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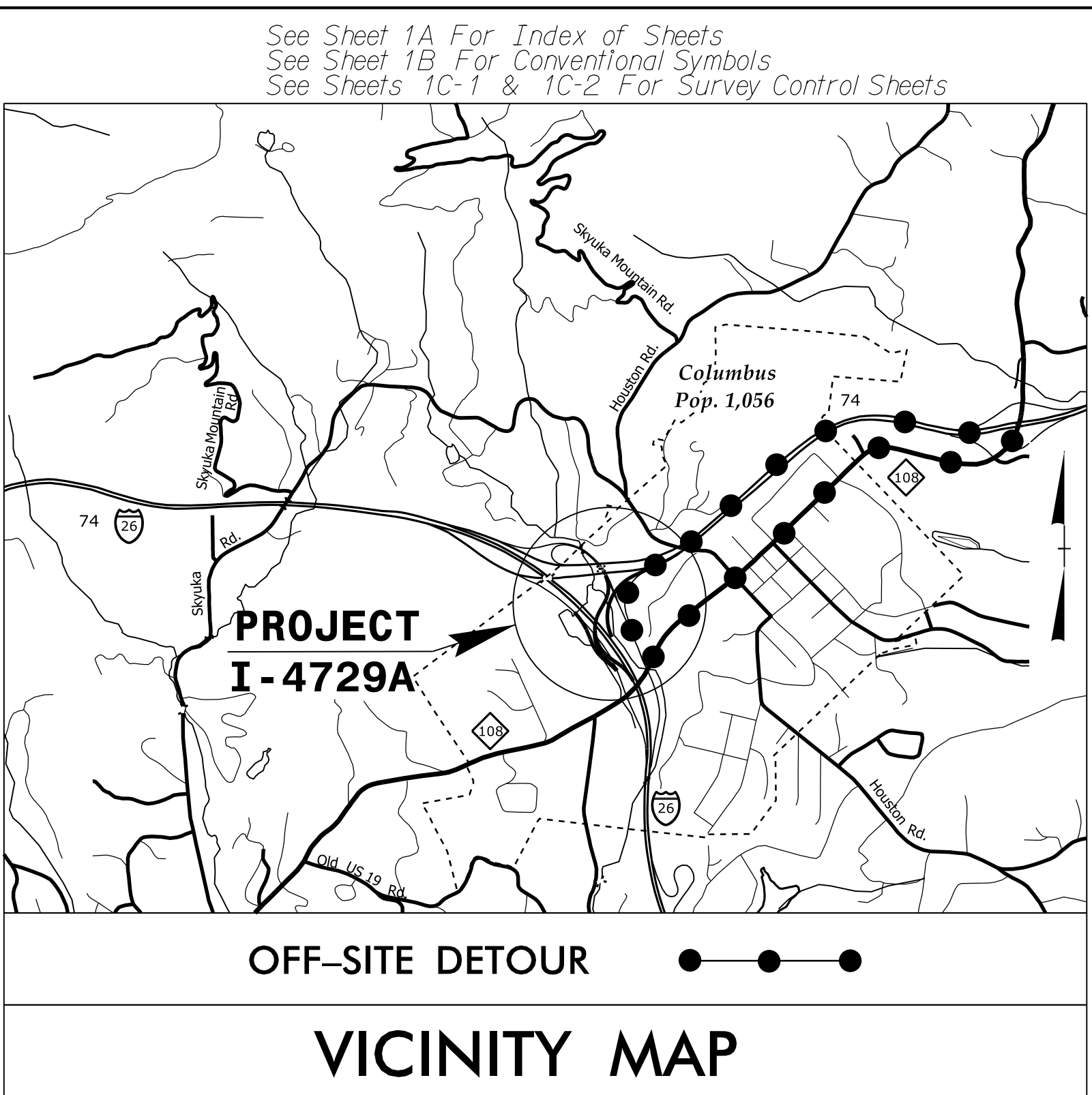
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09\_08/2017

**TIP PROJECT: I-4729A**

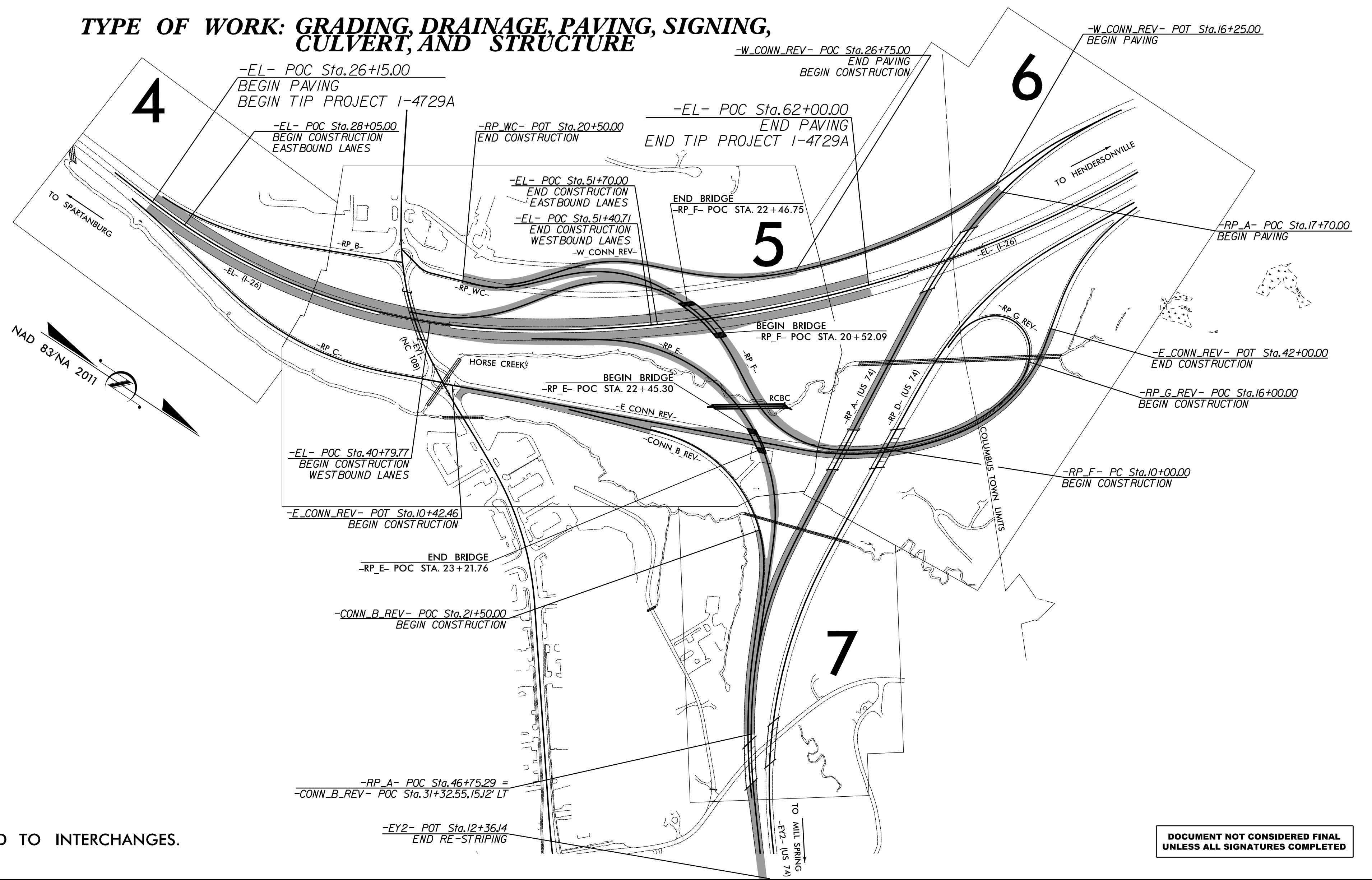
**CONTRACT: C204039**



STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS  
**POLK COUNTY**

**LOCATION: I-26 /US 74 /NC 108 INTERCHANGE MODIFICATION  
IN THE TOWN OF COLUMBUS**

**TYPE OF WORK: GRADING, DRAINAGE, PAVING, SIGNING,  
CULVERT, AND STRUCTURE**

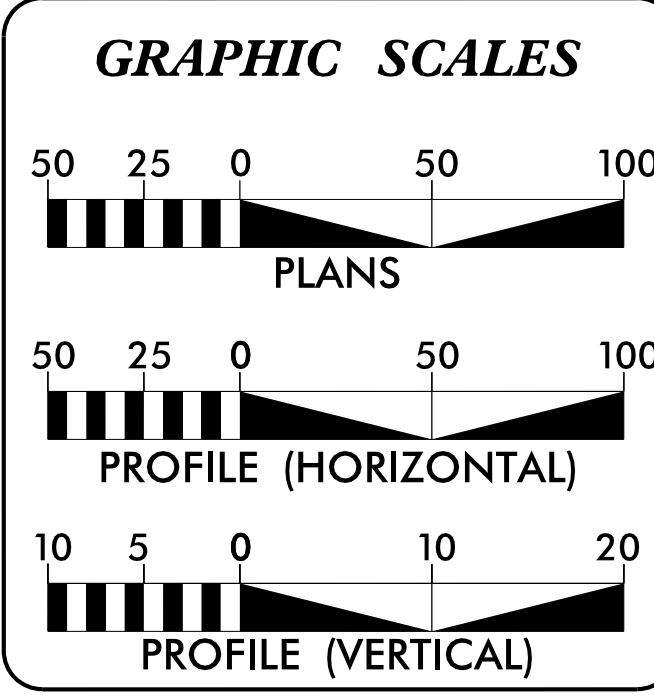


STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	I-4729A	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
34243.1.4		PE	
34243.2.2		ROW	
34243.3.2		CONST	

NCDOT CONTACT: KENNETH MCDOWELL

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

DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED



**DESIGN DATA**

-EL-
ADT 2016 = 21,700
ADT 2040 = 30,500
K = 9 %
D = 55 %
T = 24 % *
V = 70 MPH
* TTST = 21% + DUAL = 3%
FUNC CLASS = RURAL INTERSTATE

**PROJECT LENGTH**

LENGTH OF ROADWAY TIP PROJECT I-4729A = 0.679 MI.
TOTAL LENGTH OF TIP PROJECT I-4729A = 0.679 MI.

Prepared for the North Carolina Department of Transportation in the office of:

**PARSONS** | **SUNGATE DESIGN GROUP, P.A.**

2012 STANDARD SPECIFICATIONS

**RIGHT OF WAY DATE:** JULY 14, 2017

**LETTING DATE:** SEPTEMBER 19, 2017

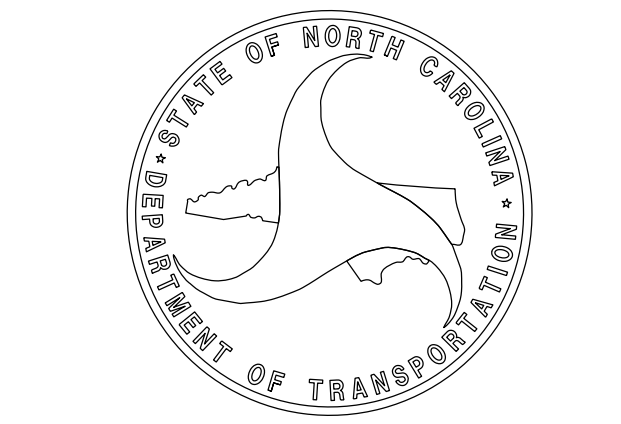
**DAVID L. WILVER, PE**  
PROJECT ENGINEER

**J. MATTHEW PICKENS, PE**  
PROJECT DESIGN ENGINEER

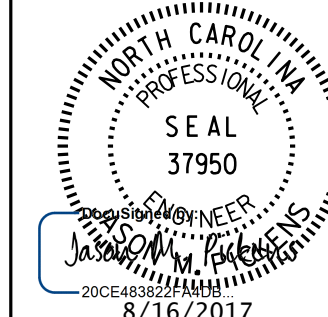
**HYDRAULICS ENGINEER**

**ROADWAY DESIGN ENGINEER**

Seals and signatures for David L. Wilver and J. Matthew Pickens, dated 8/14/2017.



14-AUG-2017 08:13  
J:\I-4729A\Roadway\Proj\I-4729A\_RDY\_TSH\_01.dgn  
\$\$\$\$\$USERNAME\$\$\$\$\$

PLANS PREPARED BY : <b>PARSONS</b> <small>RALEIGH, NORTH CAROLINA, (919) 854-1345                  NC LICENSE NO. F-0246                  FOR NORTH CAROLINA DEPT. OF TRANSPORTATION</small>	PROJECT REFERENCE NO. 1-4729A	SHEET NO. 1A
		ROADWAY DESIGN ENGINEER 

**DOCUMENT NOT CONSIDERED FINAL  
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	INDEX OF SHEETS	
SHEET NUMBER	SHEET	
1	TITLE SHEET	
1A	INDEX OF SHEETS, GENERAL NOTES, AND STANDARD DRAWINGS	
1B	CONVENTIONAL SYMBOLS	
1C-1 & 1C-2	SURVEY CONTROL SHEETS	
1D-1 & 1D-2	CENTERLINE COORDINATE LIST	
2A-1 THRU 2A-5	PAVEMENT SCHEDULE AND TYPICAL SECTIONS	
2B-1	BRIDGE SKETCHES	
2B-2	HORIZONTAL CURVE DATA	
2B-3	SHEAR POINT DIAGRAM	
2B-4	RESURFACING OVERVIEW MAP	
2C-1 THRU 2C-14	GUARDRAIL DETAILS	
2C-15	METHOD OF SHOULDER CONSTRUCTION DETAIL	
2C-16	DETAIL TO CONVERT EXISTING DROP INLET TO JUNCTION BOX	
2D-1	DRAINAGE DETAILS	
2G-1	STANDARD ROCK PLATING DETAIL	
2G-2	STANDARD EMBANKMENT MONITORING DETAIL	
3B-1	ROADWAY SUMMARIES	
3D-1 THRU 3D-3	DRAINAGE SUMMARIES	
3G-1	GEOTECHNICAL SUMMARIES	
4 THRU 7	PLAN SHEETS	
8 THRU 17	PROFILE SHEETS	
RW-1 & RW-4	MODIFIED R/W PLAN SHEET	
TMP-1 THRU TMP-29	TRAFFIC MANAGEMENT PLANS	
PMP-1 THRU PMP-8	PAVEMENT MARKING PLANS	
EC-1 THRU EC-11	EROSION CONTROL PLANS	
RF-1 THRU RF-3	REFORESTATION DETAIL SHEET	
STRM 01 THRU STRM 09	STREAM RELOCATION PLANS	
SIGN-1A THRU SIGN-6D	SIGNING PLANS	
X-1A THRU X-1B	CROSS-SECTION TITLE & SUMMARY SHEETS	
X-1 THRU X-87	CROSS-SECTIONS	
S1-1 THRU S1-24	STRUCTURE PLANS (-RP_E- SITE 1)	
S2-1 THRU S2-31	STRUCTURE PLANS (-RP_F- SITE 2)	
C-1 THRU C-6	CULVERT PLANS	
W-1 THRU W-20	RETAINING WALL PLANS	

**GENERAL NOTES:** 2012 SPECIFICATIONS  
 EFFECTIVE: 01-17-2012  
 REVISED: 01-24-2017

**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 11.

**SUPERELEVATION:**

ALL CURVES ON THIS PROJECT SHALL BE SUPERELEVATED IN ACCORDANCE WITH STD. 225.04 AND STD. 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. 560.02 AND DETAILS INCLUDED IN THE PLANS.

**BERM DITCHES:**

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

**SUBSURFACE DRAINS:**

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

**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 WILL BE PAID FOR AS "EXTRA WORK" IN ACCORDANCE WITH SECTION 104-7.

**END BENTS:**

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

**RIGHT-OF-WAY MARKERS:**

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

**ROCK**

ROCK IS ANTICIPATED BETWEEN -RP\_F- STA. 29+25 TO 31+25. BLASTING MAY BE REQUIRED FOR EXCAVATION ON THE PROJECT. SEE SECTION 220 OF THE STANDARD SPECIFICATIONS AND IF APPLICABLE, ROCK BLASTING PROVISION.

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	
200.02	Method of Clearing - Method II
225.01	Guide for Grading Subgrade - Interstate and Freeway
225.03	Deceleration and Acceleration Lanes
225.04	Method of Obtaining Superelevation - Two Lane Pavement
225.05	Method of Obtaining Superelevation - Divided Highways
225.09	Guide for Shoulder and Ditch Transition at Grade Separations
240.01	Guide for Berm Ditch Construction
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation
DIVISION 4 - MAJOR STRUCTURES	
422.10	Reinforced Bridge Approach Fills
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.02	Method of Shoulder Construction - High Side of Superelevated Curve - Method II (Sheet 2 of 3 is no longer applicable, See Sheet 2C-15)
DIVISION 6 - ASPHALT BASES AND PAVEMENTS	
654.01	Pavement Repairs
665.01	Asphalt Shoulders - Milled Rumble Strips
DIVISION 8 - INCIDENTALS	
815.02	Subsurface Drain
840.00	Concrete Base Pad for Drainage Structures
840.14	Concrete Drop Inlet - 12" thru 30" Pipe
840.15	Brick Drop Inlet - 12" thru 30" Pipe
840.16	Drop Inlet Frame and Grates - for use with Std. Dwg 840.14 and 840.15
840.17	Concrete Grated Drop Inlet Type 'A' - 12" thru 72" Pipe
840.18	Concrete Grated Drop Inlet Type 'B' - 12" thru 36" Pipe
840.19	Concrete Grated Drop Inlet Type 'D' - 12" thru 36" Pipe
840.20	Frames and Wide Slot Flat Grates
840.22	Frames and Wide Slot Sag Grates
840.25	Anchorage for Frames - Brick or Concrete or Precast
840.26	Brick Grated Drop Inlet Type 'A' - 12" thru 72" Pipe
840.27	Brick Grated Drop Inlet Type 'B' - 12" thru 36" Pipe
840.28	Brick Grated Drop Inlet Type 'D' - 12" thru 36" Pipe
840.29	Frames and Narrow Slot Flat Grates
840.31	Concrete Junction Box - 12" thru 66" Pipe
840.32	Brick Junction Box - 12" thru 66" Pipe
840.34	Traffic Bearing Junction Box - for Use with Pipes 42" and Under
840.35	Traffic Bearing Grated Drop Inlet - for Cast Iron Double Frame and Grates
840.45	Precast Drainage Structure
840.46	Traffic Bearing Precast Drainage Structure
840.54	Manhole Frame and Cover
840.66	Drainage Structure Steps
840.72	Pipe Collar
846.01	Concrete Curb, Gutter and Curb & Gutter
846.02	Drop Inlet Installation in Expressway Gutter
846.04	Drop Inlet Installation in Shoulder Berm Gutter
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
854.02	Double Faced Concrete Barrier - Types 'T', 'T1' and 'T2'

EFF. 01-17-2012  
 REV. 05-24-2017

# 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	-----
Proposed Lateral, Tail, Head Ditch	-----
False Sump	-----

### RAILROADS:

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

### RIGHT OF WAY & PROJECT CONTROL:

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

### ROADS AND RELATED FEATURES:

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

### VEGETATION:

Single Tree	☼
Single Shrub	☼

Note: Not to Scale

\*S.U.E. = Subsurface Utility Engineering

Hedge	-----
Woods Line	-----
Orchard	-----
Vineyard	----- 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.*)	-----
U/G Water Line LOS C (S.U.E.*)	-----
U/G Water Line LOS D (S.U.E.*)	-----
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.*)	----- 7UTL
U/G Tank; Water, Gas, Oil	-----
Underground Storage Tank, Approx. Loc.	----- UST
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.



# SURVEY CONTROL SHEET I-4729A

## -FINAL-

BL POINT	DESC.	NORTH	EAST	ELEVATION	EL STATION	OFFSET
G101	14729-G101	55287.7130	1043648.7710	1038.40	OUTSIDE PROJECT LIMITS	
G102	14729-G102	55287.7130	1043648.7710	1038.40	OUTSIDE PROJECT LIMITS	
1	BL-1	55279.2021	1043283.4745	1020.41	OUTSIDE PROJECT LIMITS	
2	BL-2	55756.0099	1043242.9375	1011.21	17+92.14	2.31 RT
3	BL-3	55857.1964	1043304.6672	1016.76	28+05.55	0.89 LT
4	BL-4	55945.8544	1043184.3812	1025.66	36+77.25	4.36 LT
5	BL-5	56025.6481	1042871.4576	1033.25	45+51.69	2.28 LT
6	BL-6	56102.8826	1042206.8424	1043.27	56+24.96	69.21 RT
7	BL-7	56182.2590	1041271.1598	1079.04	69+03.58	2.98 RT
8	BL-8	562185.2184	1040501.2023	1123.20	OUTSIDE PROJECT LIMITS	
G105	14729-G105	562229.0890	1040904.4600	1113.91	73+23.50	151.42 RT
G105	14729-G105	562000.3900	1041625.4610	1076.53	66+25.24	354.81 RT

BY1 POINT	DESC.	NORTH	EAST	ELEVATION	EY1 STATION	OFFSET
G109	14729-G109	558369.2870	1040247.4510	1077.25	12+45.15	24.65 RT
G110	14729-G110	55884.2140	1039586.6290	1082.83	OUTSIDE PROJECT LIMITS	
9	BY1-9	558299.1343	1040095.6771	1074.19	10+66.99	26.73 RT
10	BY1-10	558595.4940	1040542.8712	1077.95	15+67.27	23.50 LT
11	BY1-11	558645.7525	1041371.3247	1077.64	24+05.04	19.15 RT
12	BY1-12	559175.3240	1042273.0160	1091.53	34+49.28	22.26 LT
13	BY1-13	559497.2093	1042881.1669	1065.80	48+48.52	22.96 RT
G103	14729-G103	559975.5110	1043272.9030	1045.98	4+05.33	29.23 RT
G104	14729-G104	558674.1070	1043593.8390	1059.11	62+19.31	27.68 LT
14	BY1-14	561117.2882	1044063.7184	1078.87	68+67.31	31.08 LT
15	BY1-15	561345.8174	1044458.9363	1081.95	73+13.90	21.06 RT
16	BY1-16	561719.0985	1044811.7330	1100.82	78+35.37	46.67 LT

**DATUM DESCRIPTION**

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "14729-G103" WITH NAD 83/NA 2011 STATE PLANE GRID COORDINATES OF NORTHING: 559975.511(±) EASTING: 1043272.903(±) ELEVATION: 1046.99(±) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999825907 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "14729-G103" TO -EL- STATION 28+05.00 IS S 01°19'05.2" E 1419.26' ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NAVD 88

**GEOID MODEL - G12ANC**  
NOTE: DRAWING NOT TO SCALE

-RP\_F - FINAL

TYPE	STATION	NORTH	EAST
PC	10+00.00	561926.7664	1042367.6631
CS	11+63.05	561794.9594	1042463.4962
SC	12+27.05	561739.9238	1042496.1212
CS	16+04.76	561373.3198	1042530.7956
SRS	18+20.76	561178.6535	1042438.2982
SC	20+36.76	560985.5365	1042342.1437
CS	27+88.45	560294.7517	1042505.6146
SRS	29+80.45	560177.6817	1042657.5557
SC	31+72.45	560062.2740	1042810.8579
CS	34+90.21	559812.3660	1043003.9858
SC	35+54.21	559754.4088	1043031.1171
PT	36+28.38	559686.2185	1043060.3018

-RP\_G\_REV - FINAL

TYPE	STATION	NORTH	EAST
PC	10+00.00	561931.4038	1041786.4769
CS	10+46.84	561933.7614	1041739.6986
SC	10+92.84	561938.3972	1041693.9544
PCC	12+58.07	562015.7131	1041551.3254
PCC	15+32.69	562258.7592	1041572.9112
CS	16+72.19	562308.6858	1041701.2442
SC	17+64.19	562303.8830	1041792.8772
PCC	20+11.29	562192.5006	1042076.4771
PCC	24+71.45	561969.0398	1042331.7178
PT	24+66.95	561926.7657	1042367.6654

-RP\_A - FINAL

TYPE	STATION	NORTH	EAST
POT	10+00.00	562039.1987	1040319.6077
PC	10+02.95	562037.5247	1040322.0348
PT	20+64.41	561702.0533	1041314.7315
PC	21+12.43	561699.7490	1041362.6991
PT	24+63.24	561708.2758	1041713.0968
PC	36+61.77	561823.9478	1042906.0386
PT	37+52.21	561834.3024	1042995.8793
PC	37+96.98	561840.2320	1043040.2543
PT	42+28.58	561951.4183	1043456.0559
PC	42+43.38	561957.0419	1043469.7470
PT	44+46.68	562044.7314	1043653.0470
PC	44+74.24	562058.0072	1043677.1937
PT	49+82.54	562342.6917	1044097.4130
PC	52+26.64	562497.7316	1044285.9547
PT	52+83.87	562534.3022	1044329.9777

-W\_CONN\_REV - FINAL

TYPE	STATION	NORTH	EAST
POT	10+00.00	561958.6347	1040446.4221
PC	11+98.17	561859.0274	1040617.7427
PT	13+96.66	561773.8757	1040796.7845
PC	16+39.71	561687.9744	1041024.1502
PT	20+41.21	561509.4536	1041383.0209
PC	20+98.27	561479.0434	1041431.3131
CS	26+76.80	561119.0683	1041882.6740
SC	27+40.80	561073.1201	1041927.2194
CS	31+26.51	560756.1639	1042144.5410
SRS	33+18.51	560579.6218	1042219.9001
SC	35+10.51	560404.9571	1042299.2097
CS	36+70.46	560276.9210	1042394.4452
SRS	38+62.46	560150.7270	1042538.9195
SC	40+54.46	560021.7565	1042680.6793
PT	40+85.47	559997.3480	1042699.7991

-EL - FINAL

TYPE	STATION	NORTH	EAST
POT	10+00.00	556755.4847	1043279.1964
PC	10+20.43	556775.7842	1043276.8648
PT	21+47.53	557900.9167	1043258.8592
TS	24+68.05	558220.3519	1043285.2261
SC	27+68.05	558519.6838	1043304.6809
CS	42+66.84	559961.8815	1042964.5759
SC	45+66.84	560219.6223	1042811.1967
PT	75+89.07	562223.6190	1040595.7912
POT	76+01.48	562229.2586	1040584.7325

-E\_CONN\_REV - FINAL

TYPE	STATION	NORTH	EAST
POT	10+00.00	560009.2366	1043258.0841
PC	27+36.81	561609.0825	1042582.0640
PCC	35+31.42	562211.0680	1042081.0629
PT	41+19.99	562311.5903	1041517.4148
PC	43+37.69	562262.0826	1041305.4239
PT	48+65.55	562295.2732	1040786.1563
POT	49+28.18	562317.1638	1040727.4811

-CONN\_B\_REV - FINAL

TYPE	STATION	NORTH	EAST
POT	10+00.00	560577.0897	1043031.8674
TS	13+67.25	560923.8769	1042910.9767
SC	15+47.25	561096.2508	1042859.6727
CS	23+21.13	561768.1543	1043142.4205
ST	25+01.13	561851.9798	1043301.5372
TS	26+17.77	561901.5264	1043407.1301
SC	27+97.77	561979.7013	1043569.2590
PT	34+16.27	562317.6287	1044085.8276
POT	34+41.14	562333.4230	1044105.0347

-RP\_WC - FINAL

TYPE	STATION	NORTH	EAST
POT	10+00.00	560703.5726	1042293.7660
PC	10+78.19	560625.7182	1042300.9776
CS	14+57.74	560279.2310	1042442.0230
SRS	16+49.74	560142.8760	1042576.9260
SC	18+41.74	560004.4380	1042709.4806
PT	19+85.09	559878.0015	1042775.9358
PC	22+08.86	559666.7580	1042849.7408
PT	22+76.65	559599.9379	1042854.0882
POT	23+91.96	559487.0674	1042830.4804

-FINAL - ROW MARKER IRON PIN

ALIGN	STATION	OFFSET	NORTH	EAST
W_CONN_REV	40+11.94	70.08	560004.02943	1042602.09288
W_CONN_REV	37+49.03	482.36	559860.08858	1042133.10745
W_CONN_REV	35+56.73	362.38	560164.22450	1042022.35750
W_CONN_REV	35+13.88	348.39	560227.10670	1041999.60390
W_CONN_REV	31+58.17	321.13	560593.57235	1041866.20553
W_CONN_REV	25+99.84	180.98	561040.80640	1041703.40640
W_CONN_REV	26+04.25	167.69	561047.65590	1041715.50670

**NOTES:**

- THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT: [HTTPS://CONNECT.NCDOT.GOV/RESOURCES/LOCATION](https://connect.ncdot.gov/resources/location)
- THE FILES TO BE FOUND ARE AS FOLLOWS: I-4729\_LS\_CONTROL.TXT
- SITE CALIBRATION INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.
- INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.
- PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.

15-AUG-2017 12:02 PM \\wau\proj\4729\1s\_1c-2.dgn

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

# CENTERLINE COORDINATE LIST

Point #	Chain	Station	Northing (Y)	Easting (X)
1	CONN_B_REV	10+00.00	560577.0897	1043031.8674
2	CONN_B_REV	10+50.00	560624.3032	1043015.4087
3	CONN_B_REV	11+00.00	560671.5166	1042998.9500
4	CONN_B_REV	11+50.00	560718.7301	1042982.4913
5	CONN_B_REV	12+00.00	560765.9435	1042966.0326
6	CONN_B_REV	12+50.00	560813.1570	1042949.5739
7	CONN_B_REV	13+00.00	560860.3705	1042933.1152
8	CONN_B_REV	13+50.00	560907.5839	1042916.6564
9	CONN_B_REV	14+00.00	560954.8138	1042900.2450
10	CONN_B_REV	14+50.00	561002.2698	1042884.5034
11	CONN_B_REV	15+00.00	561050.2496	1042870.4502
12	CONN_B_REV	15+50.00	561098.9442	1042859.1412
13	CONN_B_REV	16+00.00	561148.3381	1042851.4595
14	CONN_B_REV	16+50.00	561198.1763	1042847.5964
15	CONN_B_REV	17+00.00	561248.1639	1042847.5746
16	CONN_B_REV	17+50.00	561298.0055	1042851.3942
17	CONN_B_REV	18+00.00	561347.4061	1042859.0328
18	CONN_B_REV	18+50.00	561396.0736	1042870.4451
19	CONN_B_REV	19+00.00	561443.7202	1042885.5636
20	CONN_B_REV	19+50.00	561490.0641	1042904.2989
21	CONN_B_REV	20+00.00	561534.8312	1042926.5402
22	CONN_B_REV	20+50.00	561577.7567	1042952.1559
23	CONN_B_REV	21+00.00	561618.5868	1042980.9946
24	CONN_B_REV	21+50.00	561657.0800	1043012.8857
25	CONN_B_REV	22+00.00	561693.0086	1043047.6406
26	CONN_B_REV	22+50.00	561726.1601	1043085.0538
27	CONN_B_REV	23+00.00	561756.3385	1043124.9039
28	CONN_B_REV	23+50.00	561783.3946	1043166.9375
29	CONN_B_REV	24+00.00	561807.6958	1043210.6279
30	CONN_B_REV	24+50.00	561830.0884	1043255.3308
31	CONN_B_REV	25+00.00	561851.4997	1043300.5140
32	CONN_B_REV	25+50.00	561872.7390	1043345.7787
33	CONN_B_REV	26+00.00	561893.9782	1043391.0434
34	CONN_B_REV	26+50.00	561915.2274	1043436.3035
35	CONN_B_REV	27+00.00	561936.6207	1043481.4955
36	CONN_B_REV	27+50.00	561958.3767	1043526.5139
37	CONN_B_REV	28+00.00	561980.7131	1043571.2469
38	CONN_B_REV	28+50.00	562003.8018	1043615.5960
39	CONN_B_REV	29+00.00	562027.6678	1043659.5317
40	CONN_B_REV	29+50.00	562052.3035	1043703.0405
41	CONN_B_REV	30+00.00	562077.7014	1043746.1089
42	CONN_B_REV	30+50.00	562103.8536	1043788.7234
43	CONN_B_REV	31+00.00	562130.7519	1043830.8710
44	CONN_B_REV	31+50.00	562158.3880	1043872.5385
45	CONN_B_REV	32+00.00	562186.7535	1043913.7130
46	CONN_B_REV	32+50.00	562215.8393	1043954.3817
47	CONN_B_REV	33+00.00	562245.6367	1043994.5321
48	CONN_B_REV	33+50.00	562276.1362	1044034.1517
49	CONN_B_REV	34+00.00	562307.3285	1044073.2282
50	CONN_B_REV	34+41.14	562333.4230	1044105.0347
51	EL	10+00.00	556755.4847	1043279.1964
52	EL	11+00.00	556854.8920	1043268.3345
53	EL	12+00.00	556954.4702	1043259.1730
54	EL	13+00.00	557054.1931	1043251.7507
55	EL	14+00.00	557154.0304	1043246.0699
56	EL	15+00.00	557253.9515	1043242.1325
57	EL	16+00.00	557353.9262	1043239.9394
58	EL	17+00.00	557453.9239	1043239.4915
59	EL	18+00.00	557553.9143	1043240.7889
60	EL	19+00.00	557653.8667	1043243.8312
61	EL	20+00.00	557753.7508	1043248.6174
62	EL	21+00.00	557853.5362	1043255.1461
63	EL	22+00.00	557953.2129	1043263.1759
64	EL	23+00.00	558052.8740	1043271.4021
65	EL	24+00.00	558152.5351	1043279.6284
66	EL	25+00.00	558252.1967	1043287.8483
67	EL	26+00.00	558351.8925	1043295.6368
68	EL	27+00.00	558451.6947	1043301.8936
69	EL	28+00.00	558551.6266	1043305.4611
70	EL	29+00.00	558651.6215	1043305.6000
71	EL	30+00.00	558751.5602	1043302.2490
72	EL	31+00.00	558851.3212	1043295.4123
73	EL	32+00.00	558950.7827	1043285.0981
74	EL	33+00.00	559049.8237	1043271.3191
75	EL	34+00.00	559148.3235	1043254.0919
76	EL	35+00.00	559246.1621	1043233.4377
77	EL	36+00.00	559343.2203	1043209.3815
78	EL	37+00.00	559439.3798	1043181.9527
79	EL	38+00.00	559534.5234	1043151.1847
80	EL	39+00.00	559628.5353	1043117.1150
81	EL	40+00.00	559721.3009	1043079.7850

Point #	Chain	Station	Northing (Y)	Easting (X)
82	EL	41+00.00	559812.7072	1043039.2403
83	EL	42+00.00	559902.6429	1042995.5303
84	EL	43+00.00	559991.0050	1042948.7130
85	EL	44+00.00	560077.7859	1042899.0307
86	EL	45+00.00	560163.1866	1042847.0094
87	EL	46+00.00	560247.4568	1042793.1740
88	EL	47+00.00	560330.7586	1042737.8518
89	EL	48+00.00	560413.0823	1042681.0842
90	EL	49+00.00	560494.4027	1042622.8885
91	EL	50+00.00	560574.6951	1042563.2824
92	EL	51+00.00	560653.9349	1042502.2841
93	EL	52+00.00	560732.0981	1042439.9122
94	EL	53+00.00	560809.1609	1042376.1857
95	EL	54+00.00	560885.0998	1042311.1239
96	EL	55+00.00	560959.8916	1042244.7467
97	EL	56+00.00	561033.5136	1042177.0743
98	EL	57+00.00	561107.9433	1042108.1274
99	EL	58+00.00	561177.1587	1042037.9269
100	EL	59+00.00	561247.1381	1041966.4942
101	EL	60+00.00	561315.8602	1041893.8510
102	EL	61+00.00	561383.3040	1041820.0196
103	EL	62+00.00	561449.4489	1041745.0223
104	EL	63+00.00	561514.2750	1041668.8821
105	EL	64+00.00	561577.7623	1041591.6221
106	EL	65+00.00	561639.8916	1041513.2659
107	EL	66+00.00	561700.6439	1041433.8373
108	EL	67+00.00	561760.0007	1041353.3605
109	EL	68+00.00	561817.9440	1041271.8601
110	EL	69+00.00	561874.4561	1041189.3608
111	EL	70+00.00	561929.5198	1041105.8878
112	EL	71+00.00	561983.1182	1041021.4666
113	EL	72+00.00	562035.2352	1040936.1227
114	EL	73+00.00	562085.8548	1040849.8823
115	EL	74+00.00	562134.9615	1040762.7717
116	EL	75+00.00	562182.5405	1040674.8172
117	EL	76+00.00	562228.5865	1040586.0505
118	EL	76+01.48	562229.2586	1040584.7325
119	E_CONN_REV	10+00.00	560009.2366	1043258.0841
120	E_CONN_REV	10+50.00	560055.2936	1043238.6226
121	E_CONN_REV	11+00.00	560101.3506	1043219.1610
122	E_CONN_REV	11+50.00	560147.4076	1043199.6995
123	E_CONN_REV	12+00.00	560193.4646	1043180.2379
124	E_CONN_REV	12+50.00	560239.5216	1043160.7764
125	E_CONN_REV	13+00.00	560285.5786	1043141.3149
126	E_CONN_REV	13+50.00	560331.6357	1043121.8533
127	E_CONN_REV	14+00.00	560377.6927	1043102.3918
128	E_CONN_REV	14+50.00	560423.7497	1043082.9302
129	E_CONN_REV	15+00.00	560469.8067	1043063.4687
130	E_CONN_REV	15+50.00	560515.8637	1043044.0072
131	E_CONN_REV	16+00.00	560561.9207	1043024.5456
132	E_CONN_REV	16+50.00	560607.9777	1043005.0841
133	E_CONN_REV	17+00.00	560654.0347	1042985.6225
134	E_CONN_REV	17+50.00	560700.0918	1042966.1610
135	E_CONN_REV	18+00.00	560746.1488	1042946.6994
136	E_CONN_REV	18+50.00	560792.2058	1042927.2379
137	E_CONN_REV	19+00.00	560838.2628	1042907.7764
138	E_CONN_REV	19+50.00	560884.3198	1042888.3148
139	E_CONN_REV	20+00.00	560930.3768	1042868.8533
140	E_CONN_REV	20+50.00	560976.4338	1042849.3917
141	E_CONN_REV	21+00.00	561022.4909	1042829.9302
142	E_CONN_REV	21+50.00	561068.5479	1042810.4687
143	E_CONN_REV	22+00.00	561114.6049	1042791.0071
144	E_CONN_REV	22+50.00	561160.6619	1042771.5456
145	E_CONN_REV	23+00.00	561206.7189	1042752.0840
146	E_CONN_REV	23+50.00	561252.7759	1042732.6225
147	E_CONN_REV	24+00.00	561298.8329	1042713.1610
148	E_CONN_REV	24+50.00	561344.8899	1042693.6994
149	E_CONN_REV	25+00.00	561390.9470	1042674.2379
150	E_CONN_REV	25+50.00	561437.0040	1042654.7763
151	E_CONN_REV	26+00.00	561483.0610	1042635.3148
152	E_CONN_REV	26+50.00	561529.1180	1042615.8533
153	E_CONN_REV	27+00.00	561575.1750	1042596.3917
154	E_CONN_REV	27+50.00	561621.2320	1042576.8709
155	E_CONN_REV	28+00.00	561666.6923	1042556.1156
156	E_CONN_REV	28+50.00	561711.3781	1042533.6903
157	E_CONN_REV	29+00.00	561755.2028	1042509.6257
158	E_CONN_REV	29+50.00	561798.1064	1042483.9549
159	E_CONN_REV	30+00.00	561840.0301	1042457.1213
160	E_CONN_REV	30+50.00	561880.9163	1042427.9374
161	E_CONN_REV	31+00.00	561920.7089	1042397.6675
162	E_CONN_REV	31+50.00	561959.3534	1042366.9450

Point #	Chain	Station	Northing (Y)	Easting (X)
163	E_CONN_REV	32+00.00	561996.7967	1042332.8133
164	E_CONN_REV	32+50.00	562032.9875	1042298.3178
165	E_CONN_REV	33+00.00	562067.8762	1042262.5059
166	E_CONN_REV	33+50.00	562101.4150	1042225.4267
167	E_CONN_REV	34+00.00	562133.5577	1042187.1310
168	E_CONN_REV	34+50.00	562164.2603	1042147.6714
169	E_CONN_REV	35+00.00	562193.4808	1042107.1019
170	E_CONN_REV	35+50.00	562221.0861	1042065.4189
171	E_CONN_REV	36+00.00	562246.0246	1042022.0936
172	E_CONN_REV	36+50.00	562267.9181	1041977.1528
173	E_CONN_REV	37+00.00	562286.6627	1041930.8100
174	E_CONN_REV	37+50.00	562302.1693	1041883.2857
175	E_CONN_REV	38+00.00	562314.3640	1041834.8059
176	E_CONN_REV	38+50.00	562323.1889	1041785.6009
177	E_CONN_REV	39+00.00	562328.6022	1041735.9048
178	E_CONN_REV	39+50.00	562330.5779	1041685.9537
179	E_CONN_REV	40+00.00	562329.1068	1041635.9853
180	E_CONN_REV	40+50.00	562324.1958	1041586.2370
181	E_CONN_REV			





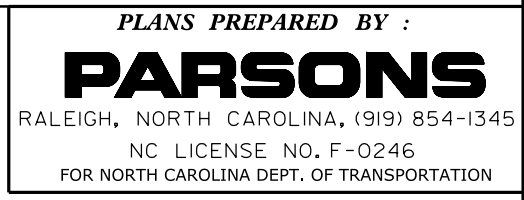
8/17/99

# FINAL PAVEMENT SCHEDULE

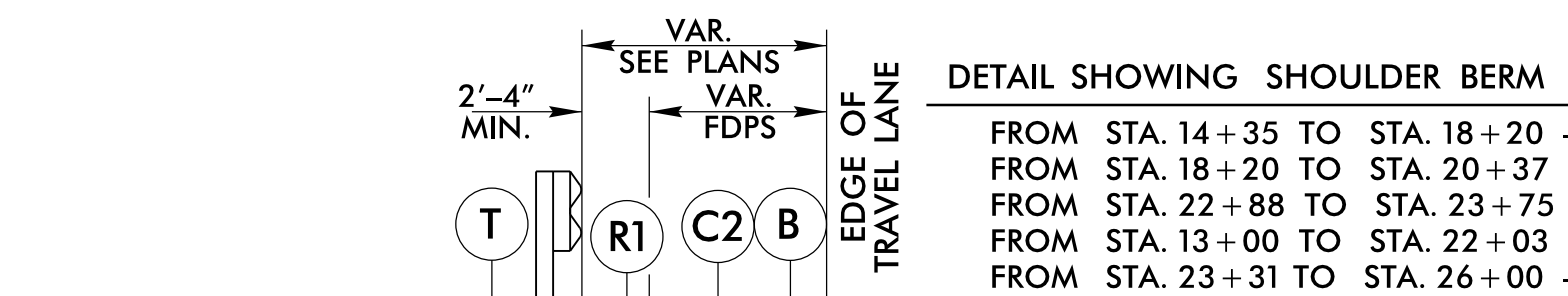
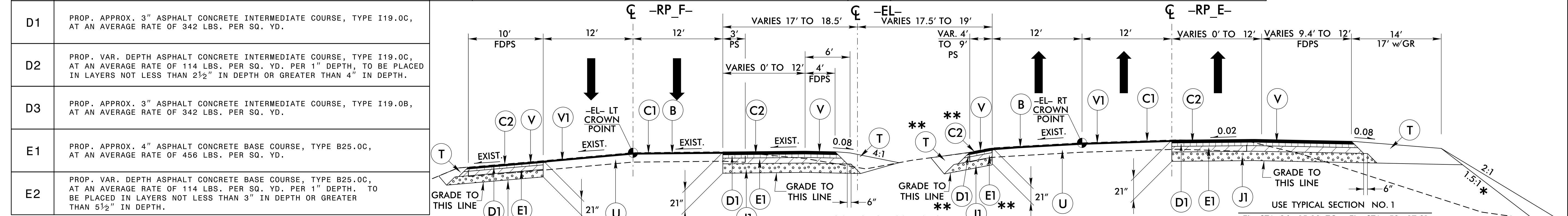
B	PROP. OPEN-GRADED ASPHALT FRICTION COURSE, TYPE FC-1 MOD, AT AN AVERAGE RATES OF 70 LBS. PER SQ. YD.	J1	PROP. 11" AGGREGATE BASE COURSE	V	MILLED RUMBLE STRIPS
C1	PROP. APPROX. 1 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.	R1	SHOULDER BERM GUTTER.	V1	MILLING ASPHALT PAVEMENT, 2 1/4" DEPTH
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.	R2	EXPRESSWAY GUTTER.	V2	MILLING ASPHALT PAVEMENT, 3" DEPTH
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.	R3	2'-6" CURB & GUTTER	U	EXISTING PAVEMENT.
C4	PROP. APPROX. 1 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.	T	EARTH MATERIAL.	W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE DETAIL SHOWING METHOD OF WEDGING)
D1	PROP. APPROX. 3" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.				
D2	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.				
D3	PROP. APPROX. 3" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.				
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.				
E2	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.				

