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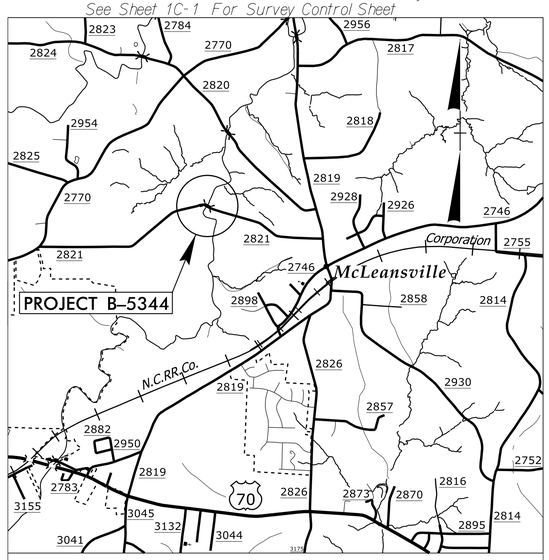
09/08/99

TIP PROJECT: B–5344

CONTRACT: C203728

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



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

GUILFORD COUNTY

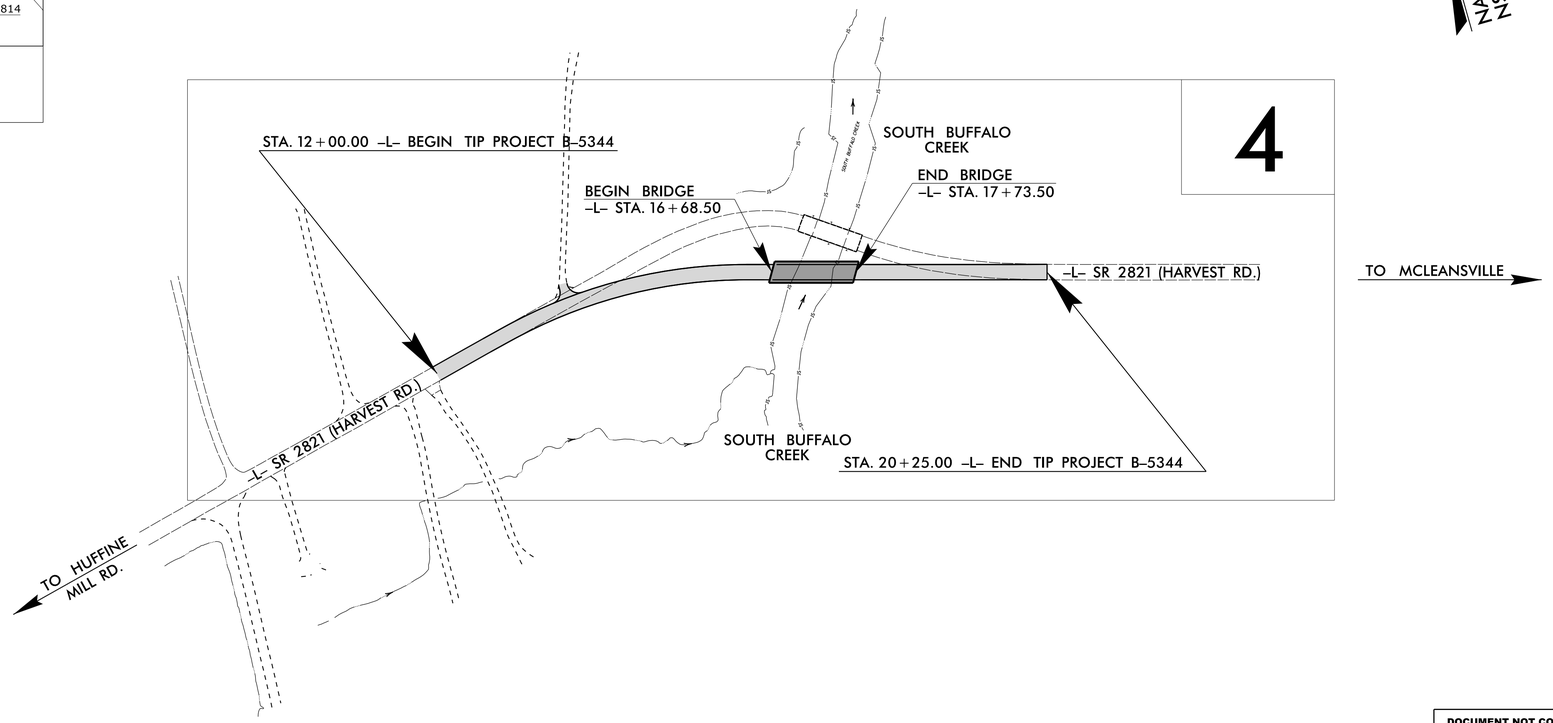
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B–5344	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
46058.1.1	BRZ–2821(1)	PE
46058.2.1	BRZ–2821(1)	R/W & UTILITIES
46058.3.1	BRZ–2821(1)	CONST.

LOCATION: BRIDGE NO. 161 OVER SOUTH BUFFALO CREEK ON SR 2821 (HARVEST ROAD)

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

NAD 83/ NSRS 2007



4

DESIGN EXCEPTION REQUIRED FOR DESIGN SPEED, SAG VERTICAL CURVES, AND ASSOCIATED STOPPING SIGHT DISTANCE.

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 2016 = 430
ADT 2040 = 600
K = 12 %
D = 55 %
T = 7 % *
V = 40 MPH
* TTST 1% DUAL 6%
FUNC CLASS = LOCAL
SUBREGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B–5344 = 0.136 MILES
LENGTH STRUCTURE TIP PROJECT B–5344 = 0.020 MILES
TOTAL LENGTH OF TIP PROJECT B–5344 = 0.156 MILES

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

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: MAY 28, 2015

LETTING DATE: MAY 17, 2016

JAMES A. SPEER, PE
PROJECT ENGINEER

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

HYDRAULICS ENGINEER
2/22/2016
DocuSigned by: William H. Elam
SIGNATURE:
NORTH CAROLINA PROFESSIONAL SEAL 019721 ENGINEER WILLIAM H. ELAM P.E.

ROADWAY DESIGN ENGINEER
2/22/2016
DocuSigned by: Daniel W. Gardner, Jr.
SIGNATURE:
NORTH CAROLINA PROFESSIONAL SEAL 033871 ENGINEER DANIEL W. GARDNER JR. P.E.

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •

08-JAN-2016 09:50
R:\Roadway\Proj\B5344_Rdy_tsh.dgn
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
B-5344	1A

ROADWAY DESIGN ENGINEER

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

2/12/

DocuSigned by: Daniel W. Gardner, Jr.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

INDEX OF SHEETS

GENERAL NOTES:

2012 SPECIFICATIONS
EFFECTIVE: 01-17-2012
REVISED: 10-31-2014

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".

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 PROGRESS - POWER (DISTRIBUTION)

AT&T - COMMUNICATIONS

TIME WARNER CABLE -COMMUNICATIONS

ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS.

RIGHT-OF-WAY MARKERS:

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

EFF. 01-17-2012
REV. 10-30-2012

2012 ROADWAY ENGLISH STANDARD DRAWINGS

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

STD.NO.	TITLE
DIVISION 2 - EARTHWORK	
200.02	Method of Clearing - Method II
225.02	Guide for Grading Subgrade - Secondary and Local
225.04	Method of Obtaining Superelevation - Two Lane Pavement
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation
310.10	Driveway Pipe Construction
DIVISION 4 - MAJOR STRUCTURES	
422.11	Reinforced Bridge Approach Fills - Sub Regional Tier
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
840.25	Anchorage for Frames - Brick or Concrete or Precast
840.29	Frames and Narrow Slot Flat Grates
840.35	Traffic Bearing Grated Drop Inlet - for Cast Iron Double Frame and Grates
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
876.01	Rip Rap in Channels
876.04	Drainage Ditches with Class 'B' Rip Rap

04/06/15

PROJECT REFERENCE NO.	SHEET NO.
B-5344	1B

STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

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

BOUNDARIES AND PROPERTY:

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

BUILDINGS AND OTHER CULTURE:

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

HYDROLOGY:

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

RAILROADS:

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

RIGHT OF WAY:

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

ROADS AND RELATED FEATURES:

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

VEGETATION:

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

EXISTING STRUCTURES:

MAJOR:

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

MINOR:

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

UTILITIES:

POWER:

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

TELEPHONE:

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

WATER:

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

TV:

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

GAS:

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

SANITARY SEWER:

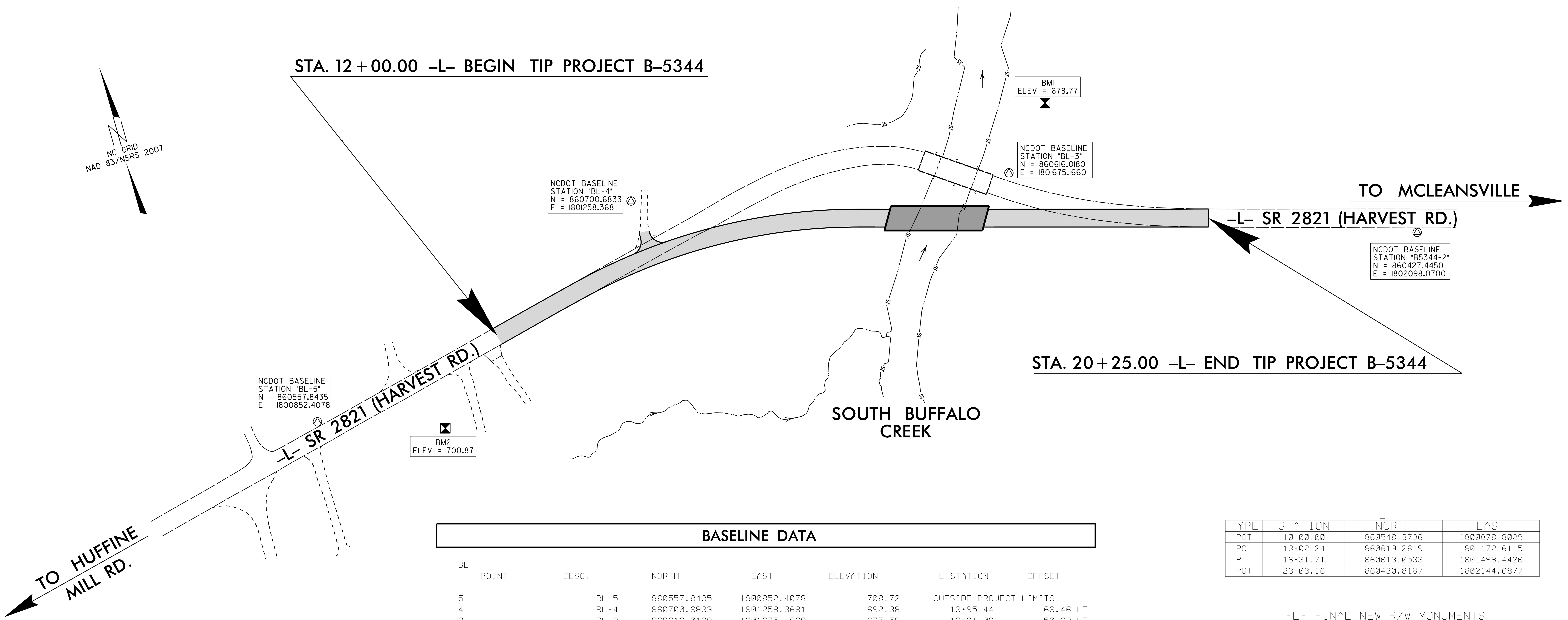
- Sanitary Sewer Manhole
- Sanitary Sewer Cleanout
- U/G Sanitary Sewer Line — SS
- Above Ground Sanitary Sewer — A/G Sanitary Sewer
- SS Forced Main Line LOS B (S.U.E.*) — FSS
- SS Forced Main Line LOS C (S.U.E.*) — FSS
- SS Forced Main Line LOS D (S.U.E.*) — FSS

MISCELLANEOUS:

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

PROJECT REFERENCE NO.	SHEET NO.
B-5344	1C-1
Location and Surveys	

B-5344 SURVEY CONTROL SHEET



BASELINE DATA

BL POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
5	BL-5	860557.8435	1800852.4078	708.72	OUTSIDE PROJECT LIMITS	
4	BL-4	860700.6833	1801258.3681	692.38	13+95.44	66.46 LT
3	BL-3	860616.0180	1801675.1660	677.59	18+01.00	50.82 LT
2	B5344-2	860427.4450	1802098.0700	699.43	22+59.21	15.90 RT
1	B5344-1	860276.1280	1802637.3430	718.50	OUTSIDE PROJECT LIMITS	

BENCHMARK DATA

****
BM1 ELEVATION = 678.77
N 860680 E 1801735
L STATION 18+41.00 129 LEFT
R/R SPIKE IN 13" BIRCH
****

****
BM2 ELEVATION = 700.87
N 860512 E 1800989
L STATION 10+98.00 61 RIGHT
R/R SPIKE IN 11" CEDAR
****

L

TYPE	STATION	NORTH	EAST
POT	10+00.00	860548.3736	1800878.8029
PC	13+02.24	860619.2619	1801172.6115
PT	16+31.71	860613.0533	1801498.4426
POT	23+03.16	860430.8187	1802144.6877

-L- FINAL NEW R/W MONUMENTS

ALIGN	STATION	OFFSET	NORTH	EAST
L	13+02.24	45.00	860575.5171	1801183.1659
L	16+31.71	45.00	860569.7424	1801486.2293
L	20+25.00	30.00	860477.4386	1801868.8274
L	12+00.00	30.00	860566.1192	1801080.2603
L	18+00.00	45.00	860524.0679	1801648.2017
L	18+00.00	30.00	860538.5048	1801652.2727
L	13+02.24	-30.00	860648.4251	1801165.5752
L	20+25.00	-30.00	860535.1865	1801885.1117
L	12+00.00	-30.00	860624.4455	1801066.1877
L	20+14.87	-30.00	860537.9371	1801875.3574
L	19+06.34	-37.89	860574.9872	1801773.0515
L	18+98.05	-39.11	860578.4059	1801765.3974
L	18+02.93	-61.80	860626.0683	1801680.0044
L	17+15.88	-90.96	860677.7570	1801604.1429
L	16+09.47	-94.73	860710.7258	1801499.4805
L	15+91.75	-90.32	860710.9793	1801478.7411
L	15+03.76	-64.40	860699.5721	1801377.5629

-L- FINAL NEW PERMANENT UTILITY EASEMENT

ALIGN	STATION	OFFSET	NORTH	EAST
L	18+95.00	-75.00	860613.7801	1801772.2045
L	19+40.00	-75.00	860601.5669	1801815.5154
L	19+40.00	-33.75	860561.8614	1801804.3189
L	18+95.00	-39.56	860579.6710	1801762.5861
L	16+31.71	60.00	860555.3054	1801482.1583
L	15+55.00	45.00	860584.9764	1801416.5670
L	15+55.00	60.00	860570.1580	1801414.2404
L	18+00.00	60.00	860509.6309	1801644.1306

-L- FINAL NEW DRAINAGE UTILITY EASEMENT

ALIGN	STATION	OFFSET	NORTH	EAST
L	18+80.00	60.00	860487.9184	1801721.1278
L	18+80.00	30.00	860516.7924	1801729.2699
L	18+00.00	60.00	860509.6309	1801644.1306

NOTES

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

   THE FILES TO BE FOUND ARE AS FOLLOWS:
   B5344_LS_CONTROL.TXT

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

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

PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B5344-2"
WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF NORTHING: 860427.4450(ft) EASTING: 1802098.0700(ft)
ELEVATION: 699.43'(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.9999566827
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B5344-2" TO -L- STATION 12+00.00 IS
N 80°41'57" W 1,038.50
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

NOTE: DRAWING NOT TO SCALE

12/01/2005
07-MAR-2016 11:38

PROJ. REFERENCE NO.	SHEET NO.
B-5344	1D-1

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CENTERLINE COORDINATE LIST

Point #	Chain	Station	Northing (Y)	Easting (X)
1	L	12+00.00	860595.2823	1801073.2240
2	L	12+50.00	860607.0095	1801121.8293
3	L	13+00.00	860618.7366	1801170.4346
4	L	13+50.00	860628.7327	1801219.4125
5	L	14+00.00	860634.9037	1801269.0176
6	L	14+50.00	860637.2086	1801318.9519
7	L	15+00.00	860635.6336	1801368.9145
8	L	15+50.00	860630.1882	1801418.6044
9	L	16+00.00	860620.9051	1801467.7224
10	L	16+50.00	860608.0896	1801516.0451
11	L	17+00.00	860594.5193	1801564.1684
12	L	17+50.00	860580.9490	1801612.2916
13	L	18+00.00	860567.3788	1801660.4149
14	L	18+50.00	860553.8085	1801708.5381
15	L	19+00.00	860540.2382	1801756.6614
16	L	19+50.00	860526.6679	1801804.7847
17	L	20+00.00	860513.0977	1801852.9079
18	L	20+50.00	860499.5274	1801901.0312

Point #	Chain	Station	Northing (Y)	Easting (X)

Point #	Chain	Station	Northing (Y)	Easting (X)

Point #	Chain	Station	Northing (Y)	Easting (X)

Point #	Chain	Station	Northing (Y)	Easting (X)

6/2/99

PROJECT REFERENCE NO.	SHEET NO.
B-5344	2A-1

ROADWAY DESIGN ENGINEER

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

2/16/2016

DocuSigned by: Daniel W. Gardner, Jr.

PAVEMENT DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 022896 ENGINEER CLARK S. MORRISON

