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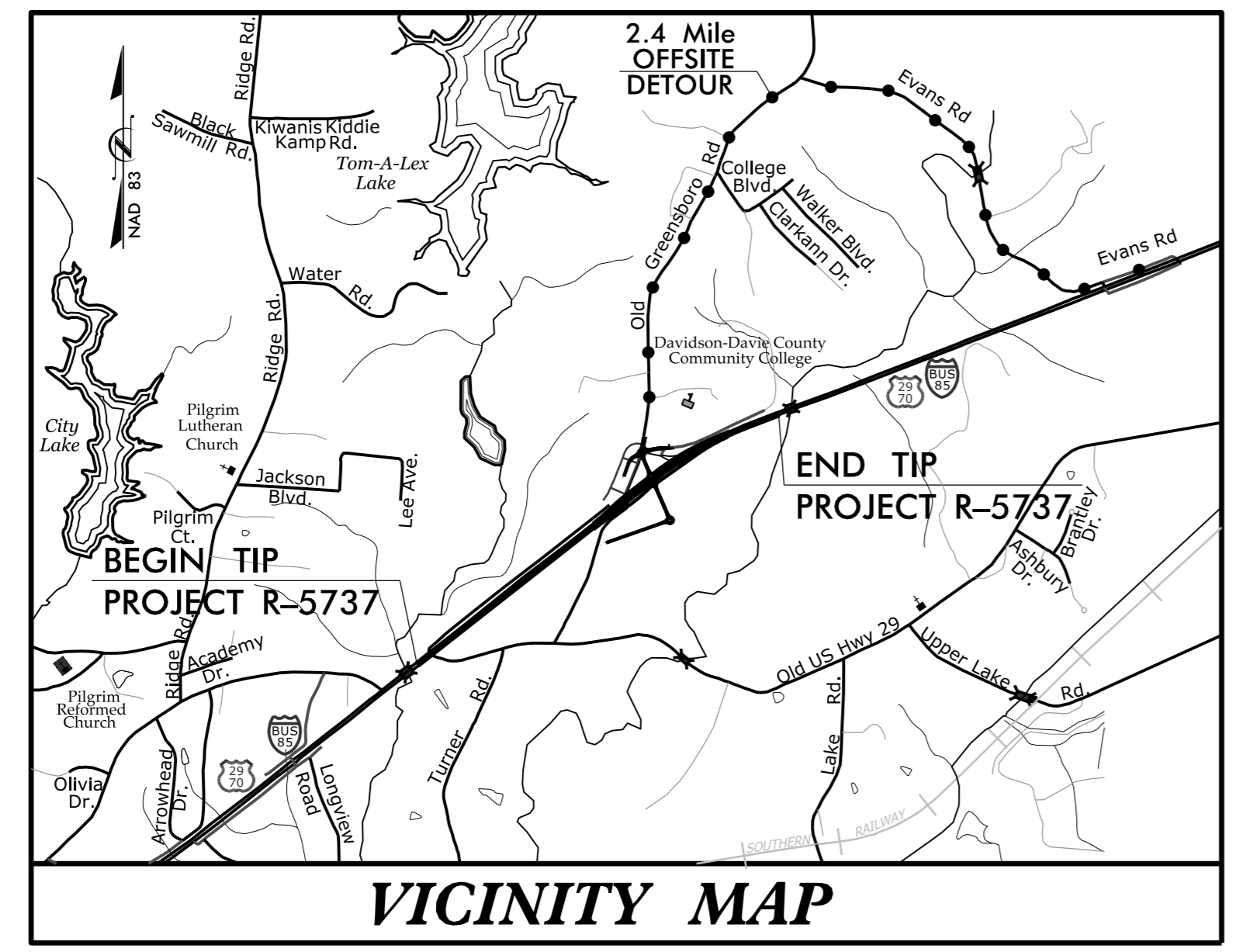
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09/28/19

TIP PROJECT: R-5737

CONTRACT: C204399

See Sheet 1A For Index of Sheets

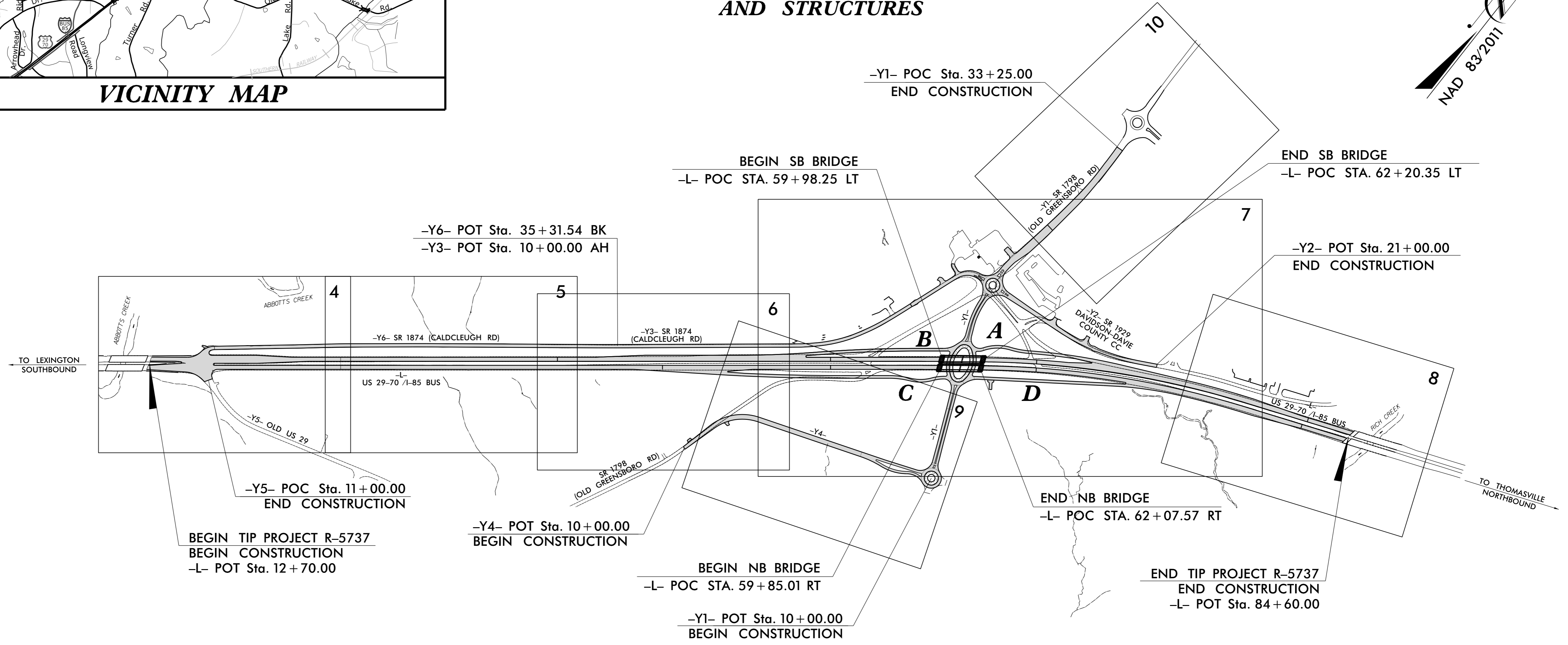
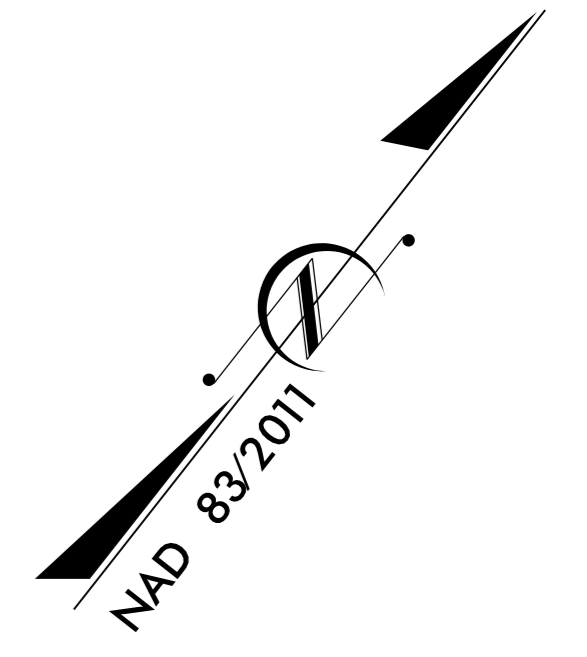


STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

DAVIDSON COUNTY

LOCATION: CONVERT AT-GRADE INTERSECTION OF OLD GREENSBORO RD (SR 1798) AND I-85 BUS/US 29-70 TO INTERCHANGE
TYPE OF WORK: GRADING, DRAINAGE, PAVING AND STRUCTURES

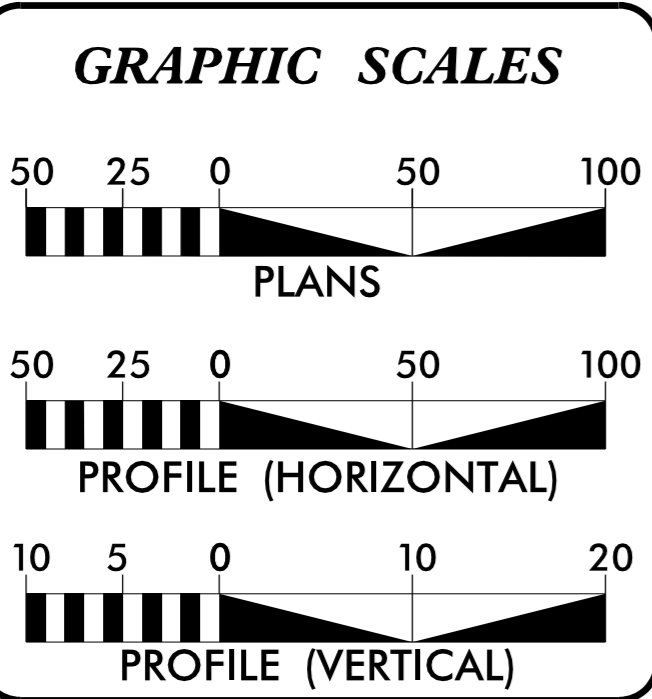
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-5737	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
50195.1.1		PE	
50195.2.1		ROW & UTIL.	
50195.3.1		CONST.	



THIS IS A PARTIAL CONTROLLED-ACCESS PROJECT WITH ACCESS BEING LIMITED TO POINTS AS SHOWN ON THE PLANS.

NCDOT CONTACT: AL BLANTON, P.E.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



DESIGN DATA

ADT 2019 =	19300
ADT 2040 =	21400
K =	9 %
D =	60 %
T =	9 % *
V =	60 MPH
* TTST 5% DUAL 4%	
FUNC CLASS =	ARTERIAL
STATEWIDE TIER	

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT R-5737 =	1.320 MILES
LENGTH STRUCTURE TIP PROJECT R-5737 =	0.042 MILES
TOTAL LENGTH TIP PROJECT R-5737 =	1.362 MILES
STRUCTURE LENGTH BASED ON -L- NB STATIONING.	

PLANS PREPARED FOR NCDOT BY:

2610 WYCLIFF ROAD
SUITE 410
RALEIGH, NC 27607
PHONE: 919.881.9939
NC COA No. F-0929

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
AUGUST 30, 2018

LETTING DATE:
OCTOBER 19, 2021

DENNIS J. MORY, P.E.
PROJECT ENGINEER

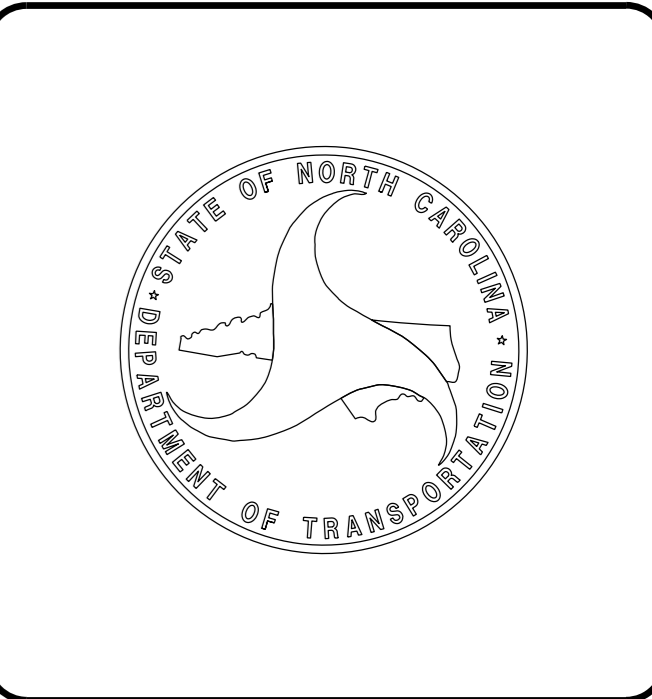
BEN STORMER, P.E.
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

DocuSigned by:
Steven M. Bomber 8/28/2021
SIGNATURE:

ROADWAY DESIGN ENGINEER

DocuSigned by:
Dennis J. Mory, PE 8/30/2021
SIGNATURE:

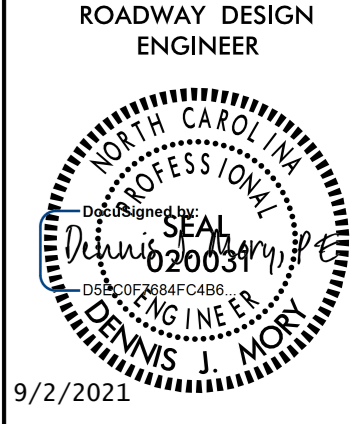


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RoadwayProj\NR5737_Rdy-TSH.dgn
USER: dmory



2610 WYCLIFF ROAD
RALEIGH, NC 27607
PHONE: 919.881.9339
NC CORP. # 0529

PROJECT REFERENCE NO. R-5737 SHEET NO. 1A



ROADWAY DESIGN ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

EFF. 01-16-2018
REV.

TIP R-5737 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-7	PAVEMENT SCHEDULE, TYPICAL SECTIONS, AND PAVEMENT WEDGE DETAILS
2B-1 THRU 2B-6	ROUNDABOUT DETAIL SHEETS
2B-7	SHEAR POINT LAYOUT
2B-8 THRU 2B-15	DETOUR DETAIL SHEETS
2C-1 THRU 2C-15	DETAIL OF GUARDRAIL IMPACT ATTENUATORS DETAIL FOR TYPE III BRIDGE APPROACH FILLS DETAIL OF W-BEAM RAIL SECTION DETAIL OF MEDIAN HAZARD PROTECTION AND BARRIER TRANSITION DETAIL OF TEMPORARY GUARDRAIL ANCHOR UNIT TYPE B-77 DETAIL OF BARRIER OVER TRAFFIC BEARING DOUBLE DROP INLET DETAIL OF MINIMUM DEPTH CONCRETE CATCH BASIN 12" THRU 84" DETAIL OF EXTRA DEPTH CONCRETE CATCH BASIN 12" THRU 84" DETAIL OF TYPE 1 CURB RAMPS DETAIL OF TYPE 2 CURB RAMPS DETAIL OF TYPE 3 CURB RAMPS DETAIL OF TYPE 4 CURB RAMPS DETAIL OF TYPE 5 CURB RAMPS DETAIL OF TYPES 6, 7, & 8 CURB RAMPS DETAIL FOR CONVERTING CB DI OTCB OR 201 TO JB
3B-1 THRU 3B-3	SUMMARY OF ROADWAY QUANTITIES
3D-1 THRU 3D-8	SUMMARY OF DRAINAGE QUANTITIES
3G-1	SUMMARY OF GEOTECHNICAL QUANTITIES
3P-1	PARCEL INDEX SHEET
4 THRU 26	PLAN AND PROFILE SHEETS
RW-1 THRU RW-10	RIGHT OF WAY PLANS
TMP-1 THRU TMP-50	TRAFFIC MANAGEMENT PLANS
PMP-1 THRU PMP-12	PAVEMENT MARKING PLANS
E-1 THRU E-6	ELECTRICAL PLANS
EC-1 THRU EC-23	EROSION CONTROL PLANS
RF-1	REFORESTATION
SIGN-1 THRU SIGN-14	SIGNING PLANS
UC-1 THRU UC-8	UTILITY CONSTRUCTION PLANS
UD-1 THRU UD-14	UTILITIES BY OTHERS PLANS
X-0 THRU X-08	CROSS SECTION SUMMARY SHEET AND INDEX
X-1 THRU X-125	CROSS SECTIONS
S1-1 THRU S1-25	STRUCTURE PLANS LEFT BRIDGE
S2-1 THRU S2-25	STRUCTURE PLANS RIGHT BRIDGE
W-1 THRU W-12	RETAINING WALLS

2018 ROADWAY ENGLISH STANDARD DRAWINGS

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

STD. NO.	TITLE
DIVISION 2 - EARTHWORK	
200.03	Method of Clearing - Method III
225.01	Guide for Grading Subgrade - Interstate and Freeway
225.02	Guide for Grading Subgrade - Secondary and Local
225.03	Deceleration and Acceleration Lanes
225.04	Method of Obtaining Superlevation - Two Lane Pavement
225.05	Method of Obtaining Superlevation - Divided Highways
225.06	Method of Grading Sight Distance at Intersections
240.01	Guide for Berm Ditch Construction
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation
310.10	Driveway Pipe Construction
DIVISION 4 - MAJOR STRUCTURES	
422.03	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	
654.01	Pavement Repairs
DIVISION 8 - INCIDENTALS	
806.01	Concrete Right-of-Way Marker
806.02	Granite Right-of-Way Marker
815.02	Subsurface Drain
815.03	Pipe Underdrain and Blind Drain
816.04	Markers for Drainage Structure and Concrete Pad
838.01	Concrete Endwall for Single and Double Pipe Culverts - 15" thru 48" Pipe 90 Skew
838.11	Brick Endwall for Single and Double Pipe Culverts - 15" thru 48" Pipe 90 Skew
838.80	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
840.26	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
840.31	Concrete Junction Box - 12" thru 66" Pipe
840.32	Brick Junction Box - 12" thru 66" Pipe
840.34	Traffic Bearing Junction Box - for Use with Pipes 42" and Under
840.35	Traffic Bearing Grated Drop Inlet - for Cast Iron Double Frame and Grates
840.36	Traffic Bearing Grated Drop Inlet - for Steel (840.37) Double Frame and Grates
840.37	Steel Grate and Frame
840.45	Precast Drainage Structure
840.46	Traffic Bearing Precast Drainage Structure
840.54	Manhole Frame and Cover
840.66	Drainage Structure Steps
840.72	Pipe Collar
846.01	Concrete Curb, Gutter and Curb & Gutter
846.02	Drop Inlet Installation in Expressway Gutter
846.04	Drop Inlet Installation in Shoulder Berm Gutter
848.01	Concrete Sidewalk
848.04	Street Turnout
848.05	Curb Ramp - Proposed Curb & Gutter
850.01	Concrete Paved Ditches
852.01	Concrete Islands
852.06	Method for Placement of Drop Inlets in Concrete Islands
854.01	Double Faced Concrete Barrier - Types I, II, III and IV
854.04	Concrete Median Barrier - Precast Permanent
854.05	Concrete Median Transition Barrier - Location of Overhead Assembly
857.01	Precast Reinforced Concrete Barrier - 41" Single Faced
862.01	Guardrail Placement
862.02	Guardrail Installation
862.03	Structure Anchor Units
862.04	Anchoring End of Guardrail - B-77 and B-83 Anchor Units
866.01	Chain Link Fence - 4', 5' and 6' High Fence
876.01	Rip Rap in Channels
876.02	Guide for Rip Rap at Pipe Outlets
876.04	Drainage Ditches with Class 'B' Rip Rap

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.

SUPERELEVATION:

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

SHOULDER CONSTRUCTION:

ASPHALT, EARTH, AND CONCRETE SHOULDER CONSTRUCTION ON THE HIGH SIDE OF SUPERELEVATED CURVES SHALL BE IN ACCORDANCE WITH STD. NO. 560.01 AND STD. 560.02

SIDE ROADS:

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

BERM DITCHES:

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

SUBSURFACE DRAINS:

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

UNDERDRAINS:

UNDERDRAINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 815.03 AT LOCATIONS DIRECTED BY THE ENGINEER.

STREET TURNOUT:

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

GUARDRAIL:

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

END BENTS:

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

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE DUKE ENERGY, ENERGY UNITED, SPECTRUM, VERIZON/MCI, WINDSTREAM, DAVIDSON WATER, INC., CITY OF THOMASVILLE.

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 CONTRACT.

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.

ROCK:

- ROCK IS ANTICIPATED:
- BETWEEN: -L- 56+75 AND -L- 57+75 - LEFT
- BETWEEN: -L- 56+75 AND -L-60+25 - RIGHT
- BETWEEN: -L- 66+75 AND -L- 67+75 - RIGHT
- BETWEEN: -Y1- 16+75 AND -L- 17+25 - LEFT & RIGHT
- BETWEEN: -Y4- 22+75 AND -L- 23+25 - LEFT & RIGHT
- BETWEEN: -Y4- 23+75 AND -L- 24+25 - LEFT & RIGHT

BLASTING MAY BE REQUIRED FOR EXCAVATION ON THE PROJECT.

SEE SECTION 220 OF THE STANDARD SPECIFICATIONS AND IF APPLICABLE, ROCK BLASTING PROVISION.

STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

12/2/2016

BOUNDARIES AND PROPERTY:

State Line	-----
County Line	-----
Township Line	-----
City Line	-----
Reservation Line	-----
Property Line	-----
Existing Iron Pin	○ EIP
Computed Property Corner	----->
Property Monument	□ EDM
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 RW Marker	-----
New Control of Access Line with Concrete C/A Marker	-----
Existing Control of Access	-----
New Control of Access	-----
Existing Easement Line	----- E
New Temporary Construction Easement	----- E
New Temporary Drainage Easement	----- TDE
New Permanent Drainage Easement	----- PDE
New Permanent Drainage / Utility Easement	----- DUE
New Permanent Utility Easement	----- PUE
New Temporary Utility Easement	----- TUE
New Aerial Utility Easement	----- AUE

ROADS AND RELATED FEATURES:

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

VEGETATION:

Single Tree	○
Single Shrub	○

Note: Not to Scale

*S.U.E. = Subsurface Utility Engineering

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

EXISTING STRUCTURES:

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

UTILITIES:

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

TELEPHONE:

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

WATER:

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

TV:

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

GAS:

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

SANITARY SEWER:

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

MISCELLANEOUS:

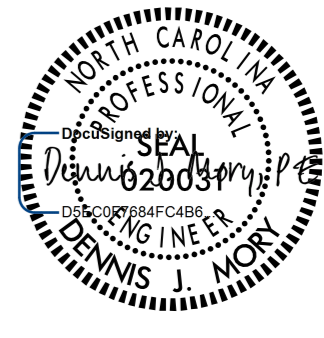
Utility Pole	●
Utility Pole with Base	□
Utility Located Object	○
Utility Traffic Signal Box	⊠
Utility Unknown U/G Line LOS B (S.U.E.*)	----- ?UTL
U/G Tank; Water, Gas, Oil	□
Underground Storage Tank, Approx. Loc.	⊕
A/G Tank; Water, Gas, Oil	□
Geoenvironmental Boring	⊕
U/G Test Hole LOS A (S.U.E.*)	⊕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

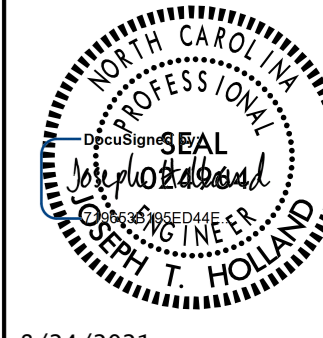
6/2/2019

PAVEMENT SCHEDULE

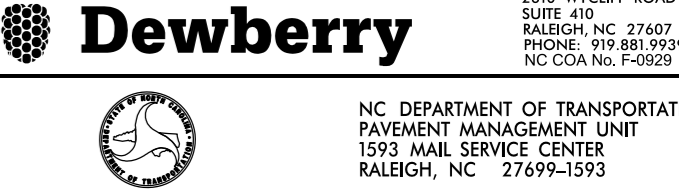
PROJECT REFERENCE NO. R-5737 SHEET NO. 2A-1

ITEM	DESCRIPTION		DESCRIPTION	ITEM	DESCRIPTION
A1	7" CONCRETE TRUCK APRON WITH WELDED WIRE MESH (KEYED IN)	J1	PROPOSED 6" AGGREGATE BASE COURSE W/PRIME COAT	S	4" CONCRETE SIDEWALK
A2	7" CONCRETE TRUCK APRON WITH WELDED WIRE MESH & RUMBLE STRIPS (KEYED IN)	J2	PROPOSED 8" AGGREGATE BASE COURSE	T	EARTH MATERIAL
C1	PROPOSED APPROXIMATE 1.5" ASPHALT CONC. SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YARD.	J3	PROPOSED VAR. DEPTH AGGREGATE BASE COURSE	TI	AGGREGATE SHOULDER BORROW
C2	PROPOSED APPROXIMATE 3" ASPHALT CONC. SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YARD IN EACH OF TWO LAYERS.	K1	PROP. CHEMICAL STABILIZATION (SOIL-CEMENT BASE/LIME-TREATED SOIL), BASE TREATED WITH CEMENT AT A RATE OF 56 LBS. PER SQ. YARD @ 7" DEPTH OR SOIL TREATED WITH LIME AT A RATE OF 24 LBS. PER SQ. YARD @ 8" DEPTH.	U	EXISTING PAVEMENT
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YARD PER 1" IN DEPTH TO BE PLACED IN LAYERS NOT TO EXCEED 1.5" IN DEPTH.	K2	PROP. 8" CLASS IV SUBGRADE STABILIZATION	V1	INCIDENTAL PAVEMENT MILLING - SEE MILLING DETAIL V1
C4	PROPOSED APPROXIMATE 1.5" ASPHALT CONC. SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YARD.	N1	GEOTEXTILE FOR SOIL STABILIZATION	V2	INCIDENTAL PAVEMENT MILLING - SEE MILLING DETAIL V2
C5	PROPOSED APPROXIMATE 3" ASPHALT CONC. SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YARD IN EACH OF TWO LAYERS.	N2	GEOTEXTILE FOR PAVEMENT STABILIZATION	V3	1.5" PAVEMENT MILLING
C6	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YARD PER 1.5" IN DEPTH TO BE PLACED IN LAYERS NOT TO EXCEED 2" IN DEPTH.	P	PRIME COAT AT THE NORMAL APPLICATION RATE OF 0.35 GAL. PER SQ. YARD	W1	VARIABLE DEPTH ASPHALT
D1	PROPOSED APPROXIMATE 2.5" ASPHALT CONC. INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YARD.	R1	PROPOSED 2'-6" CONCRETE CURB & GUTTER	W2	VARIABLE DEPTH ASPHALT
D2	PROPOSED APPROXIMATE 4" ASPHALT CONC. INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YARD.	R2	PROPOSED 2'-0" MODIFIED VALLEY CURB	NOTES: 1. ALL PAVEMENT EDGE SLOPES ARE 1:1 UNLESS OTHERWISE NOTED. 2. SEE PLANS FOR LOCATION OF ACCELERATION AND DECELERATION LANES. 3. SEE PLANS FOR LOCATION OF TURN LANE AND INTERSECTION TURNOUTS. 4. SEE PLANS FOR LOCATION OF ALL PAVEMENT TAPERS. 5. ALL DRIVEWAY RADII IS 10' UNLESS SHOWN OTHERWISE ON PLANS. 6. ALL SIDEWALK CORNER RADII IS 3' UNLESS SHOWN OTHERWISE ON PLANS. 7. THE WELDED WIRE MESH FOR THE ROUNDABOUT TRUCK APRONS SHALL BE (4x4 W3.5xW3.5) OR (6x6 W5xW5). 8. THE ROUNDABOUT TRUCK APRONS SHALL HAVE 15' JOINT SPACING ON TOP OF VARIABLE DEPTH ABC. 9. SEE SHEETS 2B-1 THRU 2B-6 FOR CONCRETE ISLAND & TRUCK APRON DETAILS.	
D3	PROP. VAR. DEPTH ASPHALT CONC. 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 2.5" OR GREATER THAN 4" IN DEPTH.	R3	PROPOSED CONCRETE SHOULDER BERM GUTTER		
E1	PROPOSED APPROXIMATE 5" ASPHALT CONC. BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 570 LBS. PER SQ. YARD.	R4	PROPOSED CONCRETE EXPRESSWAY GUTTER		
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YARD PER 1" DEPTH TO BE PLACED IN LAYERS NOT LESS THAN 3" OR GREATER THAN 5.5" IN DEPTH.	R5	5" MONOLITHIC CONCRETE ISLAND (KEYED IN)		

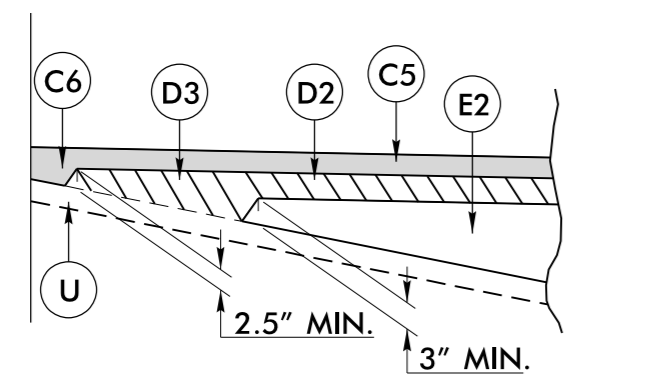
ROADWAY DESIGN ENGINEER

 8/24/2021

PAVEMENT DESIGN ENGINEER

 8/24/2021

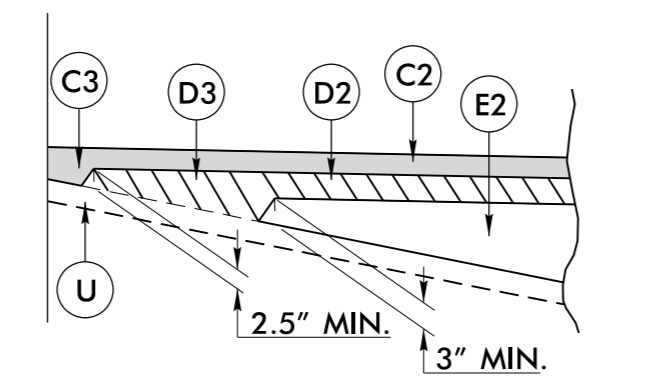
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Dewberry

 2610 WILCOFF ROAD
 SUITE 410
 RALEIGH, NC 27607
 PHONE: 919.881.9939
 NC CCA No. F-0928

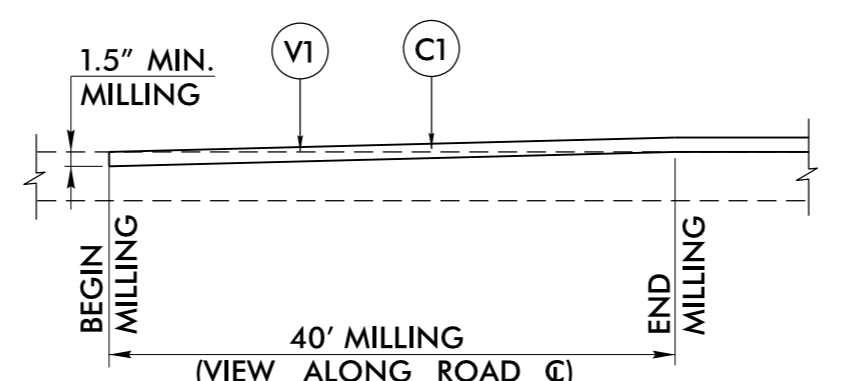
NC DEPARTMENT OF TRANSPORTATION
 PAVEMENT MANAGEMENT UNIT
 1593 MAIL SERVICE CENTER
 RALEIGH, NC 27699-1593



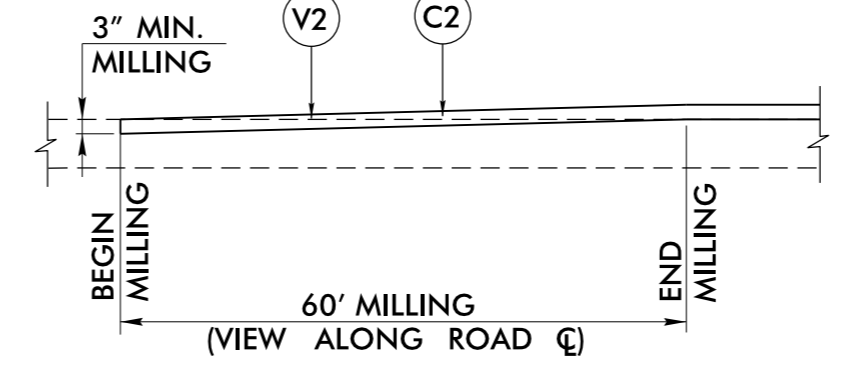
WEDGING DETAIL - W1
 NOT TO SCALE
 USE IN-CONJUNCTION WITH TS#2



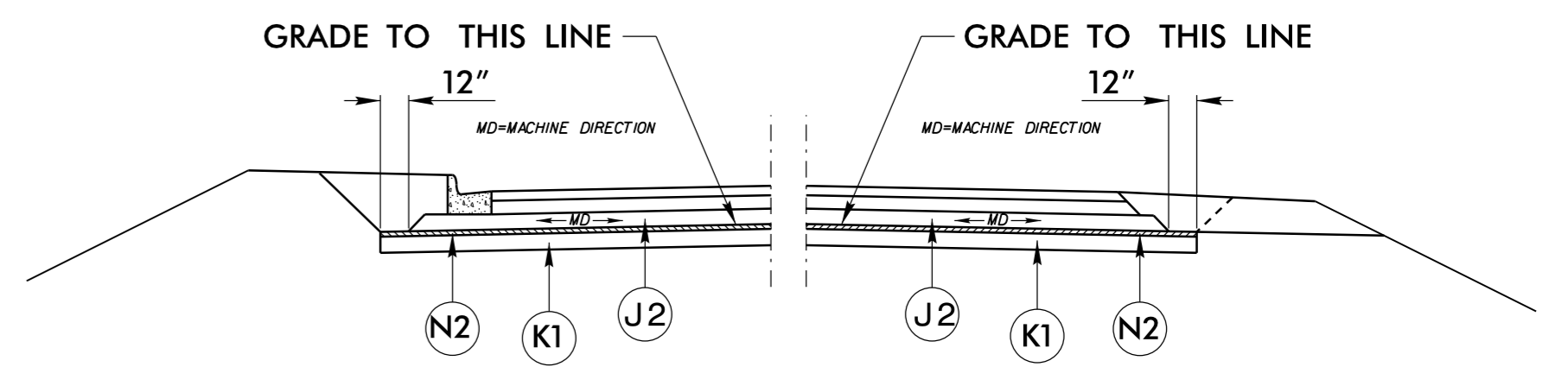
WEDGING DETAIL - W2
 NOT TO SCALE
 USE IN-CONJUNCTION WITH TS#7 & 7A



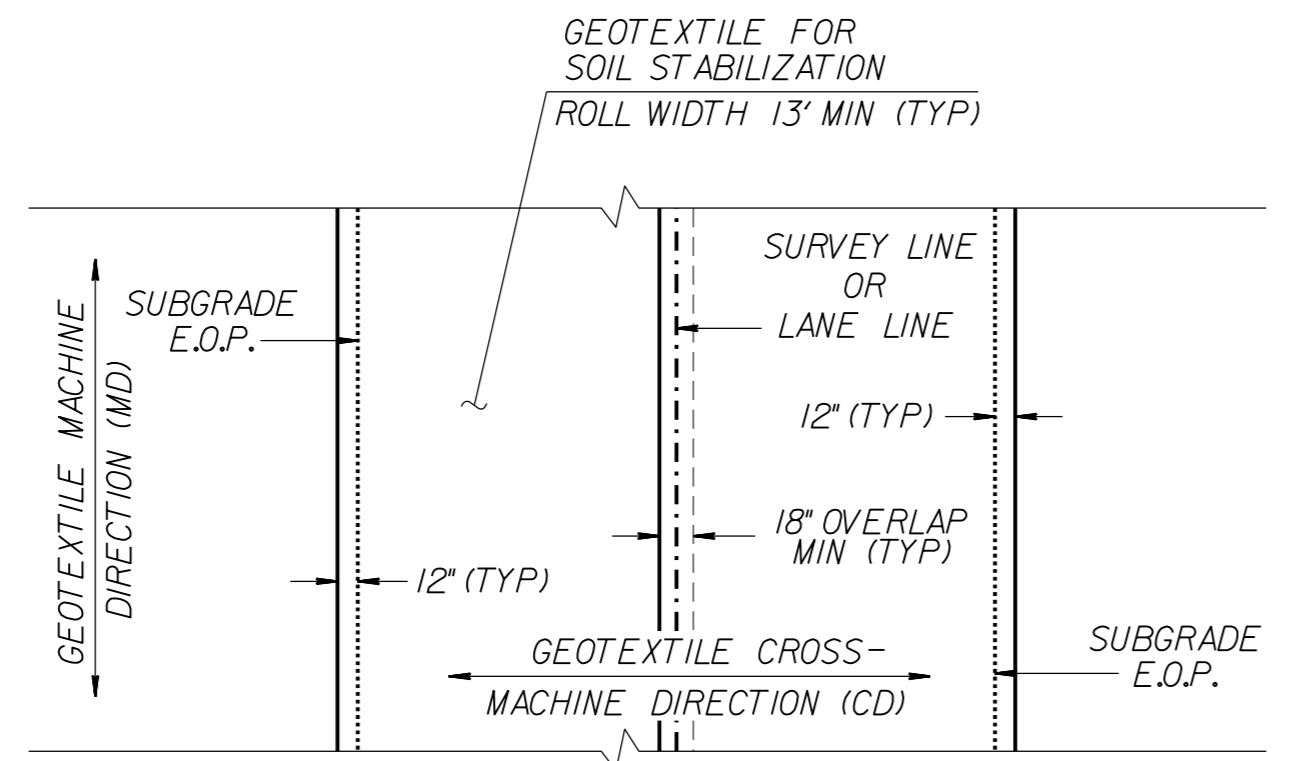
MILLING DETAIL - V1
 NOT TO SCALE
 -Y2- 15+60.00 TO -Y2- 16+00.00
 -Y4- 10+00.00 TO -Y4- 10+40.00



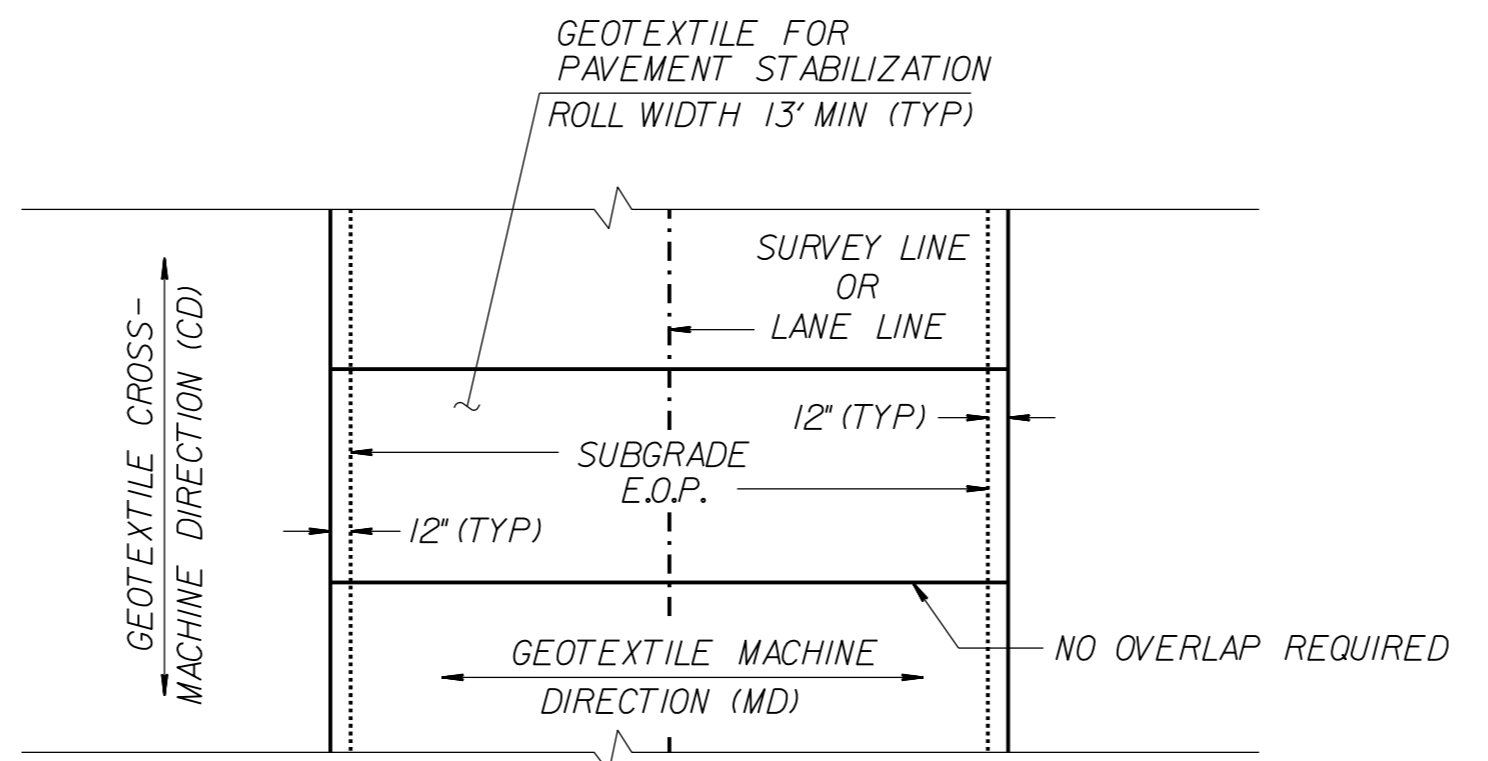
INCIDENTAL MILLING DETAIL - V2
 NOT TO SCALE
 -Y5- 10+40.00 TO -Y5- 11+00.00



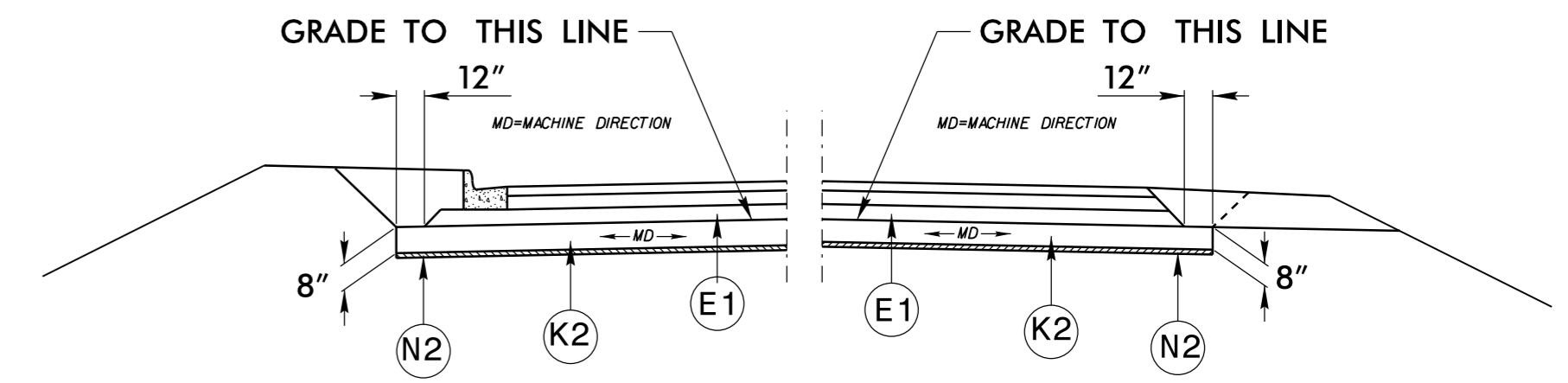
DETAIL FOR CHEMICAL STABILIZATION GEOTEXTILE FOR PAVEMENT STABILIZATION WITH ABC
 USE IN CONJUNCTION WITH TYPICAL SECTIONS FOR:
 -Y1-, -Y4-, -C1-, -C2-, -RPA-, -RPB-, -RPC-, & -RPD-
 FOR LOCATIONS WHERE GEOTEXTILE IS REQUIRED, SEE SHEET 3G-1.



