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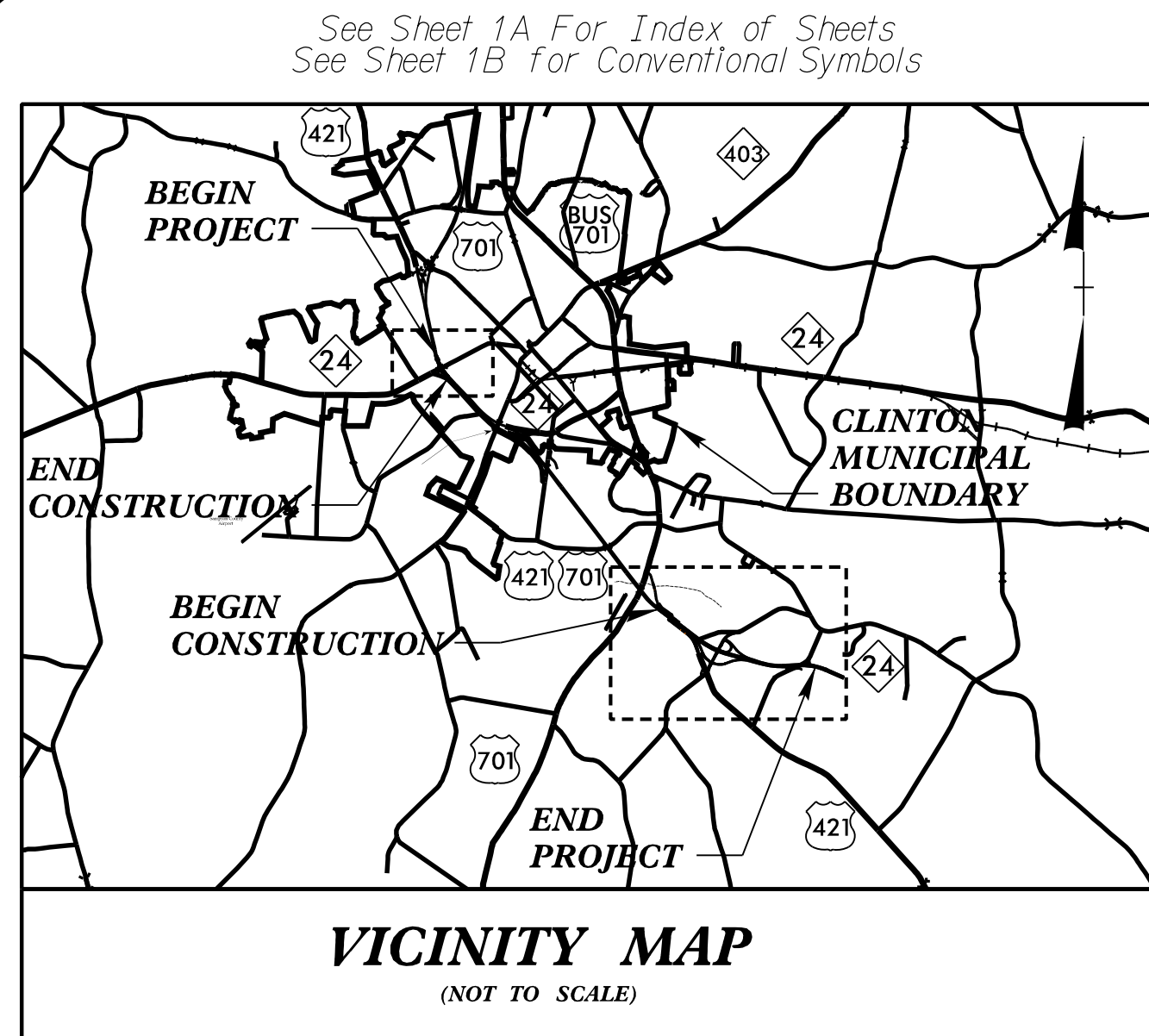
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-2303E	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
34416.1.S1		PE	
34416.2.8		RW /UTIL.	
34416.3.10		CONST.	

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SAMPSON COUNTY

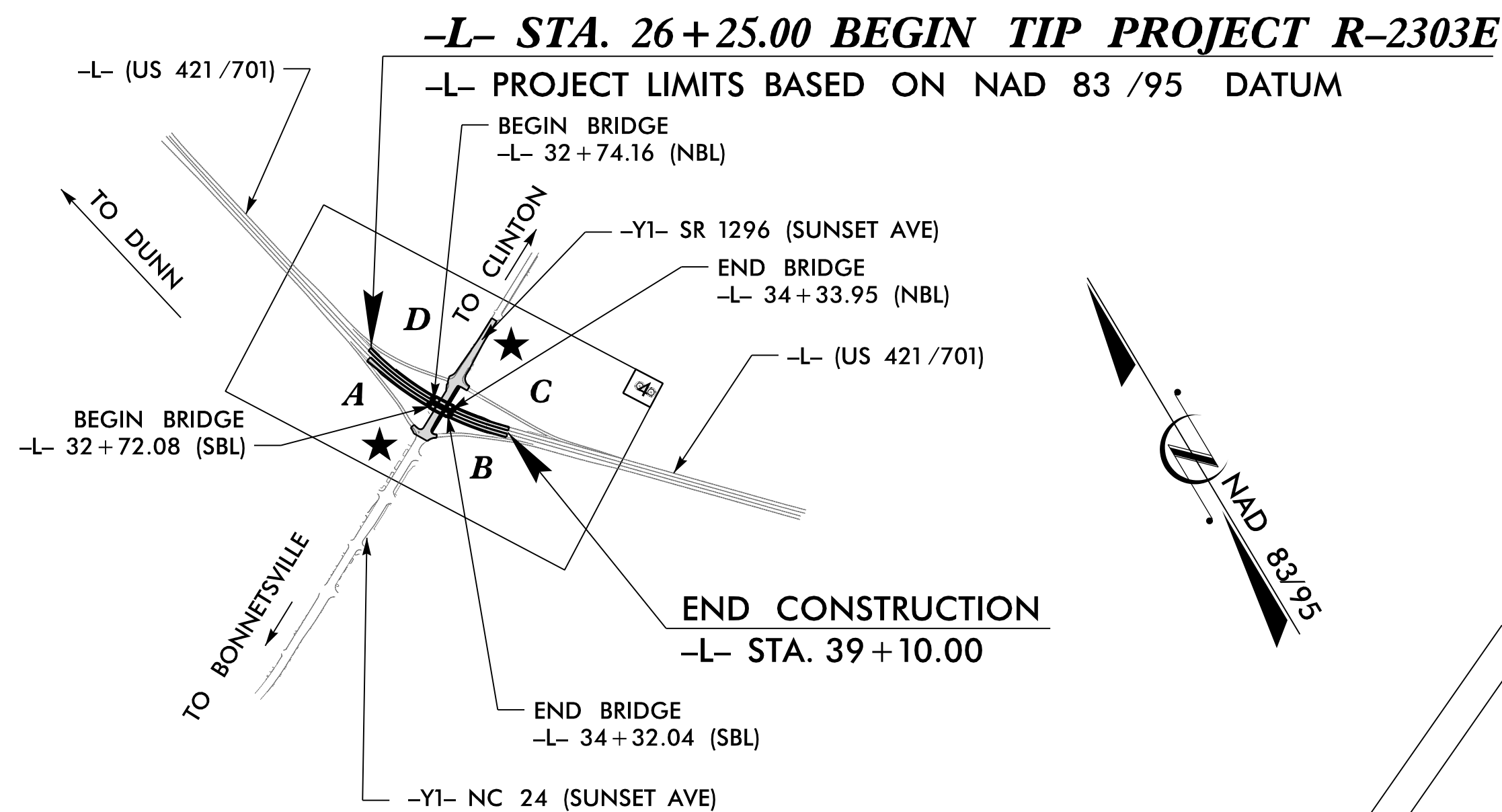
LOCATION: NC 24 AT SR 1296 (SUNSET AVE) AND
NC 24 FROM US 701 (SOUTHEAST BLVD.) TO
EAST OF SR 1935 (CECIL-ODIE RD)

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



TIP PROJECT: R-2303E

CONTRACT: C204378

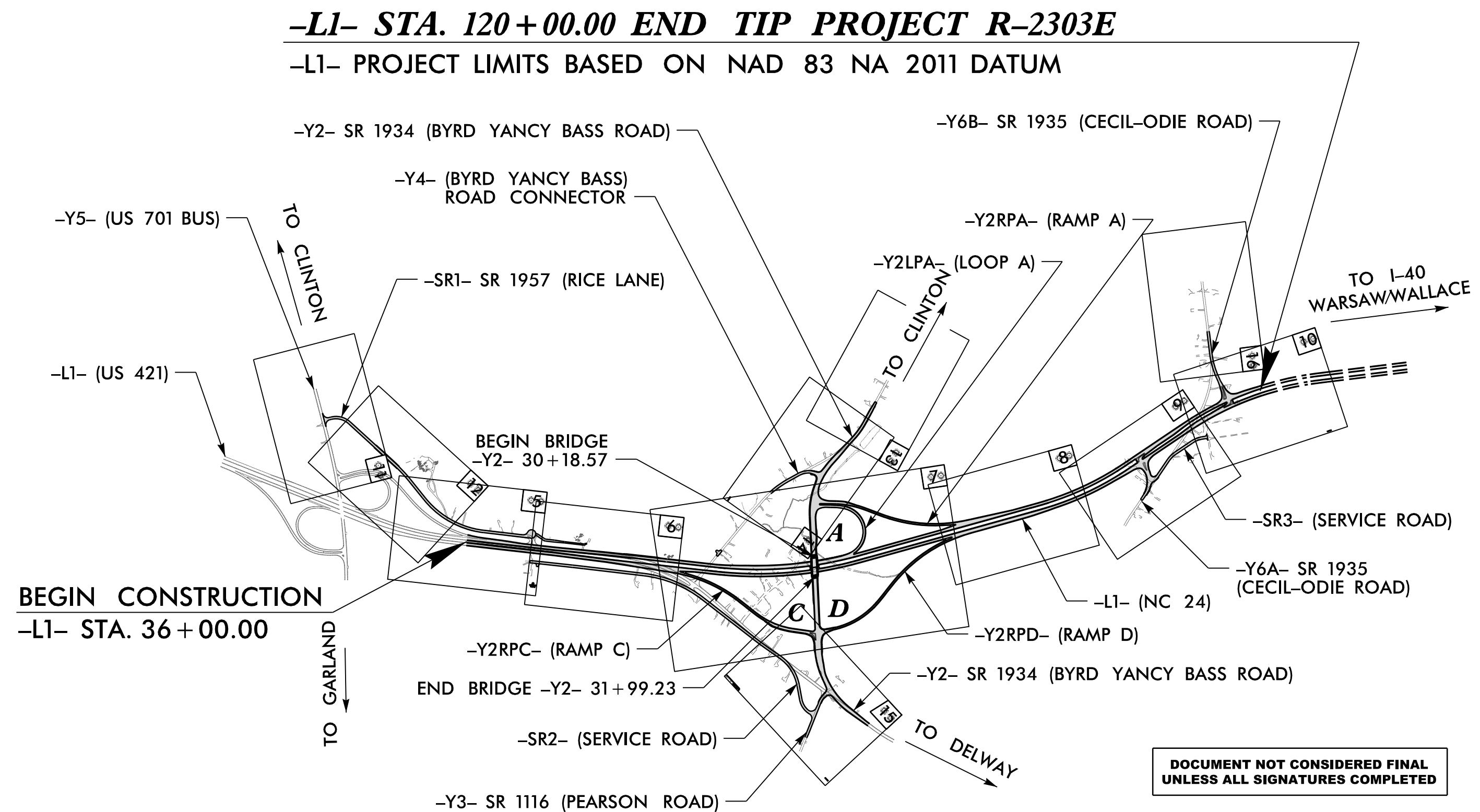


PART 1 OF 2

★ TRAFFIC SIGNAL

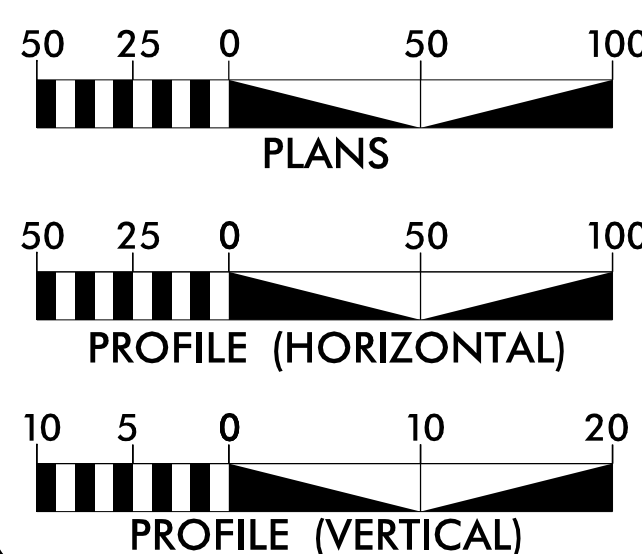
NCDOT CONTACT: BRIAN HARDING, P.E.
NCDOT - HIGHWAY DIVISION 3

THIS IS A CONTROLLED ACCESS PROJECT WITH ACCESS BEING LIMITED TO THE INTERCHANGES.



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES



DESIGN DATA

ADT 2019 = 11,900
ADT 2040 = 18,000
K = 9 %
D = 60 %
T = 14 % *
V = 60 MPH
* TTST 8% DUAL 6%
FUNG CLASS = RURAL ARTERIAL
STATEWIDE TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT R-2303E = 1.834 mi.
LENGTH OF STRUCTURES TIP PROJECT R-2303E = 0.030 mi.
LENGTH OF STATE PROJECT R-2303E = 1.804 mi.

NOTES :

- LENGTHS INCLUDE -L- AND -L1-
- LENGTH BASED ON NBL BRIDGES

Prepared For NCDOT In the Office of:
moffatt & nichol
4700 FALLS OF NEUSE ROAD, SUITE 300
RALEIGH, NORTH CAROLINA 27609
(919) 781-4626 VOICE (919) 781-4869 FAX (F-0105)

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
AUGUST 16, 2018

LETTING DATE:
DECEMBER 17, 2019

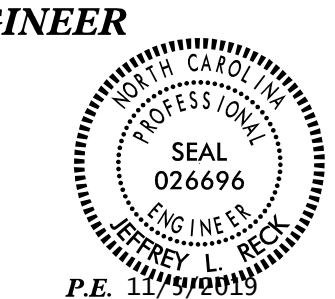
TIM R. REID, P.E.
PROJECT ENGINEER

TRENT E. HUFFMAN, P.E.
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

moffatt & nichol

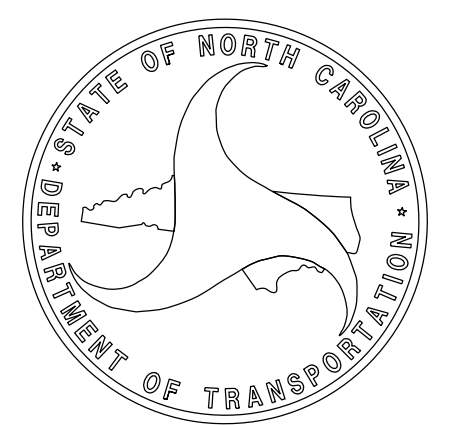
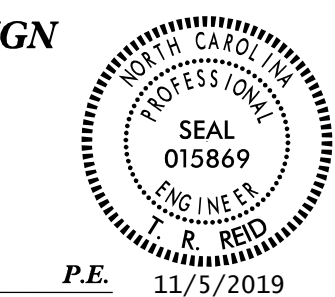
DocuSigned by:
Jeffery L. Reek
19508144510425
SIGNATURE:



ROADWAY DESIGN ENGINEER

moffatt & nichol

DocuSigned by:
Timothy R. Reid
19508144510425
SIGNATURE:



8/17/19

INDEX OF SHEETS

SHEET NUMBER	SHEET
1	TITLE SHEET
1A	INDEX OF SHEETS, GENERAL NOTES AND LIST OF STANDARD DRAWINGS
1B	CONVENTIONAL SYMBOLS
2A-1 thru 2A-8	PAVEMENT SCHEDULE AND TYPICAL SECTIONS
2B-1 thru 2B-7	DETOUR DETAIL SHEETS
2B-8	SHEAR POINT DIAGRAM
2B-9 thru 2B-12	INTERSECTION DETAILS
2C-1	2'-6" CURB & GUTTER TO EXPRESSWAY GUTTER TRANSITION SECTION
2C-2	25-0" CLEAR SPAN GUARDRAIL PLACEMENT
2C-3	DETAIL OF MEDIAN HAZARD PROTECTION
2C-4	STANDARD W-BEAM GUARDRAIL DETAIL
2C-5	COAL COMBUSTION PRODUCT PLACEMENT DETAIL
2C-6	GUARDRAIL IMPACT ATTENUATOR DETAIL
2C-7	DETAIL TO CONVERT EXISTING DI, CB, OTCB OR GI TO JUNCTION BOX
2C-8	DETAIL TO CONVERT EXISTING TRAFFIC BEARING DI OR CB TO TRAFFIC BEARING JB
2C-9	METHOD OF CLEARING DETAIL - MODIFIED METHOD - III
2C-10	TEMPORARY 1" STEEL COVER DETAIL
2D-1	DRAINAGE DITCH DETAILS
2G-1	STANDARD TEMPORARY SHORING DETAIL
3B-1	EARTHWORK SUMMARY / PAVEMENT REMOVAL SUMMARY / CABLE GUIDERAIL SUMMARY / SHOULDER BERM GUTTER SUMMARY / EXPRESSWAY GUTTER SUMMARY
3B-2	GUARDRAIL SUMMARY
3B-3	TEMPORARY GUARDRAIL SUMMARY
3D-1 thru 3D-8	DRAINAGE SUMMARIES
3G-1	GEOTECHNICAL SUMMARIES
3P-1	PARCEL INDEX
4 thru 16	PLAN SHEETS
17 thru 33	PROFILE SHEETS
RW01 THRU RW02D-1	PART 1 - CONTROL SHEETS TITLE, SURVEY CONTROL AND EXISTING CENTERLINE SHEETS, PROPOSED ALIGNMENT CONTROL SHEETS, RIGHT OF WAY AND EASEMENT CONTROL SHEETS, RIGHT OF WAY SHEETS
RW01 THRU RW16	PART 2 - CONTROL SHEETS TITLE, SURVEY CONTROL AND EXISTING CENTERLINE SHEETS, PROPOSED ALIGNMENT CONTROL SHEETS, RIGHT OF WAY AND EASEMENT CONTROL SHEETS, RIGHT OF WAY SHEETS
TMP-1 thru TMP-59	TRAFFIC MANAGEMENT PLANS
PMP-1 thru PMP-15	PAVEMENT MARKING PLANS
E-1 thru E-4	LIGHTING / ELECTRICAL PLANS
EC-1 thru EC-29	EROSION CONTROL PLANS
SIGN-1 thru SIGN-14	SIGNING PLAN
SIG-1.0 thru SIG-3.5	SIGNAL PLANS
SCP-1 thru SCP-5	SIGNAL COMMUNICATION PLANS
UC-1 thru UC-13	UTILITY CONSTRUCTION PLAN
UD-1 thru UD-14	UTILITY BY OTHERS PLAN
X-0	CROSS-SECTION INDEX
X-1A thru X-1D	CROSS-SECTION SUMMARY SHEETS
X-1 thru X-126	CROSS-SECTIONS
S-1	STRUCTURE PLAN TITLE SHEET
S1-1 thru S1-33	STRUCTURE PLAN - SITE 1 BRIDGE - LEFT LANE
S2-1 thru S2-33	STRUCTURE PLAN - SITE 1 BRIDGE - RIGHT LANE
S3-1 thru S3-30	STRUCTURE PLAN - SITE 2 BRIDGE
C1-1 thru C1-7	CULVERT PLANS AT -L1-
C2-1 thru C2-4	CULVERT PLANS AT -SR1-

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 III.

SUPERELEVATION:

ALL CURVES ON THIS PROJECT SHALL BE SUPERELEVATED IN ACCORDANCE WITH STD. NO. 225.05 AND STD. NO. 225.04 USING THE RATE OF SUPERELEVATION AND RUNOFF SHOWN ON THE PLANS. SUPERELEVATION IS TO BE REVOLVED ABOUT THE GRADE POINTS SHOWN ON THE TYPICAL SECTIONS.

SHOULDER CONSTRUCTION:

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

SIDE ROADS:

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

SUBSURFACE DRAINS:

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

GUARDRAIL:

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

TEMPORARY SHORING:

SHORING REQUIRED FOR THE MAINTENANCE OF TRAFFIC NOT SHOWN ON THE PLANS WILL BE PAID FOR AT THE CONTRACT PRICE FOR "TEMPORARY SHORING".

END BENTS:

THE ENGINEER SHALL CHECK THE STRUCTURE END BENT PLANS, DETAILS, AND CROSS-SECTION PRIOR TO SETTING OF THE SLOPE STAKES FOR THE EMBANKMENT OR EXCAVATION APPROACHING A BRIDGE.

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE Power - Duke,

Communication - CenturyLink and Star Communications,

Water - Sampson County

ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS, EXCEPT AS SHOWN ON THE PLANS.

RIGHT-OF-WAY MARKERS:

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

CURB RAMPS

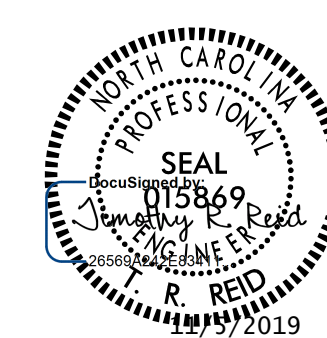
CURB RAMPS ARE SHOWN ON THE PLANS AT APPROXIMATE LOCATIONS. CONSTRUCT ALL CURB RAMPS ACCORDANCE WITH STD 848.05 and/or 848.06.

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	
225.02	Guide for Grading Subgrade - Secondary and Local
225.03	Deceleration and Acceleration Lanes
225.04	Method of Obtaining Superelevation - Two Lane Pavement
225.05	Method of Obtaining Superelevation - Divided Highways
225.06	Method of Grading Sight Distance at Intersections
225.09	Guide for Shoulder and Ditch Transition at Grade Separations
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation
310.02	Parallel Pipe End Section - Precast Concrete Section for 15" to 24" Pipe
310.10	Driveway Pipe Construction
DIVISION 4 - MAJOR STRUCTURES	
422.01	Bridge Approach Fills - Type I Standard Approach Fill
422.03	Reinforced Bridge Approach Fills - Type A Alternate Approach Fill for Integral Abutment
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
560.02	Method of Shoulder Construction - High Side of Superelevated Curve - Method II
DIVISION 6 - ASPHALT BASES AND PAVEMENTS	
610.01	Guide for Paving Shoulders Under Bridges - Method I
610.03	Guide for Paving Shoulders Under Bridges - Method III
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
838.33	Reinforced Concrete Endwall - for Single 66" Pipe 90 Skew
838.45	Notes for Reinforced Concrete Endwall - Std. Dwg 838.21 thru 838.40
838.63	Reinforced Brick Endwall - for Single 66" Pipe 90 Skew
838.75	Notes for Reinforced Brick Endwall - Std. Dwg 838.51 thru 838.70
838.80	Precast Endwalls - 12" thru 72" Pipe 90 Skew
840.00	Concrete Base Pad for Drainage Structures
840.01	Brick Catch Basin - 12" thru 54" Pipe
840.02	Concrete Catch Basin - 12" thru 54" Pipe
840.03	Frame, Grates and Hood - for Use on Standard Catch Basin
840.14	Concrete Drop Inlet - 12" thru 30" Pipe
840.15	Brick Drop Inlet - 12" thru 30" Pipe
840.16	Drop Inlet Frame and Grates - for use with Std. Dwg 840.14 and 840.15
840.17	Concrete Grated Drop Inlet Type 'A' - 12" thru 72" Pipe
840.18	Concrete Grated Drop Inlet Type 'B' - 12" thru 36" Pipe
840.19	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
840.24	Frames and Narrow Slot Sag Grates
840.25	Anchorage for Frames - Brick or Concrete or Precast
840.26	Brick Grated Drop Inlet Type 'A' - 12" thru 72" Pipe
840.27	Brick Grated Drop Inlet Type 'B' - 12" thru 36" Pipe
840.28	Brick Grated Drop Inlet Type 'D' - 12" thru 36" Pipe
840.29	Frames and Narrow Slot Flat Grates
840.30	Driveway Drop Inlet
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
840.45	Precast Drainage Structure
840.46	Traffic Bearing Precast Drainage Structure
840.54	Manhole Frame and Cover
840.66	Drainage Structure Steps
840.71	Concrete and Brick Pipe Plug
840.72	Pipe Collar
846.01	Concrete Curb, Gutter and Curb & Gutter
846.02	Drop Inlet Installation in Expressway Gutter
846.04	Drop Inlet Installation in Shoulder Berm Gutter
848.01	Concrete Sidewalk
848.04	Street Turnout
848.05	Curb Ramp - Proposed Curb & Gutter
852.01	Concrete Islands
852.06	Method for Placement of Drop Inlets in Concrete Islands
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
865.01	Cable Guiderail
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

PROJECT REFERENCE NO.	SHEET NO.
R-2303E	1A

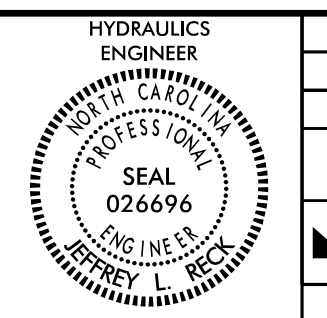
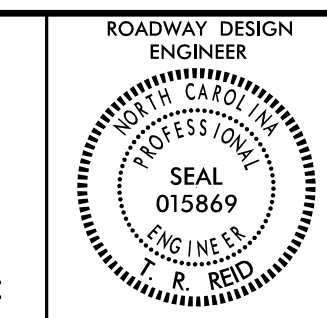
RW SHEET NO.	ROADWAY DESIGN ENGINEER
	

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

 **moffatt & nichol**
4700 FALLS OF NEUSE ROAD, SUITE 100
RALEIGH, NORTH CAROLINA 27609
(919) 781-4626 VOICE (919) 781-4869 FAX
NC License No. F-0105

11/5/2019 8:58:22-07\CAADD\NR2303E\Roadway\Proj\NR2303E_rdy_psh_1A.dgn

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



PROJECT REFERENCE NO.	SHEET NO.
R-2303E	1B
RW SHEET NO.	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
moffatt & nichol	

BOUNDARIES AND PROPERTY:

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

BUILDINGS AND OTHER CULTURE:

Gas Pump Vent or U/G Tank Cap	○
Sign	○ S
Well	○ W
Small Mine	⌵
Foundation	□
Area Outline	□
Cemetery	□
Building	□
School	□
Church	□
Dam	▬

HYDROLOGY:

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

RAILROADS:

Standard Gauge	-----
RR Signal Milepost	○ MILEPOST 35
Switch	□ SWITCH
RR Abandoned	-----
RR Dismantled	-----

RIGHT OF WAY & PROJECT CONTROL:

Secondary Horiz and Vert Control Point	◆
Primary Horiz Control Point	○
Primary Horiz and Vert Control Point	◆
Exist Permanent Easement Pin and Cap	◇
New Permanent Easement Pin and Cap	◆
Vertical Benchmark	⊠
Existing Right of Way Marker	△
Existing Right of Way Line	-----
New Right of Way Line	-----
New Right of Way Line with Pin and Cap	-----
New Right of Way Line with Concrete or Granite R/W Marker	-----
New Control of Access Line with Concrete C/A Marker	-----
Existing Control of Access	-----
New Control of Access	-----
Existing Easement Line	-----
New Temporary Construction Easement	-----
New Temporary Drainage Easement	-----
New Permanent Drainage Easement	-----
New Permanent Drainage / Utility Easement	-----
New Permanent Utility Easement	-----
New Temporary Utility Easement	-----
New Aerial Utility Easement	-----

ROADS AND RELATED FEATURES:

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

VEGETATION:

Single Tree	○
Single Shrub	○

Note: Not to Scale

*S.U.E. = Subsurface Utility Engineering

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

EXISTING STRUCTURES:

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

UTILITIES:

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

TELEPHONE:

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

WATER:

Water Manhole	⊕
Water Meter	○
Water Valve	⊗
Water Hydrant	⊕
U/G Water Line LOS B (S.U.E.*)	-----
U/G Water Line LOS C (S.U.E.*)	-----
U/G Water Line LOS D (S.U.E.*)	-----
Above Ground Water Line	-----

TV:

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

GAS:

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

SANITARY SEWER:

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

MISCELLANEOUS:

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

PROJECT REFERENCE NO. <i>R-2303E</i>	SHEET NO. <i>2A-1</i>
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
<small>4700 FALLS OF NEUSE ROAD, SUITE 300 Raleigh, North Carolina 27609 (919) 781-4800 VOICE (919) 781-4809 FAX NC License No. F-0105</small>	

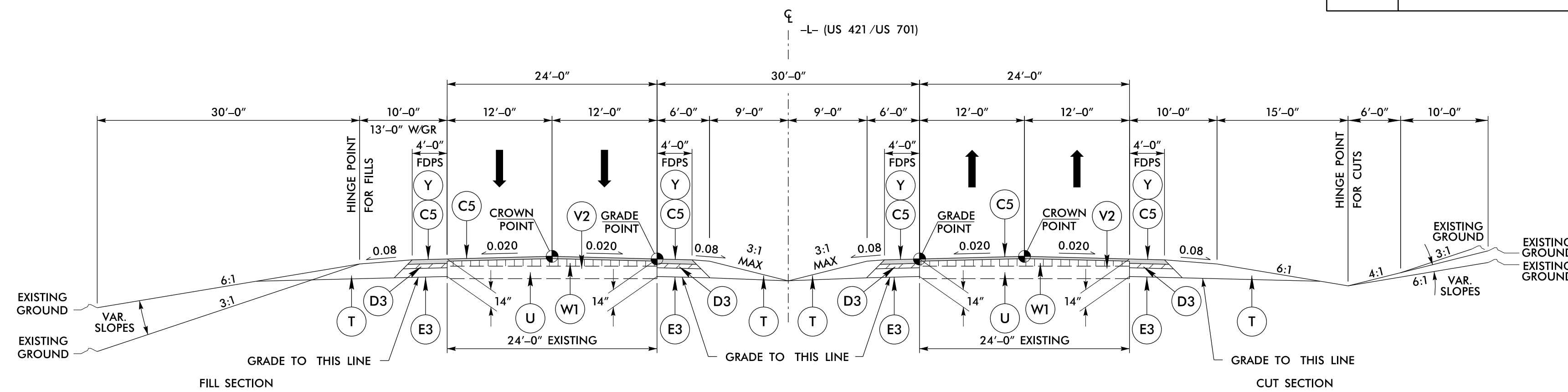
PAVEMENT SCHEDULE

(FINAL PAVEMENT DESIGN 9-5-2019)

A1	6" JOINTED CONCRETE	D4	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C AT AN AVERAGE RATE OF 114 LBS. PER SQ. YARD PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 2½" OR GREATER THAN 4" IN DEPTH	R3	SHOULDER BERM GUTTER
C1	PROP. APPROX. 1¼" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD.	E1	PROP. APPROX. 3" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.	R4	EXPRESSWAY GUTTER
C2	PROP. APPROX. 2½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	E2	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	S1	4" CONCRETE SIDEWALK
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 1" OR GREATER THAN 1½" IN DEPTH.	E3	PROP. APPROX. 7" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, THE FIRST LAYER WILL BE 4" OF ACBC AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD. THE SECOND LAYER WILL BE 3" OF ACBC AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.	T	EARTH MATERIAL
C4	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.	E4	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 4" IN DEPTH OR GREATER THAN 5½" IN DEPTH.	U	EXISTING PAVEMENT
C5	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.	J1	PROP. 8" AGGREGATE BASE COURSE.	V1	1.25" MILLING
C6	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 TO EXCEED 2" IN DEPTH.	J2	PROP. VARIABLE DEPTH AGGREGATE BASE COURSE	V2	1.50" MILLING
D1	PROP. APPROX. 2½" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.	P	PRIME COAT AT THE RATE OF .35 GAL. PER SQ. YD.	Y	MILLED RUMBLE STRIP (STD. 665.01)
D2	PROP. APPROX. 3" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.	R1	2'-6" CONCRETE CURB AND GUTTER	W1	WEDGING DETAIL NO. 1, SEE SHEET 2A-8
D3	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	R2	5" MONOLITHIC ISLAND (KEYED IN)	W2	WEDGING DETAIL NO. 2, SEE SHEET 2A-8
				W3	WEDGING DETAIL NO. 3, SEE SHEET 2A-8

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

TYPICAL SECTION NO. 1



USE TYPICAL SECTION NO. 1

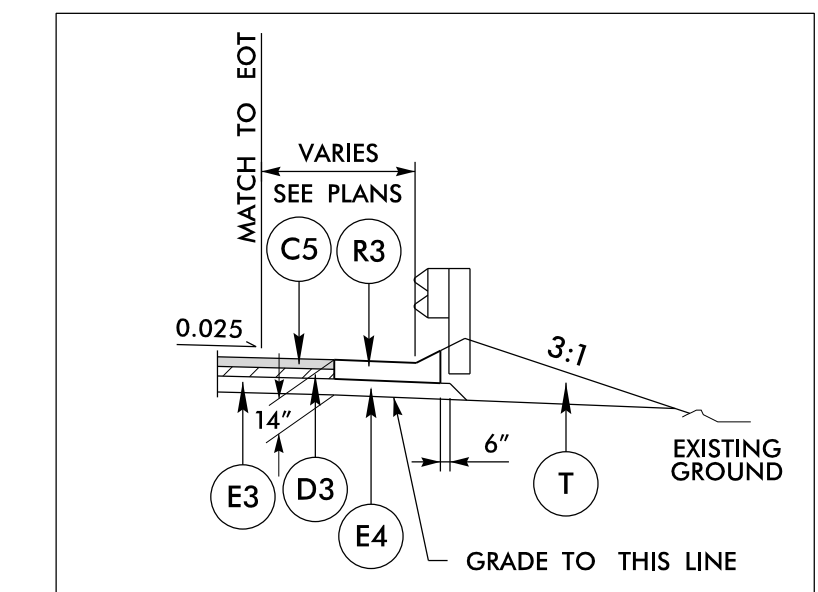
- L- STA 26+25.00 TO STA 29+20.00 (NB LANES)
- L- STA 26+75.00 TO STA 29+20.00 (SB LANES)
- L- STA 36+90.00 TO STA 39+10.00

REMOVE EXISTING INSIDE AND OUTSIDE PAVED SHOULDERS PRIOR TO WIDENING
 -L- STA 26+25.00 TO STA 29+20.00 (NB LANES)
 -L- STA 26+75.00 TO STA 29+20.00 (SB LANES)
 -L- STA 36+90.00 TO STA 39+10.00

UNIFORMLY MILL THE EXISTING PAVEMENT TO REMAIN IN PLACE TO A DEPTH OF 1.5" AND REPLACE WITH 3.0" OF S9.5C OR WEDGING AS REQUIRED

NOTES: SEE PLANS FOR LOCATION OF MEDIAN GUARDRAIL
 SEE MILLING DETAIL "A" THAT SHOWS TIE-IN TREATMENT

INSET A



USE INSET A IN CONJUNCTION WITH TYPICAL SECTION NO. 2

- L- STA 28+85.00 TO 32+73.66 (BEGIN BRIDGE) LT
- L- STA 31+78.00 TO 32+73.66 (BEGIN BRIDGE) RT MED
- L- STA 34+59+/- (END BRIDGE) TO 36+39.00 LT

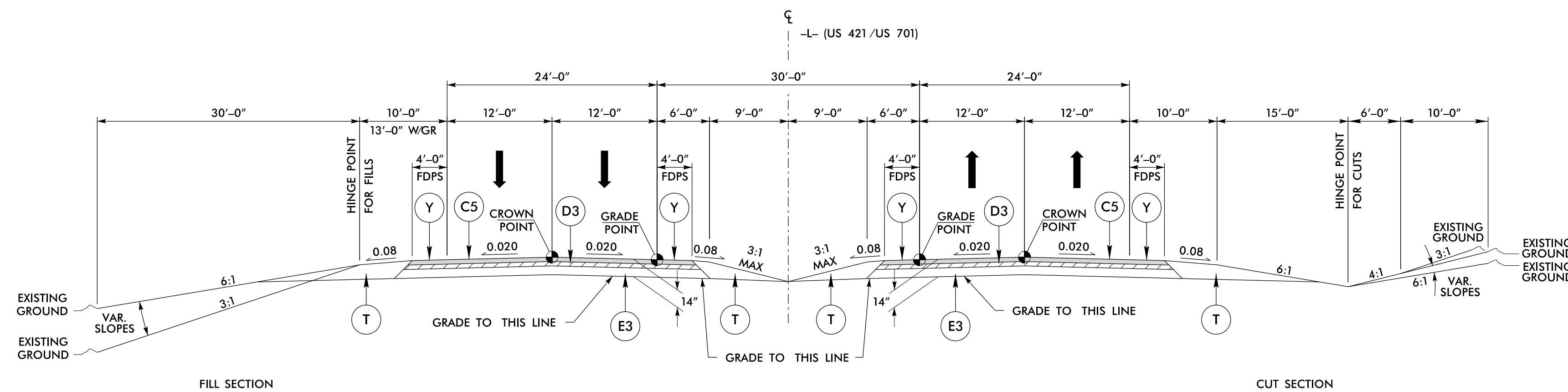
USE TYPICAL SECTION NO. 2

- L- STA 29+20.00 TO STA 32+74.16 (BEGIN BRIDGE-NB)
- L- STA 34+33.95 (END BRIDGE-NB) TO STA 36+90.00

NOTES: REMOVE EXISTING INSIDE AND OUTSIDE PAVED SHOULDERS PRIOR TO WIDENING
 -L- STA 29+20.00 TO STA 32+74.16 (BEGIN BRIDGE-NB)
 -L- STA 34+33.95 (END BRIDGE-NB) TO STA 36+90.00

SEE PLANS FOR LOCATION OF MEDIAN GUARDRAIL
 SEE INSET A THIS SHEET FOR SHLDR BERM GUTTER DETAIL
 SEE MILLING DETAIL "A" THAT SHOWS TIE-IN TREATMENT

TYPICAL SECTION NO. 2

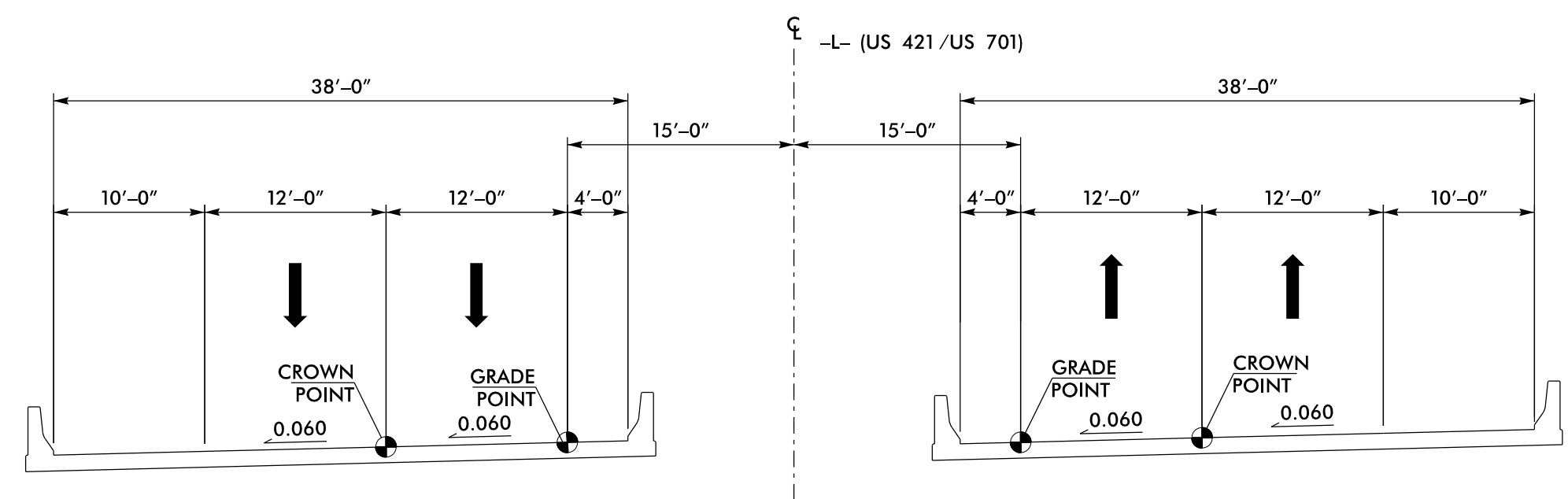


6/2/2019

I:\5\2019\15-FA-3522-07\CA000\2303E\Roadway\Proc\R2303E_rdy_tup.dgn

A1	6" CONCRETE
C1	1 1/4" S9.5B
C2	2 1/2" S9.5B
C3	VAR. S9.5B
C4	1 1/2" S9.5C
C5	3" S9.5C
C6	VAR. S9.5C
D1	2 1/2" I19.0C
D2	3" I19.0C
D3	4" I19.0C
D4	VAR. I19.0C
E1	3" B25.0C
E2	4" B25.0C
E3	7" B25.0C
E4	VAR. B25.0C
J1	8" ABC
J2	VAR. ABC
P	PRIMECOAT
R1	2'-6" C & G
R2	5" ISL. KEYED IN
R3	SHLD BERM GUT
R4	EXPWY GUTTER
S1	4" CONC. SIDEWALK
T	EARTH MATERIAL
U	EXIST. PAVEMENT
V1	1.25" MILLING
V2	1.5" MILLING
Y	RUMBLE STRIP
W1	WEDGING DETAIL 1
W2	WEDGING DETAIL 2
W3	WEDGING DETAIL 3

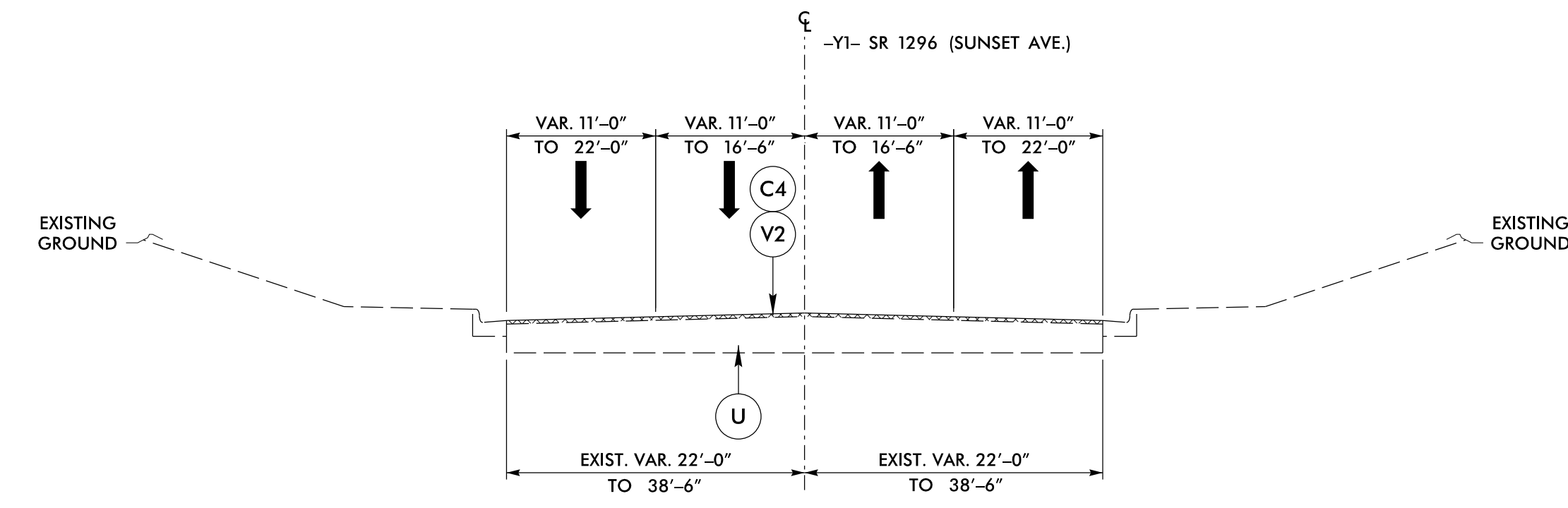
BRIDGE TYPICAL NO.1



USE BRIDGE TYPICAL NO.1

-L- STA. 32+74.16 TO STA. 34+33.95 (NB)
-L- STA. 32+72.08 TO STA. 34+32.04 (SB)

TYPICAL SECTION NO. 3

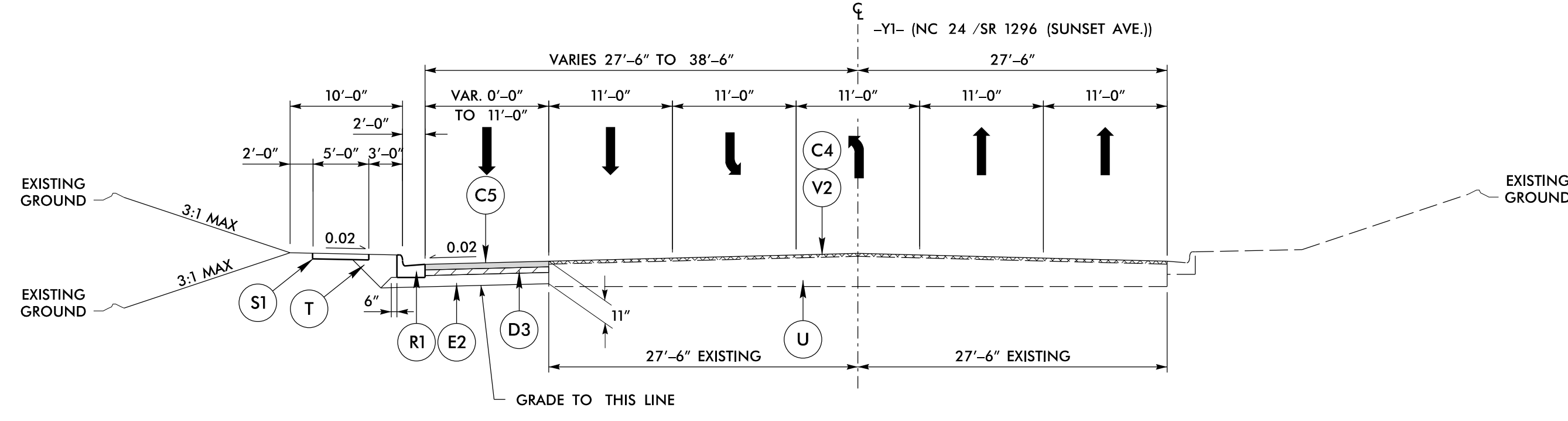


USE TYPICAL SECTION NO. 3

-Y1- STA 18+00.00 TO STA 23+85.21
-Y1- STA 27+98.98 TO STA 28+86.36

NOTE: MILL EXIST PAVEMENT 1.5" AND REPLACE WITH 1.5" S9.5C

TYPICAL SECTION NO. 4

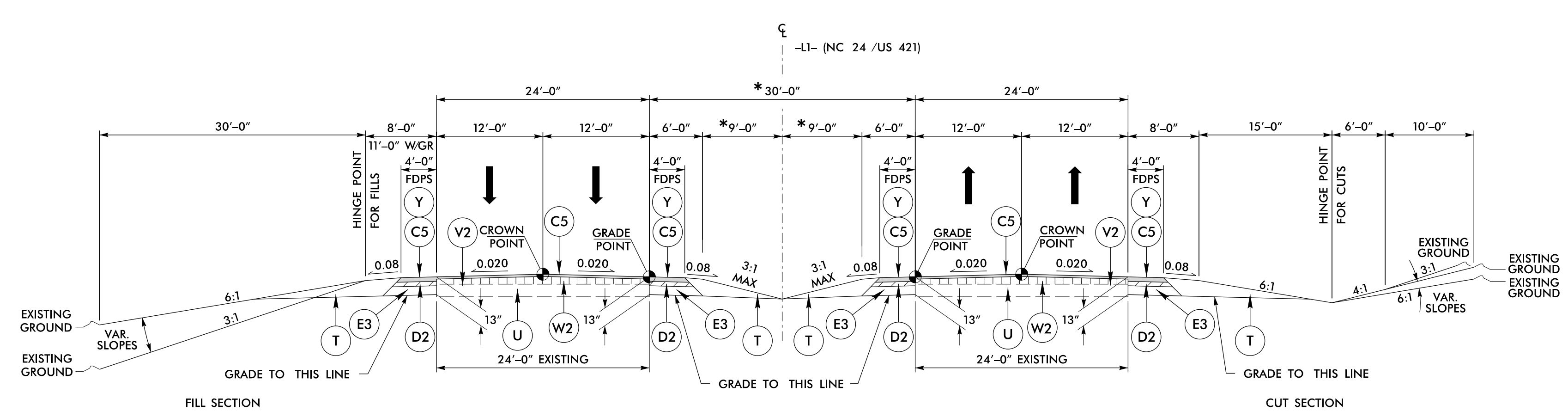


USE TYPICAL SECTION NO. 4

-Y1- STA 23+85.21 TO STA 27+98.98

NOTE: MILL EXIST PAVEMENT 1.5" AND REPLACE WITH 1.5" S9.5C

TYPICAL SECTION NO. 5



USE TYPICAL SECTION NO. 5

-L1- STA 36+00.00 TO STA 48+75.00

NOTES: REMOVE EXISTING INSIDE AND OUTSIDE PAVED SHOULDERS PRIOR TO WIDENING
-L1- STA 36+00.00 TO STA 48+75.00

EXISTING CROWN POINT TRANSITIONS FROM A ROOFTOP SECTION TO THE GRADE POINT. STATION 48+75 IS THE LOCATION OF THE "00" SUPER ELEVATION POINT WHERE THIS TRANSITION CAN OCCUR.

