

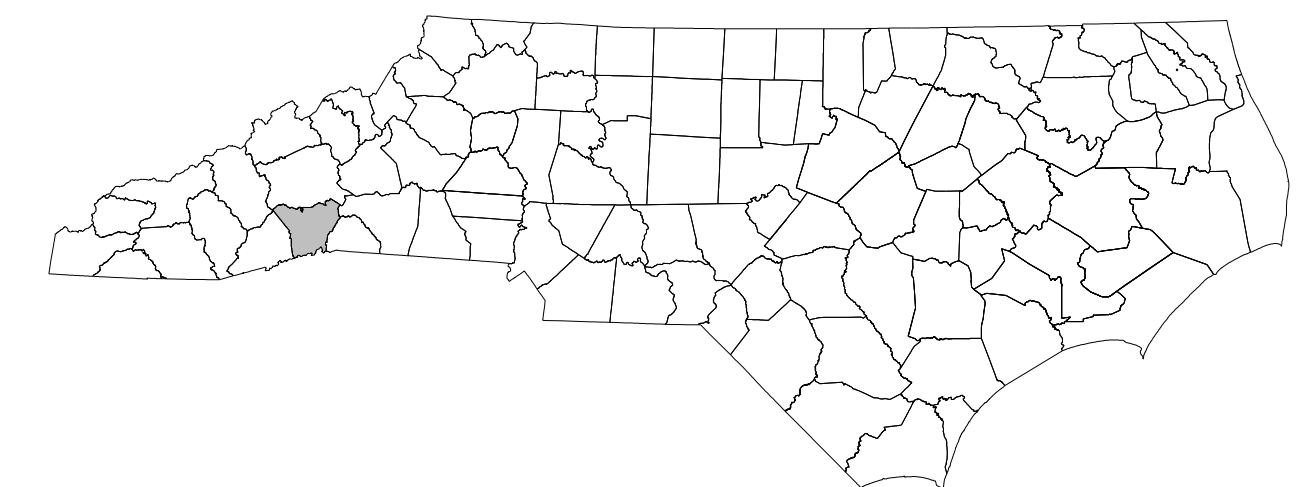
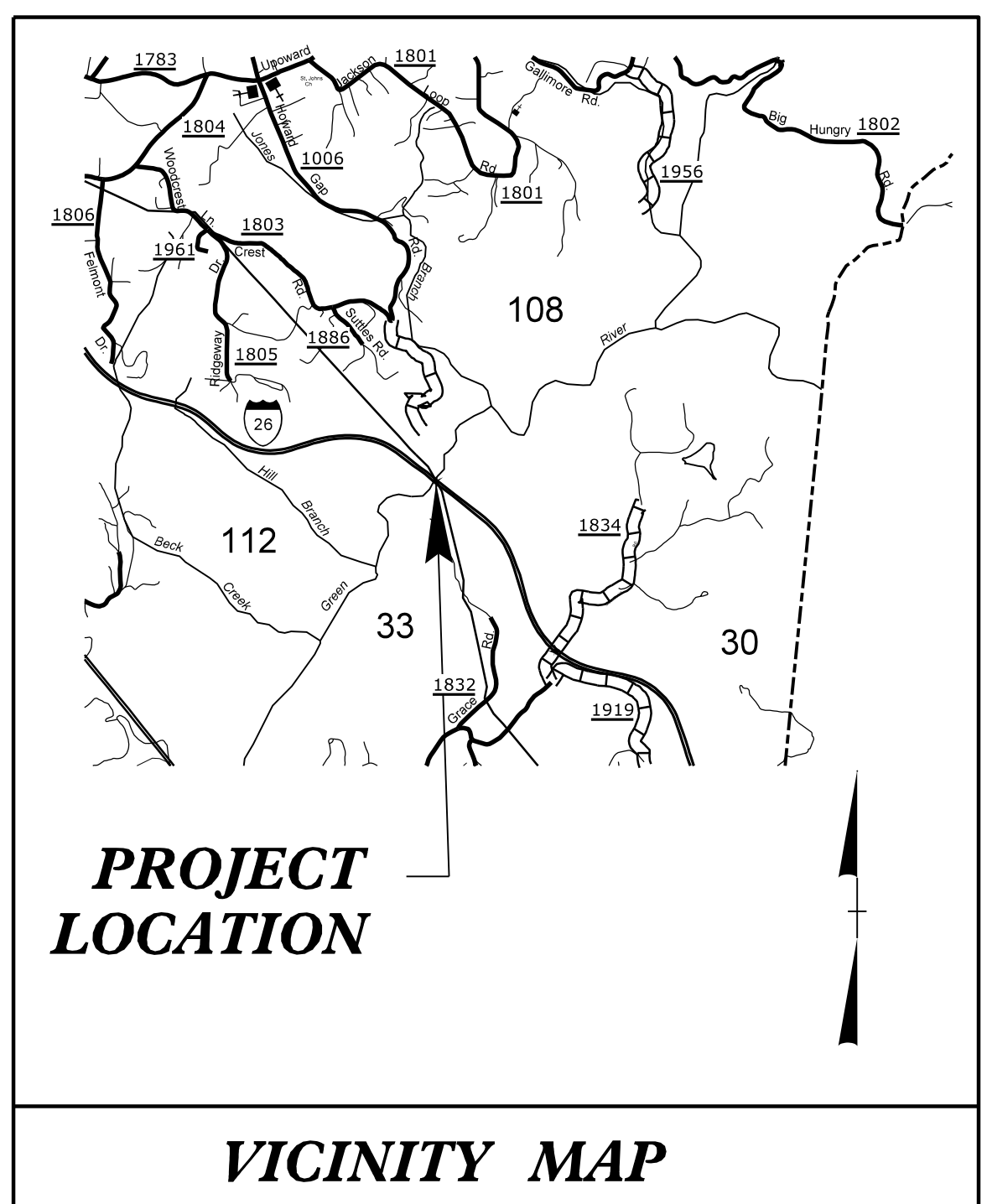
PROJECT: 15BPR.20

CONTRACT: C204202

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

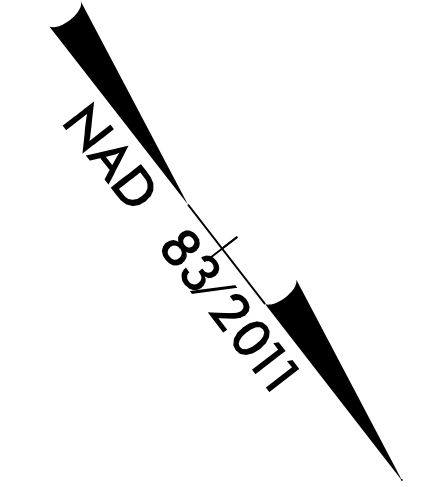
HENDERSON COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	15BPR.20	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
15BPR.20	-	PE /CONST.	



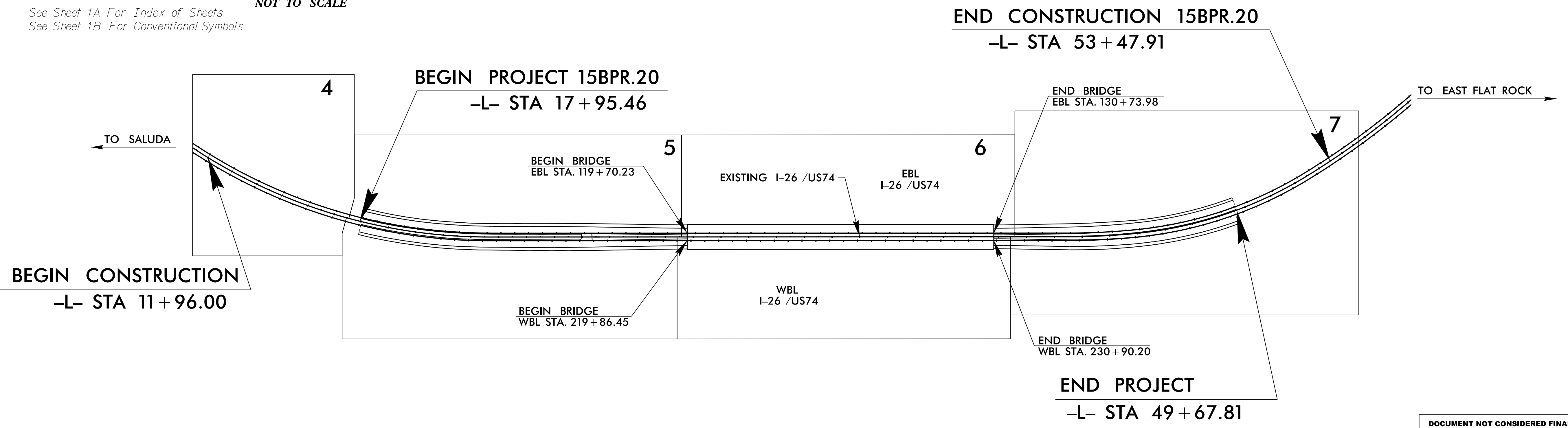
**LOCATION: I-26 /US 74 WBL AND EBL OVER GREEN RIVER-
STRUCTURE NOS. 440112 AND 440108**

TYPE OF WORK: BRIDGE REHABILITATION



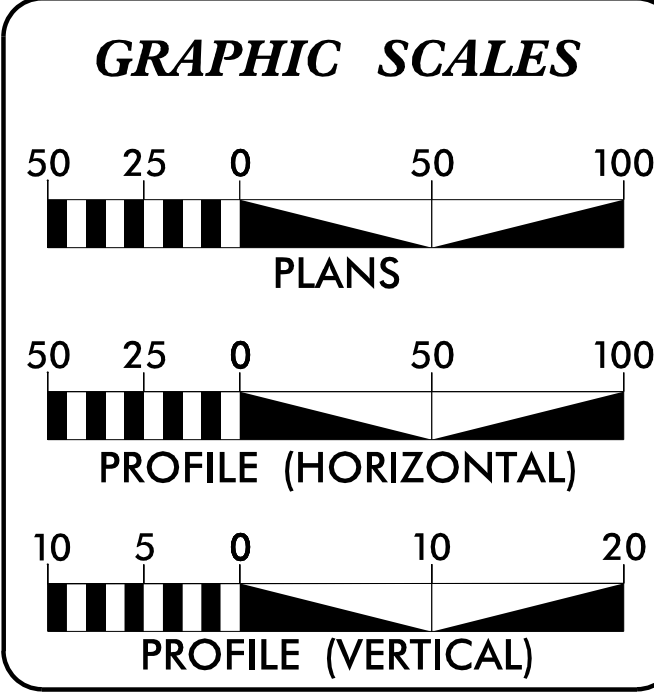
See Sheet 1A For Index of Sheets
See Sheet 1B For Conventional Symbols

NOT TO SCALE



THIS IS A CONTROLLED ACCESS PROJECT

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED



DESIGN DATA

ADT 2016	=	39,000
ADT 2038	=	NA
K	=	NA
D	=	NA
T	=	NA
V	=	60 MPH
* TTST	NA	DUAL NA
FUNC CLASS	=	FREWAY
REGIONAL TIER		

PROJECT LENGTH

LENGTH ROADWAY PROJECT 15BPR.20	=	0.534 MILES
LENGTH STRUCTURE PROJECT 15BPR.20	=	0.209 MILES
TOTAL LENGTH PROJECT 15BPR.20	=	0.743 MILES

Prepared In the Office of:

AECOM
2018 STANDARD SPECIFICATIONS

RIGHT-OF-WAY DATE: N /A

LETTING DATE: MARCH 16, 2021

ED EDENS, PE
PROJECT ENGINEER

NEIL DEAN, PE
PROJECT DESIGN ENGINEER

HYDRAULIC ENGINEER

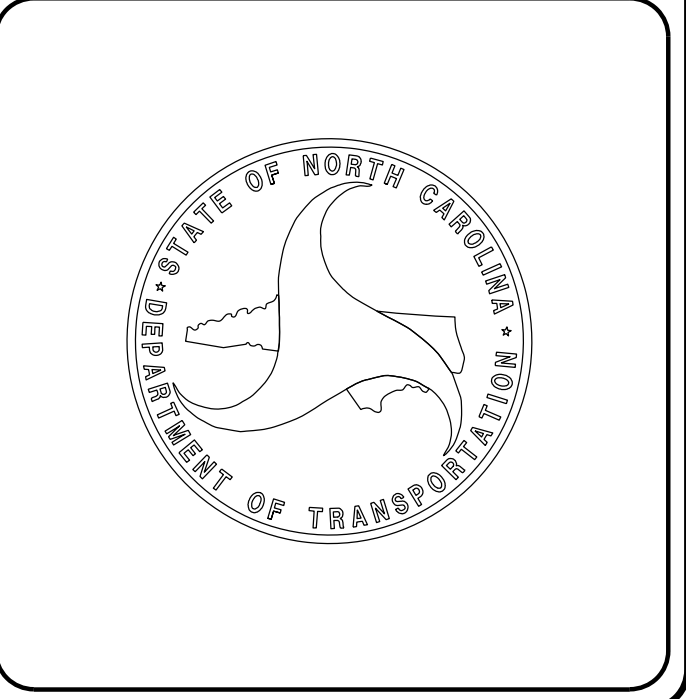
Professional Engineer Seal: Glenn Edens, Jr. (18470)

Signature: _____ P.E. 12/7/2020

ROADWAY DESIGN ENGINEER

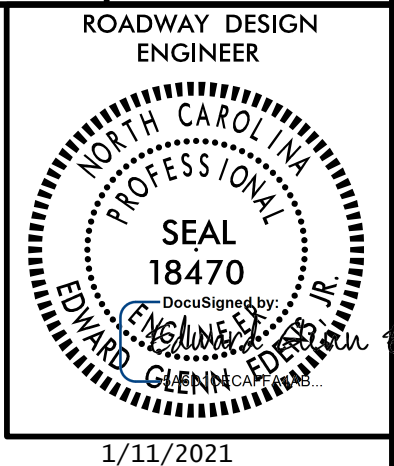
Professional Engineer Seal: Edens, Jr. (18470)

Signature: _____ P.E. 12/7/2020



STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.	SHEET NO.
15BPR.20	1A



**DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED**

INDEX OF SHEETS

INDEX OF SHEETS

1	TITLE SHEET
1A	INDEX OF SHEETS, GENERAL NOTES, AND STANDARD DRAWINGS
1B	CONVENTIONAL SYMBOLS
2	TYPICAL SECTIONS
2C-1	GUARDRAIL INSTALLATION
2C-2	TEMPORARY GUARDRAIL ANCHOR UNIT B-77
3B-1 THRU 3B-2	ROADWAY SUMMARIES
3D-1 THRU 3D-2	DRAINAGE SUMMARIES
4 THRU 7	PLAN SHEET
8 THRU 10	PROFILE SHEET
TMP-1 THRU TMP-23	TRAFFIC CONTROL PLANS
PMP-1 THRU PMP-4	PAVEMENT MARKING PLANS
SIGN-1 THRU SIGN-7	SIGNING PLANS
ITS-1 THRU ITS-XX	ITS PLANS
EC-1 THRU EC-9	EROSION CONTROL PLANS
RF-1	REFORESTATION DETAIL SHEET
X-1	CROSS-SECTION INDEX OF SHEETS
X-1A	CROSS-SECTION SUMMARY SHEET
X-2 THRU X-17	CROSS-SECTIONS
S-1 THRU S-122	STRUCTURAL PLANS

LIST OF STANDARD DRAWINGS

EFF. January 2018

2018 ROADWAY STANDARD DRAWINGS

The following Roadway Standards as appear in "Roadway Standard Drawings" Highway Design Branch - N. C. Department of Transportation - Raleigh, N. C., Dated January, 2018 are applicable to this project and by reference hereby are considered a part of these plans:

STD.NO.	TITLE
DIVISION 2 - EARTHWORK	
225.01	Method for Grading Subgrade - Interstate and Freeway
225.05	Method of Obtaining Superelevation - Divided Highways
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.02	Method of Shoulder Construction - High Side of Superelevated Curve - Method II
DIVISION 6 - ASPHALT BASES AND PAVEMENTS	
654.01	Pavement Repairs
DIVISION 8 - INCIDENTALS	
840.00	Concrete Base Pad for Drainage Structures
840.13	Concrete Bridge Approach Drop Inlet - 12" thru 2
840.14	Concrete Drop Inlet - 12" thru 30" Pipe
840.16	Drop Inlet Frame and Grates - for use with Std. Dwg 840.14 and 840.15
840.18	Concrete Grated Drop Inlet Type 'B' - 12" thru 3
840.19	Concrete Grated Drop Inlet Type 'D' - 12" thru 3
840.20	Frames and Wide Slot Flat Grates
840.25	Anchorage for Frames - Brick or Concrete or Precast
840.27	Brick Grated Drop Inlet Type 'B' - 12" thru 3
840.28	Brick Grated Drop Inlet Type 'D' - 12" thru 3
840.36	Traffic Bearing Grated Drop Inlet - for Steel (840.37) Double Frame and Grates
840.37	Steel Grate and Frame
840.45	Precast Drainage Structure
840.46	Traffic Bearing Precast Drainage Structure
840.66	Drainage Structure Steps
846.04	Drop Inlet Installation in Shoulder Berm Gutter
850.01	Concrete Paved Ditches
854.01	Double Faced Concrete Barrier - Types I, II, III, and IV
854.04	Concrete Median Barrier - Precast Permanent
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
876.02	Guide for Rip Rap at Pipe Outlets

GENERAL NOTES

GENERAL NOTES: 2018 SPECIFICATIONS

GRADE LINE:
GRADING AND SURFACING:

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

CLEARING:

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

SUPERELEVATION:

ALL CURVES ON THIS PROJECT SHALL BE SUPERELEVATED IN ACCORDANCE WITH 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

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 WILL BE PAID FOR AS "EXTRA WORK" IN ACCORDANCE WITH SECTION 104-7.

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.

STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

12/2/2016

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	⑩ 23
Existing Fence Line	-x-x-x-
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	---
False Sump	---

RAILROADS:

Standard Gauge	-----
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 Easement 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	---
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	---
New Temporary Construction Easement	---
New Temporary Drainage Easement	---
New Permanent Drainage Easement	---
New Permanent Drainage / Utility Easement	---
New Permanent Utility Easement	---
New Temporary Utility Easement	---
New Aerial Utility Easement	---

ROADS AND RELATED FEATURES:

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

VEGETATION:

Single Tree	○
Single Shrub	○

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

Hedge	-----
Woods Line	-----
Orchard	---
Vineyard	---

EXISTING STRUCTURES:

MAJOR:	
Bridge, Tunnel or Box Culvert	---
Bridge Wing Wall, Head Wall and End Wall	---
MINOR:	
Head and End Wall	---
Pipe Culvert	---
Footbridge	---
Drainage Box: Catch Basin, DI or JB	---
Paved Ditch Gutter	---
Storm Sewer Manhole	---
Storm Sewer	---

UTILITIES:

POWER:	
Existing Power Pole	●
Proposed Power Pole	○
Existing Joint Use Pole	●
Proposed Joint Use Pole	○
Power Manhole	⊕
Power Line Tower	⊗
Power Transformer	⊗
U/G Power Cable Hand Hole	---
H-Frame Pole	---
U/G Power Line LOS B (S.U.E.*)	---
U/G Power Line LOS C (S.U.E.*)	---
U/G Power Line LOS D (S.U.E.*)	---

TELEPHONE:

Existing Telephone Pole	●
Proposed Telephone Pole	○
Telephone Manhole	⊕
Telephone Pedestal	⊕
Telephone Cell Tower	⊕
U/G Telephone Cable Hand Hole	---
U/G Telephone Cable LOS B (S.U.E.*)	---
U/G Telephone Cable LOS C (S.U.E.*)	---
U/G Telephone Cable LOS D (S.U.E.*)	---
U/G Telephone Conduit LOS B (S.U.E.*)	---
U/G Telephone Conduit LOS C (S.U.E.*)	---
U/G Telephone Conduit LOS D (S.U.E.*)	---
U/G Fiber Optics Cable LOS B (S.U.E.*)	---
U/G Fiber Optics Cable LOS C (S.U.E.*)	---
U/G Fiber Optics Cable LOS D (S.U.E.*)	---

WATER:

Water Manhole	⊕
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	---

TV:

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

GAS:

