

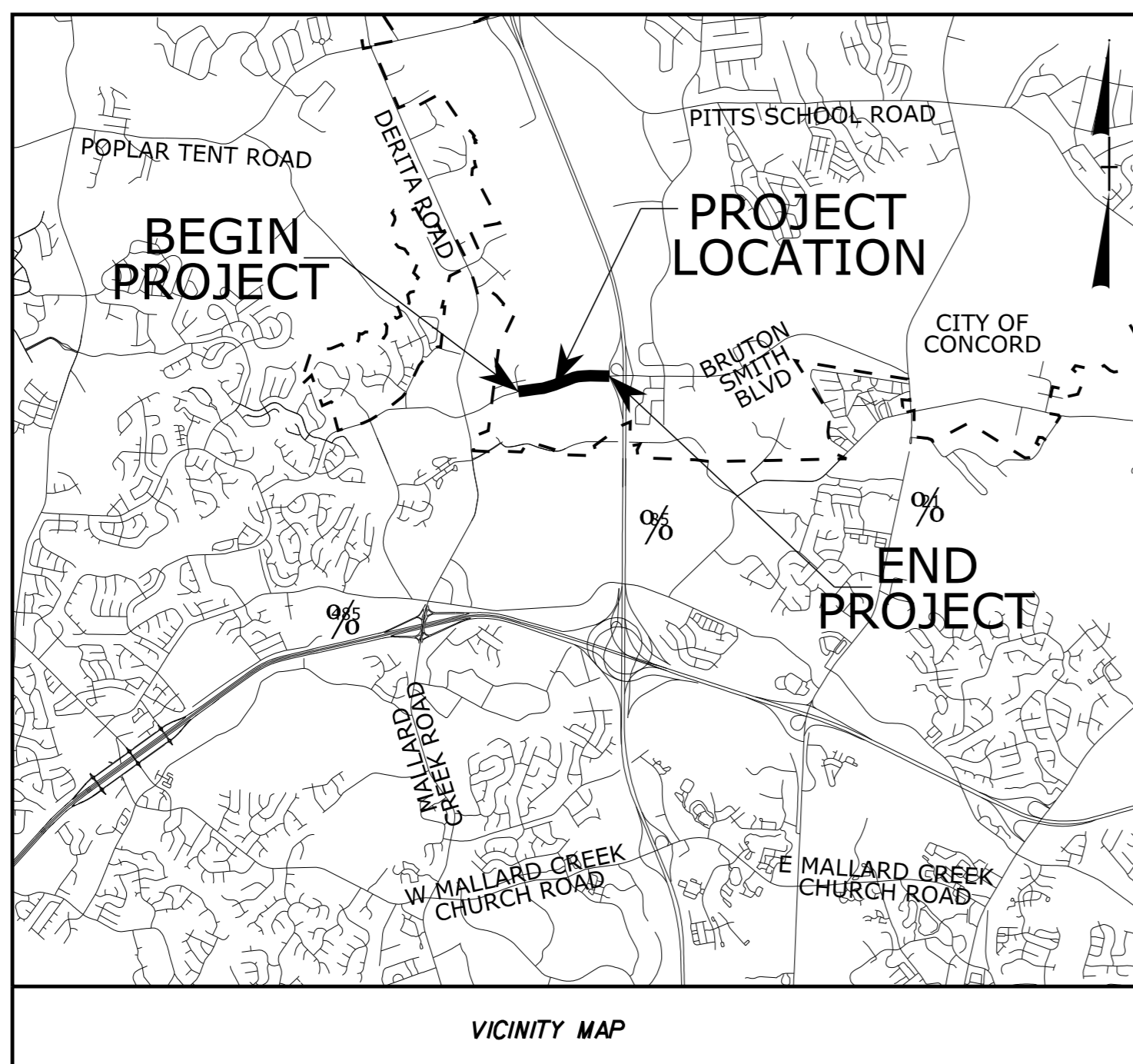
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TIP PROJECT: U-5806

See Sheet IA For Index of Sheets
See Sheet IB For Conventional Symbols



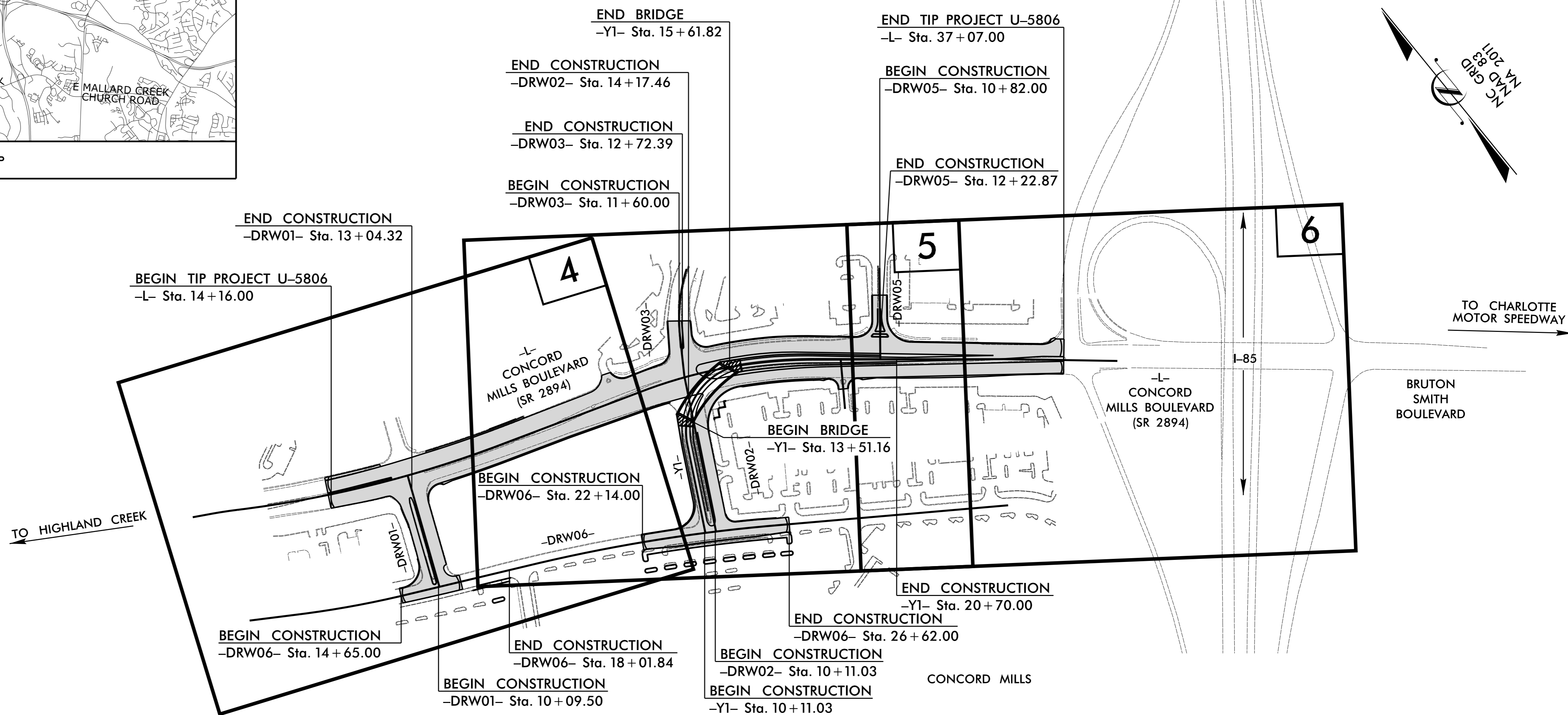
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
CABARRUS COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-5806	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
44378.1.D1	N/A	P.E.	
44378.2.1	N/A	R/W	
44378.2.2	N/A	UTILITIES	
44378.3.1	N/A	CONSTRUCTION	

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

LOCATION: INTERSECTION OF SR 2894 (CONCORD MILLS BOULEVARD)
AND ENTRANCE NO.1 (KINGS GRANT PAVILION)

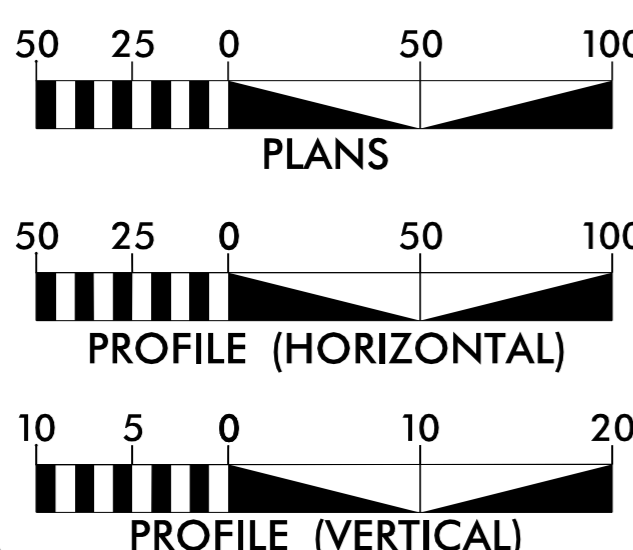
TYPE OF WORK: GRADING, DRAINAGE, PAVING, SIGNALS, RETAINING WALLS AND STRUCTURE



NCDOT CONTACT:
GARY LOVERING, P.E.
ROADWAY DESIGN UNIT
1000 BIRCH RIDGE DRIVE
RALEIGH, NC 27610

*DESIGN EXCEPTION REQUIRED FOR HORIZONTAL SSD

GRAPHIC SCALES



DESIGN DATA

ADT 2017 = 63800 VPD
ADT 2040 = 80700 VPD
K = 8%
D = 55%
T = 3%*
V = 50 MPH

FUNCTIONAL CLASSIFICATION: URBAN MAJOR COLLECTOR

* 1% TTST 2% DUAL REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT U-5806 = 0.434 MILES

PLANS PREPARED FOR THE NCDOT BY:

Kimley»Horn

© 2017 200 South Tryon, Suite 200
Charlotte, North Carolina 28202
NC License #E-0102

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
DECEMBER 16, 2016

LETTING DATE:
DECEMBER 19, 2017

BENJAMIN TAYLOR, P.E.
PROJECT ENGINEER

RHODES HUNT, E.I.T.
PROJECT DESIGN ENGINEER

HYDRAULIC ENGINEER

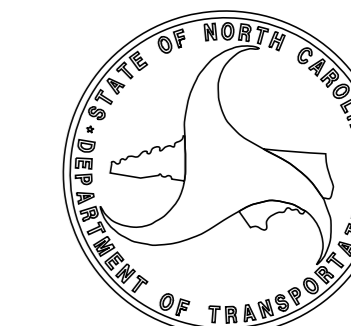
SEAL
10/5/2017
P.E.

SIGNATURE:

ROADWAY DESIGN ENGINEER

SEAL
10/5/2017
P.E.

SIGNATURE:



K:\CHL_PRJ\101036284 U-5806 Concord Mills Flyover\04_CADD\Proj\U5806_rdy_tshdgn 10/5/2017

CONTRACT: C203994

STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

GENERAL NOTES

2012 SPECIFICATIONS

EFFECTIVE: 01-17-12
REVISED: 07/30/12

GRADE LINE:
GRADING AND SURFACING OR RESURFACING AND WIDENING:

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

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.

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
225.02 GUIDE FOR GRADING SUBGRADE - SECONDARY AND LOCAL
225.04 METHOD OF OBTAINING SUPERELEVATION - TWO LANE PAVEMENT
225.06 METHOD OF GRADING SIGHT DISTANCE AT INTERSECTIONS

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
560.01 METHOD OF SHOULDER CONSTRUCTION - HIGH SIDE OF SUPERELEVATED CURVE - METHOD II

DIVISION 6 - ASPHALT BASES AND PAVEMENTS
654.01 PAVEMENT REPAIRS

DIVISION 8 - INCIDENTALS
815.02 SUBSURFACE DRAIN
840.00 CONCRETE BASE PAD FOR DRAINAGE STRUCTURES
840.01 BRICK CATCH BASIN - 12" THRU 54" PIPE
840.02 CONCRETE CATCH BASIN - 12" THRU 54" PIPE
840.03 FRAME, GRATES AND HOOD - FOR USE ON STANDARD CATCH BASIN
840.14 CONCRETE DROP INLET - 12" THRU 30" PIPE
840.15 BRICK DROP INLET - 12" THRU 30" PIPE
840.16 DROP INLET FRAME AND GRATES - FOR USE WITH STD. DWG 840.14 AND 840.15
840.18 CONCRETE GRATED DROP INLET TYPE 'B' - 12" THRU 36" PIPE
840.20 FRAMES AND WIDE SLOT FLAT GRATES
840.22 FRAMES AND WIDE SLOT SAG GRATES
840.24 FRAMES AND NARROW SLOT SAG GRATES
840.25 ANCHORAGE FOR FRAMES - BRICK OR CONCRETE OR PRECAST
840.27 BRICK GRATED DROP INLET TYPE 'B' - 12" THRU 36" PIPE
840.29 FRAMES AND NARROW SLOT FLAT GRATES
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
846.01 CONCRETE CURB, GUTTER AND CURB & GUTTER
846.04 DROP INLET INSTALLATION IN SHOULDER BERM GUTTER
848.01 CONCRETE SIDEWALK
848.04 STREET TURNOUT
848.05 CURB RAMP - PROPOSED CURB & GUTTER
848.06 CURB RAMP - EXISTING CURB & GUTTER
852.01 CONCRETE ISLANDS
852.06 METHOD FOR PLACEMENT OF DROP INLETS IN CONCRETE ISLANDS
857.01 PRECAST REINFORCED CONCRETE BARRIER - 4" SINGLE FACED
862.04 ANCHORING END OF GUARDRAIL - B-77 AND B-83 ANCHOR UNITS
866.01 CHAIN LINK FENCE - 4', 5' AND 6' HIGH FENCE
876.02 GUIDE FOR RIP RAP AT PIPE OUTLETS

CLEARING:

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

SUPERELEVATION:

ALL CURVES ON THIS PROJECT SHALL BE SUPERELEVATED IN ACCORDANCE WITH STD. NO. 225.04 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.

SIDE ROADS:

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

SUBSURFACE DRAINS:

SUBSURFACE DRAINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. 815.02 AT LOCATIONS DIRECTED BY THE ENGINEER.

STREET TURNOUT:

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

GUARDRAIL:

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

TEMPORARY SHORING:

SHORING REQUIRED FOR THE MAINTENANCE OF TRAFFIC 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.

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE:
CITY OF CONCORD
WINDSTREAM
TIME WARNER/CHARTER
AT&T
PSNC

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

RIGHT-OF-WAY MARKERS:

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

CURB RAMPS:

CURB RAMPS ARE SHOWN ON THE PLANS AT APPROXIMATE LOCATIONS. CONSTRUCT ALL CURB RAMPS IN ACCORDANCE WITH STD. NO. 848.05, 848.06, AND/OR DETAILS IN THE PLANS.

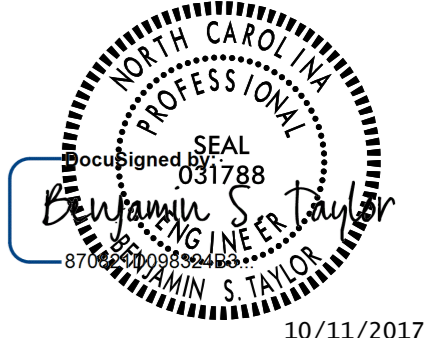
U-5806
CABARRUS COUNTY

INDEX OF SHEETS

SHEET NUMBER	SHEET
I	TITLE SHEET
IA	INDEX OF SHEETS, GENERAL NOTES, LIST OF ROADWAY STANDARD DRAWINGS
IB	CONVENTIONAL SYMBOLS SHEET
IC-1 THRU IC-4	SURVEY CONTROL SHEETS
2A-1 THRU 2A-5	PAVEMENT SCHEDULE, TYPICAL SECTIONS, AND MISCELLANEOUS DETAILS
2B-1	INTERSECTION DETAILS
2C-1	CURB RAMP DETAILS
2C-2 THRU 2C-7	GUARDRAIL PLACEMENT DETAILS
2C-8 THRU 2C-11	GUARDRAIL INSTALLATION DETAILS
2C-12 THRU 2C-15	STRUCTURE ANCHOR UNIT DETAILS
2C-16	CURB RAMP DETAIL - PEDESTRIAN REFUGE
2C-17	DETAIL TO CONVERT EXISTING TRAFFIC BEARING DROP INLET OR CATCH BASIN TO TRAFFIC BEARING JUNCTION BOX (MANHOLE OPTIONAL)
2D-1	DRAINAGE DETAILS
3B-1	SUMMARY OF EARTHWORK
3B-2	SUMMARIES OF GUARDRAIL, REMOVAL OF EXISTING ASPHALT PAVMENT, BREAKING OF EXISTING ASPHALT PAVEMENT, AND SHOULDER BERM GUTTER
3D-1 THRU 3D-2	SUMMARY OF DRAINAGE QUANTITIES
3G-1	GEOTECHNICAL SUMMARIES
3P-1	PARCEL INDEX SHEET
4 THRU 6	PLAN SHEETS
7 THRU 9	PROFILE SHEETS
TMP-1 THRU TMP-12	TRANSPORTATION MANAGEMENT PLANS
PMP-1 THRU PMP-6	PAVEMENT MARKING PLANS
EC-1 THRU EC-9	EROSION CONTROL PLANS
SIGN-1 THRU SIGN-10	SIGNING PLANS
SIG-1 THRU SCP-6	SIGNAL PLANS
UC-1 THRU UC-5	UTILITY CONSTRUCTION PLANS
UO-1 THRU UO-4	UTILITIES BY OTHERS PLANS
X-0	CROSS-SECTION INDEX
X-1A	CROSS-SECTION SUMMARY SHEET
X-1 THRU X-28	CROSS-SECTIONS
S-1 THRU S-48	STRUCTURE PLANS
W1 THRU W7	RETAINING WALL PLANS

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10/11/2017

PROJECT REFERENCE NO. <i>U-5806</i>	SHEET NO. <i>1A</i>
ROADWAY DESIGN ENGINEER	
	

STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

BOUNDARIES AND PROPERTY:

State Line	-----
County Line	-----
Township Line	-----
City Line	-----
Reservation Line	-----
Property Line	-----
Existing Iron Pin	○ EIP
Computed Property Corner	----->
Property Monument	□ EDM
Parcel/Sequence Number	(123)
Existing Fence Line	-x-x-x-
Proposed Woven Wire Fence	○
Proposed Chain Link Fence	□
Proposed Barbed Wire Fence	◇
Existing Wetland Boundary	----- WLB
Proposed Wetland Boundary	----- WLB
Existing Endangered Animal Boundary	----- EAB
Existing Endangered Plant Boundary	----- EPB
Existing Historic Property Boundary	----- HPB
Known Contamination Area: Soil	☠-S-☠
Potential Contamination Area: Soil	??-S-??
Known Contamination Area: Water	☠-W-☠
Potential Contamination Area: Water	??-W-??
Contaminated Site: Known or Potential	☠??

