

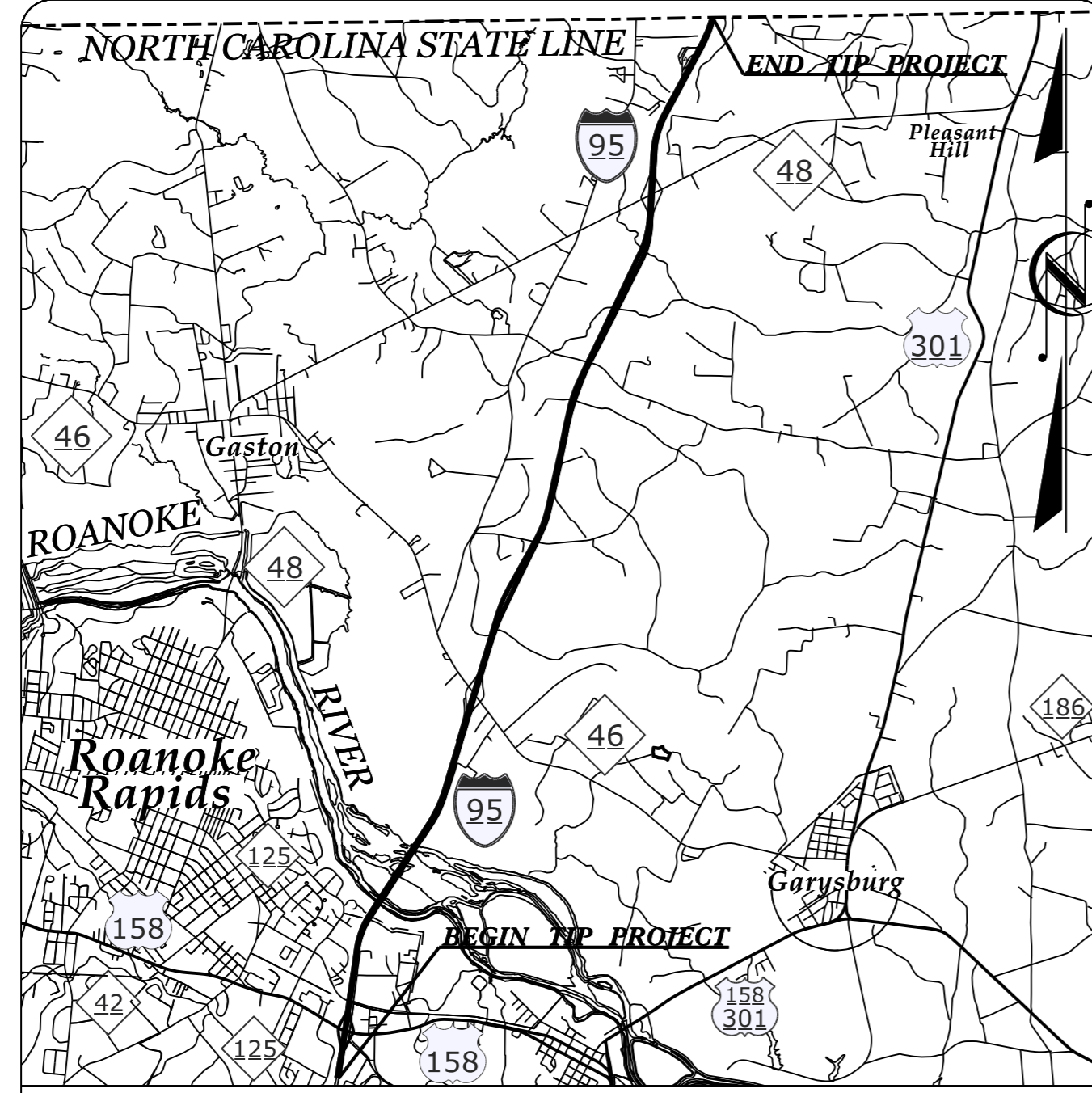
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**The documents contained herein were originally issued
and sealed by the individuals whose names and license
numbers appear on each page, on the dates appearing
with their signature on that page.**

**This file or an individual page
shall not be considered a certified document.**

09/08/99

See Sheet 1-A For Index of Sheets



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

HALIFAX & NORTHAMPTON

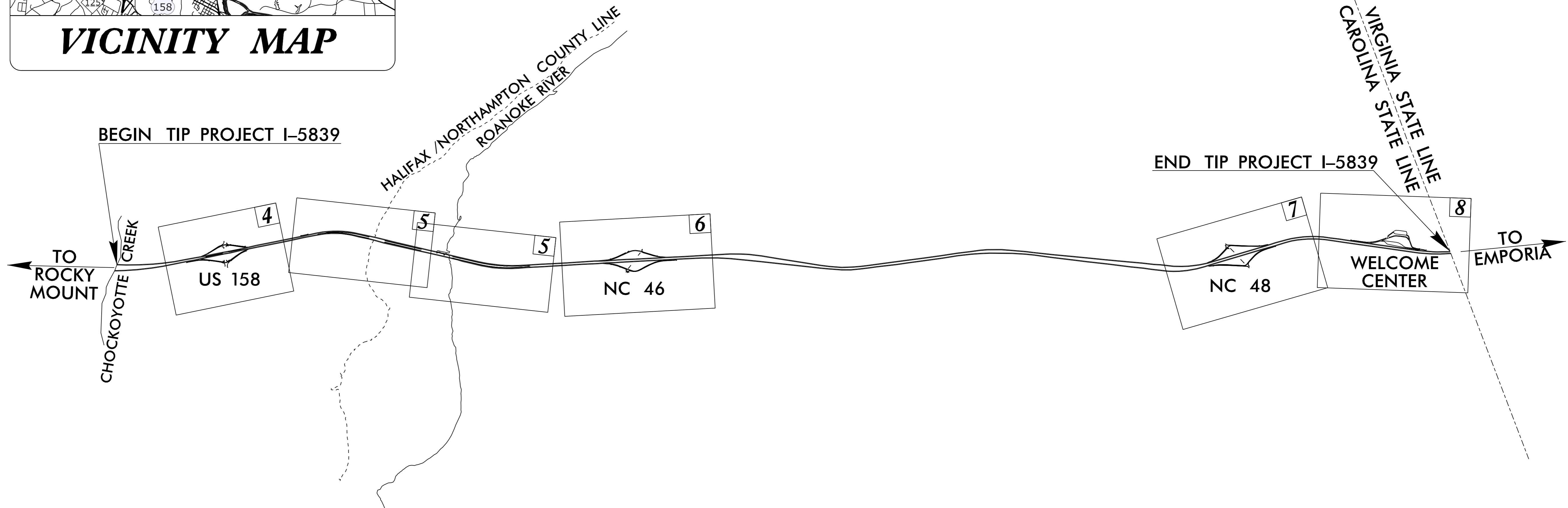
LOCATION: INTERSTATE 95 FROM MILE MARKER 172 (CHOCKOYOTTE CREEK)
TO MILE MARKER 182 (VIRGINIA STATE LINE)

TYPE OF WORK: PAVEMENT AND BRIDGE REHABILITATION

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	I-5839	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
53045.1.1	NHPIM-0095(036)	PE	
53045.3.1	NHPIM-0095(036)	CONSTRUCTION	

TIP PROJECT: I-5839

CONTRACT: C203931



GRAPHIC SCALES
SEE PLANS FOR SCALE

DESIGN DATA
ADT 2017 = 40,000
ADT 2037 = 48,000

STATEWIDE TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT I-5839 = 8.621 MI.
LENGTH STRUCTURE TIP PROJECT I-5839 = 0.319 MI.
TOTAL LENGTH TIP PROJECT I-5839 = 8.940 MI.

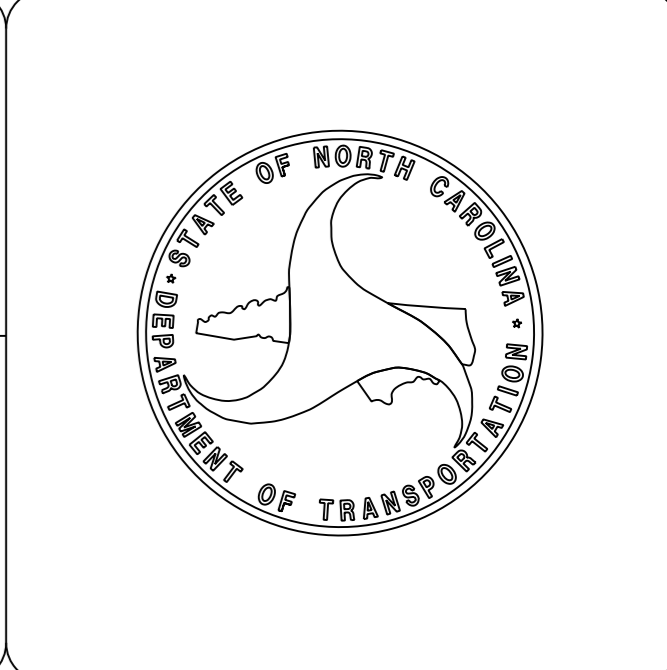
Prepared in the Office of:
DIVISION OF HIGHWAYS
1000 Birch Ridge Dr., Raleigh NC, 27610

2012 STANDARD SPECIFICATIONS	
RIGHT OF WAY DATE: NA	T.M. LITTLE PE PROJECT ENGINEER
LETTING DATE: JULY 18, 2017	W.M. CLARKE PE PROJECT DESIGN ENGINEER

ROADWAY DESIGN ENGINEER

5/26/2017

DocuSigned by:
W. Matthew Clarke
112320076A0F437
SIGNATURE:

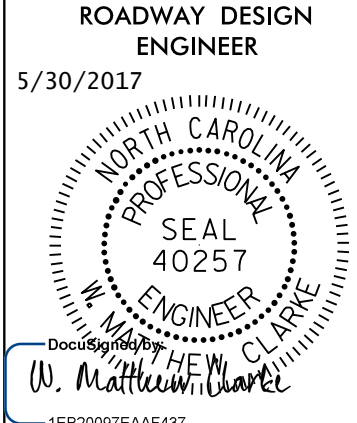


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8/17/09

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO. 1-5839 SHEET NO. 1A



DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

INDEX OF SHEETS

GENERAL NOTES

LIST OF STANDARDS

SHEET NUMBER	SHEET
1	TITLE SHEET
1A	INDEX OF SHEETS, GENERAL NOTES, AND STANDARD DRAWINGS
1B	CONVENTIONAL SYMBOLS
2A-1 THRU 2A-3	PAVEMENT SCHEDULE AND TYPICAL SECTIONS
2A-4 THRU 2A-6	EROSION CONTROL TYPICALS
2C-1 THRU 2C-10	GUARDRAIL DETAILS
3B-1	ROADWAY SUMMARIES
4 THRU 8	PLAN AND PROFILE SHEET
TMP-1 THRU TMP-5	TRAFFIC MANAGEMENT PLANS
SIG-1	SIGNAL PLANS
S-1 THRU SN	STRUCTURE PLANS

GENERAL NOTES:

2012 SPECIFICATIONS
EFFECTIVE: 01-17-2012
REVISED: 10-31-2014

GRADING AND SURFACING OR RESURFACING AND WIDENING:

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

CLEARING:

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

SUPERELEVATION:

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

SHOULDER CONSTRUCTION:

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

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.

SUBSURFACE PLANS:

NO SUBSURFACE PLANS ARE AVAILABLE ON THIS PROJECT. THE CONTRACTOR SHOULD MAKE HIS OWN INVESTIGATION AS TO THE SUBSURFACE CONDITIONS.

ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS.

EFF. 01-17-2012
REV. 10-30-2012

2012 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, 2012 are applicable to this project and by reference hereby are considered a part of these plans:

STD. NO.	TITLE
DIVISION 2 - EARTHWORK	
200.03	Method of Clearing - Method III
225.01	Guide for Grading Subgrade - Interstate and Freeway
225.02	Guide for Grading Subgrade - Secondary and Local
225.03	Deceleration and Acceleration Lanes
225.04	Method of Obtaining Superlevation - Two Lane Pavement
225.05	Method of Obtaining Superlevation - Divided Highways
225.06	Method of Grading Sight Distance at Intersections
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
DIVISION 6 - ASPHALT BASES AND PAVEMENTS	
665.01	Asphalt Shoulders - Milled Rumble Strips
DIVISION 7 - CONCRETE PAVEMENTS AND SHOULDERS	
700.01	Concrete Pavement Joints
700.02	Expansion Joint Layout
700.03	Dowel Assembly
700.04	Concrete Pavement Header Board
DIVISION 8 - INCIDENTALS	
840.00	Concrete Base Pad for Drainage Structures
840.18	Concrete Grated Drop Inlet Type 'B' - 12" thru 36" Pipe
840.22	Frames and Wide Slot Sag Grates
840.25	Anchorage for Frames - Brick or Concrete or Precast
840.27	Brick Grated Drop Inlet Type 'B' - 12" thru 36" Pipe
840.45	Precast Drainage Structure
840.66	Drainage Structure Steps
840.72	Pipe Collar
846.01	Concrete Curb, Gutter and Curb & Gutter
846.04	Drop Inlet Installation in Shoulder Berm Gutter
848.01	Concrete Sidewalk
848.05	Curb Ramp
862.01	Guardrail Placement
862.02	Guardrail Installation
876.01	Rip Rap in Channels
876.02	Guide for Rip Rap at Pipe Outlets
876.04	Drainage Ditches with Class 'B' Rip Rap

CONTRACTOR'S USE ONLY

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

BOUNDARIES AND PROPERTY:

State Line	-----
County Line	-----
Township Line	-----
City Line	-----
Reservation Line	-----
Property Line	-----
Existing Iron Pin	----- ○ EP
Computed Property Corner	----- x
Property Monument	----- □ ECM
Parcel/Sequence Number	----- (23)
Existing Fence Line	----- x-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	----- □
Well	----- W
Small Mine	----- X
Foundation	----- □
Area Outline	----- □
Cemetery	----- †
Building	----- □
School	----- □
Church	----- □
Dam	-----

HYDROLOGY:

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

RAILROADS:

Standard Gauge	-----
RR Signal Milepost	-----
Switch	-----
RR Abandoned	-----
RR Dismantled	-----

Note: Not to Scale

*S.U.E. = Subsurface Utility Engineering

RIGHT OF WAY & PROJECT CONTROL:

Secondary Horiz and Vert Control Point	-----
Primary Horiz Control Point	-----
Primary Horiz and Vert Control Point	-----
Exist Permanent Easement Pin and Cap	-----
New Permanent Easement Pin and Cap	-----
Vertical Benchmark	-----
Existing Right of Way Marker	-----
Existing Right of Way Line	-----
New Right of Way Line	-----
New Right of Way Line with Pin and Cap	-----
New Right of Way Line with Concrete or Granite RW Marker	-----
New Control of Access Line with Concrete CA Marker	-----
Existing Control of Access	-----
New Control of Access	-----
Existing Easement Line	-----
New Temporary Construction Easement	-----
New Temporary Drainage Easement	-----
New Permanent Drainage Easement	-----
New Permanent Drainage / Utility Easement	-----
New Permanent Utility Easement	-----
New Temporary Utility Easement	-----
New Aerial Utility Easement	-----

ROADS AND RELATED FEATURES:

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

VEGETATION:

Single Tree	-----
Single Shrub	-----

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

EXISTING STRUCTURES:

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

UTILITIES:

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

TELEPHONE:

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

WATER:

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

TV:

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

GAS:

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

SANITARY SEWER:

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

MISCELLANEOUS:

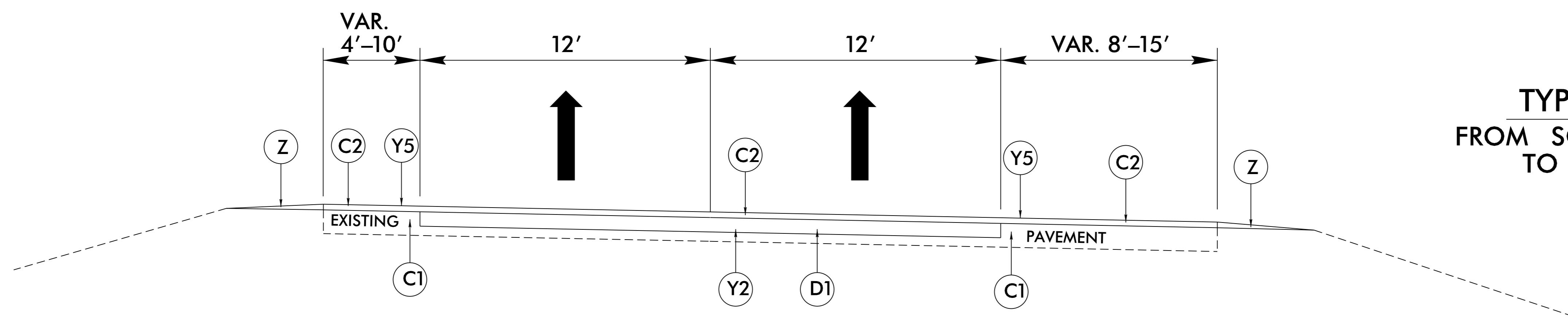
Utility Pole	-----
Utility Pole with Base	-----
Utility Located Object	-----
Utility Traffic Signal Box	-----
Utility Unknown U/G Line LOS B (S.U.E.*)	-----
U/G Tank; Water, Gas, Oil	-----
Underground Storage Tank, Approx. Loc.	-----
A/G Tank; Water, Gas, Oil	-----
Geoenvironmental Boring	-----
U/G Test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

6/2/99

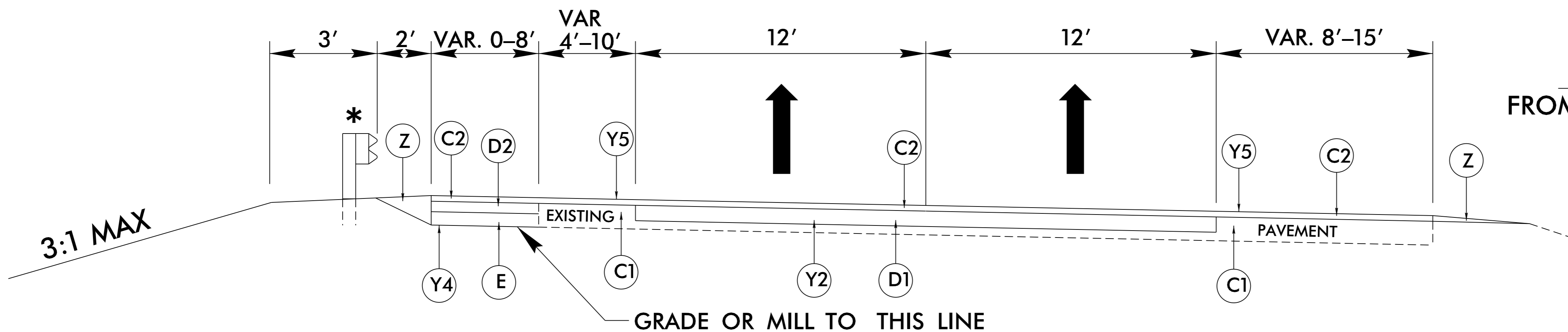
C1	ASPHALT CONCRETE SURFACE COURSE, S4.75A, TO FILL EXISTING RUMBLE STRIPS	R1	SHOULDER BERM GUTTER	Y	SHOULDER CONSTRUCTION
C2	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5D, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.	Y1	MILL ASPHALT 1.5" DEEP	Z	SHOULDER RECONSTRUCTION USING AGGREGATE SHOULDER BORROW AS DIRECTED
C3	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD.	Y2	MILL ASPHALT 2.5" DEEP		
D1	PROP. APPROX. 2½" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0D, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.	Y3	MILL ASPHALT 4" DEEP		
D2	PROP. APPROX. 3½" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0D, AT AN AVERAGE RATE OF 399 LBS. PER SQ. YD.	Y4	MILL ASPHALT 9" DEEP		
E	PROP. APPROX. 5.5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD.	Y5	MILLED RUMBLE STRIPS		

PROJECT REFERENCE NO. 1-5839	SHEET NO. 2A-1
ROADWAY DESIGN ENGINEER	
5/26/2017	
NORTH CAROLINA PROFESSIONAL SEAL 40257	
W. MATTHEW CLARKE	
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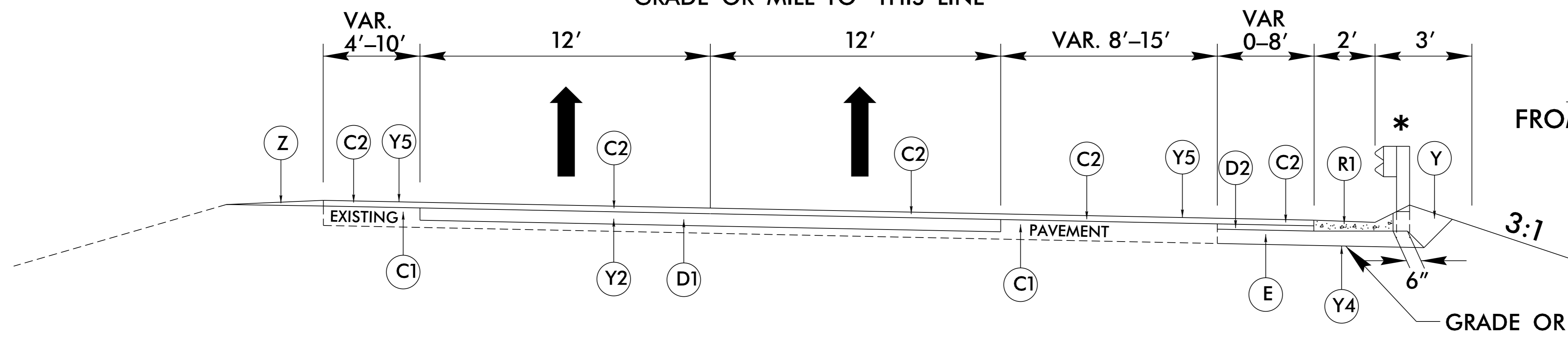
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



TYPICAL SECTION NO. 1
FROM SOUTH OF CHOCKOYOTTE CREEK
TO NORTH OF ROANOKE RIVER
RESURFACING



TYPICAL SECTION NO. 2
FROM SOUTH OF CHOCKOYOTTE CREEK
TO NORTH OF ROANOKE RIVER
WIDENING ON MEDIAN SIDE
* NOTE: REMOVE AND RESET
GUARDRAIL WHERE PRESENT



TYPICAL SECTION NO. 3
FROM SOUTH OF CHOCKOYOTTE CREEK
TO NORTH OF ROANOKE RIVER
WIDENING OUTSIDE SHOULDER
WITH SHOULDER BERM GUTTER
* NOTE: REMOVE AND RESET
GUARDRAIL WHERE PRESENT

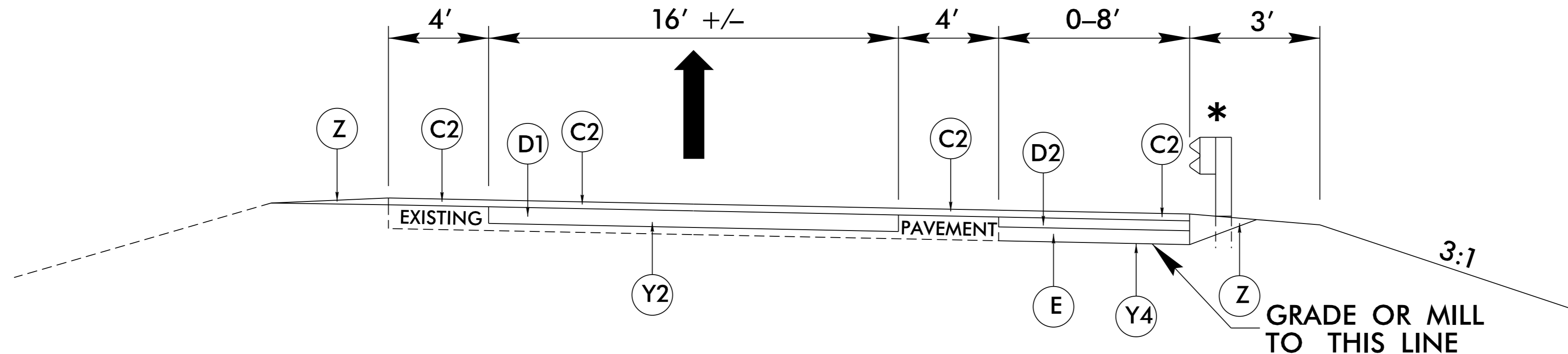
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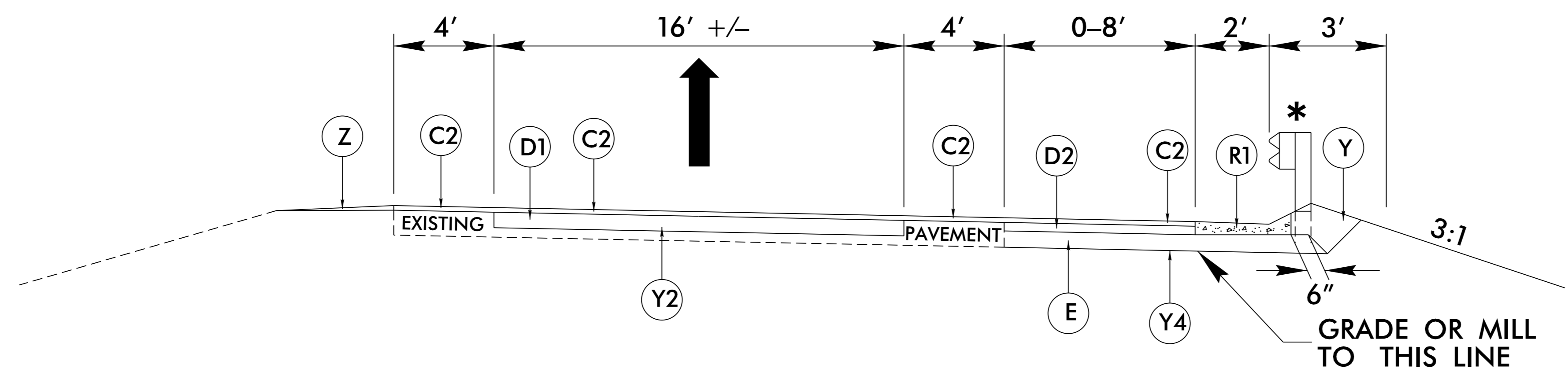
C2	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5D, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.	R1	SHOULDER BERM GUTTER	Z	SHOULDER RECONSTRUCTION USING AGGREGATE SHOULDER BORROW AS DIRECTED
D1	PROP. APPROX. 2½" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0D, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.	Y2	MILL ASPHALT 2.5" DEEP		
D2	PROP. APPROX. 3½" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0D, AT AN AVERAGE RATE OF 399 LBS. PER SQ. YD.	Y4	MILL ASPHALT 9" DEEP		
E	PROP. APPROX. 5.5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD.	Y	SHOULDER CONSTRUCTION		

PROJECT REFERENCE NO. 1-5839	SHEET NO. 2A-3
ROADWAY DESIGN ENGINEER 5/26/2017 NORTH CAROLINA PROFESSIONAL SEAL 40257 W. NEAL CLARK 1E00007EAA6437	
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NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



TYPICAL SECTION NO. 6
RAMPS
WIDENING WITH GUARDRAIL
 * NOTE: REMOVE AND RESET GUARDRAIL WHERE PRESENT



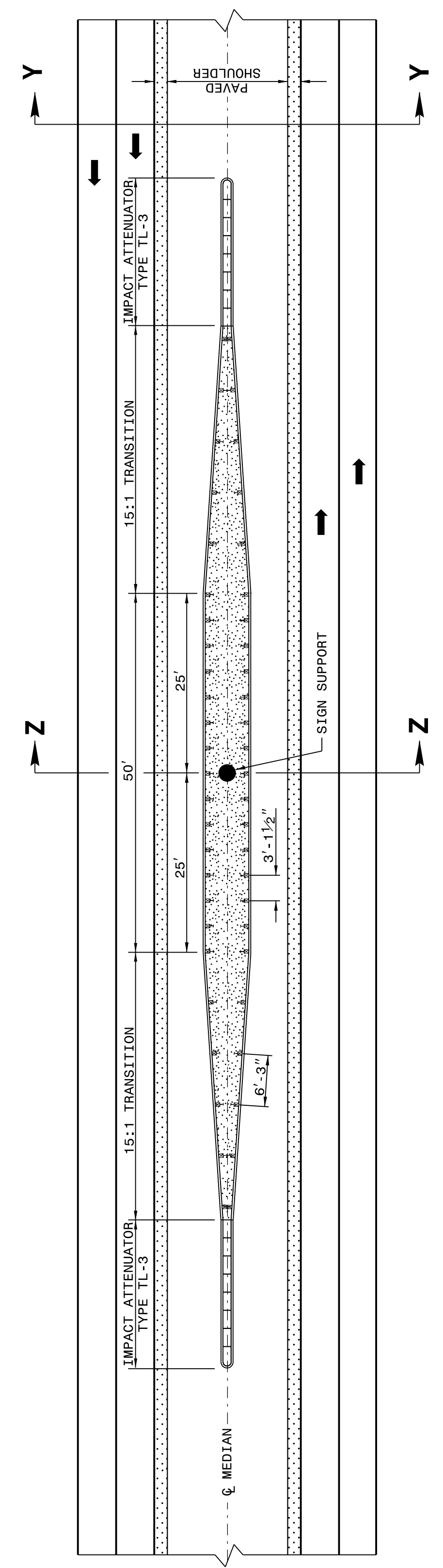
TYPICAL SECTION NO. 7
RAMPS
WIDENING WITH SHOULDER BERM GUTTER AND GUARDRAIL
 * NOTE: REMOVE AND RESET GUARDRAIL WHERE PRESENT