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

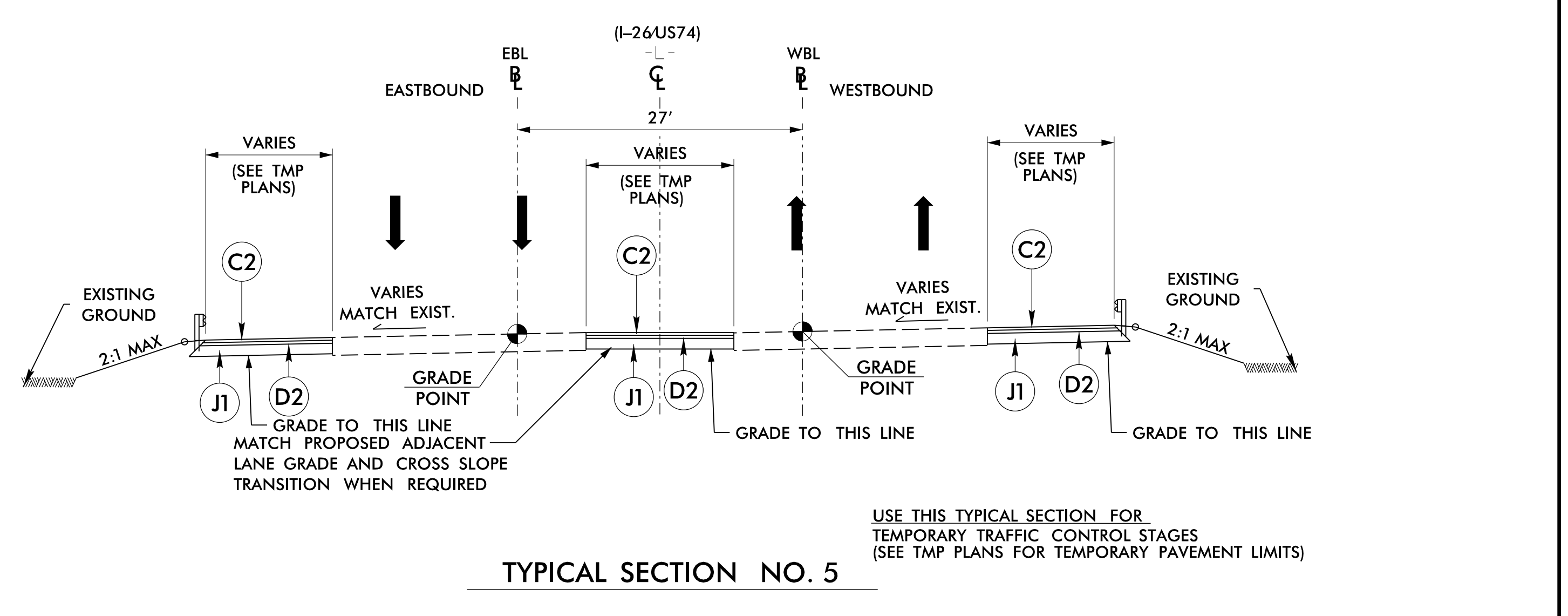
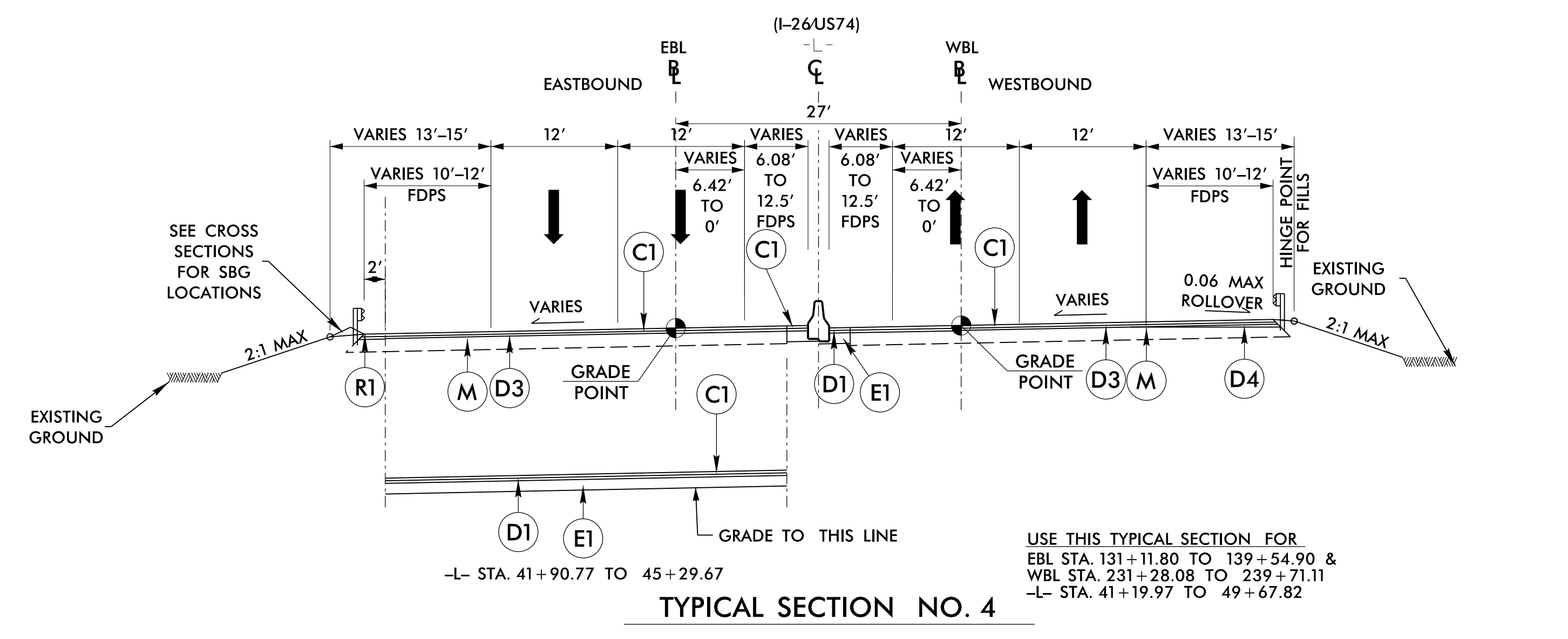
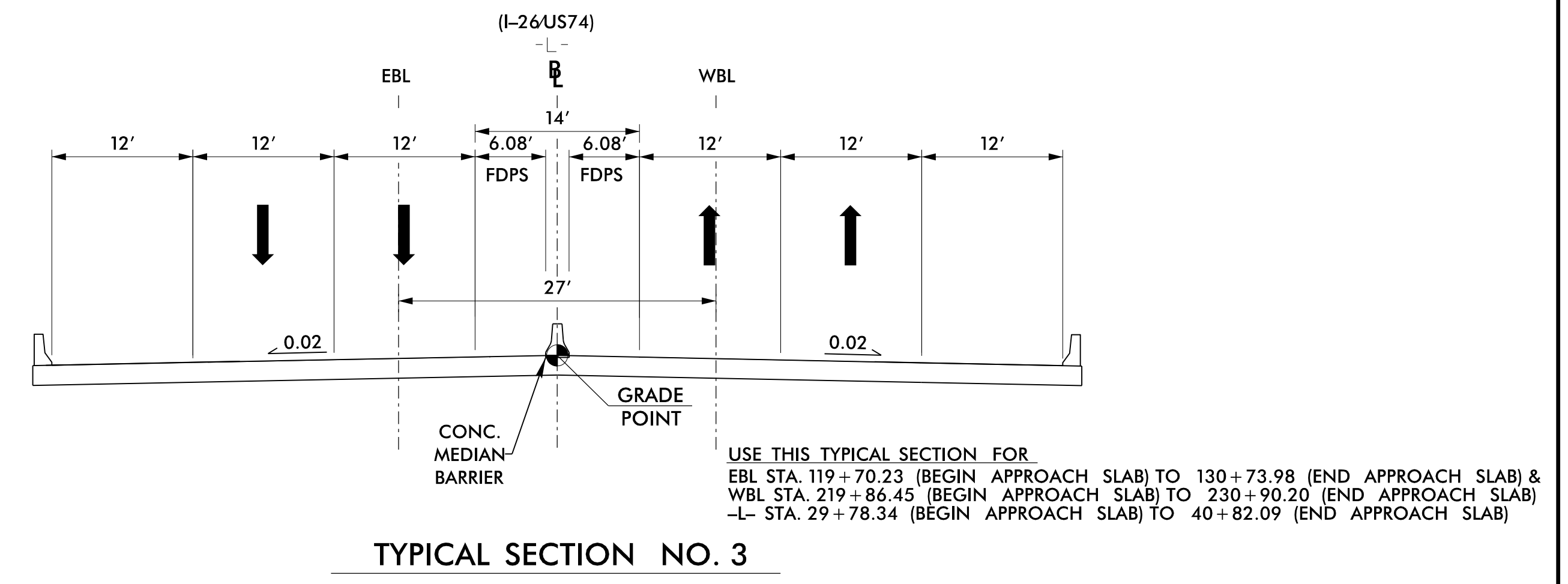
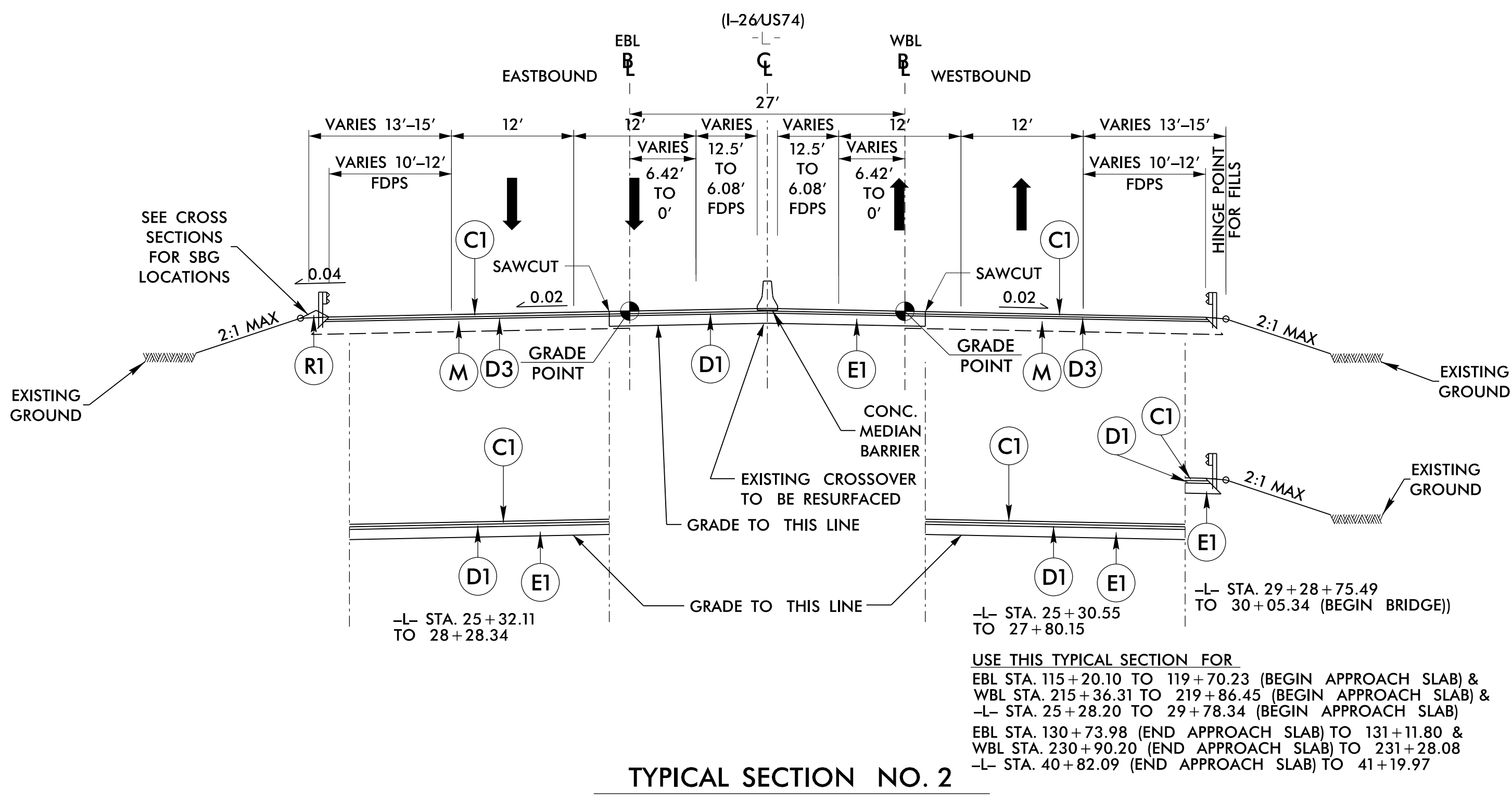
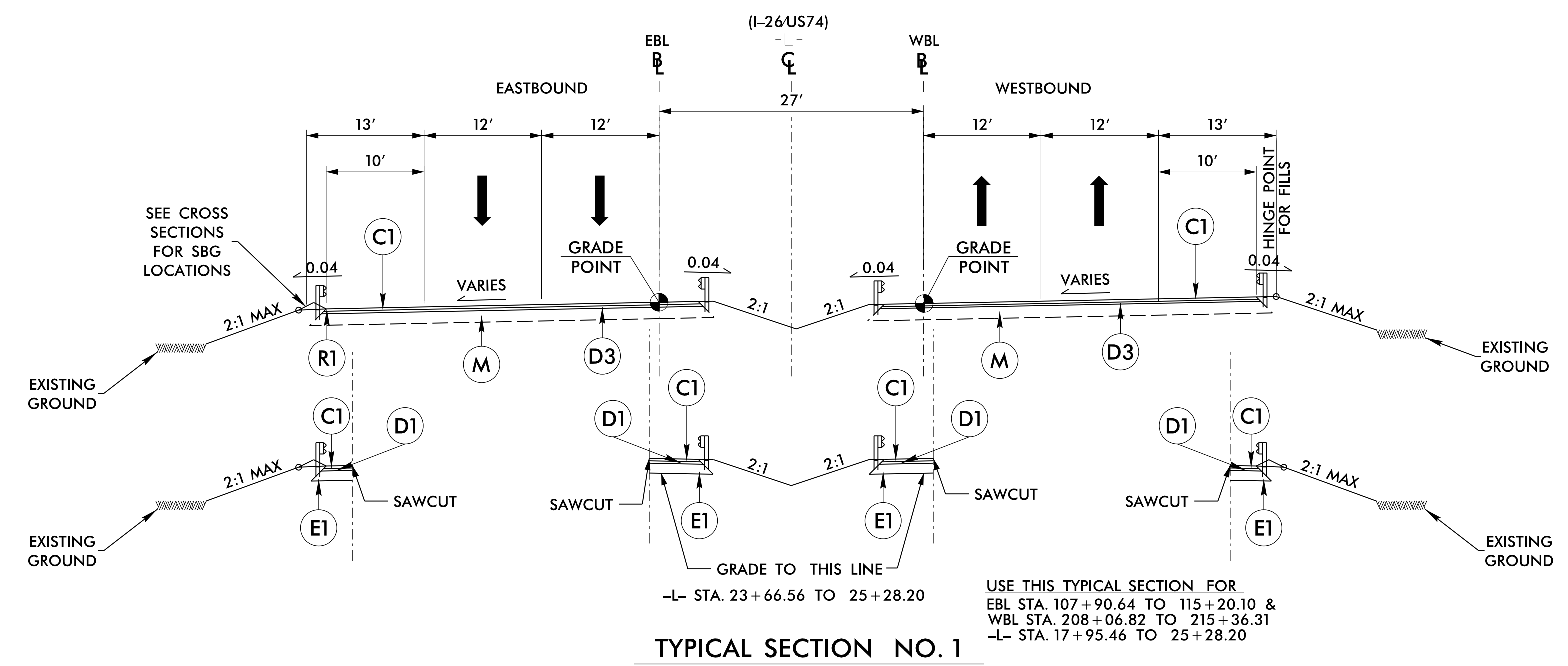
SANITARY SEWER:

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

MISCELLANEOUS:

Utility Pole	●
Utility Pole with Base	□
Utility Located Object	○
Utility Traffic Signal Box	⊕
Utility Unknown U/G Line LOS B (S.U.E.*)	---
U/G Tank; Water, Gas, Oil	---
Underground Storage Tank, Approx. Loc.	---
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.

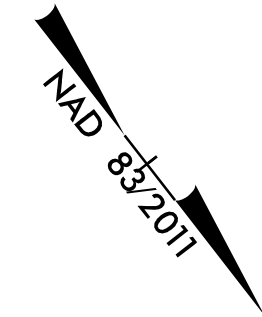
PAVEMENT SCHEDULE	
FINAL PAVEMENT DESIGN	
C1	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5D, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS
C2	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS
D1	PROP. APPROX. 4.0" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
D2	PROP. APPROX. 3.5" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 399 LBS. PER SQ. YD.
D3	PROP. APPROX. 2.5" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.
D4	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD., TO BE PLACED IN LAYERS NOT LESS THAN 2 1/2" IN DEPTH OR GREATER THAN 4" IN DEPTH.
E1	PROP. APPROX. 12" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD. IN EACH OF THREE LAYERS
J1	PROP. APPROX. 10" AGGREGATE BASE COURSE
R1	PROP. CONCRETE SHOULDER BERM GUTTER
M	MILL THE EXISTING PAVEMENT TO REMAIN IN PLACE TO A DEPTH OF 4.0"



PROJECT REFERENCE NO. 15BPR.20	SHEET NO. 2
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER
Prepared in the Office of: AECOM <small>NC FIRM LICENSE NO. F-0342 10 Corporate Center Drive, Suite 475 Raleigh, NC 27607 (919) 854-6200 • (919) 854-6259(FAX)</small>	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

12/7/2020
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 Elizabeth Hunter

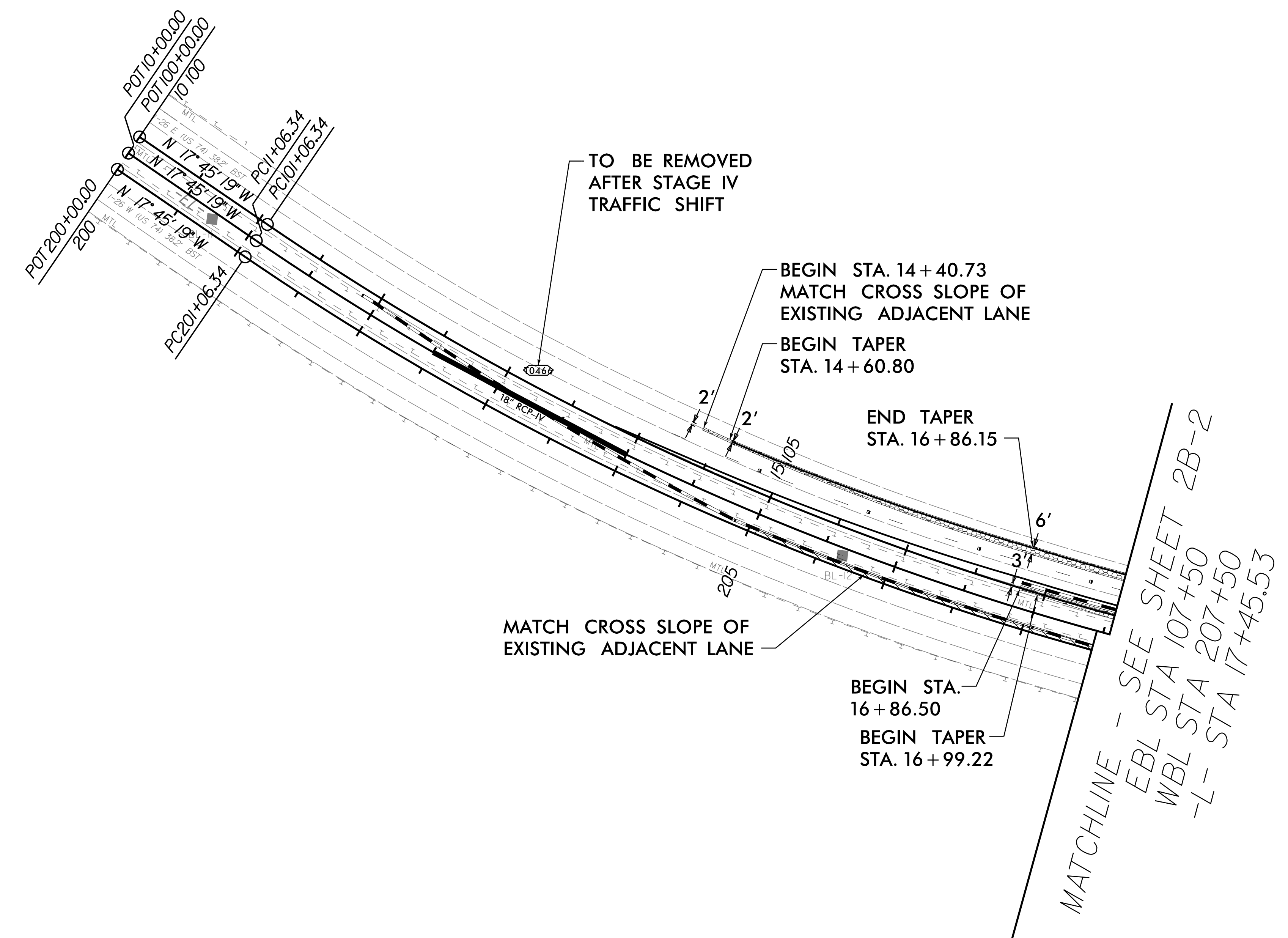
TEMPORARY PAVEMENT DETAILS FOR TRAFFIC CONTROL STAGE I CONSTRUCTION DETAIL PRIOR TO STAGE II TRAFFIC SHIFT



PROJECT REFERENCE NO. 15BPR.20	SHEET NO. 2B-1
ROADWAY DESIGN ENGINEER 	HYDRAULICS ENGINEER
Prepared in the Office of: AECOM	
<small>NC FIRM LICENSE No. F-0342 701 Corporate Center Drive, Suite 475 Raleigh, NC 27603 (919) 854-6000 • (919) 854-6259(FAX)</small>	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

<u>Curve EBLI</u>	<u>Curve -L-I</u>	<u>Curve WBLI</u>
PI = 106+99.65	PI = 17+03.83	PI = 207+08.01
DELTA = 34° 24' 12.03" (LT)	DELTA = 34° 24' 12.03" (LT)	DELTA = 34° 24' 12.03" (LT)
D = 2° 59' 23"	D = 2° 58' 07"	D = 2° 56' 53"
T = 593.32'	T = 597.50'	T = 601.68'
L = 1150.77'	L = 1158.87'	L = 1166.98'
R = 1916.50'	R = 1930.00'	R = 1943.50'
PC = 101+06.34	PC = 11+06.34	PC = 201+06.34
PT = 112+57.10	PT = 22+65.21	PT = 212+73.31
V = 60 MPH	V = 60 MPH	V = 60 MPH

