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7/24/2017

TIP PROJECT: I-4400C

CONTRACT: C204265

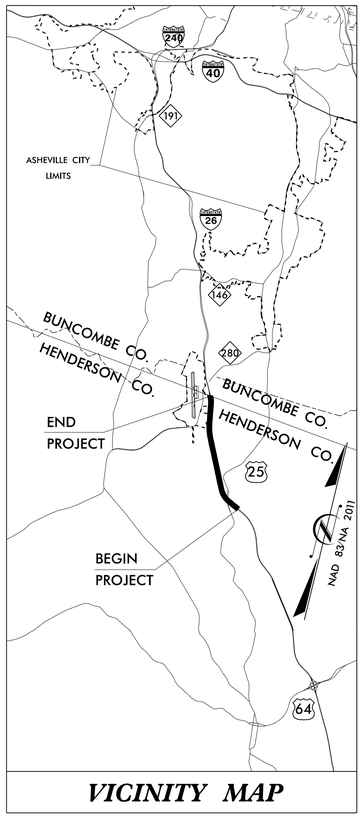
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

BUNCOMBE & HENDERSON COUNTIES

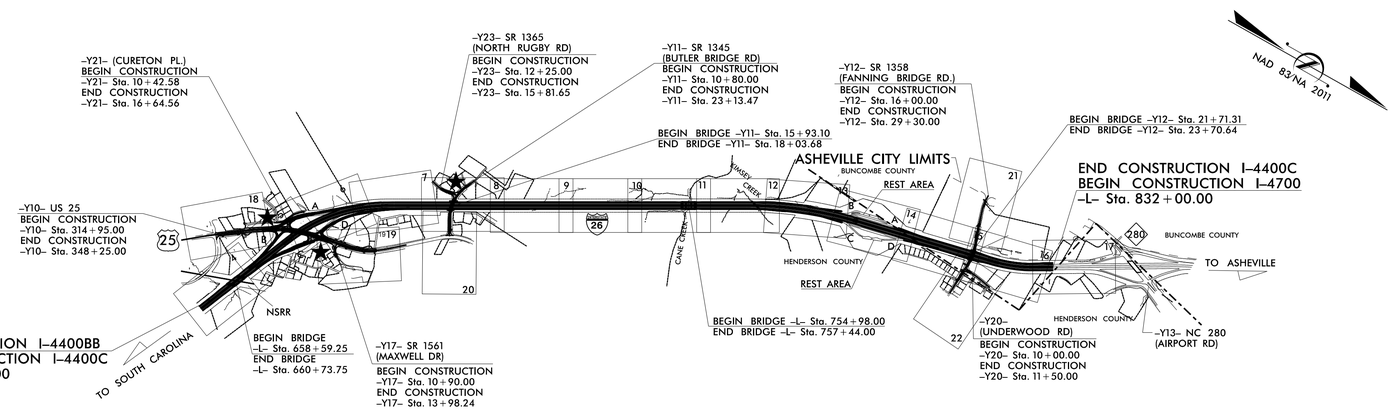
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	I-4400C	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
34232.1.FS4	NHPP-026-1(200)13	I-4400C (P.E.)
34232.2.5	N/A	I-4400C (R/W)
34232.2.7	N/A	I-4400C (UTIL)
34232.3.5	NHPP-026-1(200)13	I-4400C (CONST.)

LOCATION: I-26 BETWEEN US 25 (ASHEVILLE HIGHWAY) TO SOUTH OF NC 280
TYPE OF WORK: GRADING, DRAINAGE, PAVING, STRUCTURES, CULVERTS, RETAINING WALLS, SOUND WALLS, REST AREA, SIGNALS, AND SIGNING



VICINITY MAP



NOTE:
1. THIS IS A CONTROLLED– ACCESS PROJECT WITH ACCESS BEING LIMITED TO INTERCHANGES.

★ PROPOSED TRAFFIC SIGNAL

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 2019 = 65,900
ADT 2040 = 91,000
K = 10%
D = 55%
T = 15% *
V = 65 MPH**
* TTST = 11% DUAL 4%
**70MPH SOUTH OF US-25
FUNC CLASS = INTERSTATE
STATEWIDE TIER

PROJECT LENGTH

TOTAL LENGTH OF ROADWAY TIP PROJECT
I-4400C = 3.351 MI

TOTAL LENGTH OF STRUCTURES OF TIP PROJECT
I-4400C = 0.087 MI

TOTAL LENGTH OF TIP PROJECT
I-4400C = 3.438 MI
NOTE: LENGTHS WERE CALCULATED USING THE L ALIGNMENT

Prepared In the Office of:
HNTB
HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200
Raleigh, North Carolina 27609
NC License No: C-1554

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
JUNE 29, 2018
(I-4400C)

LETTING DATE:
SEPTEMBER 17, 2019

JOSEPH OLSON, P.E.
PROJECT ENGINEER

MARC A. WHITMORE, P.E.
PROJECT DESIGN ENGINEER

WANDA AUSTIN, P.E.
NCDOT CONTACT

HYDRAULICS ENGINEER

DocuSigned by: John Blancett 7/11/2019 P.E.
SIGNATURE:
NORTH CAROLINA PROFESSIONAL SEAL 047948 ENGINEER JOHN M. BLANCETT

ROADWAY DESIGN ENGINEER

DocuSigned by: Marc Whitmore 7/10/2019 P.E.
SIGNATURE:
NORTH CAROLINA PROFESSIONAL SEAL 046784 ENGINEER MARC A. WHITMORE

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •

7/24/2017
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PROJECT REFERENCE NO.	SHEET NO.
I-4400C	1A

R/W SHEET NO.

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 046784 ENGINEER MARC A. WHITMORE

Marc Whitmore 7/17/2019

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

HNTB NORTH CAROLINA, P.C. 343 E. Six Forks Road, Suite 200 Raleigh, North Carolina 27609 NC License No: C-1554

REVISIONS

8/17/99

GENERAL NOTES:

2018 SPECIFICATIONS
EFFECTIVE: 01-16-2018
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 AND STD. NO. 225.05 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. 560.02.

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.

BERM DITCHES:

BERM DITCHES SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 240.01 AT LOCATIONS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

SUBSURFACE DRAINS:

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

SHOULDER DRAINS:

SHOULDER DRAINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 816.03 AND DETAILS IN PLANS AT LOCATIONS DIRECTED BY THE ENGINEER.

DRIVEWAYS:

DRIVEWAYS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. 848.02 USING 3 FOOT RADII OR RADII AS SHOWN ON THE PLANS. LOCATIONS OF DRIVES WILL BE AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

STREET TURNOUT:

STREET RETURNS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 848.04 USING THE RADII NOTED ON PLANS.

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 POWER - POWER (DISTRIBUTION)
- ATT - COMMUNICATIONS
- CHARTER - COMMUNICATIONS
- PSNC - GAS
- CITY OF ASHEVILLE - WATER
- MSD ENGINEERING - SEWER

ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS, EXCEPT AS SHOWN ON 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 STD 848.05 and/or 848.06.

FENCING:

ALL EXISTING C/A FENCE TO BE REMOVED.

2018 ROADWAY ENGLISH STANDARD DRAWINGS

EFF. 01-16-2018
REV.

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
225.01	Guide for Grading Subgrade - Interstate and Freeway
225.02	Guide for Grading Subgrade - Secondary and Local
225.03	Deceleration and Acceleration Lanes
225.04	Method of Obtaining Superelevation - Two Lane Pavement
225.05	Method of Obtaining Superelevation - Divided Highways
225.06	Method of Grading Sight Distance at Intersections
225.09	Guide for Shoulder and Ditch Transition at Grade Separations
240.01	Guide for Berm Ditch Construction
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation
310.10	Driveway Pipe Construction
DIVISION 4 - MAJOR STRUCTURES	
422.01	Bridge Approach Fills - Type I Standard Approach Fill
422.03	Reinforced Bridge Approach Fills - Type A Alternate Approach Fill for Integral Abutment
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of shoulder Construction - High Side of Superelevated Curve - Method I
560.02	Method of Shoulder Construction - High Side of Superelevated Curve - Method II
DIVISION 6 - ASPHALT BASES AND PAVEMENTS	
610.01	Guide for Paving Shoulders Under Bridges - Method I
654.01	Pavement Repairs
665.01	Asphalt Shoulders - Milled Rumble Strips
DIVISION 7 - CONCRETE PAVEMENTS AND SHOULDER	
700.01	Concrete Pavement Joints - Construction and Contraction Joints
700.02	Expansion Joint Layout - for Rigid Doweled Pavement at Bridges
700.03	Dowel Assembly
700.04	Concrete Pavement Header Board
700.05	Tying Proposed Pavement to Existing
710.01	Concrete Pavement - Station Marking
DIVISION 8 - INCIDENTALS	
815.02	Subsurface Drain
816.01	Concrete Pads - For Shoulder Drain Installation
816.02	Aggregate Shoulder Drain
816.03	Geocomposite Shoulder Drain
816.04	Markers for Drainage Structure and Concrete Pad
838.01	Concrete Endwall for Single and Double Pipe Culverts - 15" thru 48" Pipe 90 Skew
838.11	Brick Endwall for Single and Double Pipe Culverts - 15" thru 48" Pipe 90 Skew
838.21	Reinforced Concrete Endwall - for Single 54" Pipe 90 Skew
838.27	Reinforced Concrete Endwall - for Single 60" Pipe 90 Skew
838.45	Notes for Reinforced Concrete Endwall - Std. Dwg 838.21 thru 838.40
838.51	Reinforced Brick Endwall - for Single 54" Pipe 90 Skew
838.57	Reinforced Brick Endwall - for Single 60" Pipe 90 Skew
838.75	Notes for Reinforced Brick Endwall - Std. Dwg 838.51 thru 838.70
838.80	Precast Endwalls - 12" thru 72" Pipe 90 Skew
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
840.14	Concrete Drop Inlet - 12" thru 30" Pipe
840.15	Brick Drop Inlet - 12" thru 30" Pipe
840.16	Drop Inlet Frame and Grates - for use with Std. Dwg 840.14 and 840.15
840.17	Concrete Grated Drop Inlet Type 'A' - 12" thru 72" Pipe
840.18	Concrete Grated Drop Inlet Type 'B' - 12" thru 36" Pipe
840.20	Frames and Wide Slot Flat Grates
840.22	Frames and Wide Slot Sag Grates
840.24	Frames and Narrow Slot Sag Grates
840.25	Anchorage for Frames - Brick or Concrete or Precast
840.26	Brick Grated Drop Inlet Type 'A' - 12" thru 72" Pipe
840.27	Brick Grated Drop Inlet Type 'B' - 12" thru 36" Pipe
840.29	Frames and Narrow Slot Flat Grates
840.31	Concrete Junction Box - 12" thru 66" Pipe
840.32	Brick Junction Box - 12" thru 66" Pipe
840.35	Traffic Bearing Grated Drop Inlet - for Cast Iron Double Frame and Grates
840.36	Traffic Bearing Grated Drop Inlet - for steelDouble Frame and Grates
840.37	Steel Grate and Frame
840.45	Precast Drainage Structure
840.46	Traffic Bearing Precast Drainage Structure
840.51	Brick Manhole - 12" thru 36" Pipe
840.52	Precast Manhole - 4', 5' and 6' Diameter
840.53	Precast Manhole with Masonry Base - 12" thru 42" Pipe
840.54	Manhole Frame and Cover
840.66	Drainage Structure Steps
840.71	Concrete and Brick Pipe Plug
840.72	Pipe Collar
846.01	Concrete Curb, Gutter and Curb & Gutter
846.04	Drop Inlet Installation in Shoulder Berm Gutter
848.01	Concrete Sidewalk
848.02	Driveway Turnout - Radius Type
848.04	Street Turnout
848.05	Curb Ramp - Proposed Curb & Gutter
850.01	Concrete Paved Ditches
850.10	Guide for Berm Drainage Outlet - 15" and 18" Pipe
852.01	Concrete Islands
852.02	Concrete Mountable Median - For Use with Rigid of Flexible Pavement
852.06	Method for Placement of Drop Inlets in Concrete Islands
854.01	Double Faced Concrete Barrier - Types I, II, III and IV
854.05	Concrete Median Transition Barrier - Location of Overhead Assembly
857.01	Precast Reinforced Concrete Barrier - 41" Single Faced
862.01	Guardrail Placement
862.02	Guardrail Installation
862.03	Structure Anchor Units
862.04	Anchoring End of Guardrail - B-77 and B-83 Anchor Units
866.02	Woven Wire Fence - with Wood Post
866.03	Woven Wire Fence - with Steel Post
876.01	Rip Rap in Channels
876.02	Guide for Rip Rap at Pipe Outlets
876.03	Drainage Ditches with Class 'A' Rip Rap
876.04	Drainage Ditches with Class 'B' Rip Rap

INDEX OF SHEETS

I-26 REST AREA INDEX OF SHEETS

12/2/2016

PROJECT REFERENCE NO.	SHEET NO.
I-4400C	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)
- Computed 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 (S)
- Potential Contamination Area: Soil (S)
- Known Contamination Area: Water (W)
- Potential Contamination Area: Water (W)
- Contaminated Site: Known or Potential

BUILDINGS AND OTHER CULTURE:

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

HYDROLOGY:

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

RAILROADS:

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

RIGHT OF WAY & PROJECT CONTROL:

- Secondary Horiz and Vert Control Point
- Primary Horiz Control Point
- Primary Horiz and Vert Control Point
- Exist Permanent Easment Pin and Cap
- New Permanent Easement Pin and Cap
- Vertical Benchmark
- Existing Right of Way Marker
- Existing Right of Way Line
- New Right of Way Line (R/W)
- New Right of Way Line with Pin and Cap
- New Right of Way Line with Concrete or Granite R/W Marker
- New Control of Access Line with Concrete C/A Marker
- Existing Control of Access
- New Control of Access
- Existing Easement Line (E)
- New Temporary Construction Easement (E)
- New Temporary Drainage Easement (TDE)
- New Permanent Drainage Easement (PDE)
- New Permanent Drainage / Utility Easement (DUE)
- New Permanent Utility Easement (PUE)
- New Temporary Utility Easement (TUE)
- New Aerial Utility Easement (AUE)

ROADS AND RELATED FEATURES:

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

VEGETATION:

- Single Tree
- Single Shrub
- Hedge
- Woods Line
- Orchard
- Vineyard (Vineyard)

EXISTING STRUCTURES:

MAJOR:

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

MINOR:

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

UTILITIES:

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
- 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*)
- U/G Water Line LOS C (S.U.E*)
- U/G Water Line LOS D (S.U.E*)
- Above Ground Water Line (A/G Water)

TV:

- TV Pedestal
- TV Tower
- U/G TV Cable Hand Hole
- 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.

10-JUL-2019 10:17
Roadway\Proj\I4400C_RDY_TSH
HNTB

6/2/99

PROJECT REFERENCE NO.	SHEET NO.
I-4400C	2A-1

HNTB
HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200
Raleigh, North Carolina 27609
NC License No: C-1554

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 046784 ENGINEER MARC A. WHITMORE — Marc Whitmore 7/15/2019

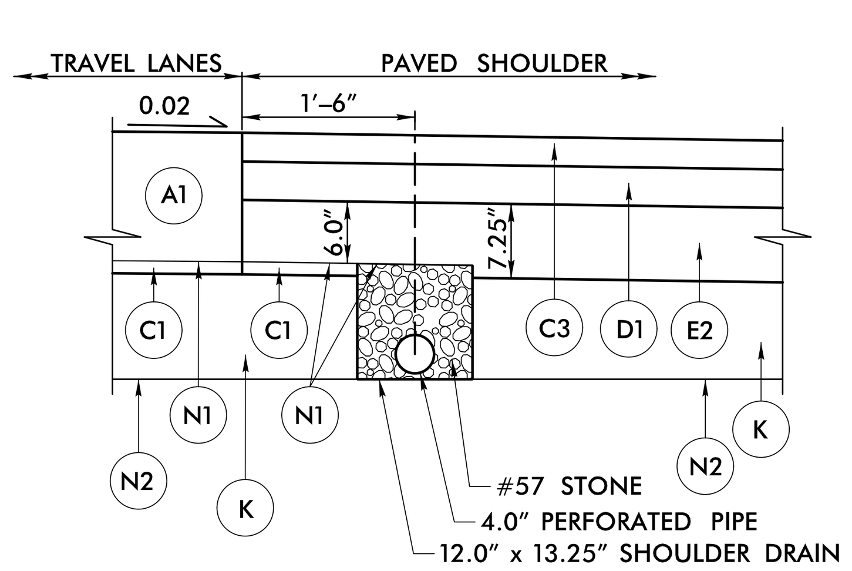
PAVEMENT DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 024964 ENGINEER JOSEPH HOLLAND — Josh Holland 7/15/2019

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

FINAL PAVEMENT SCHEDULE

A1	13.0" PORTLAND CEMENT CONCRETE PAVEMENT
A2	9.0" PORTLAND CEMENT CONCRETE PAVEMENT
C1	1.25" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 138 LBS PER SQ. YD.
C2	3.0" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 165 LBS PER SQ. YD. IN EACH OF TWO LAYERS
C3	3.0" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS PER SQ. YD. IN EACH OF TWO LAYERS
C4	2.5" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 138 LBS PER SQ. YD. IN EACH OF TWO LAYERS
C5	1.5" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS PER SQ. YD.
C6	VARIABLE ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5D, AT AN AVERAGE RATE OF 112 LBS PER SQ. YD.
C7	3.0" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5D, AT AN AVERAGE RATE OF 168 LBS PER SQ. YD.
D1	4.0" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS PER SQ. YD.
D2	2.5" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C AT AN AVERAGE RATE OF 285 LBS PER SQ. YD.
E1	4.0" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS PER SQ. YD.
E2	6.0" OR 7.25" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 342 OR 413.25 LBS PER SQ. YD. IN EACH OF TWO LAYERS (SEE SHOULDER DRAIN DETAIL)
E3	5.0" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 570 LBS PER SQ. YD.
J	6" AGGREGATE BASE COURSE
K	12" CLASS IV SUBGRADE STABILIZATION
N1	NONWOVEN GEOTEXTILE INTERLAYER
N2	GEOTEXTILE FOR SOIL STABILIZATION
R1	2'-6" CONCRETE CURB AND GUTTER
R2	SHOULDER BERM GUTTER
R3	5" MONOLITHIC CONCRETE ISLAND (SURFACE MOUNTED)
R4	SINGLE SLOPE CONCRETE BARRIER
R5	PRECAST REINFORCED CONCRETE BARRIER
R6	CONCRETE BARRIER RAIL WITH MOMENT SLAB
R7	4" CONCRETE ISLAND COVER
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V	MILLING, 1.5" DEPTH
Y	MILLED RUMBLE STRIPS

PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



SHOULDER DRAIN DETAIL

SEE SUMMARY TABLE FOR LOCATIONS

SHOULDER DRAIN SUMMARY

LINE	LOCATION	BEGIN STA.	END STA.	OUTLET LOCATIONS
OUTSIDE SHOULDER (EASTBOUND)				
-L-	Outside Shoulder (Eastbound)	650+50.00	657+74.10	651+60 (2GI 0403), 654+65 (2GI 0410)
-L-	Outside Shoulder (Eastbound)	660+53.50	666+00.00	664+68 (2GI 0503), 666+00 (2GI 0509)
-L-	Outside Shoulder (Eastbound)	668+00.00	671+00.00	671+00
-L-	Outside Shoulder (Eastbound)	696+27.00	754+73.83	696+27, 699+00, 702+00, 705+00, 706+50, 710+00, 713+00, 715+70 (2GI 0819), 718+00, 719+65 (2GI 0905), 722+00, 723+66 (2GI 0911), 726+00, 727+68 (2GI 0917), 730+00, 731+68 (2GI 0923), 734+00, 736+40 (2GI 1007), 738+00, 739+68 (2GI 1013), 741+50, 743+68 (2GI 1019), 745+00, 747+68 (2GI 1105), 750+60, 753+25 (2GI 1110)
-L-	Outside Shoulder (Eastbound)	758+38.61	768+00.00	761+00, 762+40 (2GI 1205), 765+00, 766+70 (2GI 1211)
-L-	Outside Shoulder (Eastbound)	793+25.00	800+00.00	793+25 (2GI 1412)
-L-	Outside Shoulder (Eastbound)	802+00.00	832+00.00	802+00, 805+69 (2GI 1506), 808+60, 810+71 (2GI 1501), 813+00, 816+05 (2GI 1605), 819+00, 821+69 (2GI 1609), 824+00, 825+86 (2GI 1613), 828+00, 830+50
MEDIAN SHOULDER (EASTBOUND)				
-L-	Median Shoulder (Eastbound)	650+50.00	658+00.00	651+60 (2GI 0402), 654+65 (2GI 0409)
-L-	Median Shoulder (Eastbound)	661+09.06	754+73.83	664+68 (2GI 0502), 668+14 (2GI 0508), 669+50 (2GI 0511), 673+75 (2GI 0532), 675+00 (2GI 0534), 678+05 (2GI 0601), 682+68 (2GI 0605), 685+26 (2GI 0619), 686+68 (2GI 0625), 689+98 (2GI 0631), 692+43 (2GI 0716), 694+26 (2GI 0714), 698+47 (2GI 0709), 704+33 (2GI 0804), 709+10 (2GI 0811), 715+69 (2GI 0818), 719+65 (2GI 0904), 723+67 (2GI 0910), 727+68 (2GI 0916), 731+69 (2GI 0922), 736+41 (2GI 1006), 739+68 (2GI 1012), 743+68 (2GI 1018), 747+68 (2GI 1104), 753+25 (2GI 1109)
-L-	Median Shoulder (Eastbound)	758+37.62	818+40.00	762+40 (2GI 1204), 766+70 (2GI 1210), 775+52 (2GI 1304), 776+67 (2GI 1305), 779+65 (2GI 1310), 782+38 (2GI 1320), 786+20 (2GI 1313), 789+75 (2GI 1403), 793+25 (2GI 1413), 796+75 (2GI 1410), 800+25 (2GI 1406), 804+27 (2GI 1508), 805+69 (2GI 1507), 810+71 (2GI 1502), 816+05 (2GI 1604)
-L-	Median Shoulder (Eastbound)	830+45.00	832+00.00	830+45
OUTSIDE SHOULDER (WESTBOUND)				
-L-	Outside Shoulder (Westbound)	650+50.00	658+00.00	651+30, 652+25 (2GI 0405), 654+65 (2GI 0406), 657+92 (JB 0461)
-L-	Outside Shoulder (Westbound)	661+58.90	668+33.00	663+90 (2GI 0412), 668+33 (2GI 0505)
-L-	Outside Shoulder (Westbound)	669+00.00	691+00.00	671+00, 674+00, 675+00 (2GI 0535), 678+50, 681+00, 682+68 (2GI 0604), 685+26 (2GI 0618), 688+00, 689+98 (2GI 0630)
-L-	Outside Shoulder (Westbound)	694+90.00	754+73.83	694+90 (2GI 0711), 698+47 (2GI 0707), 700+00 (2GI 0704), 704+33 (2GI 0802), 706+50, 709+10 (2GI 0813), 713+00, 715+69 (2GI 0815), 718+00, 719+65 (2GI 0901), 722+50, 723+67 (2GI 0907), 725+92 (2GI 0913), 728+50, 730+00 (2GI 0919), 732+00, 733+30 (2GI 1001), 735+00, 736+90 (2GI 1009), 739+90, 742+95 (2GI 1015), 745+50, 747+68 (2GI 1101), 750+50, 753+25 (2GI 1112)
-L-	Outside Shoulder (Westbound)	758+36.18	785+00.00	761+00, 762+40 (2GI 1201), 765+00, 766+70 (2GI 1207), 768+00, 771+50, 773+15 (2GI 1213), 775+50 (2GI 1301), 778+50, 780+00, 783+78 (2GI 1317)
-L-	Outside Shoulder (Westbound)	786+75.00	803+50.00	786+75 (2GI 1311), 789+75 (2GI 1401), 793+25 (2GI 1414), 800+25 (2GI 1408)
-L-	Outside Shoulder (Westbound)	804+81.00	818+40.00	804+81 (2GI 1509), 810+71 (2GI 1504), 814+00, 817+25 (2GI 1601)
-L-	Outside Shoulder (Westbound)	830+00.00	832+00.00	830+00
MEDIAN SHOULDER (WESTBOUND)				
-L-	Median Shoulder (Westbound)	650+50.00	658+00.00	651+60 (2GI 0401), 654+65 (2GI 0408)
-L-	Median Shoulder (Westbound)	661+09.06	669+50.00	664+68 (2GI 0501), 668+14 (2GI 0507), 669+50 (2GI 0510)
-L-	Median Shoulder (Westbound)	698+47.00	754+73.83	698+47 (2GI 0708), 704+33 (2GI 0803), 709+10 (2GI 0812), 715+69 (2GI 0817), 719+65 (2GI 0903), 723+67 (2GI 0909), 727+68 (2GI 0915), 731+69 (2GI 0921), 736+41 (2GI 1005), 739+68 (2GI 1011), 743+68 (2GI 1017), 747+68 (2GI 1103), 753+25 (2GI 1107)
-L-	Median Shoulder (Westbound)	758+37.17	768+00.00	762+40 (2GI 1203), 766+70 (2GI 1209)
-L-	Median Shoulder (Westbound)	793+25.00	832+00.00	793+25 (2GI 1411), 796+75 (2GI 1409), 800+25 (2GI 1407), 804+27 (2GI 1508), 805+69 (2GI 1505), 810+71 (2GI 1503), 816+05 (2GI 1604), 817+25 (2GI 1602), 821+69 (2GI 1608), 826+34 (2GI 1611), 828+61 (2GI 1702)

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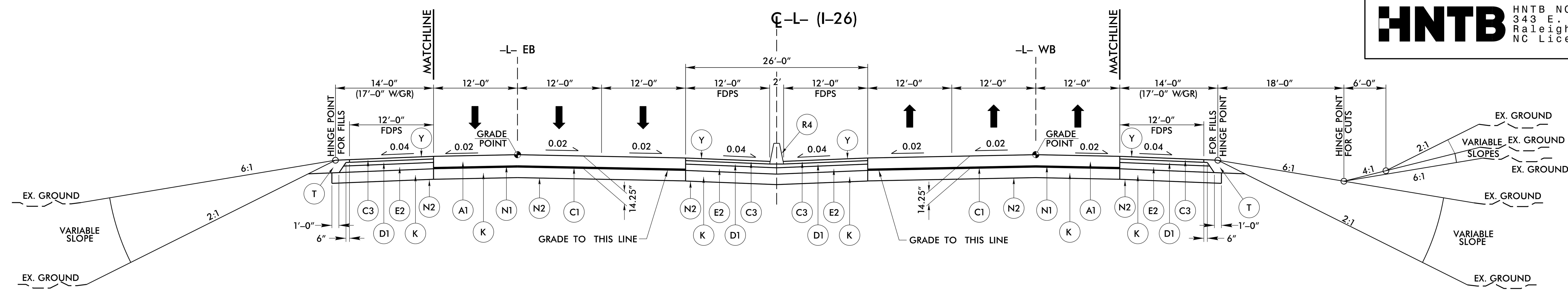
NC License No: C-1554

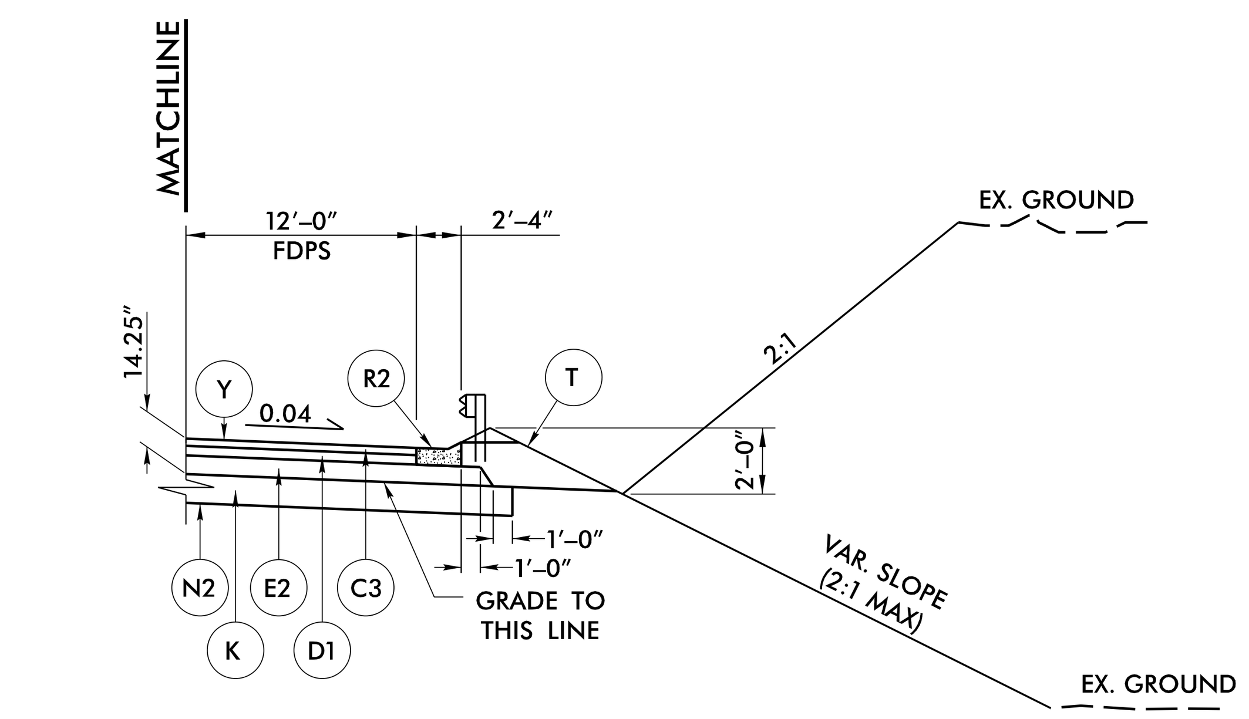
PROJECT REFERENCE NO.	SHEET NO.
I-4400C	2A-2
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 046784 ENGINEER MARC A. WHITMORE — 7/15/2019	NORTH CAROLINA PROFESSIONAL SEAL 024964 ENGINEER JOSEPH HOLLAND — 7/15/2019

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



TYPICAL SECTION NO. 1

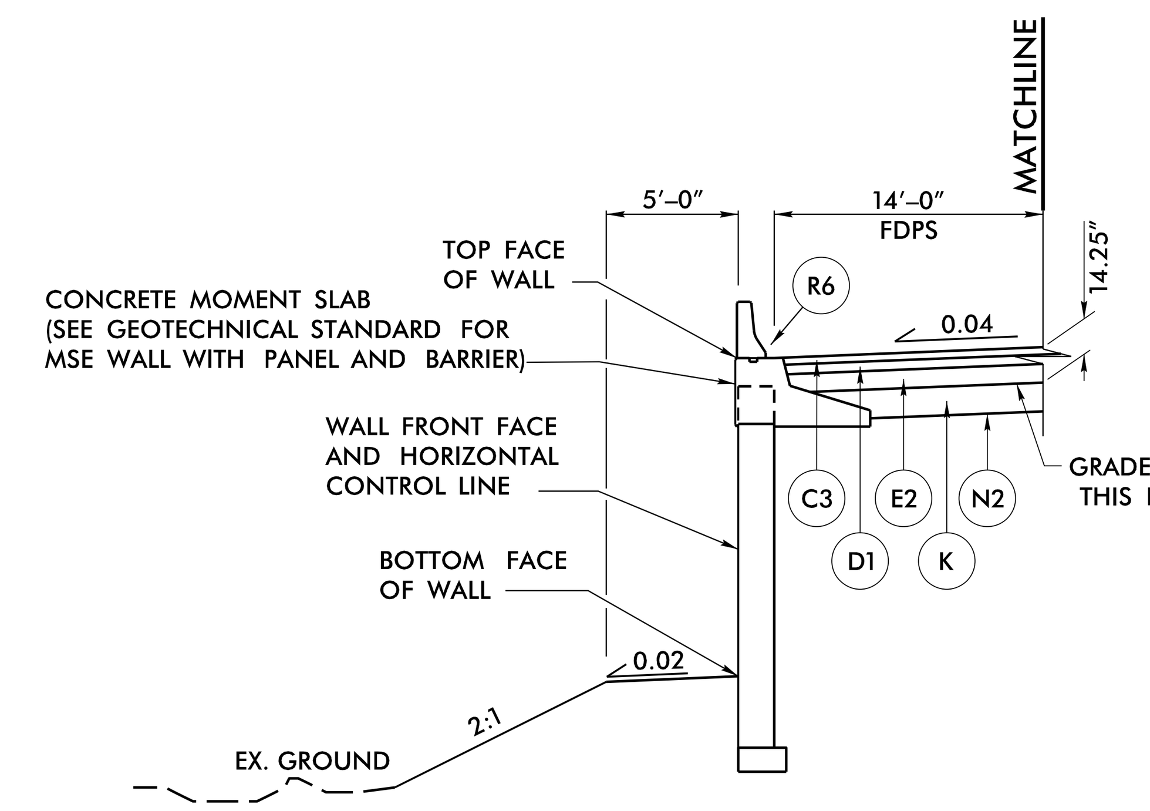
-L- STA 650+50.00 TO STA 658+59.25
-L- STA 660+73.75 TO STA 699+45.08



SHOULDER BERM GUTTER DETAIL

USE IN CONJUNCTION WITH TYPICAL SECTIONS NO. 1, 2, 3, 3B & 4

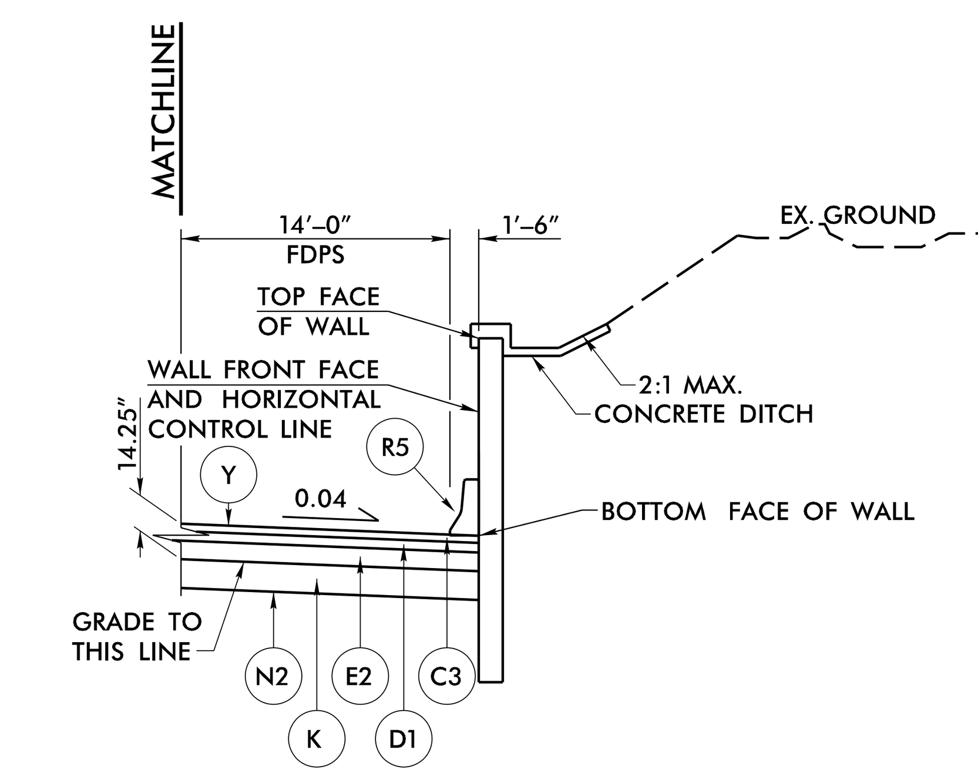
-L- STA 650+50.00 TO STA 657+74.96 LT (INVERT)
-L- STA 652+20.00 TO STA 658+79.50 RT
-L- STA 673+50.00 TO STA 676+00.00 RT
-L- STA 679+65.00 TO STA 690+00.00 RT
-L- STA 699+45.08 TO STA 708+20.00 RT
-L- STA 711+00.00 TO STA 754+73.83 LT (INVERT)
-L- STA 723+80.00 TO STA 754+73.83 RT
-L- STA 757+68.17 TO STA 776+00.00 RT
-L- STA 757+68.17 TO STA 780+43.03 LT (INVERT)
-L- STA 808+18.81 TO STA 812+50.00 RT
-L- STA 816+00.00 TO STA 832+00.00 LT (INVERT)
-L- STA 831+10.00 TO STA 832+00.00 RT
-Y10RPA- STA 11+20.00 TO STA 20+00.00 RT
-Y10RPB- STA 15+00.00 TO STA 16+99.41 LT (INVERT)
-Y10RPC- STA 18+75.00 TO STA 23+03.74 RT
-Y10RPD- STA. 10+00.00 TO STA. 27+15.44 LT (INVERT)
-Y10RPD_SPUR_RT- STA 10+00.00 TO STA 11+37.87 LT (INVERT)
-RESTD- STA. 10+00.00 TO STA. 14+00.00 LT (INVERT)



FILL WALL WITH MOMENT SLAB DETAIL

USE IN CONJUNCTION WITH TYPICAL SECTIONS NO. 1 & 3B

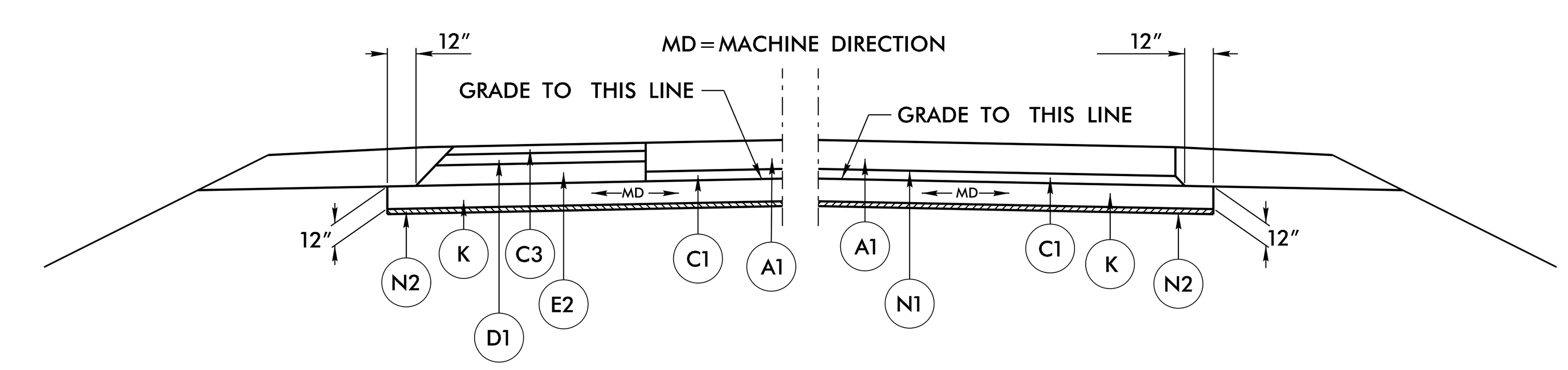
-L- STA 660+53.50 TO STA 663+21.15 LT
-L- STA 661+58.90 TO STA 663+60.00 RT (INVERT)
-Y10RPB- STA 10+00.00 TO STA 14+41.24 LT



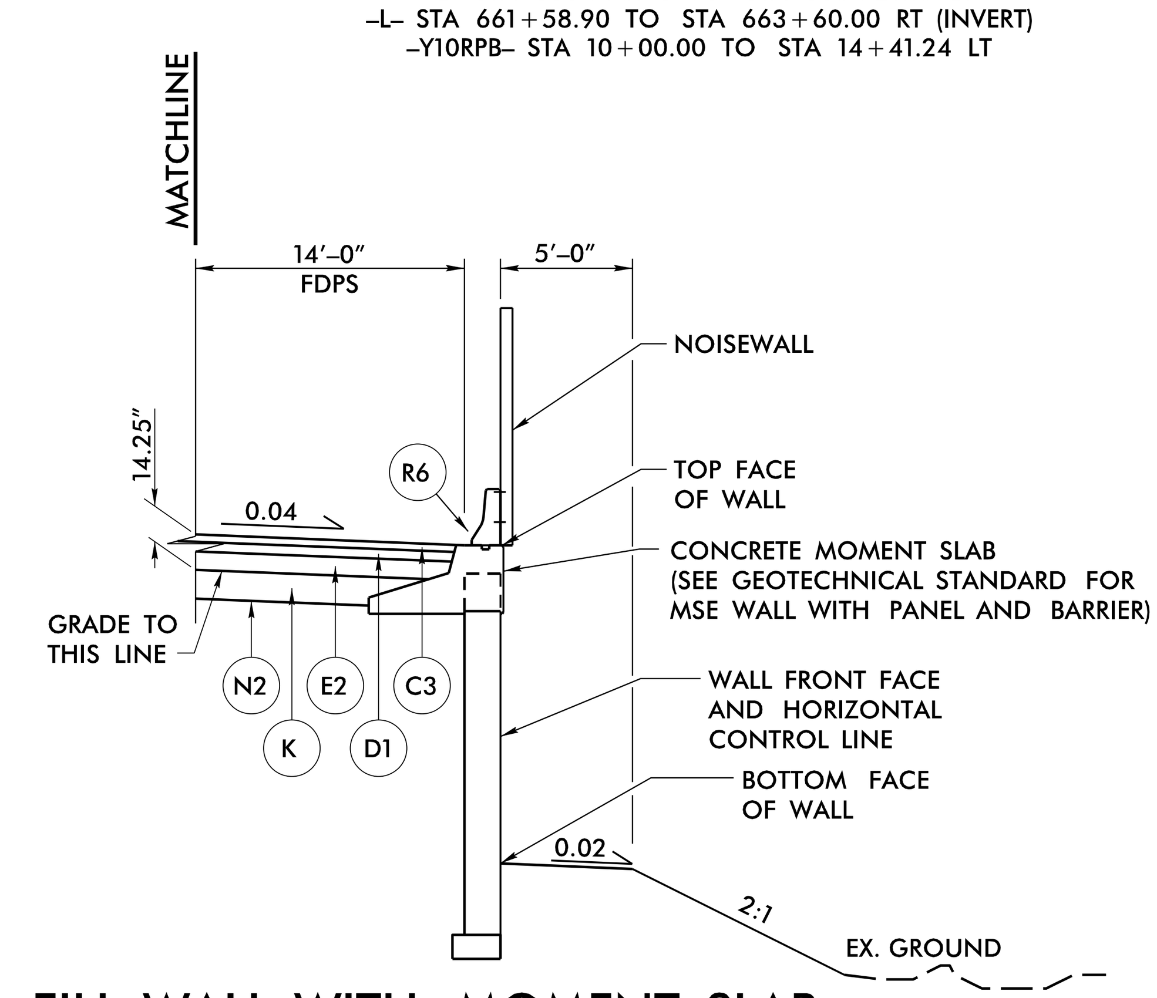
CUT WALL DETAIL

USE IN CONJUNCTION WITH TYPICAL SECTIONS NO.1

-L- STA 676+00.00 TO STA 678+50.00 RT



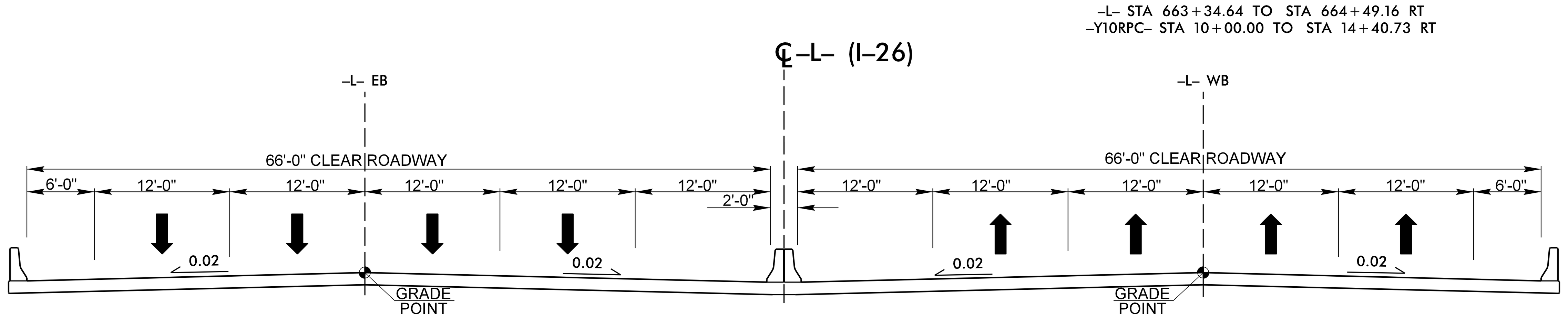
CLASS IV SUBGRADE STABILIZATION-GEOTEXTILE FOR CEMENT CONCRETE PAVEMENT STABILIZATION



FILL WALL WITH MOMENT SLAB AND NOISE WALL DETAIL

USE IN CONJUNCTION WITH TYPICAL SECTIONS NO. 1 & 3B

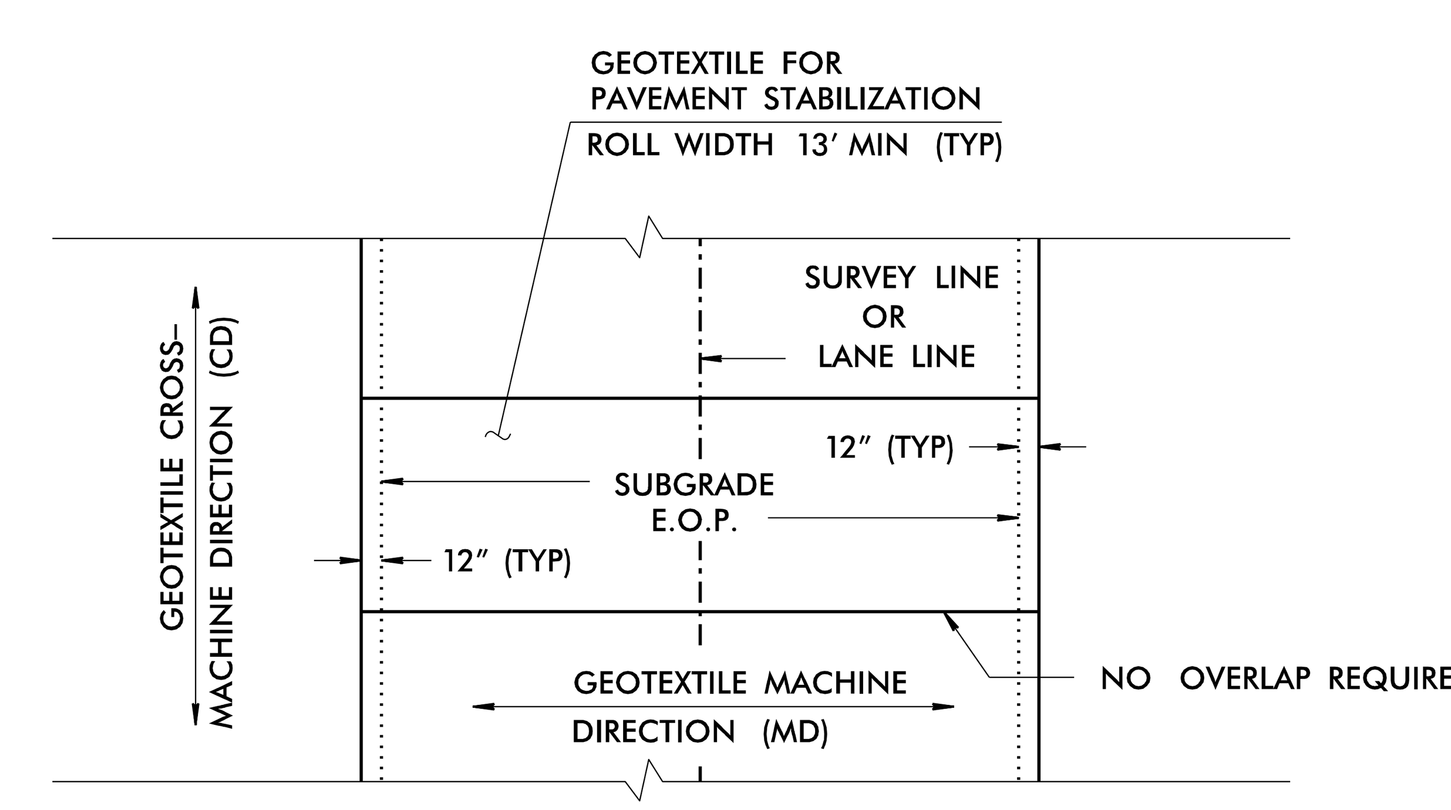
-L- STA 663+34.64 TO STA 664+49.16 RT
-Y10RPC- STA 10+00.00 TO STA 14+40.73 RT



BRIDGE TYPICAL

I-26 OVER NSRR
-L- STA 658+59.25 TO STA 660+73.75

NOTE: SEE PLANS FOR SUPERELEVATIONS, TURN LANES, MONOLITHIC ISLANDS, CURB AND GUTTER, AND LANE TAPER LOCATIONS.



