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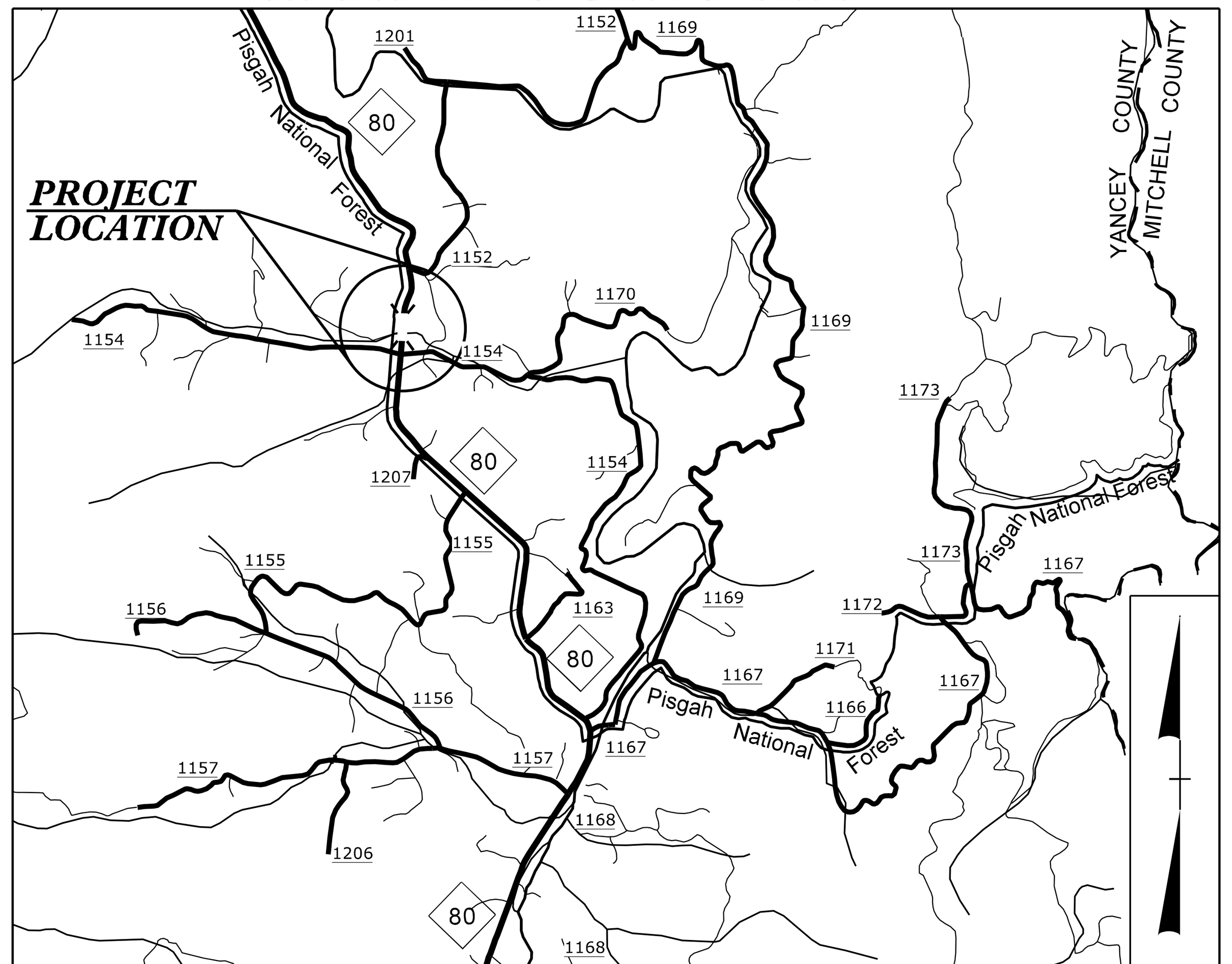
This file or an individual page shall not be considered a certified document.

TIP PROJECT: B-5864

CONTRACT: C204061

See Sheet 1-A For Index of Sheets



VICINITY MAP

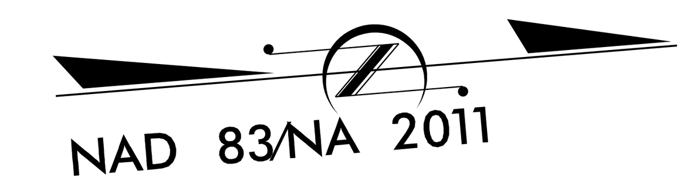
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

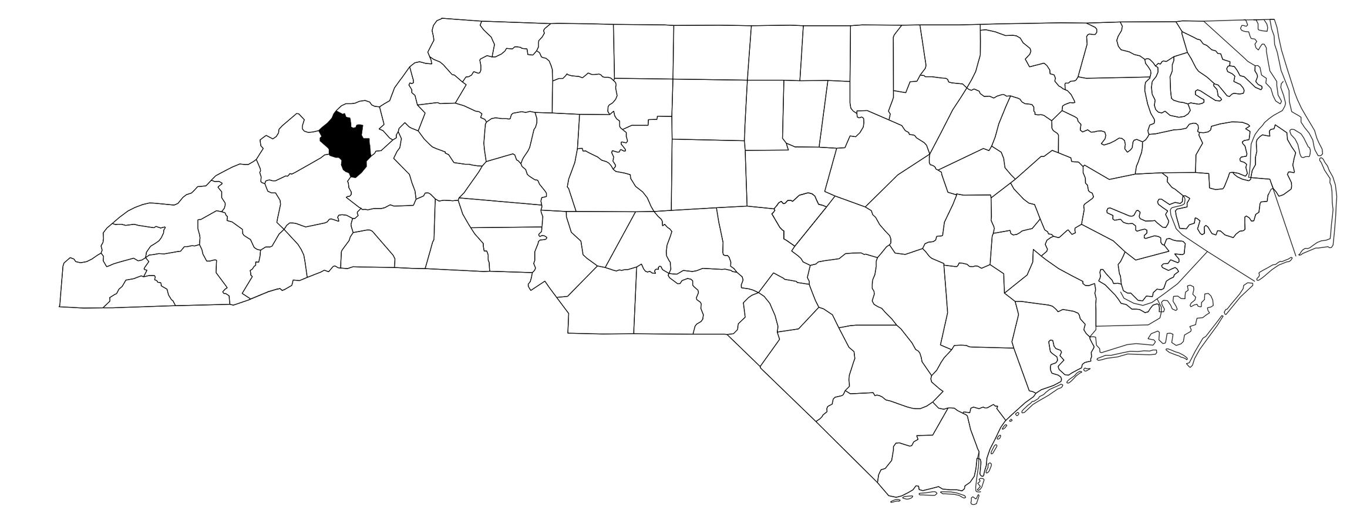
YANCEY COUNTY

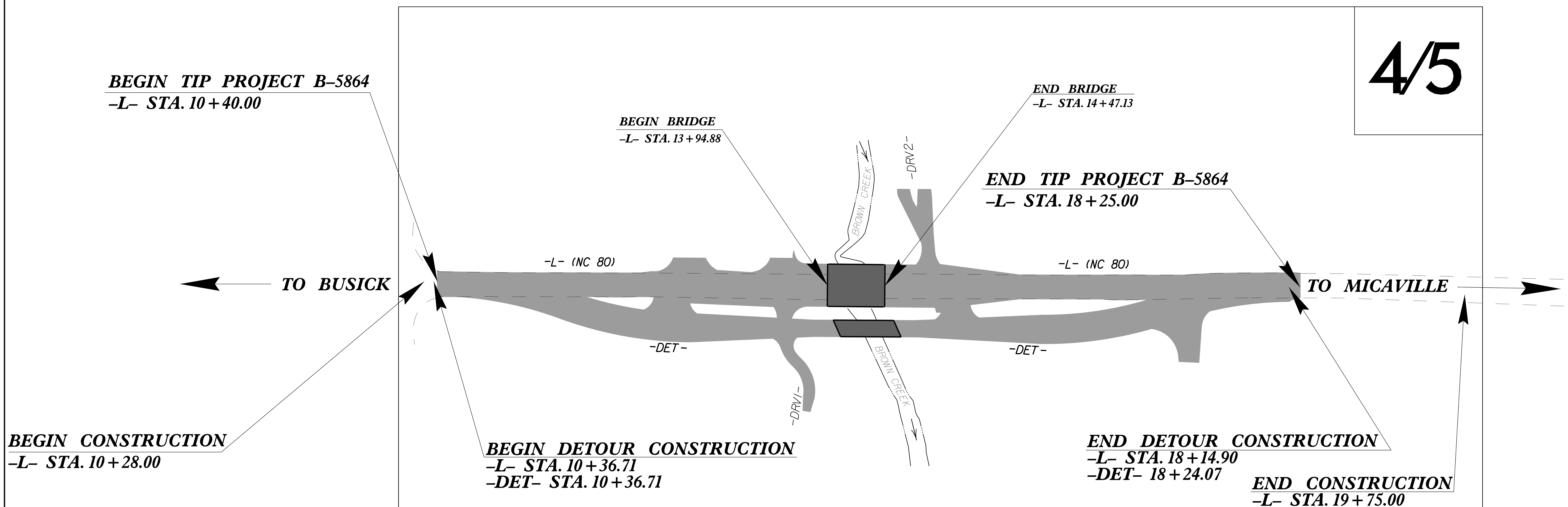
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5864	1	
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION	
48058.1.1	BRSTP-0080(6)	PE	
48058.2.2		R/W & UTIL.	
48058.3.2		CONSTRUCTION	

LOCATION: BRIDGE NO. 49 OVER BROWNS CREEK ON NC 80

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







THIS IS NOT A CONTROL OF ACCESS PROJECT.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES

PLANS: 50 25 0 50 100

PROFILE (HORIZONTAL): 50 25 0 50 100

PROFILE (VERTICAL): 10 5 0 10 20

DESIGN DATA

ADT 2018 = 2600
ADT 2038 = 2900
K = 9 %
D = 70 %
T = 4 % *
V = 50 MPH
* TTST = 1% DUAL = 3%
FUNC CLASS = MAJOR COLLECTOR
REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-5864 = 0.139 MILE
LENGTH STRUCTURE TIP PROJECT B-5864 = 0.010 MILE
TOTAL LENGTH TIP PROJECT B-5864 = 0.149 MILE

PLANS PREPARED BY:

DRMP
ENGINEERS • PLANNERS • SCIENTISTS

DRMP, INC.
5950 FAIRVIEW ROAD, SUITE 320
CHARLOTTE, NORTH CAROLINA 28210
(704) 332-2289
NC LICENSE NO. C-2213

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
JANUARY 26, 2017

LETTING DATE:
JANUARY 16, 2018

CHRISTOPHER K. HAIRE, PE
PROJECT ENGINEER

NATHAN E. WRIGHT, EI
PROJECT DESIGN ENGINEER

NCDOT CONTACT:
DAVID STUTTS, PE
PROJECT MANAGER

HYDRAULICS ENGINEER

12/15/2017
DocuSigned by: Craig A. Freeman Jr.
SIGNATURE: P.E.
NORTH CAROLINA PROFESSIONAL SEAL 039785 ENGINEER CRAIG A. FREEMAN, JR.