BL-10

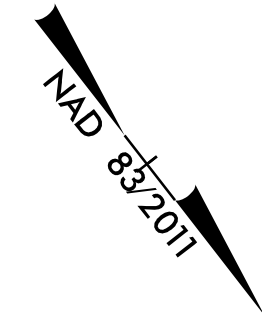


	WEDGING & WIDENING
	TEMPORARY PAVEMENT
	PAVEMENT / BRIDGE REMOVAL

FOR EBL PROFILE SEE SHEET 8
FOR WBL PROFILE SEE SHEET 8

6/5/2019 3:38:53 PM
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TEMPORARY PAVEMENT DETAILS FOR TRAFFIC CONTROL STAGE I CONSTRUCTION DETAIL PRIOR TO STAGE II TRAFFIC SHIFT

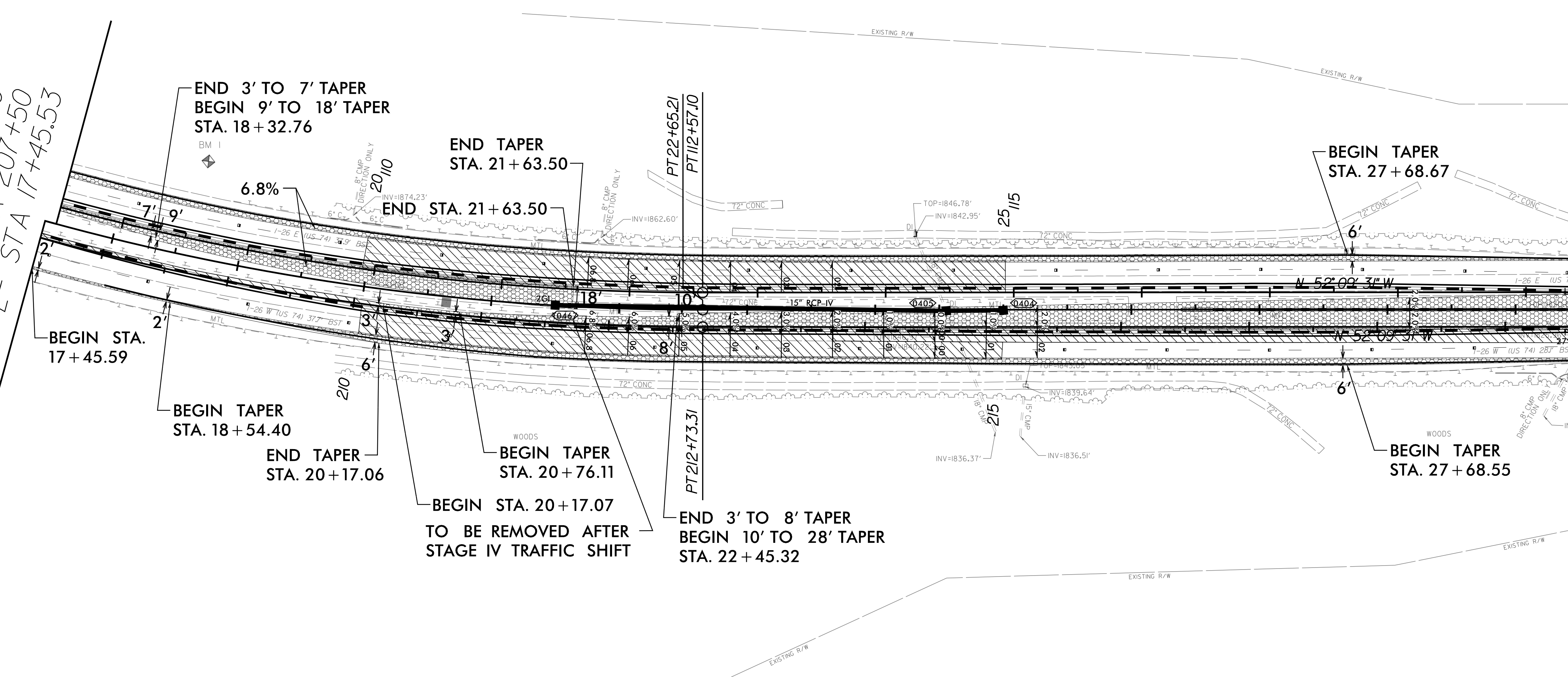


PROJECT REFERENCE NO. 15BPR.20	SHEET NO. 2B-2
ROADWAY DESIGN ENGINEER 	HYDRAULICS ENGINEER
Prepared in the Office of: AECOM	
<small>NC FIRM LICENSE No. F-0342 701 Corporate Center Drive, Suite 475 Raleigh, NC 27603 (919) 854-6200 / (919) 854-6299 FAX</small>	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

Curve EBLI	Curve -L-I	Curve WBLI
PI = 106+99.65	PI = 17+03.83	PI = 207+08.01
DELTA = 34° 24' 12.03" (LT)	DELTA = 34° 24' 12.03" (LT)	DELTA = 34° 24' 12.03" (LT)
D = 2' 59' 23"	D = 2' 58' 07"	D = 2' 56' 53"
T = 593.32'	T = 597.50'	T = 601.68'
L = 1150.77'	L = 1158.87'	L = 1166.98'
R = 1916.50'	R = 1930.00'	R = 1943.50'
PC = 101+06.34	PC = 11+06.34	PC = 201+06.34
PT = 112+57.10	PT = 22+65.21	PT = 212+73.31
V = 60 MPH	V = 60 MPH	V = 60 MPH

MATCHLINE - SEE SHEET 2B-1
EBL STA 107+50
WBL STA 207+50
-L- STA 17+45.53

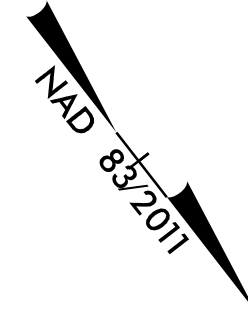
MATCHLINE - SEE SHEET 2B-3
EBL STA 119+50
WBL STA 219+50
-L- STA 29+58.11



- WEDGING & WIDENING
- TEMPORARY PAVEMENT
- PAVEMENT / BRIDGE REMOVAL

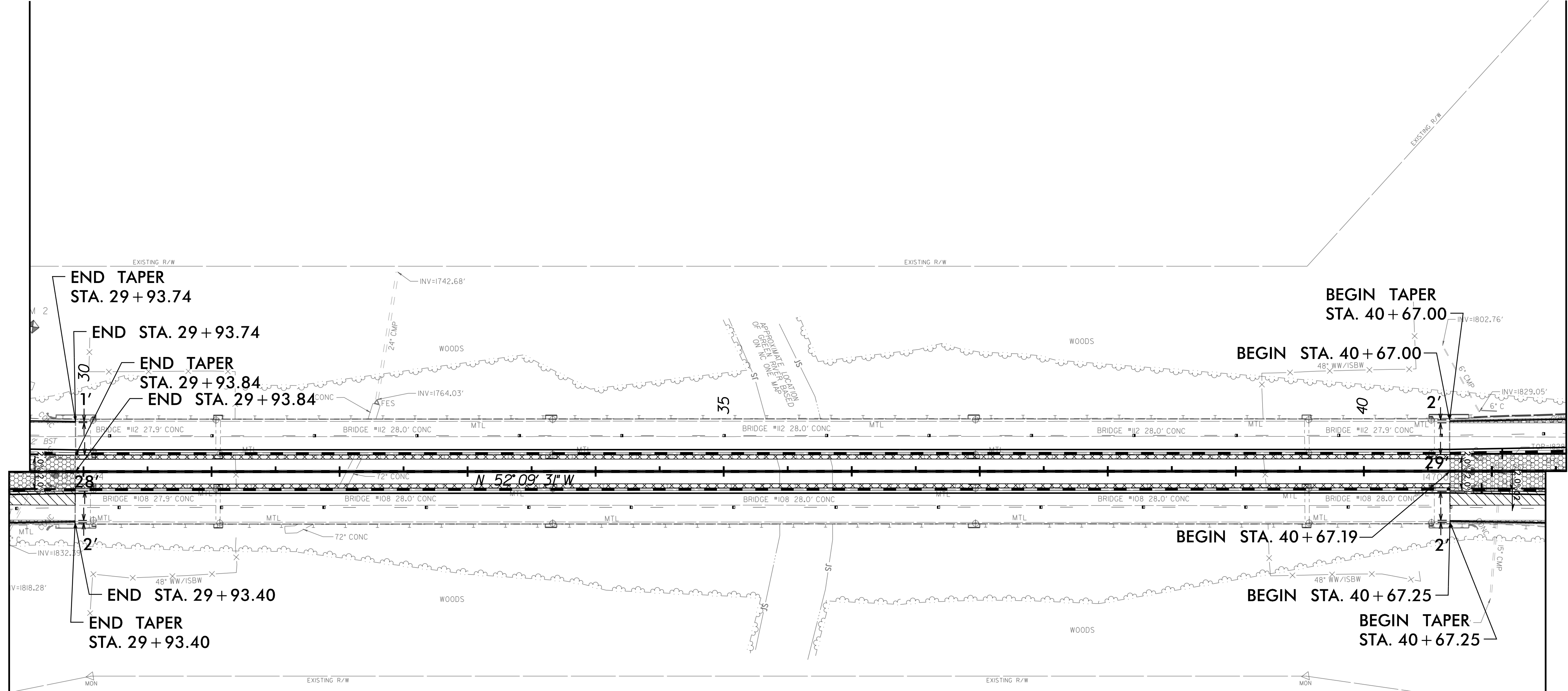
FOR EBL PROFILE SEE SHEET 8
FOR WBL PROFILE SEE SHEET 8

TEMPORARY PAVEMENT DETAILS FOR TRAFFIC CONTROL STAGE I CONSTRUCTION DETAIL PRIOR TO STAGE II TRAFFIC SHIFT


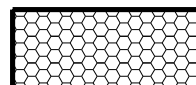



PROJECT REFERENCE NO. 15BPR.20	SHEET NO. 2B-3
ROADWAY DESIGN ENGINEER 	HYDRAULICS ENGINEER
Prepared in the Office of: AECOM	
<small>NC FIRM LICENSE No. F-0342 701 Corporate Center Drive, Suite 475 Raleigh, NC 27603 (919) 854-6200 • (919) 854-6299(FAX)</small>	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

MATCHLINE - SEE SHEET 2B-2
 EBL STA 119+50
 WBL STA 219+50
 -L- STA 29+58.11

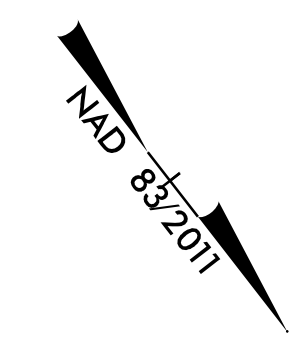


MATCHLINE - SEE SHEET 2B-4
 EBL STA 131+50
 WBL STA 231+50
 -L- STA 41+58.11

-  WEDGING & WIDENING
-  TEMPORARY PAVEMENT
-  PAVEMENT / BRIDGE REMOVAL

FOR EBL PROFILE SEE SHEET 9
 FOR -L- PROFILE SEE SHEET 9
 FOR WBL PROFILE SEE SHEET 9
 FOR BRIDGE PLANS SEE STRUCTURAL DRAWINGS S-1 THRU S-123

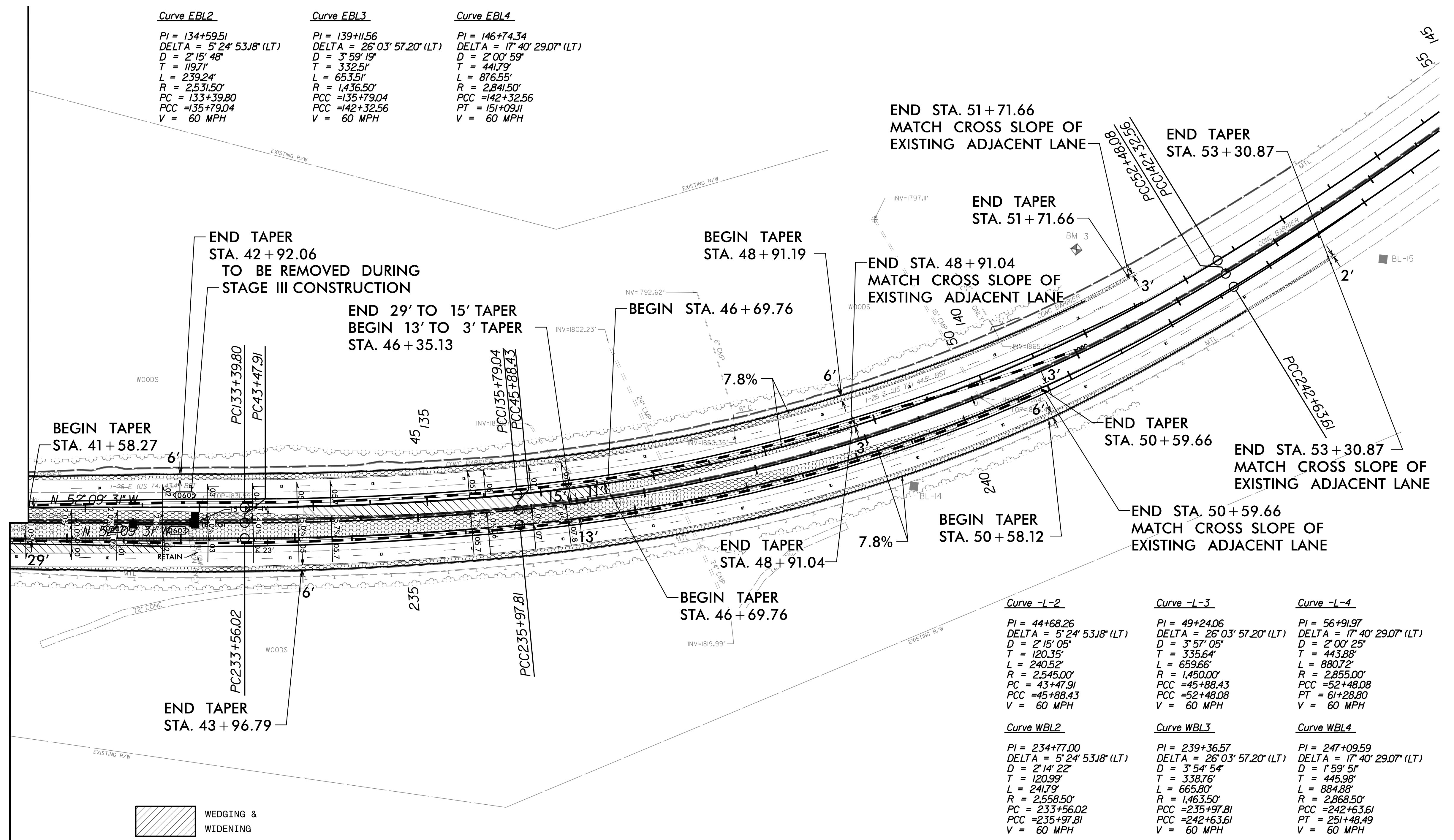
TEMPORARY PAVEMENT DETAILS FOR TRAFFIC CONTROL STAGE I CONSTRUCTION DETAIL PRIOR TO STAGE II TRAFFIC SHIFT



PROJECT REFERENCE NO. 15BPR.20	SHEET NO. 2B-4
ROADWAY DESIGN ENGINEER 	HYDRAULICS ENGINEER
Prepared in the Office of: AECOM	
<small>NC FIRM LICENSE No. F-0342 701 Corporate Center Drive, Suite 475 Raleigh, NC 27603 (919) 854-6200 • (919) 854-6259(FAX)</small>	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

<u>Curve EBL2</u>	<u>Curve EBL3</u>	<u>Curve EBL4</u>
PI = 134+59.51 DELTA = 5° 24' 53.18" (LT) D = 2' 15' 48" T = 119.71' L = 239.24' R = 2531.50' PC = 133+39.80 PCC = 135+79.04 V = 60 MPH	PI = 139+11.56 DELTA = 26° 03' 57.20" (LT) D = 3' 59' 19" T = 332.51' L = 653.51' R = 1,436.50' PCC = 135+79.04 PCC = 142+32.56 V = 60 MPH	PI = 146+74.34 DELTA = 17° 40' 29.07" (LT) D = 2' 00' 59" T = 44.79' L = 876.55' R = 2,841.50' PCC = 142+32.56 PT = 151+09.11 V = 60 MPH

MATCHLINE - SEE SHEET 2B-3
 EBL STA 131+50
 WBL STA 231+50
 -L- STA 41+58.11

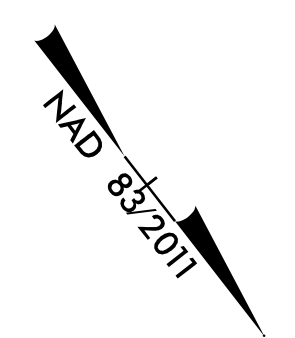


- WEDGING & WIDENING
- TEMPORARY PAVEMENT
- PAVEMENT / BRIDGE REMOVAL

FOR EBL PROFILE SEE SHEET 10
FOR WBL PROFILE SEE SHEET 10

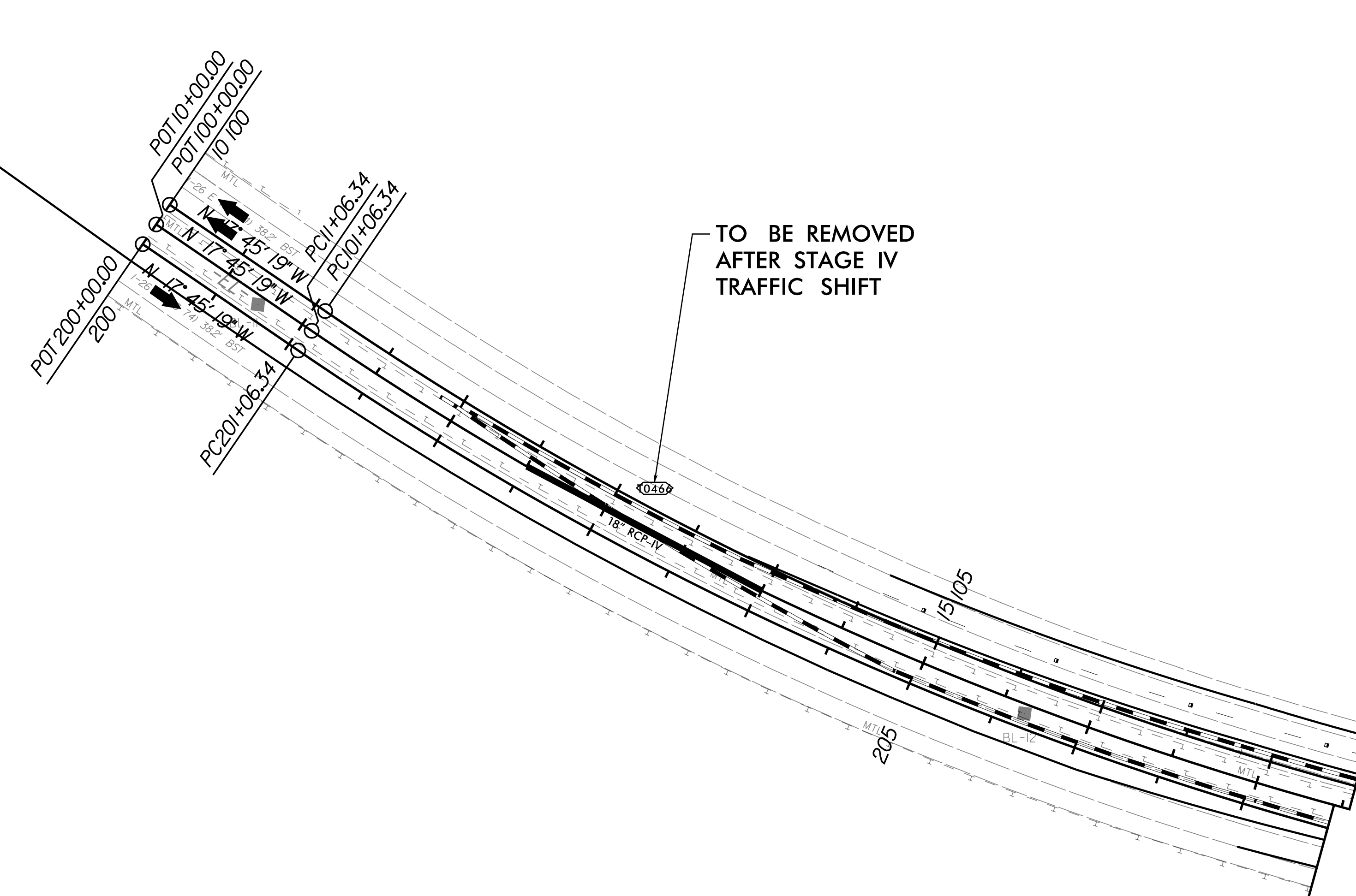
<u>Curve -L-2</u>	<u>Curve -L-3</u>	<u>Curve -L-4</u>
PI = 44+68.26 DELTA = 5° 24' 53.18" (LT) D = 2' 15' 05" T = 120.35' L = 240.52' R = 2,545.00' PC = 43+47.91 PCC = 45+88.43 V = 60 MPH	PI = 49+24.06 DELTA = 26° 03' 57.20" (LT) D = 3' 57' 05" T = 335.64' L = 659.66' R = 1,450.00' PCC = 45+88.43 PCC = 52+48.08 V = 60 MPH	PI = 56+91.97 DELTA = 17° 40' 29.07" (LT) D = 2' 00' 25" T = 44.38' L = 880.72' R = 2,855.00' PCC = 52+48.08 PT = 61+28.80 V = 60 MPH
<u>Curve WBL2</u>	<u>Curve WBL3</u>	<u>Curve WBL4</u>
PI = 234+77.00 DELTA = 5° 24' 53.18" (LT) D = 2' 14' 22" T = 120.99' L = 241.79' R = 2,558.50' PC = 233+56.02 PCC = 235+97.81 V = 60 MPH	PI = 239+36.57 DELTA = 26° 03' 57.20" (LT) D = 3' 54' 54" T = 338.76' L = 665.80' R = 1,463.50' PCC = 235+97.81 PCC = 242+63.61 V = 60 MPH	PI = 247+09.59 DELTA = 17° 40' 29.07" (LT) D = 1' 59' 51" T = 44.98' L = 884.88' R = 2,868.50' PCC = 242+63.61 PT = 251+48.49 V = 60 MPH

