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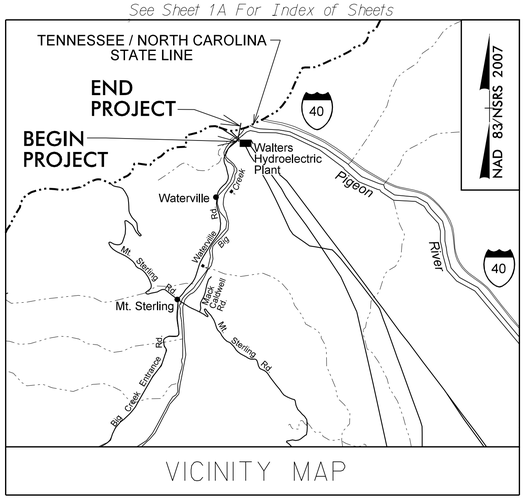
CONTRACT: C204411 PROJECT NO.: 14SP.20441.1, 14SP.20441.2

See Sheet 1A For Index of Sheets



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

HAYWOOD COUNTY

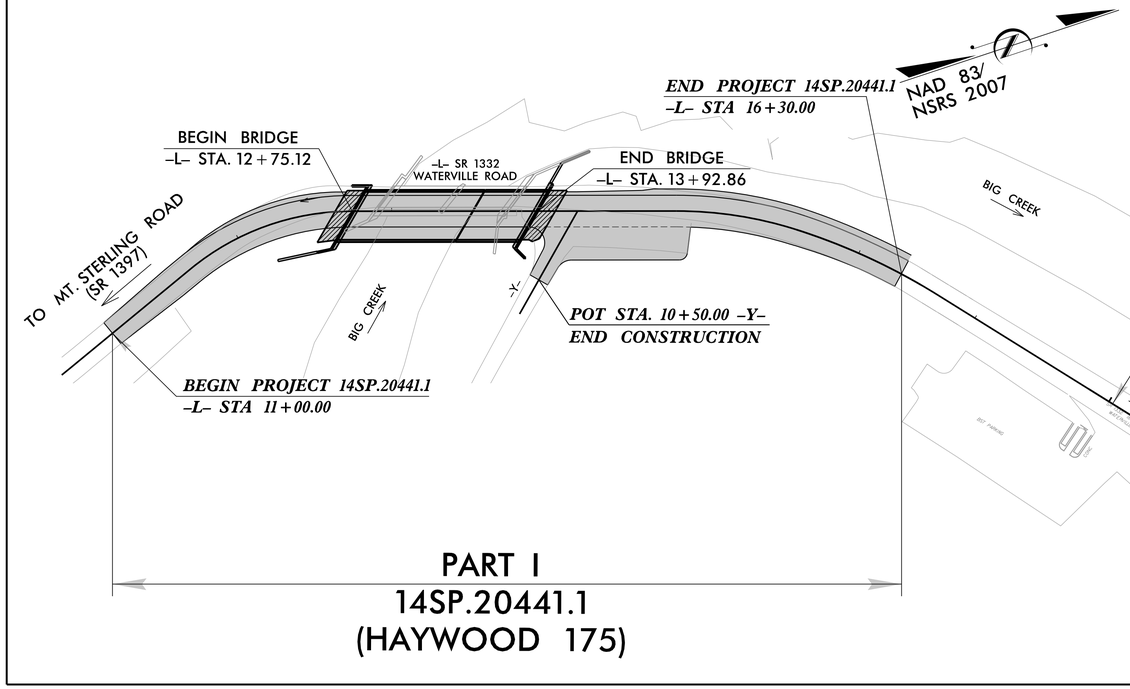
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	14SP.20441.1 14SP.20441.2	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
14SP.20441.1	N/A	P.E.
14SP.20441.1	N/A	R/W
14SP.20441.1	N/A	CONST.
14SP.20441.2	N/A	P.E.
14SP.20441.2	N/A	R/W
14SP.20441.2	N/A	CONST.

LOCATION: BRIDGE NO. 430175 OVER BIG CREEK ON SR 1332 (WATERVILLE ROAD) AND BRIDGE NO. 430174 OVER BIG CREEK ON SR 1332 (WATERVILLE ROAD)

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



PART I
14SP.20441.1
(HAYWOOD 175)

PART II
14SP.20441.2
(HAYWOOD 174)

PROJECT LENGTH

LENGTH ROADWAY PROJECT 14SP.20441.1 = 0.078 MI.
LENGTH STRUCTURE PROJECT 14SP.20441.1 = 0.022 MI.
TOTAL LENGTH OF PROJECT 14SP.20441.1 = 0.100 MI.

LENGTH ROADWAY PROJECT 14SP.20441.2 = 0.049 MI.
LENGTH STRUCTURE PROJECT 14SP.20441.2 = 0.026 MI.
TOTAL LENGTH OF PROJECT 14SP.20441.2 = 0.075 MI.

Prepared In the Office of:
JOHNSON, MIRMIRAN, & THOMPSON, INC.
1318-F PATTON AVE,
Asheville NC, 28806
License No. C-3097

2024 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
MAY 23, 2017

LETTING DATE:
MAY 28, 2024

HARDY WILLIS, PE
PROJECT ENGINEER

REECE SCHULER, PE, PLS
PROJECT DESIGN ENGINEER

NCDOT CONTACT:
ZACHARY SHULER
DIVISION 14 BRIDGE PROJECT MANAGER

HYDRAULICS ENGINEER

DocuSigned by: Marc T. Shown
SIGNATURE: P.E. 3/6/2024

NORTH CAROLINA PROFESSIONAL SEAL 26870 ENGINEER MARC T. SHOWN

ROADWAY DESIGN ENGINEER

DocuSigned by: Reece M. Schuler
SIGNATURE: P.E. 3/6/2024

NORTH CAROLINA PROFESSIONAL SEAL 26960 ENGINEER REECE M. SCHULER

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION ·

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PROJECT REFERENCE NO.	SHEET NO.
14SP.20441.N/14SP.20441.2	1A

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 28980 ENGINEER REECE M. SCHULER

Reece M. Schuler

12/18/2023

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

INDEX OF SHEETS

GENERAL NOTES:

2024 SPECIFICATIONS
EFFECTIVE: 01-01-2024
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.

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".

SUBSURFACE PLANS:

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

END BENTS:

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

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE DUKE ENERGY and AT&T.

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 OTHERS.

CURB RAMPS:

CURB RAMPS ARE SHOWN ON THE PLANS AT APPROXIMATE LOCATIONS. CONSTRUCT ALL CURB RAMPS ACCORDANCE WITH STANDARD 848.06.

ROCK:

ROCK IS ANTICIPATED AT THE BRIDGE RETAINING WALL ON PROJECT 14SP.20441.1 BETWEEN -L- STATION 14+00 AND 14+26 LEFT AND ON PROJECT 14SP.20441.2 BETWEEN -L- STATION 12+78 AND 12+92 LEFT. BLASTING MAY BE REQUIRED FOR EXCAVATION ON THE PROJECT. SEE SECTION 220 OF THE STANDARD SPECIFICATIONS AND IF APPLICABLE, ROCK BLASTING PROVISION.

EFF. 01-01-2024
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
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation
DIVISION 4 - MAJOR STRUCTURES	
423.01	Bridge Approach Fills - Type 1 Approach Fill
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
DIVISION 8 - INCIDENTALS	
840.00	Concrete Base Pad for Drainage Structures
840.01	Brick Catch Basin - 12" thru 54" Pipe
840.02	Concrete Catch Basin - 12" thru 54" Pipe
840.03	Frame, Grates and Hood - for Use on Standard Catch Basin
840.19	Concrete Grated Drop Inlet Type 'D' - 12" thru 36" Pipe
840.25	Anchorage for Frames - Brick or Concrete or Precast
840.28	Brick Grated Drop Inlet Type 'D' - 12" thru 36" Pipe
840.29	Frames and Narrow Slot Flat Grates
840.45	Precast Drainage Structure
840.66	Drainage Structure Steps
846.01	Concrete Curb, Gutter and Curb & Gutter
848.01	Concrete Sidewalk
848.06	Curb Ramp
857.01	Precast Reinforced Concrete Barrier - 41" Single Faced
862.02	Structure Anchor Units
862.01	Guardrail Placement
862.02	Guardrail Installation
862.03	Structure Anchor Units
876.02	Guide for Rip Rap at Pipe Outlets

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9/10/2021

PROJECT REFERENCE NO.	SHEET NO.
14SP.2044IJ/14SP.2044I.2	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)
- 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
- Geoenvironmental Boring
- Abandoned According to Utility Records — AATUR
- End of Information — E.O.I.

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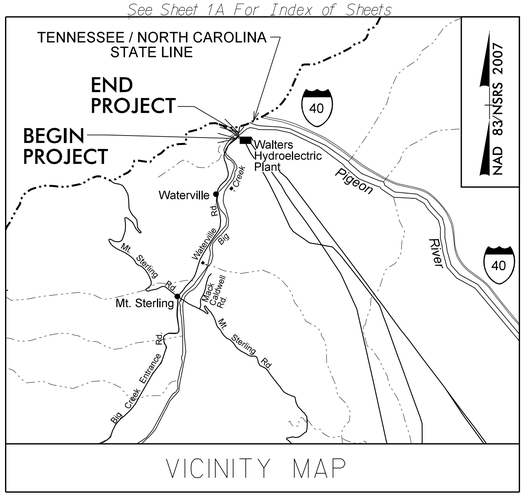
PROJECT NO.: 14SP.20441.1

CONTRACT: C20411

See Sheet 1A For Index of Sheets



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

HAYWOOD COUNTY

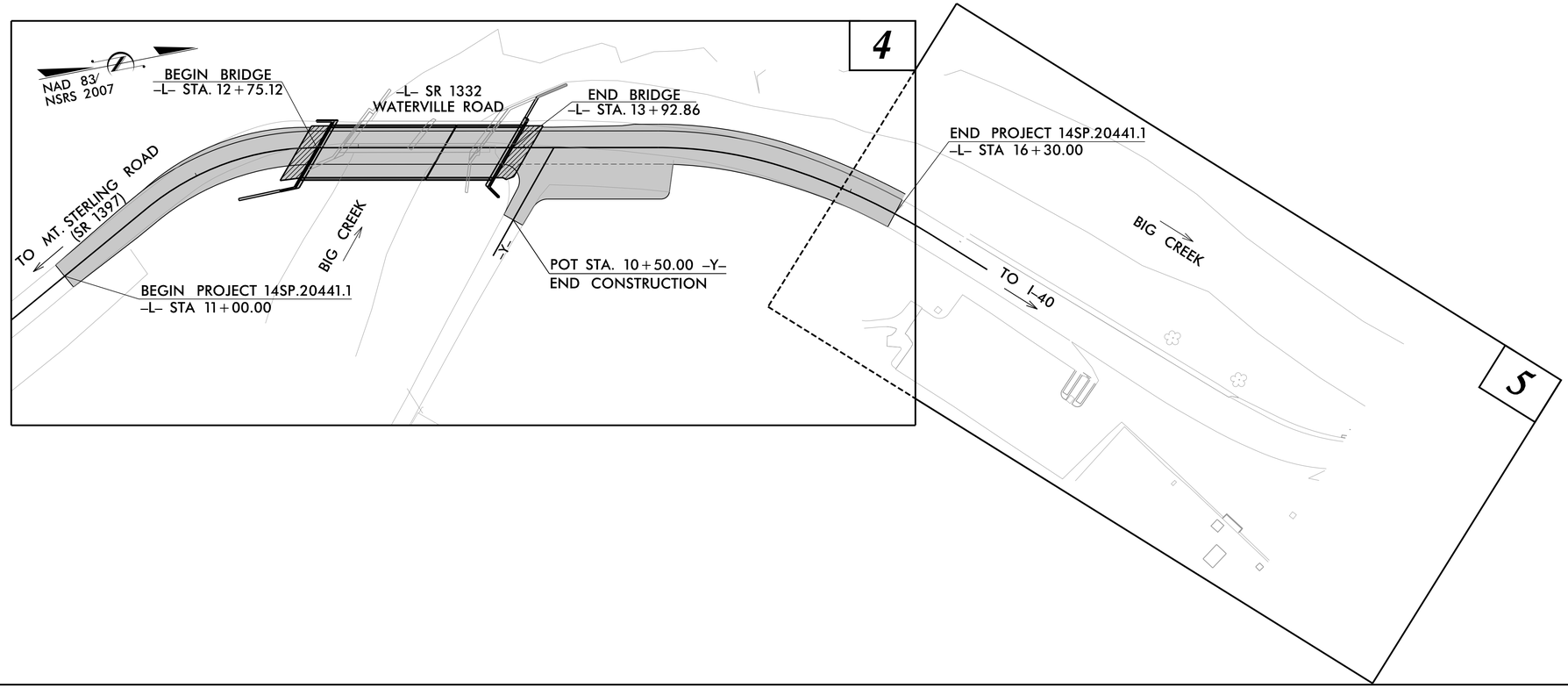
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	14SP.20441.1	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
14SP.20441.1	N/A	P.E.
14SP.20441.1	N/A	R/W
14SP.20441.1	N/A	CONST.