GEOTEXTILE FOR PAVEMENT STABILIZATION PLACEMENT (PLAN VIEW)

(100% COVERAGE REQUIRED)

A1	13.0" PCCP
A2	9.0" PCCP
C1	1.25" S9.5B
C2	3" S9.5B
C3	3" S9.5C
C4	2.5" S9.5B
C5	1.5" S9.5C
C6	VARIABLE S9.5D
C7	3" S9.5D
D1	4" I19.0C
D2	2.5" I19.0C
E1	4" B25.0C
E2	6.0" OR 7.25" B25.0C*
E3	5" B25.0C
J	6" ABC
K	12" CLASS IV SUBGRADE STABILIZATION
N1	NONWOVEN GEOTEXTILE INTERLAYER
N2	GEOTEXTILE FOR SOIL STABILIZATION
R1	2'-6" C & G
R2	SHOULDER BERM GUTTER
R3	MONOLITHIC CONC. ISLAND
R4	SINGLE SLOPE CONCRETE BARRIER
R5	PRECAST REINFORCED CONCRETE BARRIER
R6	CONC. BARRIER RAIL W/MOMENT SLAB
R7	4" CONC. ISLAND COVER
T	EARTH MATERIAL
U	EXIST. PAVEMENT
V	MILLING 1.5" DEPTH
Y	MILLED RUMBLE STRIPS

PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE

* SEE SHOULDER DRAIN DETAIL SHEET 2A-1

6/2/99

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NC License No: C-1554

PROJECT REFERENCE NO.	SHEET NO.
I-4400C	2A-3

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 046784 ENGINEER MARC WHITMORE

DocuSigned by: Marc Whitmore 7/15/2019

PAVEMENT DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 024964 ENGINEER JOSEPH HOLLAND

DocuSigned by: Josh Holland 7/15/2019

80107

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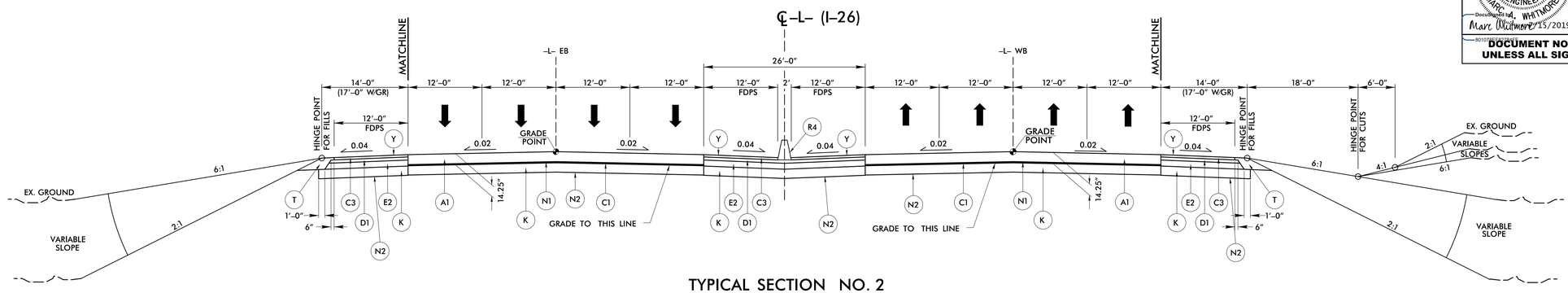
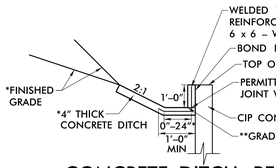


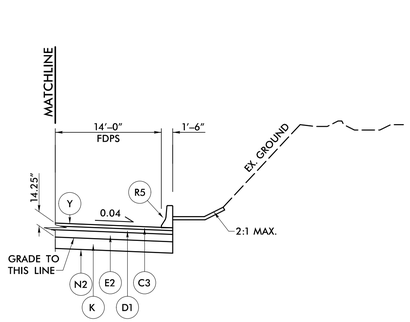
TYPICAL SECTION NO. 2

–L– STA 699+45.08 TO STA 754+98.00
–L– STA 757+44.00 TO STA 832+00.00



CONCRETE DITCH BEHIND WALL WITH CONCRETE FACING

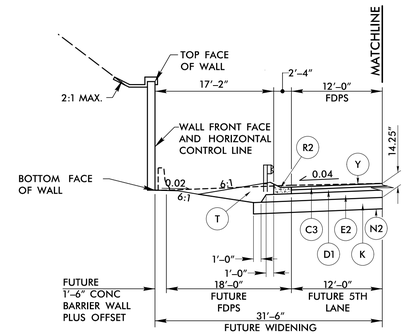
*SEE ROADWAY PLANS FOR CONCRETE DITCH AND FINISHED GRADE DETAILS.
*SEE WALL ENVELOPE FOR GRADE ELEVATIONS.



BARRIER CUT WALL DETAIL

USE IN CONJUNCTION WITH TYPICAL SECTION NO.1

–L– STA 674+25.00 TO STA 676+00.00 LT (INVERT)

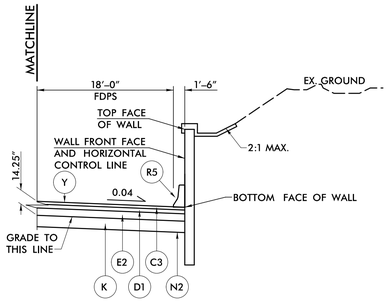


OFFSET CUT WALL WITH SHOULDER BERM GUTTER AND GUARDRAIL DETAIL

USE IN CONJUNCTION WITH TYPICAL SECTION NO.2

–L– STA 707+00.00 TO STA 708+20.00 RT (INVERT)
–L– STA 708+20.00 TO STA 708+50.00 RT (INVERT)**
–L– STA 707+50.00 TO STA 709+25.00 LT***

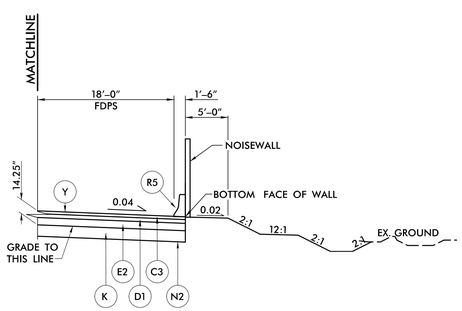
** THIS STATION RANGE HAS BARRIER WITH NOISEWALL INSTEAD OF SHOULDER BERM GUTTER.
*** THIS STATION RANGE HAS GUARDRAIL INSTEAD OF SHOULDER BERM GUTTER.



CUT WALL DETAIL

USE IN CONJUNCTION WITH TYPICAL SECTION NO.2

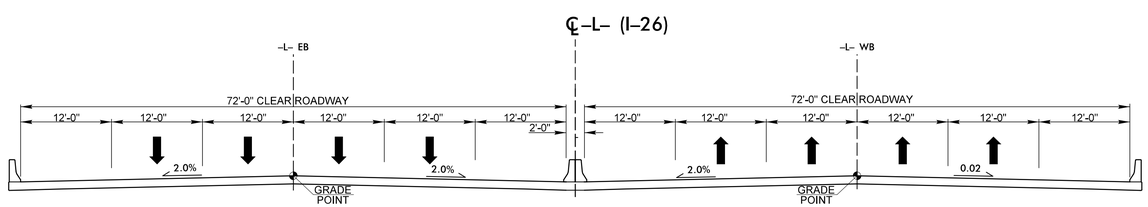
–L– STA 812+50.00 TO STA 817+00.00 RT
–L– STA 814+65.00 TO STA 816+00.00 LT (INVERT)



NOISEWALL DETAIL AT EDGE OF SHOULDER

USE IN CONJUNCTION WITH TYPICAL SECTION NO.2

–L– STA 708+19.96 TO STA 723+80.02 RT



BRIDGE TYPICAL

I-26 OVER CANE CREEK
–L– STA. 754+98.00 TO STA. 757+44.00

NOTE: SEE PLANS FOR SUPERELEVATIONS, TURN LANES, MONOLITHIC ISLANDS, CURB AND GUTTER, AND LANE TAPER LOCATIONS.

A1	13.0" PCCP
A2	9.0" PCCP
C1	1.25" S9.5B
C2	3" S9.5B
C3	3" S9.5C
C4	2.5" S9.5B
C5	1.5" S9.5C
C6	VARIABLE S9.5D
C7	3" S9.5D
D1	4" I19.0C
D2	2.5" I19.0C
E1	4" B25.0C
E2	6.0" OR 7.25" B25.0C*
E3	5" B25.0C
J	6" ABC
K	12" CLASS IV SUBGRADE STABILIZATION
N1	NONWOVEN GEOTEXTILE INTERLAYER
N2	GEOTEXTILE FOR SOIL STABILIZATION
R1	2'-6" C & G
R2	SHOULDER BERM GUTTER
R3	MONOLITHIC CONC. ISLAND
R4	SINGLE SLOPE CONCRETE BARRIER
R5	PRECAST REINFORCED CONCRETE BARRIER
R6	CONC. BARRIER RAIL W/MOMENT SLAB
R7	4" CONC. ISLAND COVER
T	EARTH MATERIAL
U	EXIST. PAVEMENT
V	MILLING 1.5" DEPTH
Y	MILLED RUMBLE STRIPS

PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE

* SEE SHOULDER DRAIN DETAIL SHEET 2A-1

DocuSign Envelope ID: 9D9A1C56-18BF-4571-900F-E7EB65805133

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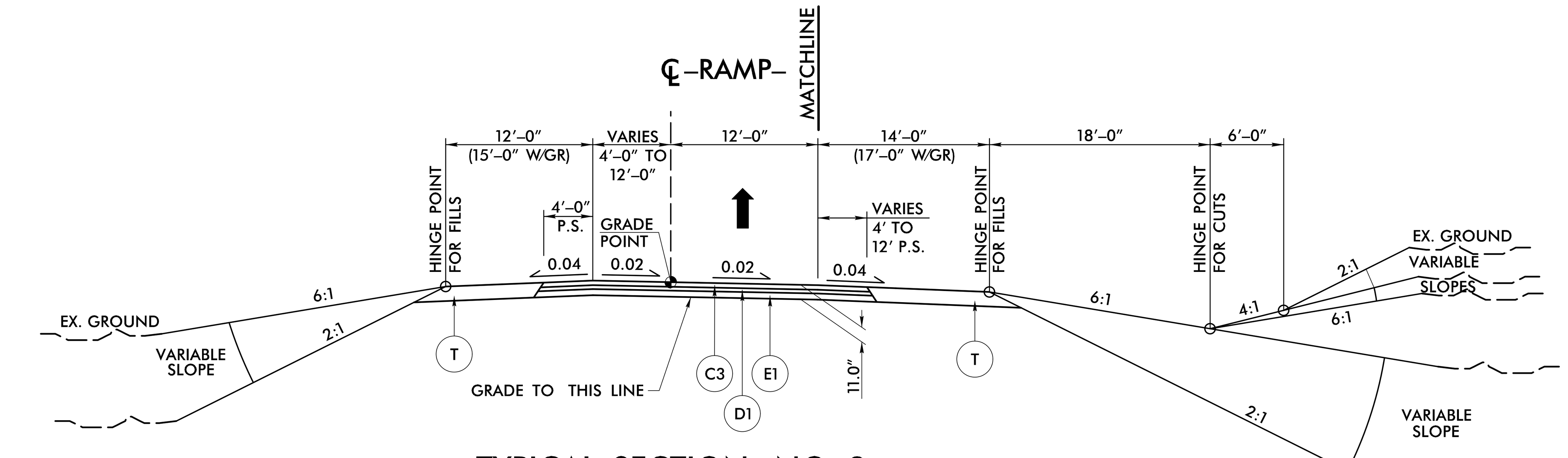
Raleigh, North Carolina 27609
NC License No: C-1554

PROJECT REFERENCE NO.	SHEET NO.
I-4400C	2A-4

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 046784 ENGINEER MARC A. WHITMORE — DocuSigned by: Marc Whitmore 7/15/2019

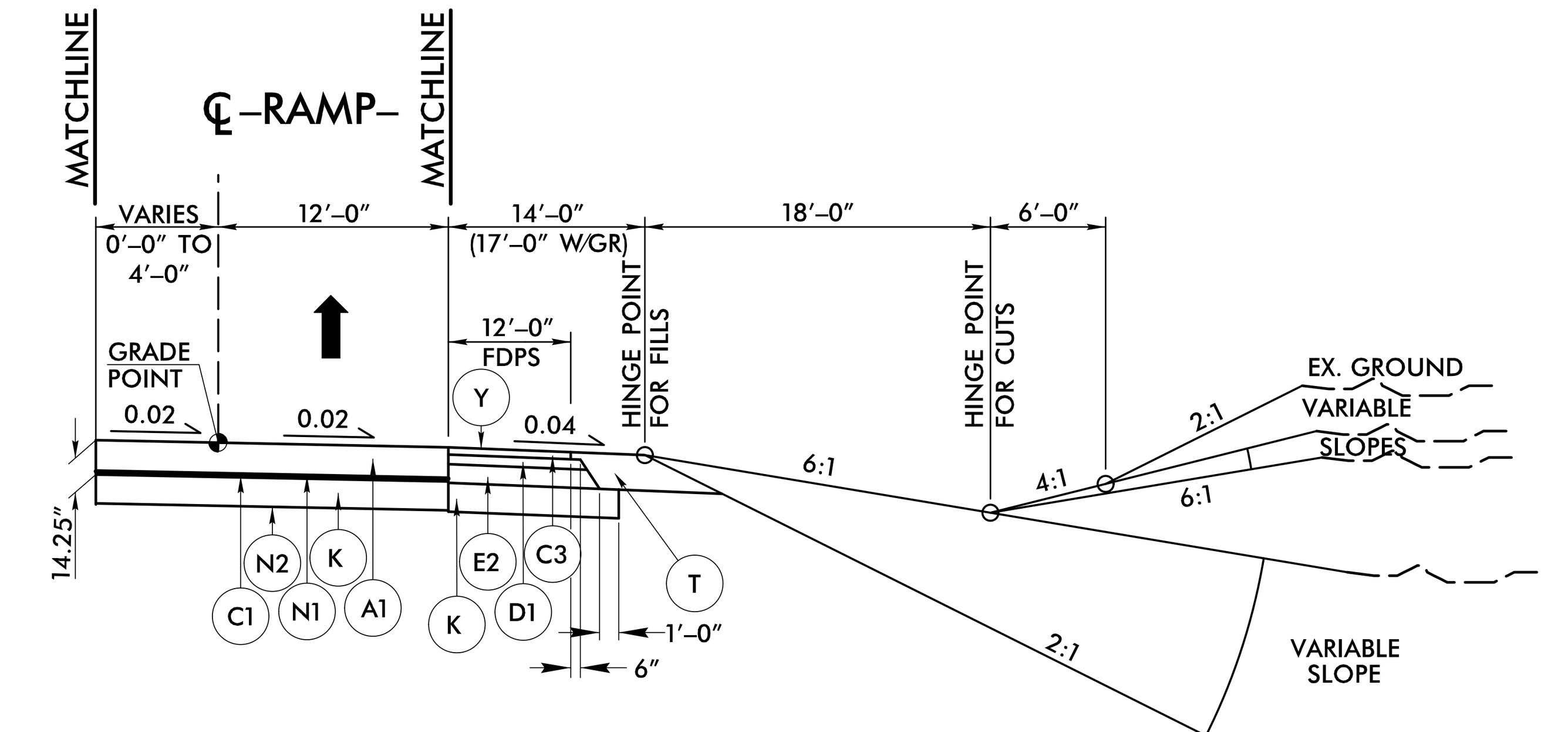
PAVEMENT DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 024964 ENGINEER JOSEPH HOLLAND — DocuSigned by: Josh Holland 7/15/2019

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



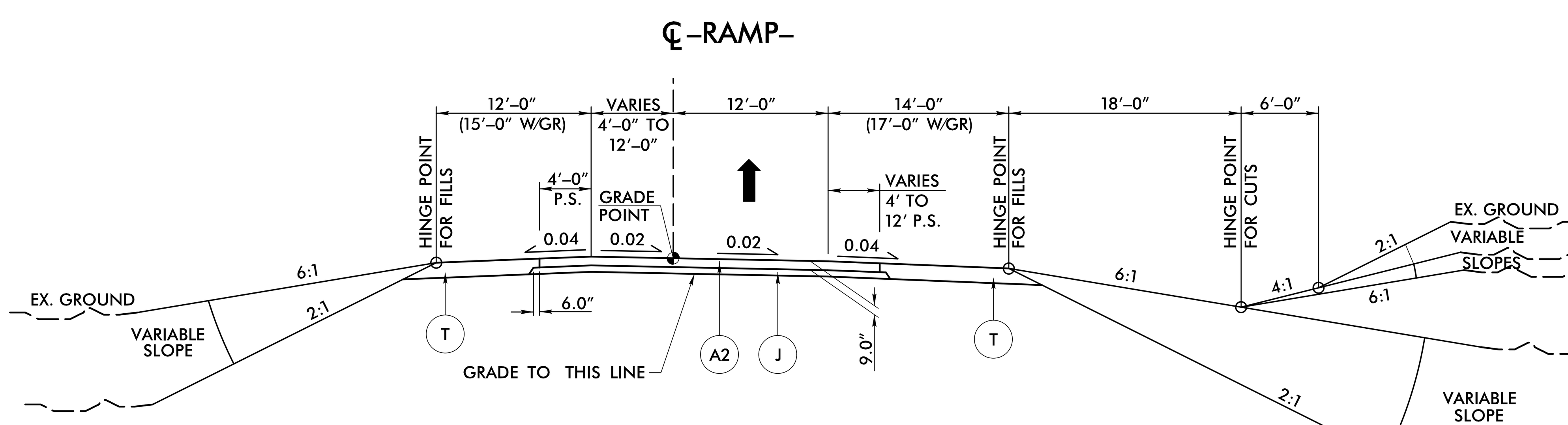
TYPICAL SECTION NO. 3

-Y10RPA- STA 16+17.71 TO STA 19+50
-Y10RPB- STA 14+41.24 TO STA 18+89.91 (INVERT)
-Y10RPC- STA 14+40.73 TO STA 16+00.00
-Y10RPD- STA 16+58.10 TO STA 28+92.47 (INVERT)



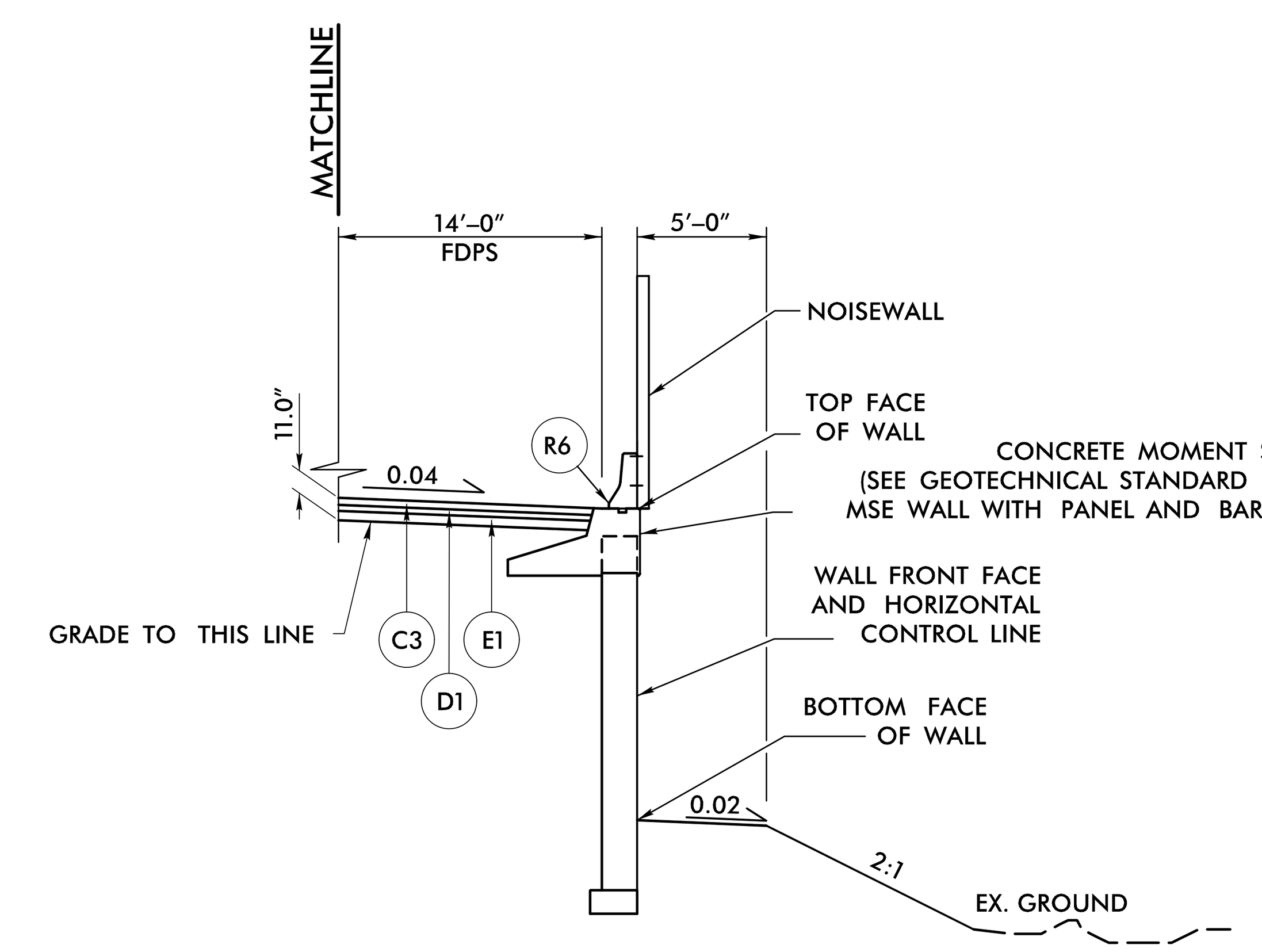
TYPICAL SECTION NO. 3B

-Y10RPA- STA 10+00.00 TO STA 16+17.71
-Y10RPB- STA 10+00.00 TO STA 14+41.24 (INVERT)
-Y10RPC- STA 10+00.00 TO STA 14+40.73
-Y10RPD- STA 10+00.00 TO STA 16+58.10 (INVERT)
-RESTA- STA 10+00.00 TO STA 15+81.86
-RESTB- STA 10+00.00 TO STA 15+52.98 (INVERT)
-RESTC- STA 10+00.00 TO STA 16+20.15
-RESTD- STA 10+00.00 TO STA 17+06.59 (INVERT)



TYPICAL SECTION NO. 3A

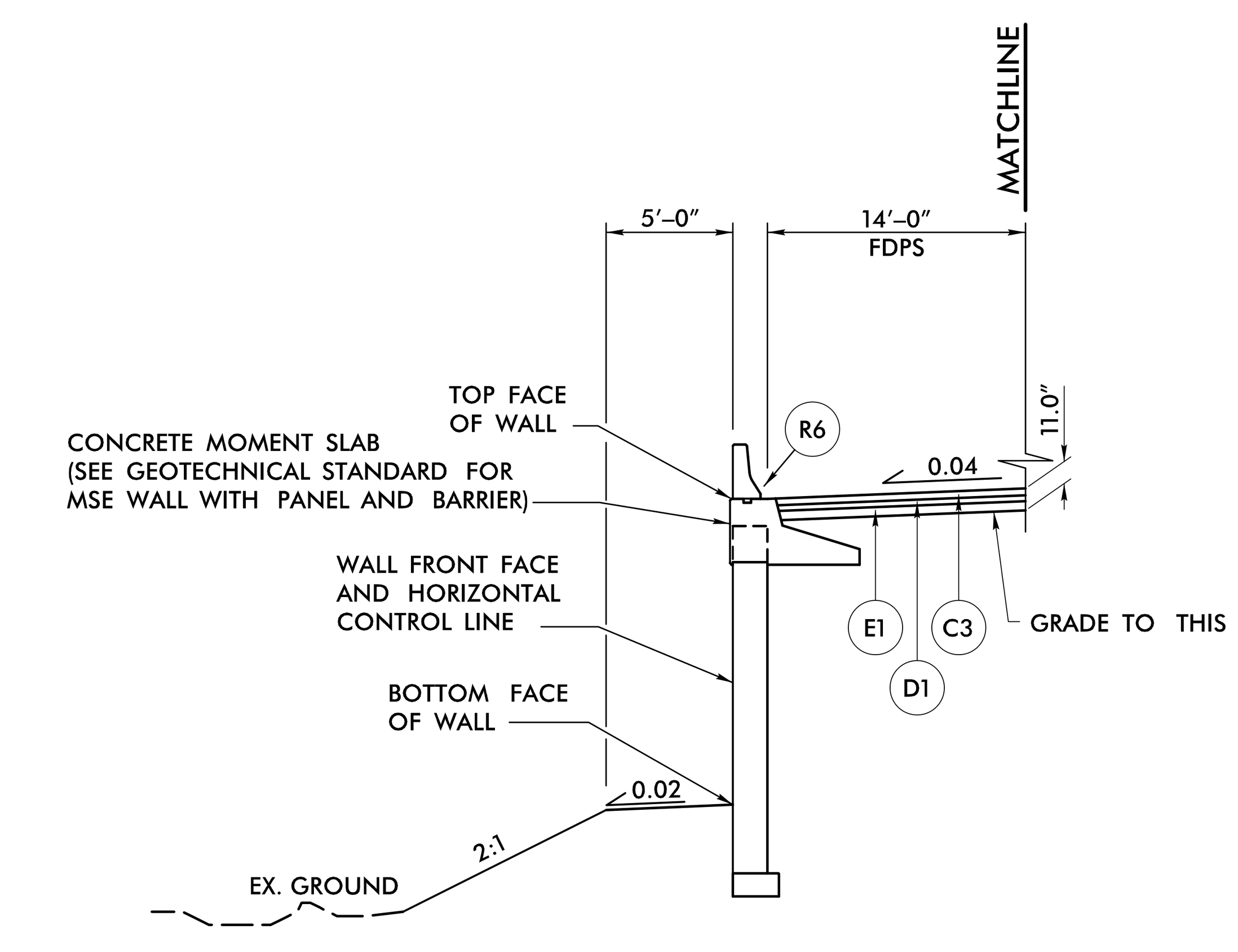
-RESTA- STA 15+81.86 TO STA 17+00.00
-RESTB- STA 15+52.98 TO STA 17+00.00 (INVERT)
-RESTC- STA 16+20.15 TO STA 17+50.00
-RESTD- STA 17+06.59 TO STA 17+25.00 (INVERT)



FILL WALL WITH MOMENT SLAB AND NOISEWALL DETAIL

USE IN CONJUNCTION WITH TYPICAL SECTIONS NO.3

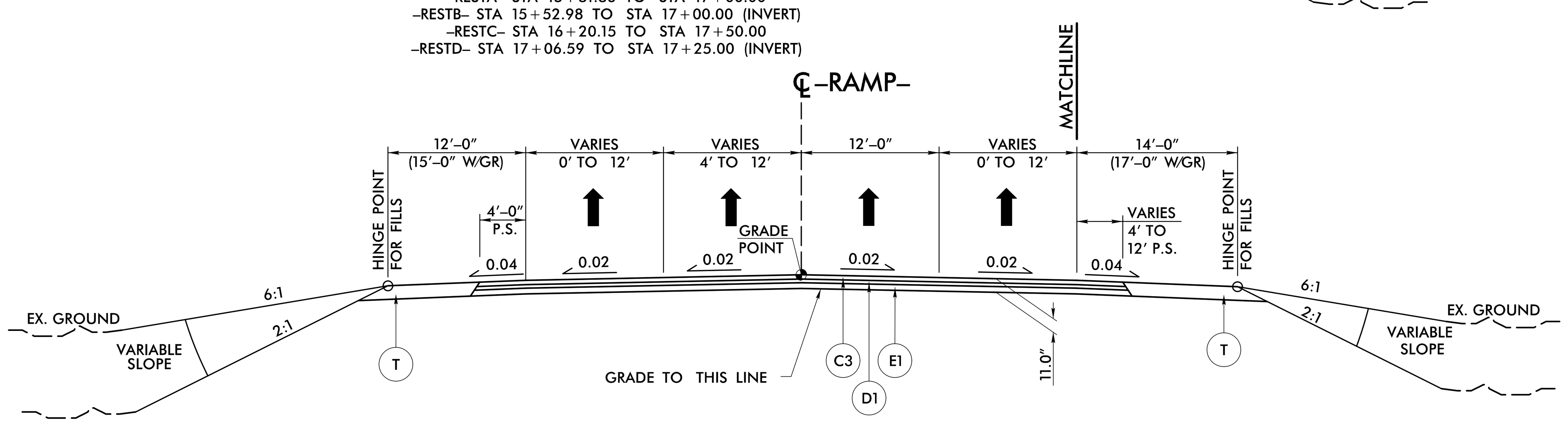
-Y10RPC- STA 14+40.73 TO STA 16+00.00 RT



FILL WALL WITH MOMENT SLAB DETAIL

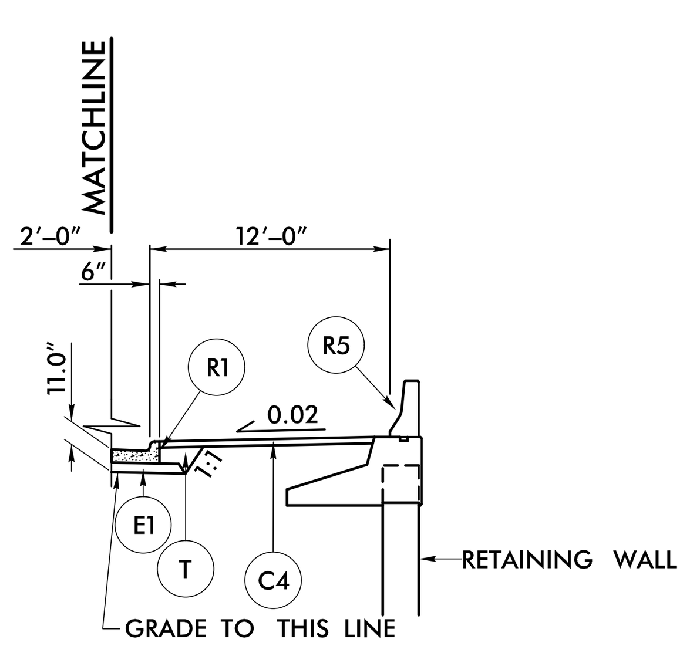
USE IN CONJUNCTION WITH TYPICAL SECTIONS NO.3, 4 & 5

-Y10RPA- STA 20+00.00 TO STA 27+07.66 RT (INVERT)
-Y10RPB- STA 14+41.24 TO STA 15+00.00 LT



TYPICAL SECTION NO. 4

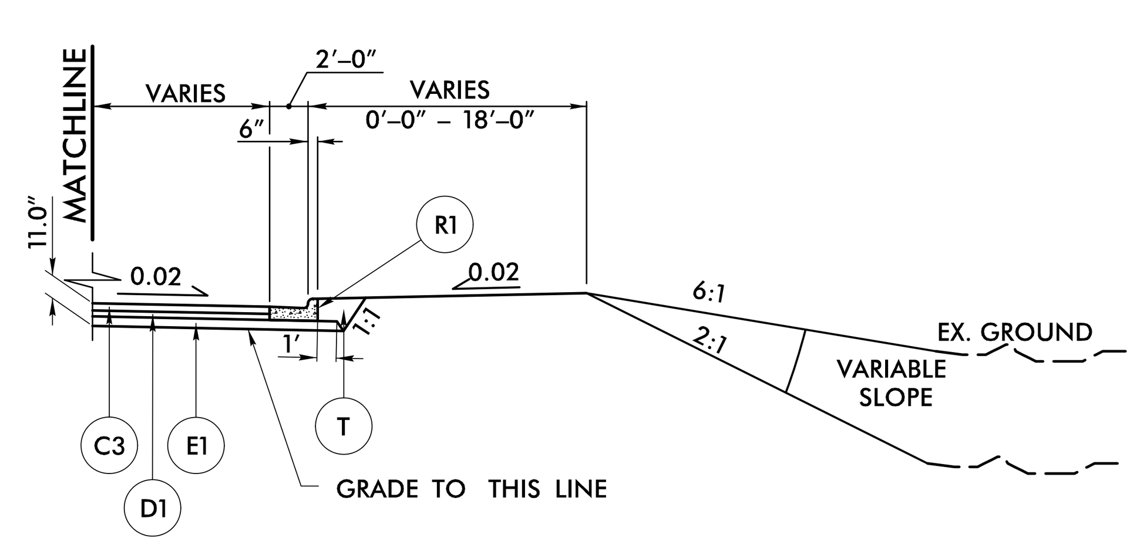
-Y10RPA- STA 19+50.00 TO STA 26+16.96
-Y10RPA_SPUR_LT- STA 10+00.00 TO STA 10+79.21
-Y10RPC- STA 16+00.00 TO STA 22+48.15



FILL WALL WITH OFFSET BARRIER AND CURB DETAIL

USE IN CONJUNCTION WITH TYPICAL SECTIONS NO.4 & 5

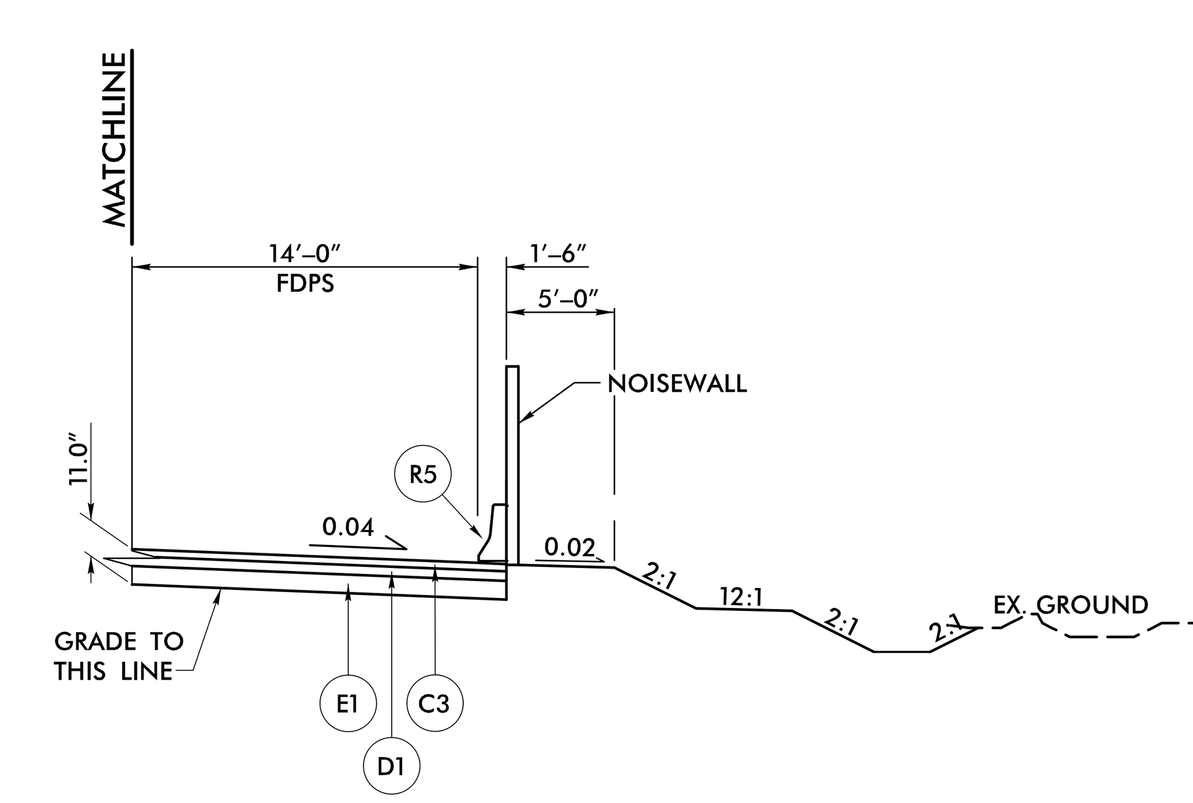
-Y10RPA- STA 27+07.66 TO STA 27+38.39
-Y10RPA_SPUR_RT- STA 10+00.00 TO STA 11+61.12



CURB AND GUTTER DETAIL

USE IN CONJUNCTION WITH TYPICAL SECTION NO.5

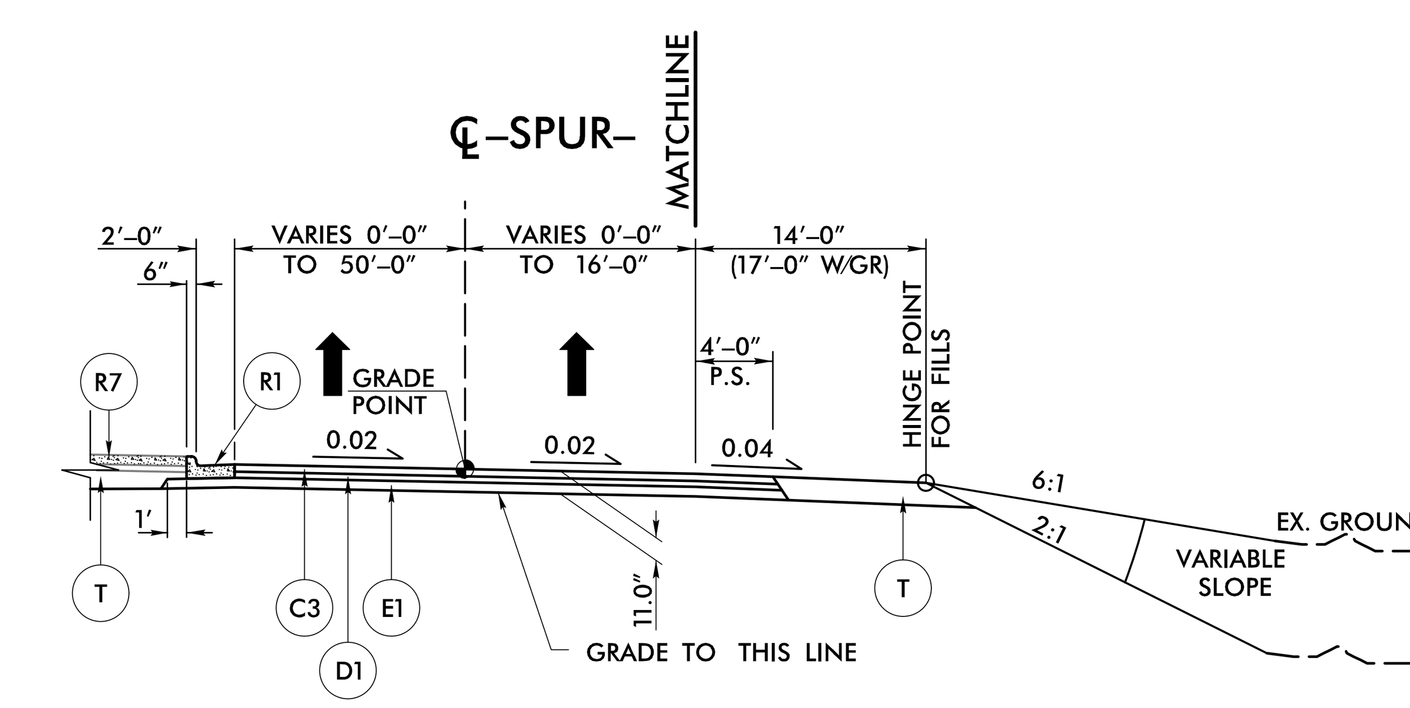
-Y10RPB_SPUR_RT- STA 10+71.81 TO STA 12+35.69
-Y10RPB_SPUR_LT- STA 10+00.00 TO STA 13+88.39 (INVERT)
-Y10RPC_SPUR_RT- STA 10+00.00 TO STA 11+85.15
-Y10RPC_SPUR_LT- STA 11+37.90 TO STA 12+22.68 (INVERT)
-Y10RPD_SPUR_LT- STA 10+00.00 TO STA 12+38.76
-Y10RPD_SPUR_RT- STA 11+37.87 TO STA 14+04.33 (INVERT)



NOISEWALL DETAIL AT EDGE OF SHOULDER

USE IN CONJUNCTION WITH TYPICAL SECTION NO.4

-Y10RPC- STA 16+00.00 TO STA 18+72.33 RT



TYPICAL SECTION NO. 5

-Y10RPA- STA 26+16.96 TO STA 27+38.39
-Y10RPA_SPUR_LT- STA 10+79.21 TO STA 12+50.99 (INVERT)
-Y10RPA_SPUR_RT- STA 10+00.00 TO STA 11+61.12
-Y10RPB- STA 18+89.91 TO STA 19+12.16
-Y10RPB_SPUR_LT- STA 10+00.00 TO STA 13+88.39 (INVERT)
-Y10RPB_SPUR_RT- STA 10+00.00 TO STA 12+35.69
-Y10RPC- STA 22+48.15 TO STA 23+24.74
-Y10RPC_SPUR_LT- STA 10+00.00 TO STA 12+22.68 (INVERT)
-Y10RPC_SPUR_RT- STA 10+00.00 TO STA 11+85.15
-Y10RPD_SPUR_LT- STA 10+00.00 TO STA 12+38.76
-Y10RPD_SPUR_RT- STA 10+00.00 TO STA 14+04.33 (INVERT)

NOTE: SEE PLANS FOR SUPERELEVATIONS, TURN LANES, MONOLITHIC ISLANDS, CURB AND GUTTER, AND LANE TAPER LOCATIONS.

