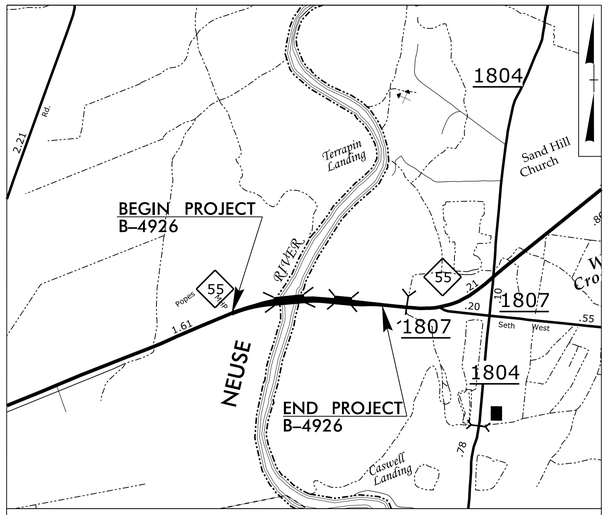
09/08/99

TIP PROJECT: B–4926

CONTRACT: C204861

See Sheet 1A For Index of Sheets
See Sheet 1B For Conventional Plan Sheet Symbols
See Sheets RW01 Thru RW05 For RW Plan Sheets



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

LENOIR COUNTY

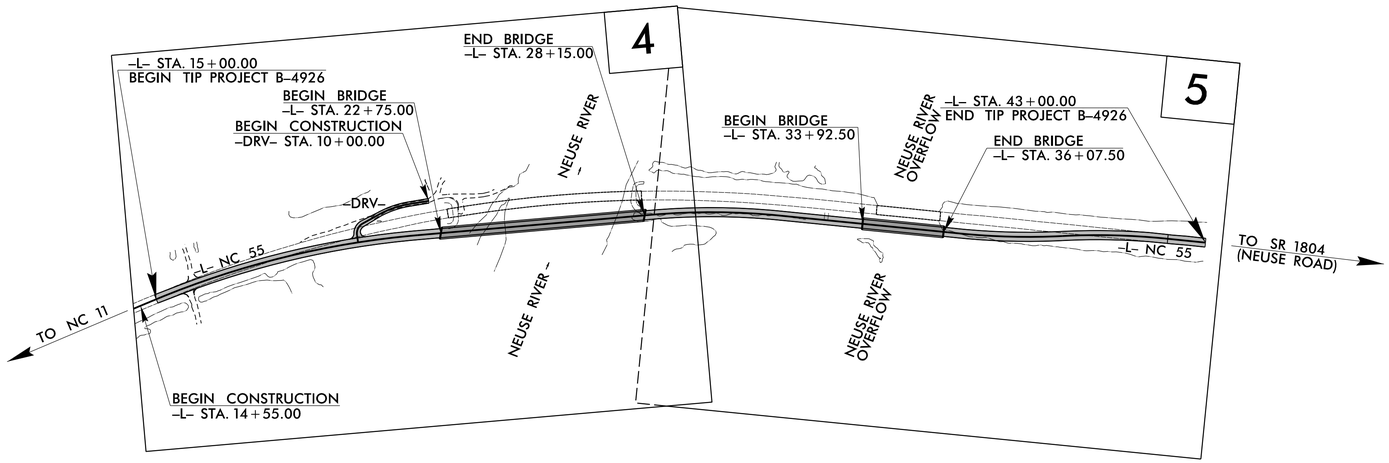
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B–4926	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
40163.1.2	N/A	PE
40163.2.1	N/A	R/W & UTILITIES
40163.3.1	N/A	CONST.

LOCATION: BRIDGE NO. 20 AND BRIDGE NO. 34 ON NC 55 OVER THE NEUSE RIVER AND NEUSE RIVER OVERFLOW

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

NAD 83/2007 NSRS



DESIGN EXCEPTION REQUIRED FOR SUPERELEVATION.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2024 = 3196
ADT 2040 = 3900
K = 9 %
D = 60 %
T = 8 % *
V = 60 MPH
* TTST=3% DUAL=5%
FUNC CLASS = MAJOR COLLECTOR "REGIONAL TIER"

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B–4926 = 0.387 MILES
LENGTH STRUCTURES TIP PROJECT B–4926 = 0.143 MILES
TOTAL LENGTH OF TIP PROJECT B–4926 = 0.530 MILES

Prepared In the Office of:

TRANSYSTEMS
1 Glenwood Avenue
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Tel:919.789.9977
Fax:919.789.9591
License: F-0453

2024 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: JULY 6, 2022

LETTING DATE: MAY 28, 2024

RAJIT RAMKUMAR, PE, LEED AP
PROJECT ENGINEER

DANIEL W. GARDNER, JR., PE
PROJECT DESIGN ENGINEER

CASEY K. WHITLEY, PE, PLS
NCDOT CONTACT

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 035621 ENGINEER ANDREW M. HOWELL

P.E.

SIGNATURE:

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 033871 ENGINEER DANIEL W. GARDNER JR.

P.E.

SIGNATURE:

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •

2/7/2024
\\Proj\B-4926_Ray_tsh.dgn
USER:dgardner

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PROJECT REFERENCE NO.	SHEET NO.
B-4926	1A

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 033871 DANIEL W. GARDNER, JR.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

INDEX OF SHEETS

SHEET NUMBER	SHEET
1	TITLE SHEET
1A	INDEX OF SHEETS, GENERAL NOTES, AND LIST OF STANDARD DRAWINGS
1B	CONVENTIONAL PLAN SHEET SYMBOLS
2A-1 THRU 2A-3	PAVEMENT SCHEDULE, WEDGING DETAIL, AND TYPICAL SECTIONS
2B-1	TEMPORARY PAVEMENT WIDENING DETAIL
2G-1	STANDARD TEMPORARY SHORING DETAIL
2G-2 THRU 2G-4	STANDARD TEMPORARY WALL DETAIL
3B-1	SUMMARY OF EARTHWORK
3B-2	GUARDRAIL SUMMARY, ASPHALT PAVEMENT REMOVAL SUMMARY, AND SHOULDER BERM GUTTER SUMMARY
3D-1 THRU 3D-2	DRAINAGE SUMMARIES
3G-1	GEOTECHNICAL SUMMARIES
3P-1	PARCEL INDEX SHEET
4 THRU 5	PLAN SHEETS
6 THRU 7	PROFILE SHEETS
RW01 THRU RW05	RIGHT OF WAY PLAN SHEETS
TMP-1 THRU TMP-7	TRAFFIC MANAGEMENT PLANS
PMP-1 THRU PMP-5	PAVEMENT MARKING PLANS
EC-1 THRU EC-8	EROSION CONTROL PLANS
RF-1	REFORESTATION PLANS
SIGN-1 THRU SIGN-5	SIGNING PLANS
UC-1 THRU UC-6	UTILITIES CONSTRUCTION PLANS
UO-1 THRU UO-3	UTILITIES BY OTHERS PLANS
X-1	CROSS-SECTION INDEX SHEET
X-1A	CROSS-SECTION SUMMARY SHEET
X-1 THRU X-18	CROSS-SECTIONS
S1-1 THRU S1-49	STRUCTURE PLANS (-L- STA. 25+45)
S2-1 THRU S2-39	STRUCTURE PLANS (-L- STA. 35+00)

GENERAL NOTES:

2024 SPECIFICATIONS
EFFECTIVE: 01-16-2024
REVISED:

GRADING AND SURFACING OR RESURFACING AND WIDENING:

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

CLEARING:

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

SUPERELEVATION:

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

SHOULDER CONSTRUCTION:

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

SIDE ROADS:

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

SUBSURFACE DRAINS:

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

UNDERDRAINS:

UNDERDRAINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 815.03 AT LOCATIONS DIRECTED BY THE ENGINEER.

GUARDRAIL:

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

TEMPORARY SHORING:

SHORING REQUIRED FOR THE MAINTENANCE OF TRAFFIC NOT SHOWN ON THE PLANS WILL BE PAID FOR AT THE CONTRACT PRICE FOR "TEMPORARY SHORING".

END BENTS:

THE ENGINEER SHALL CHECK THE STRUCTURE END BENT PLANS, DETAIL, AND CROSS-SECTION PRIOR TO SETTING OF THE SLOPE STAKES FOR THE EMBANKMENT OR EXCAVATION APPROACHING A BRIDGE.

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE DISTRIBUTION - DUKE ENERGY, COMMUNICATIONS - BRIGHTSPEED, WATER - NORTH LENOIR WATER CORPORATION, SANITARY SEWER - TOWN OF DOVER, AND WATER (TRANSMISSION) - NLWC.

ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS, EXCEPT AS SHOWN ON THE PLANS.

RIGHT-OF-WAY MARKERS:

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

EFF. 01-16-2024
REV.

2024 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, 2024 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
235.01	Embankmnet Monitoring
275.01	Rock Plating
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation
310.10	Driveway Pipe Construction
DIVISION 4 - MAJOR STRUCTURES	
423.01	Bridge Approach Fills - Type 1 Approach Fill For Bridge Abutment
423.02	Bridge Approach Fills - Type 1A Alternate Approach Fill For Integral Bridge Abutment
422.03	Reniforced Bridge Approach Fills - Type A Alternative Approach Fill for Integral Abutment
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
DIVISION 8 - INCIDENTALS	
806.01	Concrete Right-of-Way Marker
806.02	Granite Right-of-Way Marker
815.02	Subsurface Drain
815.03	Pipe Undedrain and Blind Drain
840.00	Concrete Base Pad for Drainage Structures
840.18	Concrete Grated Drop Inlet Type 'B' - 12" thru 36" Pipe
840.25	Anchorage for Frames - Brick or Concrete or Precast
840.27	Brick Grated Drop Inlet Type 'B' - 12" thru 36" Pipe
840.29	Frames and Narrow Slot Flat Grates
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
840.66	Drainage Structure Steps
846.01	Concrete Curb, Gutter and Curb & Gutter
846.04	Drop Inlet Installation in Shoulder Berm Gutter
862.01	Guardrail Placement
862.02	Guardrail Installation
862.03	Structure Anchor Units
876.01	Rip Rap in Channels and Ditches
876.02	Guide for Rip Rap at Pipe Outlets

9/10/2021

PROJECT REFERENCE NO.	SHEET NO.
B-4926	1B

STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

Note: Not to Scale

BOUNDARIES AND PROPERTY:

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

BUILDINGS AND OTHER CULTURE:

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

HYDROLOGY:

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

RAILROADS:

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

RIGHT OF WAY & PROJECT CONTROL:

- 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 — RW
- Existing Control of Access Line — CA
- Proposed Control of Access Line — CA
- Proposed ROW and CA Line — RW 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

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:

** 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 — P
- Power Line Tower
- Power Transformer
- U/G Power Cable Hand Hole — HH
- H–Frame Pole
- U/G Power Line Test Hole (SUE – LOS A)*
- U/G Power Line (SUE – LOS B)* — P
- U/G Power Line (SUE – LOS C)* — P
- U/G Power Line (SUE – LOS D)* — 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 Test Hole (SUE – LOS A)*
- U/G Telephone Cable (SUE – LOS B)* — T
- U/G Telephone Cable (SUE – LOS C)* — T
- U/G Telephone Cable (SUE – LOS D)* — T
- U/G Telephone Conduit (SUE – LOS B)* — TC
- U/G Telephone Conduit (SUE – LOS C)* — TC
- U/G Telephone Conduit (SUE – LOS D)* — TC
- U/G Fiber Optics Cable (SUE – LOS B)* — T FO
- U/G Fiber Optics Cable (SUE – LOS C)* — T FO
- U/G Fiber Optics Cable (SUE – LOS D)* — T FO

WATER:

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

TV:

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

GAS:

- Gas Valve
- Gas Meter
- U/G Gas Line Test Hole (SUE – LOS A)*
- U/G Gas Line (SUE – LOS B)* — G
- U/G Gas Line (SUE – LOS C)* — G
- U/G Gas Line (SUE – LOS D)* — 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 Force Main Line Test Hole (SUE – LOS A)*
- SS Force Main Line (SUE – LOS B)* — FSS
- SS Force Main Line (SUE – LOS C)* — FSS
- SS Force Main Line (SUE – LOS D)* — FSS

MISCELLANEOUS:

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

6/2/99

PROJECT REFERENCE NO.	SHEET NO.
B-4926	2A-1

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 033871 ENGINEER DANIEL W. GARDNER JR.

PAVEMENT DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 036694 ENGINEER AMY L. SIMPSON

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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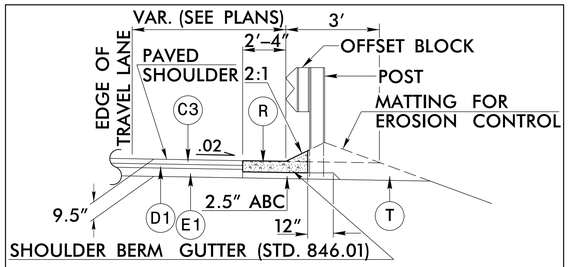
License: F-0453

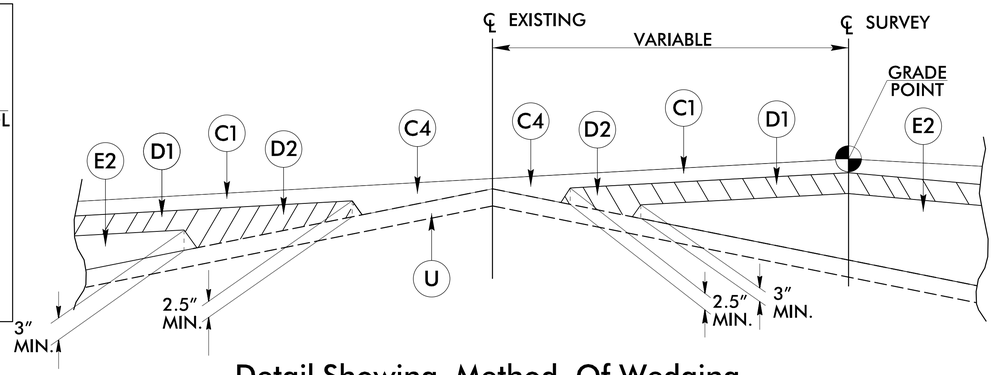
PAVEMENT SCHEDULE

C1	PROP. APPROX. 1½″ ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD.	J1	PROP. 6″ AGGREGATE BASE COURSE.
C2	PROP. APPROX. 2″ ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	J2	PROP. 8″ AGGREGATE BASE COURSE.
C3	PROP. APPROX. 3″ ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	P	PRIME COAT AT THE RATE OF 0.35 GAL. PER SQ. YD.
C4	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1″ DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 1½″ IN DEPTH.	R	PROP. CONCRETE SHOULDER BERM GUTTER.
D1	PROP. APPROX. 2½″ ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.	T	EARTH MATERIAL.
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 2½″ OR GREATER THAN 4″ IN DEPTH.	U	EXISTING PAVEMENT.
E1	PROP. APPROX. 4″ ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	V	INCIDENTAL MILLING.
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1″ DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3″ IN DEPTH OR GREATER THAN 5½″ IN DEPTH.	W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL).