LOCATION: BRIDGE NO. 430175 OVER BIG CREEK ON SR 1332 (WATERVILLE ROAD)

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



GRAPHIC SCALES

20 10 0 20 40
PLANS

20 10 0 20 40
PROFILE (HORIZONTAL)

4 2 0 4 8
PROFILE (VERTICAL)

DESIGN DATA

ADT 2020 = 550
ADT 2040 = 750

* T = 6 %
V = 25 MPH

* TTST = 3 DUAL = 3

FUNC CLASS = RURAL LOCAL
SUB-REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY PROJECT 14SP.20441.1 = 0.078 MI.
LENGTH STRUCTURE PROJECT 14SP.20441.1 = 0.022 MI.
TOTAL LENGTH OF PROJECT 14SP.20441.1 = 0.100 MI.

Prepared in the Office of:
JOHNSON, MIRMIRAN, & THOMPSON, INC.
1318-F PATTON AVE,
Asheville NC, 28806
License No. C-3097

2024 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
MAY 23, 2017

LETTING DATE:
MAY 28, 2024

HARDY WILLIS, PE
PROJECT ENGINEER

REECE SCHULER, PE, PLS
PROJECT DESIGN ENGINEER

NCDOT CONTACT:
ZACHARY SHULER
DIVISION 14 BRIDGE PROJECT MANAGER

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 26870 ENGINEER MARC T. SHOWN

DocuSigned by: Marc T. Shown
SIGNATURE: P.E. 3/11/2024

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 26960 ENGINEER REECE M. SCHULER

DocuSigned by: Reece M. Schuler
SIGNATURE: P.E. 3/6/2024

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION ·

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PROJECT REFERENCE NO.	SHEET NO.
14SP.20441.1	IC-1
Location and Surveys	

SURVEY CONTROL SHEET 43-0175
-FINAL-

BL

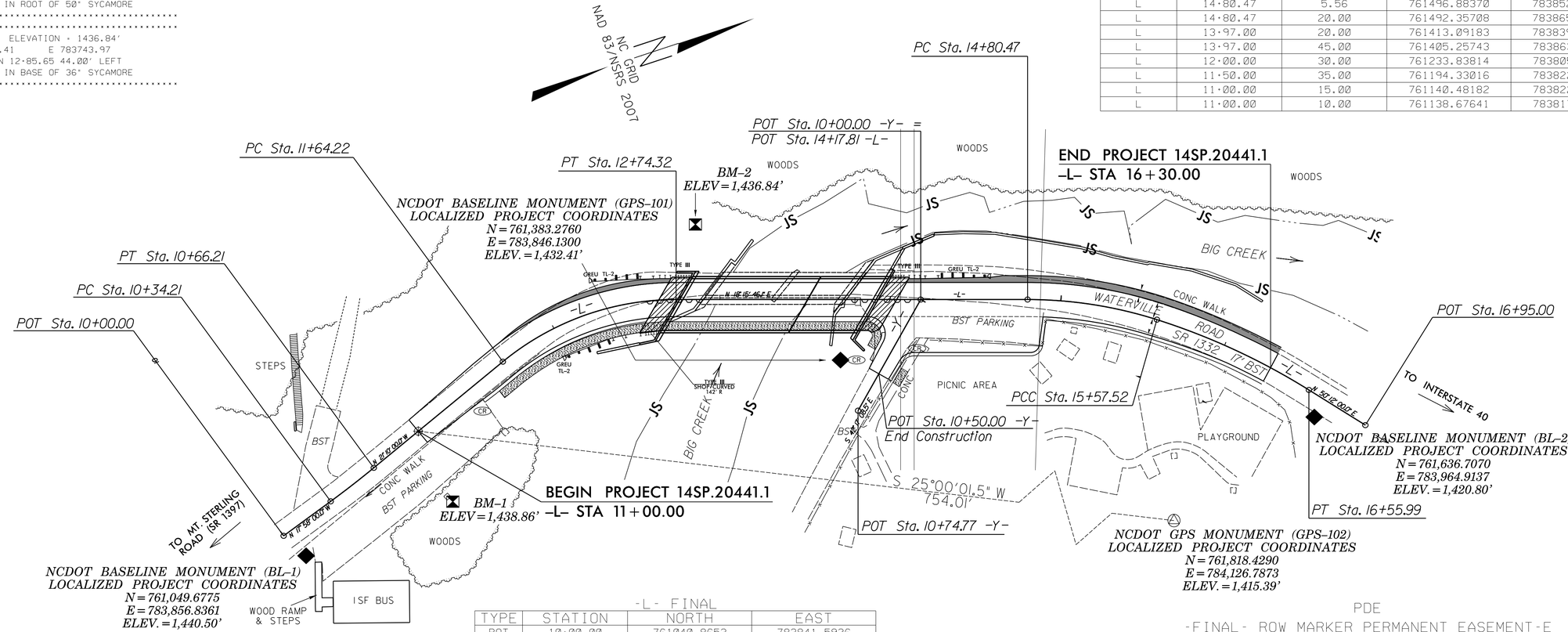
POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
1	BL-1	761049.6775	783856.8361	1440.50	10+03.68	17.22 RT
101	GPS-101	761383.2760	783846.1300	1432.41	13+70.72	35.51 RT
2	BL-2	761636.7070	783964.9137	1420.80	16+67.08	11.84 RT

BM1 ELEVATION = 1438.86'
N 761141.38 E 783853.67
L STATION 10+89.44 44.75' RIGHT
RR SPIKE IN ROOT OF 50" SYCAMORE

BM2 ELEVATION = 1436.84'
N 761327.41 E 783743.97
L STATION 12+85.65 44.00' LEFT
RR SPIKE IN BASE OF 36" SYCAMORE

-FINAL- ROW MARKER IRON PIN AND CAP-E

ALIGN	STATION	OFFSET	NORTH	EAST
L	11+00.00	-10.00	761131.45476	783798.79820
L	11+00.00	-15.00	761129.64935	783794.13553
L	12+00.00	-45.00	761222.94381	783731.31626
L	12+74.32	-45.00	761316.96737	783739.46923
L	14+80.47	-45.00	761512.72681	783804.06951
L	15+57.52	-25.00	761581.61550	783861.50962
L	16+30.00	-20.00	761635.91778	783915.62408
L	16+30.00	-10.00	761628.67224	783922.51626
L	14+80.47	5.56	761496.88370	783852.07891
L	14+80.47	20.00	761492.35708	783865.79531
L	13+97.00	20.00	761413.09183	783839.63791
L	13+97.00	45.00	761405.25743	783863.37864
L	12+00.00	30.00	761233.83814	783805.52080
L	11+50.00	35.00	761194.33016	783822.70813
L	11+00.00	15.00	761140.48182	783822.11155
L	11+00.00	10.00	761138.67641	783817.44888



DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "GPS-102" WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF NORTHING: 761818.4290(ft) EASTING: 784126.7873(ft) ELEVATION: 1415.39(ft)

THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999850581

THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "GPS-102" TO -L- STATION 11+00.00 IS S 25° 00' 01.5" W 754.01'

ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES

VERTICAL DATUM USED IS NAVD 88

-L- FINAL

TYPE	STATION	NORTH	EAST
POT	10+00.00	761040.8653	783841.5926
PC	10+34.21	761073.4065	783831.0403
PT	10+66.21	761103.5547	783820.3247
PC	11+64.22	761194.9485	783784.9366
PT	12+74.32	761302.8618	783782.2013
PC	14+80.47	761498.6213	783846.8016
PCC	15+57.52	761566.9484	783881.7550
PT	16+55.99	761638.7060	783948.8132
POT	16+95.00	761663.6782	783978.7857

-Y- FINAL

TYPE	STATION	NORTH	EAST
POT	10+00.00	761439.1172	783827.1654
POT	10+74.77	761383.7990	783877.4758

GEOID MODEL – G09NC
NOTE: DRAWING NOT TO SCALE

PDE

-FINAL- ROW MARKER PERMANENT EASEMENT-E

ALIGN	STATION	OFFSET	NORTH	EAST
L	16+20.00	-19.85	761628.47674	783908.20878
L	16+20.00	-45.00	761646.25326	783890.42095
L	16+30.00	-45.00	761654.03164	783898.39364
L	16+30.00	-20.00	761635.91778	783915.62408

NOTES:

1. *THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT: HTTPS://CONNECT.NCDOT.GOV/RESOURCES/LOCATION/*

   THE FILES TO BE FOUND ARE AS FOLLOWS: 430175_LS_CONTROL.TXT

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

△ *INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT BY THE NCDOT LOCATION AND SURVEYS UNIT. PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.*

