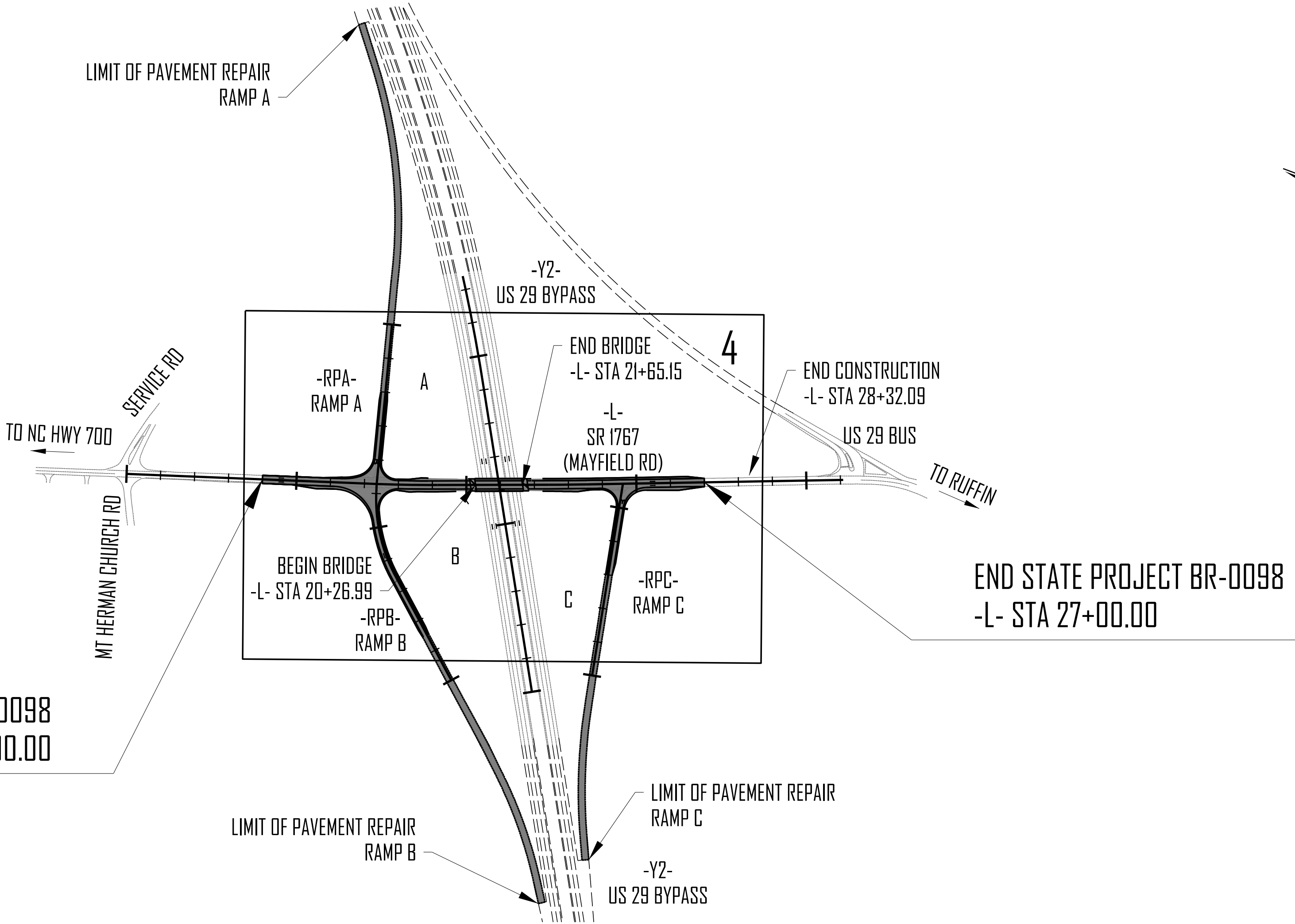
DETOUR

STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

ROCKINGHAM COUNTY

LOCATION: *REPLACE BRIDGE #780183 ON
US 29 (BUS) OVER
US 29 BYPASS*

TYPE OF WORK: *PAVING, GRADING, DRAINAGE
AND STRUCTURES*



BEGIN STATE PROJECT BR-0098
BEGIN CONSTRUCTION -L- STA 14+00.00

THIS IS A PARTIAL CONTROLLED ACCESS PROJECT WITH ACCESS BEING LIMITED TO POINTS SHOWN ON THE PLANS.

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES



PLANS



PROFILE (HORIZONTAL)



PROFILE (VERTICAL)

DESIGN DATA

ADT 2025 = 1,600
ADT 2045 = 1,800
K = 8 %
D = 55 %
T = 3 % *
V = 45 MPH
* TTST =1% DUAL 2%
FUNC CLASS =
MINOR ARTERIAL
SUBREGIONAL TIER

PROJECT LENGTH

LENGTH OF ROADWAY TIP PROJECT BR-0098 = 0.220 MILES
LENGTH OF STRUCTURE TIP PROJECT BR-0098 = 0.026 MILES
TOTAL LENGTH OF TIP PROJECT BR-0098 = 0.246 MILES



Prepared in the Office of:
moffatt & nichol

4700 FALLS OF NEUSE ROAD, SUITE 300
RALEIGH, NORTH CAROLINA 27609
(919) 781-4826 VOICE (919) 781-4869 FAX
NC LICENSE NO.: F-0105

2024 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
OCTOBER 14, 2024

LETTING DATE:
OCTOBER 21, 2025

TRENT E. HUFFMAN, P.E.
PROJECT ENGINEER

GRAY MODLIN, P.E.
PROJECT DESIGN ENGINEER

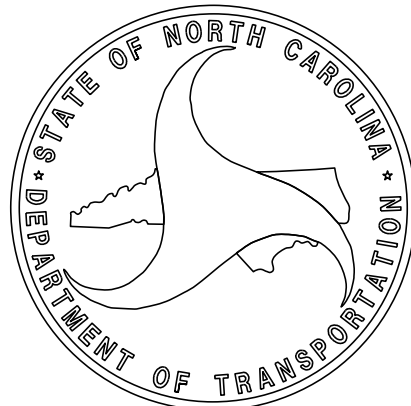
LINDSAY CROCKER
NCDOT CONTACT

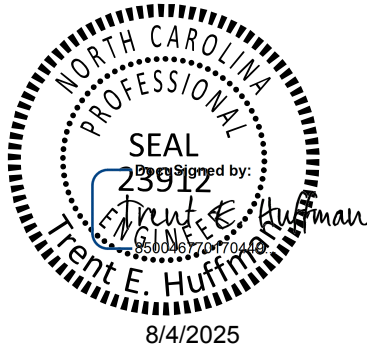
HYDRAULICS ENGINEER

DocuSigned by:
Roger Weldon
8/5/2025
SIGNATURE

ROADWAY DESIGN ENGINEER

DocuSigned by:
Trent E. Huffman
8/4/2025
SIGNATURE

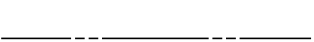
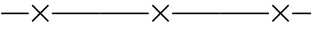
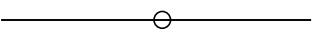
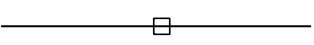
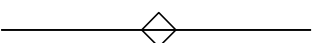
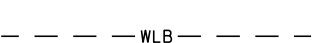
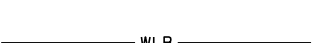
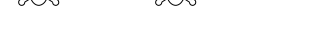
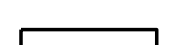
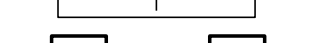




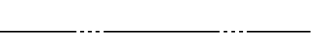
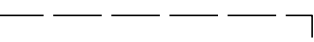
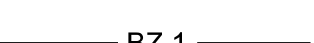
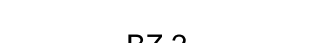
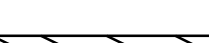
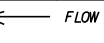
INDEX OF SHEETS		GENERAL NOTES:		EFF. 01-16-2024 REV.
SHEET NUMBER		SHEET		2024 ROADWAY ENGLISH STANDARD DRAWINGS
1		TITLE SHEET	GRADING AND SURFACING OR RESURFACING AND WIDENING:	The following Roadway Standards as appear in "Roadway Standard Drawings" Contracts Standards and Development Unit - N. C. Department of Transportation - Raleigh, N. C., Dated January 16, 2024 are applicable to this project and by reference hereby are considered a part of these plans:
1A		INDEX OF SHEETS, GENERAL NOTES, AND STANDARD DRAWINGS	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.	STD.NO. TITLE
1B		CONVENTIONAL SYMBOLS		DIVISION 2 - EARTHWORK
2A -1 THRU 2A-3		PAVEMENT SCHEDULE AND TYPICAL SECTIONS		200.02 Method of Clearing - Method II
2B-1		ROADWAY DETAILS		225.01 Guide for Grading Subgrade - Interstate and Freeway
2C-1 THRU 2C-3		SPECIAL DETAILS		225.02 Guide for Grading Subgrade - Secondary and Local
3B-1		ROADWAY SUMMARIES	CLEARING:	225.04 Method of Obtaining Superelevation - Two Lane Pavement
3D-1		DRAINAGE SUMMARIES	CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II.	225.09 Guide for Shoulder and Ditch Transition at Grade Separations
3G-1		GEOTECHNICAL SUMMARIES	SUPERELEVATION:	275.01 Rock Plating
4 THRU 7		PLAN AND PROFILE SHEET	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.	DIVISION 3 - PIPE CULVERTS
RW02C-1 THRU RW02C-3		RIGHT OF WAY SHEETS	SHOULDER CONSTRUCTION:	300.01 Method of Pipe Installation (Use Details in Lieu of Standards for Sheets 1 and 2 of 2)
TMP-1 THRU TMP-7		TRAFFIC MANAGEMENT PLANS	ASPHALT, EARTH, AND CONCRETE SHOULDER CONSTRUCTION ON THE HIGH SIDE OF SUPERELEVATED CURVES SHALL BE IN ACCORDANCE WITH STD. NO. 560.01	DIVISION 4 - MAJOR STRUCTURES
PMP-1 THRU PMP-4		PAVEMENT MARKING PLANS		423.03 Bridge Approach Fills - Type 2 Approach Fill for Bridge Abutment with MSE Wall
EC-1 THRU EC- 5		EROSION CONTROL PLANS	SIDE ROADS:	DIVISION 5 - SUBGRADE, BASES AND SHOULDERS
SIGN-1 THRU SIGN-4		SIGNING PLANS	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.	560.01 Method of Shoulder Construction - High Side of Superelevated Curve - Method I
UO-1 THRU UO-2		UTILITIES BY OTHERS PLANS	UNDERDRAINS:	DIVISION 6 - ASPHALT BASES AND PAVEMENTS
X-1		CROSS-SECTION INDEX	UNDERDRAINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 815.03 AT LOCATIONS DIRECTED BY THE ENGINEER.	610.04 Guide for Paving Shoulders Under Bridges - Method IV
X-1A		CROSS-SECTION SUMMARY SHEET		654.01 Pavement Repairs
X-2 THRU X-31		CROSS-SECTIONS	GUARDRAIL:	DIVISION 8 - INCIDENTALS
S-1 THRU S-25		STRUCTURE PLANS	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.	815.03 Pipe Underdrain and Blind Drain
W-1 THRU W-5		WALL PLANS	TEMPORARY SHORING:	840.00 Concrete Base Pad for Drainage Structures
			SHORING REQUIRED FOR THE MAINTENANCE OF TRAFFIC NOT SHOWN ON THE PLANS WILL BE PAID FOR AT THE CONTRACT PRICE FOR "TEMPORARY SHORING".	840.18 Concrete Grated Drop Inlet Type 'B' - 12" thru 36" Pipe
			END BENTS:	840.19 Concrete Grated Drop Inlet Type 'D' - 12" thru 36" Pipe
			THE ENGINEER SHALL CHECK THE STRUCTURE END BENT PLANS, DETAILS, AND CROSS-SECTION PRIOR TO SETTING OF THE SLOPE STAKES FOR THE EMBANKMENT OR EXCAVATION APPROACHING A BRIDGE.	840.20 Frames and Wide Slot Flat Grates
			ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS.	840.22 Frames and Wide Slot Sag Grates
			RIGHT-OF-WAY MARKERS:	840.25 Anchorage for Frames - Brick or Concrete or Precast
			ALL RIGHT-OF-WAY MARKERS ON THIS PROJECT SHALL BE PLACED BY OTHERS.	840.27 Brick Grated Drop Inlet Type 'B' - 12" thru 36" Pipe
				840.28 Brick Grated Drop Inlet Type 'D' - 12" thru 36" Pipe
				840.31 Concrete Junction Box - 12" thru 66" Pipe
				840.32 Brick Junction Box - 12" thru 66" Pipe
				840.34 Traffic Bearing Junction Box - for Use with Pipes 42" and Under
				840.35 Traffic Bearing Grated Drop Inlet - for Cast Iron Double Frame and Grates
				840.36 Traffic Bearing Grated Drop Inlet - for Steel (840.37) Double Frame and Grates
				840.37 Steel Grate and Frame
				840.45 Precast Drainage Structure
				840.46 Traffic Bearing Precast Drainage Structure
				840.54 Manhole Frame and Cover
				840.66 Drainage Structure Steps
				846.01 Concrete Curb, Gutter and Curb & Gutter
				846.04 Drop Inlet Installation in Shoulder Berm Gutter
				857.01 Precast Reinforced Concrete Barrier - 41" Single Faced
				862.01 Guardrail Placement (Use Details in Lieu of Standards for Sheets 4, 6, 12, and 14 of 15)
				862.02 Guardrail Installation
				862.03 Structure Anchor Units (Use Detail in Lieu of Standard for Sheet 8 of 9)
				862.04 Anchoring End of Guardrail - for B-77 and B-83 Anchor Units
				865.01 Cable Guiderail
				876.02 Guide for Rip Rap at Pipe Outlets

Note: Not to Scale

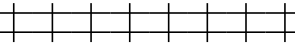
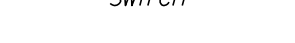
BOUNDARIES AND PROPERTY:

State Line	
County Line	
Township Line	
City Line	
Reservation Line	
Property Line	
Existing Iron Pin (EIP)	
Computed Property Corner	
Existing Concrete Monument (ECM)	
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	

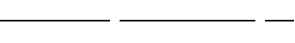
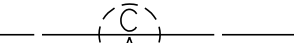
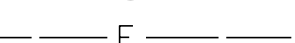
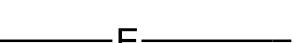
HYDROLOGY:

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	

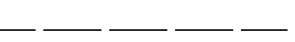
RAILROADS:

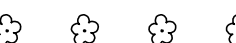
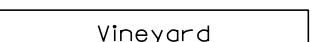
Standard Gauge	
RR Signal Milepost	
Switch	
RR Abandoned	
RR Dismantled	

RIGHT OF WAY & PROJECT CONTROL:

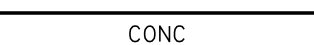
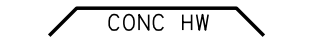
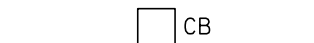
Primary Horiz Control Point	
Primary Horiz and Vert Control Point	
Secondary Horiz and Vert Control Point	
Vertical Benchmark	
Existing Right of Way Monument	
Proposed Right of Way Monument (Rebar and Cap)	
Proposed Right of Way Monument (Concrete)	
Existing Permanent Easement Monument	
Proposed Permanent Easement Monument (Rebar and Cap)	
Existing C/A Monument	
Proposed C/A Monument (Rebar and Cap)	
Proposed C/A Monument (Concrete)	
Existing Right of Way Line	
Proposed Right of Way Line	
Existing Control of Access Line	
Proposed Control of Access Line	
Proposed ROW and CA Line	
Existing Easement Line	
Proposed Temporary Construction Easement	
Proposed Temporary Drainage Easement	
Proposed Permanent Drainage Easement	
Proposed Permanent Drainage/Utility Easement	
Proposed Permanent Utility Easement	
Proposed Temporary Utility Easement	
Proposed 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	
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:

* SUE - Subsurface Utility Engineering
LOS - Level of Service - A,B,C or D (Accuracy)

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 Test Hole (SUE - LOS A)*	
U/G Power Line (SUE - LOS B)*	
U/G Power Line (SUE - LOS C)*	
U/G Power Line (SUE - LOS D)*	

TELEPHONE:

Existing Telephone Pole	
Proposed Telephone Pole	
Telephone Manhole	
Telephone Pedestal	
Telephone Cell Tower	
U/G Telephone Cable Hand Hole	
U/G Telephone Test Hole (SUE - LOS A)*	
U/G Telephone Cable (SUE - LOS B)*	
U/G Telephone Cable (SUE - LOS C)*	
U/G Telephone Cable (SUE - LOS D)*	
U/G Telephone Conduit (SUE - LOS B)*	
U/G Telephone Conduit (SUE - LOS C)*	
U/G Telephone Conduit (SUE - LOS D)*	
U/G Fiber Optics Cable (SUE - LOS B)*	
U/G Fiber Optics Cable (SUE - LOS C)*	
U/G Fiber Optics Cable (SUE - LOS D)*	

WATER:

Water Manhole	
Water Meter	
Water Valve	
Water Hydrant	
U/G Water Line Test Hole (SUE - LOS A)*	
U/G Water Line (SUE - LOS B)*	
U/G Water Line (SUE - LOS C)*	
U/G Water Line (SUE - LOS D)*	
Above Ground Water Line	

TV:

TV Pedestal	
TV Tower	
U/G TV Cable Hand Hole	
U/G TV Test Hole (SUE - LOS A)*	
U/G TV Cable (SUE - LOS B)*	
U/G TV Cable (SUE - LOS C)*	
U/G TV Cable (SUE - LOS D)*	
U/G Fiber Optic Cable (SUE - LOS B)*	
U/G Fiber Optic Cable (SUE - LOS C)*	
U/G Fiber Optic Cable (SUE - LOS D)*	

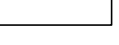
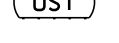
GAS:

Gas Valve	
Gas Meter	
U/G Gas Line Test Hole (SUE - LOS A)*	
U/G Gas Line (SUE - LOS B)*	
U/G Gas Line (SUE - LOS C)*	
U/G Gas Line (SUE - LOS D)*	
Above Ground Gas Line	

SANITARY SEWER:

Sanitary Sewer Manhole	
Sanitary Sewer Cleanout	
U/G Sanitary Sewer Line	
Above Ground Sanitary Sewer	
SS Force Main Line Test Hole (SUE - LOS A)*	
SS Force Main Line (SUE - LOS B)*	
SS Force Main Line (SUE - LOS C)*	
SS Force Main Line (SUE - LOS D)*	

MISCELLANEOUS:

Utility Pole	
Utility Pole with Base	
Utility Located Object	
Utility Traffic Signal Box	
Utility Unknown U/G Line (SUE - LOS B)*	
U/G Tank; Water, Gas, Oil	
Underground Storage Tank, Approx. Loc.	
A/G Tank; Water, Gas, Oil	
Geoenviromental Boring	
Abandoned According to Utility Records	
End of Information	

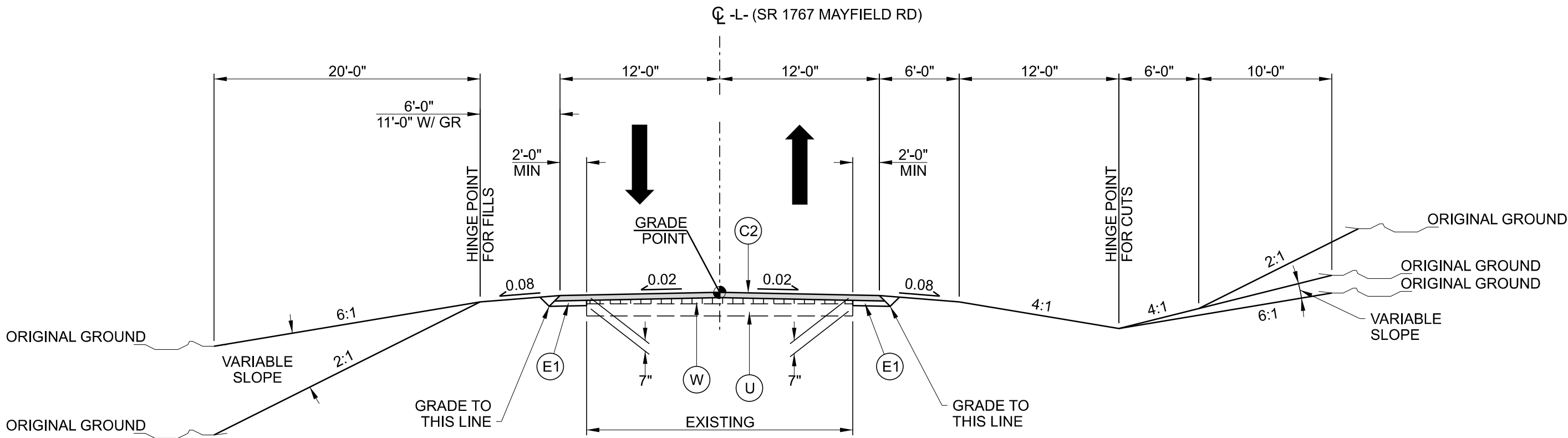
STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS
CONVENTIONAL PLAN SHEET SYMBOLS

BR-0098
0018

PAVEMENT SCHEDULE

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

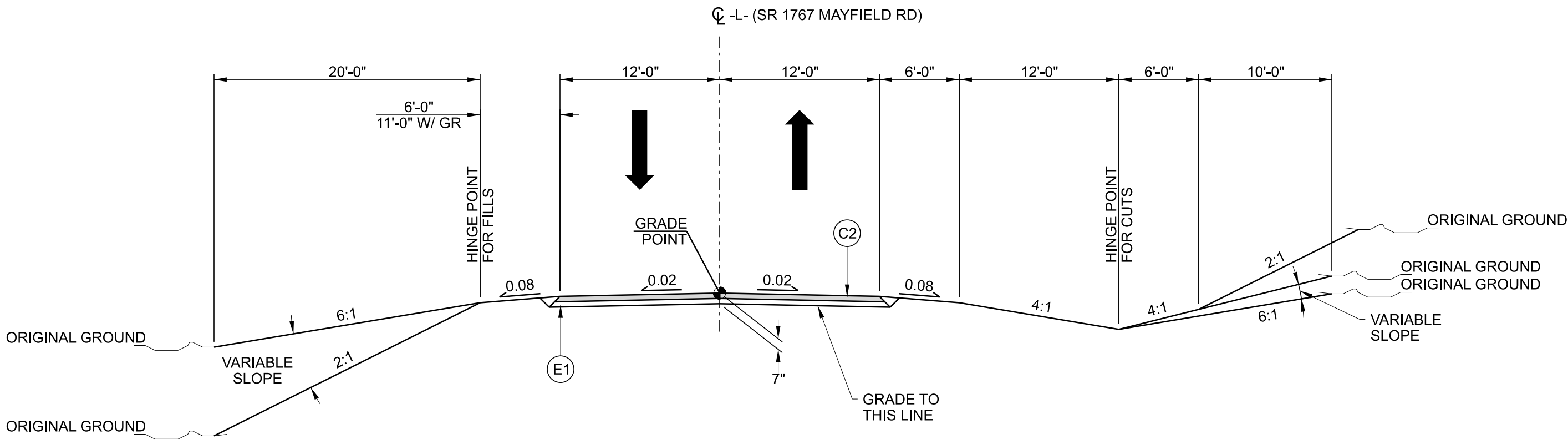
C1	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.	E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	R1	SHOULDER BERM GUTTER
C2	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS	E2	PROP. APPROX. 5½" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD.	T	EARTH MATERIAL
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 1 1/2" IN DEPTH.	E3	PROP. APPROX. 8½" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 969 LBS. PER SQ. YD.	U	EXISTING PAVEMENT
D1	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	E4	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5 1/2" IN DEPTH.	V	MILLING - 1½"
D2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 2 1/2" IN DEPTH OR GREATER THAN 4" IN DEPTH.			W	WEDGING



NOTES:
1. TRANSITION FROM EXISTING TO TYPICAL SECTION NO. 1 -L- STA 14+00.00 TO 14+25.00
2. TRANSITION FROM TYPICAL SECTION NO. 1 TO EXISTING -L- STA 26+75.00 TO 27+00.00

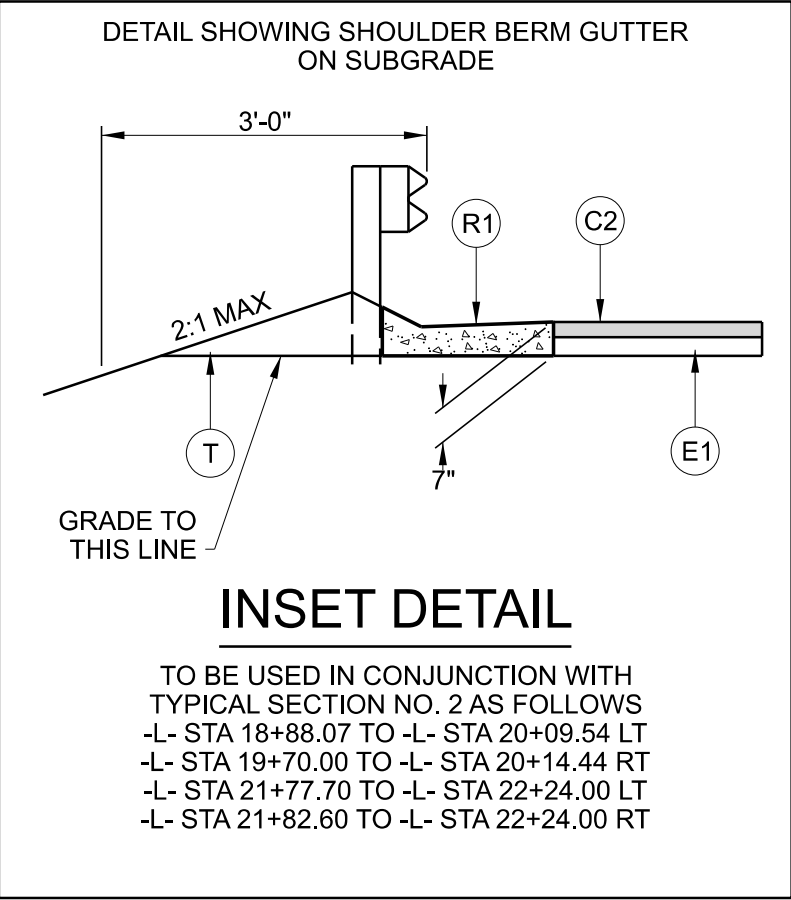
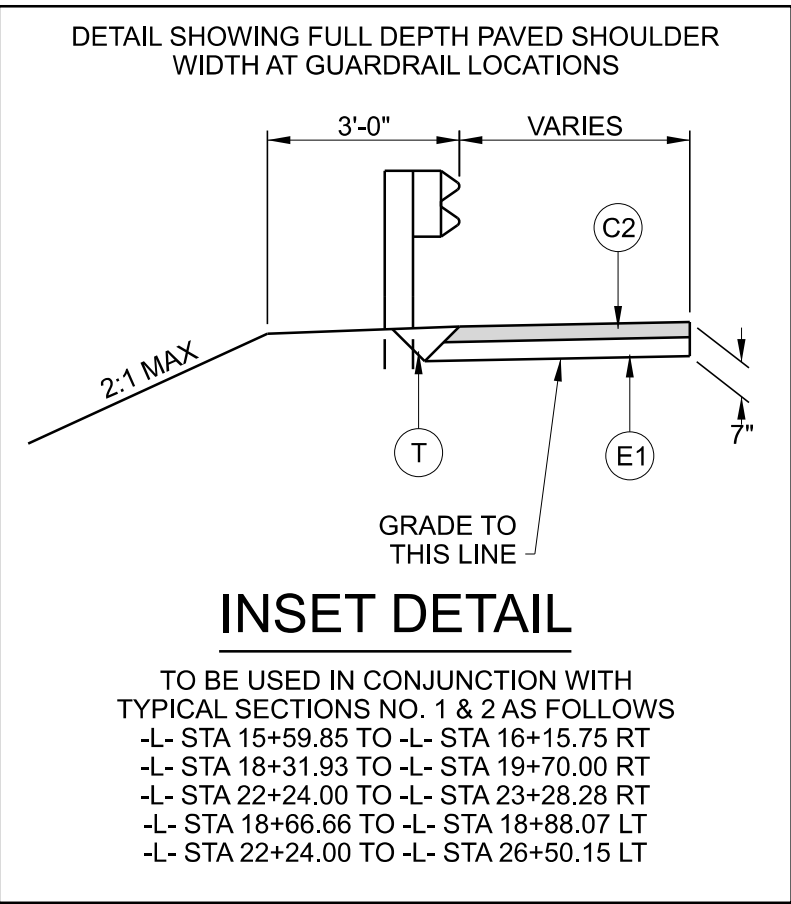
TYPICAL SECTION NO.1

-L- STA. 14+25.00 TO STA 18+70.00
-L- STA 22+90.00 TO STA 26+75.00



TYPICAL SECTION NO.2

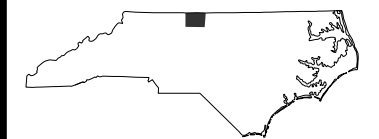
-L- STA. 18+70.00 TO STA 20+26.99 (BEGIN BRIDGE)
-L- STA 21+65.15 (END BRIDGE) TO STA 22+90.00