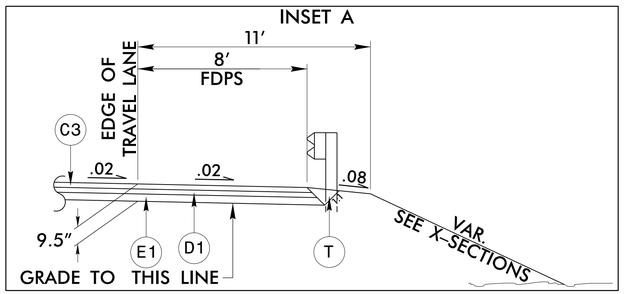
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



DETAIL SHOWING SHOULDER BERM GUTTER
USE WITH TYPICAL SECTION NO. 1 AND 2
(SEE PLANS FOR LOCATIONS)



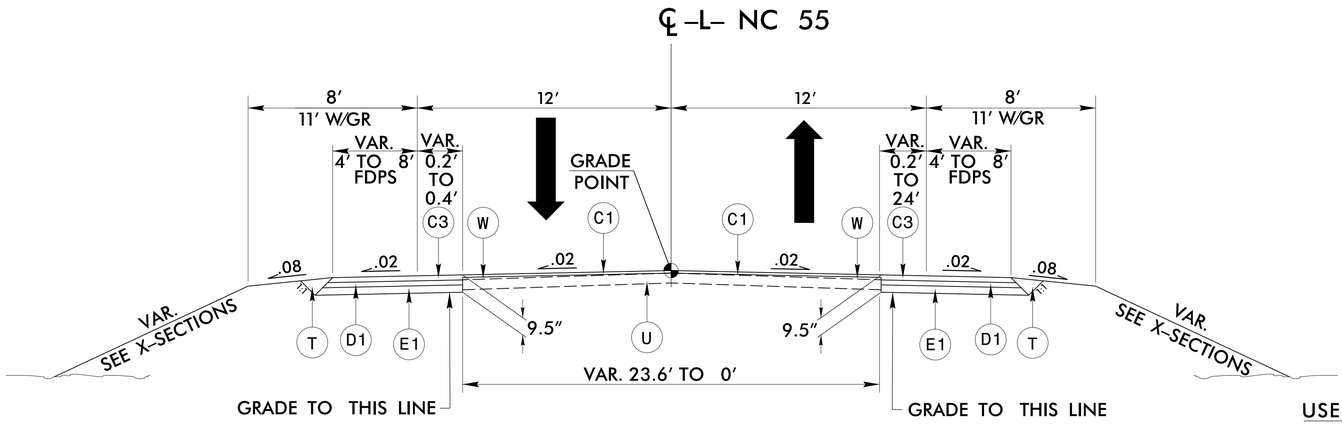
Detail Showing Method Of Wedging



USE INSET A WITH TYPICAL SECTIONS NO. 1 AND 2

–L– STA. 16+75.00 TO STA. 20+30.00 LT.
–L– STA. 21+29.29 TO STA. 22+79.29 LT.
–L– STA. 28+19.29 TO STA. 33+92.50 LT.
–L– STA. 36+07.50 TO STA. 41+57.50 LT.
–L– STA. 16+45.71 TO STA. 22+70.71 RT.
–L– STA. 28+10.71 TO STA. 33+92.50 RT.
–L– STA. 36+07.50 TO STA. 40+95.00 RT.

NOTE: GUARDRAIL TRANSITIONS WITH A 50:1 TAPER TO MATCH BRIDGE OFFSETS.



TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO. 1 AS FOLLOWS

–L– STA 15+00.00 TO STA 17+00.00
–L– STA. 38+96.35 TO STA. 42+00.00

NOTE: INCIDENTAL MILLING/PAVING REQUIRED FROM –L– STA. 42+00.00 TO STA. 43+00.00 TO TIE END GRADE ELEVATION TO EXISTING ELEVATION. (SEE SUPER ON PLAN VIEW)

NOTE: NC 55 IS DESIGNATED AS BICYCLE ROUTE 40 (LENOIR COUNTY LOOP ROUTE).

2/7/2024
B-4926_Rdy_typ.dgn
USER:rdgardner

PROJECT REFERENCE NO.	SHEET NO.
B-4926	2A-2

ROADWAY DESIGN ENGINEER — SEAL 033871, NORTH CAROLINA PROFESSIONAL ENGINEER, DANIEL W. GARDNER, JR.

PAVEMENT DESIGN ENGINEER — SEAL 036694, NORTH CAROLINA PROFESSIONAL ENGINEER, AMY L. SIMPSON

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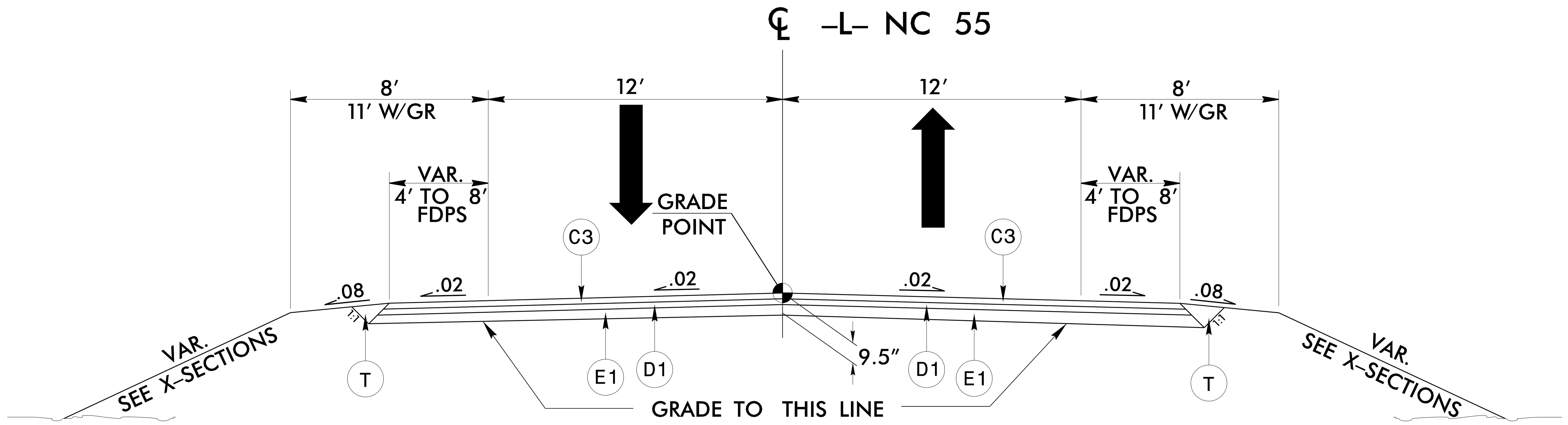
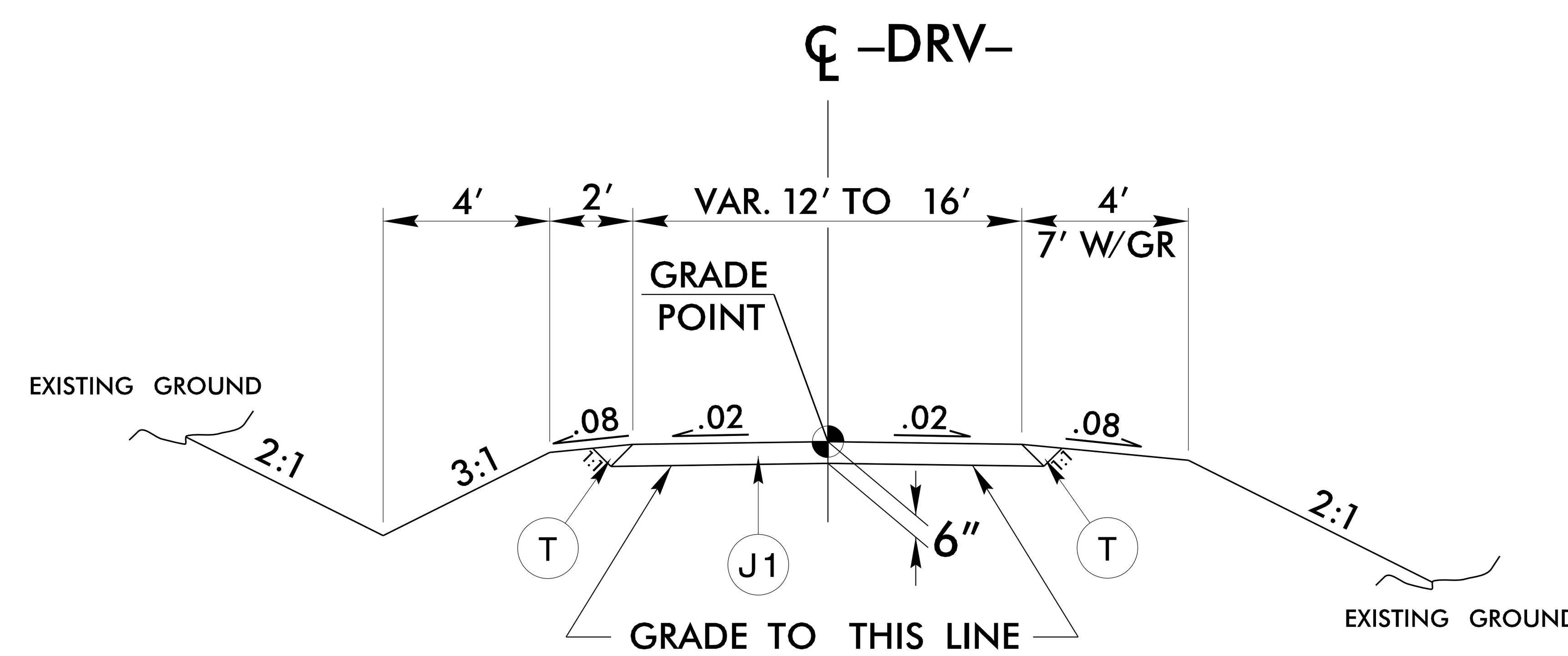


TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2 AS FOLLOWS

-L- STA. 17+00.00 TO STA. 22+75.00 (BEGIN BRIDGE 20)
-L- STA. 28+15.00 (END BRIDGE 20) TO STA. 33+92.50 (BEGIN BRIDGE 34)
-L- STA. 36+07.50 (END BRIDGE 34) TO STA. 38+96.35

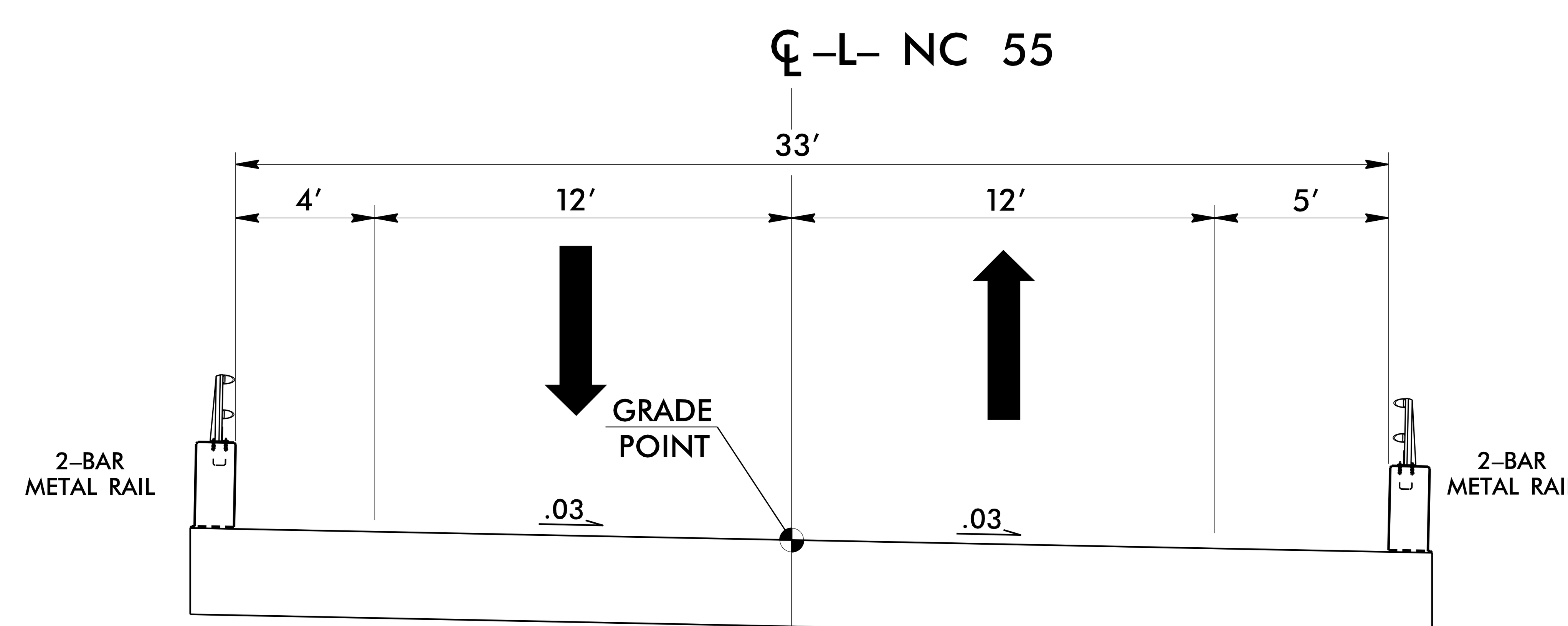


TYPICAL SECTION NO. 3

USE TYPICAL SECTION NO. 3 AS FOLLOWS

-DRV- STA 10+00.00 TO STA 12+15.00

NOTE: PAVE DRIVE FROM -DRV- STA 12+15.00 TO STA 12+29.88
(USE FULL DEPTH MAIN LINE PAVEMENT DESIGN)



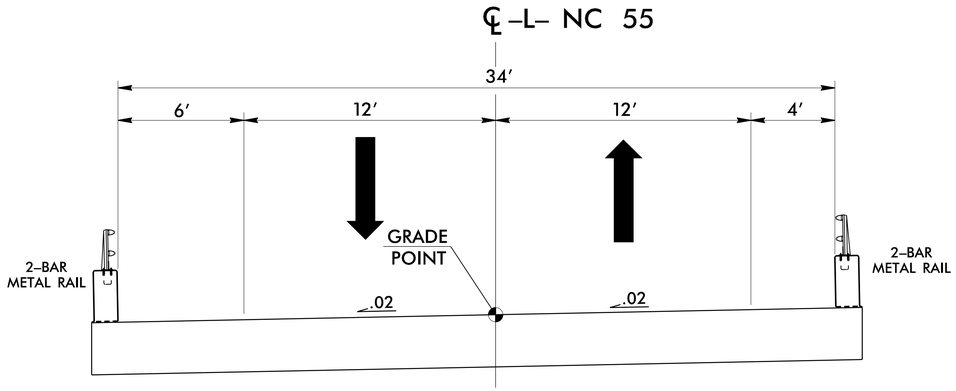
TYPICAL SECTION NO. 4

USE TYPICAL SECTION NO. 4 AS FOLLOWS

-L- STA. 22+75.00 (BEGIN BRIDGE 20) TO STA. 28+15.00 (END BRIDGE 20)

PAVEMENT SCHEDULE

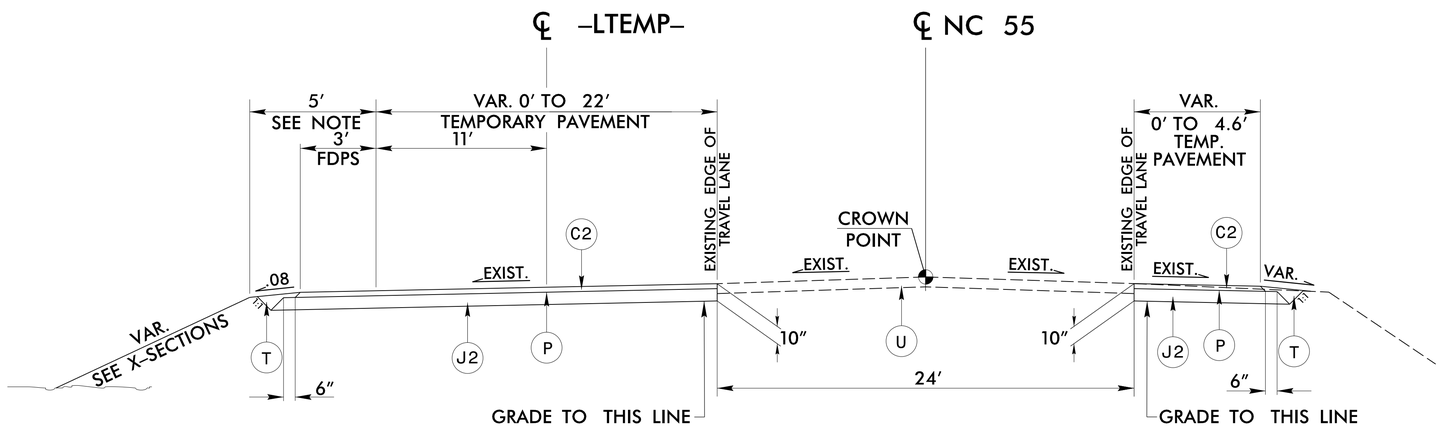
C1	1½" TYPE S9.5B
C2	2" TYPE S9.5B
C3	3" TYPE S9.5B
C4	VAR. TYPE S9.5B
D1	2½" TYPE I19.0C
D2	VAR. TYPE I19.0C
E1	4" TYPE B25.0C
E2	VAR. TYPE B25.0C
J1	6" AGGREGATE BASE COURSE.
J2	8" AGGREGATE BASE COURSE.
P	PRIME COAT
R	SHOULDER BERM GUTTER.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT
V	INCIDENTAL MILLING
W	VAR. DEPTH WEDGING



TYPICAL SECTION NO. 5

USE TYPICAL SECTION NO. 5 AS FOLLOWS

–L– STA. 33+92.50 (BEGIN BRIDGE 34) TO STA. 36+07.50 (END BRIDGE 34)



TYPICAL SECTION NO. 6

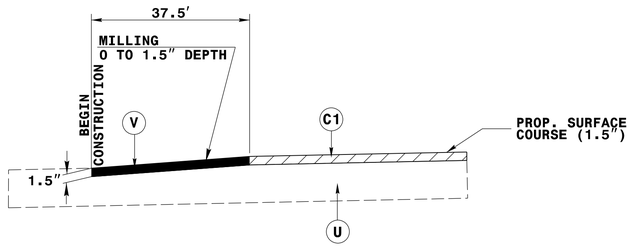
USE TYPICAL SECTION NO. 6 AS FOLLOWS

–LTEMP– STA 10+47.65+/– TO STA 18+19.90+/–

–L– STA 21+22+/– TO STA 22+47+/– LT.