ROADWAY DESIGN ENGINEER

12/15/2017
DocuSigned by: Christopher K. Haire
SIGNATURE: P.E.
NORTH CAROLINA PROFESSIONAL SEAL 019740 ENGINEER CHRISTOPHER KENT HAIRE

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

PROJECT REFERENCE NO.	SHEET NO.
B-5864	1-A
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 019740 ENGINEER CHRISTOPHER KENT HAIRE

12/13/2017

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INDEX OF SHEETS

SHEET NUMBER	SHEET
1	TITLE SHEET
1A	INDEX OF SHEETS, GENERAL NOTES, AND STANDARD DRAWINGS
1B	CONVENTIONAL SYMBOLS
1C-1 THRU 1C-2	SURVEY CONTROL SHEETS
2A-1 THRU 2A-2	PAVEMENT SCHEDULE AND TYPICAL SECTIONS
2C-1	MODIFIED SHOULDER BERM GUTTER
2H-1	DETAIL FOR TEMPORARY CONTAINMENT OF CONTAMINATED SOIL
3B-1	ROADWAY SUMMARIES
3D-1	DRAINAGE SUMMARIES
3G-1	GEOTECHNICAL SUMMARIES
4 THRU 7	PLANS AND PROFILE
TMP-1 THRU TMP-6	TRAFFIC MANAGEMENT PLANS
PMP-1 THRU PMP-2	PAVEMENT MARKING PLANS
EC-1 THRU EC-7	EROSION CONTROL PLANS
RF-1	REFORESTATION
SIGN-1 THRU SIGN-3	SIGNING PLANS
UO-1 THRU UO-3	UTILITIES BY OTHERS PLANS
X-1	CROSS-SECTION INDEX SHEET
X-1A	CROSS-SECTION SUMMARY SHEET
X-2 THRU X-12	CROSS-SECTIONS
S-1 THRU S-16	STRUCTURE PLANS

GENERAL NOTES:

2018 SPECIFICATIONS
EFFECTIVE: 01-16-2018
REVISED:

GRADE LINE:
GRADING AND SURFACING:

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

CLEARING:

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

SUPERELEVATION:

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

SHOULDER CONSTRUCTION:

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

SIDE ROADS:

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

SUBSURFACE DRAINS:

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

GUARDRAIL:

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

SUBSURFACE PLANS:

NO 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 FRENCH BROAD EMC,

FRONTIER COMMUNICATIONS, AND COUNTRY CABLEVISION.

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 CONTRACT.

EFF. 01-16-2018
REV.

2018 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, 2018 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
422.02	Bridge Approach Fills - Type II Modiefied Approach Fill
	DIVISION 5 - SUBGRADE, BASES AND SHOULDERS
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
	DIVISION 6 - ASPHALT BASES AND PAVEMENTS
654.01	Pavement Repairs
	DIVISION 8 - INCIDENTALS
806.01	Concrete Right-of-Way Marker
806.02	Granite Right-of-Way Marker
815.02	Subsurface Drain
840.18	Concrete Grated Drop Inlet Type 'B' - 12" thru 36" Pipe
840.25	Anchorage for Frames - Brick or Concrete or Precast
840.27	Brick Grated Drop Inlet Type 'B' - 12" thru 36" Pipe
840.29	Frames and Narrow Slot Flat Grates
840.45	Precast Drainage Structure
840.66	Drainage Structure Steps
862.01	Guardrail Placement
862.02	Guardrail Installation
862.03	Structure Anchor Units
876.02	Guide for Rip Rap at Pipe Outlets
876.04	Drainage Ditches with Class 'B' Rip Rap

5/14/99

12/12/2017
\Roadway\PDF_Distribution\Current_Plans\B5864_Rdy_1-A.dgn
Dwright

04/06/15

PROJECT REFERENCE NO.	SHEET NO.
B-5864	1-B

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-5864	1C-1

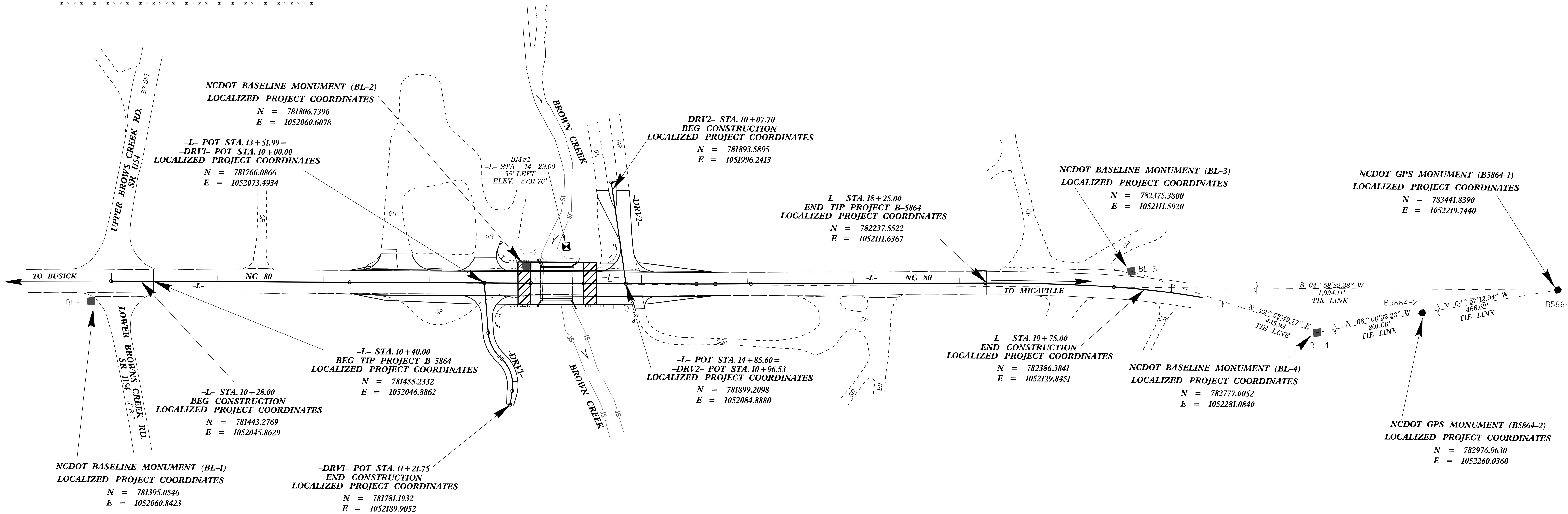
Location and Surveys

SURVEY CONTROL SHEET B–5864
(FINAL)

BL

POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
1	BL-1	781395.0546	1052060.8423	2733.71	OUTSIDE PROJECT LIMITS	
2	BL-2	781806.7396	1052060.6078	2733.50	13+91.40	16.31 LT
3	BL-3	782375.3800	1052111.5920	2757.12	19+61.15	16.08 LT
4	BL-4	782777.0052	1052281.0840	2785.32	OUTSIDE PROJECT LIMITS	
GPS2	B5864-2	782976.9630	1052260.0360	2796.00	OUTSIDE PROJECT LIMITS	
GPS1	B5864-1	783441.8390	1052219.7440	2819.91	OUTSIDE PROJECT LIMITS	

BM1 ELEVATION = 2731.76
N 781846 E 1052046
L STATION 14+29.00 35 LEFT
8"SPIKE IN 36" POPLAR



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:
B5864_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.
NETWORK ESTABLISHED FROM EXISTING HARN MONUMENTATION
SEE GPS CALIBRATION SHEET FOR HORIZONTAL AND VERTICAL COORDINATE VALUES.

NOTE: DRAWING NOT TO SCALE

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B-5864-1"
WITH NAD 83/NA 2011 STATE PLANE GRID COORDINATES OF
NORTHING: 783441.8390(ft) EASTING: 1052219.7440(ft)
ELEVATION: 2819.91(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99979956
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B-5864-1" TO -L- 10+40.00 STATION IS
S 04°58'22.38" W 1,994.11'
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

6/2/99

PROJECT REFERENCE NO.	SHEET NO.
B-5864	1C-2
Location and Surveys	

SURVEY CONTROL SHEET B–5864

(FINAL)

(DESIGN ALIGNMENTS)

L

TYPE	STATION	NORTH	EAST
POT	10+00.00	781415.3789	1052043.4750
POT	15+52.05	781965.4209	1052090.5553
PC	15+52.05	781965.4209	1052090.5553
PT	16+03.33	782016.5537	1052094.4516
POT	16+03.33	782016.5537	1052094.4516
PC	18+24.59	782237.1472	1052111.6056
PCC	19+45.89	782357.6659	1052125.0888
PT	21+37.40	782542.1568	1052174.8268
POT	21+64.62	782567.4330	1052184.9320

DRV1

TYPE	STATION	NORTH	EAST
POT	10+00.00	781766.0902	1052073.4937
PC	10+47.34	781766.0768	1052120.8347
PT	10+72.42	781774.6756	1052143.8224
PC	10+75.37	781776.6117	1052146.0470
PT	11+08.68	781784.2441	1052177.1926
POT	11+21.75	781781.1937	1052189.9030

DRV2

TYPE	STATION	NORTH	EAST
POT	10+00.00	781893.1019	1051988.5567
POT	10+96.53	781899.2142	1052084.8884

(ROW MARKERS)

ROW MARKER CONCRTET OR GRANITE

ALIGN	STATION	OFFSET	NORTH	EAST
L	12+15.00	15.00	781628.31643	1052076.75598
L	12+15.00	25.00	781627.46361	1052086.71955
L	12+32.00	-25.00	781648.66578	1052038.35150
L	12+32.00	-15.00	781647.81296	1052048.31507
L	13+30.00	25.00	781742.04464	1052096.52700
L	13+50.00	84.00	781756.94013	1052157.01770
L	13+60.00	-42.00	781777.64926	1052032.32956
L	13+60.00	-25.00	781776.19946	1052049.26762
L	13+95.00	84.00	781801.77619	1052160.85540
L	13+95.00	50.00	781804.67578	1052126.97926
L	14+50.00	-72.00	781869.87984	1052010.11425
L	14+50.00	-42.00	781867.32137	1052040.00496
L	15+05.00	-72.00	781924.67946	1052014.80477
L	15+05.00	-42.00	781922.12100	1052044.69548
L	15+52.05	50.00	781961.15362	1052140.37283
L	15+52.05	-42.00	781968.99959	1052048.70800
L	15+75.00	50.00	781984.47457	1052142.20900
L	15+75.00	15.11	781987.14173	1052107.42275
L	16+03.33	-14.75	782017.60861	1052079.73829
L	16+03.33	-42.00	782019.55737	1052052.55913

(PERMANENT EASEMENTS)

PERMANENT EASEMENT REBAR W/CAP

ALIGN	STATION	OFFSET	NORTH	EAST
L	10+28.97	84.00	781437.07962	1052129.63955
L	11+30.00	84.00	781537.74163	1052138.25562
L	11+30.00	15.00	781543.62610	1052069.50699
L	14+15.00	-42.00	781832.44888	1052037.02008
L	14+15.00	-56.00	781833.64283	1052023.07108
L	14+50.00	-56.00	781868.51532	1052026.05596
L	17+50.00	84.00	782156.26544	1052189.56958
L	19+75.00	47.00	782377.88130	1052176.06956
L	19+75.00	15.00	782383.67042	1052144.59757

NOTES:

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NETWORK ESTABLISHED FROM EXISTING HARN MONUMENTATION
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10/10/2017
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dw1901

8/17/99

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
B-5864	2A-1
RW SHEET NO.	