BR-0098

2A-I

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
WAKE COUNTY



ROADWAY DESIGN UNIT

ROADWAY DESIGN
ENGINEER



PAVEMENT DESIGN
ENGINEER



PREPARED BY



4700 FALLS OF NEUSE ROAD, SUITE 300
RALEIGH, NORTH CAROLINA 27609
(919) 781-9800 FAX (919) 781-9899 FAX
NC LICENSE NO.: P10109

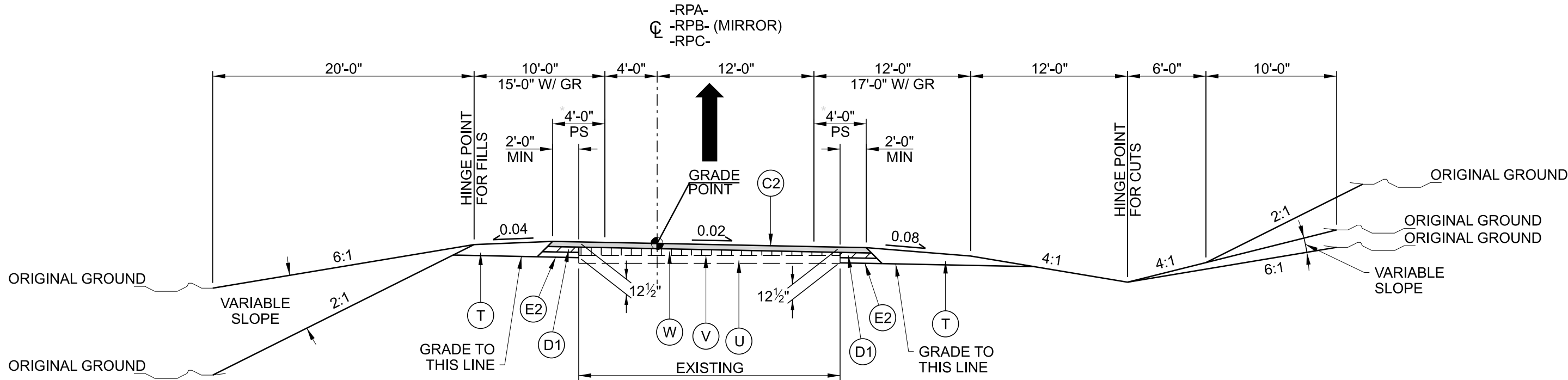
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

REVISIONS

11/14/23

C1	1 1/2" ACSC, TYPE S9.5C
C2	3" ACSC, TYPE S9.5C
C3	VAR. DEPTH ACSC, TYPE S9.5C
D1	4" ACIC, TYPE I19.0C
D2	VAR. DEPTH ACIC, TYPE I19.0C
E1	4" ACBC, TYPE B25.0C
E2	5 1/2" ACBC, TYPE B25.0C
E3	8 1/2" ACBC, TYPE B25.0C
E4	VAR. DEPTH ACBC, TYPE B25.0C
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V	MILLING 1 1/2"
W	WEDGING

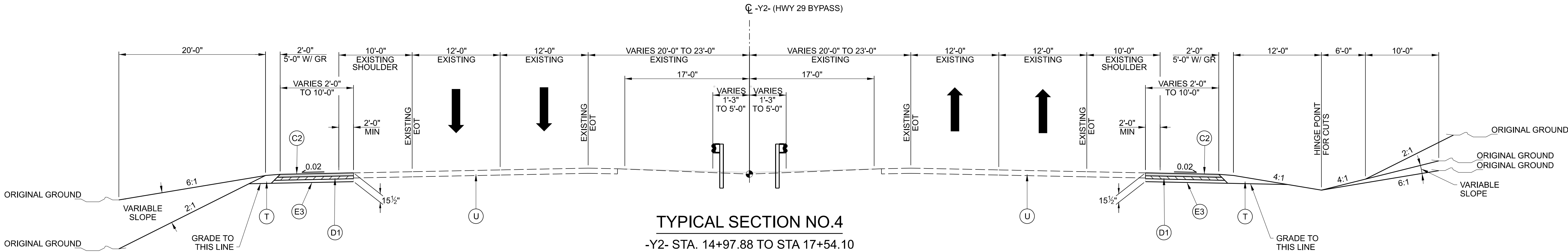
NOTE: PAVEMENT EDGES 1:1 UNLESS SHOWN OTHERWISE



TYPICAL SECTION NO.3

-RPA- STA 12+25.00 TO STA 14+59.35
-RPB- STA 11+75.00 TO STA 16+15.94
-RPC- STA 13+25.00 TO STA 15+59.01

- NOTES:
1. TRANSITION FROM EXISTING TO TYPICAL SECTION NO. 3 STATION -RPA- STA 12+00.00 TO 12+25.00
 2. TRANSITION FROM EXISTING TO TYPICAL SECTION NO. 3 STATION -RPB- STA 11+50.00 TO 11+75.00
 3. TRANSITION FROM EXISTING TO TYPICAL SECTION NO. 3 STATION -RPC- STA 13+00.00 TO 13+25.00
 4. REMOVE EXISTING SHOULDERS BEFORE WIDENING WITH THE RAMP PAVEMENT DESIGN
 5. REPAIR EXISTING JOINTS BEFORE OVERLAY
 6. EXISTING SHOULDER COMPOSITION IS ASSUMED TO BE ASPHALT OVER GRAVEL

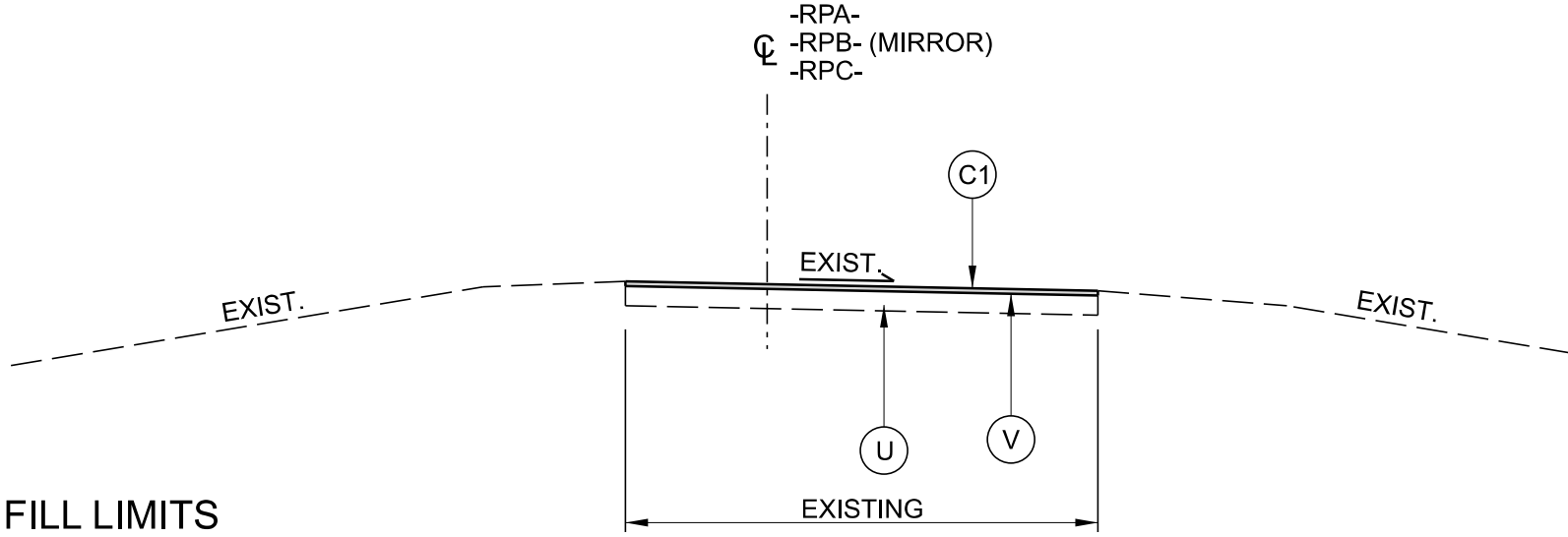


TYPICAL SECTION NO.4

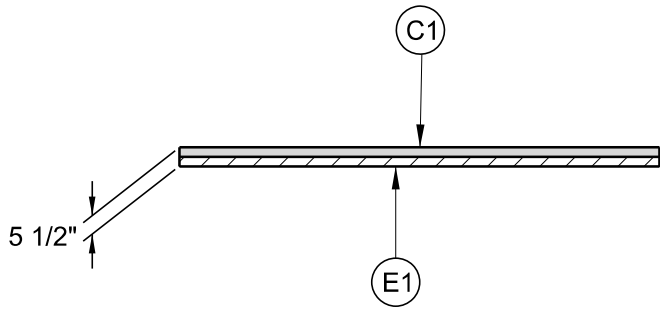
-Y2- STA. 14+97.88 TO STA 17+54.10

NOTE: SEE PLANS FOR LOCATION OF GUARDRAIL PLACEMENT

NOTE: SEE DETAIL SHEET 2B-1 FOR MILL & FILL LIMITS

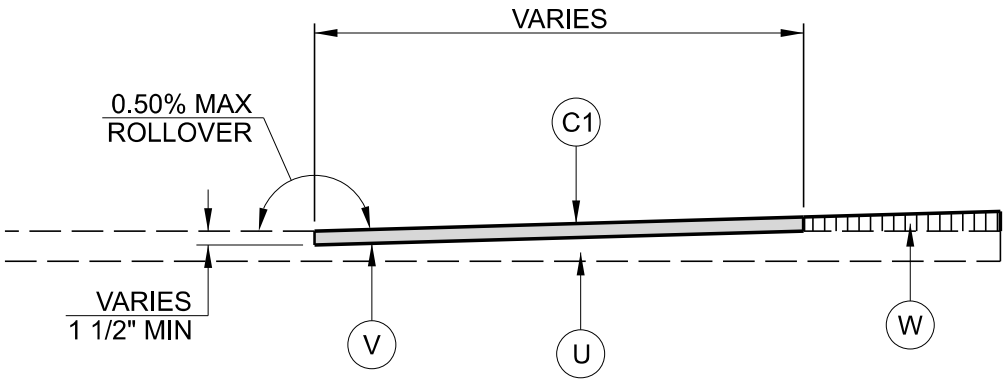


TYPICAL SECTION NO.5



TEMPORARY PAVEMENT

TEMPORARY PAVEMENT SECTION
ONLY FOR USE DURING TMP
ONLY FOR PLACEMENT OF PCB

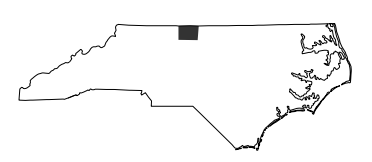


MILLING DETAIL

BR-0098

2A-2

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
WAKE COUNTY



ROADWAY DESIGN UNIT

ROADWAY DESIGN
ENGINEER



PAVEMENT DESIGN
ENGINEER



PREPARED BY

moftatt & nichol

4700 FALLS OF NEUSE ROAD, SUITE 300
RALEIGH, NORTH CAROLINA 27609
(919) 781-0000 FAX (919) 781-0000
NC LICENSE NO. 2-P-0109

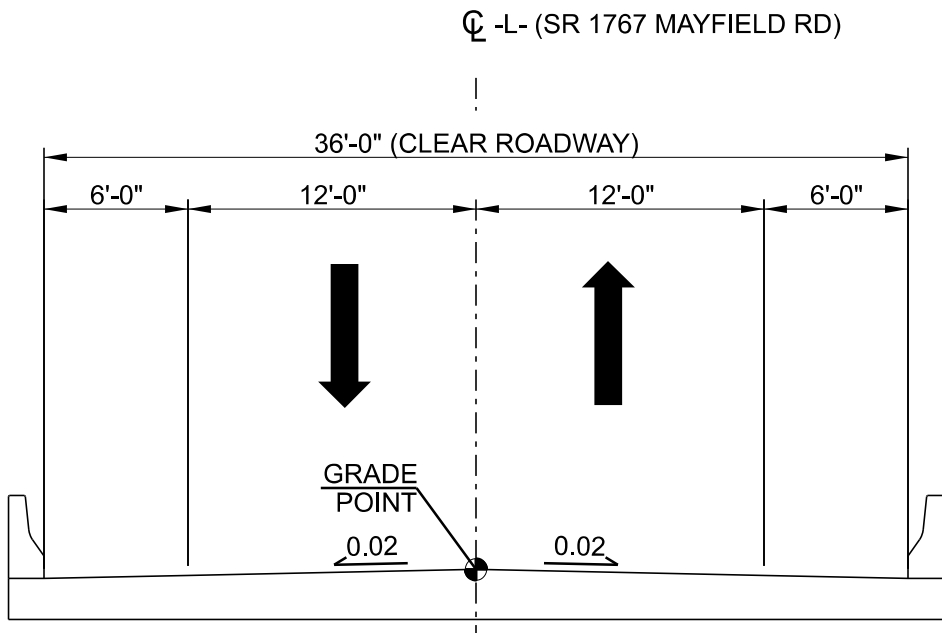
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

REVISIONS

11/14/23

C1	1 1/2" ACSC, TYPE S9.5C
C2	3" ACSC, TYPE S9.5C
C3	VAR. DEPTH ACSC, TYPE S9.5C
D1	4" ACIC, TYPE I19.0C
D2	VAR. DEPTH ACIC, TYPE I19.0C
E1	4" ACBC, TYPE B25.0C
E2	5 1/2" ACBC, TYPE B25.0C
E3	8 1/2" ACBC, TYPE B25.0C
E4	VAR. DEPTH ACBC, TYPE B25.0C
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V	MILLING 1 1/2"
W	WEDGING