SEE PLANS FOR LOCATION OF MEDIAN GUARDRAIL
SEE MILLING DETAIL "A" THAT SHOWS TIE-IN TREATMENT

* MEDIAN TRANSITIONS FROM 30'-0" TO 46'-0"
STA. 45+00 TO STA. 50+00, SEE PLANS

PROJECT REFERENCE NO. <i>R-2303E</i>	SHEET NO. <i>2A-2</i>
ROADWAY DESIGN ENGINEER <i>[Signature]</i>	PAVEMENT DESIGN ENGINEER <i>[Signature]</i>
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

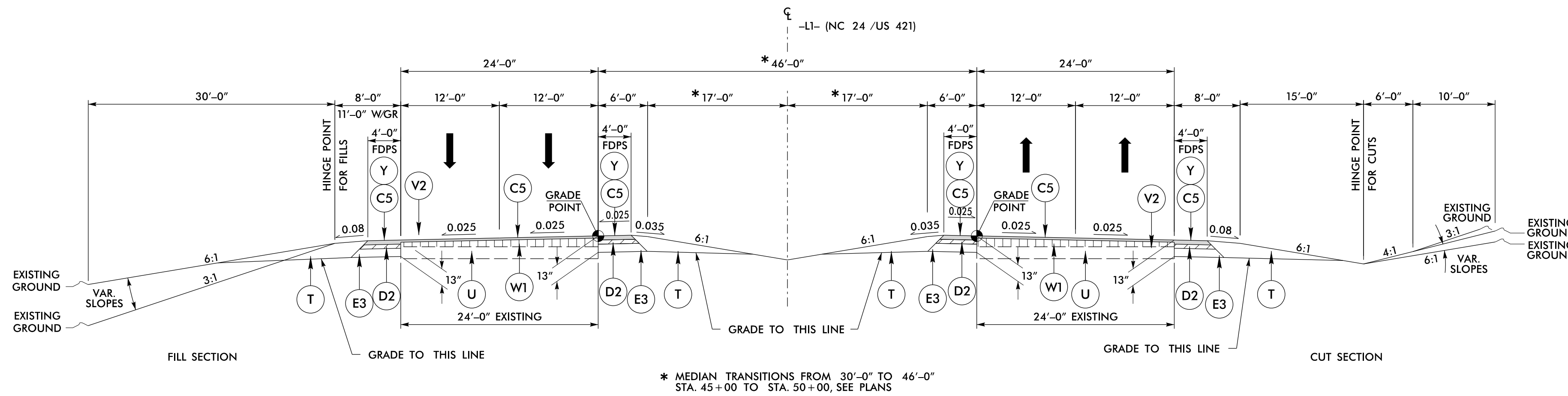
4700 FALLS OF NEUSE ROAD, SUITE 300
Raleigh, North Carolina 27609
(919) 781-4000 VOICE (919) 781-4800 FAX
NC License No. F-0105

6/2/2019

I:\5\2019\15-146\522-07\CA000\R2303E\Roadway\Proc\R2303E_rdy_tjpr.dgn

A1	6" CONCRETE
C1	1 1/4" S9.5B
C2	2 1/2" S9.5B
C3	VAR. S9.5B
C4	1 1/2" S9.5C
C5	3" S9.5C
C6	VAR. S9.5C
D1	2 1/2" I19.0C
D2	3" I19.0C
D3	4" I19.0C
D4	VAR. I19.0C
E1	3" B25.0C
E2	4" B25.0C
E3	7" B25.0C
E4	VAR. B25.0C
J1	8" ABC
J2	VAR. ABC
P	PRIMECOAT
R1	2'-6" C & G
R2	5" ISL. KEYED IN
R3	SHLD BERM GUT
R4	EXPWY GUTTER
S1	4" CONC. SIDEWALK
T	EARTH MATERIAL
U	EXIST. PAVEMENT
V1	1.25" MILLING
V2	1.5" MILLING
Y	RUMBLE STRIP
W1	WEDGING DETAIL 1
W2	WEDGING DETAIL 2
W3	WEDGING DETAIL 3

TYPICAL SECTION NO. 6

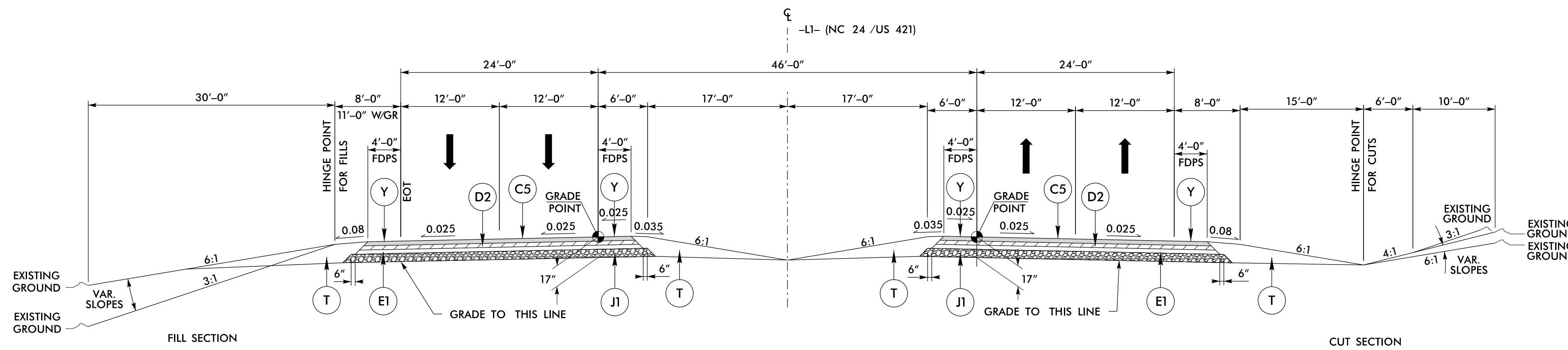


USE TYPICAL SECTION NO. 6
-L1- STA 48+75.00 TO STA 50+10.00

NOTES: REMOVE EXISTING INSIDE AND OUTSIDE PAVED SHOULDERS PRIOR TO WIDENING
-L1- STA 48+75.00 TO STA 50+10.00
EXISTING CROWN POINT TRANSITIONS FROM A ROOFTOP SECTION TO THE GRADE POINT. STATION 48+75 IS THE LOCATION OF THE "00" SUPER ELEVATION POINT WHERE THIS TRANSITION CAN OCCUR.
SEE PLANS FOR LOCATION OF MEDIAN CABLE GUIDERAIL
SEE MILLING DETAIL "A" THAT SHOWS TIE-IN TREATMENT

PROJECT REFERENCE NO. R-2303E	SHEET NO. 2A-3
ROADWAY DESIGN ENGINEER 	PAVEMENT DESIGN ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
moffatt & nichol 4700 FALLS OF NEUSE ROAD, SUITE 300 RALEIGH, NORTH CAROLINA 27609 (919) 781-4828 VOICE (919) 781-4869 FAX NC LICENSE NO.: F-0105	

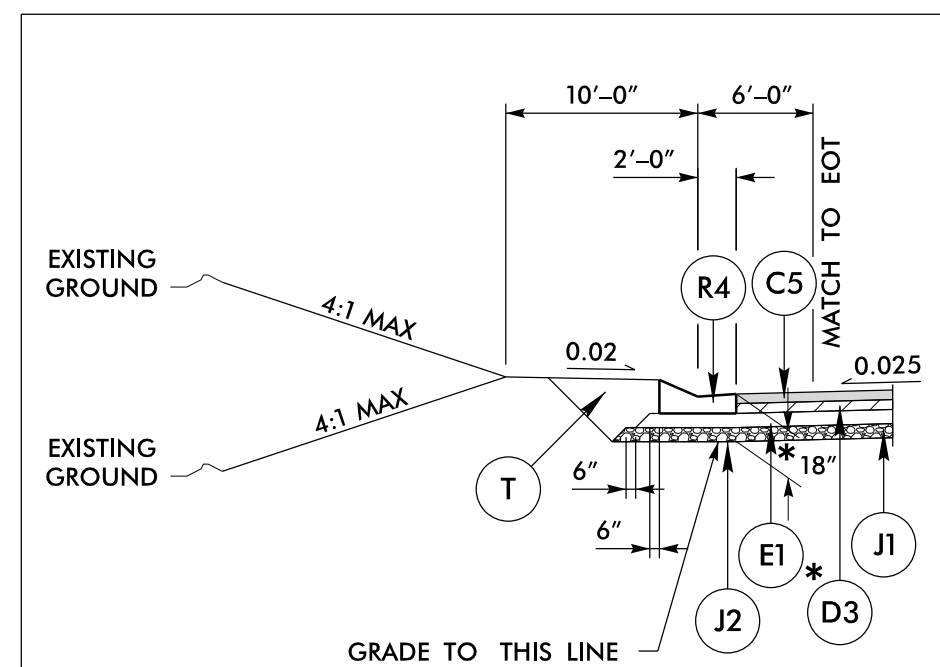
TYPICAL SECTION NO. 7



USE TYPICAL SECTION NO. 7
-L1- STA 50+10.00 TO STA 120+00.00

NOTE:
FOR RIGHT OF CENTERLINE (SBL) USE TYPICAL SECTION NO.6
STATION 50+10.00 TO STATION 55+00.00
SEE PLANS FOR LOCATION OF CABLE GUIDERAIL

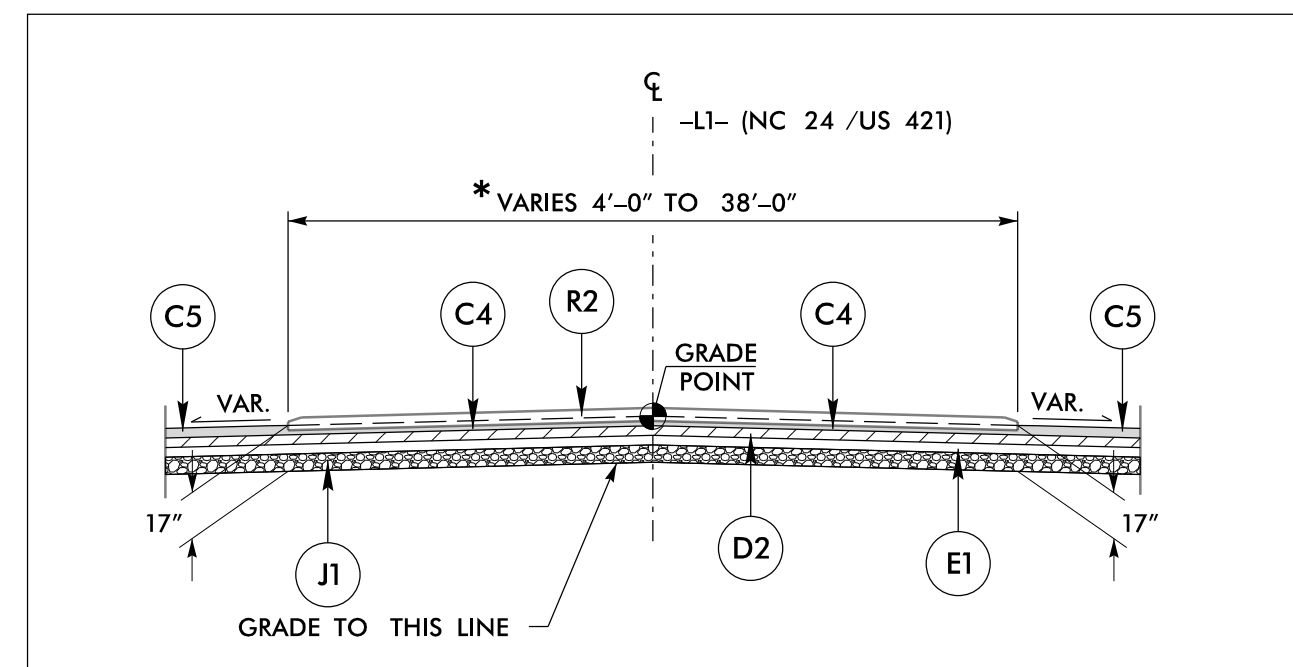
INSET B



USE INSET B IN CONJUNCTION WITH TYPICAL SECTION NO. 7
-L1- STA 69+86.00 (LT) TO STA 73+52.91 (LT)

* NOTE: USE 4" I19.0C IN THE AREAS OF EXPRESSWAY GUTTER ONLY

INSET C



USE INSET C IN CONJUNCTION WITH TYPICAL SECTION NO. 7

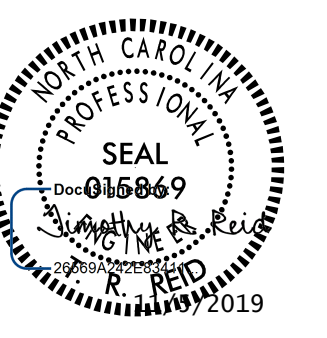
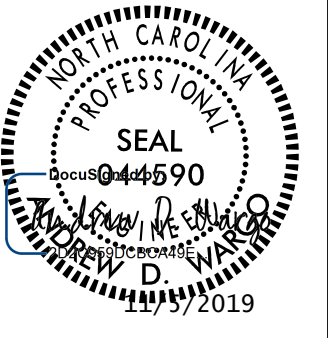
-L1- STA 105+64.46 TO STA 106+69.46
-L1- STA 115+98.28 TO STA 117+03.28

* LOCATION AND NUMBER OF ISLANDS VARY, SEE PLANS

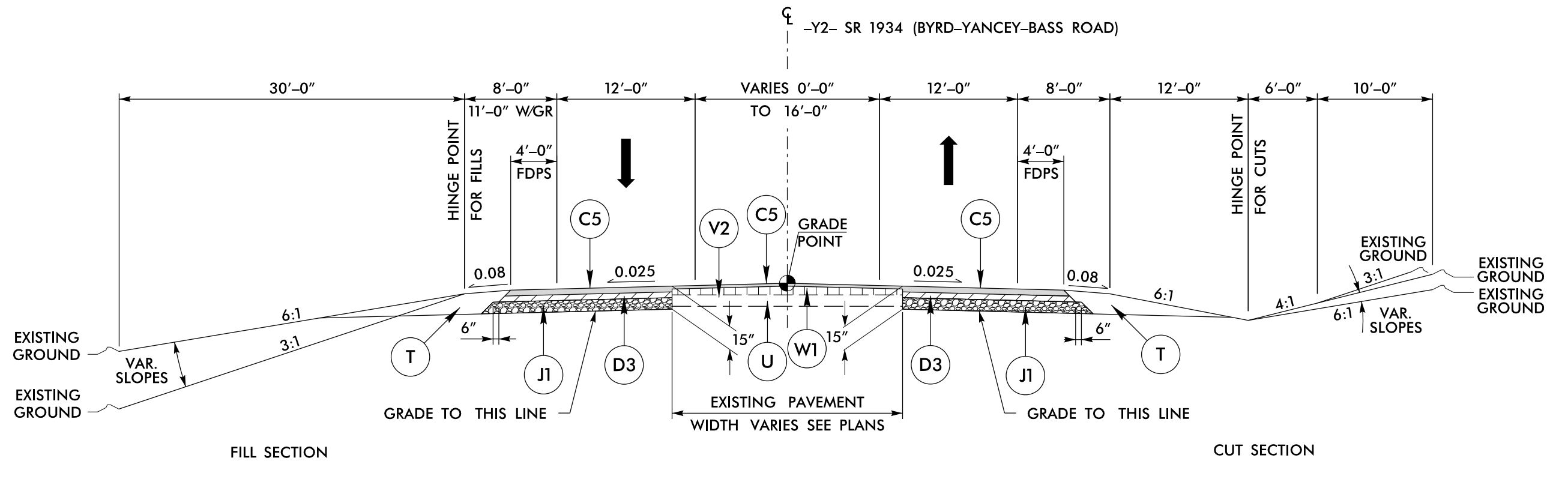
6/2/2019

A1	6" CONCRETE
C1	1 1/4" S9.5B
C2	2 1/2" S9.5B
C3	VAR. S9.5B
C4	1 1/2" S9.5C
C5	3" S9.5C
C6	VAR. S9.5C
D1	2 1/2" I19.0C
D2	3" I19.0C
D3	4" I19.0C
D4	VAR. I19.0C
E1	3" B25.0C
E2	4" B25.0C
E3	7" B25.0C
E4	VAR. B25.0C
J1	8" ABC
J2	VAR. ABC
P	PRIMECOAT
R1	2'-6" C & G
R2	5" ISL. KEYED IN
R3	SHLD BERM GUT
R4	EXPWY GUTTER
S1	4" CONC. SIDEWALK
T	EARTH MATERIAL
U	EXIST. PAVEMENT
V1	1.25" MILLING
V2	1.5" MILLING
Y	RUMBLE STRIP
W1	WEDGING DETAIL 1
W2	WEDGING DETAIL 2
W3	WEDGING DETAIL 3

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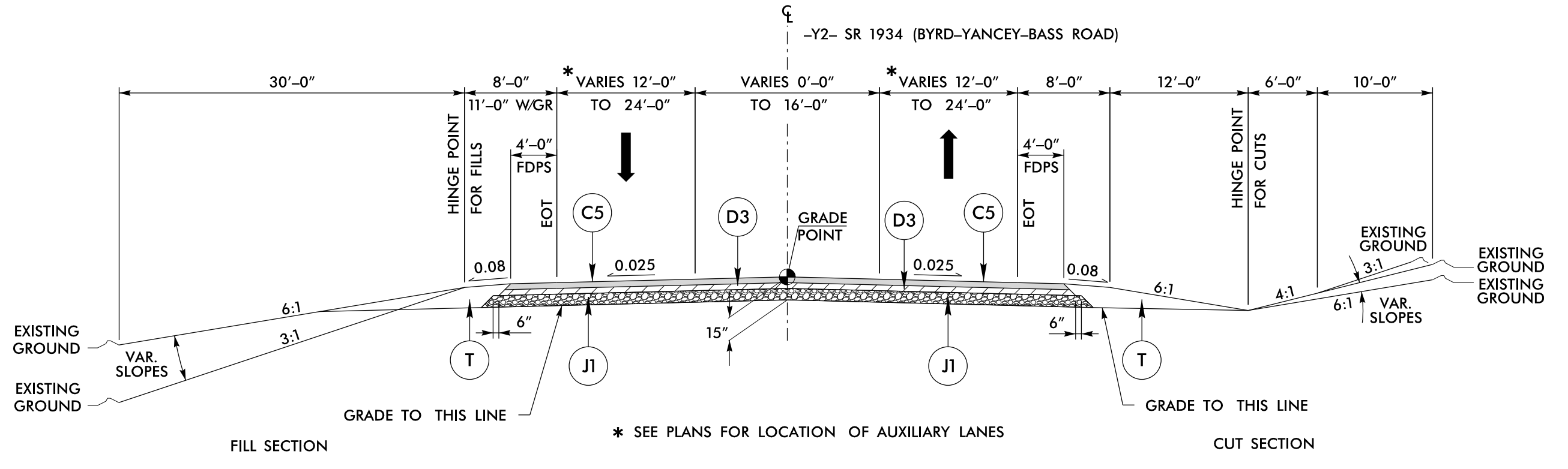
PROJECT REFERENCE NO. R-2303E	SHEET NO. 2A-4
ROADWAY DESIGN ENGINEER 	PAVEMENT DESIGN ENGINEER 
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
4700 FALLS OF NEUSE ROAD, SUITE 300 WELLSVILLE, NORTH CAROLINA 27689 (919) 781-4626 VOICE (919) 781-4609 FAX NC LICENSE NO.: F-0105	

TYPICAL SECTION NO. 8



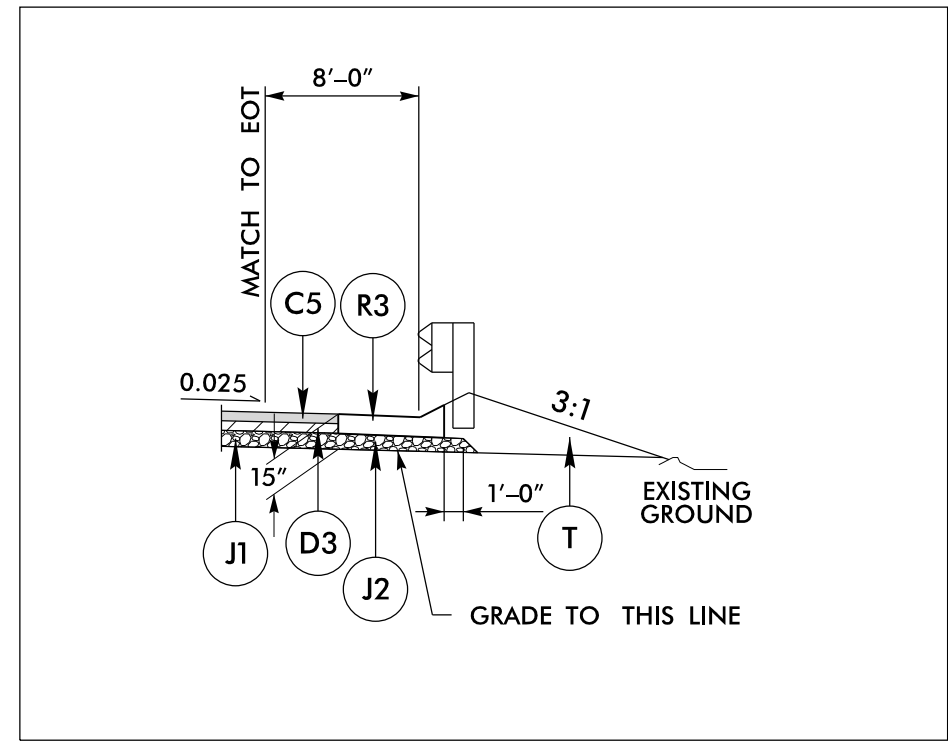
USE TYPICAL SECTION NO. 8
 -Y2- STA 12+50.00 TO STA 18+00.00
 -Y2- STA 46+00.00 TO STA 49+00.00

TYPICAL SECTION NO. 9



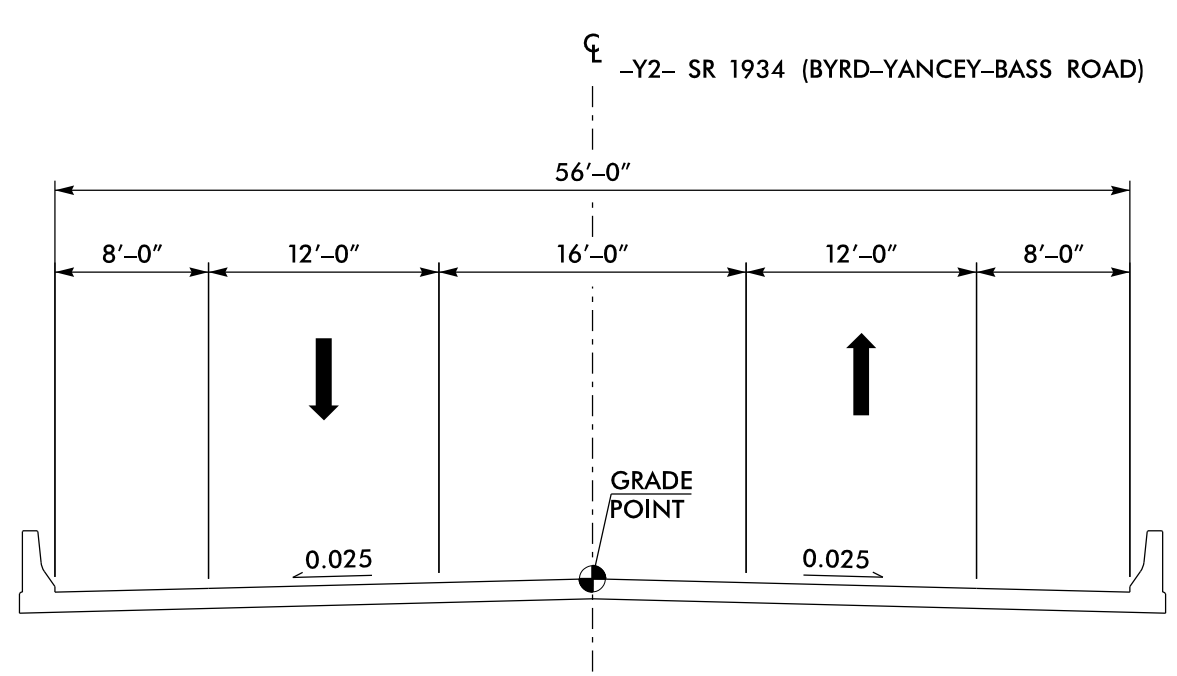
USE TYPICAL SECTION NO. 9
 -Y2- STA 18+00.00 TO STA 30+18.57 (BEGIN BRIDGE)
 -Y2- STA 31+99.23 (END BRIDGE) TO STA 46+00.00

INSET D



USE INSET D IN CONJUNCTION WITH TYPICAL SECTION NO. 9
 -Y2- STA 29+68.00 TO STA 30+18.57 (BEGIN BRIDGE) LT & RT
 -Y2- STA 31+99.23 (END BRIDGE) TO STA 32+58.00 LT & RT

BRIDGE TYPICAL NO.2



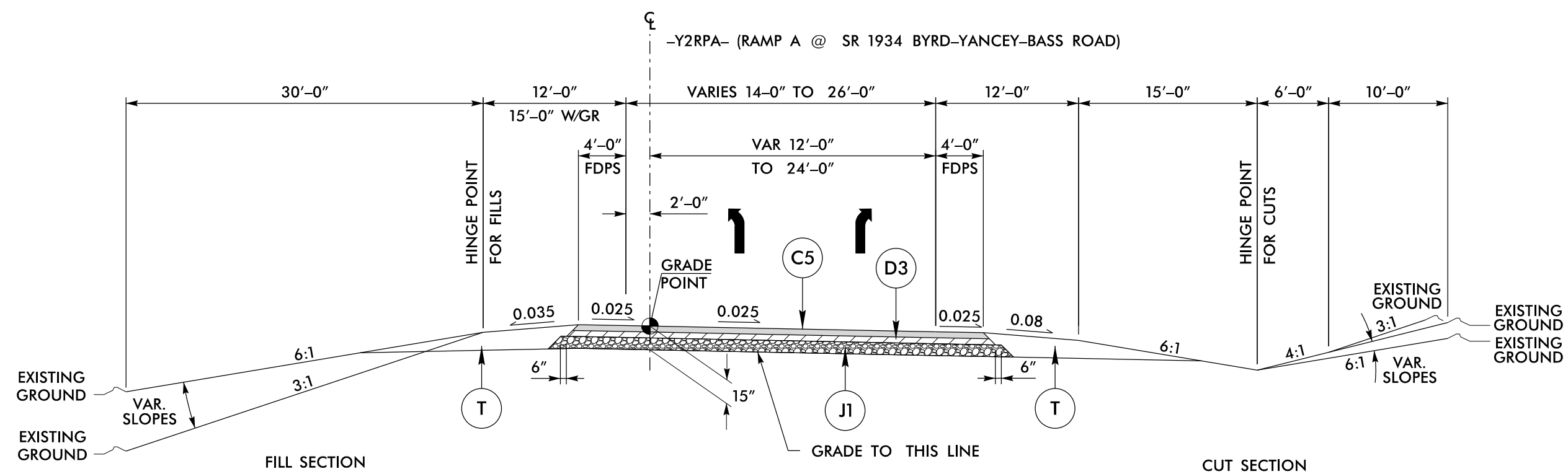
USE BRIDGE TYPICAL NO.2
 -Y2- STA. 30+18.57 TO STA. 31+99.23

6/2/2019

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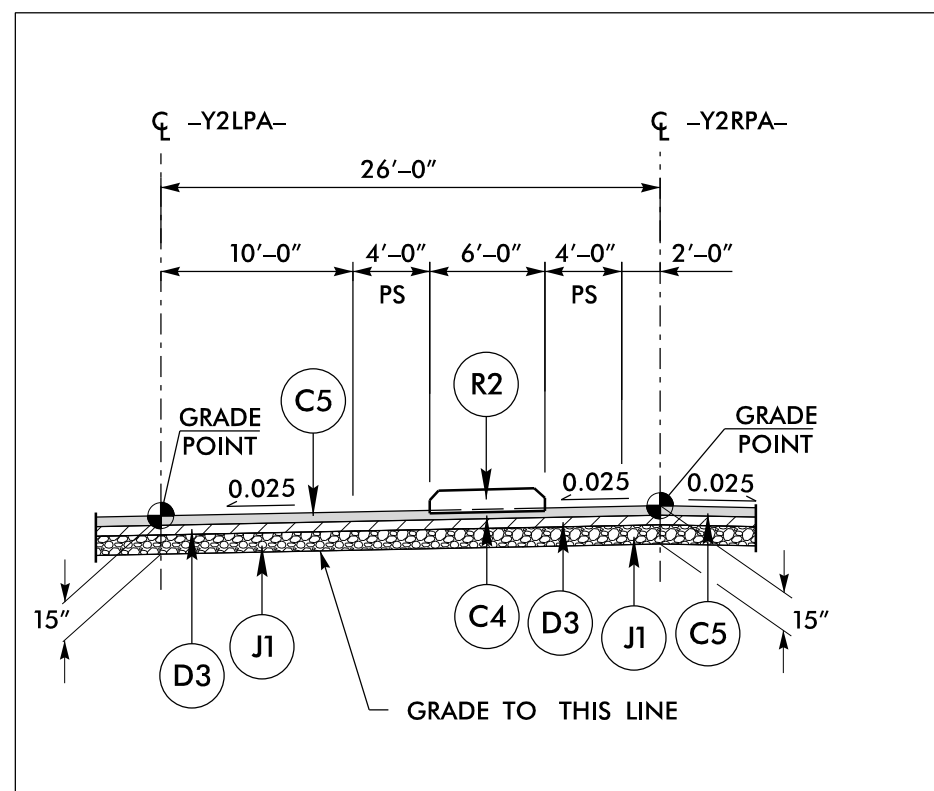
A1	6" CONCRETE
C1	1 1/4" S9.5B
C2	2 1/2" S9.5B
C3	VAR. S9.5B
C4	1 1/2" S9.5C
C5	3" S9.5C
C6	VAR. S9.5C
D1	2 1/2" I19.0C
D2	3" I19.0C
D3	4" I19.0C
D4	VAR. I19.0C
E1	3" B25.0C
E2	4" B25.0C
E3	7" B25.0C
E4	VAR. B25.0C
J1	8" ABC
J2	VAR. ABC
P	PRIMECOAT
R1	2'-6" C & G
R2	5" ISL. KEYED IN
R3	SHLD BERM GUT
R4	EXPWY GUTTER
S1	4" CONC. SIDEWALK
T	EARTH MATERIAL
U	EXIST. PAVEMENT
V1	1.25" MILLING
V2	1.5" MILLING
Y	RUMBLE STRIP
W1	WEDGING DETAIL 1
W2	WEDGING DETAIL 2
W3	WEDGING DETAIL 3

TYPICAL SECTION NO. 10



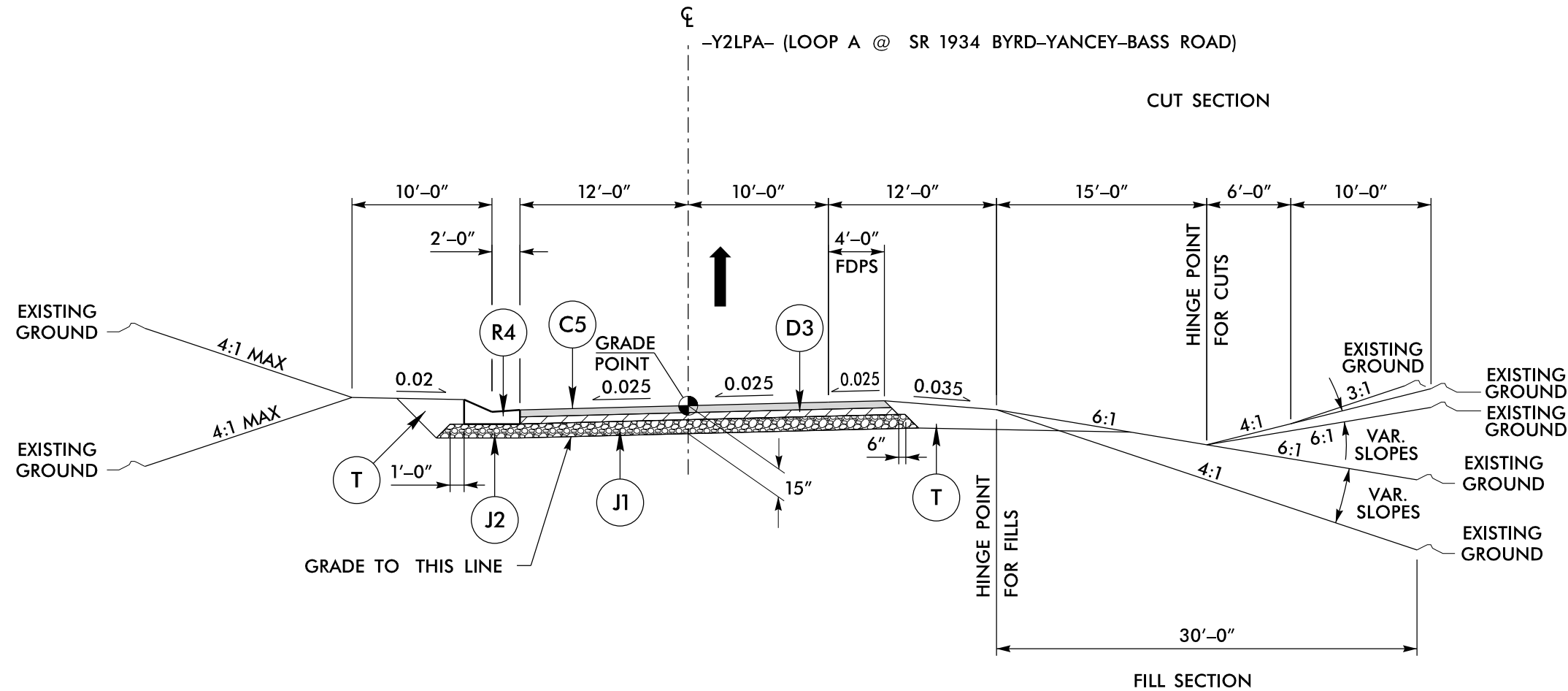
USE TYPICAL SECTION NO. 10
-Y2RPA- STA 10+00.00 TO STA 28+01.45

INSET E



USE INSET E IN CONJUNCTION WITH TYPICAL SECTION NO. 10 & 12
-Y2RPA- STA 25+10.00 TO STA 27+60.10
-Y2LPA- STA 17+80.10 TO STA 20+24.46

TYPICAL SECTION NO. 11



USE TYPICAL SECTION NO. 11
-Y2LPA- STA 10+00.00 TO STA 11+67.02

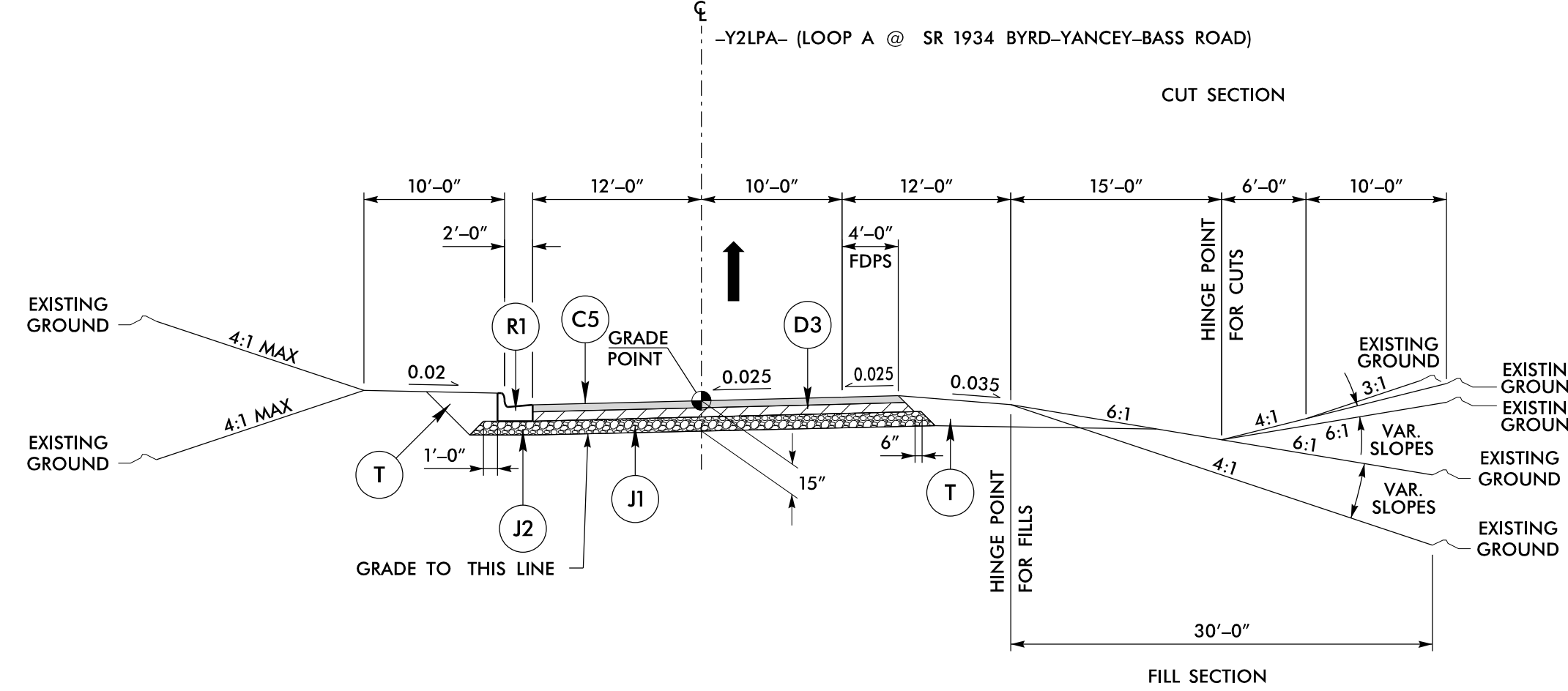
PROJECT REFERENCE NO. <i>R-2303E</i>	SHEET NO. <i>2A-5</i>
ROADWAY DESIGN ENGINEER <i>[Signature]</i>	PAVEMENT DESIGN ENGINEER <i>[Signature]</i>
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

6/2/2019

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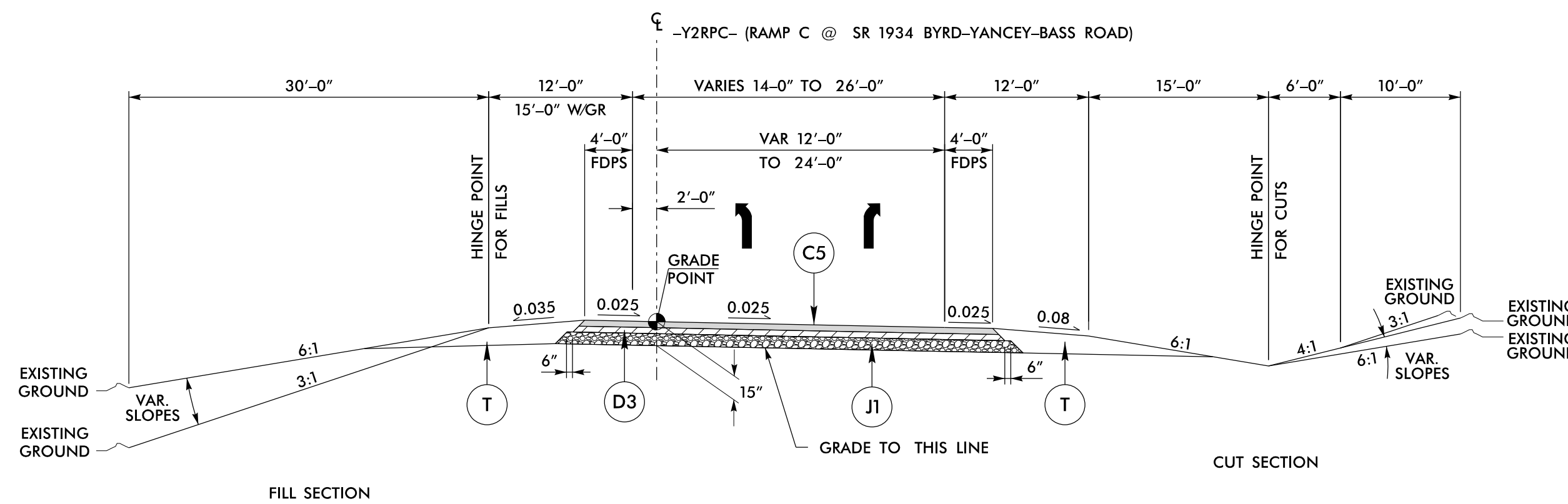
A1	6" CONCRETE
C1	1 1/4" S9.5B
C2	2 1/2" S9.5B
C3	VAR. S9.5B
C4	1 1/2" S9.5C
C5	3" S9.5C
C6	VAR. S9.5C
D1	2 1/2" I19.0C
D2	3" I19.0C
D3	4" I19.0C
D4	VAR. I19.0C
E1	3" B25.0C
E2	4" B25.0C
E3	7" B25.0C
E4	VAR. B25.0C
J1	8" ABC
J2	VAR. ABC
P	PRIMECOAT
R1	2'-6" C & G
R2	5" ISL. KEYED IN
R3	SHLD BERM GUT
R4	EXPWY GUTTER
S1	4" CONC. SIDEWALK
T	EARTH MATERIAL
U	EXIST. PAVEMENT
V1	1.25" MILLING
V2	1.5" MILLING
Y	RUMBLE STRIP
W1	WEDGING DETAIL 1
W2	WEDGING DETAIL 2
W3	WEDGING DETAIL 3

TYPICAL SECTION NO. 12



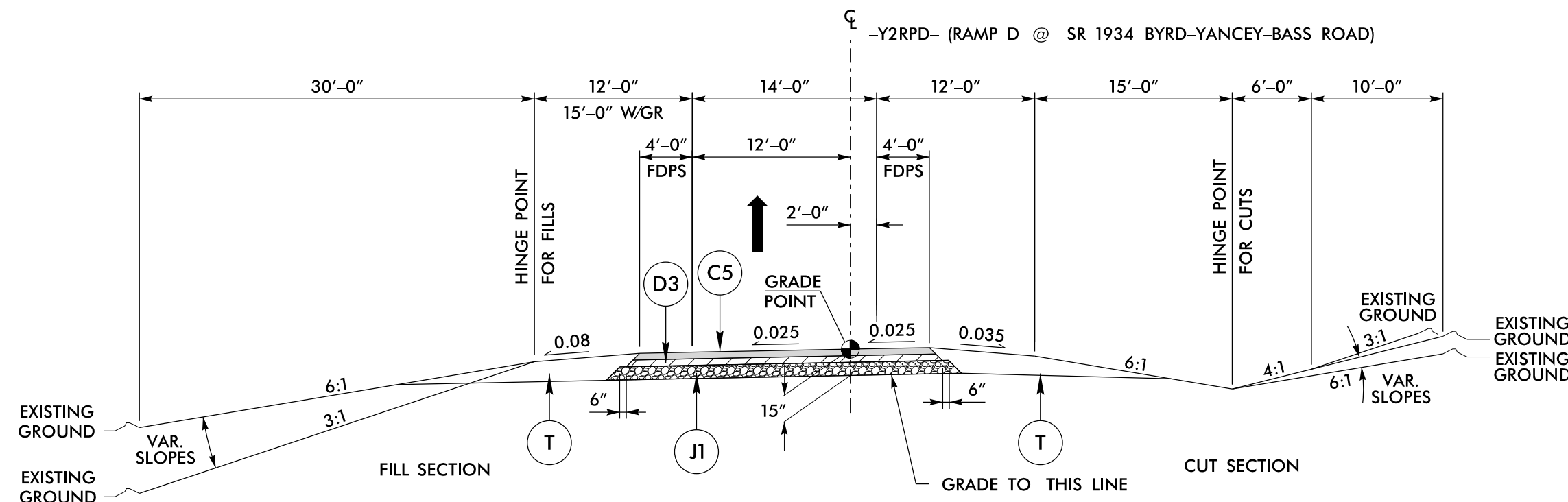
USE TYPICAL SECTION NO. 12
-Y2LPA- STA 11+67.02 TO STA 20+68.17

TYPICAL SECTION NO. 13



USE TYPICAL SECTION NO. 13
-Y2RPC- STA 10+00.00 TO STA 30+02.14

TYPICAL SECTION NO. 14



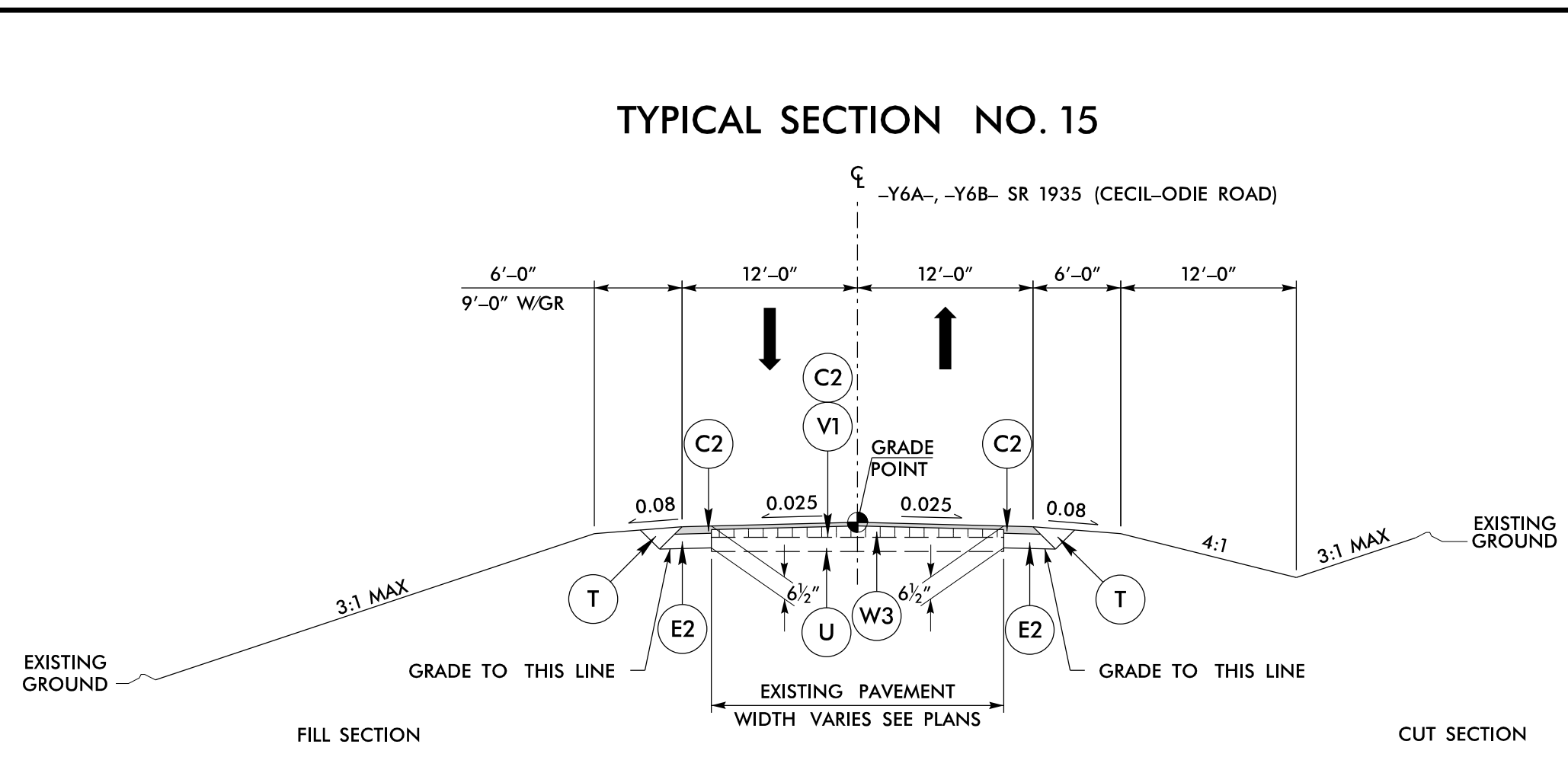
USE TYPICAL SECTION NO. 14
-Y2RPD- STA 10+00.00 TO STA 29+79.88

PROJECT REFERENCE NO. <i>R-2303E</i>	SHEET NO. <i>2A-6</i>
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
<small>4700 FALLS OF NEUSE ROAD, SUITE 300 RALEIGH, NORTH CAROLINA 27609 (919) 781-4000 VOICE (919) 781-4809 FAX NC LICENSE NO. F-0105</small>	

6/2/2019

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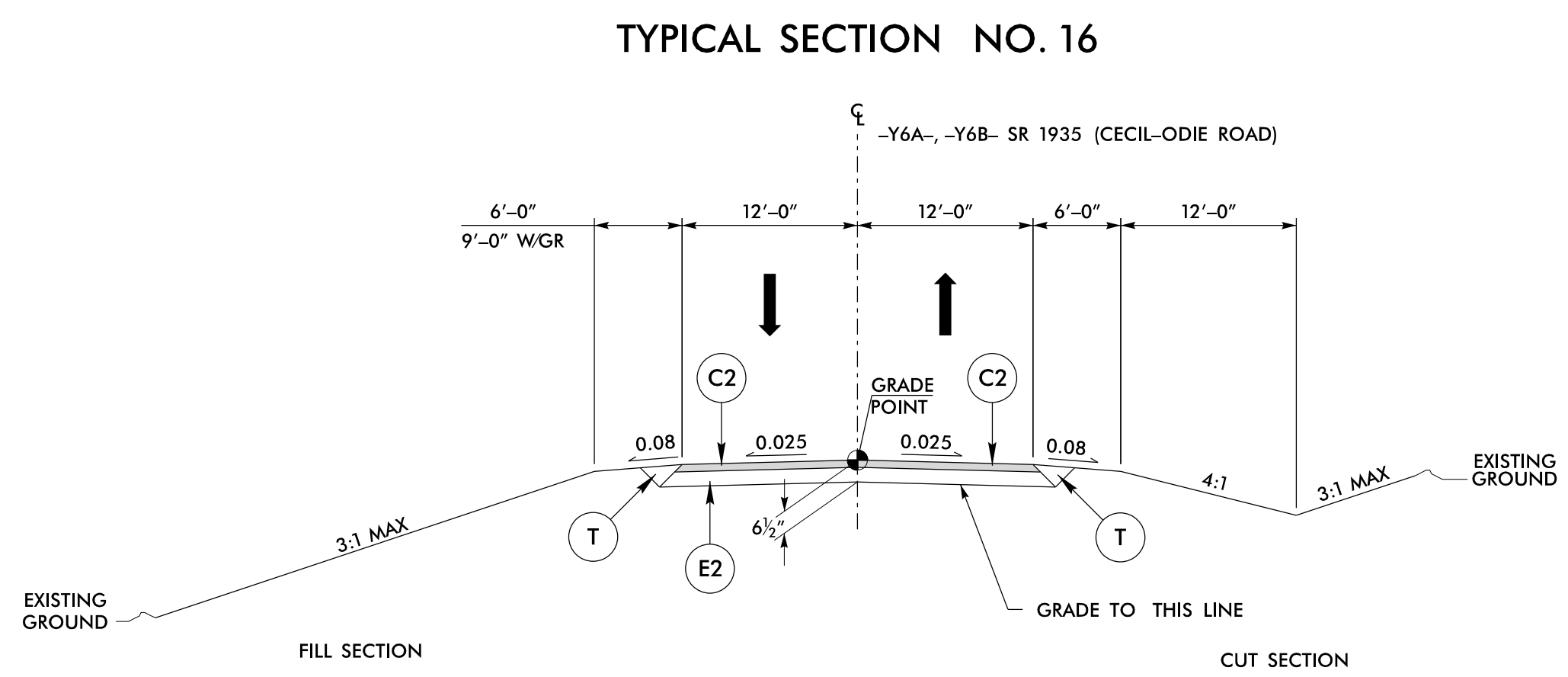
A1	6" CONCRETE
C1	1 1/4" S9.5B
C2	2 1/2" S9.5B
C3	VAR. S9.5B
C4	1 1/2" S9.5C
C5	3" S9.5C
C6	VAR. S9.5C
D1	2 1/2" I19.0C
D2	3" I19.0C
D3	4" I19.0C
D4	VAR. I19.0C
E1	3" B25.0C
E2	4" B25.0C
E3	7" B25.0C
E4	VAR. B25.0C
J1	8" ABC
J2	VAR. ABC
P	PRIMECOAT
R1	2'-6" C & G
R2	5" ISL. KEYED IN
R3	SHLD BERM GUT
R4	EXPWY GUTTER
S1	4" CONC. SIDEWALK
T	EARTH MATERIAL
U	EXIST. PAVEMENT
V1	1.25" MILLING
V2	1.5" MILLING
Y	RUMBLE STRIP
W1	WEDGING DETAIL 1
W2	WEDGING DETAIL 2
W3	WEDGING DETAIL 3



USE TYPICAL SECTION NO. 15

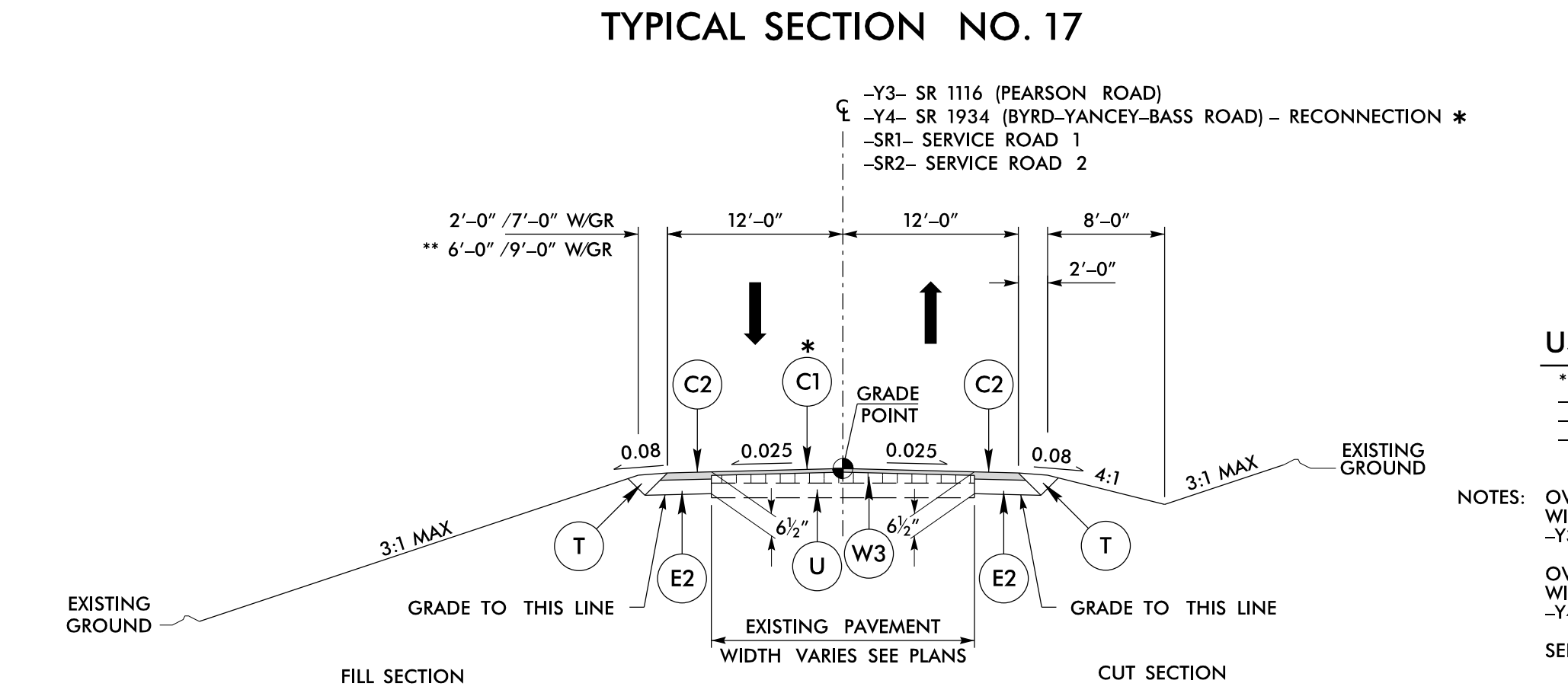
-Y6A- STA 11+50.00 TO STA 12+80.00
 -Y6B- STA 15+00.00 TO STA 16+60.00