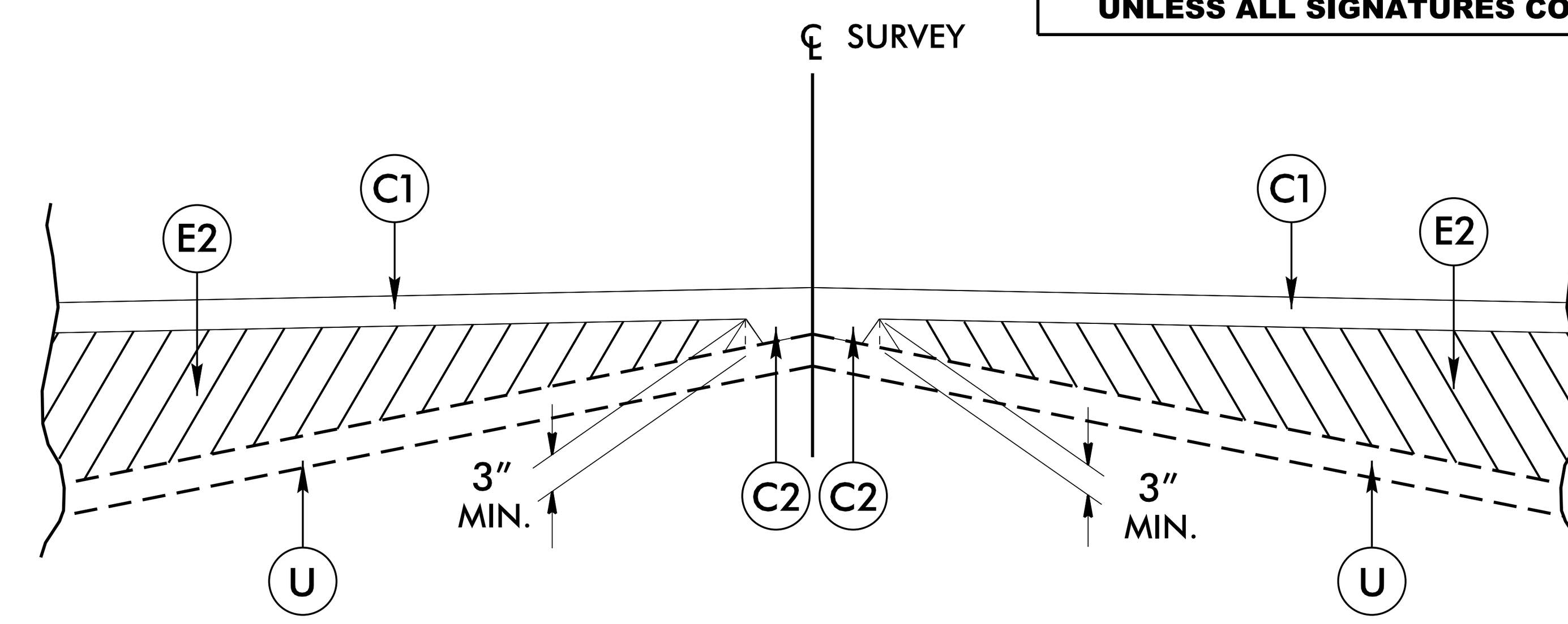
2/15/2016

DocuSigned by: Clark S Morrison

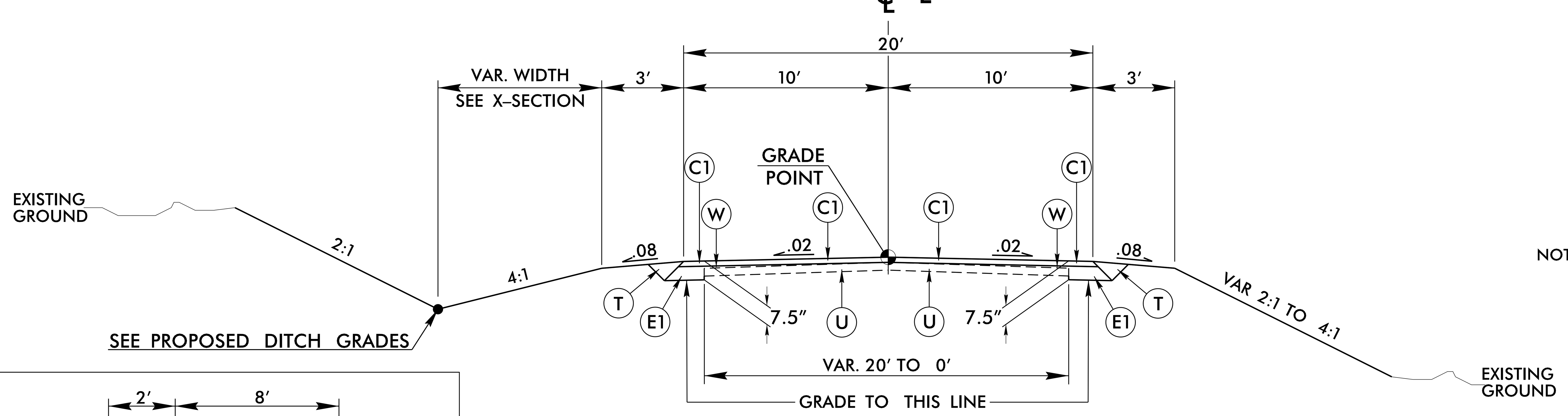
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PAVEMENT SCHEDULE	
C1	PROP. APPROX. 2½" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 1½" IN DEPTH.
E1	PROP. APPROX. 5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 570 LBS. PER SQ. YD.
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5½" IN DEPTH.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL).

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



Detail Showing Method of Wedging



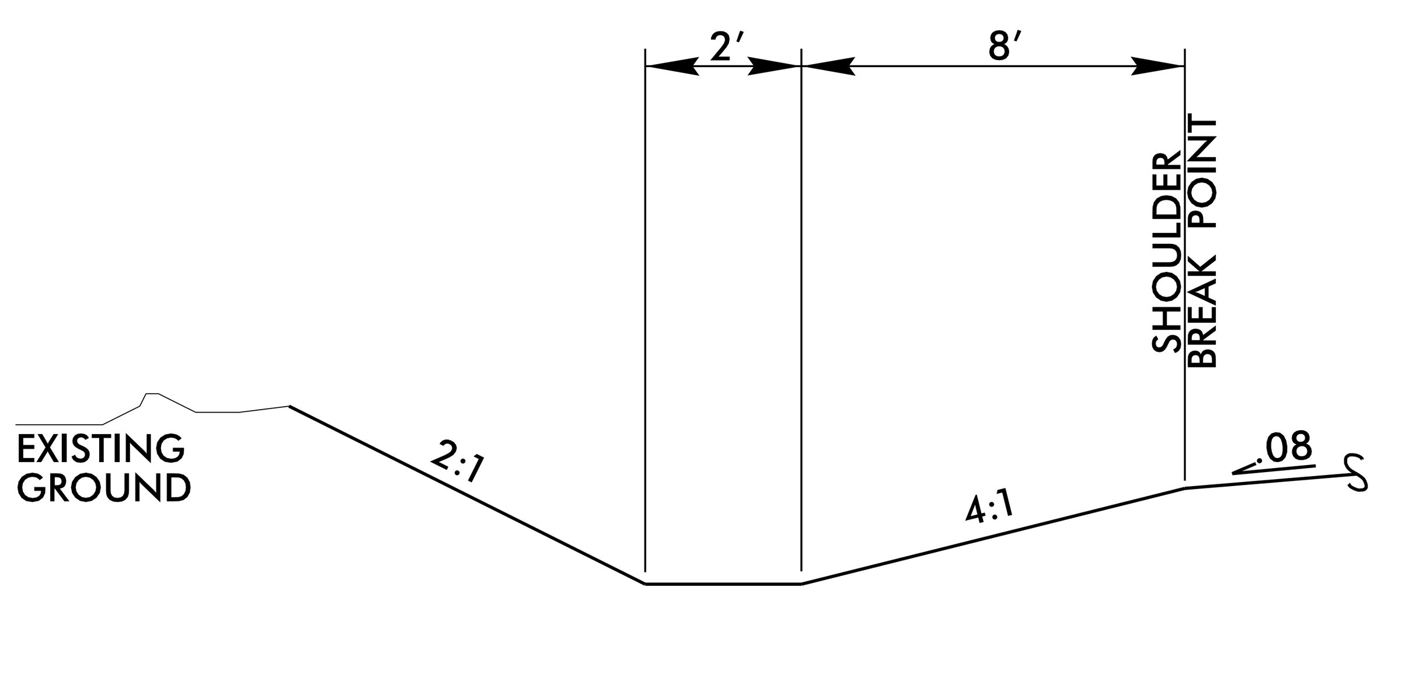
TYPICAL SECTION NO. 1

NOTE: TRANSITION SUPERELEVATION FROM EXISTING TO TYPICAL SECTION NO. 1
-L- STA. 12+00.00 TO STA. 12+75.00

USE TYPICAL SECTION NO. 1

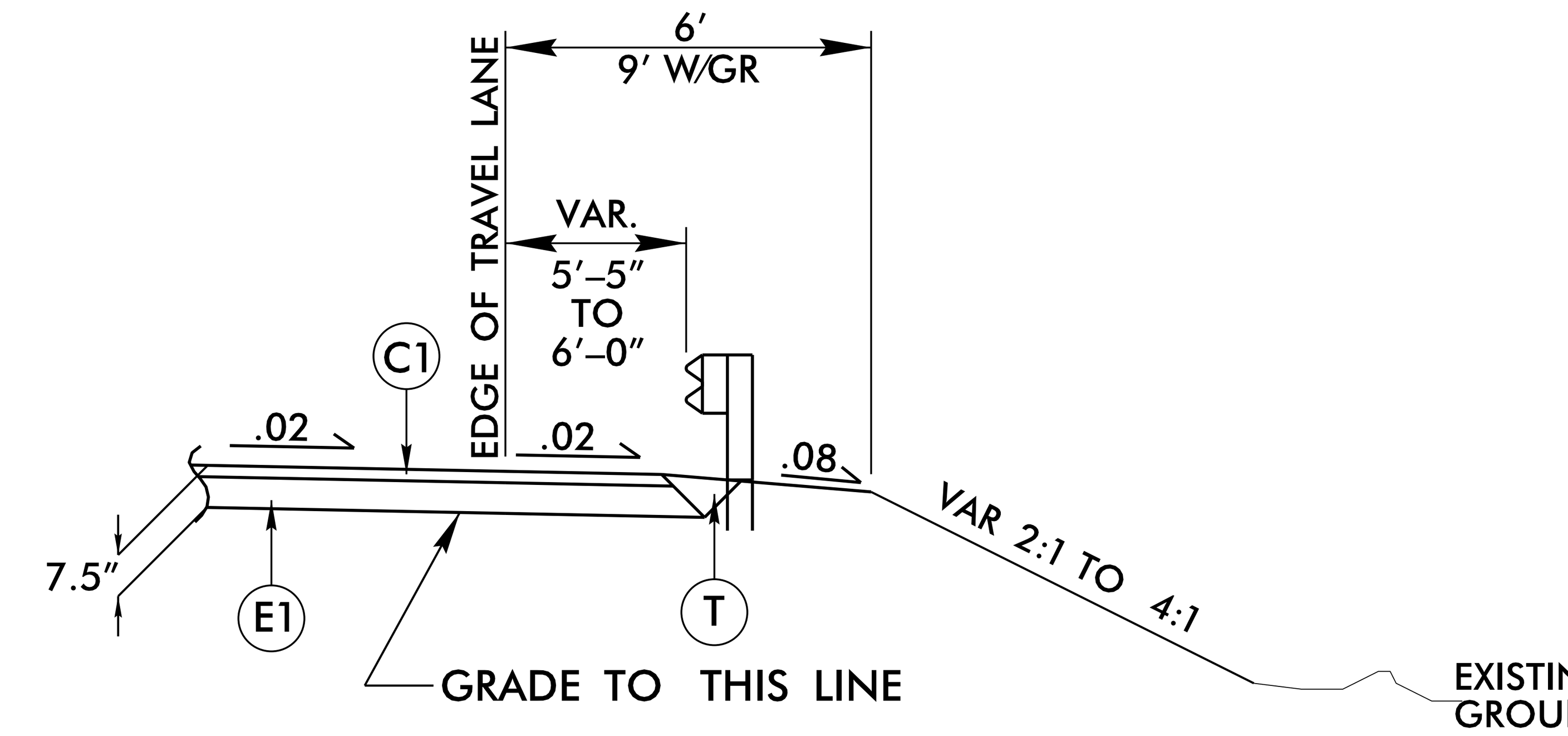
-L- STA. 12+75.00 TO STA. 14+67.00
-L- STA. 18+36.00 TO STA. 20+25.00