A1	13.0″ PCCP
A2	9.0″ PCCP
C1	1.25″ S9.5B
C2	3″ S9.5B
C3	3″ S9.5C
C4	2.5″ S9.5B
C5	1.5″ S9.5C
C6	VARIABLE S9.5D
C7	3″ S9.5D
D1	4″ I19.0C
D2	2.5″ I19.0C
E1	4″ B25.0C
E2	6.0″ OR 7.25″ B25.0C*
E3	5″ B25.0C
J	6″ ABC
K	12″ CLASS IV SUBGRADE STABILIZATION
N1	NONWOVEN GEOTEXTILE INTERLAYER
N2	GEOTEXTILE FOR SOIL STABILIZATION
R1	2′-6″ C & G
R2	SHOULDER BERM GUTTER
R3	MONOLITHIC CONC. ISLAND
R4	SINGLE SLOPE CONCRETE BARRIER
R5	PRECAST REINFORCED CONCRETE BARRIER
R6	CONC. BARRIER RAIL W/MOMENT SLAB
R7	4″ CONC. ISLAND COVER
T	EARTH MATERIAL
U	EXIST. PAVEMENT
V	MILLING 1.5″ DEPTH
Y	MILLED RUMBLE STRIPS
PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE	
* SEE SHOULDER DRAIN DETAIL SHEET 2A-1	

6/2/99

15-JUL-2019 14:25
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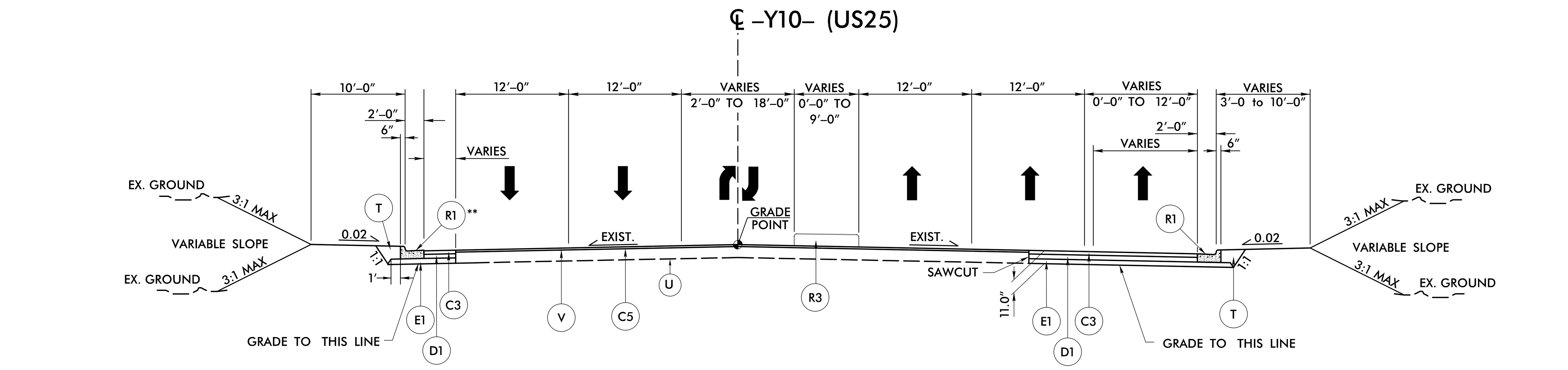
343 E. Six Forks Road, Suite 200
Raleigh, North Carolina 27609
NC License No: C-1554

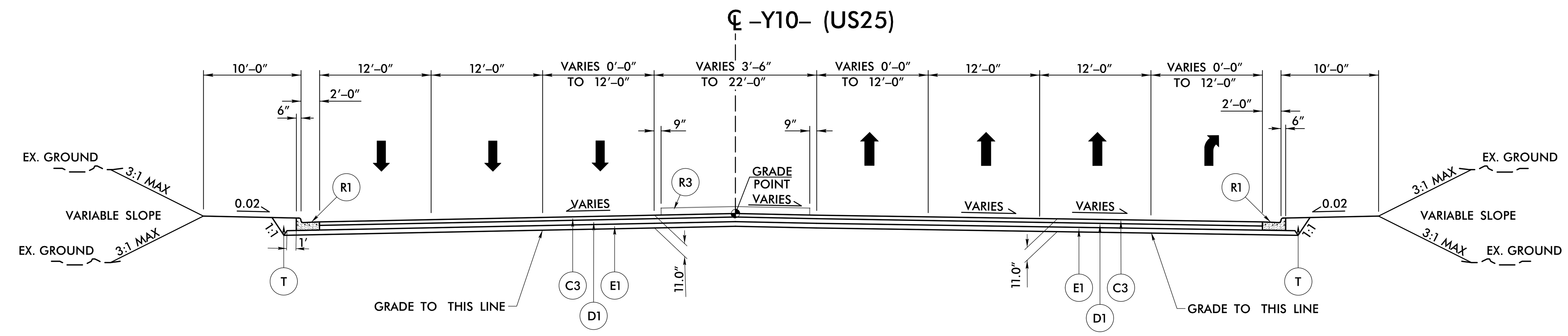
PROJECT REFERENCE NO.	SHEET NO.
I-4400C	2A-5
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 046784 ENGINEER MARC A. WHITMORE — Marc Whitmore 7/15/2019	NORTH CAROLINA PROFESSIONAL SEAL 024964 ENGINEER JOSEPH HOLLAND — Josh Holland 7/15/2019

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



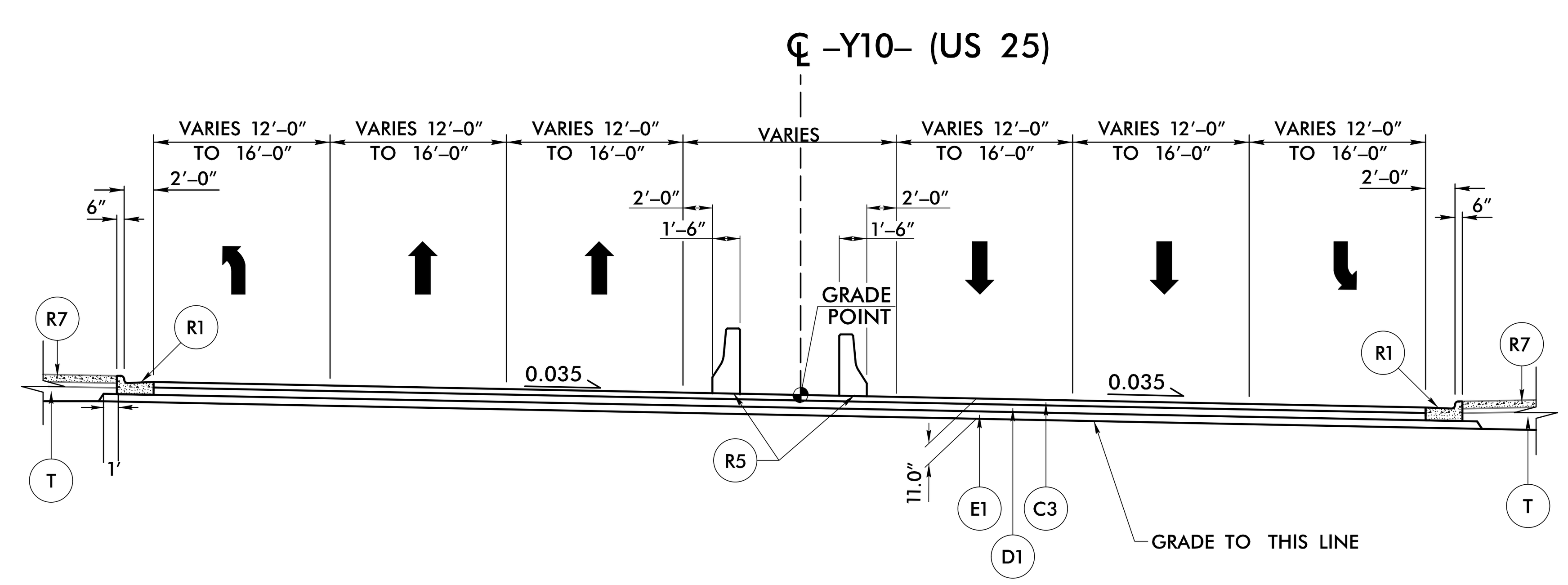
TYPICAL SECTION NO. 6

-Y10- STA 314+95.00 TO STA 324+50.00 **(NO LT CURB REPLACEMENT)
-Y10- STA 344+60.00 TO STA 348+25.00



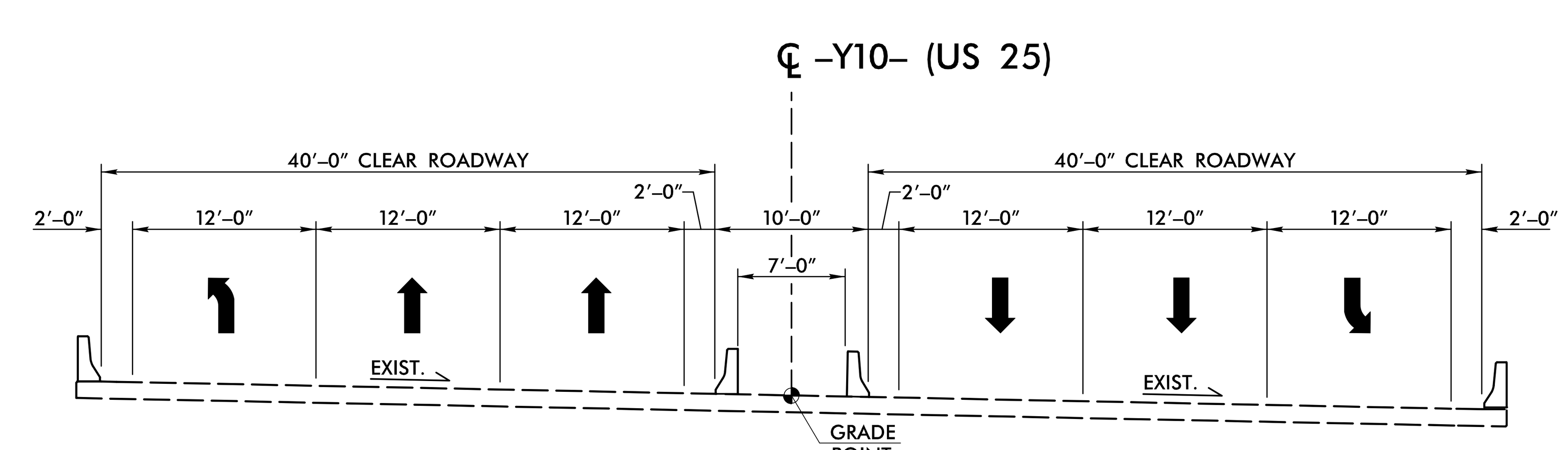
TYPICAL SECTION NO. 7

-Y10- STA 324+50.00 TO STA 328+10.79
-Y10- STA 336+24.37 TO STA 344+60.00



TYPICAL SECTION NO. 8

-Y10- STA 328+10.79 TO STA 330+37.09
-Y10- STA 333+95.76 TO STA 336+24.37

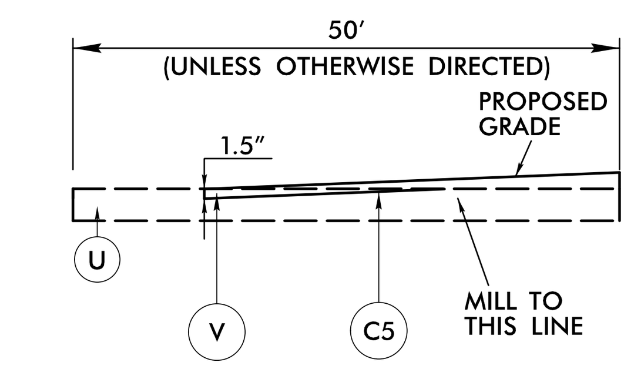


BRIDGE TYPICAL

EXISTING US 25 OVER I-26
INCLUDES EXISTING APPROACH SLABS
-Y10- STA 330+37.09 TO STA 333+95.76

NOTE: EXISTING BRIDGE TO BE RETROFITTED FOR A DDI

NOTE: SEE PLANS FOR SUPERELEVATIONS, TURN LANES, MONOLITHIC ISLANDS, CURB AND GUTTER, AND LANE TAPER LOCATIONS.



DETAIL FOR INCIDENTAL MILLING

A1	13.0" PCCP
A2	9.0" PCCP
C1	1.25" S9.5B
C2	3" S9.5B
C3	3" S9.5C
C4	2.5" S9.5B
C5	1.5" S9.5C
C6	VARIABLE S9.5D
C7	3" S9.5D
D1	4" I19.0C
D2	2.5" I19.0C
E1	4" B25.0C
E2	6.0" OR 7.25" B25.0C*
E3	5" B25.0C
J	6" ABC
K	12" CLASS IV SUBGRADE STABILIZATION
N1	NONWOVEN GEOTEXTILE INTERLAYER
N2	GEOTEXTILE FOR SOIL STABILIZATION
R1	2'-6" C & G
R2	SHOULDER BERM GUTTER
R3	MONOLITHIC CONC. ISLAND
R4	SINGLE SLOPE CONCRETE BARRIER
R5	PRECAST REINFORCED CONCRETE BARRIER
R6	CONC. BARRIER RAIL W/MOMENT SLAB
R7	4" CONC. ISLAND COVER
T	EARTH MATERIAL
U	EXIST. PAVEMENT
V	MILLING 1.5" DEPTH
Y	MILLED RUMBLE STRIPS

PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE

* SEE SHOULDER DRAIN DETAIL SHEET 2A-1

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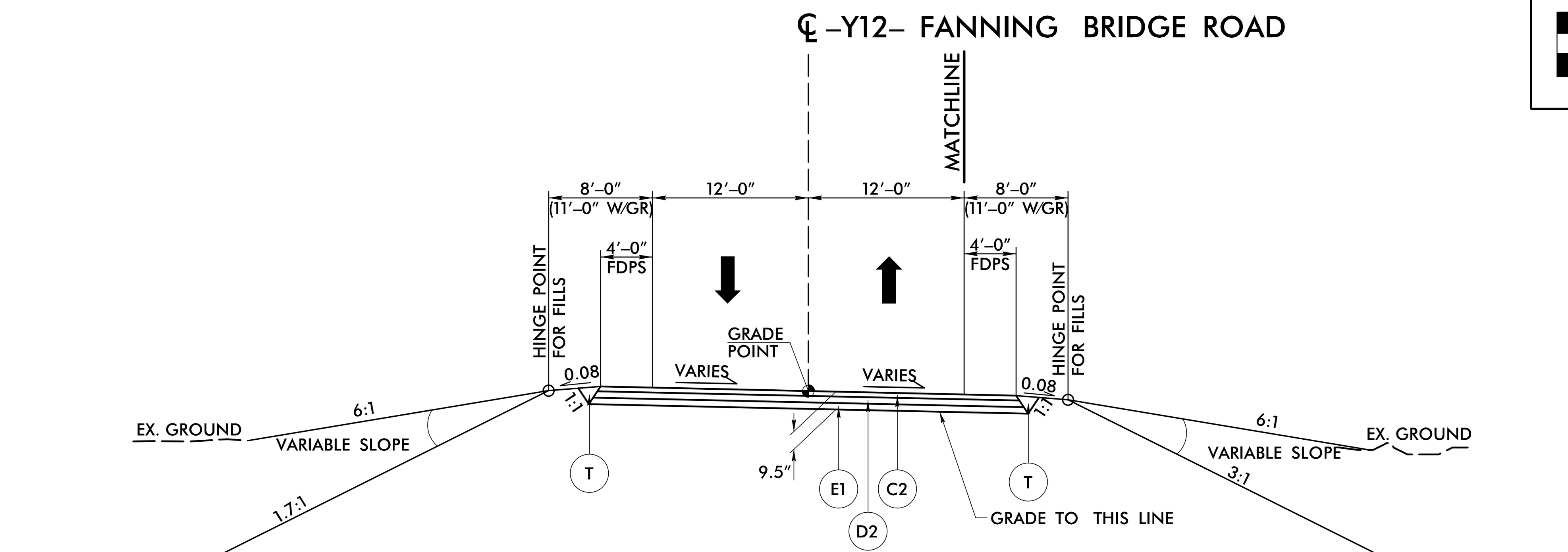
NC License No: C-1554

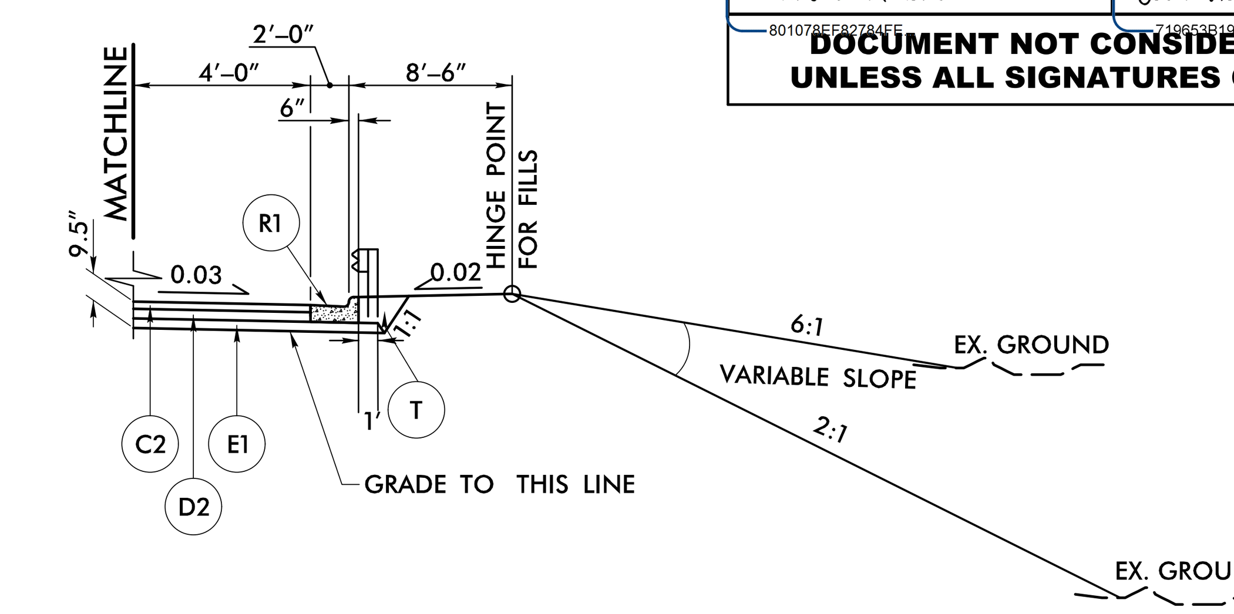
PROJECT REFERENCE NO.	SHEET NO.
I-4400C	2A-6
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 046784 ENGINEER MARC A. WHITMORE 7/15/2019	NORTH CAROLINA PROFESSIONAL SEAL 024964 ENGINEER JOSEPH HOLLAND 7/15/2019

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



TYPICAL SECTION NO. 9

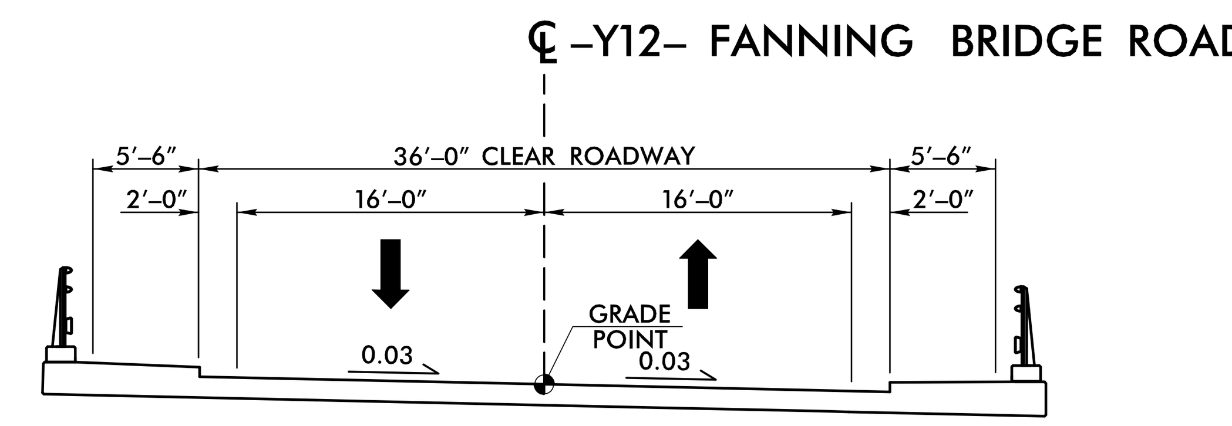
-Y12- STA 16+00.00 TO STA 21+71.31
-Y12- STA 23+70.64 TO STA 29+30.00



CURB AND GUTTER DETAIL

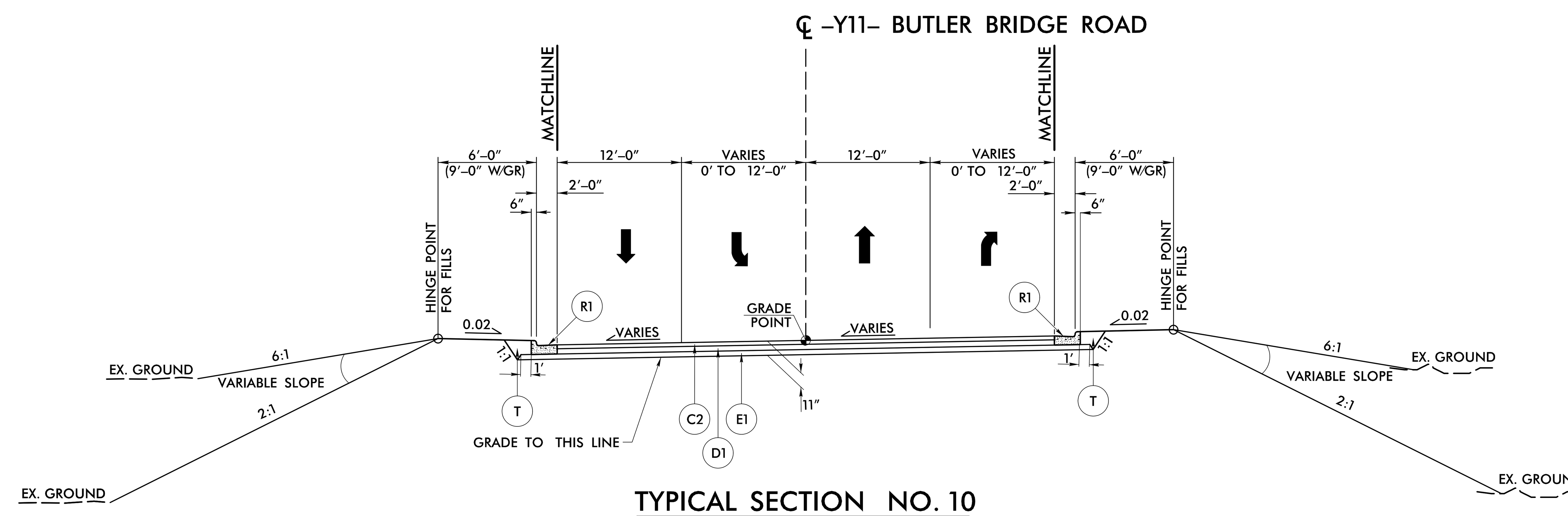
USE IN CONJUNCTION WITH TYPICAL SECTION NO.9

-Y12- STA 21+35.00 TO STA 21+46.78 RT
-Y12- STA 23+98.25 TO STA 24+10.00 RT



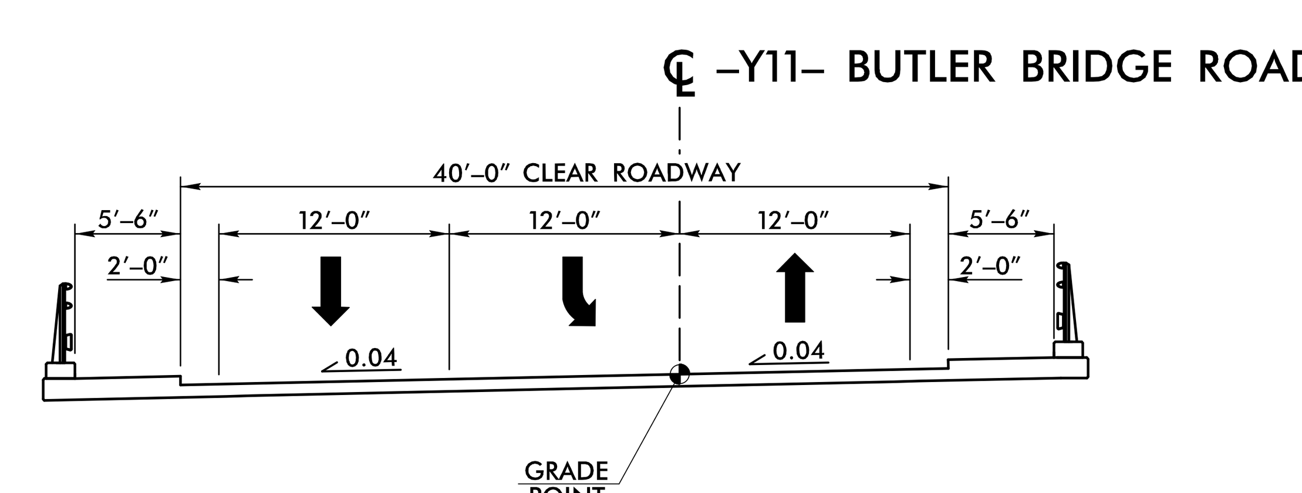
BRIDGE TYPICAL

FANNING BRIDGE RD OVER I-26
-Y12- STA 21+71.31 TO STA 23+70.64



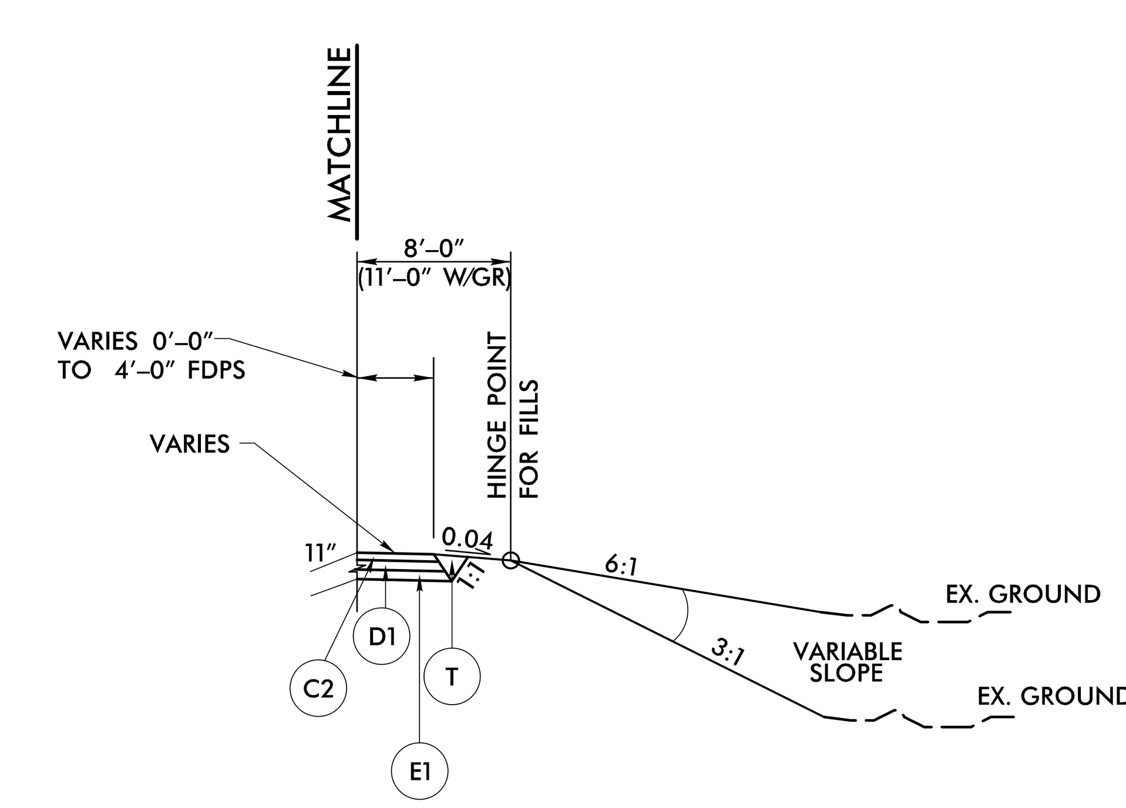
TYPICAL SECTION NO. 10

-Y11- STA 10+80.00 TO STA 15+93.10
-Y11- STA 18+03.68 TO STA 23+13.47



BRIDGE TYPICAL

BUTLER BRIDGE RD OVER I-26
-Y11- STA 15+93.10 TO STA 18+03.68



SHOULDER DETAIL

USE IN CONJUNCTION WITH TYPICAL SECTION NO.10
-Y11- STA 10+80.00 TO 12+20.00 LT (INVERT)

A1	13.0" PCCP
A2	9.0" PCCP
C1	1.25" S9.5B
C2	3" S9.5B
C3	3" S9.5C
C4	2.5" S9.5B
C5	1.5" S9.5C
C6	VARIABLE S9.5D
C7	3" S9.5D
D1	4" I19.0C
D2	2.5" I19.0C
E1	4" B25.0C
E2	6.0" OR 7.25" B25.0C*
E3	5" B25.0C
J	6" ABC
K	12" CLASS IV SUBGRADE STABILIZATION
N1	NONWOVEN GEOTEXTILE INTERLAYER
N2	GEOTEXTILE FOR SOIL STABILIZATION
R1	2'-6" C & G
R2	SHOULDER BERM GUTTER
R3	MONOLITHIC CONC. ISLAND
R4	SINGLE SLOPE CONCRETE BARRIER
R5	PRECAST REINFORCED CONCRETE BARRIER
R6	CONC. BARRIER RAIL W/MOMENT SLAB
R7	4" CONC. ISLAND COVER
T	EARTH MATERIAL
U	EXIST. PAVEMENT
V	MILLING 1.5" DEPTH
Y	MILLED RUMBLE STRIPS

PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE

* SEE SHOULDER DRAIN DETAIL SHEET 2A-1

NOTE: SEE PLANS FOR SUPERELEVATIONS, TURN LANES, MONOLITHIC ISLANDS, CURB AND GUTTER, AND LANE TAPER LOCATIONS.

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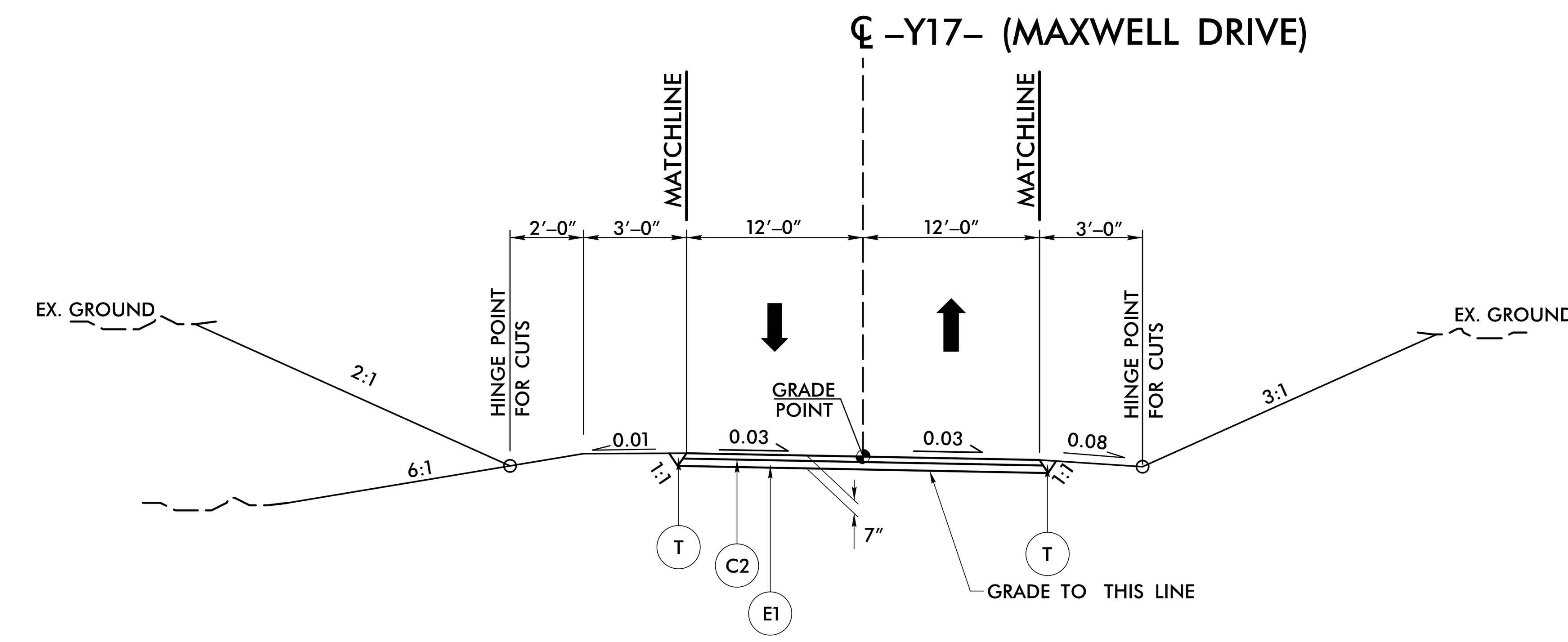
Raleigh, North Carolina 27609
NC License No: C-1554

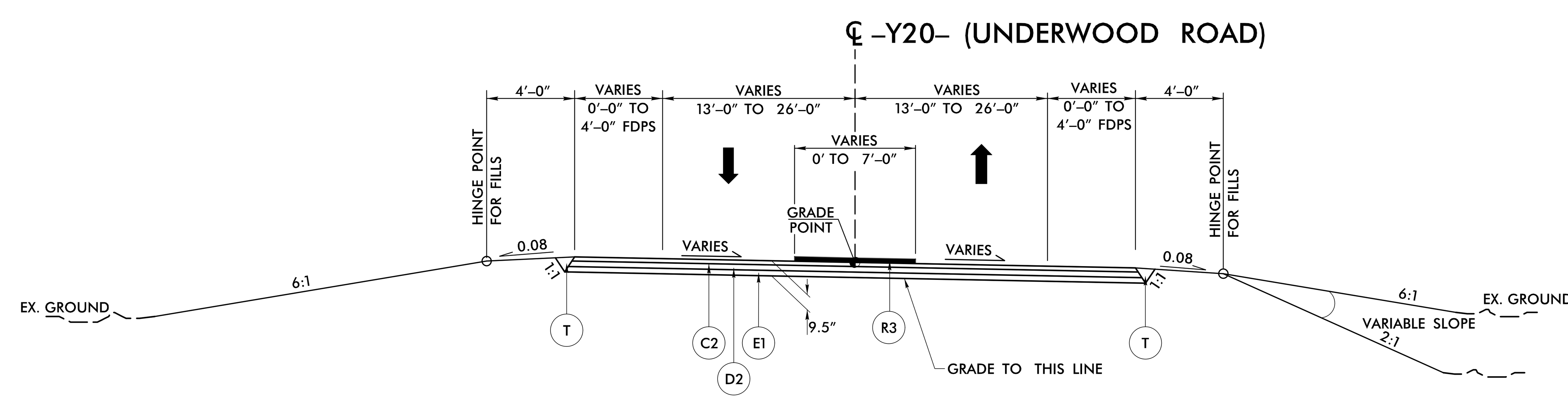
PROJECT REFERENCE NO.	SHEET NO.
I-4400C	2A-7
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 046784 ENGINEER MARC A. WHITMORE — 7/15/2019	NORTH CAROLINA PROFESSIONAL SEAL 024964 ENGINEER JOSEPH HOLLAND — 7/15/2019

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



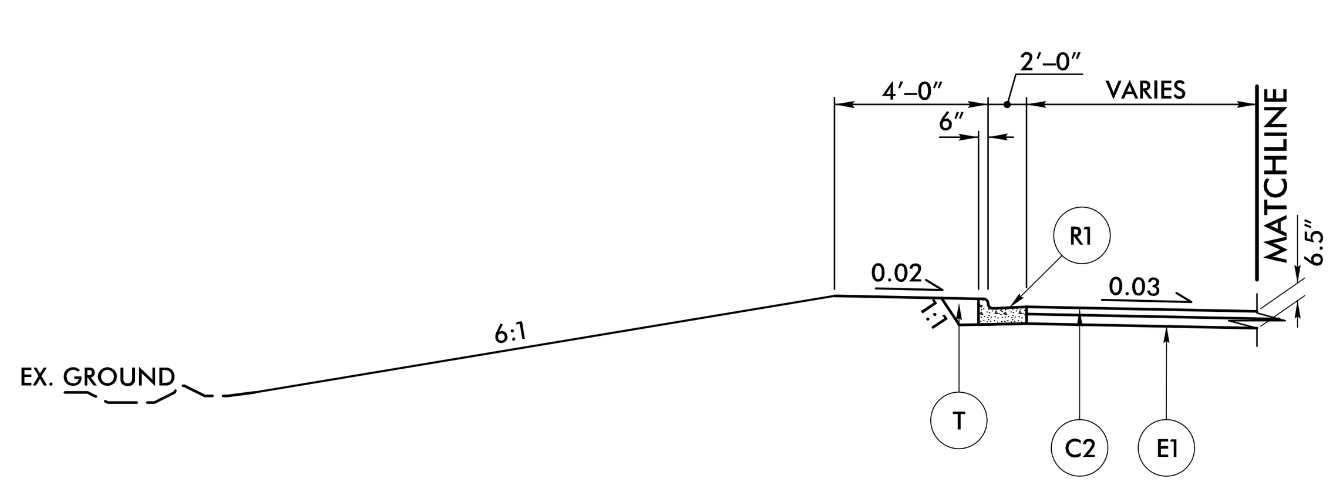
TYPICAL SECTION NO. 11

-Y17- STA 10+98.80 TO STA 13+65.49



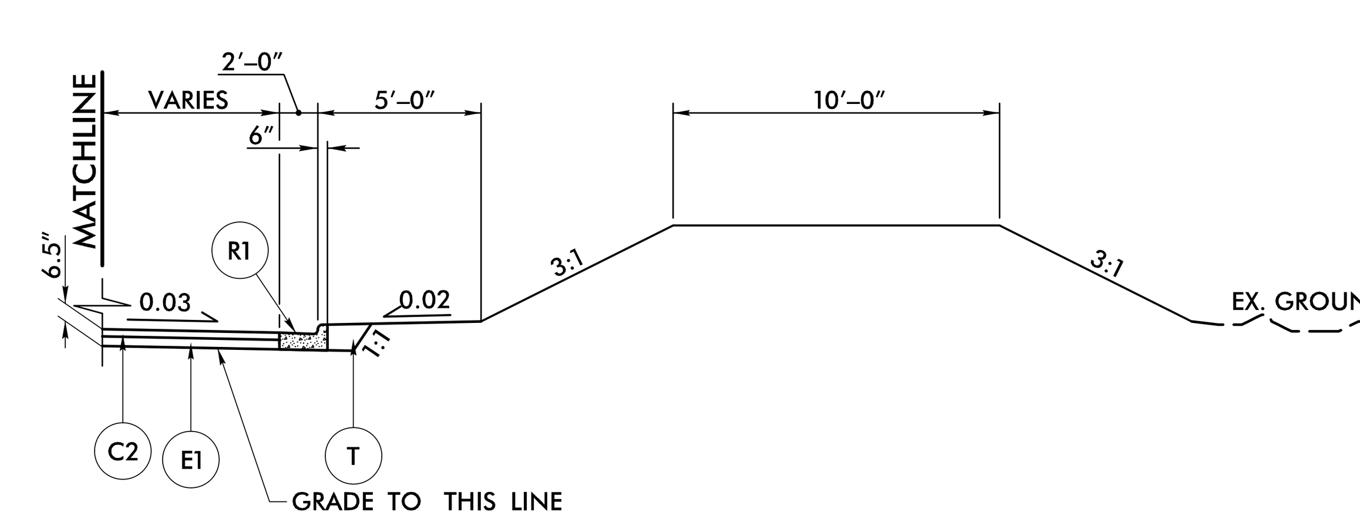
TYPICAL SECTION NO. 12

-Y20- STA 10+12.14 TO STA 11+50.00



CURB AND GUTTER DETAIL

USE IN CONJUNCTION WITH TYPICAL SECTION NO.11
-Y17- STA 12+45.40 TO STA 13+65.49 LT



CURB AND GUTTER WITH BERM DETAIL

USE IN CONJUNCTION WITH TYPICAL SECTION NO.11
-Y17- STA 11+98.70 TO STA 13+65.49 RT

A1	13.0" PCCP
A2	9.0" PCCP
C1	1.25" S9.5B
C2	3" S9.5B
C3	3" S9.5C
C4	2.5" S9.5B
C5	1.5" S9.5C
C6	VARIABLE S9.5D
C7	3" S9.5D
D1	4" I19.0C
D2	2.5" I19.0C
E1	4" B25.0C
E2	6.0" OR 7.25" B25.0C*
E3	5" B25.0C
J	6" ABC
K	12" CLASS IV SUBGRADE STABILIZATION
N1	NONWOVEN GEOTEXTILE INTERLAYER
N2	GEOTEXTILE FOR SOIL STABILIZATION
R1	2'-6" C & G
R2	SHOULDER BERM GUTTER
R3	MONOLITHIC CONC. ISLAND
R4	SINGLE SLOPE CONCRETE BARRIER
R5	PRECAST REINFORCED CONCRETE BARRIER
R6	CONC. BARRIER RAIL W/MOMENT SLAB
R7	4" CONC. ISLAND COVER
T	EARTH MATERIAL
U	EXIST. PAVEMENT
V	MILLING 1.5" DEPTH
Y	MILLED RUMBLE STRIPS

PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE

* SEE SHOULDER DRAIN DETAIL SHEET 2A-1

NOTE: SEE PLANS FOR SUPERELEVATIONS, TURN LANES, MONOLITHIC ISLANDS, CURB AND GUTTER, AND LANE TAPER LOCATIONS.