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qwilliams

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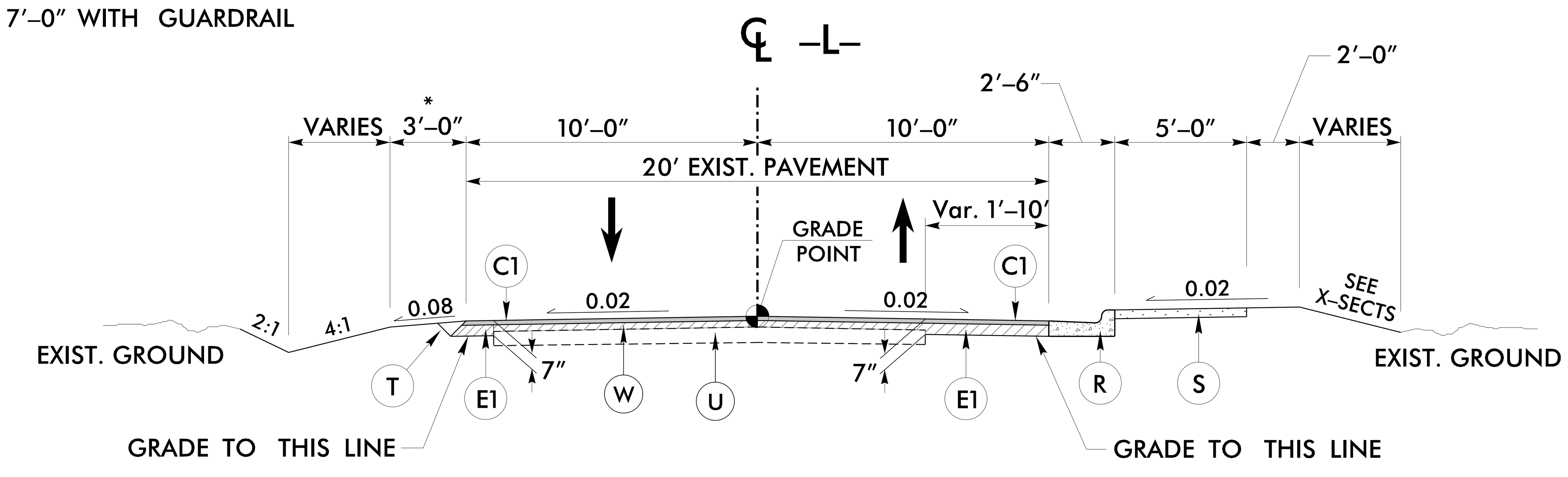
PROJECT REFERENCE NO.	SHEET NO.
14SP.20441.1	2A-1
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 26960 ENGINEER REECE M. SCHULER 11/20/2023 | 11:06:44 AM PST

NORTH CAROLINA PROFESSIONAL SEAL 26960 ENGINEER REECE M. SCHULER 11/20/2023 | 11:06:4

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

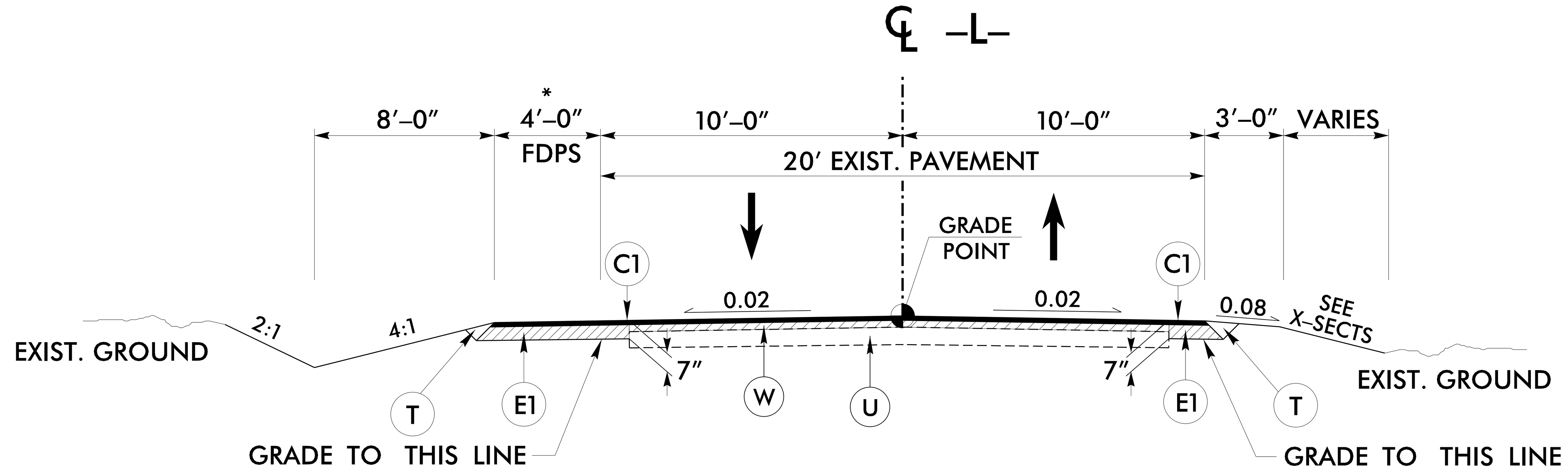
* 7'-0" WITH GUARDRAIL



TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO. 1

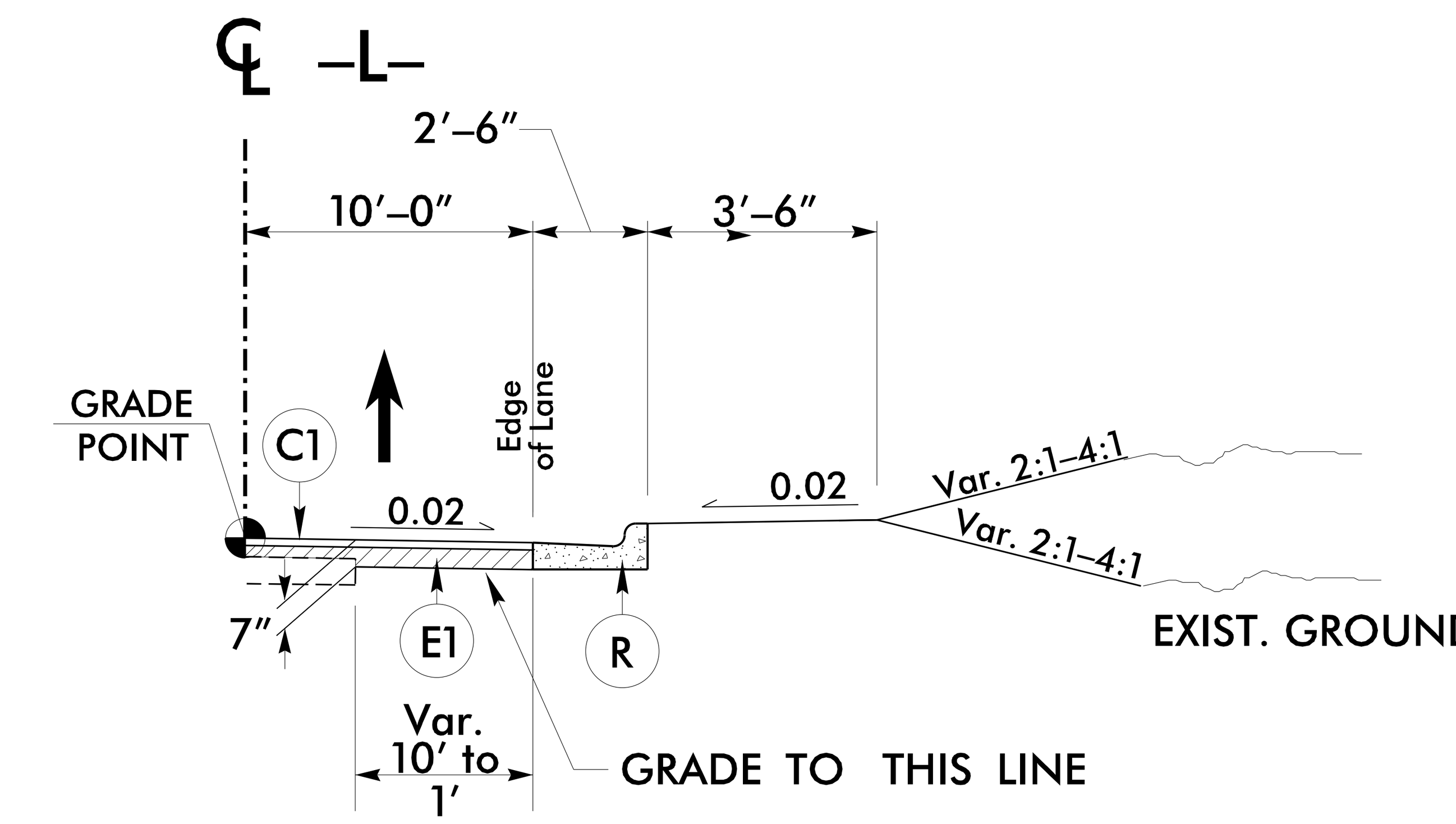
-L- STA. 11+00 TO -L- STA. 12+75.12 (BEG. BRIDGE)
-L- STA. 13+92.86 (END BRIDGE) TO -L- STA. 14+13.94



TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2

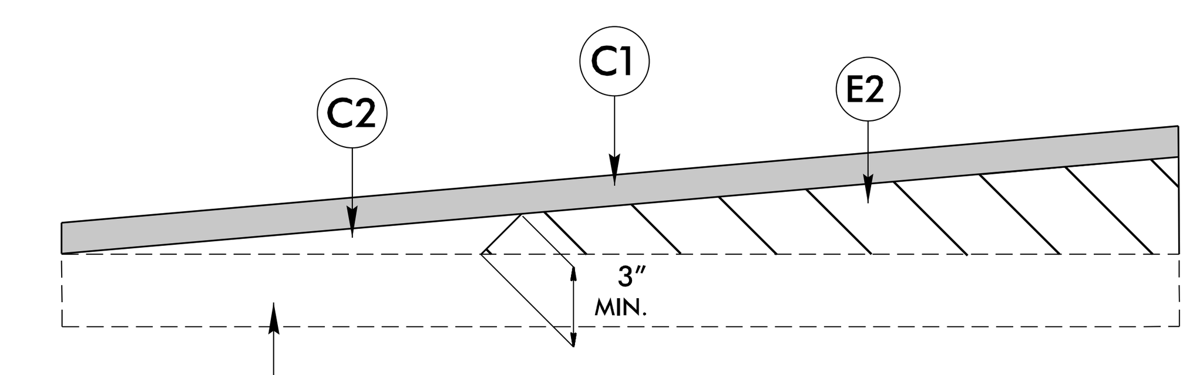
-L- STA. 14+13.94 TO -L- STA. 16+30.00



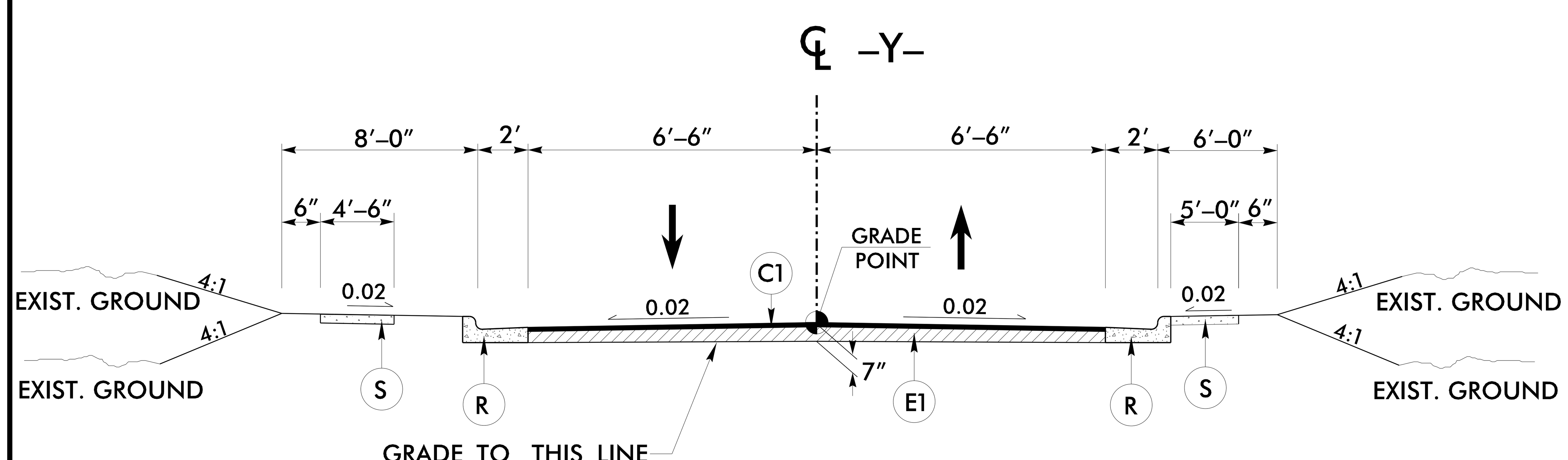
DETAIL OF CURB AND GUTTER

USE WITH TYPICAL SECTION NO.2

-L- STA. 14+88.00 TO -L- STA. 16+30.00 RT.