PROJECT REFERENCE NO. 1-4729A	SHEET NO. 2A-1
ROADWAY DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 37950 8/14/2017	PAVEMENT DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 031022 8/14/2017

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

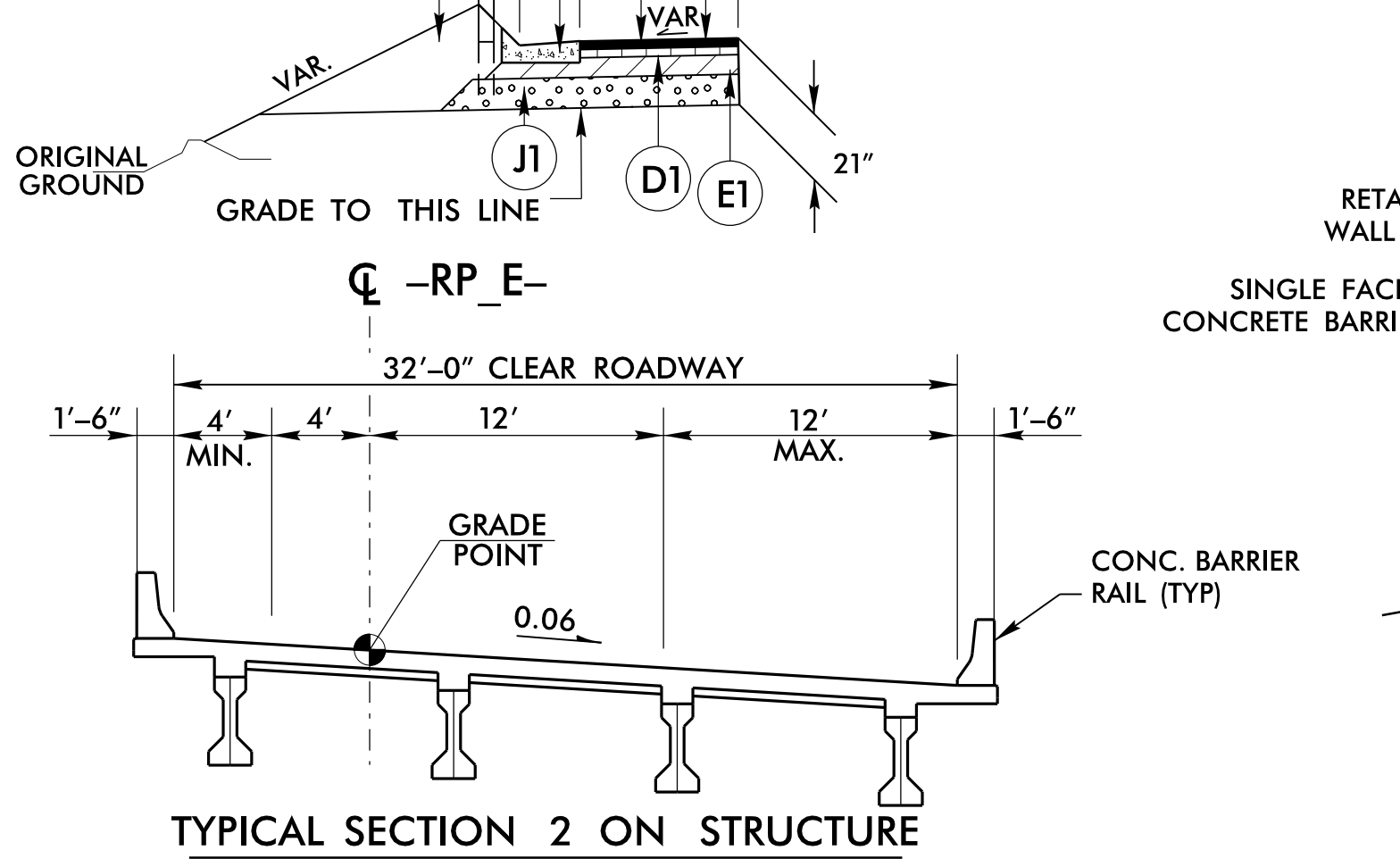


NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.

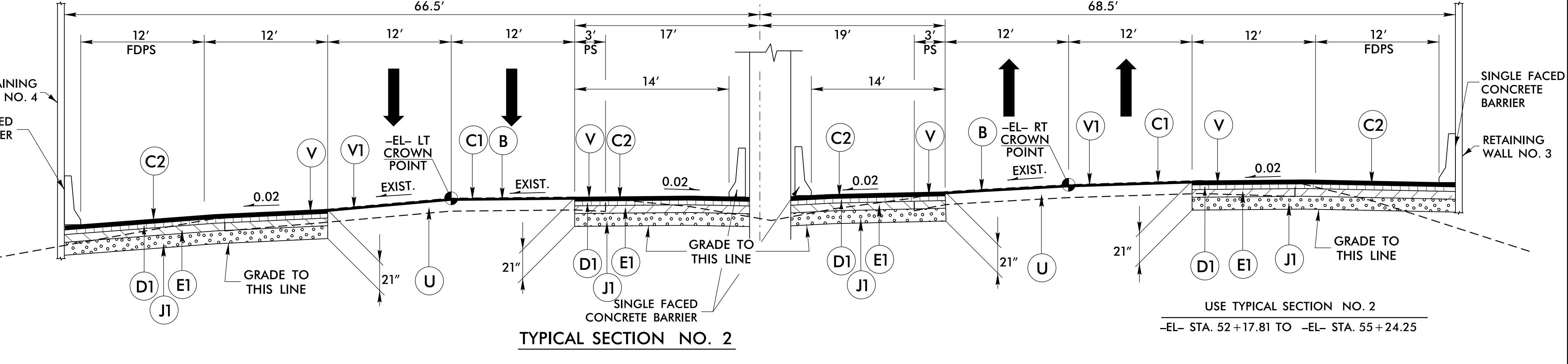


FROM STA. 14+35 TO STA. 18+20 -RP\_F- RT  
 FROM STA. 18+20 TO STA. 20+37 -RP\_F- LT  
 FROM STA. 22+88 TO STA. 23+75 -RP\_F- LT  
 FROM STA. 13+00 TO STA. 22+03 -RP\_E- RT  
 FROM STA. 23+31 TO STA. 26+00 -RP\_E- RT

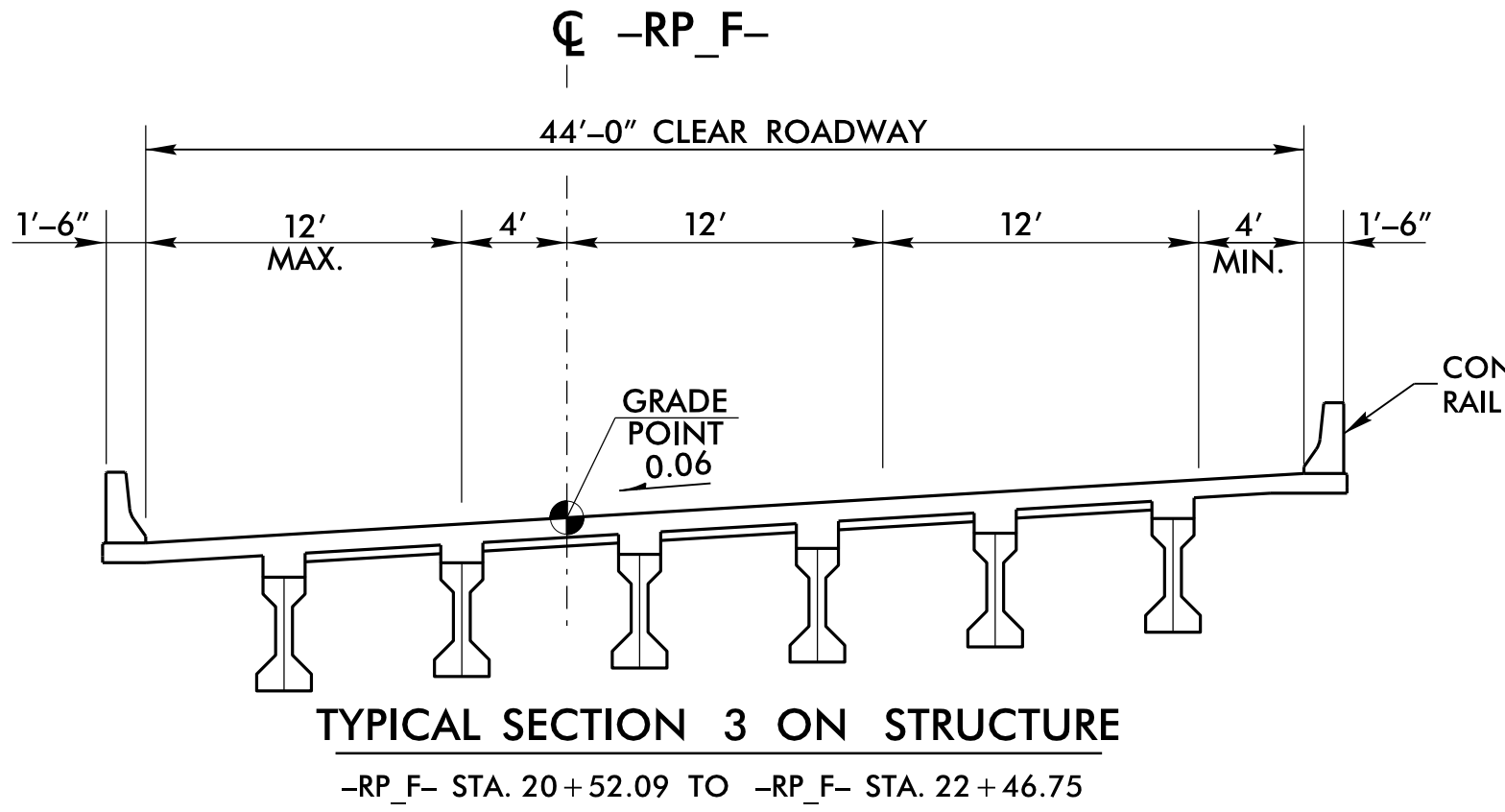
USE TYPICAL SECTION NO. 1  
 -EL- STA. 26+15.00 TO -EL- STA. 52+17.81  
 -EL- STA. 55+24.25 TO -EL- STA. 62+00.00  
 -RP\_F- STA. 32+71.00 TO -RP\_F- STA. 36+28.38  
 -RP\_E- STA. 10+00.00 TO -RP\_E- STA. 15+00.00  
 \* -EL- STA. 43+00.00 TO STA. 48+64.63  
 \*\* -EL- STA. 33+07.09 TO STA. 53+02.71 (RT MEDIAN 9' SHOULDER REPLACE)



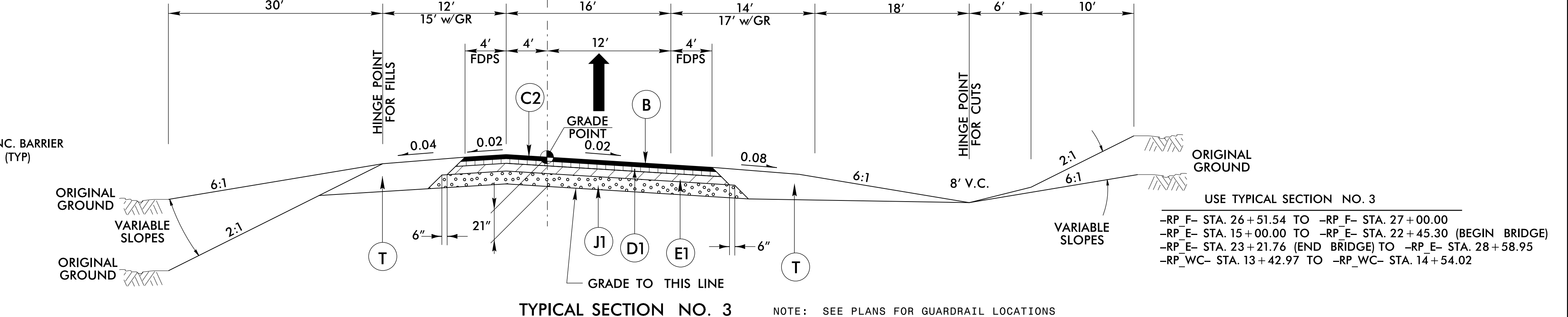
USE TYPICAL SECTION NO. 2  
 -RP\_E- STA. 22+45.30 TO -RP\_E- STA. 23+21.76



USE TYPICAL SECTION NO. 2  
 -EL- STA. 52+17.81 TO -EL- STA. 55+24.25



USE TYPICAL SECTION NO. 3  
 -RP\_F- STA. 20+52.09 TO -RP\_F- STA. 22+46.75



USE TYPICAL SECTION NO. 3  
 -RP\_F- STA. 26+51.54 TO -RP\_F- STA. 27+00.00  
 -RP\_E- STA. 15+00.00 TO -RP\_E- STA. 22+45.30 (BEGIN BRIDGE)  
 -RP\_E- STA. 23+21.76 (END BRIDGE) TO -RP\_E- STA. 28+58.95  
 -RP\_WC- STA. 13+42.97 TO -RP\_WC- STA. 14+54.02

NOTE: SEE PLANS FOR GUARDRAIL LOCATIONS

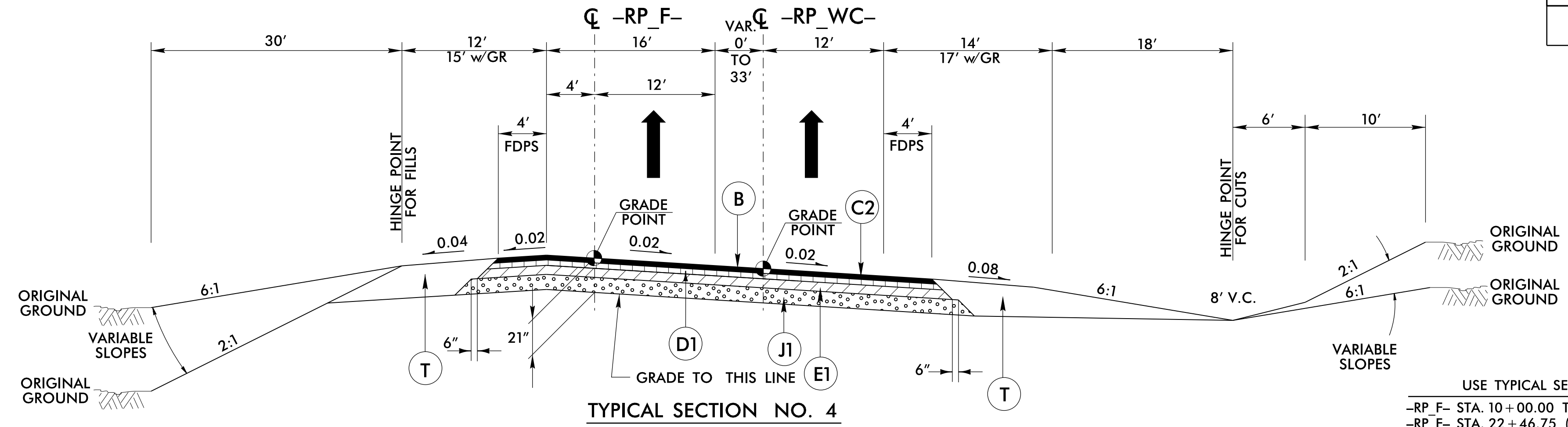
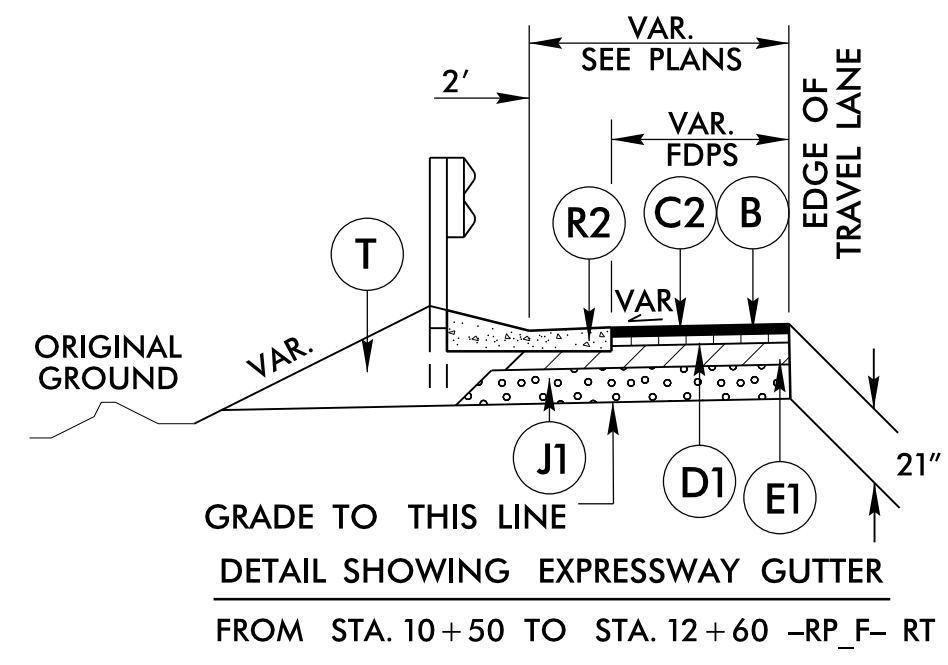
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USER:RAME

PAVEMENT SCHEDULE	
B	OGFC TYPE FC-1 MOD
C2	3" A.C.S.C. TYPE S9.5C
D1	3" A.C.I.C. TYPE I19.0C
E1	4" A.C.B.C. TYPE B25.0C
J1	11" DEPTH A.B.C.
R2	EXPRESSWAY GUTTER
T	EARTH MATERIAL

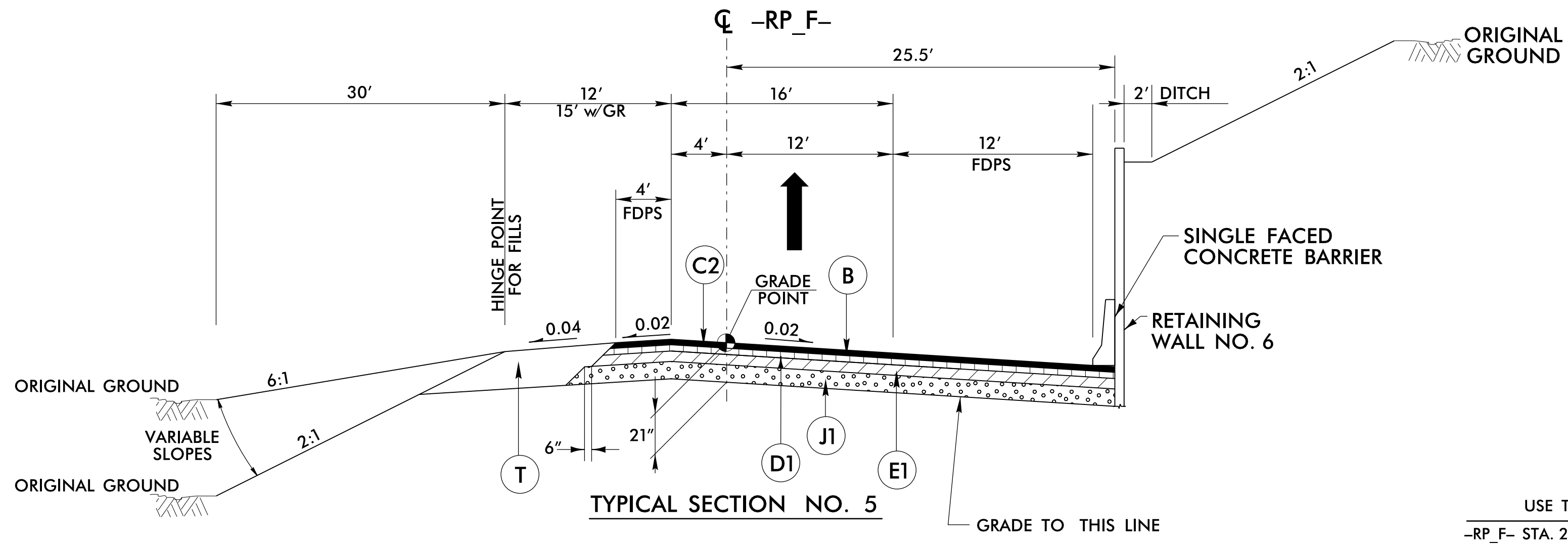
PLANS PREPARED BY:  
**PARSONS**  
RALEIGH, NORTH CAROLINA, (919) 854-1345  
 NC LICENSE NO. F-0246  
 FOR NORTH CAROLINA DEPT. OF TRANSPORTATION

PROJECT REFERENCE NO. 1-4729A	SHEET NO. 2A-2
ROADWAY DESIGN ENGINEER <i>[Signature]</i> 8/14/2017	PAVEMENT DESIGN ENGINEER <i>[Signature]</i> 8/14/2017

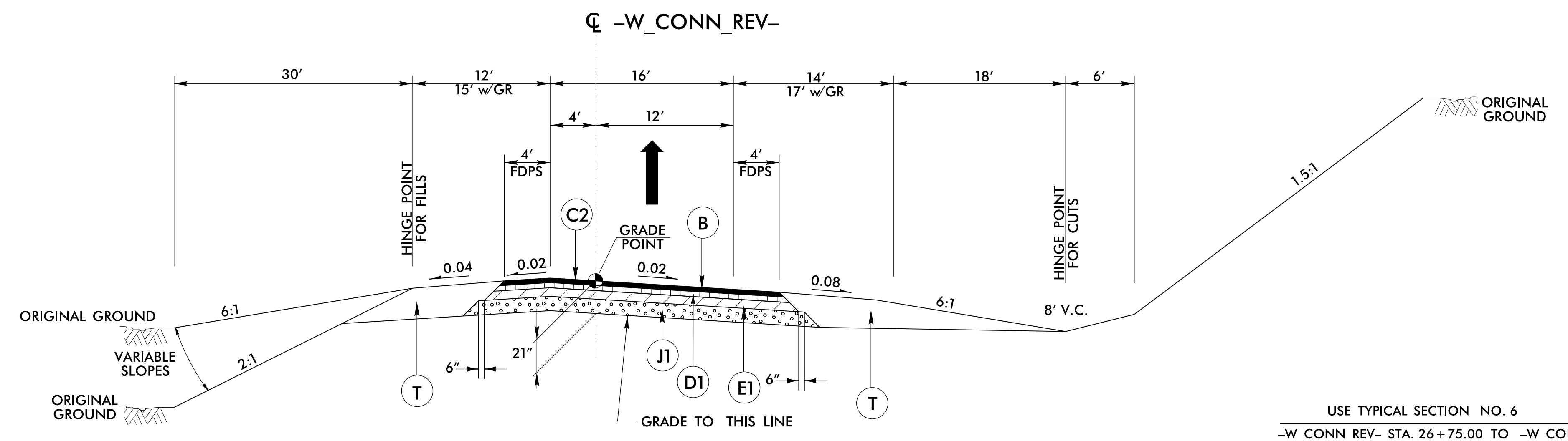
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USE TYPICAL SECTION NO. 4  
 -RP\_F- STA. 10+00.00 TO -RP\_F- STA. 20+52.09 (BEGIN BRIDGE)  
 -RP\_F- STA. 22+46.75 (END BRIDGE) TO -RP\_F- STA. 26+51.54  
 -RP\_WC- STA. 10+00.00 TO -RP\_WC- STA. 13+42.97



USE TYPICAL SECTION NO. 5  
 -RP\_F- STA. 27+00.00 TO -RP\_F- STA. 32+71.00



USE TYPICAL SECTION NO. 6  
 -W\_CONN\_REV- STA. 26+75.00 TO -W\_CONN\_REV- STA. 36+97.21

NOTE: SEE PLANS FOR GUARDRAIL LOCATIONS

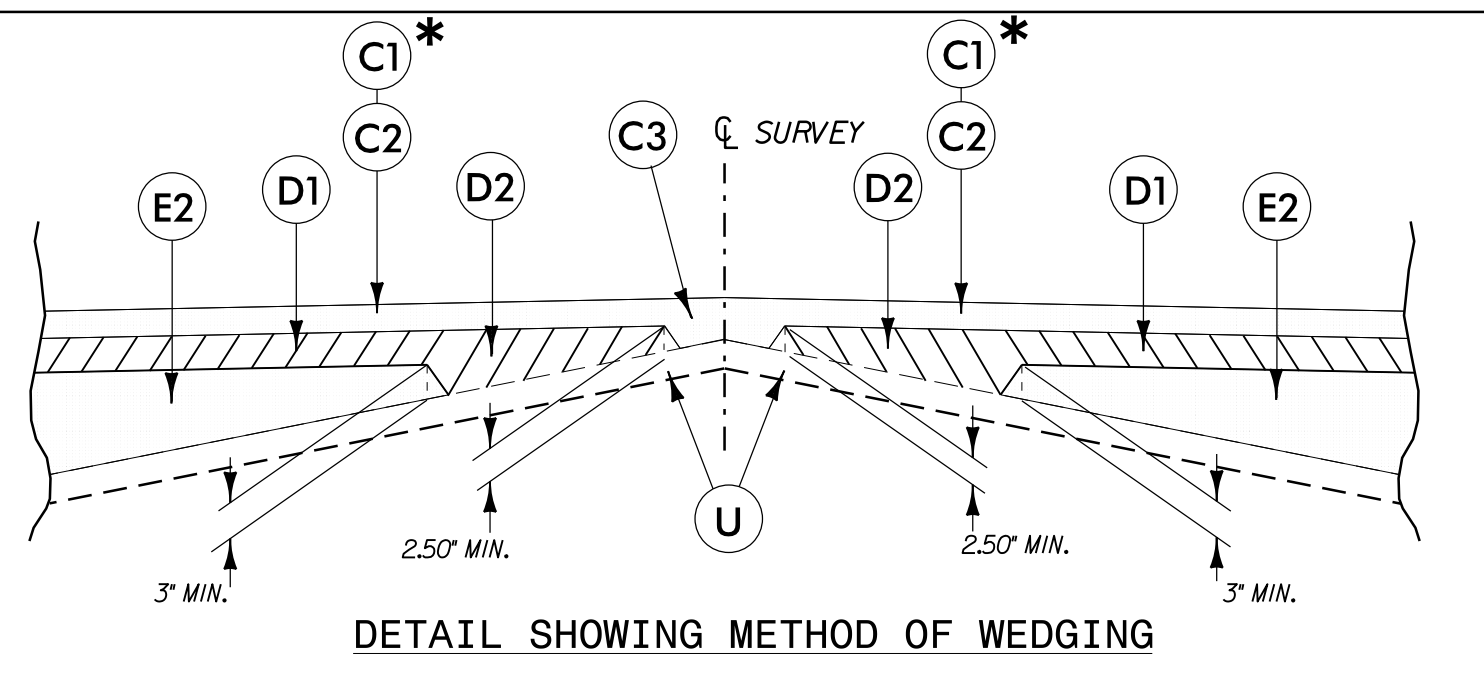
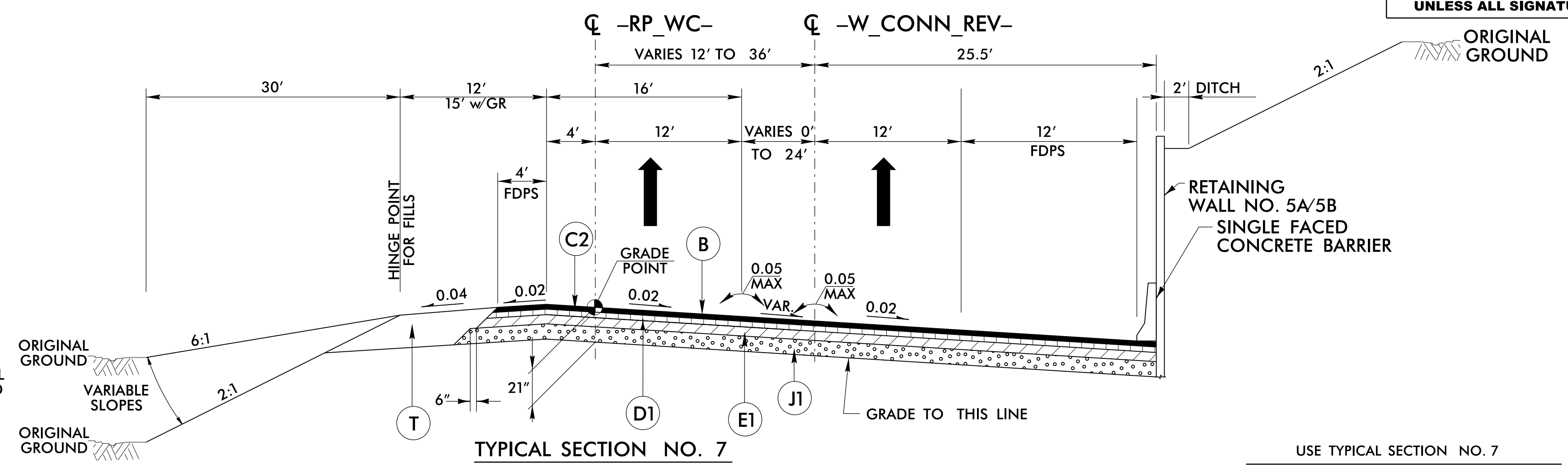
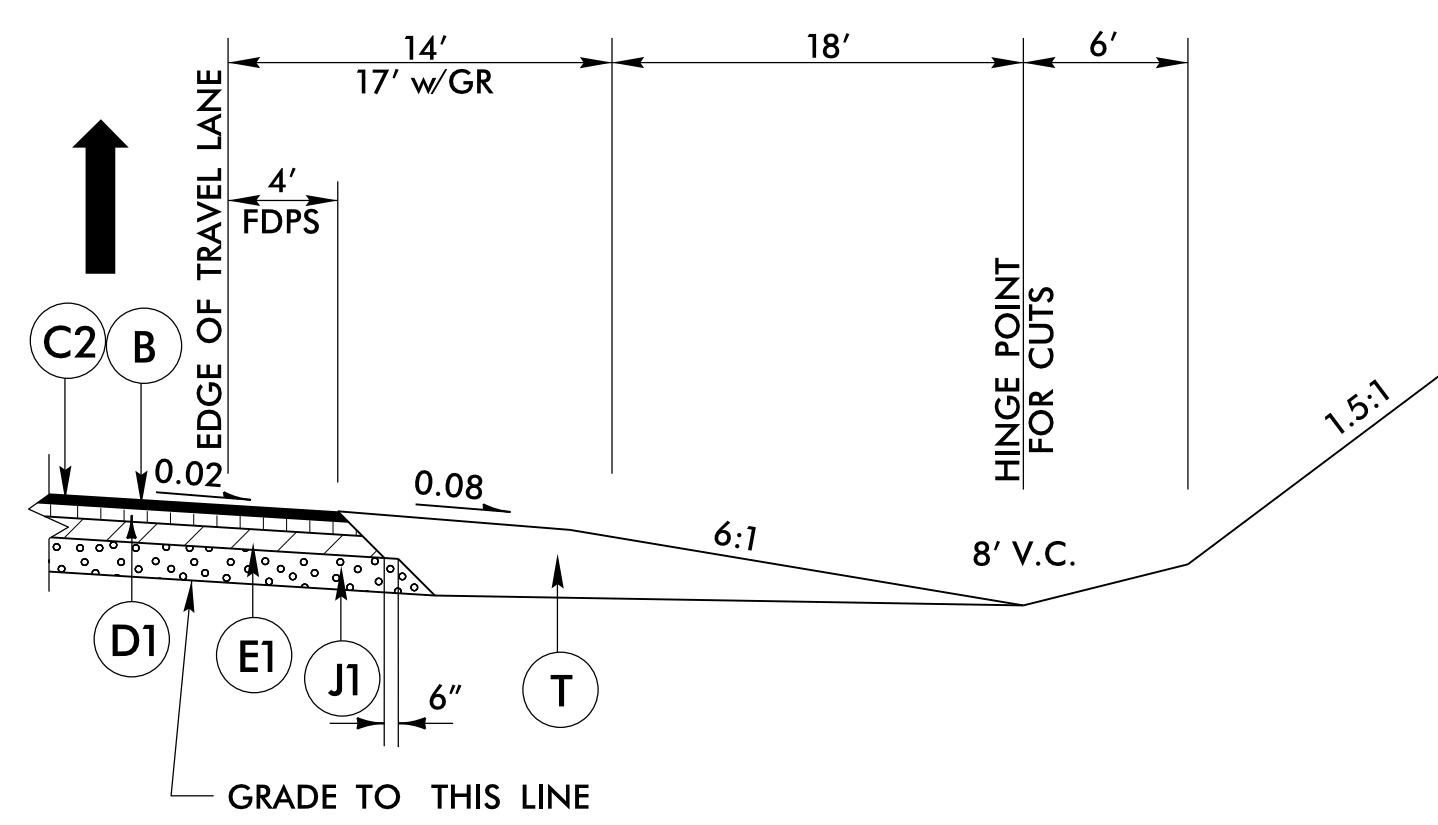
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 USER:NAME

PAVEMENT SCHEDULE	
B	OGFC TYPE FC-1 MOD
C2	3" A.C.S.C. TYPE S9.5C
D1	3" A.C.I.C. TYPE I19.0C
E1	4" A.C.B.C. TYPE B25.0C
J1	11" DEPTH A.B.C.
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V	MILLED RUMBLE STRIPS
VI	2.25" MILLING
W	WEDGING