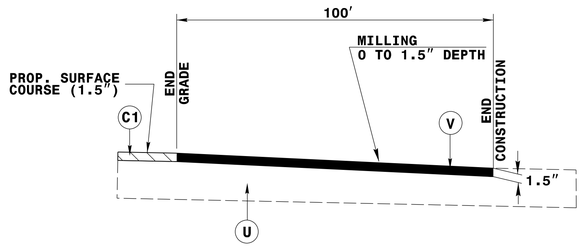
NOTE: SEE TMP–4 FOR TEMPORARY PAVEMENT WIDENING DETAILS.
SEE CROSS SECTIONS X–2 THRU X–5 FOR GUARDRAIL LOCATIONS.

INCIDENTAL MILLING DETAIL



–L– STA. 15+00.00 TO STA. 15+37.50

INCIDENTAL MILLING DETAIL



–L– STA. 42+00.00 TO STA. 43+00.00

PROJECT REFERENCE NO.	SHEET NO.
B-4926	2A-3

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 033871 DANIEL W. GARDNER JR.

PAVEMENT DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 036694 AMY L. SIMPSON

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TRANSYSTEMS
1 Glenwood Avenue
Raleigh, NC 27603
Tel:919.789.9977
Fax:919.789.9591
License: F-0453

PAVEMENT SCHEDULE

C1	1½″ TYPE S9.5B
C2	2″ TYPE S9.5B
C3	3″ TYPE S9.5B
C4	VAR. TYPE S9.5B
D1	2½″ TYPE I19.0C
D2	VAR. TYPE I19.0C
E1	4″ TYPE B25.0C
E2	VAR. TYPE B25.0C
J1	6″ AGGREGATE BASE COURSE.
J2	8″ AGGREGATE BASE COURSE.
P	PRIME COAT
R	SHOULDER BERM GUTTER.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT
V	INCIDENTAL MILLING
W	VAR. DEPTH WEDGING

2/7/2024
B-4926_Rdy_typ.dgn
USER:dgardner

TEMPORARY PAVEMENT WIDENING DETAIL
(-LTEMP-)

TRANSYSTEMS
1 Glenwood Avenue
Raleigh, NC 27603
Tel:919.789.9977
Fax:919.789.9591
License: F-0453

PROJECT REFERENCE NO.	SHEET NO.
B-4926	2B-1
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 033871 DANIEL W. GARDNER, JR.

HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 035621 ANDREW M. HOWELL

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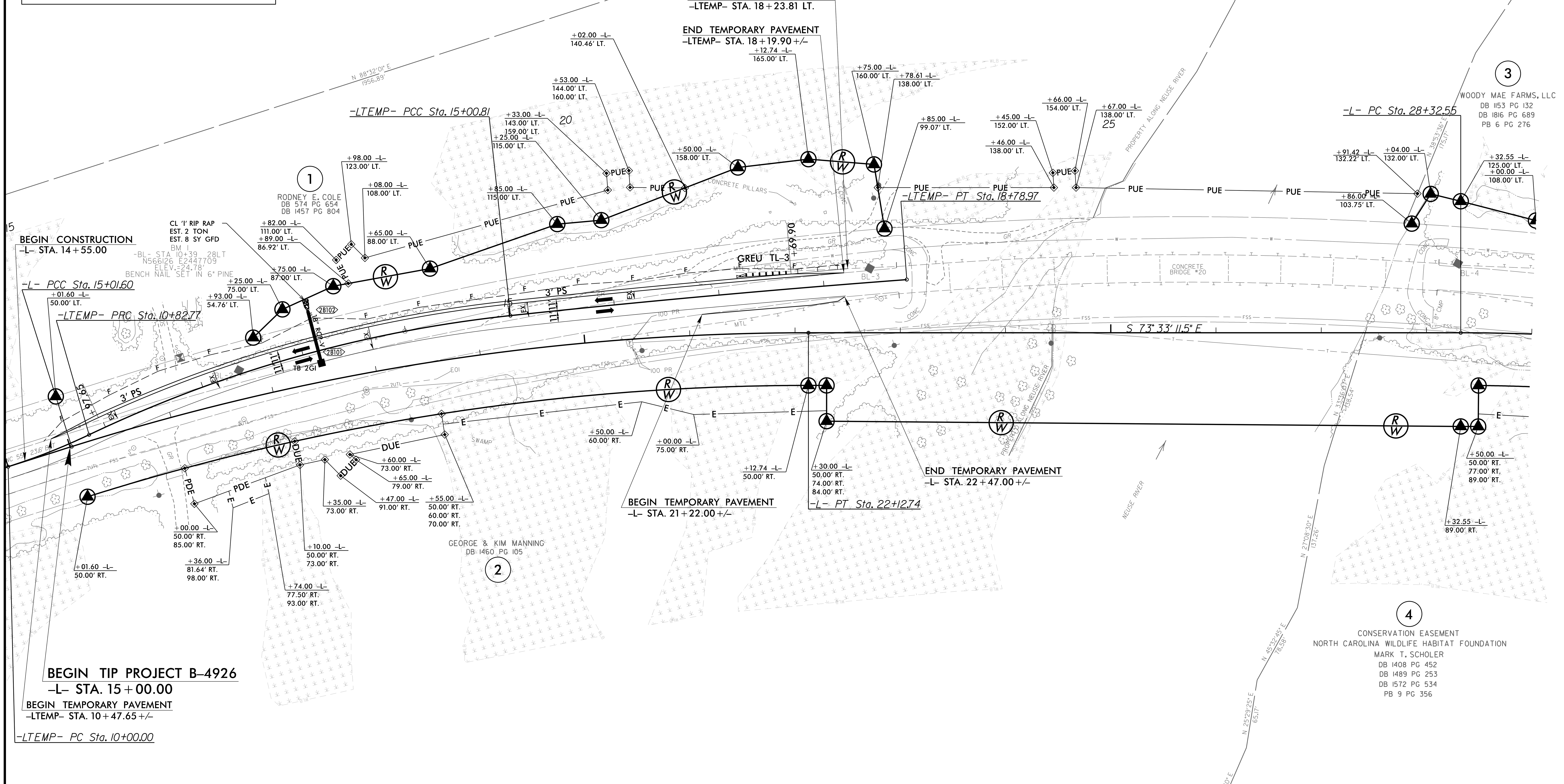
-L-		-LTEMP-		
PI Sta 18+59.98	PI Sta 30+02.07	PI Sta 10+41.45	PI Sta 12+93.81	PI Sta 16+89.91
△ = 17° 33' 45.4" (RT)	△ = 10° 38' 32.4" (RT)	△ = 7° 54' 15.5" (LT)	△ = 19° 23' 23.1" (RT)	△ = 1° 48' 20.2" (RT)
D = 2° 28' 10.7"	D = 3° 08' 53.2"	D = 9° 32' 57.5"	D = 4° 38' 18.0"	D = 0° 28' 38.9"
L = 711.14'	L = 338.05'	L = 82.77'	L = 418.03'	L = 378.17'
T = 358.38'	T = 169.51'	T = 41.45'	T = 211.03'	T = 189.10'
R = 2,320.00'	R = 1,820.00'	R = 600.00'	R = 1,235.27'	R = 12,000.00'
SE = .06	SE = .07	SE = EXIST.	SE = EXIST.	SE = EXIST.
RO = 162'	RO = 189'			



NOTE: SEE TMP-4 FOR ADDITIONAL DETAILS INCLUDING SHORING AND PORTABLE CONCRETE BARRIER.
SEE X-2 THRU X-5 FOR TEMPORARY PAVEMENT CROSS SECTIONS.

PROJECT REFERENCE NO.	SHEET NO.
B-4926	2G-1

GEOTECHNICAL ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 047389 ENGINEER CHIN-TANG

DocuSigned by: Chin-Tang Tang 4/5/2024
4071910370EE41F...
SIGNATURE DATE

ENGINEER

SIGNATURE DATE

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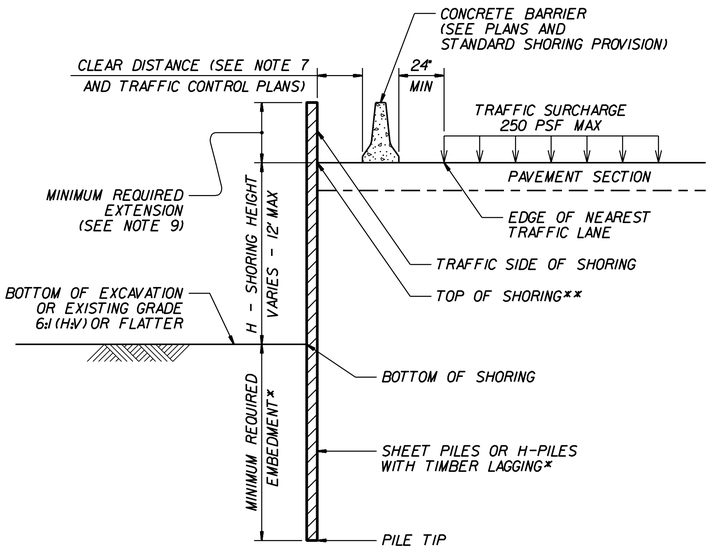
GROUNDWATER CONDITION (SEE NOTE 6)	H SHORING HEIGHT (FT)	SLOPE OR SURCHARGE CASE WITH NO TRAFFIC IMPACT					SURCHARGE CASE WITH TRAFFIC IMPACT				
		SHEET PILES		H-PILES WITH TIMBER LAGGING			SHEET PILES		H-PILES WITH TIMBER LAGGING		
		MINIMUM REQUIRED EMBEDMENT (FT)	MINIMUM REQUIRED SECTION MODULUS (IN^3/FT)	MINIMUM REQUIRED EMBEDMENT* (FT) (SEE NOTE 10)			MINIMUM REQUIRED EMBEDMENT (FT)	MINIMUM REQUIRED SECTION MODULUS (IN^3/FT)	MINIMUM REQUIRED EMBEDMENT* (FT) (SEE NOTE 10)		
				HP 10x42	HP 12x53	HP 14x73			HP 10x42	HP 12x53	HP 14x73
GROUNDWATER ELEVATION BETWEEN BOTTOM OF SHORING AND PILE TIP	< 6	11.5	4.5	11.5	11.5	11.5	16.0	12.0	13.0	13.0	13.0
	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 "--".

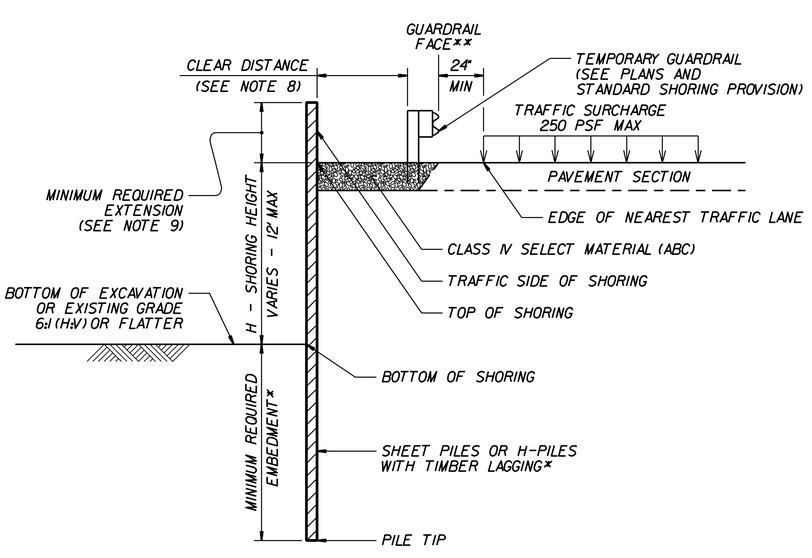
NOTES:

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.



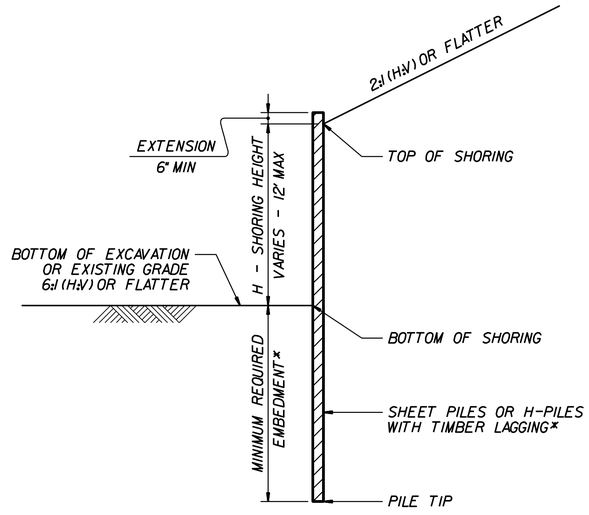
CONCRETE BARRIER

**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.

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

GEOTECHNICAL ENGINEERING UNIT

STANDARD DETAIL NO. 1801.01

STANDARD TEMPORARY SHORING

DATE: 11-19-13

PROJECT REFERENCE NO.	SHEET NO.
B-4926	2G-2

GEOTECHNICAL ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 047389 ENGINEER CHIN-TING TANG