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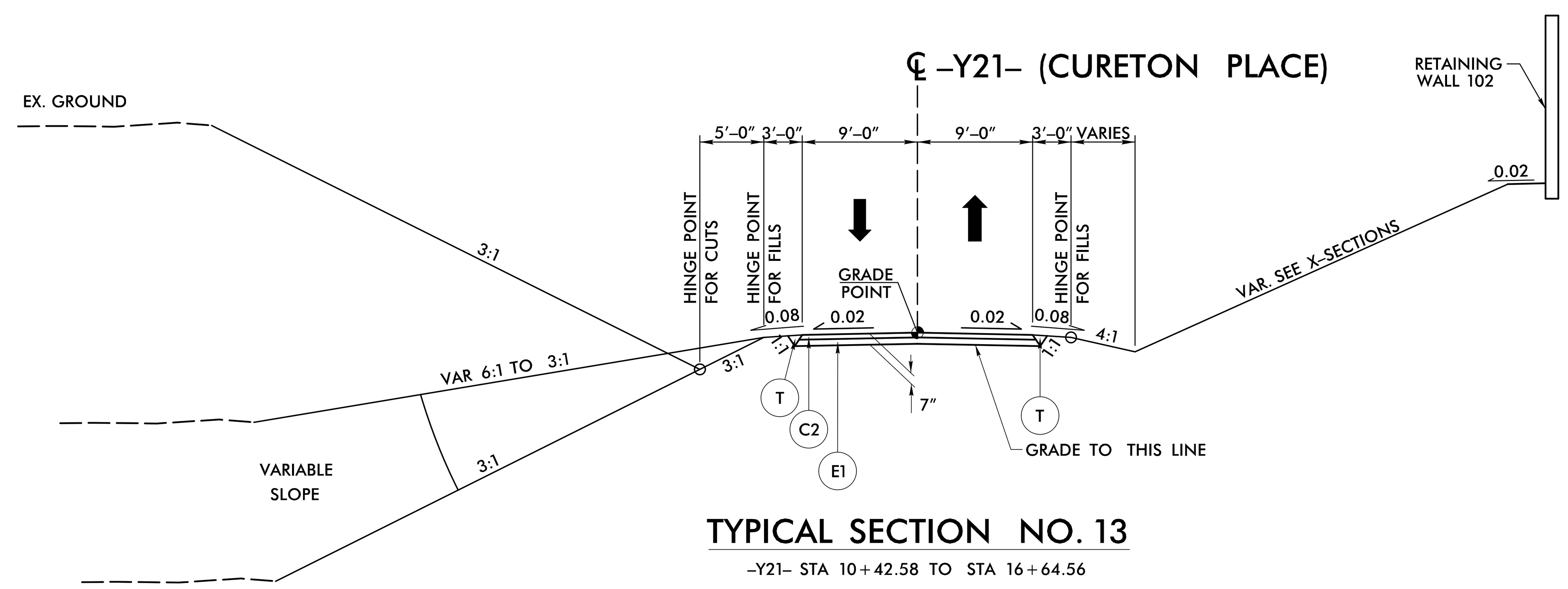
NC License No: C-1554

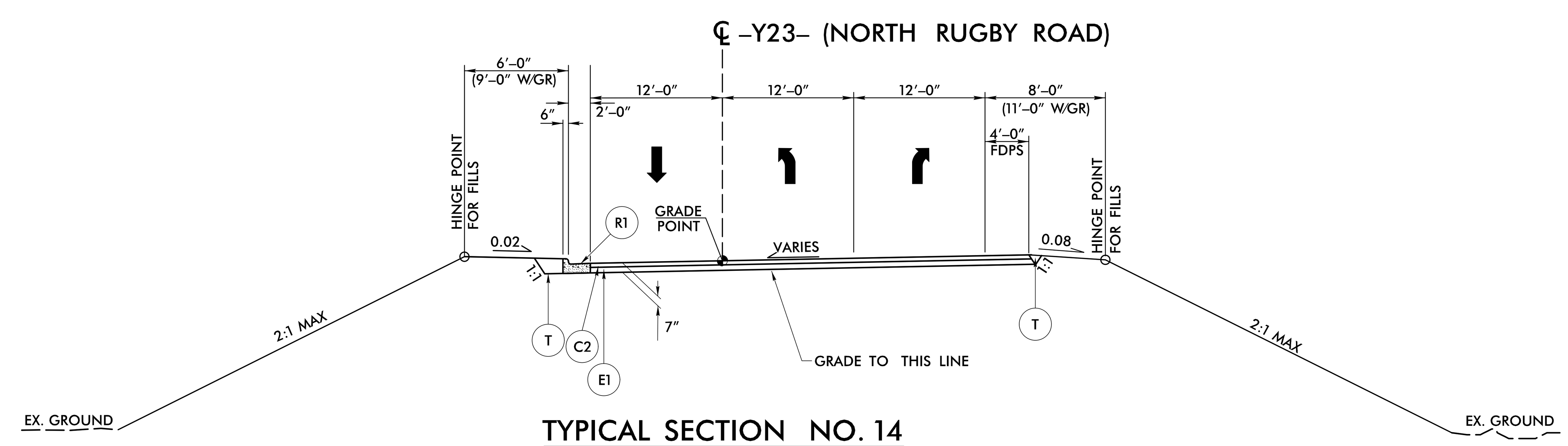
PROJECT REFERENCE NO.	SHEET NO.
I-4400C	2A-8
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 046784 ENGINEER MARC A. WHITMORE — 7/15/2019	NORTH CAROLINA PROFESSIONAL SEAL 024964 ENGINEER JOSEPH HOLLAND — 7/15/2019

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



TYPICAL SECTION NO. 13

-Y21- STA 10+42.58 TO STA 16+64.56



TYPICAL SECTION NO. 14

-Y23- STA 12+25.00 TO STA 15+69.65

A1	13.0" PCCP
A2	9.0" PCCP
C1	1.25" S9.5B
C2	3" S9.5B
C3	3" S9.5C
C4	2.5" S9.5B
C5	1.5" S9.5C
C6	VARIABLE S9.5D
C7	3" S9.5D
D1	4" I19.0C
D2	2.5" I19.0C
E1	4" B25.0C
E2	6.0" OR 7.25" B25.0C*
E3	5" B25.0C
J	6" ABC
K	12" CLASS IV SUBGRADE STABILIZATION
N1	NONWOVEN GEOTEXTILE INTERLAYER
N2	GEOTEXTILE FOR SOIL STABILIZATION
R1	2'-6" C & G
R2	SHOULDER BERM GUTTER
R3	MONOLITHIC CONC. ISLAND
R4	SINGLE SLOPE CONCRETE BARRIER
R5	PRECAST REINFORCED CONCRETE BARRIER
R6	CONC. BARRIER RAIL W/MOMENT SLAB
R7	4" CONC. ISLAND COVER
T	EARTH MATERIAL
U	EXIST. PAVEMENT
V	MILLING 1.5" DEPTH
Y	MILLED RUMBLE STRIPS

PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE

* SEE SHOULDER DRAIN DETAIL SHEET 2A-1

NOTE: SEE PLANS FOR SUPERELEVATIONS, TURN LANES, MONOLITHIC ISLANDS, CURB AND GUTTER, AND LANE TAPER LOCATIONS.

6/2/99

REVISIONS

HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200
Raleigh, North Carolina 27609
NC License No: C-1554

PROJECT REFERENCE NO.	SHEET NO.
I-4400C	2A-9

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 046784 ENGINEER MARC WHITMORE

DocuSigned by: Marc Whitmore 7/15/2019

PAVEMENT DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 024964 ENGINEER JOSEPH HOLLAND

DocuSigned by: Josh Holland 7/15/2019

8010700

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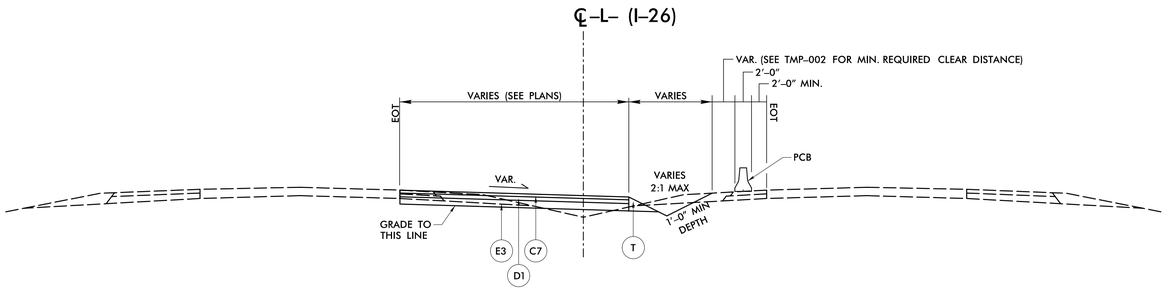
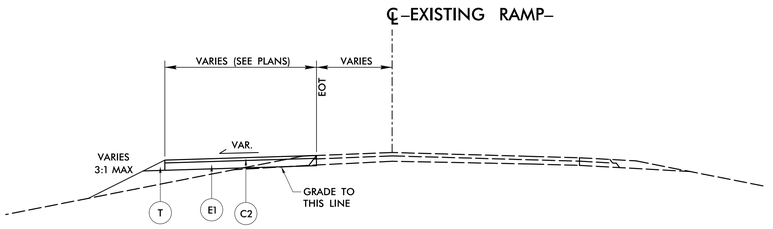


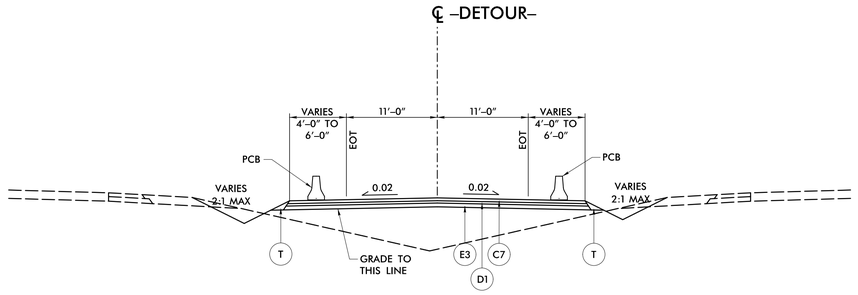
TYPICAL SECTION NO. 15

MAINLINE TEMPORARY WIDENING
SEE WZTC PLANS



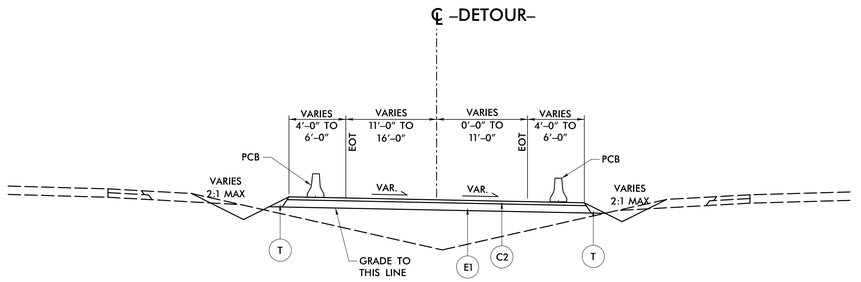
TYPICAL SECTION NO. 18

RAMP TEMPORARY WIDENING
SEE WZTC PLANS



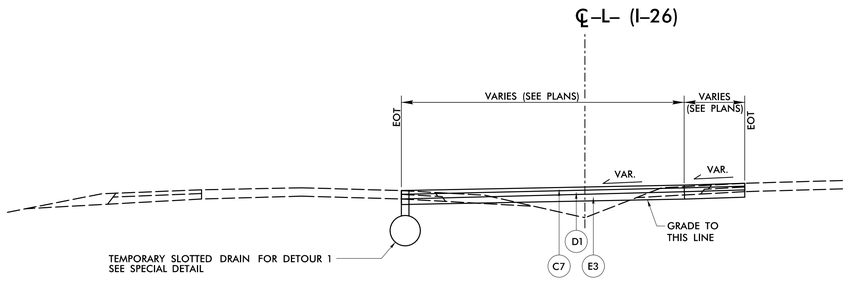
TYPICAL SECTION NO. 16

MAINLINE TEMPORARY PAVEMENT
DETOURS 1 & 2



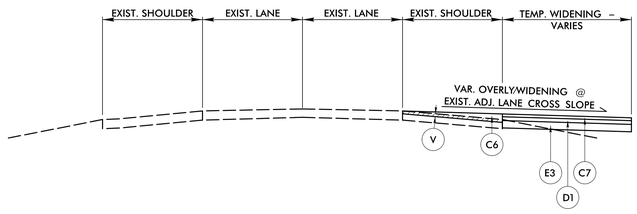
TYPICAL SECTION NO. 19

RAMP TEMPORARY PAVEMENT
DETOURS 3, 5 & 8



TYPICAL SECTION NO. 17

MAINLINE CROSSOVERS
DETOURS 1, 2, 4 & 6



TYPICAL SECTION NO. 20

WEDGE / WIDEN TYPICAL SECTION

NOTE: SEE PLANS FOR SUPERELEVATIONS, TURN LANES, MONOLITHIC ISLANDS, CURB AND GUTTER, AND LANE TAPER LOCATIONS.

A1	13.0" PCCP
A2	9.0" PCCP
C1	1.25" S9.5B
C2	3" S9.5B
C3	3" S9.5C
C4	2.5" S9.5B
C5	1.5" S9.5C
C6	VARIABLE S9.5D
C7	3" S9.5D
D1	4" I19.0C
D2	2.5" I19.0C
E1	4" B25.0C
E2	6.0" OR 7.25" B25.0C*
E3	5" B25.0C
J	6" ABC
K	12" CLASS IV SUBGRADE STABILIZATION
N1	NONWOVEN GEOTEXTILE INTERLAYER
N2	GEOTEXTILE FOR SOIL STABILIZATION
R1	2'–6" C & G
R2	SHOULDER BERM GUTTER
R3	MONOLITHIC CONC. ISLAND
R4	SINGLE SLOPE CONCRETE BARRIER
R5	PRECAST REINFORCED CONCRETE BARRIER
R6	CONC. BARRIER RAIL W/MOMENT SLAB
R7	4" CONC. ISLAND COVER
T	EARTH MATERIAL
U	EXIST. PAVEMENT
V	MILLING 1.5" DEPTH
Y	MILLED RUMBLE STRIPS

PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE

* SEE SHOULDER DRAIN DETAIL SHEET 2A-1

15-JUL-2019 14:25
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HNTB

DDI DETAIL SHEET

HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200
Raleigh, North Carolina 27609
NC License No: C-1554

PROJECT REFERENCE NO.	SHEET NO.
I-4400C	2B-1
R/W SHEET NO.	

ROADWAY DESIGN

NORTH CAROLINA PROFESSIONAL SEAL 046784 ENGINEER MARC A. WHITMORE

DocuSigned by: Marc Whitmore 7/10/2019

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

7/19/2017

REVISIONS

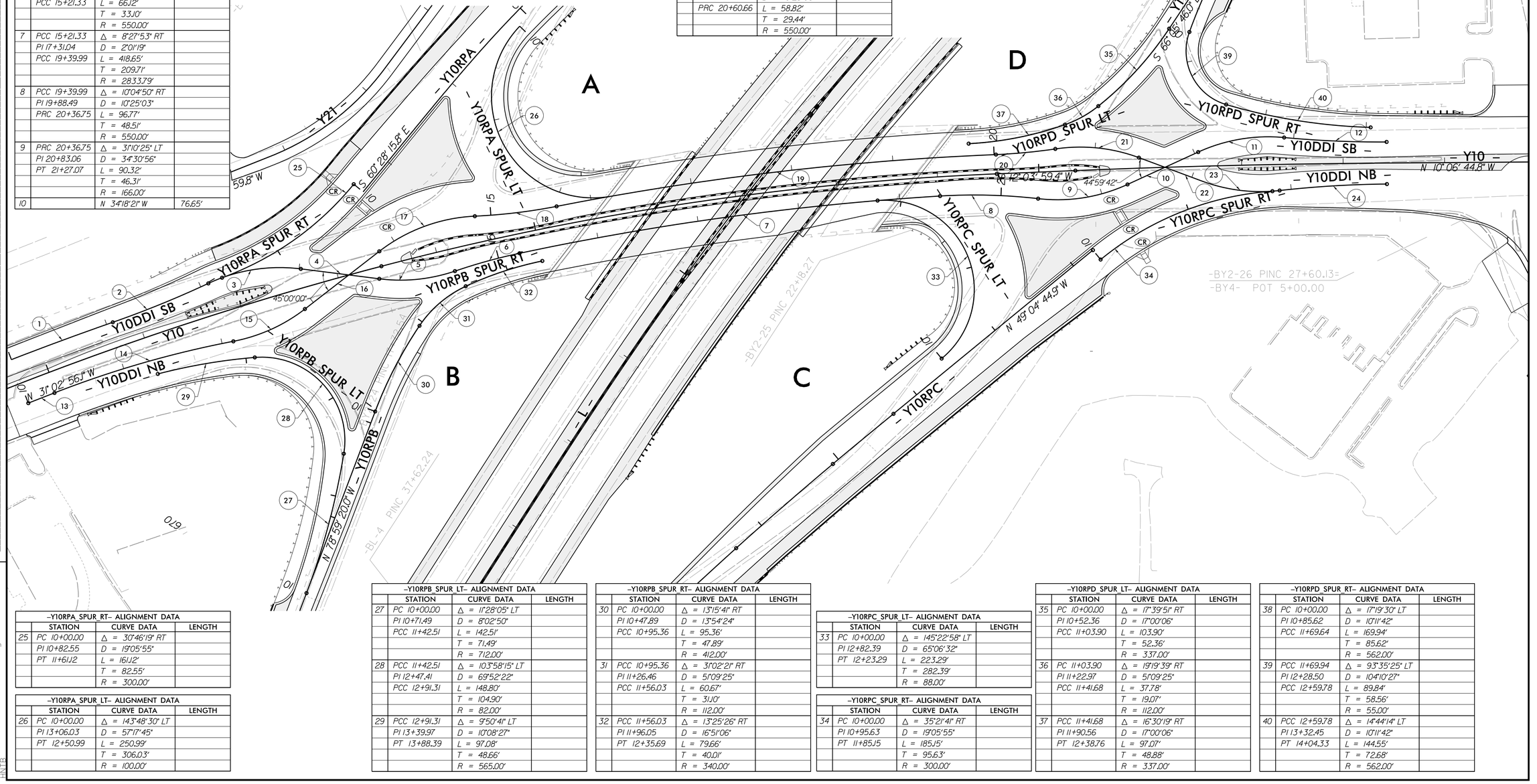
–Y10DDI_SB– ALIGNMENT DATA			
	STATION	CURVE DATA	LENGTH
1	PC 10+00.00	Δ = 2°01'01" RT	
	PI 10+53.25	D = 1°53'39"	
	PRC 11+06.48	L = 106.48'	
		T = 53.25'	
		R = 3025.00'	
2	PRC 11+06.48	Δ = 5°49'38" LT	
	PI 11+57.38	D = 5°43'46"	
	PRC 12+08.19	L = 101.70'	
		T = 50.90'	
		R = 1000.00'	
3	PRC 12+08.19	Δ = 32°15'49" RT	
	PI 12+56.20	D = 34°30'56"	
	PT 13+01.66	L = 93.48'	
		T = 48.01'	
		R = 166.00'	
4		N 2°29'13" W	78.00'
5	PC 13+79.66	Δ = 26°04'41" LT	
	PI 14+18.10	D = 34°30'56"	
	PRC 14+55.22	L = 75.55'	
		T = 38.44'	
		R = 166.00'	
6	PRC 14+55.22	Δ = 6°53'15" RT	
	PI 14+88.31	D = 10°25'03"	
	PCC 15+21.33	L = 66.12'	
		T = 33.10'	
		R = 550.00'	
7	PCC 15+21.33	Δ = 8°27'53" RT	
	PI 17+31.04	D = 2°01'19"	
	PCC 19+39.99	L = 418.65'	
		T = 209.71'	
		R = 2833.79'	
8	PCC 19+39.99	Δ = 10°04'50" RT	
	PI 19+88.49	D = 10°25'03"	
	PRC 20+36.75	L = 96.77'	
		T = 48.51'	
		R = 550.00'	
9	PRC 20+36.75	Δ = 31°10'25" LT	
	PI 20+83.06	D = 34°30'56"	
	PT 21+27.07	L = 90.32'	
		T = 46.31'	
		R = 166.00'	
10		N 34°18'21" W	76.65'

–Y10DDI_SB– ALIGNMENT DATA			
	STATION	CURVE DATA	LENGTH
11	PC 22+03.72	Δ = 29°59'09" RT	
	PI 22+48.18	D = 34°30'56"	
	PRC 22+90.60	L = 86.88'	
		T = 44.46'	
		R = 166.00'	
12	PRC 22+90.60	Δ = 5°47'33" LT	
	PI 23+41.19	D = 5°43'46"	
	PT 23+91.70	L = 101.10'	
		T = 50.59'	
		R = 1000.00'	

–Y10DDI_NB– ALIGNMENT DATA			
	STATION	CURVE DATA	LENGTH
13	POB 10+00.00	N 31°02'56" W	27.66'
14	PC 10+27.66	Δ = 10°31'38" RT	
	PI 11+19.78	D = 5°43'47"	
	PRC 12+11.39	L = 183.73'	
		T = 92.13'	
		R = 1000.00'	
15	PRC 12+11.39	Δ = 26°57'55" LT	
	PI 12+51.19	D = 34°30'56"	
	PT 12+89.52	L = 78.12'	
		T = 39.80'	
		R = 166.00'	

–Y10DDI_NB– ALIGNMENT DATA			
	STATION	CURVE DATA	LENGTH
16		N 47°29'13" W	92.77'
17	PC 13+82.28	Δ = 35°10'32" RT	
	PI 14+34.90	D = 34°30'56"	
	PRC 14+84.19	L = 101.91'	
		T = 52.62'	
		R = 166.00'	
18	PRC 14+84.19	Δ = 8°27'43" LT	
	PI 15+24.88	D = 10°25'03"	
	PRC 15+65.42	L = 81.23'	
		T = 40.69'	
		R = 550.00'	
19	PRC 15+65.42	Δ = 8°42'26" RT	
	PI 17+84.05	D = 1°59'42"	
	PRC 20+01.85	L = 436.42'	
		T = 218.63'	
		R = 2871.79'	
20	PRC 20+01.85	Δ = 6°07'37" LT	
	PI 20+31.28	D = 10°25'03"	
	PRC 20+60.66	L = 58.82'	
		T = 29.44'	
		R = 550.00'	

–Y10DDI_NB– ALIGNMENT DATA			
	STATION	CURVE DATA	LENGTH
21	PRC 20+60.66	Δ = 28°52'58" RT	
	PI 21+03.41	D = 34°30'56"	
	PT 21+44.34	L = 83.68'	
		T = 42.75'	
		R = 166.00'	
22		N 10°41'21" E	66.30'
23	PC 22+10.64	Δ = 26°52'18" LT	
	PI 22+50.30	D = 34°30'56"	
	PRC 22+88.50	L = 77.85'	
		T = 39.66'	
		R = 166.00'	
24	PRC 22+88.50	Δ = 6°04'12" RT	
	PI 23+41.52	D = 5°43'46"	
	PT 23+94.44	L = 105.94'	
		T = 53.02'	
		R = 1000.00'	



–Y10RPA_SPUR_RT– ALIGNMENT DATA			
	STATION	CURVE DATA	LENGTH
25	PC 10+00.00	Δ = 30°46'19" RT	
	PI 10+82.55	D = 19°05'55"	
	PT 11+61.12	L = 161.12'	
		T = 82.55'	
		R = 300.00'	

–Y10RPA_SPUR_LT– ALIGNMENT DATA			
	STATION	CURVE DATA	LENGTH
26	PC 10+00.00	Δ = 143°48'30" LT	
	PI 13+06.03	D = 57°17'45"	
	PT 12+50.99	L = 250.99'	
		T = 306.03'	
		R = 100.00'	

–Y10RPB_SPUR_LT– ALIGNMENT DATA			
	STATION	CURVE DATA	LENGTH
27	PC 10+00.00	Δ = 11°28'05" LT	
	PI 10+71.49	D = 8°02'50"	
	PCC 11+42.51	L = 142.51'	
		T = 71.49'	
		R = 712.00'	
28	PCC 11+42.51	Δ = 103°58'15" LT	
	PI 12+47.41	D = 69°52'22"	
	PCC 12+91.31	L = 148.80'	
		T = 104.90'	
		R = 82.00'	
29	PCC 12+91.31	Δ = 9°50'41" LT	
	PI 13+39.97	D = 10°08'27"	
	PT 13+88.39	L = 97.08'	
		T = 48.66'	
		R = 565.00'	

–Y10RPB_SPUR_RT– ALIGNMENT DATA			
	STATION	CURVE DATA	LENGTH
30	PC 10+00.00	Δ = 13°15'41" RT	
	PI 10+47.89	D = 13°54'24"	
	PCC 10+95.36	L = 95.36'	
		T = 47.89'	
		R = 412.00'	
31	PCC 10+95.36	Δ = 31°02'21" RT	
	PI 11+26.46	D = 5°09'25"	
	PCC 11+56.03	L = 60.67'	
		T = 31.10'	
		R = 112.00'	
32	PCC 11+56.03	Δ = 13°25'26" RT	
	PI 11+96.05	D = 16°51'06"	
	PT 12+35.69	L = 79.66'	
		T = 40.01'	
		R = 340.00'	

–Y10RPC_SPUR_LT– ALIGNMENT DATA			
	STATION	CURVE DATA	LENGTH
33	PC 10+00.00	Δ = 145°22'58" LT	
	PI 12+82.39	D = 65°06'32"	
	PT 12+23.29	L = 223.29'	
		T = 282.39'	
		R = 88.00'	

–Y10RPC_SPUR_RT– ALIGNMENT DATA			
	STATION	CURVE DATA	LENGTH
34	PC 10+00.00	Δ = 35°21'41" RT	
	PI 10+95.63	D = 19°05'55"	
	PT 11+85.15	L = 185.15'	
		T = 95.63'	
		R = 300.00'	

–Y10RPD_SPUR_LT– ALIGNMENT DATA			
	STATION	CURVE DATA	LENGTH
35	PC 10+00.00	Δ = 17°39'51" RT	
	PI 10+52.36	D = 17°00'06"	
	PCC 11+03.90	L = 103.90'	
		T = 52.36'	
		R = 337.00'	
36	PC 11+03.90	Δ = 19°19'39" RT	
	PI 11+22.97	D = 5°09'25"	
	PCC 11+41.68	L = 37.78'	
		T = 19.07'	
		R = 112.00'	
37	PCC 11+41.68	Δ = 16°30'19" RT	
	PI 11+90.56	D = 17°00'06"	
	PT 12+38.76	L = 97.07'	
		T = 48.88'	
		R = 337.00'	

–Y10RPD_SPUR_RT– ALIGNMENT DATA			
	STATION	CURVE DATA	LENGTH
38	PC 10+00.00	Δ = 17°19'30" LT	
	PI 10+85.62	D = 10°11'42"	
	PCC 11+69.64	L = 169.94'	
		T = 85.62'	
		R = 562.00'	
39	PCC 11+69.94	Δ = 93°35'25" LT	
	PI 12+28.50	D = 10°10'27"	
	PCC 12+59.78	L = 89.84'	
		T = 58.56'	
		R = 55.00'	
40	PCC 12+59.78	Δ = 14°44'14" LT	
	PI 13+32.45	D = 10°11'42"	
	PT 14+04.33	L = 144.55'	
		T = 72.68'	
		R = 562.00'	

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8/17/99

REVISIONS

CURVE DATA

HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200
Raleigh, North Carolina 27609
NC License No: C-1554

PROJECT REFERENCE NO.	SHEET NO.
I-4400C	2B-2

R/W SHEET NO.

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 046784 ENGINEER MARC A. WHITMORE

DocuSigned by: Marc Whitmore 7/10/2019

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

-L-

PIs STA.673+53.58 θs = 2° 21′ 45.0″ Ls = 270.00′ LT = 180.02′ ST = 90.01′	PI STA.684+28.63 Δ = 33° 29′ 24.4″ (RT) D = 1° 45′ 00.0″ L = 1,913.72′ T = 985.07′ R = 3,274.04′ RO = SEE PLANS SE = SEE PLANS	PIs STA.694+47.30 θs = 2° 21′ 45.0″ Ls = 270.00′ LT = 180.02′ ST = 90.01′	PIs STA.768+73.25 θs = 0° 23′ 37.5″ Ls = 105.00′ LT = 70.00′ ST = 35.00′	PI STA.779+57.74 Δ = 15° 38′ 39.8″ (RT) D = 0° 45′ 00.0″ L = 2,085.92′ T = 1,049.49′ R = 7,639.44′ RO = SEE PLANS SE = SEE PLANS	PIs STA.790+29.17 θs = 0° 23′ 37.5″ Ls = 105.00′ LT = 70.00′ ST = 35.00′	PIs STA.820+10.06 θs = 2° 31′ 12.0″ Ls = 252.00′ LT = 168.02′ ST = 84.02′	PI STA.823+94.78 Δ = 11° 59′ 07.8″ (LT) D = 2° 00′ 00.0″ L = 599.28′ T = 300.74′ R = 2,864.79′ RO = SEE PLANS SE = SEE PLANS	PIs STA.827+77.33 θs = 2° 31′ 12.0″ Ls = 252.00′ LT = 168.02′ ST = 84.02′

-Y10-

PI STA.314+55.04 Δ = 3° 20′ 04.8″ (RT) D = 0° 52′ 53.3″ L = 378.31′ T = 189.21′ R = 6,500.00′ RO = SEE PLANS SE = SEE PLANS	PI STA.318+24.20 Δ = 2° 44′ 08.9″ (LT) D = 0° 52′ 53.3″ L = 310.37′ T = 155.21′ R = 6,500.00′ RO = SEE PLANS SE = SEE PLANS	PI STA.322+93.86 Δ = 6° 49′ 07.7″ (RT) D = 1° 54′ 35.5″ L = 357.03′ T = 178.73′ R = 3,000.00′ RO = SEE PLANS SE = SEE PLANS	PI STA.326+58.30 Δ = 6° 29′ 33.3″ (RT) D = 1° 44′ 45.1″ L = 371.89′ T = 186.14′ R = 3,281.83′ RO = SEE PLANS SE = SEE PLANS	PI STA.331+52.45 Δ = 12° 20′ 23.7″ (RT) D = 2° 00′ 30.3″ L = 614.41′ T = 308.40′ R = 2,852.79′ RO = SEE PLANS SE = SEE PLANS	PI STA.336+89.54 Δ = 1° 57′ 14.6″ (RT) D = 0° 38′ 11.8″ L = 306.94′ T = 153.49′ R = 9,000.00′ RO = SEE PLANS SE = SEE PLANS	PIs STA.343+17.31 θs = 7° 29′ 59.9″ Ls = 375.00′ LT = 250.22′ ST = 125.20′	PI STA.346+37.86 Δ = 15° 33′ 56.5″ (LT) D = 3° 59′ 59.9″ L = 389.14′ T = 195.78′ R = 1,432.40′ RO = SEE PLANS SE = SEE PLANS	PIs STA.349+56.43 θs = 7° 29′ 59.9″ Ls = 375.00′ LT = 250.22′ ST = 125.20′

-Y10RPA-

PIs STA.10+90.01 θs = 2° 19′ 39.6″ Ls = 270.00′ LT = 180.02′ ST = 90.01′	PIs STA.23+26.28 θs = 8° 17′ 19.6″ Ls = 217.00′ LT = 144.83′ ST = 72.48′	PI STA.24+28.05 Δ = 4° 31′ 13.0″ (LT) D = 7° 38′ 22.0″ L = 59.17′ T = 29.60′ R = 750.00′ RO = SEE PLANS SE = SEE PLANS	PIs STA.25+30.10 θs = 8° 17′ 19.6″ Ls = 217.00′ LT = 144.83′ ST = 72.48′

-Y10RPB-

PIs STA.11+26.02 θs = 3° 00′ 28.9″ Ls = 189.00′ LT = 126.02′ ST = 63.02′	PI STA.12+81.64 Δ = 5° 53′ 33.4″ (LT) D = 3° 10′ 59.2″ L = 185.12′ T = 92.64′ R = 1,800.00′ RO = SEE PLANS SE = SEE PLANS	PIs STA.14+37.14 θs = 3° 00′ 28.9″ Ls = 189.00′ LT = 126.02′ ST = 63.02′

-Y10RPC-

PIs STA.11+44.04 θs = 4° 07′ 31.1″ Ls = 216.00′ LT = 144.04′ ST = 72.04′	PI STA.13+00.03 Δ = 6° 24′ 46.0″ (RT) D = 3° 49′ 11.0″ L = 167.89′ T = 84.03′ R = 1,500.00′ RO = SEE PLANS SE = SEE PLANS	PIs STA.14+55.92 θs = 4° 07′ 31.1″ Ls = 216.00′ LT = 144.04′ ST = 72.04′	PIs STA.18+40.71 θs = 0° 38′ 03.6″ Ls = 77.50′ LT = 51.67′ ST = 25.83′	PI STA.19+29.75 Δ = 2° 04′ 08.4″ (RT) D = 1° 38′ 13.3″ L = 126.39′ T = 63.20′ R = 3,500.00′ RO = SEE PLANS SE = SEE PLANS	PIs STA.20+18.77 θs = 0° 38′ 03.6″ Ls = 77.50′ LT = 51.67′ ST = 25.83′

-Y10RPD-

PIs STA.10+40.00 θs = 0° 20′ 37.6″ Ls = 60.00′ LT = 40.00′ ST = 20.00′	PI STA.15+03.29 Δ = 10° 07′ 58.9″ (LT) D = 1° 08′ 45.3″ L = 884.27′ T = 443.29′ R = 5,000.00′ RO = SEE PLANS SE = SEE PLANS	PIs STA.20+27.58 θs = 0° 49′ 30.1″ θs = 2° 17′ 30.7″ Ls = 144.00′ LT = 83.31′ ST = 60.72′	PI STA.24+64.92 Δ = 23° 38′ 14.5″ (LT) D = 3° 10′ 59.2″ L = 742.59′ T = 376.65′ R = 1,800.00′ RO = SEE PLANS SE = SEE PLANS

-RESTA-

PIs STA.10+42.00 θs = 0° 43′ 18.9″ Ls = 63.00′ LT = 42.00′ ST = 21.00′	PI STA.11+17.76 Δ = 2° 30′ 34.0″ (RT) D = 2° 17′ 30.6″ L = 109.49′ T = 54.76′ R = 2,500.00′ RO = SEE PLANS SE = SEE PLANS	PIs STA.11+93.50 θs = 0° 43′ 18.9″ Ls = 63.00′ LT = 42.00′ ST = 21.00′

-RESTB-

PIs STA.11+26.00 θs = 0° 54′ 08.7″ Ls = 189.00′ LT = 126.00′ ST = 63.00′	PI STA.12+41.97 Δ = 1° 00′ 42.2″ (LT) D = 0° 57′ 17.7″ L = 105.95′ T = 52.97′ R = 6,000.00′ RO = SEE PLANS SE = SEE PLANS

-RESTC-

PIs STA.10+42.00 θs = 0° 43′ 18.9″ Ls = 63.00′ LT = 42.00′ ST = 21.00′	PI STA.12+03.94 Δ = 6° 27′ 12.9″ (RT) D = 2° 17′ 30.6″ L = 281.59′ T = 140.94′ R = 2,500.00′ RO = SEE PLANS SE = SEE PLANS	PIs STA.13+65.59 θs = 0° 43′ 18.9″ Ls = 63.00′ LT = 42.00′ ST = 21.00′

-RESTD-

PIs STA.10+32.00 θs = 0° 13′ 45.1″ Ls = 48.00′ LT = 32.00′ ST = 16.00′	PI STA.12+22.42 Δ = 3° 19′ 49.1″ (LT) D = 0° 57′ 17.7″ L = 348.75′ T = 174.42′ R = 6,000.00′ RO = SEE PLANS SE = SEE PLANS	PIs STA.14+12.75 θs = 0° 13′ 45.1″ Ls = 48.00′ LT = 32.00′ ST = 16.00′

-Y11-

PI STA.16+13.57 Δ = 53° 55′ 37.9″ (LT) D = 8° 04′ 11.4″ L = 668.26′ T = 361.19′ R = 710.00′

-Y12-

PI STA.12+19.30 Δ = 15° 28′ 28.8″ (LT) D = 7° 09′ 43.1″ L = 216.07′ T = 108.70′ R = 800.00′ RO = SEE PLANS SE = SEE PLANS	PI STA.17+97.18 Δ = 4° 31′ 00.5″ (LT) D = 1° 08′ 45.3″ L = 394.16′ T = 197.18′ R = 5,000.00′ RO = SEE PLANS SE = SEE PLANS	PI STA.22+86.73 Δ = 27° 24′ 10.8″ (RT) D = 4° 46′ 28.7″ L = 573.93′ T = 292.56′ R = 1,200.00′ RO = SEE PLANS SE = SEE PLANS	PI STA.27+47.06 Δ = 4° 05′ 59.2″ (LT) D = 1° 08′ 45.3″ L = 357.77′ T = 178.96′ R = 5,000.00′ RO = SEE PLANS SE = SEE PLANS

-Y17-

PI STA.12+22.22 Δ = 51° 39′ 14.1″ (RT) D = 22° 28′ 08.2″ L = 229.89′ T = 123.42′ R = 255.00′ RO = SEE PLANS SE = SEE PLANS

-Y20-

PI STA.11+78.20 Δ = 12° 10′ 03.9″ (RT) D = 6° 01′ 52.1″ L = 201.75′ T = 101.26′ R = 950.00′ RO = SEE PLANS SE = SEE PLANS	PI STA.14+25.55 Δ = 1° 34′ 59.5″ (RT) D = 0° 49′ 06.6″ L = 193.42′ T = 96.72′ R = 7,000.00′ RO = SEE PLANS SE = SEE PLANS

-Y21-

PI STA.11+58.12 Δ = 31° 32′ 02.2″ (LT) D = 22° 02′ 12.6″ L = 143.10′ T = 73.41′ R = 260.00′ RO = SEE PLANS SE = SEE PLANS	PI STA.14+34.89 Δ = 15° 33′ 26.5″ (RT) D = 22° 02′ 12.6″ L = 70.60′ T = 35.52′ R = 260.00′ RO = SEE PLANS SE = SEE PLANS	PI STA.15+82.48 Δ = 12° 04′ 37.1″ (RT) D = 16° 22′ 12.8″ L = 73.77′ T = 37.02′ R = 350.00′ RO = SEE PLANS SE = SEE PLANS

-Y23-

PI STA.12+36.87 Δ = 29° 09′ 28.8″ (LT) D = 10° 13′ 53.0″ L = 284.99′ T = 145.65′ R = 560.00′ RO = SEE PLANS SE = SEE PLANS	PI STA.15+10.41 Δ = 19° 19′ 31.0″ (RT) D = 22° 55′ 05.9″ L = 84.32′ T = 42.57′ R = 250.00′

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HNTB

7/19/2017

REVISIONS

HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200
Raleigh, North Carolina 27609
NC License No: C-1554

ROADWAY DESIGN

PROJECT REFERENCE NO.	SHEET NO.
I-4400C	2B-3
R/W SHEET NO.	