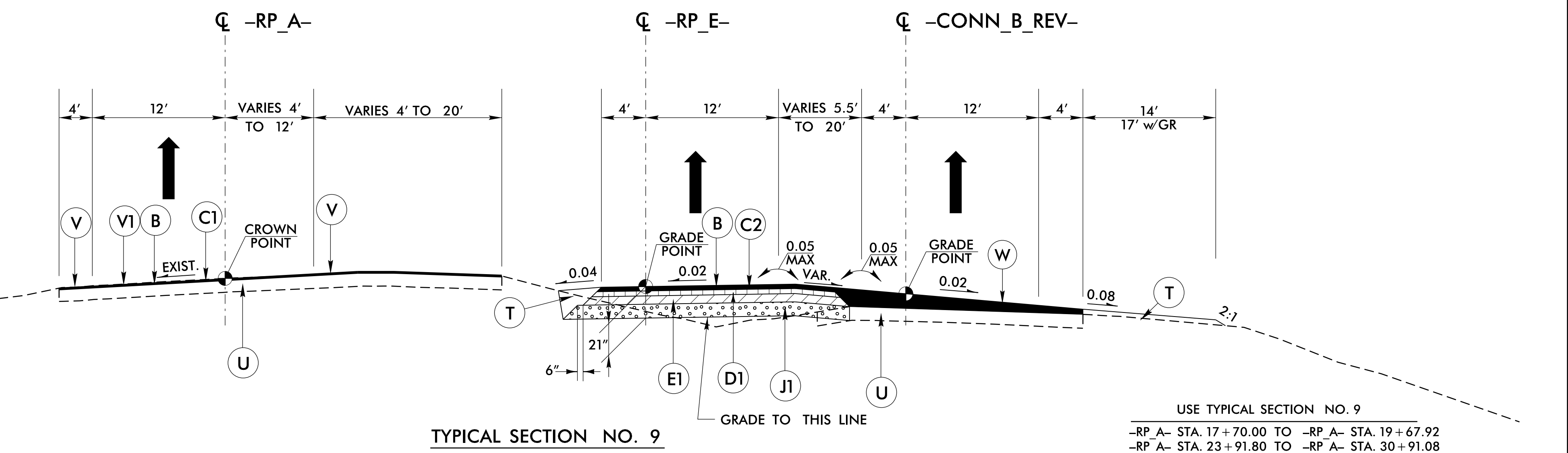
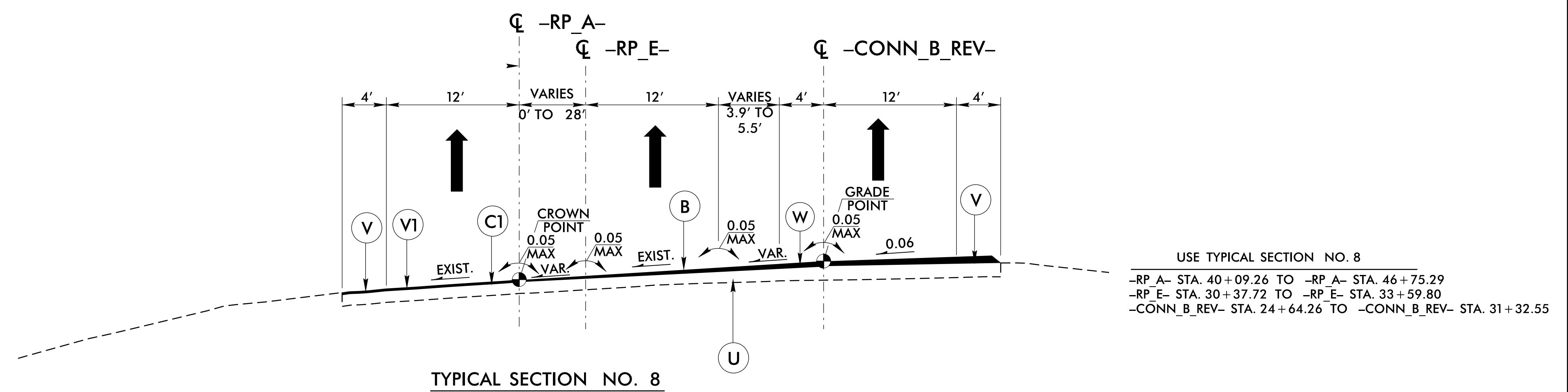
PLANS PREPARED BY:  
**PARSONS**  
RALEIGH, NORTH CAROLINA, (919) 854-1345  
 NC LICENSE NO. F-0246  
 FOR NORTH CAROLINA DEPT. OF TRANSPORTATION

PROJECT REFERENCE NO. 1-4729A	SHEET NO. 2A-3
ROADWAY DESIGN ENGINEER <i>[Signature]</i>	PAVEMENT DESIGN ENGINEER <i>[Signature]</i>

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 UNLESS ALL SIGNATURES COMPLETED



\* -E\_CONN\_REV- STA. 10+42.46 TO STA. 31+23.70  
 -CONN\_B\_REV- STA. 24+64.26 TO STA. 31+32.55



NOTE: SEE PLANS FOR GUARDRAIL LOCATIONS

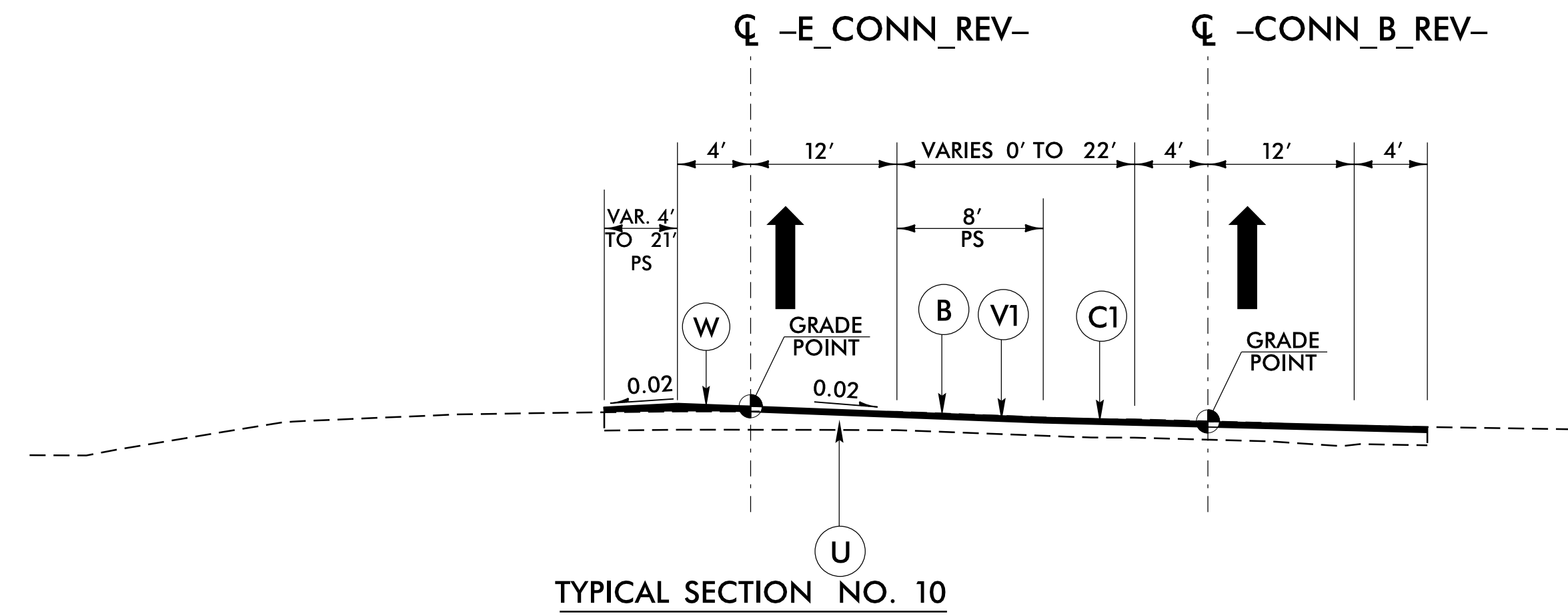
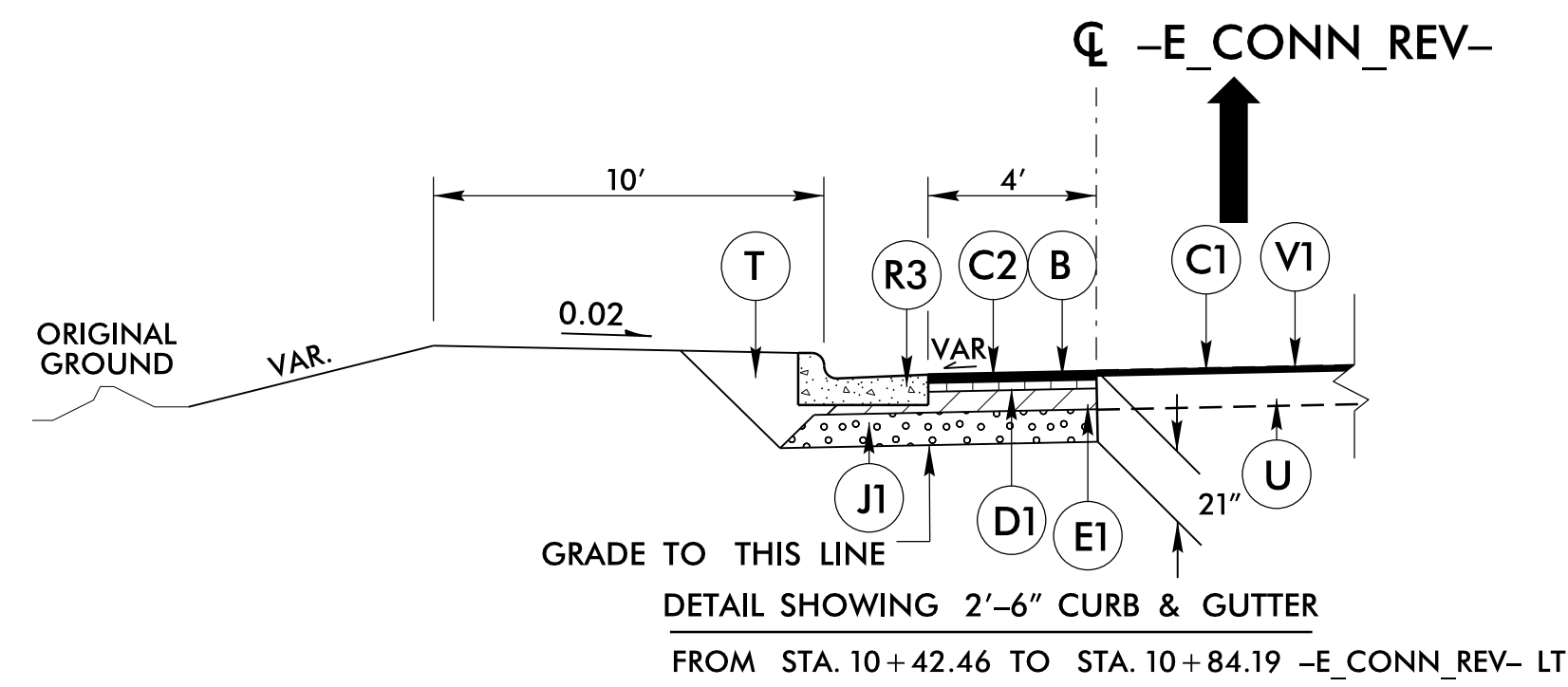
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PAVEMENT SCHEDULE	
B	OGFC TYPE FC-1 MOD
C2	3" A.C.S.C. TYPE S9.5C
D1	3" A.C.I.C. TYPE I19.0C
E1	4" A.C.B.C. TYPE B25.0C
J1	11" DEPTH A.B.C.
R3	2'-6" CURB & GUTTER
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V1	2.25" MILLING
W	WEDGING

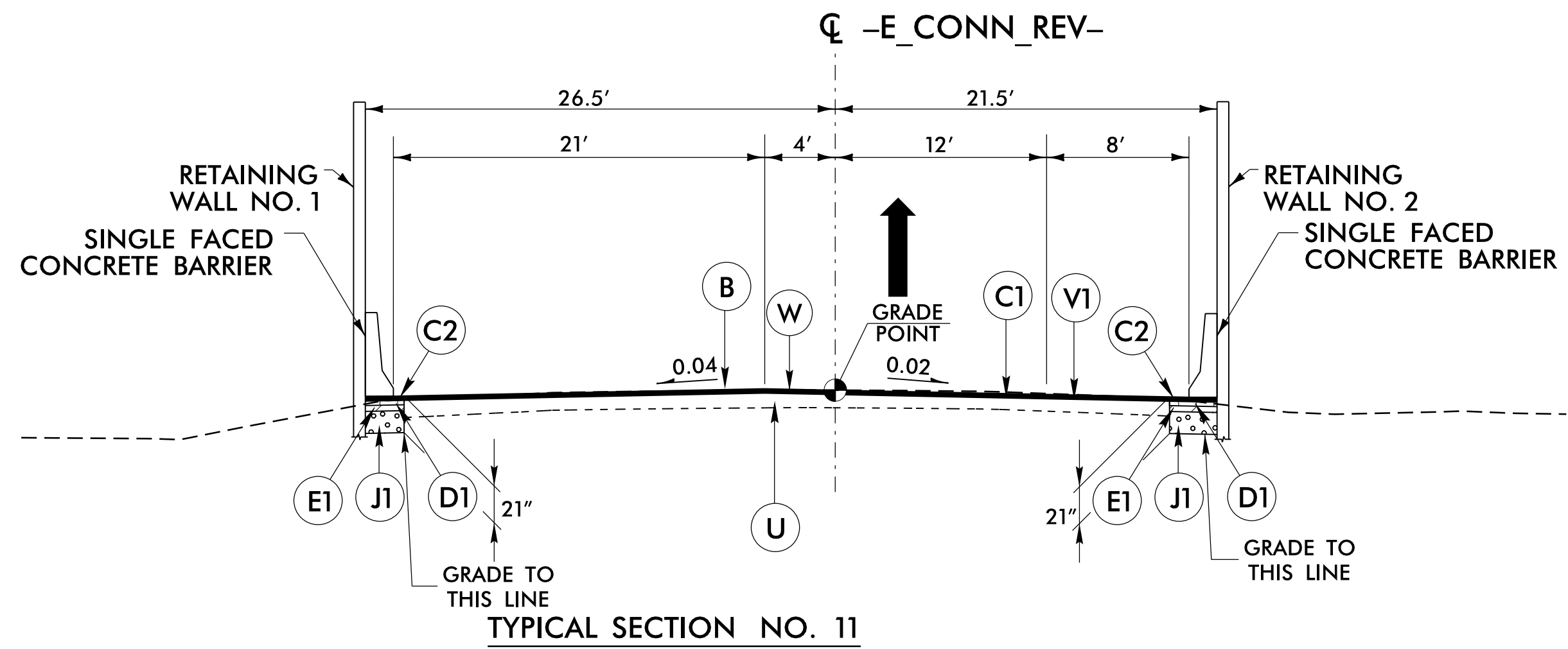
PLANS PREPARED BY:  
**PARSONS**  
 RALEIGH, NORTH CAROLINA, (919) 854-1345  
 NC LICENSE NO. F-0246  
 FOR NORTH CAROLINA DEPT. OF TRANSPORTATION

PROJECT REFERENCE NO.	SHEET NO.
1-4729A	2A-4
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

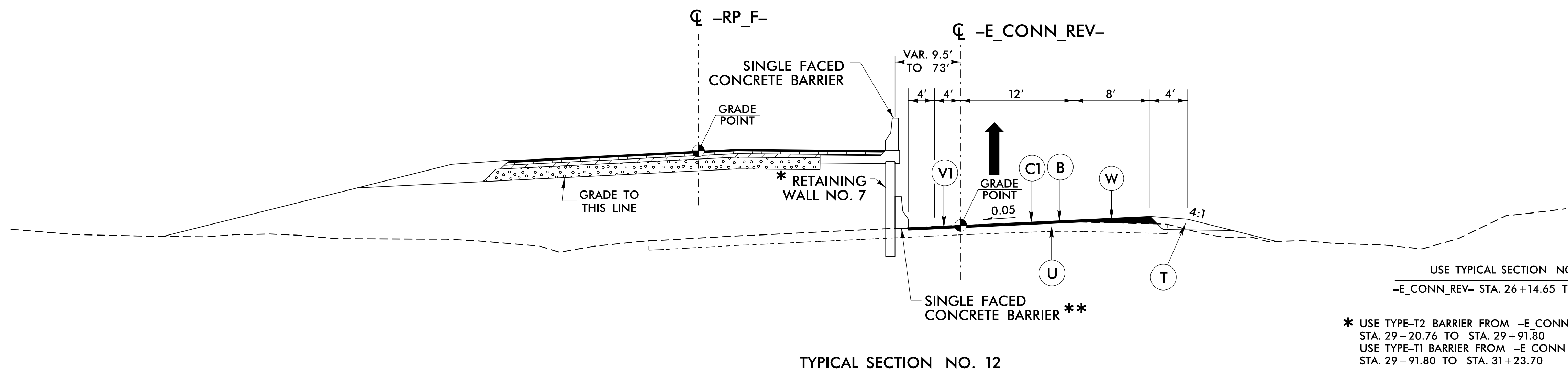
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USE TYPICAL SECTION NO. 10  
 -E\_CONN\_REV- STA. 10+42.46 TO -E\_CONN\_REV- STA. 24+31.20  
 -CONN\_B\_REV- STA. 10+00.00 TO -CONN\_B\_REV- STA. 14+03.82



USE TYPICAL SECTION NO. 11  
 -E\_CONN\_REV- STA. 24+31.20 TO -E\_CONN\_REV- STA. 26+14.65



USE TYPICAL SECTION NO. 12  
 -E\_CONN\_REV- STA. 26+14.65 TO -E\_CONN\_REV- STA. 31+23.70

\* USE TYPE-T2 BARRIER FROM -E\_CONN\_REV- STA. 29+20.76 TO STA. 29+91.80  
 USE TYPE-T1 BARRIER FROM -E\_CONN\_REV- STA. 29+91.80 TO STA. 31+23.70  
 \*\* FROM -E\_CONN\_REV- STA. 28+63.48 TO STA. 29+20.76

NOTE: SEE PLANS FOR GUARDRAIL LOCATIONS

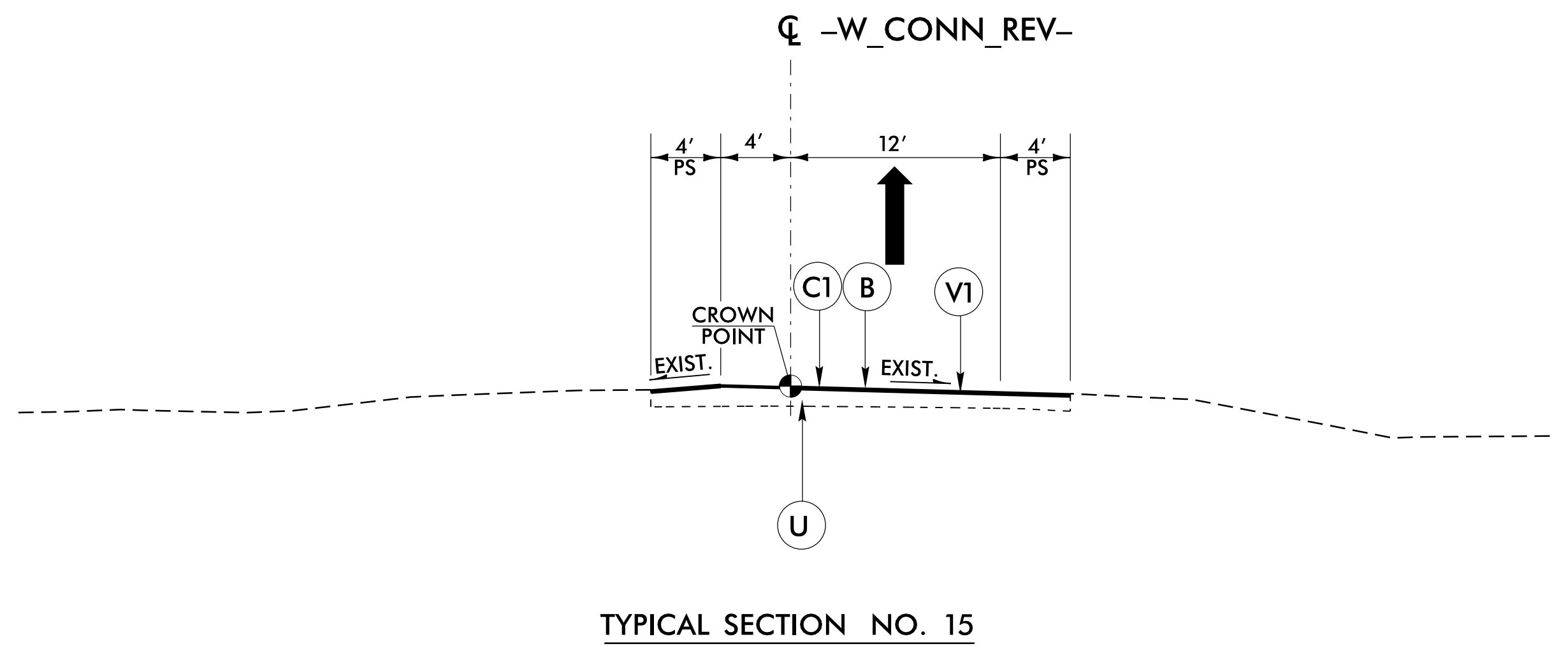
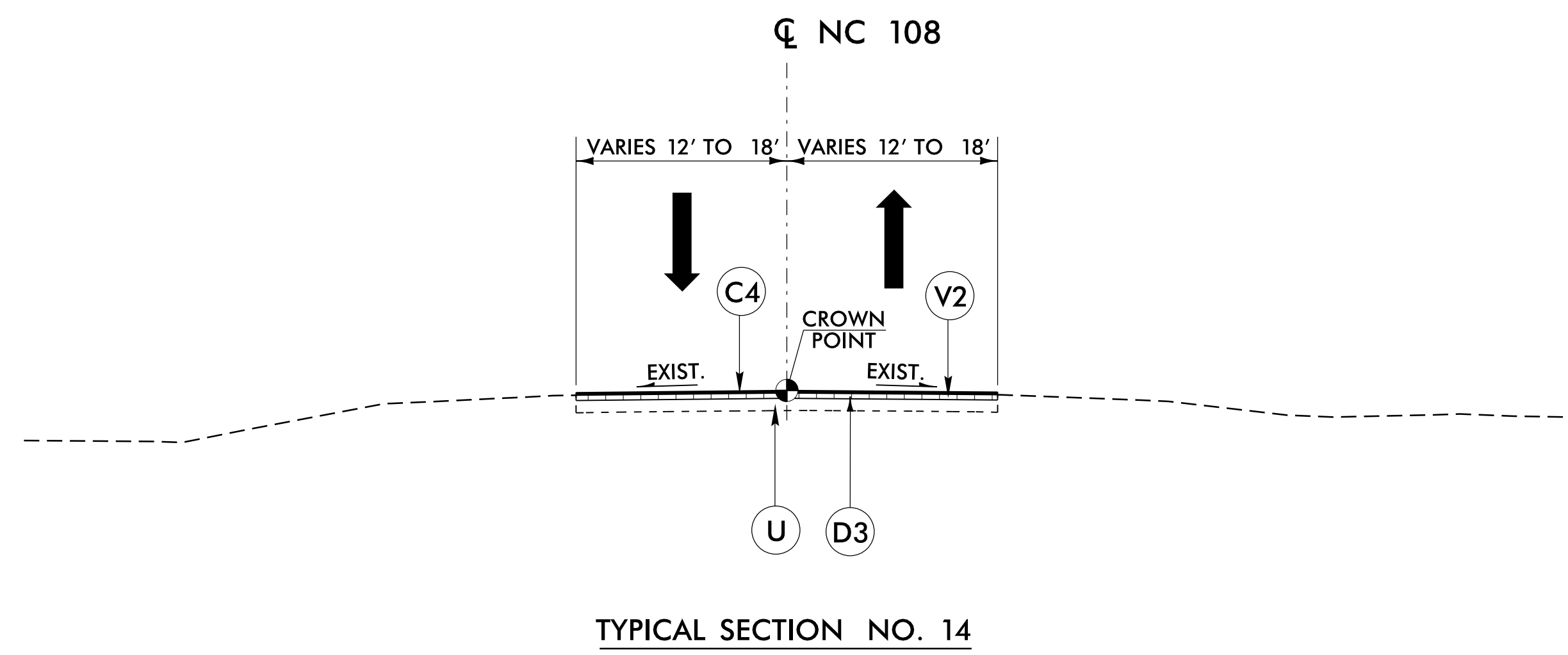
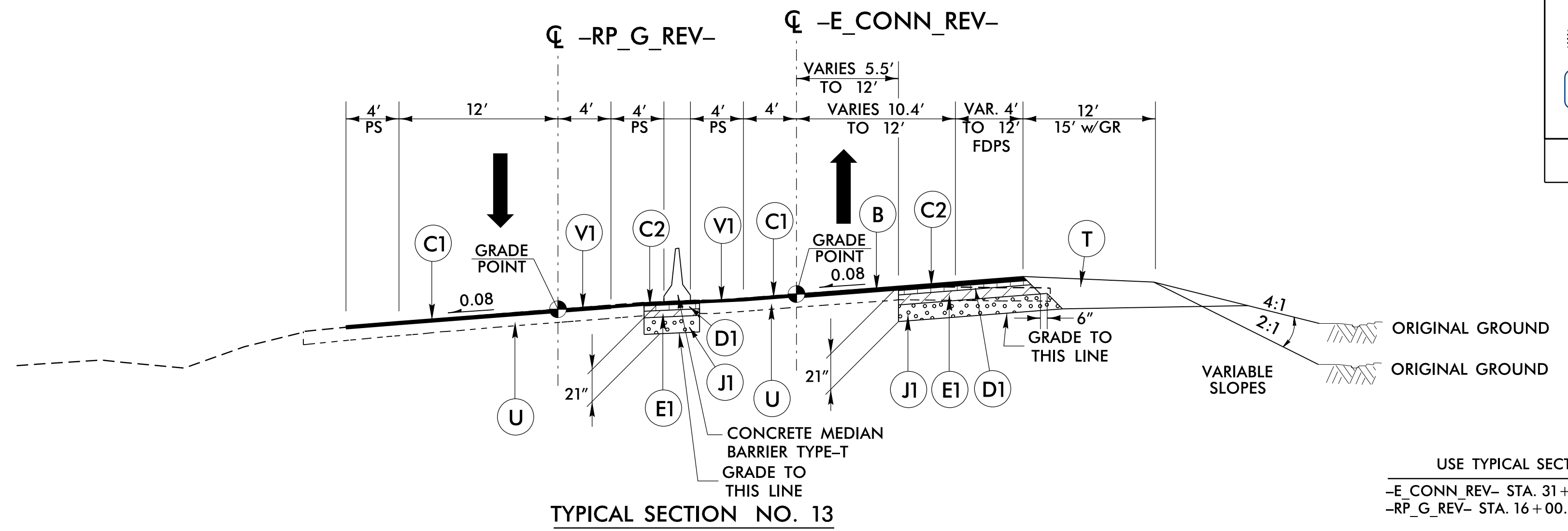
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PAVEMENT SCHEDULE	
B	OGFC TYPE FC-1 MOD
C2	3" A.C.S.C. TYPE S9.5C
C4	1.5" A.C.S.C. TYPE S9.5B
D1	3" A.C.I.C. TYPE I19.0C
D3	3" A.C.I.C. TYPE I19.0B
E1	4" A.C.B.C. TYPE B25.0C
J1	11" DEPTH A.B.C.
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V1	2.25" MILLING
V2	3" MILLING

PLANS PREPARED BY:  
**PARSONS**  
RALEIGH, NORTH CAROLINA, (919) 854-1345  
 NC LICENSE NO. F-0246  
 FOR NORTH CAROLINA DEPT. OF TRANSPORTATION

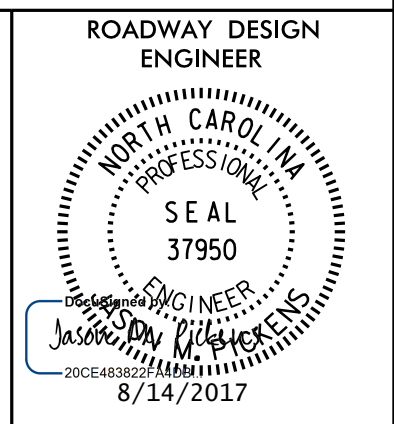
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ROADWAY DESIGN ENGINEER <i>[Signature]</i> 8/14/2017	PAVEMENT DESIGN ENGINEER <i>[Signature]</i> 8/14/2017

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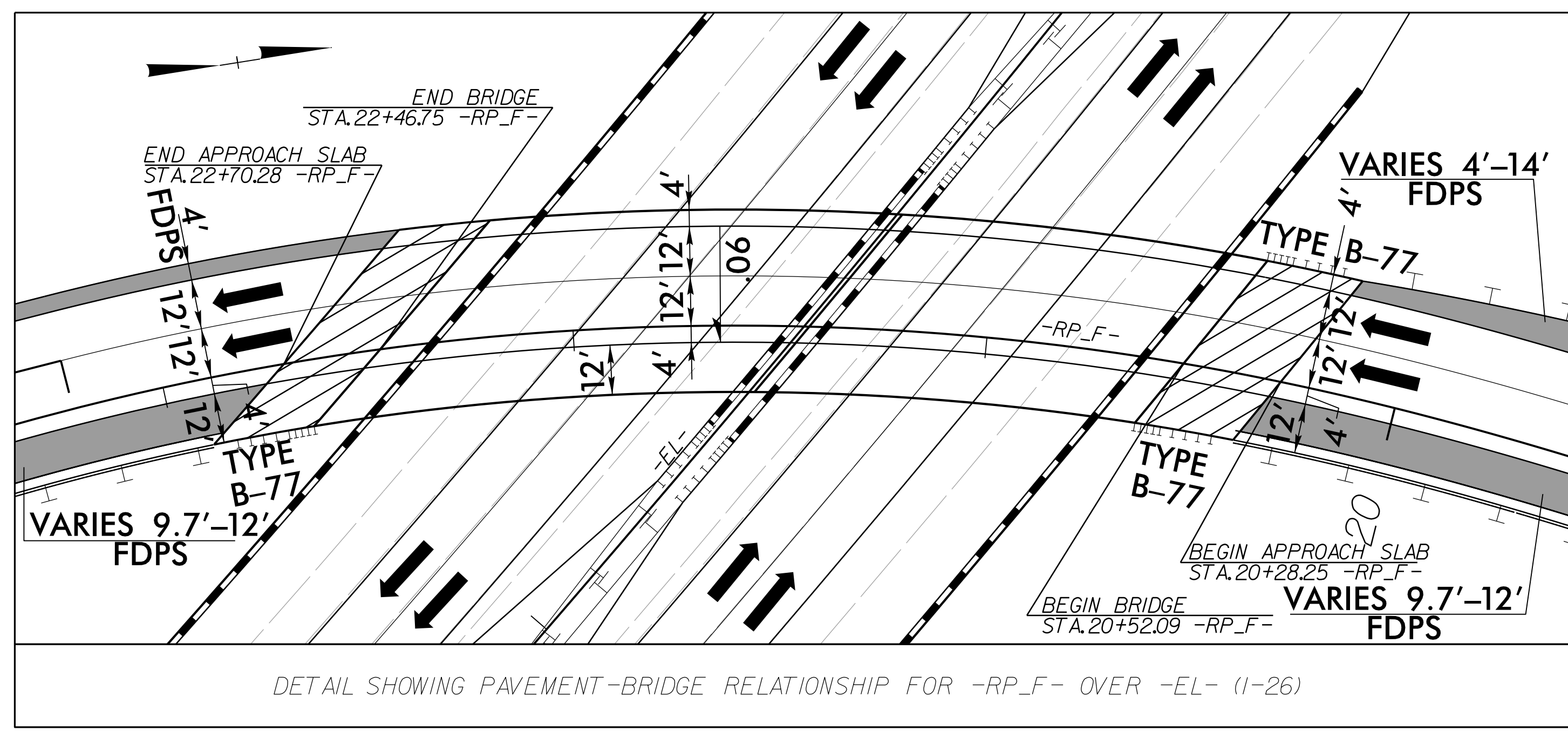
NOTE: SEE PLANS FOR GUARDRAIL LOCATIONS

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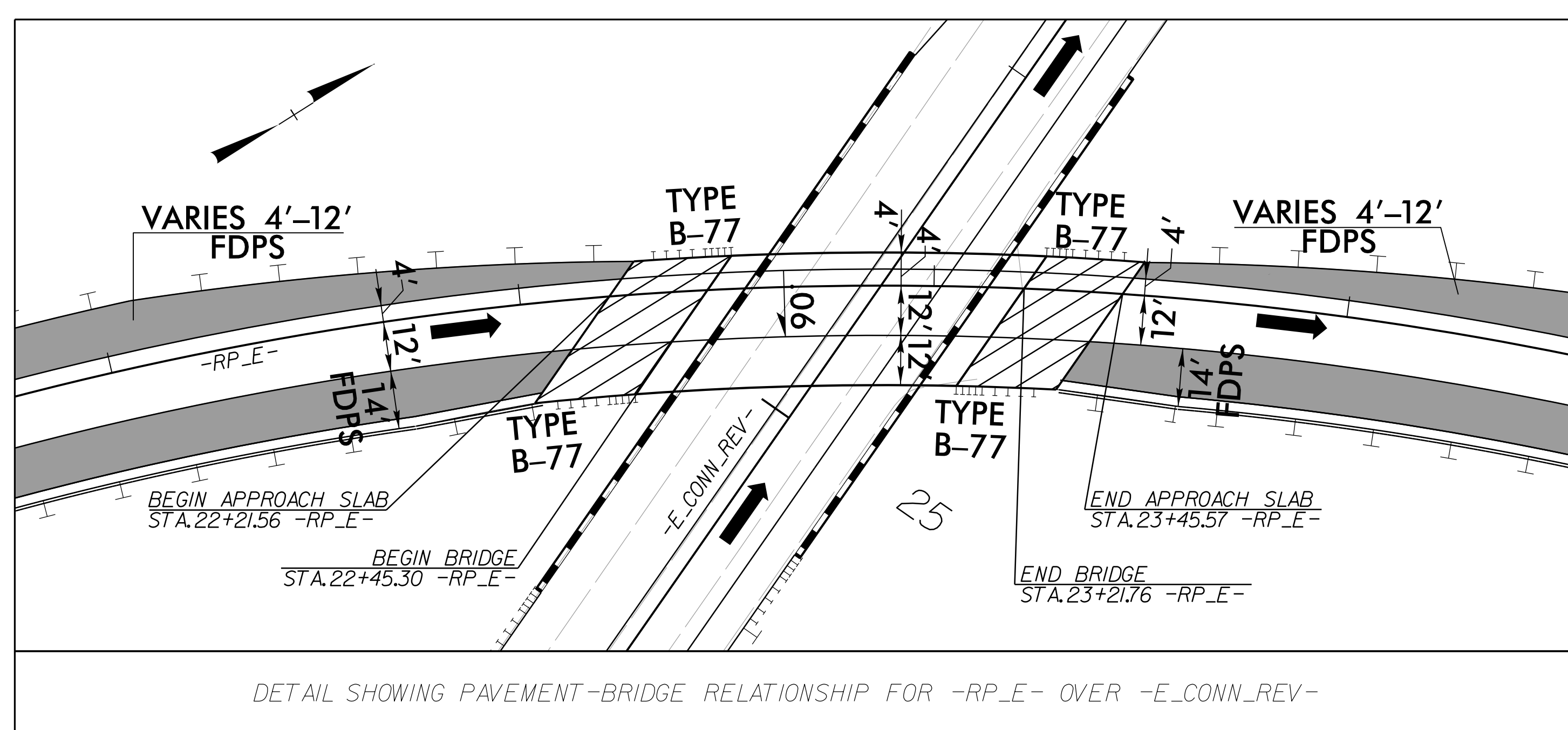


**DOCUMENT NOT CONSIDERED FINAL  
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# BRIDGE SKETCHES



NOTE:  
FDPS: FULL DEPTH PAVED SHOULDER



NOTE:  
FDPS: FULL DEPTH PAVED SHOULDER



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

# HORIZONTAL CURVE DATA

**-RP\_E-**

<i>Pls Sta 13+74.88</i> $\Delta = 6' 36'' 11.2''$ $L_s = 192.00'$ $LT = 128.09'$ $ST = 64.08'$	<i>Pls Sta 21+94.30</i> $\Delta = 8' 24'' 50.1''$ (RT) $D = 6' 52'' 41.7''$ $L = 1,227.26'$ $T = 755.50'$ $R = 833.00'$ $e = 0.06$ $D.S. = 50$ MPH $Runoff = 192.00'$	<i>Pls Sta 27+30.14</i> $\Delta = 6' 36'' 11.2''$ $L_s = 192.00'$ $LT = 128.09'$ $ST = 64.08'$
--	---	--

**-CONN\_B\_REV-**

<i>Pls Sta 14+87.38</i> $\Delta = 7' 55'' 59.7''$ $L_s = 180.00'$ $LT = 120.12'$ $ST = 60.11'$	<i>Pls Sta 19+87.46</i> $\Delta = 68' 12'' 54.3''$ (RT) $D = 8' 48'' 53.0''$ $L = 773.88'$ $T = 440.21'$ $R = 650.00'$ $e = 0.06$ $D.S. = 45$ MPH $Runoff = 180.00'$	<i>Pls Sta 23+81.24</i> $\Delta = 7' 55'' 59.7''$ $L_s = 180.00'$ $LT = 120.12'$ $ST = 60.11'$
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**-RP\_F-**

<i>Pls Sta 10+81.61</i> $\Delta = 6' 30'' 00.0''$ (RT) $D = 3' 59'' 11.4''$ $L = 163.05'$ $T = 81.61'$ $R = 1,437.25'$	<i>Pls Sta 12+00.36</i> $\Delta = 1' 16'' 30.7''$ $\Delta = 3' 46'' 51.0''$ $L_s = 64.00'$ $LT = 37.30'$ $ST = 26.74'$	<i>Pls Sta 14+26.07</i> $\Delta = 44' 37'' 17.1''$ (RT) $D = 11' 48'' 48.8''$ $L = 377.71'$ $T = 199.02'$ $R = 485.00'$ $e = 0.06$ $D.S. = 40$ MPH $Runoff = 192.00'$	<i>Pls Sta 16+77.11</i> $\Delta = 12' 45'' 31.1''$ $L_s = 216.00'$ $LT = 144.38'$ $ST = 72.34'$
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<i>Pls Sta 27+37.78</i> $\Delta = 1' 48'' 56.6''$ $L_s = 180.00'$ $LT = 120.01'$ $ST = 60.01'$	<i>Pls Sta 31+08.25</i> $\Delta = 12' 28'' 41.0''$ (LT) $D = 2' 01'' 02.8''$ $L = 618.50'$ $T = 310.48'$ $R = 2,840.00'$ $e = 0.06$ $D.S. = 45$ MPH $Runoff = 180.00'$
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**-RP\_WC-**

<i>Pls Sta 12+73.63</i> $\Delta = 33' 42'' 55.7''$ (LT) $D = 8' 52'' 59.0''$ $L = 379.55'$ $T = 195.45'$ $R = 645.00'$ $e = 0.06$ $D.S. = 45$ MPH $Runoff = 192.00'$	<i>Pls Sta 15+21.87</i> $\Delta = 8' 31'' 39.9''$ $L_s = 192.00'$ $LT = 128.15'$ $ST = 64.14'$
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<i>Pls Sta 19+64.98</i> $\Delta = 9' 35'' 37.4''$ $L_s = 216.00'$ $LT = 144.21'$ $ST = 72.19'$	<i>Pls Sta 24+61.84</i> $\Delta = 66' 46'' 21.8''$ (LT) $D = 8' 52'' 59.0''$ $L = 751.69'$ $T = 425.08'$ $R = 645.00'$ $e = 0.06$ $D.S. = 45$ MPH $Runoff = 192.00'$	<i>Pls Sta 28+52.58</i> $\Delta = 8' 31'' 39.9''$ $L_s = 192.00'$ $LT = 128.15'$ $ST = 64.14'$
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<i>Pls Sta 17+78.00</i> $\Delta = 11' 20'' 27.7''$ $L_s = 192.00'$ $LT = 128.26'$ $ST = 64.24'$	<i>Pls Sta 19+13.94</i> $\Delta = 16' 56'' 08.7''$ (RT) $D = 11' 48'' 48.8''$ $L = 143.36'$ $T = 72.21'$ $R = 485.00'$ $e = 0.06$ $D.S. = 40$ MPH $Runoff = 192.00'$	<i>Pls Sta 22+43.61</i> $\Delta = 31' 04'' 19.9''$ (RT) $\Delta = 45' 50'' 11.8''$ $L = 67.79'$ $T = 34.75'$ $R = 125.00'$
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<i>Pls Sta 31+08.54</i> $\Delta = 6' 36'' 11.2''$ $L_s = 192.00'$ $LT = 128.09'$ $ST = 64.08'$	<i>Pls Sta 33+33.28</i> $\Delta = 21' 51'' 22.5''$ (RT) $D = 6' 52'' 41.7''$ $L = 317.76'$ $T = 160.83'$ $R = 833.00'$ $e = 0.06$ $D.S. = 50$ MPH $Runoff = 192.00'$	<i>Pls Sta 35+16.40</i> $\Delta = 0' 38'' 49.3''$ $\Delta = 2' 12'' 04.1''$ $L_s = 64.00'$ $LT = 37.83'$ $ST = 26.19'$
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*Pls Sta 35+91.30*  
 $\Delta = 1' 30'' 00.0''$  (RT)  
 $D = 2' 01'' 20.0''$   
 $L = 74.18'$   
 $T = 37.09'$   
 $R = 2,833.29'$