GEOTEXTILE FOR SOIL STABILIZATION PLACEMENT (PLAN VIEW)
 (100% COVERAGE REQUIRED)



GEOTEXTILE FOR PAVEMENT STABILIZATION PLACEMENT (PLAN VIEW)
 (100% COVERAGE REQUIRED)



DETAIL FOR CLASS IV SUBGRADE STABILIZATION GEOTEXTILE FOR PAVEMENT STABILIZATION WITH ASPHALT BASE
 USE AS A CONTINGENCY AT THE DISCRETION OF ENGINEER

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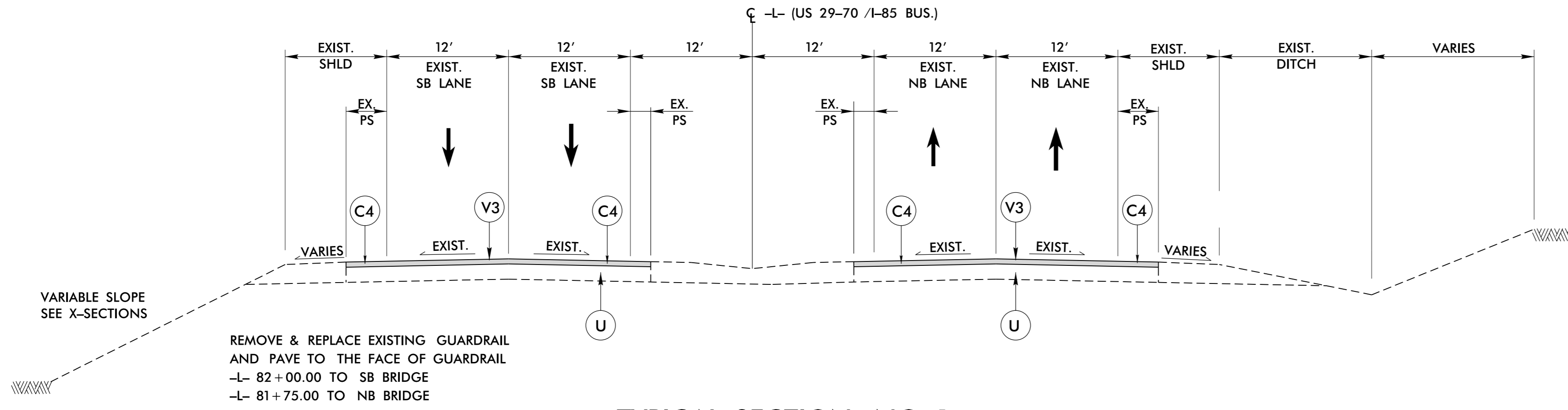
6/2/2019

PAVEMENT SCHEDULE

ITEM	DESCRIPTION	ITEM	DESCRIPTION	ITEM	DESCRIPTION	ITEM	DESCRIPTION	ITEM	DESCRIPTION	ITEM	DESCRIPTION	ITEM	DESCRIPTION			
(A1)	7" CONCRETE	(C4)	1.5" S9.5C	(D3)	VAR DEPTH I19.0C	(J3)	VAR. DEPTH ABC	(N2)	GEOTEXTILE FOR PAVEMENT STAB.	(R4)	CONC. EXWY GUTTER	(U)	EXIST. PAVEMENT			
(A2)	7" CONCRETE wRS	(C5)	3" S9.5C	(E1)	5" B25.0C	(K1)	CHEMICAL STABILIZATION: 7" SOIL-CEMENT BASE OR 8" LIME-TREATED SOIL	(P)	PRIME COAT	(R5)	5" CONC. ISLAND	(V1)	INCIDENTAL MILLING			
(C1)	1.5" S9.5B	(C6)	VAR DEPTH S9.5C	(E2)	VAR DEPTH B25.0C	(J1)	6" ABC	(K2)	8" CLASS IV SUBGRADE STABILIZATION	(R1)	2'-6" C&G	(S)	4" CONC. SIDEWALK	(V2)	INCIDENTAL MILLING	
(C2)	3" S9.5B	(D1)	2.5" I19.0C	(J2)	8" ABC	(N1)	GEOTEXTILE FOR SOIL STABILIZATION	(R2)	2' MOD. VALLEY CURB	(T)	EARTH MATERIAL	(V3)	1.5" MILLING	(W1)	(W2)	WEDGING DETAILS
(C3)	VAR DEPTH S9.5B	(D2)	4" I19.0C	(J2)	8" ABC	(N1)	GEOTEXTILE FOR SOIL STABILIZATION	(R3)	CONC. SBG	(T1)	AGGR. SHLD. BORROW	(W1)	(W2)	WEDGING DETAILS		

- NOTES:
1. ALL PAVEMENT EDGE SLOPES ARE 1:1 UNLESS OTHERWISE NOTED.
 2. SEE PLANS FOR LOCATION OF ACCELERATION AND DECELERATION LANES.
 3. SEE PLANS FOR LOCATION OF TURN LANE AND INTERSECTION TURNOUTS.
 4. SEE PLANS FOR LOCATION OF ALL PAVEMENT TAPERS.
 5. ALL DRIVEWAY RADII IS 10' UNLESS SHOWN OTHERWISE ON PLANS.
 6. ALL SIDEWALK CORNER RADII IS 3' UNLESS SHOWN OTHERWISE ON PLANS.
 7. THE WELDED WIRE MESH FOR THE ROUNDABOUT TRUCK APRONS SHALL BE (4x4 W3.5xW3.5) OR (6x6 W5xW5).
 8. THE ROUNDABOUT TRUCK APRONS SHALL HAVE 15' JOINT SPACING ON TOP OF VARIABLE DEPTH ABC.
 9. SEE SHEETS 2B-1 THRU 2B-6 FOR CONCRETE ISLAND & TRUCK APRON DETAILS.

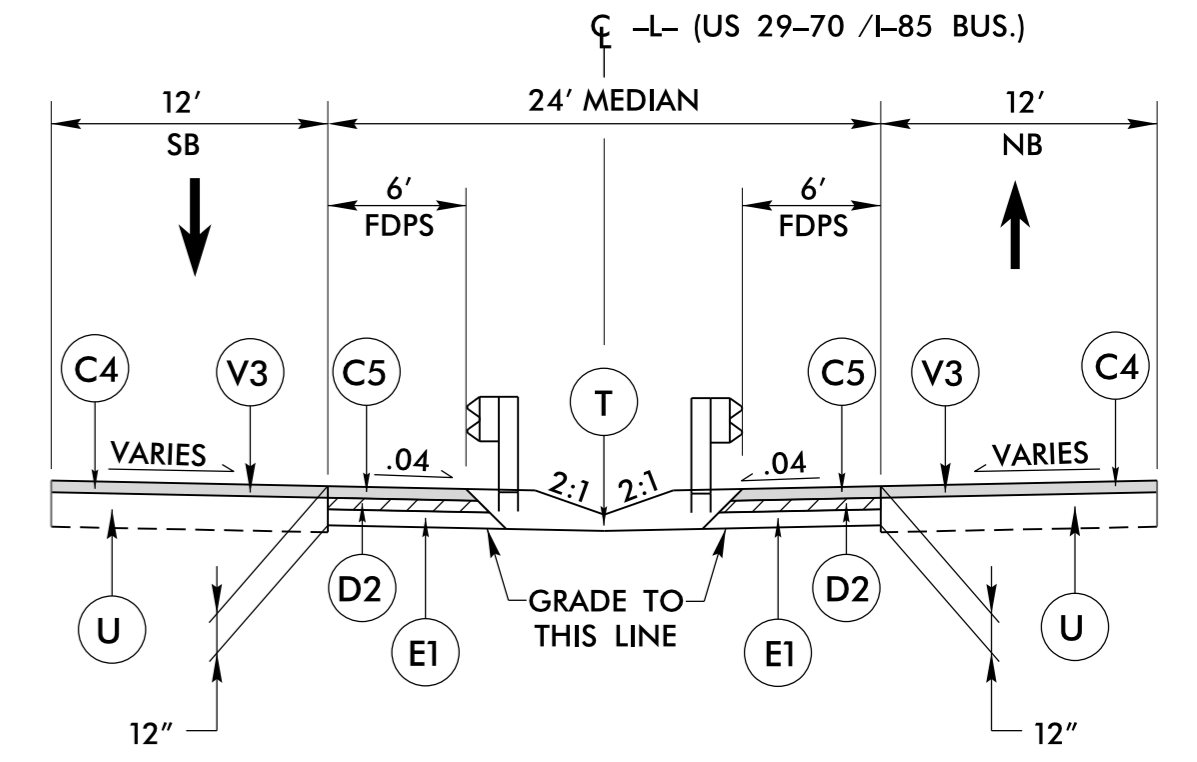
PROJECT REFERENCE NO. R-5737	SHEET NO. 2A-2
ROADWAY DESIGN ENGINEER 	PAVEMENT DESIGN ENGINEER
8/24/2021	8/24/2021
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
Dewberry	
<small>2610 WYCLIFF ROAD RALEIGH, NC 27607 PHONE: 919.881.9939 NC CCA No. F-0928</small>	
<small>NC DEPARTMENT OF TRANSPORTATION PAVEMENT MANAGEMENT UNIT 1593 WALK SERVICE CENTER RALEIGH, NC 27699-1593</small>	



TYPICAL SECTION NO. 1

MILL & OVERLAY
 -L- 12+70.00 TO -L- 37+00.00 SB
 -L- 82+00.00 TO -L- 84+60.00 SB BRIDGE

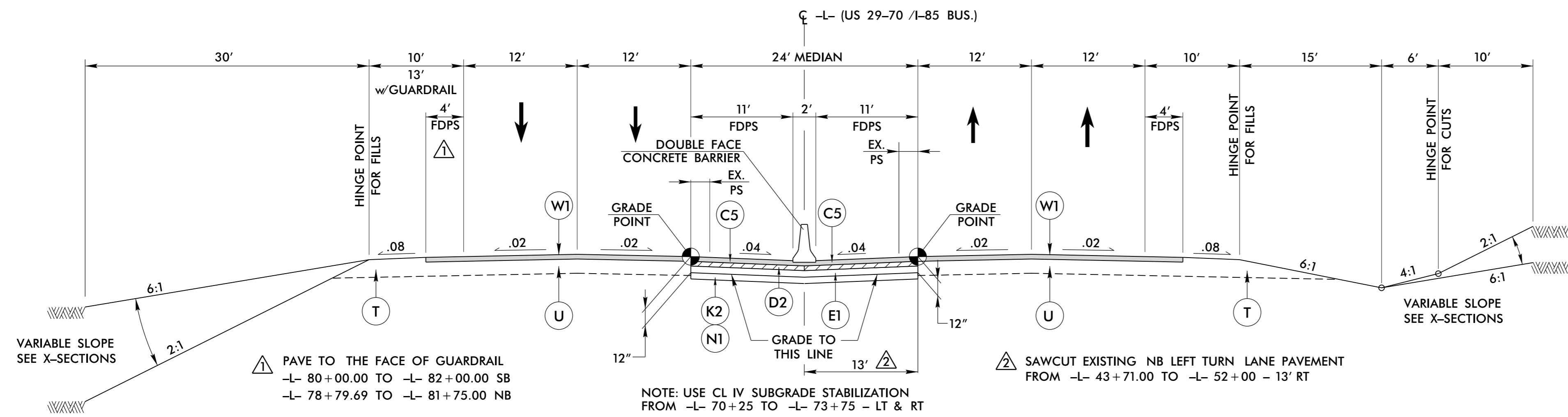
MILL & OVERLAY
 -L- 12+70.00 TO -L- 43+25.00 NB
 -L- 81+50.00 TO 84+60.00 NB BRIDGE



TYPICAL SECTION NO. 1A

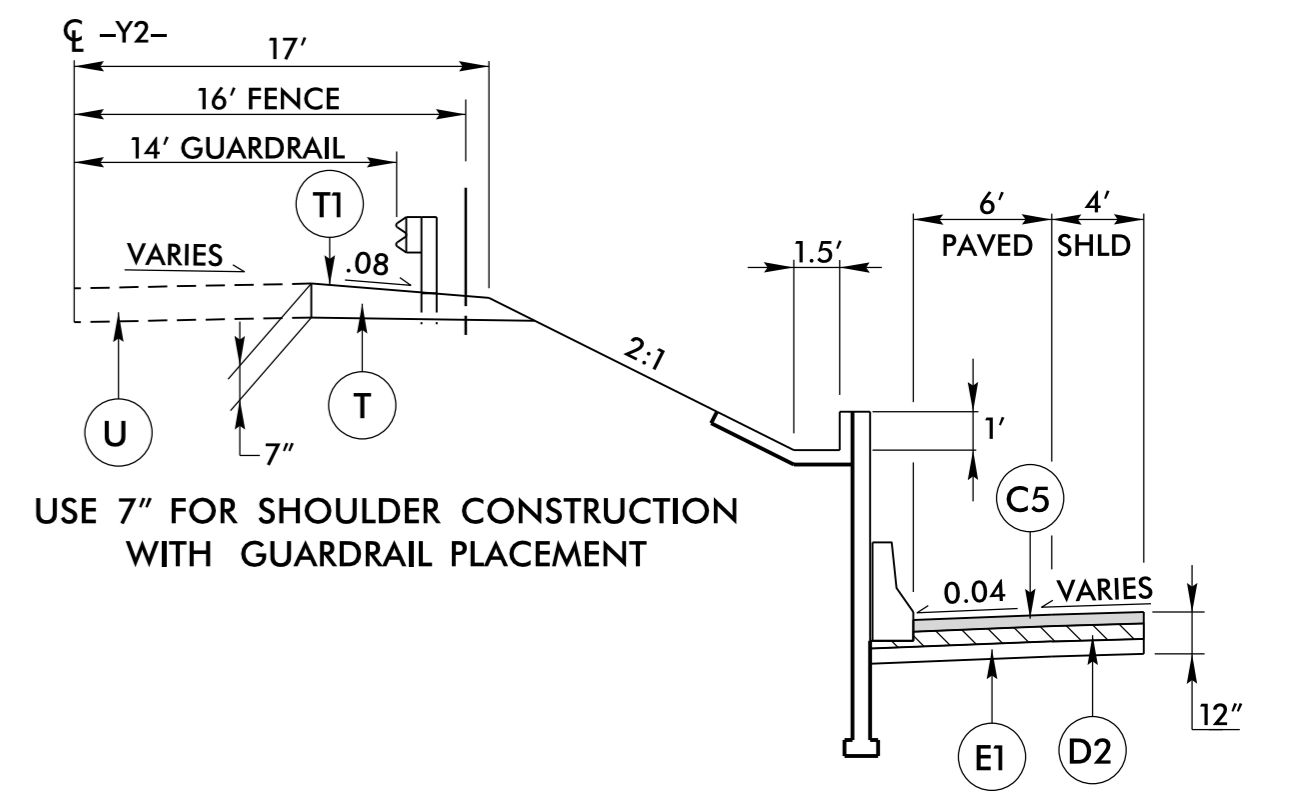
-L- 25+85.00 TO -L- 26+55 15:1 TAPER SB
 -L- 26+55.00 TO -L- 37+00.00 SB
 -L- 37+00.00 TO -L- 37+75.00 15:1 TAPER NB
 -L- 25+85.00 TO -L- 26+55 15:1 TAPER NB
 -L- 26+55.00 TO -L- 37+95.00 NB

-L- 81+50.00 TO -L- 84+60.00 (BRIDGE) SB
 -L- 81+69.00 TO -L- 82+44.00 15:1 TAPER NB
 -L- 82+44.00 TO -L- 84+60.00 (BRIDGE) NB
 (SEE SHEET 2A-3 FOR MEDIAN BARRIER TRANSITION)



TYPICAL SECTION NO. 2

-L- 37+00.00 TO -L- 53+25.00 SB -L- 43+25.00 TO -L- 53+25.00 NB
 -L- 65+50.00 TO -L- 82+00.00 SB -L- 65+50.00 TO -L- 81+50.00 NB
 CONCRETE MEDIAN BARRIER FROM -L- 37+95.00 TO -L- 58+25.00
 NOTE: MILL & OVERLAY FROM -L- 37+95.00 TO -L- 43+25.00 NB
 CONCRETE MEDIAN BARRIER FROM -L- 63+79.25 TO -L- 81+50.00



DETAIL FOR RETAINING WALL -L-
 -L- 75+78.00 TO -L- 80+00.00 - LEFT

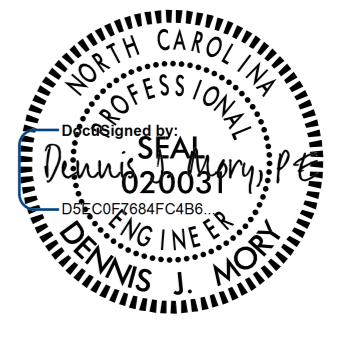
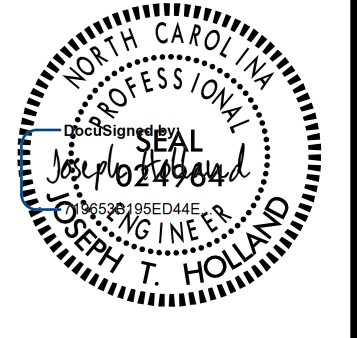
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6/2/2019

PAVEMENT SCHEDULE

ITEM	DESCRIPTION	ITEM	DESCRIPTION	ITEM	DESCRIPTION	ITEM	DESCRIPTION	ITEM	DESCRIPTION	ITEM	DESCRIPTION	ITEM	DESCRIPTION
(A1)	7" CONCRETE	(C4)	1.5" S9.5C	(D3)	VAR DEPTH I19.0C	(J3)	VAR. DEPTH ABC	(N2)	GEOTEXTILE FOR PAVEMENT STAB.	(R4)	CONC. EXWY GUTTER	(U)	EXIST. PAVEMENT
(A2)	7" CONCRETE wRS	(C5)	3" S9.5C	(E1)	5" B25.0C	(K1)	CHEMICAL STABILIZATION: 7" SOIL-CEMENT BASE OR 8" LIME-TREATED SOIL	(P)	PRIME COAT	(R5)	5" CONC. ISLAND	(V1)	INCIDENTAL MILLING
(C1)	1.5" S9.5B	(C6)	VAR DEPTH S9.5C	(E2)	VAR DEPTH B25.0C	(K2)	8" CLASS IV SUBGRADE STABILIZATION	(R1)	2'-6" C&G	(S)	4" CONC. SIDEWALK	(V2)	INCIDENTAL MILLING
(C2)	3" S9.5B	(D1)	2.5" I19.0C	(J1)	6" ABC	(K2)	8" CLASS IV SUBGRADE STABILIZATION	(R2)	2' MOD. VALLEY CURB	(T)	EARTH MATERIAL	(V3)	1.5" MILLING
(C3)	VAR DEPTH S9.5B	(D2)	4" I19.0C	(J2)	8" ABC	(N1)	GEOTEXTILE FOR SOIL STABILIZATION	(R3)	CONC. SBG	(T1)	AGGR. SHLD. BORROW	(W1)	(W2) WEDGING DETAILS

- NOTES:
1. ALL PAVEMENT EDGE SLOPES ARE 1:1 UNLESS OTHERWISE NOTED.
 2. SEE PLANS FOR LOCATION OF ACCELERATION AND DECELERATION LANES.
 3. SEE PLANS FOR LOCATION OF TURN LANE AND INTERSECTION TURNOUTS.
 4. SEE PLANS FOR LOCATION OF ALL PAVEMENT TAPERS.
 5. ALL DRIVEWAY RADII IS 10' UNLESS SHOWN OTHERWISE ON PLANS.
 6. ALL SIDEWALK CORNER RADII IS 3' UNLESS SHOWN OTHERWISE ON PLANS.
 7. THE WELDED WIRE MESH FOR THE ROUNDABOUT TRUCK APRONS SHALL BE (4x4 W3.5xW3.5) OR (6x6 W5xW5).
 8. THE ROUNDABOUT TRUCK APRONS SHALL HAVE 15' JOINT SPACING ON TOP OF VARIABLE DEPTH ABC.
 9. SEE SHEETS 2B-1 THRU 2B-6 FOR CONCRETE ISLAND & TRUCK APRON DETAILS.

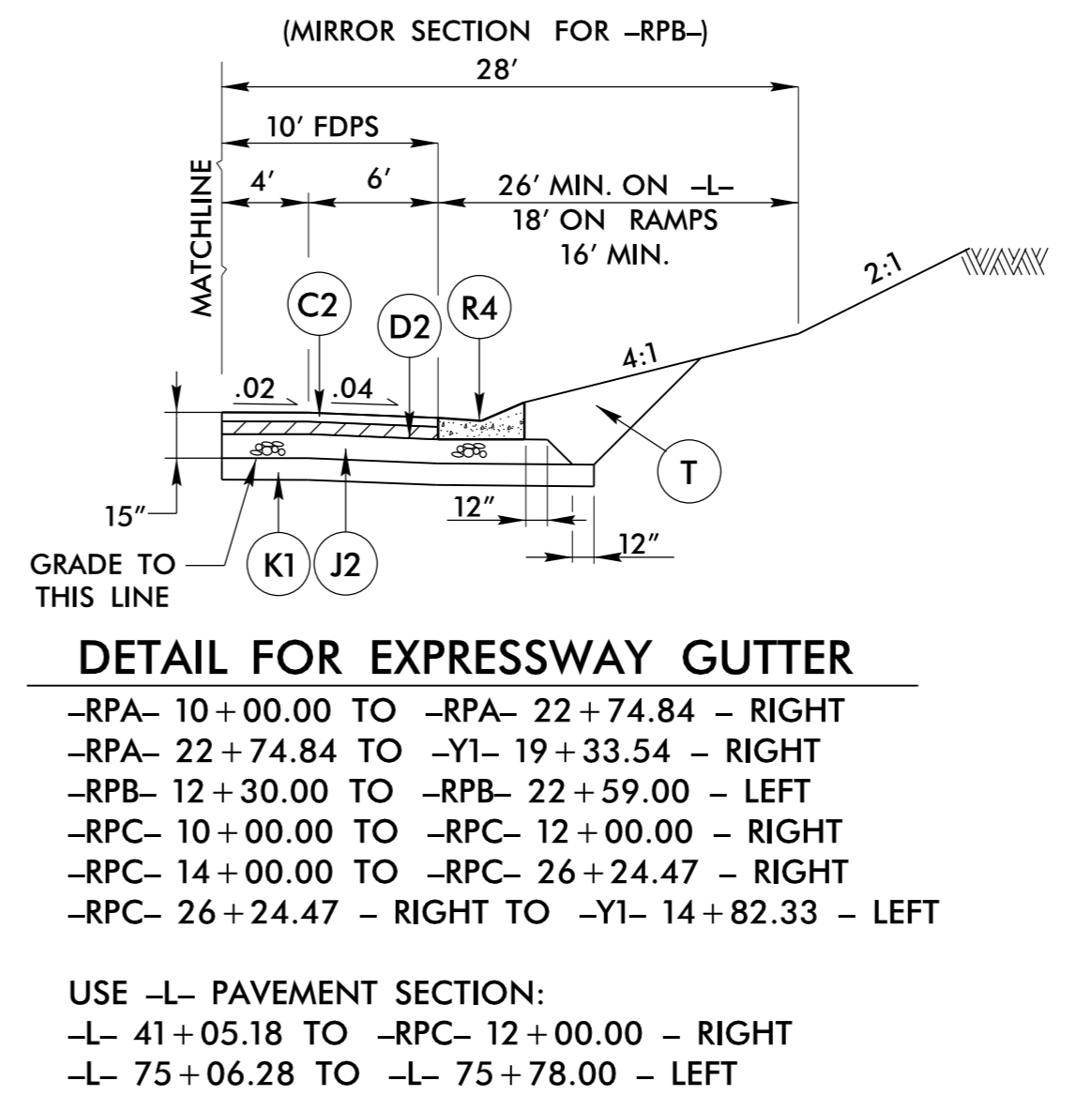
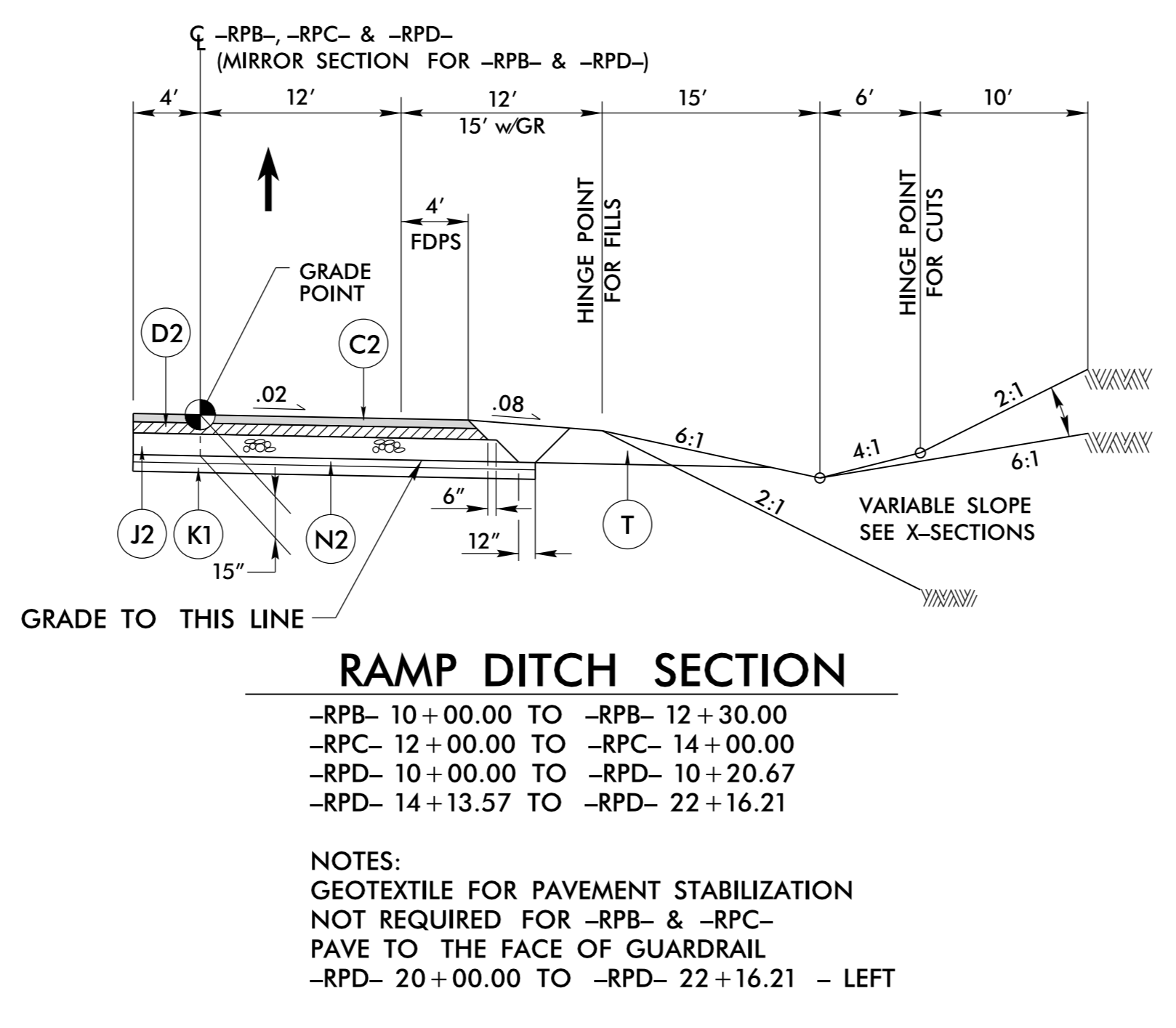
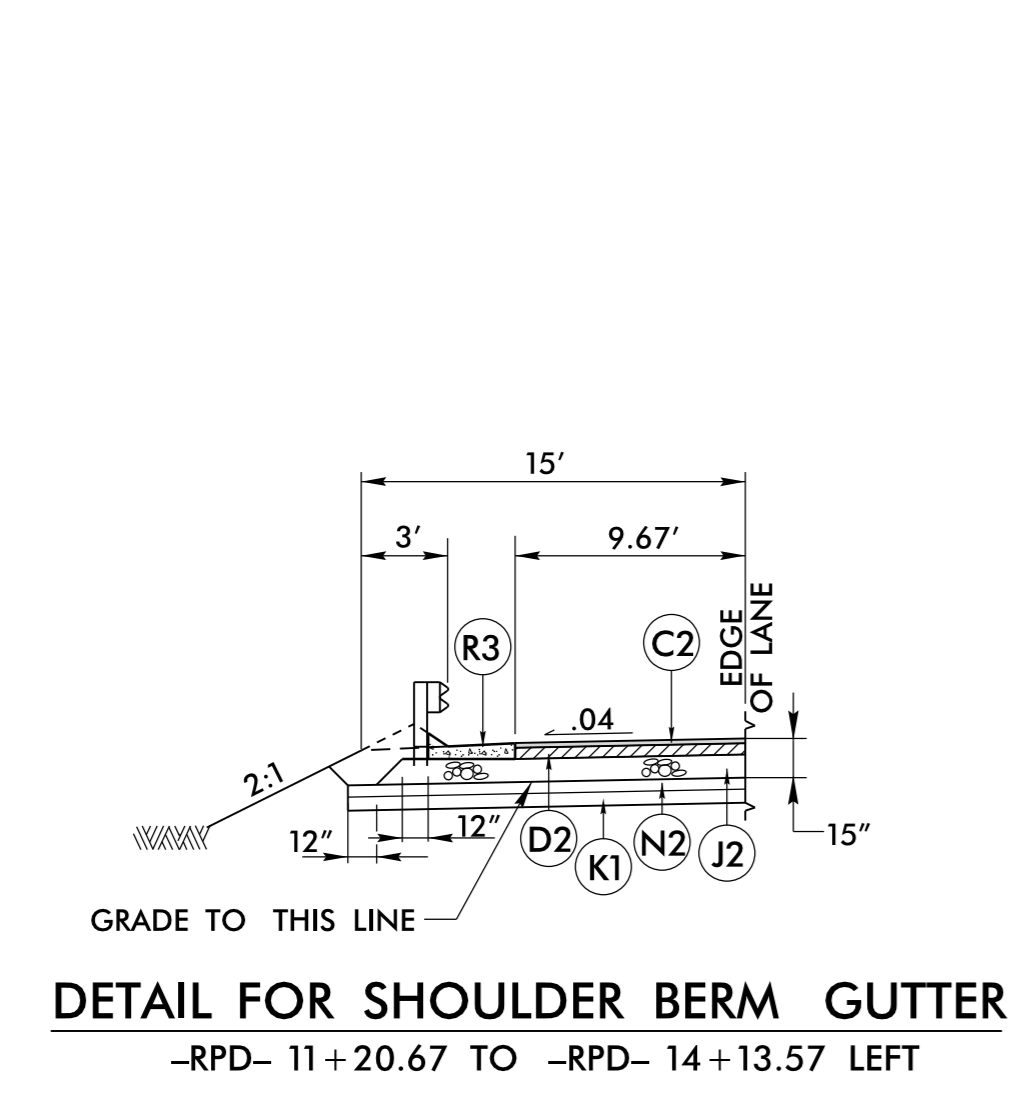
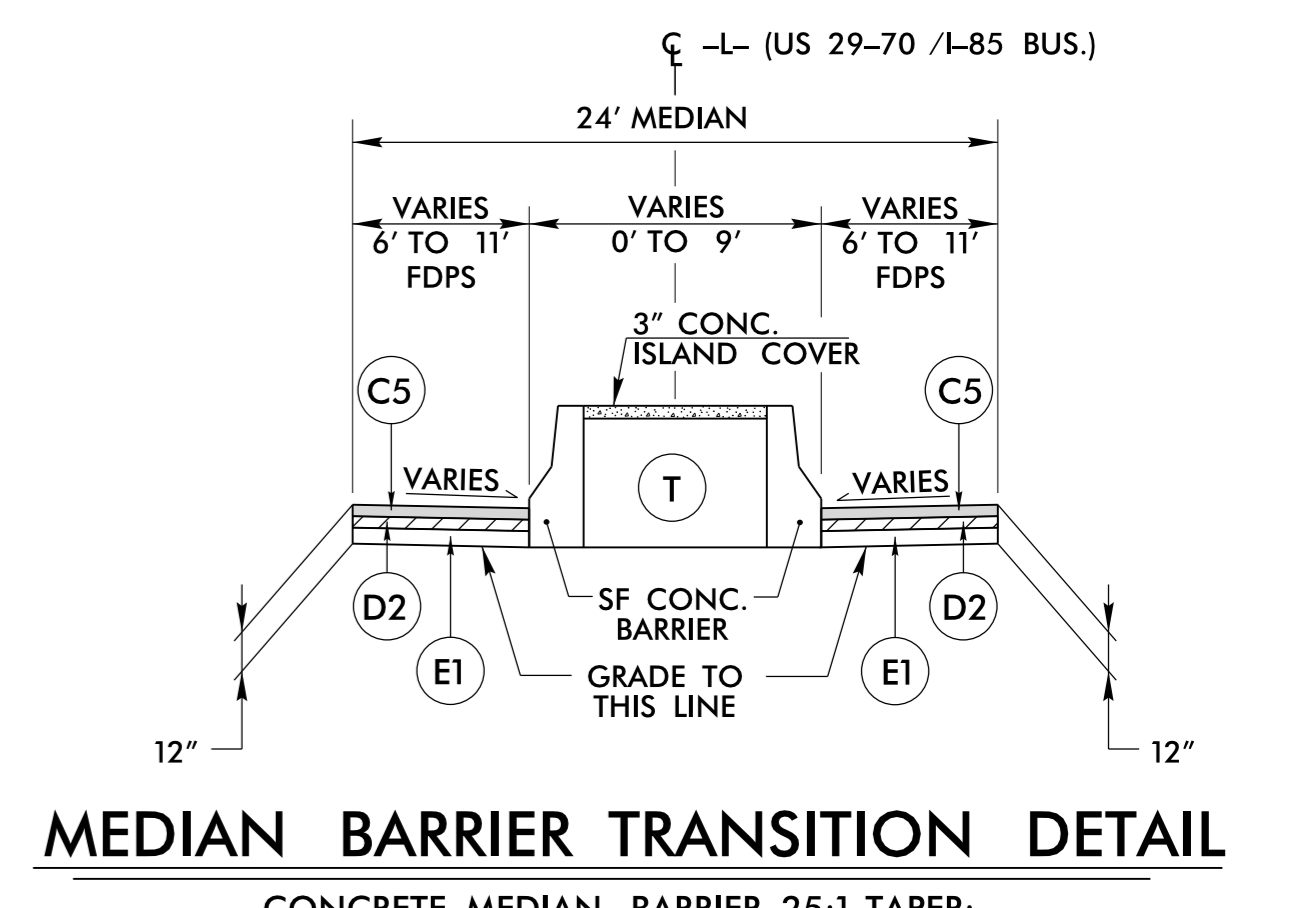
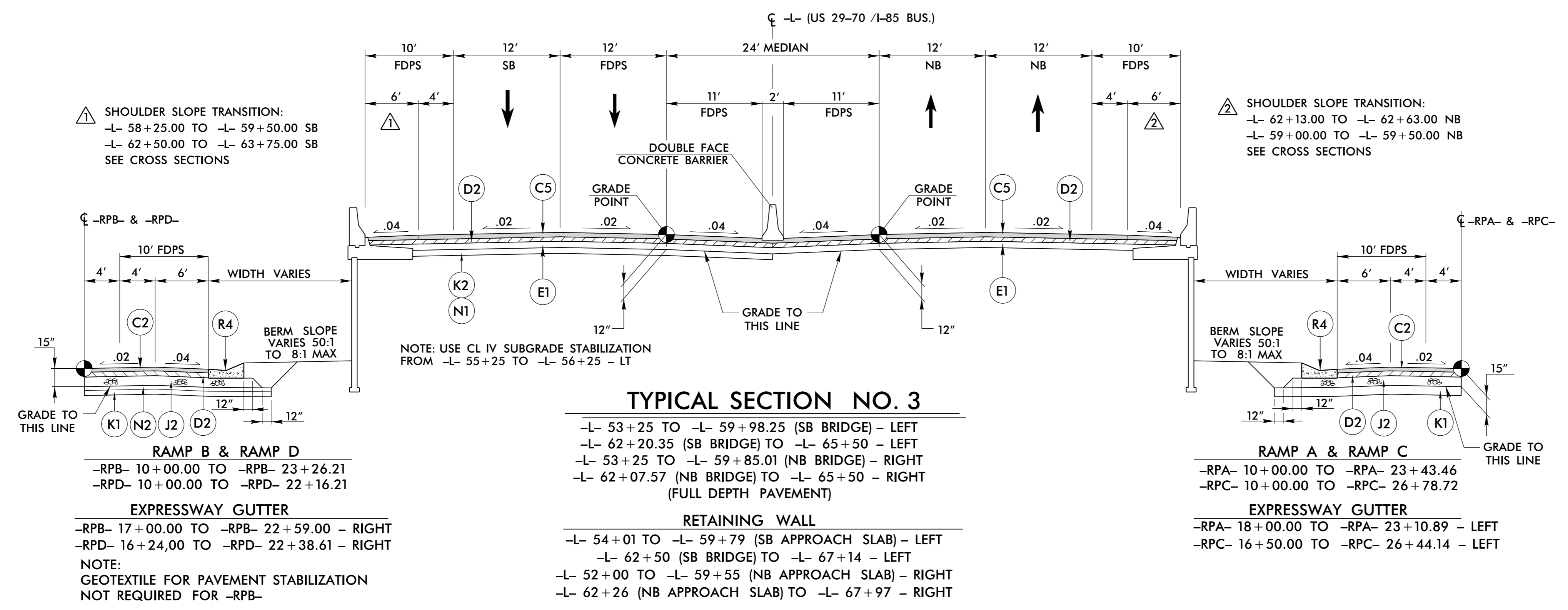
PROJECT REFERENCE NO. R-5737	SHEET NO. 2A-3
ROADWAY DESIGN ENGINEER 	PAVEMENT DESIGN ENGINEER 
8/24/2021	8/24/2021

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Dewberry

2610 WYCLIFF ROAD
RALEIGH, NC 27607
PHONE: 919.881.9939
NC CCA No. F-0528

NC DEPARTMENT OF TRANSPORTATION
PAVEMENT MANAGEMENT UNIT
1593 MAIL SERVICE CENTER
RALEIGH, NC 27699-1593



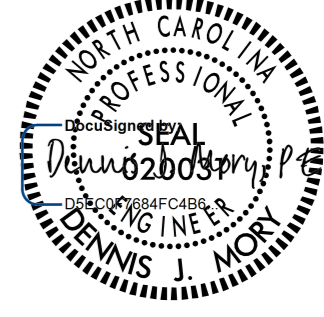


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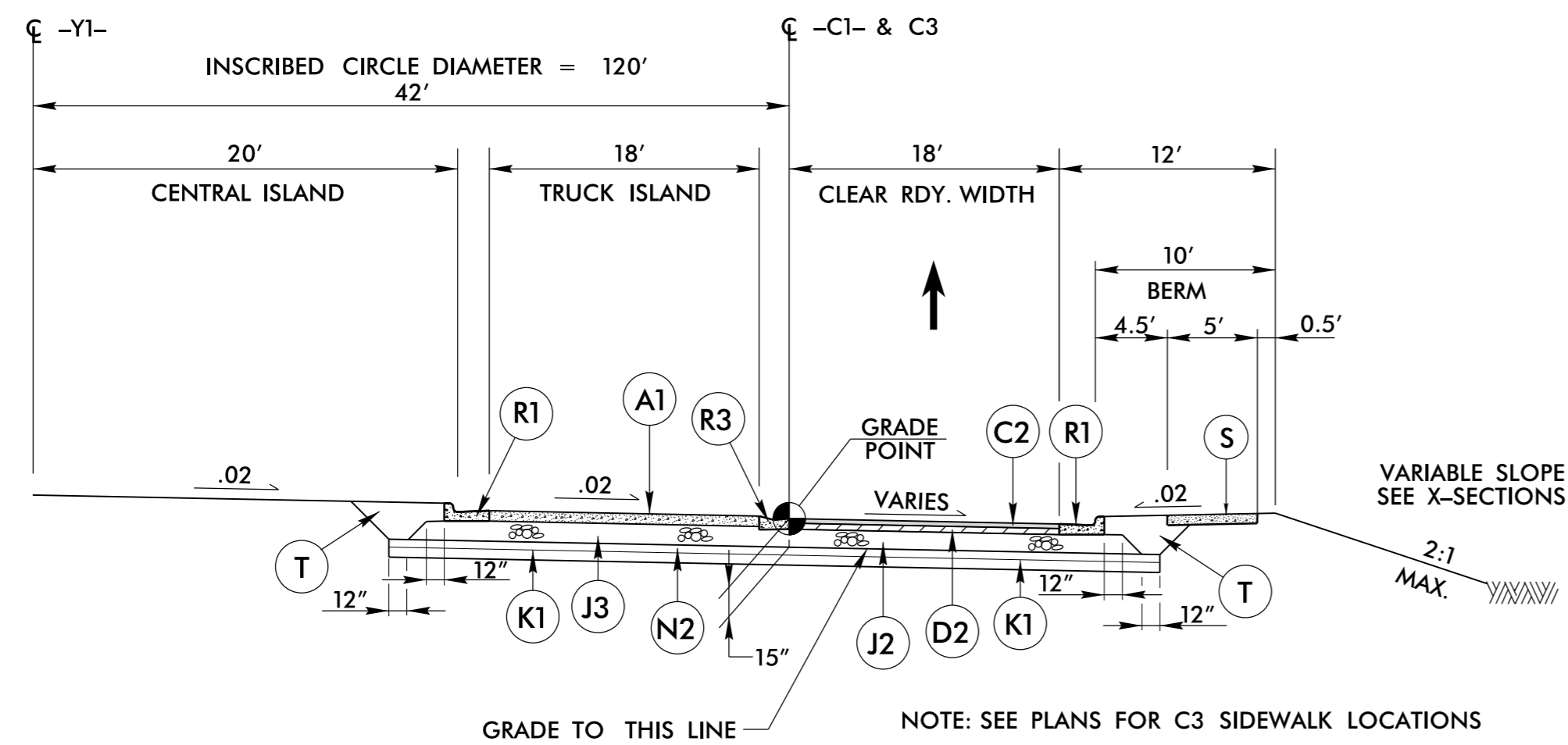
6/2/2019

PAVEMENT SCHEDULE

ITEM	DESCRIPTION	ITEM	DESCRIPTION	ITEM	DESCRIPTION	ITEM	DESCRIPTION	ITEM	DESCRIPTION	ITEM	DESCRIPTION	ITEM	DESCRIPTION		
(A1)	7" CONCRETE	(C4)	1.5" S9.5C	(D3)	VAR DEPTH I19.0C	(J3)	VAR. DEPTH ABC	(N2)	GEOTEXTILE FOR PAVEMENT STAB.	(R4)	CONC. EXWY GUTTER	(U)	EXIST. PAVEMENT		
(A2)	7" CONCRETE wRS	(C5)	3" S9.5C	(E1)	5" B25.0C	(K1)	CHEMICAL STABILIZATION: 7" SOIL-CEMENT BASE OR 8" LIME-TREATED SOIL	(P)	PRIME COAT	(R5)	5" CONC. ISLAND	(V1)	INCIDENTAL MILLING		
(C1)	1.5" S9.5B	(C6)	VAR DEPTH S9.5C	(E2)	VAR DEPTH B25.0C	(J1)	6" ABC	(K2)	8" CLASS IV SUBGRADE STABILIZATION	(R1)	2'-6" C&G	(S)	4" CONC. SIDEWALK	(V2)	INCIDENTAL MILLING
(C2)	3" S9.5B	(D1)	2.5" I19.0C	(J2)	6" ABC	(K1)	8" CLASS IV SUBGRADE STABILIZATION	(R2)	2' MOD. VALLEY CURB	(T)	EARTH MATERIAL	(V3)	1.5" MILLING		
(C3)	VAR DEPTH S9.5B	(D2)	4" I19.0C	(J2)	8" ABC	(N1)	GEOTEXTILE FOR SOIL STABILIZATION	(R3)	CONC. SBG	(T1)	AGGR. SHLD. BORROW	(W1)	(W2)	WEDGING DETAILS	

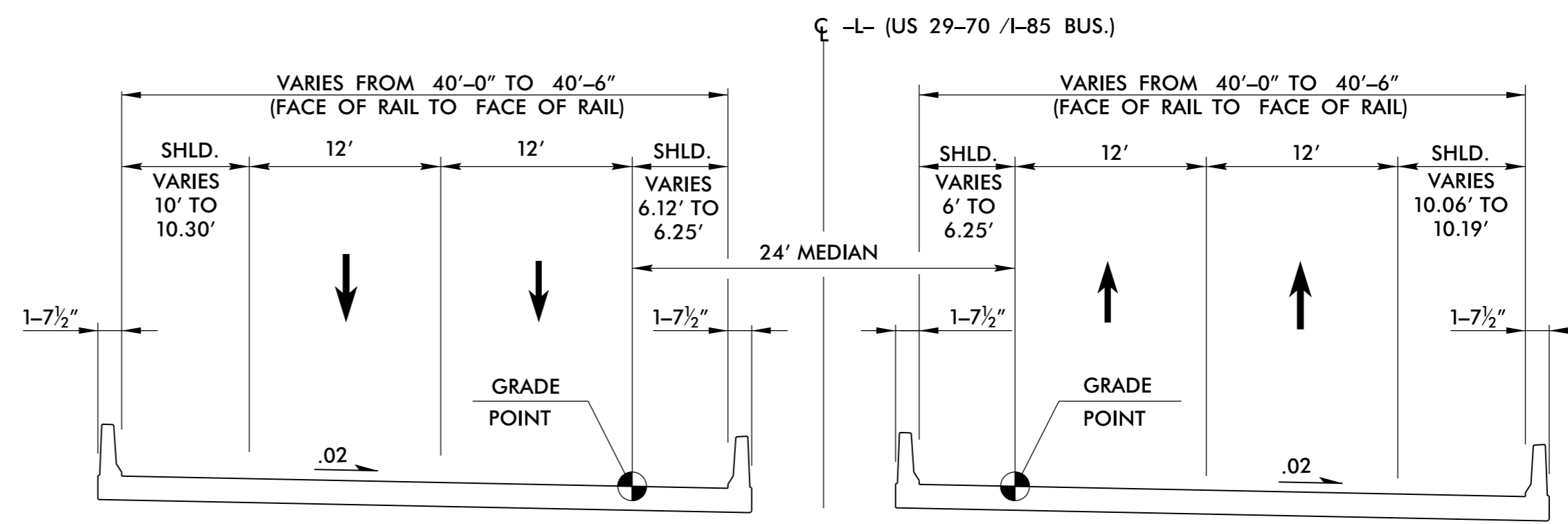
- NOTES:
1. ALL PAVEMENT EDGE SLOPES ARE 1:1 UNLESS OTHERWISE NOTED.
 2. SEE PLANS FOR LOCATION OF ACCELERATION AND DECELERATION LANES.
 3. SEE PLANS FOR LOCATION OF TURN LANE AND INTERSECTION TURNOUTS.
 4. SEE PLANS FOR LOCATION OF ALL PAVEMENT TAPERS.
 5. ALL DRIVEWAY RADII IS 10' UNLESS SHOWN OTHERWISE ON PLANS.
 6. ALL SIDEWALK CORNER RADII IS 3' UNLESS SHOWN OTHERWISE ON PLANS.
 7. THE WELDED WIRE MESH FOR THE ROUNDABOUT TRUCK APRONS SHALL BE (4x4 W3.5xW3.5) OR (6x6 W5xW5).
 8. THE ROUNDABOUT TRUCK APRONS SHALL HAVE 15' JOINT SPACING ON TOP OF VARIABLE DEPTH ABC.
 9. SEE SHEETS 2B-1 THRU 2B-6 FOR CONCRETE ISLAND & TRUCK APRON DETAILS.