Wedging Detail



TYPICAL SECTION NO. 3

USE TYPICAL SECTION NO. 3

-Y- STA. 10+11.48 to 10+50.00

PAVEMENT SCHEDULE	
C1	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.
C2	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 1½" IN DEPTH.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E2	PROP. 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.
R	2'-6" CONCRETE CURB & GUTTER
S	4" CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V	INCIDENTAL MILLING
W	PROPOSED WEDGING (SEE APPROPRIATE DETAILS)

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

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PROJECT REFERENCE NO.	SHEET NO.
14SP.20441.1	2A-2

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 26960 ENGINEER REGINALD W. SCHULER

DocuSigned by: Reginald W. Schuler 166340240C7824FC...

11/20/2023 | 11:06:44 AM EST

PAVEMENT DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 26960 ENGINEER REGINALD W. SCHULER

DocuSigned by: Reginald W. Schuler 166340240C7824FC...

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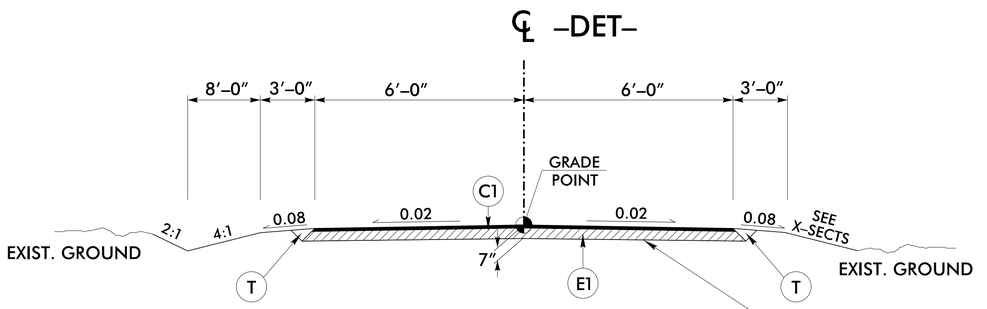
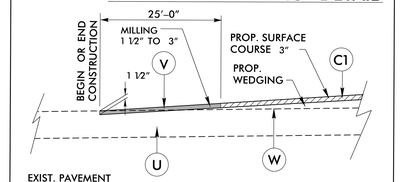


TYPICAL SECTION NO. 4

USE TYPICAL SECTION NO. 4

–DET– STA. 10+21.38 TO –DET– STA. 11+78.09

INCIDENTAL MILLING DETAIL

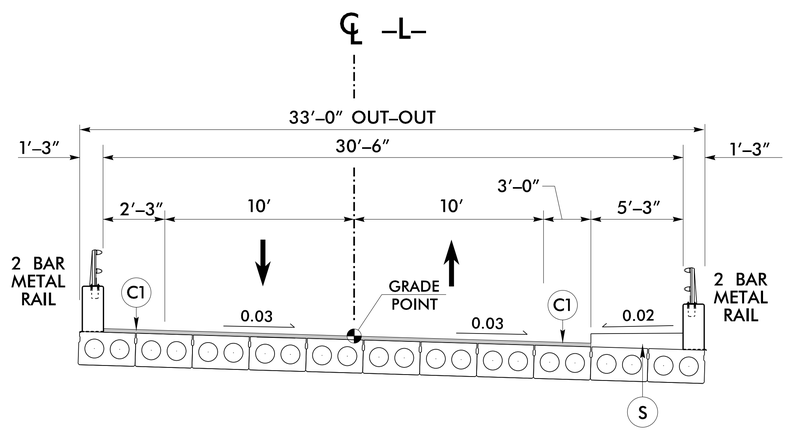


EXIST. PAVEMENT
NOTE: MIRROR FOR END OF CONSTRUCTION

USE DETAIL AS FOLLOWS:

–L– STA. 11+00.00 TO –L– STA. 11+25.00 (14SP.20441.1)

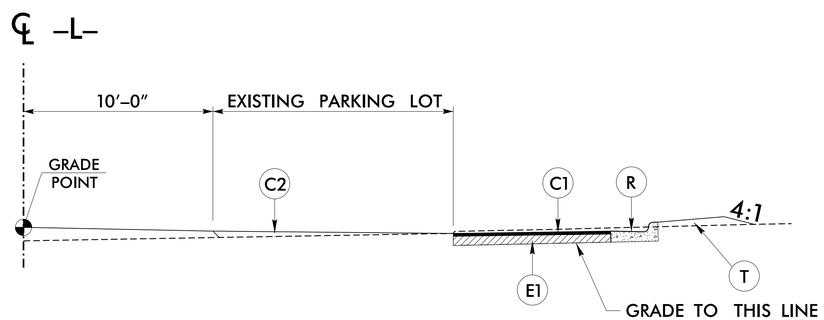
–L– STA. 14+15.00 TO –L– STA. 14+40.00 (14SP.20441.2)



TYPICAL SECTION NO. 5

USE TYPICAL SECTION NO. 5

–L– STA. 12+75.12 (BEG. BRIDGE) TO –L– STA. 13+92.86 (END BRIDGE)



PARKING LOT PAVING DETAIL

–L– STA. 14+06 TO –L– STA. 14+88 RT

PAVEMENT SCHEDULE	
C1	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.
C2	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 1½″ IN DEPTH.
E1	PROP. APPROX. 4″ ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E2	PROP. 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.
R	2′-6″ CONCRETE CURB & GUTTER
S	4″ CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V	INCIDENTAL MILLING
W	PROPOSED WEDGING (SEE APPROPRIATE DETAILS)

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

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-DET- CURVE DATA

PI Sta 10+10.76	PI Sta 10+80.08	PI Sta 11+29.39	PI Sta 11+65.75
△ = 16° 19' 53.9" (LT)	△ = 37° 18' 57.1" (RT)	△ = 48° 23' 42.1" (RT)	△ = 28° 53' 36.2" (LT)
D = 76° 23' 39.7"	D = 114° 35' 29.6"	D = 163° 42' 08.0"	D = 114° 35' 29.6"
L = 21.38'	L = 32.56'	L = 29.56'	L = 25.21'
T = 10.76'	T = 16.88'	T = 15.73'	T = 12.88'
R = 75.00'	R = 50.00'	R = 35.00'	R = 50.00'

PROJECT REFERENCE NO.	SHEET NO.
14SP.2044111	2B-1

R/W SHEET NO.

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 036360 — Docusigned by: Reece M. Schuler — REECE M. SCHULER — 8/25/2023

HYDRAULIC ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 050244 — Docusigned by: Marc T. Shown — MARC T. SHOWN — 8/25/2023

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CAROLINA POWER & LIGHT (PROGRESS ENERGY) DB 73 PG 369

PT Sta. 10+95.76 -DET-
PC Sta. 11+13.67 -DET-
PT Sta. 11+43.23 -DET-
PC Sta. 11+52.87 -DET-
PT Sta. 10+12.38 -DET- BEGIN DETOUR
PC Sta. 10+63.19 -DET-
PC Sta. 10+00.00 -DET-
PT Sta. 10+66.21
PC Sta. 11+64.22
PT Sta. 12+74.32
END DETOUR PT Sta. 11+78.09 -DET-
POT Sta. 11+83.28 -DET-
PC Sta. 14+80.47
PCC Sta. 15+57.52

CL B RIP RAP EST. 2 TON GEOTEXT. EST. 7 SY FF

+74.32 -L- 45.00' LT.
+80.47 -L- 45.00' LT.
+00.00 -L- 45.00' LT.
+57.52 -L- 25.00' LT.
+00.00 -L- Exist. R/W 15.00' LT.
+00.00 -L- 30.00' RT.
+50.00 -L- 35.00' RT.
+00.00 -L- EXIST. R/W 15.00' RT.
+65.00 -L- 44.78', 55.00' RT.
+01.00 -L- 55.00' RT.
+97.00 -L- 20.00' RT. 45.00' RT.
+25.63 -L- 45.01' RT.
+80.47 -L- EXIST. R/W 20.00' RT.
+00.00 -L- 25.00', 45.00' RT.
+41.55 -L- 100.15' RT.
+83.57 -L- 108.01' RT.

N 0° 10' 56.8" W
N 48° 12' 05.3" E
N 19° 19' 09.1" E
N 37° 29' 53.9" W
N 27° 10' 00.0" W

15" CSP W/ELBOWS
-Proposed Retaining Wall Excavation Limits
Retaining Wall
6" DI & 2" PLASTIC IN SAME DITCH
0.75" PLAS.
2" PLAS.
3" RAIL

TVA LHT 848 1938

WOODS
WATER VAULT
24" WHITE PINE
18" HEMLOCK
BIG CREEK
PICNIC AREA
BST PARKING
STEPS
WALL
WATERVILLE ROAD
CONC PADS
CONC WALK
MAINTAINED R/W
6" TC
6" PVC
8" HDPE
8" PVC
15" CMP
6" DI
12" HDPE

-DET-

BEGIN GRADE
-DET- STA 10+39.00
EL = 1,436.90

PI = 11+00.00
EL = 1,436.29'
VC = 25'
K = 17
Ds = 25 mph

END GRADE
-DET- STA 11+53.00
EL = 1,434.98

(-)1.0000%
(-)2.4717%

1,450 1,446 1,442 1,438 1,434 1,430 1,426 1,422 1,418

10+00 11+00

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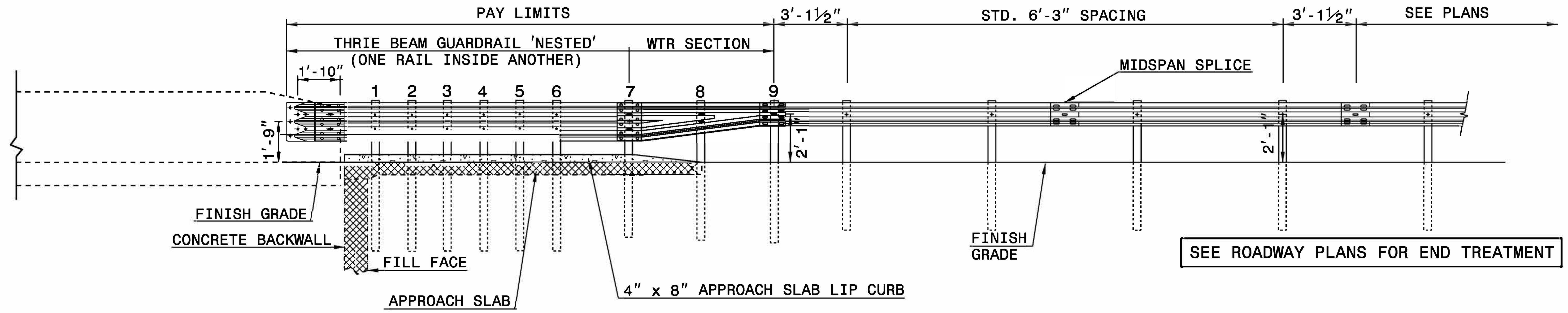
PROJECT REFERENCE NO.	SHEET NO.
14SP.20441.2	2C-1

