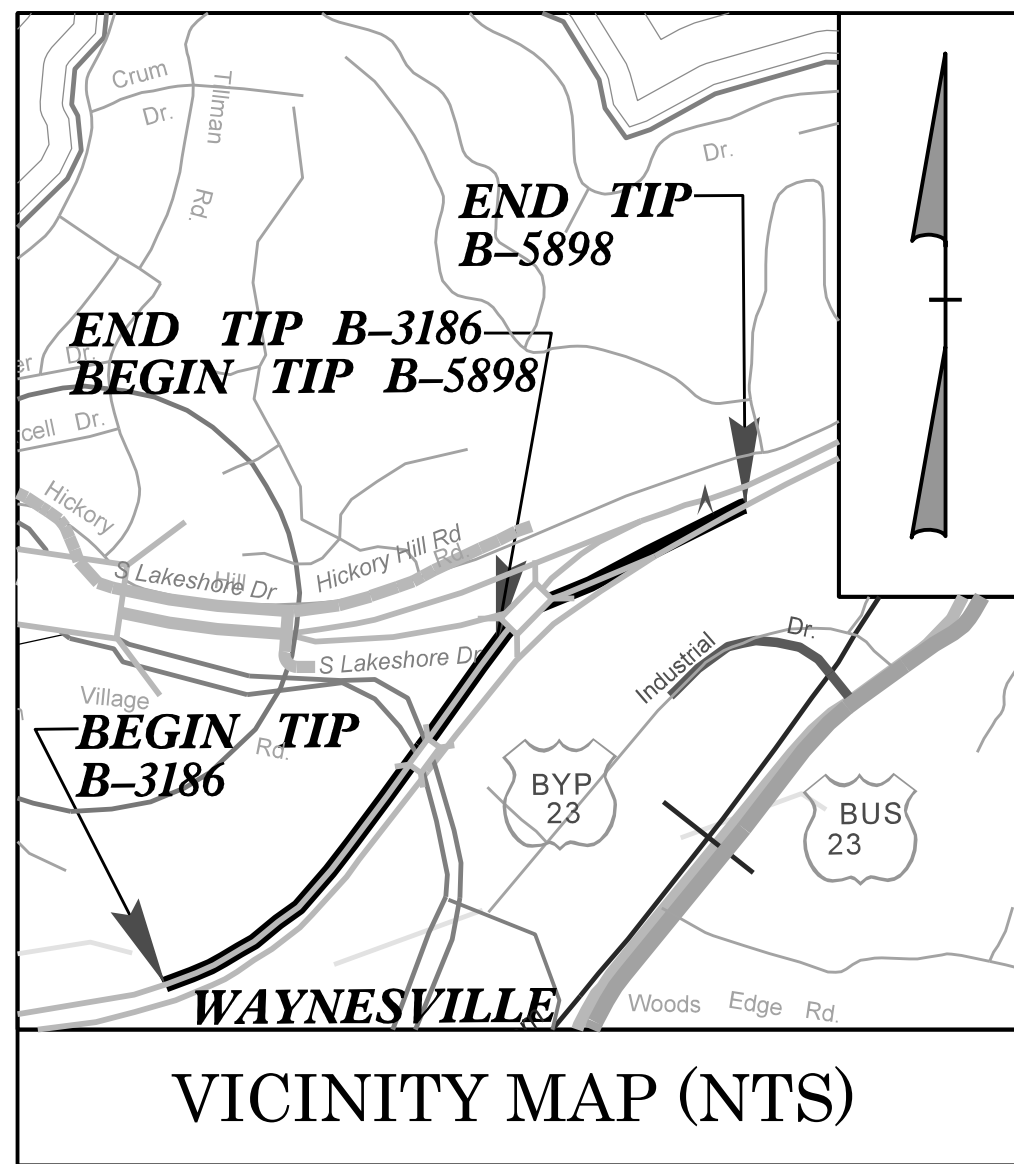


CONTRACT: C204684 TIP PROJECT: B-3186 / B-5898

See Sheet 1A For Index of Sheets



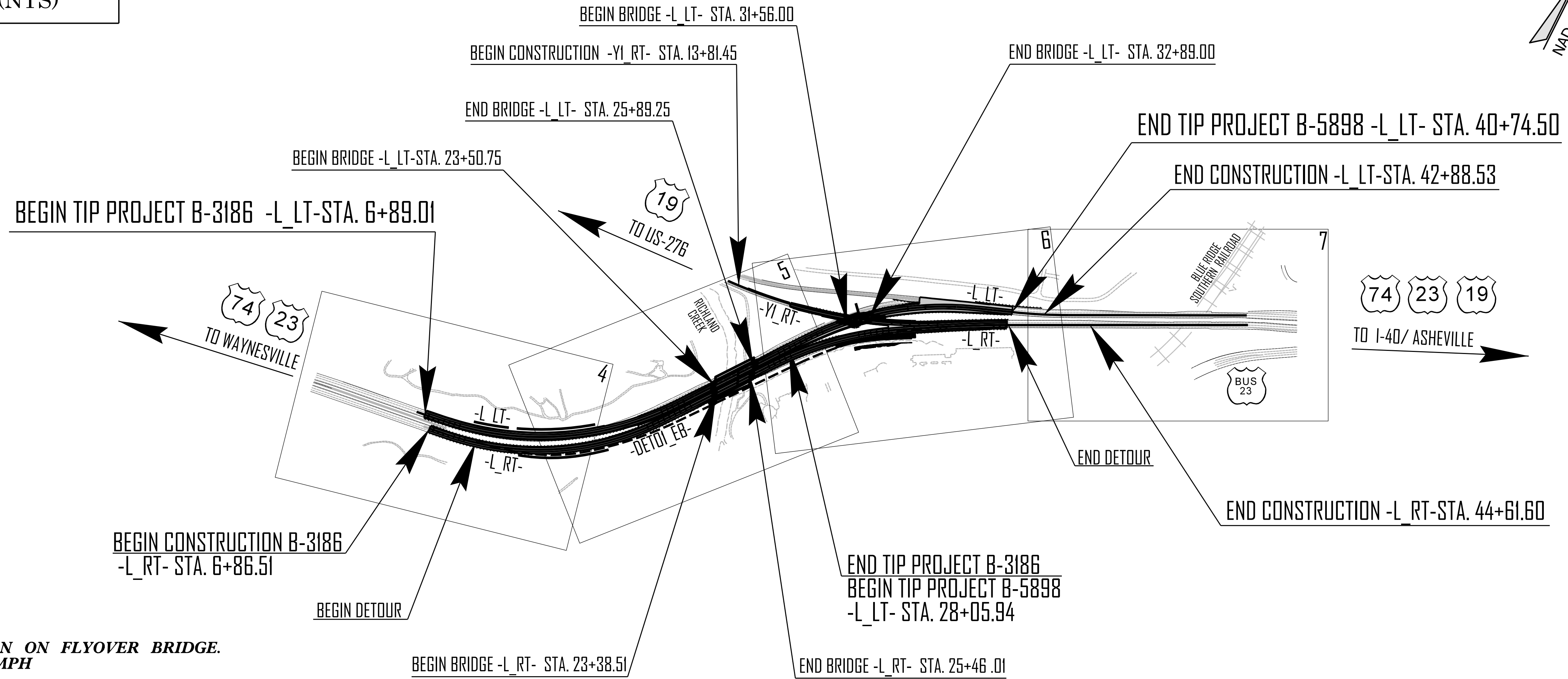
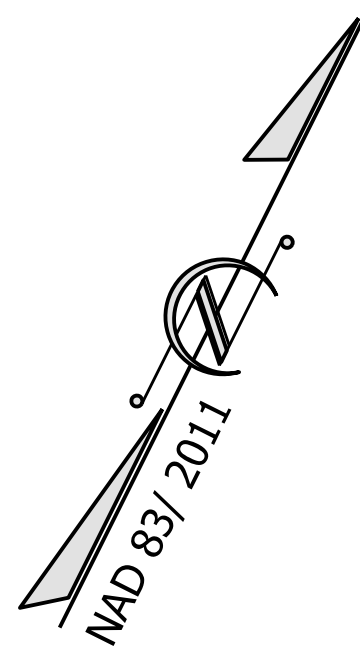
STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

HAYWOOD COUNTY

LOCATION: *B-3186, REPLACE BRIDGES 430155 AND 430158 OVER RICHLAND CREEK ON US 23/74*
B-5898, REPLACE BRIDGE 430168 OVER US 19/23 ON US 23/74

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

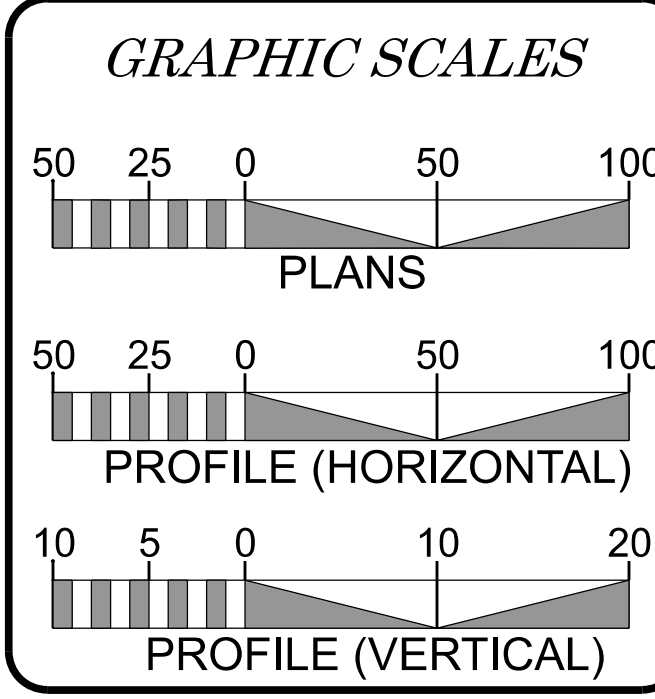
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-3186/ B-5898	1	
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION	
38332.1.FS1 (B-3186)	BRNHP-0023(32)	P.E.	
48030.1.FS1 (B-5898)	BRSTP-0019(49)	P.E.	
38332.2.1 (B-3186)	BRNHP-0023(32)	RW/UTILITY	
48030.2.1 (B-5898)	BRSTP-0019(49)	RW/UTILITY	
38332.3.1 (B-3186)	BRNHP-0023(32)	CONST.	
48030.3.3 (B-5898)	BRSTP-0019(49)	CONST.	



**** HORIZONTAL SSD EXCEPTION ON FLYOVER BRIDGE.
INSIDE SHOULDER MEETS 55 MPH**

**THIS IS A CONTROLLED-ACCESS PROJECT WITH
ACCESS BEING LIMITED TO INTERCHANGES**

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED



DESIGN DATA

ADT 2023 =	48,800
ADT 2043 =	60,800
K =	8 %
D =	55 %
T =	5 % *
V =	65 MPH **
* TTST = 2% DUAL 3%	
FUNC CLASS =	
FREEWAY	
STATEWIDE TIER	

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-3186 =	0.356 MI
LENGTH STRUCTURE TIP PROJECT B-3186 =	0.045 MI
TOTAL LENGTH TIP PROJECT B-3186 =	0.401 MI
LENGTH ROADWAY TIP PROJECT B-5898 =	0.215 MI
LENGTH STRUCTURE TIP PROJECT B-5898 =	0.025 MI
TOTAL LENGTH TIP PROJECT B-5898 =	0.240 MI

(LENGTHS BASED ON L-LT ALIGNMENT)

Prepared in the Office of:
AECOM
NC FIRM LICENSE No: F-0342
5438 Wade Park Blvd., Suite 200
Raleigh, NC 27607
(919) 854-6200 • (919) 854-6259(FAX)

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: N/A

LETTING DATE: DECEMBER 19, 2023

GREGORY COLS, P.E.
PROJECT ENGINEER

MOHAMMED FALLAHA, P.E.
PROJECT DESIGN ENGINEER

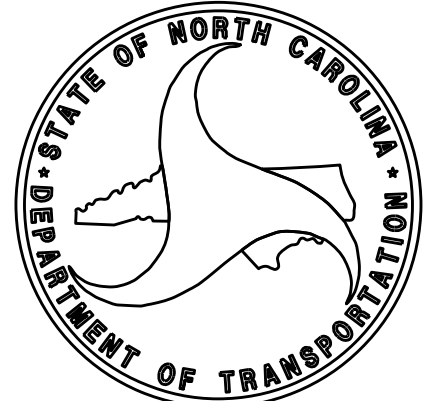
GARRETT HIGDON, P.E.
NCDOT DIV.14 CONTACT

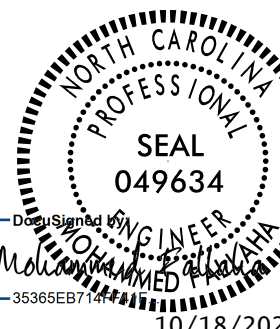
HYDRAULICS ENGINEER

DocuSigned by: *Mohammed Fallaha*
SEAL 037863
10/18/2023

ROADWAY DESIGN ENGINEER

DocuSigned by: *Mohammed Fallaha*
SEAL 049634
10/18/2023





PREPARED BY

AECOM
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INDEX OF SHEETS

SHEET NUMBER	SHEET
1	TITLE SHEET
1A	INDEX OF SHEETS, GENERAL NOTES, AND STANDARD DRAWINGS
1B	CONVENTIONAL SYMBOLS
2A-1 THRU 2A- 4	PAVEMENT SCHEDULE AND TYPICAL SECTIONS
2B-1 THRU 2B- 6	TEMPORARY DETOUR DETAILS
2B-7 THRU 2B-8	ROADWAY DETAILS
2B-9 THRU 2B-10	CONCRETE CAP FOR SINGLE FACED BARRIER FILL DETAILS
2C-1	GUARDRAIL INSTALLATION DETAIL
2C-2	DETAIL OF SHOULDER BERM GUTTER TO 2'-6" CURB & GUTTER TRANSITION SECTION
2C-3	DETAIL OF TEMPORARY 1" STEEL COVER
2C-4	TYPE 1 APPROACH FILL DETAIL
2C-5 THRU 2C-6	TYPE 1A APPROACH FILL DETAIL
2C-7	TYPE 2 APPROACH FILL DETAIL
2C-8	TEMPORARY ANCHOR UNIT TYPE THRIE-BEAM DETAIL
2D-1 THRU 2D-2	DRAINAGE DETAILS
2G-1 THRU 2G-5	GEOTECHNICAL DETAILS
3B-1 THRU 3B-2	ROADWAY SUMMARIES
3D-1 THRU 3D-6	DRAINAGE SUMMARIES
3G-1 THRU 3G-2	GEOTECHNICAL SUMMARIES
3P-1	PARCEL INDEX SHEET
4 THRU 7	ROADWAY PLAN SHEETS
8 THRU 15	PROFILE SHEETS
RW-1 THRU RW-8	SURVEY CONTROL, EXISTING CENTERLINES, RIGHT OF WAY, EASEMENT, AND PROPERTY TIES
TMP-1 THRU TMP-26	TRAFFIC MANAGEMENT PLANS
PMP-1 THRU PMP-5	PAVEMENT MARKING PLANS
EC-1 THRU EC-18	EROSION CONTROL PLANS
RF-1 THRU RF-2	REFORESTATION PLANS
SIGN-1 THRU SIGN-9	SIGNING PLANS
ITS-1 THRU ITS-29	ITS PLANS
X-1	CROSS-SECTION INDEX
X-1A THRU X-1B	CROSS-SECTION SUMMARY SHEETS
X-2 THRU X-170	CROSS-SECTIONS
S-1	STRUCTURE PLANS TITLE SHEET
S-2	INDEX OF STRUCTURES
S1-1 THRU S1-43	STRUCTURE 430168 PLANS
S2-1 THRU S2-31	STRUCTURE 430155 PLANS
S3-1 THRU S3-50	STRUCTURE 430158 PLANS
SN	STRUCTURE STANDARD NOTES
W-1 THRU W-6C	WALL PLANS

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 USING THE RATE OF SUPERELEVATION AND RUNOFF SHOWN ON THE PLANS. SUPERELEVATION IS TO BE REVOLVED ABOUT THE GRADE POINTS SHOWN ON THE TYPICAL SECTIONS.

SHOULDER CONSTRUCTION:

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

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.

EFF. 01-16-2018
REV.

2018 ROADWAY ENGLISH STANDARD DRAWINGS

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

STD.NO.	TITLE
DIVISION 2 - EARTHWORK	
200.02	Method of Clearing - Method II
225.01	Guide for Grading Subgrade - Interstate and Freeway
225.02	Guide for Grading Subgrade - Secondary and Local
225.04	Method of Obtaining Superlevation - Two Lane Pavement
225.07	Grading for False Cut at Grade Separations
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
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 8 - INCIDENTALS	
815.02	Subsurface Drain
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
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
840.17	Concrete Grated Drop Inlet Type 'A' - 12" thru 72" Pipe
840.18	Concrete Grated Drop Inlet Type 'B' - 12" thru 36" Pipe
840.19	Concrete Grated Drop Inlet Type 'D' - 12" thru 36" Pipe
840.20	Frames and Wide Slot Flat Grates
840.22	Frames and Wide 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
840.28	Brick Grated Drop Inlet Type 'D' - 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 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
840.54	Manhole Frame and Cover
840.66	Drainage Structure Steps
840.72	Pipe Collar
846.01	Concrete Curb, Gutter and Curb & Gutter
846.02	Drop Inlet Installation in Expressway Gutter
846.04	Drop Inlet Installation in Shoulder Berm Gutter
850.10	Guide for Berm Drainage Outlet - 15" and 18" Pipe
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
866.01	Chain Link Fence - 4', 5' and 6' High Fence
866.02	Woven Wire Fence - with Wood Post
876.01	Rip Rap in Channels
876.02	Guide for Rip Rap at Pipe Outlets
876.04	Drainage Ditches with Class 'B' Rip Rap

STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS CONVENTIONAL PLAN SHEET SYMBOLS

Note: Not to Scale

BOUNDARIES AND PROPERTY:

State Line	-----
County Line	-----
Township Line	-----
City Line	-----
Reservation Line	-----
Property Line	-----
Existing Iron Pin (EIP)	----- ○ EIP
Computed Property Corner	----- X
Existing Concrete Monument (ECM)	----- □ ECM
Parcel / Sequence Number	----- (23)
Existing Fence Line	----- -x-x-x-
Proposed Woven Wire Fence	----- ○
Proposed Chain Link Fence	----- □
Proposed Barbed Wire Fence	----- ◇
Existing Wetland Boundary	----- -MLB-
Proposed Wetland Boundary	----- MLB
Existing Endangered Animal Boundary	----- -EAB-
Existing Endangered Plant Boundary	----- -EPB-
Existing Historic Property Boundary	----- -HPB-
Known Contamination Area: Soil	----- -s-s-s-
Potential Contamination Area: Soil	----- -s-s-s-
Known Contamination Area: Water	----- -w-w-w-
Potential Contamination Area: Water	----- -w-w-w-
Contaminated Site: Known or Potential	----- ☠ ☡

BUILDINGS AND OTHER CULTURE:

Gas Pump Vent or U/G Tank Cap	----- ○
Sign	----- ○
Well	----- ♀
Small Mine	----- X
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:

Primary Horiz Control Point	----- ○
Primary Horiz and Vert Control Point	----- ●
Secondary Horiz and Vert Control Point	----- ◆
Vertical Benchmark	----- ⊠
Existing Right of Way Monument	----- △
Proposed Right of Way Monument (Rebar and Cap)	----- ▲
Proposed Right of Way Monument (Concrete)	----- ●
Existing Permanent Easement Monument	----- ◇
Proposed Permanent Easement Monument (Rebar and Cap)	----- ◆
Existing C/A Monument	----- ▲
Proposed C/A Monument (Rebar and Cap)	----- ▲
Proposed C/A Monument (Concrete)	----- ●
Existing Right of Way Line	----- ▬
Proposed Right of Way Line	----- ▬
Existing Control of Access Line	----- (C/A)
Proposed Control of Access Line	----- (C/A)
Proposed ROW and CA Line	----- ▬
Existing Easement Line	----- E
Proposed Temporary Construction Easement	----- E
Proposed Temporary Drainage Easement	----- TDE
Proposed Permanent Drainage Easement	----- PDE
Proposed Permanent Drainage/Utility Easement	----- DUE
Proposed Permanent Utility Easement	----- PUE
Proposed Temporary Utility Easement	----- TUE
Proposed Aerial Utility Easement	----- AUE

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	----- ⊕
Storm Sewer	----- S

UTILITIES:

* SUE - Subsurface Utility Engineering
LOS - Level of Service - A,B,C or D (Accuracy)

POWER:	
Existing Power Pole	----- ●
Proposed Power Pole	----- ○
Existing Joint Use Pole	----- ●
Proposed Joint Use Pole	----- ○
Power Manhole	----- ⊕
Power Line Tower	----- ⊠
Power Transformer	----- ⊠
U/G Power Cable Hand Hole	----- □
H-Frame Pole	----- ●
U/G Power Line Test Hole (SUE - LOS A)*	----- ⊕
U/G Power Line (SUE - LOS B)*	----- P
U/G Power Line (SUE - LOS C)*	----- P
U/G Power Line (SUE - LOS D)*	----- P

TELEPHONE:

Existing Telephone Pole	----- ●
Proposed Telephone Pole	----- ○
Telephone Manhole	----- ⊕
Telephone Pedestal	----- ⊠
Telephone Cell Tower	----- ⊠
U/G Telephone Cable Hand Hole	----- □
U/G Telephone Test Hole (SUE - LOS A)*	----- ⊕
U/G Telephone Cable (SUE - LOS B)*	----- T
U/G Telephone Cable (SUE - LOS C)*	----- T
U/G Telephone Cable (SUE - LOS D)*	----- T
U/G Telephone Conduit (SUE - LOS B)*	----- TC
U/G Telephone Conduit (SUE - LOS C)*	----- TC
U/G Telephone Conduit (SUE - LOS D)*	----- TC
U/G Fiber Optics Cable (SUE - LOS B)*	----- T FO
U/G Fiber Optics Cable (SUE - LOS C)*	----- T FO
U/G Fiber Optics Cable (SUE - LOS D)*	----- T FO

WATER:	
Water Manhole	----- ⊕
Water Meter	----- ○
Water Valve	----- ⊗
Water Hydrant	----- ⊕
U/G Water Line Test Hole (SUE - LOS A)*	----- ⊕
U/G Water Line (SUE - LOS B)*	----- P
U/G Water Line (SUE - LOS C)*	----- P
U/G Water Line (SUE - LOS D)*	----- P
Above Ground Water Line	----- A/G Water

TV:	
TV Pedestal	----- ⊠
TV Tower	----- ⊗
U/G TV Cable Hand Hole	----- □
U/G TV Test Hole (SUE - LOS A)*	----- ⊕
U/G TV Cable (SUE - LOS B)*	----- TV
U/G TV Cable (SUE - LOS C)*	----- TV
U/G TV Cable (SUE - LOS D)*	----- TV
U/G Fiber Optic Cable (SUE - LOS B)*	----- TV FO
U/G Fiber Optic Cable (SUE - LOS C)*	----- TV FO
U/G Fiber Optic Cable (SUE - LOS D)*	----- TV FO

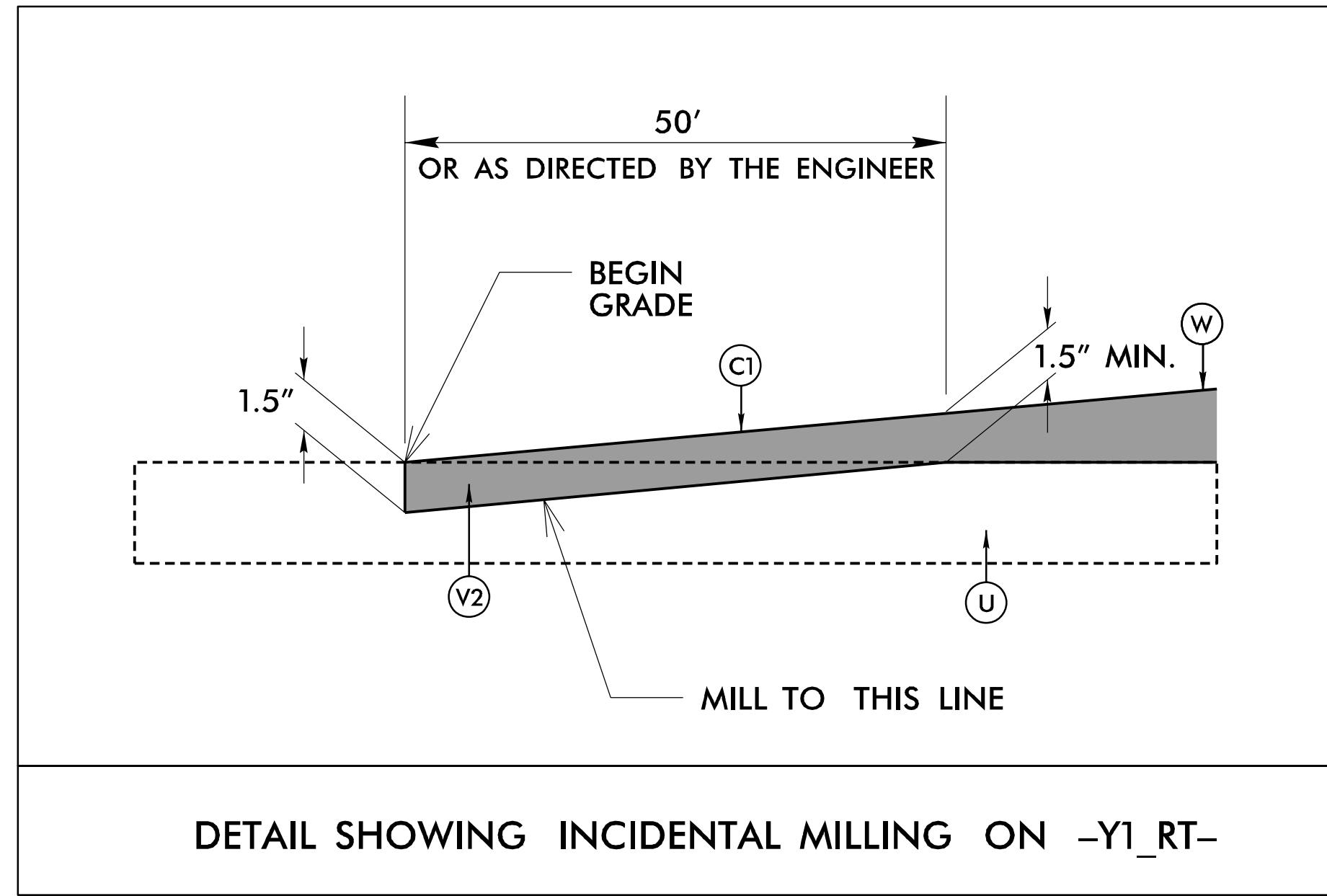
GAS:	
Gas Valve	----- ◇
Gas Meter	----- ⊕
U/G Gas Line Test Hole (SUE - LOS A)*	----- ⊕
U/G Gas Line (SUE - LOS B)*	----- G
U/G Gas Line (SUE - LOS C)*	----- G
U/G Gas Line (SUE - LOS D)*	----- G
Above Ground Gas Line	----- A/G Gas

SANITARY SEWER:	
Sanitary Sewer Manhole	----- ⊕
Sanitary Sewer Cleanout	----- ⊕
U/G Sanitary Sewer Line	----- SS
Above Ground Sanitary Sewer	----- A/G Sanitary Sewer
SS Force Main Line Test Hole (SUE - LOS A)*	----- ⊕
SS Force Main Line (SUE - LOS B)*	----- FSS
SS Force Main Line (SUE - LOS C)*	----- FSS
SS Force Main Line (SUE - LOS D)*	----- FSS

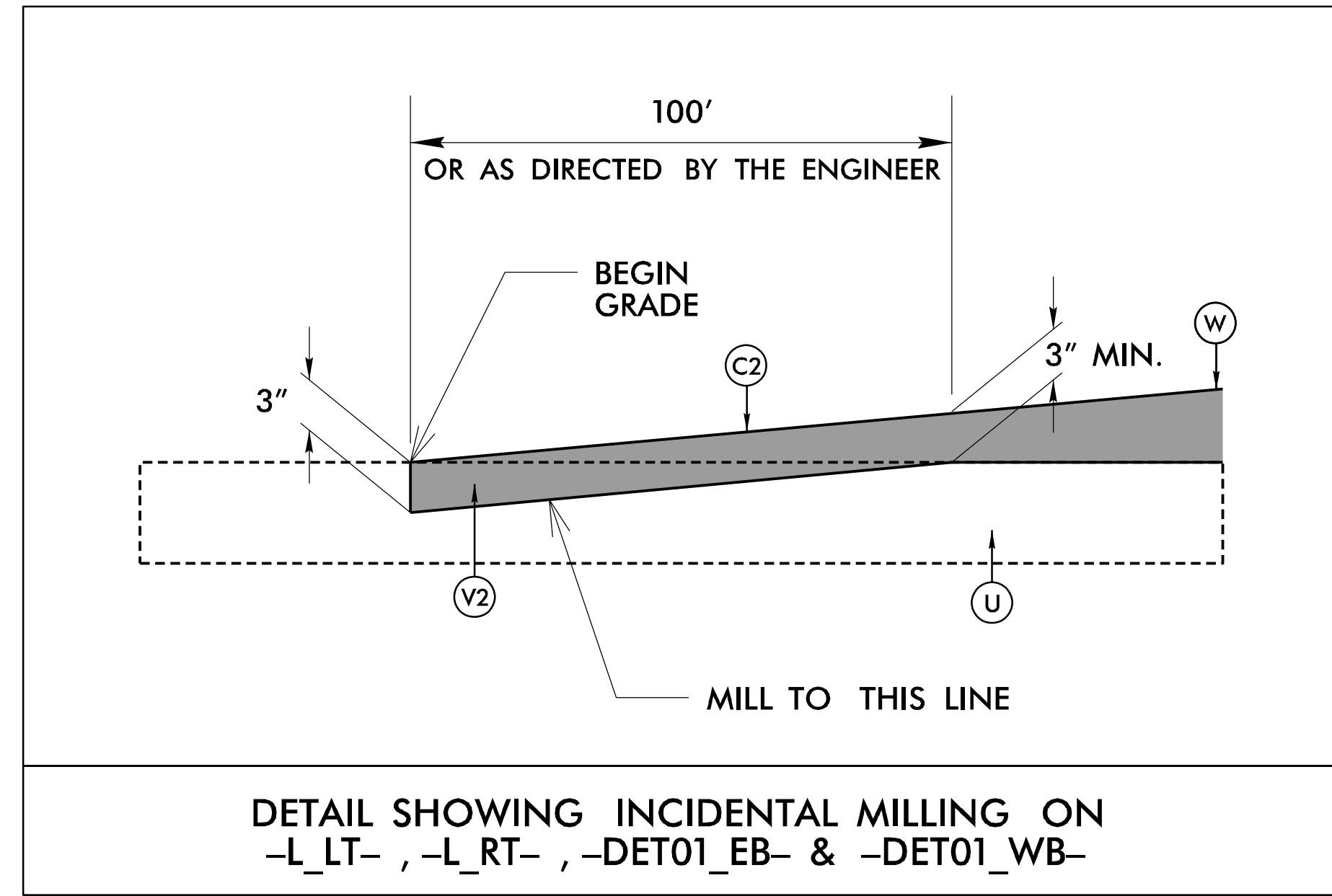
MISCELLANEOUS:	
Utility Pole	----- ●
Utility Pole with Base	----- □
Utility Located Object	----- ○
Utility Traffic Signal Box	----- ⊠
Utility Unknown U/G Line (SUE - LOS B)*	----- TUL
U/G Tank; Water, Gas, Oil	----- □
Underground Storage Tank, Approx. Loc.	----- (UST)
A/G Tank; Water, Gas, Oil	----- □
Geoenvironmental Boring	----- ⊕
Abandoned According to Utility Records	----- AATUR
End of Information	----- E.O.I.

FINAL PAVEMENT SCHEDULE	
B1	PROP. APPROX 0.75" OPEN-GRADED ASPHALT FRICTION COURSE, TYPE FC-1 MODIFIED, AT AN AVERAGE RATE OF 90 LBS. PER SQ. YD.
C1	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
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.
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 1 1/2" IN DEPTH OR GREATER THAN 2" IN DEPTH.
D1	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
D2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 2 1/2" IN DEPTH OR GREATER THAN 4" IN DEPTH.
E1	PROP. APPROX. 3" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5 1/2" IN DEPTH.
J1	PROP. 6" AGGREGATE BASE COURSE
K	PROP. 12" CLASS IV SUBGRADE STABILIZATION
N1	GEOTEXTILE FOR SUBGRADE STABILIZATION
R1	SHOULDER BERM GUTTER
R2	EXPRESSWAY GUTTER
R3	2'-6" CURB AND GUTTER
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V1	1.5" MILLING
V2	INCIDENTAL MILLING
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAIL)
Y	MILLED RUMBLE STRIPS

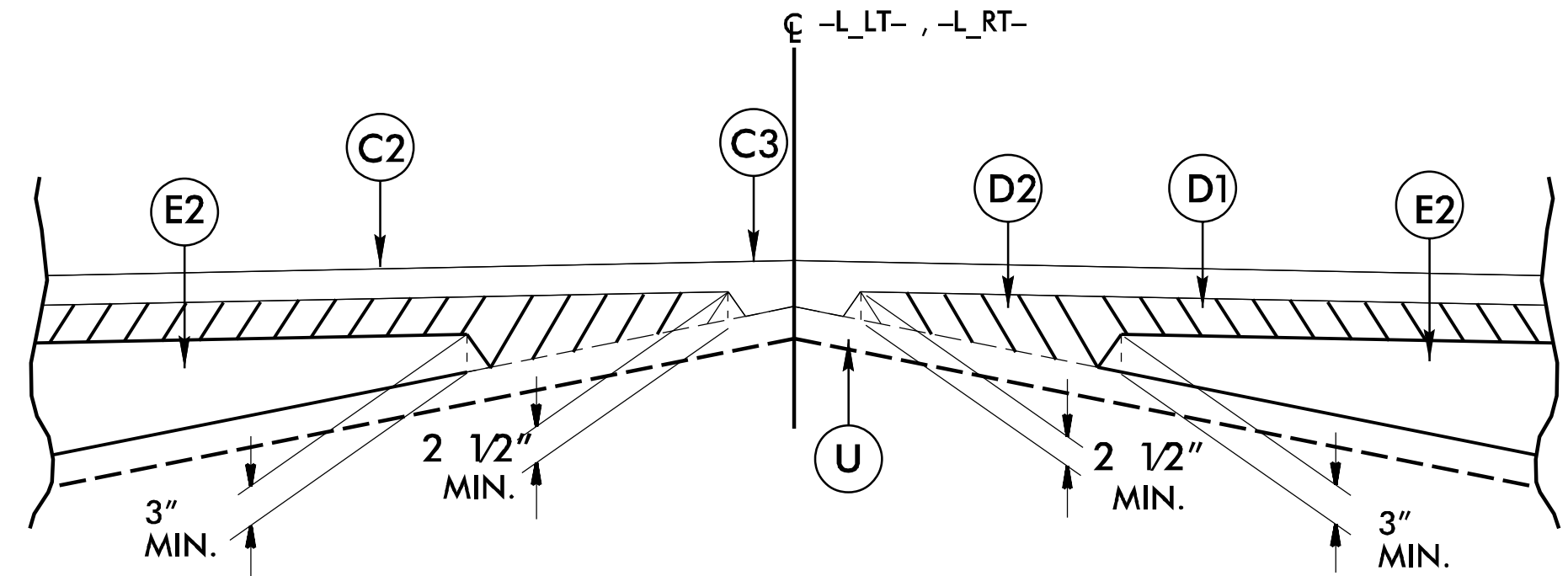
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE



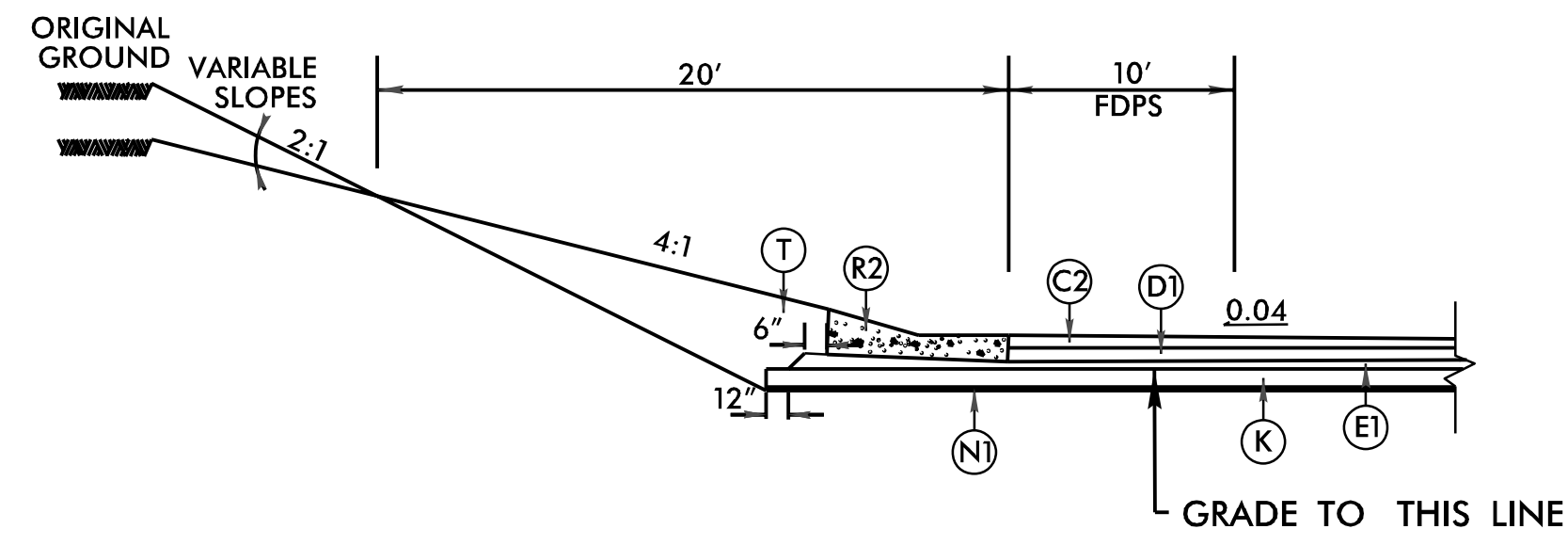
DETAIL SHOWING INCIDENTAL MILLING ON -Y1_RT-



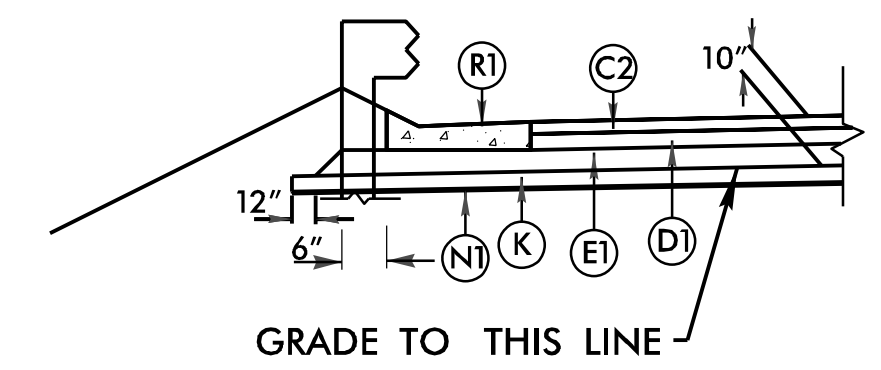
DETAIL SHOWING INCIDENTAL MILLING ON -L_LT-, -L_RT-, -DET01_EB- & -DET01_WB-



W1: DETAIL SHOWING METHOD OF WEDGING
USE THIS DETAIL IN CONJUNCTION WITH TYPICAL SECTION NO.1



DETAIL SHOWING EXPRESSWAY GUTTER
-L_LT- STA. 6+89.67 TO STA. 17+00.00 (LT)

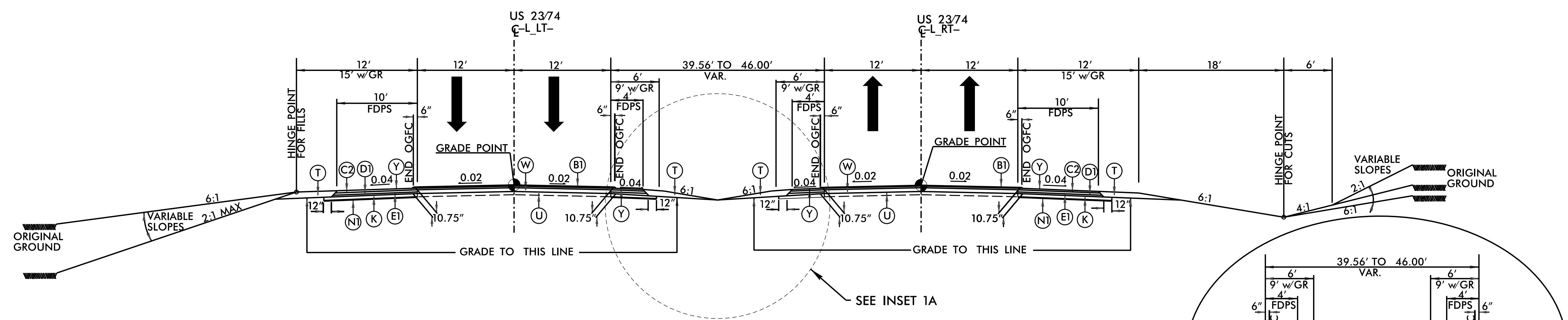


DETAIL SHOWING SHOULDER BERM GUTTER
-L_LT- STA. 18+93.00 TO STA. 23+39.99 (LT)
-L_RT- STA. 26+26.19 TO STA. 28+12.00 (LT)
-L_RT- STA. 16+93.00 TO STA. 18+70.52 (LT)
-L_RT- STA. 21+13.00 TO STA. 23+01.38 (RT)
-L_RT- STA. 25+56.96 TO STA. 39+23.44 (RT)
-L_LT- STA. 32+63.09 TO STA. 35+65.93 (LT)
-L_LT- STA. 33+71.86 TO STA. 40+49.18 (RT)
-Y1_RT- STA. 16+83.20 TO STA. 20+70.94 (LT)

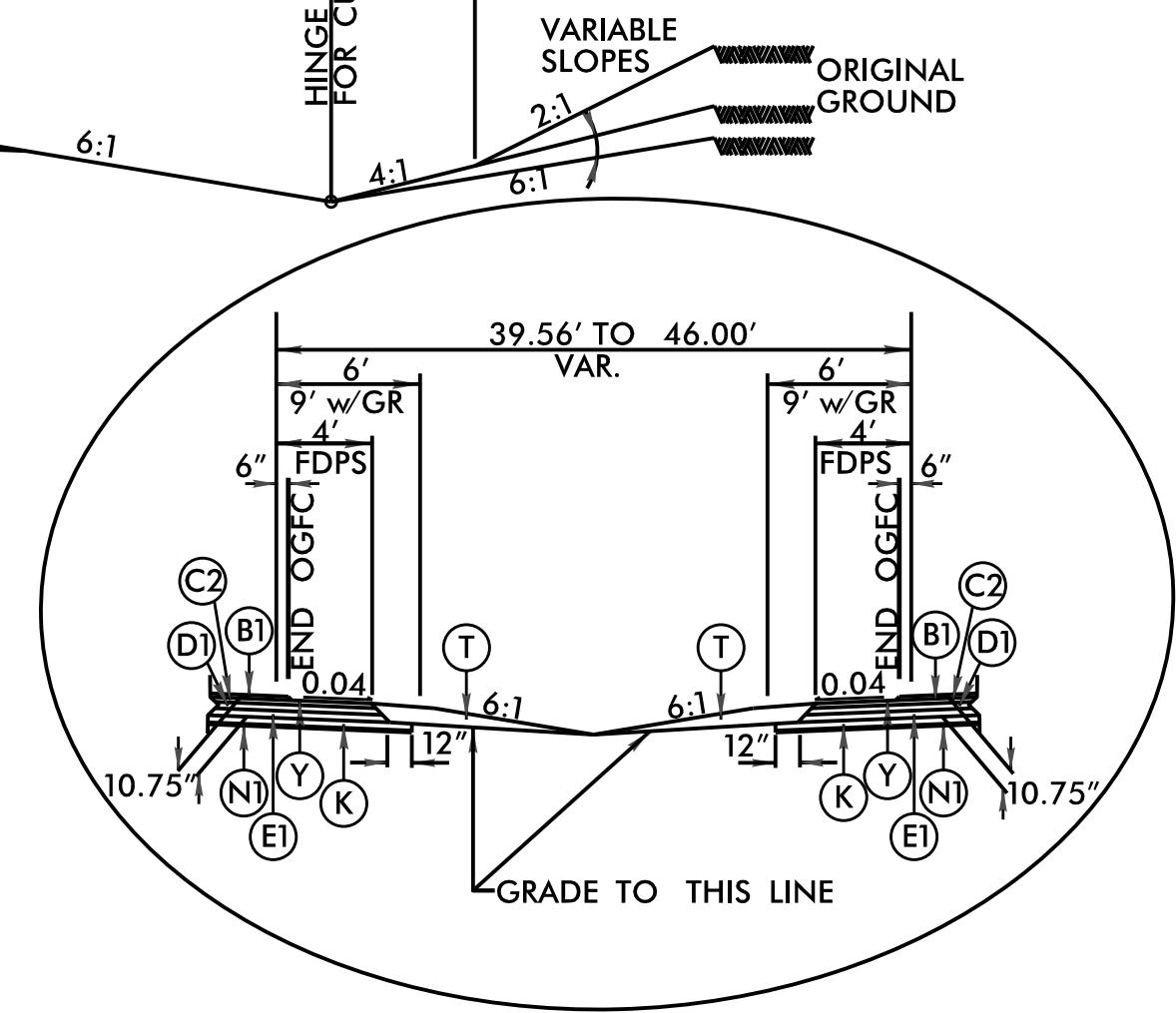
B-3186 / B-5898
2A-1
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION HAYWOOD COUNTY
ROADWAY DESIGN UNIT
ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 0249634
11/7/2023
PAVEMENT DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 0249664
11/7/2023
PREPARED BY
AECOM
NC FIRM LICENSE No: F-0342
5438 Wade Park Boulevard, Suite 200
Raleigh, NC 27603
(919) 884-6200 (FAX) 884-6259 (CELL)
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS

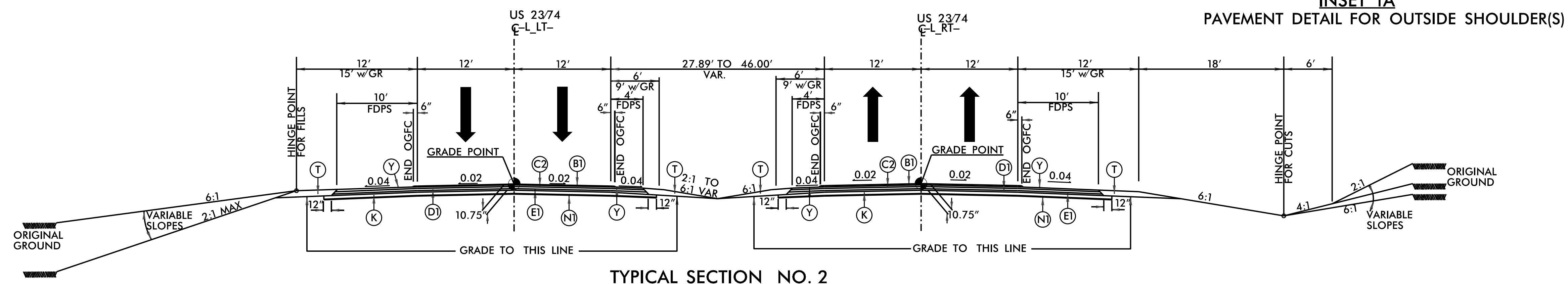
PAVEMENT SCHEDULE	
B1	0.75" OGFC TYPE FC-1 MODIFIED
C1	1.5" S9.5C
C2	3" S9.5C
C3	VAR. S9.5C
D1	4" I19.0C
D2	VAR. I19.0C
E1	3" B25.0C
E2	VAR. B25.0C
J1	6" ABC
K	12" CL IV SUB. STAB.
N1	GEOTEXTILE FOR SUB. STAB.
R1	SHOULDER BERM GUTTER
R2	EXPRESSWAY GUTTER
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V1	1.5" MILLING
W	VAR. ASPHALT PAVEMENT
Y	RUMBLE STRIPS



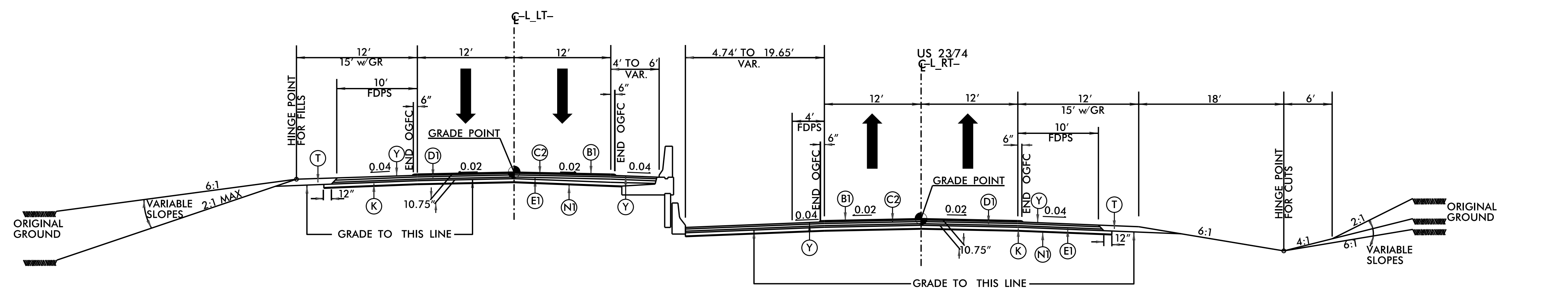
TYPICAL SECTION NO. 1
 -L_LT- STA. 6+89.01 TO STA. 9+50.00 -L_RT- STA. 6+86.51 TO STA. 11+00.00



INSET 1A
 PAVEMENT DETAIL FOR OUTSIDE SHOULDER(S)



TYPICAL SECTION NO. 2
 -L_LT- STA. 9+50.00 TO STA. 18+77.39 -L_RT- STA. 11+00.00 TO STA. 18+70.57



TYPICAL SECTION NO. 3
 -L_LT- STA. 18+77.39 TO STA. 23+50.75 (BEGIN BRIDGE) -L_RT- STA. 18+70.57 TO STA. 23+38.51 (BEGIN BRIDGE)
 -L_LT- STA. 25+89.25 (END BRIDGE) TO STA. 31+56.00 (BEGIN BRIDGE) -L_RT- STA. 25+46.01 (END BRIDGE) TO STA. 27+96.10

B-3186 / B-5898
 2A-2
 NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 HAYWOOD COUNTY
 ROADWAY DESIGN UNIT
 ROADWAY DESIGN
 ENGINEER