NOTES: UNIFORMLY MILL THE EXISTING PAVEMENT TO REMAIN IN PLACE TO A DEPTH OF 1.25" AND REPLACE WITH 2.5" OF S9.5B
 -Y6A- STA 11+50.00 TO STA 12+80.00
 -Y6B- STA 15+00.00 TO STA 16+60.00
 SEE MILLING DETAIL "B" THAT SHOWS TIE-IN TREATMENT



USE TYPICAL SECTION NO. 16

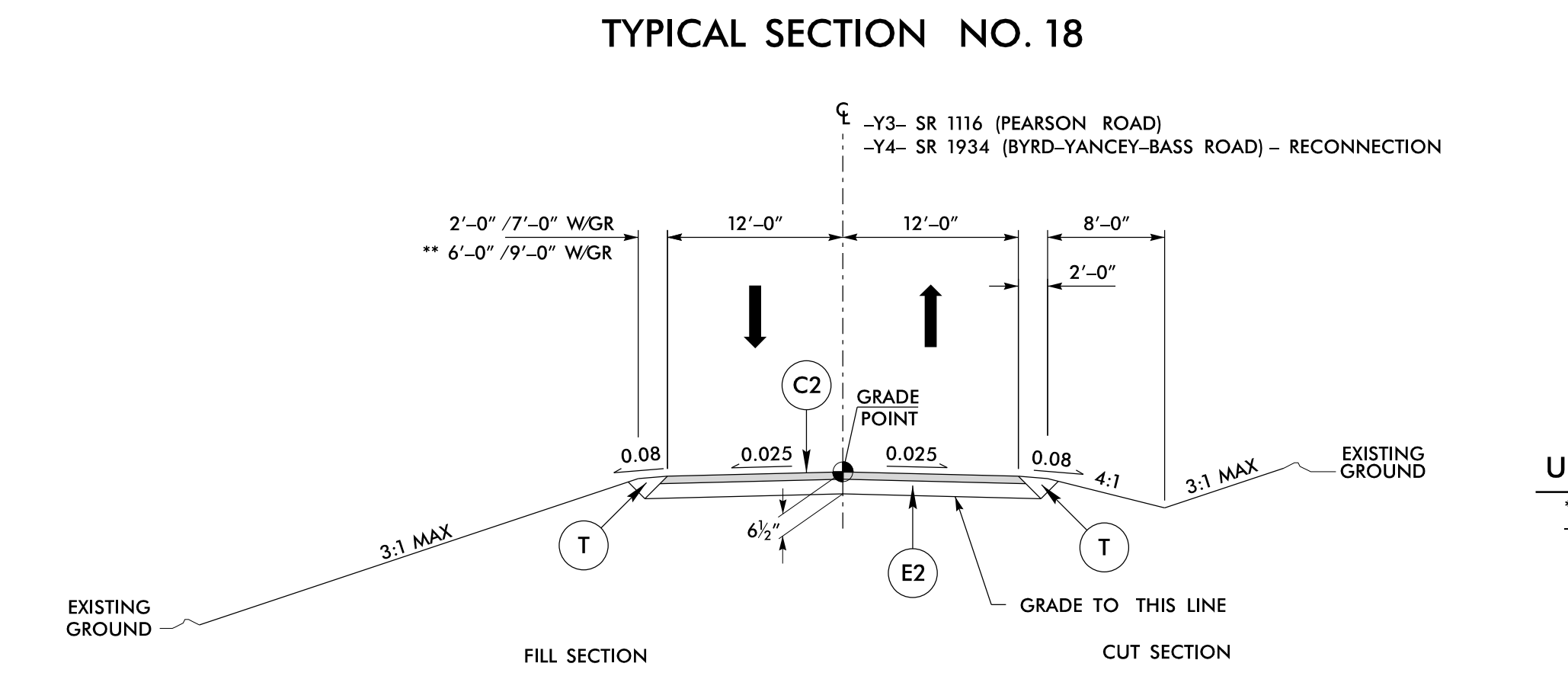
-Y6A- STA 12+80.00 TO STA 15+64.08
 -Y6B- STA 16+60.00 TO STA 22+16.74



USE TYPICAL SECTION NO. 17

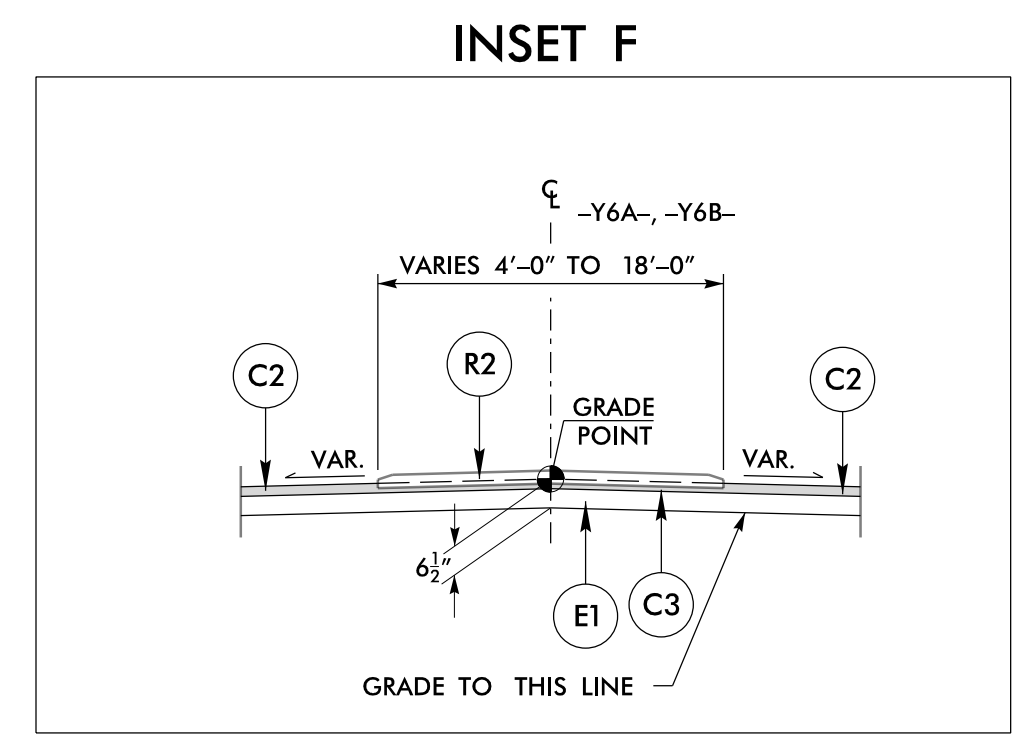
** -Y3- STA 11+50.00 TO STA 14+40.00
 -Y4- STA 10+04.99 TO STA 12+80.00
 -SR1- STA 26+98.09 TO STA 35+07.80
 -SR2- STA 30+00.00 TO STA 40+70.52

NOTES: OVERLAY THE EXISTING PAVEMENT TO REMAIN IN PLACE WITH 2.5" OF S9.5B
 -Y3- STA 11+50.00 TO STA 14+40.00
 OVERLAY THE EXISTING PAVEMENT TO REMAIN IN PLACE WITH 1.25" OF S9.5B
 -Y4- STA 10+04.99 TO STA 12+80.00
 SEE MILLING DETAIL "B" THAT SHOWS TIE-IN TREATMENT



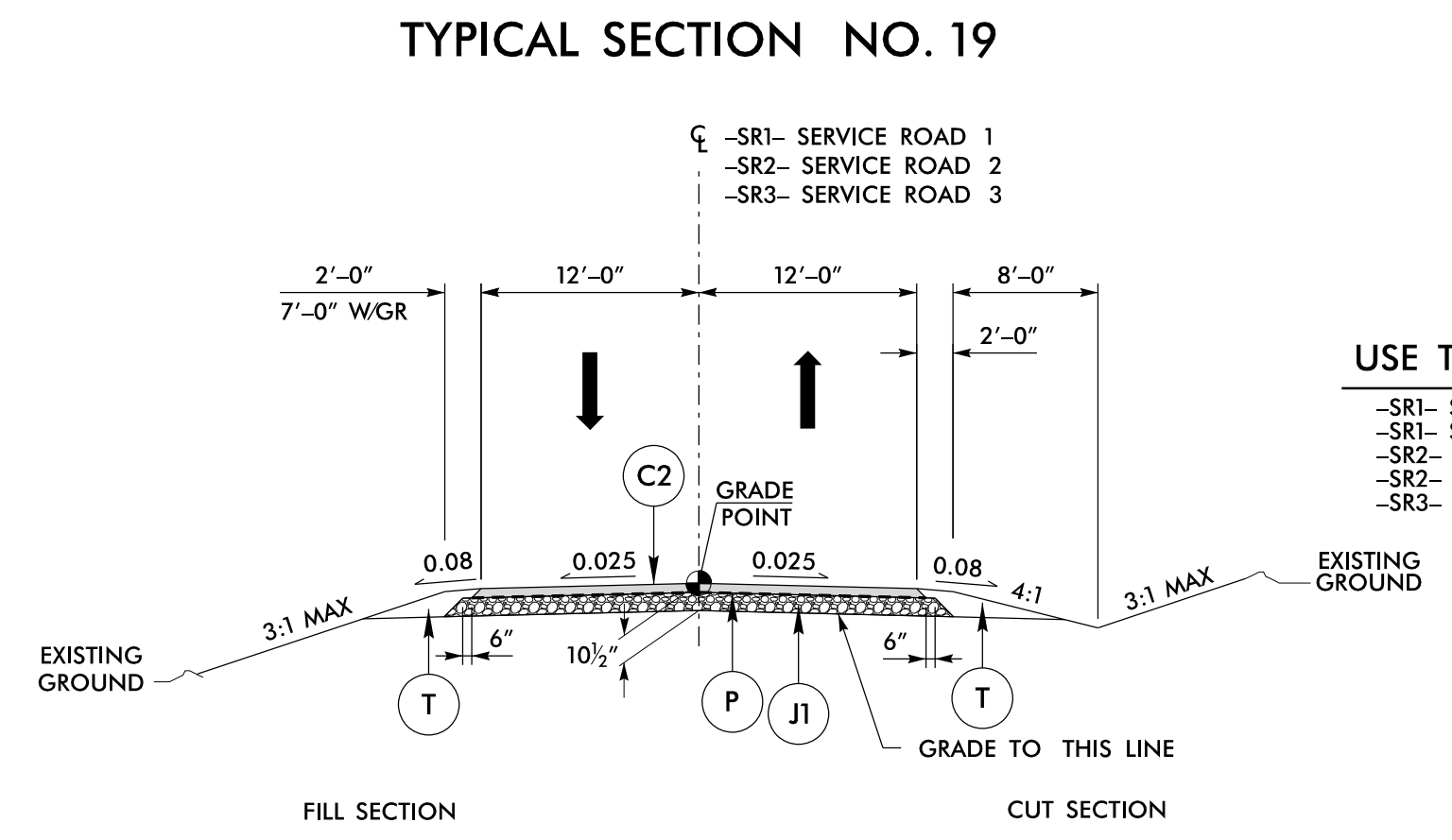
USE TYPICAL SECTION NO. 18

** -Y3- STA 14+40.00 TO STA 16+81.62
 -Y4- STA 12+80.00 TO STA 15+70.17



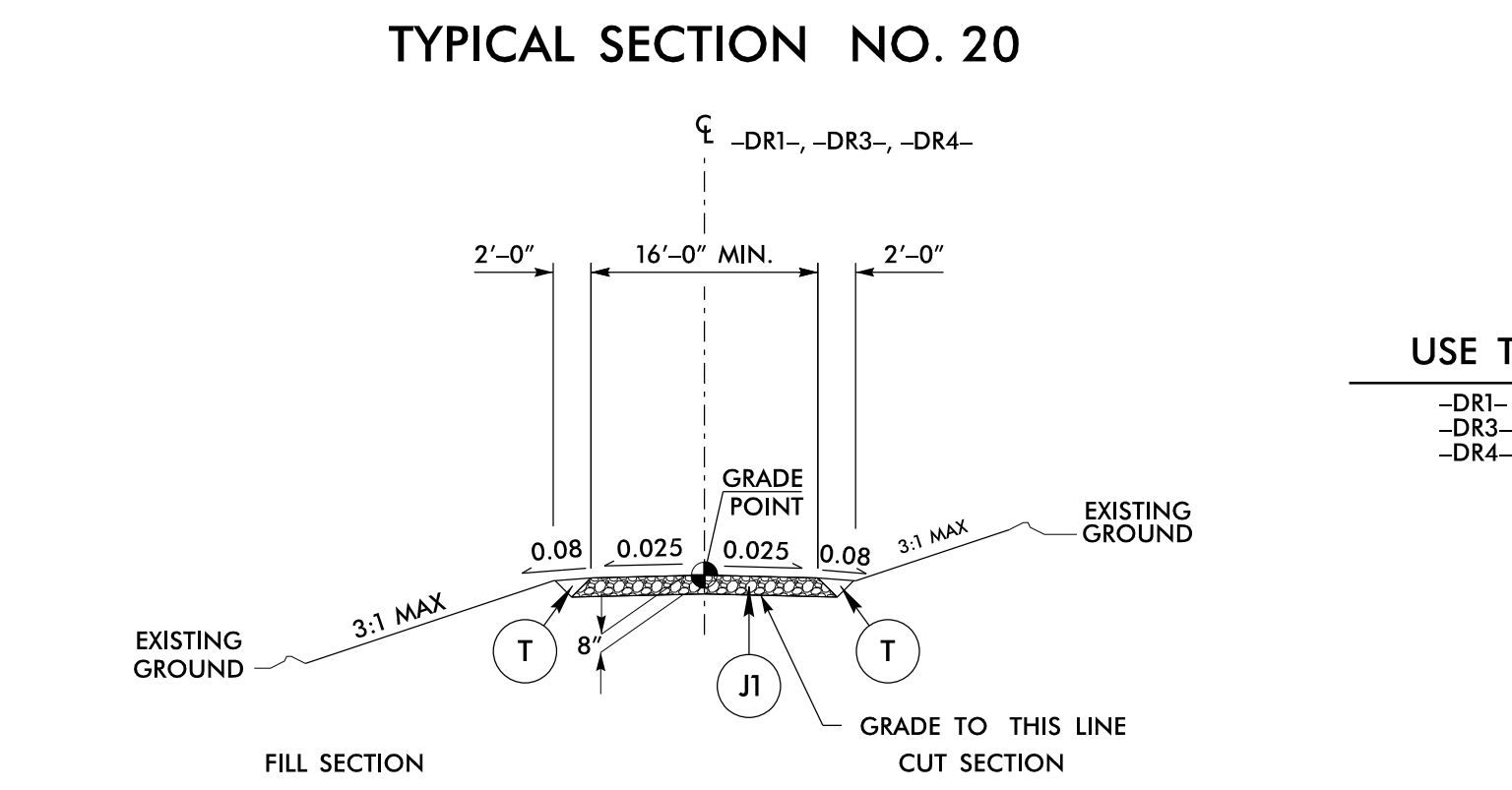
USE INSET F IN CONJUNCTION WITH TYPICAL SECTION NO. 16

-Y6A- STA 14+75.45 TO STA 15+54.08
 -Y6B- STA 20+80.33 TO STA 22+06.74



USE TYPICAL SECTION NO. 19

-SR1- STA 10+12.09 TO STA 26+98.09
 -SR1- STA 35+07.80 TO STA 35+50.89
 -SR2- STA 13+50.00 TO STA 30+00.00
 -SR2- STA 40+70.52 TO STA 48+35.00
 -SR3- STA 10+18.64 TO STA 17+66.58



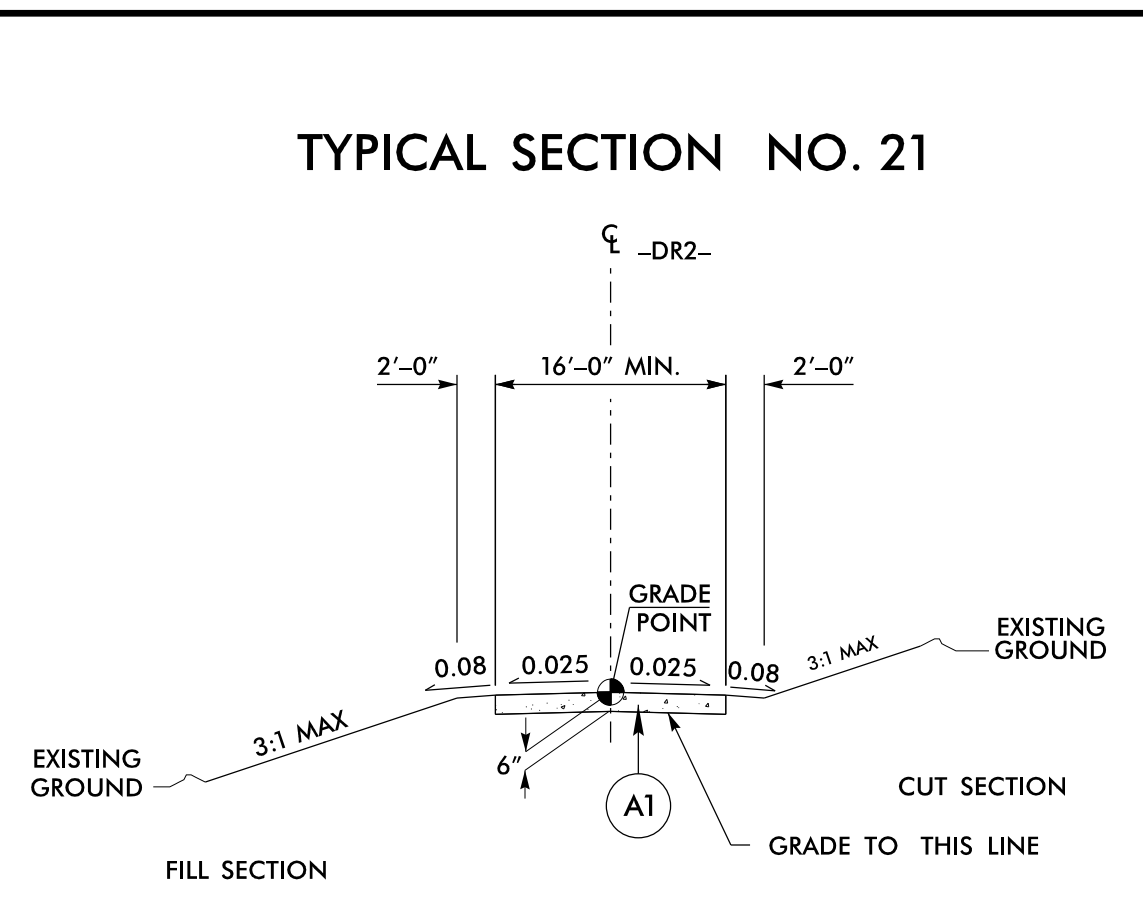
USE TYPICAL SECTION NO. 20

-DR1- STA 10+42.50 TO STA 15+72.57
 -DR3- STA 10+45.00 TO STA 13+15.28
 -DR4- STA 10+57.25 TO STA 12+60.87

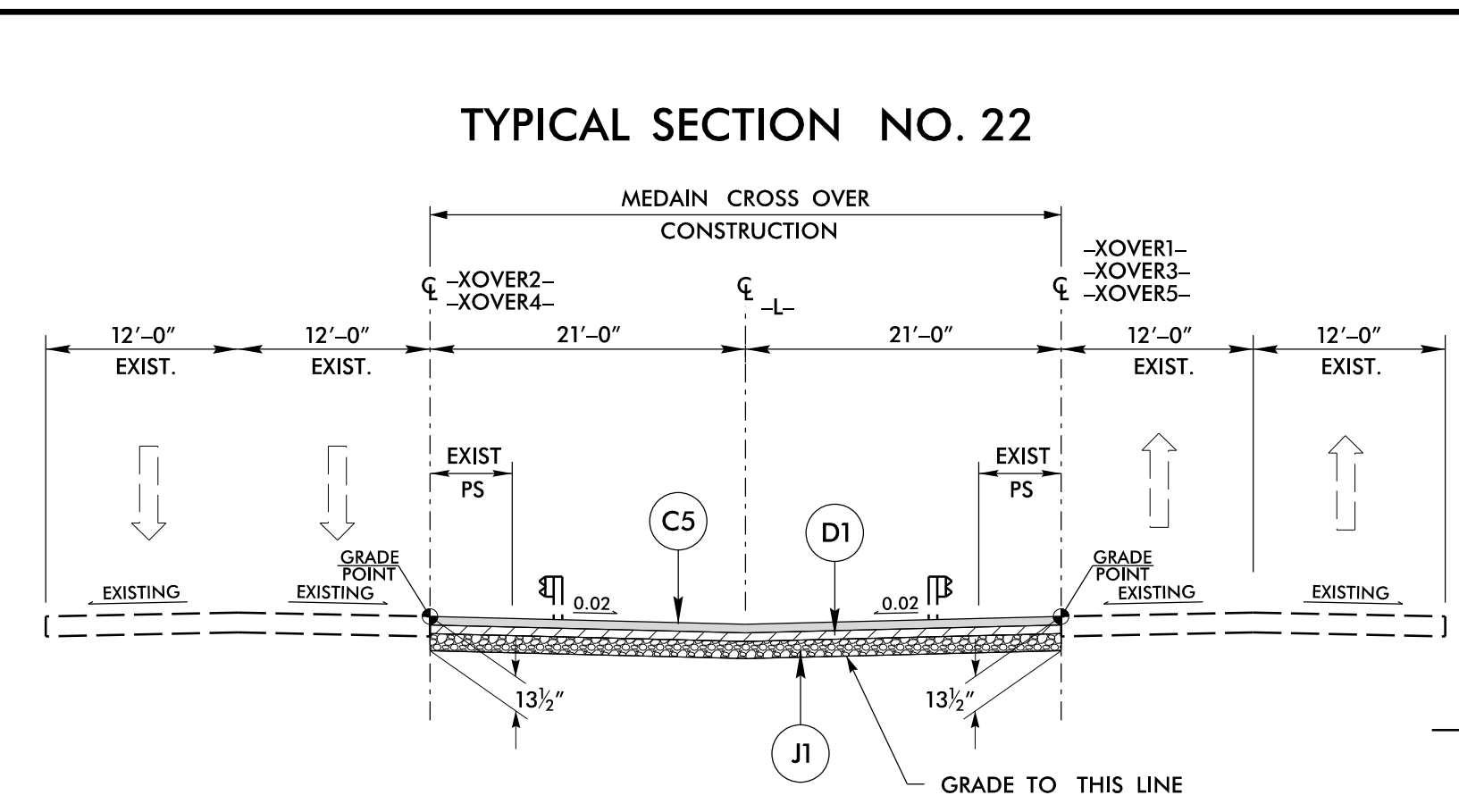
6/22/19

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A1	6" CONCRETE
C1	1 1/4" S9.5B
C2	2 1/2" S9.5B
C3	VAR. S9.5B
C4	1 1/2" S9.5C
C5	3" S9.5C
C6	VAR. S9.5C
D1	2 1/2" I19.0C
D2	3" I19.0C
D3	4" I19.0C
D4	VAR. I19.0C
E1	3" B25.0C
E2	4" B25.0C
E3	7" B25.0C
E4	VAR. B25.0C
J1	8" ABC
J2	VAR. ABC
P	PRIMECOAT
R1	2'-6" C & G
R2	5" ISL. KEYED IN
R3	SHLD BERM GUT
R4	EXPWY GUTTER
S1	4" CONC. SIDEWALK
T	EARTH MATERIAL
U	EXIST. PAVEMENT
V1	1.25" MILLING
V2	1.5" MILLING
Y	RUMBLE STRIP
W1	WEDGING DETAIL 1
W2	WEDGING DETAIL 2
W3	WEDGING DETAIL 3



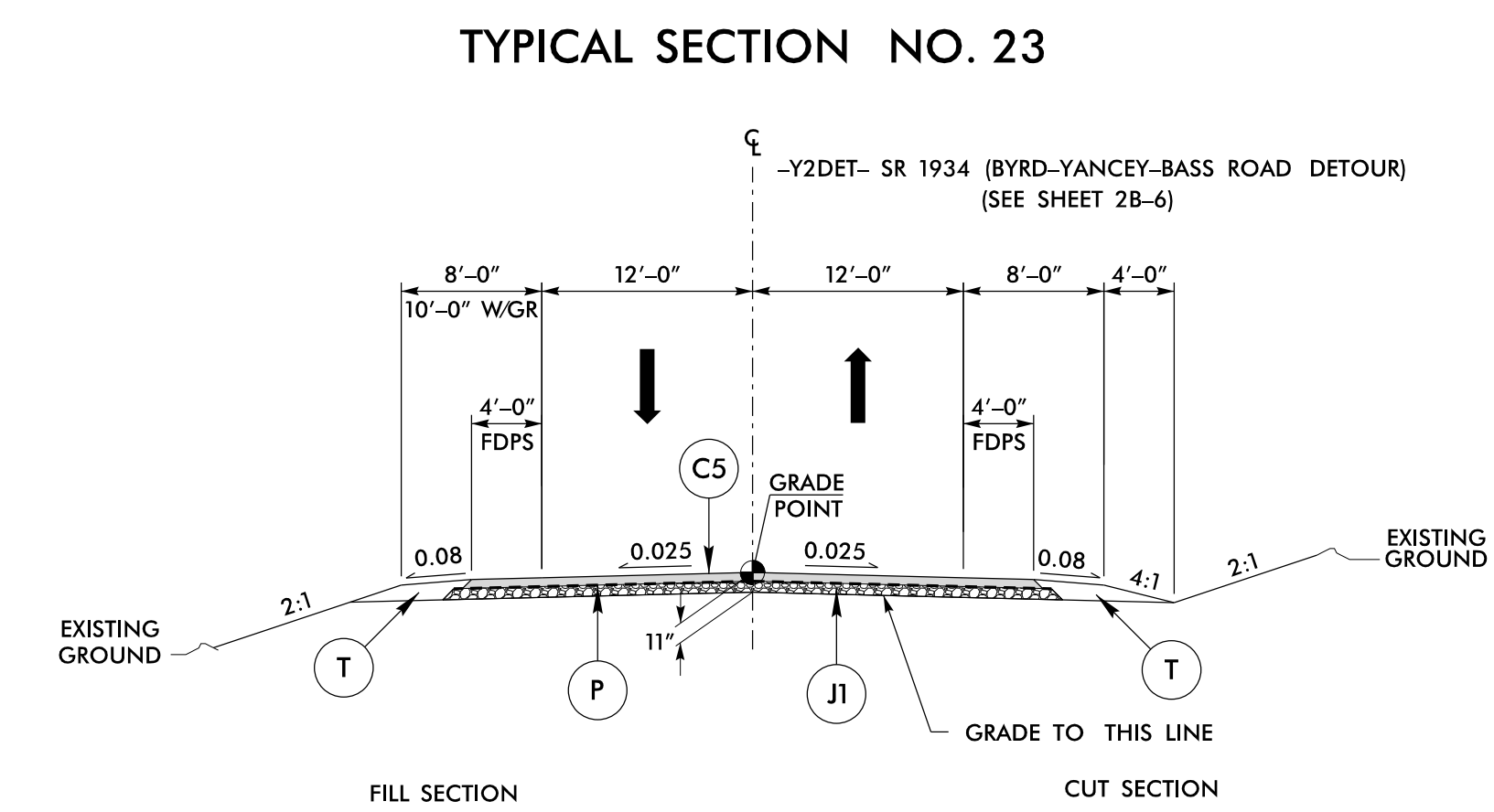
USE TYPICAL SECTION NO. 21
-DR2- STA 10+12.00 TO STA 10+90.00



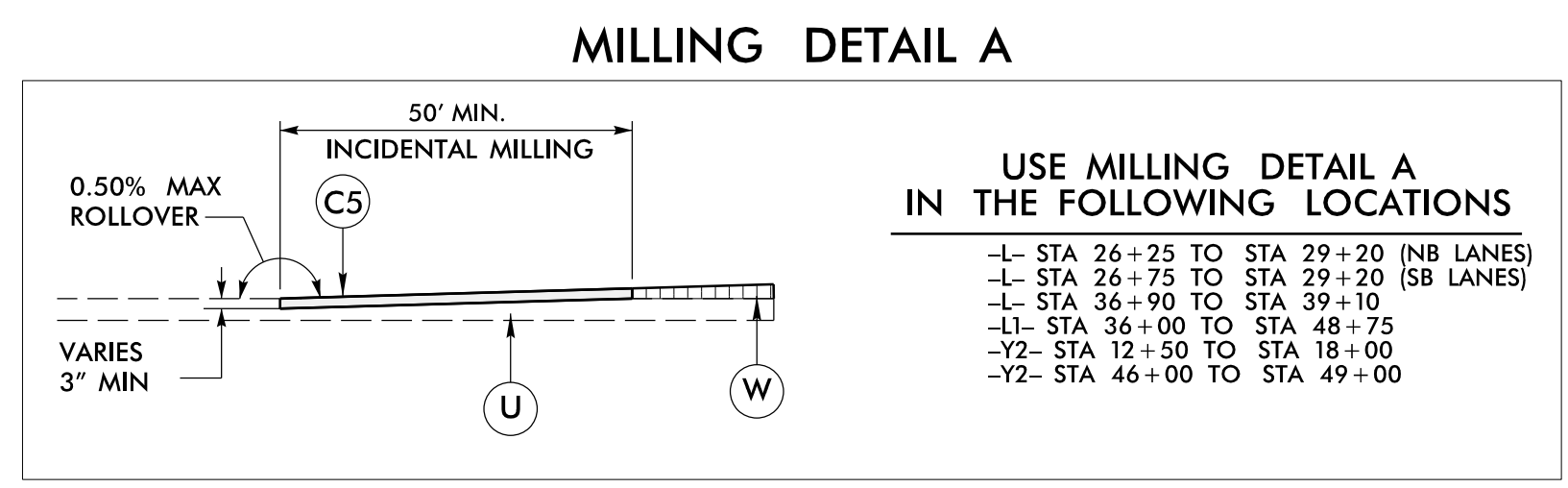
USE TYPICAL SECTION NO. 22

- US 421 CROSS OVERS
 -XOVER1- SEE SHEET 2B-1
 -XOVER2- SEE SHEET 2B-2
 -XOVER3- SEE SHEET 2B-3
 -XOVER4- SEE SHEETS 2B-4 & 2B-5
 -XOVER5- SEE SHEET 2B-7
- XOVER1- STA 12+69.43 TO STA 26+01.41
 -XOVER2- STA 14+31.99 TO STA 26+20.41
 -XOVER3- STA 13+00.00 TO STA 25+99.27
 -XOVER4- STA 11+50.00 TO STA 26+31.43
 -XOVER5- STA 12+94.24 TO STA 20+65.72

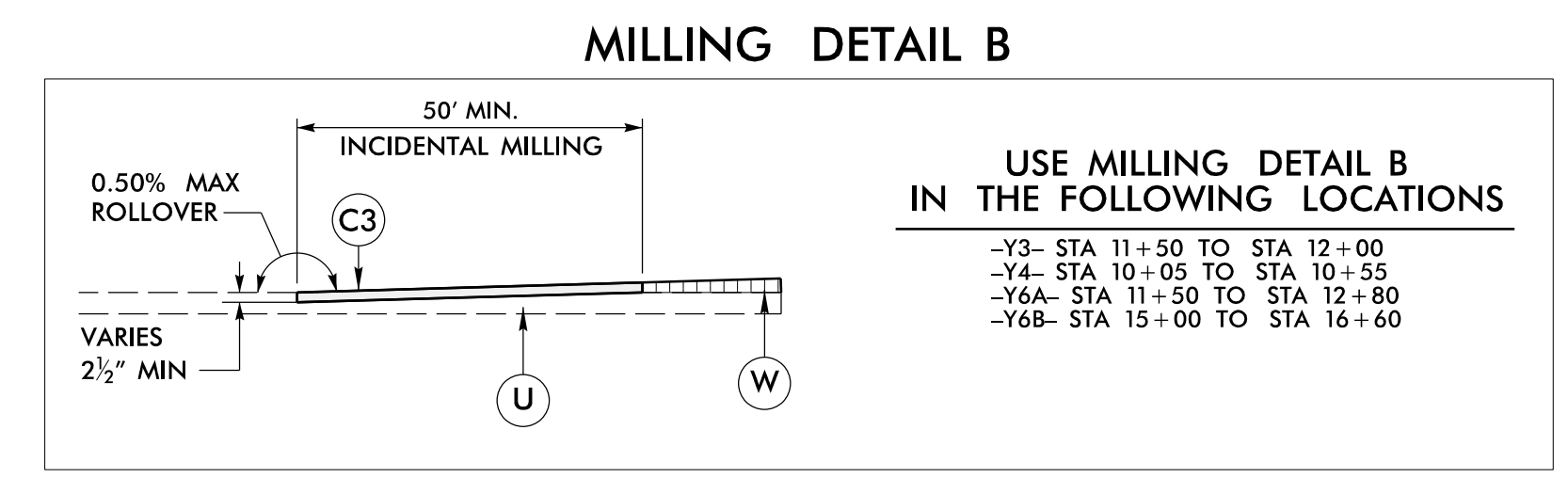
- NOTES:**
 1) REMOVE EXISTING GUARDRAIL AS REQUIRED TO INSTALL MEDIAN CROSS OVER. REPLACE GUARDRAIL TO ORIGINAL LOCATION AFTER MEDIAN CROSS OVER HAS BEEN REMOVED.
 2) REBUILD EXISTING MEDIAN PAVED SHOULDERS



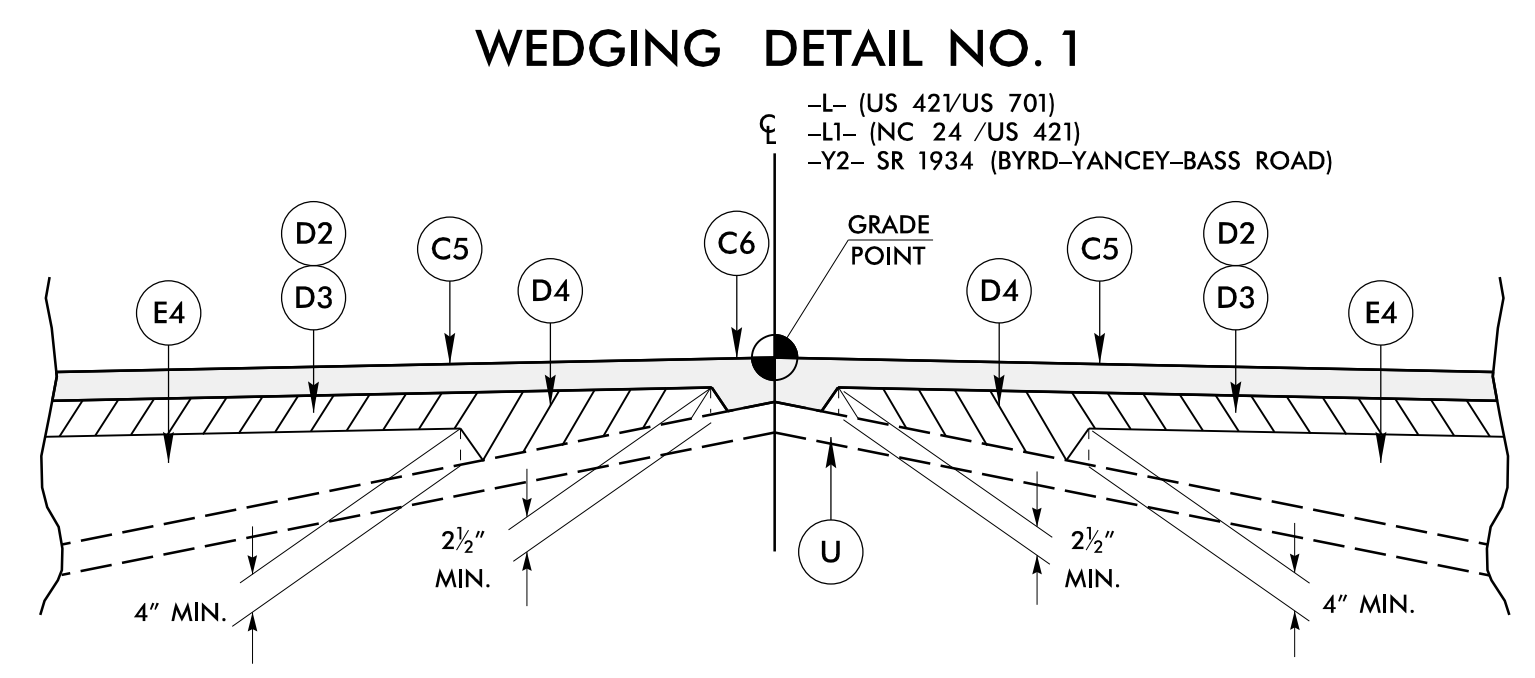
USE TYPICAL SECTION NO. 23
-Y2DET- STA 11+72.32 TO STA 19+12.85



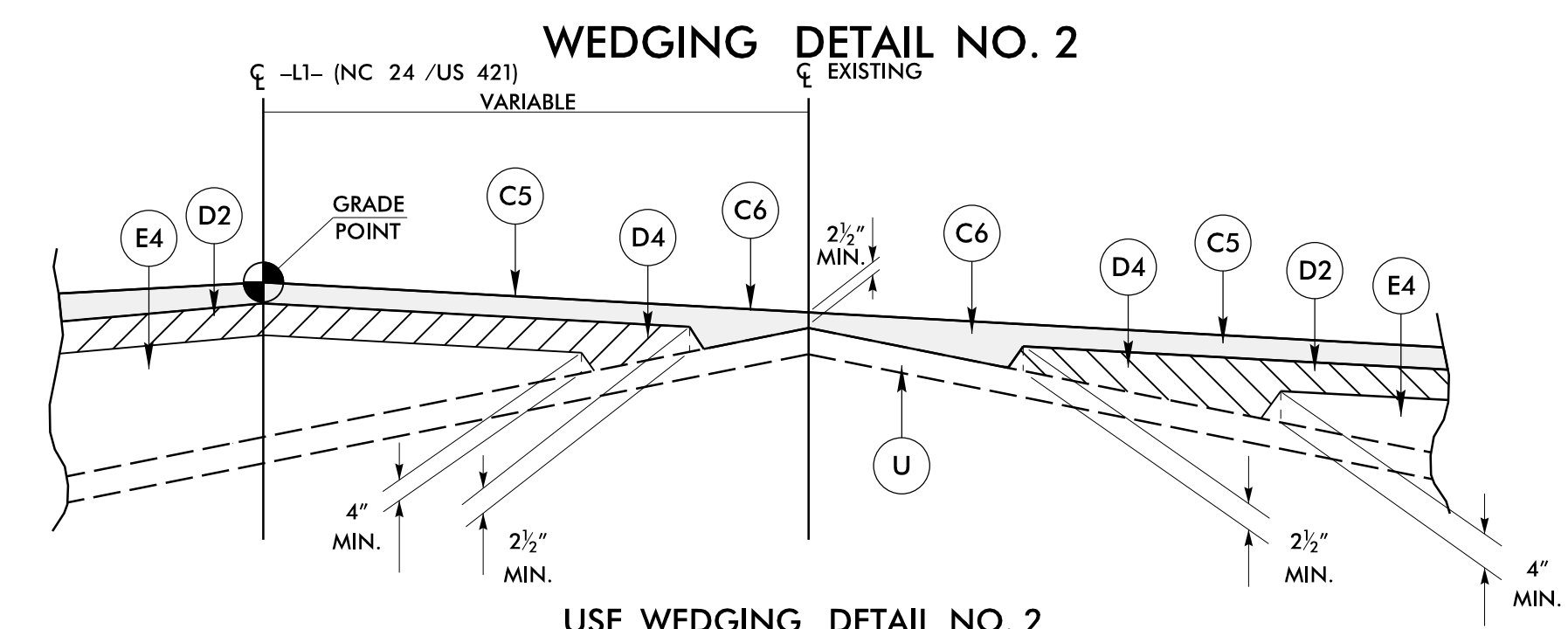
USE MILLING DETAIL A IN THE FOLLOWING LOCATIONS
 -L- STA 26+25 TO STA 29+20 (NB LANES)
 -L- STA 26+75 TO STA 29+20 (SB LANES)
 -L- STA 36+90 TO STA 39+10
 -L1- STA 36+00 TO STA 48+75
 -Y2- STA 12+50 TO STA 18+00
 -Y2- STA 46+00 TO STA 49+00



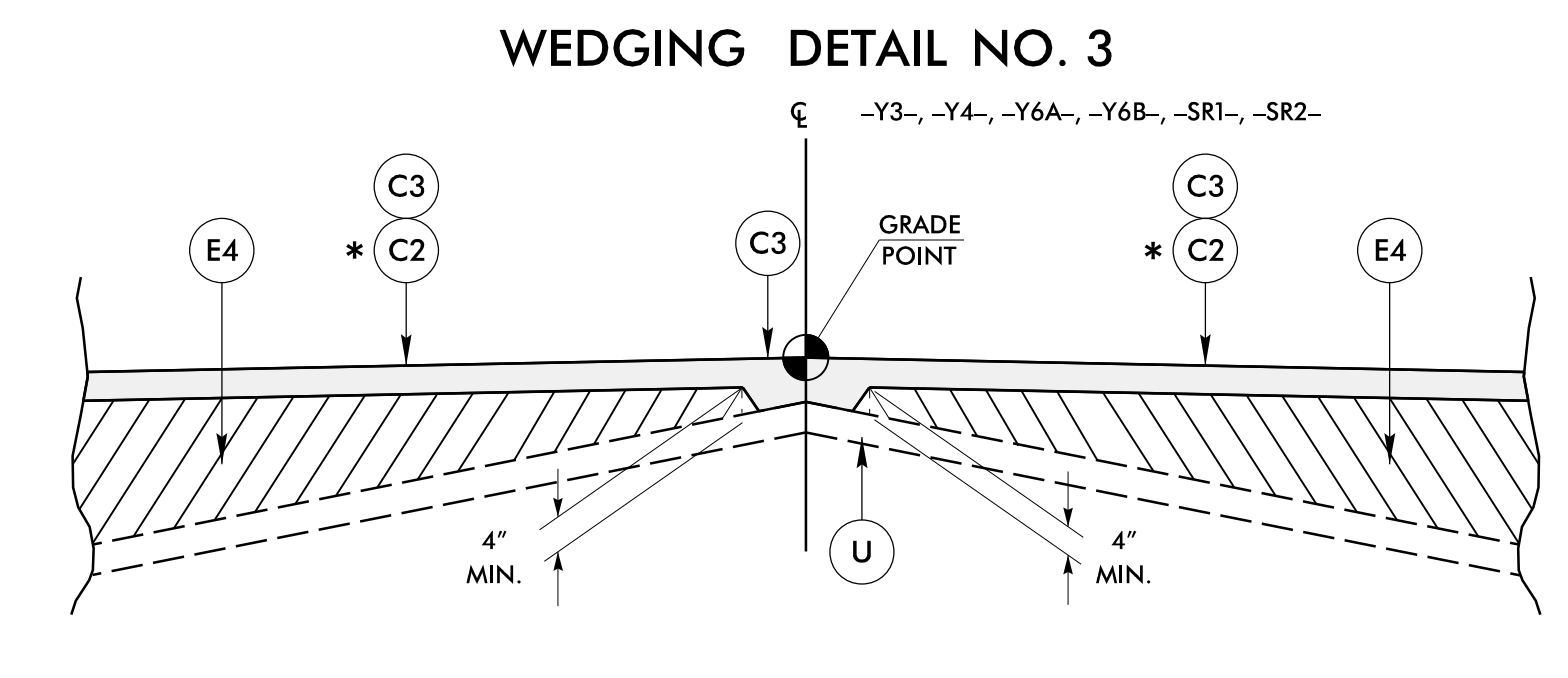
USE MILLING DETAIL B IN THE FOLLOWING LOCATIONS
 -Y3- STA 11+50 TO STA 12+00
 -Y4- STA 10+05 TO STA 10+55
 -Y6A- STA 11+50 TO STA 12+80
 -Y6B- STA 15+00 TO STA 16+60



USE WEDGING DETAIL NO. 1 IN CONJUNCTION WITH TYPICAL NO. 1, 4 & 8
 -L- STA 36+90.00 TO STA 39+10.10
 -L1- STA 36+00.00 TO STA 48+75.00
 -Y2- STA 12+50.00 TO STA 18+00.00
 -Y2- STA 46+00.00 TO STA 49+00.00



USE WEDGING DETAIL NO. 2 IN CONJUNCTION WITH TYPICAL NO. 5
 -L1- STA 48+75.00 TO STA 50+10.00



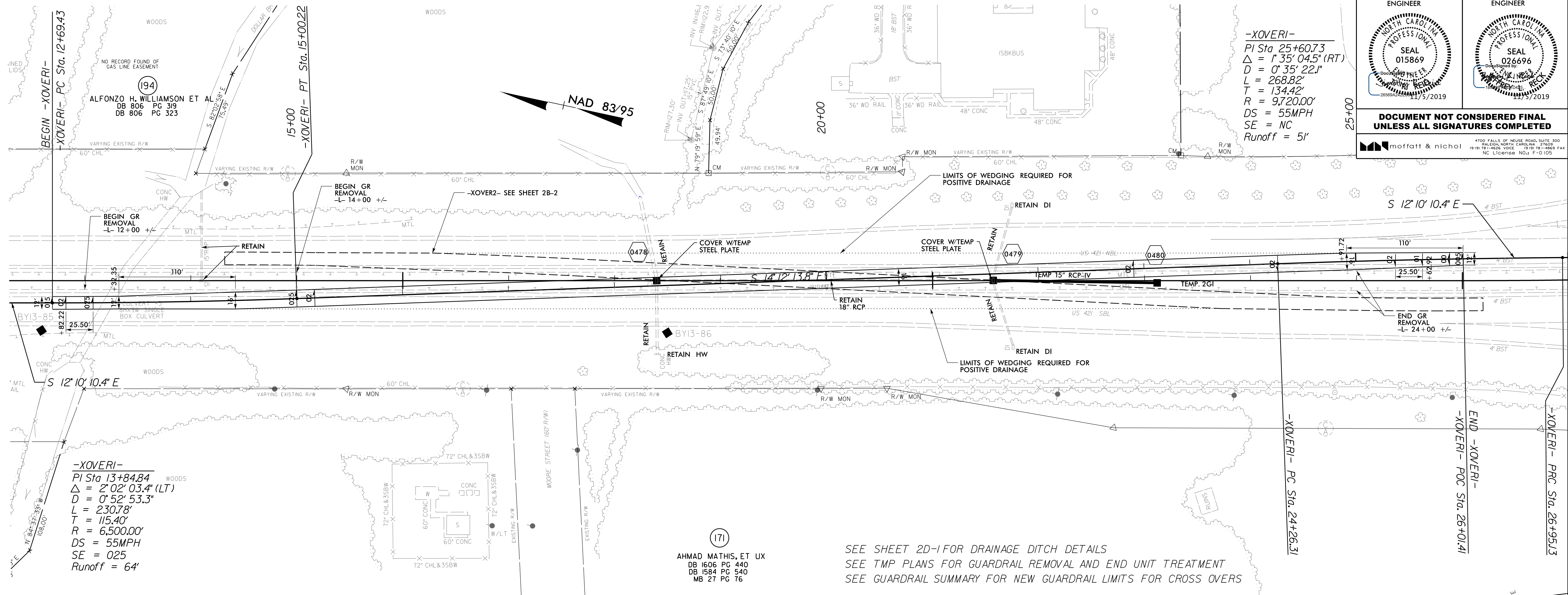
USE WEDGING DETAIL NO. 3 IN CONJUNCTION WITH TYPICAL NO. 15, 17 & 19
 -Y3- STA 11+50.00 TO STA 14+40.00
 * -Y4- STA 10+04.99 TO STA 12+80.00
 -Y6A- STA 11+50.00 TO STA 12+80.00
 -Y6B- STA 15+00.00 TO STA 16+60.00
 -SR1- STA 26+98.09 TO STA 35+07.80
 -SR2- STA 30+00.00 TO STA 40+70.52

PROJECT REFERENCE NO. R-2303E	SHEET NO. 2A-8
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

5/28/2019

DETAIL FOR CROSS-OVERS -L- DETOUR

PROJECT REFERENCE NO. R-2303E	SHEET NO. 2B-1
ROADWAY DESIGN ENGINEER 	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
<small>4700 FALLS OF NEUSE ROAD, SUITE 300 FARGO, NORTH CAROLINA 27626 919 781-4626 VOICE 919 781-4666 FAX NC License No. F-0105</small>	

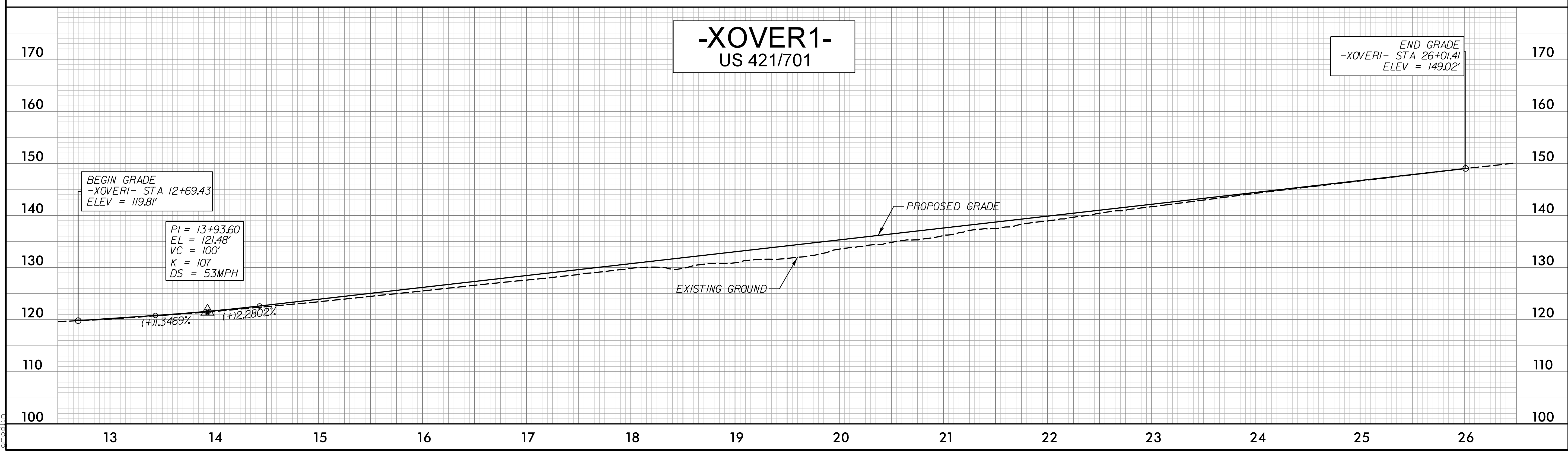


-XOVER1-
 PI Sta 13+84.84
 $\Delta = 2' 02" 03.4" (LT)$
 $D = 0' 52" 53.3"$
 $L = 230.78'$
 $T = 115.40'$
 $R = 6,500.00'$
 $DS = 55MPH$
 $SE = 025$
 $Runoff = 64'$

(171)
 AHMAD MATHIS, ET UX
 DB 1606 PG 440
 DB 1584 PG 540
 MB 27 PG 76

SEE SHEET 2D-1 FOR DRAINAGE DITCH DETAILS
 SEE TMP PLANS FOR GUARDRAIL REMOVAL AND END UNIT TREATMENT
 SEE GUARDRAIL SUMMARY FOR NEW GUARDRAIL LIMITS FOR CROSS OVERS