ROADWAY DESIGN ENGINEER — SEAL 019740, NORTH CAROLINA PROFESSIONAL ENGINEER, CHRISTOPHER KENT HAIRE — Christopher K. Haire 12/13/2017

PAVEMENT DESIGN ENGINEER — SEAL 022896, NORTH CAROLINA PROFESSIONAL ENGINEER, CLARK S. MORRISON — Clark Morrison 12/19/2017

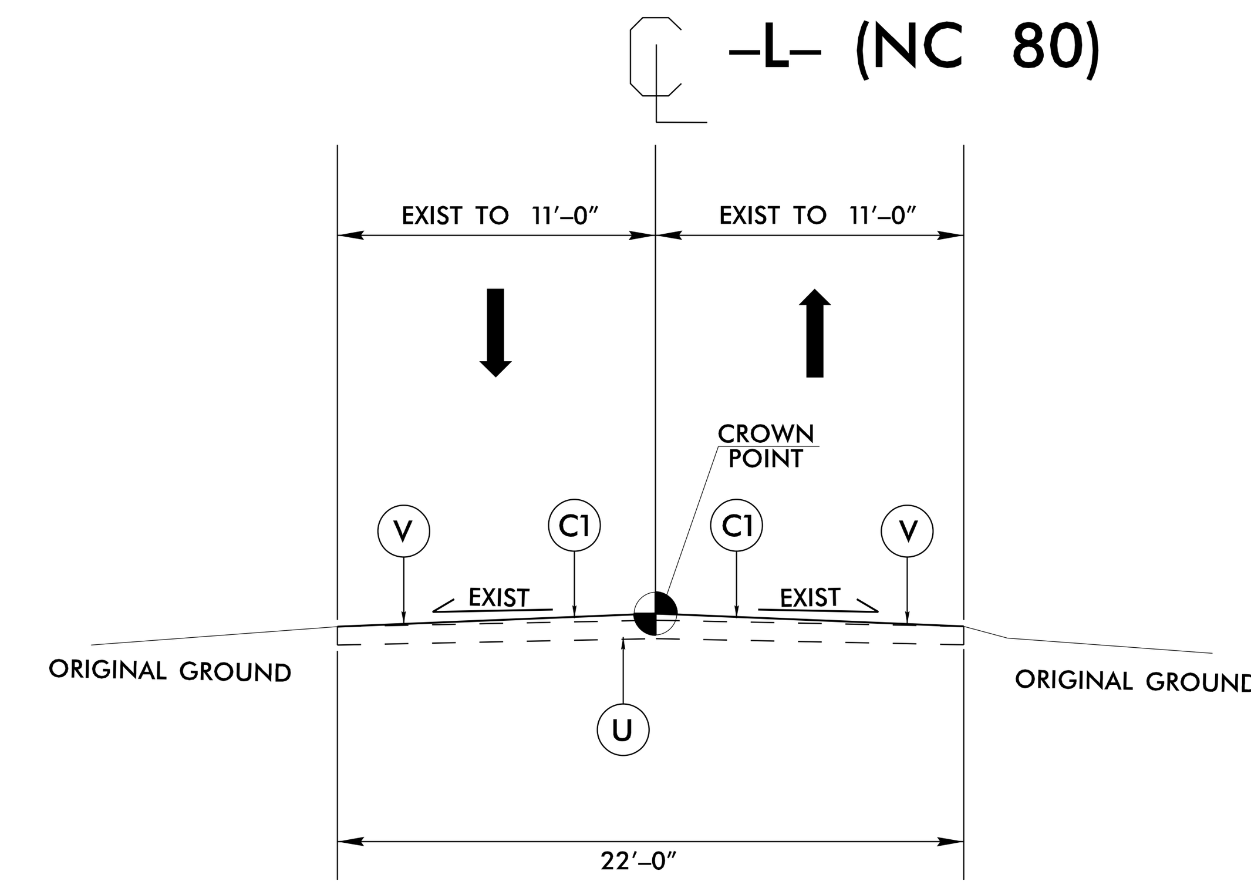
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PAVEMENT SCHEDULE

(FINAL PAVEMENT DESIGN)

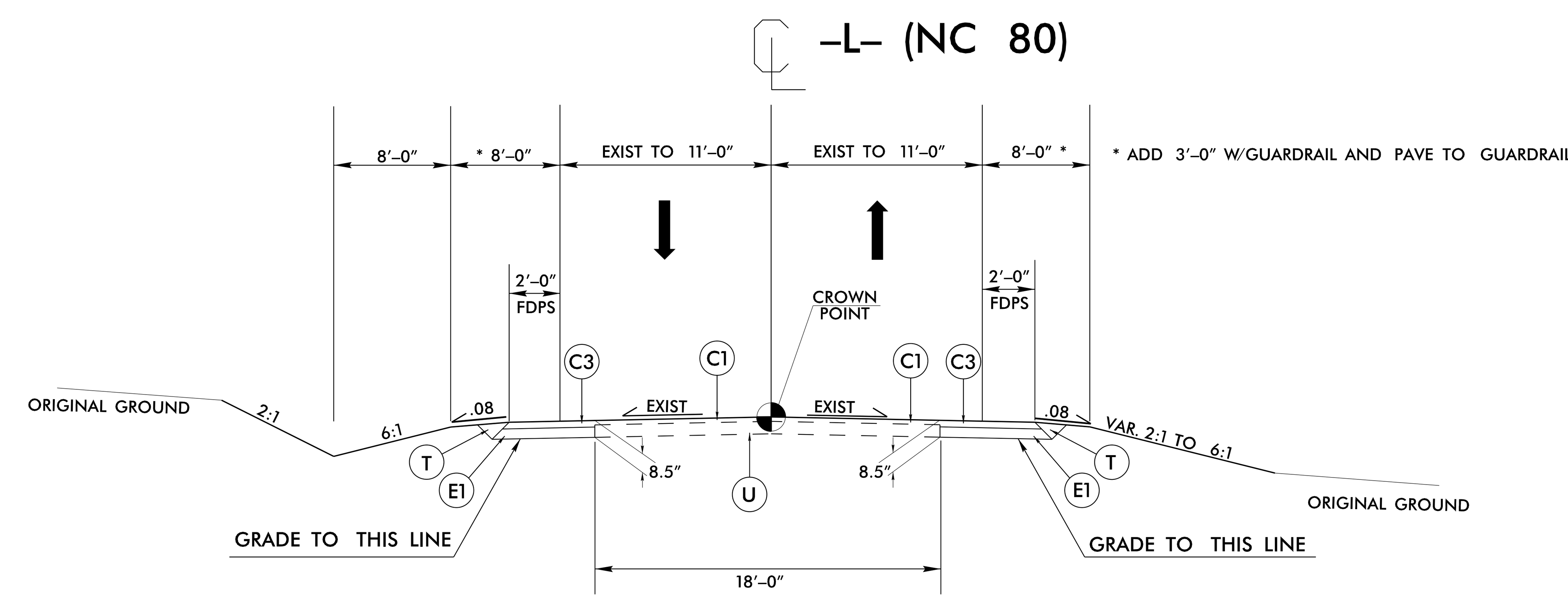
C1	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD.
C2	PROP. APPROX. 2" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C3	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C4	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. 5½" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 627 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.
J1	8" AGGREGATE BASE COURSE
P	PRIME COAT AT THE RATE OF .35 GAL. PER SQ. YD.
R1	SHOULDER BERM GUTTER
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V	MILLING ASPHALT PAVEMENT (VAR DEPTH 0" TO 1.5")
W1	VARIABLE DEPTH ASPHALT PAVEMENT (SEE DETAIL ON THIS SHEET)
W2	VARIABLE DEPTH ASPHALT PAVEMENT (SEE DETAIL ON SHEET 2A-2)

