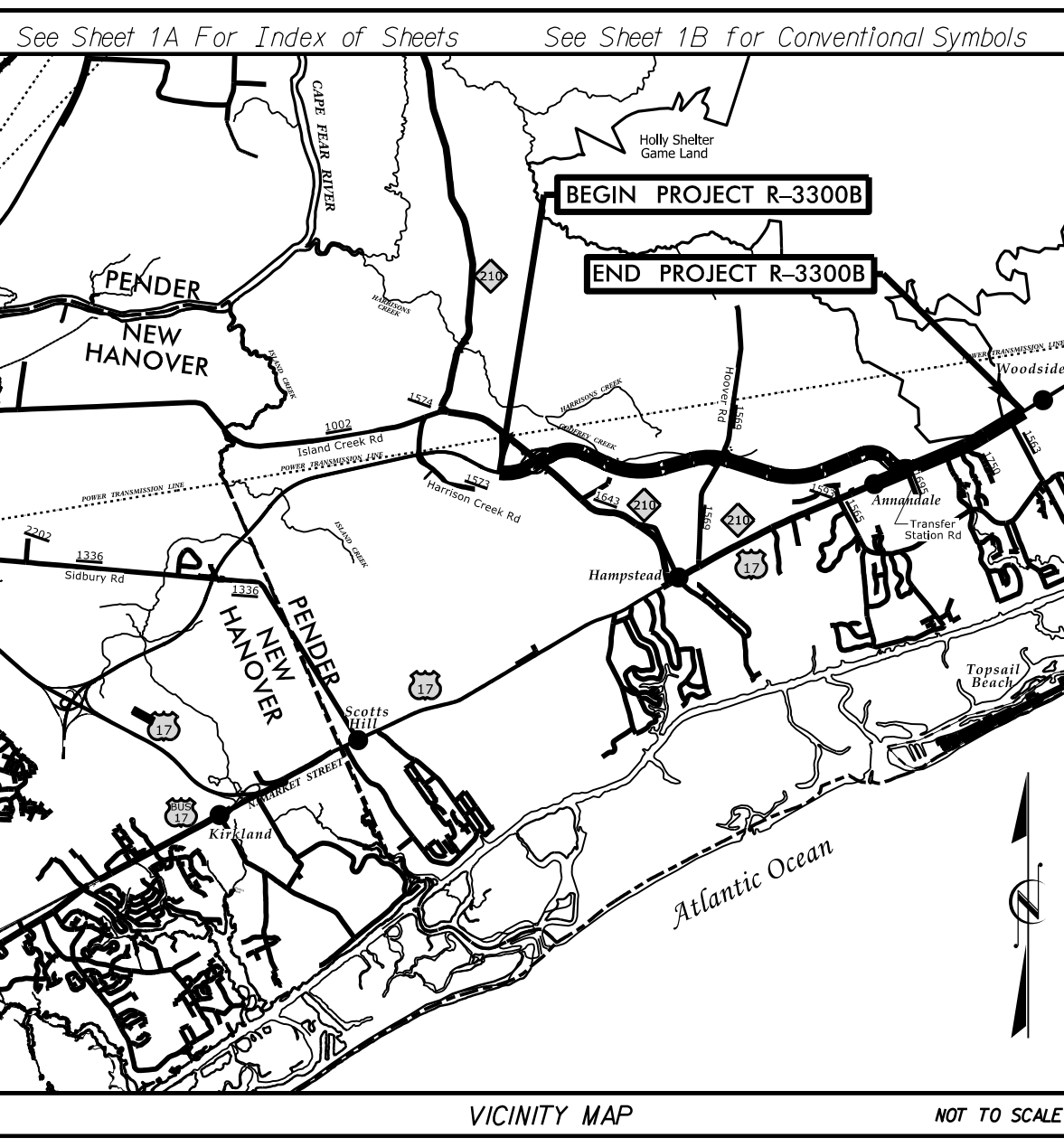


09_08/2019



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PENDER COUNTY

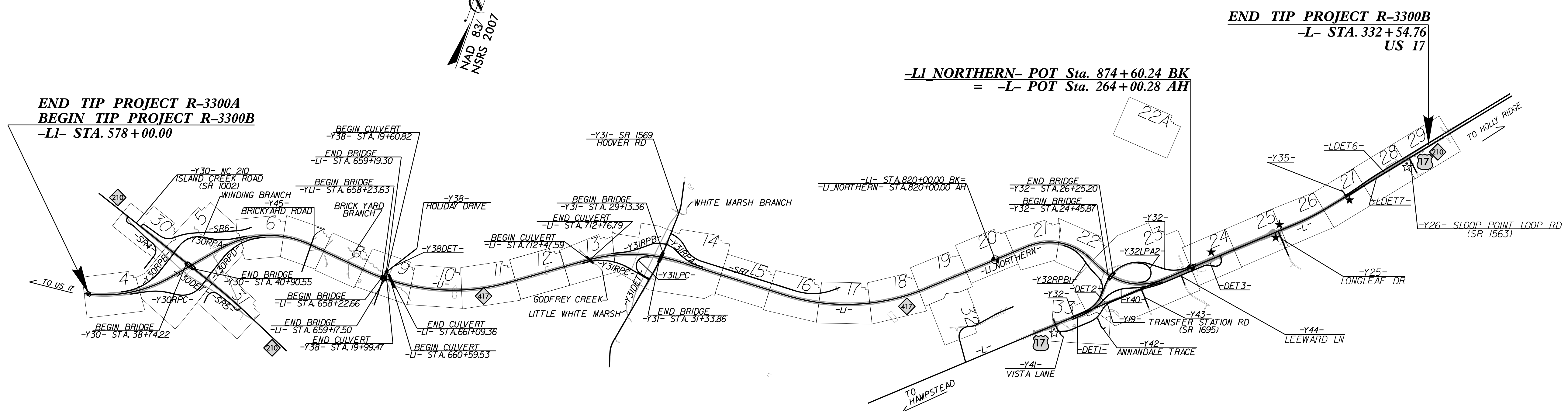
LOCATION: NC 417 (HAMPSTEAD BYPASS) FROM SOUTH OF NC 210 TO NORTH OF SR 1563 (SLOOP POINT LOOP ROAD).

TYPE OF WORK: GRADING, DRAINAGE, PAVING, STRUCTURES, SIGNALS, ITS, NOISE WALLS, RETAINING WALLS, AND CULVERTS

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-3300B	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
40237.1.2	N/A	PE	
40237.2.5	N/A	RW & UTIL	
40237.3.3	N/A	CONSTR	

TIP PROJECT: R-3300B

CONTRACT: C204553



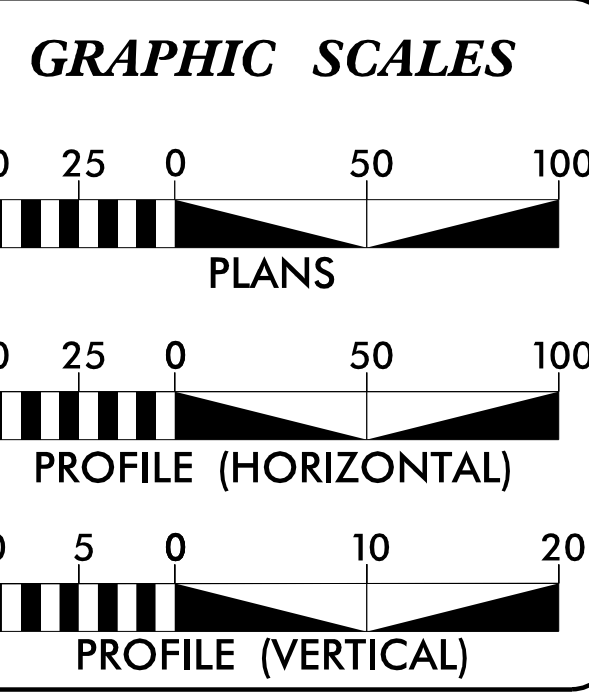
SUNGATE DESIGN GROUP, P.A.
2610 WYCLIFF ROAD
SUITE 410
RALEIGH, NORTH CAROLINA 27607
PHONE: 919.881.9939
NC COA No. C-0890

Dewberry
2610 WYCLIFF ROAD
SUITE 410
RALEIGH, NC 27607
PHONE: 919.881.9939
NC COA No. F-0529

☆ UPDATE EXISTING SIGNAL
★ PROPOSED SIGNAL

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

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED



DESIGN DATA

ADT 2016 =	N/A
ADT 2040 =	55,400
K =	8 %
D =	60 %
T =	6 % *
V =	70 MPH

* (TTST 2% + DUALS 4%)
FUNC CLASS = FREEWAY
REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT R-3300B	=	6.898 MILES
LENGTH STRUCTURE TIP PROJECT R-3300B	=	0.018 MILES
TOTAL LENGTH TIP PROJECT R-3300B	=	6.916 MILES

PREPARED IN THE OFFICE OF:
Stantec
STANTEC CONSULTING
801 Jones Franklin Road | Suite 300 | Raleigh, NC 27606
Tel. (919) 851-6866 | Fax. (919) 851-7024 | www.stantec.com
License No. F-0672

FOR THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: MICHAEL D. LINDGREN, P.E.
PROJECT ENGINEER
MARCH 16, 2018

LETTING DATE: TRACE HOWELL, P.E.
NCDOT DIVISION 3 CONTACT
JANUARY 18, 2022

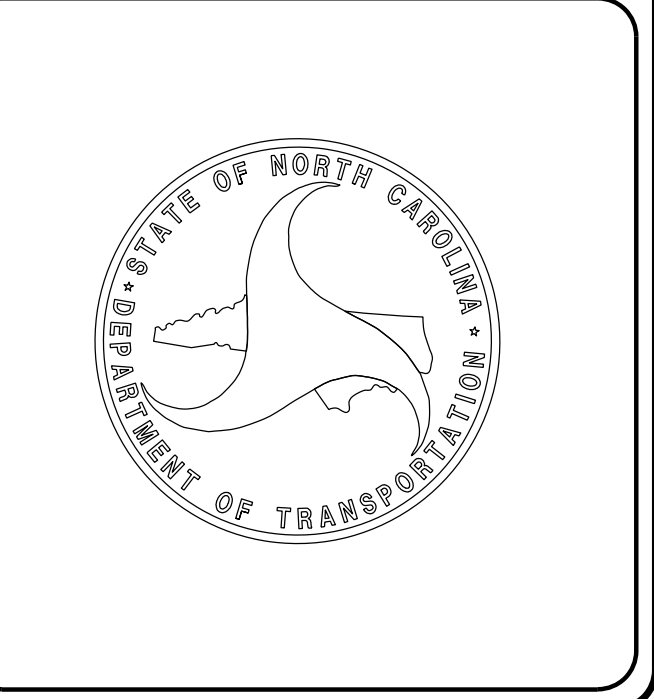
HYDRAULICS ENGINEERS

DocuSigned by:
Joshua G Dalton
SIGNATURE: 11/22/2021

DocuSigned by:
Steve Bunker
SIGNATURE: 11/22/2021

ROADWAY DESIGN ENGINEER

DocuSigned by:
Mike Lindgren
SIGNATURE: 11/22/2021



10/19/2021 U:\Roadway\Proj\NR3300B_rdy_tsh.dgn Klnazel

8/17/19

SHEET NUMBER	INDEX OF SHEETS	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, WEDGING DETAILS AND TYPICAL SECTIONS
2B-1		CURVE DATA SHEET
2B-2 THRU 2B-15		DETOUR SHEETS
2B-16 THRU 2B-18		INTERSECTION DETAIL SHEETS
2C-1		MODIFIED CLEARING - METHOD III
2C-2		DETAIL OF REINFORCED CONCRETE ENDWALL FOR 78" DIAMETER PIPE-90 SKEW
2C-3		2'-9" CURB & GUTTER DETAIL
2C-4		TRANSITION 1'-6" TO 2'-9" CURB & GUTTER DETAIL
2C-5		TRANSITION 2'-9" TO 2'-6" FOR CB DETAIL
2C-6		MINIMUM DEPTH CONCRETE CATCH BASIN
2C-7		CURB RAMP DETAILS
2C-8		REINFORCED CONCRETE DRIVEWAYS DETAIL
2C-9		TBDI IN CONCRETE ISLAND DETAIL
2C-10		CONVERT CB DI OTCB 2G1 TO JB DETAIL
2C-11		GUARDRAIL AT-1 ANCHOR DETAIL
2C-12		STRUCTURE ANCHOR UNIT TYPE III DETAIL
2C-13		GUARDRAIL INSTALLATION DETAIL
2C-14		25FT CLEAR SPAN GUARDRAIL DETAIL
2C-15		TRAFFIC BEARING GRATED INLET
2C-16		CONVERT BOX TO TBJB DETAIL
2C-17		PIPE ENDWALL WITH LOAD-CARRYING GRATE DETAIL
2D-1 THRU 2D-6		DRAINAGE DETAILS
2G-1 THRU 2G-16		GEOTECHNICAL DETAIL
2G-17		ROCK PLATING DETAIL
2G-18 THRU 2G-21		TEMPORARY SHORING DETAIL
2N-1 THRU 2N-11		NOISE WALL ENVELOPES
3B-1		SUMMARY OF EARTHWORK
3B-2		GUARDRAIL SUMMARY
3B-3		CABLE GUIDERAIL SUMMARY AND TEMP GUARDRAIL SUMMARY
3B-4		ASPHALT PAVEMENT REMOVAL SUMMARY, SHOULDER BERM GUTTER SUMMARY, AND CONCRETE BARRIER SUMMARY
3D-1 THRU 3D-22		LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48 INCHES & UNDER)
3D-23		LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 54 INCHES & OVER)
3G-1		GEOTECHNICAL SUMMARIES
3P-1 THRU 3P-2		PARCEL INDEX SHEET
4A THRU 4D		PLAN SHEETS FROM R-3300A FOR ROW ONLY
4 THRU 33		PLAN SHEETS
34 THRU 73		PROFILE SHEETS
RW-1 THRU RW-33		R/W CONTROL SHEETS
TMP-1 THRU TMP-70		TRANSPORTATION MANAGEMENT PLANS
PMP-1 THRU PMP-38		PAVEMENT MARKING PLANS
EC-1 THRU EC-63		EROSION CONTROL PLANS
RF-1 THRU RF-1		REFORESTATION PLANS
SIGN-1 THRU SIGN-40		SIGNING PLANS
SIG-1.0 THRU SIG-17.0		SIGNAL PLANS
SIG.M1 THRU SIG.M8		STANDARD METAL POLE DRAWINGS
SCP-1 THRU SCP-26		TRAFFIC SIGNAL COMMUNICATIONS SYSTEM PLANS
UC-01 THRU UC-39		UTILITY CONSTRUCTION PLANS
UD-1 THRU UD-		UTILITIES BY OTHERS PLANS
X-1A THRU X-1F		CROSS-SECTION INDEX
X-1G THRU X-1M		CROSS-SECTION EARTHWORK SUMMARY
X-1 THRU X-467		CROSS-SECTIONS
S13-01 THRU S13-38		STRUCTURE PLANS - BRIDGE OVER NC 417 (-L1-) ON NC 210 (-Y30-)
S14-01 THRU S14-30		STRUCTURE PLANS - LL BRIDGE OVER HOLIDAY DRIVE (-Y38-) ON SB NC 417 (-L1-)
S15-01 THRU S15-30		STRUCTURE PLANS - RL BRIDGE OVER HOLIDAY DRIVE (-Y38-) ON NB NC 417 (-L1-)
S16-01 THRU S16-38		STRUCTURE PLANS - BRIDGE OVER NC 417 (-L1-) ON HOOVER ROAD (-Y31-)
S17-01 THRU S17-38		STRUCTURE PLANS - BRIDGE OVER NC 417 (-L1-) ON US 17 (-Y32-)
C08-01 THRU C08-07		CULVERT UNDER NC 417 NB ON-RAMP FROM NC 210
C09-01 THRU C09-06		CULVERT UNDER NC 417 (-L1-)
C10-01 THRU C10-07		CULVERT UNDER NC 417 NB OFF-RAMP TO NC 210
C11-01 THRU C11-06		CULVERT UNDER HOLIDAY DRIVE (-Y38-)
C12-01 THRU C12-07		CULVERT UNDER NC 417 (-L1-)
C13-01 THRU C13-06		CULVERT UNDER NC 417 (-L1-)

SHEET NUMBER	INDEX OF SHEETS	SHEET
C14-01 THRU C14-08		CULVERT UNDER SB US 17 (-Y32-)
C15-01 THRU C15-07		CULVERT UNDER US 17 (-L-)
SW9&11-01 THRU SW9&11-10		NOISE WALL ALONG OUTSIDE SHOULDER OF NB NC 417 (-L1-)
SW10-01 THRU SW10-07		NOISE WALL ALONG OUTSIDE SHOULDER OF SB NC 417 (-L1-)
SW22-01 THRU SW22-05		NOISE WALL ALONG (-Y19-) AND LEEWARD LANE (-Y44-)
	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 MODIFIED METHOD III.
	SUPERELEVATION:	ALL CURVES ON THIS PROJECT SHALL BE SUPERELEVATED IN ACCORDANCE WITH STD. NO. 225.04 AND STD. NO. 225.05 USING THE RATE OF SUPERELEVATION AND RUNOFF SHOWN ON THE PLANS. SUPERELEVATION IS TO BE REVOLVED ABOUT THE GRADE POINTS SHOWN ON THE TYPICAL SECTIONS.
	SHOULDER CONSTRUCTION:	ASPHALT, EARTH, AND CONCRETE SHOULDER CONSTRUCTION ON THE HIGH SIDE OF SUPERELEVATED CURVES SHALL BE IN ACCORDANCE WITH STD. NO. 560.01 AND STD. NO. 560.02.
	SIDE ROADS:	THE CONTRACTOR WILL BE REQUIRED TO DO ALL NECESSARY WORK TO PROVIDE SUITABLE CONNECTIONS WITH ALL ROADS, STREETS, AND DRIVES ENTERING THIS PROJECT. THIS WORK WILL BE PAID FOR AT THE CONTRACT UNIT PRICE FOR THE PARTICULAR ITEMS INVOLVED.
	SUBSURFACE DRAINS:	SUBSURFACE DRAINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 815.02 AT LOCATIONS DIRECTED BY THE ENGINEER.
	DRIVEWAYS:	DRIVEWAYS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. 848.02 USING 3 FOOT RADIUS OR RADIUS AS SHOWN ON THE PLANS. LOCATIONS OF DRIVES WILL BE AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.
	STREET TURNOUT:	STREET RETURNS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 848.04 USING THE 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.
	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 FOUR COUNTY EMC-POWER, DUKE ENERGY-TRANSMISSION, DUKE ENERGY-DISTRIBUTION, PLURIS-SEWER, PENDER COUNTY UTILITIES-WATER, MCNC, CENTURYLINK, FOUR COUNTY EMC FIBER, AT&T TRANSMISSION, AT&T DISTRIBUTION, SPECTRUM
		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.

STD.NO.	TITLE
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:	
DIVISION 2 - EARTHWORK	
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
225.08	Earth Berm Median Pier Protection
235.01	Embankment Monitoring
275.01	Rock Plating
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation
310.02	Parallel Pipe End Section - Precast Concrete Section for 15" to 24" Pipe
310.03	Cross Pipe End Section - Precast Concrete Section for 18" to 30" Pipe
310.10	Driveway Pipe Construction
DIVISION 4 - MAJOR STRUCTURES	
422.01	Bridge Approach Fills - Type I Standard Approach Fill
422.02	Bridge Approach Fills - Type II Modified 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	
806.03	Concrete Control of Access Marker
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
838.21	Reinforced Concrete Endwall - for Single 54" Pipe 90 Skew
838.34	Reinforced Concrete Endwall - for Double and Triple 66" Pipes 90 Skew
838.45	Notes for Reinforced Concrete Endwall - Std. Dwg 838.21 thru 838.40
838.51	Reinforced Brick Endwall - for Single 54" Pipe 90 Skew
838.64	Reinforced Brick Endwall - for Double and Triple 66" Pipes 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
840.04	Concrete Open Throat Catch Basin - 12" thru 48" Pipe
840.05	Brick Open Throat Catch Basin - 12" thru 48" Pipe
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
840.31	Concrete Junction Box - 12" thru 66" Pipe
840.32	Brick Junction Box - 12" thru 66" Pipe
840.35	Traffic Bearing Grated Drop Inlet - for Cast Iron Double Frame and Grates
840.36	Traffic Bearing Grated Drop Inlet - for Steel (840.37) Double Frame and Grates
840.37	Steel Grate and Frame
840.45	Precast Drainage Structure
840.46	Traffic Bearing Precast Drainage Structure
840.54	Manhole Frame and Cover
840.66	Drainage Structure Steps
840.72	Pipe Collar
846.01	Concrete Curb, Gutter and Curb & Gutter
848.01	Concrete Sidewalk
848.02	Driveway Turnout - Radius Type
848.04	Street Turnout
848.05	Curb Ramp - Proposed Curb & Gutter
848.06	Curb Ramp - Existing Curb & Gutter
852.01	Concrete Islands
852.04	Method for Placement of Drop Inlets in Grassed Median - Using 1'-6" Curb and Gutter
852.05	Median Curb for Catch Basin - for Use with 1'-6" Curb and Gutter
852.06	Method for Placement of Drop Inlets in Concrete Islands
852.10	Median Construction - with Curb and Gutter
854.01	Double Faced Concrete Barrier - Types I, II, III and IV
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

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

PROJECT REFERENCE NO. *R-3300B* SHEET NO. *IA*

EFF. 01-16-2018
REV.

ROADWAY DESIGN ENGINEER

10/12/2021 U:\Roadway\Proj\VR3300B_Rdwy_tsh_sht01A.dgn

12/2/2016

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

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	○ R W
New Right of Way Line with Pin and Cap	○ R W ▲
New Right of Way Line with Concrete or Granite R/W Marker	▲ R W
New Control of Access Line with Concrete C/A Marker	△ R W
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	---T---
Proposed Guardrail	---T---
Existing Cable Guiderail	---T---
Proposed Cable Guiderail	---T---
Equality Symbol	⊕
Pavement Removal	▨

VEGETATION:

Single Tree	☼
Single Shrub	☼

Note: Not to Scale

*S.U.E. = Subsurface Utility Engineering

Hedge	-----
Woods Line	-----
Orchard	☼
Vineyard	□ Vineyard

EXISTING STRUCTURES:

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

UTILITIES:

POWER:	
Existing Power Pole	●
Proposed Power Pole	○
Existing Joint Use Pole	●
Proposed Joint Use Pole	○
Power Manhole	⊕
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.*)	---TU/L---
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.

6/2/2022

PAVEMENT SCHEDULE

(FINAL PAVEMENT DESIGN)

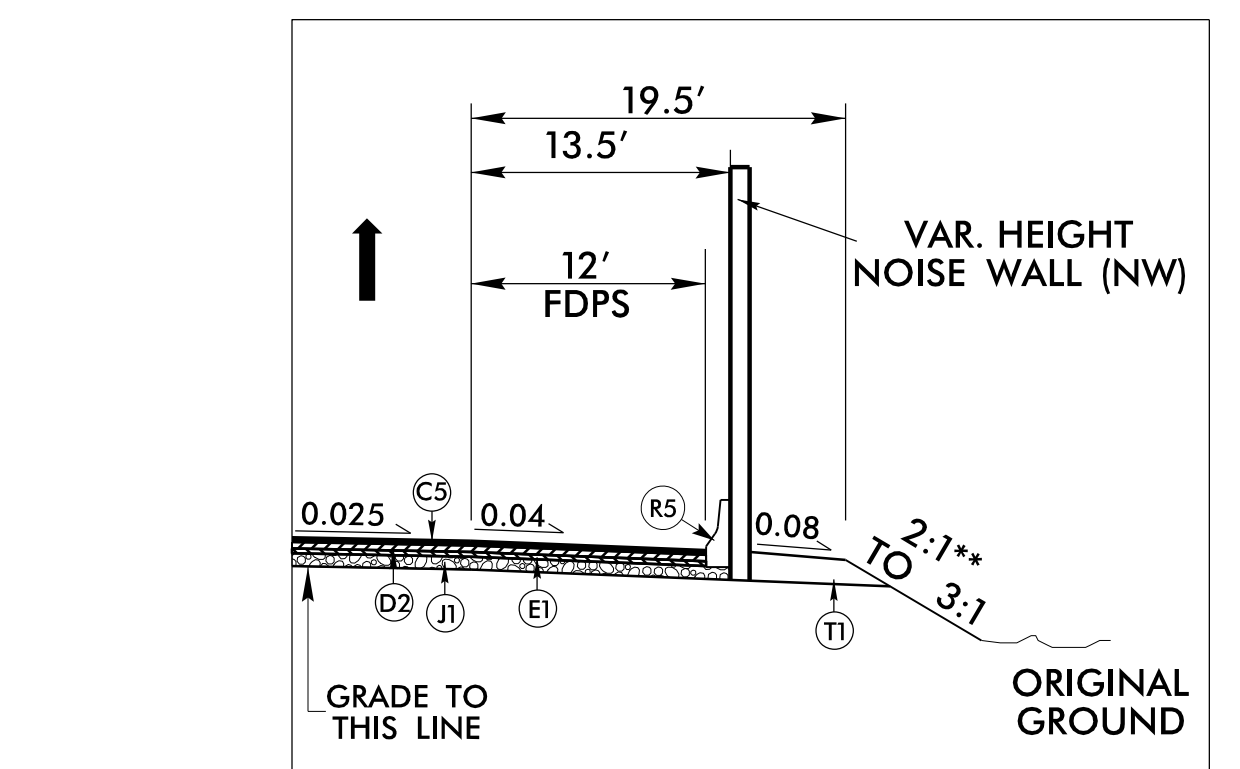
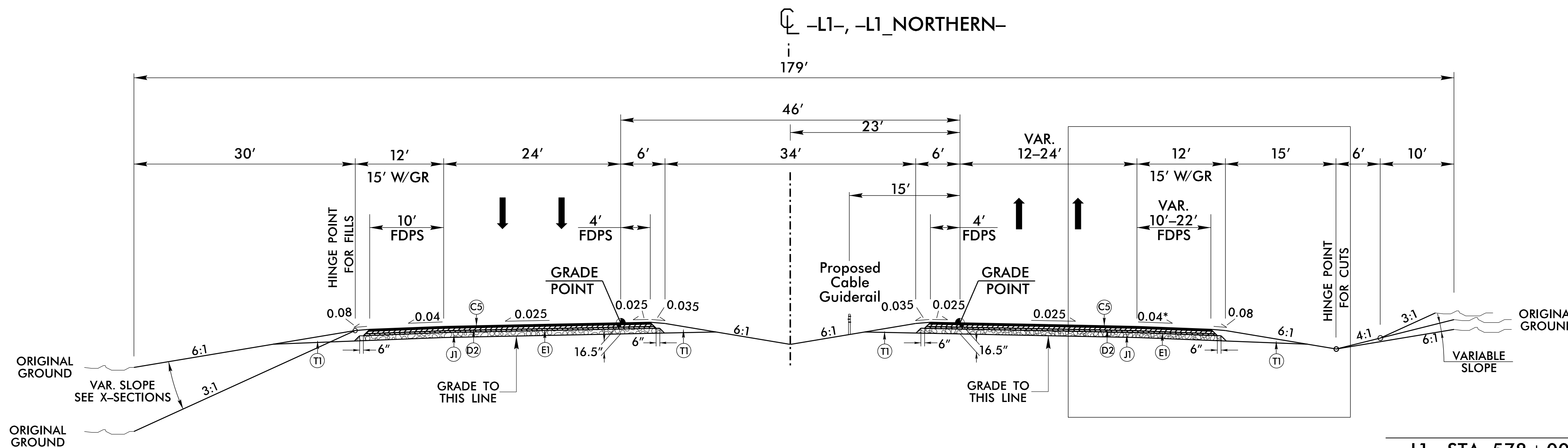
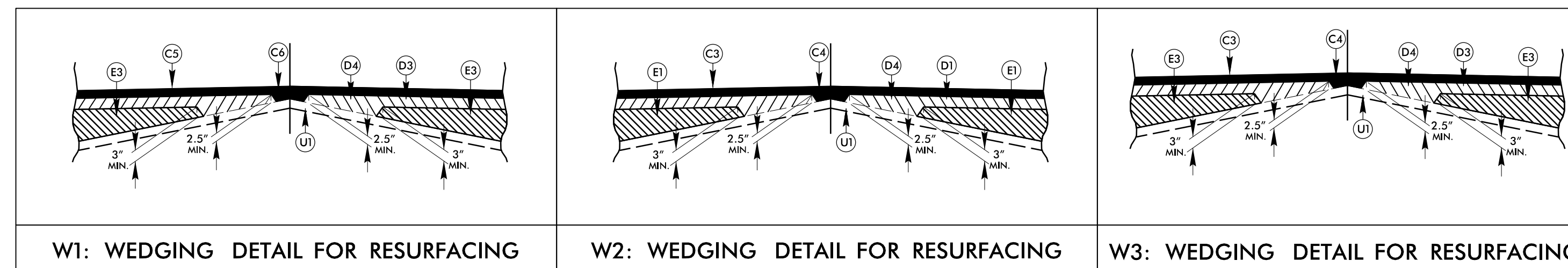
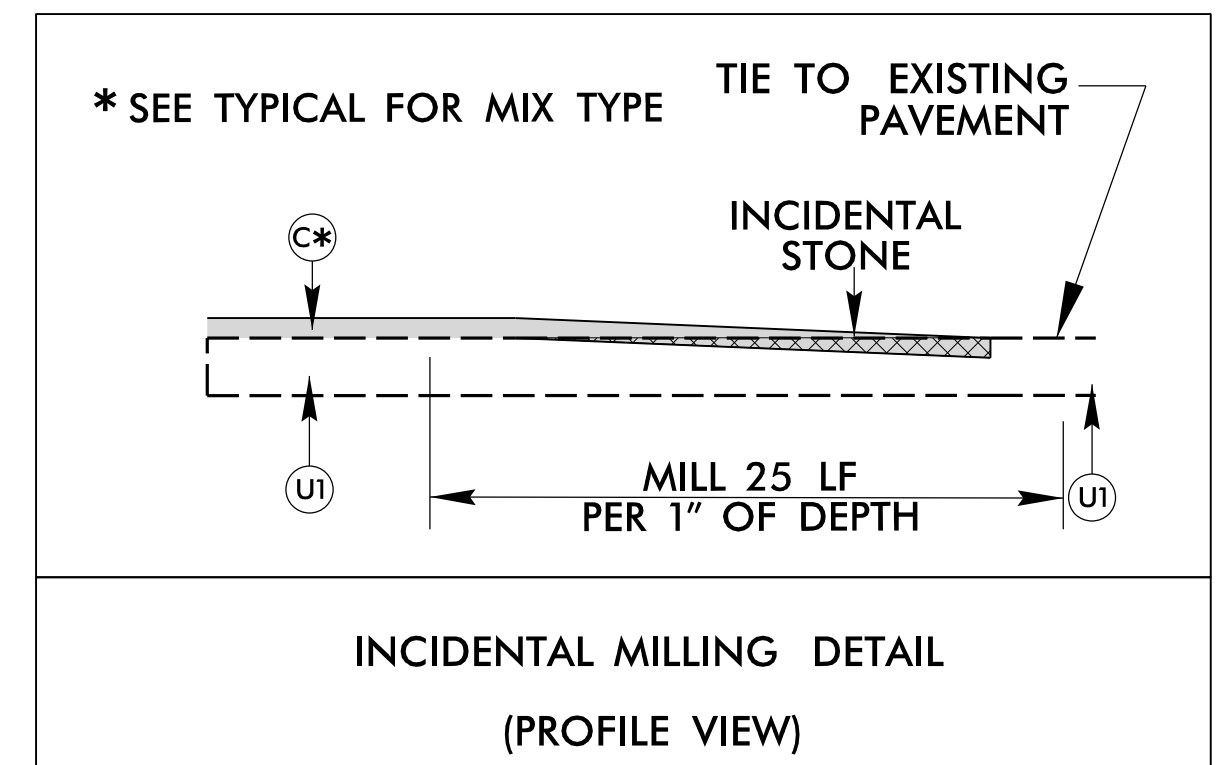
C1	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE TYPE S9.5B, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD.	E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	R4	5" MONOLITHIC CONCRETE ISLAND (KEYED IN).
C2	PROP. APPROX. 2.5" ASPHALT CONCRETE SURFACE COURSE TYPE S9.5B, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	E2	PROP. APPROX. 5.5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD.	R5	SINGLE FACED REINFORCED CONCRETE BARRIER.
C3	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE TYPE S9.5B, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	E3	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5 1/2" IN DEPTH.	R6	DOUBLE FACED REINFORCED CONCRETE BARRIER.
C4	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 TO EXCEED 1.5" IN DEPTH.	J1	6" AGGREGATE BASE COURSE.	S1	4" CONCRETE SIDEWALK.
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.	J2	8" AGGREGATE BASE COURSE.	T1	EARTH MATERIAL.
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.	J3	10" AGGREGATE BASE COURSE.	U1	EXISTING PAVEMENT.
D1	PROP. APPROX. 2.5" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.	J4	VAR. DEPTH AGGREGATE BASE COURSE.	V1	1.5" MILLING ASPHALT PAVEMENT
D2	PROP. APPROX. 3.5" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 399 LBS. PER SQ. YD.	P1	PRIME COAT.	W1	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAILS).
D3	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	R1	1'-6" CONCRETE CURB AND GUTTER.	W2	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAILS).
D4	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 2 1/2" IN DEPTH OR GREATER THAN 4" IN DEPTH.	R2	2'-6" CONCRETE CURB AND GUTTER.	W3	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAILS).
		R3	2'-9" CONCRETE CURB AND GUTTER.		

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



PROJECT REFERENCE NO. R-3300B	SHEET NO. 2A-1
ROADWAY DESIGN ENGINEER Michael D. Lindgren Professional Seal No. 025513 North Carolina License No. 025513 02/2022	PAVEMENT DESIGN ENGINEER Andrew D. Wargo Professional Seal No. 044590 North Carolina License No. 044590 02/2022
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

NOTE: AS DIRECTED BY THE ENGINEER, STABILIZE SANDY SUBGRADE MATERIAL WITH CLASS IV AGGREGATE TO PREVENT RUTTING OF THE SUBGRADE PRIOR TO PAVING DIRECTLY ON THE SUBGRADE.



USE INSET DETAIL FOR
 -L1- STA. 623+74.81 TO 699+84.72 RT (NW NO.9/11)
 -L1- STA. 638+15.43 TO 676+88.55 LT (NW NO.10)
 -L1- STA. 808+03.81 TO -Y32RPB1- STA. 13+00.26 RT (NW NO.17/18)

* VAR. SUPER ELEVATIONS SEE X-SECTIONS

**SEE ROCK PLATING DETAIL

USE TYPICAL SECTION NO. 1

-L1- STA. 578+00.00 TO TO 658+22.66 BEGIN BRIDGE
 -L1- STA. 659+17.50 END BRIDGE TO -L1- 820+00.00 BK RT
 -L1- STA. 578+00.00 TO 658+23.63 BEGIN BRIDGE
 -L1- STA. 659+19.30 END BRIDGE TO -L1- 820+00.00 BK LT
 -L1_NORTHERN- 820+00.00 AH TO -L1_NORTHERN- 874+60.24

NOTES:
 USE OF 3" OF CLASS IV AGGREGATE STABILIZATION TO BE DIRECTED BY THE ENGINEER.
 SEE PLANS FOR PAVING TO THE FACE OF GUARDRAIL LOCATIONS.

TYPICAL SECTION NO. 1

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6/2/2022

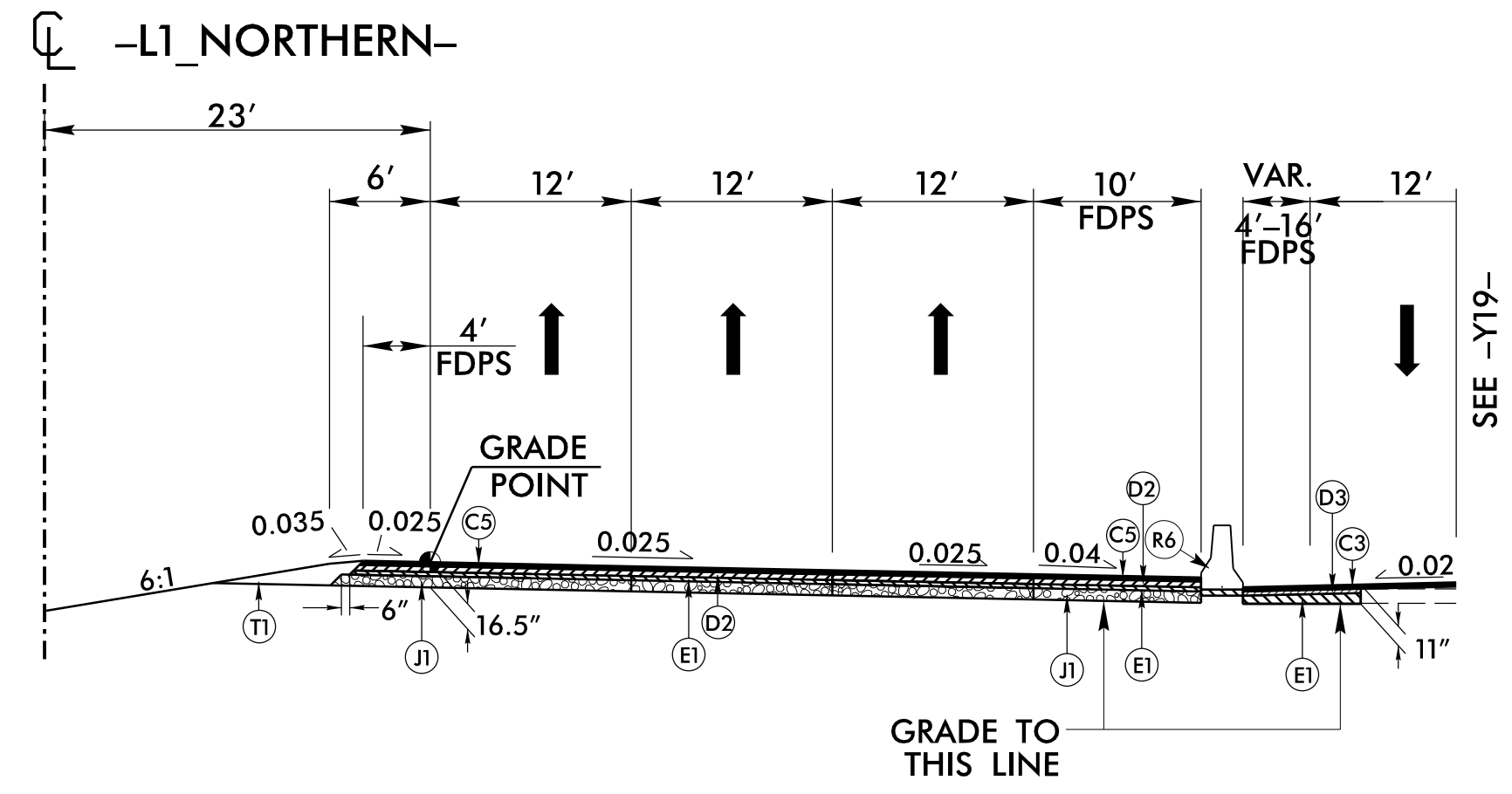
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C2	PROP. APPROX. 2.5", TYPE S9.5B
C3	PROP. APPROX. 3", TYPE S9.5B
C4	PROP. VAR. DEPTH, TYPE S9.5B
C5	PROP. APPROX. 3", TYPE S9.5C
C6	PROP. VAR. DEPTH, TYPE S9.5C
D1	PROP. APPROX. 2.5", TYPE I19.0C
D2	PROP. APPROX. 3.5", TYPE I19.0C
D3	PROP. APPROX. 4", TYPE I19.0C
D4	PROP. VAR. DEPTH, TYPE I19.0C
E1	PROP. APPROX. 4", TYPE B25.0C
E2	PROP. APPROX. 5.5", TYPE B25.0C
E3	PROP. VAR. DEPTH, TYPE B25.0C
J1	PROP. 6" ABC
J2	PROP. 8" ABC
J3	PROP. 10" ABC
J4	PROP. VAR. DEPTH ABC
P1	PROP. PRIME COAT.
R1	PROP. 1'-6" CONCRETE CURB AND GUTTER
R2	PROP. 2'-6" CONCRETE CURB AND GUTTER
R3	PROP. 2'-9" CONCRETE CURB AND GUTTER
R4	PROP. 5" MONOLITHIC CONCRETE ISLAND
R5	PROP. SINGLE FACED CONCRETE BARRIER
R6	PROP. DOUBLE FACED CONCRETE BARRIER
S1	4" CONCRETE SIDEWALK.
T1	EARTH MATERIAL
U1	EXISTING PAVEMENT
V1	1.5" MILLING ASPHALT PAVEMENT
W1	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL SHEET NO. 2A-1)
W2	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL SHEET NO. 2A-1)
W3	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL SHEET NO. 2A-1)

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

NOTES:
 USE OF 3" OF CLASS IV AGGREGATE STABILIZATION TO BE DIRECTED BY THE ENGINEER.
 SEE PLANS FOR PAVING TO THE FACE OF GUARDRAIL LOCATIONS.



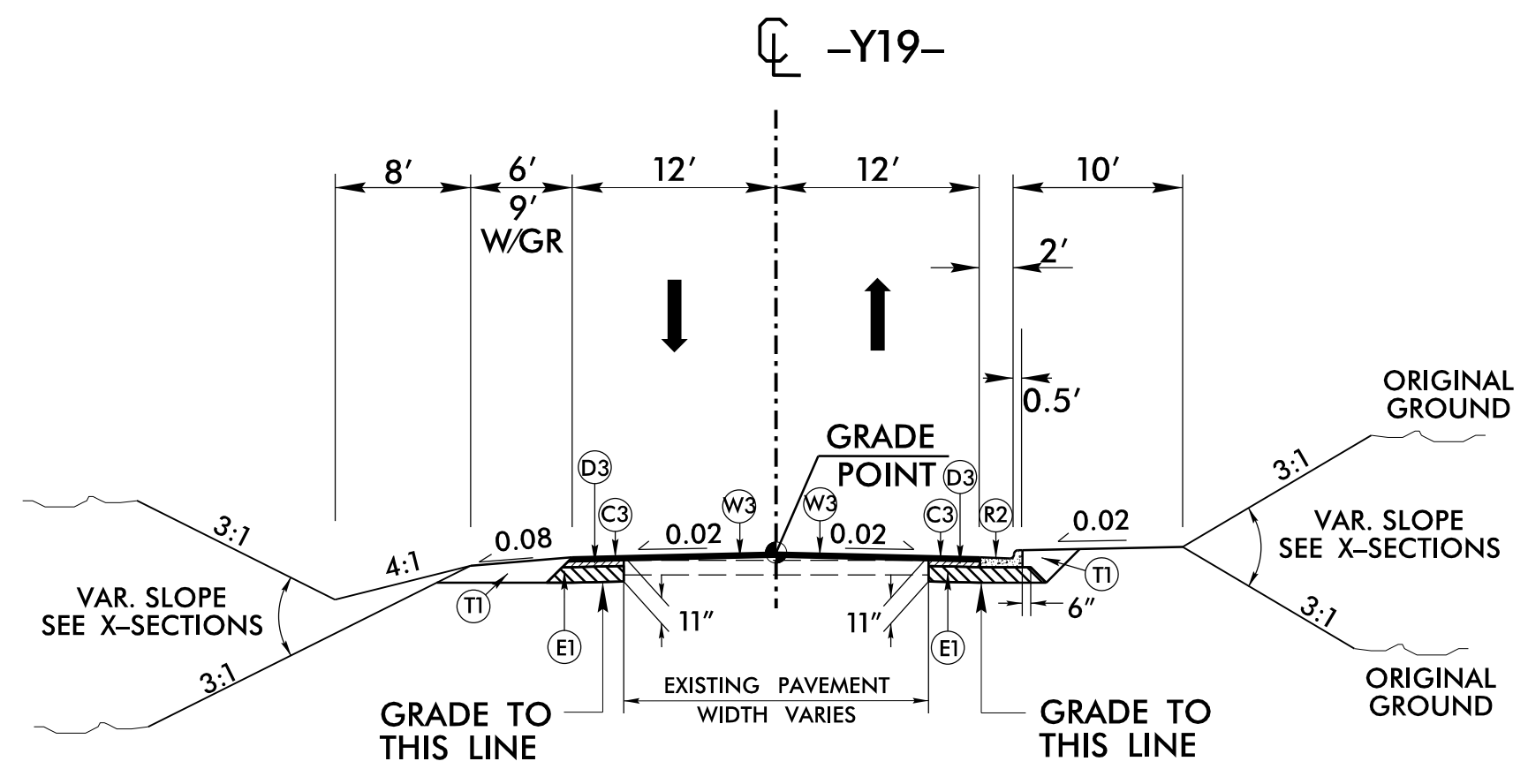
PROJECT REFERENCE NO. R-3300B	SHEET NO. 2A-2
ROADWAY DESIGN ENGINEER Michael D. Lindgren 025513	PAVEMENT DESIGN ENGINEER Andrew D. Wargo 044590
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2

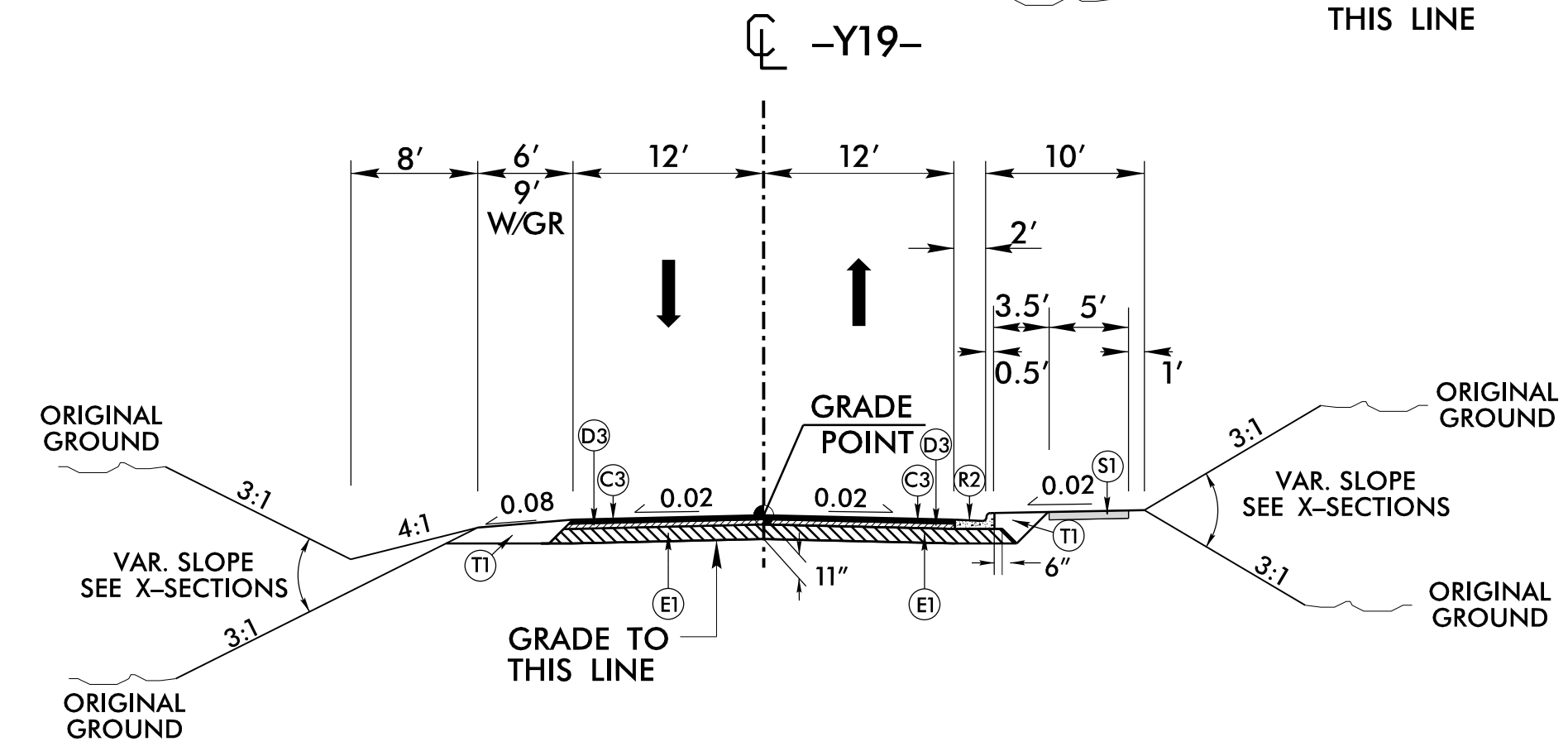
-L1_NORTHERN- STA. 866+61.46 TO -L1_NORTHERN- 874+60.24 RT