PROJECT REFERENCE NO. R-5737	SHEET NO. 2A-4
ROADWAY DESIGN ENGINEER 	PAVEMENT DESIGN ENGINEER 
8/24/2021	8/24/2021
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
	
2610 WYCLIFF ROAD SUITE 410 RALEIGH, NC 27607 PHONE: 919.881.9939 NC CCA No. F-0928	



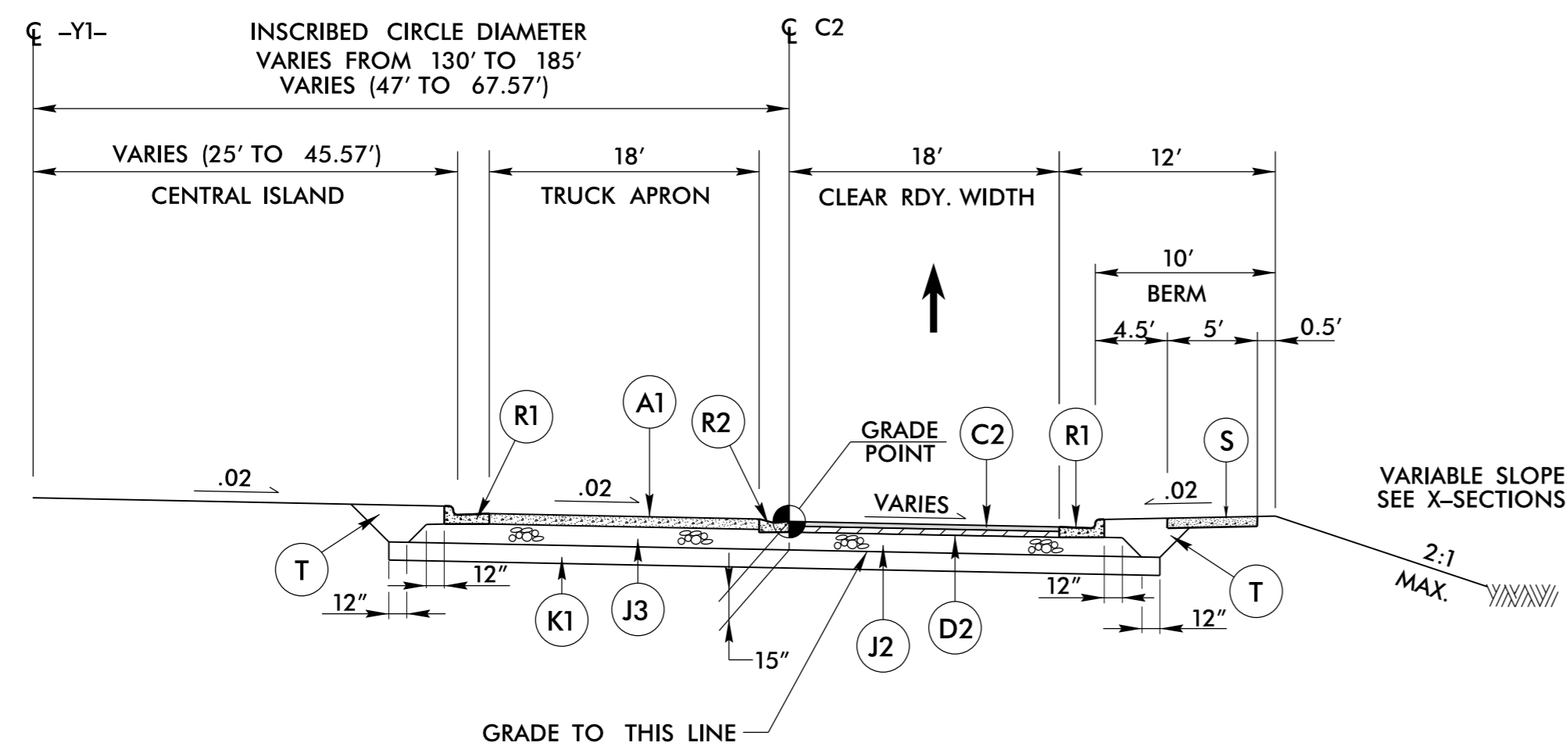
TYPICAL SECTION NO. 4

ROUNDABOUT -C1- & -C3-
 -C1- STA 10+00.00 TO -C1- STA 12+63.89
 -C3- STA 10+00.00 TO -C3- STA 12+63.89
 NOTE: NO STABILIZATION REQUIRED FOR ROUNDABOUT -C3-



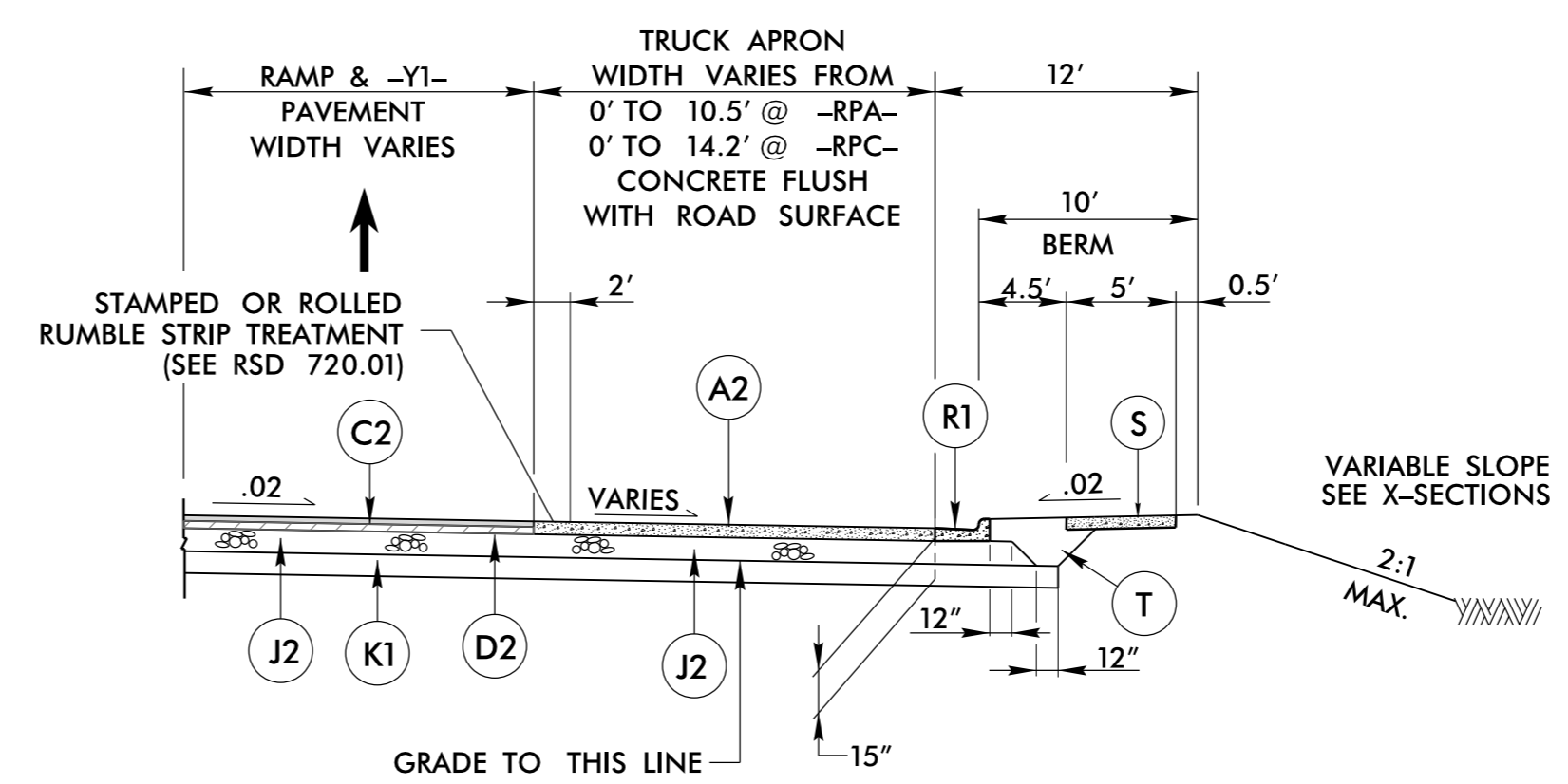
SITE #1 TYPICAL SECTION ON STRUCTURE

STRUCTURE ON -L- (US 29-70 / I-85 BUS.) OVER -Y1- (OLD GREENSBORO ROAD)
 -L- 59+98.25 (SB BRIDGE) TO -L- 62+20.35 (SB BRIDGE) - LEFT
 -L- 59+85.01 (NB BRIDGE) TO -L- 62+07.57 (NB BRIDGE) - RIGHT



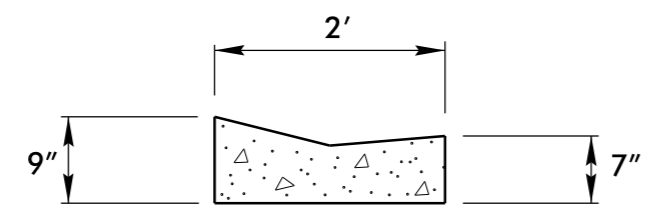
TYPICAL SECTION NO. 5

ROUNDABOUT -C2-
 -C2- STA 10+00 TO -C2- STA 15+80.54



CURB RETURN TRUCK APRON DETAIL

(SEE SHEET 2B-2 & 2B-5 FOR DETAILS)
 -RPA- 22+91.64 (RT) TO -Y1- 19+26.31 (RT)
 -RPC- 26+31.90 (RT) TO -Y1- 14+79.91 (LT)



DETAIL FOR MODIFIED VALLEY CURB
 USED WITH ROUNDABOUT TRUCK APRONS

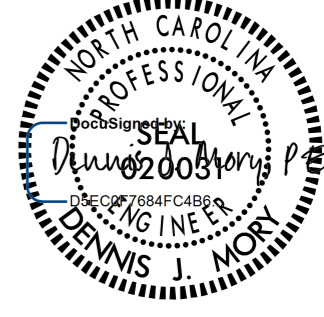
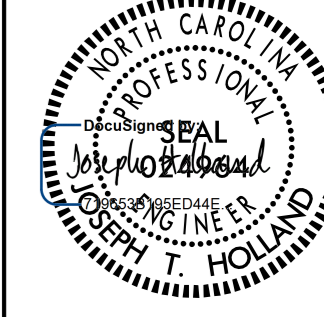

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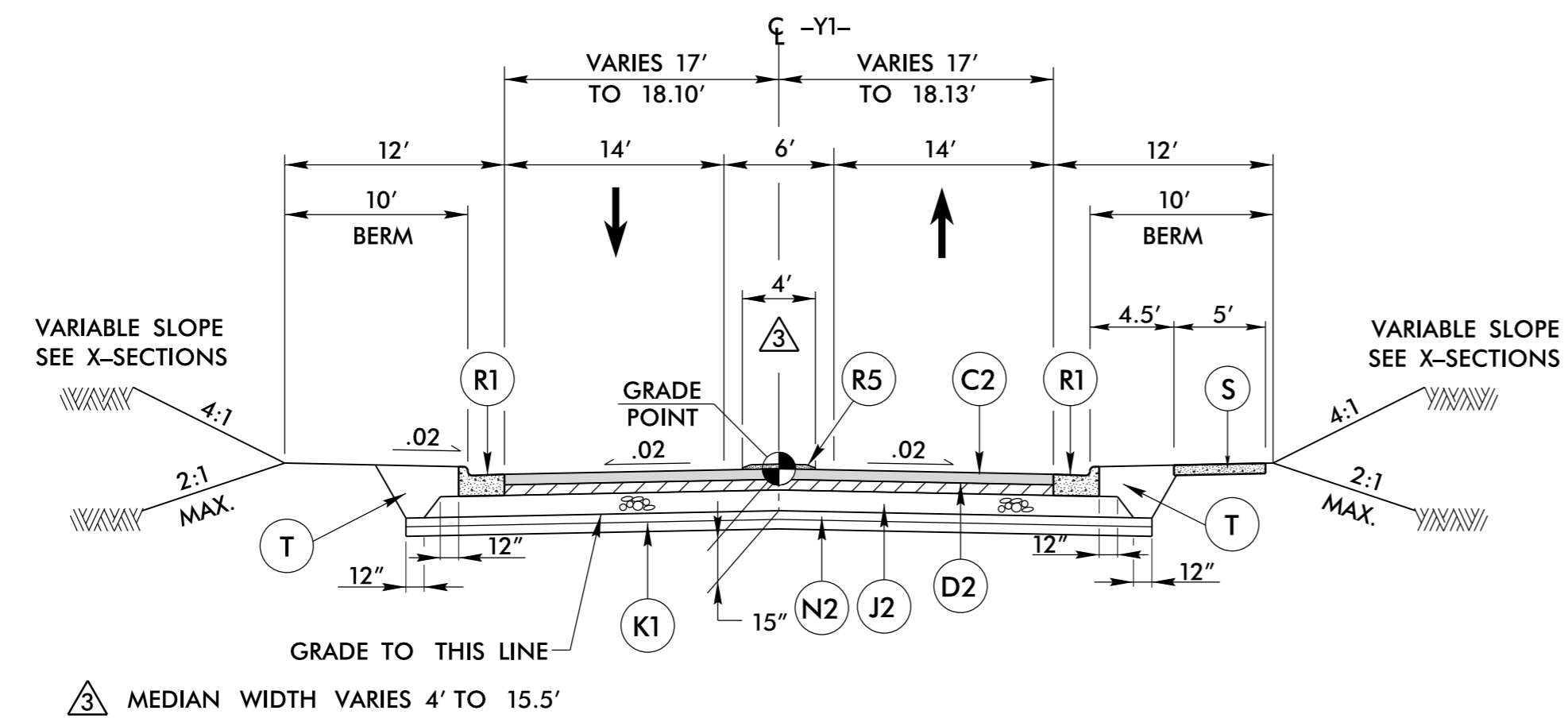
6/2/2019

PAVEMENT SCHEDULE

ITEM	DESCRIPTION	ITEM	DESCRIPTION	ITEM	DESCRIPTION	ITEM	DESCRIPTION	ITEM	DESCRIPTION	ITEM	DESCRIPTION	ITEM	DESCRIPTION	ITEM	DESCRIPTION
(A1)	7" CONCRETE	(C4)	1.5" S9.5C	(D3)	VAR DEPTH I19.0C	(J3)	VAR. DEPTH ABC	(N2)	GEOTEXTILE FOR PAVEMENT STAB.	(R4)	CONC. EXWY GUTTER	(U)	EXIST. PAVEMENT		
(A2)	7" CONCRETE wRS	(C5)	3" S9.5C	(E1)	5" B25.0C			(P)	PRIME COAT	(R5)	5" CONC. ISLAND	(V1)	INCIDENTAL MILLING		
(C1)	1.5" S9.5B	(C6)	VAR DEPTH S9.5C	(E2)	VAR DEPTH B25.0C	(K1)	CHEMICAL STABILIZATION: 7" SOIL-CEMENT BASE OR 8" LIME-TREATED SOIL	(R1)	2'-6" C&G	(S)	4" CONC. SIDEWALK	(V2)	INCIDENTAL MILLING		
(C2)	3" S9.5B	(D1)	2.5" I19.0C	(J1)	6" ABC	(K2)	8" CLASS IV SUBGRADE STABILIZATION	(R2)	2' MOD. VALLEY CURB	(T)	EARTH MATERIAL	(V3)	1.5" MILLING		
(C3)	VAR DEPTH S9.5B	(D2)	4" I19.0C	(J2)	8" ABC	(N1)	GEOTEXTILE FOR SOIL STABILIZATION	(R3)	CONC. SBG	(T1)	AGGR. SHLD. BORROW	(W1)	(W2)	WEDGING DETAILS	

- NOTES:
1. ALL PAVEMENT EDGE SLOPES ARE 1:1 UNLESS OTHERWISE NOTED.
 2. SEE PLANS FOR LOCATION OF ACCELERATION AND DECELERATION LANES.
 3. SEE PLANS FOR LOCATION OF TURN LANE AND INTERSECTION TURNOUTS.
 4. SEE PLANS FOR LOCATION OF ALL PAVEMENT TAPERS.
 5. ALL DRIVEWAY RADII IS 10' UNLESS SHOWN OTHERWISE ON PLANS.
 6. ALL SIDEWALK CORNER RADII IS 3' UNLESS SHOWN OTHERWISE ON PLANS.
 7. THE WELDED WIRE MESH FOR THE ROUNDABOUT TRUCK APRONS SHALL BE (4x4 W3.5xW3.5) OR (6x6 W5xW5).
 8. THE ROUNDABOUT TRUCK APRONS SHALL HAVE 15' JOINT SPACING ON TOP OF VARIABLE DEPTH ABC.
 9. SEE SHEETS 2B-1 THRU 2B-6 FOR CONCRETE ISLAND & TRUCK APRON DETAILS.

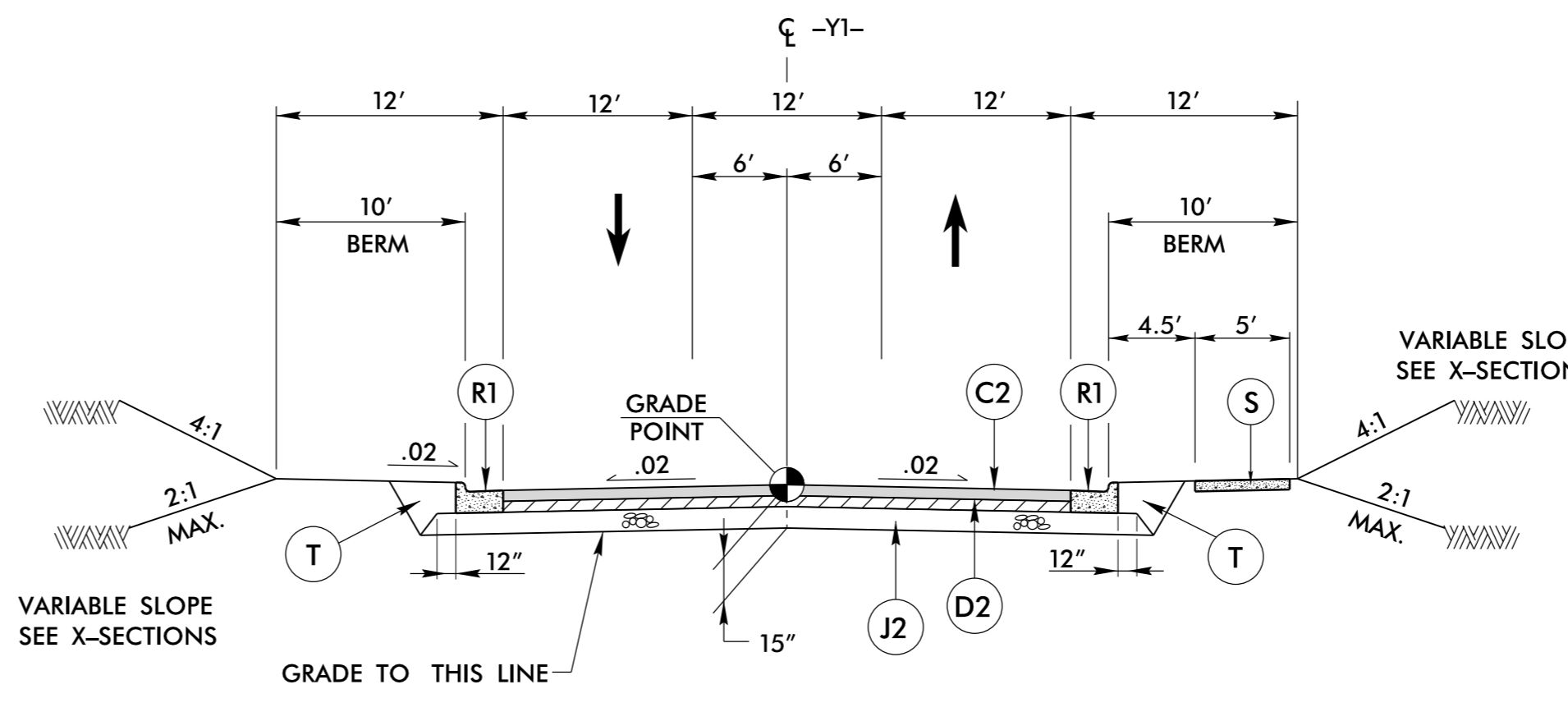
PROJECT REFERENCE NO. R-5737	SHEET NO. 2A-5
ROADWAY DESIGN ENGINEER 	PAVEMENT DESIGN ENGINEER 
8/24/2021	8/24/2021
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
	
<small>2610 WYCLIFF ROAD RALEIGH, NC 27607 PHONE: 919.881.9939 NC CCA No. F-0928</small>	
<small>NC DEPARTMENT OF TRANSPORTATION PAVEMENT MANAGEMENT UNIT 1593 WALK SERVICE CENTER RALEIGH, NC 27699-1593</small>	



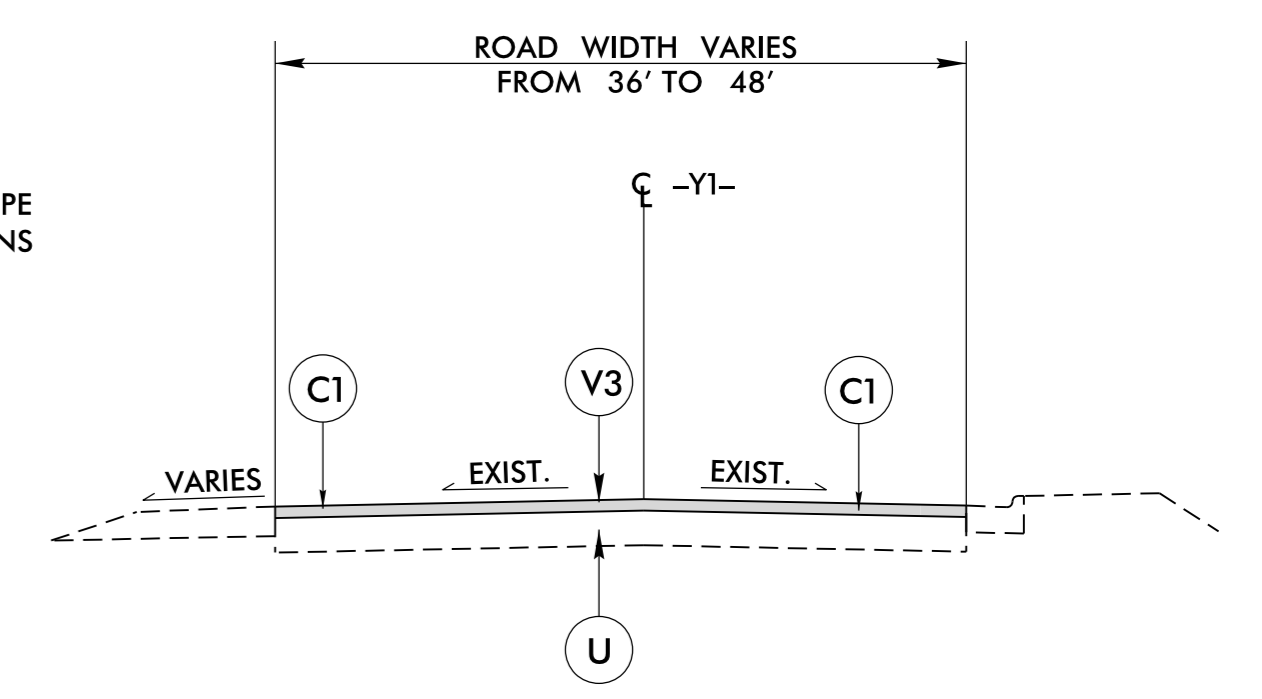
TYPICAL SECTION NO. 6
 -Y1- 10+60.00 TO -Y1- 15+74.11
 -Y1- 18+38.48 TO -Y1- 21+52.29

-Y1- PAVEMENT TAPERS LEFT SIDE:
 10+99.53 TO 12+10.00 - WIDTH VARIES FROM 18.10' TO 17'
 14+25.00 TO 14+79.91 - WIDTH VARIES FROM 17' TO 17.55'
 18+78.10 TO 19+28.95 - WIDTH VARIES FROM 18.10' TO 17.60'
 19+28.95 TO 19+88.54 - WIDTH VARIES FROM 17.60' TO 17'

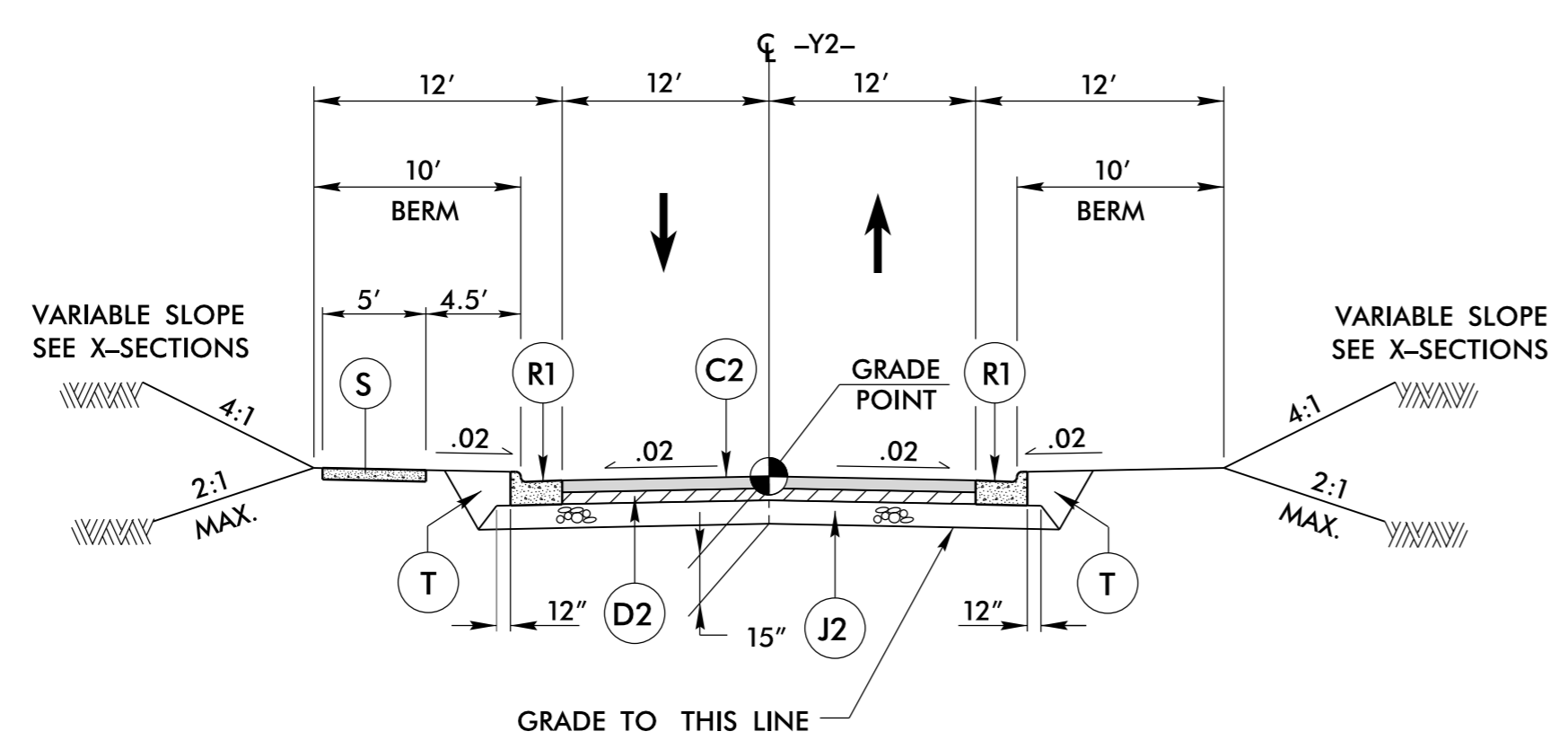
-Y1- PAVEMENT TAPERS RIGHT SIDE:
 10+99.53 TO 12+10.00 - WIDTH VARIES FROM 18.13' TO 17'
 14+25.00 TO 15+34.87 - WIDTH VARIES FROM 17' TO 18.10'
 18+76.38 TO 19+28.96 - WIDTH VARIES FROM 18.12' TO 17.60'
 19+28.96 TO 19+88.55 - WIDTH VARIES FROM 17.60' TO 17'
 20+86.79 TO 21+08.37 - WIDTH VARIES FROM 17' TO 17.48'



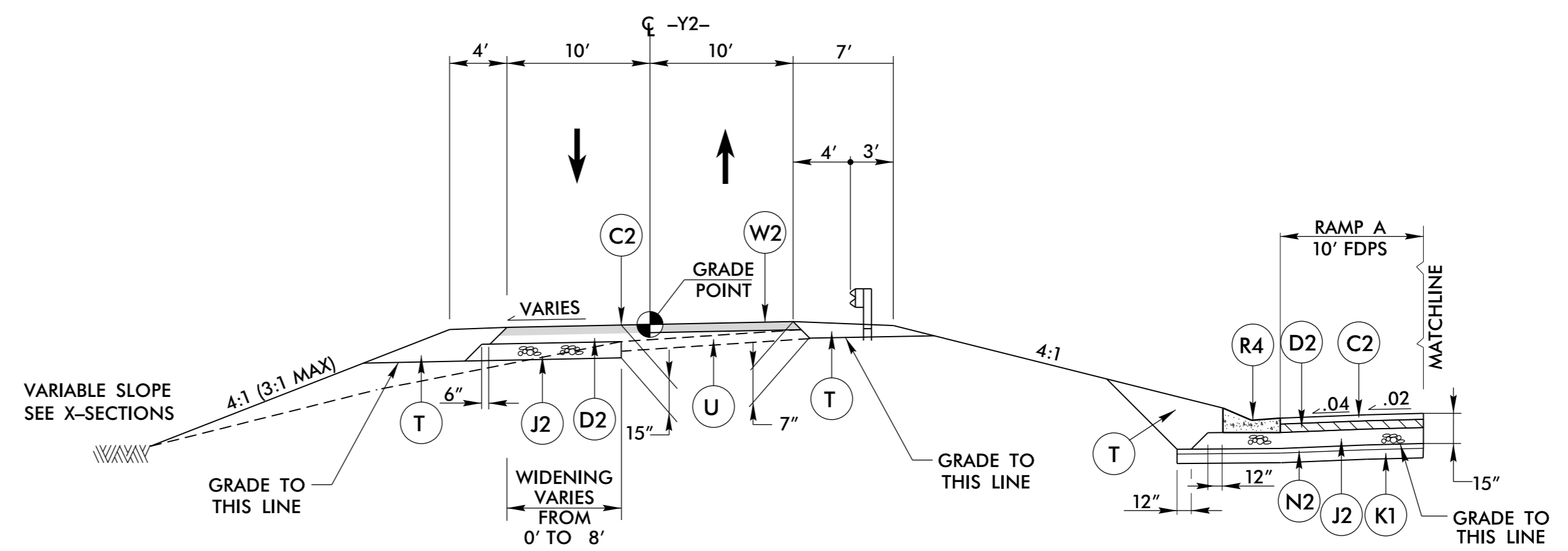
TYPICAL SECTION NO. 6A
 -Y1- 22+72.29 TO -Y1- 26+98.47



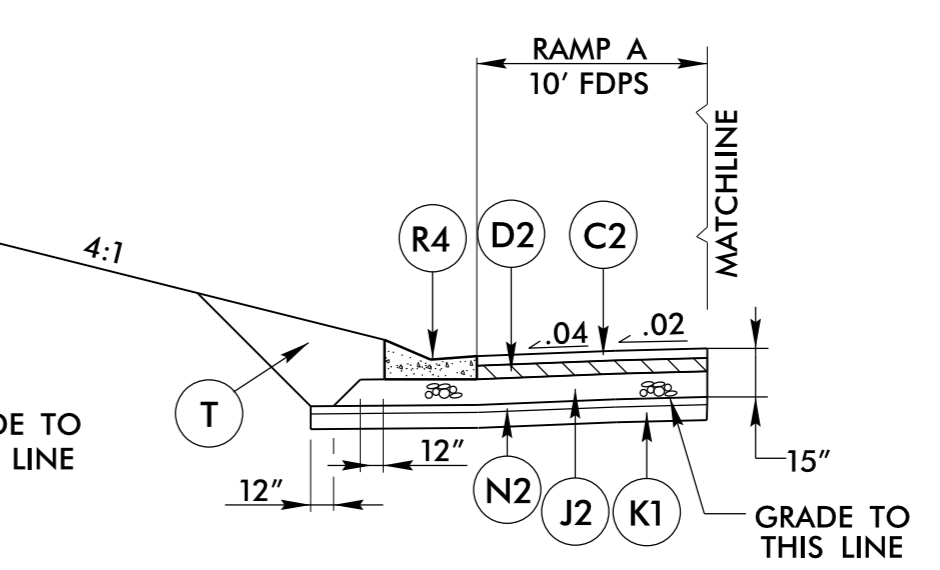
TYPICAL SECTION NO. 6B
 MILL & OVERLAY
 -Y1- 26+98.47 TO -Y1- 33+25.00



TYPICAL SECTION NO. 7
 -Y2- 10+60.00 TO -Y2- 17+07.35



TYPICAL SECTION NO. 7A
 -Y2- 17+07.35 TO -Y2- 21+00.00
 USE 7" SHOULDER CONSTRUCTION WITH GUARDRAIL PLACEMENT:
 -Y2- 21+00.00 TO -Y2- 28+82.54 - RIGHT



TYPICAL SECTION NO. 7B
 -RPA- 10+00.00 TO -RPA- 16+46.07 - RIGHT
 USE -L- PAVEMENT SECTION:
 -L- 75+06.28 TO -L- 75+78.00 - LEFT


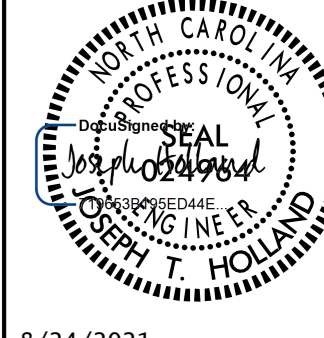

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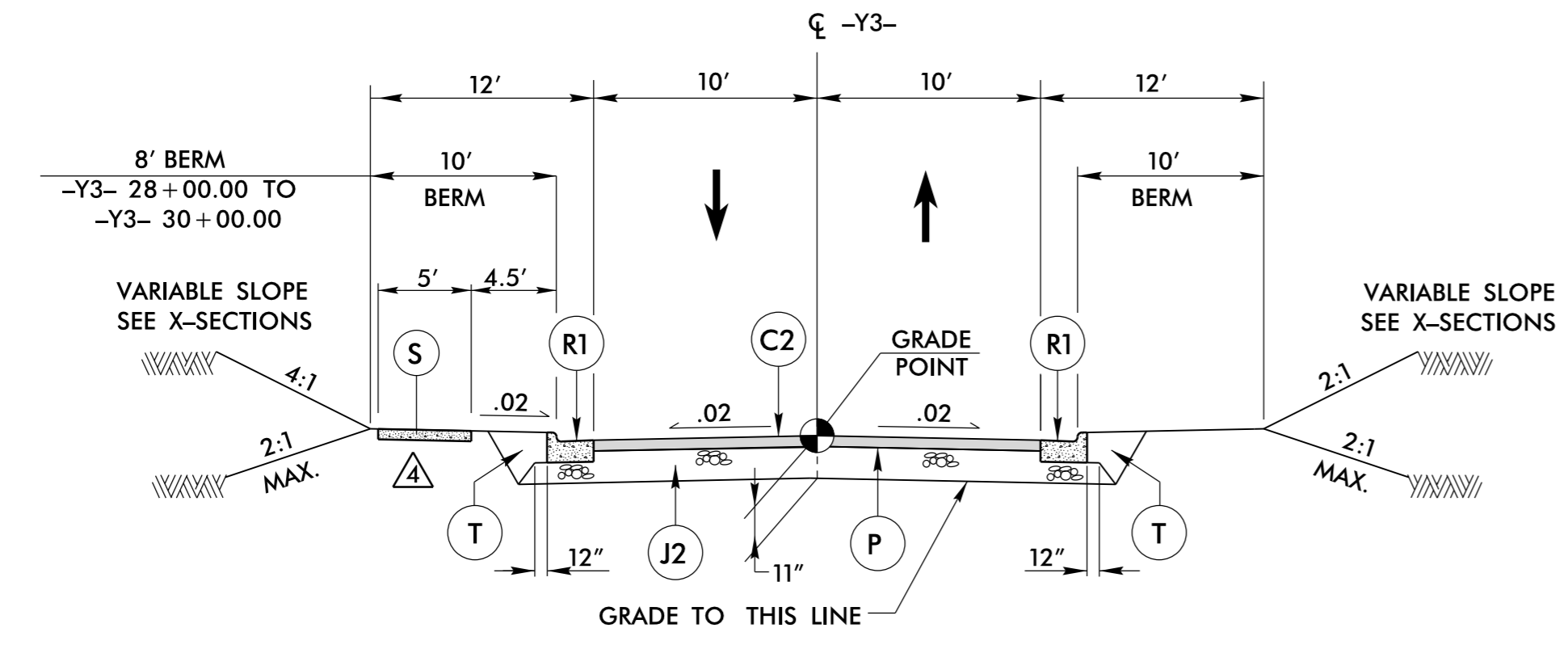
6/2/2019

PAVEMENT SCHEDULE

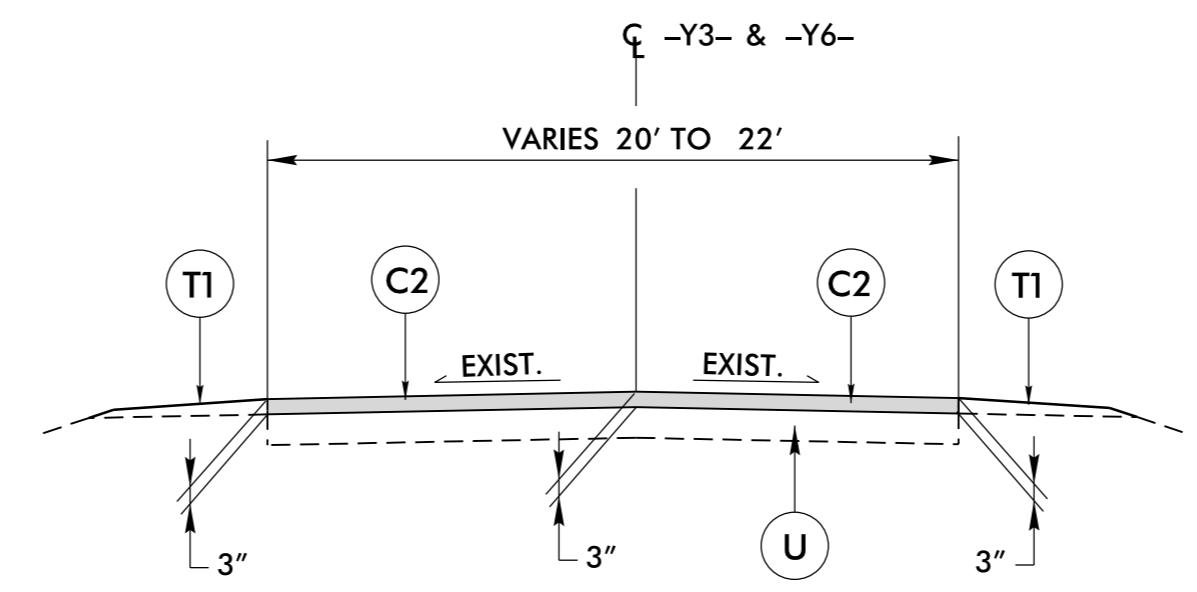
ITEM	DESCRIPTION	ITEM	DESCRIPTION	ITEM	DESCRIPTION	ITEM	DESCRIPTION	ITEM	DESCRIPTION	ITEM	DESCRIPTION	ITEM	DESCRIPTION			
(A1)	7" CONCRETE	(C4)	1.5" S9.5C	(D3)	VAR DEPTH I19.0C	(J3)	VAR. DEPTH ABC	(N2)	GEOTEXTILE FOR PAVEMENT STAB.	(R4)	CONC. EXWY GUTTER	(U)	EXIST. PAVEMENT			
(A2)	7" CONCRETE wRS	(C5)	3" S9.5C	(E1)	5" B25.0C	(K1)	CHEMICAL STABILIZATION: 7" SOIL-CEMENT BASE OR 8" LIME-TREATED SOIL	(P)	PRIME COAT	(R5)	5" CONC. ISLAND	(V1)	INCIDENTAL MILLING			
(C1)	1.5" S9.5B	(C6)	VAR DEPTH S9.5C	(E2)	VAR DEPTH B25.0C	(J1)	6" ABC	(K2)	8" CLASS IV SUBGRADE STABILIZATION	(R1)	2'-6" C&G	(S)	4" CONC. SIDEWALK	(V2)	INCIDENTAL MILLING	
(C2)	3" S9.5B	(D1)	2.5" I19.0C	(J2)	8" ABC	(N1)	GEOTEXTILE FOR SOIL STABILIZATION	(R2)	2' MOD. VALLEY CURB	(T)	EARTH MATERIAL	(V3)	1.5" MILLING	(W1)	(W2)	WEDGING DETAILS
(C3)	VAR DEPTH S9.5B	(D2)	4" I19.0C	(J2)	8" ABC	(N1)	GEOTEXTILE FOR SOIL STABILIZATION	(R3)	CONC. SBG	(T1)	AGGR. SHLD. BORROW	(W1)	(W2)	WEDGING DETAILS		

- NOTES:**
1. ALL PAVEMENT EDGE SLOPES ARE 1:1 UNLESS OTHERWISE NOTED.
 2. SEE PLANS FOR LOCATION OF ACCELERATION AND DECELERATION LANES.
 3. SEE PLANS FOR LOCATION OF TURN LANE AND INTERSECTION TURNOUTS.
 4. SEE PLANS FOR LOCATION OF ALL PAVEMENT TAPERS.
 5. ALL DRIVEWAY RADII IS 10' UNLESS SHOWN OTHERWISE ON PLANS.
 6. ALL SIDEWALK CORNER RADII IS 3' UNLESS SHOWN OTHERWISE ON PLANS.
 7. THE WELDED WIRE MESH FOR THE ROUNDABOUT TRUCK APRONS SHALL BE (4x4 W3.5xW3.5) OR (6x6 W5xW5).
 8. THE ROUNDABOUT TRUCK APRONS SHALL HAVE 15' JOINT SPACING ON TOP OF VARIABLE DEPTH ABC.
 9. SEE SHEETS 2B-1 THRU 2B-6 FOR CONCRETE ISLAND & TRUCK APRON DETAILS.