**-W\_CONN\_REV-**

<i>Pls Sta 12+97.64</i> $\Delta = 9' 28'' 37.2''$ (LT) $D = 4' 46'' 28.7''$ $L = 198.49'$ $T = 99.47'$ $R = 1,200.00'$	<i>Pls Sta 18+41.13</i> $\Delta = 11' 30'' 07.2''$ (RT) $D = 2' 51'' 53.2''$ $L = 401.50'$ $T = 201.42'$ $R = 2,000.00'$	<i>Pls Sta 23+88.73</i> $\Delta = 12' 44'' 55.6''$ (RT) $D = 2' 12'' 13.3''$ $L = 578.52'$ $T = 290.46'$ $R = 2,600.00'$
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**-E\_CONN\_REV-**

<i>Pls Sta 31+46.00</i> $\Delta = 33' 43'' 27.8''$ (LT) $D = 4' 14'' 38.9''$ $L = 794.61'$ $T = 409.19'$ $R = 1,350.00'$	<i>Pls Sta 38+43.01</i> $\Delta = 46' 30'' 50.5''$ (LT) $D = 7' 54'' 10.3''$ $L = 588.57'$ $T = 311.59'$ $R = 725.00'$	<i>Pls Sta 46+09.46</i> $\Delta = 33' 36'' 16.8''$ (RT) $D = 6' 21'' 58.3''$ $L = 527.86'$ $T = 271.77'$ $R = 900.00'$
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<i>Pls Sta 27+12.36</i> $\Delta = 0' 42'' 18.5''$ $\Delta = 1' 24'' 37.4''$ $L_s = 64.00'$ $LT = 35.56'$ $ST = 28.45'$	<i>Pls Sta 29+35.08</i> $\Delta = 17' 00'' 00.0''$ (RT) $D = 4' 24'' 26.5''$ $L = 385.72'$ $T = 194.29'$ $R = 1,300.00'$ $e = 0.06$ $D.S. = 55$ MPH $Runoff = 192.00'$	<i>Pls Sta 31+90.55</i> $\Delta = 4' 13'' 51.9''$ $L_s = 192.00'$ $LT = 128.04'$ $ST = 64.03'$
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**-RP\_G\_REV-**

<i>Pls Sta 10+23.42</i> $\Delta = 1' 23'' 00.0''$ (RT) $D = 2' 57'' 12.2''$ $L = 46.84'$ $T = 23.42'$ $R = 1,940.00'$	<i>Pls Sta 10+75.77</i> $\Delta = 0' 40'' 43.0''$ $\Delta = 5' 16'' 18.8''$ $L_s = 46.00'$ $LT = 28.94'$ $ST = 17.10'$	<i>Pls Sta 11+78.60</i> $\Delta = 37' 52'' 02.5''$ (RT) $D = 22' 55'' 05.9''$ $L = 165.23'$ $T = 85.76'$ $R = 250.00'$
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<i>Pls Sta 34+46.65</i> $\Delta = 8' 08'' 55.4''$ $L_s = 192.00'$ $LT = 128.14'$ $ST = 64.12'$	<i>Pls Sta 35+90.86</i> $\Delta = 13' 34'' 35.7''$ (LT) $D = 8' 29'' 17.7''$ $L = 159.95'$ $T = 80.35'$ $R = 675.00'$ $e = 0.06$ $D.S. = 45$ MPH $Runoff = 192.00'$	<i>Pls Sta 37+34.58</i> $\Delta = 8' 08'' 55.4''$ $L_s = 192.00'$ $LT = 128.14'$ $ST = 64.12'$
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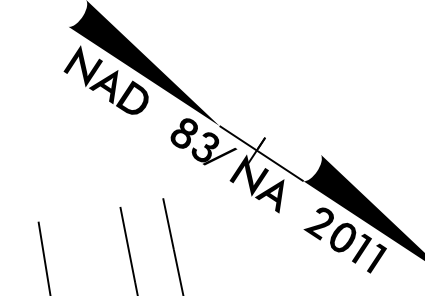
<i>Pls Sta 14+39.28</i> $\Delta = 95' 21'' 39.8''$ (RT) $D = 34' 43'' 29.0''$ $L = 274.62'$ $T = 181.21'$ $R = 165.00'$	<i>Pls Sta 16+04.31</i> $\Delta = 31' 58'' 20.4''$ (RT) $D = 22' 55'' 05.9''$ $L = 139.51'$ $T = 71.62'$ $R = 250.00'$	<i>Pls Sta 17+11.09</i> $\Delta = 3' 43'' 01.2''$ $\Delta = 10' 33'' 11.9''$ $L_s = 92.00'$ $LT = 53.56'$ $ST = 38.90'$
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<i>Pls Sta 39+90.74</i> $\Delta = 11' 37'' 43.5''$ $L_s = 192.00'$ $LT = 128.28'$ $ST = 64.25'$	<i>Pls Sta 40+69.97</i> $\Delta = 3' 45'' 23.2''$ (RT) $D = 12' 06'' 47.8''$ $L = 31.01'$ $T = 15.51'$ $R = 473.00'$ $e = 0.06$ $D.S. = 35$ MPH $Runoff = 192.00'$
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<i>Pls Sta 19+20.20</i> $\Delta = 24' 53'' 14.4''$ (RT) $D = 8' 06'' 14.7''$ $L = 307.10'$ $T = 156.01'$ $R = 707.00'$	<i>Pls Sta 22+42.30</i> $\Delta = 14' 37'' 55.2''$ (RT) $D = 4' 18'' 05.3''$ $L = 340.16'$ $T = 171.01'$ $R = 1,332.00'$	<i>Pls Sta 24+39.20</i> $\Delta = 2' 12'' 44.3''$ (RT) $D = 3' 59'' 11.4''$ $L = 55.50'$ $T = 27.75'$ $R = 1,437.25'$
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12/06/07

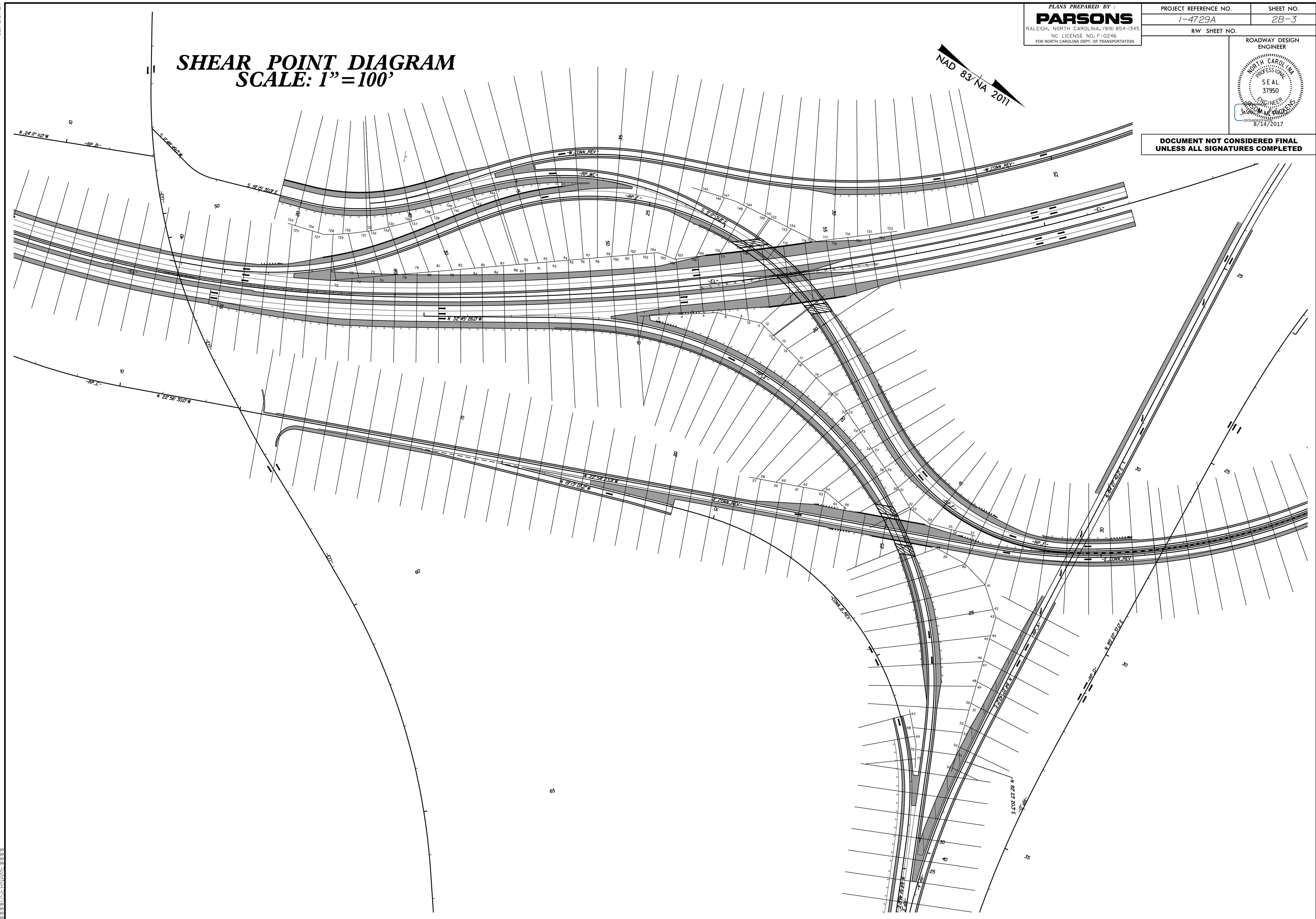
# SHEAR POINT DIAGRAM SCALE: 1" = 100'



PLANS PREPARED BY :	
<b>PARSONS</b>	
RALEIGH, NORTH CAROLINA, (919) 854-1345	
NC LICENSE NO. F-0246	
FOR NORTH CAROLINA DEPT. OF TRANSPORTATION	
PROJECT REFERENCE NO.	SHEET NO.
1-4729A	2B-3
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	



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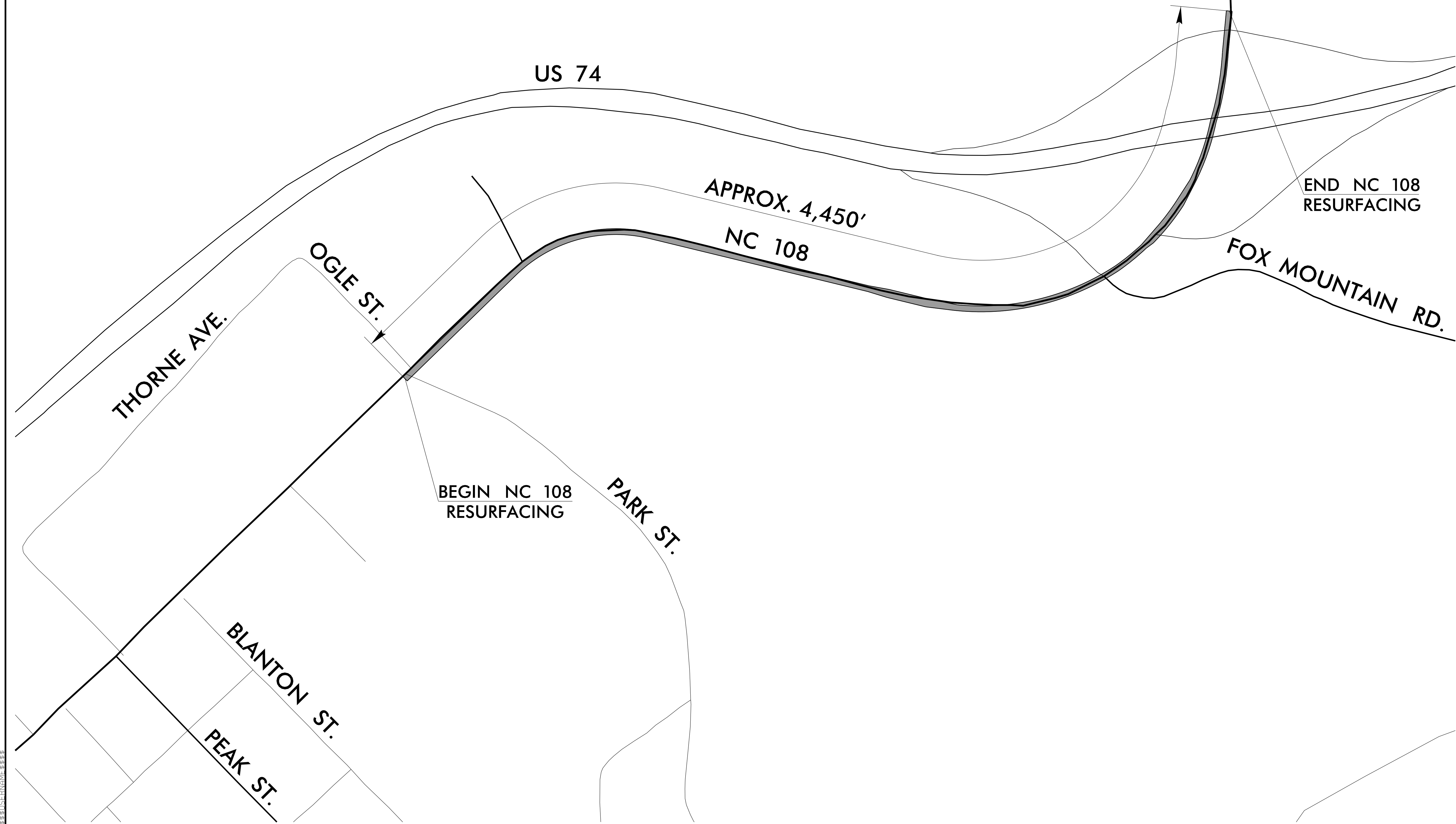
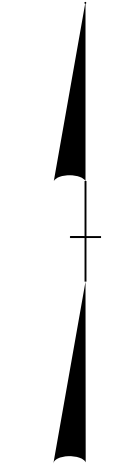
12/06/07

# RESURFACING OVERVIEW MAP

SCALE: 1" = 200'

PLANS PREPARED BY :		PROJECT REFERENCE NO.	SHEET NO.
<b>PARSONS</b> RALEIGH, NORTH CAROLINA, (919) 854-1345 NC LICENSE NO. F-0246 FOR NORTH CAROLINA DEPT. OF TRANSPORTATION		1-4729A	2B-4
		RW SHEET NO.	ROADWAY DESIGN ENGINEER

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RALEIGH, N.C.

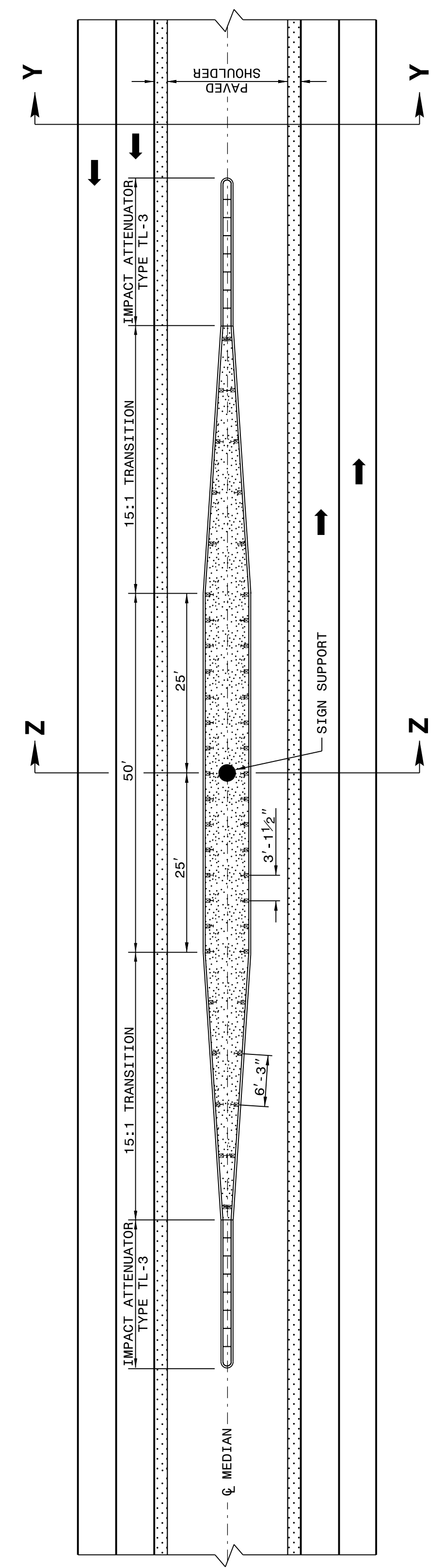
ROADWAY DETAIL DRAWING FOR  
**GUARDRAIL PLACEMENT**

SHEET 2 OF 11  
**862D01**

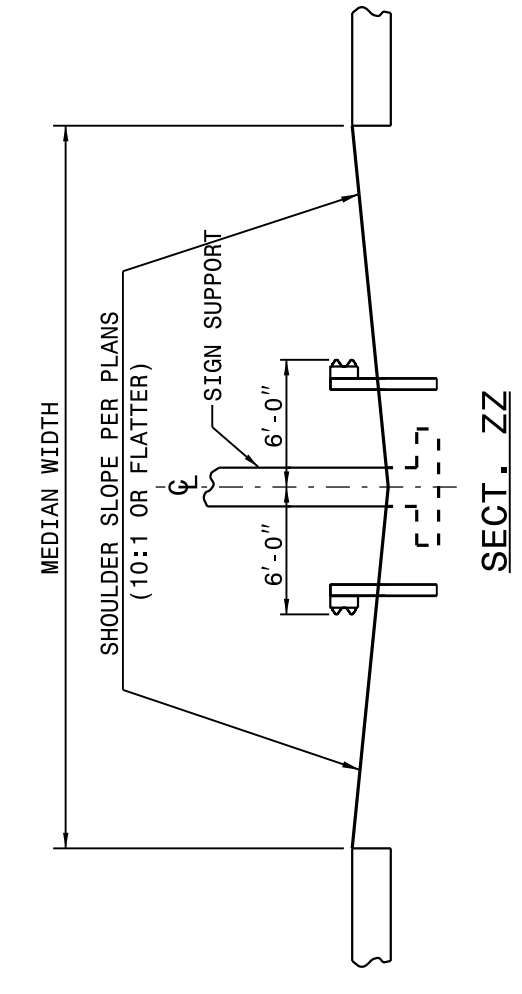
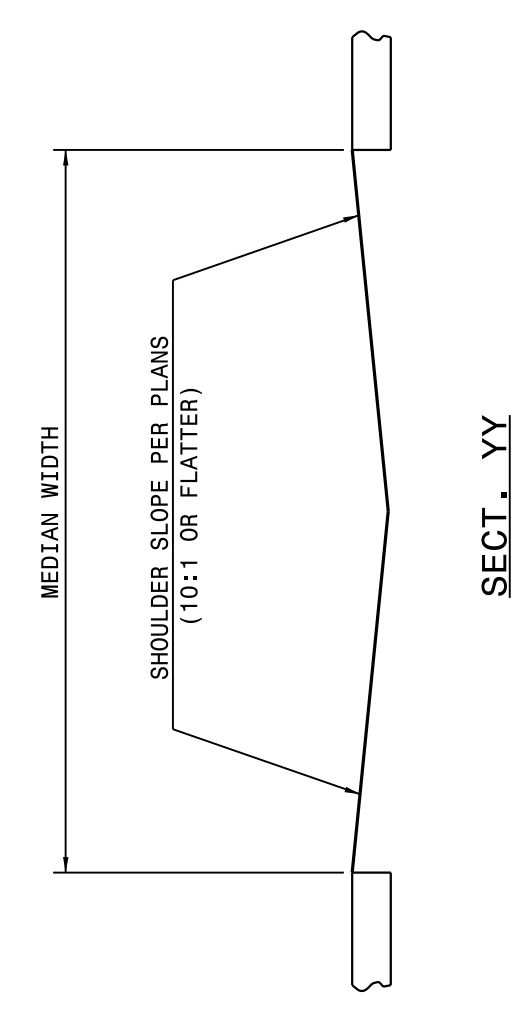
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ROADWAY DETAIL DRAWING FOR  
**GUARDRAIL PLACEMENT**

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).



DETAIL OF GUARDRAIL AT MEDIAN SIGN SUPPORT

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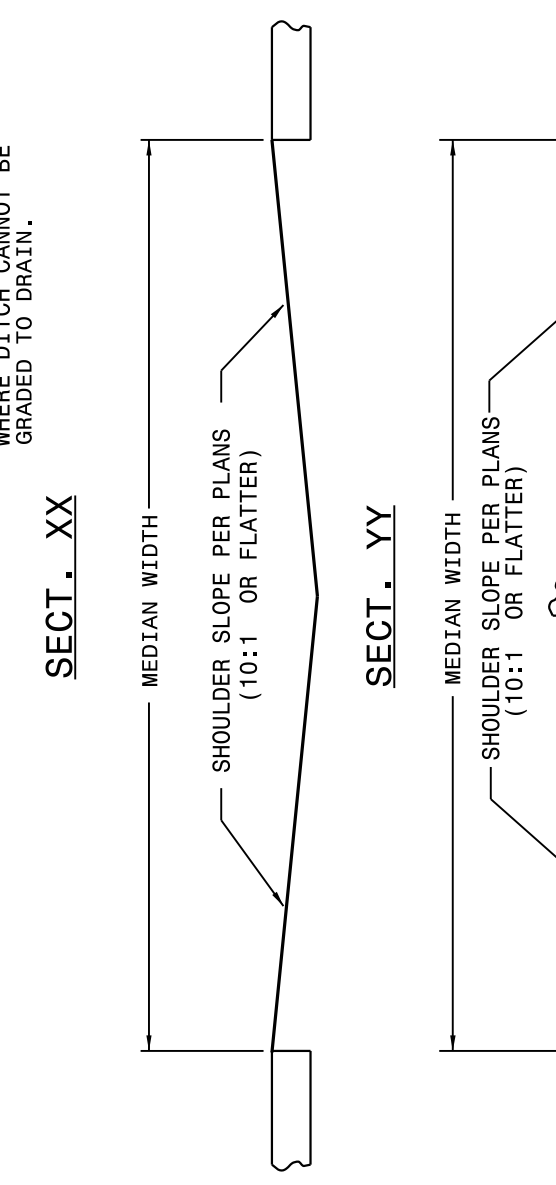
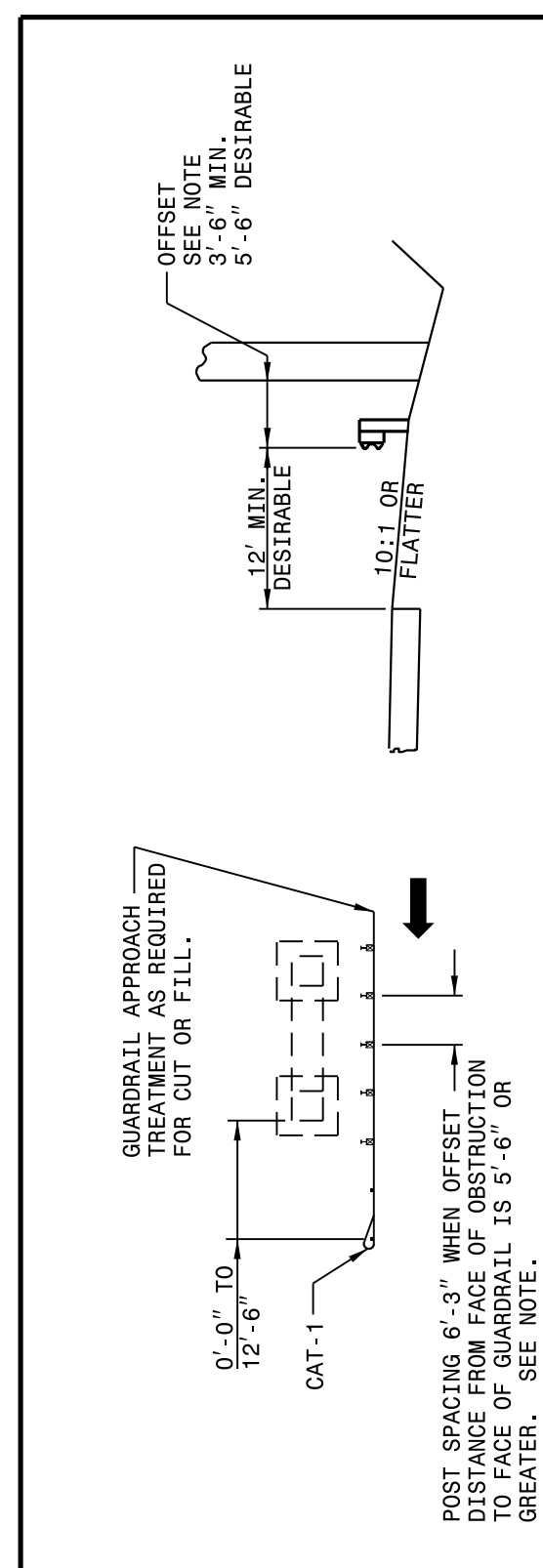
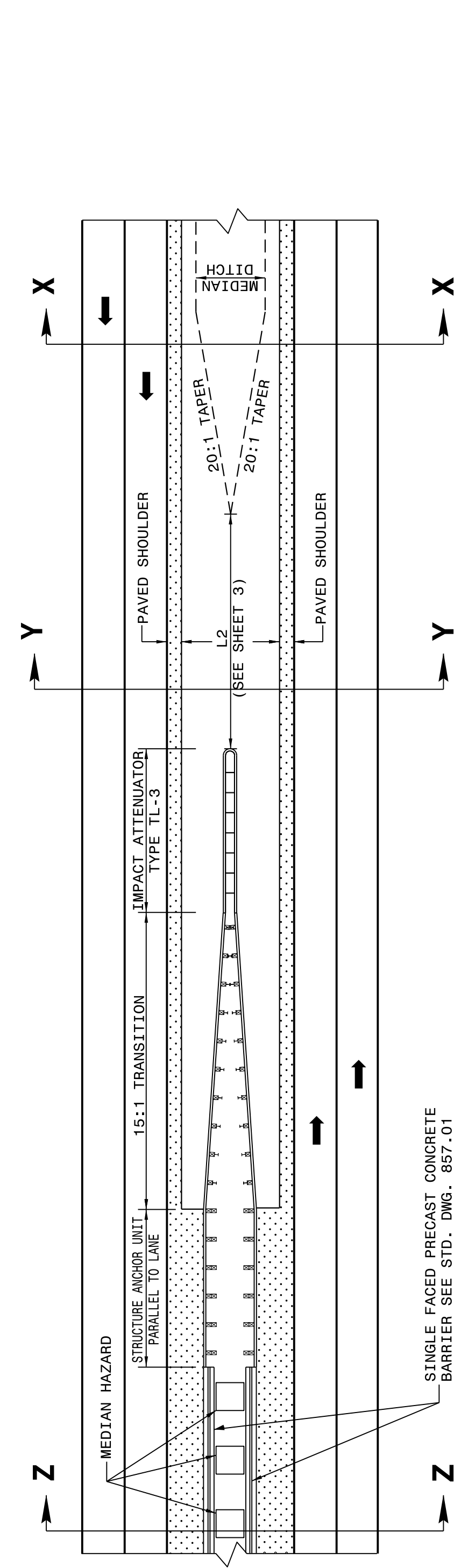
ROADWAY DETAIL DRAWING FOR  
**GUARDRAIL PLACEMENT**

SHEET 1 OF 11  
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ROADWAY DETAIL DRAWING FOR  
**GUARDRAIL PLACEMENT**

SHEET 1 OF 11  
**862D01**



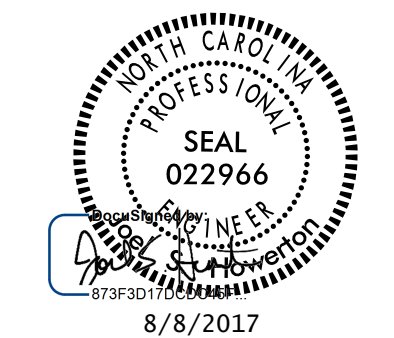
NOTE: WHEN OFFSET DISTANCE FROM FACE OF OBSTRUCTION TO FACE OF GUARDRAIL IS BETWEEN 3'-6" AND 5'-6", BEGIN 3'-1 1/2" POST SPACING AT POINT 26' BEFORE REACHING THE OBSTRUCTION AND CARRY THROUGHOUT ITS LENGTH. IF THE OFFSET IS LESS THAN 3'-6" USE CONCRETE BARRIER.

DETAIL OF RIGHT SIDE GUARDRAIL AT UNDERPASS

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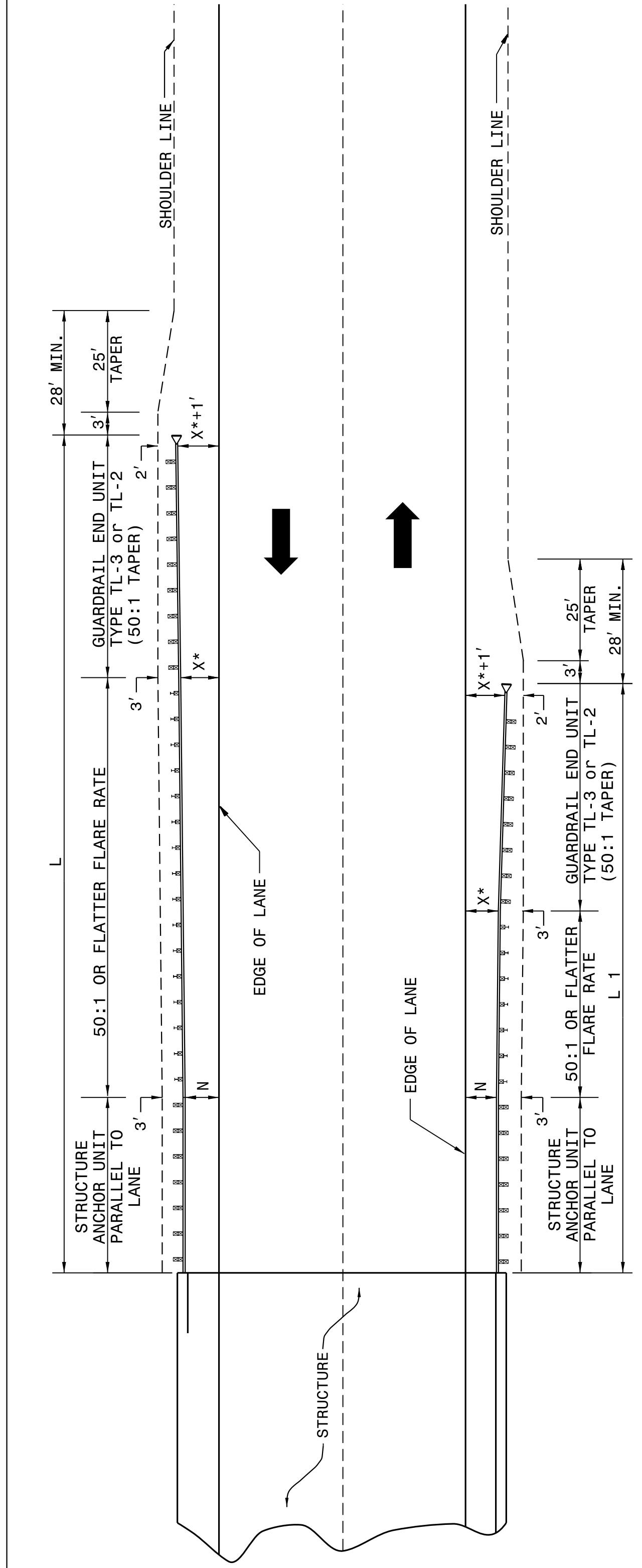
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ROADWAY DETAIL DRAWING FOR  
**GUARDRAIL PLACEMENT**

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'	187.5'	175.0'
60	300.0'	287.5'	137.5'	100.0'
50	212.5'	212.5'	87.5'	75.0'
40	175.0'	150.0'	137.5'	112.5'
X *	8'	4'	6'	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

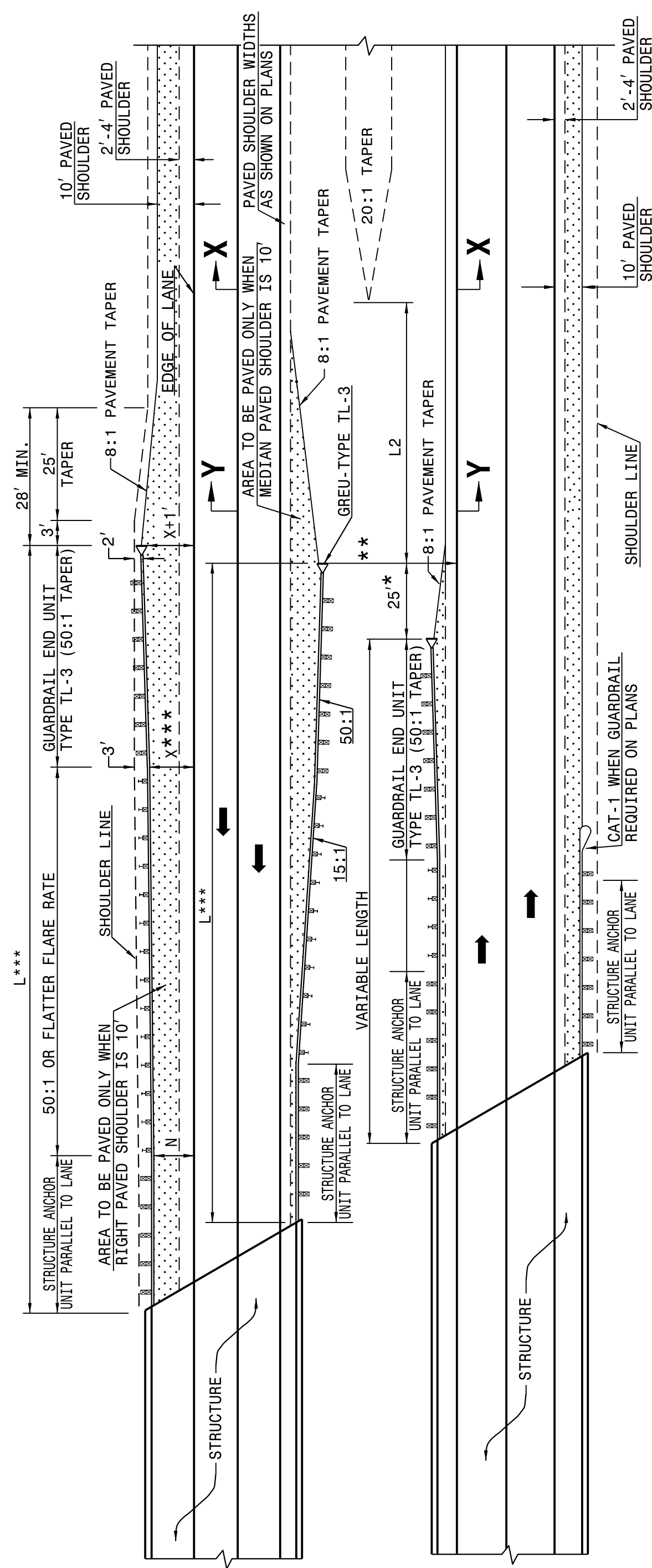
FOR POSTED SPEEDS ≥ 45mph USE GREU TYPE TL-3  
FOR POSTED SPEEDS < 45mph USE GREU TYPE TL-2

**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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ROADWAY DETAIL DRAWING FOR  
**GUARDRAIL PLACEMENT**

SHEET 4 OF 11  
**862D01**

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ROADWAY DETAIL DRAWING FOR  
**GUARDRAIL PLACEMENT**

SHEET 3 OF 11  
**862D01**

PROJECT REFERENCE NO. I-4729A	SHEET NO. 2C-2
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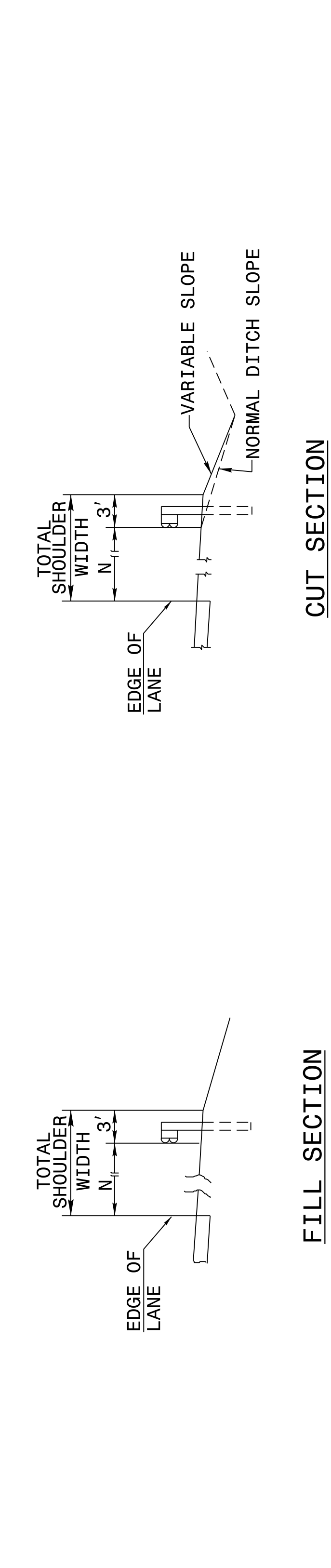
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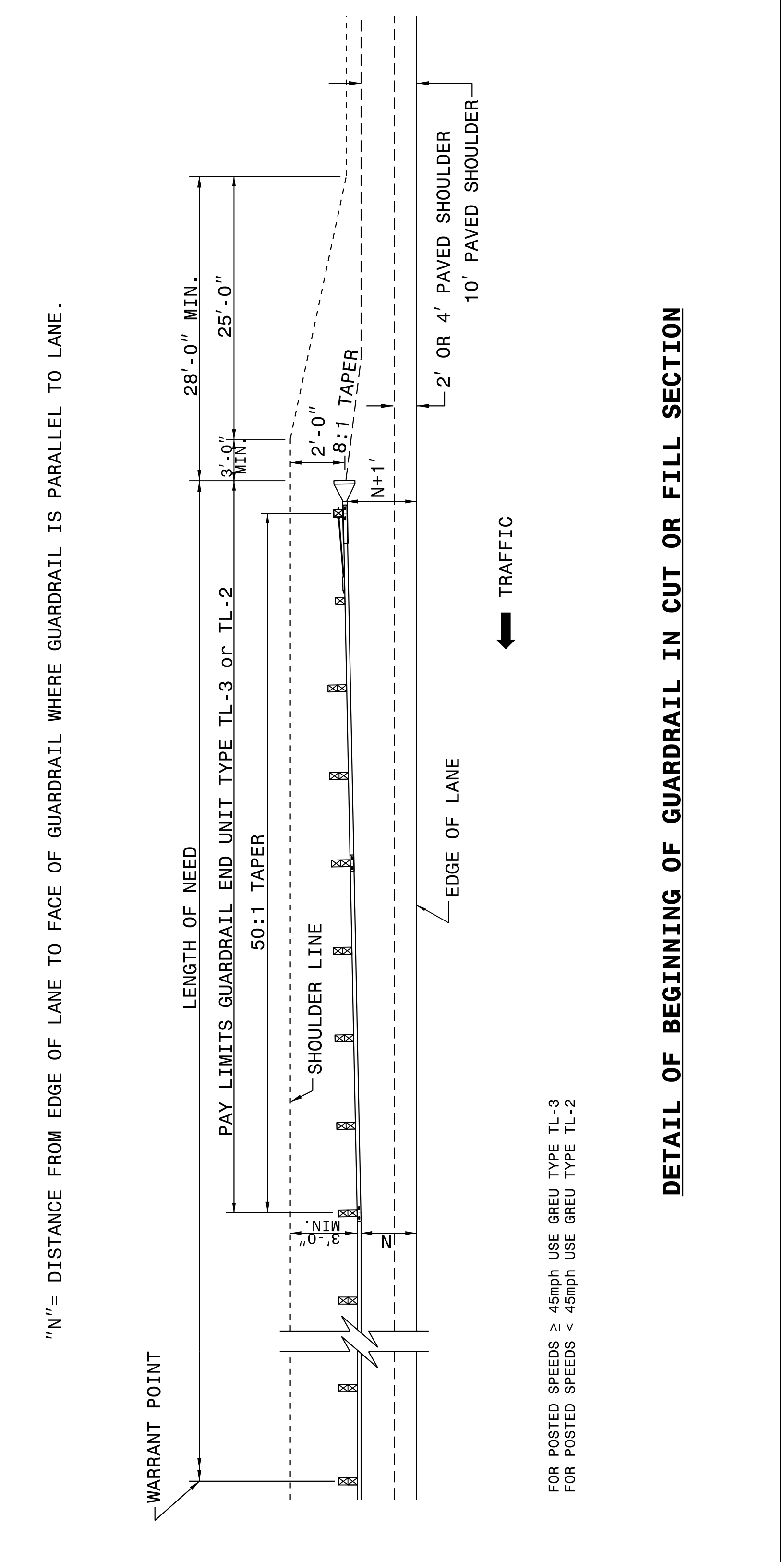
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RALEIGH, N.C.

