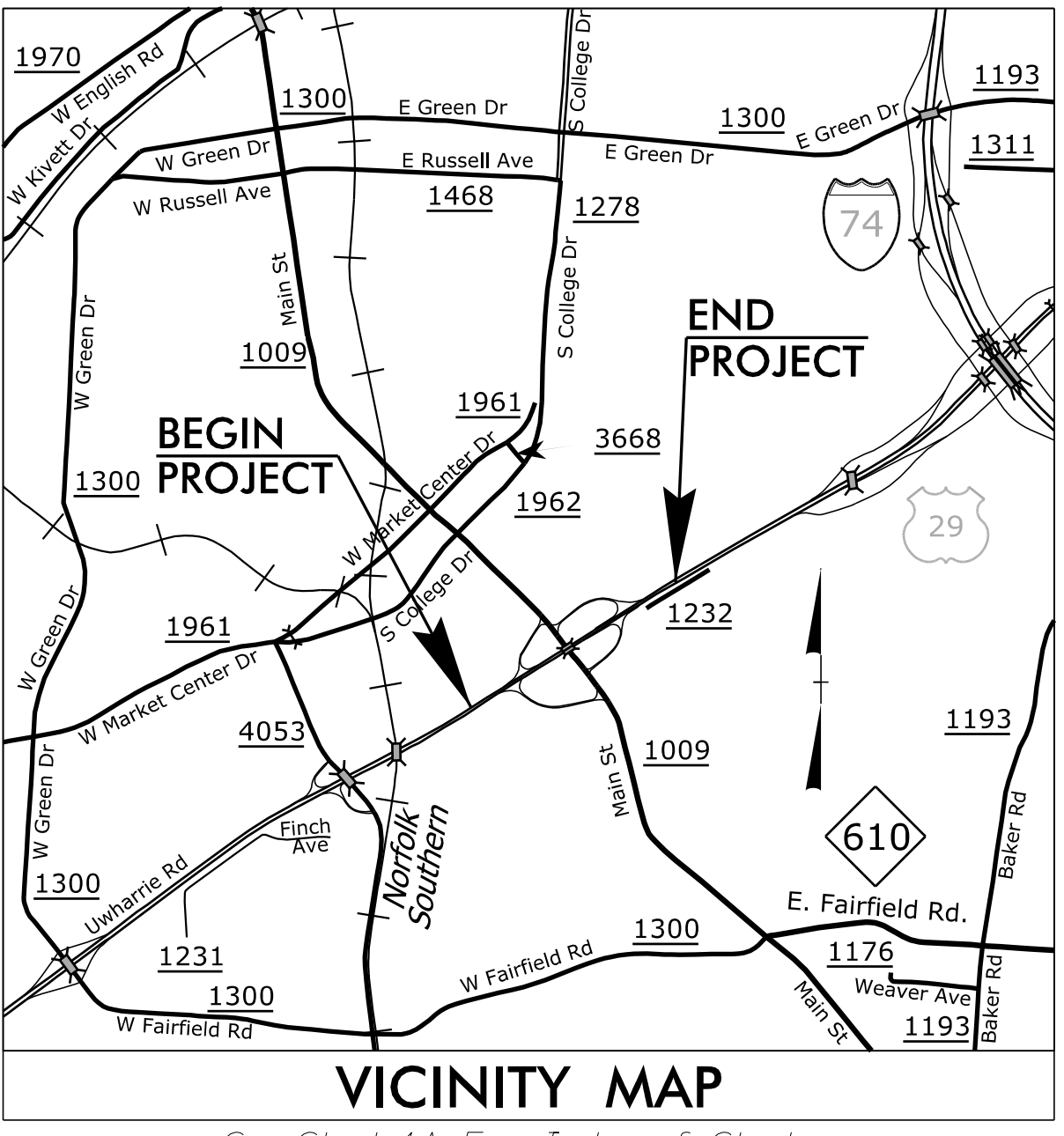


TIP PROJECT: U-5896 / B-5353
CONTRACT: C204150

STATE OF NORTH CAROLINA
 DIVISION OF HIGHWAYS
GUILFORD COUNTY

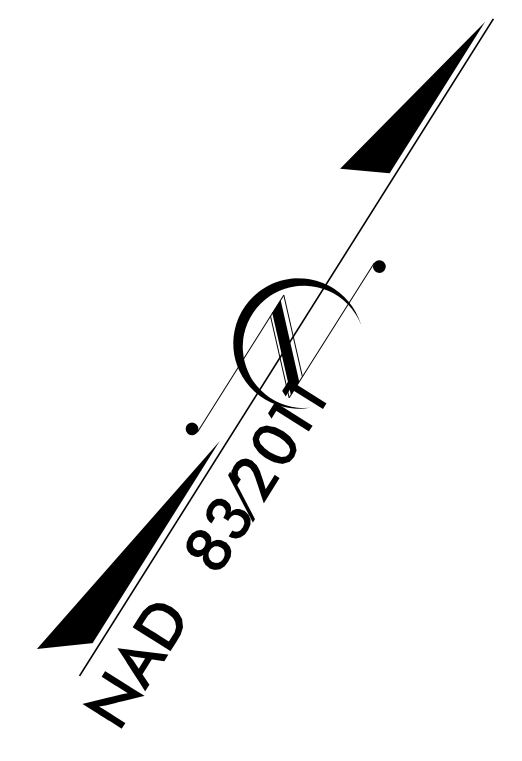
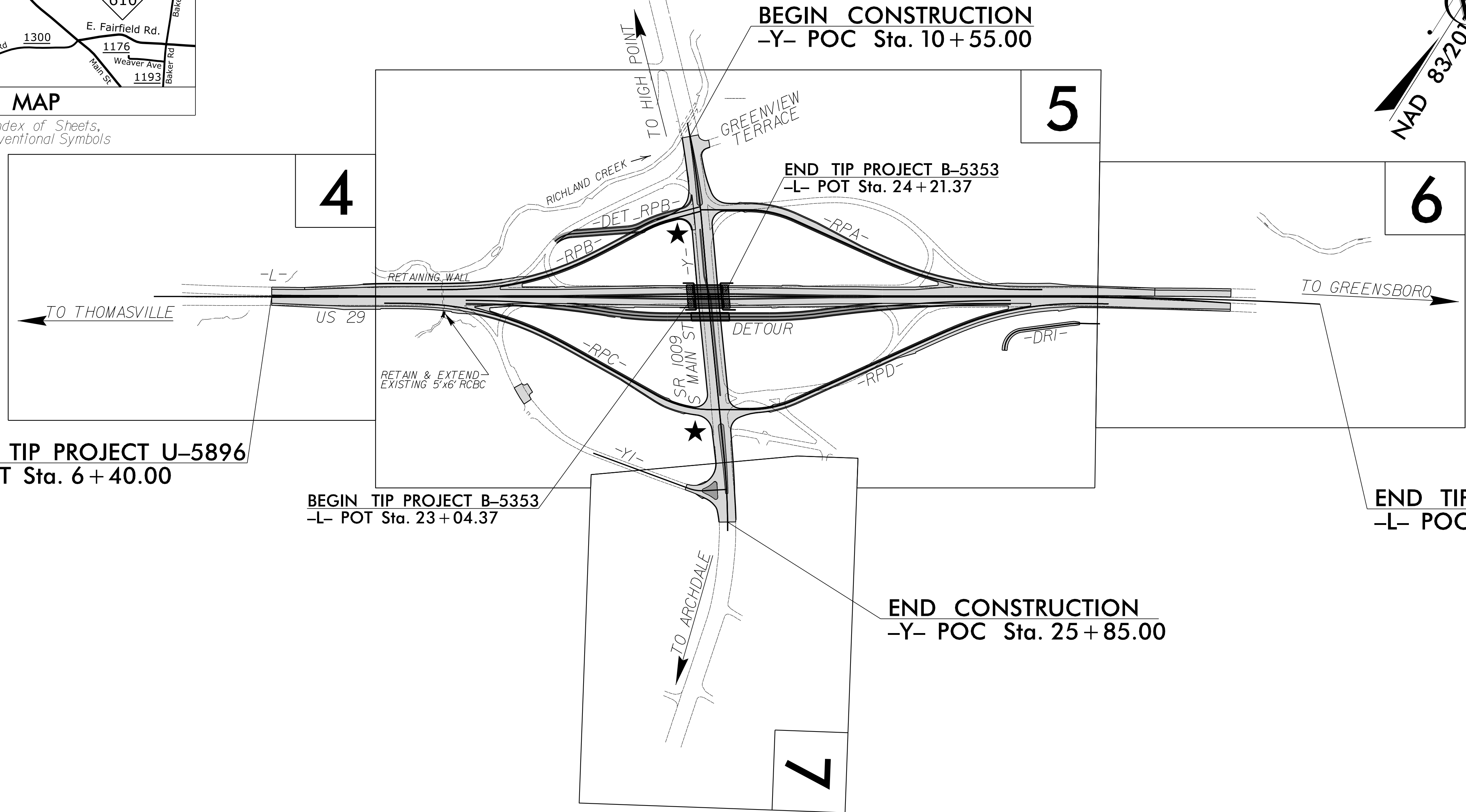
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-5896/B-5353	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
44674.1.2		PE (U-5896)	
46067.1.1	BRNHS-0029(56)	PE (B-5353)	
44674.2.1		RW & UTIL. (U-5896)	
46067.2.1		RW & UTIL. (B-5353)	
44674.3.1		CONST. (U-5896/B-5353)	



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

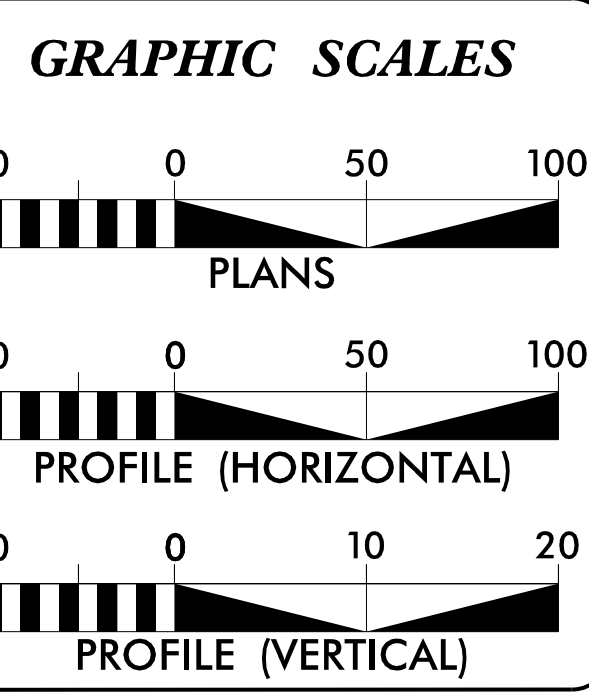
LOCATION: INTERCHANGE AT US 29 AND SR 1009 (S MAIN STREET) IN HIGH POINT

TYPE OF WORK: GRADING, PAVING, DRAINAGE, STRUCTURE, CULVERT, RETAINING WALL, & SIGNALS



★ PROPOSED SIGNAL

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED



DESIGN DATA

ADT 2022 =	38,540
ADT 2040 =	42,700
K =	10 %
D =	60 %
T =	9 % *
V =	60 MPH
* TTST =	4% DUAL = 5%
FUNC CLASS =	FREEWAY STATEWIDE TIER

PROJECT LENGTH

LENGTH OF ROADWAY TIP PROJECT U-5896	=	0.762	MI
LENGTH OF STRUCTURE TIP PROJECT B-5353	=	0.022	MI
TOTAL LENGTH TIP PROJECTS U-5896 & B-5353	=	0.784	MI

PLANS PREPARED FOR THE NCDOT BY:

M M
MOTT MACDONALD
2018 STANDARD SPECIFICATIONS

vhb
VHB Engineering NC, P.C. (C-3705)
940 Main Campus Drive, Suite 500
Raleigh, NC 27606

TIM JORDAN, PE
PROJECT ENGINEER

PADDY JORDAN
PROJECT DESIGN ENGINEER

BRYAN C. KEY, PE
NCDOT CONTACT
PROJECT MANAGEMENT UNIT

RIGHT OF WAY DATE:
MAY 31, 2019

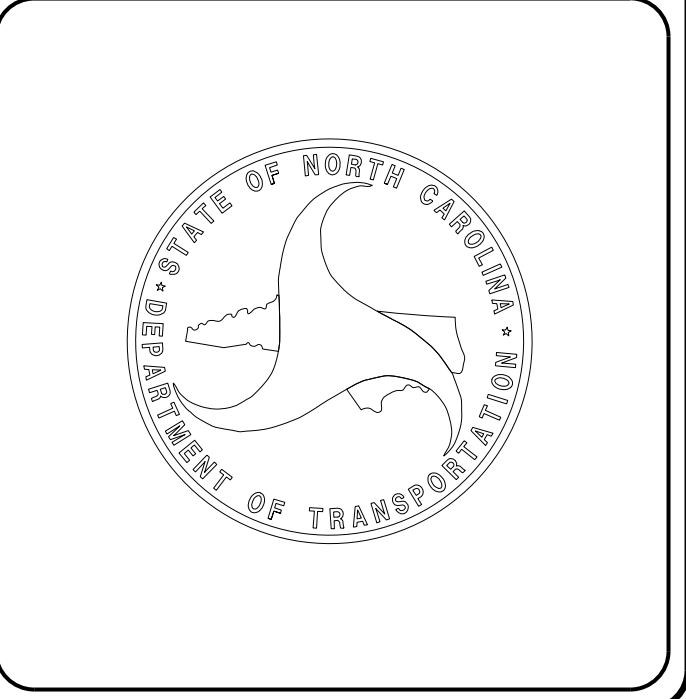
LETTING DATE:
FEBRUARY 15, 2022

ROADWAY DESIGN ENGINEER

DocuSigned by:
James Timothy Jordan
SEAL 21102
ENGINEER
JAMES TIMOTHY JORDAN
P.E.

HYDRAULICS ENGINEER

DocuSigned by:
Rid E. Robol
SEAL 043870
ENGINEER
RID E. ROBOLO
P.E.



1/12/2022 2:26:18 PM
 R:\Roadway\Proj\U-5896_rdy_tsh.dgn
 JOR66165

8/17/99
 J0966165
 R:\Roadway\ProJ\U-5896-rd+psht\A.dgn
 12/20/2021 2:31:42 PM

GENERAL NOTES

GENERAL NOTES: 2018 SPECIFICATIONS EFFECTIVE: 01-16-18

GRADING AND SURFACING OR RESURFACING AND WIDENING:

THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. WHERE NO GRADE LINES ARE SHOWN, THE PROFILES SHOWN DENOTE THE TOP ELEVATION OF THE EXISTING PAVEMENT ALONG THE CENTER LINE OF SURVEY ON WHICH THE PROPOSED RESURFACING WILL BE PLACED. GRADE LINES MAY BE ADJUSTED BY THE ENGINEER IN ORDER TO SECURE A PROPER TIE-IN.

CLEARING:

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

SUPERELEVATION:

ALL CURVES ON THIS PROJECT SHALL BE SUPERELEVATED IN ACCORDANCE WITH STD. NO. 225.04 OR 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 OR 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' RADII OR RADII 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 RADII 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-SECTIONS PRIOR TO SETTING OF THE SLOPE STAKES FOR THE EMBANKMENT OR EXCAVATION APPROACHING A BRIDGE.

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE CITY OF HIGH POINT (POWER, WATER & SEWER), PIEDMONT NATURAL GAS AND NORTH STATE TELECOMMUNICATIONS.

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

RIGHT-OF-WAY MARKERS:

RIGHT-OF-WAY MARKERS ON THIS PROJECT SHALL BE PLACED BY OTHERS AND BY CONTRACT IN ACCORDANCE WITH DESIGNATED SYMBOLS.

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.

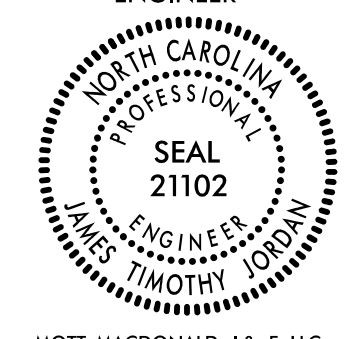
LIST OF ROADWAY STANDARD DRAWINGS

EFF. 01-16-2018

2018 ROADWAY ENGLISH STANDARD DRAWINGS

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

STD.NO.	TITLE
DIVISION 2 – EARTHWORK	
200.02	Method of Clearing – Method II
225.01	Guide for Grading Subgrade – Interstate and Freeway
225.02	Guide for Grading Subgrade – Secondary and Local
225.03	Deceleration and Acceleration Lanes
225.04	Method of Obtaining Superelevation – Two Lane Pavement
225.05	Method of Obtaining Superelevation – Divided Highways
275.01	Rock Plating
DIVISION 3 – PIPE CULVERTS	
300.01	Method of Pipe Installation
310.10	Driveway Pipe Construction
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	
610.04	Guide for Paving Shoulders Under Bridges – Method IV
654.01	Pavement Repairs
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
838.05	Concrete 'L' Endwall for Single Pipe Culverts – 15" thru 48" Pipe
838.11	Brick Endwall for Single and Double Pipe Culverts – 15" thru 48" Pipe 90 Skew
838.15	Brick 'L' Endwall for Single Pipe Culverts – 15" thru 48" Pipe
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
840.20	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
840.31	Concrete Junction Box – 12" thru 66" Pipe
840.32	Brick Junction Box – 12" thru 66" Pipe
840.45	Precast Drainage Structure
840.54	Manhole Frame and Cover
840.66	Drainage Structure Steps
840.71	Concrete and Brick Pipe Plug
840.72	Pipe Collar
846.01	Concrete Curb, Gutter and Curb & Gutter
846.02	Drop Inlet Installation in Expressway Gutter
846.04	Drop Inlet Installation in Shoulder Berm Gutter
848.01	Concrete Sidewalk
848.02	Driveway Turnout – Radius Type
848.04	Street Turnout
848.05	Curb Ramp – Proposed Curb & Gutter
850.01	Concrete Paved Ditches
850.10	Guide for Berm Drainage Outlet – 15" and 18" Pipe
850.11	Guide for Berm Drainage Outlet – 24" and 30" Pipe
852.01	Concrete Islands
852.06	Method for Placement of Drop Inlets in Concrete Islands
862.01	Guardrail Placement
862.02	Guardrail Installation
862.03	Structure Anchor Units
862.04	Anchoring End of Guardrail – B-77 and B-83 Anchor Units
876.01	Rip Rap in Channels
876.02	Guide for Rip Rap at Pipe Outlets
876.04	Drainage Ditches with Class 'B' Rip Rap

Prepared in the Office of:	M MOTT MACDONALD	7621 Purfoy Road, Suite 115 Fuquay-Varina, NC 27526 www.mottmac.com/americas	PROJECT REFERENCE NO. <i>U-5896/B-5353</i>	SHEET NO. <i>1A</i>
			RW SHEET NO.	
ROADWAY DESIGN ENGINEER				
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED				

U-5896 INDEX OF SHEETS

SHEET NUMBER	DESCRIPTION
1	TITLE SHEET
1A	INDEX OF SHEETS, GENERAL NOTES AND LIST OF STANDARD DRAWINGS
1B	CONVENTIONAL SYMBOLS
2A-1 THRU 2A-8	PAVEMENT SCHEDULE AND TYPICAL SECTIONS
2B-1 THRU 2B-2	DETOUR PLAN AND PROFILE SHEETS
2B-3 THRU 2B-4	CROSSOVER PLAN AND PROFILE SHEETS
2B-5	RAMP B DETOUR PLAN AND PROFILE SHEETS
2B-6	SHEAR POINT DIAGRAM
2B-7 THRU 2B-8	INTERSECTION DETAIL SHEETS
2B-9	CROWN POINT SHIFT DETAIL
2B-10	OVERHEAD SIGN GUARDRAIL PROTECTION DETAIL
2C-1	GUARDRAIL INSTALLATION DETAIL
2C-2	GUARDRAIL ANCHOR UNIT DETAIL
2C-3	TYPE III REINFORCED APPROACH FILLS DETAIL
2C-4	DOUBLE FACED W-BEAM DETAIL
2C-5	TEMPORARY 1" STEEL COVER DETAIL
2C-6	ANTI-SEEP COLLAR DETAIL
2C-7	DETAIL TO CONVERT DI OR JB TO CB
2C-8	DETAIL TO CONVERT EXISTING CB TO JB
2C-9	SPECIAL DI 840D14
2C-10	CURB RAMPS – DIRECTIONAL RAMPS DETAIL
2C-11	CURB RAMPS – SHARED LANDING DETAIL
2D-1	DRAINAGE DETAILS
2G-1	TEMPORARY SHORING
2G-2 THRU 2G-4	TEMPORARY WALL
3B-1	GUARDRAIL SUMMARY
3B-2	EXPRESS WAY GUTTER, SHOULDER BERM GUTTER, REMOVAL AND BREAKING OF EXISTING ASPHALT PAVEMENT SUMMARY
3B-3	EARTHWORK SUMMARY
3D-1 THRU 3D-7	DRAINAGE SUMMARY
3G-1	GEOTECHNICAL SUMMARY
3P-1	PARCEL INDEX SHEET
4 THRU 7	PLAN SHEETS
8 THRU 13	PROFILE SHEETS
RW-01 THRU RW-07	SURVEY CONTROL SHEETS
TMP-1 THRU TMP-68	TRAFFIC MANAGEMENT PLANS
PMP-1 THRU PMP-6	PAVEMENT MARKING PLANS
E-1 THRU E-4	ELECTRICAL PLANS
EC-1 THRU EC-12	EROSION CONTROL PLANS
RF-1	REFORESTATION DETAIL SHEET
SIGN-1 THRU SIGN-10A	SIGNING PLANS
SIG-1.0 THRU SIG-M-8	SIGNAL PLANS
SCP-1 THRU SCP-8	SIGNAL COMMUNICATION PLANS
UC-1 THRU UC-10	UTILITY CONSTRUCTION PLANS
UO-1 THRU UO-3	UTILITIES BY OTHERS PLANS
X-1A THRU X-1C	CROSS-SECTIONS INDEX AND SUMMARY
X-1 THRU X-76	CROSS-SECTIONS
C-1 THRU C-6	CULVERT PLANS
W1-1 THRU W1-7	RETAINING WALL PLANS

B-5353 INDEX OF SHEETS

SHEET NUMBER	DESCRIPTION
S1-1 THRU S1-26	STRUCTURE PLANS (LT)
S2-1 THRU S2-24	STRUCTURE PLANS (RT)
SN	STRUCTURE NOTES
W2-1 THRU W2-4	MSE WALL PLANS

STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

12/2/2016

BOUNDARIES AND PROPERTY:

State Line	-----
County Line	-----
Township Line	-----
City Line	-----
Reservation Line	-----
Property Line	-----
Existing Iron Pin	○ EIP
Computed Property Corner	-----
Property Monument	□ ECM
Parcel/Sequence Number	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	--- WLB ---
Proposed Lateral, Tail, Head Ditch	--- FLOW ---
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	△ C/A
Existing Control of Access	△ C/A
New Control of Access	△ C/A
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 ---

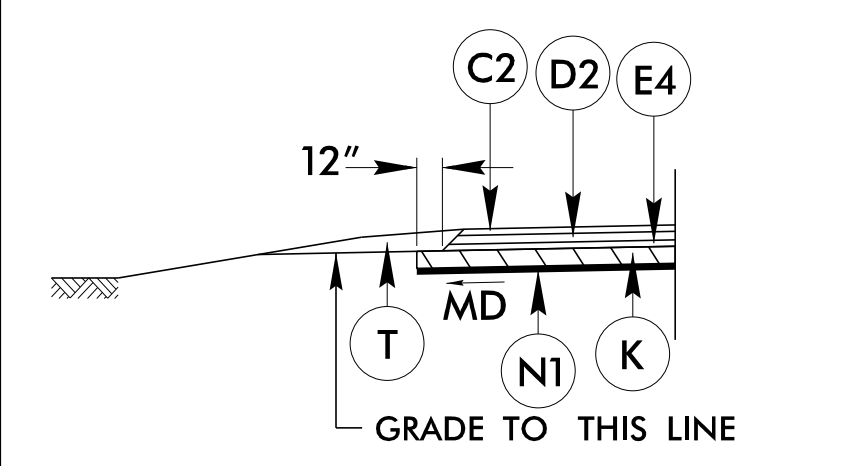
MISCELLANEOUS:

Utility Pole	●
Utility Pole with Base	□
Utility Located Object	○
Utility Traffic Signal Box	⊠
Utility Unknown U/G Line LOS B (S.U.E.*)	--- 7U/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.

6/2/99

GEOTEXTILE FOR PAVEMENT STABILIZATION DETAIL

USE GEOTEXTILE FOR PAVEMENT STABILIZATION DETAIL IN CONJUNCTION WITH APPROPRIATE TYPICAL SECTIONS AT LOCATION NOTED BELOW:

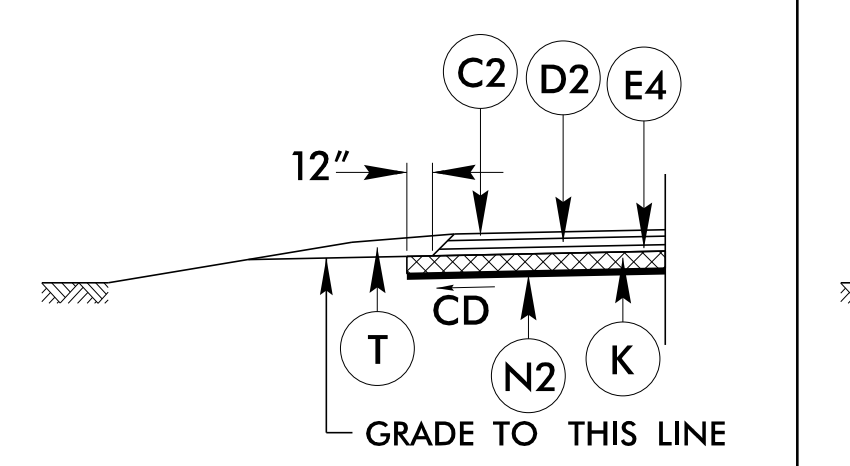


LINE	STATION	STATION	LOCATION
-L-	10+50	15+75	LT
-L-	19+50	21+50	LT
-L-	21+25	22+75	LT/RT
-L-	25+00	25+60	LT/RT

SEE SHEET 3G-1 FOR ADDITIONAL INFORMATION

SUBGRADE STABILITY UNDERCUT DETAIL

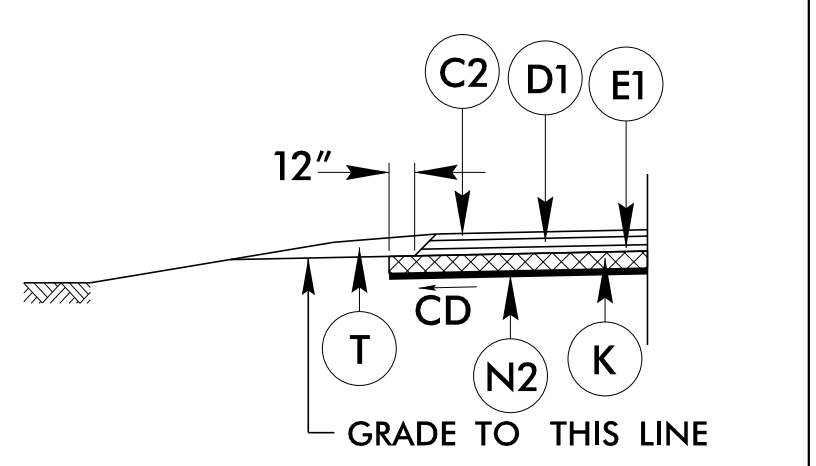
USE SUBGRADE STABILITY UNDERCUT DETAIL IN CONJUNCTION WITH APPROPRIATE TYPICAL SECTIONS AT LOCATION NOTED BELOW:



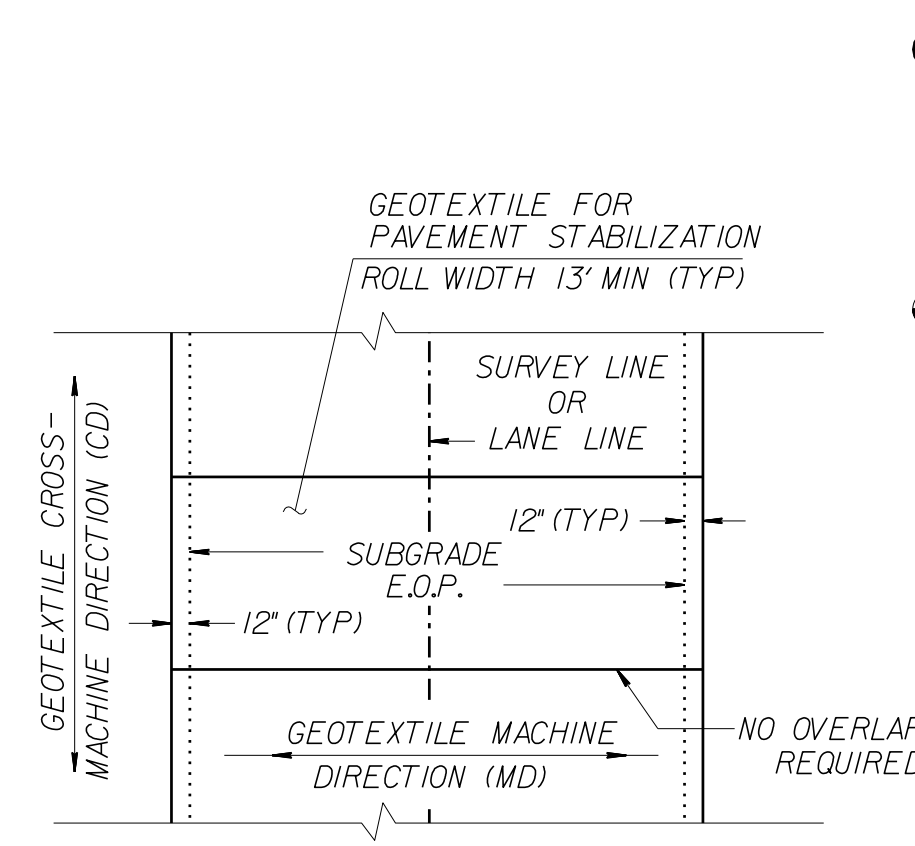
LINE	STATION	STATION	LOCATION
-L-	6+40	44+25	LT/RT
-RPA-	10+00	14+08	LT/RT
-RPB-	10+00	13+75	LT/RT
-RPC-	10+00	14+10	LT/RT
-RPD-	10+00	12+00	LT/RT

SEE SHEET 3B-3 AND 3G-1 FOR ADDITIONAL INFORMATION
UNDERCUT IS NOT SHOWN ON PROFILE OR CROSS SECTIONS

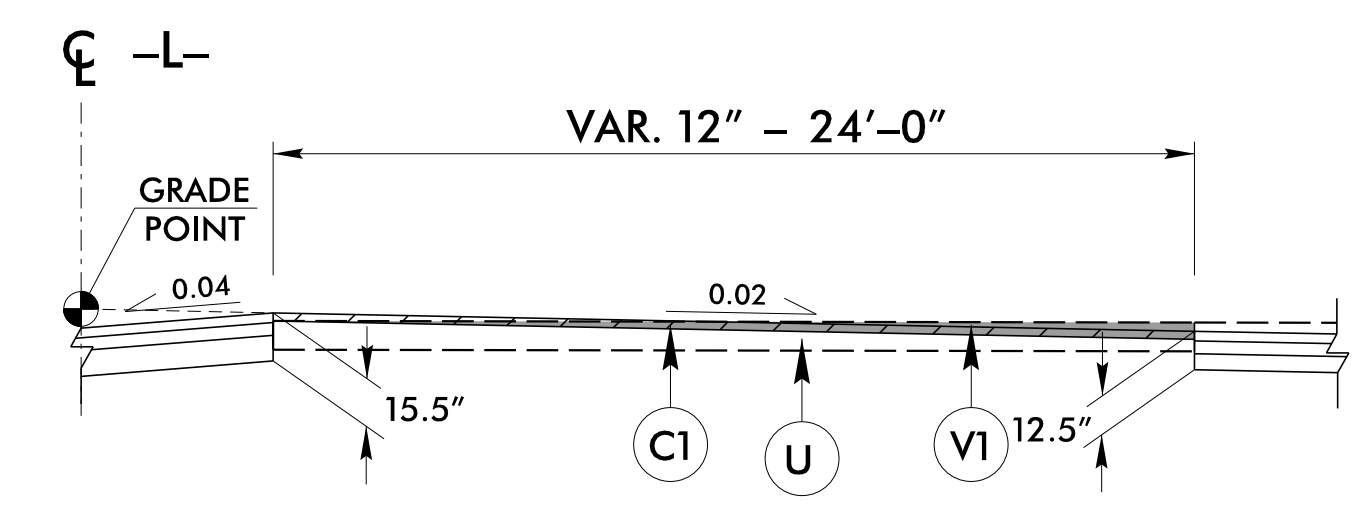
USE SUBGRADE STABILITY UNDERCUT DETAIL IN CONJUNCTION WITH APPROPRIATE TYPICAL SECTIONS AT LOCATION NOTED BELOW:



LINE	STATION	STATION	LOCATION
-RPA-	14+08	23+65	LT/RT
-RPB-	13+75	20+97	LT/RT
-RPC-	14+10	23+72	LT/RT
-RPD-	12+00	25+76	LT/RT

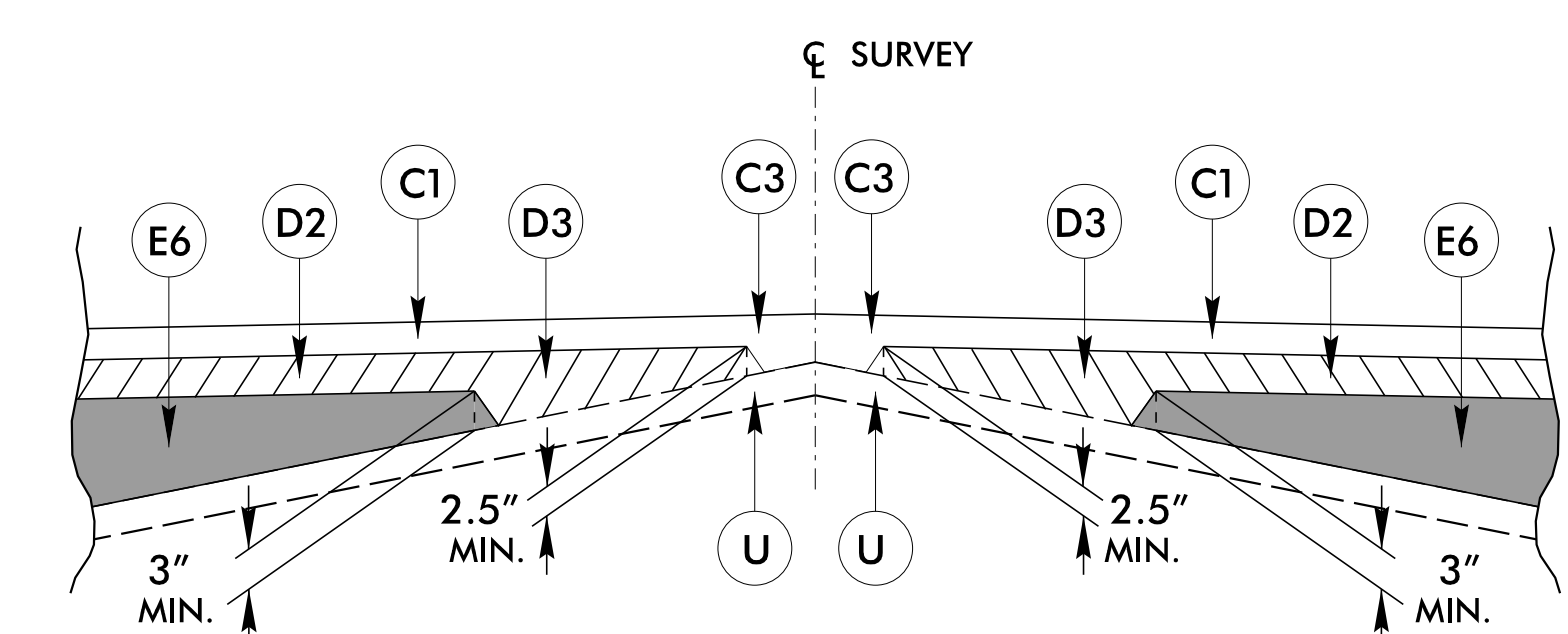


GEOTEXTILE FOR PAVEMENT STABILIZATION PLACEMENT (PLAN VIEW)
(100% COVERAGE REQUIRED)

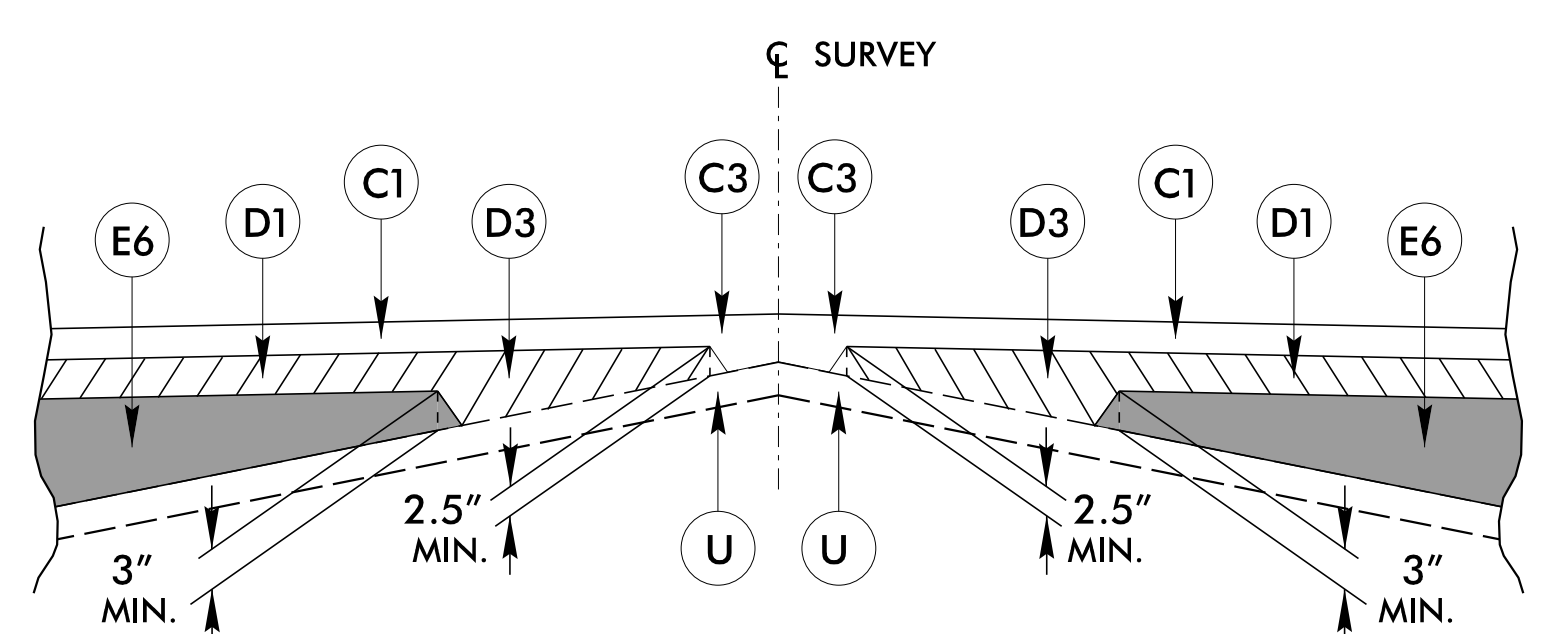


DETAIL OF MILLING
USE IN CONJUNCTION WITH TYPICAL SECTION NO. 2 & 3
-L- 10+75.00 TO 11+25.00 LT
-L- 10+75.00 TO 11+75.00 RT
-L- 39+25.00 TO 40+30.00 LT
-L- 38+75.00 TO 40+30.00 RT

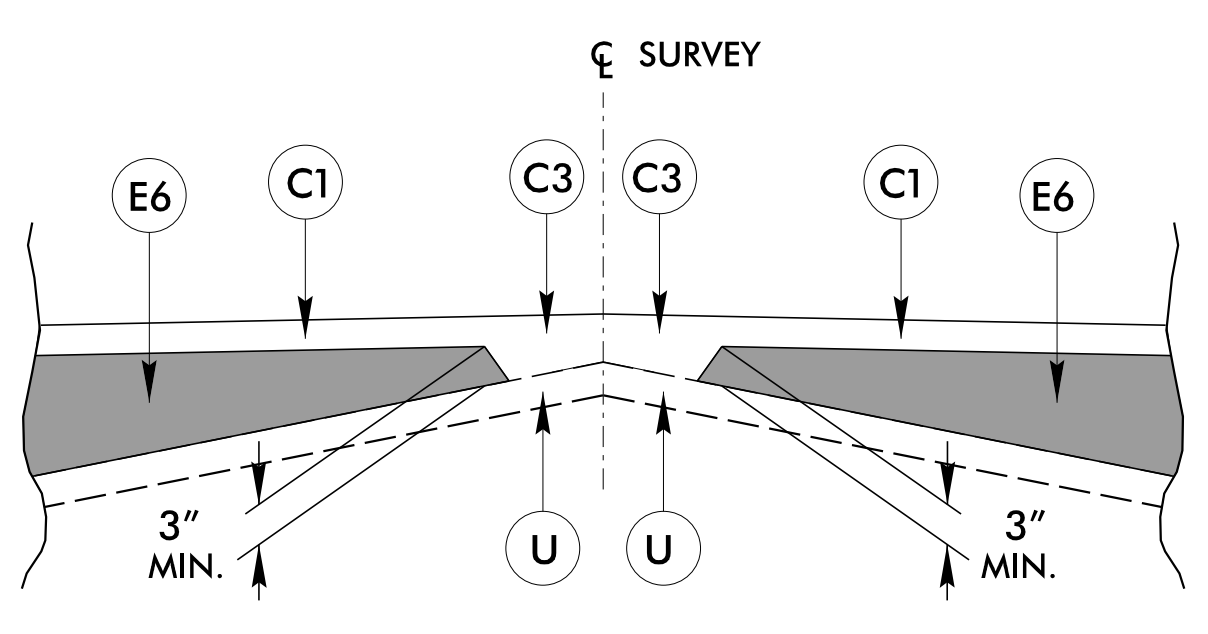
PROJECT REFERENCE NO. U-5896	SHEET NO. 2A-1
ROADWAY DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 21102 JAMES TIMOTHY JORDAN	PAVEMENT DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 044590 ANDREW D. WARGO
MOTT MACDONALD I & E, LLC LICENSE NO. F-06697	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
Prepared in the Office of:	MOTT MACDONALD I & E, LLC 7621 Purfoy Road, Suite 115 Fuquay-Varina, NC 27526 www.mottmac.com/americas



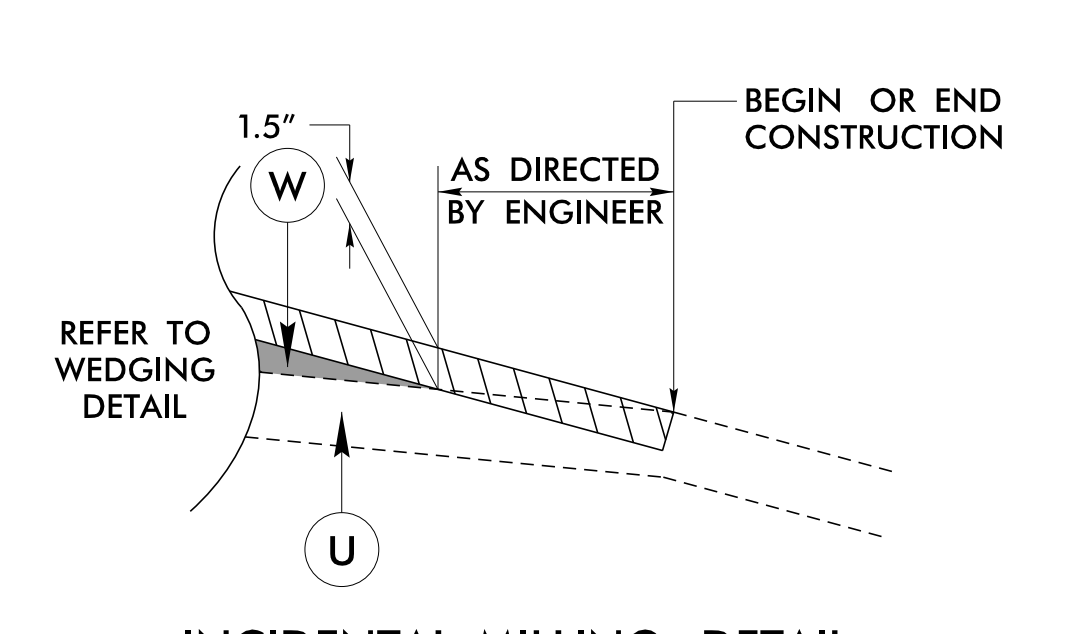
DETAIL SHOWING METHOD OF WEDGING (W1)



DETAIL SHOWING METHOD OF WEDGING (W2)



DETAIL SHOWING METHOD OF WEDGING (W3)



INCIDENTAL MILLING DETAIL
DETAIL SHOWING PROFILE VIEW


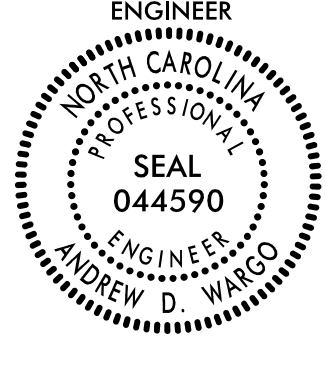
PAVEMENT SCHEDULE FINAL PAVEMENT DESIGN (4-29-2020)

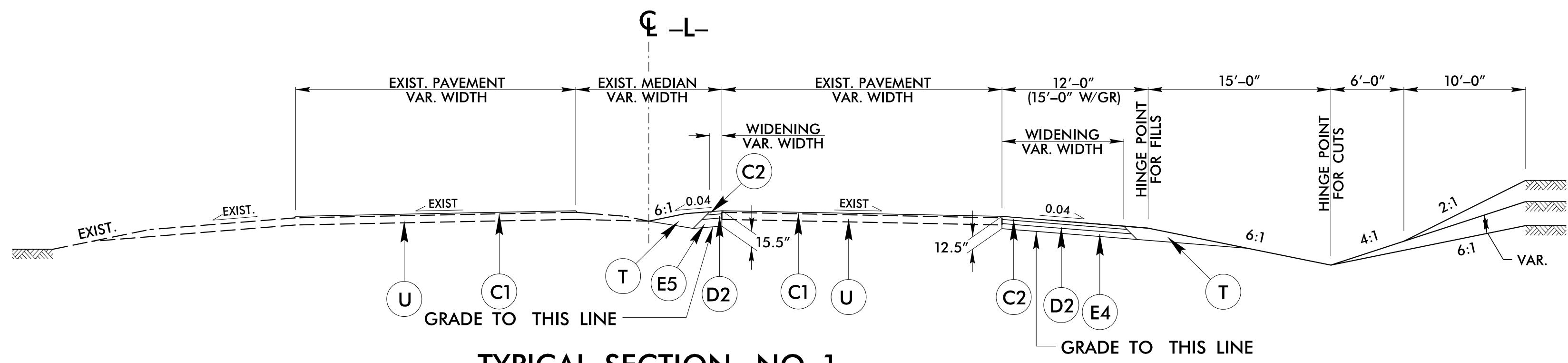
C1	PROP. APPROX. 1 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.	E2	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	R2	EXPRESSWAY GUTTER
C2	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	E3	PROP. APPROX. 5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 570 LBS. PER SQ. YD.	R3	5" MONOLITHIC CONCRETE ISLAND (KEYED IN)
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 2" IN DEPTH.	E4	PROP. APPROX. 5 1/2" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD.	R4	SHOULDER BERM GUTTER
C4	PROP. APPROX. 1 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD.	E5	PROP. APPROX. 8 1/2" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 484.5 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	S	4" SIDEWALK
C5	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.	E6	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.	T	EARTH MATERIAL.
D1	PROP. APPROX. 2 1/2" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.	K	PROP. 8" CLASS IV SUBGRADE STABILIZATION	U	EXISTING PAVEMENT.
D2	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	N1	GEOTEXTILE FOR PAVEMENT STABILIZATION	V1	MILLING ASPHALT PAVEMENT, 0" TO 6" DEPTH.
D3	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.	N2	GEOTEXTILE FOR SOIL STABILIZATION	V2	MILLING ASPHALT PAVEMENT, 1 1/2" DEPTH.
E1	PROP. APPROX. 3" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.	R1	2'-6" CONCRETE CURB AND GUTTER.	W	VARIABLE DEPTH ASPHALT PAVEMENT. (SEE WEDGING DETAIL)

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

12/21/2021 10:55:45 AM P:\proj\U-5896_rndj_tjg.dgn

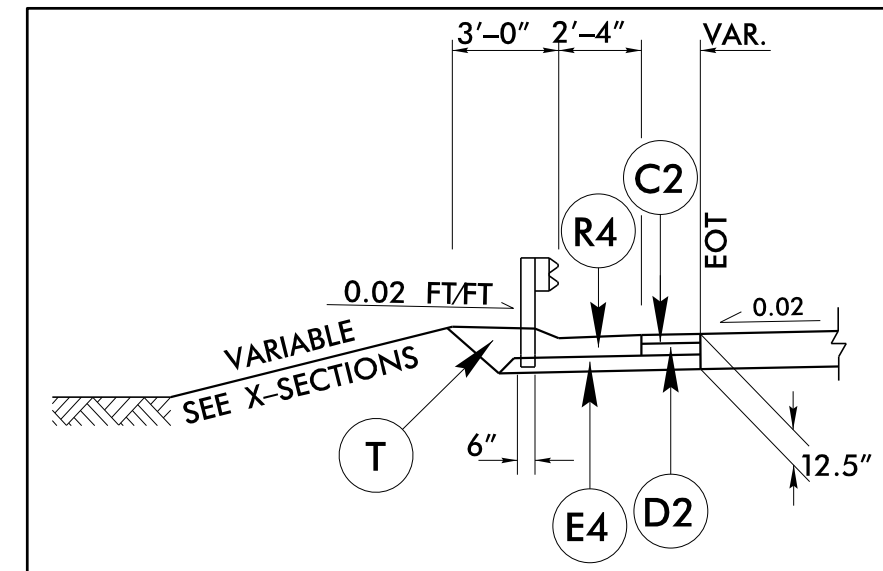
6/2/09

PROJECT REFERENCE NO. U-5896	SHEET NO. 2A-2
ROADWAY DESIGN ENGINEER MOTT MACDONALD 1 & E, LLC LICENSE NO. F-0669	PAVEMENT DESIGN ENGINEER MOTT MACDONALD 1 & E, LLC LICENSE NO. F-0669
 	