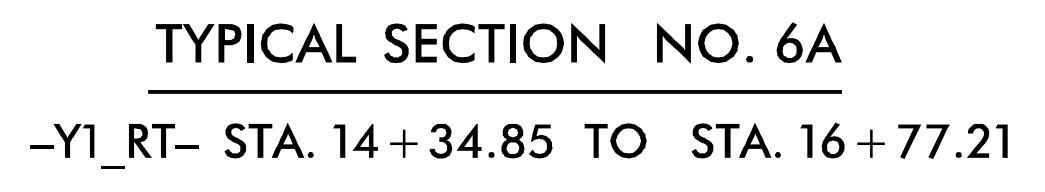
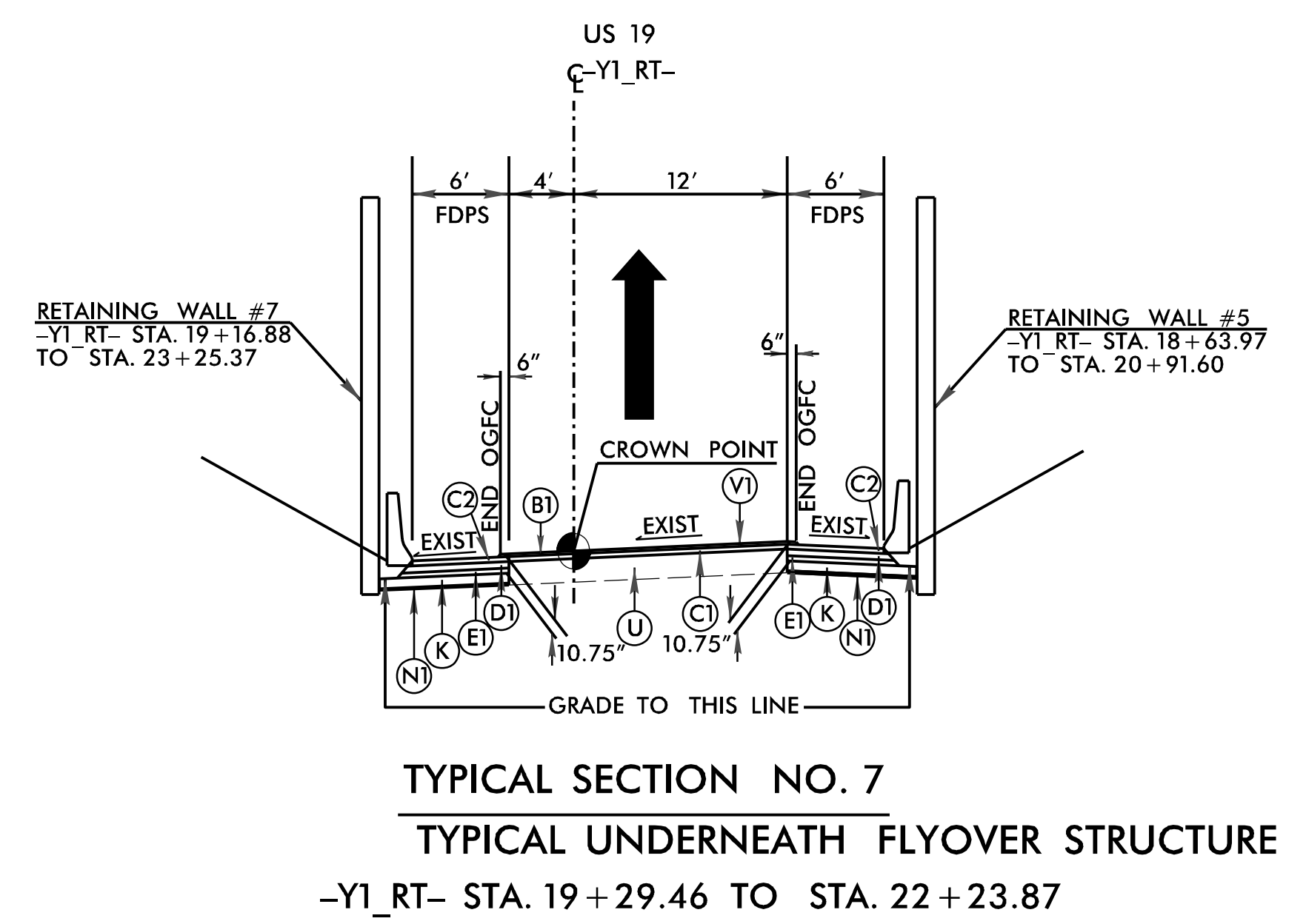
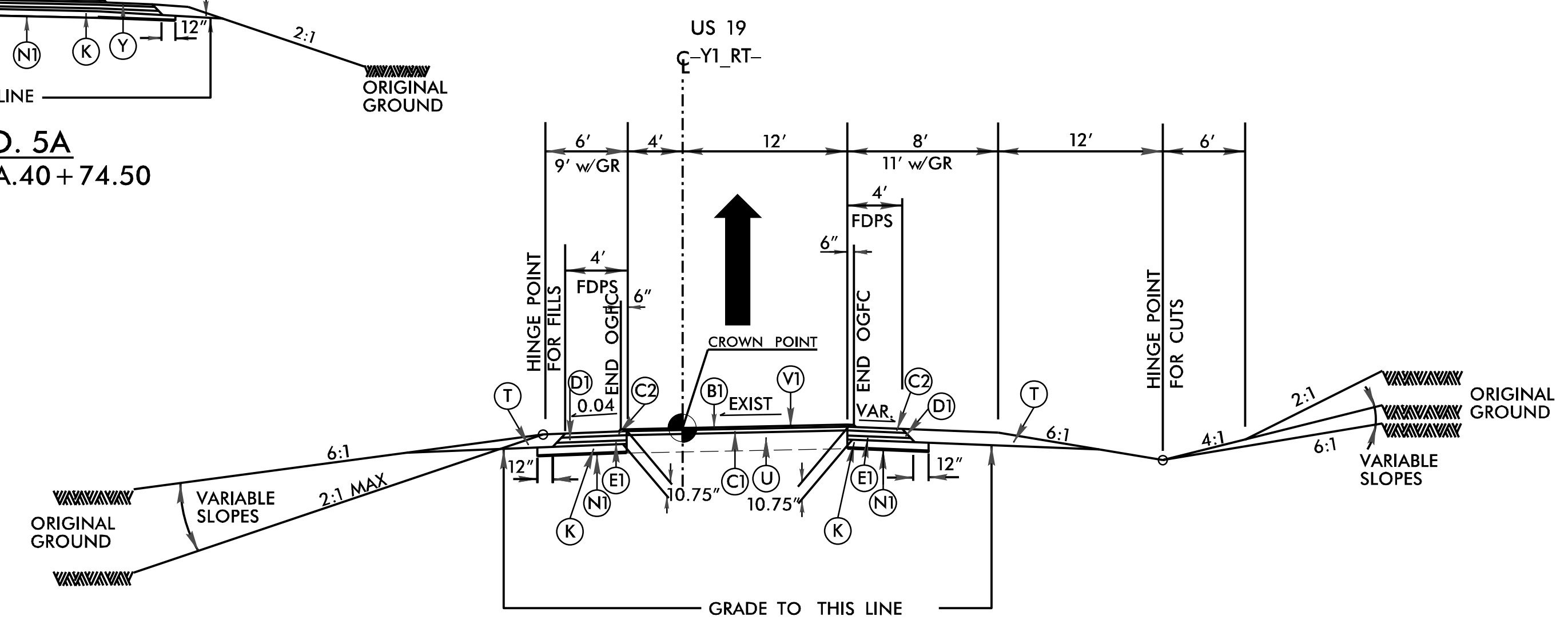
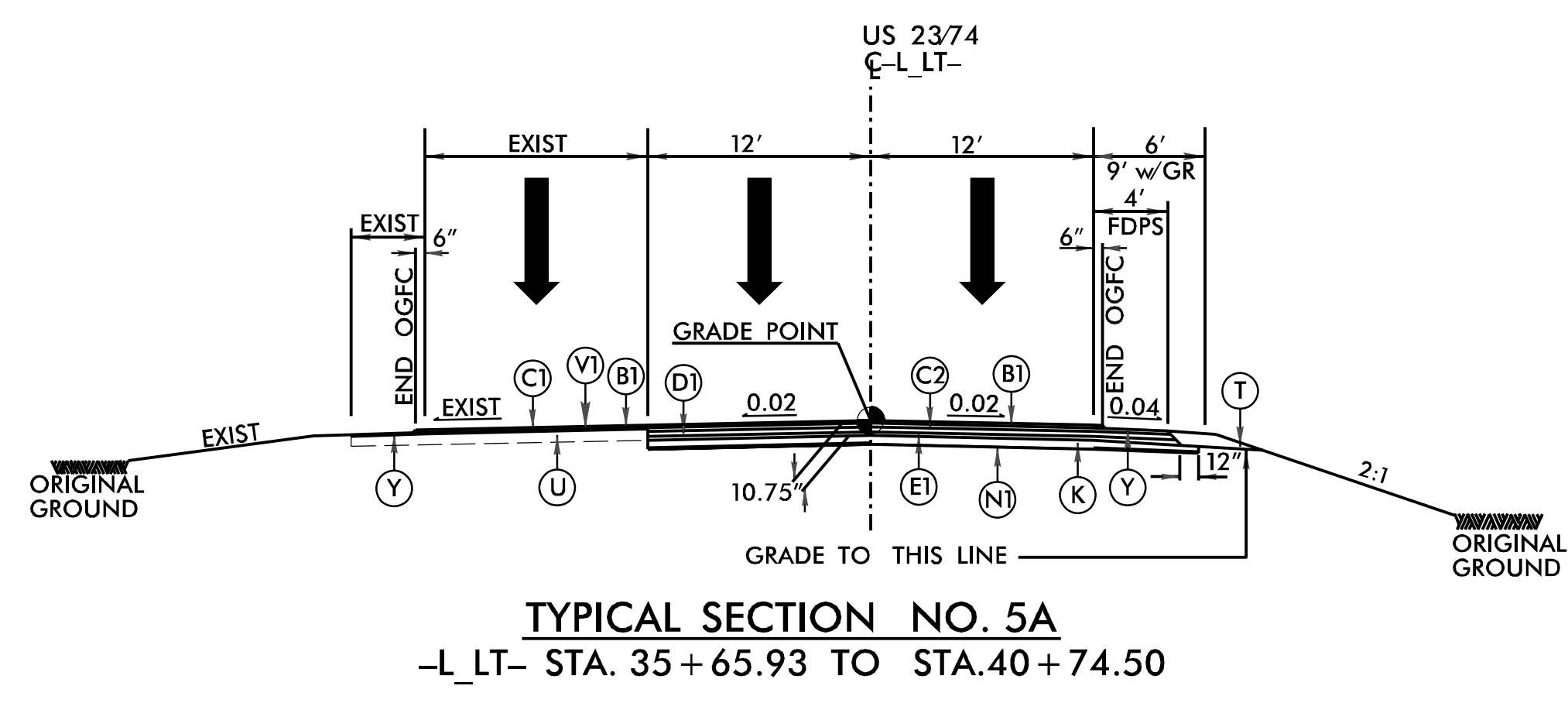
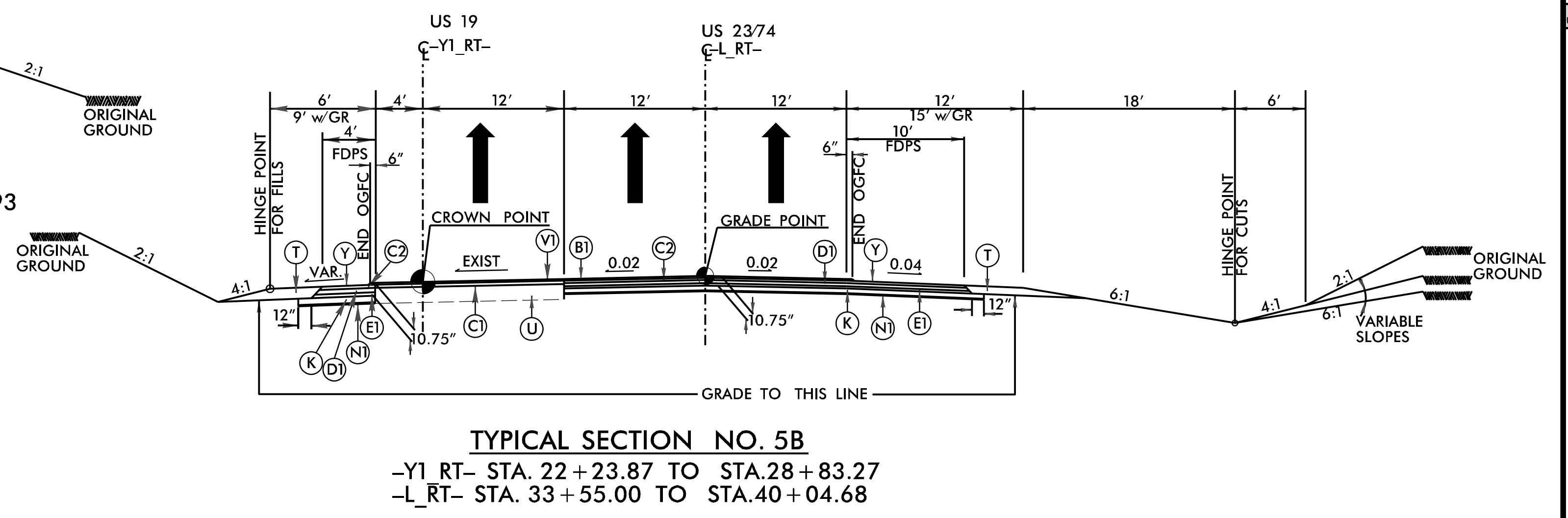
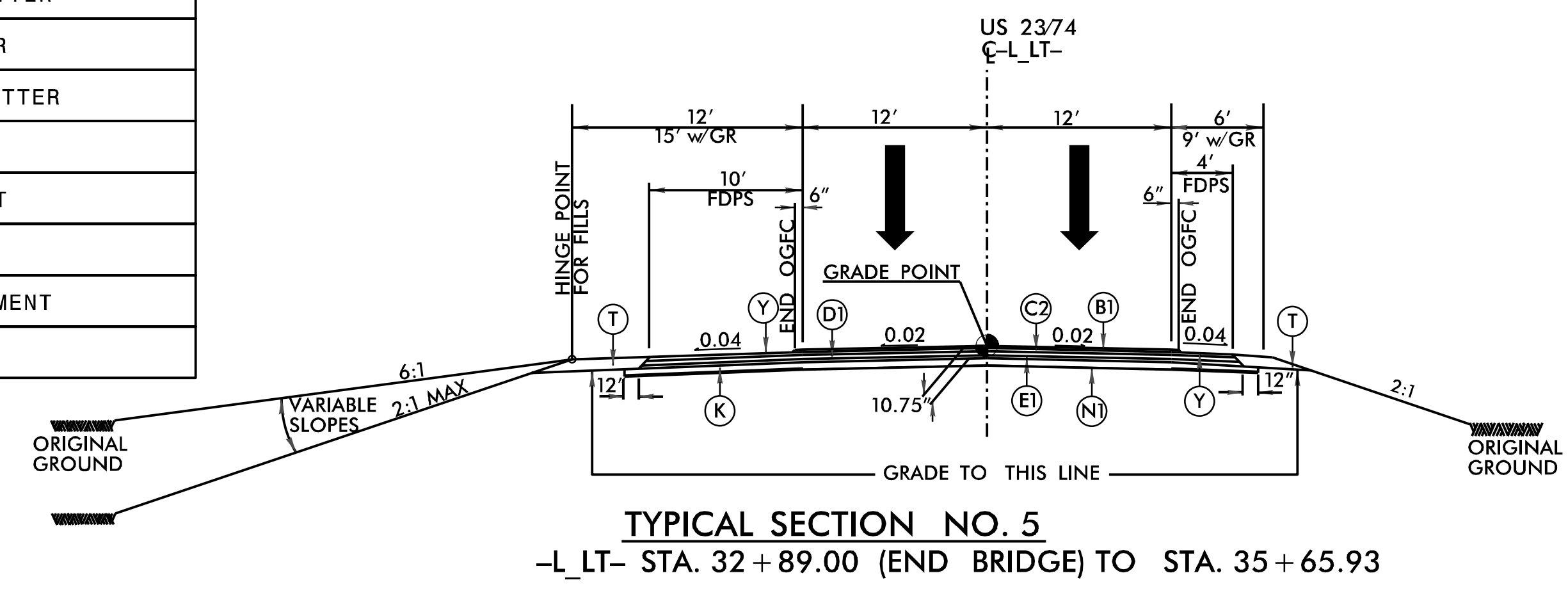
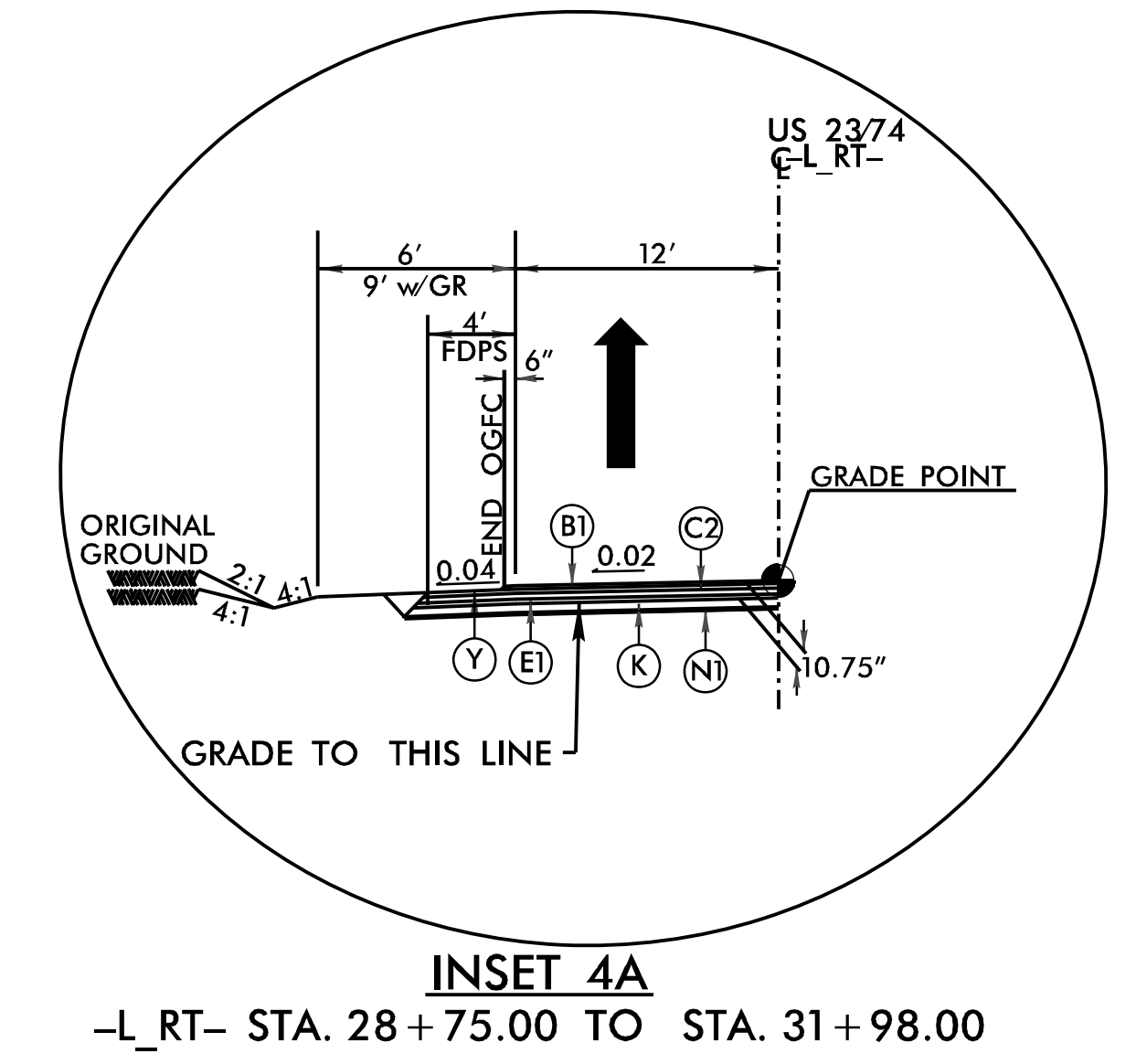
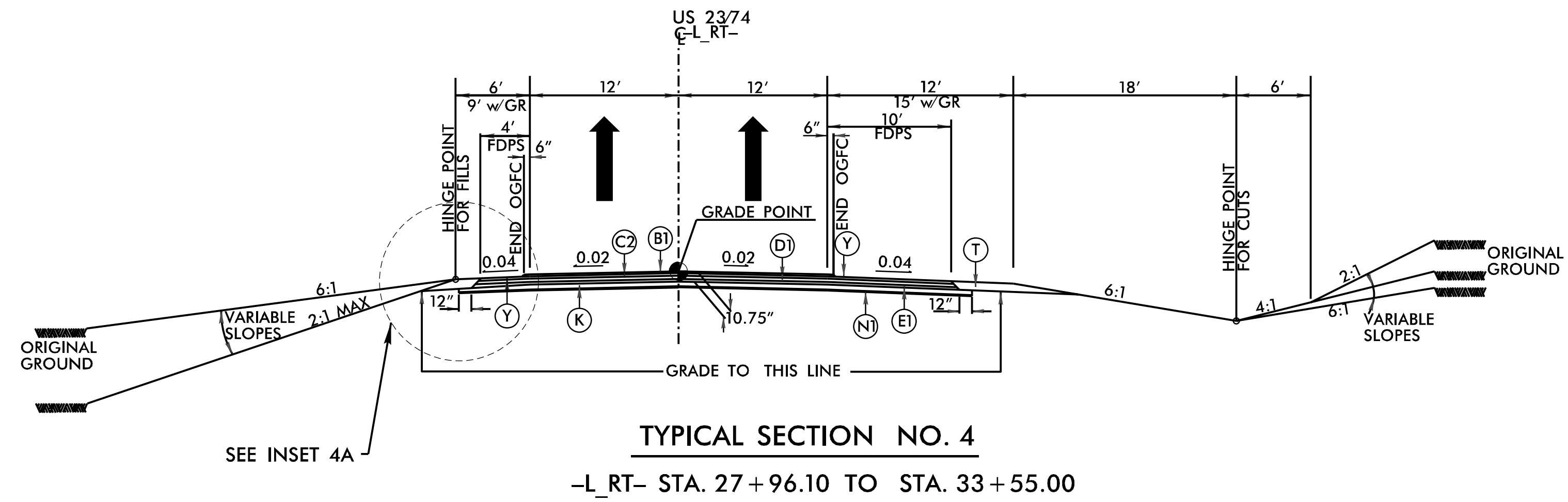
 PAVEMENT DESIGN
 ENGINEER

 PREPARED BY
AECOM
NC FIRM LICENSE No: F-0342
 5438 Wade Park Boulevard, Suite 200
 Raleigh, NC 27603
 (919) 884-6200 (TEL) 884-6259 (FAX)

DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED

REVISIONS

PAVEMENT SCHEDULE	
B1	0.75" OGFC TYPE FC-1 MODIFIED
C1	1.5" S9.5C
C2	3" S9.5C
C3	VAR.S9.5C
D1	4" I19.0C
D2	VAR.I19.0C
E1	3" B25.0C
E2	VAR. B25.0C
J1	6" ABC
K	12" CL IV SUB. STAB.
N1	GEOTEXTILE FOR SUB. STAB.
R1	SHOULDER BERM GUTTER
R2	EXPRESSWAY GUTTER
R3	2'-6" CURB AND GUTTER
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V1	1.5" MILLING
W	VAR.ASPHALT PAVEMENT
Y	RUMBLE STRIPS



B-3186 / B-5898
 2A-3

NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 HAYWOOD COUNTY

ROADWAY DESIGN UNIT
 ROADWAY DESIGN
 ENGINEER

SEAL
 0249634
 M. J. HOLLAND
 11/7/2023

PAVEMENT DESIGN
 ENGINEER

SEAL
 0248664
 T. HOLLAND
 11/7/2023

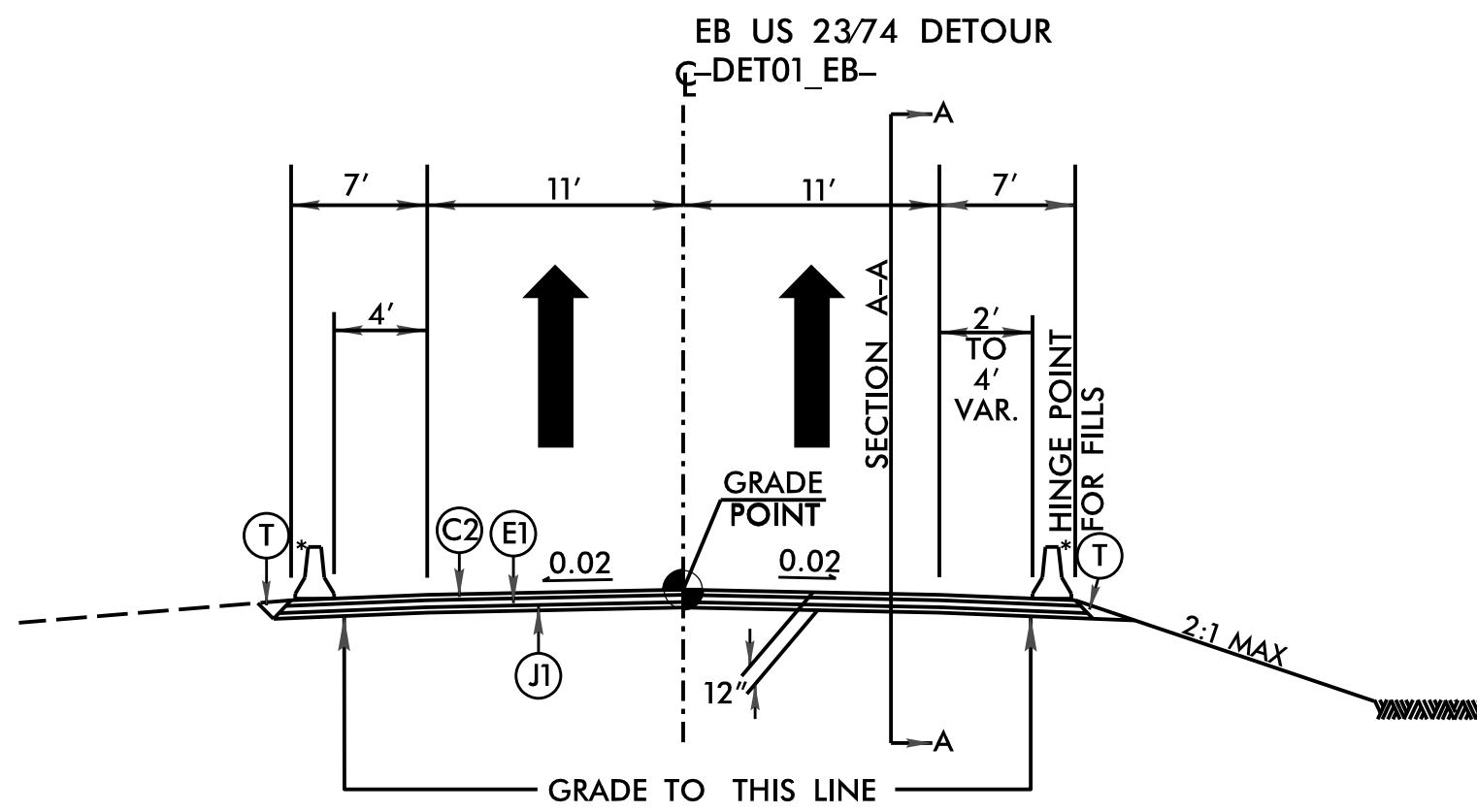
PREPARED BY
AECOM

NC FIRM LICENSE No: F-0342
 5438 Wade Park Boulevard, Suite 200
 Raleigh, NC 27603
 (919) 884-6200 (ext. 319) 884-6299 (fax)

DOCUMENT NOT CONSIDERED FINAL
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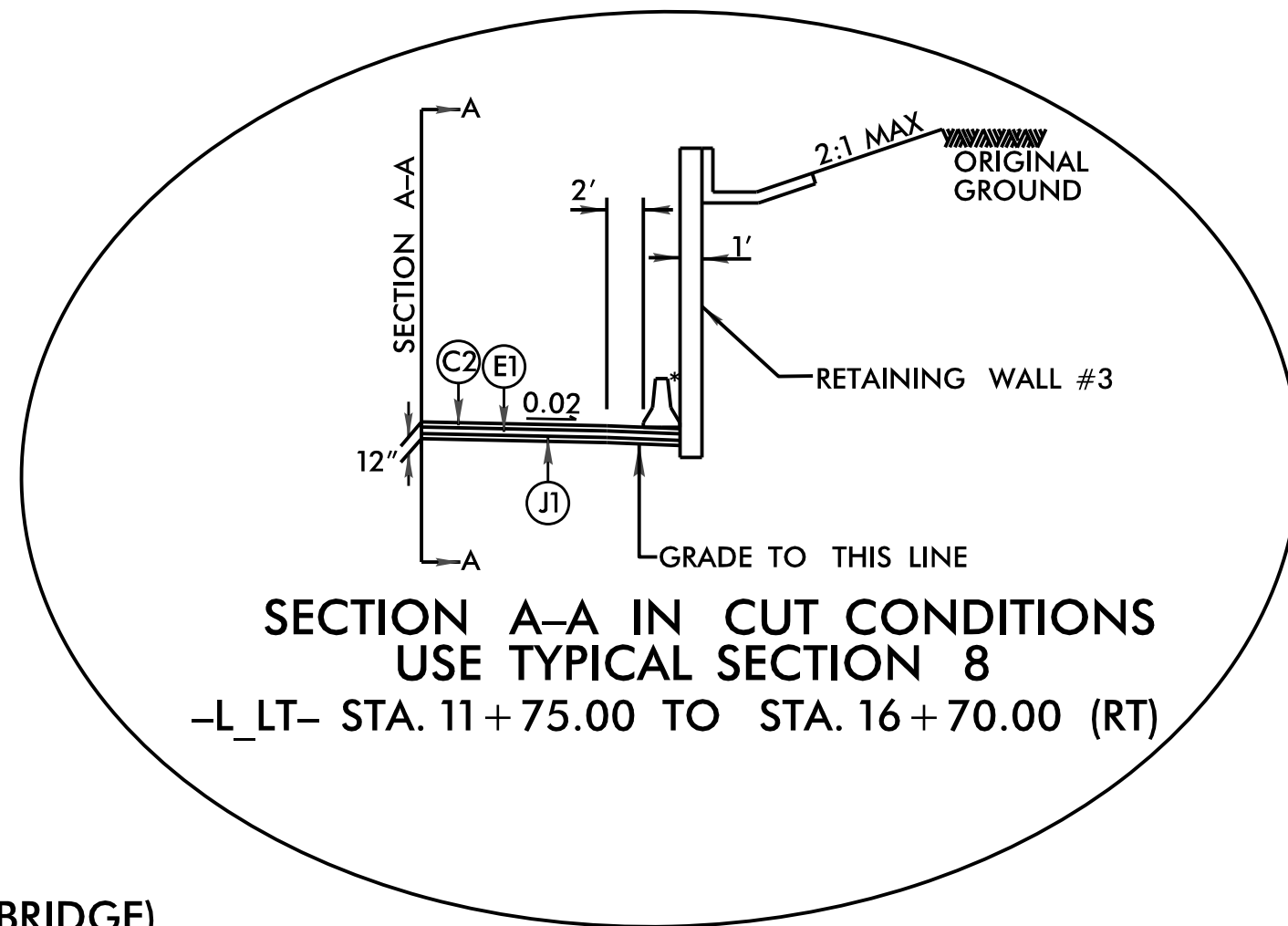
REVISIONS

PAVEMENT SCHEDULE	
B1	0.75" OGFC TYPE FC-1 MODIFIED
C1	1.5" S9.5C
C2	3" S9.5C
C3	VAR. S9.5C
D1	4" I19.0C
D2	VAR. I19.0C
E1	3" B25.0C
E2	VAR. B25.0C
J1	6" ABC
K	12" CL IV SUB. STAB.
N1	GEOTEXTILE FOR SUB. STAB.
R1	SHOULDER BERM GUTTER
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T	EARTH MATERIAL
U	EXISTING PAVEMENT
V1	1.5" MILLING
W	VAR. ASPHALT PAVEMENT
Y	RUMBLE STRIPS

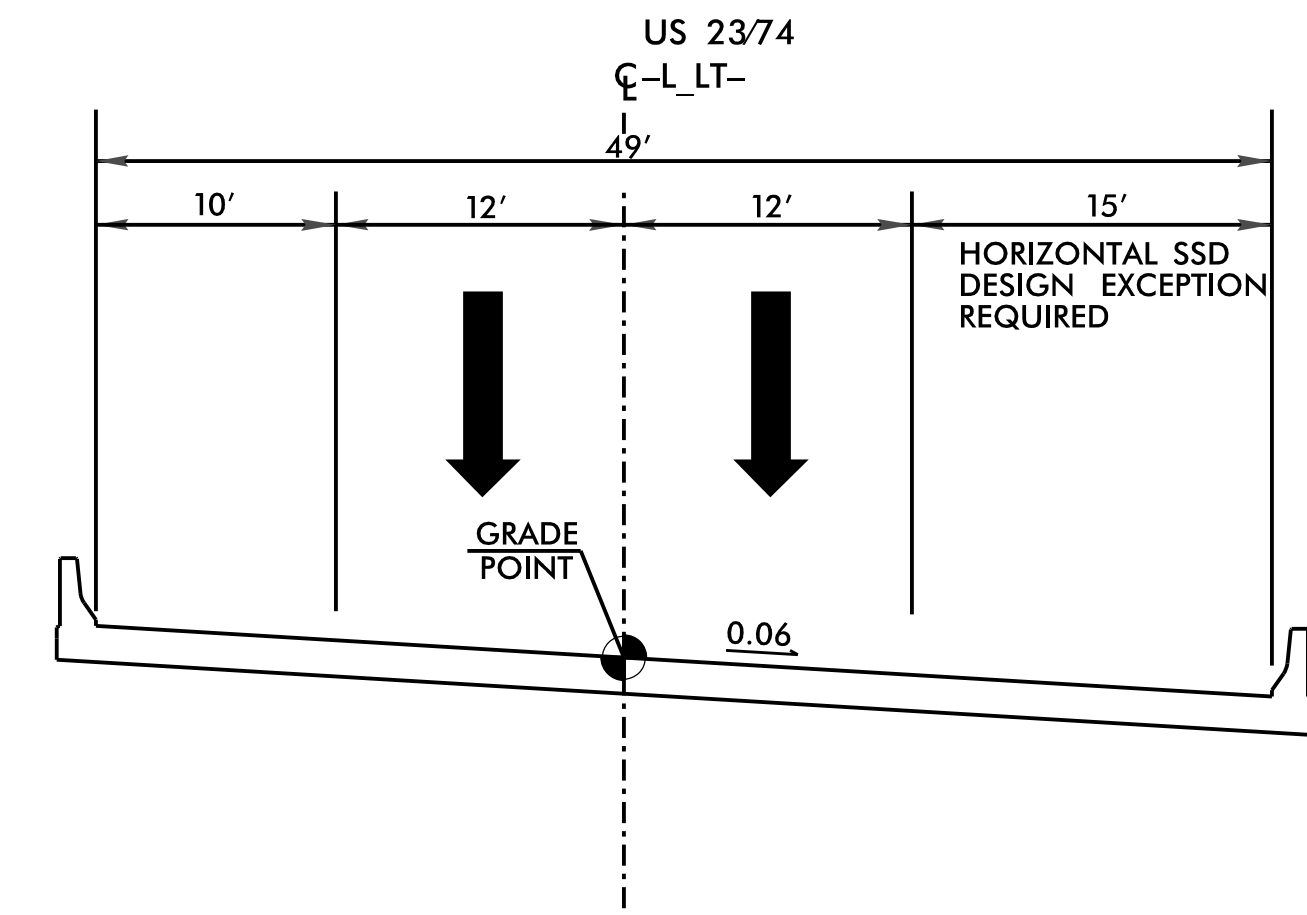


TYPICAL SECTION NO. 8

-DET01_EB- STA. STA. 11+35.98 TO STA. 22+20.00 (BEGIN BRIDGE)
 -DET01_EB- STA. 25+50.00 (END BRIDGE) TO STA. 33+98.56
 *PORTABLE CONCRETE BARRIER (ANCHORED)

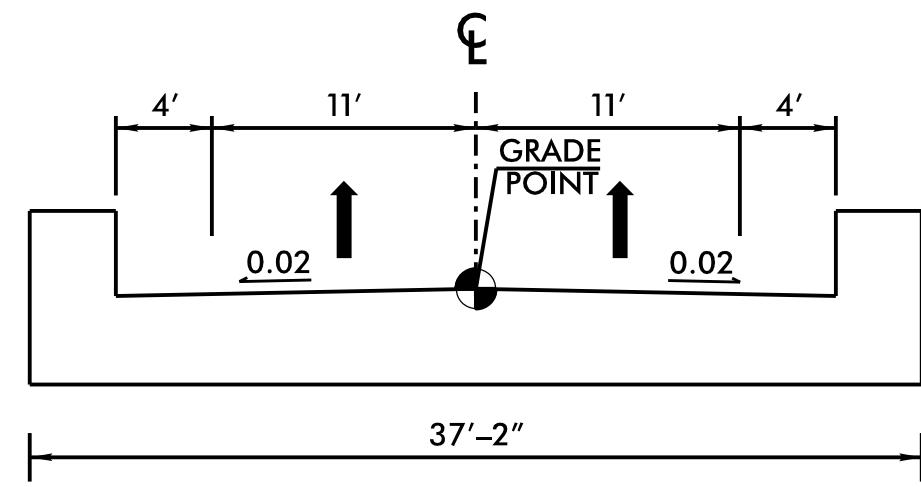


**SECTION A-A IN CUT CONDITIONS
 USE TYPICAL SECTION 8**
 -L_LT- STA. 11+75.00 TO STA. 16+70.00 (RT)



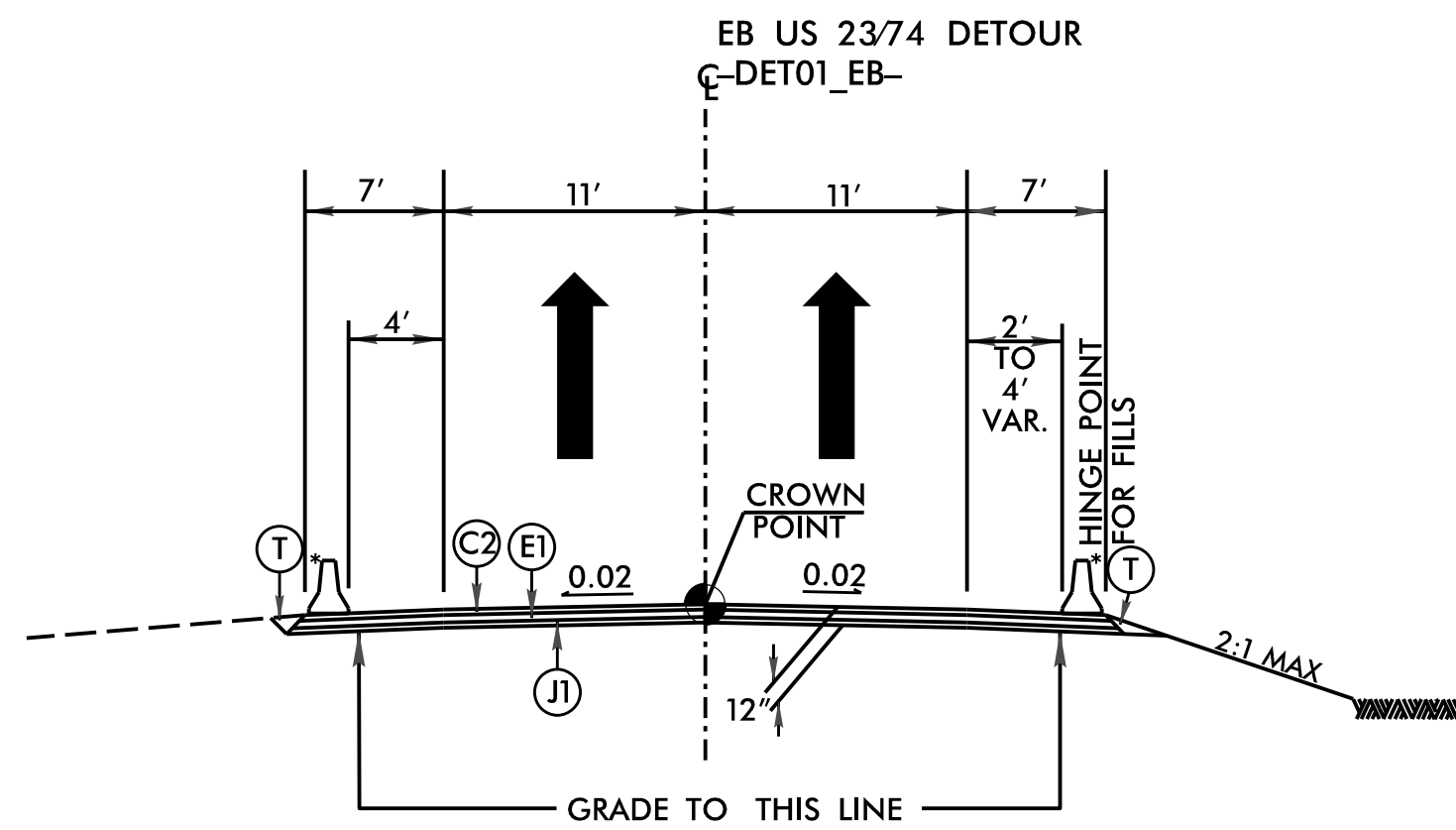
TYPICAL SECTION NO. 11

-L_LT- STA. 31+56.00 TO STA. 32+89.00



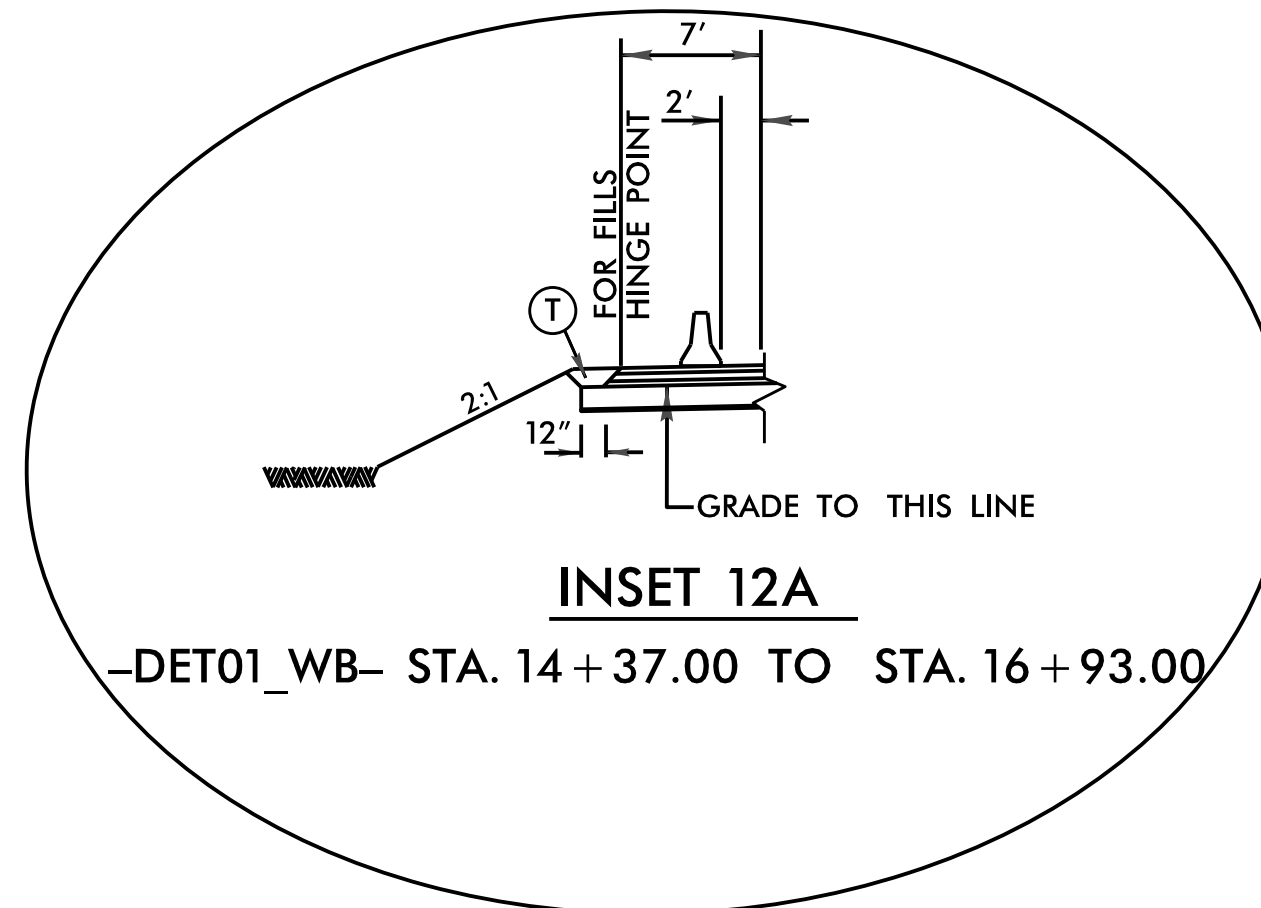
TYPICAL SECTION NO. 9

-DET01_EB- STA. 22+20.00 TO STA. 25+50.00



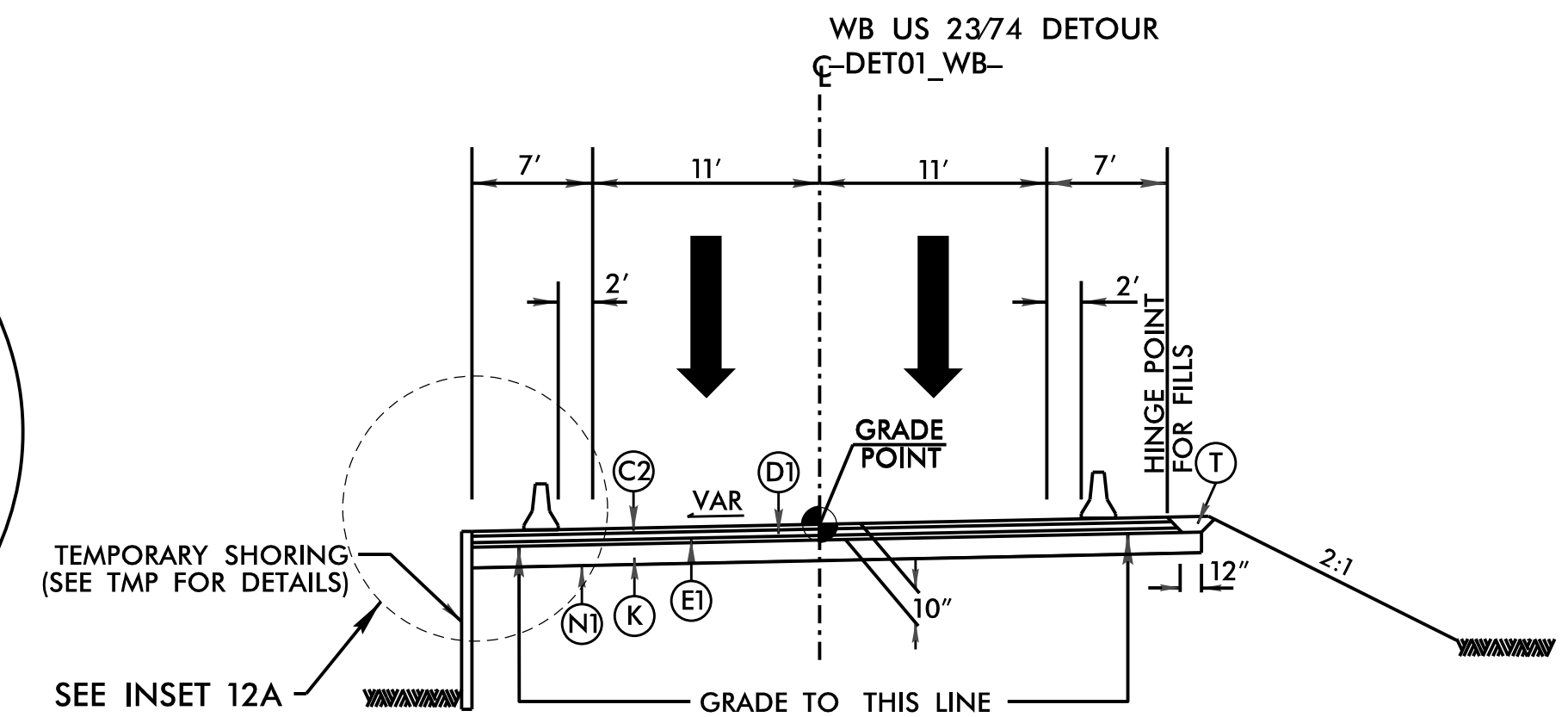
TYPICAL SECTION NO. 8A

-DET01_EB- STA. 9+32.15 TO STA. 11+35.98
 -DET01_EB- STA. 33+98.56 TO STA. 36+36.91
 *PORTABLE CONCRETE BARRIER (ANCHORED)



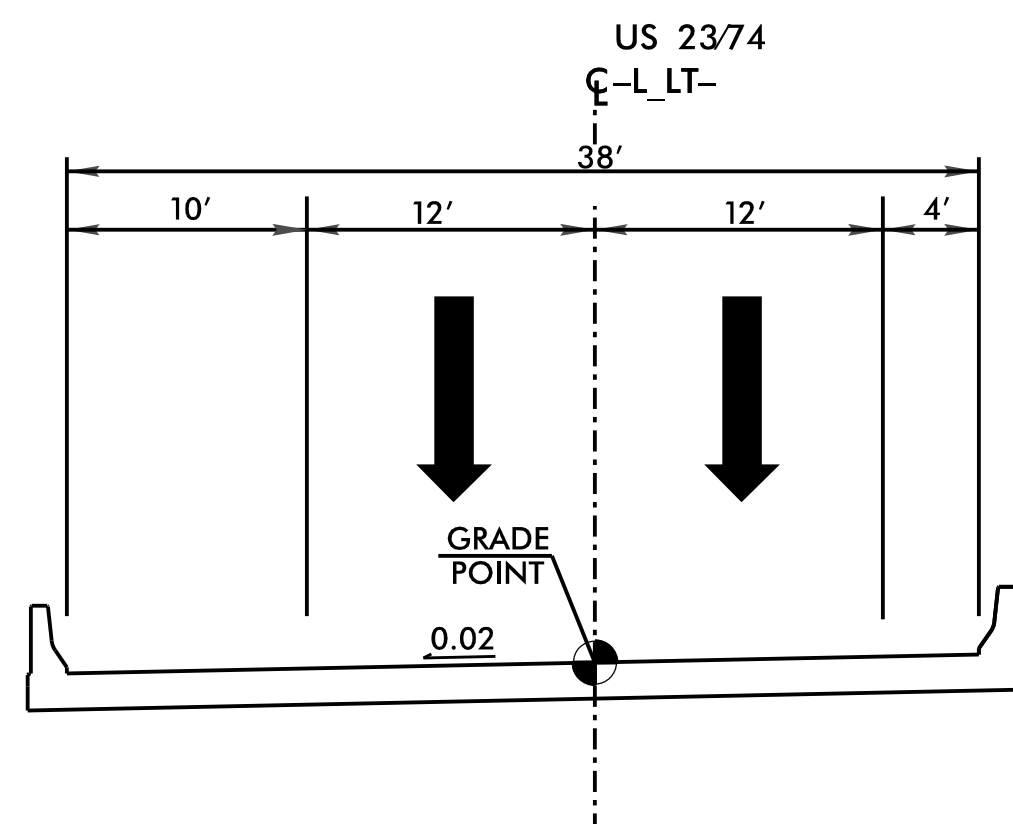
INSET 12A

-DET01_WB- STA. 14+37.00 TO STA. 16+93.00



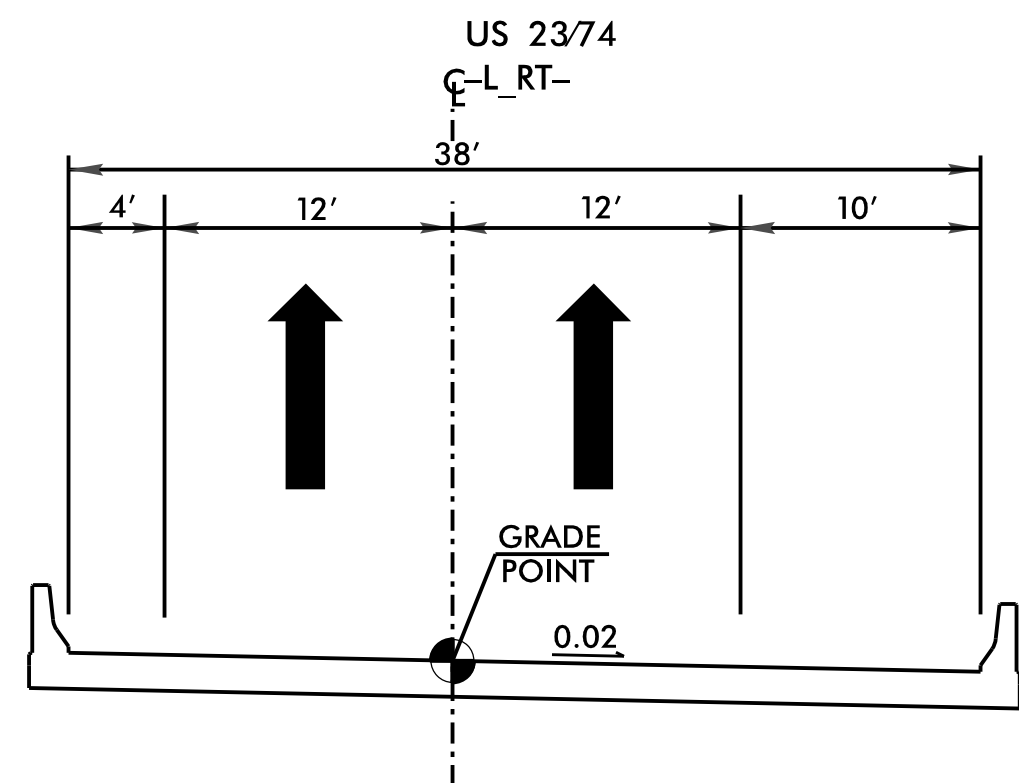
TYPICAL SECTION NO. 12

-DET01_WB- STA. 16+93.00 TO STA. 22+23.55

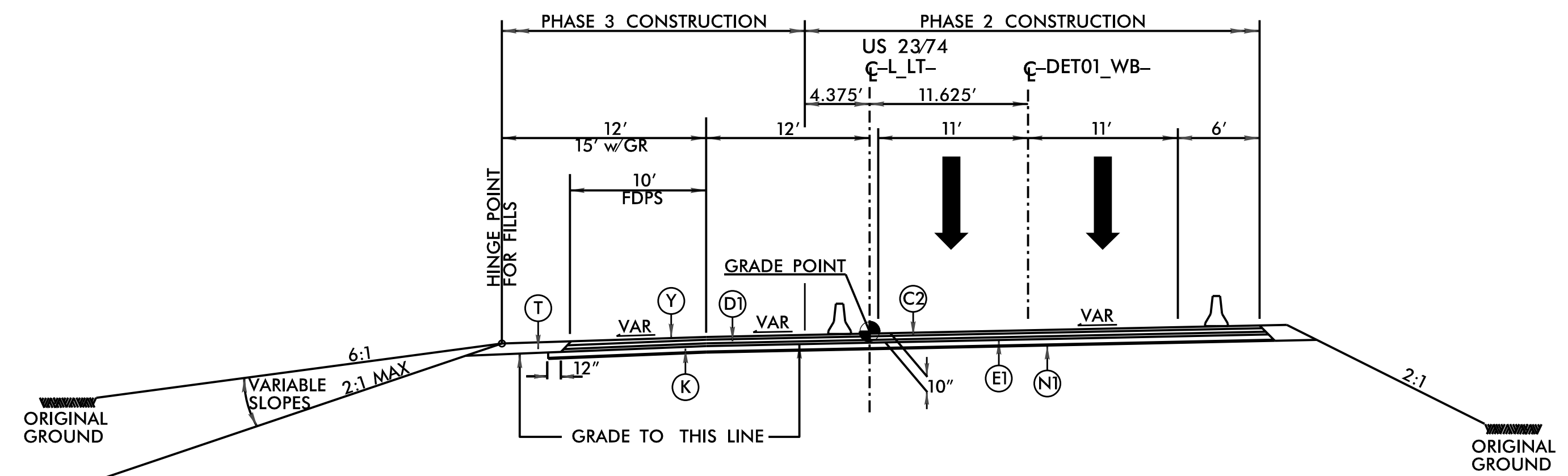


TYPICAL SECTION NO. 10

-L_LT- STA. 23+50.75 TO STA. 25+89.25



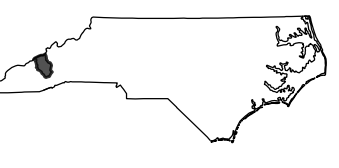
-L_RT- STA. 23+38.51 TO STA. 25+46.01

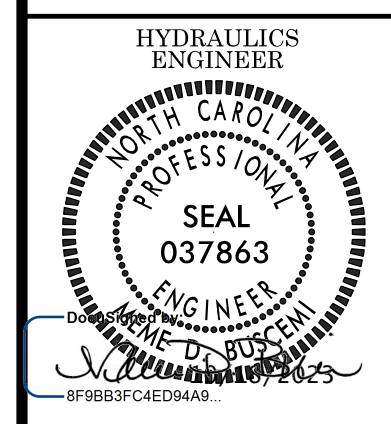
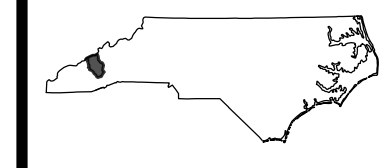


TYPICAL SECTION NO. 13

-DET01_WB- STA. 22+23.55 TO STA. 23+51.75 (BEGIN BRIDGE)
 -DET01_WB- STA. 25+88.25 (END BRIDGE) TO STA. 40+50.17

NOTE: PROJECT L_LT CROSS-SLOPE TO DETOUR

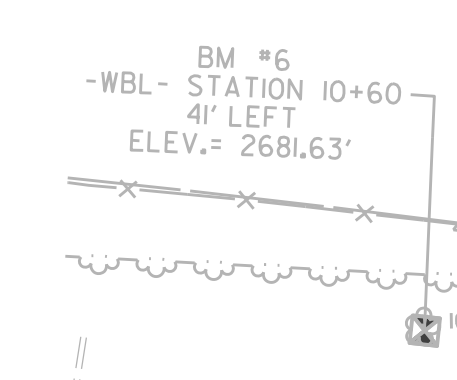
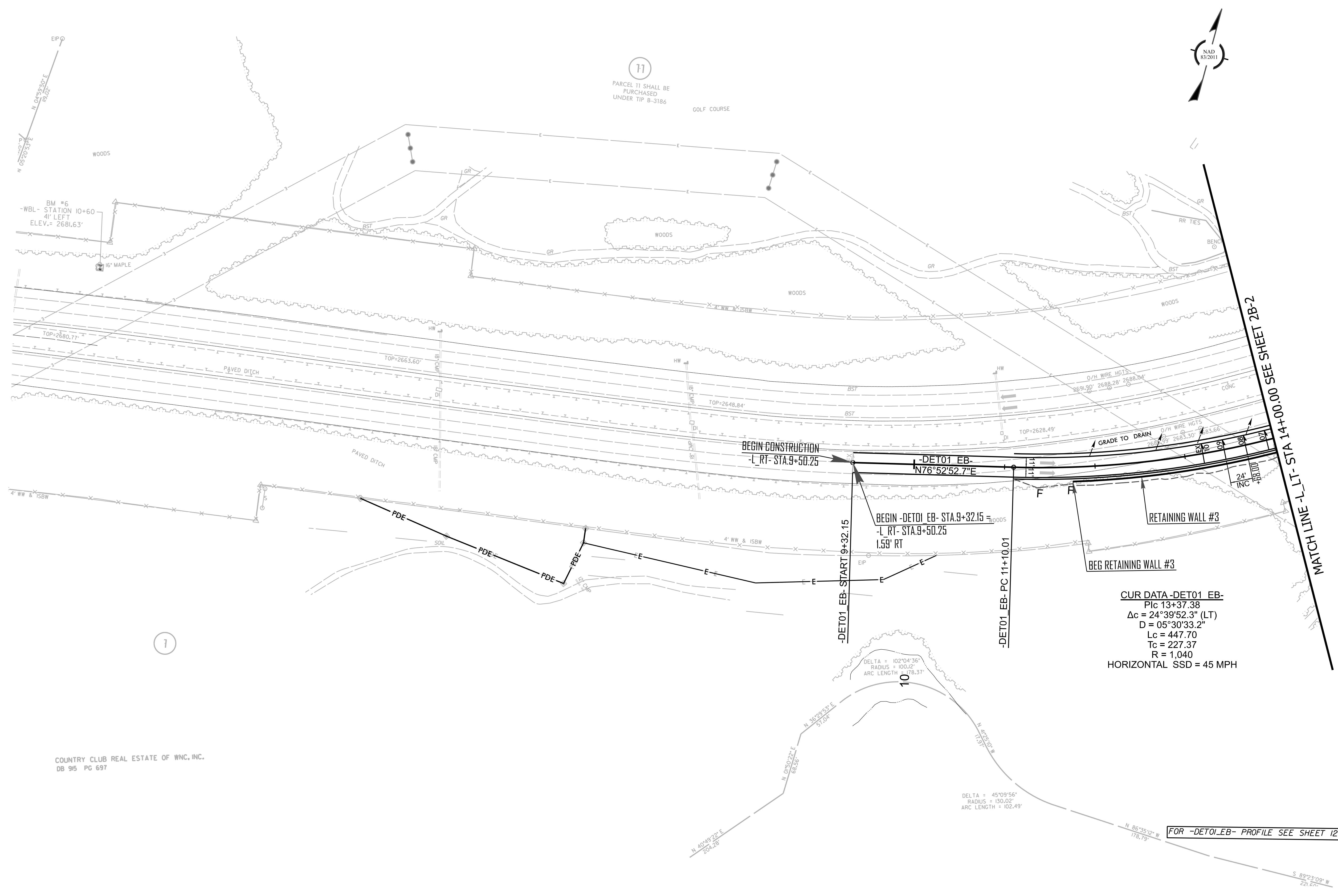




PREPARED BY
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NC FIRM LICENSE No: F-0342
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Raleigh, NC 27601
(919) 854-6200 (TEL) 854-6259 (FAX)