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



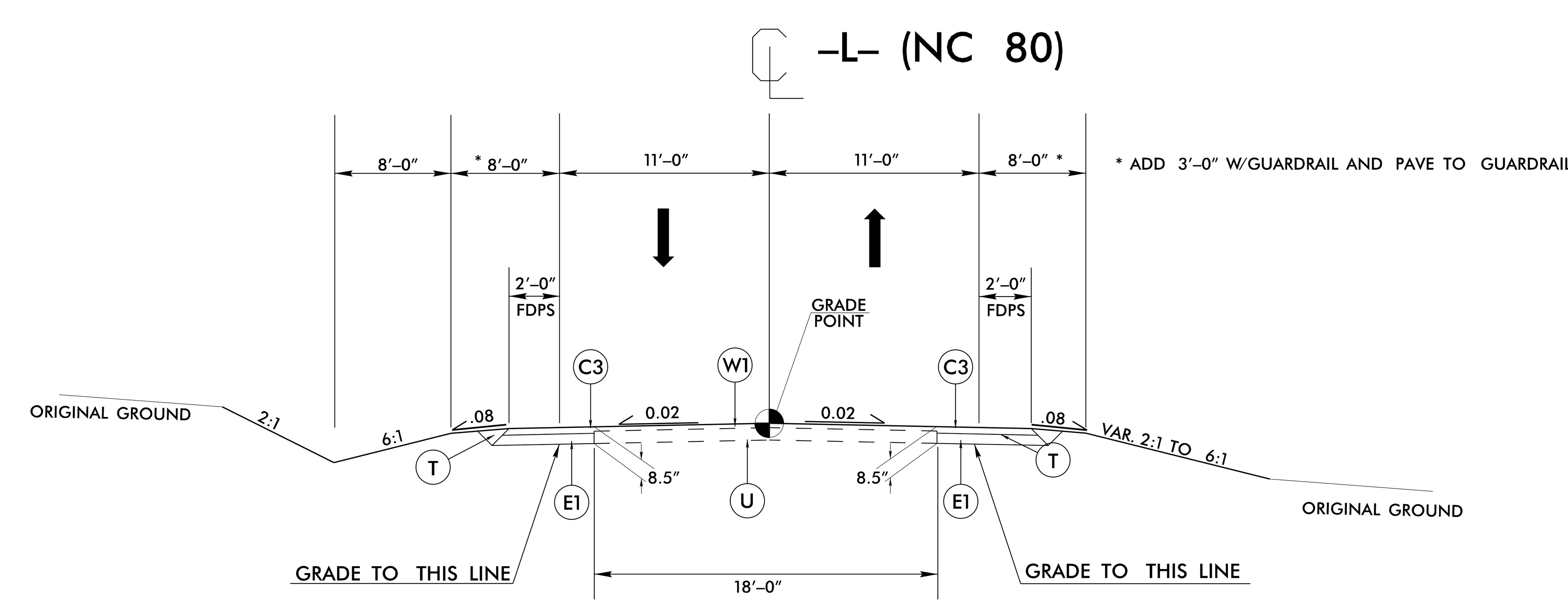
TYPICAL SECTION NO. 1

-L- STA. 10+40.00 TO STA. 12+25.00
-L- STA. 15+70.00 TO STA. 18+25.00



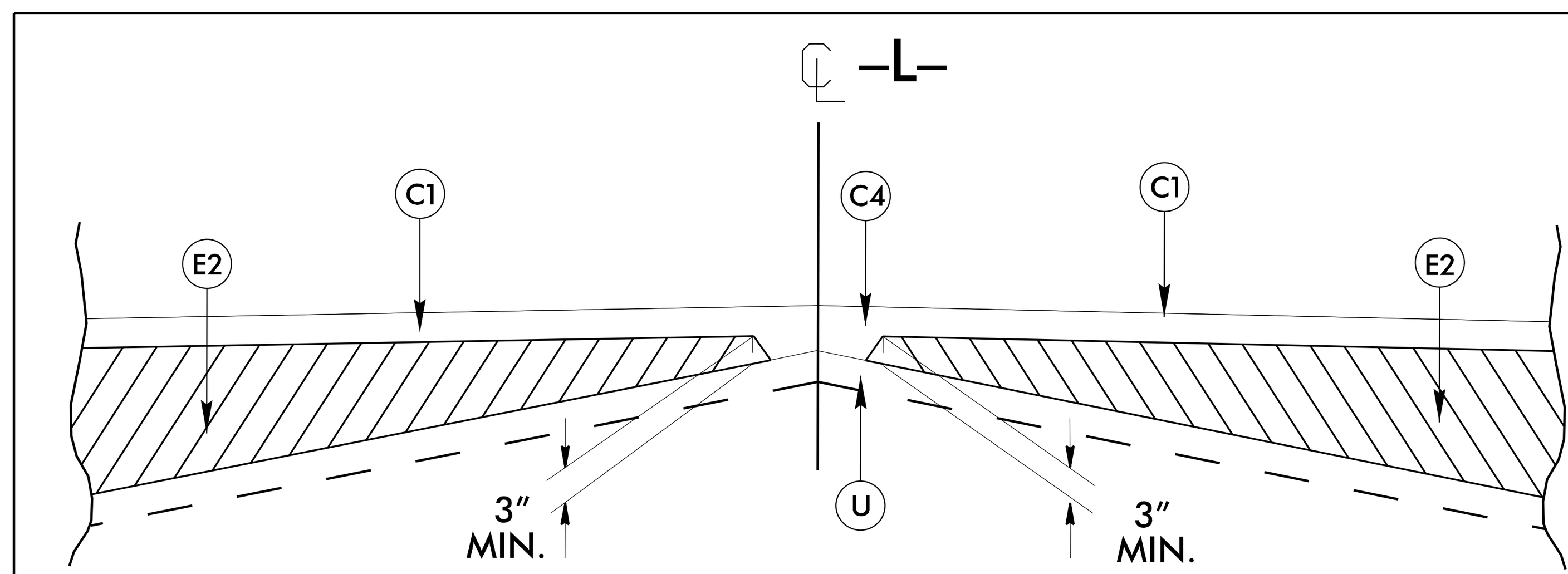
TYPICAL SECTION NO. 2

-L- STA. 12+25.00 TO STA. 12+36.00
-L- STA. 15+50.00 TO STA. 15+70.00



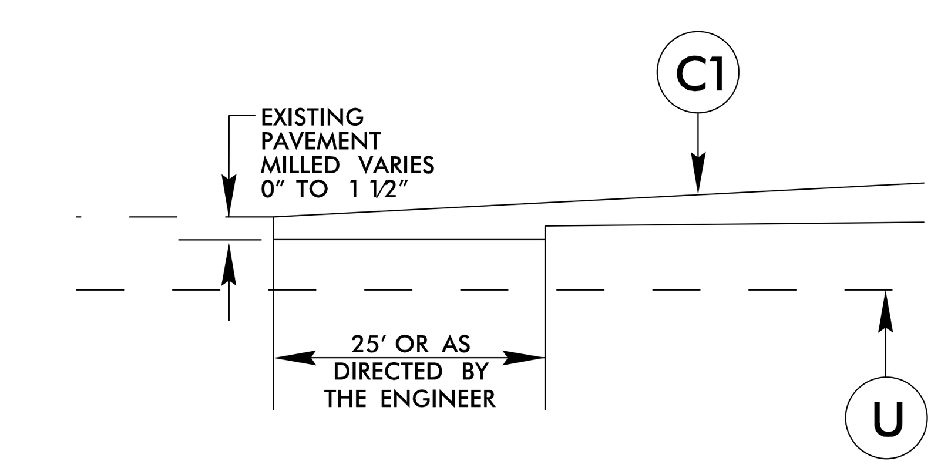
TYPICAL SECTION NO. 3

-L- STA. 12+36.00 TO STA. 13+40.00
-L- STA. 15+00.00 TO STA. 15+50.00



Detail Showing Method of Wedging (W1)

-L- STA. 12+36.00 TO STA. 13+40.00
-L- STA. 15+00.00 TO STA. 15+50.00



Tie In (Incidental) Milling Detail

-L- STA. 10+40.00 TO STA. 10+65.00
-L- STA. 18+00.00 TO STA. 18+25.00

12/13/2017
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8/17/99

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
B-5864	2A-2
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 019740 ENGINEER CHRISTOPHER KENT HAIRE
DocuSigned by: Christopher K. Haire 12/13/2017
F3A92AD02FE84AD

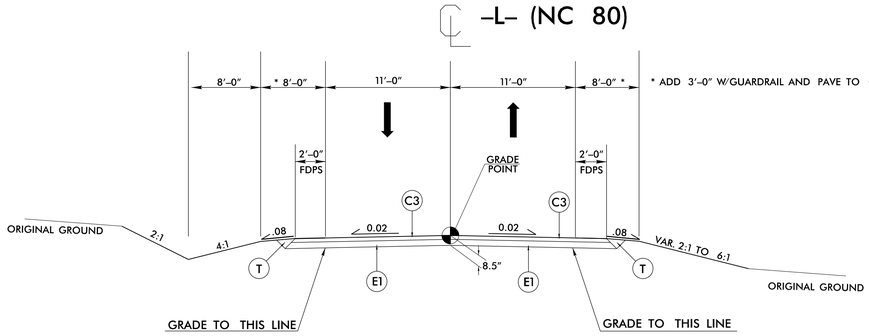
PAVEMENT DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 022896 ENGINEER CLARK S. MORRISON
DocuSigned by: Clark Morrison 12/19/2017

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PAVEMENT SCHEDULE
(FINAL PAVEMENT DESIGN)

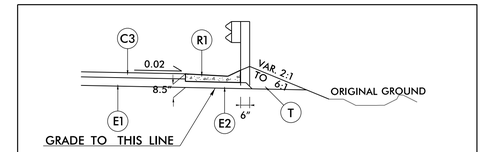
C1	1½" TYPE SF9.5A
C2	2" TYPE SF9.5A
C3	3" TYPE SF9.5A
C4	VAR. DEPTH TYPE SF9.5A
E1	5½" B25.0B
E2	VAR. DEPTH TYPE B25.0B,
J1	8" AGGREGATE BASE COURSE
P	PRIME COAT
R1	SHOULDER BERM GUTTER
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V	MILLING ASPHALT PAVEMENT
W1	VARIABLE DEPTH ASPHALT PAVEMENT
W2	VARIABLE DEPTH ASPHALT PAVEMENT

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

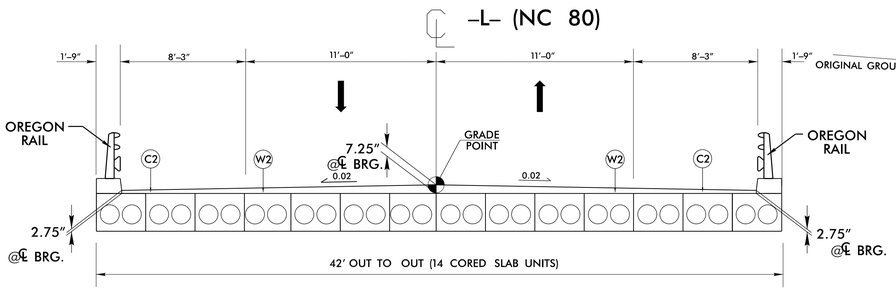


TYPICAL SECTION NO. 4

–L– STA. 13+40.00 TO STA. 13+94.88 (BEGIN BRIDGE)
–L– STA. 14+47.13 (END BRIDGE) TO STA. 15+00.00

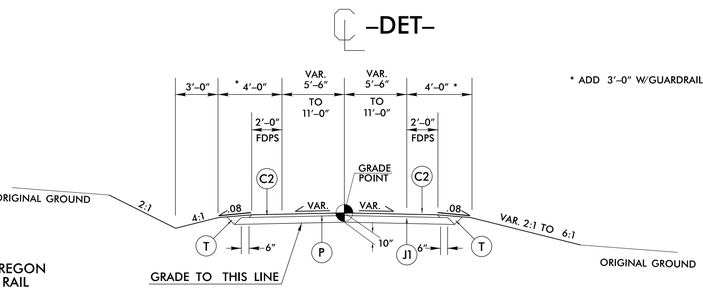


SHOULDER BERM GUTTER DETAIL:
–L– STA. 13+70.00 TO STA. 13+84.00 RT
–L– STA. 13+70.00 TO STA. 13+84.00 LT



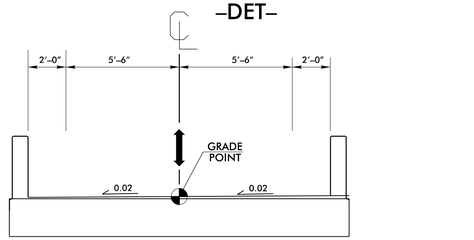
TYPICAL SECTION OF CORED SLAB BRIDGE

–L– STA. 13+94.88 (BEGIN BRIDGE)
TO –L– STA. 14+47.13 (END BRIDGE)



TYPICAL SECTION NO. 5

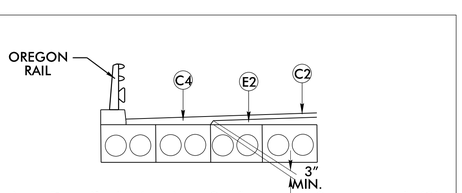
–DET– STA. 10+36.71 TO STA. 14+12.50 (BEGIN BRIDGE)
–DET– STA. 14+67.50 (END BRIDGE) TO STA. 18+24.07



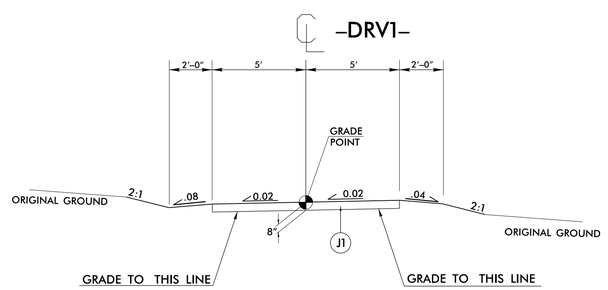
Detour Bridge
(ONE LANE TWO WAY TRAFFIC)

TYPICAL SECTION OF DETOUR BRIDGE

–DET– STA. 14+12.50
(BEGIN DETOUR BRIDGE) TO
STA. 14+67.50 (END DETOUR BRIDGE)

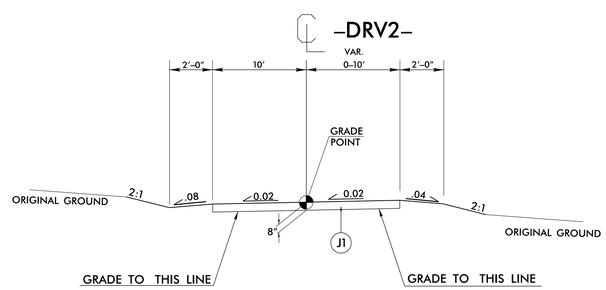


Wedging Detail of Wearing Surface on Structure (W2)
–L– STA. 13+94.88 (BEGIN BRIDGE)
TO –L– STA. 14+47.13 (END BRIDGE)



TYPICAL SECTION NO. 6

–DRV1– STA. 10+11.04 TO STA. 11+21.75



TYPICAL SECTION NO. 7

–DRV2– STA. 10+07.70 TO STA. 10+85.40

12/13/2017
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awright

PROJECT REFERENCE NO.	SHEET NO.
B-5864	2C-1

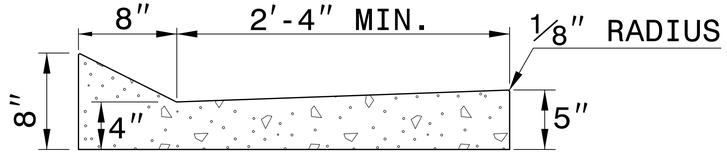
STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR

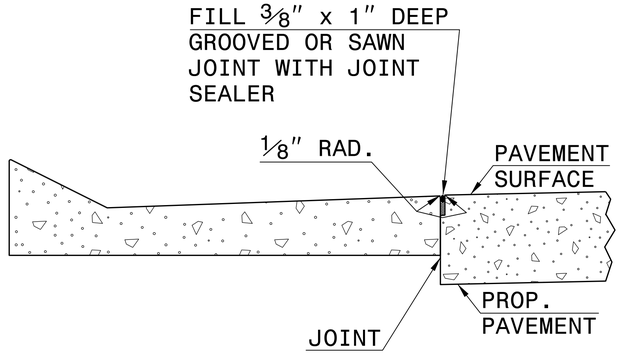
MODIFIED SHOULDER BERM GUTTER

SHEET OF

846D01

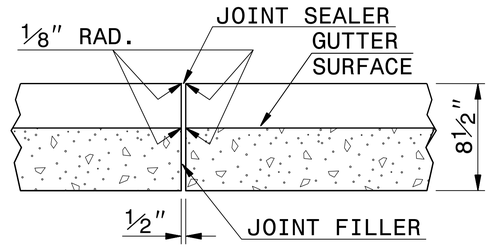


MODIFIED SHOULDER BERM GUTTER



LONGITUDINAL JOINT

GENERAL NOTES:
- PLACE CONTRACTION JOINTS AT 10′ INTERVALS, EXCEPT THAT A 15′ SPACING MAY BE USED WHEN A MACHINE IS USED OR WHEN SATISFACTORY SUPPORT FOR THE FACE FORM CAN BE OBTAINED WITHOUT THE USE OF TEMPLATES AT 10′ INTERVALS.
- JOINT SPACING MAY BE ALTERED IF REQUIRED BY THE ENGINEER.
- CONTRACTION JOINTS MAY BE INSTALLED WITH THE USE OF TEMPLATES OR FORMED BY OTHER APPROVED METHODS. CONSTRUCT NON-TEMPLATE FORMED JOINTS A MIN. OF 1½″ DEEP.
- FILL ALL CONSTRUCTION JOINTS WITH JOINT FILLER AND SEALER.
- SPACE EXPANSION JOINTS AT 90′ INTERVALS AND ADJACENT TO ALL RIGID OBJECTS.



TRANSVERSE EXPANSION JOINT IN CURB AND GUTTER

SECTION VIEW OF JOINTS

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

ENGLISH DETAIL DRAWING FOR

MODIFIED SHOULDER BERM GUTTER

SHEET OF

846D01

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 022966 JOHN S. 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: kkempf DATE: 11/13/08
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC.: special details/kkempf/english/117x79 tbdi.dgn

07-SEP-2017 07:59
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jhowerton AT CSD-2425965

PROJECT REFERENCE NO.	SHEET
B-5864	2H-1

GEOENVIRONMENTAL ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 31499 ENGINEER CYRUS F. PARKER

DocuSigned by: Cyrus Parker 12/8/2017
C96492AF5E824DF...

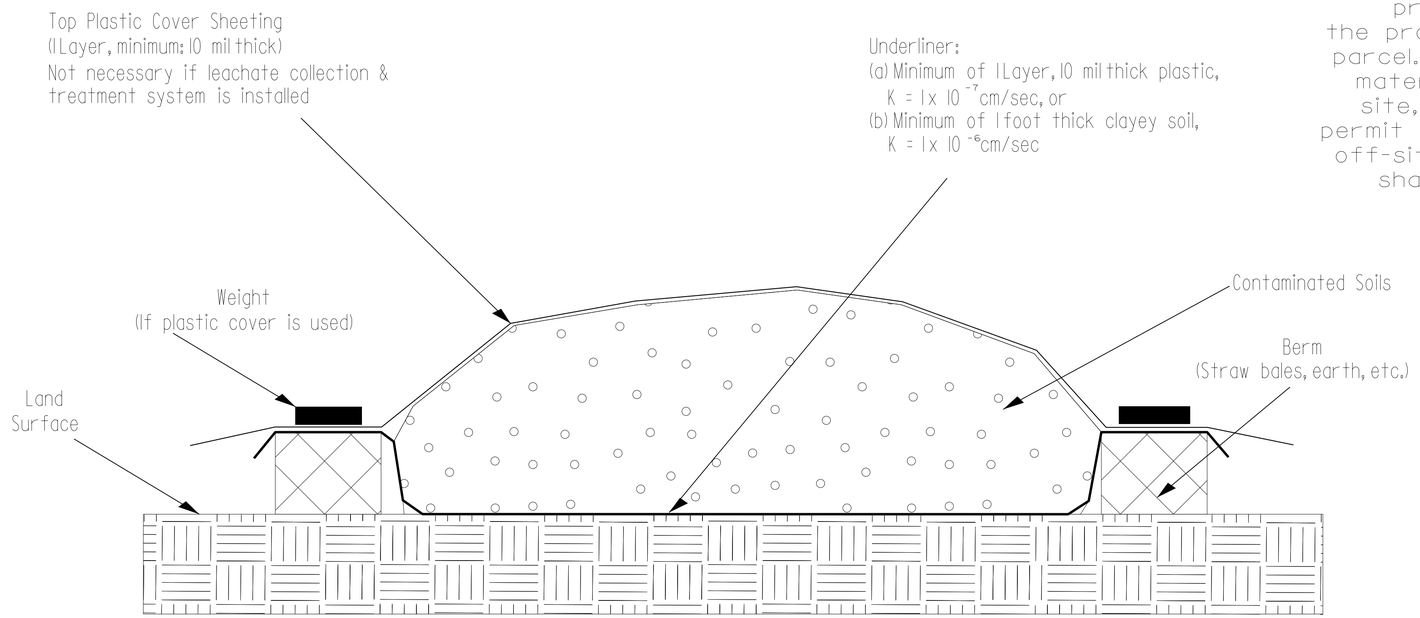
SIGNATURE DATE

ENGINEER

SIGNATURE DATE

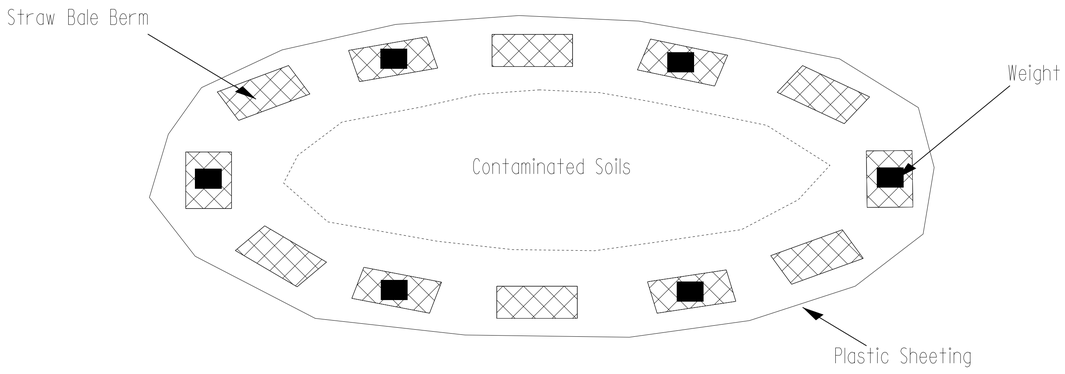
Detail for Temporary Containment of Contaminated Soil

Cross-Section View



NOTE:
The Contractor shall stockpile all contaminated soil excavated from a property in a location within the property boundaries of the source parcel. If the volume of contaminated material exceeds available space on site, the Contractor shall obtain a permit from the NCDEQ UST Section for off-site temporary storage. Stockpile shall be removed within 45 days.

Map View



PREPARED BY:	DATE:
REVIEWED BY:	DATE:

GEOTECHNICAL ENGINEERING UNIT

☐ *EASTERN REGIONAL OFFICE*
☐ *WESTERN REGIONAL OFFICE*
☒ *CONTRACT OFFICE*

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STOCKPILE CONTAINMENT DETAIL

REVISIONS

NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		

12/06/07

COMPUTED BY: NEW DATE: 10-31-2017
CHECKED BY: CKH DATE: 10-31-2017

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.	SHEET NO.
B-5864	3B-1

SUMMARY OF EARTHWORK IN CUBIC YARDS

STATION	STATION	UNCL. EXCAV.	EMBANK. +%	BORROW	WASTE
-DET-					
-DET- 10+36.71	-DET- 14+07.93	724	12		713
-DET- 14+62.93	-DET- 18+24.07	51	1685	1634	
SUBTOTALS:		775	1696	1634	713
-L-					
-L- 12+25.00	-L- 13+94.88	70	17		53
-L- 14+47.13	-L- 15+70.00	21	284	263	
SUBTOTALS:		91	301	263	53
-DRV1-					
-DRV1- 10+11.04	-DRV1- 11+21.75	91	1		90
SUBTOTALS:		91	1		90
-DRV2-					
-DRV2- 10+07.70	-DRV2- 10+85.40	14	1		13
-DET- REMOVAL					
-DET- 10+36.71	-DET- 14+07.93	12			12
-DET- 14+62.93	-DET- 18+24.07	1685			1685
SUBTOTALS:		1711	1		1710
TOTAL:		2668	1999	1897	2566
LOSS DUE TO CLEARING & GRUBBING		-10		10	
WASTE IN LIEU OF BORROW				-869	-869
PROJECT TOTALS:		2658	1999	1038	1697
EST. 5% TO REPLACE TOPSOIL ON BORROW PIT				52	
GRAND TOTALS:		2658	1999	1090	1697
SAY:		3000		1200	

DDE = 70 CUBIC YARDS
EST. UNDERCUT EXCAVATION = 100 CUBIC YARDS CONTINGENCY
GEOTEXTILE FOR SOIL STABILIZATION = 300 SQUARE YARDS CONTINGENCY
EST. SHALLOW UNDERCUT = 50 CUBIC YARDS CONTINGENCY
CLASS IV SUBGRADE STABILIZATION = 80 TONS CONTINGENCY
SELECT GRANULAR MATERIAL = 100 CUBIC YARDS CONTINGENCY

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.

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

ASPHALT PAVEMENT REMOVAL SUMMARY IN SQUARE YARDS

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	YD²
-DET-	10+36.71	14+12.50	CL	798.44
-DET-	14+67.50	18+24.07	CL	896.34
-L-	13+40.00	13+94.88	CL	158.54
-L-	14+47.13	15+00.00	CL	152.74
TOTAL:				2,006.05
SAY:				2,010

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

GUARDRAIL SUMMARY

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH: STRAIGHT	LENGTH: SHOP CURVED	WARRANT POINT: TEMP STRAIGHT	WARRANT POINT: TEMP SHOP CURVED	WARRANT POINT: APPROACH END	WARRANT POINT: TRAILING END	"N" DIST. FROM E.O.L.	TOTAL SHOUL. WIDTH	FLARE LENGTH W: APPROACH END	FLARE LENGTH W: TRAILING END	W: APPROACH END	W: TRAILING END	ANCHORS: GREU TL-3	ANCHORS: TEMP GREU TL-2	ANCHORS: TYPE III	ANCHORS: TEMP TYPE III	ANCHORS: AT-1	ANCHORS: TEMP AT-1	IMPACT ATTENUATOR TYPE 350: EA	IMPACT ATTENUATOR TYPE 350: G	IMPACT ATTENUATOR TYPE 350: NG	SINGLE FACED GUARDRAIL	REMOVE EXISTING GUARDRAIL	REMOVE AND STOCKPILE EXISTING GUARDRAIL	REMARKS
-L-	13+64.09	13+94.88	RT	25.00	26.78			13+94.88		8.25	11.0							1		1								
-L-	14+47.13	14+93.94	RT	38.848	19.99				14+47.13	8.25	11.0							1		1								
-L-	13+66.90	13+94.88	LT	25.00	21.52				13+94.88	8.25	11.0							1		1								
-L-	14+47.13	14+75.44	LT	25.00	18.71			14+47.13		8.25	11.0							1		1								
SUBTOTAL				113.848	87.00													4		4								
	ANCHOR DEDUCTIONS																											
	TYPE III		4 @ 18.75	-75.00																								
	AT-1		4 @ 6.25	-25.00																								
SUBTOTAL				-100.00																								
TOTAL				13.848	87.00													4		4								
SAY				25.00	87.50													4		4								
ADDITIONAL GUARDRAIL POSTS -L-			5																									
	TEMP. GUARDRAIL																											
-DET	13+81.36	14+16.83	RT			39.95	25.00	14+16.83		2.0	5.0								1		1							
-DET-	14+71.83	16+82.85	RT			205.56			14+71.83	2.0	5.0						1		1									
-DET-	13+45.31	14+08.17	LT			58.91			14+08.17	2.0	5.0						1		1									
-DET-	14+63.17	15+43.79	LT			82.01	25.94	14+63.17		2.0	5.0						1		1									
SUBTOTAL						386.43	50.94										3		4		1							
	TEMP. ANCHOR DEDUCTIONS																											
	TEMP. TYPE III		4 @ 18.75			-75.00																						
	TEMP. AT-1		1 @ 6.25			-6.25																						
	TEMP. GREU, TL-2		3 @ 25.00			-75.00																						
SUBTOTAL						-156.25																						
TOTAL						230.18	50.94										3		4		1							
SAY (TEMP. DETOUR)						237.50	62.50										3		4		1							
ADDITIONAL GUARDRAIL POSTS TEMP			5																									
SAY ADDITIONAL GUARDRAIL POSTS TOTAL			10																									