TYPICAL SECTION NO. 3

USE TYPICAL SECTION NO. 3

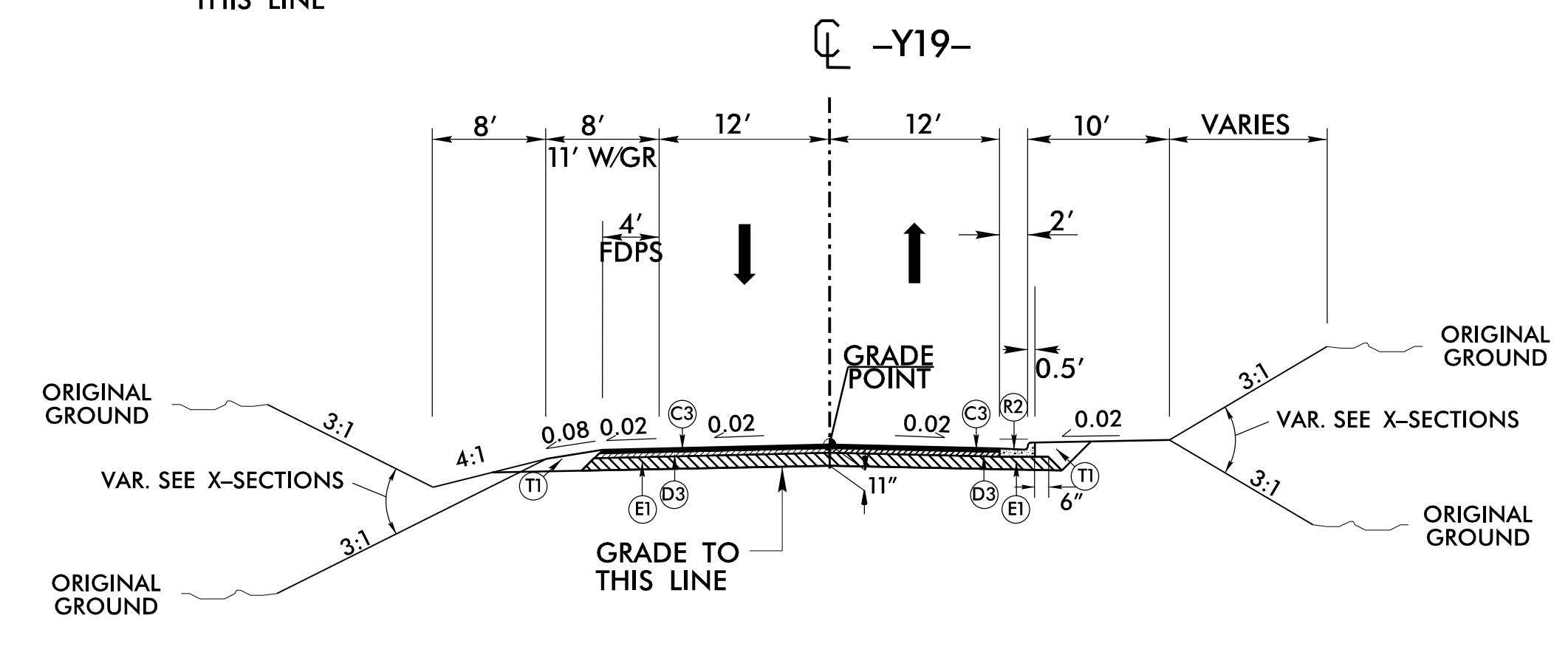
-Y19- STA. 11+27.45 TO 12+15.79
 -Y19- STA. 26+34.02 TO 38+67.16



TYPICAL SECTION NO. 4

USE TYPICAL SECTION NO. 4

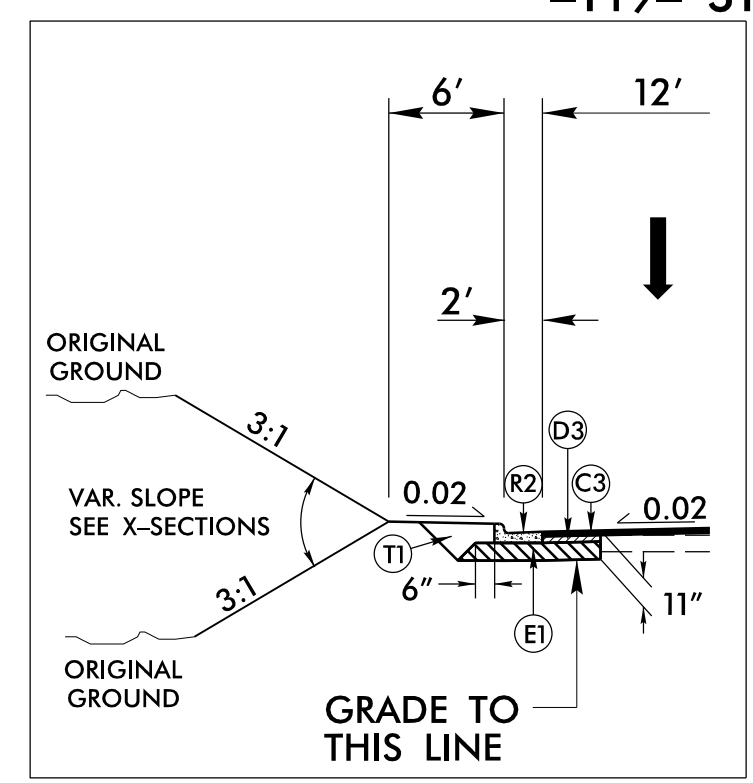
-Y19- STA. 12+15.79 TO 26+34.02
 -Y19- STA. 38+67.16 TO 50+04.78



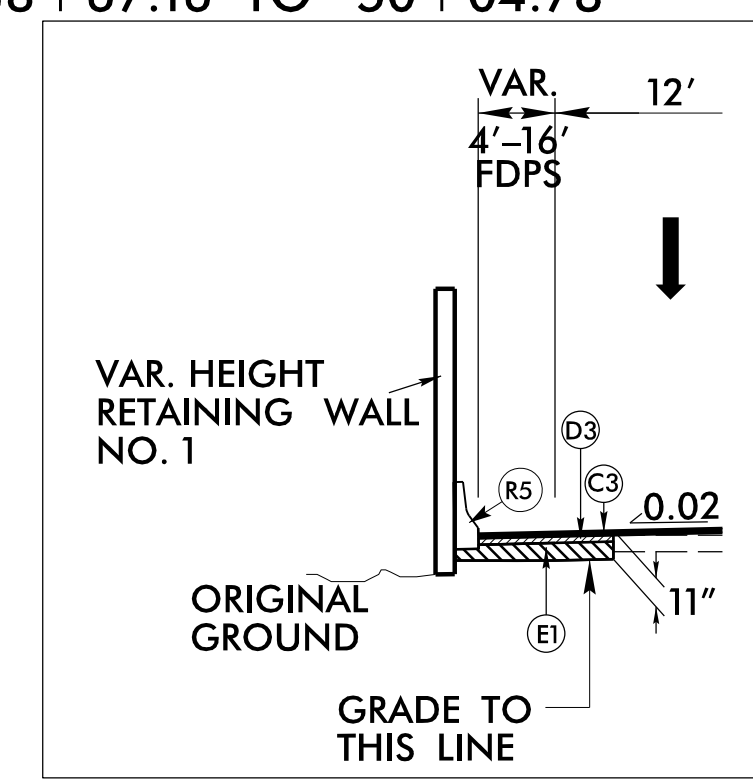
TYPICAL SECTION NO. 5

USE TYPICAL SECTION NO. 5

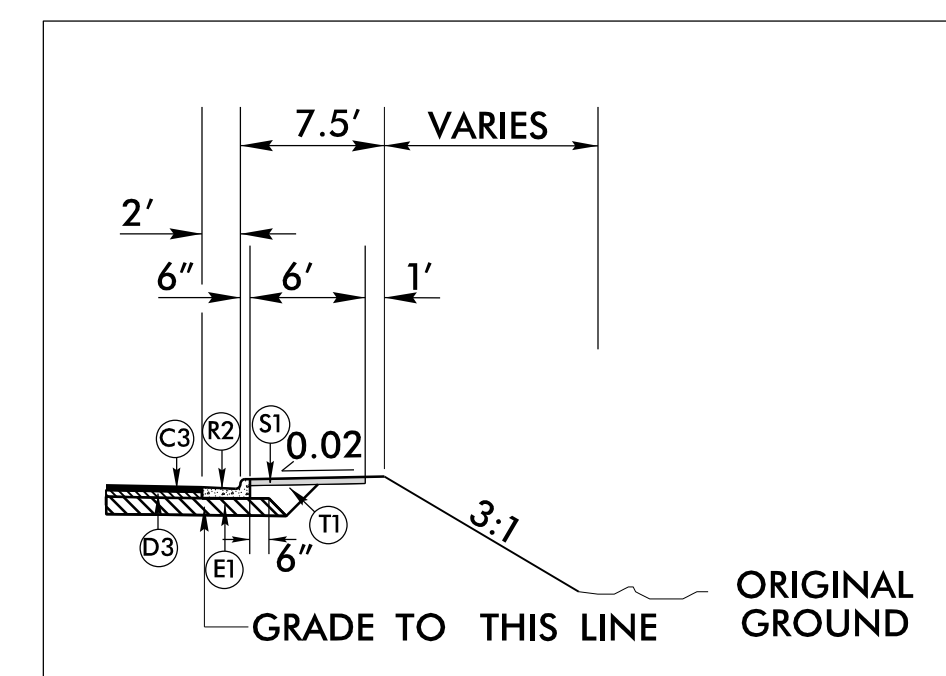
-Y19- STA. 50+04.78 TO 59+26.97



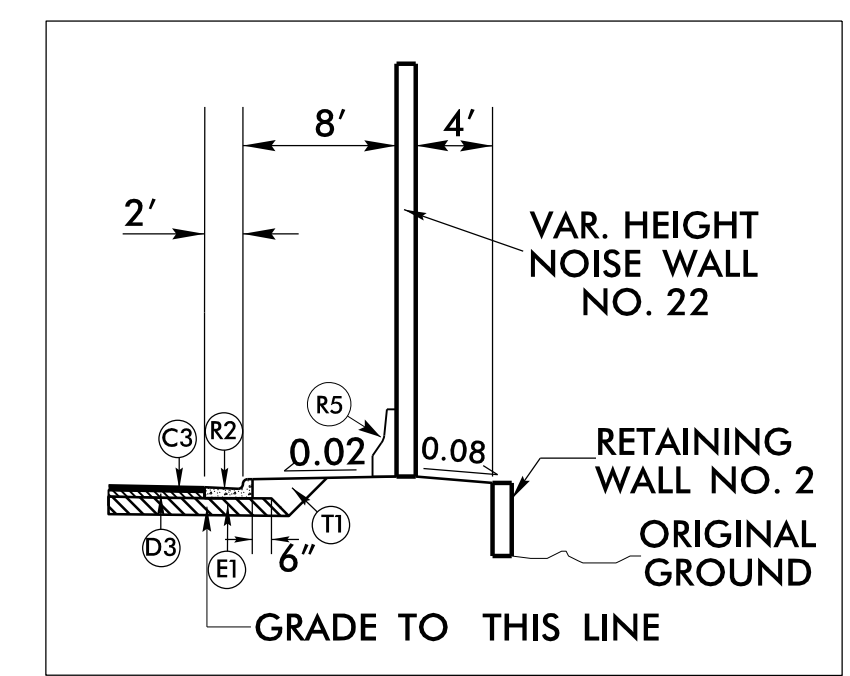
USE INSET DETAIL FOR
 -Y19- STA. 11+27.45 TO 14+50.00 LT



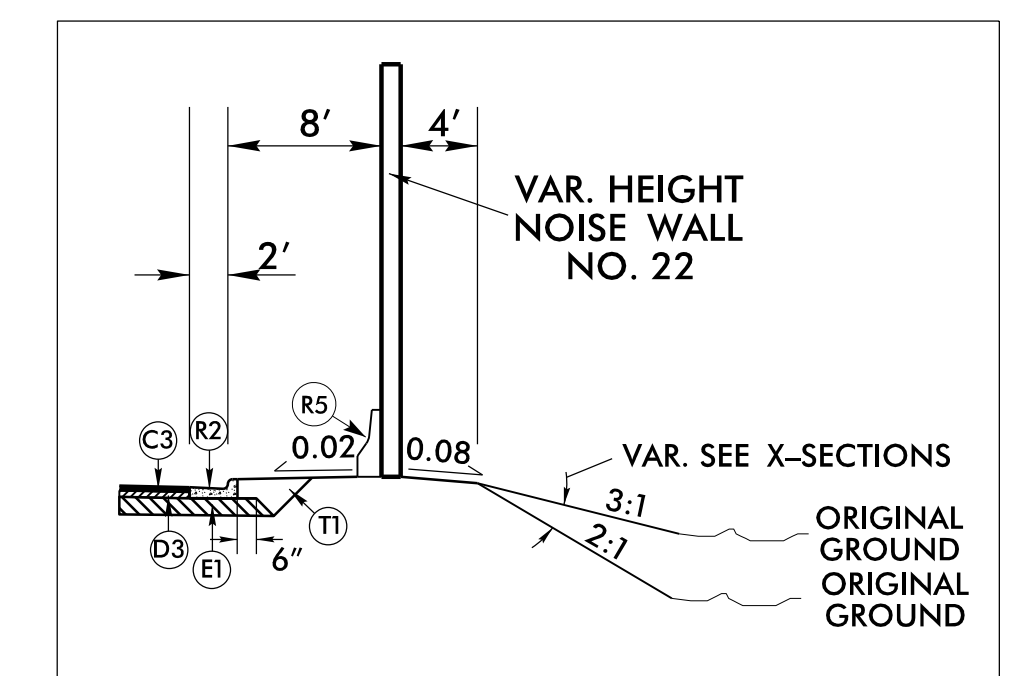
USE INSET DETAIL FOR
 -Y19- STA. 37+50.00 TO 50+04.78 LT



USE INSET DETAIL FOR
 -Y19- STA. 36+50.00 TO 47+85.00 RT



USE INSET DETAIL FOR
 -Y19- STA. 47+85.00 TO 50+20.00 RT



USE INSET DETAIL FOR
 -Y19- STA. 50+20.00 TO 55+06.18 RT

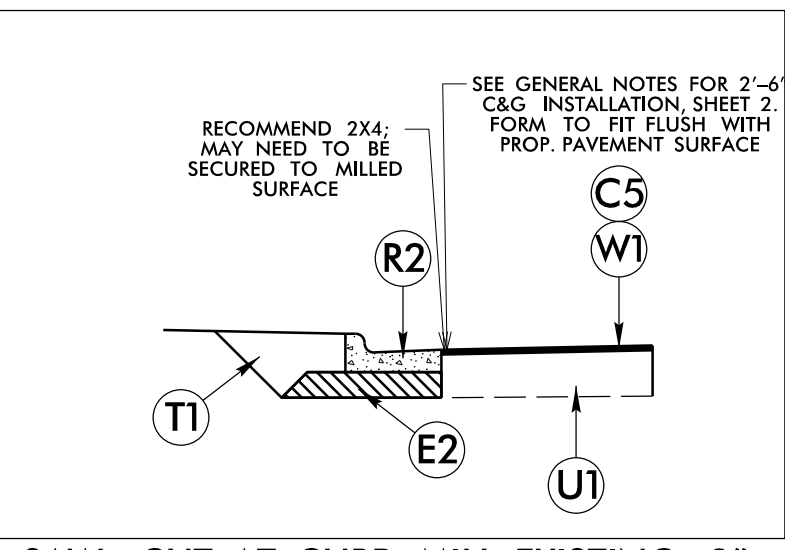
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6/2/99

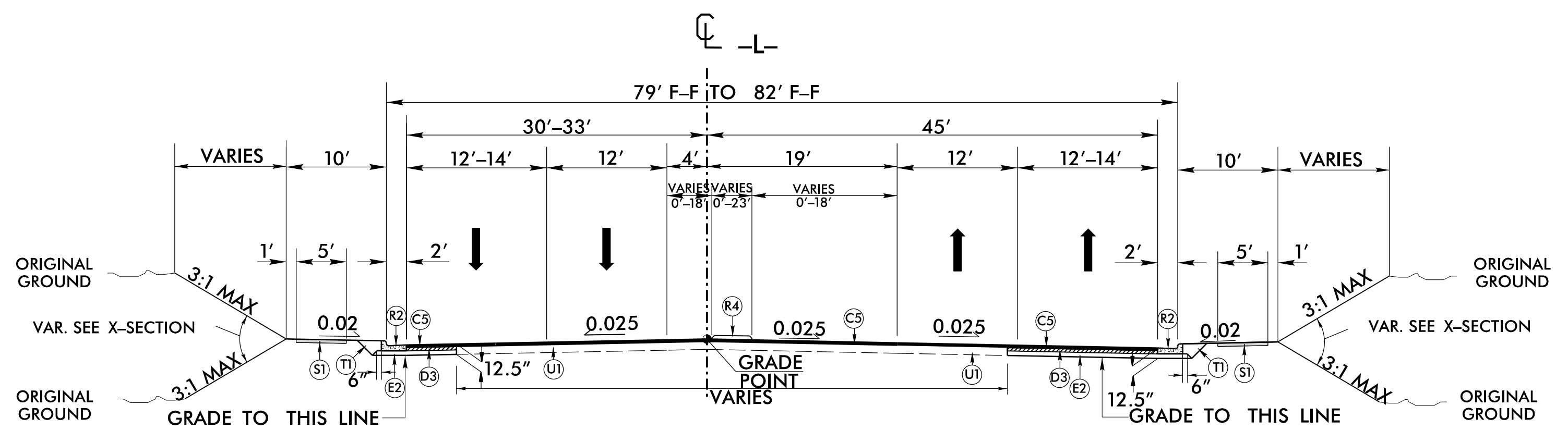
PAVEMENT DESIGN	
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C2	PROP. APPROX. 2.5", TYPE S9.5B
C3	PROP. APPROX. 3", TYPE S9.5B
C4	PROP. VAR. DEPTH, TYPE S9.5B
C5	PROP. APPROX. 3", TYPE S9.5C
C6	PROP. VAR. DEPTH, TYPE S9.5C
D1	PROP. APPROX. 2.5", TYPE I19.0C
D2	PROP. APPROX. 3.5", TYPE I19.0C
D3	PROP. APPROX. 4", TYPE I19.0C
D4	PROP. VAR. DEPTH, TYPE I19.0C
E1	PROP. APPROX. 4", TYPE B25.0C
E2	PROP. APPROX. 5.5", TYPE B25.0C
E3	PROP. VAR. DEPTH, TYPE B25.0C
J1	PROP. 6" ABC
J2	PROP. 8" ABC
J3	PROP. 10" ABC
J4	PROP. VAR. DEPTH ABC
P1	PROP. PRIME COAT.
R1	PROP. 1'-6" CONCRETE CURB AND GUTTER
R2	PROP. 2'-6" CONCRETE CURB AND GUTTER
R3	PROP. 2'-9" CONCRETE CURB AND GUTTER
R4	PROP. 5" MONOLITHIC CONCRETE ISLAND
R5	PROP. SINGLE FACED CONCRETE BARRIER
R6	PROP. DOUBLE FACED CONCRETE BARRIER
S1	4" CONCRETE SIDEWALK.
T1	EARTH MATERIAL
U1	EXISTING PAVEMENT
V1	1.5" MILLING ASPHALT PAVEMENT
W1	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL SHEET NO. 2A-1)
W2	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL SHEET NO. 2A-1)
W3	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL SHEET NO. 2A-1)

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

NOTES:
 USE OF 3" OF CLASS IV AGGREGATE STABILIZATION TO BE DIRECTED BY THE ENGINEER.
 SEE PLANS FOR PAVING TO THE FACE OF GUARDRAIL LOCATIONS.



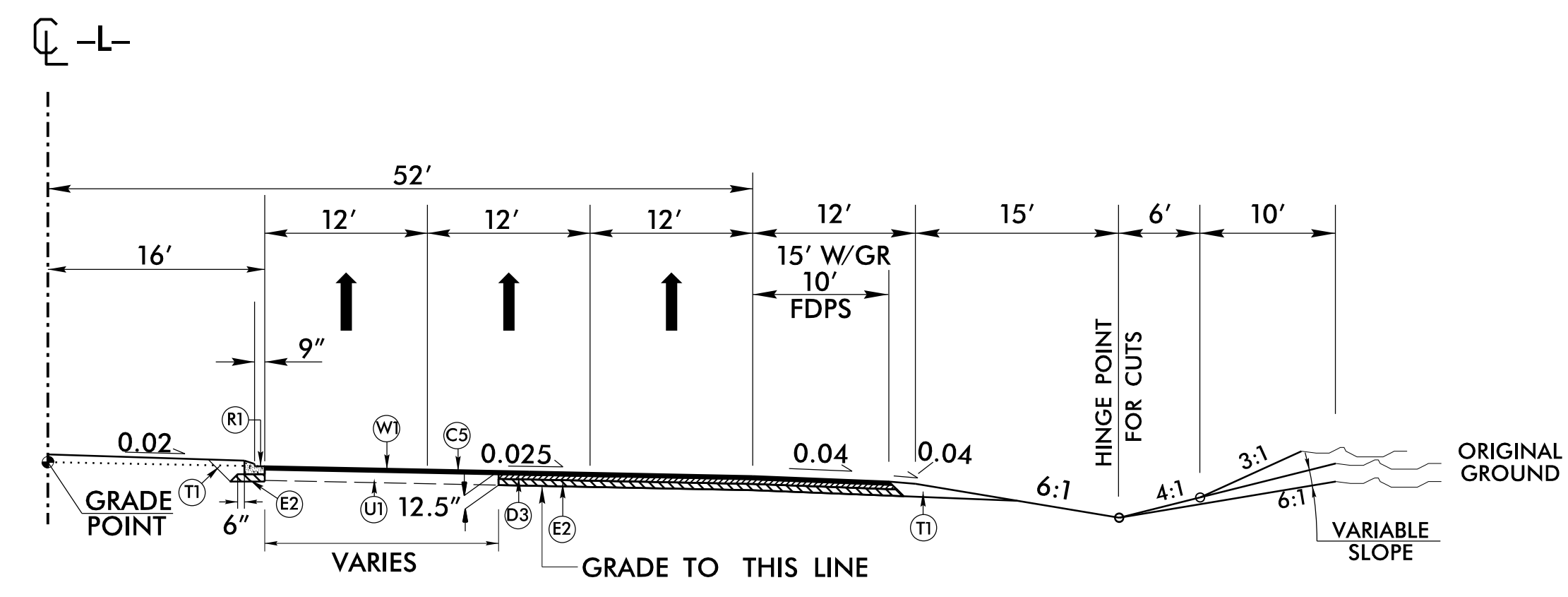
SAW CUT AT CURB; MILL EXISTING 3"; FORM CURB; PLACE 3" S9.5C



TYPICAL SECTION NO. 6

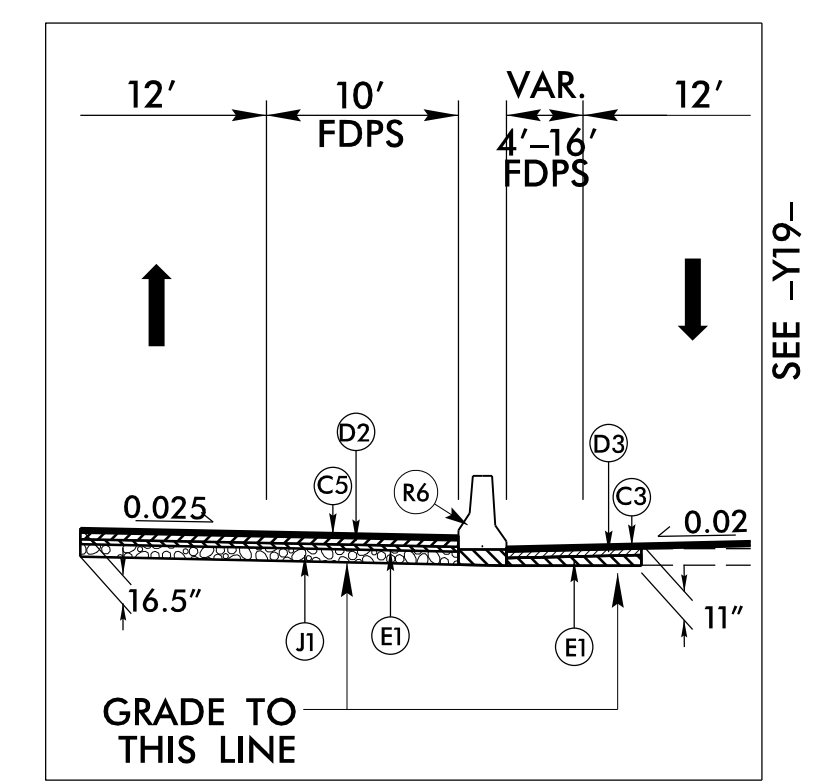
USE TYPICAL SECTION NO. 6
 -L- STA. 220+00.00 TO 231+00.00

* 14' OUTSIDE LANES TO ACCOMMODATE BICYCLES
 SEE PLANS FOR SIDEWALK LOCATIONS

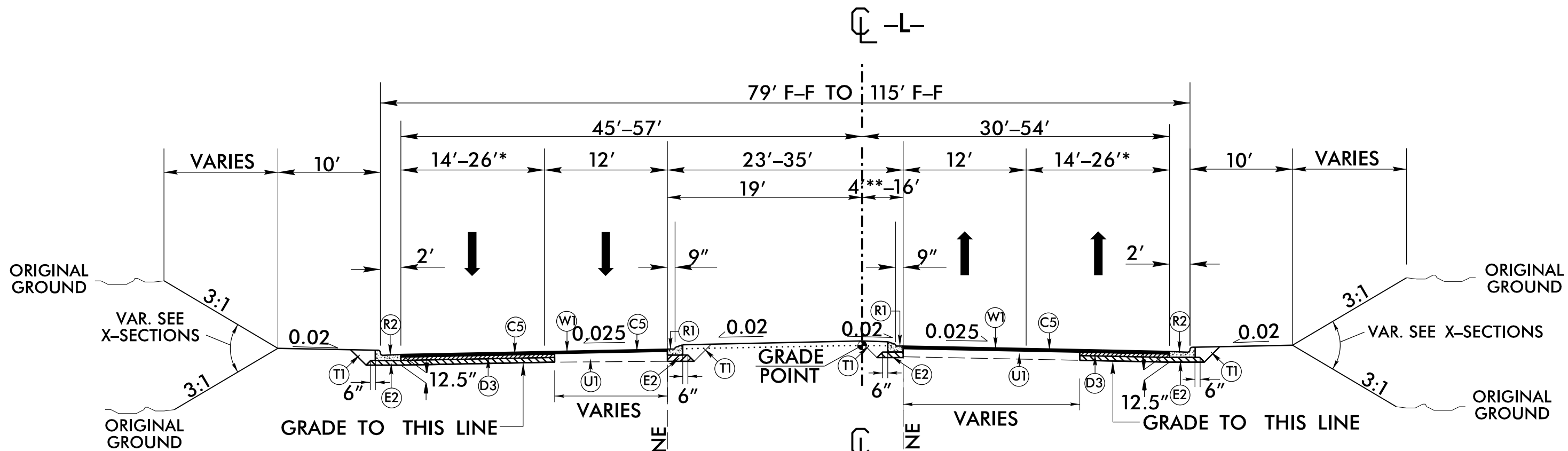


TYPICAL SECTION NO. 7

USE TYPICAL SECTION NO. 7
 -L- STA. 264+00.24 TO 268+19.69 RT

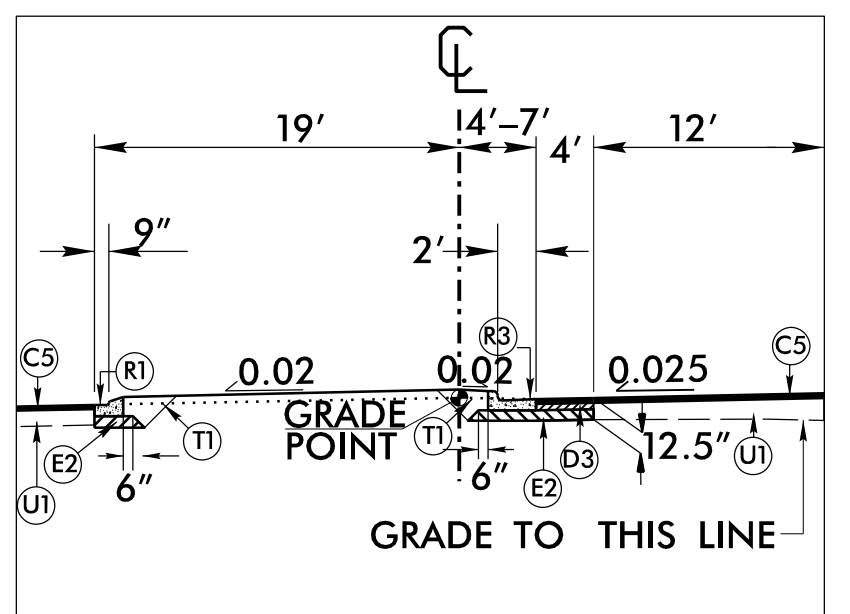


USE INSET DETAIL FOR
 -L- STA. 264+00.24 TO 268+19.69 RT



TYPICAL SECTION NO. 8

USE TYPICAL SECTION NO. 8
 -L- STA. 264+00.28 TO 307+74.44
 ** TRANSITION TO 5' -L- STA. 302+95.00 TO 307+44.34



USE INSET DETAIL FOR
 -L- STA. 293+50.00 TO 302+95.00 RT

TYPICAL SECTION NO. 8-A

USE TYPICAL SECTION NO. 8-A IN CONJUNCTION WITH TYPICAL SECTION NO. 7
 SEE PLANS FOR MEDIAN TURN LANES



PROJECT REFERENCE NO. R-3300B	SHEET NO. 2A-3
ROADWAY DESIGN ENGINEER MICHAEL D. LINDGREN 025513 1/10/2022	PAVEMENT DESIGN ENGINEER JEREMY R. HAWKINS 39779 1/10/2022
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

1/14/2022
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6/2/2022

1/4/2022
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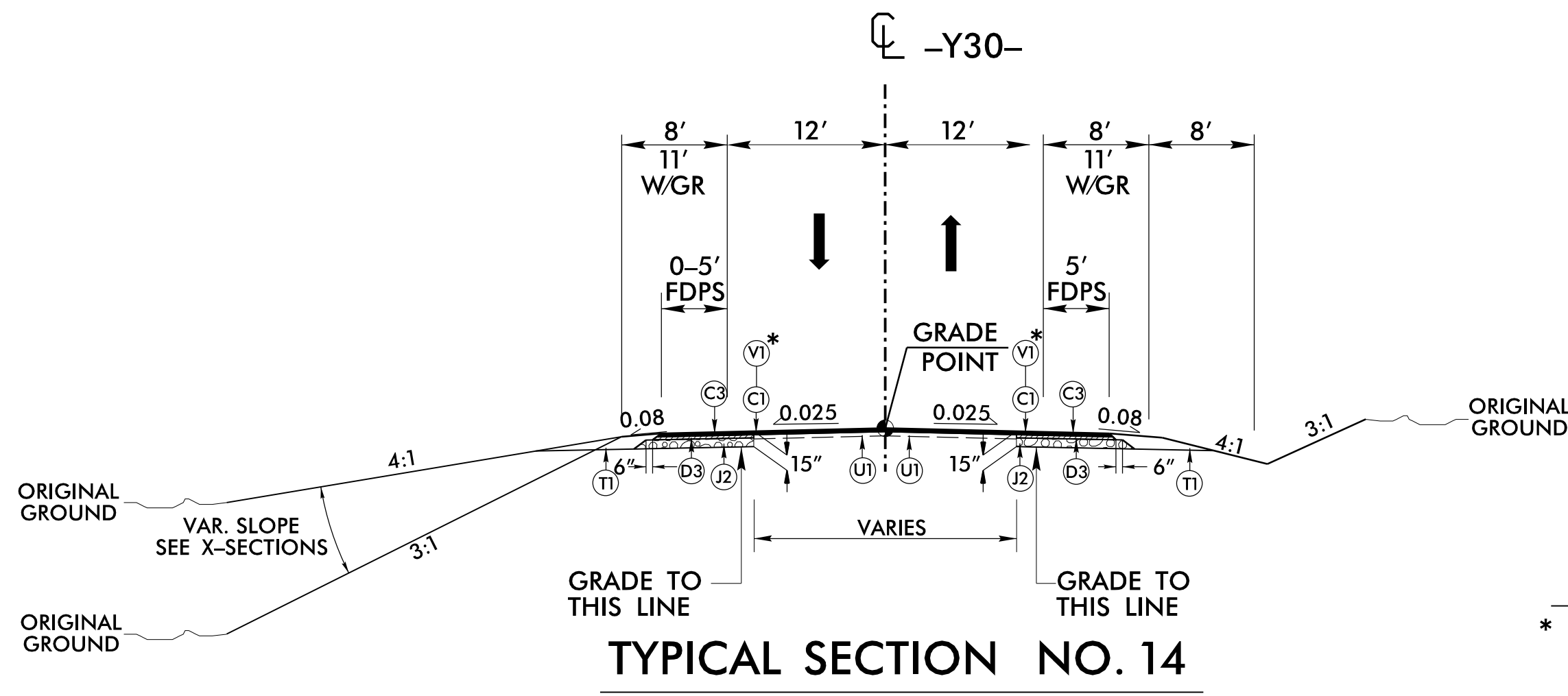
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C2	PROP. APPROX. 2.5", TYPE S9.5B
C3	PROP. APPROX. 3", TYPE S9.5B
C4	PROP. VAR. DEPTH, TYPE S9.5B
C5	PROP. APPROX. 3", TYPE S9.5C
C6	PROP. VAR. DEPTH, TYPE S9.5C
D1	PROP. APPROX. 2.5", TYPE I19.0C
D2	PROP. APPROX. 3.5", TYPE I19.0C
D3	PROP. APPROX. 4", TYPE I19.0C
D4	PROP. VAR. DEPTH, TYPE I19.0C
E1	PROP. APPROX. 4", TYPE B25.0C
E2	PROP. APPROX. 5.5", TYPE B25.0C
E3	PROP. VAR. DEPTH, TYPE B25.0C
J1	PROP. 6" ABC
J2	PROP. 8" ABC
J3	PROP. 10" ABC
J4	PROP. VAR. DEPTH ABC
P1	PROP. PRIME COAT.
R1	PROP. 1'-6" CONCRETE CURB AND GUTTER
R2	PROP. 2'-6" CONCRETE CURB AND GUTTER
R3	PROP. 2'-9" CONCRETE CURB AND GUTTER
R4	PROP. 5" MONOLITHIC CONCRETE ISLAND
R5	PROP. SINGLE FACED CONCRETE BARRIER
R6	PROP. DOUBLE FACED CONCRETE BARRIER
S1	4" CONCRETE SIDEWALK.
T1	EARTH MATERIAL
U1	EXISTING PAVEMENT
V1	1.5" MILLING ASPHALT PAVEMENT
W1	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL SHEET NO. 2A-1)
W2	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL SHEET NO. 2A-1)
W3	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL SHEET NO. 2A-1)

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

NOTES:
USE OF 3" OF CLASS IV AGGREGATE STABILIZATION TO BE DIRECTED BY THE ENGINEER.
SEE PLANS FOR PAVING TO THE FACE OF GUARDRAIL LOCATIONS.

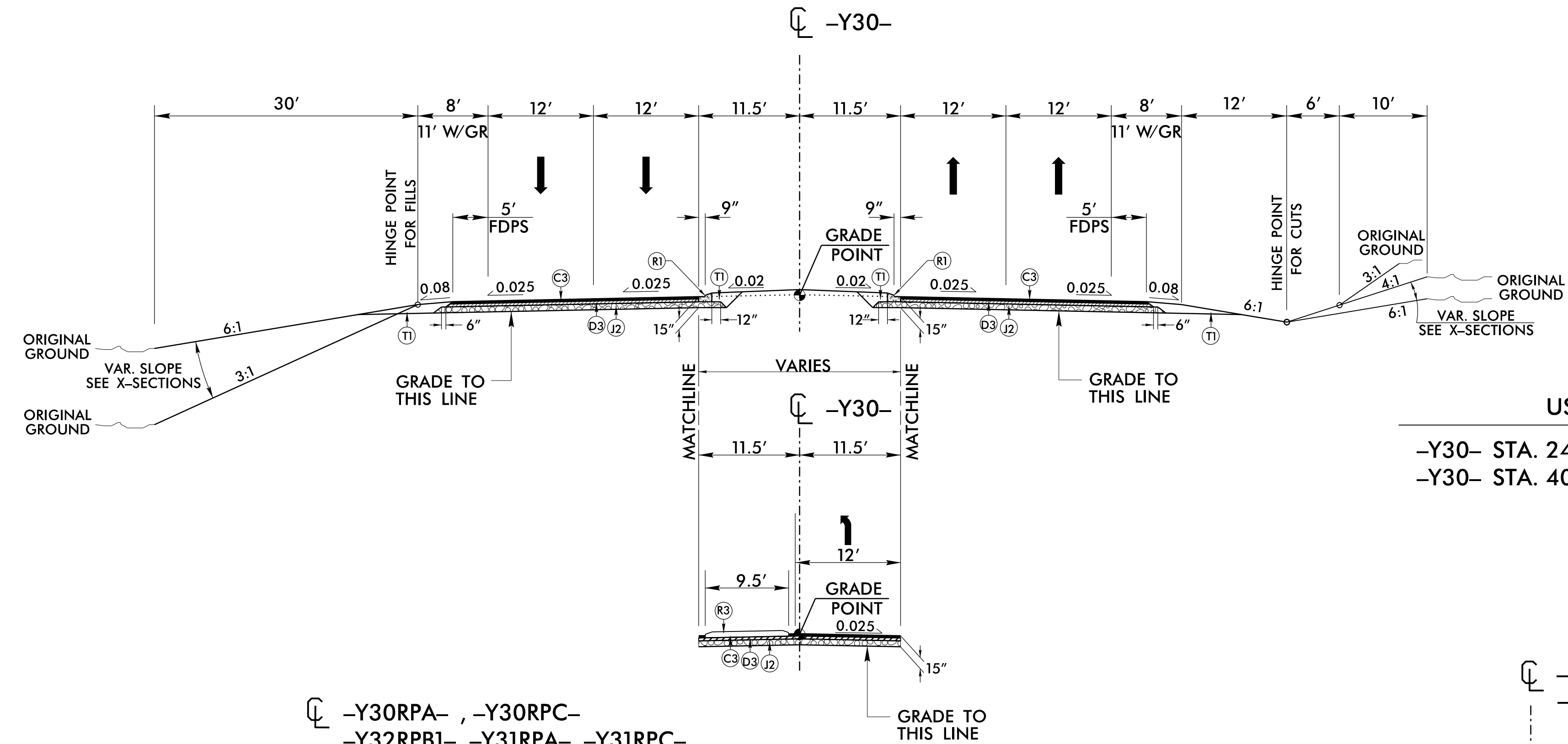
USE TYPICAL SECTION NO. 16

- Y30RPA- STA. 5+00.00 TO 25+04.05
- Y30RPC- STA. 5+00.00 TO 25+88.12
- Y32RPB1- STA. 5+00.00 TO 22+88.82 * USE D3
- Y31RPA- STA. 5+00.00 TO 15+90.57
- Y31RPC- STA. 5+00.00 TO 23+22.89



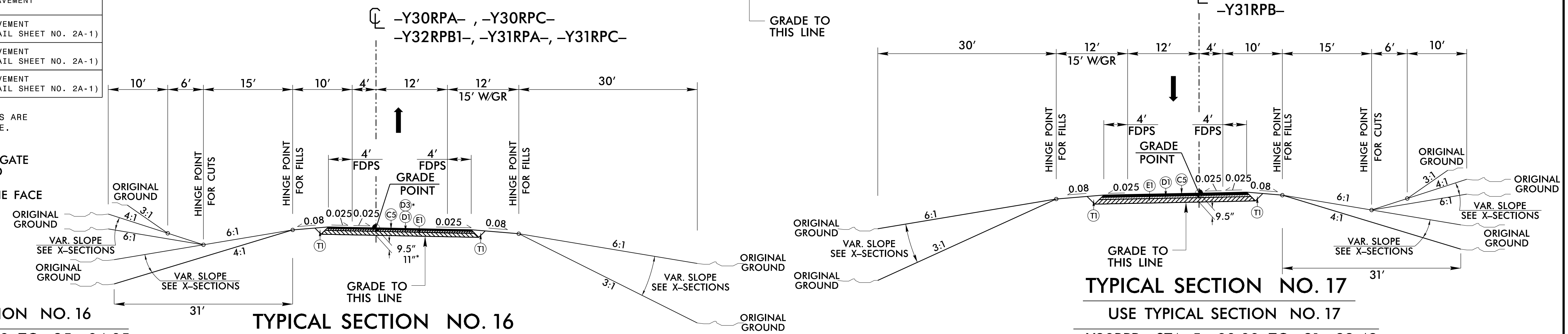
TYPICAL SECTION NO. 14

USE TYPICAL SECTION NO. 14
 *-Y30- STA. 19+25.00 TO 22+25.00
 -Y30- STA. 22+25.00 TO 24+75.01
 -Y30- STA. 54+89.98 TO 59+00.00



TYPICAL SECTION NO. 15

USE TYPICAL SECTION NO. 15
 -Y30- STA. 24+75.01 TO 38+74.22 BEGIN BRIDGE
 -Y30- STA. 40+90.55 END BRIDGE TO 54+89.98



TYPICAL SECTION NO. 16

TYPICAL SECTION NO. 17

USE TYPICAL SECTION NO. 17
 -Y30RPB- STA. 5+00.00 TO 21+88.48
 -Y30RPD- STA. 5+00.00 TO 23+80.39
 -Y31RPB- STA. 5+00.00 TO 19+59.39



PROJECT REFERENCE NO. R-3300B SHEET NO. 2A-5

ROADWAY DESIGN ENGINEER: [Signature]

PAVEMENT DESIGN ENGINEER: [Signature]

025513 044590

10/2022 11/2022

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

6/2/2022

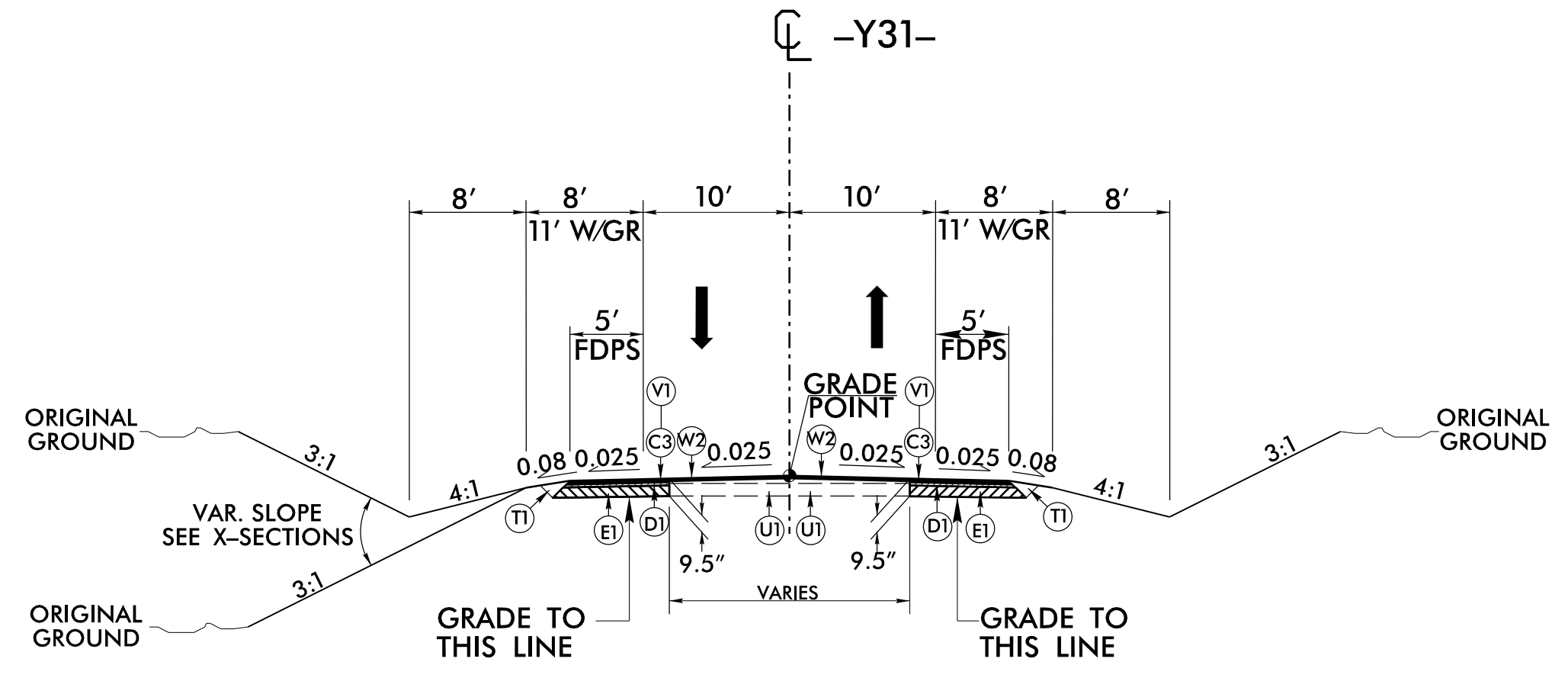
PAVEMENT DESIGN	
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C2	PROP. APPROX. 2.5", TYPE S9.5B
C3	PROP. APPROX. 3", TYPE S9.5B
C4	PROP. VAR. DEPTH, TYPE S9.5B
C5	PROP. APPROX. 3", TYPE S9.5C
C6	PROP. VAR. DEPTH, TYPE S9.5C
D1	PROP. APPROX. 2.5", TYPE I19.0C
D2	PROP. APPROX. 3.5", TYPE I19.0C
D3	PROP. APPROX. 4", TYPE I19.0C
D4	PROP. VAR. DEPTH, TYPE I19.0C
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E2	PROP. APPROX. 5.5", TYPE B25.0C
E3	PROP. VAR. DEPTH, TYPE B25.0C
J1	PROP. 6" ABC
J2	PROP. 8" ABC
J3	PROP. 10" ABC
J4	PROP. VAR. DEPTH ABC
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R1	PROP. 1'-6" CONCRETE CURB AND GUTTER
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R3	PROP. 2'-9" CONCRETE CURB AND GUTTER
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R5	PROP. SINGLE FACED CONCRETE BARRIER
R6	PROP. DOUBLE FACED CONCRETE BARRIER
S1	4" CONCRETE SIDEWALK.
T1	EARTH MATERIAL
U1	EXISTING PAVEMENT
V1	1.5" MILLING ASPHALT PAVEMENT
W1	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL SHEET NO. 2A-1)
W2	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL SHEET NO. 2A-1)
W3	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL SHEET NO. 2A-1)

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

NOTES:
 USE OF 3" OF CLASS IV AGGREGATE STABILIZATION TO BE DIRECTED BY THE ENGINEER.
 SEE PLANS FOR PAVING TO THE FACE OF GUARDRAIL LOCATIONS.