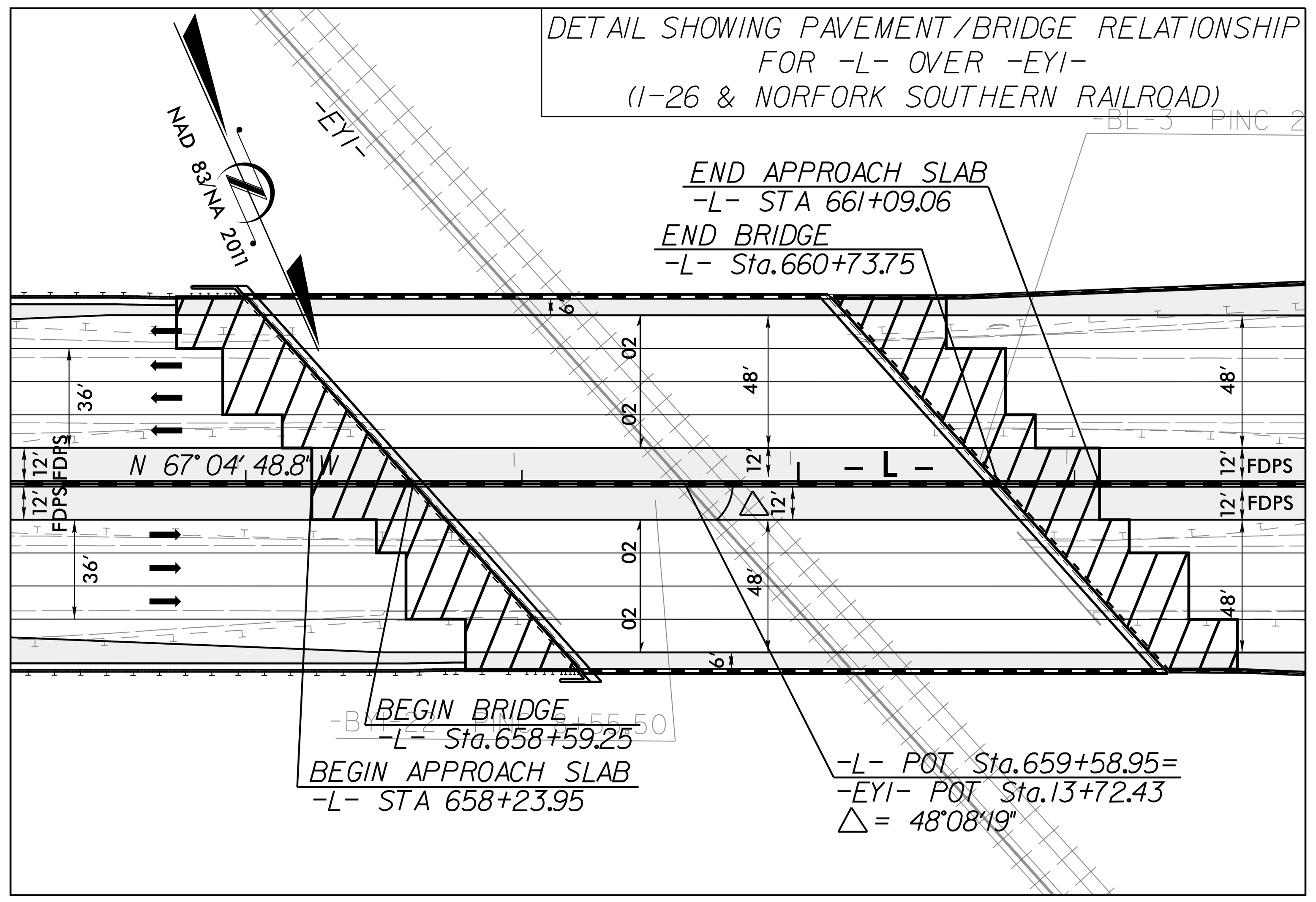
HYDRAULICS ENGINEER

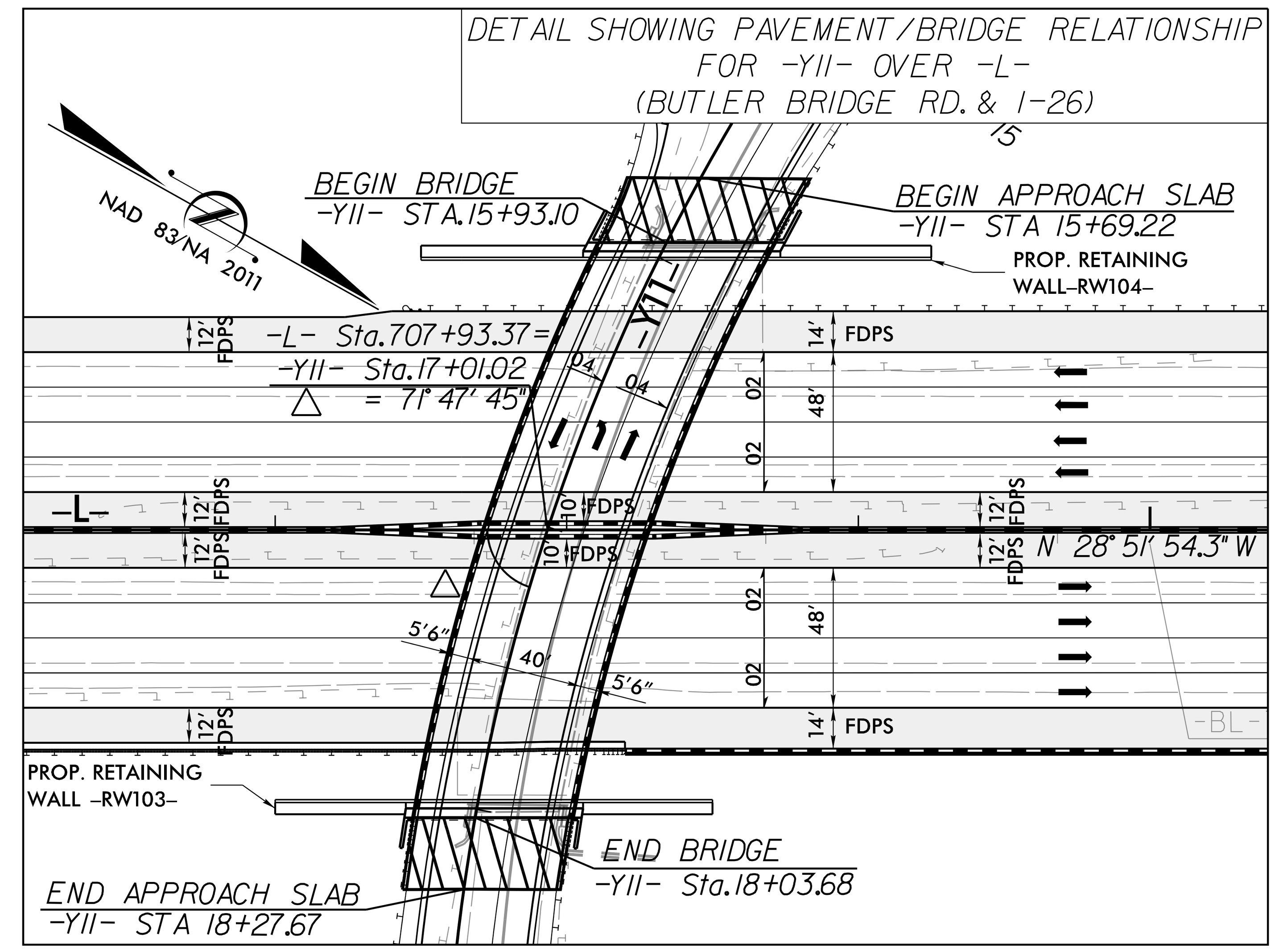
NORTH CAROLINA PROFESSIONAL SEAL 046784 ENGINEER MARC A. WHITMORE

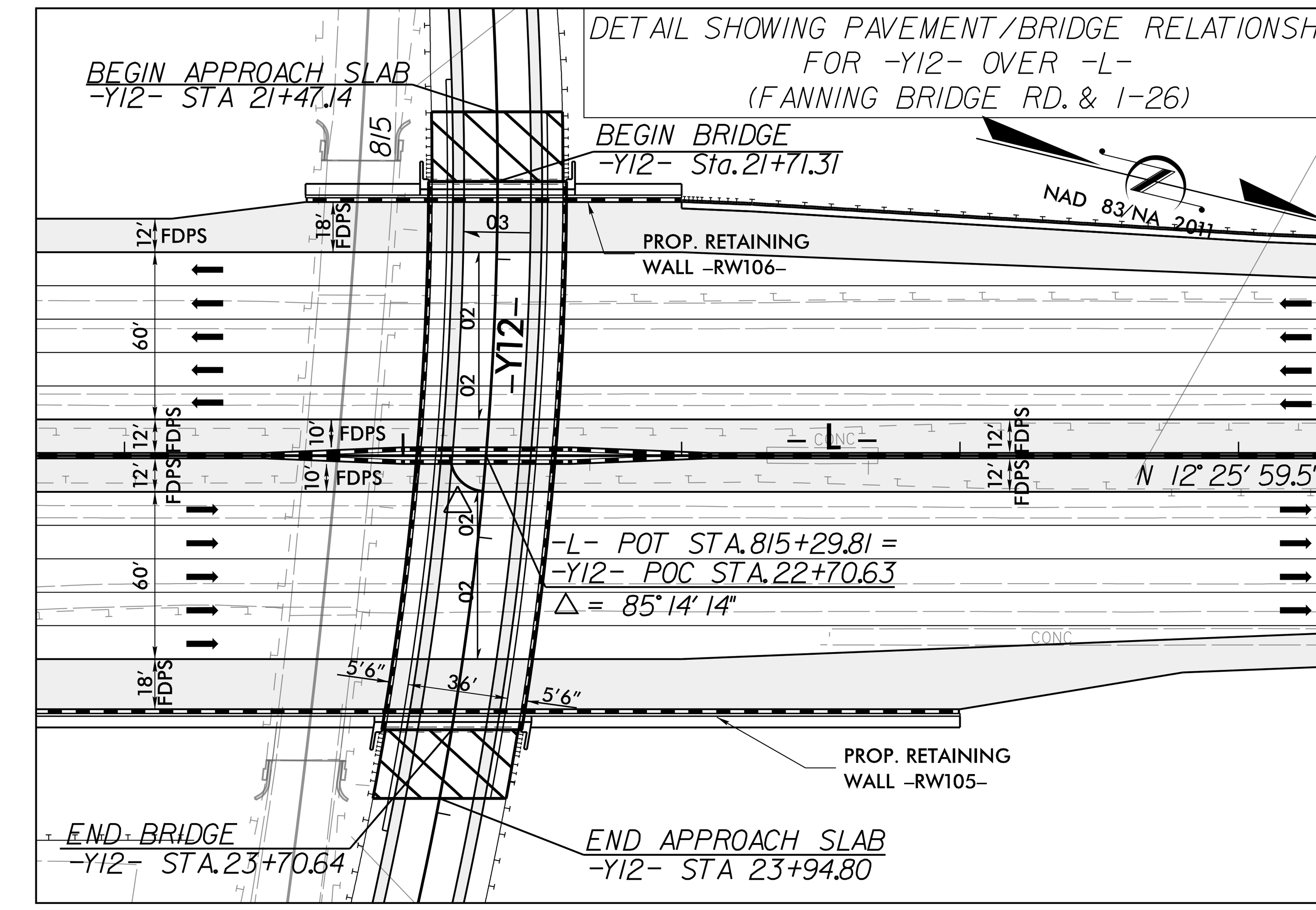
DocuSigned by: Marc Whitmore 7/10/2019

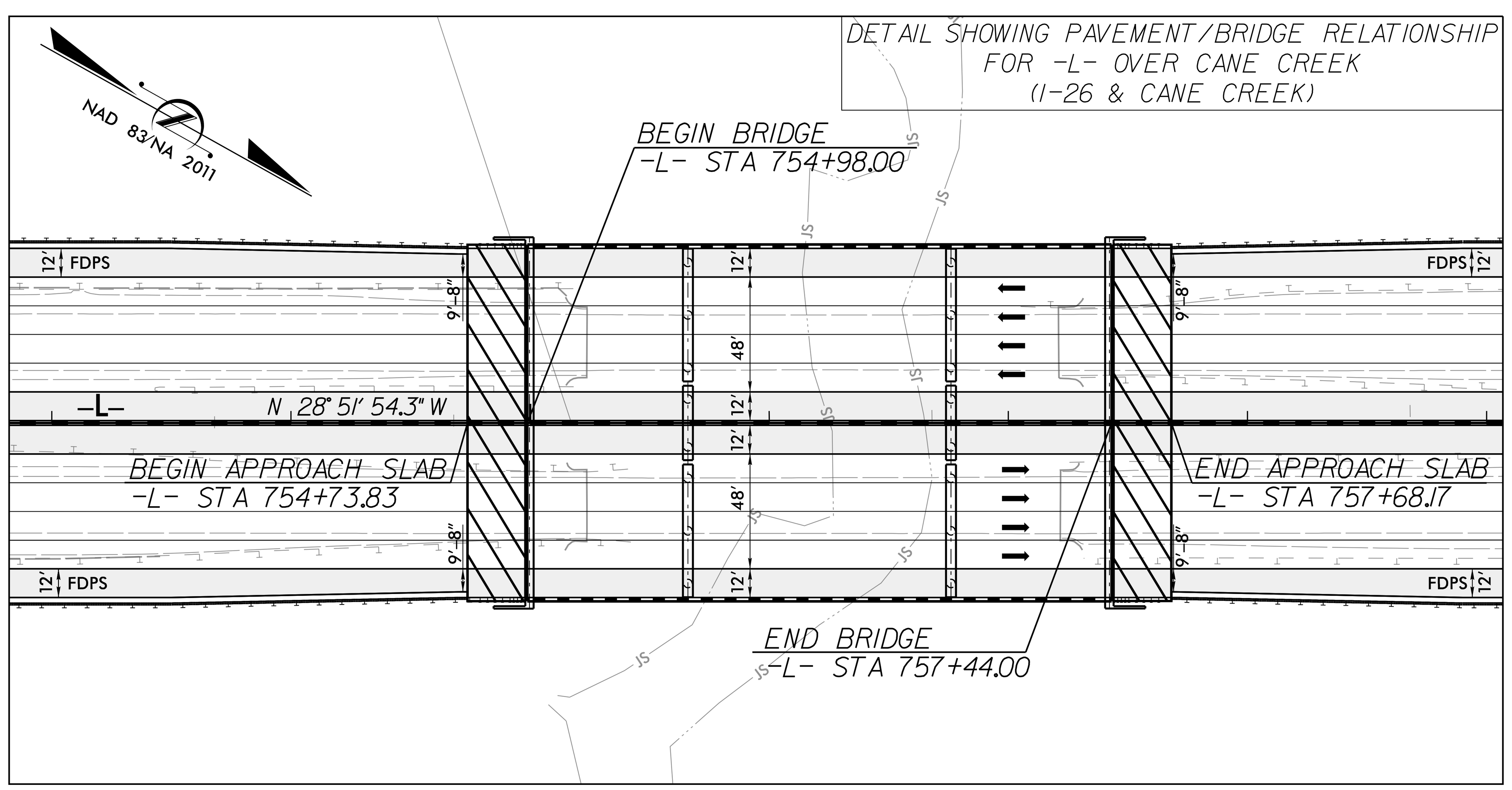
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

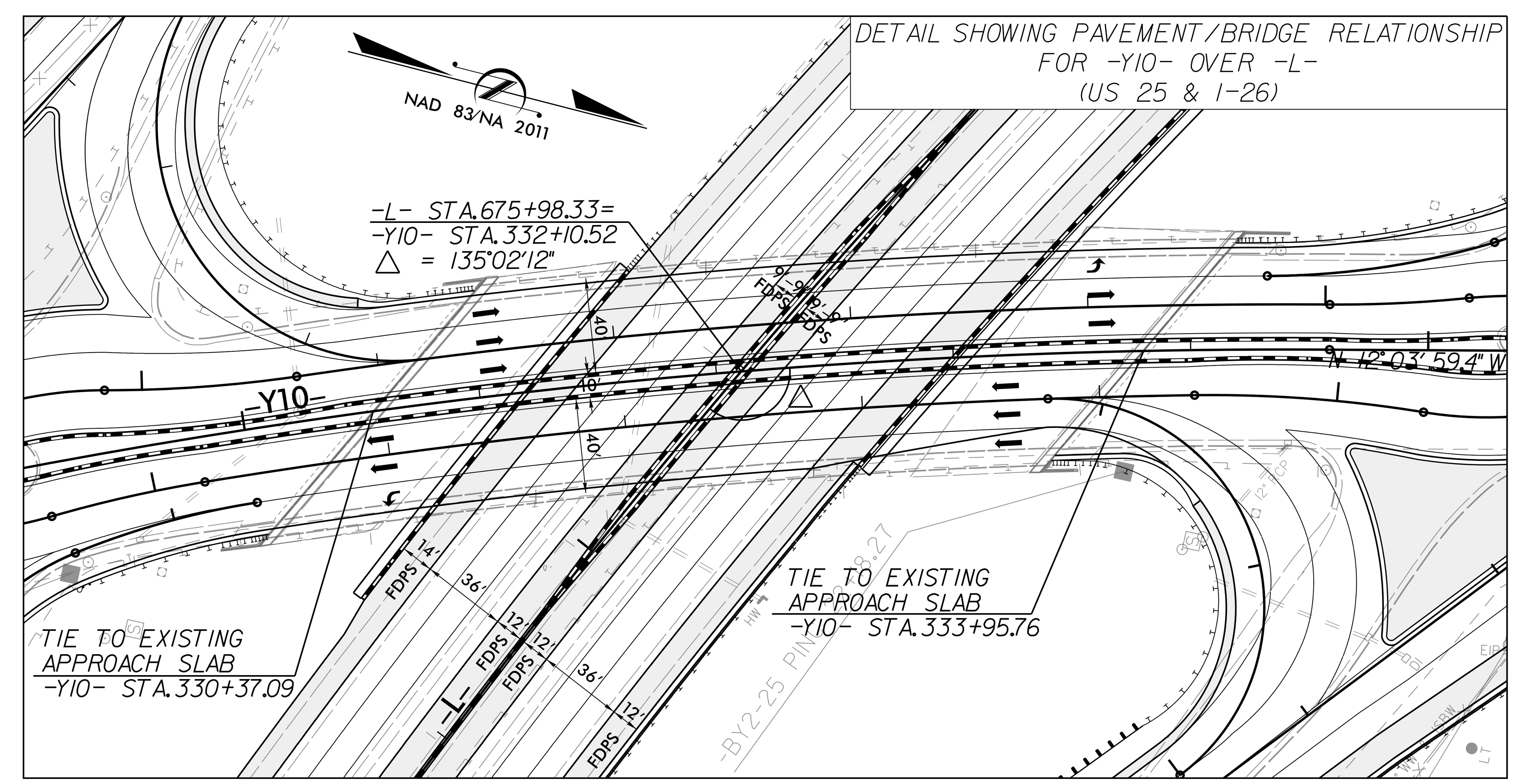
PAVEMENT/BRIDGE RELATIONSHIP SKETCHES











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HNTB

CROSS–SECTION LAYOUT

HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200
Raleigh, North Carolina 27609
NC License No: C-1554

PROJECT REFERENCE NO.	SHEET NO.
I-4400C	2B-4
R/W SHEET NO.	

ROADWAY DESIGN

NORTH CAROLINA PROFESSIONAL SEAL 046784 ENGINEER MARC A WHITMORE

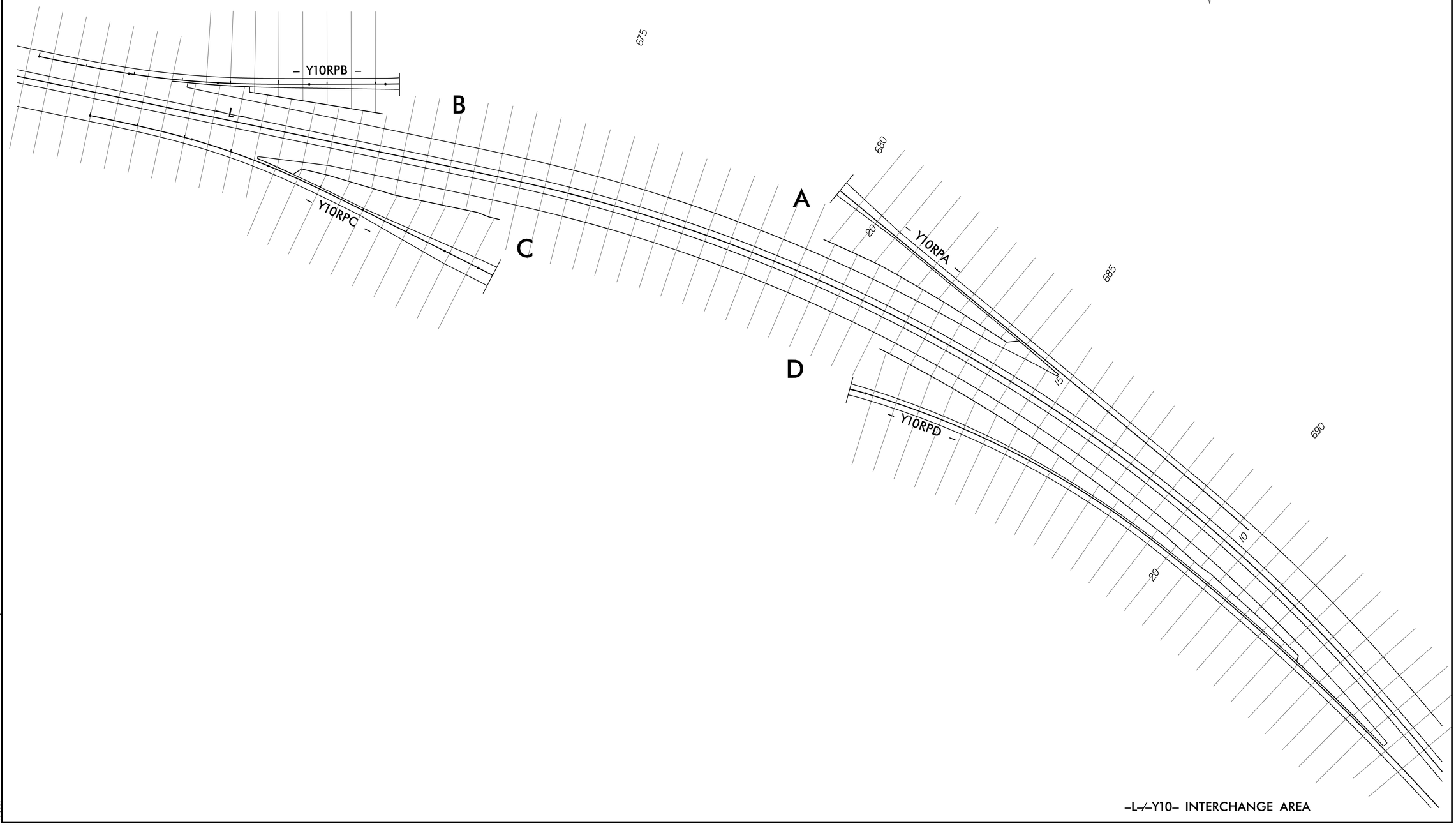
DocuSigned by: Marc Whitmore 7/10/2019
801078E...

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/NA 2011

REVISIONS

7/19/2017



–L–/–Y10– INTERCHANGE AREA

19-JUL-2019 10:18
I:\4400C_RDY_2B04_SheerPointDiagrams.dgn
HNTB

INTERSECTION DETAIL –Y10– AND NAPLES RD

HNTB NORTH CAROLINA, P.C. 343 E. Six Forks Road, Suite 200 Raleigh, North Carolina 27609 NC License No: C-1554

PROJECT REFERENCE NO.	SHEET NO.
I-4400C	2B-5

R/W SHEET NO.

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 046784 ENGINEER MARC A. WHITMORE

DocuSigned by: Marc Whitmore 7/10/2019

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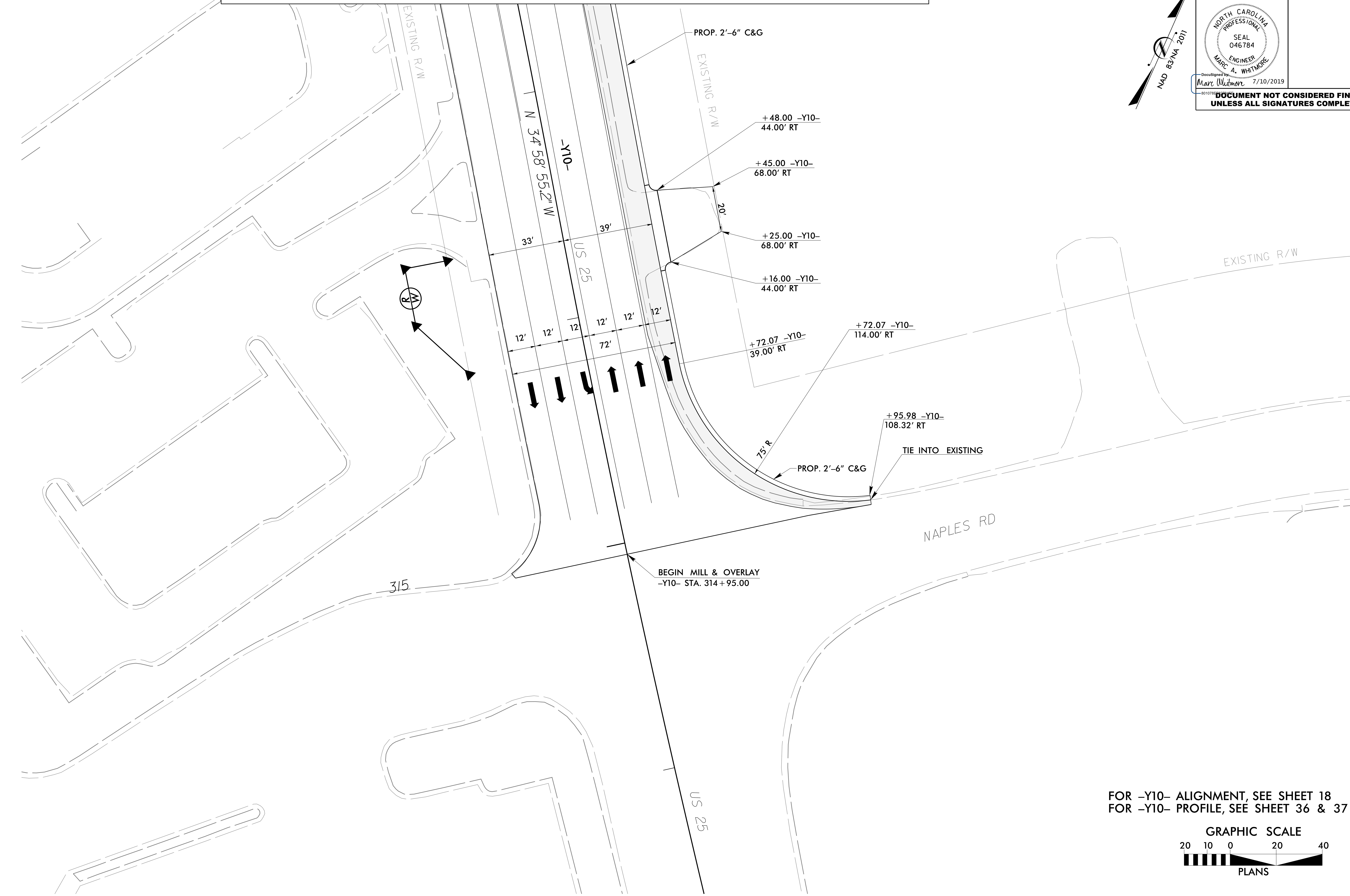

FOR –Y10– ALIGNMENT, SEE SHEET 18
FOR –Y10– PROFILE, SEE SHEET 36 & 37

GRAPHIC SCALE

20 10 0 20 40

PLANS

REVISIONS

8/17/99

10-JUL-2019 10:18
I4400C_RDY_2B05_DTL.dgn
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INTERSECTION DETAIL –Y10– DDI (SOUTH)

HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200
Raleigh, North Carolina 27609
NC License No: C-1554

PROJECT REFERENCE NO.	SHEET NO.
I-4400C	2B-6
R/W SHEET NO.	
ROADWAY DESIGN	

NORTH CAROLINA PROFESSIONAL SEAL 046784 ENGINEER MARC A. WHITMORE

DocuSigned by: Marc Whitmore 7/10/2019

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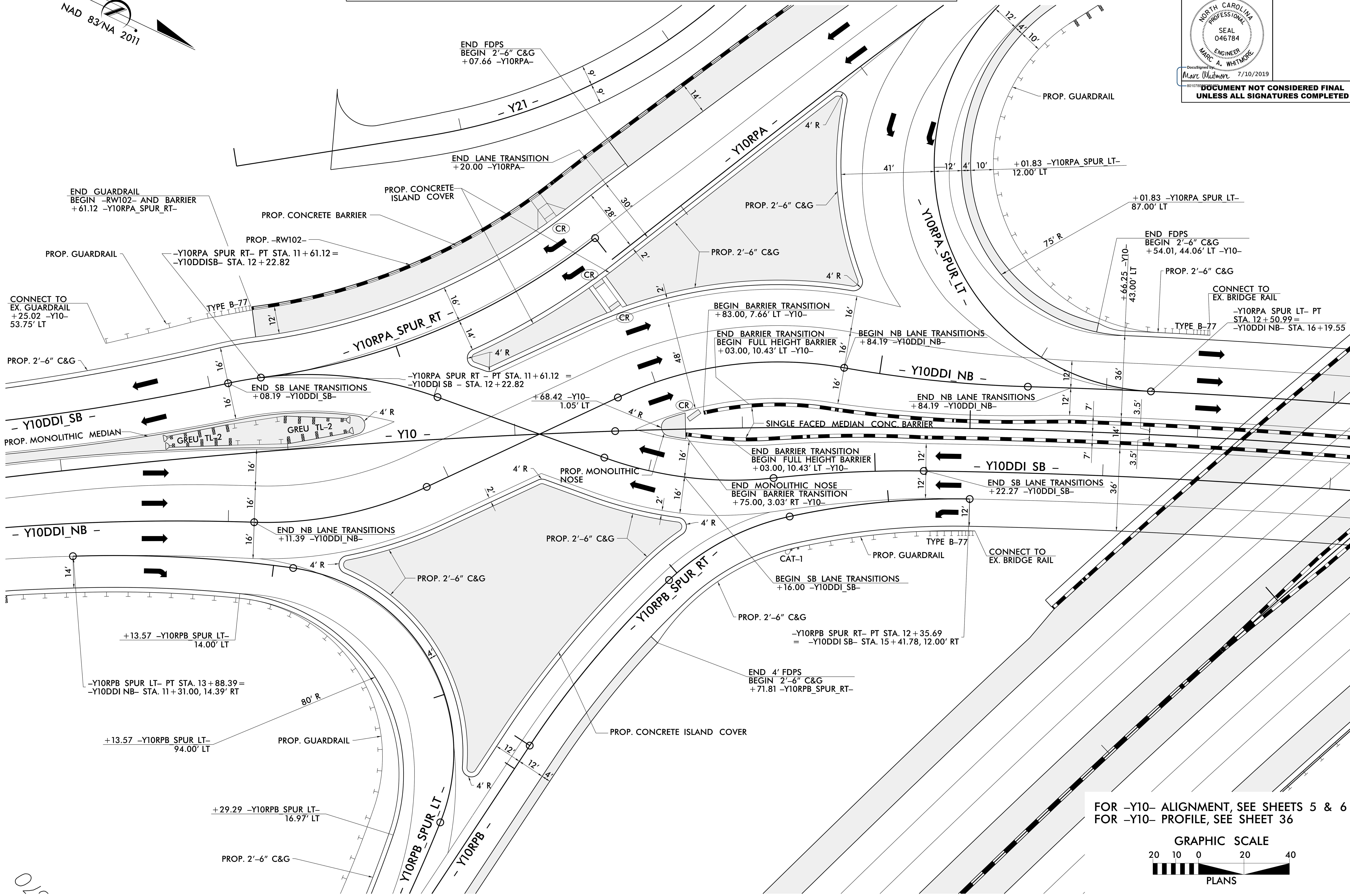
REVISIONS

7/19/2017


NAD 83/NA 2011
– Y21 –
– Y10RPA –
– Y10RPA_SPUR_RT –
– Y10RPA_SPUR_LT –
– Y10DDI_SB –
– Y10DDI_NB –
– Y10 –
– Y10RPB_SPUR_RT –
– Y10RPB_SPUR_LT –
– Y10RPB –
END FDPS
BEGIN 2'-6" C&G
+07.66 –Y10RPA–
END LANE TRANSITION
+20.00 –Y10RPA–
END GUARDRAIL
BEGIN –RW102– AND BARRIER
+61.12 –Y10RPA_SPUR_RT–
PROP. CONCRETE
ISLAND COVER
PROP. CONCRETE BARRIER
PROP. –RW102–
–Y10RPA SPUR RT– PT STA. 11+61.12 =
–Y10DDISB– STA. 12+22.82
PROP. GUARDRAIL
CONNECT TO
EX. GUARDRAIL
+25.02 –Y10–
53.75' LT
TYPE B-77
PROP. 2'-6" C&G
END SB LANE TRANSITIONS
+08.19 –Y10DDI_SB–
–Y10RPA SPUR RT – PT STA. 11+61.12 =
–Y10DDI SB – STA. 12+22.82
PROP. MONOLITHIC MEDIAN
GREU TL-2
+68.42 –Y10–
1.05' LT
BEGIN BARRIER TRANSITION
+83.00, 7.66' LT –Y10–
END BARRIER TRANSITION
BEGIN FULL HEIGHT BARRIER
+03.00, 10.43' LT –Y10–
BEGIN NB LANE TRANSITIONS
+84.19 –Y10DDI_NB–
END NB LANE TRANSITIONS
+84.19 –Y10DDI_NB–
SINGLE FACED MEDIAN CONC. BARRIER
END BARRIER TRANSITION
BEGIN FULL HEIGHT BARRIER
+03.00, 10.43' LT –Y10–
END MONOLITHIC NOSE
BEGIN BARRIER TRANSITION
+75.00, 3.03' RT –Y10–
END SB LANE TRANSITIONS
+22.27 –Y10DDI_SB–
PROP. MONOLITHIC
NOSE
+01.83 –Y10RPA_SPUR_LT–
12.00' LT
+01.83 –Y10RPA_SPUR_LT–
87.00' LT
END FDPS
BEGIN 2'-6" C&G
+54.01, 44.06' LT –Y10–
+66.25 –Y10–
43.00' LT
CONNECT TO
EX. BRIDGE RAIL
–Y10RPA SPUR LT– PT
STA. 12+50.99 =
–Y10DDI NB– STA. 16+19.55
75' R
4' R
CR
END NB LANE TRANSITIONS
+11.39 –Y10DDI_NB–
CAT-1
BEGIN SB LANE TRANSITIONS
+16.00 –Y10DDI_SB–
–Y10RPB SPUR RT– PT STA. 12+35.69
= –Y10DDI SB– STA. 15+41.78, 12.00' RT
END 4' FDPS
BEGIN 2'-6" C&G
+71.81 –Y10RPB_SPUR_RT–
PROP. CONCRETE ISLAND COVER
+13.57 –Y10RPB_SPUR_LT–
14.00' LT
–Y10RPB SPUR LT– PT STA. 13+88.39 =
–Y10DDI NB– STA. 11+31.00, 14.39' RT
80' R
+13.57 –Y10RPB_SPUR_LT–
94.00' LT
+29.29 –Y10RPB_SPUR_LT–
16.97' LT

FOR –Y10– ALIGNMENT, SEE SHEETS 5 & 6
FOR –Y10– PROFILE, SEE SHEET 36

GRAPHIC SCALE
20 10 0 20 40
PLANS

10-JUL-2019 10:18
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INTERSECTION DETAIL –Y10– DDI (NORTH)

HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200
Raleigh, North Carolina 27609
NC License No: C-1554

PROJECT REFERENCE NO.	SHEET NO.
I-4400C	2B-7
R/W SHEET NO.	

ROADWAY DESIGN

NORTH CAROLINA PROFESSIONAL SEAL 046784 ENGINEER MARC A. WHITMORE

DocuSigned by: Marc Whitmore 7/10/2019

REVISIONS 7/19/2017

END FDPS
BEGIN 2'–6" C&G
+56.58 –Y10RPD–
12.00' RT

– Y10RPD –

PROP. SHOULDER BERM GUTTER

END 2'–6" C&G
BEGIN SHOULDER BERM GUTTER
+37.87 –Y10RPD_SPUR_RT–
24.00' LT

43' R

+69.94 –Y10RPC_SPUR_RT–
55.00' LT

+69.94 –Y10RPC_SPUR_RT–
12.00' LT

NAD 83/NA 2011

–Y10RPD_SPUR_LT– PT STA. 12+38.76
= –Y10DDI NB– STA. 19+75.56, 12.00' LT

PROP. GUARDRAIL

PROP. CONCRETE ISLAND COVER

PROP. 2'–6' C&G

CONNECT TO EX. BRIDGE RAIL

TYPE B–77

– Y10RPD_SPUR_LT –

– Y10DDI_NB–

BEGIN NB LANE TRANSITIONS
+01.85 –Y10DDI_NB–

END FULL HEIGHT BARRIER
BEGIN BARRIER TRANSITION
+40.00, 5.72' LT –Y10–

END NB LANE TRANSITIONS
+02.07 –Y10DDI_NB–

END BARRIER TRANSITION
BEGIN MONOLITHIC NOSE
+60.00, 2.89' LT –Y10–

+66.16 –Y10–
1.08' RT

– Y10RPD_SPUR_RT –

–Y10RPD_SPUR_RT– PT STA. 14+04.33
= –Y10DDI SB– STA. 23+75.84, 14.36' LT

–Y10RPC_SPUR_LT– PT
STA. 12+23.29 =
–Y10DDI SB–
STA. 18+78.21

– Y10DDI_SB–

BEGIN SB LANE TRANSITIONS
+36.75 –Y10DDI_SB–

END SB LANE TRANSITIONS
+36.75 –Y10DDI_SB–

– Y10 –

PROP. MONOLITHIC NOSE

END BARRIER TRANSITION
+52.00, 7.45' RT –Y10–

BEGIN SB LANE TRANSITIONS
+90.60 –Y10DDI_SB–

GREU TL–2

PROP. MONOLITHIC MEDIAN

CONNECT TO EX. BRIDGE RAIL

TYPE B–77

+69.92 –Y10–
43.00' RT

+69.92 –Y10–
76.14' LT

33.14' R

PROP. 2'–6' C&G

END FULL HEIGHT BARRIER
BEGIN BARRIER TRANSITION
+32.00, 9.93' RT –Y10–

BEGIN 2'–6" C&G
END FDPS
+37.90 –Y10RPC_SPUR_LT–
12.00' LT

– Y10RPC_SPUR_LT –

– Y10RPC_SPUR_RT –

– Y10DDI_NB –

BEGIN NB LANE TRANSITIONS
BEGIN 2'–6" C&G TRANSITION
+88.50 –Y10DDI_NB–
16.00' RT

END LANE TRANSITIONS
END 2'–6" C&G TRANSITION
STA. 10+00.00, 16.00' RT –Y10RPC_SPUR_RT–
STA. 23+24.74, 28.00' RT –Y10RPC–

+24.74 –Y10RPC–
53.00' RT

–Y10RPC_SPUR_RT– PT STA. 11+85.15
= –Y10DDI NB– STA. 22+81.35

GREU TL–3

CAT–1

END SHOULDER BERM GUTTER
BEGIN 2'–6" C&G
+03.74
39.43' RT –Y10RPC–

BEGIN LANE TRANSITIONS
+18.10 –Y10RPC–

PROP. SHOULDER BERM GUTTER

PROP. GUARDRAIL

– Y10RPC –

FOR –Y10– ALIGNMENT, SEE SHEETS 5 & 6
FOR –Y10– PROFILE, SEE SHEET 36

GRAPHIC SCALE
20 10 0 20 40
PLANS

10-JUL-2019 10:18
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INTERSECTION DETAIL –Y10– AND –Y17–

HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200
Raleigh, North Carolina 27609
NC License No: C-1554

PROJECT REFERENCE NO.	SHEET NO.
I-4400C	2B-8

R/W SHEET NO.

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 046784 ENGINEER MARC A. WHITMORE

DocuSigned by: Marc Whitmore 7/10/2019
801078E...

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS 8/17/99

–Y10– N 10° 06' 44.8" W

+55.94 –Y10– 8.00' RT
+83.94 –Y10– 29.00' LT,
+83.94 –Y10– 6.00' LT
+15.00 –Y10– 7.00' RT, 1.00' R
35' R
3.5' 10.5' 3.5'

+42.99 –Y10– 45.44' RT
+26.77 –Y10– 465.15' RT
PROP. MONOLITHIC MEDIAN
420' R
PROP. 2'–6" C&G
+13.76 –Y10– 131.09' RT
+32.49' –Y10– 58.47' RT
EXISTING R/W
TIE TO EXISTING PARKING LOT
+44.78 –Y17– 432.00' LT
+04.29' –Y17– 24.58' LT
75' R
TIE TO EXISTING DRIVEWAY
END 2'–6" C&G +45.41 –Y17– 12.00' LT
7.5'
420' R
TIE TO EXISTING DRIVEWAY
8.5'
25' R
15' R
10' R
–Y10– STA. 340+03.53 = –Y17– STA. 13+98.24
–Y17– S 79° 55' 00.5" W
12' 12' 24'
180' R
+72.81 –Y17– 15.55' RT
75' R
BEGIN 2'–6" C&G +98.70 –Y17– 12.00' RT
TIE TO EXISTING DRIVEWAY
5.6'
5' R
MAXWELL DR
TIE TO EXISTING +98.80 –Y17–
EXISTING R/W
PUE
+61.18 –Y17– 90.00' RT
+76.09 –Y10– 41.43' RT
180' R
+30.81 –Y10– 212.73' RT
–Y17– S 28° 15' 46.4" W
+28.48 –Y10– 32.75' RT
EXISTING R/W
PROP. 2'–6" C&G
+00.00 –Y10– 58.00' RT
+98.70 –Y17– 192.00' RT
TIE TO EXISTING
+32.00 –Y10– 58.00' RT
32'
24'
10.5'
36'
+84.19 –Y10– 44.75' LT
+00.00 –Y10– 44.75' LT
PROP. 2'–6" C&G

–Y10– N 10° 06' 44.8" W
58'
2.0' 2.0'
PROP. MONOLITHIC ISLAND
12' 12' 10.5' 12' 12' 12'
8'–9"
–Y10–
5'–3" 5'–3"

PROP. 2'–6" CURB AND GUTTER
PROP. GUARDRAIL
GREU TL-3
NAD 83/NA 2011
+24.50 –Y10– 45.16' LT
+25.00 –Y10– 70.15' LT
+50.00 –Y10– 70.15' LT
25' R
TIE TO EX. C&G +50.00 –Y10– 76.00'LT
EXISTING R/W
34'
TIE TO EXISTING PARKING LOT
TIE TO EX. C&G +84.00 –Y10– 76.00' LT
+09.00 –Y10– 44.75' LT
+84.00 –Y10– 69.75' LT
25' R
+09.00 –Y10– 69.75' LT
340
+36.22 –Y10– 44.75' LT
PROP. 2'–6" C&G
+36.22 –Y10– 74.75' LT
30' R
+62.35 –Y10– 60.00' LT
TIE TO EXISTING DRIVEWAY
1'R +78.56 –Y10– 53.50' LT
7.5'
34'
1'R +81.12 –Y10– 58.57' LT
+96.07 –Y10– 60.00' LT
1'R
+84.33 –Y10– 53.54' LT
30' R
PUE
+22.33 –Y10– 44.75' LT
PROP. 2'–6" C&G
+22.33 –Y10– 74.75' LT
+28.33 –Y10– 44.75' LT
+28.33 –Y10– 50.75' LT
6' R
PUE
PUE
PUE
+34.37 –Y10– 50.75' LT
+34.37 –Y10– 65.00' LT
34'
PROP. 1'–6" C&G
TIE TO EXISTING PARKING LOT
+69.00 –Y10– 59.77' LT
+69.00 –Y10– 65.00' LT
15' R
+84.19 –Y10– 59.75' LT
+84.19 –Y10– 44.75' LT
+00.00 –Y10– 44.75' LT
PROP. 2'–6" C&G

FOR –Y10– ALIGNMENT, SEE SHEET 5
FOR –Y17– ALIGNMENT, SEE SHEET 19
FOR –Y10– PROFILE, SEE SHEET 36
FOR –Y17– PROFILE, SEE SHEET 48

GRAPHIC SCALE
20 10 0 20 40
PLANS

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HNTB

INTERSECTION DETAIL –Y11– AND –Y23–

HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200
Raleigh, North Carolina 27609
NC License No: C-1554

PROJECT REFERENCE NO.	SHEET NO.
I-4400C	2B-9
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 046784 ENGINEER MARC A WHITMORE

DocuSigned by: Marc Whitmore 7/10/2019

NAD 83/NA 2011

REVISIONS 8/17/99

GREU TL-2

PROP. GUARDRAIL

PROP. 2′–6″ C&G

+00.00 –Y11–
24.00′ LT

–Y11– BUTLER BRIDGE RD

12′ 12′ 8′ 4′ FDPS

+52.69 –Y11–
12.00′ RT

EXISTING R/W

TUE

–Y11– Sta.14+69.72
–Y23– Sta.15+81.65

N 7° 25′ 52.9″ E

TYPE III

24′

PROP. GUARDRAIL

30′ R

BEGIN 2′–6″ C&G
+15.00 –Y11–
29.57′ RT

150′ R

+46.68–Y23–
16.30′ RT

20′ R

2′ R +54.56 –Y23– 0.00′ LT

20′ R +47.09 –Y23– 16.27′ LT

252.3′ R +64.63 –Y23– 247.96′ RT

248.3′ R +56.10 –Y23– 248.00′ RT

2.8′ R +26.09 –Y23– 0.01′ RT

+52.69 –Y11–
162′ RT

PROP. 2′–6″ C&G

+85.51 –Y23–
12.66′ LT

+33.76 –Y11–
31.13′ RT

150′ R

75′ R

+98.52 –Y11–
12.00′ RT

–Y23– N 12° 03′ 36.1″ W

+57.36 –Y23–
24.00′ RT

+57.36 –Y23–
99.00′ RT

8′ 36′ 12′ 12′ 12′

+00.00 –Y23–
20.00′ LT

PROP. GUARDRAIL

4′ FDPS

RETAINING WALL
–RW108–

+75.00 –Y23–
24.00′ RT

+98.52 –Y11–
162.00′ RT

NORTH RUGBY RD

GREU TL-2

EXISTING R/W

FOR –Y11– ALIGNMENT, SEE SHEET 45
FOR –Y11– PROFILE, SEE SHEET 8
FOR –Y23– ALIGNMENT, SEE SHEET 45
FOR –Y23– PROFILE, SEE SHEET 49

★ PROPOSED TRAFFIC SIGNAL

GRAPHIC SCALE
20 10 0 20 40
PLANS

PROJECT REFERENCE NO.	SHEET NO.
I-4400C	2B-10

R/W SHEET NO.

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 046784 MARC A. WHITMORE

Marc Whitmore 7/10/2019

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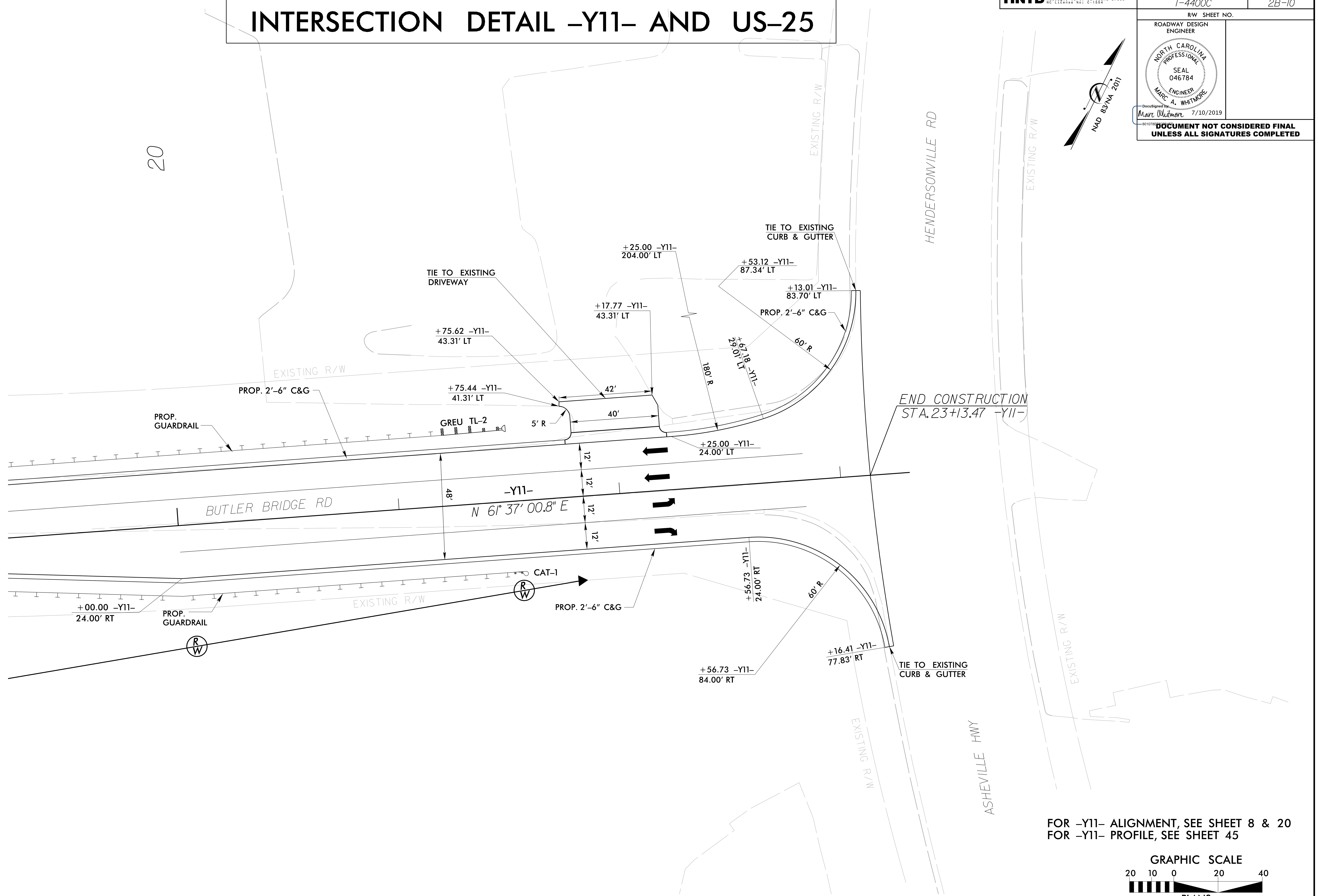
INTERSECTION DETAIL -Y11- AND US-25



20
EXISTING R/W
HENDERSONVILLE RD
NAD 83/NA 2011
TIE TO EXISTING CURB & GUTTER
+25.00 -Y11- 204.00' LT
+53.12 -Y11- 87.34' LT
+13.01 -Y11- 83.70' LT
PROP. 2'-6" C&G
TIE TO EXISTING DRIVEWAY
+17.77 -Y11- 43.31' LT
+75.62 -Y11- 43.31' LT
+67.18 -Y11- 29.01' LT
180' R
60' R
+75.44 -Y11- 41.31' LT
42'
40'
5' R
GREU TL-2
PROP. GUARDRAIL
END CONSTRUCTION STA. 23+13.47 -Y11-
+25.00 -Y11- 24.00' LT
12'
48'
-Y11-
BUTLER BRIDGE RD
N 61° 37' 00.8" E
CAT-1
+00.00 -Y11- 24.00' RT
+56.73 -Y11- 24.00' RT
+56.73 -Y11- 84.00' RT
+16.41 -Y11- 77.83' RT
TIE TO EXISTING CURB & GUTTER
ASHEVILLE HWY

FOR -Y11- ALIGNMENT, SEE SHEET 8 & 20
FOR -Y11- PROFILE, SEE SHEET 45

GRAPHIC SCALE
20 10 0 20 40
PLANS

REVISIONS

8/17/99

10-JUL-2019 10:18
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INTERSECTION DETAIL –Y12– AND –Y20–

HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200
Raleigh, North Carolina 27609
NC License No: C-1554

PROJECT REFERENCE NO.	SHEET NO.
I-4400C	2B-11

R/W SHEET NO.