DocuSigned by: Chin-Ting Tang 4/5/2024

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SIGNATURE DATE

ENGINEER

SIGNATURE DATE

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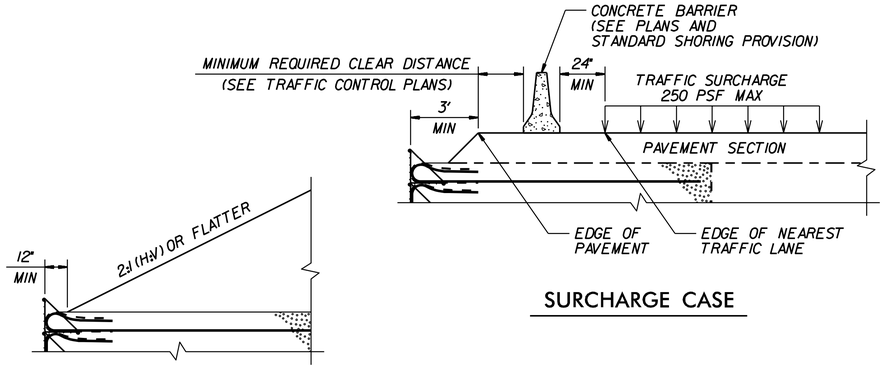
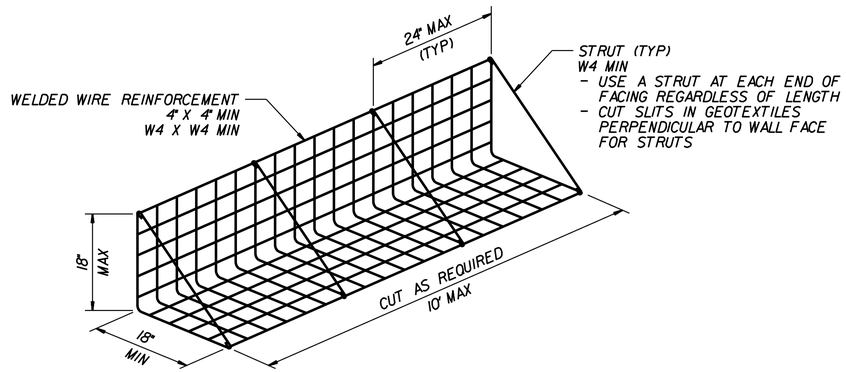
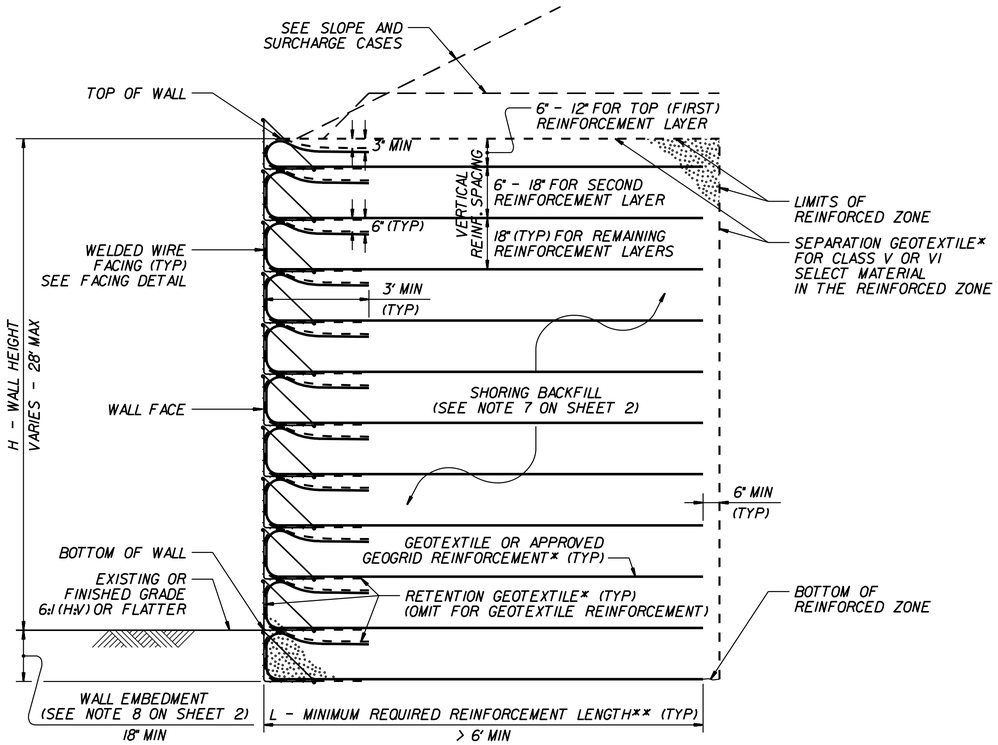


SURCHARGE CASE

SLOPE CASE

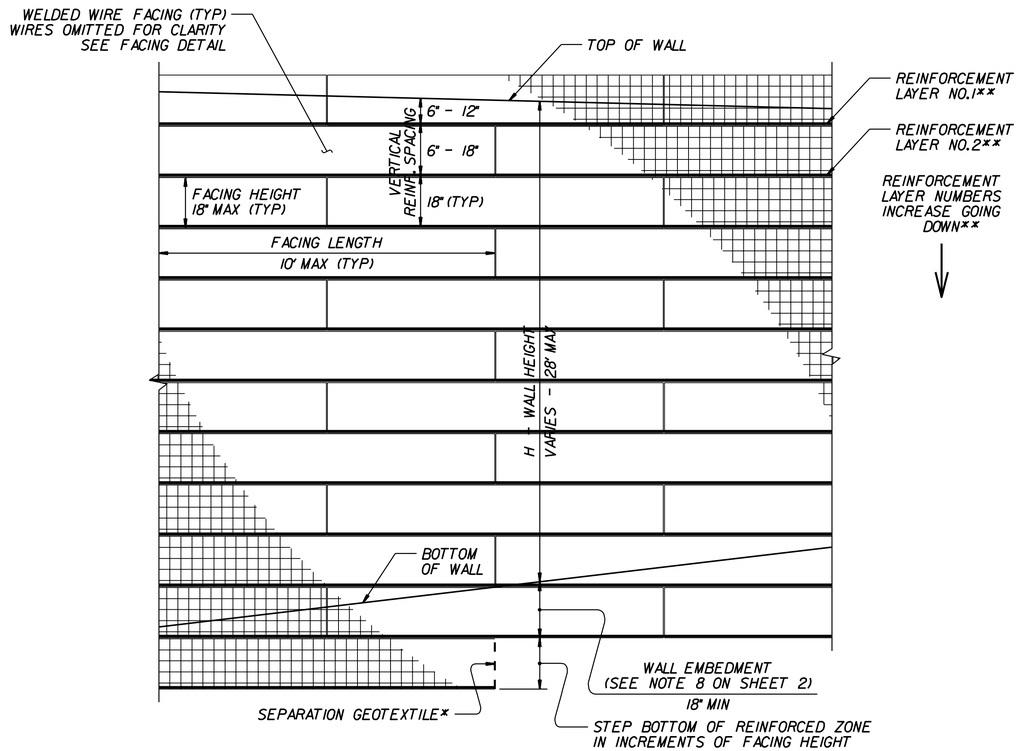


FACING DETAIL



STANDARD TEMPORARY WALL

(FOR STANDARD TEMPORARY WALLS ON STRUCTURES, SEE TEMPORARY WALL ON STRUCTURE DETAIL ON SHEET 2.)
*SEE GEOSYNTHETIC PLACEMENT DETAILS ON SHEET 2.
**SEE REINFORCEMENT TABLES ON SHEET 3.



STANDARD TEMPORARY WALL – PARTIAL ELEVATION

*SEE GEOSYNTHETIC PLACEMENT DETAILS ON SHEET 2.
**SEE REINFORCEMENT TABLES ON SHEET 3.

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

GEOTECHNICAL ENGINEERING UNIT

STANDARD DETAIL NO. 1801.02

STANDARD TEMPORARY WALL SHEET 1 OF 3

DATE: 11-19-13

PROJECT REFERENCE NO.	SHEET NO.
B-4926	2G-3

GEOTECHNICAL ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 047389 ENGINEER CHEN-TING TANG

DocuSigned by: Chien-Ting Tang 4071910370EE41F... 4/5/2024

SIGNATURE DATE

ENGINEER

SIGNATURE DATE

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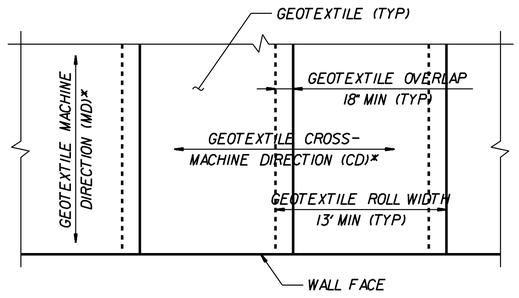
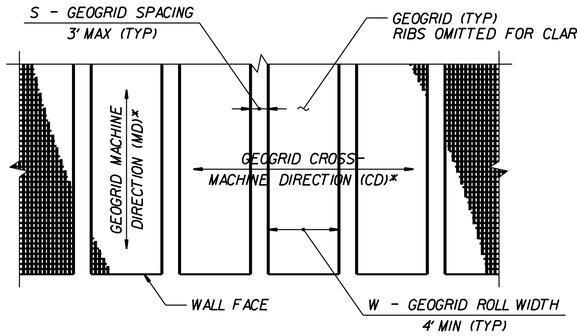


GEOTEXTILE PLACEMENT

(100% COVERAGE MIN FOR GEOTEXTILE REINFORCEMENT)

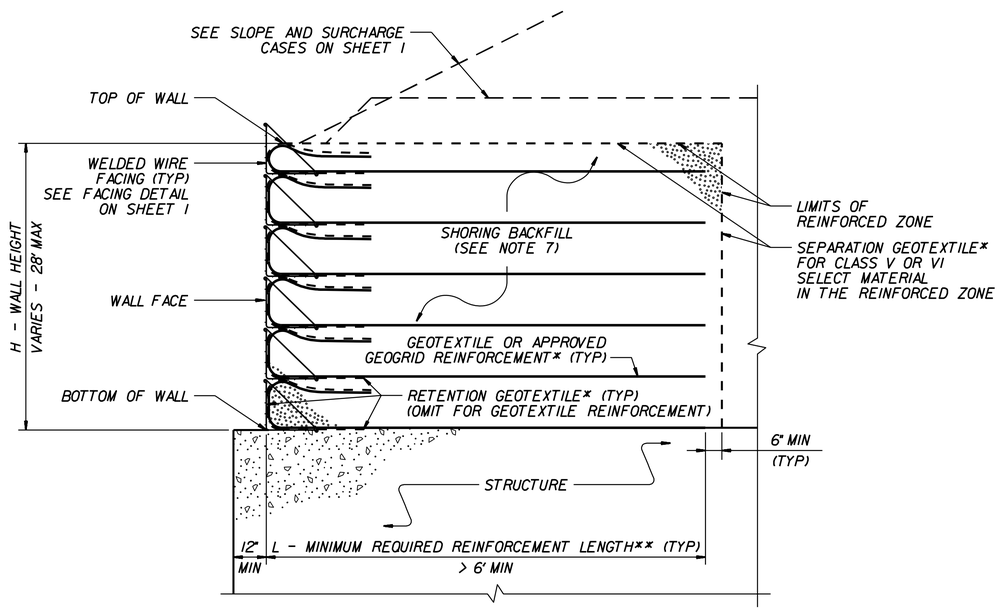


GEOGRID PLACEMENT

(80% COVERAGE MIN FOR GEOGRID REINFORCEMENT – $\frac{W}{W+S}$ x 100 $\geq$ 80%, SEE NOTE 11)

GEOSYNTHETIC PLACEMENT DETAILS

(PLAN VIEW)
*SEE NOTE 12.



TEMPORARY WALL ON STRUCTURE DETAIL

*SEE GEOSYNTHETIC PLACEMENT DETAILS.
**SEE REINFORCEMENT TABLES ON SHEET 3.

NOTES:

1. AT THE CONTRACTOR'S OPTION, USE STANDARD TEMPORARY WALLS AS NOTED IN THE PLANS.
2. FOR STANDARD TEMPORARY WALLS, SEE STANDARD SHORING PROVISION.
3. STANDARD TEMPORARY WALLS ARE 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 WALLS IF ASSUMED SOIL PARAMETERS ARE NOT APPLICABLE.
5. DO NOT USE STANDARD TEMPORARY WALLS WHEN VERY LOOSE OR SOFT SOIL OR MUCK IS BELOW TEMPORARY WALLS.
6. USE GROUNDWATER ELEVATION NOTED IN THE PLANS. IF NO GROUNDWATER ELEVATION IS SHOWN IN THE PLANS, ASSUME GROUNDWATER DEPTH IS LESS THAN 7' BELOW BOTTOM OF REINFORCED ZONE. DO NOT USE STANDARD TEMPORARY WALLS IF GROUNDWATER OR FLOOD ELEVATION IS ABOVE BOTTOM OF REINFORCED ZONE.
7. DO NOT USE A-2-4 SOIL FOR STANDARD TEMPORARY WALLS AROUND CULVERTS OR IN THE REINFORCED ZONE OF STANDARD TEMPORARY WALLS FOR SLOPE CASES. DO NOT USE CLASS VI SELECT MATERIAL IN THE REINFORCED ZONE OF STANDARD TEMPORARY WALLS WITH GEOTEXTILE REINFORCEMENT.
8. WALL EMBEDMENT IS NOT REQUIRED FOR STANDARD TEMPORARY WALLS ON STRUCTURES OR ROCK AS DETERMINED BY THE ENGINEER.
9. DO NOT USE MORE THAN 4 DIFFERENT REINFORCEMENT STRENGTHS FOR EACH STANDARD TEMPORARY WALL.
10. GEOGRIDS FOR GEOGRID REINFORCEMENT ARE APPROVED FOR SHORT TERM DESIGN STRENGTHS (3-YEAR DESIGN LIFE) IN THE MD AND CD BASED ON MATERIAL TYPE. THE LIST OF APPROVED GEOGRIDS WITH DESIGN STRENGTHS IS AVAILABLE FROM: connect.ncdot.gov/resources/Geological/Pages/Products.aspx
    DEFINE MATERIAL TYPE FROM THE WEBSITE ABOVE FOR SHORING BACKFILL AS FOLLOWS:

MATERIAL TYPE	SHORING BACKFILL
BORROW	A-2-4 SOIL
FINE AGGREGATE	CLASS II, TYPE I OR CLASS III SELECT MATERIAL
COARSE AGGREGATE	CLASS V OR VI SELECT MATERIAL

11. FOR GEOGRID REINFORCEMENT WITH LESS THAN 100% COVERAGE, STAGGER REINFORCEMENT SO GEOGRIDS ARE CENTERED OVER GAPS IN THE REINFORCEMENT LAYER BELOW.
12. AT THE CONTRACTOR'S OPTION, REINFORCEMENT MAY BE INSTALLED WITH THE MD PARALLEL TO THE WALL FACE IF BOTH OF THE FOLLOWING CONDITIONS OCCUR:
    - W (REINFORCEMENT ROLL WIDTH) $\geq$ (MINIMUM REQUIRED REINFORCEMENT LENGTH) + 4.5' AND
    - REINFORCEMENT STRENGTH IN CD $\geq$ MINIMUM REQUIRED REINFORCEMENT STRENGTH IN MD.
13. SUBMIT A "STANDARD TEMPORARY WALL SELECTION FORM" AT LEAST 7 DAYS BEFORE STARTING TEMPORARY WALL CONSTRUCTION. STANDARD SHORING SELECTION FORMS ARE AVAILABLE FROM: connect.ncdot.gov/resources/Geological/Pages/Geotech_Forms_Details.aspx
14. DO NOT PLACE SHORING BACKFILL OR REINFORCEMENT UNTIL EXCAVATION DIMENSIONS AND FOUNDATION MATERIAL ARE APPROVED.
15. FOR STANDARD TEMPORARY WALLS WITH PILE FOUNDATIONS IN THE REINFORCED ZONE, DRIVE PILES THROUGH REINFORCEMENT AFTER CONSTRUCTING TEMPORARY WALLS.
16. DO NOT SPLICE OR OVERLAP REINFORCEMENT SO SEAMS ARE PARALLEL TO THE WALL FACE.
17. CONTACT THE ENGINEER WHEN EXISTING OR FUTURE OBSTRUCTIONS SUCH AS FOUNDATIONS, PAVEMENTS, PIPES, INLETS OR UTILITIES WILL INTERFERE WITH REINFORCEMENT.
18. FOR STANDARD TEMPORARY WALLS WITH INTERIOR ANGLES LESS THAN 90 DEGREES, WRAP GEOSYNTHETICS AT ACUTE CORNERS AS DIRECTED BY THE ENGINEER.
19. FOR STANDARD TEMPORARY WALLS WITH TOP OF WALL WITHIN 5' OF FINISHED GRADE, REMOVE TOP FACING AND INCORPORATE TOP REINFORCEMENT LAYER INTO FILL WHEN PLACING FILL IN FRONT OF WALL.