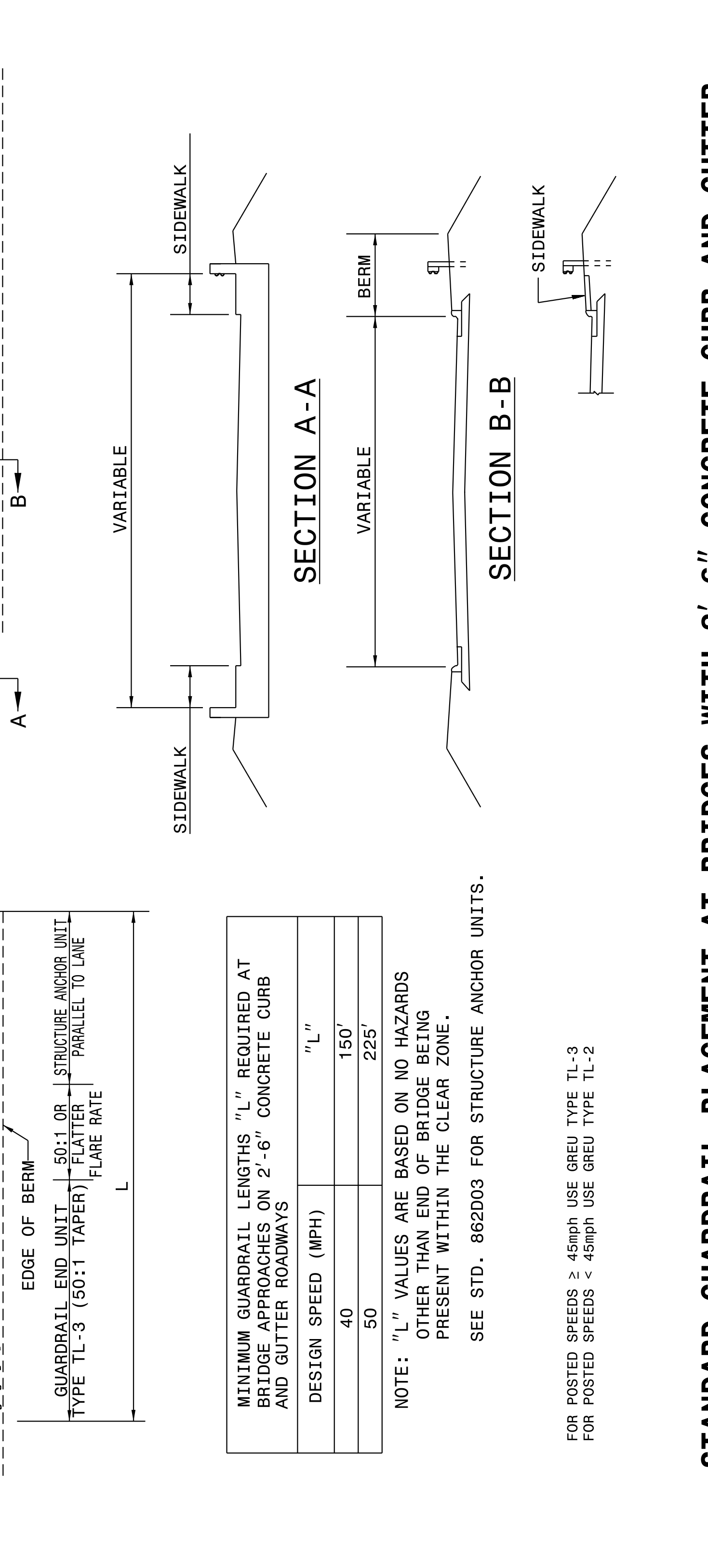


ROADWAY DETAIL DRAWING FOR  
**GUARDRAIL PLACEMENT**

SHEET 6 OF 11  
**862D01**

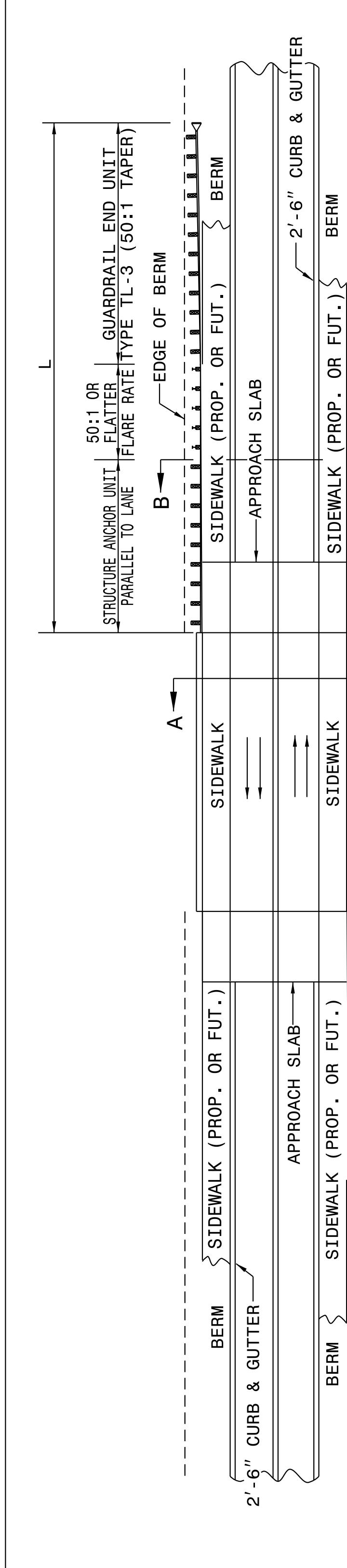


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ROADWAY DETAIL DRAWING FOR  
**GUARDRAIL PLACEMENT**

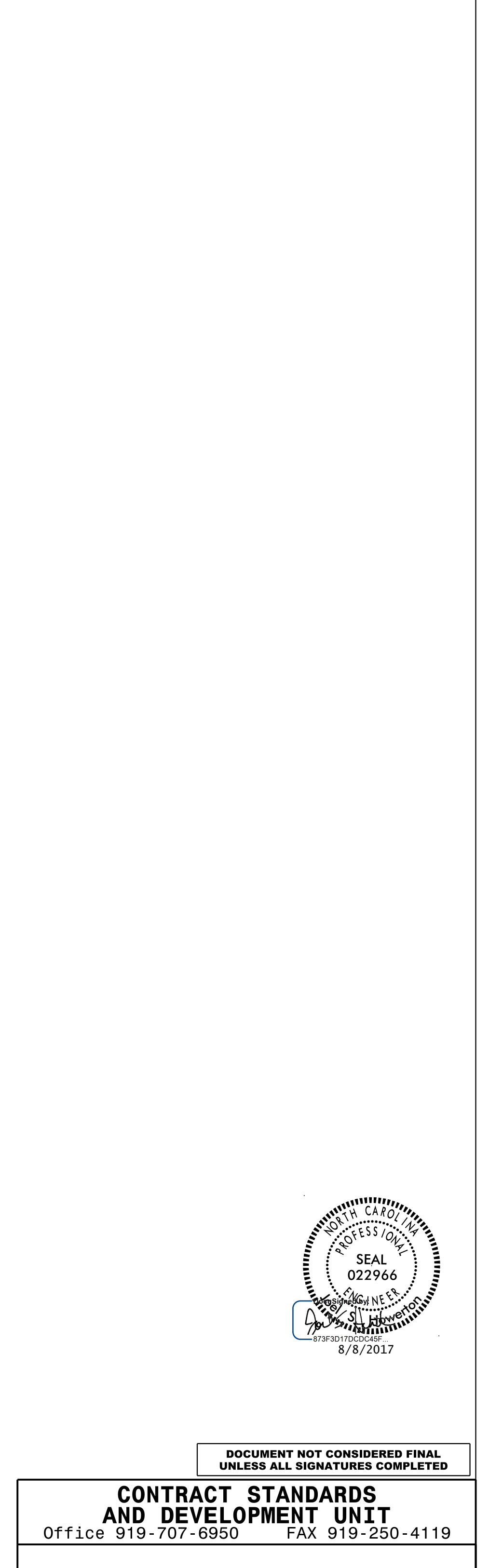
SHEET 5 OF 11  
**862D01**



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ROADWAY DETAIL DRAWING FOR  
**GUARDRAIL PLACEMENT**

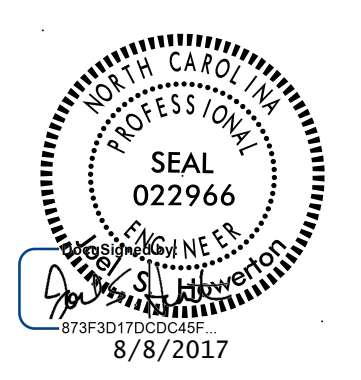
SHEET 6 OF 11  
**862D01**



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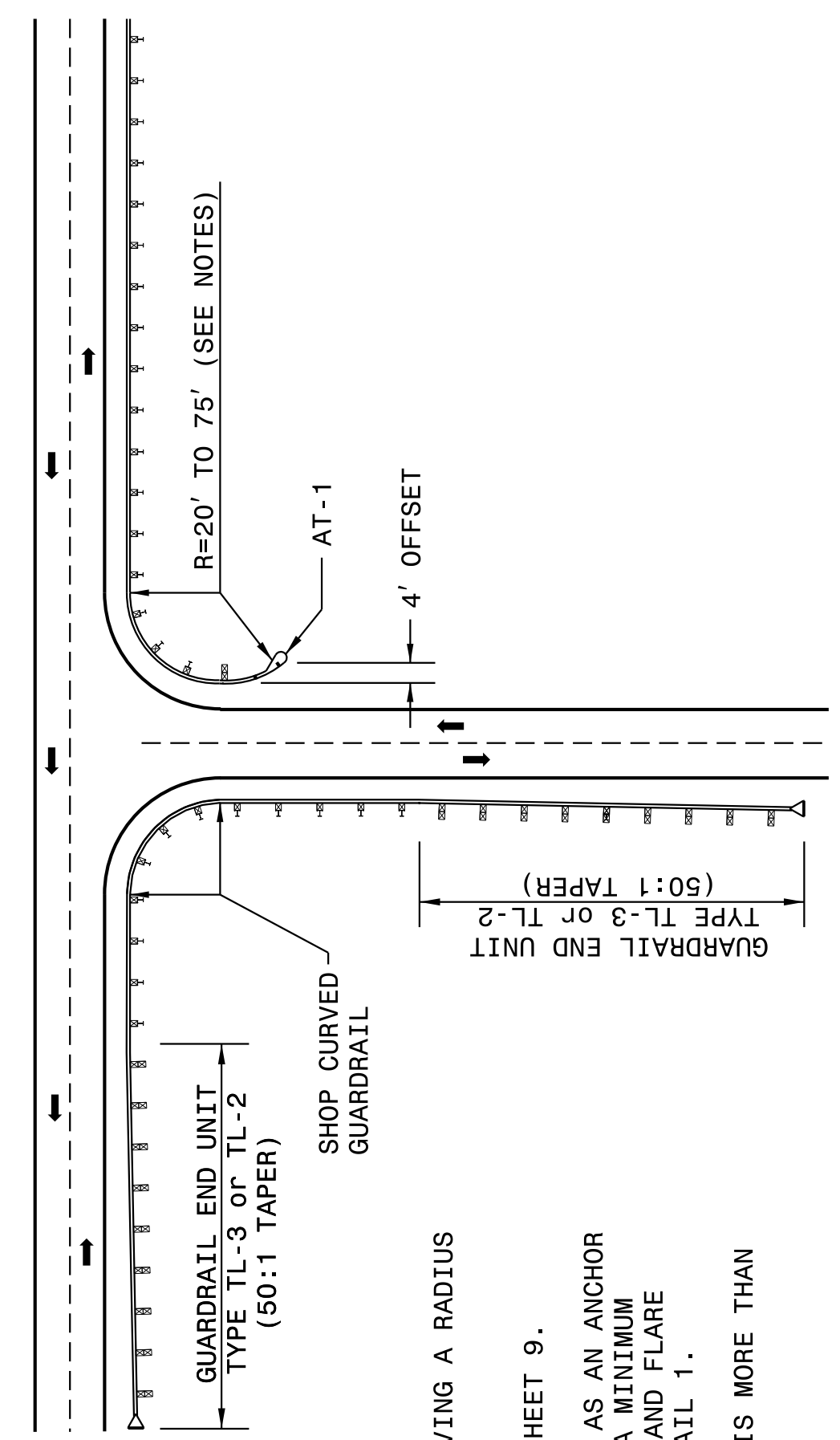
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ROADWAY DETAIL DRAWING FOR  
**GUARDRAIL PLACEMENT**

SHEET 8 OF 11  
**862D01**

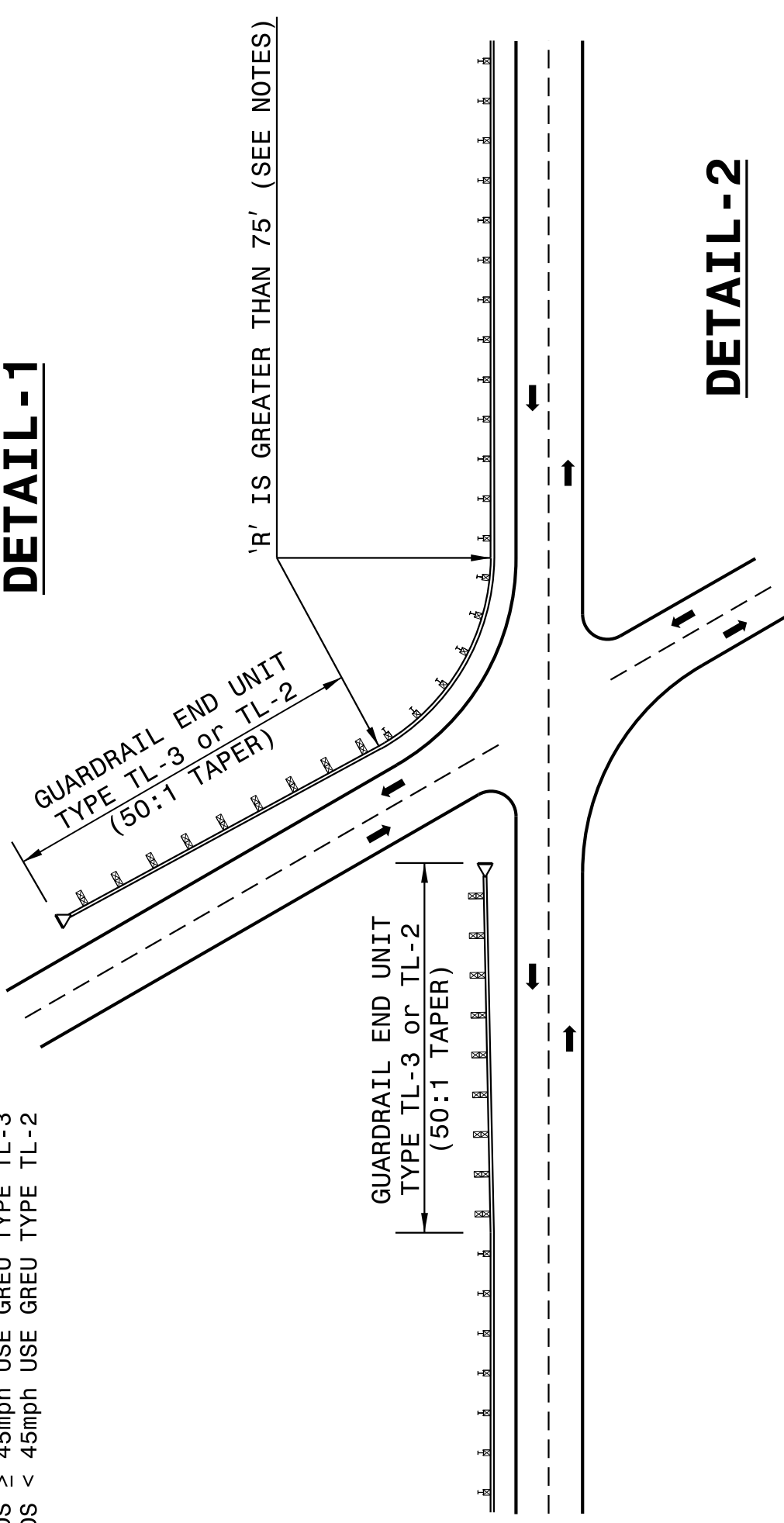


NOTES:  
SHOP CURVED GUARDRAIL IS DEFINED AS HAVING A RADIUS OF 150' OR LESS.  
WHEN RADIUS IS LESS THAN 20' REFER TO SHEET 9.  
WHENEVER SHOP CURVED GUARDRAIL IS USED AS AN ANCHOR AND THE RADIUS IS FROM 20' TO 75', USE A MINIMUM LENGTH OF 50' OF SHOP CURVED GUARDRAIL AND FLARE WITH AN AT-1 ANCHOR UNIT.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

**DETAIL - 1**



**DETAIL - 2**

**GUARDRAIL TREATMENT AT INTERSECTIONS**

SHEET 8 OF 11  
**862D01**

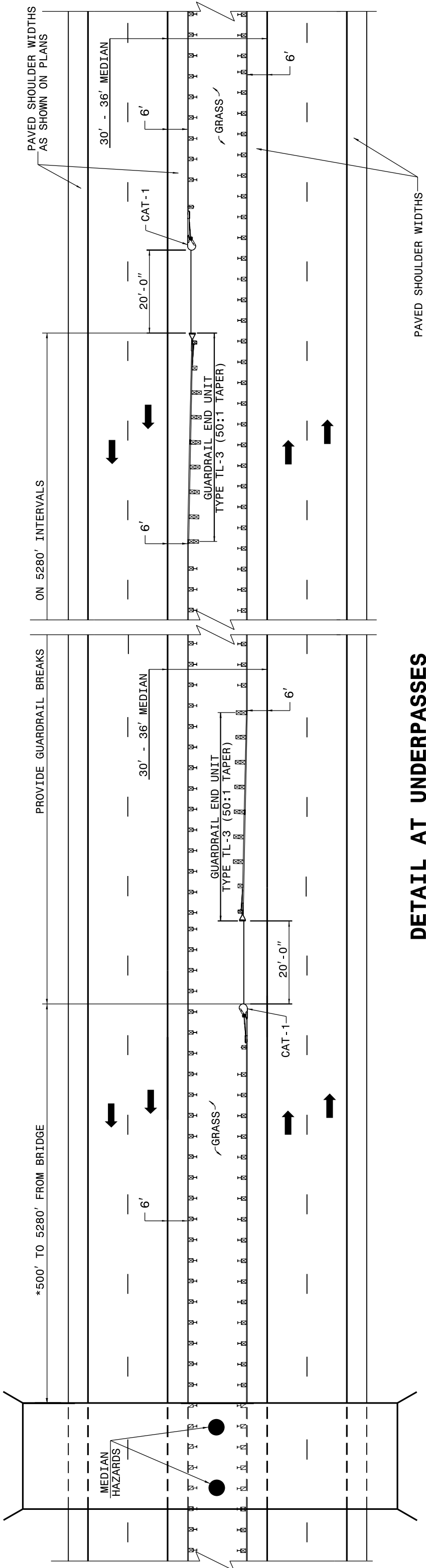
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ROADWAY DETAIL DRAWING FOR  
**GUARDRAIL PLACEMENT**

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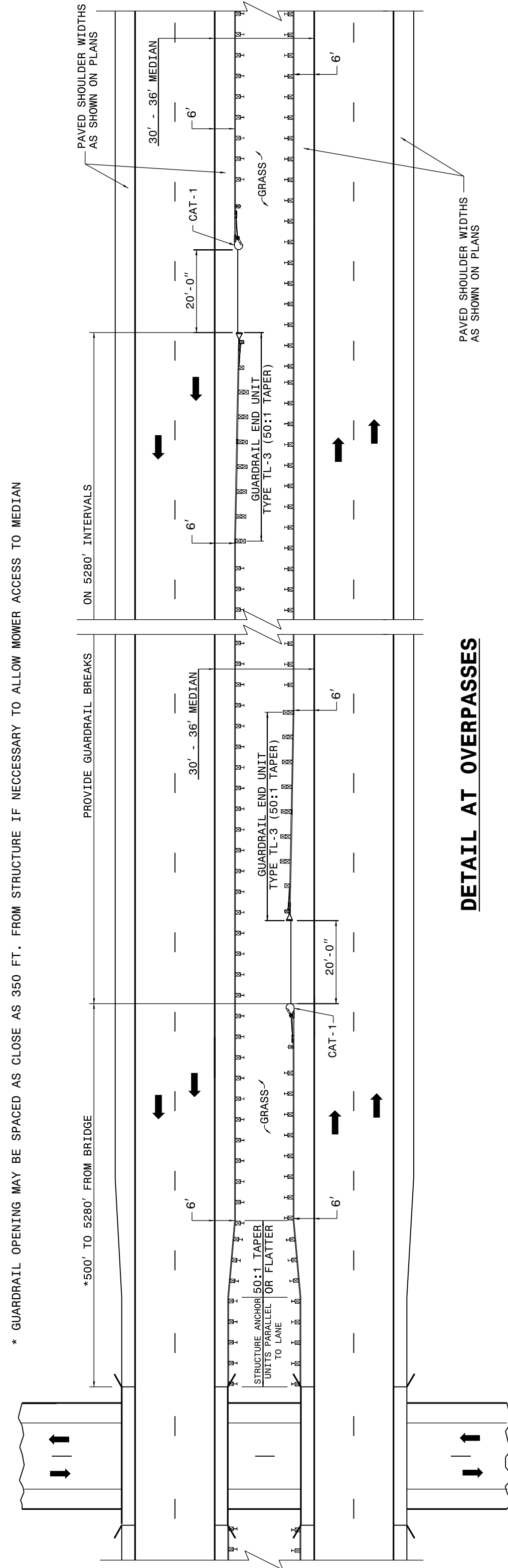
ROADWAY DETAIL DRAWING FOR  
**GUARDRAIL PLACEMENT**

SHEET 7 OF 11  
**862D01**



**DETAIL AT UNDERPASSES**

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



**DETAIL AT OVERPASSES**

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

**GUARDRAIL BREAK INTERVALS WITH 30' - 36' MEDIANS**

SHEET 7 OF 11  
**862D01**

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ROADWAY DETAIL DRAWING FOR  
**GUARDRAIL PLACEMENT**

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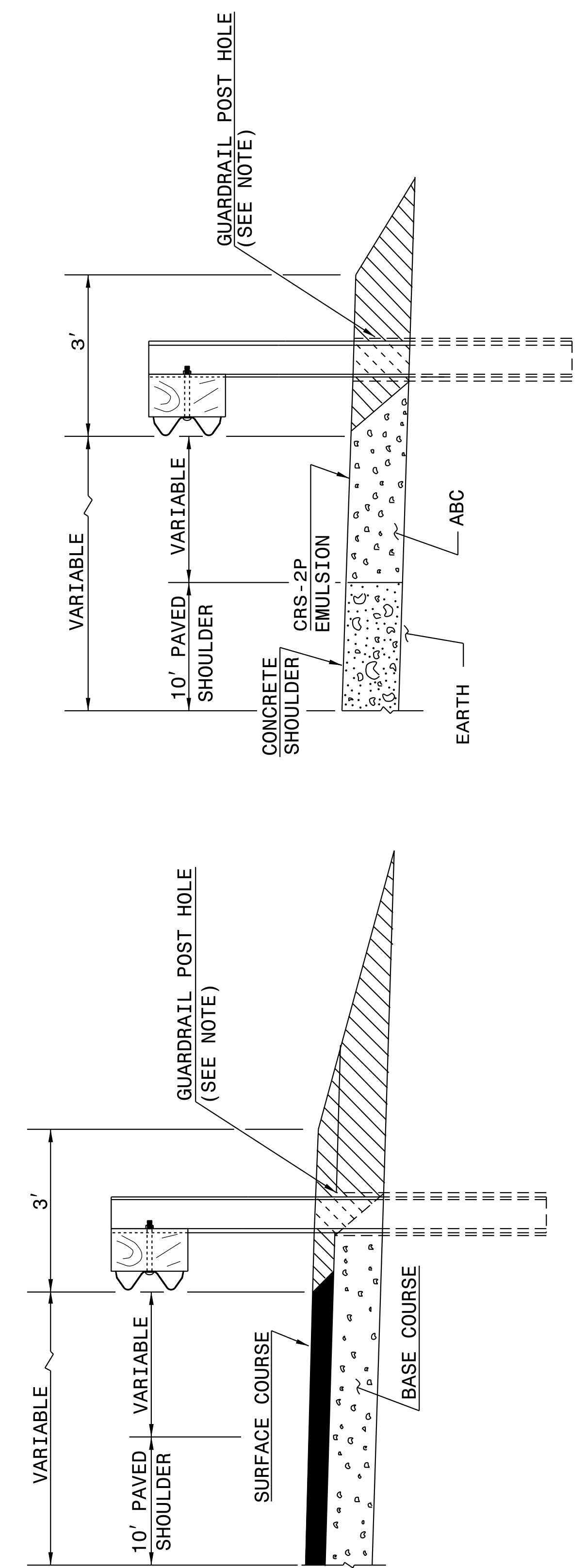
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ENGLISH DETAIL DRAWING FOR **GUARDRAIL PLACEMENT**

SHEET 10 OF 11 **862D01**



**FLEXIBLE PAVED SHOULDER**

**CONCRETE PAVED SHOULDER**



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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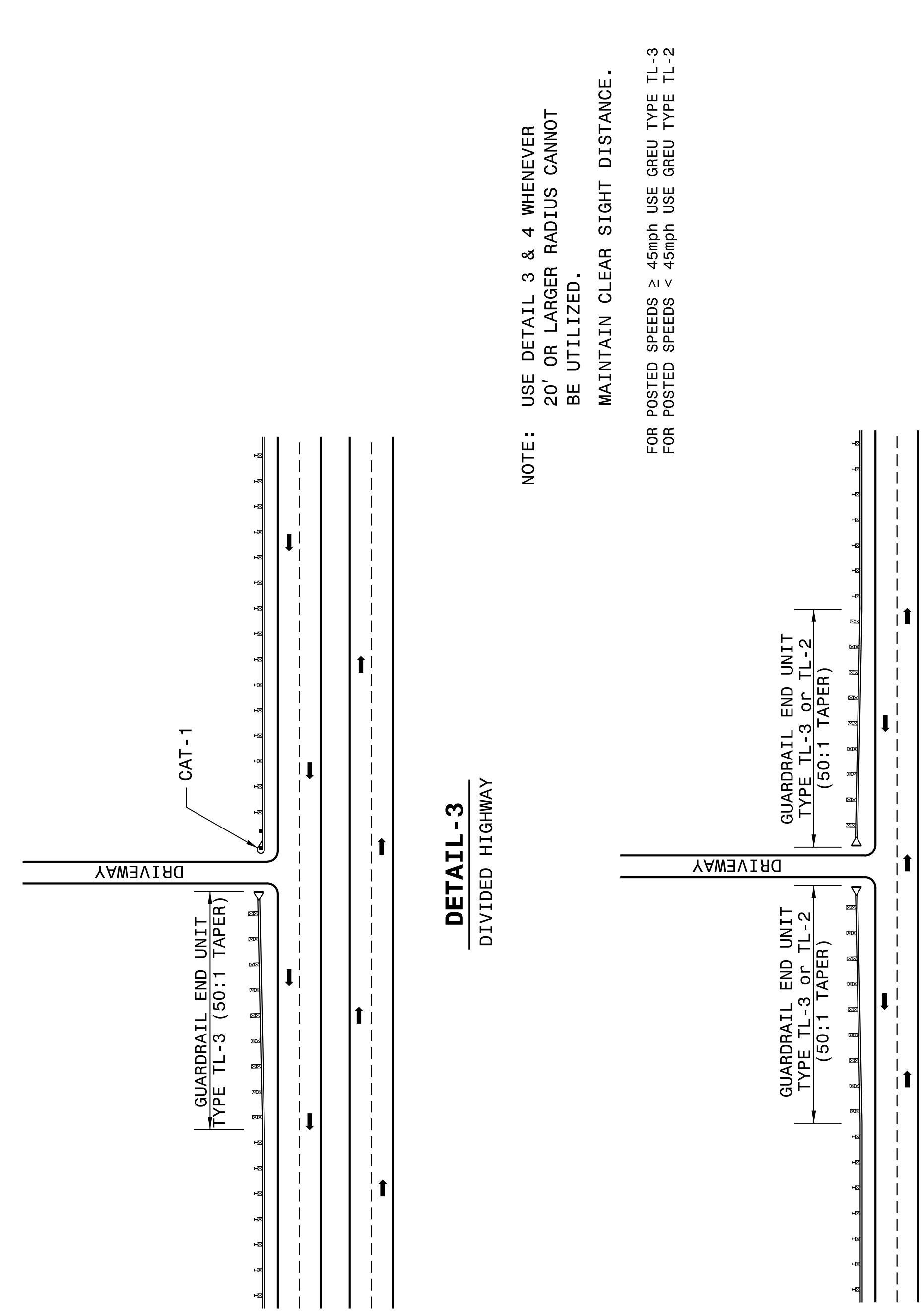
ENGLISH DETAIL DRAWING FOR **GUARDRAIL PLACEMENT**

SHEET 10 OF 11 **862D01**

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ROADWAY DETAIL DRAWING FOR **GUARDRAIL PLACEMENT**

SHEET 9 OF 11 **862D01**



**DETAIL - 3**  
DIVIDED HIGHWAY

**DETAIL - 4**  
UNDIVIDED HIGHWAY

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 **GUARDRAIL PLACEMENT**

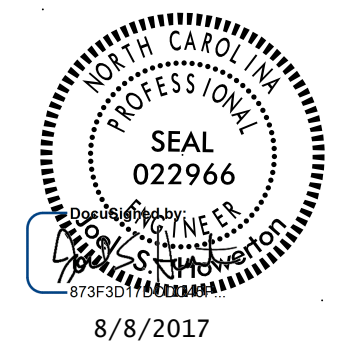
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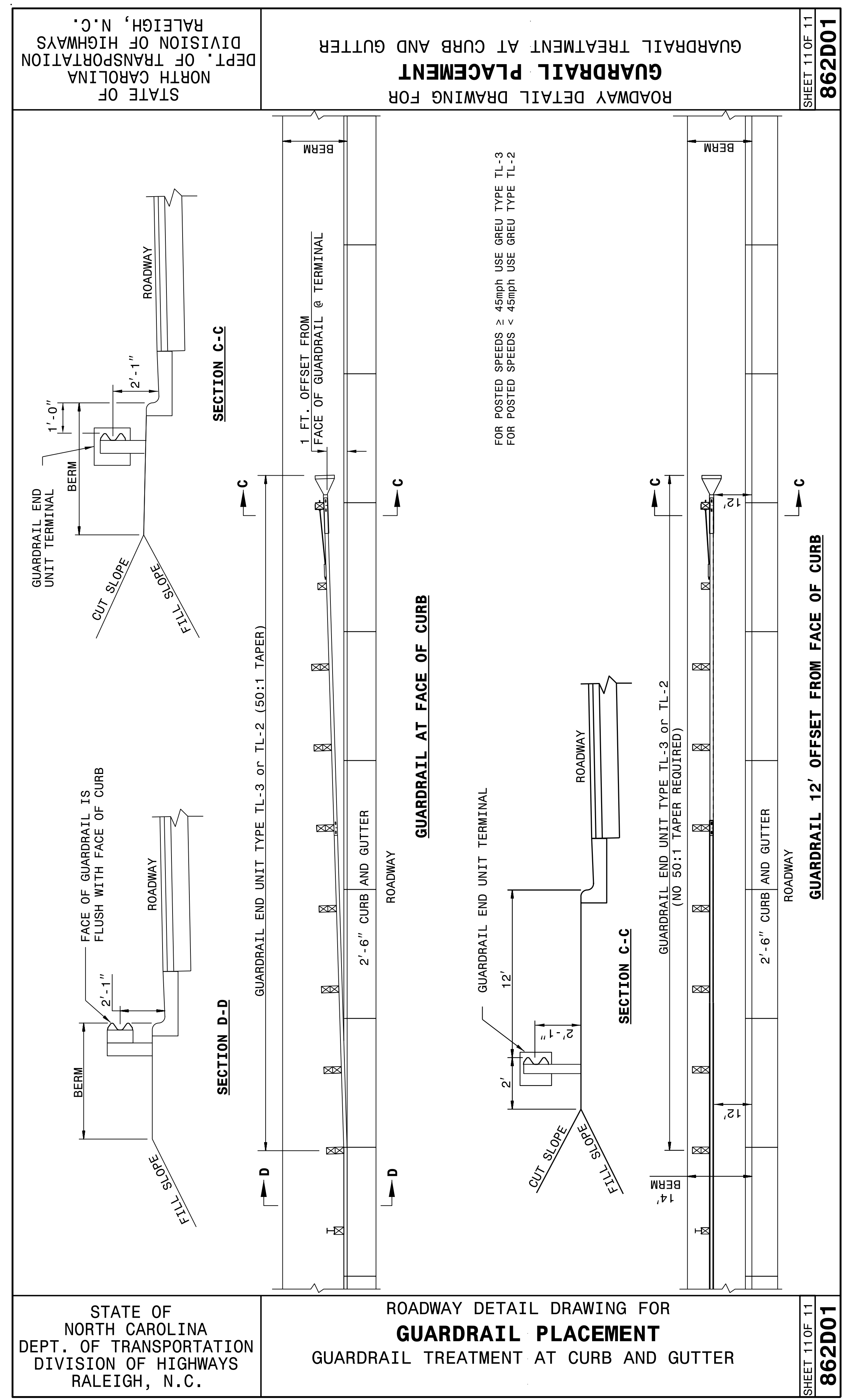
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ROADWAY DETAIL DRAWING FOR  
**GUARDRAIL PLACEMENT**  
 GUARDRAIL TREATMENT AT CURB AND GUTTER

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  
**862D01**



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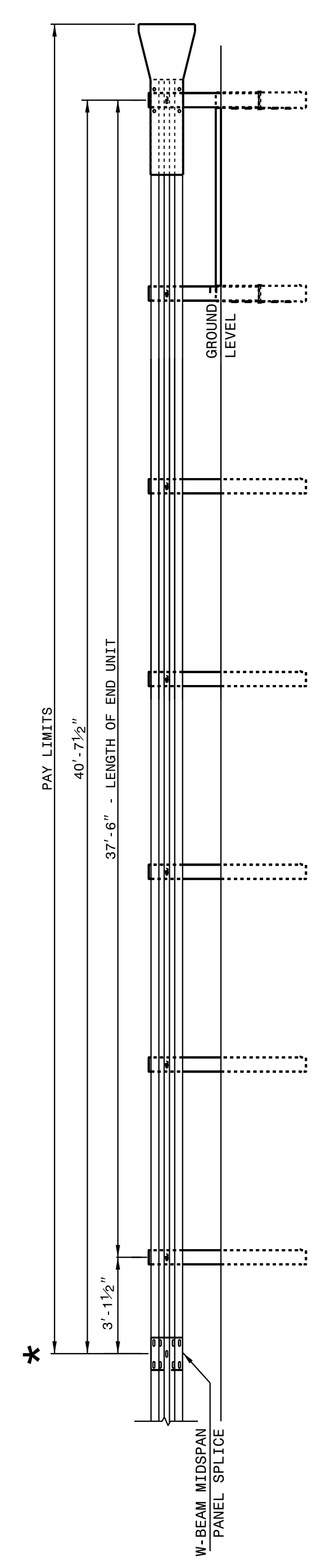
ROADWAY DETAIL DRAWING FOR  
**GUARDRAIL INSTALLATION**

SHEET 2 OF 8  
**862D02**

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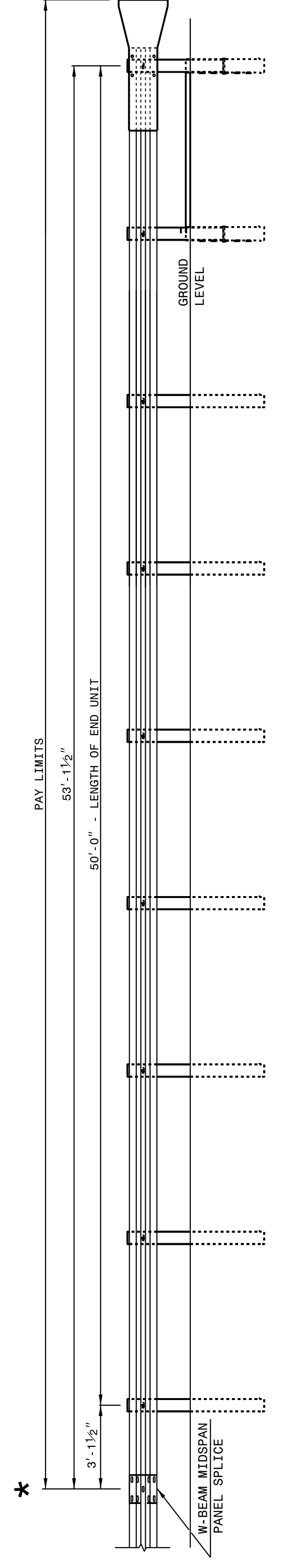
ROADWAY DETAIL DRAWING FOR  
**GUARDRAIL INSTALLATION**

SHEET 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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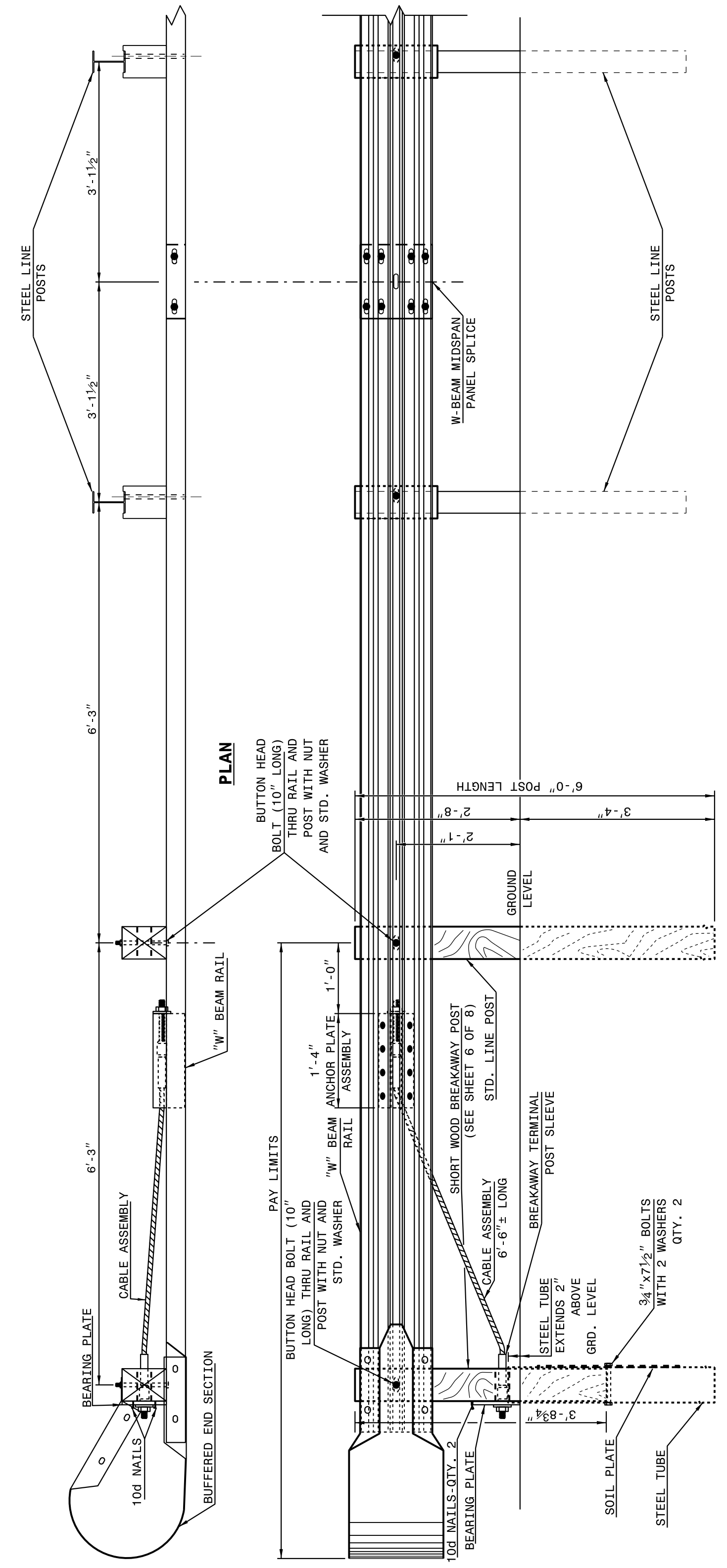
ROADWAY DETAIL DRAWING FOR  
**GUARDRAIL INSTALLATION**

SHEET 1 OF 8  
**862D02**

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ROADWAY DETAIL DRAWING FOR  
**GUARDRAIL INSTALLATION**

SHEET 1 OF 8  
**862D02**



**ELEVATION**

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

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STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.	ROADWAY DETAIL DRAWING FOR <b>GUARDRAIL INSTALLATION</b>	SHEET 6 OF 8 <b>862D02</b>
<b>SYSTEM PARTS</b>		
ROADWAY DETAIL DRAWING FOR <b>GUARDRAIL INSTALLATION</b>		
SHEET 6 OF 8 <b>862D02</b>		

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.	ROADWAY DETAIL DRAWING FOR <b>GUARDRAIL INSTALLATION</b>	SHEET 5 OF 8 <b>862D02</b>
<b>TYPICAL GUARDRAIL AND GUARDRAIL POST ALTERNATIVES</b>		
ROADWAY DETAIL DRAWING FOR <b>GUARDRAIL INSTALLATION</b>		
SHEET 5 OF 8 <b>862D02</b>		

NOTES:  
 A - 5/8" DIA. BUTTON HEAD SPlice BOLT 1 1/4" LONG (8 REG. PER SPlice JOINT).  
 B - 3/8" 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.