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

REVISIONS



11
PARCEL 11 SHALL BE
PURCHASED
UNDER TIP B-3186



COUNTRY CLUB REAL ESTATE OF WNC, INC.
DB 95 PG 697

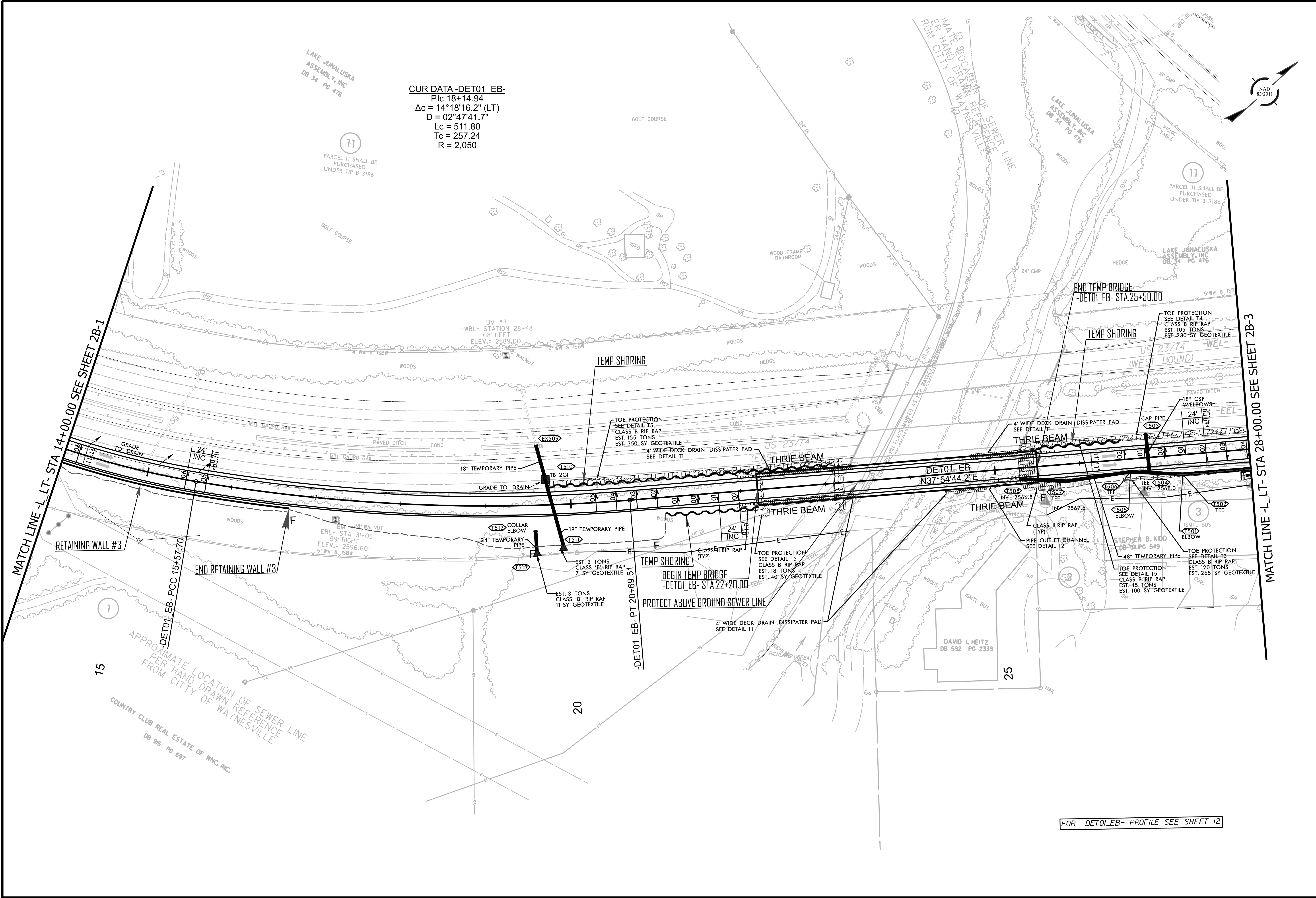
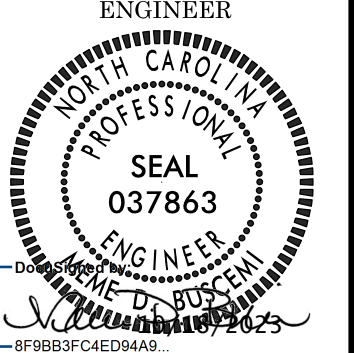
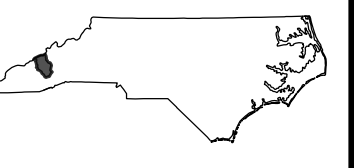
CUR DATA -DET01 EB-
Ptc 13+37.38
 $\Delta c = 24^\circ 39' 52.3''$ (LT)
 $D = 05^\circ 30' 33.2''$
Lc = 447.70
Tc = 227.37
R = 1,040
HORIZONTAL SSD = 45 MPH

DELTA = $102^\circ 04' 36''$
RADIUS = 100.12'
ARC LENGTH = 178.37'

DELTA = $45^\circ 09' 56''$
RADIUS = 130.02'
ARC LENGTH = 102.49'

FOR -DET01 EB- PROFILE SEE SHEET 12

MATCH LINE -L- LT- STA 14+00.00 SEE SHEET 2B-2



CUR DATA -DET01 EB-
P/c 18+14.94
 $\Delta c = 14^\circ 18' 16.2''$ (LT)
D = 02°47'41.7"
Lc = 511.80
Tc = 257.24
R = 2,050

11
PARCEL 11 SHALL BE PURCHASED UNDER TIP B-3186

11
PARCEL 11 SHALL BE PURCHASED UNDER TIP B-3186

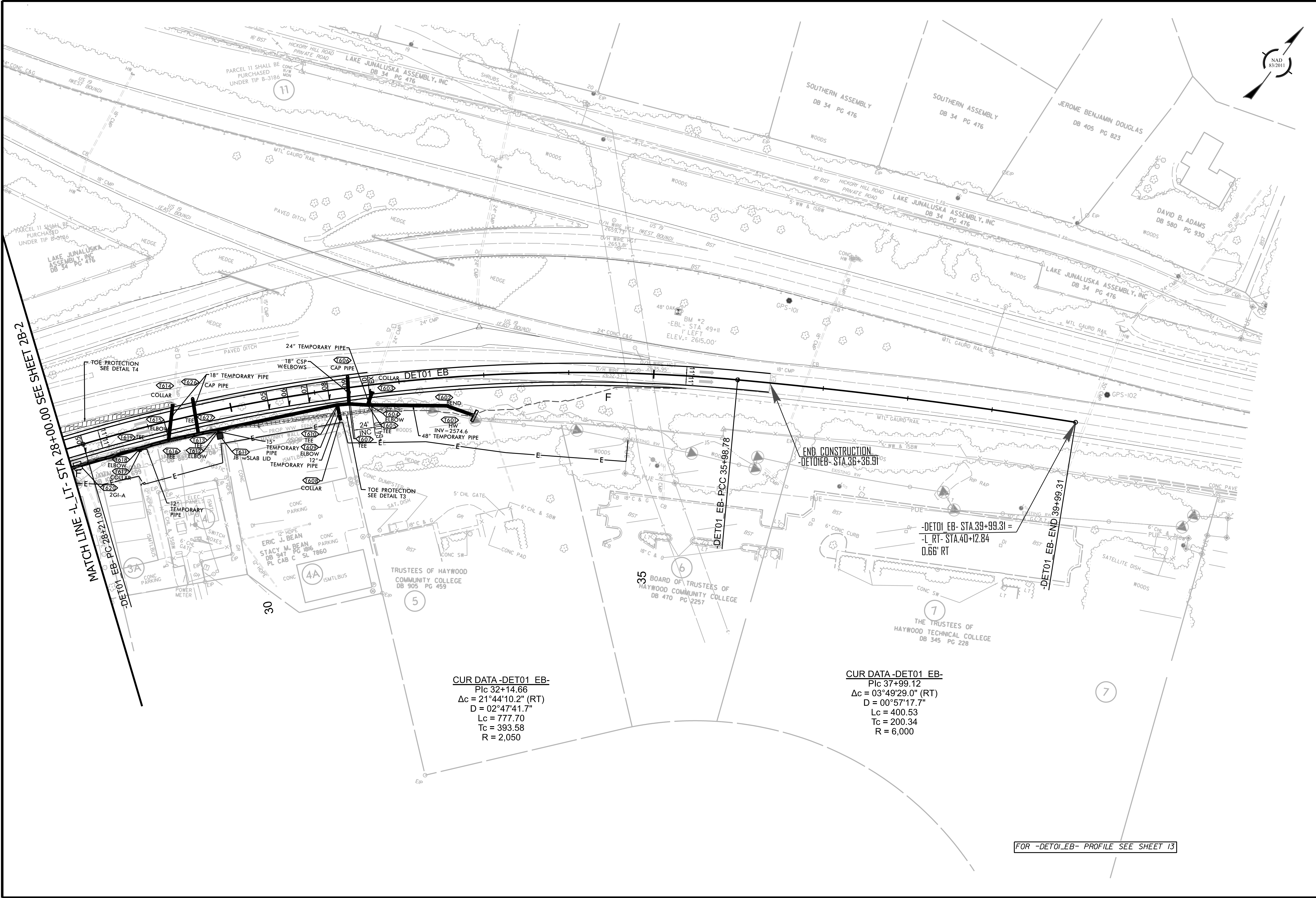
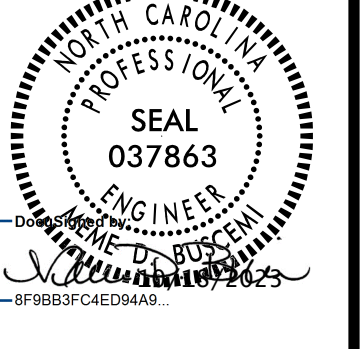
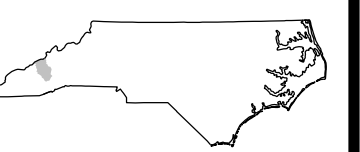
11
PARCEL 11 SHALL BE PURCHASED UNDER TIP B-3186

MATCH LINE -L- LT- STA 14+00.00 SEE SHEET 2B-1

MATCH LINE -L- LT- STA 28+00.00 SEE SHEET 2B-3

FOR -DET01.EB- PROFILE SEE SHEET 12

REVISIONS



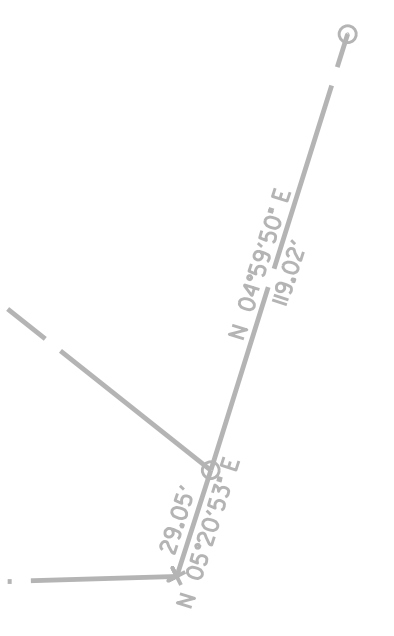
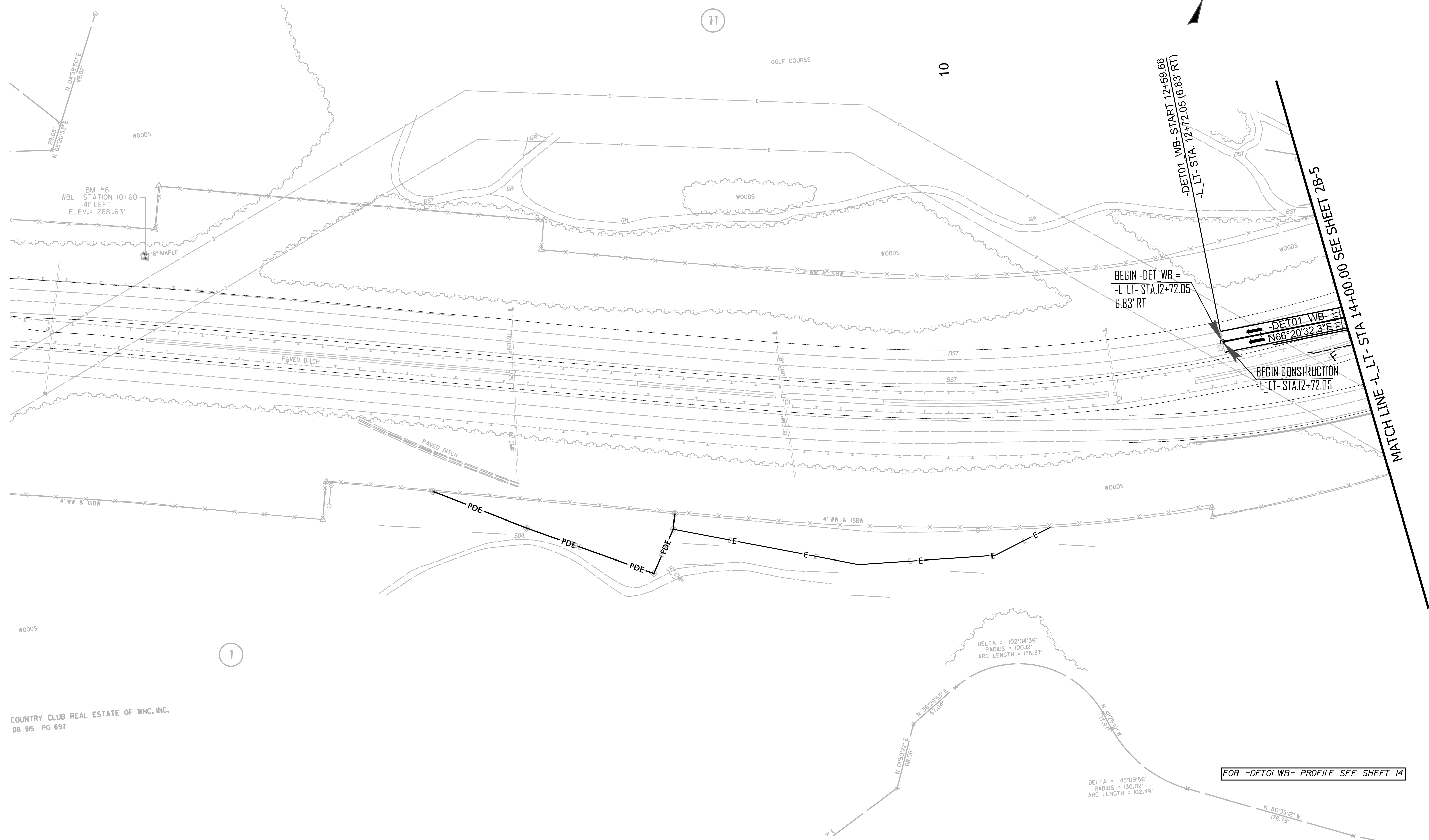
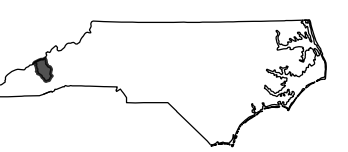
MATCH LINE - L - LT - STA 28+00.00 SEE SHEET 2B-2

CUR DATA - DET01 EB -
Pc 32+14.66
 $\Delta c = 21^{\circ}44'10.2''$ (RT)
D = 02'47'41.7"
Lc = 777.70
Tc = 393.58
R = 2,050

CUR DATA - DET01 EB -
Pc 37+99.12
 $\Delta c = 03^{\circ}49'29.0''$ (RT)
D = 00'57'17.7"
Lc = 400.53
Tc = 200.34
R = 6,000

FOR -DET01.EB- PROFILE SEE SHEET 13

REVISIONS



BM #6
-WBL- STATION 10+60
41' LEFT
ELEV. = 2681.63'

16" MAPLE

11

10



BEGIN -DET WB =
-L LT- STA. 12+72.05
6.83' RT

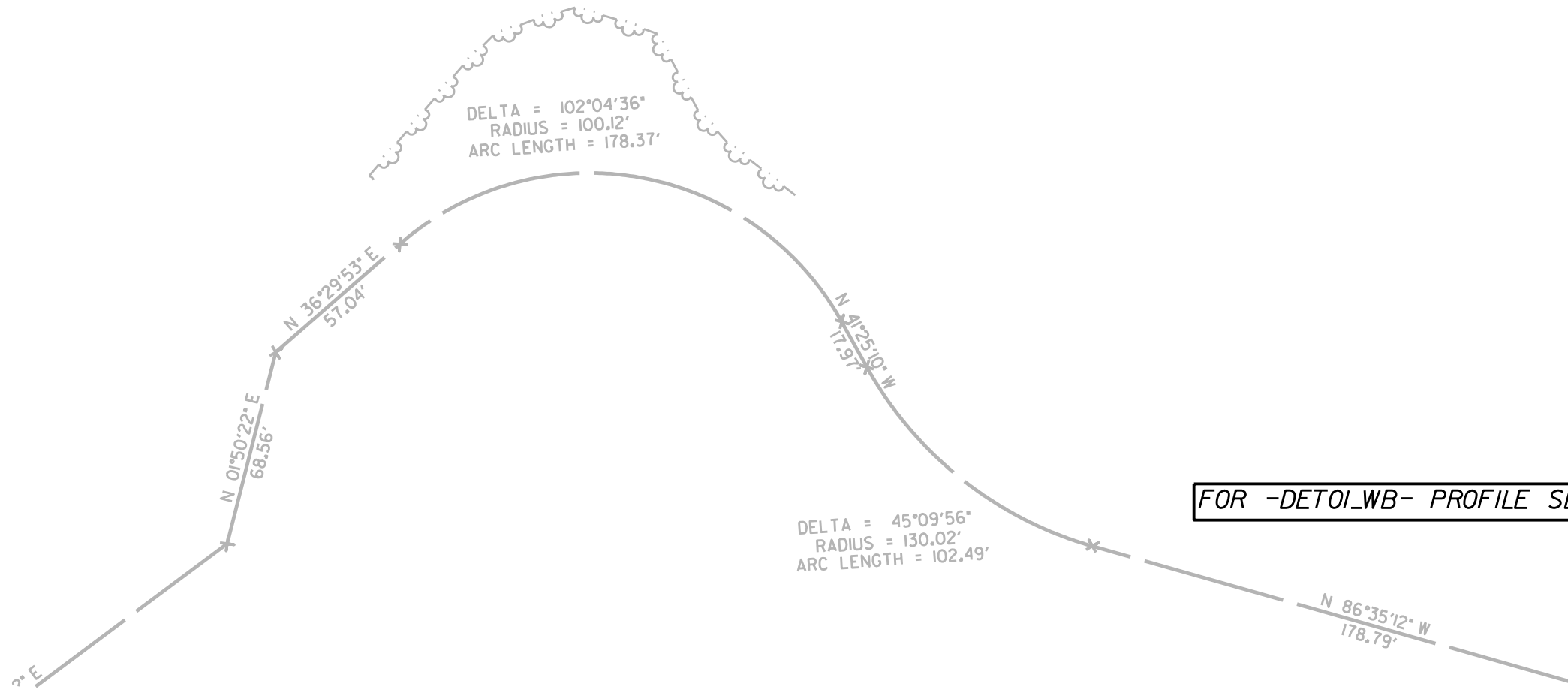
-DET01 WB- START 12+59.68
-L LT- STA. 12+72.05 (6.83' RT)

-DET01 WB-
N66°20'32.3"E
BEGIN CONSTRUCTION
L LT- STA. 12+72.05

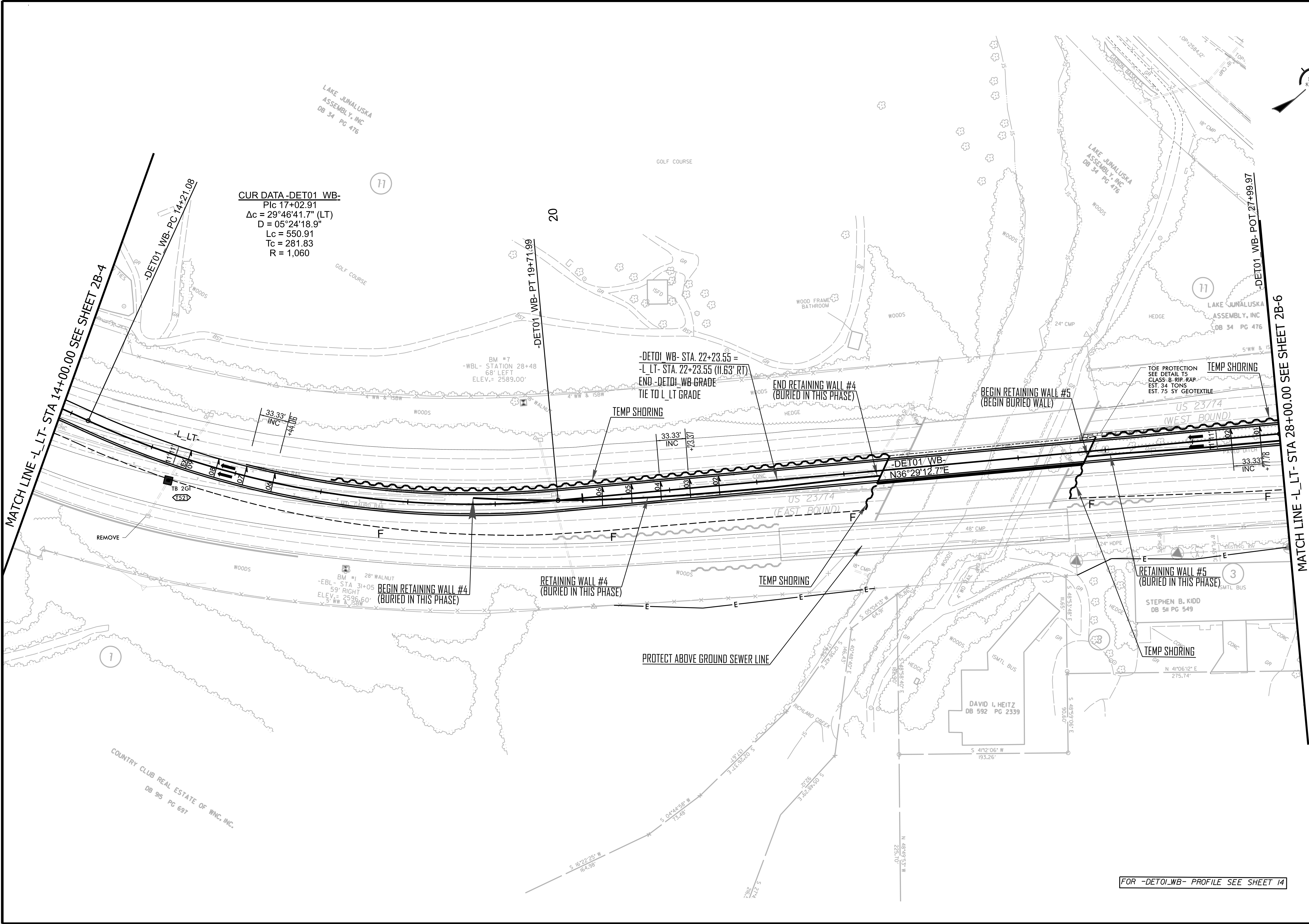
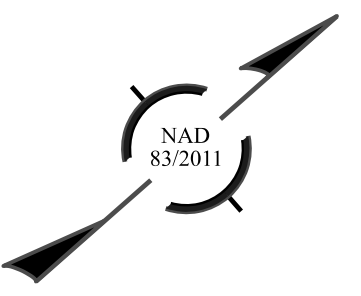
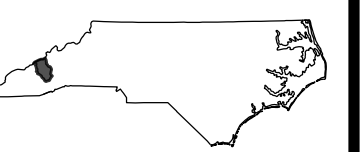
MATCH LINE -L LT- STA 14+00.00 SEE SHEET 2B-5

1

COUNTRY CLUB REAL ESTATE OF WNC, INC.
DB 915 PG 697



FOR -DET01WB- PROFILE SEE SHEET 1A



CUR DATA - DET01 WB-
Pc 17+02.91
 $\Delta c = 29^\circ 46' 41.7''$ (LT)
D = 05°24'18.9"
Lc = 550.91
Tc = 281.83
R = 1,060

MATCH LINE -L-LT- STA 14+00.00 SEE SHEET 2B-4

MATCH LINE -L-LT- STA 28+00.00 SEE SHEET 2B-6

RETAINING WALL #4
(BURIED IN THIS PHASE)

RETAINING WALL #4
(BURIED IN THIS PHASE)

TEMP SHORING

BEGIN RETAINING WALL #5
(BEGIN BURIED WALL)

RETAINING WALL #5
(BURIED IN THIS PHASE)

TEMP SHORING

PROTECT ABOVE GROUND SEWER LINE

FOR -DET01WB- PROFILE SEE SHEET 14

REVISIONS

LAKE JUNALUSKA
ASSEMBLY, INC
DB 34 PG 476

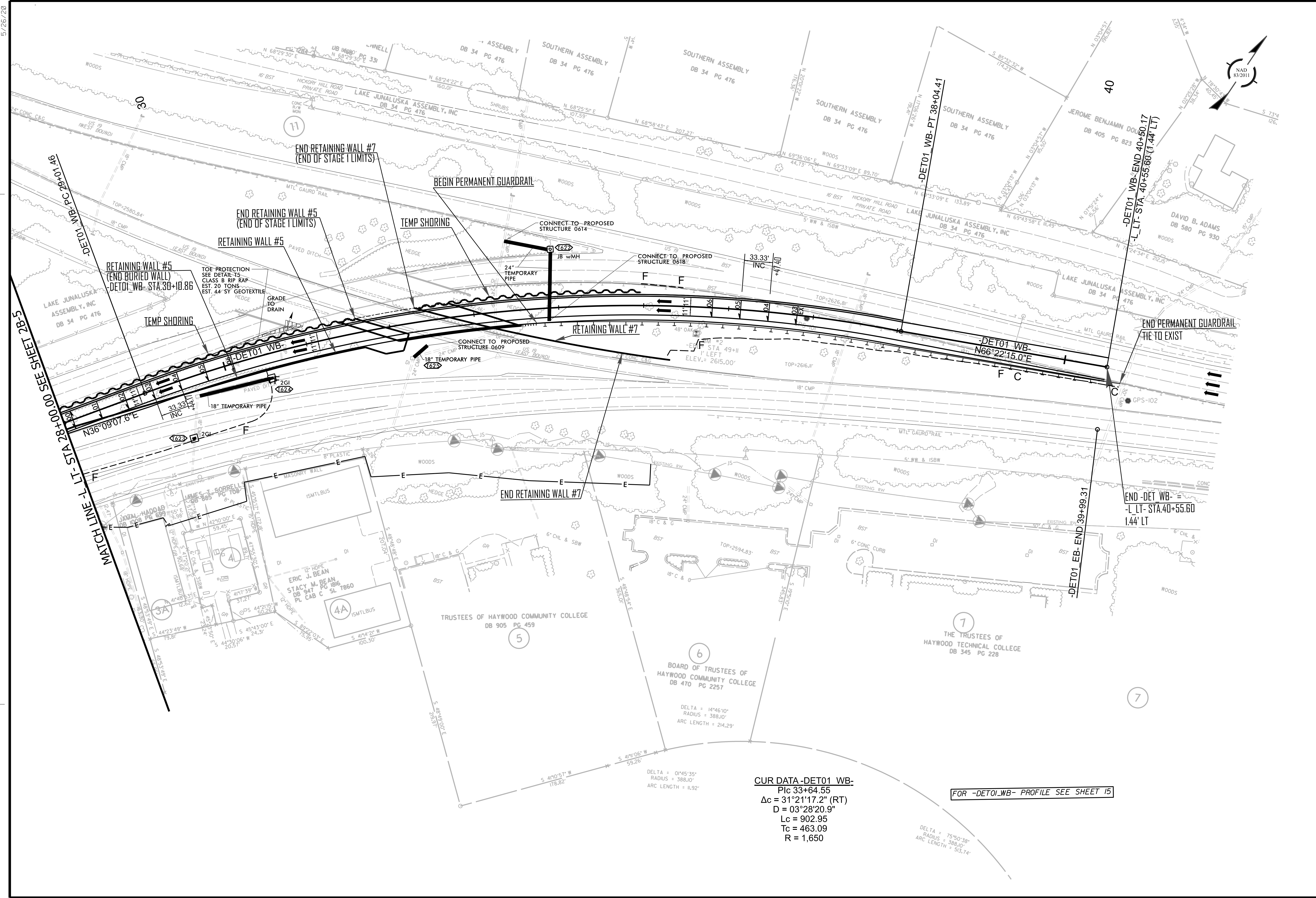
LAKE JUNALUSKA
ASSEMBLY, INC
DB 34 PG 476

LAKE JUNALUSKA
ASSEMBLY, INC
DB 34 PG 476

STEPHEN B. KIDD
DB 51 PG 549

DAVID I. HEITZ
DB 592 PG 2339

COUNTRY CLUB REAL ESTATE OF WNC, INC.
DB 95 PG 697



CUR DATA-DET01 WB-
 Plc 33+64.55
 $\Delta c = 31^{\circ}21'17.2''$ (RT)
 $D = 03^{\circ}28'20.9''$
 $Lc = 902.95$
 $Tc = 463.09$
 $R = 1,650$

FOR -DET01WB- PROFILE SEE SHEET 15

DELTA = $75^{\circ}50'38''$
 RADIUS = 388.10'
 ARC LENGTH = 93.74'

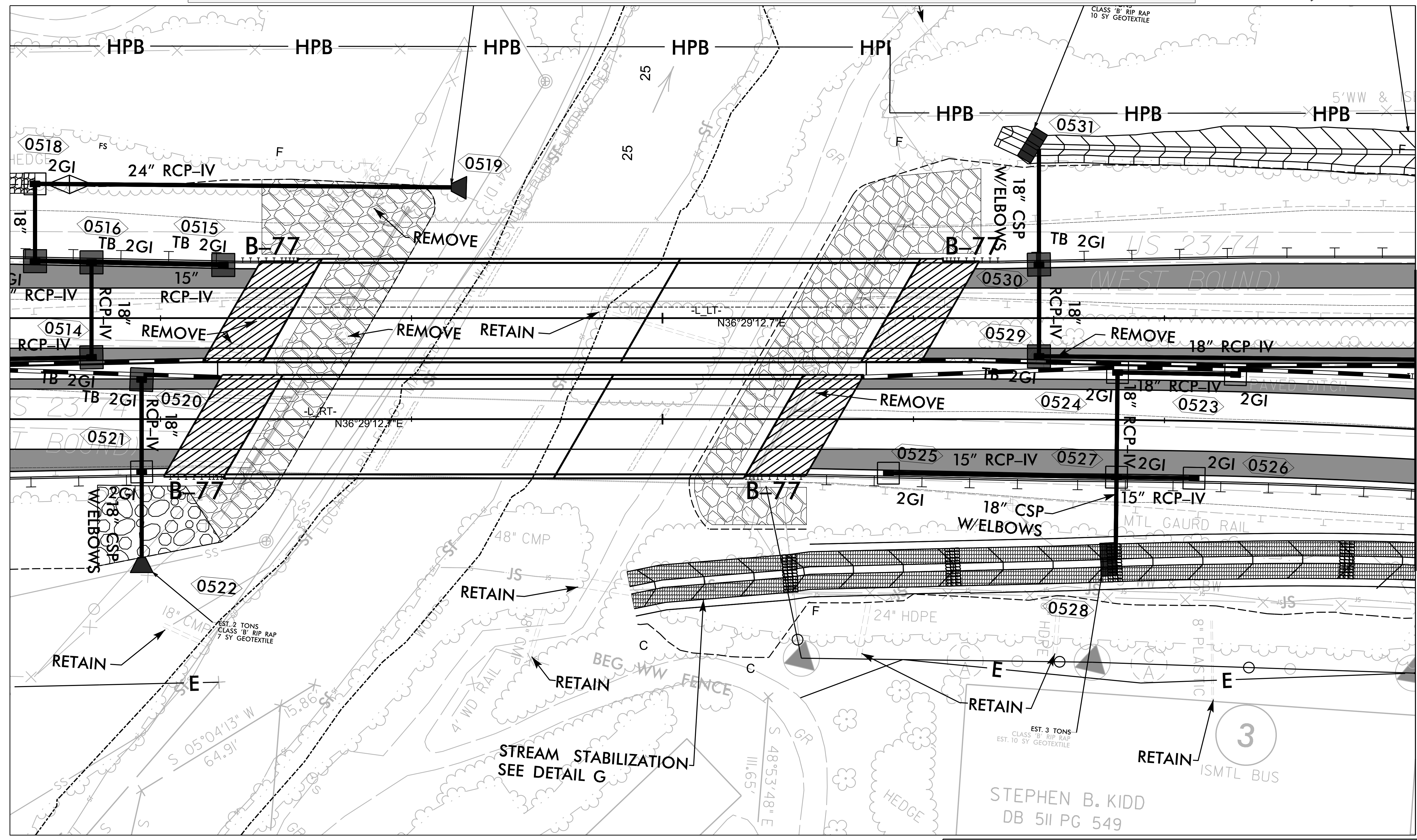
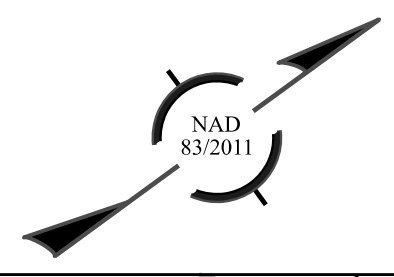
DELTA = $01^{\circ}45'35''$
 RADIUS = 388.10'
 ARC LENGTH = 11.92'

b
 BOARD OF TRUSTEES OF
 HAYWOOD COMMUNITY COLLEGE
 DB 470 PG 2257
 DELTA = $14^{\circ}46'10''$
 RADIUS = 388.10'
 ARC LENGTH = 214.29'

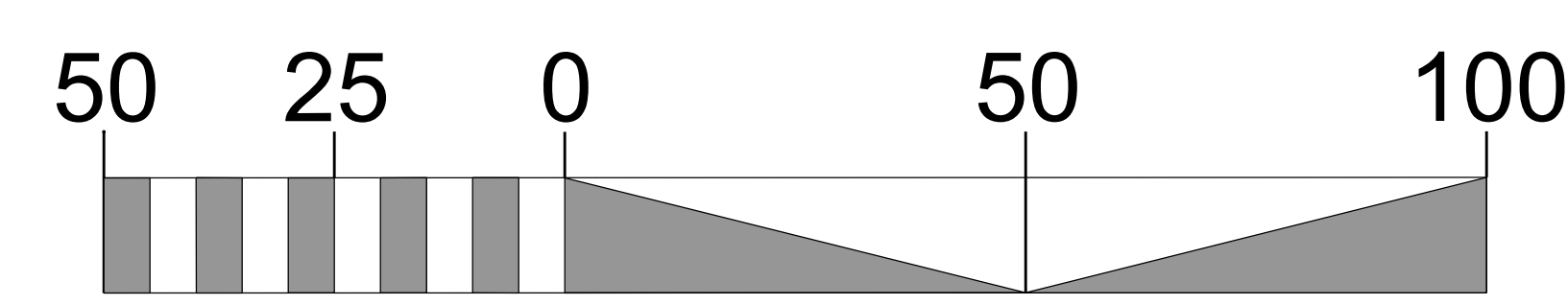
5
 TRUSTEES OF HAYWOOD COMMUNITY COLLEGE
 DB 905 PG 459

7
 THE TRUSTEES OF
 HAYWOOD TECHNICAL COLLEGE
 DB 345 PG 228

INSET DETAIL FOR L_LT FROM STA.22+40 TO STA.28+00



MATCH LINE -- STA 28+00.00 SEE SHEET 2B-8



FOR HORIZONTAL GEOMETRY AND ADDITIONAL OFFSET DATA SEE SHEET 5

B-3186/B-5898
2B-7

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
HAYWOOD COUNTY

ROADWAY DESIGN UNIT
ROADWAY DESIGN
ENGINEER

NORTH CAROLINA
PROFESSIONAL
SEAL
049634
ENGINEER
MOHAMMED H. ALI
11/18/2023

HYDRAULICS
ENGINEER

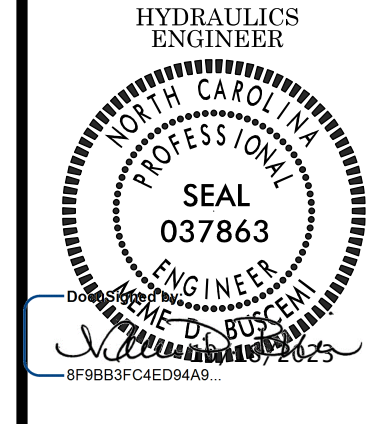
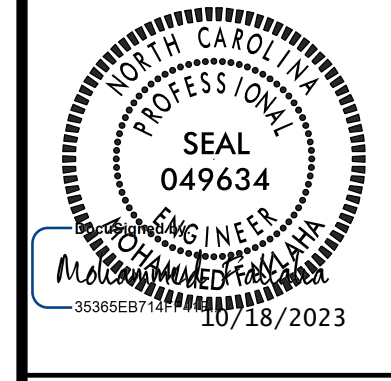
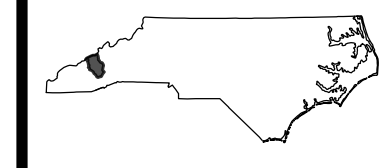
NORTH CAROLINA
PROFESSIONAL
SEAL
037863
ENGINEER
DANIEL D. BUSCH
11/18/2023

PREPARED BY
AECOM

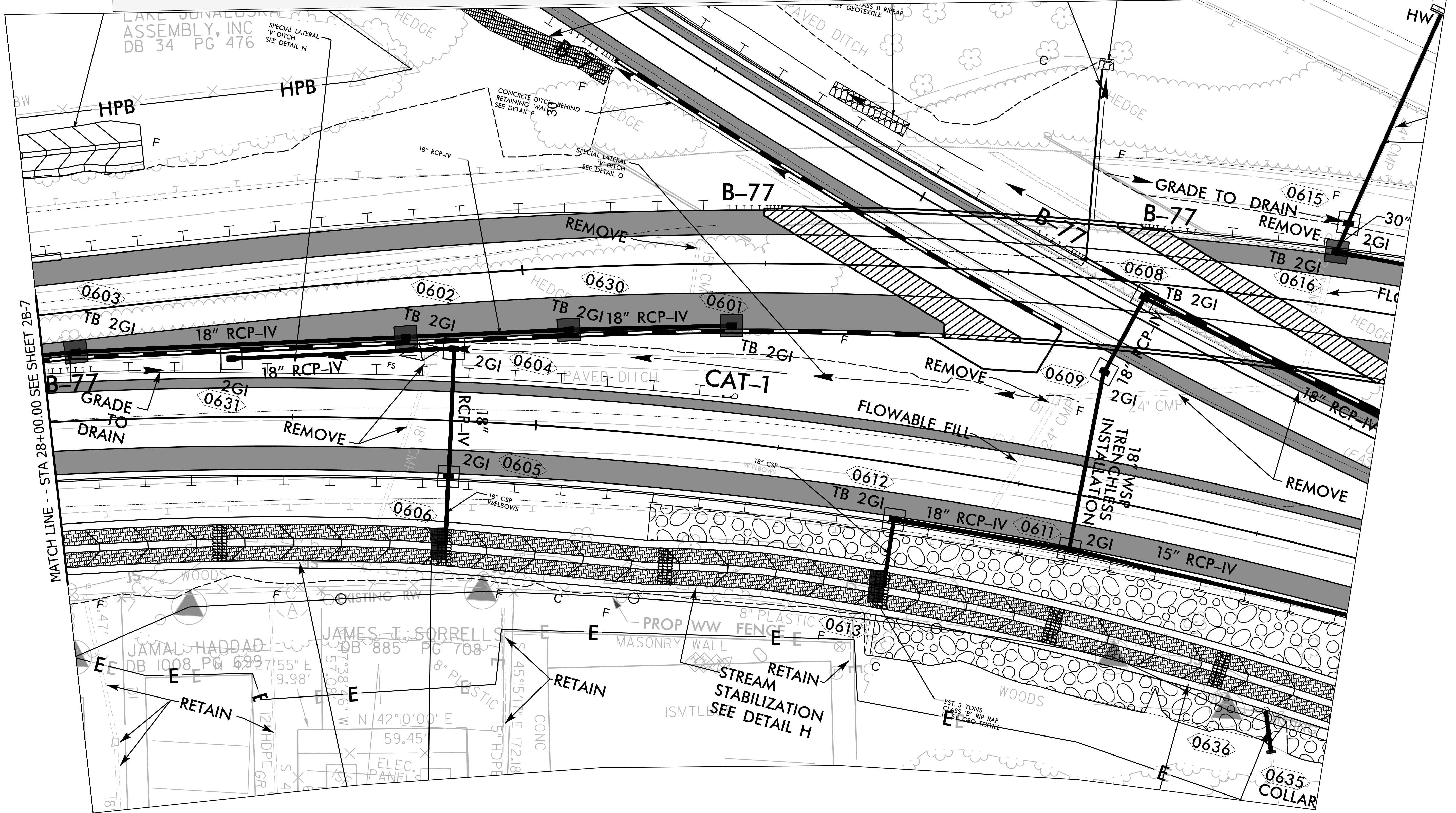
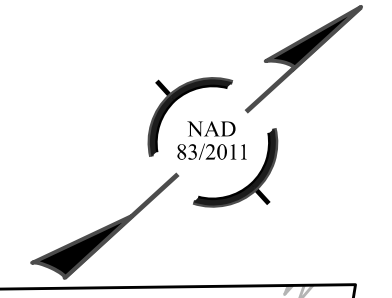
NC FIRM LICENSE No: F-0342
5438 Wade Park Boulevard, Suite 200
Raleigh, NC 27603
(919) 854-6200 (919) 854-6259 (FAX)

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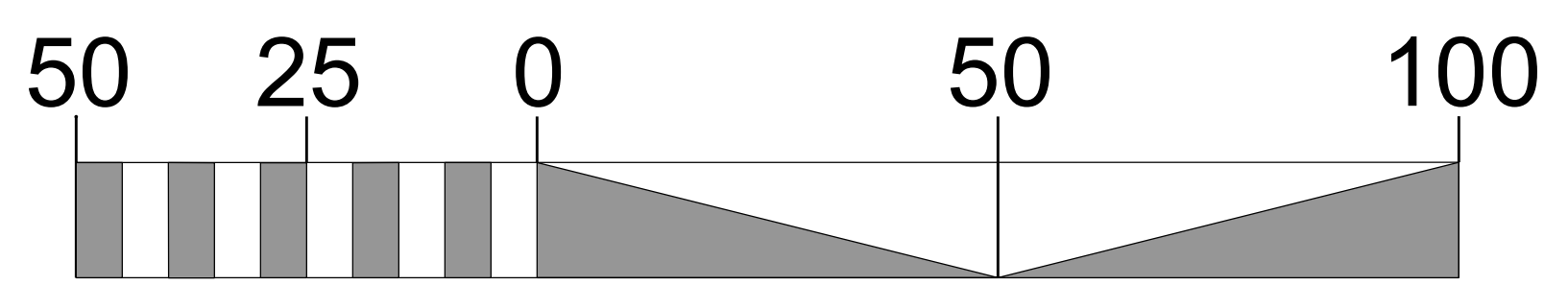
REVISIONS



INSET DETAIL FOR L_LT FROM STA.28+00 TO STA.33+60



MATCH LINE -- STA 28+00.00 SEE SHEET 2B-7

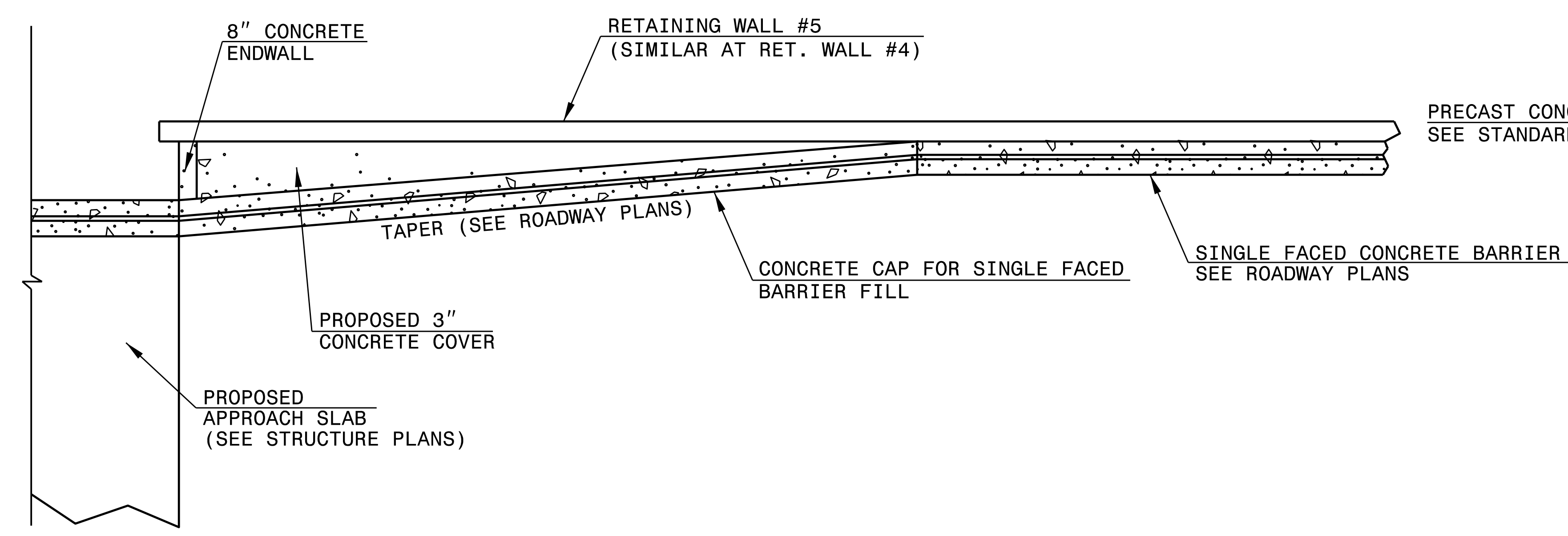


FOR HORIZONTAL GEOMETRY AND ADDITIONAL OFFSET DATA SEE SHEET 6

REVISIONS

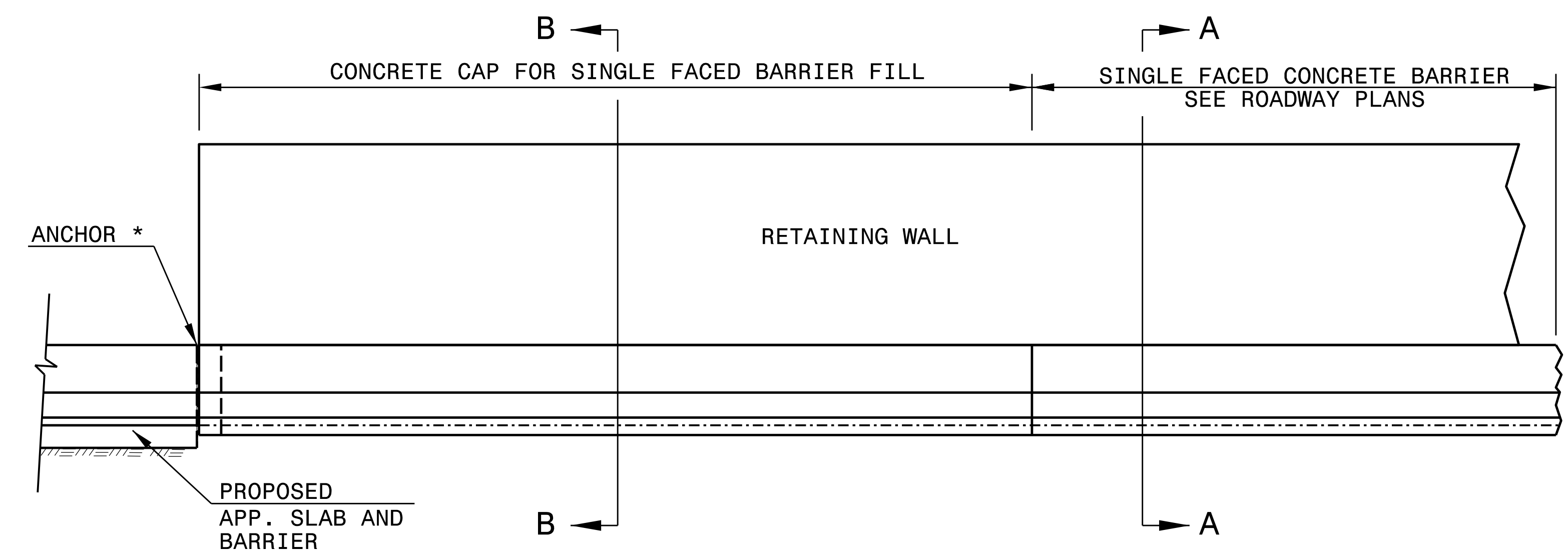
GENERAL NOTES:

CONSTRUCT EXPANSION AND CONTRACTION JOINTS AS SHOWN IN STANDARD DRAWING 854.01.
SEAL EXPANSION JOINTS WITH JOINT FILLER. (SEE SECTION 1028 OF THE SPECIFICATIONS).
SUBMIT ALTERNATIVE METHODS FOR STEEL FABRICATION PLACEMENT FOR REVIEW AND APPROVAL.
USE AN APPROVED BONDING SYSTEM IN ACCORDANCE WITH SECTION 1081 OF THE STANDARD SPECIFICATIONS.
SEE STD. 857.01 FOR SINGLE FACED BARRIER.



PLAN AT ENDS OF BRIDGE

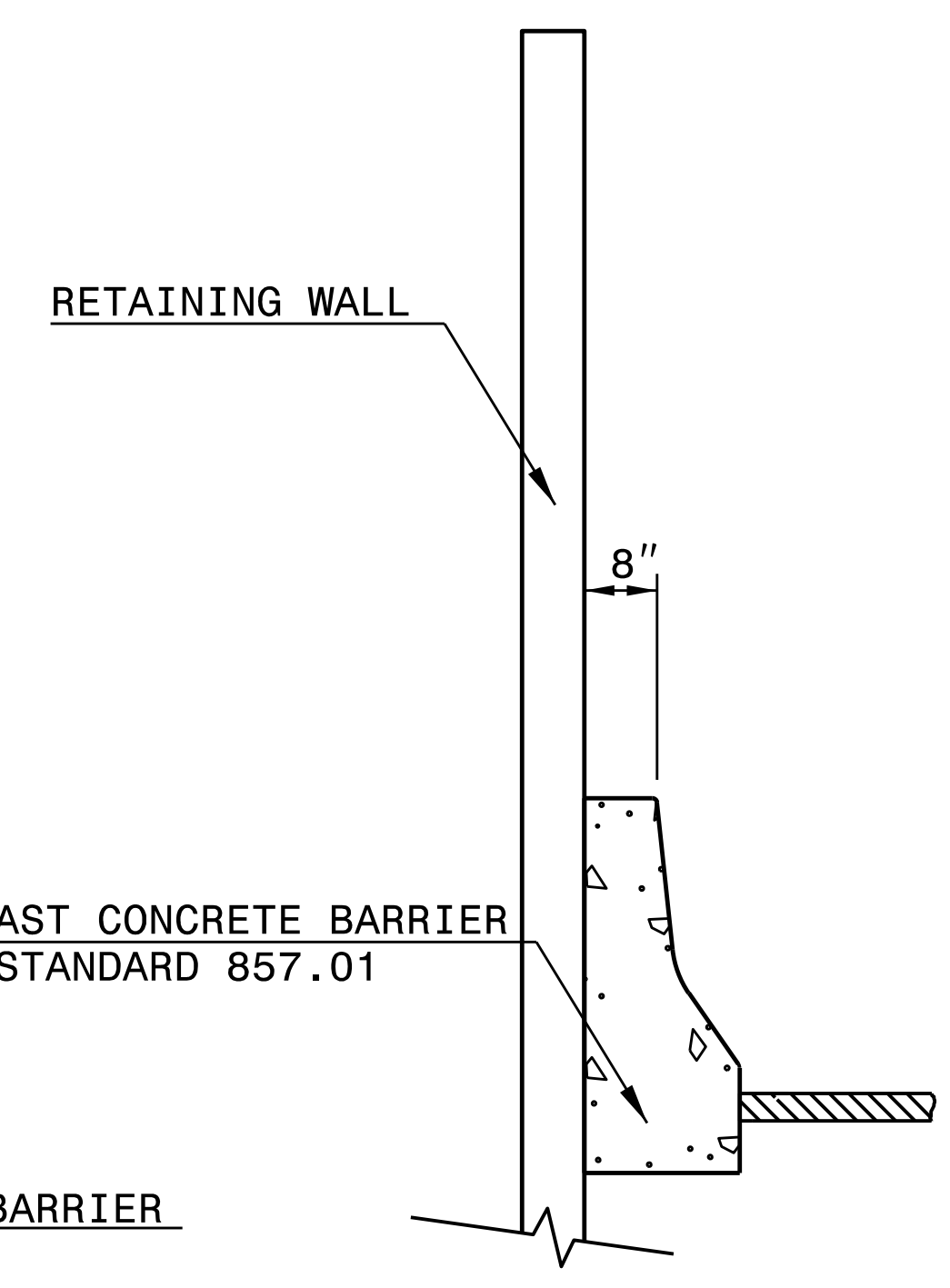
SHOWN AT RET. WALL #5, SIMILAR AT RET. WALL #4.
USE THIS DETAIL:
STA. 22+23 -L_RT- TO BEGIN APP SLAB. STR 2 (101 LF)
END APP SLAB. STR 02 TO STA 26+79 -L_RT- (100 LF)



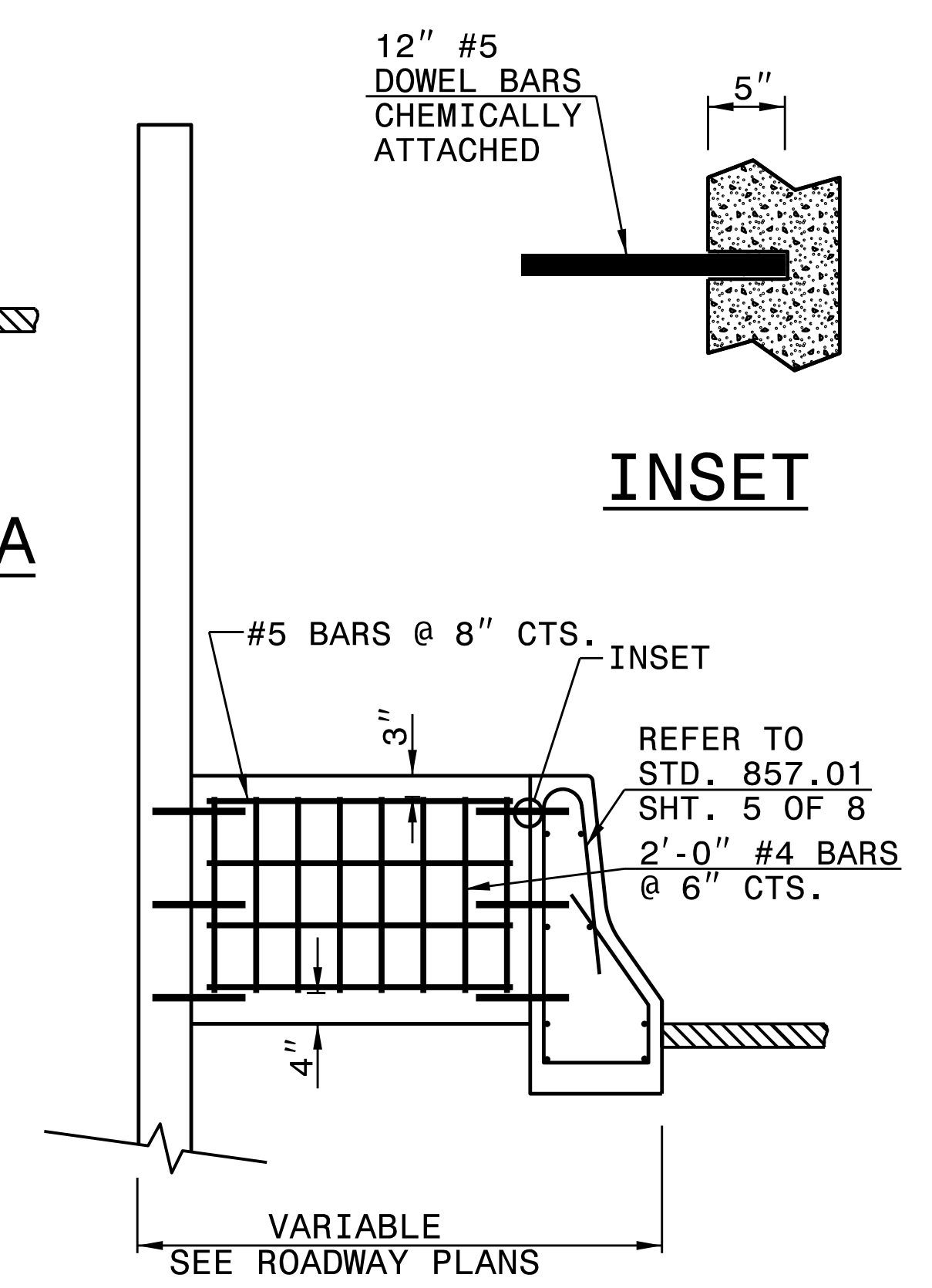
ELEVATION

SHOWN AT RET. WALL #5, SIMILAR AT RET. WALL #4.