TEMPORARY PAVEMENT DETAILS FOR TRAFFIC CONTROL STAGE II CONSTRUCTION DETAIL PRIOR TO STAGE III TRAFFIC SHIFT



PROJECT REFERENCE NO. 15BPR.20	SHEET NO. 2B-5
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
Prepared in the Office of: AECOM	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

Curve EBLI	Curve -L-I	Curve WBLI
PI = 106+99.65	PI = 17+03.83	PI = 207+08.01
DELTA = 34° 24' 12.03" (LT)	DELTA = 34° 24' 12.03" (LT)	DELTA = 34° 24' 12.03" (LT)
D = 2° 59' 23"	D = 2° 58' 07"	D = 2° 56' 53"
T = 593.32'	T = 597.50'	T = 601.68'
L = 1150.77'	L = 1158.87'	L = 1166.98'
R = 1916.50'	R = 1930.00'	R = 1943.50'
PC = 101+06.34	PC = 11+06.34	PC = 201+06.34
PT = 112+57.10	PT = 22+65.21	PT = 212+73.31
V = 60 MPH	V = 60 MPH	V = 60 MPH

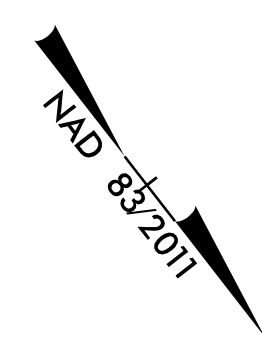


MATCHLINE - SEE SHEET 2B-6
 EBL STA 107+50
 WBL STA 207+50
 -L- STA 17+45.53

- WEDGING & WIDENING
- TEMPORARY PAVEMENT
- PAVEMENT / BRIDGE REMOVAL

FOR EBL PROFILE SEE SHEET 8
 FOR WBL PROFILE SEE SHEET 8

TEMPORARY PAVEMENT DETAILS FOR TRAFFIC CONTROL STAGE II CONSTRUCTION DETAIL PRIOR TO STAGE III TRAFFIC SHIFT

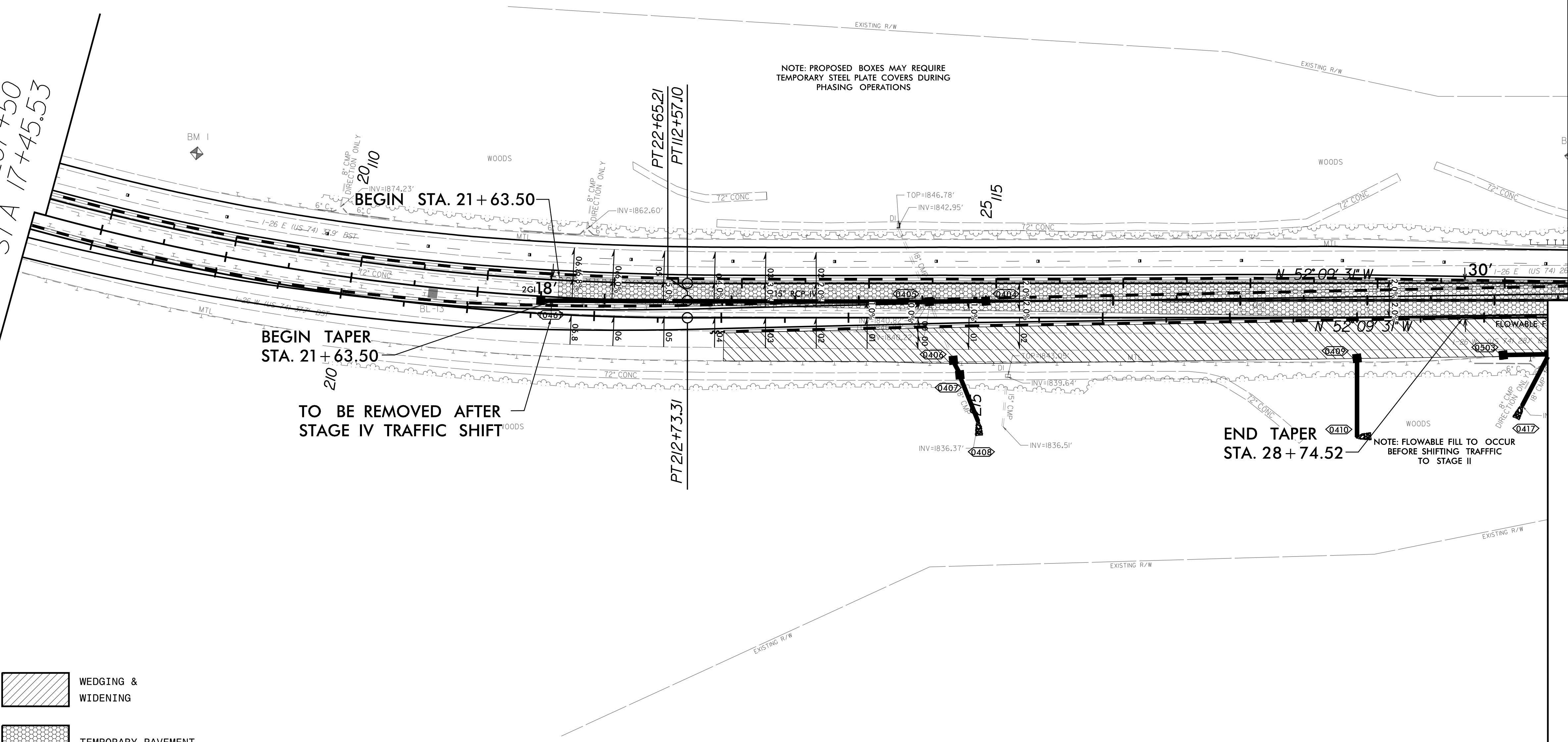


PROJECT REFERENCE NO. 15BPR.20	SHEET NO. 2B-6
ROADWAY DESIGN ENGINEER 	HYDRAULICS ENGINEER
Prepared in the Office of: AECOM	
<small>NC FIRM LICENSE No: F-0342 701 Corporate Center Drive, Suite 475 Raleigh, NC 27603 (919) 854-6200 / (919) 854-6291 (FAX)</small>	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

Curve EBLI	Curve -L-I	Curve WBLI
PI = 106+99.65	PI = 17+03.83	PI = 207+08.01
DELTA = 34° 24' 12.03" (LT)	DELTA = 34° 24' 12.03" (LT)	DELTA = 34° 24' 12.03" (LT)
D = 2' 59" 23"	D = 2' 58" 07"	D = 2' 56" 53"
T = 593.32'	T = 597.50'	T = 601.68'
L = 1150.77'	L = 1158.87'	L = 1166.98'
R = 1916.50'	R = 1930.00'	R = 1943.50'
PC = 101+06.34	PC = 11+06.34	PC = 201+06.34
PT = 112+57.10	PT = 22+65.21	PT = 212+73.31
V = 60 MPH	V = 60 MPH	V = 60 MPH

MATCHLINE - SEE SHEET 2B-5
 EBL STA 107+50
 WBL STA 207+50
 -L- STA 17+45.53

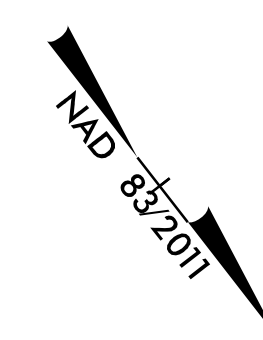
MATCHLINE - SEE SHEET 2B-7
 EBL STA 119+50
 WBL STA 219+50
 -L- STA 29+58.11



- WEDGING & WIDENING
- TEMPORARY PAVEMENT
- PAVEMENT / BRIDGE REMOVAL

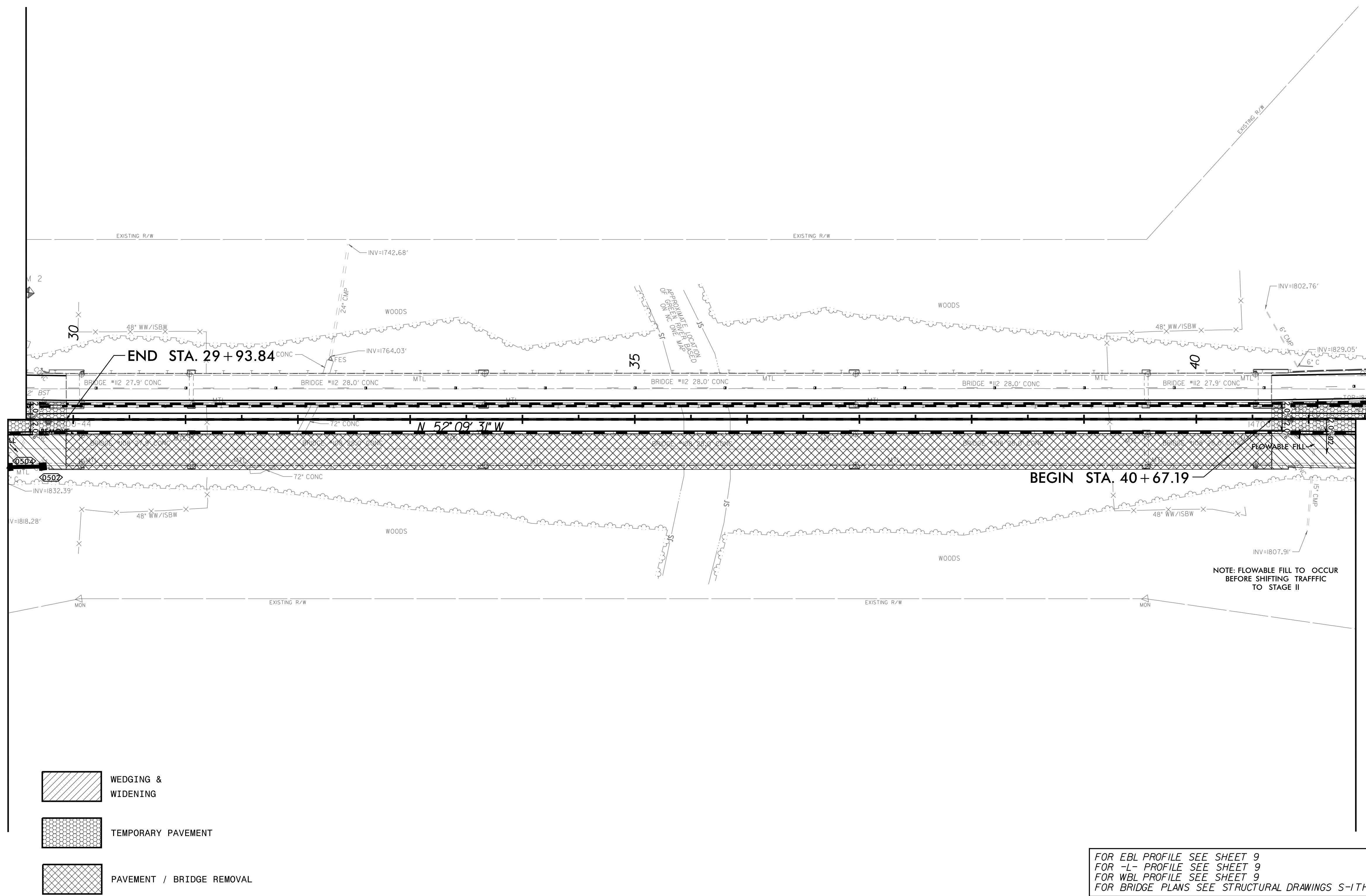
FOR EBL PROFILE SEE SHEET 8
FOR WBL PROFILE SEE SHEET 8

TEMPORARY PAVEMENT DETAILS FOR TRAFFIC CONTROL STAGE II CONSTRUCTION DETAIL PRIOR TO STAGE III TRAFFIC SHIFT



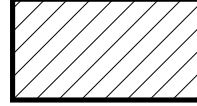
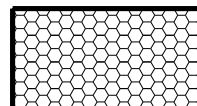

PROJECT REFERENCE NO. 15BPR.20	SHEET NO. 2B-7
ROADWAY DESIGN ENGINEER 18470 6/10/2019 EDWARD GLENN EDENS, JR.	HYDRAULICS ENGINEER 037863 6/10/2019 WENDE D. BUSCEMI
Prepared in the Office of: AECOM	
<small>NC FIRM LICENSE No: F-0342 701 Corporate Center Drive, Suite 475 Raleigh, NC 27603 (919) 854-6200 • (919) 854-6259(FAX)</small>	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

MATCHLINE - SEE SHEET 2B-6
 EBL STA 119+50
 WBL STA 219+50
 -L- STA 29+58.11



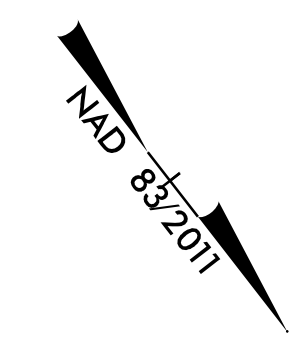
MATCHLINE - SEE SHEET 2B-8
 EBL STA 131+50
 WBL STA 231+50
 -L- STA 41+58.11

NOTE: FLOWABLE FILL TO OCCUR BEFORE SHIFTING TRAFFIC TO STAGE II

-  WEDGING & WIDENING
-  TEMPORARY PAVEMENT
-  PAVEMENT / BRIDGE REMOVAL

FOR EBL PROFILE SEE SHEET 9
 FOR -L- PROFILE SEE SHEET 9
 FOR WBL PROFILE SEE SHEET 9
 FOR BRIDGE PLANS SEE STRUCTURAL DRAWINGS S-1 THRU S-123

TEMPORARY PAVEMENT DETAILS FOR TRAFFIC CONTROL STAGE II CONSTRUCTION DETAIL PRIOR TO STAGE III TRAFFIC SHIFT



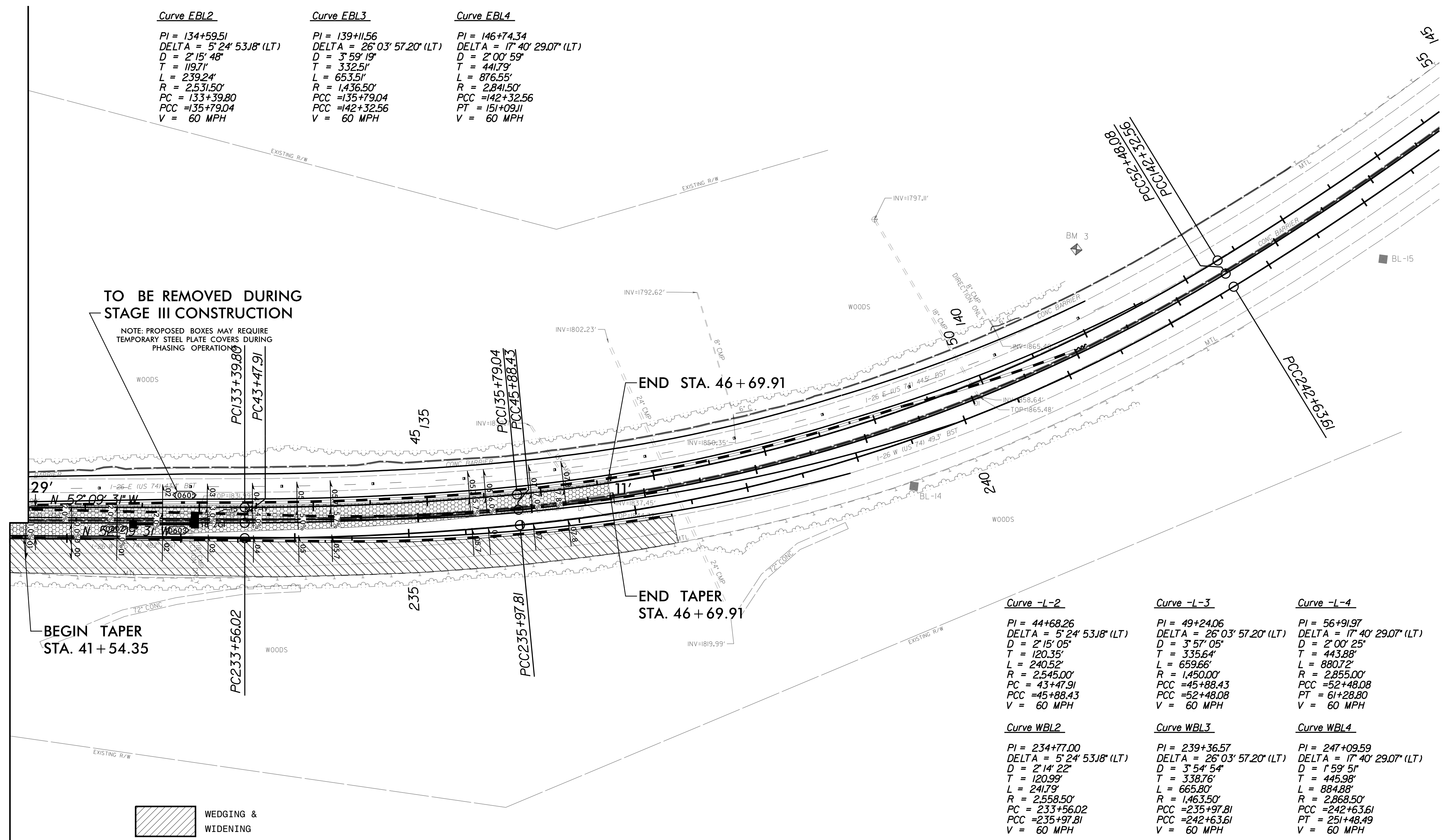
PROJECT REFERENCE NO. 15BPR.20	SHEET NO. 2B-8
ROADWAY DESIGN ENGINEER 	HYDRAULICS ENGINEER
Prepared in the Office of: AECOM <small>NC FIRM LICENSE No: F-0342 701 Corporate Center Drive, Suite 475 Raleigh, NC 27603 (919) 854-6200 • (919) 854-6259(FAX)</small>	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

<u>Curve EBL2</u>	<u>Curve EBL3</u>	<u>Curve EBL4</u>
PI = 134+59.51 DELTA = 5° 24' 53.18" (LT) D = 2' 15' 48" T = 119.71' L = 239.24' R = 2531.50' PC = 133+39.80 PCC = 135+79.04 V = 60 MPH	PI = 139+11.56 DELTA = 26° 03' 57.20" (LT) D = 3' 59' 19" T = 332.51' L = 653.51' R = 1,436.50' PCC = 135+79.04 PCC = 142+32.56 V = 60 MPH	PI = 146+74.34 DELTA = 17° 40' 29.07" (LT) D = 2' 00' 59" T = 44.79' L = 876.55' R = 2,841.50' PCC = 142+32.56 PT = 151+09.11 V = 60 MPH

<u>Curve -L-2</u>	<u>Curve -L-3</u>	<u>Curve -L-4</u>
PI = 44+68.26 DELTA = 5° 24' 53.18" (LT) D = 2' 15' 05" T = 120.35' L = 240.52' R = 2,545.00' PC = 43+47.91 PCC = 45+88.43 V = 60 MPH	PI = 49+24.06 DELTA = 26° 03' 57.20" (LT) D = 3' 57' 05" T = 335.64' L = 659.66' R = 1,450.00' PCC = 45+88.43 PCC = 52+48.08 V = 60 MPH	PI = 56+91.97 DELTA = 17° 40' 29.07" (LT) D = 2' 00' 25" T = 44.38' L = 880.72' R = 2,855.00' PCC = 52+48.08 PT = 61+28.80 V = 60 MPH
<u>Curve WBL2</u>	<u>Curve WBL3</u>	<u>Curve WBL4</u>
PI = 234+77.00 DELTA = 5° 24' 53.18" (LT) D = 2' 14' 22" T = 120.99' L = 241.79' R = 2,558.50' PC = 233+56.02 PCC = 235+97.81 V = 60 MPH	PI = 239+36.57 DELTA = 26° 03' 57.20" (LT) D = 3' 54' 54" T = 338.76' L = 665.80' R = 1,463.50' PCC = 235+97.81 PCC = 242+63.61 V = 60 MPH	PI = 247+09.59 DELTA = 17° 40' 29.07" (LT) D = 1' 59' 51" T = 44.598' L = 884.88' R = 2,868.50' PCC = 242+63.61 PT = 251+48.49 V = 60 MPH