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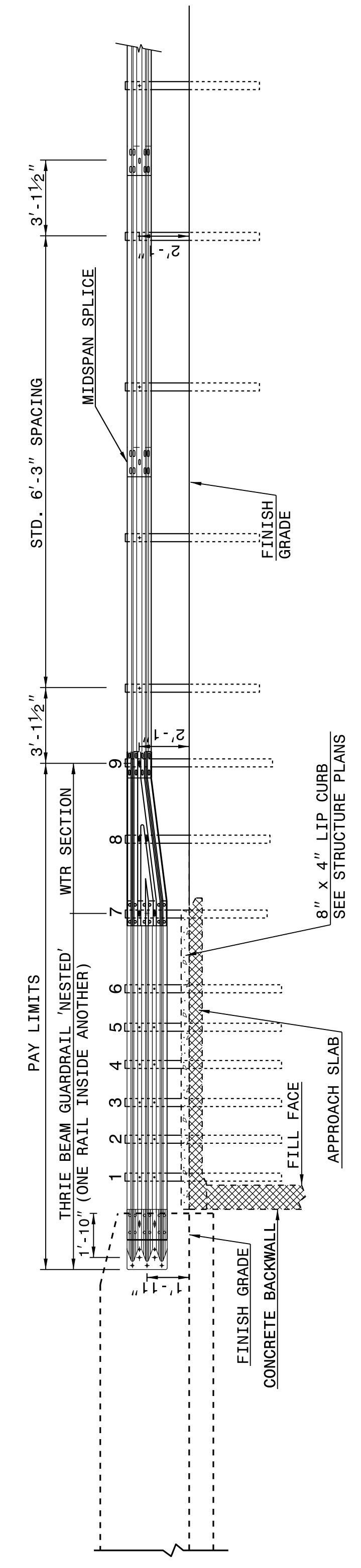
ROADWAY DETAIL DRAWING FOR  
**STRUCTURE ANCHOR UNITS**  
 GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO  
 RAIL ON BRIDGE - SUB REGIONAL TIER

SHEET 2 OF 7  
**862D03**

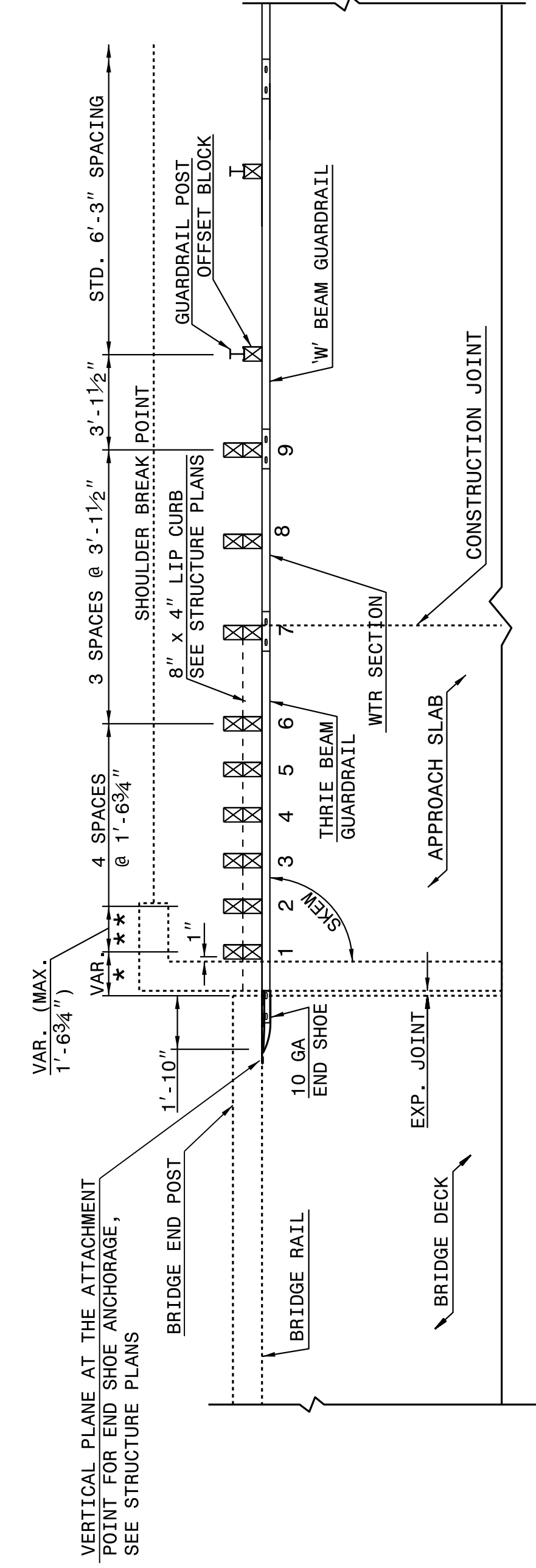
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ROADWAY DETAIL DRAWING FOR  
**STRUCTURE ANCHOR UNITS**  
 GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO  
 RAIL ON BRIDGE - SUB REGIONAL TIER

SHEET 2 OF 7  
**862D03**



**NOTE:**  
 \*\*POST NOT REQUIRED FOR SKEW ANGLES GREATER THAN 150° OR LESS THAN 30° UNLESS OTHERWISE DIRECTED BY THE ENGINEER.  
 \*THE DISTANCE FROM END OF BRIDGE RAIL TO CENTER LINE OF THE FIRST POST SHOULD BE 11½" IF CONCRETE BACKWALL IS NOT PRESENT.  
 -SHOULDER BERM GUTTER MUST BE INSTALLED TO THE LIMITS 8" x 4" LIP CURB IS SHOWN IF ANCHOR UNIT IS NOT ADJACENT TO AN APPROACH SLAB.  
 -MEASURE GUARDRAIL HEIGHT FROM THE TOP OF ADJACENT SURFACE (SHOULDER, BERM, OR GUTTER).  
 -LAP JOINTS IN THE DIRECTION OF TRAFFIC FLOW.  
 -SEE SHEET 5 FOR POST SECTIONS 1 THRU 9.



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

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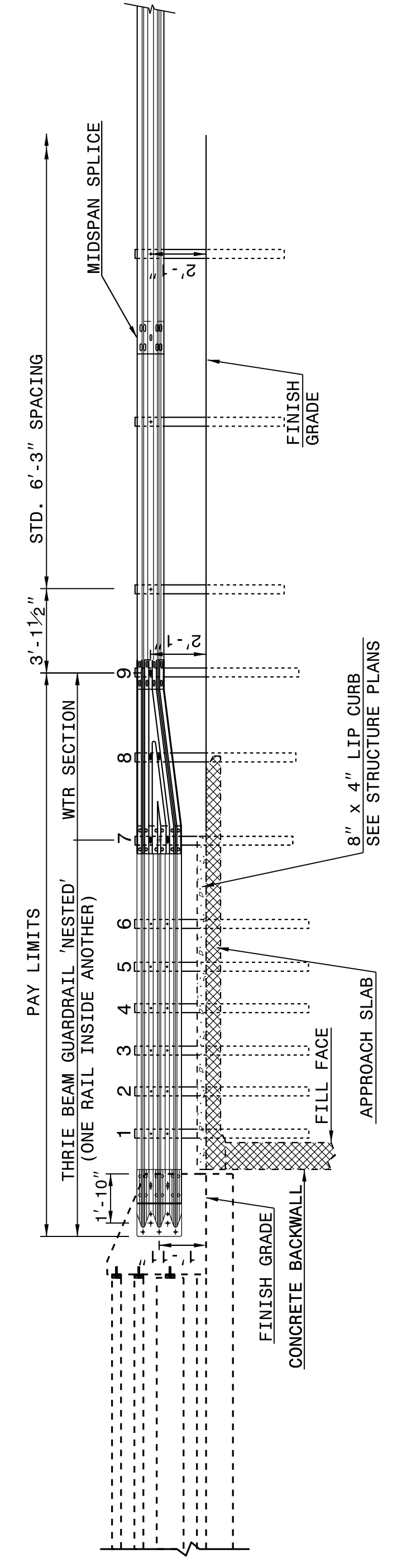
ROADWAY DETAIL DRAWING FOR  
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 GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO RAIL ON BRIDGE

SHEET 1 OF 7  
**862D03**

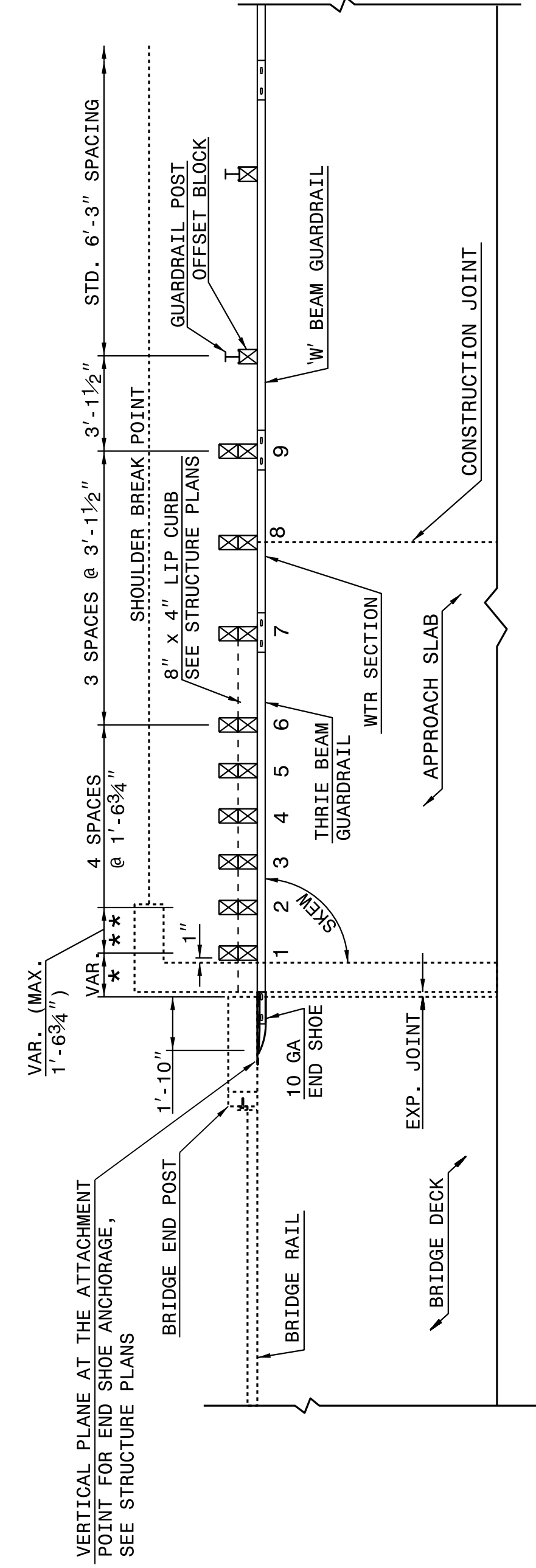
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ROADWAY DETAIL DRAWING FOR  
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 GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO RAIL ON BRIDGE

SHEET 1 OF 7  
**862D03**



**NOTE:**  
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 \*THE DISTANCE FROM END OF BRIDGE RAIL TO CENTER LINE OF THE FIRST POST SHOULD BE 11½" IF CONCRETE BACKWALL IS NOT PRESENT.  
 -SHOULDER BERM GUTTER MUST BE INSTALLED TO THE LIMITS 8" x 4" LIP CURB IS SHOWN IF ANCHOR UNIT IS NOT ADJACENT TO AN APPROACH SLAB.  
 -MEASURE GUARDRAIL HEIGHT FROM THE TOP OF ADJACENT SURFACE (SHOULDER, BERM, OR GUTTER).  
 -LAP JOINTS IN THE DIRECTION OF TRAFFIC FLOW.  
 -SEE SHEET 5 FOR POST SECTIONS 1 THRU 9.



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

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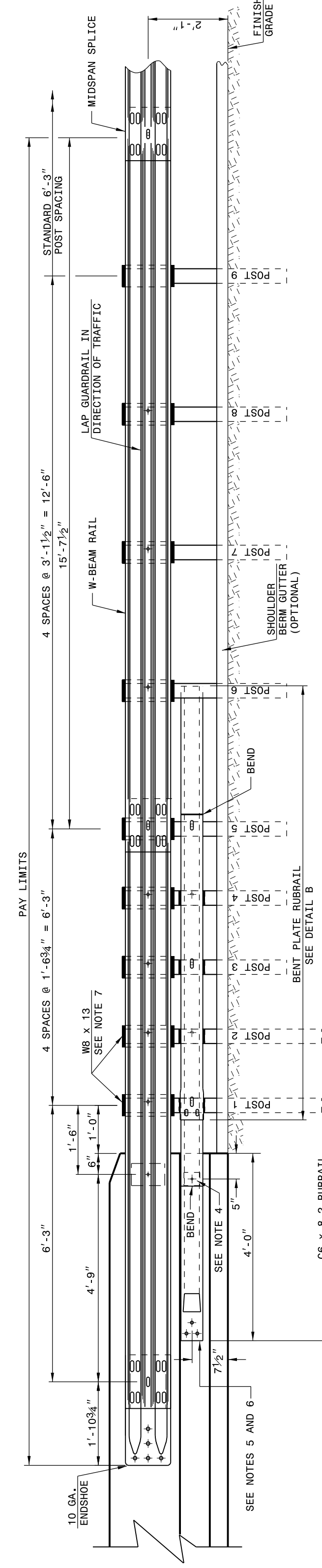
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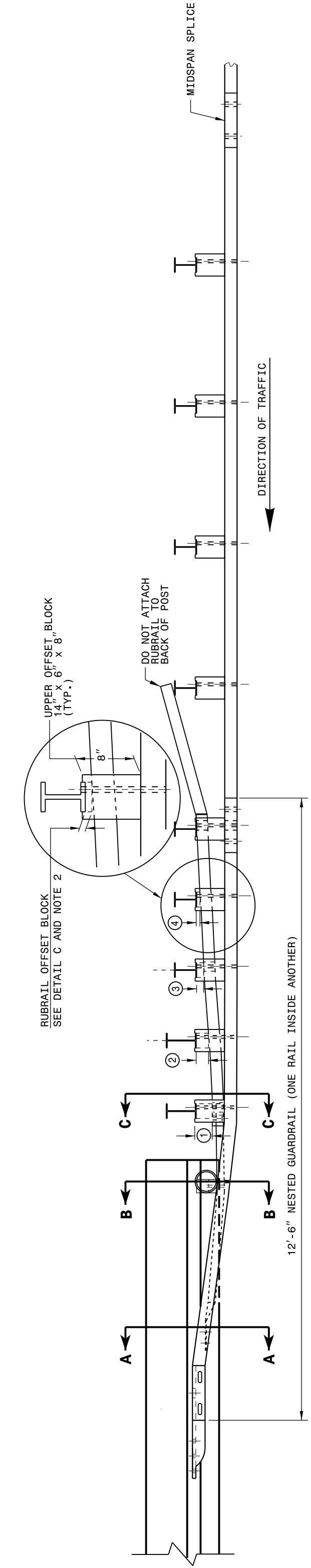
ROADWAY DETAIL DRAWING FOR  
**STRUCTURE ANCHOR UNIT**  
FOR F-SHAPE BARRIER

SHEET 4 OF 7  
**862D03**



**ELEVATION**

- GENERAL NOTES:
- POSTS 1 THROUGH 5 REQUIRE AN ADDITIONAL HOLE TO ATTACH LOWER BLOCKOUTS AND/OR RUBRAIL;
  - RUBRAIL BLOCKOUTS LOCATED ON POSTS 1 THROUGH 4 ARE OFFSET DRILLED AND SECURED WITH 5/8" BUTTOMHEAD BOLTS (SEE CHART FOR BOLT LENGTHS). SECURE BLOCKS ONLY TO POSTS 2 AND 4. SECURE RUBRAIL AND BLOCKOUTS TO POSTS 1 AND 3. RUBRAIL IS SECURED TO POST 5 WITH 5/8" X 1 1/4" LONG BUTTOMHEAD BOLT. RUBRAIL IS FLARED TO BACK OF POST 6, AND NOT SECURED.
  - 5/8" X 1 1/4" LONG BUTTOMHEAD BOLT AND RECTANGULAR PLATE WASHER, BLOCKOUT IS ATTACHED TO RAIL ELEMENT ONLY WITH 3/8" X 3" LAG BOLT WITH THE SLOPED TOE OF THE BARRIER OR BRIDGE RAIL.
  - SEE DETAIL D FOR SLOPED RUBRAIL BLOCKOUT. BLOCKOUT IS ATTACHED TO RAIL ELEMENT ONLY. USE 3/8" X 3" LAG BOLT WITH FLAT WASHER.
  - SHOP FABRICATE THE C6 X 8.2 RUBRAIL END TO BE CONSISTENT WITH THE SLOPE OF THE F SHAPE AND ATTACH FLUSH WITH THE SLOPED ANCHOR UNIT.
  - ANCHOR UNIT TO BE CONSISTENT WITH THE SLOPE OF THE F SHAPE AND ATTACH FLUSH WITH THE SLOPED ANCHOR UNIT.
  - AT EXISTING BRIDGE RAIL AND NEW OR EXISTING BARRIERS, ANCHOR RUBRAIL USING THREE 5/8" X 6" CHEMICALLY ANCHORED BOLTS WITH WASHERS. MAXIMUM PROJECTION FOR BOLTS IS 1/2".
  - AT EXISTING BRIDGE RAIL AND NEW OR EXISTING BARRIERS, ANCHOR THE W-BEAM END SHOE USING A 4 BOLT HOLD DOWN PLATE (SEE STD. DWG. 862.041).
  - A 4 BOLT INSERT ASSEMBLY IS ALLOWED ON PRECAST REINFORCED CONCRETE BARRIER (SEE STD. DWG. 857.01).
  - INSTALL THE W-BEAM END SHOE BEHIND THE NESTED W-BEAM ELEMENTS.
  - 1 1/2" DIA. HOLES (TYP.) FOR UNION TO RAIL SECTIONS.
  - POSTS 1 AND 2 ARE W8 X 13, 7'-6" LONG. ALL OTHER POSTS IN THE ANCHOR UNIT ARE W8 X 8.5.



**PLAN**

**GUARDRAIL ANCHOR UNIT TYPE B-77**

SHEET 4 OF 7  
**862D03**

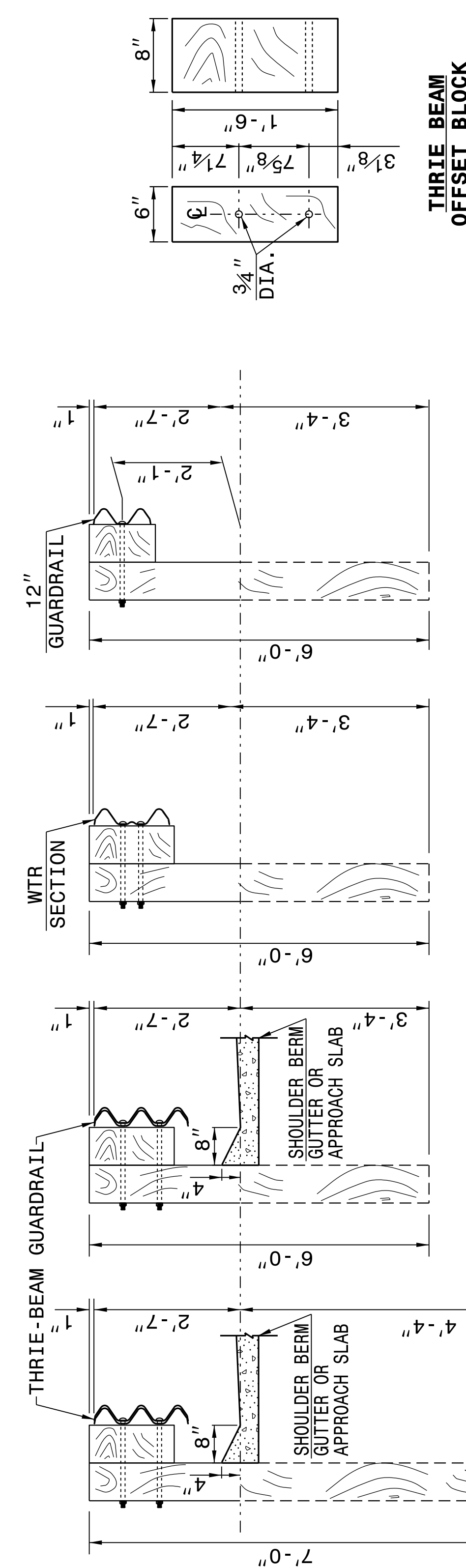
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ROADWAY DETAIL DRAWING FOR  
**GUARDRAIL ANCHOR UNIT**  
GUARDRAIL ANCHOR UNIT TYPE B-77  
FOR F-SHAPE BARRIER

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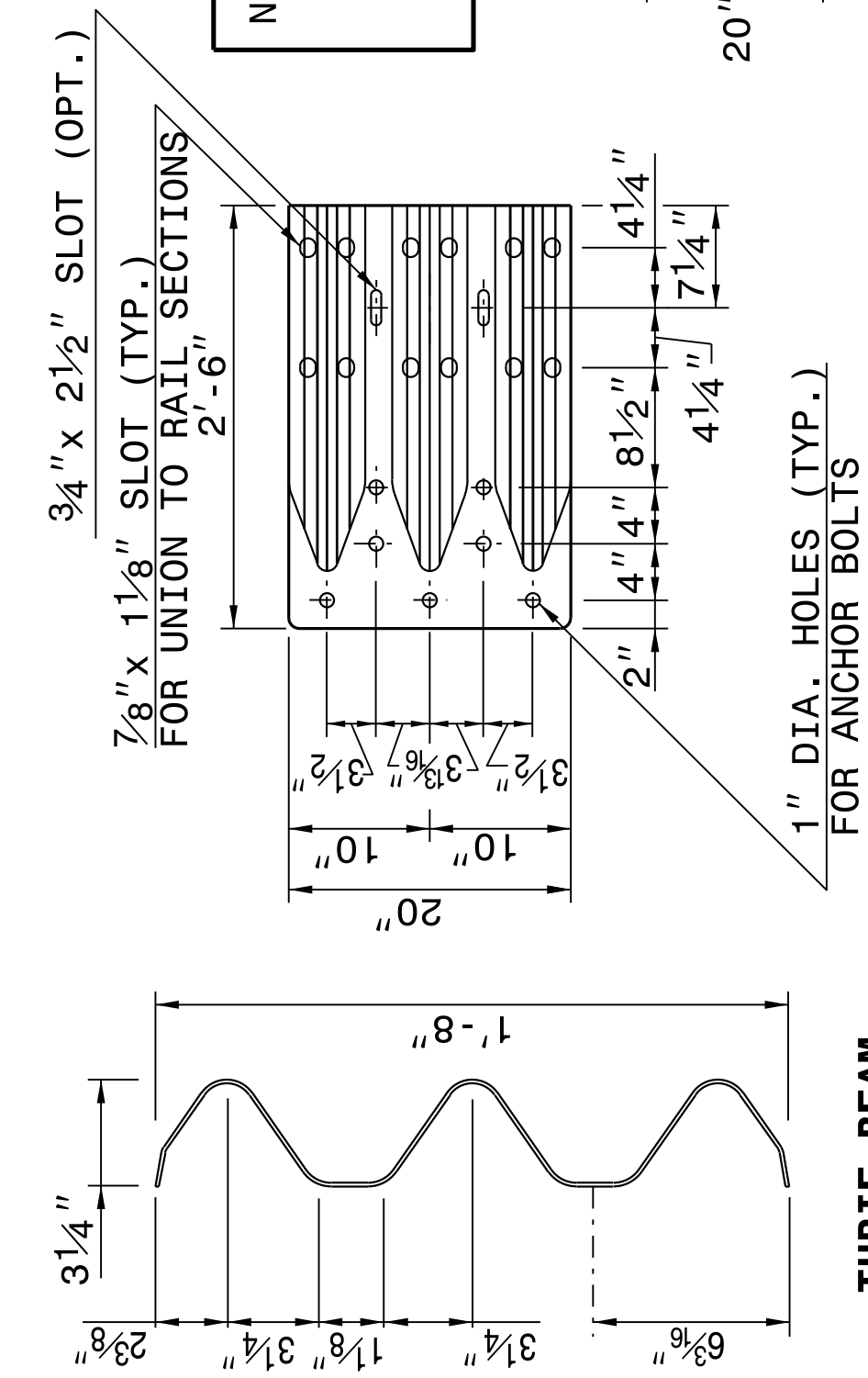
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**STRUCTURE ANCHOR UNITS**  
GUARDRAIL ANCHOR UNIT, TYPE III

SHEET 3 OF 7  
**862D03**



**WTR SECTION**

NOTE: THE MID POST AND OFFSET BLOCK OF SPECIAL BOLT HOLE DRILLING IN THE THRIE BEAM OFFSET BLOCK AND LINE POST.



**END SHOE**

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ROADWAY DETAIL DRAWING FOR  
**STRUCTURE ANCHOR UNITS**  
GUARDRAIL ANCHOR UNIT, TYPE III

SHEET 3 OF 7  
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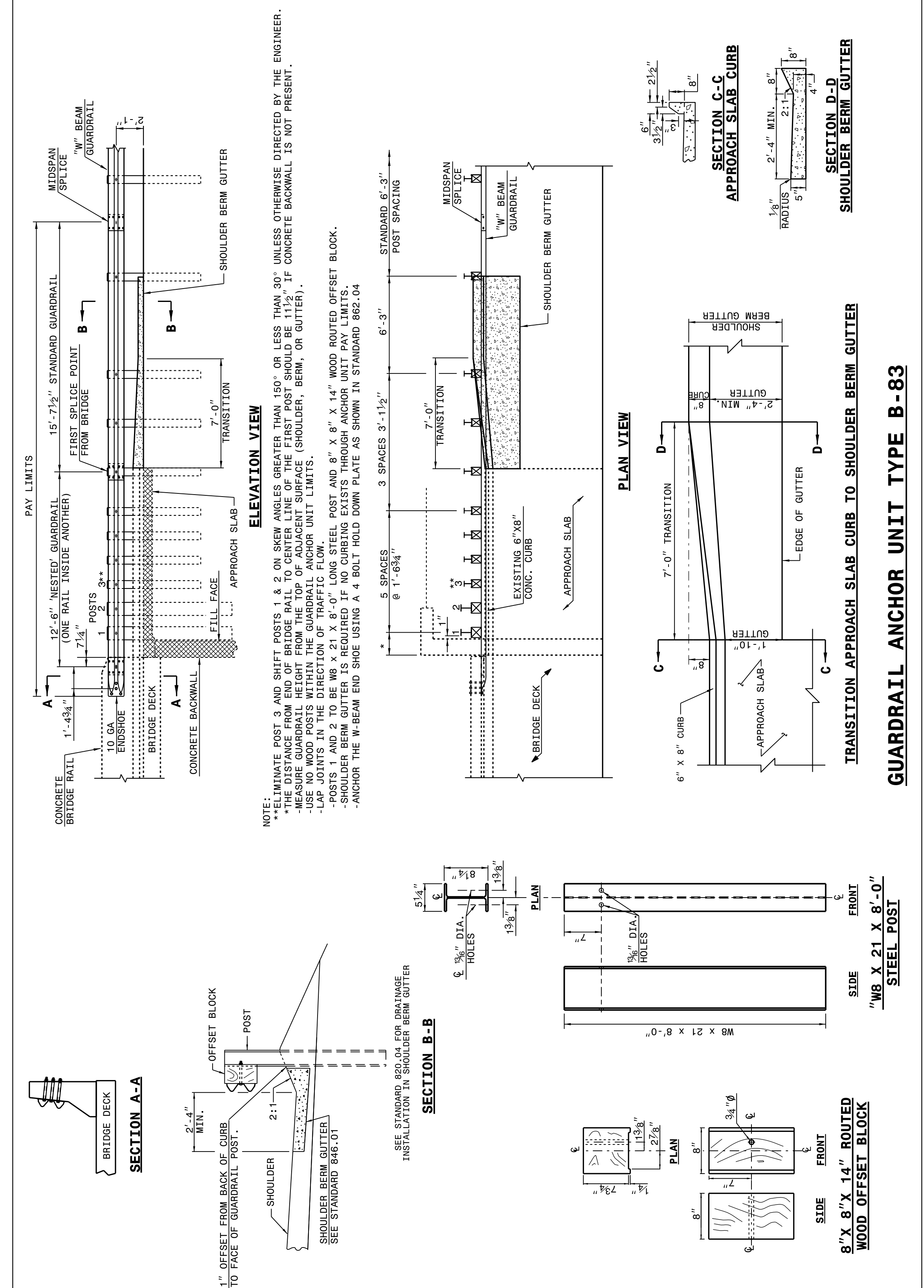
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ROADWAY DETAIL DRAWING FOR STRUCTURE ANCHOR UNITS GUARDRAIL ANCHOR UNIT TYPE B-83

SHEET 6 OF 7 **862D03**



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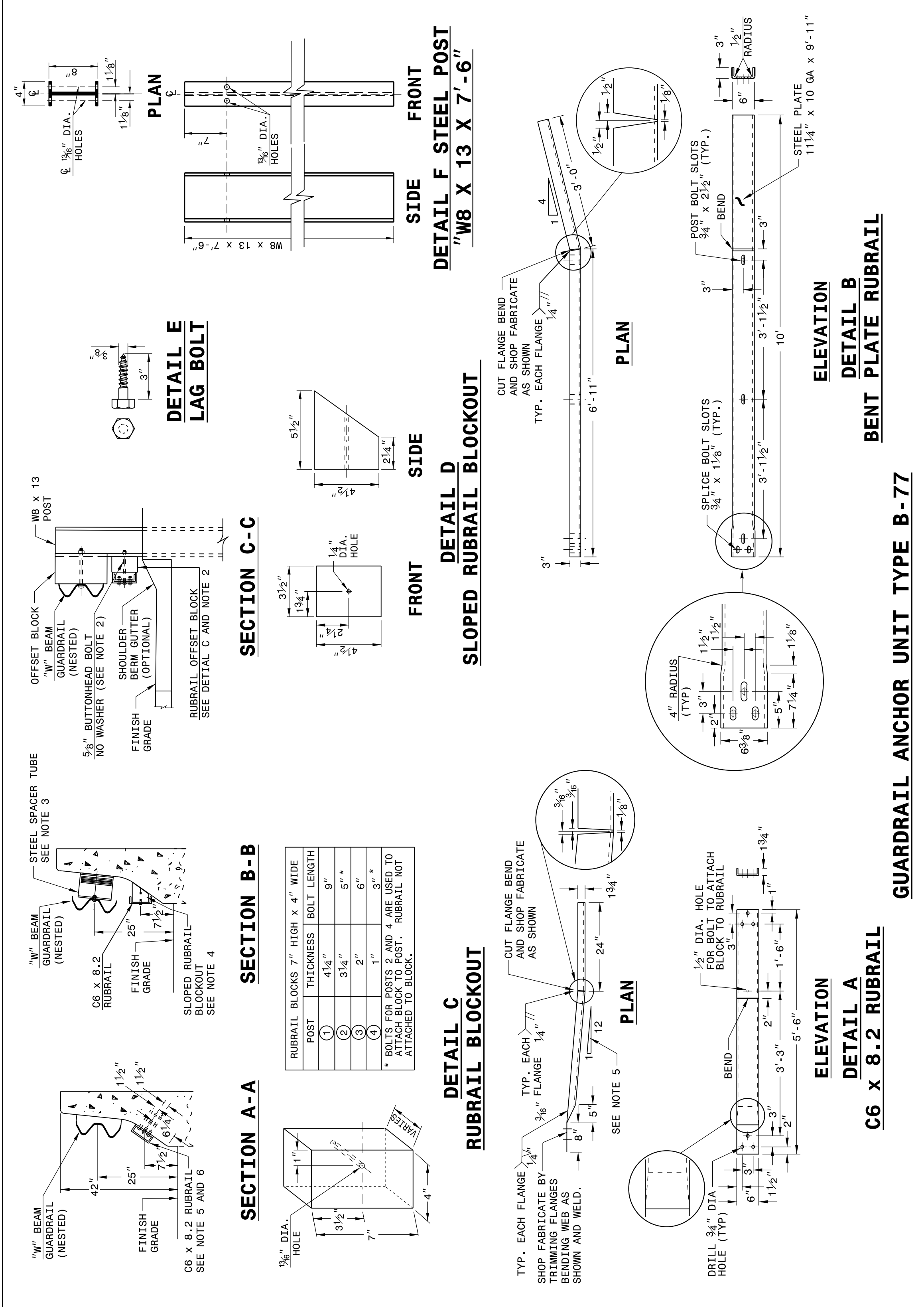
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SHEET 6 OF 7 **862D03**

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

ROADWAY DETAIL DRAWING FOR STRUCTURE ANCHOR UNIT GUARDRAIL ANCHOR UNIT TYPE B-77 FOR F-SHAPE BARRIER

SHEET 5 OF 7 **862D03**



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

ROADWAY DETAIL DRAWING FOR STRUCTURE ANCHOR UNIT GUARDRAIL ANCHOR UNIT TYPE B-77 FOR F-SHAPE BARRIER

SHEET 5 OF 7 **862D03**

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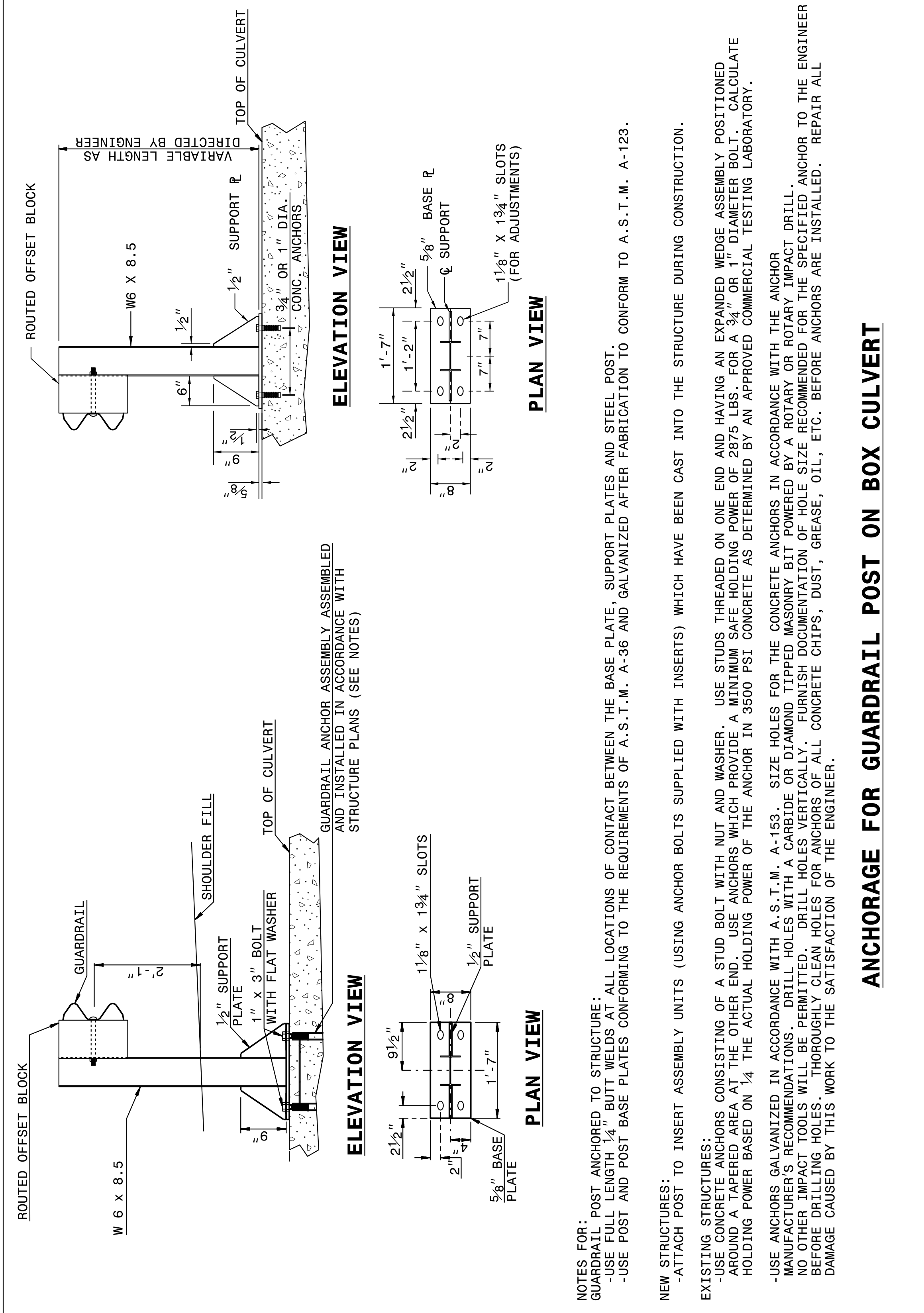


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PROJECT REFERENCE NO.	SHEET NO.
I-4729A	2C-14

ROADWAY DETAIL DRAWING FOR  
**STRUCTURE ANCHOR UNITS**  
 ANCHORAGE FOR GUARDRAIL POST ON BOX CULVERT

SHEET 7 OF 7  
**862D03**



ROADWAY DETAIL DRAWING FOR  
**STRUCTURE ANCHOR UNITS**  
 ANCHORAGE FOR GUARDRAIL POST ON BOX CULVERT

SHEET 7 OF 7  
**862D03**

NOTES FOR:  
 GUARDRAIL POST ANCHORED TO STRUCTURE:  
 -USE FULL LENGTH 1/4" BUTT WELDS AT ALL LOCATIONS OF CONTACT BETWEEN THE BASE PLATE, SUPPORT PLATES AND STEEL POST.  
 -USE POST AND POST BASE PLATES CONFORMING TO THE REQUIREMENTS OF A.S.T.M. A-36 AND GALVANIZED AFTER FABRICATION TO CONFORM TO A.S.T.M. A-123.