* ANCHOR SINGLE FACED BARRIER TO BRIDGE RAIL WITH PIN AND EYE CONNECTOR.
SEE STD. 857.01 SHT. 5 OF 8.

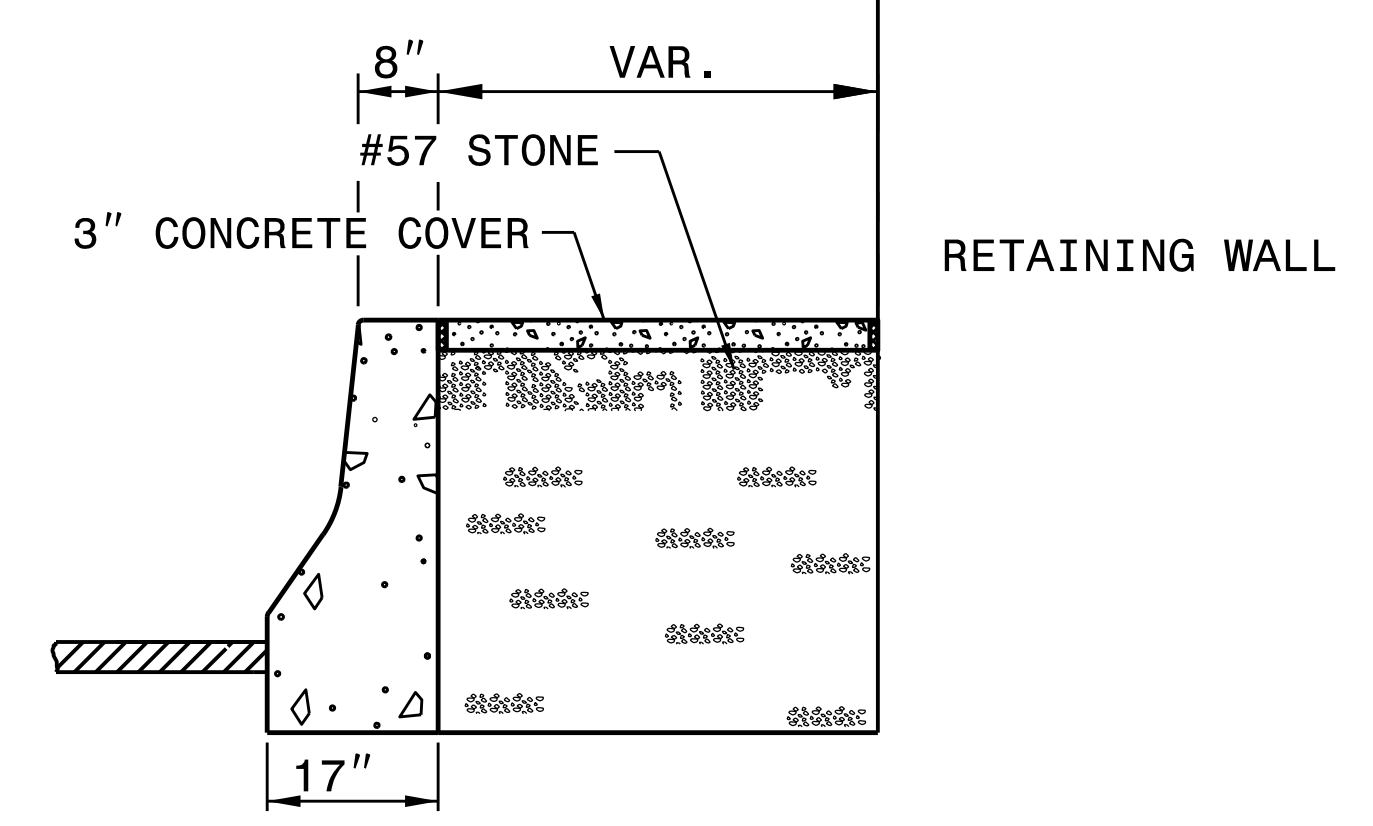


SECTION A-A



INSET

8" CONCRETE ENDWALL

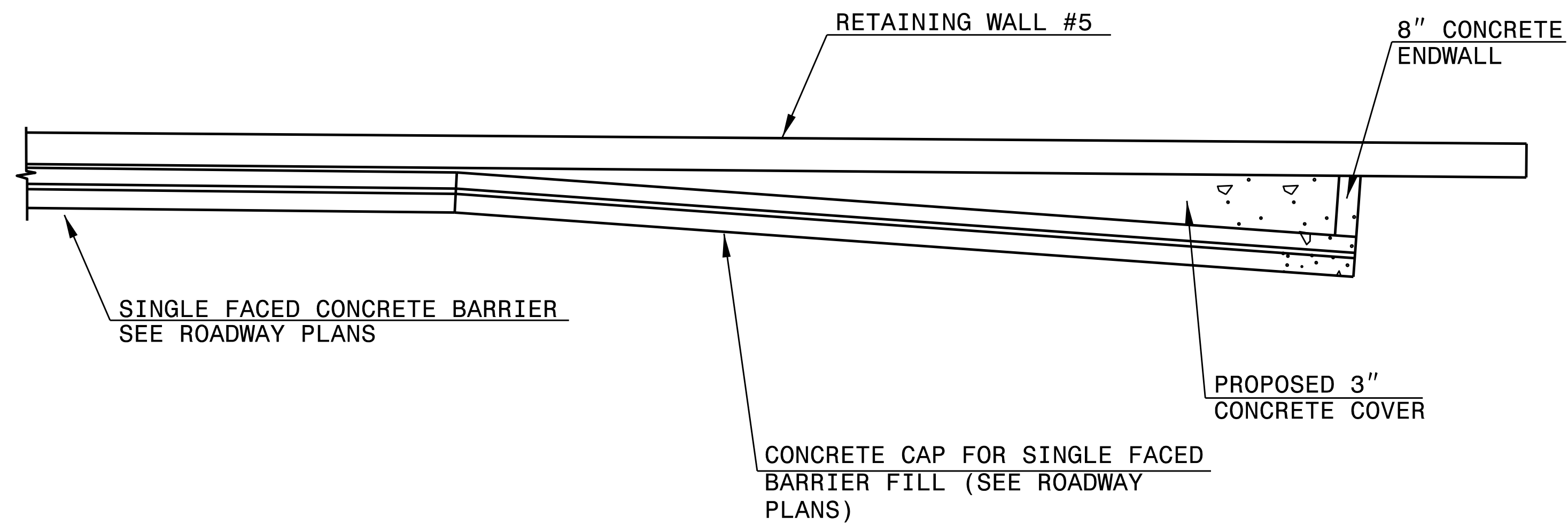


SECTION B-B

CONCRETE CAP FOR SINGLE FACED BARRIER FILL

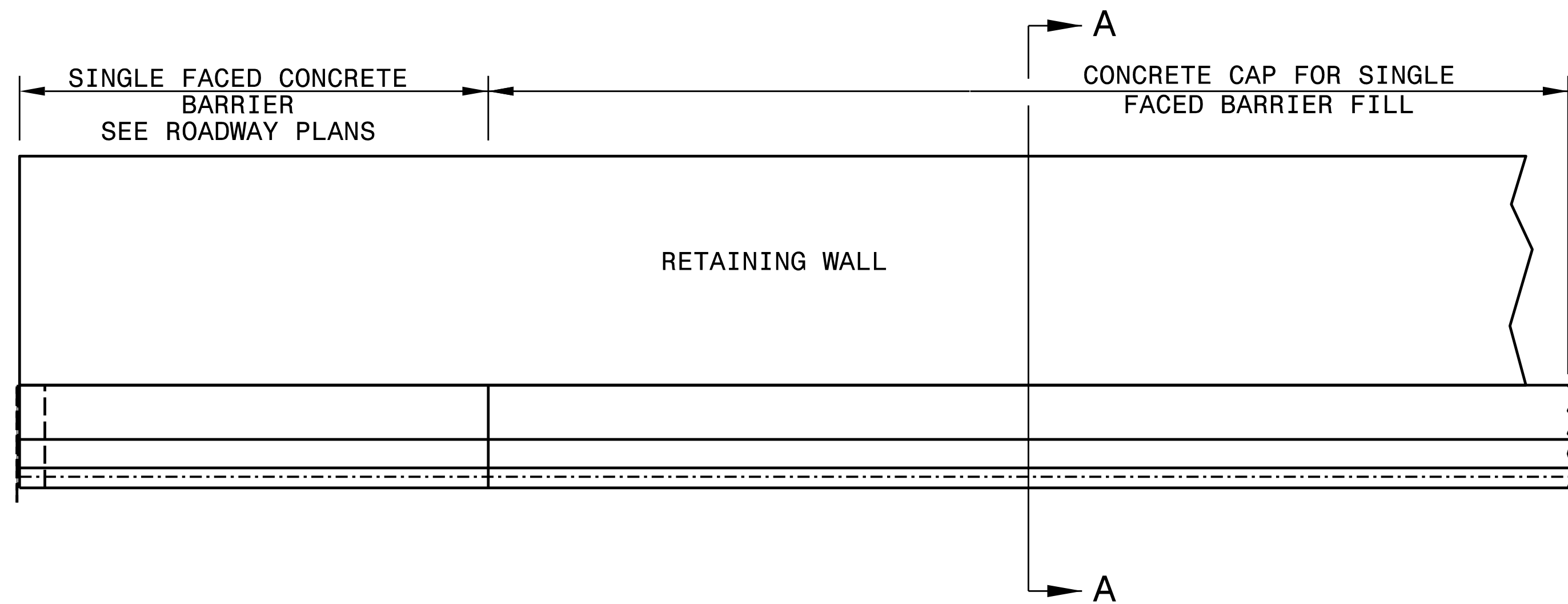
GENERAL NOTES:

- CONSTRUCT EXPANSION AND CONTRACTION JOINTS AS SHOWN IN STANDARD DRAWING 854.01.
- SEAL EXPANSION JOINTS WITH JOINT FILLER. (SEE SECTION 1028 OF THE SPECIFICATIONS).
- SUBMIT ALTERNATIVE METHODS FOR STEEL FABRICATION PLACEMENT FOR REVIEW AND APPROVAL.
- USE AN APPROVED BONDING SYSTEM IN ACCORDANCE WITH SECTION 1081 OF THE STANDARD SPECIFICATIONS.
- SEE STD. 857.01 FOR SINGLE FACED BARRIER.

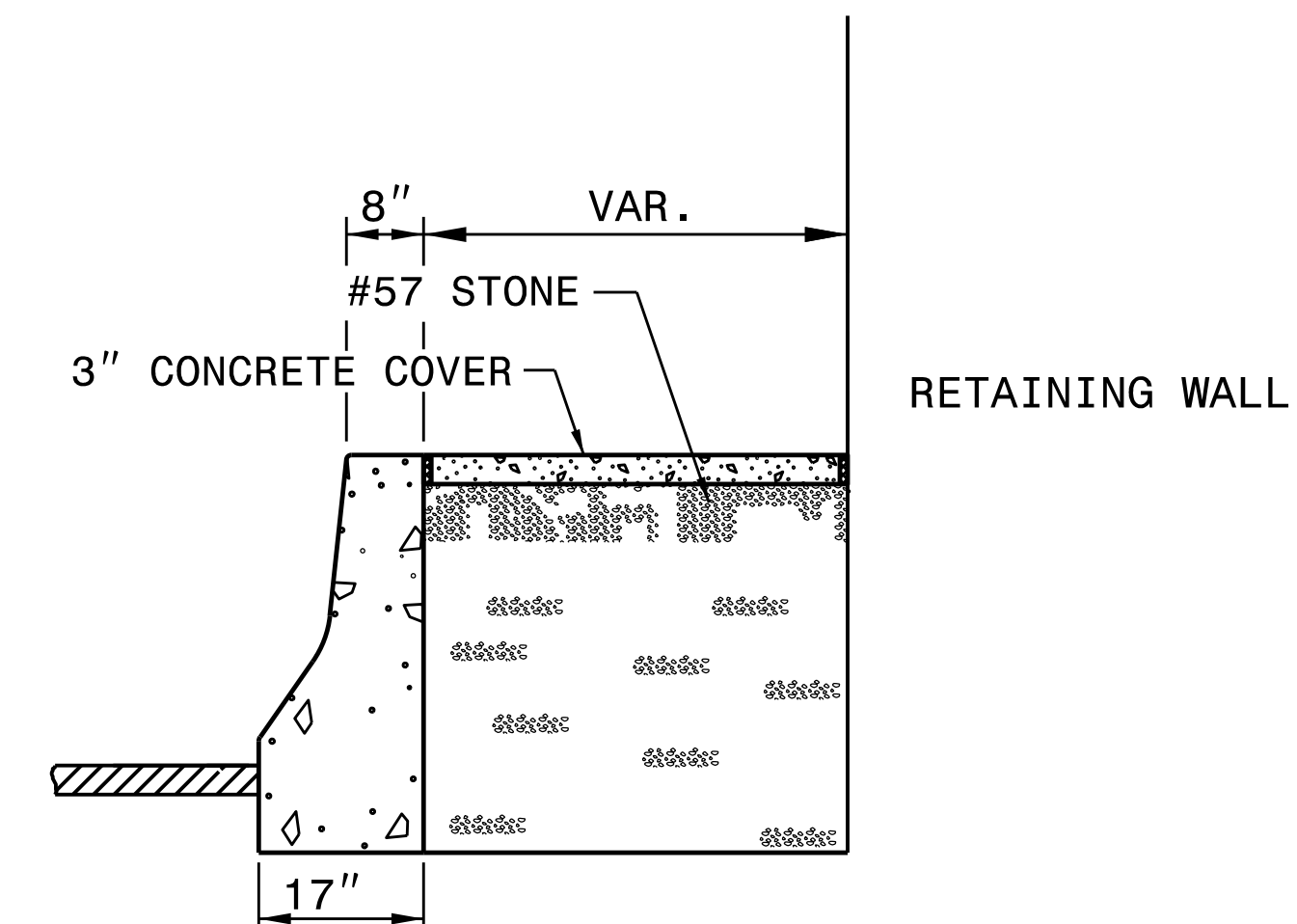
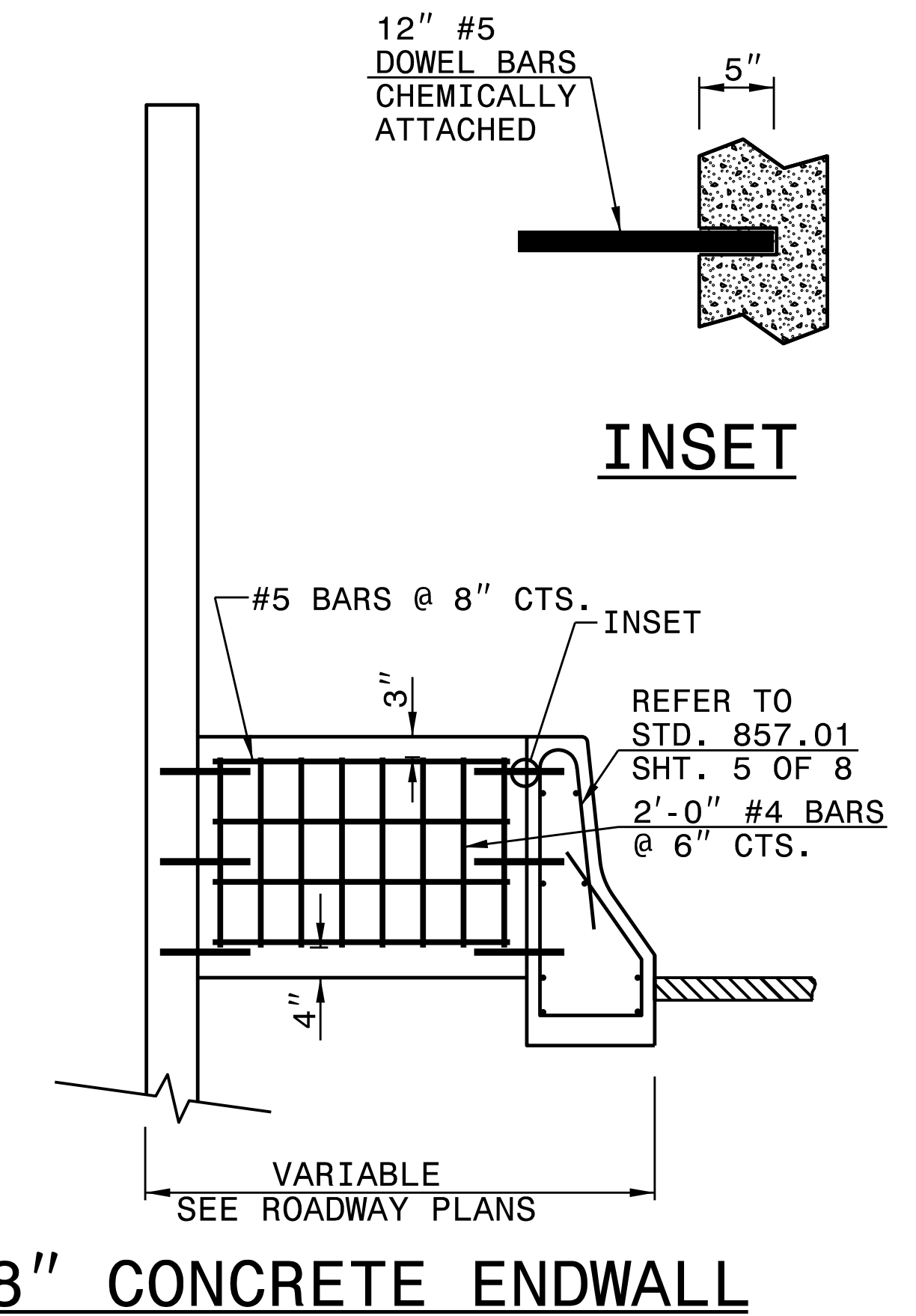


PLAN AT STA 27+96 -L_RT-

USE THIS DETAIL:
 STA. 27+22 -L_RT- TO 27+97 -L_RT- (75LF)

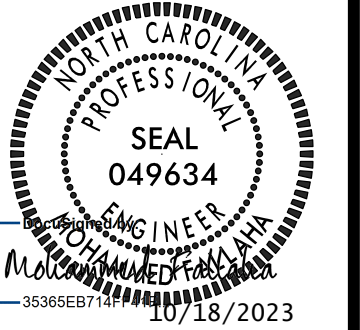
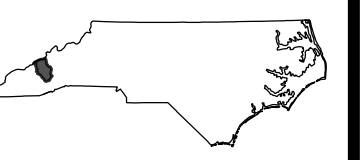


ELEVATION



SECTION A-A

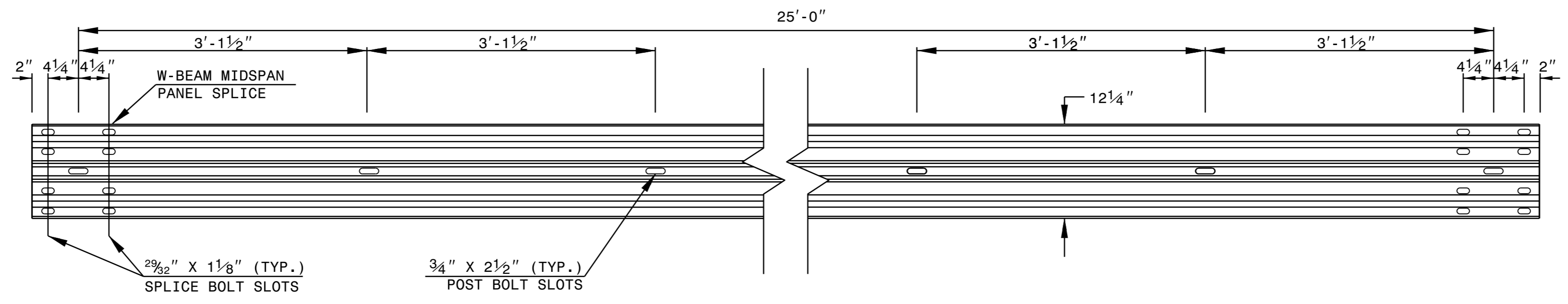
CONCRETE CAP FOR SINGLE FACED BARRIER FILL



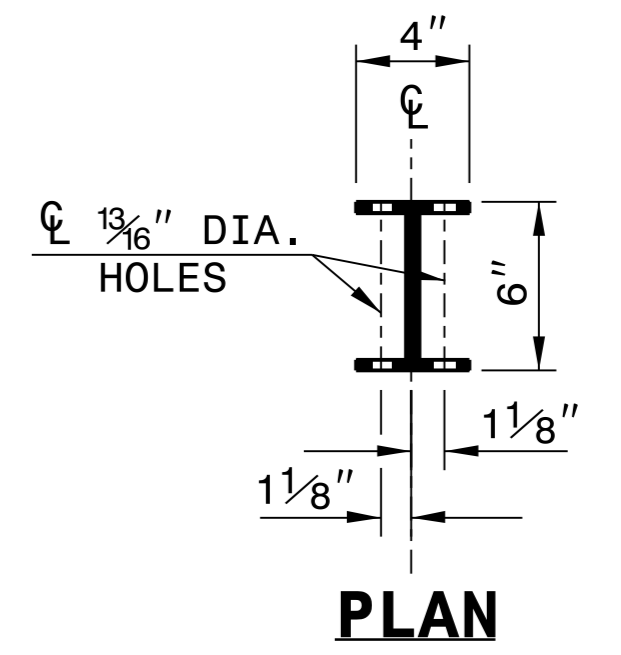
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

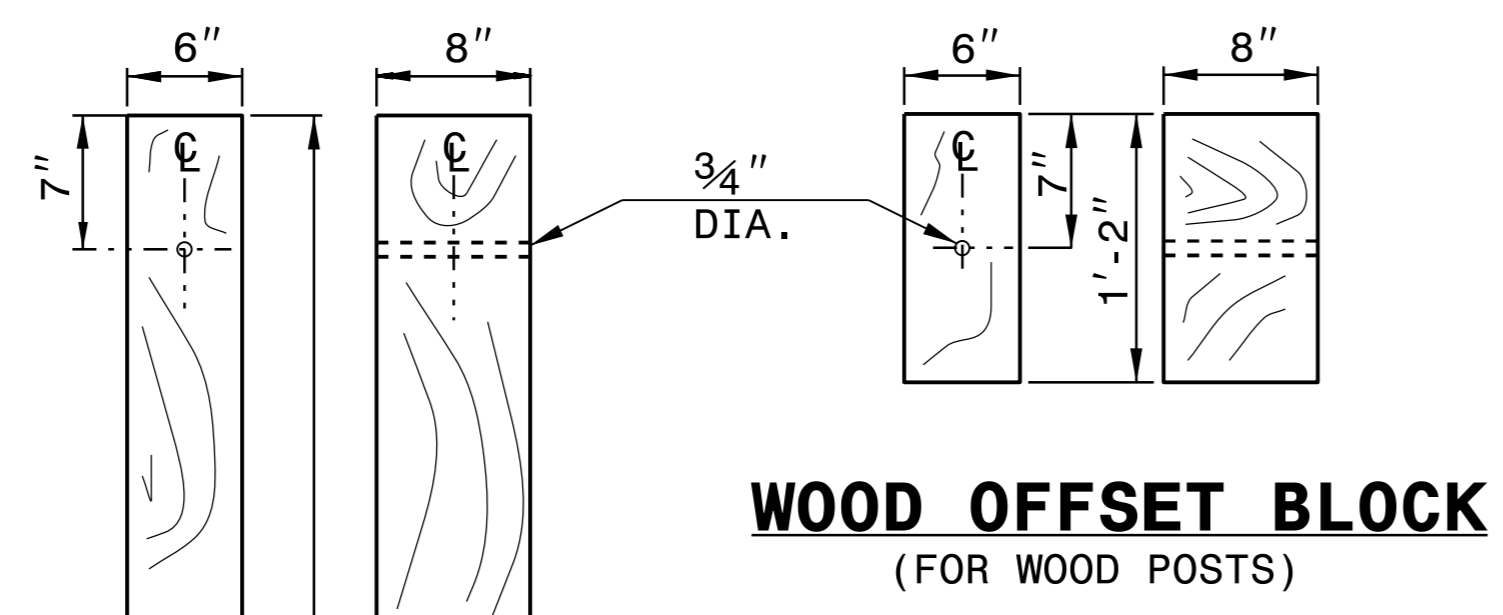
SHEET 6 OF 8
862D02



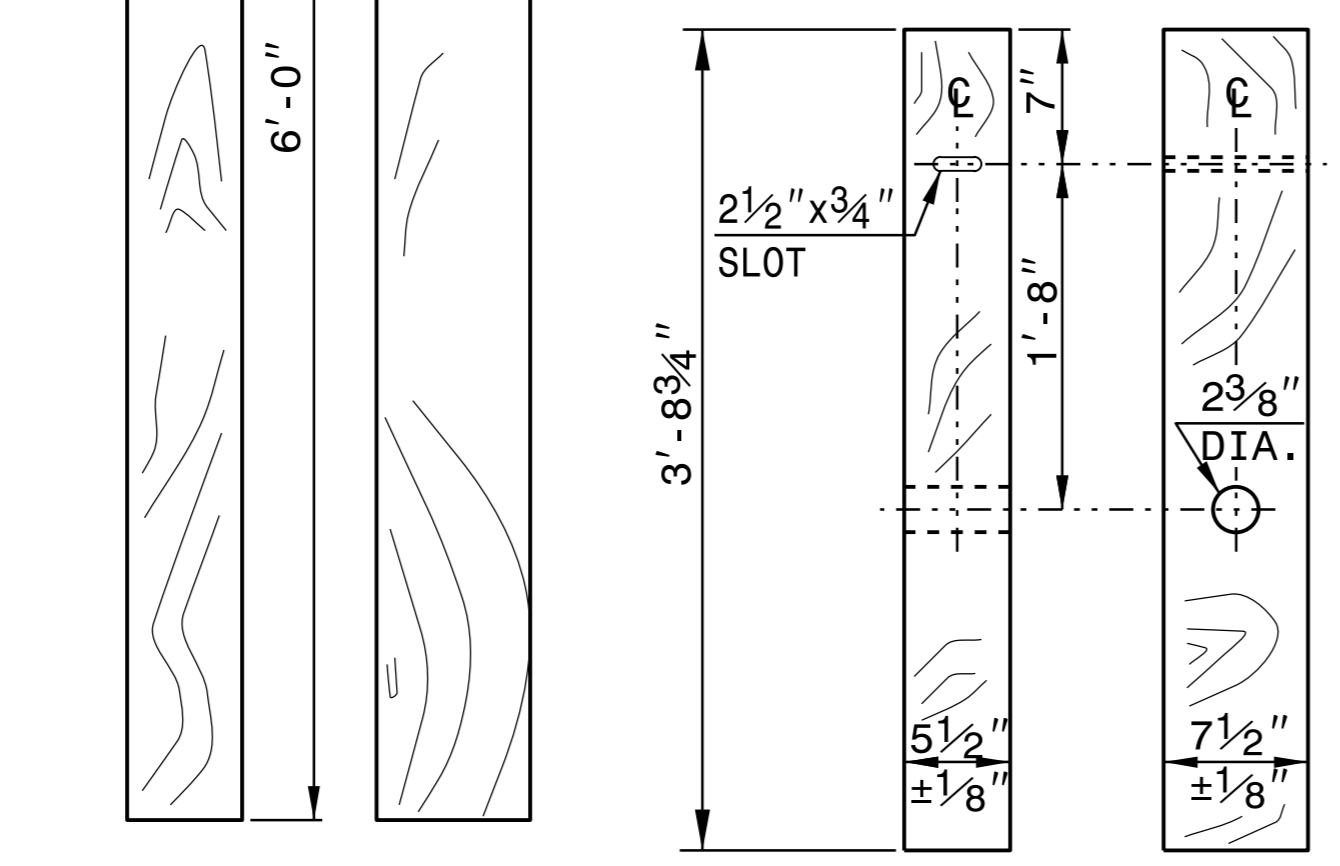
STANDARD W-BEAM GUARDRAIL



PLAN

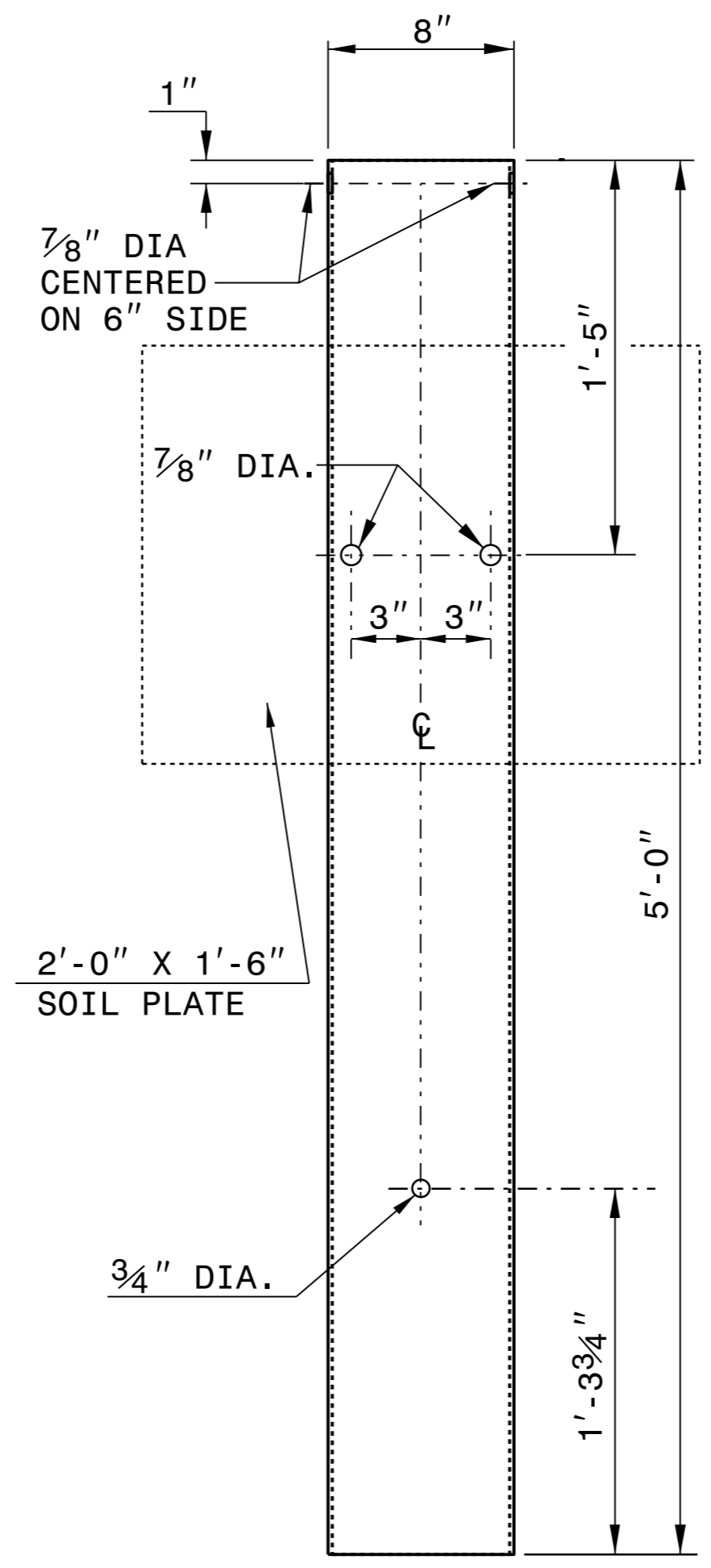


**WOOD OFFSET BLOCK
(FOR WOOD POSTS)**

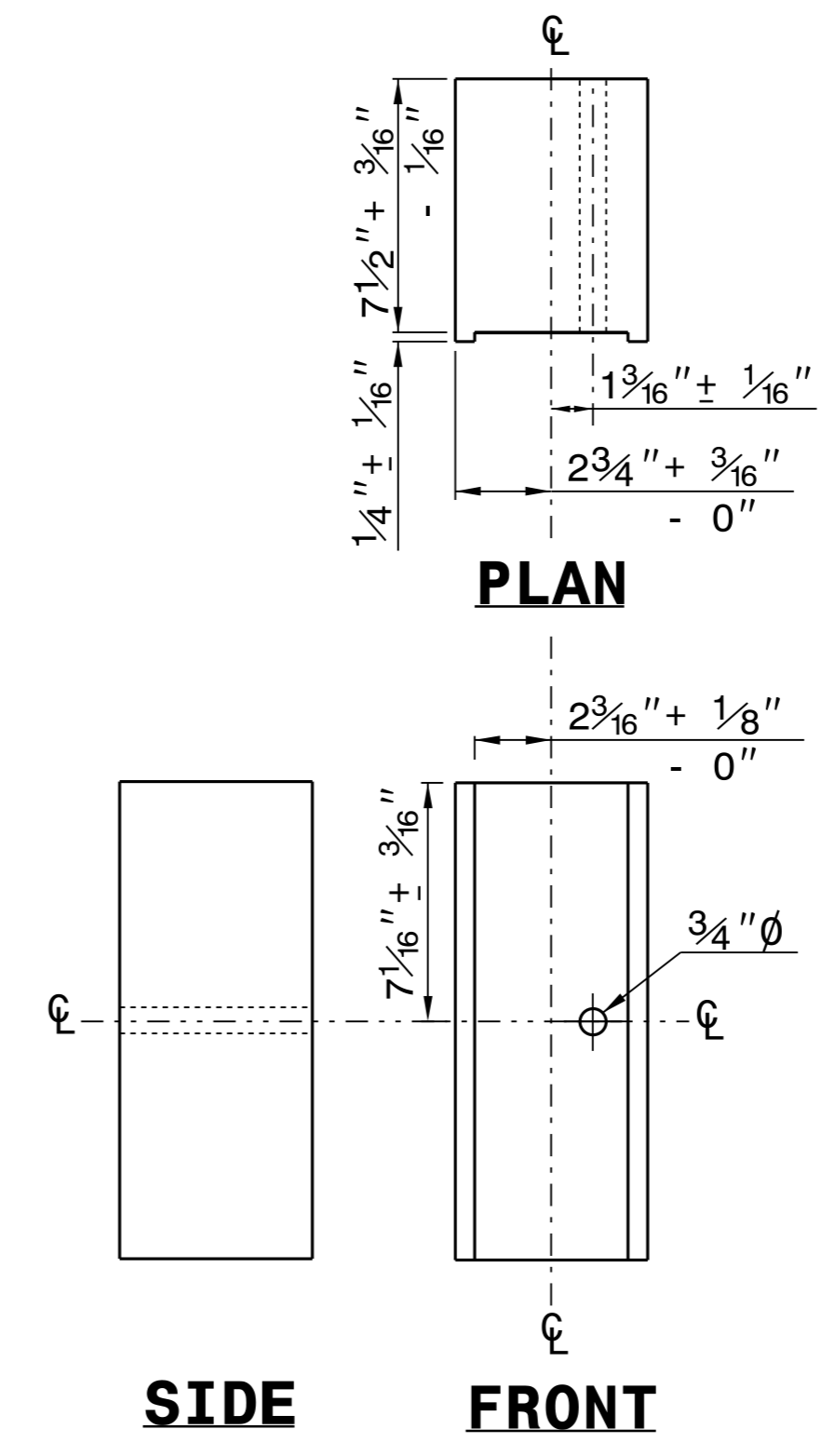


**STANDARD
LINE POST**

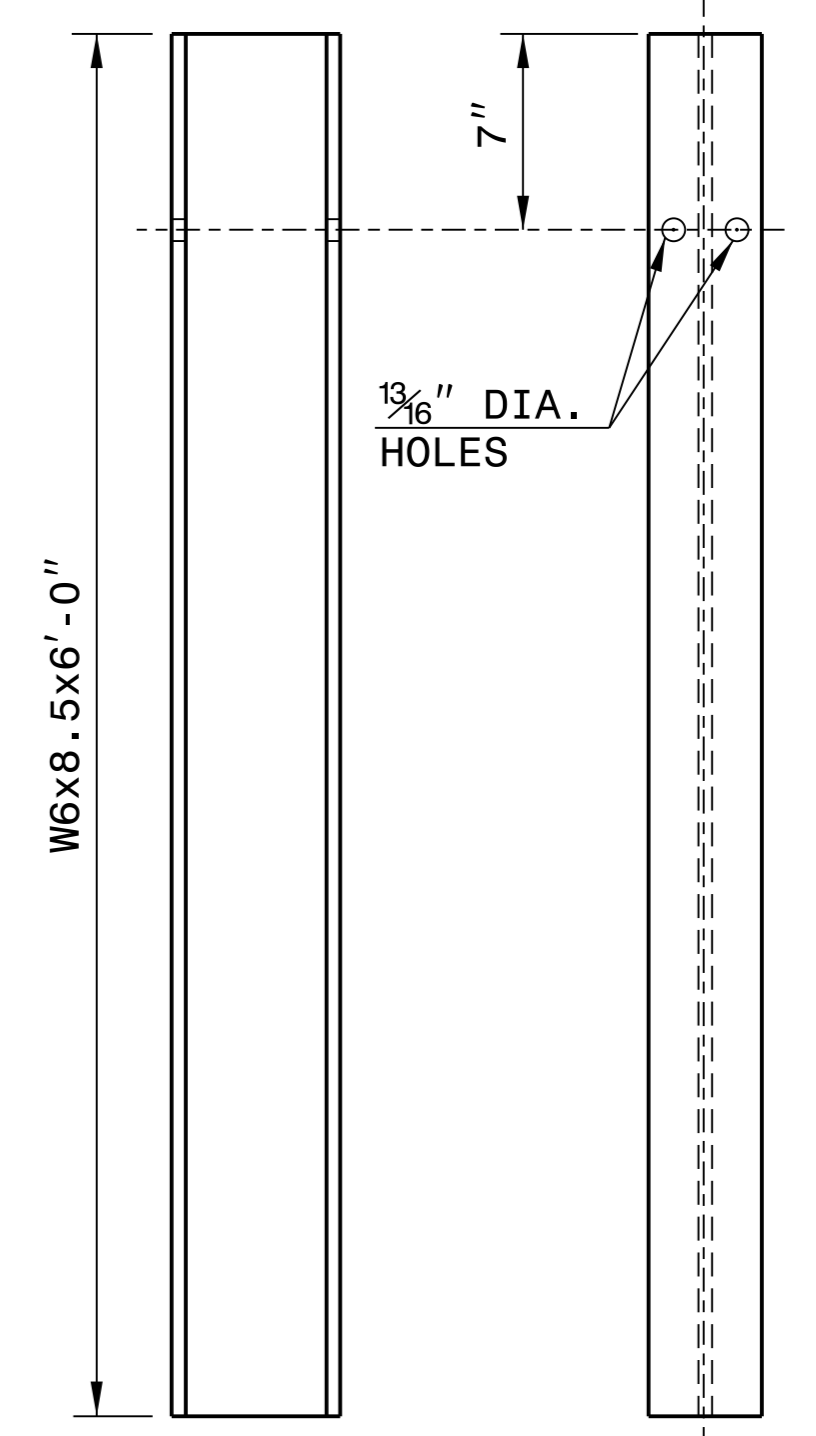
**SHORT WOOD
BREAKAWAY POST**



**STEEL TUBE
TS 6"x8"x0.1875"**



**SIDE
FRONT
ROUTED
OFFSET BLOCK**



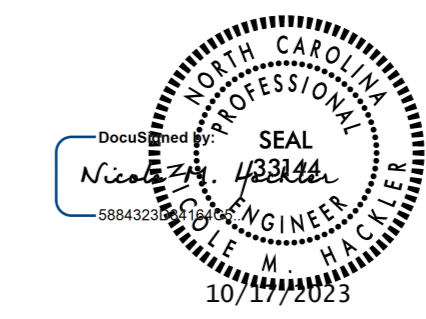
**SIDE
FRONT
"W6" STEEL POST**

SYSTEM PARTS

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

ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

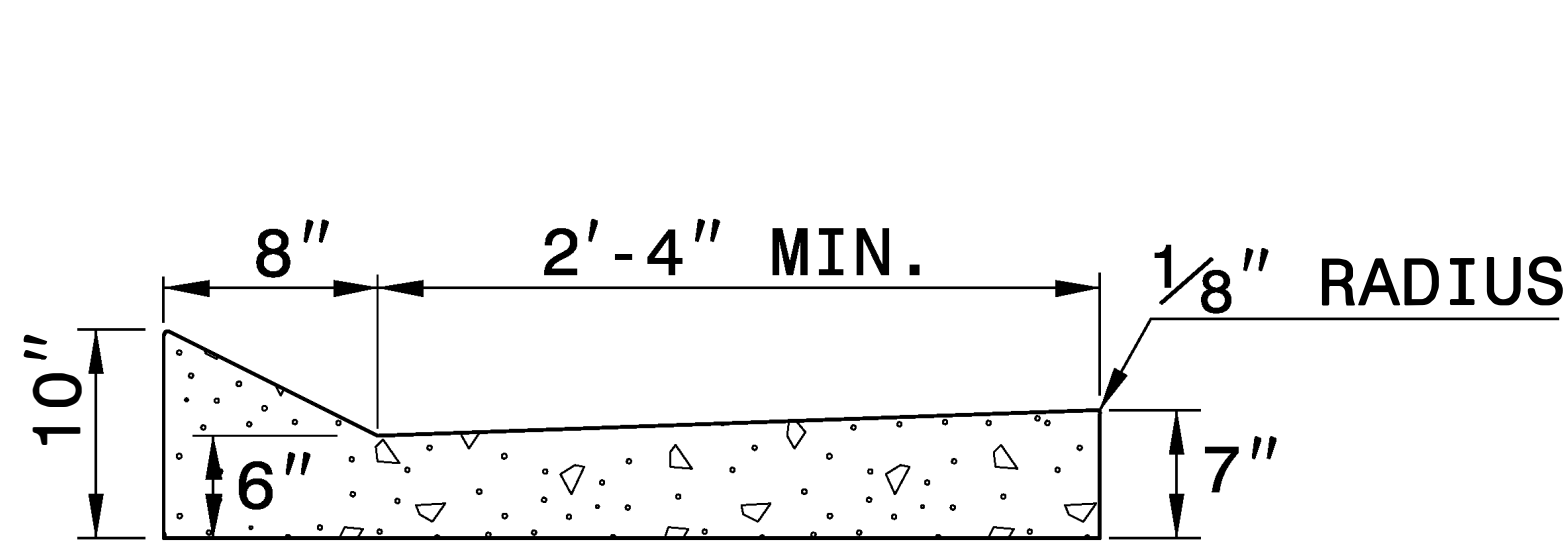
SHEET 6 OF 8
862D02



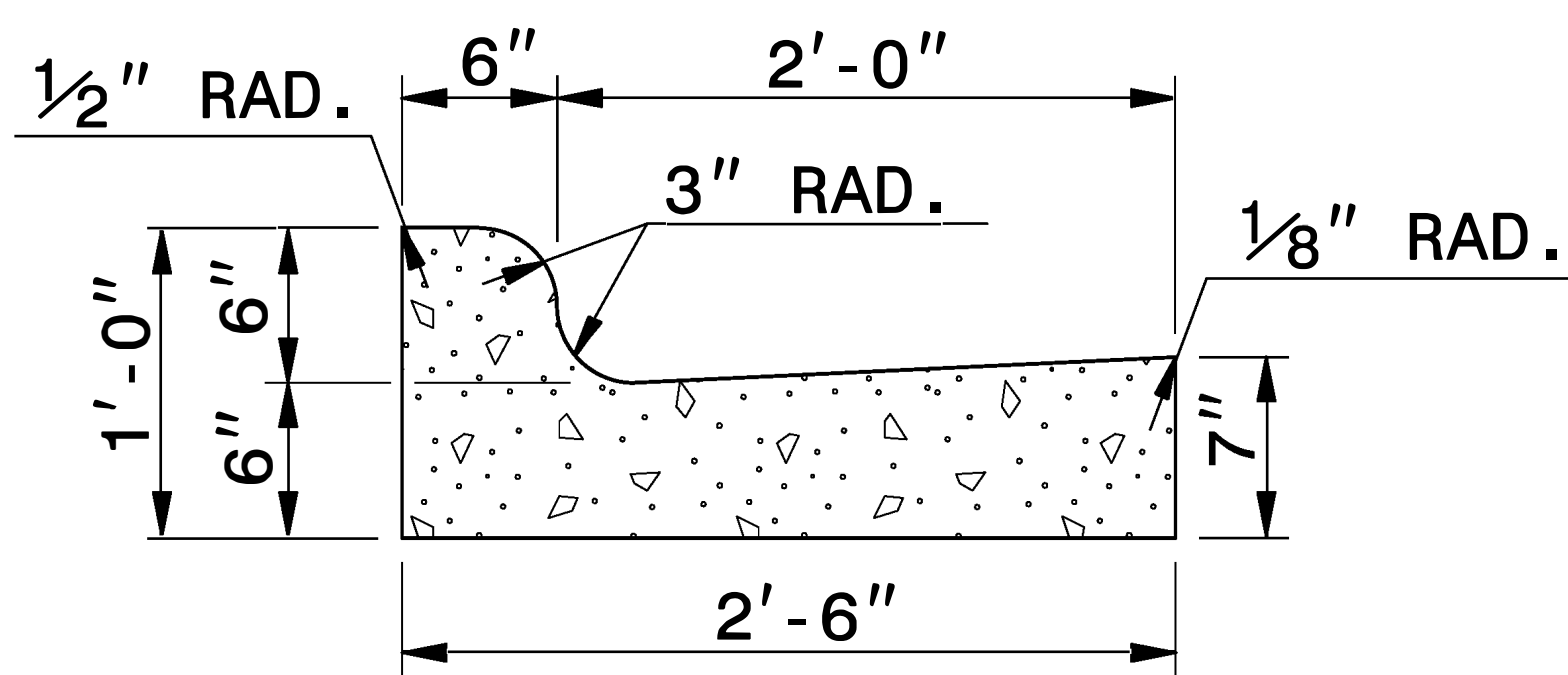
**CONTRACTS STANDARDS
AND DEVELOPMENT UNIT**
Office 919-707-6950 FAX 919-250-4119

SEE TITLE BLOCK

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MODIFIED BY: DATE: _____
CHECKED BY: DATE: _____
FILE SPEC.: _____

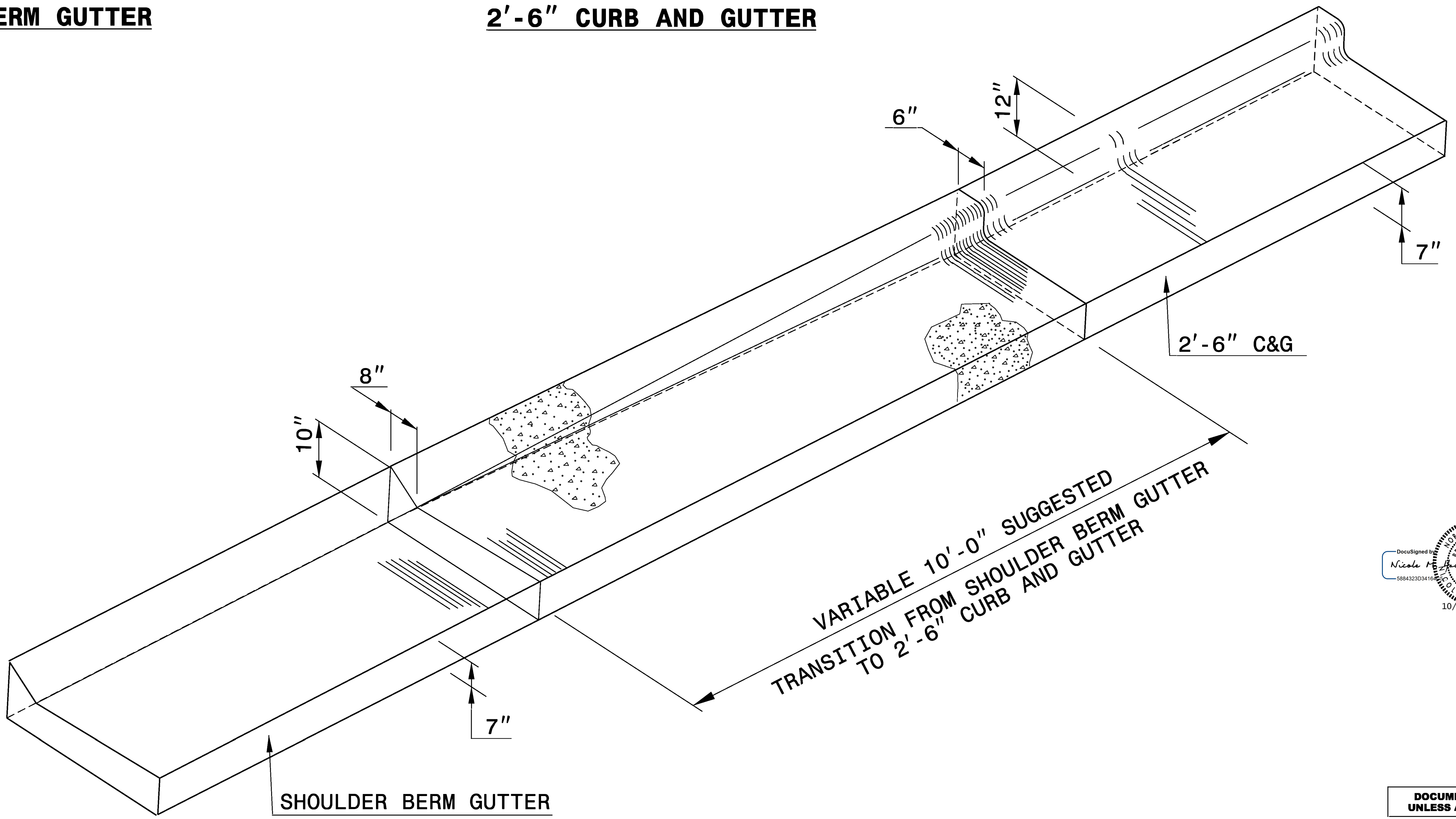


SHOULDER BERM GUTTER



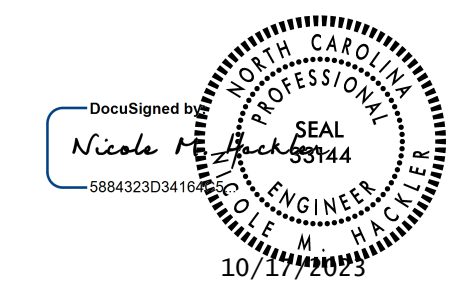
2'-6" CURB AND GUTTER

*NOTE: SEE STD. DWG. 846.01 FOR GENERAL NOTES



ISOMETRIC VIEW OF TRANSITION

VARIABLE 10'-0" SUGGESTED
TRANSITION FROM SHOULDER BERM GUTTER
TO 2'-6" CURB AND GUTTER

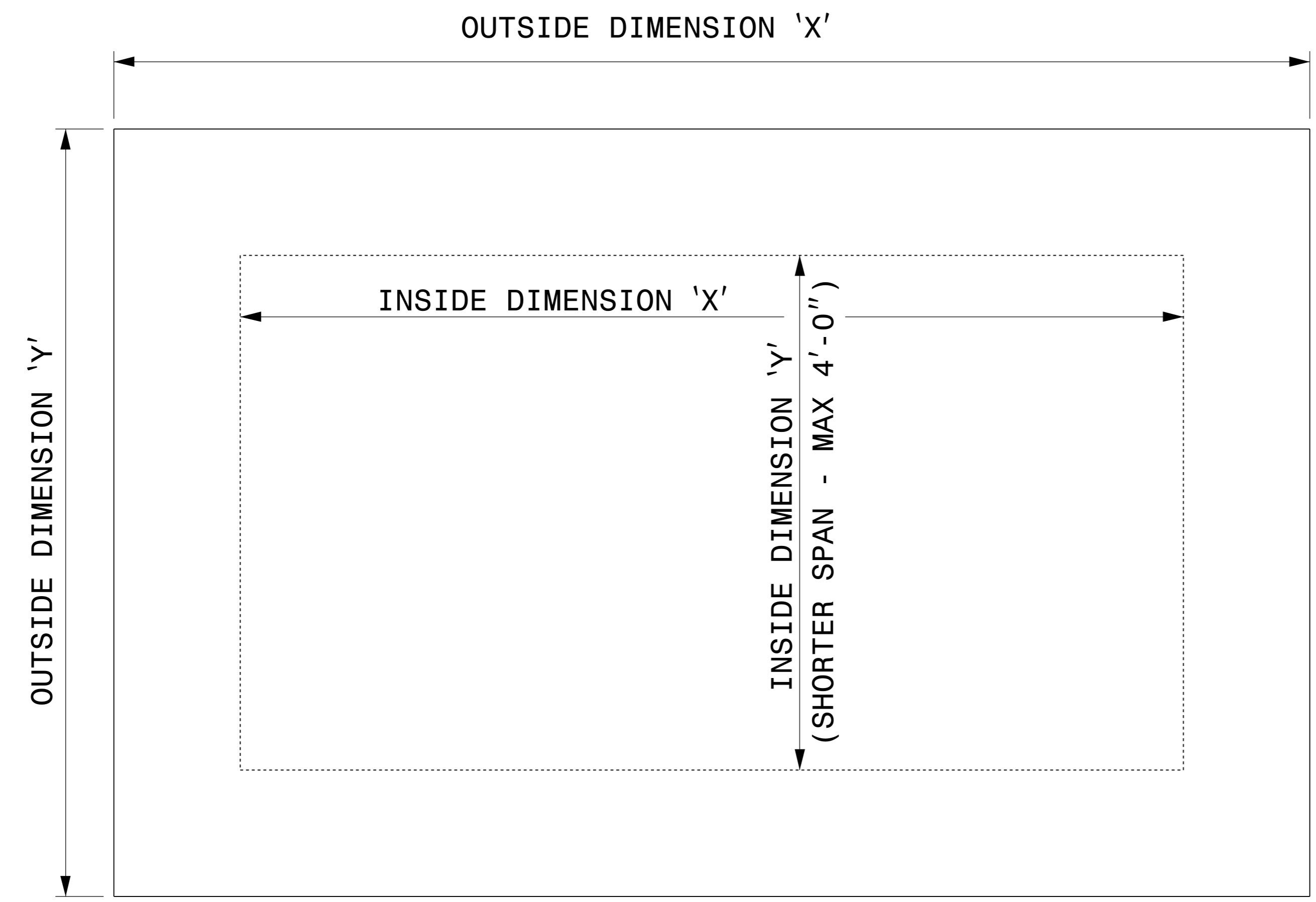


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CONTRACT STANDARDS AND DEVELOPMENT UNIT	
Office 919-707-6950 FAX 919-250-4119	
DETAIL OF SHOULDER BERM GUTTER TO 2'-6" CURB & GUTTER TRANSITION SECTION	
ORIGINAL BY: E.E. WARD	DATE: 5-29-02
MODIFIED BY:	DATE:
CHECKED BY:	DATE:
FILE SPEC.: /usr/details/stand/cgtransit.dgn	

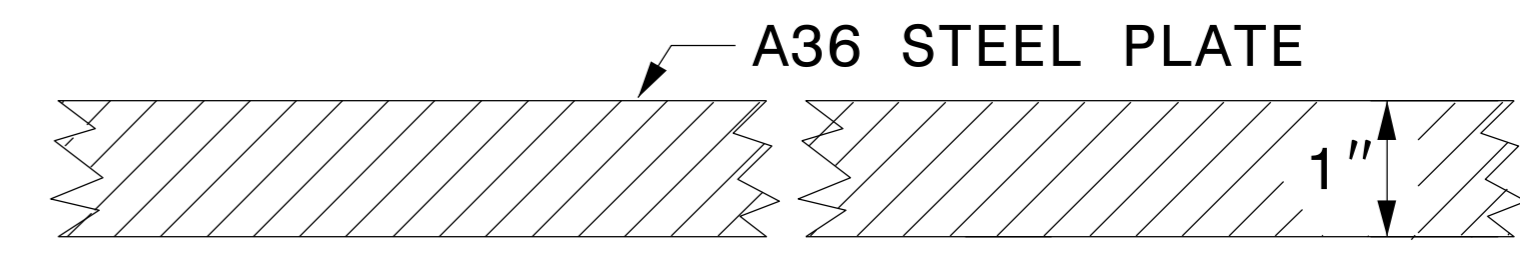
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5/14/99



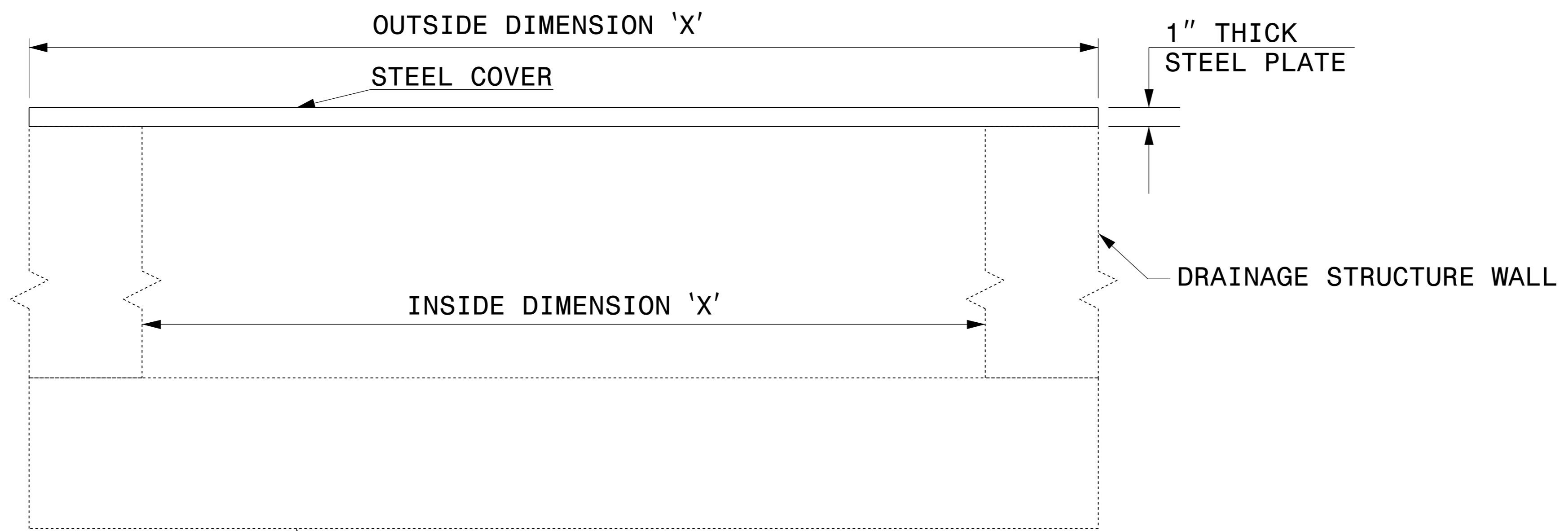
GENERAL NOTES:

- USE GRADE A36 STEEL
- STEEL COVERS ARE FOR TEMPORARY USE DURING PHASE CONSTRUCTION.
- FILL SHALL BE PLACED DIRECTLY OVER THE STEEL PLATES.
- SEE ROADWAY PLANS AND PROVISIONS FOR LOCATIONS
- QUANTITIES TO BE PAID FOR AT THE UNIT PRICE BID PER EACH.