MATCHLINE - SEE SHEET 2B-7
 EBL STA 131+50
 WBL STA 231+50
 -L- STA 41+58.11

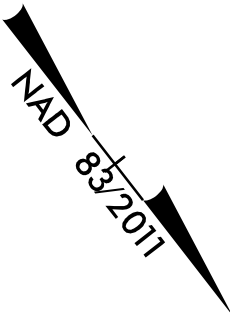
TO BE REMOVED DURING STAGE III CONSTRUCTION
 NOTE: PROPOSED BOXES MAY REQUIRE TEMPORARY STEEL PLATE COVERS DURING PHASING OPERATION



- WEDGING & WIDENING
- TEMPORARY PAVEMENT
- PAVEMENT / BRIDGE REMOVAL

FOR EBL PROFILE SEE SHEET 10
 FOR WBL PROFILE SEE SHEET 10

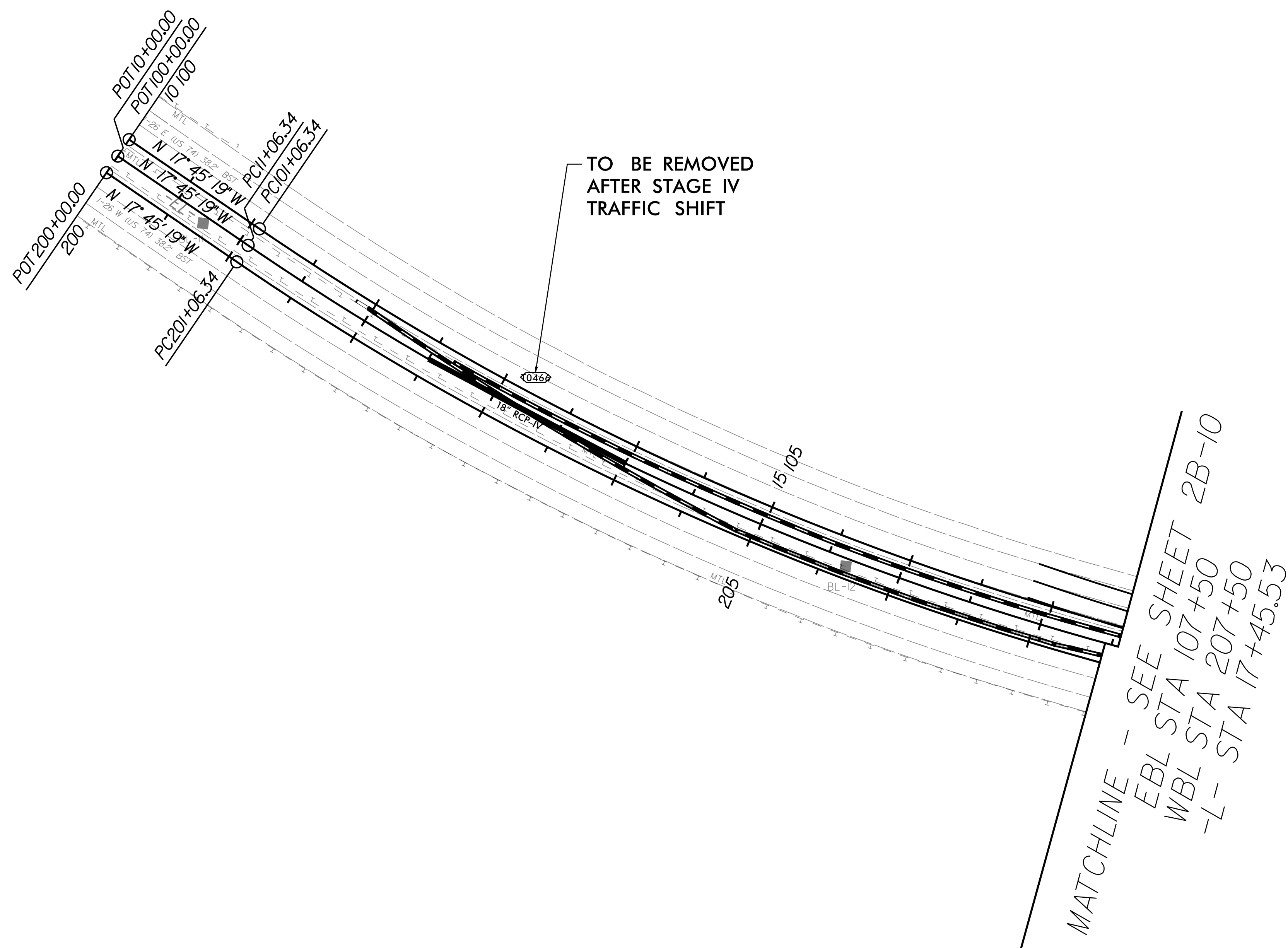
TEMPORARY PAVEMENT DETAILS FOR TRAFFIC CONTROL STAGE III CONSTRUCTION DETAIL PRIOR TO STAGE IV TRAFFIC SHIFT



PROJECT REFERENCE NO. 15BPR.20	SHEET NO. 2B-9
ROADWAY DESIGN ENGINEER 	HYDRAULICS ENGINEER
Prepared in the Office of: AECOM	
<small>NC FIRM LICENSE No: F-0342 701 Corporate Center Drive, Suite 475 Raleigh, NC 27603 (919) 854-6200 / (919) 854-6299 (FAX)</small>	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

<u>Curve EBLI</u>	<u>Curve -L-L</u>	<u>Curve WBLI</u>
PI = 106+99.65	PI = 17+03.83	PI = 207+08.01
DELTA = 34° 24' 12.03" (LT)	DELTA = 34° 24' 12.03" (LT)	DELTA = 34° 24' 12.03" (LT)
D = 2° 59' 23"	D = 2° 58' 07"	D = 2° 56' 53"
T = 593.32'	T = 597.50'	T = 601.68'
L = 1150.77'	L = 1158.87'	L = 1166.98'
R = 1916.50'	R = 1930.00'	R = 1943.50'
PC = 101+06.34	PC = 11+06.34	PC = 201+06.34
PT = 112+57.10	PT = 22+65.21	PT = 212+73.31
V = 60 MPH	V = 60 MPH	V = 60 MPH

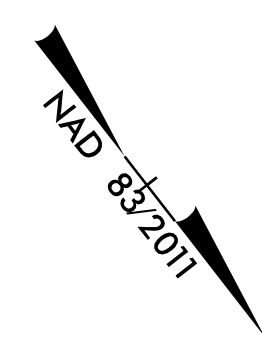
BL-10



- WEDGING & WIDENING
- TEMPORARY PAVEMENT
- PAVEMENT / BRIDGE REMOVAL

FOR EBL PROFILE SEE SHEET 8
FOR WBL PROFILE SEE SHEET 8

TEMPORARY PAVEMENT DETAILS FOR TRAFFIC CONTROL STAGE III CONSTRUCTION DETAIL PRIOR TO STAGE IV TRAFFIC SHIFT

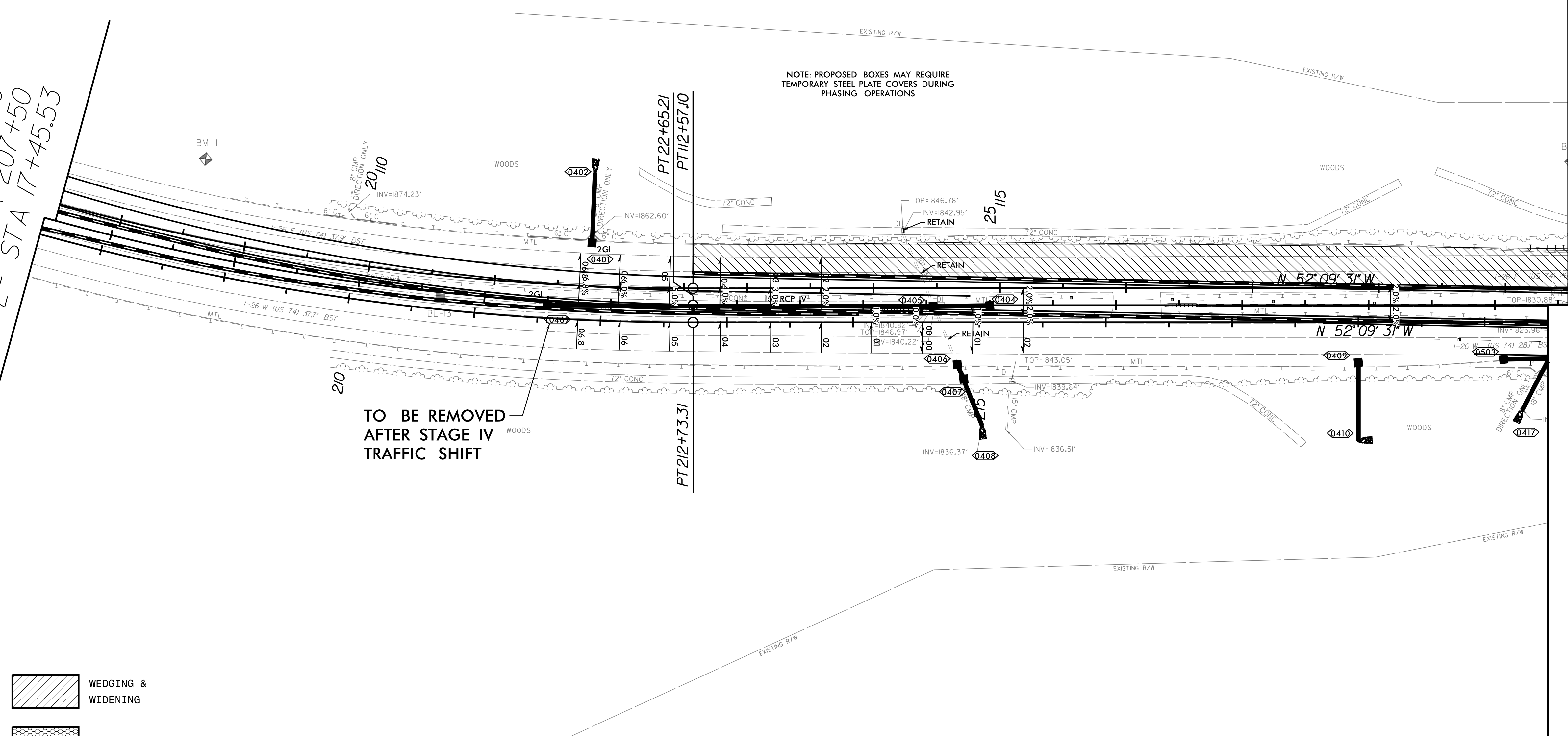


PROJECT REFERENCE NO. 15BPR.20	SHEET NO. 2B-10
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
Prepared in the Office of: AECOM	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

Curve EBLI	Curve -L-L	Curve WBLI
PI = 106+99.65	PI = 17+03.83	PI = 207+08.01
DELTA = 34° 24' 12.03" (LT)	DELTA = 34° 24' 12.03" (LT)	DELTA = 34° 24' 12.03" (LT)
D = 2' 59' 23"	D = 2' 58' 07"	D = 2' 56' 53"
T = 593.32'	T = 597.50'	T = 601.68'
L = 1150.77'	L = 1158.87'	L = 1166.98'
R = 1916.50'	R = 1930.00'	R = 1943.50'
PC = 101+06.34	PC = 11+06.34	PC = 201+06.34
PT = 112+57.10	PT = 22+65.21	PT = 212+73.31
V = 60 MPH	V = 60 MPH	V = 60 MPH

MATCHLINE - SEE SHEET 2B-9
 EBL STA 107+50
 WBL STA 207+50
 -L- STA 17+45.53

MATCHLINE - SEE SHEET 2B-11
 EBL STA 119+50
 WBL STA 219+50
 -L- STA 29+58.11



NOTE: PROPOSED BOXES MAY REQUIRE
TEMPORARY STEEL PLATE COVERS DURING
PHASING OPERATIONS

TO BE REMOVED
AFTER STAGE IV
TRAFFIC SHIFT

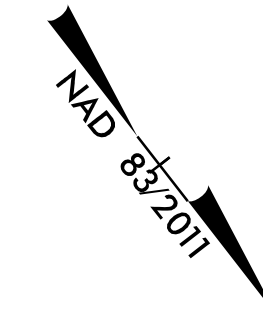
- WEDGING & WIDENING
- TEMPORARY PAVEMENT
- PAVEMENT / BRIDGE REMOVAL

FOR EBL PROFILE SEE SHEET 8
 FOR WBL PROFILE SEE SHEET 8

5/14/99

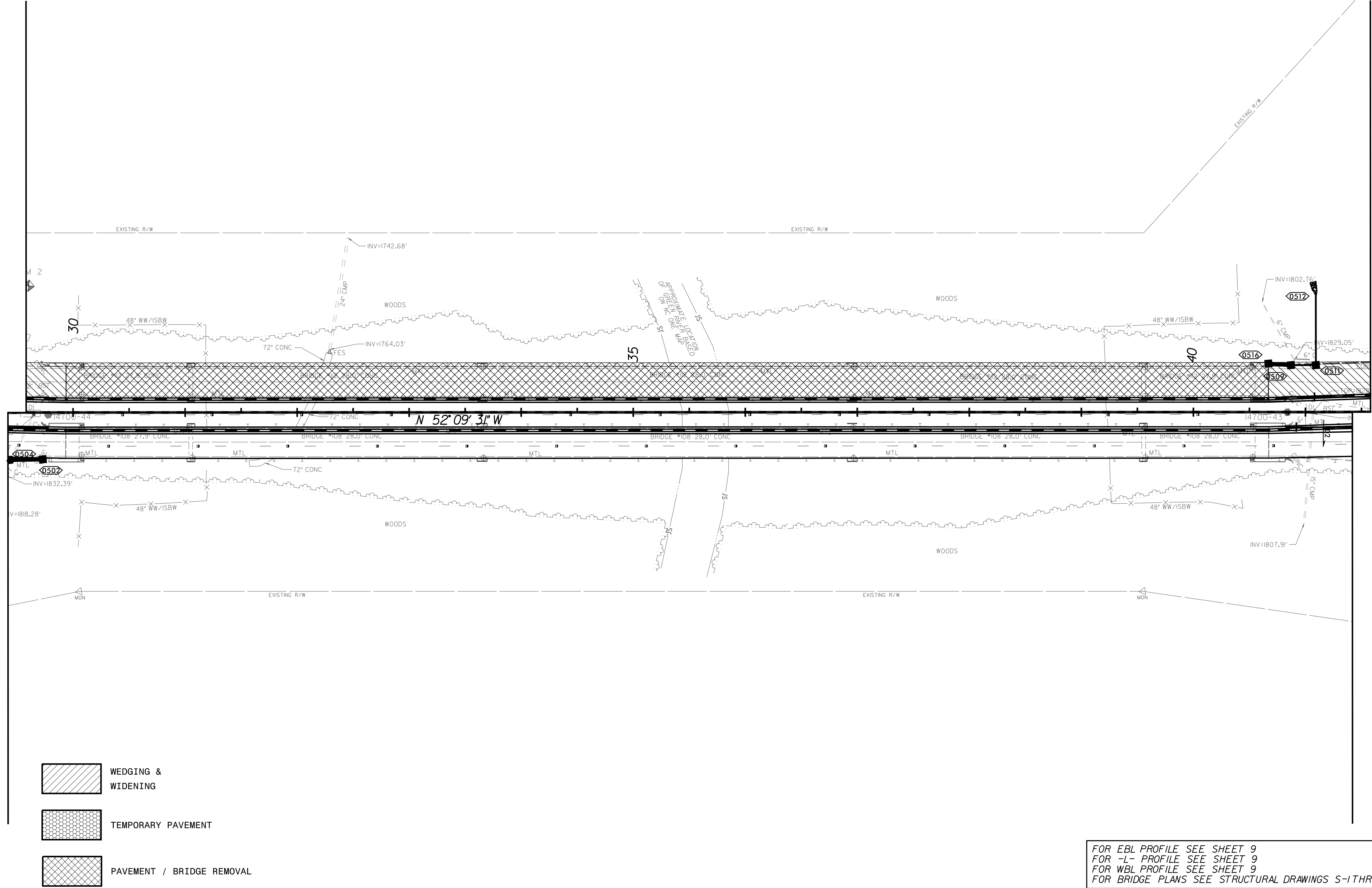
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TEMPORARY PAVEMENT DETAILS FOR TRAFFIC CONTROL STAGE III CONSTRUCTION DETAIL PRIOR TO STAGE IV TRAFFIC SHIFT



PROJECT REFERENCE NO. 15BPR.20	SHEET NO. 2B-11
ROADWAY DESIGN ENGINEER 	HYDRAULICS ENGINEER
Prepared in the Office of: AECOM	
<small>NC FIRM LICENSE No: F-0342 701 Corporate Center Drive, Suite 475 Raleigh, NC 27603 (919) 854-6200 • (919) 854-6299(FAX)</small>	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

MATCHLINE - SEE SHEET 2B-10
 EBL STA 119+50
 WBL STA 219+50
 -L- STA 29+58.11

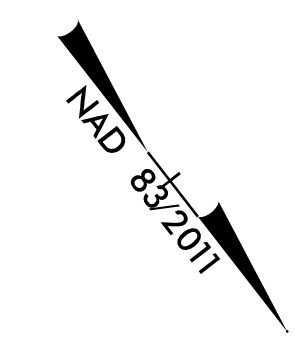


MATCHLINE - SEE SHEET 2B-12
 EBL STA 131+50
 WBL STA 231+50
 -L- STA 41+58.11

- WEDGING & WIDENING
- TEMPORARY PAVEMENT
- PAVEMENT / BRIDGE REMOVAL

FOR EBL PROFILE SEE SHEET 9
 FOR -L- PROFILE SEE SHEET 9
 FOR WBL PROFILE SEE SHEET 9
 FOR BRIDGE PLANS SEE STRUCTURAL DRAWINGS S-1 THRU S-123

TEMPORARY PAVEMENT DETAILS FOR TRAFFIC CONTROL STAGE III CONSTRUCTION DETAIL PRIOR TO STAGE IV TRAFFIC SHIFT

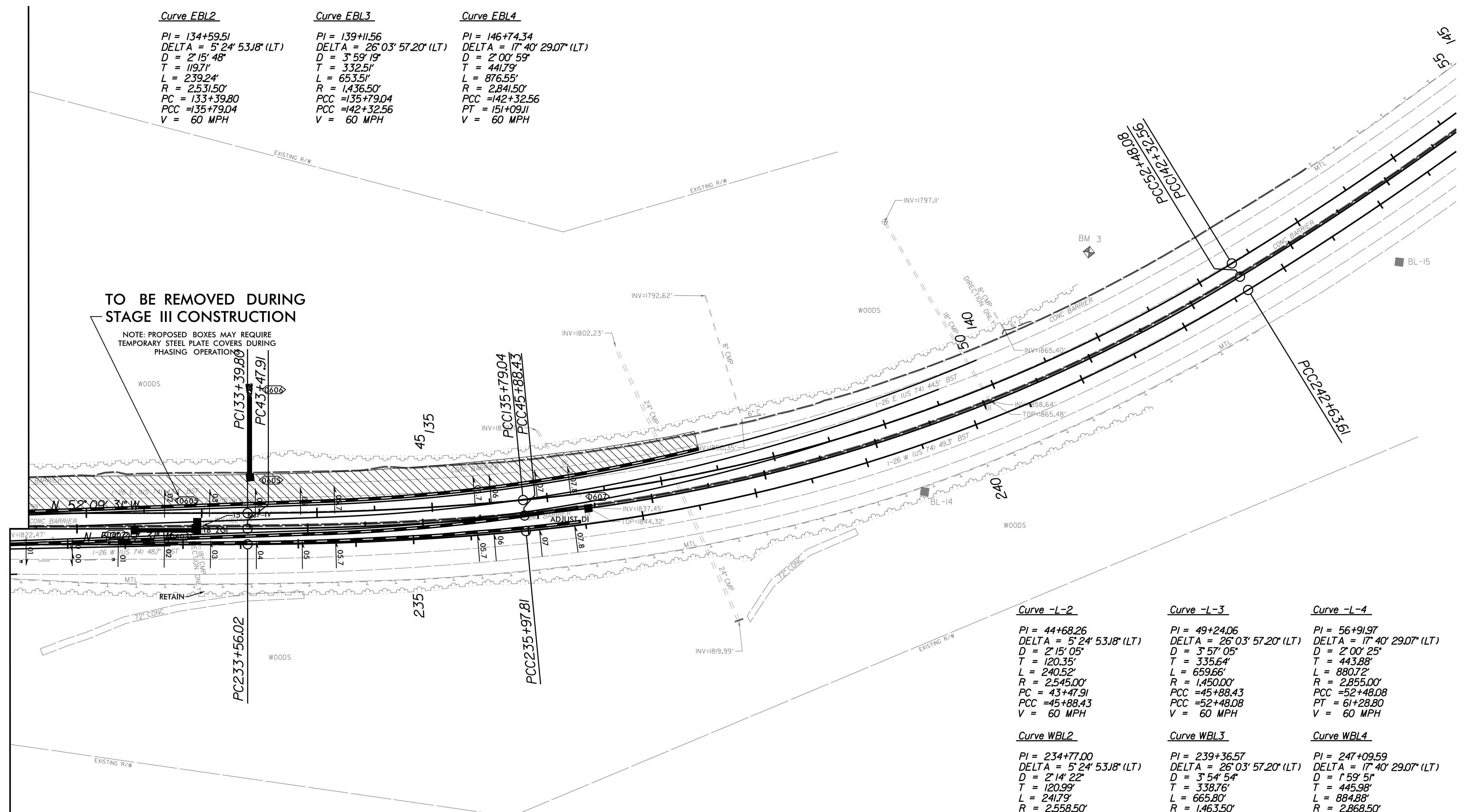


PROJECT REFERENCE NO. 15BPR.20	SHEET NO. 2B-12
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
Prepared in the Office of: AECOM	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