-XOVER1-
 PI Sta 25+60.73
 $\Delta = 1' 35" 04.5" (RT)$
 $D = 0' 35" 22.1"$
 $L = 268.82'$
 $T = 134.42'$
 $R = 9,720.00'$
 $DS = 55MPH$
 $SE = NC$
 $Runoff = 51'$



BEGIN GRADE
 -XOVER1- STA 12+69.43
 ELEV = 119.81'

PI = 13+93.60
 EL = 121.48'
 VC = 100'
 K = 107
 DS = 53MPH

-XOVER1-
 US 421/701

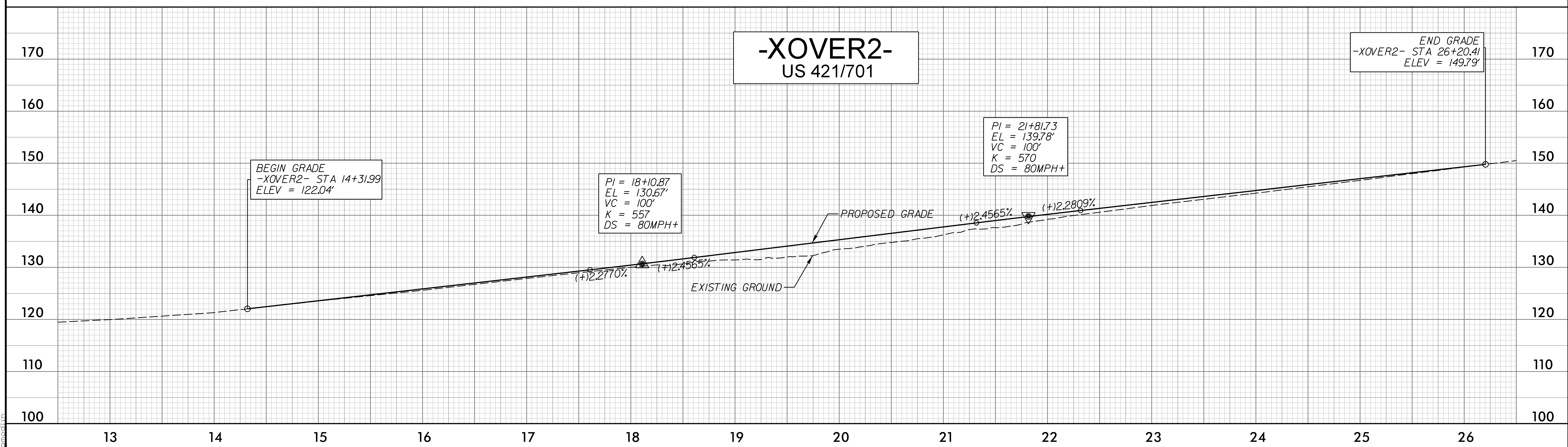
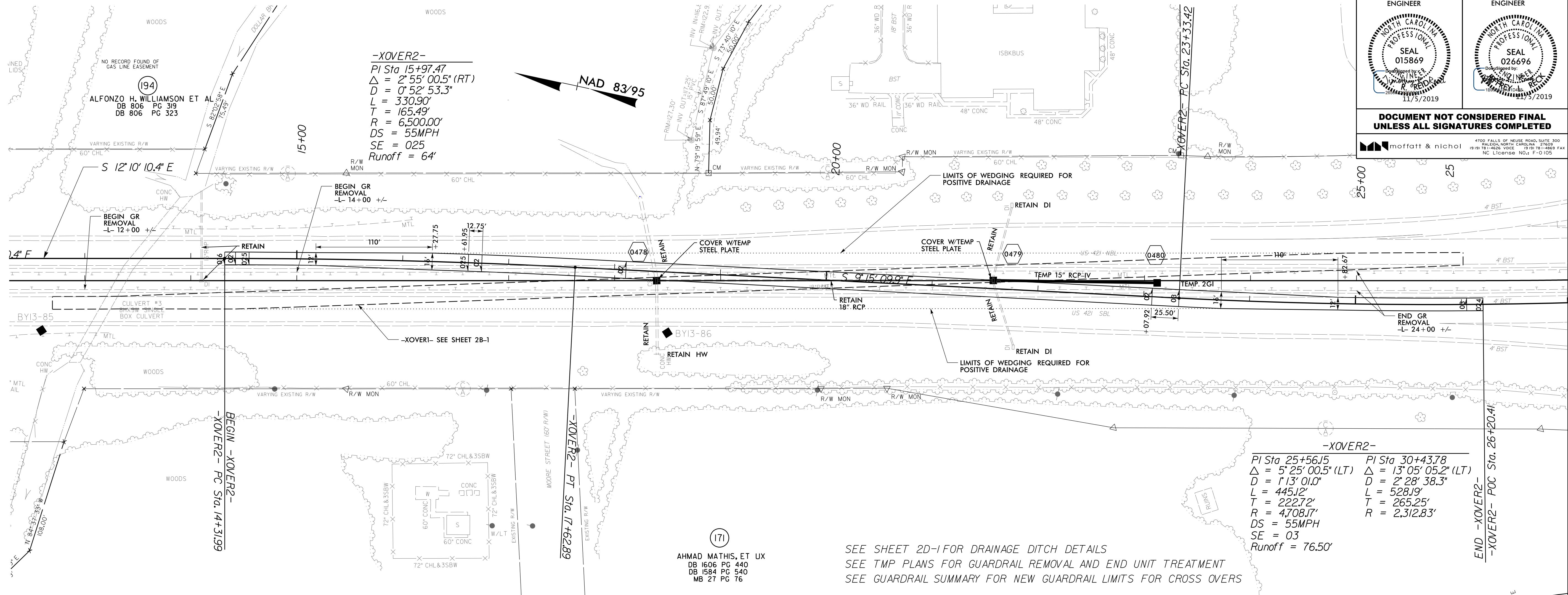
END GRADE
 -XOVER1- STA 26+01.41
 ELEV = 149.02'

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5/28/2019

DETAIL FOR CROSS-OVERS -L- DETOUR

PROJECT REFERENCE NO. R-2303E	SHEET NO. 2B-2
ROADWAY DESIGN ENGINEER 	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

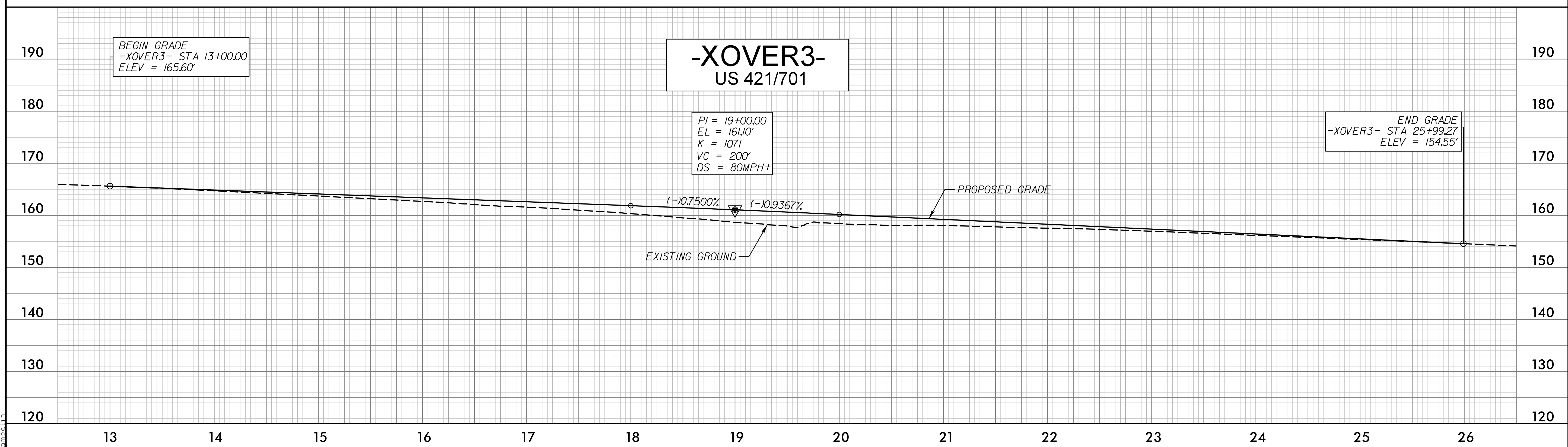
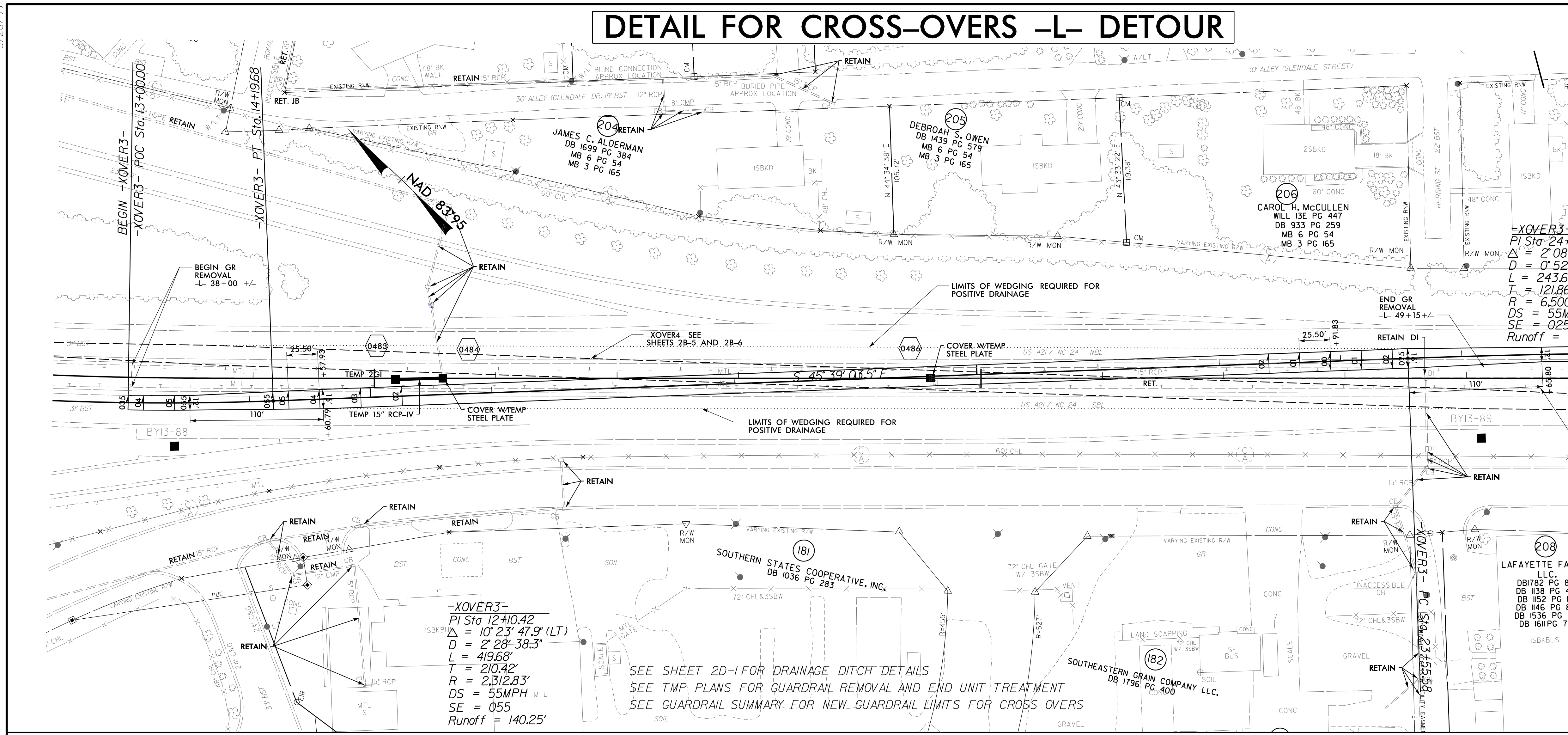


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5/28/19

DETAIL FOR CROSS-OVERS -L- DETOUR


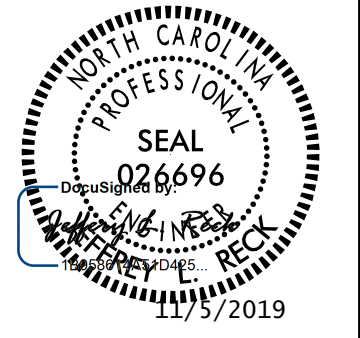

PROJECT REFERENCE NO. R-2303E	SHEET NO. 2B-3
ROADWAY DESIGN ENGINEER 	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



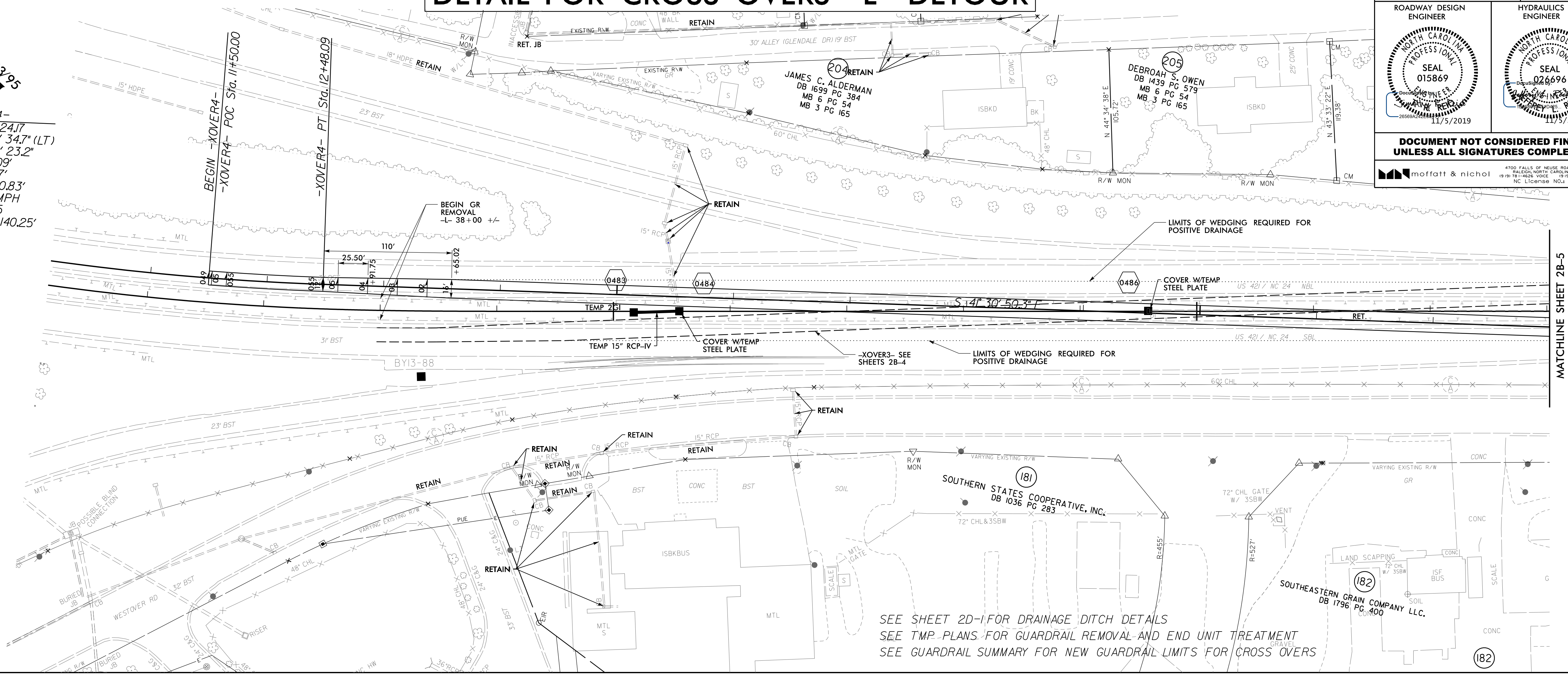
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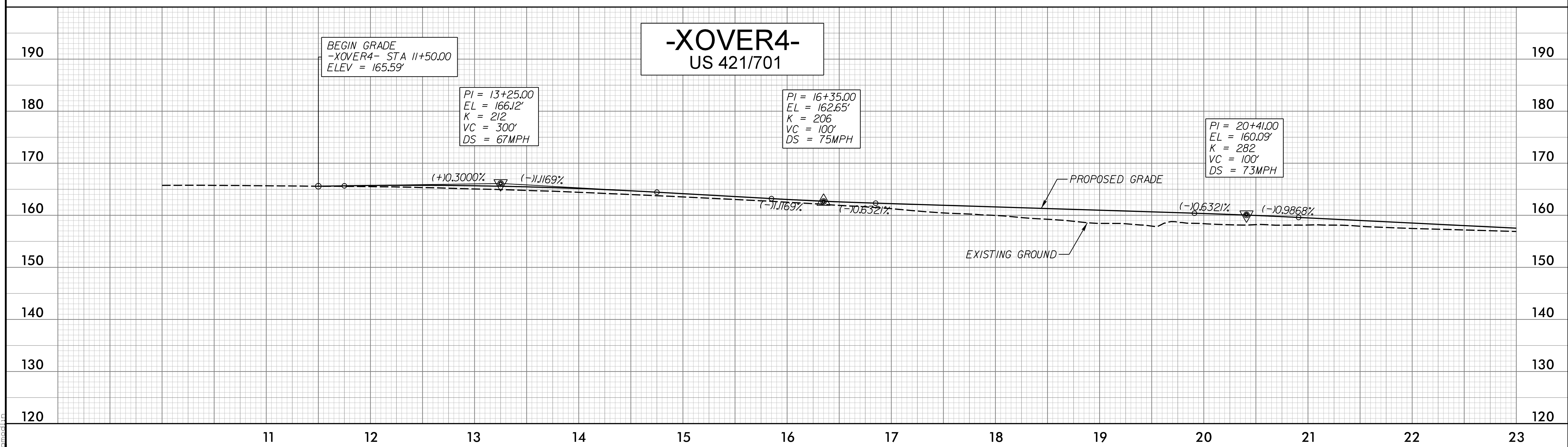
DETAIL FOR CROSS-OVERS -L- DETOUR

PROJECT REFERENCE NO. R-2303E	SHEET NO. 2B-4
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
	

-XOVER4-
 PI Sta 11+24.17
 $\Delta = 6' 15" 34.7" (LT)$
 $D = 2' 31" 23.2"$
 $L = 248.09'$
 $T = 124.17'$
 $R = 2,270.83'$
 $DS = 55MPH$
 $SE = 055$
 Runoff = 140.25'



SEE SHEET 2D-1 FOR DRAINAGE DITCH DETAILS
 SEE TMP PLANS FOR GUARDRAIL REMOVAL AND END UNIT TREATMENT
 SEE GUARDRAIL SUMMARY FOR NEW GUARDRAIL LIMITS FOR CROSS-OVERS

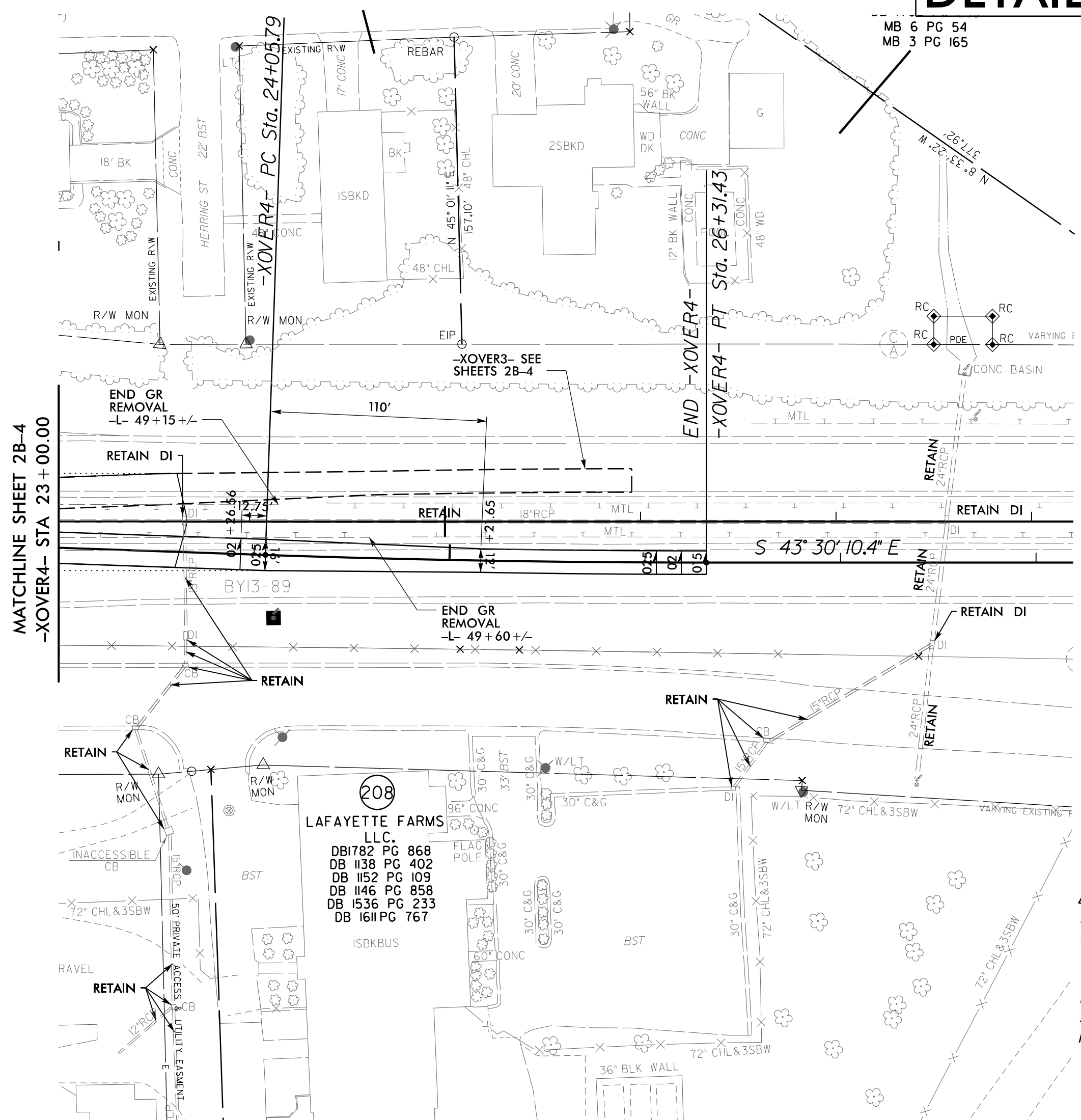


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MATCHLINE SHEET 2B-5
 -XOVER4- STA 23+00.00

5/28/19

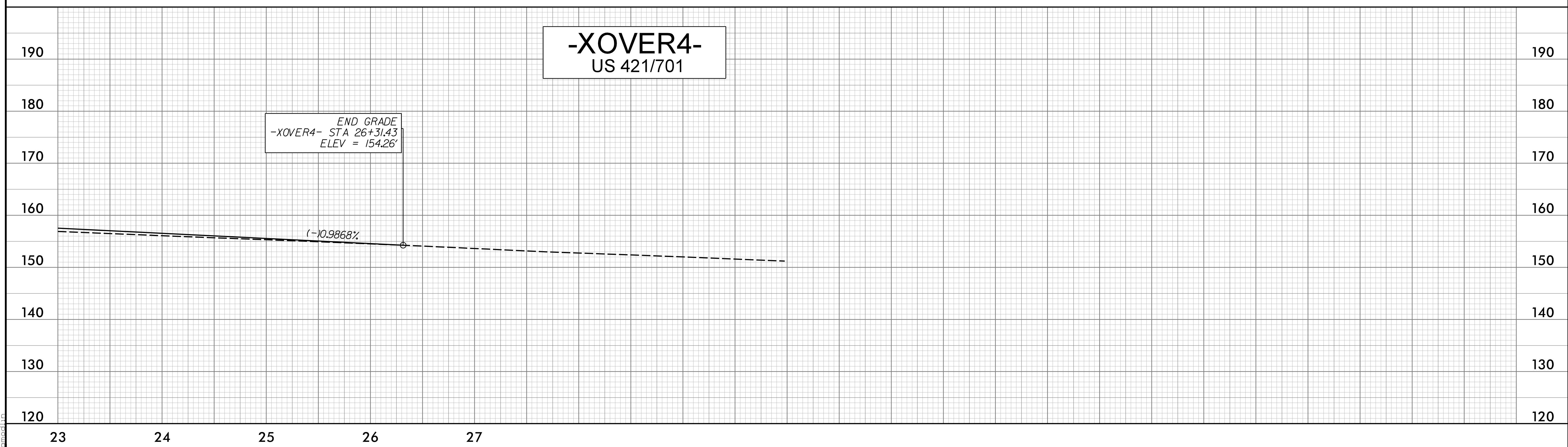
DETAIL FOR CROSS-OVERS -L- DETOUR



-XOVER4-
 PI Sta 25+18.62
 $\Delta = r 59' 20.1' (LT)$
 $D = 0' 52' 53.3''$
 $L = 225.64'$
 $T = 112.83'$
 $R = 6,500.00'$
 $DS = 55MPH$
 $SE = 025$
 $Runoff = 63.75'$

PROJECT REFERENCE NO. R-2303E	SHEET NO. 2B-5
ROADWAY DESIGN ENGINEER 	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
moffatt & nichol	

SEE SHEET 2D-1 FOR DRAINAGE DITCH DETAILS
 SEE TMP PLANS FOR GUARDRAIL REMOVAL AND END UNIT TREATMENT
 SEE GUARDRAIL SUMMARY FOR NEW GUARDRAIL LIMITS FOR CROSS OVERS



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 R. J. REID

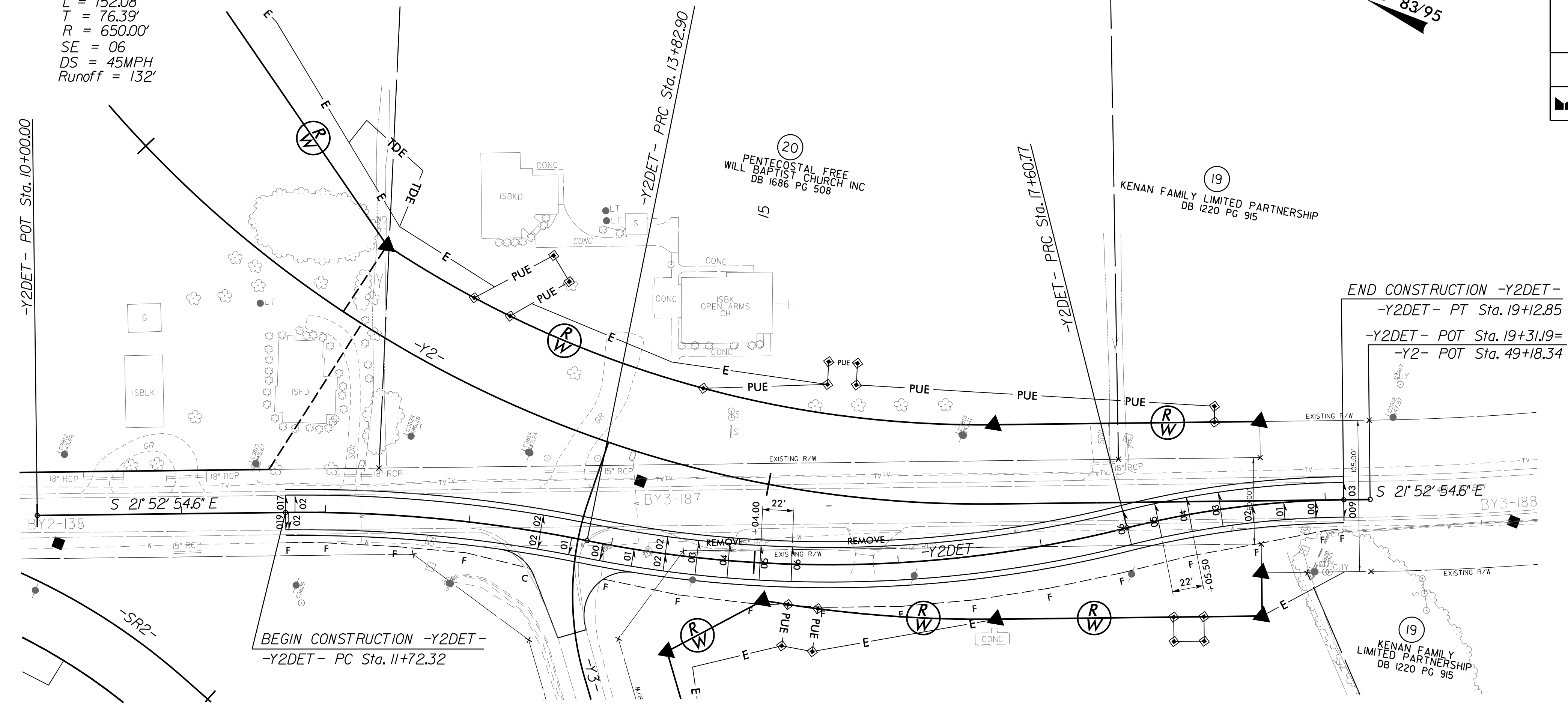
5/28/19

DETAIL FOR -Y2DET-

NO ADDITIONAL DETOUR DRAINAGE MEASURES REQUIRED ON THIS PLAN SHEET

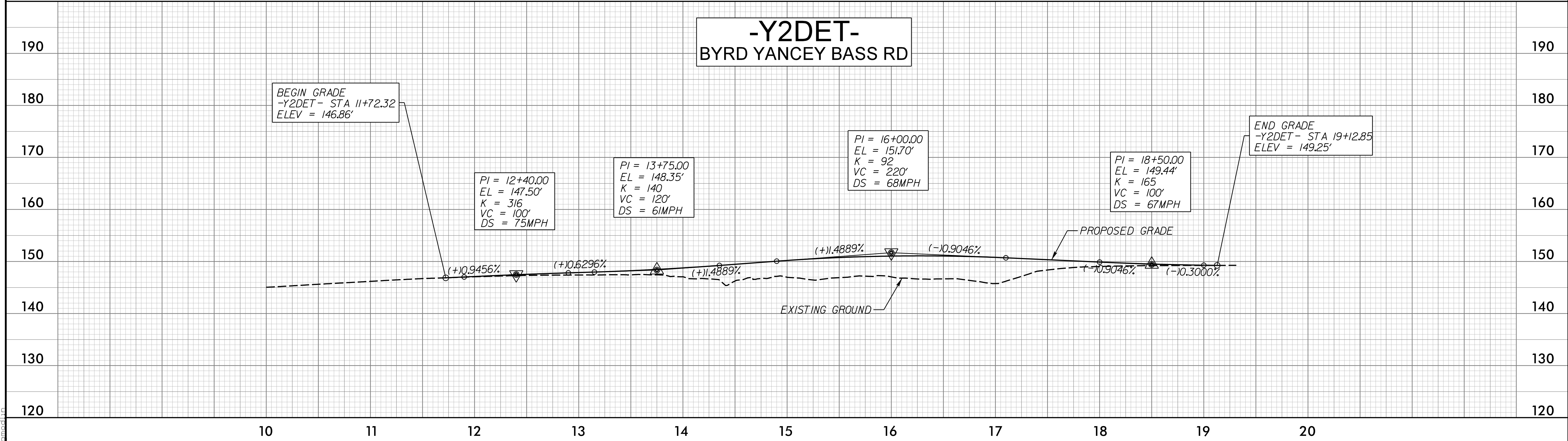
PROJECT REFERENCE NO. R-2303E	SHEET NO. 2B-6
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

-Y2DET-		
PI Sta 12+78.00 Δ = 12° 03' 56.2" (RT) D = 5' 43' 46.5" L = 210.58' T = 105.68' R = 1,000.00' SE = NC DS = 45MPH Runoff = 44'	PI Sta 15+75.01 Δ = 25° 28' 15.4" (LT) D = 6' 44' 26.4" L = 377.87' T = 192.11' R = 850.00' SE = 06 DS = 45MPH Runoff = 132'	PI Sta 18+37.16 Δ = 13° 24' 19.2" (RT) D = 8' 48' 53.0" L = 152.08' T = 76.39' R = 650.00' SE = 06 DS = 45MPH Runoff = 132'



SEE TMP PLANS FOR DETAILS

-Y2DET- BYRD YANCEY BASS RD



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5/28/2019

DETAIL FOR CROSS-OVERS -L1- DETOUR

PROJECT REFERENCE NO. R-2303E	SHEET NO. 2B-7
ROADWAY DESIGN ENGINEER 	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
<small>4700 FALLS OF NEUSE ROAD, SUITE 300 FALCON, NORTH CAROLINA 27629 919.781.4626 VOICE 919.781.4668 FAX NC License No. F-0105</small>	

(72)
HELEN M BARBER
ESTATE FILE 70E PG 125

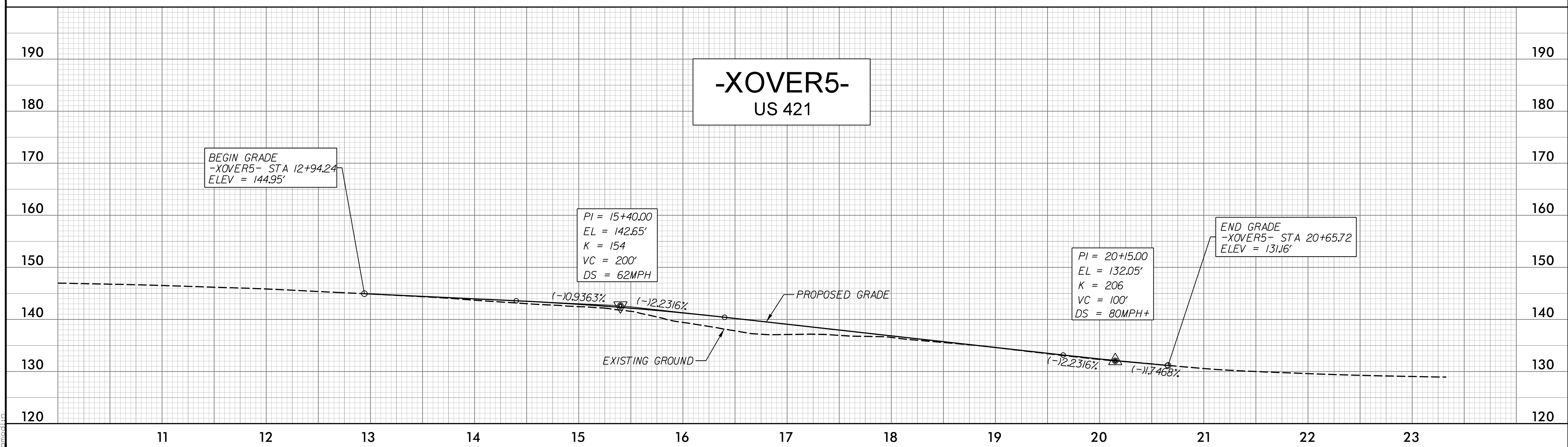
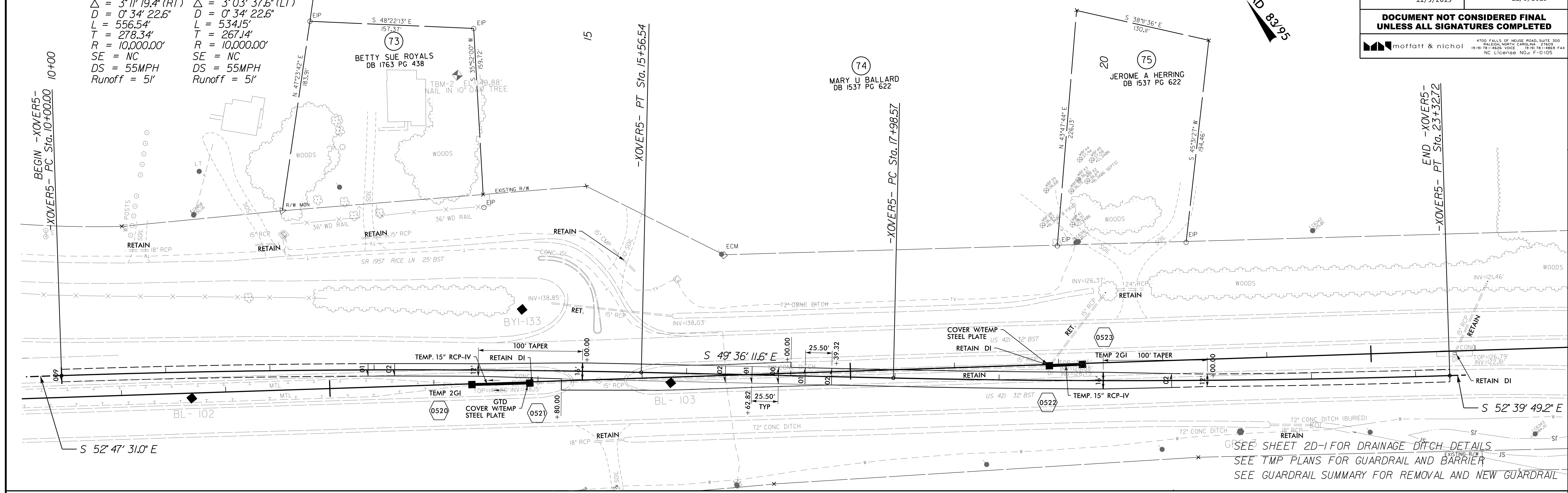
-XOVER5-

PI Sta 12+78.34	PI Sta 20+65.71
$\Delta = 3^{\circ}11'19.4"$ (RT)	$\Delta = 3^{\circ}03'37.6"$ (LT)
D = 0'34'22.6"	D = 0'34'22.6"
L = 556.54'	L = 534.15'
T = 278.34'	T = 267.14'
R = 10,000.00'	R = 10,000.00'
SE = NC	SE = NC
DS = 55MPH	DS = 55MPH
Runoff = 5'	Runoff = 5'

(74)
MARY U BALLARD
DB 1537 PG 622

(74)
MARY U BALLARD
DB 1537 PG 622

(75)
JEROME A HERRING
DB 1537 PG 622



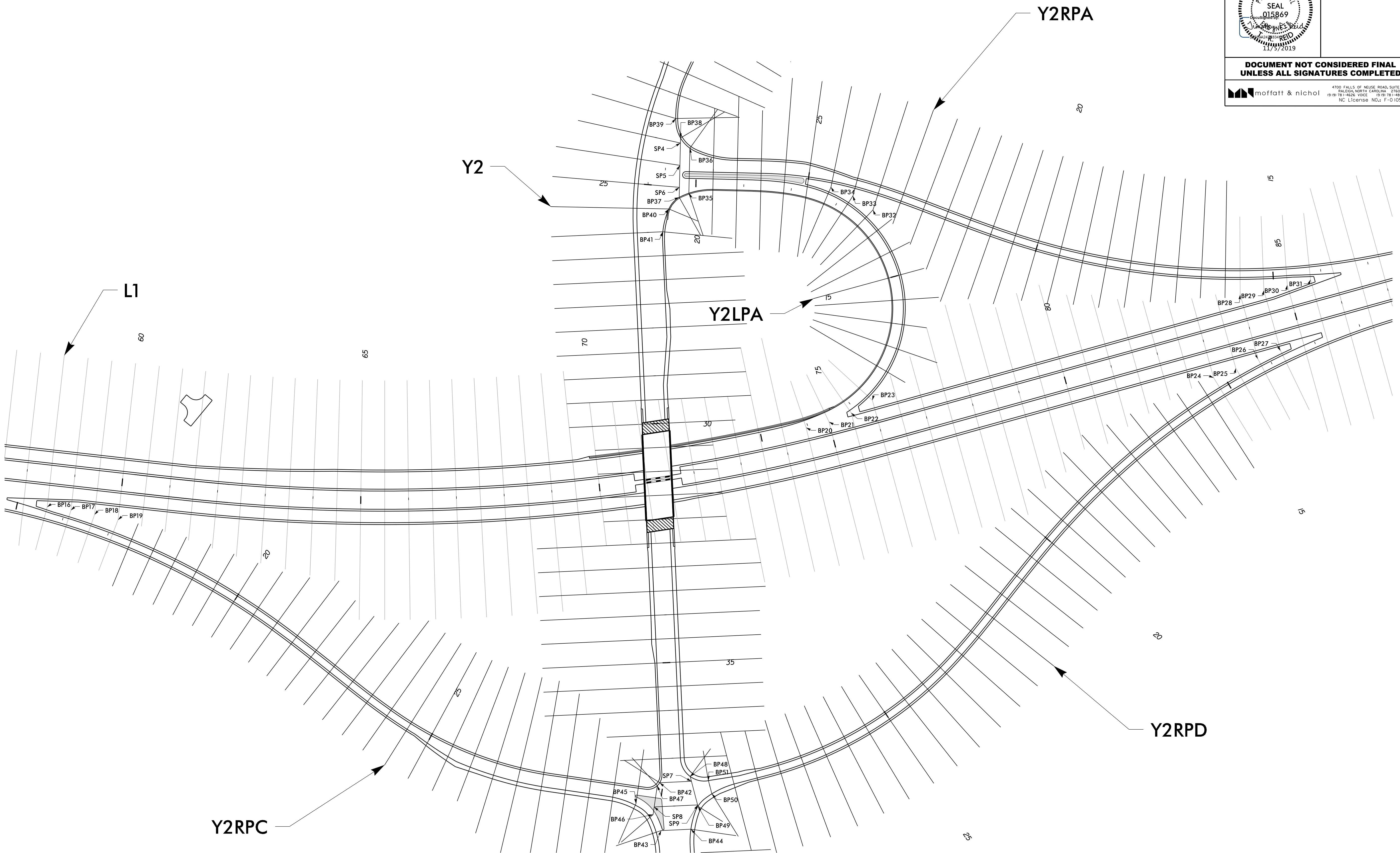
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8/17/19

BP = BREAK POINT
SP = SHEAR POINT

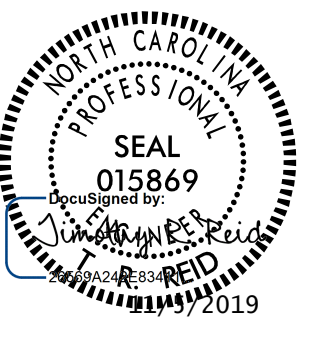

SHEAR POINT DIAGRAM - L1 /Y2 INTERCHANGE

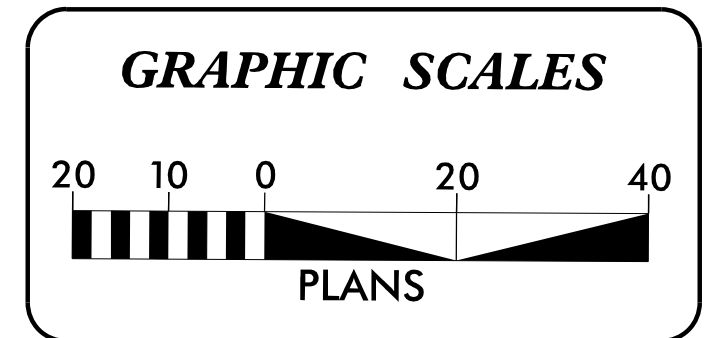
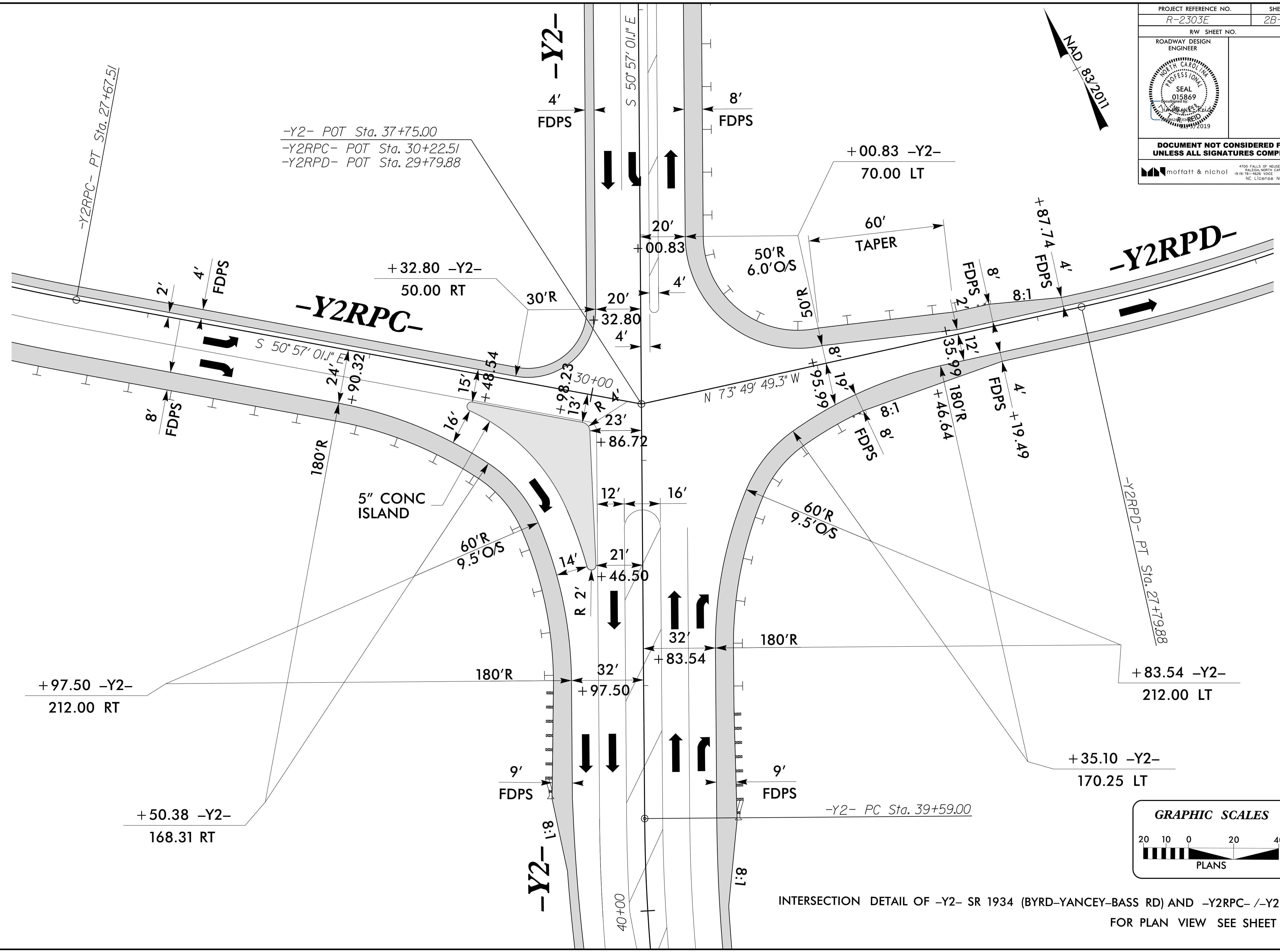
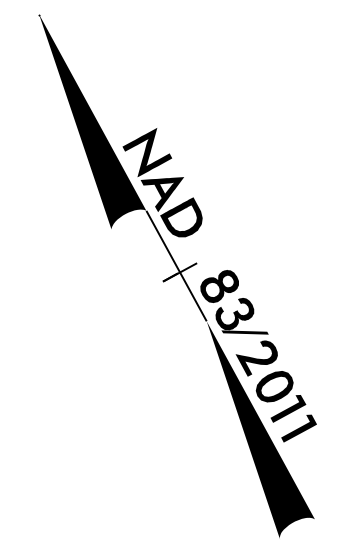
PROJECT REFERENCE NO. <i>R-2303E</i>	SHEET NO. <i>2B-8</i>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



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moffatt & nichol

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1/5/2018
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mofatt

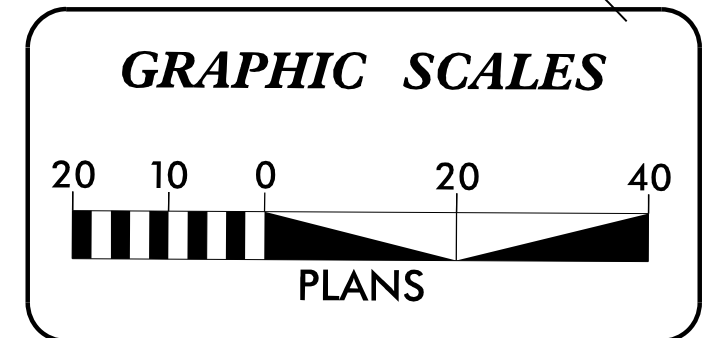
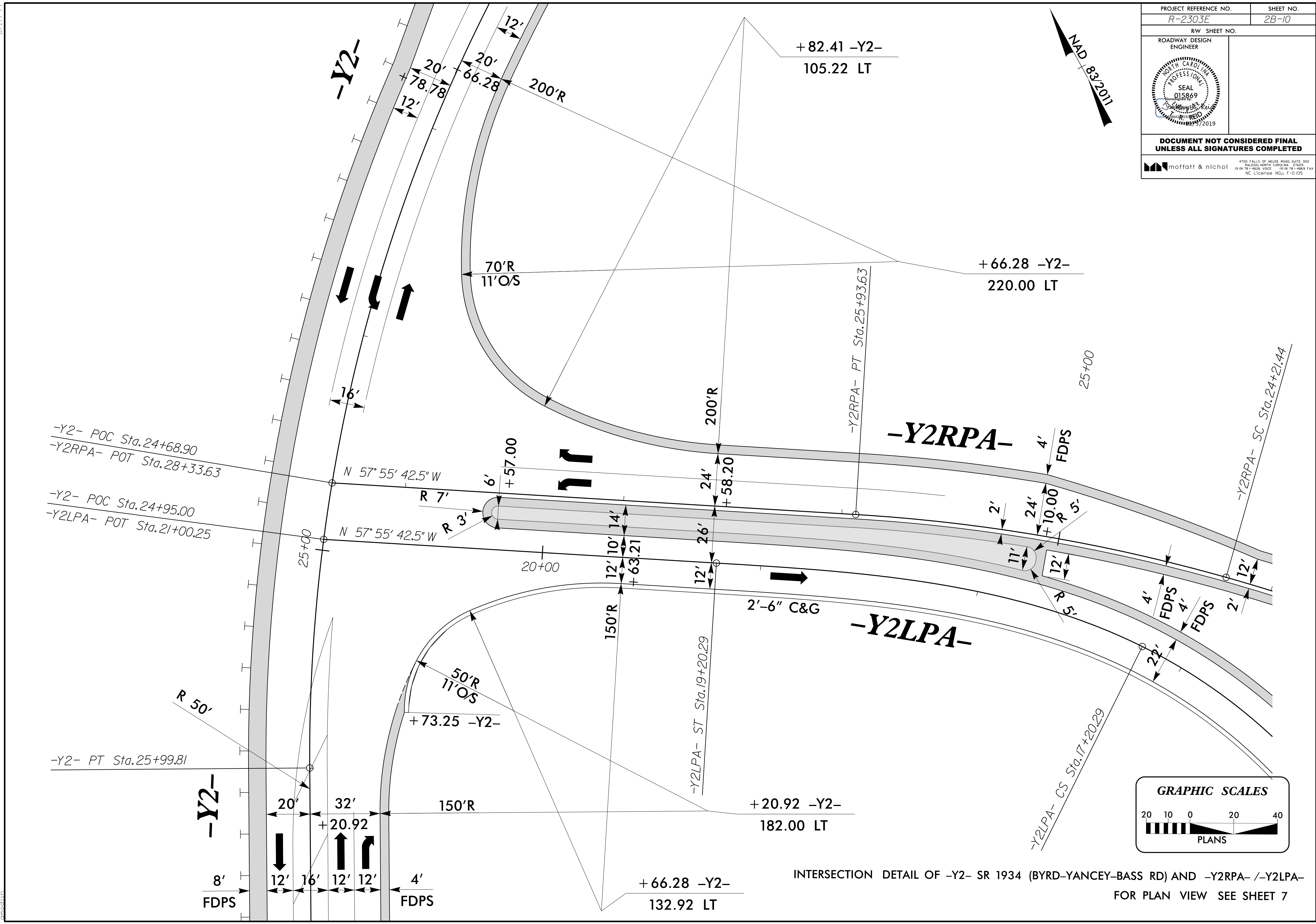
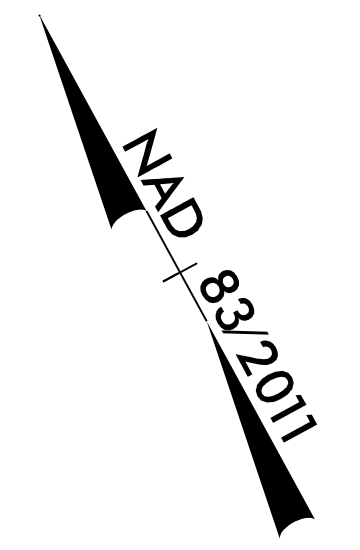
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RW SHEET NO.	
ROADWAY DESIGN ENGINEER	
	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
	