12/6/2007
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CHA-NWRIGH-LTW7

COMPUTED BY:	Craig Freeman Jr.	DATE:	9/29/17
CHECKED BY:	Nathan Wright	DATE:	10/02/17

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT NO.	SHEET NO.
B5864	3D-1

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 / SIZE / THICKNESS OR GAUGE	OFFSET	STRUCTURE NUMBER FROM	TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %	Drainage Pipe (RCP, CSP, CAAP, HDPE, or PVC)					R. C. PIPE CLASS III						R. C. PIPE CLASS IV				STRUCTURAL PLATE PIPE				
								12	15	18	24	30	12	15	18	24	30	36	12	15	18	24	60	66	72		
DET 13+78	17 LT	0201							68																		
DET 13+61	22 RT	0202							64																		
DET 15+15	18 LT	0203							80																		
DET 16+91	28 RT	0204																			176						
L 13+74	19 LT	0401		2734.3																							
		0401	0402		2730.9	2730.5									36												
L 13+74	19 RT	0402		2734.3																							
		0402	0403		2730.5	2730.4									24												
L 14+70	35 LT	0404																68									
L 16+90	16 RT	0405																			116						
L 13+30	20 LT	0406		2734.1																							
		0406	0401		2731.1	2730.9														44							
L 14+73	23 LT	0000																									
L 16+91	16 RT	0000																									
SHEET TOTALS									212						60			68		44	292						
PROJECT TOTALS									212						60			68		44	292						

LINE & STATION	FROM	TO	##" R.C. PIPE CULVERTS, CONTRACTOR DESIGN	##" R.C. PIPE CULVERTS, CONTRACTOR DESIGN	##" R.C. PIPE CULVERTS, CONTRACTOR DESIGN		##" x ##" C.S. PIPE ARCH CULVERTS, ##" THICK	##" x ##" C.S. STRUCTURAL PLATE PIPE ARCH, ## GAUGE	##" WELDED STEEL PIPE ##" THICK, GRADE ## IN SOIL	##" WELDED STEEL PIPE ##" THICK, GRADE ## NOT IN SOIL	##" WELDED STEEL PIPE ##" THICK, GRADE B (UNDER RR)			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	QUANTITIES FOR DRAINAGE STRUCTURES (NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)) 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	FRAME, GRATES, AND HOOD STD. 840.03 GRATE TYPE E	F	G	
L 13+74	0401																				1							
L 13+74	0402																				1							
L 13+30	0406																				1							
SHEET TOTALS																					3							
PROJECT TOTALS																					3							

LINE & STATION	FROM	TO	CONCRETE TRANSITIONAL SECTION: D.I. STD. 852.04 OR STD. 852.06	C.B. STD. 852.05	OPEN THROAT C.B. STD. 840.04 OR STD. 840.05	CONCRETE BRIDGE APPROACH D.I. STD. 840.13	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR STD. 840.26	G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27	G.D.I. TYPE "D" STD. 840.19 OR STD. 840.28	G.D.I. (W.S. FLAT) FRAME WITH GRATE STD. 840.20	G.D.I. (W.S. FLAT) FRAME W/ 2 GRATES STD. 840.20	G.D.I. (W.S. SAG) FRAME W/ GRATE STD. 840.22	G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22	G.D.I. (N.S. SAG) FRAME W/ GRATE STD. 840.24	G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24	G.D.I. (N.S. FLAT) FRAME W/ GRATE STD. 840.29	G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29	DRIVEWAY D.I. STD. 840.30	FRAME W/ GRATE FOR DRIVEWAY STD. 840.30	J.B. STD. 840.31 OR STD. 840.32	ANGLED VANE GRATES AND FRAMES STD. 840.33	T.B.J.B. STD. 840.34	T.B.D.I. STD. 840.35	T.B.D.I. FOR STEEL GRATES STD. 840.36	STEEL FRAME WITH TWO GRATES STD. 840.37	PIPE REMOVAL LIN. FT.	REMARKS
DET 13+78	0201																											68	
DET 13+61	0202																											64	
DET 15+15	0203																											80	
DET 16+91	0204																											176	
L 13+74	0401									1									1										
L 13+74	0402									1									1										
L 13+30	0406																									1	1		
L 14+73	0000																											59	
L 16+91	0000																											112	
SHEET TOTALS										2									2							1	1	559	
PROJECT TOTALS										2									2							1	1	559	

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

COMPUTED BY: NEW DATE: 11/06/17 CHECKED BY: CKH DATE: 11/06/17	(2-16-16)	PROJECT NO. B-5864	SHEET NO. 3G-1

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF AGGREGATE SUBGRADE/STABILIZATION

LINE	Station	Station	Aggregate Type* ASU/AST	Aggregate Thickness INCHES	Shallow Undercut CY	Class IV Subgrade Stabilization TONS	Geotextile for Soil Stabilization SY	Stabilizer Aggregate TONS	Class IV Aggregate Stabilization TONS
CONTINGENCY			ASU		50	80	100		
			TOTAL CY/TONS/SY:		50	80	100**	0	0

***ASU = Aggregate Subgrade**
***AST = Aggregate Stabilization**
****Total square yards of "Geotextile for Soil Stabilization" is only the estimated quantity for ASU/AST and may only represent a portion of the geotextile quantity shown in the Item Sheets of the Proposal.**

SUMMARY OF SUBSURFACE DRAINAGE

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

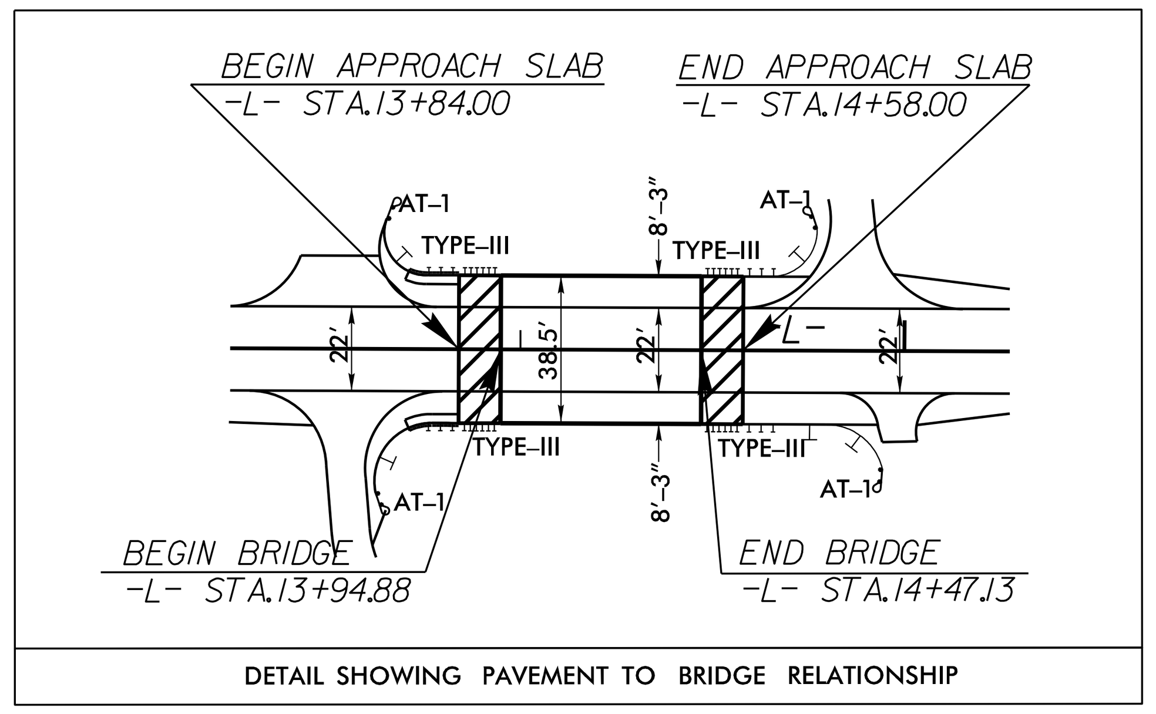
***UD = Underdrain**
***BD = Blind Drain**
***SD = Subsurface Drain**

PROJECT REFERENCE NO.	SHEET NO.
B-5864	4

R/W SHEET NO.

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 019740 CHRISTOPHER KENT HAIRE	NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 039785 CRAIG A. FREEMAN, JR.
DocuSigned by: Christopher K. Haire 12/15/2017	DocuSigned by: Craig A. Freeman Jr. 12/15/2017