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 046784 ENGINEER MARC A. WHITMORE

DocuSigned by: Marc Whitmore 7/10/2019 B01078E...

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/NA 2011

REVISIONS 8/17/99

+90.40 –Y20– 137.06′ LT
120′ R
+88.00 –Y20– 20.83′ LT
+20.00 –Y20– 14.40′ LT
PUE
+80.00 –Y20– 17.59′ LT
PROP. GUARDRAIL
4′ FDPS
GREU TL-2
12′
12′
53.52 –Y12– 20.45′ LT
+29.65 –Y12– 12.00′ LT
+66.94 –Y12– 42.08′ LT
40′ R
20′
–Y20– N 2° 27′ 13.5″ W
+50.00 –Y20– TIE TO EXISTING
+20.00 –Y20– 16.07′ RT
CAT-1
+69.89 –Y20– 3.24′ RT
1′ R
15′
+88.00 –Y20– 22.23′ RT
+80.00 –Y20– 18.60′ RT
+67.16 –Y12– 13.02′ LT
120′ R
UNDERWOOD RD
PROP. GUARDRAIL
4′ FDPS
GREU TL-2
+76.25 –Y12– 12.00′ RT
20′ R
50′ R
+40.55 –Y20– 45.95′ RT
3′ R
+32.53 –Y20– 0.36′ LT
120′ R
+86.06 –Y20– 138.47′ RT
+29.93 –Y12– 30.31′ LT
40′ R
+51.57 –Y12– 16.07′ LT
+39.58 –Y12– 21.41′ LT
+83.01 –Y12– 12.00′ LT
+33.79 –Y12– 12.00′ RT
+00.05 –Y12– 89.02′ RT
16′
–Y12– Sta. 25+99.87=
–Y20– Sta. 10+00.00
20′ R
+12.68 –Y12– 12.00′ RT
+18.00 –Y12– 87.00′ RT
+36.90 –Y12– 69.00′RT
AUE
TIE TO EXISTING DRIVEWAY
PUE
11′
+64.35 –Y12– 12.00′ RT
+47.64 –Y12– 67.08′ RT
TIE TO EXISTING DRIVEWAY
10.5′
4′ FDPS
RETAINING WALL –RW107–
24′
4′ FDPS
PROP. GUARDRAIL
+00.00 –Y12– 12.00′ LT
TIE TO EXISTING GUARDRAIL
FANNING BRIDGE RD
–Y12–
S 87° 34′ 02.9″ E
+32.93 –Y12– 12.00′ RT
25′ R
25′
+57.74 –Y12– 36.88′ RT
TIE TO EXISTING DRIVEWAY
+07.38 –Y12– 12.00′ RT
+82.56 –Y12– 36.88′RT
END CONSTRUCTION TIE TO EXISTING –Y12– STA. 29+30.00

FOR –Y12– ALIGNMENT, SEE SHEET 15
FOR –Y12– PROFILE, SEE SHEET 45
FOR –Y20– ALIGNMENT, SEE SHEET 15
FOR –Y20– PROFILE, SEE SHEET 46

GRAPHIC SCALE
20 10 0 20 40
PLANS

10-JUL-2019 10:18
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HNTB

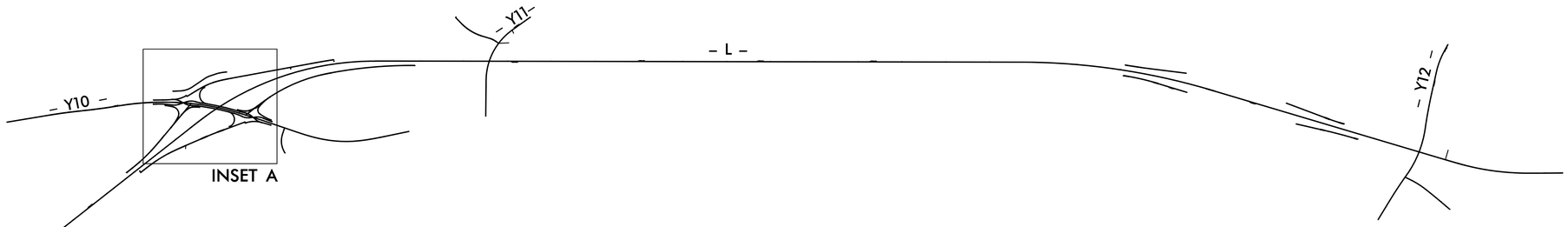
HNTB	PROJECT REFERENCE NO.	SHEET NO.
HNTB NORTH CAROLINA, P.C. 343 E. Six Forks Road, Suite 200 Raleigh, North Carolina 27609 NC License No: C-1554	I-4400C	2B-12
	R/W SHEET NO.	

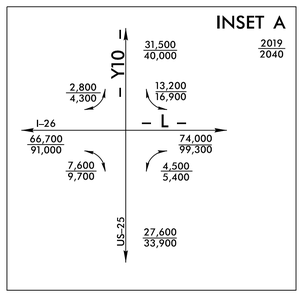
8/17/99

REVISIONS

TRAFFIC VOLUME DIAGRAMS

No. OF VEHICLES PER DAY (VPD)





PROJECT REFERENCE NO.	SHEET NO.
I-4400C	2B-13

R/W SHEET NO.

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 046784 ENGINEER MARC A. WHITMORE — Marc Whitmore 7/10/2019	NORTH CAROLINA PROFESSIONAL SEAL 047948 ENGINEER JOHN M. BLANCETT — John Blancett 7/11/2019

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

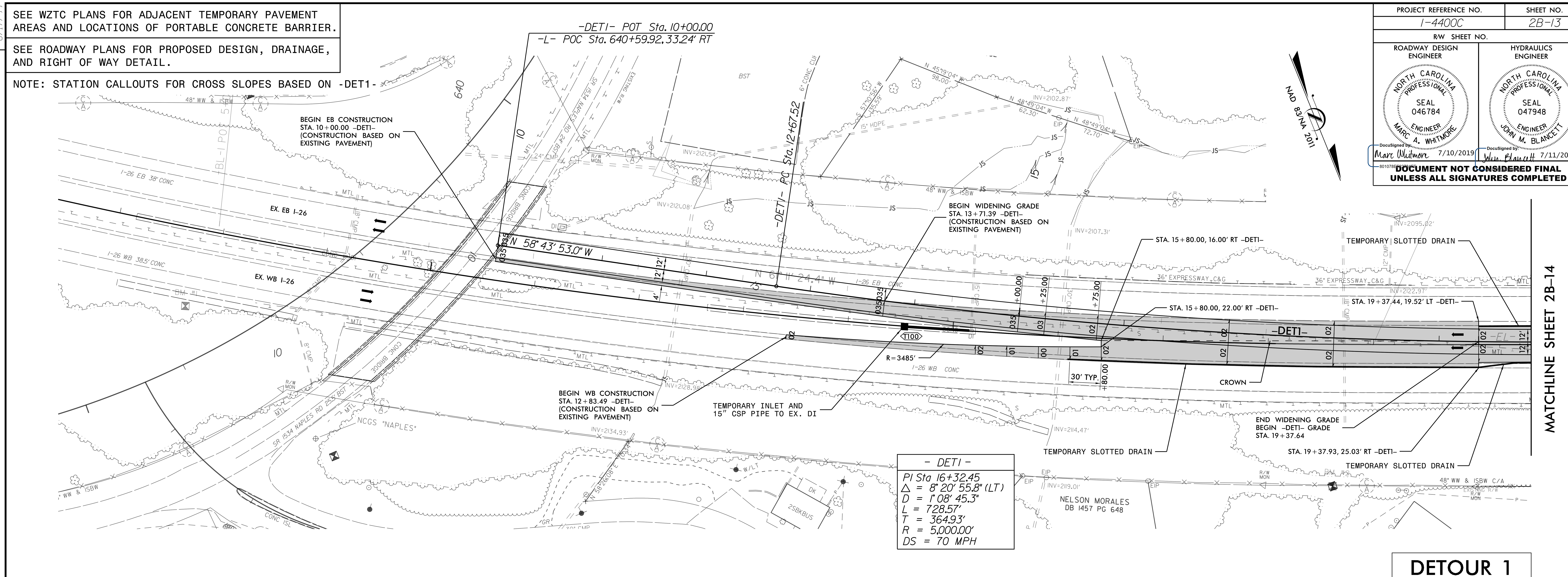
SEE WZTC PLANS FOR ADJACENT TEMPORARY PAVEMENT AREAS AND LOCATIONS OF PORTABLE CONCRETE BARRIER.

SEE ROADWAY PLANS FOR PROPOSED DESIGN, DRAINAGE, AND RIGHT OF WAY DETAIL.

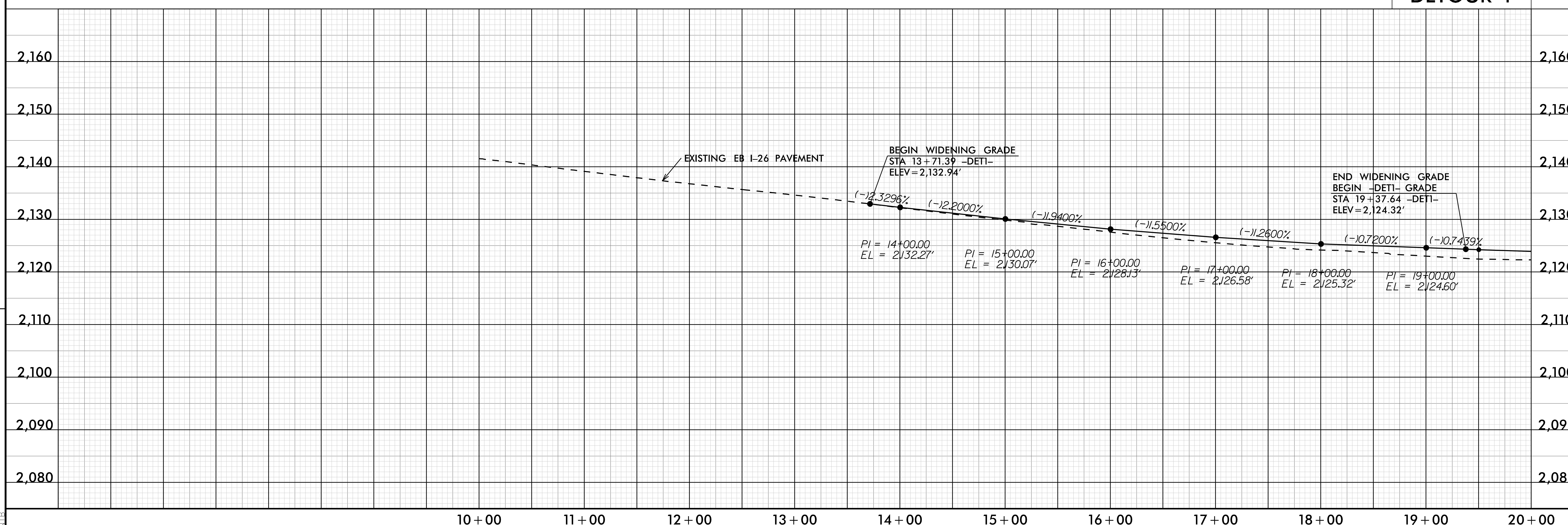
NOTE: STATION CALLOUTS FOR CROSS SLOPES BASED ON -DET1-

8/17/99

REVISIONS



DETOUR 1



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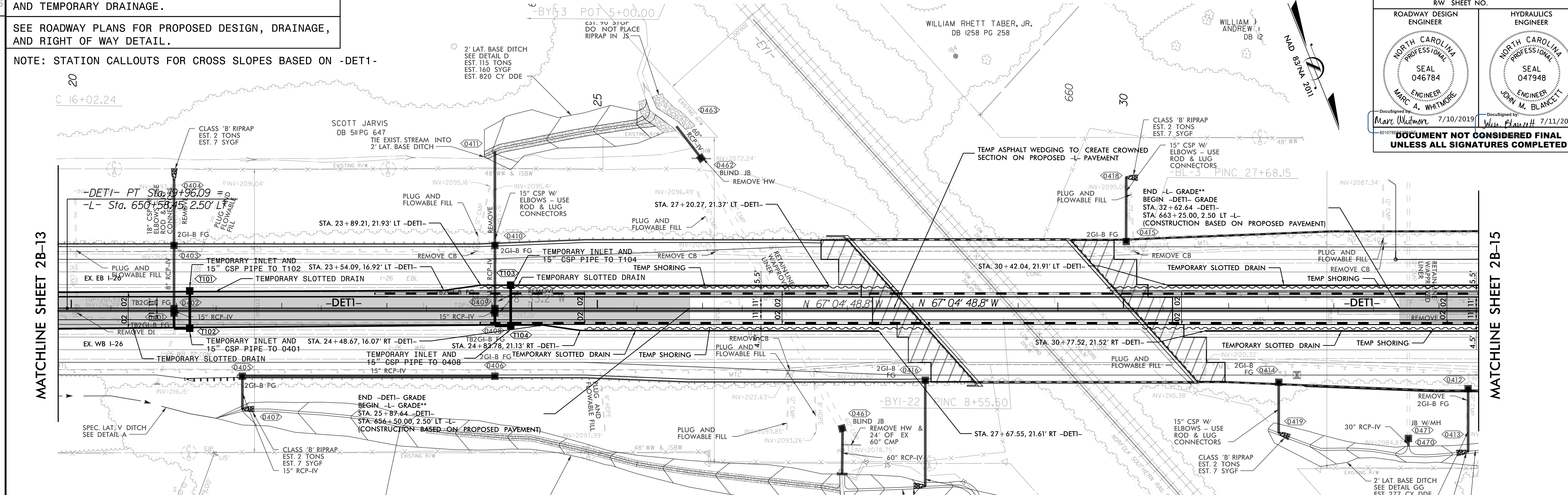
PROJECT REFERENCE NO.	SHEET NO.
I-4400C	2B-14
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 046784 ENGINEER MARC A. WHITMORE — Marc Whitmore 7/10/2019	NORTH CAROLINA PROFESSIONAL SEAL 047948 ENGINEER JOHN M. BLANCETT — John Blancett 7/11/2019

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

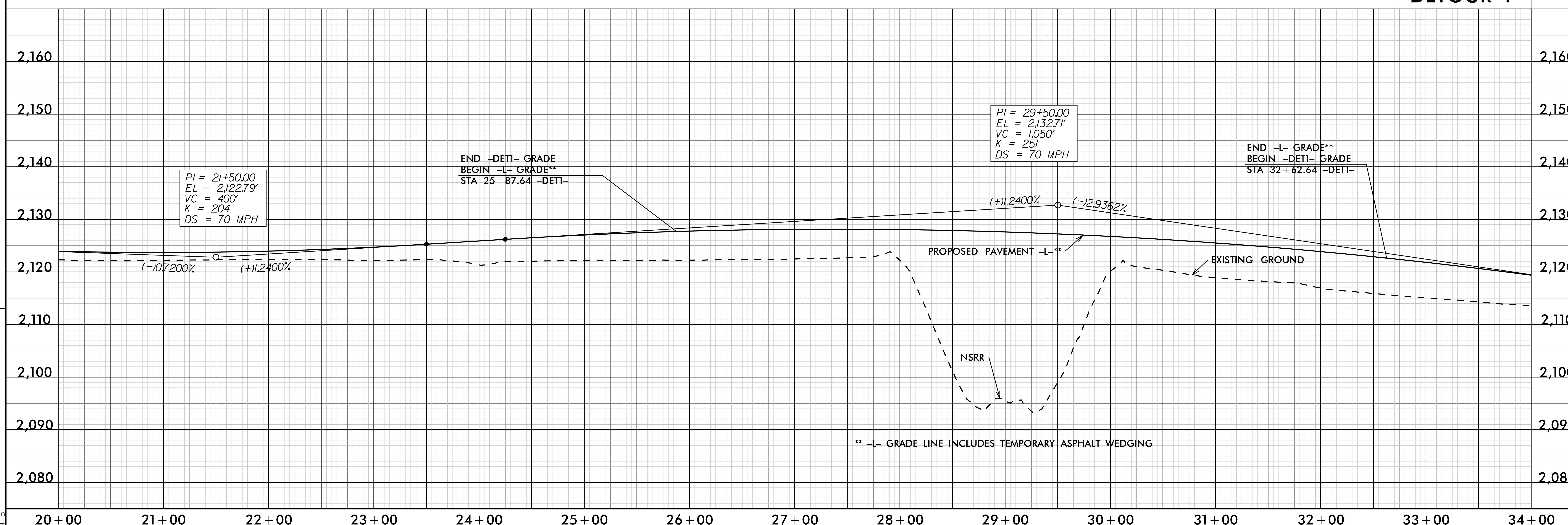
SEE WZTC PLANS FOR ADJACENT TEMPORARY PAVEMENT AREAS, LOCATIONS OF PORTABLE CONCRETE BARRIER AND TEMPORARY DRAINAGE.

SEE ROADWAY PLANS FOR PROPOSED DESIGN, DRAINAGE, AND RIGHT OF WAY DETAIL.

NOTE: STATION CALLOUTS FOR CROSS SLOPES BASED ON -DET1-



DETOUR 1



REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
I-4400C	2B-15

R/W SHEET NO.

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 046784 ENGINEER MARC A. WHITMORE — Marc Whitmore 7/10/2019

HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 047948 ENGINEER JOHN M. BLANCETT — 7/11/2019

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

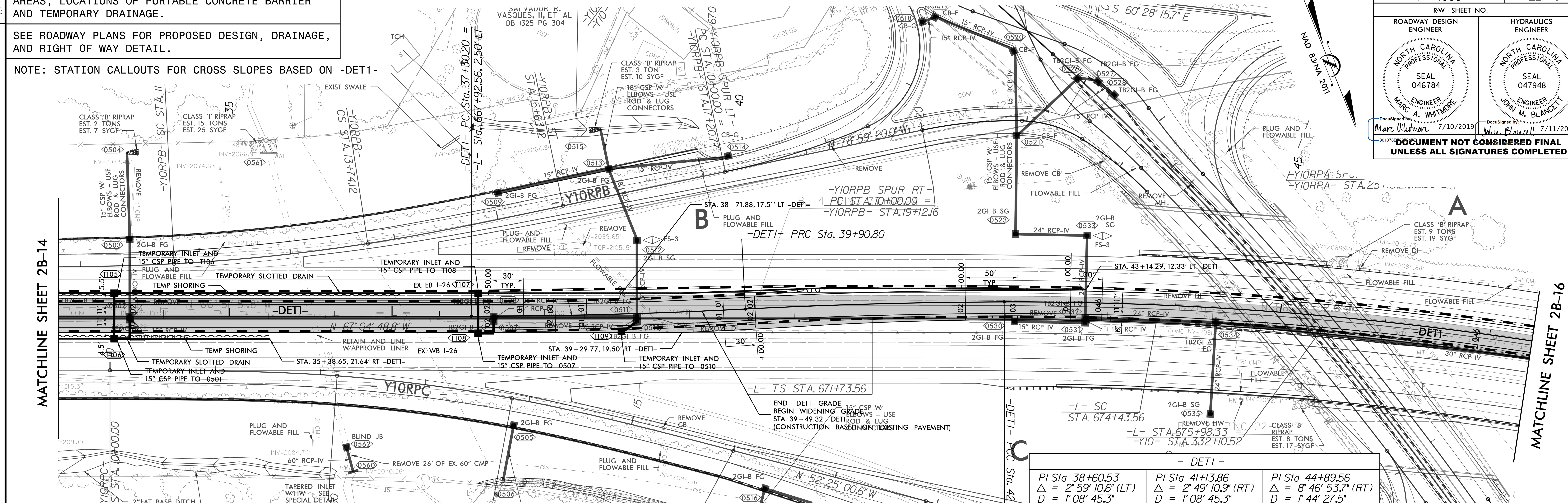
8/17/99

SEE WZTC PLANS FOR ADJACENT TEMPORARY PAVEMENT AREAS, LOCATIONS OF PORTABLE CONCRETE BARRIER AND TEMPORARY DRAINAGE.

SEE ROADWAY PLANS FOR PROPOSED DESIGN, DRAINAGE, AND RIGHT OF WAY DETAIL.

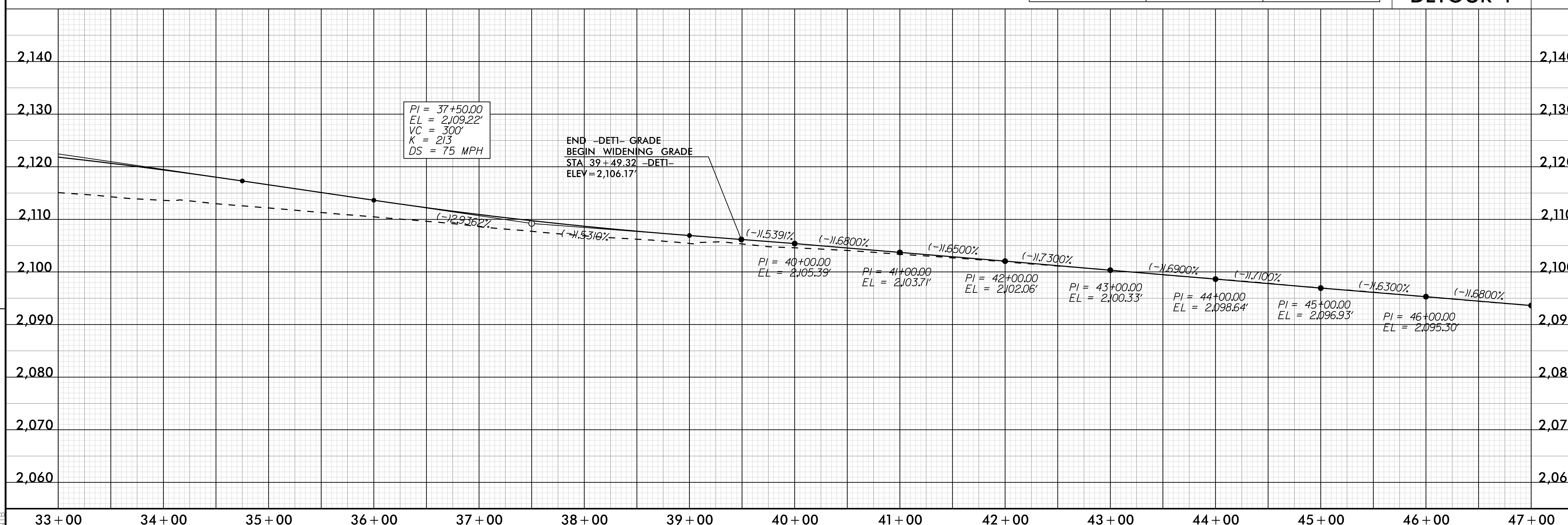
NOTE: STATION CALLOUTS FOR CROSS SLOPES BASED ON -DET1-

REVISIONS



- DETI -		
PI Sta 38+60.53	PI Sta 41+13.86	PI Sta 44+89.56
Δ = 2° 59' 10.6" (LT)	Δ = 2° 49' 10.9" (RT)	Δ = 8° 46' 53.7" (RT)
D = 1° 08' 45.3"	D = 1° 08' 45.3"	D = 1° 44' 27.5"
L = 260.60'	L = 246.06'	L = 504.41'
T = 130.33'	T = 123.06'	T = 252.70'
R = 4,999.98'	R = 5,000.00'	R = 3,291.04'
DS = 70 MPH	DS = 70 MPH	DS = 70 MPH

DETOUR 1



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I4400C_RDY_2B-(13-17)_Detour01.dgn

PROJECT REFERENCE NO.	SHEET NO.
I-4400C	2B-16
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER — SEAL 046784, NORTH CAROLINA PROFESSIONAL ENGINEER, MARC A. WHITMORE — Marc Whitmore 7/10/2019

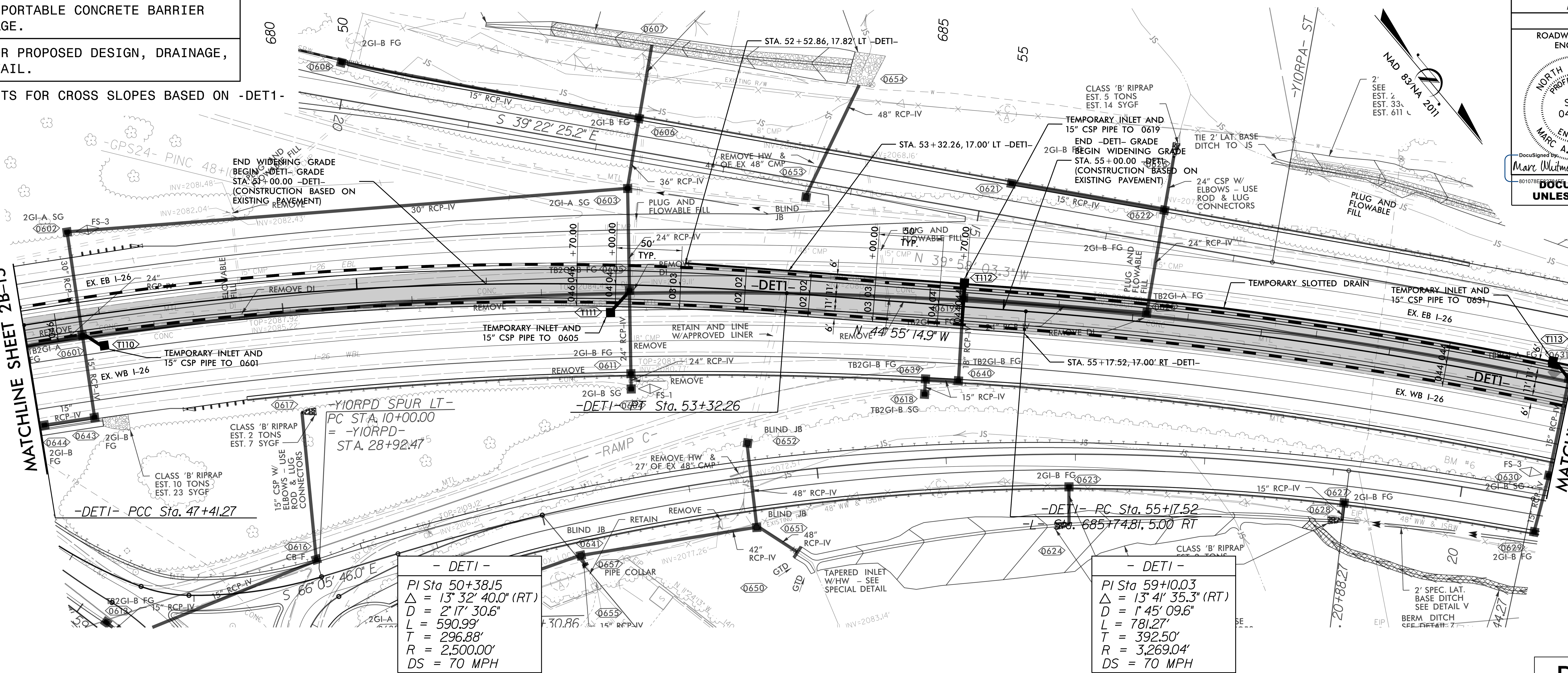
HYDRAULICS ENGINEER — SEAL 047948, NORTH CAROLINA PROFESSIONAL ENGINEER, JOHN M. BLANCETT — John Blancett 7/11/2019

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

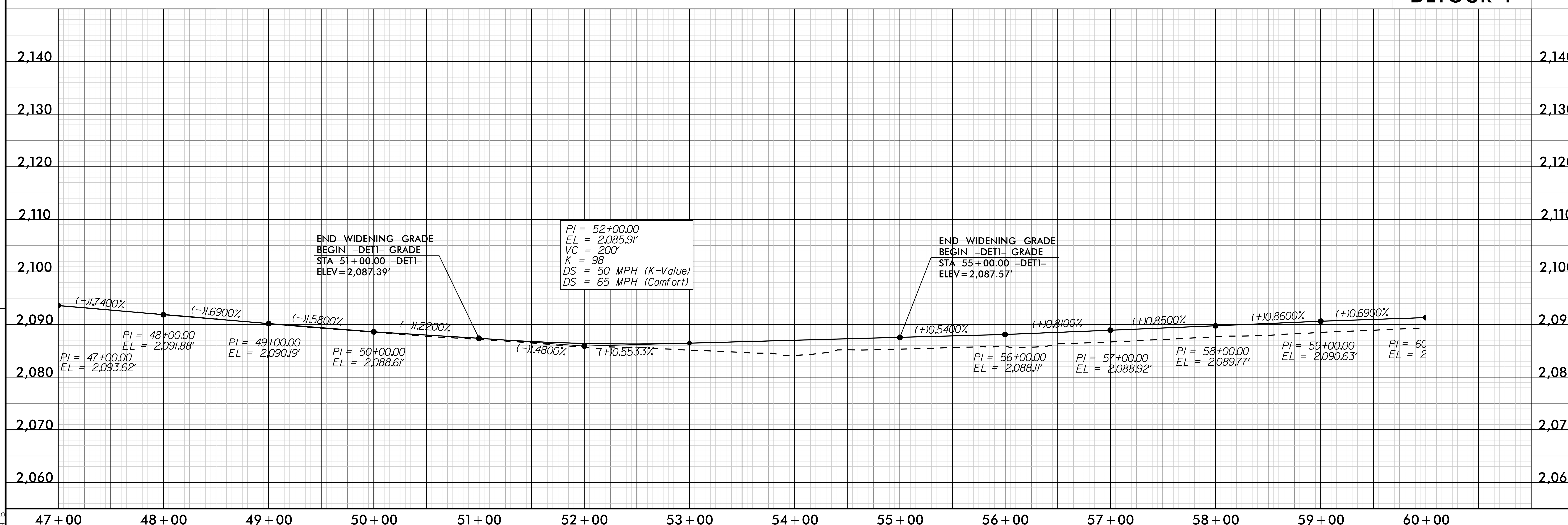
SEE WZTC PLANS FOR ADJACENT TEMPORARY PAVEMENT AREAS, LOCATIONS OF PORTABLE CONCRETE BARRIER AND TEMPORARY DRAINAGE.

SEE ROADWAY PLANS FOR PROPOSED DESIGN, DRAINAGE, AND RIGHT OF WAY DETAIL.

NOTE: STATION CALLOUTS FOR CROSS SLOPES BASED ON -DET1-



DETOUR 1



REVISIONS

8/17/99

10-JUL-2019 10:19
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PROJECT REFERENCE NO.	SHEET NO.
I-4400C	2B-17

R/W SHEET NO.

ROADWAY DESIGN ENGINEER — SEAL 046784, NORTH CAROLINA PROFESSIONAL ENGINEER, MARC A. WHITMORE — Marc Whitmore 7/10/2019

HYDRAULICS ENGINEER — SEAL 047948, NORTH CAROLINA PROFESSIONAL ENGINEER, JOHN M. BLANCETT — John Blancett 7/11/2019

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

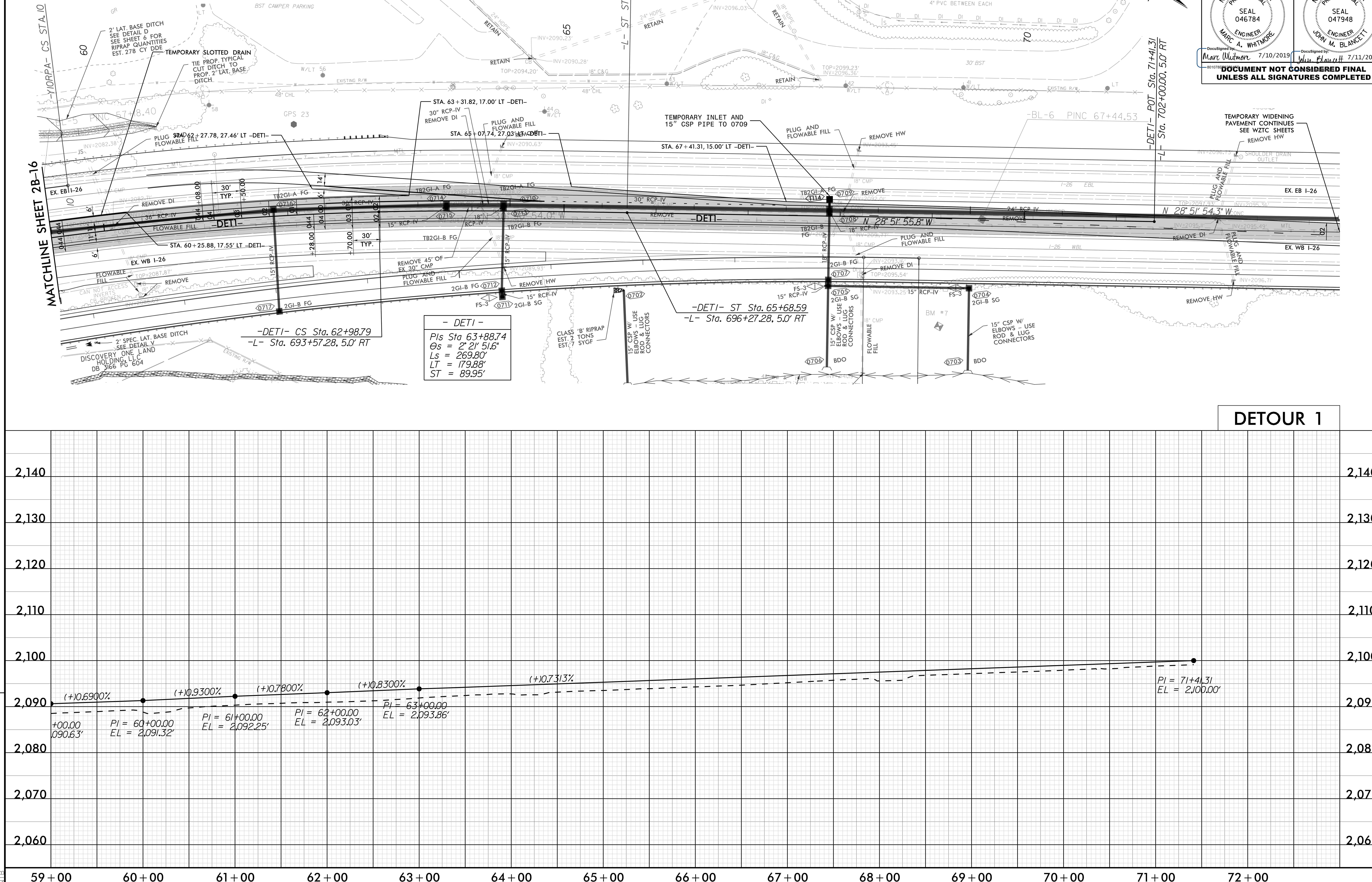
SEE WZTC PLANS FOR ADJACENT TEMPORARY PAVEMENT AREAS AND LOCATIONS OF PORTABLE CONCRETE BARRIER.

SEE ROADWAY PLANS FOR PROPOSED DESIGN, DRAINAGE, AND RIGHT OF WAY DETAIL.

NOTE: STATION CALLOUTS FOR CROSS SLOPES BASED ON -DET1-

REVISIONS

8/17/99



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8/17/99

SEE WZTC PLANS FOR ADJACENT TEMPORARY PAVEMENT AREAS AND LOCATIONS OF PORTABLE CONCRETE BARRIER.

SEE ROADWAY PLANS FOR PROPOSED DESIGN, DRAINAGE, AND RIGHT OF WAY DETAIL.

NOTE: STATION CALLOUTS FOR CROSS SLOPES BASED ON -DET2-

PROJECT REFERENCE NO.	SHEET NO.
I-4400C	2B-18

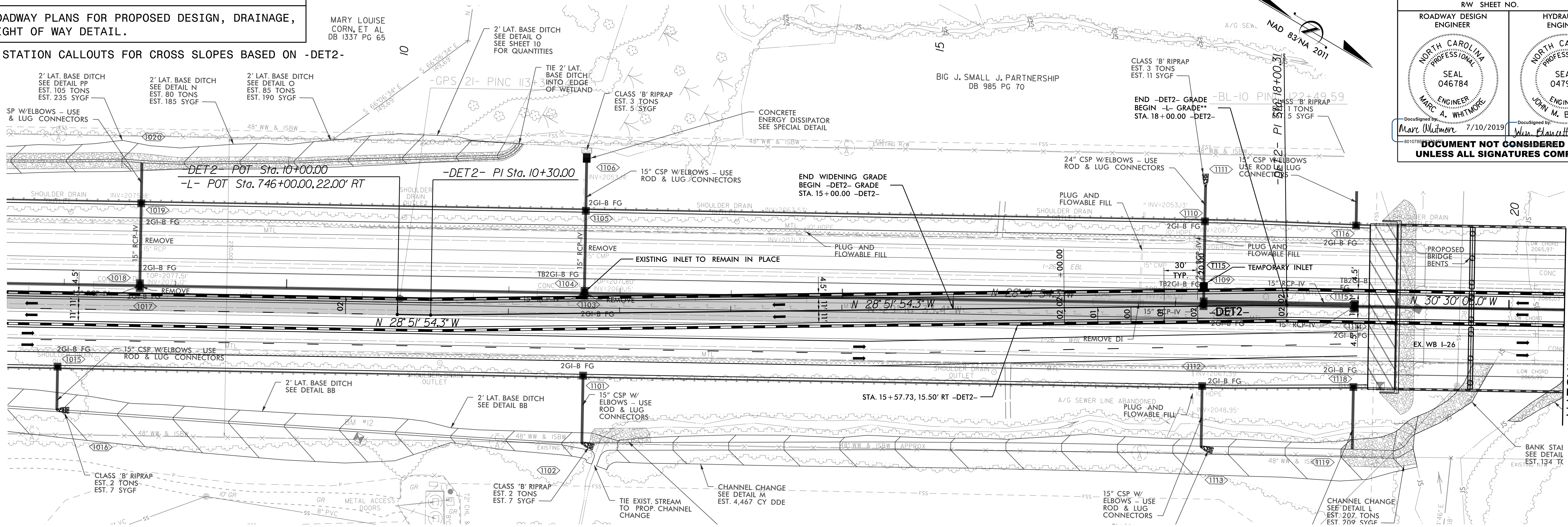
R/W SHEET NO.

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 046784 ENGINEER MARC A. WHITMORE — Marc Whitmore 7/10/2019

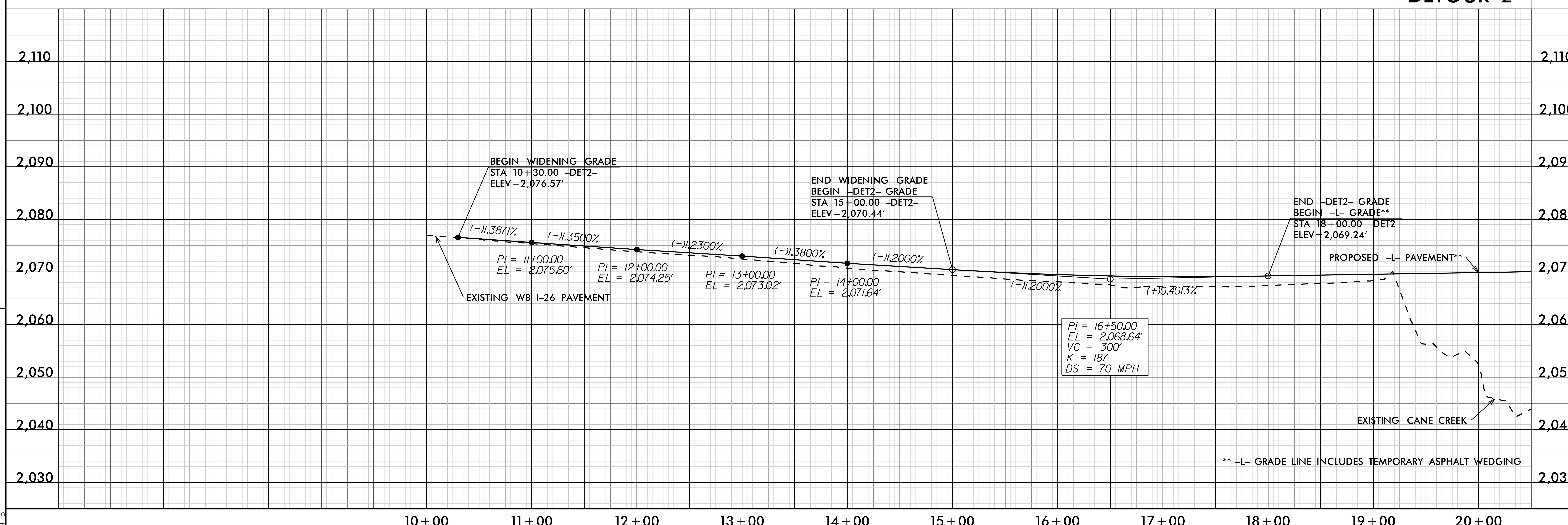
HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 047948 ENGINEER JOHN M. BLANCETT — 7/11/2019

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS



DETOUR 2



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8/17/99

PROJECT REFERENCE NO.	SHEET NO.
I-4400C	2B-19
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER — SEAL 046784, NORTH CAROLINA PROFESSIONAL ENGINEER, MARC A. WHITMORE — Marc Whitmore 7/10/2019

HYDRAULICS ENGINEER — SEAL 047948, NORTH CAROLINA PROFESSIONAL ENGINEER, JOHN M. BLANCETT — 7/11/2019

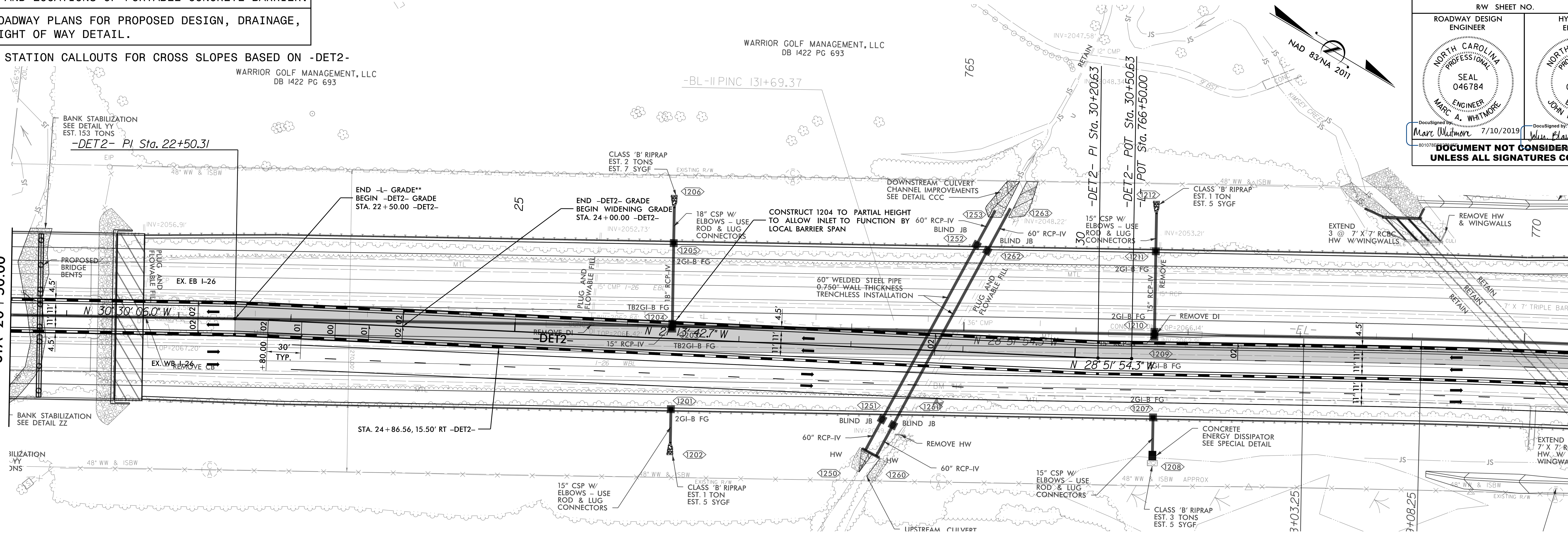
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEE WZTC PLANS FOR ADJACENT TEMPORARY PAVEMENT AREAS AND LOCATIONS OF PORTABLE CONCRETE BARRIER.