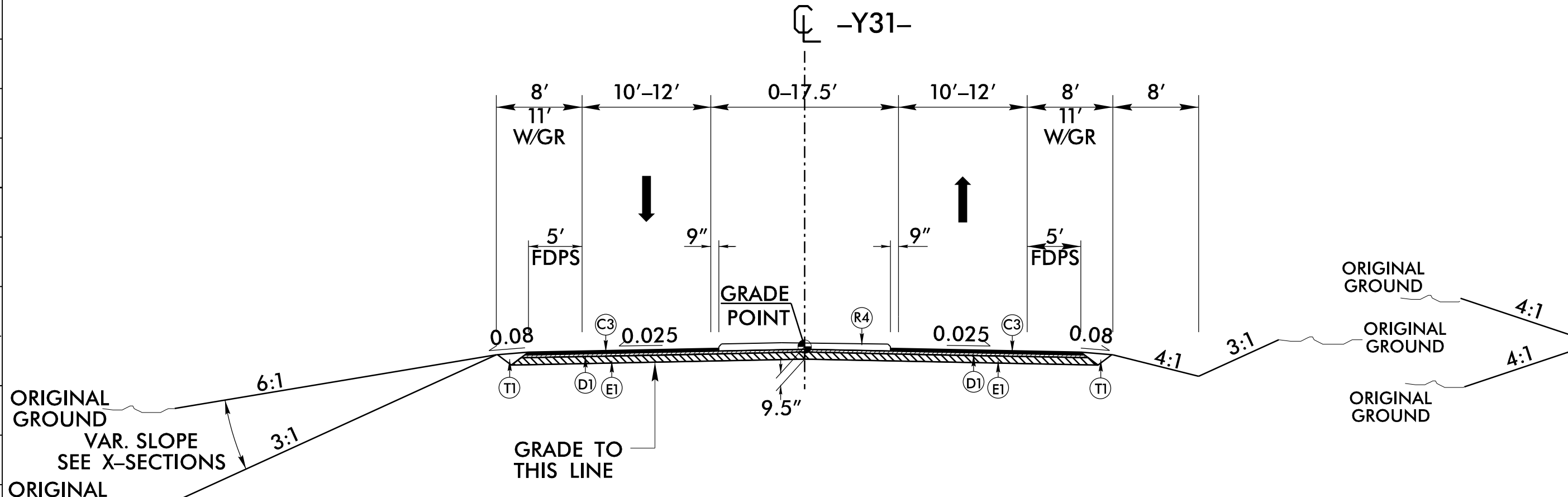
PROJECT REFERENCE NO. R-3300B	SHEET NO. 2A-6
ROADWAY DESIGN ENGINEER MICHAEL D. LINDGREN 025513 1/10/2022	PAVEMENT DESIGN ENGINEER ANDREW D. WARGO 044590 1/11/2022
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



TYPICAL SECTION NO. 18

USE TYPICAL SECTION NO. 18

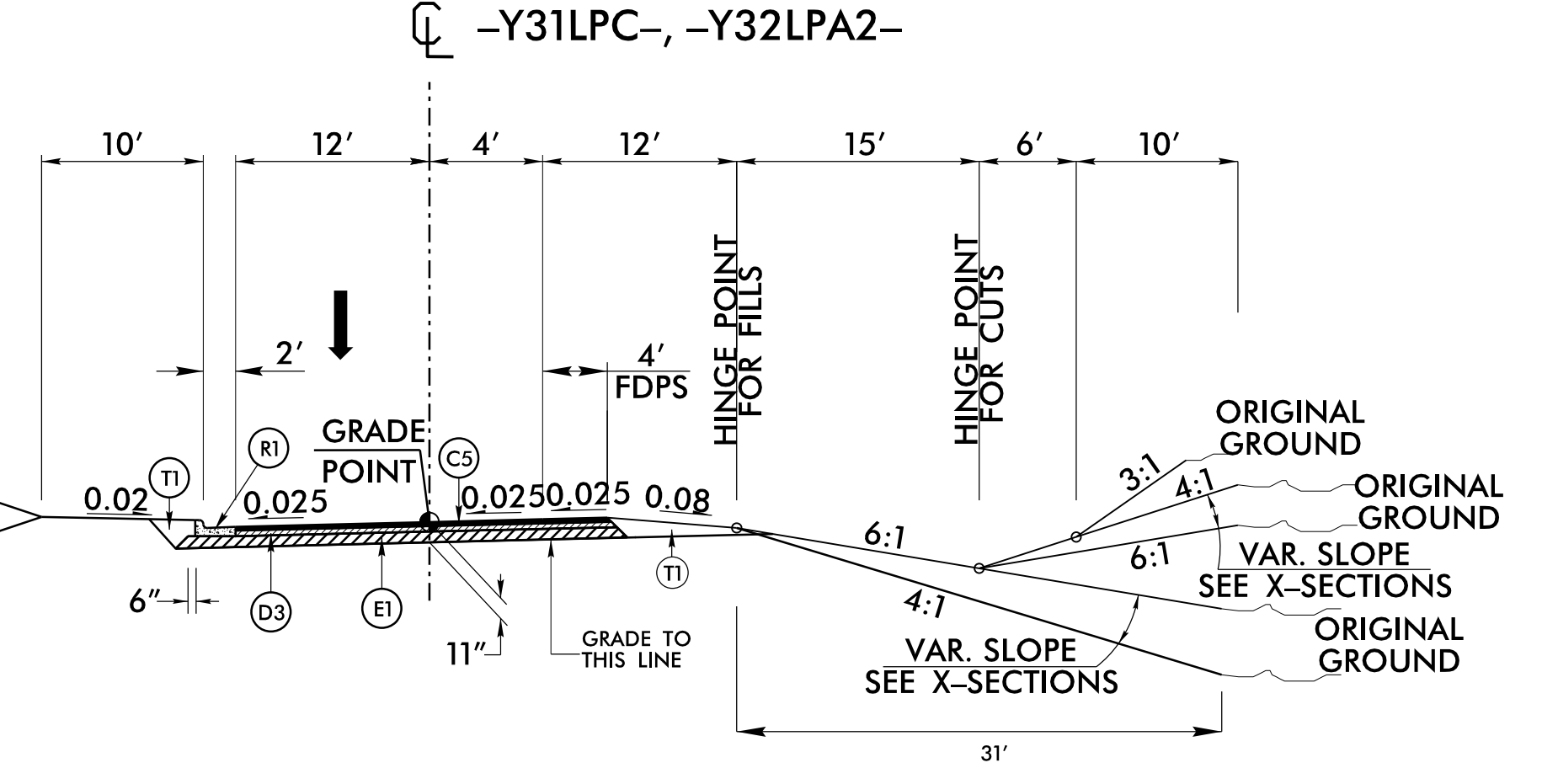
-Y31- STA. 18+20.70 TO 21+00.00
 -Y31- STA. 45+60.00 TO 46+75.00



TYPICAL SECTION NO. 19

USE TYPICAL SECTION NO. 19

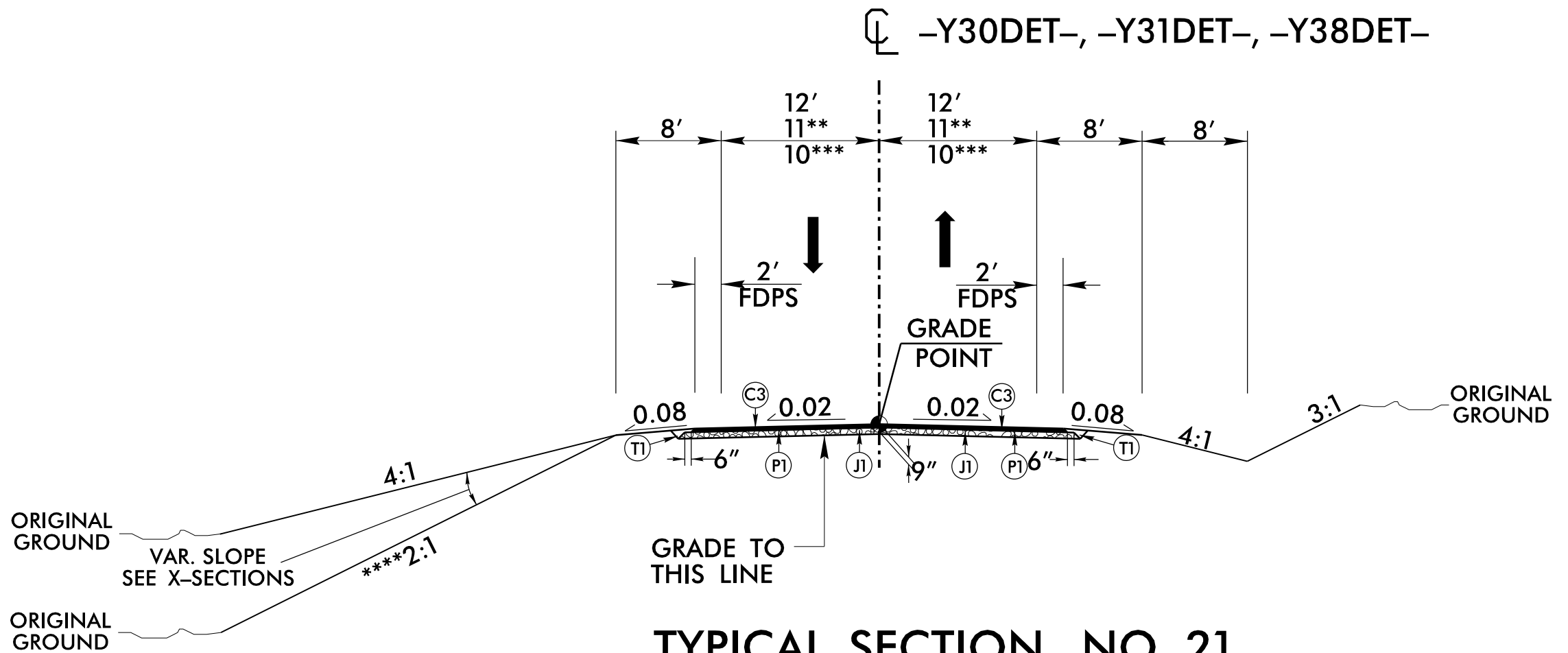
-Y31- STA. 21+00.00 TO 29+13.36 BEGIN BRIDGE
 -Y31- STA. 31+33.86 END BRIDGE TO 45+60.00



TYPICAL SECTION NO. 20

USE TYPICAL SECTION NO. 20

-Y31LPC- STA. 5+00.00 TO 14+40.19
 -Y32LPA2- STA. 5+00.00 TO 14+33.19



TYPICAL SECTION NO. 21

USE TYPICAL SECTION NO. 21

-Y30DET- STA. 16+72.60 TO 62+57.50
 ** -Y31DET- STA. 18+20.70 TO 47+13.23
 *** -Y38DET- STA. 10+00.00 TO 17+62.67

****2:1 FILL SLOPE IN WETLAND

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6/2/2022

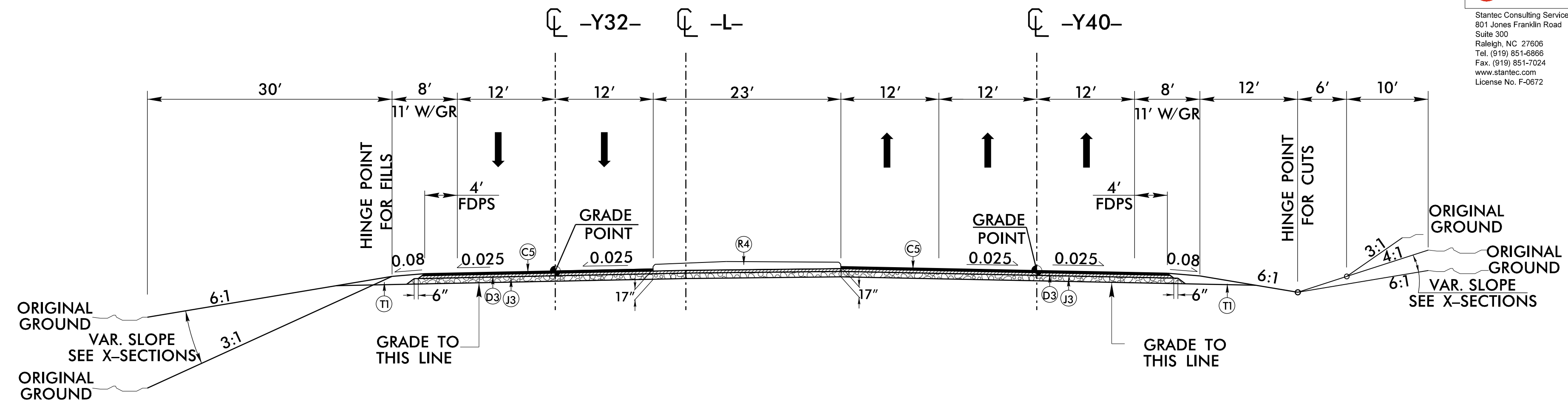
PAVEMENT DESIGN	
C1	PROP. APPROX. 1.5", TYPE S9.5B
C2	PROP. APPROX. 2.5", TYPE S9.5B
C3	PROP. APPROX. 3", TYPE S9.5B
C4	PROP. VAR. DEPTH, TYPE S9.5B
C5	PROP. APPROX. 3", TYPE S9.5C
C6	PROP. VAR. DEPTH, TYPE S9.5C
D1	PROP. APPROX. 2.5", TYPE I19.0C
D2	PROP. APPROX. 3.5", TYPE I19.0C
D3	PROP. APPROX. 4", TYPE I19.0C
D4	PROP. VAR. DEPTH, TYPE I19.0C
E1	PROP. APPROX. 4", TYPE B25.0C
E2	PROP. APPROX. 5.5", TYPE B25.0C
E3	PROP. VAR. DEPTH, TYPE B25.0C
J1	PROP. 6" ABC
J2	PROP. 8" ABC
J3	PROP. 10" ABC
J4	PROP. VAR. DEPTH ABC
P1	PROP. PRIME COAT.
R1	PROP. 1'-6" CONCRETE CURB AND GUTTER
R2	PROP. 2'-6" CONCRETE CURB AND GUTTER
R3	PROP. 2'-9" CONCRETE CURB AND GUTTER
R4	PROP. 5" MONOLITHIC CONCRETE ISLAND
R5	PROP. SINGLE FACED CONCRETE BARRIER
R6	PROP. DOUBLE FACED CONCRETE BARRIER
S1	4" CONCRETE SIDEWALK.
T1	EARTH MATERIAL
U1	EXISTING PAVEMENT
V1	1.5" MILLING ASPHALT PAVEMENT
W1	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL SHEET NO. 2A-1)
W2	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL SHEET NO. 2A-1)
W3	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL SHEET NO. 2A-1)

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

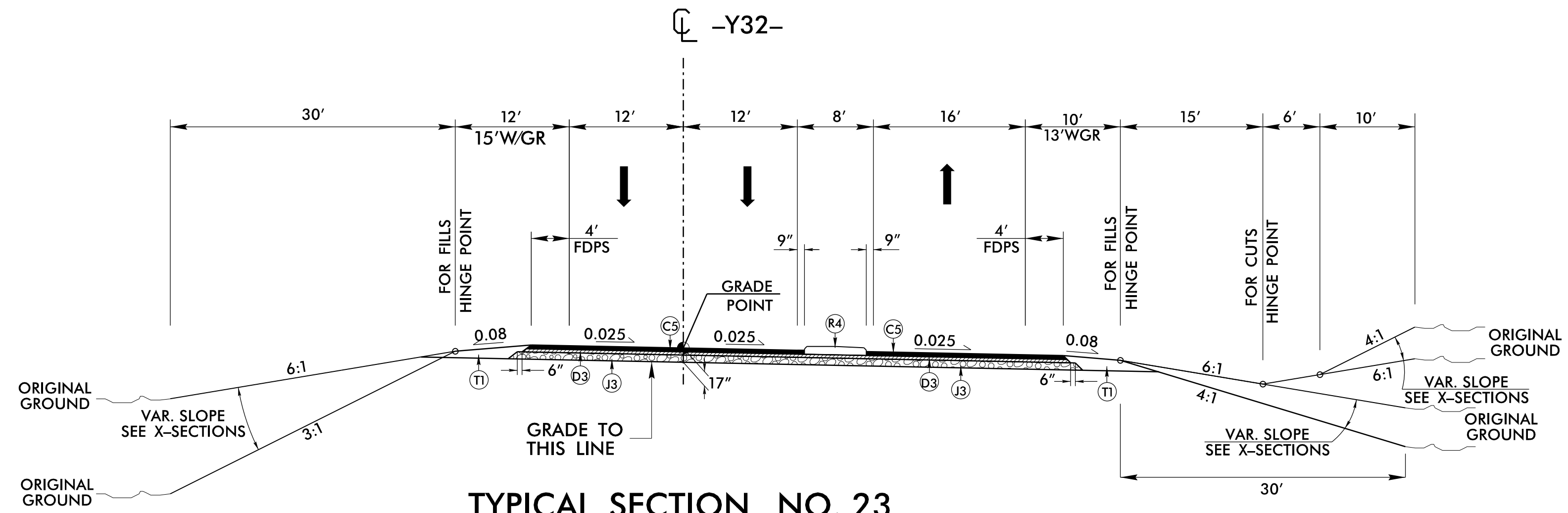
NOTES:
USE OF 3" OF CLASS IV AGGREGATE STABILIZATION TO BE DIRECTED BY THE ENGINEER.
SEE PLANS FOR PAVING TO THE FACE OF GUARDRAIL LOCATIONS.



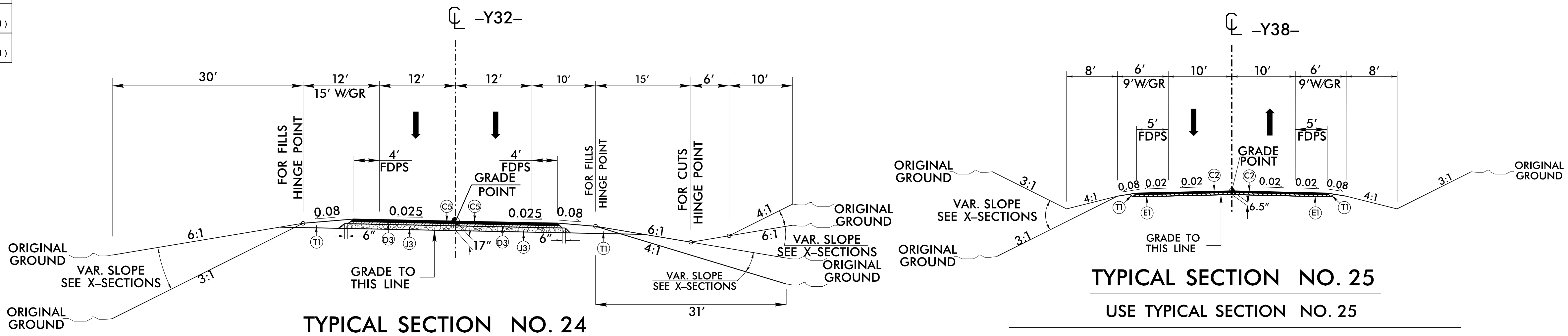
PROJECT REFERENCE NO. R-3300B	SHEET NO. 2A-7
ROADWAY DESIGN ENGINEER MICHAEL D. LINDEN 025513 10/10/2022	PAVEMENT DESIGN ENGINEER ANDREW D. WARGO 044590 11/17/2022
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



TYPICAL SECTION NO. 22
USE TYPICAL SECTION NO. 22
-Y32- STA. 10+00.00 TO 12+44.00



TYPICAL SECTION NO. 23
USE TYPICAL SECTION NO. 23
-Y32- STA. 12+44.00 TO 24+45.87 BEGIN BRIDGE
-Y32- STA. 26+25.20 END BRIDGE TO 33+26.62



TYPICAL SECTION NO. 24
USE TYPICAL SECTION NO. 24
-Y32- STA. 33+26.62 TO 47+12.31

TYPICAL SECTION NO. 25
USE TYPICAL SECTION NO. 25
-Y38- STA. 17+15.00 TO 25+00.00

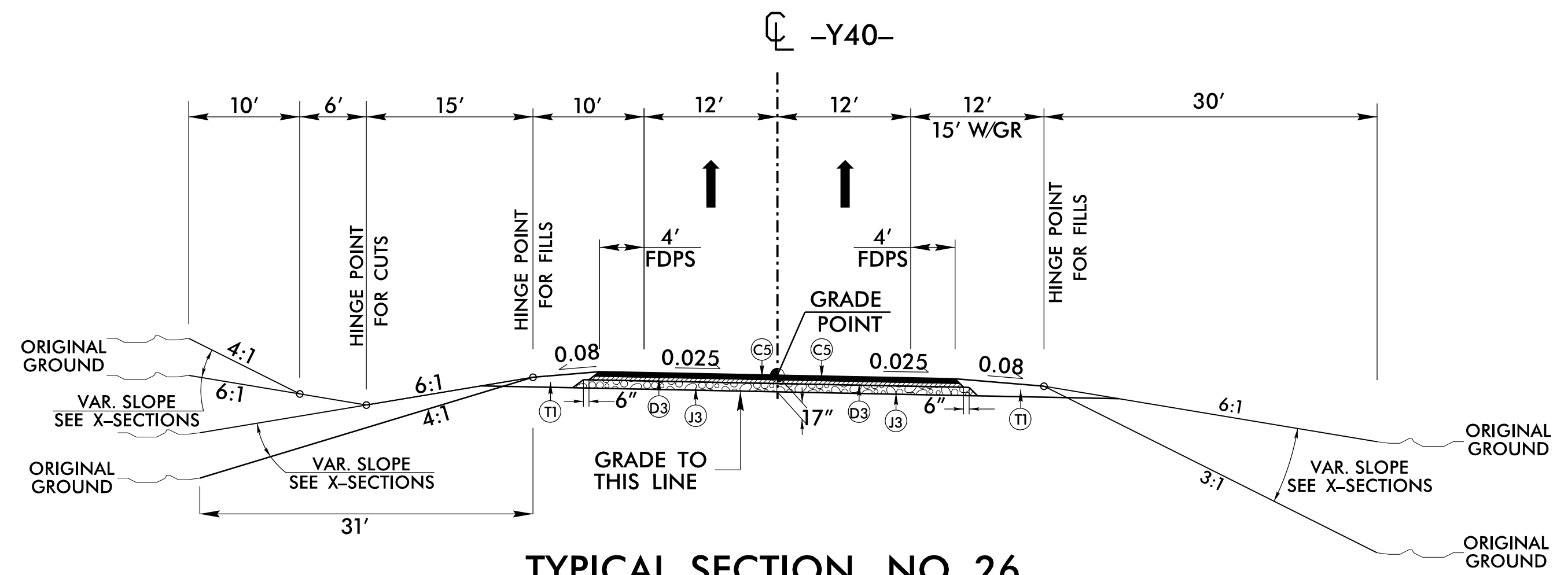
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6/2/2022

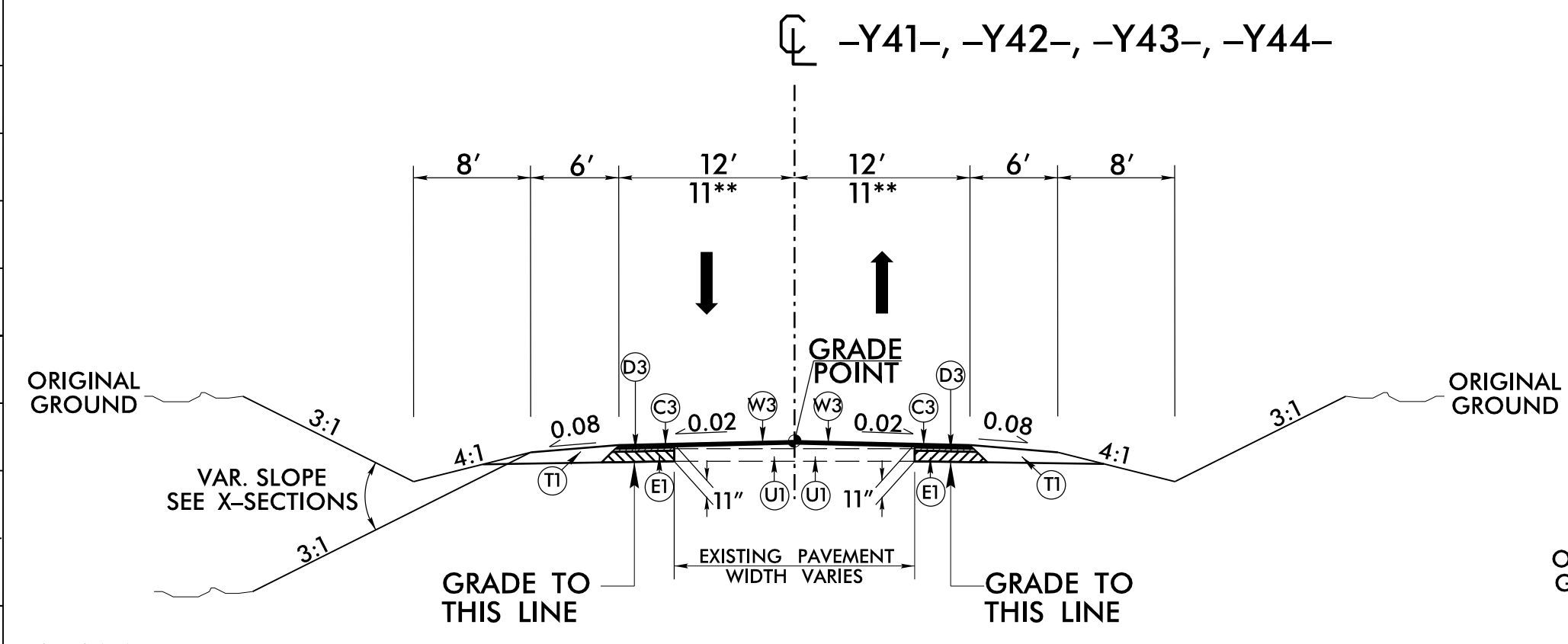
PAVEMENT DESIGN	
C1	PROP. APPROX. 1.5", TYPE S9.5B
C2	PROP. APPROX. 2.5", TYPE S9.5B
C3	PROP. APPROX. 3", TYPE S9.5B
C4	PROP. VAR. DEPTH, TYPE S9.5B
C5	PROP. APPROX. 3", TYPE S9.5C
C6	PROP. VAR. DEPTH, TYPE S9.5C
D1	PROP. APPROX. 2.5", TYPE I19.0C
D2	PROP. APPROX. 3.5", TYPE I19.0C
D3	PROP. APPROX. 4", TYPE I19.0C
D4	PROP. VAR. DEPTH, TYPE I19.0C
E1	PROP. APPROX. 4", TYPE B25.0C
E2	PROP. APPROX. 5.5", TYPE B25.0C
E3	PROP. VAR. DEPTH, TYPE B25.0C
J1	PROP. 6" ABC
J2	PROP. 8" ABC
J3	PROP. 10" ABC
J4	PROP. VAR. DEPTH ABC
P1	PROP. PRIME COAT.
R1	PROP. 1'-6" CONCRETE CURB AND GUTTER
R2	PROP. 2'-6" CONCRETE CURB AND GUTTER
R3	PROP. 2'-9" CONCRETE CURB AND GUTTER
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R5	PROP. SINGLE FACED CONCRETE BARRIER
R6	PROP. DOUBLE FACED CONCRETE BARRIER
S1	4" CONCRETE SIDEWALK.
T1	EARTH MATERIAL
U1	EXISTING PAVEMENT
V1	1.5" MILLING ASPHALT PAVEMENT
W1	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL SHEET NO. 2A-1)
W2	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL SHEET NO. 2A-1)
W3	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL SHEET NO. 2A-1)

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

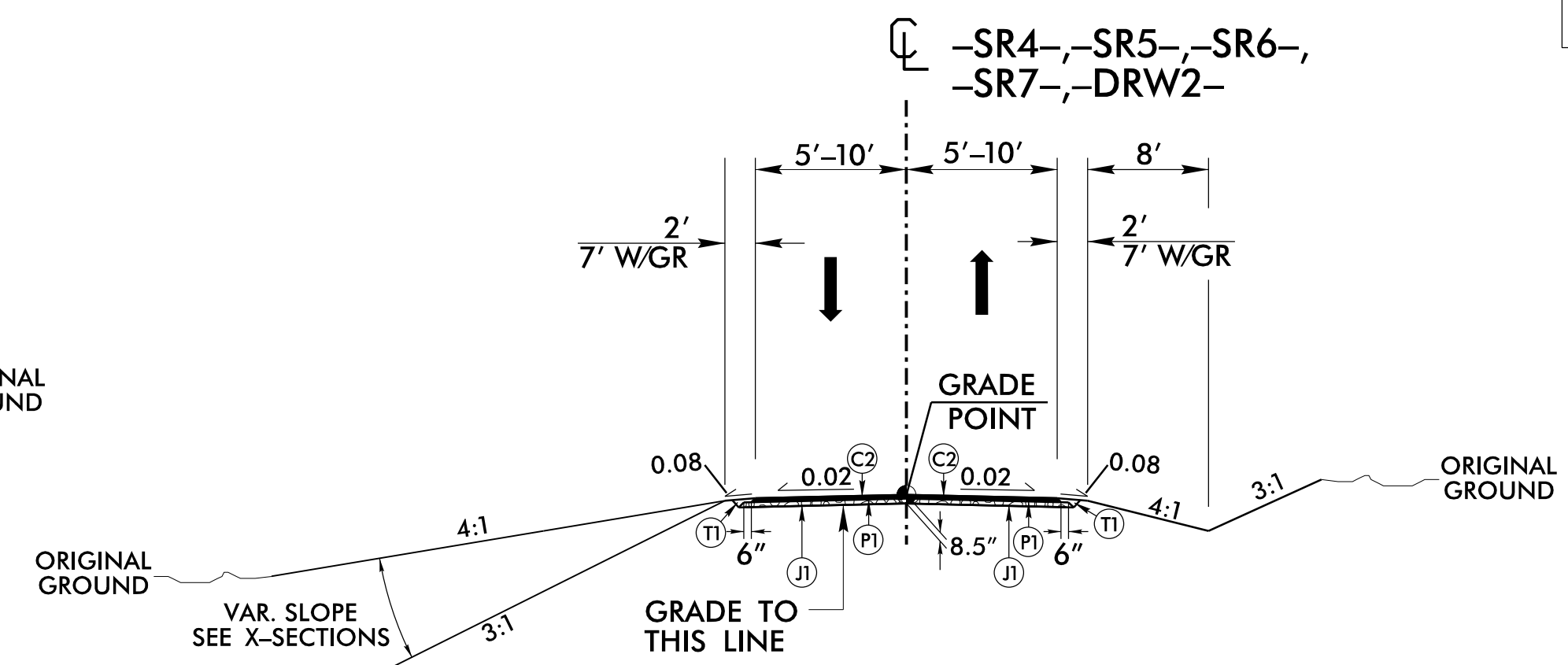
NOTES:
 USE OF 3" OF CLASS IV AGGREGATE STABILIZATION TO BE DIRECTED BY THE ENGINEER.
 SEE PLANS FOR PAVING TO THE FACE OF GUARDRAIL LOCATIONS.



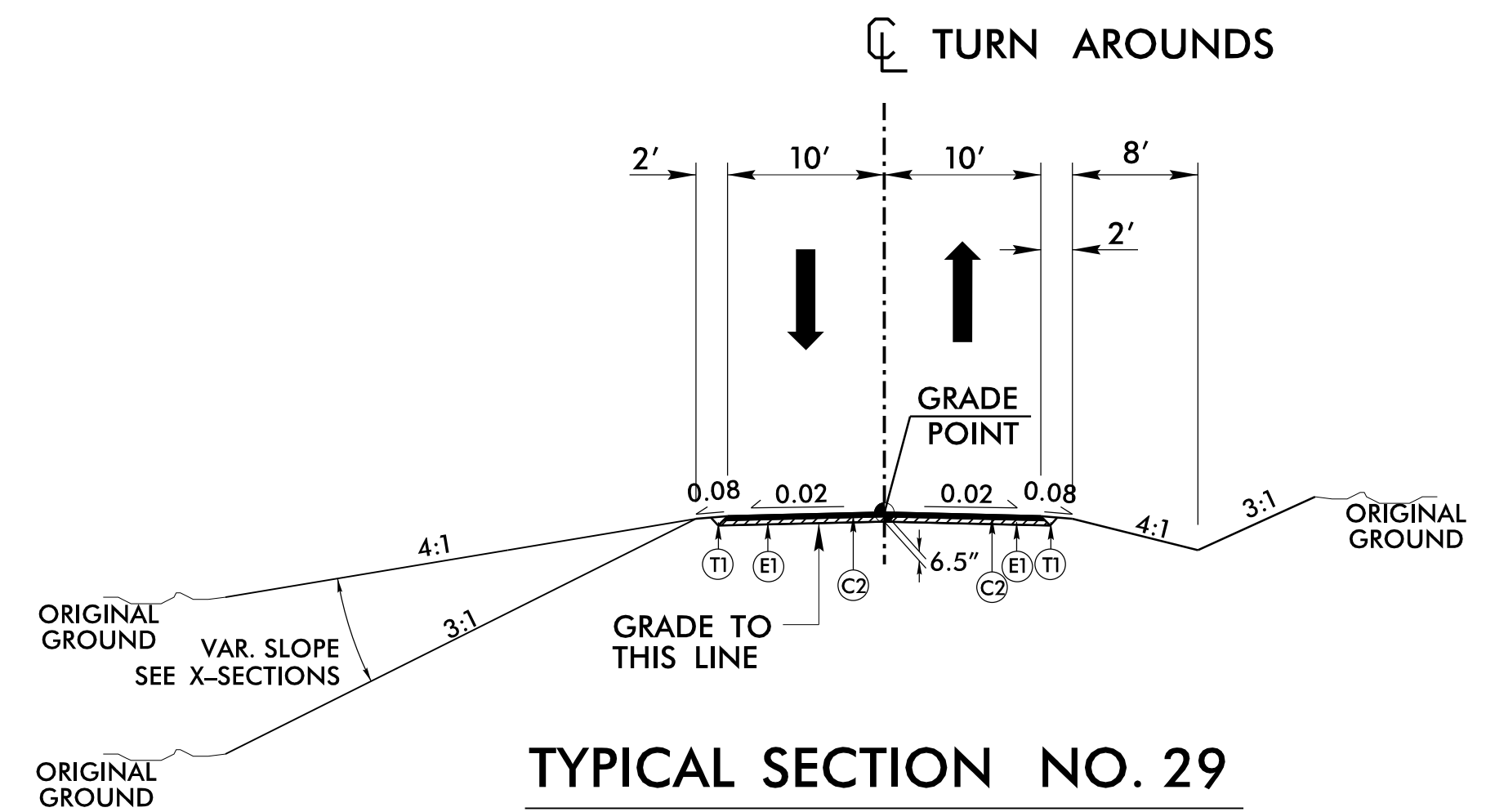
TYPICAL SECTION NO. 26
 USE TYPICAL SECTION NO. 26
 -Y40- STA. 233+44.00 TO 256+67.04



TYPICAL SECTION NO. 27
 USE TYPICAL SECTION NO. 27
 -Y41- STA. 10+14.00 TO 11+30.00
 **Y42- STA. 10+16.70 TO 11+40.00
 -Y43- STA. 10+12.01 TO 11+10.00
 -Y44- STA. 10+12.01 TO 12+00.00



TYPICAL SECTION NO. 28
 USE TYPICAL SECTION NO. 28
 -SR4- STA. 10+12.59 TO 27+65.10
 -SR5- STA. 10+26.13 TO 21+20.00
 -SR6- STA. 10+26.80 TO 39+89.31
 -SR7- STA. 10+15.04 TO 57+20.00
 -DRW2- STA. 10+10.00 TO 12+20.00

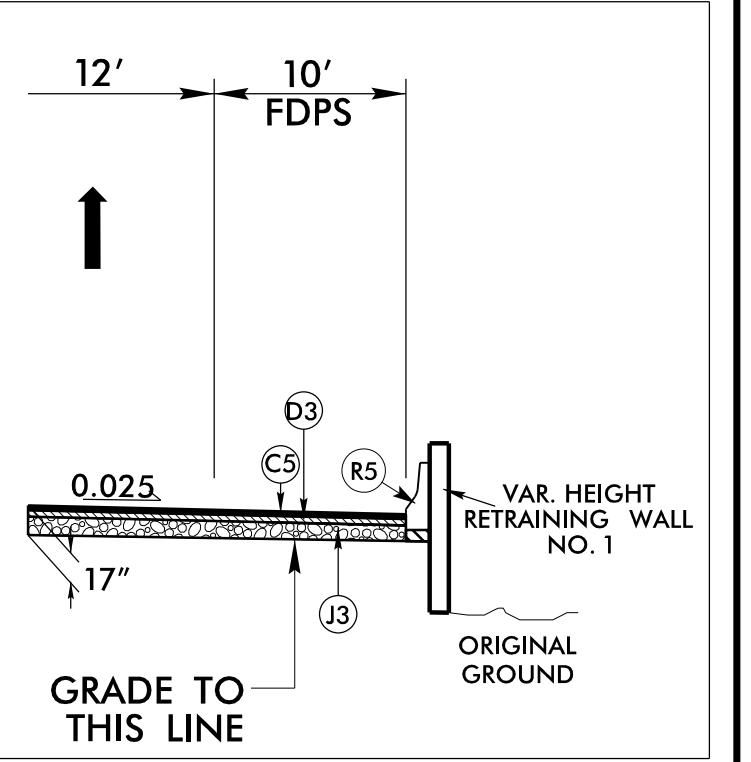


TYPICAL SECTION NO. 29
 USE TYPICAL SECTION NO. 29
 -L1- STA. 638+55 RT



PROJECT REFERENCE NO. R-3300B	SHEET NO. 2A-8
ROADWAY DESIGN ENGINEER Michael D. Lindgren 025513 1/10/2022	PAVEMENT DESIGN ENGINEER Andrew D. Wargo 044590 1/10/2022

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-Y40- STA. 249+62.70 TO -L1_NORTHERN- 866+15.00 RT

1/10/2022
 C:\projects\Roadway\Pro\N\3300B_r.dwg - tlp.dgn

5/14/2021

REVISIONS

-Y30DET-			
PI Sta 18+361.3 Δ = 18° 34' 25.5" (RT) D = 5' 43' 46.5" L = 324.0' T = 162.0' R = 1000.0'	PI Sta 21+12.39 Δ = 15° 11' 15.3" (LT) D = 5' 43' 46.5" L = 330.0' T = 165.0' R = 1000.0'	PI Sta 26+19.11 Δ = 7° 27' 11.0" (LT) D = 5' 43' 46.5" L = 130.0' T = 65.0' R = 1000.0'	PI Sta 28+17.91 Δ = 6° 23' 33.0" (RT) D = 5' 43' 46.5" L = 115.0' T = 57.5' R = 1000.0'
PI Sta 40+25.25 Δ = 10° 45' 05.4" (LT) D = 5' 43' 46.5" L = 187.5' T = 93.75' R = 1000.0'	PI Sta 50+03.92 Δ = 5° 53' 39.1" (RT) D = 5' 43' 46.5" L = 182.5' T = 91.25' R = 1000.0'	PI Sta 58+88.15 Δ = 10° 27' 57.2" (LT) D = 5' 43' 46.5" L = 182.5' T = 91.25' R = 1000.0'	PI Sta 61+19.27 Δ = 15° 36' 36.8" (RT) D = 5' 43' 46.5" L = 278.27' T = 139.135' R = 1000.0'

-Y30DET-

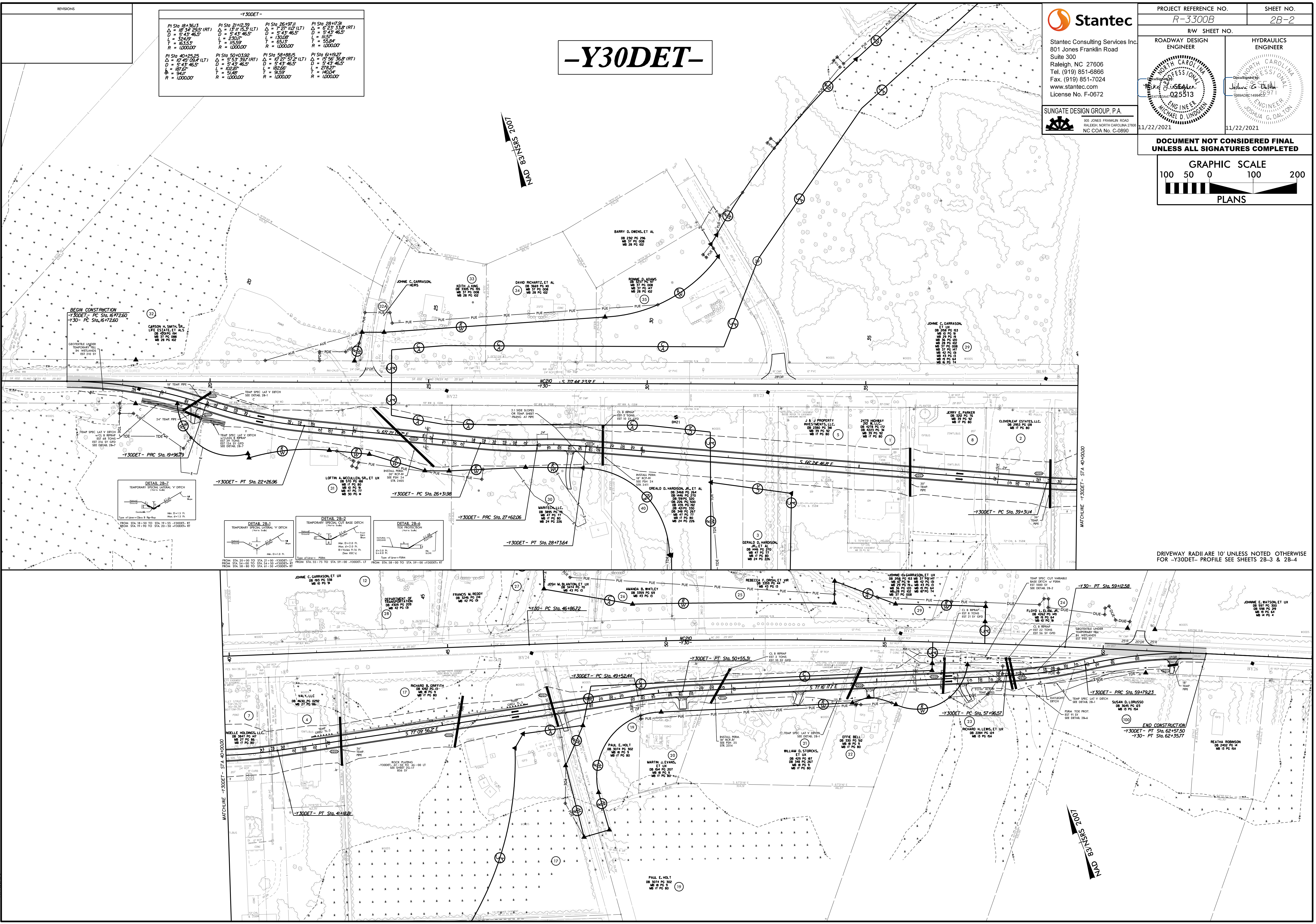
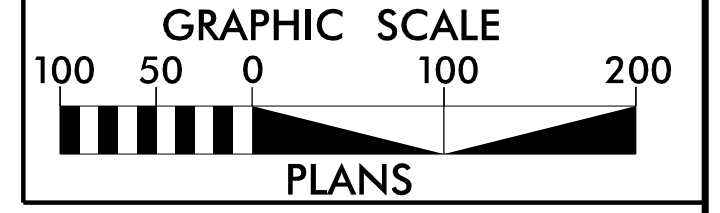
100' SENS. 88' CAN

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SUNGATE DESIGN GROUP, P.A.
 805 JONES FRANKLIN ROAD
 RALEIGH, NORTH CAROLINA 27605
 NC COA No. C-0890

PROJECT REFERENCE NO. <i>R-3300B</i>	SHEET NO. <i>2B-2</i>
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
11/22/2021	11/22/2021

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DRIVEWAY RADII ARE 10' UNLESS NOTED OTHERWISE FOR -Y30DET- PROFILE SEE SHEETS 2B-3 & 2B-4

9/13/2021
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5/28/2021

-Y30DET-

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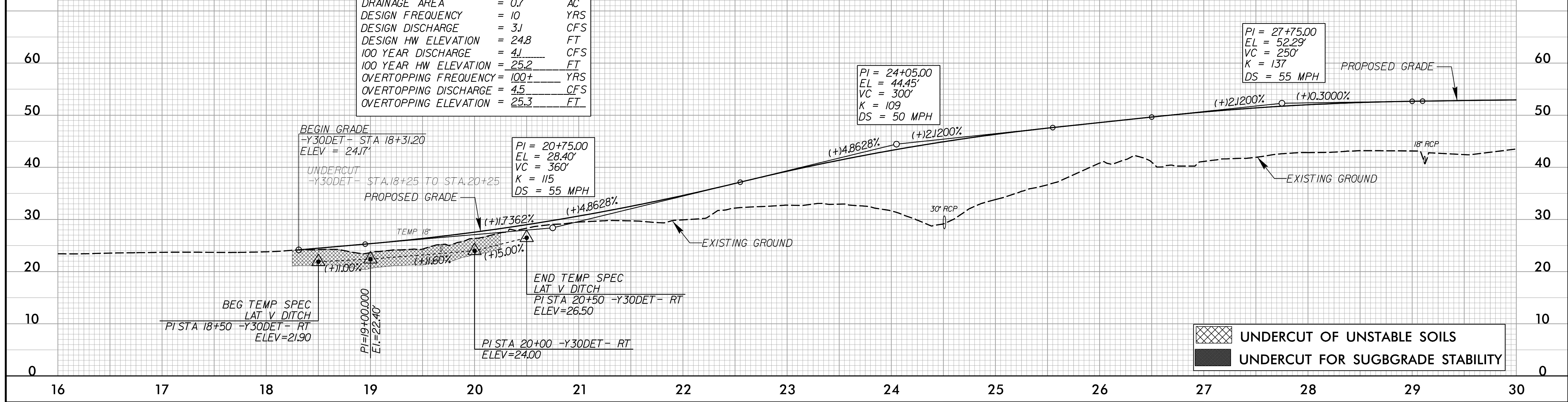
PROJECT REFERENCE NO. <i>R-3300B</i>	SHEET NO. <i>2B-3</i>
ROADWAY DESIGN ENGINEER <i>Michael S. Smith</i> 11/22/2020	HYDRAULICS ENGINEER <i>Jessica G. Dalton</i> 11/22/2020

905 JONES FRANKLIN ROAD
 RALEIGH, NORTH CAROLINA 27606
 NC COA No. C-0890

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PIPE HYDRAULIC DATA
 TEMP 18" Sta. 19+75 -Y30DET-

DRAINAGE AREA	= 0.7	AC
DESIGN FREQUENCY	= 10	YRS
DESIGN DISCHARGE	= 31	CFS
DESIGN HW ELEVATION	= 24.8	FT
100 YEAR DISCHARGE	= 41	CFS
100 YEAR HW ELEVATION	= 25.2	FT
OVERTOPPING FREQUENCY	= 100+	YRS
OVERTOPPING DISCHARGE	= 4.5	CFS
OVERTOPPING ELEVATION	= 25.3	FT



PIPE HYDRAULIC DATA
 TEMP 30" Sta. 36+17 -Y30DET-

DRAINAGE AREA	= 5.9	AC
DESIGN FREQUENCY	= 10	YRS
DESIGN DISCHARGE	= 19	CFS
DESIGN HW ELEVATION	= 43.5	FT
100 YEAR DISCHARGE	= 26	CFS
100 YEAR HW ELEVATION	= 44.7	FT
OVERTOPPING FREQUENCY	= <10	YRS
OVERTOPPING DISCHARGE	= 11	CFS
OVERTOPPING ELEVATION	= 42.5	FT

PIPE HYDRAULIC DATA
 TEMP 36" Sta. 39+39 -Y30DET-

DRAINAGE AREA	= 6.6	AC
DESIGN FREQUENCY	= 10	YRS
DESIGN DISCHARGE	= 29	CFS
DESIGN HW ELEVATION	= 43.0	FT
100 YEAR DISCHARGE	= 38	CFS
100 YEAR HW ELEVATION	= 44.0	FT
OVERTOPPING FREQUENCY	= <10	YRS
OVERTOPPING DISCHARGE	= 24	CFS
OVERTOPPING ELEVATION	= 42.5	FT

PIPE HYDRAULIC DATA
 TEMP 36" Sta. 42+65 -Y30DET-

DRAINAGE AREA	= 8.1	AC
DESIGN FREQUENCY	= 10	YRS
DESIGN DISCHARGE	= 27	CFS
DESIGN HW ELEVATION	= 41.3	FT
100 YEAR DISCHARGE	= 35	CFS
100 YEAR HW ELEVATION	= 42.1	FT
OVERTOPPING FREQUENCY	= 10+	YRS
OVERTOPPING DISCHARGE	= 29	CFS
OVERTOPPING ELEVATION	= 41.5	FT

FOR -Y30DET- PLAN SEE SHEET 2B-2

9/13/2021
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5/28/2011

-Y30DET-

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 SUNGATE DESIGN GROUP P.A.