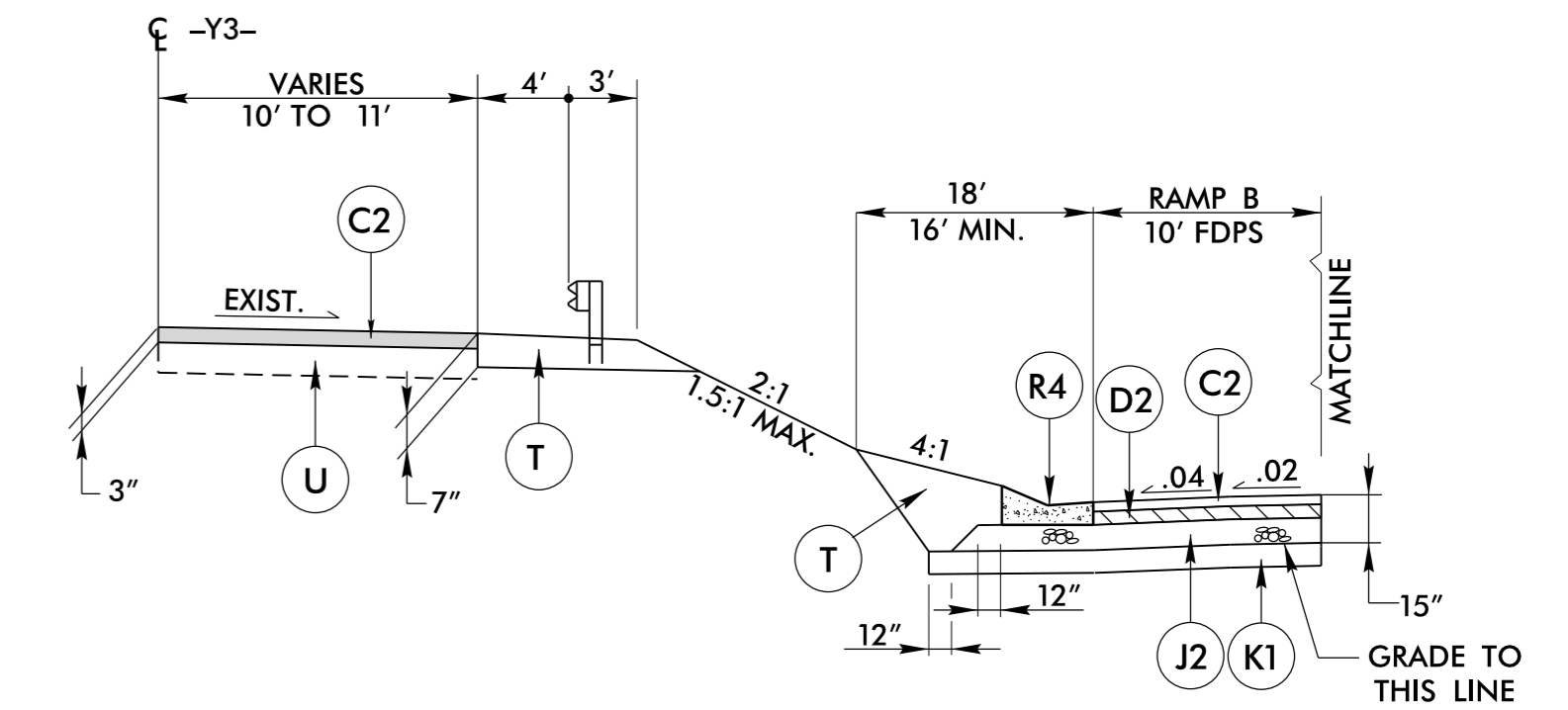
PROJECT REFERENCE NO. R-5737	SHEET NO. 2A-6
ROADWAY DESIGN ENGINEER 	PAVEMENT DESIGN ENGINEER 
8/24/2021	8/24/2021
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
	
<small>2610 WYCLIFF ROAD RALEIGH, NC 27607 PHONE: 919.881.9939 NC CCA No. F-05219</small>	
<small>NC DEPARTMENT OF TRANSPORTATION PAVEMENT MANAGEMENT UNIT 1593 WALK SERVICE CENTER RALEIGH, NC 27699-1593</small>	



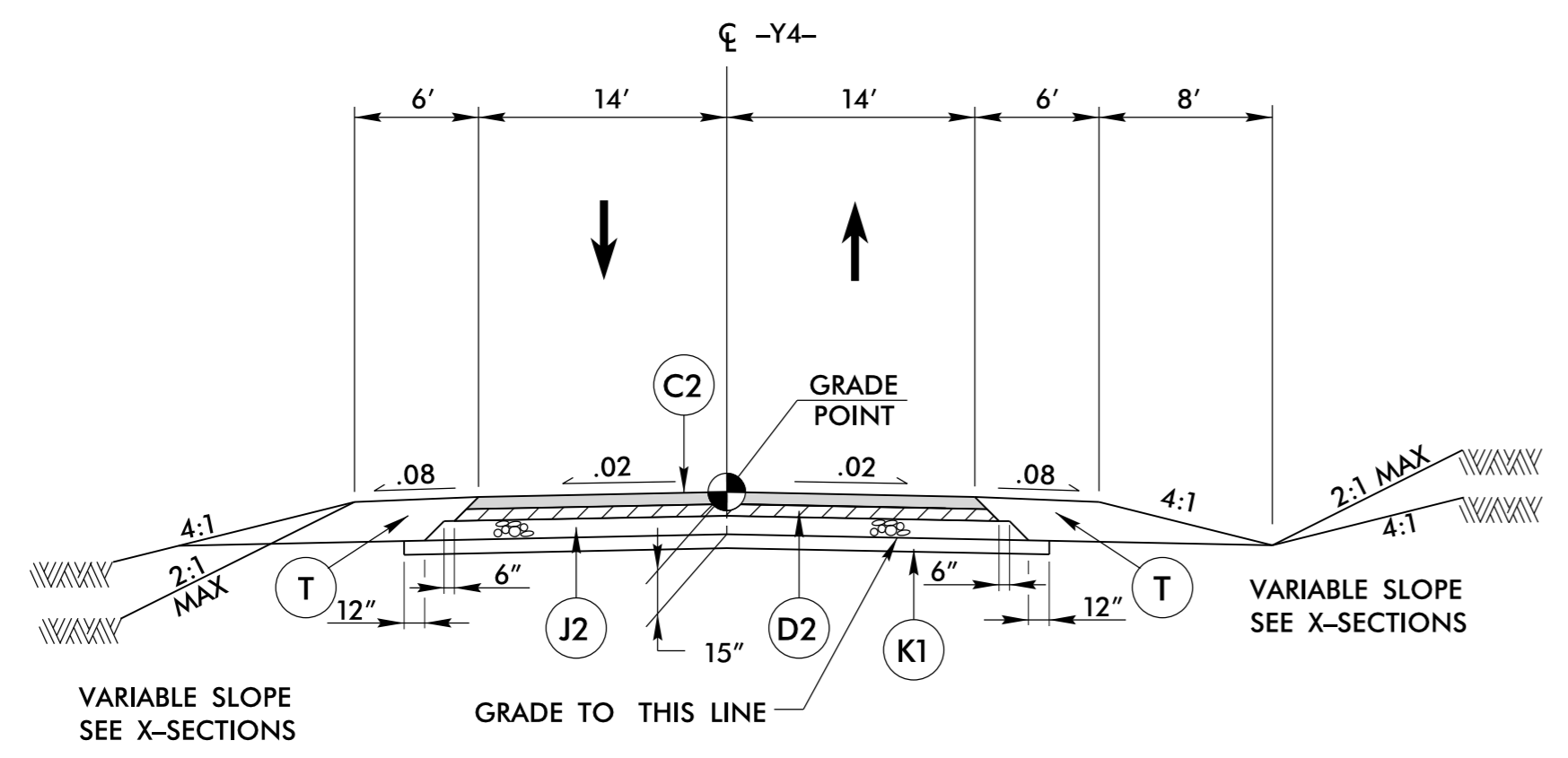
TYPICAL SECTION NO. 8
 -Y3- 28+00.00 TO -Y3- 30+90.00 (10' LANES)
 -Y3- 30+90.00 TO -Y3- 32+50.00 (LANES VARY FROM 10' TO 16')



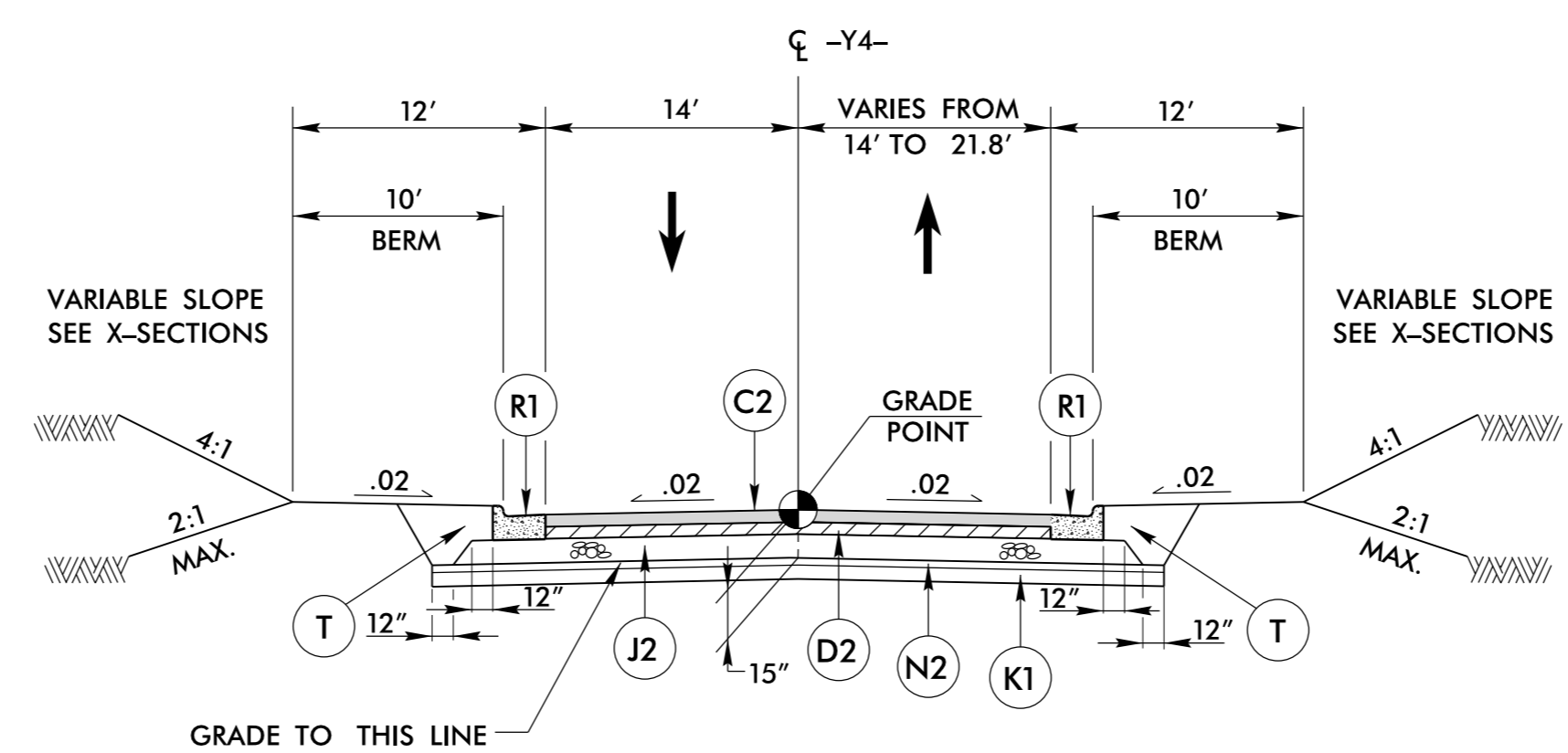
TYPICAL SECTION NO. 8A
 DIRECT ASPHALT OVERLAY
 -Y6- 10+36.24 TO -Y6- 35+31.54
 -Y3- 10+00.00 TO -Y3- 28+00.00



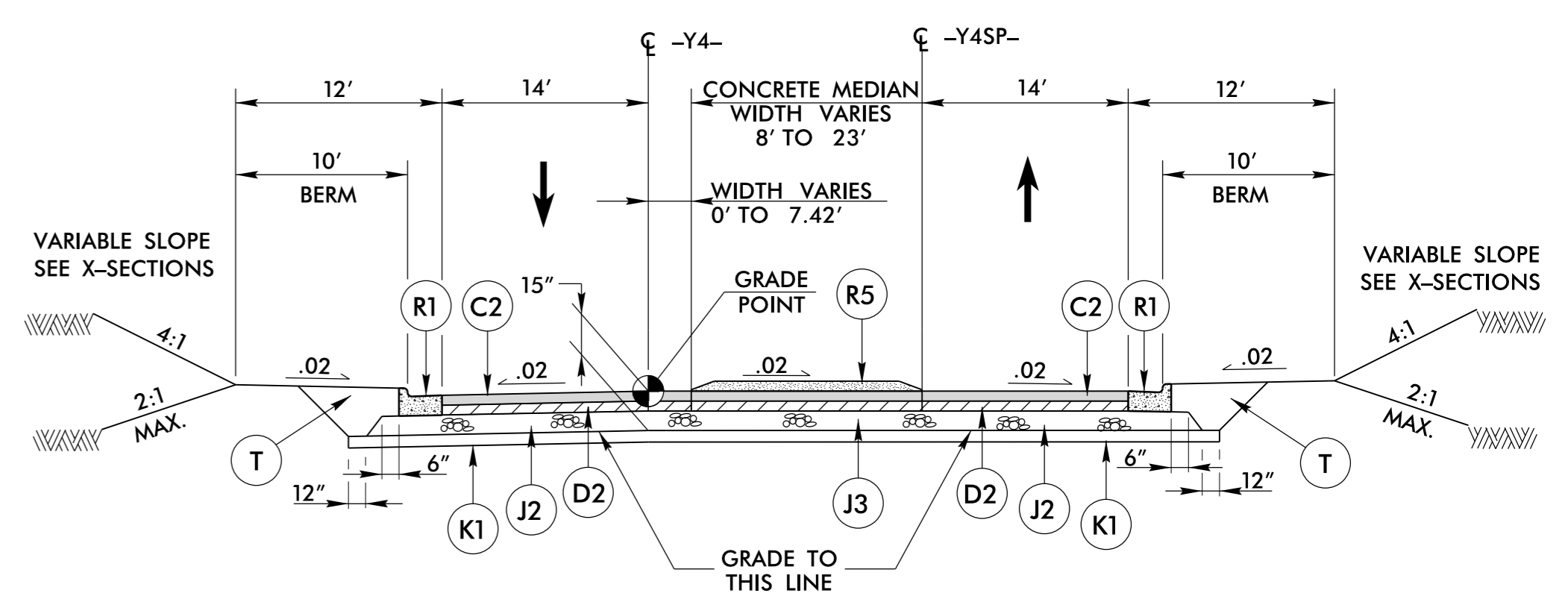
TYPICAL SECTION NO. 8B
 -RPB- 12+30.00 TO -RPB- 16+50.00 - LEFT
 USE 7" FOR SHOULDER CONSTRUCTION WITH GUARDRAIL PLACEMENT:
 -Y3- 10+00 TO -Y3- 23+15.00 - RIGHT



TYPICAL SECTION NO. 9
 -Y4- 10+00.00 TO -Y4- 12+06.74 (LANE TAPER FROM EXIST 14')
 -Y4- 12+06.74 TO -Y4- 16+00.00
 NOTE: BEGIN CHEMICAL STABILIZATION AT -Y4- 13+00.00



TYPICAL SECTION NO. 10
 -Y4- 16+00.00 TO -Y4- 22+42.08
 NOTE: PLACE GEOTEXTILE FOR PAVEMENT STABILIZATION FROM -Y4- 18+00.00 TO -Y4- 20+75.00



TYPICAL SECTION NO. 11
 -Y4- 22+42.08 TO -Y4- 25+24.51

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 IT:SEB-C:\NSD\37-RD\1_TIP_02A-6.dgn




6/2/199

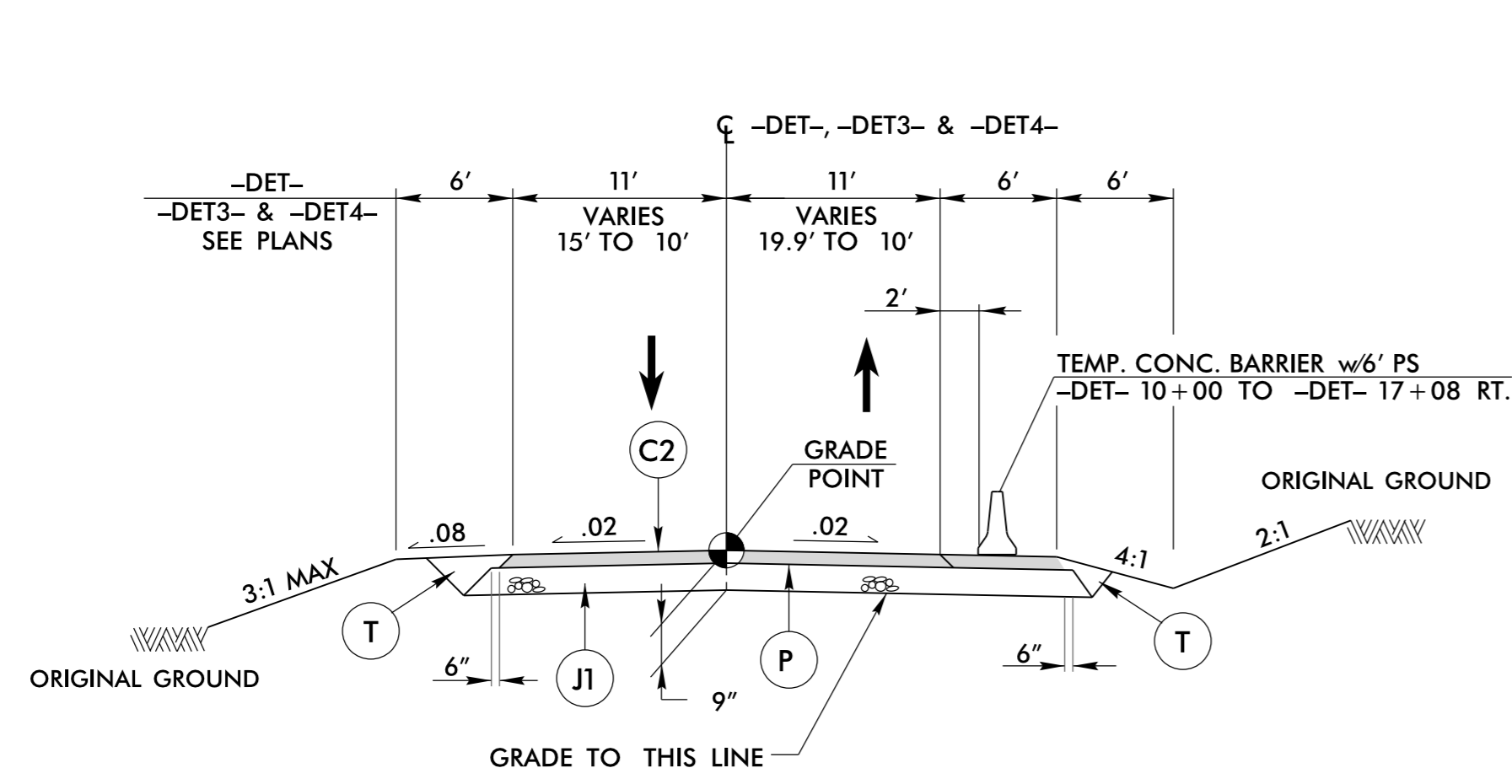
PAVEMENT SCHEDULE

ITEM	DESCRIPTION	ITEM	DESCRIPTION	ITEM	DESCRIPTION	ITEM	DESCRIPTION	ITEM	DESCRIPTION	ITEM	DESCRIPTION	ITEM	DESCRIPTION
(A1)	7" CONCRETE	(C4)	1.5" S9.5C	(D3)	VAR DEPTH I19.0C	(J3)	VAR. DEPTH ABC	(N2)	GEOTEXTILE FOR PAVEMENT STAB.	(R4)	CONC. EXWY GUTTER	(U)	EXIST. PAVEMENT
(A2)	7" CONCRETE wRS	(C5)	3" S9.5C	(E1)	5" B25.0C	(K1)	CHEMICAL STABILIZATION: 7" SOIL-CEMENT BASE OR 8" LIME-TREATED SOIL	(P)	PRIME COAT	(R5)	5" CONC. ISLAND	(V1)	INCIDENTAL MILLING
(C1)	1.5" S9.5B	(C6)	VAR DEPTH S9.5C	(E2)	VAR DEPTH B25.0C	(R1)	2'-6" C&G	(S)	4" CONC. SIDEWALK	(V2)	INCIDENTAL MILLING		
(C2)	3" S9.5B	(D1)	2.5" I19.0C	(J1)	6" ABC	(K2)	8" CLASS IV SUBGRADE STABILIZATION	(R2)	2' MOD. VALLEY CURB	(T)	EARTH MATERIAL	(V3)	1.5" MILLING
(C3)	VAR DEPTH S9.5B	(D2)	4" I19.0C	(J2)	8" ABC	(N1)	GEOTEXTILE FOR SOIL STABILIZATION	(R3)	CONC. SBG	(T1)	AGGR. SHLD. BORROW	(W1)	(W2) WEDGING DETAILS

NOTES:

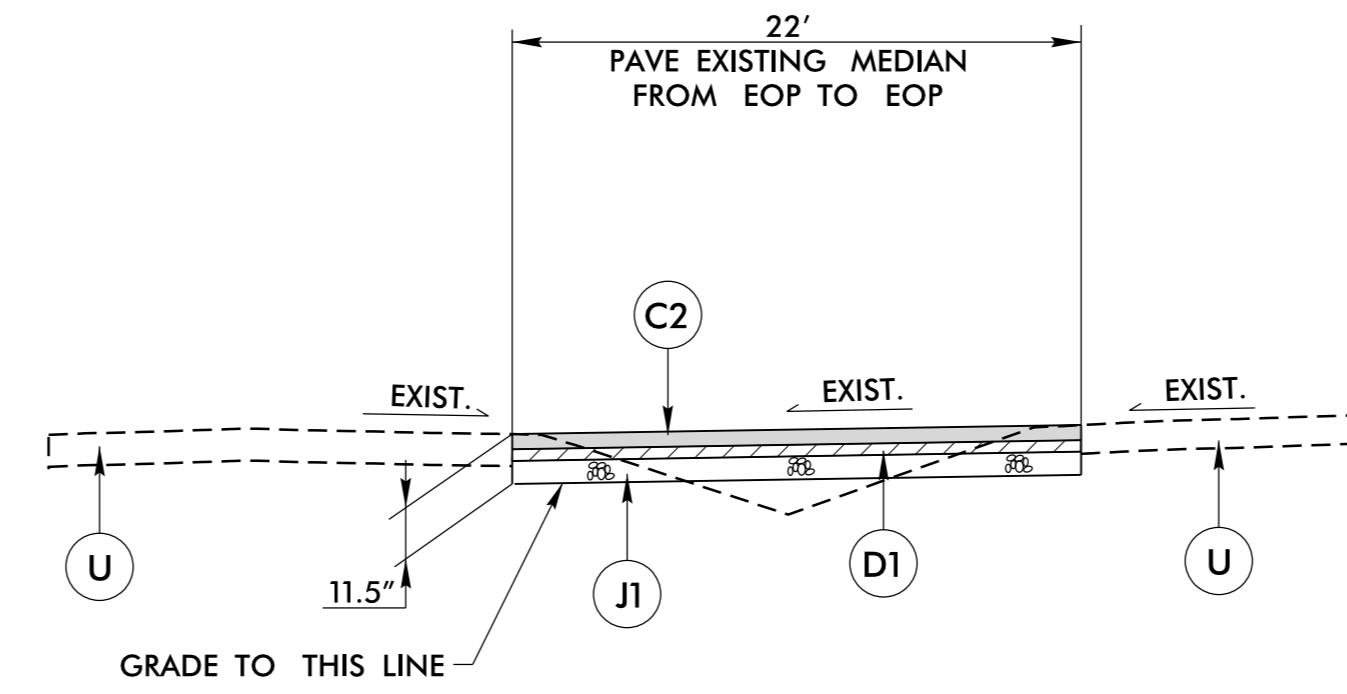
1. ALL PAVEMENT EDGE SLOPES ARE 1:1 UNLESS OTHERWISE NOTED.
2. SEE PLANS FOR LOCATION OF ACCELERATION AND DECELERATION LANES.
3. SEE PLANS FOR LOCATION OF TURN LANE AND INTERSECTION TURNOUTS.
4. SEE PLANS FOR LOCATION OF ALL PAVEMENT TAPERS.
5. ALL DRIVEWAY RADII IS 10' UNLESS SHOWN OTHERWISE ON PLANS.
6. ALL SIDEWALK CORNER RADII IS 3' UNLESS SHOWN OTHERWISE ON PLANS.
7. THE WELDED WIRE MESH FOR THE ROUNDABOUT TRUCK APRONS SHALL BE (4x4 W3.5xW3.5) OR (6x6 W5xW5).
8. THE ROUNDABOUT TRUCK APRONS SHALL HAVE 15' JOINT SPACING ON TOP OF VARIABLE DEPTH ABC.
9. SEE SHEETS 2B-1 THRU 2B-6 FOR CONCRETE ISLAND & TRUCK APRON DETAILS.

PROJECT REFERENCE NO. R-5737	SHEET NO. 2A-7
ROADWAY DESIGN ENGINEER 	PAVEMENT DESIGN ENGINEER 
8/24/2021	8/24/2021
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
	
2610 WYCLIFF ROAD SUITE 410 RALEIGH, NC 27607 PHONE: 919.881.9939 NC CCA No. F-0928	
NC DEPARTMENT OF TRANSPORTATION PAVEMENT MANAGEMENT UNIT 1593 WALK SERVICE CENTER RALEIGH, NC 27699-1593	



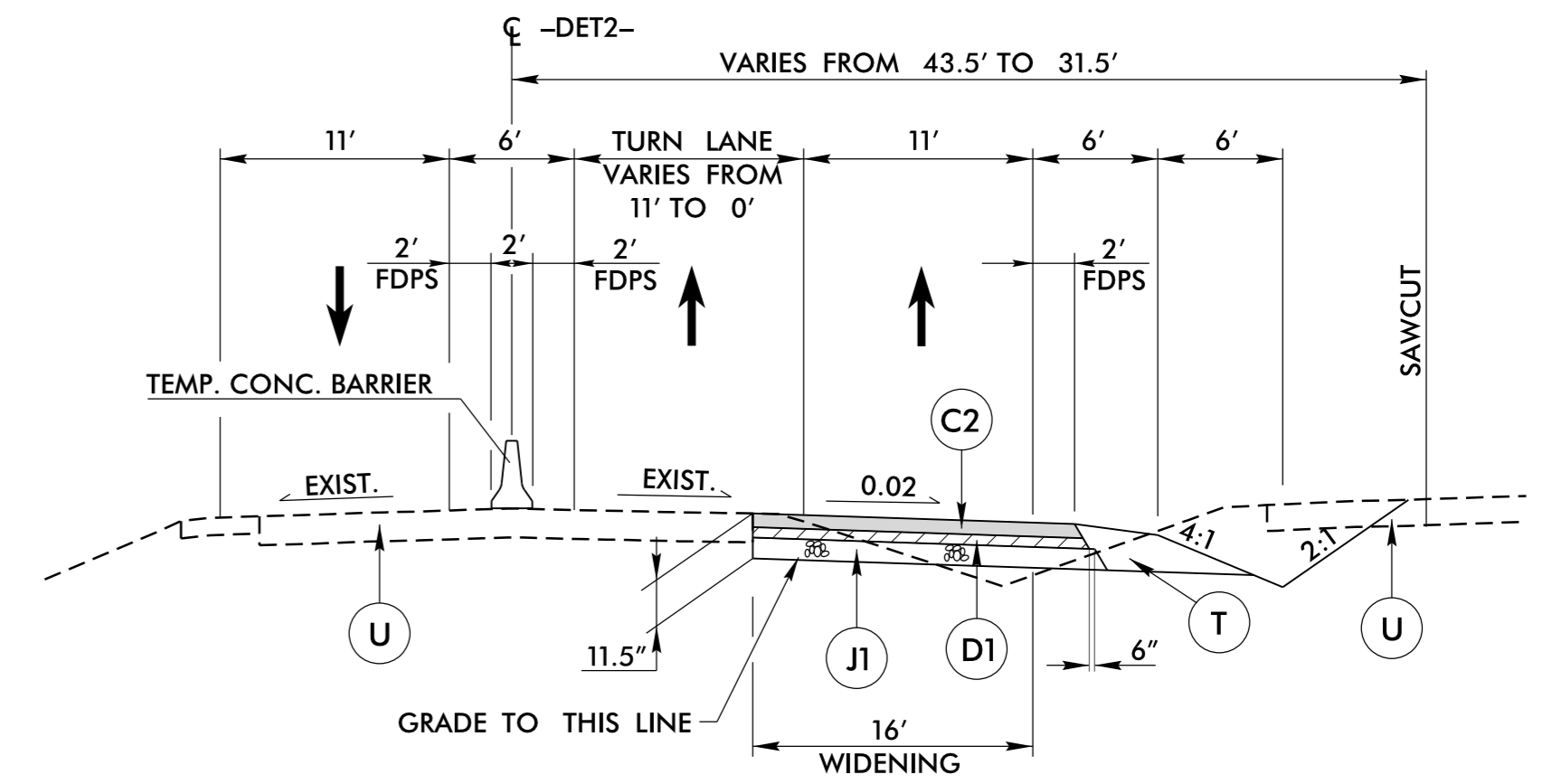
TYPICAL SECTION NO. 12

-DET- 10+00.00 TO -DET- 19+36.68
 -DET3- 10+12.70 TO -DET3- 12+25.00
 -DET4- 10+00.00 TO -DET4- 12+25.00



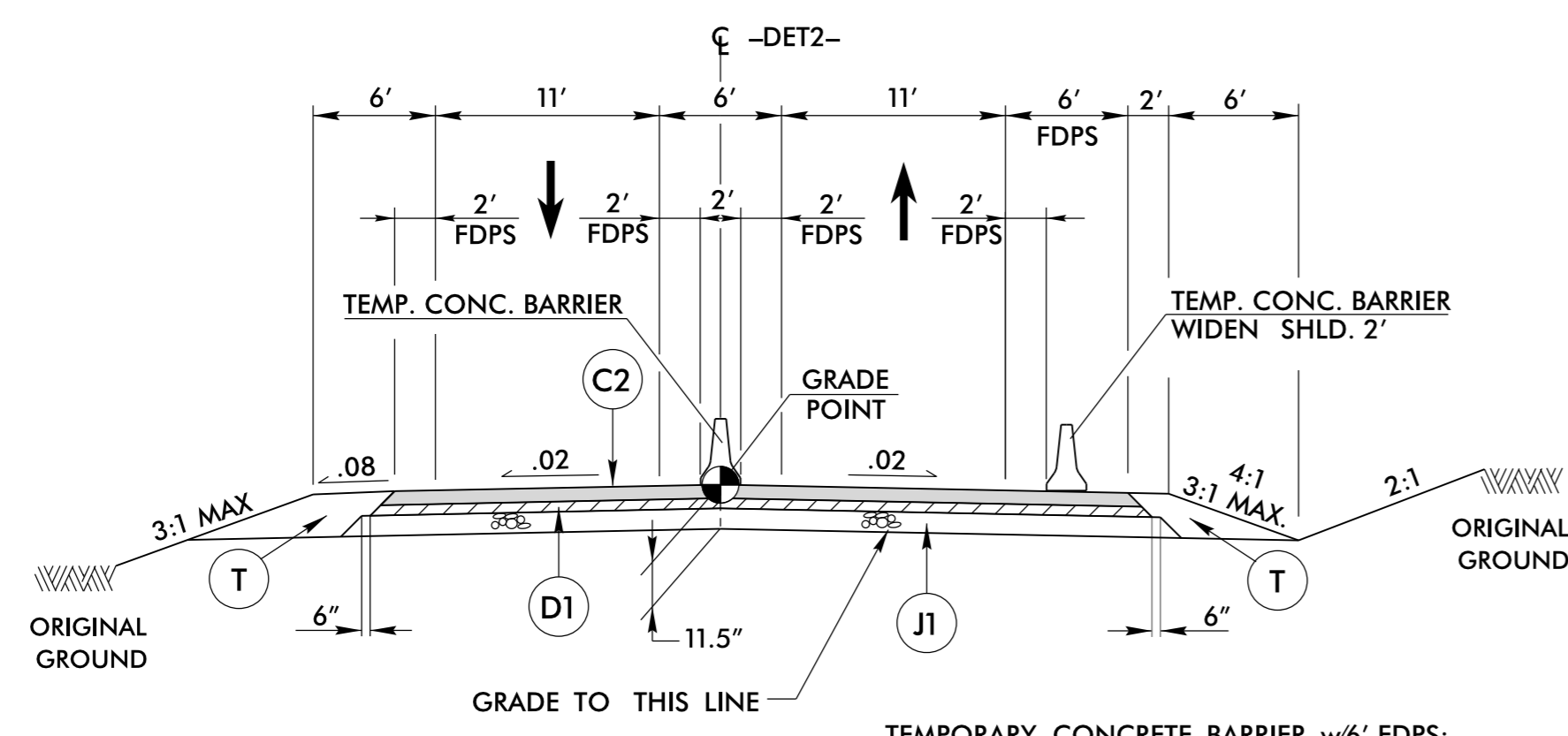
TYPICAL SECTION NO. 13

-DETB- 10+00.00 TO -DETB- 14+19.48
 -DETE- 10+69.45 TO -DETE- 12+75.00
 -DET2- 18+35.00 TO -DET2- 21+50.00
 (SEE -DETA- 12+01.25 TO -DETA- 13+23.06 FOR PROFILE)



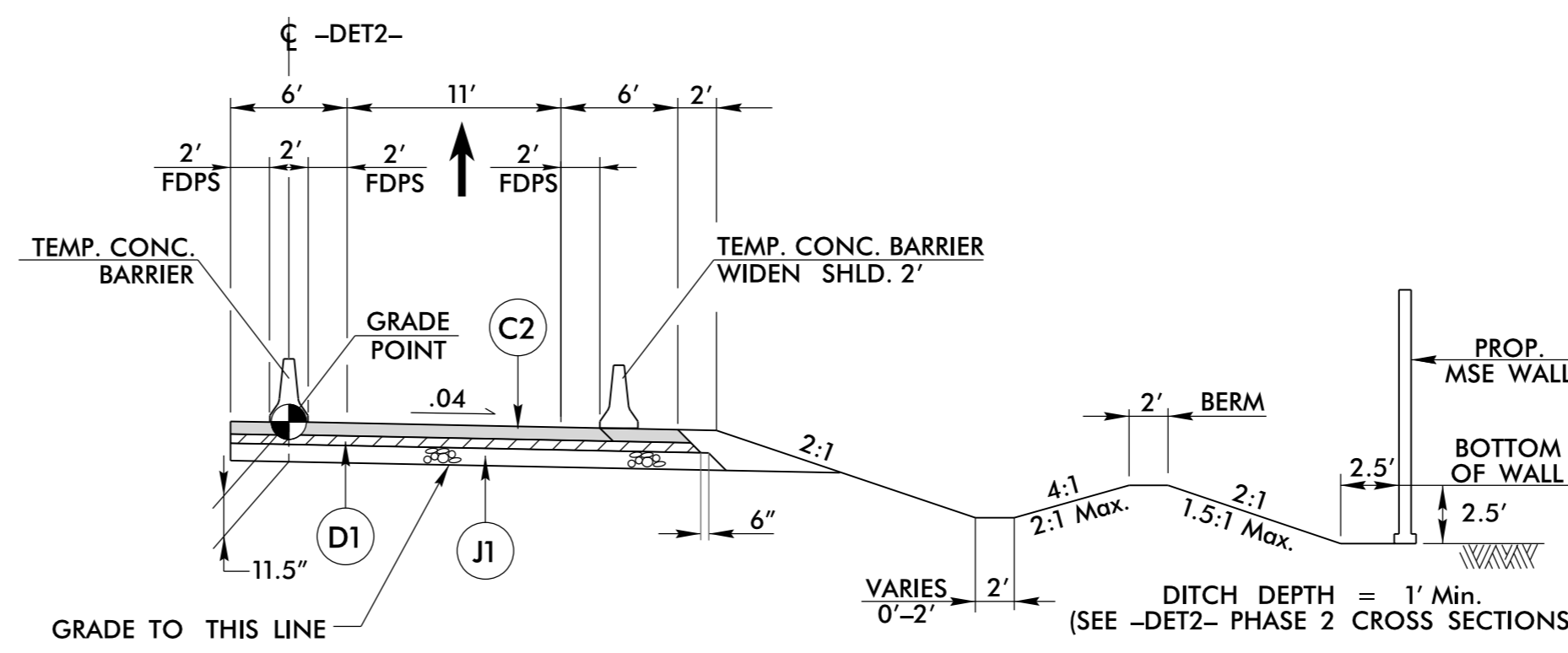
TYPICAL SECTION NO. 14

-DET2- 21+50+00.00 TO -DET2- 30+00.00 - RIGHT
 -DET2- 52+00+00.00 TO -DET2- 54+00.00 - RIGHT



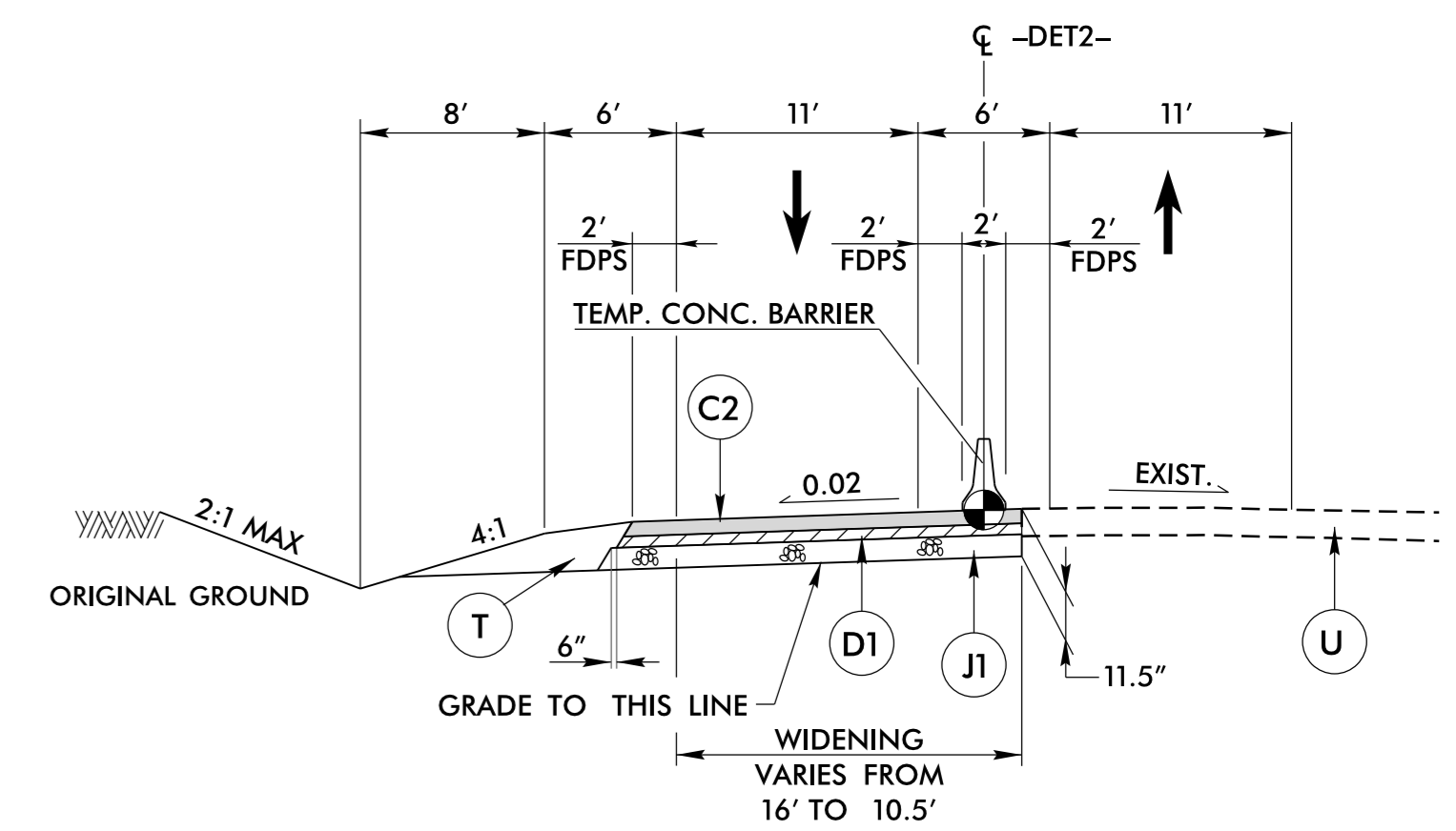
TYPICAL SECTION NO. 15

DETOUR - FULL DEPTH
 -DET2- 30+00.00 TO -DET2- 48+00.00 - PHASE I



TYPICAL SECTION NO. 15A

DETOUR - FULL DEPTH
 -DET2- 36+00.00 TO -DET2- 45+50.00 - PHASE II
 MSE WALL CONSTRUCTION - RIGHT



TYPICAL SECTION NO. 16

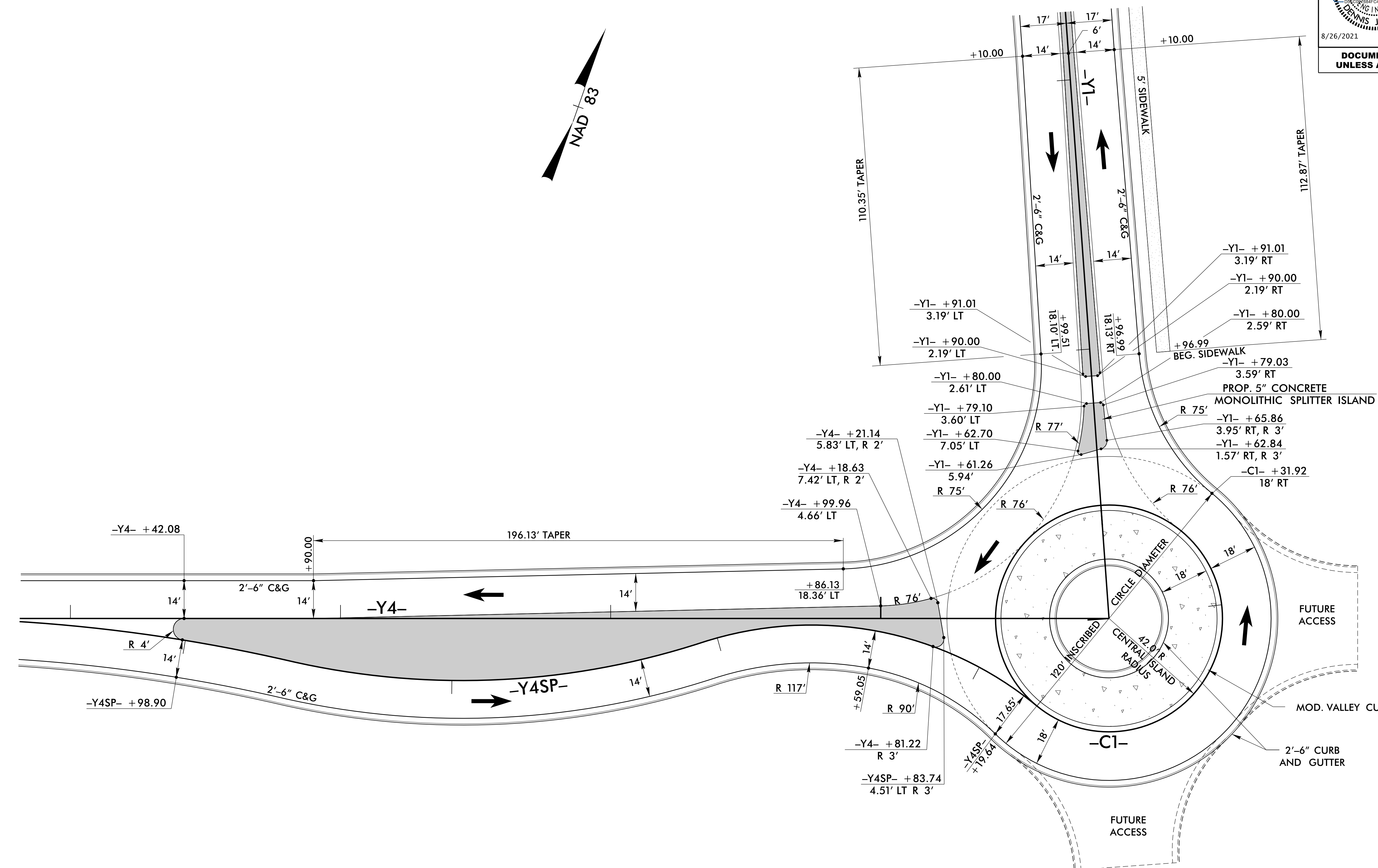
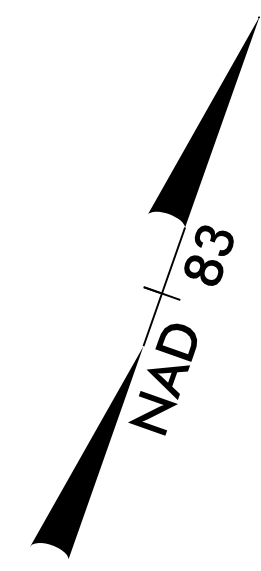
DETOUR - WIDEN EXIST. & RESURFACE
 -DET2- 48+00.00 TO -DET2- 54+00.00
 WIDEN EXIST. - NO GRADE
 -DET2- 50+00.00 TO -DET2- 54+00.00

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ROUNDBABOUT -C1- DETAIL

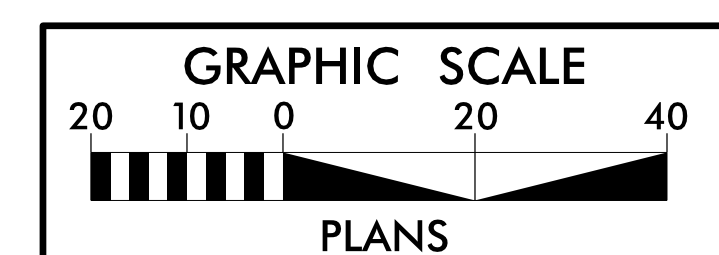


PROJECT REFERENCE NO. R-5737		SHEET NO. 2B-1
RW SHEET NO.		
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
8/26/2021		
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		



INSCRIBED CIRCLE DIAMETER = 120'
 TRAVERSABLE APRON WIDTH = 18'
 CENTRAL ISLAND DIAMETER = 84'
 CIRCULAR ROADWAY WIDTH = 18'

NOTES:
 ALL PROPOSED CONCRETE ISLANDS SHALL BE KEYED-IN
 AND HAVE 1' RADIUS CORNERS UNLESS OTHERWISE
 NOTED.



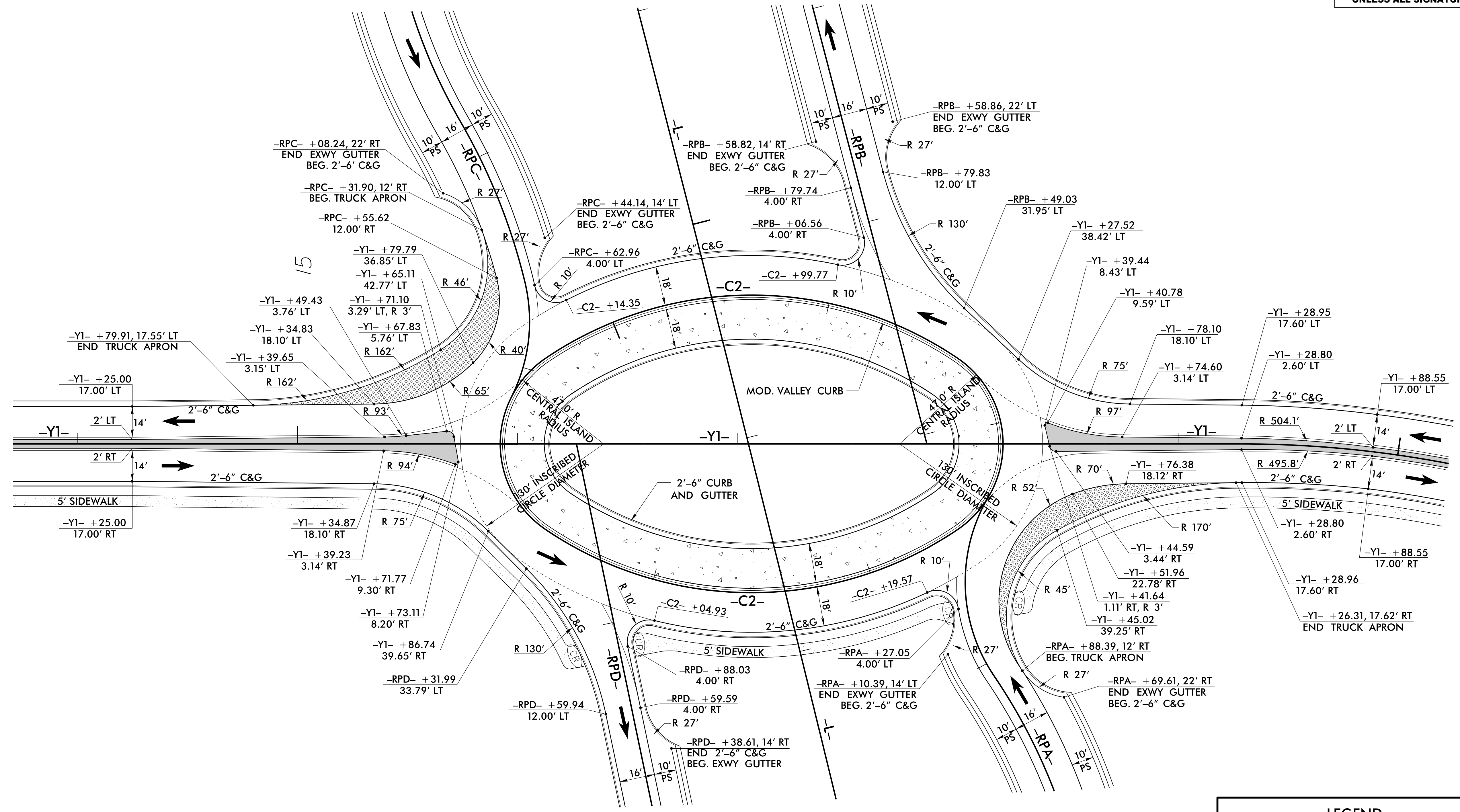
LEGEND	
	5' MONOLITHIC CONCRETE ISLAND
	7" CONCRETE TRUCK APRON
	4" CONCRETE SIDEWALK

ROUNDAABOUT -C2- DETAIL



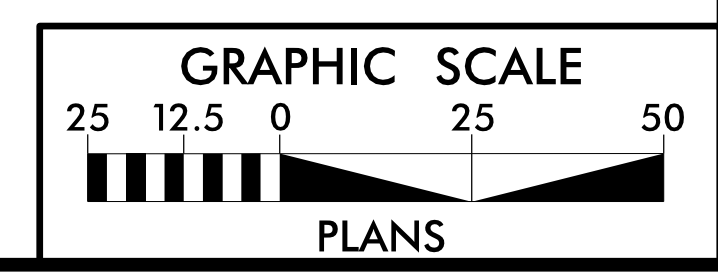
2610 WYCLIFF ROAD
SUITE 410
RALEIGH, NC 27607
PHONE: 919.881.2699
NC CDA No. F-0929

PROJECT REFERENCE NO. R-5737		SHEET NO. 2B-2
RW SHEET NO.		HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER		
8/26/2021		
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		



INSCRIBED CIRCLE DIAMETER #1 = 130'
 INSCRIBED CIRCLE DIAMETER #2 = 370'
 TRAVERSABLE APRON WIDTH = 18'
 CIRCULAR ROADWAY WIDTH = 18'

NOTES:
 ALL PROPOSED CONCRETE ISLANDS SHALL BE KEYED-IN
 AND HAVE 1' RADIUS CORNERS UNLESS OTHERWISE
 NOTED.