INTERSECTION DETAIL OF -Y2- SR 1934 (BYRD-YANCEY-BASS RD) AND -Y2RPC- /-Y2RPD-
FOR PLAN VIEW SEE SHEET 7

8/17/99

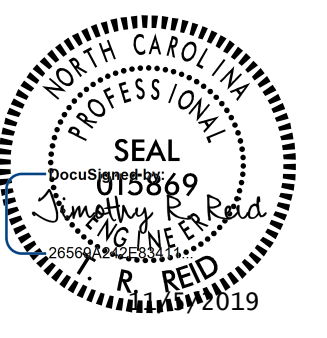

PROJECT REFERENCE NO. <i>R-2303E</i>	SHEET NO. <i>2B-10</i>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

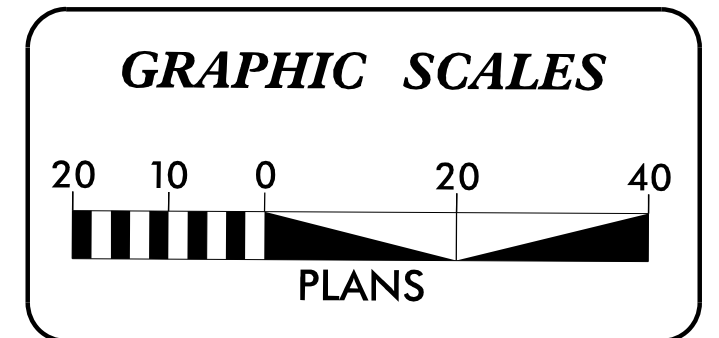
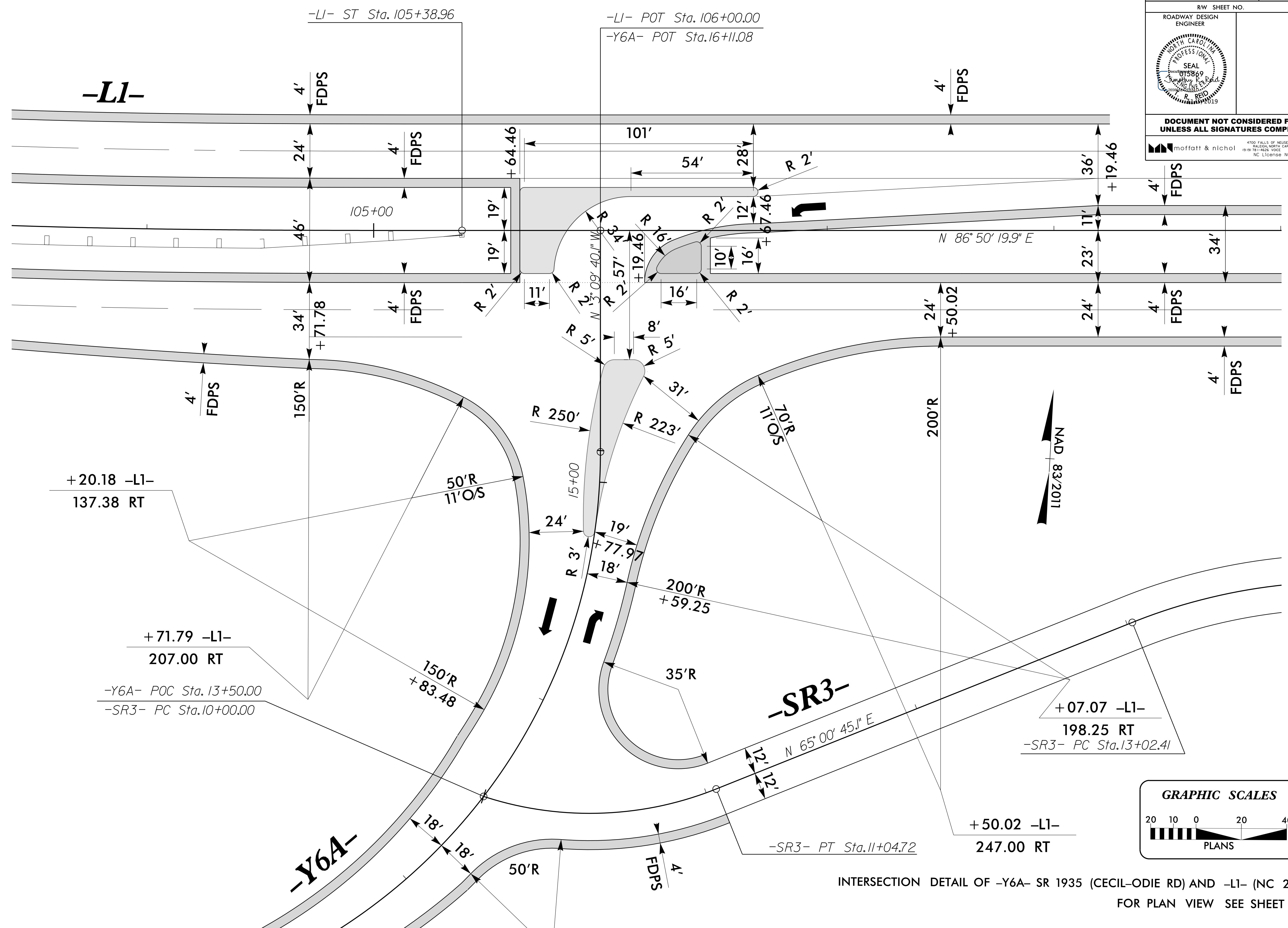


INTERSECTION DETAIL OF -Y2- SR 1934 (BYRD-YANCEY-BASS RD) AND -Y2RPA- /-Y2LPA-
FOR PLAN VIEW SEE SHEET 7

I:\5\2019\15-FAY\8522-07\CA000\2303E\Roadway\Proj\R2303E.dwg_r.dwg_psh_2B-10.dgn
 8/17/99

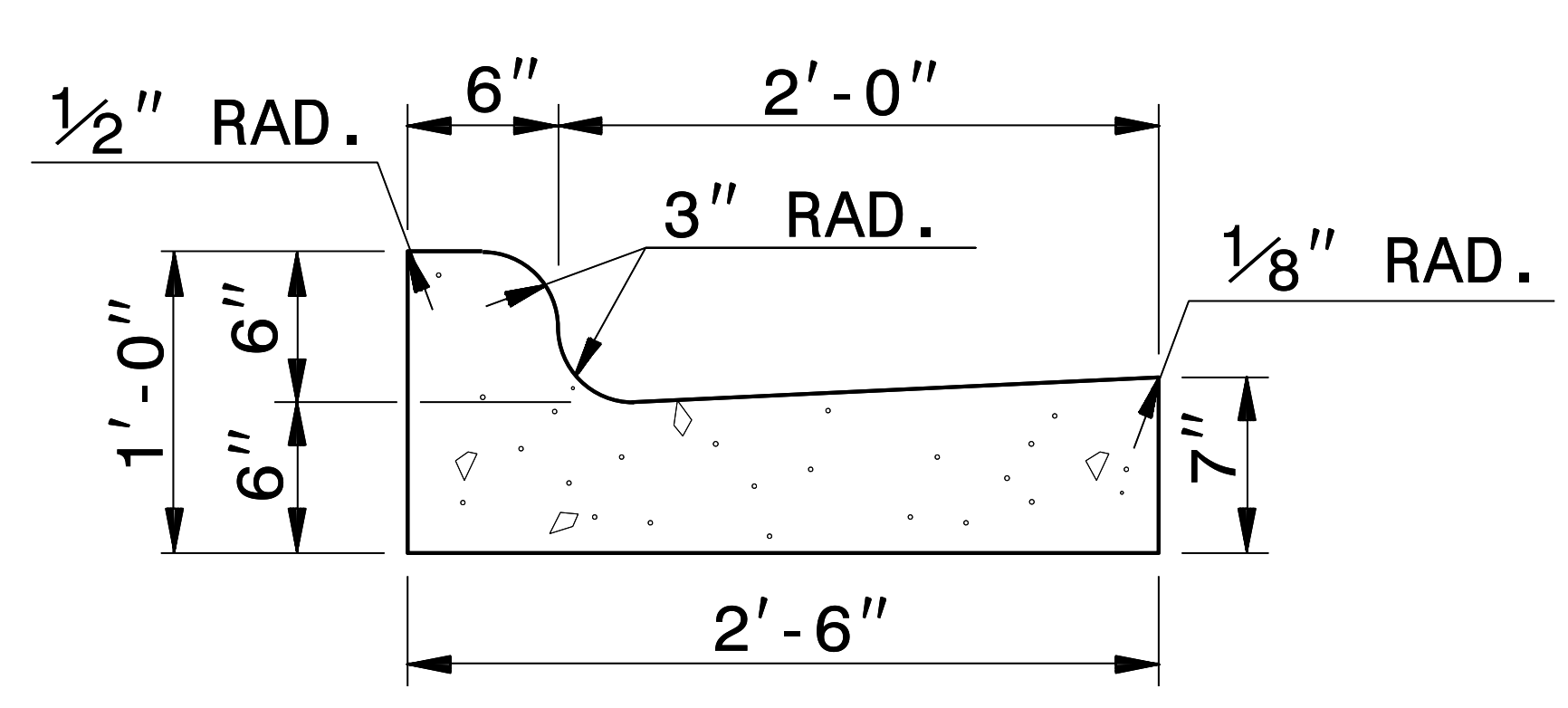
8/17/99

PROJECT REFERENCE NO. <i>R-2303E</i>	SHEET NO. <i>2B-11</i>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	
	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
	

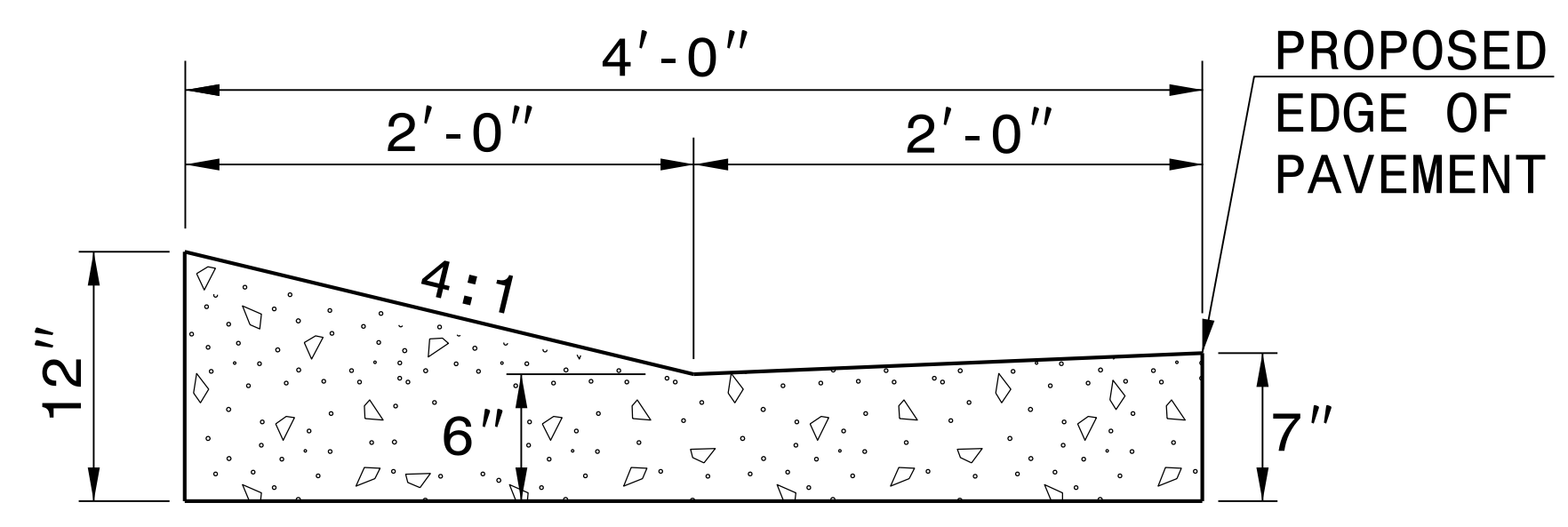


INTERSECTION DETAIL OF -Y6A- SR 1935 (CECIL-ODIE RD) AND -L1- (NC 24)
FOR PLAN VIEW SEE SHEET 9

I:\5\2010\105\16\8522-07\CA000\2303E\Roadway\Proj\2303E_det_r.dwg_psh_2B-11.dgn
 moffatt



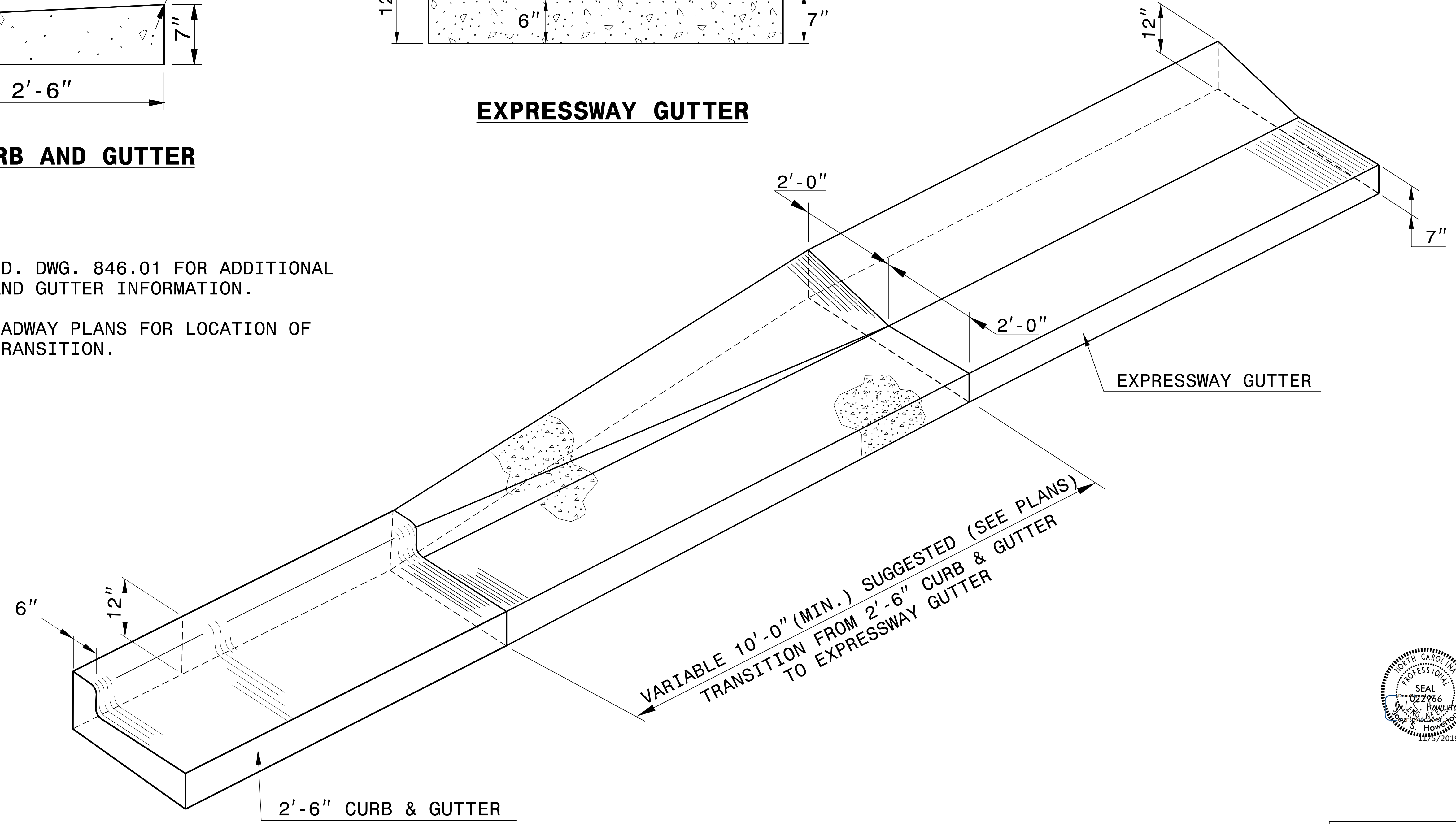
2'-6" CURB AND GUTTER



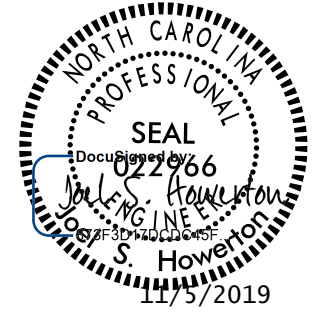
EXPRESSWAY GUTTER

NOTE: SEE STD. DWG. 846.01 FOR ADDITIONAL CURB AND GUTTER INFORMATION.

SEE ROADWAY PLANS FOR LOCATION OF CURB TRANSITION.



ISOMETRIC VIEW OF TRANSITION



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DETAIL OF 2'-6" CURB & GUTTER TO EXPRESSWAY GUTTER TRANSITION SECTION

ORIGINAL BY: T.S. Spell DATE: 8-13-02
 MODIFIED BY: DATE:
 CHECKED BY: DATE:
 FILE SPEC.: w:usr/details/stand/cgtransit.dgn

05-OCT-2017 08:23 S:\Contracts\ContractDetails\stand\c&g transition sections.dgn Jhowerton AT USD-292595

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

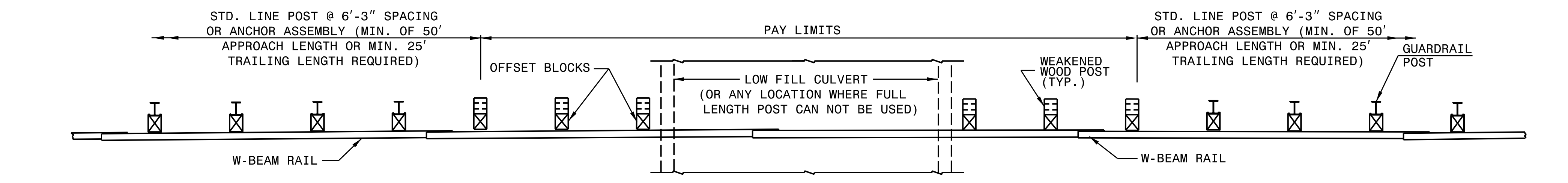
SPECIAL DETAIL FOR
GUARDRAIL PLACEMENT
25'-0" CLEAR SPAN

SHEET - OF -
862D01

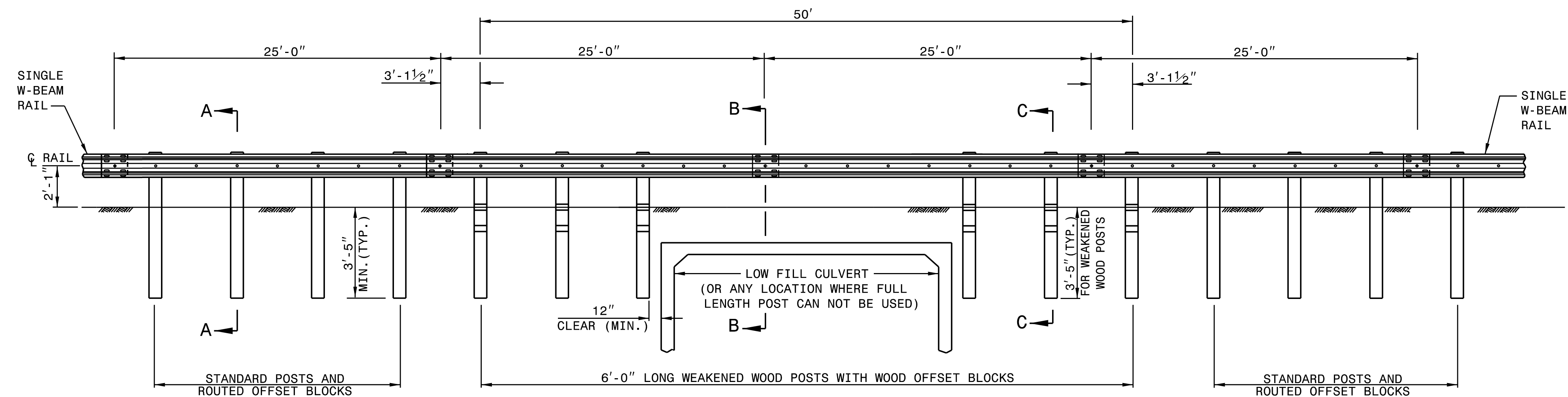
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

SPECIAL DETAIL FOR
GUARDRAIL PLACEMENT
25'-0" CLEAR SPAN

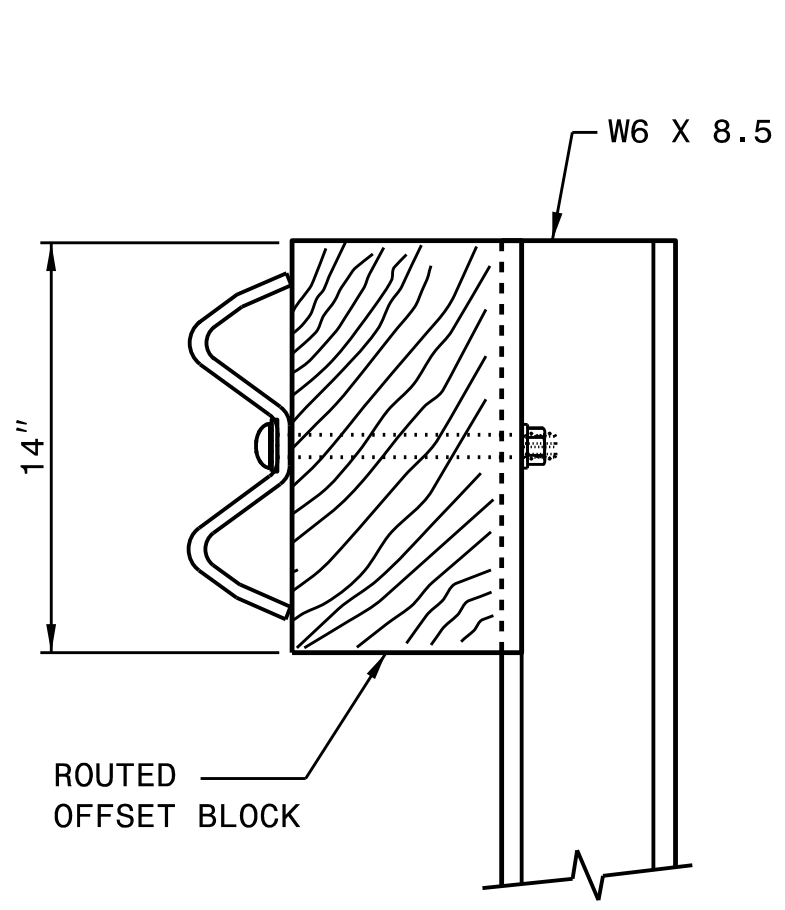
SHEET - OF -
862D01



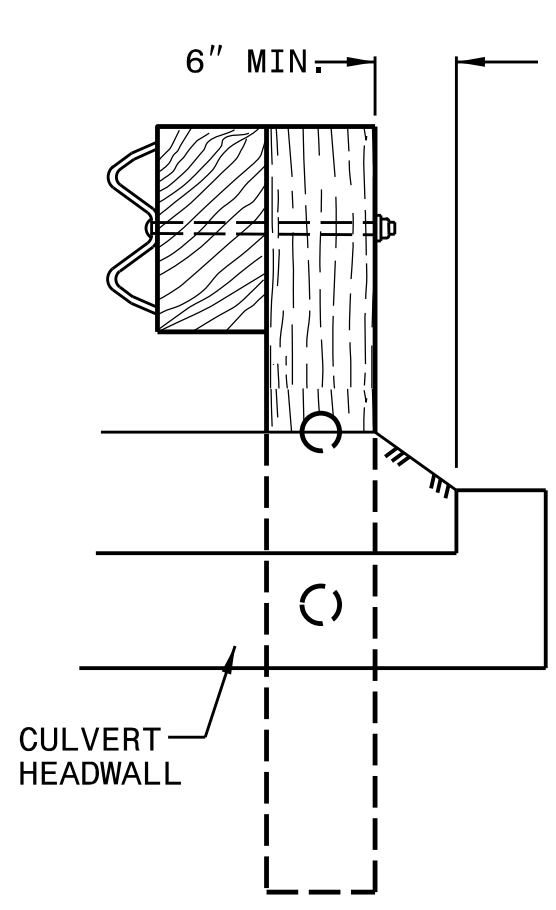
PLAN



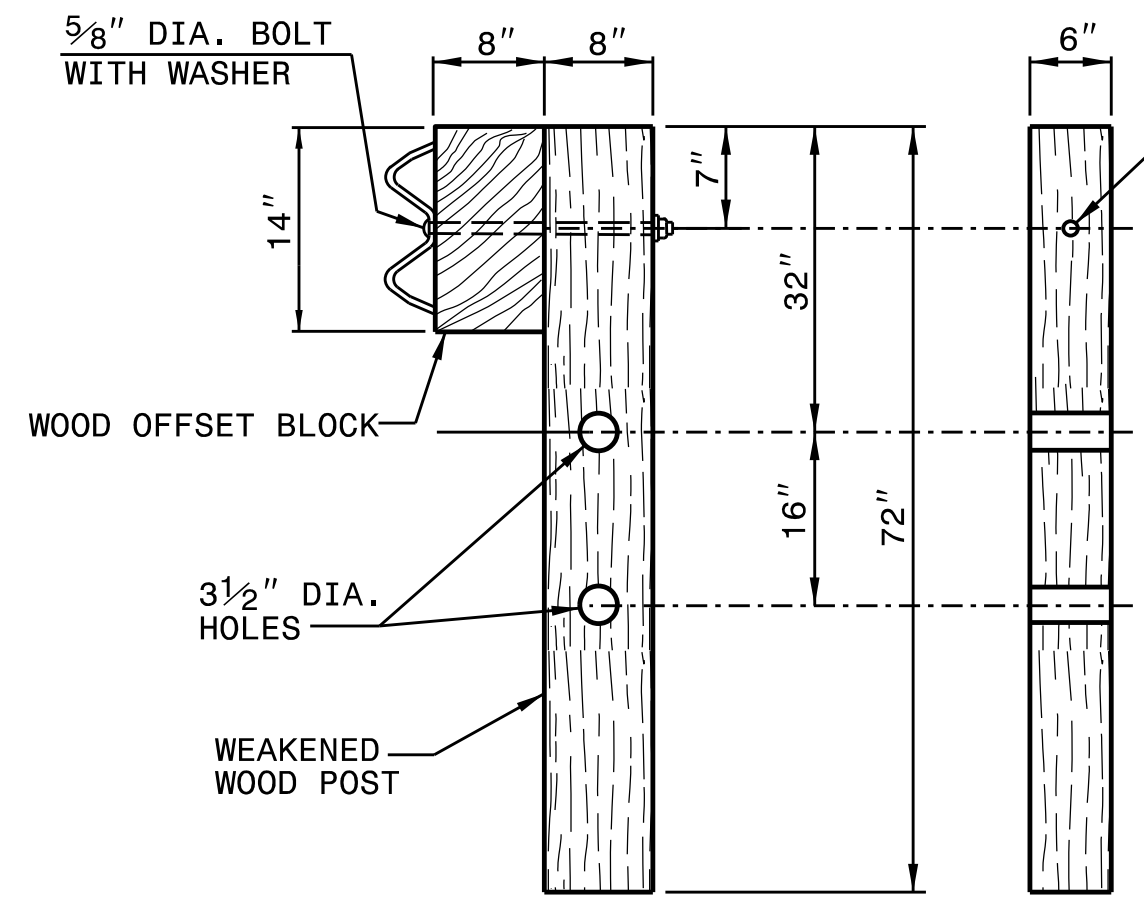
**ELEVATION
25'-0" GUARDRAIL SPAN**



SECTION A-A

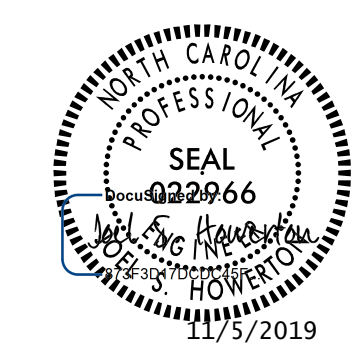


SECTION B-B



**SECTION C-C FRONT
WEAKENED WOOD POST**

- GENERAL NOTES:
 1. LAP RAIL IN THE DIRECTION OF TRAFFIC FLOW.
 2. SEE ROADWAY PLANS FOR LOCATIONS AND CONTINUATION OF RAIL OR END SECTIONS.
 3. MINIMUM DISTANCE OF 5 FEET BEHIND THE GUARDRAIL SHOULD BE CLEAR OF ANY FIXED-OBJECT HAZARDS THAT COULD SNAG AN IMPACTING VEHICLE.

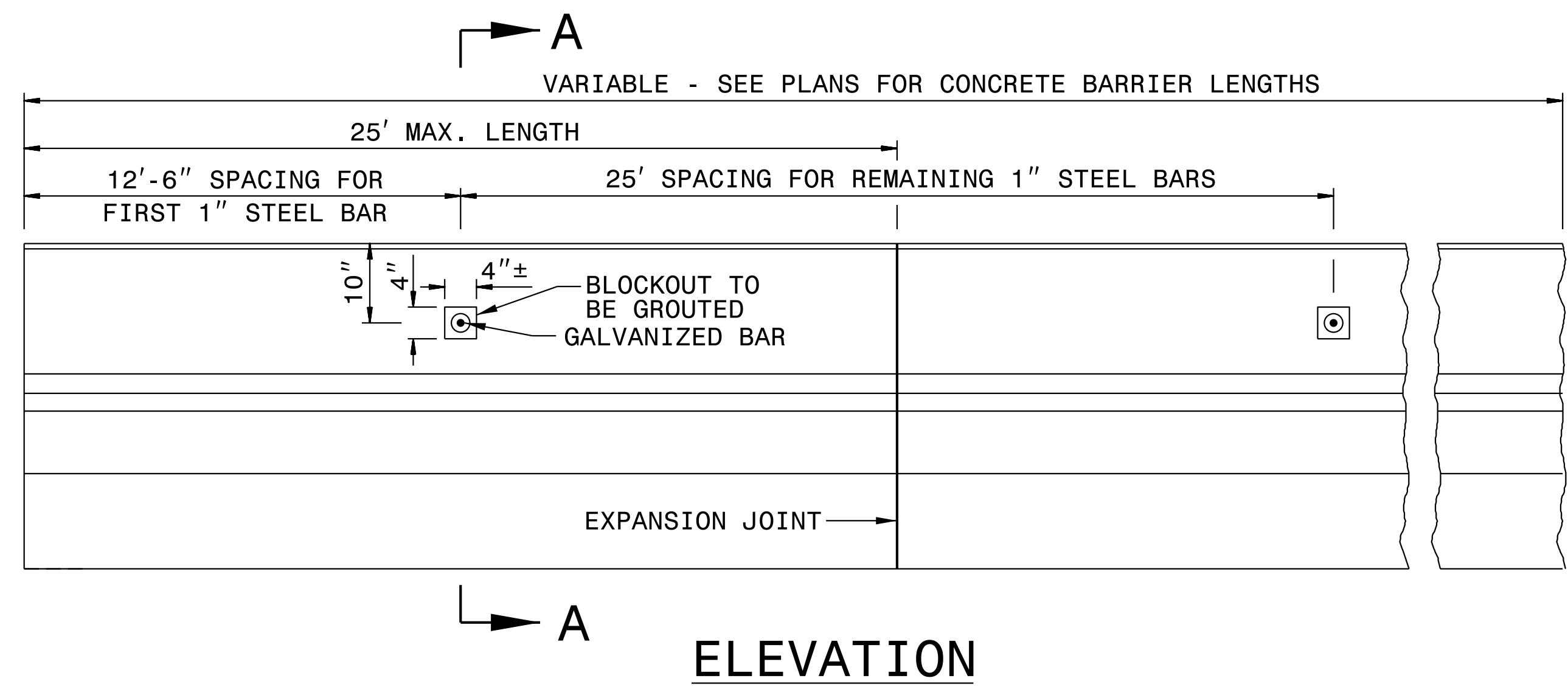
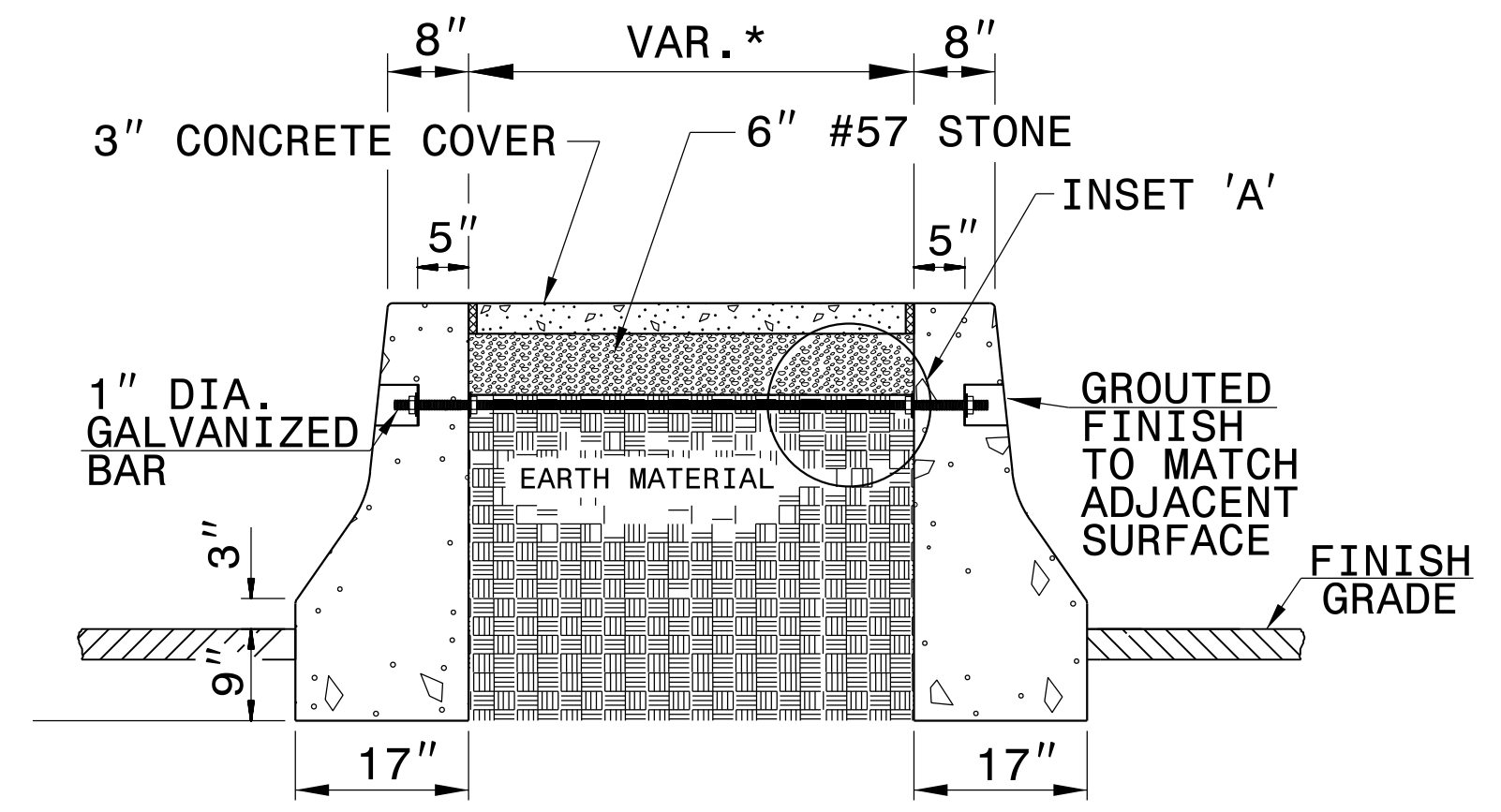
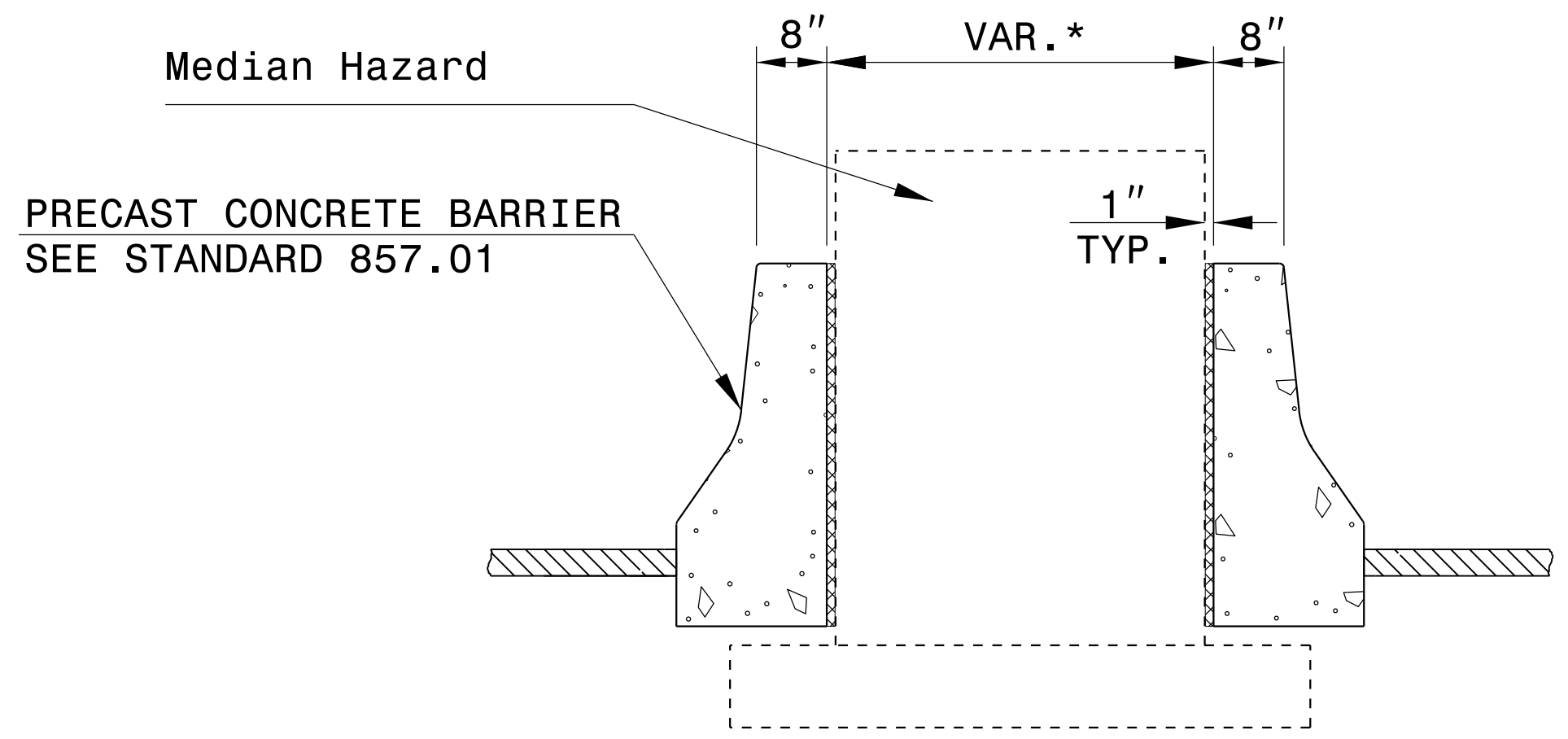
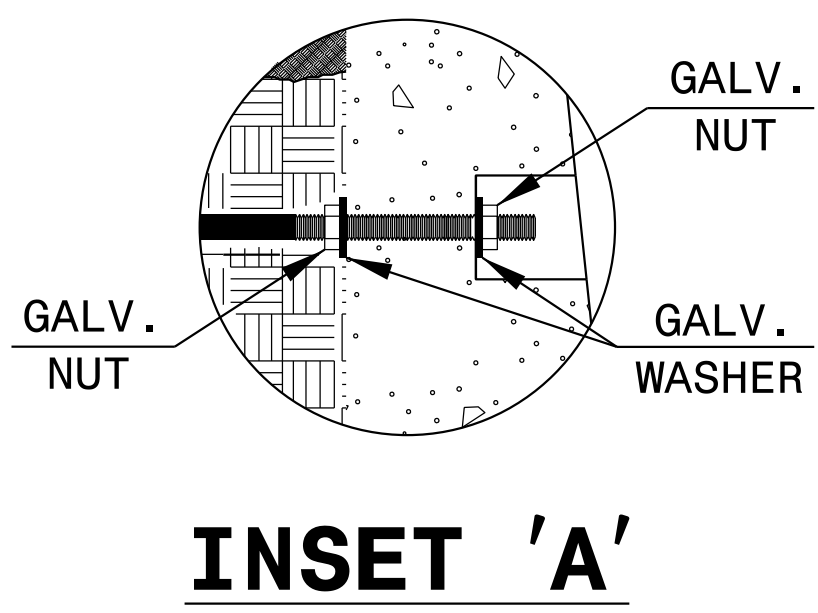
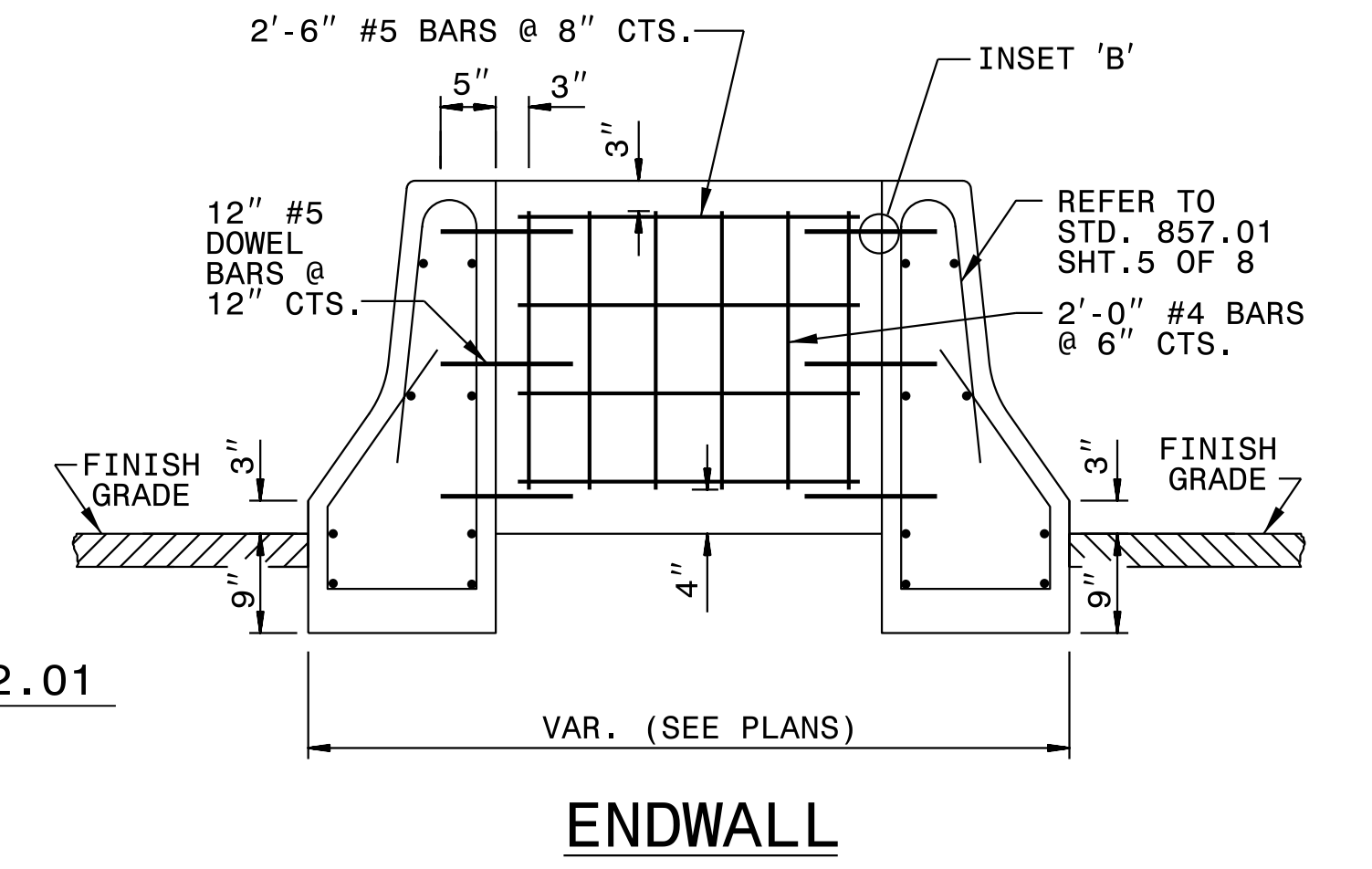
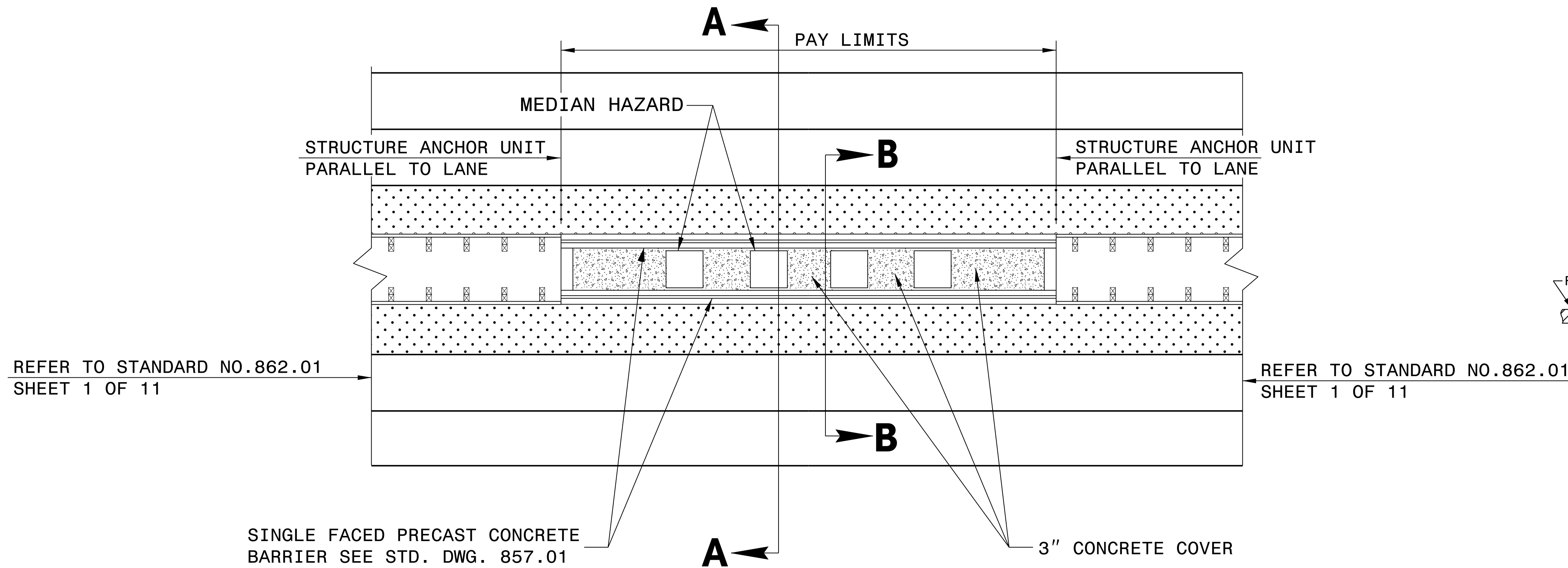


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25'-0" CLEAR SPAN GUARDRAIL PLACEMENT

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

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



GENERAL NOTES:

- *THIS DIMENSION MAY VARY DEPENDING ON THE WIDTH OF THE PIER.
- INSET FIRST 1" DIA. GALVANIZED BAR 12'-6" AND SPACE THE REMAINING 1" BARS AT 25'-0".
- USE AN APPROVED BONDING SYSTEM IN ACCORDANCE WITH SECTION 1081-1, TYPE 3A OF THE STANDARD SPECIFICATIONS.
- USE CLASS B CONCRETE FOR THE CONCRETE COVER
- SEAL ALL EXPANSION JOINTS WITH JOINT FILLER (SEE SECTION 1028 OF THE SPECIFICATIONS).
- PLACE A 1" BAR BETWEEN EACH SET OF PIERS



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DETAIL OF MEDIAN HAZARD PROTECTION

ORIGINAL BY: T.S. Spe11 DATE: 2-4-10
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC. :howerton\Barrier Cover for Median Hazard Protection

I5-NOV-2017 13:03 S:\Contracts\Special Details\howerton\Barrier Cover for Median Hazard Protection.dgn howerton AT CSD-292595

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

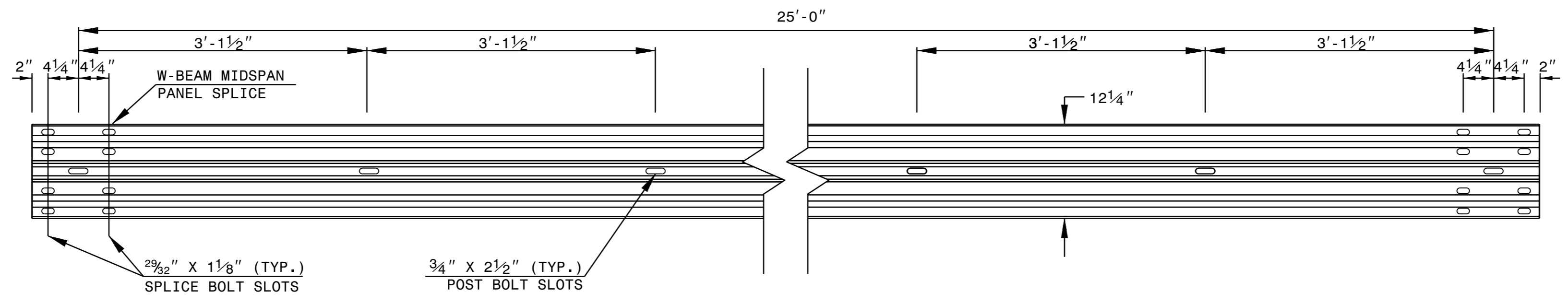
ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

SHEET 6 OF 8
862D02

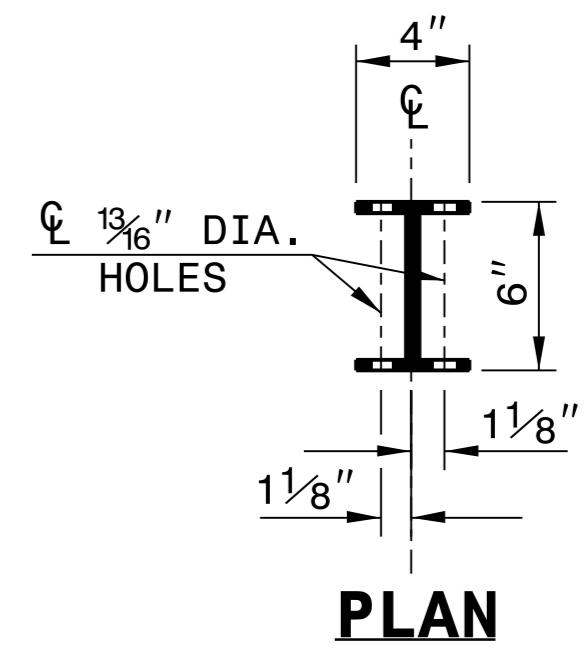
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