SEE ROADWAY PLANS FOR PROPOSED DESIGN, DRAINAGE, AND RIGHT OF WAY DETAIL.

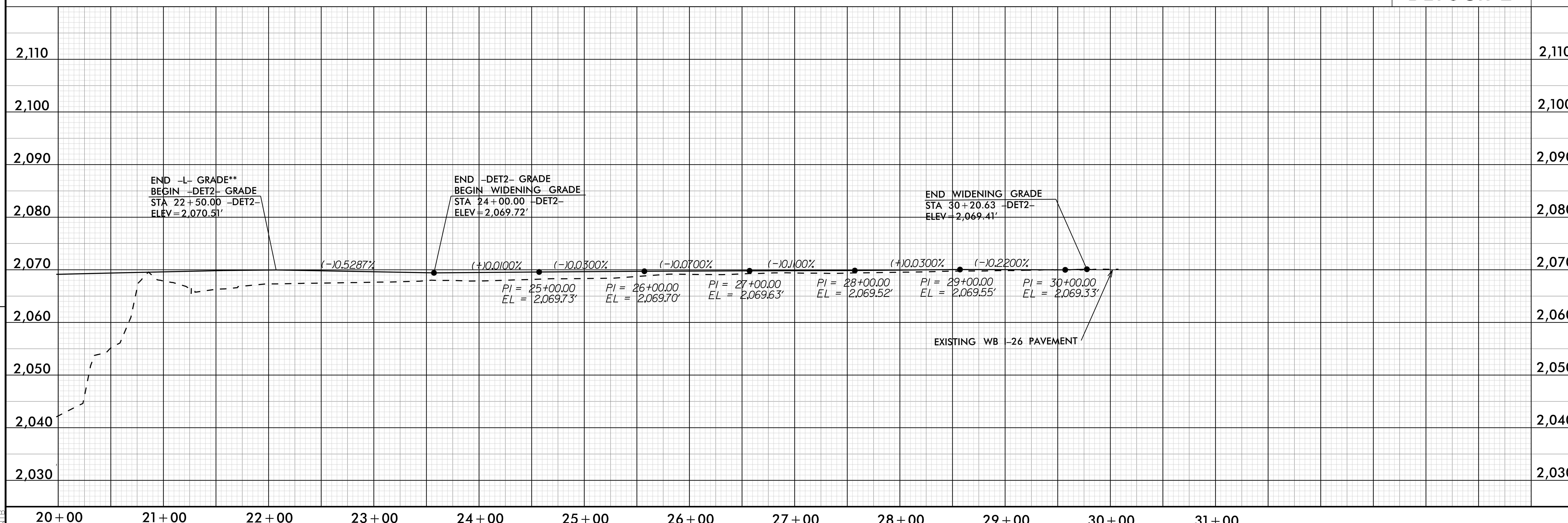
NOTE: STATION CALLOUTS FOR CROSS SLOPES BASED ON -DET2-

REVISIONS



MATCHLINE SHEET 2B-18 STA 20+50.00
WARRIOR GOLF MANAGEMENT, LLC DB 1422 PG 693
-BL-11 PINC 131+69.37
NAD 83/NA 2011
BANK STABILIZATION SEE DETAIL YY EST. 153 TONS
-DET2- PI Sta. 22+50.31
END -L- GRADE** BEGIN -DET2- GRADE STA. 22+50.00 -DET2-
END -DET2- GRADE BEGIN WIDENING GRADE STA. 24+00.00 -DET2-
CLASS 'B' RIPRAP EST. 2 TONS EST. 7 SYGF
18" CSP W/ ELBOWS - USE ROD & LUG CONNECTORS
CONSTRUCT 1204 TO PARTIAL HEIGHT TO ALLOW INLET TO FUNCTION BY LOCAL BARRIER SPAN
DOWNSTREAM CULVERT CHANNEL IMPROVEMENTS SEE DETAIL CCC
60" WELDED STEEL PIPE 0.750" WALL THICKNESS TRENCHLESS INSTALLATION
-DET2- PI Sta. 30+20.63
-DET2- POT Sta. 30+50.63 = -L- POT Sta. 766+50.00
CLASS 'B' RIPRAP EST. 1 TON EST. 5 SYGF
15" CSP W/ ELBOWS - USE ROD & LUG CONNECTORS
EXTEND 3 @ 7' X 7' RCBC HW W/WINGWALLS
REMOVE HW & WINGWALLS
N 30°30' 06.0" W
N 28°51' 54.3" W
PROPOSED BRIDGE BENTS
EX. EB I-26
EX. WB I-26
REMOVE CB
REMOVE DI
STA. 24+86.56, 15.50' RT -DET2-
BANK STABILIZATION SEE DETAIL ZZ
15" CSP W/ ELBOWS - USE ROD & LUG CONNECTORS
CLASS 'B' RIPRAP EST. 1 TON EST. 5 SYGF
60" RCP-IV
BLIND JB
REMOVE HW
UPSTREAM CULVERT
CONCRETE ENERGY DISSIPATOR SEE SPECIAL DETAIL
CLASS 'B' RIPRAP EST. 3 TONS EST. 5 SYGF
EXTEND 3 @ 7' X 7' RCBC HW W/ WINGWALLS

DETOUR 2



2,110
2,100
2,090
2,080
2,070
2,060
2,050
2,040
2,030
END -L- GRADE** BEGIN -DET2- GRADE STA 22+50.00 -DET2- ELEV=2,070.51'
END -DET2- GRADE BEGIN WIDENING GRADE STA 24+00.00 -DET2- ELEV=2,069.72'
END WIDENING GRADE STA 30+20.63 -DET2- ELEV=2,069.41'
(-)0.5287%
(+)0.0100%
(-)0.0300%
(-)0.0700%
(-)0.1100%
(+)0.0300%
(-)0.2200%
PI = 25+00.00 EL = 2,069.73'
PI = 26+00.00 EL = 2,069.70'
PI = 27+00.00 EL = 2,069.63'
PI = 28+00.00 EL = 2,069.52'
PI = 29+00.00 EL = 2,069.55'
PI = 30+00.00 EL = 2,069.33'
EXISTING WB I-26 PAVEMENT
20+00
21+00
22+00
23+00
24+00
25+00
26+00
27+00
28+00
29+00
30+00
31+00

10-JUL-2019 10:19 I4400C_RDY_2B-(18-19)_Detour02.dgn

SEE WZTC PLANS FOR ADJACENT TEMPORARY PAVEMENT AREAS AND LOCATIONS OF PORTABLE CONCRETE BARRIER.

SEE ROADWAY PLANS FOR PROPOSED DESIGN, DRAINAGE, AND RIGHT OF WAY DETAIL.

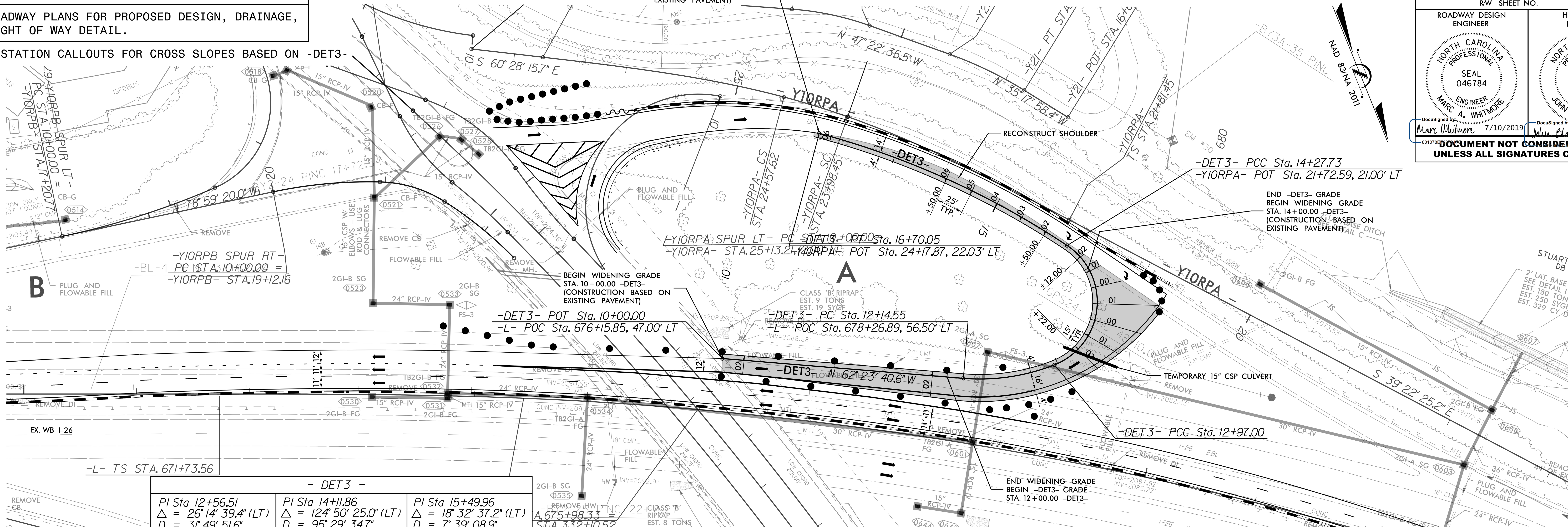
NOTE: STATION CALLOUTS FOR CROSS SLOPES BASED ON -DET3-

PROJECT REFERENCE NO.	SHEET NO.
I-4400C	2B-20

R/W SHEET NO.

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 046784 ENGINEER MARC A. WHITMORE	NORTH CAROLINA PROFESSIONAL SEAL 047948 ENGINEER JOHN M. BLANCETT
DocuSigned by: Marc Whitmore 7/10/2019	DocuSigned by: 7/11/2019

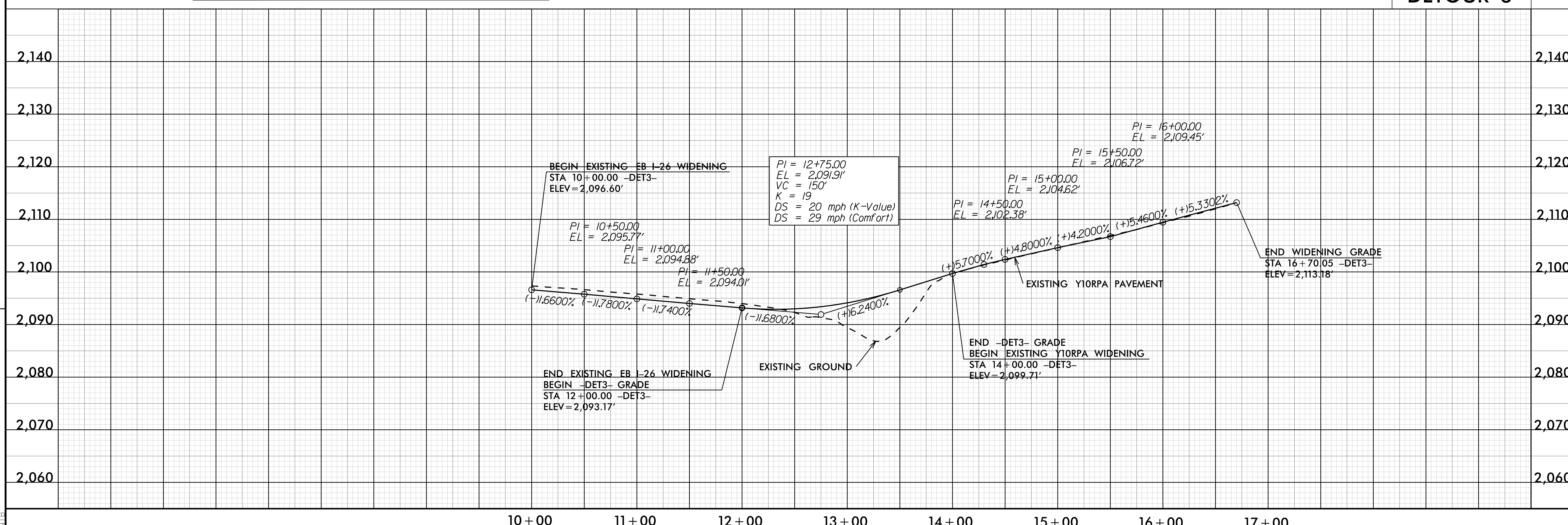
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



END WIDENING GRADE
STA. 16+70.05 -DET3-
(CONSTRUCTION BASED ON EXISTING PAVEMENT)
-Y10RPA-
N 47° 22' 35.5" W
N 35° 17' 58.4" W
S 60° 28' 15.7" E
N 78° 59' 20.0" W
RECONSTRUCT SHOULDER
NAD 83/NA 2011
-DET3- PCC Sta. 14+27.73
-Y10RPA- POT Sta. 21+72.59, 21.00' LT
END -DET3- GRADE
BEGIN WIDENING GRADE
STA. 14+00.00 -DET3-
(CONSTRUCTION BASED ON EXISTING PAVEMENT)
-Y10RPA SPUR LT- PC Sta. 16+70.05
-Y10RPA- STA.25+13.21 -Y10RPA- POT Sta. 24+17.87, 22.03' LT
-Y10RPB SPUR RT- PC STA. 10+00.00 =
-Y10RPB- STA.19+12.16
-Y10RPB SPUR LT- PC STA. 10+00.00
PLUG AND FLOWABLE FILL
B
A
BEGIN WIDENING GRADE
STA. 10+00.00 -DET3-
(CONSTRUCTION BASED ON EXISTING PAVEMENT)
-DET3- POT Sta. 10+00.00
-L- POC Sta. 676+15.85, 47.00' LT
-DET3- PC Sta. 12+14.55
-L- POC Sta. 678+26.89, 56.50' LT
-DET3- N 62° 23' 40.6" W
TEMPORARY 15" CSP CULVERT
-DET3- PCC Sta. 12+97.00
S 39° 22' 25.2" E
EX. WB I-26
-L- TS STA. 671+73.56
END WIDENING GRADE
BEGIN -DET3- GRADE
STA. 12+00.00 -DET3-
CLASS 'B' RIPRAP
STUART L. F
DB 1155

- DET3 -		
PI Sta 12+56.51	PI Sta 14+11.86	PI Sta 15+49.96
Δ = 26° 14' 39.4" (LT)	Δ = 124° 50' 25.0" (LT)	Δ = 18° 32' 37.2" (LT)
D = 31° 49' 51.6"	D = 95° 29' 34.7"	D = 7° 39' 08.9"
L = 82.45'	L = 130.73'	L = 242.32'
T = 41.96'	T = 114.87'	T = 122.23'
R = 180.00'	R = 60.00'	R = 748.72'
DS = 25 MPH	DS = 15 MPH	DS = 40 MPH

DETOUR 3



2,140
2,130
2,120
2,110
2,100
2,090
2,080
2,070
2,060
BEGIN EXISTING EB I-26 WIDENING
STA 10+00.00 -DET3-
ELEV=2,096.60'
PI = 10+50.00
EL = 2,095.77'
PI = 11+00.00
EL = 2,094.88'
PI = 11+50.00
EL = 2,094.01'
PI = 12+75.00
EL = 2,091.91'
VC = 150'
K = 19
DS = 20 mph (K-Value)
DS = 29 mph (Comfort)
PI = 14+50.00
EL = 2,102.38'
PI = 15+00.00
EL = 2,104.62'
PI = 15+50.00
EL = 2,106.72'
PI = 16+00.00
EL = 2,109.45'
(-)1.6600%
(-)1.7800%
(-)1.7400%
(-)1.6800%
(+)6.2400%
(+)5.7000%
(+)4.8000%
(+)4.2000%
(+)5.4600%
(+)5.3302%
EXISTING Y10RPA PAVEMENT
END WIDENING GRADE
STA 16+70.05 -DET3-
ELEV=2,113.18'
END EXISTING EB I-26 WIDENING
BEGIN -DET3- GRADE
STA 12+00.00 -DET3-
ELEV=2,093.17'
EXISTING GROUND
END -DET3- GRADE
BEGIN EXISTING Y10RPA WIDENING
STA 14+00.00 -DET3-
ELEV=2,099.71'
10+00
11+00
12+00
13+00
14+00
15+00
16+00
17+00

REVISIONS

8/17/99

10-JUL-2019 10:19
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PROJECT REFERENCE NO.	SHEET NO.
I-4400C	2B-21

R/W SHEET NO.

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 046784 MARC A. WHITMORE — Marc Whitmore 7/10/2019

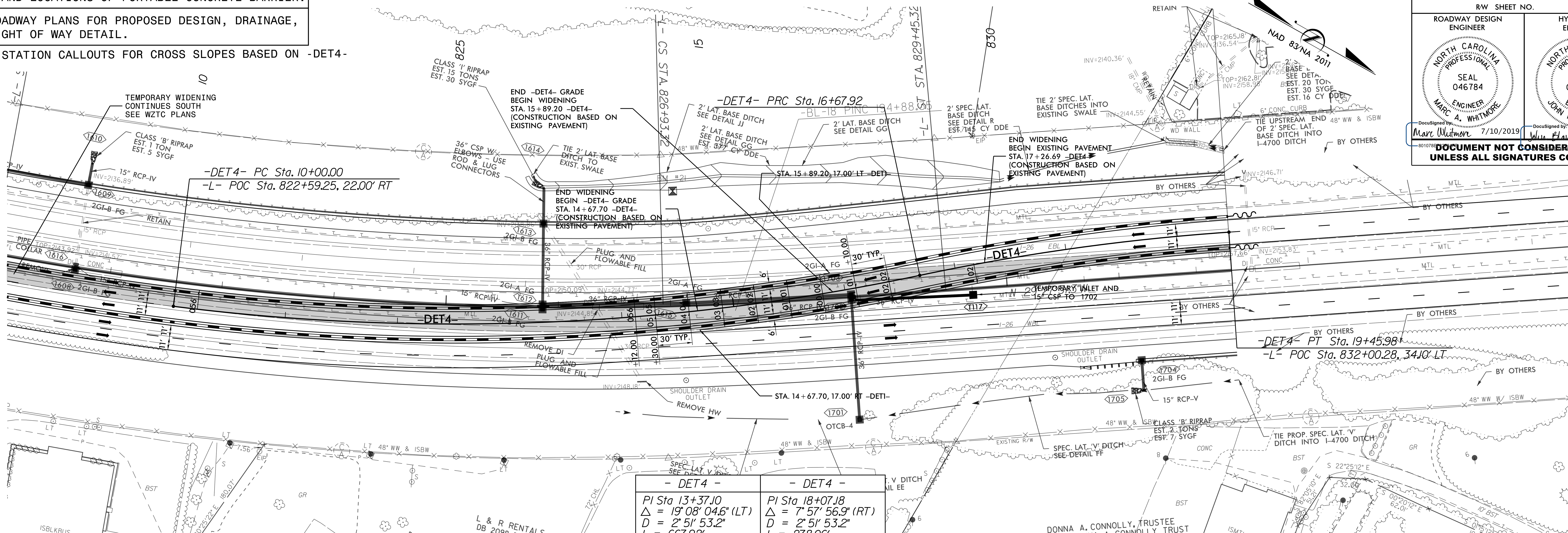
HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 047948 JOHN M. BLANCETT — 7/11/2019

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEE WZTC PLANS FOR ADJACENT TEMPORARY PAVEMENT AREAS AND LOCATIONS OF PORTABLE CONCRETE BARRIER.

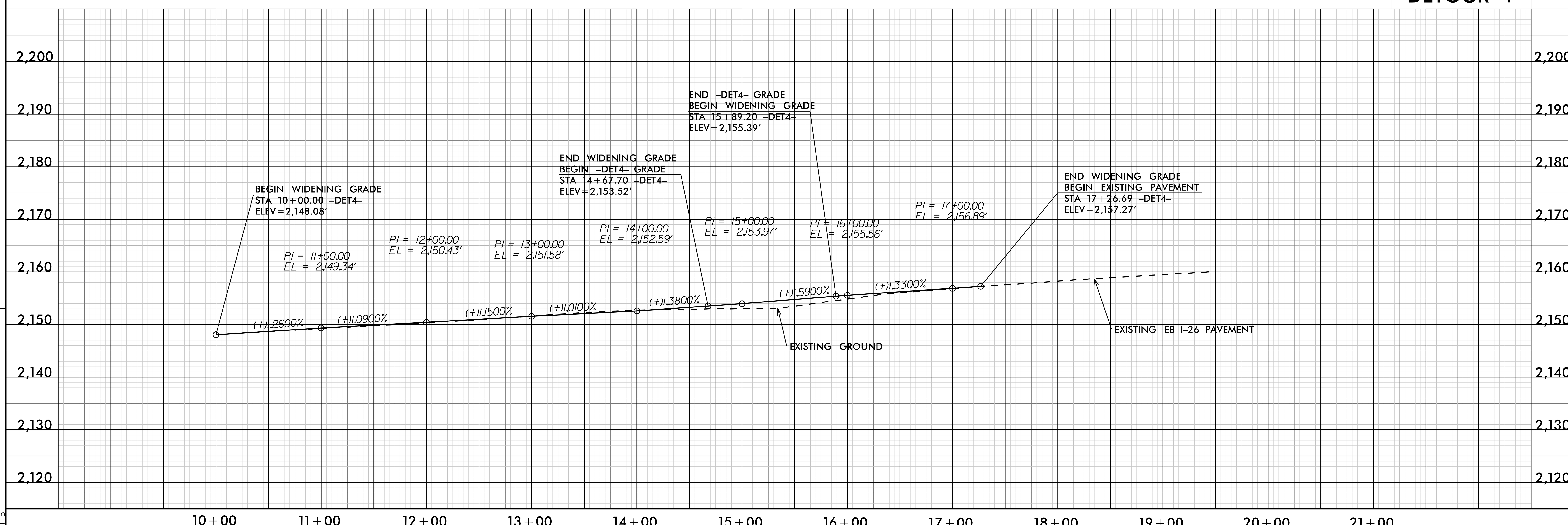
SEE ROADWAY PLANS FOR PROPOSED DESIGN, DRAINAGE, AND RIGHT OF WAY DETAIL.

NOTE: STATION CALLOUTS FOR CROSS SLOPES BASED ON -DET4-



- DET4 -	- DET4 -
PI Sta 13+37.10	PI Sta 18+07.18
Δ = 19° 08' 04.6" (LT)	Δ = 7° 57' 56.9" (RT)
D = 2° 51' 53.2"	D = 2° 51' 53.2"
L = 667.92'	L = 278.06'
T = 337.10'	T = 139.25'
R = 2,000.00'	R = 2,000.00'
DS = 65 MPH	DS = 60 MPH

DETOUR 4



REVISIONS

8/17/99

10-JUL-2019 10:19 I4400C_RDY_2B-21_Detour04.dgn

SEE WZTC PLANS FOR ADJACENT TEMPORARY PAVEMENT AREAS AND LOCATIONS OF PORTABLE CONCRETE BARRIER.

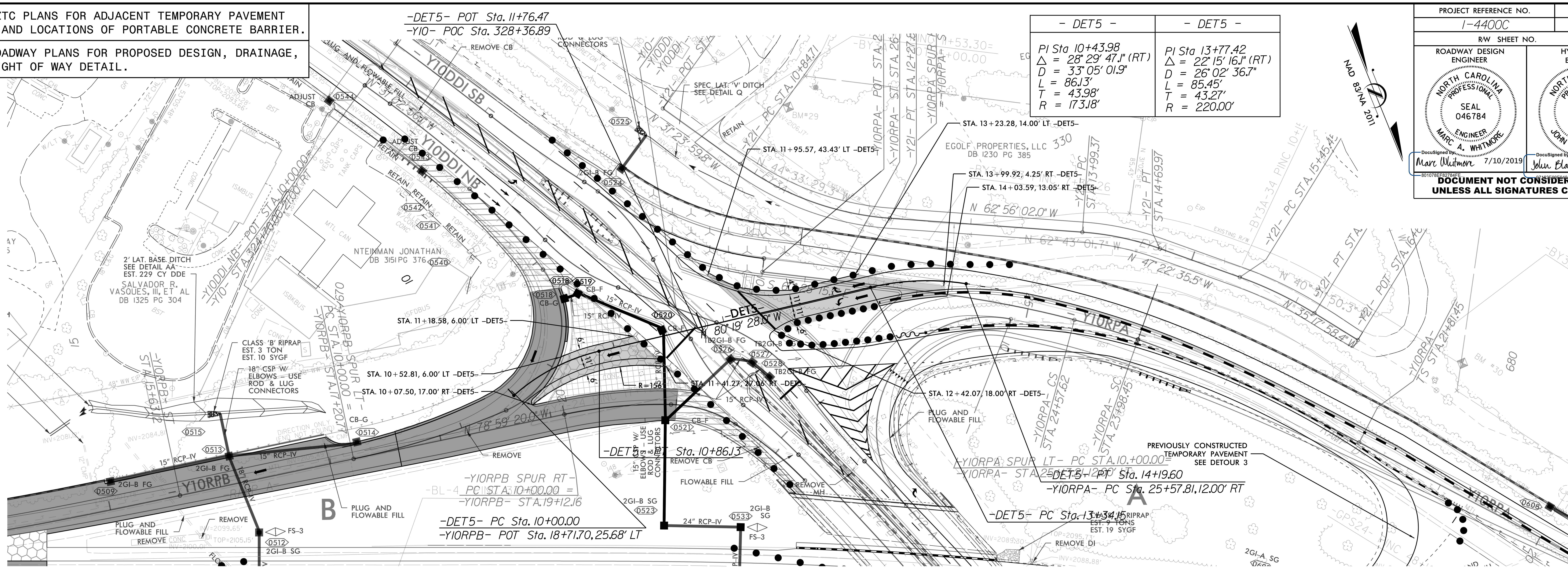
SEE ROADWAY PLANS FOR PROPOSED DESIGN, DRAINAGE, AND RIGHT OF WAY DETAIL.

- DET5 -	- DET5 -
PI Sta 10+43.98	PI Sta 13+77.42
Δ = 28° 29' 47.1" (RT)	Δ = 22° 15' 16.1" (RT)
D = 33° 05' 01.9"	D = 26° 02' 36.7"
L = 86.13'	L = 85.45'
T = 43.98'	T = 43.27'
R = 173.18'	R = 220.00'

PROJECT REFERENCE NO.	SHEET NO.
I-4400C	2B-22
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 046784 ENGINEER MARC A. WHITMORE — Marc Whitmore 7/10/2019	NORTH CAROLINA PROFESSIONAL SEAL 047948 ENGINEER JOHN M. BLANCETT — John Blancett 7/11/2019

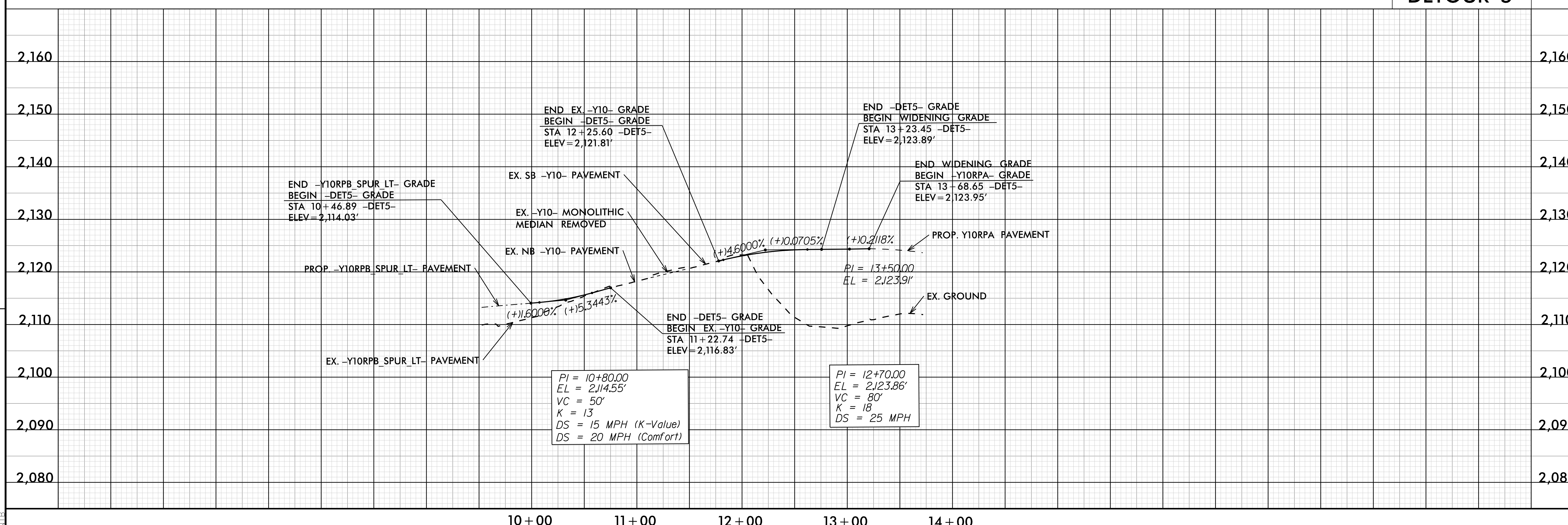
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/NA 2011



-DET5- POT Sta. 11+76.47
-Y10- POC Sta. 328+36.89
Y10DDI SB
Y10DDI NB
Y10RPA
Y10RPB
EGOLF PROPERTIES, LLC
DB 1230 PG 385
NTEIKMAN JONATHAN
DB 3151 PG 376
SALVADOR R. VASQUES, III, ET AL
DB 1325 PG 304
STA. 13+23.28, 14.00' LT -DET5-
STA. 11+95.57, 43.43' LT -DET5-
STA. 13+99.92, 4.25' RT -DET5-
STA. 14+03.59, 13.05' RT -DET5-
STA. 11+18.58, 6.00' LT -DET5-
STA. 10+52.81, 6.00' LT -DET5-
STA. 10+07.50, 17.00' RT -DET5-
STA. 11+41.27, 27.06' RT -DET5-
STA. 12+42.07, 18.00' RT -DET5-
-DET5- PC Sta. 10+00.00
-Y10RPB- POT Sta. 18+71.70, 25.68' LT
-DET5- PT Sta. 10+86.13
-DET5- PT Sta. 14+19.60
-Y10RPA- PC Sta. 25+57.81, 12.00' RT
-DET5- PC Sta. 13+34.15
PREVIOUSLY CONSTRUCTED TEMPORARY PAVEMENT SEE DETOUR 3
PLUG AND FLOWABLE FILL
FLOWABLE FILL
REMOVE
REMOVE CB
A
B

DETOUR 5



END -Y10RPB_SPUR_LT- GRADE
BEGIN -DET5- GRADE
STA 10+46.89 -DET5-
ELEV=2,114.03'
END EX. -Y10- GRADE
BEGIN -DET5- GRADE
STA 12+25.60 -DET5-
ELEV=2,121.81'
END -DET5- GRADE
BEGIN WIDENING GRADE
STA 13+23.45 -DET5-
ELEV=2,123.89'
END WIDENING GRADE
BEGIN -Y10RPA- GRADE
STA 13+68.65 -DET5-
ELEV=2,123.95'
EX. SB -Y10- PAVEMENT
EX. -Y10- MONOLITHIC MEDIAN REMOVED
EX. NB -Y10- PAVEMENT
PROP. -Y10RPB_SPUR_LT- PAVEMENT
EX. -Y10RPB_SPUR_LT- PAVEMENT
PROP. Y10RPA PAVEMENT
EX. GROUND
END -DET5- GRADE
BEGIN EX. -Y10- GRADE
STA 11+22.74 -DET5-
ELEV=2,116.83'
(+)1.6008% (+)5.3443% (+)4.6000% (+)0.0705% (+)0.2118%
PI = 13+50.00
EL = 2,123.91'
PI = 10+80.00
EL = 2,114.55'
VC = 50'
K = 13
DS = 15 MPH (K-Value)
DS = 20 MPH (Comfort)
PI = 12+70.00
EL = 2,123.86'
VC = 80'
K = 18
DS = 25 MPH
2,160
2,150
2,140
2,130
2,120
2,110
2,100
2,090
2,080
10+00
11+00
12+00
13+00
14+00

REVISIONS

8/17/99

10-JUL-2019 10:19
I4400C_RDY_2B-22_Detour05.dgn

8/17/99

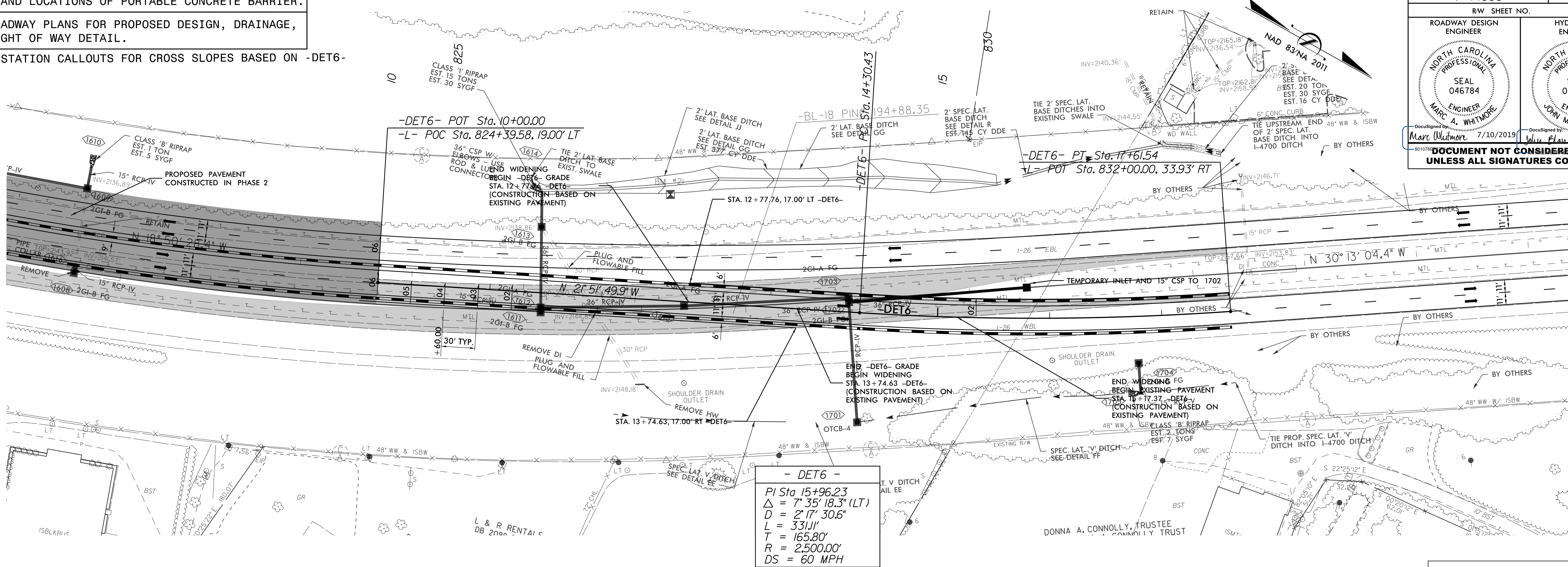
SEE WZTC PLANS FOR ADJACENT TEMPORARY PAVEMENT AREAS AND LOCATIONS OF PORTABLE CONCRETE BARRIER.

SEE ROADWAY PLANS FOR PROPOSED DESIGN, DRAINAGE, AND RIGHT OF WAY DETAIL.

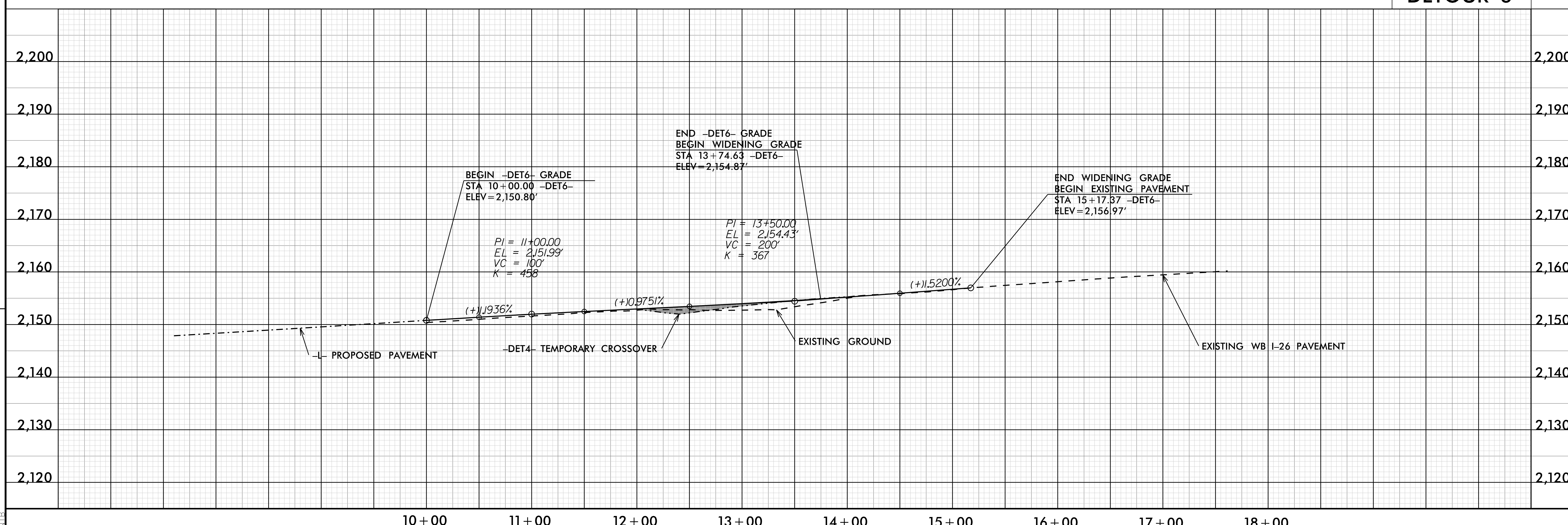
NOTE: STATION CALLOUTS FOR CROSS SLOPES BASED ON -DET6-

PROJECT REFERENCE NO.	SHEET NO.
I-4400C	2B-23
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 046784 ENGINEER MARC A. WHITMORE — Marc Whitmore 7/10/2019	NORTH CAROLINA PROFESSIONAL SEAL 047948 ENGINEER JOHN M. BLANCETT — 7/11/2019

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



DETOUR 6



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PROJECT REFERENCE NO.	SHEET NO.
I-4400C	2B-24
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 046784 MARC A. WHITMORE — Marc Whitmore 7/10/2019

HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 047948 JOHN M. BLANCETT — John Blancett 7/11/2019

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEE WZTC PLANS FOR ADJACENT TEMPORARY PAVEMENT AREAS AND LOCATIONS OF PORTABLE CONCRETE BARRIER.

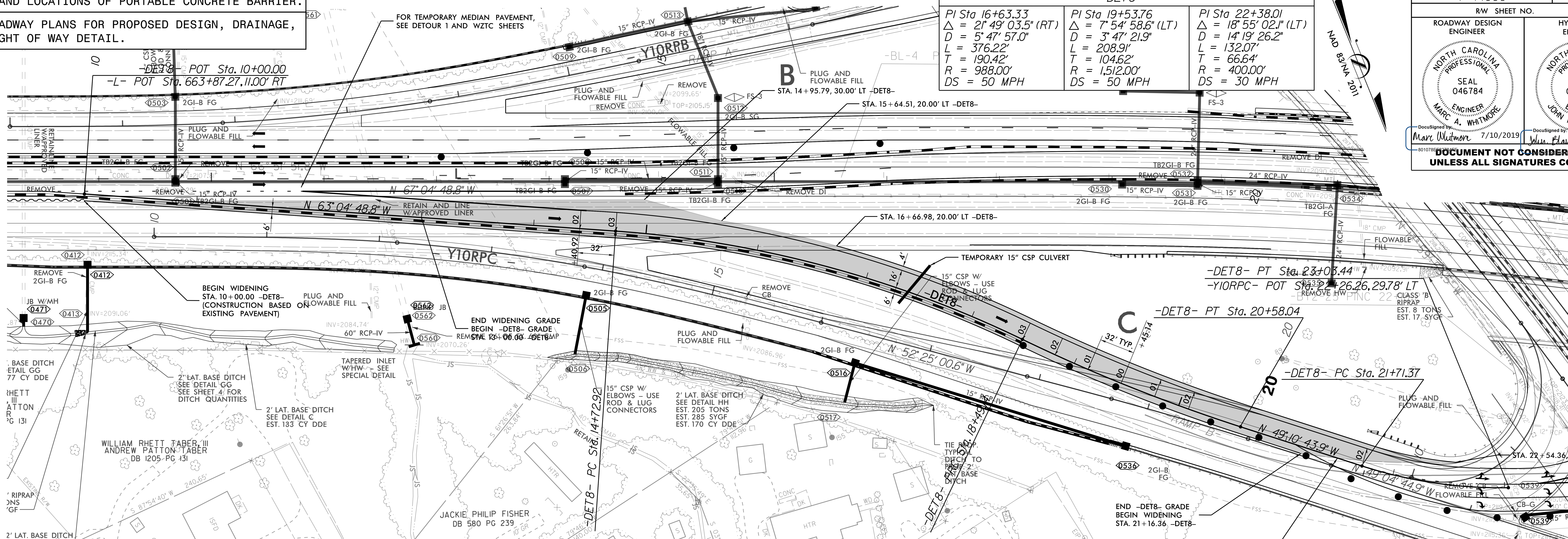
SEE ROADWAY PLANS FOR PROPOSED DESIGN, DRAINAGE, AND RIGHT OF WAY DETAIL.