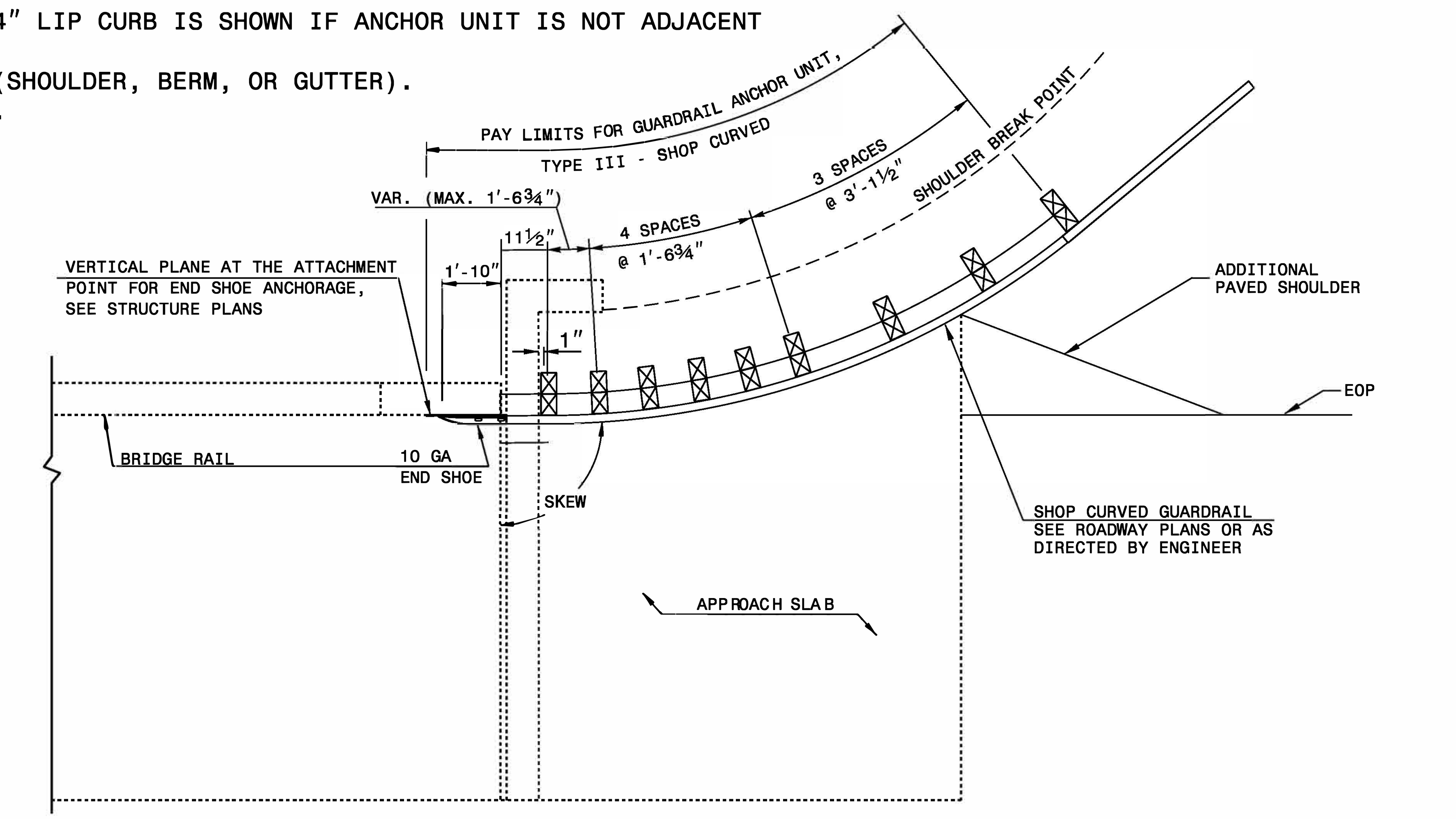
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

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



ELEVATION

NOTE:
**POST NOT REQUIRED FOR SKEW ANGLES GREATER THAN 150° OR LESS THAN 30° UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
*THE DISTANCE FROM END OF BRIDGE RAIL TO CENTER LINE OF THE FIRST POST SHOULD BE 11½" IF CONCRETE BACKWALL IS NOT PRESENT.
- SHOULDER BERM GUTTER MUST BE INSTALLED TO THE LIMITS 8" x 4" LIP CURB IS SHOWN IF ANCHOR UNIT IS NOT ADJACENT TO AN APPROACH SLAB.
- MEASURE GUARDRAIL HEIGHT FROM THE TOP OF ADJACENT SURFACE (SHOULDER, BERM, OR GUTTER).
- USE NO STEEL POSTS WITHIN THE GUARDRAIL ANCHOR UNIT LIMITS.
- LAP JOINTS IN THE DIRECTION OF TRAFFIC FLOW.
- SEE STANDARD 862.03 SHEET 4 FOR POST SECTIONS 1 THRU 9.



PLAN VIEW

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

SHEET 1 OF 1
TYPE III SC

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

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

SHEET 1 OF 1
TYPE III SC

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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 33144 NICOLE M. HACKLER
11/13/2023

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

SEE PLATE FOR TITLE

ORIGINAL BY: E.E.Ward DATE: 4-4-02
MODIFIED BY: T.S.Spell DATE: 2-01-18
CHECKED BY: DATE:
FILE SPEC.: \jhowerton\guardrail\31inguardrail\typeiiisc.dgn

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jhowerton AT CSD-29259S

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PROJECT REFERENCE NO.	SHEET NO.
14SP.20441.1	2D-1

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

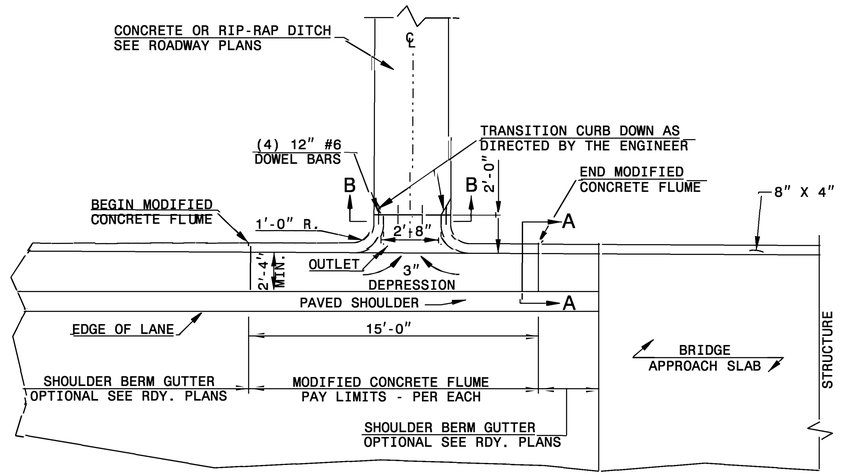
ENGLISH DETAIL DRAWING FOR

MODIFIED CONCRETE FLUME

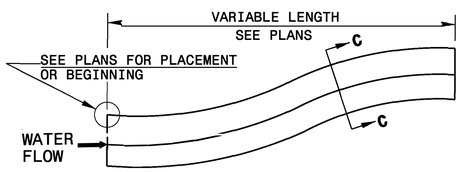
WITH CONCRETE OR RIP-RAP DITCH

SHEET 1 OF 1

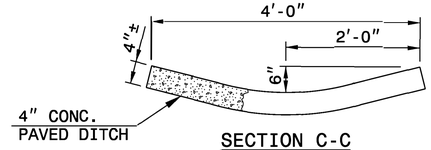
MODFLMDTCH



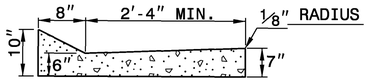
PLAN VIEW



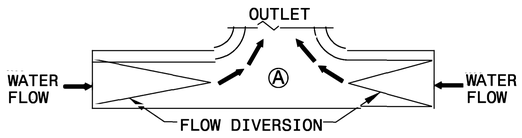
DOWNGRADE OR SAG



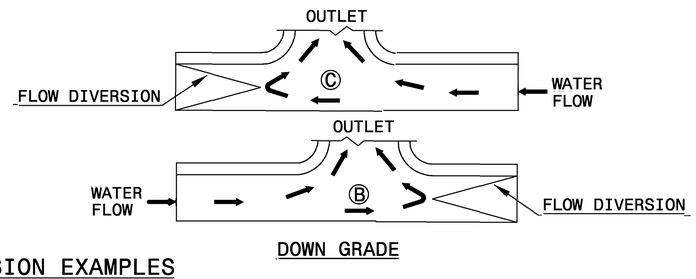
SECTION C-C



SECTION A-A

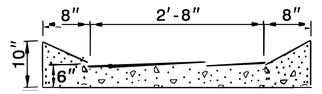


SAG



DOWN GRADE

FLOW DIVERSION EXAMPLES



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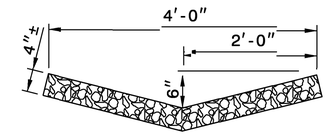

RIP-RAP LINED DITCH

NOTES:

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

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

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

SHEET 1 OF 1

MODFLMDTCH

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jhowerton AT CSD-2926595

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

SEE PLATE FOR TITLE

ORIGINAL BY:	E.E. Ward	DATE:	Apr. 2002
MODIFIED BY:	J.S. Howerton	DATE:	October 2017
CHECKED BY:		DATE:	
FILE SPEC.:	w:details\stand\modifiedflume.dgn		

7/18/2023

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PROJECT REFERENCE NO.	SHEET NO.
14SP.20441.1	2G-1

GEOTECHNICAL ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 11058 ENGINEER WILLIAM F. EDELEN JR.

DocuSigned by: Bill Edelen 82888087C44B4ED... SIGNATURE 7/22/2019 DATE

ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 26960 ENGINEER REECE M. SCHULER

DocuSigned by: Reece M. Schuler 19DA2927E2EF4... SIGNATURE 7/19/2019 DATE

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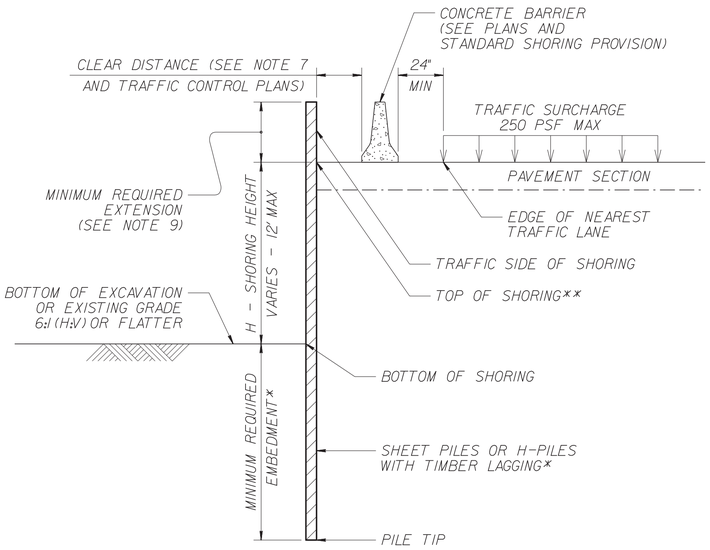
GROUNDWATER CONDITION (SEE NOTE 6)	H SHORING HEIGHT (FT)	SLOPE OR SURCHARGE CASE WITH NO TRAFFIC IMPACT					SURCHARGE CASE WITH TRAFFIC IMPACT				
		SHEET PILES		H-PILES WITH TIMBER LAGGING			SHEET PILES		H-PILES WITH TIMBER LAGGING		
		MINIMUM REQUIRED EMBEDMENT (FT)	MINIMUM REQUIRED SECTION MODULUS (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 BEWTEEN 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 "--".