<p>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</p>	
<p>Prepared in the Office of: M MOTT MACDONALD 1 & E, LLC 7621 Purfoy Road, Suite 115 Fayetteville, NC 27526 www.mottmac.com/americas</p>	



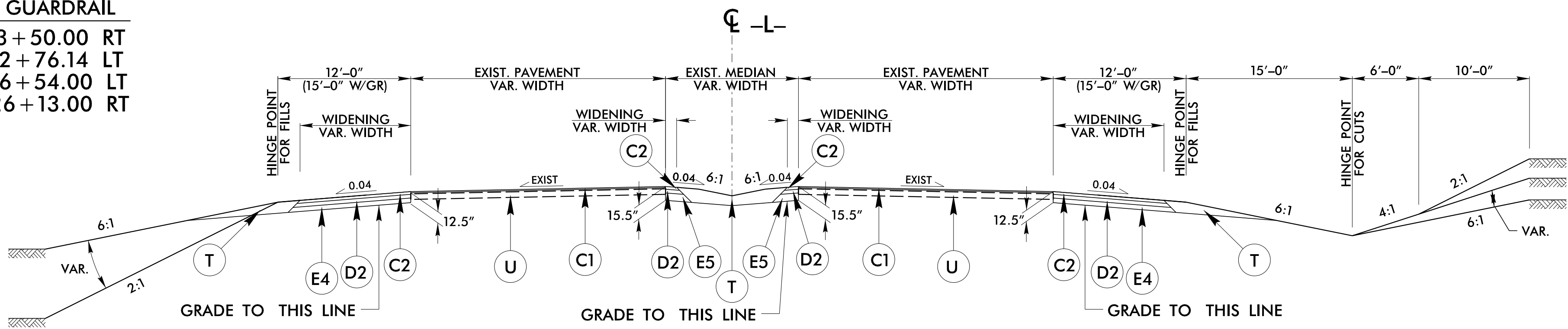
TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO. 1:
 **L- STA. 6+40.00 TO 7+70.00
 **L- STA. 41+25.00 TO 44+25.00



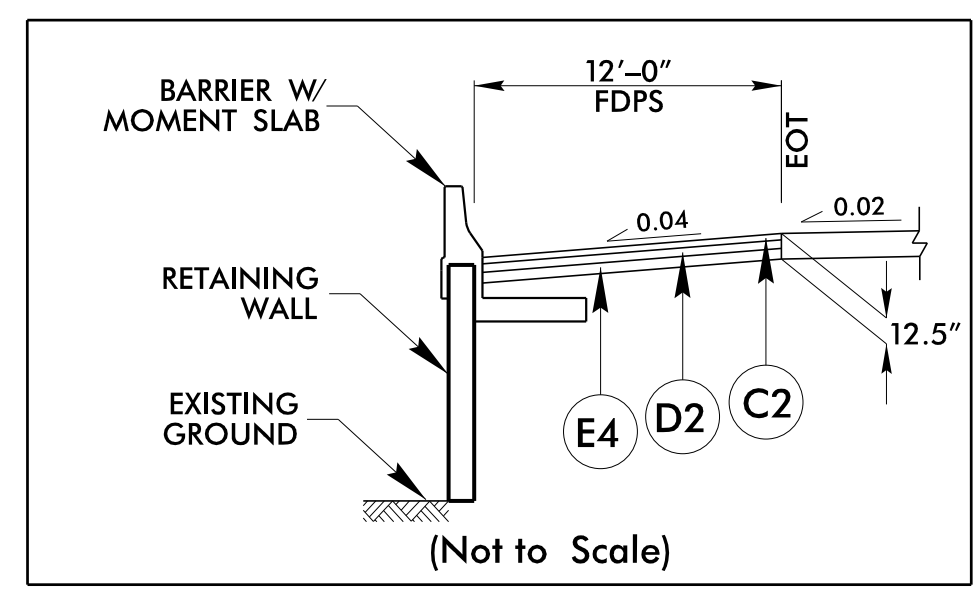
DETAIL FOR SHOULDER BERM GUTTER IN CONJUNCTION WITH GUARDRAIL

- L- STA 10+70.00 TO 13+50.00 RT
- L- STA 17+96.50 TO 22+76.14 LT
- L- STA 24+41.46 TO 26+54.00 LT
- L- STA 24+49.60 TO 26+13.00 RT

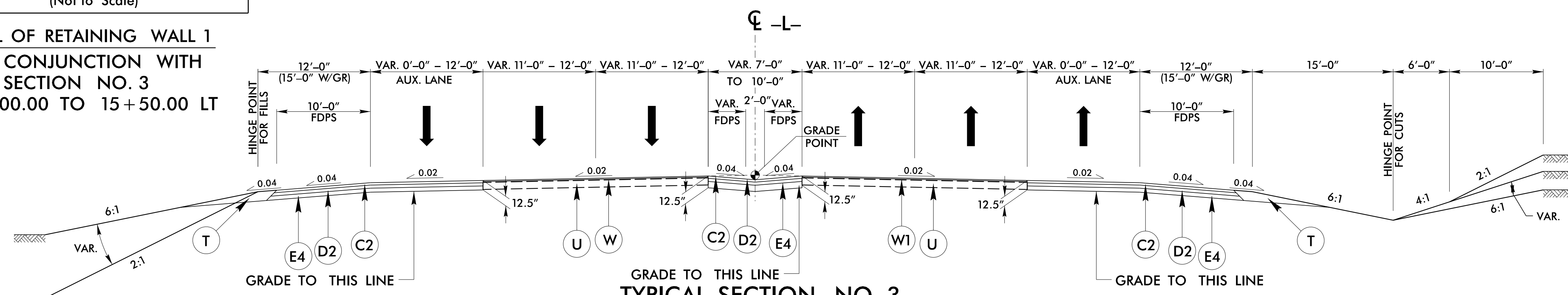


TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2:
 **L- STA. 7+70.00 TO 9+95.00
 **L- STA. 40+30.00 TO 41+25.00
 TRANSITION FROM TYPICAL SECTION NO. 2 TO TYPICAL SECTION NO. 3:
 **L- STA. 9+95.00 TO 10+75.00
 TRANSITION FROM TYPICAL SECTION NO. 3 TO TYPICAL SECTION NO. 2:
 **L- STA. 39+50.00 TO 40+30.00



DETAIL OF RETAINING WALL 1 USE IN CONJUNCTION WITH TYPICAL SECTION NO. 3
 -L- 10+00.00 TO 15+50.00 LT



TYPICAL SECTION NO. 3

USE TYPICAL SECTION NO. 3:
 **L- STA. 10+75.00 TO 18+60.00
 **L- STA. 28+75.00 TO 39+50.00
 TRANSITION FROM TYPICAL SECTION NO. 3 TO TYPICAL SECTION NO. 4:
 **L- STA. 18+60.00 TO 19+75.00

PAVEMENT SCHEDULE (FINAL PAVEMENT DESIGN)	
C1	1.5" S9.5C
C2	3" S9.5C
C3	VAR. S9.5C
C4	1.5" S9.5B
C5	3" S9.5B
D1	2.5" I19.0C
D2	4" I19.0C
D3	VAR. I19.0C
E1	3" B25.0C
E2	4" B25.0C
E3	5" B25.0C
E4	5.5" B25.0C
E5	8.5" B25.0C
E6	VAR. B25.0C
R1	2'-6" C & G
R2	EXPRESSWAY GUTTER
R3	5" MONO. CONC. ISLAND
R4	SHOULDER BERM GUTTER
S	4" SIDEWALK
T	EARTH MATERIAL
U	EXIST. PAVEMENT
V1	VAR. MILLING
V2	1 1/2" MILLING
W	VARIABLE DEPTH PAVEMENT

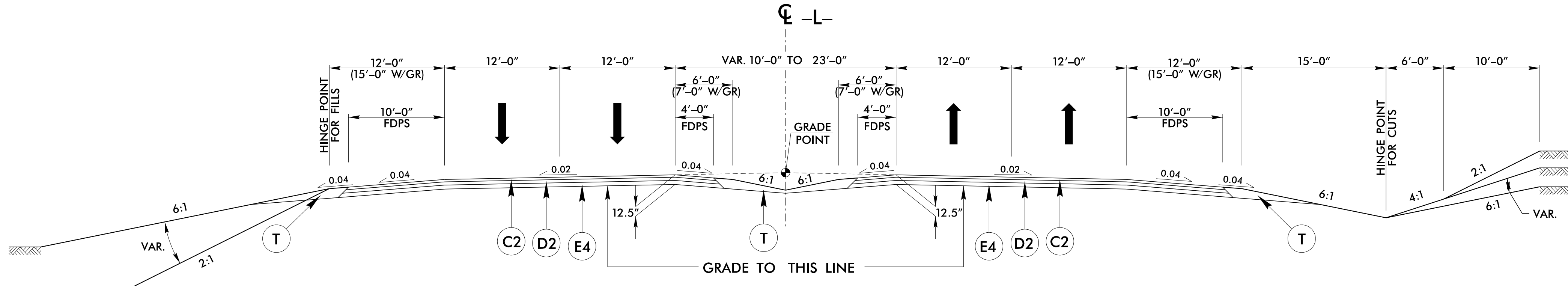
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.

*WIDTH AND LOCATION OF EXISTING PAVEMENT VARIES. (SEE PLANS)
 **SEE SUBGRADE STABILITY UNDERCUT DETAIL
 NOTE: FOR VARIABLE SLOPES SEE CROSS-SECTIONS.
 FOR TAPERS AND AUXILIARY LANES SEE PLAN VIEW.
 FOR ISLAND LIMITS SEE PLAN VIEW.

12/20/2021
 11:56:44 AM
 P:\Projects\U-5896\rdj_tjg.dgn
 10/26/2015

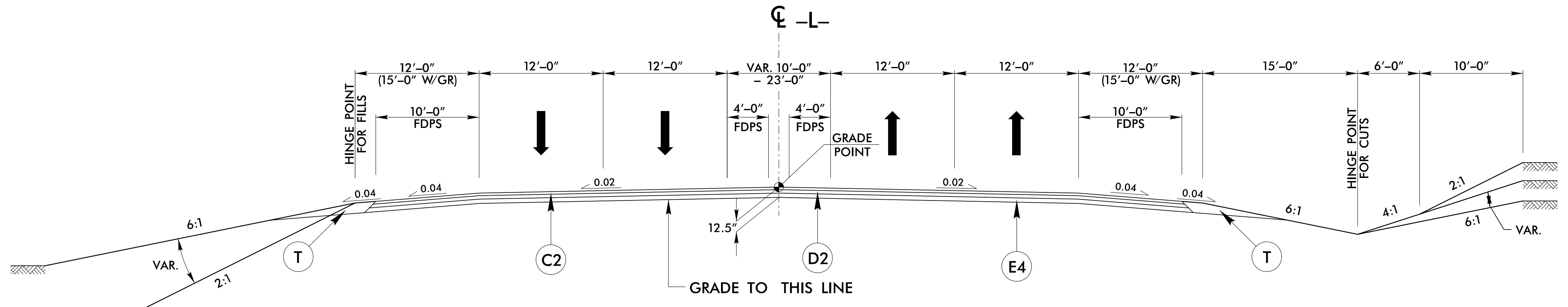
6/2/09

PROJECT REFERENCE NO. U-5896	SHEET NO. 2A-3
ROADWAY DESIGN ENGINEER SEAL 21102 TIMOTHY JORDAN	PAVEMENT DESIGN ENGINEER SEAL 044590 ANDREW D. WARGO
MOTT MACDONALD I & E, LLC LICENSE NO. F-0669	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
Prepared in the Office of:	M MOTT MACDONALD 7621 Purfoy Road, Suite 115 Fuquay-Varina, NC 27526 www.mottmac.com/americas



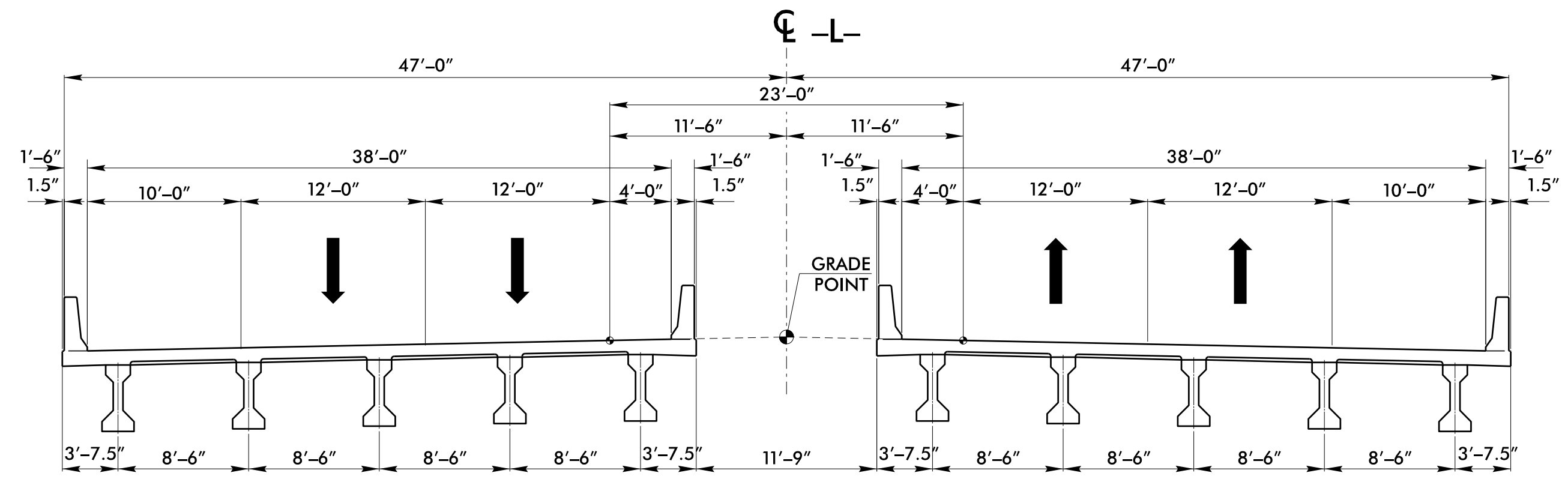
TYPICAL SECTION NO. 4

USE TYPICAL SECTION NO. 4:
 **L- STA. 19+75.00 TO 23+04.37 (BEGIN BRIDGE)
 **L- STA. 24+21.37 (END BRIDGE) TO 27+75.00



TYPICAL SECTION NO. 5

USE TYPICAL SECTION NO. 5:
 **L- STA. 27+75.00 TO 28+75.00



**TYPICAL SECTION NO. 6
AS B-5353**

(PAVEMENT DESIGN ENGINEER SEAL DOES NOT APPLY TO THIS TYPICAL)

USE TYPICAL SECTION NO. 6:
 -L- STA. 23+04.37 (BEGIN BRIDGE) TO 24+21.37 (END BRIDGE)

PAVEMENT SCHEDULE (FINAL PAVEMENT DESIGN)	
C1	1.5" S9.5C
C2	3" S9.5C
C3	VAR. S9.5C
C4	1.5" S9.5B
C5	3" S9.5B
D1	2.5" I19.0C
D2	4" I19.0C
D3	VAR. I19.0C
E1	3" B25.0C
E2	4" B25.0C
E3	5" B25.0C
E4	5.5" B25.0C
E5	8.5" B25.0C
E6	VAR. B25.0C
R1	2'-6" C & G
R2	EXPRESSWAY GUTTER
R3	5" MONO. CONC. ISLAND
R4	SHOULDER BERM GUTTER
S	4" SIDEWALK
T	EARTH MATERIAL
U	EXIST. PAVEMENT
V1	VAR. MILLING
V2	1 1/2" MILLING
W	VARIABLE DEPTH PAVEMENT

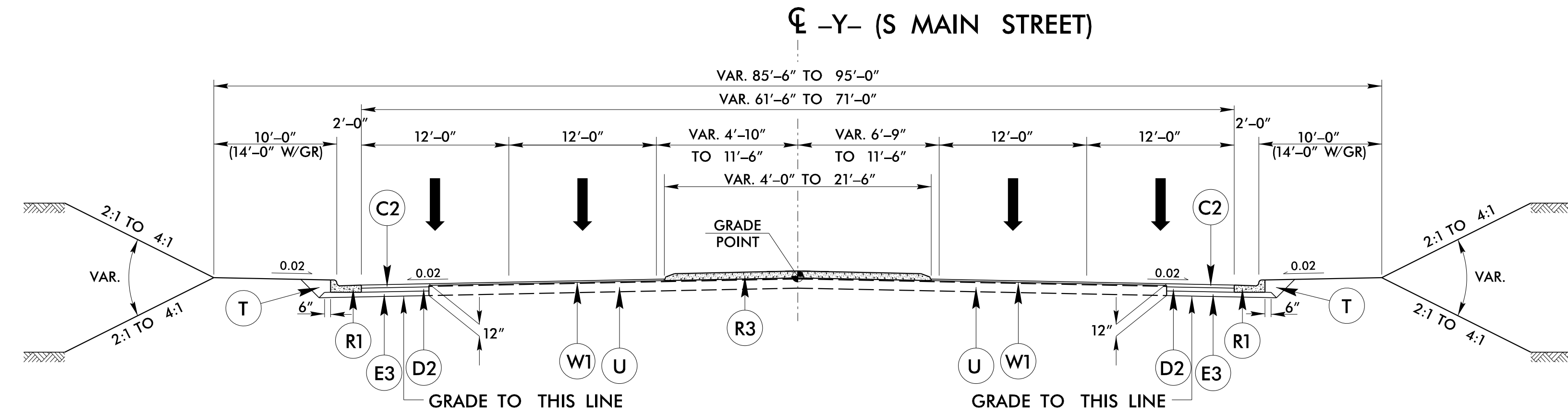
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.

*WIDTH AND LOCATION OF EXISTING PAVEMENT VARIES. (SEE PLANS)
 **SEE SUBGRADE STABILITY UNDERCUT DETAIL
 NOTE: -Y- LINE DIMENSIONS VARY AT TIE TO EXISTING ROAD FOR VARIABLE SLOPES SEE CROSS-SECTIONS. FOR TAPERS AND AUXILIARY LANES SEE PLAN VIEW. FOR ISLAND LIMITS SEE PLAN VIEW.

12/21/09 10:54:00 AM N:\Projects\U-5896_rdy_tjpd.dgn
 12/21/09 10:54:00 AM N:\Projects\U-5896_rdy_tjpd.dgn
 12/21/09 10:54:00 AM N:\Projects\U-5896_rdy_tjpd.dgn

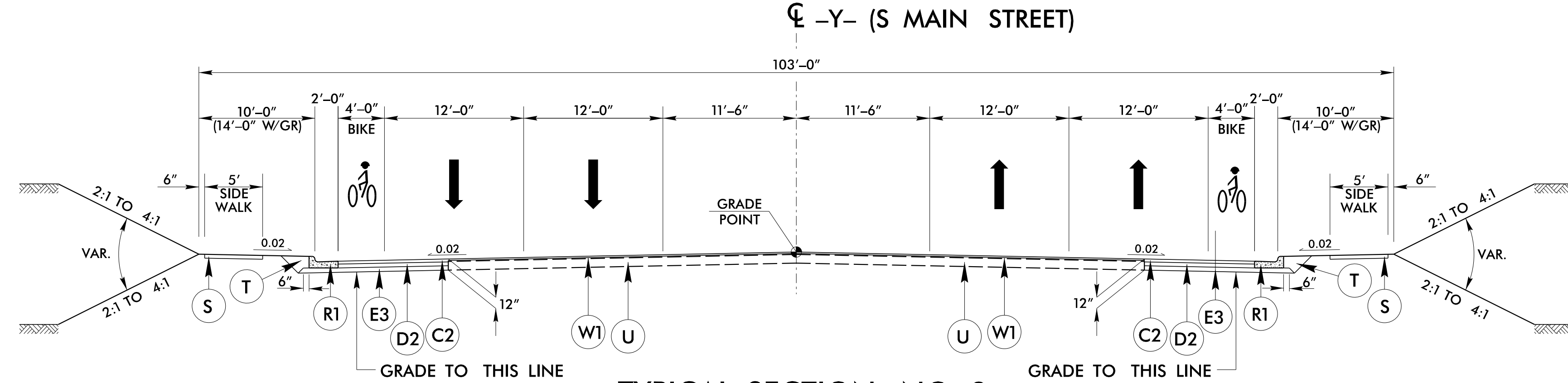
6/2/2019

PROJECT REFERENCE NO. U-5896	SHEET NO. 2A-4
ROADWAY DESIGN ENGINEER SEAL 21102 MOTT MACDONALD 1 & E, LLC LICENSE NO. F-06697	PAVEMENT DESIGN ENGINEER SEAL 044590 MOTT MACDONALD 1 & E, LLC LICENSE NO. F-06697
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
Prepared in the Office of: M MOTT MACDONALD 1 & E, LLC 7621 Purfoy Road, Suite 115 Fuquay-Varina, NC 27526 www.mottmac.com/americas	



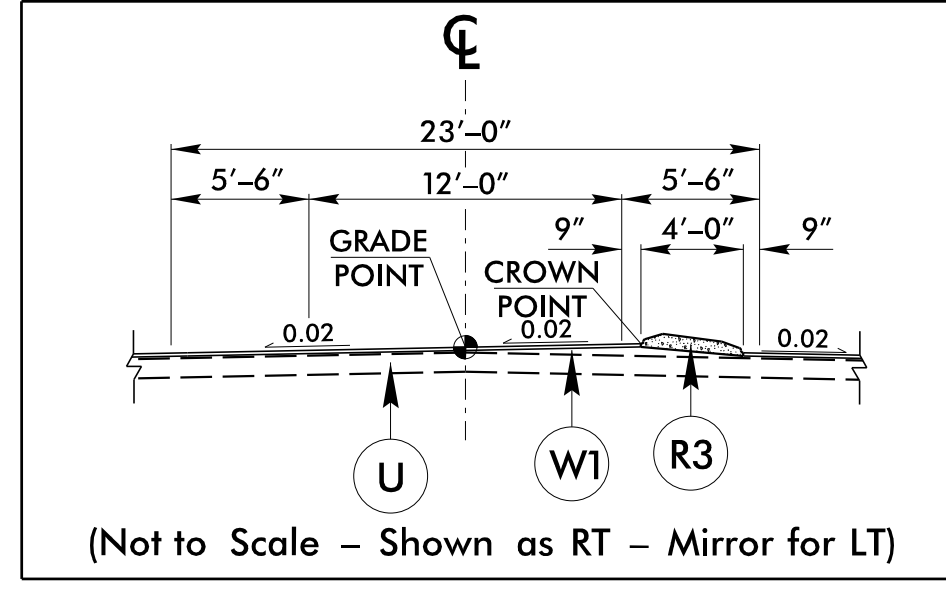
TYPICAL SECTION NO. 7

USE TYPICAL SECTION NO. 7:
 -Y- STA. 21+80.00 TO 22+35.00
 TRANSITION FROM EXISTING TO TYPICAL SECTION NO. 7:
 -Y- STA. 10+55.00 TO 13+20.00
 TRANSITION FROM TYPICAL SECTION NO. 7 TO TYPICAL SECTION NO. 9:
 -Y- STA. 22+35 TO 24+75.00



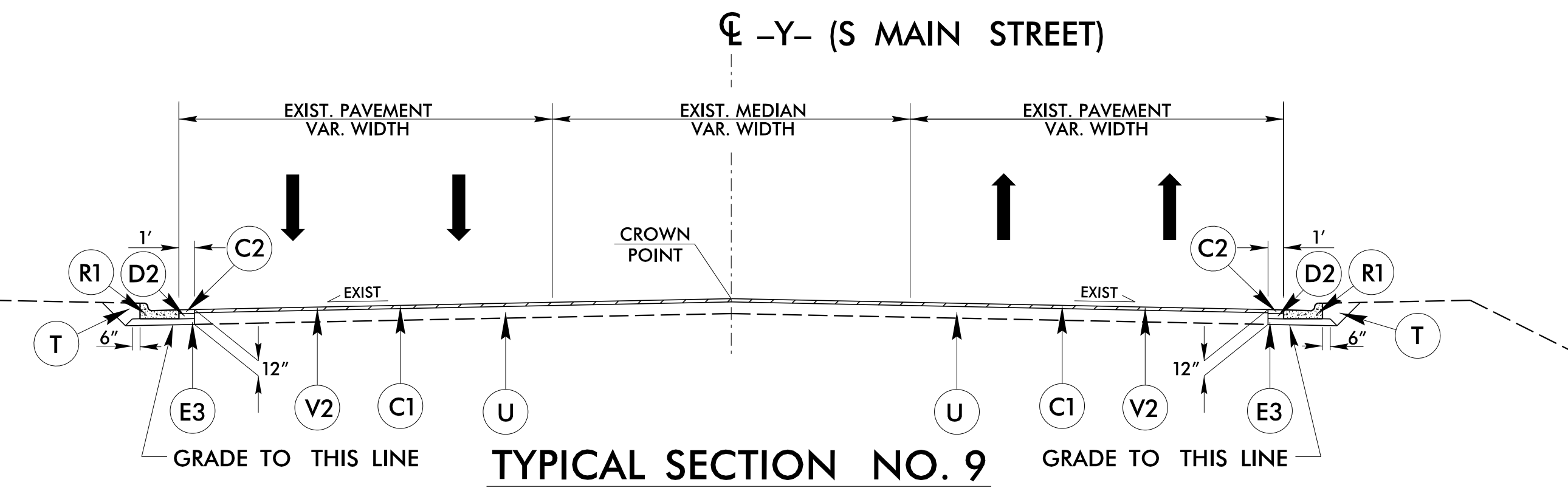
TYPICAL SECTION NO. 8

USE TYPICAL SECTION NO. 8:
 -Y- STA. 13+70.00 TO 21+30.00
 TRANSITION FROM TYPICAL SECTION NO. 7 TO TYPICAL SECTION NO. 8:
 -Y- STA. 13+20.00 TO 13+70.00
 TRANSITION FROM TYPICAL SECTION NO. 8 TO TYPICAL SECTION NO. 7:
 -Y- STA. 21+30.00 TO 21+80.00



DETAIL OF MEDIAN ISLAND SHIFT

USE IN CONJUNCTION WITH TYPICAL SECTION NO. 8
 -Y- 14+20.00 TO 16+10.00 RT
 -Y- 17+10.00 TO 20+85.00 LT
 TRANSITION FROM -Y- 16+10.00 RT TO -Y- 17+10.00 LT
 (SEE DETAIL 2B-9 FOR ISLAND CROWN DETAIL)



TYPICAL SECTION NO. 9

USE TYPICAL SECTION NO. 9:
 -Y- STA. 24+75.00 TO 25+85.00

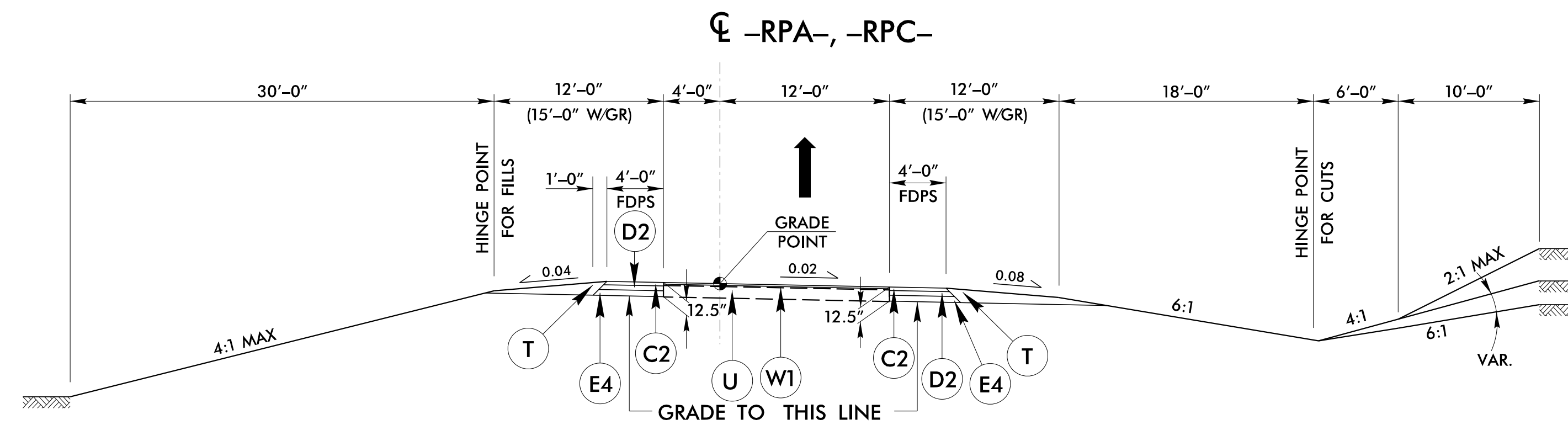
PAVEMENT SCHEDULE (FINAL PAVEMENT DESIGN)	
C1	1.5" S9.5C
C2	3" S9.5C
C3	VAR. S9.5C
C4	1.5" S9.5B
C5	3" S9.5B
D1	2.5" I19.0C
D2	4" I19.0C
D3	VAR. I19.0C
E1	3" B25.0C
E2	4" B25.0C
E3	5" B25.0C
E4	5.5" B25.0C
E5	8.5" B25.0C
E6	VAR. B25.0C
R1	2'-6" C & G
R2	EXPRESSWAY GUTTER
R3	5" MONO. CONC. ISLAND
R4	SHOULDER BERM GUTTER
S	4" SIDEWALK
T	EARTH MATERIAL
U	EXIST. PAVEMENT
V1	VAR. MILLING
V2	1 1/2" MILLING
W	VARIABLE DEPTH PAVEMENT

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

*WIDTH AND LOCATION OF EXISTING PAVEMENT VARIES. (SEE PLANS)
 **SEE SUBGRADE STABILITY UNDERCUT DETAIL
 NOTE: FOR VARIABLE SLOPES SEE CROSS-SECTIONS.
 FOR TAPERS AND AUXILIARY LANES SEE PLAN VIEW.
 FOR ISLAND LIMITS SEE PLAN VIEW.

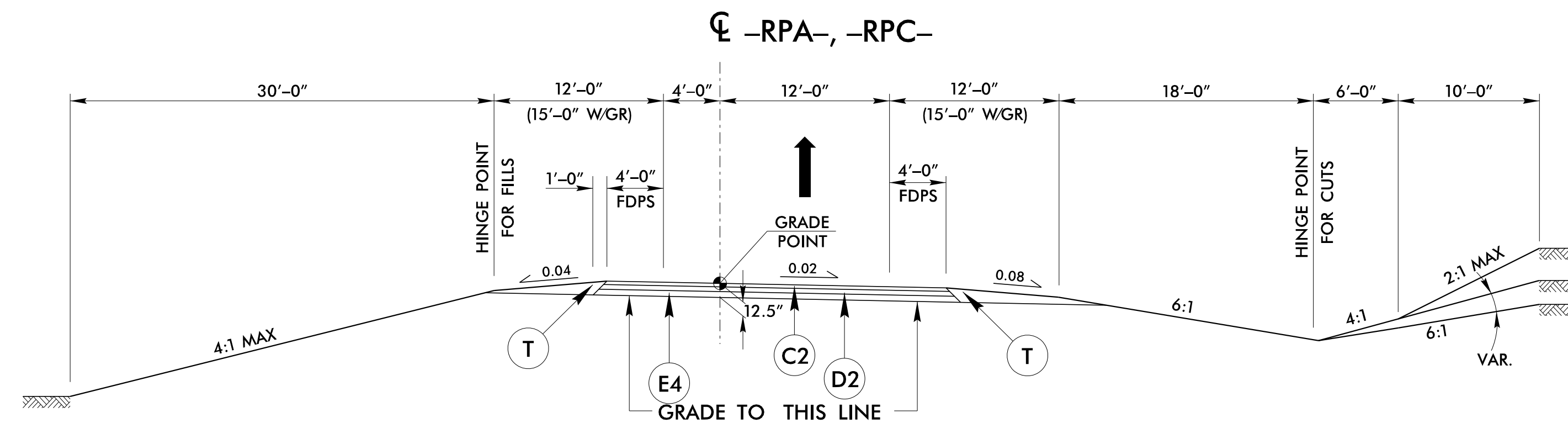
12/20/2017 10:55:21 AM
 P:\Projects\2019\U-5896\rdy_tjpd.dgn
 10/18/2019

PROJECT REFERENCE NO. <i>U-5896</i>	SHEET NO. <i>2A-5</i>
ROADWAY DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 21102 TIMOTHY JORDAN	PAVEMENT DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 044590 ANDREW D. WARGO
MOTT MACDONALD I & E, LLC LICENSE NO. F-0669	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
Prepared in the Office of:	M MOTT MACDONALD 7621 Purfoy Road, Suite 115 Fuquay-Varina, NC 27526 www.mottmac.com/americas



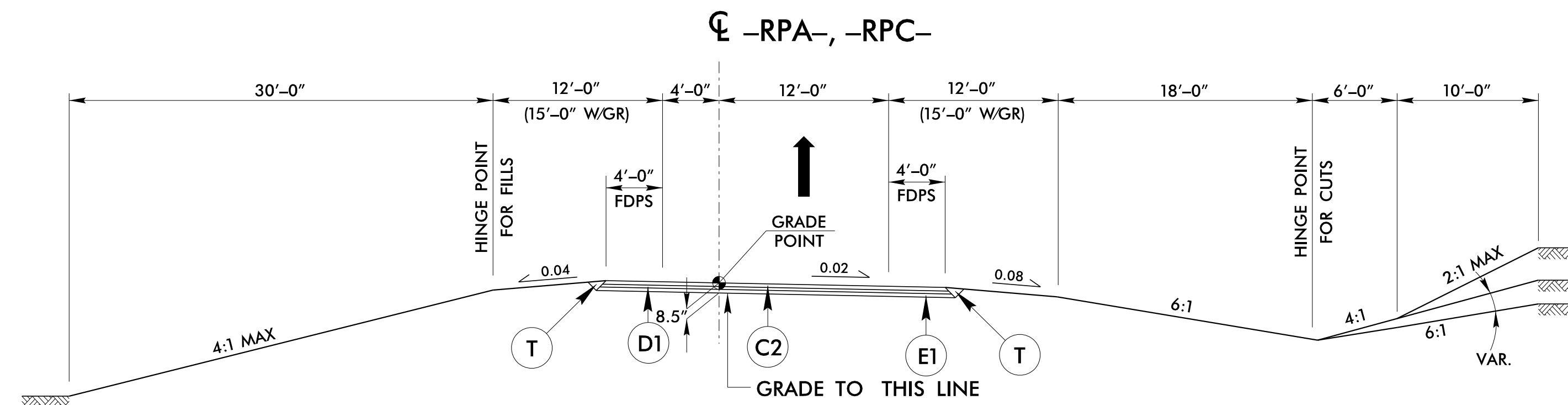
TYPICAL SECTION NO. 10

USE TYPICAL SECTION NO. 10:
 **-RPA- STA. 10+00.00 TO 11+99.00
 **-RPC- STA. 10+00.00 TO 12+79.00



TYPICAL SECTION NO. 11

USE TYPICAL SECTION NO. 11:
 **-RPA- STA. 11+99.00 TO 14+08.08
 **-RPC- STA. 12+79.00 TO 14+10.83



TYPICAL SECTION NO. 12

USE TYPICAL SECTION NO. 12:
 **-RPA- STA. 14+08.08 TO 23+65.69
 **-RPC- STA. 14+10.83 TO 23+72.96

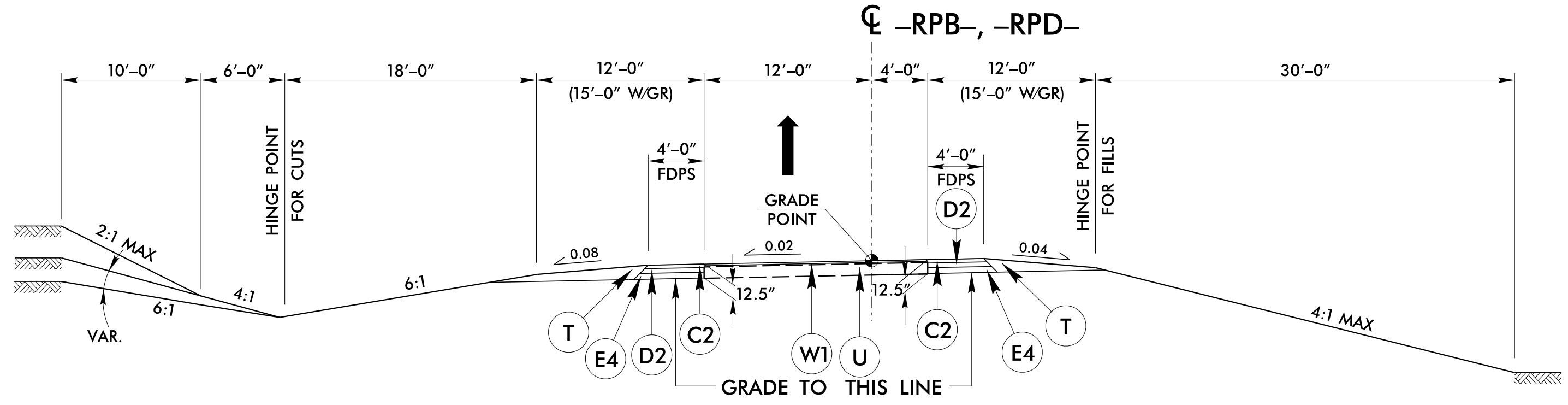
PAVEMENT SCHEDULE (FINAL PAVEMENT DESIGN)	
C1	1.5" S9.5C
C2	3" S9.5C
C3	VAR. S9.5C
C4	1.5" S9.5B
C5	3" S9.5B
D1	2.5" I19.0C
D2	4" I19.0C
D3	VAR. I19.0C
E1	3" B25.0C
E2	4" B25.0C
E3	5" B25.0C
E4	5.5" B25.0C
E5	8.5" B25.0C
E6	VAR. B25.0C
R1	2'-6" C & G
R2	EXPRESSWAY GUTTER
R3	5" MONO. CONC. ISLAND
R4	SHOULDER BERM GUTTER
S	4" SIDEWALK
T	EARTH MATERIAL
U	EXIST. PAVEMENT
V1	VAR. MILLING
V2	1 1/2" MILLING
W	VARIABLE DEPTH PAVEMENT

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

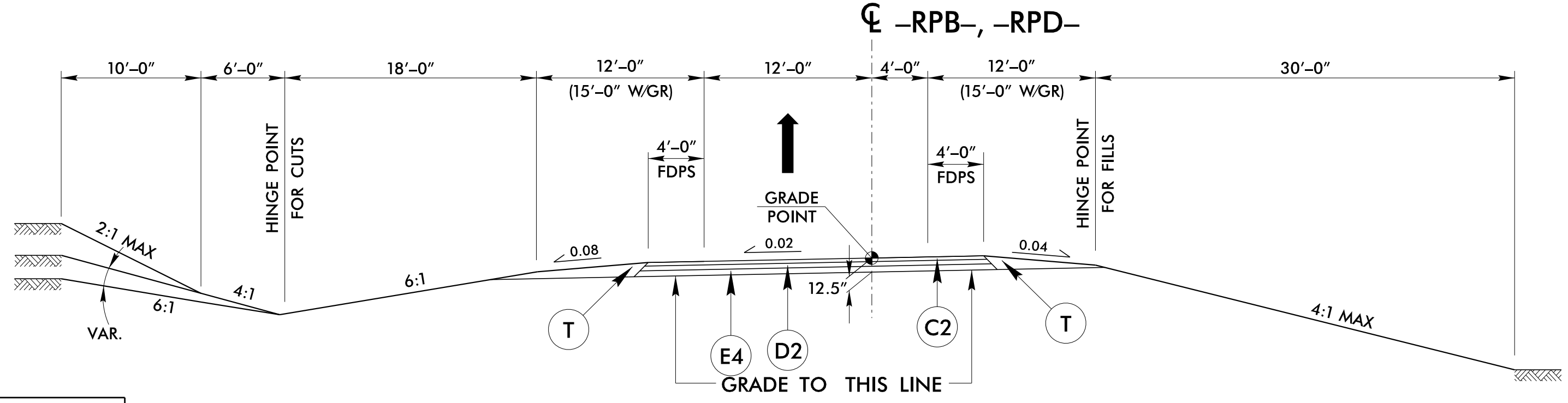
*WIDTH AND LOCATION OF EXISTING PAVEMENT VARIES. (SEE PLANS)
 **SEE SUBGRADE STABILITY UNDERCUT DETAIL
 NOTE: FOR VARIABLE SLOPES SEE CROSS-SECTIONS.
 FOR TAPERS AND AUXILIARY LANES SEE PLAN VIEW.
 FOR ISLAND LIMITS SEE PLAN VIEW.

6/22/99

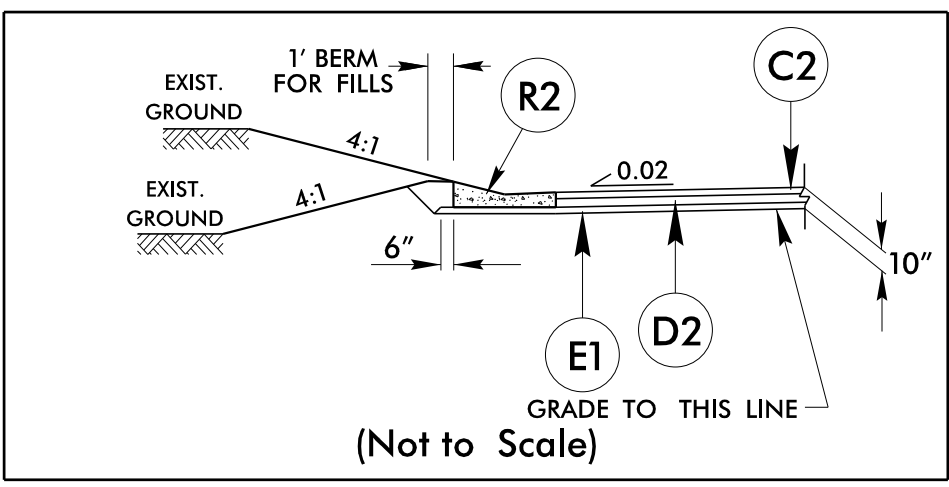
PROJECT REFERENCE NO. U-5896	SHEET NO. 2A-6
ROADWAY DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 21102 JAMES TIMOTHY JOHNSON	PAVEMENT DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 044590 ANDREW D. WARGO
MOTT MACDONALD I & E, LLC LICENSE NO. F-06697	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
Prepared in the Office of:	M MOTT MACDONALD I & E, LLC 7621 Purfoy Road, Suite 115 Fuquay-Varina, NC 27526 www.mottmac.com/americas



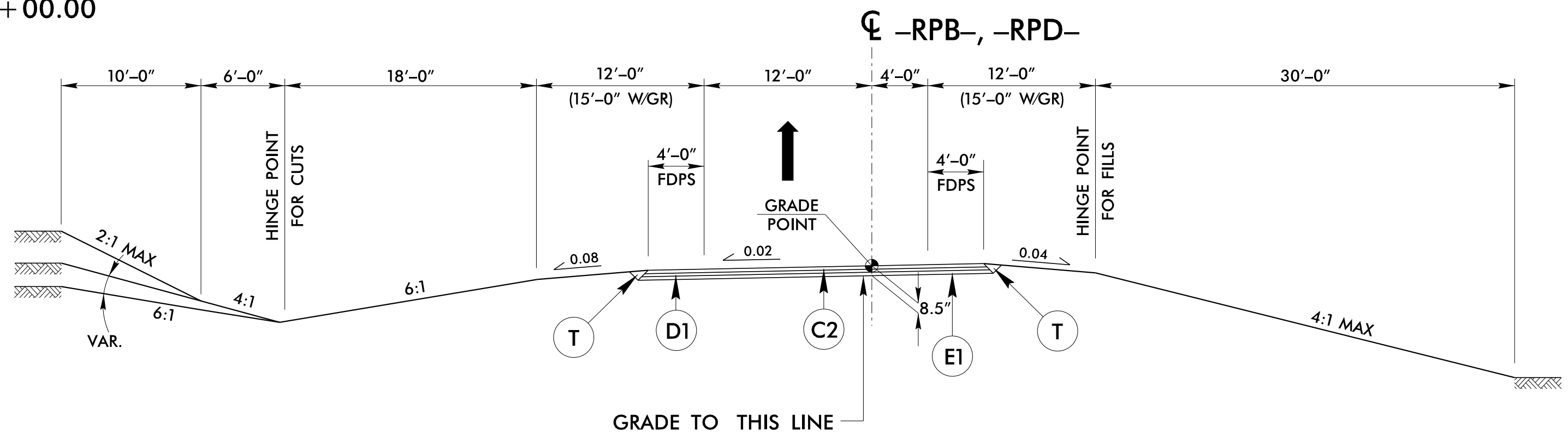
TYPICAL SECTION NO. 13
USE TYPICAL SECTION NO. 13:
**-RPB- STA. 10+00.00 TO 12+31.00



TYPICAL SECTION NO. 14
USE TYPICAL SECTION NO. 14:
**-RPB- STA. 12+31.00 TO 13+75.18
**-RPD- STA. 10+00.00 TO 12+00.00



DETAIL OF EXPRESSWAY GUTTER
USE IN CONJUNCTION WITH TYPICAL SECTION NO. 15
-RPD- 12+00.00 TO 18+00.00



TYPICAL SECTION NO. 15
USE TYPICAL SECTION NO. 15:
**-RPB- STA. 13+75.18 TO 20+97.75
**-RPD- STA. 12+00.00 TO 25+75.57

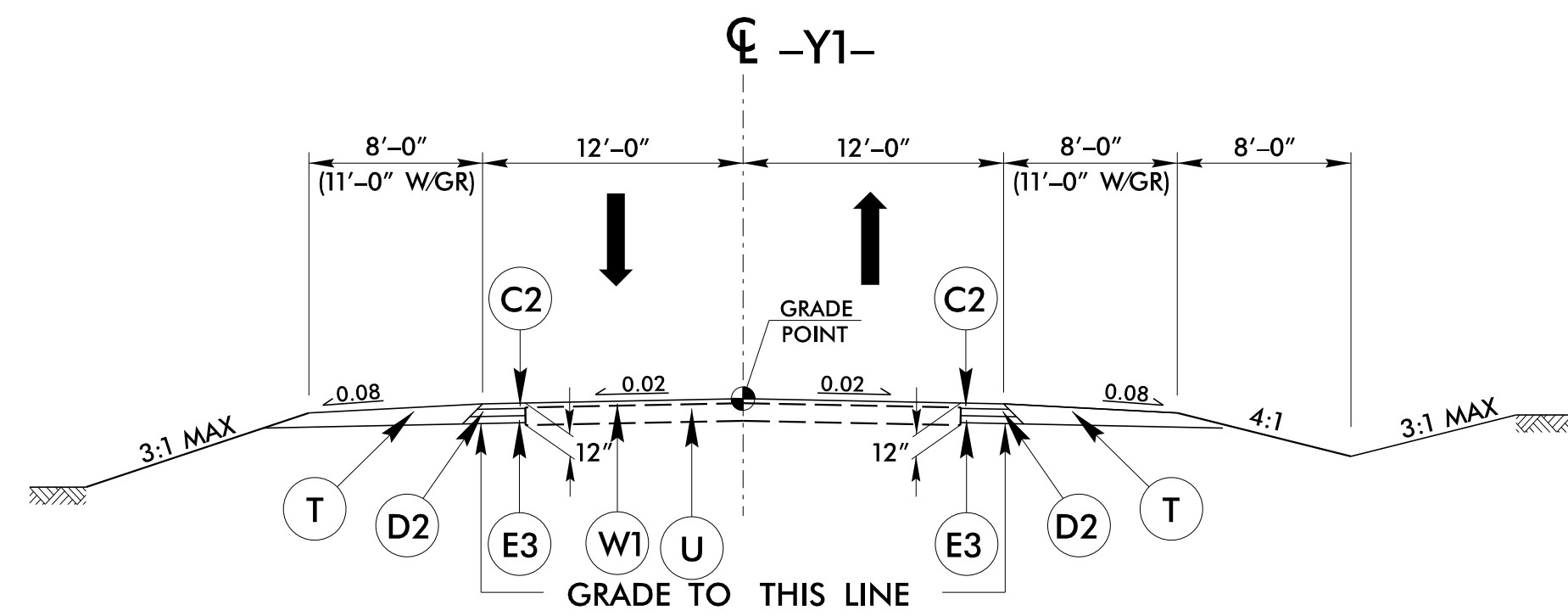
PAVEMENT SCHEDULE (FINAL PAVEMENT DESIGN)	
C1	1.5" S9.5C
C2	3" S9.5C
C3	VAR. S9.5C
C4	1.5" S9.5B
C5	3" S9.5B
D1	2.5" I19.0C
D2	4" I19.0C
D3	VAR. I19.0C
E1	3" B25.0C
E2	4" B25.0C
E3	5" B25.0C
E4	5.5" B25.0C
E5	8.5" B25.0C
E6	VAR. B25.0C
R1	2'-6" C & G
R2	EXPRESSWAY GUTTER
R3	5" MONO. CONC. ISLAND
R4	SHOULDER BERM GUTTER
S	4" SIDEWALK
T	EARTH MATERIAL
U	EXIST. PAVEMENT
V1	VAR. MILLING
V2	1 1/2" MILLING
W	VARIABLE DEPTH PAVEMENT

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

*WIDTH AND LOCATION OF EXISTING PAVEMENT VARIES. (SEE PLANS)
**SEE SUBGRADE STABILITY UNDERCUT DETAIL
NOTE: FOR VARIABLE SLOPES SEE CROSS-SECTIONS.
FOR TAPERS AND AUXILIARY LANES SEE PLAN VIEW.
FOR ISLAND LIMITS SEE PLAN VIEW.