BUILDINGS AND OTHER CULTURE:

Gas Pump Vent or U/G Tank Cap	○
Sign	○ S
Well	○ W
Small Mine	✕
Foundation	□
Area Outline	□
Cemetery	□
Building	□
School	□
Church	□
Dam	□

HYDROLOGY:

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

RAILROADS:

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

RIGHT OF WAY & PROJECT CONTROL:

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

ROADS AND RELATED FEATURES:

Existing Edge of Pavement	-----
Existing Curb	-----
Proposed Slope Stakes Cut	----- C
Proposed Slope Stakes Fill	----- F
Proposed Curb Ramp	-----
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.*)	----- W
U/G Water Line LOS C (S.U.E.*)	----- W
U/G Water Line LOS D (S.U.E.*)	----- W
Above Ground Water Line	----- A/G Water

TV:

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

GAS:

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

SANITARY SEWER:

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

MISCELLANEOUS:

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

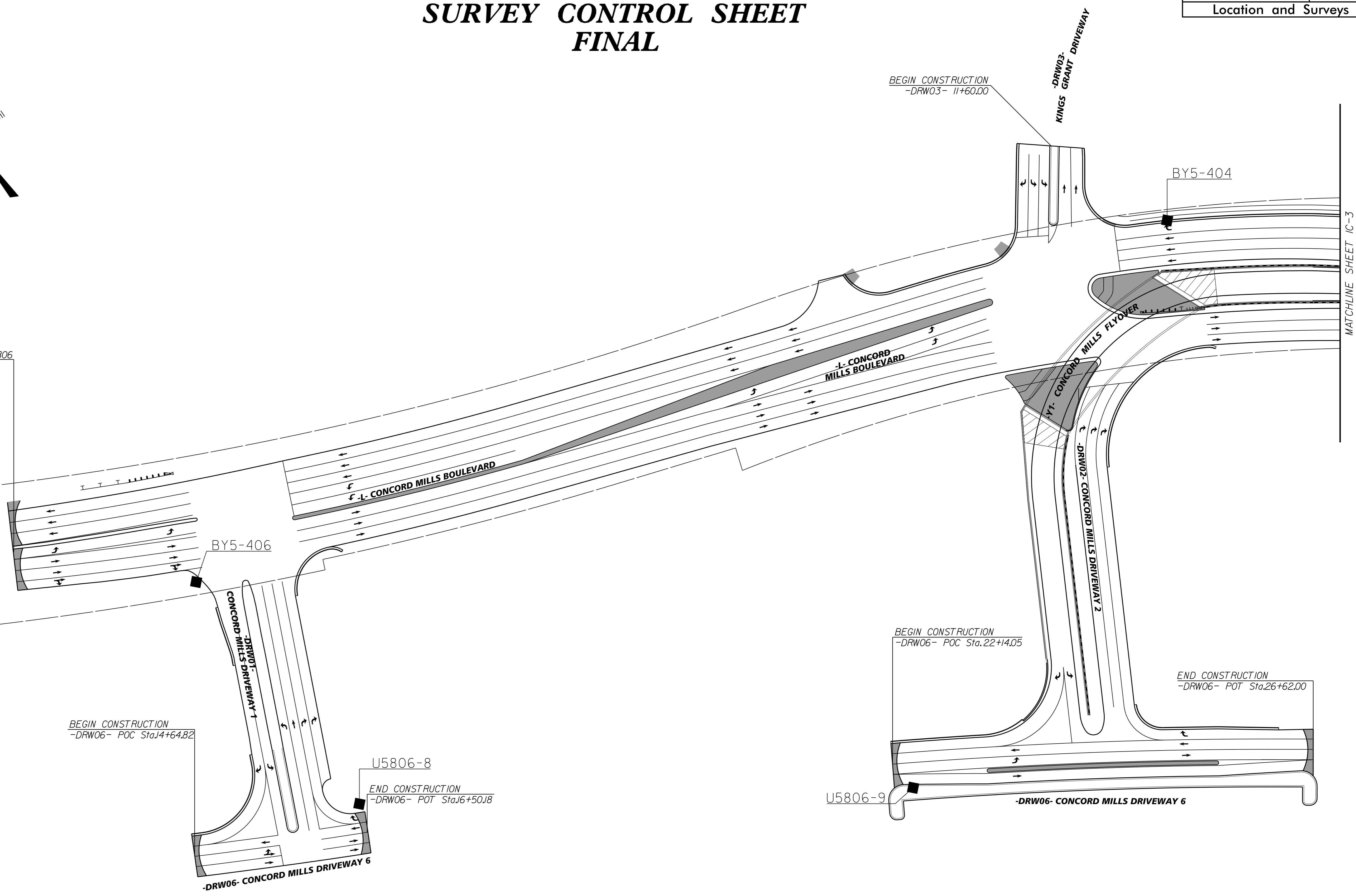
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SURVEY CONTROL SHEET FINAL



BEGIN TIP PROJECT U-5806
 BEGIN CONSTRUCTION
 -L- POC Sta.14+16.52

MATCHLINE SHEET 1C-1



MATCHLINE SHEET 1C-3

NOTES:

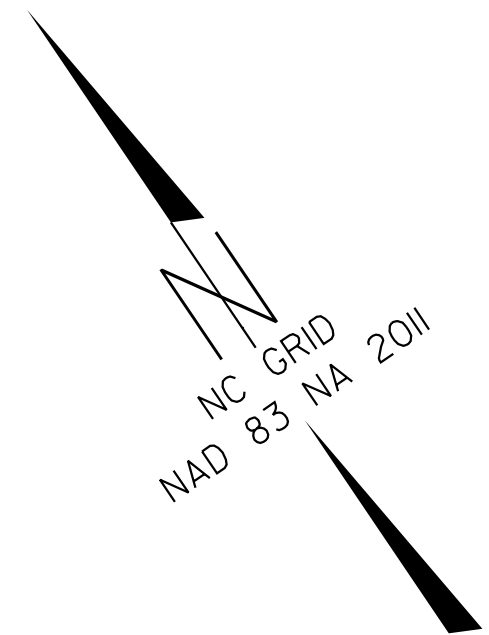
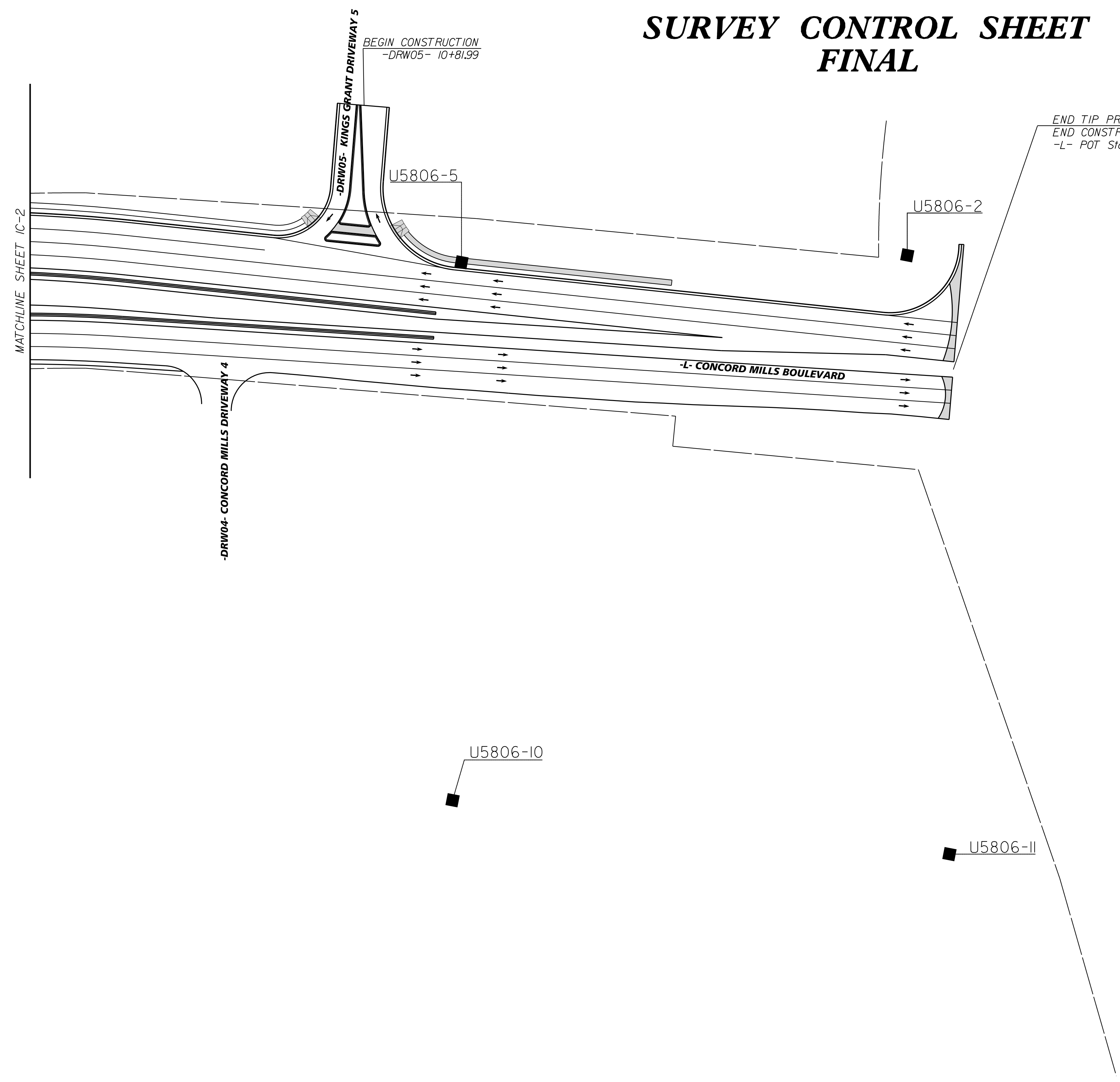
- INDICATES GEODETIC CONTROL MONUMENTS FOR HORIZONTAL CONTROL
- INDICATES BASELINE MONUMENTS FOR HORIZONTAL PROJECT CONTROL
- ⊠ INDICATES BENCHMARKS FOR VERTICAL CONTROL

NOTE: DRAWING NOT TO SCALE

6/2/99

PROJECT REFERENCE NO.	SHEET NO.
U-5806	1C-3
Location and Surveys	

SURVEY CONTROL SHEET FINAL



L

TYPE	STATION	NORTH	EAST
POT	10+00.00	595152.6326	1486354.6290
PC	10+48.03	595129.5963	1486396.7793
PRC	11+36.31	595085.0044	1486472.9549
PT	19+61.69	594734.5908	1487218.0897
PC	24+20.25	594590.2857	1487653.3490
PT	29+46.55	594339.4304	1488112.8006
POT	35+25.10	593975.9222	1488562.8872
POT	38+69.39	593754.6261	1488826.6395

DRW01

TYPE	STATION	NORTH	EAST
POT	10+00.00	594517.9741	1486801.4748
POT	13+50.82	594840.5911	1486939.2816

DRW02

TYPE	STATION	NORTH	EAST
POT	10+00.00	594119.7956	1487557.3378
POT	14+76.88	594542.5472	1487778.0134

DRW03

TYPE	STATION	NORTH	EAST
PC	10+00.00	594793.5202	1487989.7246
PT	12+05.65	594648.4231	1487846.0397
POT	13+31.57	594542.7393	1487777.5728

DRW04

TYPE	STATION	NORTH	EAST
POT	10+00.00	594161.8616	1488094.7692
POT	11+50.00	594286.0530	1488178.8911

U5806-1

NOTES:

- INDICATES GEODETIC CONTROL MONUMENTS FOR HORIZONTAL CONTROL
- INDICATES BASELINE MONUMENTS FOR HORIZONTAL PROJECT CONTROL
- ⊠ INDICATES BENCHMARKS FOR VERTICAL CONTROL

NOTE: DRAWING NOT TO SCALE

6/2/99
 U-5806
 1C-3
 Location and Surveys
 6/2/99

6/2/99

SURVEY CONTROL SHEET FINAL

PROJECT REFERENCE NO.	SHEET NO.
U-5806	1C-4
Location and Surveys	

DRW06

TYPE	STATION	NORTH	EAST
POT	10+00.00	594800.8711	1486290.9753
PC	11+52.99	594720.1423	1486420.9366
PT	14+77.84	594563.9936	1486705.6113
PC	18+74.49	594392.3350	1487063.1945
PT	26+17.55	594022.2593	1487706.7535
POT	33+27.24	593623.7836	1488294.0119

Y1

TYPE	STATION	NORTH	EAST
POT	10+00.00	594137.0326	1487529.6741
PC	12+73.01	594379.0535	1487656.0086
PCC	16+06.45	594460.3529	1487942.5810
PT	18+22.20	594336.8026	1488119.2135
POT	22+60.75	594059.7175	1488459.1339

ROW MARKER IRON PIN AND CAP

ALIGN	STATION	OFFSET	NORTH	EAST
L	17+67.07	61.40	594743.9033	1487012.6046
L	26+55.04	-85.60	594574.8067	1487908.9056
L	26+76.79	74.46	594423.1884	1487853.1796

ROW MARKER IRON PIN AND CAP

ALIGN	STATION	OFFSET	NORTH	EAST
DRW01	12+20.84	40.68	594705.0851	1486925.6331
DRW01	12+78.07	40.07	594757.9530	1486947.5518

ROW MARKER IRON PIN AND CAP

ALIGN	STATION	OFFSET	NORTH	EAST
DRW02	10+66.00	45.00	594157.4804	1487627.7712
DRW02	10+87.00	-60.00	594224.6851	1487544.4073
DRW02	13+00.92	45.00	594365.7336	1487736.4789
DRW02	13+95.67	-60.00	594498.3181	1487687.2433

ROW MARKER IRON PIN AND CAP

ALIGN	STATION	OFFSET	NORTH	EAST
DRW03	12+01.39	-49.31	594624.8313	1487889.5230
DRW03	12+38.17	-51.83	594592.9523	1487871.8566

ROW MARKER IRON PIN AND CAP

ALIGN	STATION	OFFSET	NORTH	EAST
DRW06	23+14.00	-40.00	594219.3724	1487470.9586
DRW06	23+14.00	-16.00	594198.7317	1487458.7129
DRW06	25+19.00	-40.00	594110.3233	1487646.4647
DRW06	25+19.00	-16.00	594090.2018	1487633.3832

PERMANENT EASEMENT IRON PIN AND CAP

ALIGN	STATION	OFFSET	NORTH	EAST
L	15+49.39	-73.53	594953.9023	1486866.6794
L	15+58.00	-90.00	594965.2452	1486881.2789
L	17+46.00	83.53	594731.3258	1486984.4249
L	19+15.00	86.00	594668.3260	1487145.7042
L	23+53.00	-109.00	594714.9110	1487623.8172
L	23+96.00	-98.00	594690.9376	1487661.1699
L	24+20.00	91.00	594503.9869	1487624.4740
L	24+20.00	-95.00	594680.5368	1487683.0071
L	24+52.00	-94.00	594668.5302	1487714.8819
L	24+79.00	-101.00	594665.2012	1487744.3294
L	24+97.00	-110.00	594666.6912	1487765.5689
L	25+28.73	-84.92	594630.7766	1487787.5716
L	25+31.00	-110.14	594653.1251	1487799.5115
L	26+34.33	97.00	594421.6893	1487807.3074
L	26+37.00	-103.00	594599.0536	1487899.7707
L	26+38.00	-121.00	594614.6279	1487908.8576
L	28+02.00	91.00	594348.4795	1487946.1263
L	28+33.00	-108.00	594496.3032	1488082.9362
L	28+67.00	93.00	594312.2925	1487995.1670
L	28+89.00	-103.00	594457.3106	1488128.8489
L	29+73.00	87.00	594255.1286	1488078.7136
L	30+18.00	-103.00	594374.6660	1488233.1022
L	30+84.00	85.00	594186.9419	1488166.3239
L	30+93.00	-108.00	594331.4335	1488294.5899
L	32+12.00	83.00	594108.0738	1488267.1595
L	32+56.00	84.00	594079.6489	1488300.7624
L	34+47.00	98.00	593948.7508	1488440.5556
L	34+47.00	82.00	593961.1983	1488450.6097
L	36+84.35	90.93	593803.9024	1488626.4454

PERMANENT EASEMENT IRON PIN AND CAP

ALIGN	STATION	OFFSET	NORTH	EAST
DRW01	10+47.00	60.00	594537.6260	1486875.1129
DRW01	10+52.00	40.73	594549.7954	1486859.3538

PERMANENT EASEMENT IRON PIN AND CAP

ALIGN	STATION	OFFSET	NORTH	EAST
DRW03	12+00.00	-54.00	594623.2747	1487894.1230

PERMANENT EASEMENT IRON PIN AND CAP

ALIGN	STATION	OFFSET	NORTH	EAST
DRW05	11+50.00	14.04	594318.7055	1488340.4309
DRW05	11+50.00	58.00	594346.1110	1488306.0581
DRW05	11+51.00	-13.28	594300.8887	1488361.1716
DRW05	11+51.00	-47.00	594279.8707	1488387.5343
DRW05	11+77.85	-47.49	594258.5727	1488371.1832
DRW05	11+78.28	-12.80	594279.8669	1488343.7867
DRW05	11+78.60	13.67	594296.1097	1488322.8895

PERMANENT EASEMENT IRON PIN AND CAP

ALIGN	STATION	OFFSET	NORTH	EAST
DRW06	16+24.00	-21.71	594520.3142	1486846.7718
DRW06	18+52.00	-50.00	594447.1438	1487064.5551
DRW06	18+52.00	-25.00	594424.6063	1487053.7374
DRW06	23+26.00	-48.44	594220.4362	1487485.6771