PROJECT REFERENCE NO. <i>R-3300B</i>	SHEET NO. <i>2B-4</i>
ROADWAY DESIGN ENGINEER <i>Michael S. O'Neil</i> 11/22/2010	HYDRAULICS ENGINEER <i>Julius G. Dittm</i> 11/22/2010
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

PIPE HYDRAULIC DATA
 TEMP 24' Sta. 45+37 -Y30DET-

DRAINAGE AREA	= 3.5	AC
DESIGN FREQUENCY	= 10	YRS
DESIGN DISCHARGE	= 11	CFS
DESIGN HW ELEVATION	= 39.6	FT
100 YEAR DISCHARGE	= 15	CFS
100 YEAR HW ELEVATION	= 40.1	FT
OVERTOPPING FREQUENCY	= 100±	YRS
OVERTOPPING DISCHARGE	= 21	CFS
OVERTOPPING ELEVATION	= 41.5	FT

PIPE HYDRAULIC DATA
 TEMP 36' Sta. 47+56 -Y30DET-

DRAINAGE AREA	= 10.1	AC
DESIGN FREQUENCY	= 10	YRS
DESIGN DISCHARGE	= 33	CFS
DESIGN HW ELEVATION	= 41.1	FT
100 YEAR DISCHARGE	= 44	CFS
100 YEAR HW ELEVATION	= 42.3	FT
OVERTOPPING FREQUENCY	= 50	YRS
OVERTOPPING DISCHARGE	= 41	CFS
OVERTOPPING ELEVATION	= 42.0	FT

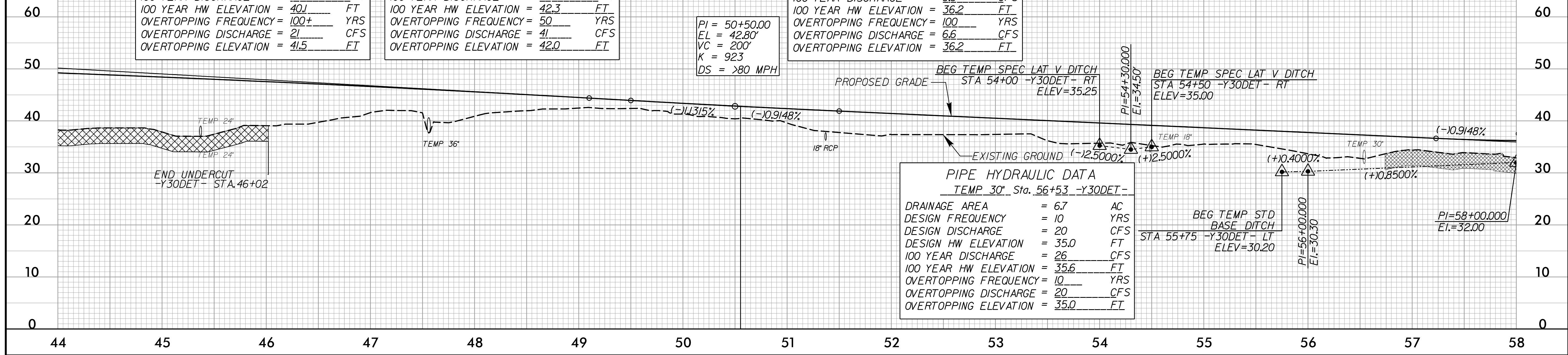
PIPE HYDRAULIC DATA
 TEMP 18' Sta. 54+48 -Y30DET-

DRAINAGE AREA	= 1.7	AC
DESIGN FREQUENCY	= 10	YRS
DESIGN DISCHARGE	= 5.0	CFS
DESIGN HW ELEVATION	= 35.9	FT
100 YEAR DISCHARGE	= 6.6	CFS
100 YEAR HW ELEVATION	= 36.2	FT
OVERTOPPING FREQUENCY	= 100	YRS
OVERTOPPING DISCHARGE	= 6.6	CFS
OVERTOPPING ELEVATION	= 36.2	FT

PI = 50+50.00
 EL = 42.80'
 VC = 200'
 K = 923
 DS = >80 MPH

PIPE HYDRAULIC DATA
 TEMP 30' Sta. 56+53 -Y30DET-

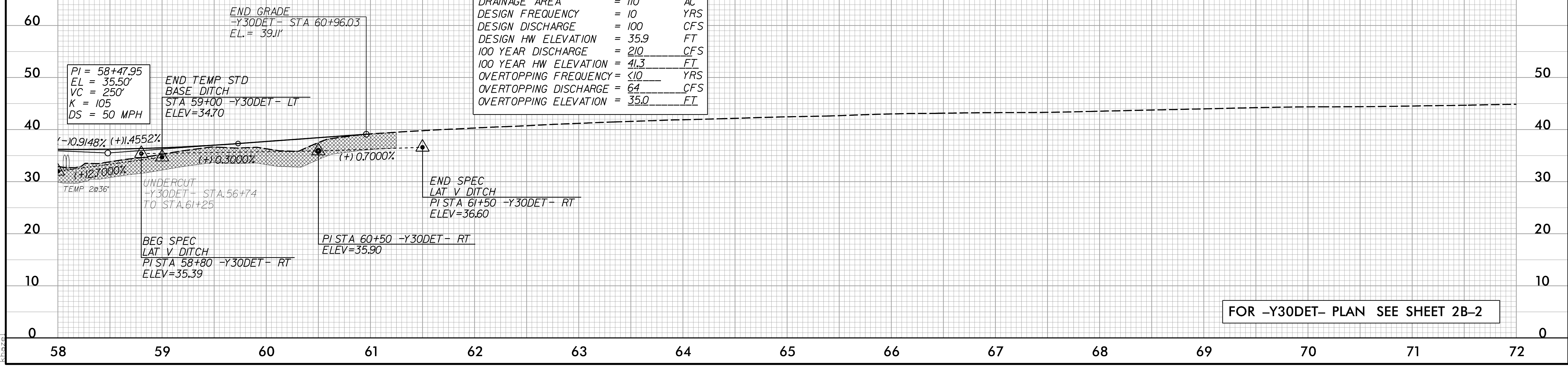
DRAINAGE AREA	= 6.7	AC
DESIGN FREQUENCY	= 10	YRS
DESIGN DISCHARGE	= 20	CFS
DESIGN HW ELEVATION	= 35.0	FT
100 YEAR DISCHARGE	= 26	CFS
100 YEAR HW ELEVATION	= 35.6	FT
OVERTOPPING FREQUENCY	= 10	YRS
OVERTOPPING DISCHARGE	= 20	CFS
OVERTOPPING ELEVATION	= 35.0	FT



UNDERCUT OF UNSTABLE SOILS
 UNDERCUT FOR SUBGRADE STABILITY

PIPE HYDRAULIC DATA
 TEMP 2@36' Sta. 58+08 -Y30DET-

DRAINAGE AREA	= 110	AC
DESIGN FREQUENCY	= 10	YRS
DESIGN DISCHARGE	= 100	CFS
DESIGN HW ELEVATION	= 35.9	FT
100 YEAR DISCHARGE	= 210	CFS
100 YEAR HW ELEVATION	= 41.3	FT
OVERTOPPING FREQUENCY	= <10	YRS
OVERTOPPING DISCHARGE	= 64	CFS
OVERTOPPING ELEVATION	= 35.0	FT



FOR -Y30DET- PLAN SEE SHEET 2B-2

9/13/2011
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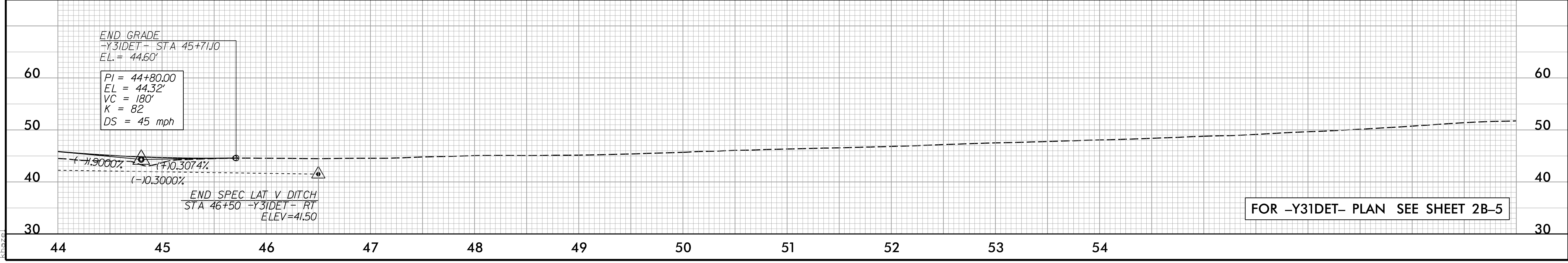
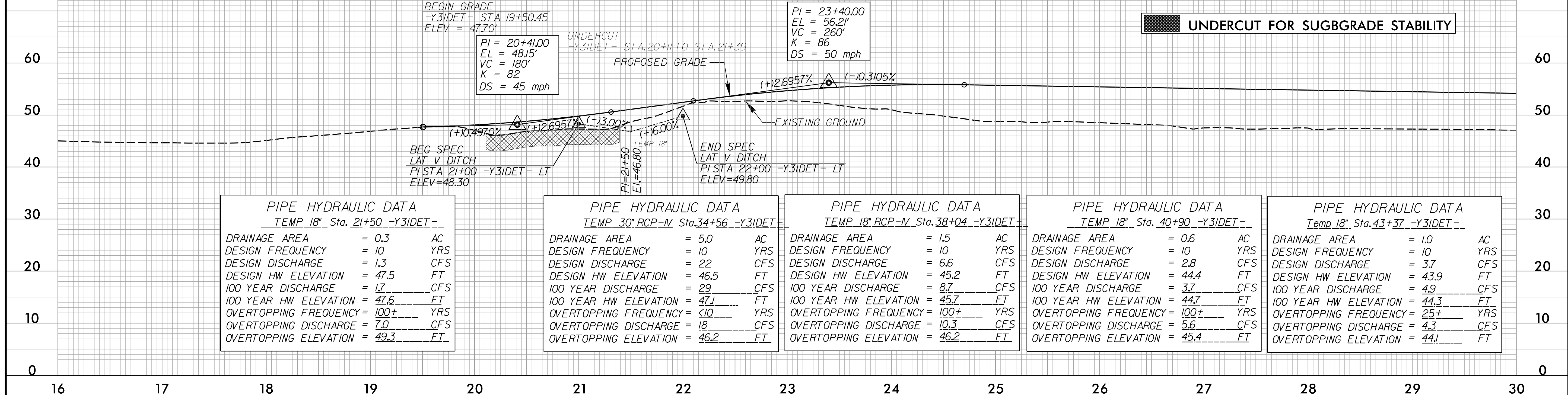
5/28/24

-Y31DET-

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PROJECT REFERENCE NO. <i>R-3300B</i>	SHEET NO. <i>2B-6</i>
ROADWAY DESIGN ENGINEER <i>Yusuf G. Daltan</i> 11/22/2023	HYDRAULICS ENGINEER <i>Jessica G. Dalton</i> 11/22/2023

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 RALEIGH, NORTH CAROLINA 27606
 NC COA No. C-0890



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8/17/99

NOTE: 45 & 50 mph DESIGN SPEEDS BASED ON METHOD 2 SUPERELEVATION DISTRIBUTION (NCHRP-581)

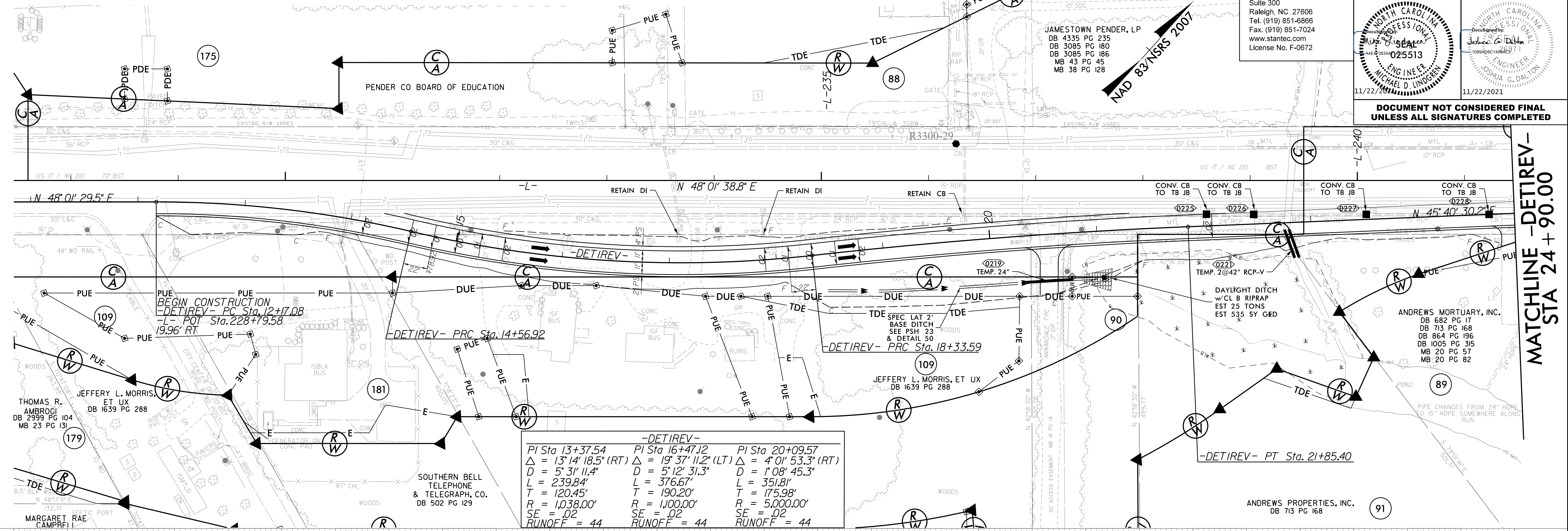
-DETIREV-



PROJECT REFERENCE NO. R-3300B	SHEET NO. 2B-7
RW SHEET NO.	HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER	ENGINEER
Professional Seal: MICHAEL D. LINGGREN, License No. F-0672	Professional Seal: JOSHUA G. DALTON, License No. F-0672

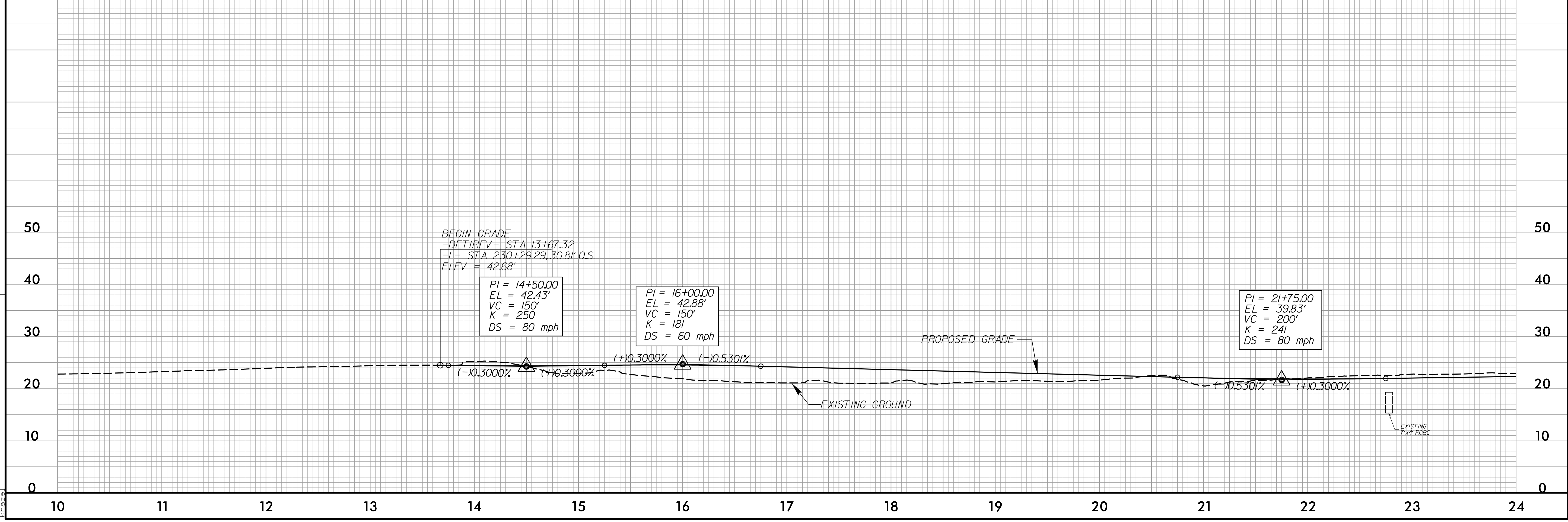
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REVISIONS

MATCHLINE -DETIREV- STA 24+90.00



9/27/2021
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8/17/2021

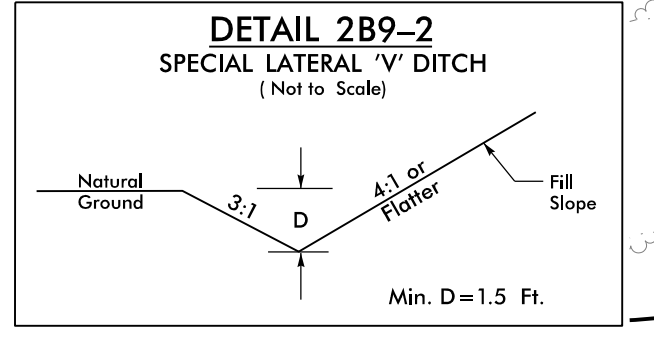
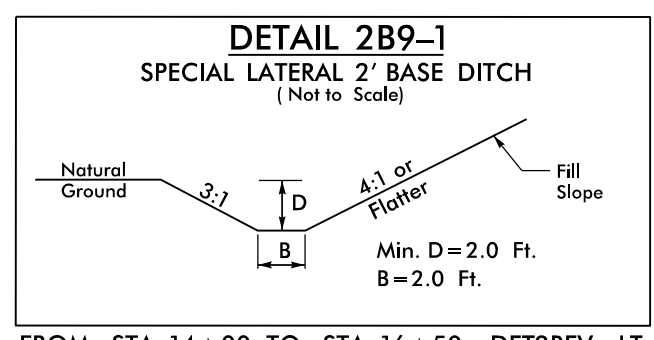
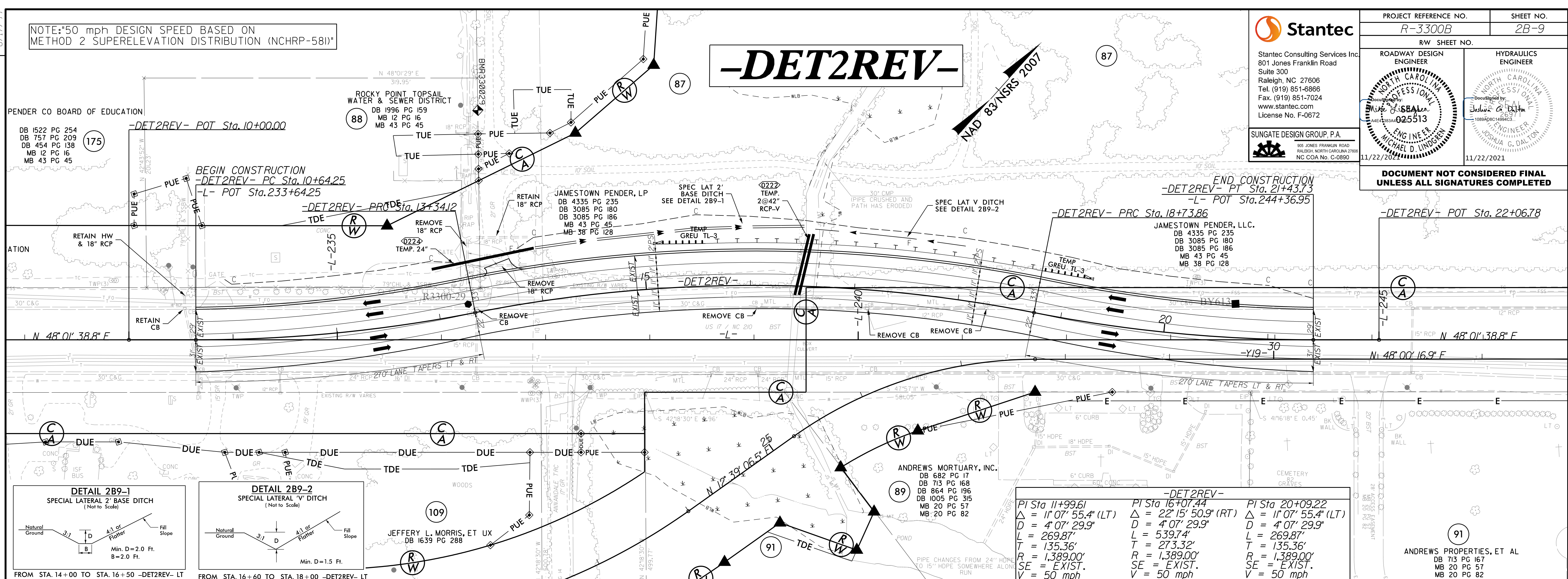
NOTE: *50 mph DESIGN SPEED BASED ON METHOD 2 SUPERELEVATION DISTRIBUTION (NCHRP-581)*

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SUNGATE DESIGN GROUP, P.A.
 105 JONES FRANKLIN ROAD
 RALEIGH, NORTH CAROLINA 27606
 NC COA No. C-0890

PROJECT REFERENCE NO. <i>R-3300B</i>	SHEET NO. <i>2B-9</i>
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER <i>Michael D. Lindgren</i>	HYDRAULICS ENGINEER <i>Michael D. Lindgren</i>
Professional Engineer Seal MICHAEL D. LINDGREN 11/22/2021	Professional Engineer Seal MICHAEL D. LINDGREN 11/22/2021

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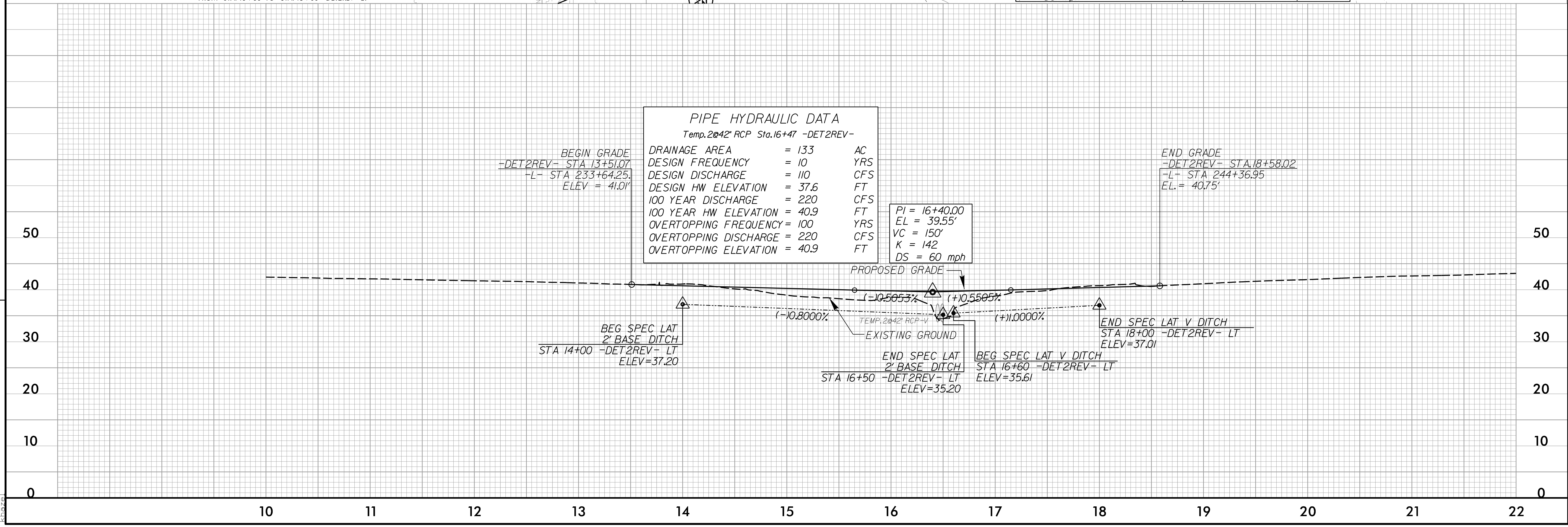


-DET2REV-		
PI Sta 11+99.61	PI Sta 16+07.44	PI Sta 20+09.22
$\Delta = 11' 07'' 55.4''$ (LT)	$\Delta = 22' 15'' 50.9''$ (RT)	$\Delta = 11' 07'' 55.4''$ (LT)
$D = 4' 07'' 29.9''$	$D = 4' 07'' 29.9''$	$D = 4' 07'' 29.9''$
$L = 269.87'$	$L = 539.74'$	$L = 269.87'$
$T = 135.36'$	$T = 273.32'$	$T = 135.36'$
$R = 1,389.00'$	$R = 1,389.00'$	$R = 1,389.00'$
$SE = EXIST.$	$SE = EXIST.$	$SE = EXIST.$
$V = 50$ mph	$V = 50$ mph	$V = 50$ mph

PIPE HYDRAULIC DATA
Temp. 2@42" RCP Sta. 16+47 -DET2REV-

BEGIN GRADE -DET2REV- STA 13+51.07 +L- STA 233+64.25 ELEV = 41.01'	DRAINAGE AREA = 133 AC DESIGN FREQUENCY = 10 YRS DESIGN DISCHARGE = 110 CFS DESIGN HW ELEVATION = 37.6 FT 100 YEAR DISCHARGE = 220 CFS 100 YEAR HW ELEVATION = 40.9 FT OVERTOPPING FREQUENCY = 100 YRS OVERTOPPING DISCHARGE = 220 CFS OVERTOPPING ELEVATION = 40.9 FT	AC YRS CFS FT CFS FT YRS CFS FT
---	--	---

END GRADE
-DET2REV- STA. 18+58.02
+L- STA 244+36.95
ELEV = 40.75'



REVISIONS

9/27/2021
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-Y38DET-

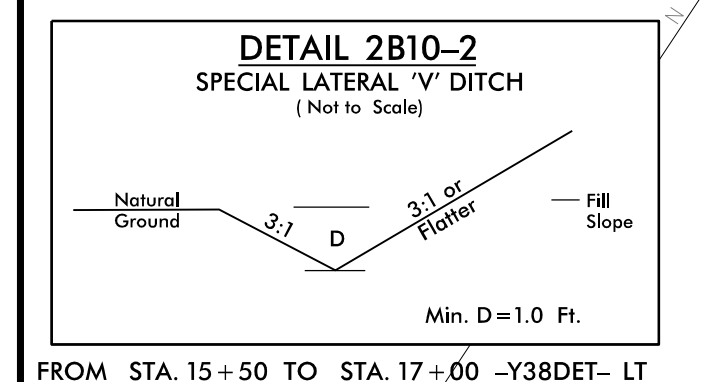
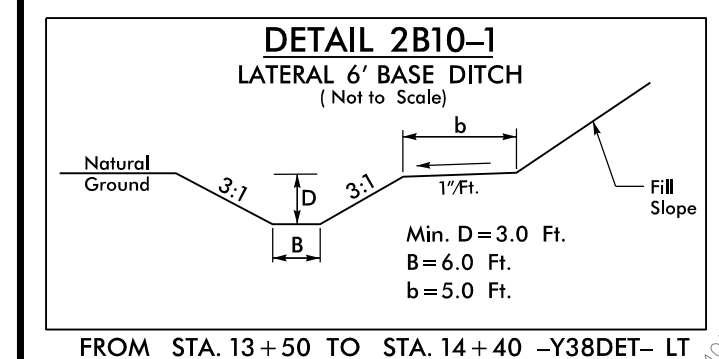
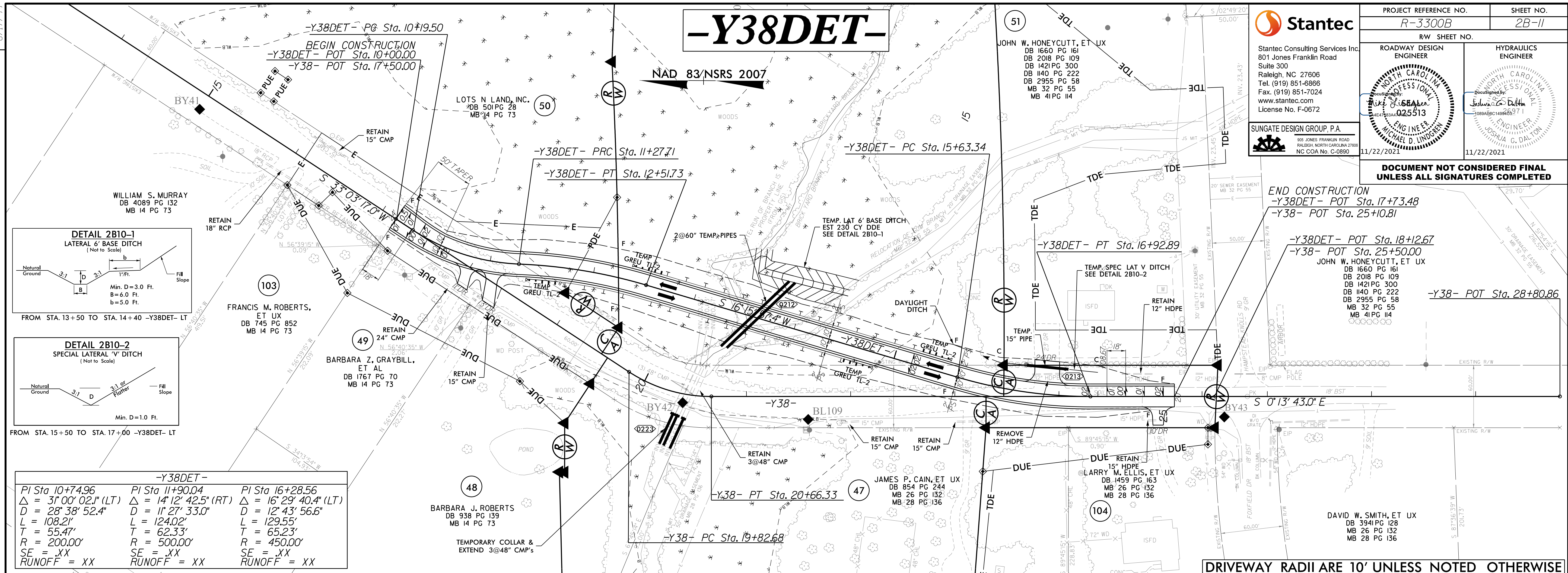


Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-8866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

SUNGATE DESIGN GROUP, P.A.
105 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
NC COA No. C-0890

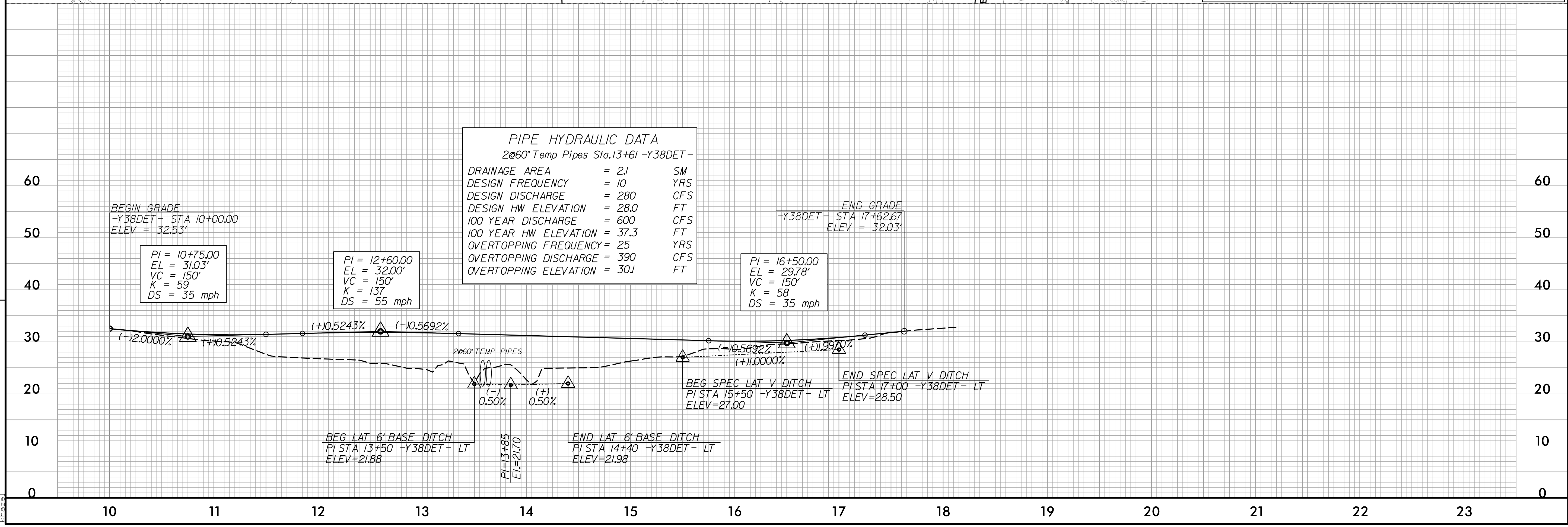
PROJECT REFERENCE NO. R-3300B	SHEET NO. 2B-11
R/W SHEET NO.	HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER	ENGINEER
11/22/2021	11/22/2021

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



-Y38DET-		
PI Sta 10+74.96	PI Sta 11+90.04	PI Sta 16+28.56
$\Delta = 31^{\circ} 00' 02.1''$ (LT)	$\Delta = 14^{\circ} 12' 42.5''$ (RT)	$\Delta = 16^{\circ} 29' 40.4''$ (LT)
D = 28' 38" 52.4"	D = 11' 27" 33.0"	D = 12' 43" 56.6"
L = 108.21'	L = 124.02'	L = 129.55'
T = 55.47'	T = 62.33'	T = 65.23'
R = 200.00'	R = 500.00'	R = 450.00'
SE = .XX	SE = .XX	SE = .XX
RUNOFF = XX	RUNOFF = XX	RUNOFF = XX

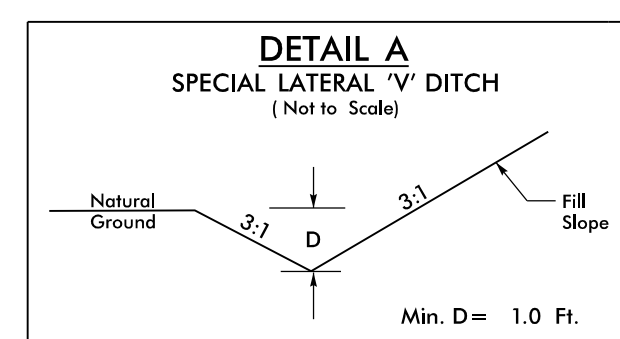
PIPE HYDRAULIC DATA	
2@60" Temp Pipes Sta.13+61 -Y38DET-	
DRAINAGE AREA	= 2.1 SM
DESIGN FREQUENCY	= 10 YRS
DESIGN DISCHARGE	= 280 CFS
DESIGN HW ELEVATION	= 28.0 FT
100 YEAR DISCHARGE	= 600 CFS
100 YEAR HW ELEVATION	= 37.3 FT
OVERTOPPING FREQUENCY	= 25 YRS
OVERTOPPING DISCHARGE	= 390 CFS
OVERTOPPING ELEVATION	= 30.1 FT



9/27/2021
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REVISIONS

8.17.2021



NOTE: *50 mph DESIGN SPEED BASED ON METHOD 2 SUPERELEVATION DISTRIBUTION (NCHRP-581)*

-LDET6-



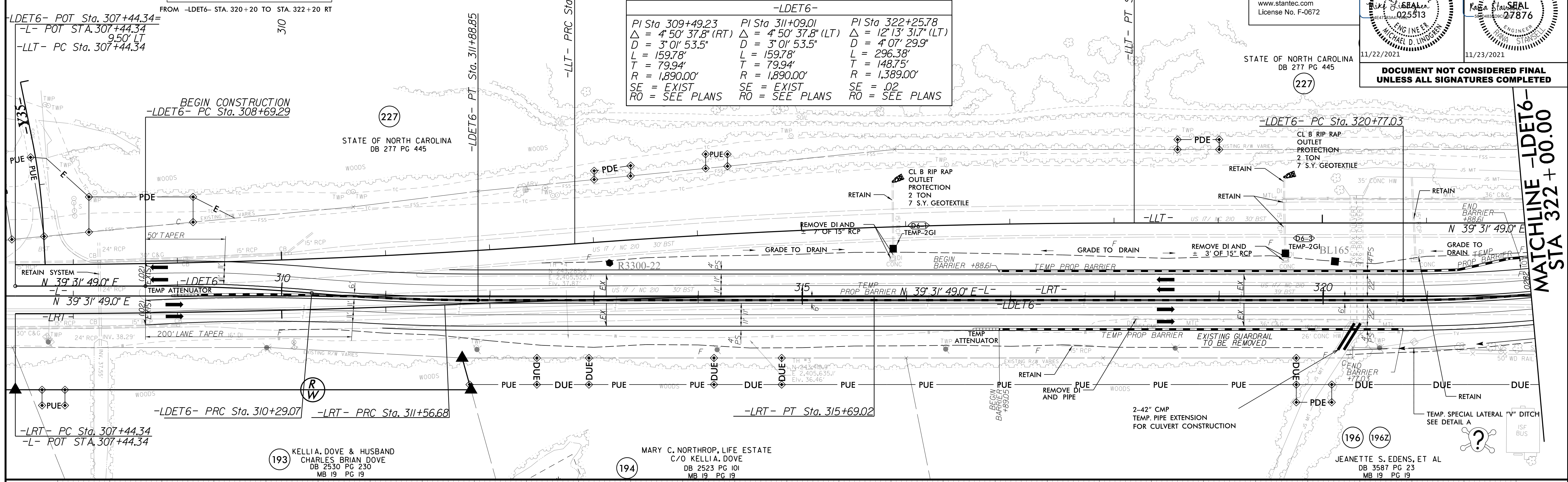
2610 WYCLIFF ROAD
SUITE 410
RALEIGH, NC 27607
PHONE: 919.881.9729
NC COA No. F-0929



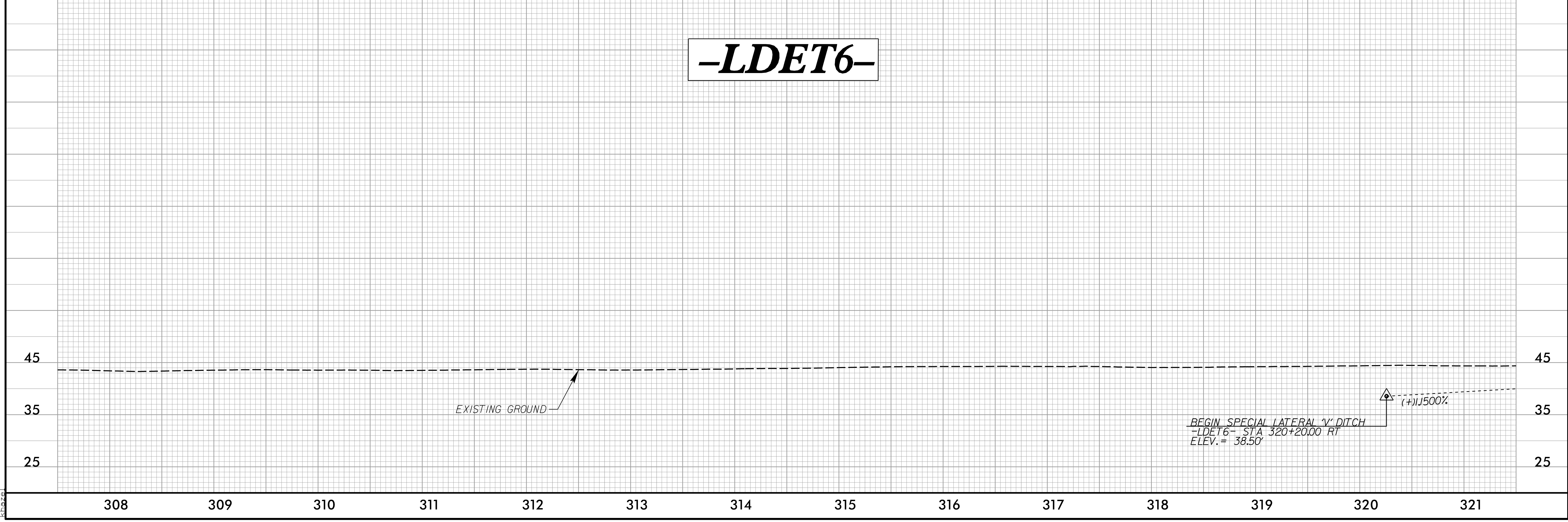
Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-8866
Fax. (919) 851-7024
www.stantec.com
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PROJECT REFERENCE NO. R-3300B	SHEET NO. 2B-12
RW SHEET NO.	HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER	ENGINEER
<p>STATE OF NORTH CAROLINA DB 277 PG 445</p> <p>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</p>	

-LDET6-		
PI Sta 309+49.23 Δ = 4° 50' 37.8" (RT) D = 3° 01' 53.5" L = 159.78' T = 79.94' R = 1,890.00' SE = EXIST RO = SEE PLANS	PI Sta 311+09.01 Δ = 4° 50' 37.8" (LT) D = 3° 01' 53.5" L = 159.78' T = 79.94' R = 1,890.00' SE = EXIST RO = SEE PLANS	PI Sta 322+25.78 Δ = 12° 13' 31.7" (LT) D = 4° 07' 29.9" L = 296.38' T = 148.75' R = 1,389.00' SE = .02 RO = SEE PLANS



-LDET6-



11/2/2021
I:\Projects\2021\146\Roadway\Proj\3300B_rdy_esh_LDET6.dgn

8.17/7.99

NOTE: *50 mph DESIGN SPEED BASED ON METHOD 2 SUPERELEVATION DISTRIBUTION (NCHRP-581)*

-LDET7-

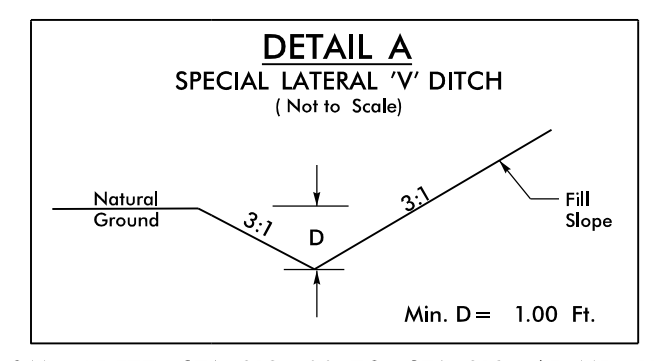


2410 WYCLIFF ROAD
SUITE 410
RALEIGH, NC 27607
PHONE: 919.881.9729
NC COA No. F-0929



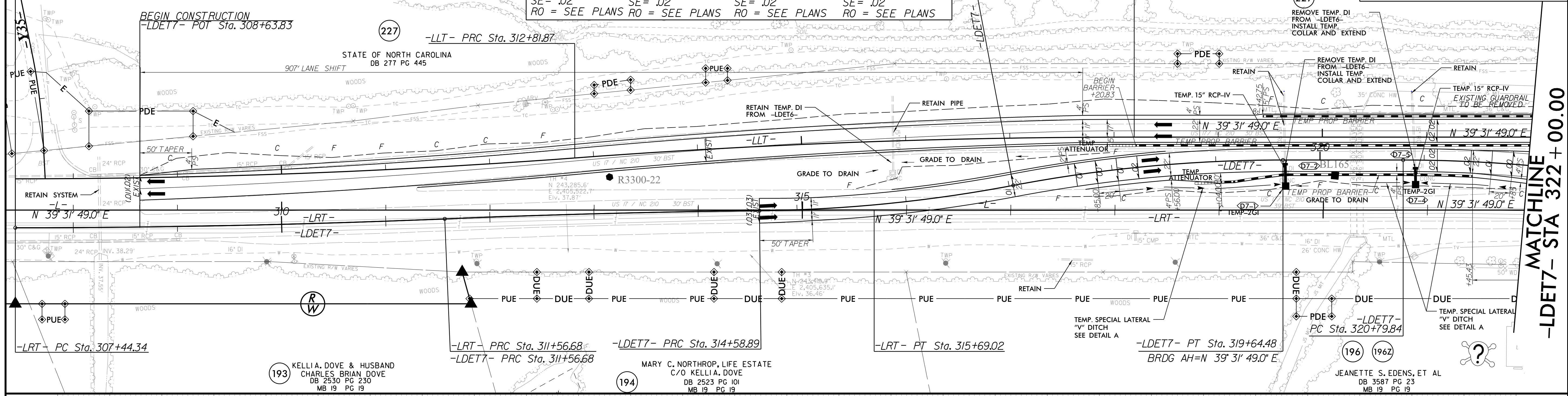
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801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-8866
Fax. (919) 851-7024
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License No. F-0672

PROJECT REFERENCE NO. R-3300B	SHEET NO. 2B-14
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

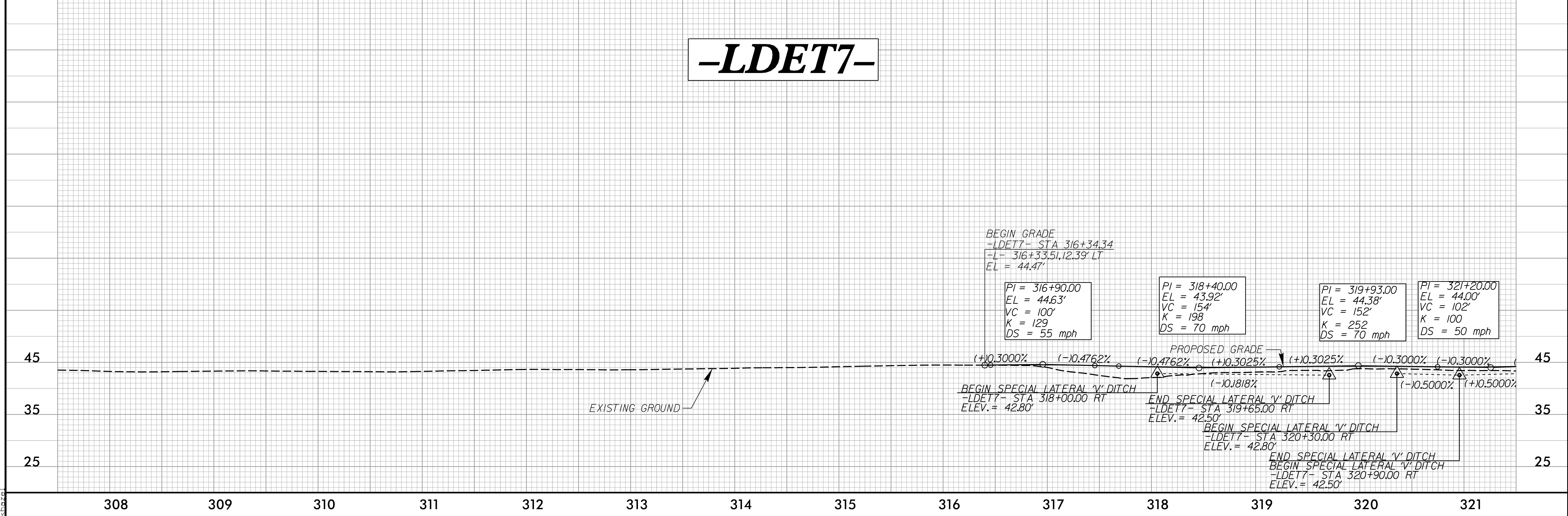


PI Sta 309+50.54 Δ = 2° 21' 45.1" (LT) D = 0' 34' 22.6" L = 412.34' T = 206.20' R = 10,000.00' SE = .02 RO = SEE PLANS	PI Sta 313+07.80 Δ = 1° 43' 53.6" (RT) D = 0' 34' 22.6" L = 302.21' T = 151.12' R = 10,000.00' SE = .02 RO = SEE PLANS	PI Sta 315+81.78 Δ = 10° 06' 43.7" (LT) D = 4' 07' 29.9" L = 245.14' T = 122.89' R = 1,389.00' SE = .02 RO = SEE PLANS	PI Sta 318+34.64 Δ = 10° 44' 35.2" (RT) D = 4' 07' 29.9" L = 260.44' T = 130.60' R = 1,389.00' SE = .02 RO = SEE PLANS
---	---	---	---

-LDET7- POT Sta. 307+44.34
-LLT- PC Sta. 307+44.34
-L- POT Sta. 308+63.84
17.00' RT



-LDET7-



MATCHLINE -LDET7- STA 322+00.00

1/2/2021
L:\Projects\2021\Projects\3300B\Drawings\Roadway\RDY\esh_LDET7.dgn

8.17.17.99

-LDET7-



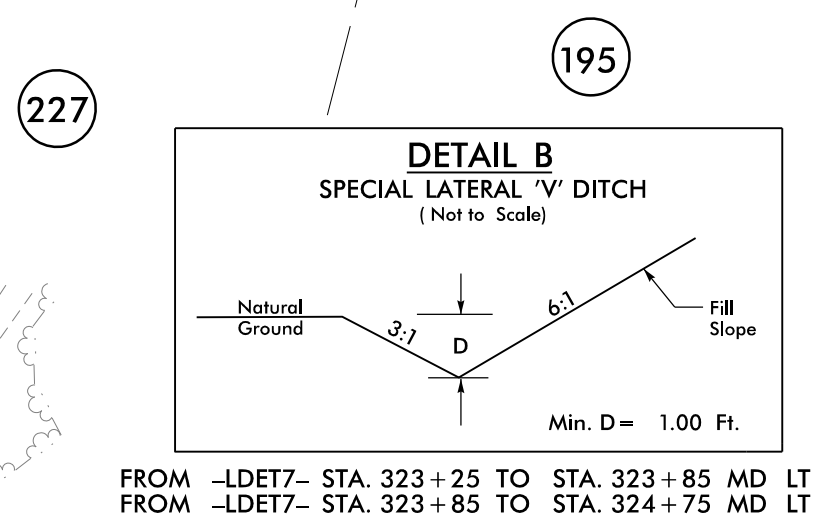
2610 WYCLIFF ROAD
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NC COA No. F-0929



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Fax. (919) 851-7024
www.stantec.com
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PROJECT REFERENCE NO. R-3300B	SHEET NO. 2B-15
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
11/22/2021	11/23/2021
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

NOTE: 50 mph DESIGN SPEED BASED ON METHOD 2 SUPERELEVATION DISTRIBUTION (NCHRP-581)