NOTE: MILLING REQUIRED FOR PAVEMENT TIE-IN



USE IN CONJUNCTION WITH TYPICAL SECTIONS NO. 1 AND 2

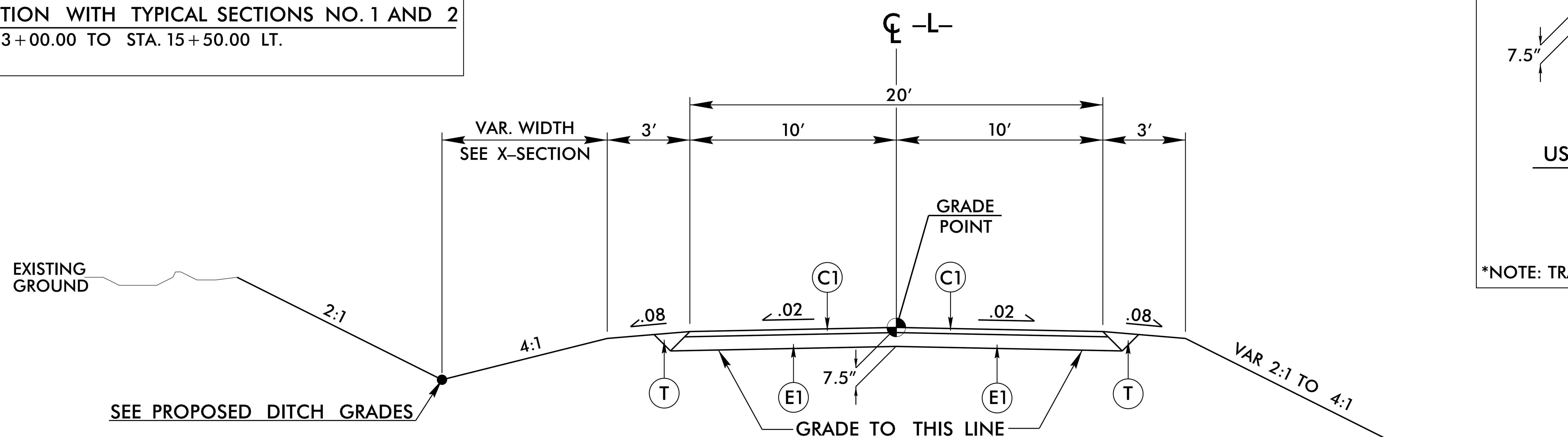
-L- STA. 13+00.00 TO STA. 15+50.00 LT.



USE IN CONJUNCTION WITH GUARDRAIL LOCATIONS

-L- STA. 15+85.13 TO STA. 16+72.63 LT.
-L- STA. 15+76.87 TO STA. 16+64.37 RT.
-L- STA. 17+77.63 TO STA. 18+52.63 LT.
-L- STA. 17+69.37 TO STA. 18+44.37 RT.

*NOTE: TRANSITION FROM 3' TO 9' SHOULDERS IN THE AREAS OF THE 8:1 TAPERS



TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2

-L- STA. 14+67.00 TO STA. 16+68.50 (BEGIN BRIDGE)
-L- STA. 17+73.50 (END BRIDGE) TO STA. 18+36.00

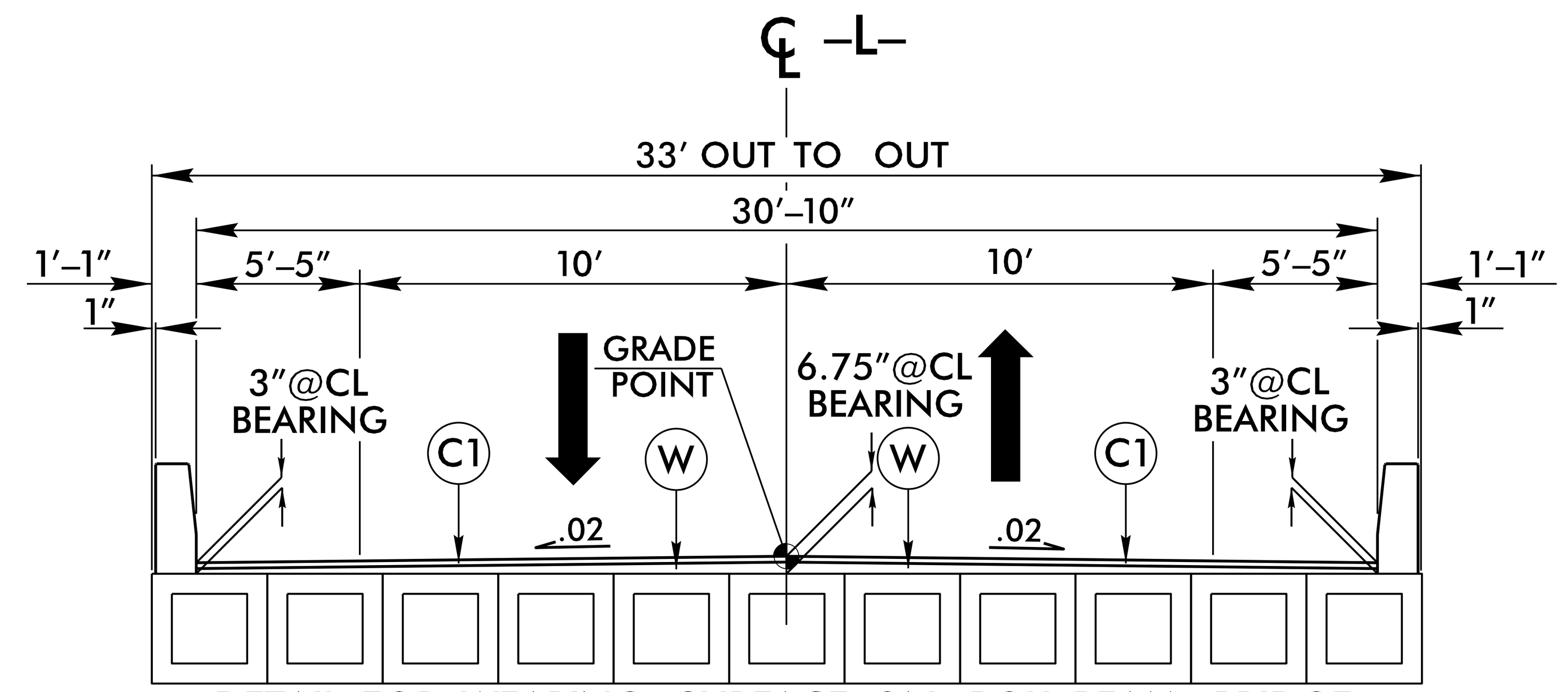
08-JAN-2016 09:49
R:\Roadway\Proj\B5344_Rdy_typ.dgn
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
B-5344	2A-2

ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 033871 ENGINEER DANIEL W. GARDNER, JR. 2/16/2016 DocuSigned by: Daniel W. Gardner, Jr. 2F399F1E43CB4B0...	NORTH CAROLINA PROFESSIONAL SEAL 022896 ENGINEER CLARK S. MORRISON 2/15/2016 DocuSigned by: Clark S Morrison 086238016E4F400...