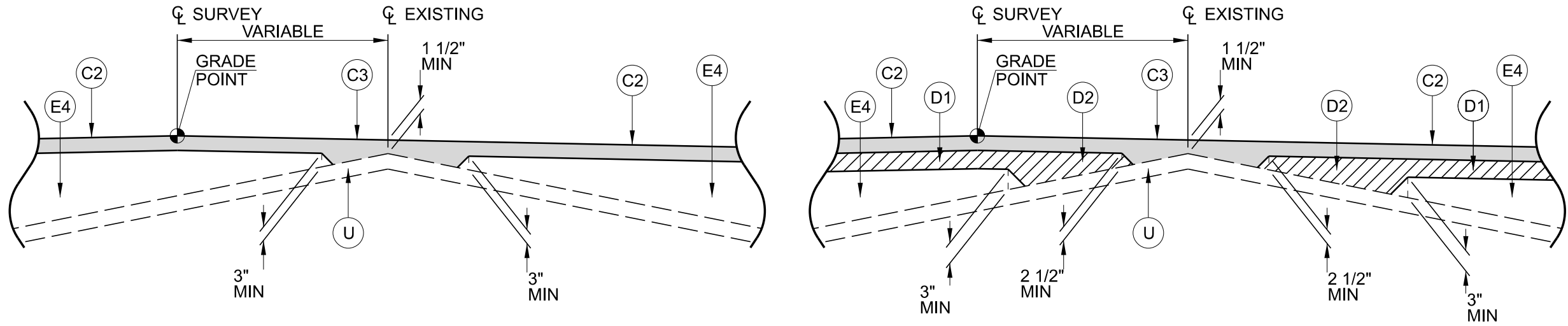
NOTE: PAVEMENT EDGES 1:1 UNLESS SHOWN OTHERWISE



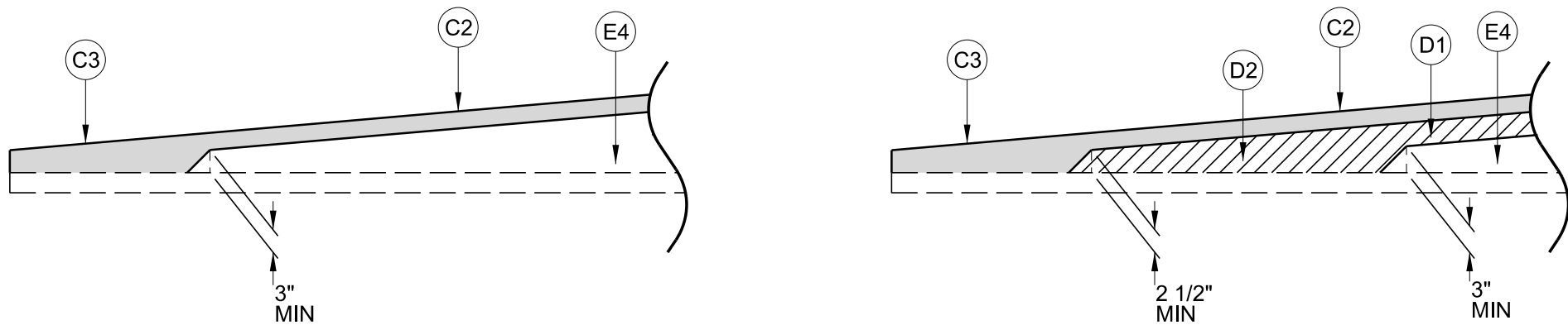
STRUCTURE TYPICAL SECTION

-L- STA. 20+26.99 TO STA 21+65.15

NOTE:
SEE STRUCTURE PLANS FOR STRUCTURE CONSTRUCTION DETAILS.



DETAIL SHOWING METHOD OF WEDGING (W)

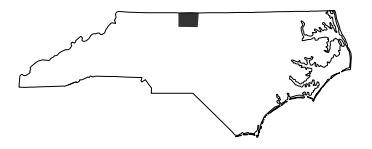


WEDGING DETAIL FOR RESURFACING

BR-0098

2A-3

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
WAKE COUNTY



ROADWAY DESIGN UNIT

ROADWAY DESIGN
ENGINEER



8/8/2025

PAVEMENT DESIGN
ENGINEER



8/8/2025

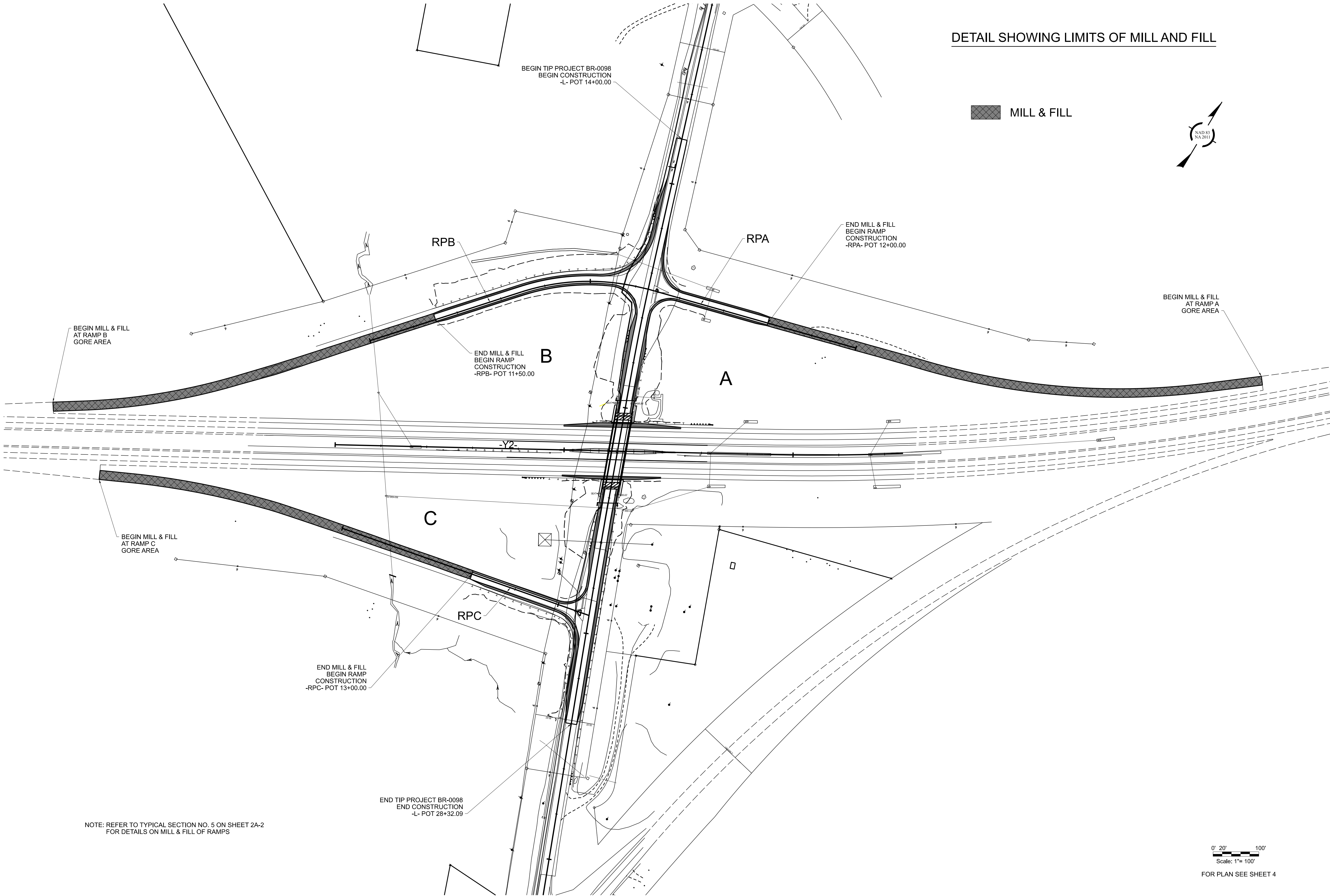
PREPARED BY



4700 FALLS OF NEUSE ROAD, SUITE 300
RALEIGH, NORTH CAROLINA 27609
(919) 781-4600 FAX (919) 781-4609
NC LICENSE NO. 2-P-0109

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REVISIONS



DETAIL SHOWING LIMITS OF MILL AND FILL

MILL & FILL

NOTE: REFER TO TYPICAL SECTION NO. 5 ON SHEET 2A-2 FOR DETAILS ON MILL & FILL OF RAMPS

BR-0098

28-1

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
WAKE COUNTY

ROADWAY DESIGN UNIT

ROADWAY DESIGN
ENGINEER

SEAL
23912
NORTH CAROLINA
E. HUFFMAN

8/4/2025

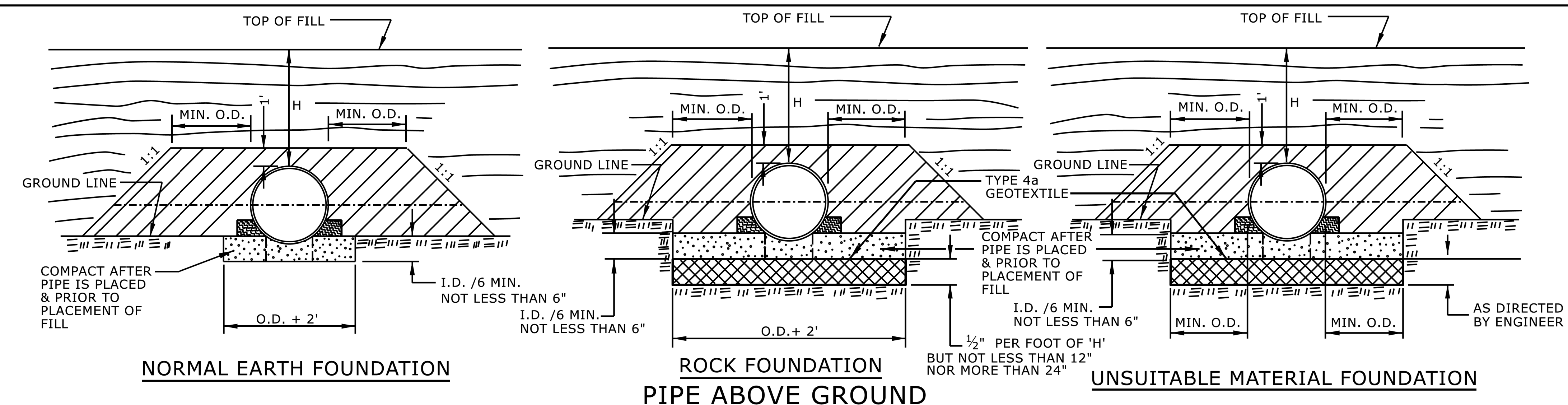
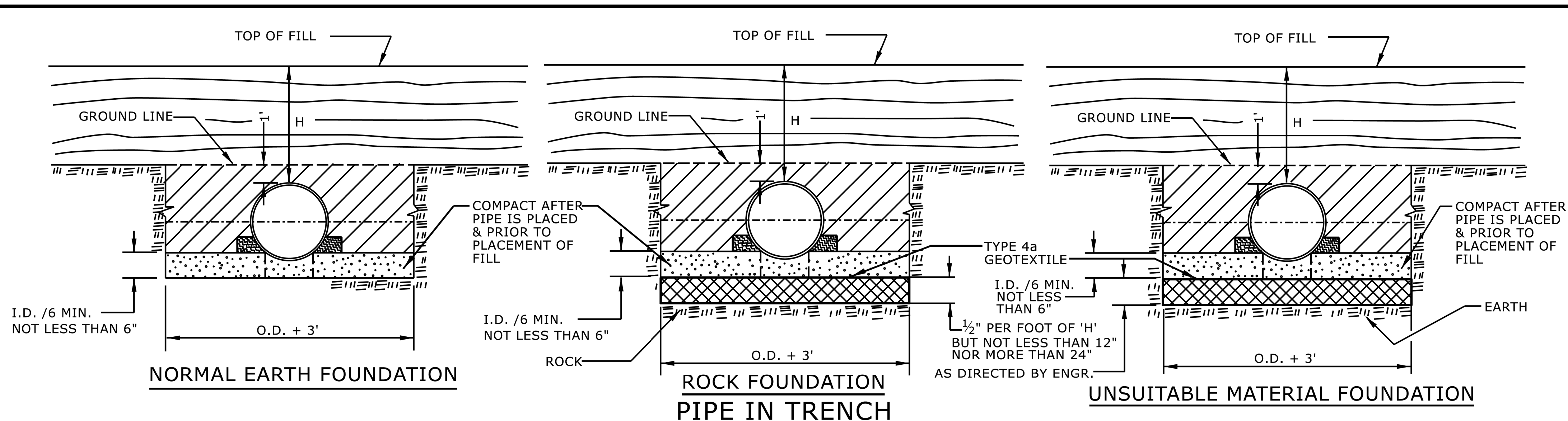
PREPARED BY

moffatt & nichol

4700 FALLS OF NEUSE ROAD, SUITE 300
RALEIGH, NORTH CAROLINA 27609
(919) 781-9000 FAX (919) 781-9009 FAX
NC LICENSE NO. 2-P-0105

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GENERAL NOTES:
 I.D. = THE MAXIMUM HORIZONTAL INSIDE DIAMETER DIMENSION.
 O.D. = THE MAXIMUM HORIZONTAL OUTSIDE DIAMETER DIMENSION.
 H = THE FILL HEIGHT MEASURED VERTICALLY AT ANY POINT
 ALONG THE PIPE FROM THE TOP OF THE PIPE TO THE TOP
 OF THE EMBANKMENT AT THAT POINT.

	APPROVED SUITABLE LOCAL MATERIAL.
	TAKE CARE TO FULLY COMPACT HAUNCH ZONE OF PIPE BACKFILL.
	LOOSELY PLACED SELECT MATERIAL CLASS III OR CLASS II, TYPE 1 FOR PIPE BEDDING. LEAVE SECTION DIRECTLY BENEATH PIPE UNCOMPACTED AS PIPE SEATING AND BACKFILL WILL ACCOMPLISH COMPACTION.

DO NOT OPERATE HEAVY EQUIPMENT OVER ANY PIPE CULVERT UNTIL THE PIPE CULVERT HAS BEEN PROPERLY BACKFILLED AND COVERED WITH AT LEAST 3 FEET OF APPROVED MATERIAL.

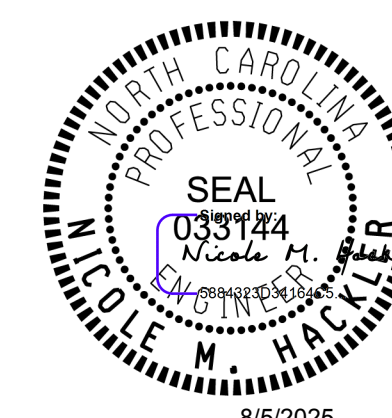
REFER TO NCDOT PIPE MATERIAL SELECTION GUIDE AND STANDARD SPECIFICATIONS
FOR ALLOWABLE PIPE FILL HEIGHTS AND PIPE SPECIFICATIONS.

	SPRINGLINE OF PIPE
	SELECT BACKFILL MATERIAL CLASS III OR CLASS II, TYPE 1 ABOVE AND BELOW SPRINGLINE.
	UNDISTURBED EARTH MATERIAL
	SELECT MATERIAL CLASS V OR VI FOR FOUNDATION CONDITIONING. ENCAPSULATE WITH TYPE IV GEOTEXTILE AS DIRECTED BY THE ENGINEER.