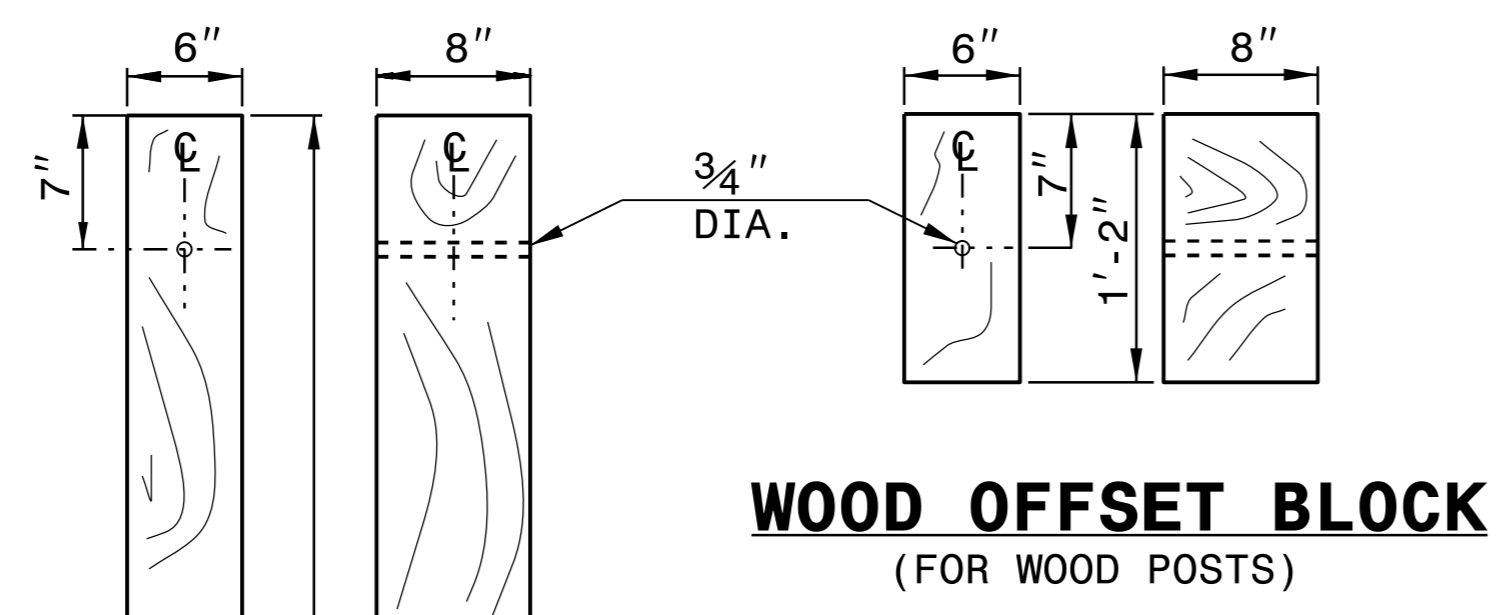
SHEET 6 OF 8
862D02



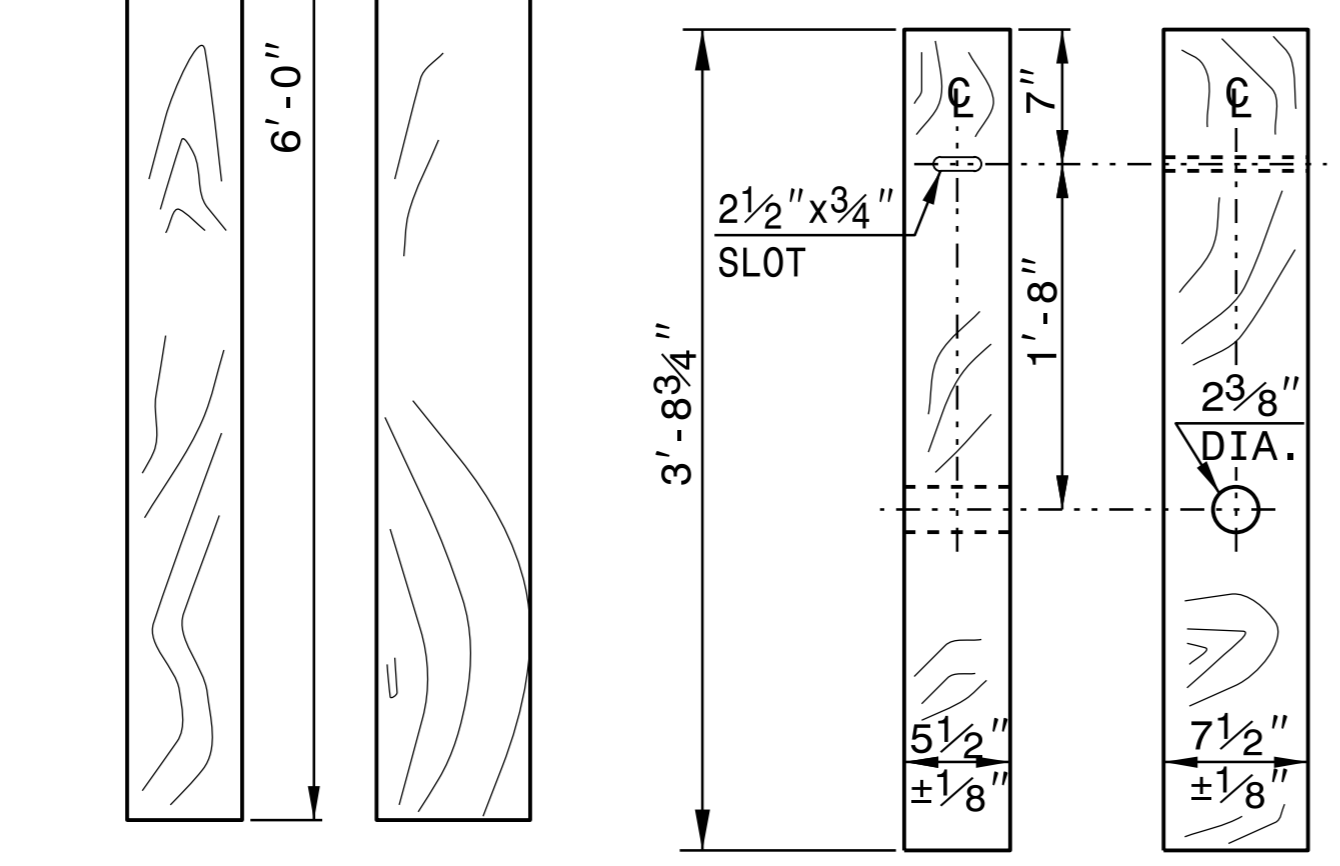
STANDARD W-BEAM GUARDRAIL



PLAN

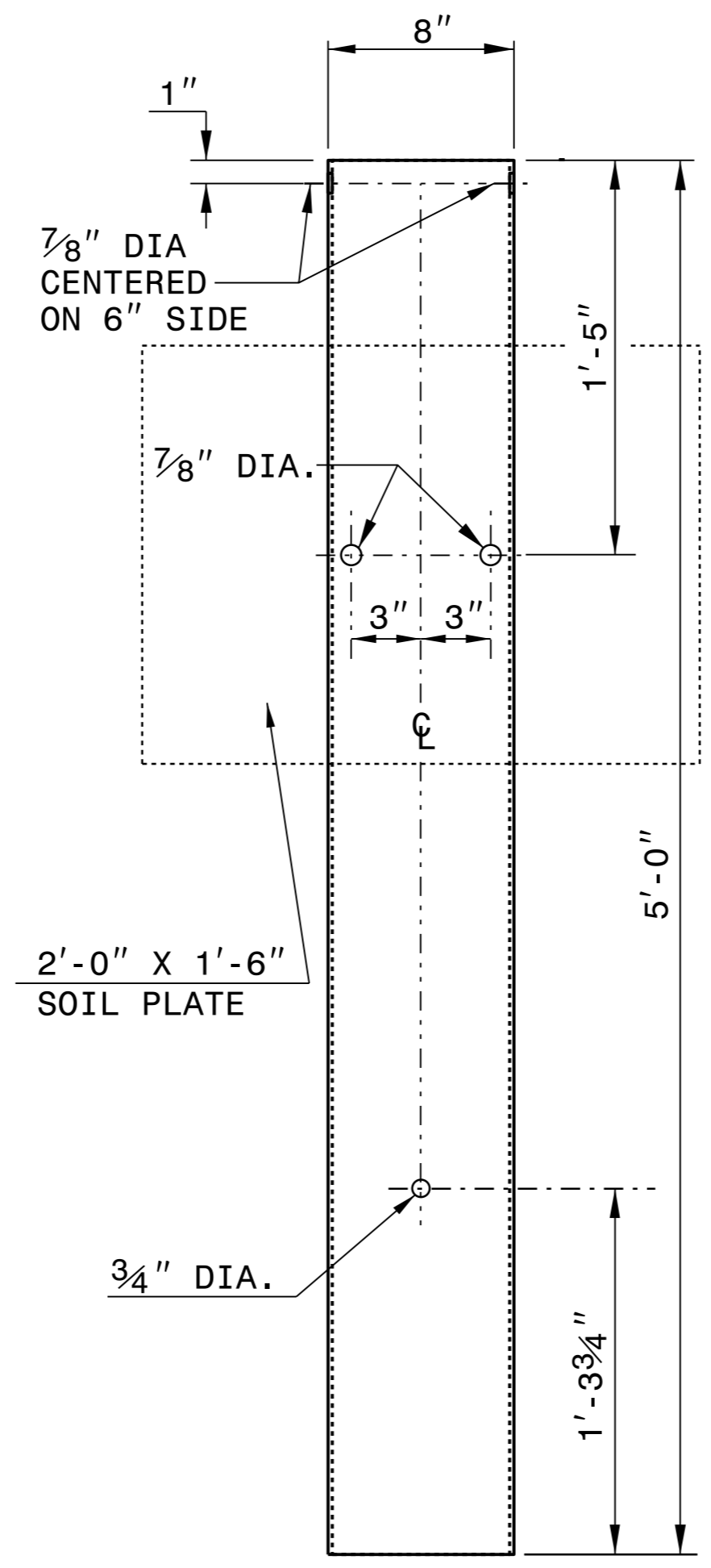


**WOOD OFFSET BLOCK
(FOR WOOD POSTS)**

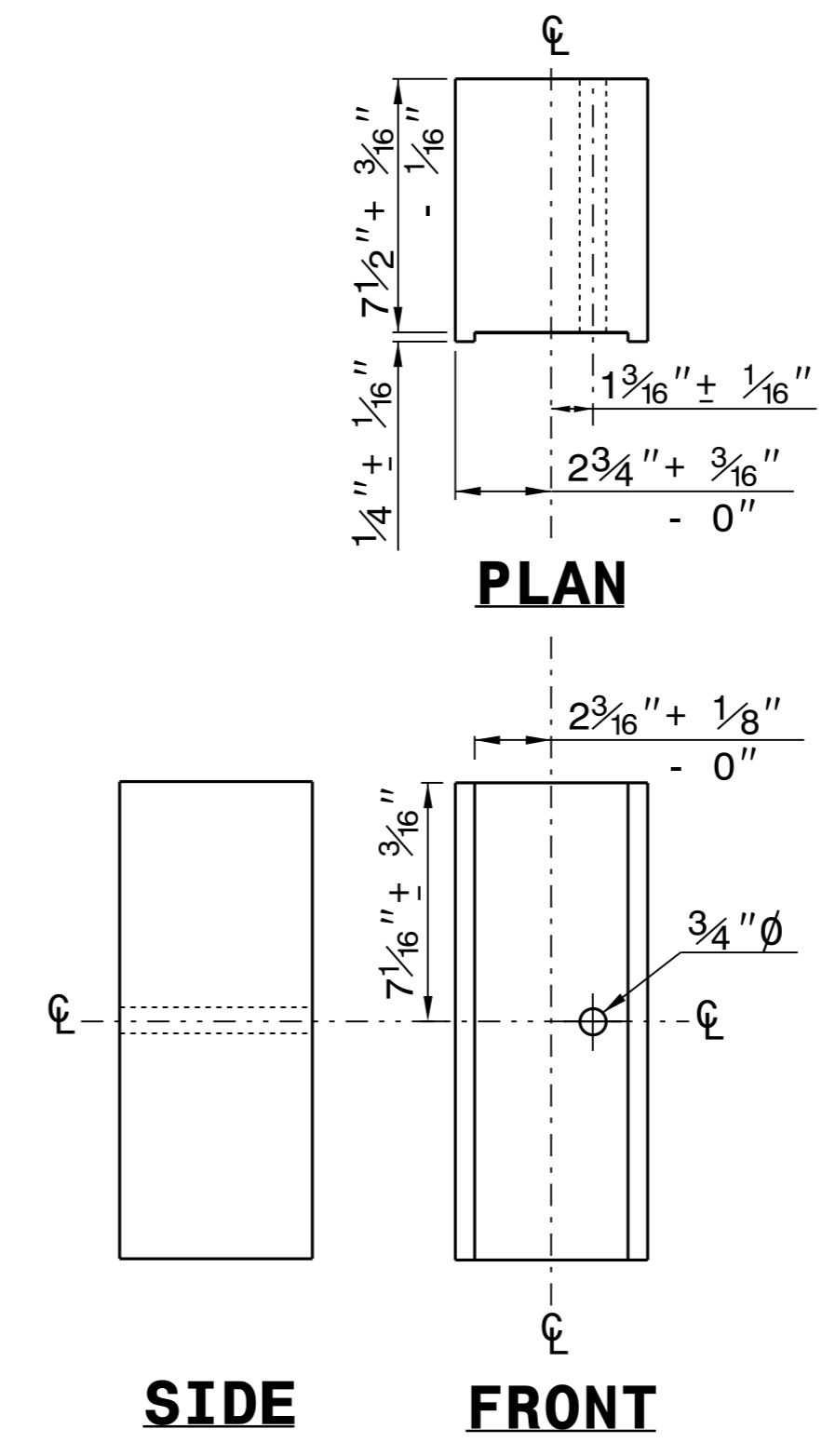


**STANDARD
LINE POST**

**SHORT WOOD
BREAKAWAY POST**



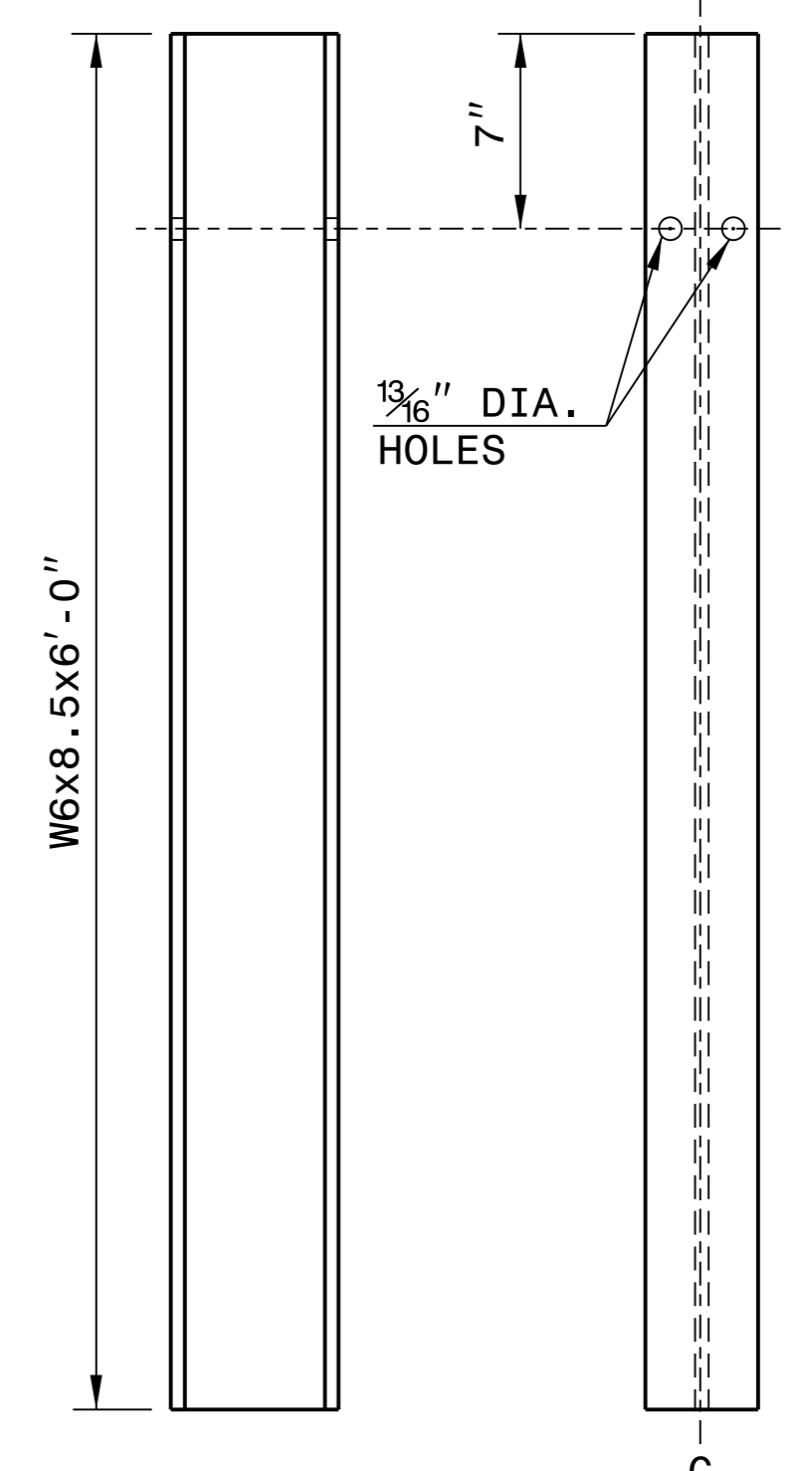
**STEEL TUBE
TS 6"x8"x0.1875"**



SIDE

FRONT

**ROUTED
OFFSET BLOCK**



SIDE

FRONT

"W6" STEEL POST

SYSTEM PARTS

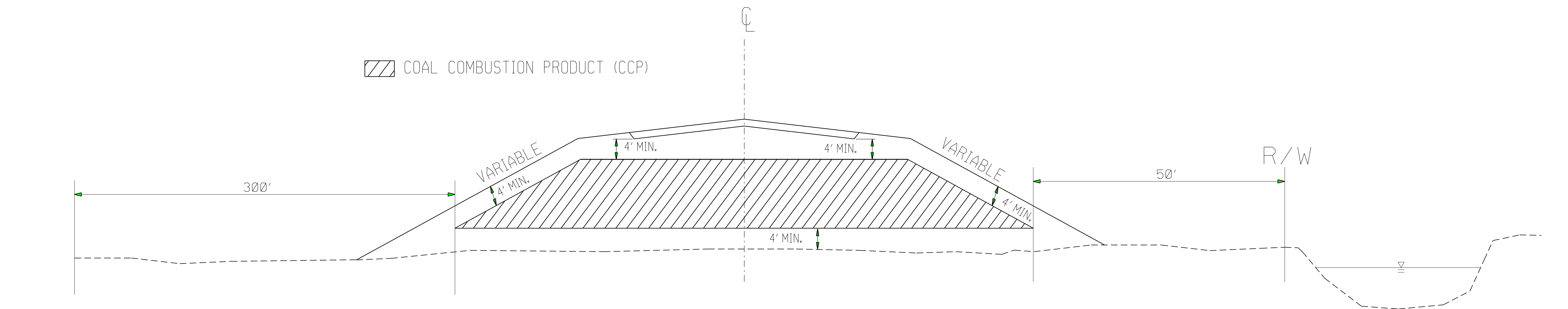


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AND DEVELOPMENT UNIT**
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SEE TITLE BLOCK

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

COAL COMBUSTION PRODUCT PLACEMENT



PRIVATE DWELLING OR WELL

PERENNIAL STREAM, OTHER SURFACE WATER BODY OR *WETLAND

*(OBTAIN PERMISSION FROM ARMY CORPS OF ENGINEERS)

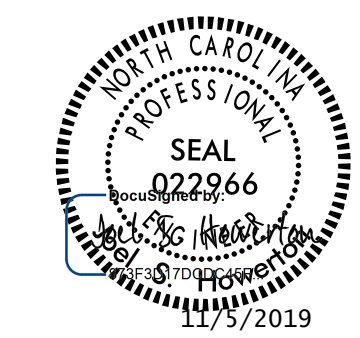
PLACE CCP IN HATCHED AREA IN ACCORDANCE WITH THE PROJECT SPECIAL PROVISIONS

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

PLACE AT LOCATIONS AS APPROVED BY THE ENGINEER

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

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



CONTRACT STANDARDS AND DEVELOPMENT UNIT	
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COAL COMBUSTION PRODUCT PLACEMENT DETAIL	
ORIGINAL BY: J.S.H.	DATE: 3/16/15
MODIFIED BY:	DATE:
CHECKED BY:	DATE:
FILE SPEC.: joel/coal combustion material detail.dgn	

07-SEP-2017 08:21 S:\Contracts\Special Details\Jhoverton\Coal Combustion Product Detail.dgn Jhoverton AT USD-232595

04-SEP-2018 08:31 S:\Contracts\Special Details\Standard Drawings\Division 8\862D01 Impact Attenuator Sheets 1 and 2.dgn Jhowerton AT USD-292595

STATE OF NORTH CAROLINA
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RALEIGH, N.C.

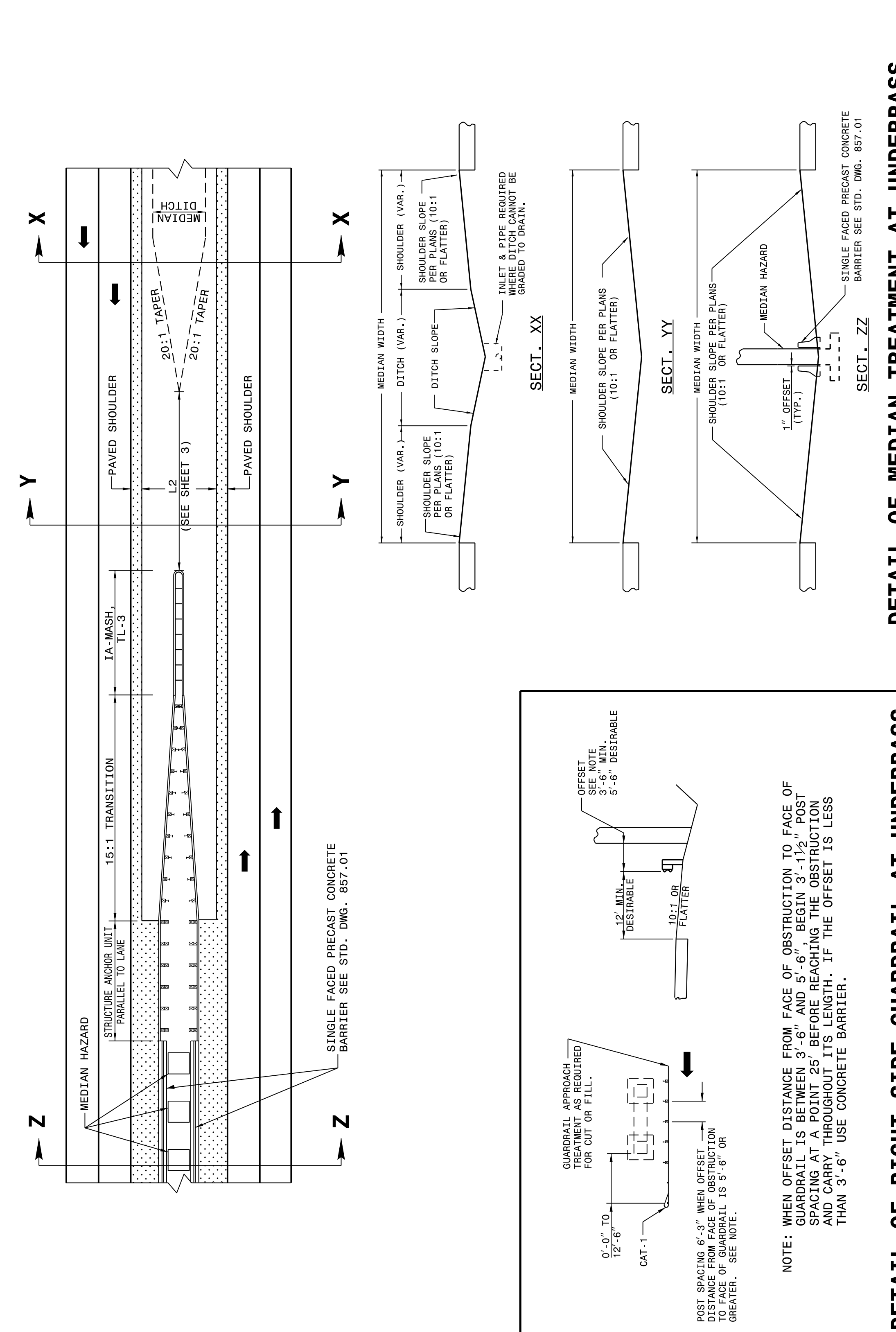
ROADWAY DETAIL DRAWING FOR
GUARDRAIL PLACEMENT

SHEET 1 OF 11
862D01

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

ROADWAY DETAIL DRAWING FOR
GUARDRAIL PLACEMENT

SHEET 1 OF 11
862D01



DETAIL OF RIGHT SIDE GUARDRAIL AT UNDERPASS

DETAIL OF MEDIAN TREATMENT AT UNDERPASS

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

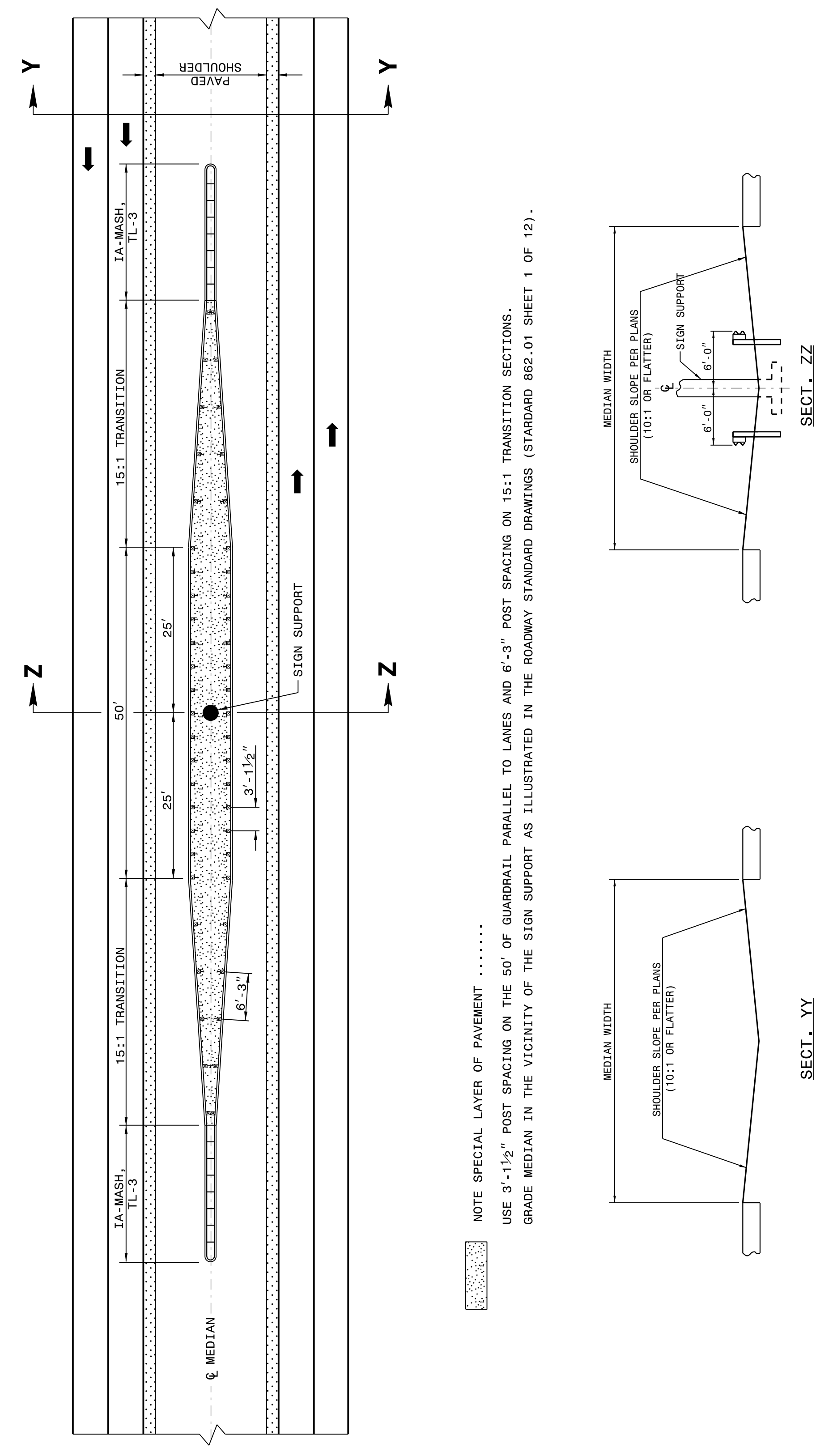
ROADWAY DETAIL DRAWING FOR
GUARDRAIL PLACEMENT

SHEET 2 OF 11
862D01

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DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ROADWAY DETAIL DRAWING FOR
GUARDRAIL PLACEMENT

SHEET 2 OF 11
862D01



DETAIL OF RIGHT SIDE GUARDRAIL AT UNDERPASS

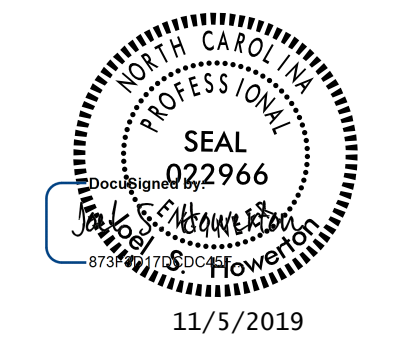
DETAIL OF MEDIAN TREATMENT AT UNDERPASS

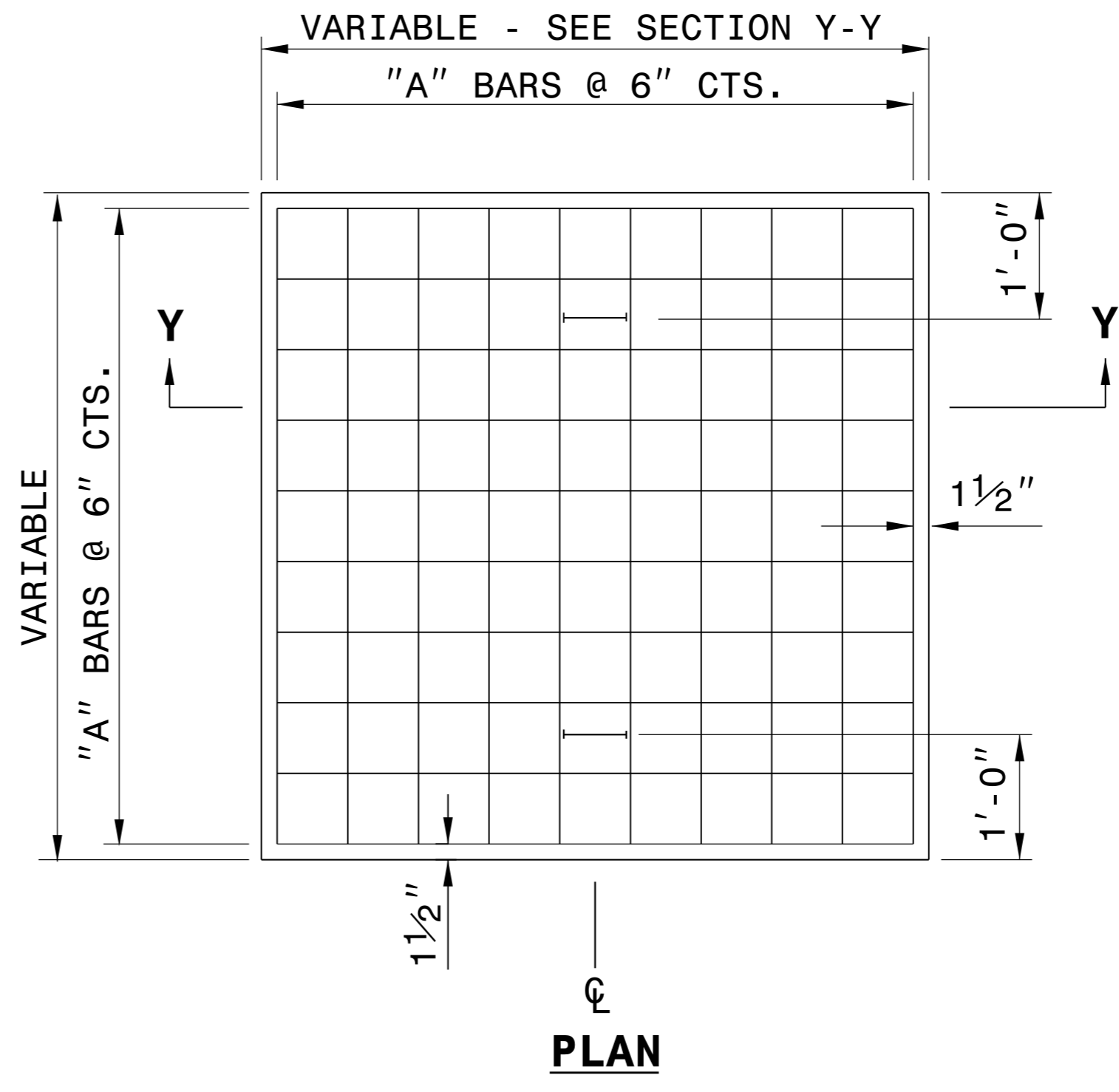
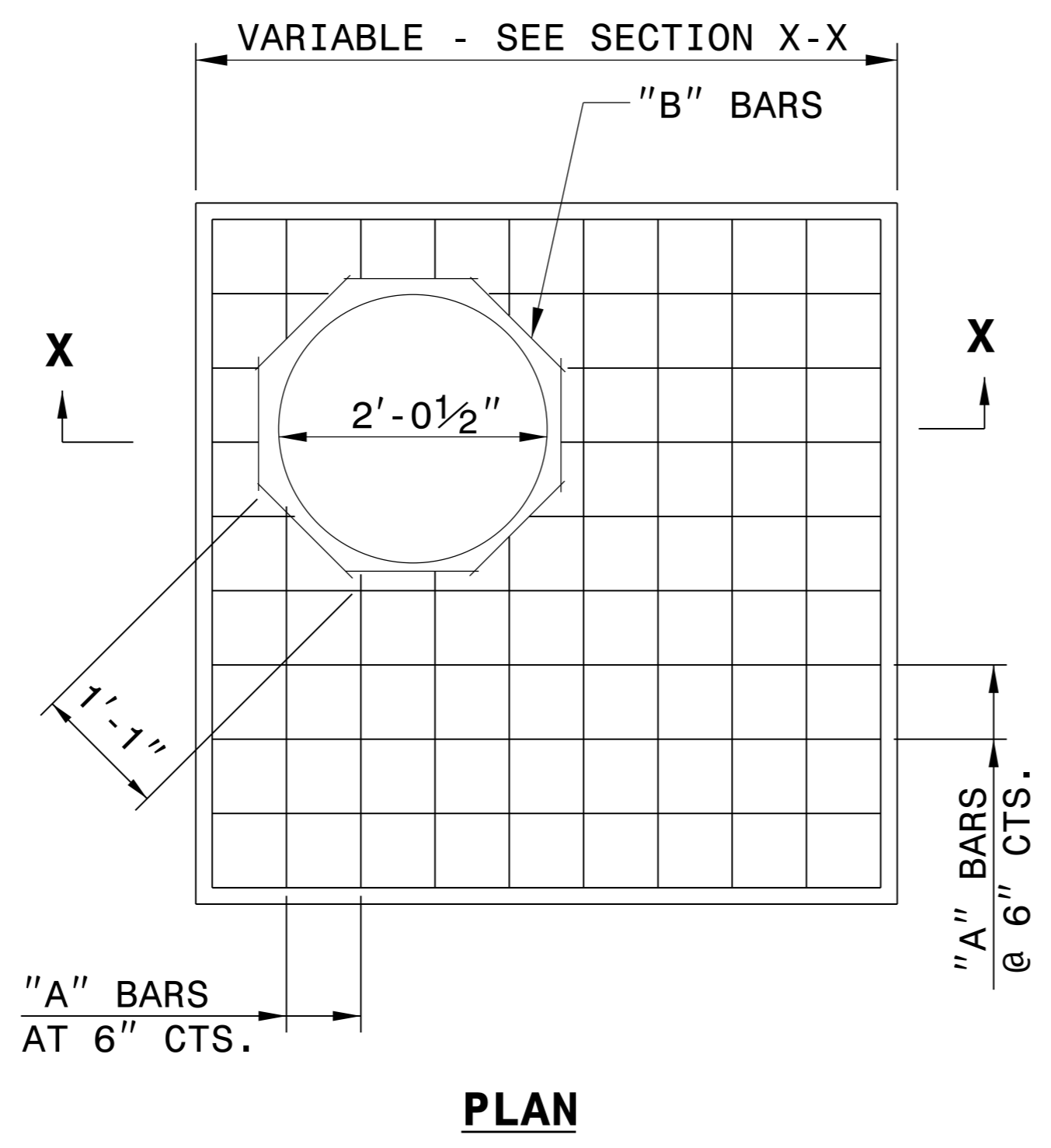
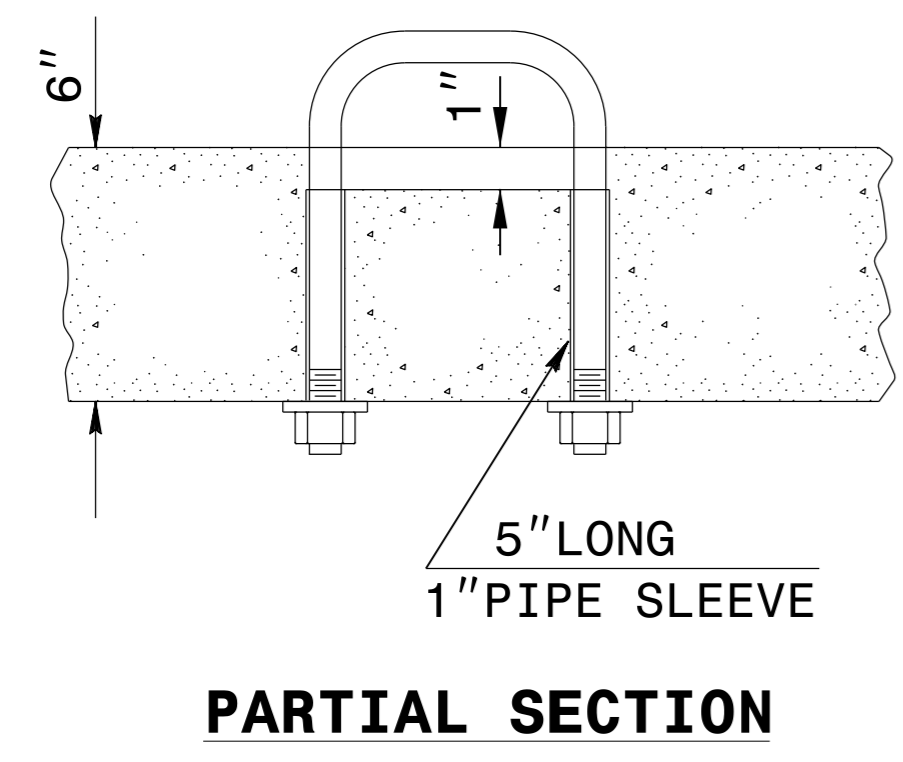
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

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SEE TITLE BLOCK

ORIGINAL BY: J HOWERTON DATE: 08-23-18
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC.: DATE:



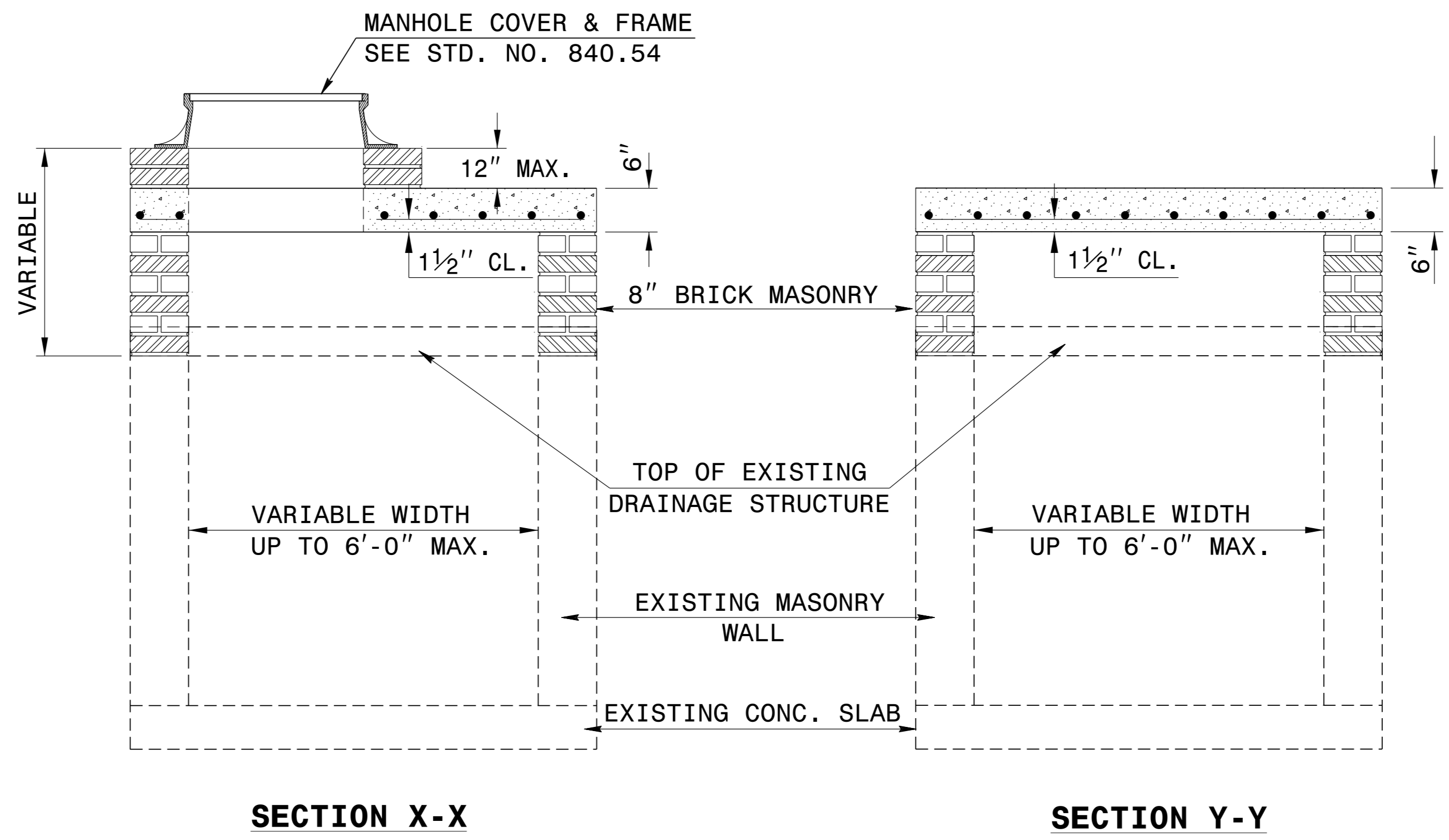
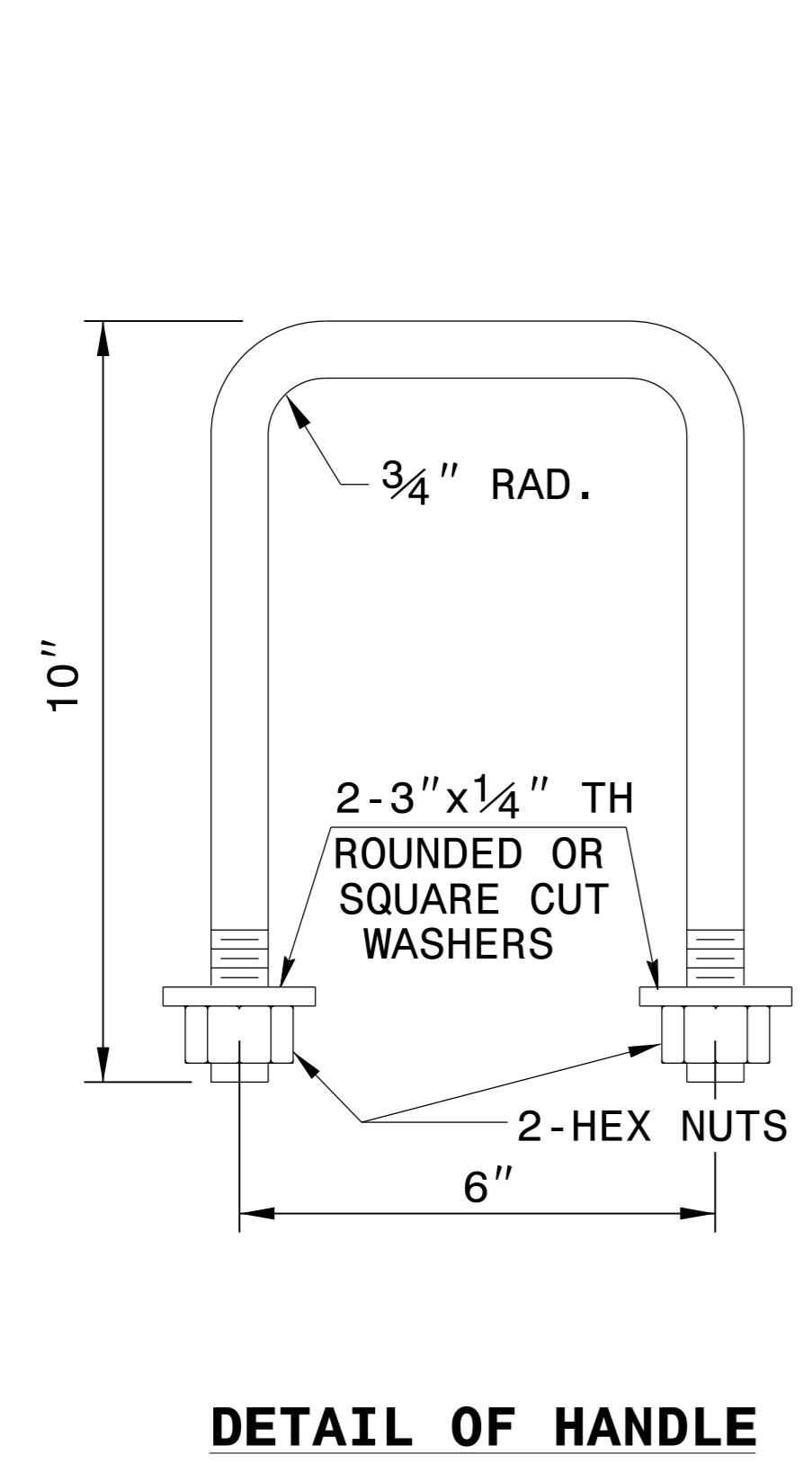


GENERAL NOTES:

CONSTRUCT IN ACCORDANCE WITH SECTION 859 OF THE STANDARD SPECIFICATIONS.

THE DIMENSIONS FOR THE EXISTING BOXES ARE APPROXIMATE AND MAY VARY SLIGHTLY.

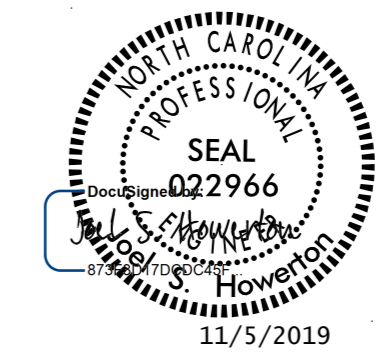
DETAIL INTENDED FOR NON-TRAFFIC BEARING DRAINAGE STRUCTURES.



BILL OF MATERIALS				
REINFORCING STEEL				
CODE	SIZE	QTY.	LENGTH	REINF. STEEL LBS.
A	#4	20	4'-6"	60.12
B	#4	8	1'-1"	5.79
TOTAL				65.91 *
MASONRY				CU YDS
TOP SLAB CONCRETE CLASS "B"				.4326 *
BRICK MASONRY PER FT HT (MIN)				.4111

*** NOTE:**
 QUANTITIES BASED ON 3'-6" X 3'-6" DRAINAGE STRUCTURE. ADJUST QUANTITIES FOR LARGER STRUCTURES AND MANHOLE CONSTRUCTION.