NEW STRUCTURES:  
 -ATTACH POST TO INSERT ASSEMBLY UNITS (USING ANCHOR BOLTS SUPPLIED WITH INSERTS) WHICH HAVE BEEN CAST INTO THE STRUCTURE DURING CONSTRUCTION.

EXISTING STRUCTURES:  
 -USE CONCRETE ANCHORS CONSISTING OF A STUD BOLT WITH NUT AND WASHER. USE STUDS THREADED ON ONE END AND HAVING AN EXPANDED WEDGE ASSEMBLY POSITIONED AROUND A TAPERED AREA AT THE OTHER END. USE ANCHORS WHICH PROVIDE A MINIMUM SAFE HOLDING POWER OF 2875 LBS. FOR A 3/4" OR 1" DIAMETER BOLT. CALCULATE HOLDING POWER BASED ON 1/4 THE ACTUAL HOLDING POWER OF THE ANCHOR IN 3500 PSI CONCRETE AS DETERMINED BY AN APPROVED COMMERCIAL TESTING LABORATORY.

-USE ANCHORS GALVANIZED IN ACCORDANCE WITH A.S.T.M. A-153. SIZE HOLES FOR THE CONCRETE ANCHORS IN ACCORDANCE WITH THE ANCHOR MANUFACTURER'S RECOMMENDATIONS. DRILL HOLES WITH A CARBIDE OR DIAMOND TIPPED MASONRY BIT POWERED BY A ROTARY OR ROTARY IMPACT DRILL. NO OTHER IMPACT TOOLS WILL BE PERMITTED. DRILL HOLES VERTICALLY. FURNISH DOCUMENTATION OF HOLE SIZE RECOMMENDED FOR THE SPECIFIED ANCHOR TO THE ENGINEER BEFORE DRILLING HOLES. THOROUGHLY CLEAN HOLES FOR ANCHORS OF ALL CONCRETE CHIPS, DUST, GREASE, OIL, ETC. BEFORE ANCHORS ARE INSTALLED. REPAIR ALL DAMAGE CAUSED BY THIS WORK TO THE SATISFACTION OF THE ENGINEER.

**ANCHORAGE FOR GUARDRAIL POST ON BOX CULVERT**

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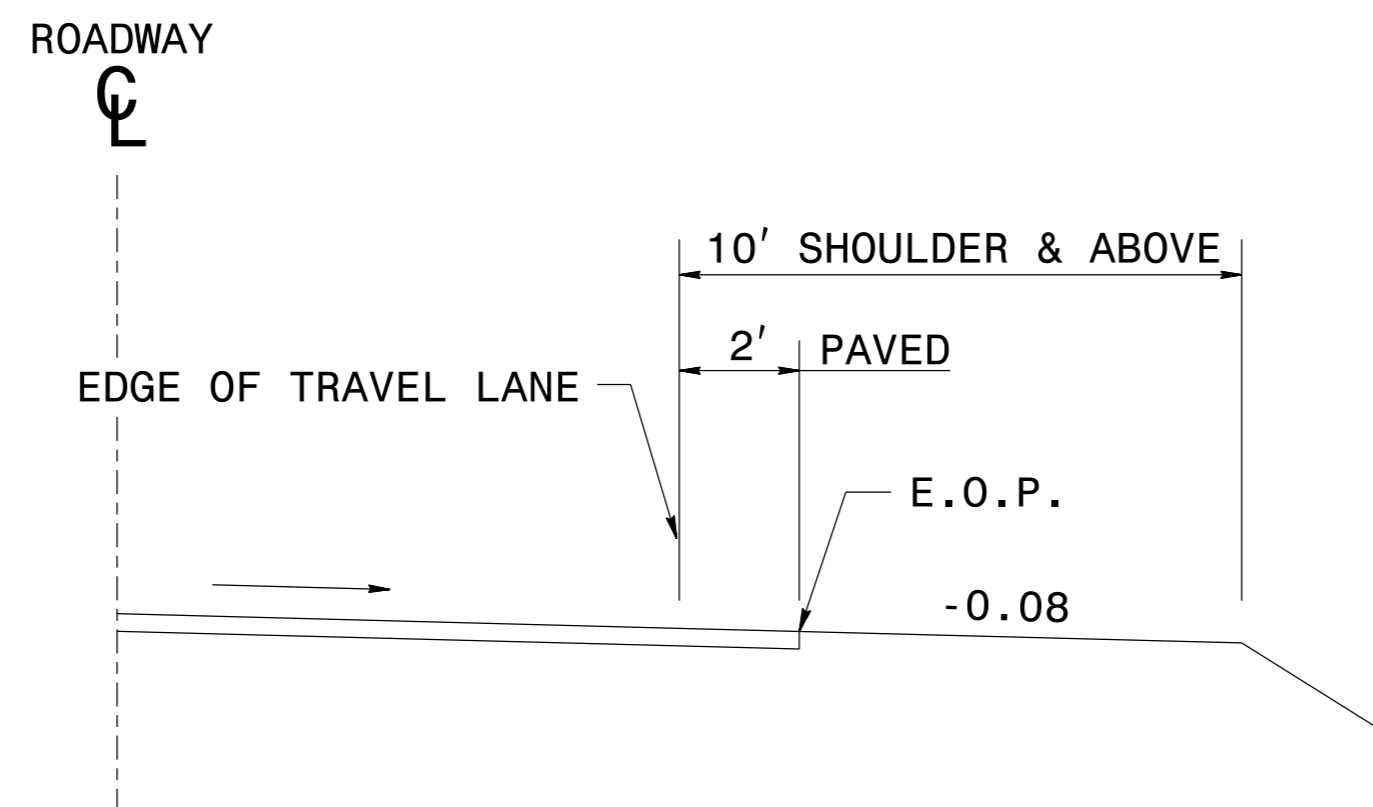
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ENGLISH DETAIL DRAWING FOR METHOD OF SHOULDER CONSTRUCTION HIGH SIDE OF SUPERELEVATED CURVE METHOD II (SHOULDERS 10' AND ABOVE)

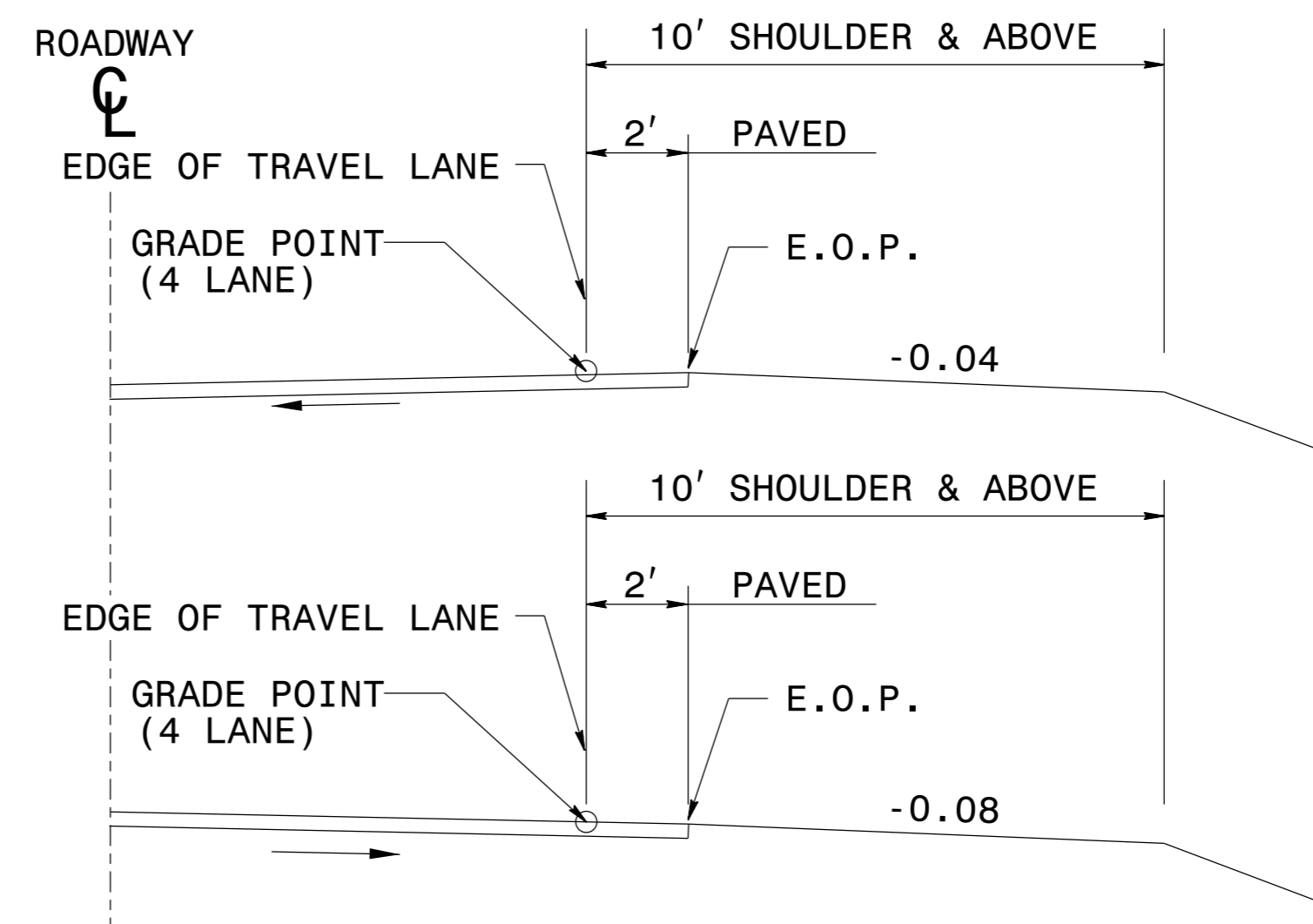
SHEET 1 OF 1

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NORMAL OUTSIDE SHOULDER SLOPES

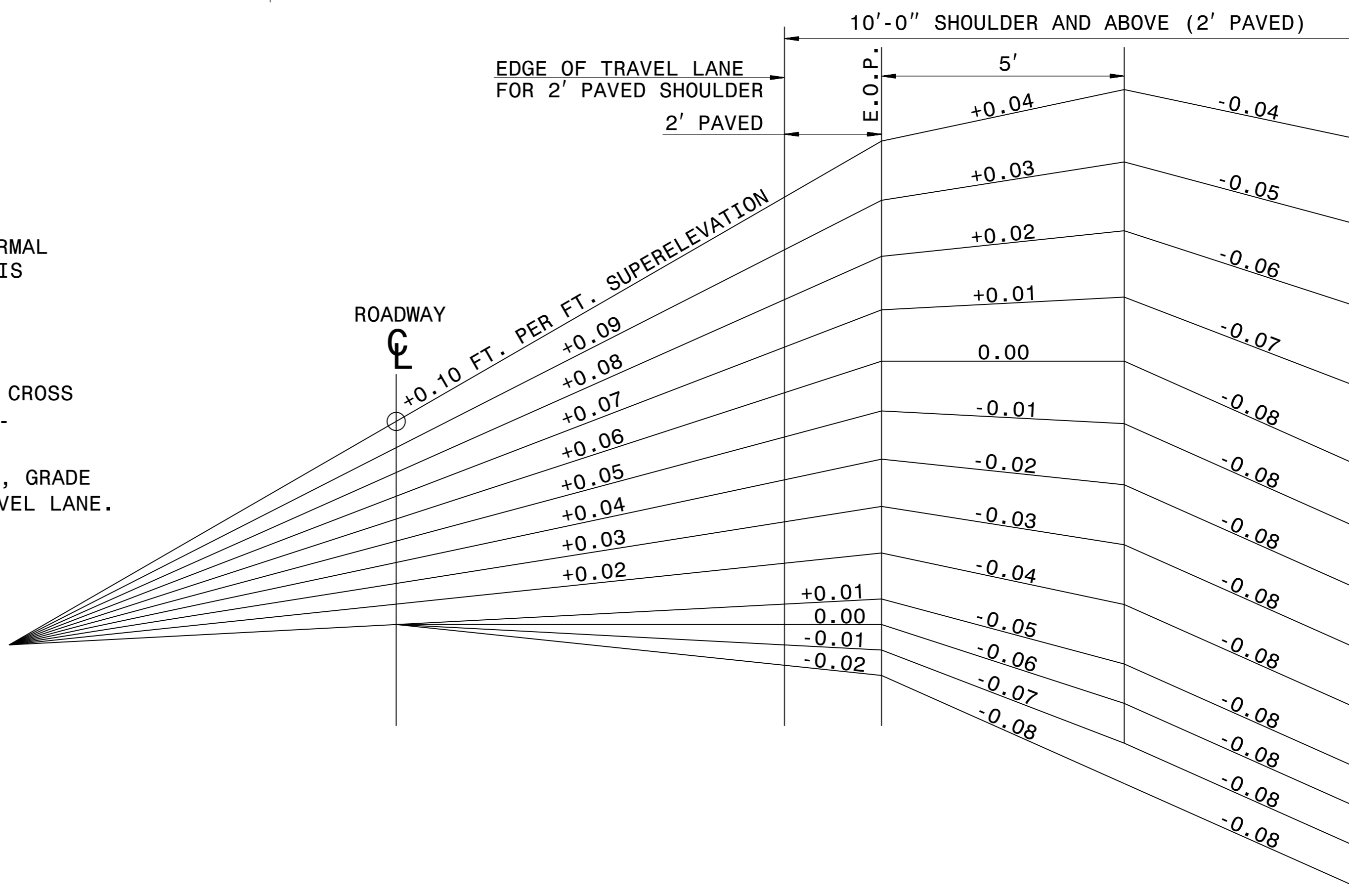


NORMAL MEDIAN SHOULDER SLOPES



NOTE: ON LOW SIDE OF SUPERELEVATED PAVEMENT USE NORMAL SHOULDER SLOPE UNLESS NORMAL SHOULDER SLOPE IS FLATTER THAN SUPERELEVATION, THEN USE SUPER-ELEVATION RATE ON SHOULDER.

NOTE: "ROLL-OVER" ALGEBRAIC DIFFERENCE IN RATES OF CROSS SLOPE NOT TO EXCEED 0.06 AS SHOWN. IF SUPER-ELEVATION IS REVOLVED ABOUT CENTER LINE OF PAVEMENT, SAME APPLIES. ON DIVIDED ROADWAYS, GRADE POINT TO BE AT THE MEDIAN EDGE OF INSIDE TRAVEL LANE.



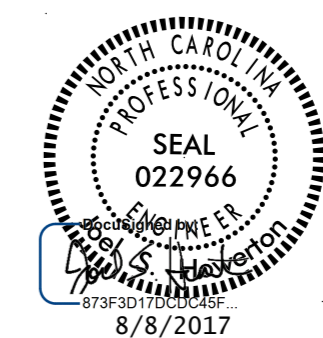
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ENGLISH DETAIL DRAWING FOR METHOD OF SHOULDER CONSTRUCTION HIGH SIDE OF SUPERELEVATED CURVE METHOD II (SHOULDERS 10' AND ABOVE)

SHEET 1 OF 1

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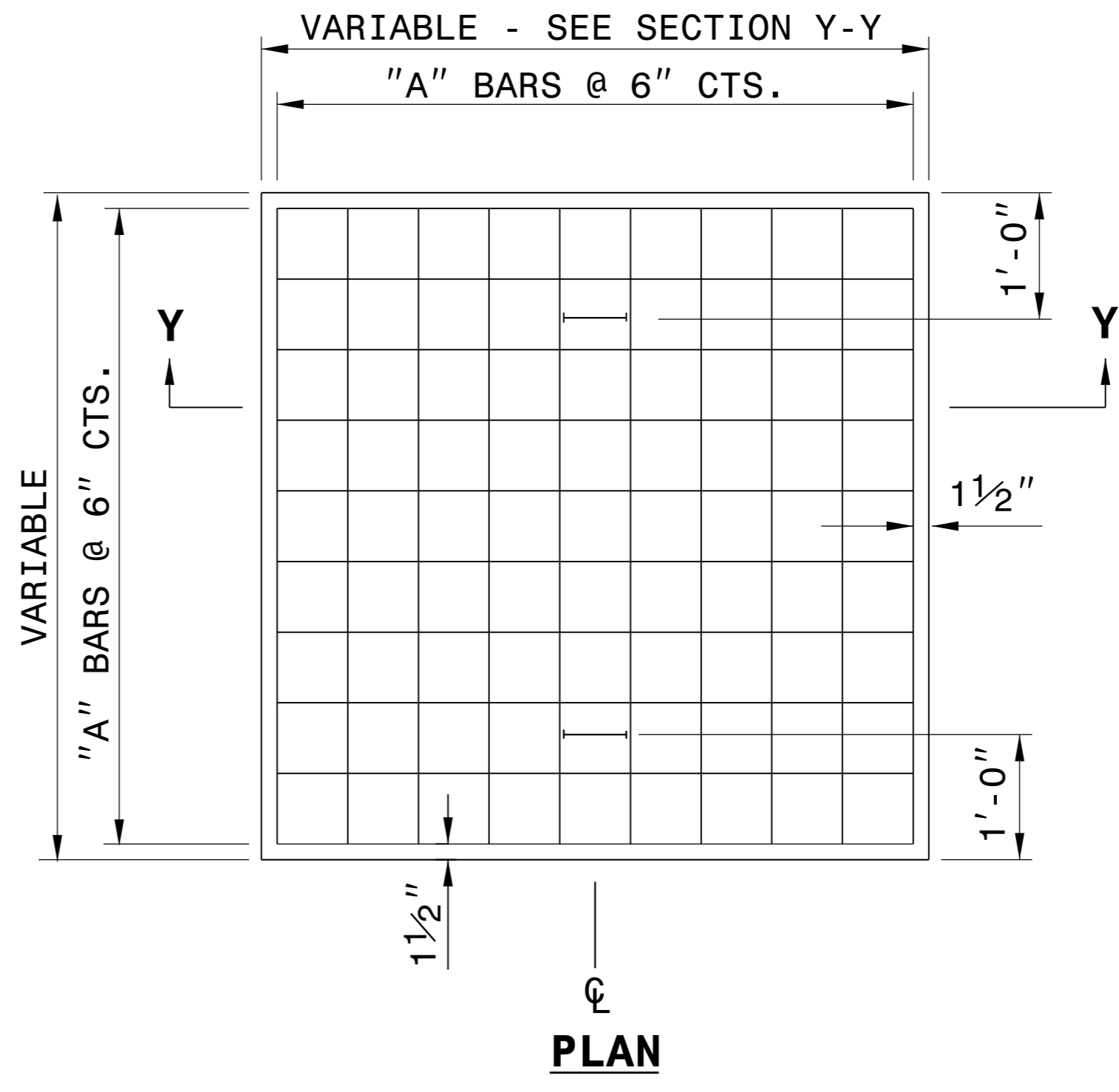
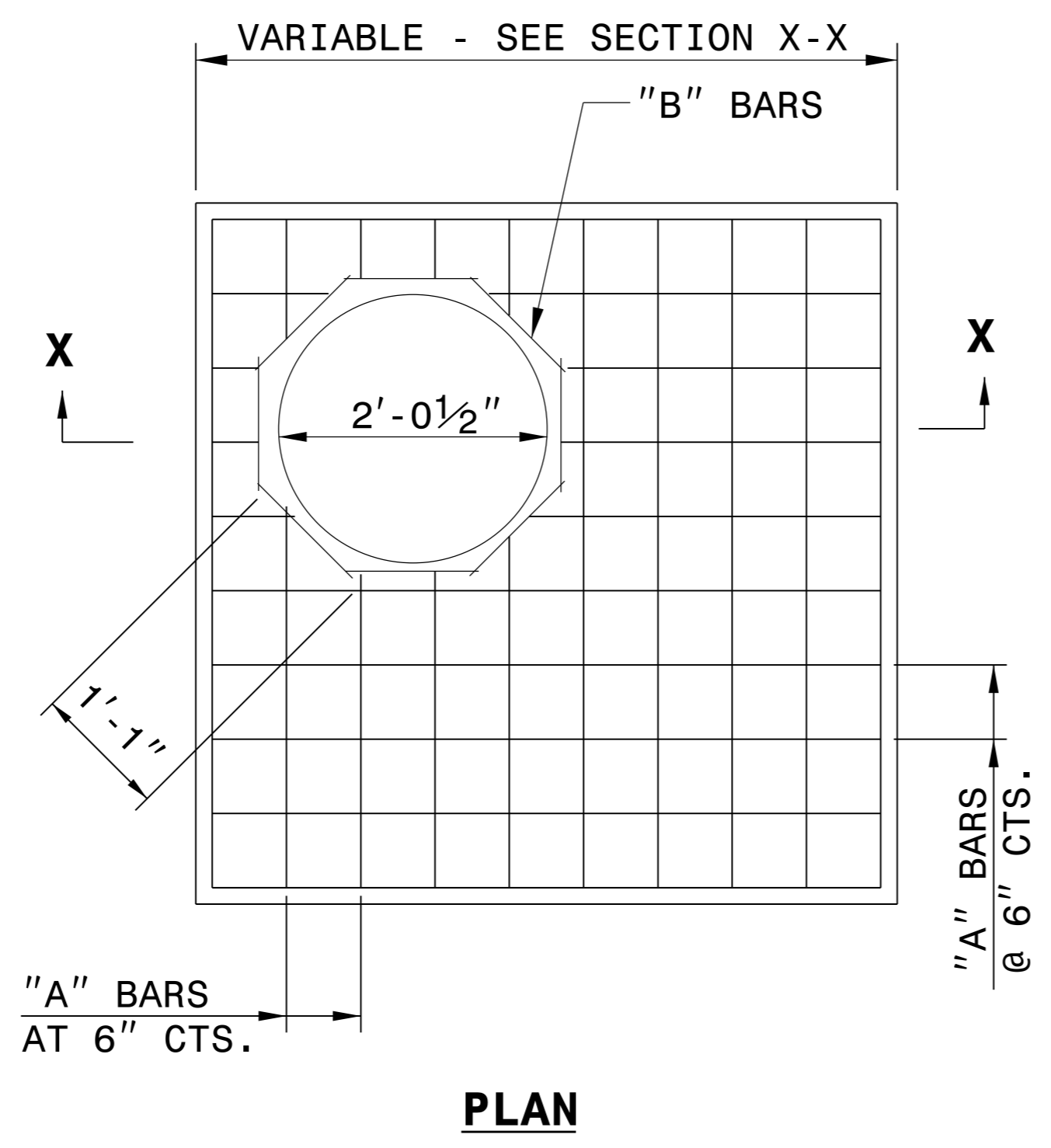
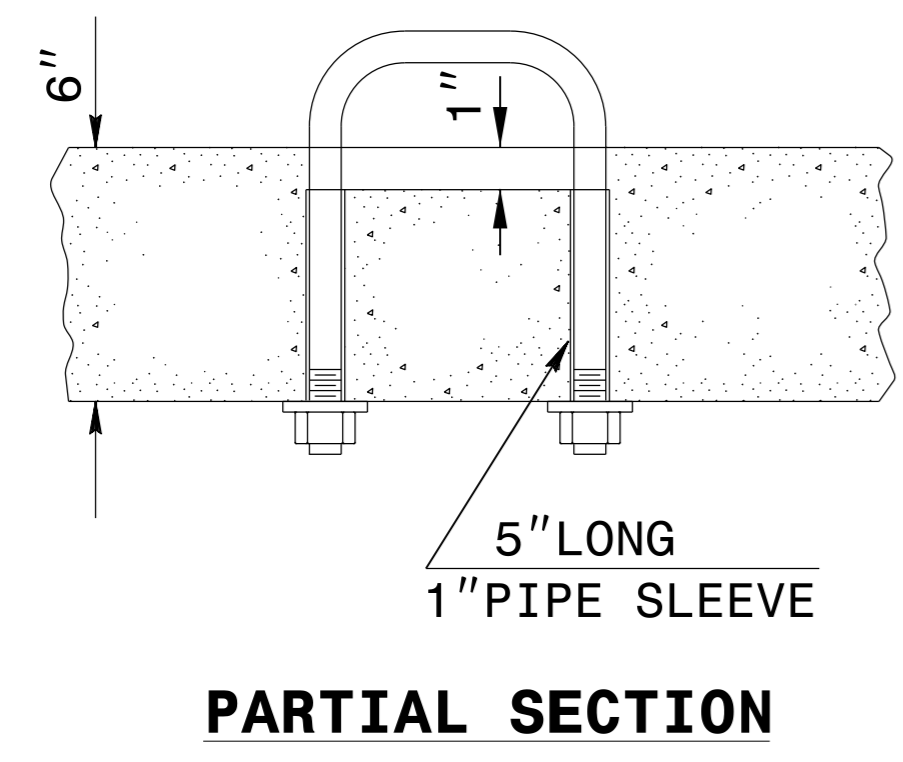
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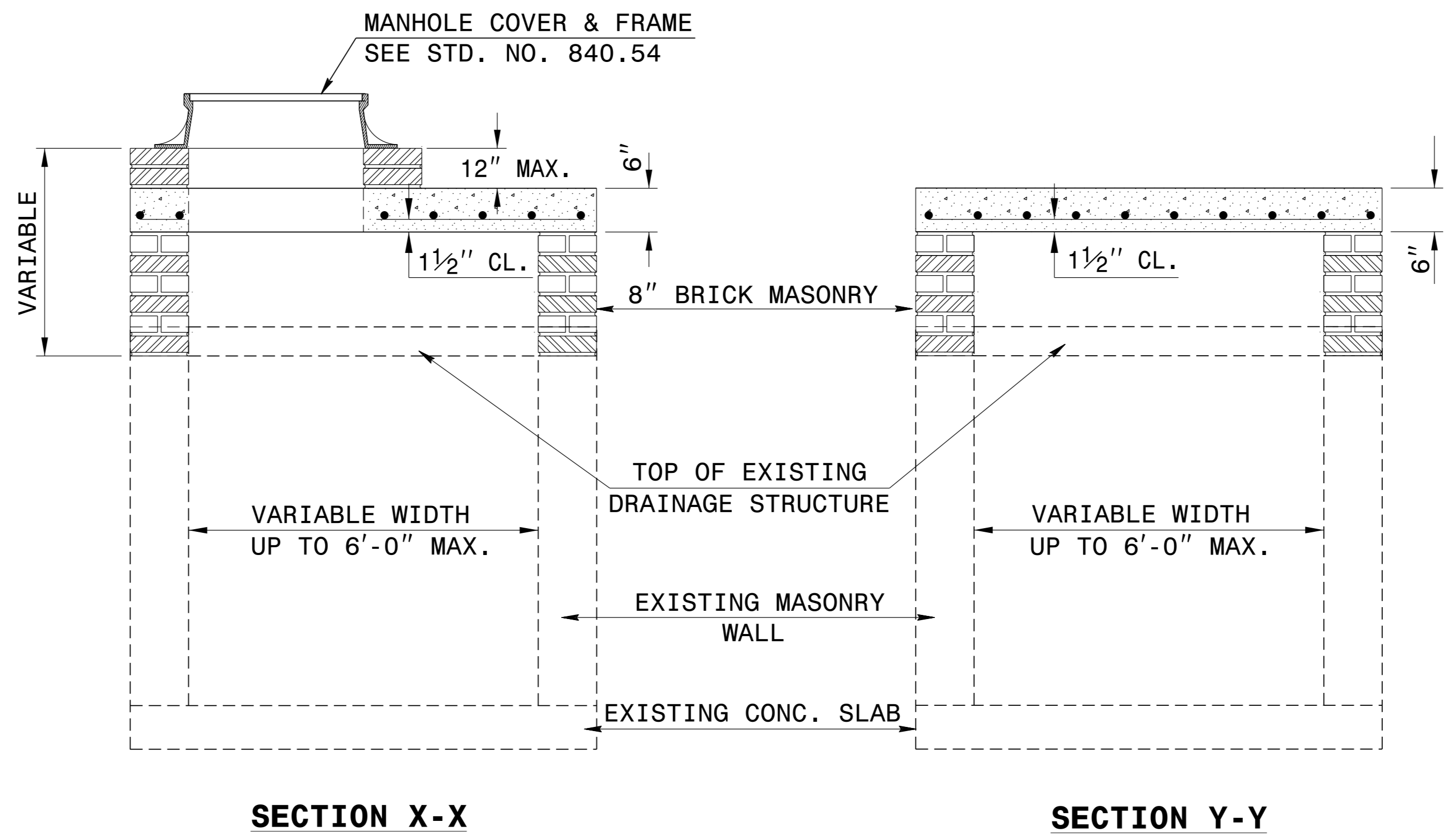
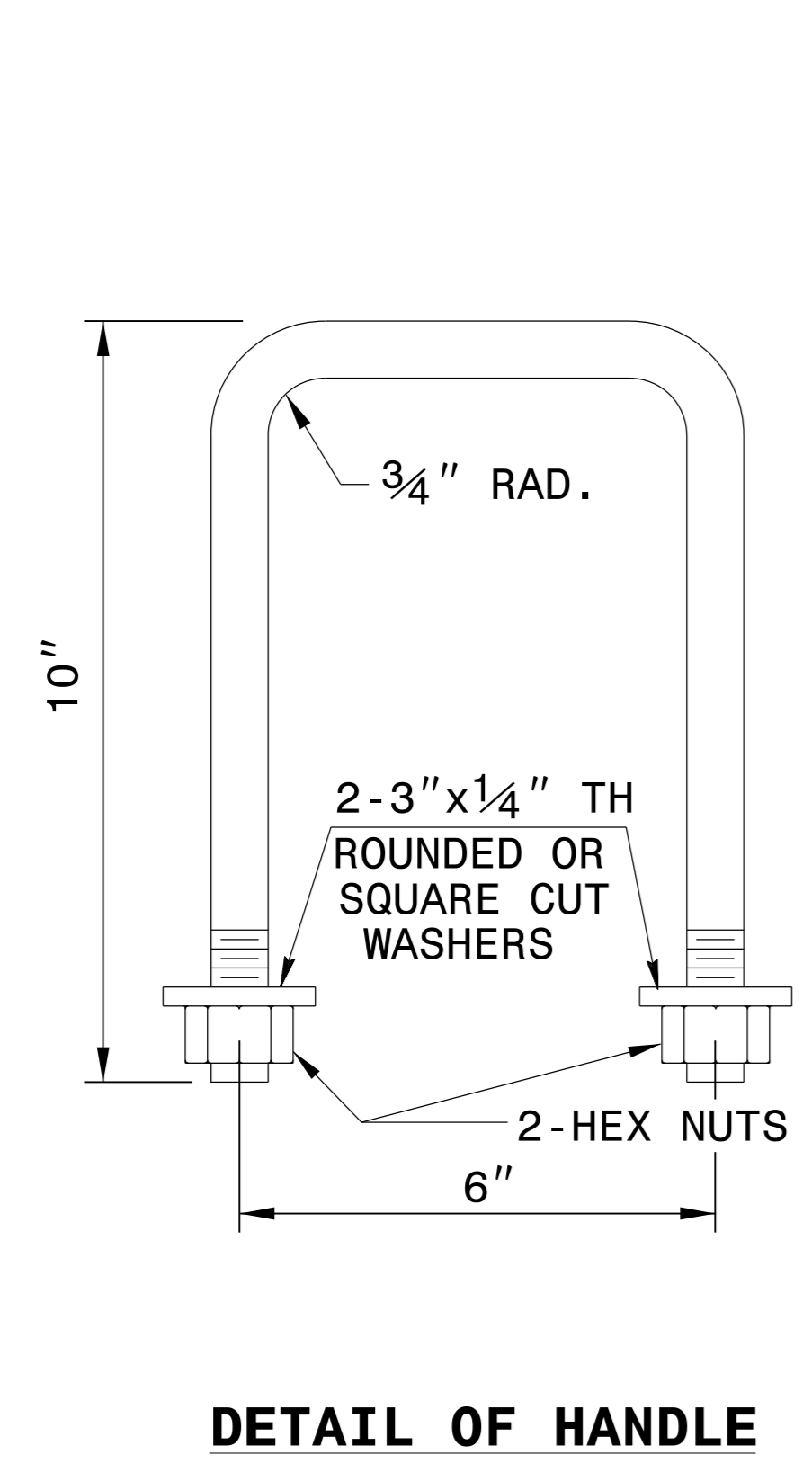


**GENERAL NOTES:**

CONSTRUCT IN ACCORDANCE WITH SECTION 859 OF THE STANDARD SPECIFICATIONS.

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

DETAIL INTENDED FOR NON-TRAFFIC BEARING DRAINAGE STRUCTURES.



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

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

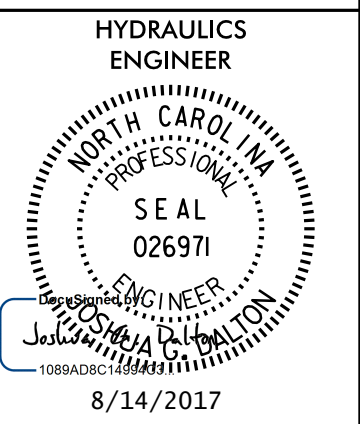


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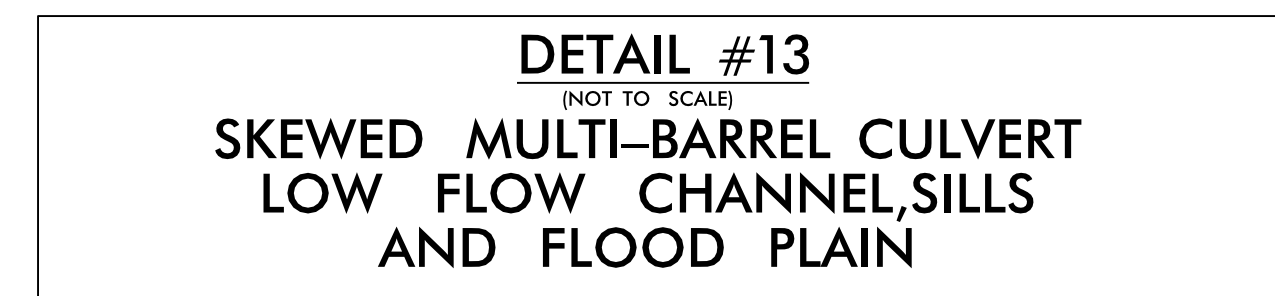
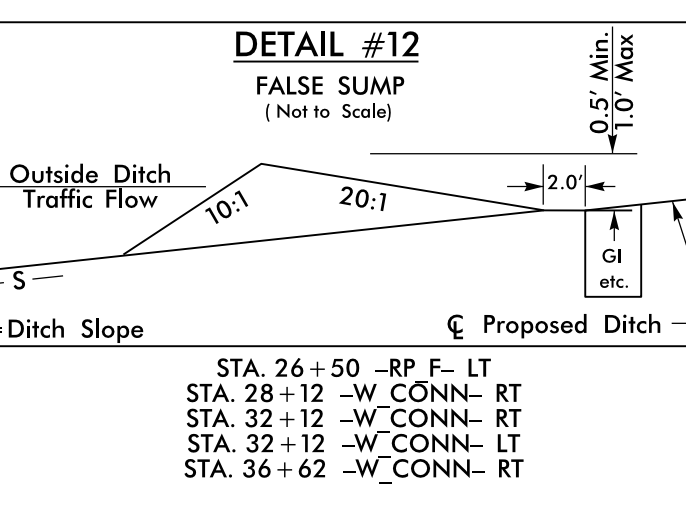
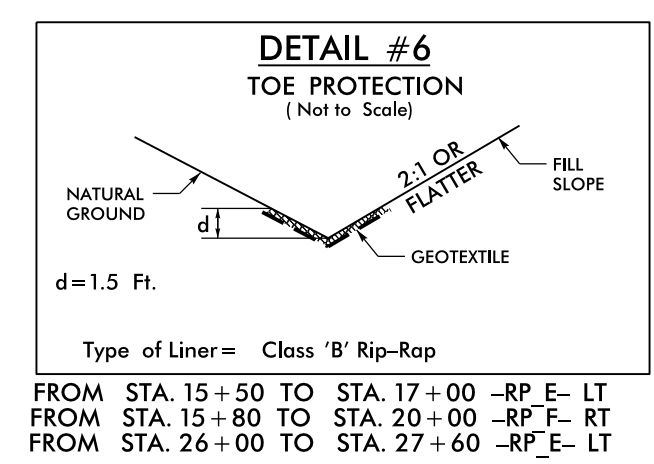
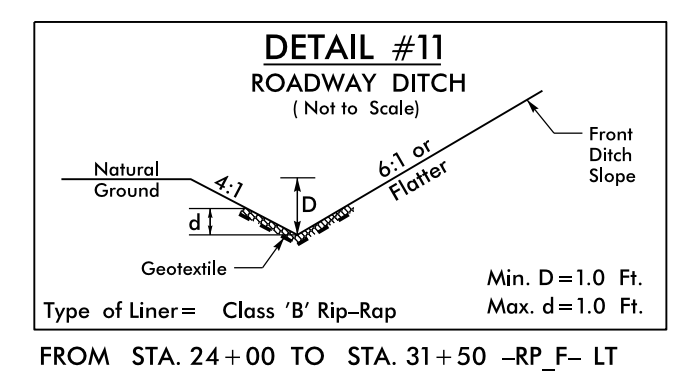
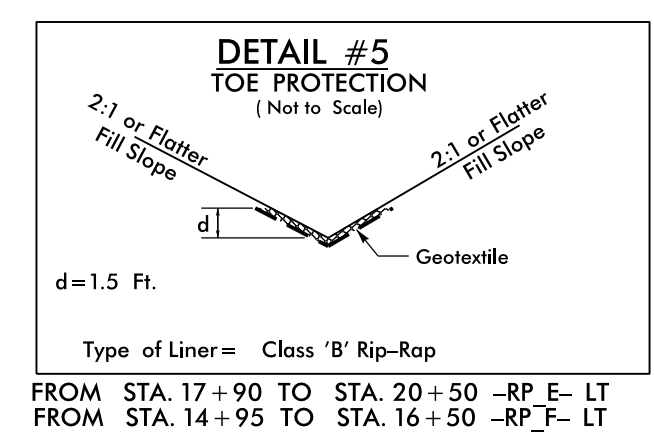
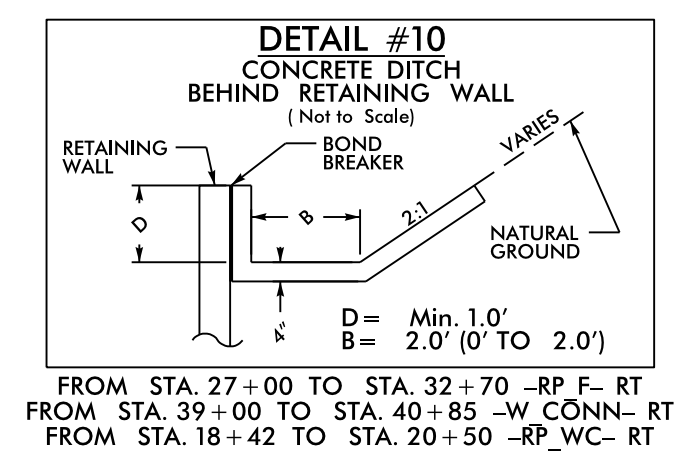
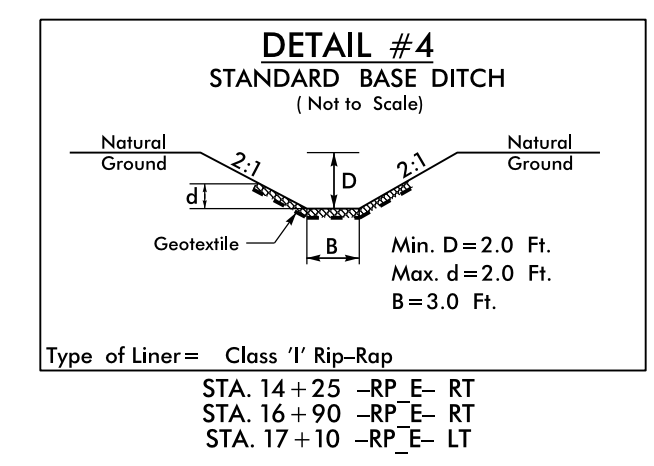
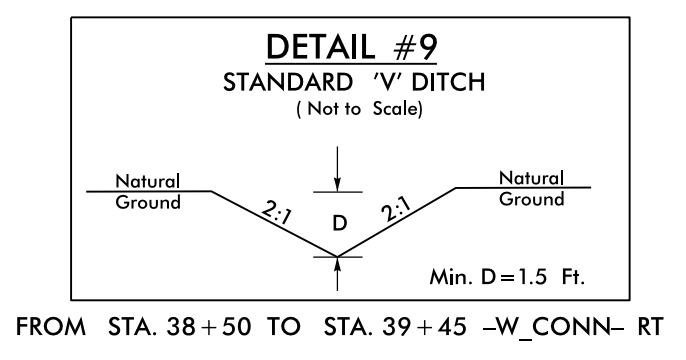
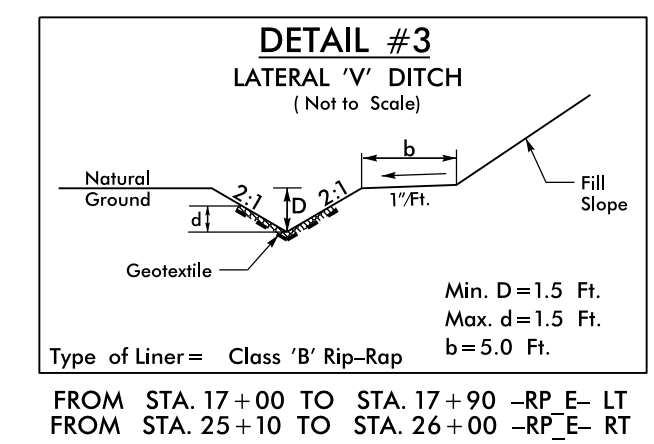
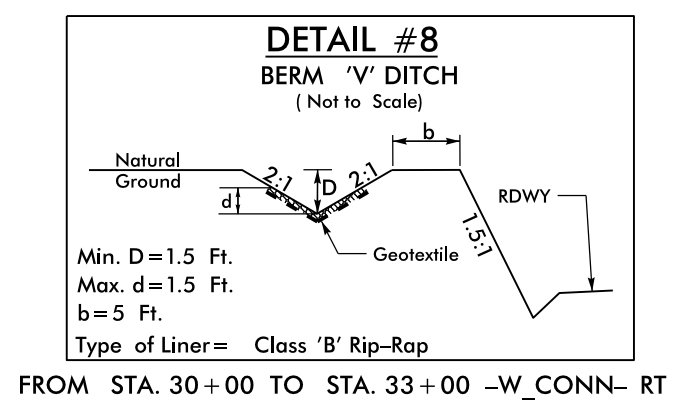
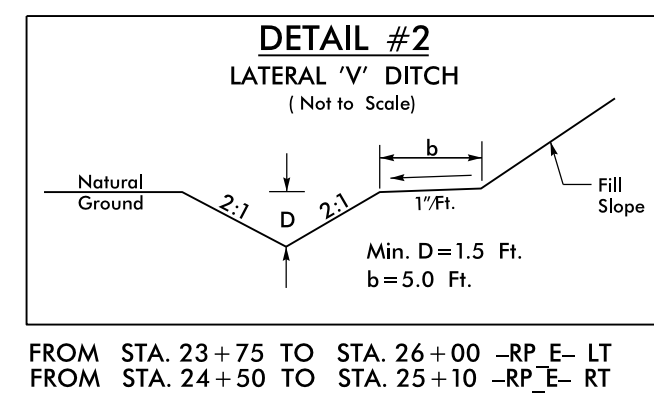
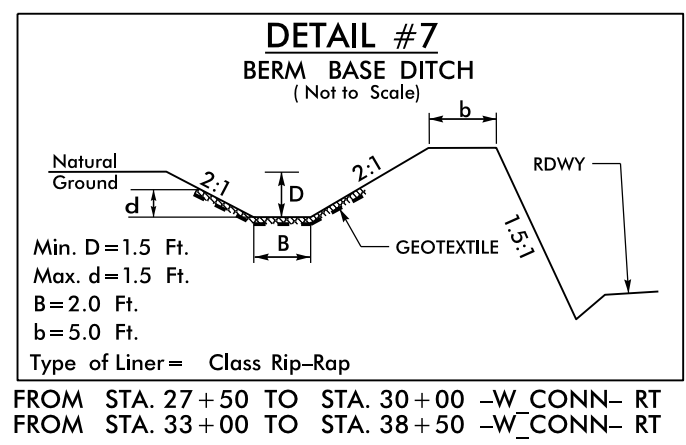
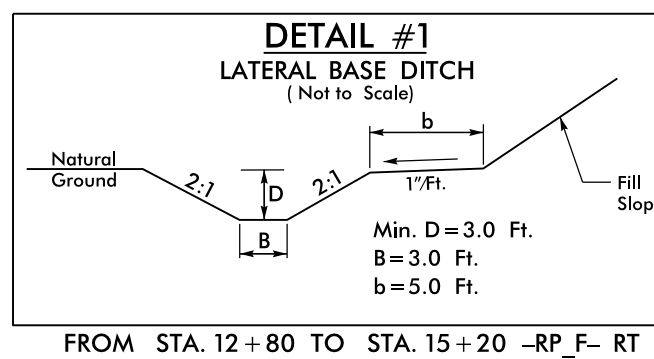
**DETAIL TO CONVERT EXISTING DI, CB, OTCB or GI TO JUNCTION BOX (MANHOLE OPTIONAL)**