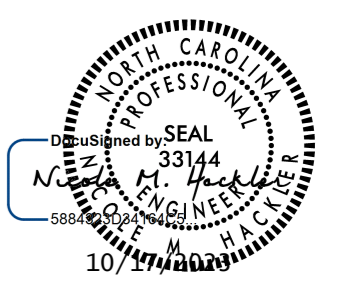


SECTION VIEW OF STEEL TOP PLATE

PLAN VIEWS



ELEVATION VIEWS



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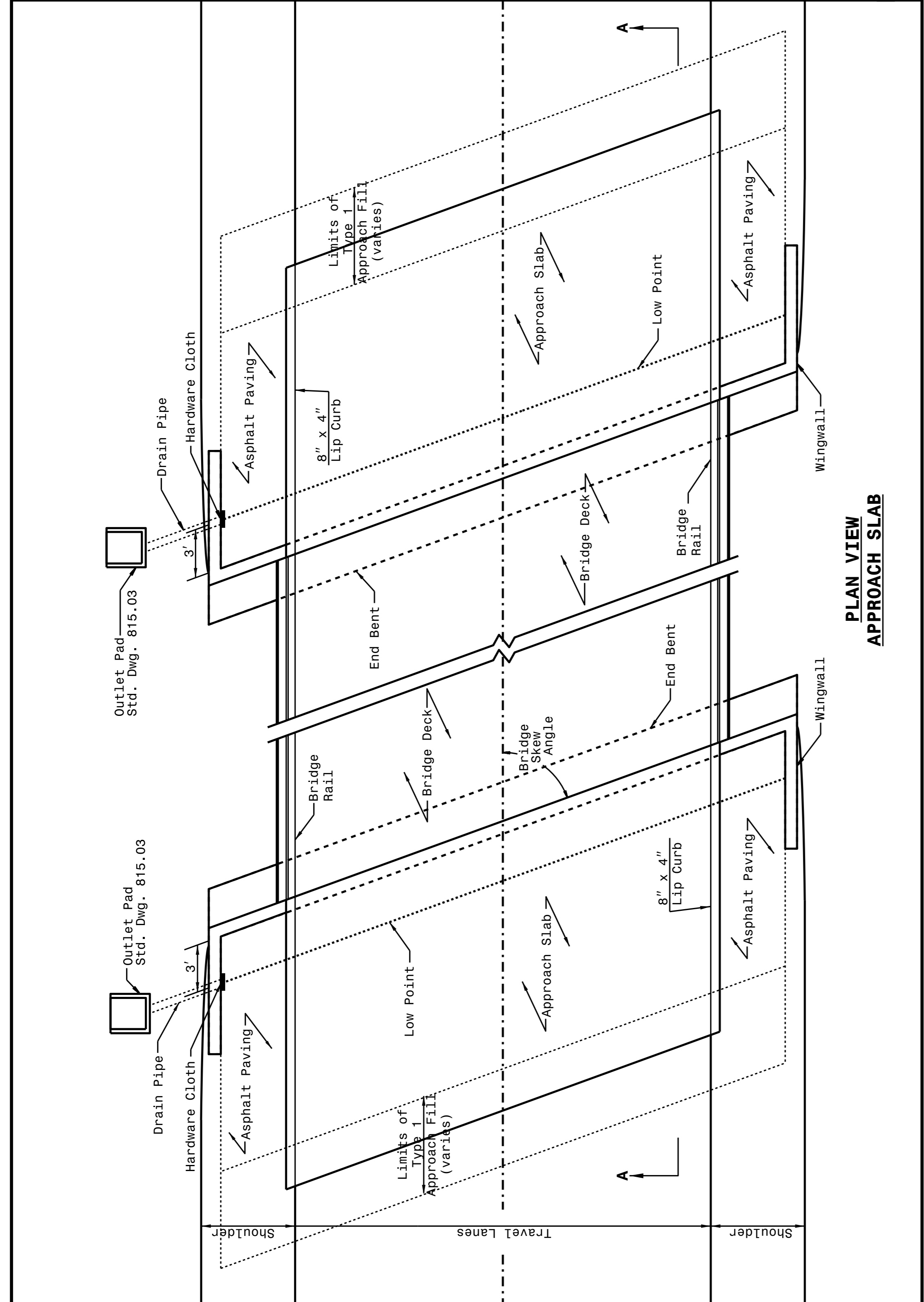
CONTRACT STANDARDS AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

DETAIL OF TEMPORARY 1" STEEL COVER OVER DRAINAGE STRUCTURE

ORIGINAL BY: E.E. WARD DATE: 2-2-98
 MODIFIED BY: DATE:
 CHECKED BY: DATE:
 FILE SPEC.: eric:/usr/details/metric/stand/st1cvr2.dgn

\$\$\$\$\$TIME\$\$\$\$\$
\$\$\$\$\$USER\$\$\$\$\$

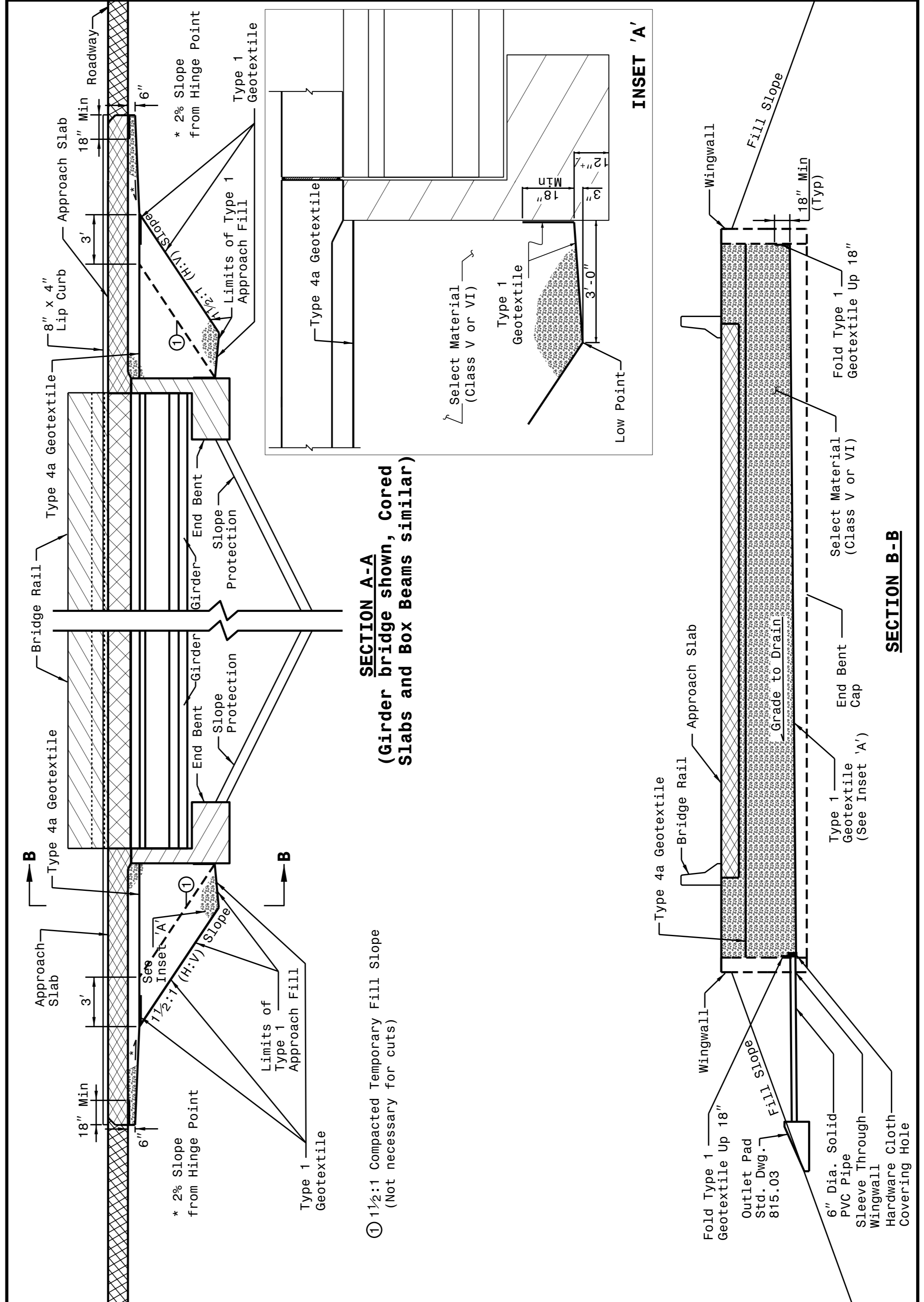
STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.
ROADWAY DETAIL DRAWING FOR BRIDGE APPROACH FILLS TYPE 1 APPROACH FILL FOR BRIDGE ABUTMENT
SHEET 1 OF 2



PLAN VIEW APPROACH SLAB

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.
ROADWAY DETAIL DRAWING FOR BRIDGE APPROACH FILLS TYPE 1 APPROACH FILL FOR BRIDGE ABUTMENT
SHEET 1 OF 2

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.
ROADWAY DETAIL DRAWING FOR BRIDGE APPROACH FILLS TYPE 1 APPROACH FILL FOR BRIDGE ABUTMENT
SHEET 2 OF 2

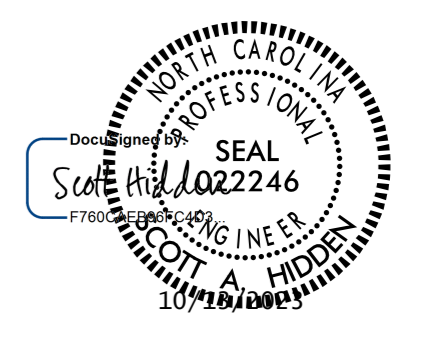


SECTION A-A (Girder bridge shown, Cored Slabs and Box Beams similar)

SECTION B-B

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.
ROADWAY DETAIL DRAWING FOR BRIDGE APPROACH FILLS TYPE 1 APPROACH FILL FOR BRIDGE ABUTMENT
SHEET 2 OF 2

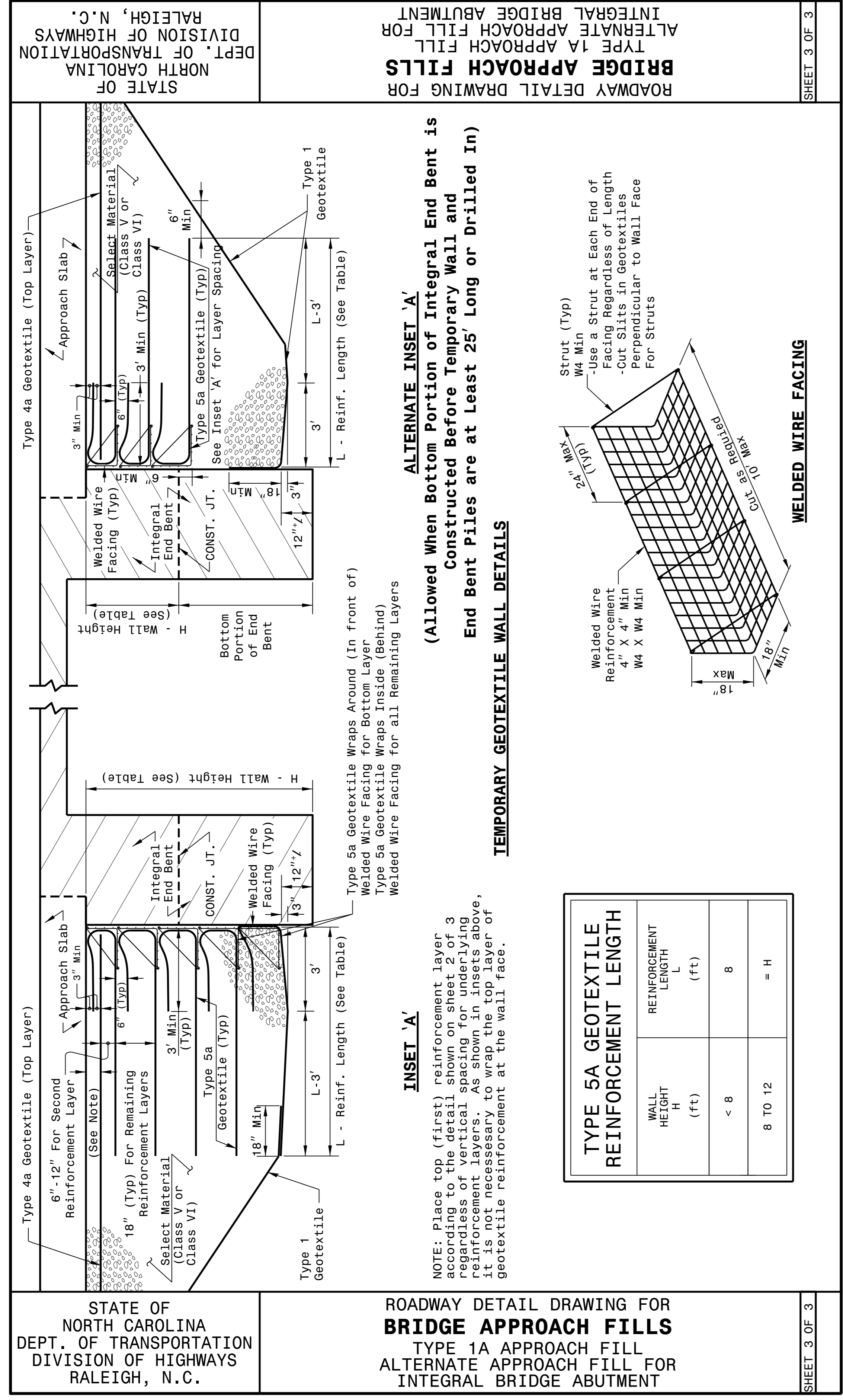
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CONTRACT STANDARDS AND DEVELOPMENT UNIT
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ORIGINAL BY: K KEMPF DATE: 07-30-23
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC.:



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

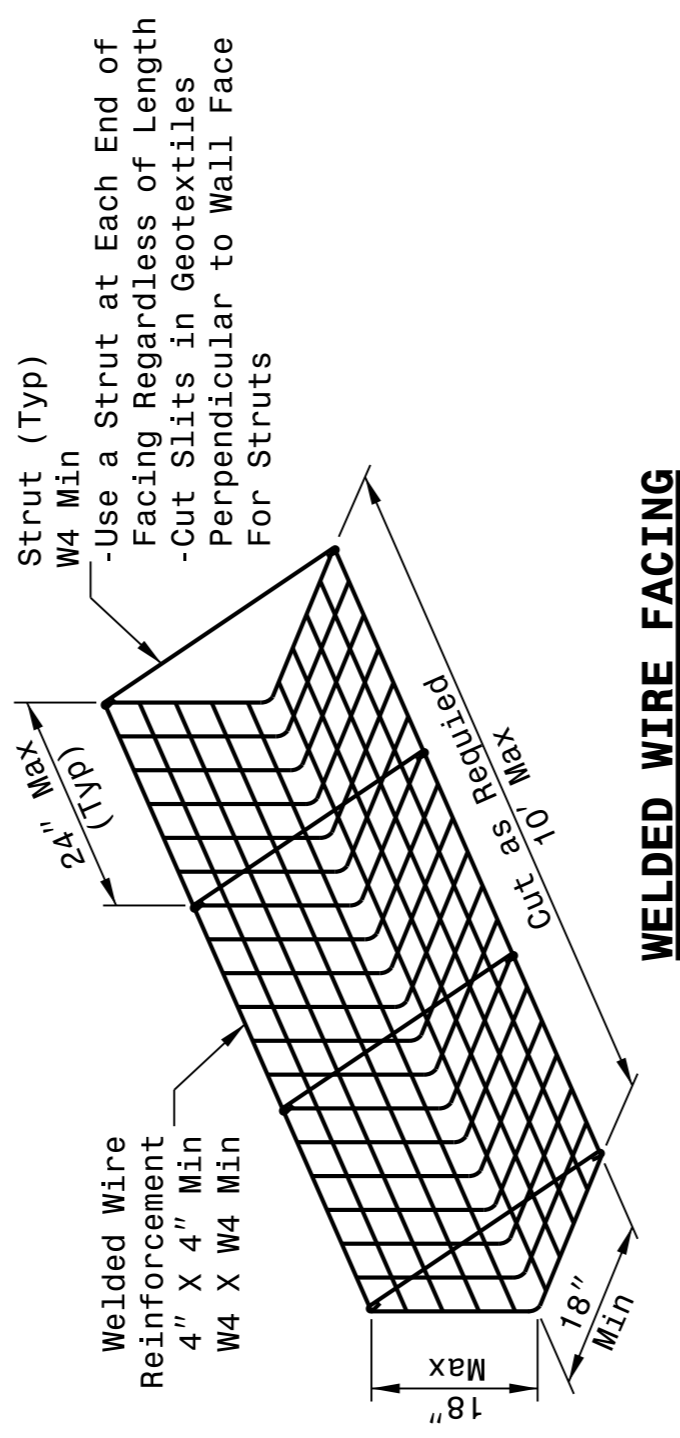
ROADWAY DETAIL DRAWING FOR BRIDGE APPROACH FILLS TYPE 1A APPROACH FILL ALTERNATE APPROACH FILL FOR INTEGRAL BRIDGE ABUTMENT SHEET 3 OF 3

INSET 'A'
NOTE: Place top (first) reinforcement layer according to the detail shown on sheet 2 of 3 regardless of vertical spacing for underlying reinforcement layers. As shown in insets above, it is not necessary to wrap the top layer of geotextile reinforcement at the wall face.

ALTERNATE INSET 'A'
(Allowed When Bottom Portion of Integral End Bent is Constructed Before Temporary Wall and End Bent Piles are at Least 25' Long or Drilled In)

TEMPORARY GEOTEXTILE WALL DETAILS

TYPE 5A GEOTEXTILE REINFORCEMENT LENGTH	
WALL HEIGHT H (ft)	REINFORCEMENT LENGTH L (ft)
< 8	8
8 TO 12	= H



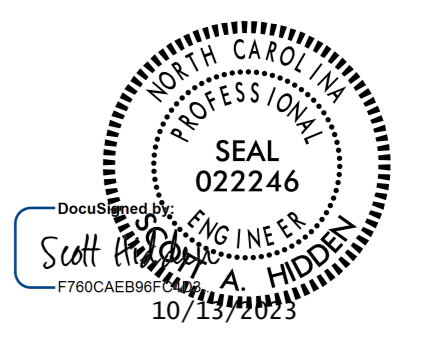
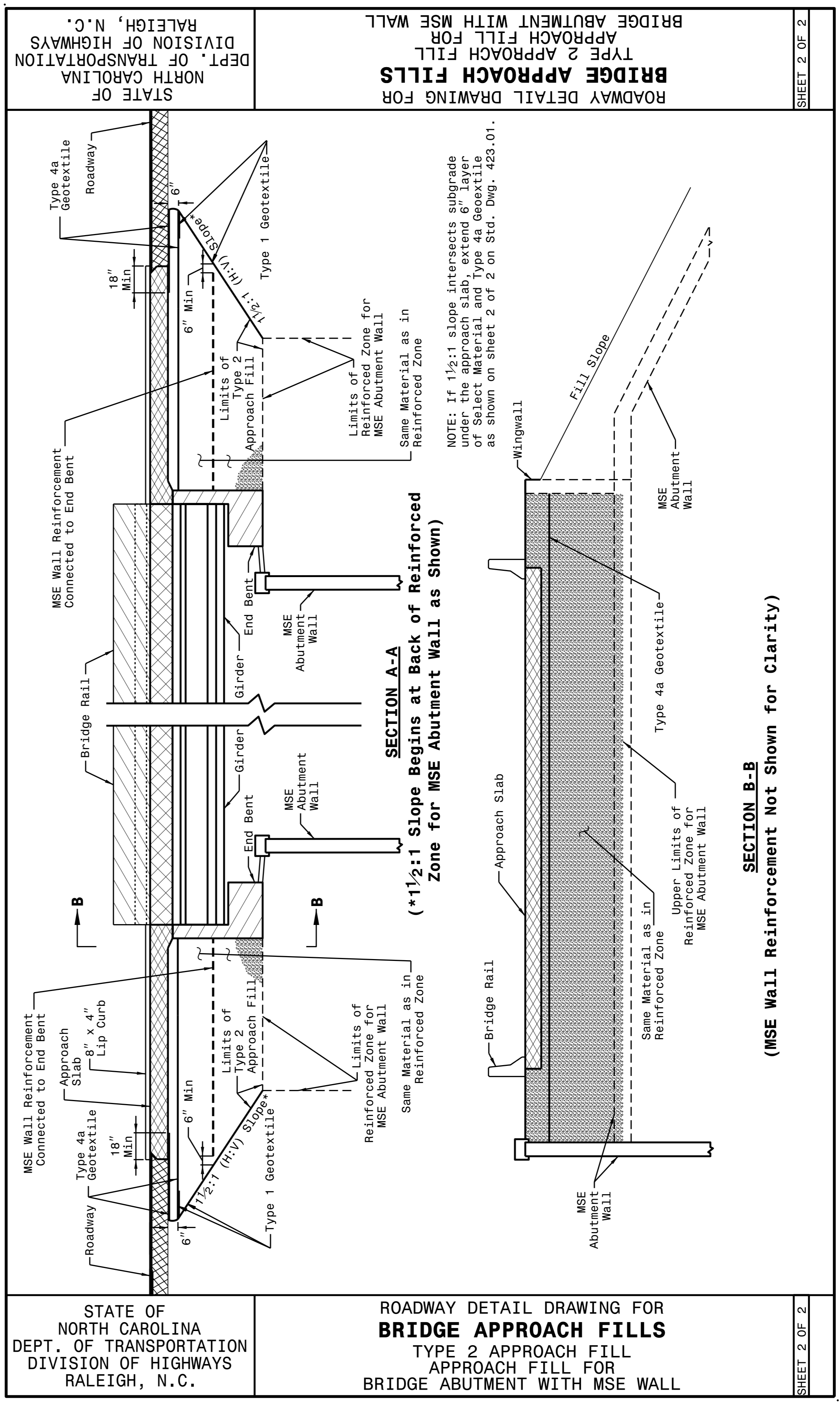
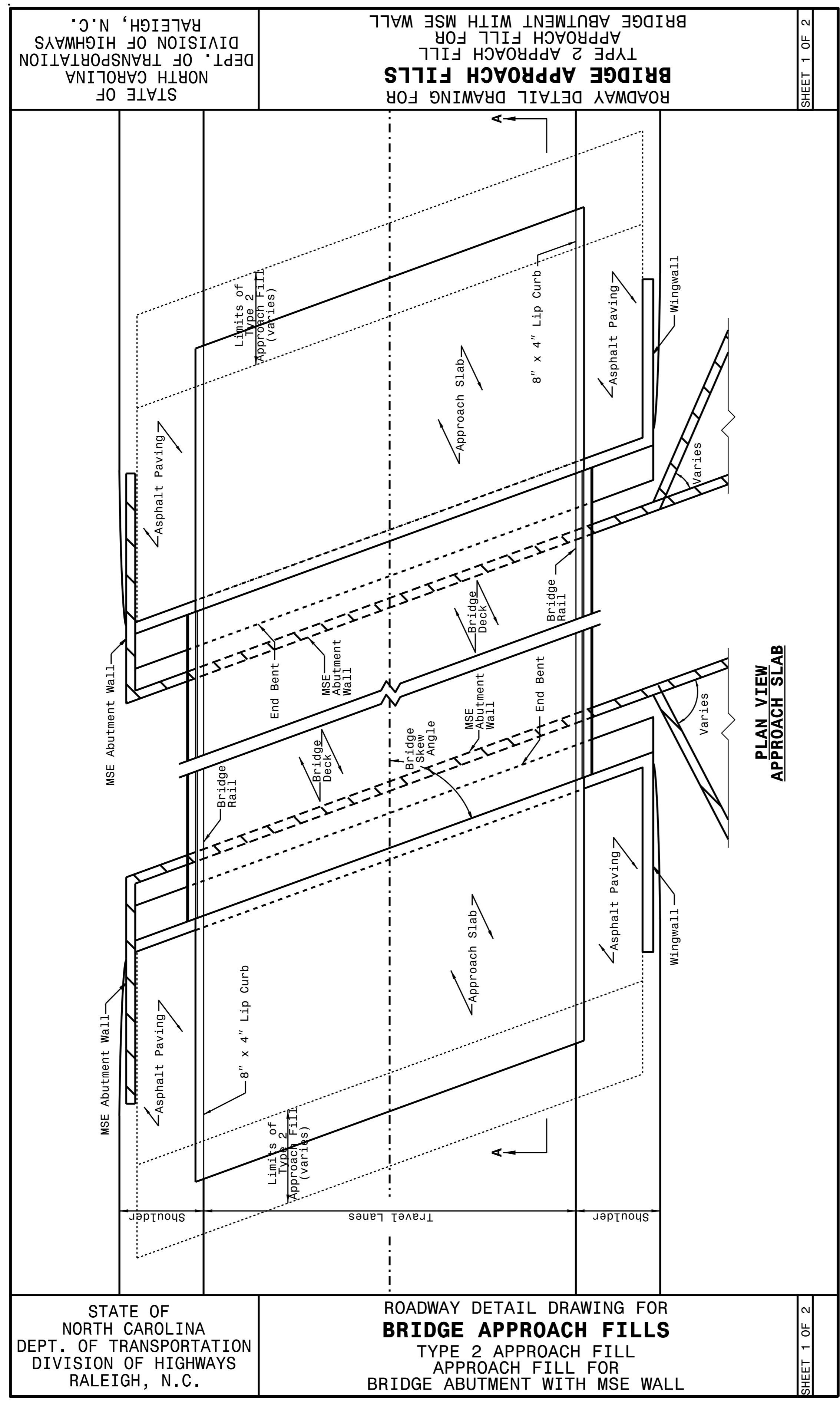
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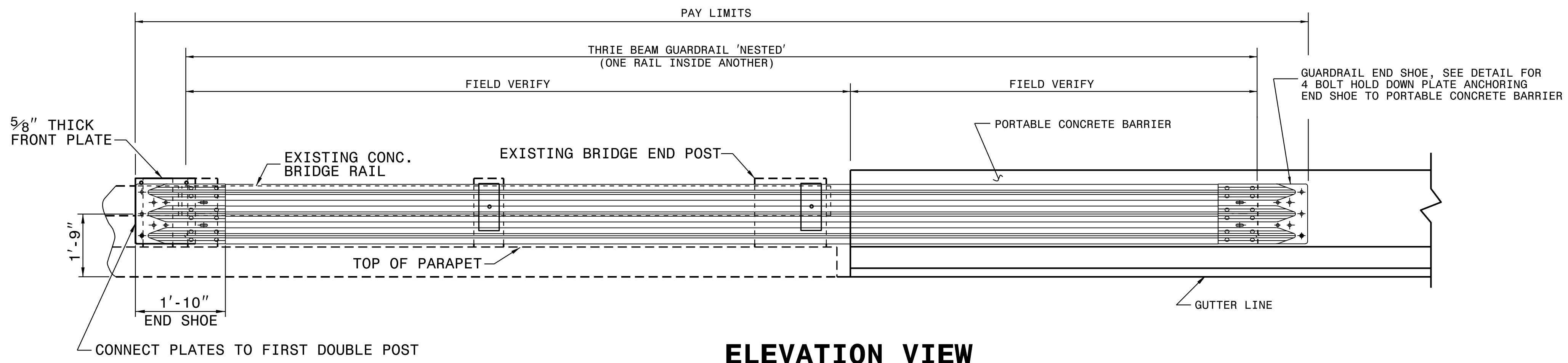


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UNLESS ALL SIGNATURES COMPLETED

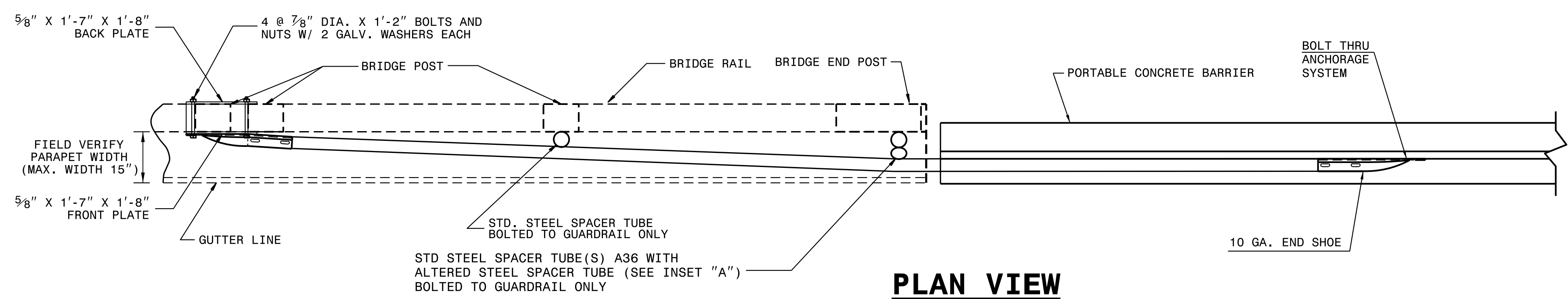
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SEE TITLE BLOCK

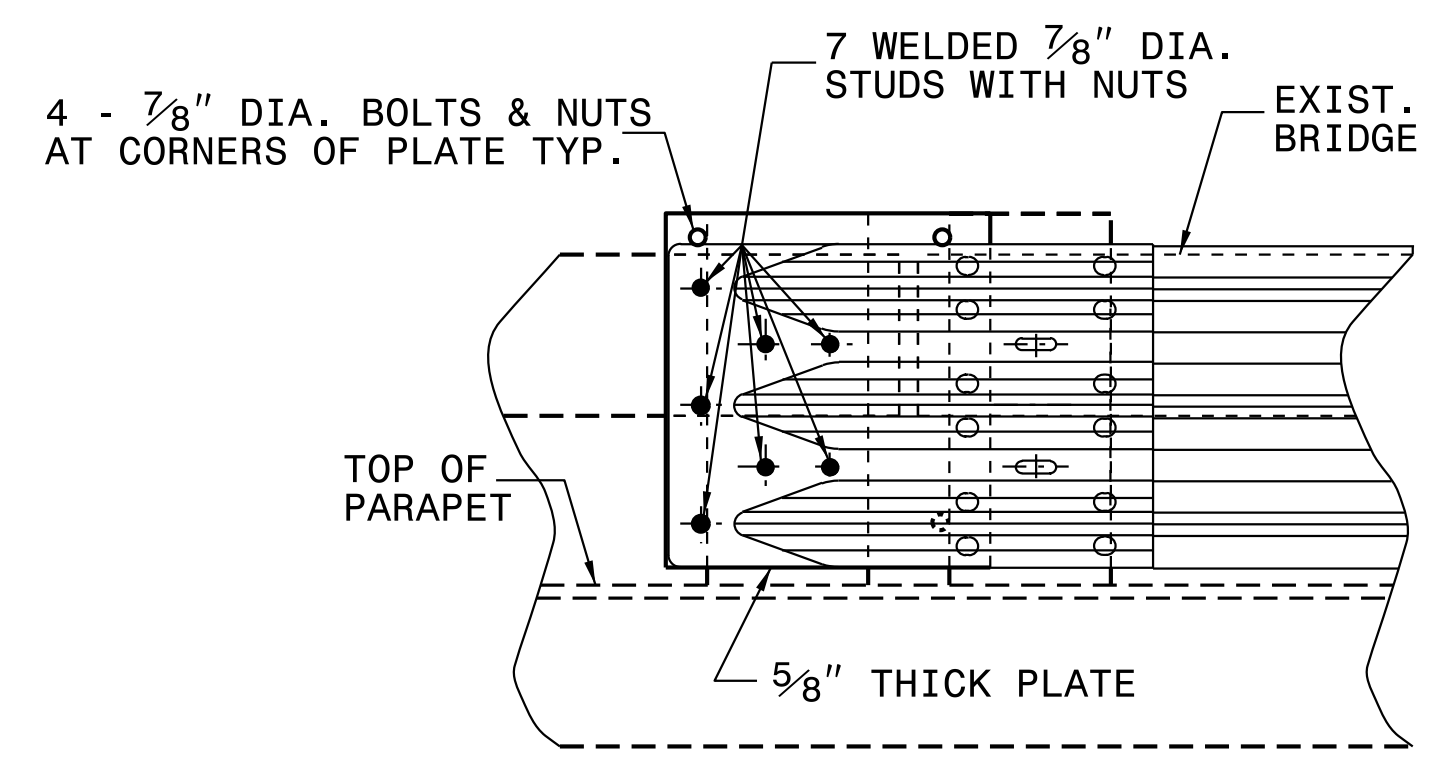
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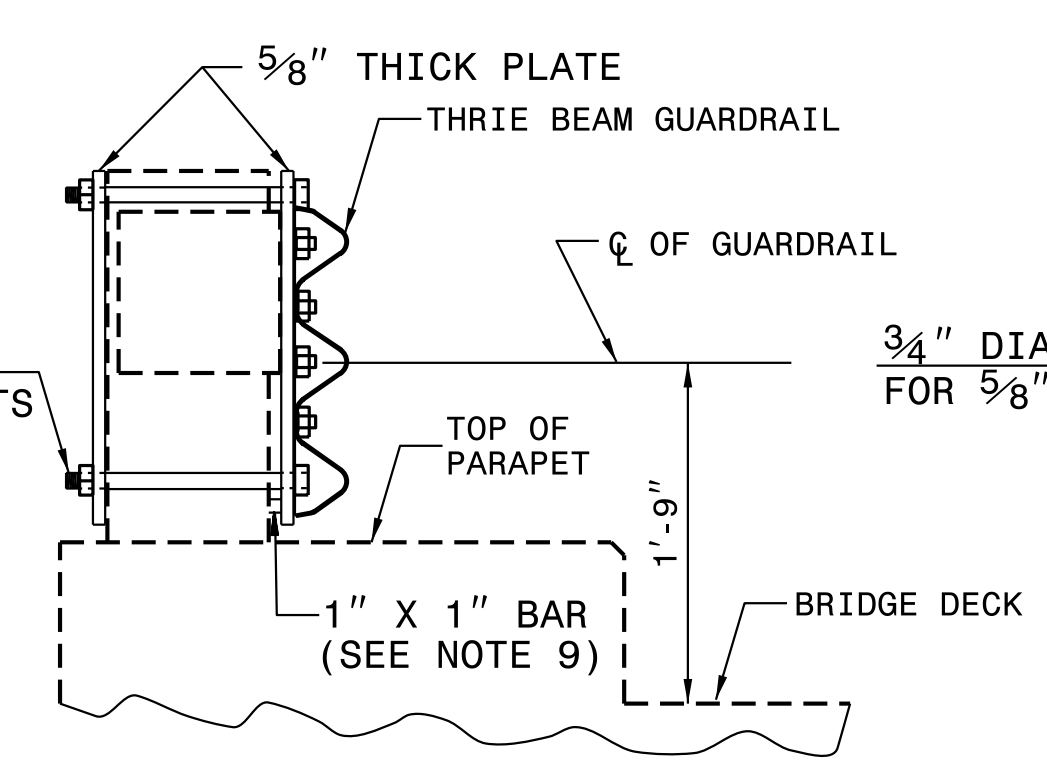
ELEVATION VIEW



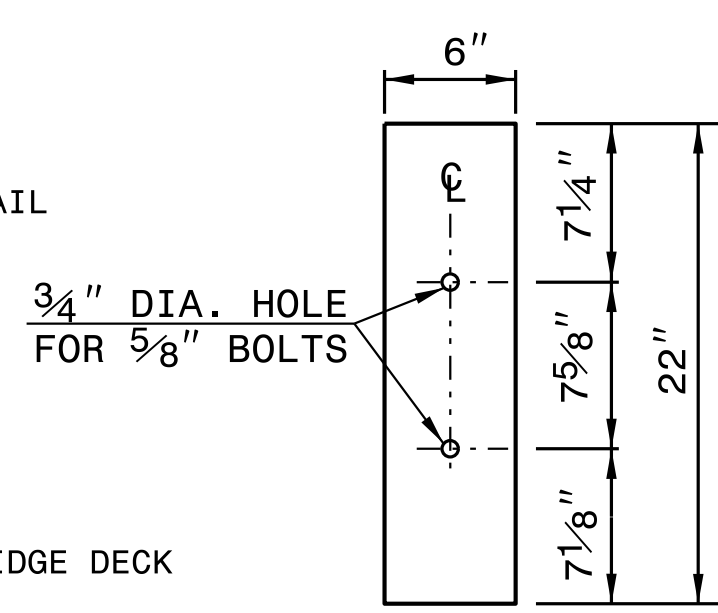
PLAN VIEW



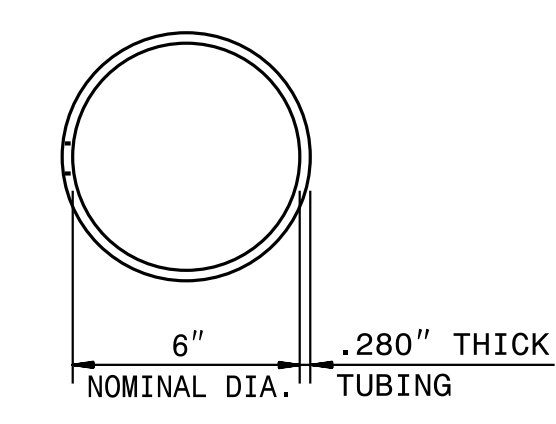
ELEVATION VIEW



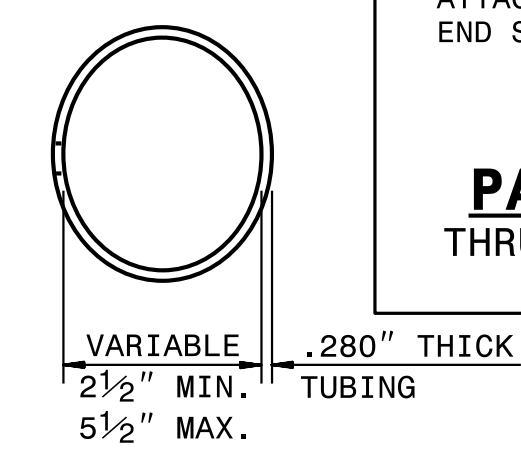
SECTION VIEW



FRONT VIEW

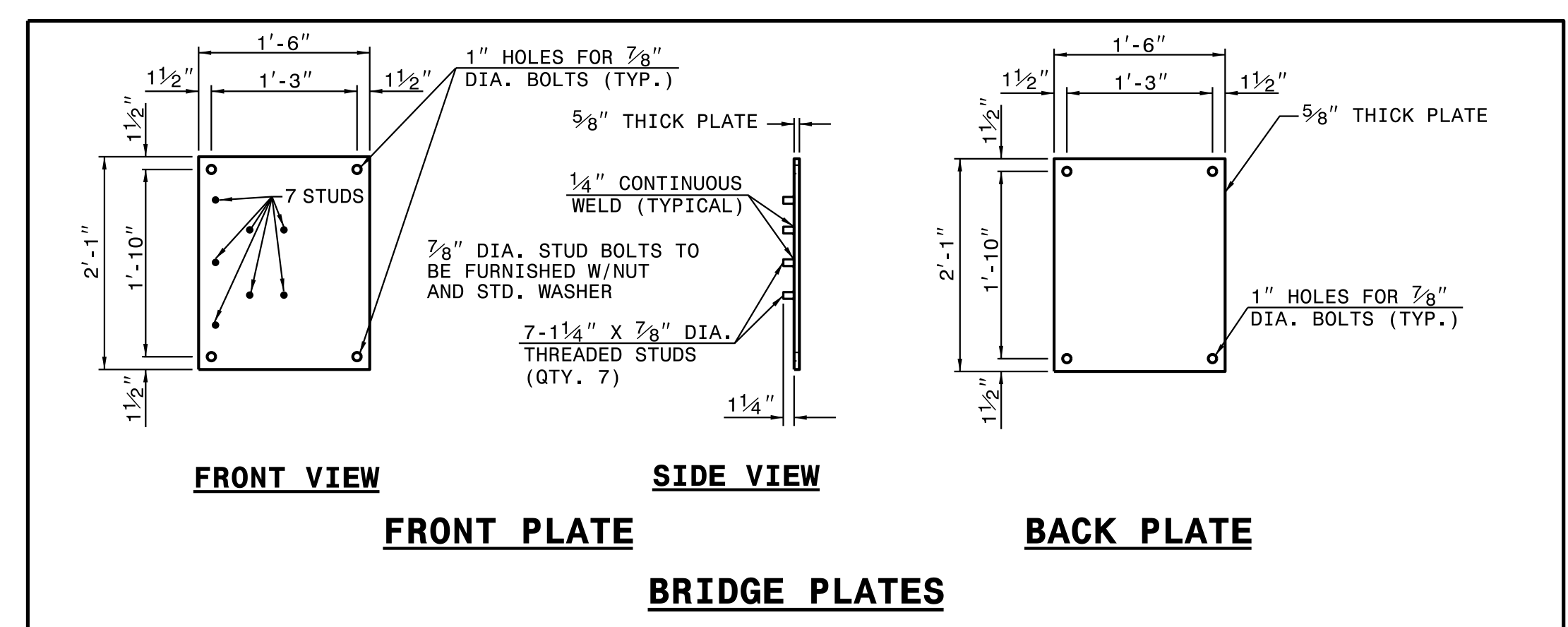


PLAN VIEW



PLAN VIEW INSET "A"

STEEL SPACER TUBE



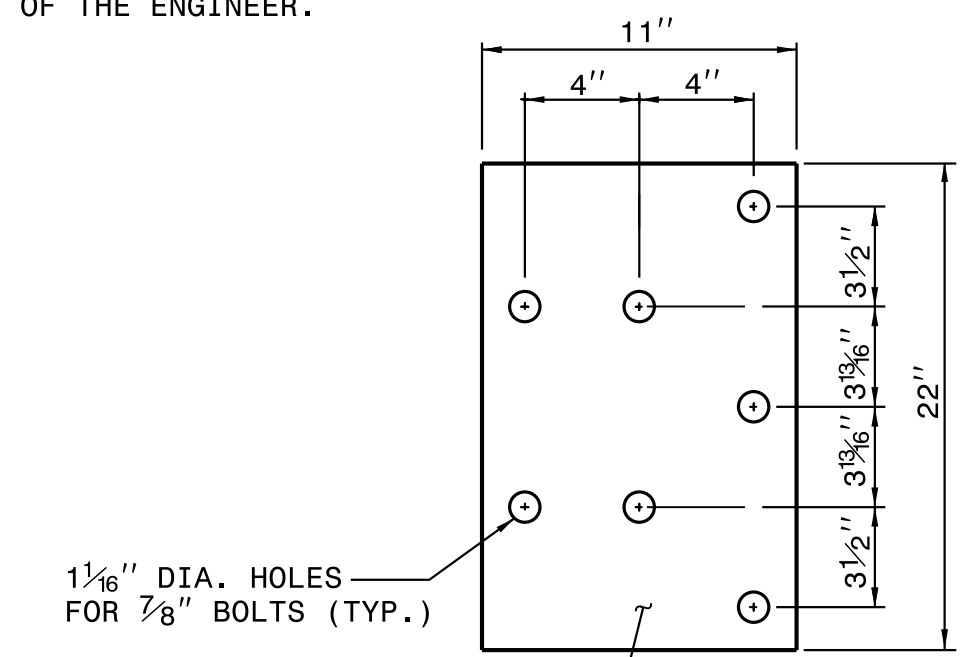
BRIDGE PLATES

NOTES FOR 4 BOLT HOLD DOWN PLATE

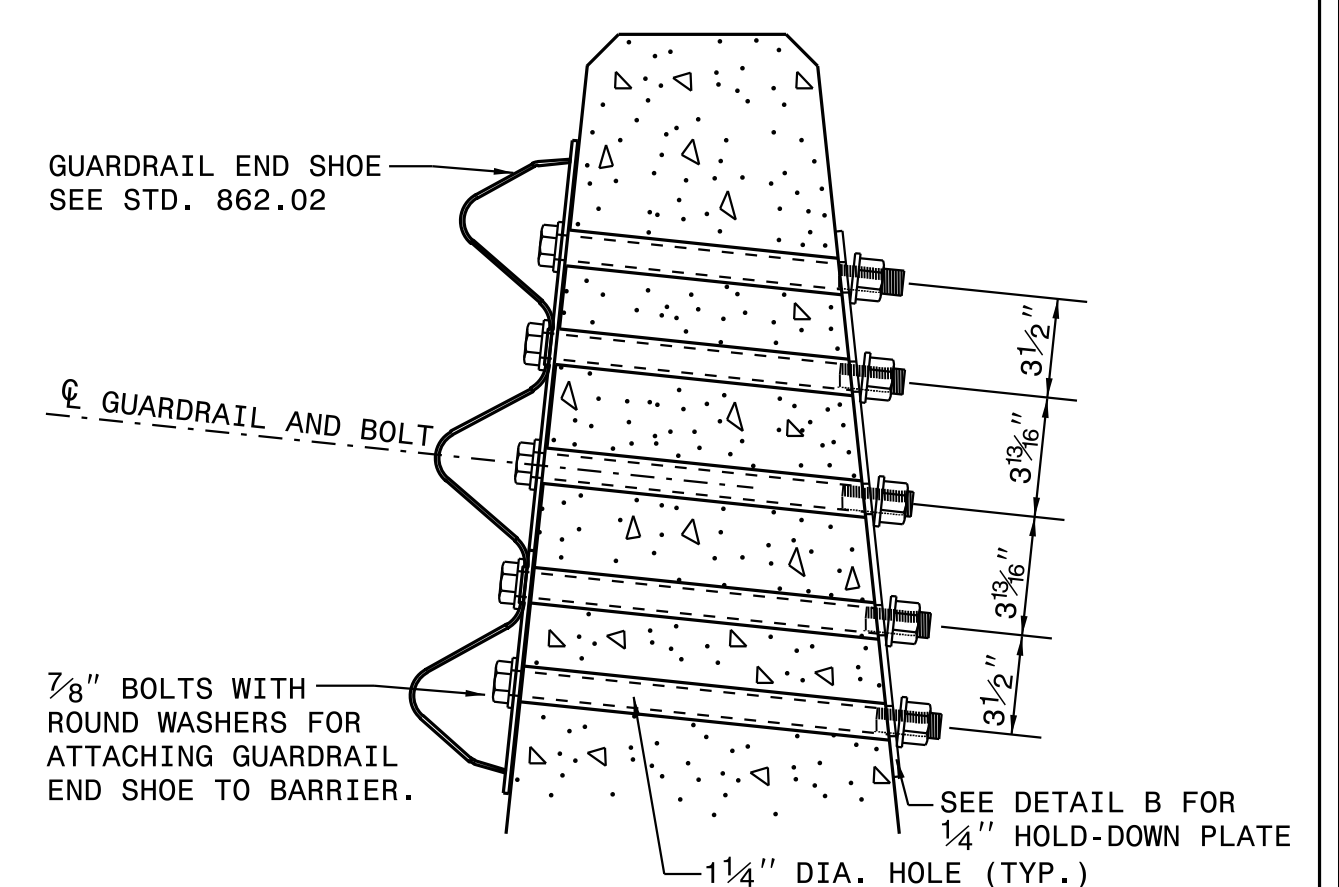
THE GUARDRAIL ANCHOR ASSEMBLY SHALL CONSIST OF A 1/4" HOLD DOWN PLATE AND 7 - 7/8" DIA. BOLTS WITH NUTS AND WASHERS.

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.

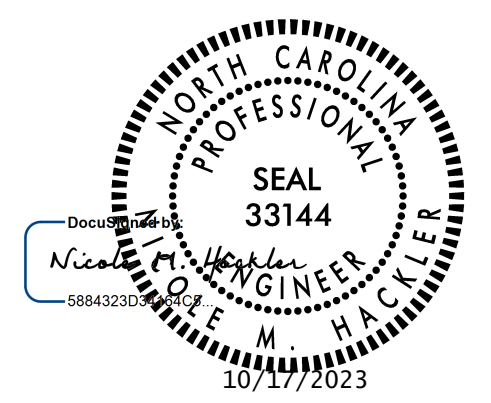
AFTER INSTALLATION, THE EXPOSED THREAD OF THE BOLT SHALL BE BURRED WITH A SHARP POINTED TOOL. THE 1/4" DIA. HOLES SHALL BE FORMED OR DRILLED WITH A CORE BIT. IMPACT TOOLS WILL NOT BE PERMITTED. ANY CONCRETE DAMAGED BY THIS WORK SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER.



7 BOLT HOLD DOWN PLATE



PART SECTION OF BARRIER OR RAIL THRU END SHOE SECTION AND 7 BOLT HOLD DOWN PLATE



- GENERAL NOTES:**
- USE NUTS, BOLTS, AND WASHERS CONFORMING TO THE REQUIREMENTS OF A.S.T.M. A-307 AND GALVANIZED IN ACCORDANCE WITH SECTION 1076 OF STAND. SPECS.
 - TAP NUTS FOR THE 7/8" DIA. STUDS AND BOLTS AFTER GALVANIZING SEE A.S.T.M. A-563.
 - USE PLATES AND TUBES CONFORMING TO THE REQUIREMENTS OF A.S.T.M. A-36 AND GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH SECTION 1076 OF STAND. SPECS.
 - ADDITIONAL FIELD HOLES MAY BE DRILLED IN STEEL RAIL AS DIRECTED BY THE ENGINEER.
 - INSTALL FACE OF GUARDRAIL AS NEAR AS POSSIBLE TO PLUMB WITH THE PARAPET FACE AT BRIDGE END POST SPACER TUBE LOCATION BY USING STANDARD OR ALTERED SPACER TUBES OR A COMBINATION THEREOF OR AS DIRECTED BY THE ENGINEER. FOR VERY SMALL PARAPET WIDTHS, GUARDRAIL MAY BE INSTALLED AGAINST BRIDGE RAIL WITHOUT SPACER TUBES.
 - DO NOT DRILL BRIDGE RAIL IN ORDER TO INSTALL GUARDRAIL ANCHOR UNIT.
 - USE THIS DETAIL ONLY FOR BRIGES WITH POST AND BEAM TYPE RAIL.
 - ATTACH 1" X 1" BAR AND THREADED STUDS TO PLATE WITH 1/4" WELDS ALL AROUND.
 - 1" X 1" BAR MAY NOT BE NEEDED ON BRIDGE RAILS WHERE FACE OF RAIL DOES NOT PROJECT BEYOND FACE OF POST.
 - PROVIDE SHOP DRAWINGS OF THE PLATES TO THE ENGINEER FOR APPROVAL BEFORE FABRICATING THE PLATES.
 - LAP JOINTS IN THE DIRECTION OF TRAFFIC FLOW.
 - SEE ROADWAY STANDARD DRAWING 862.03 SHEET 3 FOR ADDITIONAL INFORMATION ON THE TYPE III ANCHOR UNIT

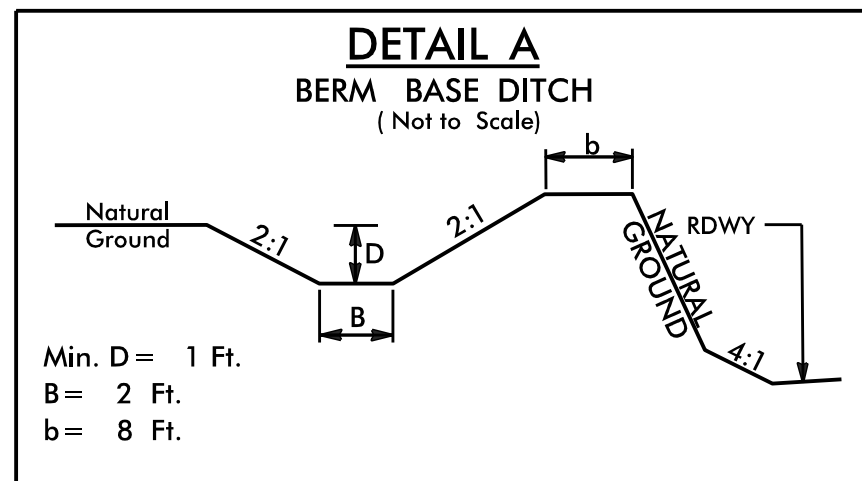
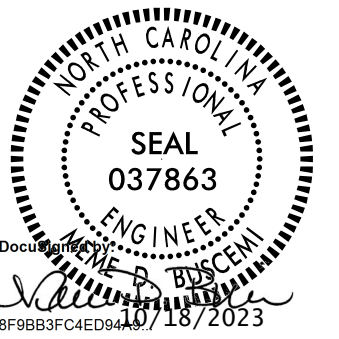
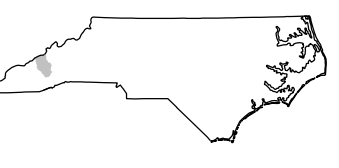
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TEMPORARY ANCHOR UNIT TYPE THRIE-BEAM

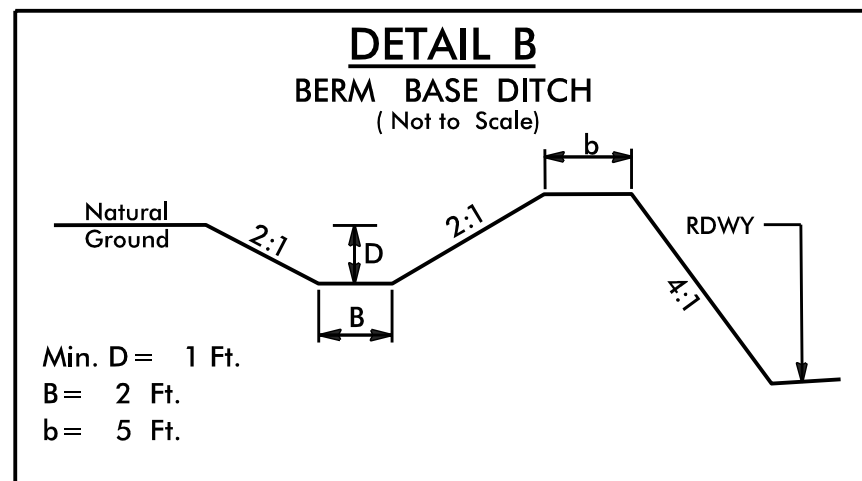
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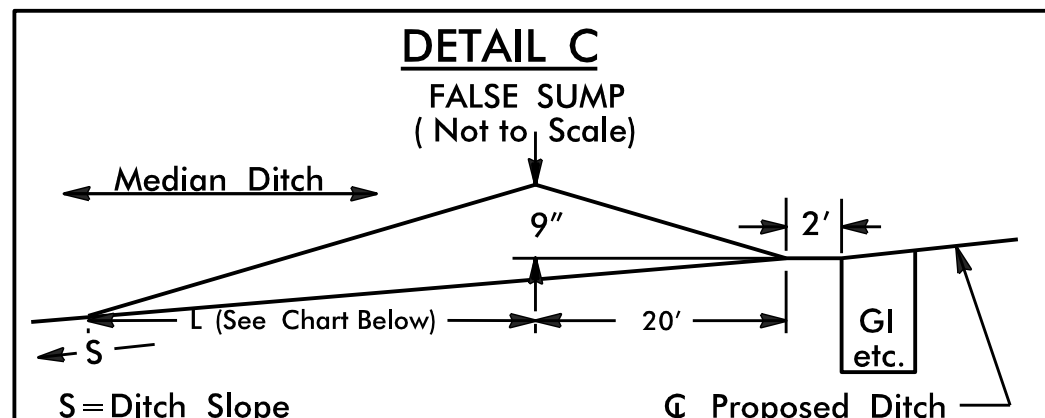
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B = 2 Ft.
b = 8 Ft.