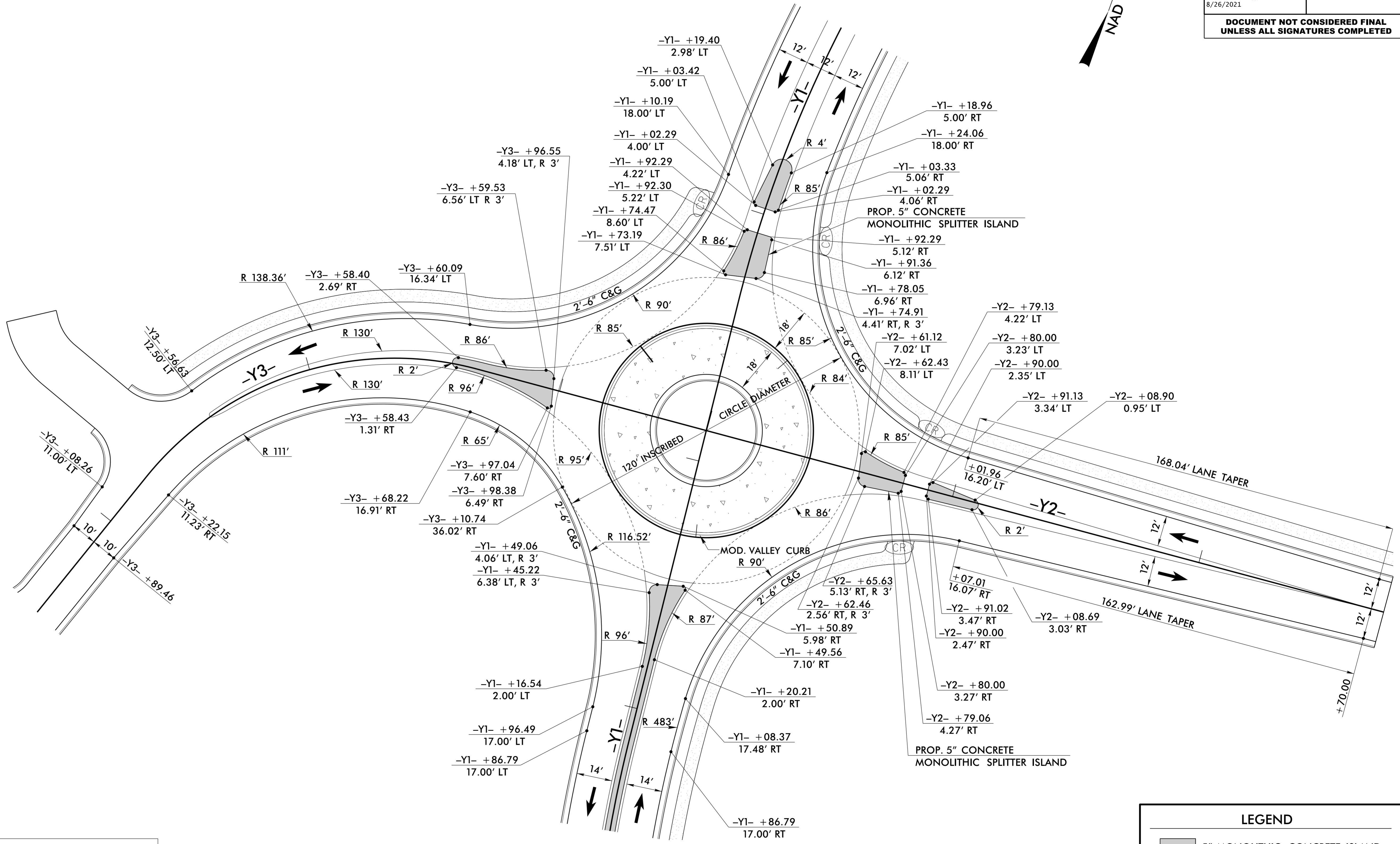
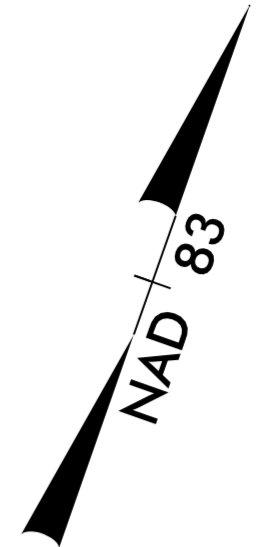
LEGEND	
	5" MONOLITHIC CONCRETE ISLAND
	7" CONCRETE TRUCK APRON w/RUMBLE STRIPS
	7" CONCRETE TRUCK APRON
	4" CONCRETE SIDEWALK

ROUNDBABOUT -C3- DETAIL



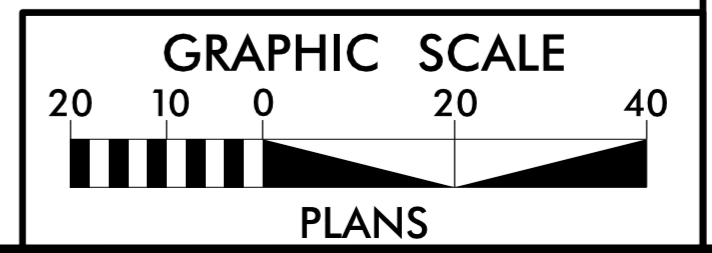
2300 WILLOW ROAD
RALEIGH, NC 27607
PHONE: 919.881.9339
NC CORP. # 05029

PROJECT REFERENCE NO. R-5737	SHEET NO. 2B-3
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
8/26/2021	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



INSCRIBED CIRCLE DIAMETER = 120'
 TRAVERSABLE APRON WIDTH = 18'
 CENTRAL ISLAND DIAMETER = 84'
 CIRCULAR ROADWAY WIDTH = 18'

NOTES:
 ALL PROPOSED CONCRETE ISLANDS SHALL BE KEYED-IN
 AND HAVE 1' RADIUS CORNERS UNLESS OTHERWISE
 NOTED.

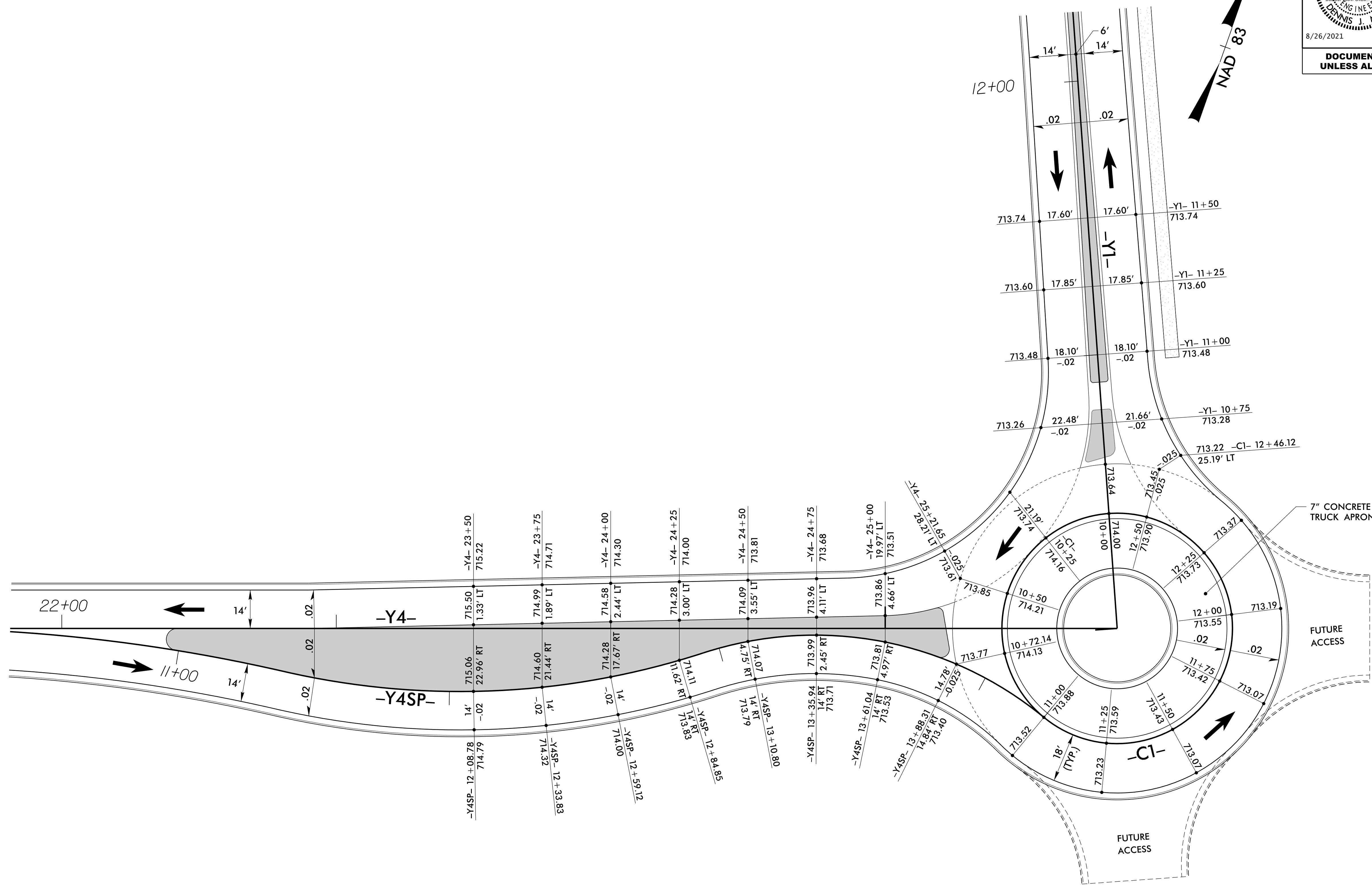


LEGEND	
	5" MONOLITHIC CONCRETE ISLAND
	7" CONCRETE TRUCK APRON
	4" CONCRETE SIDEWALK

ROUNDABOUT -C1- PAVEMENT PLAN

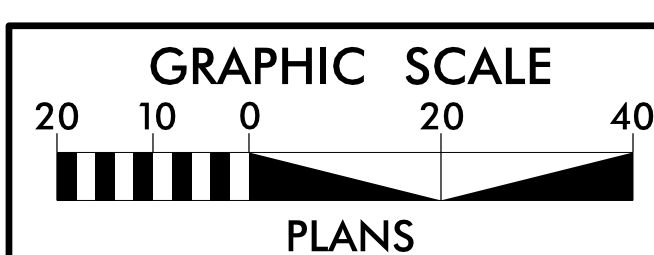


PROJECT REFERENCE NO. R-5737		SHEET NO. 2B-4
RW SHEET NO.		
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
8/26/2021		
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		



INSCRIBED CIRCLE DIAMETER = 120'
 TRAVERSABLE APRON WIDTH = 18'
 CENTRAL ISLAND DIAMETER = 84'
 CIRCULAR ROADWAY WIDTH = 18'

NOTES:
 ALL PROPOSED CONCRETE ISLANDS SHALL BE KEYED-IN
 AND HAVE 1' RADIUS CORNERS UNLESS OTHERWISE
 NOTED.



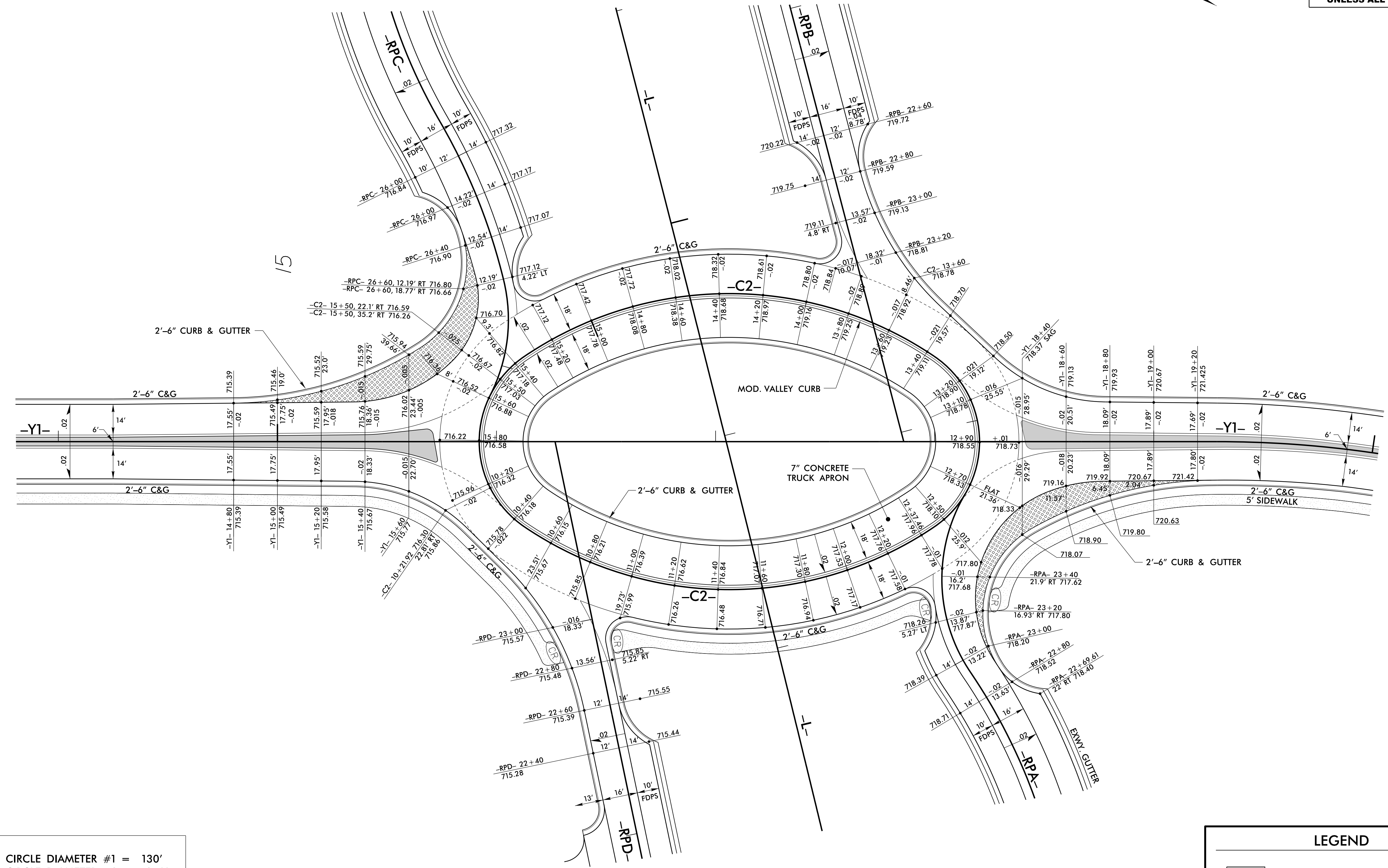
LEGEND	
	5' MONOLITHIC CONCRETE ISLAND
	4' CONCRETE SIDEWALK

ROUNDAABOUT -C2- PAVEMENT PLAN



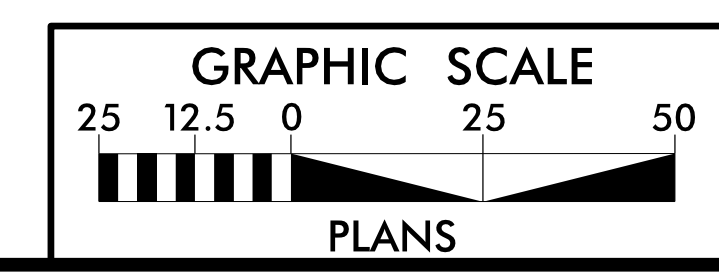
2610 WYCLIFF ROAD
SUITE 410
RALEIGH, NC 27607
PHONE: 919.881.5939
NC CCA No. F-0929

PROJECT REFERENCE NO. R-5737		SHEET NO. 2B-5
RW SHEET NO.		HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER		
8/26/2021		
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		



INSCRIBED CIRCLE DIAMETER #1 = 130'
 INSCRIBED CIRCLE DIAMETER #2 = 370'
 TRAVERSABLE APRON WIDTH = 18'
 CIRCULAR ROADWAY WIDTH = 18'

NOTES:
 ALL PROPOSED CONCRETE ISLANDS SHALL BE KEYED-IN
 AND HAVE 1' RADIUS CORNERS UNLESS OTHERWISE
 NOTED.



LEGEND	
	5" MONOLITHIC CONCRETE ISLAND
	7" CONCRETE TRUCK APRON w/RUMBLE STRIPS
	4" CONCRETE SIDEWALK

ROUNDABOUT -C3- PAVEMENT PLAN



2300 WILKIFF ROAD
SUITE 410
RALEIGH, NC 27607
PHONE: 919.851.9339
NC COR. No. P-0529

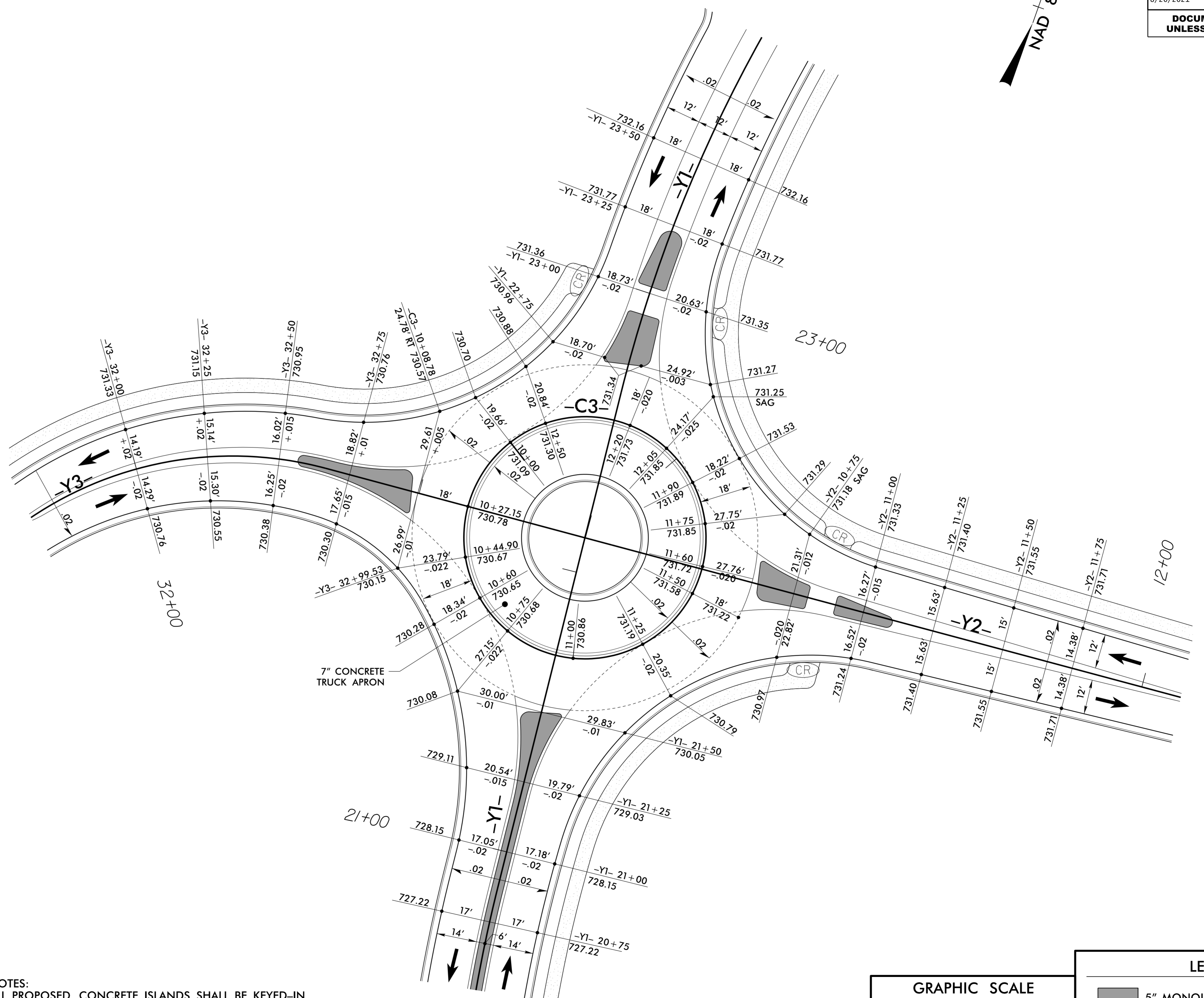
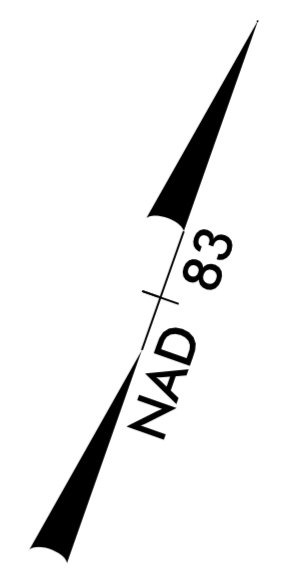
PROJECT REFERENCE NO.	SHEET NO.
R-5737	2B-6

R/W SHEET NO.

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

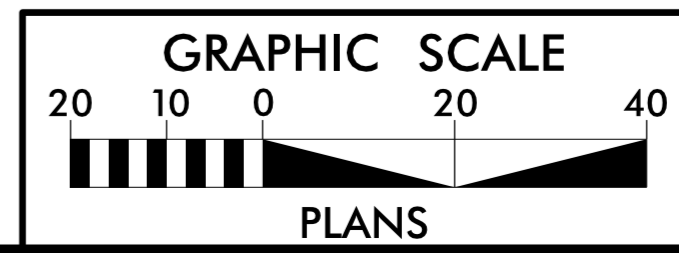
8/26/2021

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



INSCRIBED CIRCLE DIAMETER = 120'
 TRAVERABLE APRON WIDTH = 18'
 CENTRAL ISLAND DIAMETER = 84'
 CIRCULAR ROADWAY WIDTH = 18'

NOTES:
 ALL PROPOSED CONCRETE ISLANDS SHALL BE KEYED-IN AND HAVE 1' RADIUS CORNERS UNLESS OTHERWISE NOTED.



LEGEND

	5" MONOLITHIC CONCRETE ISLAND
	4" CONCRETE SIDEWALK

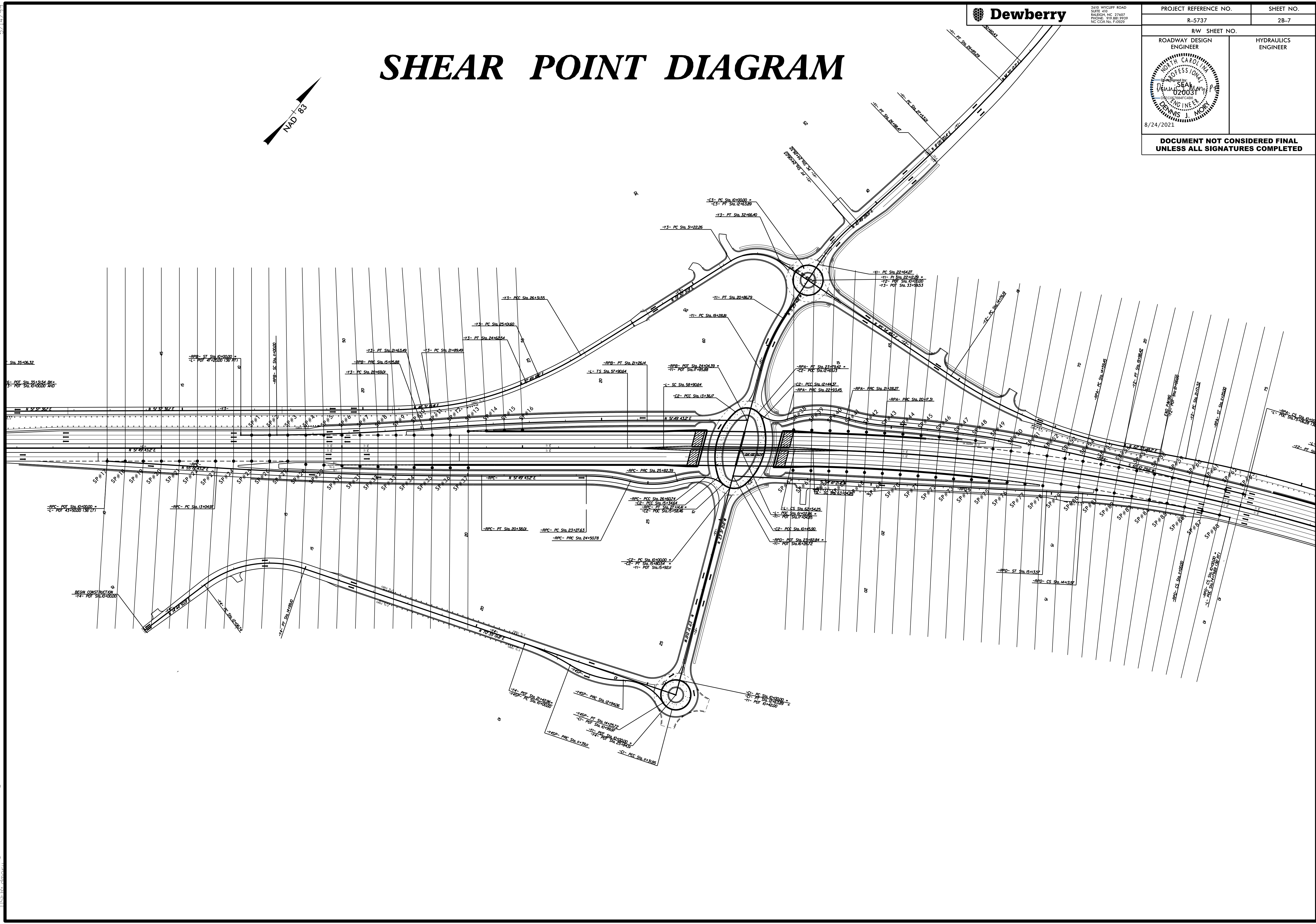
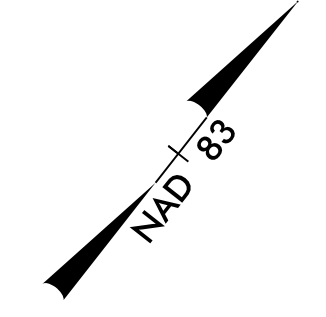
5/14/2021



2610 WYCLIFF ROAD
SUITE 410
RALEIGH, NC 27607
PHONE: 919.881.9939
NC CCA No. F-0929

PROJECT REFERENCE NO. R-5737		SHEET NO. 2B-7	
RW SHEET NO.		HYDRAULICS ENGINEER	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
8/24/2021			
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			

SHEAR POINT DIAGRAM



7/29/2021 4:53:02 PM
I:\Projects\2021\2021-07-28-07_SPD.dgn



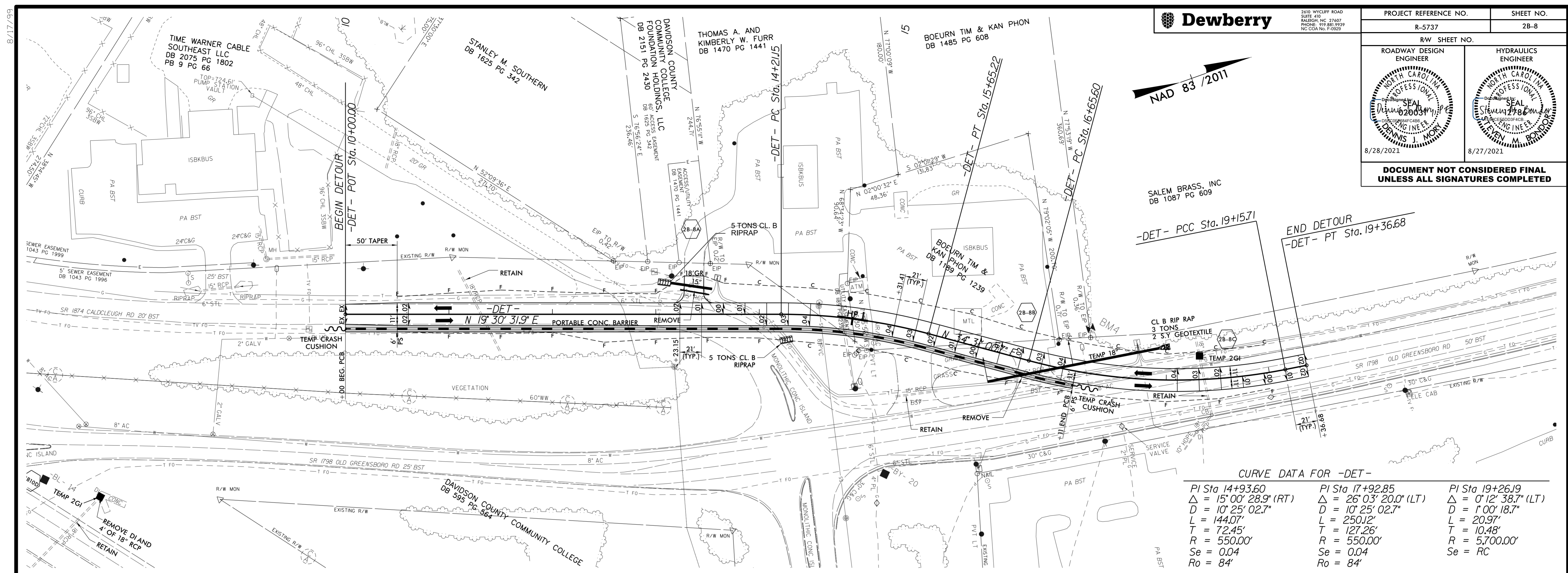
2410 WYCLIFF ROAD
RALEIGH, NC 27607
PHONE: 919.881.9339
NC CORP. NO. F-5929

PROJECT REFERENCE NO.	SHEET NO.
R-5737	2B-8

R/W SHEET NO.

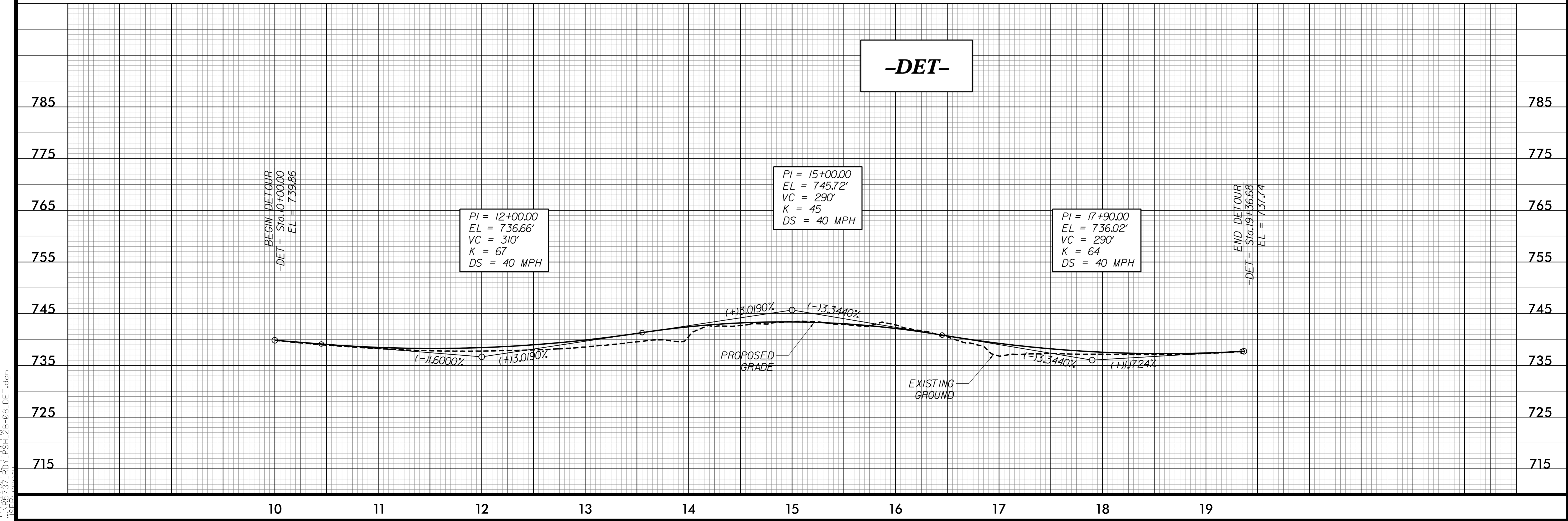
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
8/28/2021	8/27/2021

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

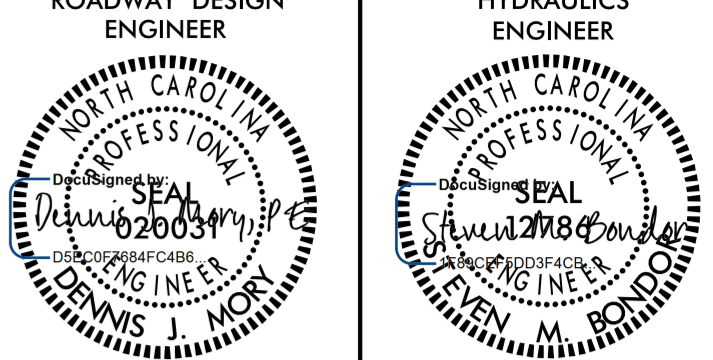


CURVE DATA FOR -DET-

PI Sta 14+93.60	PI Sta 17+92.85	PI Sta 19+26.19
$\Delta = 15^{\circ} 00' 28.9''$ (RT)	$\Delta = 26^{\circ} 03' 20.0''$ (LT)	$\Delta = 0^{\circ} 12' 38.7''$ (LT)
$D = 10^{\circ} 25' 02.7''$	$D = 10^{\circ} 25' 02.7''$	$D = 1^{\circ} 00' 18.7''$
$L = 144.07'$	$L = 250.12'$	$L = 20.97'$
$T = 72.45'$	$T = 127.26'$	$T = 10.48'$
$R = 550.00'$	$R = 550.00'$	$R = 5,700.00'$
$Se = 0.04$	$Se = 0.04$	$Se = RC$
$Ro = 84'$	$Ro = 84'$	



7/29/2021 4:17:48 PM JSH-2B-08-DET.dgn



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

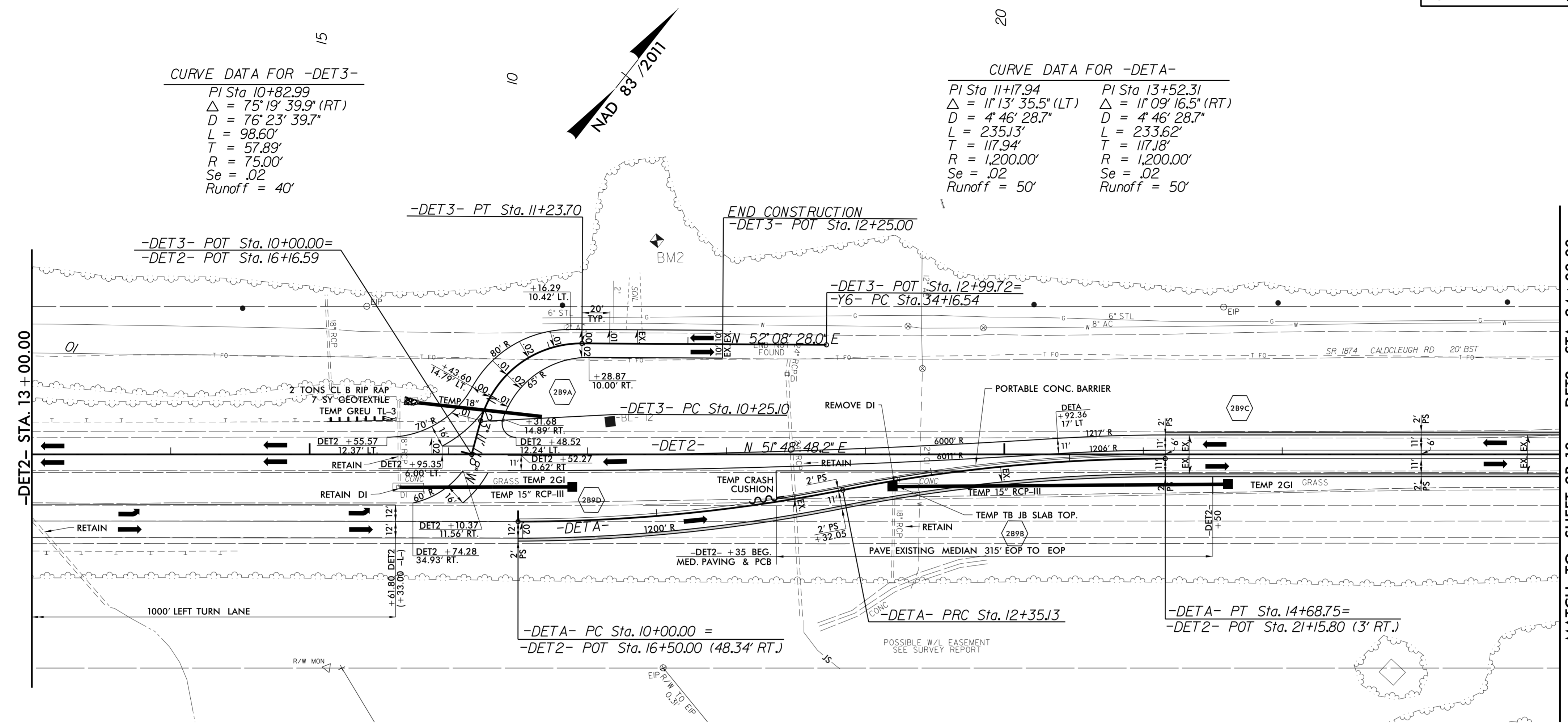
CURVE DATA FOR -DET3-

PI Sta 10+82.99
 $\Delta = 75^\circ 19' 39.9" (RT)$
 $D = 76' 23' 39.7"$
 $L = 98.60'$
 $T = 57.89'$
 $R = 75.00'$
 $Se = .02$
 Runoff = 40'

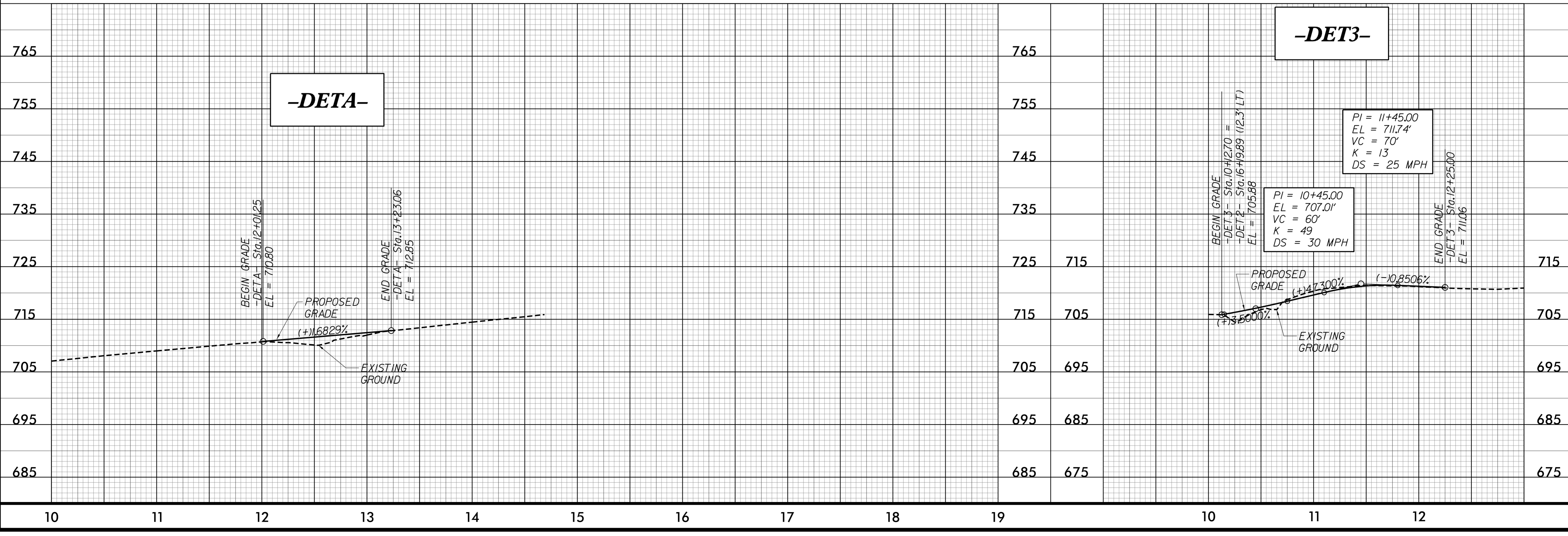
CURVE DATA FOR -DETA-

PI Sta 11+17.94 $\Delta = 11^\circ 13' 35.5" (LT)$
 $D = 4' 46' 28.7"$
 $L = 235.13'$
 $T = 117.94'$
 $R = 1,200.00'$
 $Se = .02$
 Runoff = 50'

PI Sta 13+52.31 $\Delta = 11^\circ 09' 16.5" (RT)$
 $D = 4' 46' 28.7"$
 $L = 233.62'$
 $T = 117.18'$
 $R = 1,200.00'$
 $Se = .02$
 Runoff = 50'

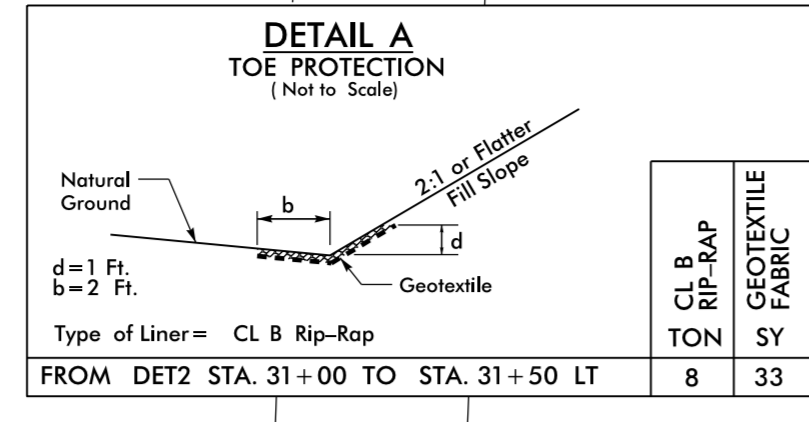
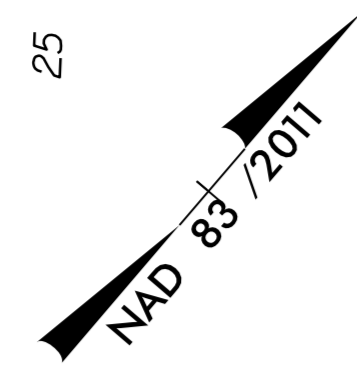


MATCH TO SHEET 2B-10 - -DET2- STA. 24 + 00.00



8/17/2021 8/3/2021 10:45 AM H:\2021\2021-09-28-09-DET2.dgn

8/17/19



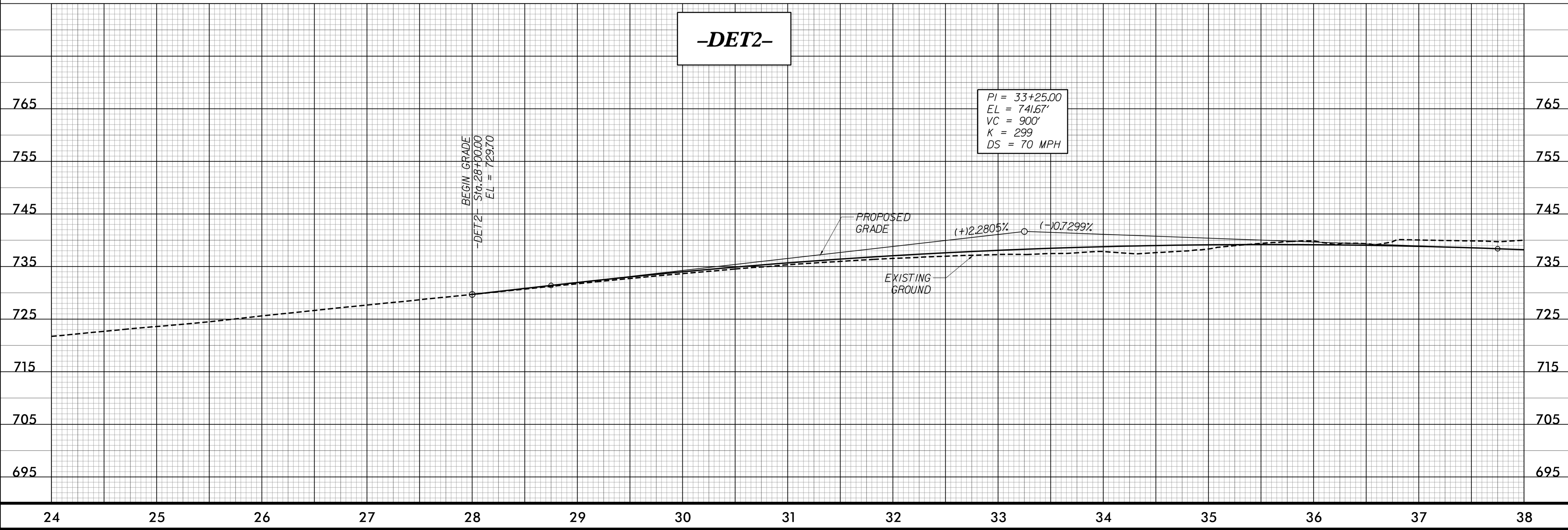
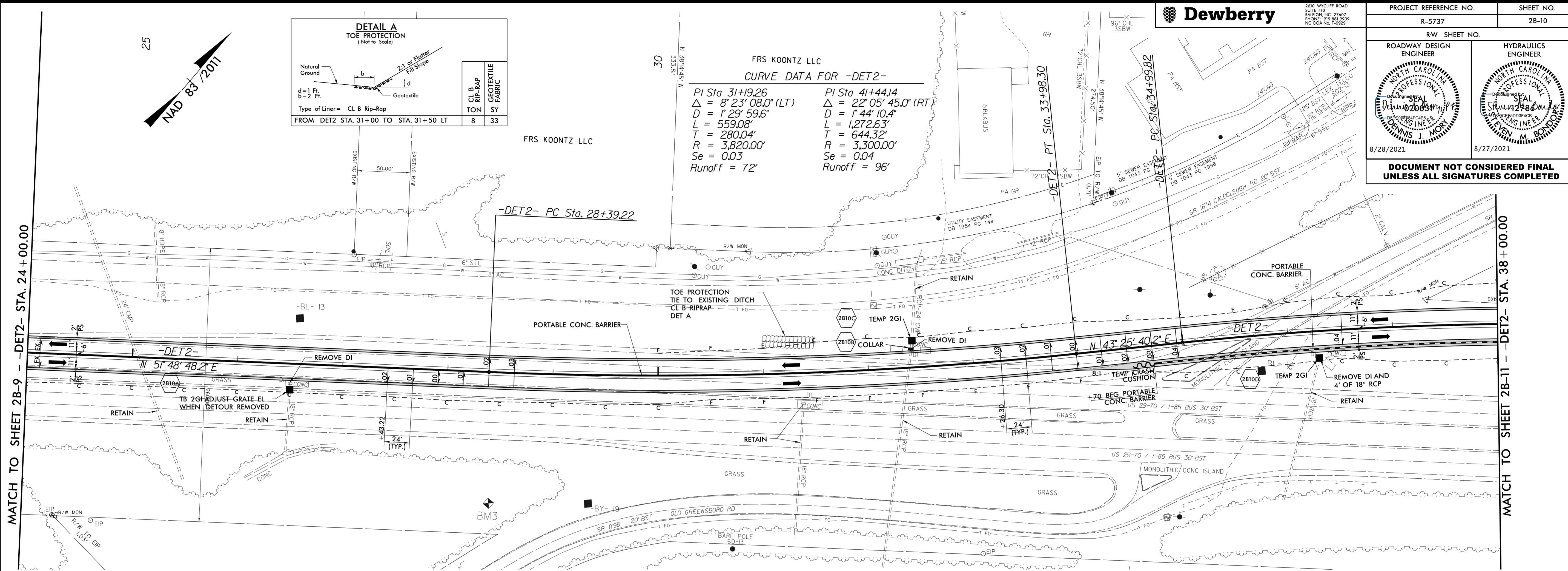
FRS KOONTZ LLC
CURVE DATA FOR -DET2-