Curve EBL2	Curve EBL3	Curve EBL4
PI = 134+59.51 DELTA = 5° 24' 53.18" (LT) D = 2' 15" 48" T = 119.71' L = 239.24' R = 2531.50' PC = 133+39.80 PCC = 135+79.04 V = 60 MPH	PI = 139+11.56 DELTA = 26° 03' 57.20" (LT) D = 3' 59" 19" T = 332.51' L = 653.51' R = 1,436.50' PCC = 135+79.04 PCC = 142+32.56 V = 60 MPH	PI = 146+74.34 DELTA = 17° 40' 29.07" (LT) D = 2' 00" 59" T = 44.79' L = 876.55' R = 2,841.50' PCC = 142+32.56 PT = 151+09.11 V = 60 MPH

MATCHLINE - SEE SHEET 2B-11
 EBL STA 131+50
 WBL STA 231+50
 -L- STA 41+58.11

**TO BE REMOVED DURING
STAGE III CONSTRUCTION**
 NOTE: PROPOSED BOXES MAY REQUIRE
TEMPORARY STEEL PLATE COVERS DURING
PHASING OPERATION



Curve -L-2	Curve -L-3	Curve -L-4
PI = 44+68.26 DELTA = 5° 24' 53.18" (LT) D = 2' 15" 05" T = 120.35' L = 240.52' R = 2545.00' PC = 43+47.91 PCC = 45+88.43 V = 60 MPH	PI = 49+24.06 DELTA = 26° 03' 57.20" (LT) D = 3' 57" 05" T = 335.64' L = 659.66' R = 1,450.00' PCC = 45+88.43 PCC = 52+48.08 V = 60 MPH	PI = 56+91.97 DELTA = 17° 40' 29.07" (LT) D = 2' 00" 25" T = 44.38' L = 880.72' R = 2,855.00' PCC = 52+48.08 PT = 61+28.80 V = 60 MPH
Curve WBL2	Curve WBL3	Curve WBL4
PI = 234+77.00 DELTA = 5° 24' 53.18" (LT) D = 2' 14" 22" T = 120.99' L = 241.79' R = 2558.50' PC = 233+56.02 PCC = 235+97.81 V = 60 MPH	PI = 239+36.57 DELTA = 26° 03' 57.20" (LT) D = 3' 54" 54" T = 338.76' L = 665.80' R = 1,463.50' PCC = 235+97.81 PCC = 242+63.61 V = 60 MPH	PI = 247+09.59 DELTA = 17° 40' 29.07" (LT) D = 1' 59" 51" T = 44.98' L = 884.88' R = 2,868.50' PCC = 242+63.61 PT = 251+48.49 V = 60 MPH

- WEDGING & WIDENING
- TEMPORARY PAVEMENT
- PAVEMENT / BRIDGE REMOVAL

FOR EBL PROFILE SEE SHEET 10
 FOR WBL PROFILE SEE SHEET 10

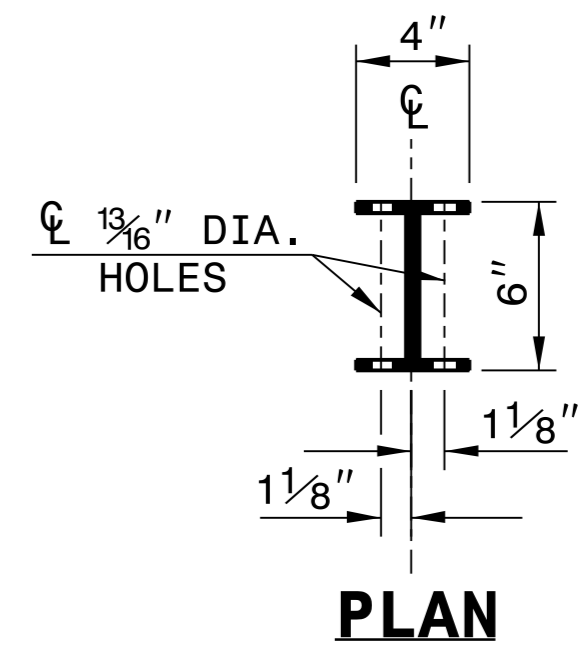
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

SHEET 6 OF 8
862D02



STANDARD W-BEAM GUARDRAIL



PLAN



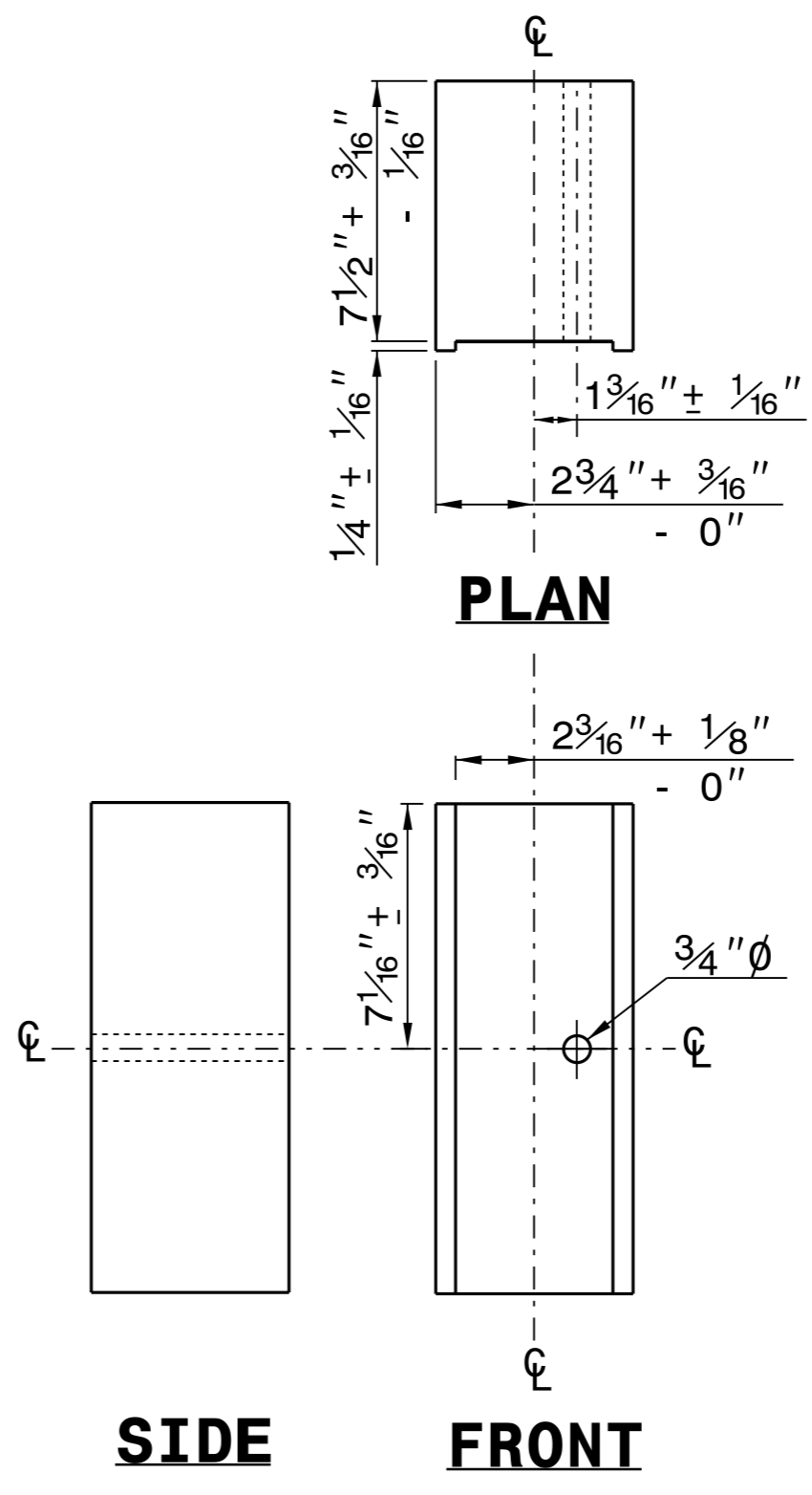
WOOD OFFSET BLOCK
(FOR WOOD POSTS)

STANDARD LINE POST

SHORT WOOD BREAKAWAY POST



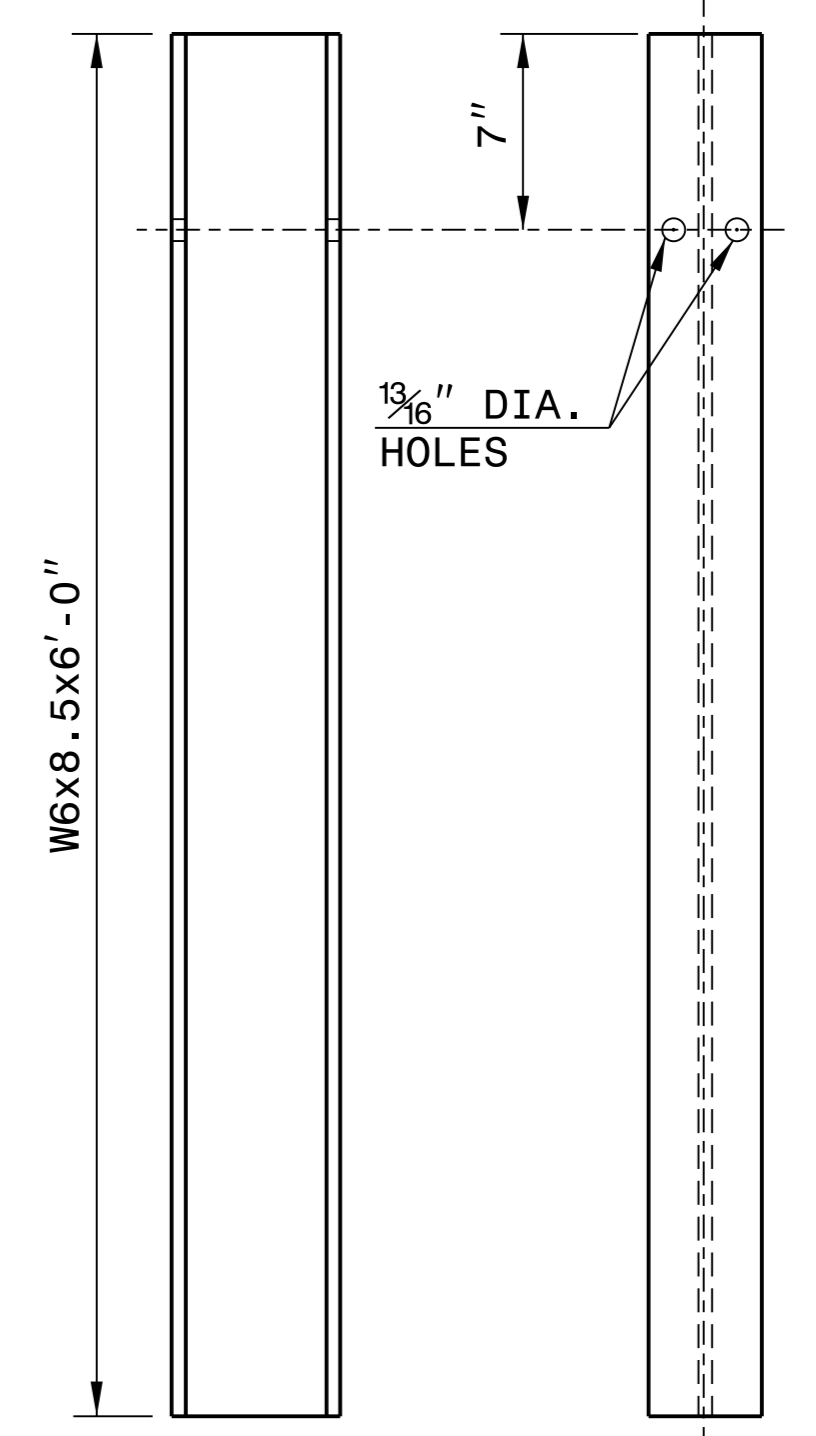
STEEL TUBE
TS 6"x8"x0.1875"



SIDE

FRONT

ROUTED OFFSET BLOCK



SIDE

FRONT

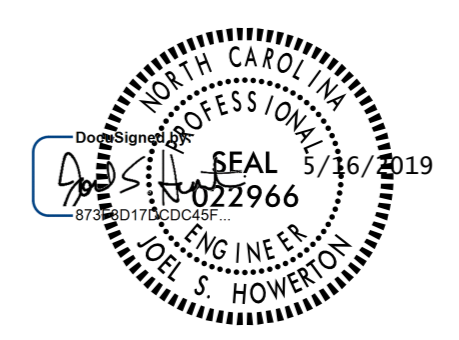
"W6" STEEL POST

SYSTEM PARTS

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

ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

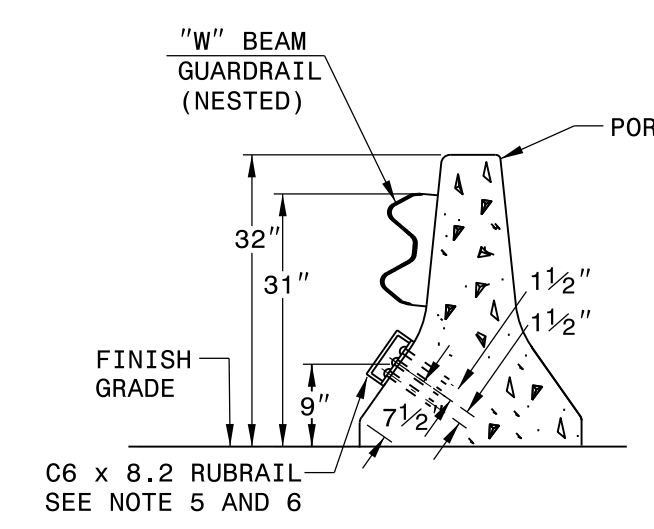
SHEET 6 OF 8
862D02



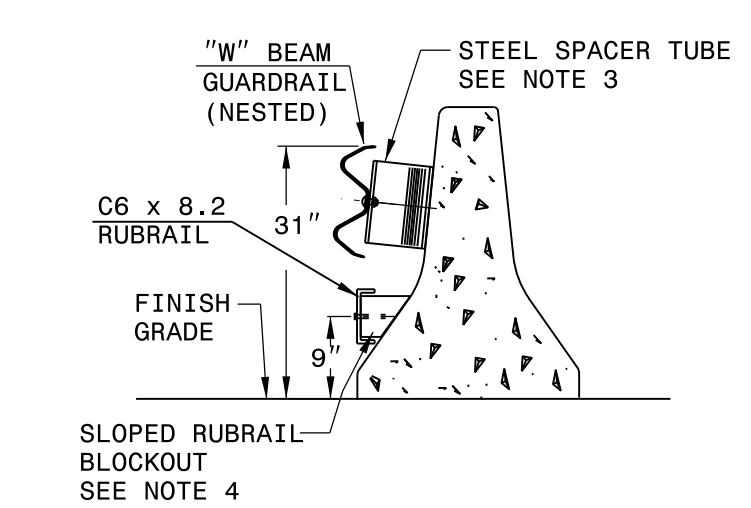
CONTRACTS STANDARDS AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

SEE TITLE BLOCK

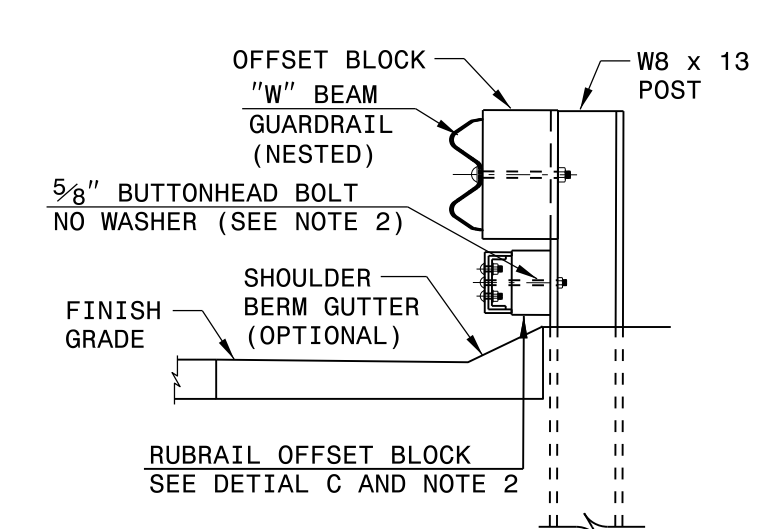
ORIGINAL BY: J. HOWERTON DATE: 3-7-2018
MODIFIED BY: DATE: _____
CHECKED BY: DATE: _____
FILE SPEC.: _____



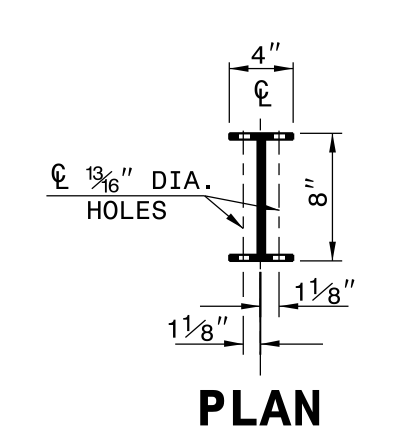
SECTION A-A



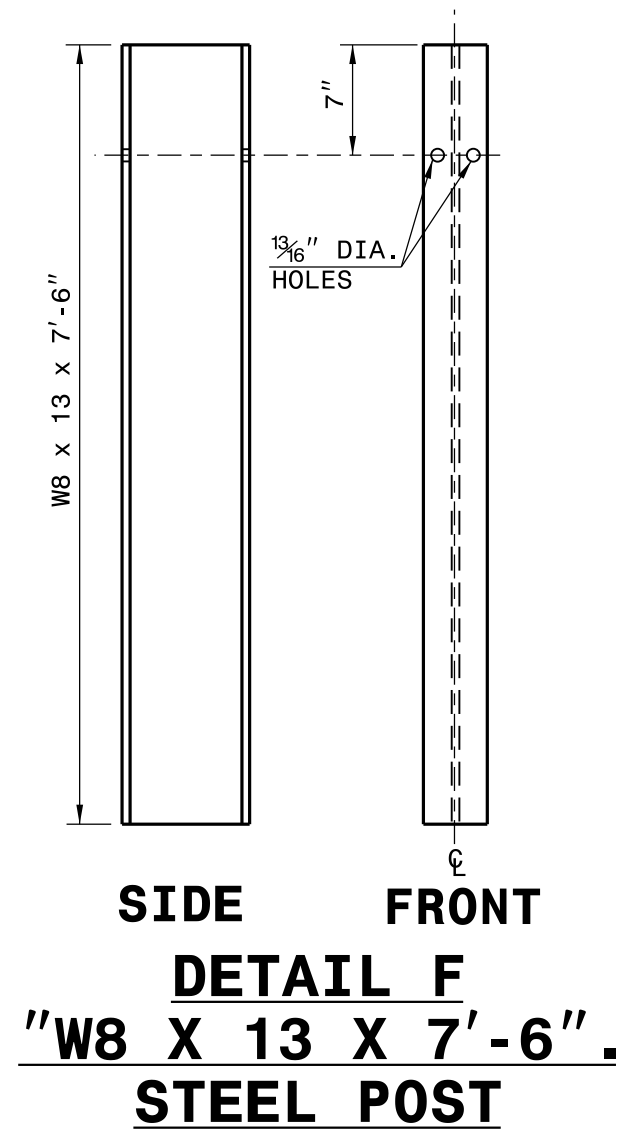
SECTION B-B



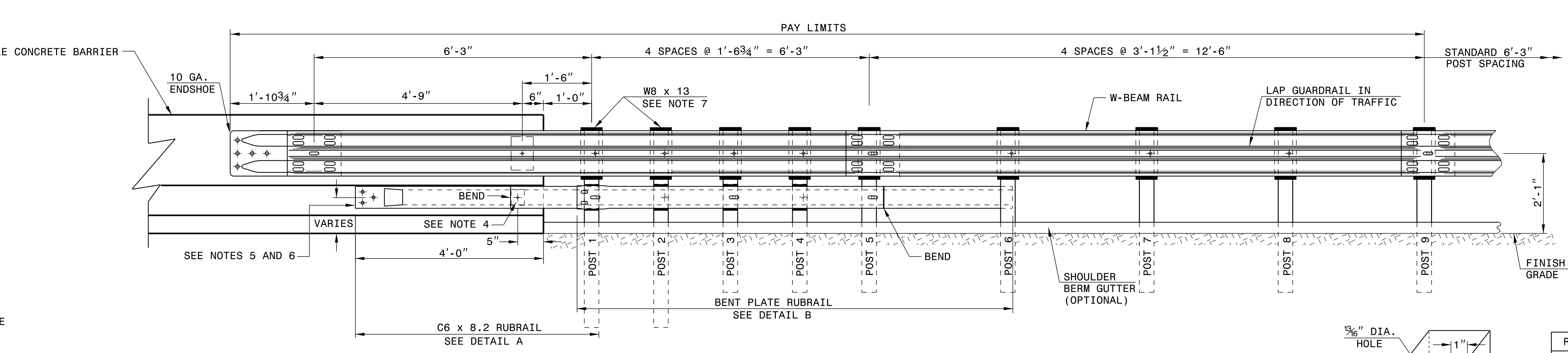
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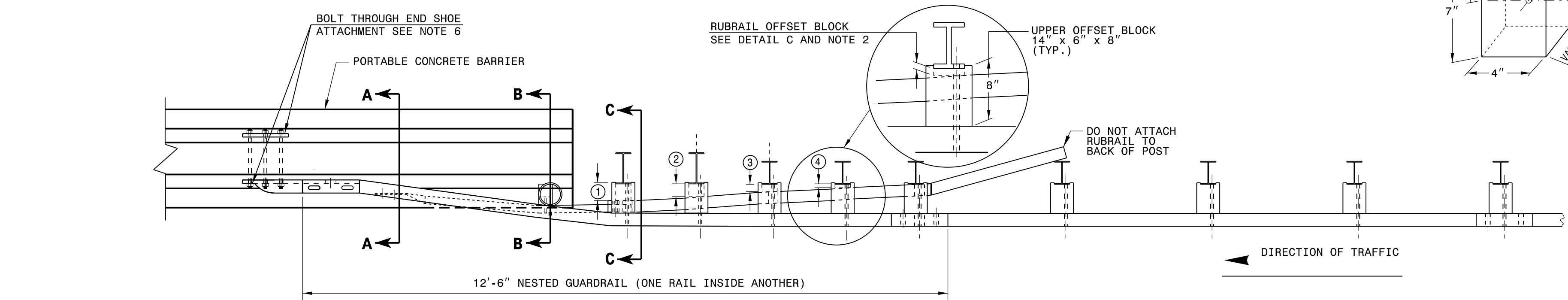
PLAN