FROM STA. 6+45 TO STA. 6+90 LT -L LT-
FROM STA. 6+90 TO STA. 7+24 LT -L LT-



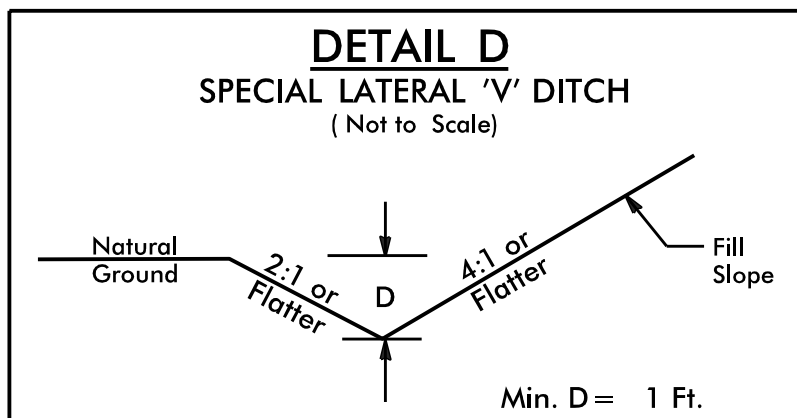
Min. D = 1 Ft.
B = 2 Ft.
b = 5 Ft.

FROM STA. 8+80 TO STA. 9+25 LT -L LT-
FROM STA. 9+25 TO STA. 9+78 LT -L LT-



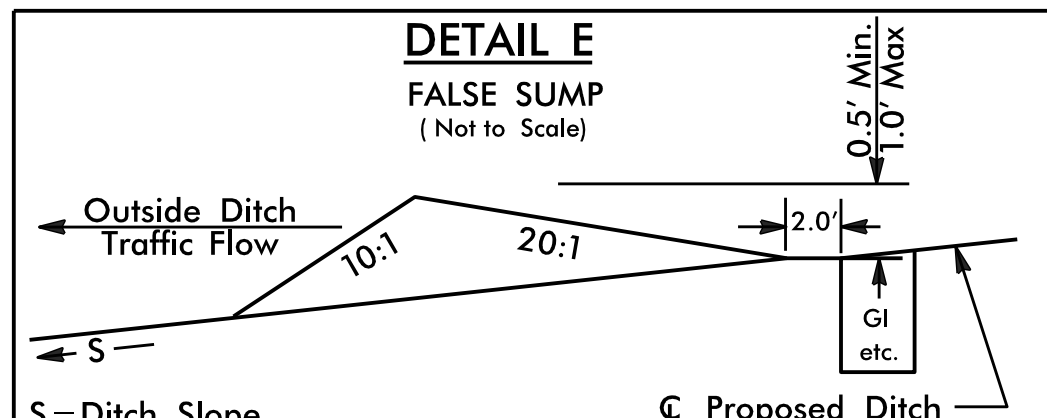
Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

FROM STA. 8+33 TO STA. 8+51 M -L LT-
FROM STA. 11+74 TO STA. 11+92 M -L LT-
FROM STA. 17+02 TO STA. 17+19 M -L LT-
FROM STA. 29+47 TO STA. 29+65 M -L LT-
FROM STA. 37+38 TO STA. 37+56 M -L LT-



Min. D = 1 Ft.

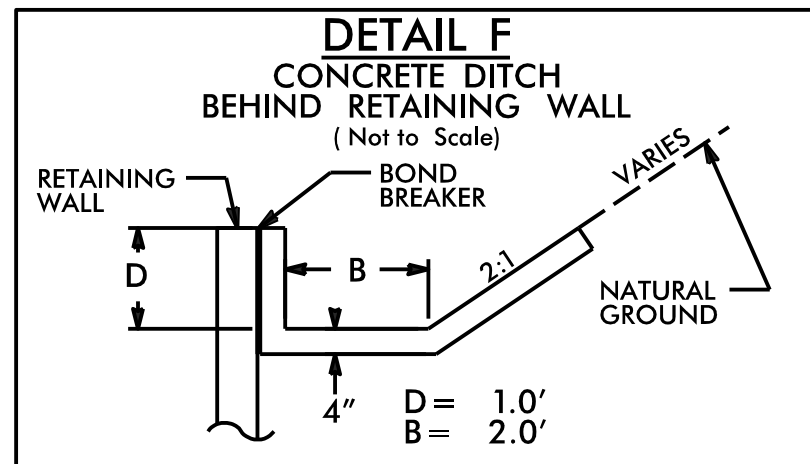
FROM STA. 11+90 TO STA. 16+84 RT -L RT-



0.5' Min. / 1.0' Max.

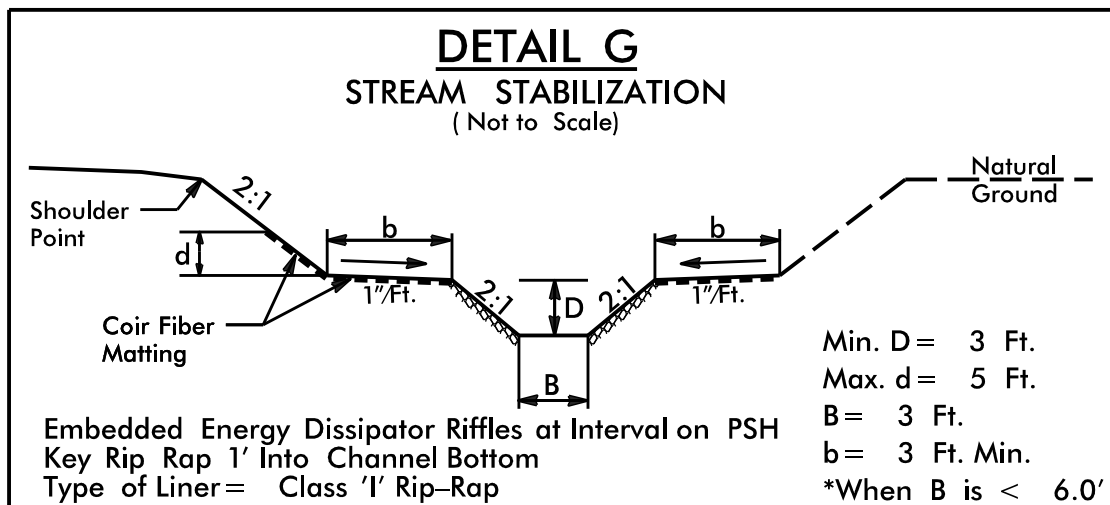
Min. D = 1 Ft.

FROM STA. 18+45 TO STA. 18+64 LT -L LT-
FROM STA. 22+55 TO STA. 22+73 LT -L LT-



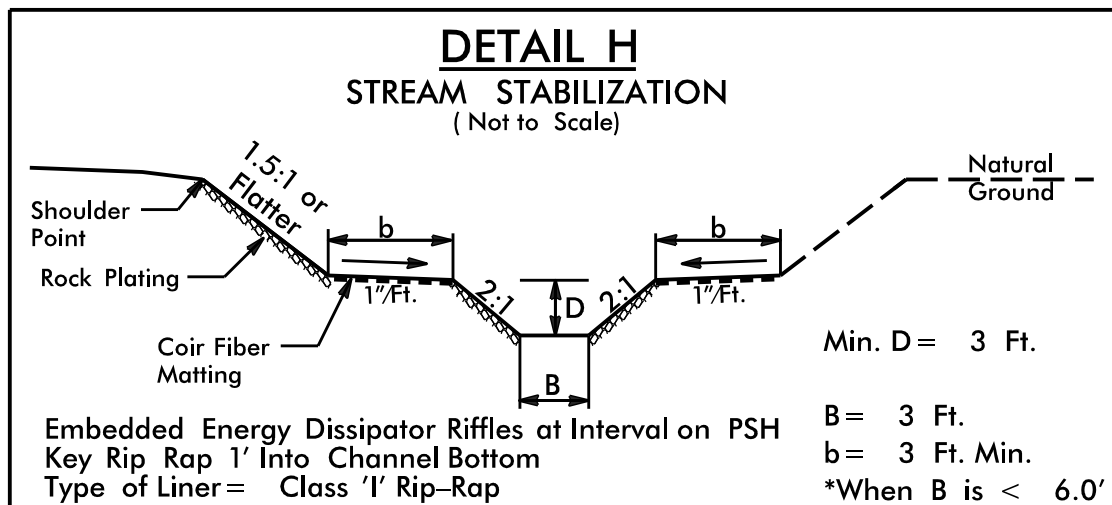
D = 1.0'
B = 2.0'

FROM STA. 9+60 TO STA. 10+25 LT -L LT-
FROM STA. 10+25 TO STA. 11+60 LT -L LT-
FROM STA. 12+05 TO STA. 12+47 LT -L LT-
FROM STA. 12+47 TO STA. 16+49 LT -L LT-
FROM STA. 11+90 TO STA. 12+63 RT -L RT-
FROM STA. 12+63 TO STA. 13+60 RT -L RT-
FROM STA. 13+60 TO STA. 14+08 RT -L RT-
FROM STA. 14+08 TO STA. 16+77 RT -L RT-
FROM STA. 18+64 TO STA. 19+54 LT -Y1 RT-
FROM STA. 22+09 TO STA. 23+83 LT -Y1 RT-
FROM STA. 20+54 TO STA. 20+68 LT -Y1 RT-



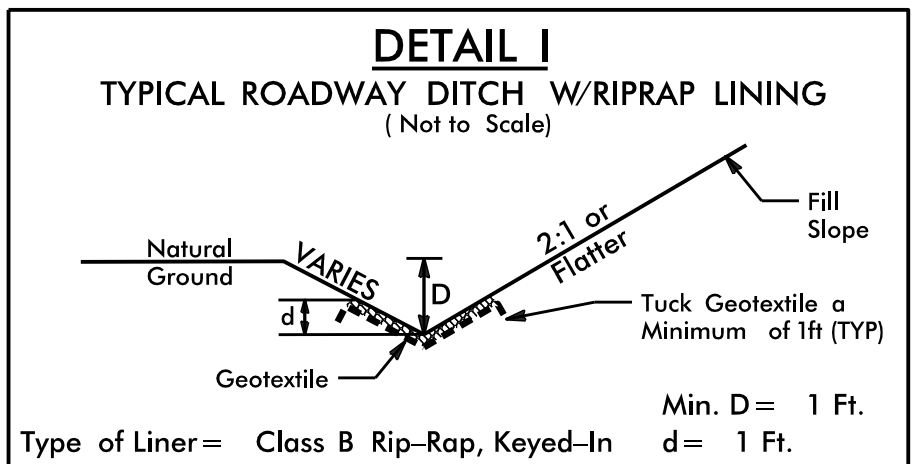
Min. D = 3 Ft.
Max. d = 5 Ft.
B = 3 Ft.
b = 3 Ft. Min.
*When B is < 6.0'

FROM STA. 24+87 TO STA. 30+50 -L RT
EST. 404 TONS CLASS I RIPRAP; 1,375 SY COIR FIBER MATTING



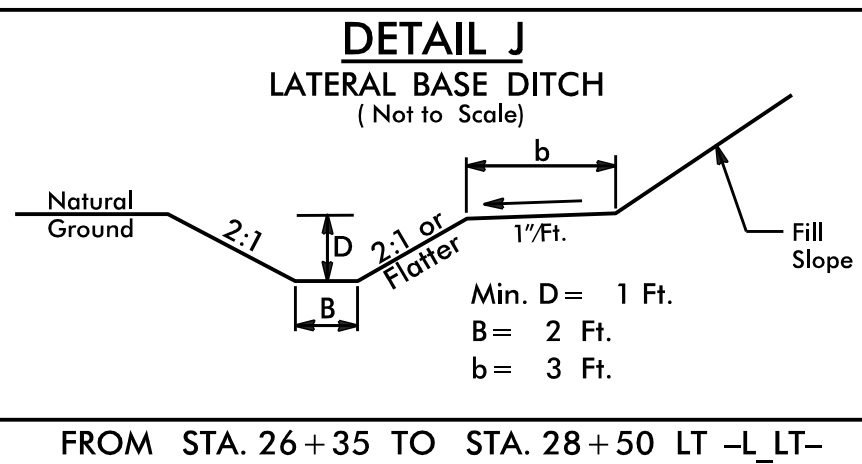
Min. D = 3 Ft.
B = 3 Ft. Min.
*When B is < 6.0'

FROM STA. 30+50 TO STA. 31+50 -L RT
EST. 318 TONS CLASS I RIPRAP; 195 SY COIR FIBER MATTING
SEE ROCK PLATING DETAIL ON SHEET 2G-1



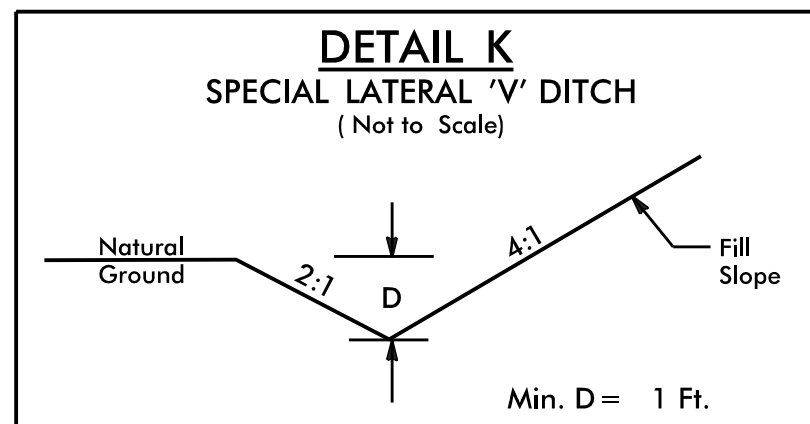
Min. D = 1 Ft.
d = 1 Ft.

FROM STA. 17+01 TO STA. 17+47 LT -L LT-



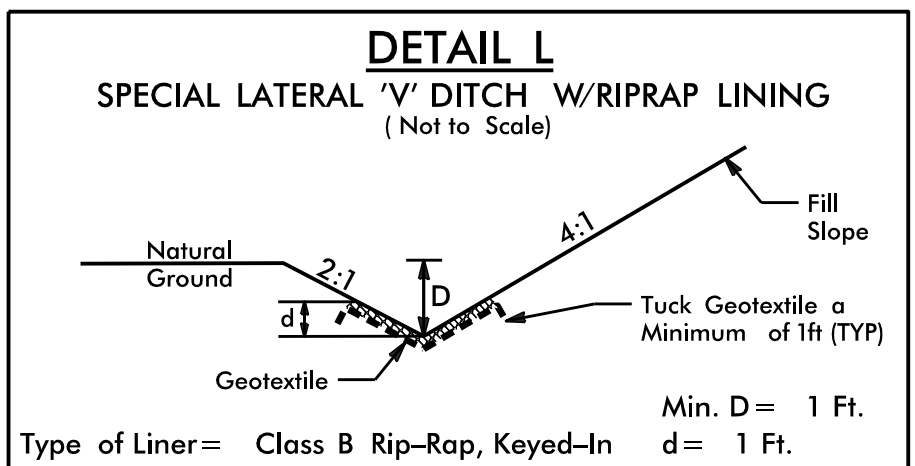
Min. D = 1 Ft.
B = 2 Ft.
b = 3 Ft.

FROM STA. 26+35 TO STA. 28+50 LT -L LT-



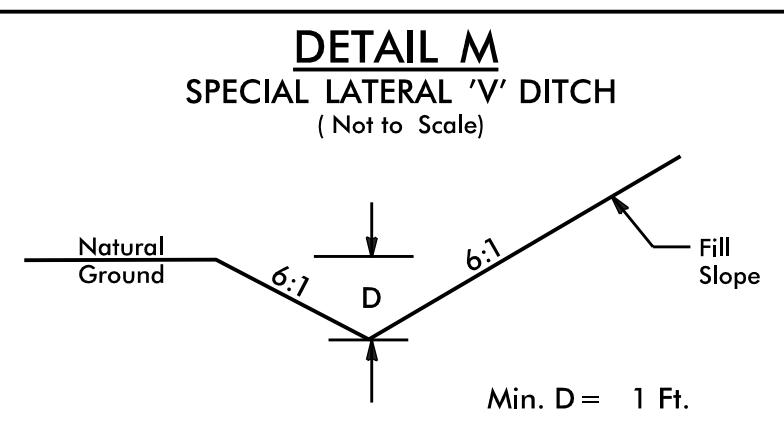
Min. D = 1 Ft.

FROM STA. 16+83 TO STA. 19+45 LT -Y1 RT-
FROM STA. 19+80 TO STA. 20+64 LT -Y1 RT-



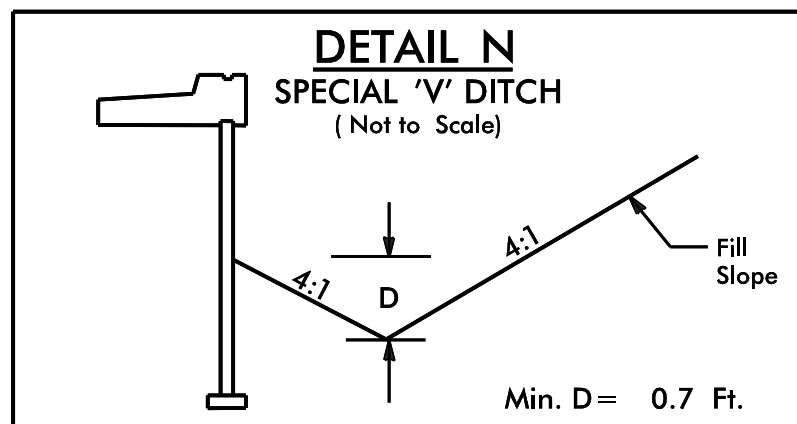
Min. D = 1 Ft.
d = 1 Ft.

FROM STA. 19+45 TO STA. 19+80 LT -Y1 RT-



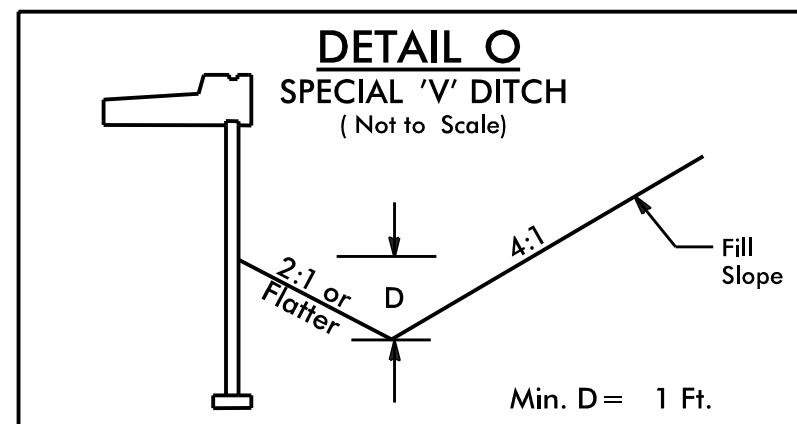
Min. D = 1 Ft.

FROM STA. 16+84 TO STA. 17+09 RT -L RT-



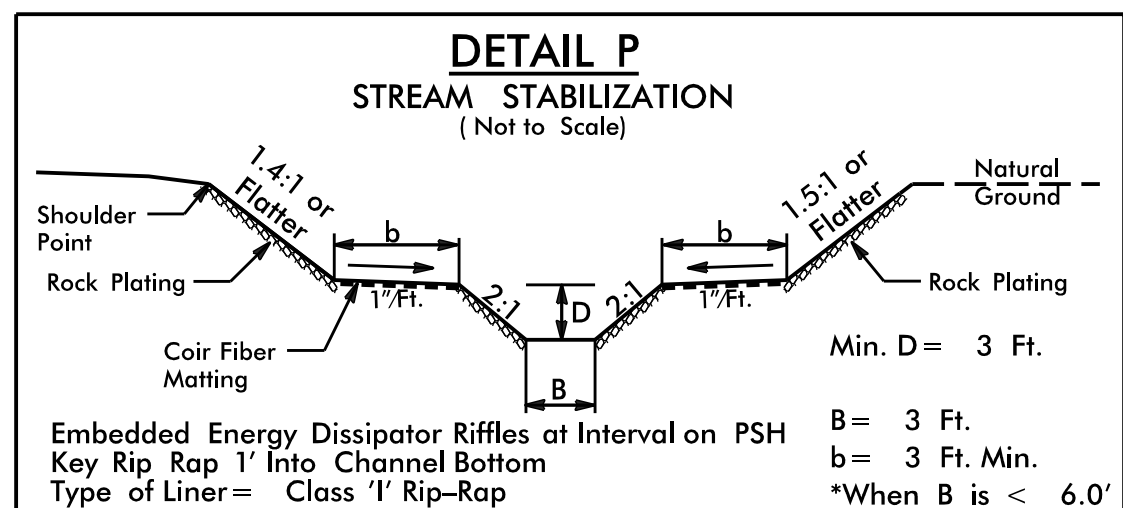
Min. D = 0.7 Ft.

FROM STA. 28+75 TO STA. 29+50 M -L RT-



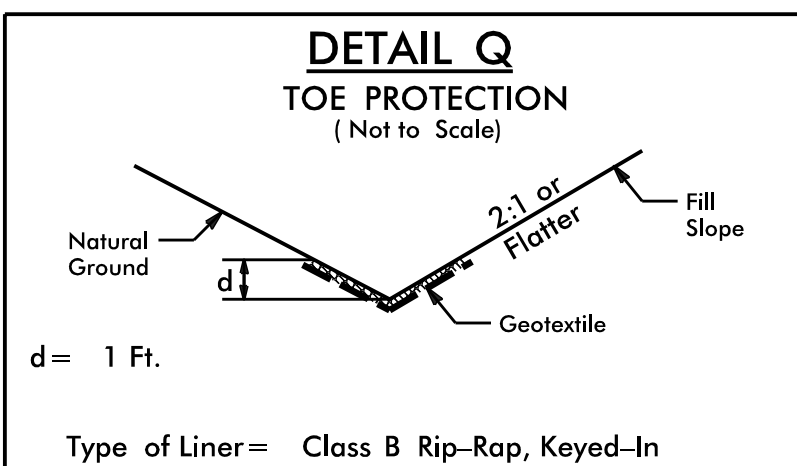
Min. D = 1 Ft.

FROM STA. 29+65 TO STA. 31+98 M -L RT-



Min. D = 3 Ft.
B = 3 Ft.
b = 3 Ft. Min.
*When B is < 6.0'

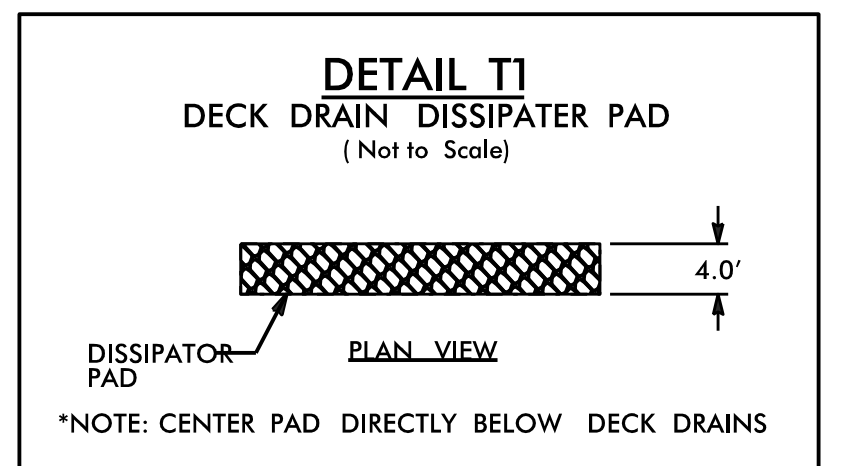
FROM STA. 31+50 TO STA. 34+77 -L RT
EST. 1,534 TONS CLASS I RIPRAP; 360 SY COIR FIBER MATTING
SEE ROCK PLATING DETAIL ON SHEET 2G-1



d = 1 Ft.

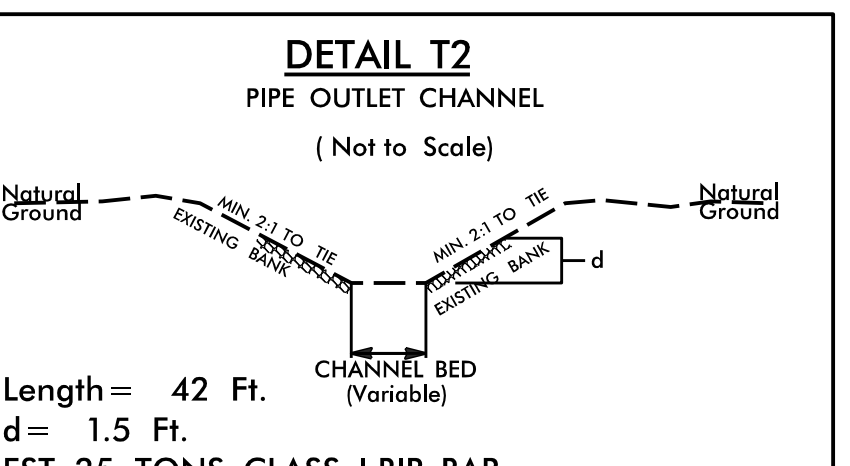
Type of Liner = Class B Rip-Rap, Keyed-In

FROM STA. 17+47 TO STA. 18+40 LT -L LT-
FROM STA. 18+78 TO STA. 22+50 LT -L LT-
FROM STA. 16+91 TO STA. 18+65 RT -Y1 RT-



L = 341 Total
Type of Liner = 75 TONS CL B Rip-Rap
Geotextile = 170 SY

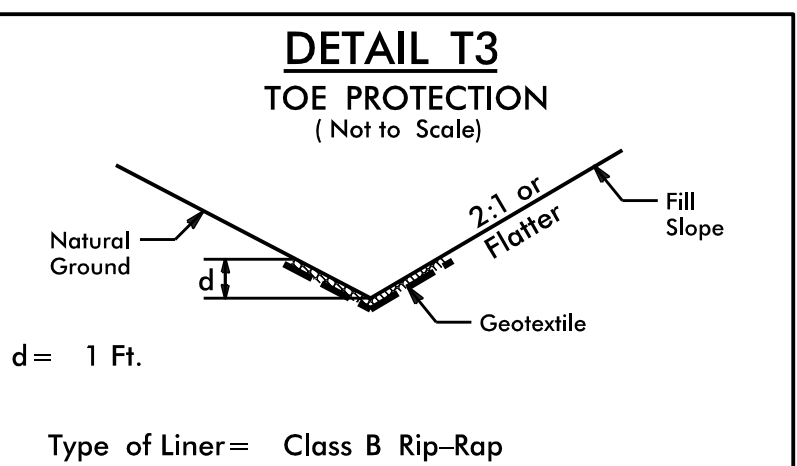
FROM STA. 22+25 TO STA. 23+35 RT -DET01EB-
FROM STA. 24+40 TO STA. 24+86 RT -DET01EB-
FROM STA. 22+25 TO STA. 23+35 LT -DET01EB-
FROM STA. 24+70 TO STA. 25+45 LT -DET01EB-



Length = 42 Ft.
d = 1.5 Ft.

EST. 25 TONS CLASS I RIP RAP

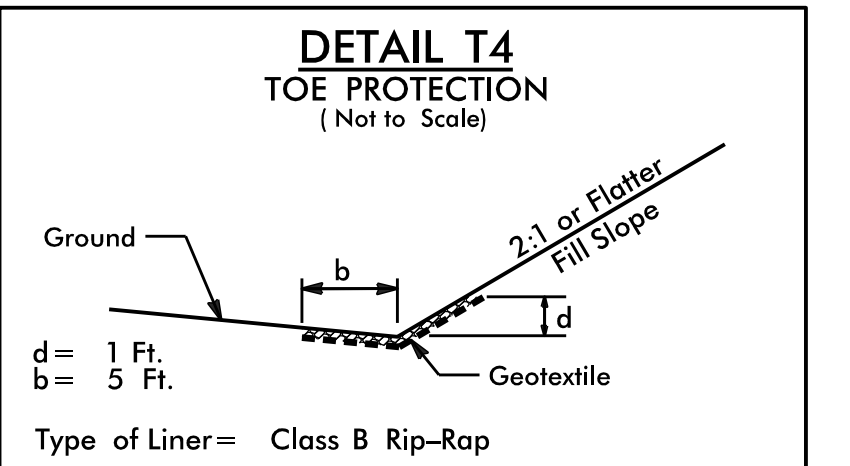
FROM STA. 24+86 TO STA. 25+28 RT -DET01EB-



d = 1 Ft.

Type of Liner = Class B Rip-Rap

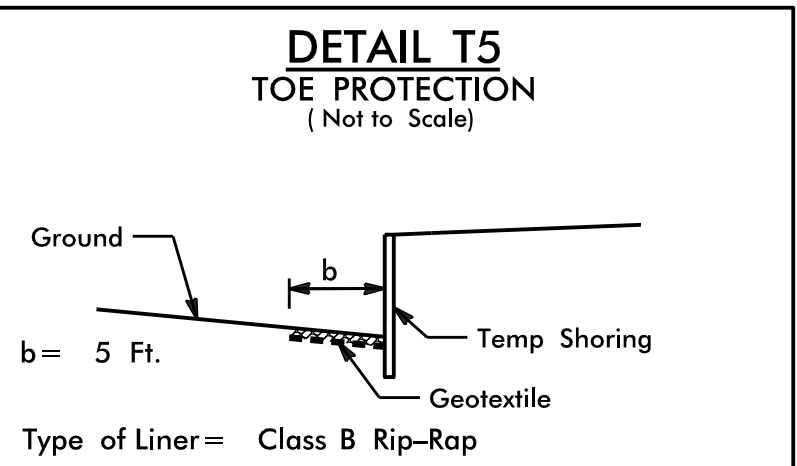
FROM STA. 26+50 TO STA. 28+00 RT -DET01EB-
FROM STA. 28+00 TO STA. 32+00 RT -DET01EB-



d = 1 Ft.
b = 5 Ft.

Type of Liner = Class B Rip-Rap

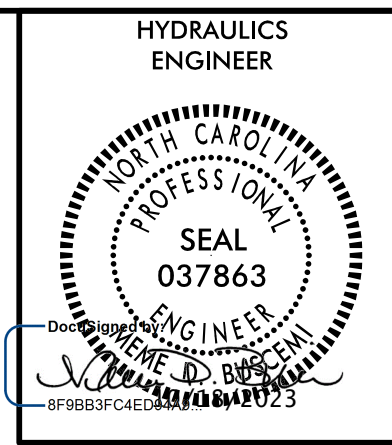
FROM STA. 26+50 TO STA. 29+39 RT -DET01EB-



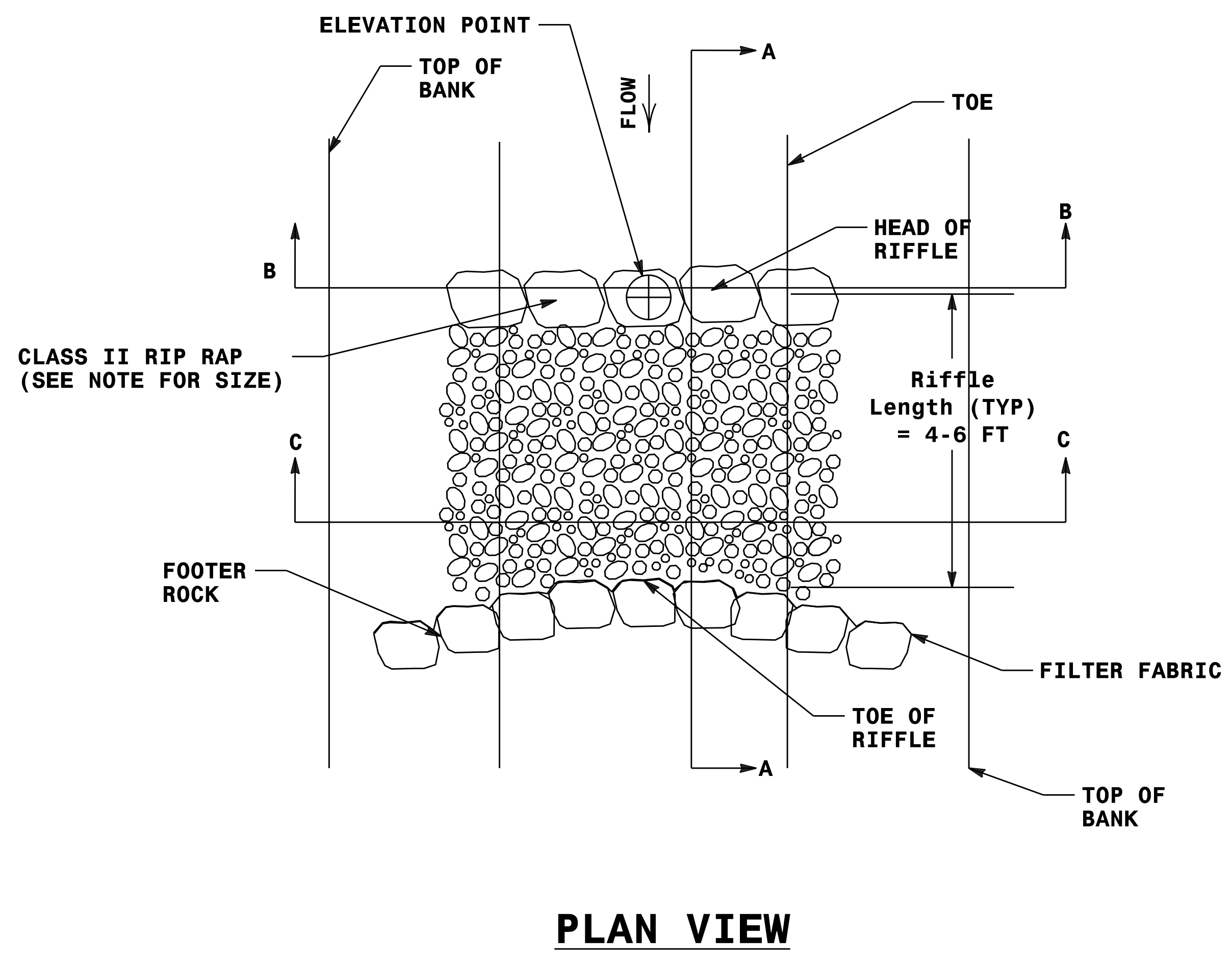
b = 5 Ft.

Type of Liner = Class B Rip-Rap

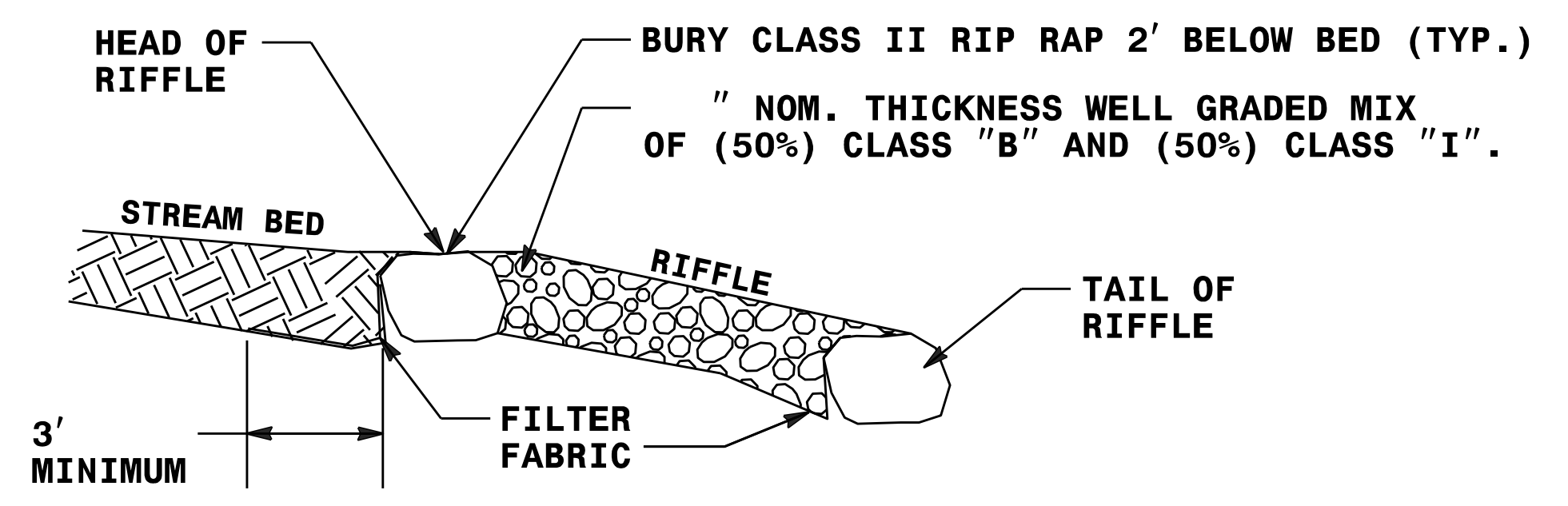
FROM STA. 19+75 TO STA. 23+22 LT -DET01EB-
FROM STA. 21+95 TO STA. 22+32 RT -DET01EB-
FROM STA. 25+30 TO STA. 26+50 LT -DET01EB-
FROM STA. 25+72 TO STA. 26+87 LT -DET01WB-
FROM STA. 29+83 TO STA. 30+01 LT -DET01WB-



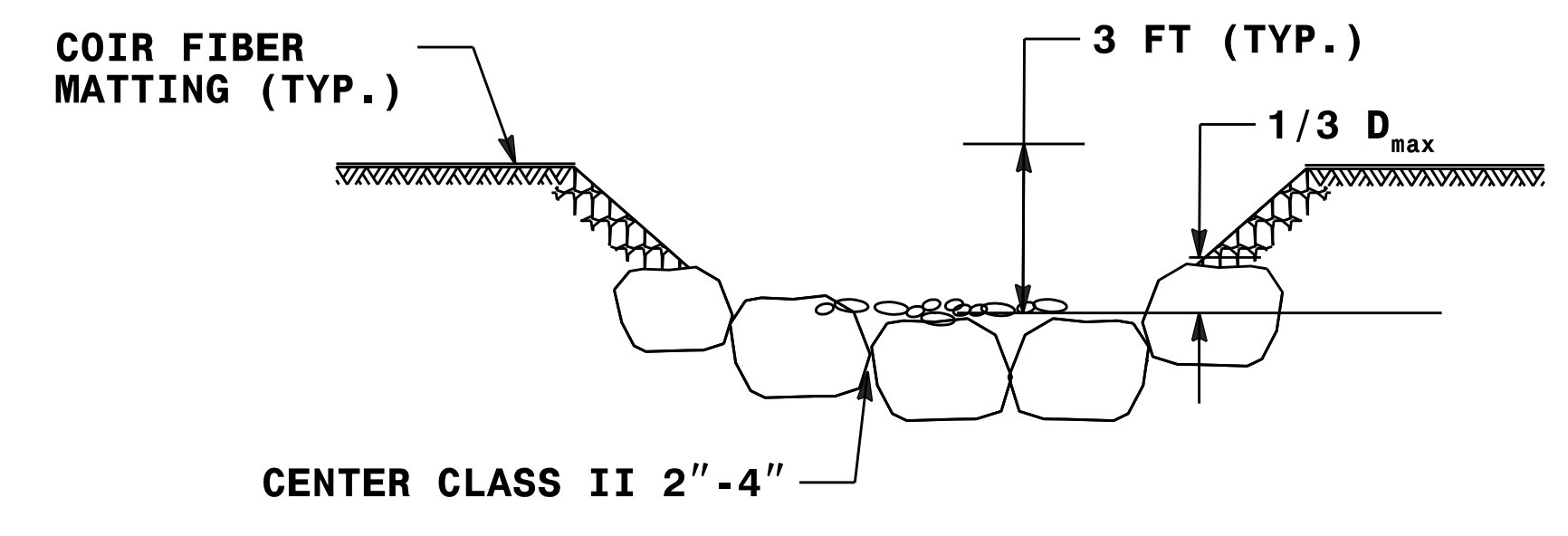
ENERGY REDUCTION RIFFLE



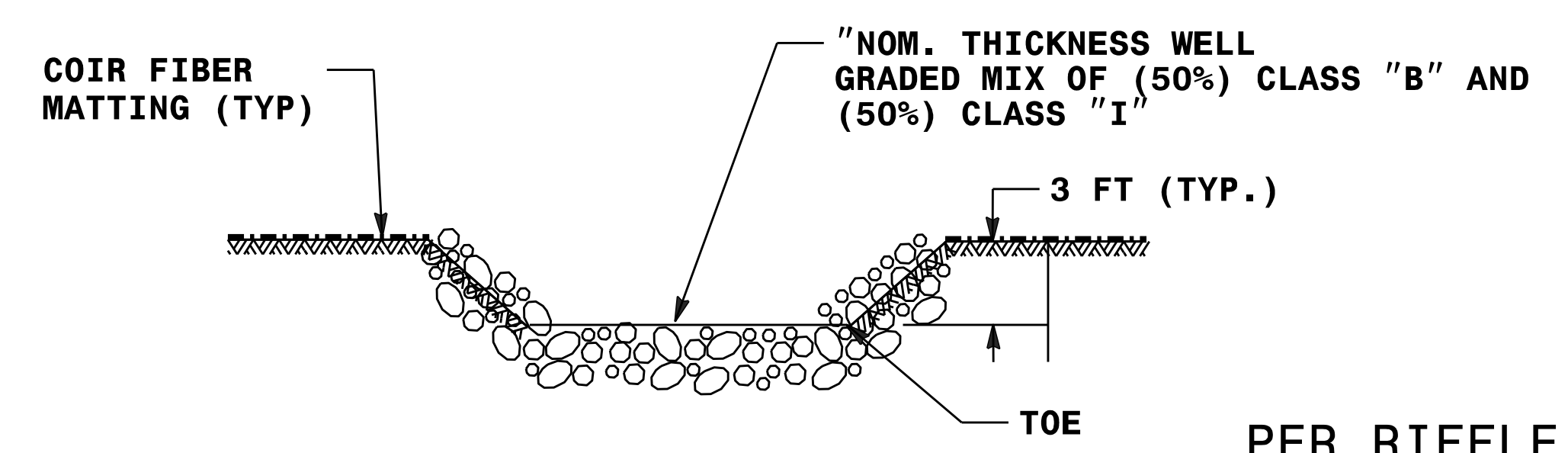
PLAN VIEW



SECTION A-A



SECTION B-B



SECTION C-C

STATION	ELEVATION
25+53 RT -L_RT-	2566.3 FT
26+18 RT -L_RT-	2567.3 FT
26+83 RT -L_RT-	2568.3 FT
27+77 RT -L_RT-	2569.8 FT
28+71 RT -L_RT-	2571.2 FT
29+66 RT -L_RT-	2572.7 FT
30+60 RT -L_RT-	2574.1 FT
31+53 RT -L_RT-	2575.5 FT
32+27 RT -L_RT-	2576.7 FT
33+00 RT -L_RT-	2577.9 FT
33+74 RT -L_RT-	2579.1 FT
34+58 RT -L_RT-	2580.4 FT

NOTE
 CLASS II RIP RAP SHOULD BE NATIVE STONES OR SHOT ROCK, ANGULAR AND OBLONG, TYPICAL DIMENSION 2' DIAMETER
 SEE TABLE FOR ELEVATION POINT DATA PER STRUCTURE ON PLANS
 EACH STRUCTURE EMBEDDED IN ORDER TO NOT IMPEDE AQUATIC ORGANISM PASSAGE
 OPTION FOR INCLUDING LIVE STAKES ON FLOODPLAIN BENCHES. SEE STREAMBANK REFORESTATION DETAIL.

PER RIFFLE
 EST. 2.5 TONS CLASS B RIP RAP
 EST. 2.5 TONS CLASS I RIP RAP
 EST. 3.5 TONS CLASS II RIP RAP
 EST. 8 SY GEOTEXTILE

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

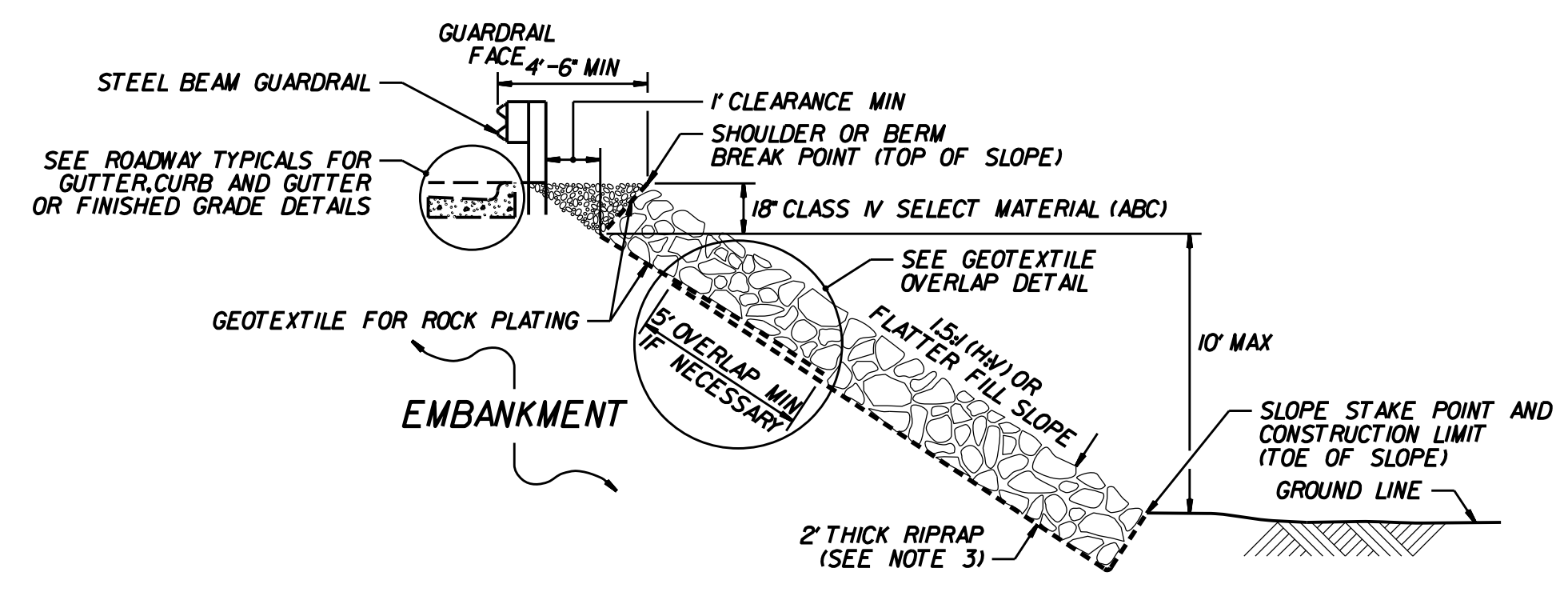
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ROADWAY DETAIL DRAWING FOR
ROCK PLATING

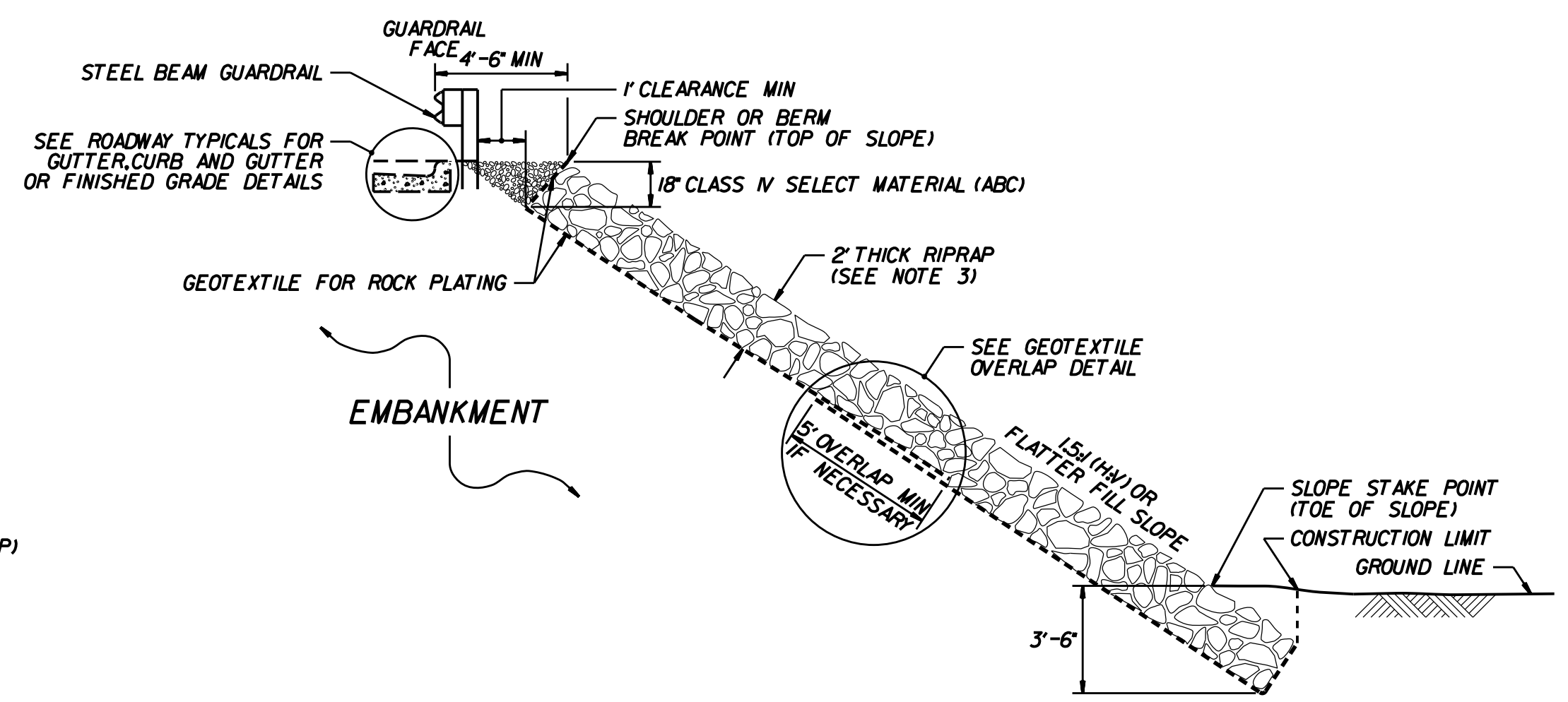
ROADWAY DETAIL DRAWING FOR
ROCK PLATING

SHEET 1 OF 1
275D01

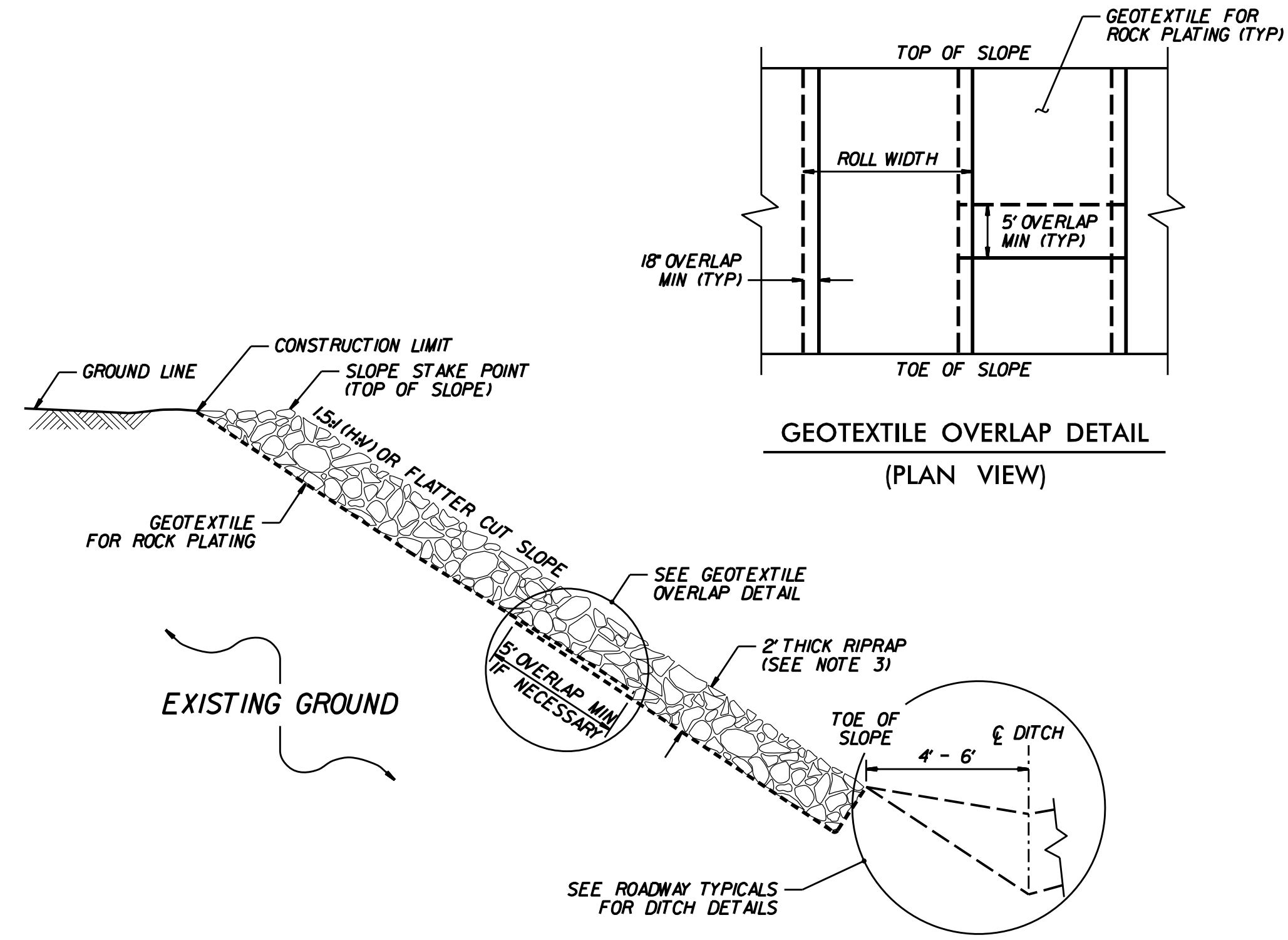
SHEET 1 OF 1
275D01



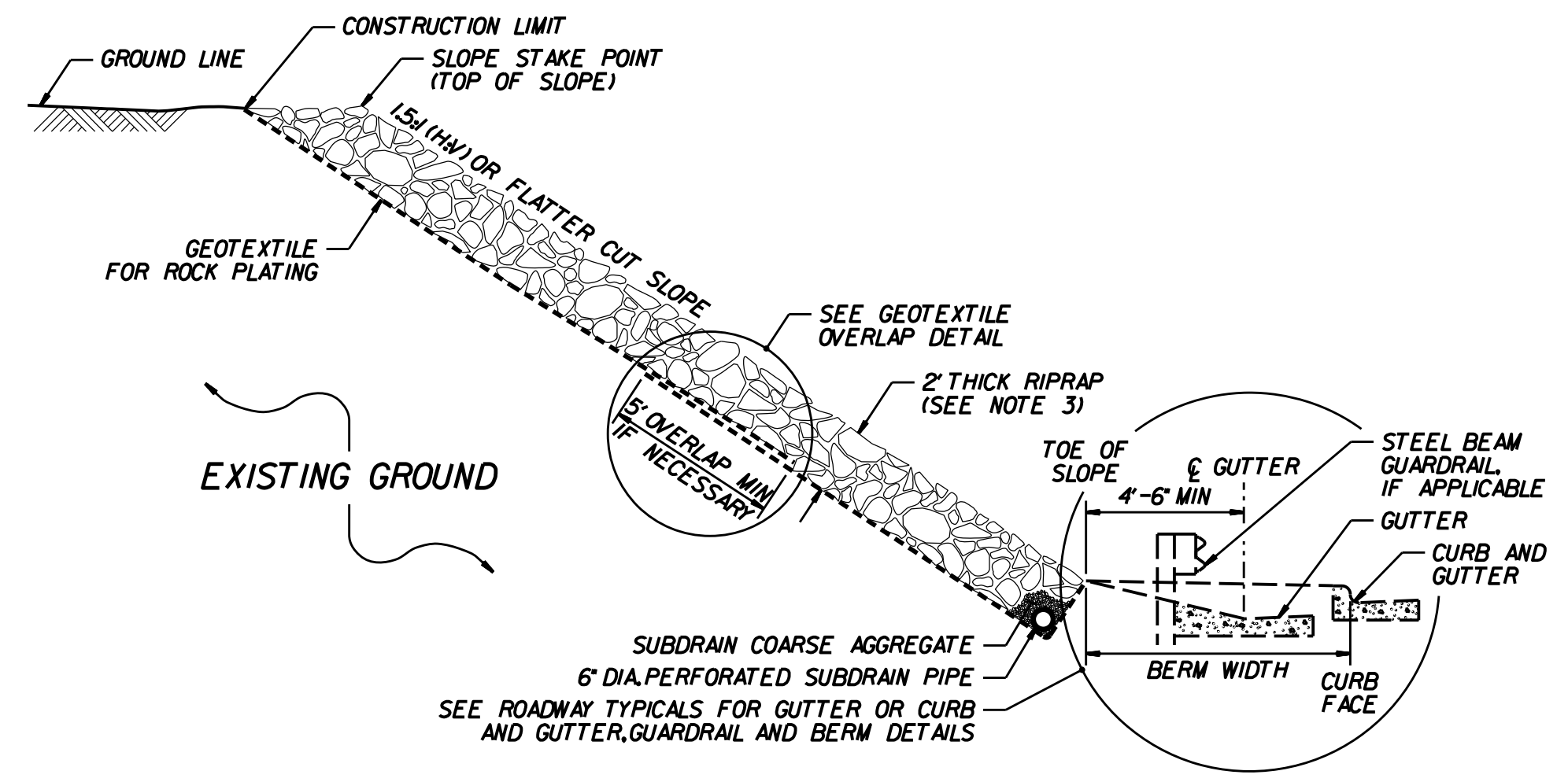
ROCK PLATING DETAIL NO. 1 - TYPICAL SECTION



ROCK PLATING DETAIL NO. 2 - TYPICAL SECTION

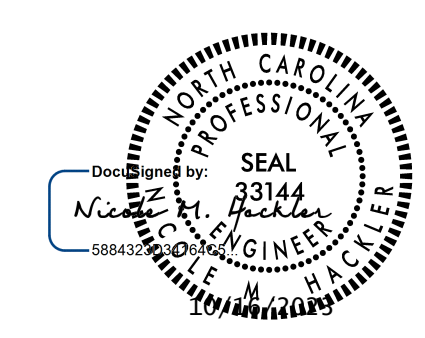


ROCK PLATING DETAIL NO. 3 - TYPICAL SECTION



ROCK PLATING DETAIL NO. 4 - TYPICAL SECTION

- NOTES:**
- 1. SEE ROADWAY PLANS AND SUMMARY SHEETS FOR ROCK PLATING LOCATIONS.
 - 2. FOR ROCK PLATING, SEE SECTION 275 OF THE STANDARD SPECIFICATIONS.
 - 3. USE CLASS 1, 2 OR B RIPRAP UNLESS REQUIRED OTHERWISE IN THE ROADWAY SUMMARY SHEETS.