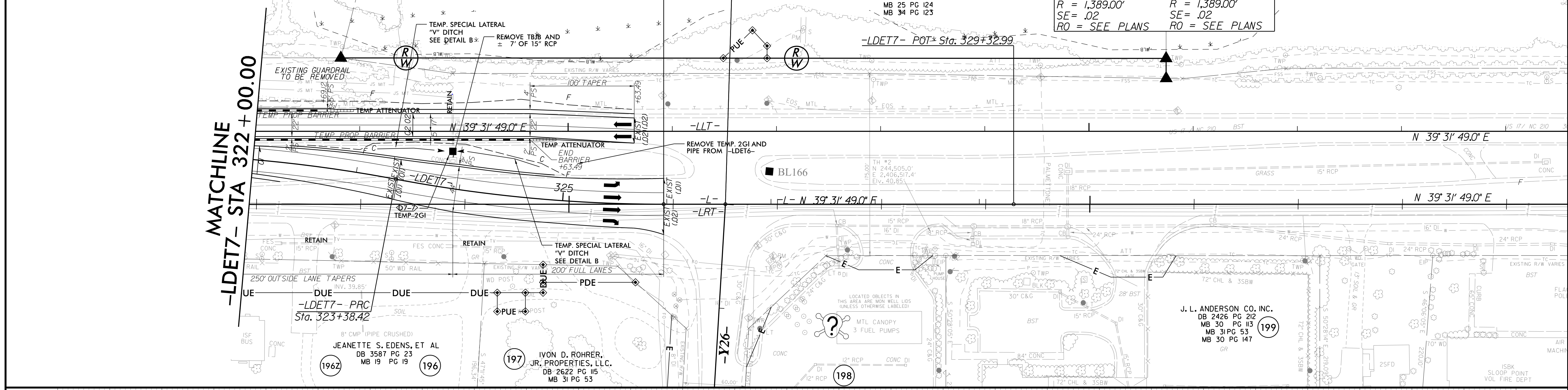
NAD 83/NSRS 2007

END CONSTRUCTION
-LDET7- PT Sta. 325+97.00
-L- POT Sta. 325+90.74

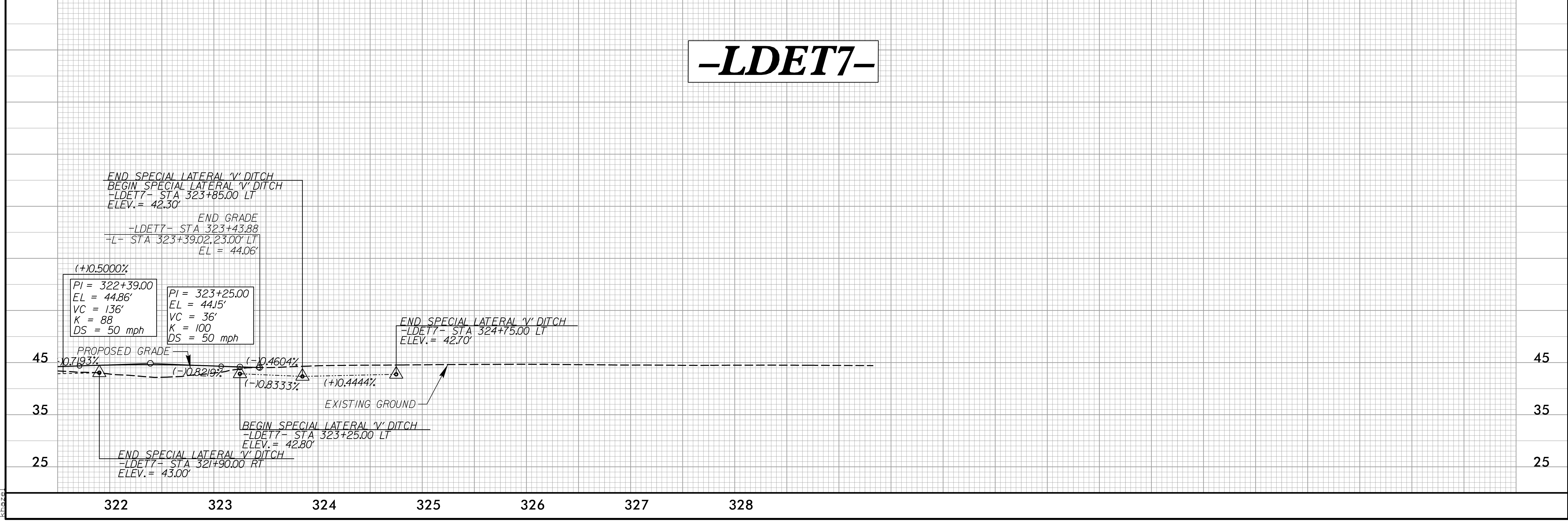
195
PINNACLE RIDGE, HOA, INC.
DB 3571 PG 261
MB 49 PG 05
MB 46 PG 103
MB 43 PG 115
MB 32 PG 98
MB 11 PG 89
MB 25 PG 124
MB 34 PG 123

-LDET7-
PI Sta 322+09.50 PI Sta 324+68.09
Δ = 10° 39' 59.2" (RT) Δ = 10° 39' 59.2" (LT)
D = 4' 07" 29.9" D = 4' 07" 29.9"
L = 258.58' L = 258.58'
T = 129.67' T = 129.67'
R = 1,389.00' R = 1,389.00'
SE = .02 SE = .02
RO = SEE PLANS RO = SEE PLANS

MATCHLINE
-LDET7- STA 322+00.00



-LDET7-

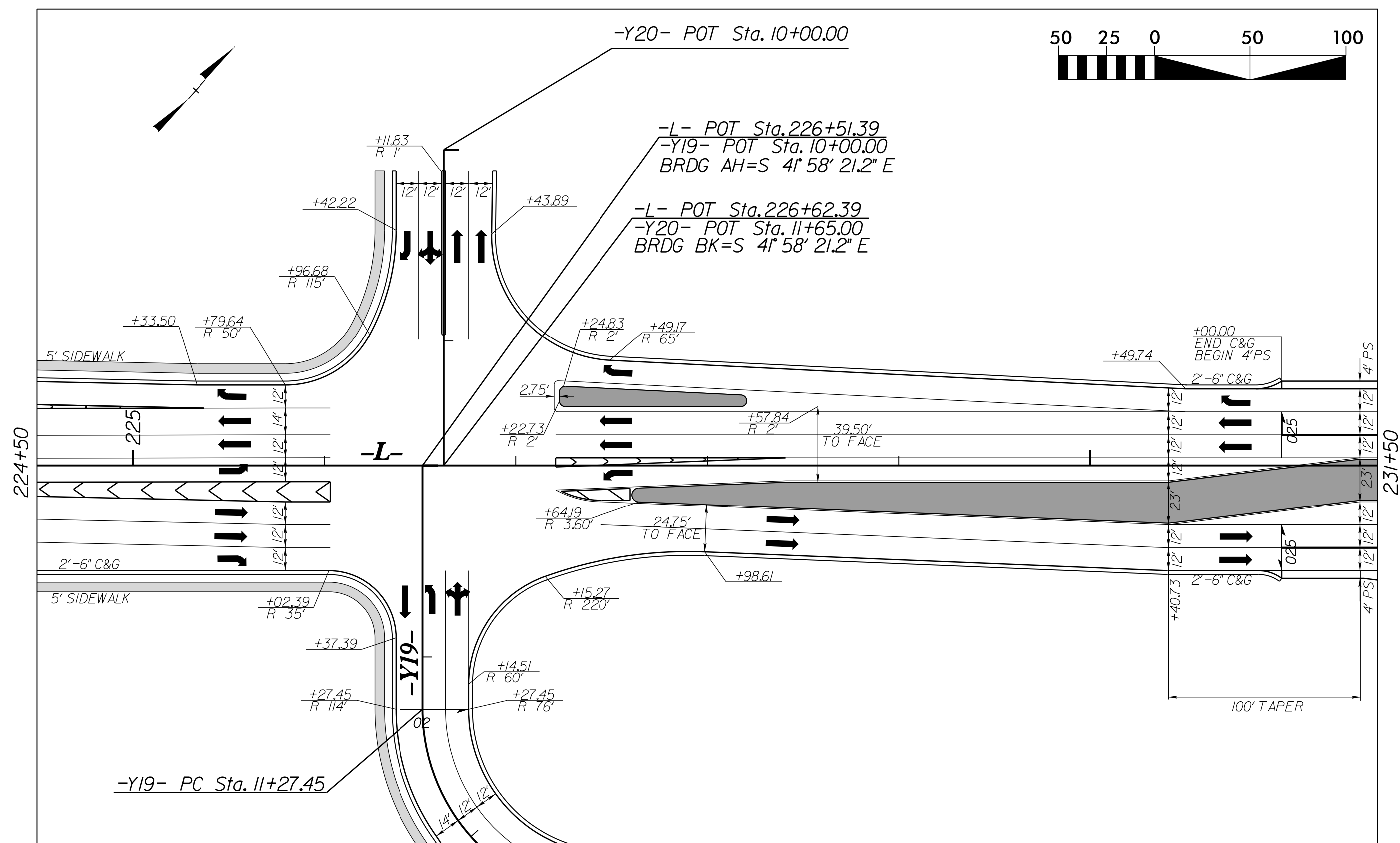


11/2/2021
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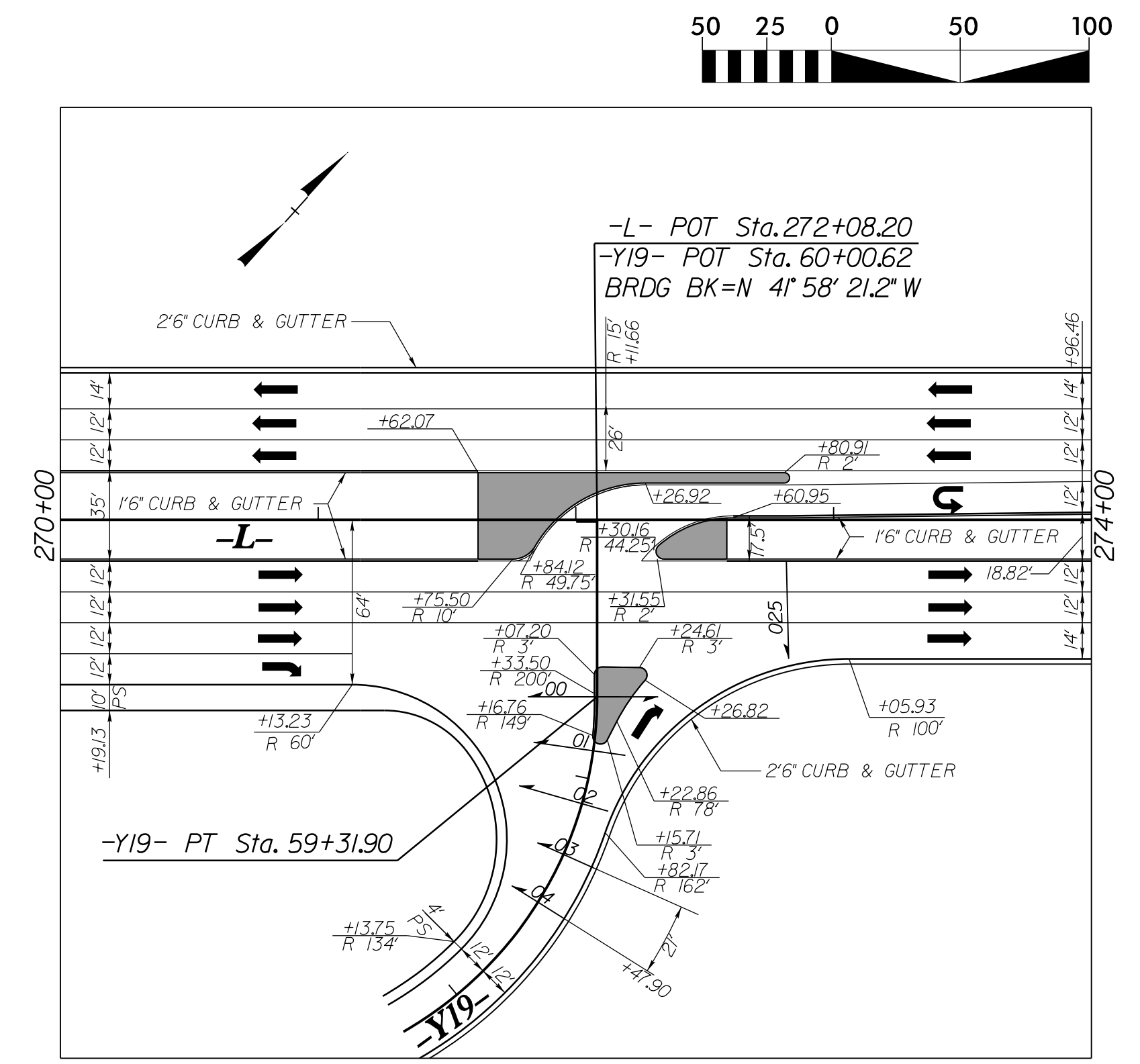
INTERSECTION DETAILS

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	PROJECT REFERENCE NO. R-3300B	SHEET NO. 2B-17
	RW SHEET NO.	

ROADWAY DESIGN ENGINEER



-L- STA. 224+50 TO STA. 231+50
INTERSECTION DETAIL SHOWN FROM PLAN SHEET 33



-L- STA 270+00 TO STA. 274+00
INTERSECTION DETAIL SHOWN FROM PLAN SHEET 24

- PAINTED ISLAND
- SIDEWALK
- MONOLITHIC ISLAND

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

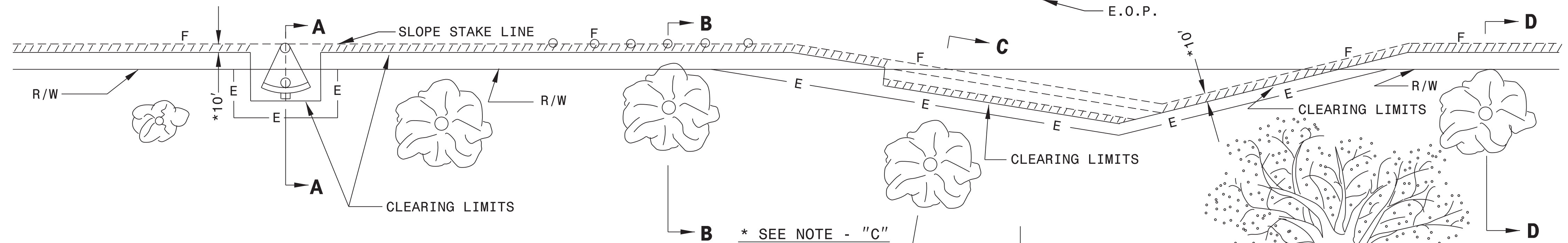
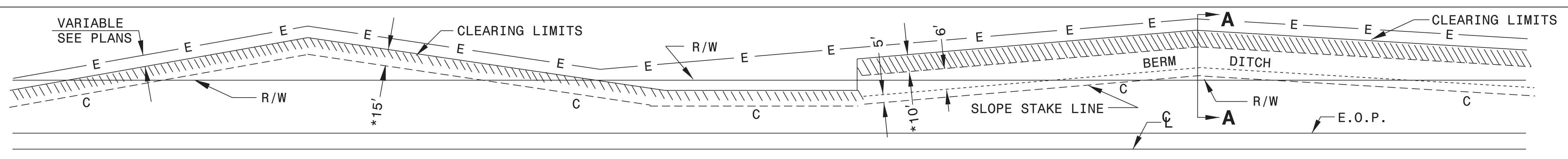
ENGLISH DETAIL DRAWING FOR METHOD OF CLEARING MODIFIED METHOD - III

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



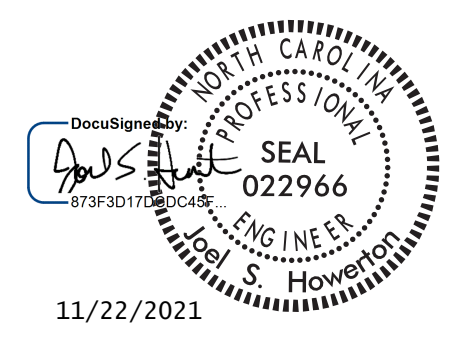
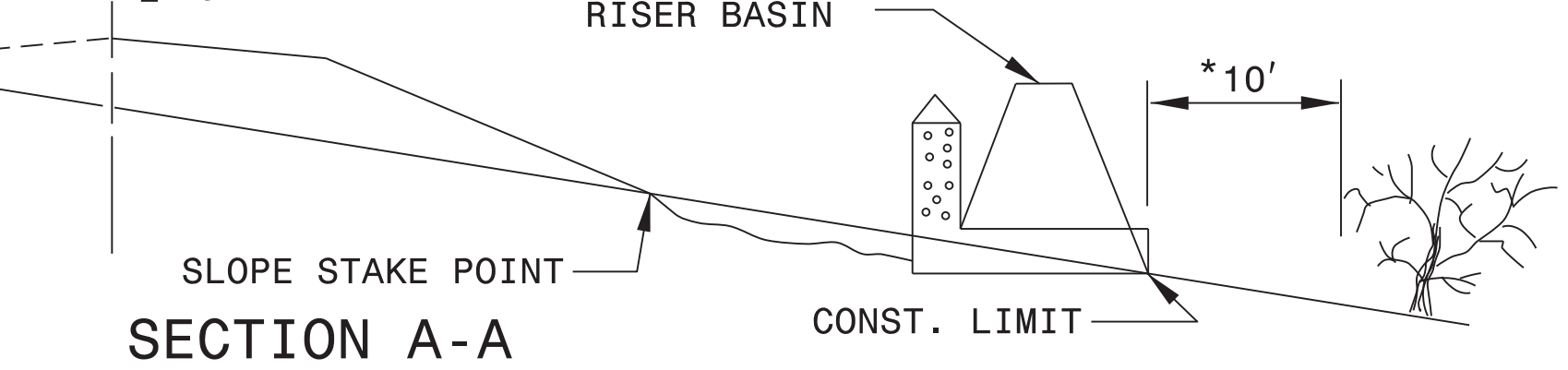
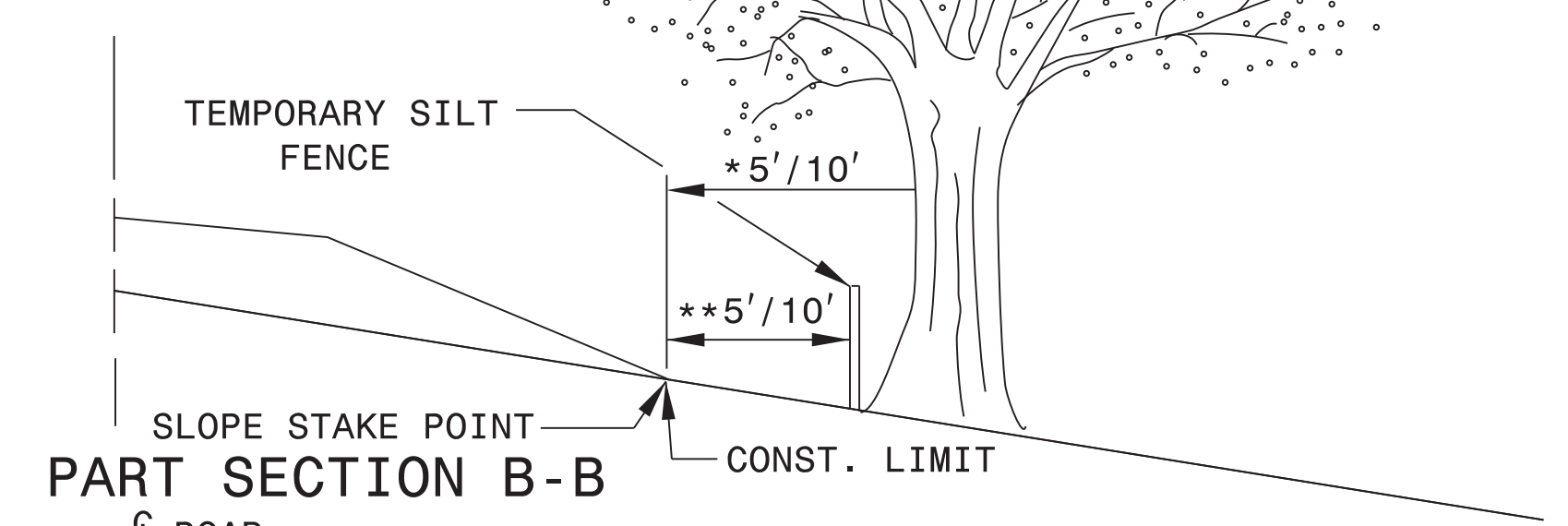
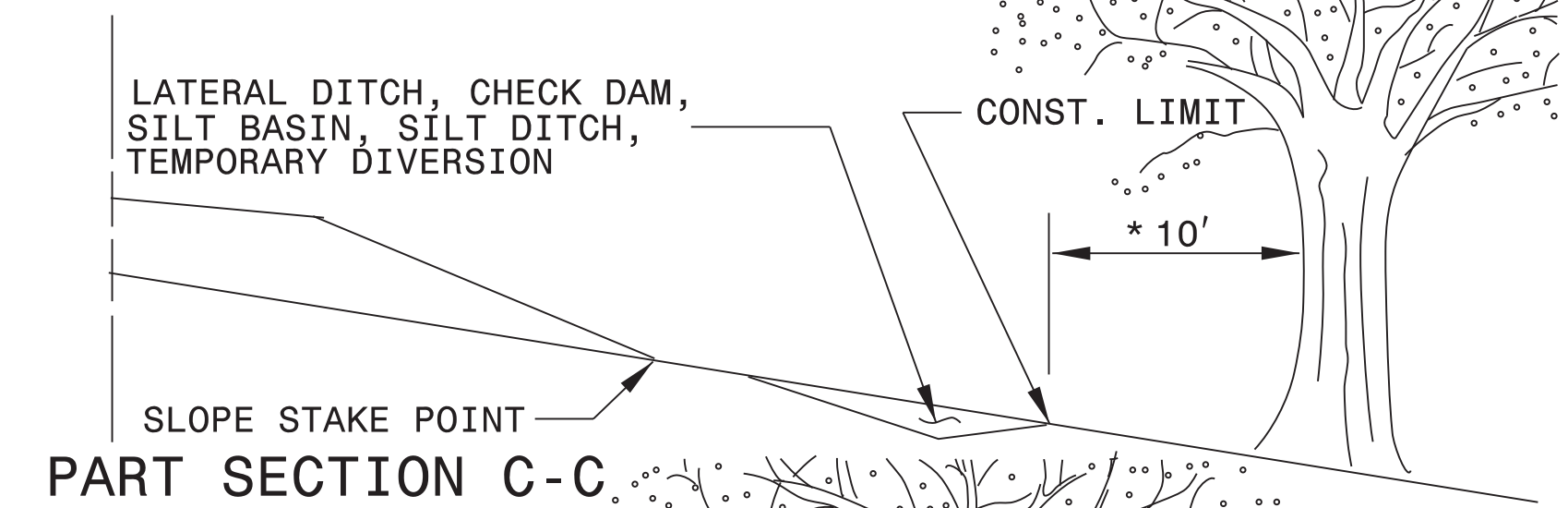
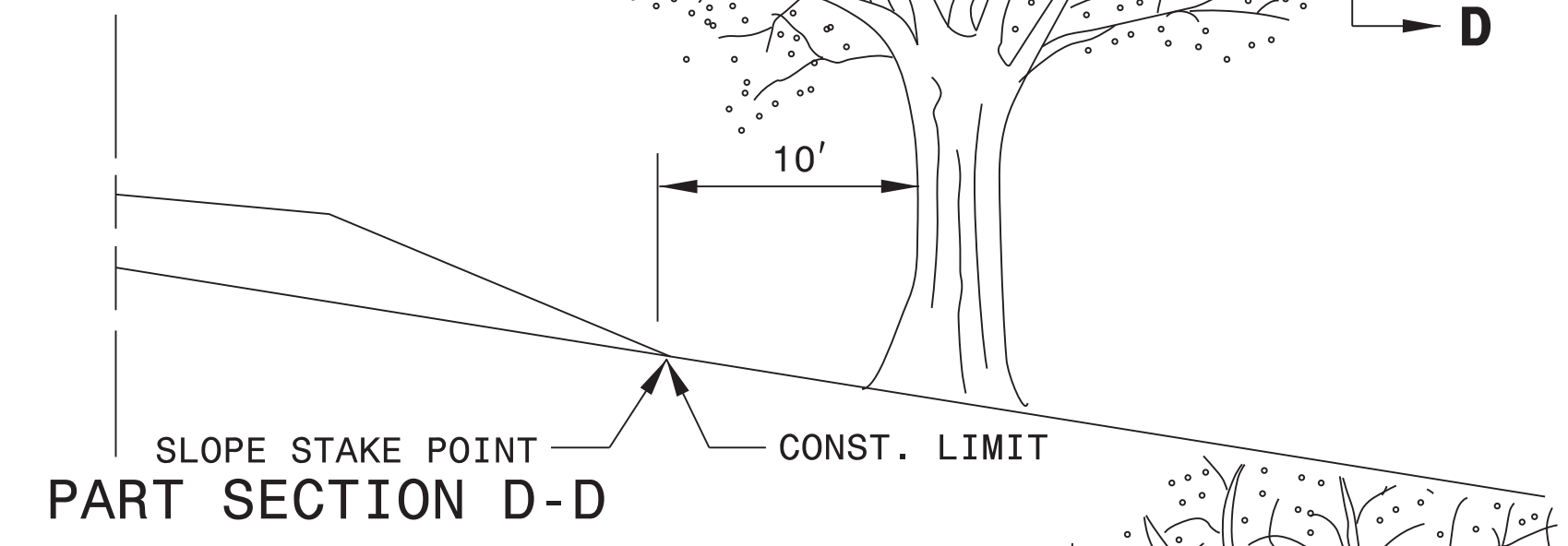
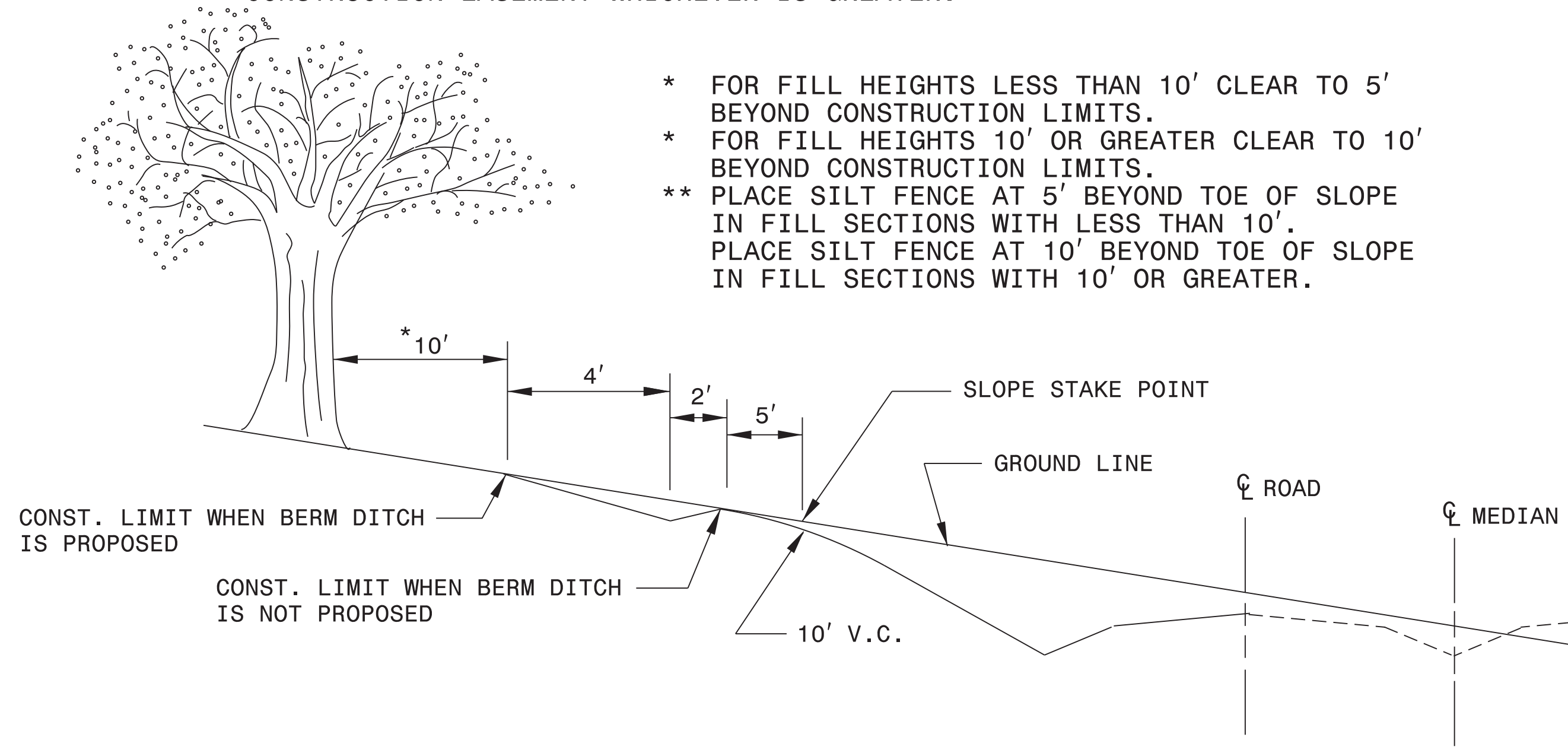
GENERAL NOTES:

- 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.



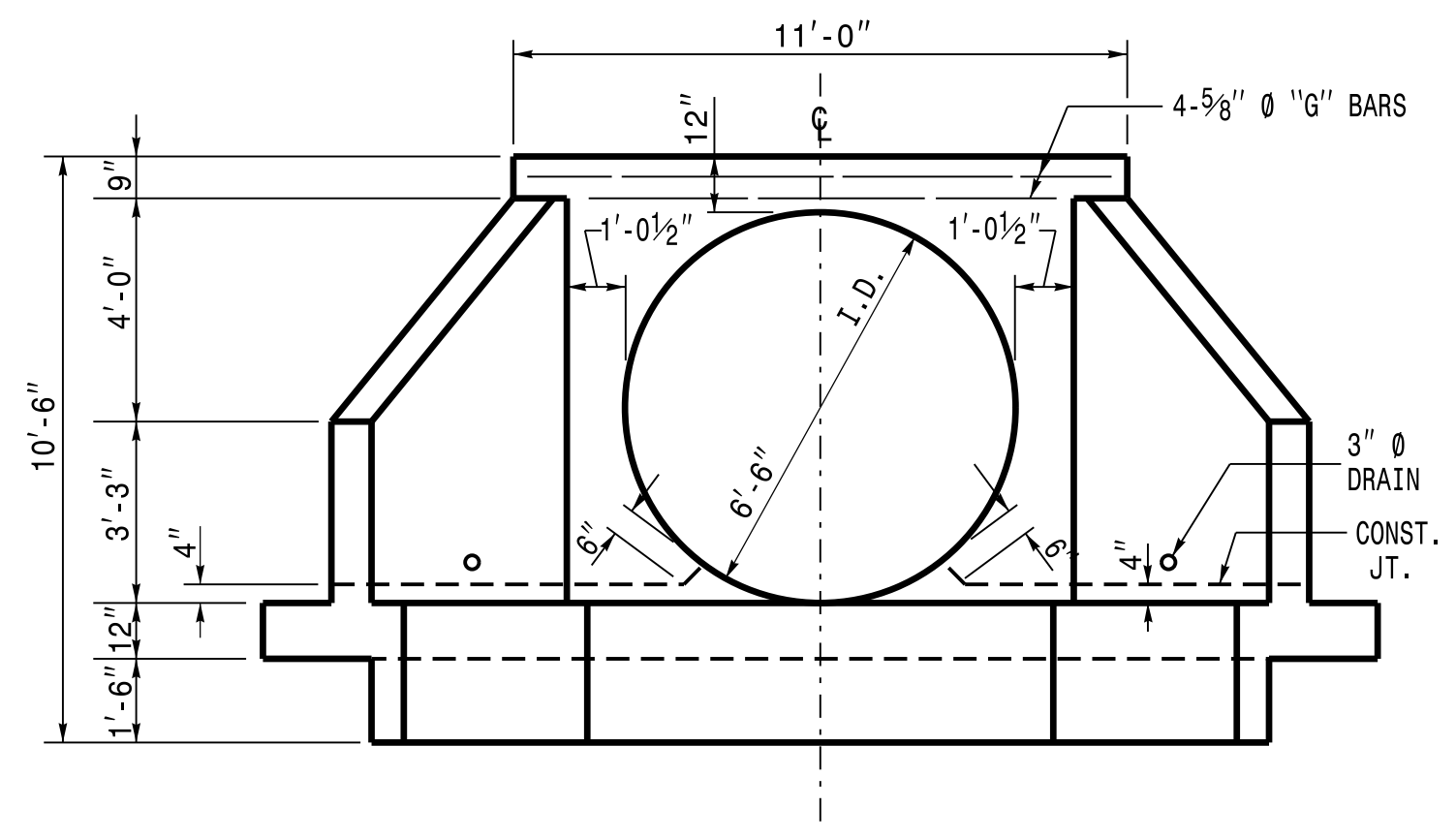
CONTRACT STANDARDS AND DEVELOPMENT UNIT Office 919-707-6950 FAX 919-250-4119

SEE TITLE BLOCK

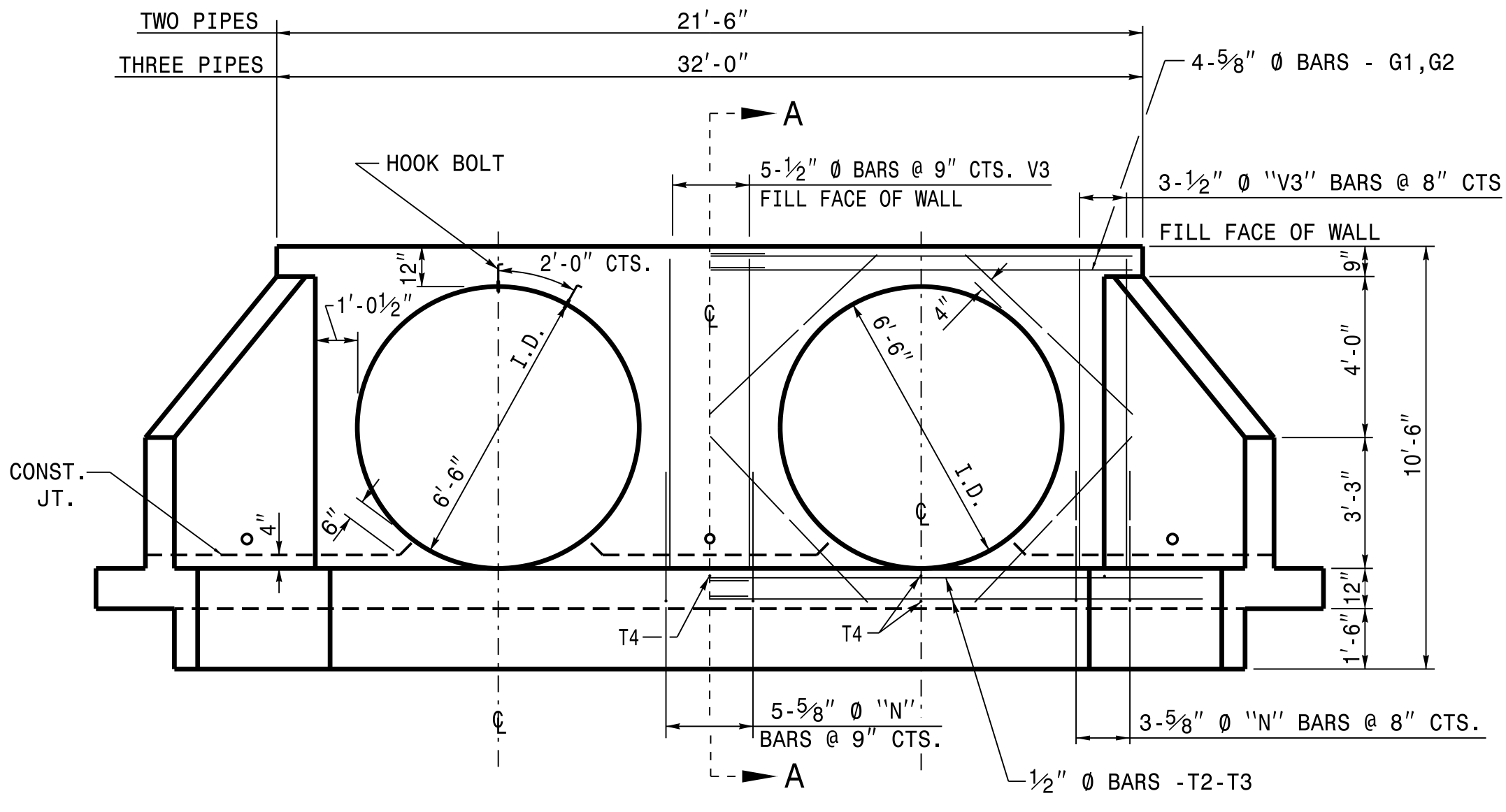
ORIGINAL BY: T.S.S. DATE: FEB. 2000
MODIFIED BY: K.A.K. DATE: AUG. 2016
CHECKED BY: DATE:
FILE SPEC.: kkempf/english/0200d301.dgn

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

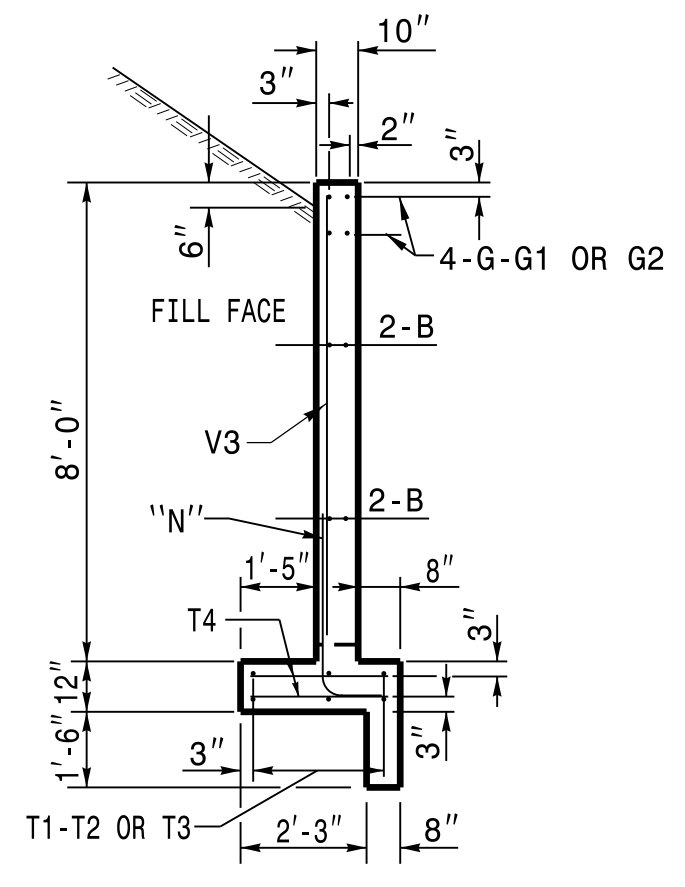
05-DEC-2017 10:31 S:\Contracts\Special\Details\kkempf\english\0200d301.modified.method III Cond.dgn Jhoverton AT CSD-292595



END ELEVATION



END ELEVATION



**SECTION A-A
FOR ALL ENDWALLS**

NOTES:

USE CLASS 'A' CONCRETE.

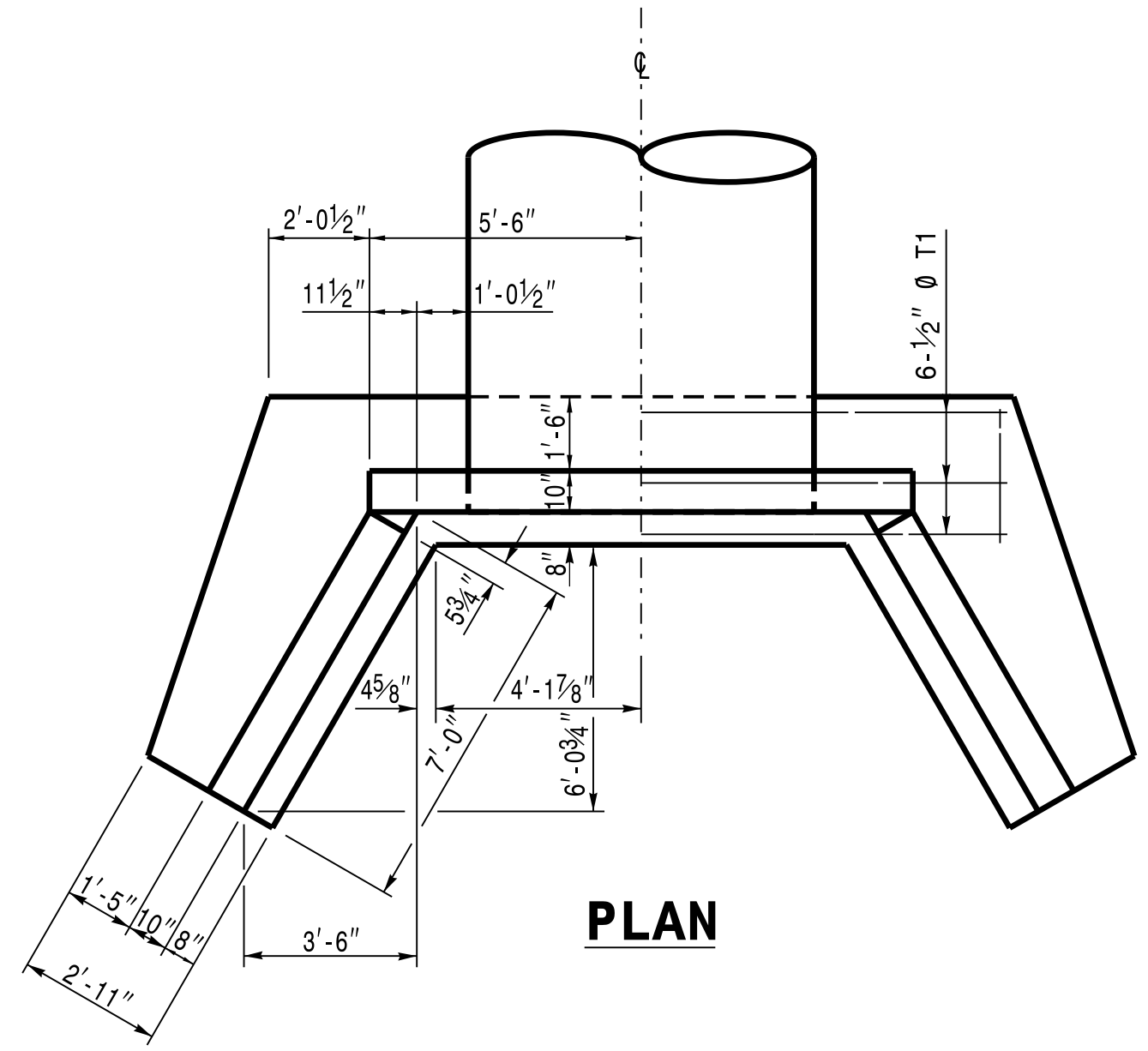
USE ASTM A615-GRADE 60 REINFORCING STEEL.

USE DEFORMED BARS FOR ALL REINFORCING STEEL. WHERE SPLICING OF REINFORCEMENT IS NECESSARY, BARS ARE TO BE LAPPED 45 DIAMETERS. ALL DIMENSIONS RELATIVE TO REINFORCEMENT ARE TO CENTERS OF BARS.

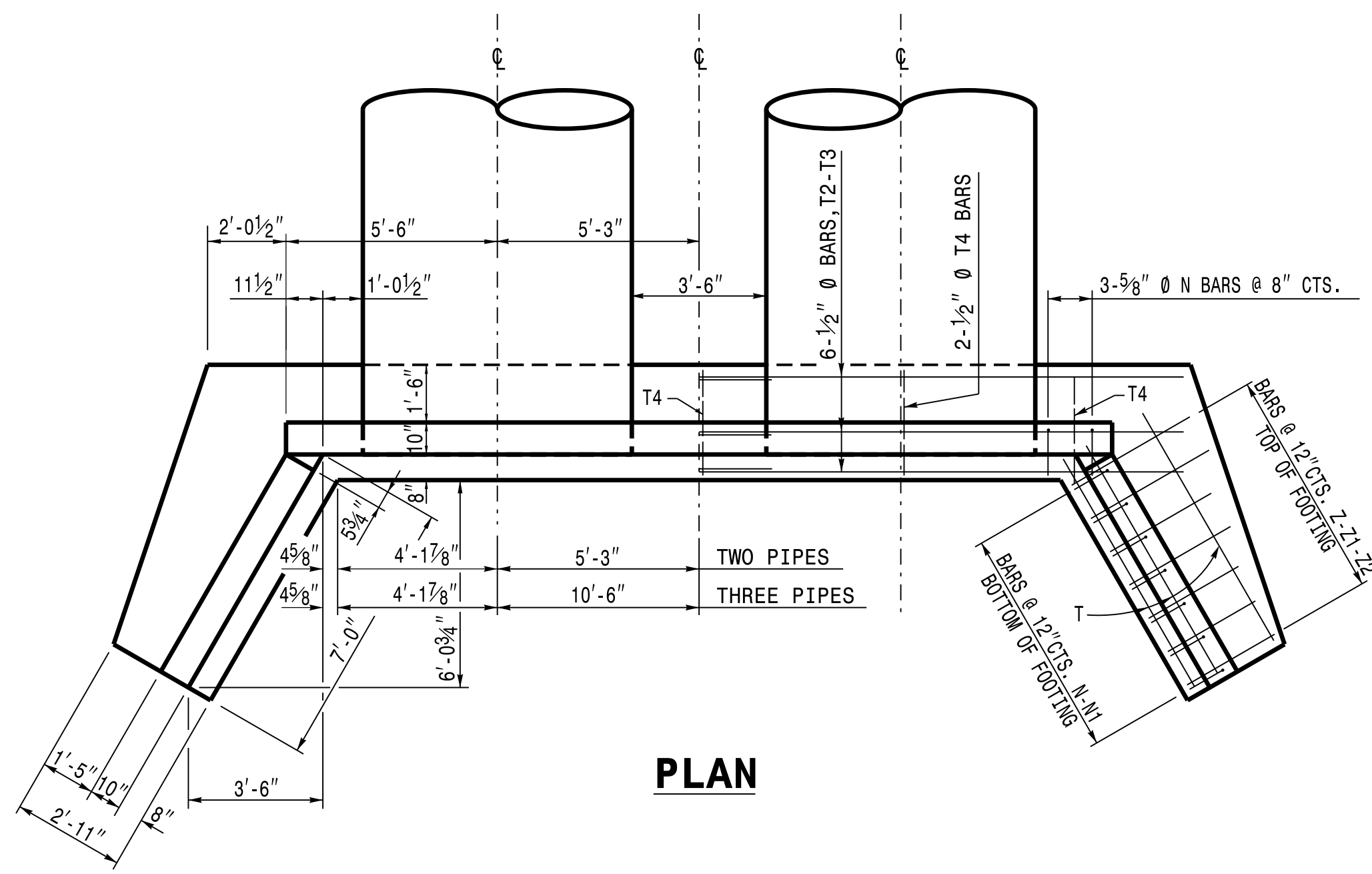
THE FOOTING, CURTAIN WALL AND 4" OF WALL ARE TO BE POURED IN ONE OPERATION ALLOWING NO TIME FOR INITIAL SET TO TAKE PLACE BETWEEN THEM. POUR THE REMAINING WALL IN ONE OPERATION.

CHAMFER ALL EXPOSED CORNERS 1".

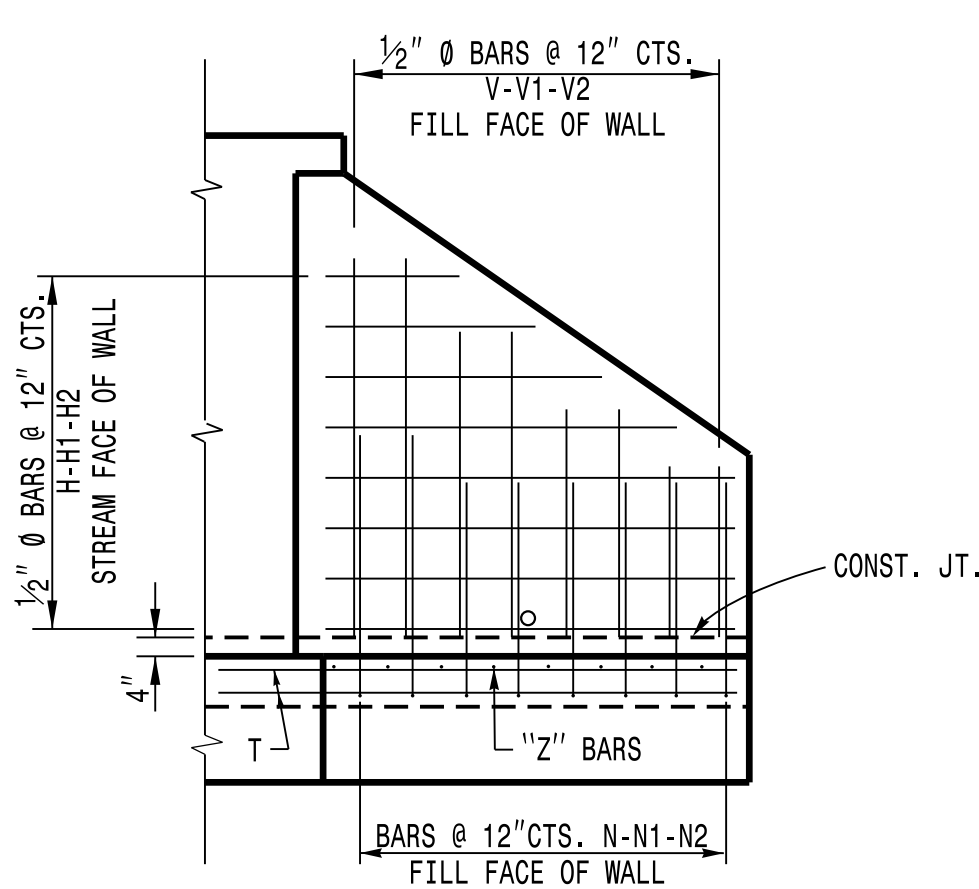
PLACE 3" DIAMETER DRAINS IN WALL AS SHOWN 6" ABOVE NORMAL FLOW LINE.