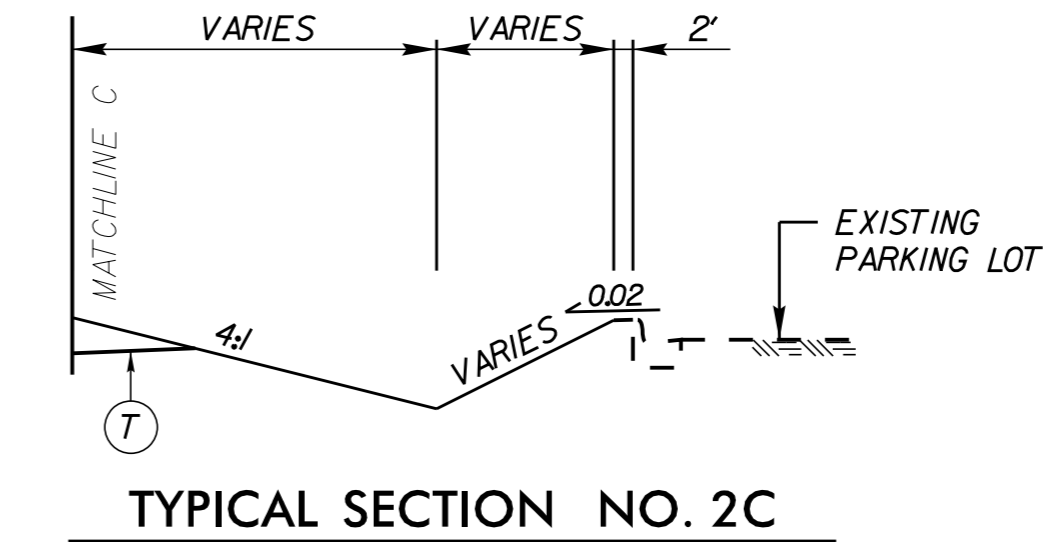
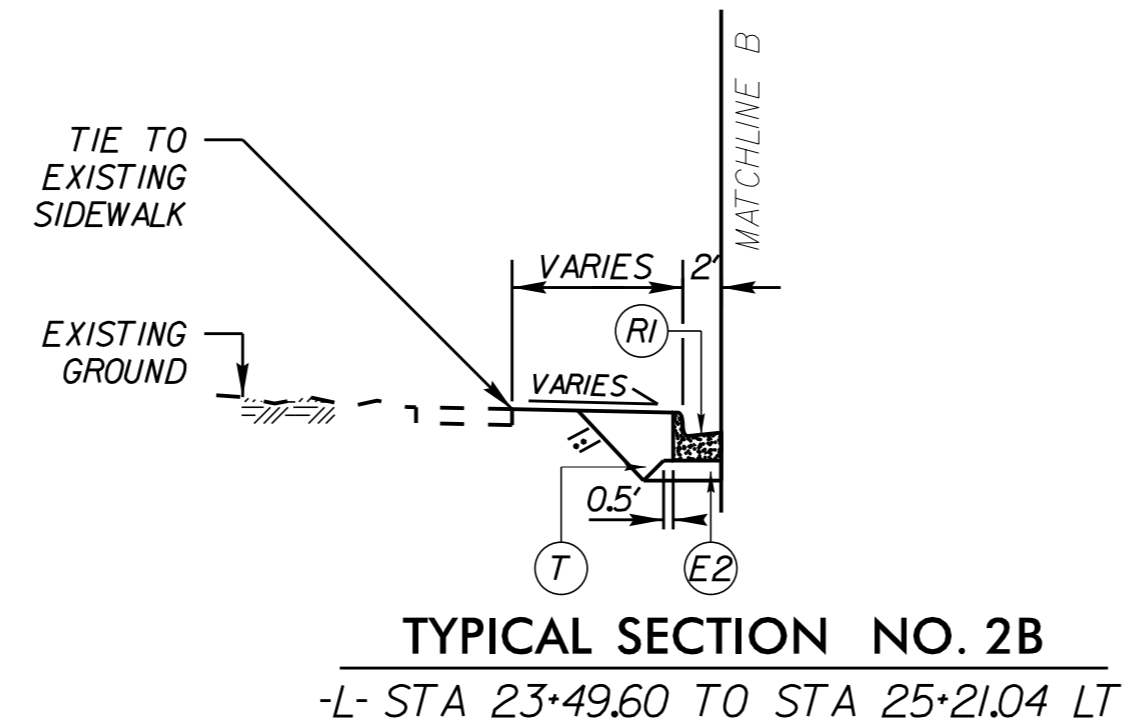
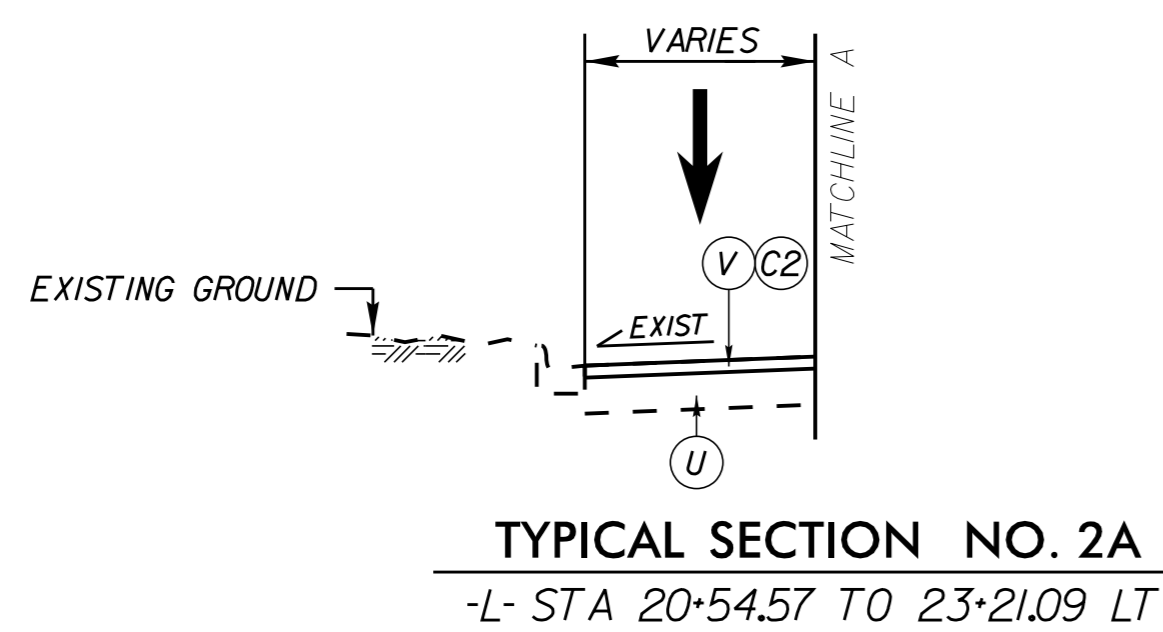
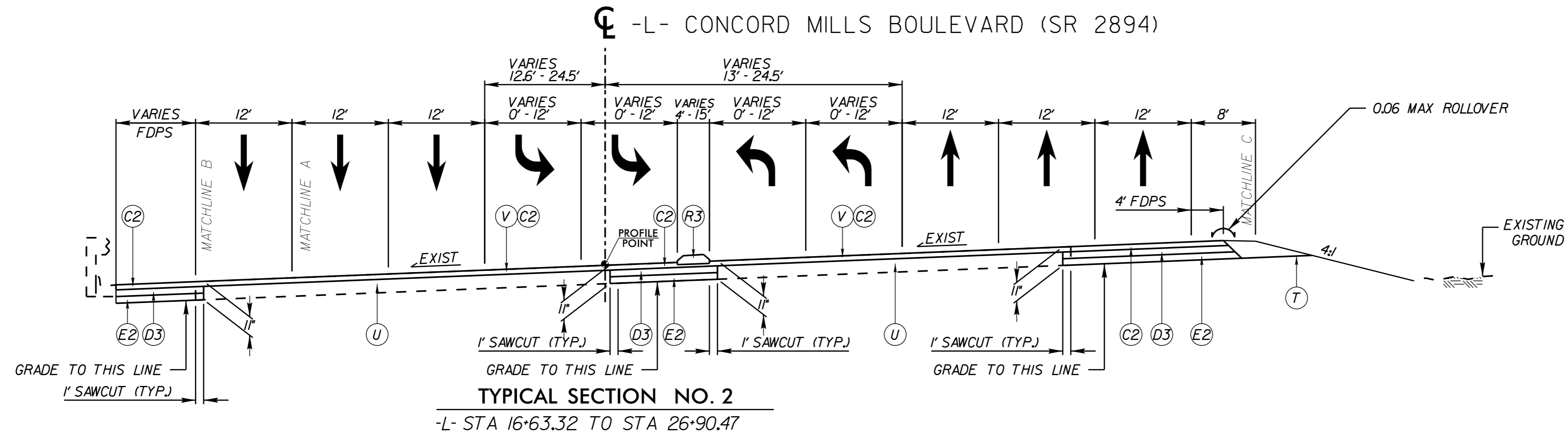
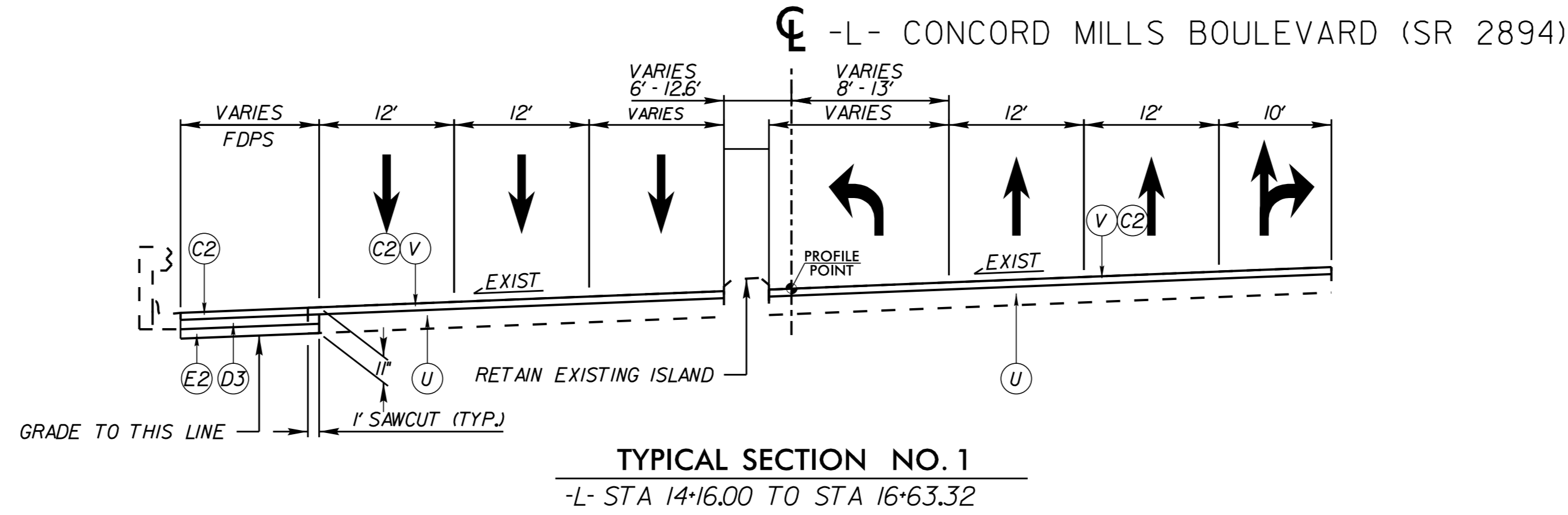
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NOTES:
1) PAVEMENT EDGE SLOPES ARE 1:H UNLESS OTHERWISE NOTED.

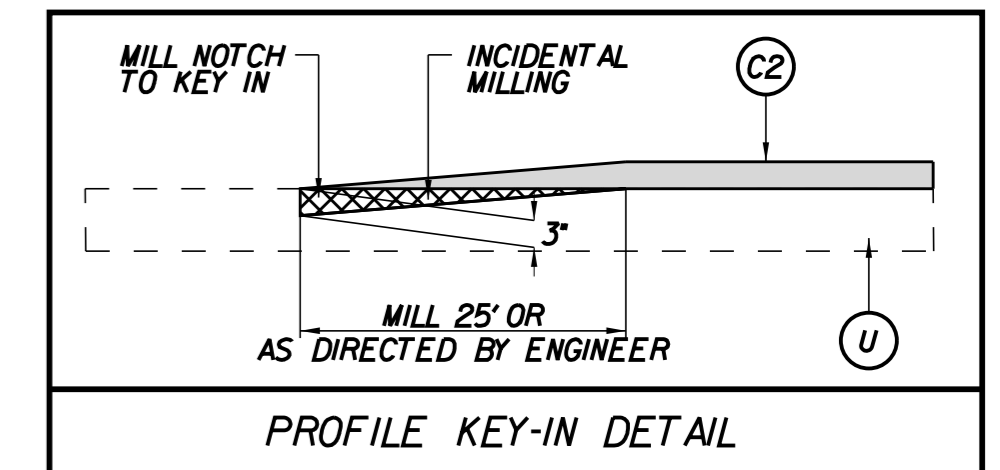
Kimley»Horn

200 SOUTH TRYON, SUITE 200
CHARLOTTE, N.C. 28202

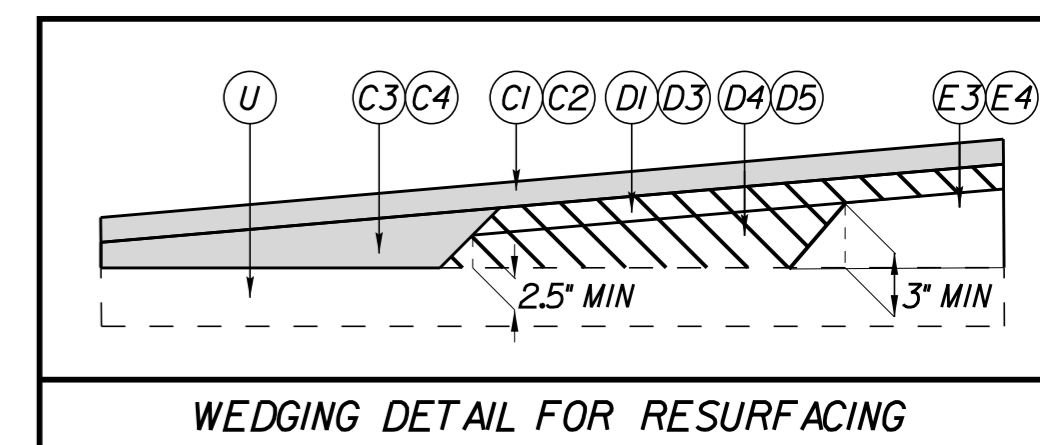
PROJECT REFERENCE NO. U-5806	SHEET NO. 2A-1
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



PAVEMENT SCHEDULE (FINAL PAVEMENT DESIGN)	
C1	PROPOSED APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S95B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C2	PROPOSED APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S95C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C3	PROPOSED VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S95B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT TO EXCEED 2" IN DEPTH.
C4	PROPOSED VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S95C, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT TO EXCEED 2" IN DEPTH.
D1	PROPOSED APPROX. 2.5" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I190B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.
D2	PROPOSED APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I190B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
D3	PROPOSED APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I190C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
D4	PROPOSED VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I190B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 2.5" OR GREATER THAN 4" IN DEPTH.
D5	PROPOSED VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I190C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 2.5" OR GREATER THAN 4" IN DEPTH.
E1	PROPOSED APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B250B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E2	PROPOSED APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B250C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E3	PROPOSED VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B250B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 3" OR GREATER THAN 5.5" IN DEPTH.
E4	PROPOSED VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B250C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 3" OR GREATER THAN 5.5" IN DEPTH.
R1	PROPOSED 2'-6" CONCRETE CURB & GUTTER
R2	PROPOSED 1'-6" CONCRETE CURB & GUTTER
R3	PROPOSED 5" MONOLITHIC CONCRETE ISLAND (KEYED-IN)
S	PROPOSED 4" CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V	MILLING EXISTING PAVEMENT (3")
W	WEDGING DETAIL FOR RESURFACING



-DRW03- STA 11+60.00 TO 11+85.00
-DRW05- STA 10+82.00 TO 11+07.00

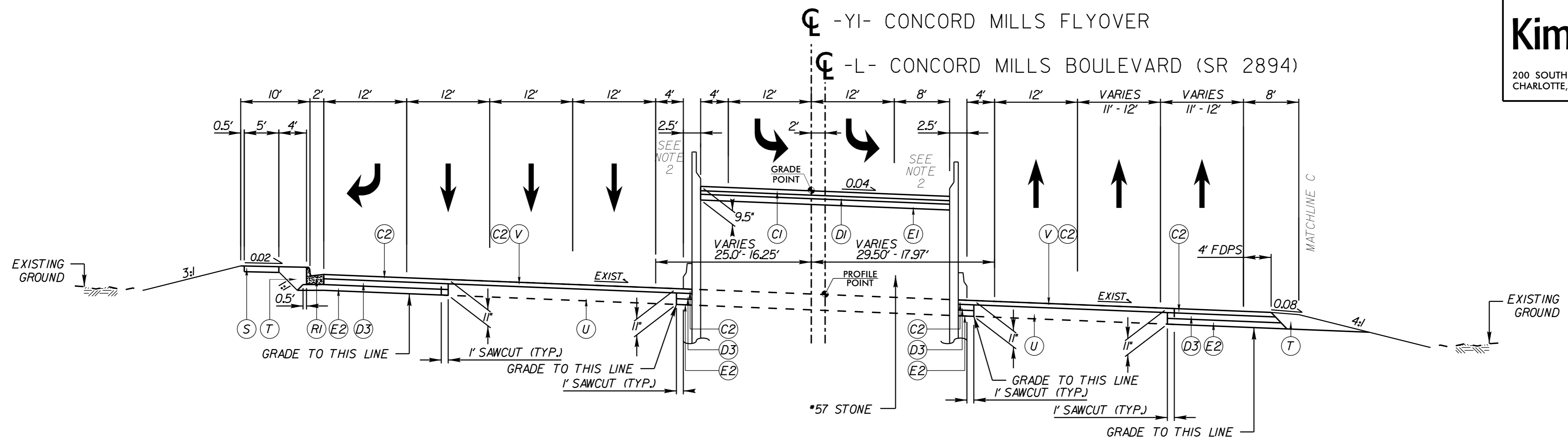


PROJECT REFERENCE NO. U-5806	SHEET NO. 2A-2
ROADWAY DESIGN ENGINEER SEAL 031788 WILLIAM S. TAYLOR	PAVEMENT DESIGN ENGINEER SEAL 022896 CLARK S. MORRISON
10/9/2017	10/10/2017

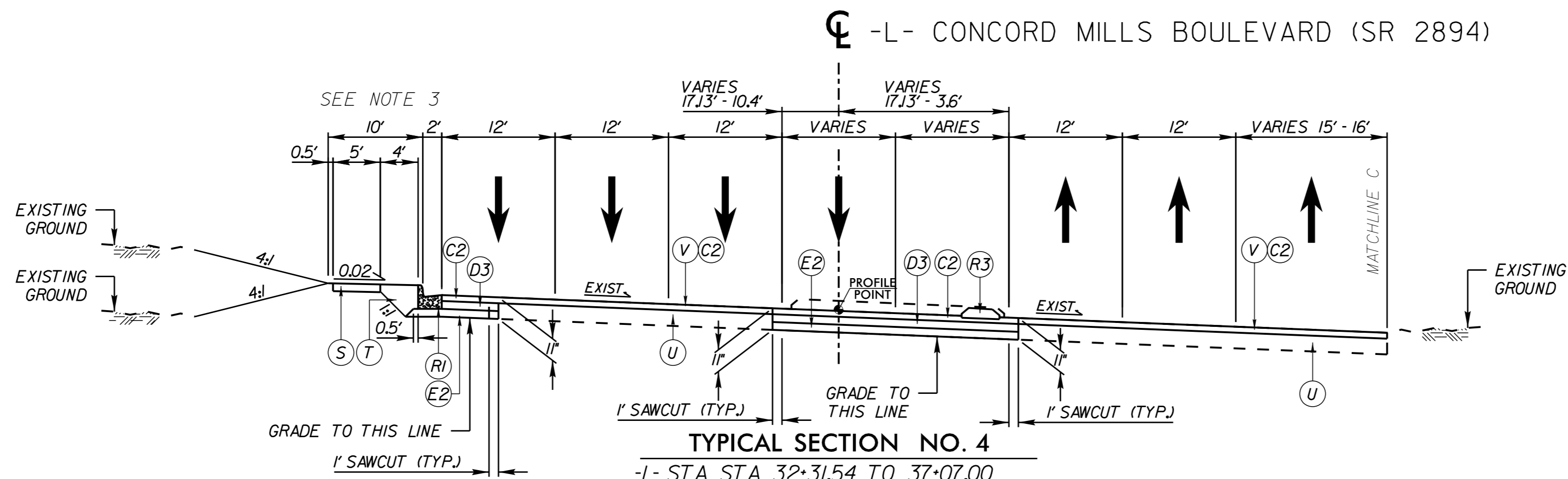
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PAVEMENT SCHEDULE
(FINAL PAVEMENT DESIGN)