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



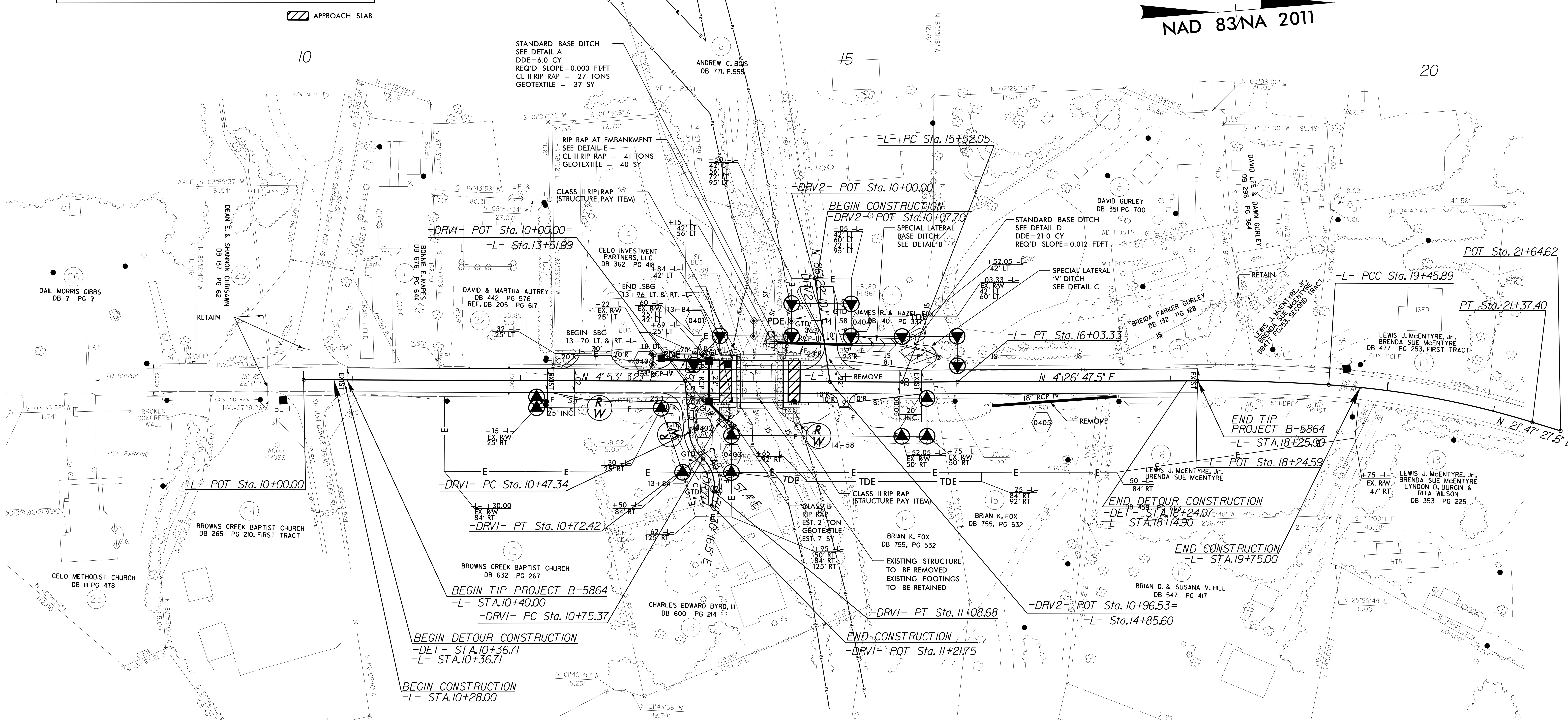
-DRV1-

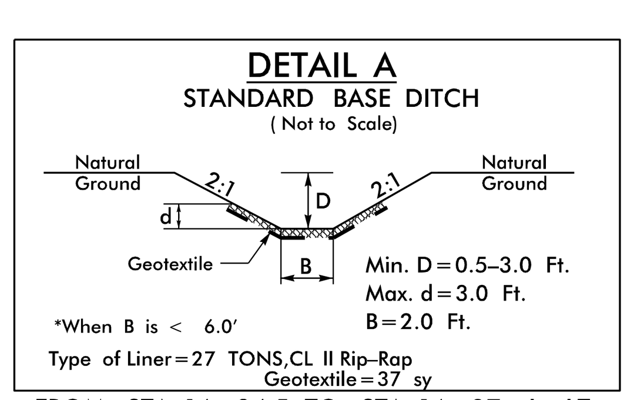
PI Sta 10+60.44	PI Sta 10+93.40
△ = 41° 03' 01.3" (LT)	△ = 54° 31' 46.1" (RT)
D = 163° 42' 08.0"	D = 163° 42' 08.0"
L = 25.08'	L = 33.31'
T = 13.10'	T = 18.04'
R = 35.00'	R = 35.00'
SE = SEE PLANS	SE = SEE PLANS

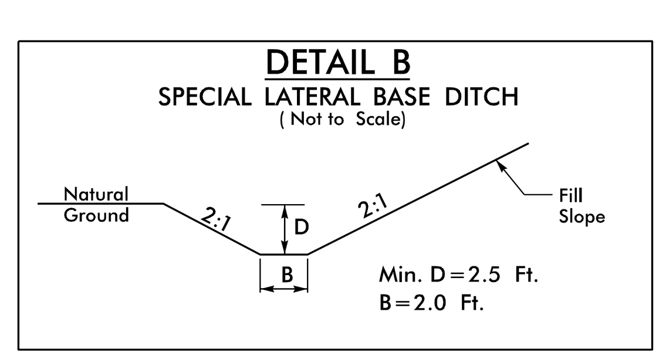
-L-

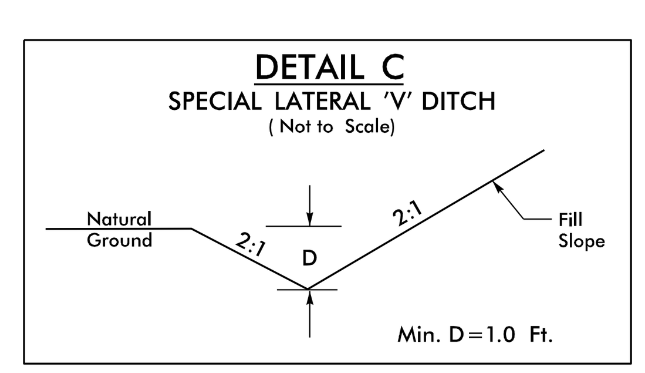
PI Sta 15+77.69	PI Sta 18+85.27	PI Sta 20+42.09
△ = 0° 30' 46.0" (LT)	△ = 4° 00' 10.7" (RT)	△ = 13° 24' 21.7" (RT)
D = 0° 59' 59.7"	D = 3° 18' 00.6"	D = 7° 00' 00.0"
L = 51.28'	L = 121.30'	L = 191.51'
T = 25.64'	T = 60.67'	T = 96.20'
R = 5,730.00'	R = 1,736.14'	R = 818.51'
SE = SEE PLANS		

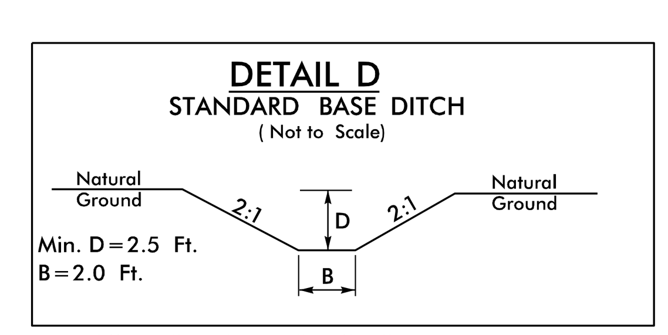
NAD 83/NA 2011

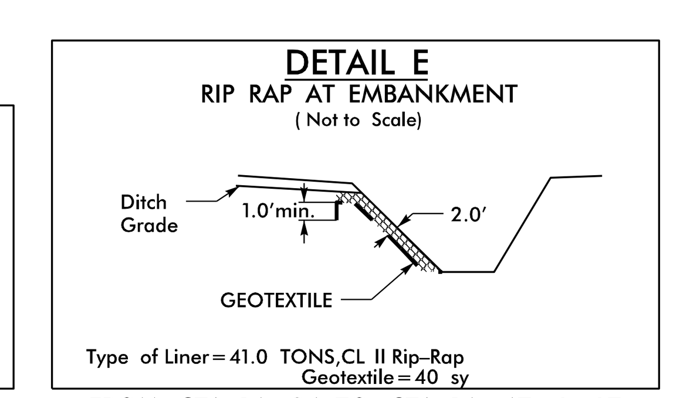












SEE SHEETS 6 & 7 FOR PROFILES
SEE STRUCTURE PLANS S1 – S16
GTD = GRADE TO DRAIN

PROJECT REFERENCE NO.	SHEET NO.
B-5864	5
R/W SHEET NO.	

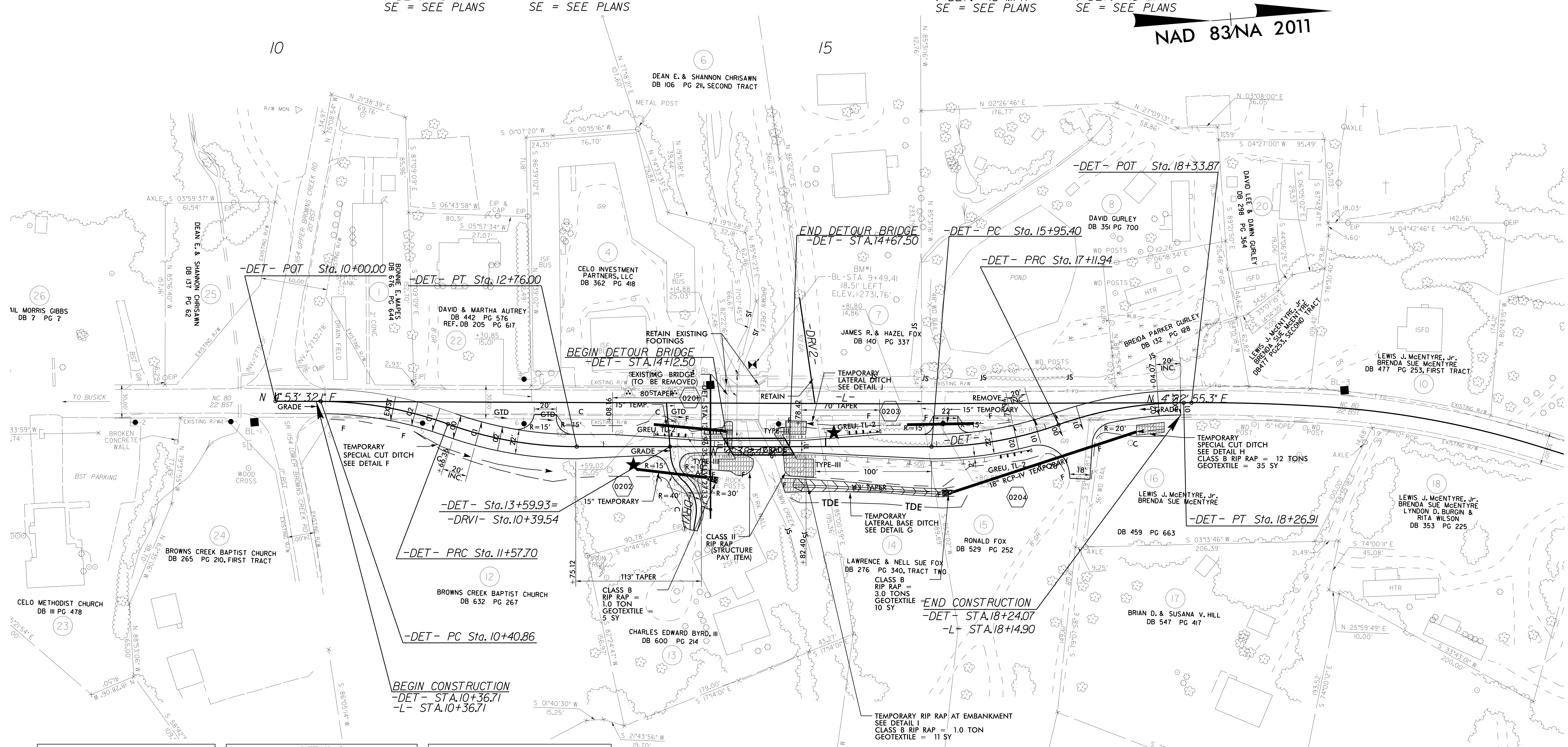
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
SEAL 019740 — NORTH CAROLINA PROFESSIONAL ENGINEER — CHRISTOPHER KENT HAIRE	SEAL 039785 — NORTH CAROLINA PROFESSIONAL ENGINEER — CRAIG A. FREEMAN, JR.
DocuSigned by: Christopher K. Haire 12/15/2017	DocuSigned by: Craig A. Freeman Jr. 12/15/2017