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS

GEOTECHNICAL ENGINEERING UNIT

STANDARD DETAIL NO. 1801.02

STANDARD TEMPORARY WALL SHEET 2 OF 3

DATE: 10-19-21

PROJECT REFERENCE NO.	SHEET NO.
B-4926	2G-4

GEOTECHNICAL ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 047389 ENGINEER CHIN-TING TANG

DocuSigned by: Chin-Ting Tang 4071910370EE41F... 4/5/2024

SIGNATURE DATE

ENGINEER

SIGNATURE DATE

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SLOPE OR SURCHARGE CASE	GROUNDWATER DEPTH BELOW BOTTOM OF REINFORCED ZONE (SEE NOTE 6 ON SHEET 2) (FT)	SHORING BACKFILL TYPE IN THE REINFORCED ZONE (SEE NOTE 7 ON SHEET 2)	H - WALL HEIGHT (FT)																								
			< 4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
SLOPE CASE	> 0	CLASS II,TYPE I, CLASS III,CLASS V OR CLASS VI SELECT MATERIAL	6	6	7	8	9	11	12	13	13	14	15	16	17	18	19	20	21	22	23	24	24	25	26	27	27
SURCHARGE CASE	> 0 TO 7 FOR H < 20' > 0 TO 10 FOR H ≥ 20'	ALL SHORING BACKFILL TYPES	6	7	7	8	8	9	9	10	11	11	12	12	13	14	14	15	16	17	17	18	19	19	20	21	22
	> 7 FOR H < 20' > 10 FOR H ≥ 20'	A-2-4 SOIL	6	6	7	8	8	9	9	10	11	11	12	12	13	14	14	15	16	16	17	18	18	19	20	20	21
		CLASS II,TYPE I OR CLASS III SELECT MATERIAL	6	6	7	7	8	8	9	10	10	11	11	12	12	13	14	15	15	16	16	17	17	18	18	19	20
		CLASS V OR CLASS VI SELECT MATERIAL	6	6	7	7	7	8	8	9	9	10	10	11	12	13	13	14	14	15	15	16	17	17	18	19	19

L – MINIMUM REQUIRED REINFORCEMENT LENGTH (FT)

(FOR ALL REINFORCEMENT TYPES)

WALL HEIGHT (H) + WALL EMBEDMENT (FT)	NUMBER OF REINFORCEMENT LAYERS*
2.5 - 4	3
4 - 5.5	4
5.5 - 7	5
7 - 8.5	6
8.5 - 10	7
10 - 11.5	8
11.5 - 13	9
13 - 14.5	10
14.5 - 16	11
16 - 17.5	12
17.5 - 19	13
19 - 20.5	14
20.5 - 22	15
22 - 23.5	16
23.5 - 25	17
25 - 26.5	18
26.5 - 28	19
28 - 29.5	20

*BASED ON VERTICAL REINFORCEMENT SPACING SHOWN ON SHEET 1.

REINFORCEMENT LAYER NUMBER*	SHORING BACKFILL TYPE IN THE REINFORCED ZONE (SEE NOTE 7 ON SHEET 2)				
	SLOPE CASE		SURCHARGE CASE		
	CLASS II,TYPE I OR CLASS III SELECT MATERIAL	CLASS V SELECT MATERIAL	A-2-4 SOIL	CLASS II,TYPE I OR CLASS III SELECT MATERIAL	CLASS V SELECT MATERIAL
1	2400	2400	2400	2400	2400
2	2400	2400	2400	2400	2400
3	2400	2400	2400	2400	2400
4	2400	2400	2500	2400	2400
5	2500	2400	3000	2400	2400
6	3000	2400	3500	2800	2400
7	3500	2700	4000	3200	2600
8	4000	3100	4500	3600	2900
9	4500	3500	5000	4000	3200
10	5000	3900	5500	4400	3500
11	5500	4300	6000	4800	3800
12	6000	4700	6500	5200	4100
13	6500	5100	7000	5600	4400
14	7000	5400	7500	6000	4700
15	7500	5800	8000	6400	5000
16	8000	6200	8500	6800	5300
17	8500	6600	9000	7200	5600
18	9000	7000	9500	7600	5900
19	9500	7400	10000	8000	6200
20	10000	7800	10500	8400	6500

GEOTEXTILE REINFORCEMENT
ULTIMATE TENSILE STRENGTH (LB/FT)

REINFORCEMENT LAYER NUMBER*	SHORING BACKFILL TYPE IN THE REINFORCED ZONE (SEE NOTE 7 ON SHEET 2)				
	SLOPE CASE		SURCHARGE CASE		
	CLASS II,TYPE I OR CLASS III SELECT MATERIAL	CLASS V OR CLASS VI SELECT MATERIAL	A-2-4 SOIL	CLASS II,TYPE I OR CLASS III SELECT MATERIAL	CLASS V OR CLASS VI SELECT MATERIAL
1	240	200	340	290	240
2	380	310	520	430	350
3	530	420	700	570	460
4	690	550	870	720	570
5	860	690	1050	860	680
6	1030	830	1220	1000	790
7	1200	970	1400	1150	900
8	1370	1110	1580	1290	1010
9	1550	1240	1750	1430	1120
10	1720	1380	1930	1580	1230
11	1890	1520	2100	1720	1340
12	2060	1660	2280	1860	1450
13	2240	1800	2450	2010	1560
14	2410	1940	2630	2150	1670
15	2580	2080	2800	2290	1780
16	2750	2220	2980	2440	1890
17	2930	2360	3160	2580	2000
18	3100	2500	3330	2720	2110
19	3270	2640	3510	2860	2220
20	3440	2780	3690	3000	2330

GEOGRID REINFORCEMENT
SHORT-TERM DESIGN STRENGTH (LB/FT)

(SEE NOTE 10 ON SHEET 2.)

MINIMUM REQUIRED REINFORCEMENT STRENGTH IN MD

(SEE NOTE 9 ON SHEET 2.)
*SEE PARTIAL ELEVATION ON SHEET 1
FOR REINFORCEMENT LAYER NUMBERING.

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS

GEOTECHNICAL ENGINEERING UNIT

STANDARD DETAIL NO. 1801.02

STANDARD
TEMPORARY WALL
SHEET 3 OF 3

DATE: 11-19-13

COMPUTED BY: JHA DATE: 6/24/2019
CHECKED BY: DWG DATE: 3/8/2023

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF EARTHWORK

IN CUBIC YARDS

PROJECT REFERENCE NO.	SHEET NO.
B-4926	3B-1

TRANSYSTEMS

1 Glenwood Avenue
Raleigh, NC 27603
Tel:919.789.9977
Fax:919.789.9591
License: F-0453

STATION	STATION	UNCL. EXCAV.	UNDERCUT	EMBANK. +%	BORROW	WASTE
PHASE IA						
SUMMARY NO. 1 (LT.) TEMP. PVMT.						
-LTEMP- STA. 10+47.65	-LTEMP- STA. 18+19.90	140	0	214	74	0
TOTAL SUMMARY NO. 1		140	0	214	74	0
PHASE IB						
SUMMARY NO. 2 (RT.)						
-L- STA. 15+00.00	-L- STA. 22+75.00 (BB)	313	990	11,584	11,271	990
TOTAL SUMMARY NO. 2		313	990	11,584	11,271	990
SUMMARY NO. 3 (RT.)						
-L- STA. 28+15.00 (EB)	-L- STA. 33+92.50 (BB)	334	2,200	23,238	22,904	2,200
TOTAL SUMMARY NO. 3		334	2,200	23,238	22,904	2,200
SUMMARY NO. 4 (RT.)						
-L- STA. 36+07.50 (EB)	-L- STA. 43+00.00	402	1,500	6,148	5,746	1,500
TOTAL SUMMARY NO. 4		402	1,500	6,148	5,746	1,500
PHASE II						
SUMMARY NO. 5 (LT.)						
-L- STA. 15+00.00	-L- STA. 22+75.00 (BB)	8,236		1,133	0	7,103
-DRV- STA. 11+58.04	-DRV- STA. 12+29.88	888		384	0	504
TOTAL SUMMARY NO. 5		9,124		1,517	0	7,607
SUMMARY NO. 6 (LT.)						
-L- STA. 28+15.00 (EB)	-L- STA. 33+92.50 (BB)	12,041		5	0	12,036
TOTAL SUMMARY NO. 6		12,041		5	0	12,036
SUMMARY NO. 7 (LT.)						
-L- STA. 36+07.50 (EB)	-L- STA. 43+00.00	6,050		61	0	5,989
TOTAL SUMMARY NO. 7		6,050		61	0	5,989
SUMMARY TOTALS		28,404	4,690	42,767	39,995	30,322
WASTE IN LIEU OF BORROW						
GRADE POINT UNDERCUT			100			100
UNDERCUT CONTINGENCY			500			500
PROJECT TOTALS		28,404	5,290	42,767	39,995	30,922
EST. 5% TO REPLACE TOP SOIL ON BORROW PIT					2,000	
GRAND TOTALS		28,404	5,290	42,767	41,995	30,922
SAY		29,000			42,500	
NOTE: UNCLASSIFIED EXCAVATION - ACCEPTABLE, BUT NOT TO BE USED IN TOP 3' OF EMBANKMENT OR BACKFILL:						
-L- STA. 33+75 TO STA. 34+25 LT./RT.						
-L- STA. 37+25 TO STA. 39+25 LT./RT.						
TOTAL QUANTITY = 600 CY						

DDE = 487 CY
SELECT GRANULAR MATERIAL = 7,030 CY
GEOTEXTILE FOR SOIL STABILIZATION = 6,930 SY

Earthwork quantities are calculated by TRANSYSTEMS.
These earthwork quantities are based in part on subsurface data provided by WSP.

Note: Approximate quantities only. Unclassified Excavation, 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."

8/17/99

COMPUTED BY: JHA	DATE: 6/24/19
CHECKED BY: DWG	DATE: 1/18/2024

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.	SHEET NO.
B-4926	3B-2

TRANSYSTEMS
1 Glenwood Avenue
Raleigh, NC 27603
Tel:919.789.9977
Fax:919.789.9591
License: F-0453

"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			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHOUL. WIDTH	FLARE LENGTH		W		ANCHORS				IMPACT ATTENUATOR TYPE 350			SINGLE FACED GUARDRAIL	REMOVE EXISTING GUARDRAIL	REMOVE AND RESET EXISTING GUARDRAIL	REMARKS
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	GREU TL-3	GREU TL-2	TYPE-III	TEMP. GREU TL-3	EA	G	NG				
–L–	16+75.00	20+30.00	LT	355.00′				16+75.00	8′	11′		50′		1′	1										
–L–	20+30.00	20+45.35	LT		25.0′				4′	7′															
–L–	21+29.29	22+79.29	LT	150.00′				21+29.29	8′	11′		50′		1′	1		1								
–L–	28+19.29	33+92.50	LT	573.21′					8′	11′							2								
–L–	36+07.50	41+57.50	LT	550.00′			41+57.50		8′	11′	50′		1′		1		1								
–L–	16+45.44	22+70.44	RT	625.00′			16+45.44		8′	11′	50′		1′		1		1								
–L–	28+10.44	33+92.50	RT	582.06′					8′	11′							2								
–L–	36+07.50	40+95.00	RT	487.50′				40+95.00	8′	11′		50′		1′	1		1								
–DRV–	10+00.00	12+13.00	RT	213.00′					4′	7′						1									
–L–	21+45.23	22+96.44	LT																				151.21′		
–L–	28+11.96	34+25.31	LT																				613.34′		
–L–	35+94.16	41+74.55	LT																				580.39′		
–L–	20+25.38	22+98.61	RT																				273.23′		
–L–	28+10.45	34+25.77	RT																				615.32′		
–L–	35+94.34	37+48.64	RT																				154.30′		
			SUBTOTAL	3535.77′	25.0′										5	1	8						2387.79′		
			LESS ANCHOR DEDUCTION																						
			GREU TL-3, 5 @ 50′=	250.00′																					
			GREU TL-2, 1 @ 25′=	25.00′																					
			TYPE-III, 8 @ 18.75′=	150.00′																					
			TOTAL	3110.77′	25.0′										5	1	8						2387.79′		
ADDITIONAL GUARDRAIL POSTS = 20 EACH			SAY	3125.00′	25.0′										5	1	8						2400.00′		
TEMPORARY GUARDRAIL																									
–LTEMP–	17+18.81	18+23.81	LT	105.00′														1							
–L–	36+25.00	37+50.00	LT															1						75.00′	INSTALL NEW TEMP. END UNIT (NO DEDUCTION)
			LESS ANCHOR DEDUCTION																						
			GREU TL-3, 1 @ 50′=	50.00′																					
			TOTAL	55.00′														2						75.00′	
			SAY	62.50′														2						75.00′	

ASPHALT PAVEMENT REMOVAL SUMMARY

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	SQUARE YARDS
TEMPORARY PAVEMENT				
–LTEMP–	10+47.65	18+19.90	LT/RT	1,313.89
–L–	21+22.00	22+47.00	LT	37.70
			TOTALS	1,351.59
			SAY	1,400

CONCRETE PAVEMENT REMOVAL SUMMARY

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	SQUARE YARDS
–L–	17+00.00	17+75.00	LT	197.99
–L–	38+24.89	39+91.40	LT	99.83
			TOTALS	297.82
			SAY	320

BREAKING OF CONCRETE PAVEMENT SUMMARY

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	SQUARE YARDS
–L–	17+75.00	22+98.61	LT	1,386.26
–L–	28+10.45	34+25.77	LT	1,622.20
–L–	35+94.34	40+16.52	LT	847.29
			TOTALS	3,855.75
			SAY	3,900

SHOULDER BERM GUTTER SUMMARY

SURVEY LINE	STATION	STATION	LENGTH
–L– LT.	32+90.00	33+78.33	88.33
–L– LT.	36+21.67	39+53.00	331.33
–L– RT.	16+96.00	22+57.11	561.11
–L– RT.	28+25.03	33+00.00	474.97
–L– RT.	39+44.00	40+44.00	100.00
		TOTALS	1,555.74
		SAY	1,560

2/7/2024 ..\Proj\B-4926_Rdy_sum_3B-2.dgn USERNAME

COMPUTED BY: AMH DATE: June 9, 2023
CHECKED BY: DWG DATE: June 9, 2023

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".

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

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

PROJECT REFERENCE NO.	SHEET NO.
B-4926	3D-1

TRANSYSTEMS
1 Glenwood Avenue
Raleigh, NC 27603
Tel:919.789.9977
Fax:919.789.9591
License: F-0453

STATION	LOCATION (LT,RT, OR CL)	STRUCTURE NO. FROM	STRUCTURE NO. TO	TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	DRAINAGE PIPE (RCP, CSP, CAAP, HDPE, or PVC) 12"	15"	18"	24"	30"	36"	42"	48"	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE
17+01 -L-	RT	0401		25.7	21.2														
		0401	0402		21.2	20.9													
17+25 -L-	RT	0402		25.9	20.9														
		0402	0403		20.9	16.4			28							X	X		
22+50 -L-	RT	0404		39.3	34.8														
		0404	0405		34.8	16.8			48							X	X		
28+35 -L-	RT	0406		40.3	35.8														
		0406	0407		35.8	16.9			52							X	X		
23+34 -L-	LT	0408			16.3	15.9													
32+95 -L-	RT	0501		30.1	23.6														
		0501	0502		23.6	13.5			36							X	X		
33+73 -L-	LT	0503		29.2	24.7														
		0503	0504		24.7	24.1													
32+95 -L-	LT	0504		30.4	24.1														
		0504	0501		24.1	23.6													
36+26 -L-	LT	0505		28.2	23.7														
		0505	0506		23.7	23.3													
36+70 -L-	LT	0506		27.8	23.3														
		0506	0509		23.3	22.2													
39+75 -L-	RT	0508		28.0	23.5														
		0508	0511		23.5	22.6													
38+13 -L-	LT	0509		27.2	22.2														
		0509	0510		22.2	21.8													
38+13 -L-	RT	0510		28.7	21.8														
		0510	0511		21.0	20.6													
39+48 -L-	RT	0511		28.1	20.6														
		0511	0512		20.6	13.7			32							X	X		
SHEET TOTALS									196										