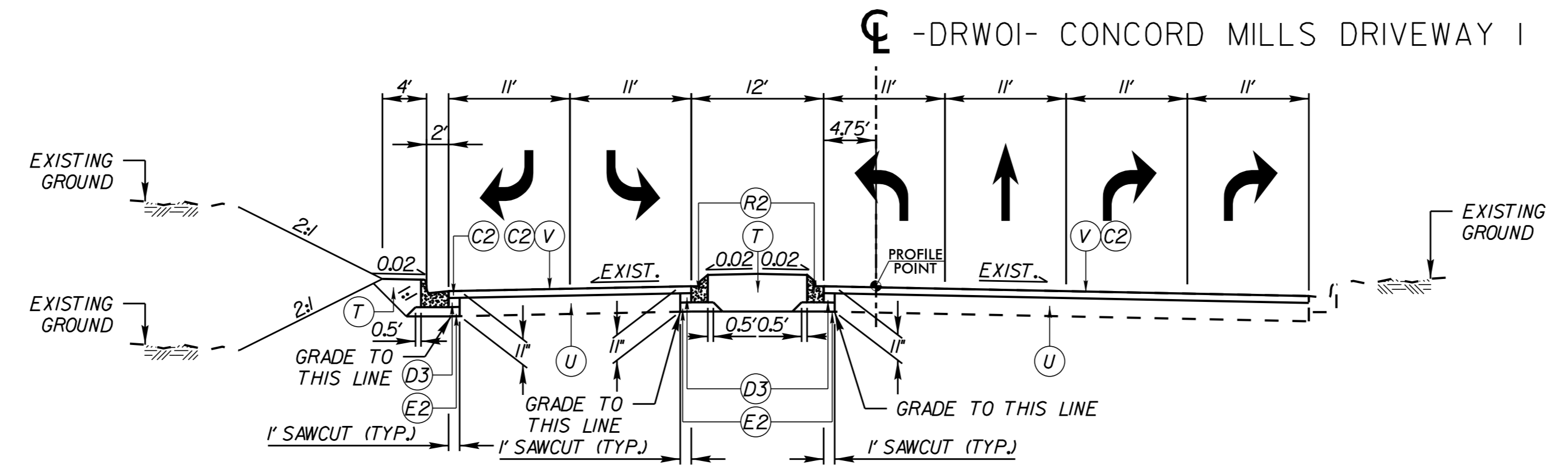
C1	3" S9.5B
C2	3" S9.5C
C3	VAR. DEPTH S9.5B
C4	VAR. DEPTH S9.5C
D1	2.5" I9.0B
D2	4" I9.0B
D3	4" I9.0C
D4	VAR. DEPTH I9.0B
D5	VAR. DEPTH I9.0C
E1	4" B25.0B
E2	4" B25.0C
E3	VAR. DEPTH B25.0B
E4	VAR. DEPTH B25.0C
R1	2'-6" CONCRETE CURB & GUTTER
R2	1'-6" CONCRETE CURB & GUTTER
R3	5' MONOLITHIC CONCRETE ISLAND (KEYED-IN)
S	4" CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V	MILLING EXISTING PAVEMENT (3")
W	WEDGING



TYPICAL SECTION NO. 3
-L- STA 26+90.47 TO STA 32+31.54
-YI- STA 15+61.82 (END BRIDGE) TO STA 20+70.00



TYPICAL SECTION NO. 4
-L- STA STA 32+31.54 TO 37+07.00



TYPICAL SECTION NO. 5
-DRWOI- STA 10+09.50 TO STA 11+00.46

- NOTES:
- 1) PAVEMENT EDGE SLOPES ARE 1:1 UNLESS OTHERWISE NOTED.
 - 2) SEE PLANS FOR RETAINING WALL LOCATIONS.
 - 3) USE 6' BERM FROM -L- STA 34+43.79 TO STA 36+37.35

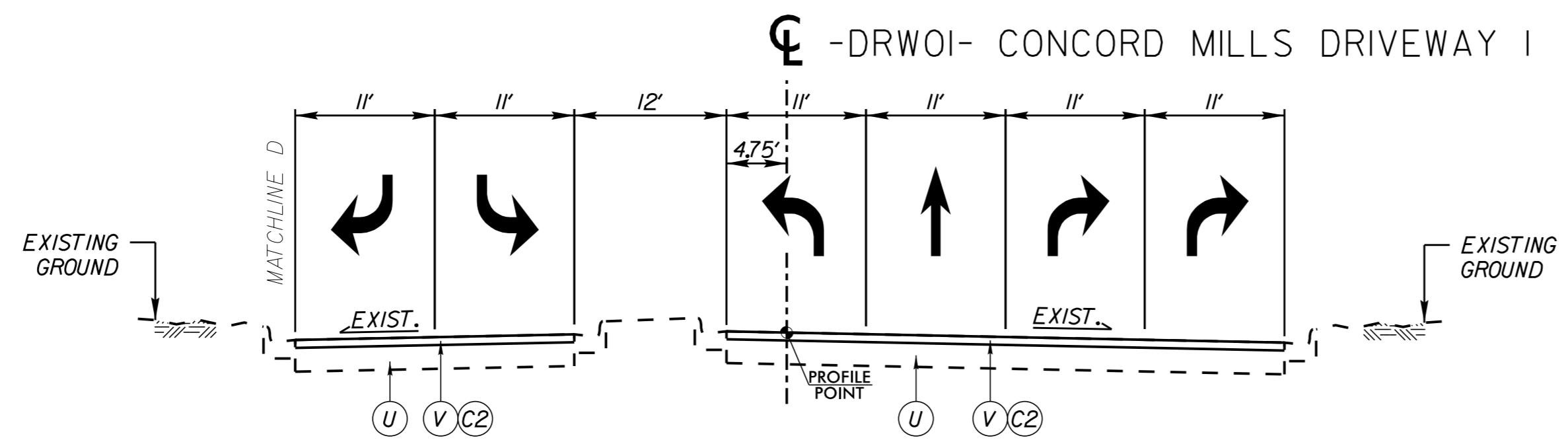
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PROJECT REFERENCE NO. U-5806	SHEET NO. 2A-3
ROADWAY DESIGN ENGINEER SEAL 031788 10/9/2017	PAVEMENT DESIGN ENGINEER SEAL 022896 10/30/2017 Clark Harrison

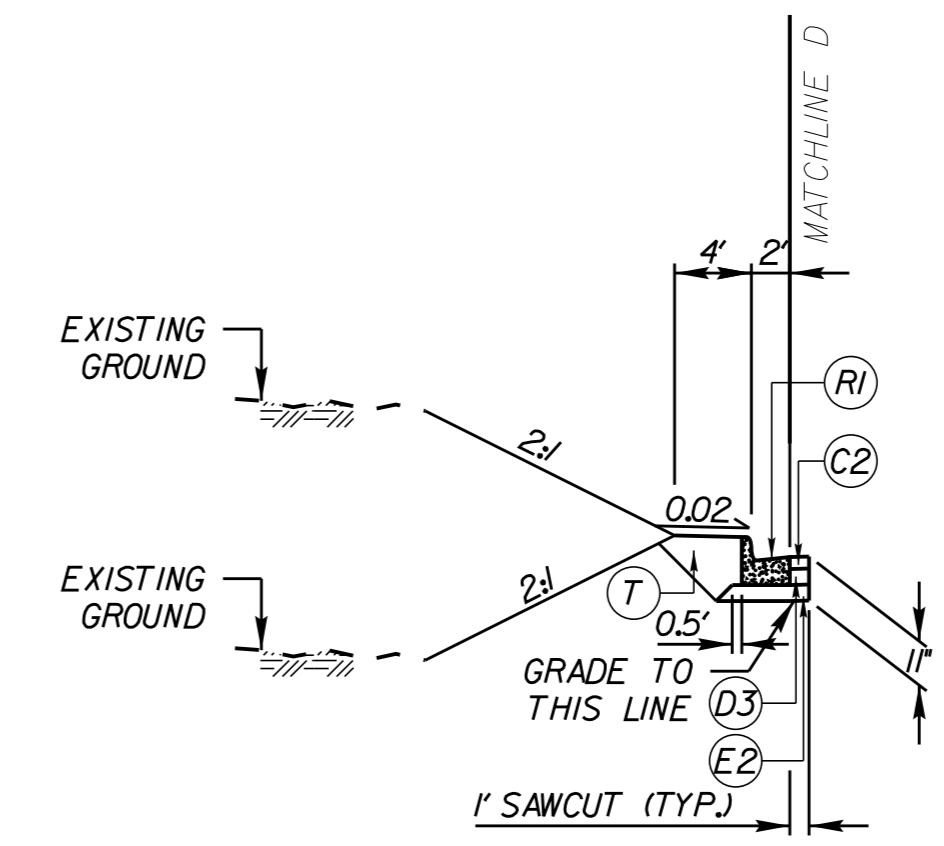
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PAVEMENT SCHEDULE
(FINAL PAVEMENT DESIGN)

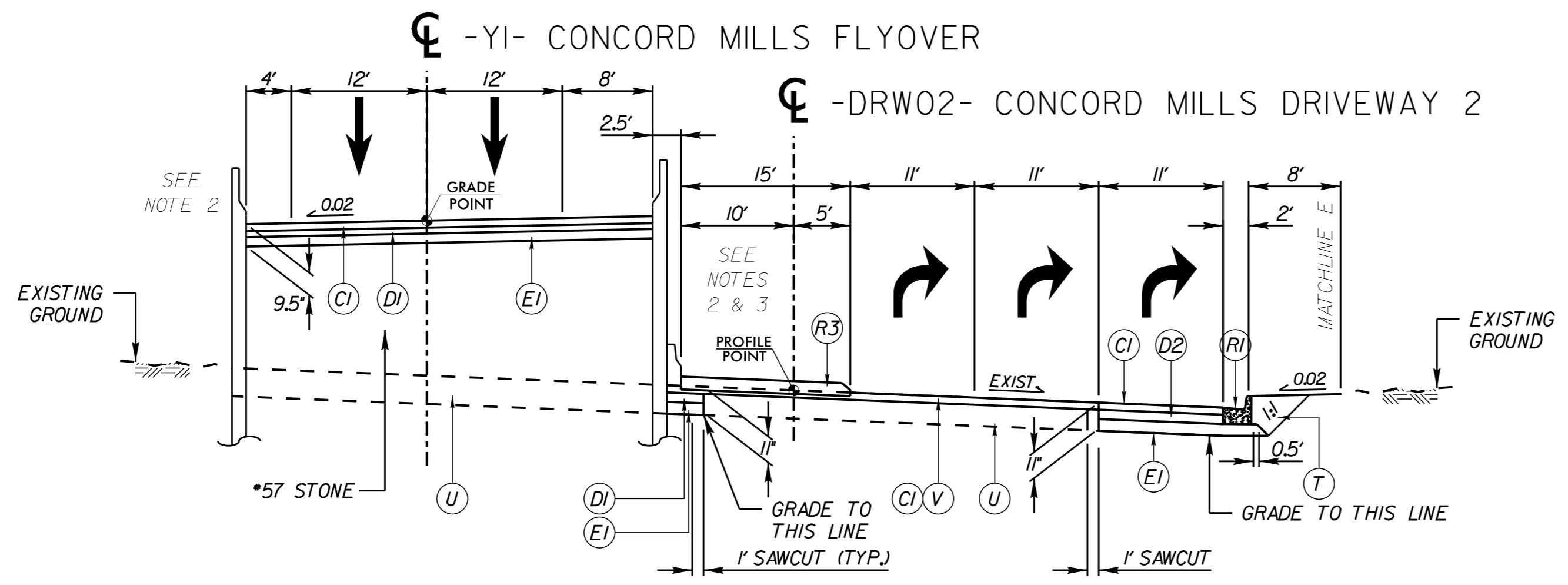
C1	3" S9.5B
C2	3" S9.5C
C3	VAR. DEPTH S9.5B
C4	VAR. DEPTH S9.5C
D1	2.5" I19.0B
D2	4" I19.0B
D3	4" I19.0C
D4	VAR. DEPTH I19.0B
D5	VAR. DEPTH I19.0C
E1	4" B25.0B
E2	4" B25.0C
E3	VAR. DEPTH B25.0B
E4	VAR. DEPTH B25.0C
R1	2'-6" CONCRETE CURB & GUTTER
R2	1'-6" CONCRETE CURB & GUTTER
R3	5' MONOLITHIC CONCRETE ISLAND (KEYED-IN)
S	4" CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V	MILLING EXISTING PAVEMENT (3')
W	WEDGING



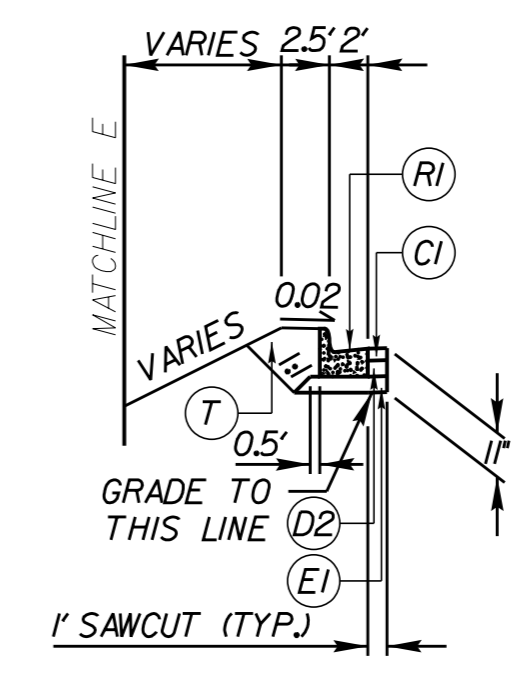
TYPICAL SECTION NO. 6
-DRW01- STA 11+00.46 TO STA 13+04.32



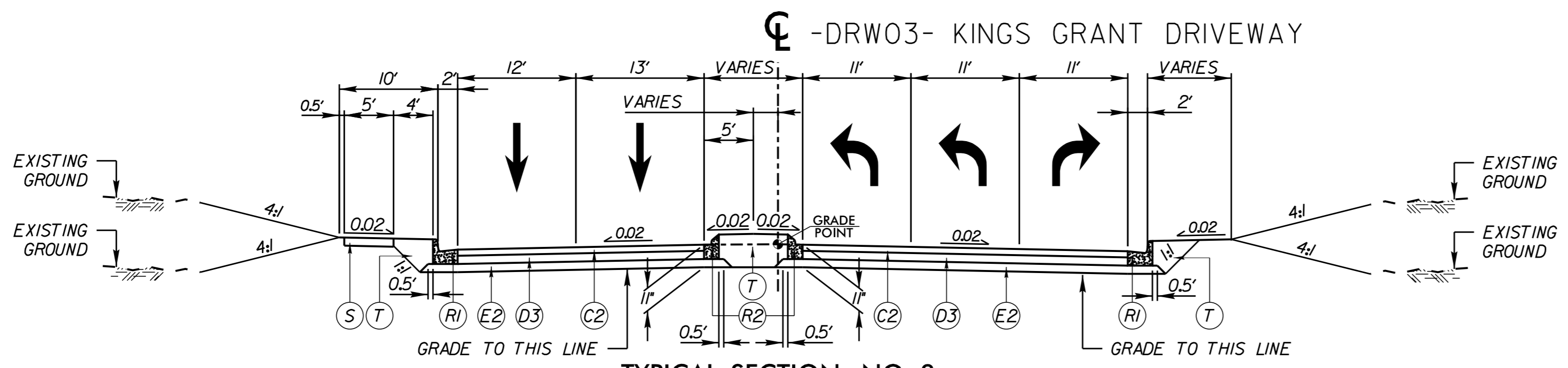
TYPICAL SECTION NO. 6A
-DRW01- STA 11+97.08 TO STA 12+61.32 LT



TYPICAL SECTION NO. 7
-DRW02- STA 10+11.03 TO STA 14+17.46
-Y1- STA 10+11.03 TO STA 13+51.16 (BEGIN BRIDGE)



TYPICAL SECTION NO. 7A
-DRW02- STA 13+32.07 TO STA 13+80.86 RT



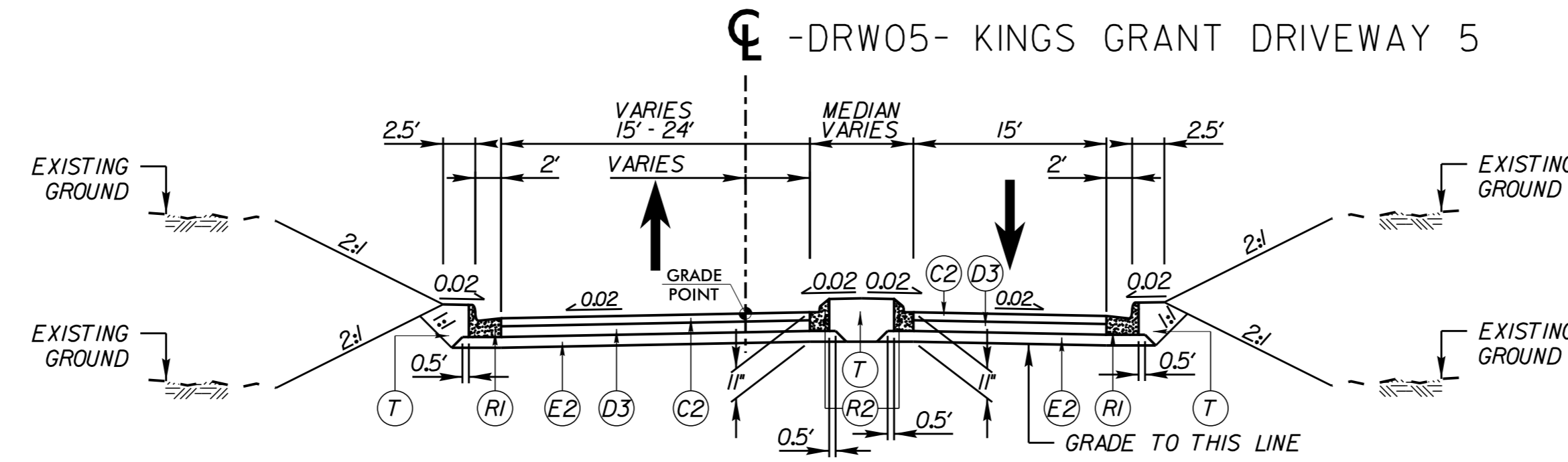
TYPICAL SECTION NO. 8
-DRW03- STA 11+60.00 TO STA 12+72.39

NOTES:
1) PAVEMENT EDGE SLOPES ARE 1:1 UNLESS OTHERWISE NOTED.
2) SEE PLANS FOR RETAINING WALL LOCATIONS.
3) SEE PLANS FOR ISLAND LOCATION.