PI Sta	Δ	D	L	T	R	Se	Runoff
31+19.26	8° 23' 08.0" (LT)	1' 29' 59.6"	559.08'	280.04'	3,820.00'	0.03	72'
41+44.14	22° 05' 45.0" (RT)	1' 44' 10.4"	1,272.63'	644.32'	3,300.00'	0.04	96'



230 WILLOW ROAD
RALEIGH, NC 27607
PHONE: 919.881.9339
NC CORP. NO. F-0529

PROJECT REFERENCE NO. R-5737	SHEET NO. 2B-10
RW SHEET NO.	
ROADWAY DESIGN ENGINEER 	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



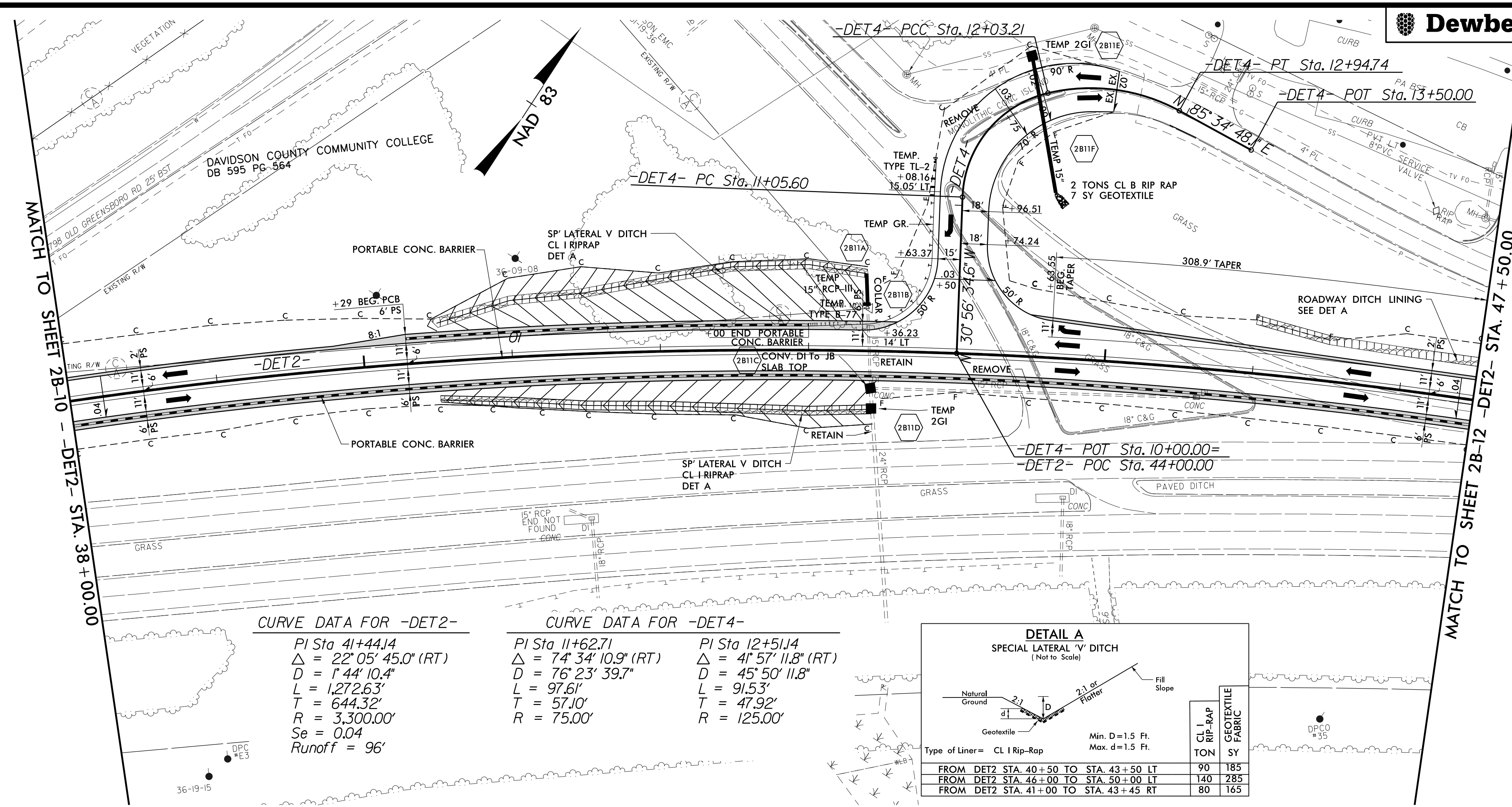
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8/17/2021

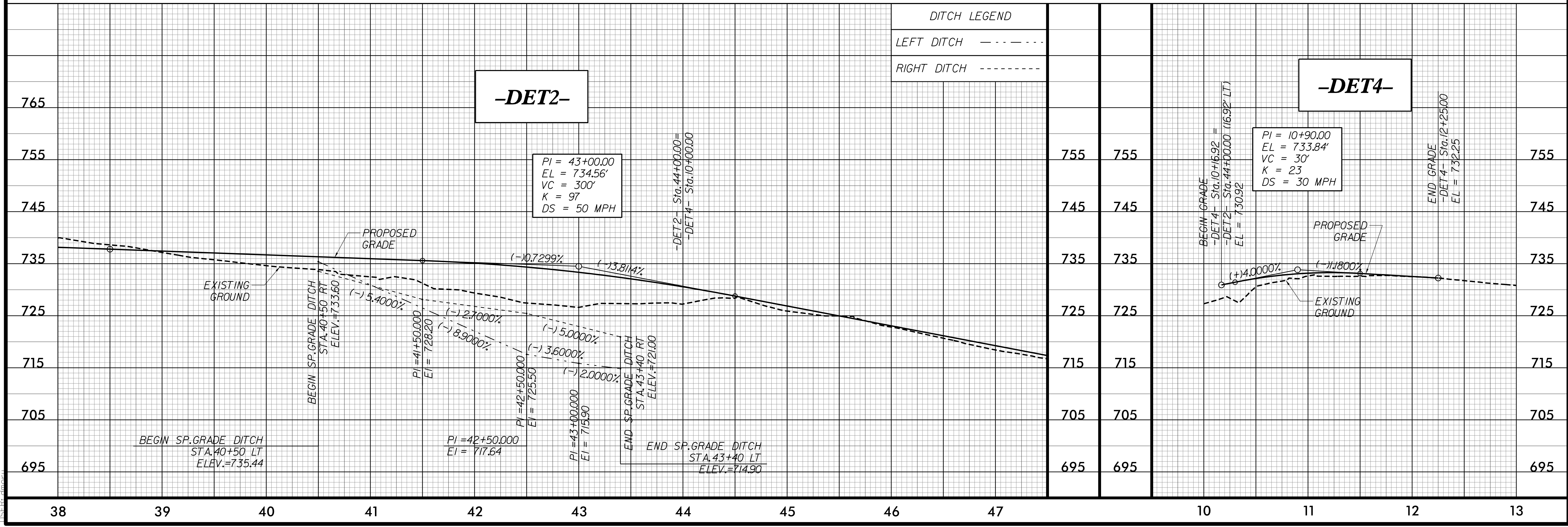
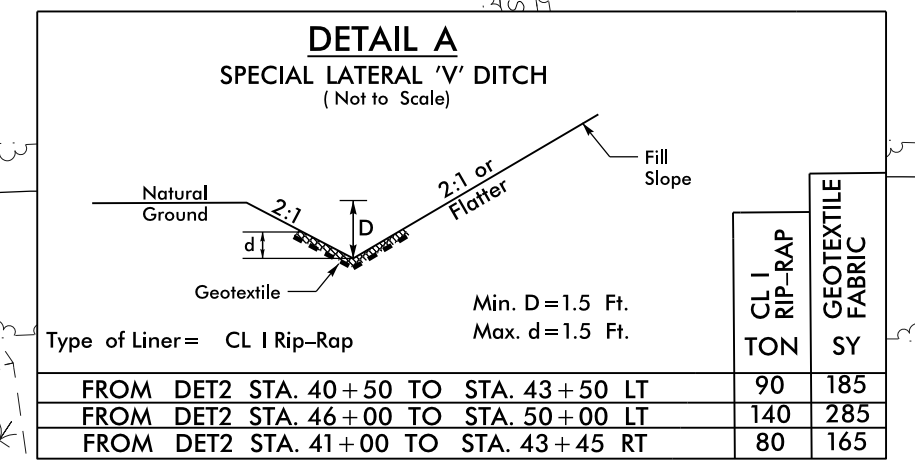


2610 WYCLIFF ROAD
SUITE 410
RALEIGH, NC 27607
PHONE: 919.881.9999
NC COA No. F-09251

PROJECT REFERENCE NO. R-5737		SHEET NO. 2B-11	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
8/28/2021		8/27/2021	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			



CURVE DATA FOR -DET2-		CURVE DATA FOR -DET4-	
PI Sta 41+44.14	Δ = 22° 05' 45.0" (RT)	PI Sta 11+62.71	Δ = 74° 34' 10.9" (RT)
D = 1' 44' 10.4"	L = 1272.63'	D = 76° 23' 39.7"	L = 97.61'
T = 644.32'	R = 3,300.00'	T = 57.10'	R = 75.00'
Se = 0.04	Runoff = 96'	T = 47.92'	R = 125.00'



7/28/2021 4:51:22 PM
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PROJECT REFERENCE NO. R-5737	SHEET NO. 2B-12
RW SHEET NO.	
ROADWAY DESIGN ENGINEER Professional Seal MORNINGSTAR ENGINEERING, INC. JENNIFER L. MORNINGSTAR 8/28/2021	HYDRAULICS ENGINEER Professional Seal MORNINGSTAR ENGINEERING, INC. STEVEN M. BOND 8/27/2021
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

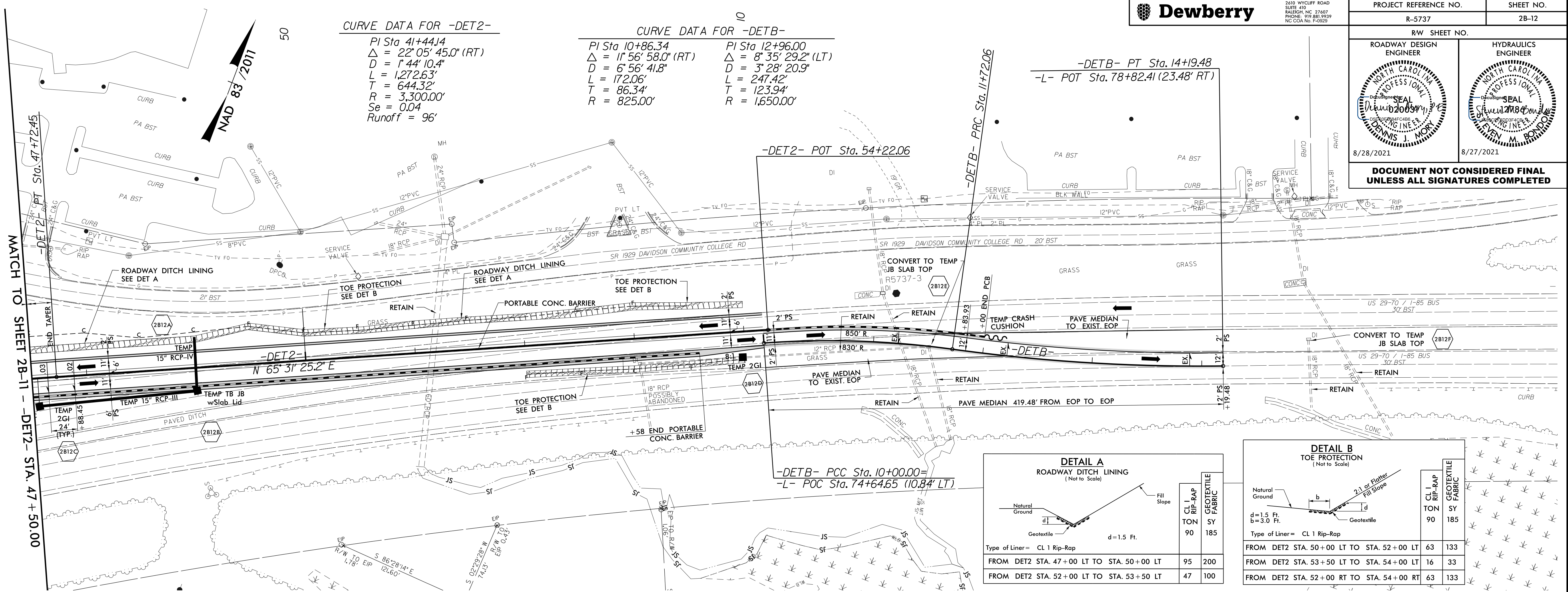
CURVE DATA FOR -DET2-

PI Sta 41+44.14
 $\Delta = 22^{\circ} 05' 45.0''$ (RT)
 $D = 1' 44' 10.4''$
 $L = 1,272.63'$
 $T = 644.32'$
 $R = 3,300.00'$
 $Se = 0.04$
 Runoff = 96'

CURVE DATA FOR -DET2-

PI Sta 10+86.34
 $\Delta = 1^{\circ} 56' 58.0''$ (RT)
 $D = 6' 56' 41.8''$
 $L = 172.06'$
 $T = 86.34'$
 $R = 825.00'$

PI Sta 12+96.00
 $\Delta = 8^{\circ} 35' 29.2''$ (LT)
 $D = 3' 28' 20.9''$
 $L = 247.42'$
 $T = 123.94'$
 $R = 1,650.00'$

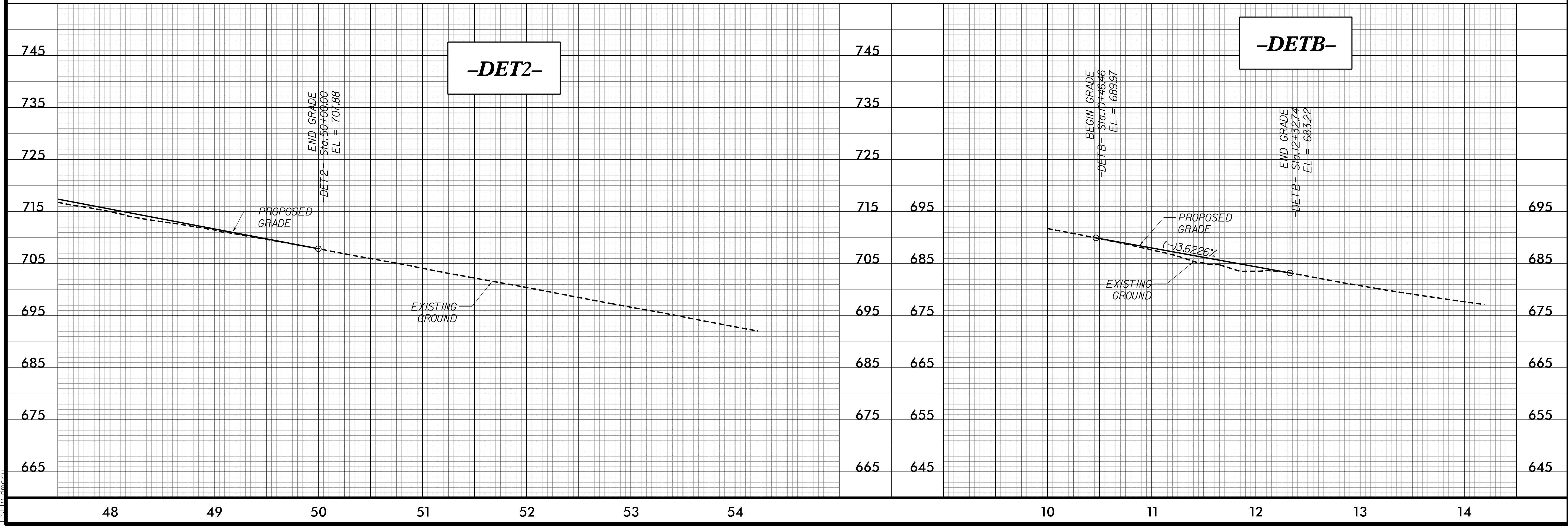


DETAIL A
ROADWAY DITCH LINING
(Not to Scale)

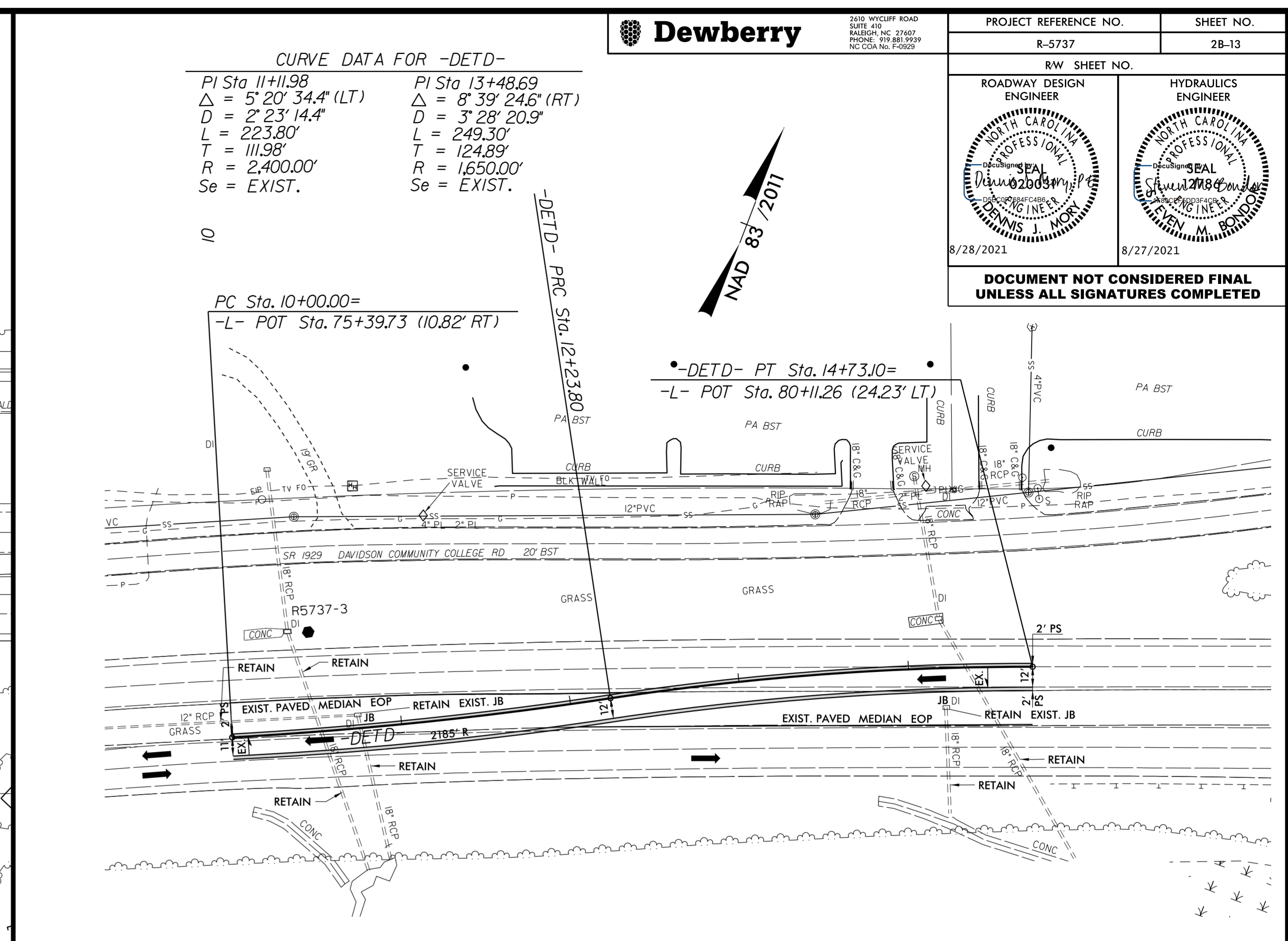
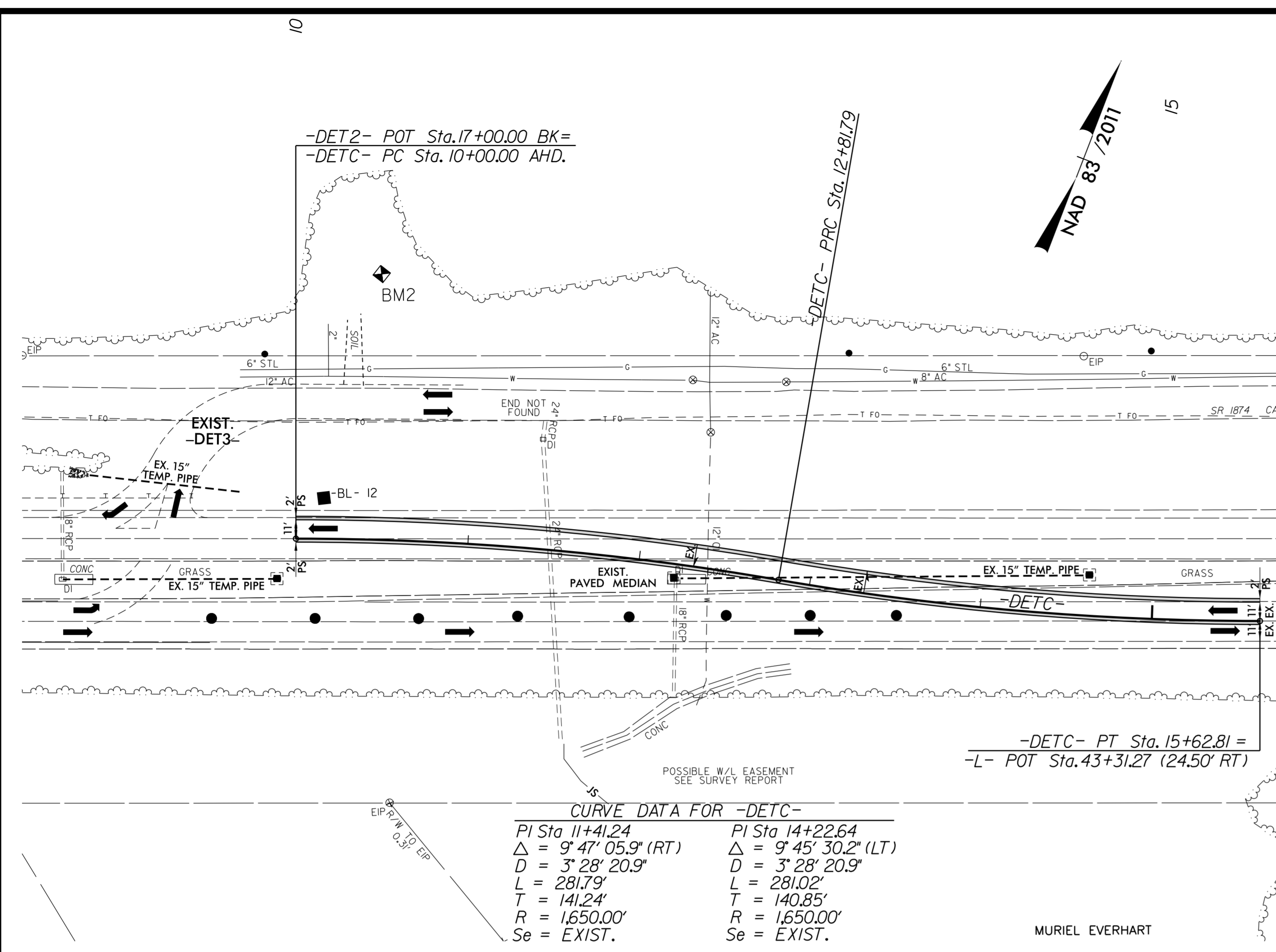
Type of Liner	CL 1 RIP-RAP	GEOTEXTILE FABRIC
FROM DET2 STA. 47+00 LT TO STA. 50+00 LT	95	200
FROM DET2 STA. 52+00 LT TO STA. 53+50 LT	47	100

DETAIL B
TOE PROTECTION
(Not to Scale)

Type of Liner	CL 1 RIP-RAP	GEOTEXTILE FABRIC
FROM DET2 STA. 50+00 LT TO STA. 52+00 LT	63	133
FROM DET2 STA. 53+50 LT TO STA. 54+00 LT	16	33
FROM DET2 STA. 52+00 RT TO STA. 54+00 RT	63	133

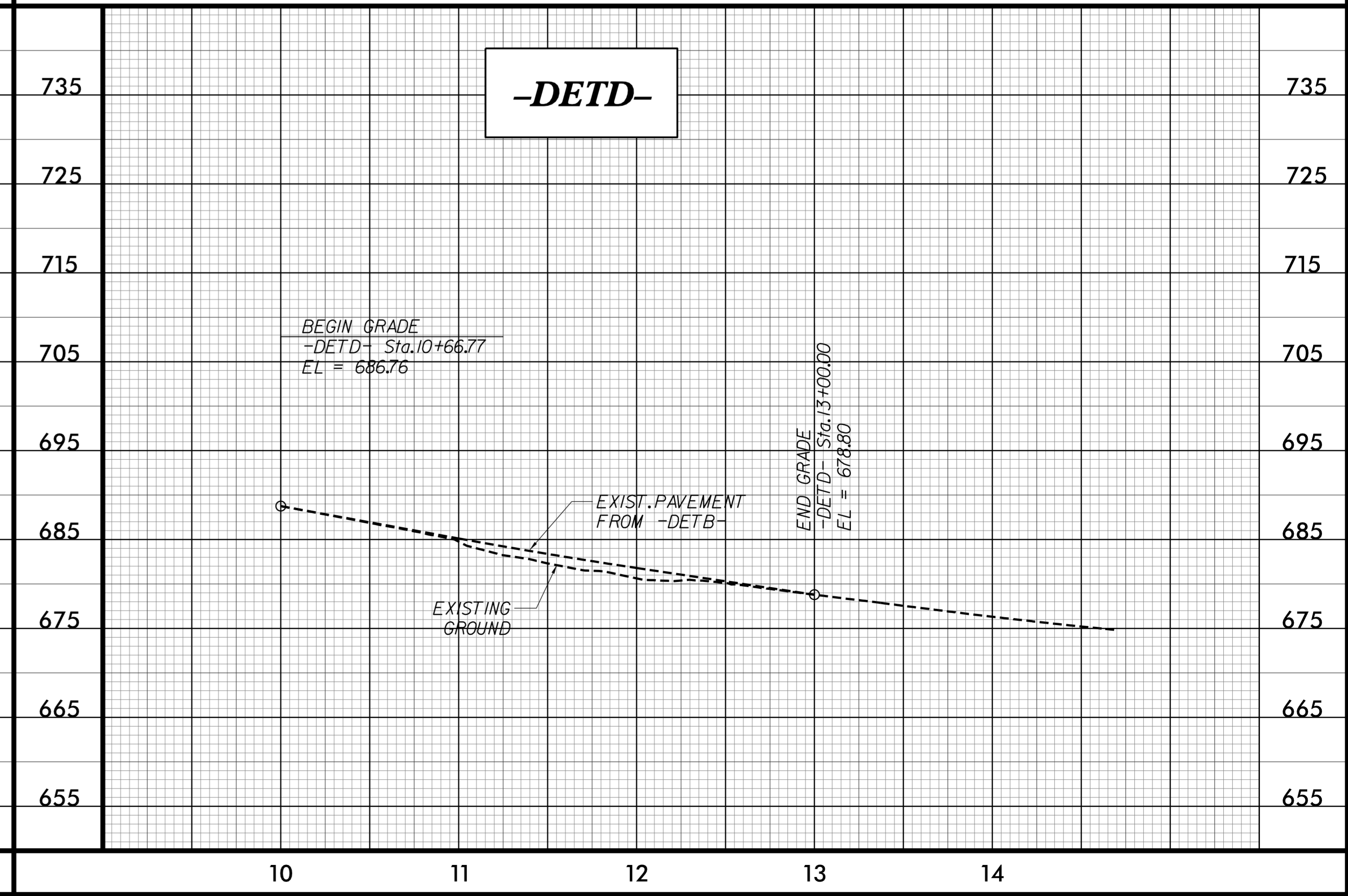
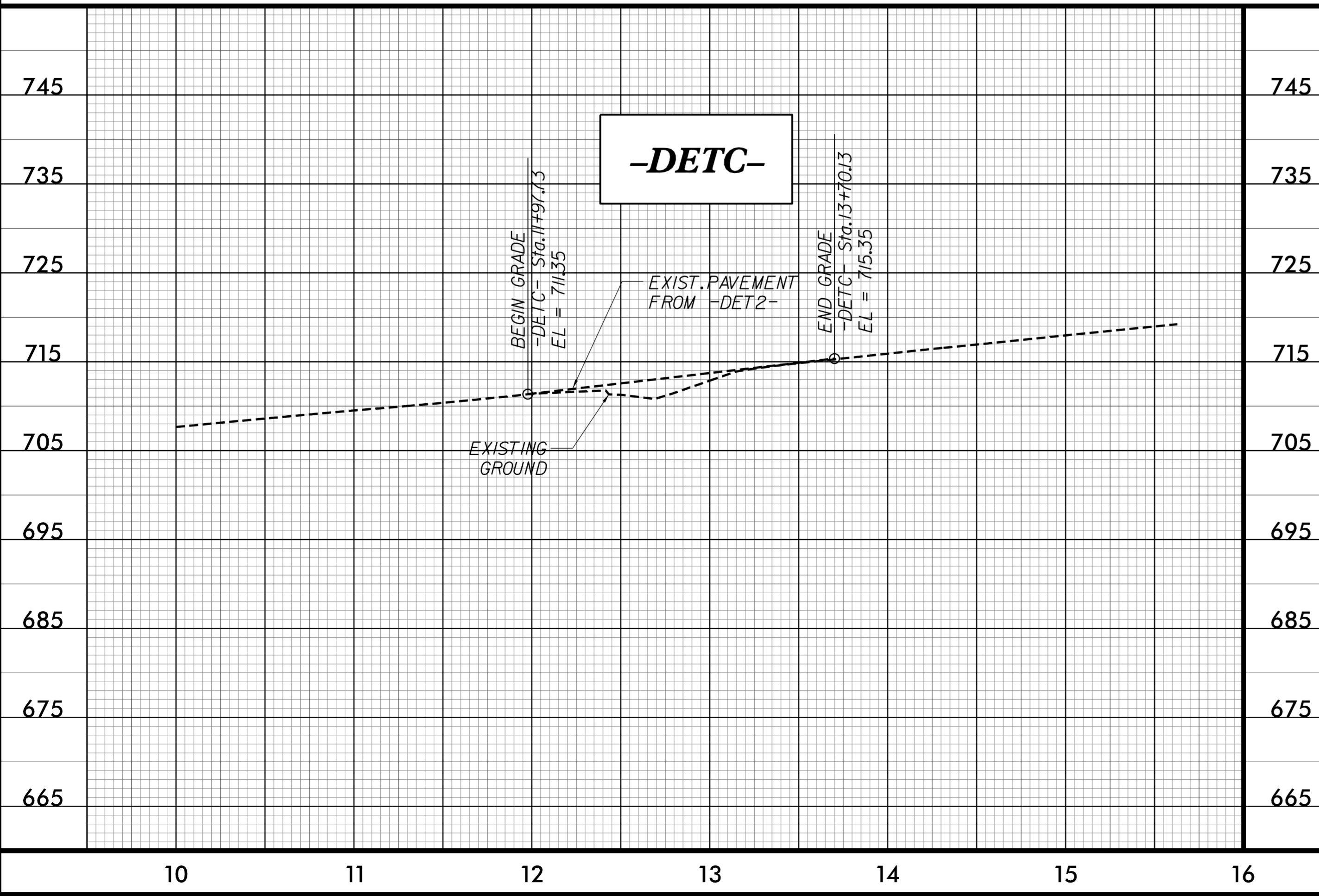


8/17/19



230 WILKIE ROAD
 SUITE 410
 RALPH, NC 27607
 PHONE: 919.881.9339
 NC COR. NO. P-0529

PROJECT REFERENCE NO. R-5737	SHEET NO. 2B-13
RW SHEET NO.	
ROADWAY DESIGN ENGINEER 	HYDRAULICS ENGINEER
8/28/2021	8/27/2021
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



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8/17/2021



250 WYCLIFF ROAD
RALEIGH, NC 27607
PHONE: 919.881.9939
NC CORP. NO. F-0529

PROJECT REFERENCE NO. R-5737 SHEET NO. 2B-14

R/W SHEET NO.

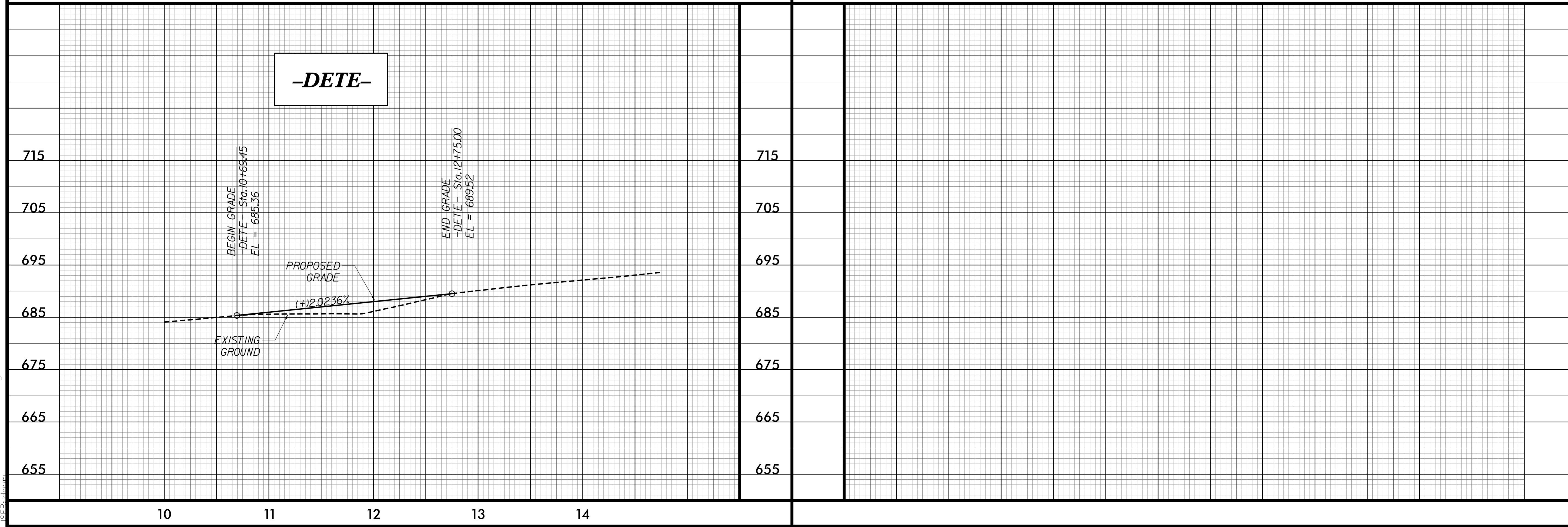
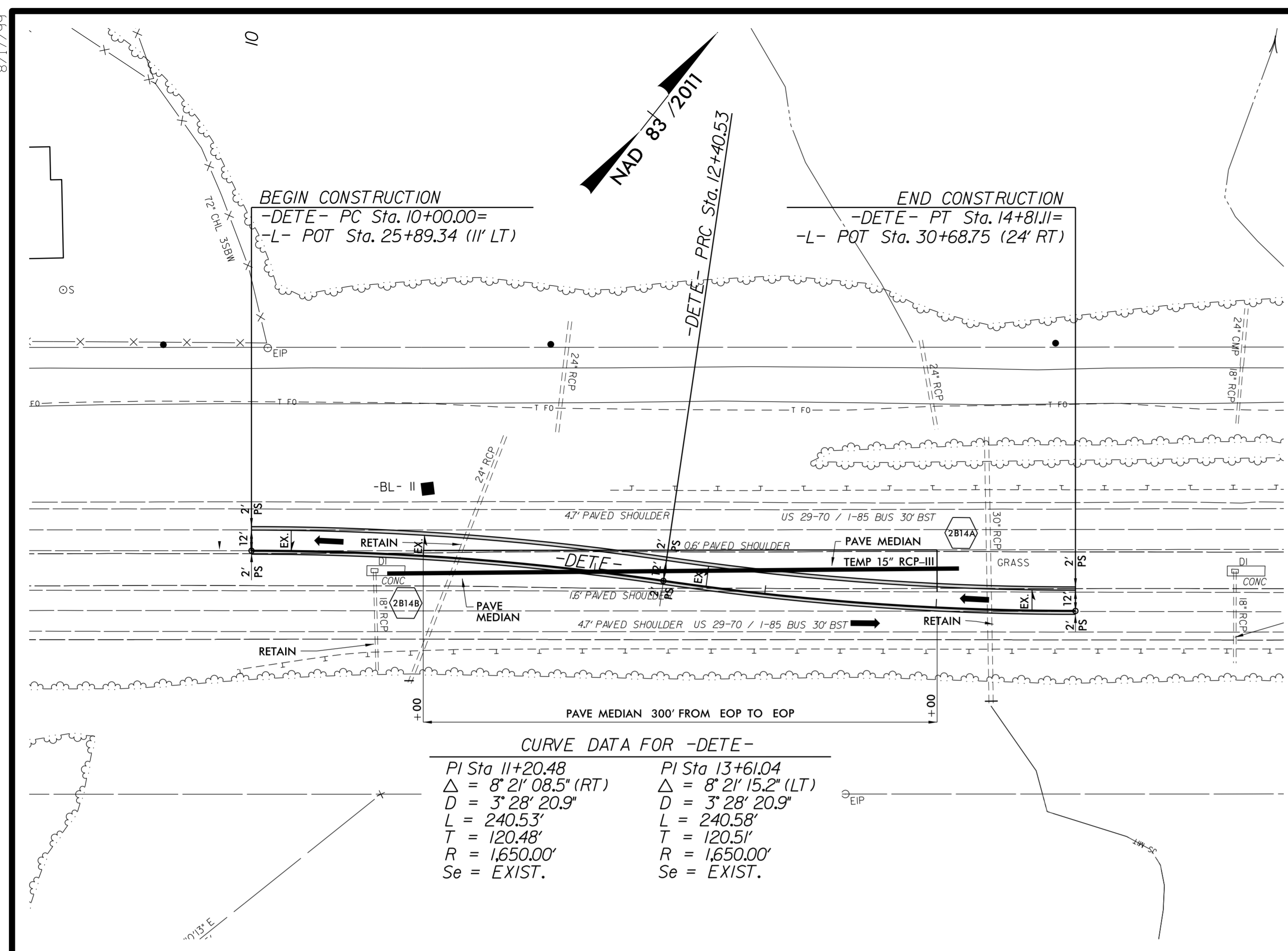
ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

8/28/2021

8/27/2021

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



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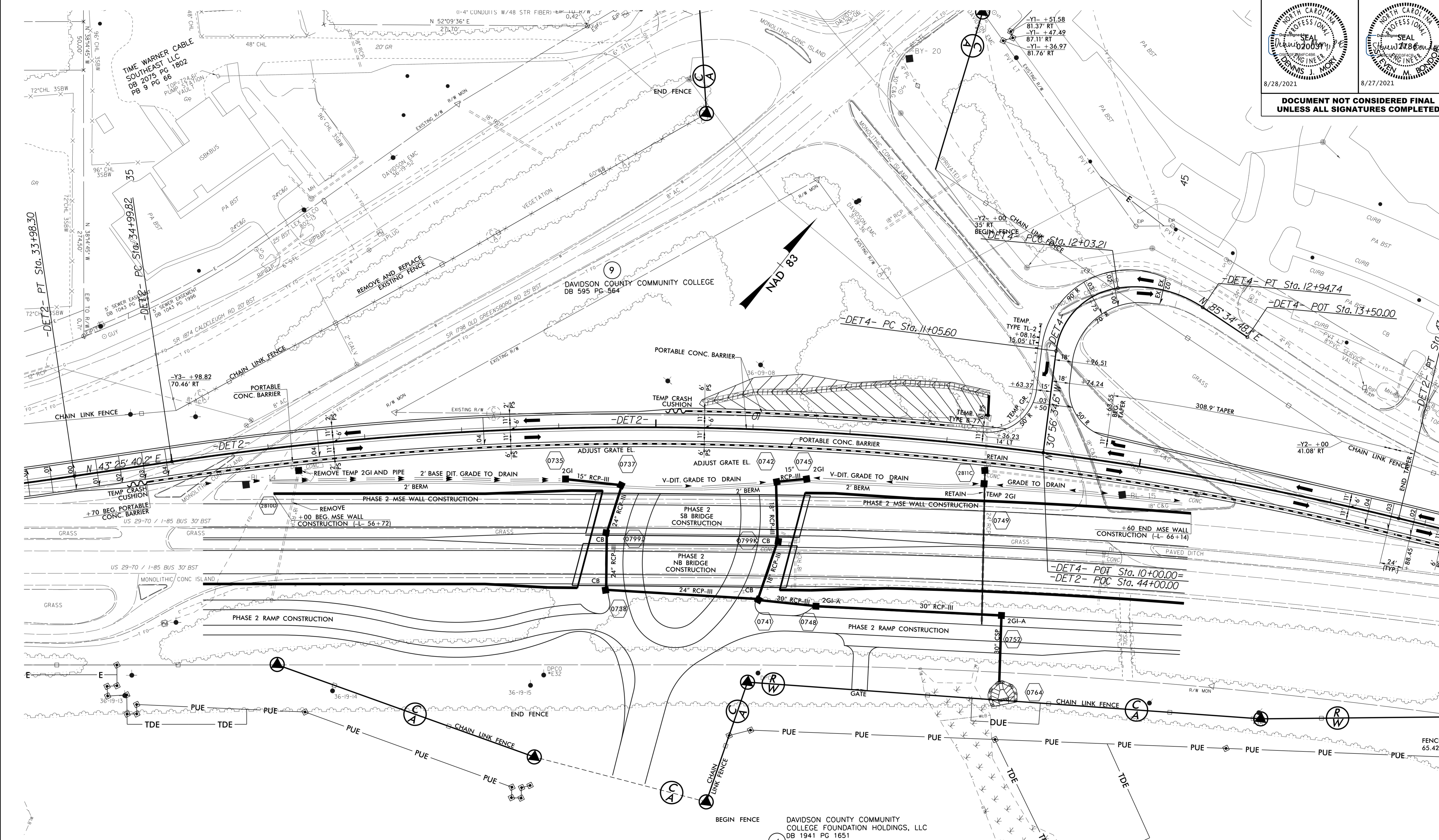


2300 WILLOW ROAD
RALEIGH, NC 27607
PHONE: 919.881.9339
NC CORP. NO. F-0529

PROJECT REFERENCE NO. R-5737	SHEET NO. 2B-15
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RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
8/28/2021	8/27/2021

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED



CURVE DATA FOR -DET2-

PI Sta 41+44.14
$\Delta = 22^\circ 05' 45.0''$ (RT)
D = 1' 44' 10.4"
L = 1,272.63'
T = 644.32'
R = 3,300.00'
Se = 0.04
Runoff = 96'

CURVE DATA FOR -DET4-

PI Sta 11+62.71
$\Delta = 74^\circ 34' 10.9''$ (RT)
D = 76' 23' 39.7"
L = 97.61'
T = 57.10'
R = 75.00'

PI Sta 12+51.4
$\Delta = 41^\circ 57' 11.8''$ (RT)
D = 45' 50' 11.8"
L = 91.53'
T = 47.92'
R = 125.00'

PHASE 2 RAMP A & RAMP B MSE WALL CONSTRUCTION

8/24/2021 8:19:47 AM
H:\2021\2021\15-DET2-PHASE2.dgn

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

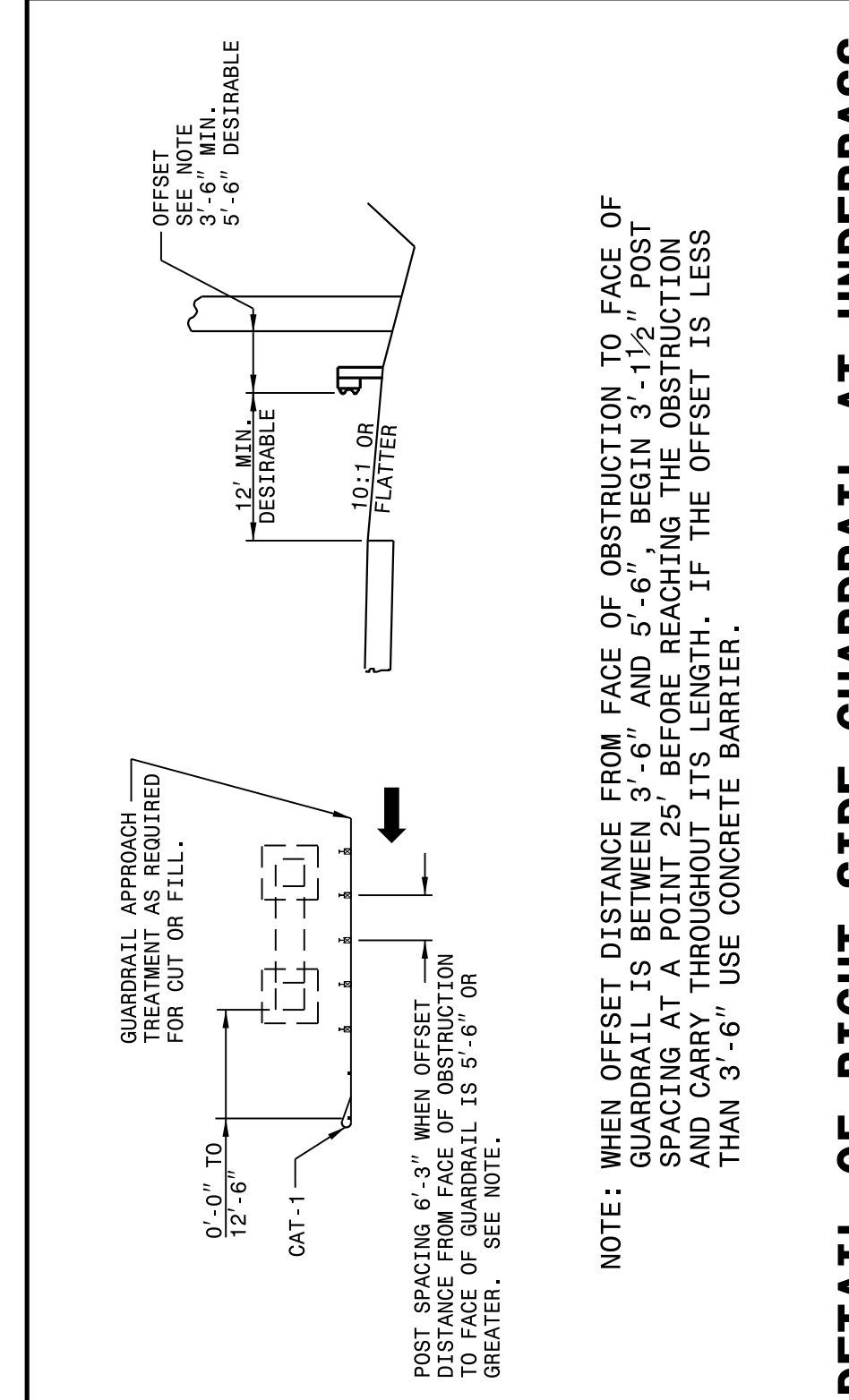
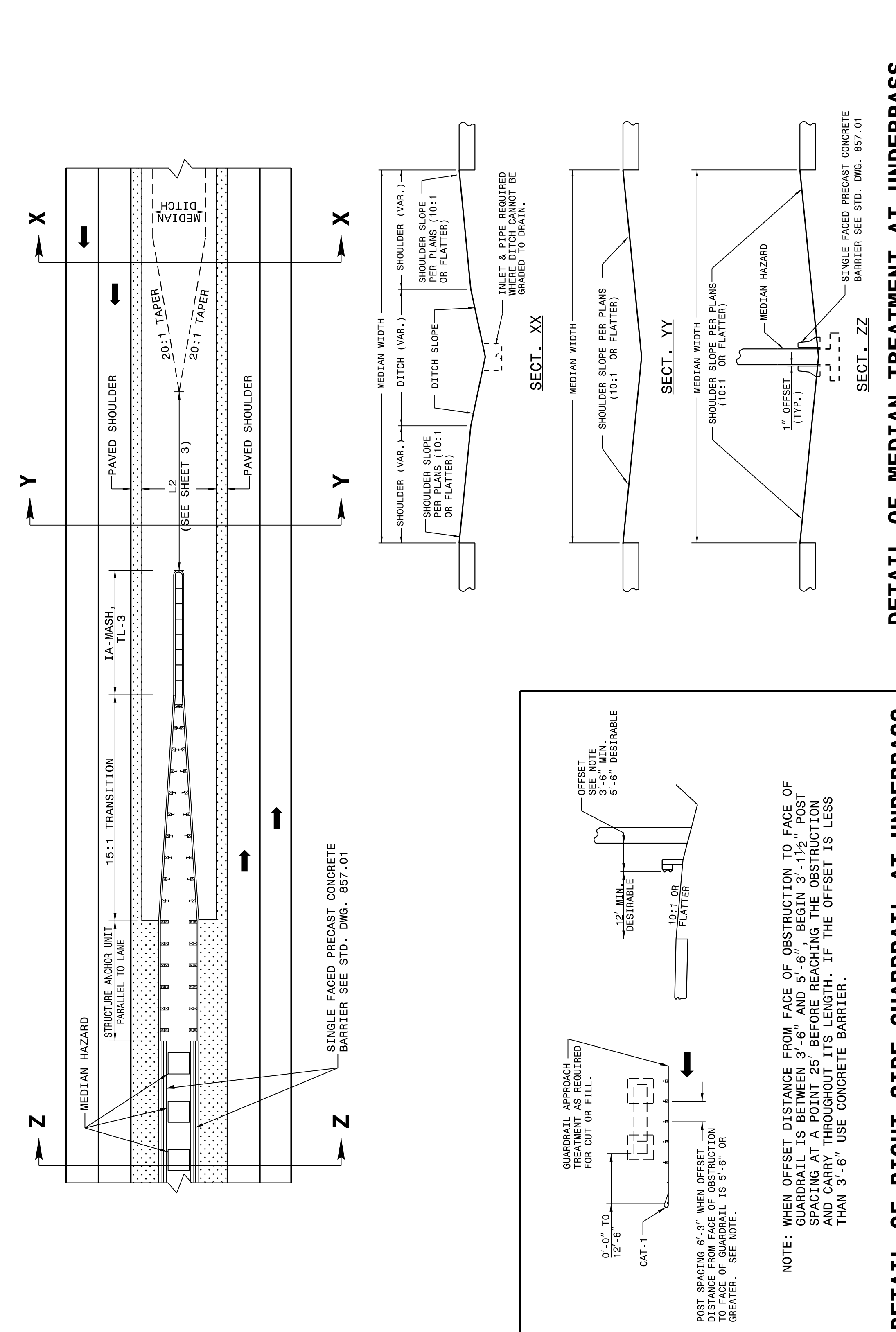
ROADWAY DETAIL DRAWING FOR
GUARDRAIL PLACEMENT

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.