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

ROADWAY DETAIL DRAWING FOR METHOD OF PIPE INSTALLATION FLEXIBLE PIPE

SHEET 1 OF 2
300.01

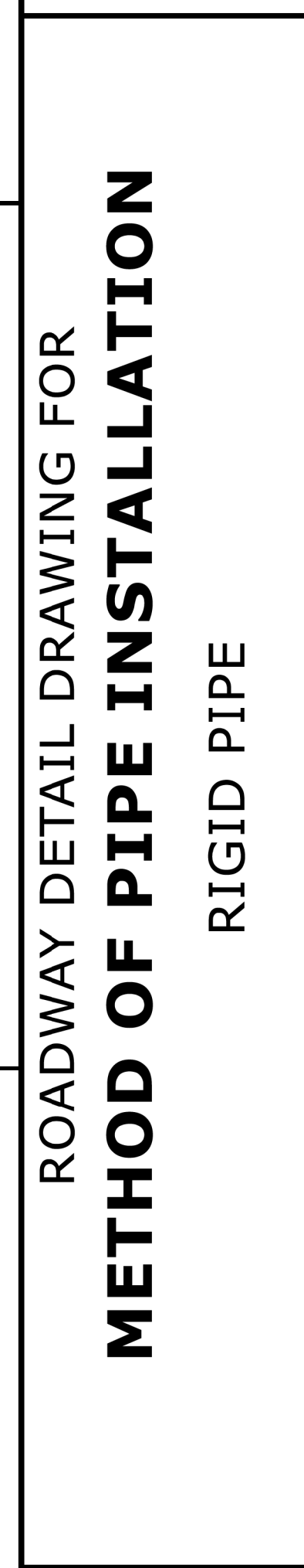
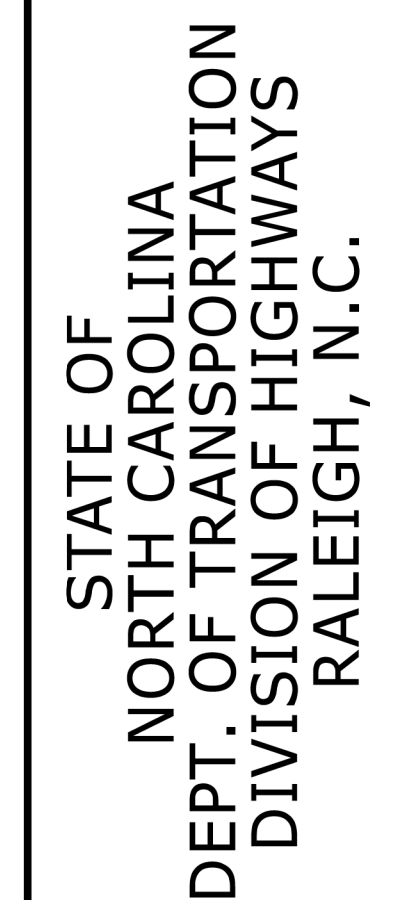


DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

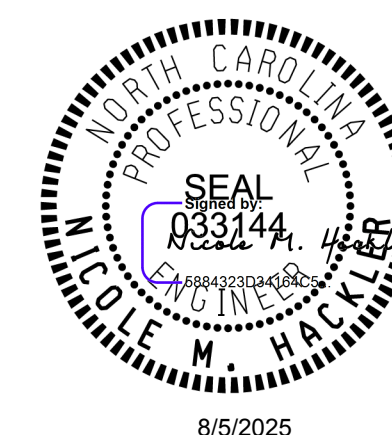
**CONTRACTS STANDARDS
AND DEVELOPMENT UNIT**
Office 919-707-6950 FAX 919-250-4119

SEE TITLE BLOCK

ORIGINAL BY: S.CALHOUN DATE: 7-25-2024
MODIFIED BY: _____ DATE: _____
CHECKED BY: _____ DATE: _____
FILE SPEC.: _____



	SPRINGLINE OF PIPE
	SELECT BACKFILL MATERIAL CLASS III OR CLASS II, BELOW SPRINGLINE.
	UNDISTURBED EARTH MATERIAL
	SELECT MATERIAL CLASS V OR VI FOR FOUNDATION CONDITIONING. ENCAPSULATE WITH TYPE IV GEOTEXTILE AS DIRECTED BY THE ENGINEER.



SHEET 2 OF 2
300.01

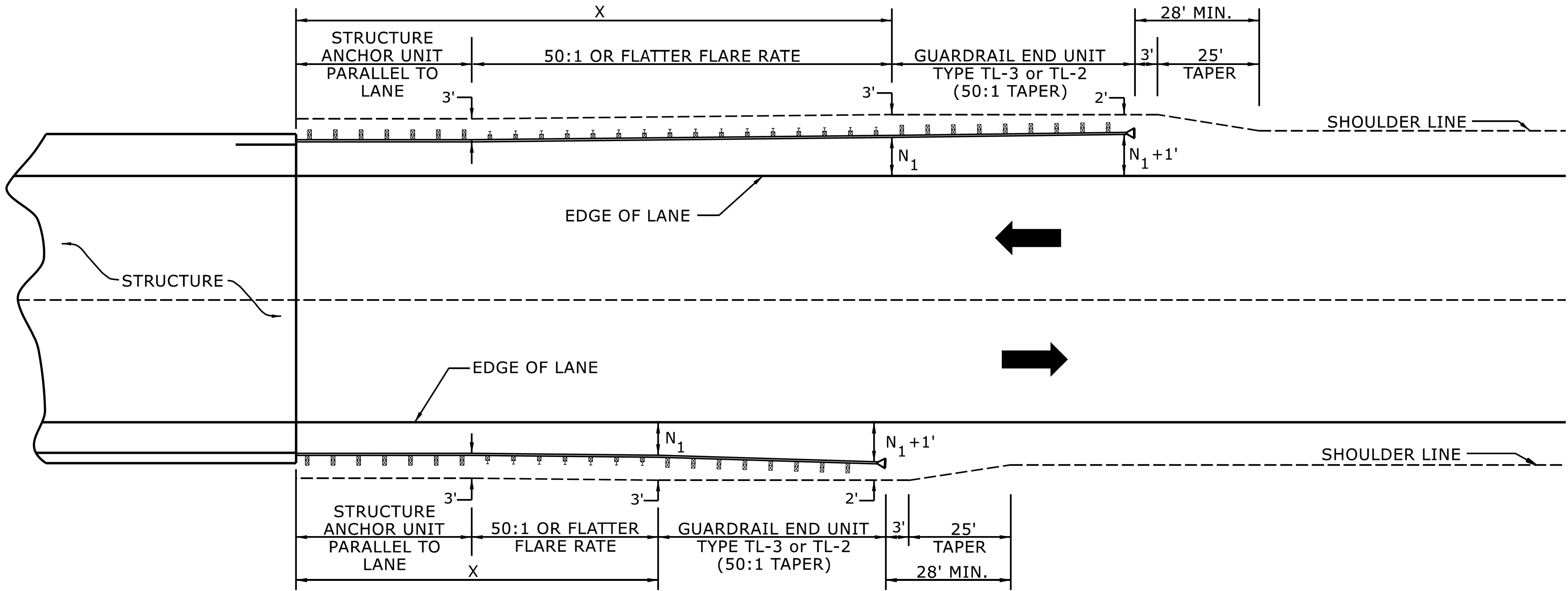
**DOCUMENT NOT CONSIDERED FINAL
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**CONTRACTS STANDARDS
AND DEVELOPMENT UNIT**
919-707-6950 FAX 919-250-4

SEE TITLE BLOCK

ORIGINAL BY: S.CALHOUN DATE: 7-25-2024
MODIFIED BY: _____ DATE: _____
CHECKED BY: _____ DATE: _____
FILE SPEC.: _____

PROJECT REFERENCE NO.	SHEET NO.
BR-0098	2C-3



USE FLARE RATE AS THE CONTROL IF THE "N₁" DISTANCE IS NOT OBTAINED.
("N₁" IS BASED ON SHOULDER WIDTHS IN THE ROADWAY DESIGN MANUAL)

SEE STD. 862.03 FOR STRUCTURE ANCHOR UNITS

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

GUARDRAIL LENGTH OF NEED (X) IS CALCULATED BASED ON THE AASHTO ROADSIDE DESIGN GUIDE.

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

ROADWAY DETAIL DRAWING FOR
GUARDRAIL PLACEMENT



LENGTHS AND OFFSETS FOR PROPOSED GUARDRAIL AT TWO LANE - TWO WAY LOCATIONS

SHEET 4 OF 15
862D01

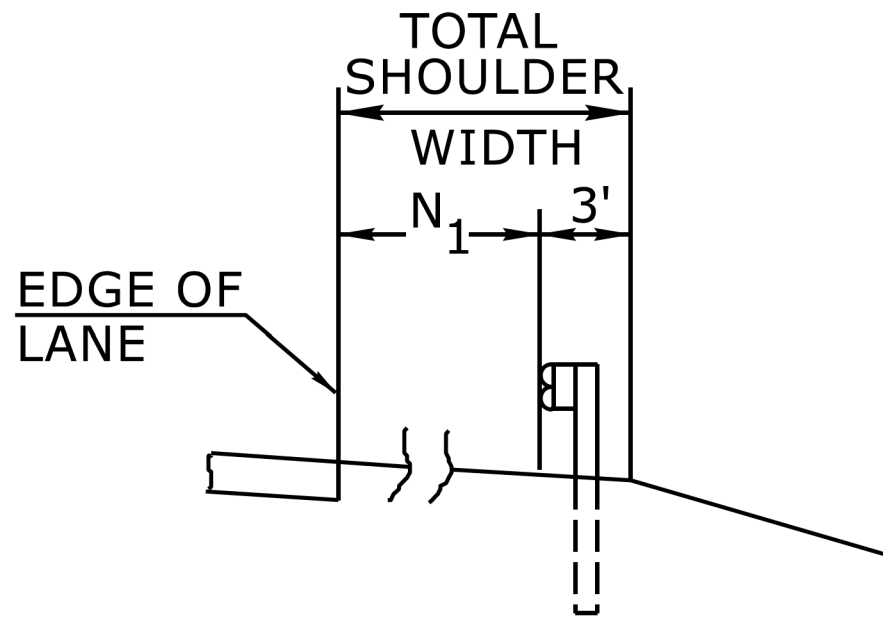
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

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

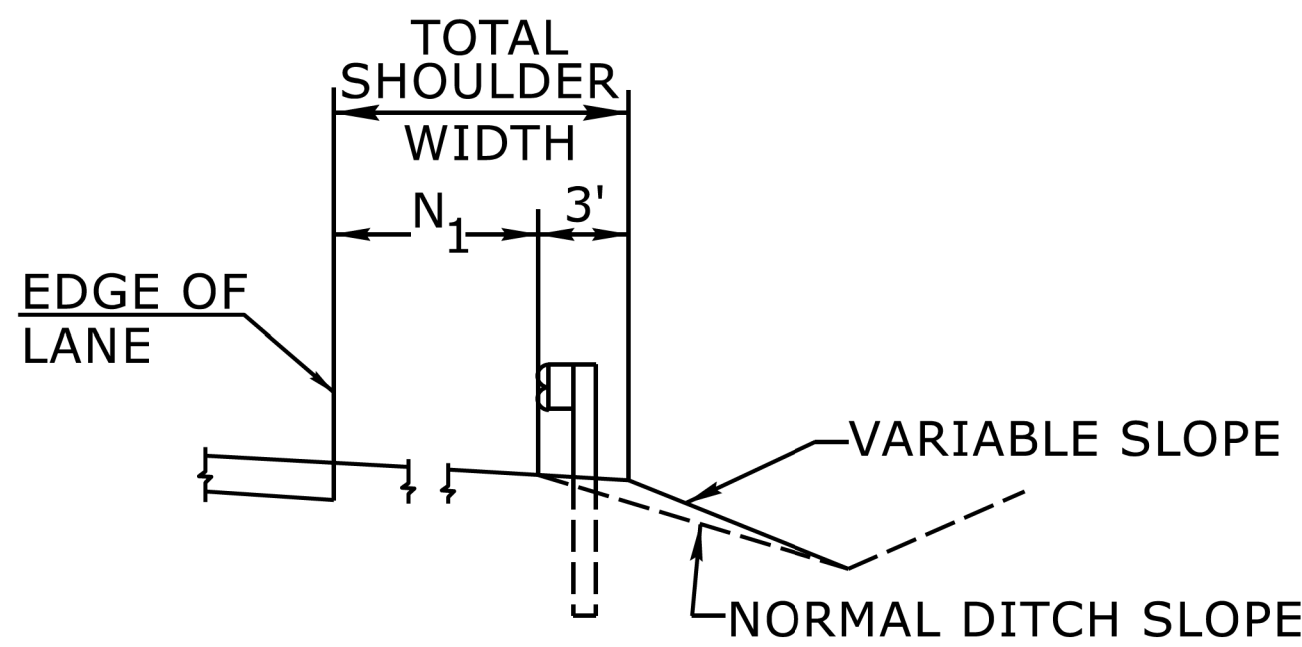
SEE TITLE BLOCK

ORIGINAL BY: S.CALHOUN DATE: 7-25-2024
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC.:

PROJECT REFERENCE NO.	SHEET NO.
BR-0098	2C-4

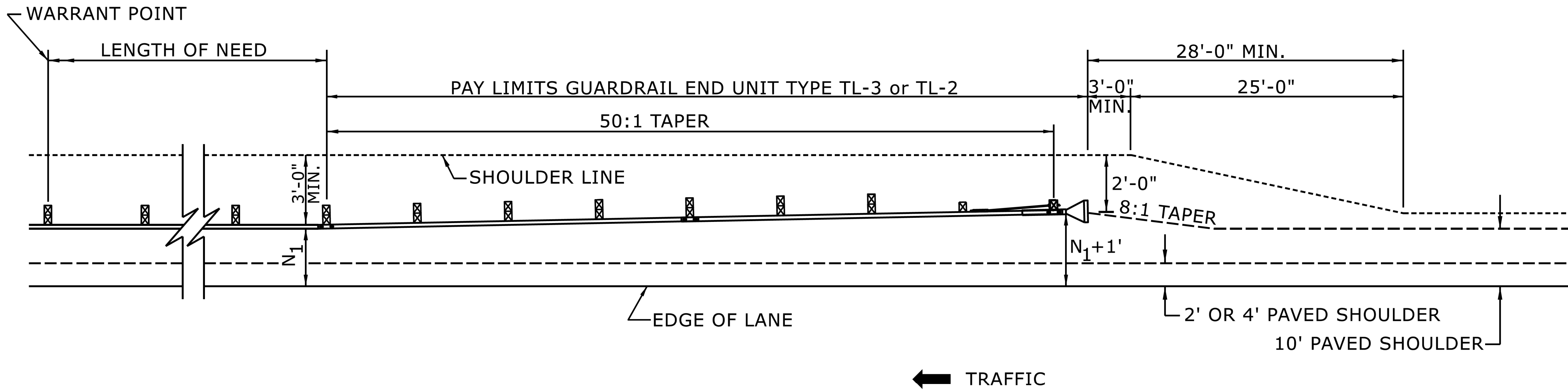


FILL SECTION



CUT SECTION

"N₁"= DISTANCE FROM EDGE OF LANE TO FACE OF GUARDRAIL WHERE GUARDRAIL IS PARALLEL TO LANE.