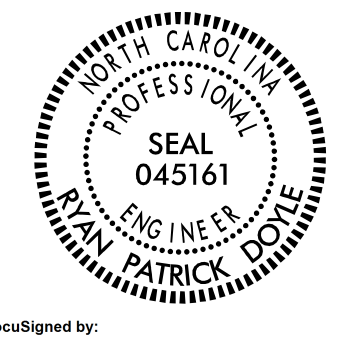


CONTRACT STANDARDS
AND DEVELOPMENT UNIT
Office 919-707-6900 FAX 919-250-4119

SEE TITLE BLOCK

ORIGINAL BY: S. HIDDEN DATE: 03-11-22
MODIFIED BY: DATE: _____
CHECKED BY: DATE: _____
FILE SPEC.: _____

\$\$\$SYTIME\$\$\$
\$\$\$USER\$\$\$
\$\$\$\$\$\$

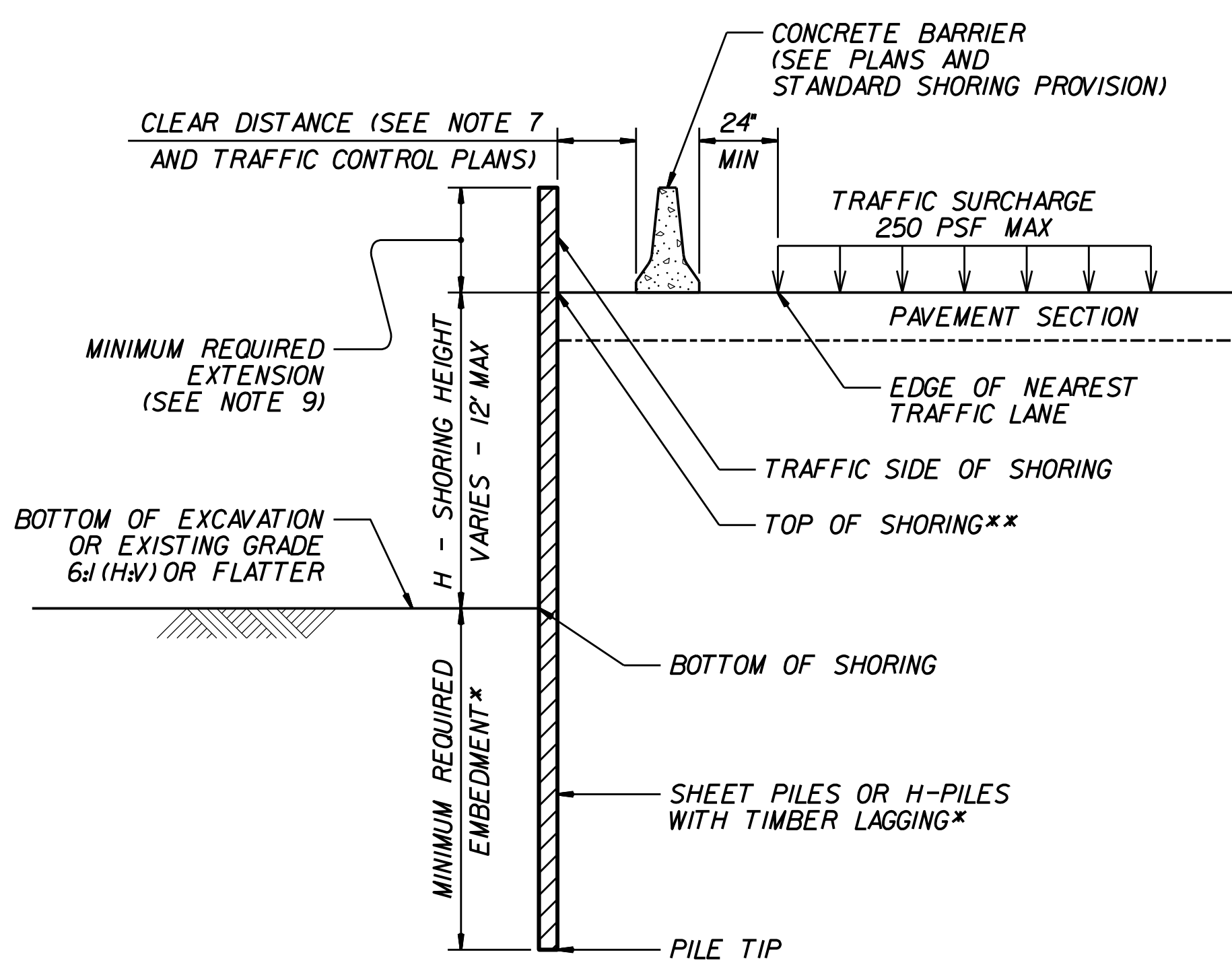
PROJECT REFERENCE NO. B-5898B-3186		SHEET NO. 2G-2	
GEOTECHNICAL ENGINEER  SEAL 045161 RYAN PATRICK DOYLE ENGINEER		ENGINEER _____ SIGNATURE DATE	
DocuSigned by: Ryan Patrick Doyle 10/12/2023 DATE			
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			

GROUNDWATER CONDITION (SEE NOTE 6)	H SHORING HEIGHT (FT)	SLOPE OR SURCHARGE CASE WITH NO TRAFFIC IMPACT						SURCHARGE CASE WITH TRAFFIC IMPACT					
		SHEET PILES		H-PILES WITH TIMBER LAGGING				SHEET PILES		H-PILES WITH TIMBER LAGGING			
		MINIMUM REQUIRED EMBEDMENT (FT)	MINIMUM REQUIRED SECTION MODULUS (IN ³ /FT)	MINIMUM REQUIRED EMBEDMENT* (FT) (SEE NOTE 10)			MINIMUM REQUIRED EMBEDMENT (FT)	MINIMUM REQUIRED SECTION MODULUS (IN ³ /FT)	MINIMUM REQUIRED EMBEDMENT* (FT) (SEE NOTE 10)				
				HP 10x42	HP 12x53	HP 14x73			HP 10x42	HP 12x53	HP 14x73		
GROUNDWATER ELEVATION BETWEEN BOTTOM OF SHORING AND PILE TIP	< 6	11.5	4.5	11.5	11.5	11.5	16.0	12.0	13.0	13.0	13.0		
	7	13.0	7.0	13.0	13.0	13.0	17.0	14.5	14.5	14.5	14.5		
	8	15.0	10.0	--	15.0	15.0	18.0	17.0	--	15.5	15.5		
	9	17.0	14.0	--	17.0	17.0	19.0	20.0	--	17.0	17.0		
	10	18.5	19.5	--	--	18.5	20.0	23.5	--	--	18.5		
	11	20.5	26.0	--	--	--	21.0	28.0	--	--	20.0		
GROUNDWATER ELEVATION BELOW PILE TIP	< 6	7.5	3.0	8.0	8.0	8.0	11.0	10.0	9.5	9.5	9.5		
	7	8.5	4.5	9.5	9.5	9.5	12.0	12.0	10.5	10.5	10.5		
	8	10.0	6.5	10.5	10.5	10.5	12.5	14.0	11.5	11.5	11.5		
	9	11.0	9.5	--	12.0	12.0	13.5	16.5	--	12.5	12.5		
	10	12.5	13.0	--	--	13.5	14.0	19.5	--	13.5	13.5		
	11	13.5	17.0	--	--	14.5	15.0	22.5	--	--	14.5		
12	15.0	21.5	--	--	16.0	16.0	25.5	--	--	15.5			

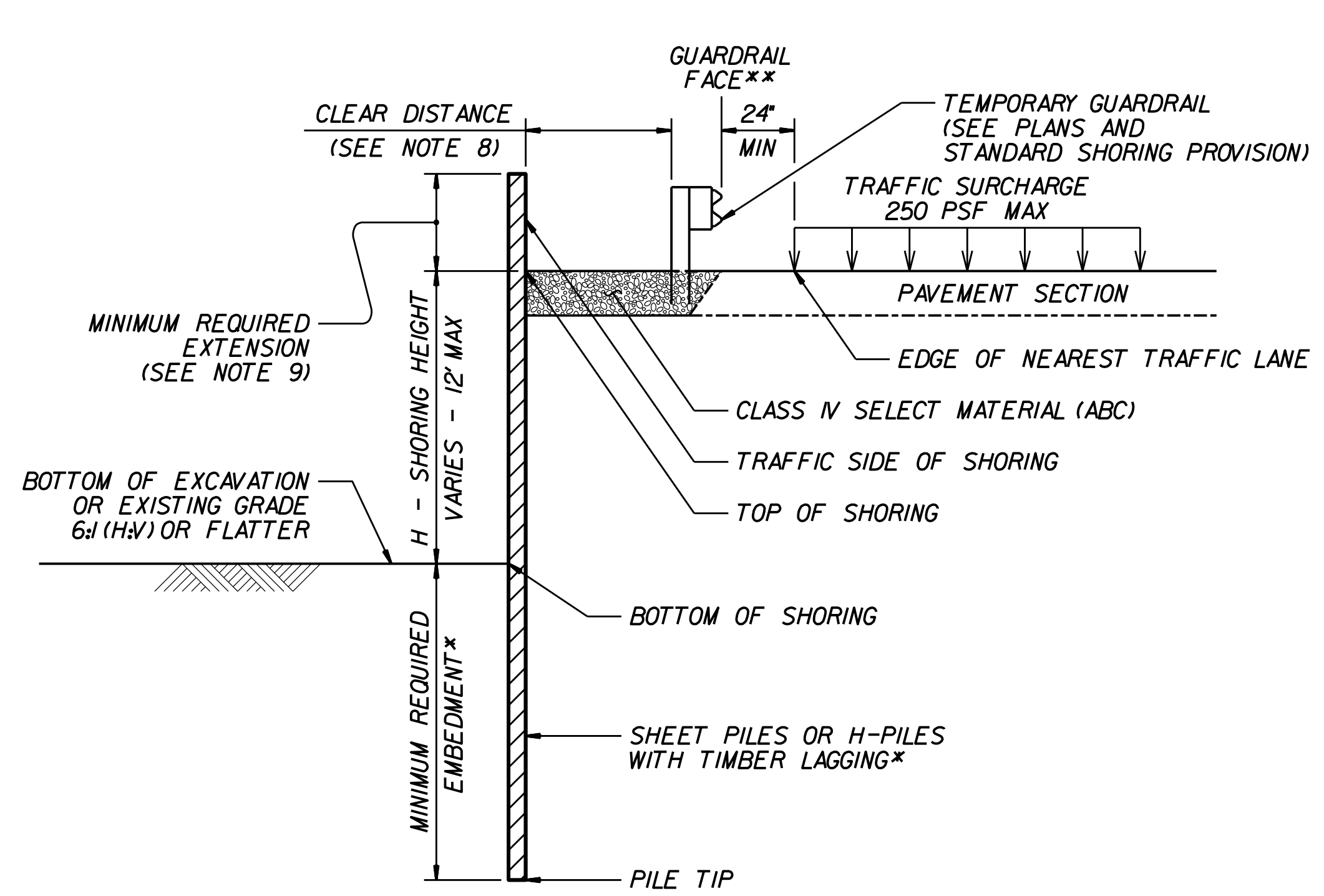
- NOTES:**
- AT THE CONTRACTOR'S OPTION, USE STANDARD TEMPORARY SHORING AS NOTED IN THE PLANS.
 - FOR STANDARD TEMPORARY SHORING, SEE STANDARD SHORING PROVISION.
 - STANDARD TEMPORARY SHORING IS BASED ON THE FOLLOWING IN-SITU ASSUMED SOIL PARAMETERS:
UNIT WEIGHT, $\gamma = 120$ PCF
FRICTION ANGLE, $\phi = 30$ DEGREES
COHESION, $c = 0$ PSF
 - DO NOT USE STANDARD TEMPORARY SHORING IF ASSUMED SOIL PARAMETERS ARE NOT APPLICABLE.
 - DO NOT USE STANDARD TEMPORARY SHORING WHEN VERY LOOSE OR SOFT SOIL OR MUCK IS WITHIN THE EMBEDMENT DEPTH.
 - USE GROUNDWATER ELEVATION NOTED IN THE PLANS. IF NO GROUNDWATER ELEVATION IS SHOWN IN THE PLANS, USE "GROUNDWATER ELEVATION BETWEEN BOTTOM OF SHORING AND PILE TIP" FOR GROUNDWATER CONDITION. DO NOT USE STANDARD TEMPORARY SHORING IF GROUNDWATER IS ABOVE BOTTOM OF SHORING.
 - AT THE CONTRACTOR'S OPTION OR IF AVAILABLE CLEAR DISTANCE IS LESS THAN THE MINIMUM REQUIRED FOR CONCRETE BARRIER, SET BARRIER NEXT TO AND UP AGAINST TRAFFIC SIDE OF PILES AND USE "SURCHARGE CASE WITH TRAFFIC IMPACT".
 - AT THE CONTRACTOR'S OPTION OR IF AVAILABLE CLEAR DISTANCE IS LESS THAN 4' FOR TEMPORARY GUARDRAIL, ATTACH GUARDRAIL TO TRAFFIC SIDE OF PILES AS SHOWN IN THE PLANS AND USE "SURCHARGE CASE WITH TRAFFIC IMPACT".
 - MINIMUM REQUIRED EXTENSION IS 6' FOR "SLOPE OR SURCHARGE CASE WITH NO TRAFFIC IMPACT" AND 32' FOR "SURCHARGE CASE WITH TRAFFIC IMPACT".
 - MINIMUM REQUIRED EMBEDMENT FOR H-PILES WITH TIMBER LAGGING IS BASED ON DRIVEN H-PILES AT MAXIMUM 6' SPACING. AT THE CONTRACTOR'S OPTION, EMBEDMENT DEPTHS MAY BE REDUCED BY 25% FOR DRILLED-IN H-PILES.
 - SUBMIT A "STANDARD TEMPORARY SHORING SELECTION FORM" AT LEAST 7 DAYS BEFORE STARTING TEMPORARY SHORING CONSTRUCTION. UP TO 3 SHORING LOCATIONS MAY BE INCLUDED ON EACH FORM. STANDARD SHORING SELECTION FORMS ARE AVAILABLE FROM:
connect.ncdot.gov/resources/Geological/Pages/Geotech_Forms_Details.aspx
 - CONTACT THE ENGINEER IF PILES DO NOT ATTAIN THE MINIMUM REQUIRED EMBEDMENT.

MINIMUM REQUIRED EMBEDMENT AND SECTION MODULUS

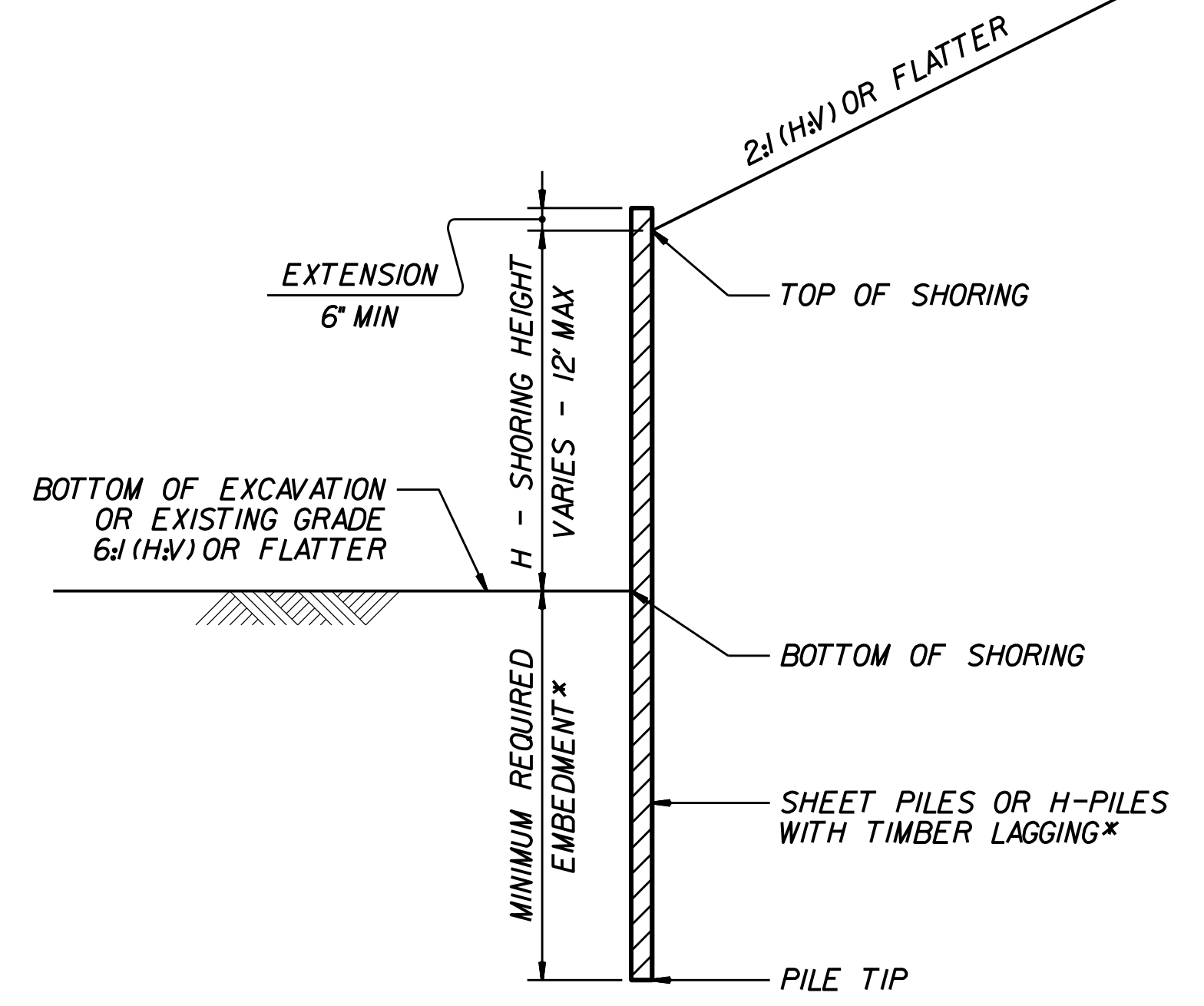
*DO NOT USE H-PILES WITH TIMBER LAGGING FOR GROUNDWATER CONDITION, SHORING HEIGHT AND H-PILE SIZE SHOWN IF MINIMUM REQUIRED EMBEDMENT IS "--".



CONCRETE BARRIER
**TOP OF SHORING = EDGE OF PAVEMENT

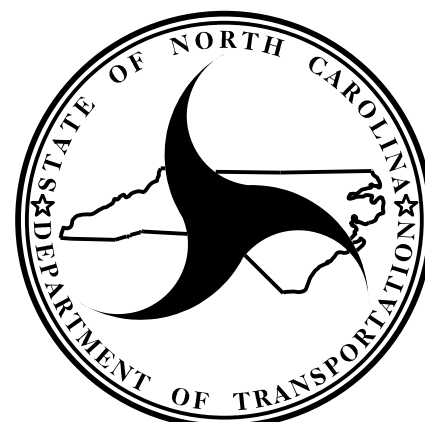


TEMPORARY GUARDRAIL
**GUARDRAIL FACE = EDGE OF PAVEMENT



STANDARD TEMPORARY SHORING (SLOPE CASE)
*SEE TABLE ABOVE.

STANDARD TEMPORARY SHORING (SURCHARGE CASE)
*SEE TABLE ABOVE.



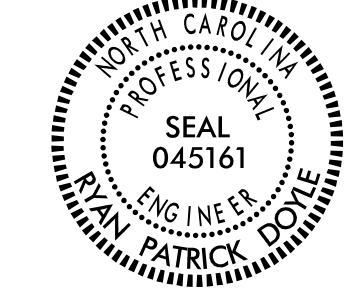
NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

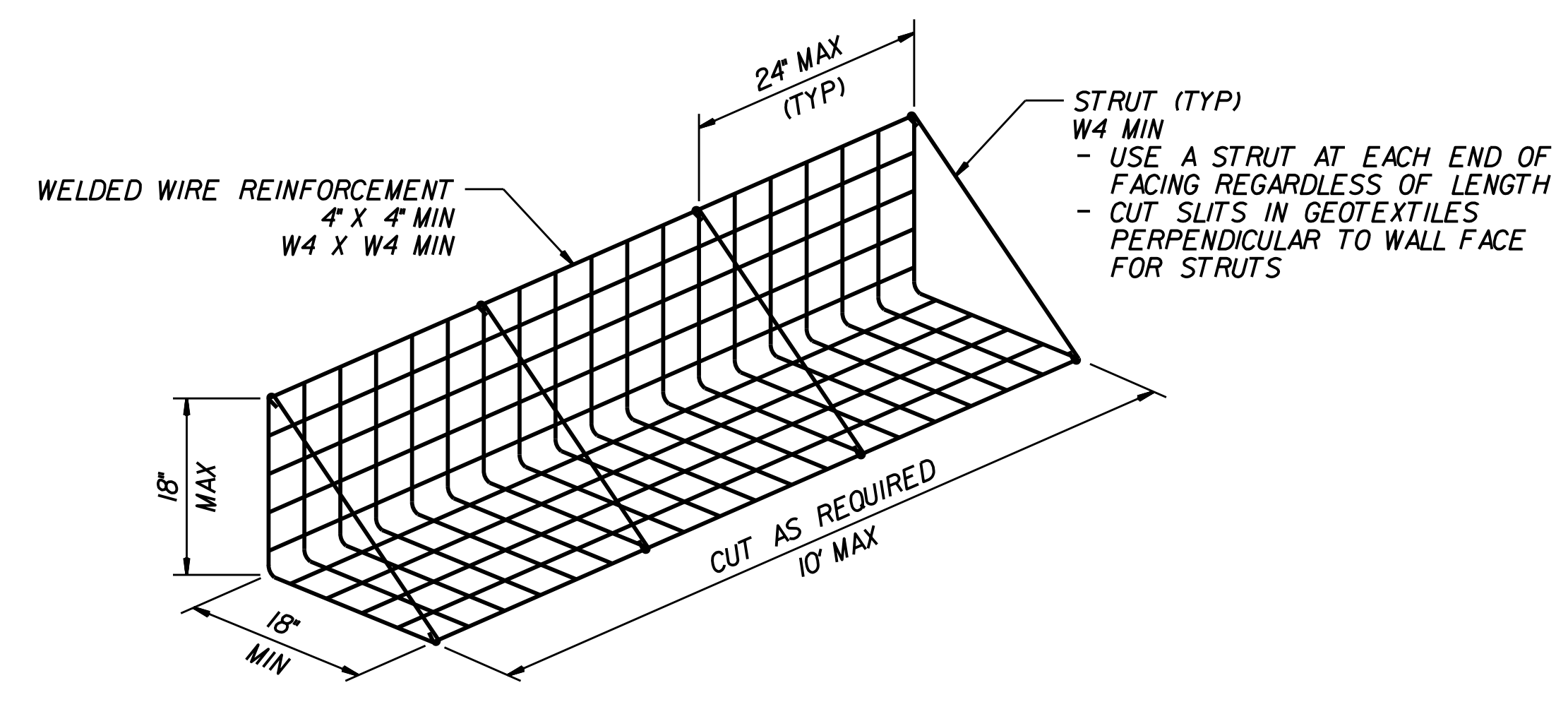
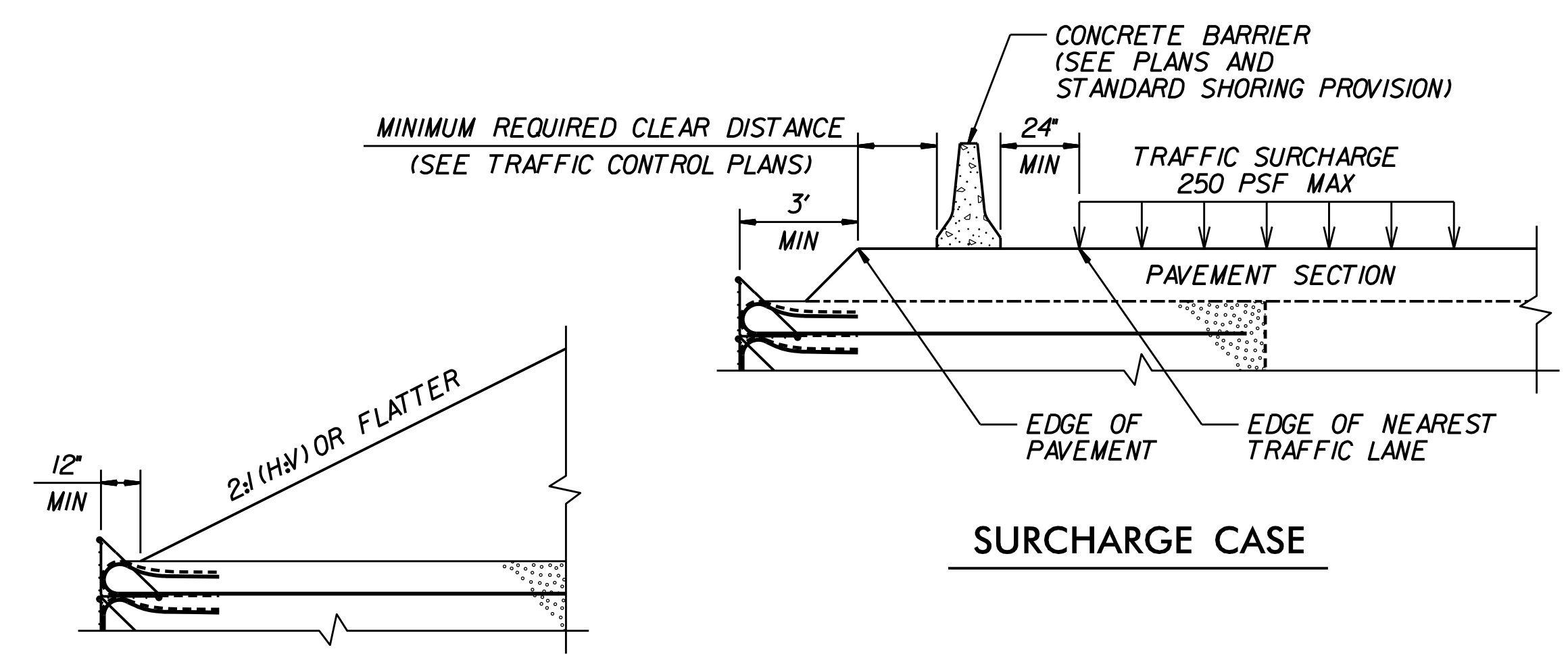
GEOTECHNICAL ENGINEERING UNIT

STANDARD DETAIL NO. 1801.01

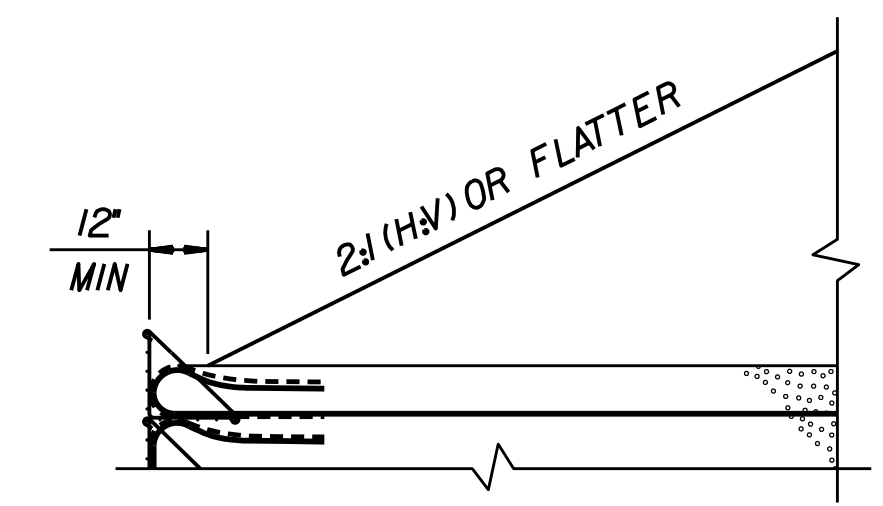
STANDARD TEMPORARY SHORING

DATE: 11-19-13

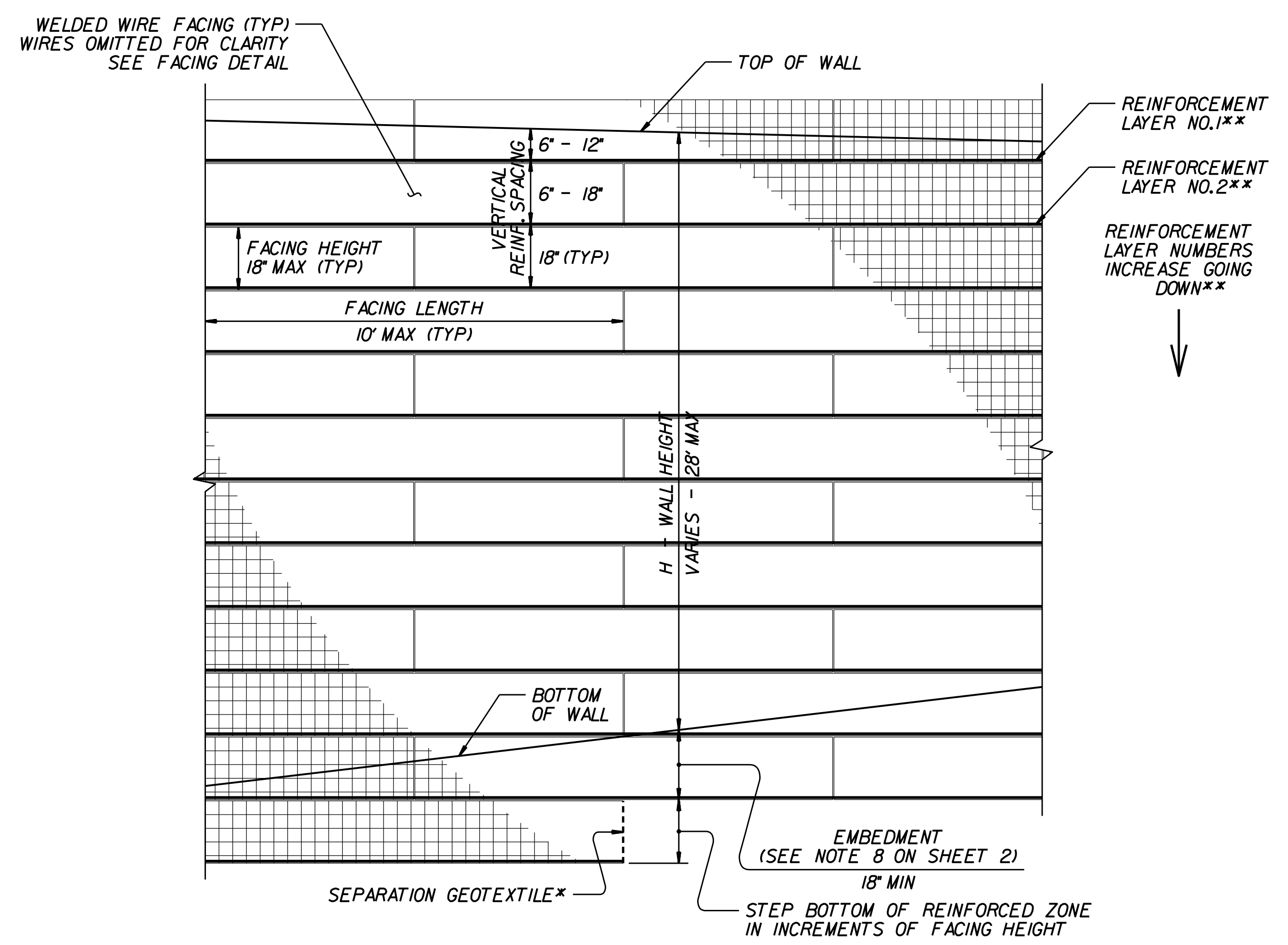
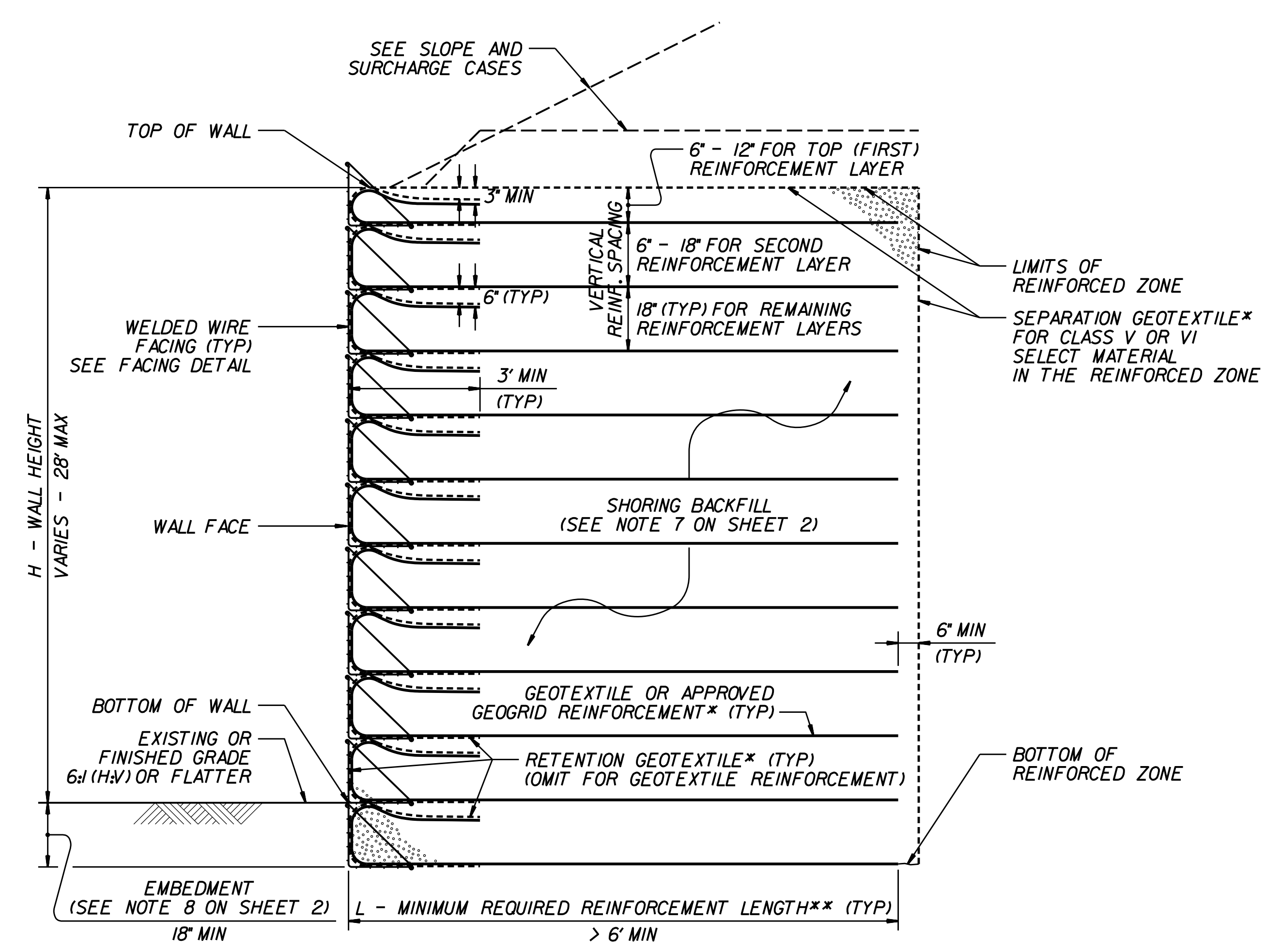
PROJECT REFERENCE NO. B-5898/B-3186		SHEET NO. 2G-3	
GEOTECHNICAL ENGINEER  SEAL 045161 RYAN PATRICK DOYLE ENGINEER		ENGINEER SIGNATURE _____ DATE _____	
Documented by: Ryan Patrick Doyle 10/12/2023 DATE			
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			



SLOPE CASE




FACING DETAIL



STANDARD TEMPORARY WALL
(FOR STANDARD TEMPORARY WALLS ON STRUCTURES, SEE TEMPORARY WALL ON STRUCTURE DETAIL ON SHEET 2.)
*SEE GEOSYNTHETIC PLACEMENT DETAILS ON SHEET 2.
**SEE REINFORCEMENT TABLES ON SHEET 3.

STANDARD TEMPORARY WALL - PARTIAL ELEVATION
*SEE GEOSYNTHETIC PLACEMENT DETAILS ON SHEET 2.
**SEE REINFORCEMENT TABLES ON SHEET 3.



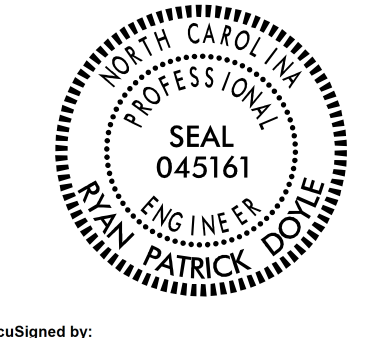
NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

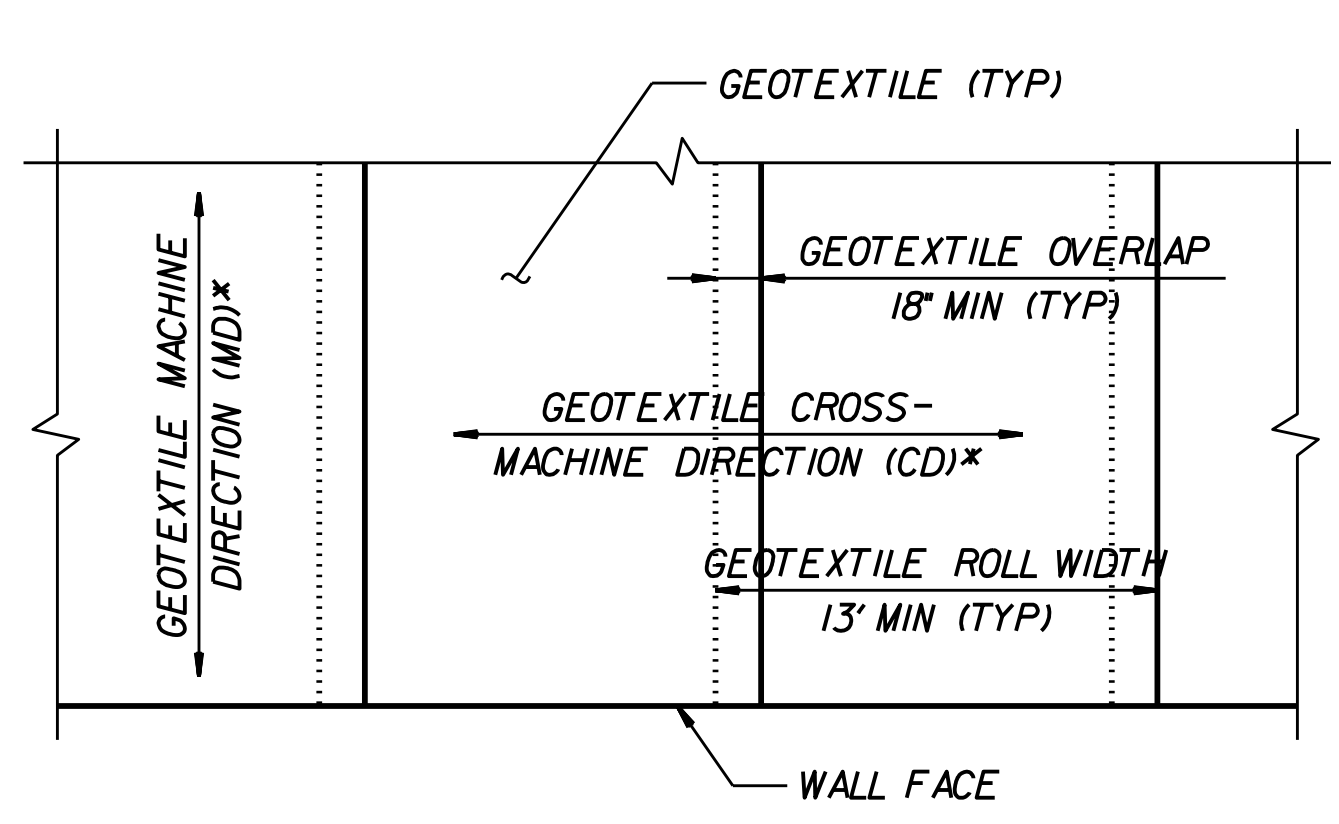
GEOTECHNICAL ENGINEERING UNIT

STANDARD DETAIL NO. 1801.02

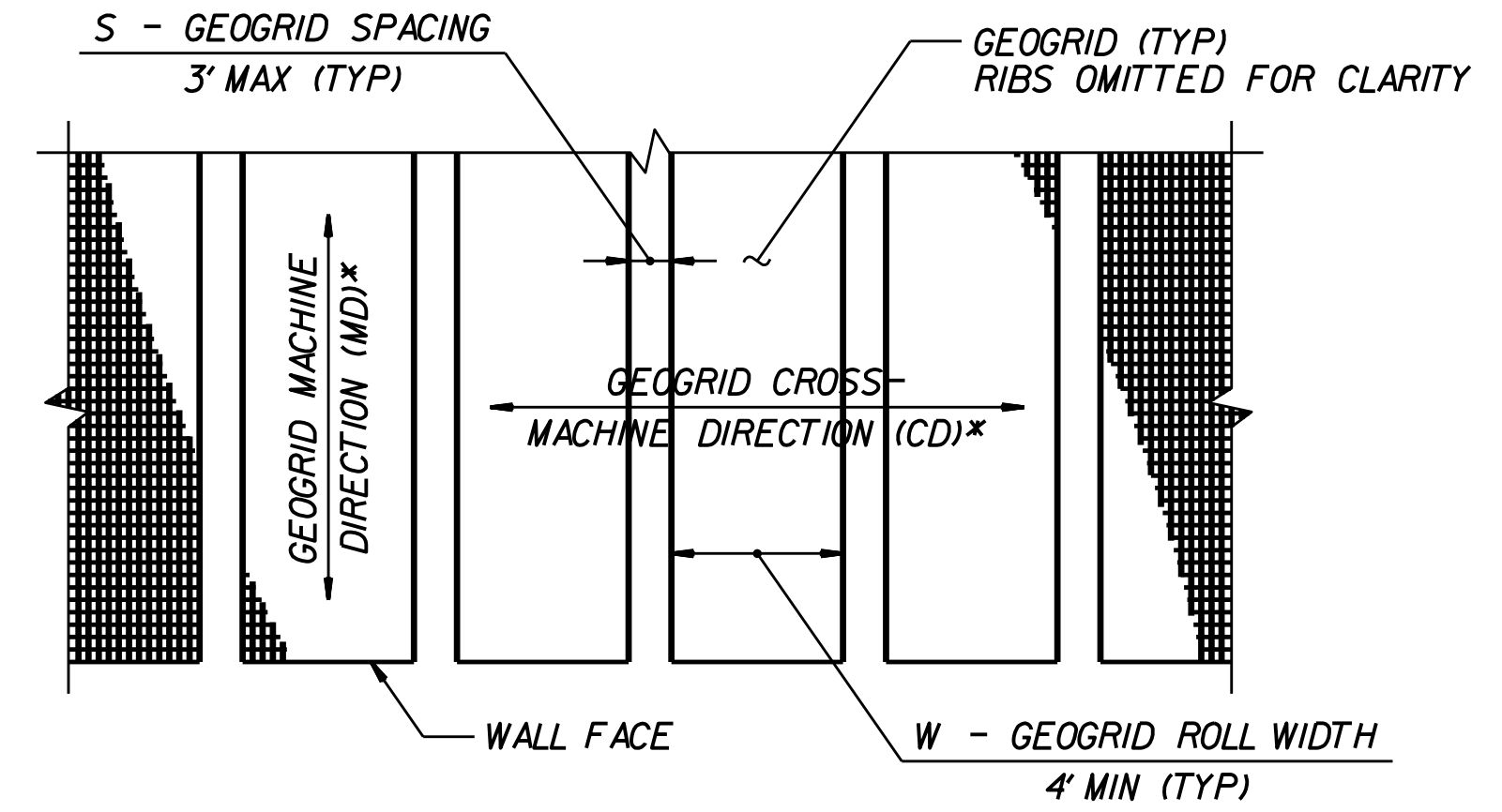
STANDARD TEMPORARY WALL
SHEET 1 OF 3

DATE: 11-19-13

PROJECT REFERENCE NO. B-5898/B-3186		SHEET NO. 2G-4
GEOTECHNICAL ENGINEER		ENGINEER
		
DocuSigned by: Ryan Patrick Doyle 10/12/2023 DATE		SIGNATURE DATE
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		

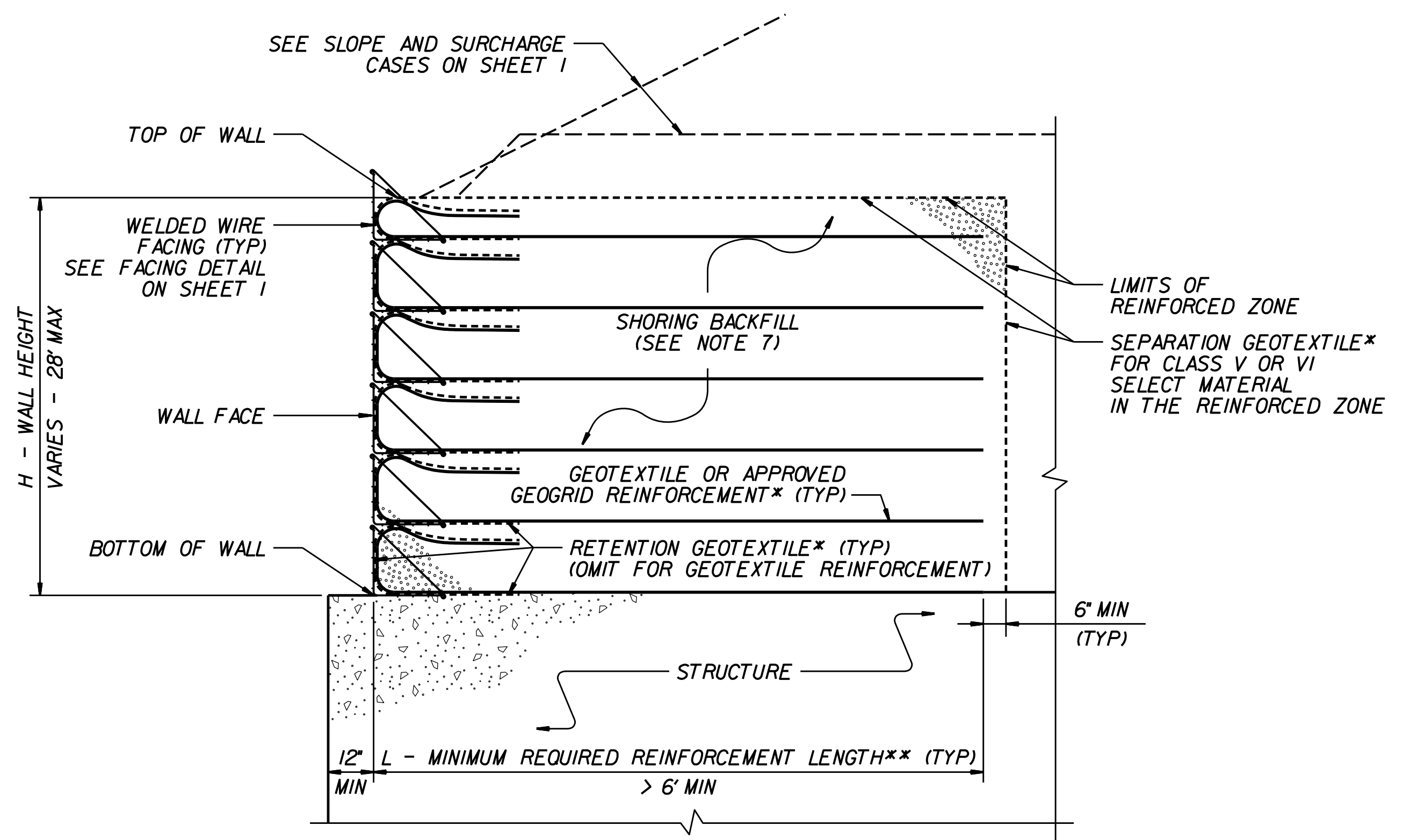


GEOTEXTILE PLACEMENT
(100% COVERAGE MIN FOR GEOTEXTILE REINFORCEMENT)



GEOGRID PLACEMENT
(80% COVERAGE MIN FOR GEOGRID REINFORCEMENT - $\frac{W}{W+S} \times 100 \geq 80\%$, SEE NOTE 11)

GEOSYNTHETIC PLACEMENT DETAILS
(PLAN VIEW)
*SEE NOTE 12.



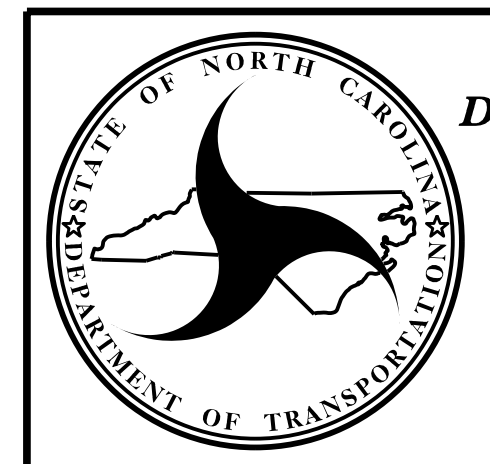
TEMPORARY WALL ON STRUCTURE DETAIL
*SEE GEOSYNTHETIC PLACEMENT DETAILS.
**SEE REINFORCEMENT TABLES ON SHEET 3.

NOTES:

1. AT THE CONTRACTOR'S OPTION, USE STANDARD TEMPORARY WALLS AS NOTED IN THE PLANS.
2. FOR STANDARD TEMPORARY WALLS, SEE STANDARD SHORING PROVISION.
3. STANDARD TEMPORARY WALLS ARE BASED ON THE FOLLOWING IN-SITU ASSUMED SOIL PARAMETERS:
UNIT WEIGHT, $\gamma = 120$ PCF
FRICTION ANGLE, $\phi = 30$ DEGREES
COHESION, $c = 0$ PSF
4. DO NOT USE STANDARD TEMPORARY WALLS IF ASSUMED SOIL PARAMETERS ARE NOT APPLICABLE.
5. DO NOT USE STANDARD TEMPORARY WALLS WHEN VERY LOOSE OR SOFT SOIL OR MUCK IS BELOW TEMPORARY WALLS.
6. USE GROUNDWATER ELEVATION NOTED IN THE PLANS. IF NO GROUNDWATER ELEVATION IS SHOWN IN THE PLANS, ASSUME GROUNDWATER DEPTH IS LESS THAN 7' BELOW BOTTOM OF REINFORCED ZONE. DO NOT USE STANDARD TEMPORARY WALLS IF GROUNDWATER IS ABOVE BOTTOM OF REINFORCED ZONE.
7. DO NOT USE A-2-4 SOIL FOR STANDARD TEMPORARY WALLS AROUND CULVERTS OR IN THE REINFORCED ZONE OF STANDARD TEMPORARY WALLS FOR SLOPE CASES. DO NOT USE CLASS VI SELECT MATERIAL IN THE REINFORCED ZONE OF STANDARD TEMPORARY WALLS WITH GEOTEXTILE REINFORCEMENT.
8. EMBEDMENT IS NOT REQUIRED FOR STANDARD TEMPORARY WALLS ON STRUCTURES OR ROCK AS DETERMINED BY THE ENGINEER.
9. DO NOT USE MORE THAN 4 DIFFERENT REINFORCEMENT STRENGTHS FOR EACH STANDARD TEMPORARY WALL.
10. GEOGRIDS ARE TYPICALLY APPROVED FOR ULTIMATE TENSILE STRENGTHS IN THE MACHINE DIRECTION (MD) AND CROSS-MACHINE DIRECTION (CD) OR SHORT-TERM DESIGN STRENGTHS FOR A 3-YEAR DESIGN LIFE IN THE MD BASED ON MATERIAL TYPE. THE LIST OF APPROVED GEOGRIDS WITH DESIGN STRENGTHS IS AVAILABLE FROM: connect.ncdot.gov/resources/Materials/Pages/Materials-Manual-by-Manual.aspx. DEFINE MATERIAL TYPE FROM THE WEBSITE ABOVE FOR SHORING BACKFILL AS FOLLOWS:

MATERIAL TYPE	SHORING BACKFILL
BORROW	A-2-4 SOIL
FINE AGGREGATE	CLASS II, TYPE I OR CLASS III SELECT MATERIAL
COARSE AGGREGATE	CLASS V OR VI SELECT MATERIAL

- IF THE WEBSITE DOES NOT LIST A SHORT-TERM DESIGN STRENGTH FOR AN APPROVED GEOGRID, USE A SHORT-TERM DESIGN STRENGTH EQUAL TO THE ULTIMATE TENSILE STRENGTH DIVIDED BY 3.5 FOR THE GEOGRID REINFORCEMENT.
11. FOR GEOGRID REINFORCEMENT WITH LESS THAN 100% COVERAGE, STAGGER REINFORCEMENT SO GEOGRIDS ARE CENTERED OVER GAPS IN THE REINFORCEMENT LAYER BELOW.
 12. AT THE CONTRACTOR'S OPTION, REINFORCEMENT MAY BE INSTALLED WITH THE MD PARALLEL TO THE WALL FACE IF BOTH OF THE FOLLOWING CONDITIONS OCCUR:
- W (REINFORCEMENT ROLL WIDTH) \geq (MINIMUM REQUIRED REINFORCEMENT LENGTH) + 4.5' AND
- REINFORCEMENT STRENGTH IN CD \geq MINIMUM REQUIRED REINFORCEMENT STRENGTH IN MD.
 13. SUBMIT A "STANDARD TEMPORARY WALL SELECTION FORM" AT LEAST 7 DAYS BEFORE STARTING TEMPORARY WALL CONSTRUCTION. STANDARD SHORING SELECTION FORMS ARE AVAILABLE FROM: connect.ncdot.gov/resources/Geological/Pages/Geotech_Forms_Details.aspx
 14. DO NOT PLACE SHORING BACKFILL OR REINFORCEMENT UNTIL EXCAVATION DIMENSIONS AND FOUNDATION MATERIAL ARE APPROVED.
 15. FOR STANDARD TEMPORARY WALLS WITH PILE FOUNDATIONS IN THE REINFORCED ZONE, DRIVE PILES THROUGH REINFORCEMENT AFTER CONSTRUCTING TEMPORARY WALLS.
 16. DO NOT SPLICE OR OVERLAP REINFORCEMENT SO SEAMS ARE PARALLEL TO THE WALL FACE.
 17. CONTACT THE ENGINEER WHEN EXISTING OR FUTURE OBSTRUCTIONS SUCH AS FOUNDATIONS, PAVEMENTS, PIPES, INLETS OR UTILITIES WILL INTERFERE WITH REINFORCEMENT.
 18. FOR STANDARD TEMPORARY WALLS WITH INTERIOR ANGLES LESS THAN 90 DEGREES, WRAP GEOSYNTHETICS AT ACUTE CORNERS AS DIRECTED BY THE ENGINEER.
 19. FOR STANDARD TEMPORARY WALLS WITH TOP OF WALL WITHIN 5' OF FINISHED GRADE, REMOVE TOP FACING AND INCORPORATE TOP REINFORCEMENT LAYER INTO FILL WHEN PLACING FILL IN FRONT OF WALL.