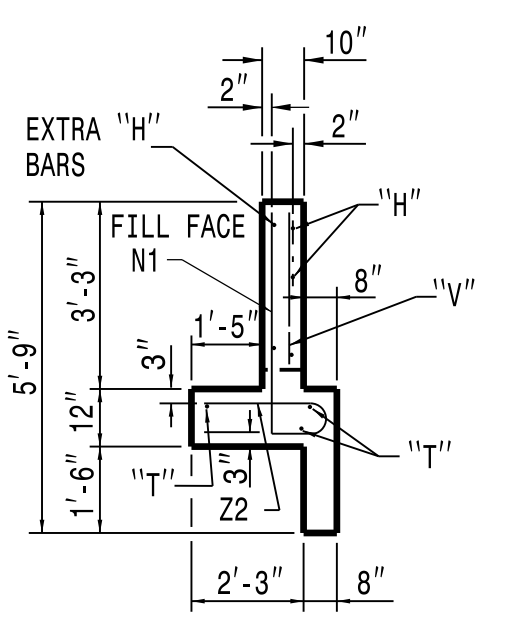
PLAN



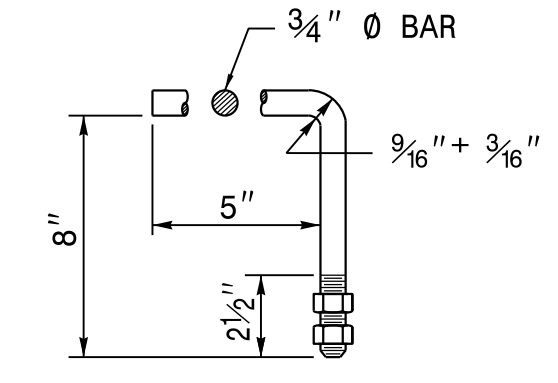
PLAN



**ELEVATION OF WING
SHOWING REINFORCEMENT**

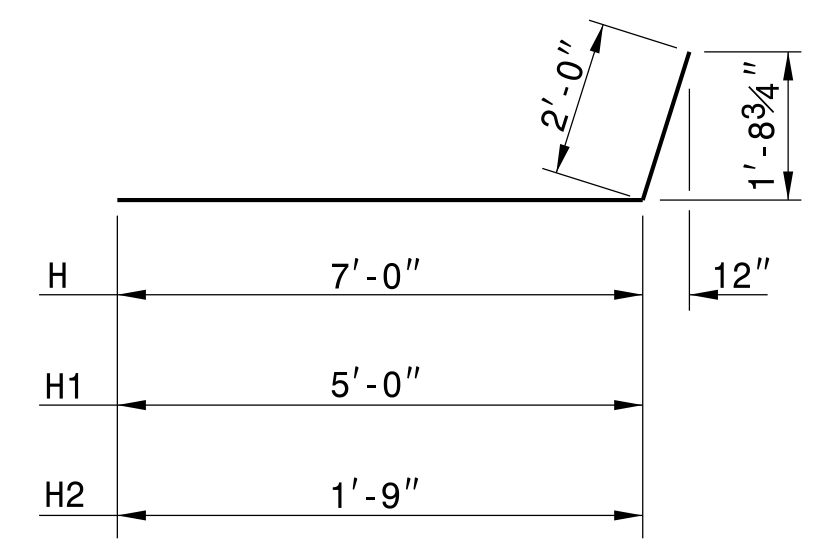


END OF WING

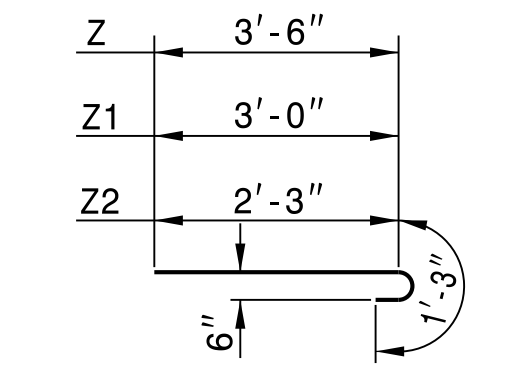


HOOK BOLT

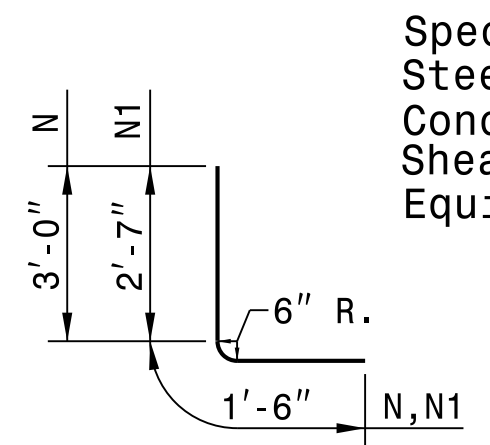
HOOK BOLTS (CONSTRUCT ANCHORS AT 2'-0" CTS. ALONG THE CIRCUMFERENCE OF THE 6'-6" CSP. EMBED THE HOOK BOLTS IN THE CONCRETE ENDWALL 8" IN DEPTH. THE GALVANIZED 3/4" DIA. HOOK BOLTS MUST MEET ASTM A-307 OR ASTM A-836. BOTH BOLTS AND NUTS MUST BE IN ACCORDANCE WITH ASTM A-153 FOR GALVANIZING.



BARS H-H1-H2



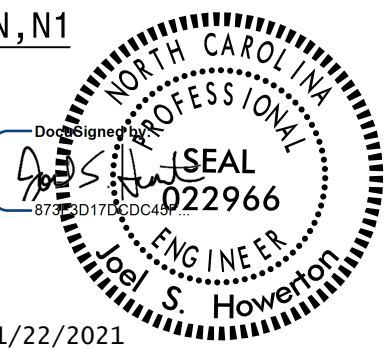
BARS Z-Z1-Z2



BARS N-N1

DESIGN DATA

Specifications Steel in tension A.A.S.H.T.O. (1977) 20,000 LBS. PER SQ. IN.
Concrete in compression 1,200 LBS. PER SQ. IN.
Shear Class 'A' Concrete SEE A.A.S.H.T.O.
Equiv. fluid pressure of earth 30 LBS. PER CU. FT.



11/22/2021

BILL OF MATERIAL FOR ONE ENDWALL

REINFORCING STEEL	1 PIPE	2 PIPES	3 PIPES			
BAR SIZE	NO.	WEIGHT	NO.	WEIGHT	NO.	WEIGHT
B #4	8	32	16	64	24	96
G #5	10'-9"	4	45	-	-	-
G1 #5	11'-9"	-	-	8	98	-
G2 #5	17'-0"	-	-	-	-	8 142
H #4	9'-0"	10	60	10	60	10 60
H1 #4	7'-0"	6	28	6	28	6 28
H2 #4	3'-9"	4	10	4	10	4 10
N #5	4'-6"	10	47	15	70	20 94
N1 #4	4'-1"	10	27	10	27	10 27
T #4	6'-6"	6	26	6	26	6 26
T1 #4	15'-0"	6	60	-	-	-
T2 #4	13'-9"	-	-	12	110	-
T3 #4	19'-0"	-	-	-	-	12 152
T4 #4	2'-9"	4	7	7	13	10 18
V #4	5'-9"	6	23	6	23	6 23
V1 #4	4'-6"	6	18	6	18	6 18
V2 #4	2'-9"	8	15	8	15	8 15
V3 #4	7'-6"	6	30	11	55	16 80
Z #5	4'-9"	4	20	4	20	4 20
Z1 #4	4'-3"	4	11	4	11	4 11
Z2 #4	3'-6"	6	14	6	14	6 14
TOTAL REINF. STEEL (lbs.)		473		662		834
CLASS "A" CONC. (cu. yds.)		7.9		10.8		13.8

DESIGN DATA

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

**DETAIL OF REINFORCED
CONCRETE ENDWALL FOR
78" DIAMETER PIPE - 90° SKEW**

ORIGINAL BY: _____ DATE: _____
MODIFIED BY: R.E.D.&T.S.S. DATE: 6-96 & 5-00
CHECKED BY: _____ DATE: _____
FILE SPEC.: w:details\stand\endwpip84sk90.dgn

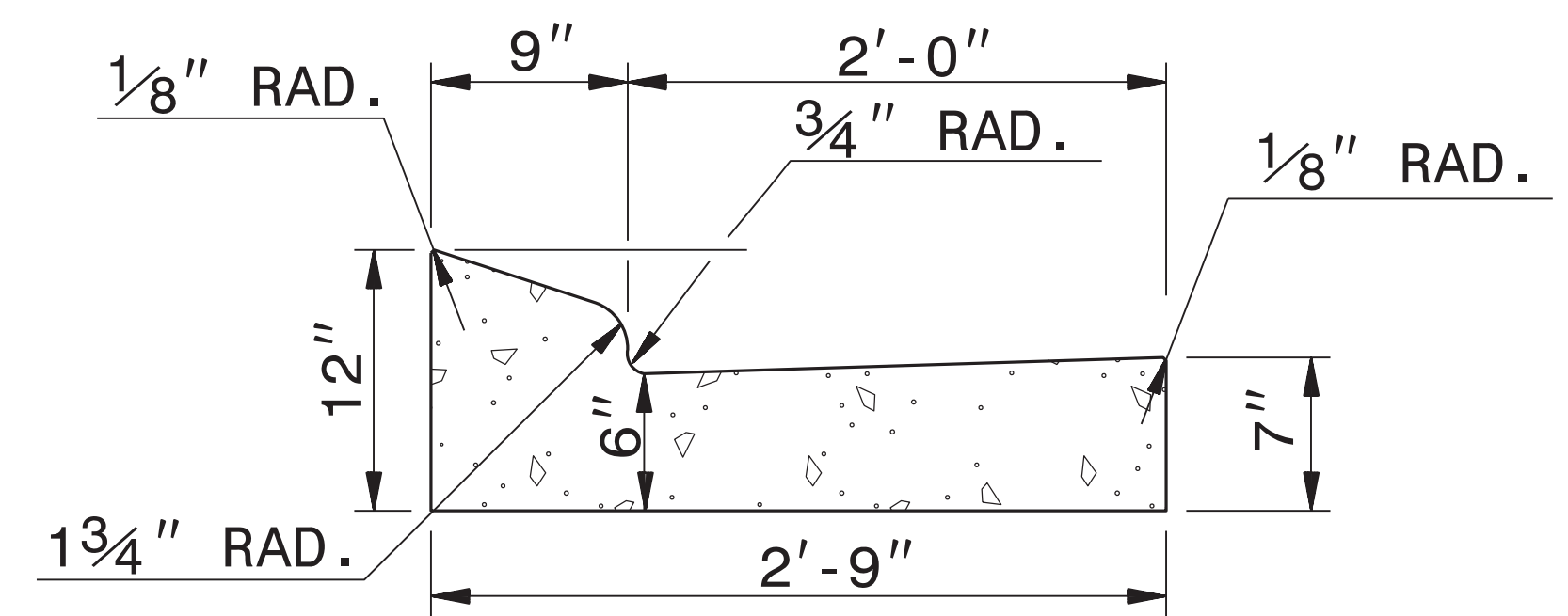
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

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

ENGLISH DETAIL DRAWING FOR
2'-9" CONCRETE CURB & GUTTER

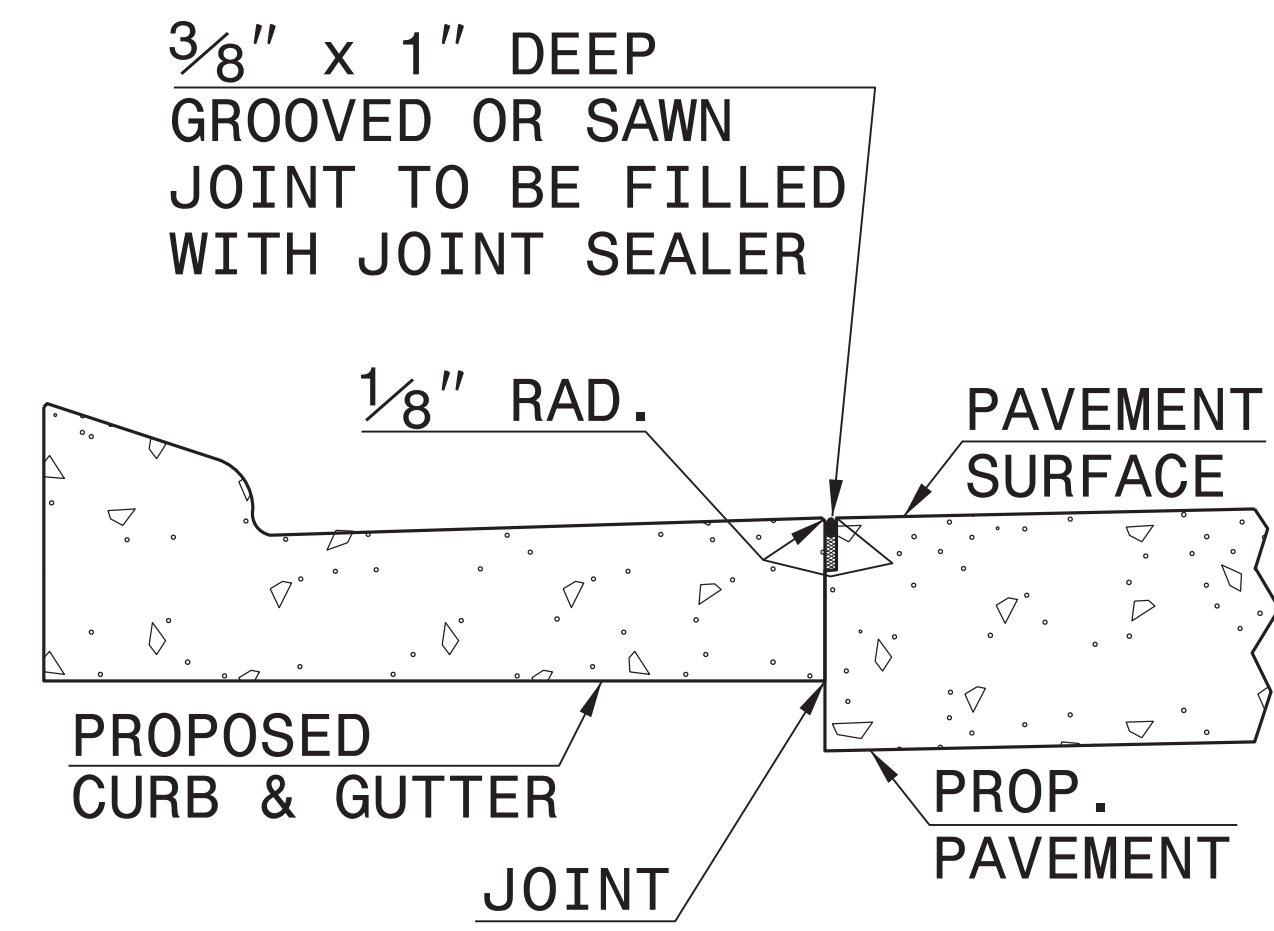
SHEET 1 OF 1
846D01

- GENERAL NOTES:
- PLACE CONTRACTION JOINTS AT 10' INTERVALS, EXCEPT THAT A 15' SPACING MAY BE USED WHEN A MACHINE IS USED OR WHEN SATISFACTORY SUPPORT FOR THE FACE FORM CAN BE OBTAINED WITHOUT THE USE OF TEMPLATES AT 10' INTERVALS.
 - JOINT SPACING MAY BE ALTERED IF REQUIRED BY THE ENGINEER.
 - CONTRACTION JOINTS MAY BE INSTALLED WITH THE USE OF TEMPLATES OR FORMED BY OTHER APPROVED METHODS. MAKE NON-TEMPLATE FORMED JOINTS A MIN. OF 1½" DEEP.
 - FILL ALL CONSTRUCTION JOINTS WITH JOINT FILLER AND SEALER.
 - SPACE EXPANSION JOINTS AT 90' INTERVALS AND ADJACENT TO ALL RIGID OBJECTS.
 - SEE RDWY. STD. DWG. NO. 846.01, SHEET 2 OF 3 FOR PLACEMENT IN SUPERELEVATIONS. (USE 2'-6" CURB AND GUTTER RATES)

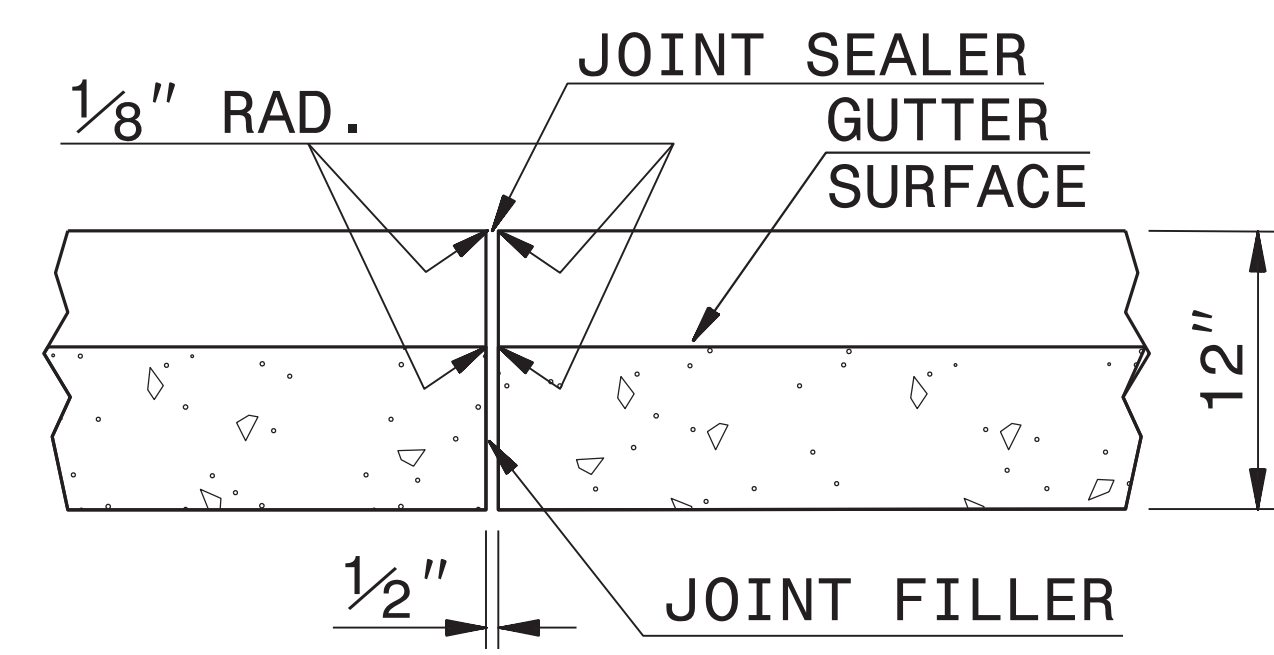


2'-9" CURB AND GUTTER

SECTION VIEW OF CURB AND GUTTER



LONGITUDINAL JOINT



TRANSVERSE EXPANSION JOINT IN CURB AND GUTTER

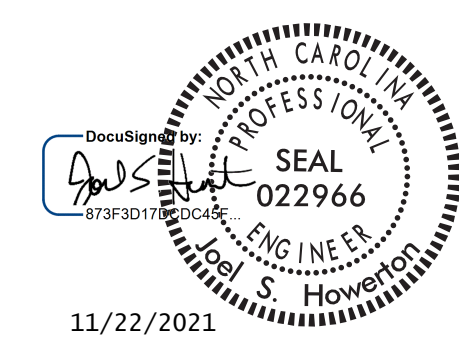
SECTION VIEW OF JOINTS

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DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR
2'-9" CONCRETE CURB & GUTTER

SHEET 1 OF 1
846D01

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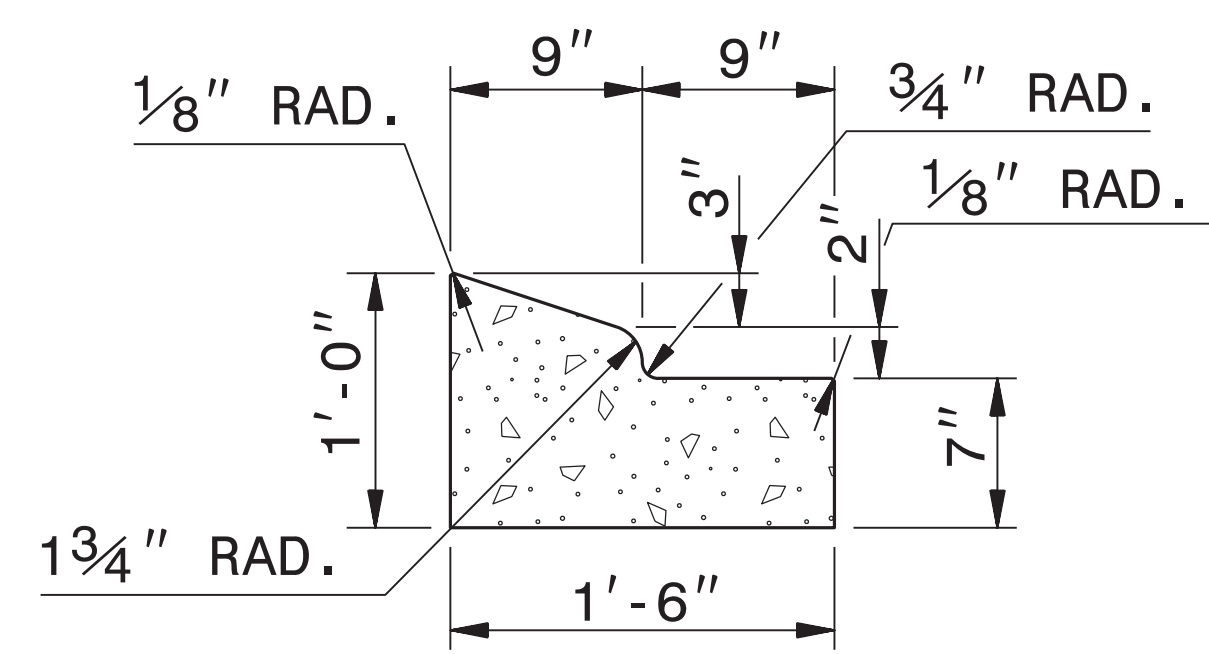


CONTRACT STANDARDS AND DEVELOPMENT UNIT
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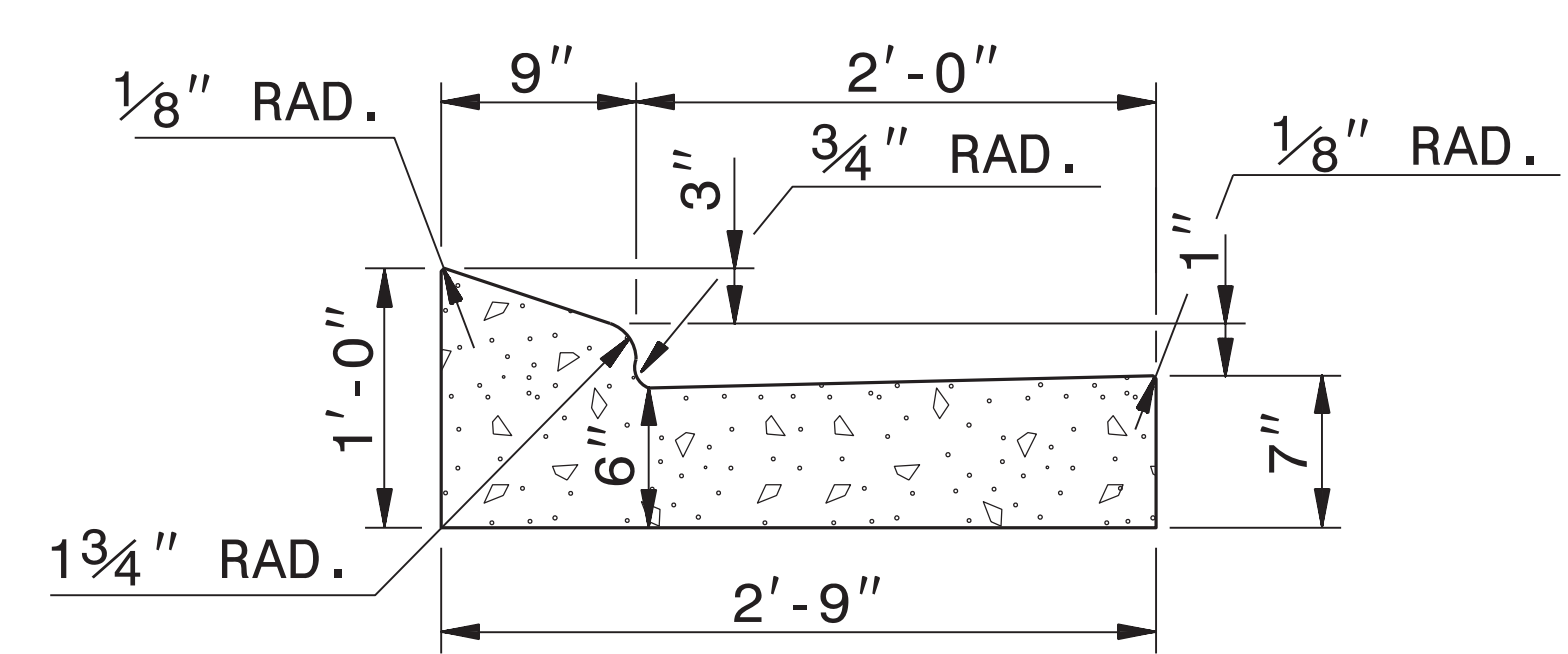
SEE PLATE FOR TITLE

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 MODIFIED BY: E.E. WARD DATE: 8-15-00
 CHECKED BY: _____ DATE: _____
 FILE SPEC.: /usr/details/stand/c&g2'-9.dgn

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



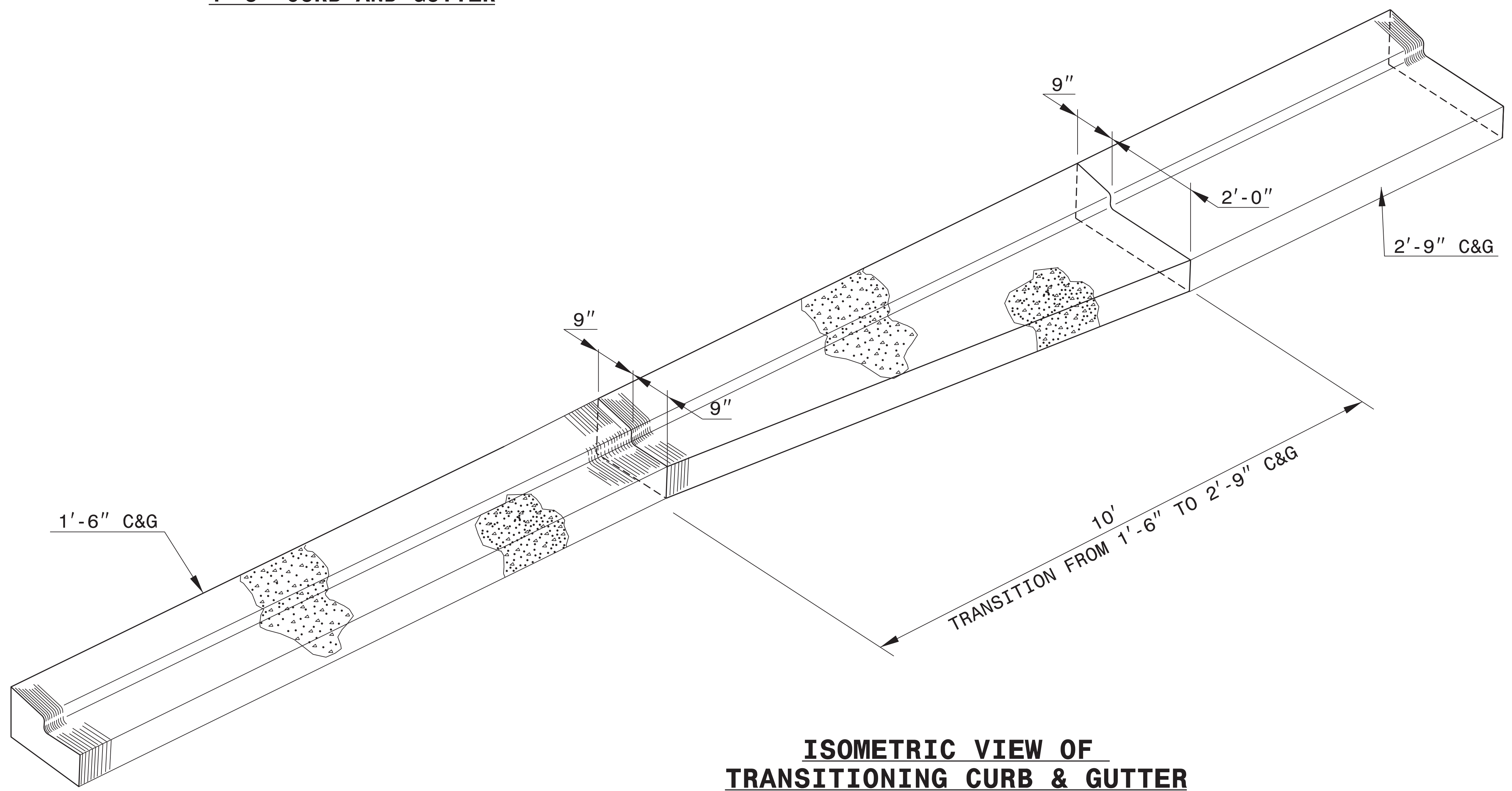
1'-6" CURB AND GUTTER



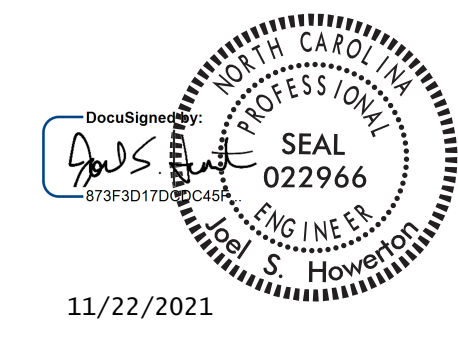
2'-9" CURB AND GUTTER

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

SEE ROADWAY PLANS FOR LOCATION OF CURB TRANSITION.



**ISOMETRIC VIEW OF
TRANSITIONING CURB & GUTTER**



11/22/2021

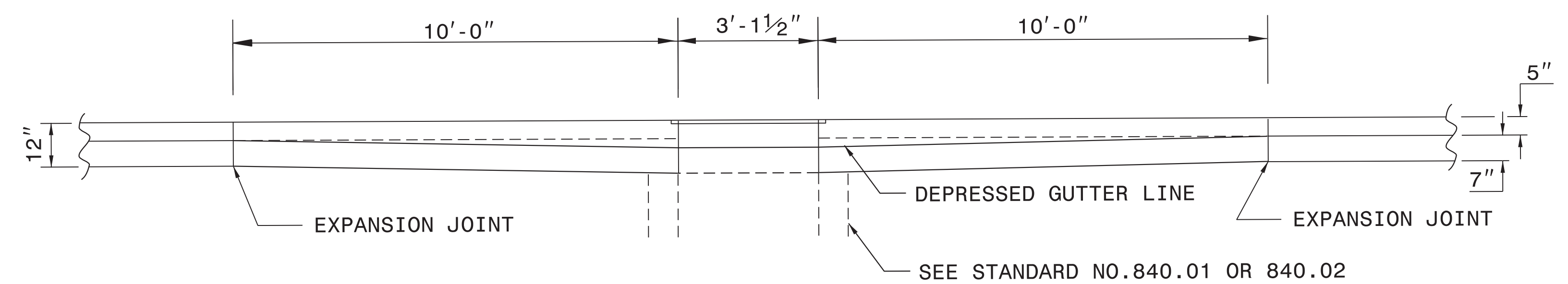
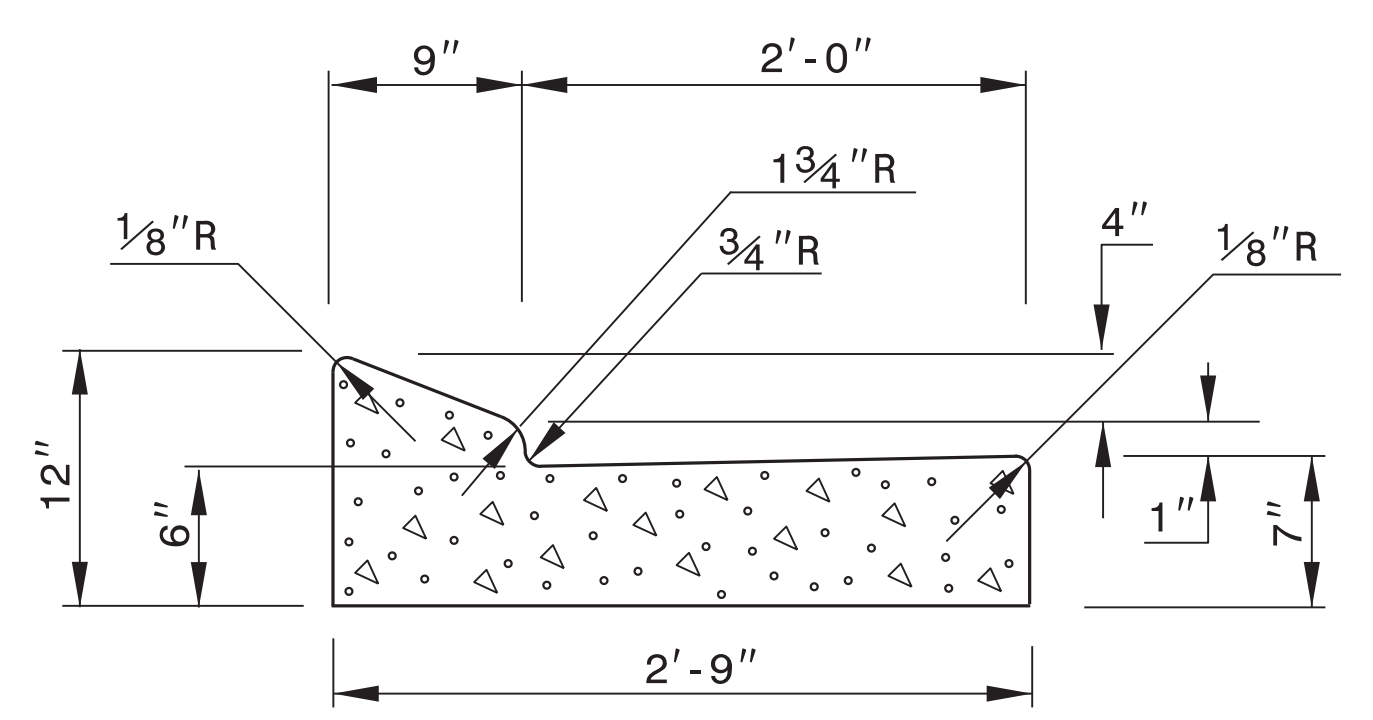
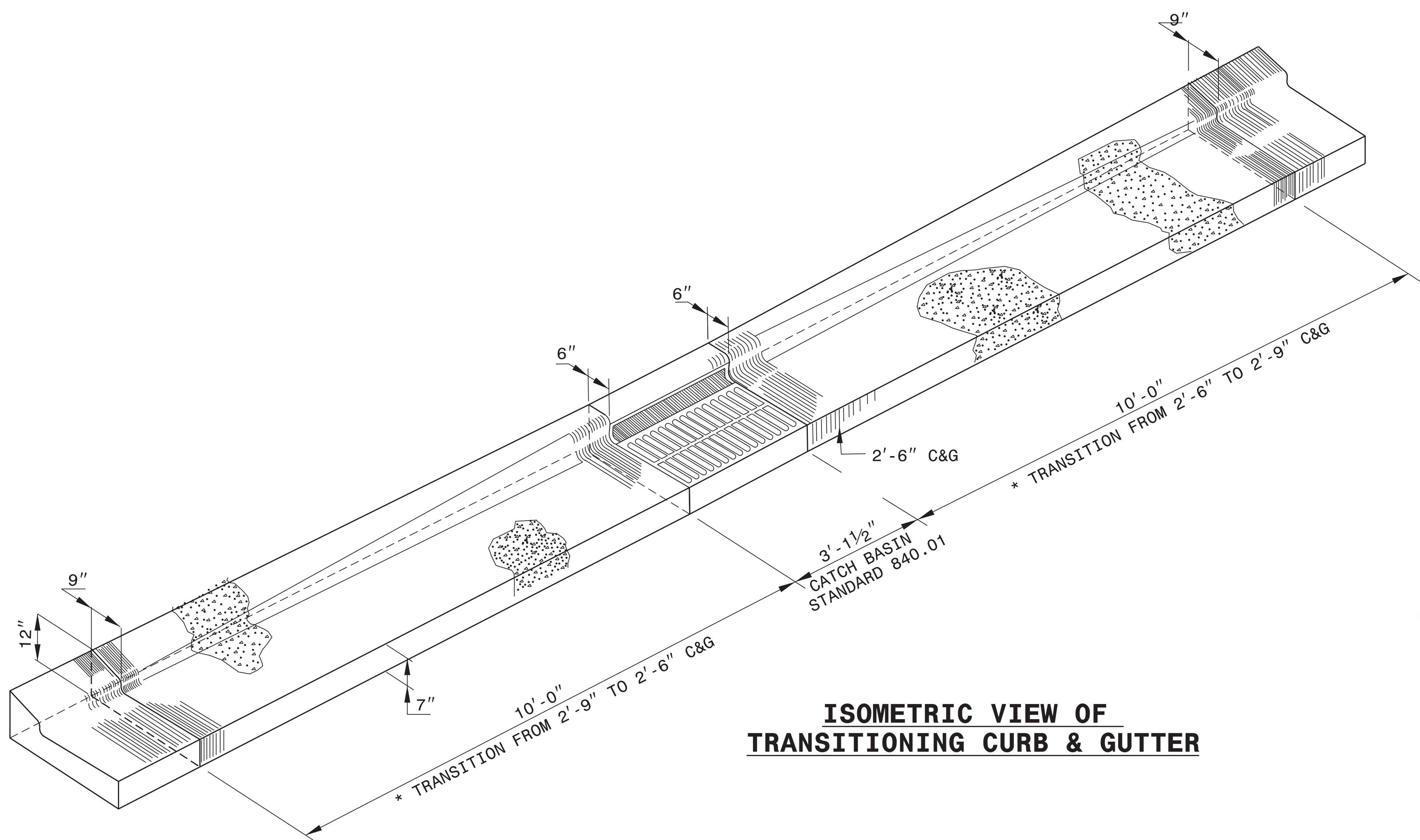
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

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AND DEVELOPMENT UNIT**
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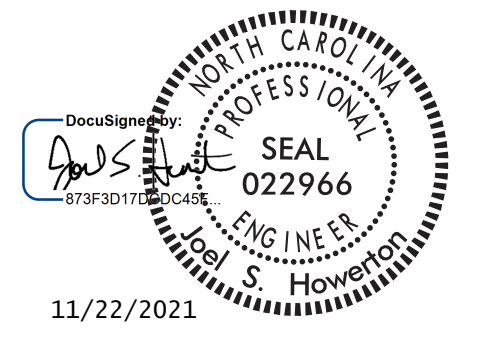
**DETAIL OF 1'-6"
TO 2'-9" CURB & GUTTER
TRANSITION SECTION**

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 MODIFIED BY: T.S. SPELL DATE: JAN. 23, 2007
 CHECKED BY: DATE:
 FILE SPEC.: DS174:/usr/details/stand/cotrtransit.dgn

NOTE: SEE STD.DWG. 846.01 FOR
2'-6" CURB AND GUTTER
INFORMATION.



* MAINTAIN THE EDGE OF PAVEMENT. TRANSITION THE CURB ALONG THE BACK OF THE CURB.



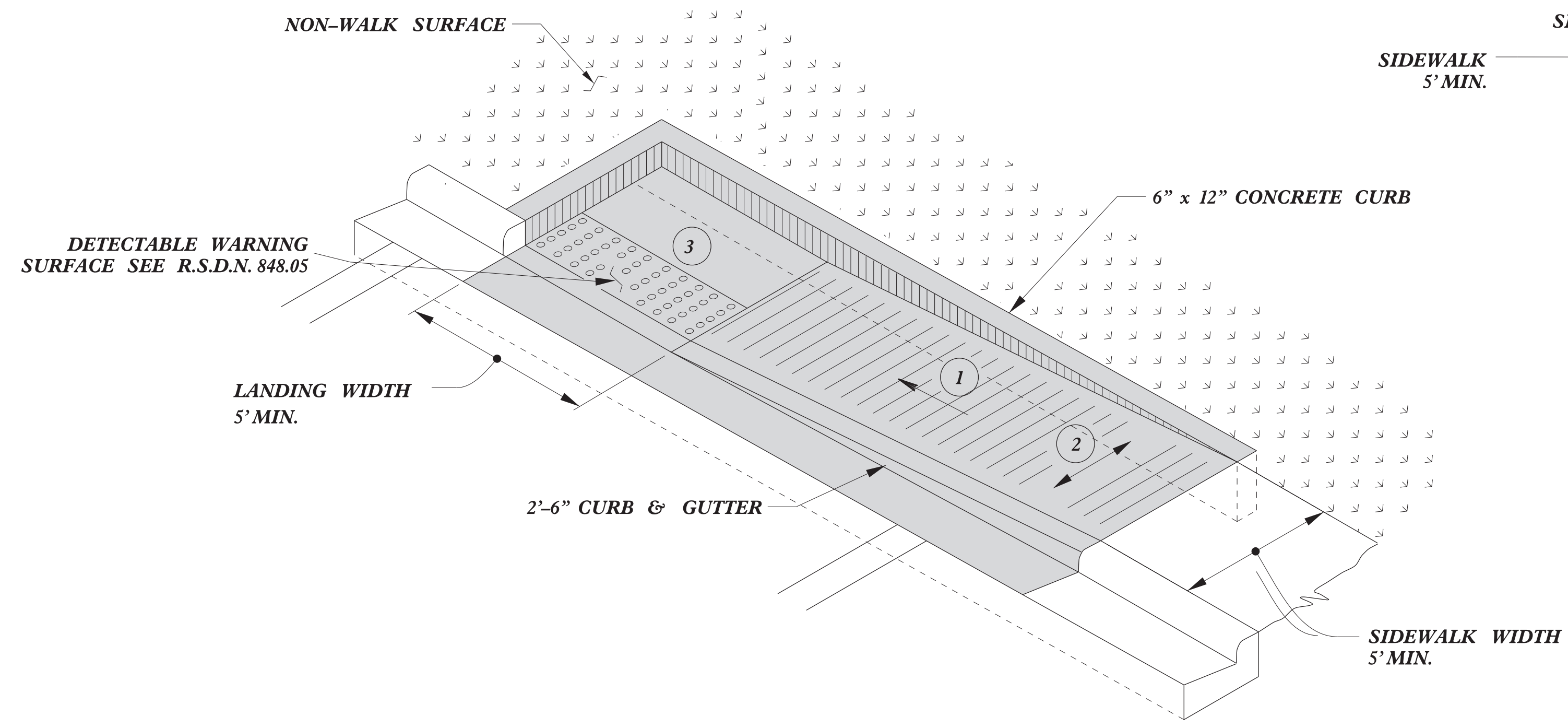
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

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AND DEVELOPMENT UNIT**
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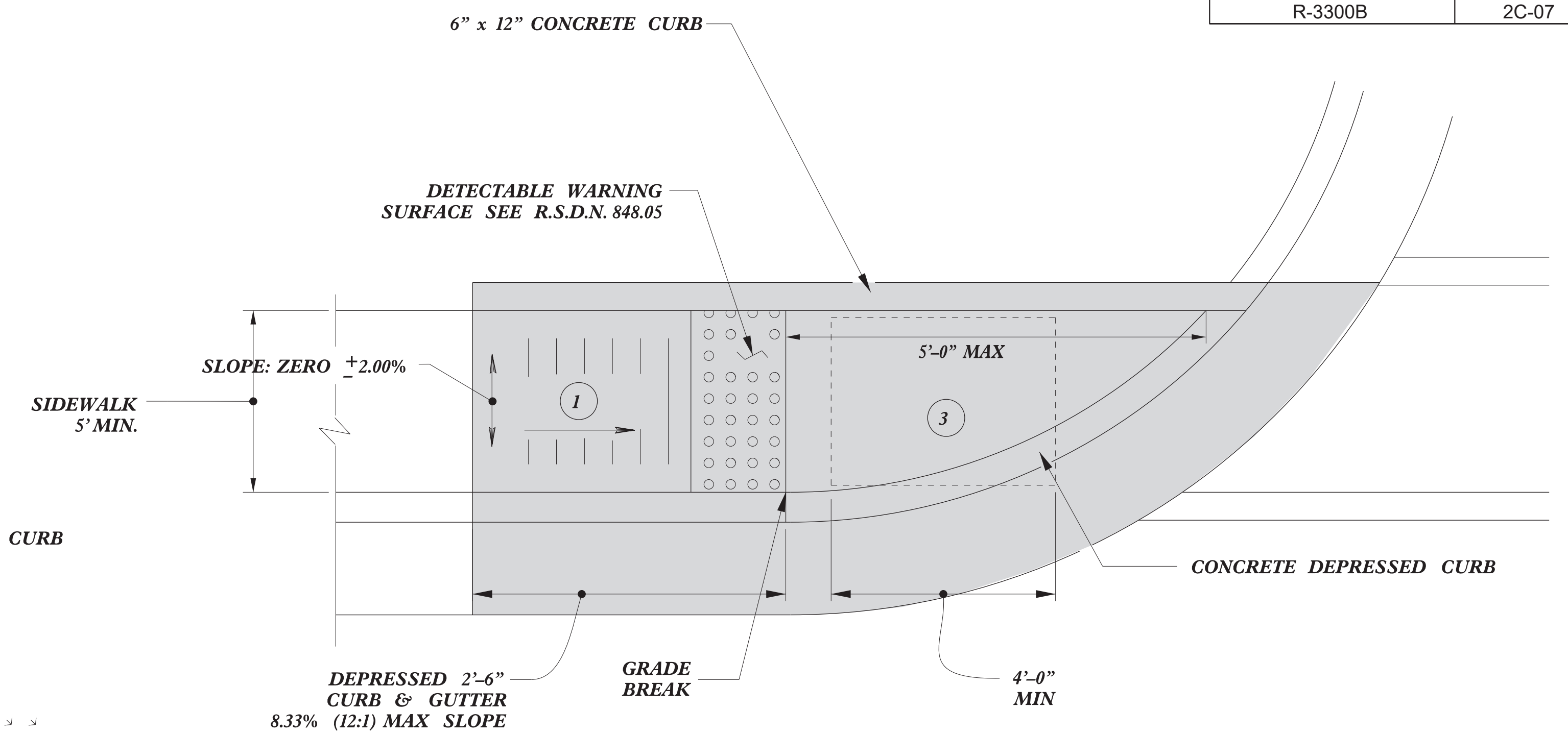
**DETAIL OF 2'-9"
TO 2'-6" CURB & GUTTER
TRANSITION SECTION**

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 CHECKED BY: _____ DATE: _____
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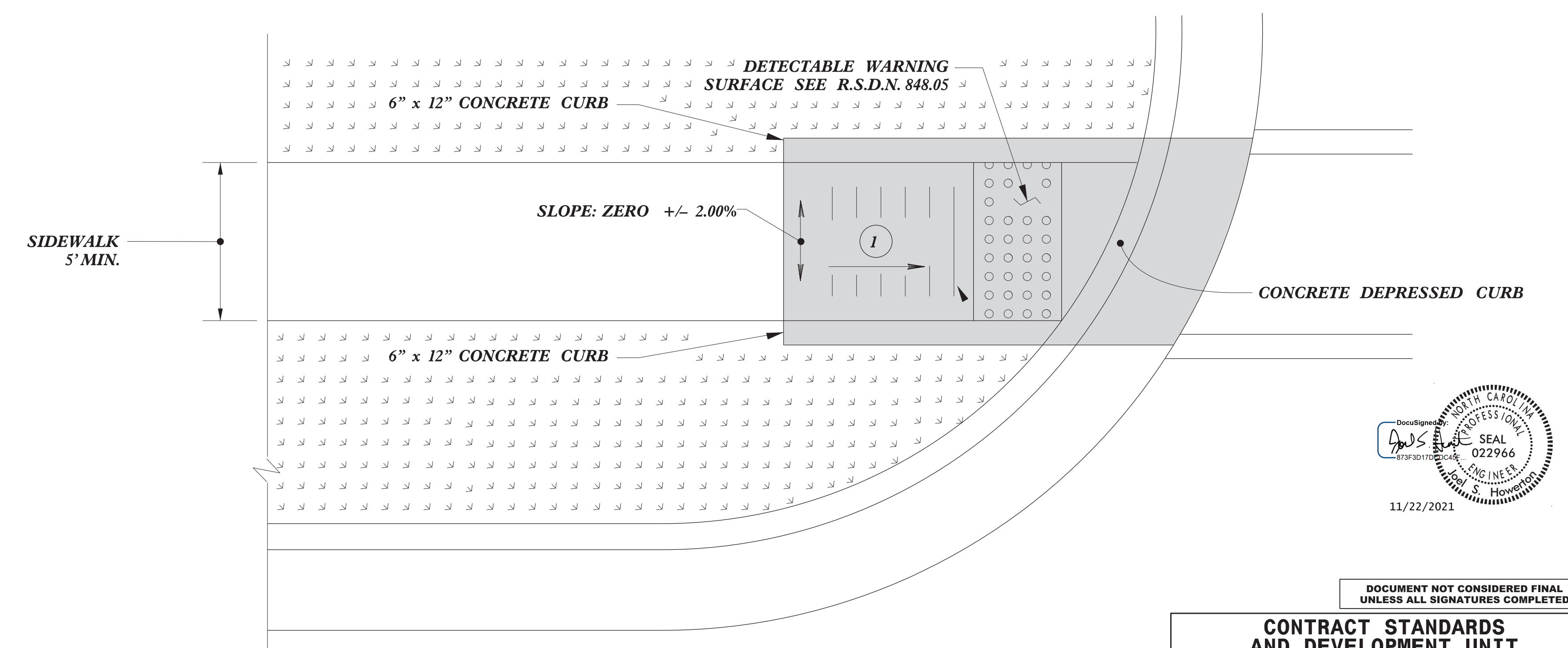
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TYPE 1A



TYPE 1

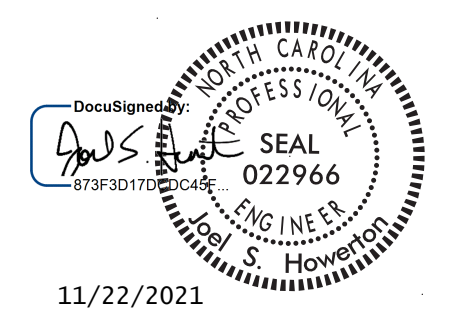


TYPE 1 Modified

- 1 8.33% (12:1) MAX RAMP SLOPE
- 2 CROSS SLOPE: 2.00%
- 3 CURB RAMPS REQUIRE A (4'-0") MINIMUM LANDING WITH A MAXIMUM CROSS SLOPE AND LONGITUDINAL SLOPE OF 2.00% WHERE PEDESTRIANS PERFORM TURNING MANEUVERS. SLOPE TO DRAIN TO CURB.