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

C1	PROP. 2½" SF9.5A
C2	PROP. VAR. DEPTH 2½" SF9.5A
E1	PROP. 5" B25.0B
E2	PROP. VAR. DEPTH B25.0B
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	VAR. DEPTH WEDGING



DETAIL FOR WEARING SURFACE ON BOX BEAM BRIDGE

TYPICAL SECTION NO. 3

USE TYPICAL SECTION NO. 3

-L- STA. 16+68.50 (BEGIN BRIDGE) TO STA. 17+73.50 (END BRIDGE)

6/2/99

03-FEB-2016 10:30
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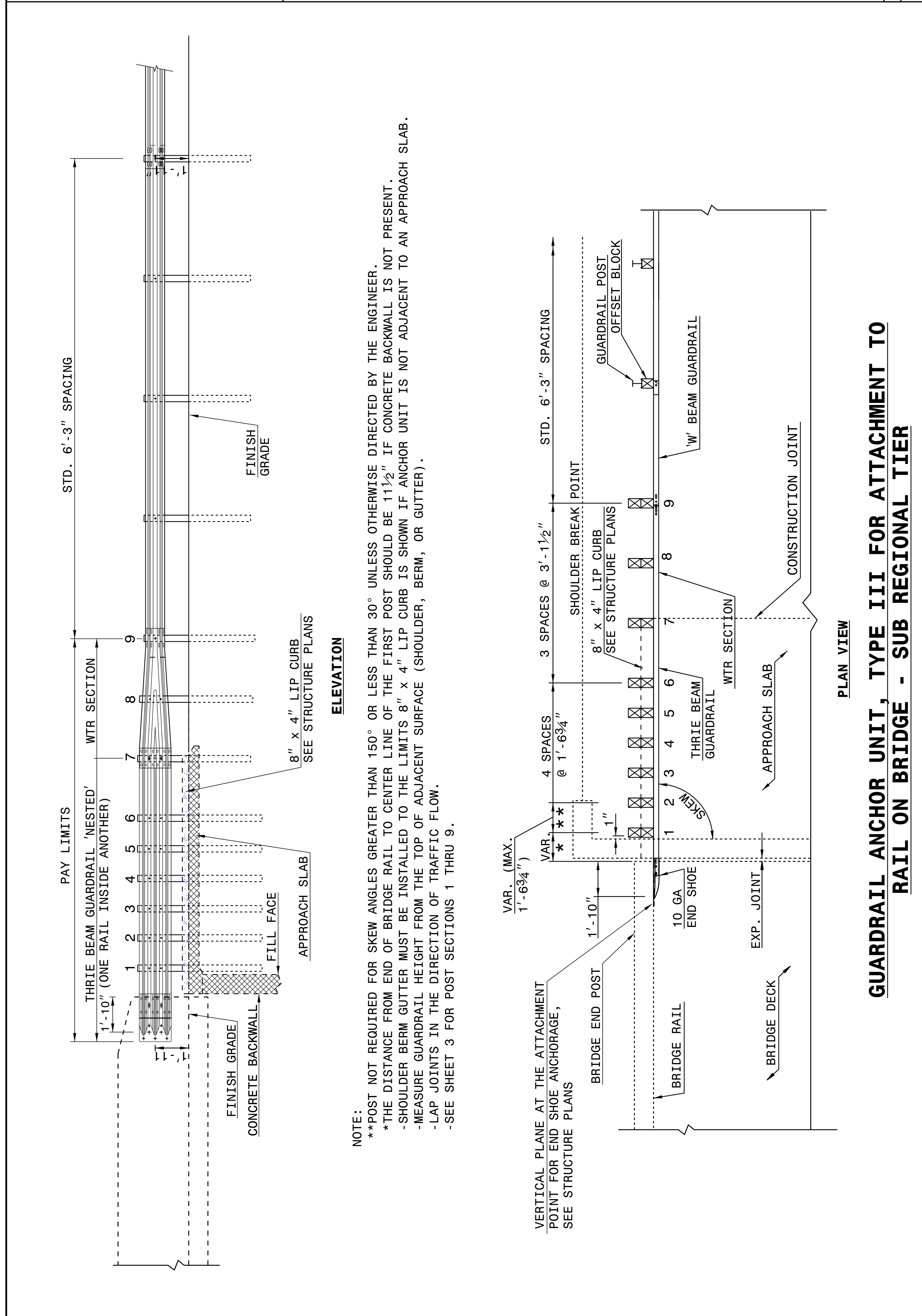
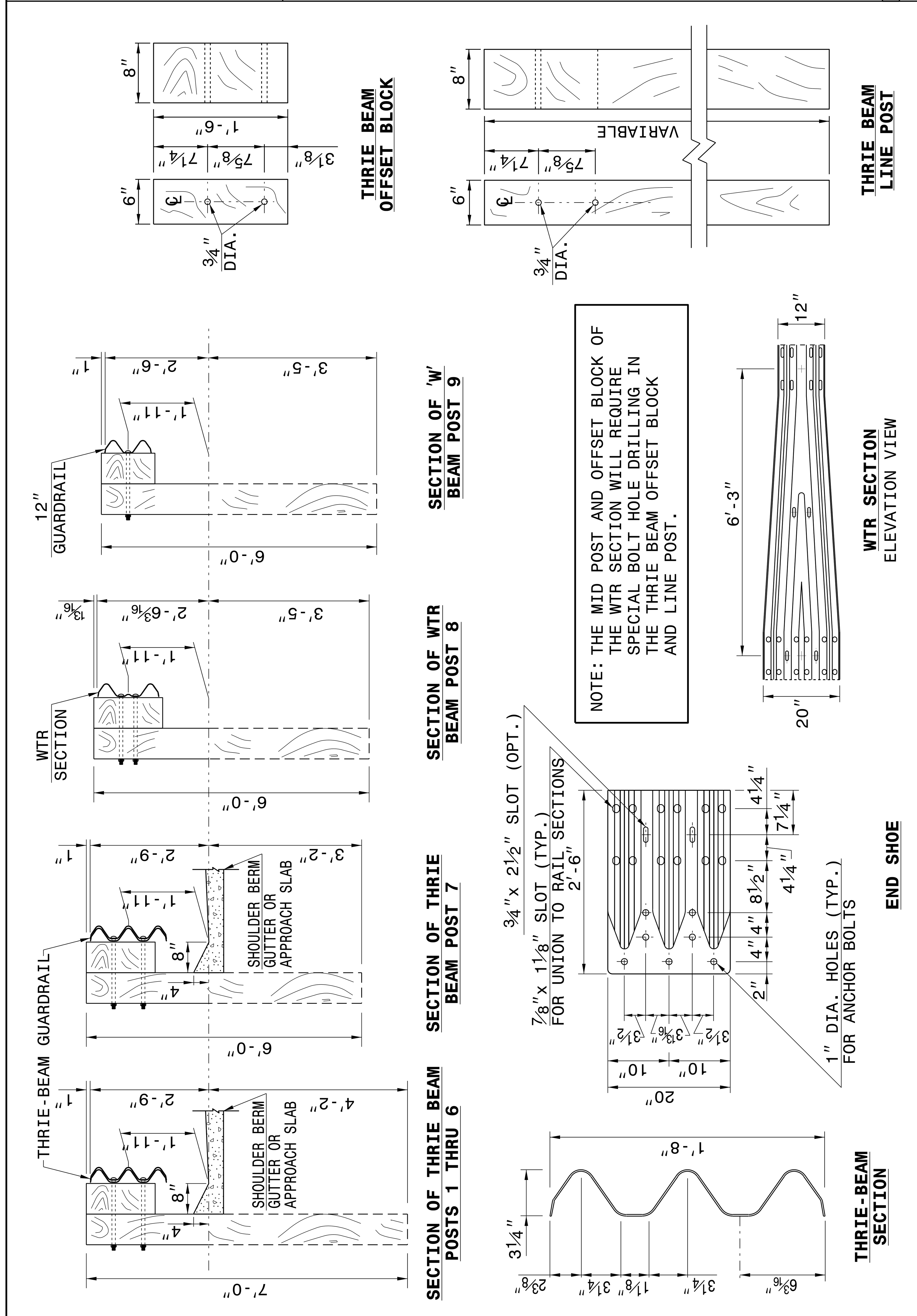
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
B-5344	2C-1



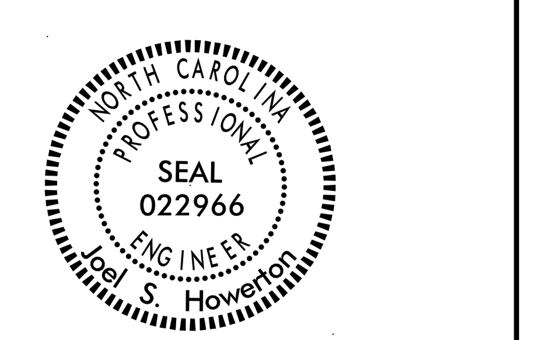
ELEVATION
PLAN VIEW
STD. 6'-3" SPACING
PAY LIMITS
THRIE BEAM GUARDRAIL 'NESTED' (ONE RAIL INSIDE ANOTHER)
WTR SECTION
8" x 4" LIP CURB SEE STRUCTURE PLANS
FINISH GRADE
CONCRETE BACKWALL
FILL FACE
APPROACH SLAB
NOTE:
**POST NOT REQUIRED FOR SKEW ANGLES GREATER THAN 150° OR LESS THAN 30° UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
*THE DISTANCE FROM END OF BRIDGE RAIL TO CENTER LINE OF THE FIRST POST SHOULD BE 11½" IF CONCRETE BACKWALL IS NOT PRESENT.
-SHOULDER BERM GUTTER MUST BE INSTALLED TO THE LIMITS 8" x 4" LIP CURB IS SHOWN IF ANCHOR UNIT IS NOT ADJACENT TO AN APPROACH SLAB.
-MEASURE GUARDRAIL HEIGHT FROM THE TOP OF ADJACENT SURFACE (SHOULDER, BERM, OR GUTTER).
-LAP JOINTS IN THE DIRECTION OF TRAFFIC FLOW.
-SEE SHEET 3 FOR POST SECTIONS 1 THRU 9.
VERTICAL PLANE AT THE ATTACHMENT POINT FOR END SHOE ANCHORAGE, SEE STRUCTURE PLANS
BRIDGE END POST
BRIDGE RAIL
BRIDGE DECK
EXP. JOINT
10 GA END SHOE
SHOULDER BREAK POINT
GUARDRAIL POST OFFSET BLOCK
'W' BEAM GUARDRAIL
CONSTRUCTION JOINT
THRIE BEAM GUARDRAIL
APPROACH SLAB
3 SPACES @ 3'-1½"
4 SPACES @ 1'-6¾"
GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO RAIL ON BRIDGE - SUB REGIONAL TIER