DETAIL F
W8 X 13 X 7'-6".
STEEL POST

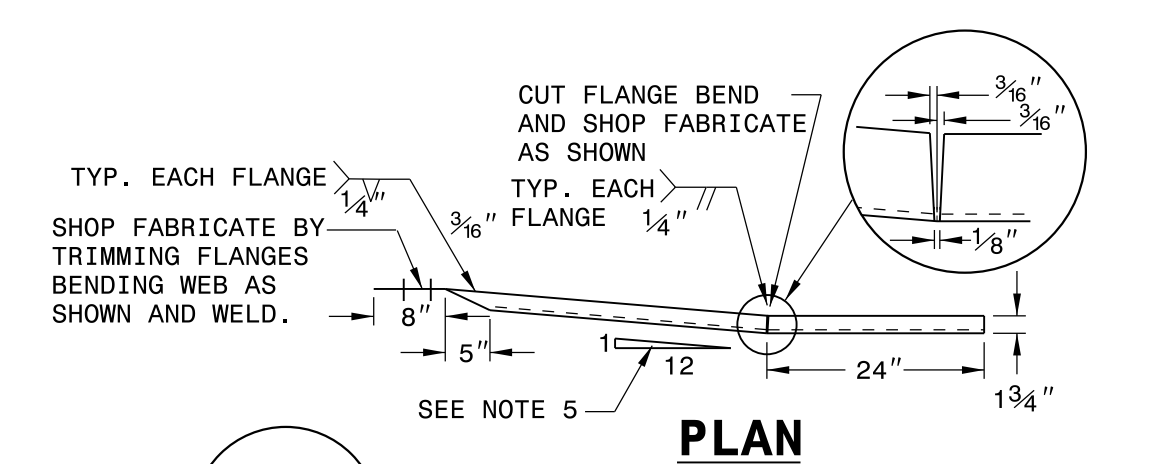


ELEVATION

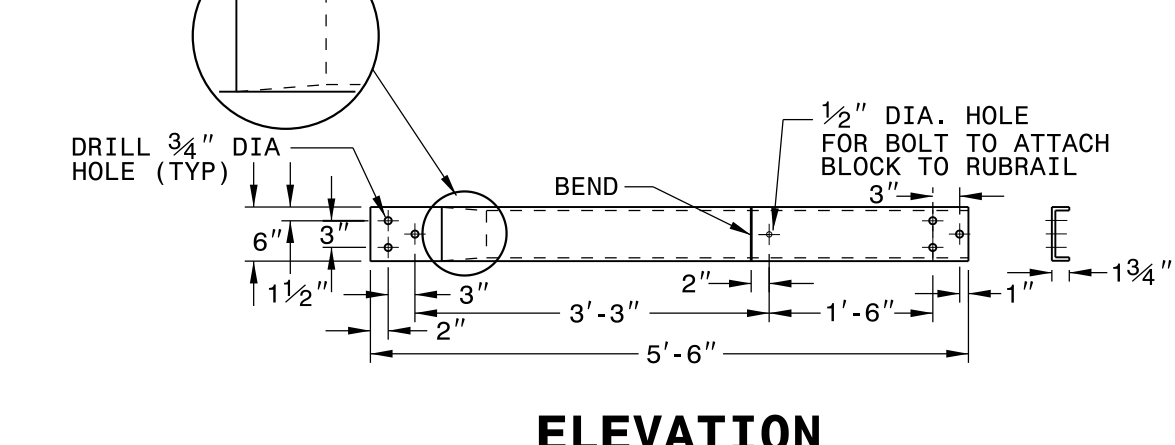


PLAN

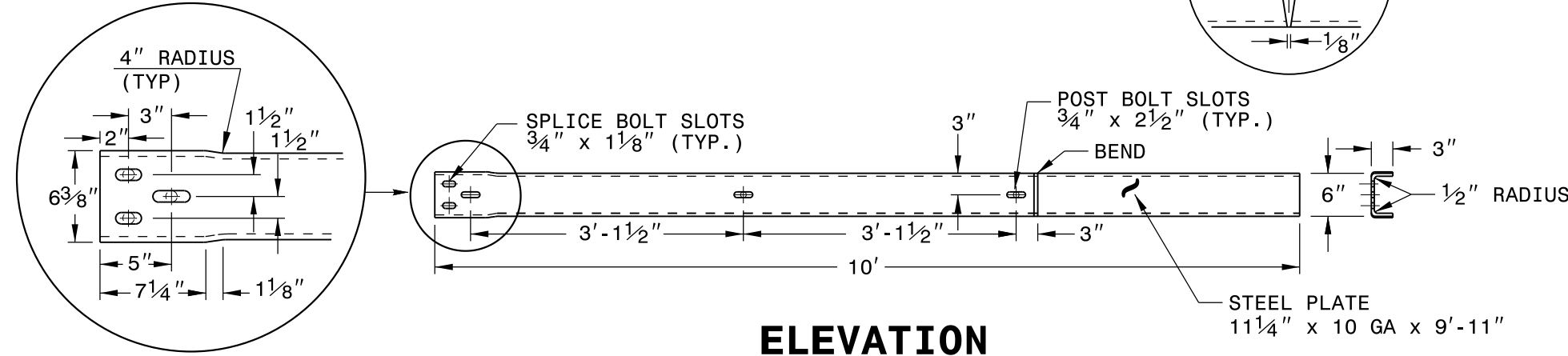
- GENERAL NOTES:**
- POSTS 1 THROUGH 5 REQUIRE AN ADDITIONAL HOLE TO ATTACH LOWER BLOCKOUTS AND/OR RUBRAIL.
 - RUBRAIL BLOCKOUTS LOCATED ON POSTS 1 THROUGH 4 ARE OFFSET DRILLED AND SECURED WITH 5/8" BUTTONHEAD BOLTS (SEE CHART FOR BOLT LENGTHS). SECURE BLOCKS ONLY TO POSTS 2 AND 4. SECURE RUBRAIL AND BLOCKOUTS TO POSTS 1 AND 3. RUBRAIL IS SECURED TO POST 5 WITH A 5/8" x 4 1/2" BUTTONHEAD BOLT. RUBRAIL IS FLARED TO BACK OF POST 6 AND NOT SECURED.
 - STEEL SPACER TUBE IS A SCHEDULE 40 GALVANIZED PIPE 6" INSIDE DIAMETER x 9" LONG. ATTACH TUBE TO GUARDRAIL ONLY WITH 5/8" x 1 1/4" LONG BUTTONHEAD BOLT AND RECTANGULAR PLATE WASHER.
 - SEE DETAIL D FOR SLOPED RUBRAIL BLOCKOUT. BLOCKOUT IS ATTACHED TO RAIL ELEMENT ONLY. USE 3/8" x 3" LAG BOLT WITH FLAT WASHER.
 - SHOP FABRICATE THE C6 x 8.2 RUBRAIL END TO BE CONSISTENT WITH THE SLOPE OF THE JERSEY SHAPE AND ATTACH FLUSH WITH THE SLOPED TOE OF THE BARRIER OR BRIDGE RAIL.
 - ANCHORAGE:
 - AT PORTABLE CONCRETE BARRIER, ANCHOR RUBRAIL USING THREE 5/8" x 6" CHEMICALLY ANCHORED BOLTS WITH WASHERS.
 - AT PORTABLE CONCRETE BARRIER, ANCHOR THE W-BEAM END SHOE USING A 4 BOLT HOLD-DOWN PLATE AS SHOWN. INSTALL THE W-BEAM END SHOE BEHIND THE NESTED W-BEAM ELEMENTS.
 - POSTS 1 AND 2 ARE W8 x 13, 7'-6" LONG. ALL OTHER POSTS IN THE ANCHOR UNIT ARE W6 x 8.5.



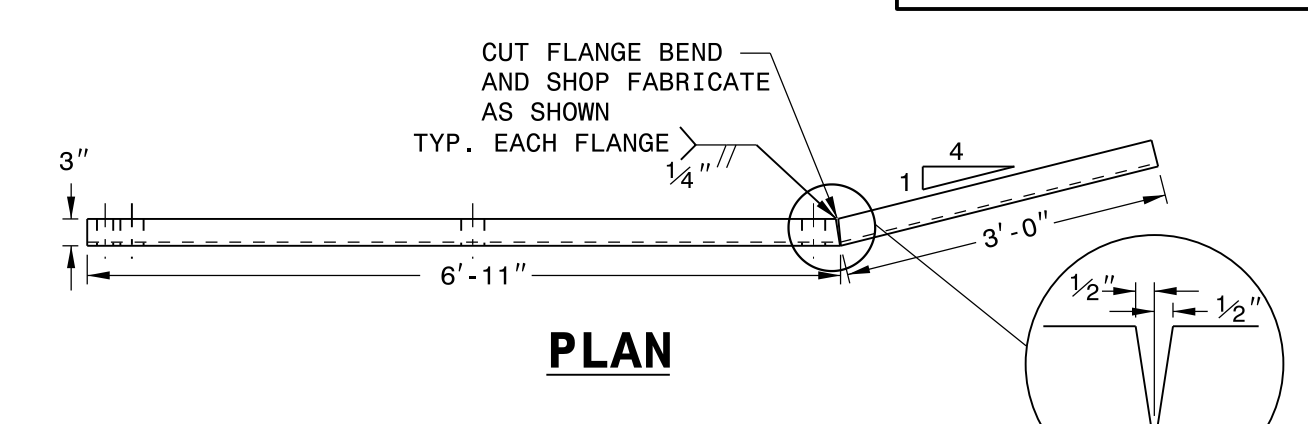
DETAIL A
C6 x 8.2 RUBRAIL



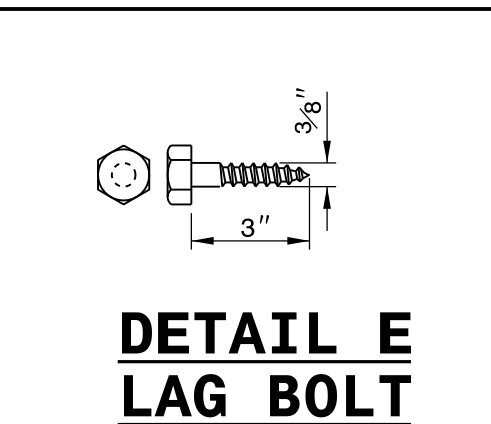
DETAIL B
BENT PLATE RUBRAIL



DETAIL C
4 BOLT HOLD DOWN PLATE

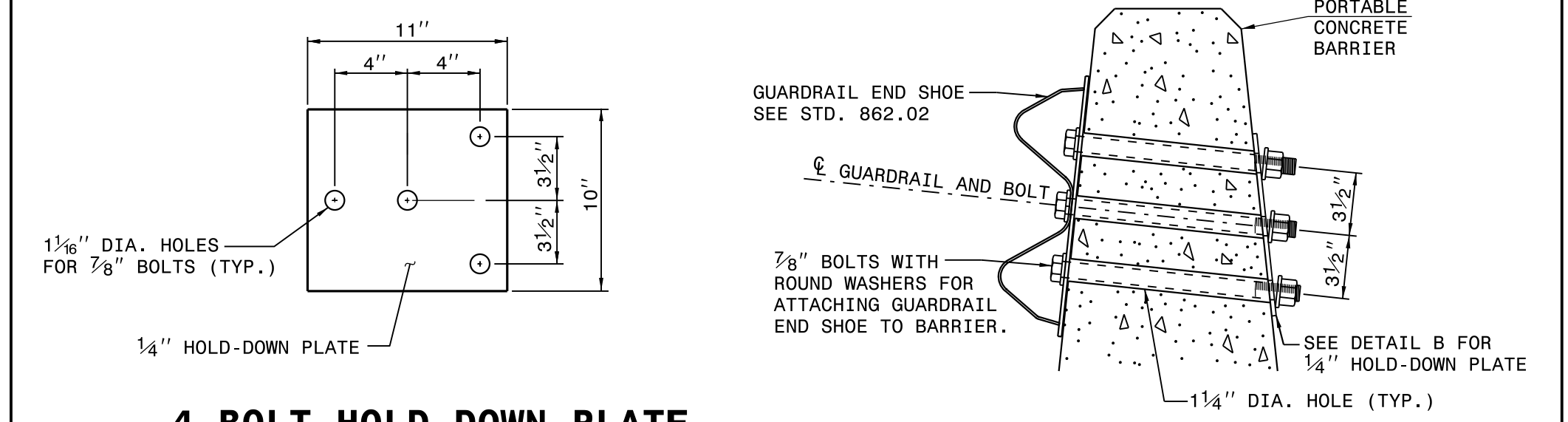


DETAIL D
PART SECTION OF BARRIER OR RAIL THRU END SHOE SECTION AND 4 BOLT HOLD DOWN PLATE

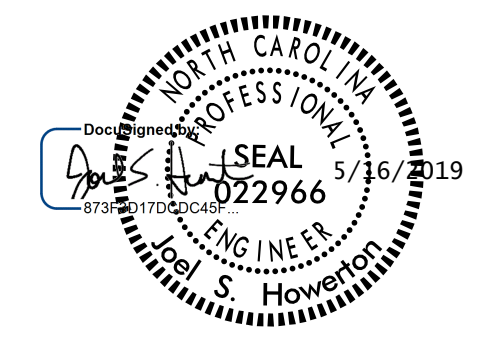


DETAIL E
SLOPED RUBRAIL BLOCKOUT

- NOTES FOR 4 BOLT HOLD DOWN PLATE**
- THE GUARDRAIL ANCHOR ASSEMBLY SHALL CONSIST OF A 1/4" HOLD DOWN PLATE AND 4 - 7/8" 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. THE 1/4" DIA. HOLES SHALL BE FORMED OR DRILLED 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



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

TEMPORARY GUARDRAIL ANCHOR UNIT TYPE B-77

ORIGINAL BY: E.E. WARD DATE: 04-07-04
 MODIFIED BY: J.S. Howerton DATE: 10-02-18
 CHECKED BY: DATE: _____
 FILE SPEC.: _____

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

02-OCT-2018 14:39 S:\Contracts\Special Details\Howerton\Temporary B-77 to PCB.dgn Jhowerton AT CSD-292595

USRA\BLT17006

COMPUTED BY: AECOM DATE: 05/13/2019
CHECKED BY: AECOM DATE: 05/14/2019

PROJECT NO. SHEET NO.
0 3D-2

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

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

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

Table with columns: LINE & STATION, OFFSET, STRUCTURE NUMBER, TOP ELEVATION, INVERT ELEVATION, MINIMUM REQUIRED SLOPE, C. S. PIPE (15-30), R. C. PIPE CLASS IV (15-54), QUANTITIES FOR DRAINAGE STRUCTURES (A, B), FRAME, GRATES, AND HOOD (STD. 840.03), GRATE TYPE (E, F, G), CONCRETE TRANSITIONAL SECTION, and various material specifications. Includes SHEET TOTALS and PROJECT TOTALS at the bottom.

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

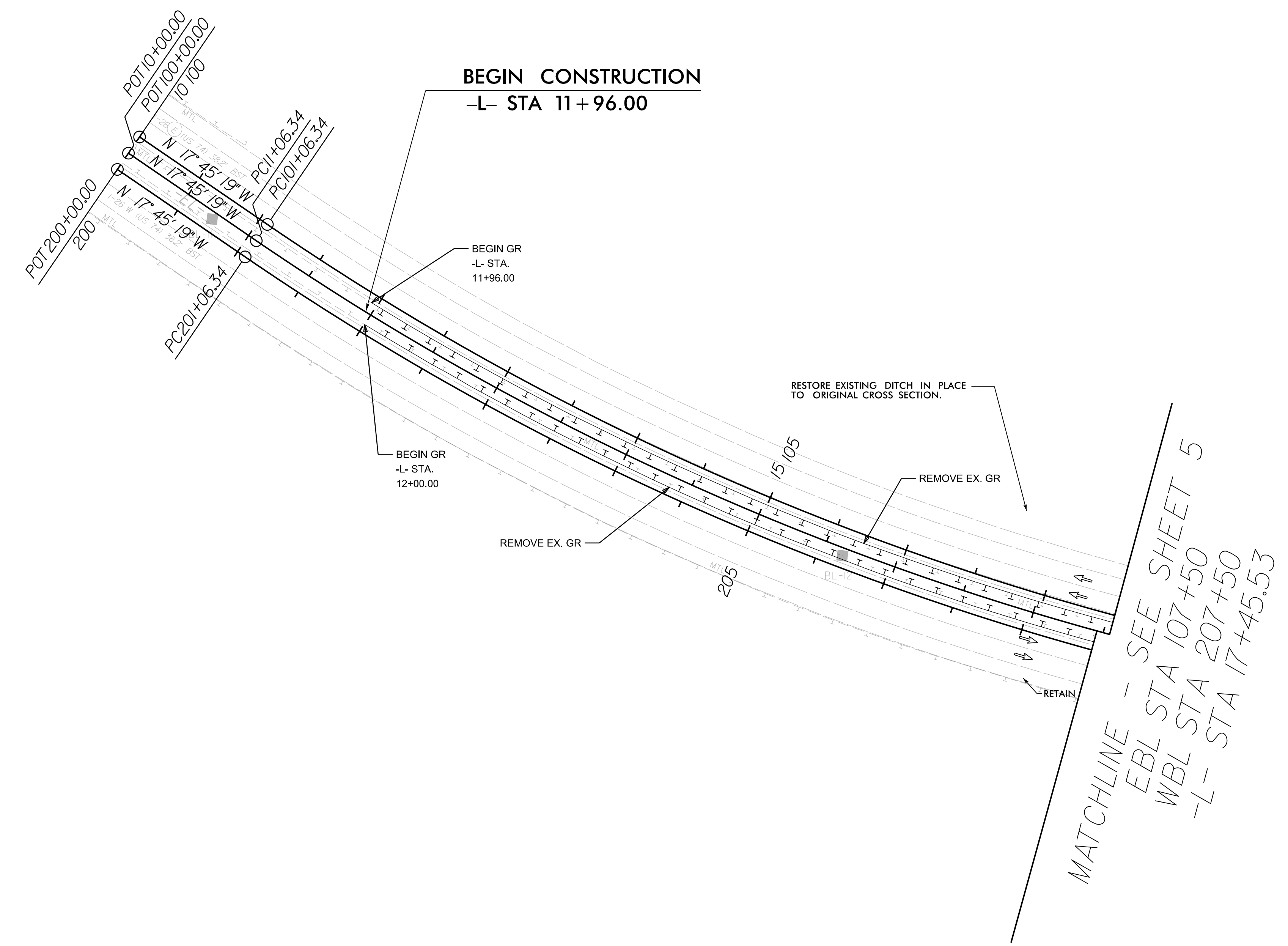
REMARKS

5/14/99

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e.lizab@h.hunter

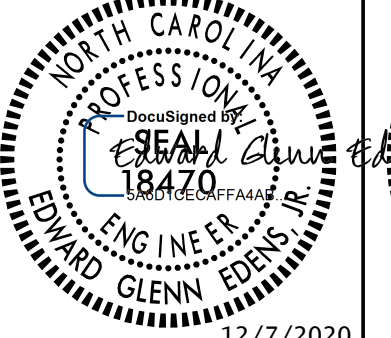
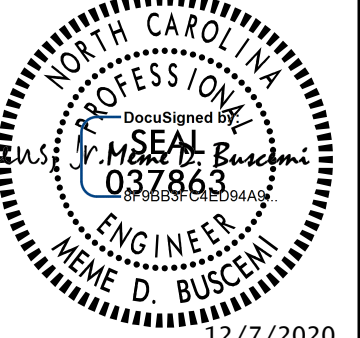
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DELTA = 34° 24' 12.03" (LT)	DELTA = 34° 24' 12.03" (LT)	DELTA = 34° 24' 12.03" (LT)
D = 2° 59' 23"	D = 2° 58' 07"	D = 2° 56' 53"
T = 593.32'	T = 597.50'	T = 601.68'
L = 1150.77'	L = 1158.87'	L = 1166.98'
R = 1916.50'	R = 1930.00'	R = 1943.50'
PC = 101+06.34	PC = 11+06.34	PC = 201+06.34
PT = 112+57.10	PT = 22+65.21	PT = 212+73.31
V = 60 MPH	V = 60 MPH	V = 60 MPH