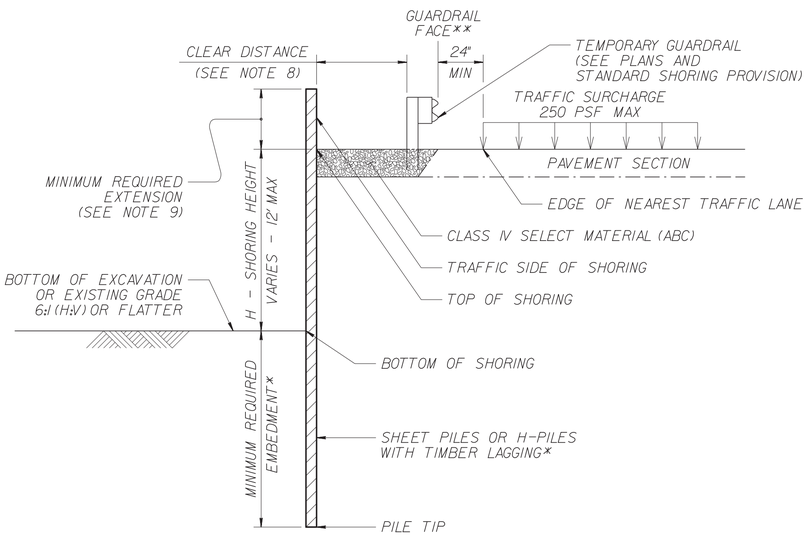
NOTES:

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.



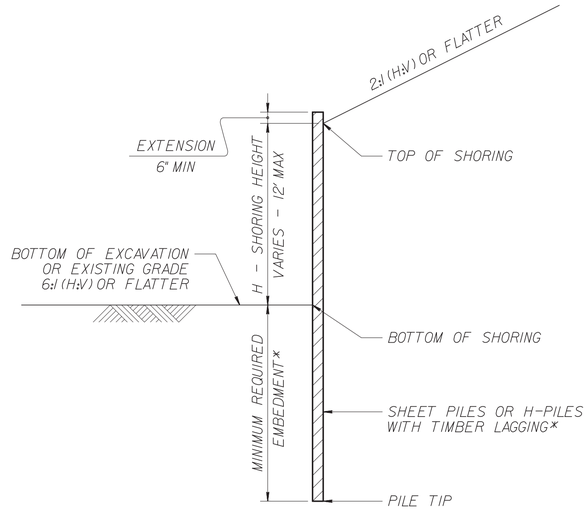
CONCRETE BARRIER

**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

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PROJECT REFERENCE NO.	SHEET NO.
14SP.20441.1	2G-2

GEOTECHNICAL ENGINEER

NORTH CAROLINA PROFESSIONAL 11058 ENGINEER WILLIAM F. EDELEN, JR.

DocuSigned by: Bill Edelen 8/8/2019
82888067CA4B4ED... SIGNATURE DATE

ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 26960 ENGINEER REECE M. SCHULER

DocuSigned by: Reece M. Schuler 7/19/2019
SIGNATURE DATE

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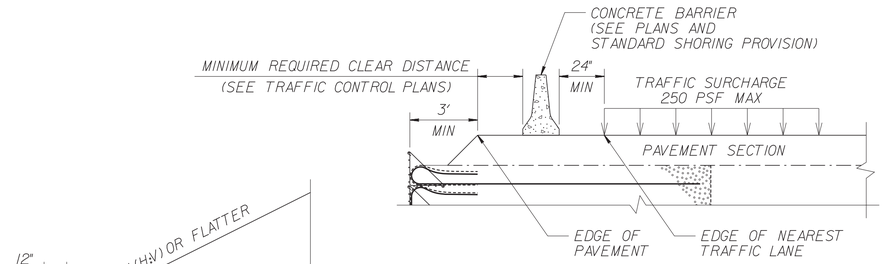
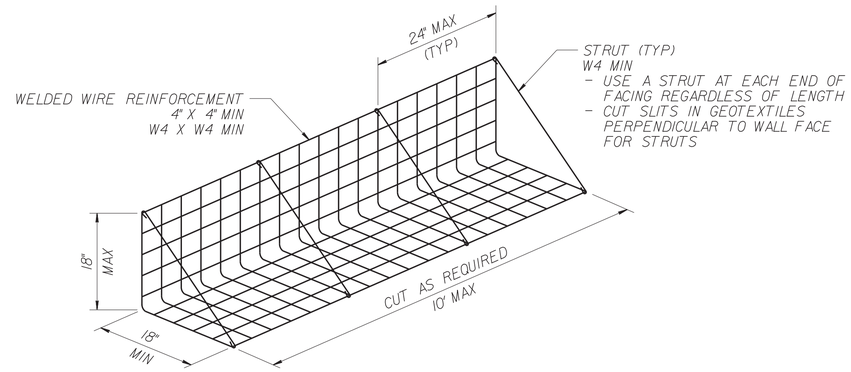
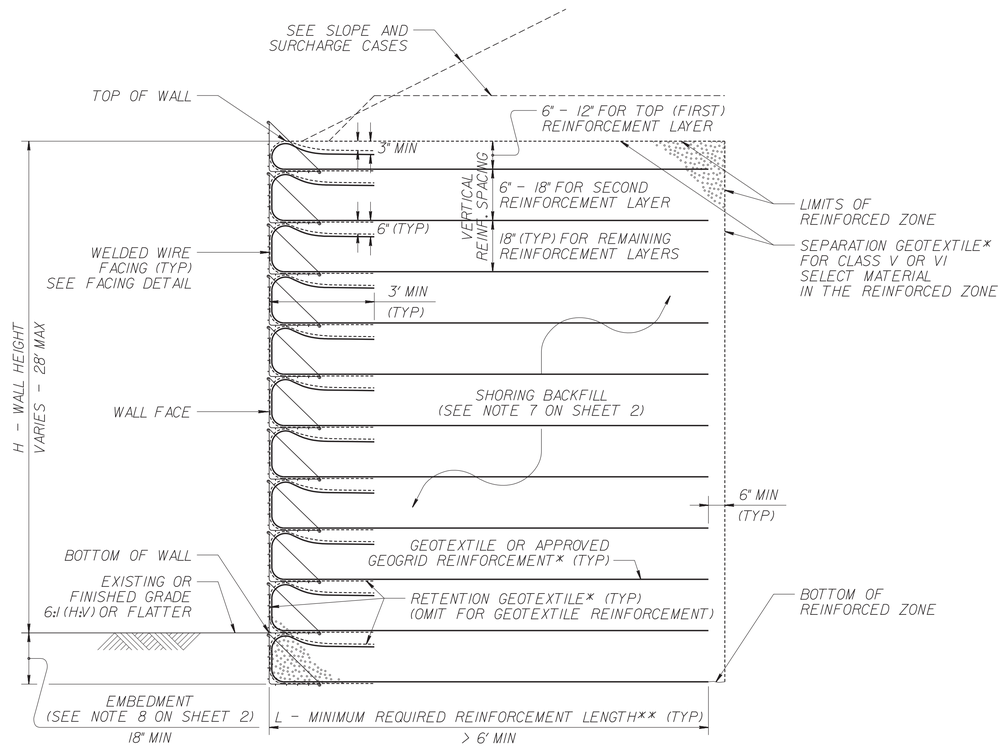


SURCHARGE CASE

SLOPE CASE

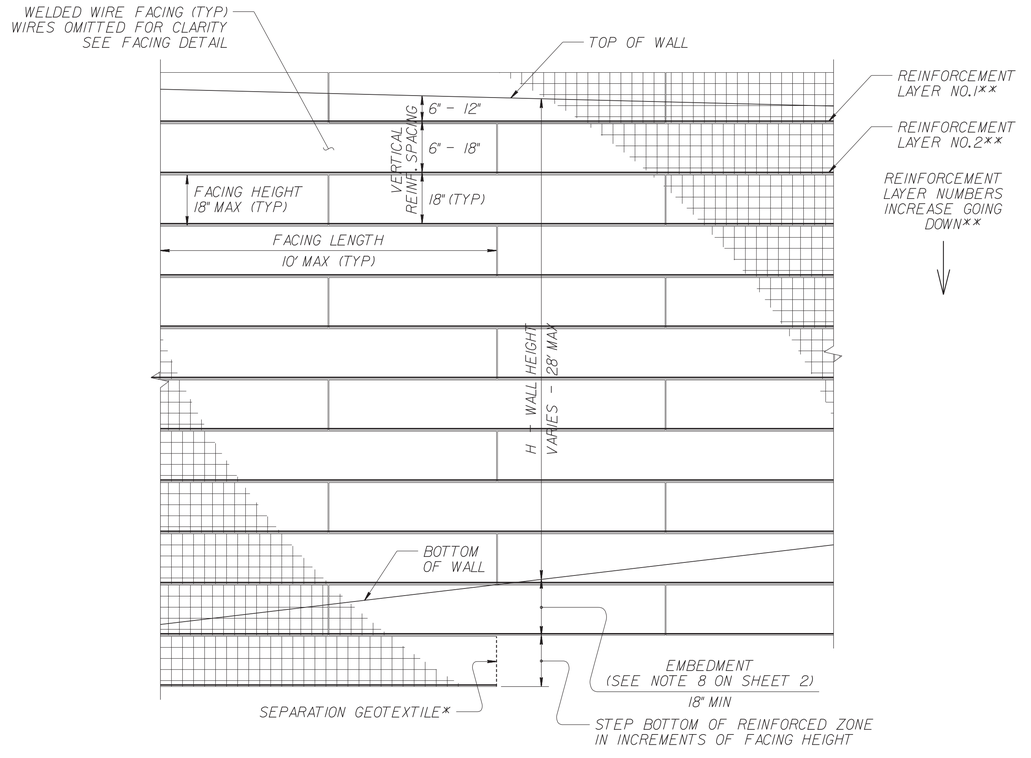


FACING DETAIL



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

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PROJECT REFERENCE NO.	SHEET NO.
14SP.20441.1	2G-3

GEOTECHNICAL ENGINEER

NORTH CAROLINA PROFESSIONAL 11058 ENGINEER WILLIAM F. EDELEN JR.