PAY LIMITS FOR 1 CURB RAMP

REFER TO ROADWAY STANDARD DRAWING NUMBER 848.05 SHEET 3 OF 3 FOR ALL RAMP NOTES



11/22/2021

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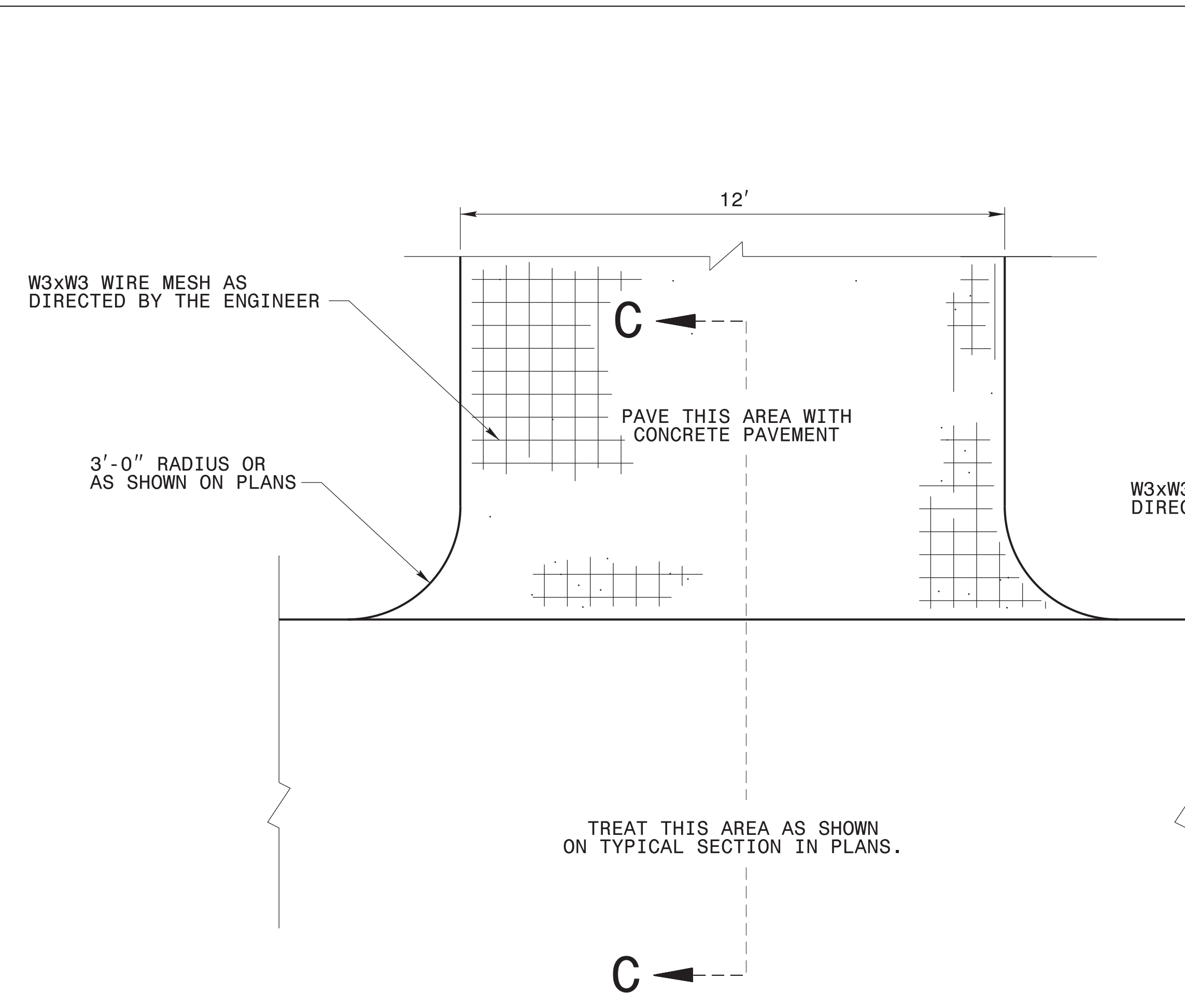
CONTRACT STANDARDS AND DEVELOPMENT UNIT	
Office 919-707-6950 FAX 919-250-4119	
CURB RAMPS	
Directional Ramps	
ORIGINAL BY: J.S. HOWERTON	DATE: 7/7/11
MODIFIED BY:	DATE:
CHECKED BY:	DATE:
FILE SPEC: .stds/2012CurbRamp/CurbRampDetails.dgn	

5/14/99
SYTIME\$\$\$\$
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USERNAME\$\$\$\$

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

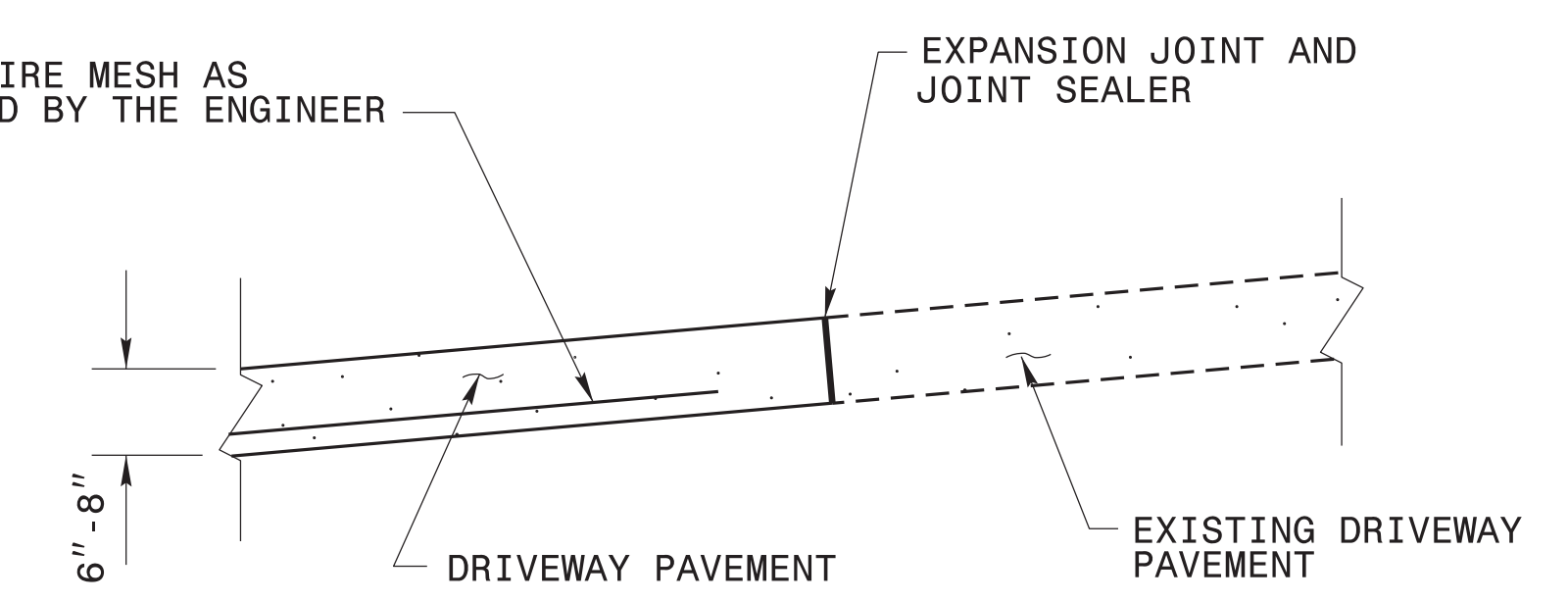
ENGLISH DETAIL DRAWING FOR
DRIVEWAY TURNOUT
RADIUS TYPE

SHEET 1 OF 1
848D02



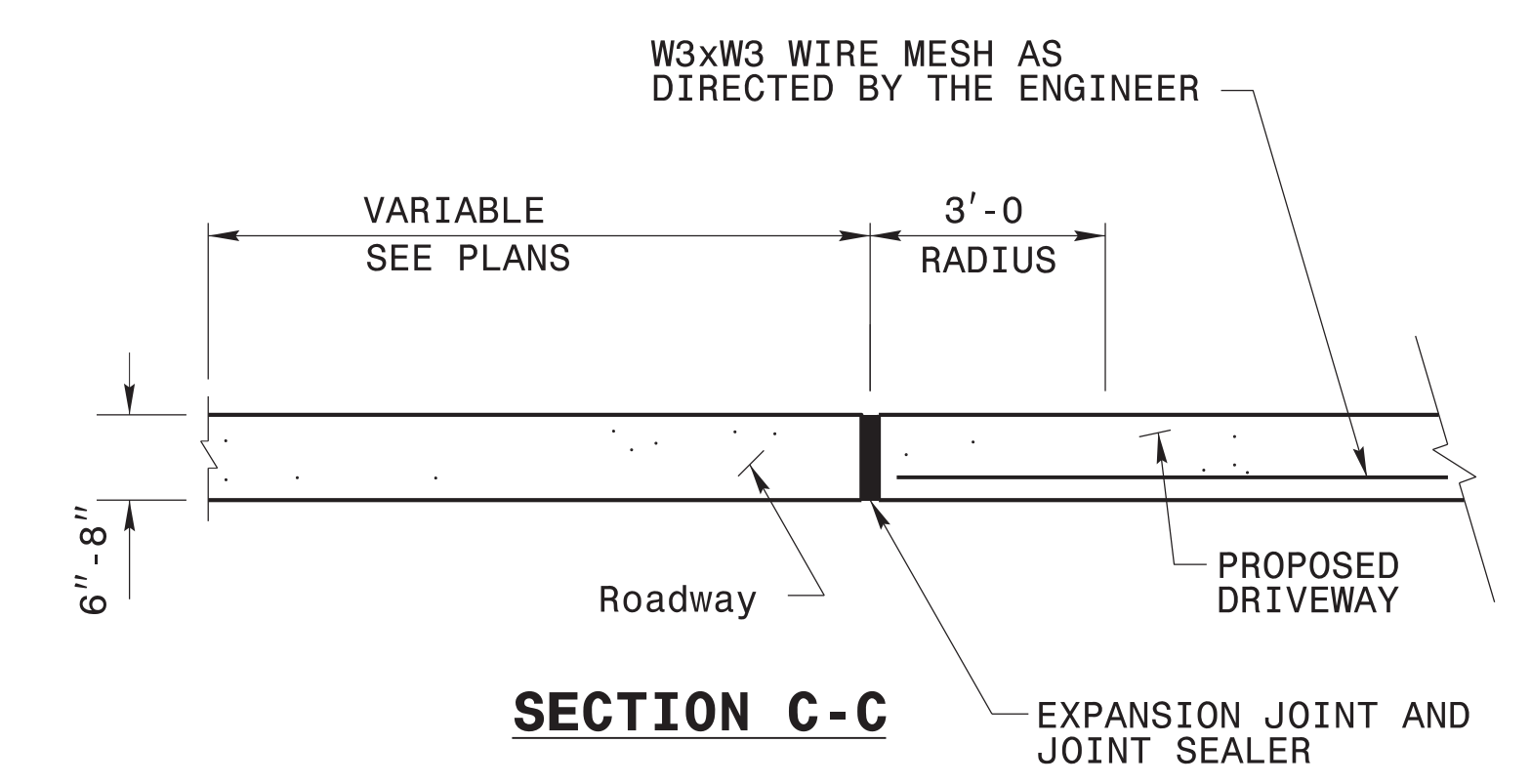
PARTIAL PLAN OF PAVED DRIVEWAY TURNOUT

- NOTES:
- CONSTRUCT STANDARD DRIVEWAY THE WIDTH OF EXISTING DRIVE. CONSTRUCT DRIVE 6"-8" THICK UNLESS OTHERWISE NOTED ON PLANS.
 - PLACE 1/2" EXPANSION JOINT BETWEEN DRIVEWAY AND ROADWAY AND AT LOCATIONS AS DIRECTED BY THE ENGINEER. SEAL JOINT WITH JOINT SEALER (SEE STD. SECTION 1028)
 - PLACE WIRE MESH IN BOTTOM THIRD OF CONCRETE DRIVEWAY.
 - SAW CUT OR FORM CONTRACTION JOINTS IN DRIVEWAY @ 10' INTERVALS. AT EVERY THIRD JOINT, PLACE EXPANSION MATERIAL AS SHOWN IN SECTION C-C.



METHOD OF TIE IN

WHEN EXISTING DRIVEWAY PAVEMENT IS CONCRETE, SAW CUT A 2" DEEP JOINT AT THE POINT OF TIE IN WITH EXISTING DRIVEWAY GRADE.
SAW JOINT PERPENDICULAR TO EDGE OF EXISTING DRIVEWAY PAVEMENT.



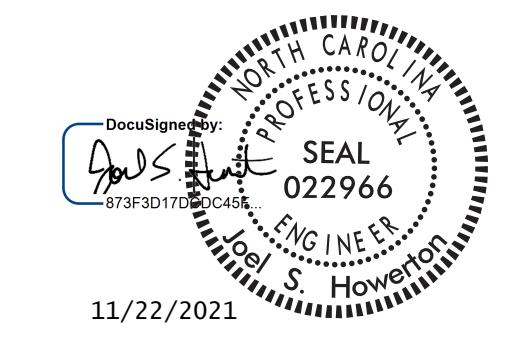
SECTION C-C

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

ENGLISH DETAIL DRAWING FOR
DRIVEWAY TURNOUT
RADIUS TYPE

SHEET 1 OF 1
848D02

09-MAY-2018 14:45 S:\Contracts\Special Details\english\misc\conc drive.dgn JHowerton AT CSD-292595



11/22/2021

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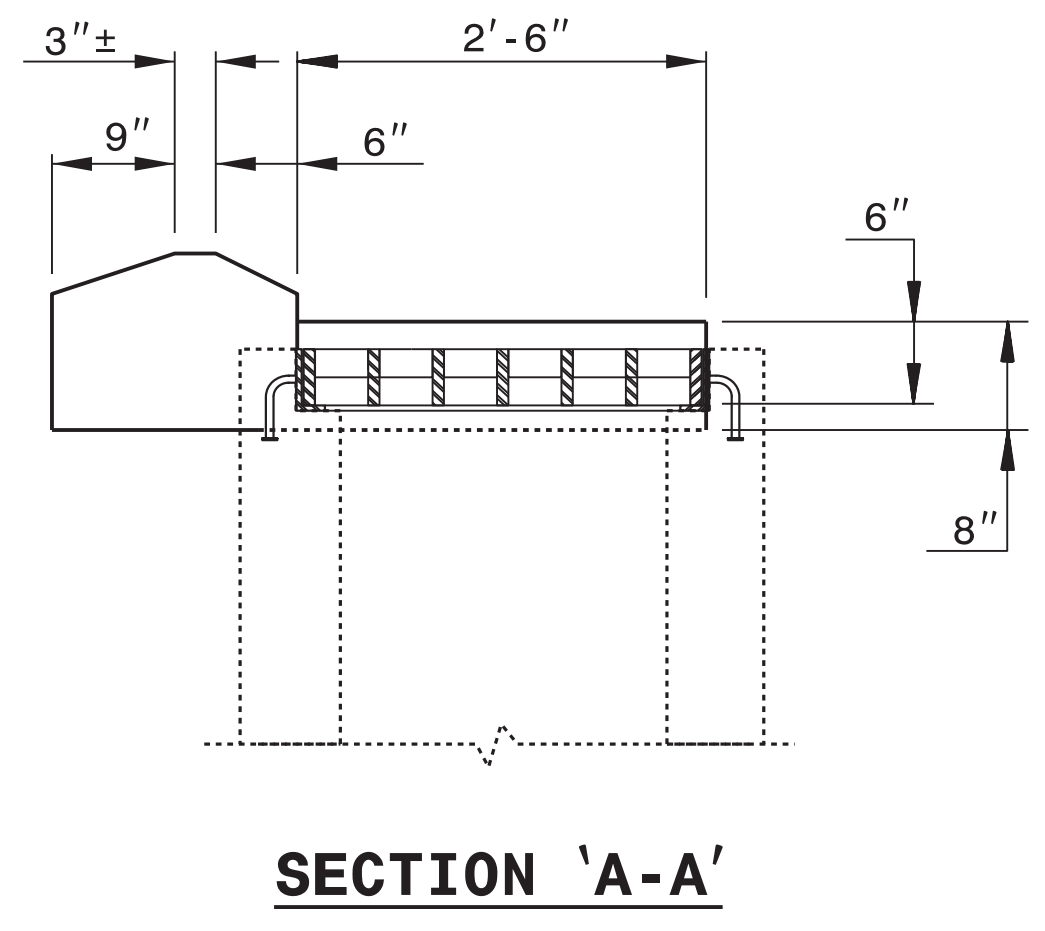
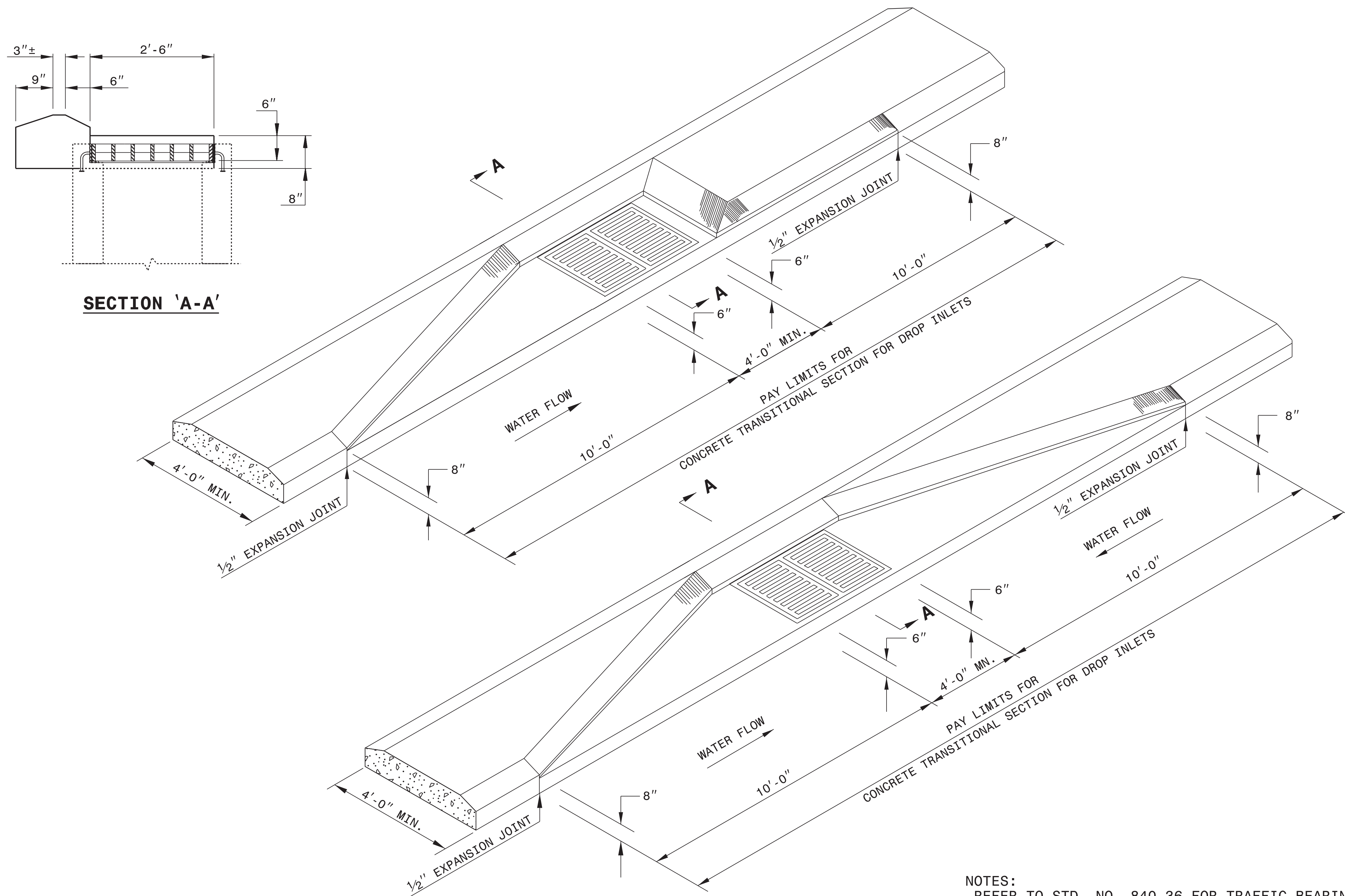
REINFORCED CONCRETE DRIVEWAY

ORIGINAL BY: _____ DATE: _____
MODIFIED BY: rnbritt DATE: 03-20-08
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STATE OF
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DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR
**METHOD FOR PLACEMENT OF
DROP INLETS IN CONCRETE ISLANDS**

SHEET 1 OF 1
852D06



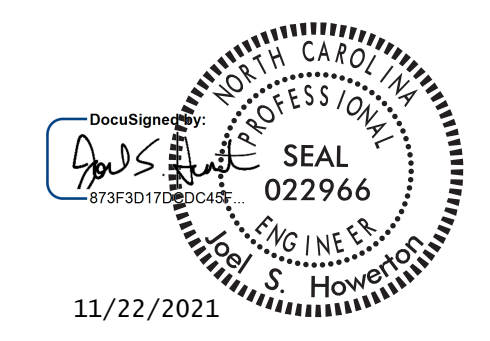
NOTES:
-REFER TO STD. NO. 840.36 FOR TRAFFIC BEARING DRAINAGE STRUCTURE.
-REFER TO STD. NO. 840.37 FOR STEEL GRATE AND FRAME.

STATE OF
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DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR
**METHOD FOR PLACEMENT OF
DROP INLETS IN CONCRETE ISLANDS**

SHEET 1 OF 1
852D06

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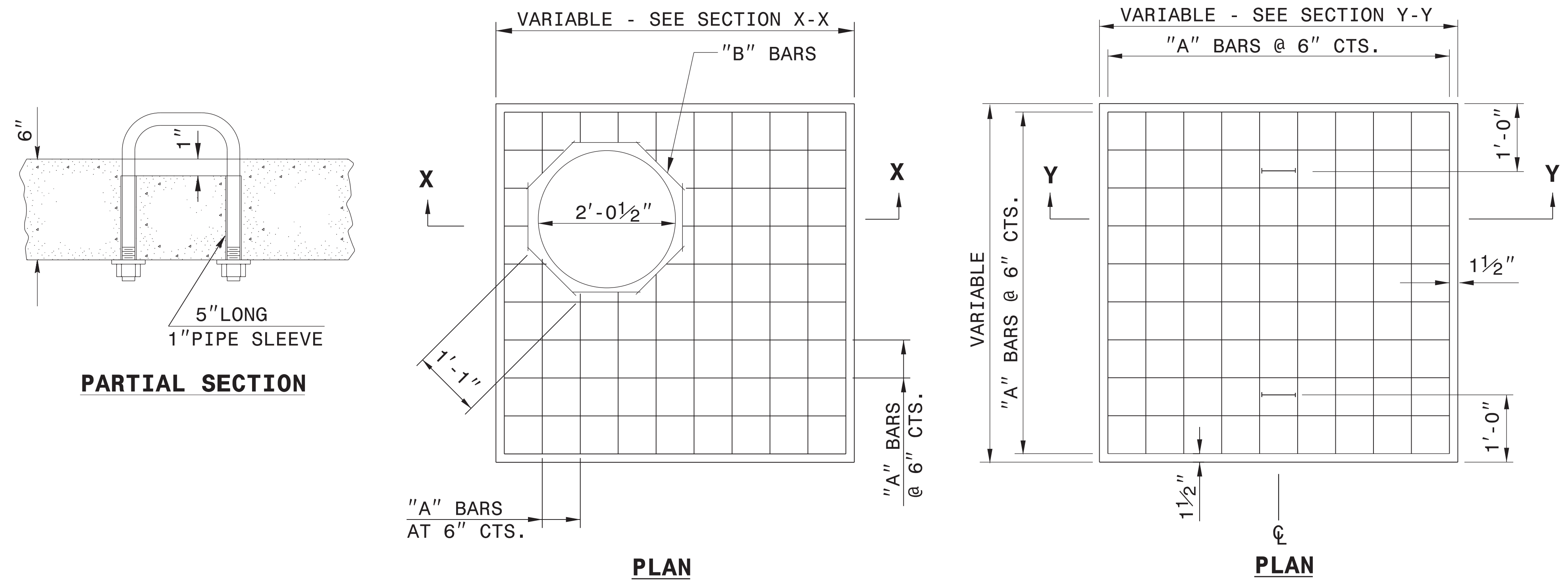


11/22/2021

**CONTRACT STANDARDS
AND DEVELOPMENT UNIT**
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SEE TITLE PLATE

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MODIFIED BY: _____ DATE: _____
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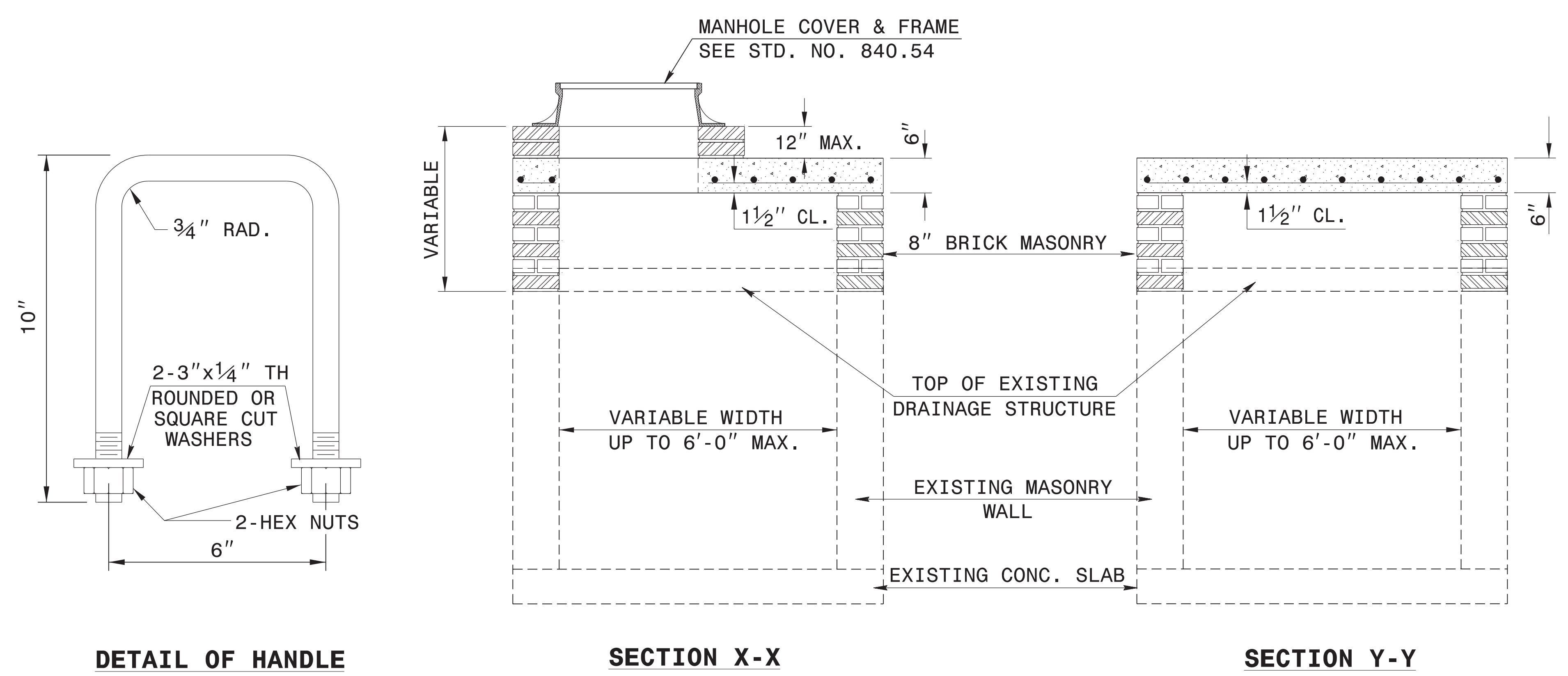


GENERAL NOTES:

CONSTRUCT IN ACCORDANCE WITH SECTION 859 OF THE STANDARD SPECIFICATIONS.

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

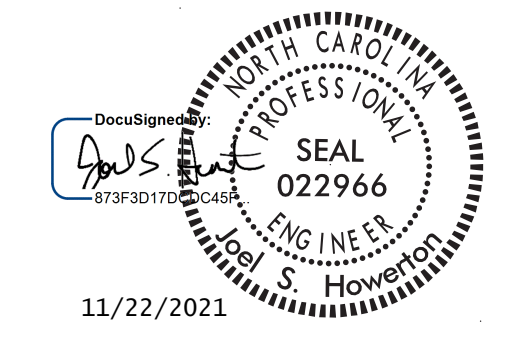
DETAIL INTENDED FOR NON-TRAFFIC BEARING DRAINAGE STRUCTURES.



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.

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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/boxtojb.e.dgn

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 T.S.S. Howerton
 77373
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STATE OF
NORTH CAROLINA
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DIVISION OF HIGHWAYS
RALEIGH, N.C.

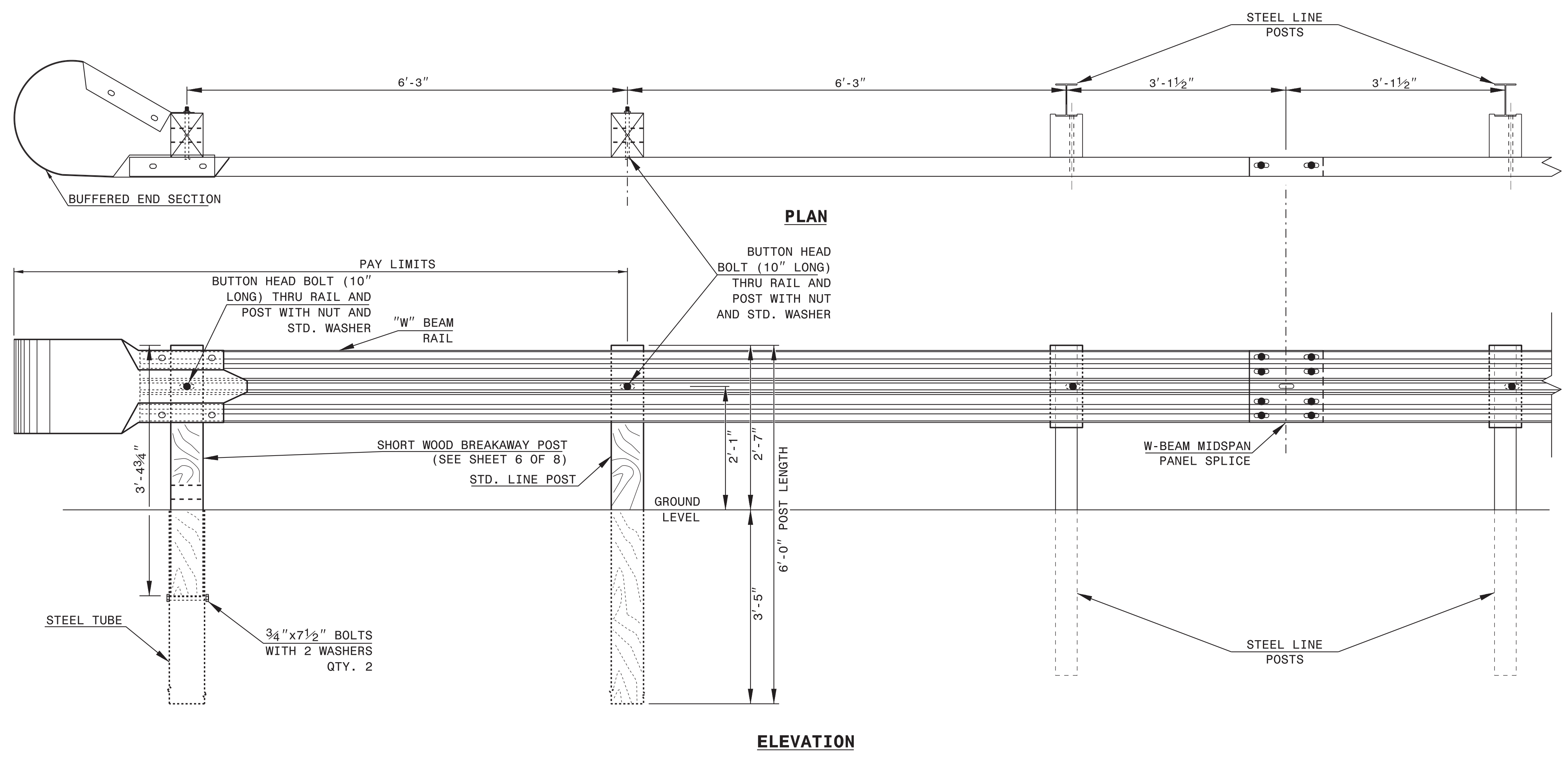
ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

SHEET OF

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

ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

SHEET OF



TRAILING END UNIT ASSEMBLY
A.T. - 1 SYSTEM



11/22/2021

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A.T. - 1 SYSTEM

ORIGINAL BY: _____ DATE: _____
MODIFIED BY: _____ DATE: _____
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STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

ROADWAY DETAIL DRAWING FOR STRUCTURE ANCHOR UNITS GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO RAIL ON BRIDGE

SHEET 1 OF 7
862D03

SHEET 1 OF 7
862D03

GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO RAIL ON BRIDGE

PLAN VIEW

GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO RAIL ON BRIDGE

ELEVATION

NOTE:

- **POST NOT REQUIRED FOR SKEW ANGLES GREATER THAN 150° OR LESS THAN 30° UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
- *THE DISTANCE FROM END OF BRIDGE RAIL TO CENTER LINE OF THE FIRST POST SHOULD BE 11 1/2" IF CONCRETE BACKWALL IS NOT PRESENT.
- SHOULDER BERM GUTTER MUST BE INSTALLED TO THE LIMITS 8" X 4" LIP CURB IS SHOWN IF ANCHOR UNIT IS NOT ADJACENT TO AN APPROACH SLAB.
- MEASURE GUARDRAIL HEIGHT FROM THE TOP OF ADJACENT SURFACE (SHOULDER, BERM, OR GUTTER).
- LAP JOINTS IN THE DIRECTION OF TRAFFIC FLOW.
- SEE SHEET 3 FOR POST SECTIONS 1 THRU 9.

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

ROADWAY DETAIL DRAWING FOR STRUCTURE ANCHOR UNITS GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO RAIL ON BRIDGE - SUB REGIONAL TIER

SHEET 1 OF 7
862D03

SHEET 2 OF 7
862D03

GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO RAIL ON BRIDGE - SUB REGIONAL TIER

PLAN VIEW

GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO RAIL ON BRIDGE - SUB REGIONAL TIER

ELEVATION

NOTE:

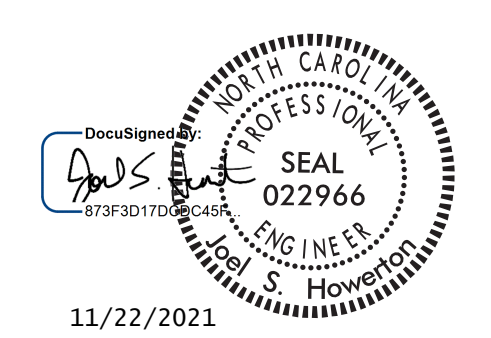
- **POST NOT REQUIRED FOR SKEW ANGLES GREATER THAN 150° OR LESS THAN 30° UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
- *THE DISTANCE FROM END OF BRIDGE RAIL TO CENTER LINE OF THE FIRST POST SHOULD BE 11 1/2" IF CONCRETE BACKWALL IS NOT PRESENT.
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- MEASURE GUARDRAIL HEIGHT FROM THE TOP OF ADJACENT SURFACE (SHOULDER, BERM, OR GUTTER).
- LAP JOINTS IN THE DIRECTION OF TRAFFIC FLOW.
- SEE SHEET 3 FOR POST SECTIONS 1 THRU 9.

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SEE TITLE BLOCK

ORIGINAL BY: J HOWERTON	DATE: 06-22-12
MODIFIED BY:	DATE:
CHECKED BY:	DATE:
FILE SPEC.:	



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

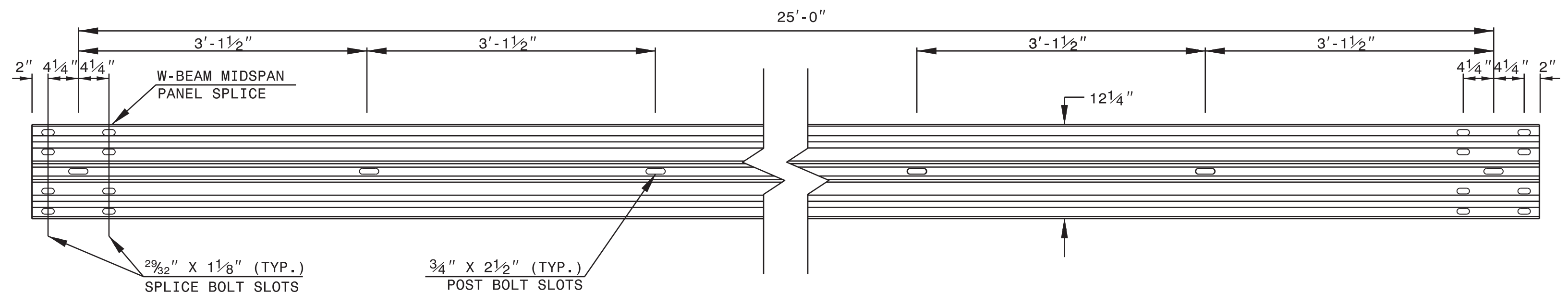
ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

SHEET 6 OF 8
862D02

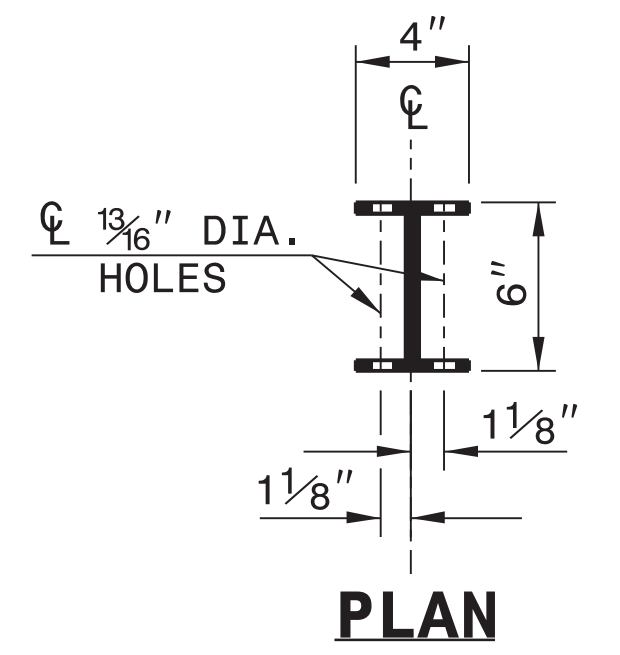
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

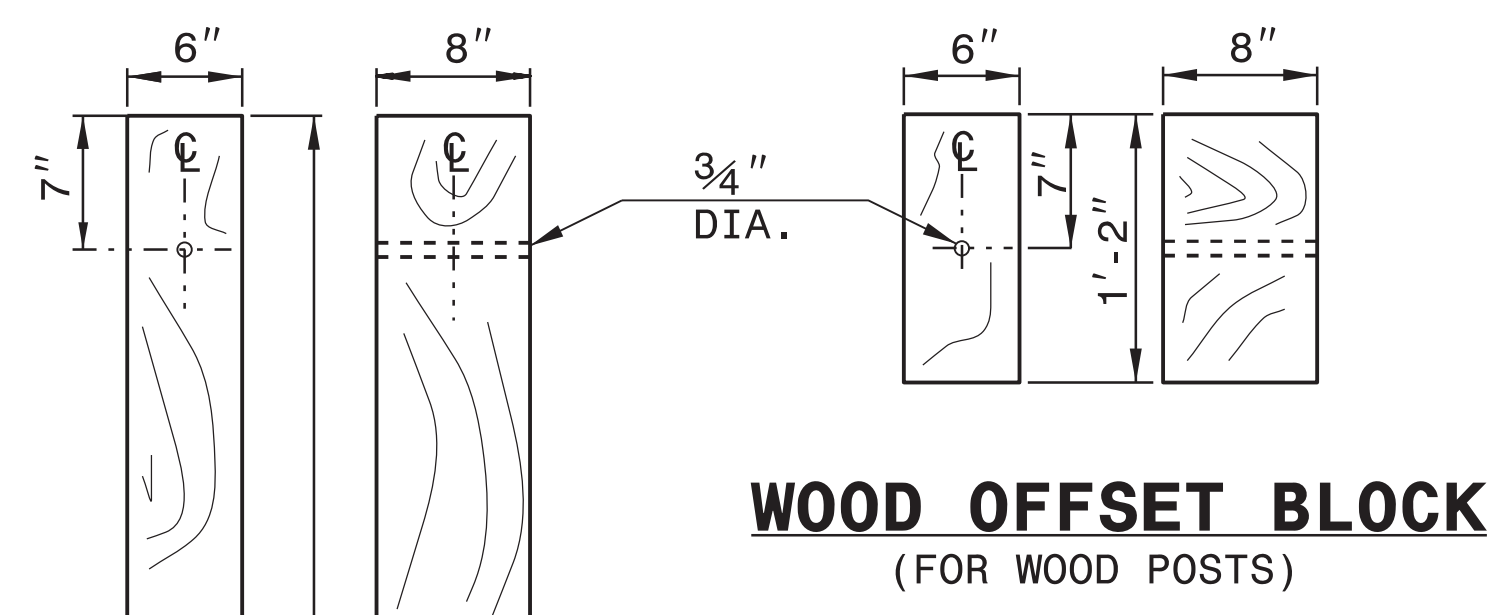
SHEET 6 OF 8
862D02



STANDARD W-BEAM GUARDRAIL



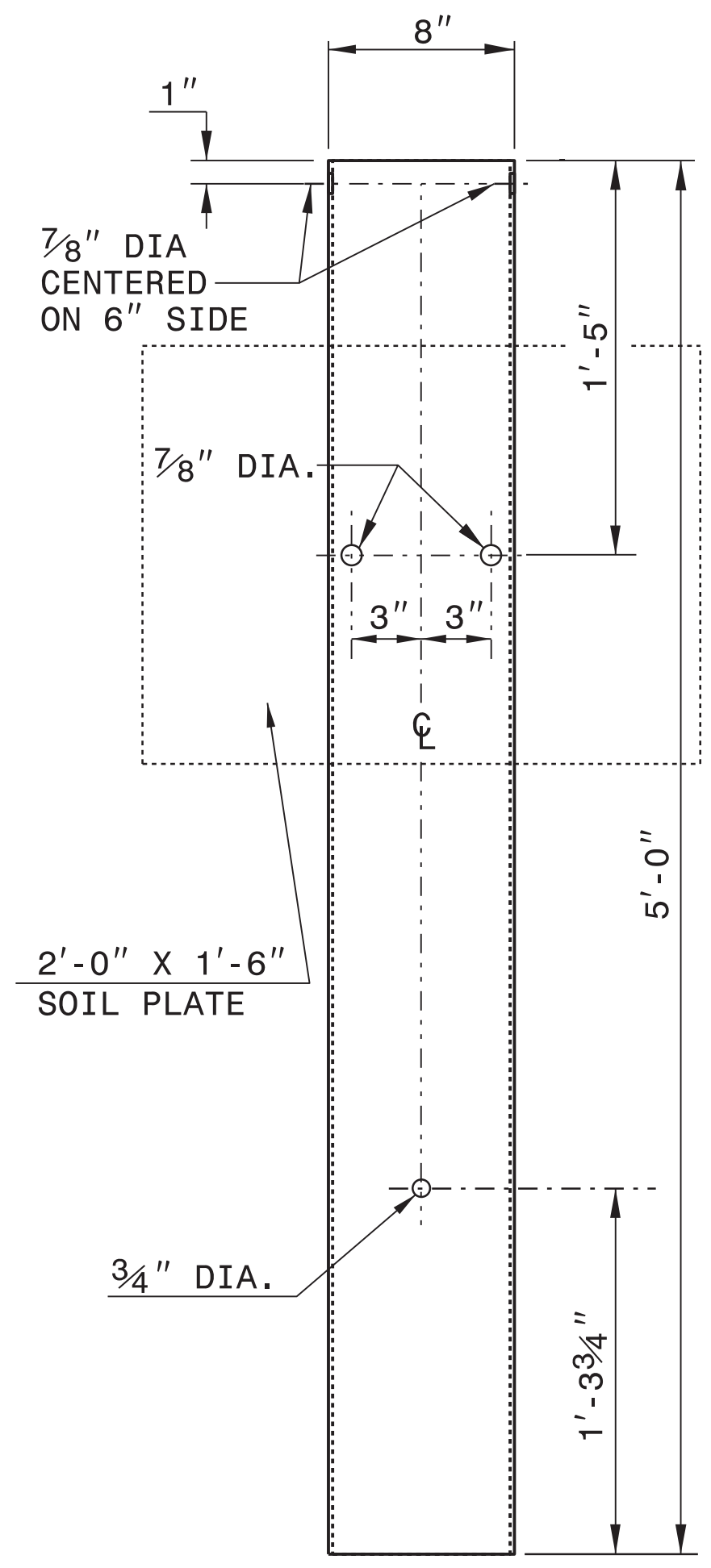
PLAN



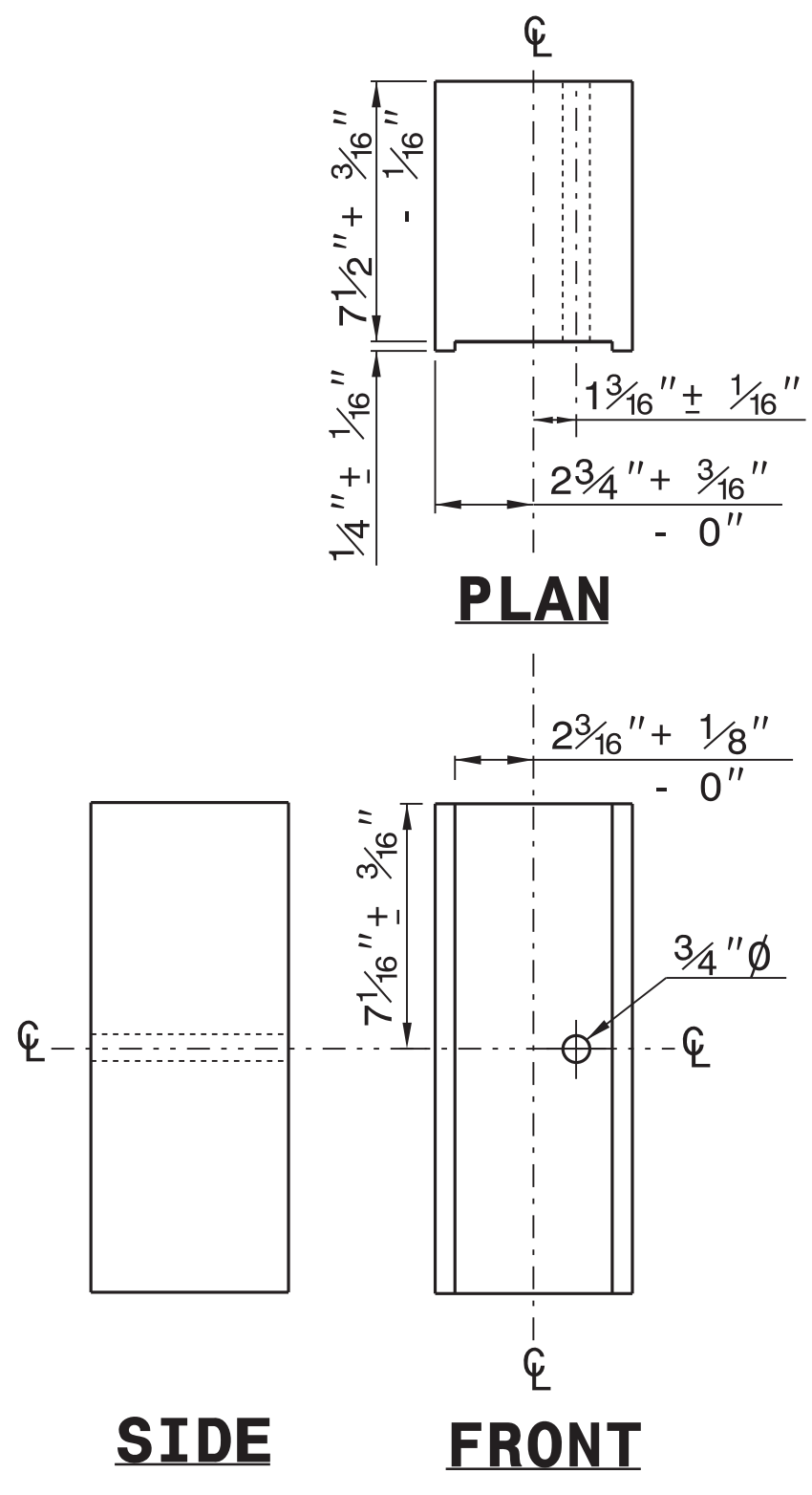
**WOOD OFFSET BLOCK
(FOR WOOD POSTS)**

**STANDARD
LINE POST**

**SHORT WOOD
BREAKAWAY POST**



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

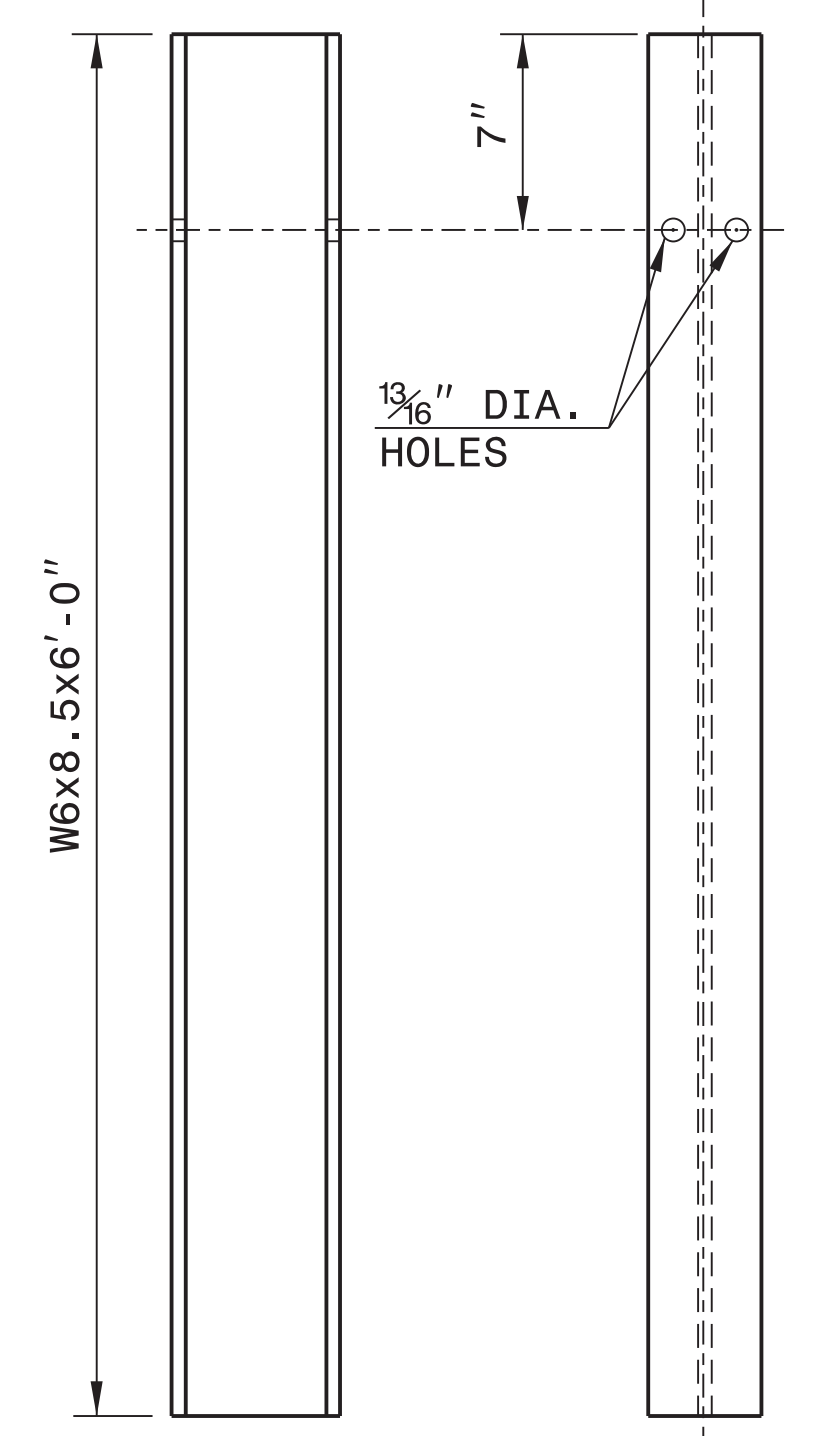


PLAN

SIDE

FRONT

**ROUTED
OFFSET BLOCK**

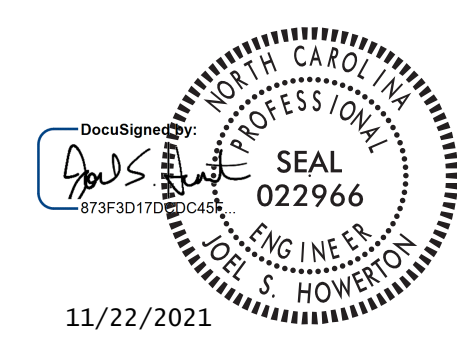


SIDE

FRONT

"W6" STEEL POST

SYSTEM PARTS



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SEE TITLE BLOCK

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

STATE OF NORTH CAROLINA
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RALEIGH, N.C.