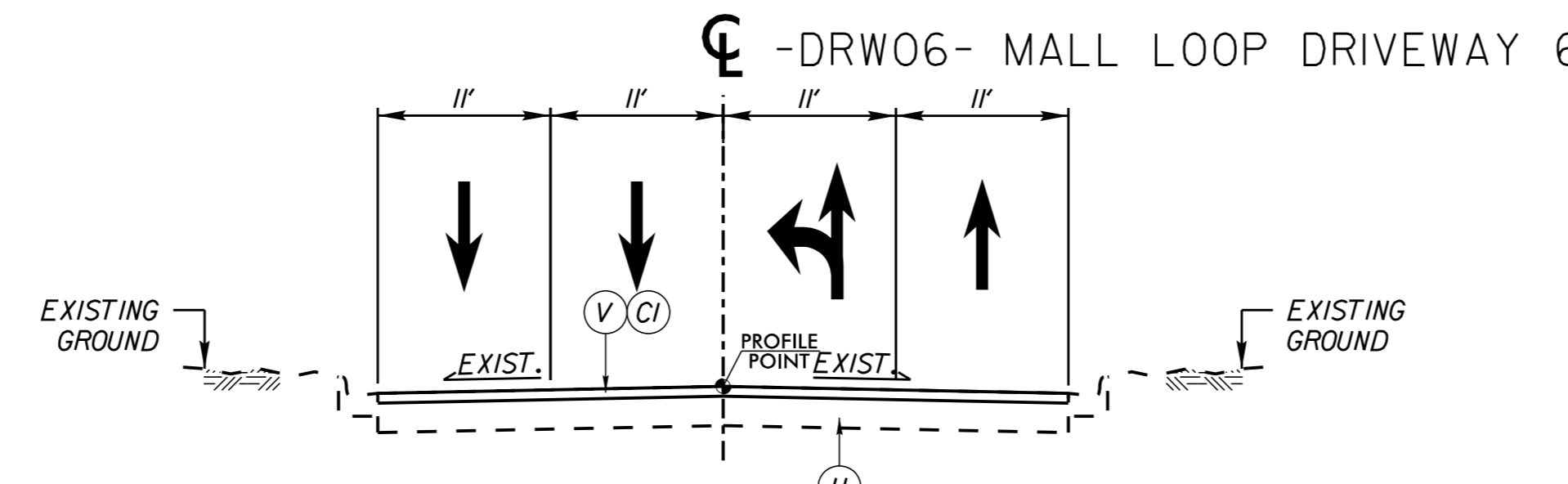
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PROJECT REFERENCE NO. U-5806	SHEET NO. 2A-4
ROADWAY DESIGN ENGINEER 	PAVEMENT DESIGN ENGINEER

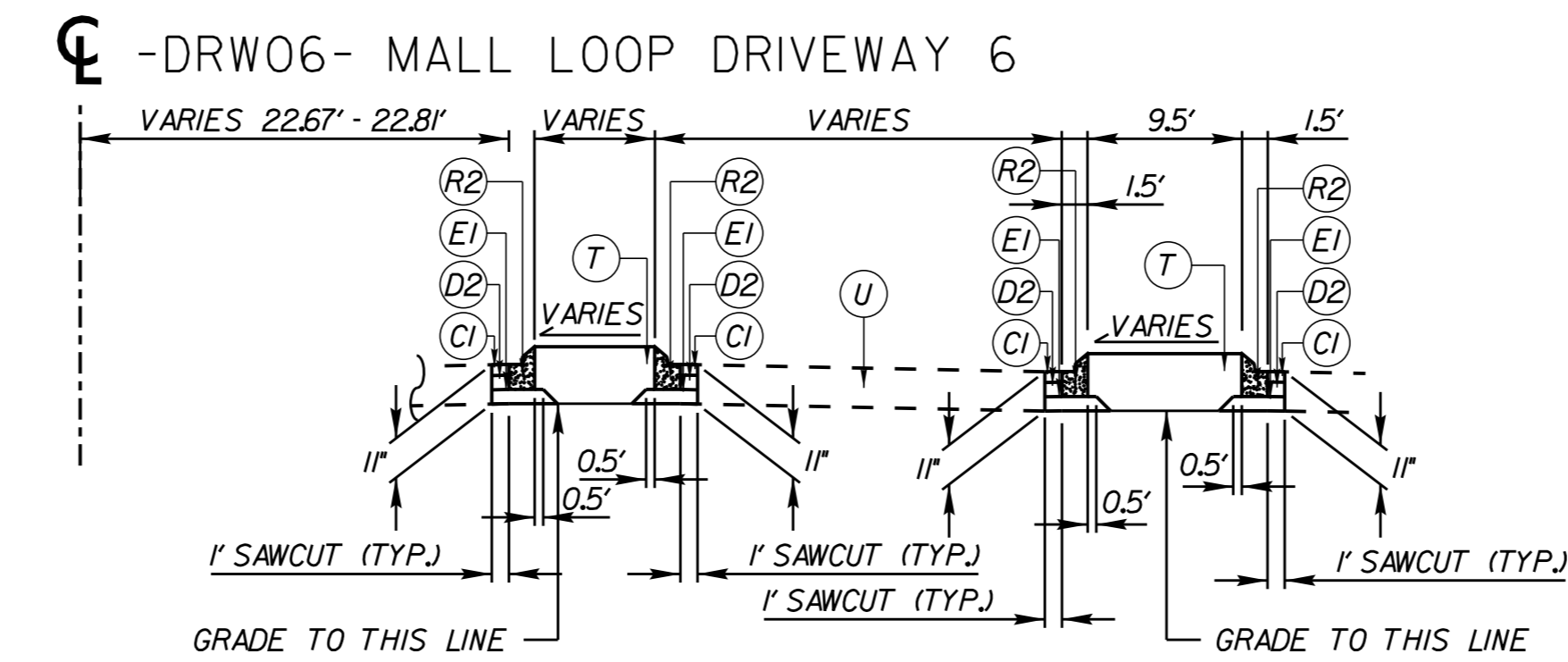
**DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED**



TYPICAL SECTION NO. 9
-DRW05- STA 10+82.00 TO STA 12+22.87



TYPICAL SECTION NO. 10
-DRW06- STA 14+65.00 TO STA 16+51.00



TYPICAL SECTION NO. 11
-DRW06- STA 16+79.19 TO STA 18+01.84

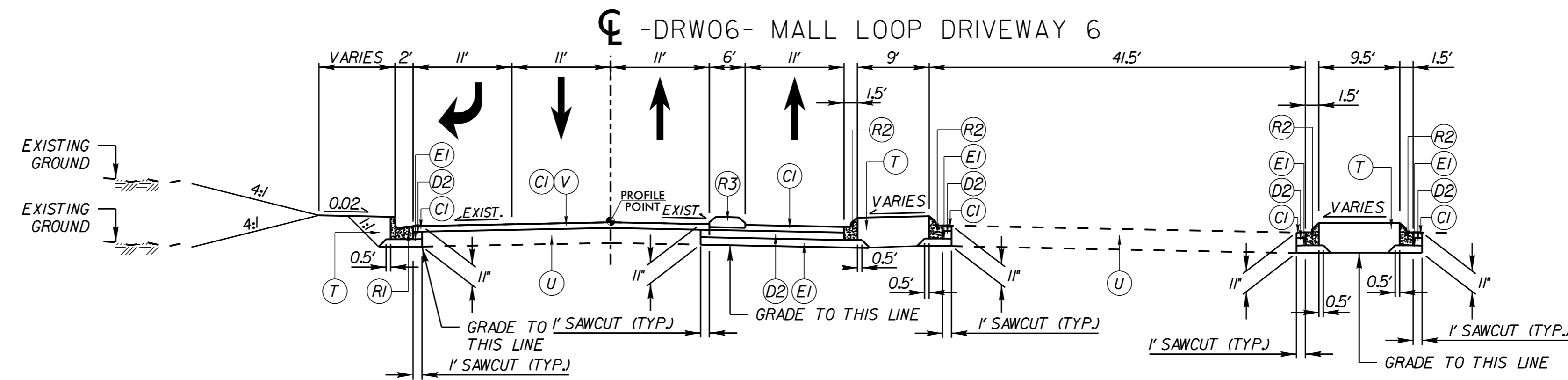
PAVEMENT SCHEDULE (FINAL PAVEMENT DESIGN)	
C1	3" S9.5B
C2	3" S9.5C
C3	VAR. DEPTH S9.5B
C4	VAR. DEPTH S9.5C
D1	2.5" 19.0B
D2	4" 19.0B
D3	4" 19.0C
D4	VAR. DEPTH 19.0B
D5	VAR. DEPTH 19.0C
E1	4" B25.0B
E2	4" B25.0C
E3	VAR. DEPTH B25.0B
E4	VAR. DEPTH B25.0C
R1	2'-6" CONCRETE CURB & GUTTER
R2	1'-6" CONCRETE CURB & GUTTER
R3	5' MONOLITHIC CONCRETE ISLAND (KEYED-IN)
S	4" CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V	MILLING EXISTING PAVEMENT (3')
W	WEDGING

NOTES:
1) PAVEMENT EDGE SLOPES ARE 1:1 UNLESS OTHERWISE NOTED.

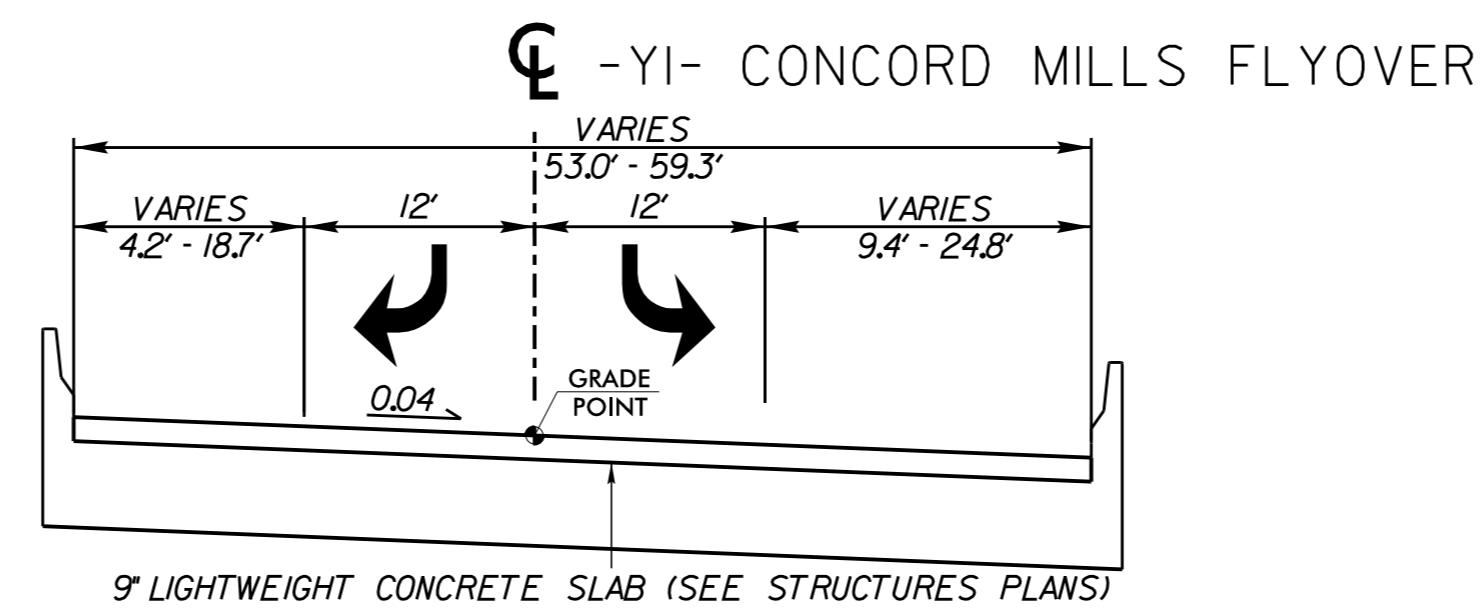
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PROJECT REFERENCE NO. U-5806	SHEET NO. 2A-5
ROADWAY DESIGN ENGINEER SEAL 031788 10/9/2017	PAVEMENT DESIGN ENGINEER SEAL 022896 10/10/2017

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



TYPICAL SECTION NO. 12
-DRW06- STA 22+14.00 TO STA 26+62.00



BRIDGE TYPICAL SECTION NO. 1
-Y1- STA 13+51.6 (BEGIN BRIDGE) TO STA 15+61.82 (END BRIDGE)

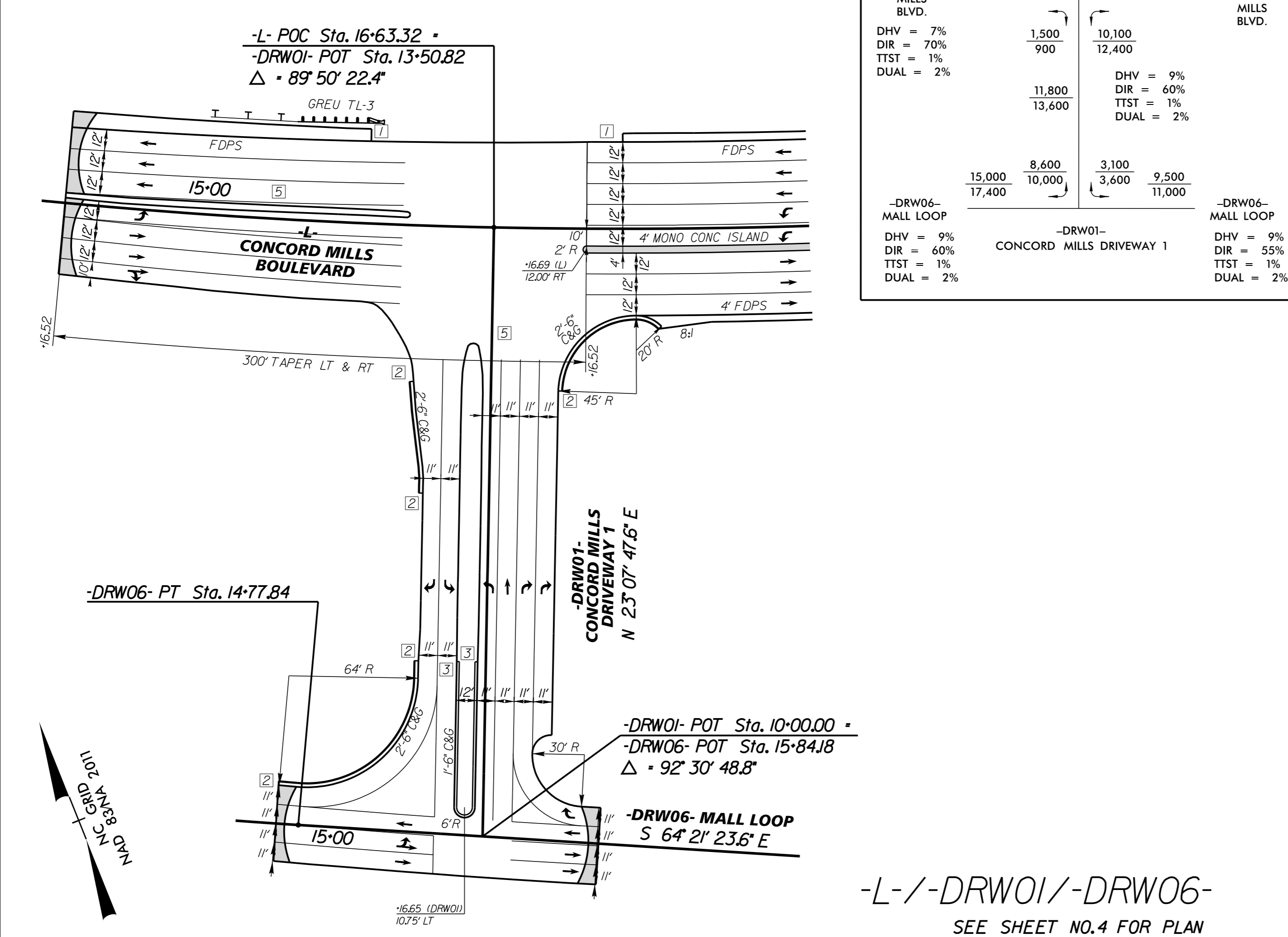
PAVEMENT SCHEDULE
(FINAL PAVEMENT DESIGN)

C1	3" S9.5B
C2	3" S9.5C
C3	VAR. DEPTH S9.5B
C4	VAR. DEPTH S9.5C
D1	2.5" I19.0B
D2	4" I19.0B
D3	4" I19.0C
D4	VAR. DEPTH I19.0B
D5	VAR. DEPTH I19.0C
E1	4" B25.0B
E2	4" B25.0C
E3	VAR. DEPTH B25.0B
E4	VAR. DEPTH B25.0C
R1	2'-6" CONCRETE CURB & GUTTER
R2	1'-6" CONCRETE CURB & GUTTER
R3	5' MONOLITHIC CONCRETE ISLAND (KEYED-IN)
S	4" CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V	MILLING EXISTING PAVEMENT (3')
W	WEDGING

NOTES:
1) PAVEMENT EDGE SLOPES ARE 1:1 UNLESS OTHERWISE NOTED.