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.	ENGLISH DETAIL DRAWING FOR **STRUCTURE ANCHOR UNITS** GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO RAIL ON BRIDGE - SUB REGIONAL TIER	SHEET 2 OF 7 **862d03**



THRIE BEAM OFFSET BLOCK
THRIE BEAM LINE POST
VARIABLE
¾" DIA.
NOTE: THE MID POST AND OFFSET BLOCK OF THE WTR SECTION WILL REQUIRE SPECIAL BOLT HOLE DRILLING IN THE THRIE BEAM OFFSET BLOCK AND LINE POST.
WTR SECTION ELEVATION VIEW
SECTION OF 'W' BEAM POST 9
SECTION OF WTR BEAM POST 8
SECTION OF THRIE BEAM POST 7
SECTION OF THRIE BEAM POSTS 1 THRU 6
SHOULDER BERM GUTTER OR APPROACH SLAB
¾" x 2½" SLOT (OPT.)
⅞" x 1⅛" SLOT (TYP.) FOR UNION TO RAIL SECTIONS
1" DIA. HOLES (TYP.) FOR ANCHOR BOLTS
END SHOE
THRIE-BEAM SECTION

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.	ENGLISH DETAIL DRAWING FOR **STRUCTURE ANCHOR UNITS** GUARDRAIL ANCHOR UNIT, TYPE III	SHEET 3 OF 7 **862d03**



2/12/2016

DocuSigned by: Joel Howerton

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

SEE TITLE BLOCK

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

PROJECT REFERENCE NO.	SHEET NO.
B-5344	2G-1

GEOTECHNICAL ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 022246 ENGINEER SCOTT A. HIDDEN

DocuSigned by: Scott A. Hidden F760CAEB99EC4D3... 1/19/2016

SIGNATURE DATE

ENGINEER

SIGNATURE DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

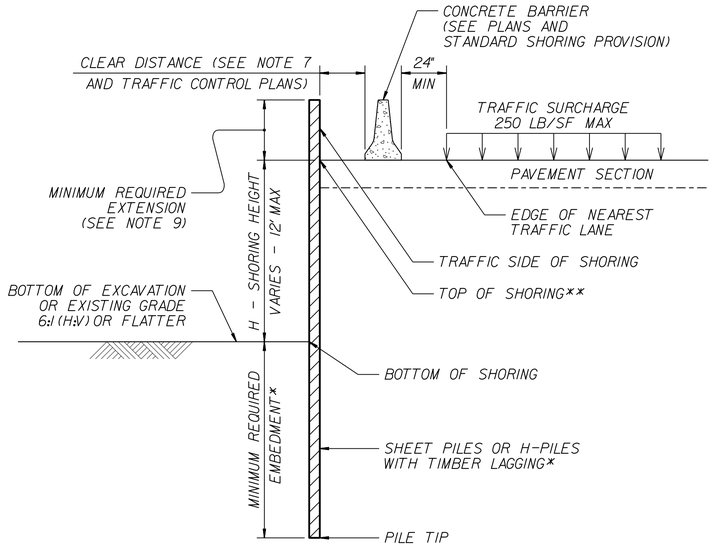
GROUNDWATER CONDITION (SEE NOTE 6)	H SHORING HEIGHT (FT)	SLOPE OR SURCHARGE CASE WITH NO TRAFFIC IMPACT					SURCHARGE CASE WITH TRAFFIC IMPACT				
		SHEET PILES		H-PILES WITH TIMBER LAGGING			SHEET PILES		H-PILES WITH TIMBER LAGGING		
		MINIMUM REQUIRED EMBEDMENT (FT)	MINIMUM REQUIRED SECTION MODULUS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

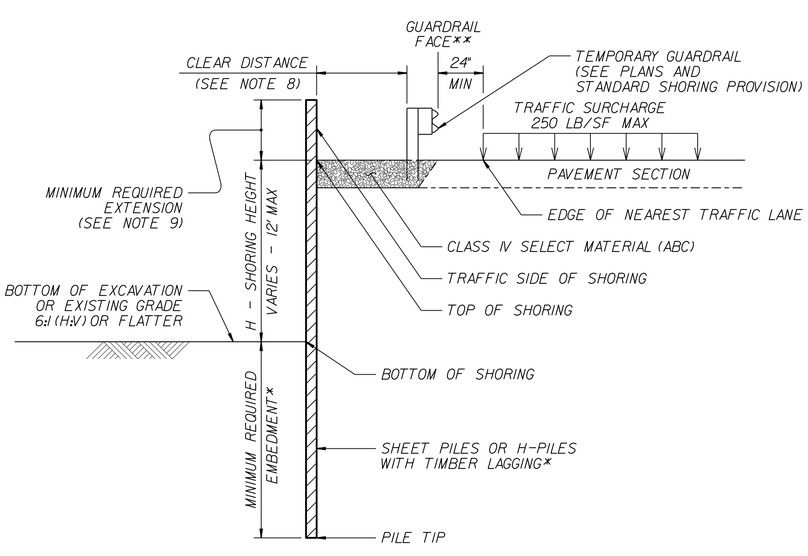
NOTES:

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 LB/CF
   FRICTION ANGLE, ϕ = 30 DEGREES
   COHESION, c = 0 LB/SF
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.



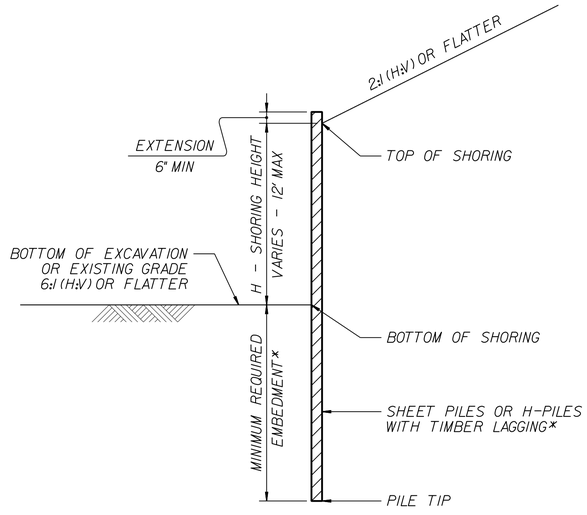
CONCRETE BARRIER

**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

COMPUTED BY: JBG DATE: 02/03/15
CHECKED BY: TRB DATE: 12/03/15

PROJECT NO.	SHEET NO.
B-5344	3B-1

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF EARTHWORK
IN CUBIC YARDS

**EARTHWORK QUANTITIES INCLUDE SPECIAL GRADING AS PROVIDED BY HYDRAULICS UNIT

Station	Station	Uncl. Excav.	Embank. +%	Borrow	Waste
SUMMARY NO. 1**					
-L- 12+00.00	-L- 16+68.50 (BB)	1457	734		723
TOTAL SUMMARY NO. 1		1457	734		723
SUMMARY NO. 2					
-L- 17+73.50 (EB)	-L- 20+25.00	258	185		73
TOTAL SUMMARY NO. 2		258	185		73
SUMMARY TOTALS		1715	919		796
LOSS DUE TO CLEARING & GRUBBING		-100			-100
PROJECT TOTALS		1615	919		696
PROJECT GRAND TOTALS		1615	919		696
SAY		**1700**			
EST. DDE = 295 CY					
EST. GRADE POINT UNDERCUT = 100 CY					
EST. UNDERCUT CONTINGENCY = 300 CY					
SELECT GRANULAR MATERIAL = 200 CY					
GEOTEXTILE FOR SOIL STABILIZATION = 300 CY					

Note: Approximate quantities only. Unclassified Excavation, Fine Grading, Clearing and Grubbing, Removal of Asphalt Pavement will be paid for at the contract lump sum price for grading.

Note: Earthwork quantities are calculated by the Roadway Design Unit. These earthwork quantities are based in part on subsurface data provided by the Geotechnical Engineering Unit.

"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

GUARDRAIL SUMMARY

G = GATING IMPACT ATTENUATOR TYPE 350
NG = NON-GATING IMPACT ATTENUATOR TYPE 350

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHOUL WIDTH	FLARE LENGTH		W		ANCHORS								IMPACT ATTENUATOR TYPE 350		SINGLE FACED CONCRETE BARRIER	REMOVE EXISTING GUARDRAIL	REMOVE & STOCKPILE EXISTING GUARDRAIL	REMARKS
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	GRAU 350		TYPE III						G	NG				
-L-	15+85.13	16+72.63	LT	87.5				16+72.63	5.417	9		68.75		1.375	1		1											
-L-	15+76.87	16+64.37	RT	87.5			16+64.37		5.417	9	68.75		1.375		1		1											
-L-	17+77.63	18+52.63	LT	75			17+77.63		5.417	9	56.25		1.125		1		1											
-L-	17+69.37	18+44.37	RT	75				17+69.37	5.417	9		56.25		1.125	1		1											
			TOTALS	325											4		4											
		LESS DEDUCTION FOR ANCHORS																										
			GRAU-350 4 @ 50' =	-200																								
			TYPE- III 4 @ 18.75' =	-75																								
			PROJECT TOTAL	50											4		4											
ADDITIONAL GUARDRAIL POST = 5 EA.			SAY	75											4		4											

PAVEMENT REMOVAL SUMMARY
IN SQUARE YARDS

SURVEY LINE	Station	Station	LOCATION LT/RT/CL	ASPHALT REMOVAL	ASPHALT BREAKUP	CONCRETE REMOVAL	CONCRETE BREAKUP
-L-	12+75.00	17+06.58	LT	753.24			
-L-	17+76.31	20+25.00	LT	272.66			
		TOTAL:		1025.90			
		SAY:		**1030**			

SHOULDER BERM GUTTER SUMMARY

LINE	Station	Station	LENGTH
-L- LT	16+35	16+61.05	26.1
-L- RT	16+35	16+54.03	19
		TOTAL:	45.1
		SAY:	50