BL-10

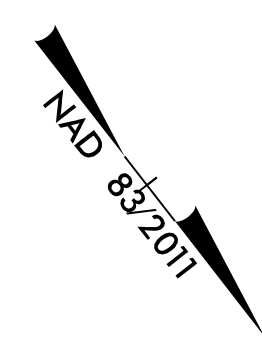


FOR EBL PROFILE SEE SHEET 8
FOR WBL PROFILE SEE SHEET 8

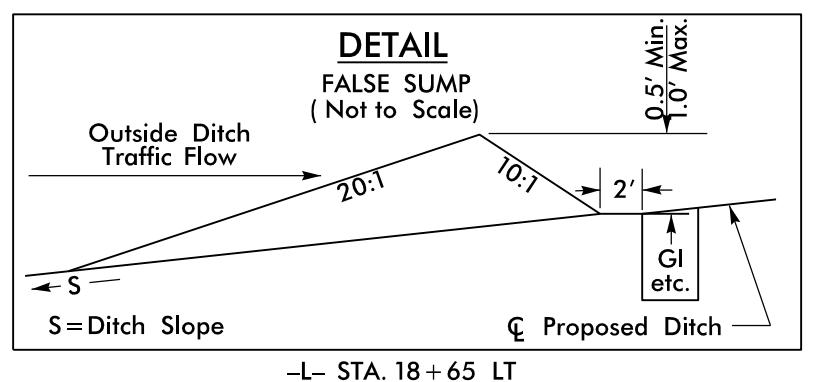
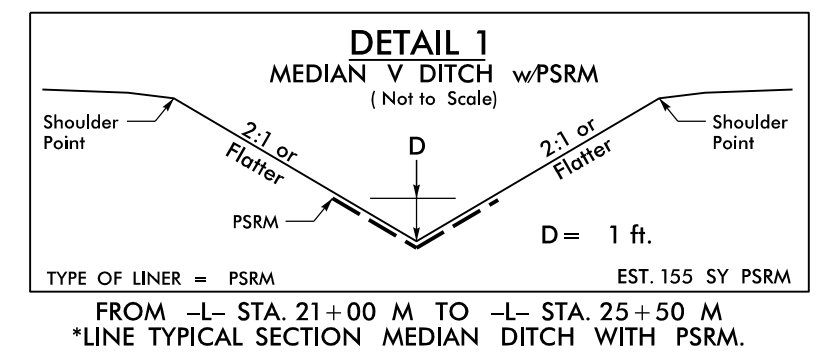
PROJECT REFERENCE NO. <i>15BPR.20</i>	SHEET NO. 4
ROADWAY DESIGN ENGINEER <i>Edward Glenn Edens, Jr.</i>	HYDRAULICS ENGINEER <i>Megan D. Buscemi</i>
Professional Engineer Seal 18470 Edward Glenn Edens, Jr. 12/7/2020	Professional Engineer Seal 037863 Megan D. Buscemi 12/7/2020
Prepared in the Office of: AECOM	NC FIRM LICENSE No: F-0342 701 Corporate Center Drive, Suite 475 Raleigh, NC 27603 (919) 854-6200 • (919) 854-6299(FAX)
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PROJECT REFERENCE NO. 15BPR.20	SHEET NO. 5
ROADWAY DESIGN ENGINEER 	HYDRAULICS ENGINEER 
Prepared in the Office of: AECOM 70 Corporate Center Drive, Suite 475 Raleigh, NC 27601 (919) 854-6200 / (919) 854-6291 (FAX)	
NC FIRM LICENSE No. F-0542 12/7/2020	

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Curve EBLI	Curve -L-I	Curve WBLI
PI = 106+99.65	PI = 17+03.83	PI = 207+08.01
DELTA = 34° 24' 12.03" (LT)	DELTA = 34° 24' 12.03" (LT)	DELTA = 34° 24' 12.03" (LT)
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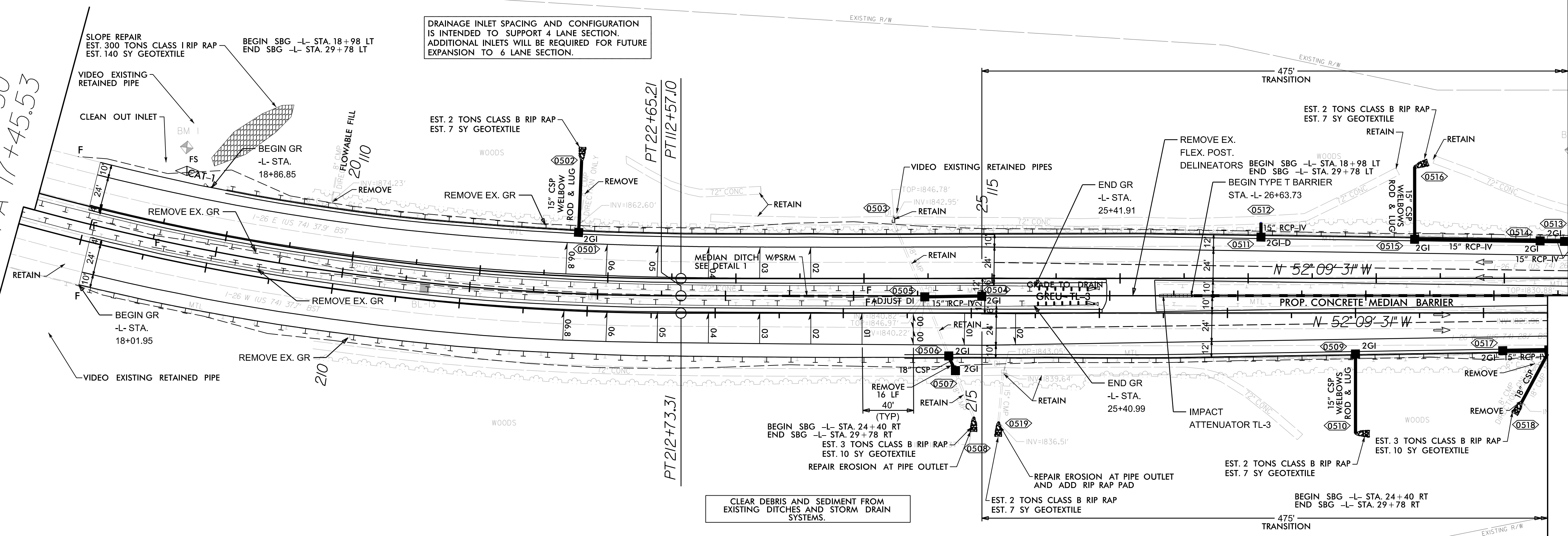


REQUEST VIDEO OF PIPES PROPOSED TO RETAIN AS NOTED. CHECK FOR STRUCTURAL INTEGRITY.

DRAINAGE INLET SPACING AND CONFIGURATION IS INTENDED TO SUPPORT 4 LANE SECTION. ADDITIONAL INLETS WILL BE REQUIRED FOR FUTURE EXPANSION TO 6 LANE SECTION.

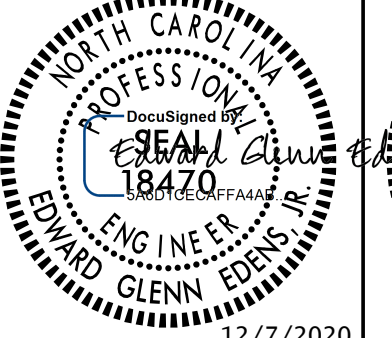
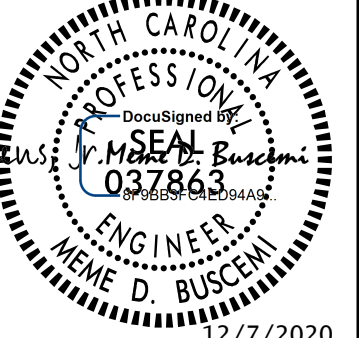
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WBL STA 207+50
-L- STA 17+45.53

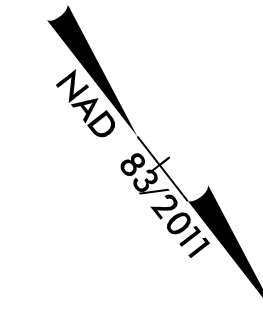
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WBL STA 219+50
-L- STA 29+58.11



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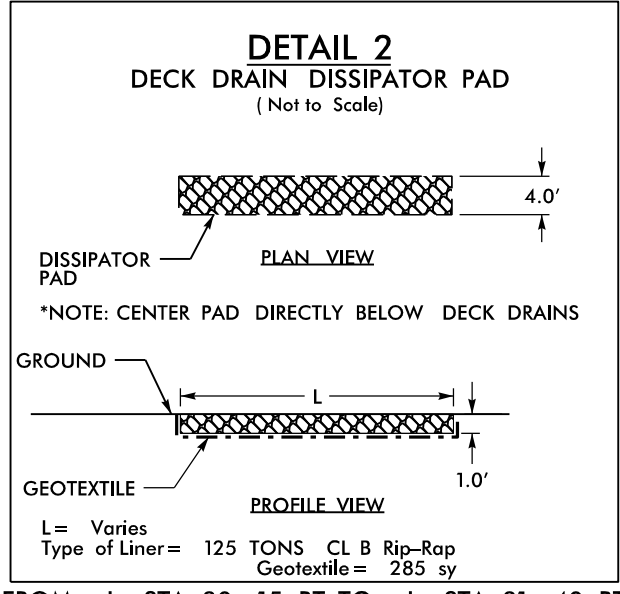
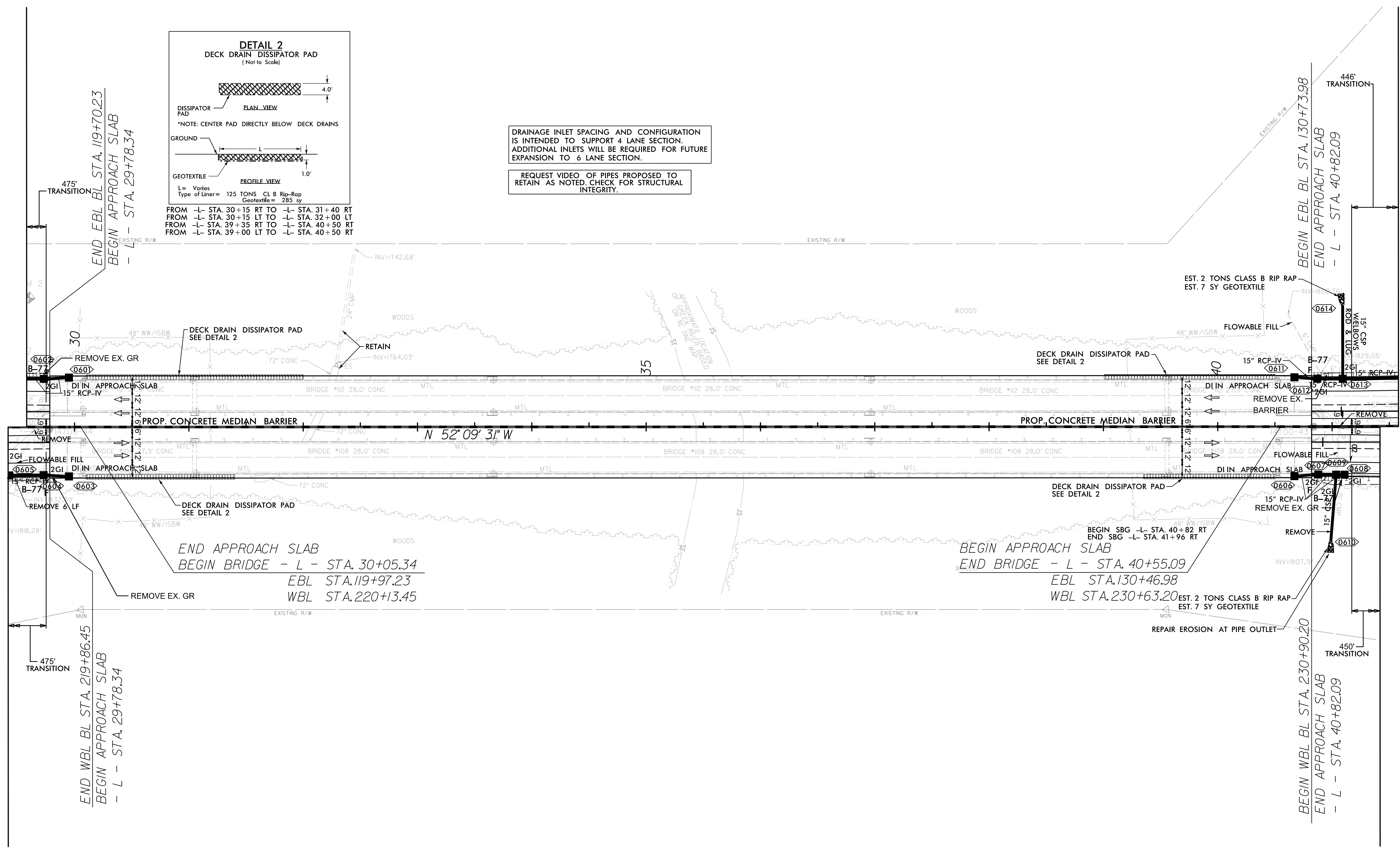
FOR EBL PROFILE SEE SHEET 8
FOR WBL PROFILE SEE SHEET 8

PROJECT REFERENCE NO. 15BPR.20	SHEET NO. 6
ROADWAY DESIGN ENGINEER 	HYDRAULICS ENGINEER 
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<p>NC FIRM LICENSE No. F-0342 701 Corporate Center Drive, Suite 475 Raleigh, NC 27603 (919) 854-6200 • (919) 854-6299 (FAX)</p>	
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MATCHLINE - SEE SHEET 5
EBL STA 119+50
WBL STA 219+50
-L- STA 29+58.11

MATCHLINE - SEE SHEET 7
EBL STA 131+50
WBL STA 231+50
-L- STA 41+58.11



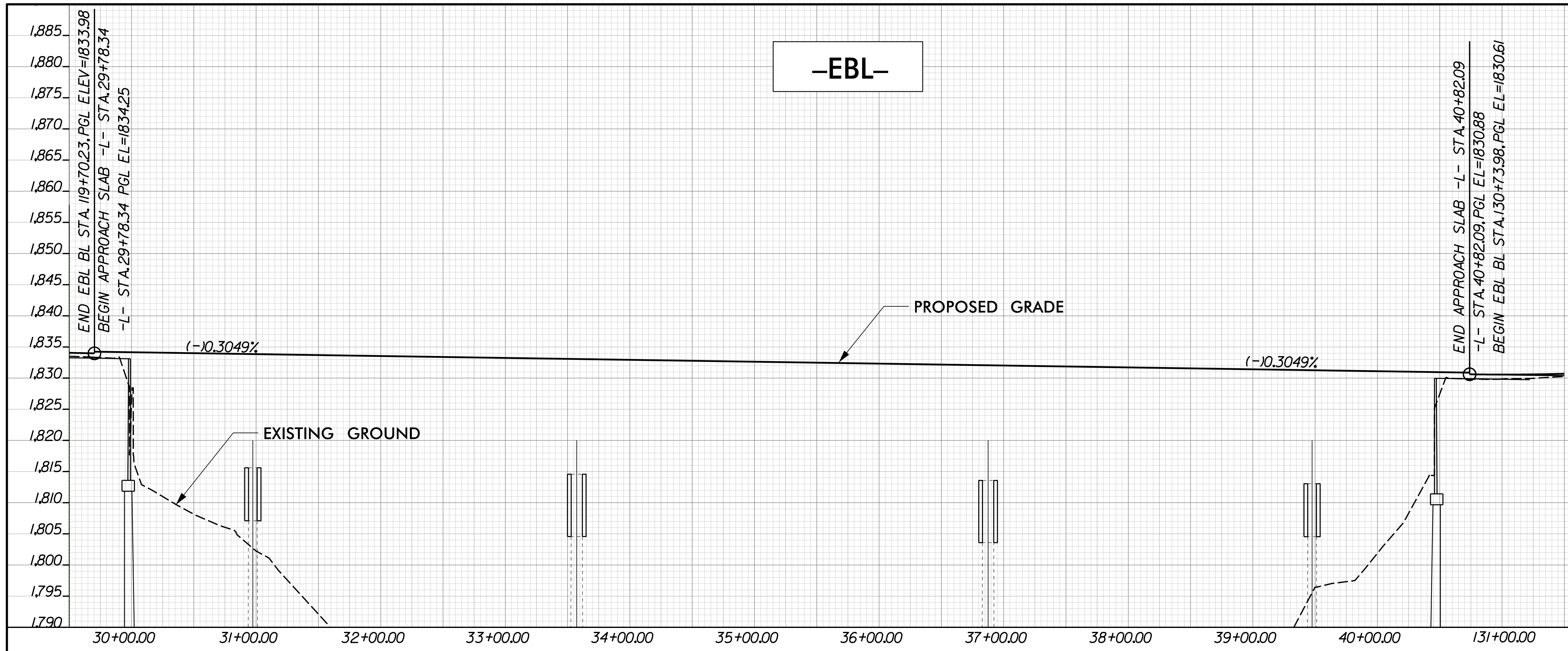
DRAINAGE INLET SPACING AND CONFIGURATION IS INTENDED TO SUPPORT 4 LANE SECTION. ADDITIONAL INLETS WILL BE REQUIRED FOR FUTURE EXPANSION TO 6 LANE SECTION.

REQUEST VIDEO OF PIPES PROPOSED TO RETAIN AS NOTED. CHECK FOR STRUCTURAL INTEGRITY.

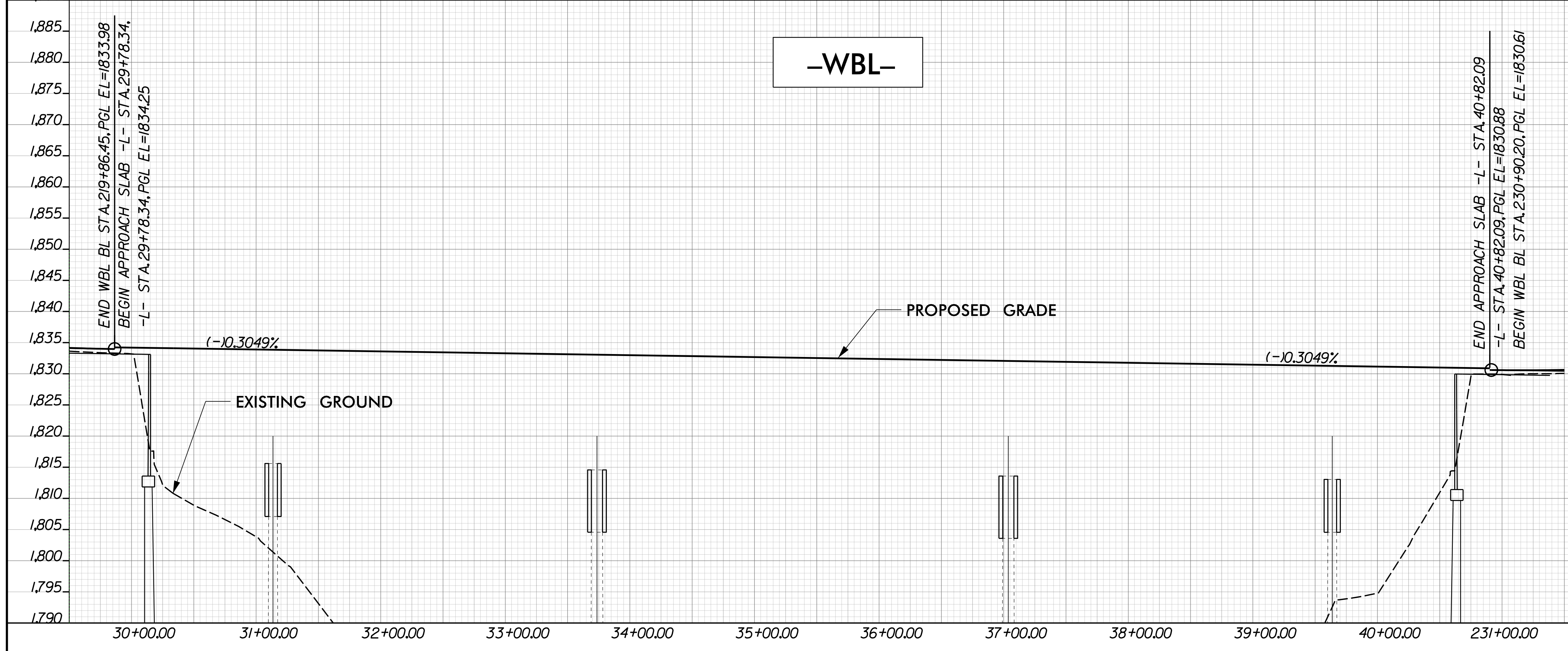
FOR EBL PROFILE SEE SHEET 9
FOR -L- PROFILE SEE SHEET 9
FOR WBL PROFILE SEE SHEET 9
FOR BRIDGE PLANS SEE STRUCTURAL DRAWINGS S-1 THRU S-123

5/28/19

PROJECT REFERENCE NO. 15BPR.20	SHEET NO. 9
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
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FOR EBL PLAN SEE SHEET 6



FOR WBL PLAN SEE SHEET 6

12/1/2020
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elizabeth.thun