6/2/99

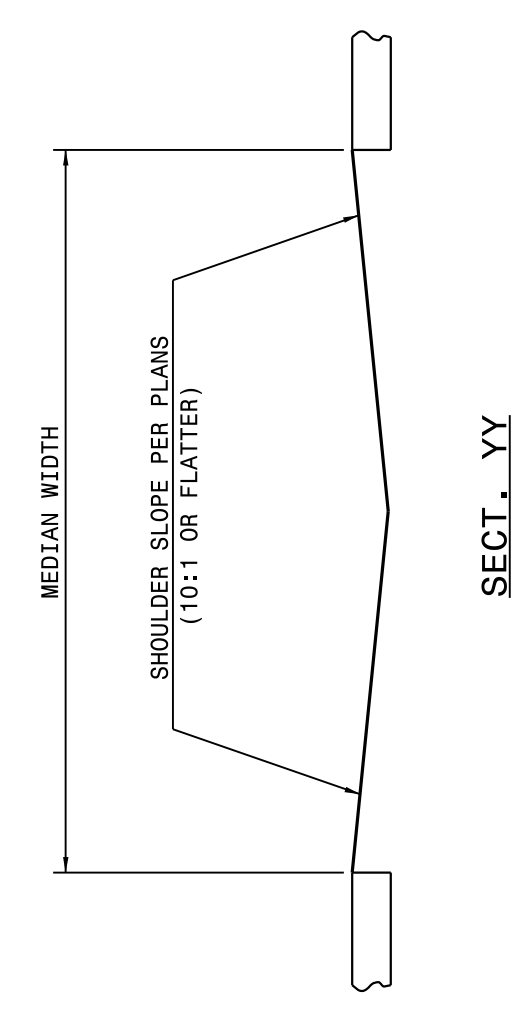
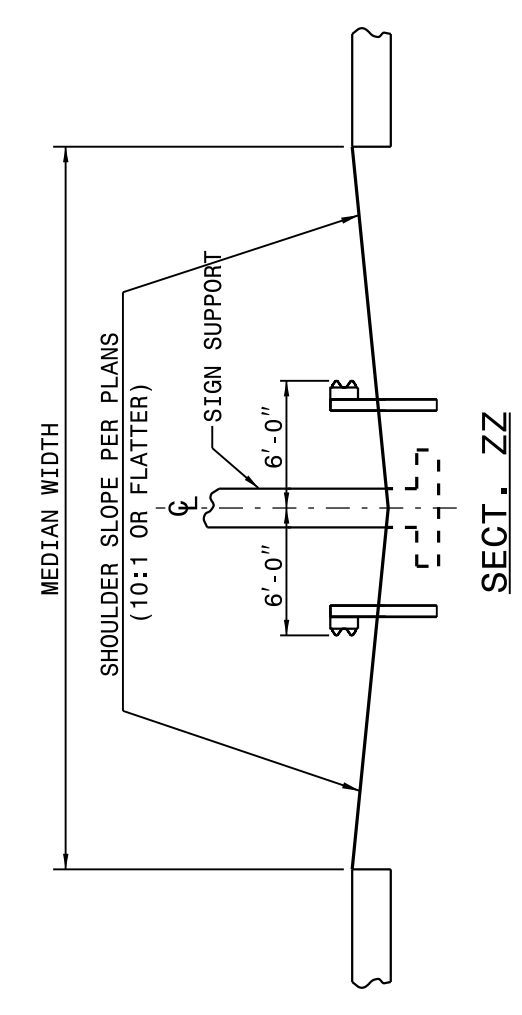
STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

ROADWAY DETAIL DRAWING FOR GUARDRAIL PLACEMENT

SHEET 2 OF 11
862D01



NOTE SPECIAL LAYER OF PAVEMENT
USE 3'-1 1/2" POST SPACING ON THE 50' OF GUARDRAIL PARALLEL TO LANES AND 6'-3" POST SPACING ON 15:1 TRANSITION SECTIONS.
GRADE MEDIAN IN THE VICINITY OF THE SIGN SUPPORT AS ILLUSTRATED IN THE ROADWAY STANDARD DRAWINGS (STANDARD 862D01 SHEET 1 OF 12).



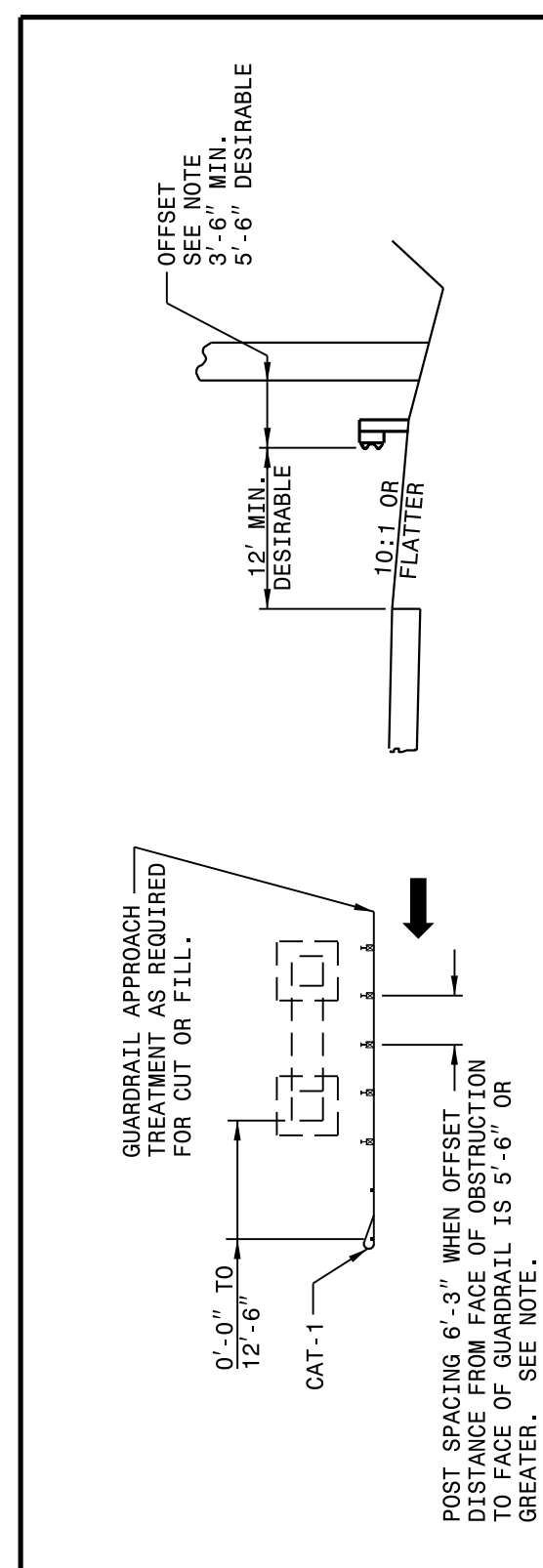
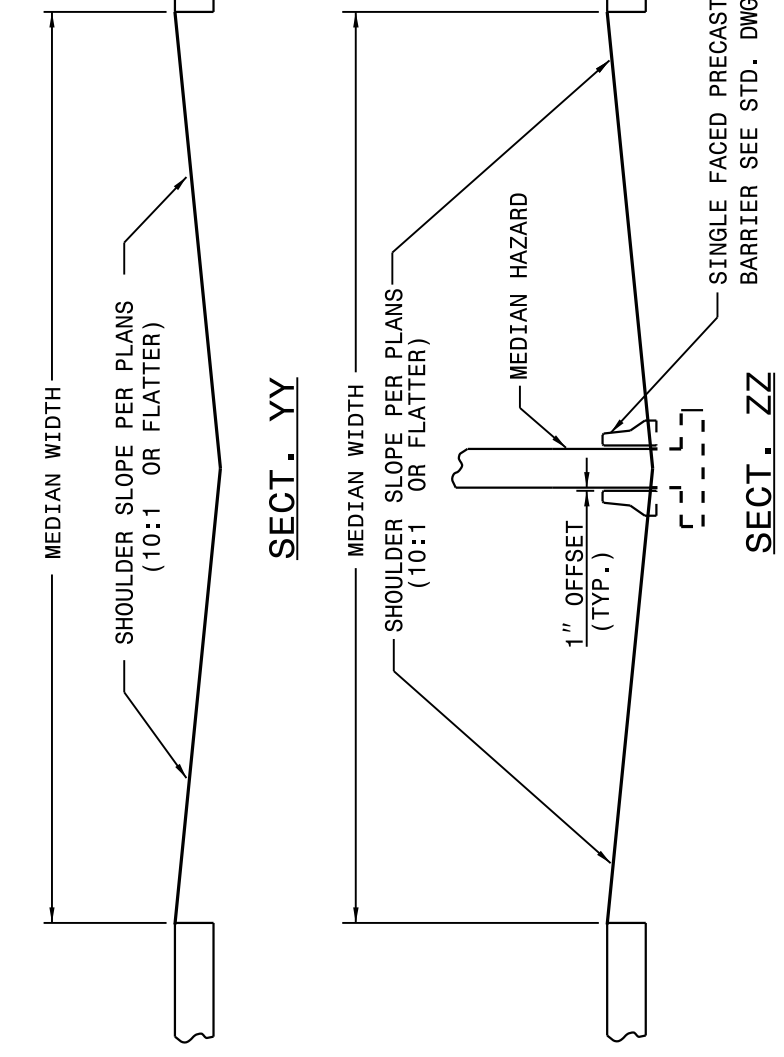
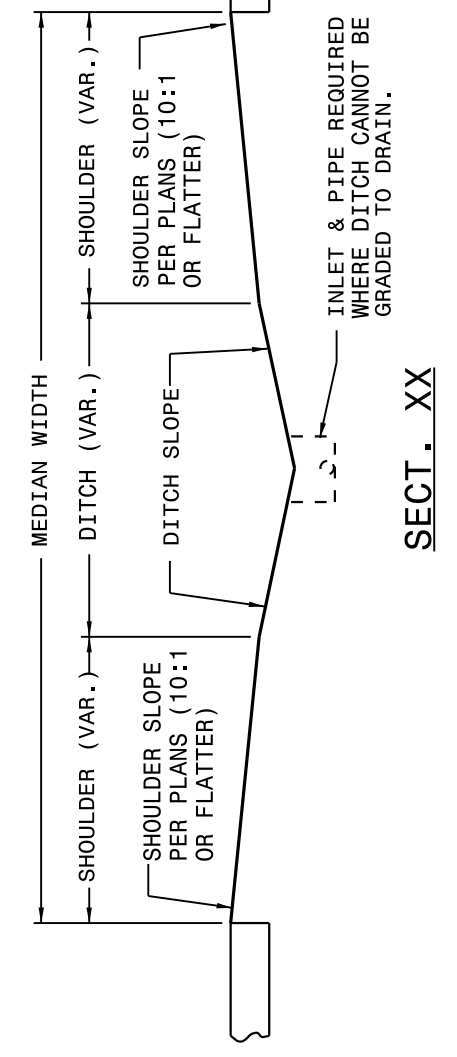
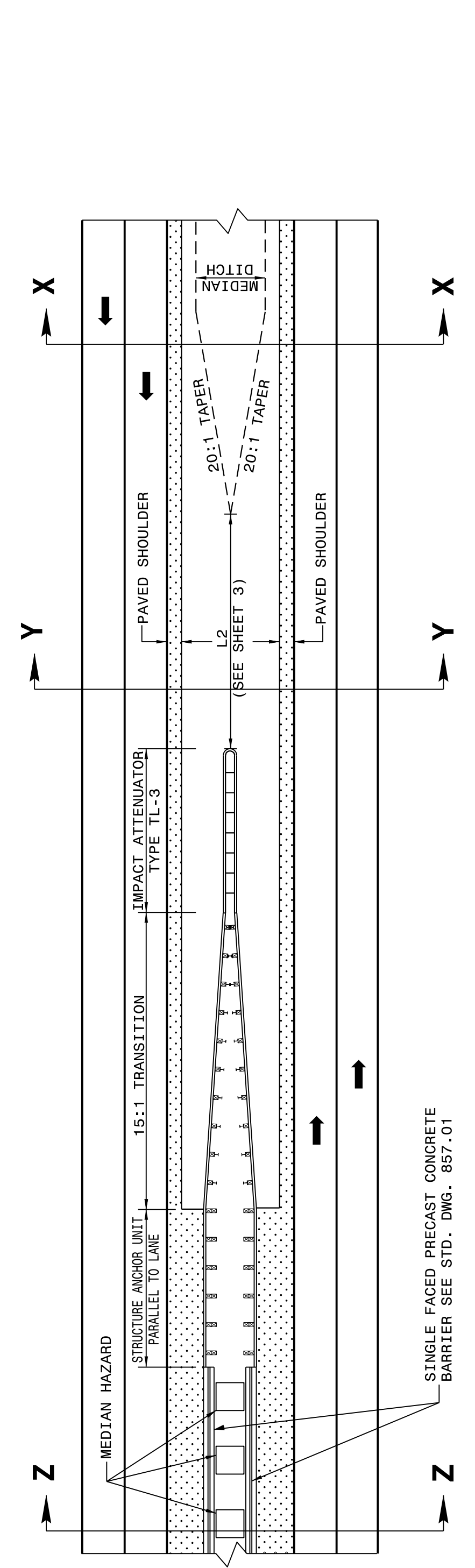
SHEET 2 OF 11
862D01

DETAIL OF GUARDRAIL AT MEDIAN SIGN SUPPORT

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

ROADWAY DETAIL DRAWING FOR GUARDRAIL PLACEMENT

SHEET 1 OF 11
862D01



NOTE: WHEN OFFSET DISTANCE FROM FACE OF OBSTRUCTION TO FACE OF GUARDRAIL IS BETWEEN 3'-6" AND 5'-6", BEGIN 3'-1 1/2" POST SPACING AT POINT 26' BEFORE REACHING THE OBSTRUCTION AND CARRY THROUGHOUT ITS LENGTH. IF THE OFFSET IS LESS THAN 3'-6" USE CONCRETE BARRIER.

DETAIL OF RIGHT SIDE GUARDRAIL AT UNDERPASS

DETAIL OF MEDIAN TREATMENT AT UNDERPASS

SHEET 2 OF 11
862D01

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

ROADWAY DETAIL DRAWING FOR GUARDRAIL PLACEMENT

SHEET 1 OF 11
862D01

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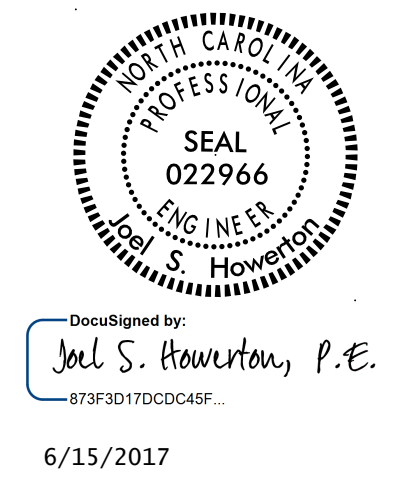
STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

ROADWAY DETAIL DRAWING FOR GUARDRAIL PLACEMENT

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.: DATE:



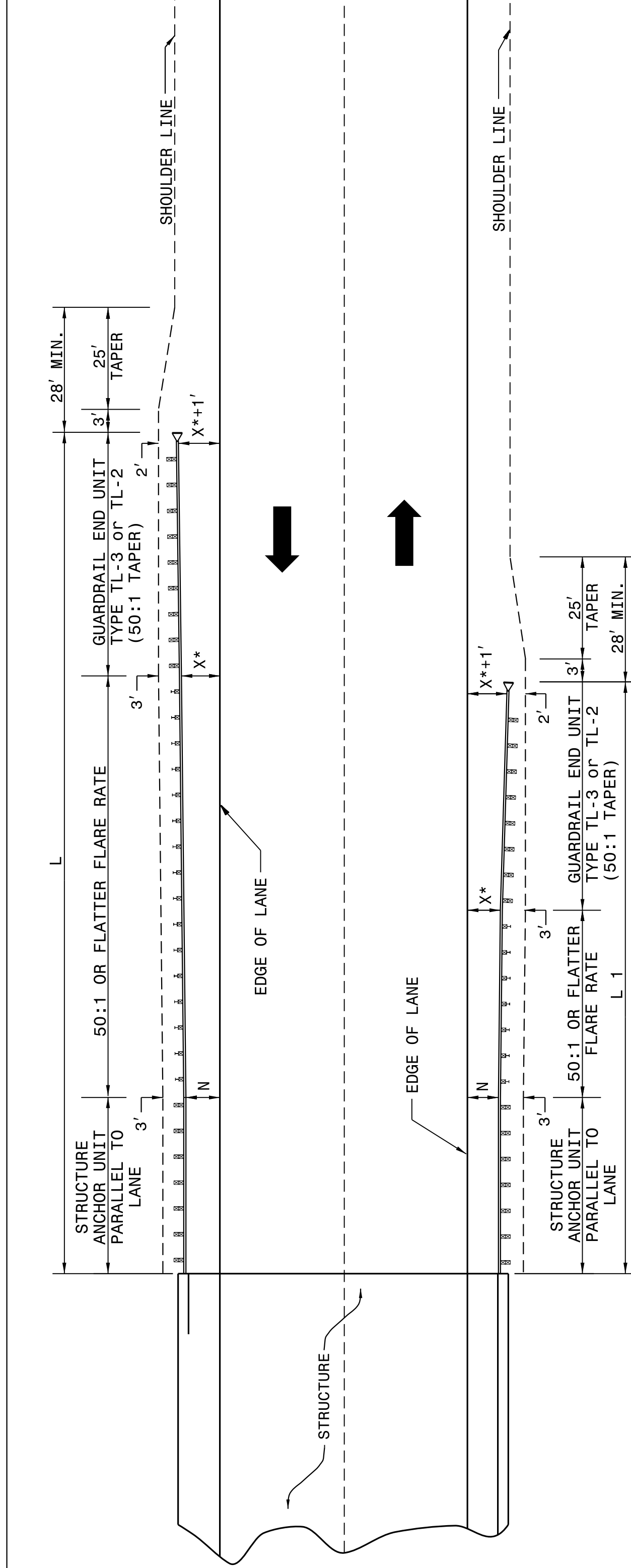
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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 Jhowerton AT USD-292595