DocuSigned by: Bill Edelen 8/8/2019
SIGNATURE DATE

ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 26960 ENGINEER REECE M. SCHULER

DocuSigned by: Reece M. Schuler 7/19/2019
SIGNATURE DATE

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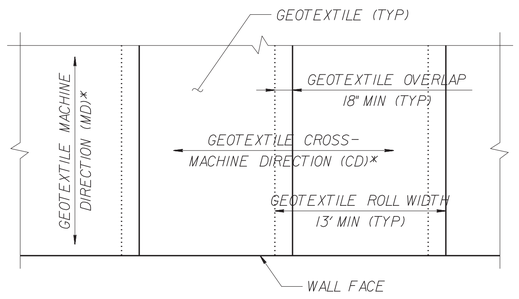
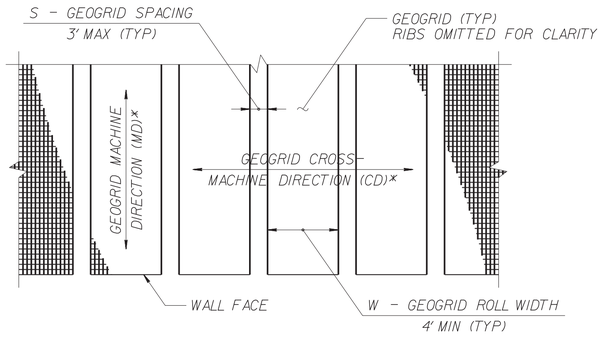


GEOTEXTILE PLACEMENT

(100% COVERAGE MIN FOR GEOTEXTILE REINFORCEMENT)

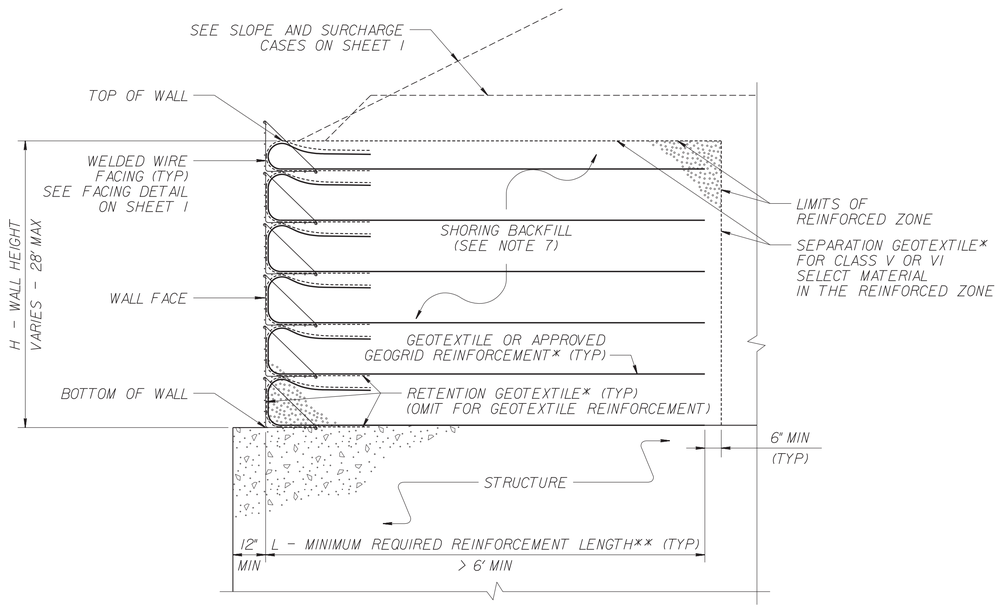


GEOGRID PLACEMENT

(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 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. 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 ARE TYPICALLY APPROVED FOR ULTIMATE TENSILE STRENGTHS IN THE MACHINE DIRECTION (MD) AND CROSS-MACHINE DIRECTION (CD) OR SHORT-TERM DESIGN STRENGTHS FOR A 3-YEAR DESIGN LIFE IN THE MD BASED ON MATERIAL TYPE. THE LIST OF APPROVED GEOGRIDS WITH DESIGN STRENGTHS IS AVAILABLE FROM:
    connect.ncdot.gov/resources/Materials/Pages/Materials-Manual-by-Manual.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

    IF THE WEBSITE DOES NOT LIST A SHORT-TERM DESIGN STRENGTH FOR AN APPROVED GEOGRID, USE A SHORT-TERM DESIGN STRENGTH EQUAL TO THE ULTIMATE TENSILE STRENGTH DIVIDED BY 3.5 FOR THE GEOGRID REINFORCEMENT.
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.

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS

GEOTECHNICAL ENGINEERING UNIT

STANDARD DETAIL NO. 1801.02

STANDARD TEMPORARY WALL
SHEET 2 OF 3

DATE: 11-19-13

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PROJECT REFERENCE NO.	SHEET NO.
14SP.20441.1	2G-4

GEOTECHNICAL ENGINEER

NORTH CAROLINA PROFESSIONAL 11058 ENGINEER WILLIAM F. EDELEN, JR.

DocuSigned by: Bill Edelen 8/8/2019
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ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 26960 ENGINEER REECE M. SCHULER

DocuSigned by: Reece M. Schuler 7/19/2019
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)

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.)

WALL HEIGHT (H) + 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.

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

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6/21/00

COMPUTED BY: KTB DATE: 1-15-18
CHECKED BY: JCL DATE: 1-15-18

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.	SHEET NO.
14SP.20441.1	3B-1

SUMMARY OF EARTHWORK

IN CUBIC YARDS

LOCATION	UNCLASSIFIED EXCAVATION	ROCK	EMBT+%	BORROW	WASTE
SUMMARY NO.1					
–L– STA. 11+00 TO STA. 12+75.12 (BEGIN BRIDGE)	83	15	182	99	
–DET– STA. 10+50 TO STA. 11+50	3		22	19	
SUBTOTAL SUMMARY NO.1	86	15	204	118	
SUMMARY NO.2					
–L– STA. 13+92.86 (END BRIDGE) TO STA. 16+05	99	45	55		44
–Y– STA. 10+00 (END BRIDGE) TO STA. 10+50	13		1		12
SUBTOTAL SUMMARY NO.2	112	45	56		56
–DET– REMOVAL STA. 10+50 to 11+50	22				22
SUBTOTAL SUMMARY NO.3	22				22
PROJECT SUBTOTAL	220	60	260	118	78
WASTE IN LIEU OF BORROW				–78	–78
EST. 5% TO REPLACE TOP SOIL ON BORROW PIT				2	
GRAND TOTAL	220		260	42	
14SP.20441.1 SAY	220			50	
14SP.20441.2 SAY	345			65	
14SP.20441.1 AND 14SP.20441.2 SAY	565			115	

Approximate quantities only. Unclassified excavation, borrow excavation, clearing and grubbing, fine grading and removal of existing pavement will be paid for at the contract lump sum price for "grading".

CONTINGENCY ITEMS:

INCIDENTAL STONE = 25 TONS

UNDERCUT EXCAVATION = 25 CY

SELECT GRANULAR MATERIAL = 25 CY

CLASS IV SUBGRADE STABILIZATION = 25 TONS

GEOTEXTILE FOR SOIL STABILIZATION = 25 SY

PAVEMENT REMOVAL

IN SQUARE YARDS					
LINE	LOCATION	ASPHALT REMOVAL	ASPHALT BREAK–UP	CONCRETE REMOVAL	CONCRETE REMOVAL
–L–	12+67 TO 12+90 (CL)	38.00			
–L–	13+74 TO 13+78 (CL)	32.00			
–DET–	10+50 TO 11+50 (CL)	152.39			
–L–	11+50 TO 12+69 (CL)	41.38			
–L–	13+89 TO –Y– 10+40 (CL)	5.47			
–L–	14+90 TO 16+30 (CL)	33.40			
	TOTAL	302.64			
	14SP.20441.1 SAY	305			
	14SP.20441.2 SAY	335			
	14SP.20441.1 AND 14SP.20441.2 GRAND TOTAL	640			

"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		TEMPORARY		WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHOUL. WIDTH	FLARE LENGTH		W		ANCHORS								IMPACT ATTENUATOR TYPE 350			SINGLE FACED CONCRETE BARRIER RAIL	REMOVE AND RESET GUARDRAIL	REMOVE EXISTING GUARDRAIL	REMARKS
				STRAIGHT	SHOP CURVED	STRAIGHT	SHOP CURVED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	XI MOD	XI	GREU TL–3	GREU TL–2	TEMP. GREU TL–2	TYPE III	B–77 SHOP CURVED	TYPE III SHOP CURVED	B–77	AT–1	EA	G	NG				
–L–	12+27.52	12+83.35	LT	62.5′					12+83.35	2.5′	5.5′		25′		0.5′				1		1										
–L–	13+98.52	14+58.73	LT	62.5′				13+98.52		2.5′	5.5′	25′		0.5′					1		1										
–L–	11+97.00	12+64.74	RT	25.0′	13.75′			11+97.00		7.5′	10.5′	18.75′		0.5′					1				1								
–L–	12+39	14+14	RT			162.5′	12.5′	12+78												2											SEE SHEET TMP–4(TRAFFIC CONTROL PLANS) FOR TEMP. GUARDRAIL
–L–	12+39	14+14																											75′		SEE SHEET TMP–4 AND TMP–5(TRAFFIC CONTROL PLANS)
		SUBTOTAL		150.0′	13.75′	162.5′	12.5′												3	2	2		1						75′		
		LESS DEDUCTIONS FOR ANCHORS																													
		GREU TL–2 3 @ 25′=		–75′																											
		TYPE III 2 @ 18.75′=		–37.5′																											
		TYPE III (SHOP CURVE) 1 @ 13.75′=			–13.75′																										
		TEMPORARY GREU TL–2 2 @ 25′=				–50′																									
		PROJECT TOTALS		37.5′		112.5′	12.5′												3	2	2		1						75′		
		14SP.20441.1 SAY		50.0′		112.5′	12.5′																						75′		
		14SP.20441.2 SAY		0.00′	12.50′	150′	37.5′												3	2	2		1					110′	150′	95′	
		14SP.20441.1 AND 14SP.20441.2 SAY		50.0′	12.50′	262.5′	50′												6	4	4		2					110′	225′	95′	
		14SP.20441.2 ADDITIONAL GUARDRAIL POSTS=5 EA.																													
		14SP.20441.1 ADDITIONAL GUARDRAIL POSTS=5 EA.																													

NOTE: ALL PERMANENT GUARDRAIL AND END UNITS TO BE POWDER COATED GALVANIZED STEEL.

2'–6" CURB & GUTTER

LINE	STATION	STATION	LOCATION LT/RT/CL	FT
–L–	11+41.00	12+55.30	RT	114.30′
–Y– & –L–	–Y– 10+50.00	–L– 16+30	RT	247.35′
–Y–	10+27.00	10+45.20	RT	17.42′
			TOTAL	379.07′
			SAY	380.00′

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6/21/00

COMPUTED BY: KTB DATE: 1-15-18
CHECKED BY: JCL DATE: 1-15-18

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.	SHEET NO.
14SP.20441.1	3D-1

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".