11/5/2019 11:52:11 AM
 ds174:usr/details/stand/boxtojbe.dgn

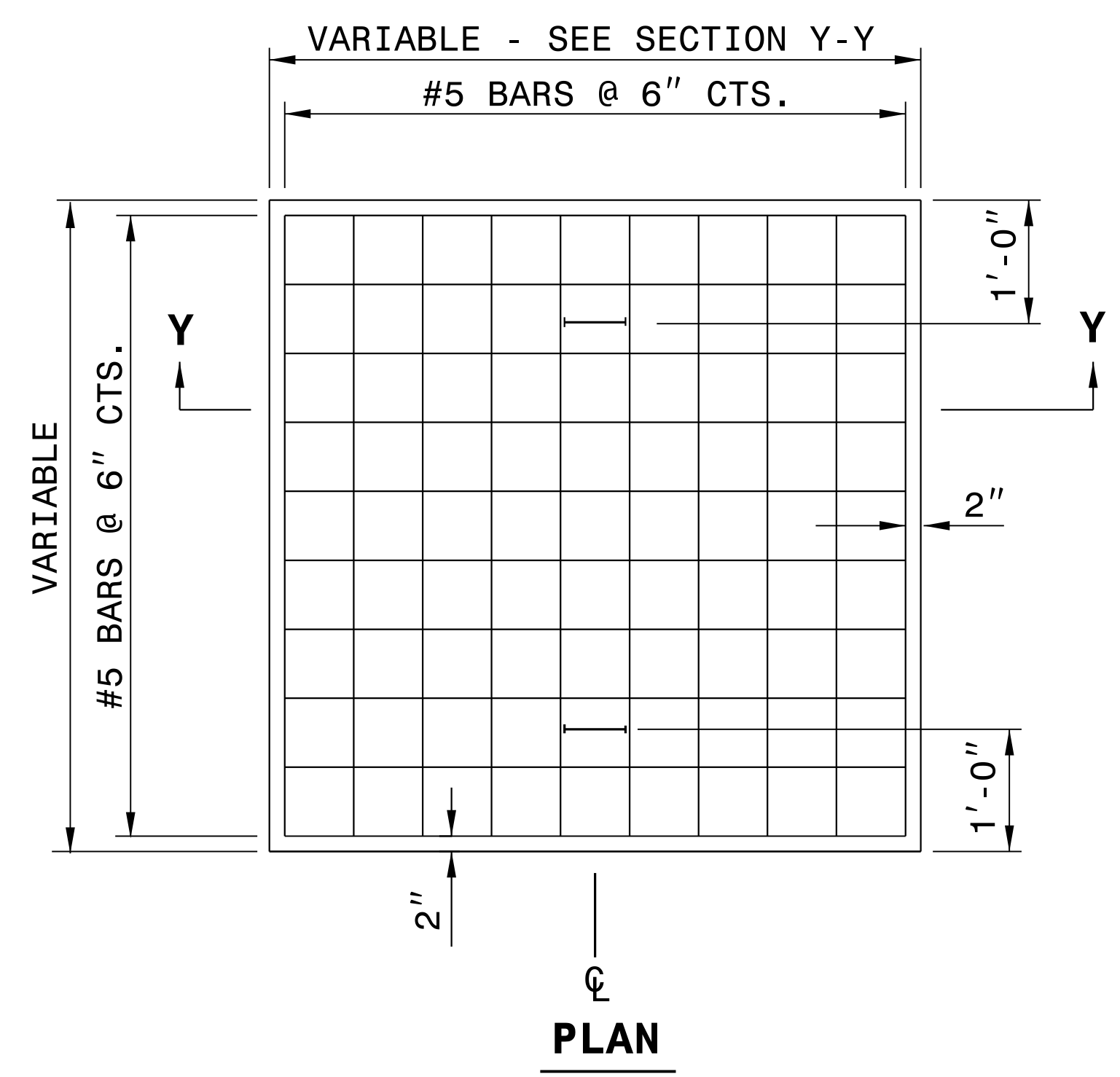
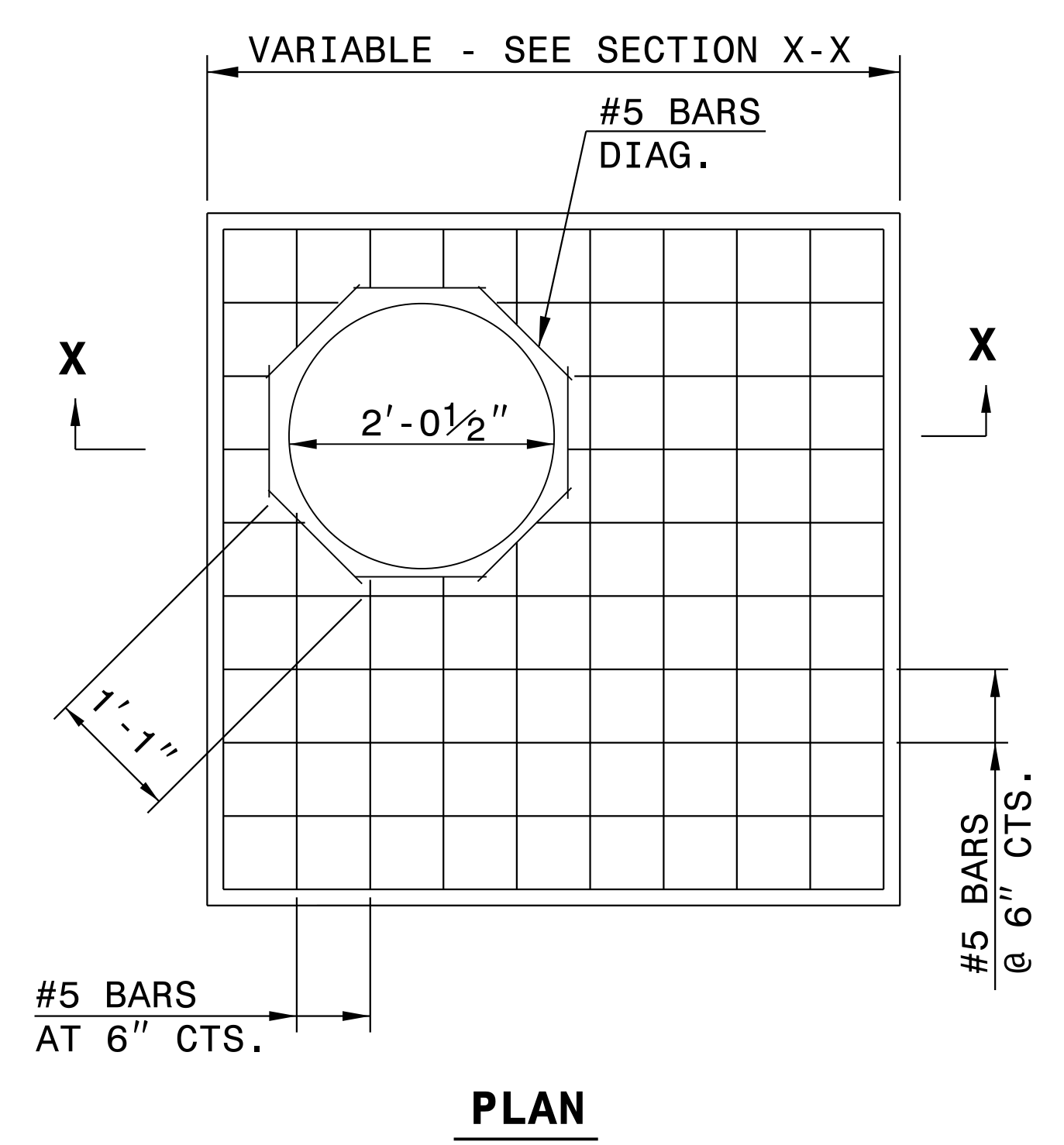
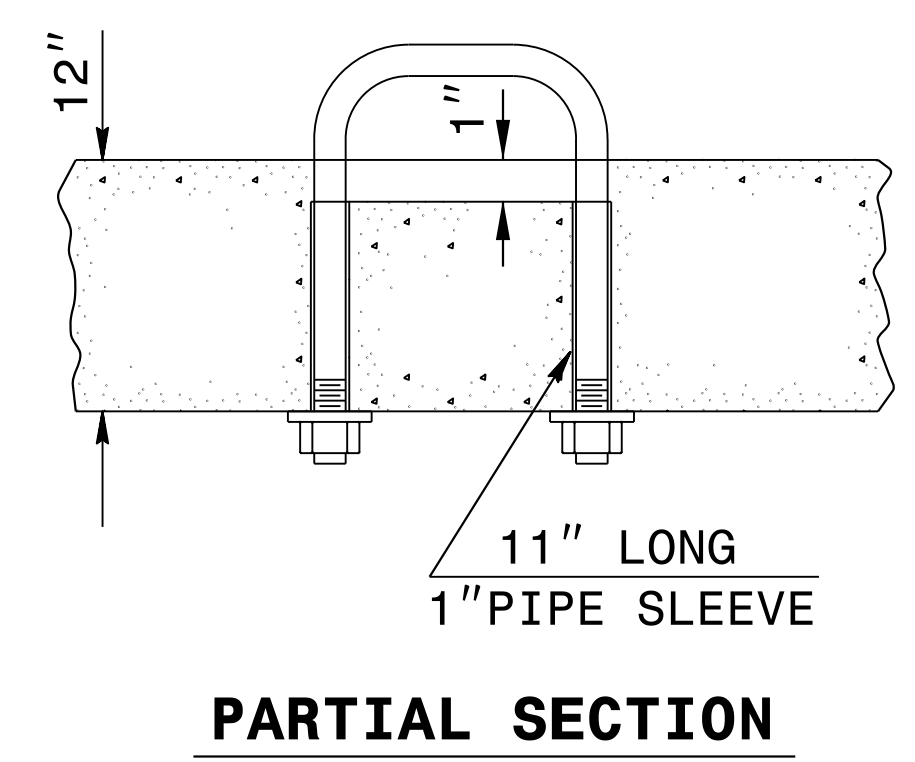


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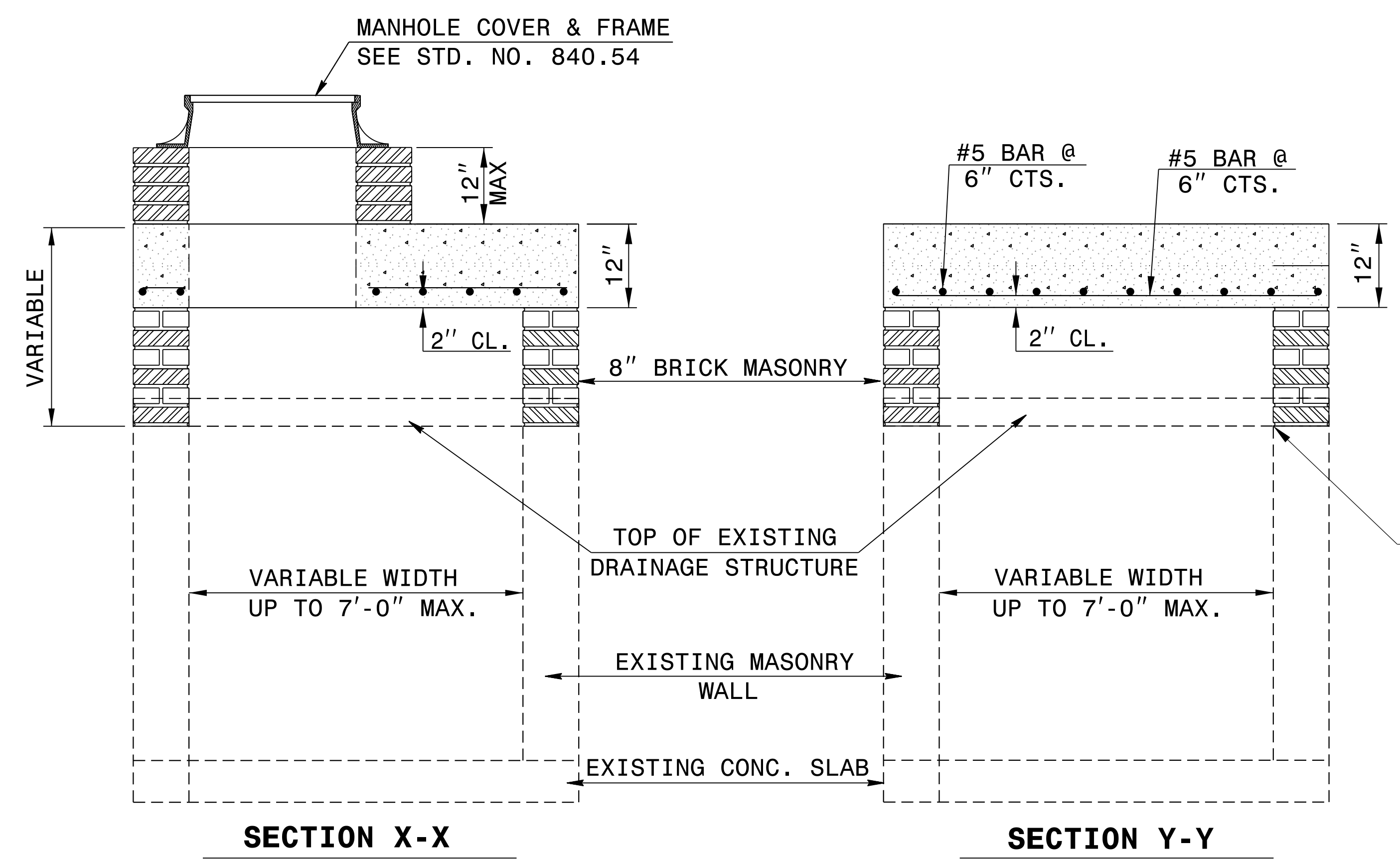
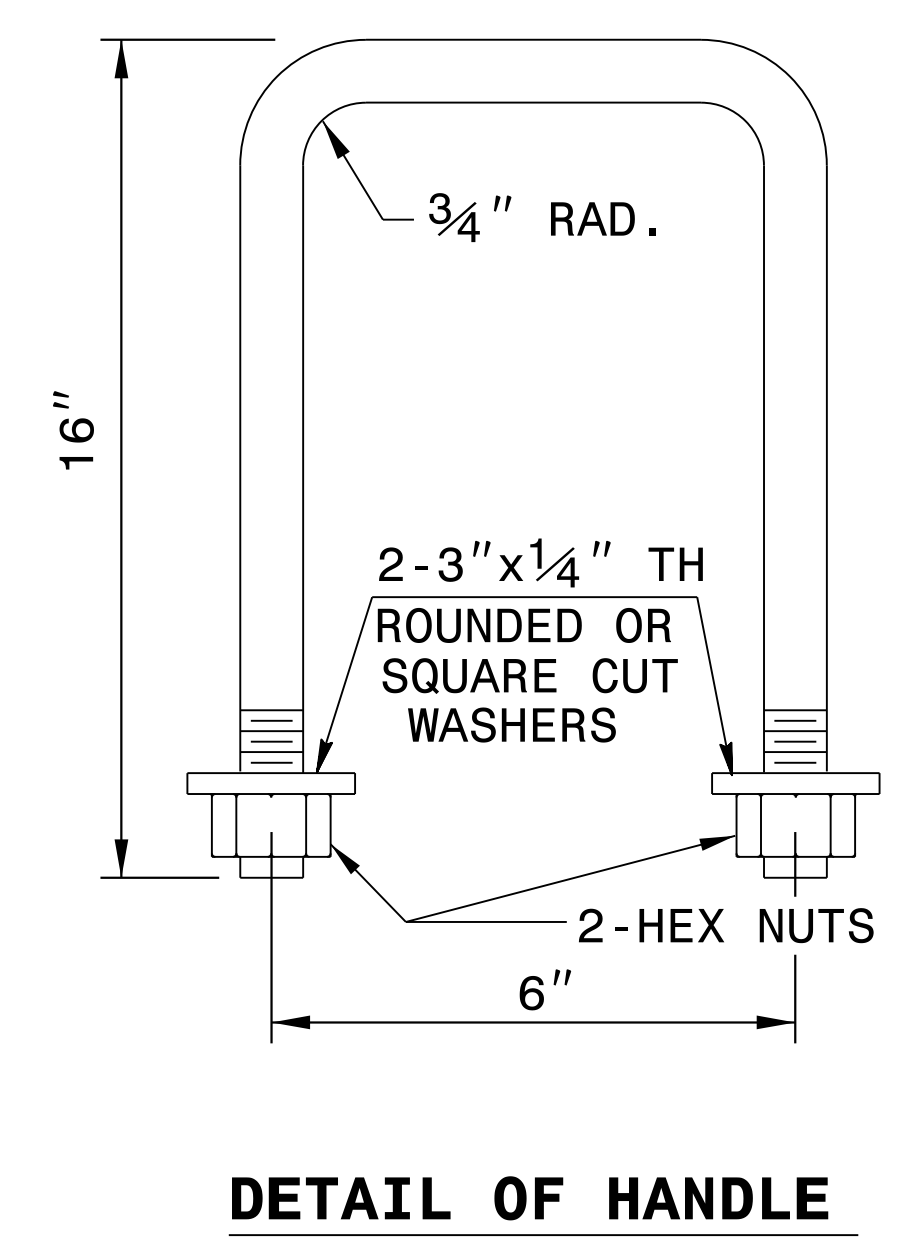
**DETAIL TO CONVERT EXISTING
DI, CB, OTCB or GI
TO JUNCTION BOX
(MANHOLE OPTIONAL)**

ORIGINAL BY: T.S.S.	DATE: NOV. 1997
MODIFIED BY: T.S.S.	DATE: FEB. 2000
CHECKED BY:	DATE:
FILE SPEC.: ds174:usr/details/stand/boxtojbe.dgn	



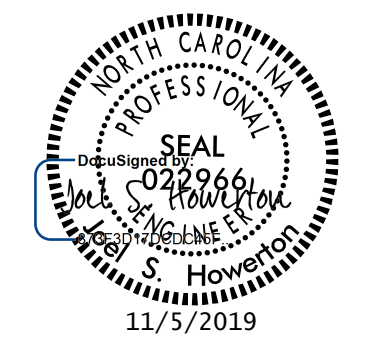
GENERAL NOTES:
 CONSTRUCT IN ACCORDANCE WITH SECTION 859 OF THE STANDARD SPECIFICATIONS.
 FIELD VERIFY THE DIMENSIONS FOR THE EXISTING BOXES.

BILL OF MATERIALS			
MASONRY			
TOP SLAB CONCRETE CLASS "A"		.037YDS ³	PER FT ²
BRICK MASONRY		.025YDS ³	PER FT ²
REINFORCING STEEL		7.64LBS	PER FT ²
MANHOLE OPTION QUANTITIES			
SIZE	QTY.	LENGTH	REINF. STEEL LBS.
#5 DIAG.	8	1'-1"	9.04



ALIGN PROPOSED BRICK VERTICAL ADJUSTMENT TO INNER FACE OF WALL

NOTE:
 CONCRETE AND REINFORCING STEEL QUANTITIES BASED ON SQUARE FOOT AREA OF THE PROPOSED TOP SLAB FOR THE EXISTING DRAINAGE STRUCTURE.
 BRICK MASONRY QUANTITY IS BASED ON THE TOTAL SQUARE FOOTAGE OF EXTERIOR WALL SURFACE AREA TO BE CONSTRUCTED.



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DETAIL TO CONVERT EXISTING TRAFFIC BEARING DROP INLET OR CATCH BASIN TO TRAFFIC BEARING JUNCTION BOX (MANHOLE OPTIONAL)

ORIGINAL BY: T.S.S.	DATE: FEB. 2000
MODIFIED BY: E.E.W.	DATE: NOV. 2001
CHECKED BY:	DATE:
FILE SPEC.: w:ericward/usr/details/stand/boxtotbjbe.dgn	

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

05-MAR-2018 08:41 S:\Contracts\Special Details\ericward\usr\details\stand\boxtotbjbe.dgn J:\overton AT USD-292595

5/14/99

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

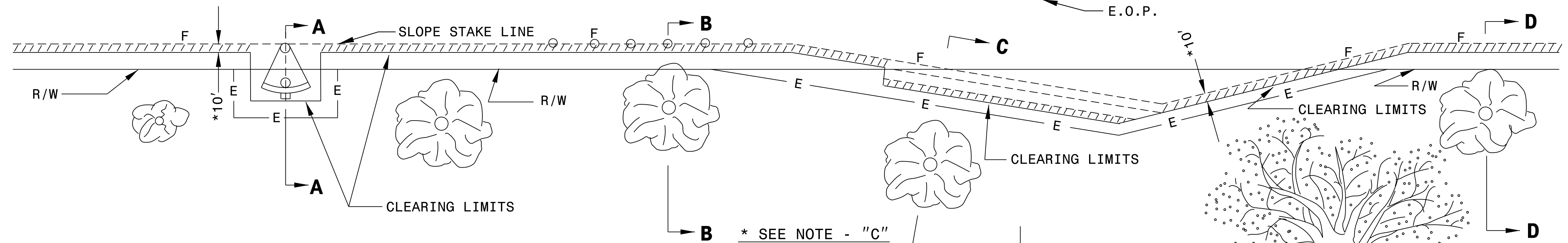
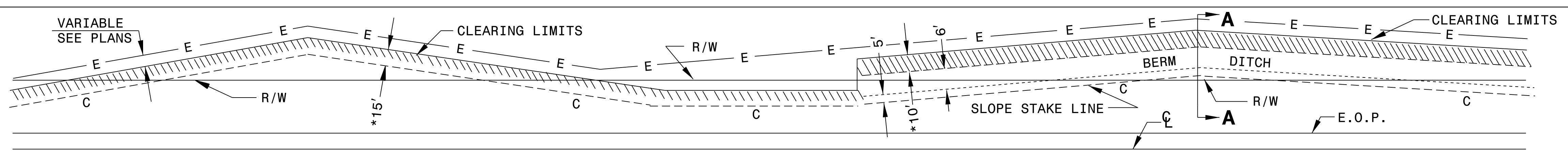
ENGLISH DETAIL DRAWING FOR METHOD OF CLEARING MODIFIED METHOD - III

SHEET 1 OF 1 200D03

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

ENGLISH DETAIL DRAWING FOR METHOD OF CLEARING MODIFIED METHOD - III

SHEET 1 OF 1 200D03



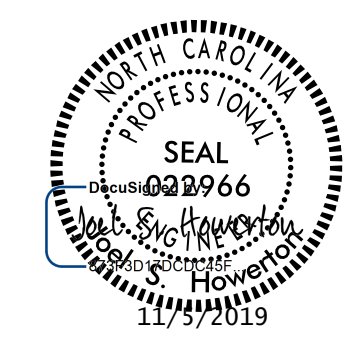
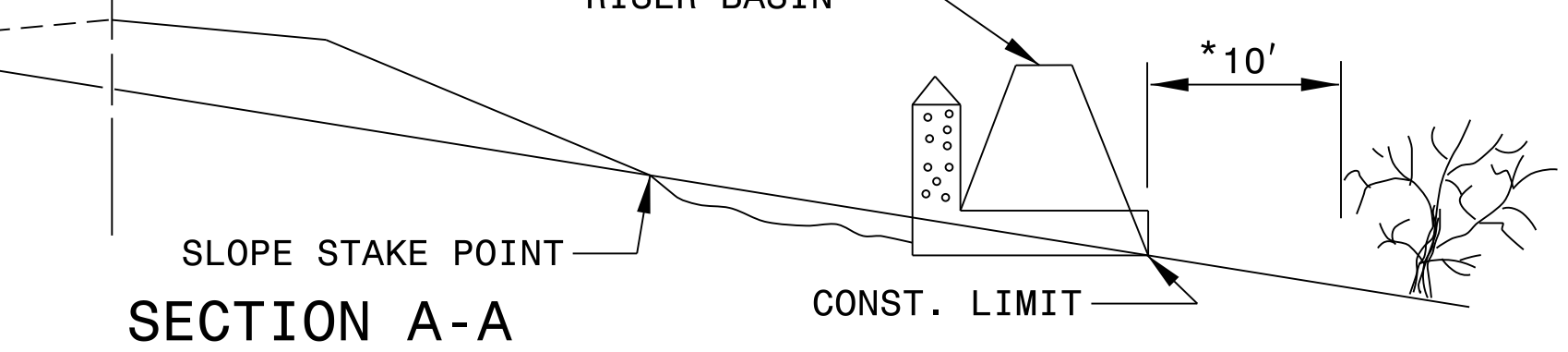
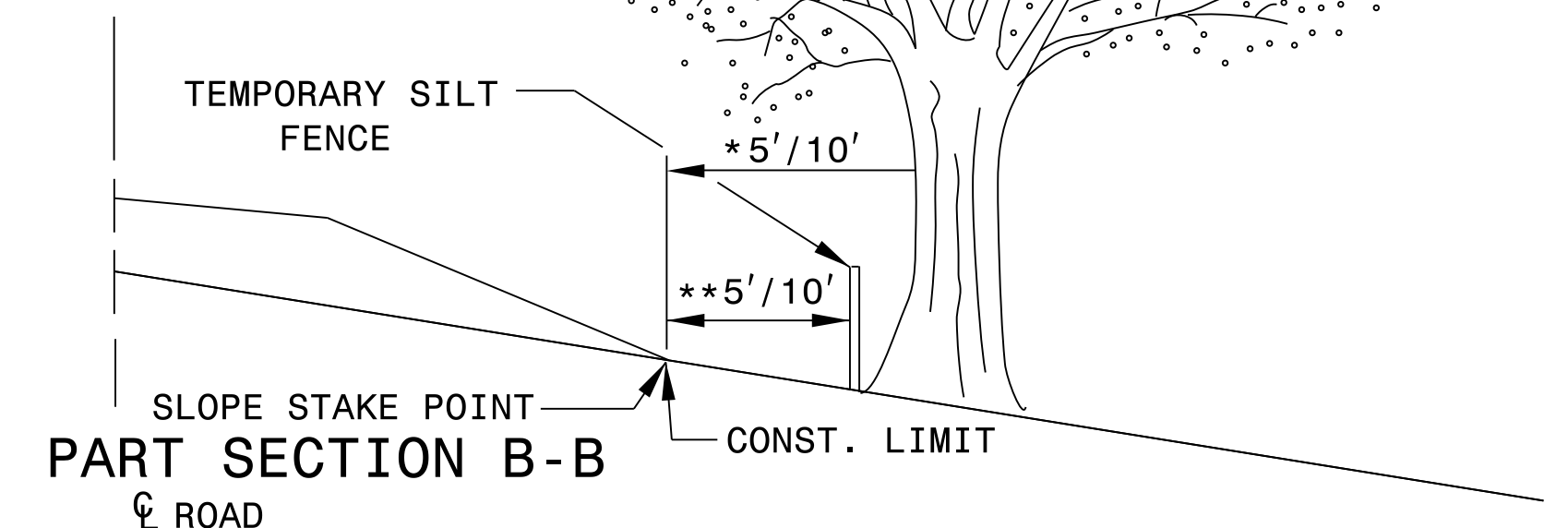
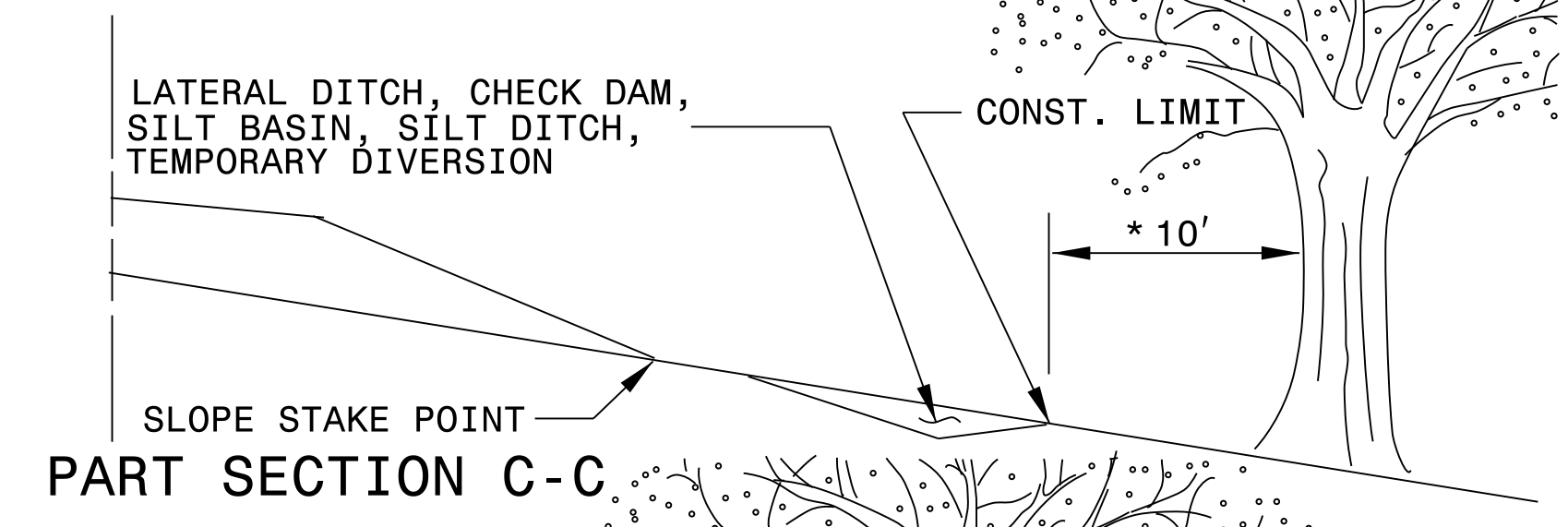
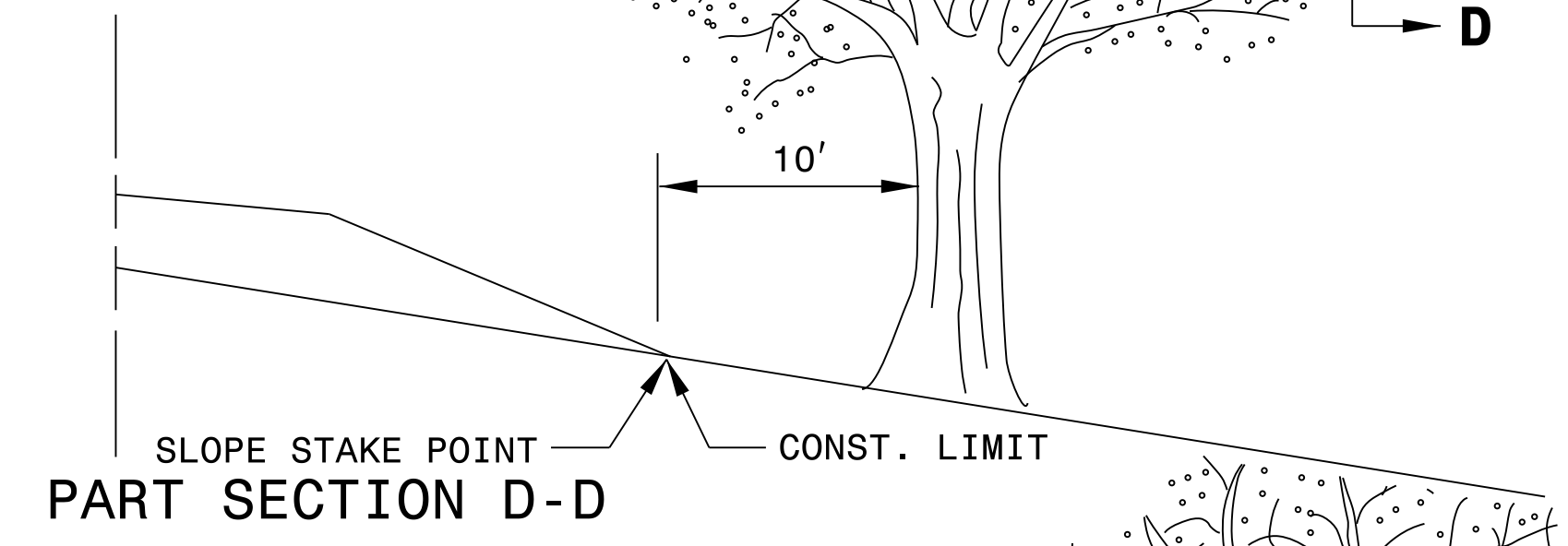
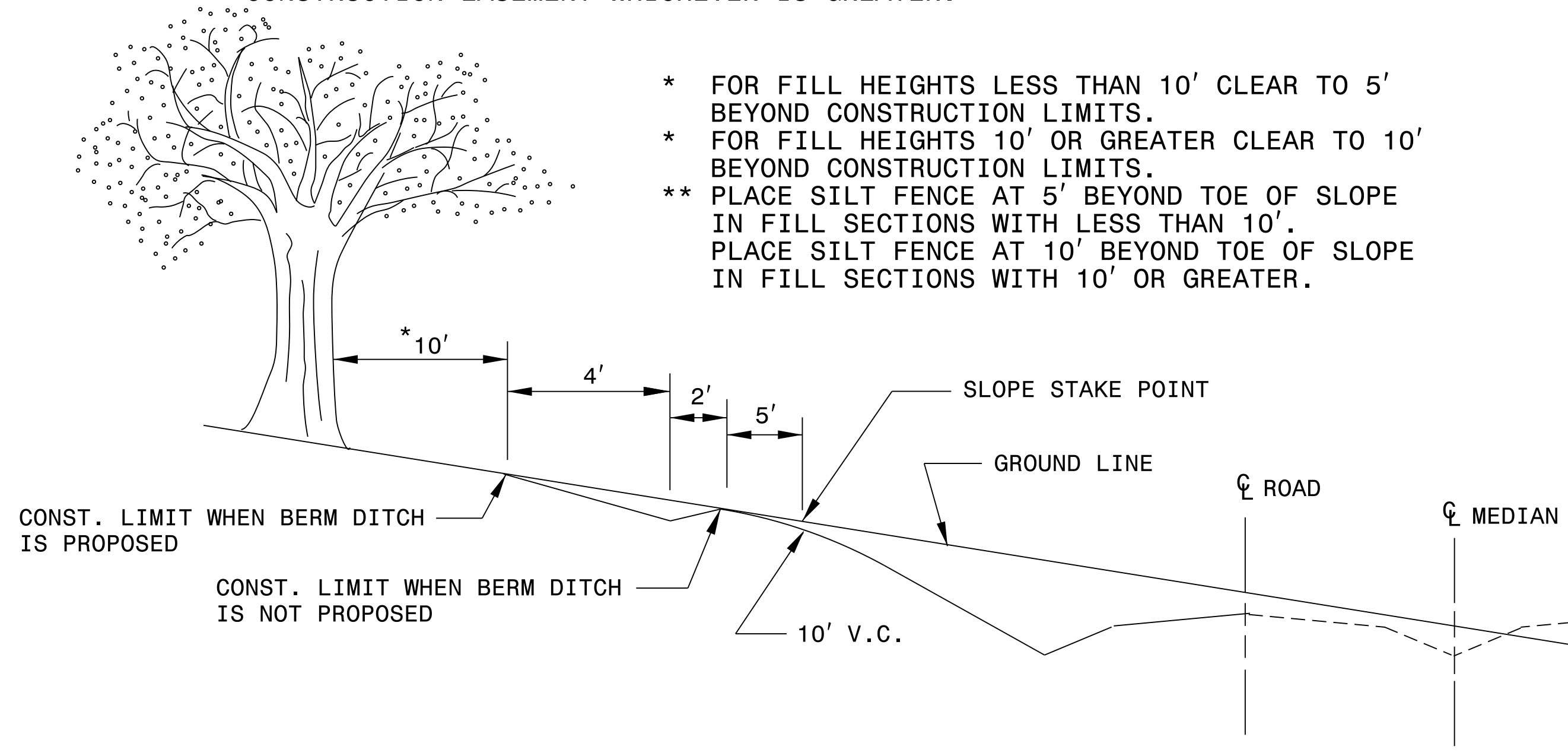
GENERAL NOTES:

1. REMOVE TREES OUTSIDE THE CLEARING LIMIT WHEN, IN THE OPINION OF THE ENGINEER, THE UTILITY OF A TREE WILL BE DESTROYED BY THE CONSTRUCTION OR THE CLEARING OPERATION.
2. CLEAR IN ACCORDANCE WITH THIS STANDARD EXCEPT WHERE ADDITIONAL CLEARING IS REQUIRED FOR SAFETY AS SHOWN ON THE PLANS.

METHOD III CLEARING LIMITS

- (A) CUTS -- CLEAR TO CONSTRUCTION LIMITS.
- (B) FILLS - CLEAR TO 5'/10' * BEYOND CONSTRUCTION LIMITS, UNLESS SPECIFIED OTHERWISE BY WETLAND PERMIT.
- (C) CUTS AND FILLS - WHEN THE CLEARING LIMITS (A AND B) EXCEED THE PROPOSED R/W OR PROPOSED CONSTRUCTION EASEMENTS, THEN CLEAR ONLY TO THE R/W OR CONSTRUCTION EASEMENT WHICHEVER IS GREATER.

- * FOR FILL HEIGHTS LESS THAN 10' CLEAR TO 5' BEYOND CONSTRUCTION LIMITS.
- * FOR FILL HEIGHTS 10' OR GREATER CLEAR TO 10' BEYOND CONSTRUCTION LIMITS.
- ** PLACE SILT FENCE AT 5' BEYOND TOE OF SLOPE IN FILL SECTIONS WITH LESS THAN 10'. PLACE SILT FENCE AT 10' BEYOND TOE OF SLOPE IN FILL SECTIONS WITH 10' OR GREATER.



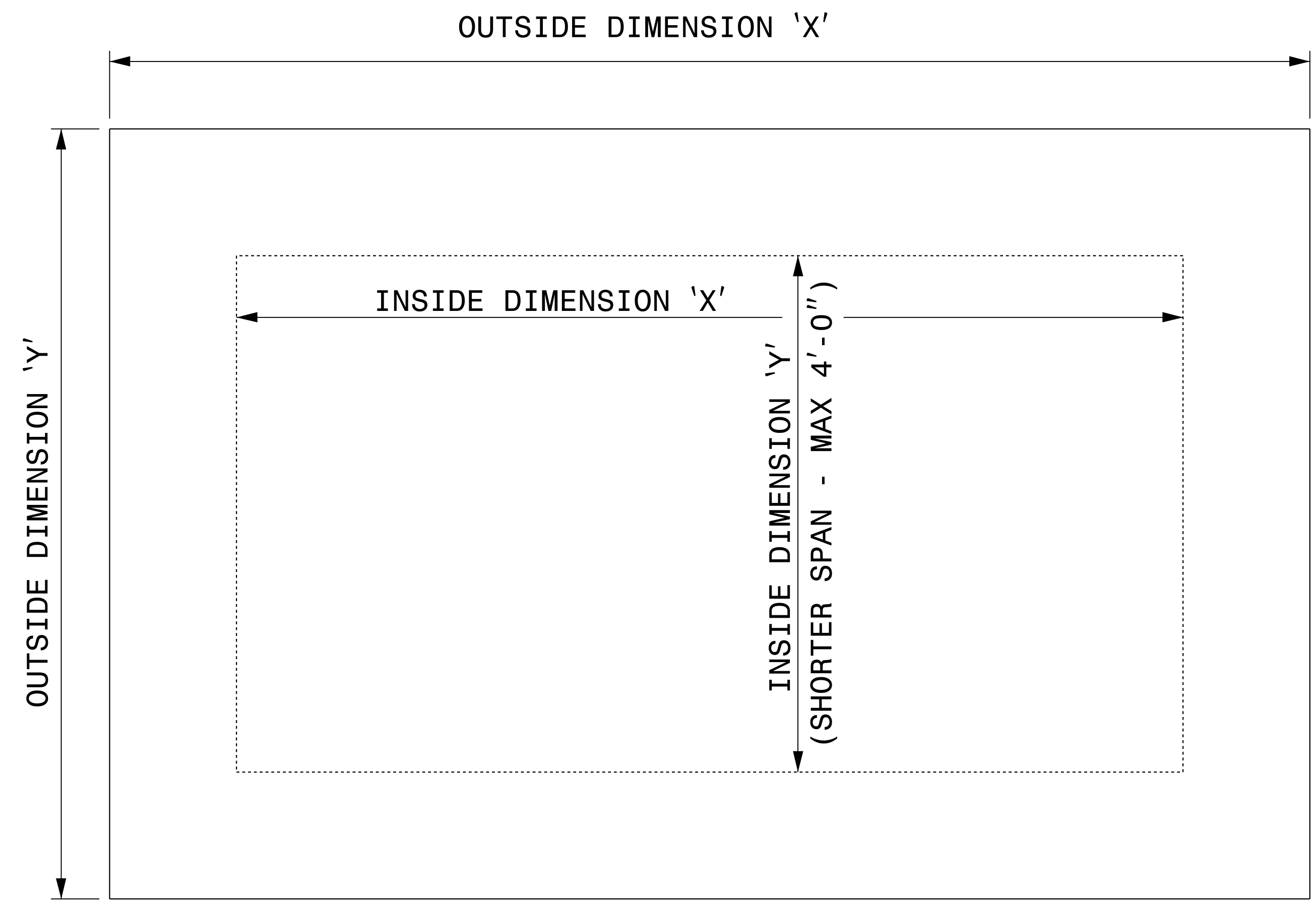
CONTRACT STANDARDS AND DEVELOPMENT UNIT Office 919-707-6950 FAX 919-250-4119

SEE TITLE BLOCK

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MODIFIED BY: K.A.K. DATE: AUG. 2016
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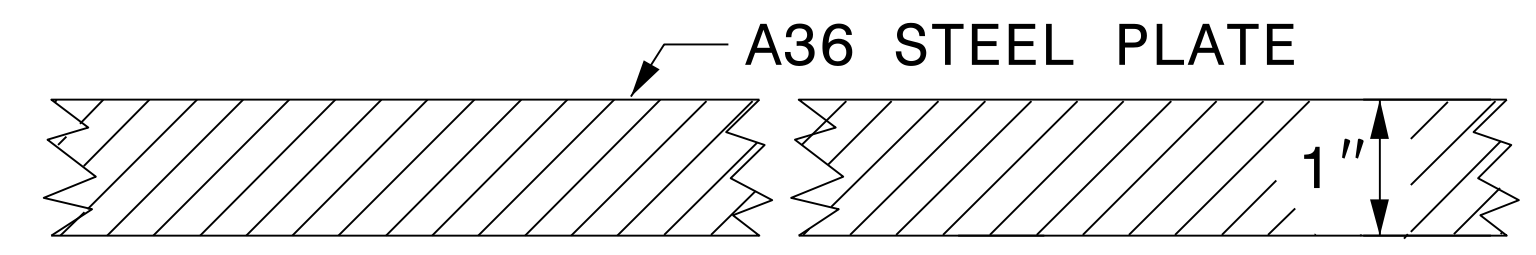
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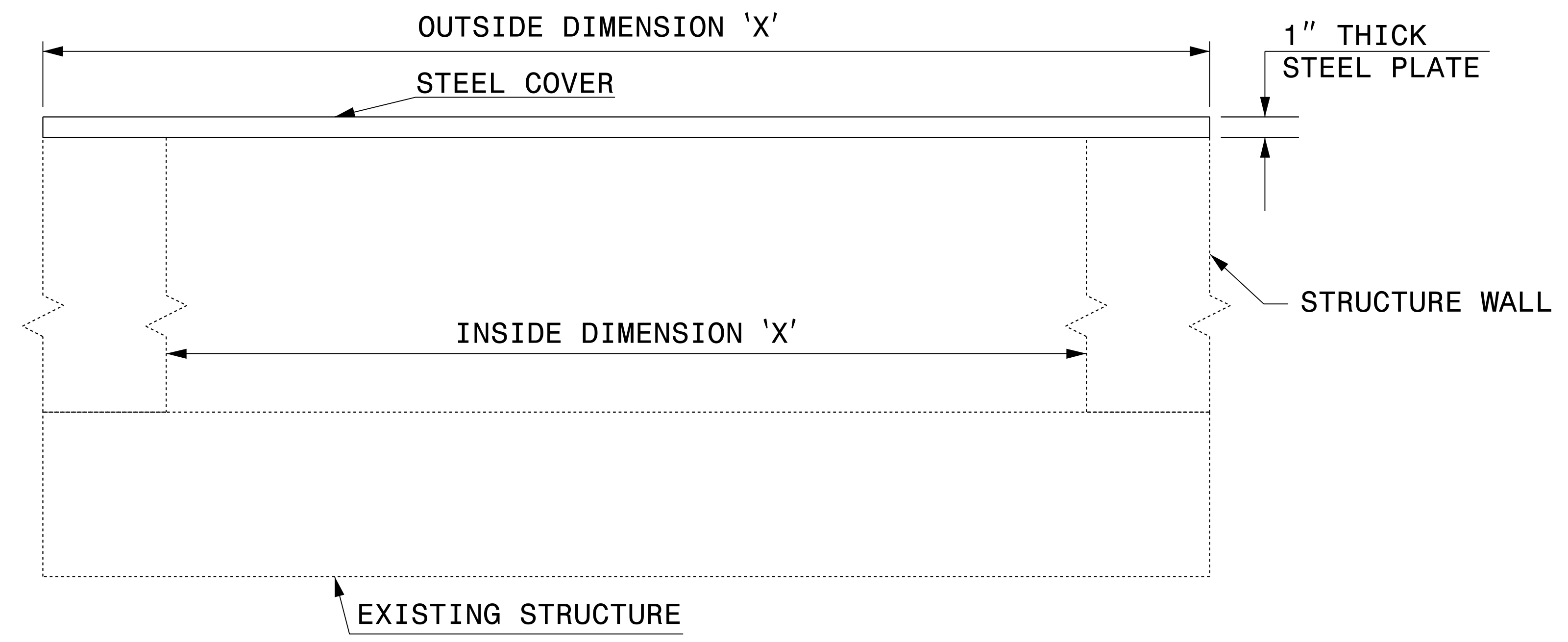
GENERAL NOTES:

- 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.

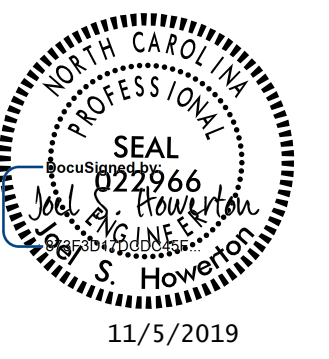


SECTION VIEW OF STEEL TOP PLATE

PLAN VIEWS



ELEVATION VIEWS



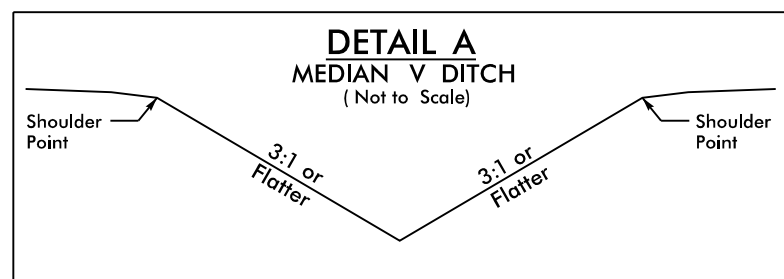
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 Office 919-707-6950 FAX 919-250-4119

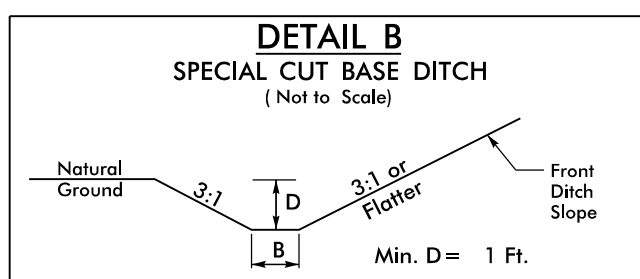
DETAIL OF TEMPORARY 1" STEEL COVER

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 MODIFIED BY: DATE:
 CHECKED BY: DATE:
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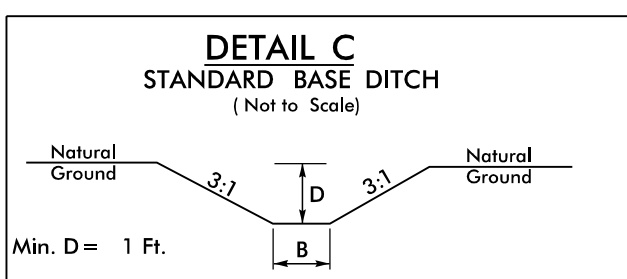
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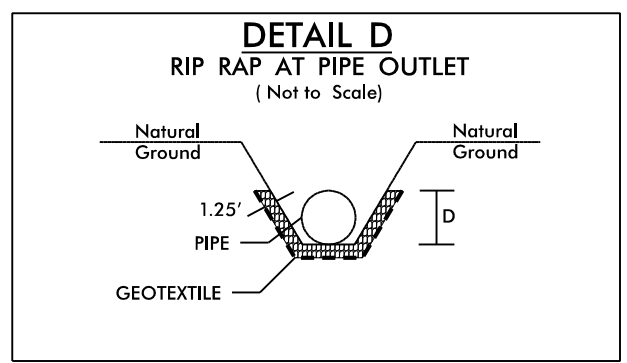
FROM STA. 26+25 TO STA. 26+50 -L- MED
FROM STA. 34+60 TO STA. 35+50 -L- MED
FROM STA. 38+50 TO STA. 39+10 -L- MED



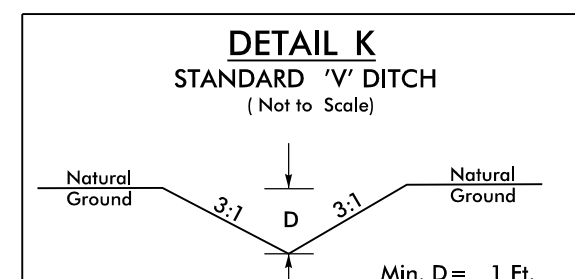
FROM STA. 54+00 TO STA. 60+50 -L- LT (B=2', D=1')
FROM STA. 72+50 TO STA. 75+00 -L- RT (B=4', D=1')
FROM STA. 75+00 TO STA. 76+80 -L- RT (B=2', D=1')
FROM STA. 84+00 TO STA. 89+75 -L- LT (B=4', D=1')
FROM STA. 88+25 TO STA. 89+75 -L- RT (B=2', D=1')
FROM STA. 89+00 TO STA. 94+10 -L- RT (B=2', D=1')
FROM STA. 89+75 TO STA. 115+75 -L- LT (B=2', D=1')
FROM STA. 94+50 TO STA. 105+05 -L- RT (B=2', D=1')
FROM STA. 106+85 TO STA. 111+15 -L- RT (B=2', D=1')
FROM STA. 18+50 TO STA. 21+50 -Y2- RT (B=2', D=1')
FROM STA. 39+95 TO STA. 41+00 -Y2- LT (B=4', D=1')
FROM STA. 41+00 TO STA. 48+00 -Y2- LT (B=3', D=2')
FROM STA. 10+75 TO STA. 15+05 -Y4- LT (B=2', D=1')
FROM STA. 14+00 TO STA. 15+15 -Y6A- RT (B=2', D=1')
FROM STA. 18+00 TO STA. 21+45 -Y6B- LT (B=2', D=1')
FROM STA. 16+00 TO STA. 20+04 -Y2RPA- RT (B=4', D=1')
FROM STA. 20+04 TO STA. 22+50 -Y2RPA- RT (B=2', D=1')
FROM STA. 10+00 TO STA. 20+50 -Y2RPD- LT (B=2', D=1')
FROM STA. 20+50 TO STA. 21+00 -Y2RPD- LT (B=4', D=1')
FROM STA. 10+75 TO STA. 14+45 -SR1- LT (B=2', D=1')
FROM STA. 21+00 TO STA. 23+00 -SR1- LT (B=2', D=1')
FROM STA. 17+00 TO STA. 22+55 -SR2- RT (B=2', D=1')
FROM STA. 25+85 TO STA. 34+40 -SR2- RT (B=4', D=1')
FROM STA. 34+40 TO STA. 38+75 -SR2- RT (B=2', D=1')



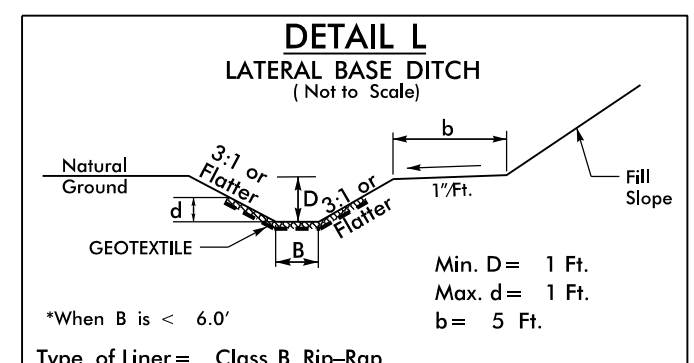
(TAIL #1) FROM STA. 20+04 -Y2RPA- 87' LT, ELEV.=134.2'
TO STA. 77+92 -L1- 143' LT, ELEV.=132.7', B = 4 Ft.
(TAIL #2) FROM STA. 20+51 -Y2RPD- 43' RT, ELEV.=136.9'
TO STA. 20+54 -Y2RPD- 102' RT, ELEV.=135.5', B = 4 Ft.
(TAIL #3) FROM STA. 26+90 -Y2RPC- 133' LT, ELEV.=134.4'
TO STA. 66+29 -L1- 110' RT, ELEV.=132.4', B = 4 Ft.
(TAIL #4) FROM STA. 74+79 -L1- 163' LT, ELEV.=128.4'
TO STA. 27+11 -Y2- 197' LT, ELEV.=127.3', B = 4 Ft.
(TAIL #7) FROM STA. 13+82 -Y2LPA 108' LT, ELEV.=128.7'
TO STA. 12+83 -Y2LPA- 212' LT, ELEV.=128.0', B = 4 Ft.



STA. 66+31 -L1- & 110' RT, Length = 20'
58 TONS, CL B Rip-Rap Geotextile = 26 SY
STA. 26+90 -Y2RPC- & 133' LT, Length = 20'
23 TONS, CL B Rip-Rap Geotextile = 51 SY
STA. 13+82 -Y2LPA- & 121' LT, Length = 20'
48 TONS, CL I Rip-Rap Geotextile = 91 SY
STA. 20+04 -Y2RPA- & 87' LT, Length = 20'
41 TONS, CL I Rip-Rap Geotextile = 86 SY
STA. 77+92 -L1- & 143' LT, Length = 20'
41 TONS, CL I Rip-Rap Geotextile = 86 SY

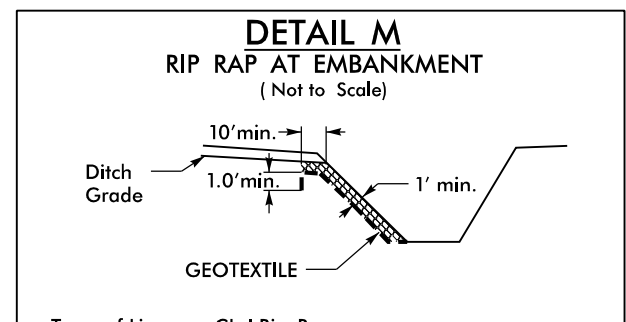


(TAIL #5) FROM STA. 73+37 -L1- 135' LT, ELEV.=128.7'
TO STA. 74+31 -L1- 224' LT, ELEV.=128.0'
(TAIL #6) FROM STA. 17+35 -Y2LPA- 87' LT, ELEV.=132.2'
TO STA. 27+31 -Y2- 208' LT, ELEV.=127.4'

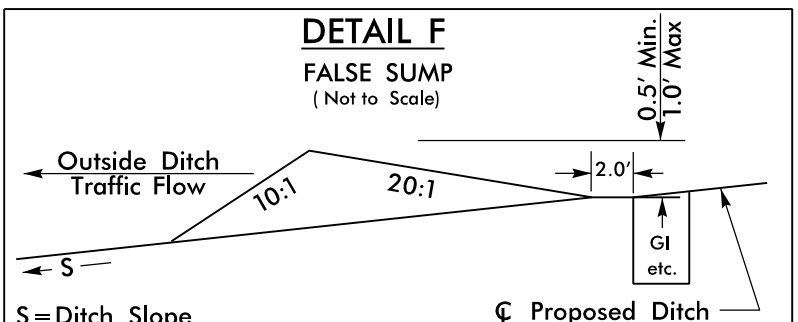


FROM STA. 18+00 TO STA. 19+50 -SR1- LT (B=4', CL I RIPRAP)
FROM STA. 19+50 TO STA. 21+00 -SR1- LT (B=2')

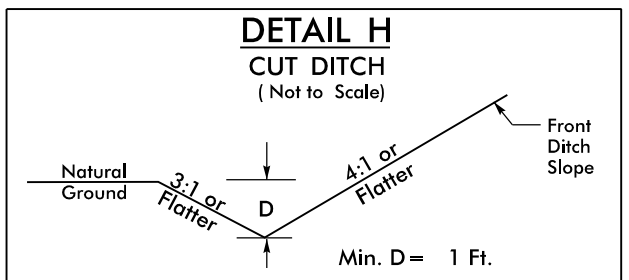
PROJECT REFERENCE NO. R2303E SHEET NO. 2D-1
RW SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
Professional Engineer Seal: R. REID, No. 02696, Exp. 11/3/2019
Professional Engineer Seal: No. 02696, Exp. 11/3/2019
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
4100 FALLS OF NEUSE ROAD, SUITE 300
RALEIGH, NORTH CAROLINA 27609
(919) 781-4626 VOICE (919) 781-4669 FAX
NC License No.: F-0105



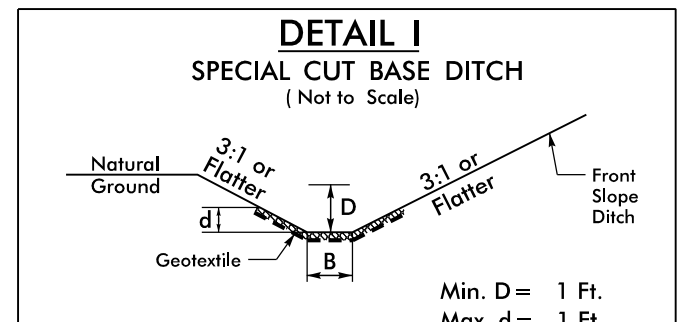
FROM STA. -L1- 52+00 TO 52+50 LT (6 TONS CL I, 11 S.Y.)
FROM STA. -L1- 74+66 TO 75+08 RT (71 TONS CL II, 48 S.Y.)
FROM STA. -L1- 75+25 TO 75+39 RT (40 TONS CL II, 27 S.Y.)
FROM STA. -Y2PRD- 20+42 TO 20+50 RT (29 TONS CL II, 19 S.Y.)
FROM STA. -Y2PRD- 20+53 72' RT TO 20+53 102' RT (37 TONS CL II, 25 S.Y.)