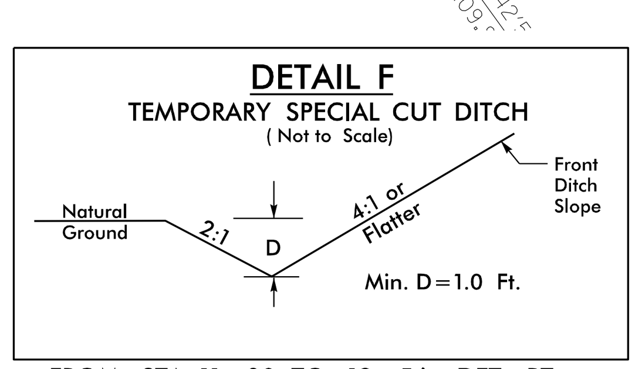
-DET-

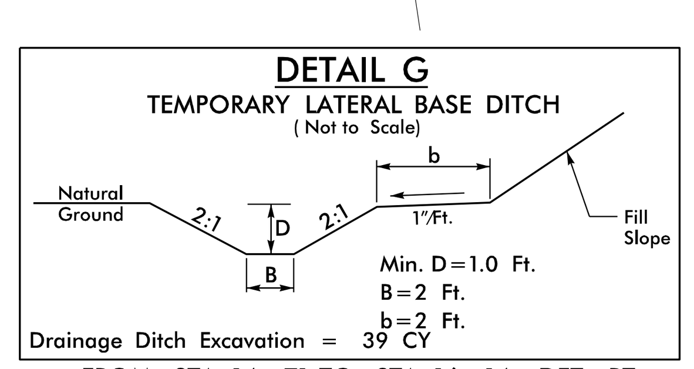
PI Sta 10+99.86	PI Sta 12+17.45
Δ = 19° 41' 22.5" (RT)	Δ = 19° 56' 06.8" (LT)
D = 16° 51' 06J"	D = 16° 51' 06J"
L = 116.84'	L = 118.30'
T = 59.00'	T = 59.75'
R = 340.00'	R = 340.00'
V DET.= 15 MPH	V DET.= 15 MPH
SE = SEE PLANS	SE = SEE PLANS

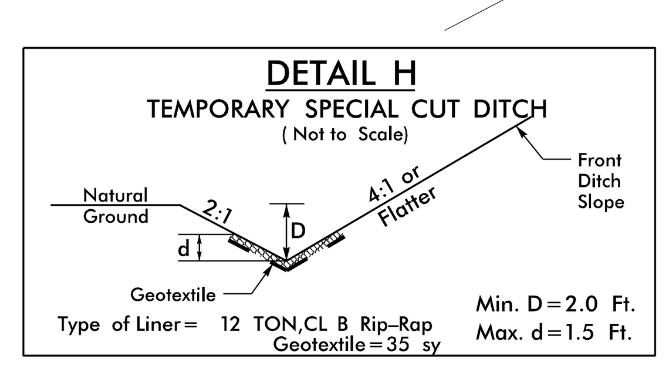
-DET-

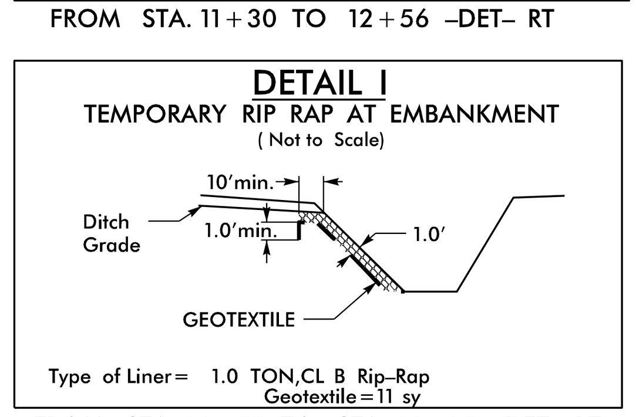
PI Sta 16+54.25	PI Sta 17+69.98
Δ = 19° 38' 18.7" (LT)	Δ = 19° 22' 26.2" (RT)
D = 16° 51' 06J"	D = 16° 51' 06J"
L = 116.54'	L = 114.97'
T = 58.85'	T = 58.04'
R = 340.00'	R = 340.00'
V DET.= 15 MPH	V DET.= 15 MPH
SE = SEE PLANS	SE = SEE PLANS

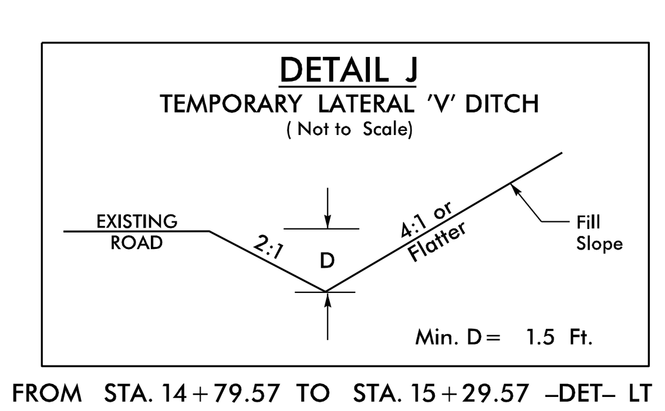












FOR -DET- PROFILE SEE SHEET 6

★ PROPOSED TEMP. SIGNAL

PROJECT REFERENCE NO.	SHEET NO.
B-5864	6

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 019740 CHRISTOPHER KENT HAIRE — DocuSigned by: Christopher K. Haire 12/15/2017 F3A924D02FE948D...

HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 039785 CRAIG A. FREEMAN, JR. — DocuSigned by: Craig A. Freeman Jr. 12/15/2017 DBC12B13D3EE4F8...

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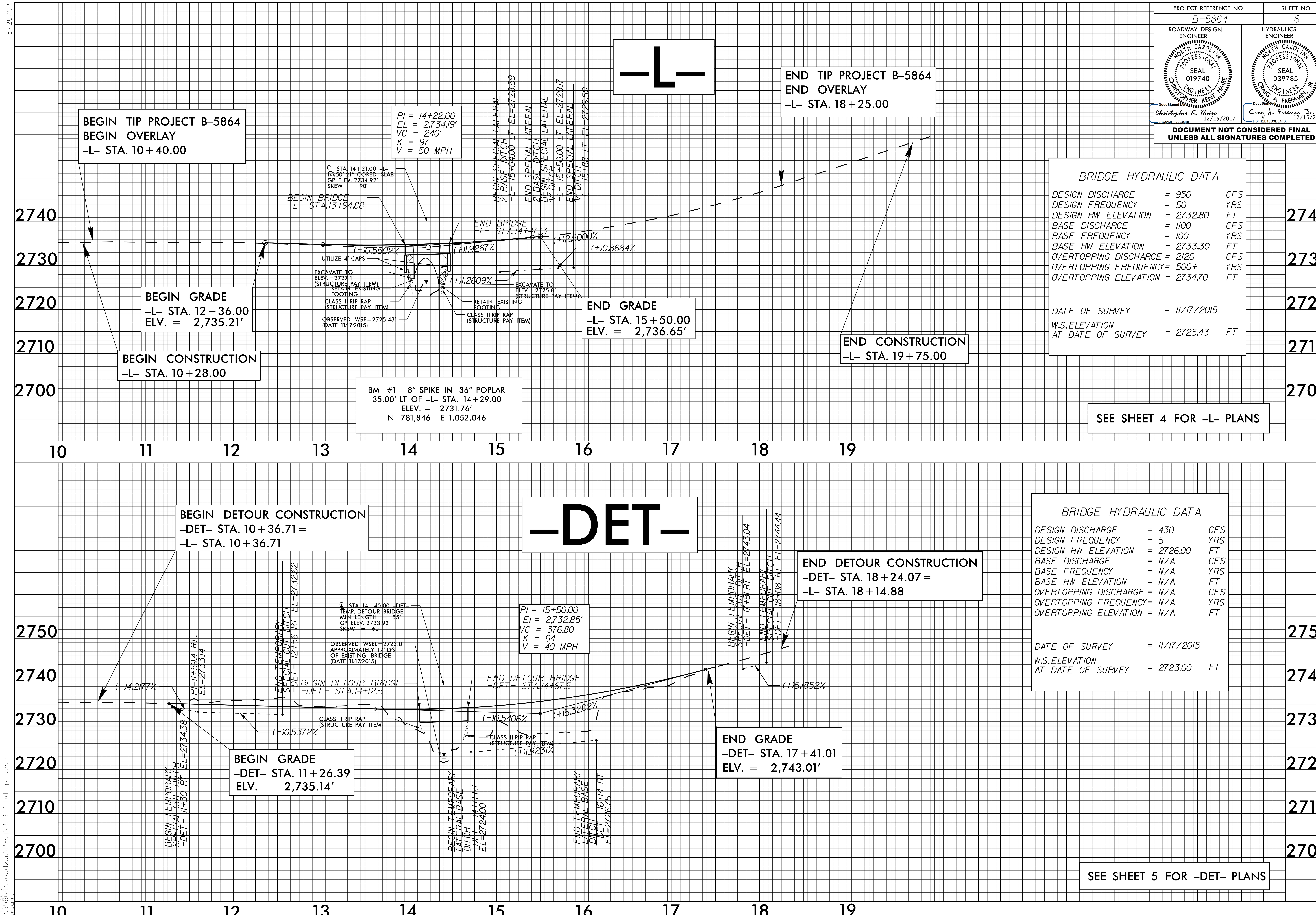

BRIDGE HYDRAULIC DATA (-L-)

DESIGN DISCHARGE	= 950	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 2732.80	FT
BASE DISCHARGE	= 1100	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 2733.30	FT
OVERTOPPING DISCHARGE	= 2120	CFS
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING ELEVATION	= 2734.70	FT
DATE OF SURVEY	= 11/17/2015	
W.S.ELEVATION AT DATE OF SURVEY	= 2725.43	FT

BRIDGE HYDRAULIC DATA (-DET-)

DESIGN DISCHARGE	= 430	CFS
DESIGN FREQUENCY	= 5	YRS
DESIGN HW ELEVATION	= 2726.00	FT
BASE DISCHARGE	= N/A	CFS
BASE FREQUENCY	= N/A	YRS
BASE HW ELEVATION	= N/A	FT
OVERTOPPING DISCHARGE	= N/A	CFS
OVERTOPPING FREQUENCY	= N/A	YRS
OVERTOPPING ELEVATION	= N/A	FT
DATE OF SURVEY	= 11/17/2015	
W.S.ELEVATION AT DATE OF SURVEY	= 2723.00	FT

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PROJECT REFERENCE NO.	SHEET NO.
B-5864	7

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 019740 ENGINEER CHRISTOPHER KENT HAIRE

DocuSigned by: Christopher K. Haire 12/15/2017

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 039785 ENGINEER CRAIG A FREEMAN JR

DocuSigned by: Craig A. Freeman Jr. 12/15/2017

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

–DRV1–

PI = 10+40.00
EL = 2,733.90'
VC = 20'
K = 4.4
V = N/A

(–)2.0029%

(–)16.5875%

END GRADE
–DRV1– STA. 11+21.75
ELV. = 2,728.51'

BEGIN GRADE
–DRV1– STA. 10+12.04
ELV. = 2,734.46'

BEGIN –DRV1– CONSTRUCTION
–DRV1– STA. 10+11.04

END –DRV1– CONSTRUCTION
–DRV1– STA. 11+21.75

–DRV2–

PI = 10+18.00
EL = 2,732.51'
VC = 20'
K = 2.9
V = N/A

2,732.79

2,735.30

(–)2.7700%

(+)4.1798%

(+)2.0000%

BEGIN –DRV2– CONSTRUCTION
BEGIN GRADE
–DRV2– STA. 10+07.70
ELV. = 2,732.79'

END –DRV2– CONSTRUCTION
END GRADE
–DRV2– STA. 10+76.30
ELV. = 2,735.14'

SEE SHEET 4 FOR –DRV1– AND –DRV2– PLANS

2740 2730 2720 2710 2700 2690 2680 2670

09 10 11 12 09 10 11 12

12/18/2017
K:\B5864\Roadway\Proj\B5864_Rdy_pf1.dgn
DW10+