SIZE / THICKNESS OR GAUGE

STRUCTURE NO.	C.A.A. PIPE 12" .064	15" .064	18" .064	24" .064	36" .079	42" .109	48" .109	R.C. PIPE (CLASS III) 15"	18"	24"	30"	36"	42"	48"	R.C. PIPE (CLASS IV) 12"	15"	18"	24"	30"	36"	42"	48"	18" R. C. PIPE (CLASS V)			15" SIDE DRAIN PIPE	18" SIDE DRAIN PIPE	ENDWALLS STD. 838.01, STD. 838.11 OR STD. 838.80 (UNLESS NOTED OTHERWISE) CU. YDS. R.C.P.	C.S.P.
0401																													
0401–0402								20																					
0402																													
0402–0403																													
0404																													
0404–0405																													
0406																													
0406–0407																													
0408																							20						
0501																													
0501–0502																													
0503																													
0503–0504								76																					
0504																													
0504–0501								32																					
0505																													
0505–0506								40																					
0506																													
0506–0509								140																					
0508																													
0508–0511								24																					
0509																													
0509–0510								36																					
0510																													
0510–0511								136																					
0511																													
0511–0512																													
SHEET TOTALS								504															20						

STRUCTURE NO.	QUANTITIES FOR DRAINAGE STRUCTURES PER EACH (0' THRU 5.0')	* TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B') LIN. *FT. A 5.0' THRU 10.0'	B 10.0' AND ABOVE	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES AND HOOD STANDARD 840.03 TYPE OF GRATE E	F	G		CONCRETE TRANSITIONAL SECTION CATCH BASIN	DROP INLET	G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27	T.B.D.I. STD. 840.35	G.D.I. (N.S. FLAT) FRAME WITH TWO GRATES STD. 840.29	T.B.D.I. STD. 840.36	G.D.I. STEEL FRAME AND GRATE STD. 840.37	T.B.J.B. STD. 840.34	MH FRAME AND GRATE STD. 840.54		15" DRAINAGE PIPE ELBOWS, NO.	PIPE REMOVAL LIN.FT.	REMARKS
0401	1										1		1								
0401–0402																					
0402	1										1		1								
0402–0403																			2		
0404	1											1	1								
0404–0405																			2		
0406	1											1	1								
0406–0407																			2		
0408																					Install pipe at 2.0% to match proposed ditch grade.
0501	1	1.5										1	1								
0501–0502																			2		
0503	1											1	1								
0503–0504																					
0504	1	1.3										1	1								
0504–0501																					
0505	1											1	1								
0505–0506																					
0506	1											1	1								
0506–0509																					
0508	1										1		1								
0508–0511																					
0509	1										1		1								
0509–0510																					
0510	1	2.7														1	1				
0510–0511																					
0511	1	2.5									1		1								
0511–0512																			2		
SHEET TOTALS	13	8.0									6	7	13						10		SHEET TOTALS

ABBREVIATIONS

C.A.A.	CORRUGATED ALUMINUM ALLOY
C.B.	CATCH BASIN
C.S.	CORRUGATED STEEL
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
H.D.P.E.	HIGH DENSITY POLYETHYLENE
J.B.	JUNCTION BOX
M.H.	MANHOLE
N.S.	NARROW SLOT
P.V.C.	POLYVINYL CHLORIDE
R.C.	REINFORCED CONCRETE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING JUNCTION BOX
W.S.	WIDE SLOT

COMPUTED BY: AMH DATE: June 9, 2023
CHECKED BY: DWG DATE: June 9, 2023

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".

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

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

PROJECT REFERENCE NO.	SHEET NO.
B-4926	3D-2

TRANSYSTEMS
1 Glenwood Avenue
Raleigh, NC 27603
Tel:919.789.9977
Fax:919.789.9591
License: F-0453

STATION (SIZE / THICKNESS OR GAUGE)	LOCATION (LT,RT, OR CL)	STRUCTURE NO. FROM	STRUCTURE NO. TO	TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	DRAINAGE PIPE (RCP, CSP, CAAP, HDPE, or PVC) 12"	15"	18"	24"	30"	36"	42"	48"	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE
31+50 -L-	RT	0513		31.6	27.1														
		0513	0514		27.1	25.6													
32+67 -L-	RT	0514		30.3	25.6														
		0514	0501		25.6	24.6													
13+15 -LTEMP-	RT	2B101		26.3	22.8														
		2B101	2B102		22.8	18.6													
33+12 -L-	LLT																		
34+10 -L-	LLT																		
34+10 -L-	LT																		
36+12 -L-	LLT																		
36+12 -L-	LT																		
SHEET TOTALS																			
PROJECT TOTALS									196										
SAY																			

STATION	STRUCTURE NO. FROM	TO	C.A.A. PIPE 12" .064	15" .064	18" .064	24" .064	36" .079	42" .109	48" .109	R.C. PIPE (CLASS III) 15"	18"	24"	30"	36"	42"	48"	R.C. PIPE (CLASS IV) 12"	15"	18"	24"	30"	36"	42"	48"
31+50 -L-	0513																							
	0513	0514								116														
32+67 -L-	0514																							
	0514	0501								24														
13+15 -LTEMP-	2B101																							
	2B101	2B102																						
SHEET TOTALS										140														
PROJECT TOTALS										640														
SAY																								

STATION	STRUCTURE NO. FROM	TO	18" R. C. PIPE (CLASS V)			15" SIDE DRAIN PIPE	18" SIDE DRAIN PIPE	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 PER EACH (0' THRU 5.0')	* TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B') LIN. *FT. A 5.0' THRU 10.0'	B 10.0' AND ABOVE	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES AND HOOD STANDARD 840.03 TYPE OF GRATE E	F	G		CONCRETE TRANSITIONAL SECTION CATCH BASIN	DROP INLET	G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27	T.B.D.I. STD. 840.35	G.D.I. (N.S. FLAT) FRAME WITH TWO GRATES STD. 840.29	T.B.D.I. STD. 840.36	G.D.I. STEEL FRAME AND GRATE STD. 840.37				15" DRAINAGE PIPE ELBOWS, NO.	PIPE REMOVAL LIN.FT.	REMARKS
31+50 -L-	0513									1										1		1								
	0513	0514																												
32+67 -L-	0514									1										1		1								
	0514	0501																												
13+15 -LTEMP-	2B101									1													1	1						Temporary Inlet and Pipe to be Removed
	2B101	2B102	52																											During Phase II of the Traffic Management Plan
33+12 -L-																													24	8" CMP LT of Existing Alignment
34+10 -L-																													16	8" CMP LT of Existing Alignment
34+10 -L-																													28	8" CMP RT of Existing Alignment
36+12 -L-																													20	8" CMP LT of Existing Alignment
36+12 -L-																													20	8" CMP RT of Existing Alignment
SHEET TOTALS			52							3										2		2	1	1					108	SHEET TOTALS
PROJECT TOTALS			72							16	7.8									8	7	15	1	1				10	108	PROJECT TOTALS
SAY											8.0																		120	SAY

ABBREVIATIONS

C.A.A.	CORRUGATED ALUMINUM ALLOY
C.B.	CATCH BASIN
C.S.	CORRUGATED STEEL
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
H.D.P.E.	HIGH DENSITY POLYETHYLENE
J.B.	JUNCTION BOX
M.H.	MANHOLE
N.S.	NARROW SLOT
P.V.C.	POLYVINYL CHLORIDE
R.C.	REINFORCED CONCRETE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING JUNCTION BOX
W.S.	WIDE SLOT

4/04/06
2/7/2024
...\Proj\B-4926_Rdy_sum_3D-2.dgn
USER:dgardner

COMPUTED BY: Chien-Ting Tang	DATE: 4/11/2023
CHECKED BY: Michael Lear	DATE: 4/11/2023

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PROJECT REFERENCE NO.	SHEET NO.
B-4926	3G-1

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF QUANTITIES

SUMMARY OF SUBSURFACE DRAINAGE

LINE	STATION	STATION	LOCATION LT/RT/CL	DRAIN TYPE* UD/BD/SD	LF
-L-	16+45	23+05	RT	UD	660
-L-	28+25	33+95	RT	UD	570
-L-	36+05	40+75	RT	UD	470
	CONTINGENCY			SD	300
				SUBTOTAL:	2,000
				TOTAL LF:	2,000

*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)	12	100	200	300		
				TOTAL CY/TONS/SY:	100	200**	300**		

*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-	2:1	15+25	2:1	15+75	RT	2	2	130
-L-	2:1	16+25	2:1	22+56	RT	2	2	2,160
-L-	2:1	17+25	2:1	20+35	LT	2	2	1,010
-L-	2:1	20+80	2:1	22+65	LT	2	2	940
-L-	2:1	28+24	2:1	33+78	RT	2	2	2,760
-L-	2:1	28+34	2:1	33+78	LT	2	2	2,630
-L-	2:1	36+22	2:1	41+25	RT	2	2	1,770
-L-	2:1	36+22	2:1	41+75	LT	2	2	2,110
-DRV-	2:1	11+75	2:1	12+30	RT	2	2	220
							TOTAL SY:	13,730

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

SUMMARY OF SETTLEMENT GAUGES

Gauge No.	Line and Station	Offset	
		Distance FT	Direction LT/RT
1	-L- 22+65	20	RT
2	-L- 33+80	20	LT
3	-L- 33+80	20	RT
4	-L- 36+20	20	RT
	TOTAL GAUGES (EACH):		4

SUMMARY OF BRIDGE WAITING PERIODS

Bridge Description	End Bent/ Bent No.	MONTHS
Bridge No. 20 over Neuse River	EB 1	2
Bridge No. 20 over Neuse River	EB 2	1
Bridge No. 34 over Neuse River Overflow	EB 1	3
Bridge No. 34 over Neuse River Overflow	EB 2	2

Note: "Waiting periods are estimated and the termination of the waiting period shall be determined by the geotechnical engineer of record based on the settlement gauge monitoring data."

8/17/99

2/7/2024 ...\Proj\B-4926_Rdy_sum_3G-1.dgn

PROJ. REFERENCE NO.	SHEET NO.
B-4926	3P-1

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PARCEL INDEX SHEET

PARCEL No.	SHEET No.	PROPERTY OWNER NAME
1	4	RODNEY E. COLE
2	4	GEORGE & KIM MANNING
3	4&5	WOODY MAE FARMS, LLC
4	4&5	CONSERVATION EASEMENT NC WILDLIFE HABITAT FOUNDATION

PARCEL No.	SHEET No.	PROPERTY OWNER NAME

PROJECT REFERENCE NO.	SHEET NO.
B-4926	4

R/W SHEET NO.

ROADWAY DESIGN ENGINEER — SEAL 033871 — DANIEL W. GARDNER, JR. — NORTH CAROLINA PROFESSIONAL ENGINEER

HYDRAULICS ENGINEER — SEAL 035621 — NORTH CAROLINA PROFESSIONAL ENGINEER

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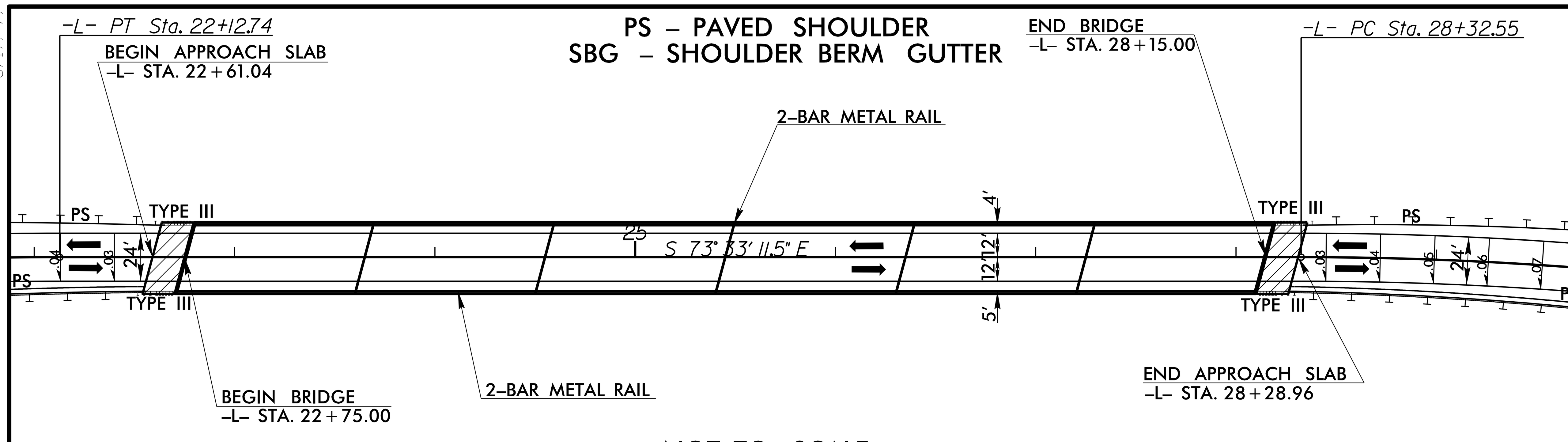
-L-

PI Sta 18+59.98	PI Sta 30+02.07
△ = 17° 33' 45.4" (RT)	△ = 10° 38' 32.4" (RT)
D = 2° 28' 10.7"	D = 3° 08' 53.2"
L = 711.14'	L = 338.05'
T = 358.38'	T = 169.51'
R = 2,320.00'	R = 1,820.00'
SE = .06	SE = .07
RO = 162'	RO = 189'

-DRV-

PI Sta 10+95.74	PI Sta 12+07.18
△ = 19° 45' 49.7" (LT)	△ = 69° 46' 54.4" (LT)
D = 22° 55' 05.9"	D = 190° 59' 09.4"
L = 86.24'	L = 36.54'
T = 43.55'	T = 20.92'
R = 250.00'	R = 30.00'
SE = SEE PLANS	SE = SEE PLANS

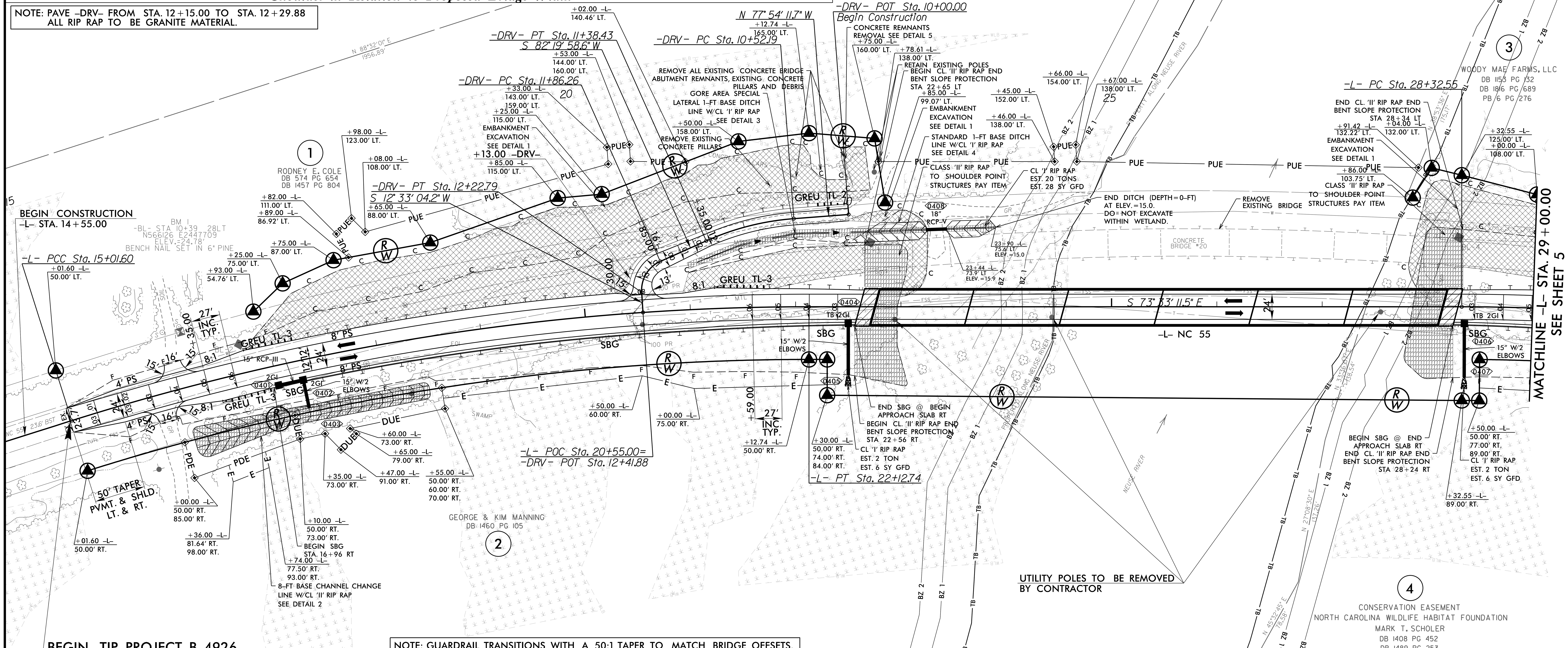
PS – PAVED SHOULDER
SBG – SHOULDER BERM GUTTER



NOT TO SCALE

Sketch showing Dimensions of Pavement and Shoulder in Relation to Proposed Bridge Width

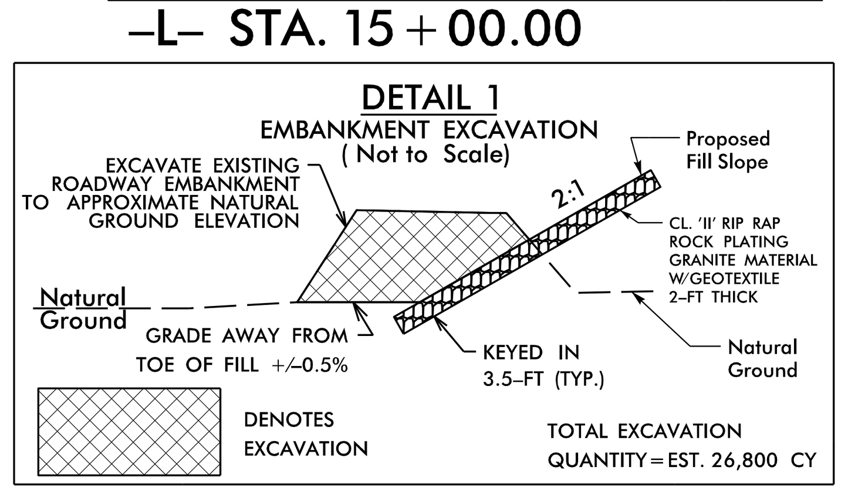
NOTE: PAVE -DRV- FROM STA. 12+15.00 TO STA. 12+29.88
ALL RIP RAP TO BE GRANITE MATERIAL.