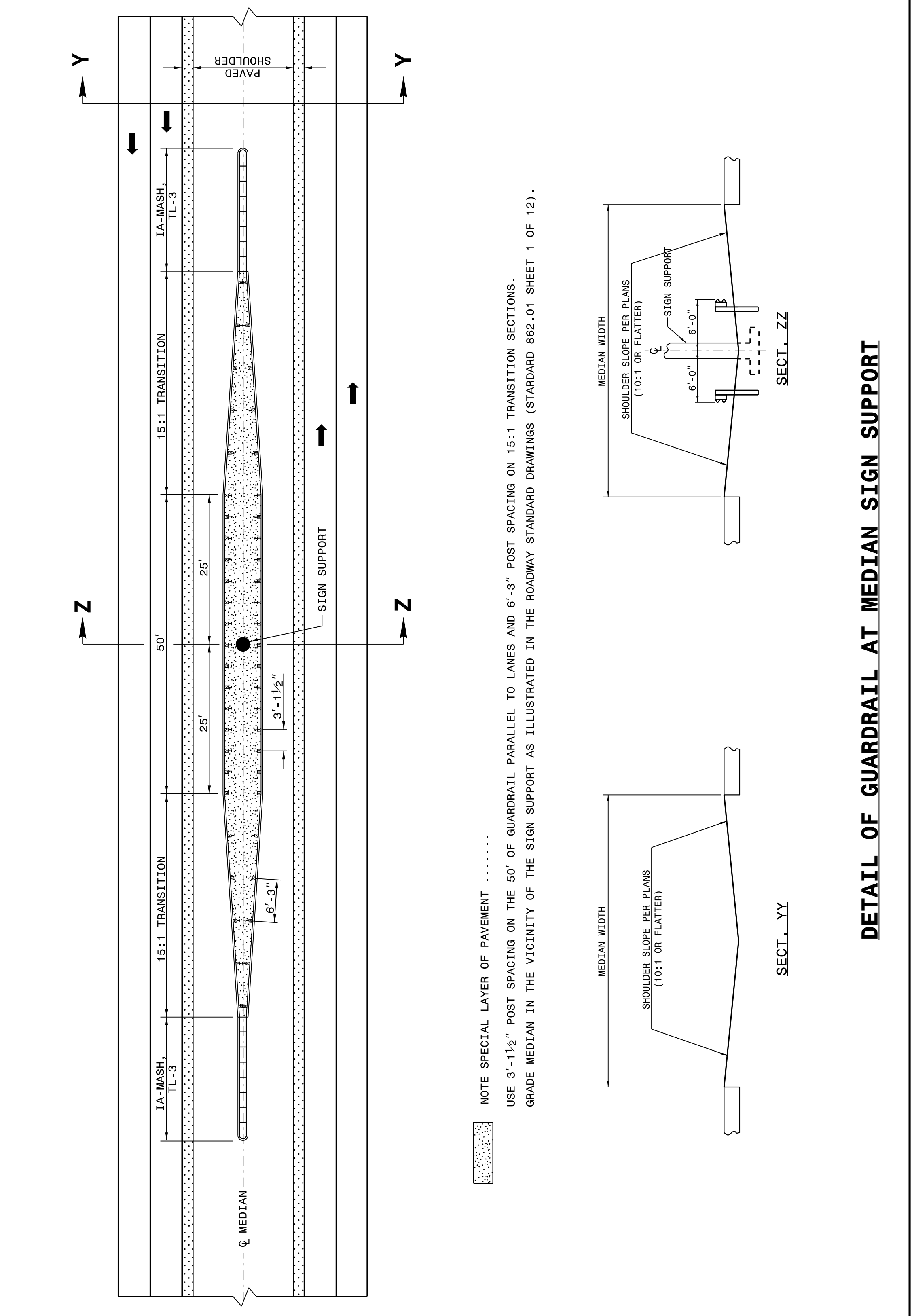
ROADWAY DETAIL DRAWING FOR
GUARDRAIL PLACEMENT

SHEET 2 OF 11
862D01

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

ROADWAY DETAIL DRAWING FOR
GUARDRAIL PLACEMENT

SHEET 2 OF 11
862D01



NOTE SPECIAL LAYER OF PAVEMENT
USE 3'-1 1/2" POST SPACING ON THE 50' OF GUARDRAIL PARALLEL TO LANES AND 6'-3" POST SPACING ON 15:1 TRANSITION SECTIONS.
GRADE MEDIAN IN THE VICINITY OF THE SIGN SUPPORT AS ILLUSTRATED IN THE ROADWAY STANDARD DRAWINGS (STANDARD 862.01 SHEET 1 OF 12).

DETAIL OF MEDIAN TREATMENT AT UNDERPASS

DETAIL OF GUARDRAIL AT MEDIAN SIGN SUPPORT

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

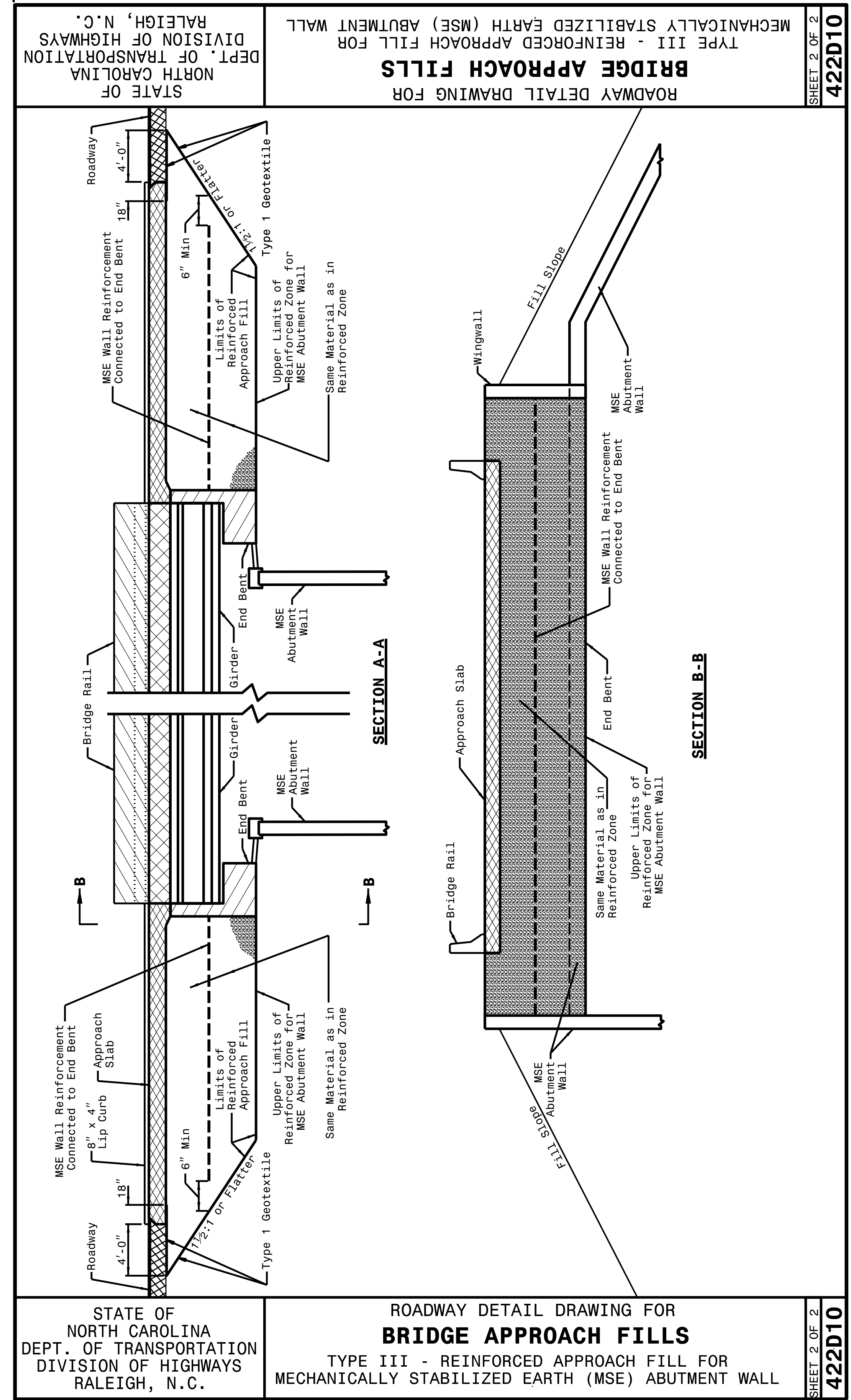
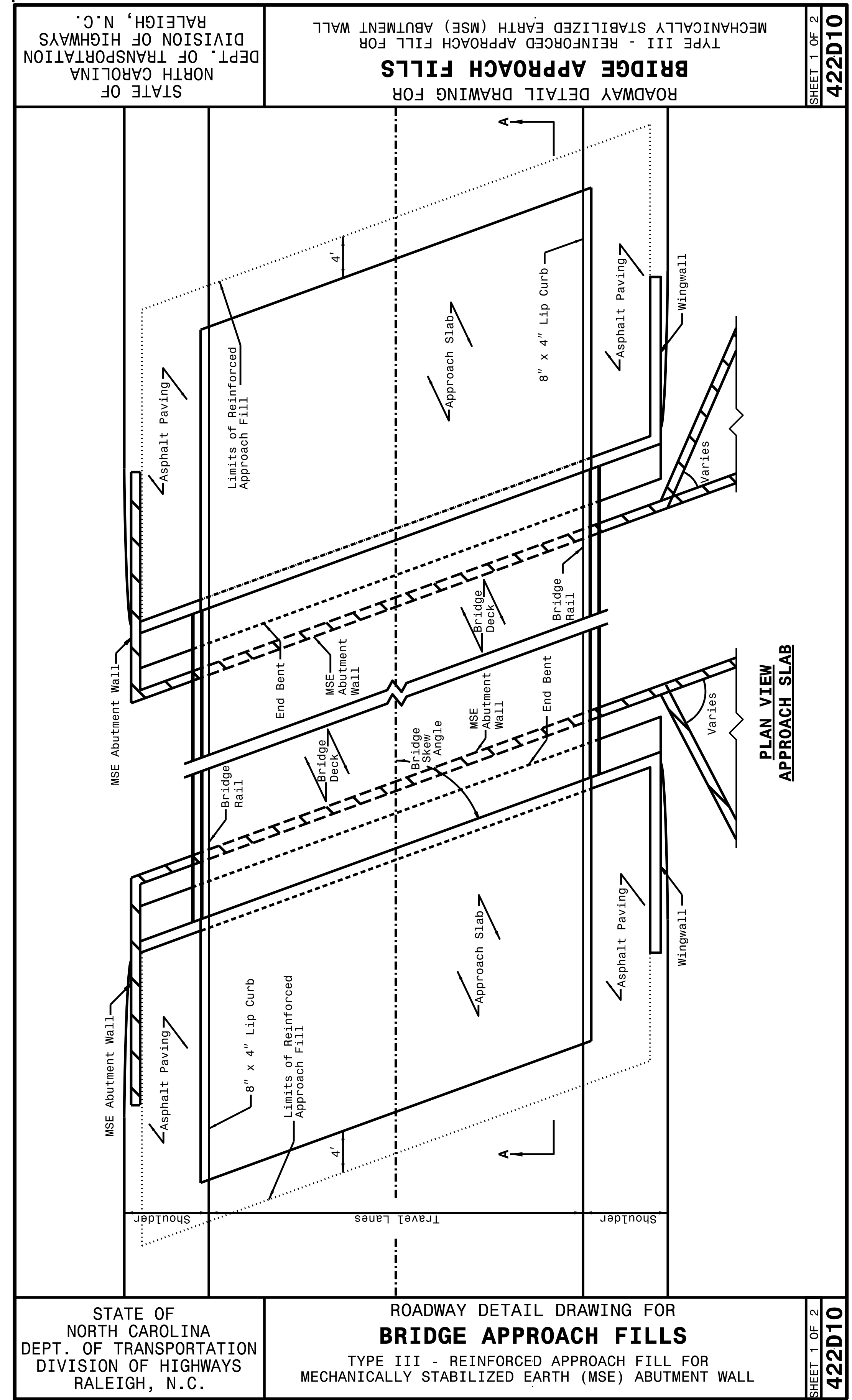
**CONTRACT STANDARDS
AND DEVELOPMENT UNIT**
Office 919-707-6950 FAX 919-250-4119

SEE TITLE BLOCK

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



8/24/2021



8/24/2021

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

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

**TYPE III
REINFORCED
APPROACH FILLS**

ORIGINAL BY: K. A. KEMPF DATE: JULY 2017
 MODIFIED BY: DATE:
 CHECKED BY: DATE:
 FILE SPEC.: 2018 standard drawings\division 422d10.dgn

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

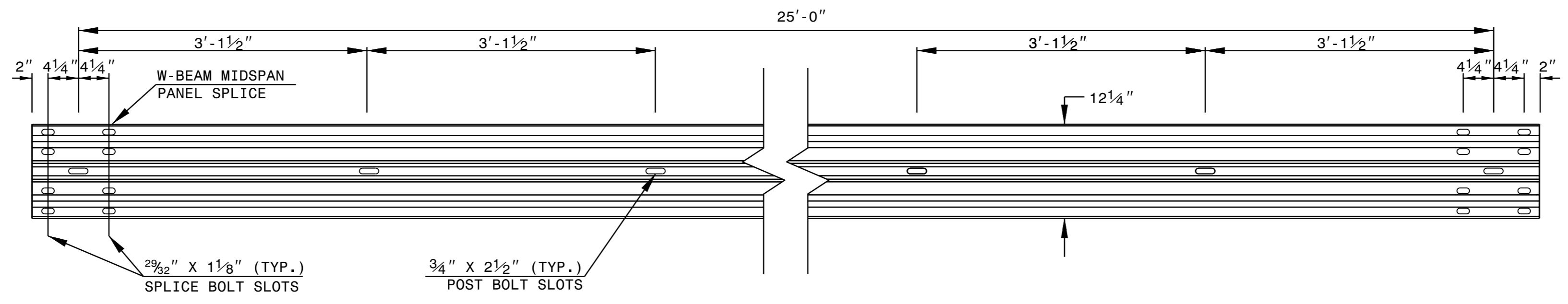
ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

SHEET 6 OF 8
862D02

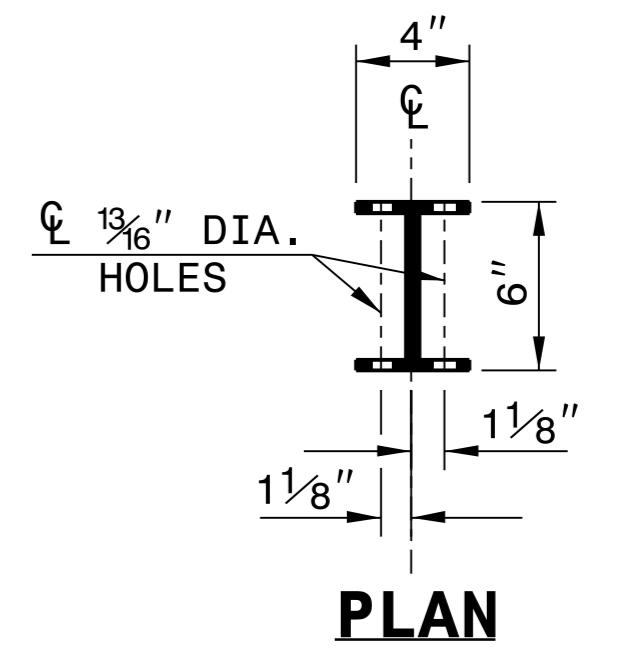
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

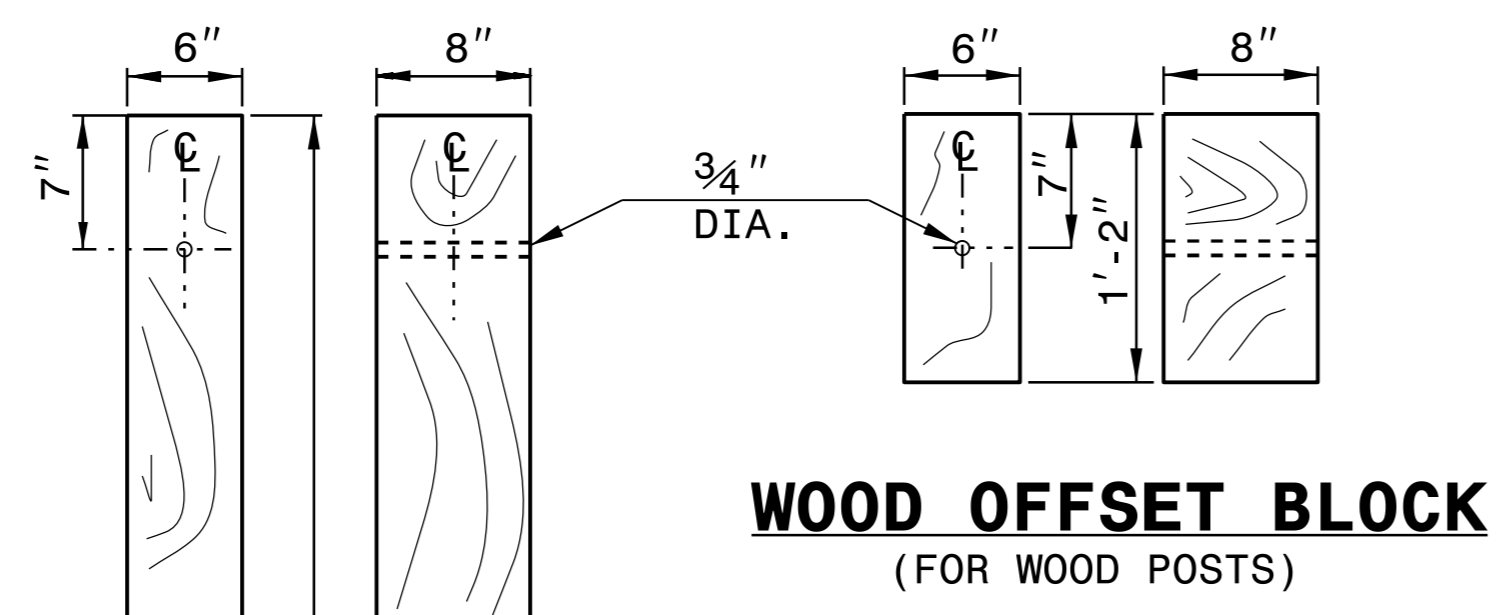
SHEET 6 OF 8
862D02



STANDARD W-BEAM GUARDRAIL



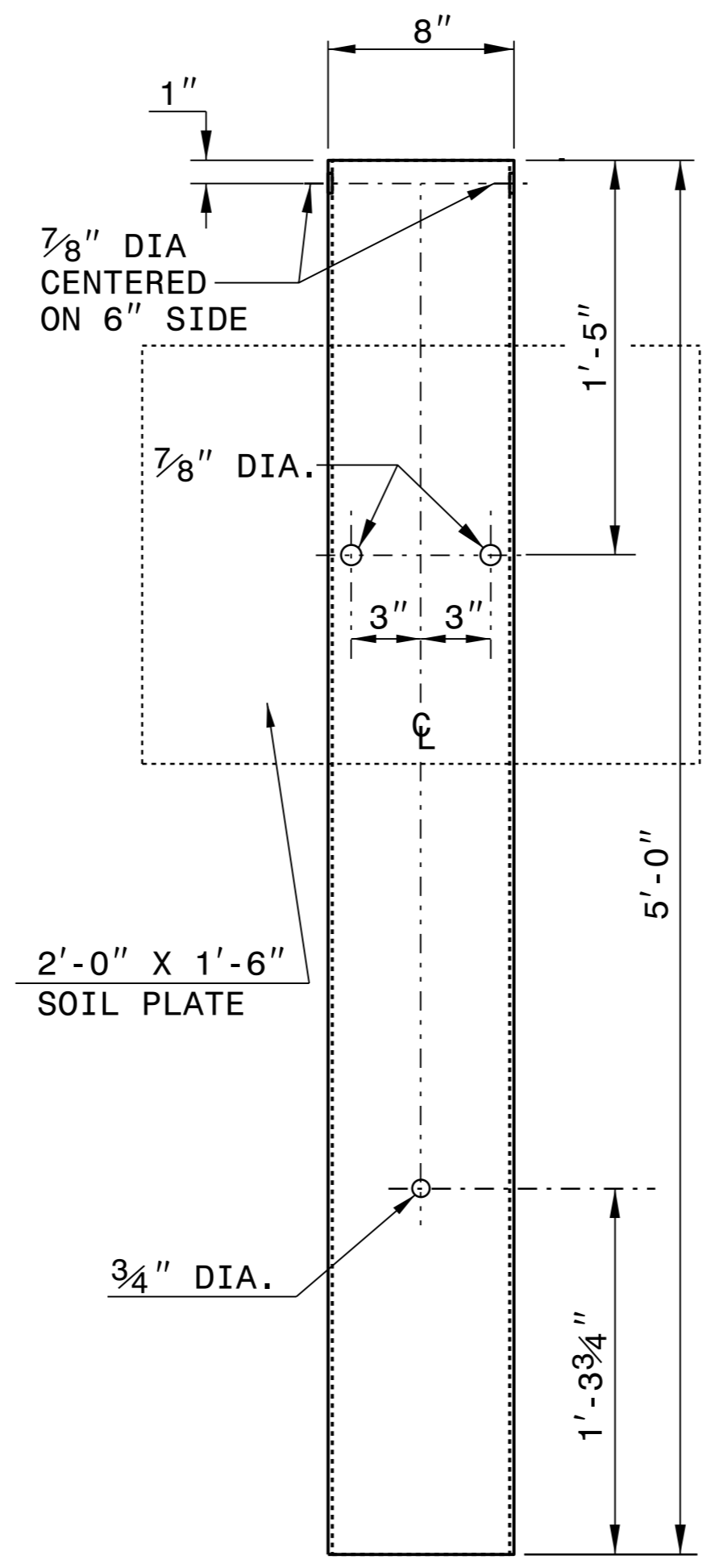
PLAN



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

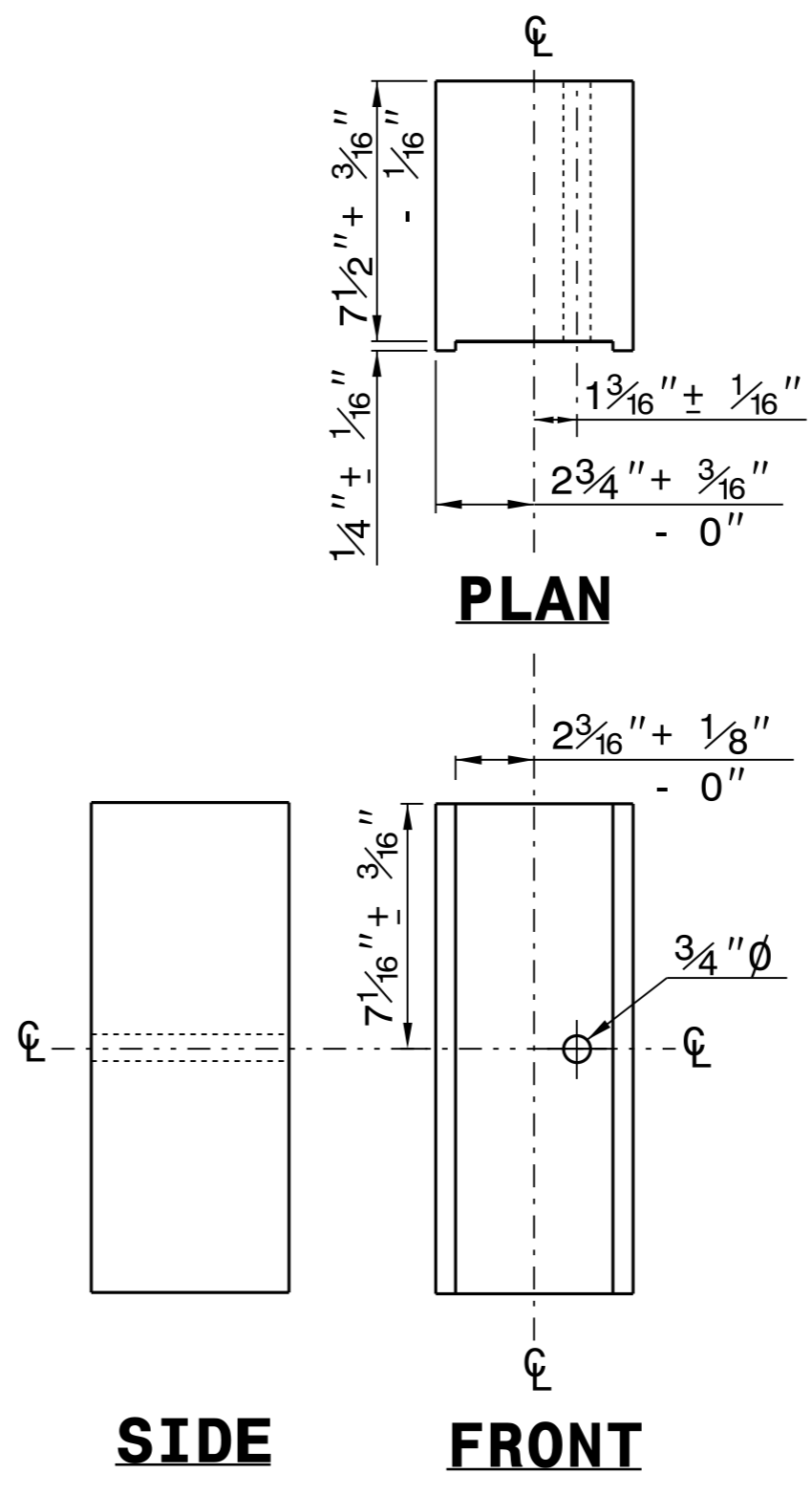
**STANDARD
LINE POST**

**SHORT WOOD
BREAKAWAY POST**



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

SYSTEM PARTS

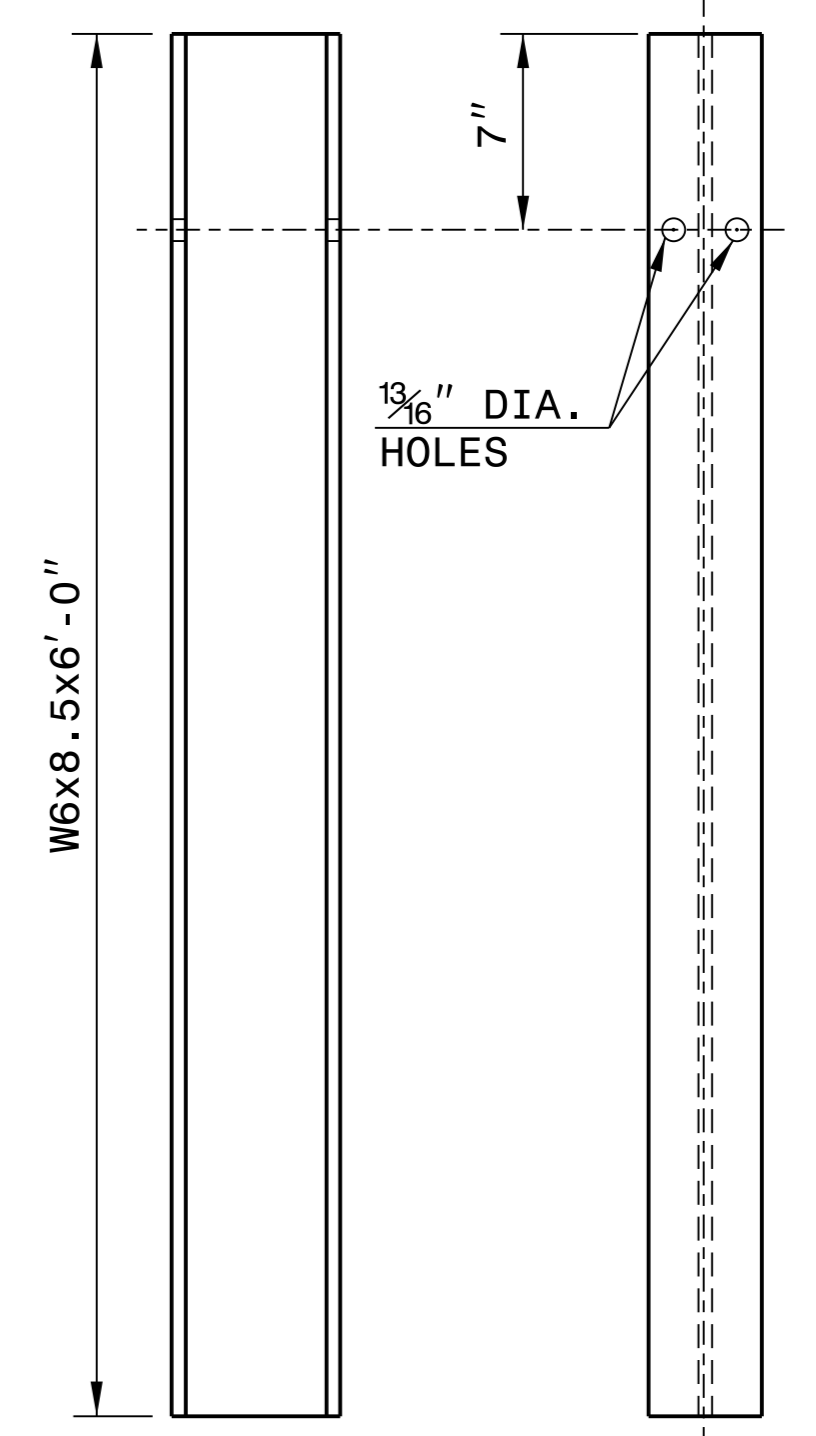


PLAN

SIDE

FRONT

**ROUTED
OFFSET BLOCK**



SIDE

FRONT

"W6" STEEL POST

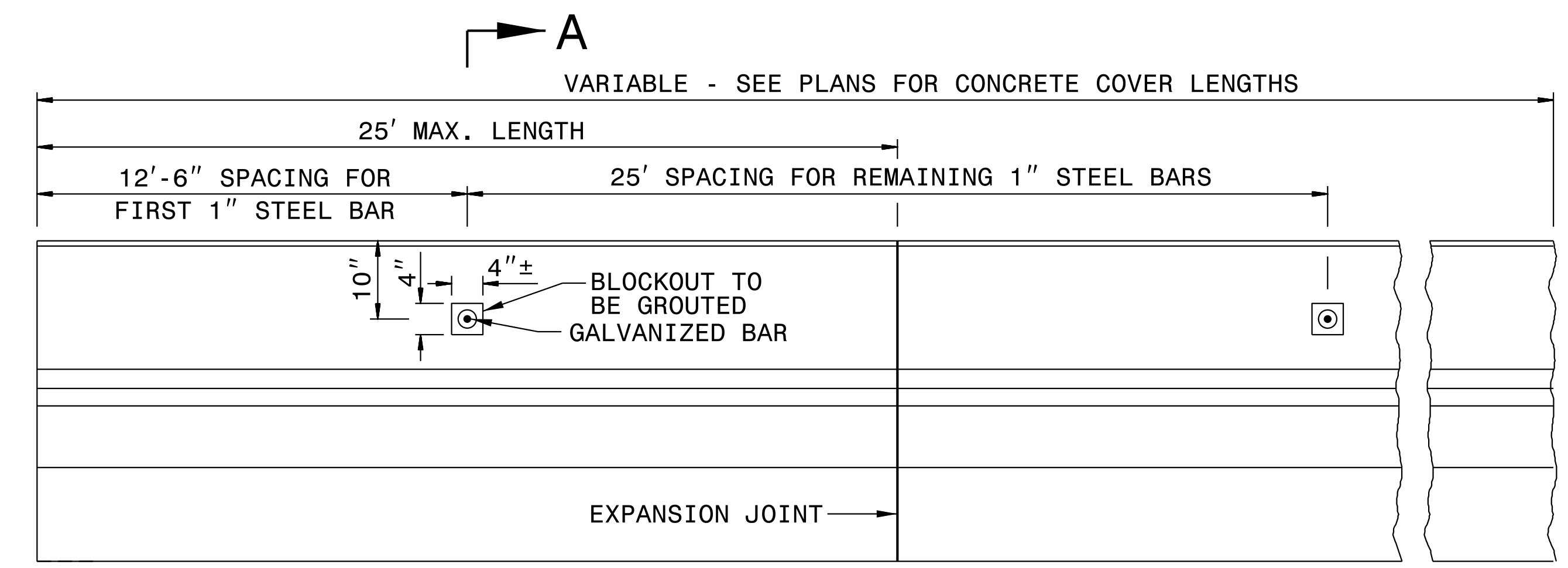


8/24/2021

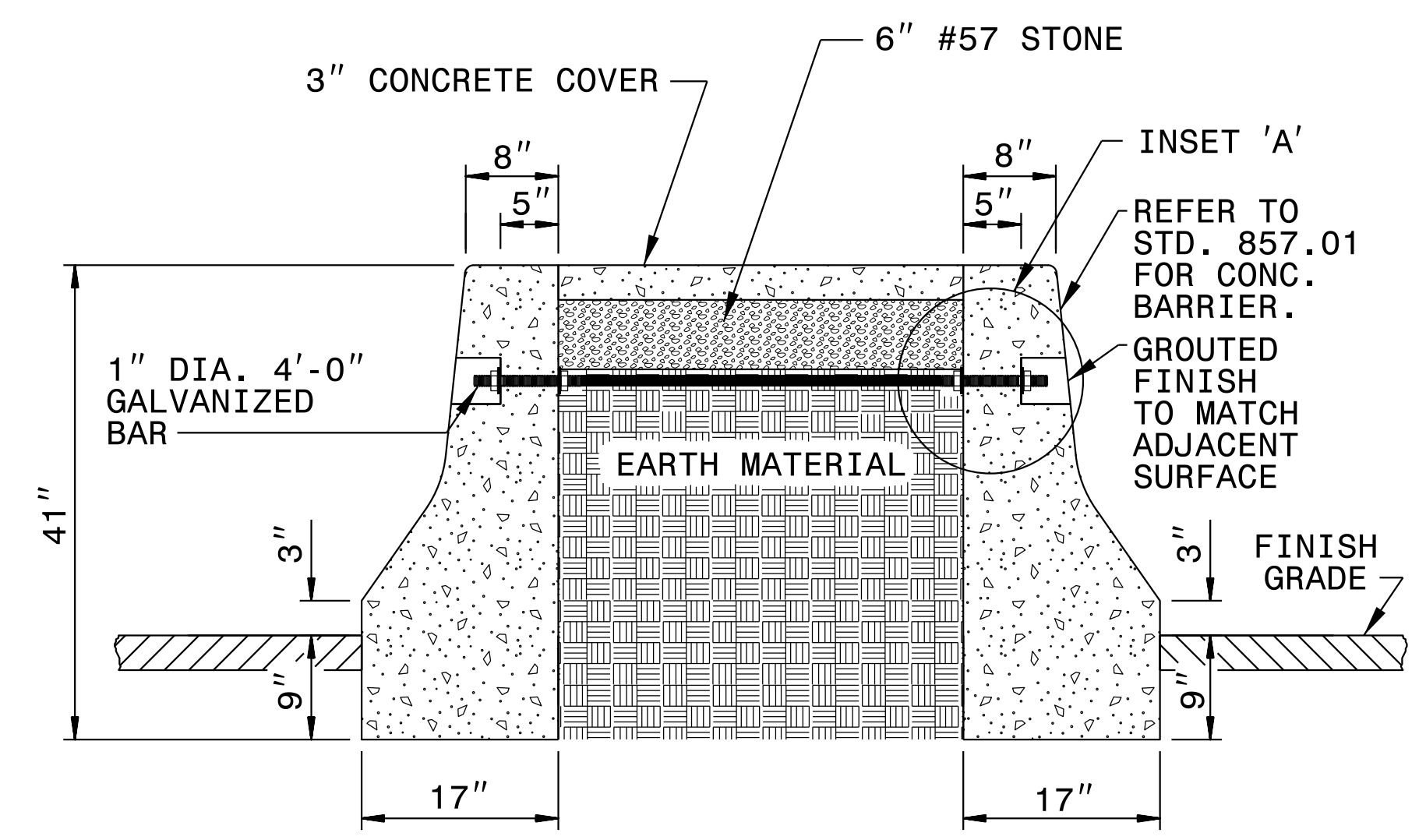
**CONTRACTS STANDARDS
AND DEVELOPMENT UNIT**
Office 919-707-6950 FAX 919-250-4119

SEE TITLE BLOCK

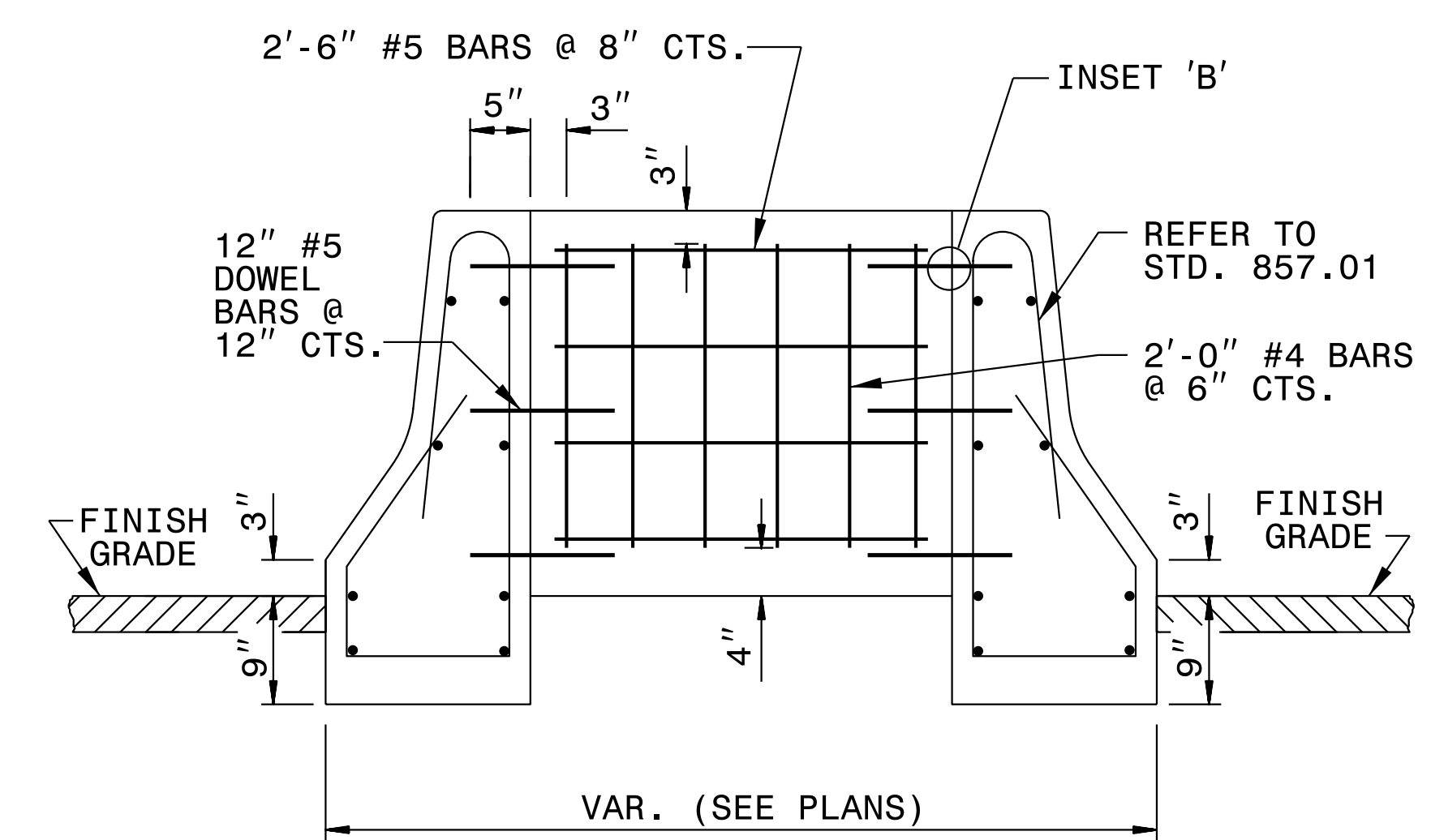
ORIGINAL BY: J. HOWERTON DATE: 3-7-2018
MODIFIED BY: DATE: _____
CHECKED BY: DATE: _____
FILE SPEC.: _____



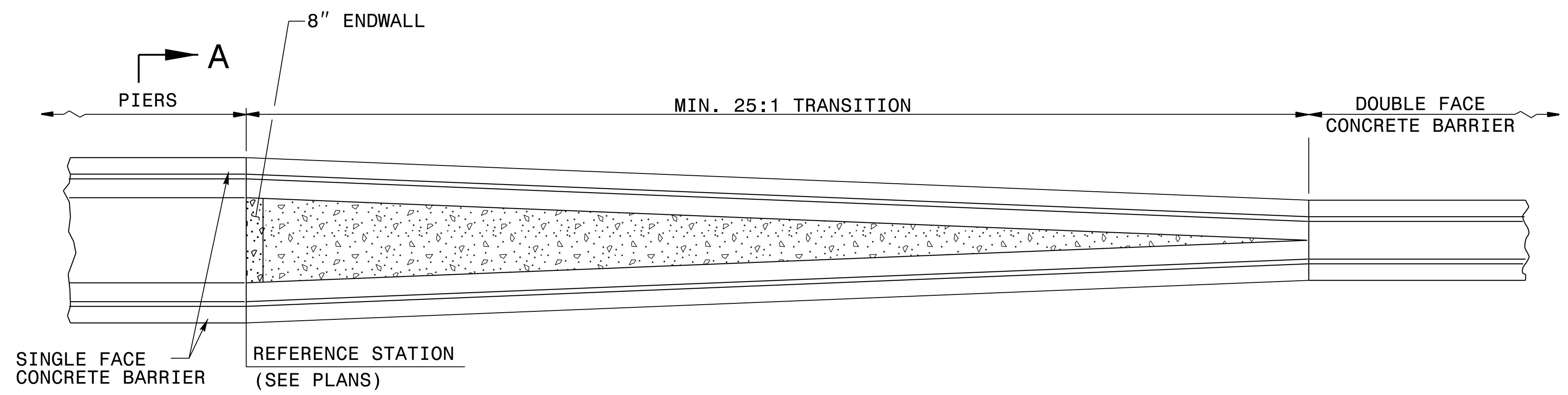
ELEVATION



SECTION 'A-A'



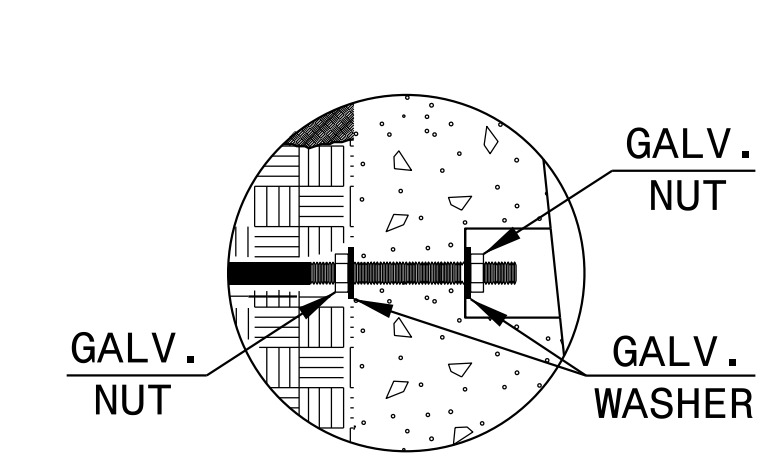
ENDWALL



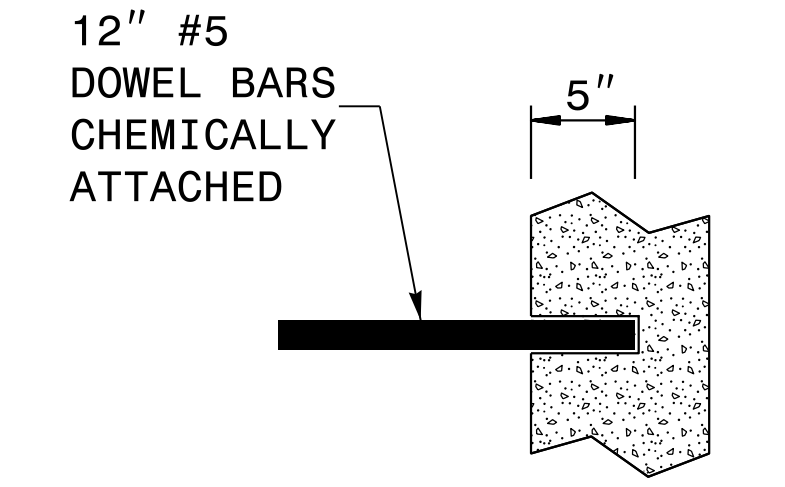
TRANSITION FROM SINGLE FACE RAIL TO DOUBLE FACE CONCRETE MEDIAN BARRIER

GENERAL NOTES:

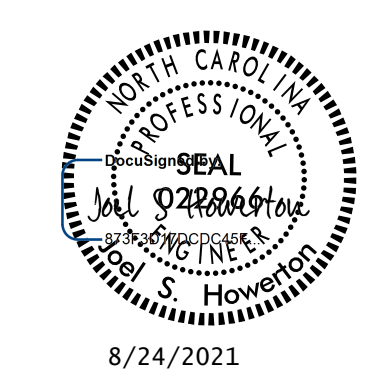
- USE CLASS 'AA' CONCRETE TO CONSTRUCT CONCRETE BARRIER TRANSITION.
- USE CLASS 'B' CONCRETE TO CONSTRUCT CONCRETE COVER.
- SEAL ALL EXPANSION JOINTS WITH JOINT FILLER (SEE SECTION 1028 OF THE SPECIFICATIONS).
- SUBMIT ALTERNATIVE METHODS FOR STEEL FABRICATION FOR REVIEW.
- REFER TO PLANS AND TYPICAL SECTION FOR CONCRETE COVER LOCATIONS.
- USE AN APPROVED BONDING SYSTEM IN ACCORDANCE WITH SECTION 1081-1, TYPE 3A OF THE STANDARD SPECIFICATIONS.
- DRILL ANCHOR HOLES WITH A PNEUMATIC DRILL UNLESS OTHERWISE APPROVED BY THE ENGINEER.
- DRILL ANCHOR HOLES IN STRICT ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
- REMOVE ALL DEBRIS, CHIPS, DUST, GREASE, OIL AND OTHER FOREIGN MATTER FROM THE ANCHOR HOLES PRIOR TO THE APPLICATION OF THE ADHEIVE BONDING SYSTEM.
- BARRIER TRANSITION LOCATED AS FIELD CONDITIONS DICTATE AND AS DIRECTED BY THE ENGINEER.