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

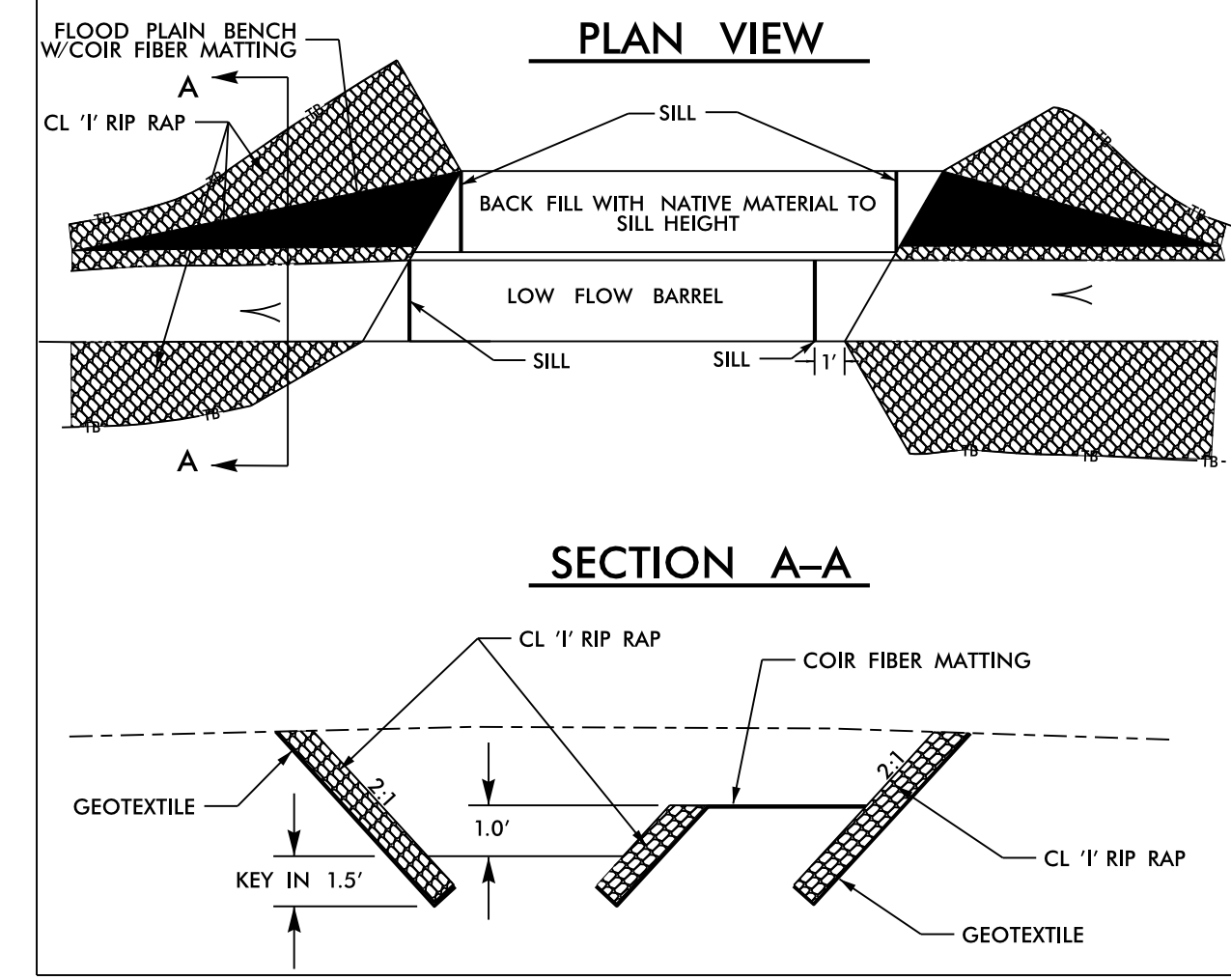
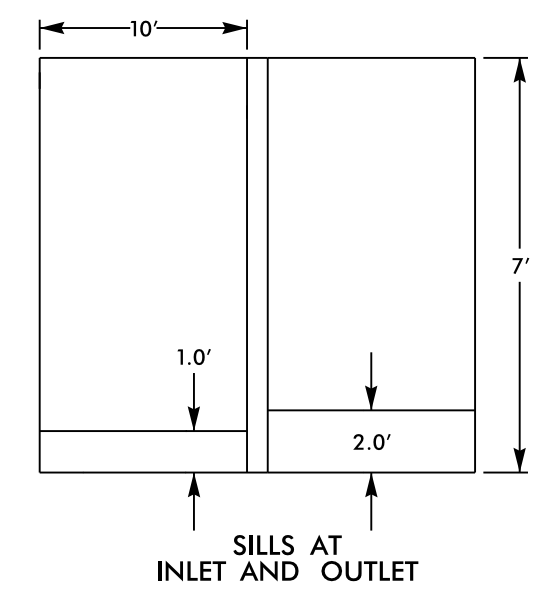



**DOCUMENT NOT CONSIDERED FINAL  
 UNLESS ALL SIGNATURES COMPLETED**

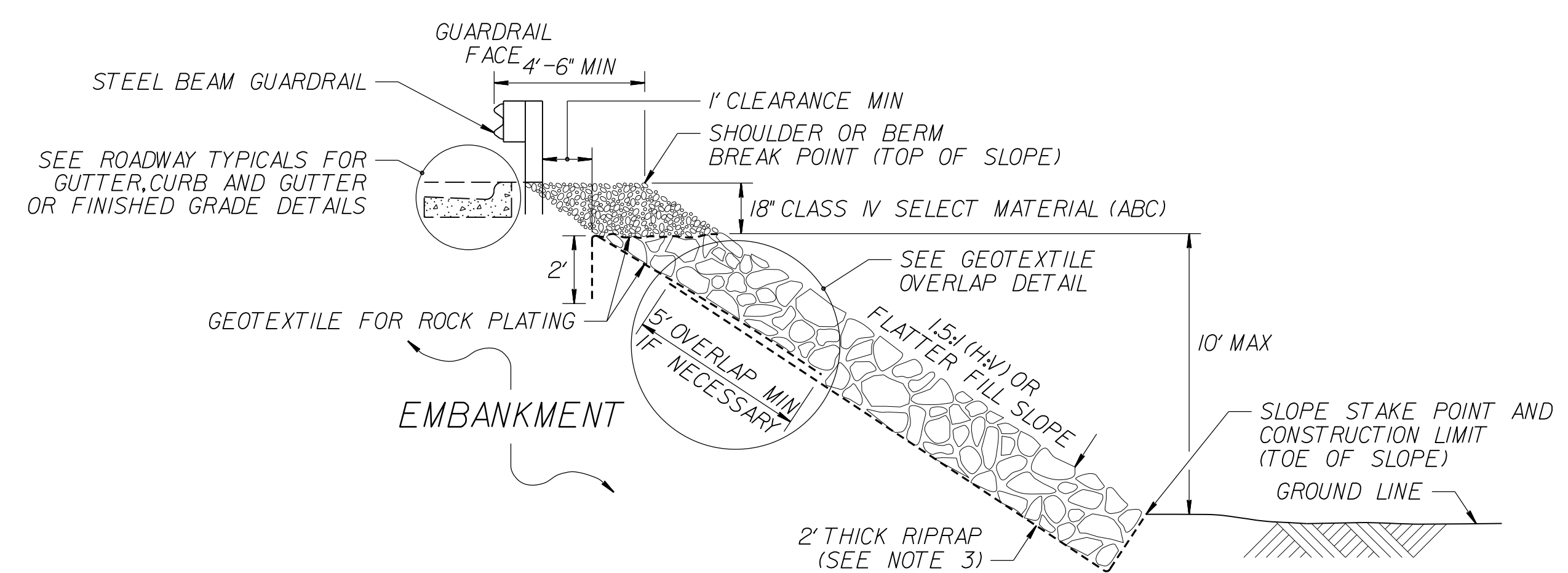
# DRAINAGE DETAILS



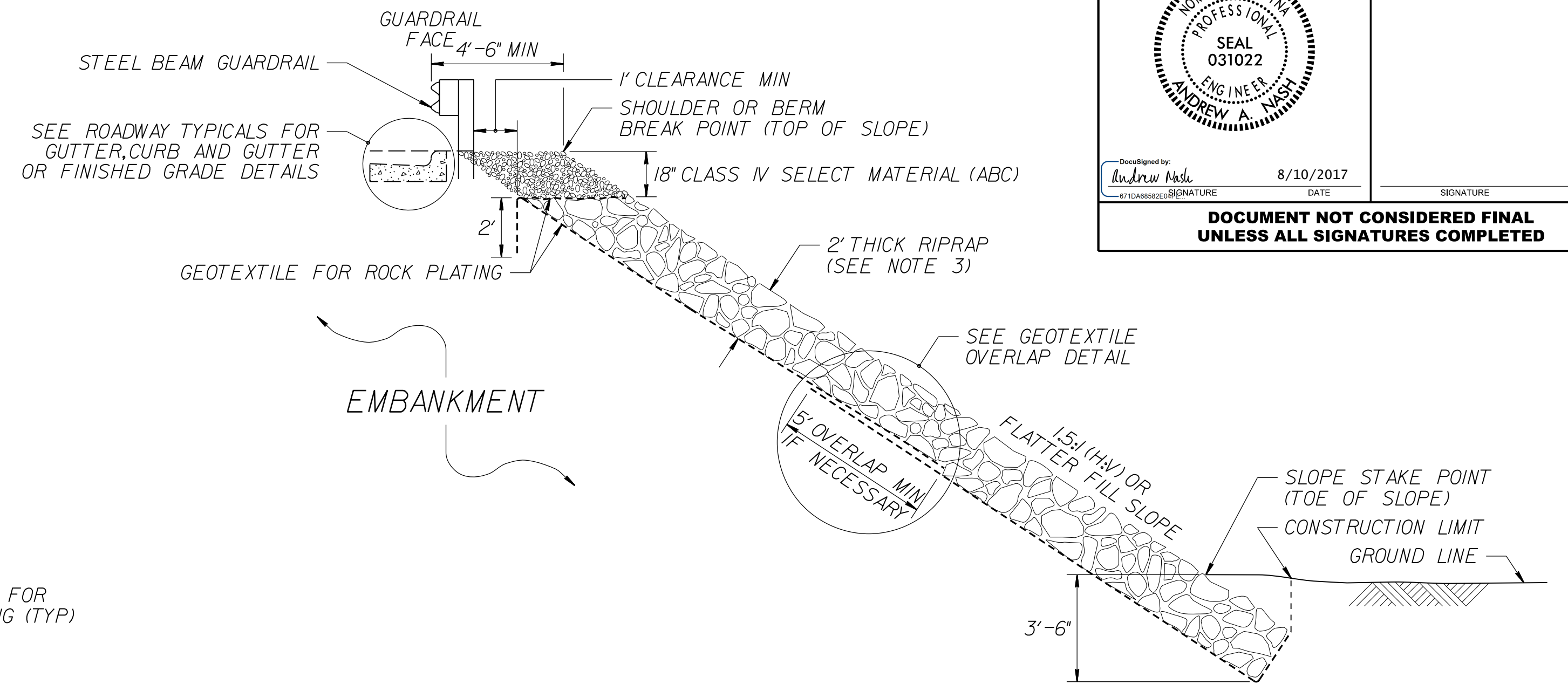
- \*NOTES:**
- 1) NATIVE MATERIAL BETWEEN SILLS IN THE CULVERT SHALL PROVIDE A CONTINUOUS LOW FLOW CHANNEL. NATIVE MATERIAL CONSISTS OF MATERIAL THAT IS EXCAVATED FROM THE STREAM OR FLOODPLAIN AT THE PROJECT SITE DURING CONSTRUCTION. ONLY MATERIAL THAT IS EXCAVATED FROM THE STREAM BED MAY BE USED TO LINE THE LOW FLOW CULVERT. BARREL RIP-RAP MAY BE USED TO SUPPLEMENT THE NATIVE MATERIAL IN THE HIGH FLOW CULVERT BARRELS. IF RIP-RAP IS USED TO LINE THE HIGH FLOW CULVERT BARRELS, NATIVE MATERIAL SHOULD BE PLACED ON TOP TO FILL VOIDS AND PROVIDE A FLAT SURFACE FOR ANIMAL PASSAGE. NATIVE MATERIAL IS SUBJECT TO APPROVAL BY THE ENGINEER AND MAY BE SUBJECT TO PERMIT CONDITIONS.
  - 2) SILLS ARE TO BE 1.0 FT. WIDE, CAST SEPARATELY AND ATTACHED BY DOWELS.
  - 3) TOP OF LOW FLOW SILLS SHOULD MATCH STREAM BED ELEVATION IN LOW FLOW CHANNEL OF STREAM (THALWEG).
  - 4) DO NOT SET ELEVATION OF HIGH SILLS ABOVE BANK FULL.
  - 5) COIR FIBER MATTING SHALL BE SECURED ON THE BENCHES AND PLACED BEHIND RIP RAP TO PREVENT WASHOUT OF SEDIMENT THROUGH GAPS.



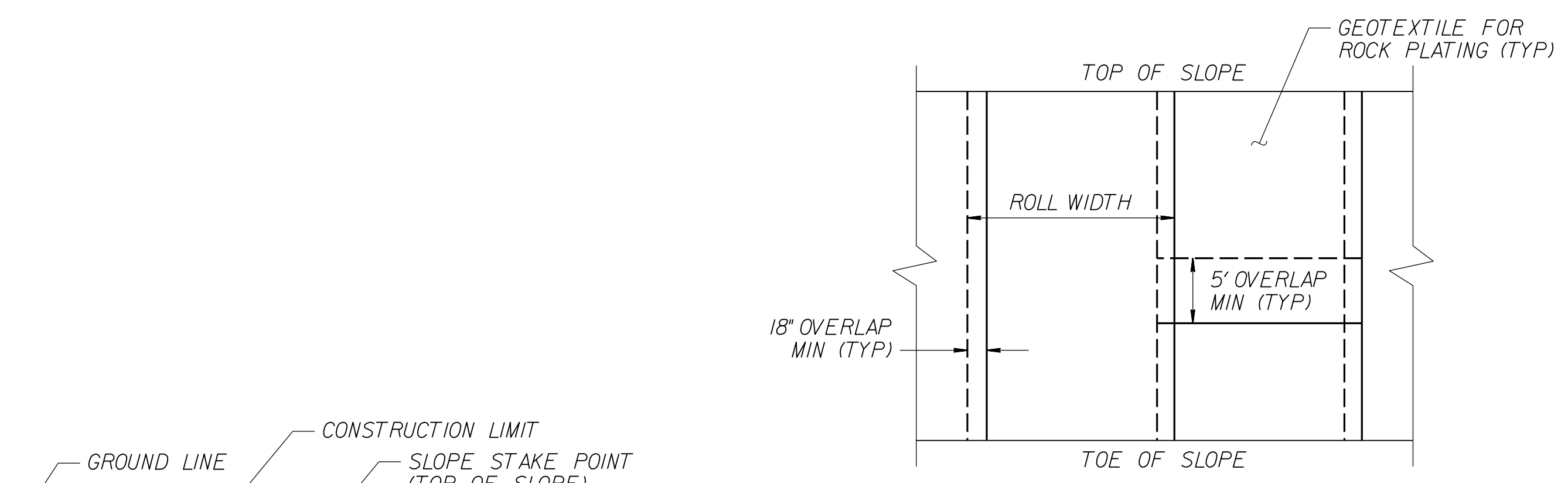
<b>PROJECT REFERENCE NO.</b> I-4729A		<b>SHEET NO.</b> 2G-1
GEOTECHNICAL ENGINEER  Andrew Nash 8/10/2017 DATE		ENGINEER _____ SIGNATURE _____ DATE
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>		



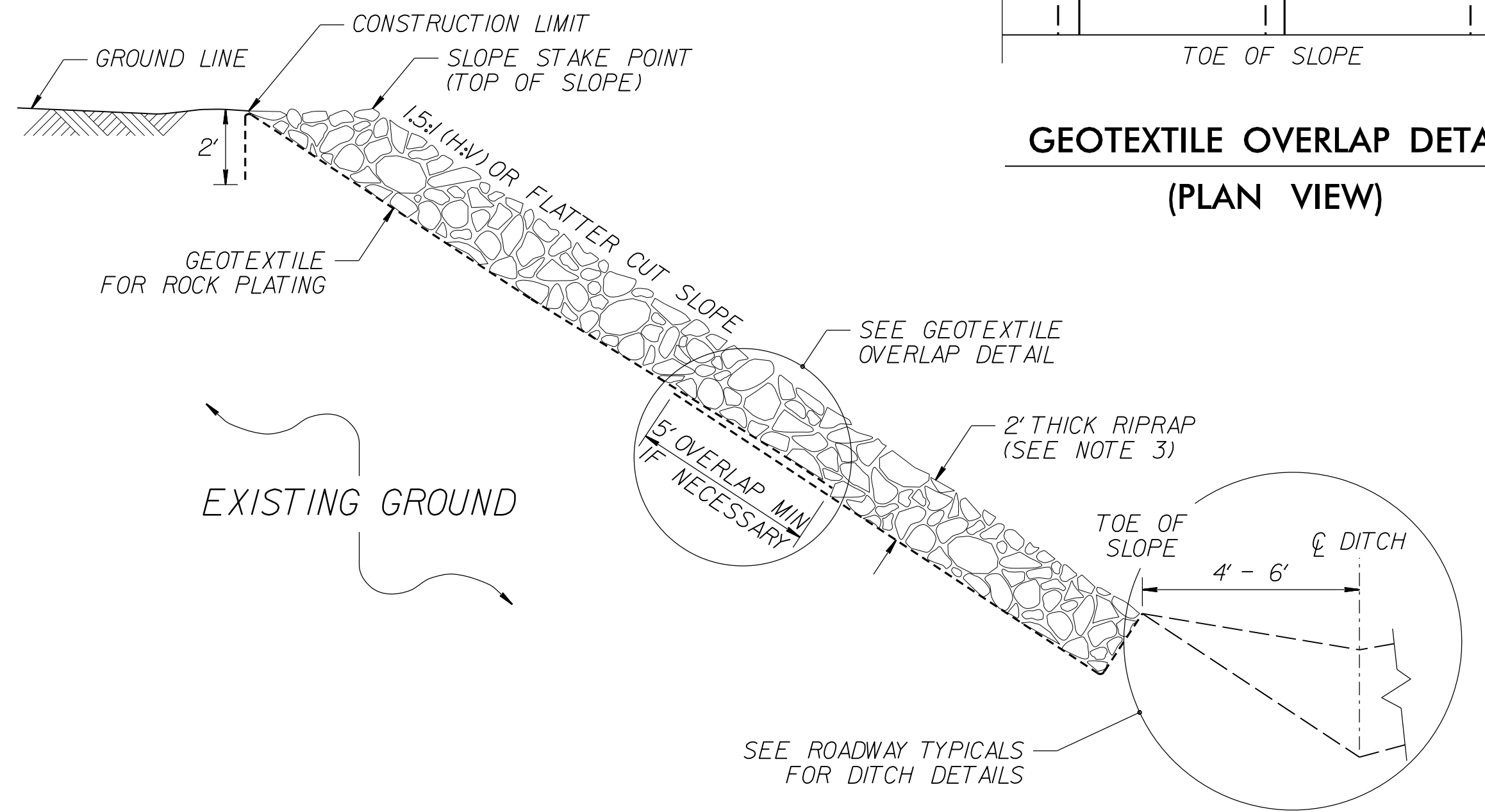
**ROCK PLATING DETAIL NO. 1 – TYPICAL SECTION**



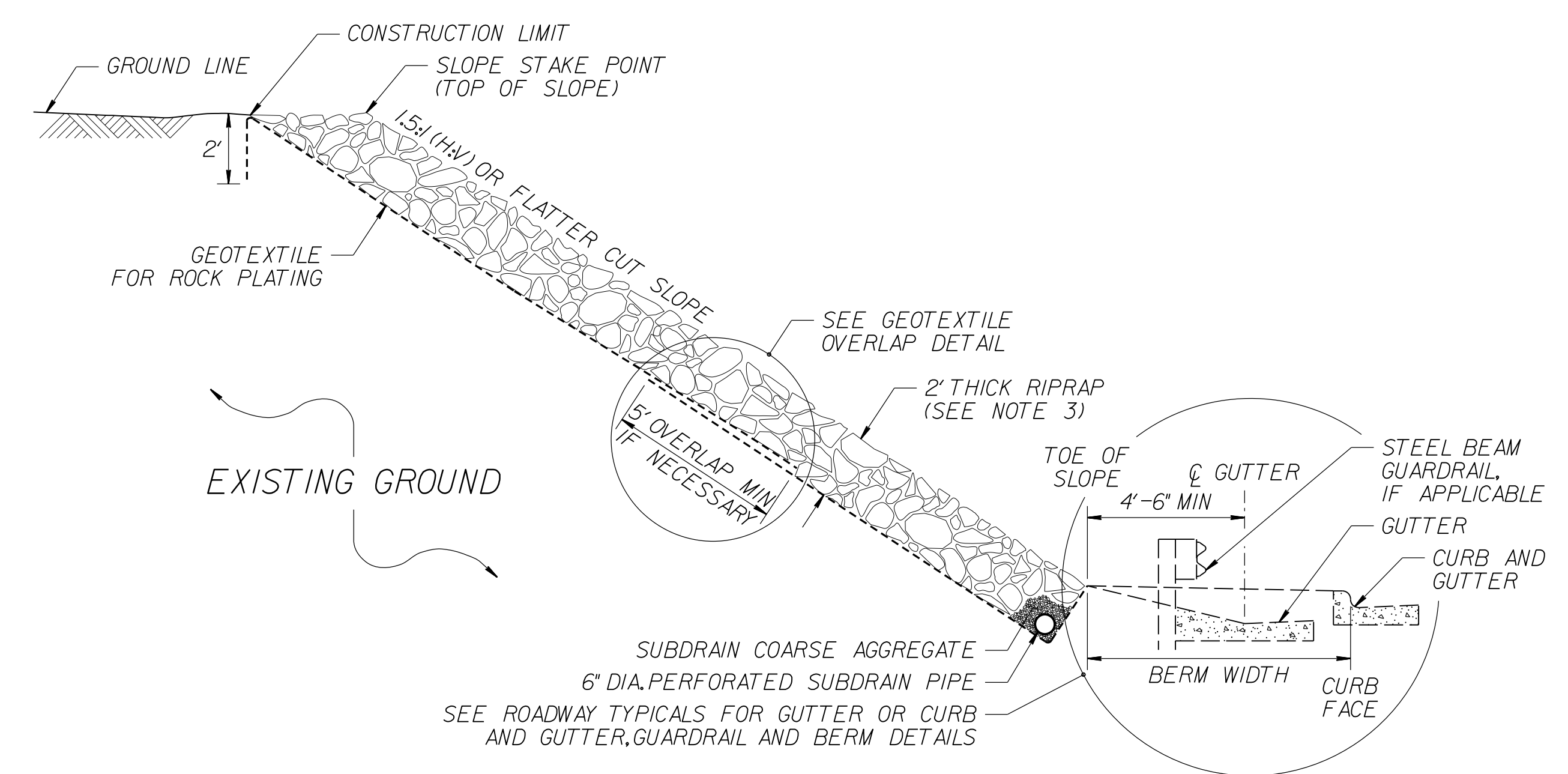
**ROCK PLATING DETAIL NO. 2 – TYPICAL SECTION**



**GEOTEXTILE OVERLAP DETAIL  
(PLAN VIEW)**

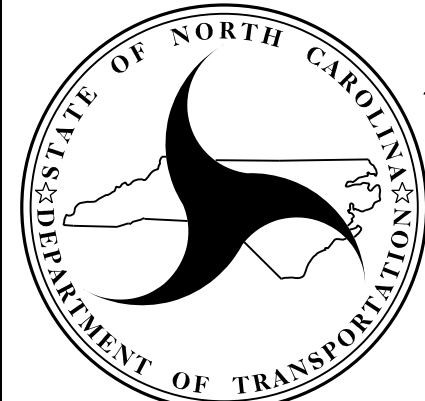


**ROCK PLATING DETAIL NO. 3 – TYPICAL SECTION**



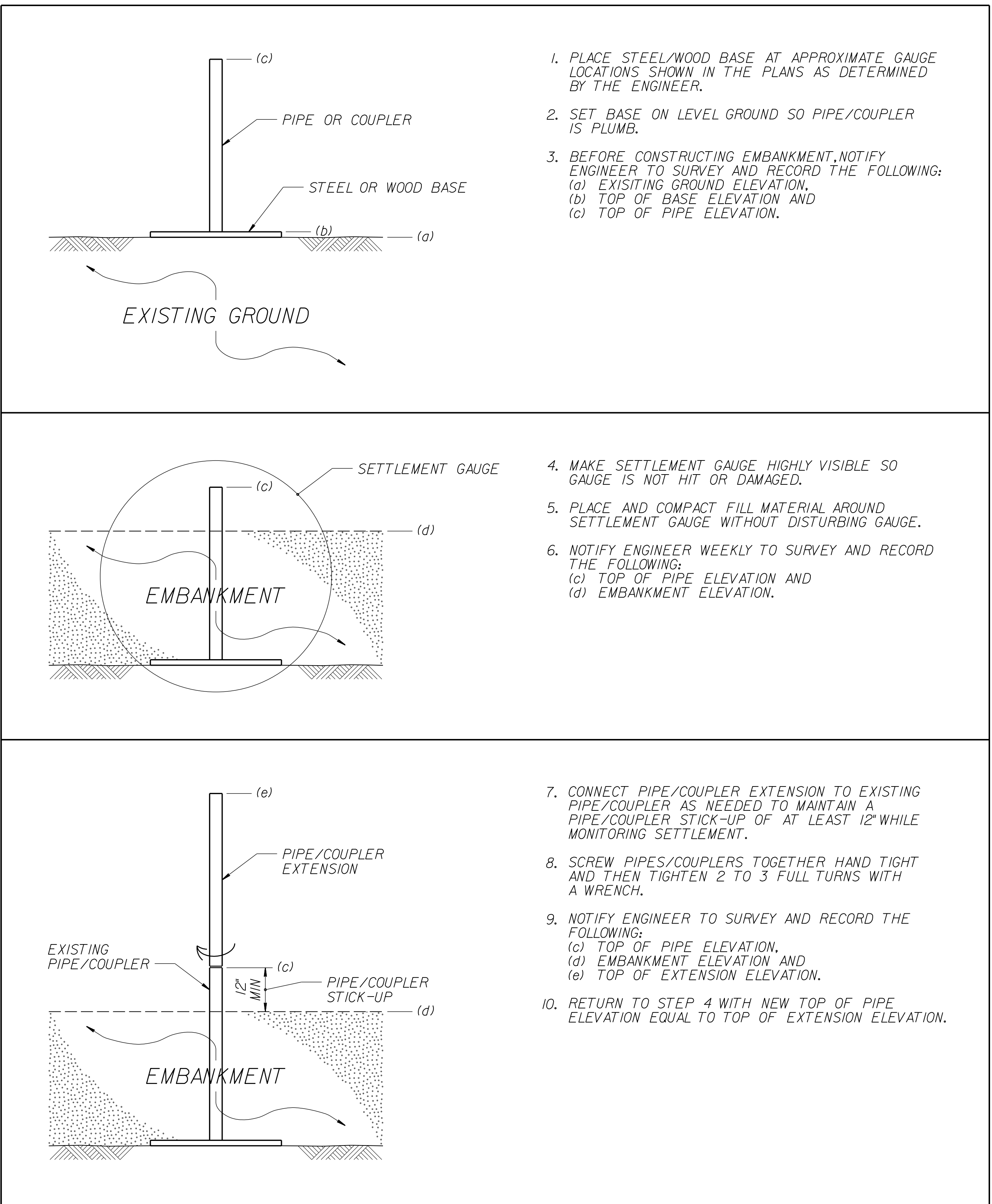
**ROCK PLATING DETAIL NO. 4 – TYPICAL SECTION**

- NOTES:**
1. SEE ROADWAY PLANS AND SUMMARY SHEETS FOR ROCK PLATING LOCATIONS.
  2. FOR STANDARD ROCK PLATING, SEE SECTION 275 OF THE STANDARD SPECIFICATIONS.
  3. USE CLASS I, 2 OR B RIPRAP UNLESS REQUIRED OTHERWISE IN THE ROADWAY SUMMARY SHEETS.


**NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS**  
  
**GEOTECHNICAL  
ENGINEERING UNIT**

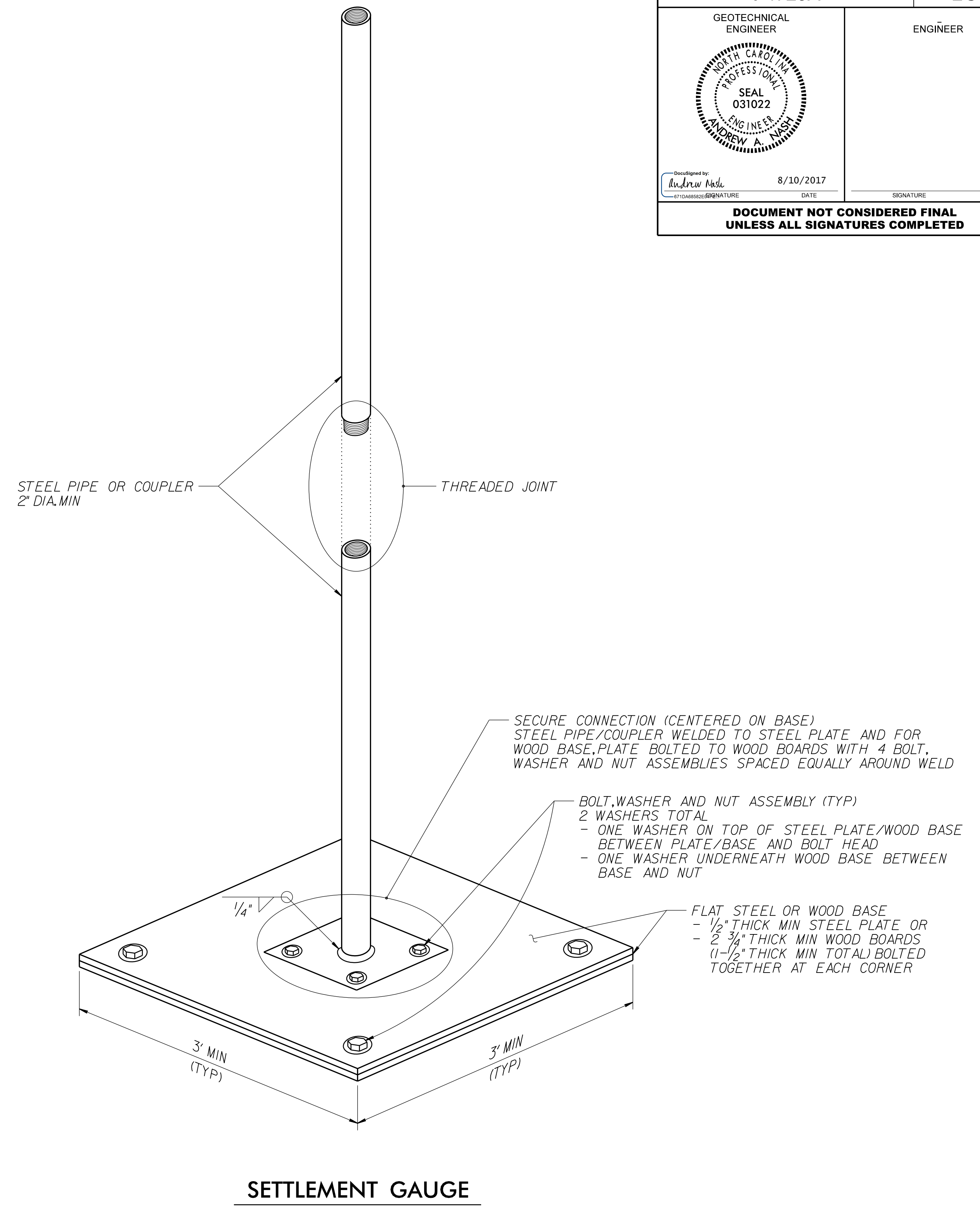
**STANDARD DETAIL NO. 1802.01**  
  
**STANDARD  
ROCK PLATING**  
  
 DATE: 2-19-13


## EMBANKMENT MONITORING SEQUENCE

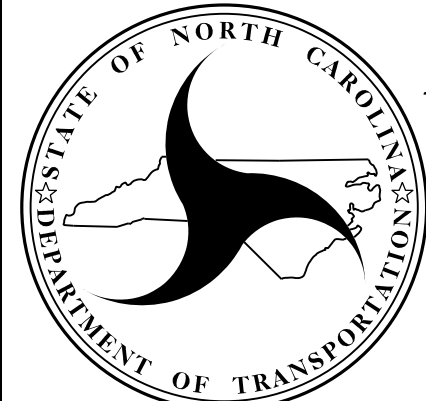


**NOTES:**

1. SEE ROADWAY SUMMARY SHEETS FOR APPROXIMATE SETTLEMENT GAUGE LOCATIONS.
2. FOR STANDARD EMBANKMENT MONITORING, SEE EMBANKMENT SETTLEMENT GAUGES PROVISION.
3. INSTALL SETTLEMENT GAUGES AFTER CLEARING AND GRUBBING GAUGE LOCATIONS AND BEFORE CONSTRUCTING EMBANKMENTS WITH EMBANKMENT MONITORING.



<b>PROJECT REFERENCE NO.</b> I-4729A	<b>SHEET NO.</b> 2G-2
GEOTECHNICAL ENGINEER  Andrew Nash 8/10/2017 DATE	ENGINEER _____ SIGNATURE _____ DATE
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	

	NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS  <b>GEOTECHNICAL                  ENGINEERING UNIT</b>	<b>STANDARD DETAIL NO. 1804.01</b>  <b>STANDARD                  EMBANKMENT MONITORING</b>
DATE: 2-19-13		