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

ROADWAY DETAIL DRAWING FOR
GUARDRAIL PLACEMENT

SHEET 4 OF 11
862D01



ROADWAY DETAIL DRAWING FOR
GUARDRAIL PLACEMENT

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

SHEET 4 OF 11
862D01

GUARDRAIL INSTALLATION AT BRIDGE APPROACHES FOR TWO-LANE, TWO-WAY TRAFFIC

DESIGN SPEED (MPH)	"L" APPROACH LENGTH (FT.)		"L" TRAILING LENGTH (FT.)	
	DESIGN YEAR ADT OVER 2000	CURRENT YEAR ADT UNDER 400	DESIGN YEAR ADT OVER 2000	CURRENT YEAR ADT UNDER 400
70	362.5'	362.5'	350.0'	287.5'
60	300.0'	287.5'	275.0'	225.0'
50	212.5'	212.5'	200.0'	162.5'
40	175.0'	150.0'	137.5'	112.5'
X*	8'	6'	4'	4'

* USE FLARE RATE AS THE CONTROL IF THE "X" DISTANCE IS NOT OBTAINED. ("X" IS BASED ON SHOULDER WIDTHS IN THE HIGHWAY DESIGN BRANCH MANUAL, PART 1, 1-4B, F1).

"N" = DISTANCE FROM EDGE OF LANE TO FACE OF GUARDRAIL WHERE GUARDRAIL IS PARALLEL TO LANE.

SEE STD. 862.03 FOR STRUCTURE ANCHOR UNITS

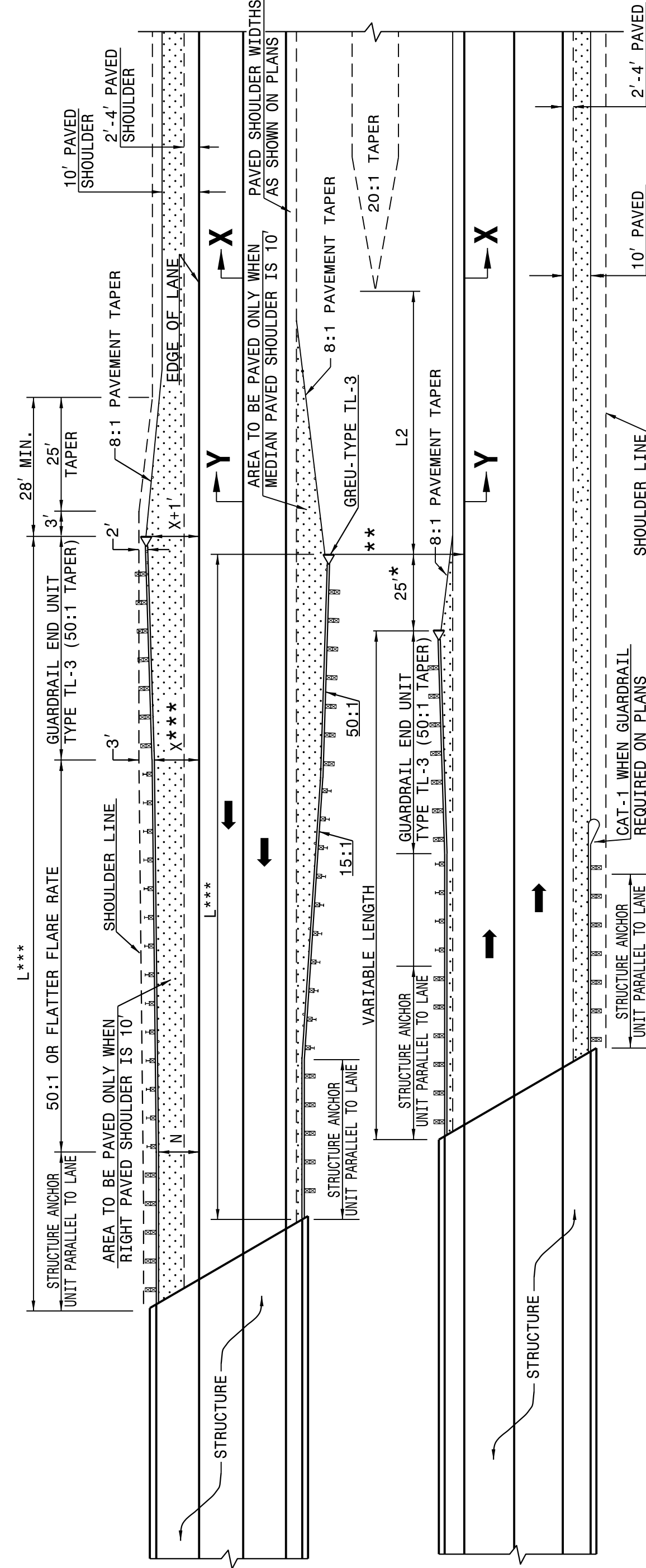
FOR POSTED SPEEDS ≥ 45mph USE GREU TYPE TL-3
 FOR POSTED SPEEDS < 45mph USE GREU TYPE TL-2

LENGTHS AND OFFSETS FOR PROPOSED GUARDRAIL AT TWO LANE - TWO WAY LOCATIONS

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ROADWAY DETAIL DRAWING FOR
GUARDRAIL PLACEMENT

SHEET 3 OF 11
862D01



FOR POSTED SPEEDS ≥ 45mph USE GREU TYPE TL-3
 FOR POSTED SPEEDS < 45mph USE GREU TYPE TL-2

DIMENSIONS FOR LENGTH OF GUARDRAIL APPROACHING DUAL LANE BRIDGES

MEDIAN WIDTH	-L-***		-L2- DIM.
	60 MPH	50 MPH	
30'	300.0'	250.0'	80.0'
36'	300.0'	250.0'	60.0'
40' & ABOVE	300.0'	250.0'	40.0'

NOTES: * MINOR VARIATION TO THE 25'-0" DIMENSION IS PERMISSIBLE TO ACCOMMODATE THE 12'-6" IN GUARDRAIL LENGTHS.

** NO GUARDRAIL IS REQUIRED ON THE TRAILING END WHEN THIS DISTANCE EXCEEDS CLEAR ROADSIDE RECOVERY AREA FOR THE APPROPRIATE DESIGN SPEED.

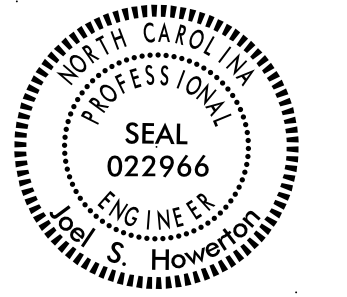
*** BASED ON "X" OF 12' USE FLARE RATE AS THE CONTROL IF THE "X" DISTANCE IS NOT OBTAINED. ("X" IS BASED ON SHOULDER WIDTHS IN THE HIGHWAY DESIGN BRANCH MANUAL, PART 1, 1-4B, F1A).
 "N" = DISTANCE FROM EDGE OF LANE TO FACE OF GUARDRAIL WHERE GUARDRAIL IS PARALLEL TO LANE.
 THE DESIGN LAYOUT FOR LENGTHS SHOWN ON THIS STANDARD ARE MINIMUM DESIGN LENGTHS.
 SEE SHEET 1 OF 12 FOR SECTIONS XX, YY
 SEE STD. 862.03 FOR STRUCTURE ANCHOR UNITS

DETAIL OF GUARDRAIL APPROACHING DUAL LANE BRIDGES

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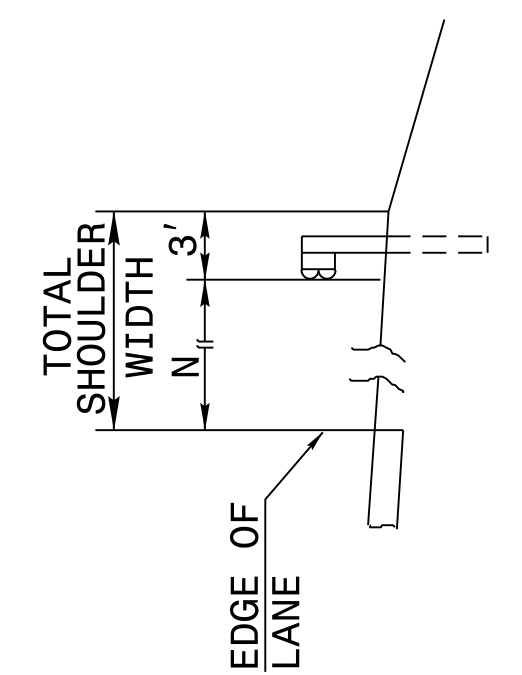
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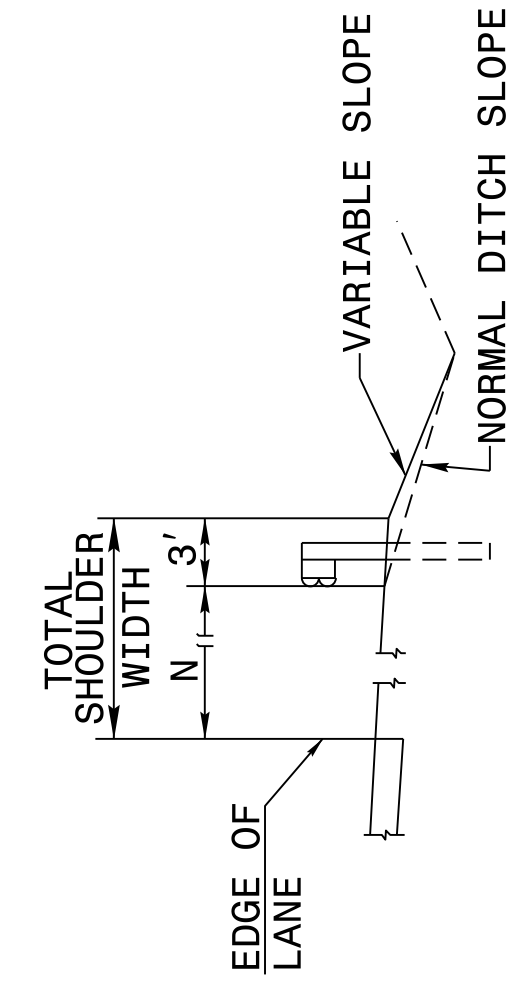
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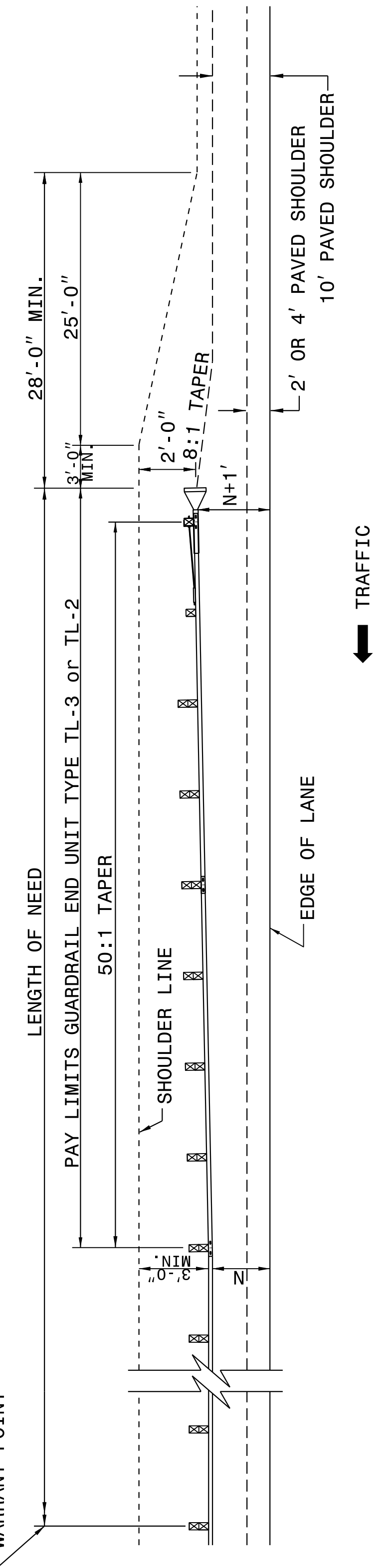


FILL SECTION



CUT SECTION

"N" = DISTANCE FROM EDGE OF LANE TO FACE OF GUARDRAIL WHERE GUARDRAIL IS PARALLEL TO LANE.



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FOR POSTED SPEEDS < 45mph USE GREU TYPE TL-2

ROADWAY DETAIL DRAWING FOR
GUARDRAIL PLACEMENT

SHEET 6 OF 11
862D01

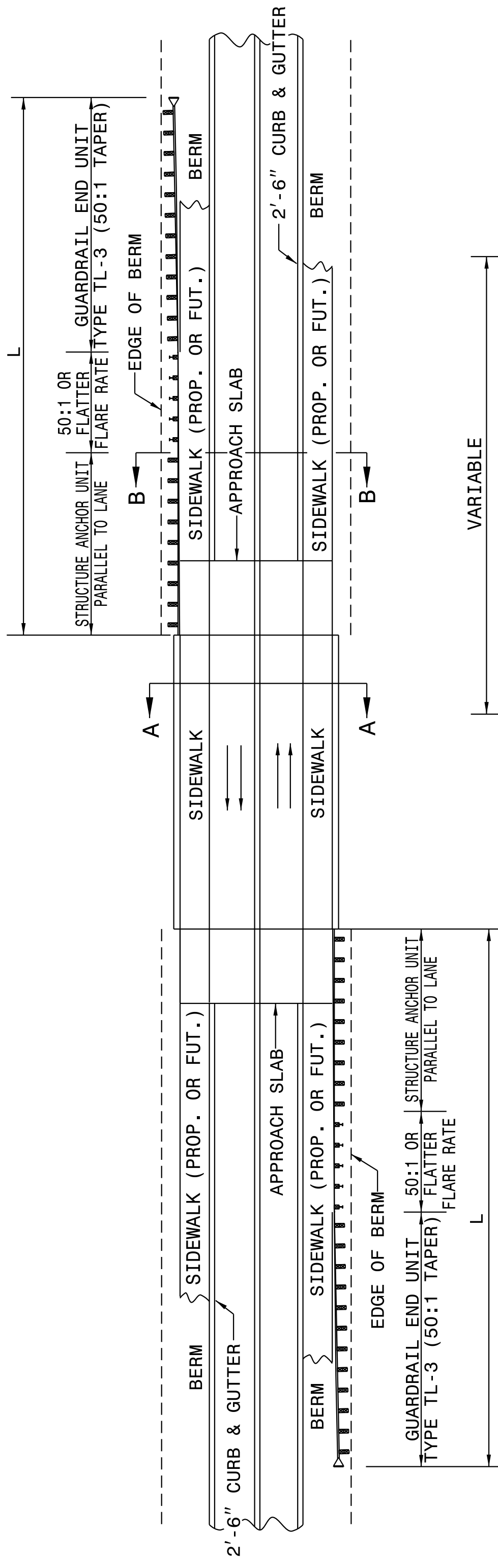
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ROADWAY DETAIL DRAWING FOR
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SHEET 6 OF 11
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DETAIL OF BEGINNING OF GUARDRAIL IN CUT OR FILL SECTION

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MINIMUM GUARDRAIL LENGTHS "L" REQUIRED AT BRIDGE APPROACHES ON 2'-6" CONCRETE CURB AND GUTTER ROADWAYS	"L"
DESIGN SPEED (MPH)	150'
	225'

NOTE: "L" VALUES ARE BASED ON NO HAZARDS OTHER THAN END OF BRIDGE BEING PRESENT WITHIN THE CLEAR ZONE.