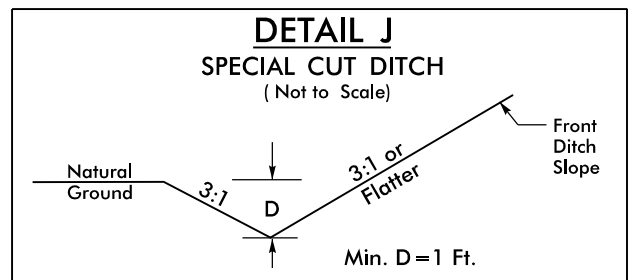
STA. 45+69 -L1- RT
STA. 49+16 -L1- RT
STA. 73+63 -L1- MED
STA. 77+77 -L1- MED
STA. 88+55 -L1- MED
STA. 94+08 -L1- MED
STA. 97+38 -L1- MED
STA. 100+87 -L1- MED
STA. 110+08 -L1- MED
STA. 112+78 -L1- MED
STA. 115+88 -L1- MED
STA. 120+12 -L1- MED
STA. 13+15 -Y2RPC- RT
STA. 19+88 -SR1- RT
STA. 26+87 -SR2- LT



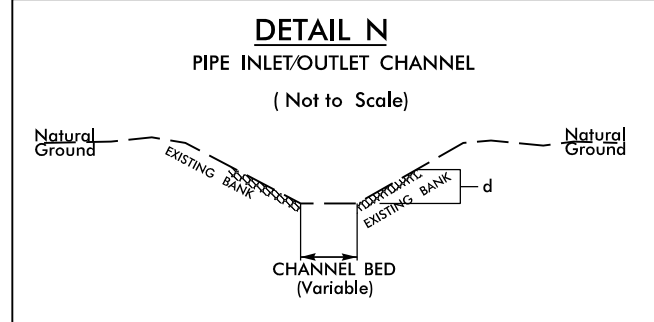
FROM STA. 36+00 TO STA. 36+50 -L1- RT
FROM STA. 36+00 TO STA. 36+50 -L1- LT
FROM STA. 41+50 TO STA. 43+40 -L1- LT
FROM STA. 43+00 TO STA. 56+00 -L1- RT
FROM STA. 60+50 TO STA. 64+50 -L1- RT
FROM STA. 76+80 TO STA. 82+80 -L1- RT
FROM STA. 61+00 TO STA. 66+29 -L1- LT
FROM STA. 117+78 TO STA. 119+50 -L1- LT
FROM STA. 111+15 TO STA. 120+00 -L1- RT
FROM STA. 12+75 TO STA. 17+00 -Y2- LT
FROM STA. 12+75 TO STA. 18+50 -Y2- RT
FROM STA. 44+40 TO STA. 48+60 -Y2- RT
FROM STA. 22+50 TO STA. 27+00 -Y2RPA- RT
FROM STA. 17+50 TO STA. 22+50 -Y2RPC- RT
FROM STA. 16+15 TO STA. 20+00 -Y2RPD- RT
FROM STA. 11+50 TO STA. 13+37 -Y3- LT
FROM STA. 11+50 TO STA. 16+10 -Y3- RT
FROM STA. 14+40 TO STA. 15+75 -Y3- LT
FROM STA. 10+05 TO STA. 14+00 -Y4- RT
FROM STA. 11+50 TO STA. 12+39 -Y6A- RT
FROM STA. 13+12 TO STA. 13+34 -Y6A- RT
FROM STA. 11+50 TO STA. 15+00 -Y6A- LT
FROM STA. 15+00 TO STA. 18+00 -Y6B- LT
FROM STA. 15+00 TO STA. 17+10 -Y6B- RT
FROM STA. 18+60 TO STA. 19+55 -Y6B- RT
FROM STA. 20+00 TO STA. 25+00 -SR1- RT
FROM STA. 23+00 TO STA. 30+75 -SR1- LT
FROM STA. 31+50 TO STA. 35+51 -SR1- LT
FROM STA. 27+00 TO STA. 31+00 -SR2- LT
FROM STA. 31+00 TO STA. 40+40 -SR2- LT
FROM STA. 41+65 TO STA. 43+00 -SR2- RT
FROM STA. 42+20 TO STA. 48+25 -SR2- LT
FROM STA. 43+35 TO STA. 48+15 -SR2- RT
FROM STA. 10+35 TO STA. 16+50 -SR3- RT
FROM STA. 11+15 TO STA. 17+00 -SR3- LT
FROM STA. 10+00 TO STA. 12+00 -DR1- LT



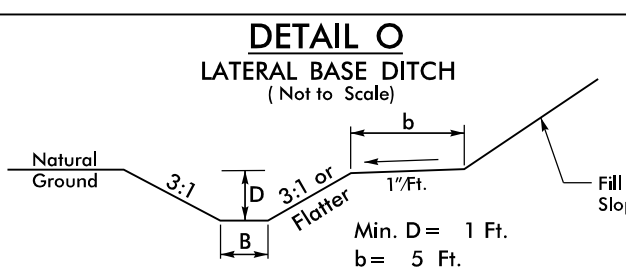
FROM STA. 34+47.50 TO STA. 36+20-L- RT (B=4')
FROM STA. 12+00 TO STA. 15+60 -DR1- LT (B=2')
FROM STA. 46+50 TO STA. 52+15 -L1- LT (B=3')
FROM STA. 52+55 TO STA. 54+00 -L1- LT (B=4')
FROM STA. 23+46 TO STA. 25+85 -SR2- RT (B=4')



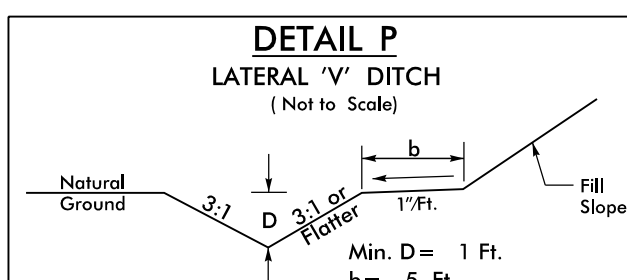
FROM STA. 27+25 TO STA. 29+25 -L- LT
FROM STA. 28+30 TO STA. 28+70 -L- RT
FROM STA. 36+20 TO STA. 38+25 -L- RT
FROM STA. 21+00 TO STA. 21+45 -Y6B- RT



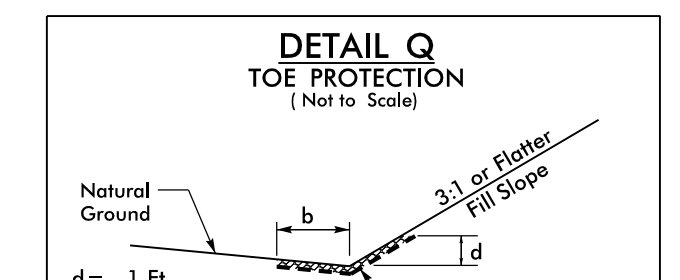
STA. 66+25 -L1- 106' LT
Length = 10 Ft., d = 3 Ft., Est.=16 Tons of Class 1 Rip-Rap
STA. 24+55 -Y2- 134' RT
Length = 20 Ft., d = 1.5 Ft., Est.=16 Tons of Class 1 Rip-Rap
STA. 27+15 -Y2- 157' RT
Length = 20 Ft., d = 1 Ft., Est.=12 Tons of Class 1 Rip-Rap



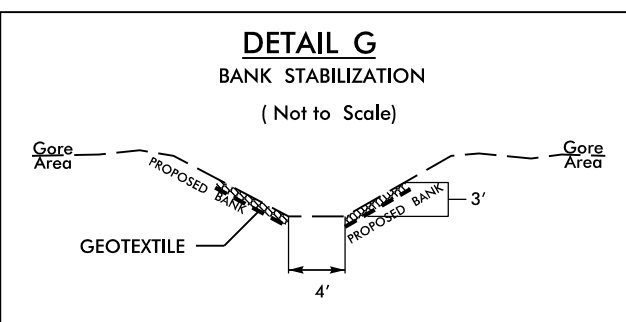
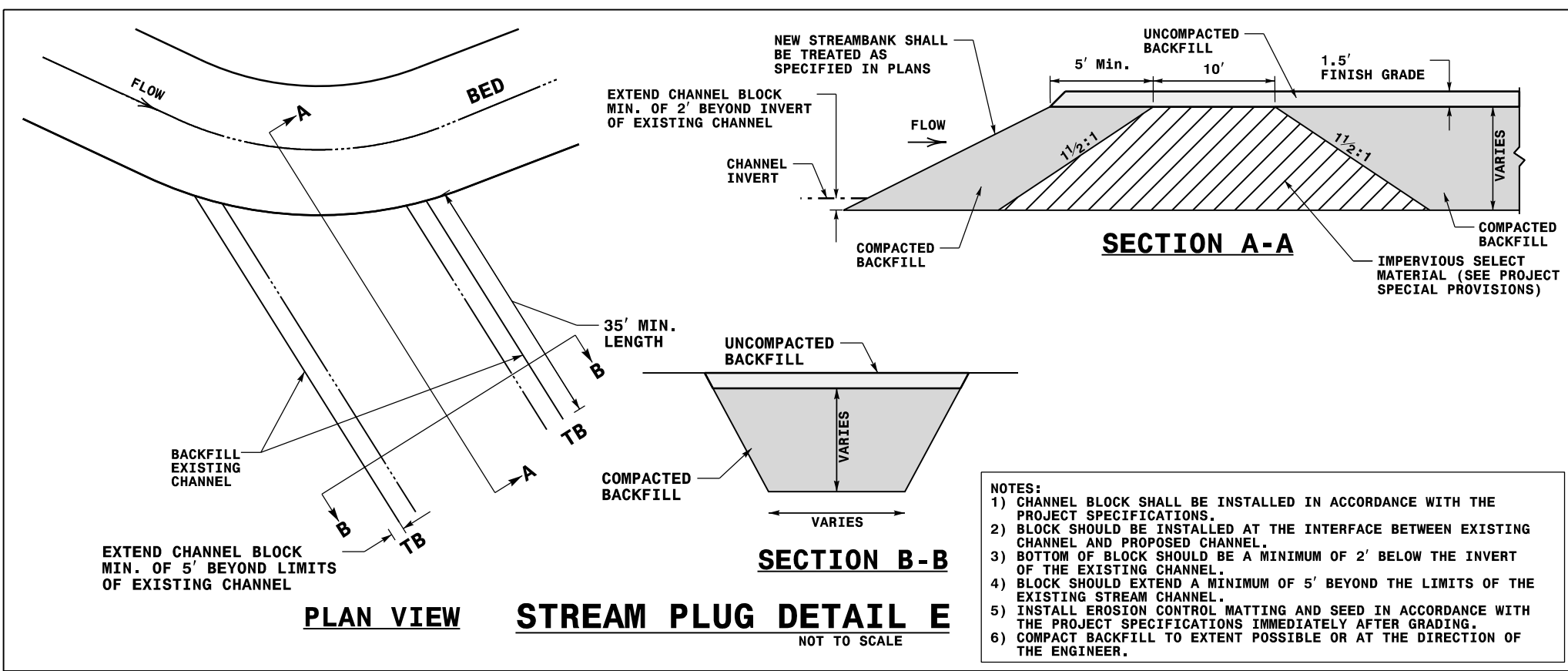
FROM STA. 27+80 TO STA. 30+00 -Y2- RT (B=2')
FROM STA. 38+50 TO STA. 39+95 -Y2- LT (B=2')
FROM STA. 38+60 TO STA. 39+95 -Y2- RT (B=3')
FROM STA. 26+90 TO STA. 29+40 -Y2RPC- RT (B=4')



FROM STA. 32+00 TO STA. 36+80 -Y2- LT
FROM STA. 22+50 TO STA. 26+90 -Y2RPC- RT
FROM STA. 26+45 TO STA. 29+05 -Y2RPD- LT



FROM STA. 24+44 -Y2- RT TO STA. 23+05 -Y2- RT
FROM STA. 36+84 -Y2- 82' LT
TO STA. 26+75 -Y2RPD- 31' RT
FROM STA. 13+00 -SR1- RT TO STA. 17+67 -SR1- RT



STA. 74+75 -L1- 170' LT, Length = 20 Ft.
Est. 36 Tons of Class 1 Rip-Rap, Est. 78 SY Geotextile
STA. 27+11 -Y2- 192' LT, Length = 20 Ft.
Est. 36 Tons of Class 1 Rip-Rap, Est. 78 SY Geotextile

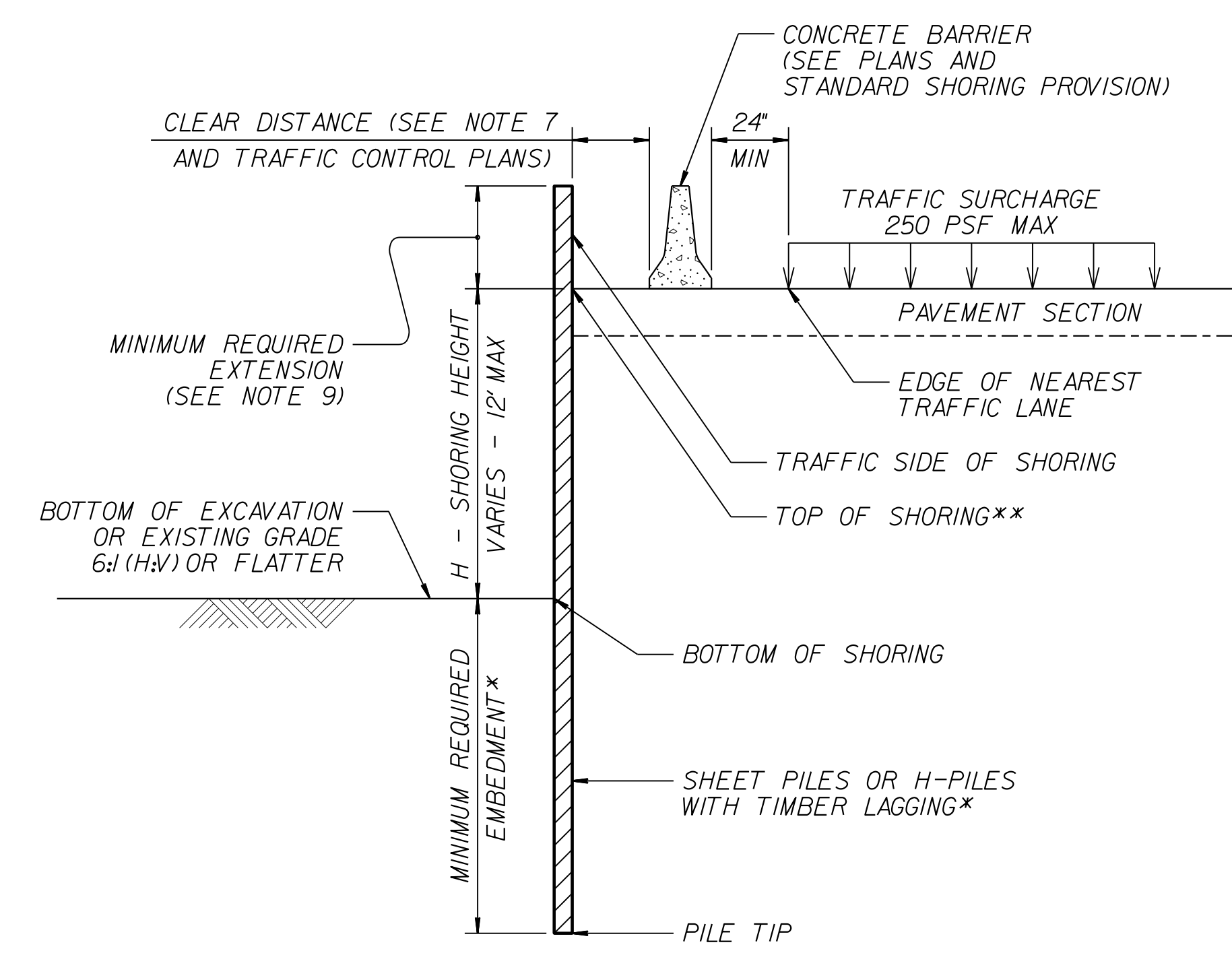
GROUNDWATER CONDITION (SEE NOTE 6)	H SHORING HEIGHT (FT)	SLOPE OR SURCHARGE CASE WITH NO TRAFFIC IMPACT					SURCHARGE CASE WITH TRAFFIC IMPACT				
		SHEET PILES		H-PILES WITH TIMBER LAGGING			SHEET PILES		H-PILES WITH TIMBER LAGGING		
		MINIMUM REQUIRED EMBEDMENT (FT)	MINIMUM REQUIRED SECTION MODULUS (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
12	22.5	33.0	--	--	--	22.0	33.0	--	--	21.5	
GROUNDWATER ELEVATION BELOW PILE TIP	< 6	7.5	3.0	8.0	8.0	8.0	11.0	10.0	9.5	9.5	9.5
	7	8.5	4.5	9.5	9.5	9.5	12.0	12.0	10.5	10.5	10.5
	8	10.0	6.5	10.5	10.5	10.5	12.5	14.0	11.5	11.5	11.5
	9	11.0	9.5	--	12.0	12.0	13.5	16.5	--	12.5	12.5
	10	12.5	13.0	--	--	13.5	14.0	19.5	--	13.5	13.5
	11	13.5	17.0	--	--	14.5	15.0	22.5	--	--	14.5
12	15.0	21.5	--	--	16.0	16.0	25.5	--	--	15.5	

MINIMUM REQUIRED EMBEDMENT AND SECTION MODULUS

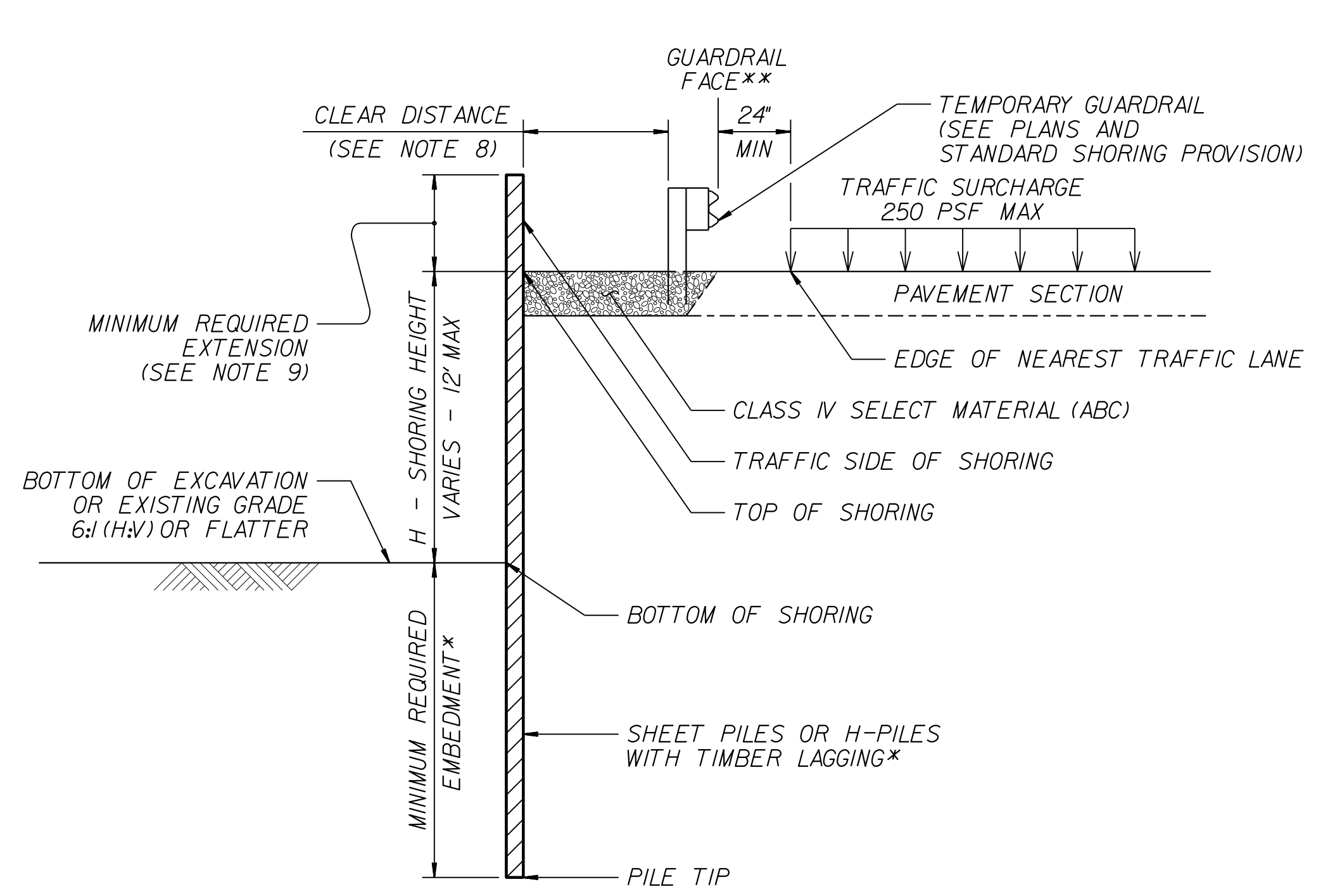
*DO NOT USE H-PILES WITH TIMBER LAGGING FOR GROUNDWATER CONDITION, SHORING HEIGHT AND H-PILE SIZE SHOWN IF MINIMUM REQUIRED EMBEDMENT IS "--".

NOTES:

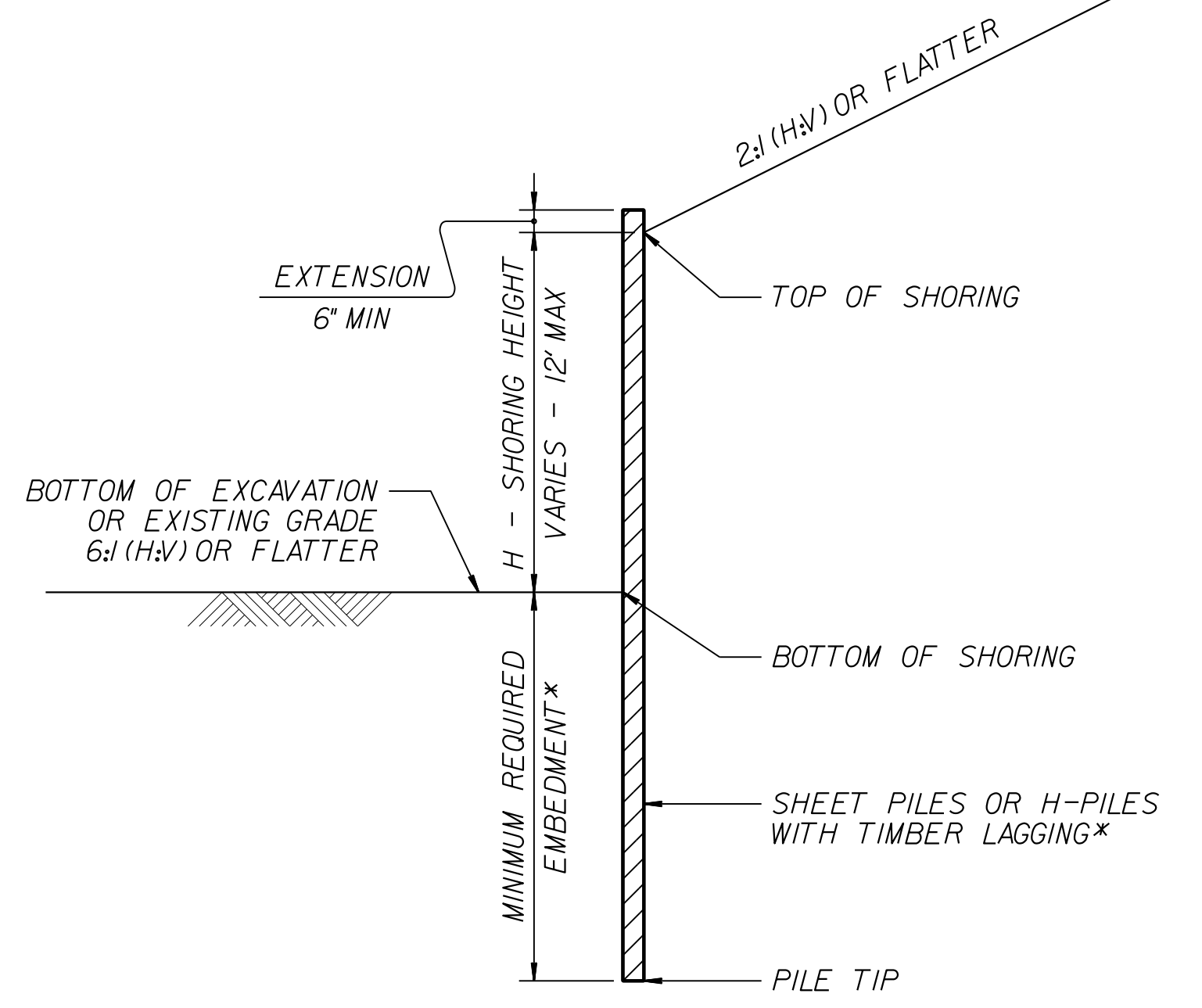
- AT THE CONTRACTOR'S OPTION, USE STANDARD TEMPORARY SHORING AS NOTED IN THE PLANS.
- FOR STANDARD TEMPORARY SHORING, SEE STANDARD SHORING PROVISION.
- STANDARD TEMPORARY SHORING IS BASED ON THE FOLLOWING IN-SITU ASSUMED SOIL PARAMETERS:
UNIT WEIGHT, $\gamma = 120$ PCF
FRICTION ANGLE, $\phi = 30$ DEGREES
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.



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

12/06/07

COMPUTED BY: N. HILL DATE: 10/15/2019
 CHECKED BY: T. HUFFMAN DATE: 10/15/2019

STATE OF NORTH CAROLINA
 DIVISION OF HIGHWAYS

PROJECT REFERENCE NO. <i>R-2303E</i>	SHEET NO. <i>3B-1</i>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

SUMMARY OF EARTHWORK
 IN CUBIC YARDS

STATION	STATION	UNCL. EXCAV.	UNDERCUT	EMBANK. +%	BORROW	WASTE
26+25 -L-	32+50 -L-	323		11,400	11,077	
23+85 -Y1-	27+99 -Y1-	2,612		316		2,296
34+50 -L-	39+10 -L-	122		7,263	7,141	
CROSSOVER 12+00 -L-	25+00 -L-	160		355	195	
CROSSOVER 37+00 -L-	51+00 -L-	147		543	396	
XO REM 12+00 -L-	25+00 -L-	284				284
XO REM 37+00 -L-	51+00 -L-	434				434
SUBTOTAL:		4,082		19,877	18,809	3,014
* 36+00 -L1-	71+00 -L1-	30,865	941	34,660	4,211	1,357
CROSSOVER 40+50 -L1-	48+00 -L1-	30		273	243	
XO REM 40+50 -L1-	48+00 -L1-	218				218
10+50 -SR1-	35+00 -SR1-	4,644	5,255	11,290	6,747	5,356
13+00 -SR2-	48+29 -SR2-	18,669	68	8,485		10,252
* 17+50 -Y2RPC-	29+89 -Y2RPC-	2,048	45	41,516	39,523	100
11+50 -Y3-	16+65 -Y3-	490		2,735	2,245	
SUBTOTAL:		56,964	6,309	98,959	52,969	17,283
71+00 -L1-	100+00 -L1-	14,426		112,595	98,169	
12+50 -Y2-	30+00 -Y2-	2,153		161,618	159,465	
32+50 -Y2-	49+00 -Y2-	2,911		100,200	97,289	
16+00 -Y2RPA-	27+70 -Y2RPA-	9,812		18,860	9,048	
13+00 -Y2LPA-	16+00 -Y2LPA-	3,705		1,976		1,729
15+00 -Y2RPD-	29+35 -Y2RPD-	725		28,205	27,480	
* 10+50 -Y4-	15+55 -Y4-	1,041	206	5,688	4,647	206
12+00 -Y2DET-	19+00 -Y2DET-	4		2,670	2,666	
REM. 12+00 -Y2DET-	REM. 19+00 -Y2DET-	2,666				2,666
10+25 -DR2-	10+90 -DR2-	10		66	56	
SUBTOTAL:		37,453	206	431,878	398,820	4,601
100+00 -L1-	120+00 -L1-	8,208		44,571	36,363	
11+50 -Y6A-	15+45 -Y6A-	780		1,621	841	
15+00 -Y6B-	21+97 -Y6B-	1,823		12,518	10,695	
10+64 -SR3-	17+50 -SR3-	962		1,288	326	
10+45 -DR3-	12+50 -DR3-	48		960	912	
10+50 -DR4-	13+00 -DR4-	69				68
SUBTOTAL:		11,889		60,958	49,137	
TOTAL:		110,388	6,515	611,672	519,735	24,966
MATERIAL FOR SHOULDER CONSTRUCTION				17,875	17,875	
UNCLASSIFIED EXCAVATION IN GORE AREAS		49,700				49,700
ADDITIONAL UNDERCUT			2,000			2,000
WASTE IN LIEU OF BORROW					-67,579	-67,579
PROJECT TOTAL:		160,088	8,515	629,547	470,032	9,087
EST. 5% TO REPLACE TOP SOIL ON BORROW PIT					23,502	
GRAND TOTAL:		160,088	8,515	493,533	493,533	9,087
SAY:		160,100	8,520		493,600	
* UNCLASSIFIED EXCAVATION - ACCEPTABLE, BUT NOT TO BE USED IN THE TOP 3' OF EMBANKMENT PER GEOTECH						
EST. DDE = 5,500 CY						

PAVEMENT STRUCTURE VOLUME:

L	=	2,600	CY
L1	=	29,980	CY
SR1	=	1,836	CY
SR2	=	2,620	CY
SR3	=	665	CY
Y2	=	8,077	CY
Y2LPA	=	423	CY
Y2RPA	=	2,065	CY
Y2RPC	=	1,800	CY
Y2RPD	=	1,476	CY
Y3	=	427	CY
Y4	=	470	CY
Y6A	=	611	CY
Y6B	=	765	CY

PAVEMENT STRUCTURE VOLUME PROJECT TOTAL = 53,815 CY

REMOVAL OF EXISTING ASPHALT PAVEMENT

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	YD ²
-L-	26+25	32+48	LT	320.13
-L-	26+25	32+47	CL	234.30
-L-	26+75	32+47	CL	196.23
-L-	26+75	32+46	RT	407.60
-L-	34+62	39+10	LT	207.00
-L-	34+58	39+10	CL	164.44
-L-	34+55	39+10	CL	186.98
-L-	34+52	39+10	RT	297.26
-L1-	36+00	48+66	LT	830.03
-L1-	36+00	50+10	RT	916.25
-L1-	36+00	50+10	LT	922.61
-L1-	36+00	50+10	RT	591.57
-L1-	50+10	55+95	LT /RT /CL	1062.16
-L1-	59+45	61+30	LT /RT	727.92
-L1-	109+00	114+76	LT /RT	1154.49
-SR1-	25+01	29+86	LT	234.26
-SR1-	33+20	34+77	LT	33.49
-SR1-	31+35	35+50	RT	326.52
-SR2-	13+36	14+90	LT	229.68
-SR3-	10+19	10+63	RT	56.14
-SR3-	13+36	14+90	LT	229.68
-Y2RPC-	14+00	17+06	RT	1089.48
-Y2-	18+20	20+96	RT	513.14
-Y2-	44+12	45+37	RT	181.13
-Y2-	46+00	49+00	LT	120.18
-Y2-	46+00	49+00	RT	79.64
-Y3-	15+77	16+53	LT	685.92
-Y4-	13+77	15+22	LT	309.42
-Y6A-	12+72	13+39	RT	44.61
-Y6B-	17+93	21+47	RT	830.04
-Y2DET-	12+16	13+25	RT	71.91
-Y2DET-	13+82	19+12	LT /RT	1392.45
-XOVER1-	12+69	26+01	MED	1197.16
-XOVER2-	15+18	24+83	MED	1073.14
-XOVER3-	14+13	25+99	MED	1405.01
-XOVER4-	14+07	25+40	MED	415.47
-XOVER5-	13+47	14+80	MED	60.08
-XOVER5-	15+47	20+24	MED	557.51
TOTAL:				25,466.30
SAY:				25,470

CABLE GUIDERAIL SUMMARY

SURVEY LINE	STATION	STATION	LENGTH	END ANCHOR UNIT	INTERMEDIATE ANCHOR UNIT	COMMENTS
-L1-	50+40	69+83	1,943	2		ANCHOR TO ATTENUATOR
-L1-	72+66	105+39	3,273	2	1	ATTENUATOR TO ANCHOR
SUBTOTAL:			5,216	4	1	
LESS TERMINAL ANCHOR UNITS						4 @ 25'-0" EA
GRAND TOTALS:			5,116	4	1	
SAY:			5,200	4	1	
ADDITIONAL GUIDERAIL POSTS = 6 EACH						

BREAKING OF EXISTING ASPHALT PAVEMENT

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	YD ²
-L-	29+20	32+48	LT	876.37
-L-	29+20	32+46	RT	912.66
-L-	34+60	36+90	LT	584.69
-L-	34+54	36+90	RT	625.36
-L1-	50+10	54+21	LT	921.86
-L1-	50+10	57+86	RT	2376.10
-SR1-	35+08	35+49	RT	148.34
-SR1-	26+52	26+98	LT	74.24
-SR2-	37+64	43+05	LT /RT	786.04
-SR3-	10+18	14+04	LT /RT	757.97
-Y2-	17+56	19+44	RT	209.03
-Y2-	44+21	46+00	RT	456.40
-Y3-	14+40	16+81	LT /RT	666.37
-Y4-	12+80	14+42	LT /RT	298.46
-Y6A-	12+80	13+43	RT	93.46
-Y6B-	16+60	18+71	LT /RT	381.92
TOTAL:				10,169.27
SAY:				10,170

SHOULDER BERM GUTTER SUMMARY

SURVEY LINE	STATION	STATION	LENGTH (FT)
-L- LT	28+85	32+48	363
-L- RT MED	31+78	32+47	69
-L- LT	34+63	36+39	176
-Y2- LT	29+68	29+92	24
-Y2- RT	29+68	29+97	29
-Y2- LT	32+20	32+58	38
-Y2- RT	32+26	32+58	32
TOTAL:			731
SAY:			750

EXPRESSWAY GUTTER SUMMARY

SURVEY LINE	STATION	STATION	LENGTH (FT)
-L1- LT	69+86	73+53	367
-Y2LPA- LT	10+00	11+67	167
TOTAL:			534
SAY:			540

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COMPUTED BY: Steven V. Hudson, LG DATE: 02/22/18
 CHECKED BY: J. Lee Stone, LG DATE: 02/22/18
 REVISED BY: Jinyoung Park, PE DATE: 09/24/19
 REVISED BY: Jeff Barfield, LG DATE: 9/24/2019

(5-15-18)

PROJECT NO. R-2303E 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
VARIES	VARIES	VARIES	LT & RT	SD	1700
CONTINGENCY				SD	500
TOTAL LF:					2200

*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 Soil Stabilization SY	Stabilizer Aggregate TONS	Class IV Aggregate Stabilization TONS
CONTINGENCY			ASU(1)	12	250	500	750		
CONTINGENCY			AST						250
CONTINGENCY			ASU(1)	12	500	945	1500	NA	NA
TOTAL CY/TONS/SY:					750	1445**	2250**	0	250

*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 Soil 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 BRIDGE WAITING PERIODS



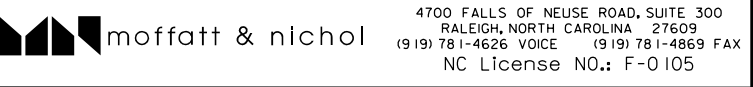
Bridge Description	End Bent/ Bent No.	MONTHS
Dual Bridges on US 421/701 over NC 24 - Site 1	EB1, EB2	1
Bridge on SR 1934 over US 421 - Site 2	EB1, EB2	1

STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

PARCEL INDEX SHEET

PARCEL No.	SHEET No.	PROPERTY OWNER NAME
69	5, 12	HENRY L. MOSS JR
70	5	UNKNOWN OWNER
71	5	JUDY B. & HERBERT G. PARKER
74	5, 6	MARY U. BALLARD
4	5	JAMES F. MOORE III
5	5, 6	JON SCOTT MOORE
75	6	JEROME A. HERRING
76	6, 7	JAMES F. MOORE JR
600	6	MARY F. POOLE
8	6, 7	LEE T. MATTHEWS
9		LEE T. MATTHEWS (NOT USED)
10	7	RICHARD G. ELMORE SR
11	7	MARCELINO SANCHEZ
12	7	EMILIANO SANCHEZ
13	7	BILLY R. TODD
14	7	MICHAEL W. GUPTON
15	7, 15	MARK D. RAYNOR
20	7, 15	PENTECOSTAL FREE WILL BAPTIST CHURCH INC
601	7, 15	MARGARET T. MALPASS
602	7, 15	WILLIAM R. RUDD
603	7	HARRIET MCGEE
604	7	THORNTON LOGGING COMPANY
605	7	JAMES F. FAISON
606	7	ROBERT G. TEACHEY
607	7	DIANA L. G. RODRIGUEZ
608	7	ROCIO V. NUNEZ
609	7	WILLIAM H. HARRIS
610	7	CATHERINE FENNELL
611	7	DARIUS J. SAMMONS III
612	7	NOE J. F. GARAY
613	7	JOSHUA INGRAM
616	7	R. C. JUSTICE JR
617	7	EDDIE L. BARDEN
618	7	BETTY J. HART
619	7	LINDA HERRING
620	7	DIANE JENKINS
621	7	BILLY C. LOCKAMY
622	7	ANGELA D. C. JARQUIN
623	7	ARTHUR L. UNDERWOOD JR
624	7	CHRISTOPHER M. MILLEN
625, 625Z	7, 8, 14	JOHN R. HOPE
37	7	RANDALL A. MCLAMB
46	7, 14	JUANITA G. MCLAMB
49	7, 8, 13, 14	JOYCE B. COLLINS, ET VIR
77	8	MICHAEL L. WILLIAMSON
79	8, 9	ELLIOTT C. & JANE C. BYRD TRUSTEES
80	9	DAVID O. CALDWELL
81	9, 10	DAVID O. COLWELL
82		DAVID O. COLWELL (NOT USED)
87	9	SHEILA S. SULLIVAN
88	9	FRANZ ERIC FREEMAN
89	9	CHARLES S. JACOBS
90		ESSIE MARIE FREEMAN (NOT USED)
91		CHARLES S. JACOBS (NOT USED)
92, 92Z	9	KIMBERLY D. PETERSON
626	9	ELVIE J. NEWKIRK
627	9, 10	NC REAL ESTATE SERVICE CORP
628	9, 10	SIOBHAN LEE
629	10	JAMES ASHLEY
630	10	HORACE BASS

PARCEL No.	SHEET No.	PROPERTY OWNER NAME
94, 94Z	10	EVELYN JANE MATHIS
94A, 94AZ	10	RONALD LEIGH POOLE
98	10	JOHN ROBINSON
99	10	JANICE Y. SAMPSON
102	10	HORACE BASS
103	10, 16	PATRICIA A. EDWARDS
111	10, 16	HORACE BASS JR
68	11, 12	MARTHA P. HALES
50	13	JOYCE B. COLLINS, ET VIR
60	13, 14	RICHARD G. ELMORE SR
61, 61Z	13	W. P. COLLINS JR
56	14	BISSETTE-ROYAL FARMING CO.
57	14	JESSIE C. MELVIN
58	14	BERNITA F. SMITH-VANN
59	14	HELEN D. WRIGHT
16	15	VEDA CAROL CAULDER
17	15	PATRICIA GREEN
18	15	ROMIE BARTS ESTATE
19	15	KENAN FAMILY LIMITED PARTNERSHIP
20	7, 15	PENTECOSTAL FREE WILL BAPTIST CHURCH INC
104		PATRICIA A. EDWARDS (NOT USED)
105	16	LATISHA V. OLIVER
106	16	SHIRLEY F. STANLEY
107	16	CHASIE S. JACOBS
112	16	LLOYD ROGER BASS

PROJECT REFERENCE NO. R-2303E		SHEET NO. 5	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
			
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			
			

-SRI-

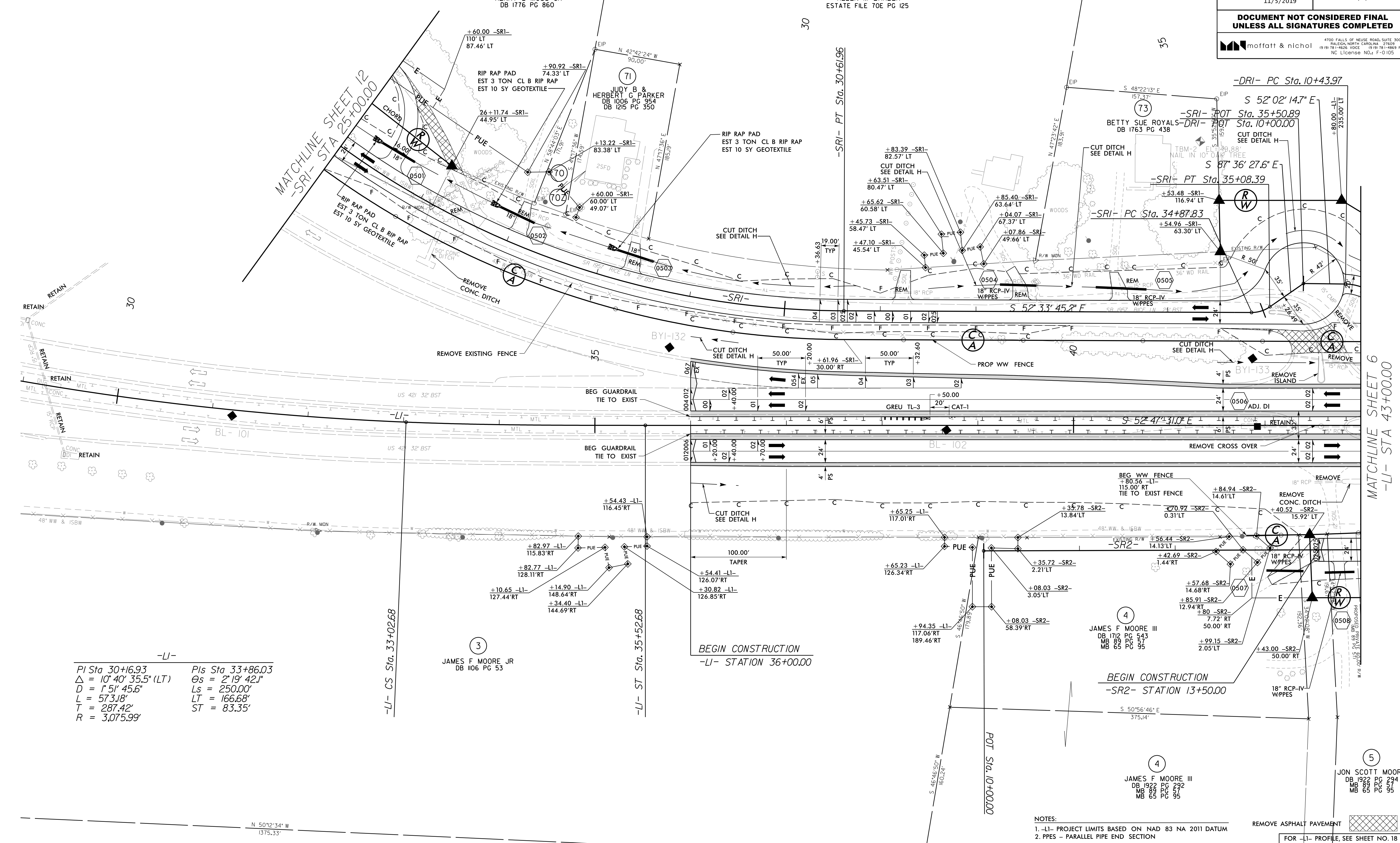
PI Sta 27+30.93 Δ = 44° 32' 04.2" (LT) D = 6' 21' 58.3" L = 699.55' T = 368.52' R = 900.00' e = 04 RO = 76.00'	PI Sta 34+98.44 Δ = 35° 02' 42.3" (LT) D = 170' 24' 46.5" L = 20.56' T = 10.62' R = 33.62'
---	---

-DRI-

PI Sta 10+56.28 Δ = 27° 39' 26.8" (RT) D = 114' 35' 29.6" L = 241.4' T = 12.31' R = 50.00'

-LI-

PI Sta 30+16.93 Δ = 10° 40' 35.5" (LT) D = 1' 51" 45.6" L = 573.18' T = 287.42' R = 3,075.99'	PIs Sta 33+86.03 Os = 2° 19' 42.1" Ls = 250.00' LT = 166.68' ST = 83.35'
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NOTES:

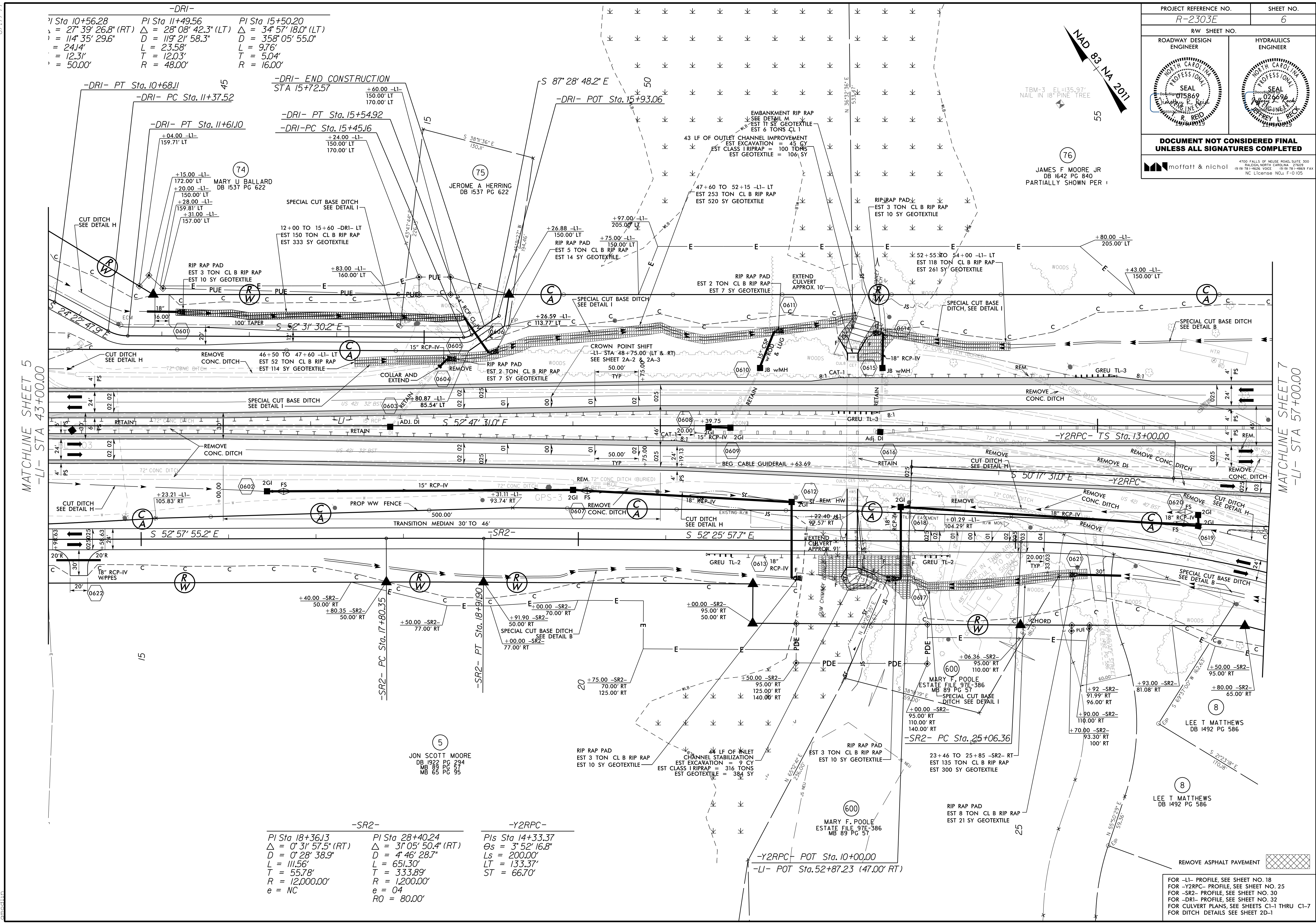
- LI- PROJECT LIMITS BASED ON NAD 83 NA 2011 DATUM
- PPES - PARALLEL PIPE END SECTION

REMOVE ASPHALT PAVEMENT

FOR -LI- PROFILE, SEE SHEET NO. 18
FOR -SRI- PROFILE, SEE SHEET NO. 30
FOR -SR2- PROFILE, SEE SHEET NO. 30
FOR -DRI- PROFILE, SEE SHEET NO. 32
FOR DITCH DETAILS SEE SHEET 2D-1

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PROJECT REFERENCE NO. R-2303E		SHEET NO. 6	
RW SHEET NO.		HYDRAULICS ENGINEER	
ROADWAY DESIGN ENGINEER		SEAL 015869 R. REID 10/10/10	
		SEAL 026698 R. REID 10/10/10	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			
moffatt & nichol		4700 FALLS OF NEUSE ROAD, SUITE 300 RALEIGH, NORTH CAROLINA 27609 (919) 781-4626 VOICE (919) 781-4669 FAX NC License No. F-0105	



-DRI-
 1/2 Sta 10+56.28 PI Sta 11+49.56 PI Sta 15+50.20
 $\Delta = 27^\circ 39' 26.8''$ (RT) $\Delta = 28^\circ 08' 42.3''$ (LT) $\Delta = 34^\circ 57' 18.0''$ (LT)
 $D = 114' 35' 29.6''$ $D = 119' 21' 58.3''$ $D = 358' 05' 55.0''$
 $L = 24.4'$ $L = 23.58'$ $L = 9.76'$
 $T = 12.31'$ $T = 12.03'$ $T = 5.04'$
 $R = 50.00'$ $R = 48.00'$ $R = 16.00'$

MATCHLINE SHEET 5
-LI- STA 43+00.00

MATCHLINE SHEET 7
-LI- STA 57+00.00

-SR2-		-Y2RPC-	
PI Sta 18+36.13	PI Sta 28+40.24	PI Sta 14+33.37	
$\Delta = 0^\circ 31' 57.5''$ (RT)	$\Delta = 31^\circ 05' 50.4''$ (RT)	$\Delta = 3^\circ 52' 16.8''$	
$D = 0^\circ 28' 38.9''$	$D = 4^\circ 46' 28.7''$	$L_s = 200.00'$	
$L = 111.56'$	$L = 651.30'$	$LT = 133.37'$	
$T = 55.78'$	$T = 333.89'$	$ST = 66.70'$	
$R = 12,000.00'$	$R = 1,200.00'$		
$e = NC$	$e = 04$		
	$RO = 80.00'$		

FOR -LI- PROFILE, SEE SHEET NO. 18
 FOR -Y2RPC- PROFILE, SEE SHEET NO. 25
 FOR -SR2- PROFILE, SEE SHEET NO. 30
 FOR -DRI- PROFILE, SEE SHEET NO. 32
 FOR CULVERT PLANS, SEE SHEETS C1-1 THRU C1-7
 FOR DITCH DETAILS SEE SHEET 2D-1

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