10/9/2017 K:\CHL\PRJ\01036284_U-5806_Concord Mills Flyover\04_CADD\Set\2017-10-05 (DocuSign_Plan)\Roadway\Proj\U5806_rty_ttyp.dgn

- NOTES (APPLIES TO ALL DETAILS):
- 1 TIE TO EXIST FDPS
 - 2 TIE TO EXIST 2'-6" C&G
 - 3 TIE TO EXIST 1'-6" C&G
 - 4 TIE TO EXIST SIDEWALK
 - 5 RETAIN EXIST CONCRETE ISLAND
 - 6 TIE TO EXIST CONCRETE ISLAND
 - 7 MEDIAN ISLAND CURB RAMP (SEE SHEET 2C-1)
 - 8 PEDESTRIAN REFUGE (SEE DETAIL SHEET 2C-16)



2017 ADT		2040 ADT	
DHY = 5% DIR = 60% BEXLEY WAY TTST = 1% DUAL = 2%			
CONCORD MILLS BLVD.	35,400 41,700	300 400	1,300 2,000
CONCORD MILLS BLVD.	43,900 53,000	4,700 5,100	6,200 9,500
CONCORD MILLS BLVD.	15,000 17,400	8,600 10,000	3,100 3,600
CONCORD MILLS BLVD.	11,800 13,600	1,500 900	10,100 12,400
CONCORD MILLS BLVD.	11,800 13,600	1,500 900	10,100 12,400
CONCORD MILLS BLVD.	11,800 13,600	1,500 900	10,100 12,400
CONCORD MILLS BLVD.	11,800 13,600	1,500 900	10,100 12,400
CONCORD MILLS BLVD.	11,800 13,600	1,500 900	10,100 12,400
CONCORD MILLS BLVD.	11,800 13,600	1,500 900	10,100 12,400

2017 ADT		2040 ADT	
DHY = 8% DIR = 60% TTST = 1% DUAL = 2%			
CONCORD MILLS BLVD.	43,900 53,000	4,700 5,100	6,200 9,500
CONCORD MILLS BLVD.	43,900 53,000	4,700 5,100	6,200 9,500
CONCORD MILLS BLVD.	43,900 53,000	4,700 5,100	6,200 9,500
CONCORD MILLS BLVD.	43,900 53,000	4,700 5,100	6,200 9,500
CONCORD MILLS BLVD.	43,900 53,000	4,700 5,100	6,200 9,500
CONCORD MILLS BLVD.	43,900 53,000	4,700 5,100	6,200 9,500
CONCORD MILLS BLVD.	43,900 53,000	4,700 5,100	6,200 9,500
CONCORD MILLS BLVD.	43,900 53,000	4,700 5,100	6,200 9,500
CONCORD MILLS BLVD.	43,900 53,000	4,700 5,100	6,200 9,500

Kimley»Horn

200 SOUTH TRYON, SUITE 200
 CHARLOTTE, N.C. 28202

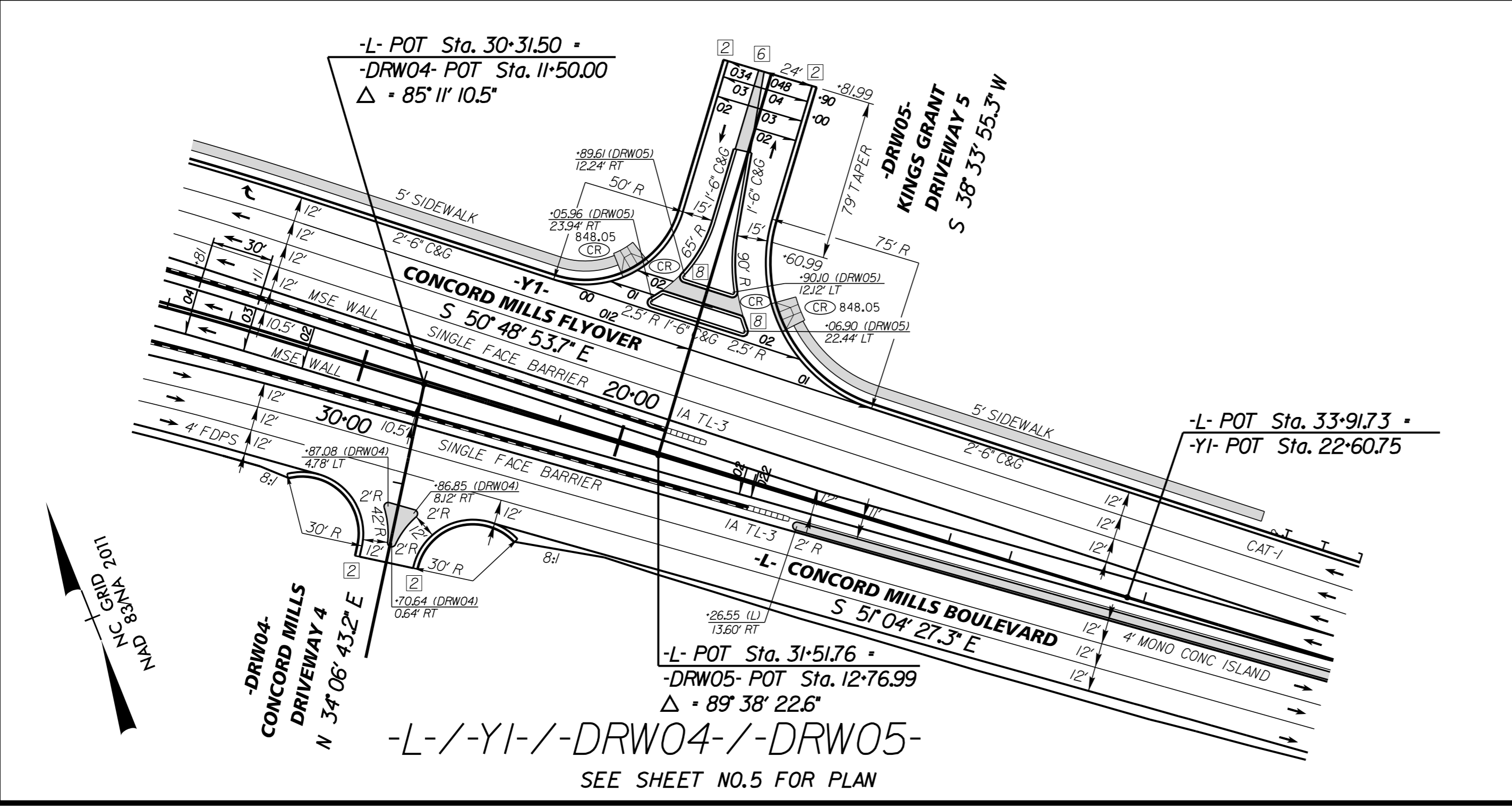
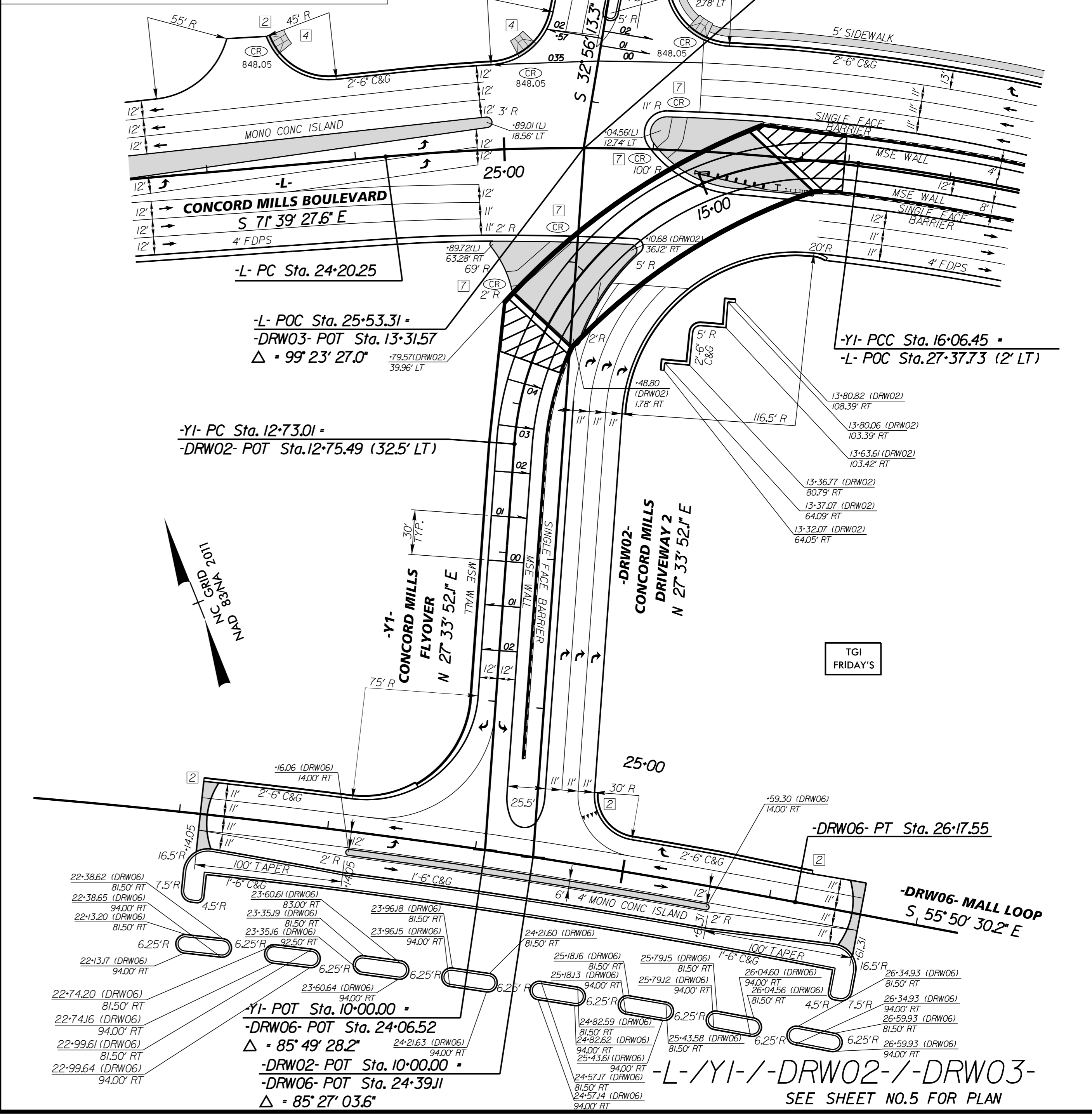
PROJECT REFERENCE NO. U-5806
 SHEET NO. 2B-1

ROADWAY DESIGN ENGINEER

10/5/2017

DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED

INTERSECTION DETAILS



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10/5/2017

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 Jhowerton AT:USD-292595

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

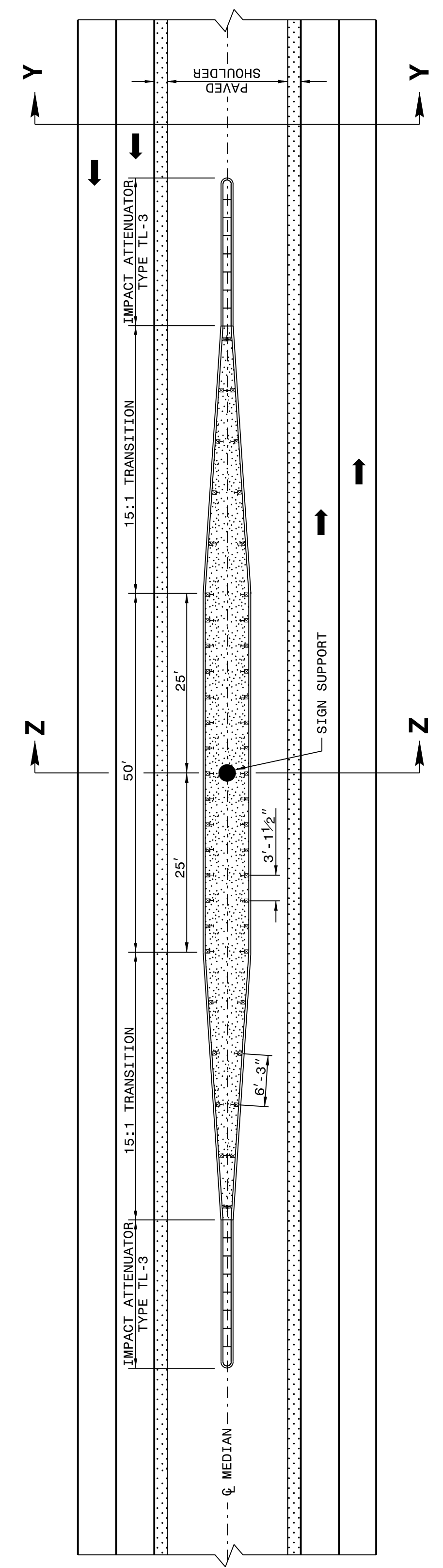
ROADWAY DETAIL DRAWING FOR
GUARDRAIL PLACEMENT

SHEET 2 OF 11
862D01

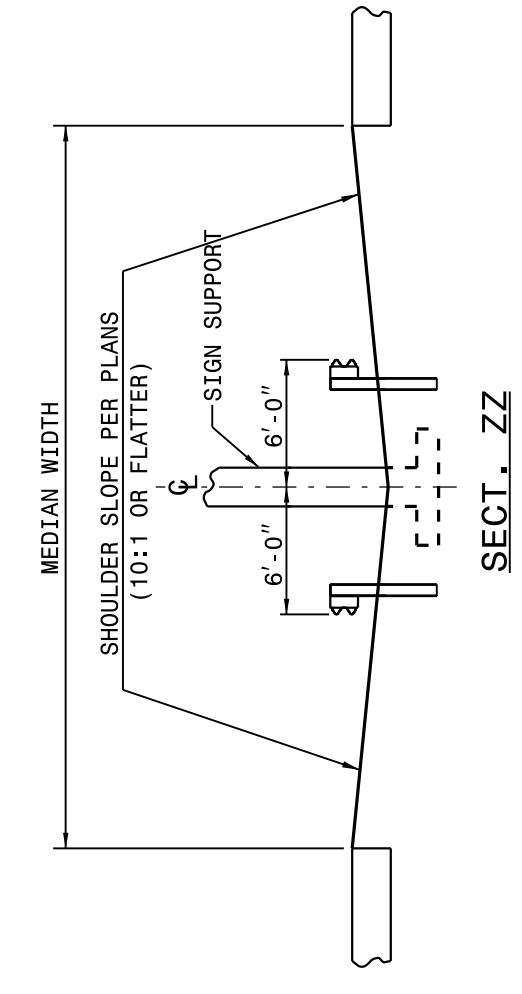
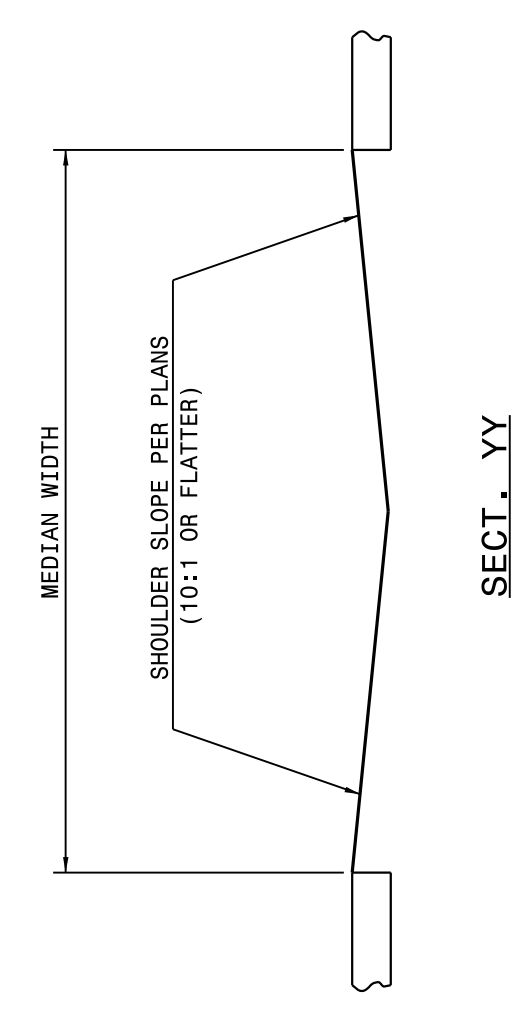
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ROADWAY DETAIL DRAWING FOR
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SHEET 2 OF 11
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NOTE SPECIAL LAYER OF PAVEMENT
 USE 3'-1 1/2" POST SPACING ON THE 50' OF GUARDRAIL PARALLEL TO LANES 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).

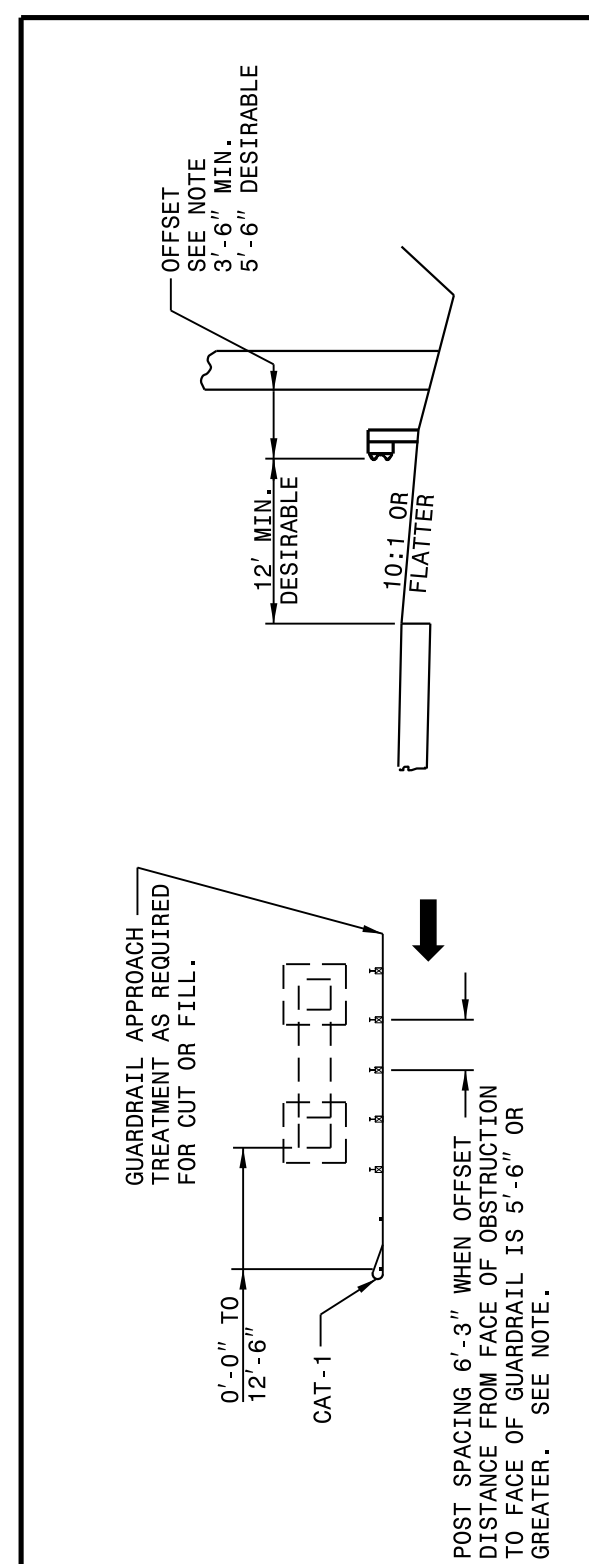
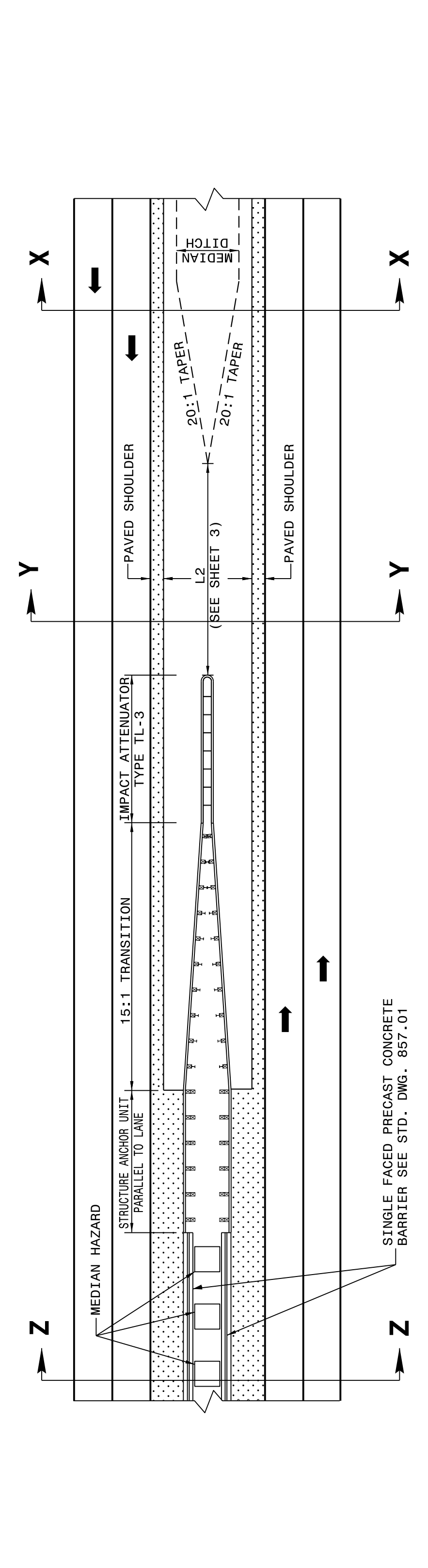