SEE STD. 862D03 FOR STRUCTURE ANCHOR UNITS.

FOR POSTED SPEEDS ≥ 45mph USE GREU TYPE TL-3
FOR POSTED SPEEDS < 45mph USE GREU TYPE TL-2

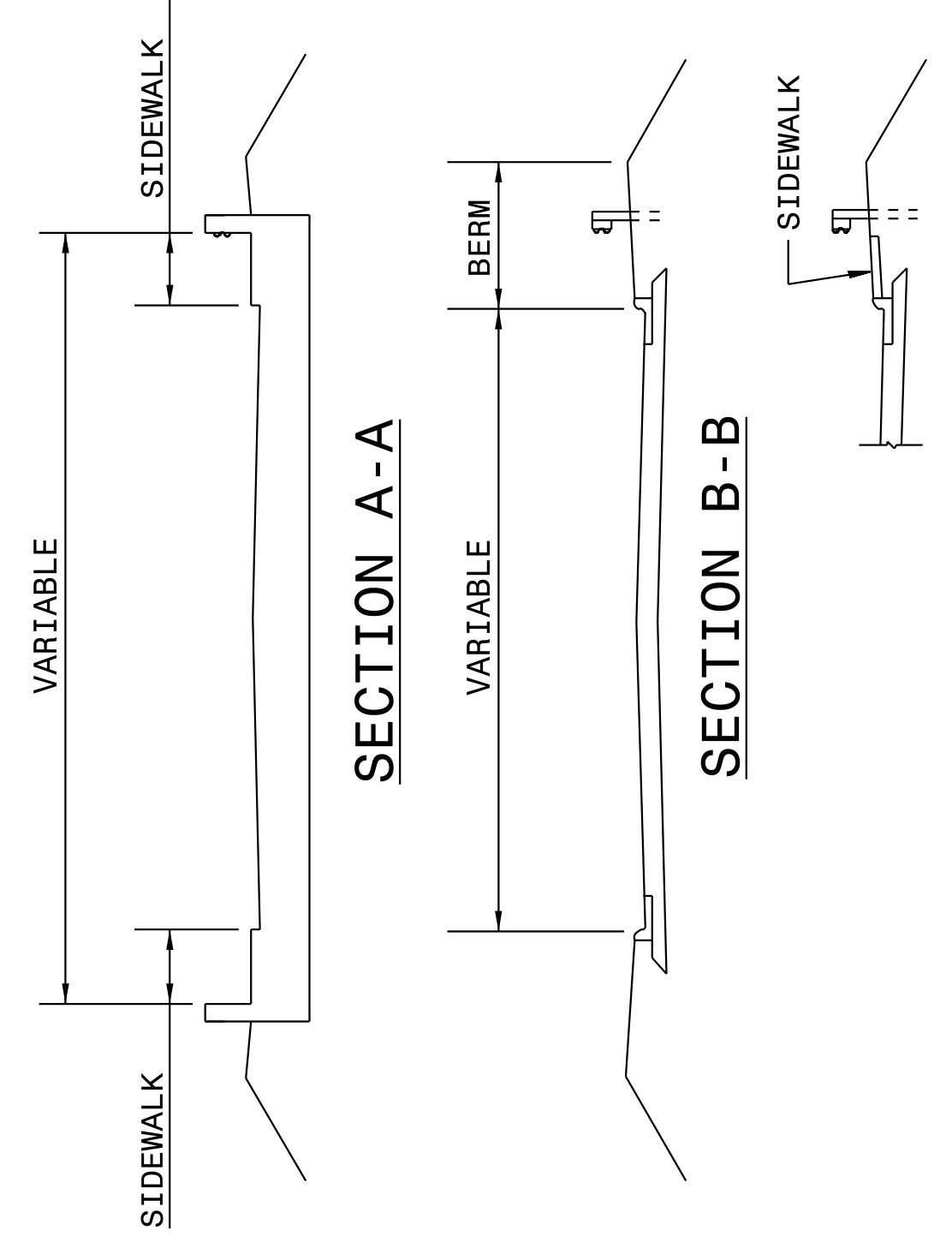
ROADWAY DETAIL DRAWING FOR
GUARDRAIL PLACEMENT

SHEET 5 OF 11
862D01

ROADWAY DETAIL DRAWING FOR
GUARDRAIL PLACEMENT

SHEET 5 OF 11
862D01

STANDARD GUARDRAIL PLACEMENT AT BRIDGES WITH 2'-6" CONCRETE CURB AND GUTTER



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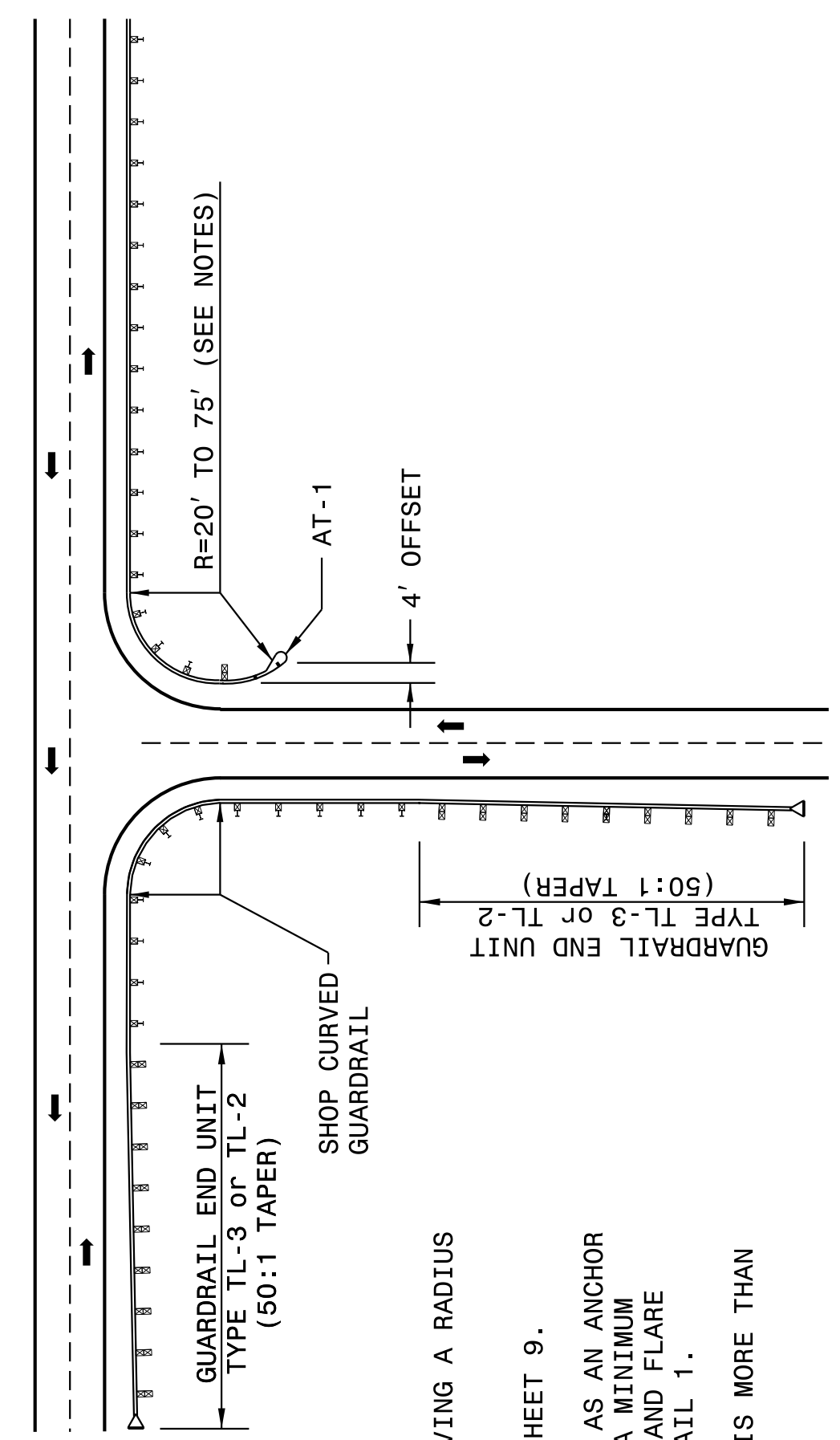
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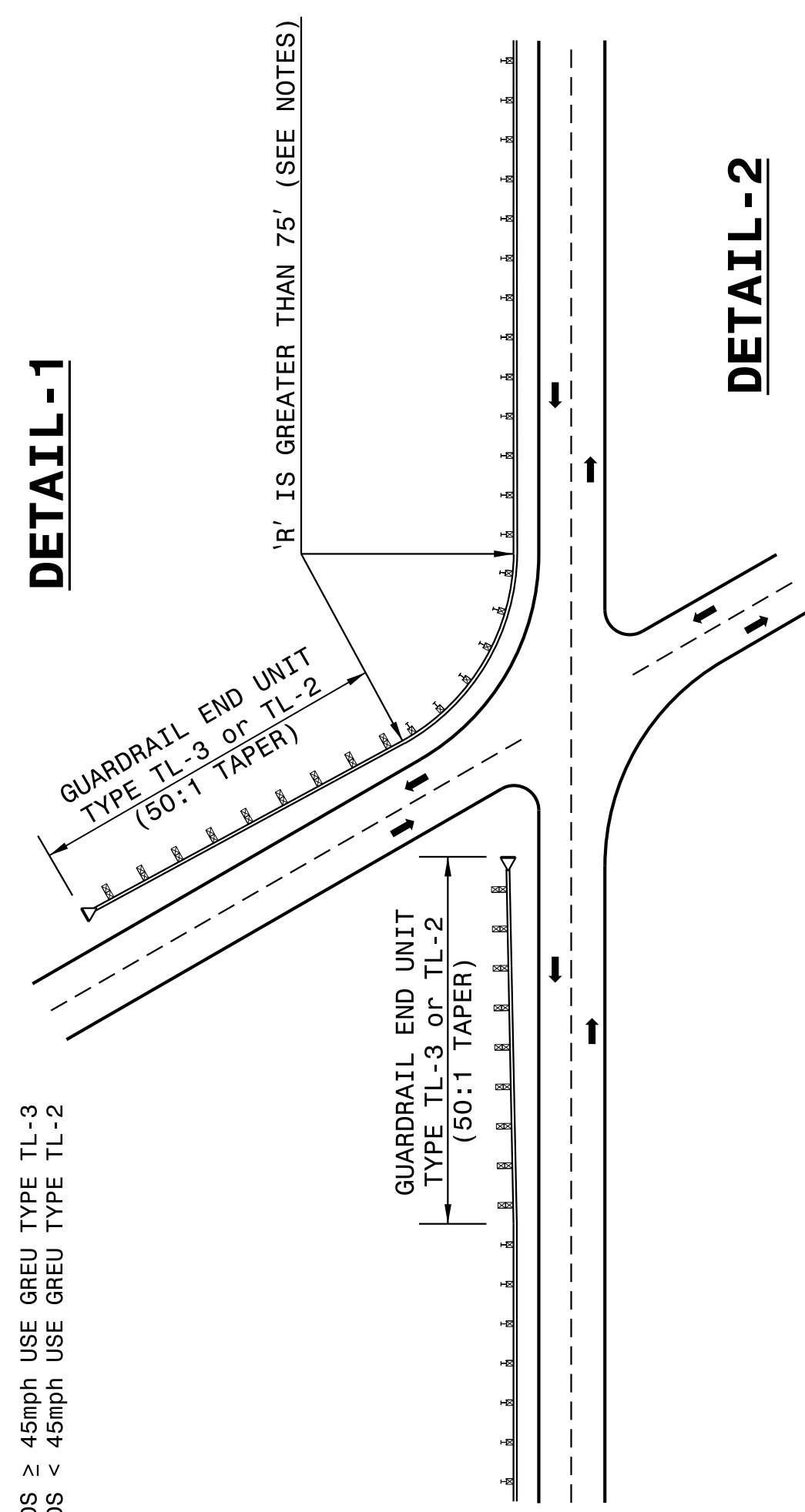
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ROADWAY DETAIL DRAWING FOR
GUARDRAIL PLACEMENT

SHEET 8 OF 11
862D01



DETAIL - 1



DETAIL - 2

NOTES:
SHOP CURVED GUARDRAIL IS DEFINED AS HAVING A RADIUS OF 150' OR LESS.
WHEN RADIUS IS LESS THAN 20' REFER TO SHEET 9.
WHENEVER SHOP CURVED GUARDRAIL IS USED AS AN ANCHOR AND THE RADIUS IS FROM 20' TO 75', USE A MINIMUM LENGTH OF 50' OF SHOP CURVED GUARDRAIL AND FLARE WITH AN AT-1 ANCHOR UNIT. REFER TO DETAIL 1.
WHENEVER SHOP CURVED GUARDRAIL RADIUS IS MORE THAN 75', REFER TO DETAIL 2.