8/17/99

- DET8 -

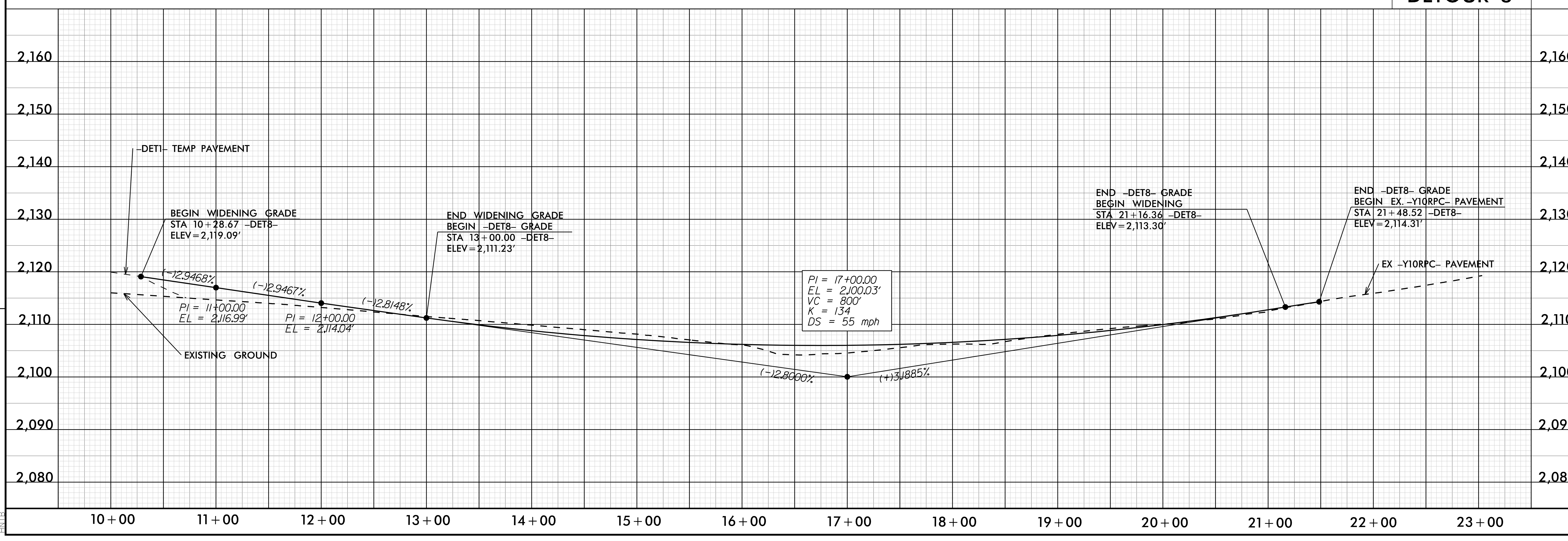
PI Sta 16+63.33	PI Sta 19+53.76	PI Sta 22+38.01
Δ = 21° 49′ 03.5″ (RT)	Δ = 7° 54′ 58.6″ (LT)	Δ = 18° 55′ 02.1″ (LT)
D = 5° 47′ 57.0″	D = 3° 47′ 21.9″	D = 14° 19′ 26.2″
L = 376.22′	L = 208.91′	L = 132.07′
T = 190.42′	T = 104.62′	T = 66.64′
R = 988.00′	R = 1,512.00′	R = 400.00′
DS = 50 MPH	DS = 50 MPH	DS = 30 MPH

NAD 83/NA 2011



-DET8- POT Sta. 10+00.00
-L- POT Sta. 663+87.27, 11.00′ RT
FOR TEMPORARY MEDIAN PAVEMENT, SEE DETOUR 1 AND WZTC SHEETS
Y10RPB
-L-
Y10RPC
N 67° 04′ 48.8″ W
N 63° 04′ 48.8″ W
N 52° 25′ 00.6″ W
N 49° 10′ 43.9″ W
STA. 14+95.79, 30.00′ LT -DET8-
STA. 15+64.51, 20.00′ LT -DET8-
STA. 16+66.98, 20.00′ LT -DET8-
TEMPORARY 15″ CSP CULVERT
RETAIN AND LINE W/APPROVED LINER
BEGIN WIDENING STA. 10+00.00 -DET8- (CONSTRUCTION BASED ON EXISTING PAVEMENT)
END WIDENING GRADE BEGIN -DET8- GRADE STA. 13+00.00 -DET8-
-DET8- PT Sta. 23+03.44
-Y10RPC- POT Sta. 22+26.26, 29.78′ LT
-DET8- PT Sta. 20+58.04
-DET8- PC Sta. 21+71.37
-DET8- PC Sta. 14+72.92
STA. 22+54.36, 20.57′ LT -DET8-
END -DET8- GRADE BEGIN WIDENING STA. 21+16.36 -DET8-
END WIDENING BEGIN EX. Y10RPC PAVEMENT STA. 21+48.52 -DET8-
WILLIAM RHETT TABER, III ANDREW PATTON TABER DB 1205 PG 131
JACKIE PHILIP FISHER DB 580 PG 239
2′ LAT. BASE DITCH SEE DETAIL GG SEE SHEET 4 FOR DITCH QUANTITIES
2′ LAT. BASE DITCH SEE DETAIL C EST. 133 CY DDE
2′ LAT. BASE DITCH SEE DETAIL HH EST. 205 TONS EST. 285 SYGF EST. 170 CY DDE
15″ CSP W/ ELBOWS - USE ROD & LUG CONNECTORS
TAPERED INLET W/HW - SEE SPECIAL DETAIL
PLUG AND FLOWABLE FILL
REMOVE
B
C

DETOUR 8



2,160
2,150
2,140
2,130
2,120
2,110
2,100
2,090
2,080
-DET1- TEMP PAVEMENT
BEGIN WIDENING GRADE STA 10+28.67 -DET8- ELEV=2,119.09′
END WIDENING GRADE BEGIN -DET8- GRADE STA 13+00.00 -DET8- ELEV=2,111.23′
END -DET8- GRADE BEGIN WIDENING STA 21+16.36 -DET8- ELEV=2,113.30′
END -DET8- GRADE BEGIN EX. -Y10RPC- PAVEMENT STA 21+48.52 -DET8- ELEV=2,114.31′
EX -Y10RPC- PAVEMENT
(−)2.9468%
(−)2.9467%
(−)2.8148%
PI = 11+00.00 EL = 2,116.99′
PI = 12+00.00 EL = 2,114.04′
PI = 17+00.00 EL = 2,100.03′ VC = 800′ K = 134 DS = 55 mph
(−)2.8000%
(+)3.1885%
EXISTING GROUND
10+00
11+00
12+00
13+00
14+00
15+00
16+00
17+00
18+00
19+00
20+00
21+00
22+00
23+00

REVISIONS

10-JUL-2019 10:19 I4400C_RDY_2B-24_Detour08.dgn

PROJECT REFERENCE NO.	SHEET NO.
I-4400C	2B-25
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 046784 MARC A. WHITMORE — Marc Whitmore 7/10/2019

HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 047948 JOHN M. BLANCETT — 7/11/2019

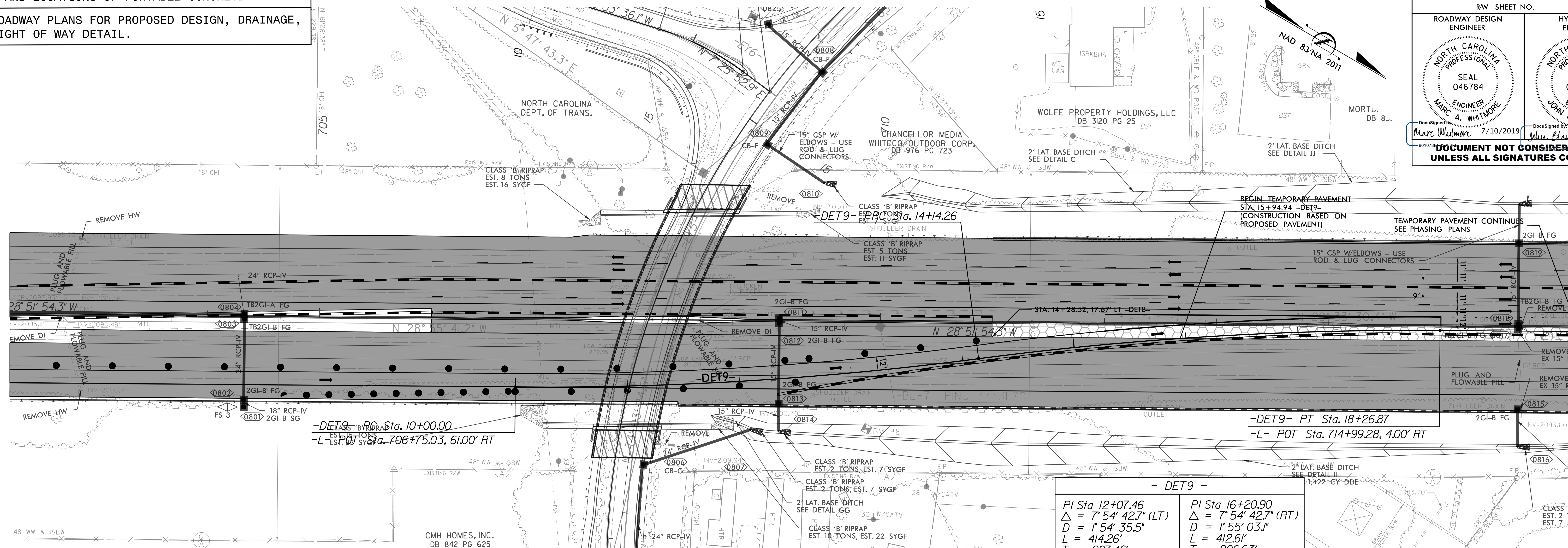
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEE WZTC PLANS FOR ADJACENT TEMPORARY PAVEMENT AREAS AND LOCATIONS OF PORTABLE CONCRETE BARRIER.

SEE ROADWAY PLANS FOR PROPOSED DESIGN, DRAINAGE, AND RIGHT OF WAY DETAIL.

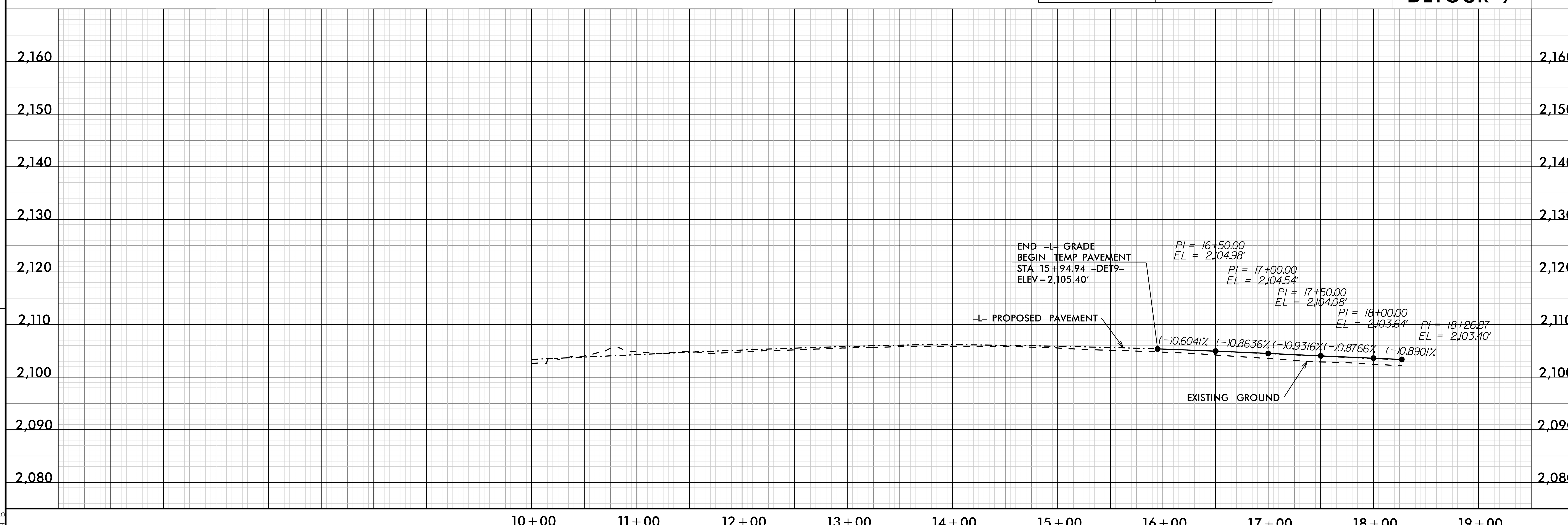
8/17/99

REVISIONS


NAD 83/NA 2011
NORTH CAROLINA DEPT. OF TRANS.
WOLFE PROPERTY HOLDINGS, LLC DB 3120 PG 25
CHANCELLOR MEDIA WHITECO OUTDOOR CORP. DB 976 PG 723
CMH HOMES, INC. DB 842 PG 625
BEGIN TEMPORARY PAVEMENT STA. 15+94.94 -DET9- (CONSTRUCTION BASED ON PROPOSED PAVEMENT)
TEMPORARY PAVEMENT CONTINUES SEE PHASING PLANS
-DET9- PC Sta. 10+00.00
-L- POT Sta. 706+75.03, 61.00' RT
-DET9- PRC Sta. 14+14.26
-DET9- PT Sta. 18+26.87
-L- POT Sta. 714+99.28, 4.00' RT
STA. 14+28.52, 17.67' LT -DET8-
N 28° 51' 54.3" W
15" CSP W/ ELBOWS - USE ROD & LUG CONNECTORS
2' LAT. BASE DITCH SEE DETAIL C
2' LAT. BASE DITCH SEE DETAIL JJ
2' LAT. BASE DITCH SEE DETAIL GG
2' LAT. BASE DITCH SEE DETAIL II 1,422 CY DDE
CLASS 'B' RIPRAP EST. 8 TONS EST. 16 SYGF
CLASS 'B' RIPRAP EST. 5 TONS EST. 11 SYGF
CLASS 'B' RIPRAP EST. 2 TONS, EST. 7 SYGF
CLASS 'B' RIPRAP EST. 10 TONS, EST. 22 SYGF
REMOVE HW
REMOVE DI
PLUG AND FLOWABLE FILL
24" RCP-IV
18" RCP-IV
15" RCP-IV
-DET9-
DETOUR 9

- DET9 -	
PI Sta 12+07.46	PI Sta 16+20.90
△ = 7° 54' 42.7" (LT)	△ = 7° 54' 42.7" (RT)
D = 1° 54' 35.5"	D = 1° 55' 03.1"
L = 414.26'	L = 412.61'
T = 207.46'	T = 206.63'
R = 3,000.00'	R = 2,988.00'
DS = 60 MPH	DS = 60 MPH

DETOUR 9


2,160
2,150
2,140
2,130
2,120
2,110
2,100
2,090
2,080
END -L- GRADE
BEGIN TEMP PAVEMENT
STA 15+94.94 -DET9-
ELEV = 2,105.40'
PI = 16+50.00
EL = 2,104.98'
PI = 17+00.00
EL = 2,104.54'
PI = 17+50.00
EL = 2,104.08'
PI = 18+00.00
EL = 2,103.64'
PI = 18+26.87
EL = 2,103.40'
-L- PROPOSED PAVEMENT
(-)0.6041% (-)0.8636% (-)0.9316% (-)0.8766% (-)0.8901%
EXISTING GROUND
10+00
11+00
12+00
13+00
14+00
15+00
16+00
17+00
18+00
19+00

10-JUL-2019 10:19
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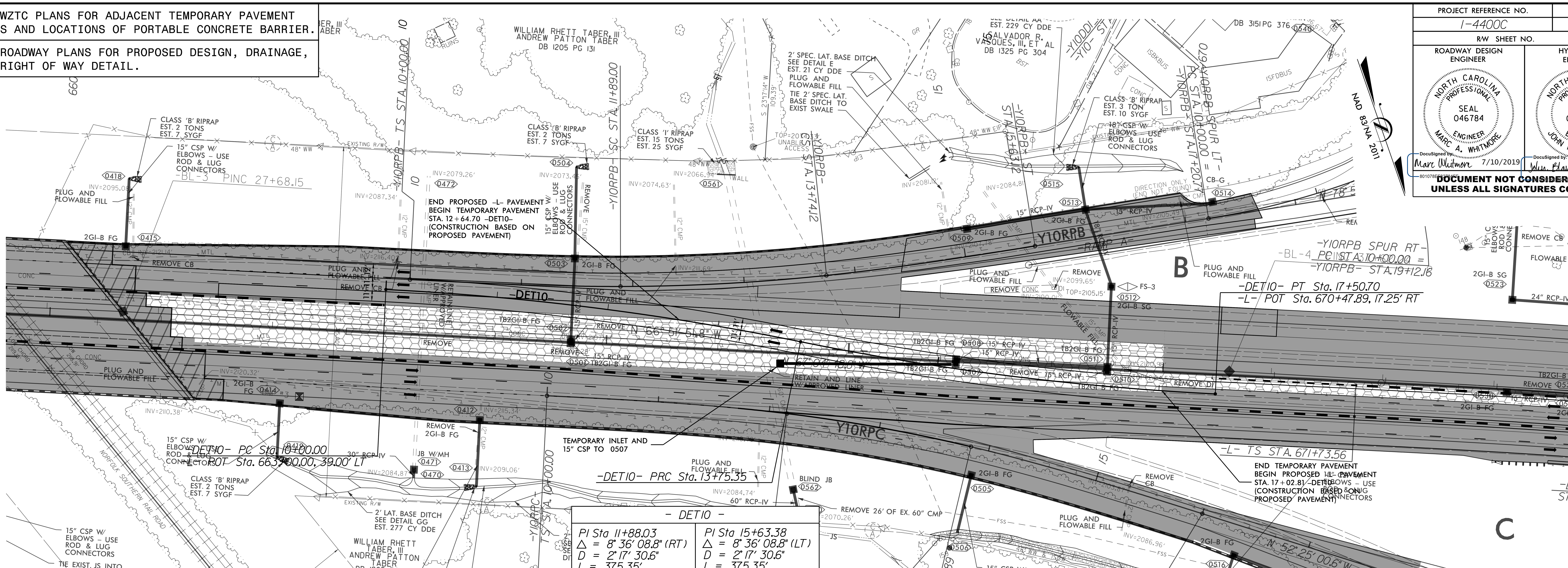
SEE WZTC PLANS FOR ADJACENT TEMPORARY PAVEMENT AREAS AND LOCATIONS OF PORTABLE CONCRETE BARRIER.

SEE ROADWAY PLANS FOR PROPOSED DESIGN, DRAINAGE, AND RIGHT OF WAY DETAIL.

PROJECT REFERENCE NO.	SHEET NO.
I-4400C	2B-26
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 046784 ENGINEER MARC A. WHITMORE	NORTH CAROLINA PROFESSIONAL SEAL 047948 ENGINEER JOHN M. BLANCETT
Marc Whitmore 7/10/2019	John Blancett 7/11/2019

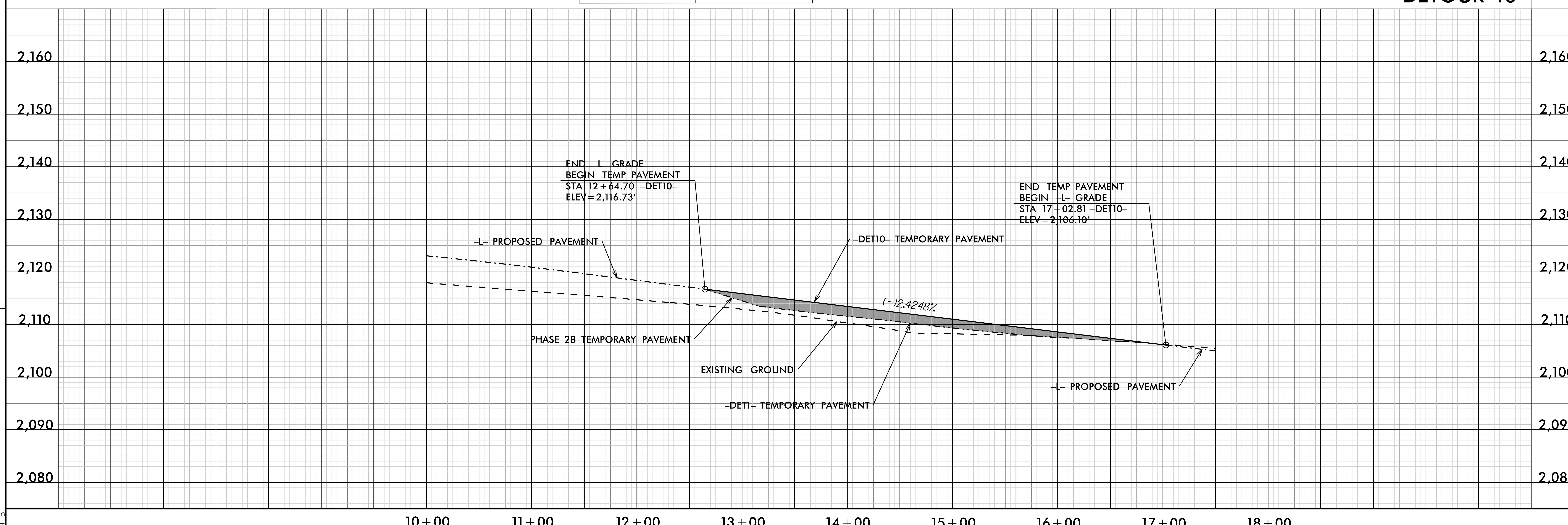
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS



- DET10 -	
PI Sta 11+88.03	PI Sta 15+63.38
Δ = 8° 36' 08.8" (RT)	Δ = 8° 36' 08.8" (LT)
D = 2° 17' 30.6"	D = 2° 17' 30.6"
L = 375.35'	L = 375.35'
T = 188.03'	T = 188.03'
R = 2,500.00'	R = 2,500.00'
DS = 60 MPH	DS = 60 MPH

DETOUR 10



8/17/99

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SEE WZTC PLANS FOR ADJACENT TEMPORARY PAVEMENT AREAS AND LOCATIONS OF PORTABLE CONCRETE BARRIER.

SEE ROADWAY PLANS FOR PROPOSED DESIGN, DRAINAGE, AND RIGHT OF WAY DETAIL.

PROJECT REFERENCE NO.	SHEET NO.
I-4400C	2B-27

R/W SHEET NO.

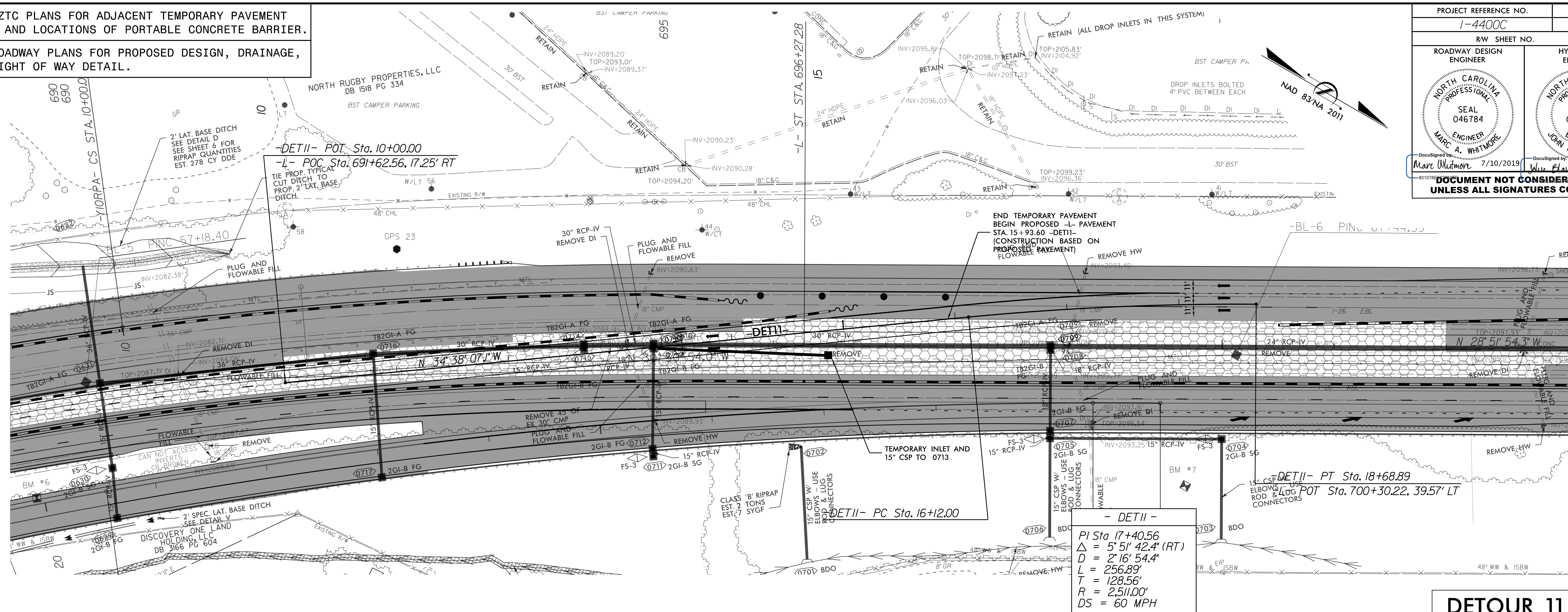
ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 046784 ENGINEER MARC A. WHITMORE — Marc Whitmore 7/10/2019

HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 047948 ENGINEER JOHN M. BLANCETT — 7/11/2019

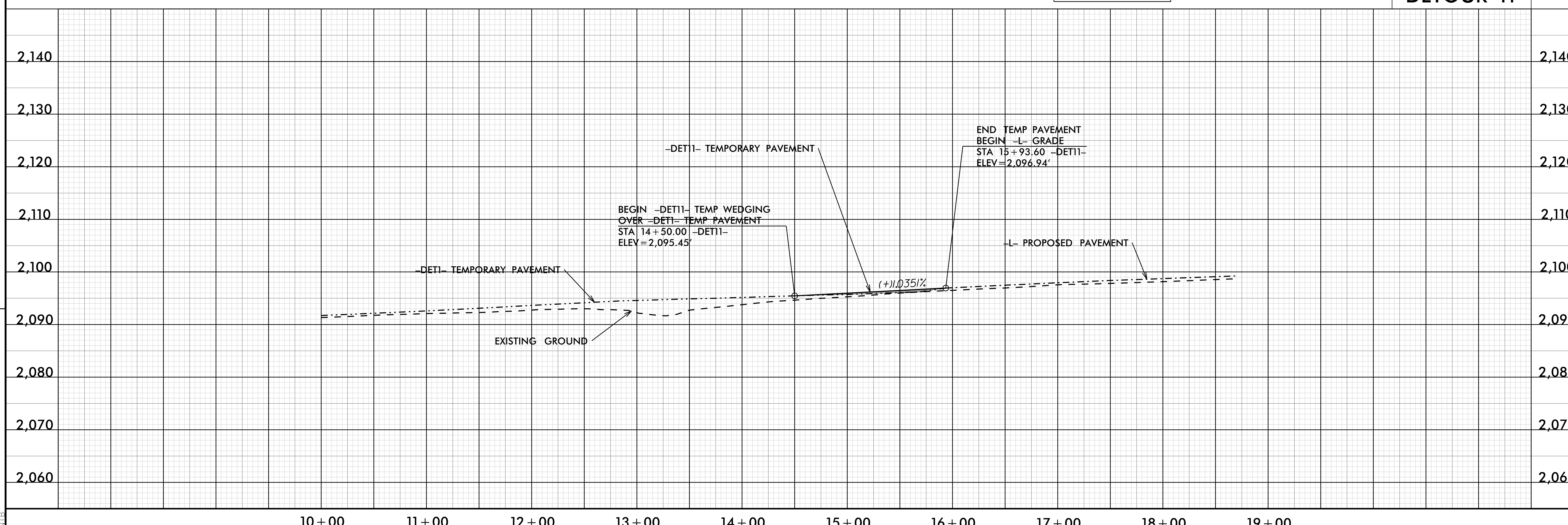
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS

8/17/99



DETOUR 11



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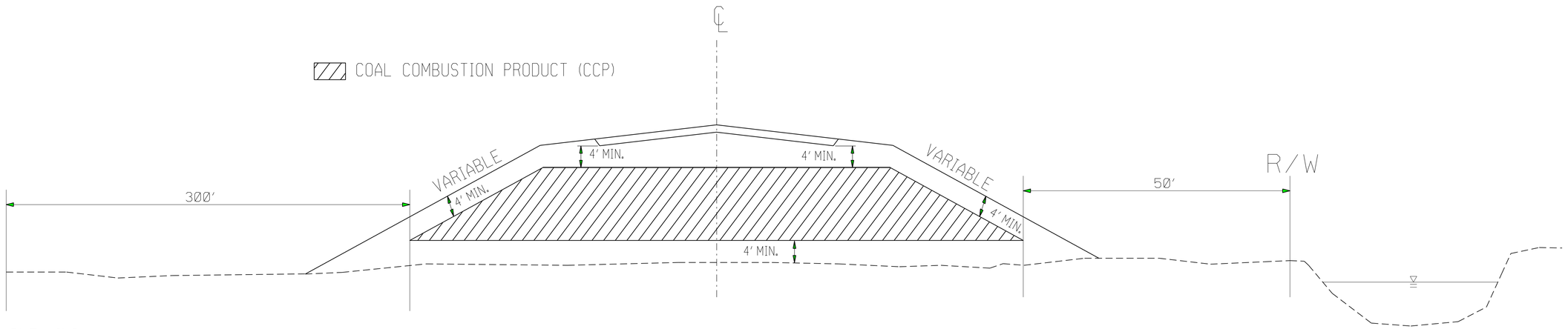
PROJECT REFERENCE NO.	SHEET NO.
I-4400C	2C-01

COAL COMBUSTION PRODUCT PLACEMENT



*(OBTAIN PERMISSION FROM ARMY CORPS OF ENGINEERS)

PLACE CCP IN HATCHED AREA IN ACCORDANCE WITH THE PROJECT SPECIAL PROVISIONS

PLACE CCP A MINIMUM OF 5' ABOVE SEASONAL HIGH GROUND WATER

PLACE AT LOCATIONS AS APPROVED BY THE ENGINEER

PLACE SOIL BORROW MATERIAL ON THE OUTSIDE OF CCP AS EACH LIFT OF CCP IS PLACED

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER Joel S. Howerton

DocuSigned by: 573F3D17DCDC45F...

7/11/2019

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

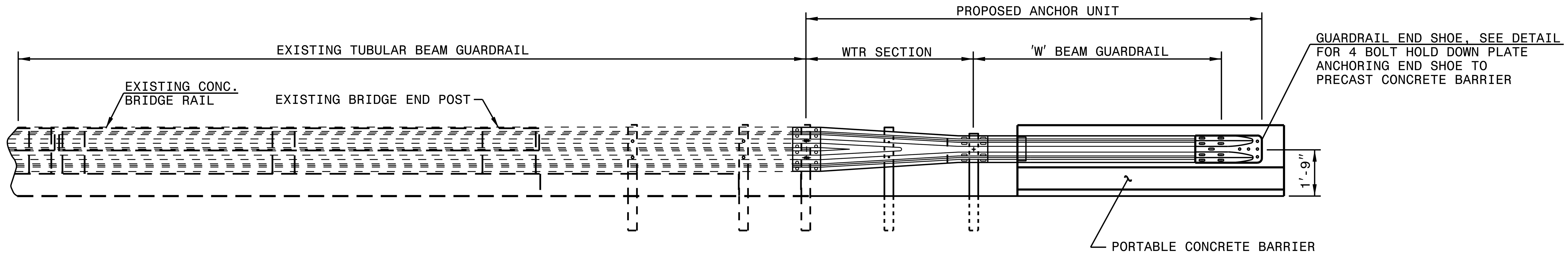
COAL COMBUSTION PRODUCT PLACEMENT DETAIL

ORIGINAL BY: J.S.H. DATE: 3/16/15
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC.: joel/coal combustion material detail.dgn

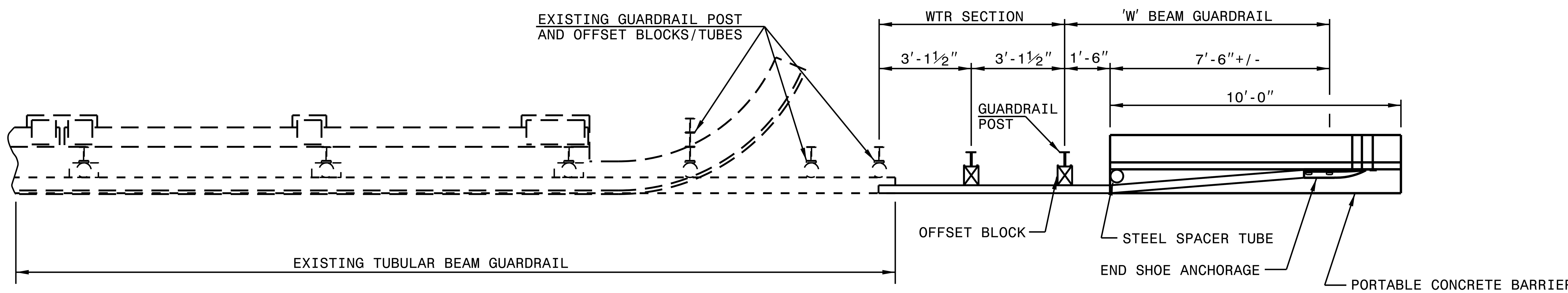
07-SEP-2017 08:21
S:\Contracts\Special Details\jhowerton\Coal Combustion Product Detail.dgn
jhowerton AT CSD-292595

PROJECT REFERENCE NO.	SHEET NO.
I-4400C	2C-02

5/14/99



ELEVATION VIEW



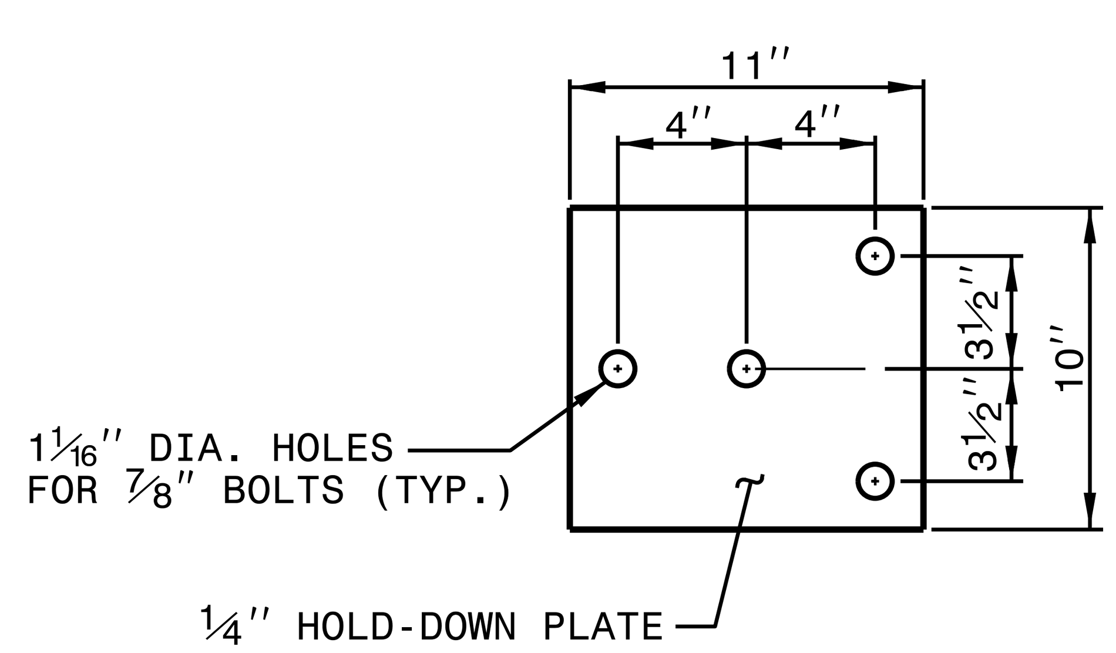
PLAN VIEW

NOTES FOR 4 BOLT HOLD DOWN PLATE

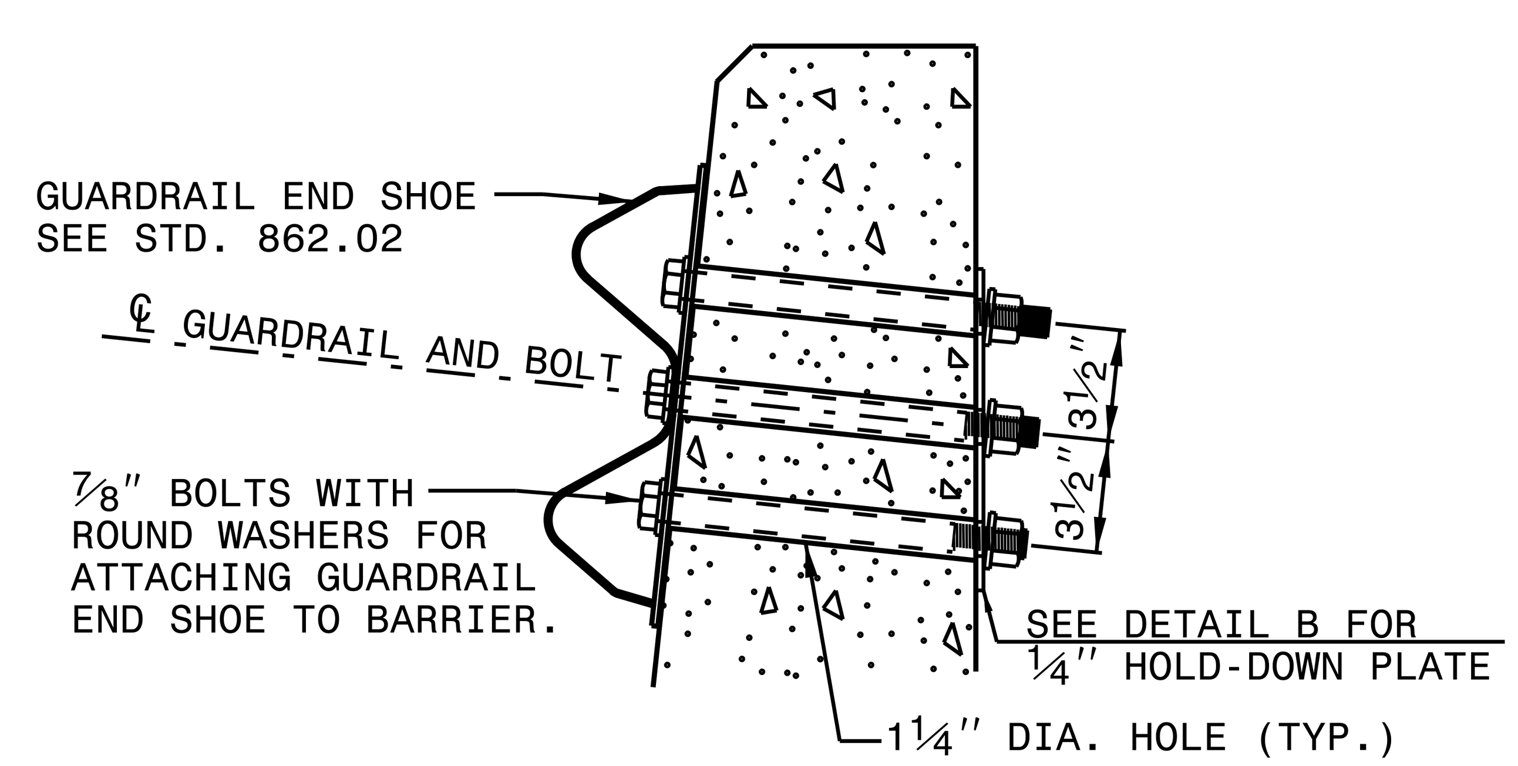
THE GUARDRAIL ANCHOR ASSEMBLY SHALL CONSIST OF A ¼" HOLD DOWN PLATE AND 4 - ⅞" DIA. BOLTS WITH NUTS AND WASHERS.

THE HOLD-DOWN PLATE SHALL CONFORM TO AASHTO M270 GRADE 36. AFTER FABRICATION, THE HOLD-DOWN PLATE SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH AASHTO M111.

AFTER INSTALLATION, THE EXPOSED THREAD OF THE BOLT SHALL BE BURRED WITH A SHARP POINTED TOOL. DRILL 1¼" DIA. HOLES WITH A CORE BIT. IMPACT TOOLS WILL NOT BE PERMITTED. ANY CONCRETE DAMAGED BY THIS WORK SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER.



4 BOLT HOLD DOWN PLATE



PART SECTION OF BARRIER

THRU END SHOE SECTION AND 4 BOLT HOLD DOWN PLATE

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER Joel S. Howerton
DocuSigned by:
7/17/2019

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

TEMPORARY ANCHOR UNIT CONECTING TUBULAR BEAM GUARDRAIL TO PORTABLE CONCRETE BARRIER

ORIGINAL BY: E.E. WARD DATE: 9-9-04
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC.: \usr\details\stand\862stds\anc.dgn

$$$$SYSTIME$$$$ $$$$$$$$$DGN$$$$$$$$$$$$$$$ $$$$USERNAME$$$$

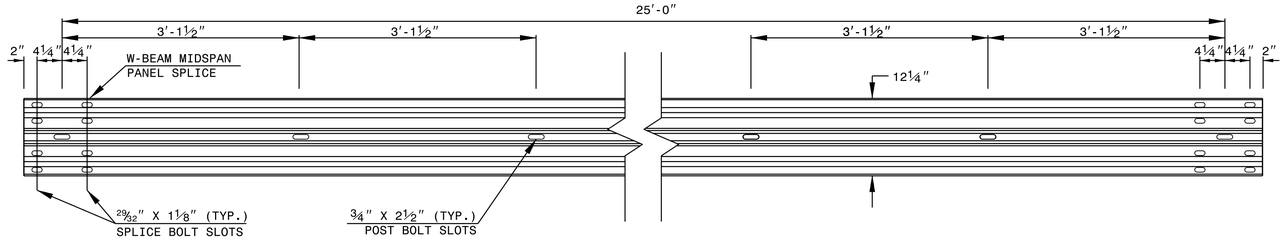
PROJECT REFERENCE NO.	SHEET NO.
I-4400C	2C-03

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

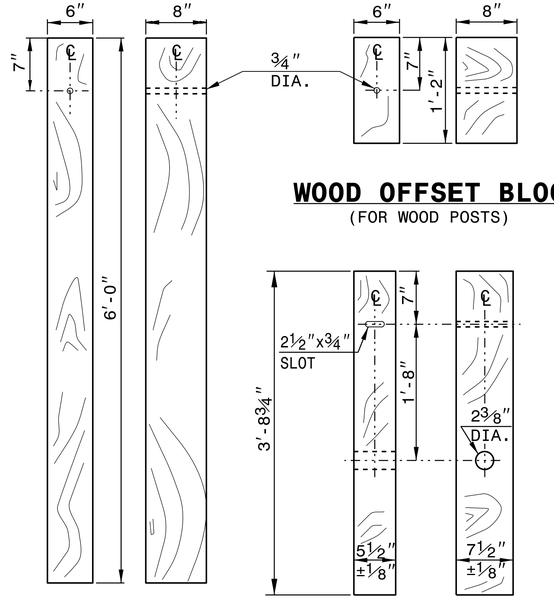
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

SHEET 6 OF 8
862D02



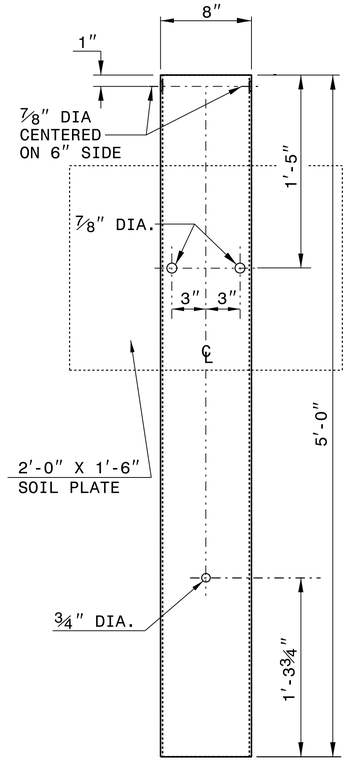
STANDARD W-BEAM GUARDRAIL



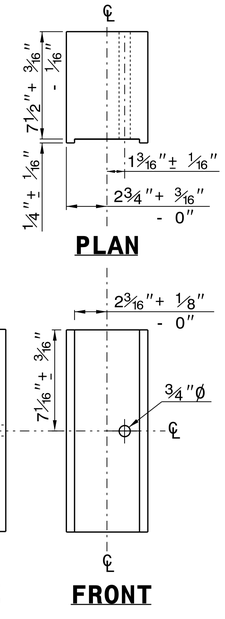
WOOD OFFSET BLOCK
(FOR WOOD POSTS)

STANDARD LINE POST

SHORT WOOD BREAKAWAY POST



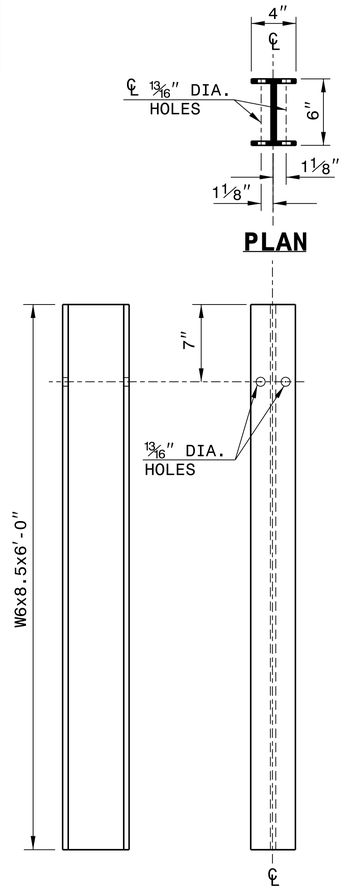
STEEL TUBE
TS 6"x8"x0.1875"



PLAN

SIDE **FRONT**

ROUTED OFFSET BLOCK



PLAN

SIDE **FRONT**

"W6" STEEL POST

SYSTEM PARTS

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

ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

SHEET 6 OF 8
862D02

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER JOHN S. HOWERTON

DocuSigned by: 7/11/2019
873F3D17DCDC45F...

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

SEE TITLE BLOCK

ORIGINAL BY: J.HOWERTON DATE: 3-7-2018
MODIFIED BY: _____ DATE: _____
CHECKED BY: _____ DATE: _____
FILE SPEC.: _____