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

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
-DET- 11+41.67	CL	201	OUT		1435.1	1432.2													
-L- 12+46.91	RT	401	OUT	1434.0	1431.0	1425.0													
-Y- 10+42.11	RT	402	OUT	1430.1	1427.1	1424.5													
-L- 16+25.46	RT	403	406	1423.2	1419.5	1419.4													
-L- 14+27.00	RT	404	OUT	1427.7	1427.2														
-L- 15+50.00	RT	405	406	1425.1	1422.1	1419.4													
-L- 16+25.46	RT	406	OUT	1423.0	1419.4	1412.0													
TOTAL																			

STATION	C.S. 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"	TEMPORARY C.S. PIPE 12" (.064)	15" (.064)	18" (.064)
-DET- 11+41.67																								48'	
-L- 12+46.91		32'																							
-Y- 10+42.11		28'																							
-L- 16+25.46								4'																	
-L- 14+27.00																									
-L- 15+50.00								72'																	
-L- 16+25.46			44'																						
TOTAL		60'	44'					76'																48'	

STATION	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	MODIFIED CONCRETE FLUME (PER EACH) SEE SHEET 2D-1 FOR SPECIAL DETAIL	G.D.I. TYPE "D" STD. 840.19 OR 840.28	G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.29				CORR. STEEL ELBOWS NO. & SIZE	CONC. COLLARS CL "B" C.Y. STD 840.72	CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71	PIPE REMOVAL LIN.FT.	REMARKS
-DET- 11+41.67																					2@15"			48'	48' OF TEMPORARY 15" CSP w/ELBOWS FOR DETOUR
-L- 12+46.91					1			1		1											2@15"				
-Y- 10+42.11					1			1	1												2@15"				
-L- 16+25.46					1											1	1								
-L- 14+27.00															1										
-L- 15+50.00					1			1		1															
-L- 16+25.46					1			1		1											2@18"				
TOTAL					5			4	1	3					1	1	1				6@15" 2@18"			48'	

ABBREVIATIONS

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

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PROJECT REFERENCE NO.	SHEET NO.
14SP.20441.1	4

R/W SHEET NO.

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 24260 REECE M. SCHULER
8/25/2023

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 28307 MARC T. SHOWN
8/25/2023

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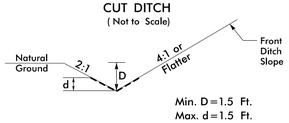
DETAIL A
CUT DITCH
(Not to Scale)



FROM STA. 11+25–L– TO STA. 12+75–L– LT.
FROM STA. 15+00–L– TO STA. 16+25–L– RT.

CAROLINA POWER & LIGHT
(PROGRESS ENERGY)
DB 73 PG 369

–L– CURVE DATA

PI Sta 12+21.55
△ = 39° 25' 46.1" (RT)
D = 35° 48' 35.5"
L = 110.11'
T = 57.33'
R = 160.00'
Ds = 25mph
SE = 0.04

PI Sta 15+19.30
△ = 17° 39' 33.4" (RT)
D = 22° 55' 05.9"
L = 77.05'
T = 38.83'
R = 250.00'
Ds = 25mph
SE = 0.04

PI Sta 16+07.01
△ = 14° 16' 40.5" (RT)
D = 14° 30' 00.0"
L = 98.47'
T = 49.49'
R = 395.14'
Ds = 25mph
SE = Exist.

BM–2
RR SPIKE IN 36" SYCAMORE
44.0'LT. –L– STA. 12+85.65
ELEV. 1436.84'

NAD 83/NSRS 2007

PT Sta. 12+74.32
+74.32 –L–
45.00' LT.

TEMPORARY SHORING
SEE SHEET TMP–4

SPECIAL CUT DITCH
SEE DETAIL A

+00.00 –L–
45.00' LT.

CL 'B' RIP RAP
EST. 2 TONS
7 SY FABRIC

PC Sta. 11+64.22

GREU TL–2

TYPE III

REMOVE EXISTING BRIDGE

WATER VAULT

N 18° 15' 46.1" E

CLASS II RIPRAP (STRUCTURE PAY ITEM)

BRIDGE NO. 430175

15" CSP ELBOWS

NCGS MON. 'TANK AZ MARK'

50' TAPER TO EXISTING (LT.& RT.)

+00.00 –L–
Exist. R/W,
15.00' LT.
TVA
LHT 848 1938

N 2° 10' 00.0" W

+00.00 –L–
EXIST. R/W
15.00' RT.

+00.00 –L–
30.00' RT.

Begin Ret. Wall #1
–L– Sta.18+19.01
23.8' Rt.

End Ret. Wall #1
–L– Sta.12+49.10
24.9' Rt.

Prop.Conc. Sidewalk

+50.00 –L–
35.00' RT.

6" DI & 2" PLASTIC IN SAME DITCH

CAROLINA POWER & LIGHT
(PROGRESS ENERGY)
DB 73 PG 369

BEGIN PROJECT 14SP.20441.1
–L– STA 11+00.00

BM–1
RR SPIKE IN 50" SYCAMORE
44.8'RT. –L– STA. 10+89.44
ELEV. 1438.86'

TO MT.STERLING ROAD SR 1332

GPS–101
–L– STA. 13+70.72
35.5' RT.

+65.00 –L–
44.78',
55.00' RT.

POT Sta. 10+50.00 –Y–
End Construction
POT Sta. 10+74.77 –Y–

CL 'B' RIP RAP
EST. 2 TONS
5 SY FABRIC

SHOP CURVED
142' R

Type I Ramp

Type IA Ramp

2'6" C&G

0.75" PLAS.

S 42° 17' 08.5" E

+01.00 –L–
55.00' RT.

+97.00 –L–
20.00' RT.
45.00' RT.

+41.55 –L–
100.15' RT.

BEGIN C&G
–Y– STA.10+50.00

TEMPORARY SHORING
SEE SHEET TMP–4

NOTE:
REMOVE AND REPLACE APPROX.
5 LF OF SIDEWALK
FOR CONDUIT INSTALL
SHOWN ON SHEET UC–4B.

DO NOT DISTURB
+83.57 –L–
108.01' RT.

+54.21 –L–
132.01' RT.

+62.61 –L–
132.51' RT.

NOTE: ALL PROPOSED GUARDRAIL AND END UNITS TO BE POWDER COATED GALVANIZED STEEL

CAROLINA POWER & LIGHT
(PROGRESS ENERGY)
DB 73 PG 369

Begin Ret. Wall #2
–L– Sta.14+00.27
18.33' Lt.

–L– Sta.14+07.62
31.05' Lt.

POT Sta. 10+00.00 –Y– =
POT Sta. 14+17.81 –L–

End Ret. Wall #2
–L– Sta.14+25.27
38.46' Lt.

PC Sta. 14+80.47

+80.47 –L–
45.00' LT.

+57.52 –L–
25.00' LT.

+20.00 –L–
19.85' LT.
45.00' LT.

CL 'B' RIP RAP
EST. 2 TONS
7 SY FABRIC

+30.00 –L–
45.00' LT.

+30.00 –L–
20.00' LT.
EXIST. R/W

+25.63 –L–
45.01' RT.

+80.47 –L–
EXIST. R/W
20.00' RT.

+00.00 –L–
25.00',
45.00' RT.

PCC Sta. 15+57.52

+30.00 –L–
EXIST. R/W
25.00' RT.

END C&G

PLAYGROUND

END PROJECT 14SP.20441.1
–L– STA. 16+30.00

MATCH LINE –L– STA. 16+50.00 SEE SHEET 5

PROPOSED SIDEWALK

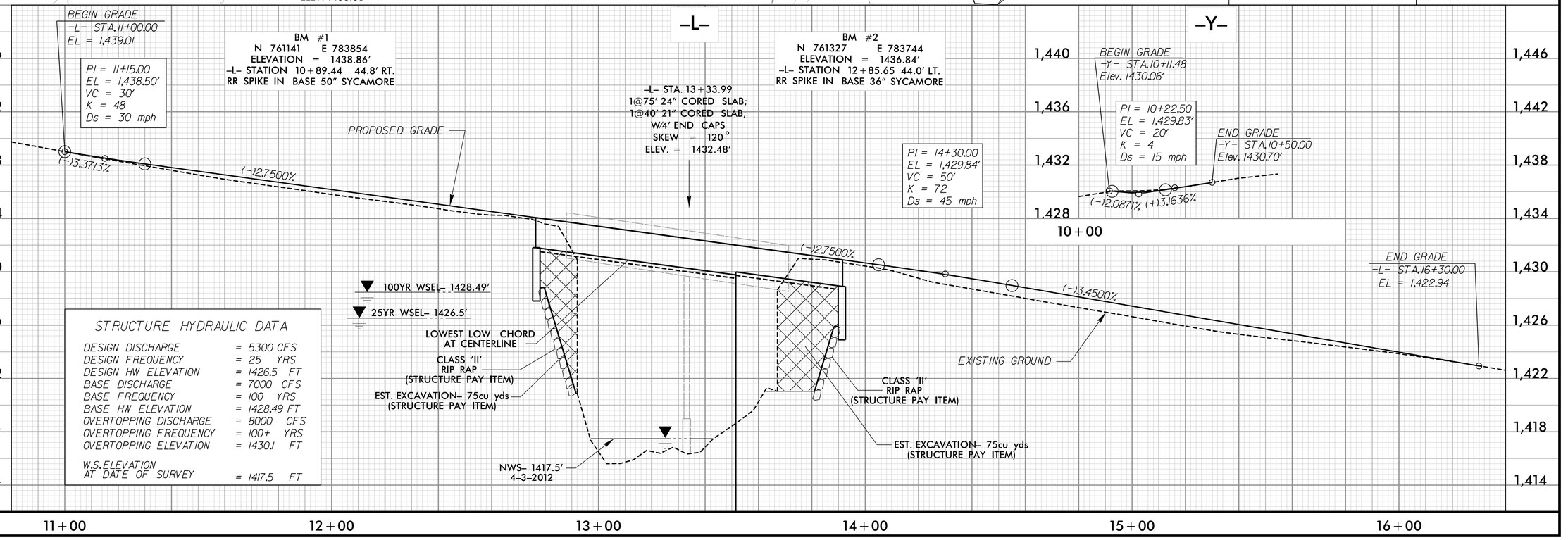
PROPOSED FULL DEPTH PAVED SHOULDER

SEE SHEETS S–1 THRU S–41 FOR STRUCTURE PLANS

SEE SHEETS W–1 THRU W–9 FOR RETAINING WALL PLANS

NOTE: SEE SHEETS TMP–4 AND TMP–5 FOR TEMPORARY GUARDRAIL.

PE —— PERMANENT EASEMENT



STRUCTURE HYDRAULIC DATA

DESIGN DISCHARGE	= 5300 CFS
DESIGN FREQUENCY	= 25 YRS
DESIGN HW ELEVATION	= 1426.5 FT
BASE DISCHARGE	= 7000 CFS
BASE FREQUENCY	= 100 YRS
BASE HW ELEVATION	= 1428.49 FT
OVERTOPPING DISCHARGE	= 8000 CFS
OVERTOPPING FREQUENCY	= 100+ YRS
OVERTOPPING ELEVATION	= 1430.1 FT
W.S.ELEVATION AT DATE OF SURVEY	= 1417.5 FT

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PROJECT REFERENCE NO.	SHEET NO.
14SP.2044I.1	5

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 042350 ENGINEER REECE M. SCHULER	NORTH CAROLINA PROFESSIONAL SEAL 20870 ENGINEER Marc T. Showalter
8/25/2023	8/25/2023

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NAD 83/NSRS 2007

MATCH LINE -L- STA. 16+50.00 SEE SHEET 4

WOODS

BIG CREEK

BRIDGE NO. 430174

CONC & ROCK WALL

CONC WALLS

DAM

CONC PIER

MTL

CONC WALL

SIGNS

STEPS

6" CH LK

12" DI

2" PLAS.

BST PARKING

32" POPLAR

24" HEMLOCK

CONC SW

SIGN

CONC SW MAINTAINED R/W

SR 1332 18' TO 20' BST WATERVILLE ROAD

200.00'

6" DI

2" PLASTIC.

8" HDPE

MAINTAINED R/W

CONC HW

FLAG POLES

CONC PAD

WOOD POSTS

GATE

CALL BOX

GUARD POSTS

8" DI

8" CMP

PROGRESS ENERGY
DB 73 PG 369

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