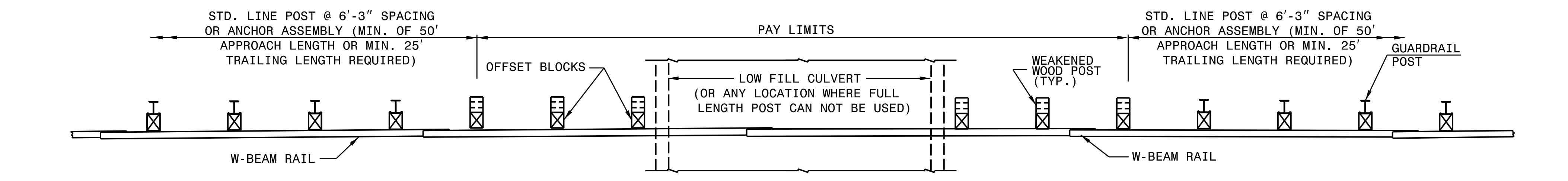
SPECIAL DETAIL FOR
GUARDRAIL PLACEMENT
25'-0" CLEAR SPAN

SHEET - OF -
862D01

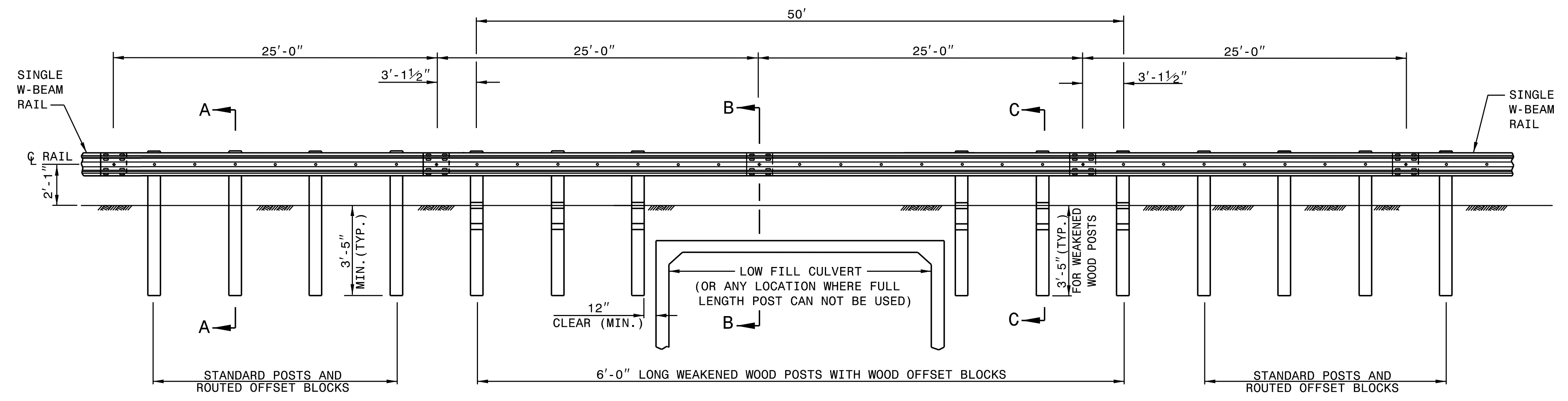
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

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

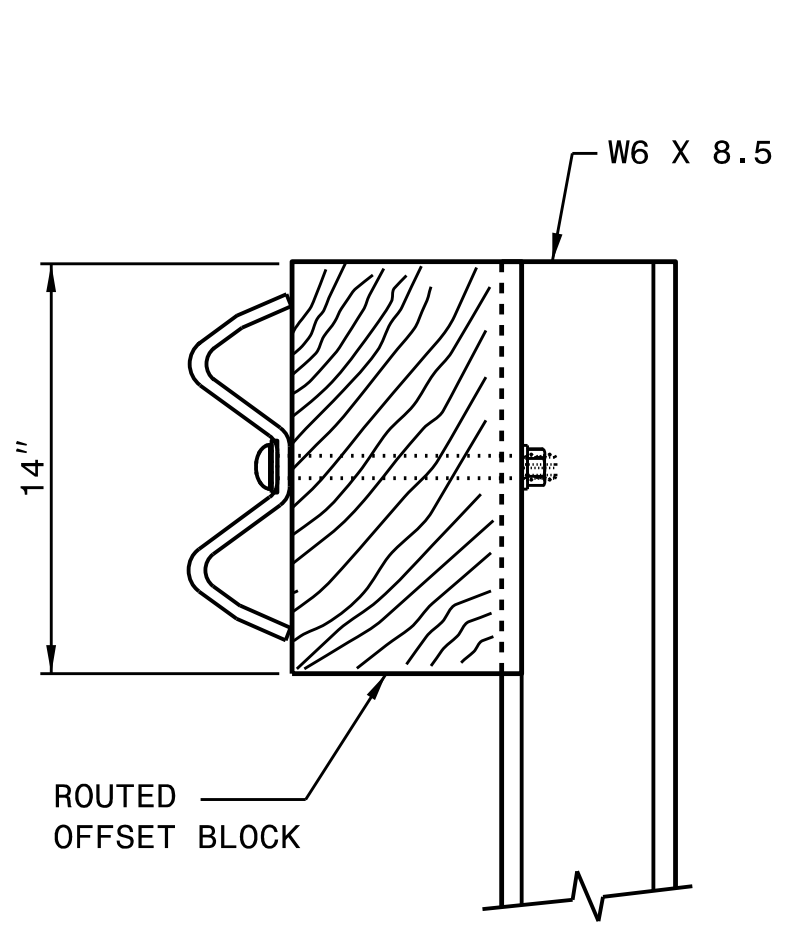
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862D01



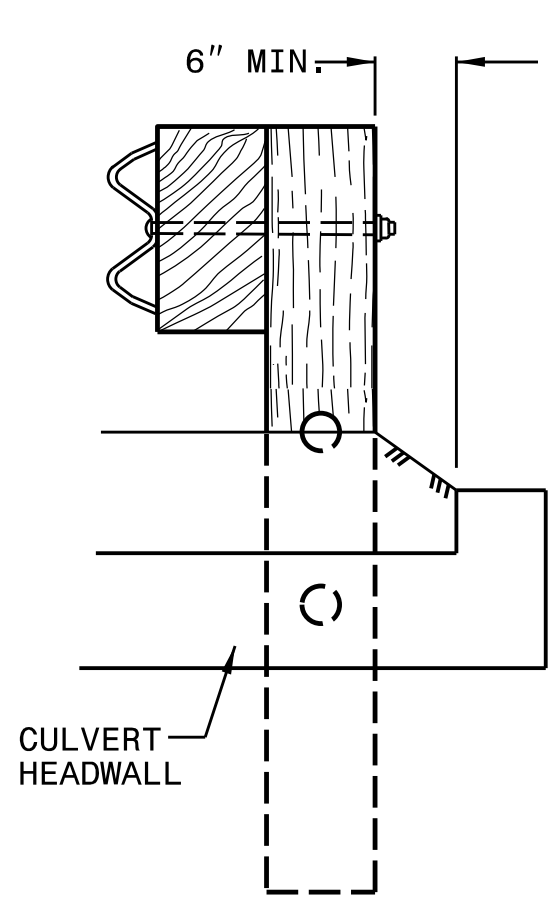
PLAN



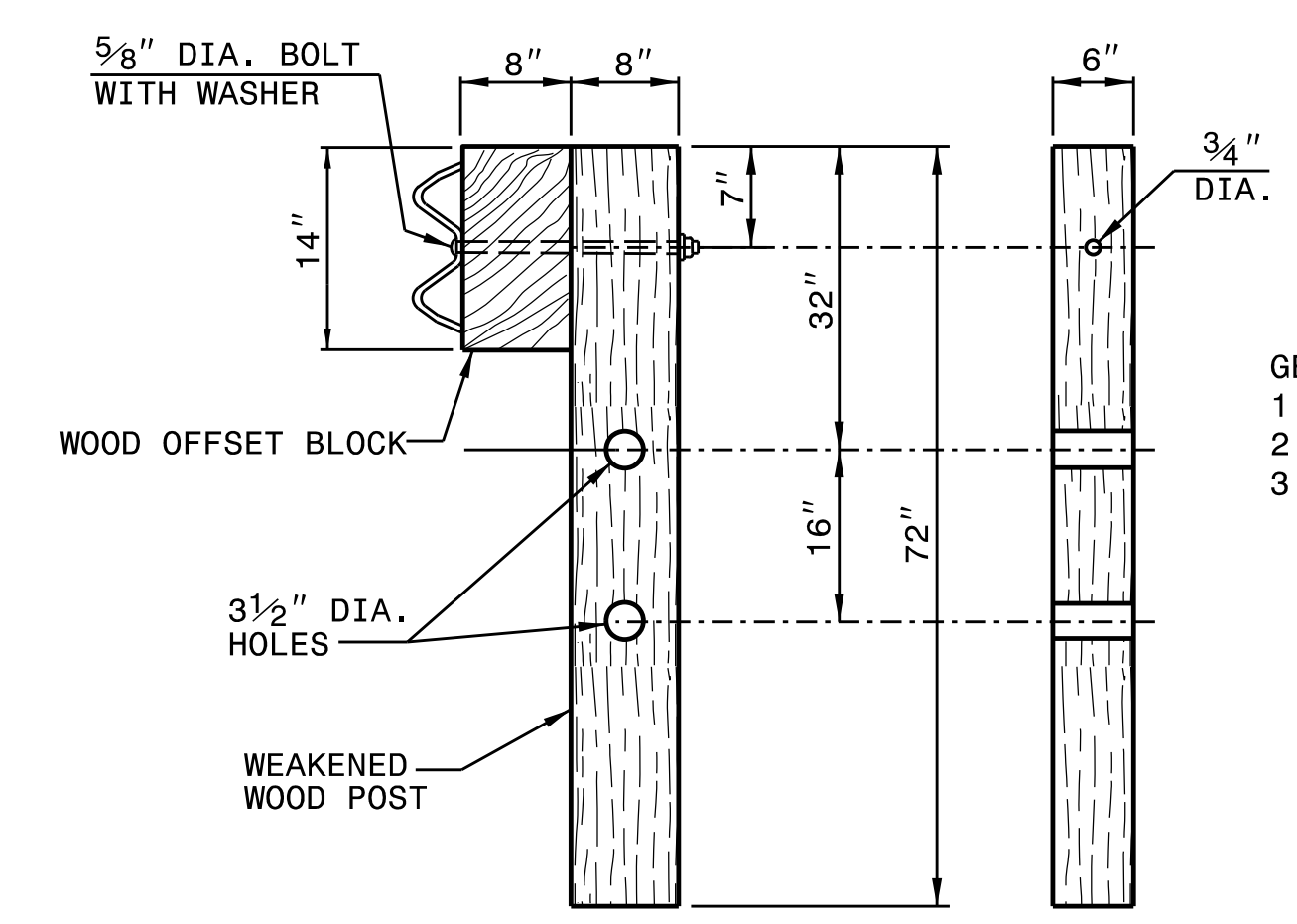
**ELEVATION
25'-0" GUARDRAIL SPAN**



SECTION A-A

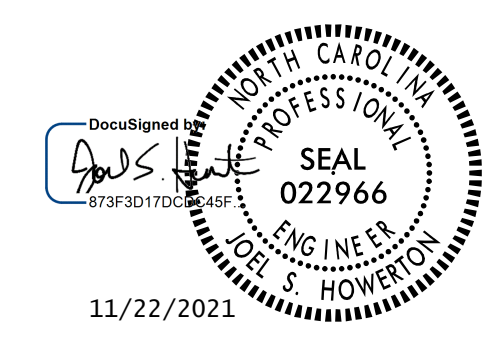


SECTION B-B



**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

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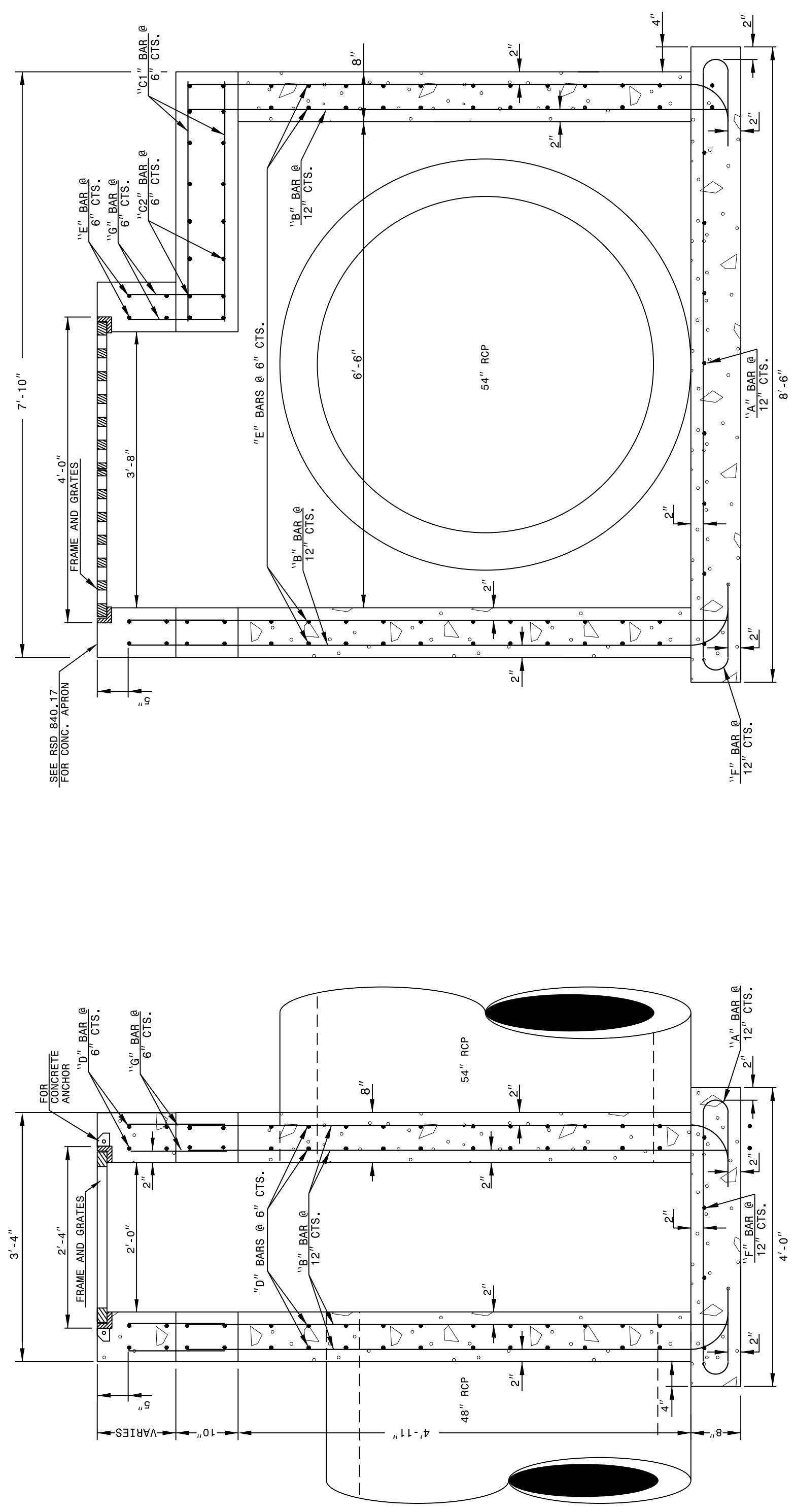
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 Jhewerton AT USD-292595

ENGLISH DETAIL DRAWING FOR
TRAFFIC BEARING GRATED INLET
FOR PIPES UP TO 54"

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

SHEET 1 OF 2
840D35



SECTION X-X

SECTION Y-Y

- GENERAL NOTES:**
- BUILD WITH CLASS 'AA' CONCRETE
 - CHAMFER ALL EXPOSED CONCRETE CORNERS 3".
 - USE FORMS TO CONSTRUCT THE BOTTOM SLAB.
 - PIPE ANCHORS IN THE BASE, FOLLOW CONSTRUCTION PRACTICES SHOWN IN THE DRAWING.
 - PRECAST UNITS CONCRETE MAY BE USED IN LIEU CAST IN PLACE CONCRETE.
 - REFERENCE STD. DWG. 840.25 FOR FRAME ANCHORAGE.
 - FRAME AND GRATES ARE SEPARATE CONTRACT ITEM.

- NOTES:**
- HORIZONTAL UP TO 10' MAX. IN BOTH DIRECTIONS AND VERTICAL (UP TO 20' MAX.) DIMENSIONS MAY BE ADJUSTED AS THE FIELD CONDITIONS AND/OR ALTERNATE DESIGNS REQUIRE.
 - ALL ADJUSTMENTS ARE TO BE MADE AS DIRECTED BY THE ENGINEER.

ENGLISH DETAIL DRAWING FOR
TRAFFIC BEARING GRATED INLET
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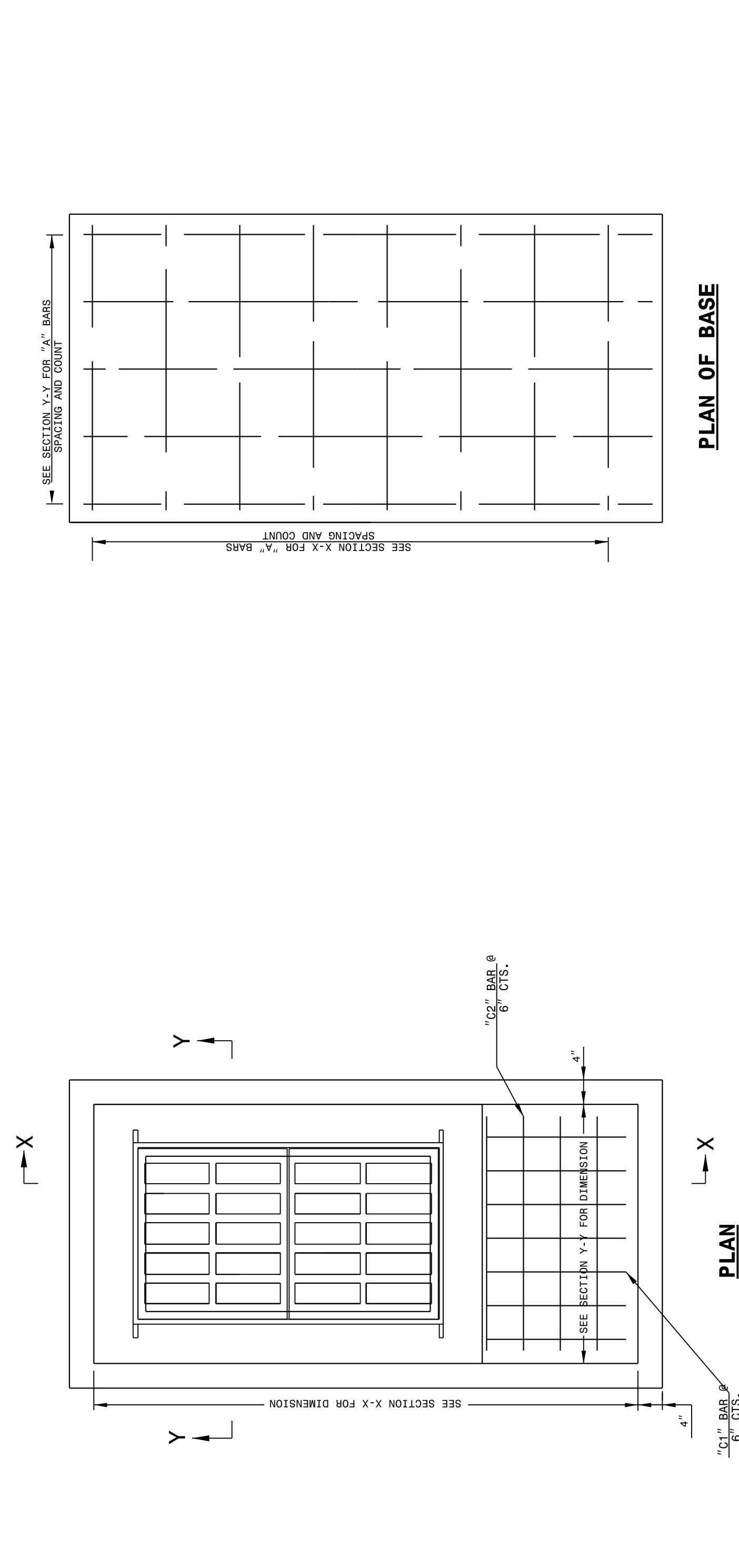
STATE OF
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RALEIGH, N.C.

SHEET 1 OF 2
840D35

ENGLISH DETAIL DRAWING FOR
TRAFFIC BEARING GRATED INLET
FOR PIPES UP TO 54"

STATE OF
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RALEIGH, N.C.

SHEET 2 OF 2
840D35

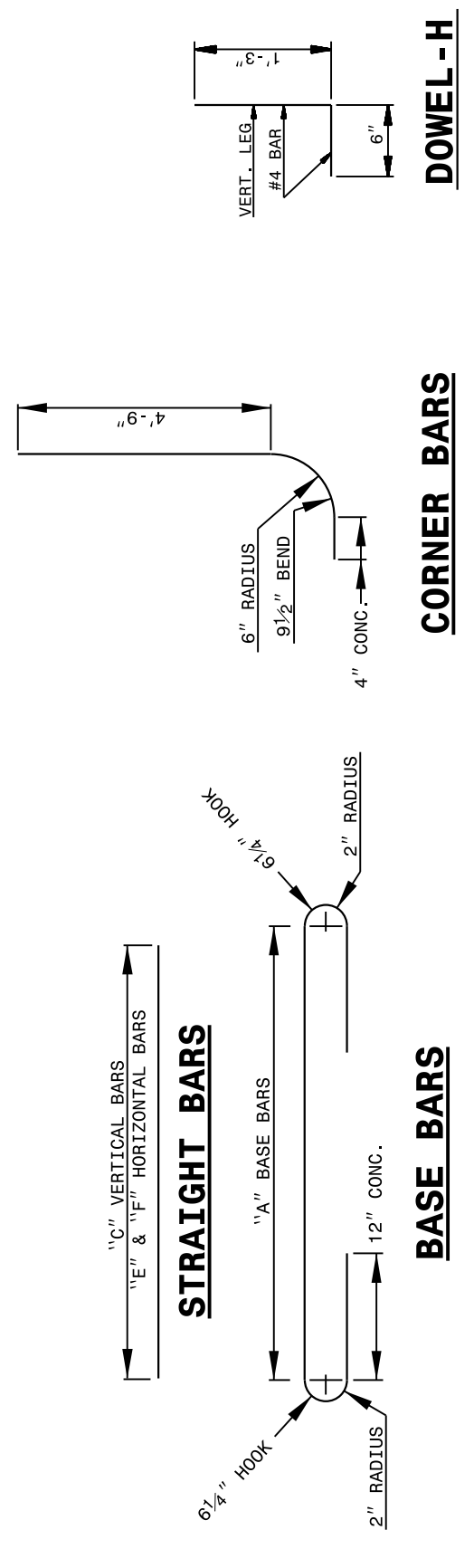


PLAN OF BASE

BILL OF MATERIALS

BAR	SIZE	LENGTH	QUANTITY	WEIGHT
A	#12	5'-0"	42	47
B	#12	7'-6"	104	780
C1	#12	3'-0"	6	32
C2	#12	3'-0"	48	376
D	#12	3'-0"	48	376
E	#12	3'-0"	4	181
F	#12	1'-0"	104	1626
REFIN. STEEL (TOTAL WEIGHT LBS.)				5,162
CONCRETE TOTAL (CU. YDS.) CLASS 'AA'				5.1
NO DEDUCTIONS HAVE BEEN MADE TO ACCOMMODATE PIPES				

FOR EVERY 1 FOOT OF RISER USE 0.41 CU. YDS CONCRETE AND 390 LBS STEEL.



CORNER BARS

STRAIGHT BARS

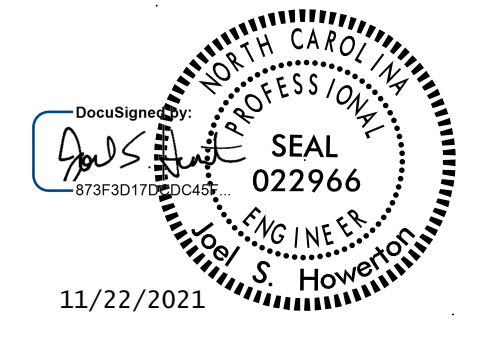
BASE BARS

DOWEL-L-H

ENGLISH DETAIL DRAWING FOR
TRAFFIC BEARING GRATED INLET
FOR PIPES UP TO 54"

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

SHEET 2 OF 2
840D35



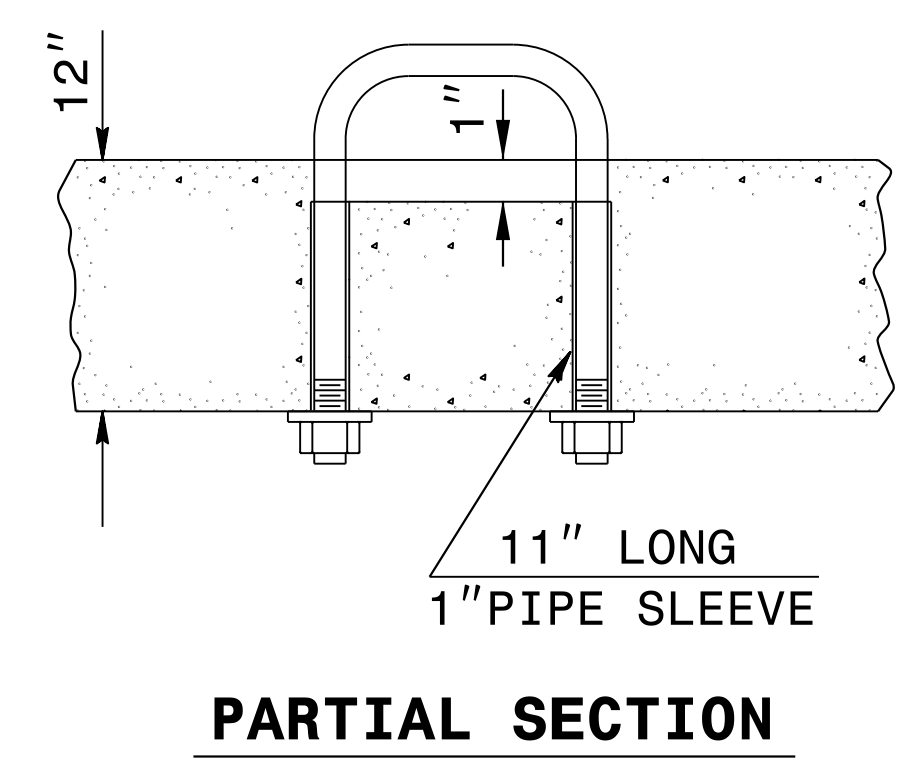
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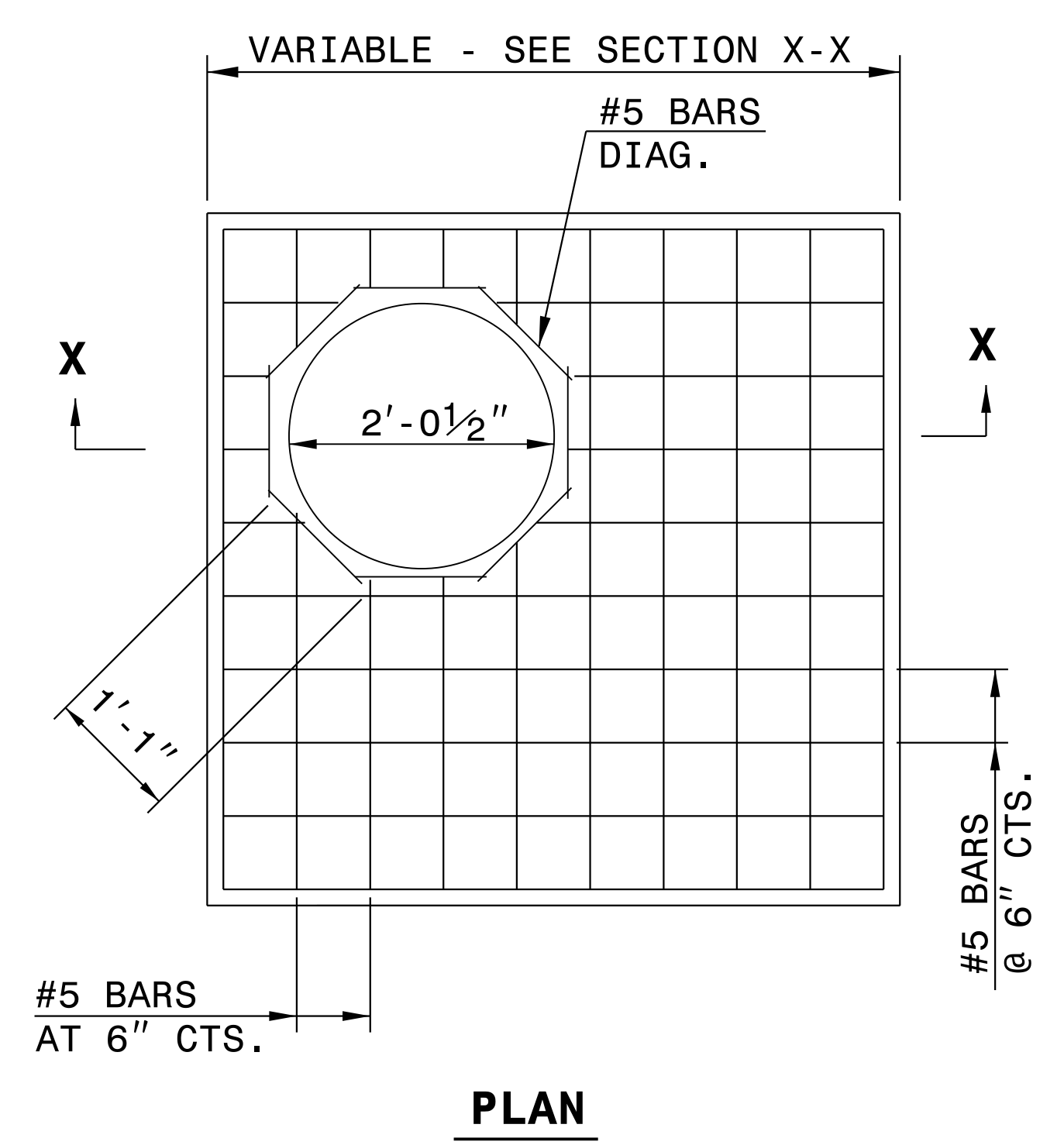
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SEE PLATE FOR TITLE

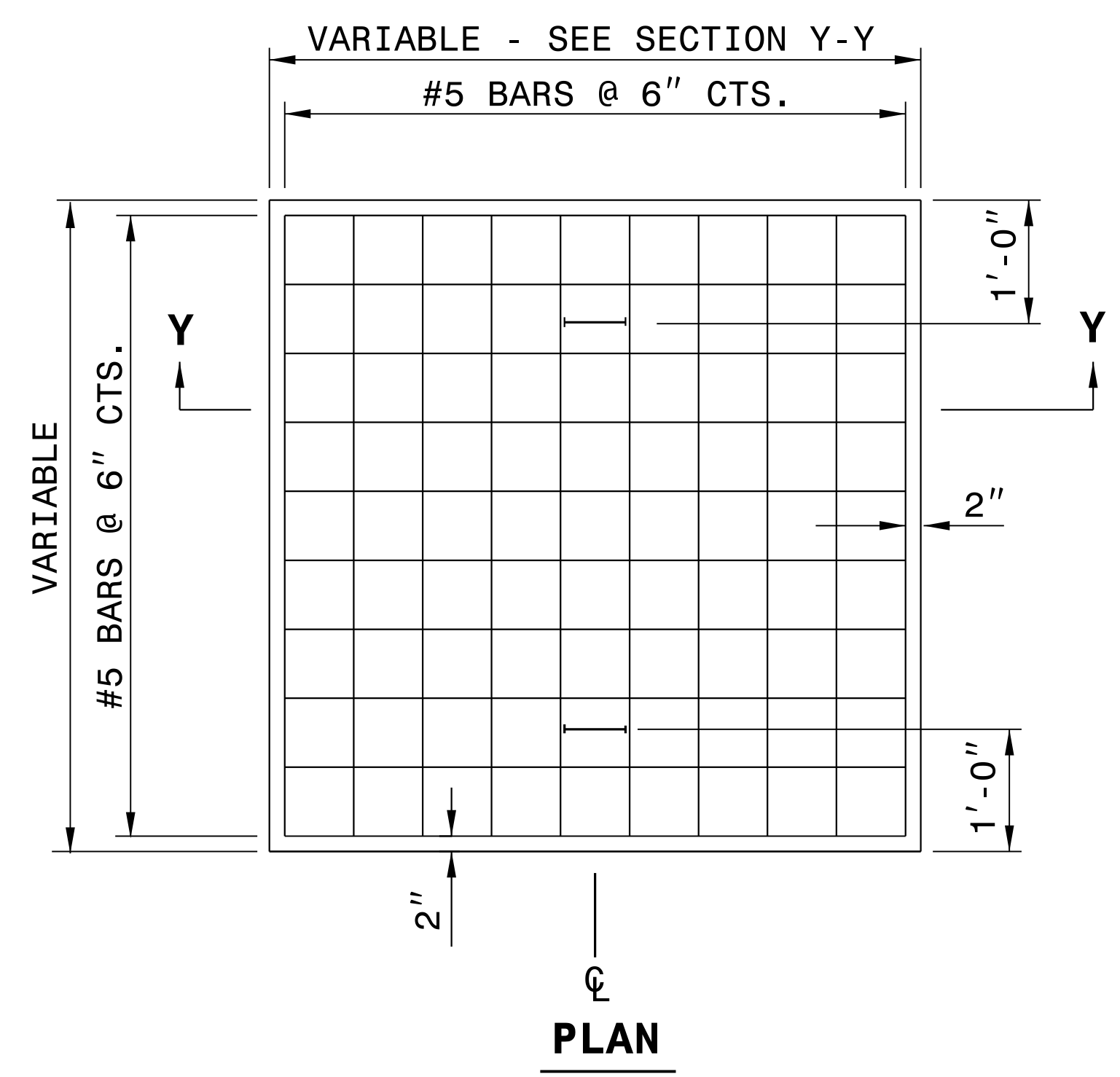
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MODIFIED BY:	DATE:
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FILE SPEC.: jhewerton/840d35 TBD1 Up to 54in.dgn	



PARTIAL SECTION



PLAN



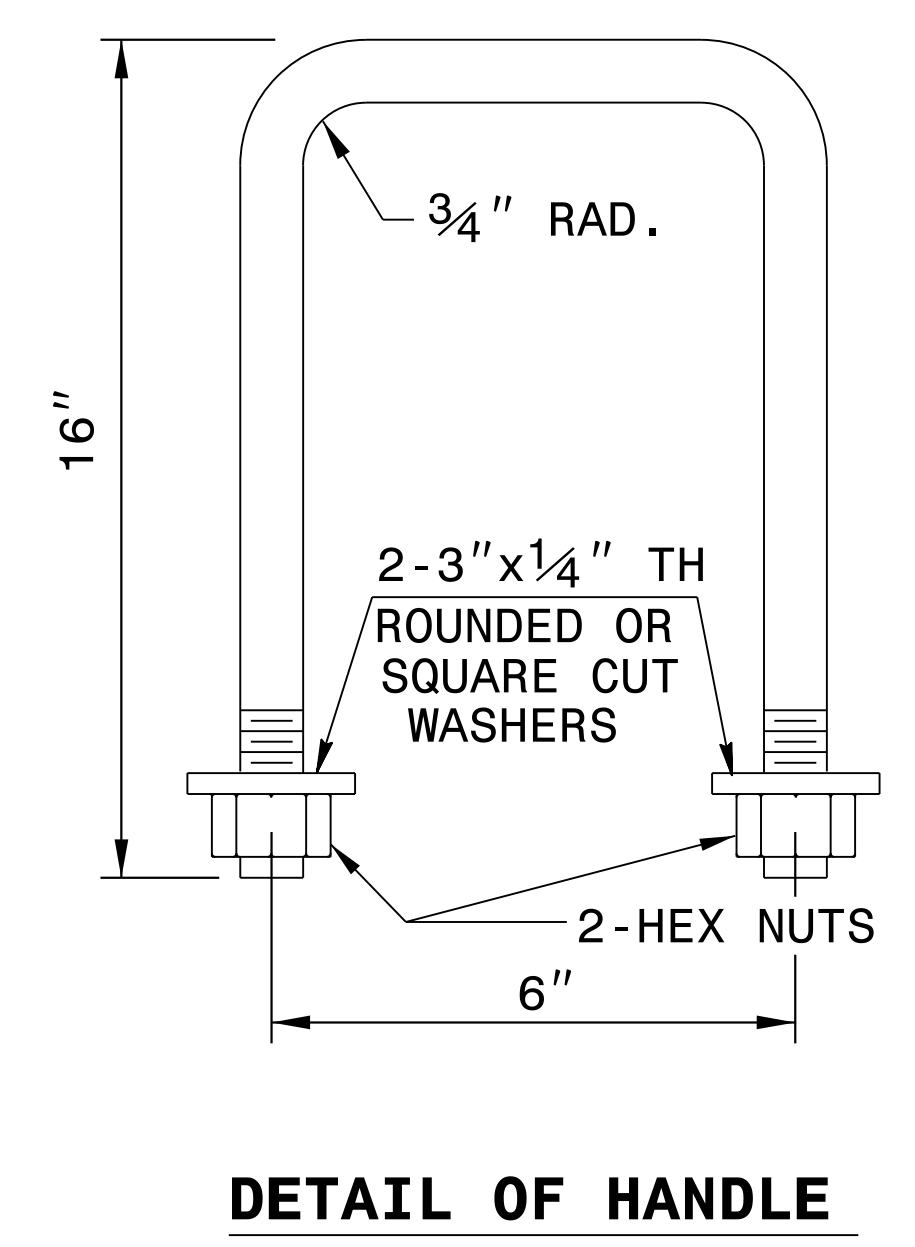
PLAN

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

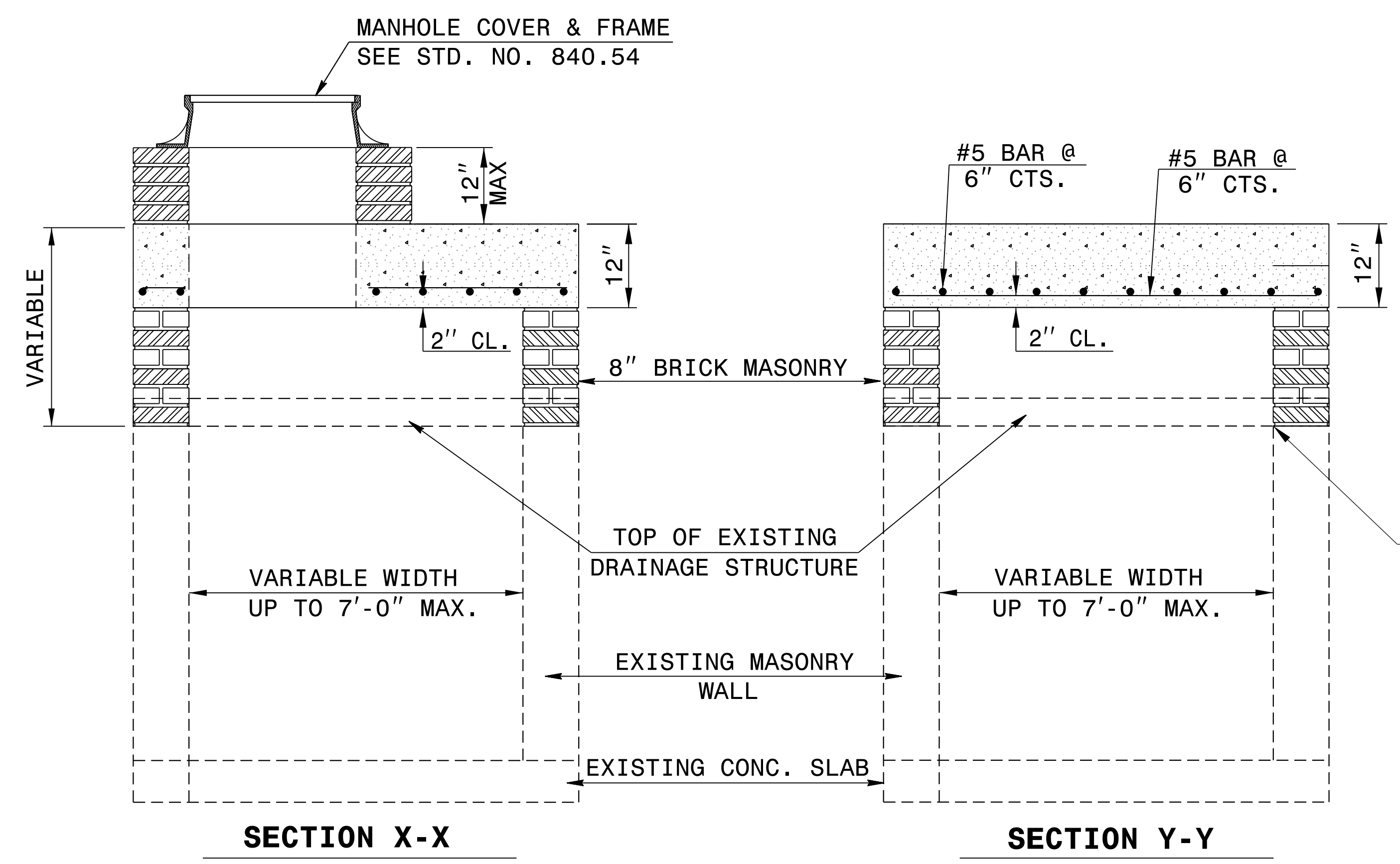
BILL OF MATERIALS

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

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.

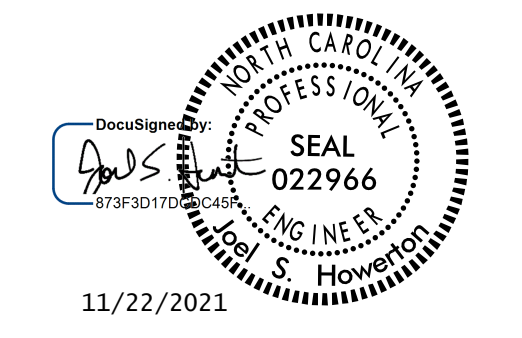


DETAIL OF HANDLE



SECTION X-X

SECTION Y-Y



11/22/2021

CONTRACT STANDARDS AND DEVELOPMENT UNIT
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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	

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