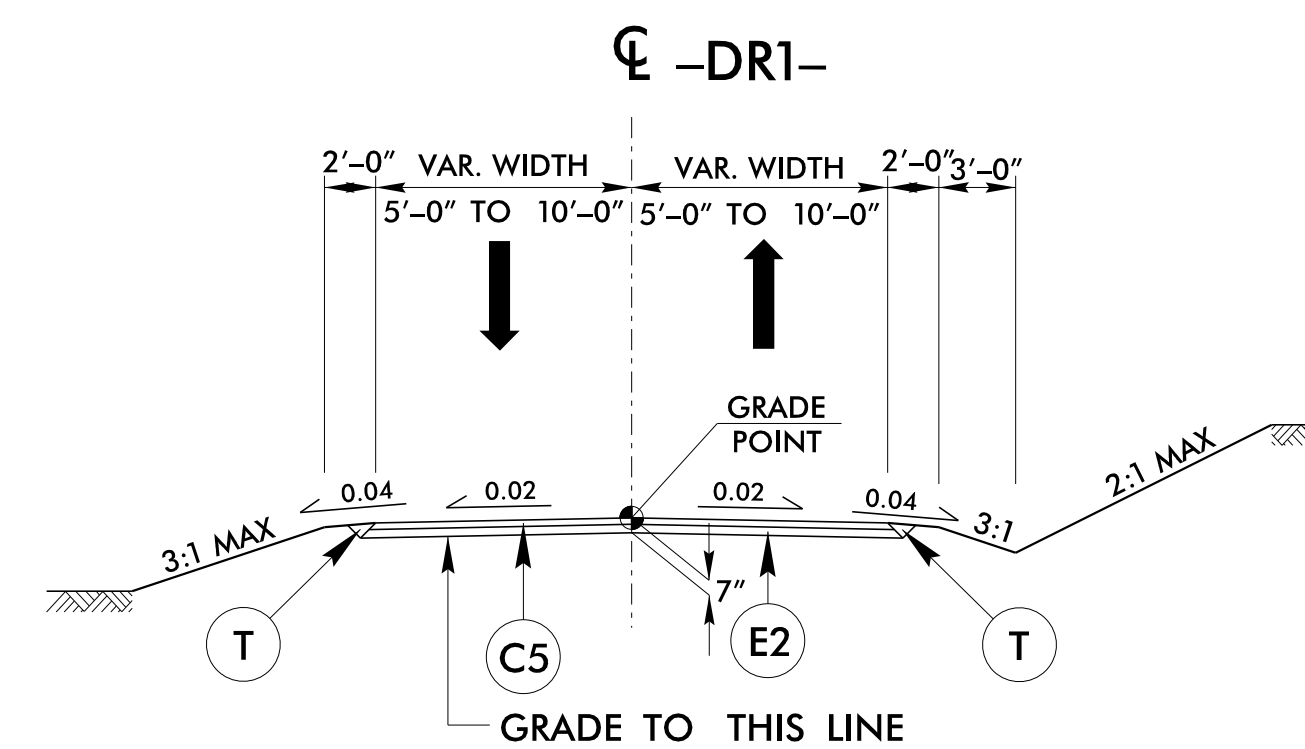
12/21/02
10:45:25 AM
I:\Projects\U-5896_rpdj_tjpd.dgn
10/26/05

PROJECT REFERENCE NO. U-5896	SHEET NO. 2A-7
ROADWAY DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 21102 JAMES TIMOTHY JORDAN	PAVEMENT DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 044590 ANDREW D. WARGO
MOTT MACDONALD I & E, LLC LICENSE NO. F-0669	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
Prepared in the Office of:	M MOTT MACDONALD I & E, LLC 7621 Purfoy Road, Suite 115 Fuquay-Varina, NC 27526 www.mottmac.com/americas



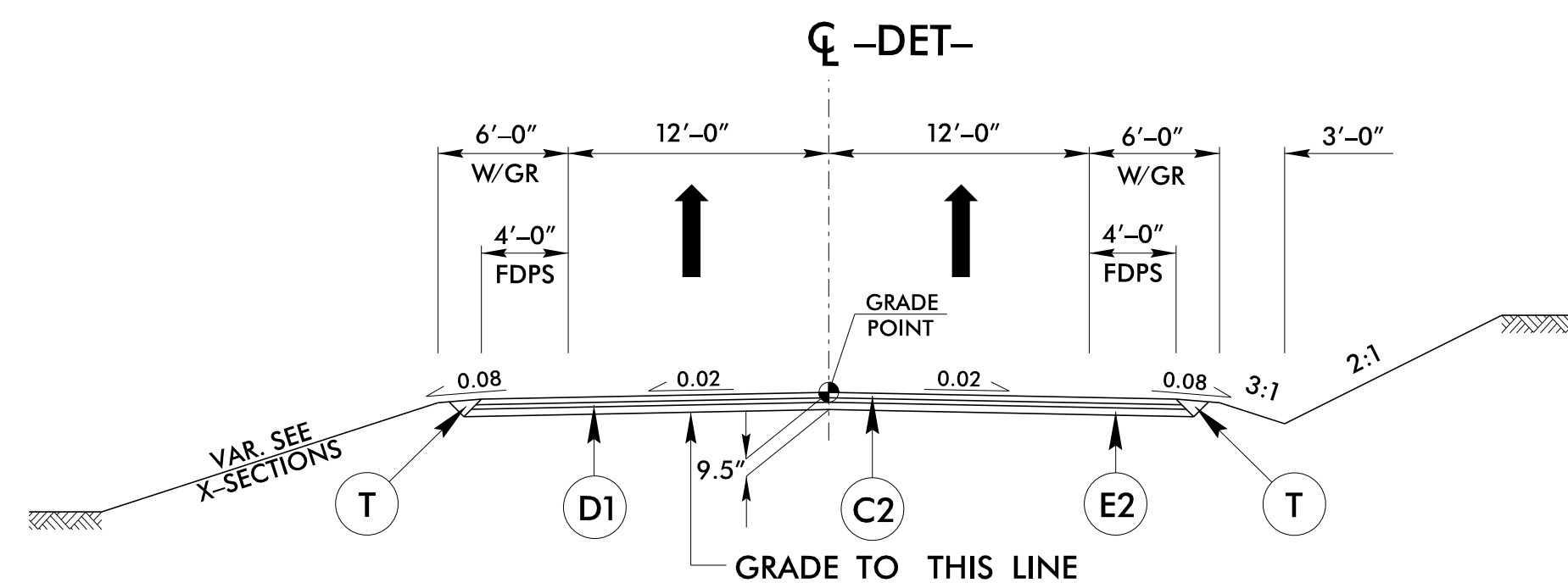
TYPICAL SECTION NO. 16

USE TYPICAL SECTION NO. 16:
-Y1- STA 13+90.00 TO 15+20.54



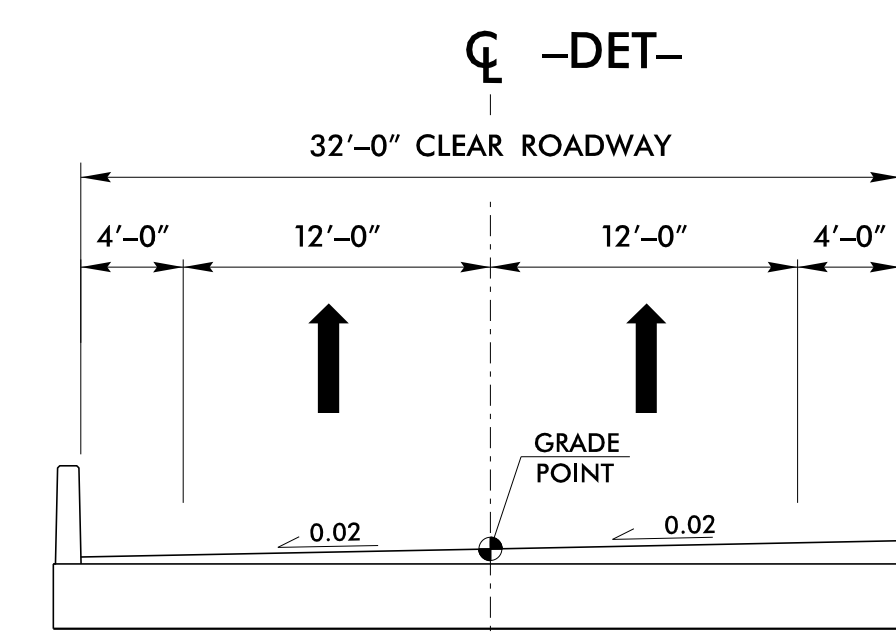
TYPICAL SECTION NO. 17

USE TYPICAL SECTION NO. 17:
-DR1- STA. 10+80.00 TO 14+25.00



TYPICAL SECTION NO. 18

USE TYPICAL SECTION NO. 18:
-DET- STA 11+05.13 TO 16+00.00 +/- (BEGIN BRIDGE)
-DET- STA 17+50.00 +/- (END BRIDGE) TO 23+57.49
TRANSITION FROM EXISTING TO TYPICAL SECTION NO. 18:
-DET- STA 7+06.47 TO 11+05.13
TRANSITION FROM TYPICAL SECTION NO. 18 TO EXISTING:
-DET- STA 23+57.49 TO 28+64.30



TYPICAL SECTION NO. 19 (DETOUR BRIDGE)

(PAVEMENT DESIGN ENGINEER SEAL DOES NOT APPLY TO THIS TYPICAL)

USE TYPICAL SECTION NO. 19:
-DET- STA 16+00.00 +/- (BEGIN BRIDGE) TO 17+50.00 +/- (END BRIDGE)

PAVEMENT SCHEDULE (FINAL PAVEMENT DESIGN)	
C1	1.5" S9.5C
C2	3" S9.5C
C3	VAR. S9.5C
C4	1.5" S9.5B
C5	3" S9.5B
D1	2.5" I19.0C
D2	4" I19.0C
D3	VAR. I19.0C
E1	3" B25.0C
E2	4" B25.0C
E3	5" B25.0C
E4	5.5" B25.0C
E5	8.5" B25.0C
E6	VAR. B25.0C
R1	2'-6" C & G
R2	EXPRESSWAY GUTTER
R3	5" MONO. CONC. ISLAND
R4	SHOULDER BERM GUTTER
S	4" SIDEWALK
T	EARTH MATERIAL
U	EXIST. PAVEMENT
V1	VAR. MILLING
V2	1 1/2" MILLING
W	VARIABLE DEPTH PAVEMENT

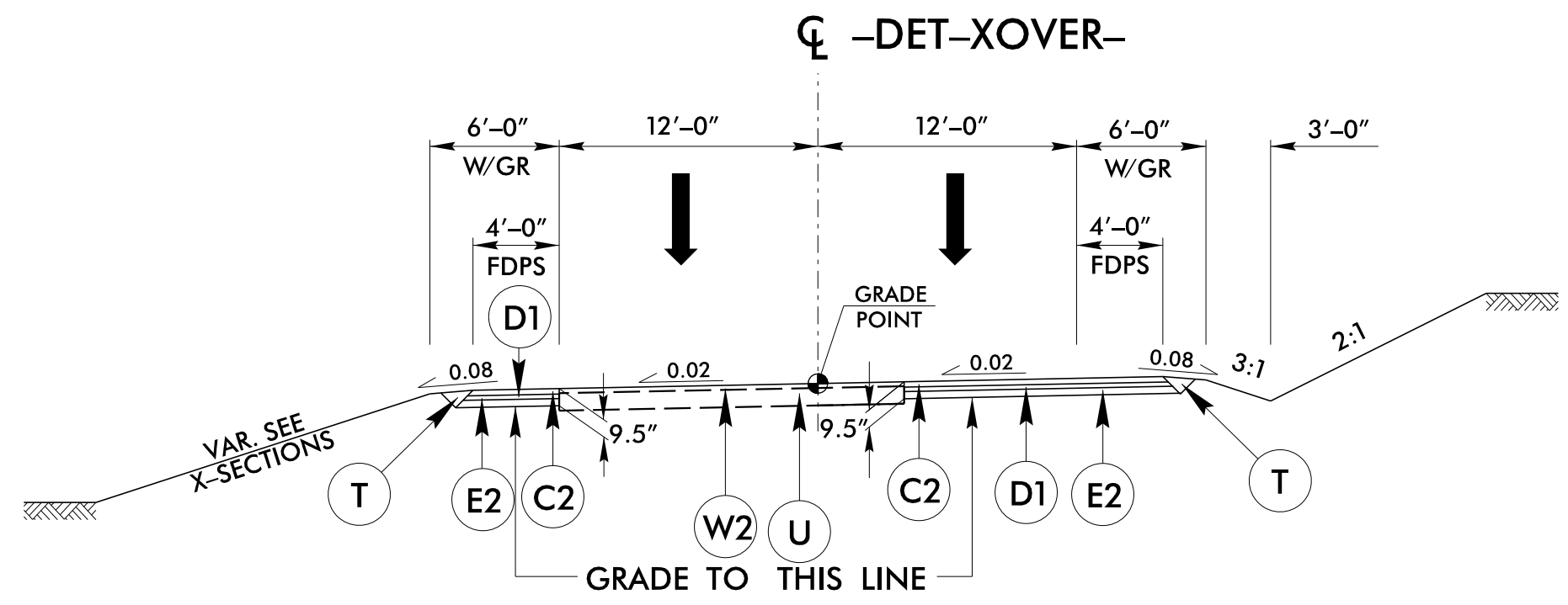
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.

*WIDTH AND LOCATION OF EXISTING PAVEMENT VARIES. (SEE PLANS)
**SEE SUBGRADE STABILITY UNDERCUT DETAIL

NOTE: FOR VARIABLE SLOPES SEE CROSS-SECTIONS.
FOR TAPERS AND AUXILIARY LANES SEE PLAN VIEW.
FOR ISLAND LIMITS SEE PLAN VIEW.

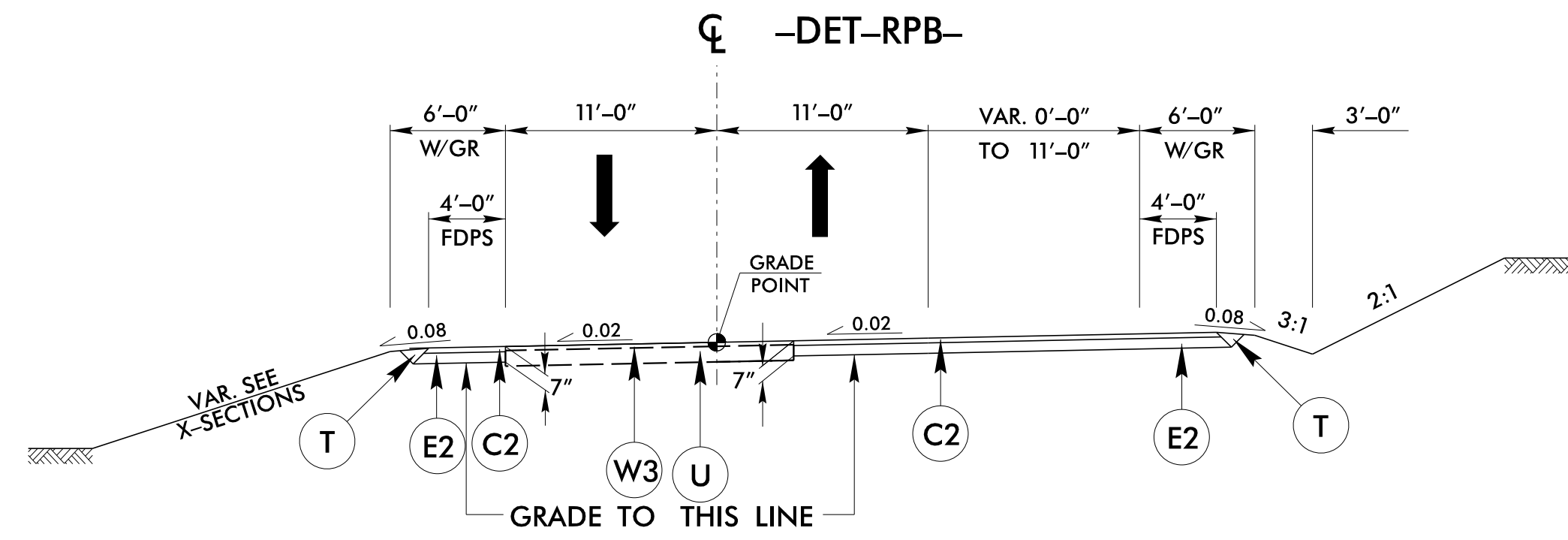
6/2/99

PROJECT REFERENCE NO. U-5896	SHEET NO. 2A-8
ROADWAY DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 21102 JAMES TIMOTHY JOHNSON	PAVEMENT DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 044590 ANDREW D. WARGO
MOTT MACDONALD 1 & E, LLC LICENSE NO. F-0669	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
Prepared in the Office of:	M MOTT MACDONALD 7621 Purfoy Road, Suite 115 Fayetteville, NC 27526 www.mottmac.com/americas



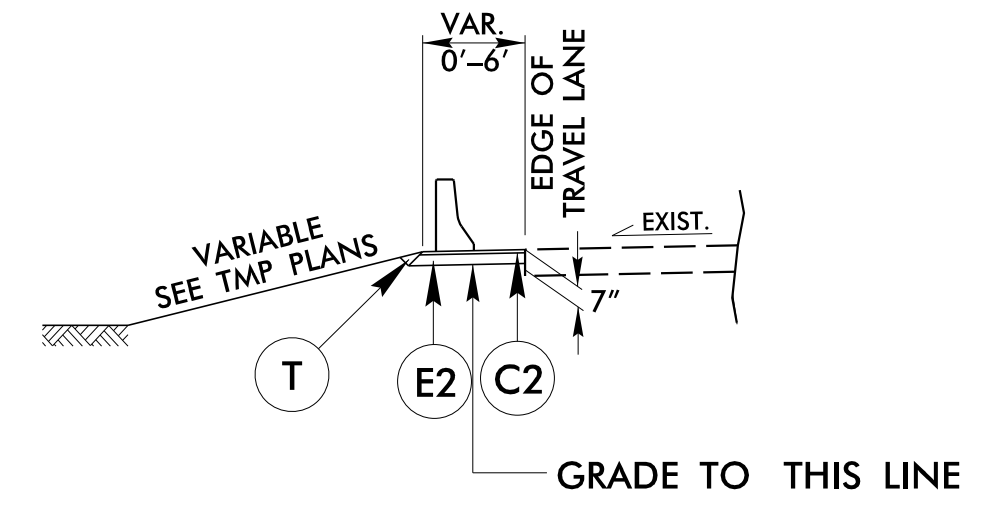
TYPICAL SECTION NO. 20

USE TYPICAL SECTION NO. 20:
 -DET-XOVER- STA 14+36.91 TO 17+65.00
 -DET-XOVER- STA 19+80.00 TO 23+27.73
 TRANSITION FROM EXISTING TO TYPICAL SECTION NO. 20:
 -DET-XOVER- STA 10+24.86 TO 14+36.91
 TRANSITION FROM TYPICAL SECTION NO. 20 TO EXISTING:
 -DET-XOVER- STA 23+27.73 TO 28+41.08



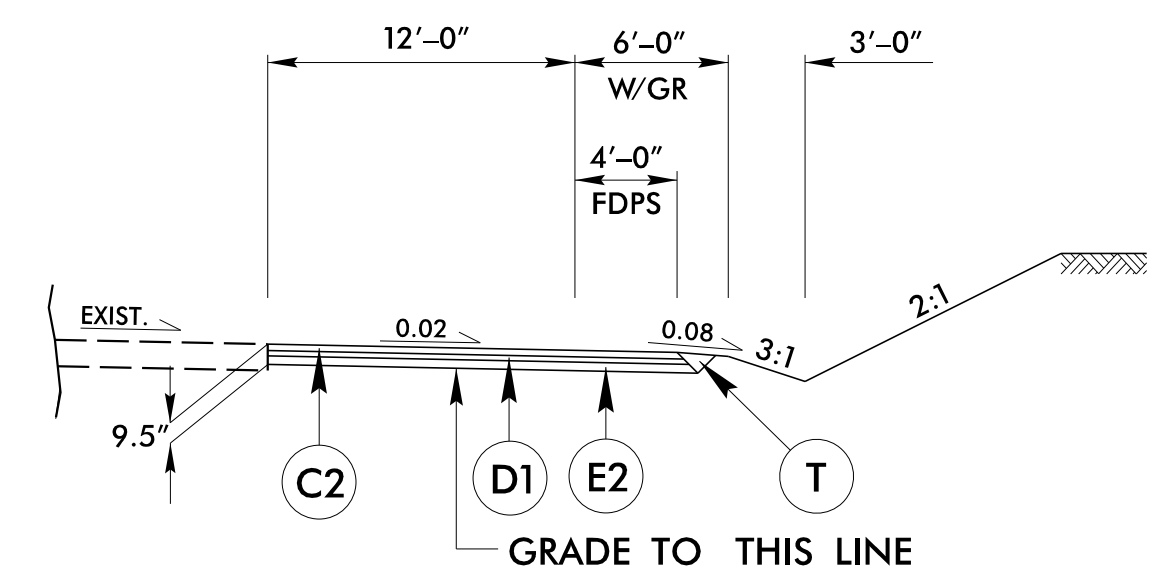
TYPICAL SECTION NO. 21

USE TYPICAL SECTION NO. 21:
 -DET-RPB- STA 15+98.28 TO 21+13.31



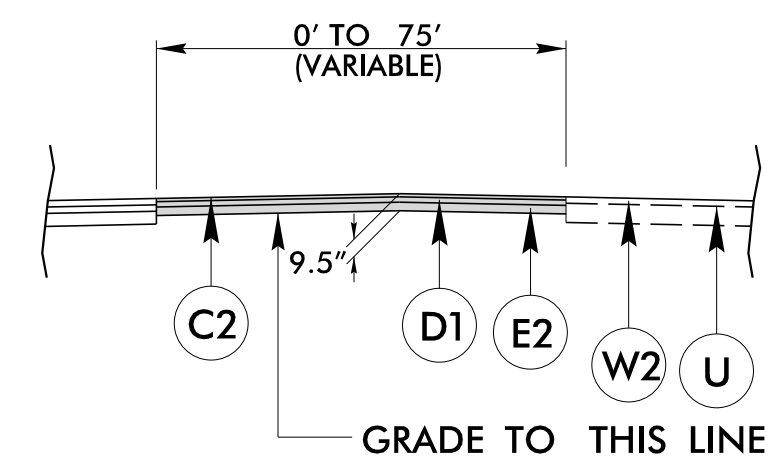
TEMPORARY PAVEMENT DETAIL UNDER TEMPORARY BARRIER

-L- STA 12+89.11 TO 14+17.09
 SEE TRANSPORTATION MANAGEMENT PLANS



TEMPORARY PAVEMENT DETAIL RAMP C ACCELL LANE

-L- STA 15+91.60 TO 21+97.08
 SEE TRANSPORTATION MANAGEMENT PLANS



TEMPORARY PAVEMENT DETAIL

-RPB- STA 13+73.95 TO 14+64.69
 -Y1- STA 14+52.00 TO 15+20.00
 SEE TRANSPORTATION MANAGEMENT PLANS

PAVEMENT SCHEDULE (FINAL PAVEMENT DESIGN)	
C1	1.5" S9.5C
C2	3" S9.5C
C3	VAR. S9.5C
C4	1.5" S9.5B
C5	3" S9.5B
D1	2.5" I19.0C
D2	4" I19.0C
D3	VAR. I19.0C
E1	3" B25.0C
E2	4" B25.0C
E3	5" B25.0C
E4	5.5" B25.0C
E5	8.5" B25.0C
E6	VAR. B25.0C
R1	2'-6" C & G
R2	EXPRESSWAY GUTTER
R3	5" MONO. CONC. ISLAND
R4	SHOULDER BERM GUTTER
S	4" SIDEWALK
T	EARTH MATERIAL
U	EXIST. PAVEMENT
V1	VAR. MILLING
V2	1 1/2" MILLING
W	VARIABLE DEPTH PAVEMENT

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

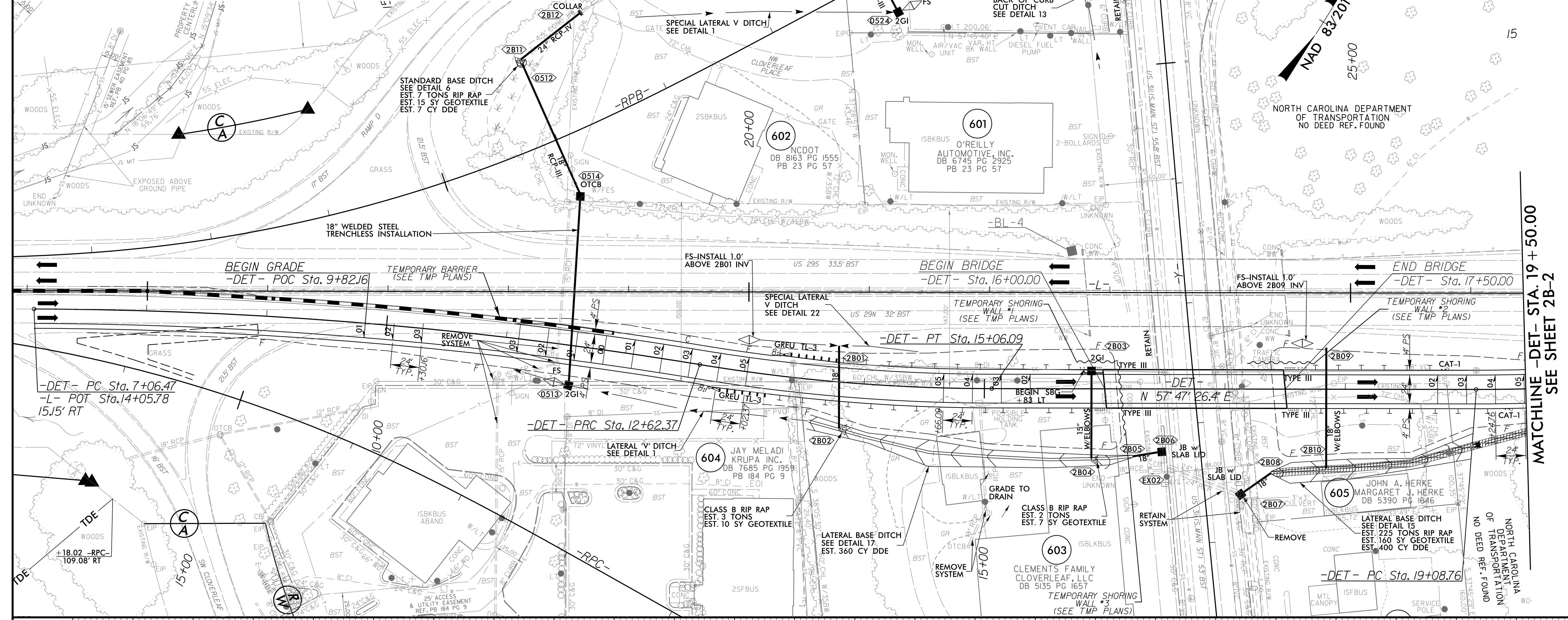
*WIDTH AND LOCATION OF EXISTING PAVEMENT VARIES. (SEE PLANS)
 NOTE: FOR VARIABLE SLOPES SEE CROSS-SECTIONS.
 FOR TAPERS AND AUXILIARY LANES SEE PLAN VIEW.
 FOR ISLAND LIMITS SEE PLAN VIEW.

12/20/2021
 P:\Projects\U-5896\rdj_tjg.dgn
 10:56:15

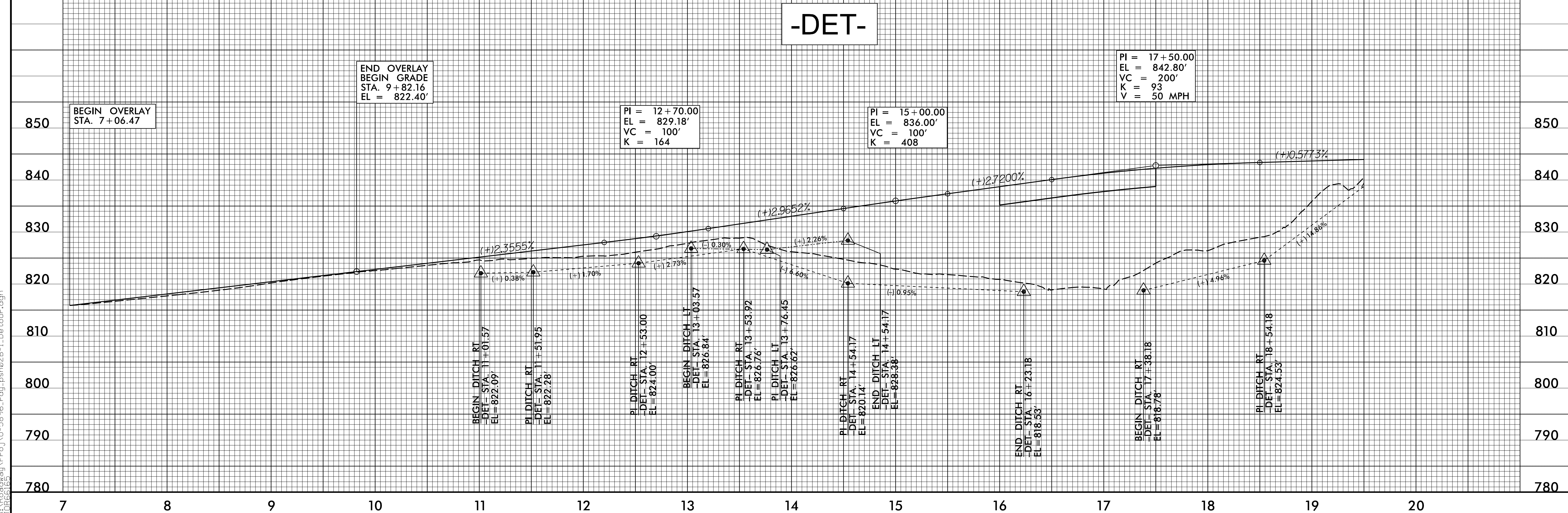
DETAIL OF TEMPORARY DETOUR

PROJECT REFERENCE NO. U-5896	SHEET NO. 2B-1
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<p>NOTICE</p> <p>PROJECT NOT CONSIDERED FINAL</p> <p>UNLESS ALL SIGNATURES COMPLETED</p>	
<p>Prepared in the Office of:</p> <p>M MOTT MACDONALD</p> <p>VHB VHB Engineering NC, P.C. (C-3705) 940 Main Campus Drive, Suite 500 Raleigh, NC 27606</p>	
<p>FOR -L- DESIGN SEE SHEET 5</p> <p>FOR HYDRO DETAILS SEE SHEET 2D-1</p> <p>FOR PHASING SEE TMP PLANS</p>	

8/17/99



<p>-DET-</p> <p>PI Sta 9+85.01 Δ = 9'09" 09.2" (RT) D = 1'38' 47.1" L = 555.90' T = 278.54' R = 3,480.00' SE = 03 RO = 72'</p>	<p>PI Sta 13+84.50 Δ = 9'14' 51.9" (LT) D = 3' 47' 39.9" L = 243.72' T = 122.12' R = 1,510.00' SE = 05 RO = 120'</p>
<p>PI Sta 20+10.09 Δ = 7' 40' 42.4" (LT) D = 3' 47' 39.9" L = 202.36' T = 101.33' R = 1,510.00' SE = 05 RO = 120'</p>	

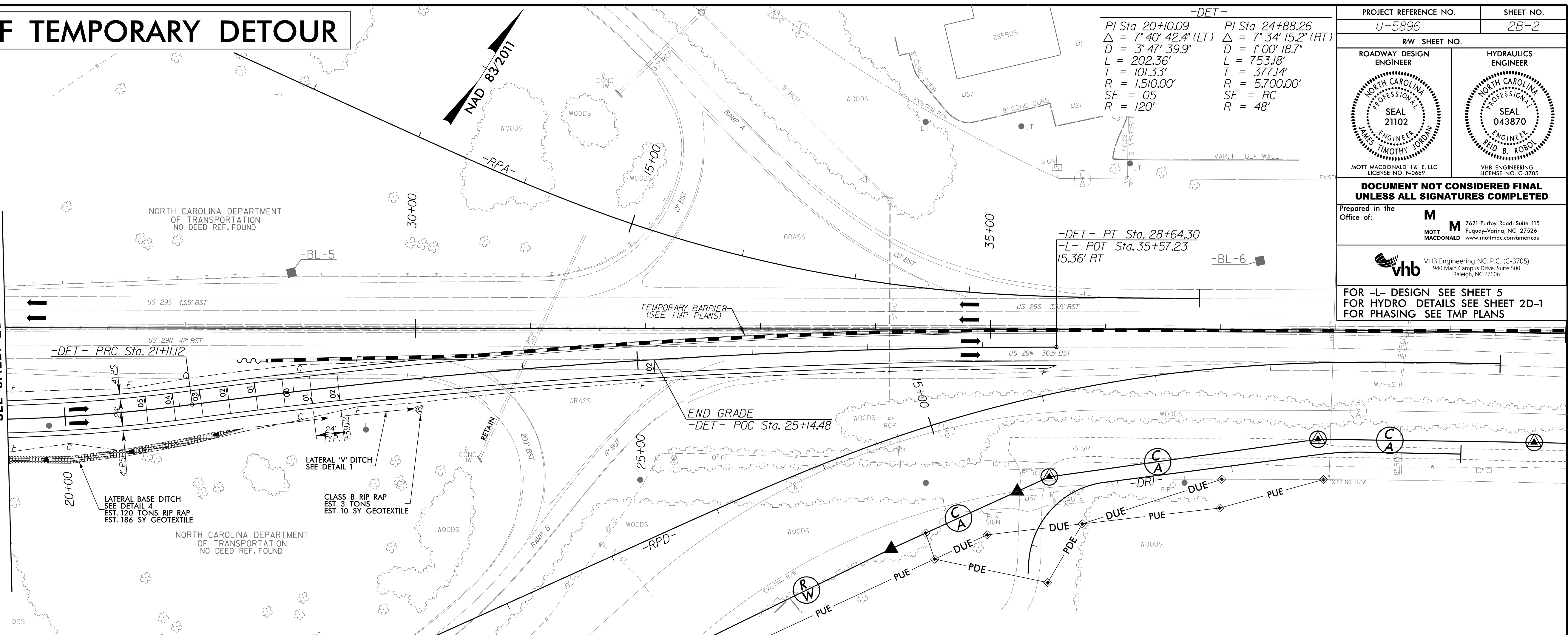


11/29/2021 6:47:29 PM R:\Roadkey\Pro\U-5896_rdy_psh\2B-1_Detour.dgn

DETAIL OF TEMPORARY DETOUR

8/17/99

MATCHLINE -DET- STA. 19+50.00
SEE SHEET 2B-1



-DET-	
PI Sta 20+10.09	PI Sta 24+88.26
$\Delta = 7' 40' 42.4''$ (LT)	$\Delta = 7' 34' 15.2''$ (RT)
D = 3' 47' 39.9"	D = 1' 00' 18.7"
L = 202.36'	L = 753.18'
T = 101.33'	T = 377.14'
R = 1,510.00'	R = 5,700.00'
SE = 05	SE = RC
R = 120'	R = 48'

PROJECT REFERENCE NO. U-5896	SHEET NO. 2B-2
ROADWAY DESIGN ENGINEER MOTT MACDONALD & E. LLC LICENSE NO. F-0669	HYDRAULICS ENGINEER VHB ENGINEERING LICENSE NO. C-3705

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared in the Office of:

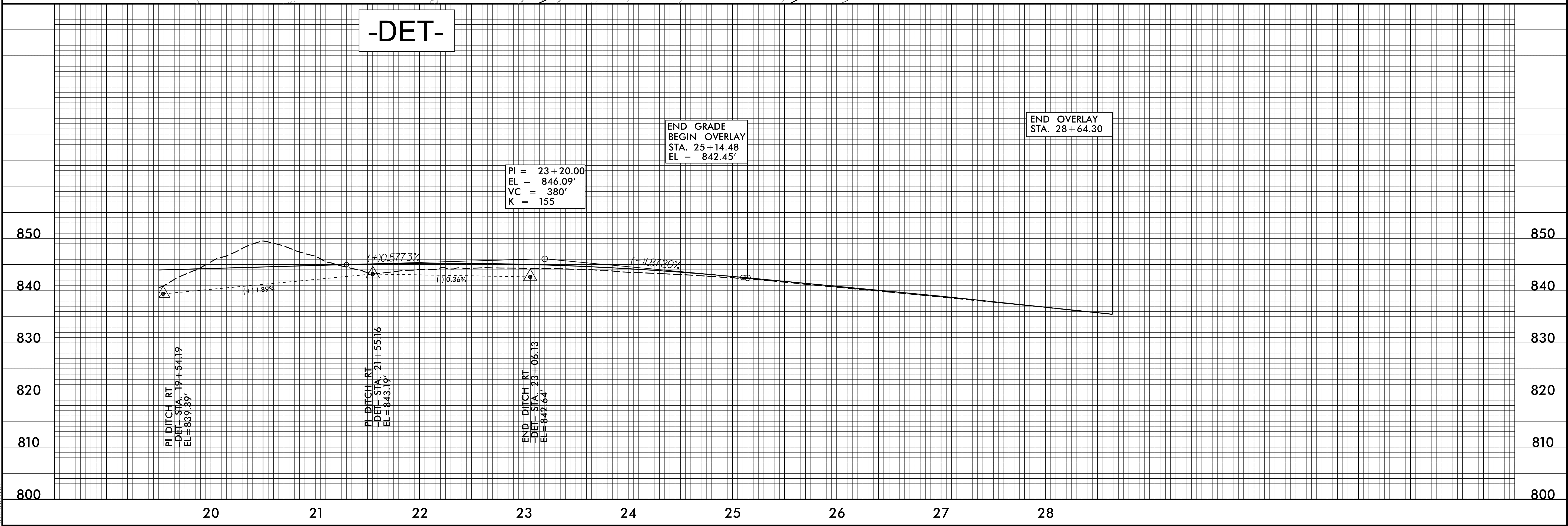
M MOTT MACDONALD
7621 Purfoy Road, Suite 115
Fuquay-Varina, NC 27526
www.mottmac.com/americas

M MOTT MACDONALD
7621 Purfoy Road, Suite 115
Fuquay-Varina, NC 27526
www.mottmac.com/americas

vhb VHB Engineering NC, P.C. (C-3705)
940 Main Campus Drive, Suite 500
Raleigh, NC 27606

FOR -L- DESIGN SEE SHEET 5
FOR HYDRO DETAILS SEE SHEET 2D-1
FOR PHASING SEE TMP PLANS

-DET-

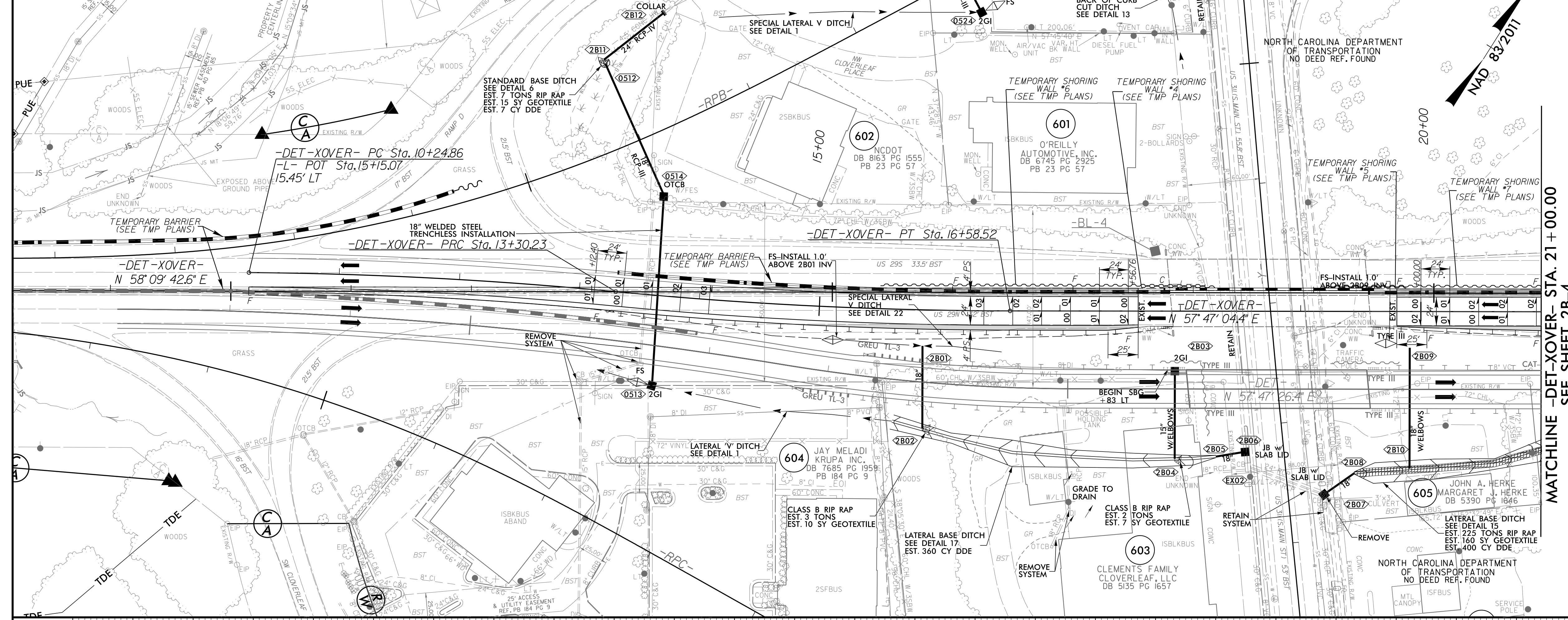


11/29/2021 6:47:30 PM
R:\Roadway\Proje\U-5896-rdu_psh\2B-2_Detour.dgn
R:\Roadway\Proje\U-5896-rdu_psh\2B-2_Detour.dgn

DETAIL OF TEMPORARY DETOUR CROSSOVER

PROJECT REFERENCE NO. U-5896	SHEET NO. 2B-3
ROADWAY DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 21102 TIMOTHY JOHNSON	HYDRAULICS ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 043870 REID B. ROBERTSON
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
Prepared in the Office of: M MOTT MACDONALD & E. LLC 7621 Purfoy Road, Suite 115 Fuquay-Varina, NC 27526 www.mottmac.com/americas	
vhb VHB Engineering NC, P.C. (C-3705) 940 Main Campus Drive, Suite 500 Raleigh, NC 27606	
FOR -L- DESIGN SEE SHEET 5 FOR HYDRO DETAILS SEE SHEET 2D-1 FOR PHASING SEE TMP PLANS	

8/17/199

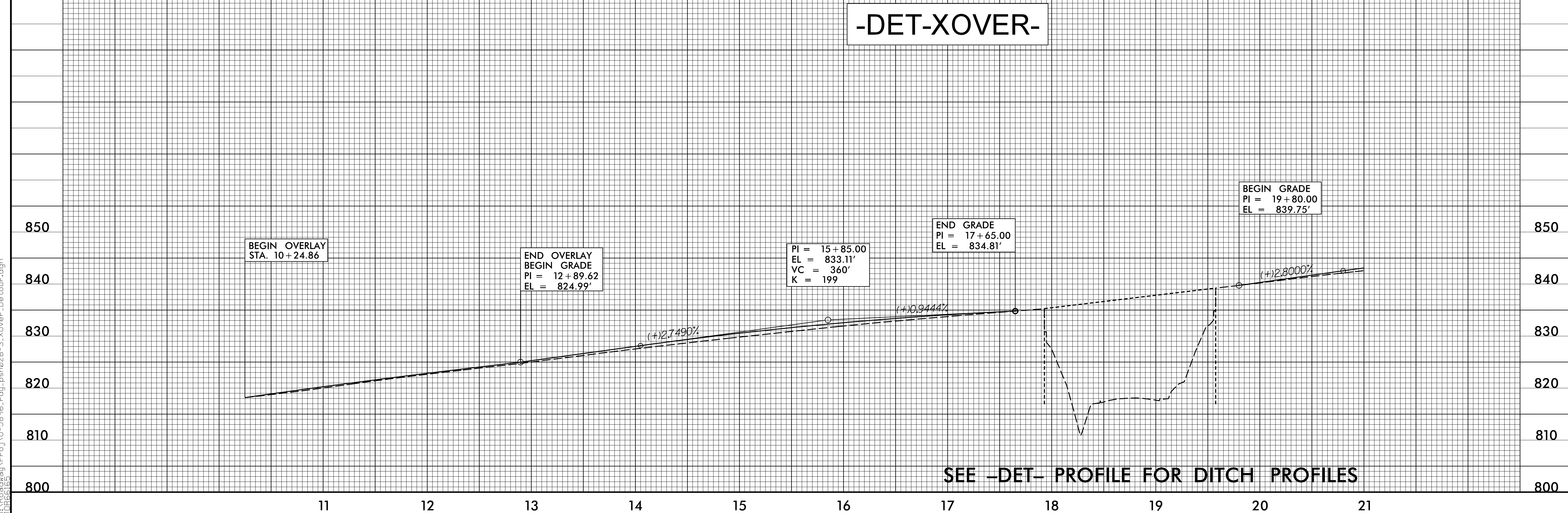


MATCHLINE -DET-XOVER- STA. 21 + 00.00
SEE SHEET 2B-4

-DET-XOVER-
 PI Sta 11+77.64
 $\Delta = 5' 01' 39.8" (RT)$
 $D = 1' 38' 47.1"$
 $L = 305.37'$
 $T = 152.78'$
 $R = 3,480.00'$
 $SE = 0.3$
 $R = 72'$

PI Sta 14+94.49
 $\Delta = 5' 24' 17.9" (LT)$
 $D = 1' 38' 47.1"$
 $L = 328.28'$
 $T = 164.26'$
 $R = 3,480.00'$
 $SE = 0.3$
 $R = 72'$

-DET-XOVER-



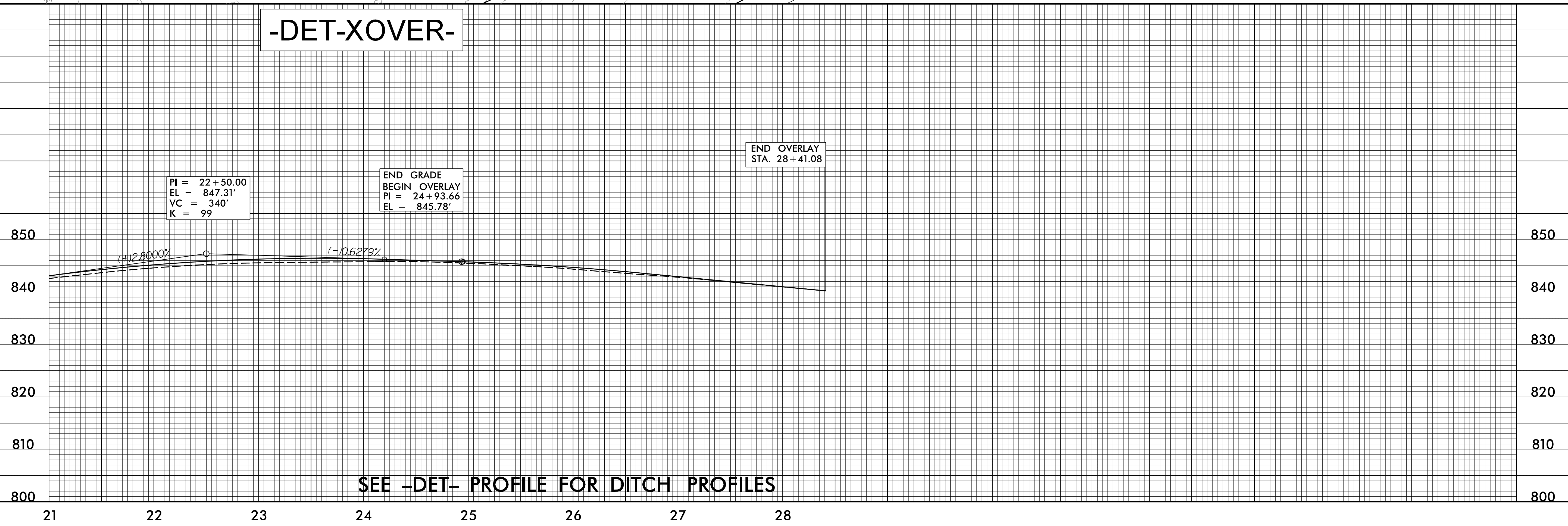
SEE -DET- PROFILE FOR DITCH PROFILES

11/29/2021 6:47:31 PM R:\Roadway\Pro\U-5896-rdy_psh\2B-3_XOver_Detour.dgn

DETAIL OF TEMPORARY DETOUR CROSSOVER

8/17/99

MATCHLINE -DET-XOVER- STA. 21+00.00
SEE SHEET 2B-3



-DET-XOVER-

PI = 22+50.00
EL = 847.31'
VC = 340'
K = 99

END GRADE
BEGIN OVERLAY
PI = 24+93.66
EL = 845.78'

END OVERLAY
STA. 28+41.08

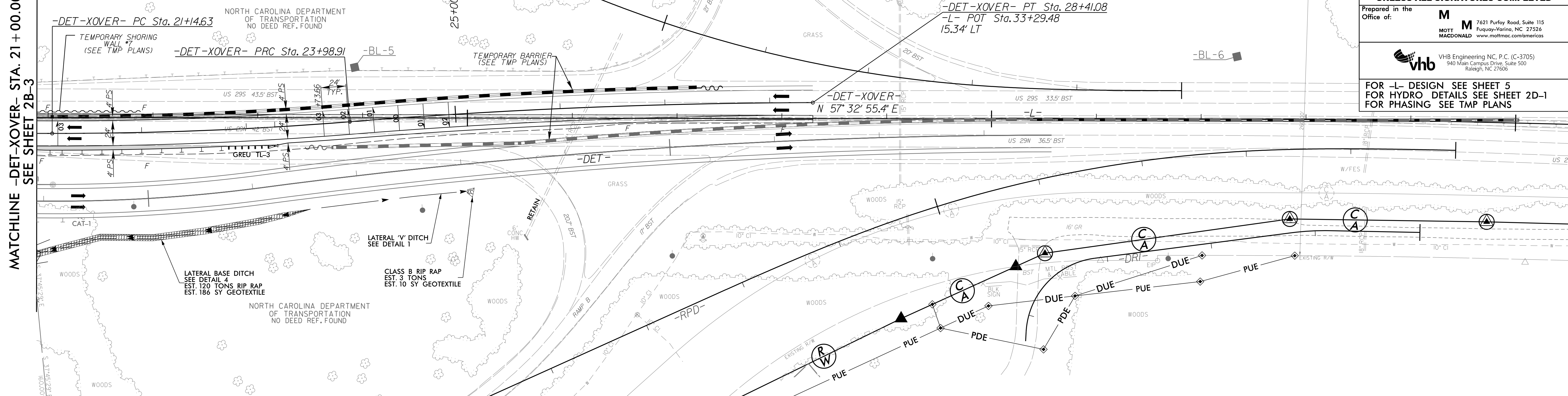
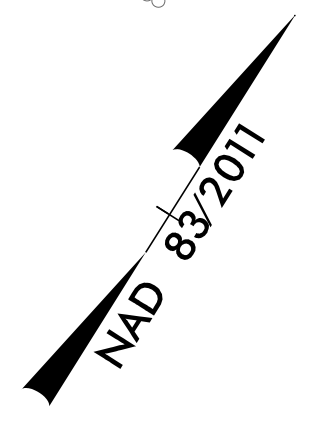
SEE -DET- PROFILE FOR DITCH PROFILES