RD266182

COMPUTED BY:	M. Kelly	DATE:	2/13/15
CHECKED BY:	TRB	DATE:	12/03/15

PROJECT NO.	SHEET NO.
B-5344	3D-1

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

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

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

LINE & STATION	OFFSET		STRUCTURE NUMBER FROM	STRUCTURE NUMBER TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %
L 16+38	15	RT	0401		678.5			
			0401	0402		675.7	675.6	
L 16+38	15	LT	0402		678.5			
			0402	0403		675.6	671.0	
L 13+97	22	LT	0404					

Drainage Pipe (RCP, CSP, CAAP, HDPE, or PVC)

FROM	TO	12	15	18	24	30	36	42	48	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	DO NOT USE PVC
0401														
0401	0402													
0402														
0402	0403		20							X				
0404														
SHEET TOTALS			20											
PROJECT TOTALS			20											

C. S. PIPE (SIZE / THICKNESS OR GAUGE)

FROM	TO	12 (.064)	15 (.064)	18 (.064)	24 (.064)		30 (.079)			36 (.079)			42 (.109)	48 (.109)
0401														
0401	0402													
0402														
0402	0403													
0404														
SHEET TOTALS														
PROJECT TOTALS														

R. C. PIPE

FROM	TO	CLASS III 12	15	18	24	30	36	42	48	CLASS IV 12	15	18	24	30	36	42	48	CLASS V 12	15	18	24	30	36	42	48
0401																									
0401	0402										28														
0402																									
0402	0403																								
0404																					28				
SHEET TOTALS											28										28				
PROJECT TOTALS											28										28				

FROM	TO	15" SIDE DRAIN PIPE	18" SIDE DRAIN PIPE	24" SIDE DRAIN PIPE		ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CY	REINFORCED ENDWALLS CY	DRAINAGE STRUCTURE MASONRY CY
0401								
0401	0402							
0402								
0402	0403							
0404								
SHEET TOTALS								
PROJECT TOTALS								

QUANTITIES FOR DRAINAGE STRUCTURES — NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)

FRAME, GRATES, AND HOOD STD. 840.03

CONCRETE TRANSITIONAL SECTION

FROM	TO	0' THRU 5' EACH	A: 5' THRU 10' LIN. FT.	B: 10' AND ABOVE LIN. FT.	C.B. STD. 840.01 OR STD. 840.02	GRATE TYPE E	F	G		D.I. STD. 852.04 OR STD. 852.06	C.B. STD. 852.05	G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.29	T.B.D.I. STD. 840.35	15" DRAINAGE PIPE ELBOW	CONCRETE COLLARS CL. "B" STD. 840.72 CY	CONCRETE AND BRICK PIPE PLUG STD. 840.71 CY	PIPE REMOVAL LIN. FT.	REMARKS
0401		1										1	1					
0401	0402																	
0402		1										1	1					
0402	0403													2				
0404																		
SHEET TOTALS		2										2	2	2				
PROJECT TOTALS		2										2	2	2				

ABBREVIATIONS

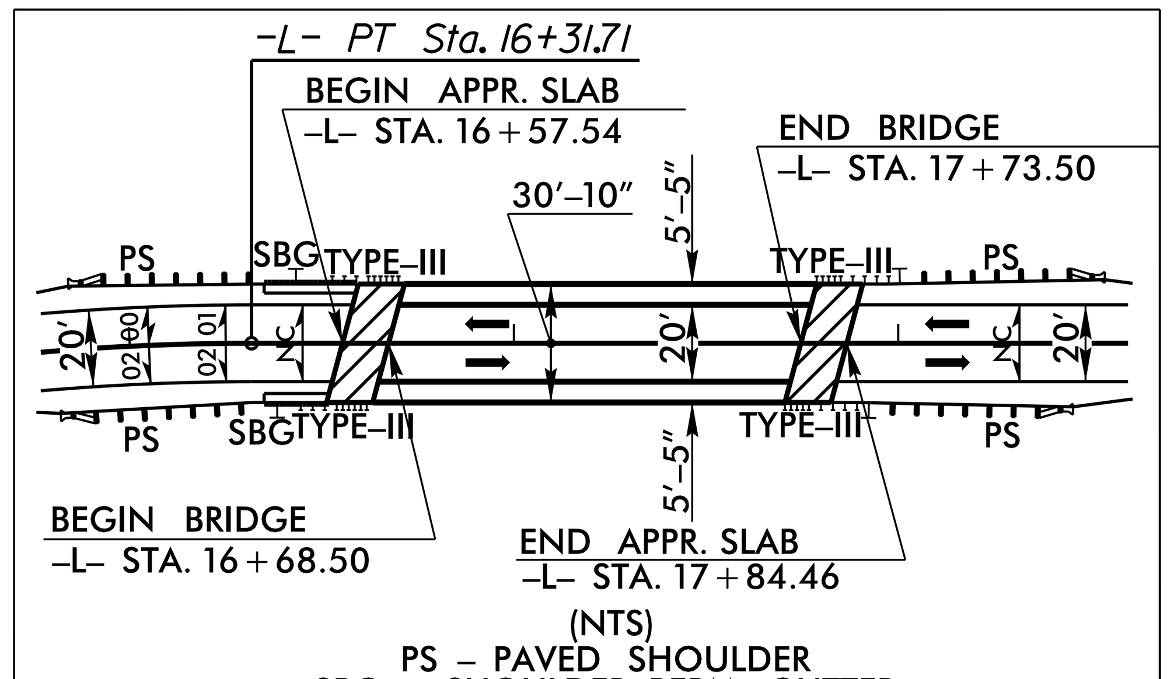
C.A.A.	CORRUGATED ALUMINIUM ALLOY
C.B.	CATCH BASIN
C.S.	CORRUGATED STEEL
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
H.D.P.E.	HIGH DENSITY POLYETHYLENE
J.B.	JUNCTION BOX
M.H.	MANHOLE
N.S.	NARROW SLOT
P.V.C.	POLYVINYL CHLORIDE
R.C.	REINFORCED CONCRETE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC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

PROJECT REFERENCE NO.	SHEET NO.
B-5344	4
R/W SHEET NO.	

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

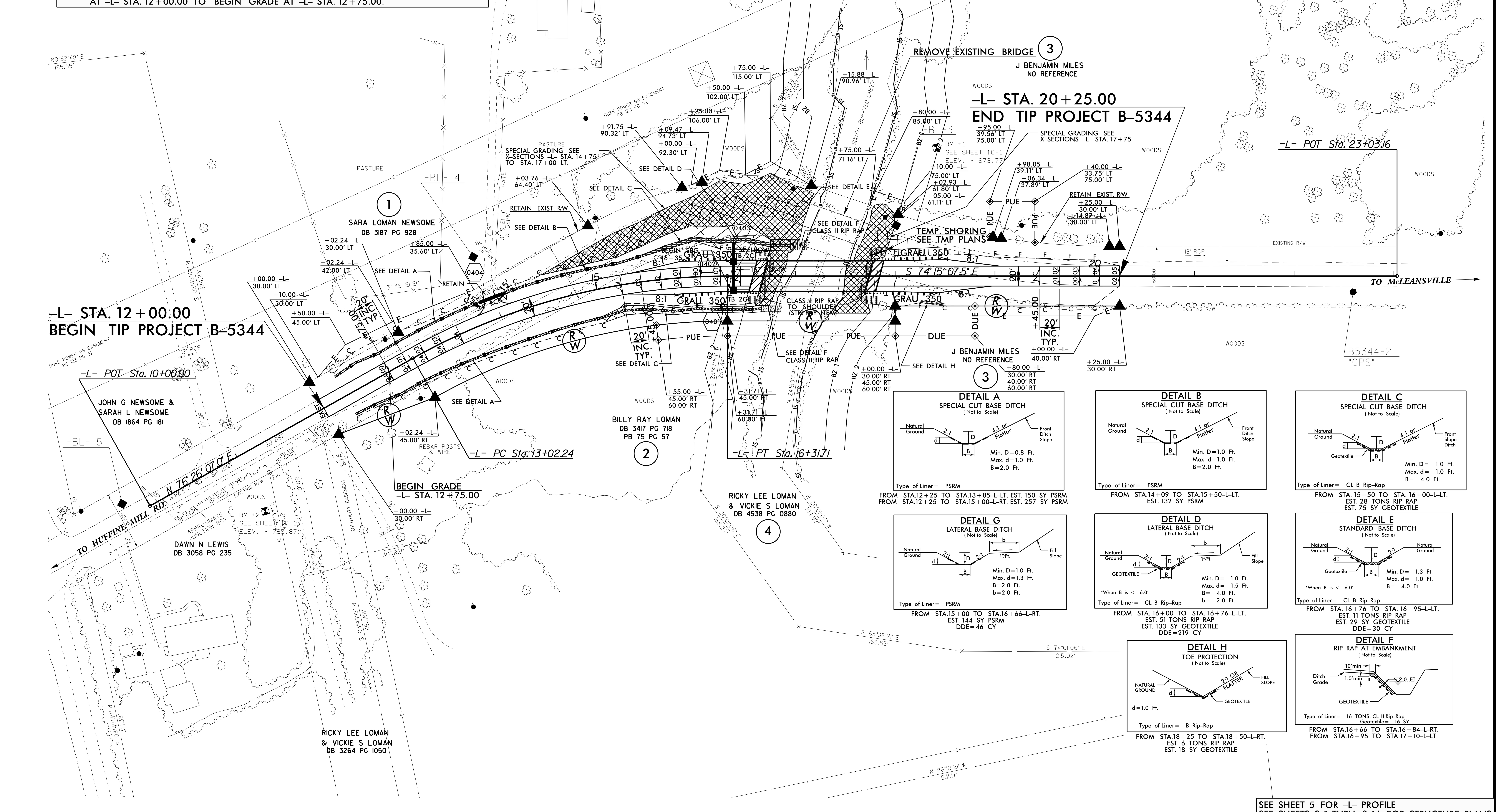
HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 019721 WILLIAM H. ELAM — William H. Elam

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



-L-
PI Sta 14+70.66
Δ = 29° 18' 45.5" (RT)
D = 8° 53' 48.7"
L = 329.47'
T = 168.43'
R = 644.00'
SE = SEE PLANS

NOTE: OVERLAY AND WEDGE PAVEMENT TO TRANSITION SUPERELEVATION FROM EXISTING AT -L- STA. 12+00.00 TO BEGIN GRADE AT -L- STA. 12+75.00.