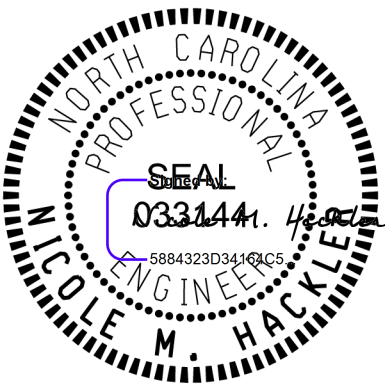
FOR POSTED SPEEDS ≥ 45mph USE GREU TYPE TL-3
FOR POSTED SPEEDS < 45mph USE GREU TYPE TL-2

DETAIL OF BEGINNING OF GUARDRAIL IN CUT OR FILL SECTION

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

ROADWAY DETAIL DRAWING FOR
GUARDRAIL PLACEMENT

SHEET 6 OF 15
862D01



8/5/2025

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

**CONTRACTS STANDARDS
AND DEVELOPMENT UNIT**

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

SEE TITLE BLOCK

ORIGINAL BY: S.CALHOUN DATE: 7-25-2024
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC.: DATE:

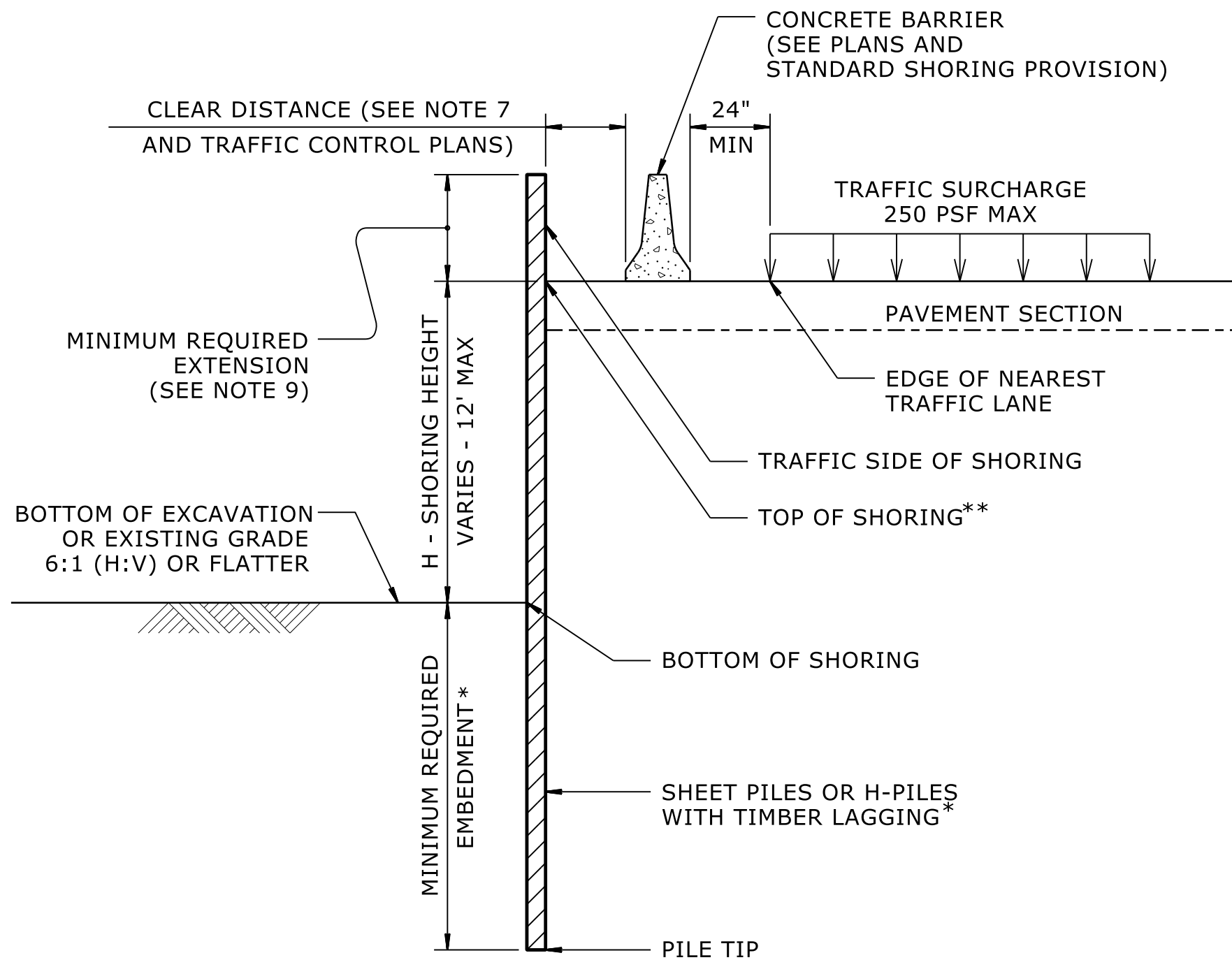
GROUNDWATER CONDITION (SEE NOTE 6)	H SHORING HEIGHT (FT)	SLOPE OR SURCHARGE CASE WITH NO TRAFFIC IMPACT					SURCHARGE CASE WITH TRAFFIC IMPACT				
		SHEET PILES		H-PILES WITH TIMBER LAGGING			SHEET PILES		H-PILES WITH TIMBER LAGGING		
		MINIMUM REQUIRED EMBEDMENT (FT)	MINIMUM REQUIRED SECTION MODULUS (IN ⁴ /FT)	MINIMUM REQUIRED EMBEDMENT * (FT) (SEE NOTE 10)			MINIMUM REQUIRED EMBEDMENT (FT)	MINIMUM REQUIRED SECTION MODULUS (IN ⁴ /FT)	MINIMUM REQUIRED EMBEDMENT * (FT) (SEE NOTE 10)		
GROUNDWATER ELEVATION BETWEEN BOTTOM OF SHORING AND PILE TIP	< 6	11.5	4.5	11.5	11.5	11.5	16.0	12.0	13.0	13.0	13.0
	7	13.0	7.0	13.0	13.0	13.0	17.0	14.5	14.5	14.5	14.5
	8	15.0	10.0	--	15.0	15.0	18.0	17.0	--	15.5	15.5
	9	17.0	14.0	--	17.0	17.0	19.0	20.0	--	17.0	17.0
	10	18.5	19.5	--	--	18.5	20.0	23.5	--	--	18.5
	11	20.5	26.0	--	--	--	21.0	28.0	--	--	20.0
	12	22.5	33.0	--	--	--	22.0	33.0	--	--	21.5
GROUNDWATER ELEVATION BELOW PILE TIP	< 6	7.5	3.0	8.0	8.0	8.0	11.0	10.0	9.5	9.5	9.5
	7	8.5	4.5	9.5	9.5	9.5	12.0	12.0	10.5	10.5	10.5
	8	10.0	6.5	10.5	10.5	10.5	12.5	14.0	11.5	11.5	11.5
	9	11.0	9.5	--	12.0	12.0	13.5	16.5	--	12.5	12.5
	10	12.5	13.0	--	--	13.5	14.0	19.5	--	13.5	13.5
	11	13.5	17.0	--	--	14.5	15.0	22.5	--	--	14.5
	12	15.0	21.5	--	--	16.0	16.0	25.5	--	--	15.5

MINIMUM REQUIRED EMBEDMENT AND SECTION MODULUS

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

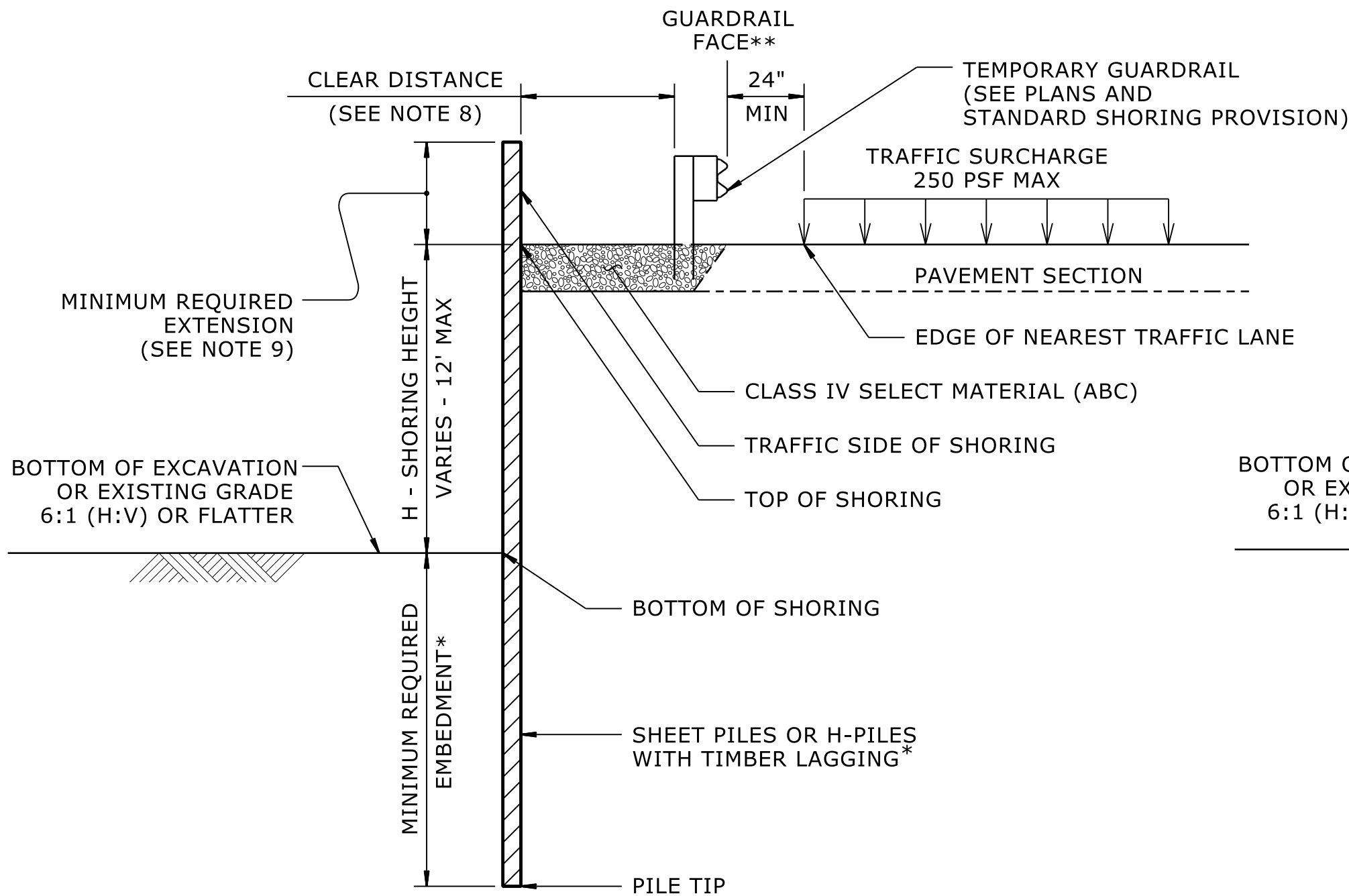
NOTES:

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



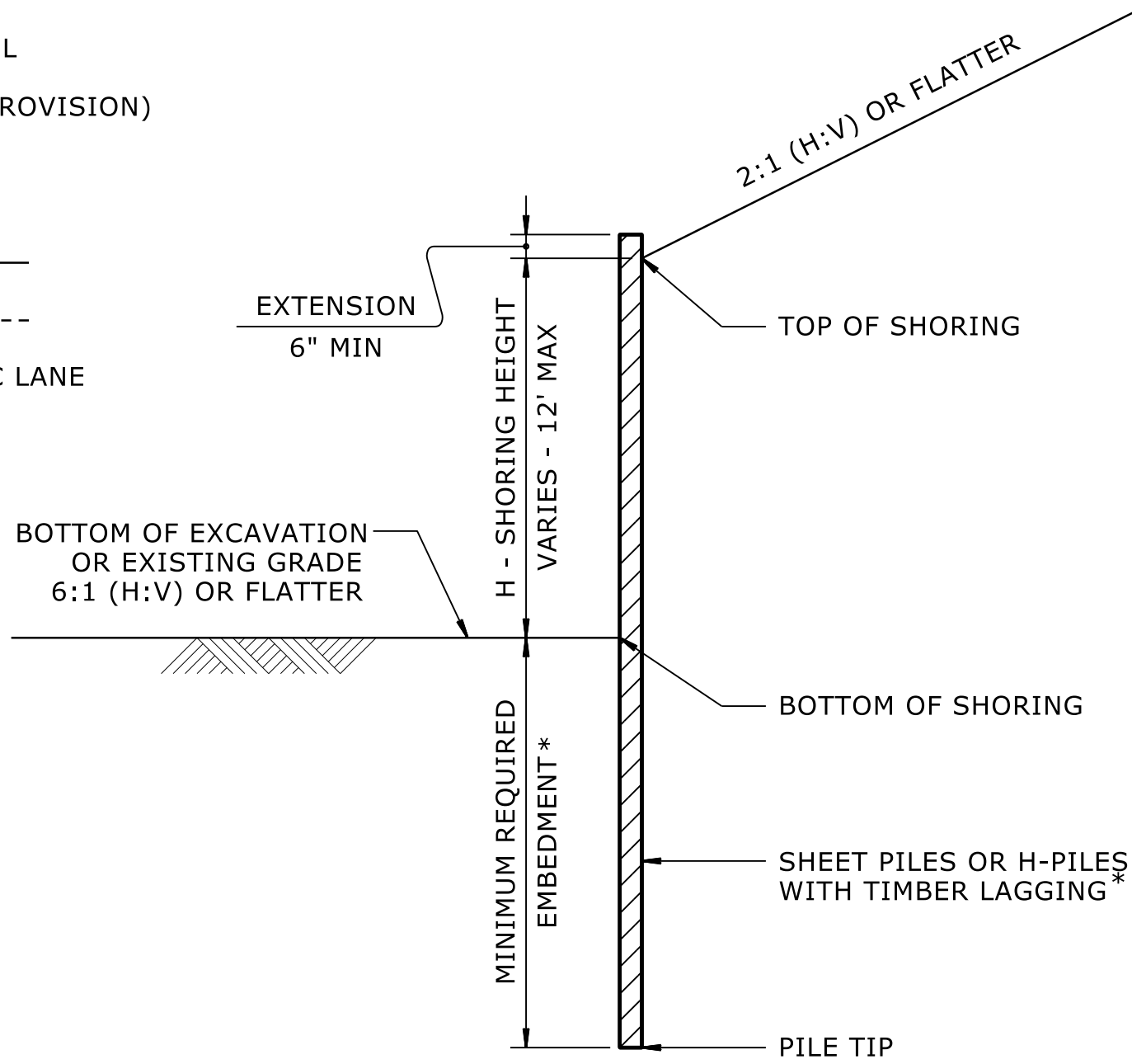
CONCRETE BARRIER

**TOP OF SHORING =
EDGE OF PAVEMENT



TEMPORARY GUARDRAIL

**GUARDRAIL FACE =
EDGE OF PAVEMENT



STANDARD TEMPORARY SHORING

(SLOPE CASE)
*SEE TABLE ABOVE.