-DET-XOVER-

PI Sta 22+56.85	PI Sta 26+20.11
$\Delta = 4^\circ 40' 49.9"$ (LT)	$\Delta = 4^\circ 26' 40.8"$ (RT)
D = 1' 38' 47.1"	D = 1' 00' 18.7"
L = 284.28'	L = 442.17'
T = 142.22'	T = 221.20'
R = 3,480.00'	R = 5,700.00'
SE = 03	SE = RC
R = 72'	R = 48'

PROJECT REFERENCE NO. U-5896	SHEET NO. 2B-4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER MOTT MACDONALD I & E, LLC LICENSE NO. F-0669	HYDRAULICS ENGINEER VHB ENGINEERING LICENSE NO. C-3705
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
Prepared in the Office of:	M MOTT MACDONALD 7621 Purfoy Road, Suite 115 Fuquay-Varina, NC 27526 www.mottmac.com/americas
vhb VHB Engineering NC, P.C. (C-3705) 940 Main Campus Drive, Suite 500 Raleigh, NC 27606	
FOR -L- DESIGN SEE SHEET 5 FOR HYDRO DETAILS SEE SHEET 2D-1 FOR PHASING SEE TMP PLANS	

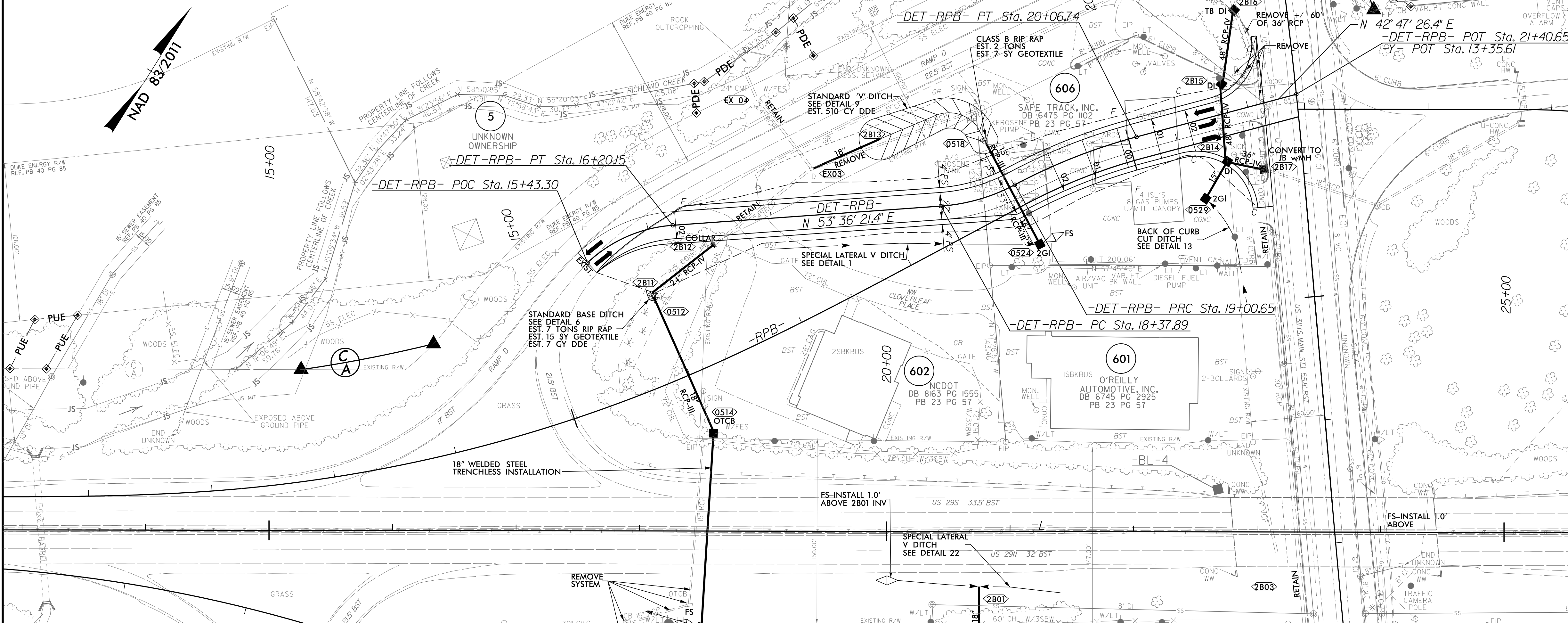
11/29/2021 6:47:33 PM R:\Roadkey\Pro\U-5896-rdy_psh\2B-4_XOver_Detour.dgn



DETAIL OF TEMPORARY DETOUR FOR -RPB-

PROJECT REFERENCE NO. U-5896	SHEET NO. 2B-5
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
Prepared in the Office of:	M MOTT MACDONALD I & E LLC 7621 Purfoy Road, Suite 115 Fuquay-Varina, NC 27526 www.mottmac.com/americas
	VHB Engineering NC, P.C. (C-3705) 940 Main Campus Drive, Suite 500 Raleigh, NC 27606
FOR -RPB- DESIGN SEE SHEET 5 FOR HYDRO DETAILS SEE SHEET 2D-1 FOR PHASING SEE TMP PLANS	

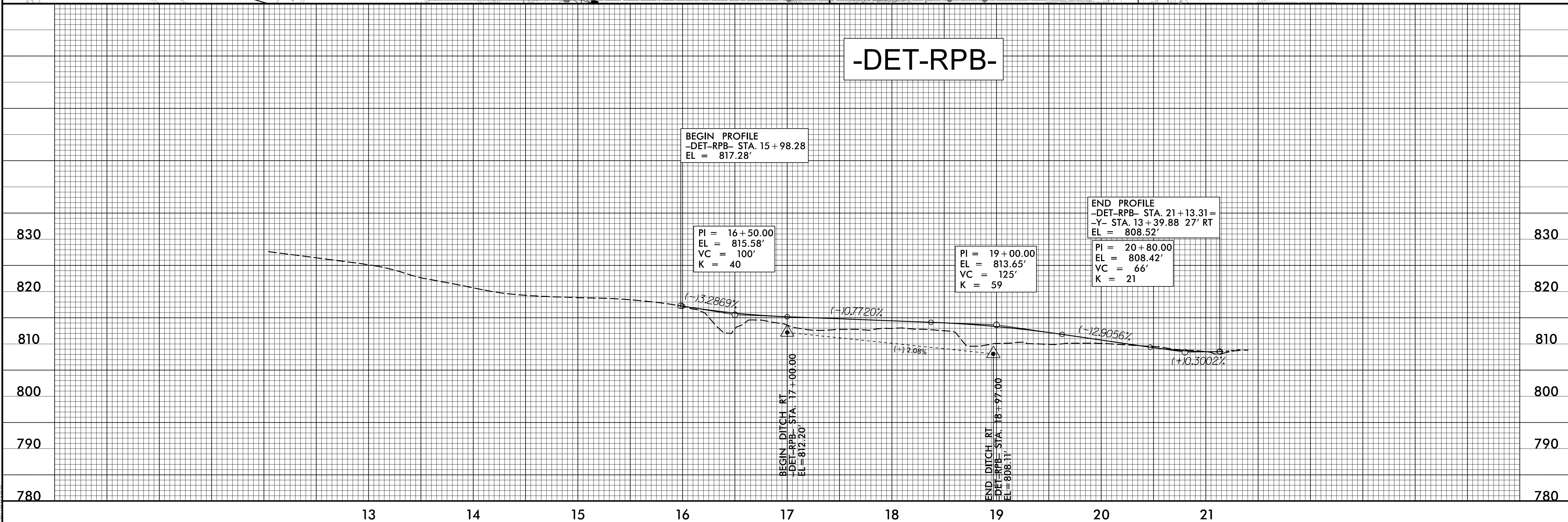
8/17/99



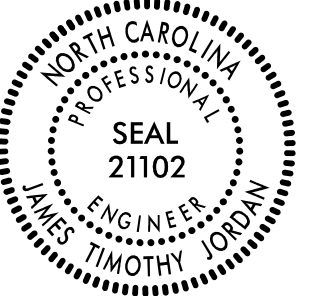
-DET-RPB-

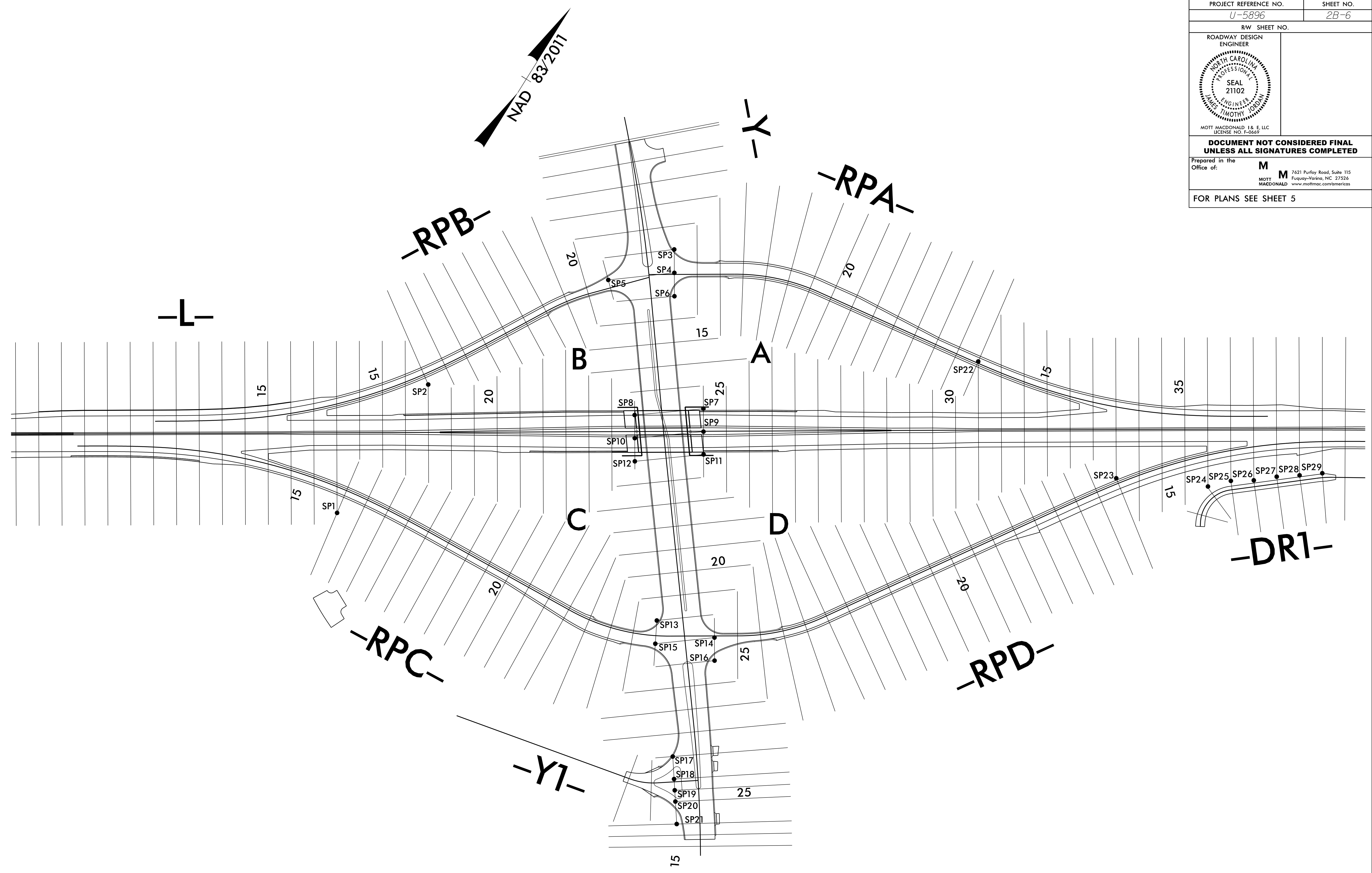
PI Sta 15+63.41	PI Sta 18+69.73
$\Delta = 108^{\circ} 15' 08.3''$ (RT)	$\Delta = 23^{\circ} 58' 19.8''$ (LT)
D = 51' 09" 25.0"	D = 38' 11" 49.9"
L = 211.61'	L = 62.76'
T = 154.87'	T = 31.85'
R = 112.00'	R = 150.00'

PI Sta 19+53.93
$\Delta = 13^{\circ} 09' 24.8''$ (RT)
D = 12' 24" 06.1"
L = 106.09'
T = 53.28'
R = 462.00'



11/29/2021 6:47:35 PM R:\Roadkey\Pro\U-5896-rdy_psh22B-5_Detour_RPB.dgn

PROJECT REFERENCE NO. U-5896	SHEET NO. 2B-6
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	
	
MOTT MACDONALD I & E, LLC LICENSE NO. E-0669	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
Prepared in the Office of:	M MOTT MACDONALD I & E, LLC 7621 Purfoy Road, Suite 115 Fuquay-Varina, NC 27526 www.mottmac.com/america
FOR PLANS SEE SHEET 5	





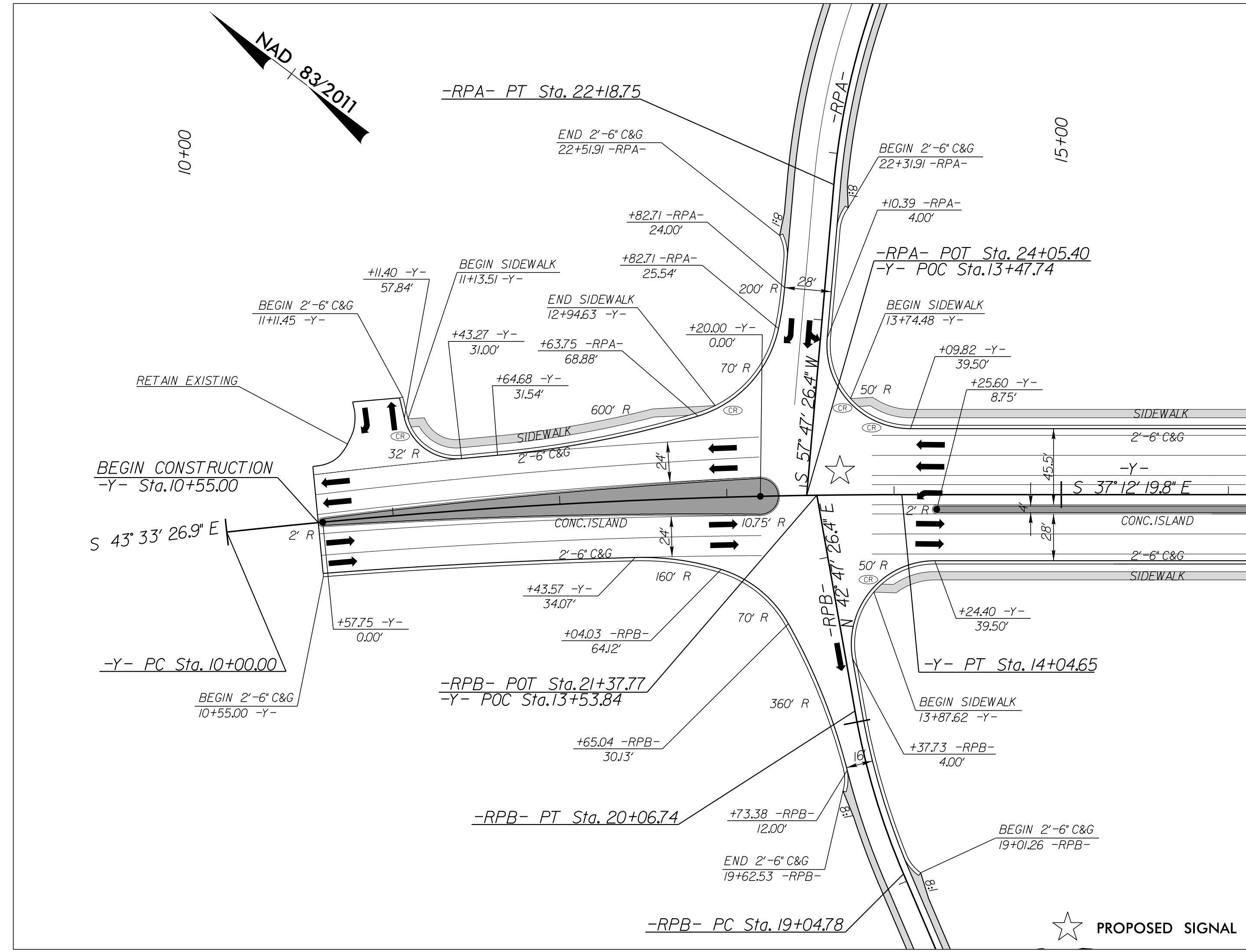
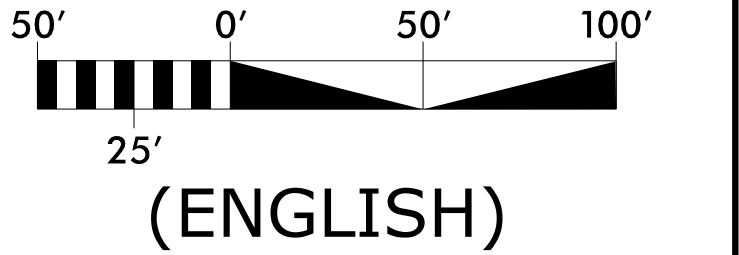
SHEAR POINT DIAGRAM

-L- /-Y- INTERCHANGE

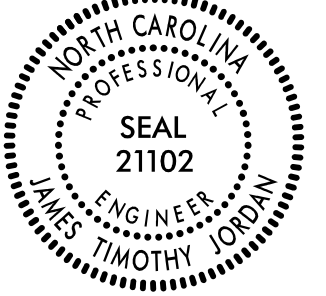

NOT TO SCALE

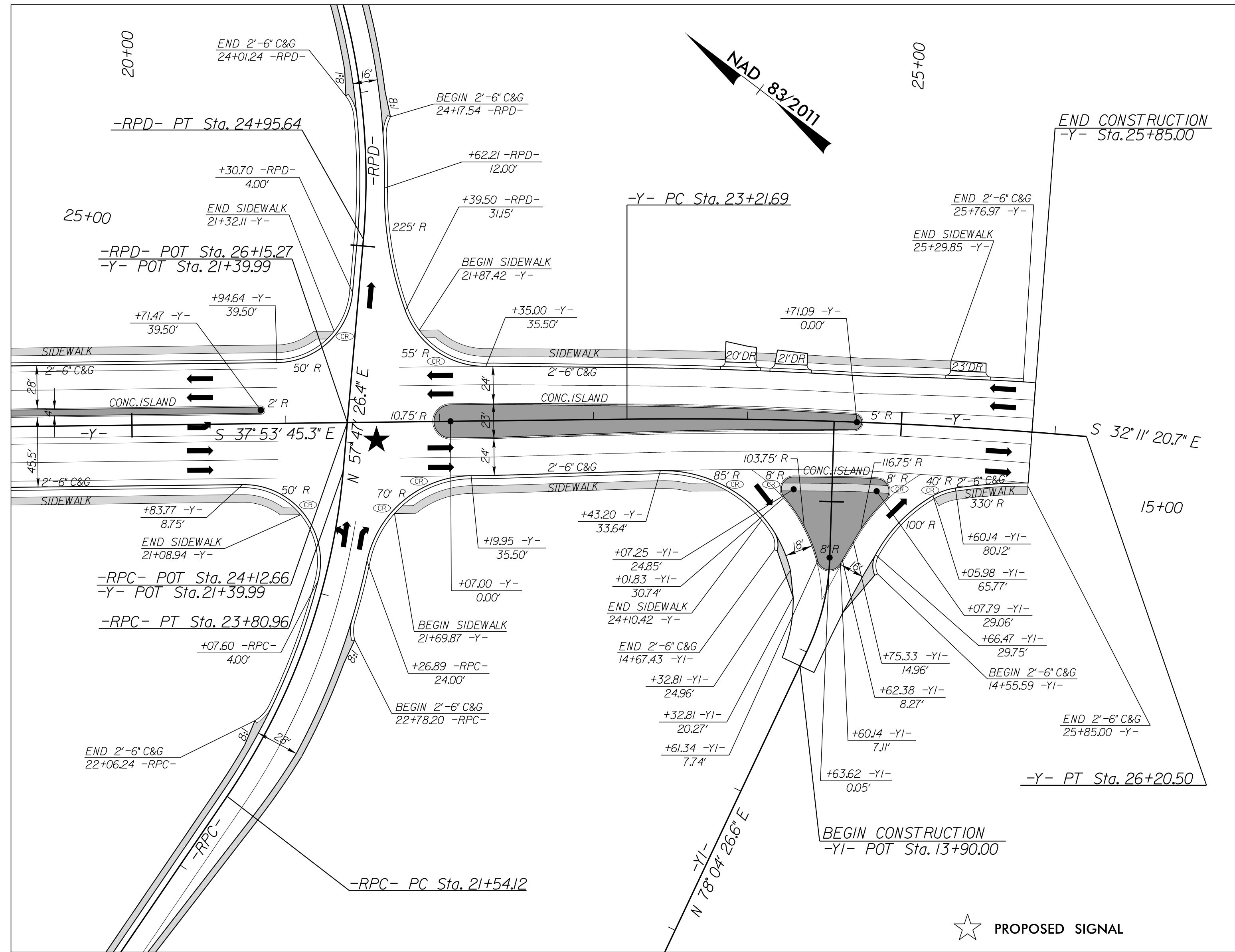
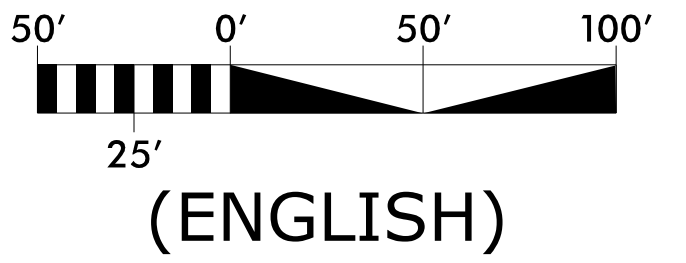
11/29/2021 6:41:36 PM R:\Roadway\U-5896-r-dlj-ps-h02B-6-SPD.dgn

PROJECT REFERENCE NO. U-5896	SHEET NO. 2B-7
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	
	
MOTT MACDONALD I & E, LLC LICENSE NO. F-0669	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
Prepared in the Office of:	 7621 Purfoy Road, Suite 115 Fuquay-Varina, NC 27526 www.mottmac.com/americas
FOR PLANS SEE SHEET 5	



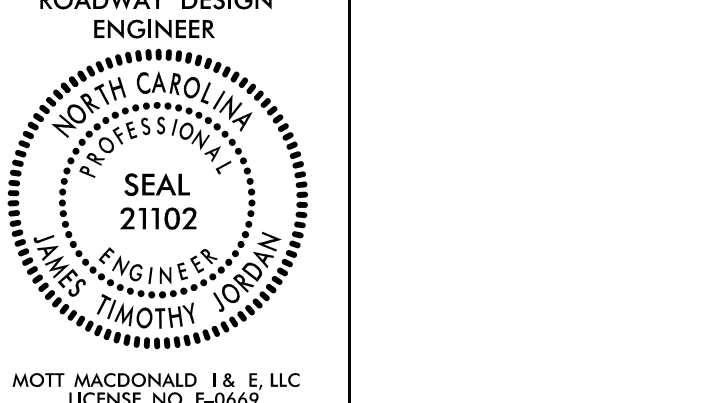
-Y- /-RPA- /-RPA- INTERSECTION DETAIL

PROJECT REFERENCE NO. U-5896	SHEET NO. 2B-8
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	
	
MOTT MACDONALD & E. LLC LICENSE NO. F-0669	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
Prepared in the Office of:	 7621 Purfoy Road, Suite 115 Fuquay-Varina, NC 27526 www.mottmac.com/americas
FOR PLANS SEE SHEETS 5 & 7	



-Y- /-YI- INTERSECTION DETAIL
-Y- /-RPC- /-RPD- INTERSECTION DETAIL

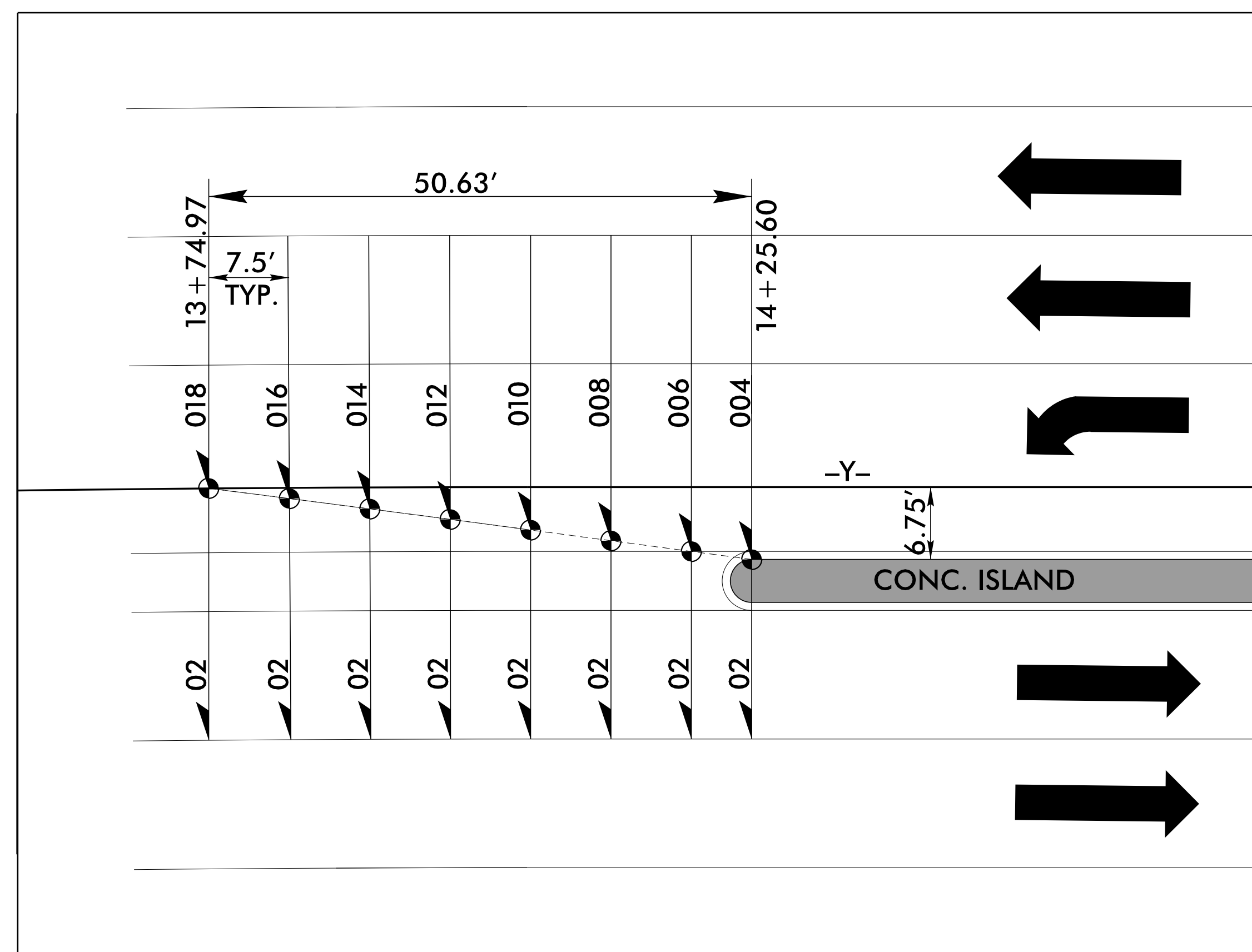
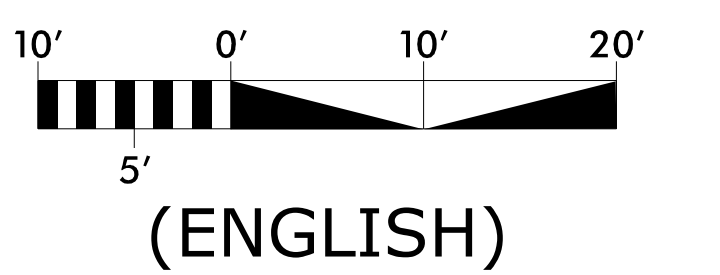
☆ PROPOSED SIGNAL



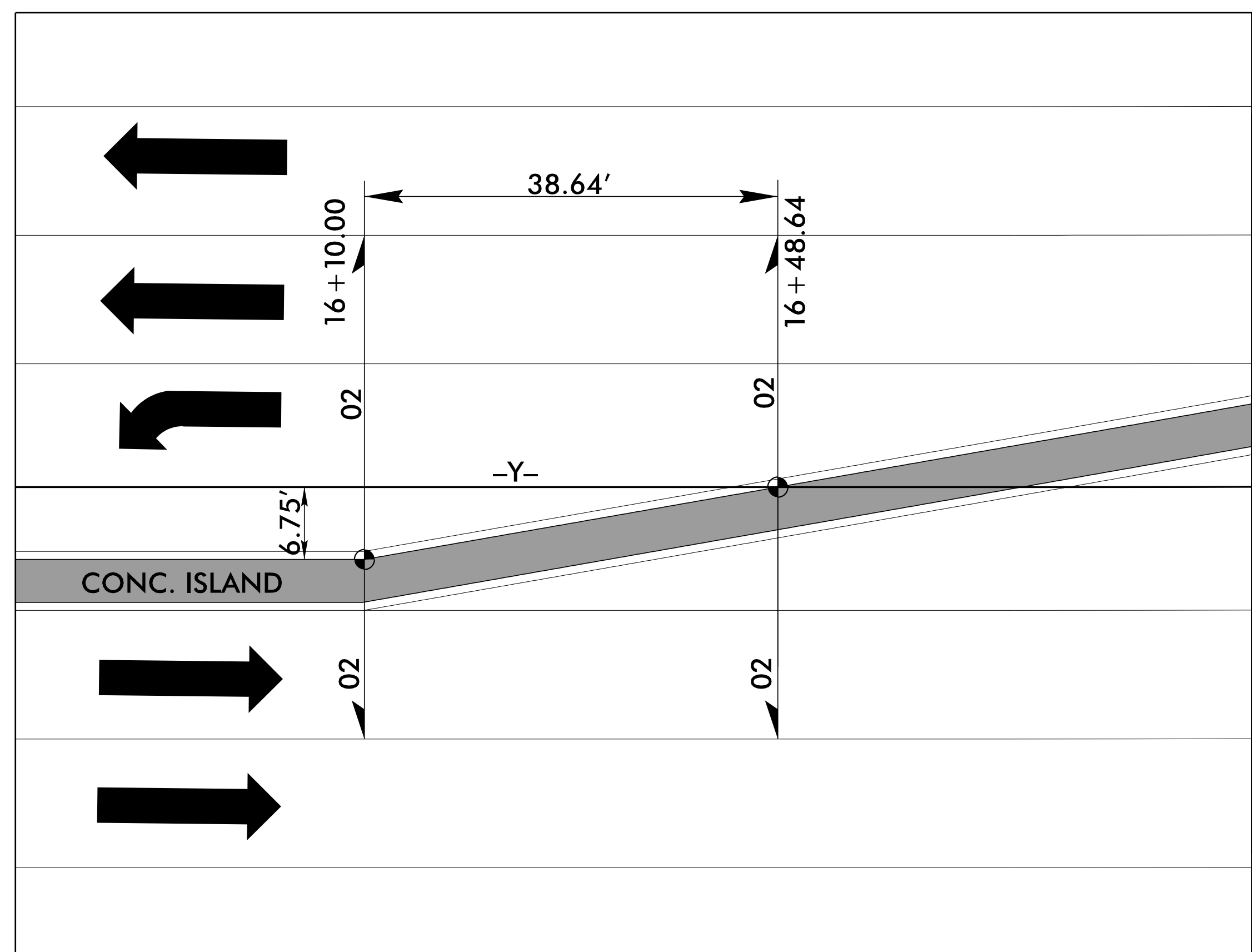
**DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED**

Prepared in the Office of: **M** MOTT MACDONALD & E. LLC
7621 Purfoy Road, Suite 115
Fuquay-Varina, NC 27526
www.mottmac.com/americas

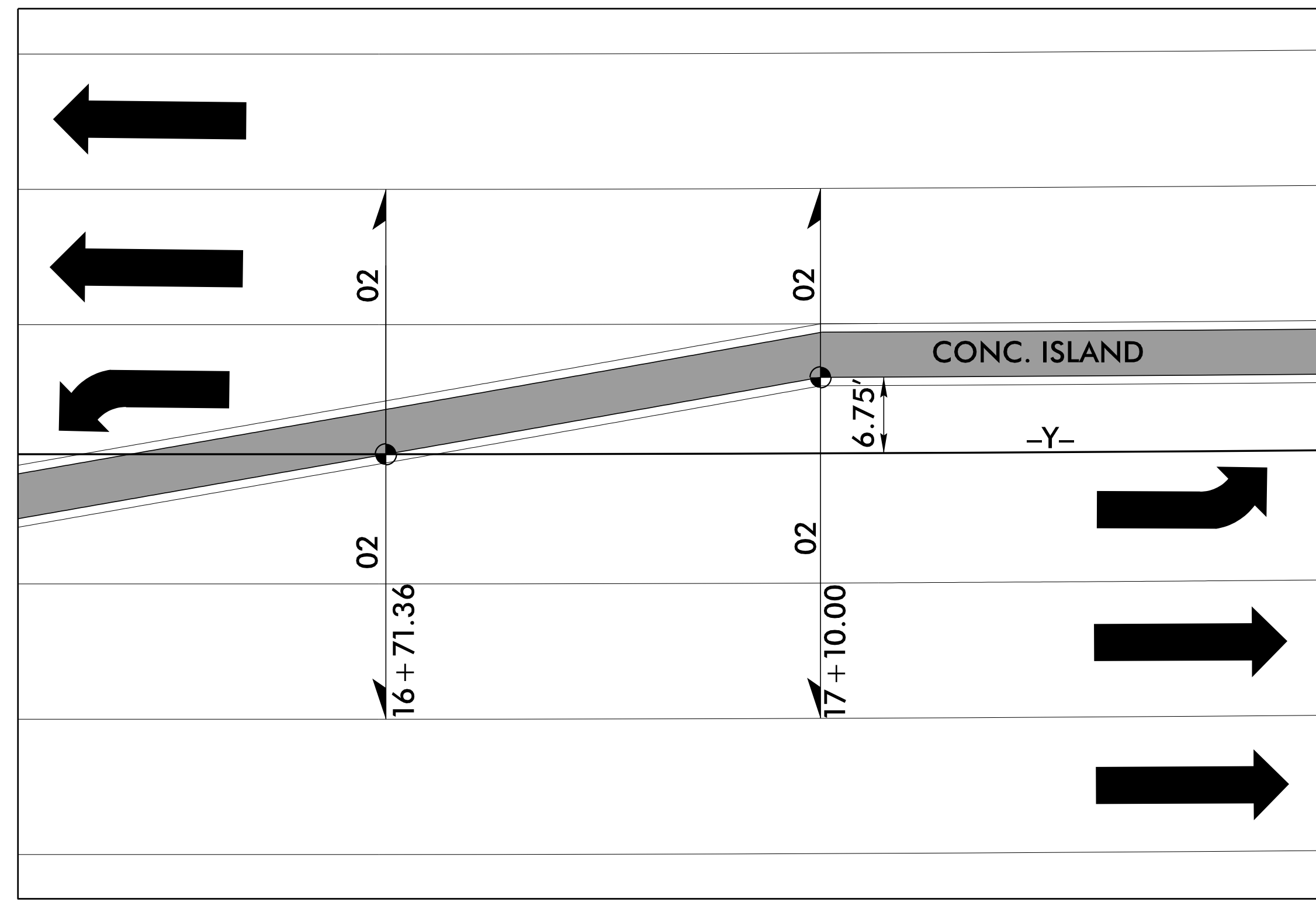
FOR PLANS SEE SHEET 5



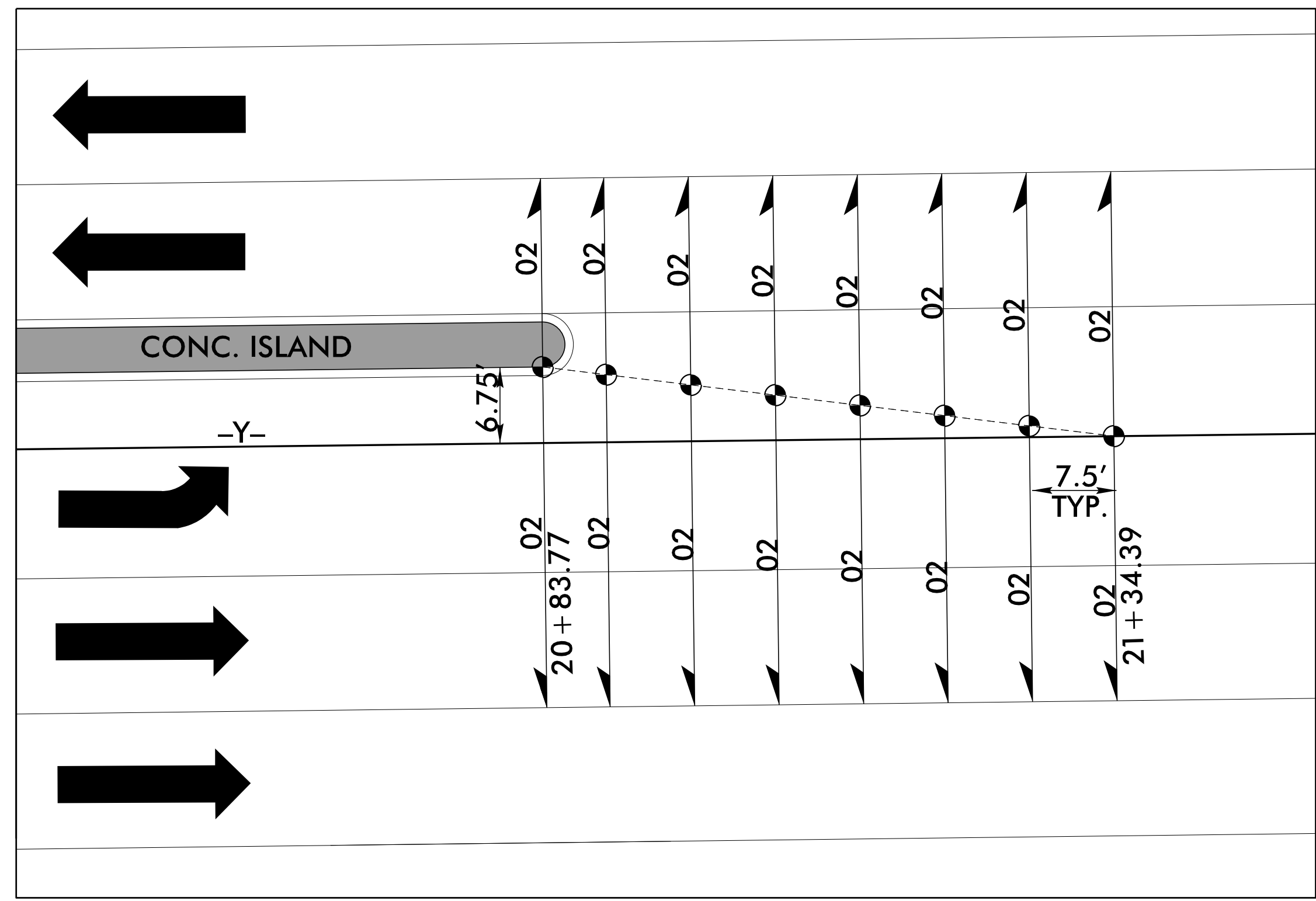
CROWN POINT SHIFT DETAIL
-Y- STA. 13+74.97 TO 14+25.60



CROWN POINT SHIFT DETAIL
-Y- STA. 16+10.00 TO 16+48.64



CROWN POINT SHIFT DETAIL
-Y- STA. 16+71.36 TO 17+10.00




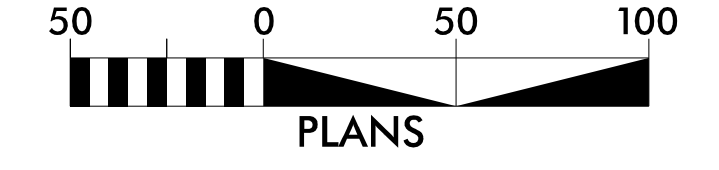
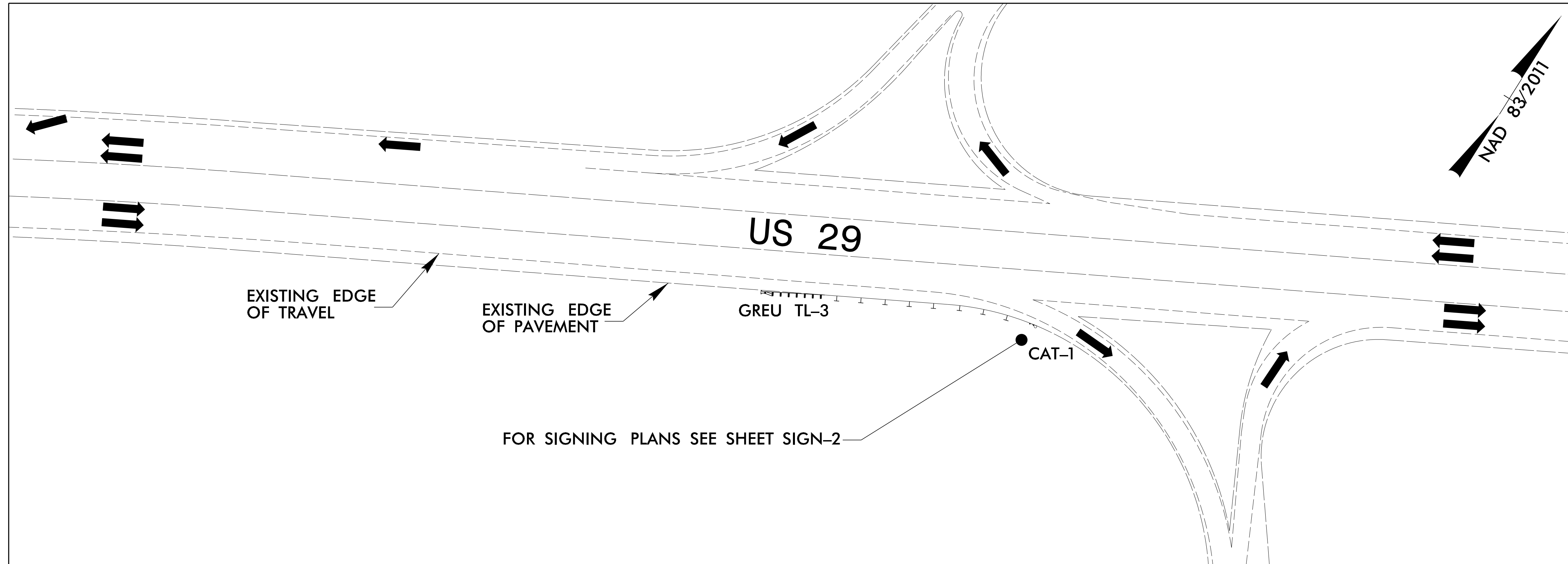
CROWN POINT SHIFT DETAIL
-Y- STA. 20+83.77 TO 21+34.39

11/29/2021 6:47:38 PM R:\Roadkey\Pro\U-5896-rdy_psh02B-9_Crown_Point_Detail.dgn 8/17/99

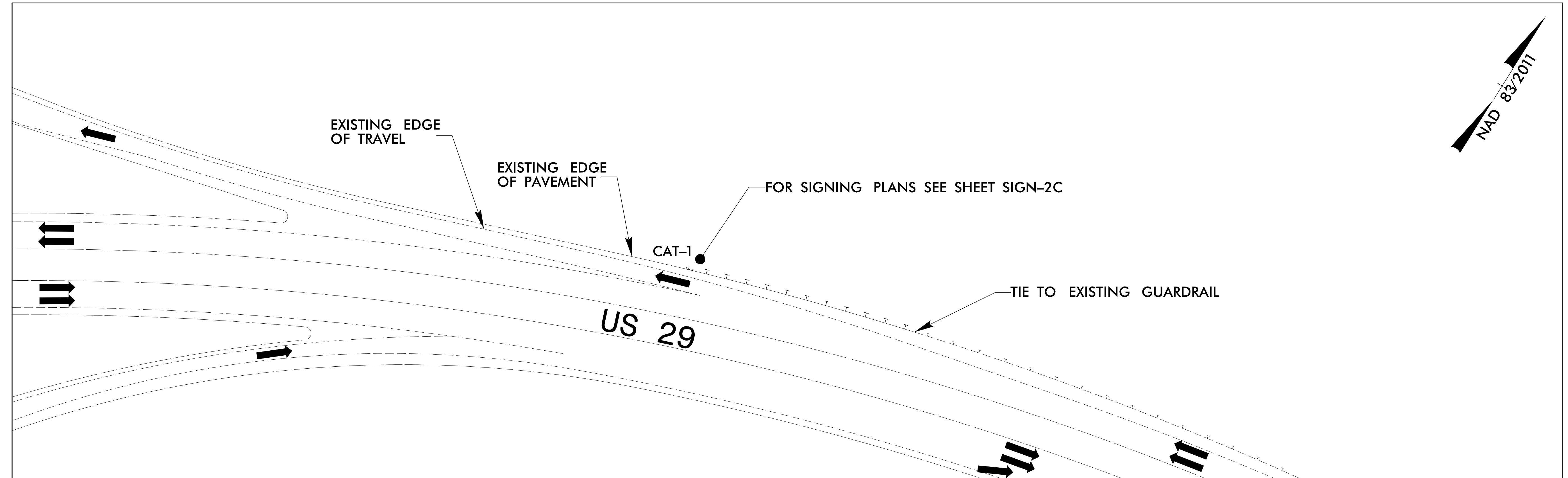
8/17/99

NOTE: EXISTING ROADWAY(S) SHOWN ARE BASED ON AERIAL PHOTOGRAPHY; NOT SURVEYS

PROJECT REFERENCE NO. U-5896	SHEET NO. 2B-10
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	
	
MOTT MACDONALD I & E, LLC LICENSE NO. F-0669	
<p>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</p>	
Prepared in the Office of:	<p>M MOTT MACDONALD I & E, LLC 7621 Purfoy Road, Suite 115 Fuquay-Varina, NC 27526 www.mottmac.com/americas</p>



DETAIL OF GUARDRAIL PROTECTION FOR OVERHEAD SIGN 'A' (SURRETT DRIVE INTERCHANGE)



DETAIL OF GUARDRAIL PROTECTION FOR OVERHEAD SIGN 'D' (I-74 INTERCHANGE)

11/29/2021 6:47:39 PM R:\Roadkey\Pro\U-5896-rdy_psh\2B-10_Gr_Protection_Sign_Detail.dgn

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

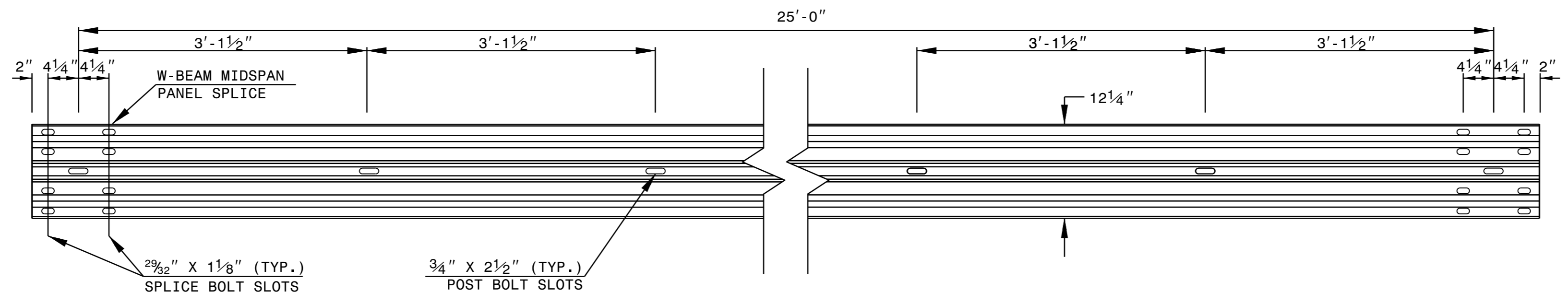
ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

SHEET 6 OF 8
862D02

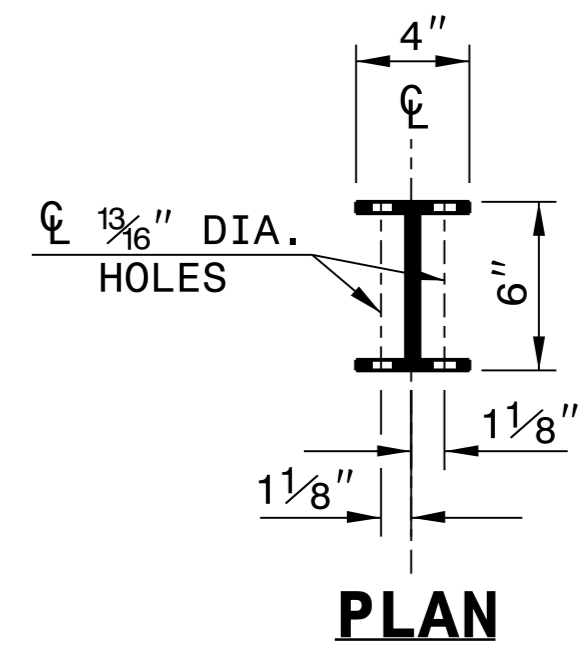
STATE OF NORTH CAROLINA
 DEPT. OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 RALEIGH, N.C.

ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

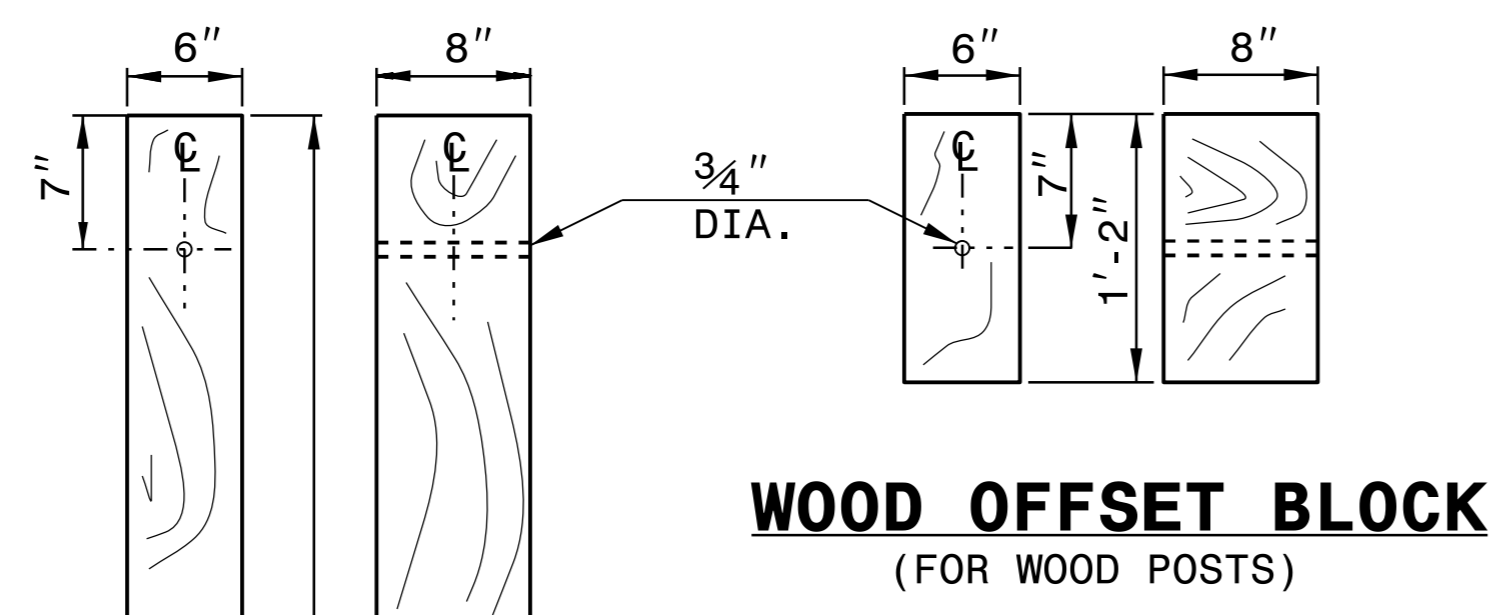
SHEET 6 OF 8
862D02



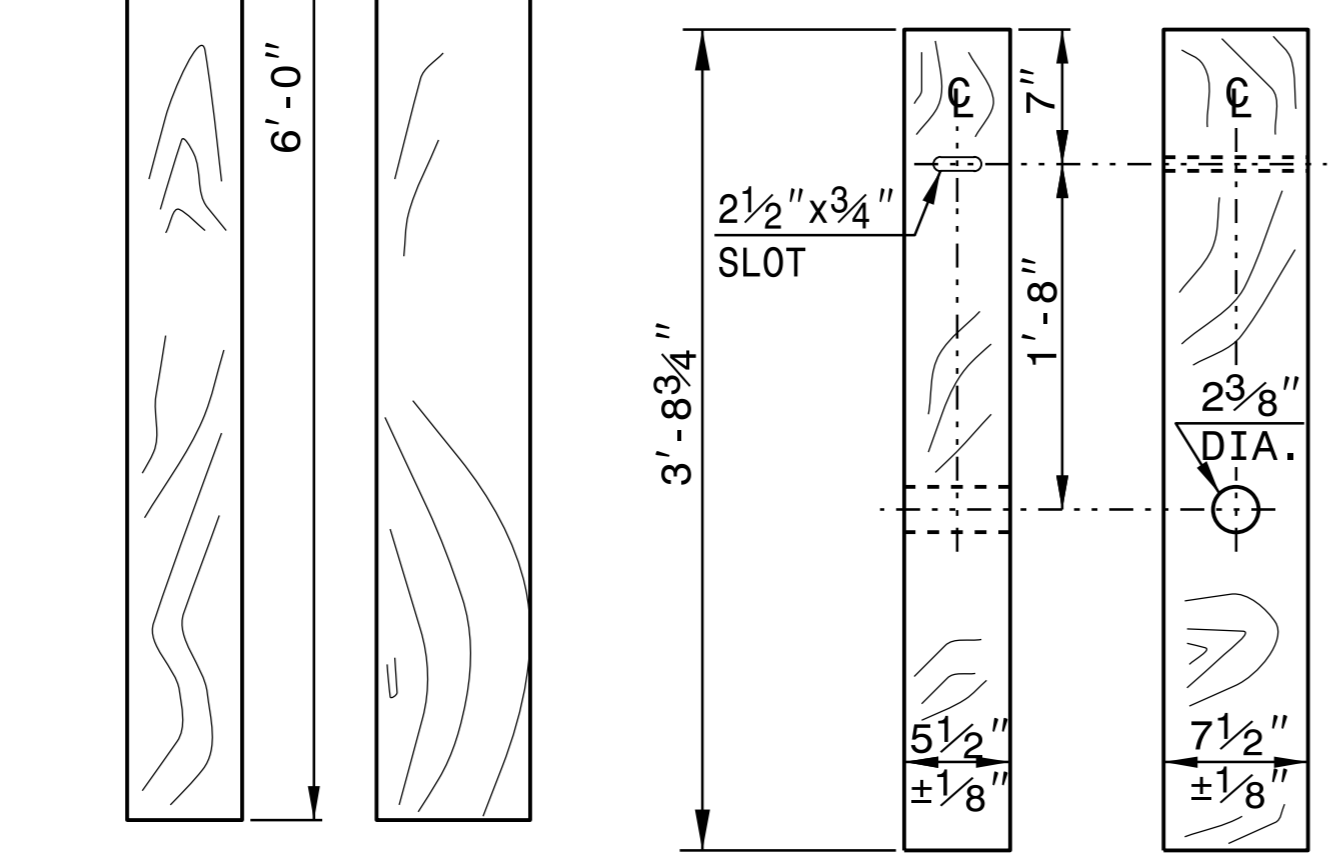
STANDARD W-BEAM GUARDRAIL



PLAN

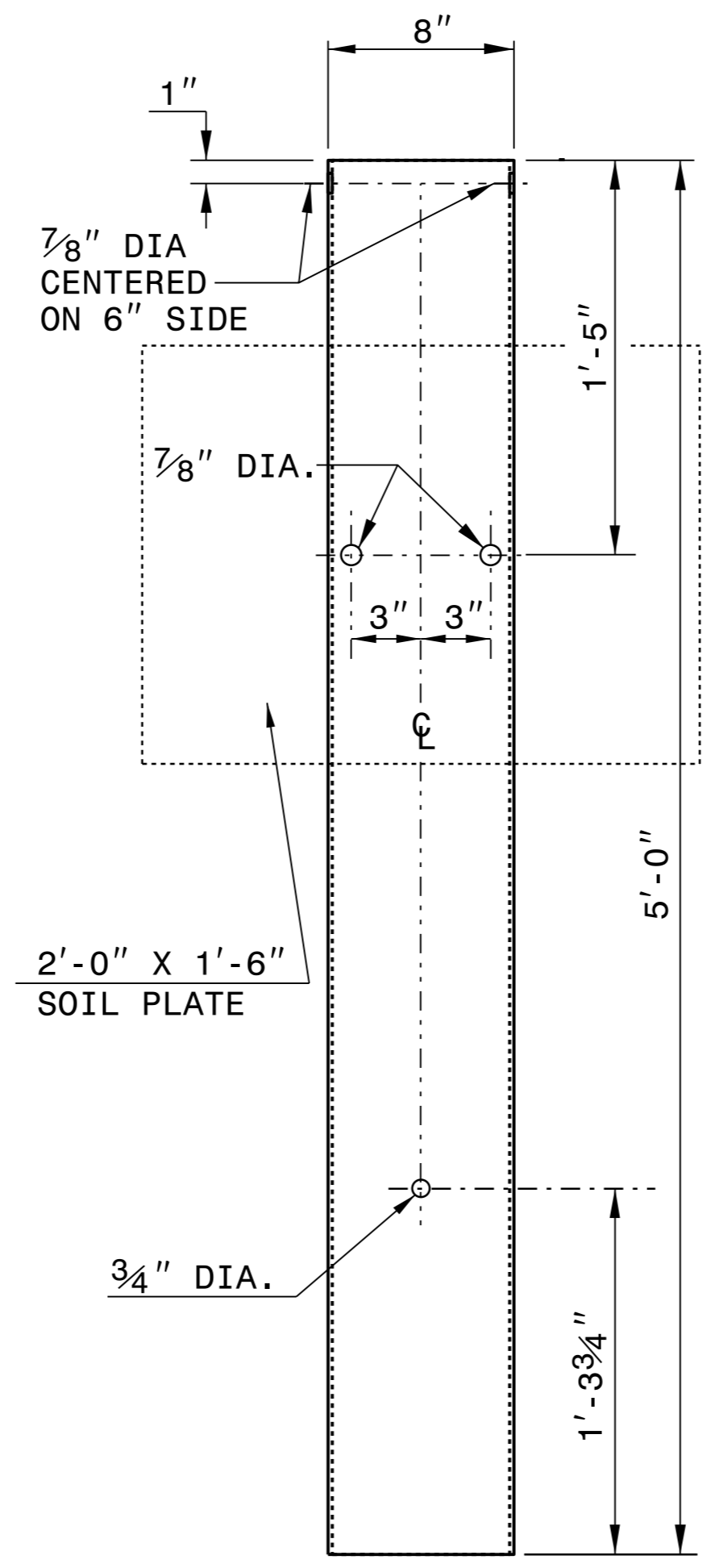


WOOD OFFSET BLOCK (FOR WOOD POSTS)

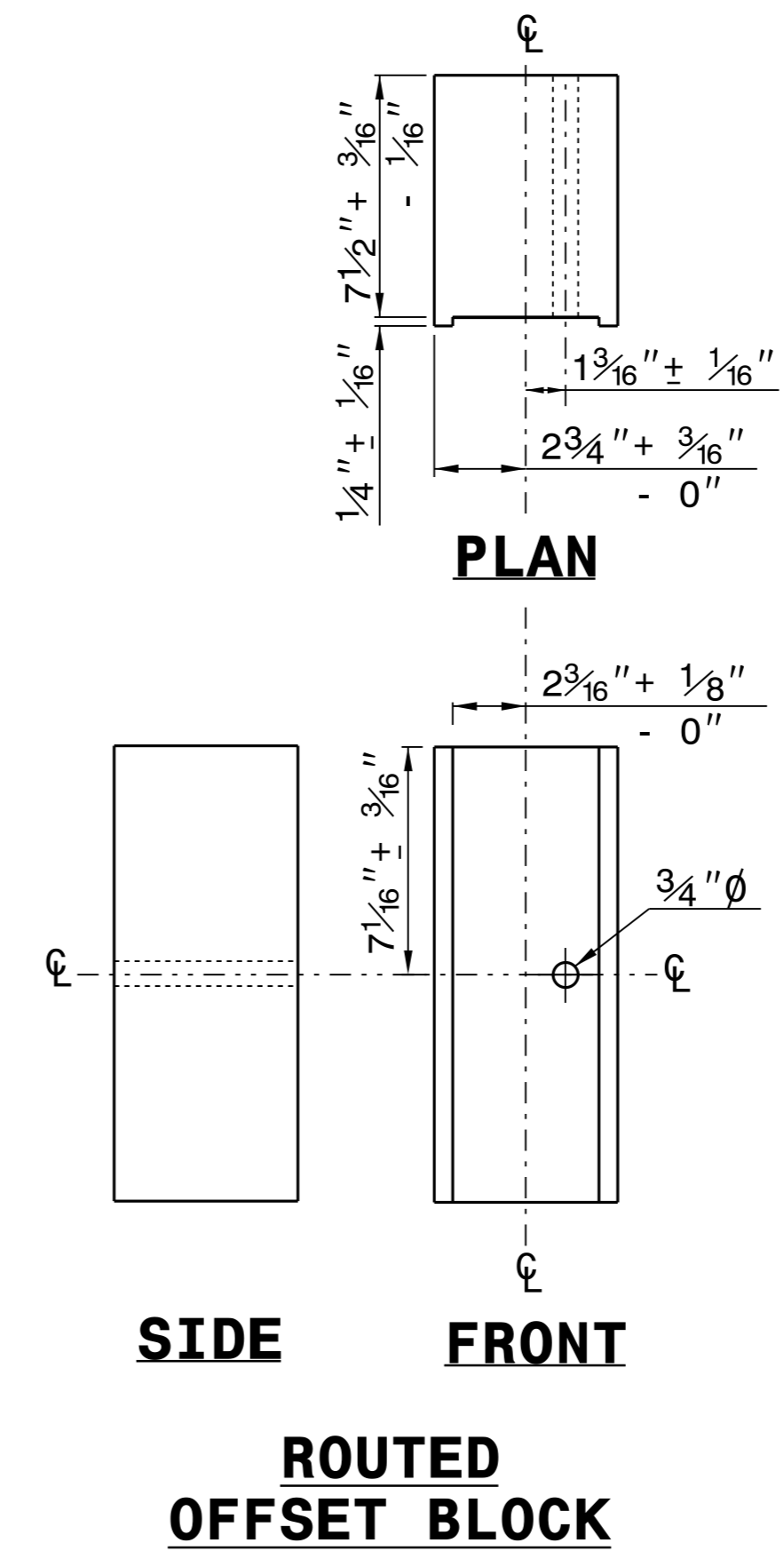


STANDARD LINE POST

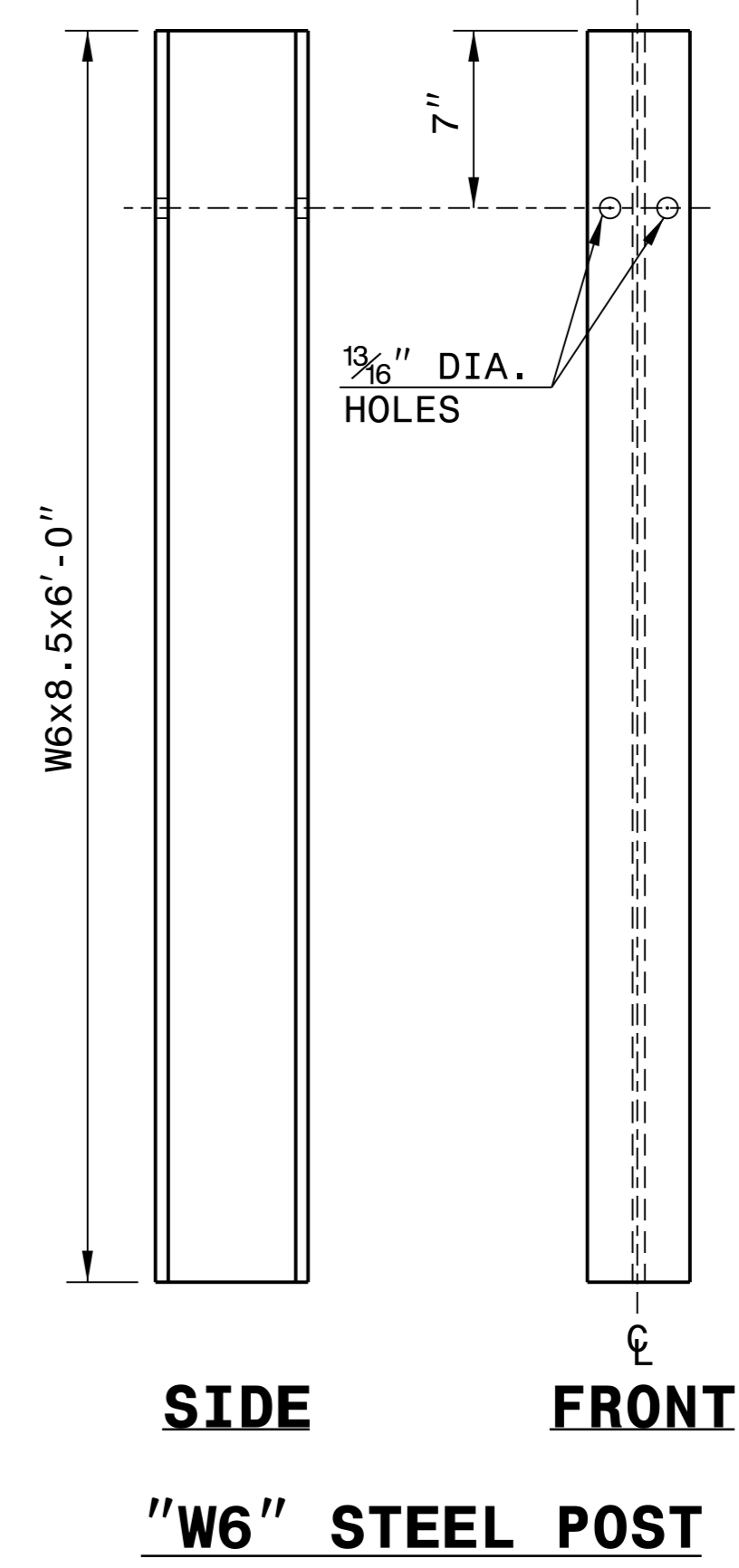
SHORT WOOD BREAKAWAY POST



STEEL TUBE
 TS 6"x8"x0.1875"



ROUTED OFFSET BLOCK



"W6" STEEL POST

SYSTEM PARTS



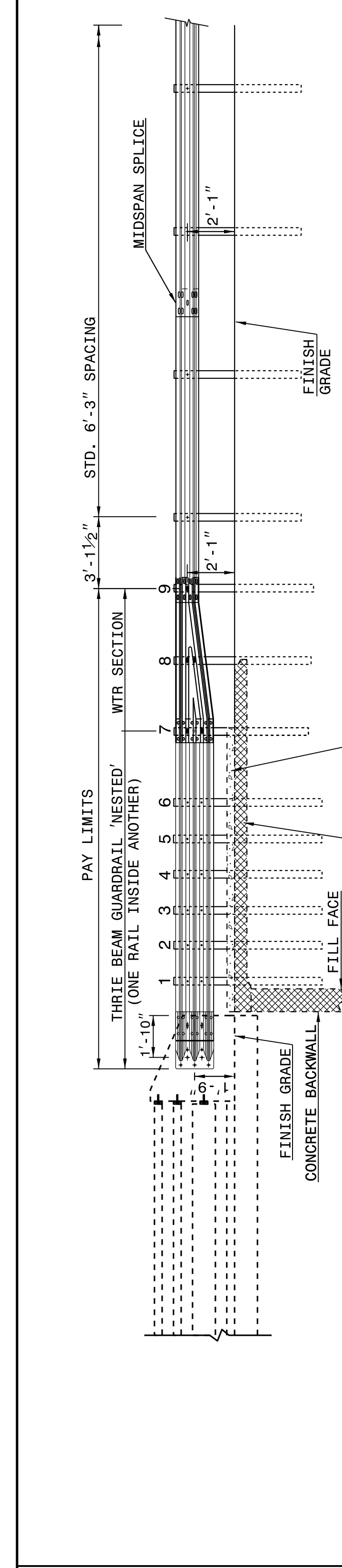
CONTRACTS STANDARDS AND DEVELOPMENT UNIT
 Office 919-707-6950 FAX 919-250-4119

SEE TITLE BLOCK

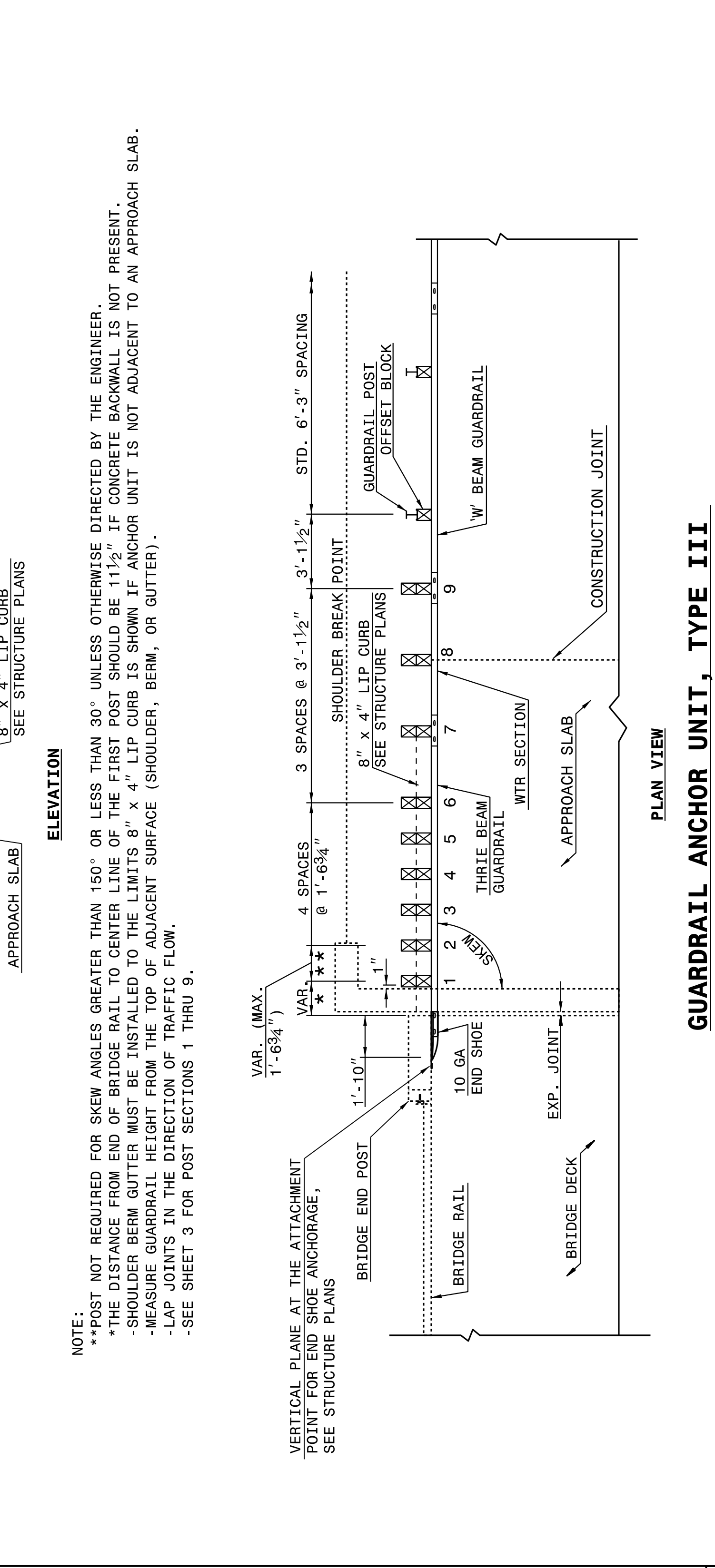
ORIGINAL BY: J. HOWERTON DATE: 3-7-2018
 MODIFIED BY: DATE: _____
 CHECKED BY: DATE: _____
 FILE SPEC.: _____

I4-DEC-2017 10:36 S:\Contracts\Projects\Special Details\Standard Drawings\Division 8\0862d0301.dgn J:\howerton\Standard Drawings\Division 8\0862d0301.dgn

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



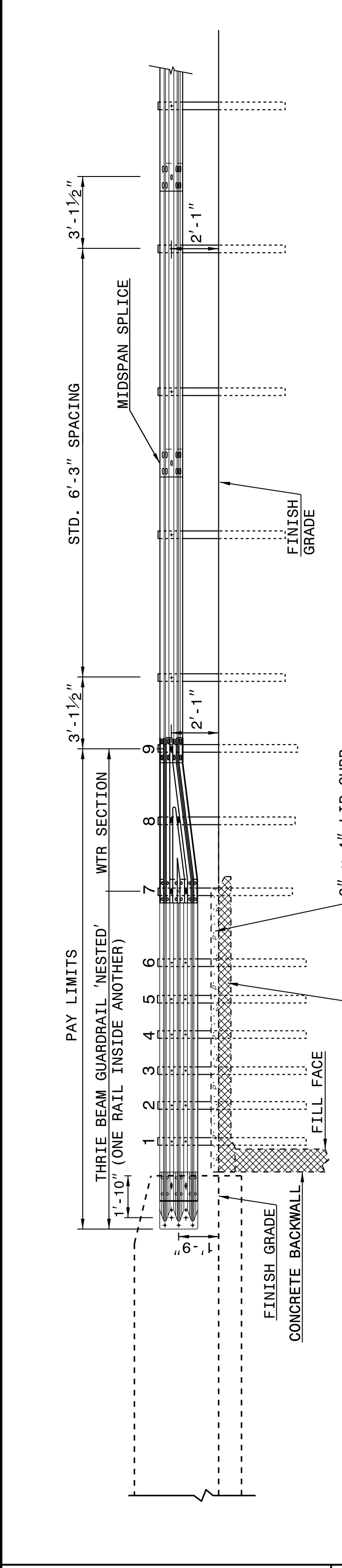
SHEET 1 OF 7 862D03

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

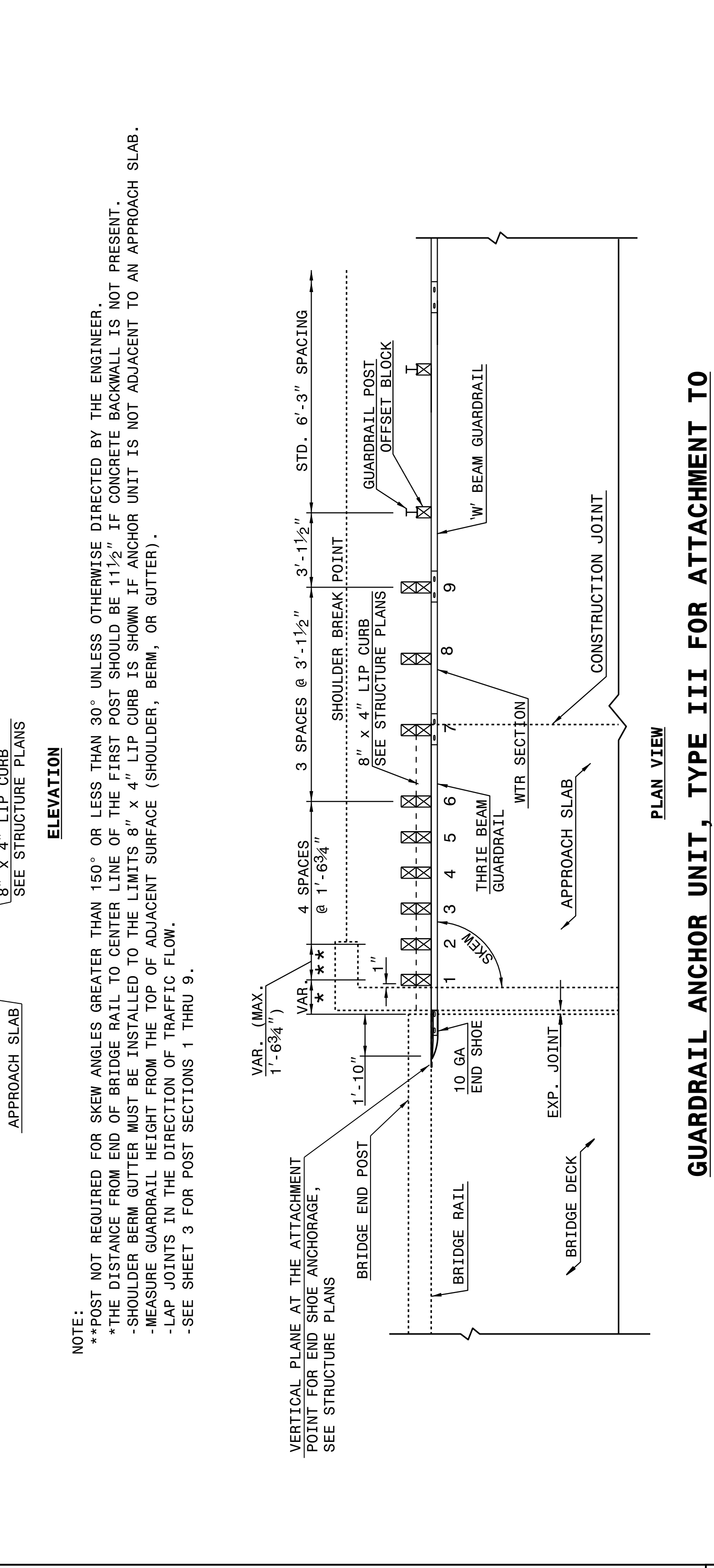
ROADWAY DETAIL DRAWING FOR STRUCTURE ANCHOR UNITS GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO RAIL ON BRIDGE

SHEET 1 OF 7 862D03

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 2 OF 7 862D03

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 2 OF 7 862D03



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

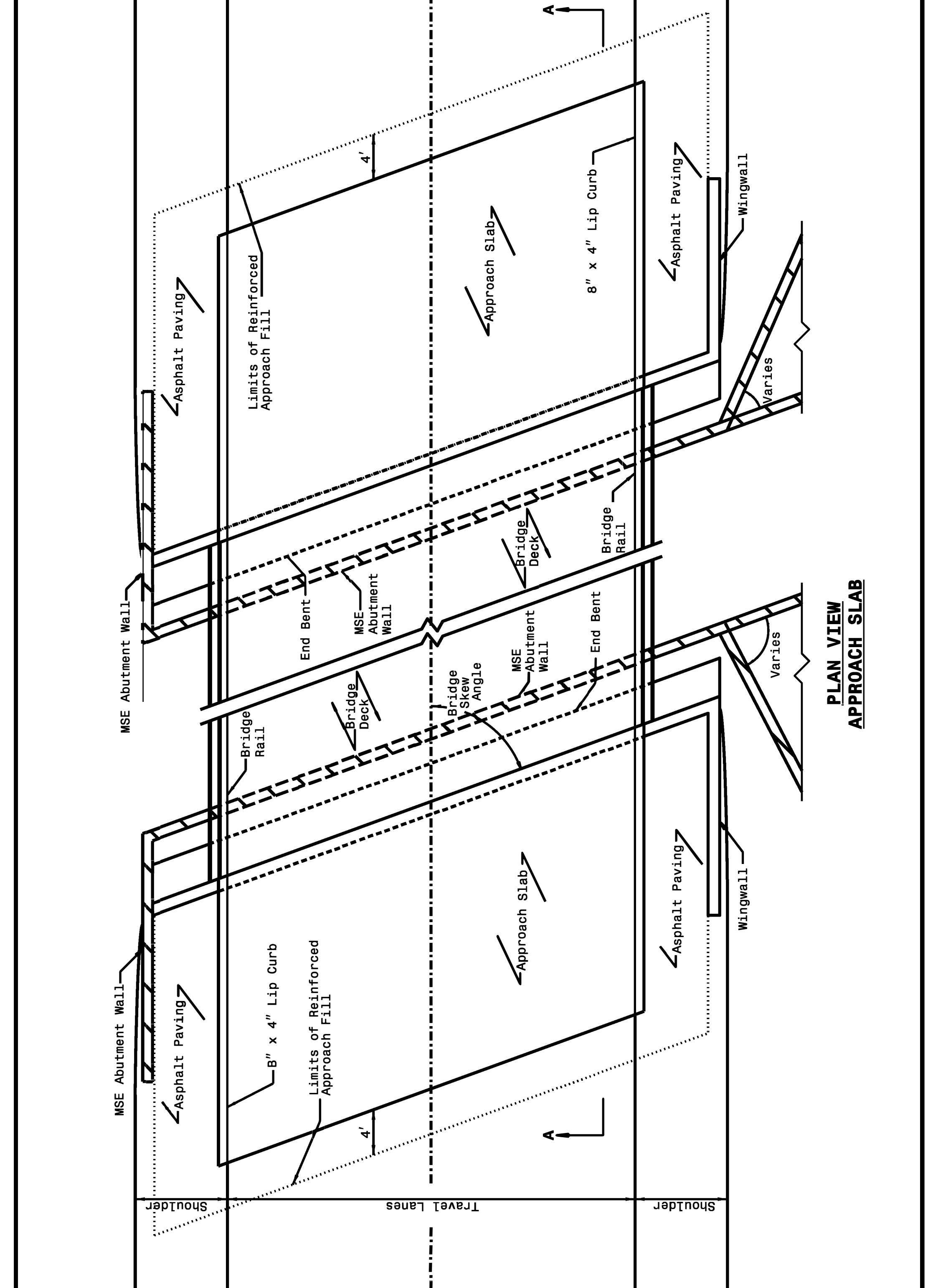
SEE TITLE BLOCK

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

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

ROADWAY DETAIL DRAWING FOR
BRIDGE APPROACH FILLS
TYPE III - REINFORCED APPROACH FILL FOR
MECHANICALLY STABILIZED EARTH (MSE) ABUTMENT WALL

SHEET 1 OF 2
422D10



**PLAN VIEW
APPROACH SLAB**

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

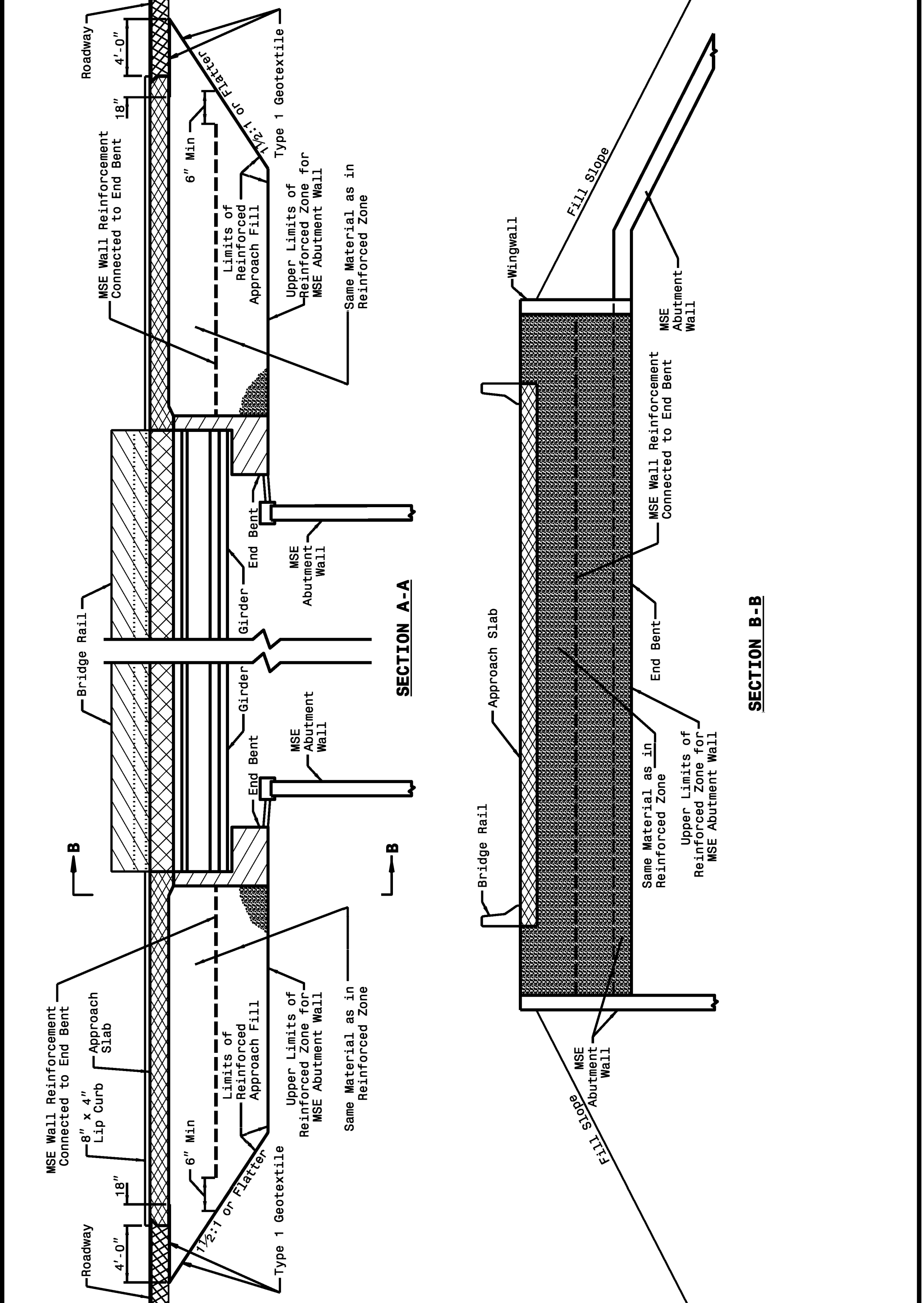
ROADWAY DETAIL DRAWING FOR
BRIDGE APPROACH FILLS
TYPE III - REINFORCED APPROACH FILL FOR
MECHANICALLY STABILIZED EARTH (MSE) ABUTMENT WALL

SHEET 1 OF 2
422D10

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

ROADWAY DETAIL DRAWING FOR
BRIDGE APPROACH FILLS
TYPE III - REINFORCED APPROACH FILL FOR
MECHANICALLY STABILIZED EARTH (MSE) ABUTMENT WALL

SHEET 2 OF 2
422D10



SECTION A-A

SECTION B-B

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

ROADWAY DETAIL DRAWING FOR
BRIDGE APPROACH FILLS
TYPE III - REINFORCED APPROACH FILL FOR
MECHANICALLY STABILIZED EARTH (MSE) ABUTMENT WALL

SHEET 2 OF 2
422D10

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

**TYPE III
REINFORCED
APPROACH FILLS**

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

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

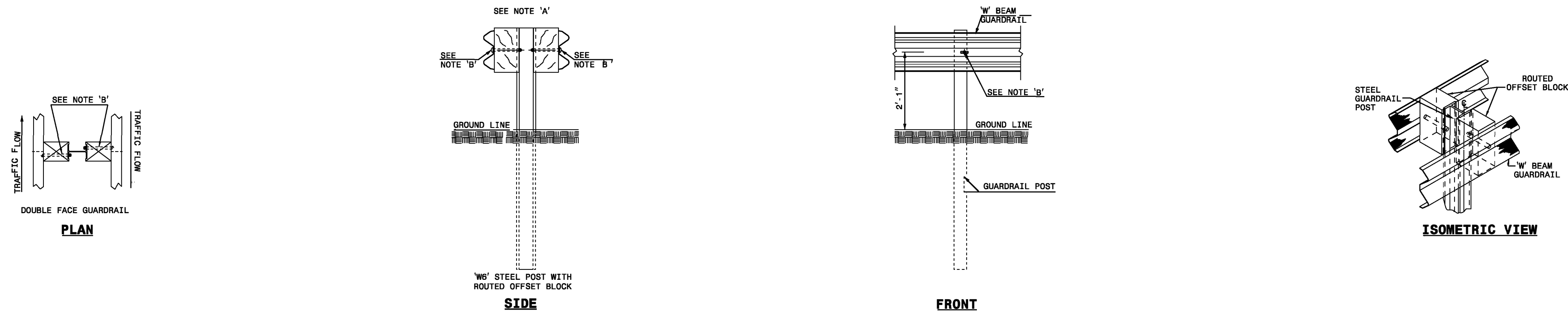
ROADWAY DETAIL DRAWING FOR
GUARDRAIL PLACEMENT
DOUBLE FACED W-BEAM

SHEET OF
862D01

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

ROADWAY DETAIL DRAWING FOR
GUARDRAIL PLACEMENT
DOUBLE FACED W-BEAM

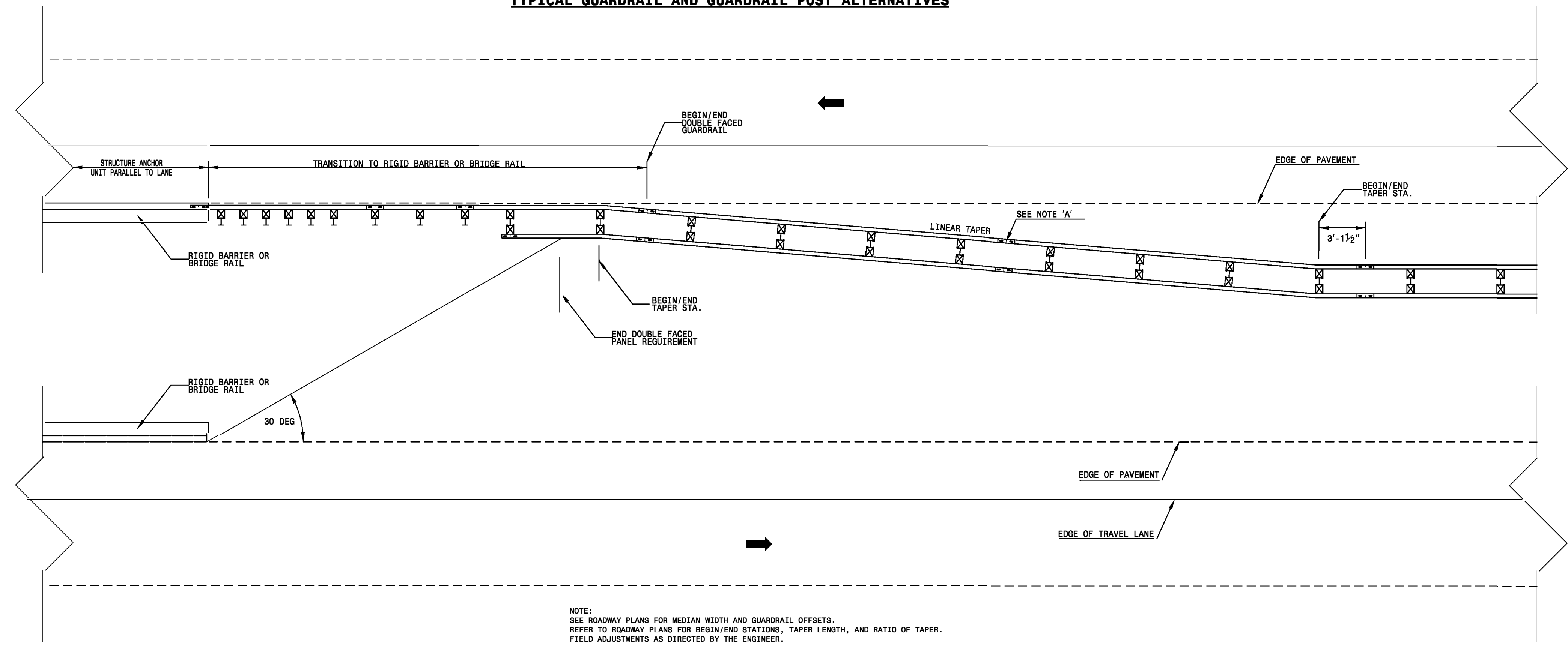
SHEET OF
862D01



DRAWING NOT TO SCALE

NOTES:
A - 5/8" DIA. BUTTON HEAD SPLICE BOLT 1 1/4" LONG (8 REQ. PER SPLICE JOINT).
B - 5/8" DIA. BUTTON HEAD BOLT 7 1/2" LONG WITH NUT FOR BOLTING 6" W-BEAM GUARDRAIL TO STEEL POSTS.
C - FIELD PUNCHING OF HOLES INTO GUARDRAIL AS DIRECTED BY THE ENGINEER.

TYPICAL GUARDRAIL AND GUARDRAIL POST ALTERNATIVES



NOTE:
SEE ROADWAY PLANS FOR MEDIAN WIDTH AND GUARDRAIL OFFSETS.
REFER TO ROADWAY PLANS FOR BEGIN/END STATIONS, TAPER LENGTH, AND RATIO OF TAPER.
FIELD ADJUSTMENTS AS DIRECTED BY THE ENGINEER.

APPROACH TO RIGID BARRIER OR BRIDGE RAIL

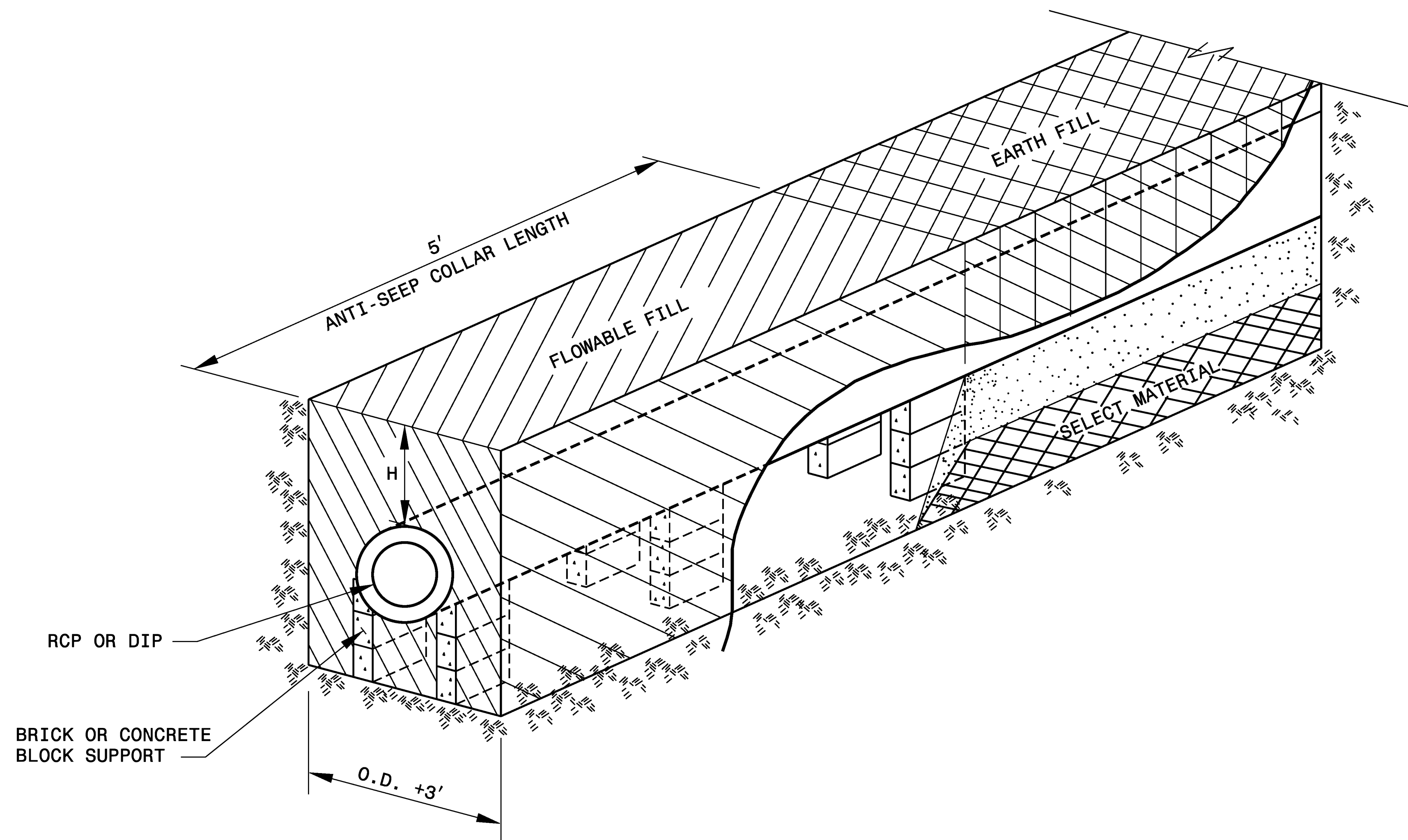


CONTRACTS STANDARDS AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

GUARDRAIL PLACEMENT DOUBLE FACED W-BEAM

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

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED



NOTES:

ANTI-SEEP COLLAR LENGTH ALONG PIPE IS 5 FEET, CONSTRUCTED OF 35 PSI FLOWABLE FILL.

H = THE FILL HEIGHT MEASURED VERTICALLY AT ANY POINT ALONG THE PIPE FROM THE TOP OF PIPE TO THE TOP OF THE EMBANKMENT AT THAT POINT.

SEE ROADWAY STANDARD DRAWING NO.300.01, 2 OF 3, NCDOT, JANUARY 2018 FOR UNSUITABLE MATERIAL FOUNDATION.





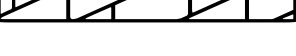
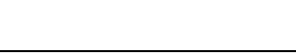
DO NOT OPERATE HEAVY EQUIPMENT OVER ANY PIPE CULVERT UNTIL THE PIPE CULVERT HAS BEEN PROPERLY BACKFILLED AND COVERED WITH AT LEAST 3 FEET OF APPROVED MATERIAL.

O.D. = THE MAXIMUM HORIZONTAL OUTSIDE DIAMETER DIMENSION.

I.D. = THE MAXIMUM HORIZONTAL INSIDE DIAMETER DIMENSION.

RCP = REINFORCED CONCRETE PIPE.

DIP = DUCTILE IRON PIPE.