MAINTAIN CLEAR SIGHT DISTANCE.
FOR POSTED SPEEDS ≥ 45mph USE GREU TYPE TL-3
FOR POSTED SPEEDS < 45mph USE GREU TYPE TL-2

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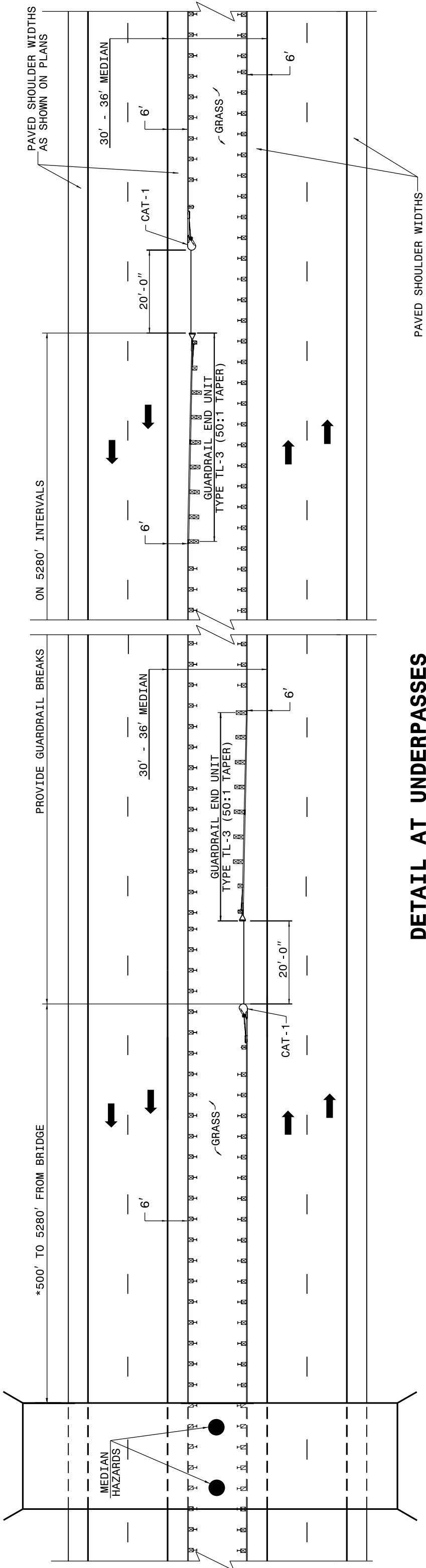
ROADWAY DETAIL DRAWING FOR
GUARDRAIL PLACEMENT

SHEET 8 OF 11
862D01

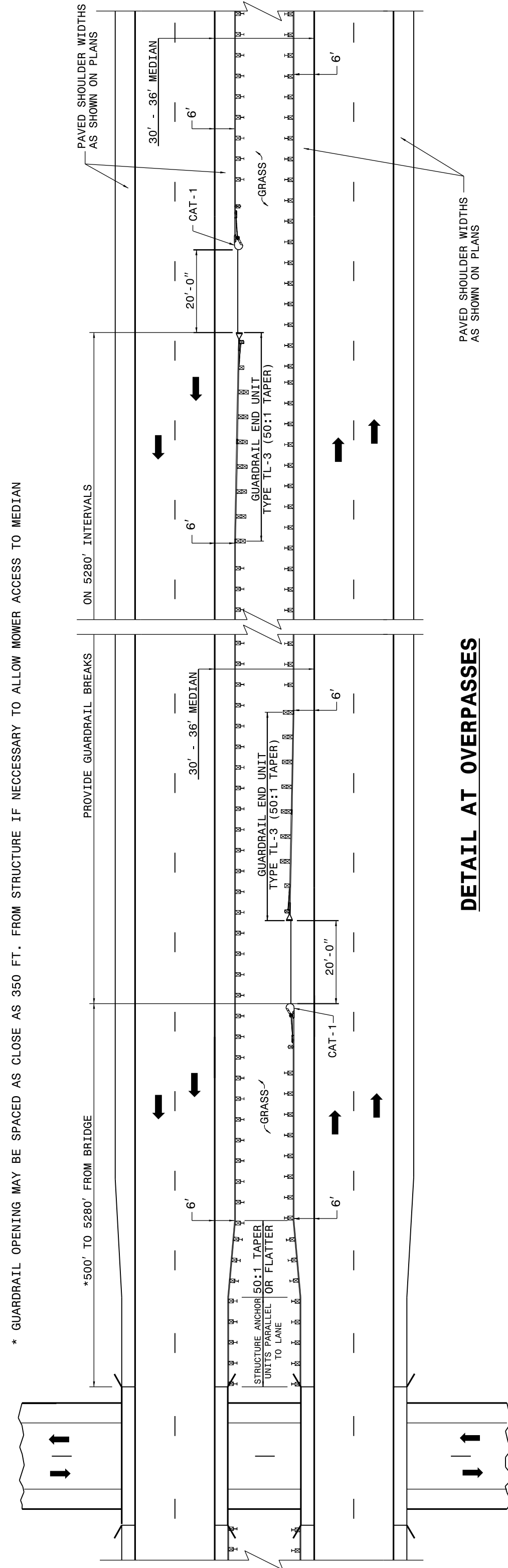
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ROADWAY DETAIL DRAWING FOR
GUARDRAIL PLACEMENT

SHEET 7 OF 11
862D01



DETAIL AT UNDERPASSES



DETAIL AT OVERPASSES

* GUARDRAIL OPENING MAY BE SPACED AS CLOSE AS 350 FT. FROM STRUCTURE IF NECESSARY TO ALLOW MOWER ACCESS TO MEDIAN

FOR POSTED SPEEDS ≥ 45mph USE GREU TYPE TL-3
FOR POSTED SPEEDS < 45mph USE GREU TYPE TL-2

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ROADWAY DETAIL DRAWING FOR
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SHEET 7 OF 11
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GUARDRAIL BREAK INTERVALS WITH 30' - 36' MEDIANS



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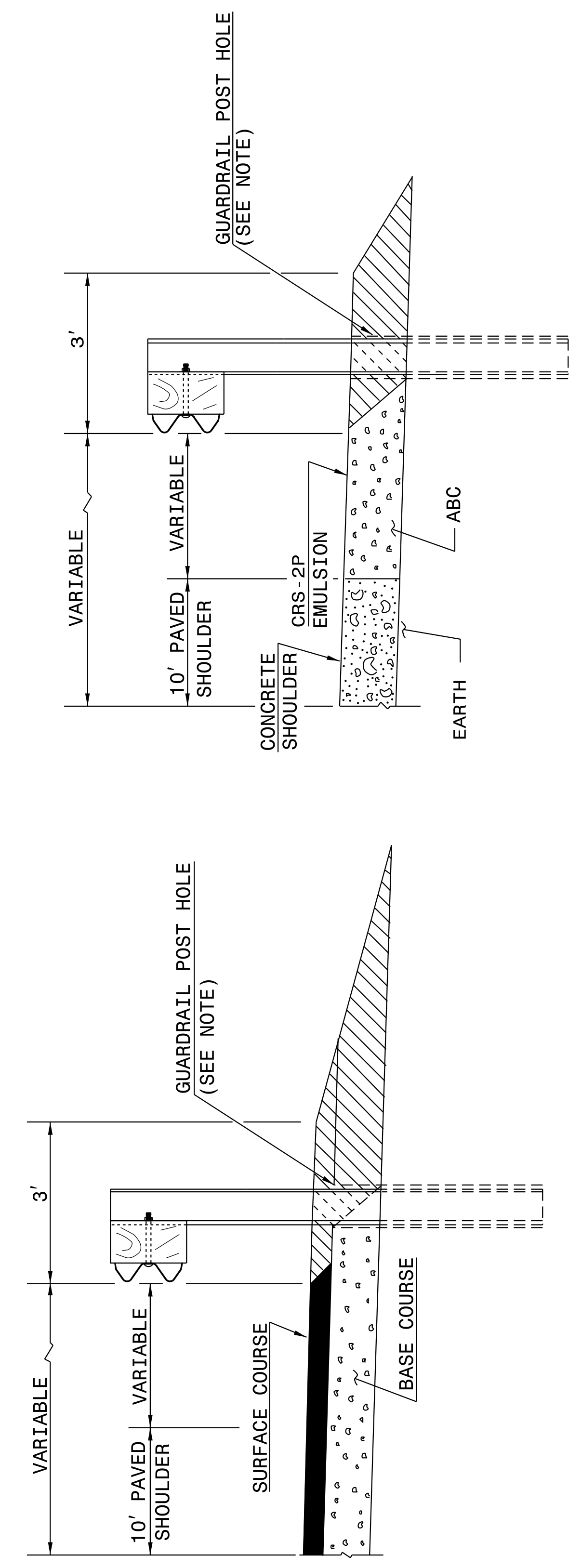
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ENGLISH DETAIL DRAWING FOR
GUARDRAIL PLACEMENT

SHEET 10 OF 11
862D01



FLEXIBLE PAVED SHOULDER

CONCRETE PAVED SHOULDER

▨ EARTH MATERIAL

NOTE:
WHEN WOODEN GUARDRAIL POSTS ARE USED, DRILL HOLES THROUGH EARTH MATERIAL AND BASE COURSE. THE POST MAY THEN BE DRIVEN TO THE PROPER DEPTH. DRILL THE HOLE OF SUFFICIENT SIZE TO ACCOMMODATE THE PARTICULAR POST BEING USED. BACKFILL AND TAMP HOLES USING THE EXCAVATED MATERIAL.

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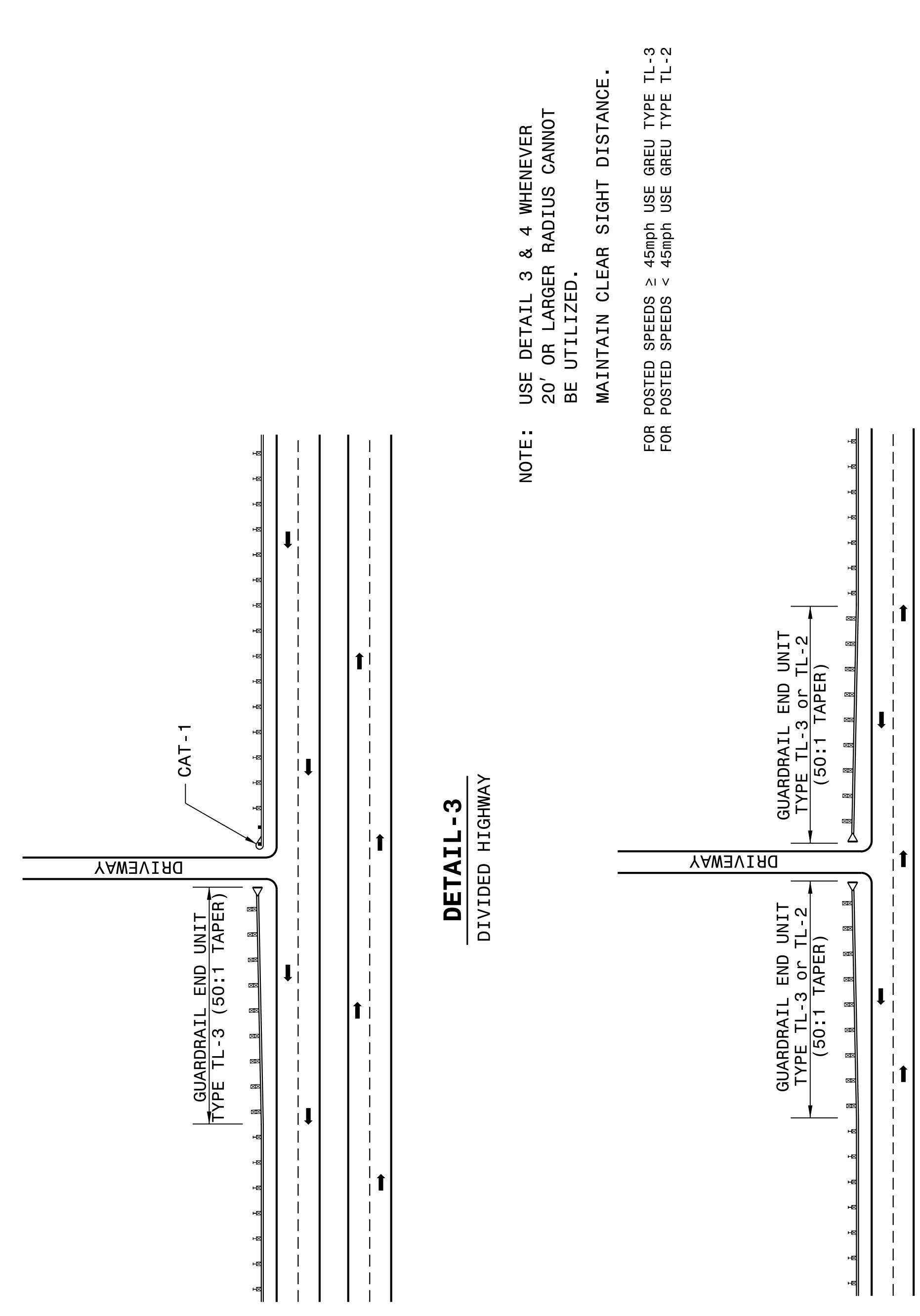
ENGLISH DETAIL DRAWING FOR
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ROADWAY DETAIL DRAWING FOR
GUARDRAIL PLACEMENT

SHEET 9 OF 11
862D01



DETAIL - 3
DIVIDED HIGHWAY

DETAIL - 4
UNDIVIDED HIGHWAY
GUARDRAIL TREATMENT AT DRIVEWAYS

NOTE: USE DETAIL 3 & 4 WHENEVER
20' OR LARGER RADIUS CANNOT
BE UTILIZED.
MAINTAIN CLEAR SIGHT DISTANCE.

FOR POSTED SPEEDS ≥ 45mph USE GREU TYPE TL-3
FOR POSTED SPEEDS < 45mph USE GREU TYPE TL-2

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ROADWAY DETAIL DRAWING FOR
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SHEET 9 OF 11
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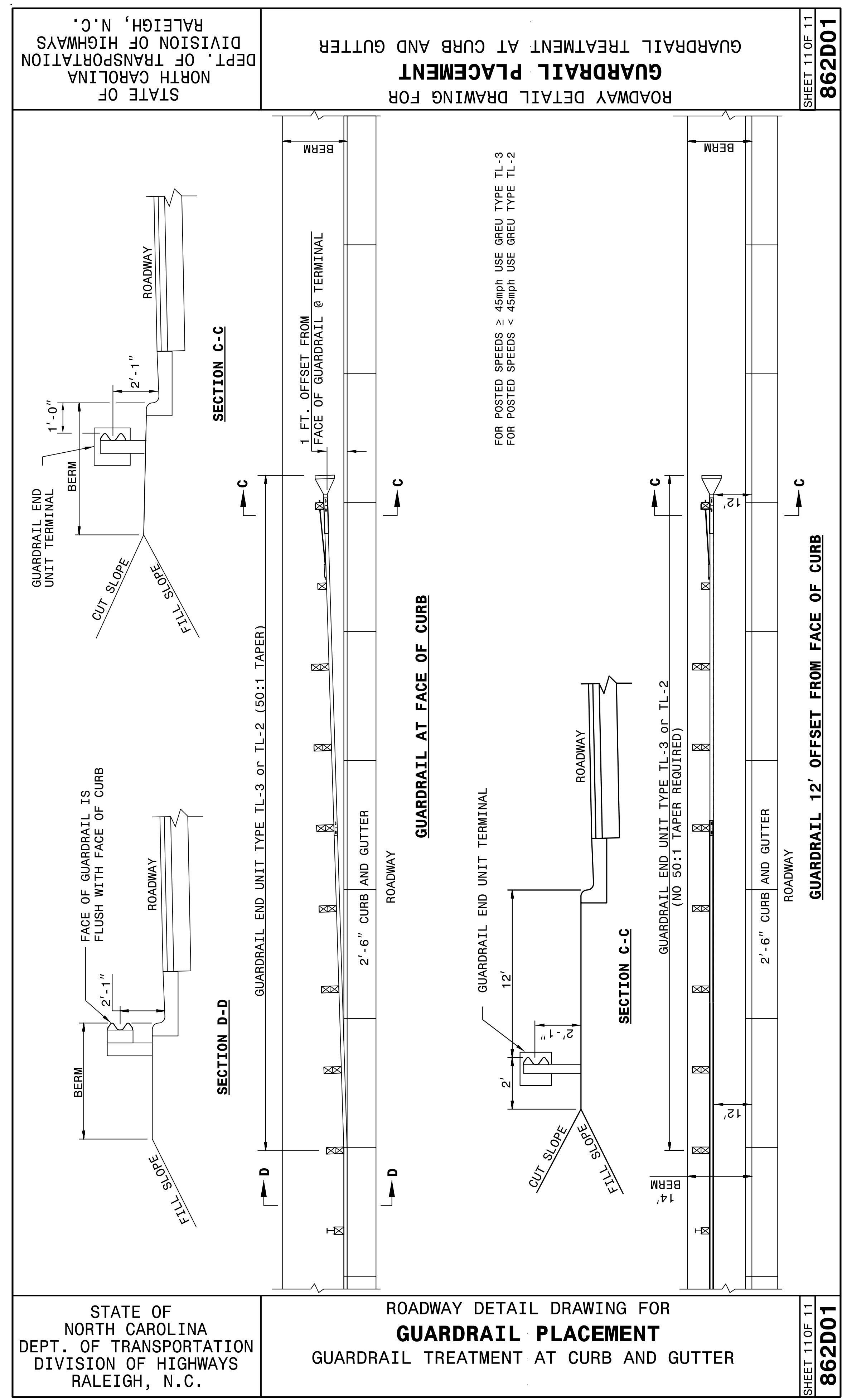
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ROADWAY DETAIL DRAWING FOR
GUARDRAIL PLACEMENT
GUARDRAIL TREATMENT AT CURB AND GUTTER