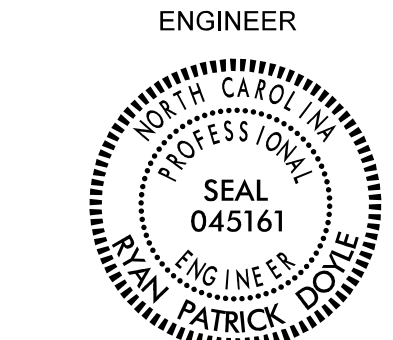


NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
**GEOTECHNICAL
ENGINEERING UNIT**

STANDARD DETAIL NO. 1801.02

STANDARD
TEMPORARY WALL
SHEET 2 OF 3

SLOPE OR SURCHARGE CASE	GROUNDWATER DEPTH BELOW BOTTOM OF REINFORCED ZONE (SEE NOTE 6 ON SHEET 2) (FT)	SHORING BACKFILL TYPE IN THE REINFORCED ZONE (SEE NOTE 7 ON SHEET 2)	H - WALL HEIGHT (FT)																								
			< 4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
SLOPE CASE	> 0	CLASS II, TYPE I, CLASS III, CLASS V OR CLASS VI SELECT MATERIAL	6	6	7	8	9	11	12	13	13	14	15	16	17	18	19	20	21	22	23	24	24	25	26	27	27
SURCHARGE CASE	> 0 TO 7 FOR H < 20' > 0 TO 10 FOR H ≥ 20'	ALL SHORING BACKFILL TYPES	6	7	7	8	8	9	9	10	11	11	12	12	13	14	14	15	16	17	17	18	19	19	20	21	22
		A-2-4 SOIL	6	6	7	8	8	9	9	10	11	11	12	12	13	14	14	15	16	16	17	18	18	19	20	20	21
		CLASS II, TYPE I OR CLASS III SELECT MATERIAL	6	6	7	7	8	8	9	10	10	11	11	12	12	13	14	15	15	16	16	17	17	18	18	19	20
	> 7 FOR H < 20' > 10 FOR H ≥ 20'	CLASS V OR CLASS VI SELECT MATERIAL	6	6	7	7	7	8	8	9	9	10	10	11	12	13	13	14	14	15	15	16	17	17	18	19	19

GEOTECHNICAL ENGINEER

 ENGINEER
 Ryan Patrick Doyle 10/12/2023
 DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

WALL HEIGHT (H) + EMBEDMENT (FT)	NUMBER OF REINFORCEMENT LAYERS*
2.5 - 4	3
4 - 5.5	4
5.5 - 7	5
7 - 8.5	6
8.5 - 10	7
10 - 11.5	8
11.5 - 13	9
13 - 14.5	10
14.5 - 16	11
16 - 17.5	12
17.5 - 19	13
19 - 20.5	14
20.5 - 22	15
22 - 23.5	16
23.5 - 25	17
25 - 26.5	18
26.5 - 28	19
28 - 29.5	20

L - MINIMUM REQUIRED REINFORCEMENT LENGTH (FT)
 (FOR ALL REINFORCEMENT TYPES)


REINFORCEMENT LAYER NUMBER*	SHORING BACKFILL TYPE IN THE REINFORCED ZONE (SEE NOTE 7 ON SHEET 2)				
	SLOPE CASE		SURCHARGE CASE		
	CLASS II, TYPE I OR CLASS III SELECT MATERIAL	CLASS V SELECT MATERIAL	A-2-4 SOIL	CLASS II, TYPE I OR CLASS III SELECT MATERIAL	CLASS V SELECT MATERIAL
1	2400	2400	2400	2400	2400
2	2400	2400	2400	2400	2400
3	2400	2400	2400	2400	2400
4	2400	2400	2500	2400	2400
5	2500	2400	3000	2400	2400
6	3000	2400	3500	2800	2400
7	3500	2700	4000	3200	2600
8	4000	3100	4500	3600	2900
9	4500	3500	5000	4000	3200
10	5000	3900	5500	4400	3500
11	5500	4300	6000	4800	3800
12	6000	4700	6500	5200	4100
13	6500	5100	7000	5600	4400
14	7000	5400	7500	6000	4700
15	7500	5800	8000	6400	5000
16	8000	6200	8500	6800	5300
17	8500	6600	9000	7200	5600
18	9000	7000	9500	7600	5900
19	9500	7400	10000	8000	6200
20	10000	7800	10500	8400	6500

REINFORCEMENT LAYER NUMBER*	SHORING BACKFILL TYPE IN THE REINFORCED ZONE (SEE NOTE 7 ON SHEET 2)				
	SLOPE CASE		SURCHARGE CASE		
	CLASS II, TYPE I OR CLASS III SELECT MATERIAL	CLASS V OR CLASS VI SELECT MATERIAL	A-2-4 SOIL	CLASS II, TYPE I OR CLASS III SELECT MATERIAL	CLASS V OR CLASS VI SELECT MATERIAL
1	240	200	340	290	240
2	380	310	520	430	350
3	530	420	700	570	460
4	690	550	870	720	570
5	860	690	1050	860	680
6	1030	830	1220	1000	790
7	1200	970	1400	1150	900
8	1370	1110	1580	1290	1010
9	1550	1240	1750	1430	1120
10	1720	1380	1930	1580	1230
11	1890	1520	2100	1720	1340
12	2060	1660	2280	1860	1450
13	2240	1800	2450	2010	1560
14	2410	1940	2630	2150	1670
15	2580	2080	2800	2290	1780
16	2750	2220	2980	2440	1890
17	2930	2360	3160	2580	2000
18	3100	2500	3330	2720	2110
19	3270	2640	3510	2860	2220
20	3440	2780	3690	3000	2330

GEOTEXTILE REINFORCEMENT
ULTIMATE TENSILE STRENGTH (LB/FT)

GEOGRID REINFORCEMENT
SHORT-TERM DESIGN STRENGTH (LB/FT)
 (SEE NOTE 10 ON SHEET 2.)

MINIMUM REQUIRED REINFORCEMENT STRENGTH IN MD
 (SEE NOTE 9 ON SHEET 2.)
 *SEE PARTIAL ELEVATION ON SHEET 1 FOR REINFORCEMENT LAYER NUMBERING.

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS

GEOTECHNICAL ENGINEERING UNIT

STANDARD DETAIL NO. 1801.02
STANDARD TEMPORARY WALL SHEET 3 OF 3
 DATE: 11-19-13

USORL7B0NN3

COMPUTED BY: HM DATE: 10/02/2023
CHECKED BY: MDB DATE: 10/16/2023

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT NO. B-3186 SHEET NO. 3D-1

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

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

Table with columns for Line & Station, Offset, Structure Number, Invert Elevation, Pipe Type (Side Drain, C.S. Pipe, R.C. Pipe), Quantities for Drainage Structures, Frame/Grates/Hood, and Remarks. Includes a summary row at the bottom labeled 'B-3186 SHEET TOTALS'.

USORL7B0NNA

COMPUTED BY: HM DATE: 10/02/2023
CHECKED BY: MDB DATE: 10/16/2023

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT NO. B-3186 SHEET NO. 3D-2

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 for Line & Station, Offset, Structure Number, Pipe Type (Side Drain, C.S. Pipe, R.C. Pipe), Quantities for Drainage Structures, Frame, Grates, and Hood, and Abbreviations. Includes a summary row at the bottom: B-3186 SHEET TOTALS.

USOR/L7B0NNA

COMPUTED BY: HM DATE: 10/02/2023
CHECKED BY: MDB DATE: 10/16/2023

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT NO. B-3186 SHEET NO. 3D-3

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 for Line & Station, Offset, Structure Number, Top Elevation, Invert Elevation, Minimum Required Slope, Pipe Material (Side Drain Pipe, C.S. Pipe, R.C. Pipe), Quantities for Drainage Structures, Frame, Grates, and Hood, Concrete Transitional Section, and Remarks. Includes summary rows for B-3186 SHEET TOTALS and B-3186 PROJECT TOTALS.

USORL7B0003

COMPUTED BY: HM DATE: 10/02/2023
CHECKED BY: MDB DATE: 10/16/2023

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT NO. SHEET NO.
B-5898 3D-4

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)

Main data table with columns for Line & Station, Offset, Structure Number, Top Elevation, Invert Elevation, Minimum Required Slope, Pipe Material/Type, Quantities for Drainage Structures, Frame/Grates/Hood, and Remarks. Includes sub-tables for Side Drain Pipe, C.S. Pipe, and R.C. Pipe Class IV.

ABBREVIATIONS table listing symbols for materials like C.A.A., C.B., C.S., D.I., G.D.I., H.D.P.E., J.B., M.H., N.S., P.V.C., R.C., T.B.D.I., T.B.J.B., W.S.

B-5898 SHEET TOTALS

USORL7B0NNA

COMPUTED BY: HM DATE: 10/02/2023
CHECKED BY: MDB DATE: 10/16/2023

PROJECT NO. B-5898 SHEET NO. 3D-5

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 for Line & Station, Offset, Structure Number, Invert Elevation, Pipe Material (RCP, C.S. Pipe, R.C. Pipe), Pipe Size (12, 15, 18, 24, 48), and various material specifications. Includes a summary row at the bottom labeled 'B-5898 SHEET TOTALS'.

ABBREVIATIONS table listing codes like C.A.A., C.B., C.S., D.I., G.D.I., H.D.P.E., J.B., M.H., N.S., P.V.C., R.C., T.B.D.I., T.B.J.B., W.S. and their corresponding material descriptions.

REMARKS

USOR/L7B0NNS

COMPUTED BY: HM DATE: 10/02/2023
CHECKED BY: MDB DATE: 10/16/2023

PROJECT NO. B-5898 SHEET NO. 3D-6

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 for Line & Station, Offset, Structure Number, Invert Elevation, Minimum Required Slope, Pipe Material (RCP, C.S. Pipe, R.C. Pipe), Endwalls, Drainage Structure, Quantities for Drainage Structures, Frame/Grates/Hood, Concrete Transitional Section, and Remarks. Includes summary rows for B-5898 SHEET TOTALS and B-5898 PROJECT TOTALS.

COMPUTED BY: Alex Lozada DATE: 6/23/2023
 CHECKED BY: Ryan Doyle DATE: 9/20/2023

(2-3-23)

PROJECT NO.
B-3186

SHEET NO.
3G-1

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF SUBSURFACE DRAINAGE

LINE	Station	Station	Location LT/RT/CL	Drain Type* UD/BD/SD	LF
	CONTINGENCY			SD	500
				TOTAL LF:	500

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

SUMMARY OF AGGREGATE SUBGRADE/STABILIZATION

LINE	Station	Station	Aggregate Type* ASU(1/2)/ AST	Aggregate Thickness INCHES [8" for ASU(2)]	Shallow Undercut CY	Class IV Subgrade Stabilization TONS	Geotextile for Subgrade Stabilization SY	Stabilizer Aggregate TONS	Class IV Aggregate Stabilization TONS
-L_LT-	6+40	28+05	ASU(1)	12	1126	5158	7906		
-L_RT-	6+86	28+05	ASU(1)	12	1435	5912	9061		
	CONTINGENCY		AST	3	250	500	500	25	
			TOTAL CY/TONS/SY:		2811	11570**	17467**	25	0

*ASU(1/2) = Aggregate Subgrade (Type 1 or 2)
 *AST = Aggregate Stabilization
 **Total tons of "Class IV Subgrade Stabilization" and total square yards of "Geotextile for Subgrade Stabilization" are only the estimated quantities for ASU(1/2)/AST and may only represent a portion of the subgrade stabilization and geotextile quantities shown in the Item Sheets of the Proposal.

SUMMARY OF ROCK PLATING

LINE	Beginning Slope (H:V)	Approx. Station	Ending Slope (H:V)	Approx. Station	Location LT/RT	Rock Plating Detail No. 1/2/3/4	Riprap Class* 1/2/B	Rock Plating SY
-L_RT-	2:1	22+75	1.5:1	23+10	RT	2		75
							TOTAL SY:	75

*Use Class 1, 2 or B riprap if riprap class is not shown for rock plating location.

COMPUTED BY: Alex Lozada DATE: 7/3/2023
 CHECKED BY: Ryan Doyle DATE: 9/20/2023

(2-3-23)

PROJECT NO.
B-5898

SHEET NO.
3G-2

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF SUBSURFACE DRAINAGE

LINE	Station	Station	Location LT/RT/CL	Drain Type* UD/BD/SD	LF
-L_RT-	29+25	30+00	LT to RT	SD	75
CONTINGENCY				SD	500
TOTAL LF:					575

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

SUMMARY OF AGGREGATE SUBGRADE/STABILIZATION

LINE	Station	Station	Aggregate Type* ASU(1/2)/AST	Aggregate Thickness INCHES [8" for ASU(2)]	Shallow Undercut CY	Class IV Subgrade Stabilization TONS	Geotextile for Subgrade Stabilization SY	Stabilizer Aggregate TONS	Class IV Aggregate Stabilization TONS
-L_LT-	28+05	40+74	ASU(1)	12	786	3761	5764		
-L_RT-	28+05	40+04	ASU(1)	12	1260	3848	5897		
-Y1_RT-	16+83	28+83	ASU(1)	12	476	932	1428		
CONTINGENCY			AST	3	250	500	500	25	
TOTAL CY/TONS/SY:					2772	9041**	13589**	25	0

*ASU(1/2) = Aggregate Subgrade (Type 1 or 2)
 *AST = Aggregate Stabilization
 **Total tons of "Class IV Subgrade Stabilization" and total square yards of "Geotextile for Subgrade Stabilization" are only the estimated quantities for ASU(1/2)/AST and may only represent a portion of the subgrade stabilization and geotextile quantities shown in the Item Sheets of the Proposal.

SUMMARY OF ROCK PLATING

LINE	Beginning Slope (H:V)	Approx. Station	Ending Slope (H:V)	Approx. Station	Location LT/RT	Rock Plating Detail No. 1/2/3/4	Riprap Class* 1/2/B	Rock Plating SY
-L_RT-	2:1	30+50	1.5:1	33+75	RT	1		720
-L_RT-	1.5:1	33+75	1.4:1	35+00	RT	1		430
-L_RT-	1.5:1	31+50	2:1	34+77	RT	3		500
TOTAL SY:								1650

*Use Class 1, 2 or B riprap if riprap class is not shown for rock plating location.

SUMMARY OF SURCHARGES AND SURCHARGE WAITING PERIODS

LINE	Station	Station	Surcharge Height FT	MONTHS
-L_LT-	30+83	31+33	4.0	2
-L_LT-	33+11	33+61	4.0	2

SUMMARY OF PIEZOMETERS

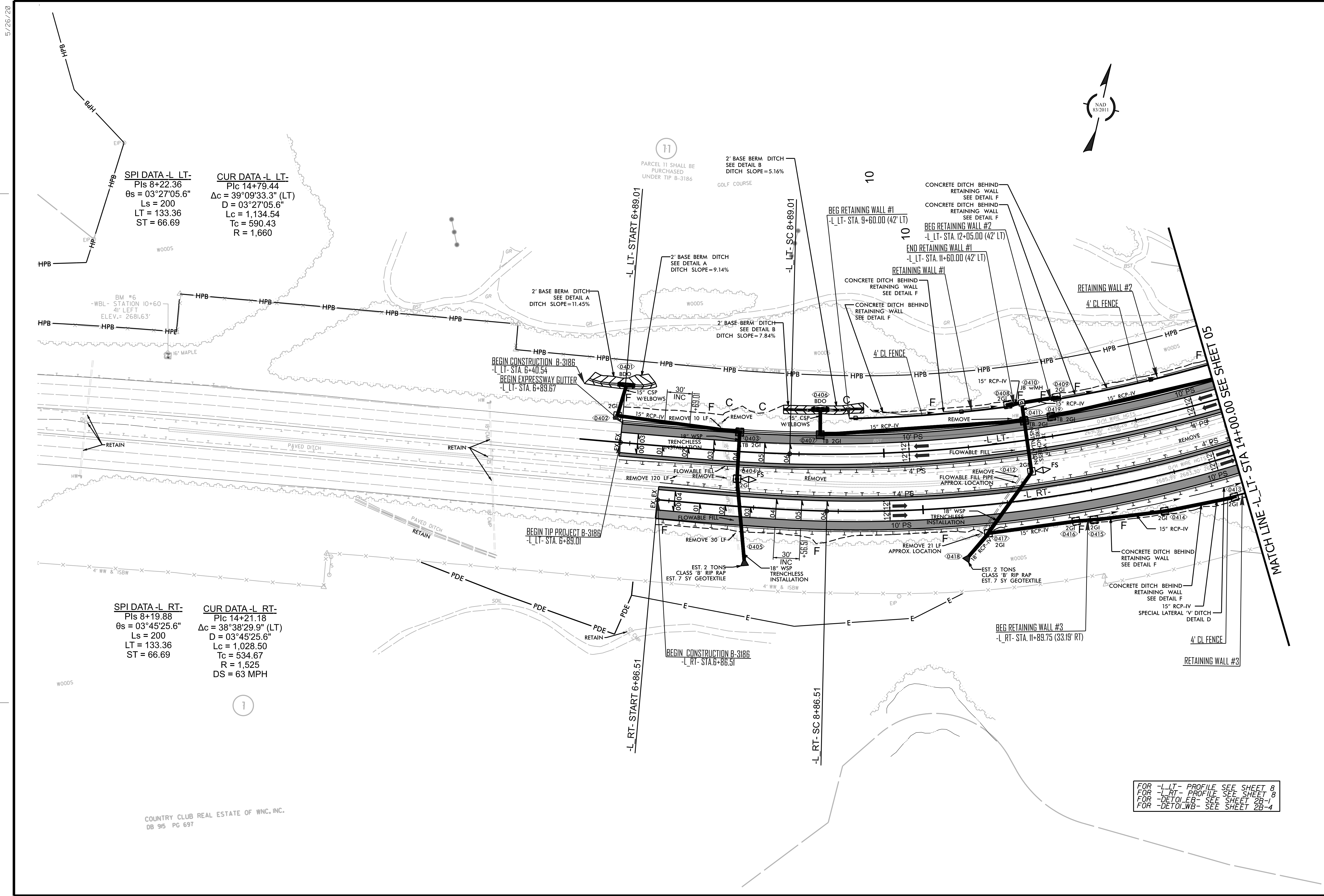
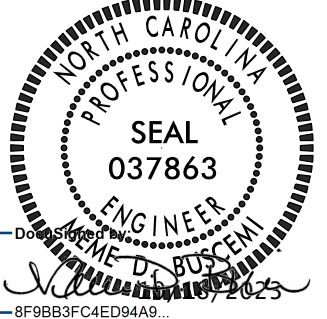
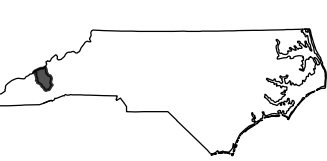
Piezometer No.	LINE and Station	Offset		Elevation FT
		Distance FT	Direction LT/RT	
1	L_LT 31+59	14	LT	2570
2	L_LT 32+28	13	LT	2570
TOTAL PIEZOMETERS (EACH):				2

SUMMARY OF SETTLEMENT GAUGES

Gauge No.	LINE and Station	Offset	
		Distance FT	Direction LT/RT
1	L_LT 30+85	20	LT
2	L_LT 31+55	22	RT
3	L_LT 32+85	20	LT
4	L_LT 33+80	24	RT
TOTAL GAUGES (EACH):			4

SUMMARY OF BRIDGE WAITING PERIODS

Bridge Description	End Bent/ Bent No.	MONTHS
Str 001 168, US74WB Over US19NB	EB 1	2
Str 001 168, US74WB Over US19NB	EB 2	2



SPI DATA -L- LT-
 Plc 8+22.36
 $\theta_s = 03^\circ 27' 05.6''$
 Ls = 200
 LT = 133.36
 ST = 66.69

CUR DATA -L- LT-
 Plc 14+79.44
 $\Delta c = 39^\circ 09' 33.3''$ (LT)
 $D = 03^\circ 27' 05.6''$
 Lc = 1,134.54
 Tc = 590.43
 R = 1,660

SPI DATA -L- RT-
 Pls 8+19.88
 $\theta_s = 03^\circ 45' 25.6''$
 Ls = 200
 LT = 133.36
 ST = 66.69

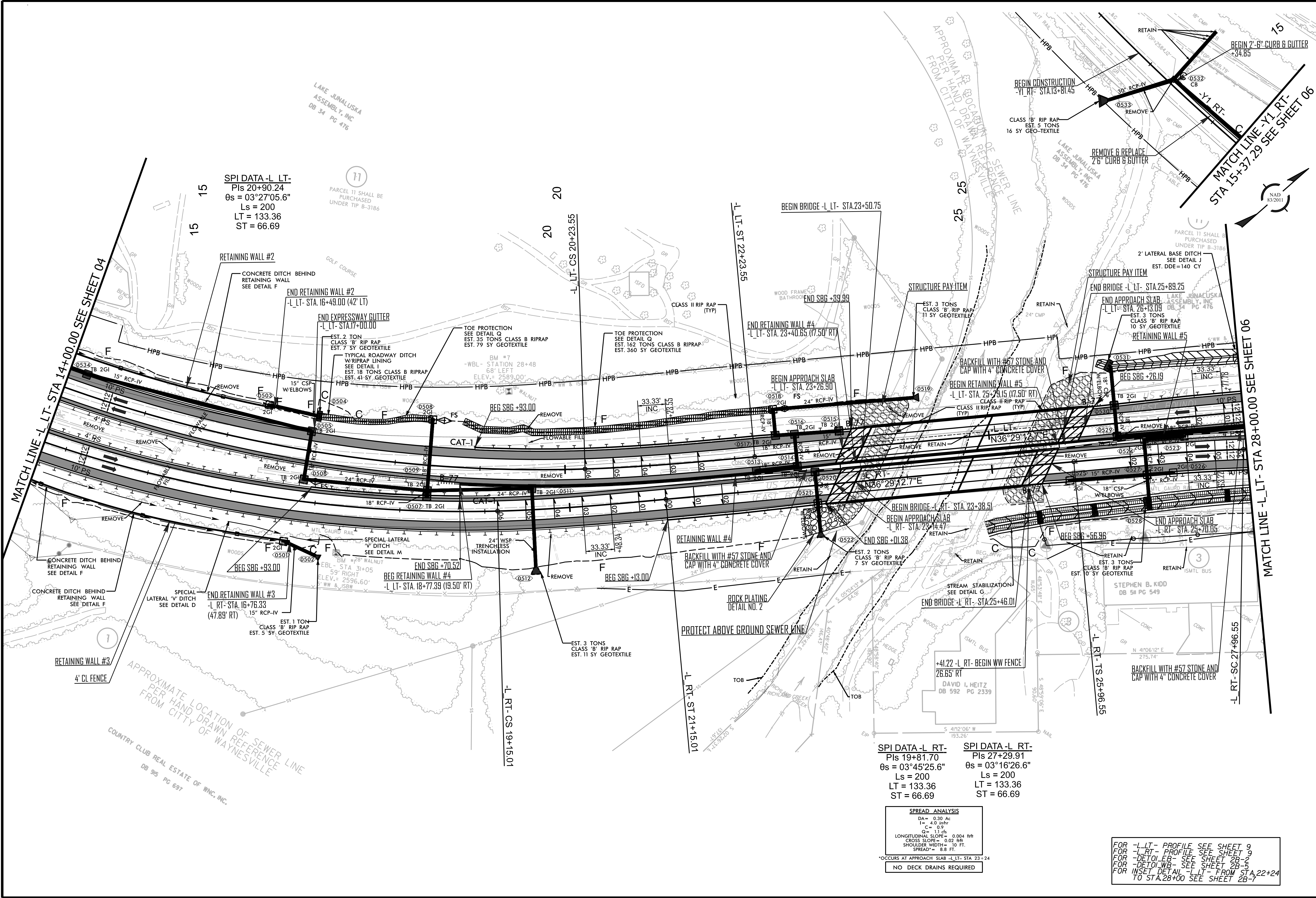
CUR DATA -L- RT-
 Plc 14+21.18
 $\Delta c = 38^\circ 38' 29.9''$ (LT)
 $D = 03^\circ 45' 25.6''$
 Lc = 1,028.50
 Tc = 534.67
 R = 1,525
 DS = 63 MPH

1

COUNTRY CLUB REAL ESTATE OF WNC, INC. DB 95 PG 697

FOR -L-LT- PROFILE SEE SHEET 8
 FOR -L-RT- PROFILE SEE SHEET 8
 FOR -DET-LEB- SEE SHEET 2B-1
 FOR -DET-LEB- SEE SHEET 2B-4

REVISIONS



SPI DATA -L LT-
 PIs 20+90.24
 $\theta_s = 03^\circ 27' 05.6''$
 $L_s = 200$
 $LT = 133.36$
 $ST = 66.69$

PARCEL 11 SHALL BE PURCHASED UNDER TIP B-3186

SPI DATA -L RT-
 PIs 19+81.70
 $\theta_s = 03^\circ 45' 25.6''$
 $L_s = 200$
 $LT = 133.36$
 $ST = 66.69$

SPI DATA -L RT-
 PIs 27+29.91
 $\theta_s = 03^\circ 16' 26.6''$
 $L_s = 200$
 $LT = 133.36$
 $ST = 66.69$

SPREAD ANALYSIS
 $DA = 0.30 \text{ Ac}$
 $I = 4.0 \text{ in/hr}$
 $C = 0.9$
 $Q = 1.1 \text{ cfs}$
 LONGITUDINAL SLOPE = 0.004 ft/ft
 CROSS SLOPE = 0.02 ft/ft
 SHOULDER WIDTH = 10 FT.
 SPREAD = 8.6 FT.

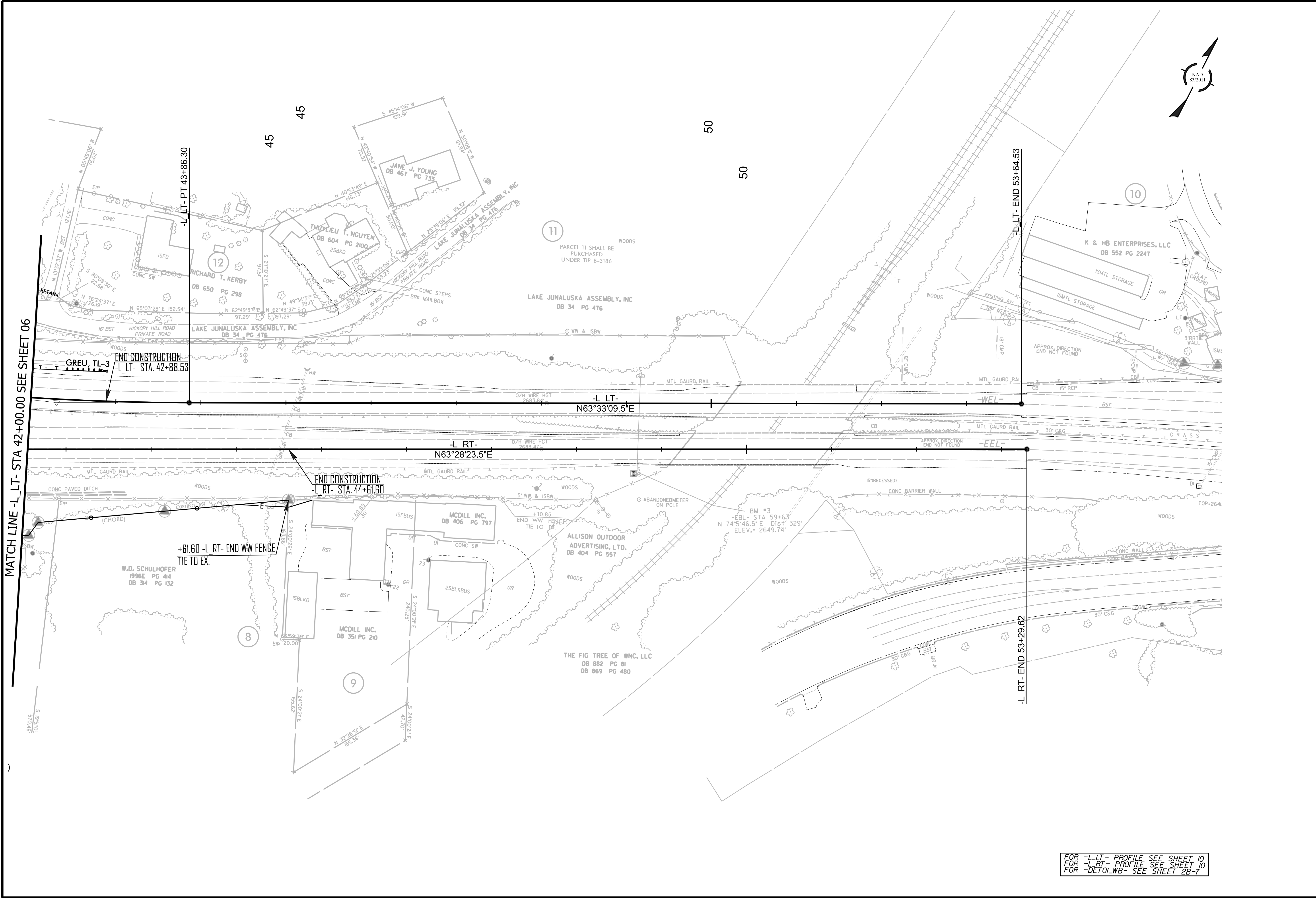
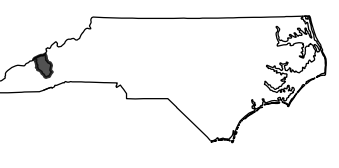
*OCCURS AT APPROACH SLAB -L LT- STA. 23+24
 NO DECK DRAINS REQUIRED

FOR -L LT- PROFILE SEE SHEET 9
 FOR -L RT- PROFILE SEE SHEET 9
 FOR -DETOUR- SEE SHEET 2B-2
 FOR -DETOUR- SEE SHEET 2B-3
 FOR INSET DETAIL -L LT- FROM STA 22+24 TO STA 28+00 SEE SHEET 2B-7

B-3186/B-5898
 PSH 05
 NORTH CAROLINA DEPARTMENT OF TRANSPORTATION HAYWOOD COUNTY
 ROADWAY DESIGN UNIT
 ROADWAY DESIGN ENGINEER
 NORTH CAROLINA PROFESSIONAL SEAL 049634
 ENGINEER
 HYDRAULICS ENGINEER
 NORTH CAROLINA PROFESSIONAL SEAL 037863
 ENGINEER
 PREPARED BY
AECOM
 NC FIRM LICENSE No: F-0342
 5438 Wade Park Boulevard, Suite 200
 Raleigh, NC 27601
 (919) 854-6200 / (919) 854-6259 (FAX)

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REVISIONS

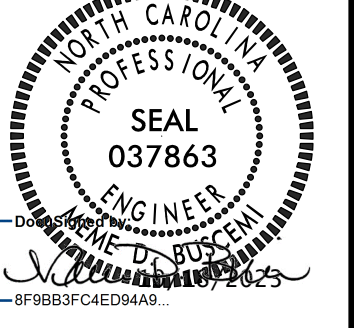
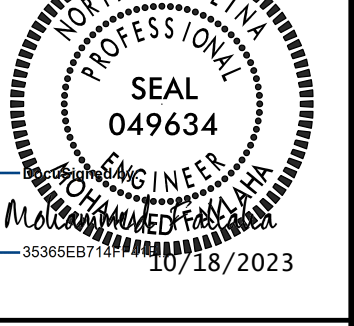
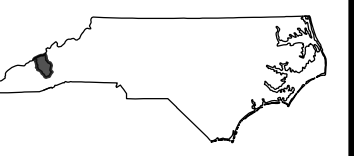
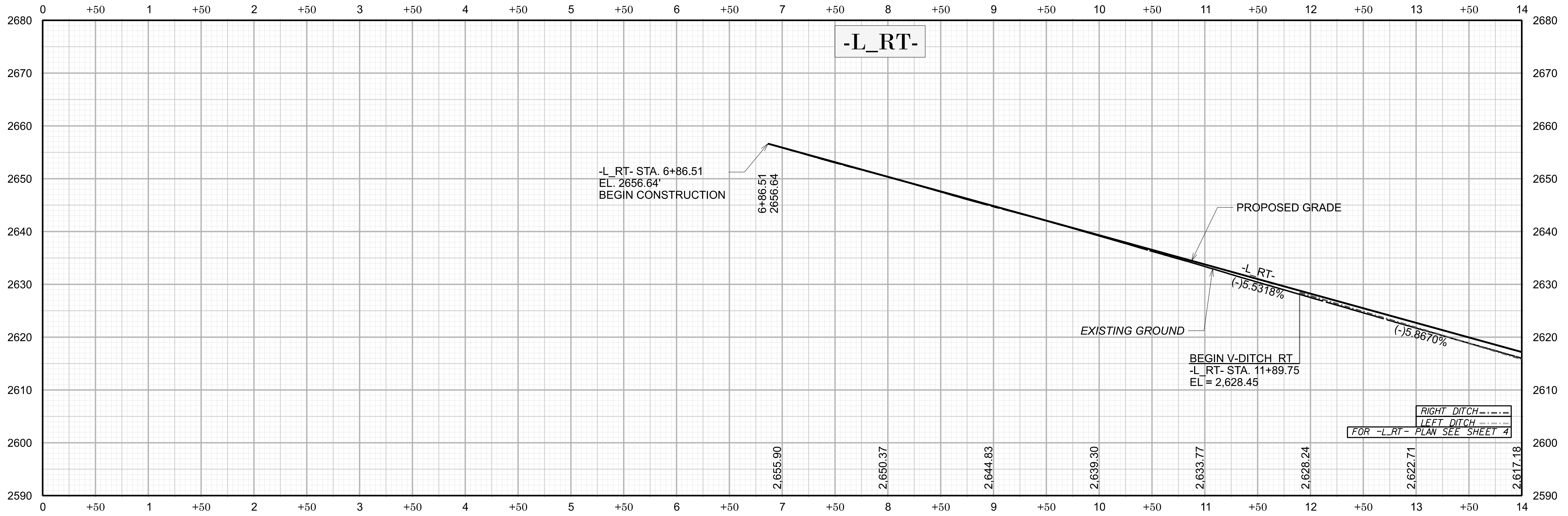
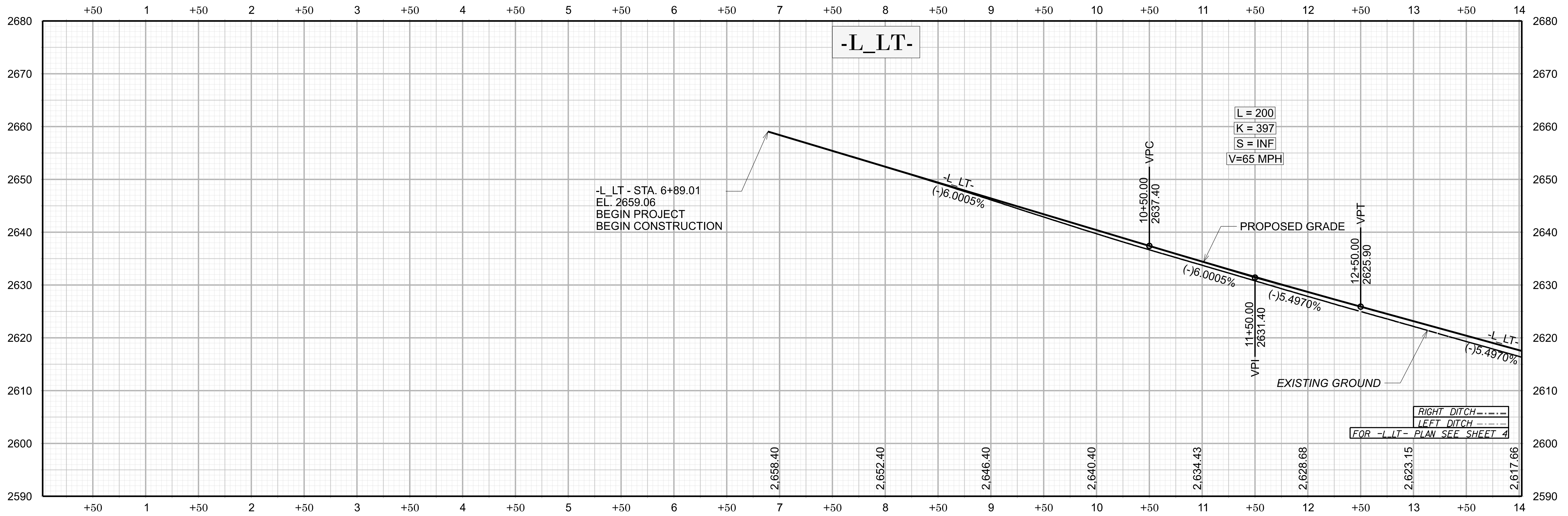


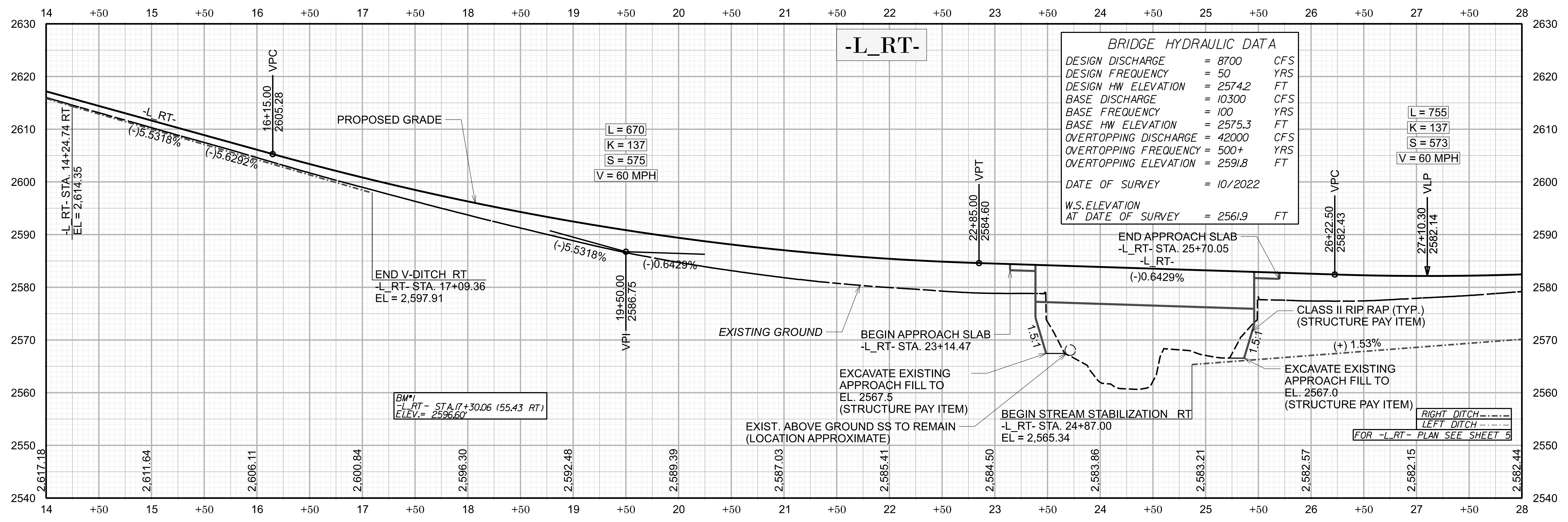
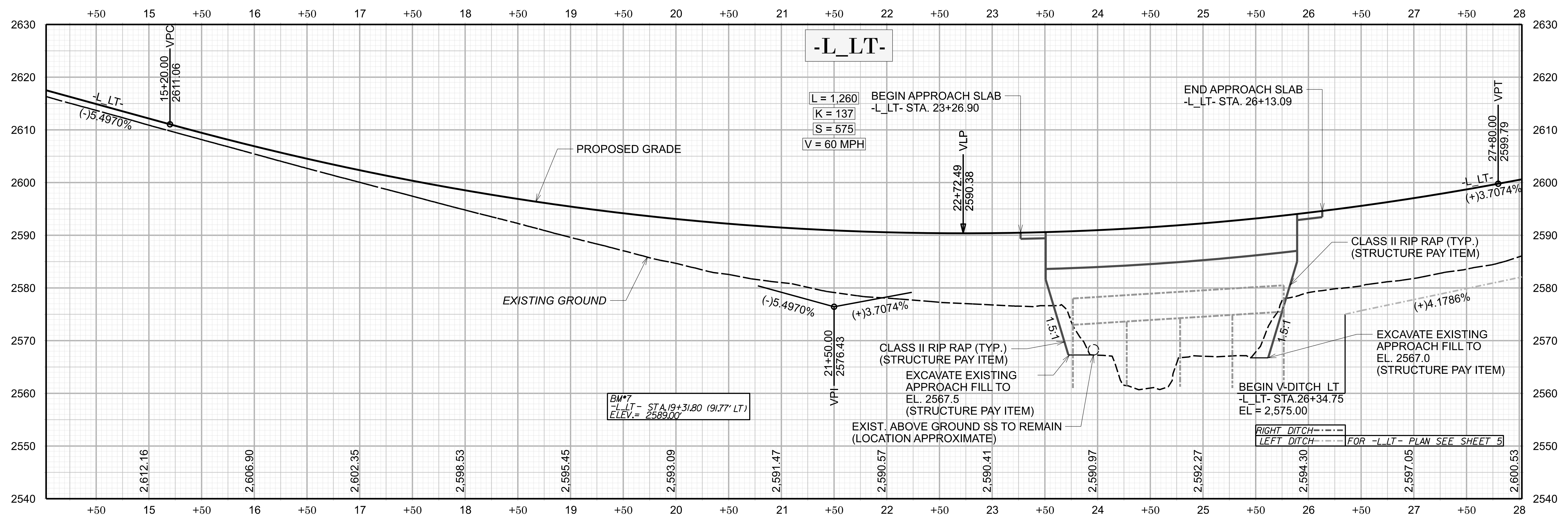
MATCH LINE -L LT- STA 42+00.00 SEE SHEET 06

-L LT- PT 43+86.30
-L LT- END 53+64.53
-L RT- END 53+29.62

FOR -L LT- PROFILE SEE SHEET 10
FOR -L RT- PROFILE SEE SHEET 10
FOR -DETOI-WB- SEE SHEET 2B-7

REVISIONS





B-3186/B-5888

PFL 09

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
HAYWOOD COUNTY

ROADWAY DESIGN UNIT
ROADWAY DESIGN ENGINEER

SEAL 049634
ENGINEER
MOHAMMED RAKIB
11/18/2023

SEAL 037863
ENGINEER
DANIEL D. BUSCH
08/08/2023

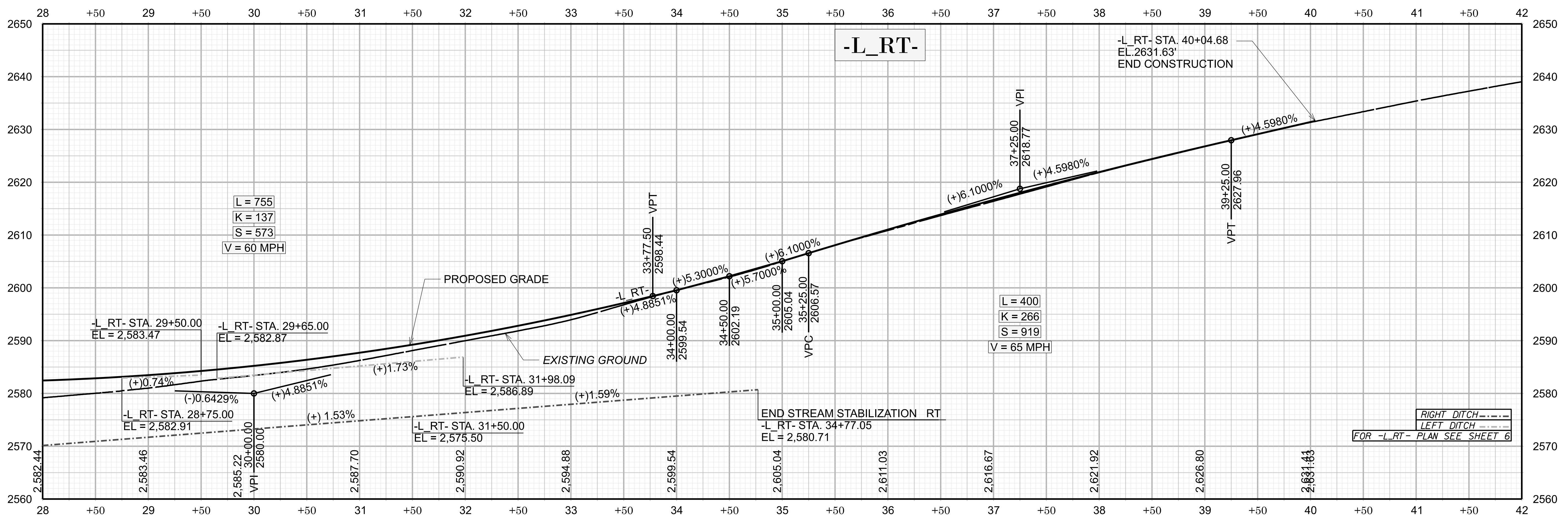
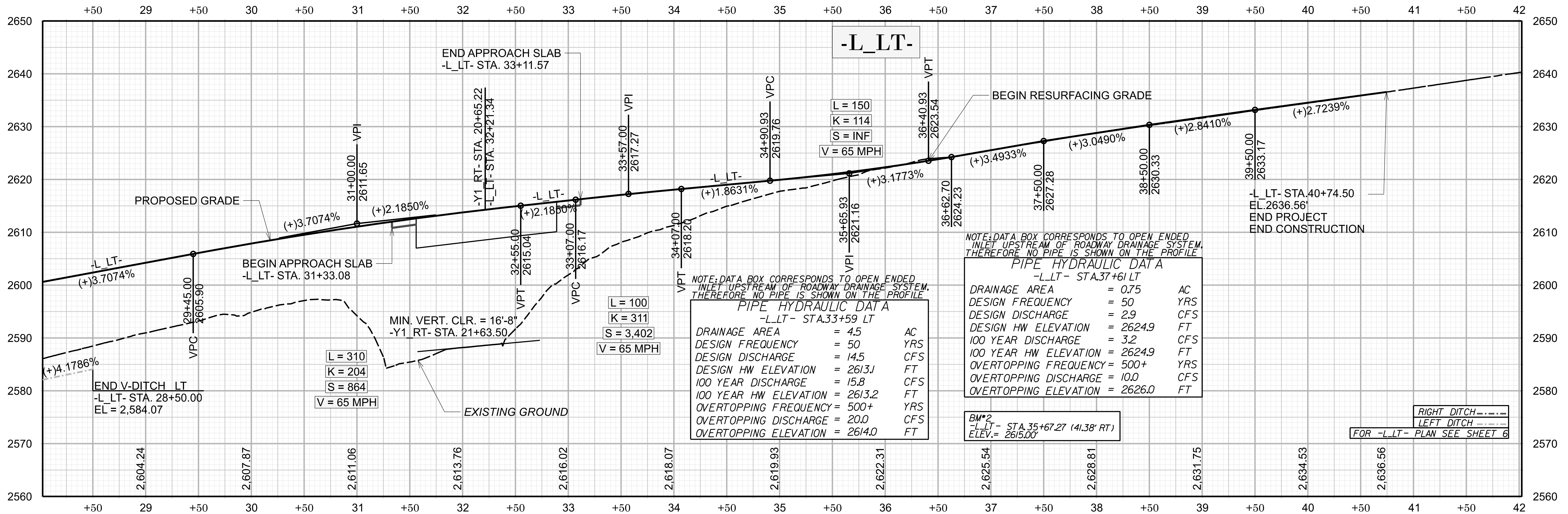
HYDRAULICS ENGINEER

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AECOM

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PFL 10

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
HAYWOOD COUNTY

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SEAL
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ENGINEER
MOHAMMED RAKIB
11/18/2023

HYDRAULICS
ENGINEER

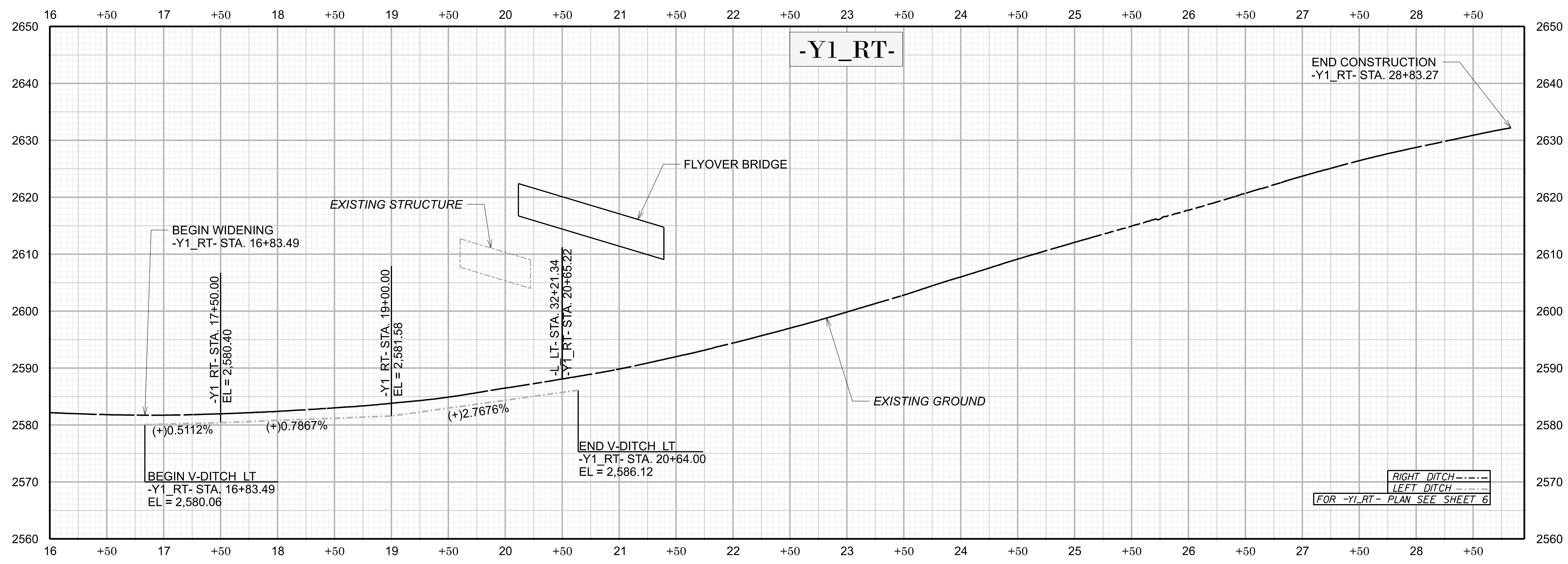
SEAL
037863
ENGINEER
DANIEL D. BUSCH
08/08/2018

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PFL II

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
HAYWOOD COUNTY

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ROADWAY DESIGN
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350858718/11/18/2023

HYDRAULICS
ENGINEER

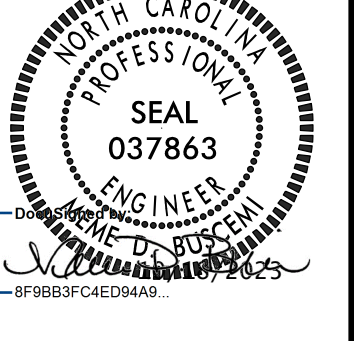
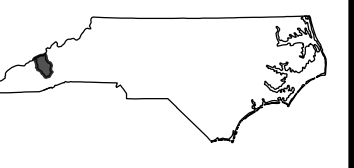
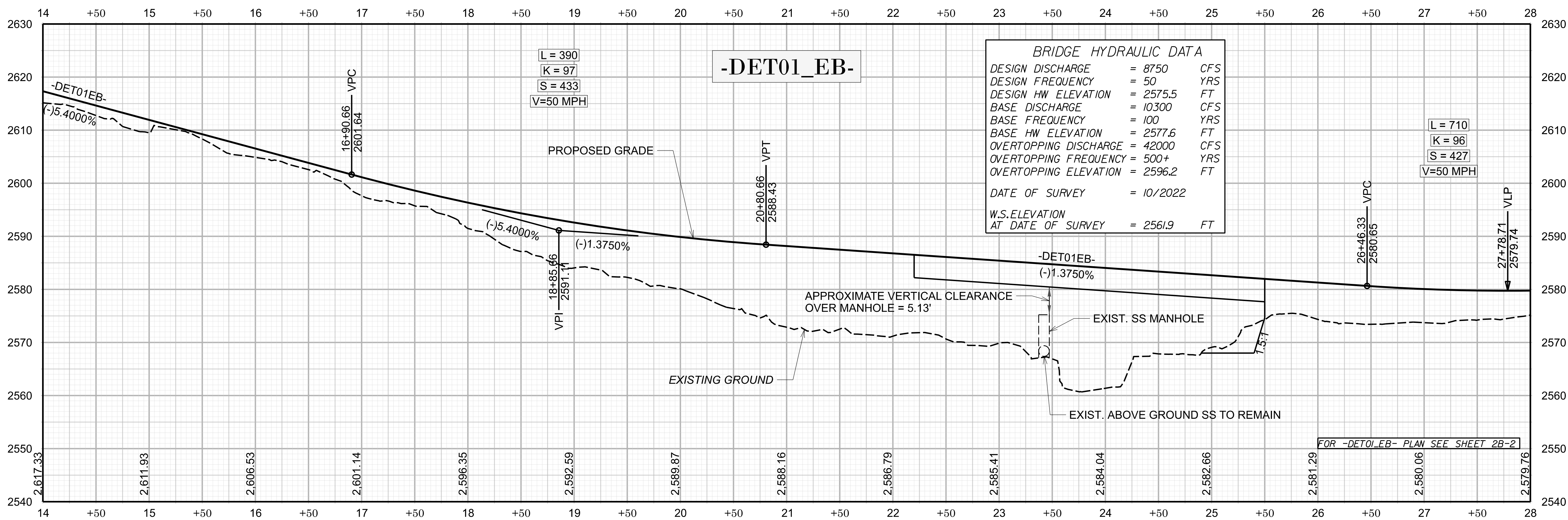
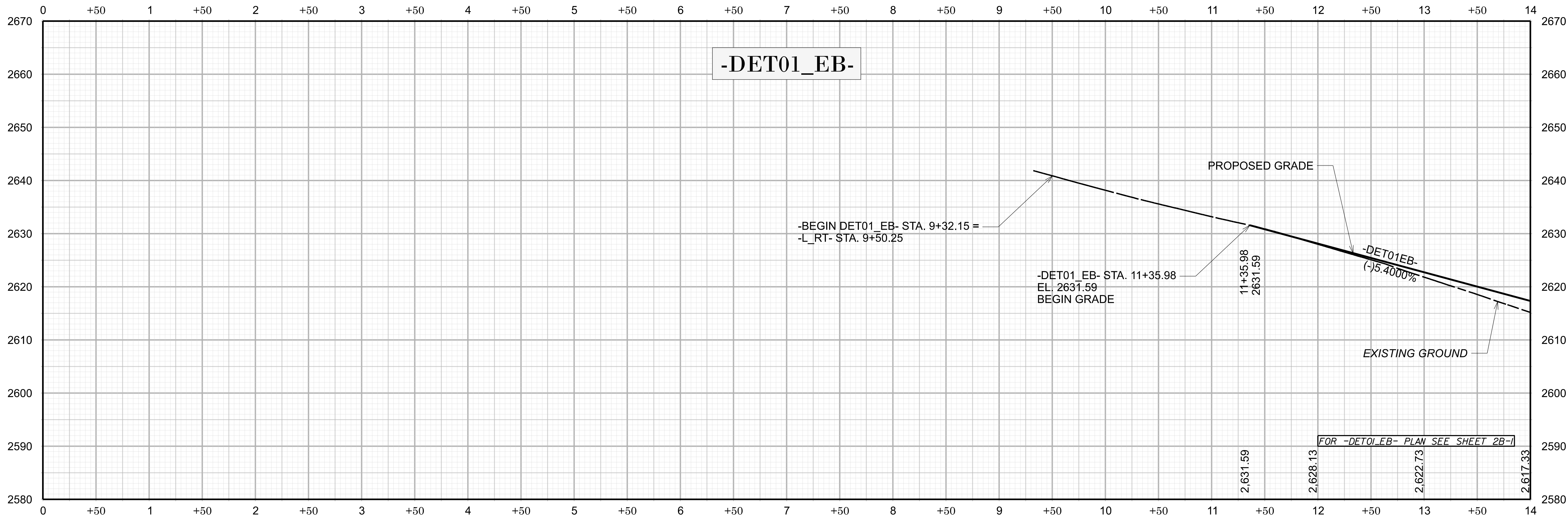
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