-  FLOWABLE FILL MATERIAL.
-  SELECT MATERIAL CLASS V OR VI FOR FOUNDATION CONDITIONING. ENCAPSULATE WITH ENGINEERING FABRIC AS DIRECTED BY THE ENGINEER.
-  LOOSELY PLACED SELECT MATERIAL, CLASS III OR CLASS II, TYPE I FOR PIPE BEDDING. LEAVE SECTION DIRECTLY BENEATH PIPE UNCOMPACTED AS PIPE SEATING AND BACKFILL WILL ACCOMPLISH COMPACTION.
-  UNDISTURBED EARTH MATERIAL.
-  BRICK OR CONCRETE BLOCK SUPPORT
-  EARTH MATERIAL

ANTI-SEEP COLLAR

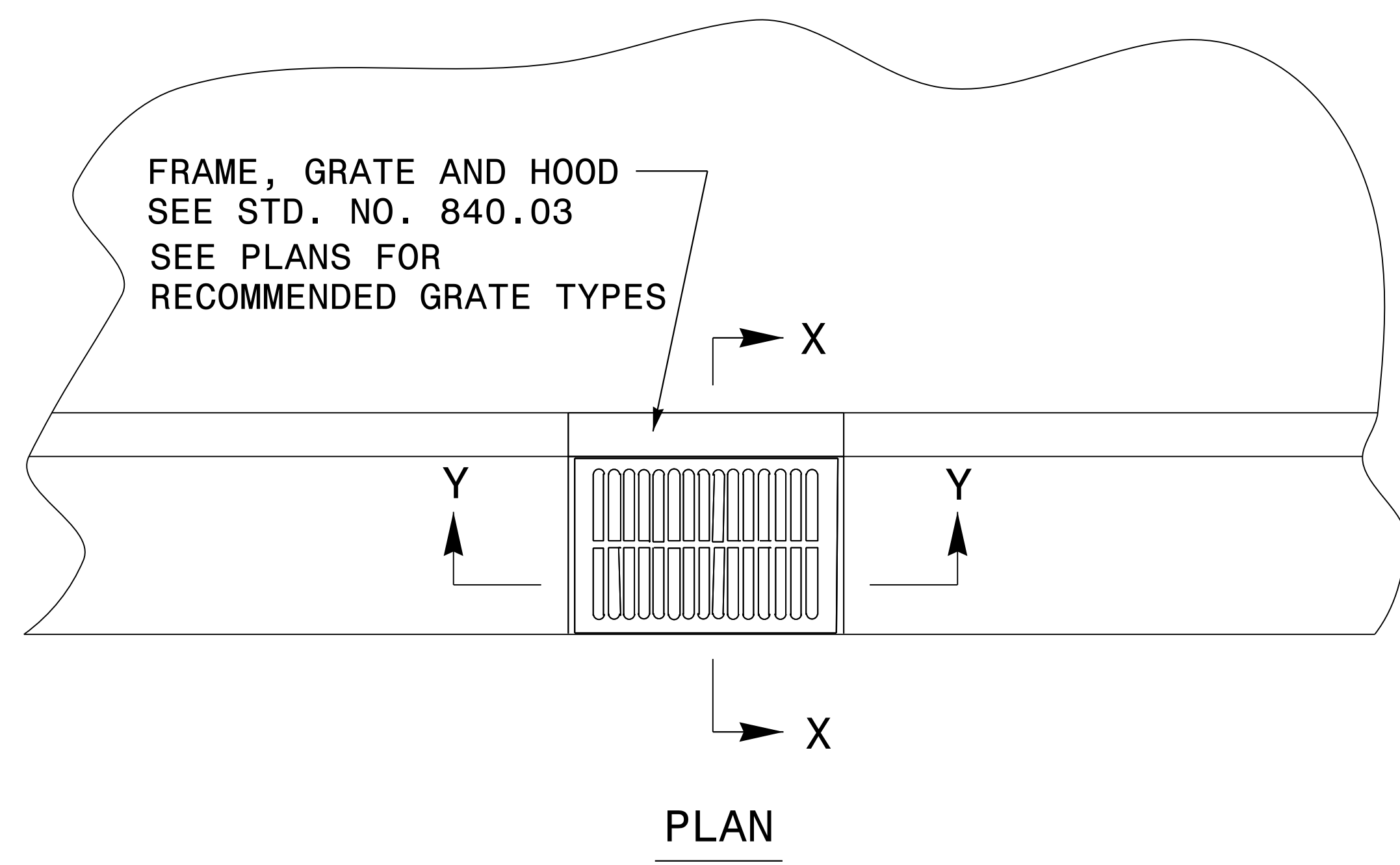


DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

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

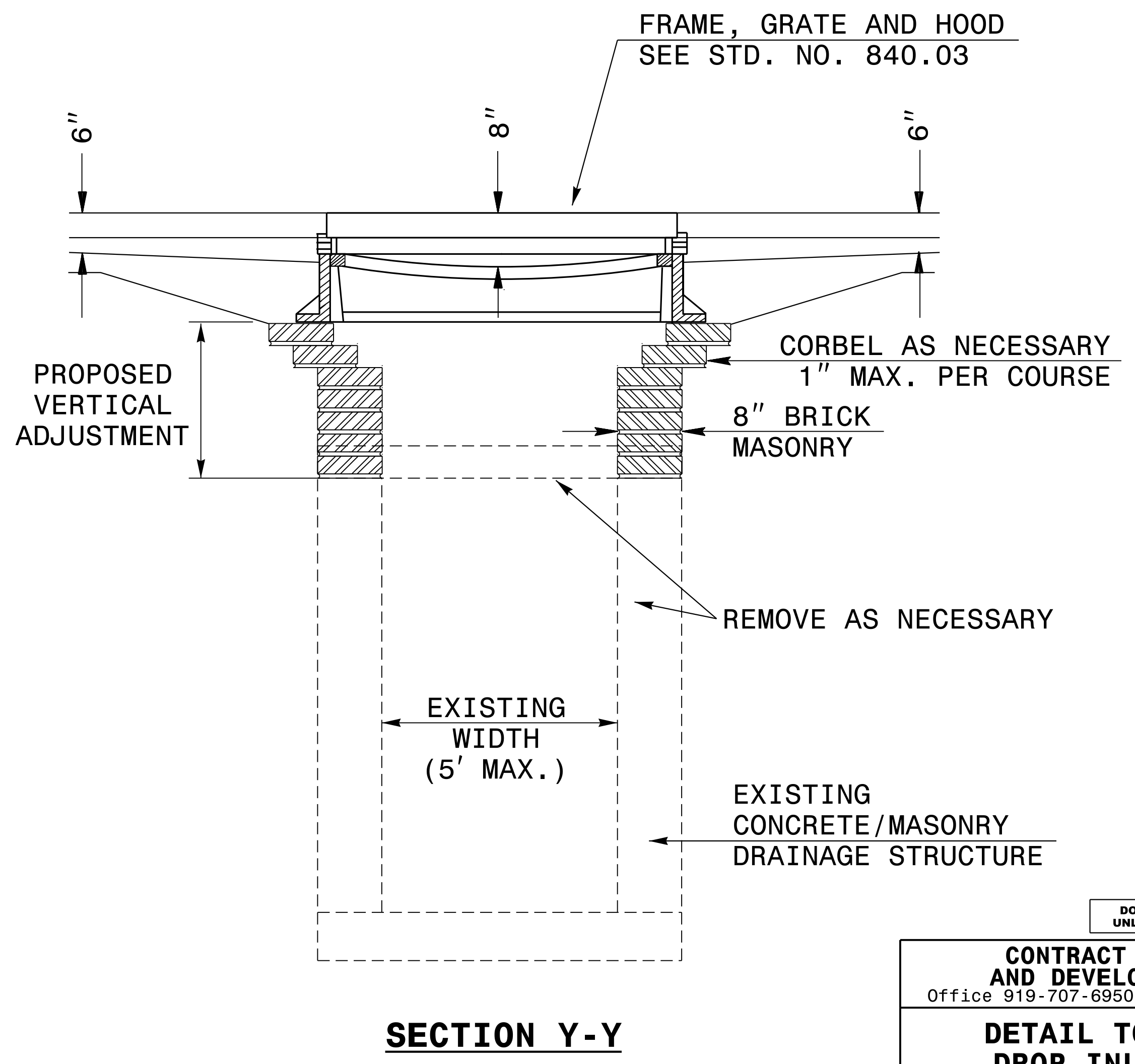
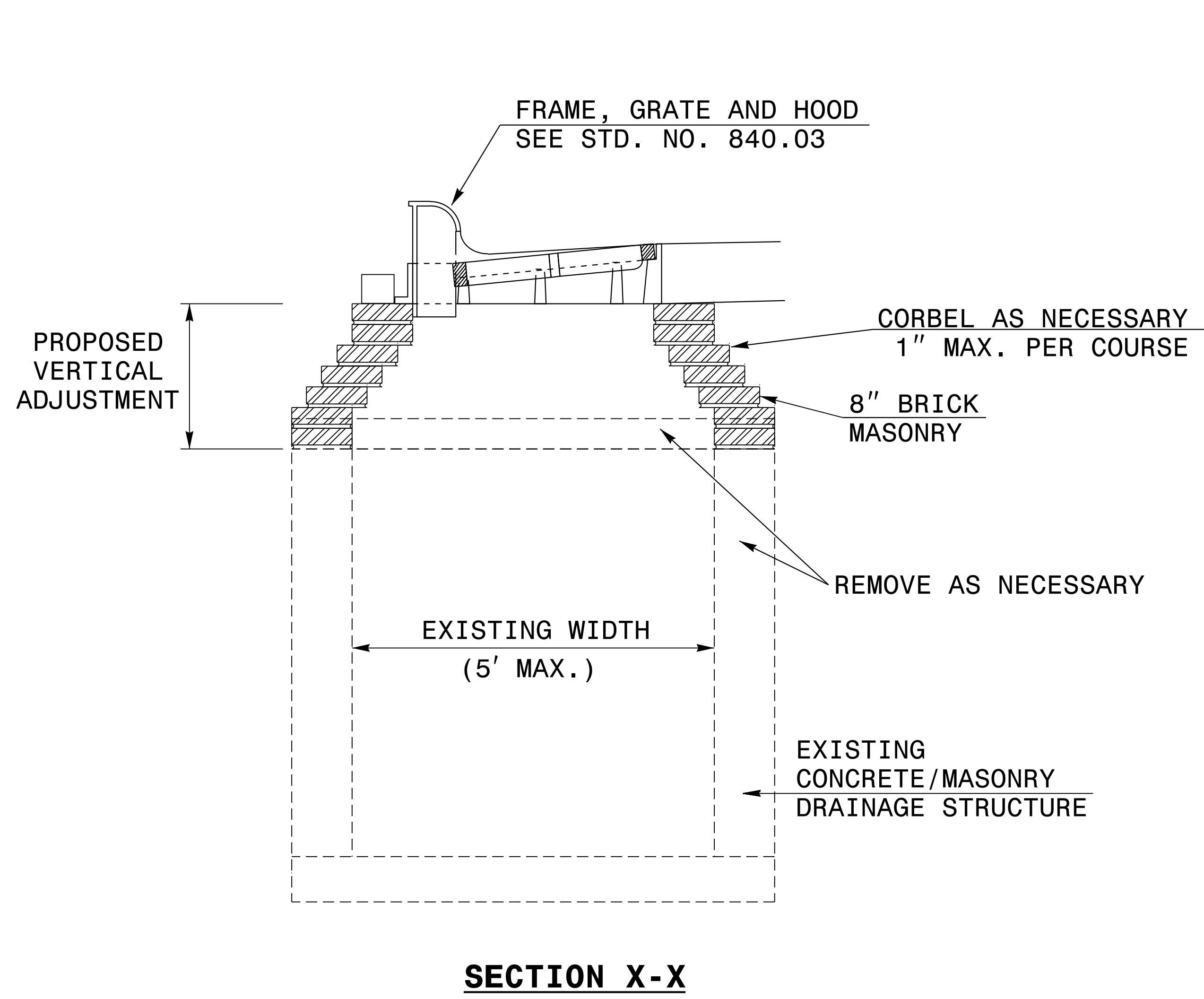
ANTI-SEEP COLLAR

ORIGINAL BY: _____ DATE: _____
 MODIFIED BY: rnbritt DATE: 05-15-15
 CHECKED BY: _____ DATE: _____
 FILE SPEC_details/rnbritt/english/hydro/anti_seep_collar.dgn



GENERAL NOTES:

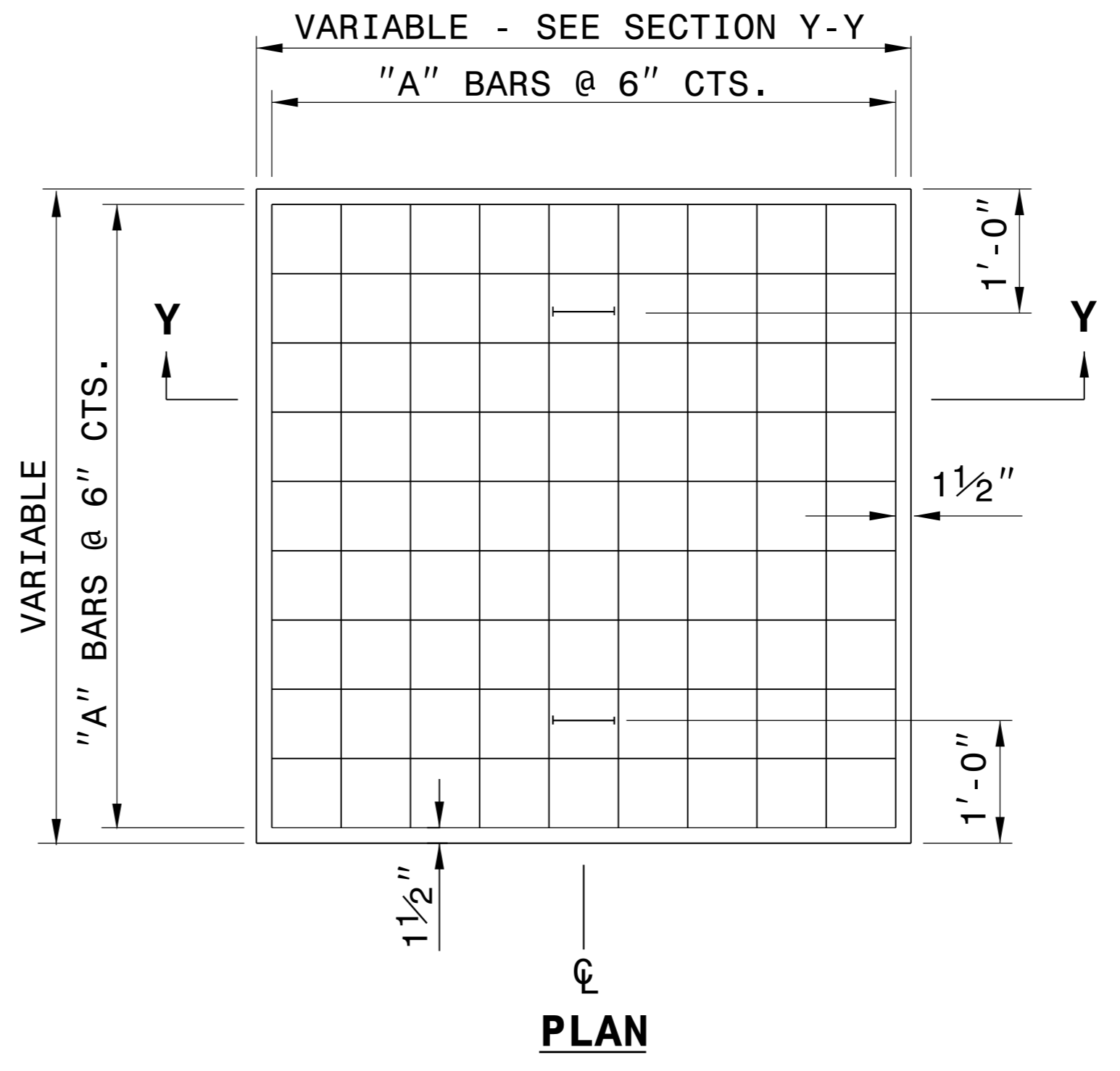
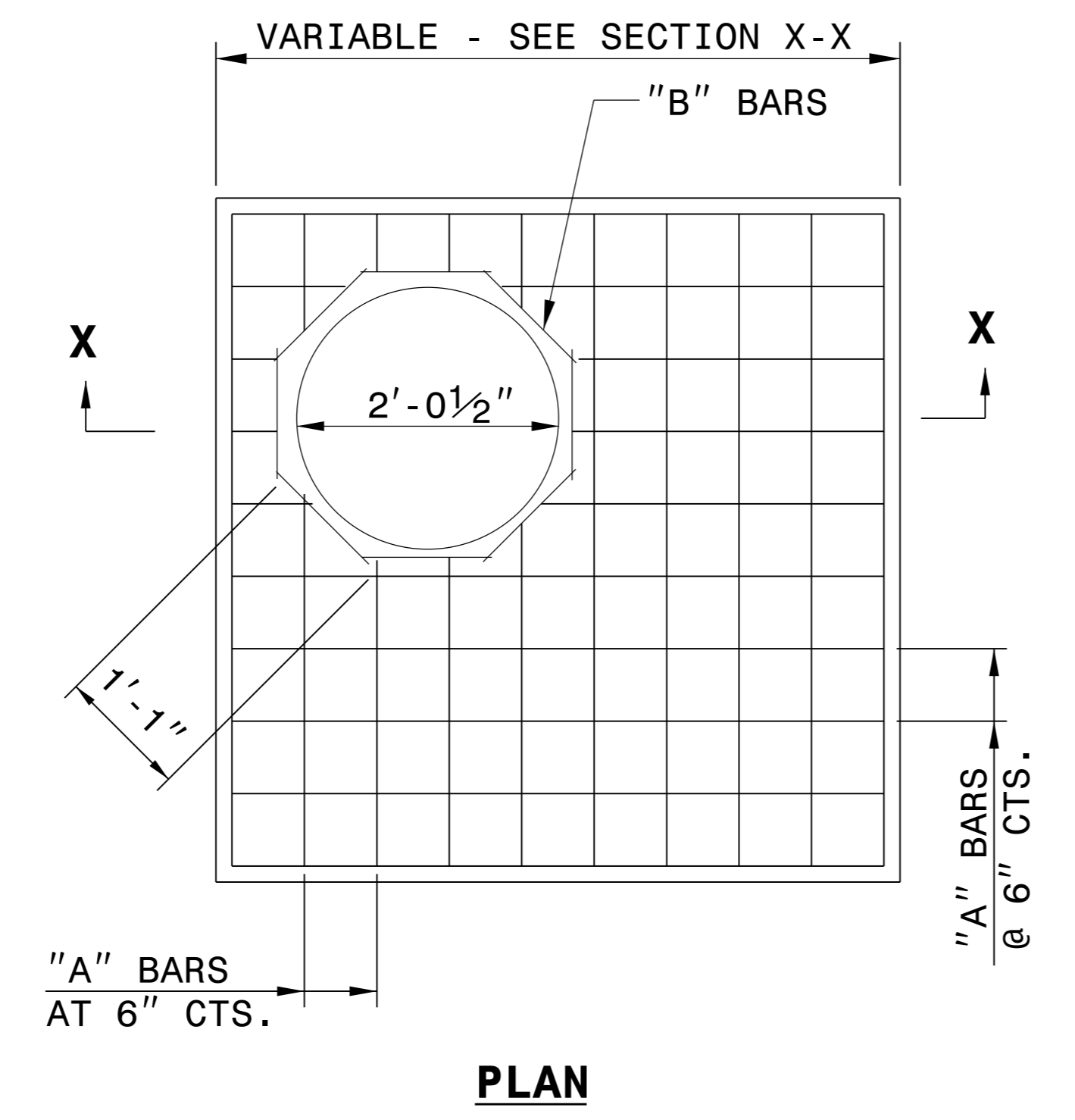
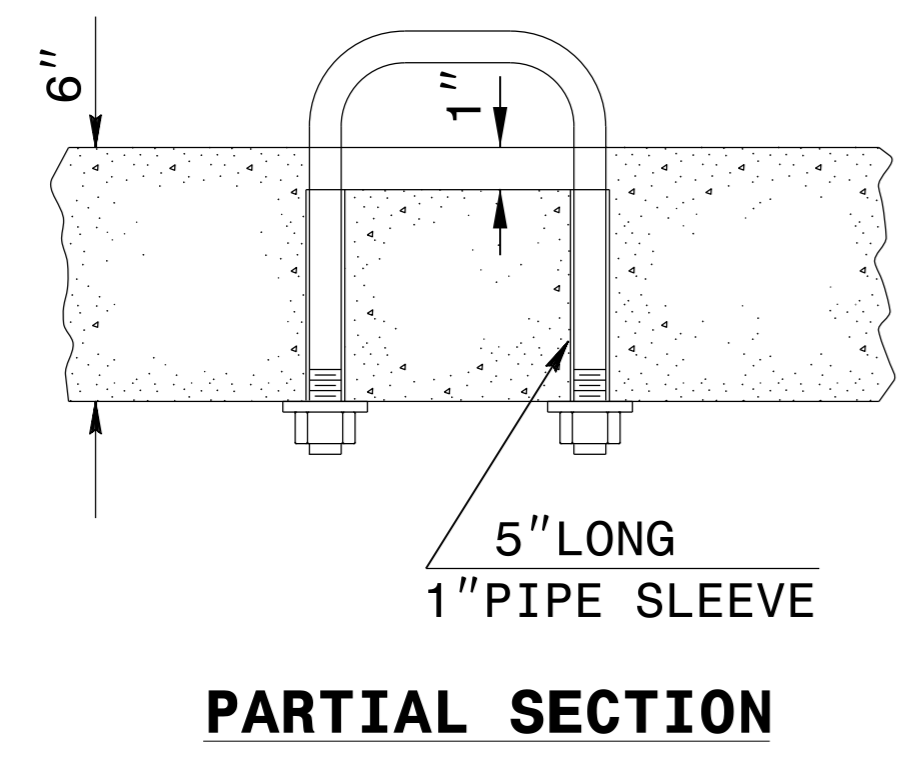
- THE ROADWAY PLANS INDICATE STRUCTURES TO BE CONVERTED.
- AFTER REMOVAL, STORE GRATES AND FRAMES AS DIRECTED BY THE ENGINEER.
- 4" SOLID CLAY BRICK, JUMBO BRICK, CONCRETE, OR 4" SOLID CONCRETE BLOCK MAY BE USED FOR VERTICAL ADJUSTMENT OF THE STRUCTURE.
- CONVERT IN ACCORDANCE WITH SECTION 859 OF THE STANDARD SPECIFICATIONS.



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

CONTRACT STANDARDS AND DEVELOPMENT UNIT	
Office 919-707-6950 FAX 919-250-4119	
DETAIL TO CONVERT DROP INLET OR JB TO CATCH BASIN	
ORIGINAL BY: E.E. WARD	DATE: 11-97
MODIFIED BY:	DATE:
CHECKED BY:	DATE:
FILE SPEC.: DS37:usr\details\stand\jbtocb.dgn	

26-JUN-2017 10:42
 S:\Contracts\Convert\convert.DI or JB to CB.dgn
 .jhoverton AT CSD-292595



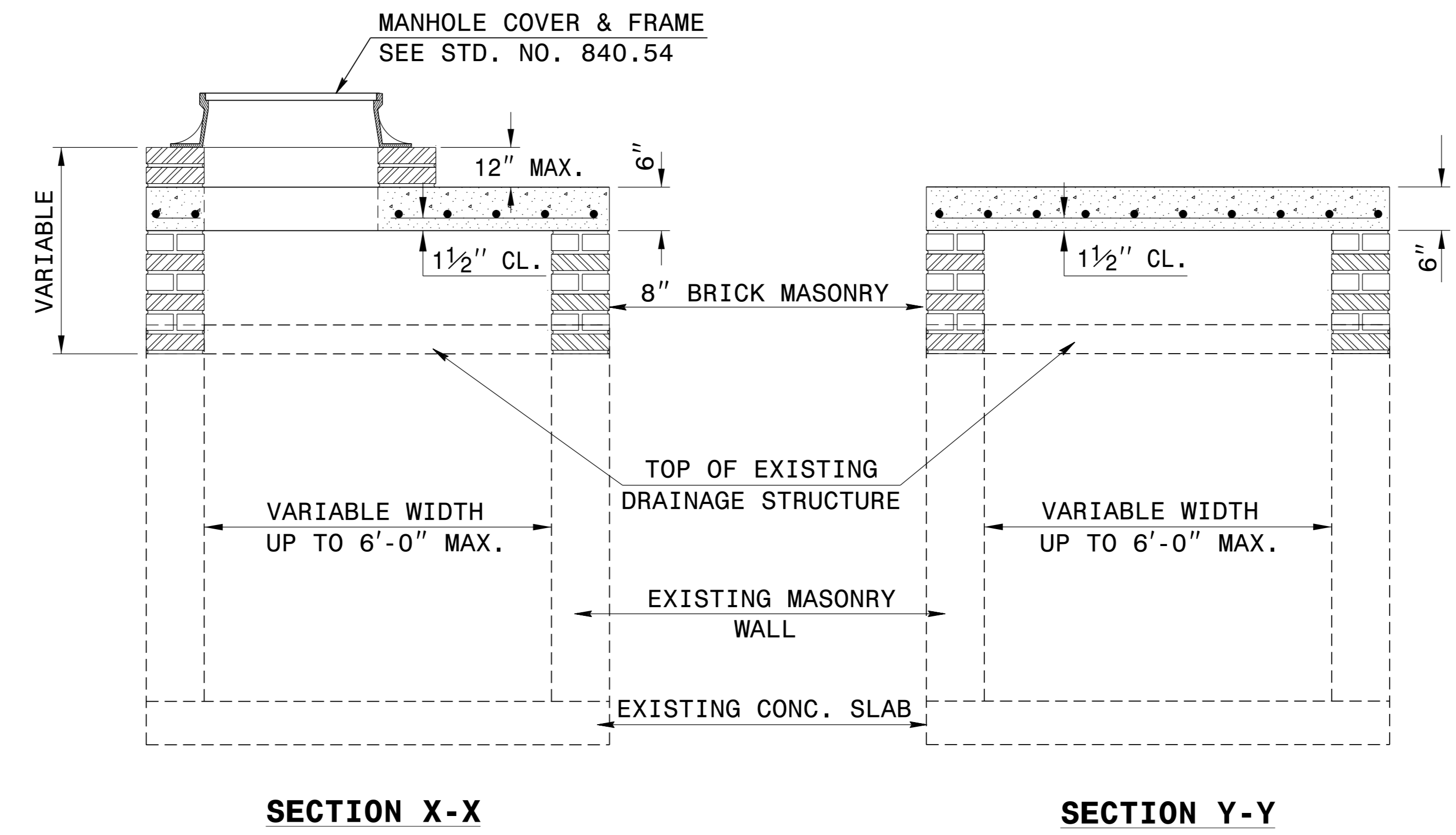
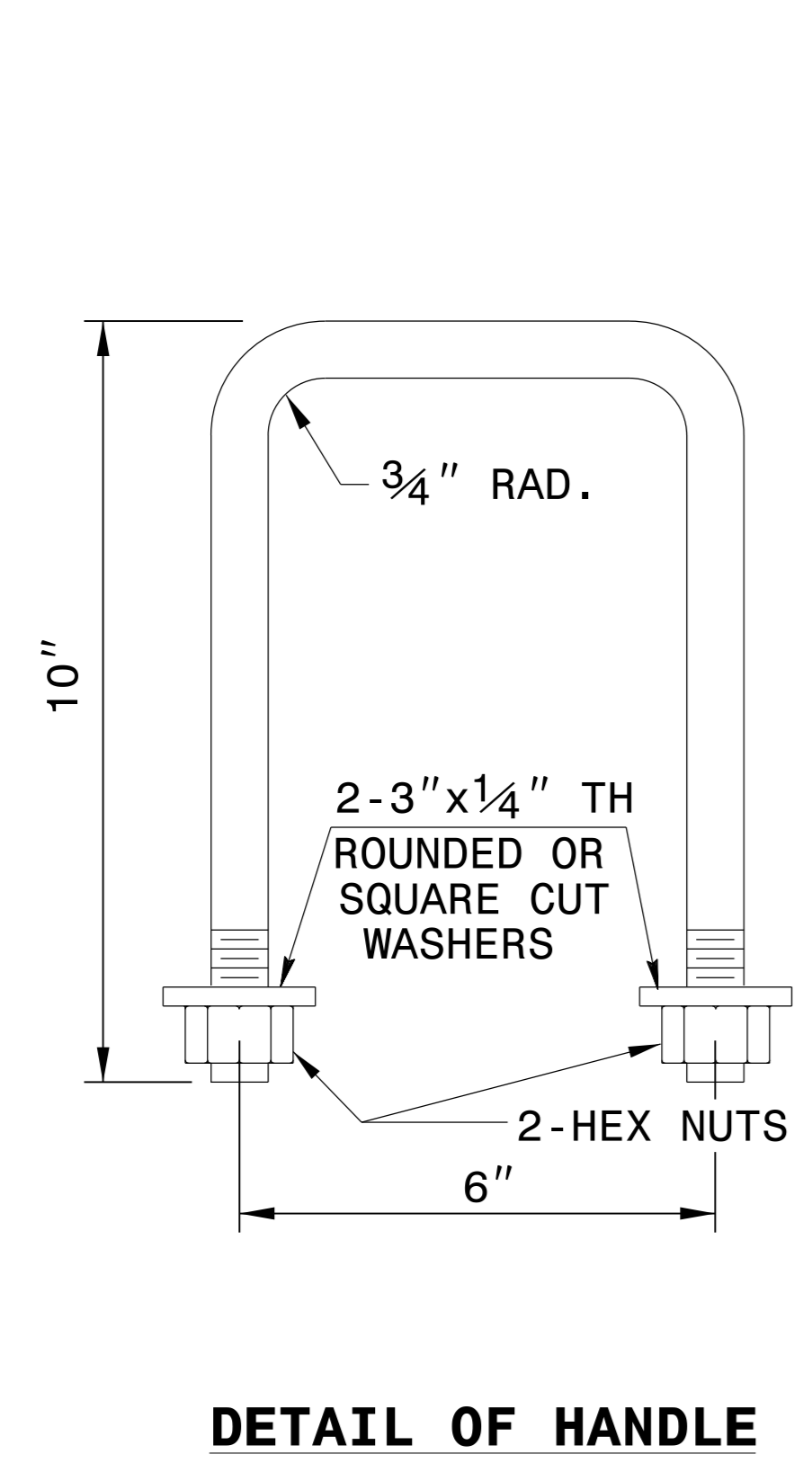
GENERAL NOTES:

CONSTRUCT IN ACCORDANCE WITH SECTION 859 OF THE STANDARD SPECIFICATIONS.

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

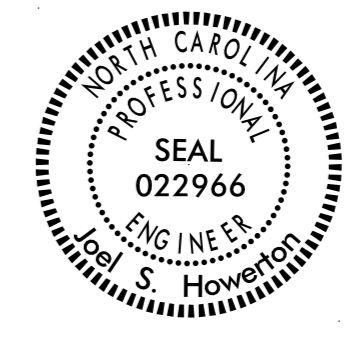
DETAIL INTENDED FOR NON-TRAFFIC BEARING DRAINAGE STRUCTURES.

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.

DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED

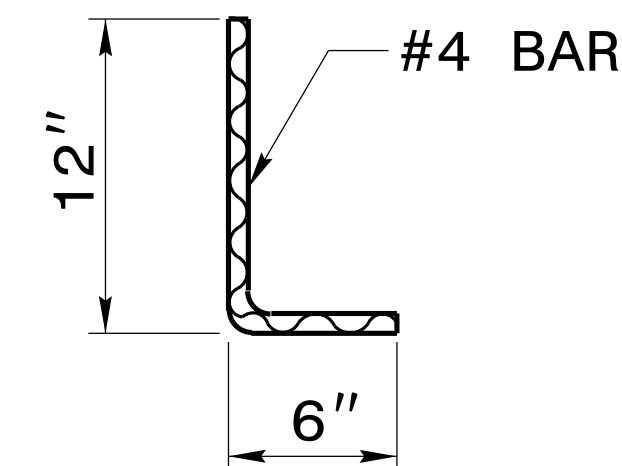
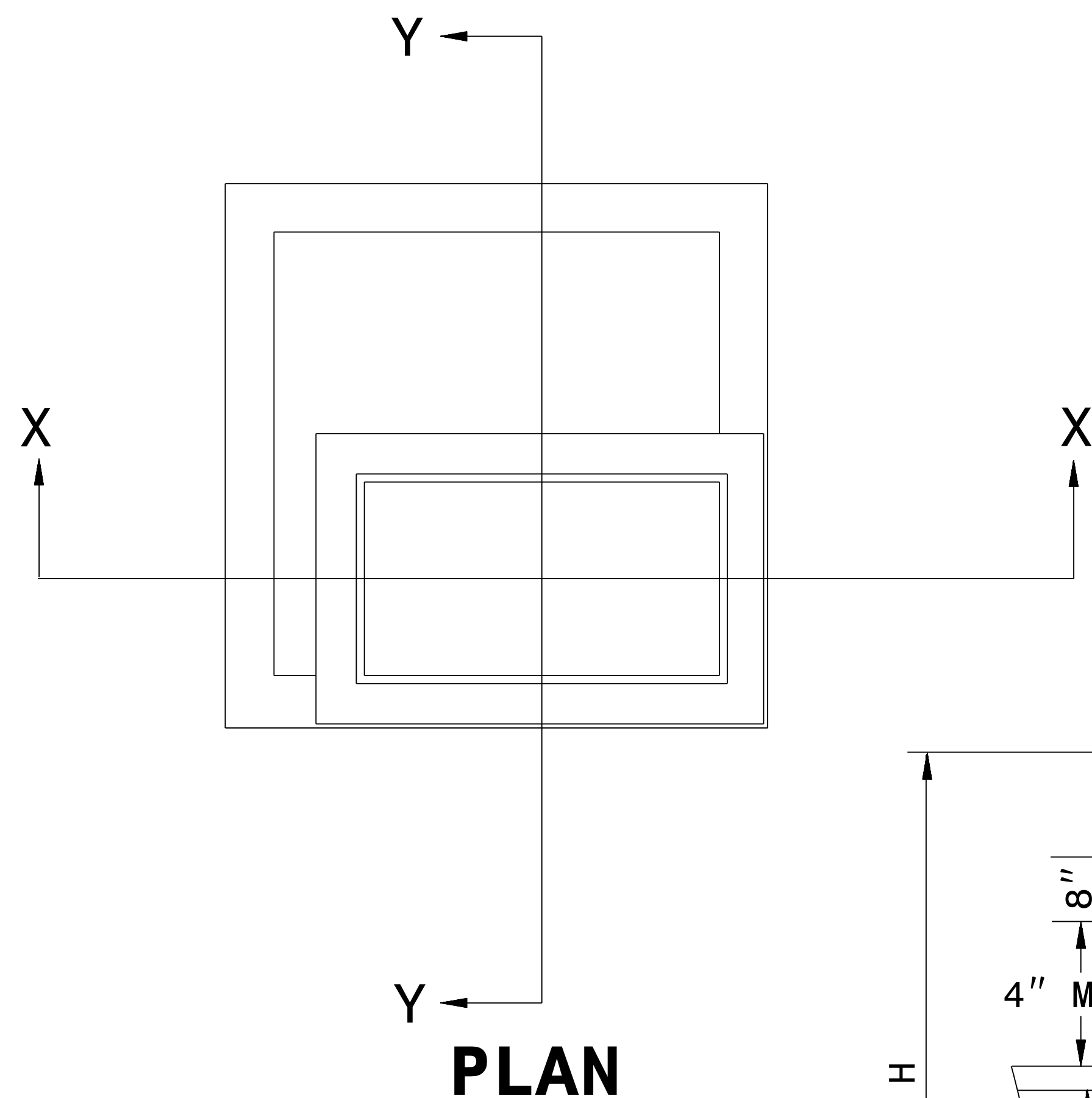


CONTRACT STANDARDS AND DEVELOPMENT UNIT
 Office 919-707-6950 FAX 919-250-4119

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

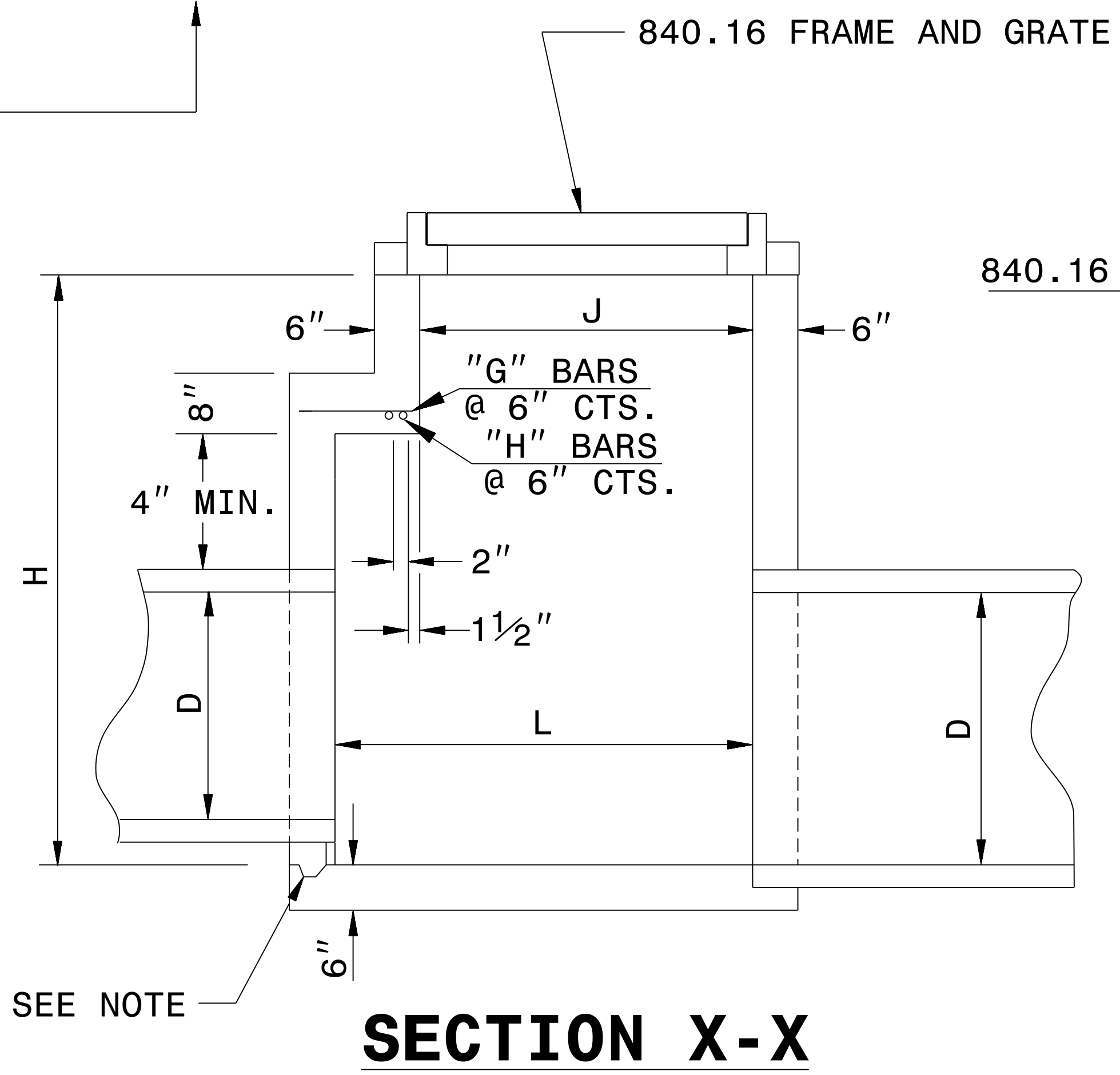
ORIGINAL BY: T.S.S. DATE: NOV. 1997
 MODIFIED BY: T.S.S. DATE: FEB. 2000
 CHECKED BY: DATE:
 FILE SPEC.: ds174:/usr/details/stand/boxtojb.dgn

11/20/00 11:58 AM TSS:ds174:/usr/details/stand/boxtojb.dgn

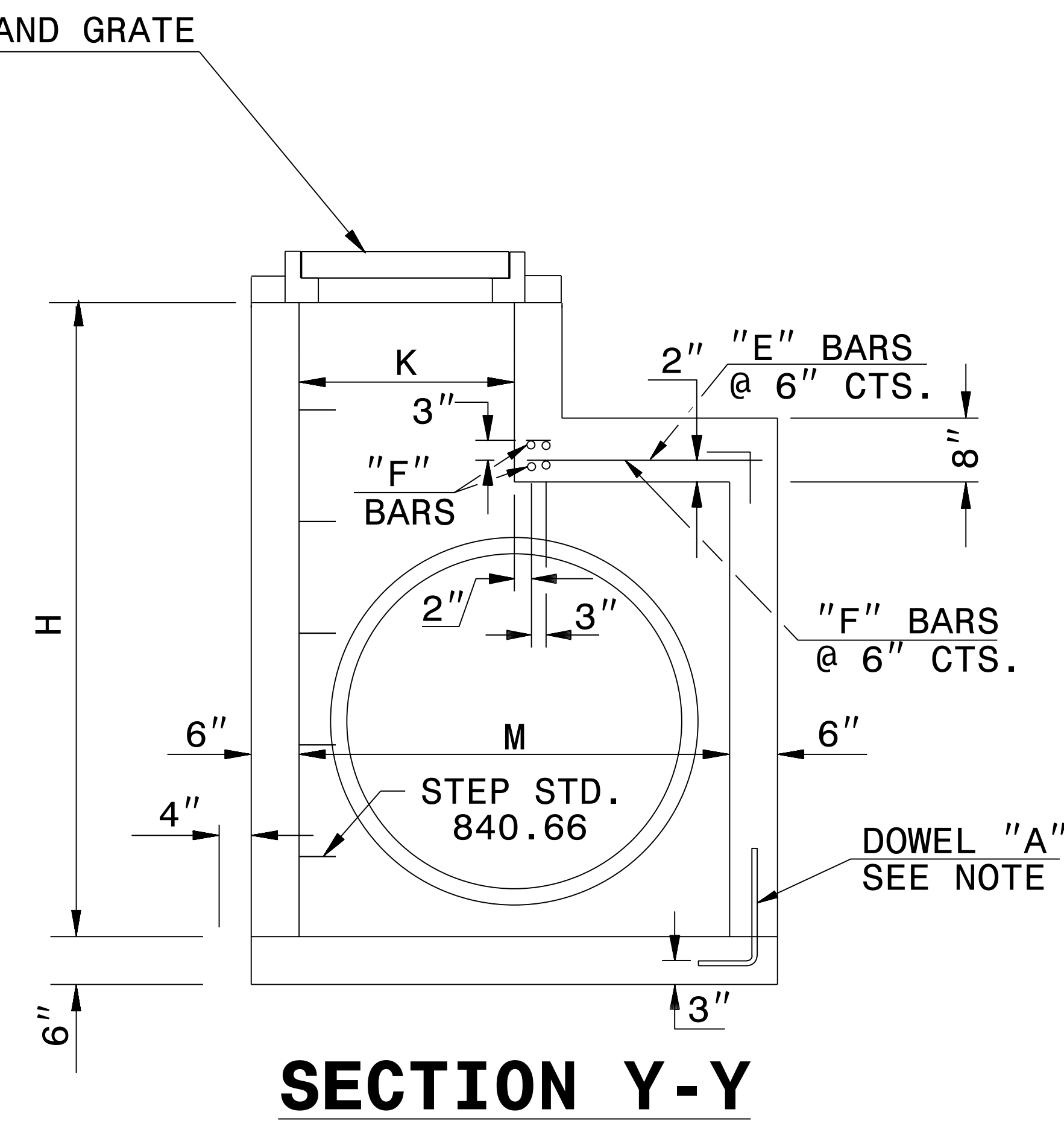


DOWEL

GENERAL NOTES:
 USE CLASS "B" CONCRETE THROUGHOUT.
 PROVIDE ALL DROP INLETS OVER 3'-6" IN DEPTH WITH STEPS 12" ON CENTER. USE STEPS WHICH COMPLY WITH STD. DRAWING 840.66.
 OPTIONAL CONSTRUCTION - MONOLITHIC POUR 2" KEYWAY OR #4 BAR DOWELS AT 12" CENTERS AS DIRECTED BY THE ENGINEER.
 USE FORMS FOR THE CONSTRUCTION OF THE BOTTOM SLAB.
 IF REINFORCED CONCRETE PIPE IS SET IN BOTTOM SLAB OF BOX, ADD TO SLAB AS SHOWN ON STD. NO. 840.00.
 CONSTRUCT WITH PIPE CROWNS MATCHING.
 INSTALL 2" WEEPHOLES AS DIRECTED BY THE ENGINEER.
 INSTALL STONE DRAINS, OF A MINIMUM OF 1 CUBIC FOOT OF NO. 78M STONE IN A POROUS FABRIC BAG OR WRAP, AT EACH WEEP HOLE OR AS DIRECTED BY THE ENGINEER.
 CHAMFER ALL EXPOSED CORNERS 1".
 DRAWING NOT TO SCALE.
 DIMENSIONS MAY BE FIELD ADJUSTED AS DIRECTED BY THE ENGINEER.