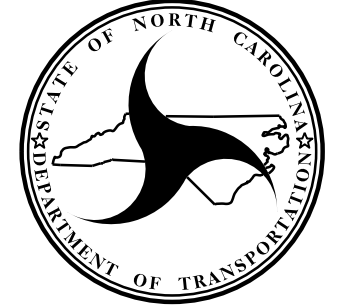
STANDARD TEMPORARY SHORING

(SURCHARGE CASE)
*SEE TABLE ABOVE.

BR-0098

2G-1 -

NORTH CAROLINA
DEPARTMENT
OF TRANSPORTATION



GEOTECHNICAL
ENGINEERING UNIT

GEOTECHNICAL
ENGINEER

Scott A. Miller
10/2025



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UNLESS ALL SIGNATURES COMPLETED

STANDARD
DETAIL NO. 1801.01

GEOTECHNICAL STANDARD DETAIL FOR
TEMPORARY SHORING

SUMMARY OF EARTHWORK

STATION	STATION	UNCL. EXCAV.	ROCK	EMBANK. +%	BORROW	WASTE
-L-						
14+00	20+26.99	74		3,095	3,021	
-RPA-						
12+00	14+59.35	119		42		77
-RPB-						
11+50	16+15.95	158		1,372	1,214	
SUBTOTALS:		351		4,509	4,235	77
-L-						
21+65.15	27+00	81		2,806	2,725	
-RPC-						
12+00	15+59	122		155	33	
SUBTOTALS:		203		2,961	2,758	
-Y2- LT						
14+98	17+54	192		0		192
-Y2- MED						
13+75	18+13	4		185	181	
-Y2- RT						
14+96	17+12	77		0		77
SUBTOTALS:		273		185	181	269
TOTAL:		827		7,655	7,174	346
LOSS DUE TO CLEARING & GRUBBING		0		0	0	
WASTE IN LIEU OF BORROW					-346	-346
MATERIAL FOR SHOULDER CONSTRUCTION				660	660	
PROJECT TOTALS:		827		8,315	7,488	
EST 5% TO REPLACE TOP SOIL ON BORROW PIT					374	
GRAND TOTALS:		827		8,315	7,862	
SAY:		1,000			8,000	

SUMMARY OF REMOVAL EXISTING ASPHALT PAVEMENT

SURVEY LINE	STATION	STATION	LOCATION LT/ RT/ CL	SY
-L-	14+00	16+35	LT	43.87
-L-	17+95	18+70	LT	54.29
-L-	22+90	27+00	LT	85.52
-L-	14+00	16+13	RT	41.84
-L-	18+01	18+70	RT	12.28
-L-	22+90	23+94	RT	26.53
-L-	25+29	27+00	RT	49.32
-L-	18+70	19+86	LT/RT/CL	343.33
-L-	22+10	22+90	LT/RT/CL	209.10
-Y2-	14+98	17+54	LT	164.02
-Y2-	14+96	17+13	RT	166.36
-RPA-	12+00	14+58	LT	164.02
-RPA-	12+00	14+60	RT	166.36
-RPB-	11+50	16+18	LT	278.53
-RPB-	11+50	16+19	RT	260.08
-RPC-	13+00	15+50	LT	97.81
-RPC-	13+00	15+71	RT	83.11
-Y2- (TEMP)	14+98	18+26	MED LT	116.07
-Y2- (TEMP)	14+03	17+30	MED RT	121.43
TOTAL:				2406.01
SAY:				2,410

SUMMARY OF REMOVAL EXISTING CONCRETE PAVEMENT

SURVEY LINE	STATION	STATION	LOCATION LT/ RT/ CL	SY
-RPB- (CONC DITCH)	15+38	15+52	LT	7.56
			TOTAL:	7.56
			SAY:	10

SURVEY LINE	STATION	STATION	LENGTH
-L- LT	18+88.07	20+09.54	121.5 LF
-L- LT	21+77.70	22+24.00	46.3 LF
-L- RT	19+70.00	20+14.44	44.4 LF
-L- RT	21+82.60	22+24.00	41.4 LF
TOTAL:			253.6 LF
SAY:			260.0 LF

SURVEY LINE	STATION	STATION	LENGTH	LENGTH (REMOVAL)	END ANCHOR UNIT	INTERMEDIATE ANCHOR UNIT	COMMENTS
-Y2-	12+36.00	14+69.45	233.45'		2		TIE TO EX. CABLE GUIDERAIL
-Y2-	17+63.95	18+13.00	49.05'		1		TIE TO EX. CABLE GUIDERAIL
REMOVAL							
-Y2-	12+60.00	14+95.29		235.30'			EX. CABLE GUIDERAIL REMOVAL
-Y2-	17+46.51	18+13.00		66.50'			EX. CABLE GUIDERAIL REMOVAL
SUBTOTAL			282.50'	301.80'	3		
LESS TERMINAL ANCHOR UNITS			72'				
SUB TOTAL			210.50'	301.80'			
SAY			220'.00	302.00'	3		

"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

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHOUL. WIDTH	FLARE LENGTH		W		ANCHORS										IMPACT ATTENUATOR TL-3			SINGLE FACED CONCRETE BARRIER	REMOVE EXISTING GUARDRAIL	REMOVE AND STOCKPILE EXISTING GUARDRAIL	REMARKS
				STRAIGHT	SHOP CURVED	FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	GREU TL-2	GREU TL-3	B-77	CAT-1	TYPE III	TEMPORARY CRASH CUSHION					EA	G	NG						
-L-	18+63.73	20+24.18	LT	160.375'			19+75.00		8'	11'	137.5'		2.75'		1		1										78.40'		BRIDGE FILL WARRANT - SHLD VARIES TO MATCH GR TAPER		
-L-	18+32.03	20+29.80	RT	197.875'			19+75.00		8'	11'	25.0'		1'		1		1										203.70'		BRIDGE FILL WARRANT		
-L-	21+62.34	28+32.09	LT	669.50'			27+00.00		6'	9'	25.0'		1'		1		1										628.30'		BRIDGE FILL WARRANT		
-L-	21+67.96	23+28.23	RT	160.375'			20+20.00		8'	11'	137.5'		2.75'		1		1										202.70'		BRIDGE FILL WARRANT - SHLD VARIES TO MATCH GR TAPER		
-L-	25+29.02	27+00.00	RT	171.00'			25+29.00	27+00.00	8'	11'																	171.00'		TIE TO EXISTING		
-RPB-	11+50.00	16+09.89	LT	584.50'			15+90.10	11+50.00	12'	17'	25.0'		1'		1												594.54'		TIE TO EXISTING		
-RPC-	13+00.00	15+59.85	RT	283.50'			13+00.00		12'	17'																	283.75'		TIE TO EXISTING		
-Y2-	15+60.58	16+02.22	LT	41.625'				16+02.22	16'	19'							1	1								50'			RIP RAP		
-Y2-	16+50.80	18+23.67	LT	172.875'			16+50.80		16'	19'	50.0'		1'				1	1											MSE WALL		
-Y2-	15+10.45	17+22.95	CL	425.00'			15+98.50	16+34.90	12'	15'												2	X	X		392.11'			BRIDGE PIERS		
-Y2-	14+09.72	15+82.60	RT	172.875'			15+82.60		14'	17'	50.0'		1'				1	1								50'			MSE WALL		
TOTAL				3039.50'											5	2	7	1							2	X	X	100'	2814.50'		
LESS ANCHOR DEDUCTIONS																															
GREU TL-2			5 @ 25.00'	-125.00'																											
GREU TL-3			2 @ 50.00'	-100.00'																											
B-77			7 @ 22.875'	-160.125'																											
CAT-1			1 @ 6.25'	-6.25'																											
SUB TOTAL SAY				2648.125' 2650'																											
ADDITIONAL GUARDRAIL POSTS			10												5	2	7	1													

\$\$\$\$SYTIME\$\$\$\$
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\$\$\$\$\SFRNAME\$\$\$\$

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

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

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

[illegible][illegible]

REVISIONS

COMPUTED BY: C.T.Tang DATE: 10/4/24; D. Teague DATE: 7/28/25 (Rock Plating only)
CHECKED BY: J. Rowenhorst DATE: 10/4/24; C. Chen DATE 7/28/25 (Rock Plating only)

(2-3-23)

PROJECT NO.	SHEET NO.
BR-0098	3G-1

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF SUBSURFACE DRAINAGE

LINE	Station	Station	Location LT/RT/CL	Drain Type* UD/BD/SD	LF
CONTINGENCY				UD	200
				TOTAL LF:	200

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

SUMMARY OF AGGREGATE SUBGRADE/STABILIZATION

LINE	Station	Station	Aggregate Type* ASU(1/2)/ AST	Aggregate Thickness INCHES [8" for ASU(2)]	Shallow Undercut CY	Class IV Subgrade Stabilization TONS	Geotextile for Subgrade Stabilization SY	Stabilizer Aggregate TONS	Class IV Aggregate Stabilization TONS
CONTINGENCY			ASU(1)		100	200	300		
			TOTAL CY/TONS/SY:		100	200**	300**	0	0

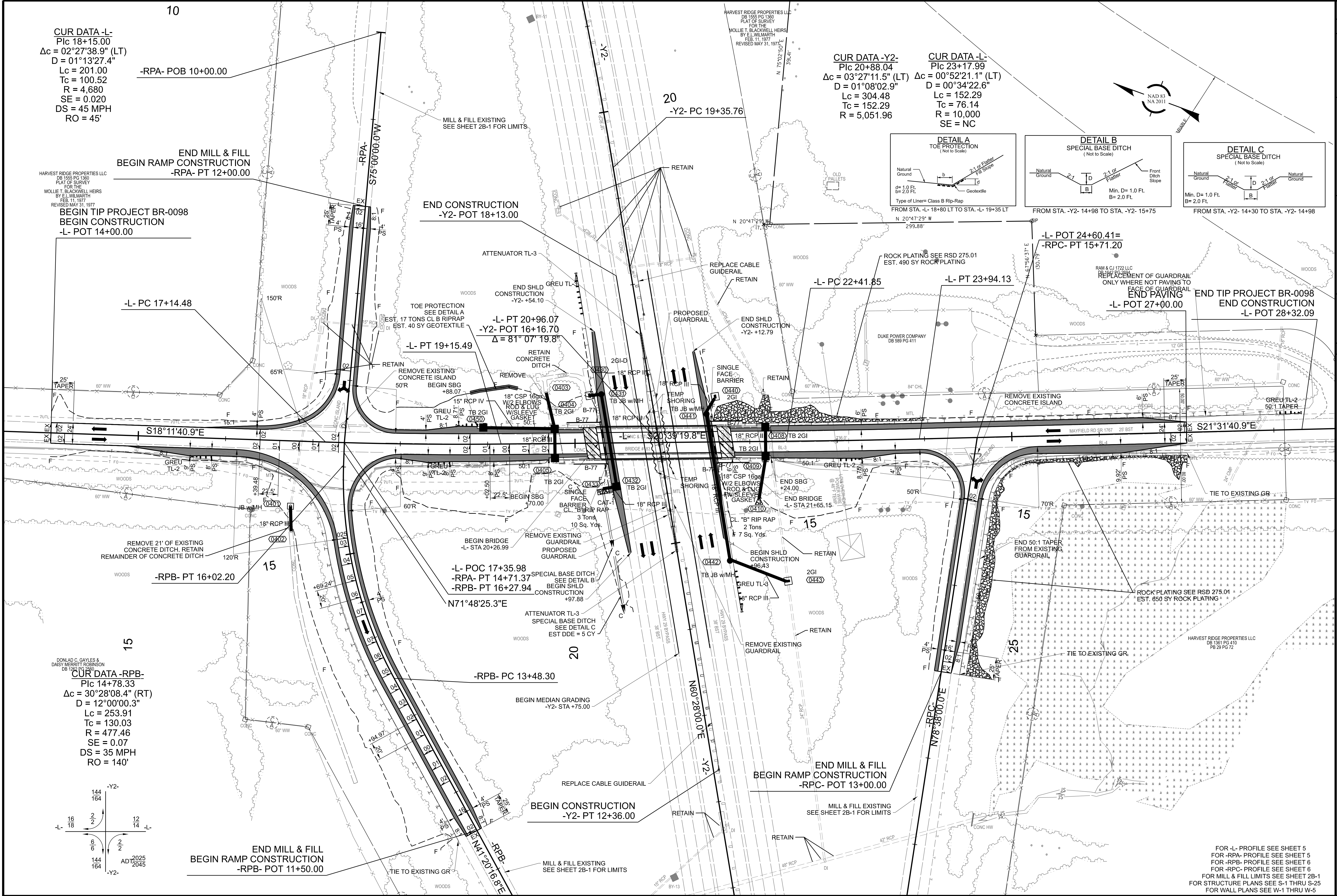
*ASU(1/2) = Aggregate Subgrade (Type 1 or 2)
*AST = Aggregate Stabilization
**Total tons of "Class IV Subgrade Stabilization" and total square yards of "Geotextile for Subgrade Stabilization" are only the estimated quantities for ASU(1/2)/AST and may only represent a portion of the subgrade stabilization and geotextile quantities shown in the Item Sheets of the Proposal.

SUMMARY OF ROCK PLATING

LINE	Beginning Slope (H:V)	Approx. Station	Ending Slope (H:V)	Approx. Station	Location LT/RT	Rock Plating Detail No. 1/2/3/4	Riprap Class* 1/2/B	Rock Plating SY
-L-	1.5:1	21+65.15	1.5:1	24+00.00	LT	1		490
-RPC	1.5:1	13+00.00	1.5:1	15+71.20	RT	1		435
-L-	1.5:1	24+60.41	1.5:1	27+00.00	RT	1		215
							TOTAL SY:	1140

*Use Class 1, 2 or B riprap if riprap class is not shown for rock plating location.