SHEET 11 OF 11
862D01

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ROADWAY DETAIL DRAWING FOR
GUARDRAIL PLACEMENT
GUARDRAIL TREATMENT AT CURB AND GUTTER

SHEET 11 OF 11
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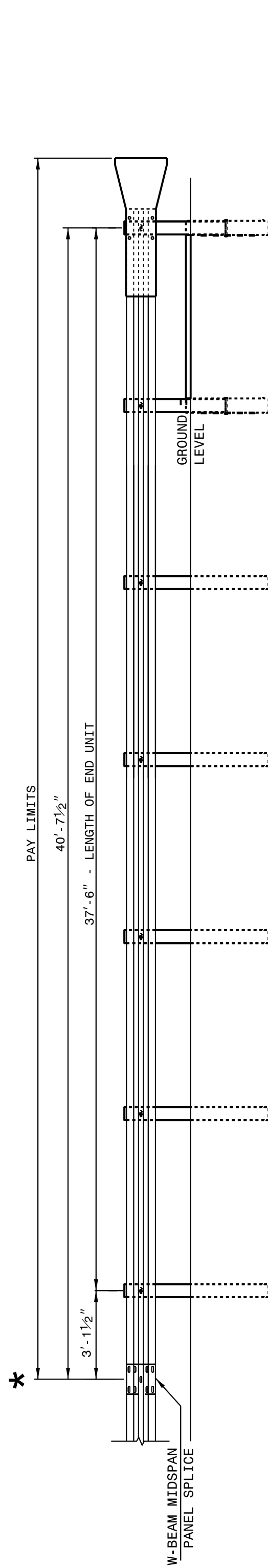
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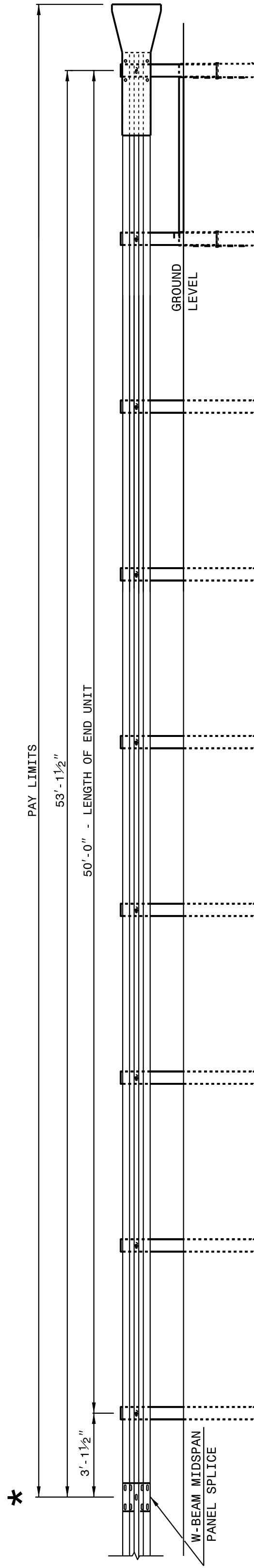
ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

SHEET 2 OF 8
862D02



**FLARED AND TANGENT
ELEVATION VIEW**

* WHEN INSTALLING GUARDRAIL END UNITS THAT ARE 2'-1" MOUNTING HEIGHT TO EXISTING GUARDRAIL, REMOVE THE EXISTING GUARDRAIL TO TRANSITION FROM THE EXISTING HEIGHT TO THE PROPOSED 2'-1" HEIGHT. SEE 862.02, SHEET 4 OF 8 FOR TRANSITION DETAILS.



**FLARED AND TANGENT
ELEVATION VIEW**

APPROACH END UNITS

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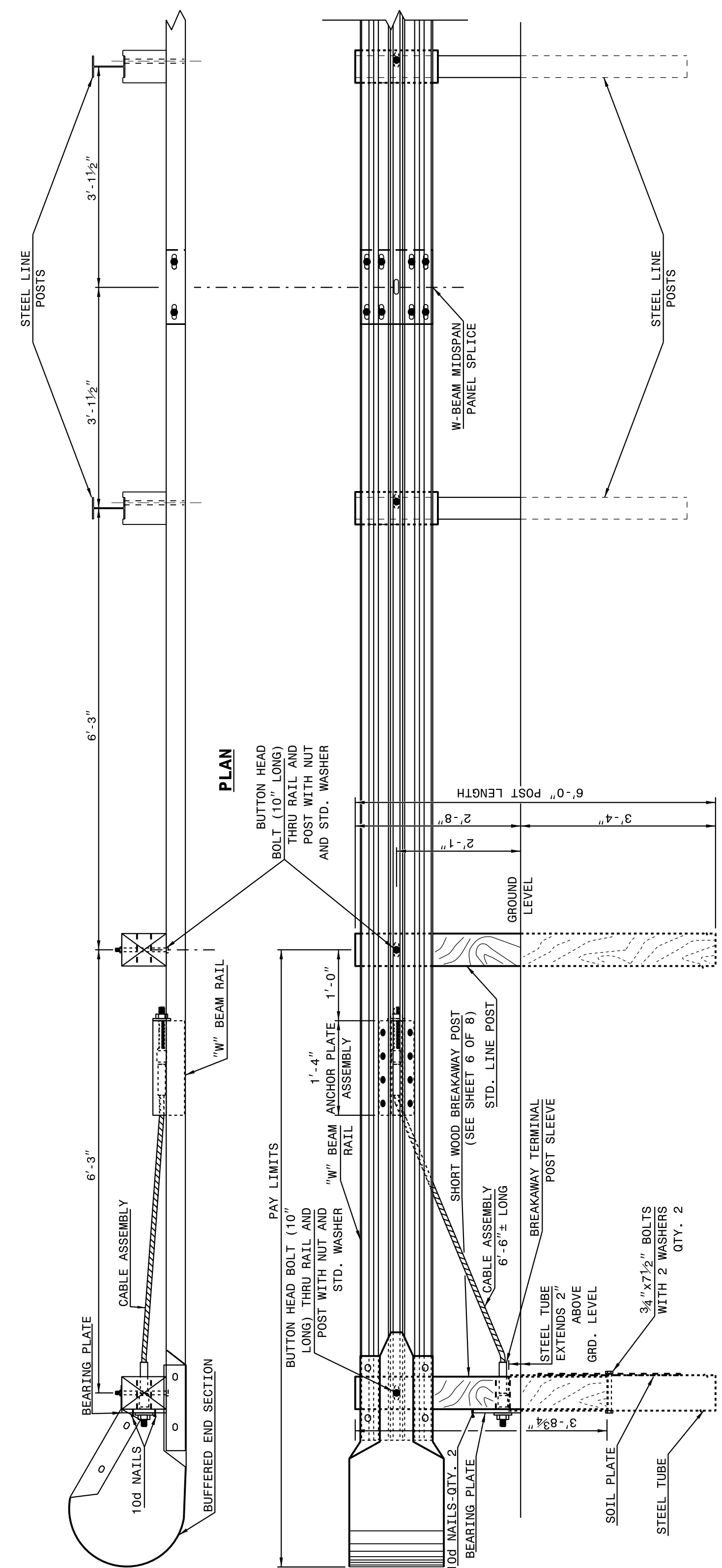
ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

SHEET 2 OF 8
862D02

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ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

SHEET 1 OF 8
862D02



PLAN

ELEVATION

**TRAILING END UNIT ASSEMBLY
C.A.T.-1 SYSTEM**

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ROADWAY DETAIL DRAWING FOR
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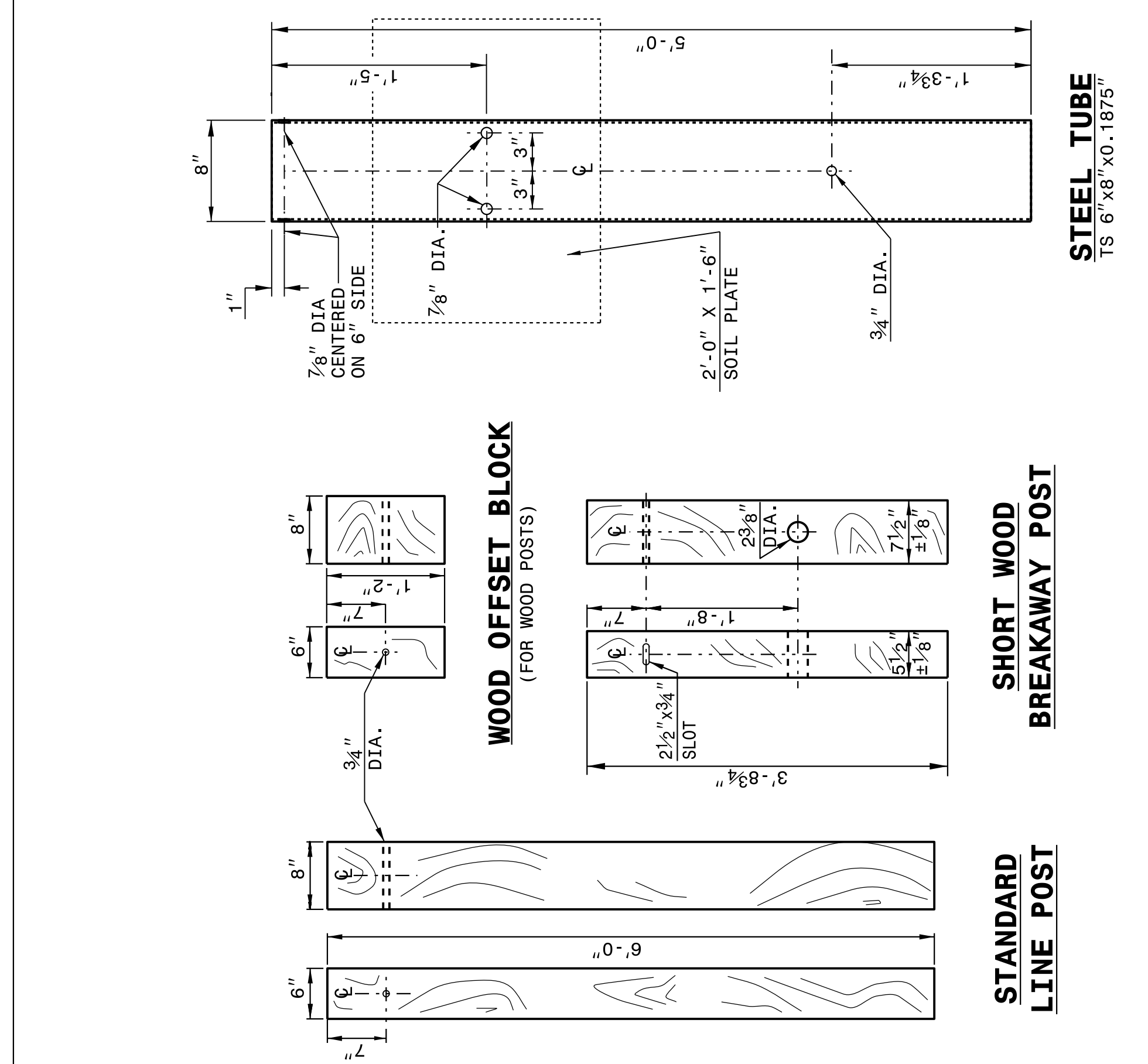
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ROADWAY DETAIL DRAWING FOR
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SHEET 6 OF 8
862D02