SECTION X-X



SECTION Y-Y

MIN. DIMENSIONS AND QUANTITIES FOR CONCRETE DROP INLET (BASED ON MIN. HEIGHT, H)

DIMENSIONS OF BOX AND PIPE						REINFORCING STEEL - NO. 4 BARS								CU YDS CONC. IN BOX				DEDUCTIONS FOR ONE PIPE		
PIPE	SPAN	WIDTH	SPAN	WIDTH	HEIGHT	BARS E		BARS F		BARS G		BARS H		TOTAL	BOTTOM SLAB	H	H PER FT HT	TOTAL	C.S.	R.C.
D	J	K	L	M	H	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH	LBS.						
12"	3'-0"	2'-0"	3'-8"	2'-0"	3'-9"	—	—	—	—	—	—	—	—	—	0.362	0.926	0.247	1.288	0.015	0.024
15"	3'-0"	2'-0"	3'-8"	2'-0"	4'-0"	—	—	—	—	—	—	—	—	—	0.362	0.988	0.247	1.350	0.023	0.036
18"				2'-0"	4'-3"	—	—	—	—	—	—	—	—	—	0.362	1.050	0.247	1.412	0.033	0.049
24"				2'-10"	4'-9"	8	1'-5"	6	4'-9"	—	—	—	—	27	0.444	1.362	0.278	1.806	0.059	0.085
30"			3'-8"	3'-5"	5'-3"	8	2'-0"	7	4'-9"	—	—	—	—	33	0.502	1.644	0.288	2.146	0.092	0.127
36"			4'-0"	4'-0"	5'-9"	8	2'-5"	8	4'-11"	4	0'-9"	2	4'-11"	47	0.560	1.931	0.321	2.525	0.132	0.178
42"			4'-10"	4'-10"	6'-3"	10	3'-1"	9	5'-7"		1'-5"	3	5'-7"	67	0.704	2.500	0.370	3.282	0.180	0.243
48"			5'-4"	5'-4"	6'-9"	11	3'-7"	10	6'-1"		1'-11"	4	6'-1"	87	0.823	3.013	0.407	3.920	0.235	0.317
54"			6'-0"	6'-0"	7'-3"	12	4'-1"	11	6'-7"		2'-5"	5	6'-7"	107	0.951	3.589	0.444	4.677	0.297	0.401
60"			6'-6"	6'-6"	7'-9"	13	4'-9"	12	7'-3"		3'-1"	6	7'-3"	135	1.311	4.539	0.494	5.775	0.367	0.495
66"			7'-2"	7'-2"	8'-3"	14	5'-4"	14	7'-10"		3'-7"	7	7'-10"	168	1.136	5.061	0.537	6.506	0.444	0.599
72"	3'-0"	2'-0"	7'-8"	7'-8"	8'-9"	15	5'-11"	15	8'-5"	4	4'-3"	8	8'-5"	199	1.500	5.860	0.580	7.473	0.528	0.713

24-APR-2018 11:05 S:\Contracts\Special Details\Howerton\840d14 up to 72in rcp.dgn Jhowerton AT_CSD-292595



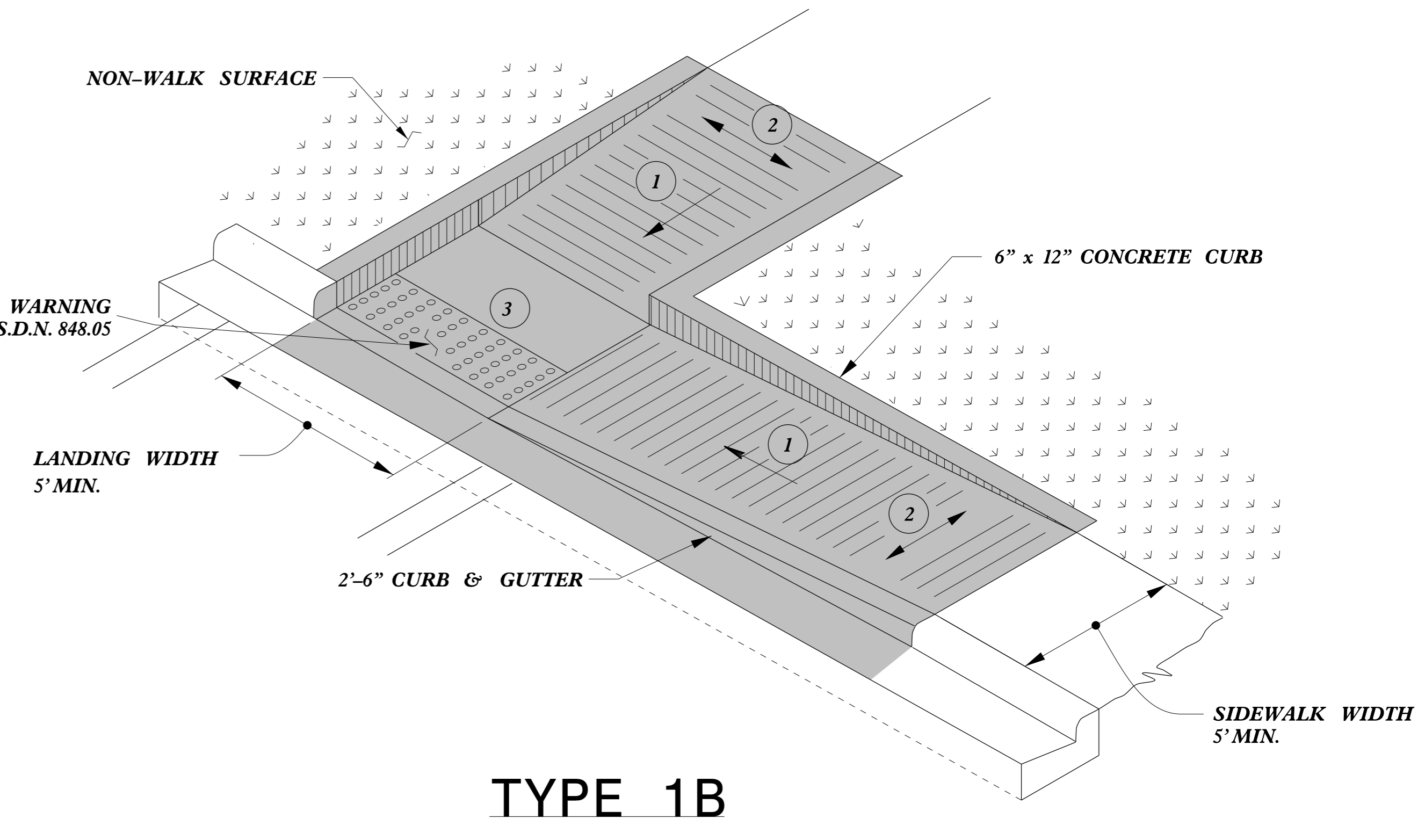
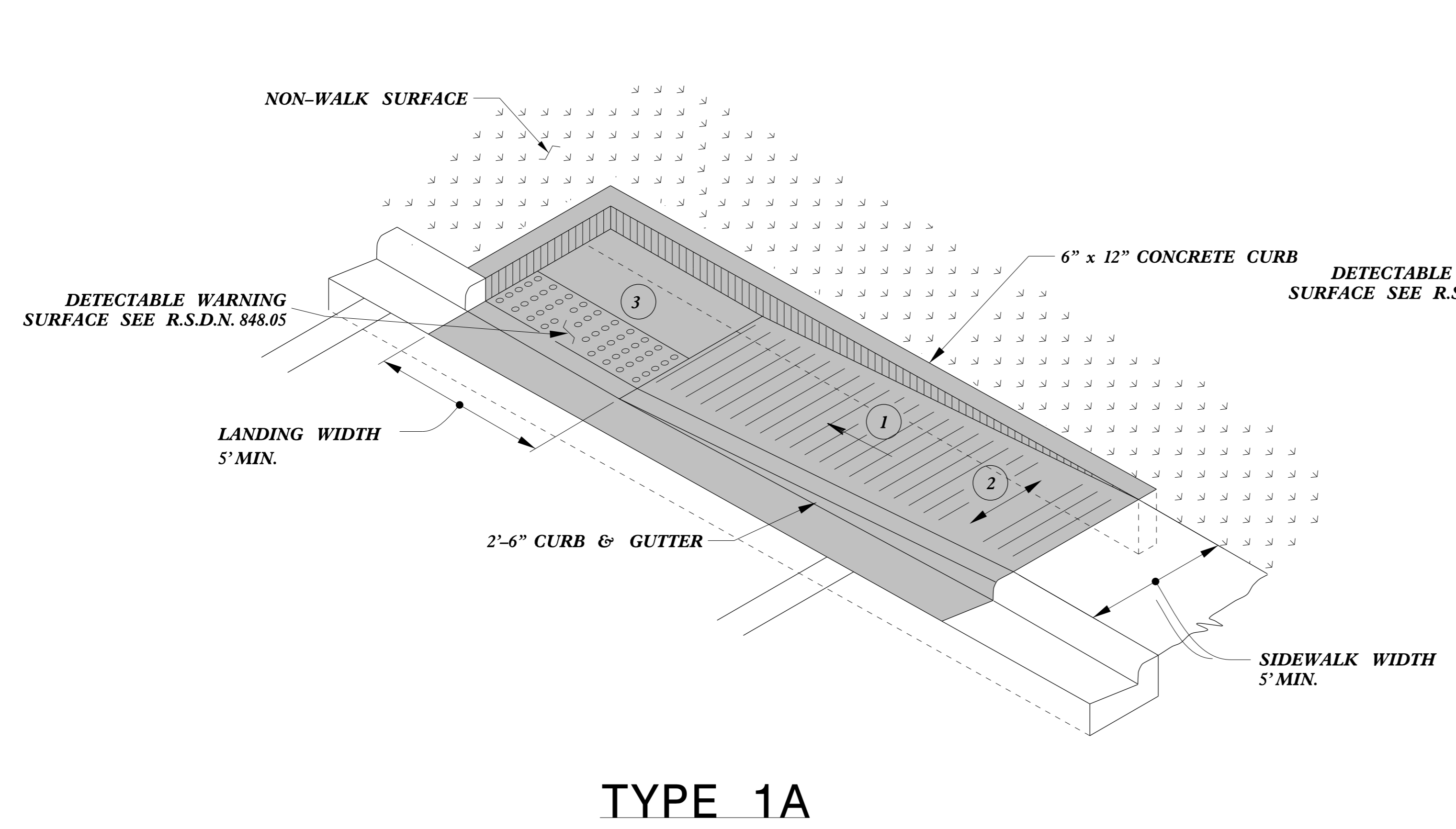
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

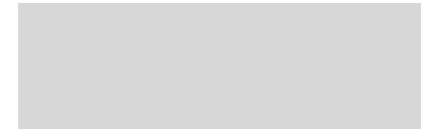
CONTRACT STANDARDS AND DEVELOPMENT UNIT
 Office 919-707-6950 FAX 919-250-4119

SPECIAL DI 840D14

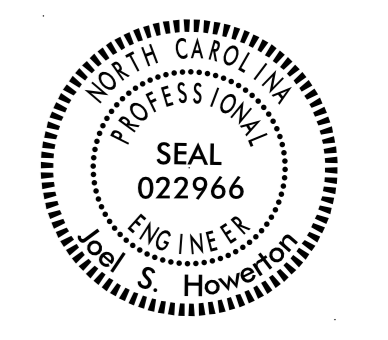
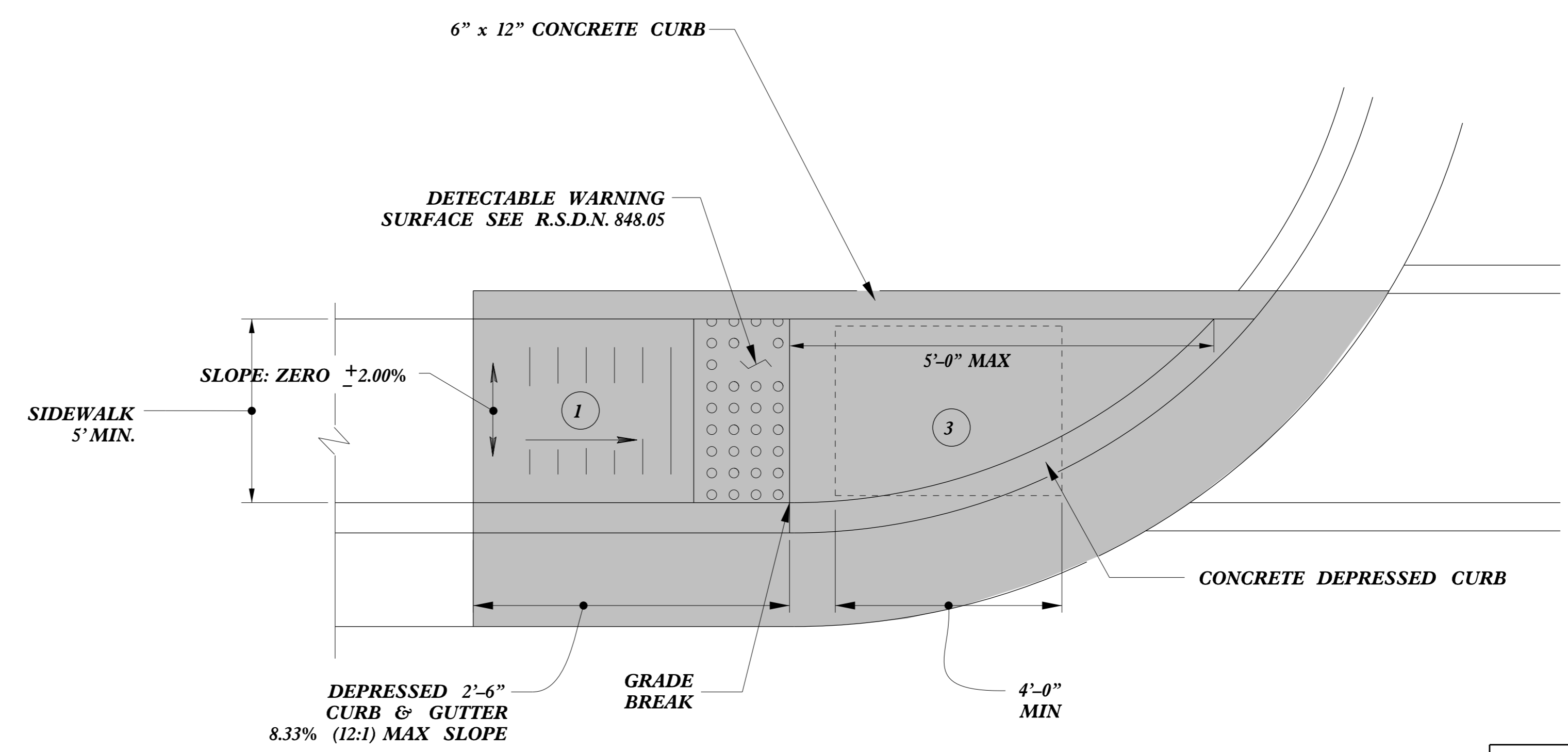
ORIGINAL BY: J. HOWERTON DATE: 04/11/17
 MODIFIED BY: DATE:
 CHECKED BY: DATE:
 FILE SPEC.: detail/jhowerton/840d14 di_30_rcp.dgn

5/14/99



 PAY LIMITS FOR 1 CURB RAMP

- 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.

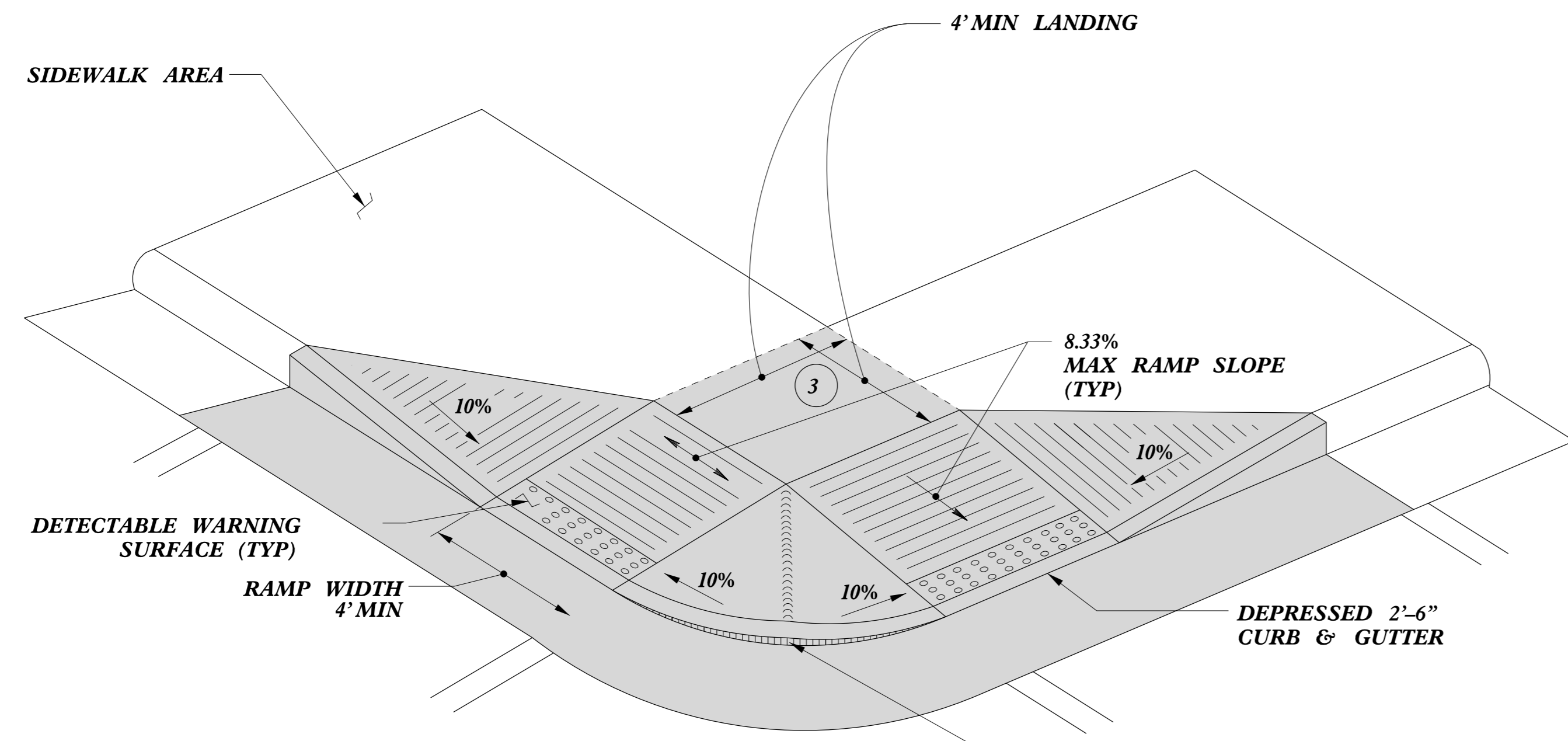


DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

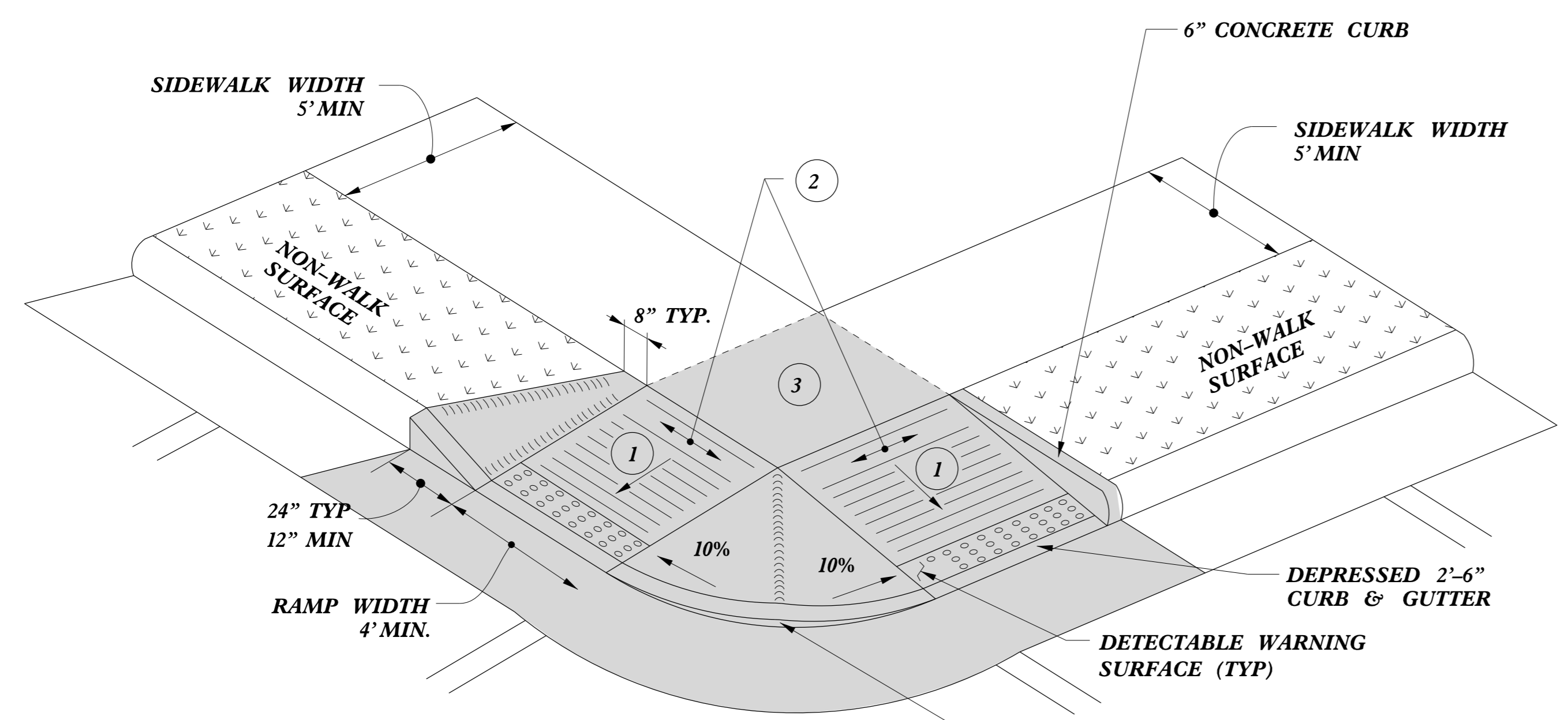
CONTRACT STANDARDS AND DEVELOPMENT UNIT	
Office 919-707-6950	FAX 919-250-4119
CURB RAMPS	
Directional Ramps	
ORIGINAL BY: J.S. HOWERTON	DATE: 7/7/11
MODIFIED BY:	DATE:
CHECKED BY:	DATE:
FILE SPEC: stds/2012CurbRamp/CurbRampDetails.dgn	

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

C:\P\2011\0514\0514.dwg
 USER: J.S. HOWERTON
 DATE: 7/7/11 10:00 AM
 PLOT: 7/7/11 10:00 AM
 PLOTTER: HP DesignJet 2500

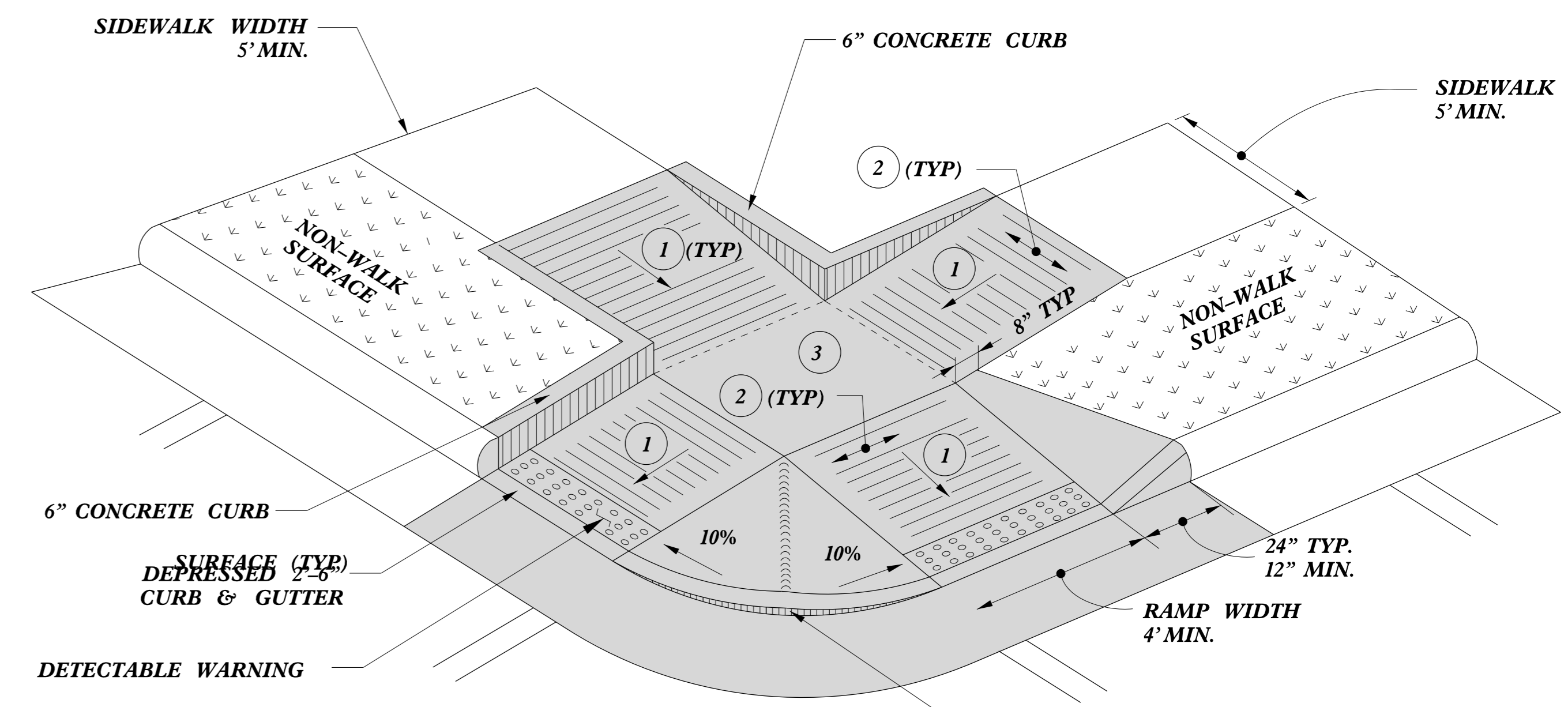


TYPE 4



TYPE 4A

PAY LIMITS FOR 2 CURB RAMPS



TYPE 5

- 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.



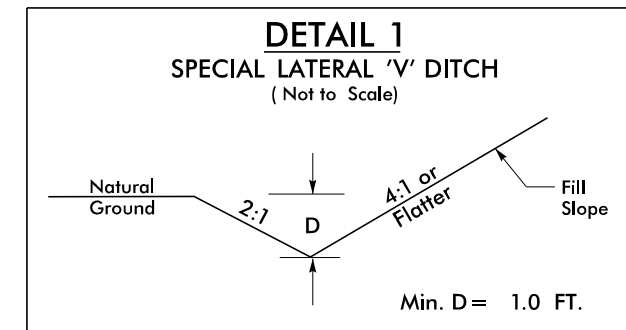
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

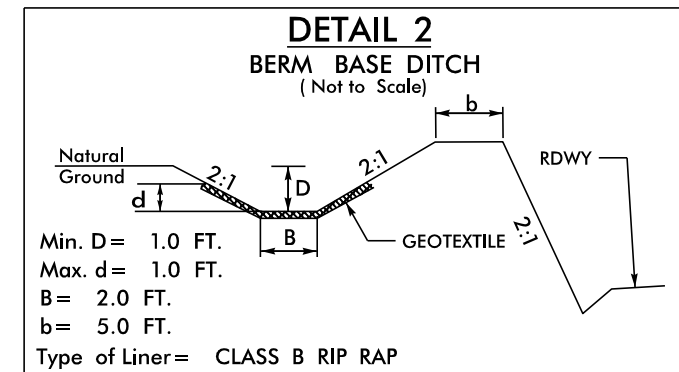
REFER TO ROADWAY STANDARD DRAWING NUMBER 848.05 SHEET 3 OF 3 FOR ALL RAMP NOTES

5/14/99
C:\P\2012\STDS\2012CurbRamp\CurbRampDetails.dgn

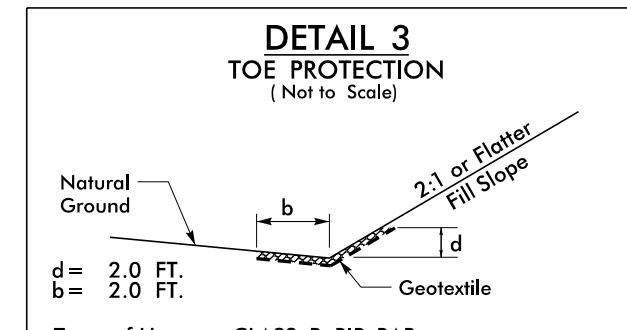
PROJECT REFERENCE NO.	SHEET NO.
U-5896	2D-1
RW SHEET NO.	
HYDRAULICS ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



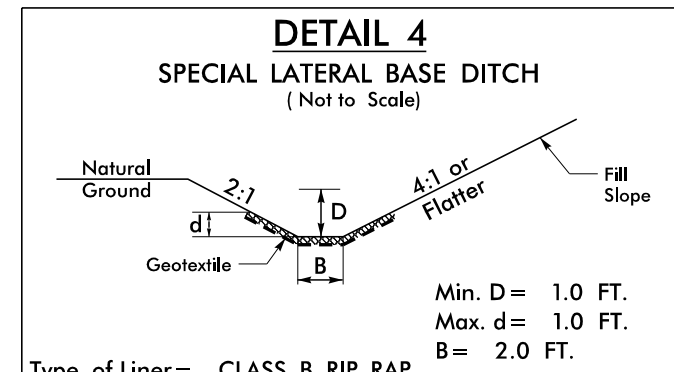
Min. D = 1.0 FT.
 -L- STA. 7+50 TO 10+50 RT
 -L- STA. 14+00 TO 15+00 RT
 -L- STA. 36+00 TO 38+00 LT
 -L- STA. 39+00 TO 44+50 RT
 -RPB- STA. 15+99 TO 16+50 RT
 -RPB- STA. 17+65 TO 19+00 LT
 -DET- STA. 11+02 TO 13+54 RT
 -DET- STA. 21+52 TO 23+03 RT
 -DET- RPB- STA. 17+00 TO 18+97 RT



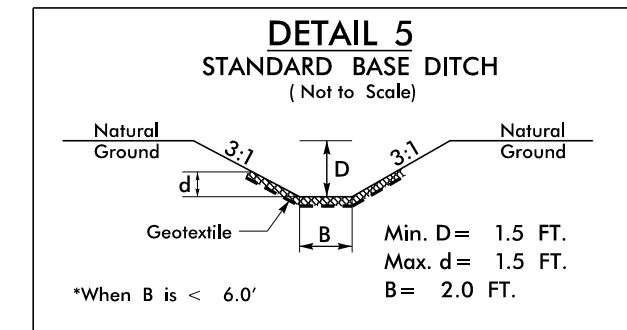
Min. D = 1.0 FT.
 Max. d = 1.0 FT.
 B = 2.0 FT.
 b = 5.0 FT.
 Type of Liner = CLASS B RIP RAP



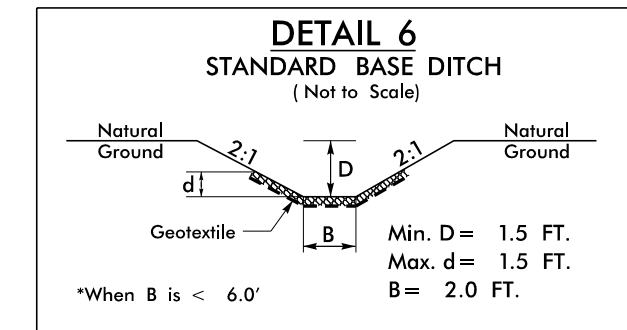
d = 2.0 FT.
 b = 2.0 FT.
 Type of Liner = CLASS B RIP RAP



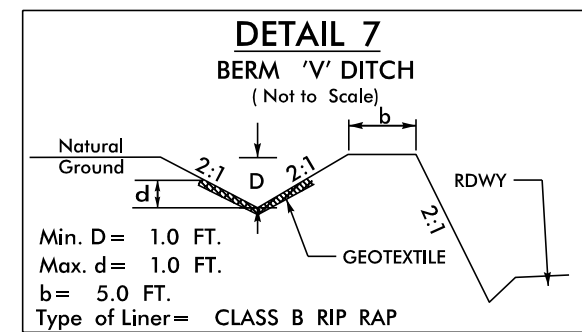
Min. D = 1.0 FT.
 Max. d = 1.0 FT.
 B = 2.0 FT.
 Type of Liner = CLASS B RIP RAP



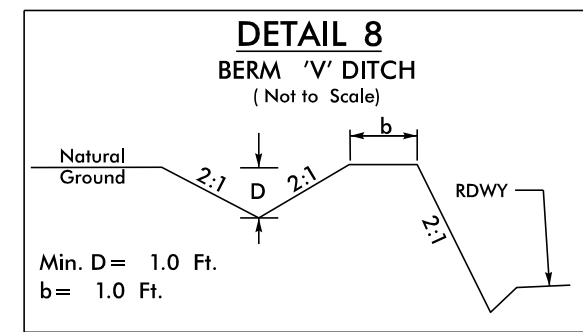
Min. D = 1.5 FT.
 Max. d = 1.5 FT.
 B = 2.0 FT.
 Type of Liner = CLASS I RIP RAP



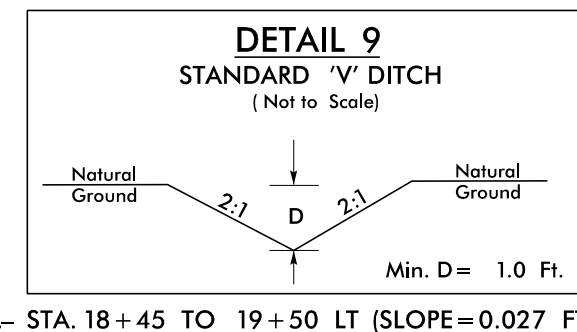
Min. D = 1.5 FT.
 Max. d = 1.5 FT.
 B = 2.0 FT.
 Type of Liner = CLASS I RIP RAP



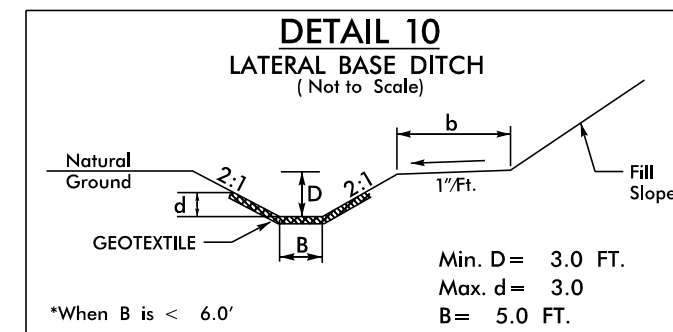
Min. D = 1.0 FT.
 Max. d = 1.0 FT.
 b = 5.0 FT.
 Type of Liner = CLASS B RIP RAP



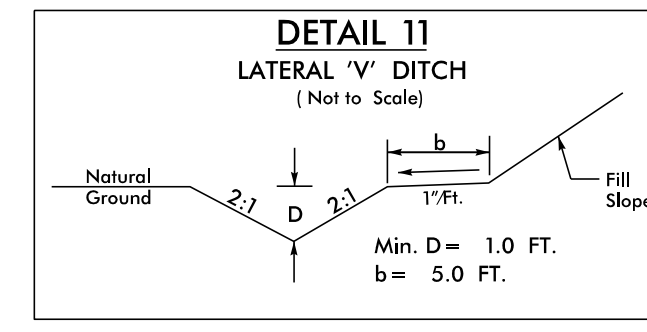
Min. D = 1.0 FT.
 -RPC- STA. 15+10 TO 17+00 RT
 -RPD- STA. 23+15 TO 24+00 LT



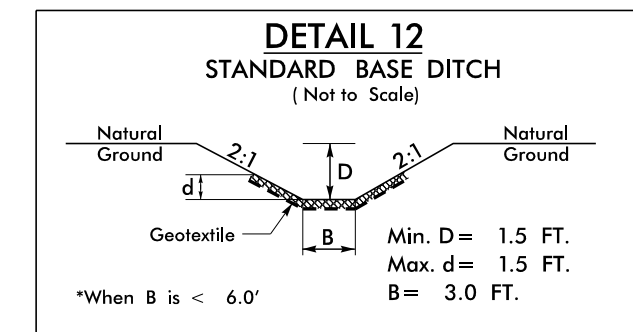
Min. D = 1.0 FT.
 -L- STA. 18+45 TO 19+50 LT (SLOPE=0.027 FT/FT)
 -RPB- STA. 17+65 TO 18+26 LT (SLOPE=0.013 FT/FT)
 -RPD- STA. 23+50 TO 25+24 RT (SLOPE=0.068 FT/FT)
 -RPD- STA. 24+27 TO 25+36 LT (SLOPE=0.0345 FT/FT)
 -DET- RPB- STA. 17+93 TO 18+94 LT (SLOPE=0.013 FT/FT)



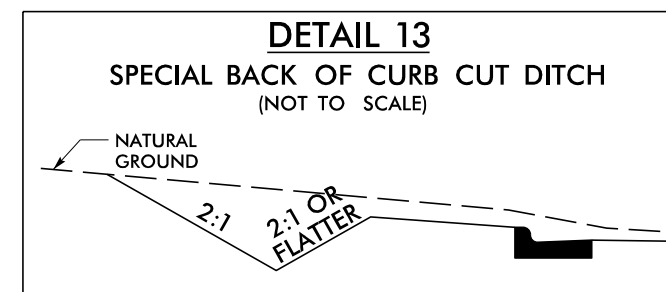
Min. D = 3.0 FT.
 Max. d = 3.0 FT.
 B = 5.0 FT.
 b = 5.0 FT.
 Type of Liner = CLASS I RIP RAP



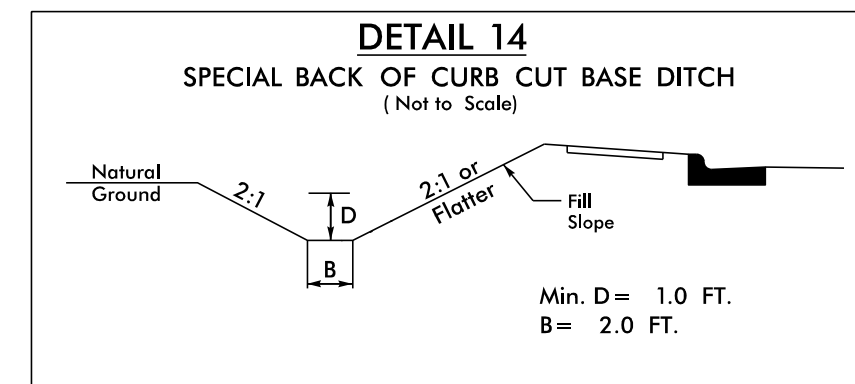
Min. D = 1.0 FT.
 b = 5.0 FT.



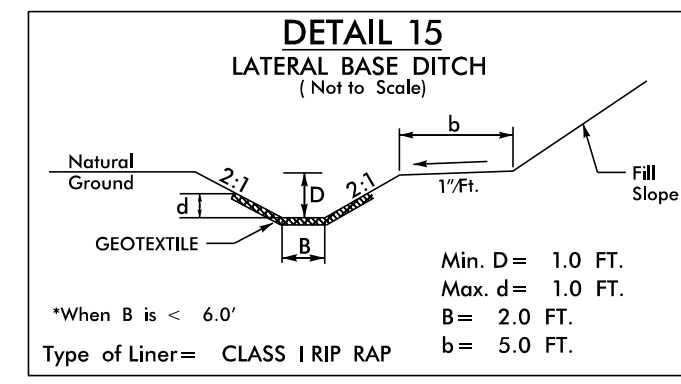
Min. D = 1.5 FT.
 Max. d = 1.5 FT.
 B = 3.0 FT.
 Type of Liner = CLASS I RIP RAP



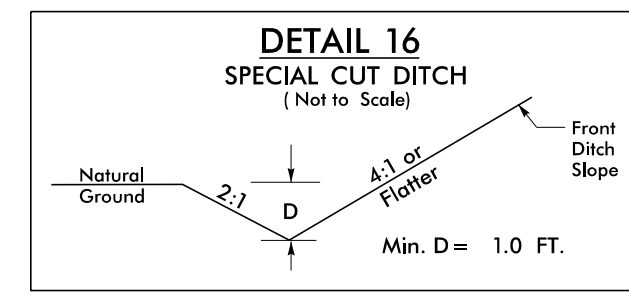
-Y- STA. 14+13 TO 15+00 RT
 -Y- STA. 14+31 TO 15+00 LT
 -Y- STA. 17+82.5 TO 20+00 RT
 -Y- STA. 17+95 TO 20+80 LT
 -Y- STA. 21+80 TO 22+50 RT
 -Y- STA. 22+90 TO 23+50 LT
 -Y- STA. 25+10 TO 25+75 RT
 -Y- STA. 13+90 TO 14+68 RT
 -RPA- STA. 23+00 TO 23+24 LT



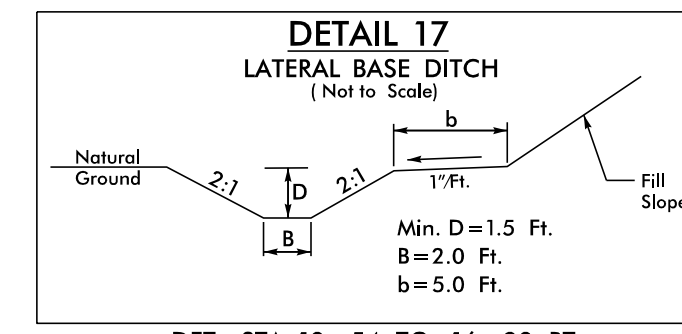
Min. D = 1.0 FT.
 B = 2.0 FT.
 -Y- STA. 15+00 TO 15+86 LT



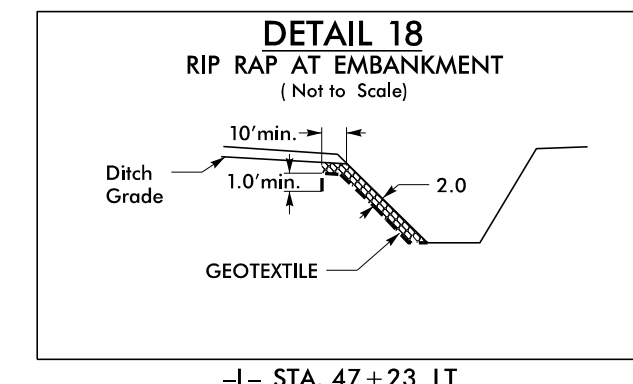
Min. D = 1.0 FT.
 Max. d = 1.0 FT.
 B = 2.0 FT.
 b = 5.0 FT.
 Type of Liner = CLASS I RIP RAP



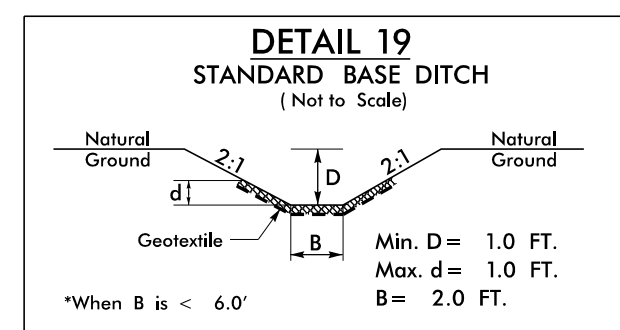
Min. D = 1.0 FT.
 -L- STA. 32+50 TO 34+00 LT
 -RPA- STA. 15+70.6 TO 17+50 RT
 -RPA- STA. 21+50 TO 22+50 RT
 -RPD- STA. 15+39.5 TO 23+00 RT
 -RPD- STA. 18+50 TO 21+00 LT



Min. D = 1.5 Ft.
 B = 2.0 Ft.
 b = 5.0 Ft.
 -DET- STA. 13+54 TO 16+23 RT

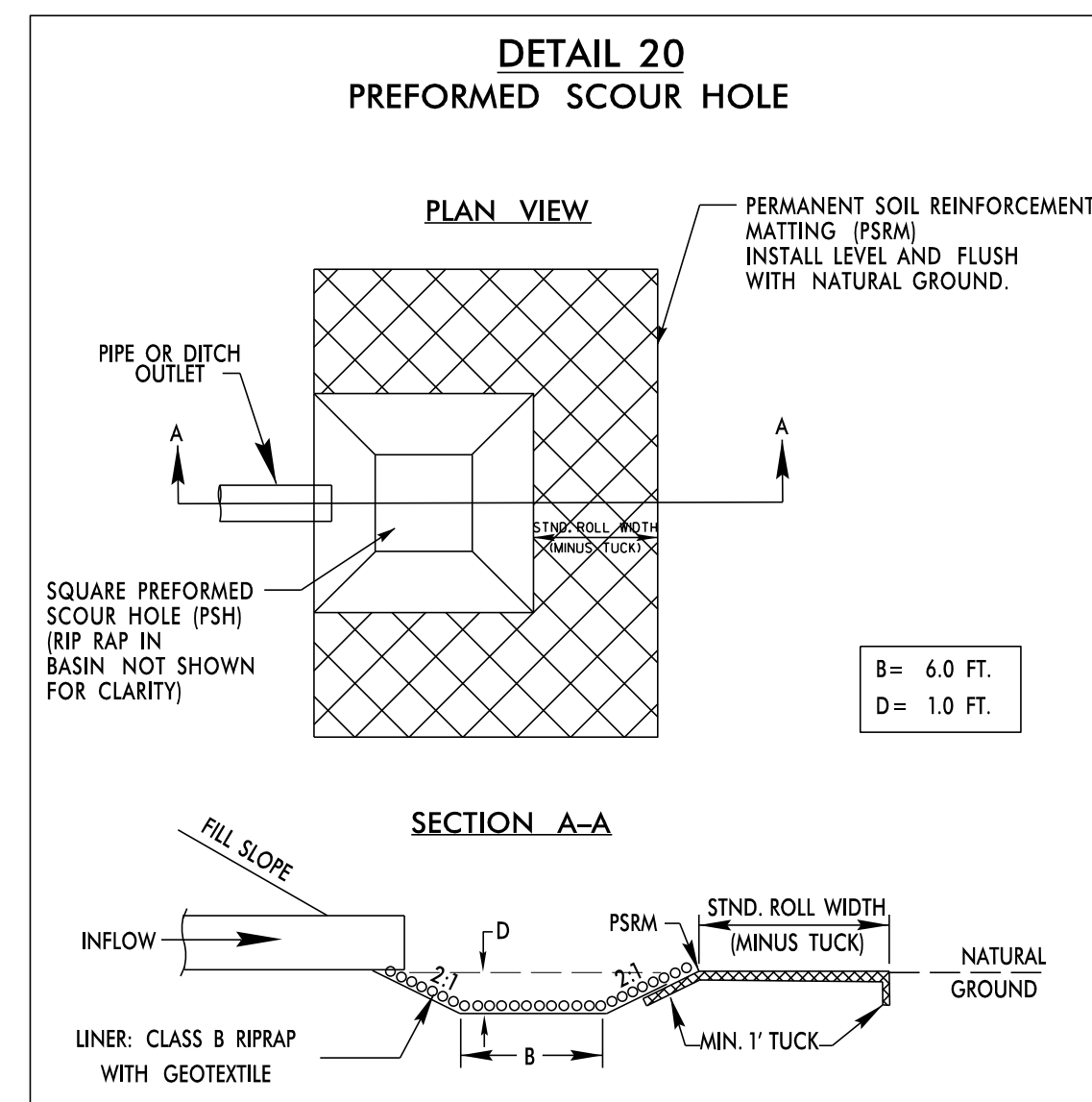


-L- STA. 47+23 LT

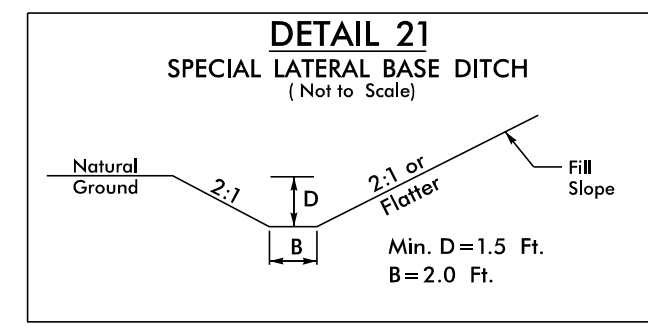


Min. D = 1.0 FT.
 Max. d = 1.0 FT.
 B = 2.0 FT.
 Type of Liner = CLASS B RIP RAP

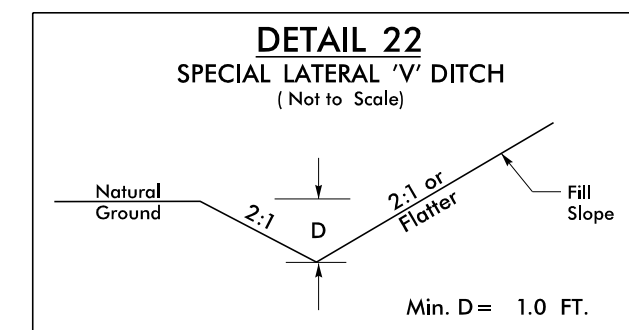
-L- STA. 35+00 TO 35+29 RT (SLOPE=0.047 FT/FT)



Min. D = 1.0 FT.
 -L- STA. 9+25 LT
 -L- STA. 21+00 LT

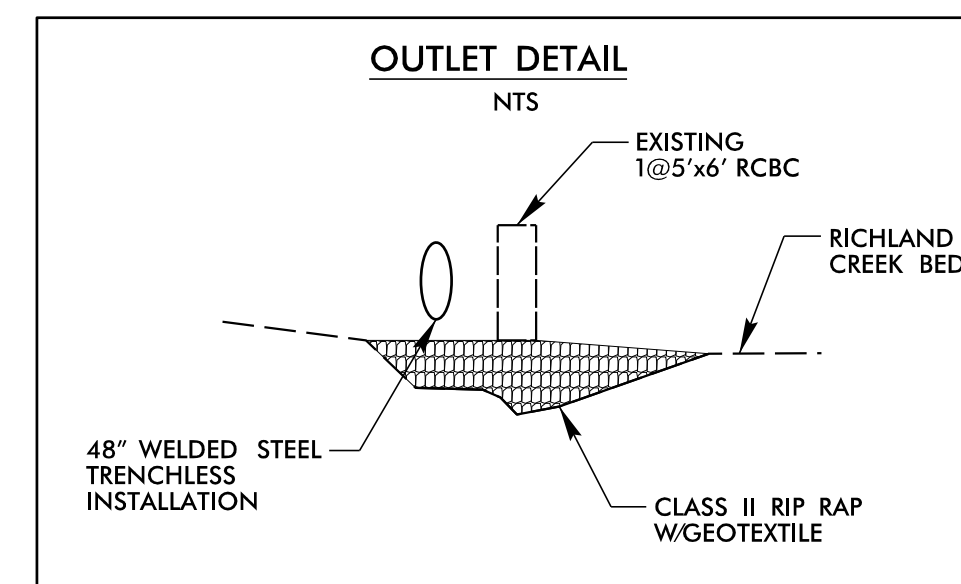
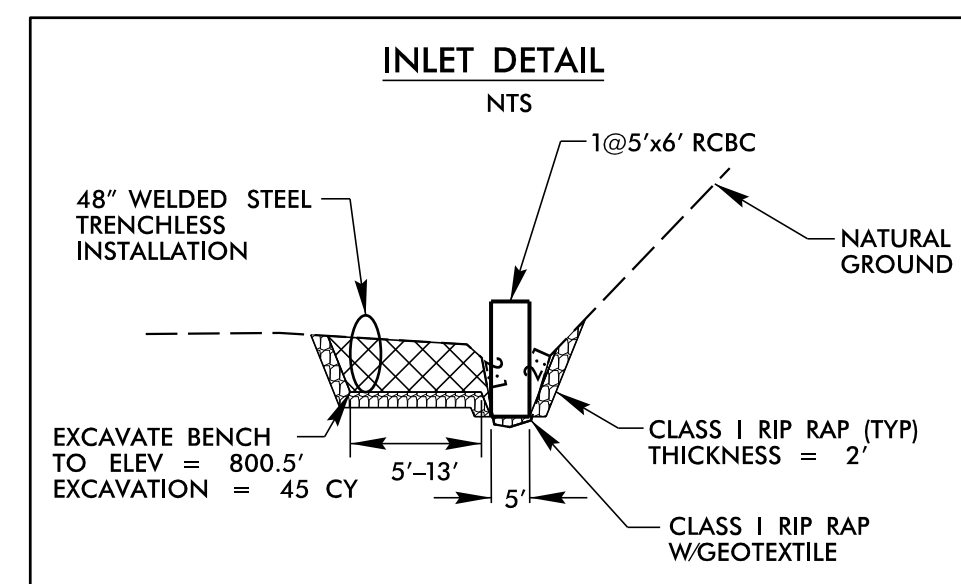


Min. D = 1.5 Ft.
 B = 2.0 Ft.