DETAIL OF GUARDRAIL AT MEDIAN SIGN SUPPORT

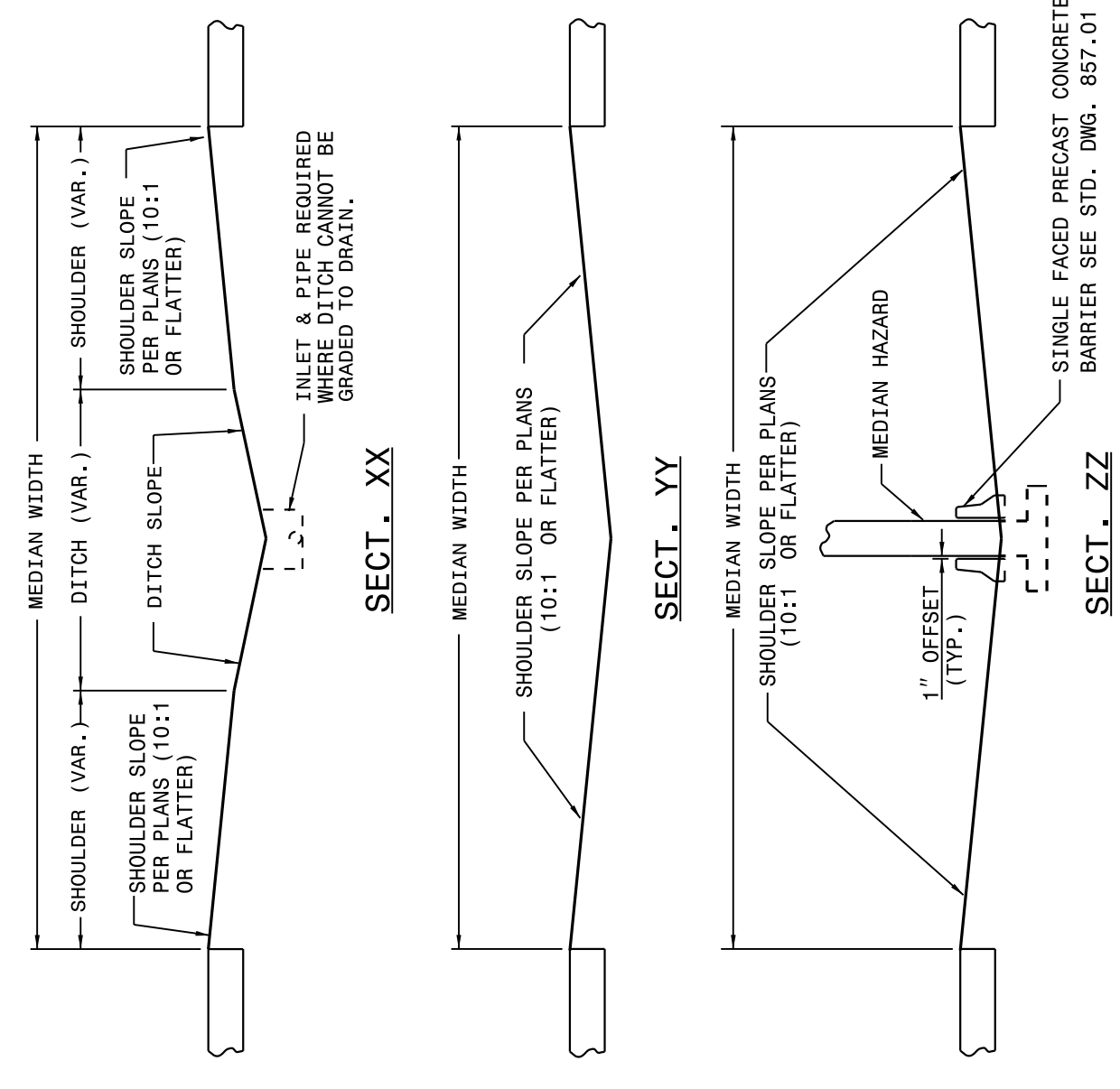
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ROADWAY DETAIL DRAWING FOR
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NOTE: WHEN OFFSET DISTANCE FROM FACE OF OBSTRUCTION TO FACE OF GUARDRAIL IS BETWEEN 3'-6" AND 5'-6", BEGIN 3'-1 1/2" POST SPACING AT POINT 26' BEFORE REACHING THE OBSTRUCTION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



DETAIL OF MEDIAN TREATMENT AT UNDERPASS

ROADWAY DETAIL DRAWING FOR
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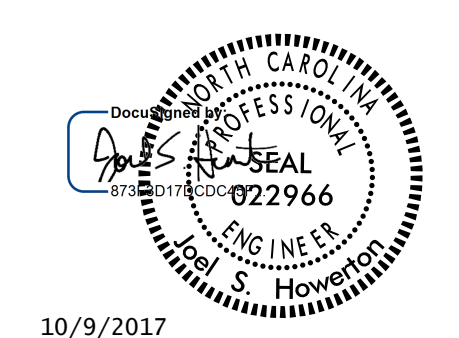
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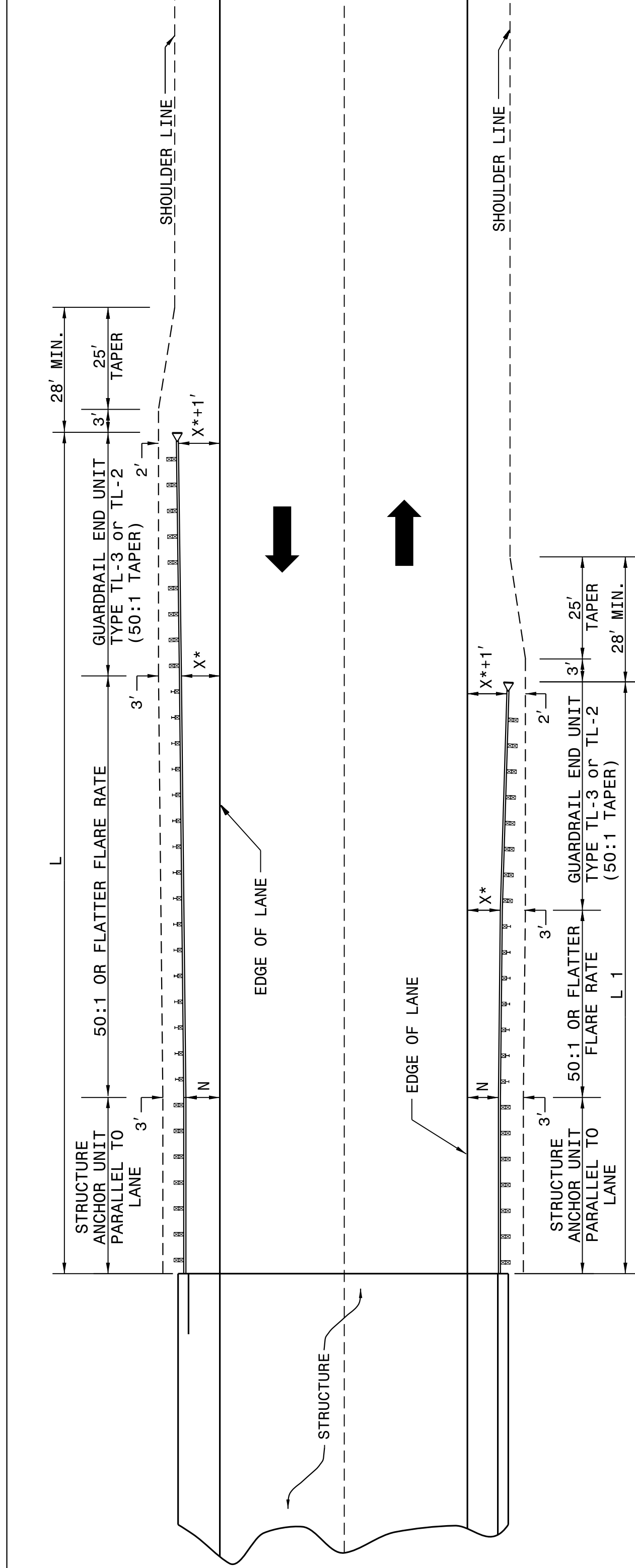
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ROADWAY DETAIL DRAWING FOR
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ROADWAY DETAIL DRAWING FOR
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**GUARDRAIL INSTALLATION AT BRIDGE APPROACHES
 FOR TWO-LANE, TWO-WAY TRAFFIC**

DESIGN SPEED (MPH)	"L" APPROACH LENGTH (FT.)		"L" TRAILING LENGTH (FT.)	
	DESIGN YEAR ADT OVER 2000	CURRENT YEAR ADT 400-1000	DESIGN YEAR ADT OVER 2000	CURRENT YEAR ADT 400-1000
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'
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

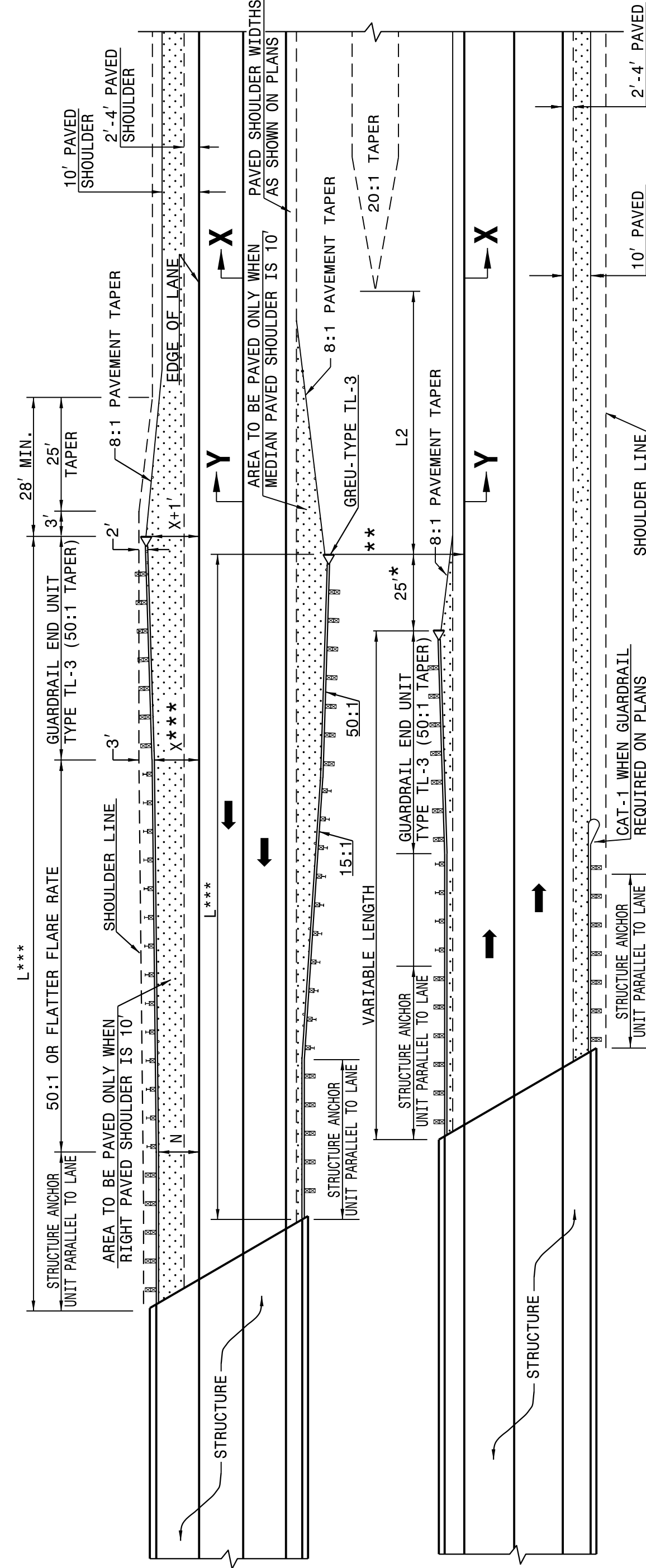
FOR POSTED SPEEDS ≥ 45mph USE GREU TYPE TL-3
 FOR POSTED SPEEDS < 45mph USE GREU TYPE TL-2

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

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ROADWAY DETAIL DRAWING FOR
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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.

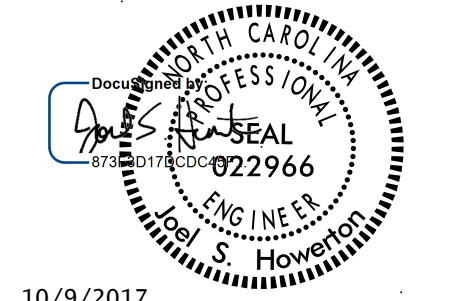
*** BASED ON "X" OF 12'
 USE FLARE RATE AS THE CONTROL IF THE "X" DISTANCE IS NOT OBTAINED. ("X" IS BASED ON SHOULDER WIDTHS IN THE HIGHWAY DESIGN BRANCH MANUAL, PART 1, 1-4B, F1A).
 "N" = DISTANCE FROM EDGE OF LANE TO FACE OF GUARDRAIL WHERE GUARDRAIL IS PARALLEL TO LANE.
 THE DESIGN LAYOUT FOR LENGTHS 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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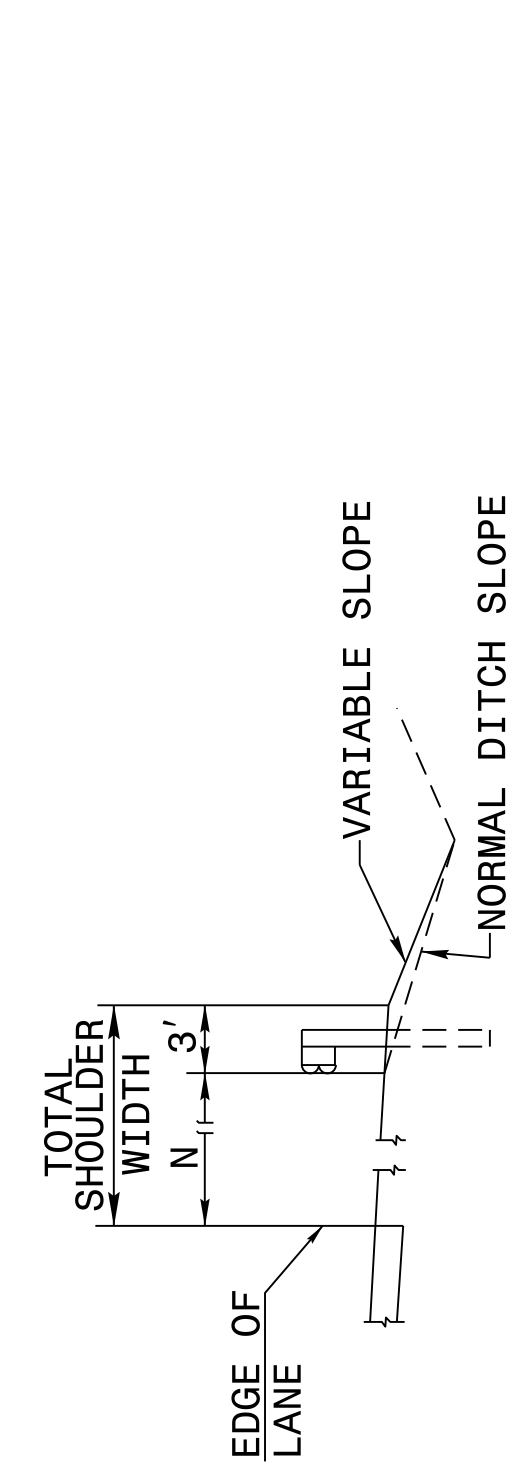


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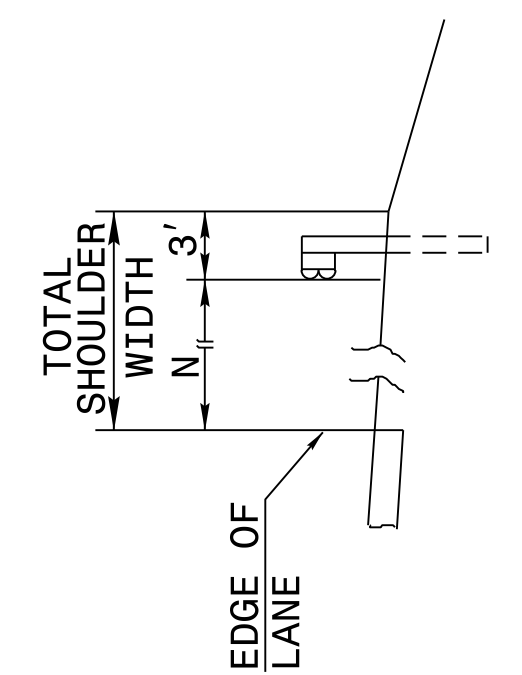
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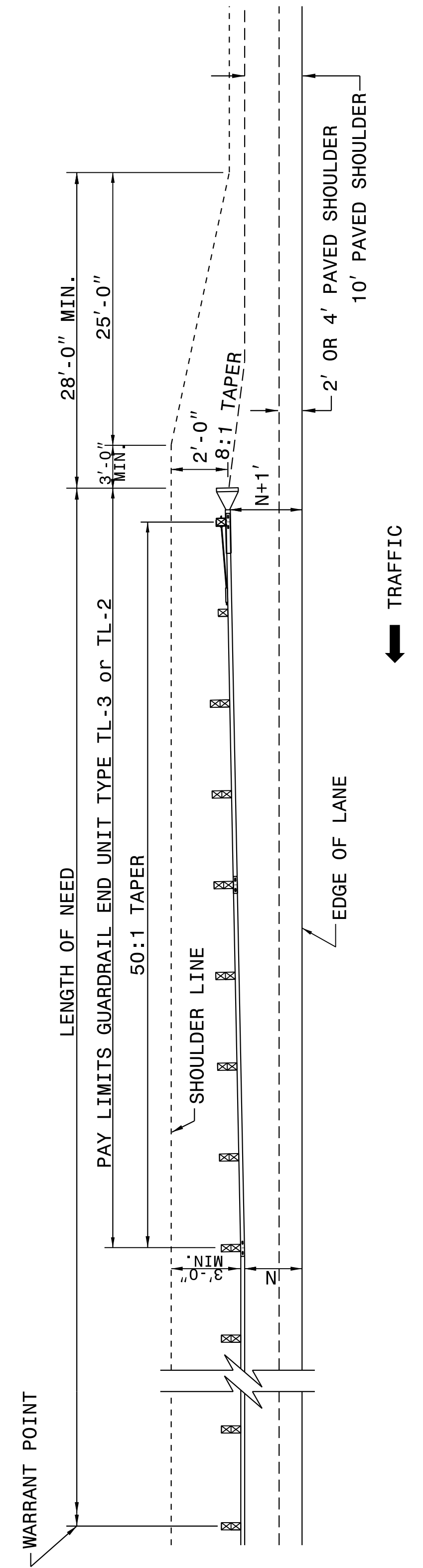