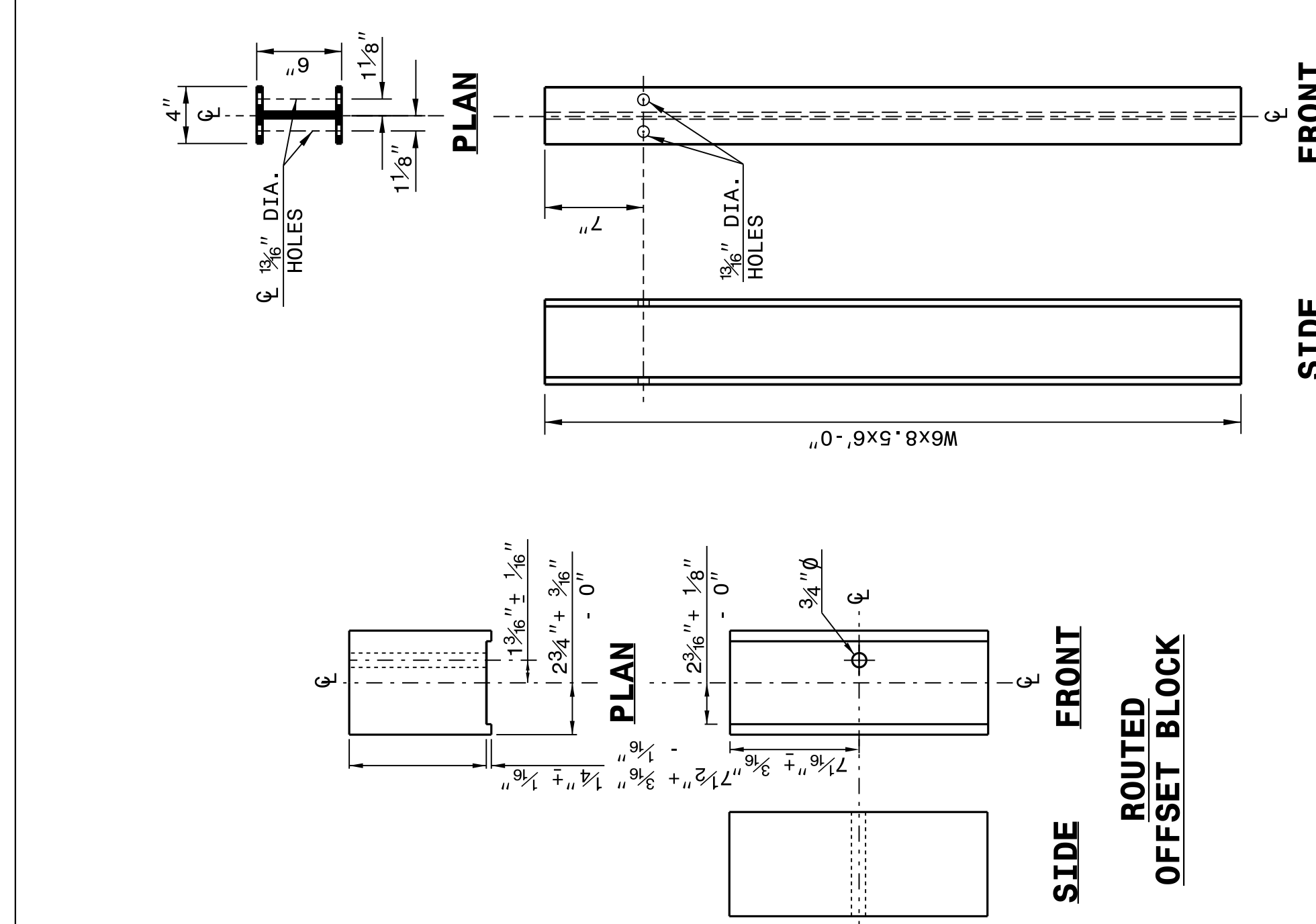


SYSTEM PARTS

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ROADWAY DETAIL DRAWING FOR
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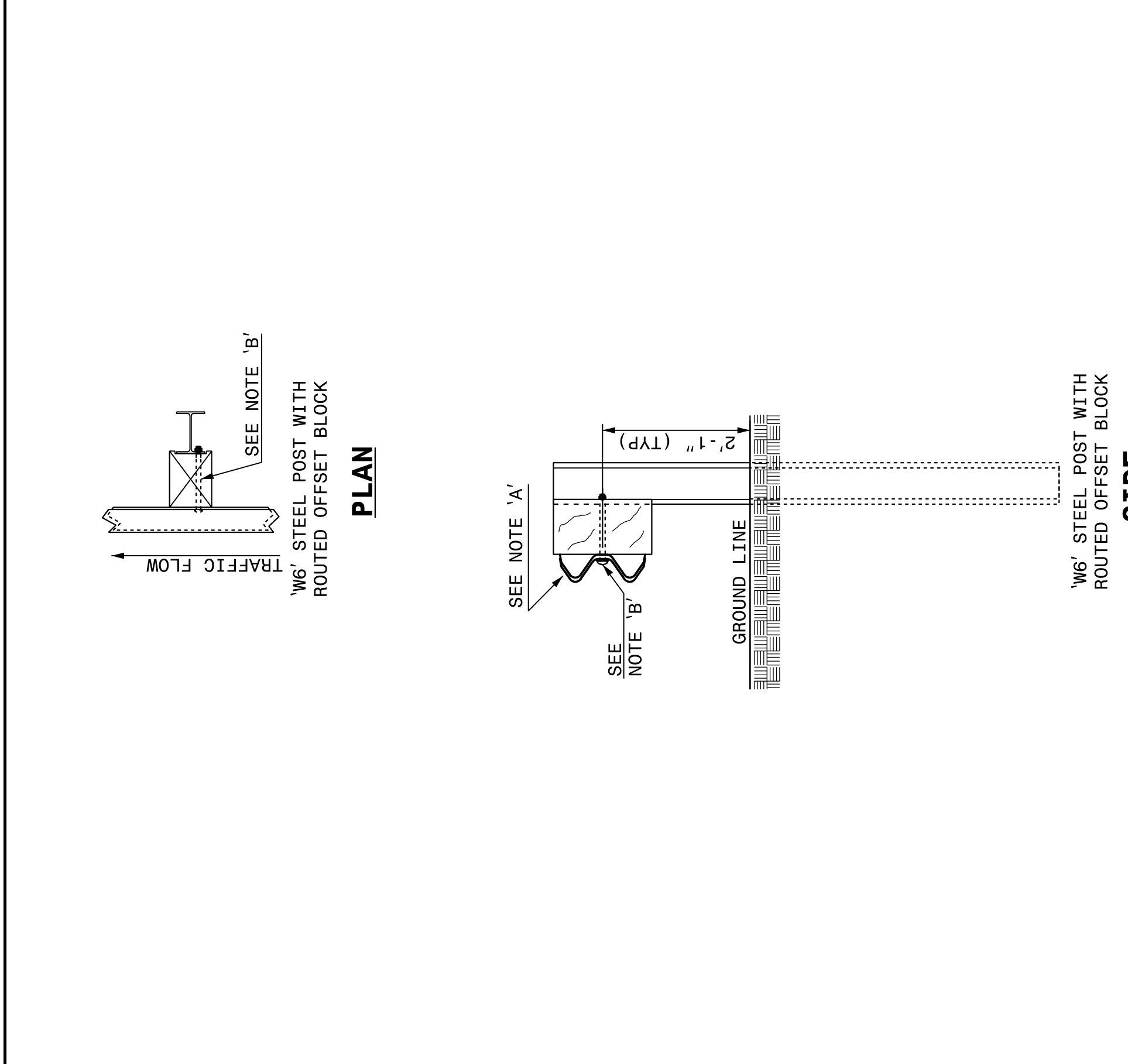
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ROADWAY DETAIL DRAWING FOR
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SHEET 5 OF 8
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ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

SHEET 5 OF 8
862D02

NOTES:
 A - 5/8" DIA. BUTTON HEAD SPLICE BOLT 1 1/4" LONG (8 REG. PER SPLICE JOINT).
 B - 5/8" DIA. BUTTON HEAD BOLT 7 1/2" / 9" LONG WITH NUT FOR BOLTING 6" / 8" ROUTED OFFSET BLOCK TO STEEL POSTS.
 C - FIELD PUNCHING OF HOLES INTO GUARDRAIL AS DIRECTED BY THE ENGINEER.

TYPICAL GUARDRAIL AND GUARDRAIL POST ALTERNATIVES



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PROJECT NO.	SHEET NO.
I-5839 (53045.3.1)	3B-1

SUMMARY OF QUANTITIES

PROJECT	COUNTY	SHEET	ROUTE	DESCRIPTI ON	LENGTH	UNDERCUT	BORROW	SHOULDER RECONSTR UCTION	SHOULDER CONSTRUCT ION	AGGREGATE SHOULDER BORROW	REMOVAL OF EXISTING ASPHALT PAVEMENT	15" SIDE DRAIN PIPE	12" RCP CLASS III	15" RCP CLASS III	18" RCP CLASS III	24" RCP CLASS III	15" RCP CLASS IV	METAL FUNNEL S	12" FUNNEL DRAIN PIPE	12" FUNNEL DRAIN PIPE ELBOWS	PIPE COLL ARS	FLOW- ABLE FILL	REMOVE & REPLACE DRAIN- AGE STR'S 840.18 & 840.27	MAS. DRAIN- AGE STR'S 840.18 & 840.27	MAS. DRAIN- AGE STR'S	FRAME W/ TWO GRATES 840.22	REPAIR MASONRY DRAINAGE STRUCTURE	STEEL BM GUARD- RAIL	STEEL BM GUARD- RAIL SHOP CURVED	ADDI- TIONAL GUARD- RAIL POSTS	REMOVE & RESET EXIST- ING GUARD- RAIL	REMOVE EXIST- ING GUARD- RAIL	GREU TYPE TL-3		
NO	NO				MI	CY	CY	SMI	SMI	TON	SY	LF	LF	LF	LF	LF	EA	LF	EA	CY	CY	EA	EA	LF	EA	EA	EA	EA	LF	LF	EA	LF	LF	EA	
53045.3.1	Halifax	4	I-95	US 158 INTER- CHANGE			6,800		0.384								8	320	16								6						2,025		
		5	I-95	BETWEEN US 158 & NORTH OF ROANOKE RIVER					0.050									1	30	2						200					10,260	200		1	
	Northampton	6	I-95	NC 46 INTER- CHANGE			1,250		0.105												0.553								237.5			900	237.5		2
		7	I-95	NC 48 INTER- CHANGE			1,500		0.100																			237.5				237.5		2	
		8	I-95	WELCOME CENTER							676		136				66							2		2									
				PROJECT WIDE & PROJECT CONTINGENCY	8.621	50		39	0.639	7,920		20		40	40	40					5	10	14		16	12	23	1,325	50	10	63,415	1,325		5	
GRAND TOTAL FOR PROJ. I-5839 (53045.3.1)					8.621	50	9,550	39	1.278	7,920	676	20	136	40	40	48	66	9	350	18	6	10	14	2	16	14	29	2,000	50	10	76,600	2,000	10		

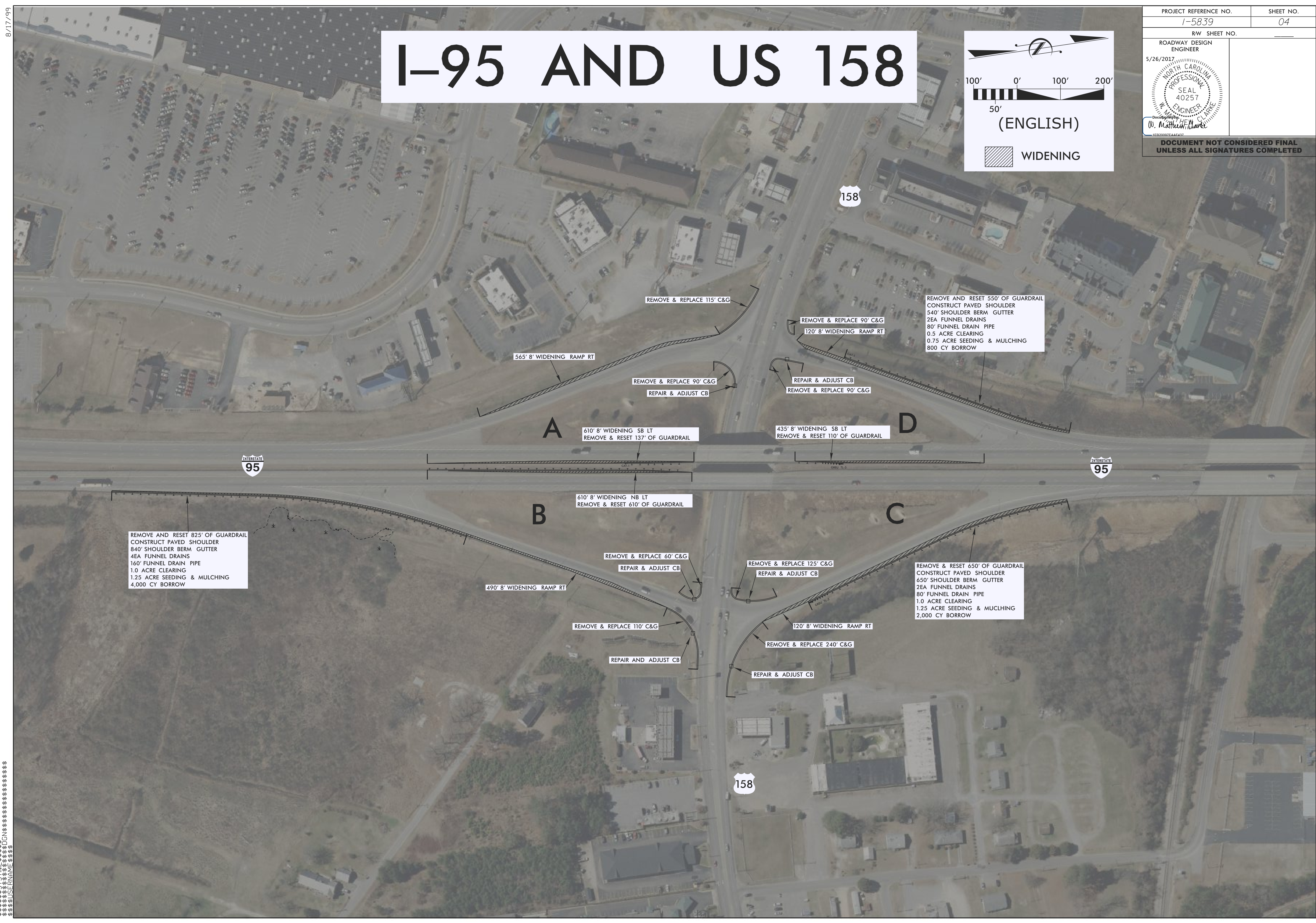
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I-95 AND US 158

(ENGLISH)

WIDENING

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RW SHEET NO.	
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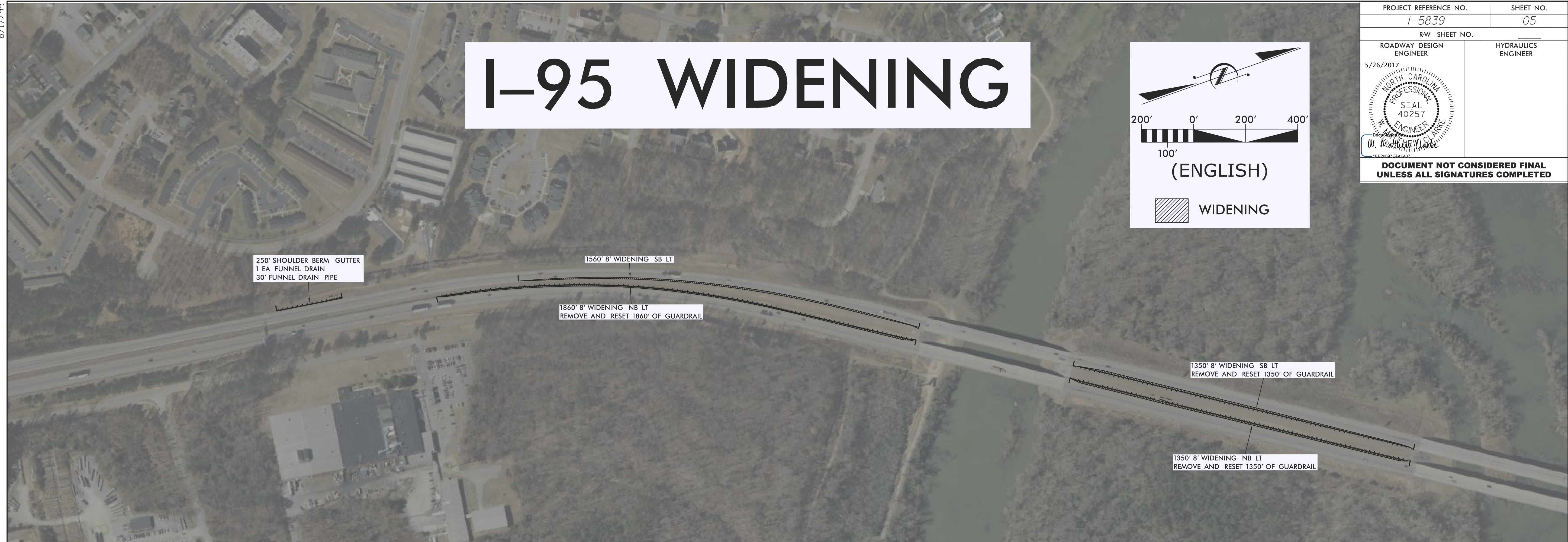
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APPROVED BY: [unreadable]

8/17/99

I-95 WIDENING

200' 0' 200' 400'
100'
(ENGLISH)
WIDENING

PROJECT REFERENCE NO. I-5839	SHEET NO. 05
RW SHEET NO.	
ROADWAY DESIGN ENGINEER 5/26/2017	HYDRAULICS ENGINEER
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200' 0' 200' 400'
100'
(ENGLISH)
WIDENING

8/17/99

I-95 AND NC 46

(ENGLISH)

WIDENING

PROJECT REFERENCE NO. I-5839	SHEET NO. 06
RW SHEET NO.	
ROADWAY DESIGN ENGINEER 5/26/2017	HYDRAULICS ENGINEER
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8/17/99



8/17/99

I-95 AND NC 48

(ENGLISH)

WIDENING

PROJECT REFERENCE NO. I-5839	SHEET NO. 07
RW SHEET NO.	
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DATE: 8/17/99
SCALE: AS SHOWN
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CHECKED BY: [unreadable]
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