Min. D = 1.0 FT.
 -DET- STA. 13+04 TO 14+54 LT

INLET & OUTLET DETAIL FOR 1@5'x6' RCBC EXTENSION
 CL STA 13+15.41 -L-



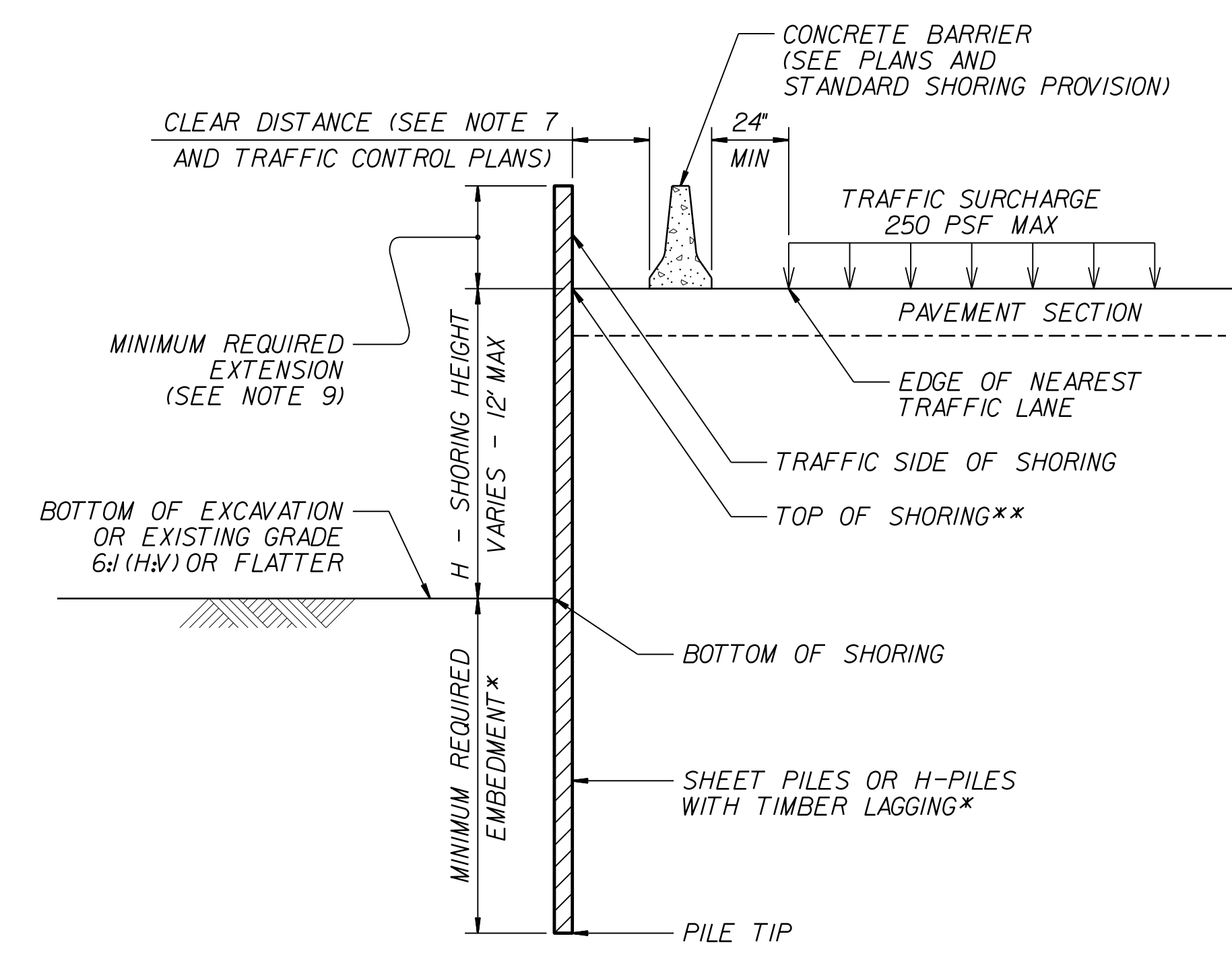
GROUNDWATER CONDITION (SEE NOTE 6)	H SHORING HEIGHT (FT)	SLOPE OR SURCHARGE CASE WITH NO TRAFFIC IMPACT					SURCHARGE CASE WITH TRAFFIC IMPACT				
		SHEET PILES		H-PILES WITH TIMBER LAGGING			SHEET PILES		H-PILES WITH TIMBER LAGGING		
		MINIMUM REQUIRED EMBEDMENT (FT)	MINIMUM REQUIRED SECTION MODULUS (IN ³ /FT)	MINIMUM REQUIRED EMBEDMENT* (FT) (SEE NOTE 10)			MINIMUM REQUIRED EMBEDMENT (FT)	MINIMUM REQUIRED SECTION MODULUS (IN ³ /FT)	MINIMUM REQUIRED EMBEDMENT* (FT) (SEE NOTE 10)		
				HP 10x42	HP 12x53	HP 14x73			HP 10x42	HP 12x53	HP 14x73
GROUNDWATER ELEVATION BETWEEN BOTTOM OF SHORING AND PILE TIP	< 6	11.5	4.5	11.5	11.5	11.5	16.0	12.0	13.0	13.0	13.0
	7	13.0	7.0	13.0	13.0	13.0	17.0	14.5	14.5	14.5	14.5
	8	15.0	10.0	--	15.0	15.0	18.0	17.0	--	15.5	15.5
	9	17.0	14.0	--	17.0	17.0	19.0	20.0	--	17.0	17.0
	10	18.5	19.5	--	--	18.5	20.0	23.5	--	--	18.5
	11	20.5	26.0	--	--	--	21.0	28.0	--	--	20.0
12	22.5	33.0	--	--	--	22.0	33.0	--	--	21.5	
GROUNDWATER ELEVATION BELOW PILE TIP	< 6	7.5	3.0	8.0	8.0	8.0	11.0	10.0	9.5	9.5	9.5
	7	8.5	4.5	9.5	9.5	9.5	12.0	12.0	10.5	10.5	10.5
	8	10.0	6.5	10.5	10.5	10.5	12.5	14.0	11.5	11.5	11.5
	9	11.0	9.5	--	12.0	12.0	13.5	16.5	--	12.5	12.5
	10	12.5	13.0	--	--	13.5	14.0	19.5	--	13.5	13.5
	11	13.5	17.0	--	--	14.5	15.0	22.5	--	--	14.5
12	15.0	21.5	--	--	16.0	16.0	25.5	--	--	15.5	

MINIMUM REQUIRED EMBEDMENT AND SECTION MODULUS

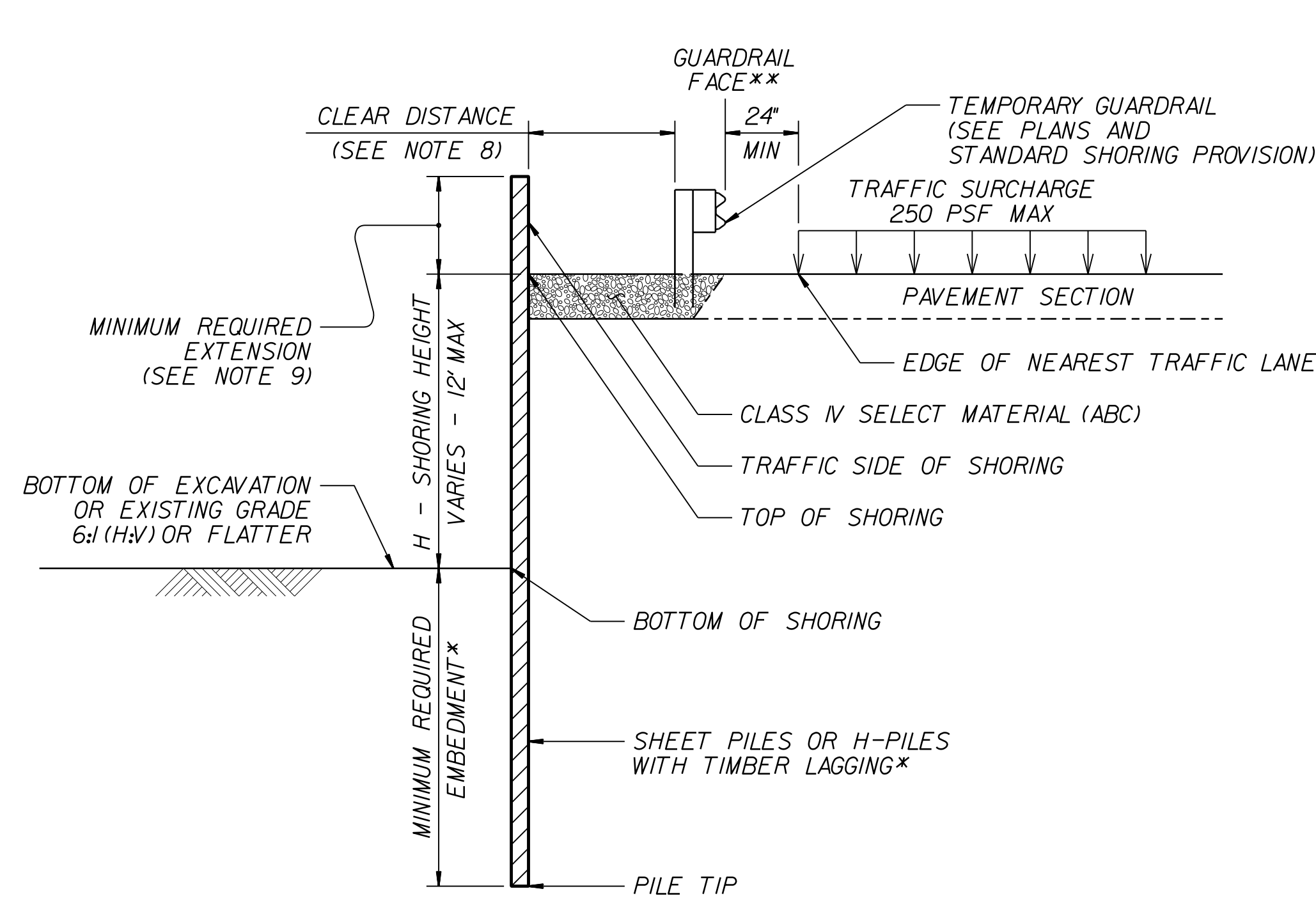
*DO NOT USE H-PILES WITH TIMBER LAGGING FOR GROUNDWATER CONDITION, SHORING HEIGHT AND H-PILE SIZE SHOWN IF MINIMUM REQUIRED EMBEDMENT IS "--".

NOTES:

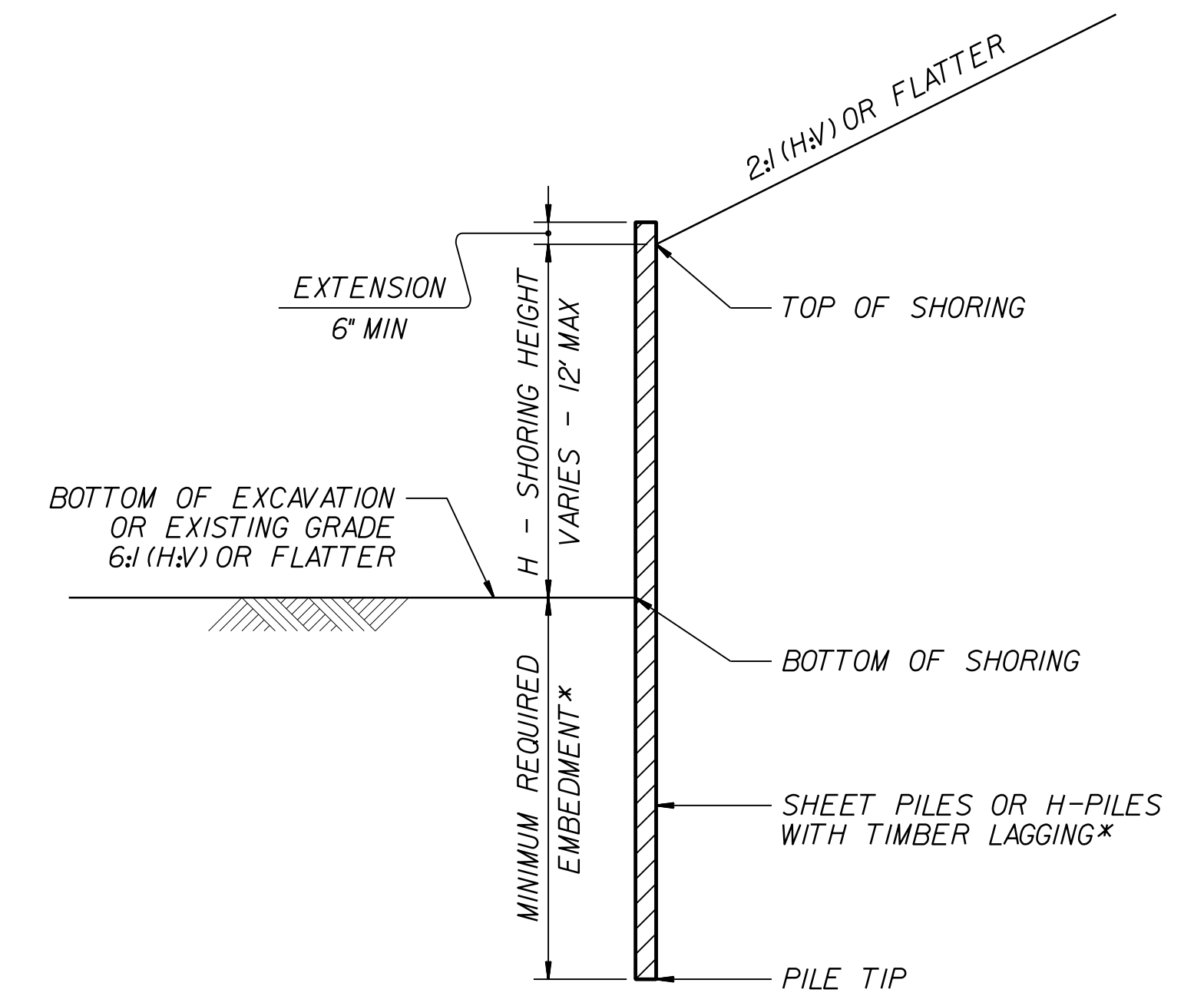
- AT THE CONTRACTOR'S OPTION, USE STANDARD TEMPORARY SHORING AS NOTED IN THE PLANS.
- FOR STANDARD TEMPORARY SHORING, SEE STANDARD SHORING PROVISION.
- STANDARD TEMPORARY SHORING IS BASED ON THE FOLLOWING IN-SITU ASSUMED SOIL PARAMETERS:
UNIT WEIGHT, $\gamma = 120$ PCF
FRICTION ANGLE, $\phi = 30$ DEGREES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



CONCRETE BARRIER
**TOP OF SHORING =
EDGE OF PAVEMENT

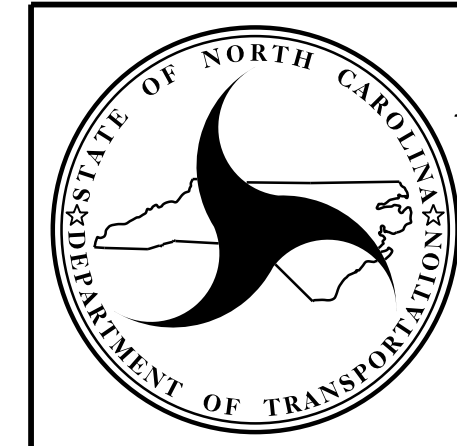


TEMPORARY GUARDRAIL
**GUARDRAIL FACE =
EDGE OF PAVEMENT



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

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

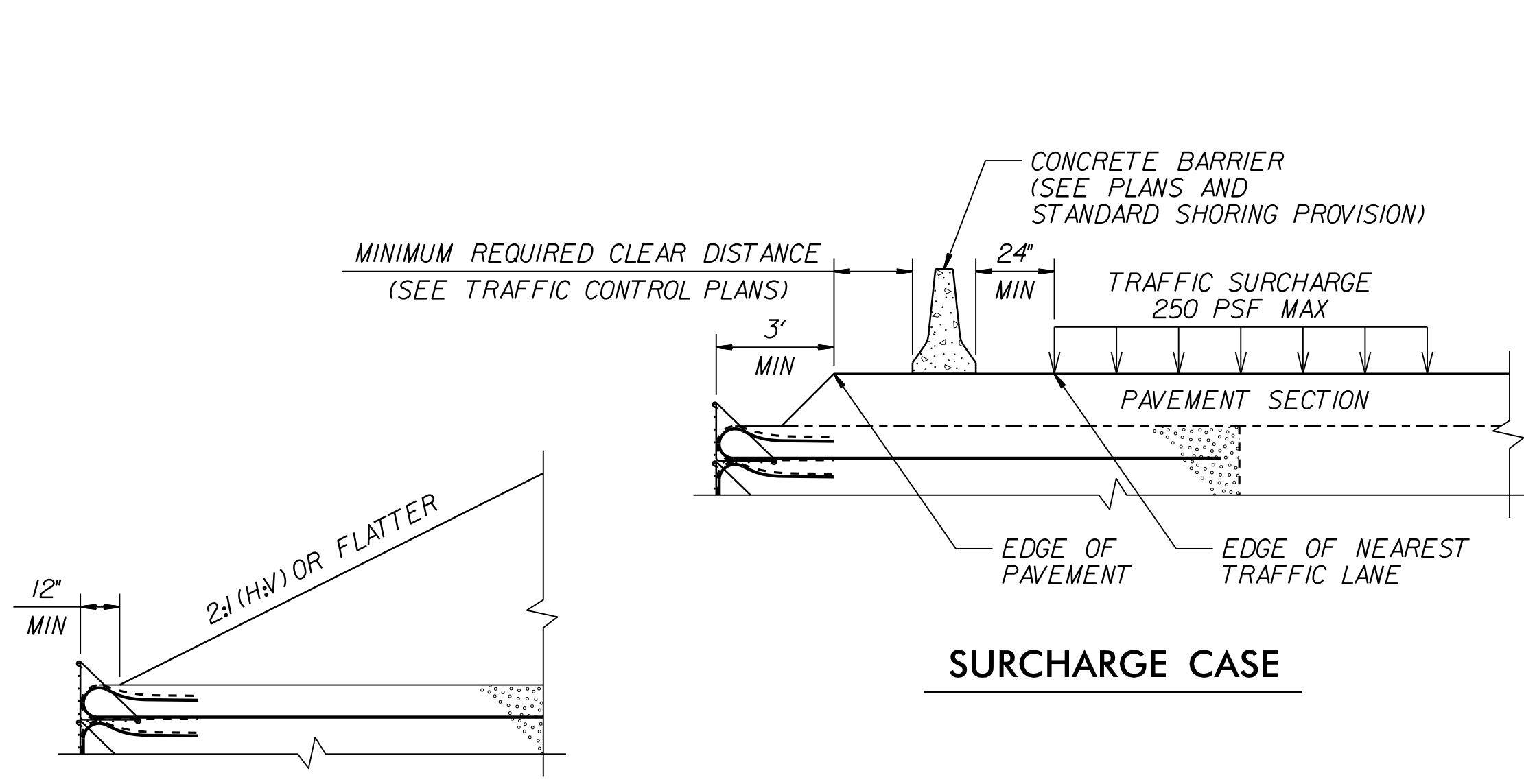


NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

**GEOTECHNICAL
ENGINEERING UNIT**

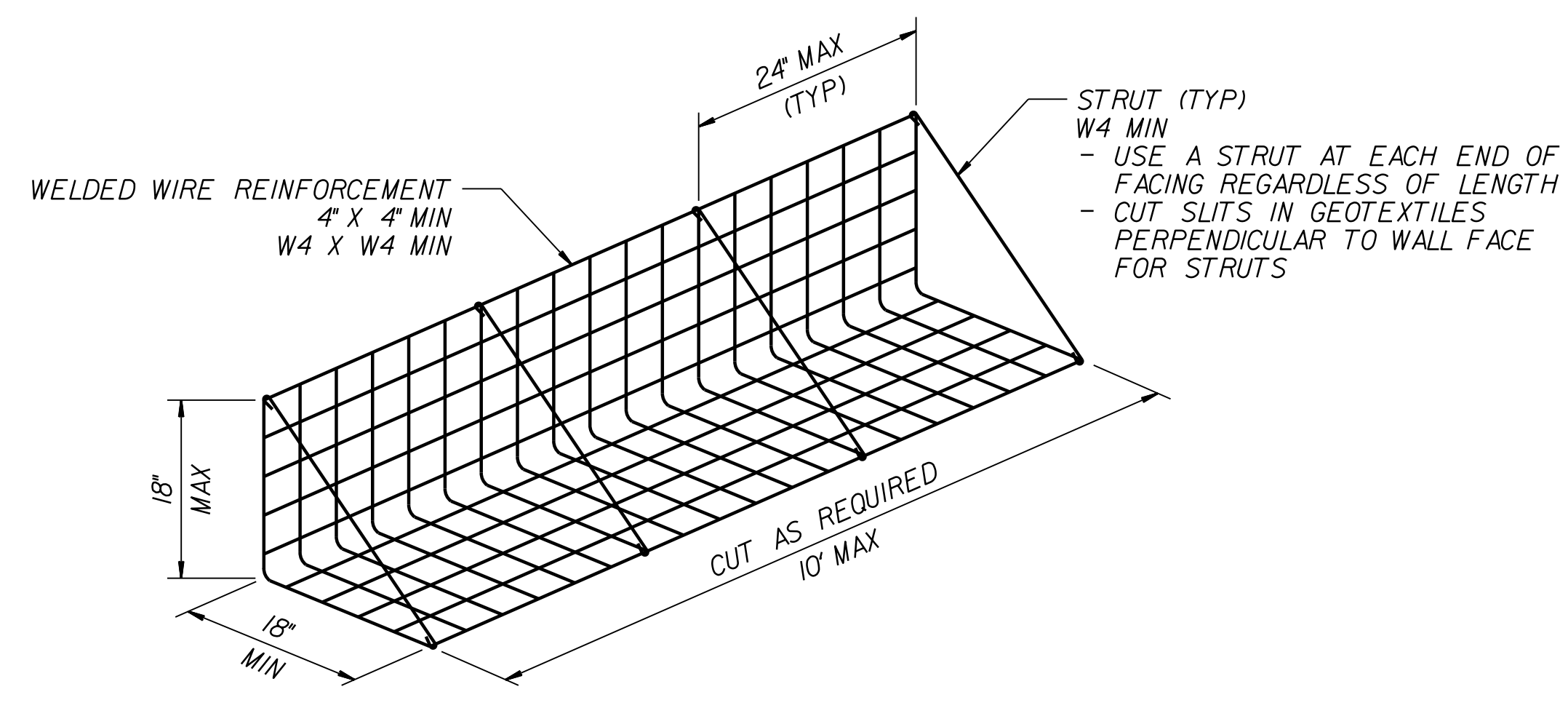
STANDARD DETAIL NO. 1801.01

STANDARD
TEMPORARY SHORING

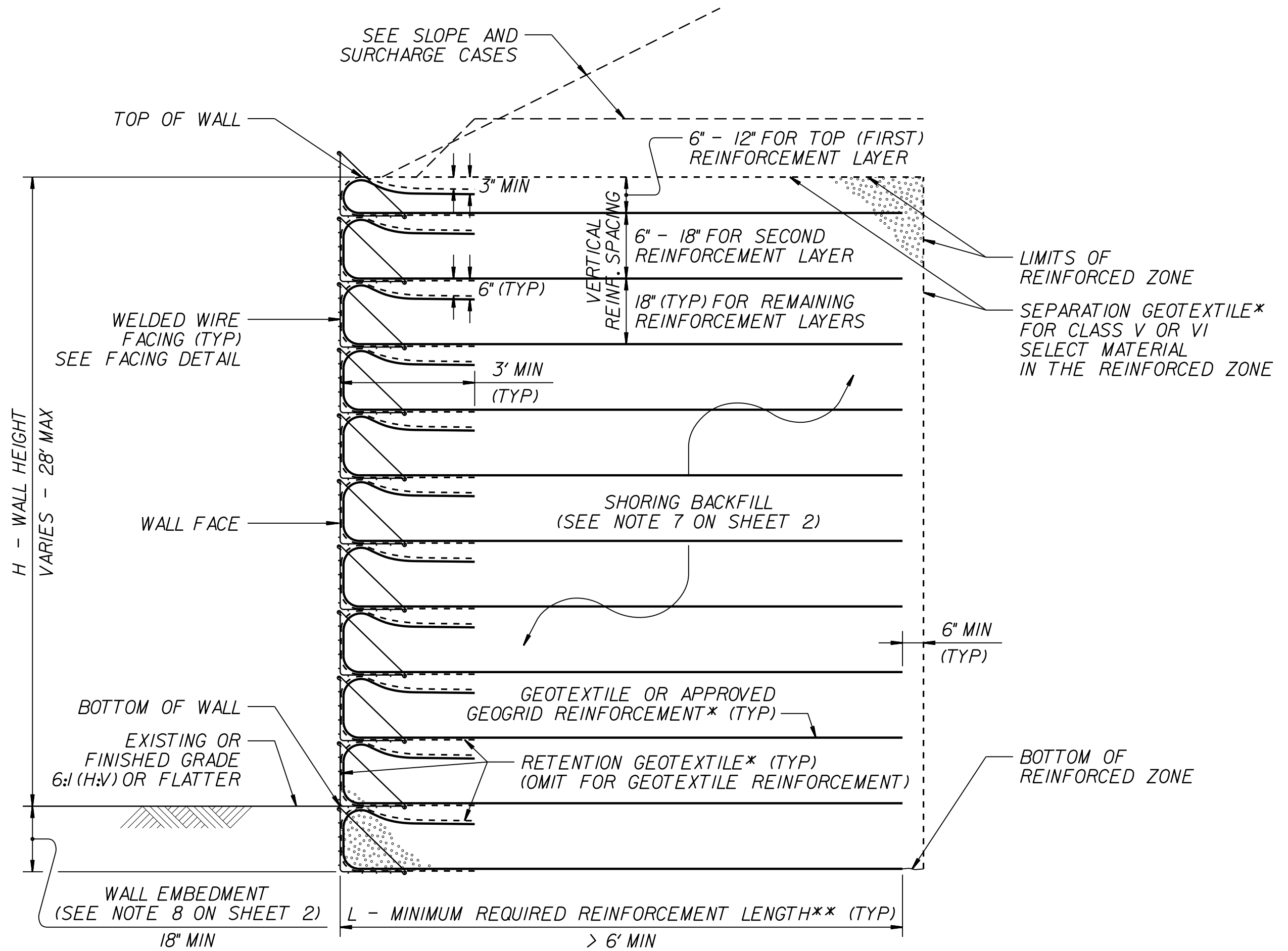


SLOPE CASE

SURCHARGE CASE

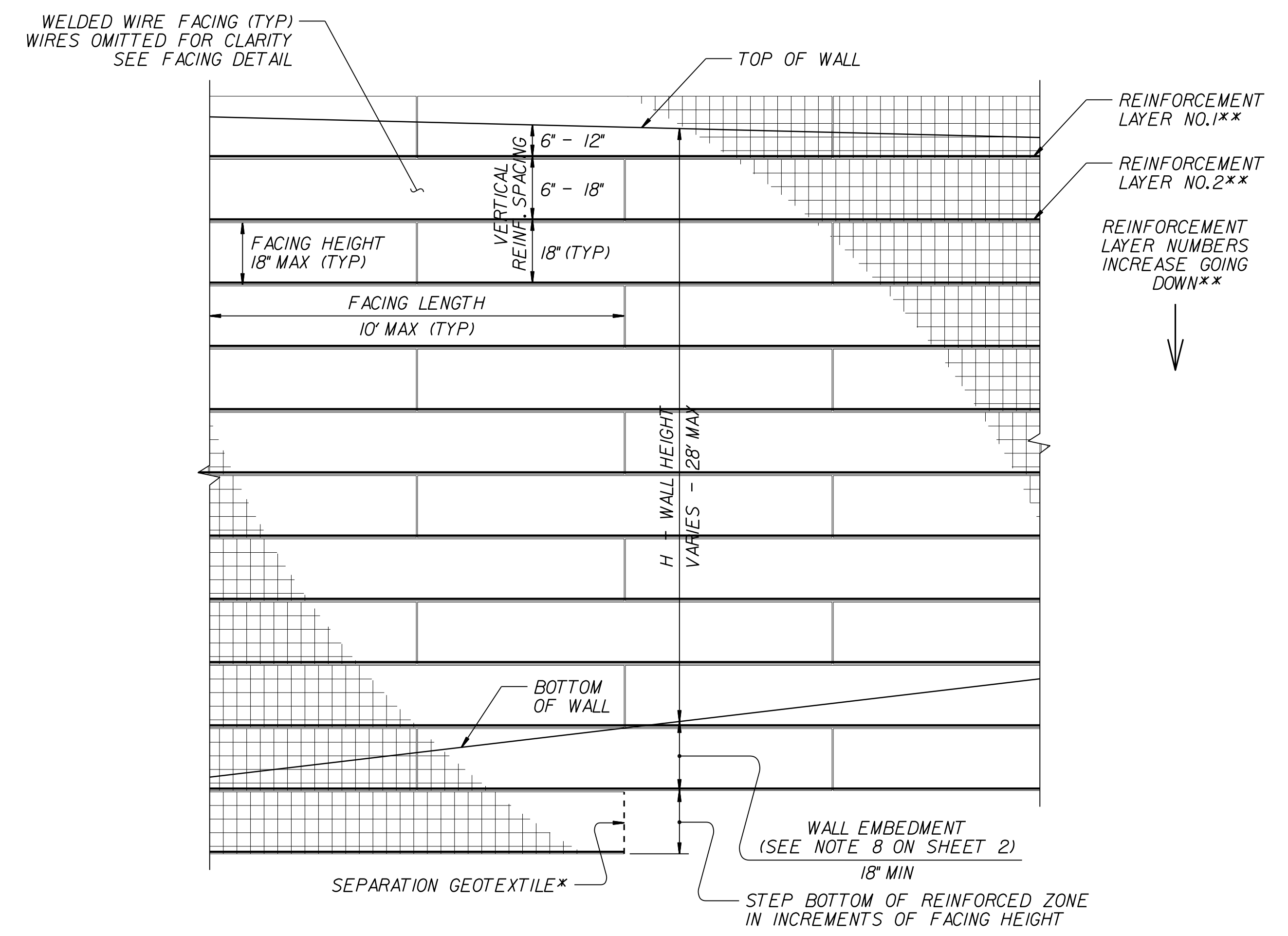


FACING DETAIL



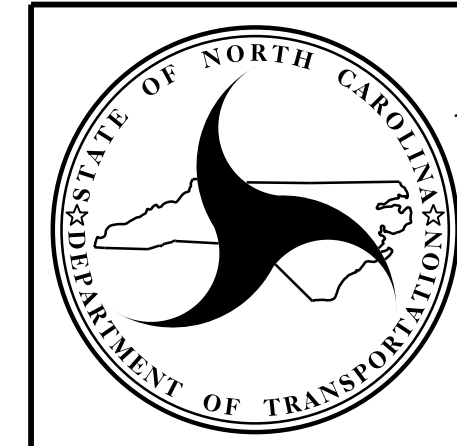
STANDARD TEMPORARY WALL

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



STANDARD TEMPORARY WALL – PARTIAL ELEVATION

*SEE GEOSYNTHETIC PLACEMENT DETAILS ON SHEET 2.
 **SEE REINFORCEMENT TABLES ON SHEET 3.

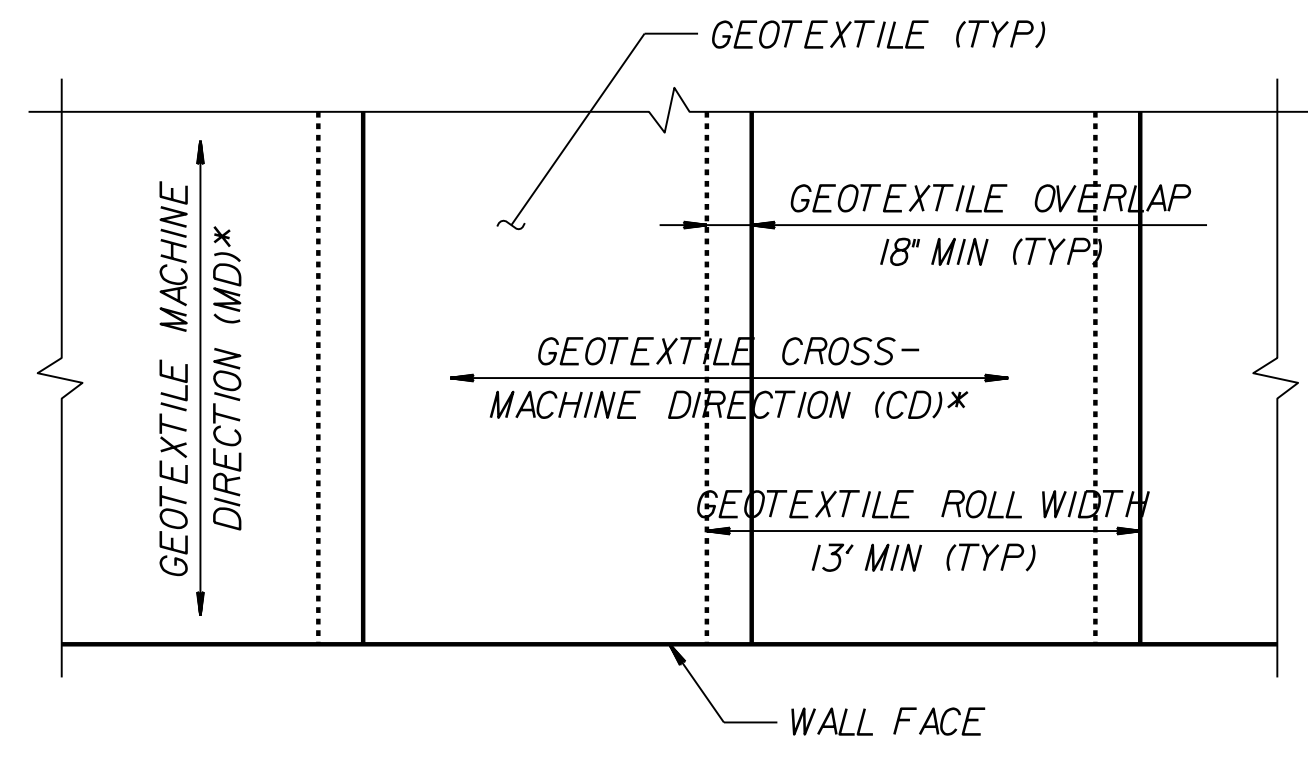


NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 DIVISION OF HIGHWAYS

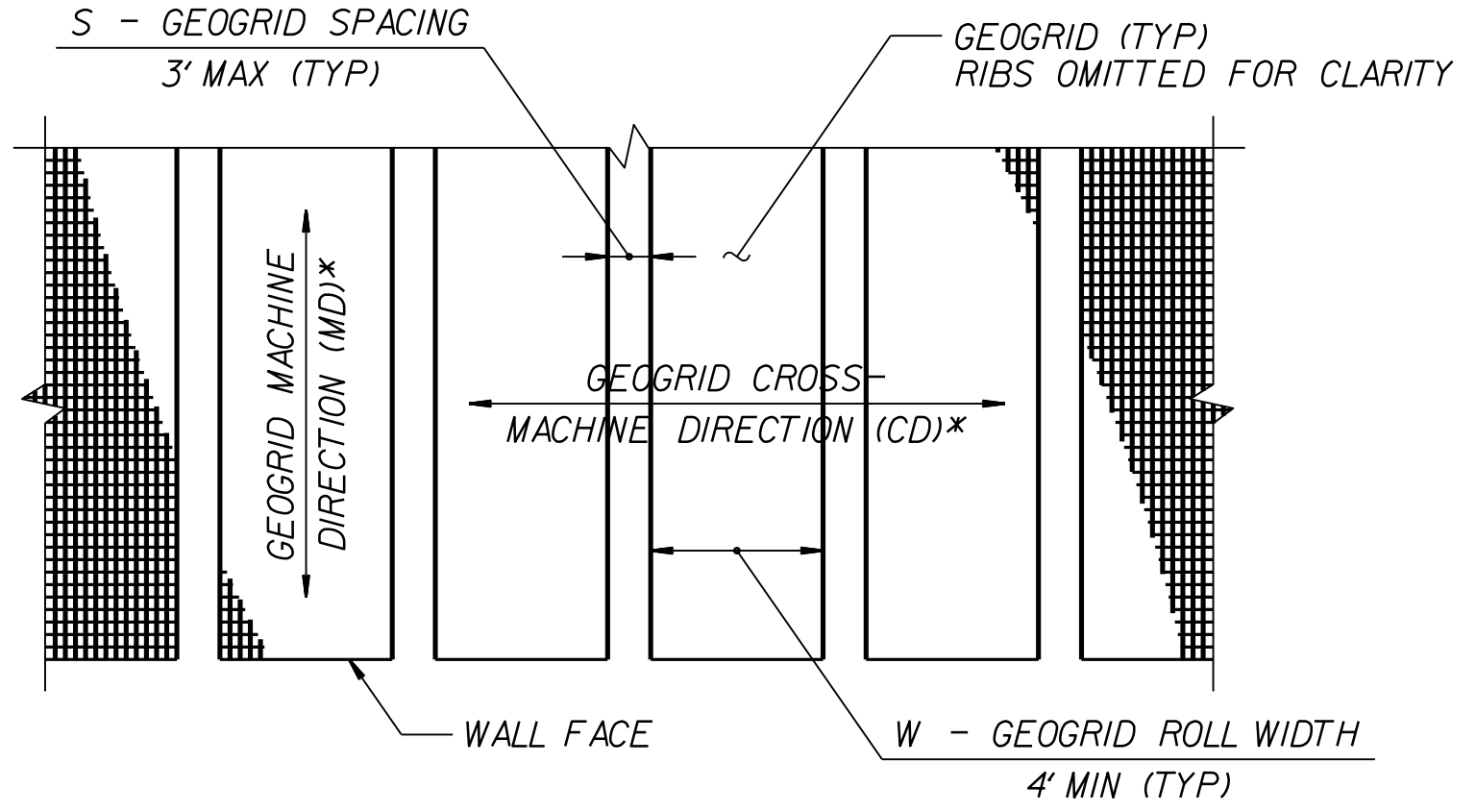
**GEOTECHNICAL
 ENGINEERING UNIT**

STANDARD DETAIL NO. 1801.02

STANDARD
 TEMPORARY WALL
 SHEET 1 OF 3

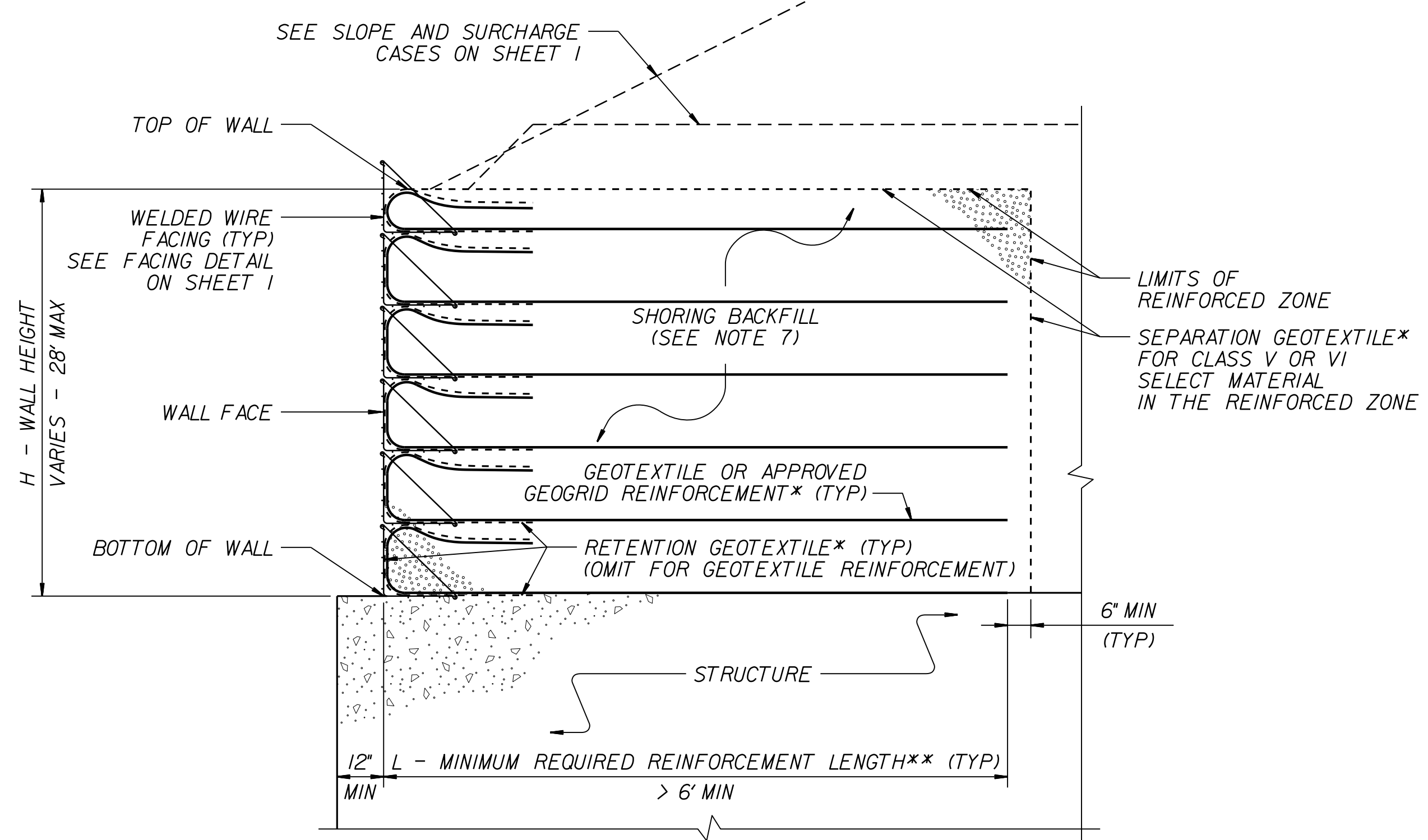


GEOTEXTILE PLACEMENT
(100% COVERAGE MIN FOR GEOTEXTILE REINFORCEMENT)



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

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




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

NOTES:

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

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

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

PROJECT REFERENCE NO. U-5896	SHEET NO. 2G-4
 GEOTECHNICAL ENGINEER ENGINEER	GEOTECHNICAL ENGINEER ENGINEER
DocuSigned by: Scott A. Hidden 11/5/2021 <small>FTBOCABE06C4D3 SIGNATURE DATE</small>	<small>SIGNATURE DATE</small>
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

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

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

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

*BASED ON VERTICAL REINFORCEMENT SPACING SHOWN ON SHEET 1.

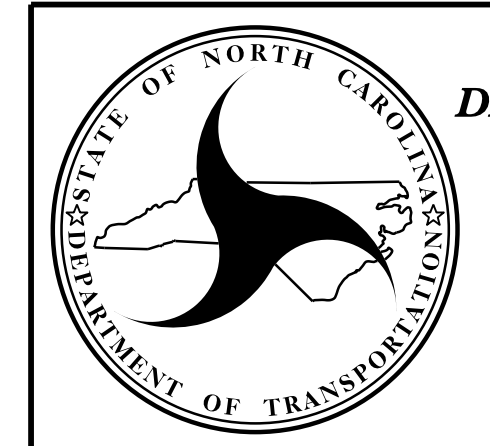
REINFORCEMENT LAYER NUMBER*	SHORING BACKFILL TYPE IN THE REINFORCED ZONE (SEE NOTE 7 ON SHEET 2)				
	SLOPE CASE		SURCHARGE CASE		
	CLASS II, TYPE I OR CLASS III SELECT MATERIAL	CLASS V SELECT MATERIAL	A-2-4 SOIL	CLASS II, TYPE I OR CLASS III SELECT MATERIAL	CLASS V SELECT MATERIAL
1	2400	2400	2400	2400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

GEOTEXTILE REINFORCEMENT
ULTIMATE TENSILE STRENGTH (LB/FT)

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

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

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



NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

**GEOTECHNICAL
ENGINEERING UNIT**

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

GUARDRAIL SUMMARY

SURVEY LINE	BEGIN STATION	END STATION	LOCATION	LENGTH			WARRANT POINT		"N" DIST. FROM E.O.L	TOTAL SHOULDER WIDTH	FLARE LENGTH		W		ANCHORS				IMPACT ATTENUATOR TYPE 350		REMARKS		
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	GREU, TL-3	TYPE III	CAT-1	B-77	NO.	PERMITTED			
																				G		NG	
-L-	9+25.00	13+81.25	RT	456.25					12'	15'					1		1						
-L-	17+83.68	23+00.30	LT	516.625					12'	15'							1	1					
-L-	18+75.00	23+03.70	MED/LT	428.75					4'	6'								1					
-L-	18+75.00	23+05.04	MED/RT	430.125					4'	6'								1					
-L-	20+10.56	23+08.43	RT	297.875					12'	15'					1			1					
-L-	24+25.44	26+29.57	RT	204.125					12'	15'							1	1					
-L-	24+17.30	27+15.18	LT	297.875					12'	15'					1			1					
-L-	24+20.70	28+60.00	MED/LT	429.375					4'	6'								1					
-L-	24+22.04	28+60.00	MED/RT	428.00					4'	6'								1					
-L-	41+25.00	42+00.00	MED/LT	75.00					4'	6'													
-L-	41+25.00	42+00.00	MED/RT	75.00					4'	6'													
-L-	35+45.00	37+13.75	LT	168.75											1		1						
N/A	SEE DETAIL SHEET 2B-10			218.750											1		1						
N/A	SEE DETAIL SHEET 2B-10			218.750													1						
-L-	45+85.00	47+41.25	LT	156.250											1		1						
-L-	10+75.00	18+75.00	MED			800.00			4'	6'													
-L-	28+60.00	41+25.00	MED			1262.50			4'	6'													
-RPB-	13+00.74	13+69.49	LT	68.75					12'	15'					1	1							
SUBTOTAL				4470.25	0.00	2062.50																	
LESS ANCHOR DEDUCTIONS																							
CAT-1	7	X	6.25	43.75																			
GREU, TL-3	7	X	50.00	350.00																			
TYPE III	1	X	18.75	18.75																			
B-77	8	X	22.875	183.00																			
10 ADDITIONAL GUARDRAIL POSTS																							
TOTAL				3874.75	0.00	2062.50									7	1	7	8					
SAY				3875		2075																	

TEMPORARY GUARDRAIL SUMMARY

SURVEY LINE	BEGIN STATION	END STATION	LOCATION	LENGTH			WARRANT POINT		"N" DIST. FROM E.O.L	TOTAL SHOULDER WIDTH	FLARE LENGTH		W		ANCHORS				IMPACT ATTENUATOR TYPE 350		REMARKS		
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	GREU, TL-3	TYPE III	CAT-1	B-77	NO.	PERMITTED			
																				G		NG	
-DET-	12+70.26	16+01.51	RT	331.25			14+04.17		4'	6'					1	1							
-DET-	13+29.74	15+98.49	LT	268.75			14+54.17		4'	6'					1	1							
-DET-	17+51.51	19+39.01	RT	187.50				19+04.18	4'	6'						1	1						
-DET-	17+48.49	18+85.99	LT	137.50				18+54.18	4'	6'						1	1						
DET-XOVER-	13+18.96	17+93.96	RT	475.00			17+93.96		4'	6'						1	1						
DET-XOVER-	19+58.75	23+27.50	RT	368.75				19+58.75	4'	6'					1	1							
PER TMP PLANS																							
SUBTOTAL				1768.75																			
LESS ANCHOR DEDUCTIONS																							
CAT-1	3	X	6.25	18.75																			
GREU, TL-3	3	X	50	150.00																			
TYPE III	6	X	18.75	112.50																			
5 ADDITIONAL GUARDRAIL POSTS																							
TOTAL				1487.50											3	6	3	6					
SAY				1500.00																			

SUMMARY OF EXISTING GUARDRAIL REMOVAL

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	LENGTH
-L-	10+75.00	22+80.00	CL	1205.00
-L-	24+47.00	37+51.00	CL	1304.00
-L-	37+51.00	42+00.00	LT	449.00
-L-	37+51.00	42+00.00	RT	449.00
-L-	17+96.00	22+91.00	LT	497.00
-L-	24+35.00	32+22.00	LT	819.00
TOTAL				4723.00
SAY				4775

DIVISION OF HIGHWAYS
 STATE OF NORTH CAROLINA

SUMMARY OF EARTHWORK
 IN CUBIC YARDS

Approximate quantities only. Shoulder borrow, fine grading, clearing and grubbing, breaking of existing pavement and removal of existing pavement will be paid for at the lump sum price for "Grading".

LOCATION	UNCLASSIFIED EXCAVATION	UNDERCUT	EMBT + %	BORROW	WASTE
PHASE I					
-L- LT 7+70.00 TO 15+00.00	76		364	288	
-L- LT 32+08.00 TO 41+25.00	852		557		295
-L- RT 35+47.00 TO 44+25.00	5,314		401		4,913
-L- MED 34+00.00 TO 44+25.00	184		26		158
-RPA- 16+50.00 TO 23+68.33	34,764		34		34,730
-RPB- 16+00.00 TO 20+98.86	994		2,262	1,268	
**RPC- 16+50.00 TO 20+95.00	16,141	505	606		16,646
-RPD- 16+00.00 TO 25+75.57	30,915	409	491		31,324
-Y- RT 12+88.00 TO 14+24.00	169		6		163
-RPB- (-DET_RPB-) 15+98.28 (15+96.77) TO 21+13.31 (21+13.31)	453		1,517	1,064	
-DR1- 10+80.00 TO 14+25.00	177		115		62
SUBTOTAL	90,039	914	6,379	2,620	88,291
PHASE II					
-L- RT 6+40.00 TO 15+00.00	1,030		1,150	120	
-L- LT 15+00.00 TO 17+78.00	623		144		479
-RPC- 16+00.00 TO 16+50.00	1,201				1,201
-RPC- 20+95.00 TO 23+72.96	7,520				7,520
-Y- RT 10+55.00 TO 12+88.00	41		55	14	
-Y- RT 14+24.00 TO 16+15.00	187		12		175
-Y- RT 18+41.00 TO 25+85.00	759		37		722
-Y1- 13+90.00 TO 15+16.74	160		16		144
-L- (-DET-) 14+05.81 (7+06.47) TO 22+95.82 (16+00.00)	332		6,953	6,621	
-L- (-DET-) 24+25.82 (17+50.00) TO 35+57.20 (28+64.30)	2,015		6,623	4,608	
-L- (-DET_XOVER-) 15+14.97 (10+24.86) TO 22+54.24 (17+65.00)	125		85		40
-L- (-DET_XOVER-) 24+69.24 (19+80.00) TO 33+29.55 (28+41.08)	115		64		51
SUBTOTAL	14,108	0	15,139	11,363	10,332
PHASE III					
-L- LT 17+78.00 TO 23+05.37	96		7,289	7,193	
-L- LT 24+21.37 TO 32+08.00	597		8,821	8,224	
-Y- LT 12+71.00 TO 13+08.00			48	48	
SUBTOTAL	693	0	16,158	15,465	0
PHASE IV					
-L- RT 16+27.00 TO 23+04.37	1,737		5,318	3,581	
-L- RT 24+21.37 TO 31+82.00	295		4,544	4,249	
-L- MED 10+75.00 TO 16+27.00	23		19		4
-L- MED 31+82.00 TO 34+00.00	3		5	2	
-Y- RT 16+15.00 TO 18+41.00	200		1,002	802	
-Y- RT 10+55.00 TO 12+71.00	34		32		2
SUBTOTAL	2,292	0	10,920	8,634	6
PHASE V					
-L- RT 15+00.00 TO 16+27.00	1,861		19		1,842
-L- RT 31+82.00 TO 35+47.00	1,299		558		741
-Y- LT 13+08.00 TO 25+85.00	1,444		3,368	1,924	
-L- (-DET_XOVER- REMOVAL) 15+14.97 (10+24.86) TO 22+54.24 (17+65.00)	71		150	79	
-L- (-DET_XOVER- REMOVAL) 24+69.24 (19+80.00) TO 33+29.55 (28+41.08)	53		138	85	
SUBTOTAL	4,728	0	4,233	2,088	2,583
PROJECT SUBTOTAL	111,860	914	52,829	40,170	101,212
ADDITIONAL UNDERCUT		850	1,020	1,020	850
SUBGRADE STABILITY UNDERCUT		3,721	4,465	4,465	3,721
UNCLASSIFIED EXCAVATION - UNSUITABLE WASTE	9,200				9,200
WASTE IN LIEU OF BORROW				-45,655	-45,655
LOSS DUE TO CLEARING & GRUBBING	-250				-250
PROJECT TOTAL	120,810	5,485	58,314	0	69,078
5% TO REPLACE BORROW					
GRAND TOTAL	120,810	5,485	58,314	0	69,078
SAY	133,000	7,000		0	

NOTE: EARTHWORK QUANTITIES ARE CALCULATED BY THE ROADWAY DESIGNER. THESE EARTHWORK QUANTITIES ARE BASED IN PART ON SUBSURFACE DATA PROVIDED BY THE GEOTECHNICAL ENGINEERING UNIT.
 **UNCLASSIFIED EXCAVATION - ACCEPTABLE, BUT NOT TO BE USED IN TOP 3 FT OF EMBANKMENT OR BACKFILL -RPC- 16+75 TO 20+25 (10,000 CY)

EST. SHOULDER BORROW - 1,270 CY
 EST. DDE - 10,877 CY
 EST. SHALLOW UNDERCUT = 650 CY
 EST. PAVEMENT STRUCTURE VOLUME = 49,320 CY

28081

COMPUTED BY: VHB DATE: 12/6/2021
CHECKED BY: VHB DATE: 12/6/2021

PROJECT NO. U-5896 SHEET NO. 3D-1

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

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

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

Table with multiple columns: LINE & STATION, OFFSET, STRUCTURE NUMBER, TOP ELEVATION, INVERT ELEVATION, MINIMUM REQUIRED SLOPE, Side Drain Pipe (RCP, CSP, CAAP, HDPE, or PVC), DUCTILE IRON PIPE, R. C. PIPE CLASS III, R. C. PIPE CLASS IV, QUANTITIES FOR SEALED DRAINAGE STRUCTURES, QUANTITIES FOR DRAINAGE STRUCTURES, FRAME, GRATES, AND HOOD, CONCRETE TRANSITIONAL SECTION, and REMARKS. Includes a SHEET TOTALS row at the bottom.

ABBREVIATIONS table listing symbols and their corresponding material descriptions: C.A.A. CORRUGATED ALUMINIUM ALLOY, C.B. CATCH BASIN, C.S. CORRUGATED STEEL, D.I. DROP INLET, G.D.I. GRATED DROP INLET, H.D.P.E. HIGH DENSITY POLYETHYLENE, J.B. JUNCTION BOX, M.H. MANHOLE, N.S. NARROW SLOT, P.V.C. POLYVINYL CHLORIDE, R.C. REINFORCED CONCRETE, T.B.D.I. TRAFFIC BEARING DROP INLET, T.B.J.B. TRAFFIC BEARING JUNCTION BOX, W.S. WIDE SLOT, O.E.P. OPEN END PIPE.