11/14/23



BR-0098

004

NORTH CAROLINA

DEPARTMENT OF TRANSPORTATION

WAKE COUNTY

ROADWAY DESIGN UNIT

ENGINEER

PROFESSIONAL SEAL

23912

ROGER S. WEADON

8/4/2025

HYDRAULICS

ENGINEER

PROFESSIONAL SEAL

21656

ROGER S. WEADON

8/5/2025

PREPARED BY

moftatt & nichol

4700 FALLS OF NEUSE ROAD, SUITE 300

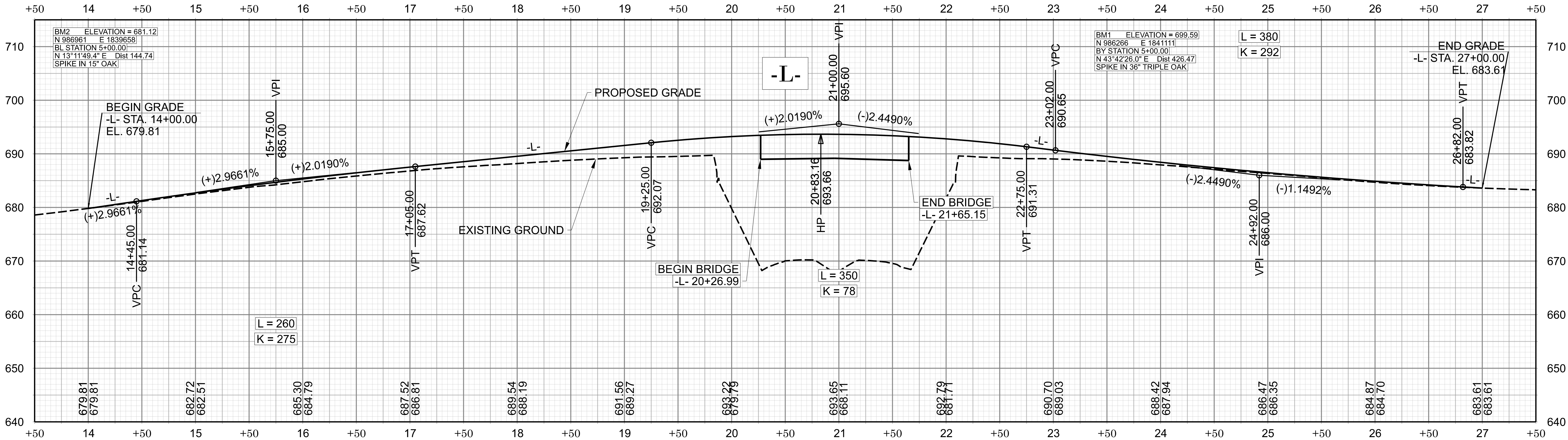
RALEIGH, NORTH CAROLINA 27609

(919) 781-6500 FAX (919) 781-6509

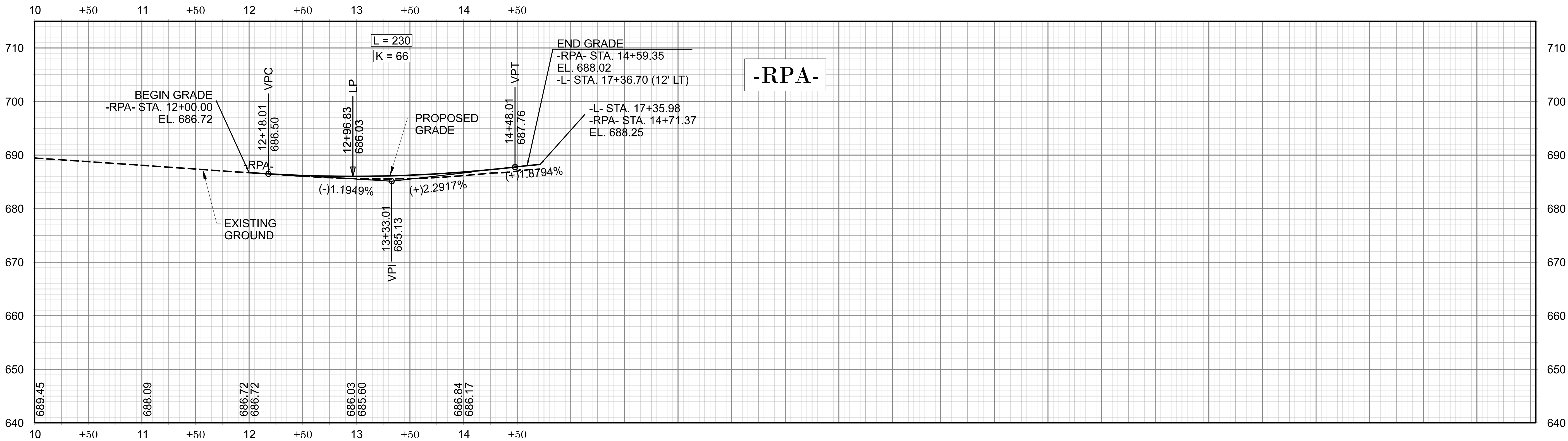
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REVISIONS



FOR -L- PLAN SEE SHEET 4

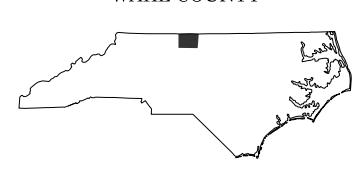


FOR -RPA- PLAN SEE SHEET 4

BR-0098

005

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
WAKE COUNTY



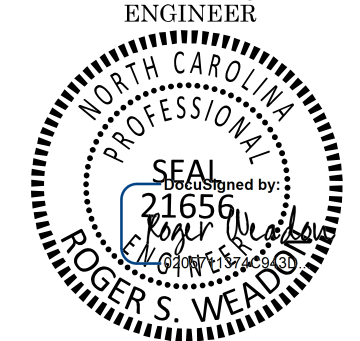
ROADWAY DESIGN UNIT

ROADWAY DESIGN
ENGINEER



8/4/2025

HYDRAULICS
ENGINEER



8/5/2025

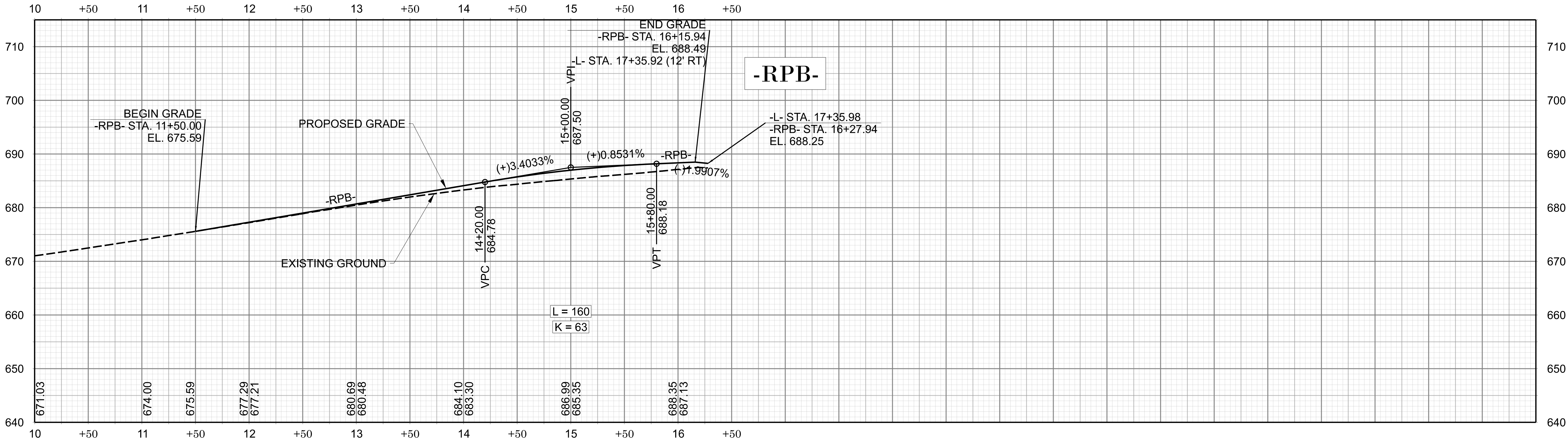
PREPARED BY



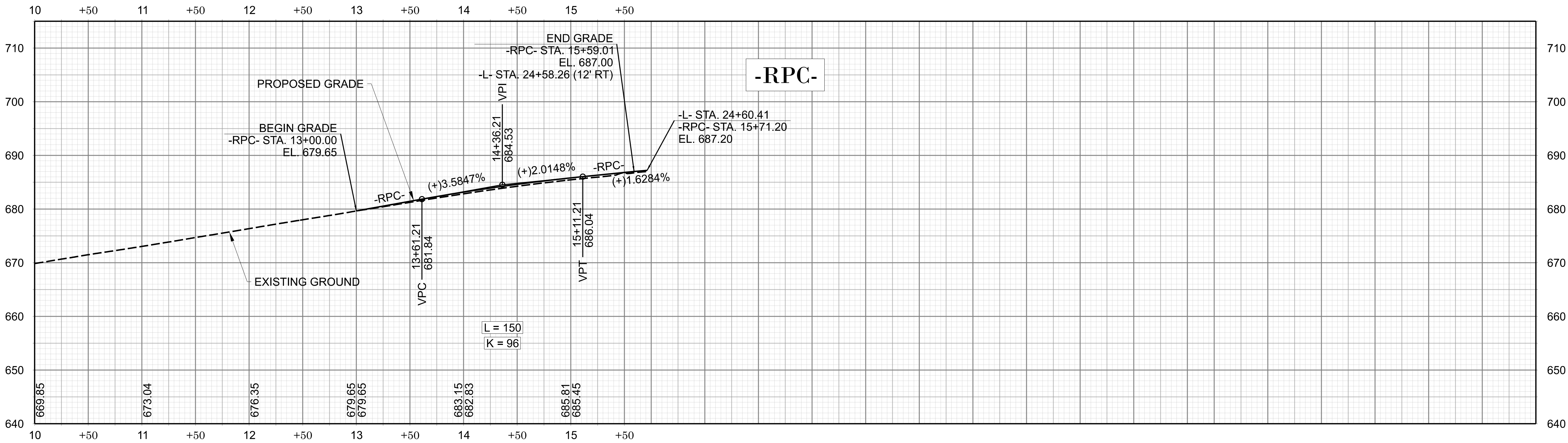
4700 FALLS OF NEUSE ROAD, SUITE 300
RALEIGH, NORTH CAROLINA 27609
(919) 784-6600 FAX (919) 784-6609 FAX
NC LICENSE NO.: P-0109

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REVISIONS



FOR -RPB- PLAN SEE SHEET 4

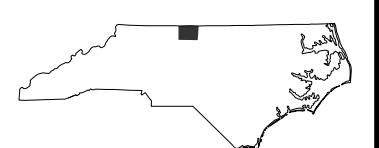


FOR -RPC- PLAN SEE SHEET 4

BR-0098

006

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
WAKE COUNTY

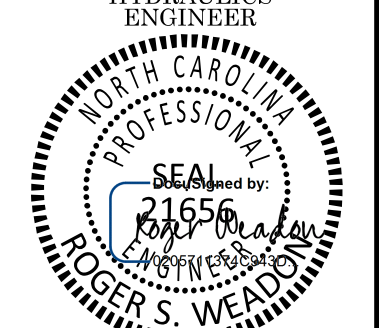


ROADWAY DESIGN UNIT

ROADWAY DESIGN
ENGINEER



HYDRAULICS
ENGINEER



PREPARED BY

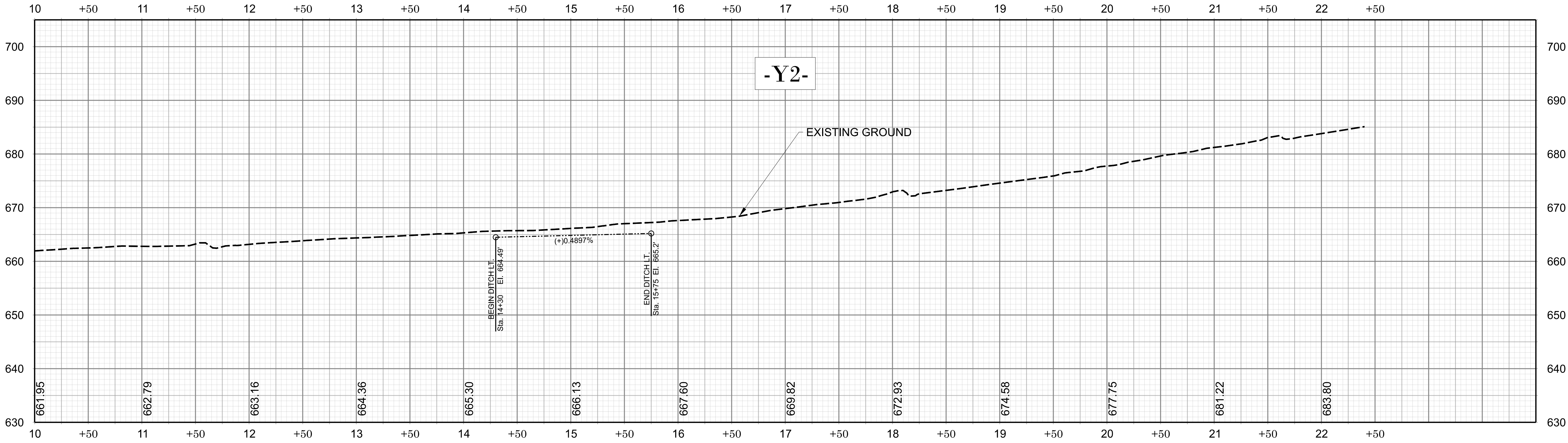


4700 FALLS OF NEUSE ROAD, SUITE 300
RALEIGH, NORTH CAROLINA 27609
(919) 781-8800 FAX (919) 781-8899
NC LICENSE NO.: P-0109

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REVISIONS

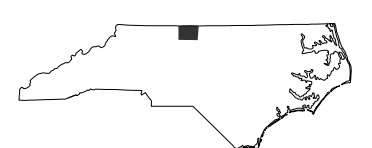
11/14/23



BR-0098

007

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
WAKE COUNTY



ROADWAY DESIGN UNIT

ROADWAY DESIGN
ENGINEER



HYDRAULICS
ENGINEER



PREPARED BY



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(919) 781-4600 FAX (919) 781-4609 FAX
NC LICENSE NO. 2 P-0109

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