NAD 83/NSRS 2007
BEGIN CONSTRUCTION
-L- STA. 14+55.00
-L- PCC Sta. 15+01.60
RODNEY E. COLE
DB 574 PG 654
DB 1457 PG 804
-DRV- PT Sta. 11+38.43
S 82° 19' 58.6" W
-DRV- PC Sta. 11+86.26
-DRV- PC Sta. 10+52.19
N 77° 54' 11.7" W
-DRV- POT Sta. 10+00.00
Begin Construction
-DRV- PT Sta. 12+22.79
S 12° 33' 04.2" W
GREU TL-3
GREU TL-2
-L- POC Sta. 20+55.00=
-DRV- POT Sta. 12+41.88
-L- PT Sta. 22+12.74
S 73° 33' 11.5" E
-L- NC 55
GEORGE & KIM MANNING
DB 1460 PG 105
WOODY MAE FARMS, LLC
DB 1153 PG 132
DB 1816 PG 689
PB 6 PG 276
-L- PC Sta. 28+32.55
REMOVE EXISTING BRIDGE
END DITCH (DEPTH=0-FT) AT ELEV.=15.0. DO NOT EXCAVATE WITHIN WETLAND.
UTILITY POLES TO BE REMOVED BY CONTRACTOR
CONSERVATION EASEMENT
NORTH CAROLINA WILDLIFE HABITAT FOUNDATION
MARK T. SCHOLER
DB 1408 PG 452
DB 1489 PG 253
DB 1572 PG 534
PB 9 PG 356
MATCHLINE -L- STA. 29+00.00
SEE SHEET 5

BEGIN TIP PROJECT B-4926
-L- STA. 15+00.00

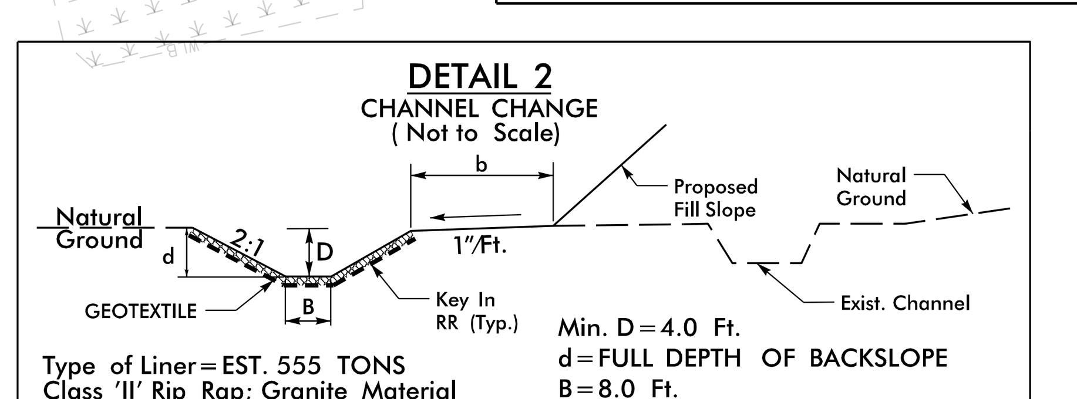
NOTE: GUARDRAIL TRANSITIONS WITH A 50:1 TAPER TO MATCH BRIDGE OFFSETS.
SEE TMP PLANS FOR SHORING LOCATIONS.

DETAIL 1
EMBANKMENT EXCAVATION (Not to Scale)



FROM STA. 17+00 TO STA. 23+25 -L- LT
FROM STA. 27+81 TO STA. 34+27 -L- LT
FROM STA. 35+92 TO STA. 40+00 -L- LT
FROM STA. 10+00 TO STA. 12+18 -DRV- LT
FROM STA. 10+00 TO STA. 12+18 -DRV- RT

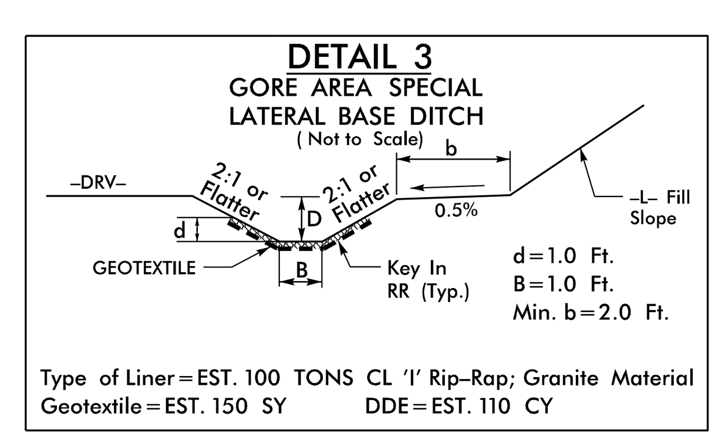
DETAIL 2
CHANNEL CHANGE (Not to Scale)



Type of Liner=EST. 555 TONS Class 'II' Rip Rap; Granite Material
Geotextile=EST. 560 SY DDE=234 CY

FROM STA. 16+10 TO STA. 18+43 -L- RT

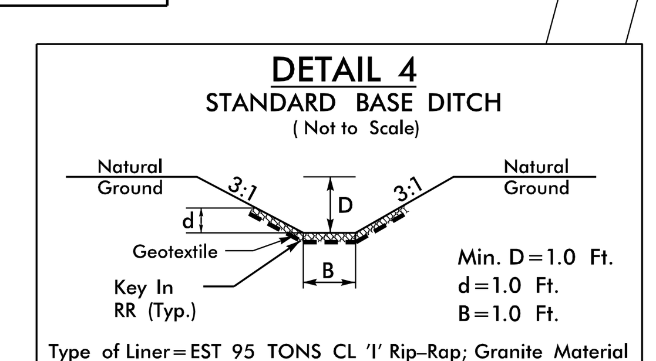
DETAIL 3
GORE AREA SPECIAL LATERAL BASE DITCH (Not to Scale)



Type of Liner=EST. 100 TONS CL 'I' Rip-Rap; Granite Material
Geotextile=EST. 150 SY DDE=EST. 110 CY

FROM STA. 21+00 TO STA. 22+50 -L- LT

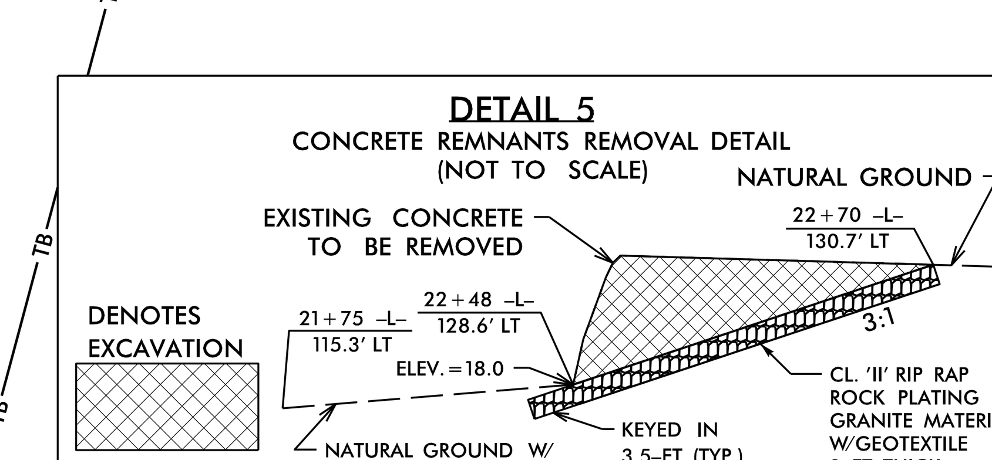
DETAIL 4
STANDARD BASE DITCH (Not to Scale)



Type of Liner=EST 95 TONS CL 'I' Rip-Rap; Granite Material
Geotextile=EST. 140 SY; DDE=EST. 143 CY

FROM STA. 22+50 TO STA. 23+90 -L- LT

DETAIL 5
CONCRETE REMNANTS REMOVAL DETAIL (NOT TO SCALE)

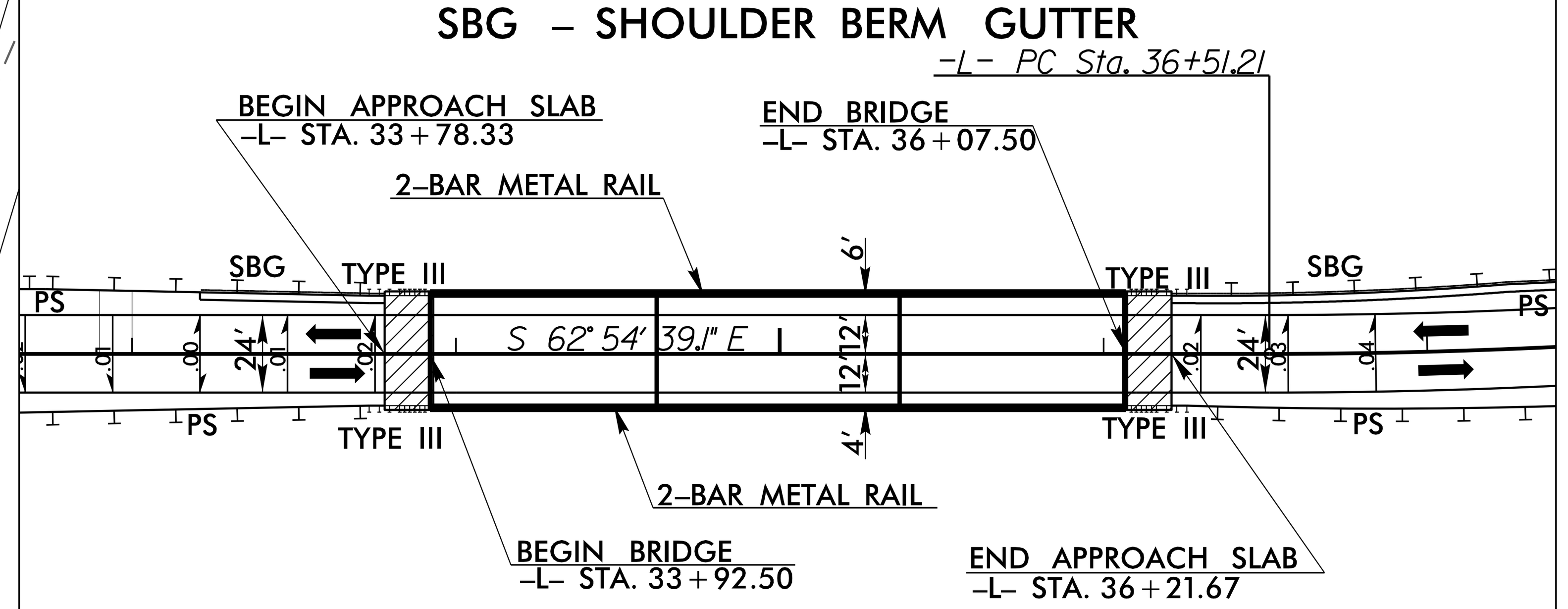


FROM STA. 21+75 TO STA. 22+70 -L- LT

PROVIDE CLASS 'II' RIP RAP ROCK PLATING (GRANITE) ON ALL SLOPES STEEPER THAN 3:1 OR AS INDICATED ON THE PLANS. 2-FT THICK TO SHOULDER POINT. REFER TO STANDARD ROCK PLATING DETAIL (STD 275.01)

SEE SHEET 6 FOR -L- PROFILE
SEE SHEET 7 FOR -DRV- PROFILE
SEE SHEETS S1-1 THRU S1-49 FOR STRUCTURE PLANS

PS – PAVED SHOULDER
SBG – SHOULDER BERM GUTTER



NOT TO SCALE

Sketch showing Dimensions of Pavement and Shoulder in Relation to Proposed Bridge Width

-L-		
PI Sta 30+02.07	PI Sta 37+86.49	PI Sta 40+56.55
Δ = 10° 38' 32.4" (RT)	Δ = 8° 30' 06.8" (LT)	Δ = 8° 30' 06.8" (RT)
D = 3° 08' 53.2"	D = 3° 08' 53.2"	D = 3° 08' 53.2"
L = 338.05'	L = 270.06'	L = 270.06'
T = 169.51'	T = 135.28'	T = 135.28'
R = 1,820.00'	R = 1,820.00'	R = 1,820.00'
SE = .07	*SE = SEE PLANS	*SE = SEE PLANS
RO = 189'		

*DESIGN EXCEPTION REQUIRED FOR SUPERELEVATION.