NAD 83/NSRS 2007
-L- STA. 12+00.00
BEGIN TIP PROJECT B-5344
-L- STA. 20+25.00
END TIP PROJECT B-5344
-L- POT Sta. 10+00.00
-L- POT Sta. 23+03.16
-L- PC Sta. 13+02.24
-L- PT Sta. 16+31.71
BEGIN GRADE
-L- STA. 12+75.00
REMOVE EXISTING BRIDGE
TEMP. SHORING SEE TMP PLANS
N 76° 26' 07.0" E
S 74° 15' 07.5" E
TO HUFFINE MILL RD.
TO McLEANSVILLE
SARA LOMAN NEWSOME DB 3187 PG 928
JOHN G NEWSOME & SARAH L NEWSOME DB 1864 PG 181
BILLY RAY LOMAN DB 3417 PG 718 PB 75 PG 57
J BENJAMIN MILES NO REFERENCE
RICKY LEE LOMAN & VICKIE S LOMAN DB 4538 PG 0880
RICKY LEE LOMAN & VICKIE S LOMAN DB 3264 PG 1050
DAWN N LEWIS DB 3058 PG 235
SPECIAL GRADING SEE X-SECTIONS -L- STA. 14+75 TO STA. 17+00 LT.
SPECIAL GRADING SEE X-SECTIONS -L- STA. 17+75
RETAIN EXIST. R/W
GRAU 350
CLASS II RIP RAP TO SHOULDER
BM •1 SEE SHEET 1C-1
BM •2 SEE SHEET 1C-1
B5344-2 "GPS"
PASTURE
WOODS
DETAIL A
SPECIAL CUT BASE DITCH (Not to Scale)
Min. D=0.8 Ft. Max. d=1.0 Ft. B=2.0 Ft.
Type of Liner= PSRM
FROM STA.12+25 TO STA.13+85-L-LT. EST. 150 SY PSRM
FROM STA.12+25 TO STA.15+00-L-RT. EST. 257 SY PSRM
DETAIL B
SPECIAL CUT BASE DITCH (Not to Scale)
Min. D=1.0 Ft. Max. d=1.0 Ft. B=2.0 Ft.
Type of Liner= PSRM
FROM STA.14+09 TO STA.15+50-L-LT. EST. 132 SY PSRM
DETAIL C
SPECIAL CUT BASE DITCH (Not to Scale)
Min. D= 1.0 Ft. Max. d= 1.0 Ft. B= 4.0 Ft.
Type of Liner= CL B Rip-Rap
FROM STA. 15+50 TO STA. 16+00-L-LT. EST. 28 TONS RIP RAP EST. 75 SY GEOTEXTILE
DETAIL G
LATERAL BASE DITCH (Not to Scale)
Min. D=1.0 Ft. Max. d=1.3 Ft. B=2.0 Ft. b=2.0 Ft.
Type of Liner= PSRM
FROM STA.15+00 TO STA.16+66-L-RT. EST. 144 SY PSRM DDE=46 CY
DETAIL D
LATERAL BASE DITCH (Not to Scale)
Min. D= 1.0 Ft. Max. d= 1.5 Ft. B= 4.0 Ft. b= 2.0 Ft.
Type of Liner= CL B Rip-Rap
FROM STA. 16+00 TO STA. 16+76-L-LT. EST. 51 TONS RIP RAP EST. 133 SY GEOTEXTILE DDE=219 CY
DETAIL E
STANDARD BASE DITCH (Not to Scale)
Min. D= 1.3 Ft. Max. d= 1.0 Ft. B= 4.0 Ft.
Type of Liner= CL B Rip-Rap
FROM STA. 16+76 TO STA. 16+95-L-LT. EST. 11 TONS RIP RAP EST. 29 SY GEOTEXTILE DDE=30 CY
DETAIL H
TOE PROTECTION (Not to Scale)
d=1.0 Ft.
Type of Liner= B Rip-Rap
FROM STA.18+25 TO STA.18+50-L-RT. EST. 6 TONS RIP RAP EST. 18 SY GEOTEXTILE
DETAIL F
RIP RAP AT EMBANKMENT (Not to Scale)
Type of Liner= 16 TONS, CL II Rip-Rap Geotextile= 16 SY
FROM STA.16+66 TO STA.16+84-L-RT.
FROM STA.16+95 TO STA.17+10-L-LT.

SEE SHEET 5 FOR -L- PROFILE
SEE SHEETS S-1 THRU S-16 FOR STRUCTURE PLANS

REVISIONS

8/17/99

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PROJECT REFERENCE NO. B-5344
SHEET NO. 5
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 033871 ENGINEER DANIEL W. GARDNER, JR.
NORTH CAROLINA PROFESSIONAL SEAL 019721 ENGINEER WILLIAM H. ELAM
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
-L-
BRIDGE HYDRAULIC DATA
DESIGN DISCHARGE = 5600 CFS
DESIGN FREQUENCY = 2 YRS
DESIGN HW ELEVATION = 677.60 FT
BASE DISCHARGE = 12,000 CFS
BASE FREQUENCY = 100 YRS
BASE HW ELEVATION = 683.47 FT
OVERTOPPING DISCHARGE = 5700 CFS
OVERTOPPING FREQUENCY = +/-2 YRS
OVERTOPPING ELEVATION = 678.76 FT
DATE OF SURVEY = 08/06/14
W.S. ELEVATION AT DATE OF SURVEY = 666.00 FT
BEGIN OVERLAY/WEDGING -L- STA. 12+00.00
BEGIN GRADE -L- STA. 12+75.00 INCLUDES 2.5" RESURFACING ELEV. = 695.90'
PI = 14+05.00 EL = 689.95' VC = 100' K = 50 (DS > 40 MPH)
PI = 15+80.00 EL = 678.45' VC = 135' *K = 19 (DS > 20 MPH)
PI = 18+30.00 EL = 679.70' VC = 90' *K = 20 (DS > 20 MPH)
END GRADE -L- STA. 20+25.00 ELEV. = 689.47'
EXISTING RDWY. GRADE
PROPOSED RDWY. GRADE
EX. RDWY. GRADE +/-52.5' LT. OF PROPOSED -L-
CL STA. -L- 17+21.00 1@ 105'-39" BOX BEAM 105° SKEW
NAT. GRND.
ABUTMENT EXCAVATION +/-45cy EL. = 671.0' (STR. PAY ITEM)
ABUTMENT EXCAVATION +/-45cy EL. = 670.0' (STR. PAY ITEM)
W.S. ELEV. = 666.0'
CLASS II RIP RAP (STR. PAY ITEM)
BEGIN SPECIAL CUT BASE DITCH LT. -L- STA.12+00.00 EL=698.67'
BEGIN SPECIAL CUT BASE DITCH RT. -L- STA.12+25.00 EL=696.48'
PI=12+50.00 LT. EL=695.14
PI=12+75.00 RT. EL=692.82'
END SPECIAL CUT BASE DITCH LT. -L- STA.13+00.00 EL=692.74'
END SPECIAL CUT BASE DITCH RT. BEGIN LAT. BASE DITCH RT. -L- STA.15+00.00 EL=679.43'
BEGIN SPECIAL CUT BASE DITCH LT. -L- STA.15+50.00 EL=677.97'
END SPECIAL CUT BASE DITCH LT. BEGIN LAT. BASE DITCH LT. -L- STA.16+00.00 EL=674.18'
PI=16+00.00 RT. EL=673.48'
PI=16+25.00 RT. EL=672.32'
PI=16+50.00 RT. EL=671.82'
PI=16+75.00 LT. EL=668.50'
END LAT. BASE DITCH RT. -L- STA.16+66.00 EL=671.61'
END STANDARD BASE DITCH LT. -L- STA.16+95.00 EL=668.25'
(-)1.0800% (-)1.3200% (-)4.5769% (-)6.5714% (-)5.9508% (-)6.5741% (-)7.5790% (-)2.0000% (+)0.5000% (-)4.6400% (-)1.2500% (+)0.5000% (+)5.0103%
BM1 ELEVATION = 678.77' N 860680 E 1801735 L STATION 18+41.00 129' LEFT R/R SPIKE IN 13" BIRCH
BM2 ELEVATION = 700.87' N 860512 E 1800989 L STATION 10+98.00 61' RIGHT R/R SPIKE IN 11" CEDAR
NOTE: SEE XSC FOR SPECIAL CUT BASE DITCH -L- STA.13+00 TO STA.15+50 LT. REVISED V DITCH TO 2' BASE DITCH.
*DESIGN EXCEPTION REQUIRED FOR SAG VERTICAL CURVE AND ASSOCIATED NIGHTTIME STOPPING SIGHT DISTANCES.
DITCH LEGEND
LEFT DITCH
RIGHT DITCH
SEE SHEET 4 FOR PLAN VIEW
710 700 690 680 670 660 650 640 630 620 610 600 590 580
10 11 12 13 14 15 16 17 18 19 20 21 22 23
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