INSET 'A'



INSET 'B'



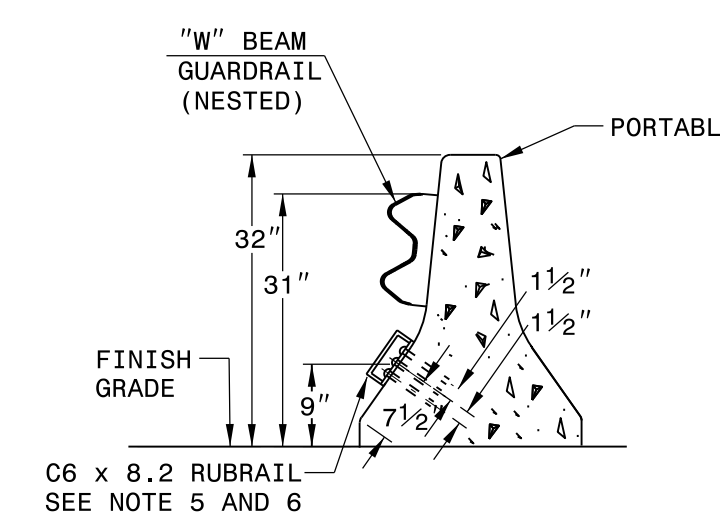
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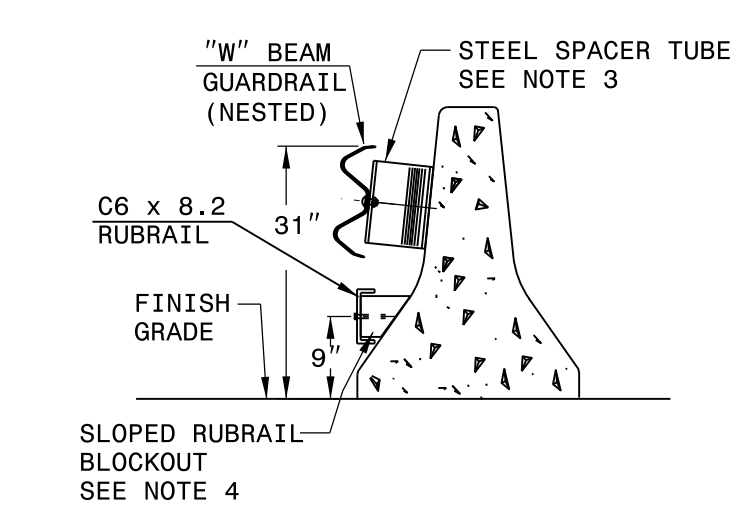
MEDIAN HAZARD PROTECTION AND BARRIER TRANSITION

ORIGINAL BY: T.S. Spell DATE: 2-14-00
 MODIFIED BY: DATE:
 CHECKED BY: DATE:
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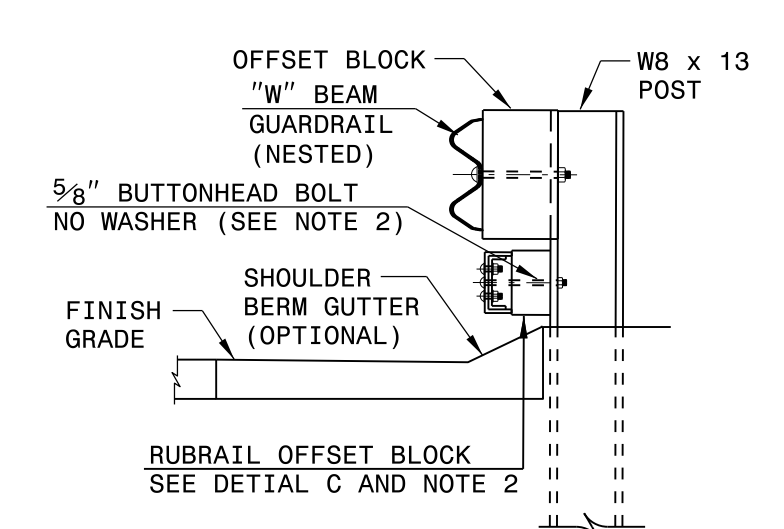
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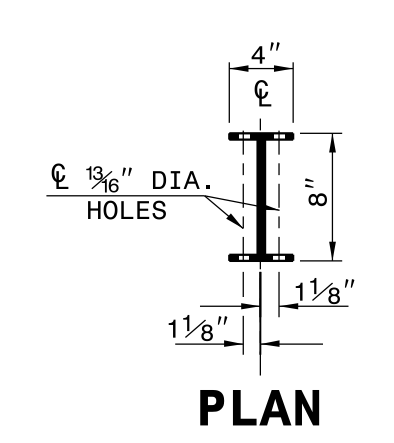
SECTION A-A



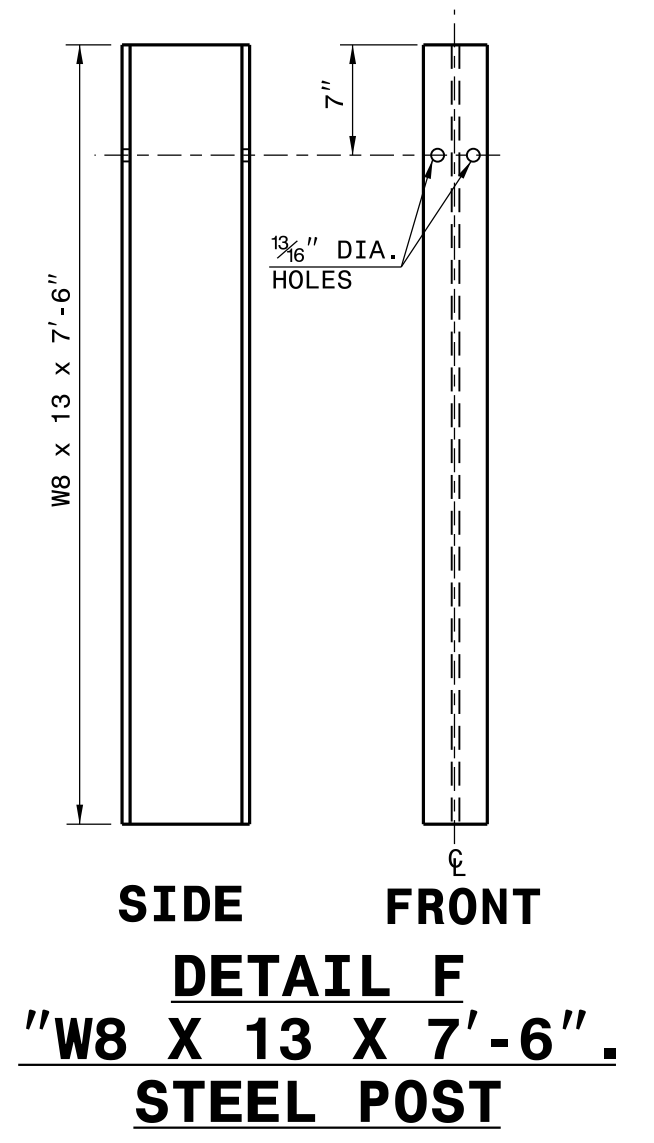
SECTION B-B



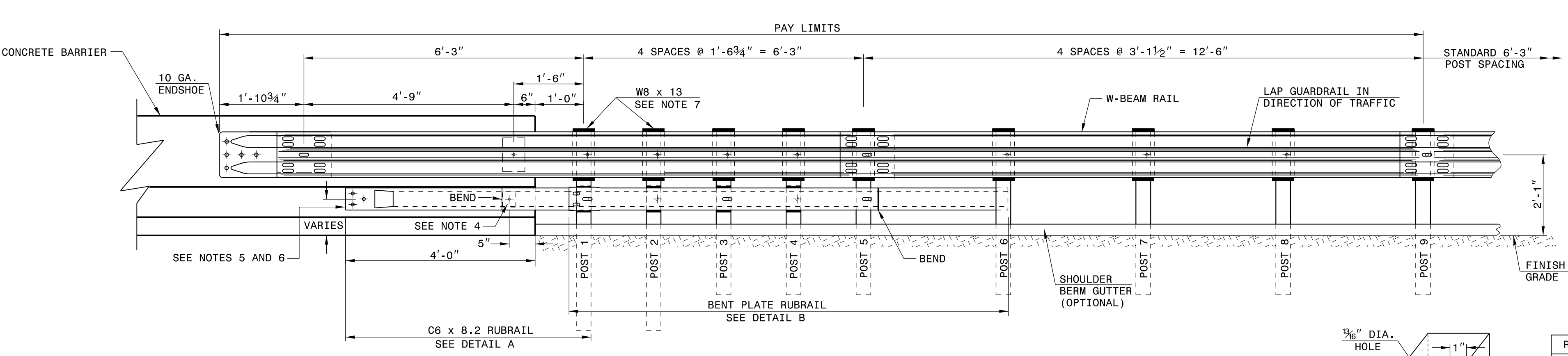
SECTION C-C



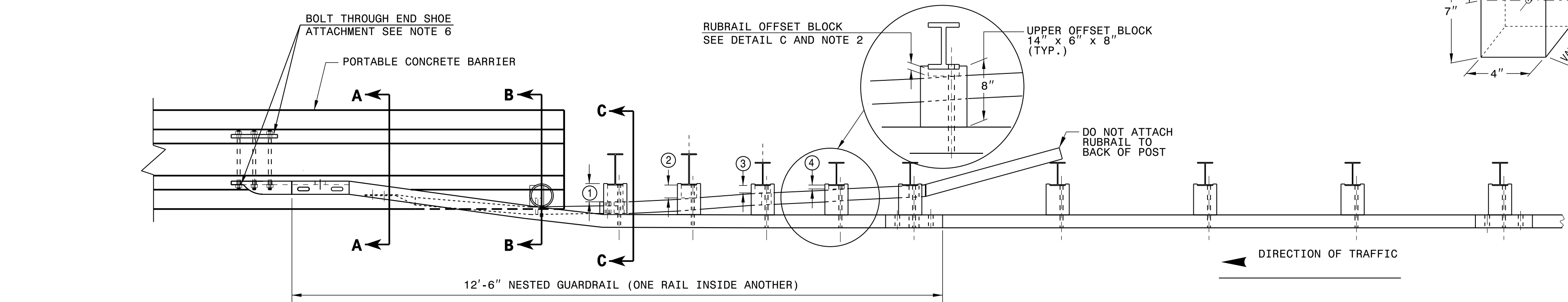
PLAN



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

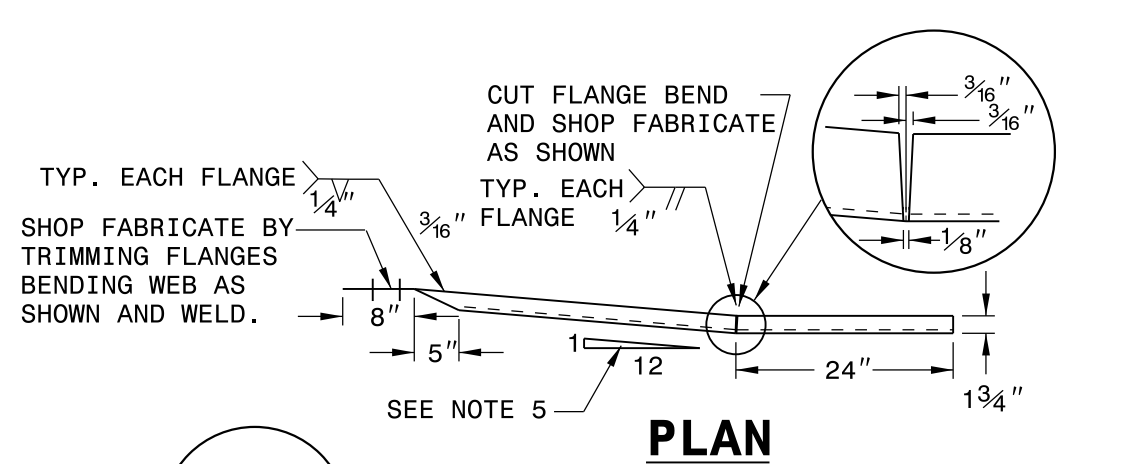


ELEVATION

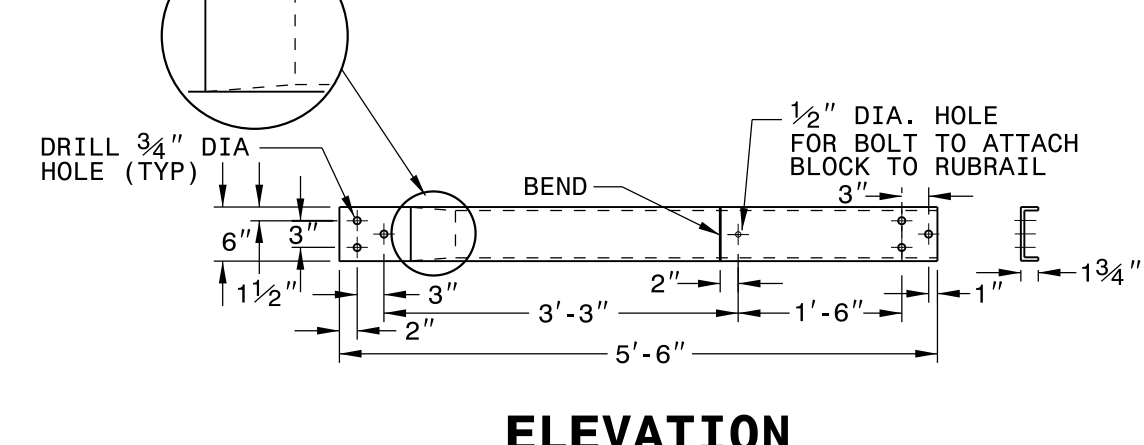


PLAN

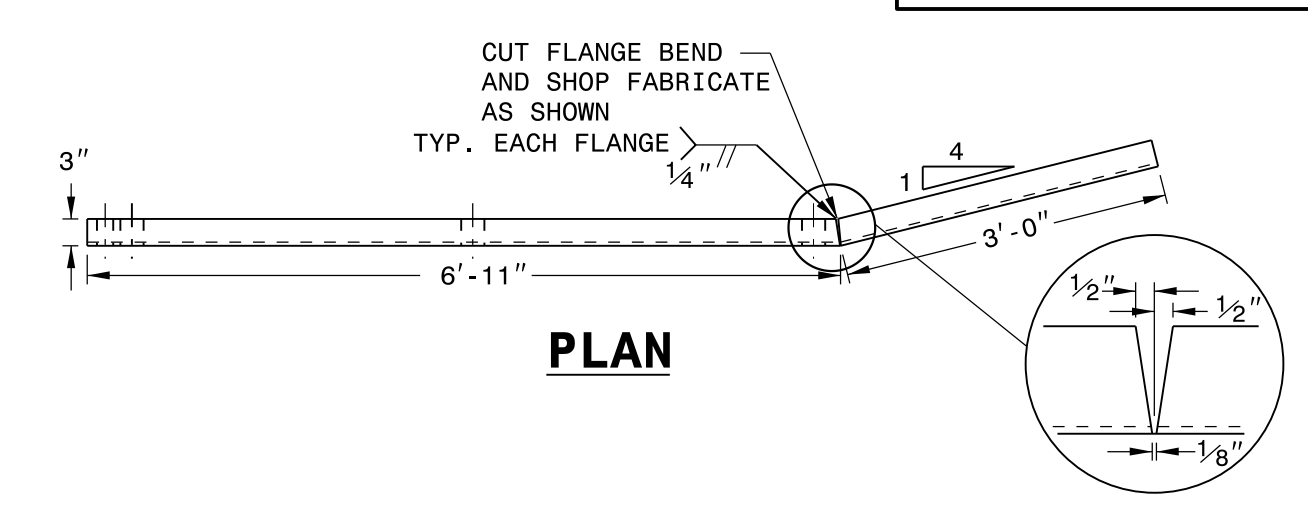
- GENERAL NOTES:**
- POSTS 1 THROUGH 5 REQUIRE AN ADDITIONAL HOLE TO ATTACH LOWER BLOCKOUTS AND/OR RUBRAIL.
 - RUBRAIL BLOCKOUTS LOCATED ON POSTS 1 THROUGH 4 ARE OFFSET DRILLED AND SECURED WITH 5/8" BUTTONHEAD BOLTS (SEE CHART FOR BOLT LENGTHS). SECURE BLOCKS ONLY TO POSTS 2 AND 4. SECURE RUBRAIL AND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



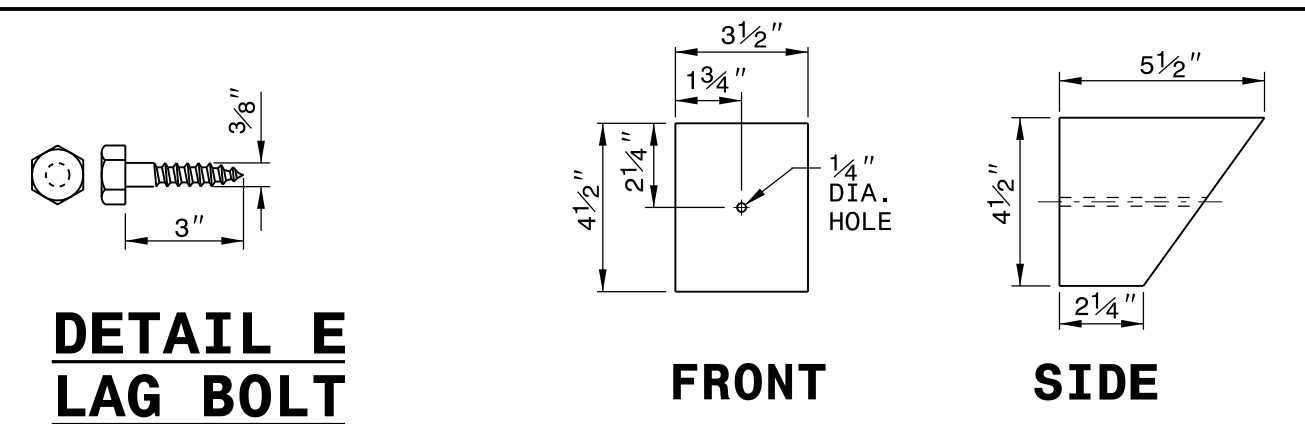
**DETAIL A
C6 x 8.2 RUBRAIL**



**DETAIL B
BENT PLATE RUBRAIL**



**DETAIL E
LAG BOLT**



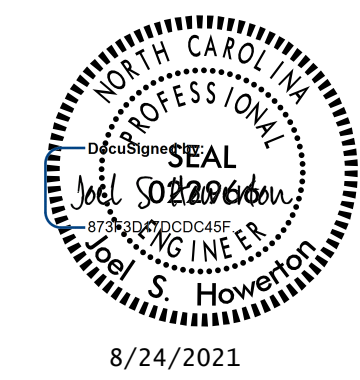
**DETAIL D
SLOPED RUBRAIL BLOCKOUT**

NOTES FOR 4 BOLT HOLD DOWN PLATE

- THE GUARDRAIL ANCHOR ASSEMBLY SHALL CONSIST OF A 1/4" HOLD DOWN PLATE AND 4 - 7/8" DIA. BOLTS WITH NUTS AND WASHERS.
- THE HOLD-DOWN PLATE SHALL CONFORM TO AASHTO M270 GRADE 36. AFTER FABRICATION, THE HOLD-DOWN PLATE SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH AASHTO M111.
- AFTER INSTALLATION, THE EXPOSED THREAD OF THE BOLT SHALL BE BURRED WITH A SHARP POINTED TOOL. THE 1/4" DIA. HOLES SHALL BE FORMED OR DRILLED WITH A CORE BIT. IMPACT TOOLS WILL NOT BE PERMITTED. ANY CONCRETE DAMAGED BY THIS WORK SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER.

4 BOLT HOLD DOWN PLATE

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



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TEMPORARY GUARDRAIL ANCHOR UNIT TYPE B-77

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

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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 DIVISION OF HIGHWAYS
 RALEIGH, N.C.

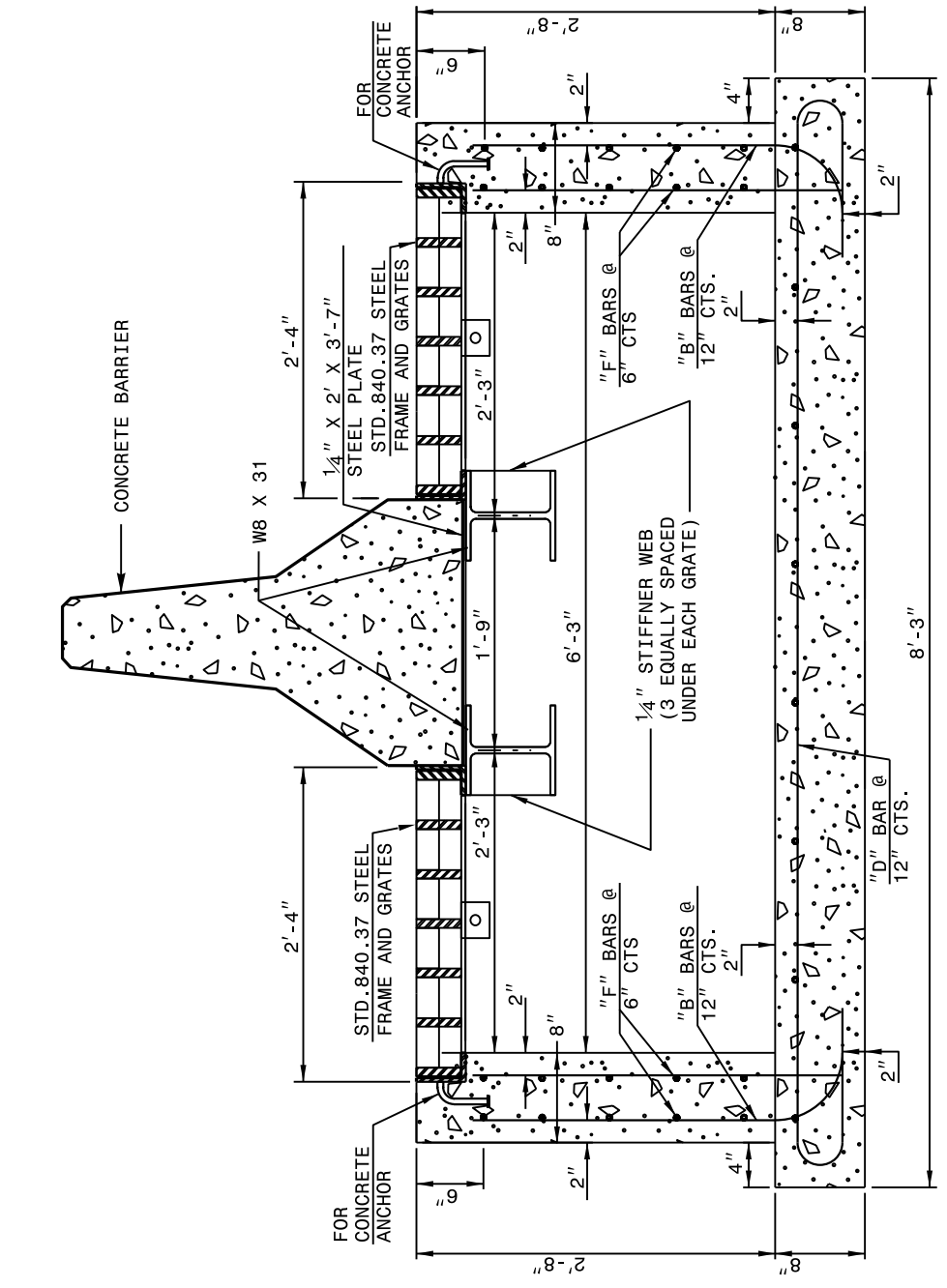
ENGLISH DETAIL DRAWING FOR
**BARRIER OVER TRAFFIC BEARING
 DOUBLE DROP INLET**

SHEET 1 OF 2
BARDDI

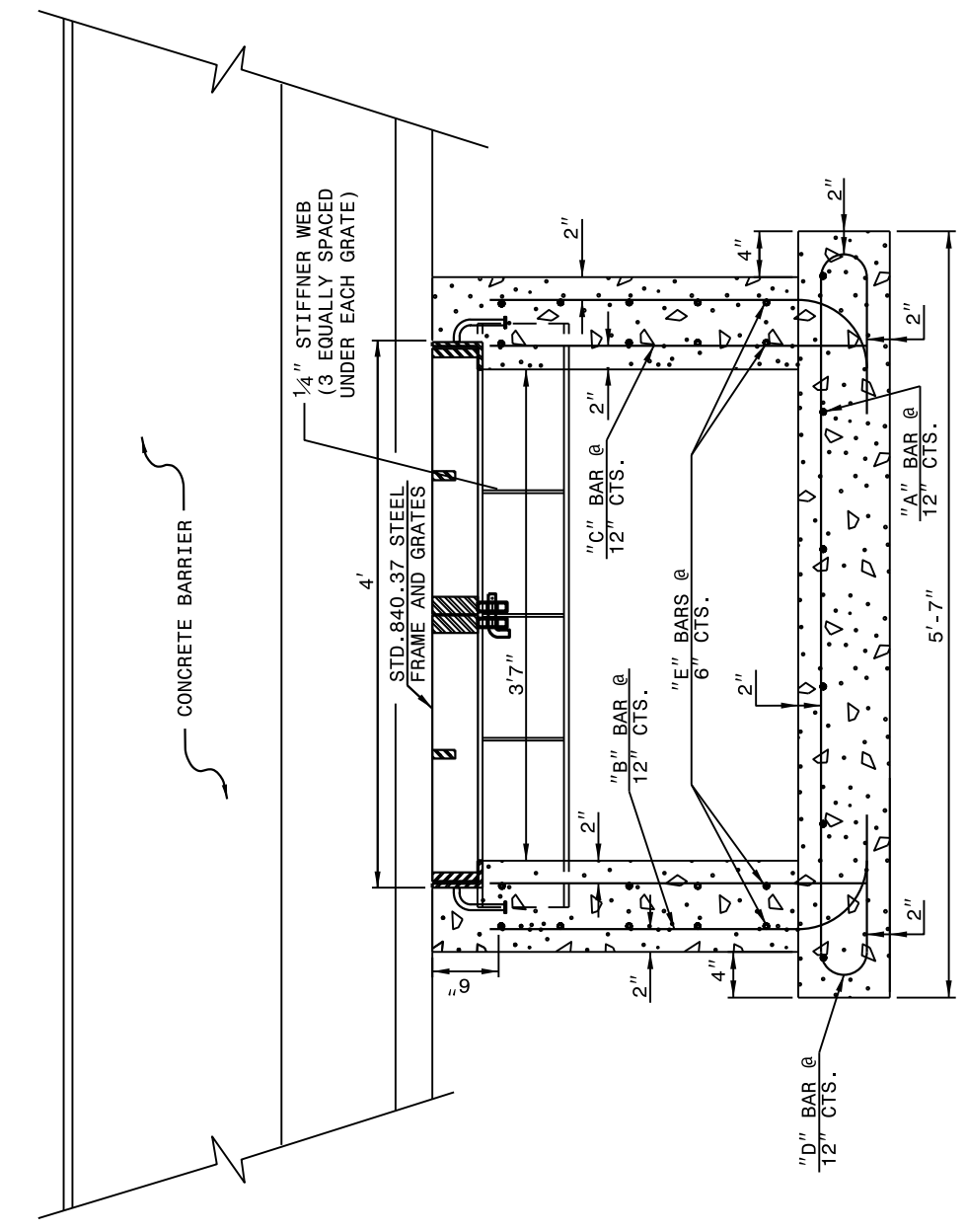
STATE OF NORTH CAROLINA
 DEPT. OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR
**BARRIER OVER TRAFFIC BEARING
 DOUBLE DROP INLET**

SHEET 1 OF 2
BARDDI



SECTION X-X



SECTION Y-Y

TRAFFIC BEARING DROP INLET

- NOTES:
 -HORIZONTAL AND VERTICAL DIMENSIONS MAY BE ADJUSTED AS THE FIELD CONDITIONS AND/OR ALTERNATE DESIGN REQUIRE.
 -MAXIMUM HEIGHT FOR THIS STRUCTURE IS 14".
 -MAKE ALL ADJUSTMENTS AS DIRECTED BY THE ENGINEER.
 -ANCHOR STEEL FRAME AND GRATES IN ACCORDANCE WITH DETAILS SHOWN.
 -NO BRICK RISERS ARE PERMITTED ON ANY PART OF THIS DRAINAGE STRUCTURE.

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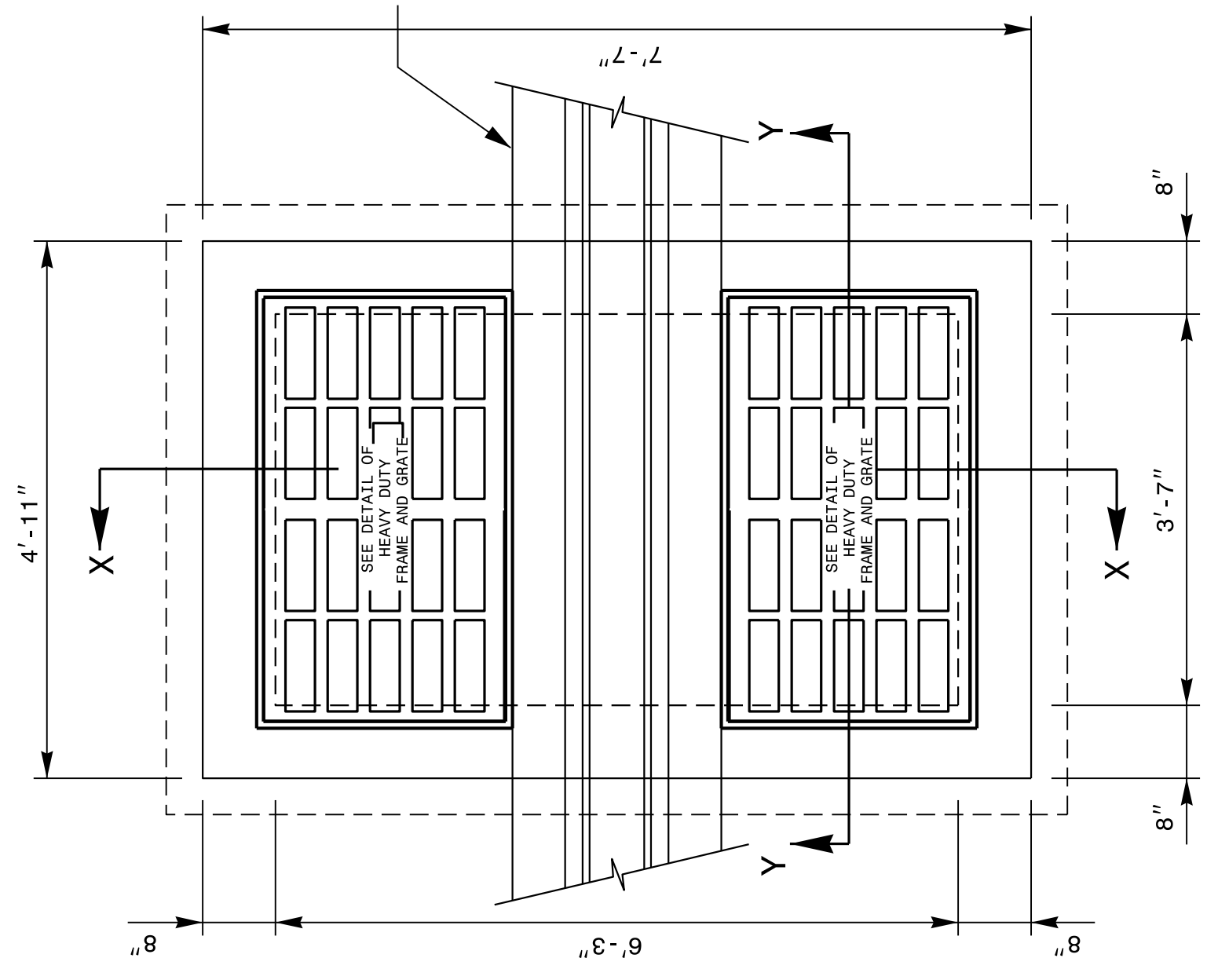
ENGLISH DETAIL DRAWING FOR
**BARRIER OVER TRAFFIC BEARING
 DOUBLE DROP INLET**

SHEET 2 OF 2
BARDDI

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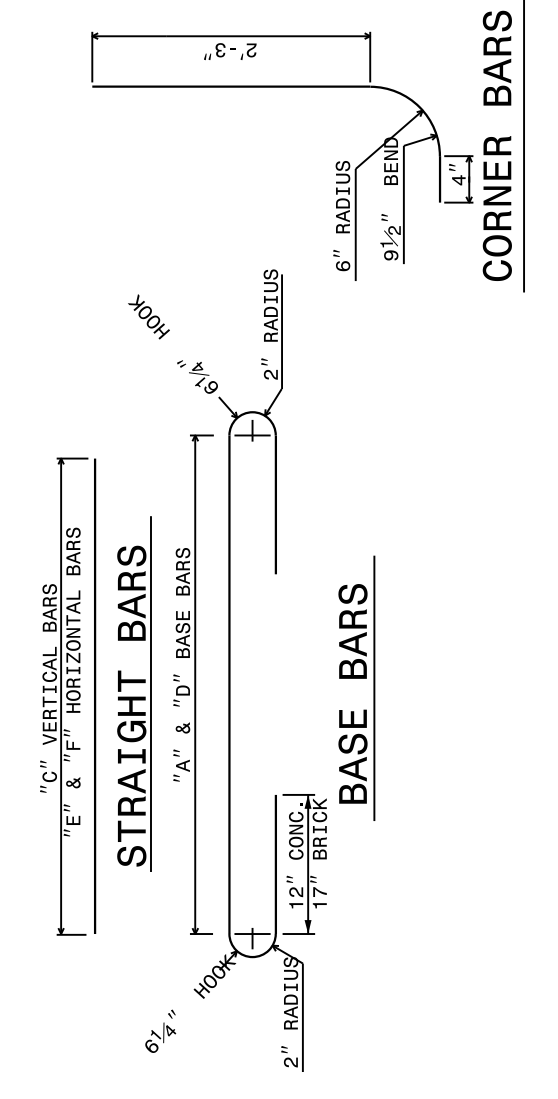
ENGLISH DETAIL DRAWING FOR
**BARRIER OVER TRAFFIC BEARING
 DOUBLE DROP INLET**

SHEET 2 OF 2
BARDDI

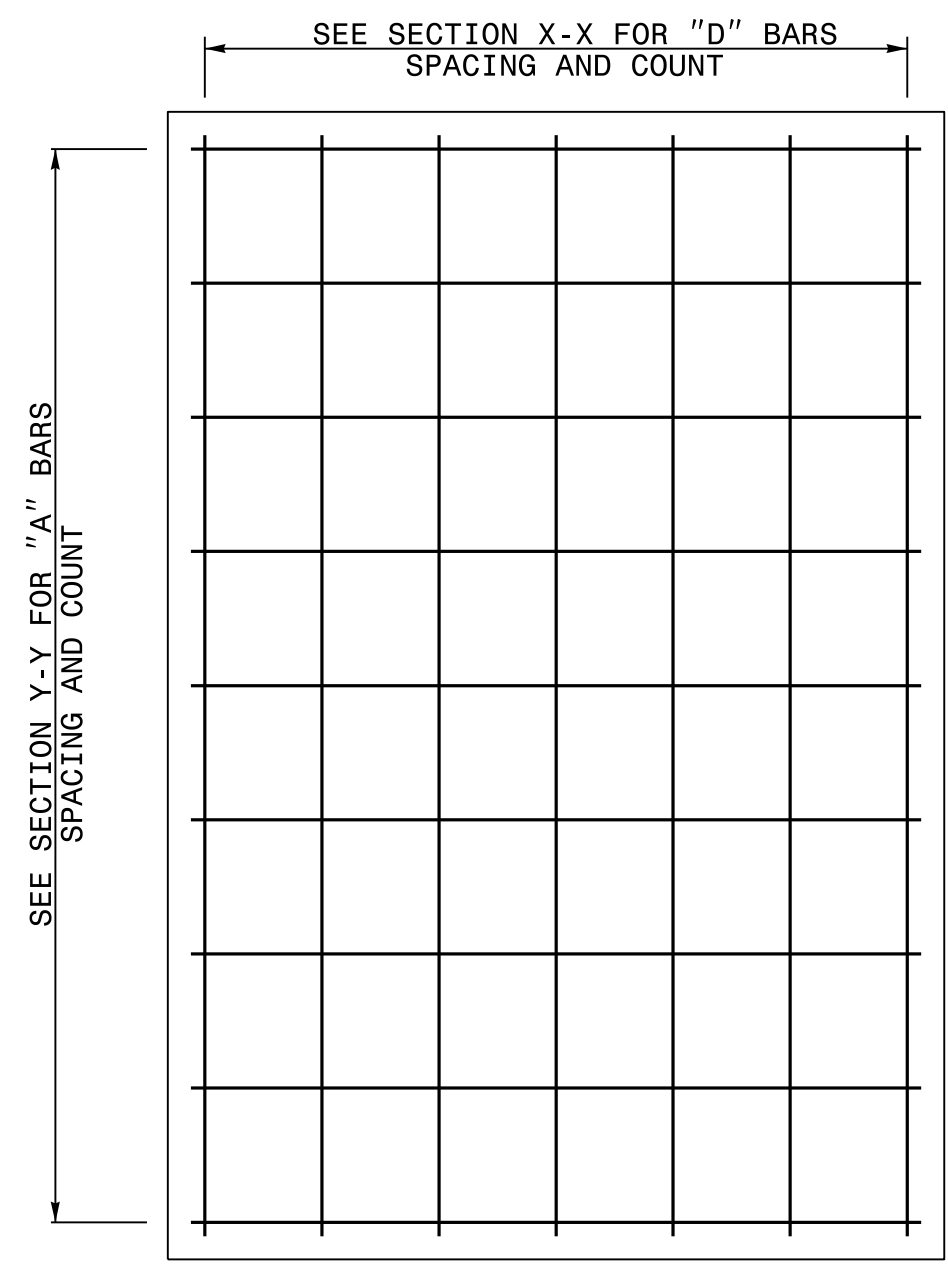


PLAN

COMMON				BILL OF MATERIALS			
BAR SIZE	LENGTH	QUANTITY	WEIGHT	CONCRETE ALT.	BRICK ALT.	QUANTITY	WEIGHT
#4	10'-7 1/2"	28	89.6	11'-10 1/2"	7	89.7	
#6	3'-4 1/2"	28	89.6	3'-4 1/2"	28	89.6	
#6	2'-11 1/2"	8	24.7	9'-2 1/2"	0	0	
#6	7'-3"	20	158.2	7'-1 1/2"	10	74.3	
#6	4'-7"	20	95.6	4'-5 1/2"	10	46.3	
REFIN. STEEL (TOTAL WEIGHT (LBS.))				392.5			
CONCRETE IN BASE (CUBIC YARDS)				1.1			
BRICK IN WALLS (CUBIC YARDS)				0			
CONCRETE TOTAL (CUBIC YARDS)				2.6			
CONCRETE IN WALLS (CUBIC YARDS)				0.2			
CONCRETE IN WALL/FOOT OF HEIGHT				0.6			
LBS. OF REIN. STEEL IN WALL/FOOT OF HEIGHT				107.0			
				77.5			



- GENERAL NOTES:
 -CONCRETE CORNERS TO BE CHAMFERED 1 INCH.
 -FORMS SHALL BE USED TO CONSTRUCT THE BOTTOM SLAB.
 -IF PIPES ARE SET IN THE BASE TO THE BOTTOM AS SHOWN ON SLAB, ADD ADDITIONAL CONCRETE TO THE BASE AS SHOWN ON STD. DWG. NO. 840 WHEN REINFORCED CONCRETE PIPE IS USED.
 -THE NUMBER OF REINFORCING STEEL BARS SHALL BE DETERMINED BY THE ENGINEER.
 -CONCRETE SHALL BE CLASS "B" CONCRETE IS TO BE USED FOR CONSTRUCTION.
 -GRATES AND FRAME SHALL BE SEPARATE CONTRACT ITEMS.
 -SEE DETAIL 840D25 FOR ANCHOR BRICK AND 4" SOLID CONCRETE BLOCK WILL BE PERMITTED.
 -DEPTH SHALL BE PROVIDED WITH STEPS ON 1'-2" CENTERS AS DIRECTED BY STD. DWG. NO. 840.66.
 -TIE REINFORCING STEEL AT ALL INTERSECTING AND LAP LOCATIONS OR AS DIRECTED BY THE ENGINEER.



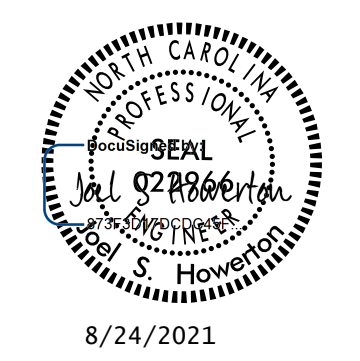
PLAN OF BASE

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8/24/2021