NOTE: ALL RIP RAP TO BE GRANITE MATERIAL

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PROJECT REFERENCE NO.	SHEET NO.
B-4926	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
SEAL 033871 NORTH CAROLINA PROFESSIONAL ENGINEER DANIEL W. GARDNER, JR.	SEAL 035621 NORTH CAROLINA PROFESSIONAL ENGINEER ANDREW M. HOWELL

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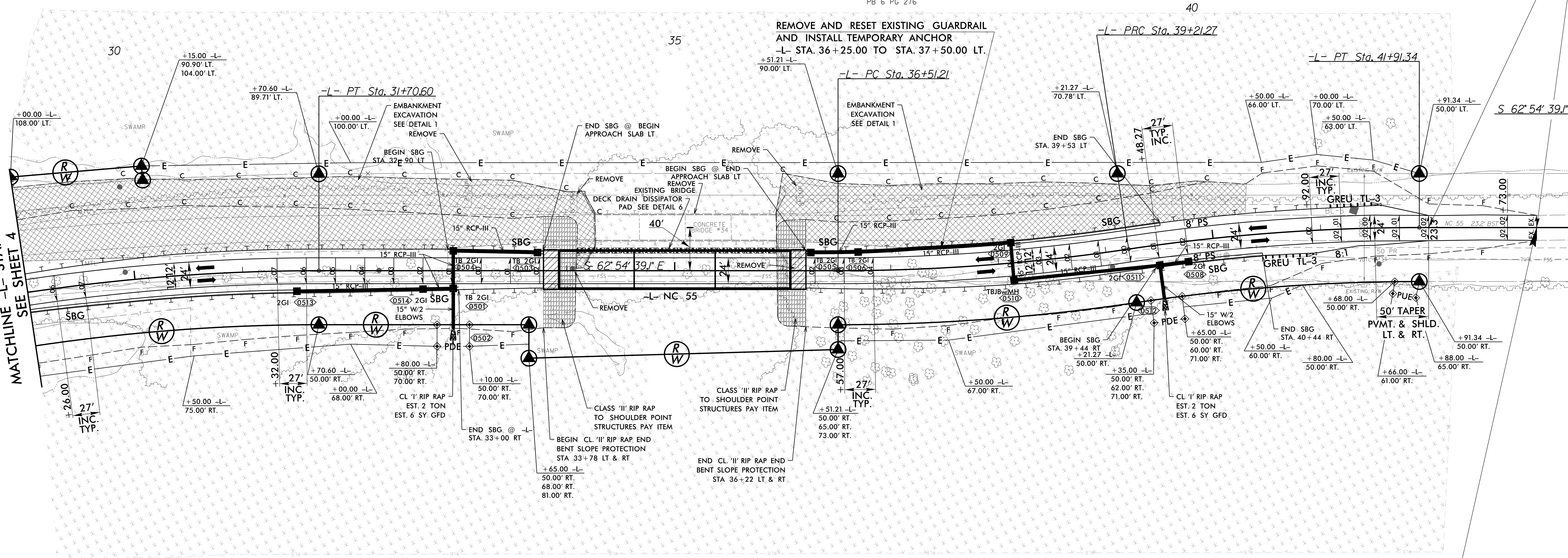
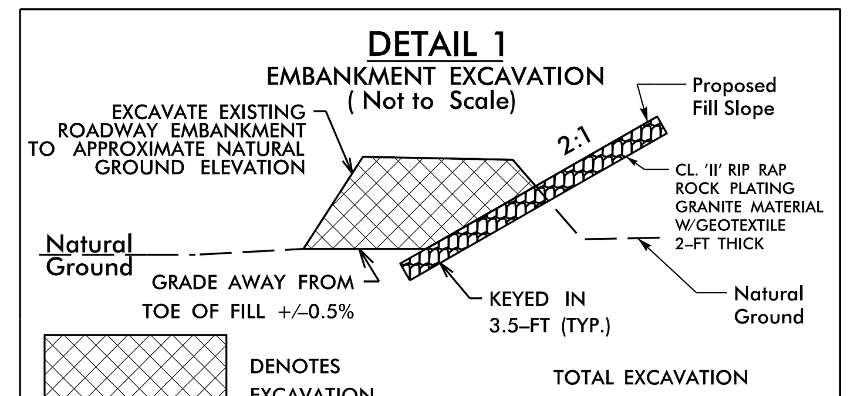
NAD 83/NSRS 2007

BRIDGE #34: 6" DIAMETER CIRCULAR DECK DRAINS REQUIRED SPACED 12' O.C. FROM -L- STA. 34+09 TO STA. 36+01 LT



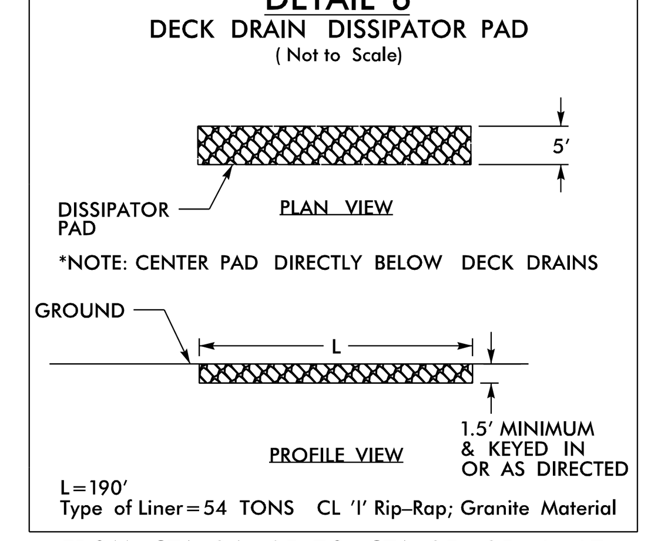
END TIP PROJECT B-4926
-L- STA. 43+00.00

DETAIL 1
EMBANKMENT EXCAVATION
(Not to Scale)



FROM STA. 17+00 TO STA. 23+25 -L- LT
FROM STA. 27+81 TO STA. 34+27 -L- LT
FROM STA. 35+92 TO STA. 40+00 -L- LT
FROM STA. 10+00 TO STA. 12+18 -DRV- LT
FROM STA. 10+00 TO STA. 12+18 -DRV- RT

DETAIL 6
DECK DRAIN DISSIPATOR PAD
(Not to Scale)



FROM STA. 34+05 TO STA. 35+95 -L- LT

PROVIDE CLASS 'II' RIP RAP ROCK PLATING (GRANITE) ON ALL SLOPES STEEPER THAN 3:1 OR AS INDICATED ON THE PLANS. 2-FT THICK TO SHOULDER POINT. REFER TO STANDARD ROCK PLATING DETAIL (STD 275.01)

NOTE: GUARDRAIL TRANSITIONS WITH A 50:1 TAPER TO MATCH BRIDGE OFFSETS. SEE TMP PLANS FOR SHORING LOCATIONS.

SEE SHEET 6 FOR -L- PROFILE
SEE SHEETS S2-1 THRU S2-39 FOR STRUCTURE PLANS

8/17/99
2/7/2024
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PROJECT REFERENCE NO.	SHEET NO.
B-4926	6

ROADWAY DESIGN ENGINEER — SEAL 033871 NORTH CAROLINA PROFESSIONAL ENGINEER DANIEL W. GARDNER, JR.

HYDRAULICS ENGINEER — SEAL 035621 NORTH CAROLINA PROFESSIONAL ENGINEER ANDREW M. HOWELL

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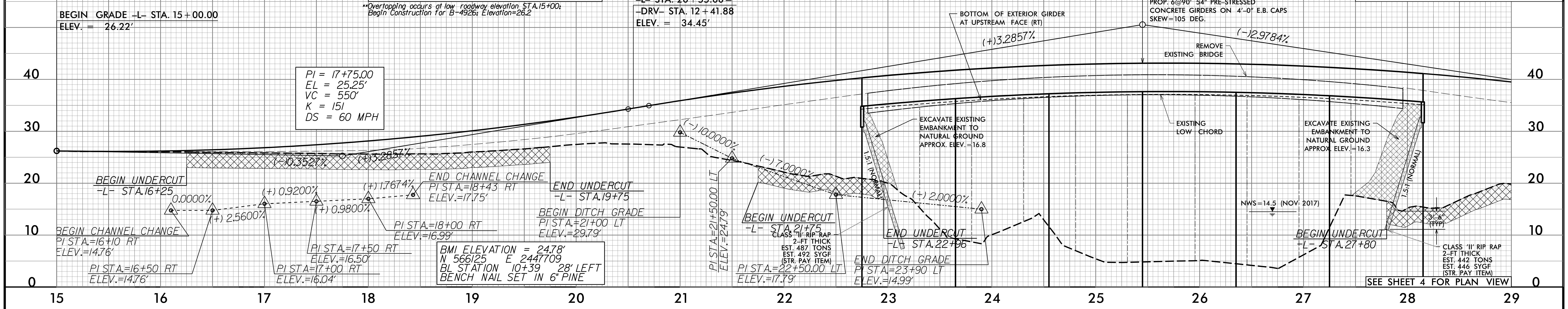
-L-

MULTIPLE OPENING BRIDGE HYDRAULIC DATA

BRIDGE @ CENTERLINE STA.25+45 -L-
BRIDGE @ CENTERLINE STA.35+00 -L-

DESIGN DISCHARGE	= 20,700	CFS
DESIGN FREQUENCY	= 5	YRS
DESIGN HW ELEVATION	= 24.8	FT
BASE DISCHARGE	= 44,300	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 30.9	FT
OVERTOPPING DISCHARGE	= 26,000	CFS
OVERTOPPING FREQUENCY	= 10 +/-	YRS
OVERTOPPING ELEVATION	= 26.2**	FT
DATE OF SURVEY	= NOV.2017	
W.S.ELEVATION AT DATE OF SURVEY	= 14.5 +/-	FT

**Overtopping occurs at low roadway elevation STA.15+00; Begin Construction for B-4926; Elevation=26.2


BEGIN GRADE -L- STA. 15+00.00
ELEV. = 26.22'
PI = 17+75.00
EL = 25.25'
VC = 550'
K = 151
DS = 60 MPH
-L- STA. 20+55.00=
-DRV- STA. 12+41.88
ELEV. = 34.45'
PI = 25+45.00
EL = 50.55'
VC = 950'
K = 152
DS = 60 MPH
℄ STA. 25+45 -L-
GP ELEV.=43.11'
PROP. 6@90' 54" PRE-STRESSED CONCRETE GIRDERS ON 4'-0" E.B. CAPS
SKEW=105 DEG.
BOTTOM OF EXTERIOR GIRDER AT UPSTREAM FACE (RT)
(+)3.2857%
(-)2.9784%
REMOVE EXISTING BRIDGE
EXCAVATE EXISTING EMBANKMENT TO NATURAL GROUND APPROX. ELEV.=16.8
EXISTING LOW CHORD
EXCAVATE EXISTING EMBANKMENT TO NATURAL GROUND APPROX. ELEV.=16.3
(-)0.3527%
(+)3.2857%
(-)10.0000%
(-)7.0000%
(+)2.0000%
BEGIN UNDERCUT -L- STA.16+25
0.0000%
(+) 2.5600%
(+) 0.9200%
(+) 0.9800%
(+) 1.7674%
END CHANNEL CHANGE
PI STA.=18+43 RT
ELEV.=17.75'
END UNDERCUT -L- STA.19+75
BEGIN DITCH GRADE
PI STA.=21+00 LT
ELEV.=29.79'
BEGIN CHANNEL CHANGE
PI STA.=16+10 RT
ELEV.=14.76'
PI STA.=16+50 RT
ELEV.=14.76'
PI STA.=17+00 RT
ELEV.=16.04'
PI STA.=17+50 RT
ELEV.=16.50'
PI STA.=18+00 RT
ELEV.=16.99'
BMI ELEVATION = 24.78'
N 566125 E 2447709
BL STATION 10+39 28' LEFT
BENCH NAIL SET IN 6" PINE
PI STA.=21+50.00 LT
ELEV.=24.79'
BEGIN UNDERCUT -L- STA.21+75
CLASS 'II' RIP RAP 2-FT THICK EST. 487 TONS EST. 492 SYGF (STR. PAY ITEM)
PI STA.=22+50.00 LT
ELEV.=17.79'
END UNDERCUT -L- STA.22+96
END DITCH GRADE
PI STA.=23+90 LT
ELEV.=14.99'
1.5:1 (NORMAL)
NWS=14.5 (NOV 2017)
BEGIN UNDERCUT -L- STA.27+80
3'-6" (TYP)
CLASS 'II' RIP RAP 2-FT THICK EST. 442 TONS EST. 446 SYGF (STR. PAY ITEM)
SEE SHEET 4 FOR PLAN VIEW
40 30 20 10 0
15 16 17 18 19 20 21 22 23 24 25 26 27 28 29

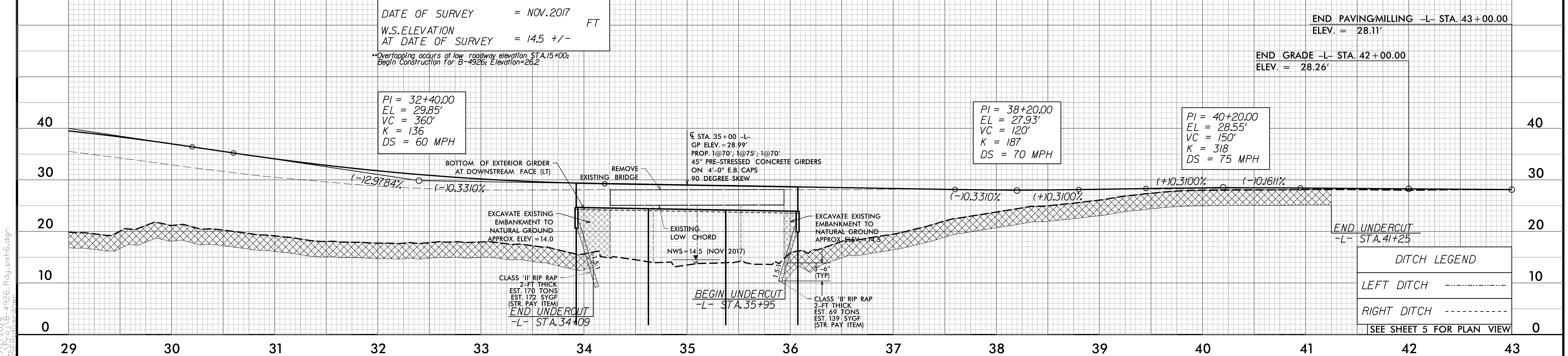
-L-

MULTIPLE OPENING BRIDGE HYDRAULIC DATA

BRIDGE @ CENTERLINE STA.25+45 -L-
BRIDGE @ CENTERLINE STA.35+00 -L-

DESIGN DISCHARGE	= 20,700	CFS
DESIGN FREQUENCY	= 5	YRS
DESIGN HW ELEVATION	= 24.8	FT
BASE DISCHARGE	= 44,300	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 30.9	FT
OVERTOPPING DISCHARGE	= 26,000	CFS
OVERTOPPING FREQUENCY	= 10 +/-	YRS
OVERTOPPING ELEVATION	= 26.2**	FT
DATE OF SURVEY	= NOV.2017	
W.S.ELEVATION AT DATE OF SURVEY	= 14.5 +/-	FT

**Overtopping occurs at low roadway elevation STA.15+00; Begin Construction for B-4926; Elevation=26.2


END PAVING/MILLING -L- STA. 43+00.00
ELEV. = 28.11'
END GRADE -L- STA. 42+00.00
ELEV. = 28.26'
PI = 32+40.00
EL = 29.85'
VC = 360'
K = 136
DS = 60 MPH
PI = 38+20.00
EL = 27.93'
VC = 120'
K = 187
DS = 70 MPH
PI = 40+20.00
EL = 28.55'
VC = 150'
K = 318
DS = 75 MPH
℄ STA. 35+00 -L-
GP ELEV.=28.99'
PROP. 1@70'; 1@75'; 1@70' 45" PRE-STRESSED CONCRETE GIRDERS ON 4'-0" E.B. CAPS
90 DEGREE SKEW
BOTTOM OF EXTERIOR GIRDER AT DOWNSTREAM FACE (LT)
REMOVE EXISTING BRIDGE
(-)2.9784%
(-)0.3310%
(-)0.3310%
(+)0.3100%
(+)0.3100%
(-)0.1611%
EXCAVATE EXISTING EMBANKMENT TO NATURAL GROUND APPROX. ELEV.=14.0
EXISTING LOW CHORD
NWS=14.5 (NOV 2017)
EXCAVATE EXISTING EMBANKMENT TO NATURAL GROUND APPROX. ELEV.=14.5
1.5:1
3'-6" (TYP)
CLASS 'II' RIP RAP 2-FT THICK EST. 170 TONS EST. 172 SYGF (STR. PAY ITEM)
END UNDERCUT -L- STA.34+09
BEGIN UNDERCUT -L- STA.35+95
CLASS 'II' RIP RAP 2-FT THICK EST. 69 TONS EST. 139 SYGF (STR. PAY ITEM)
END UNDERCUT -L- STA.41+25
DITCH LEGEND
LEFT DITCH
RIGHT DITCH
SEE SHEET 5 FOR PLAN VIEW
40 30 20 10 0
29 30 31 32 33 34 35 36 37 38 39 40 41 42 43

5/28/99
2/13/2024

PROJECT REFERENCE NO.	SHEET NO.
B-4926	7

ROADWAY DESIGN ENGINEER — SEAL 033871, NORTH CAROLINA PROFESSIONAL ENGINEER, DANIEL W. GARDNER, JR.

HYDRAULICS ENGINEER — SEAL 035621, NORTH CAROLINA PROFESSIONAL ENGINEER, ANDREW M. HOWELL

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–DRV–

SEE SHEET 4 FOR PLAN VIEW