CUT SECTION



FILL SECTION

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

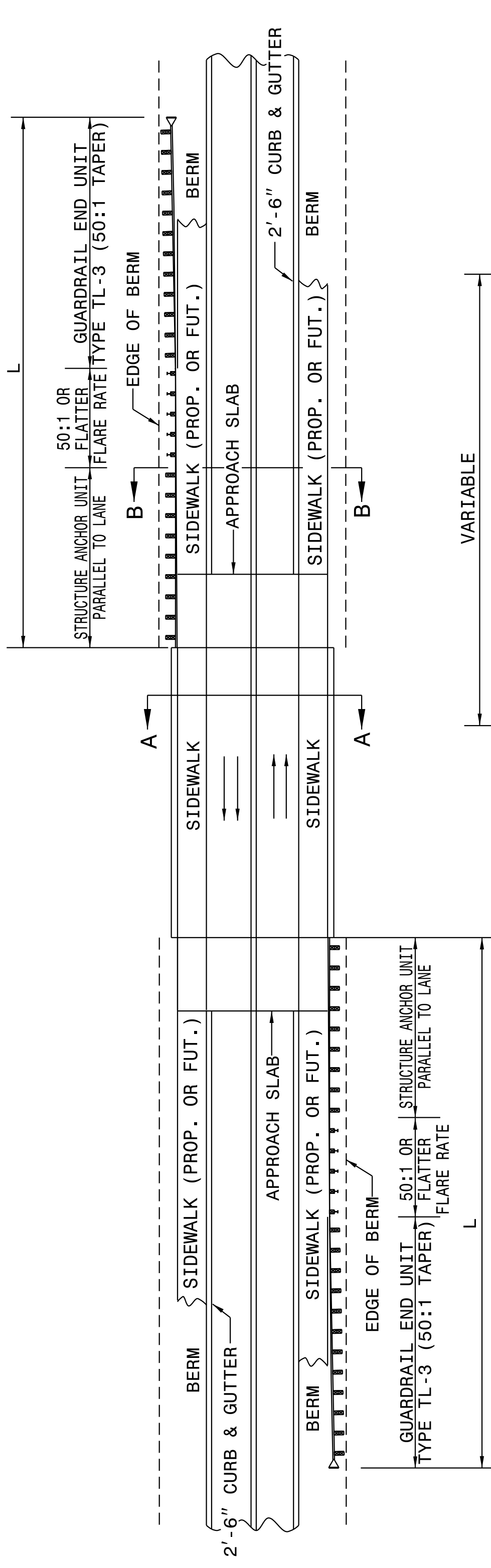


FOR POSTED SPEEDS ≥ 45mph USE GREU TYPE TL-3
 FOR POSTED SPEEDS < 45mph USE GREU TYPE TL-2

ROADWAY DETAIL DRAWING FOR
GUARDRAIL PLACEMENT

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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

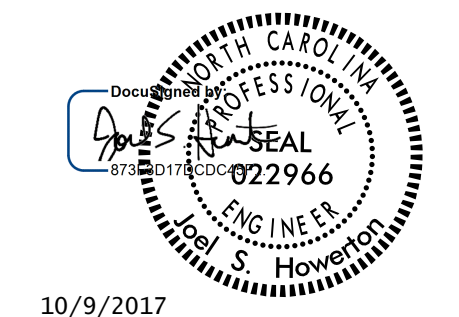
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STANDARD GUARDRAIL PLACEMENT AT BRIDGES WITH 2'-6" CONCRETE CURB AND GUTTER

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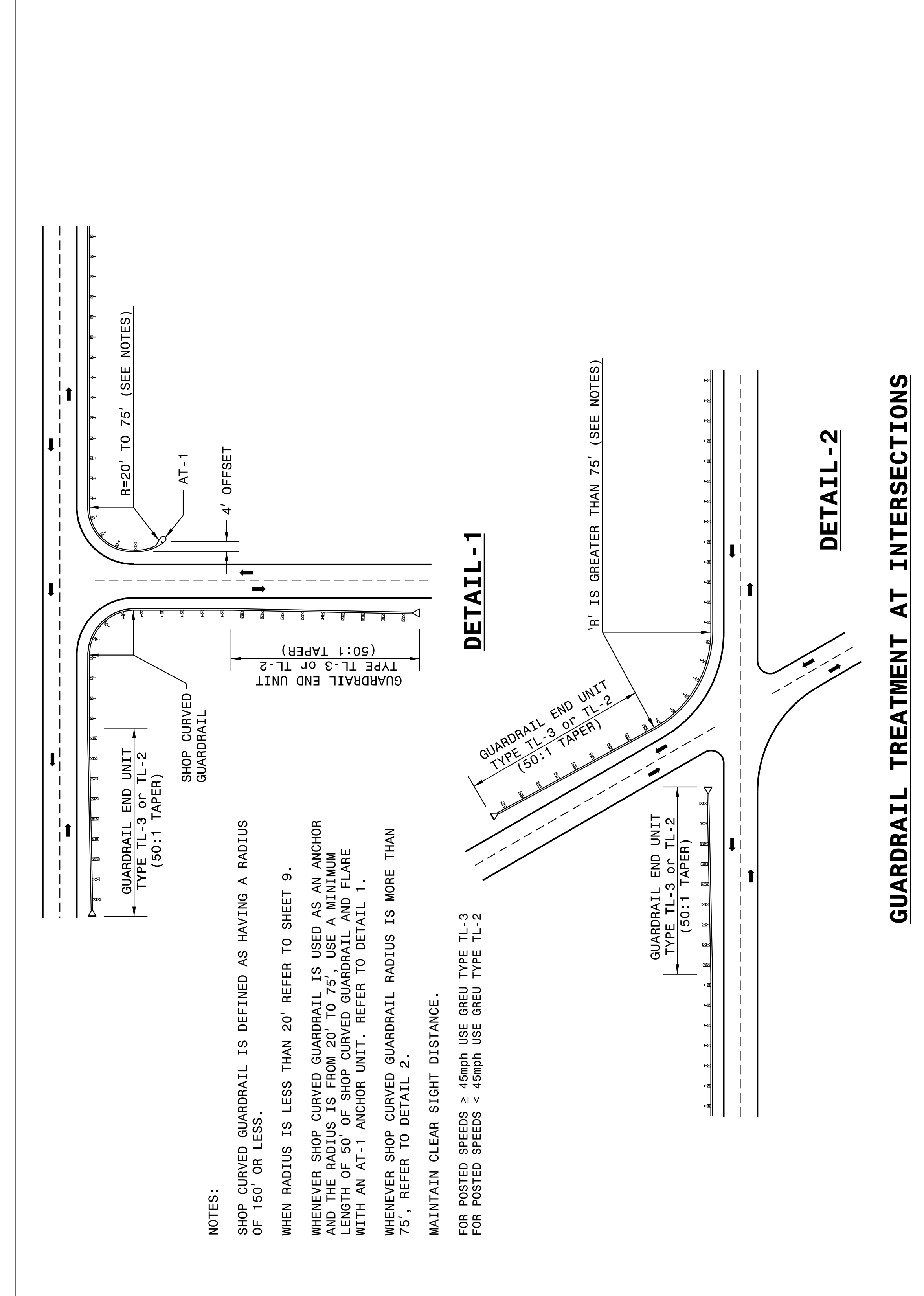
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ROADWAY DETAIL DRAWING FOR **GUARDRAIL PLACEMENT**

SHEET 8 OF 11 **862D01**



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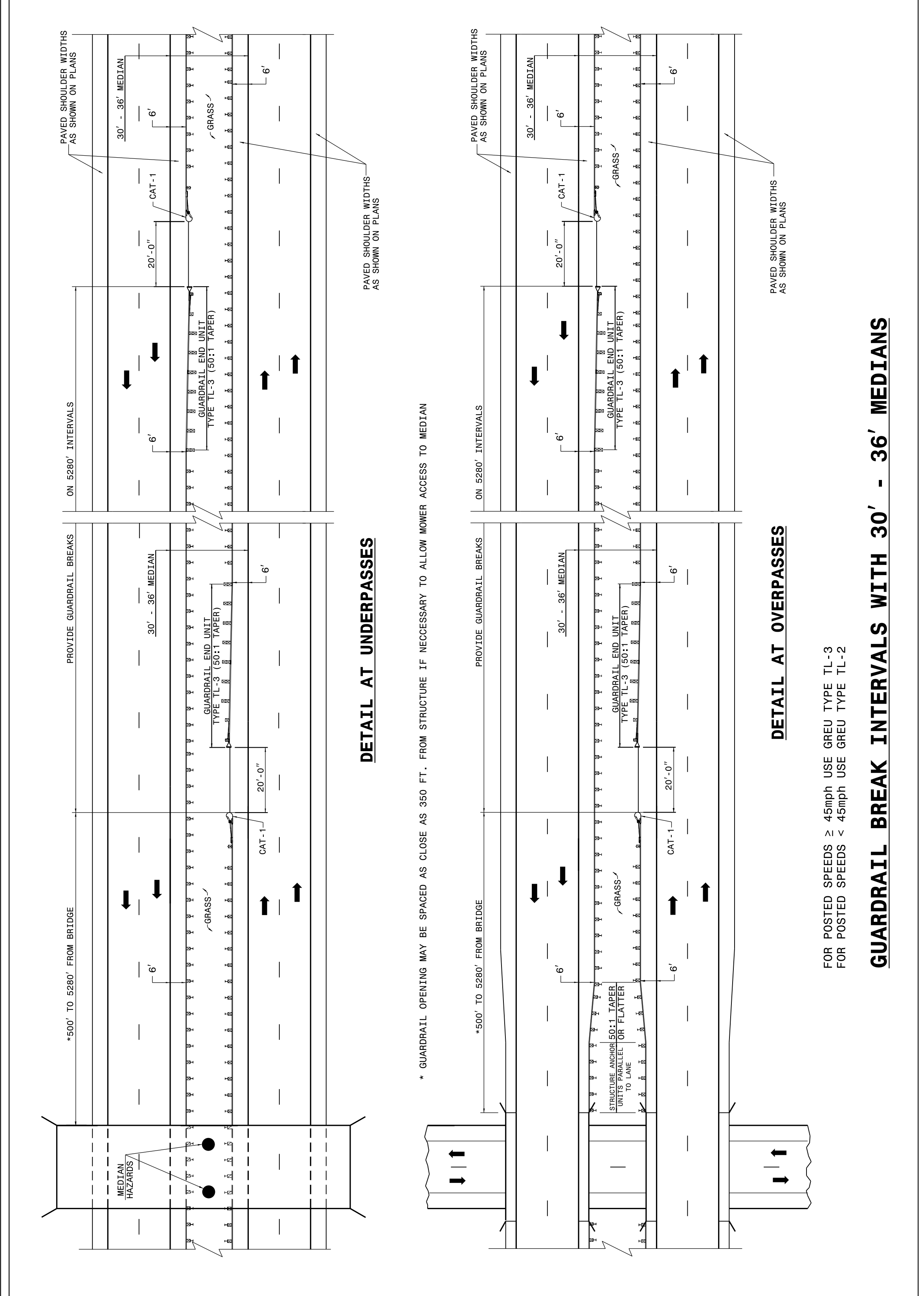
ROADWAY DETAIL DRAWING FOR **GUARDRAIL PLACEMENT**

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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**

GUARDRAIL BREAK INTERVALS WITH 30' - 36' MEDIANS

FOR POSTED SPEEDS \geq 45mph USE GREU TYPE TL-3
 FOR POSTED SPEEDS $<$ 45mph USE GREU TYPE TL-2

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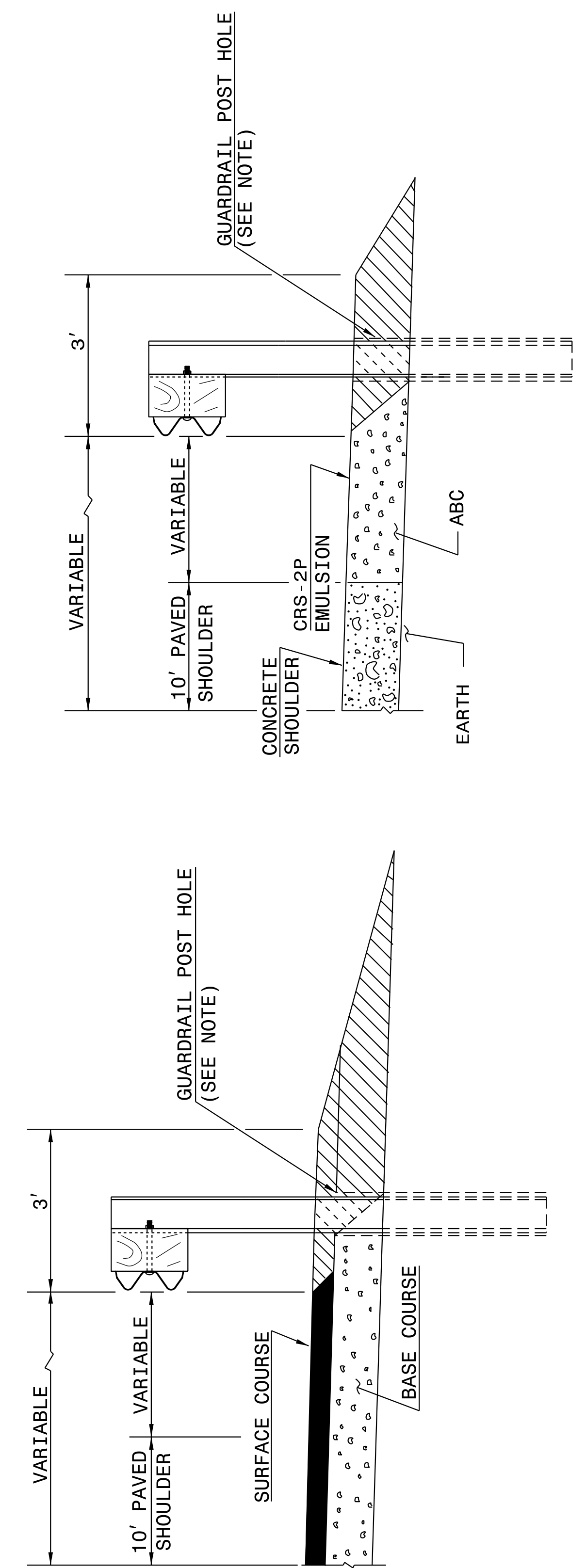
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ENGLISH DETAIL DRAWING FOR
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FLEXIBLE PAVED SHOULDER

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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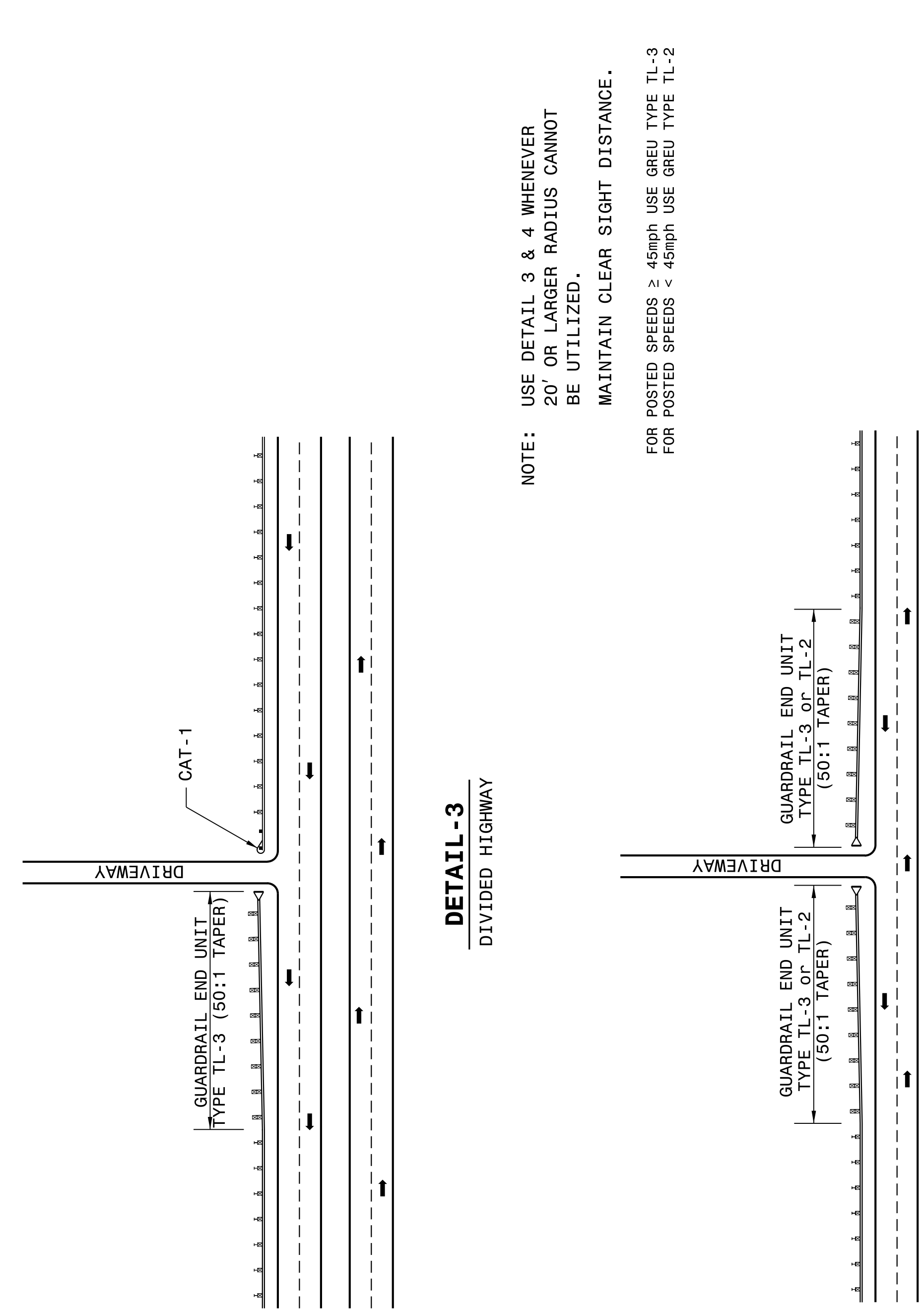
ENGLISH DETAIL DRAWING FOR
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ROADWAY DETAIL DRAWING FOR
GUARDRAIL PLACEMENT

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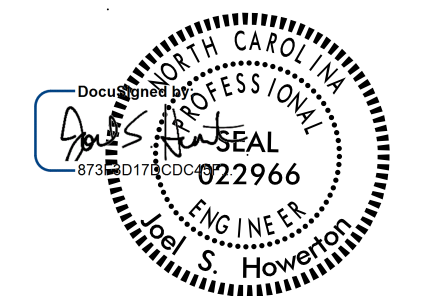
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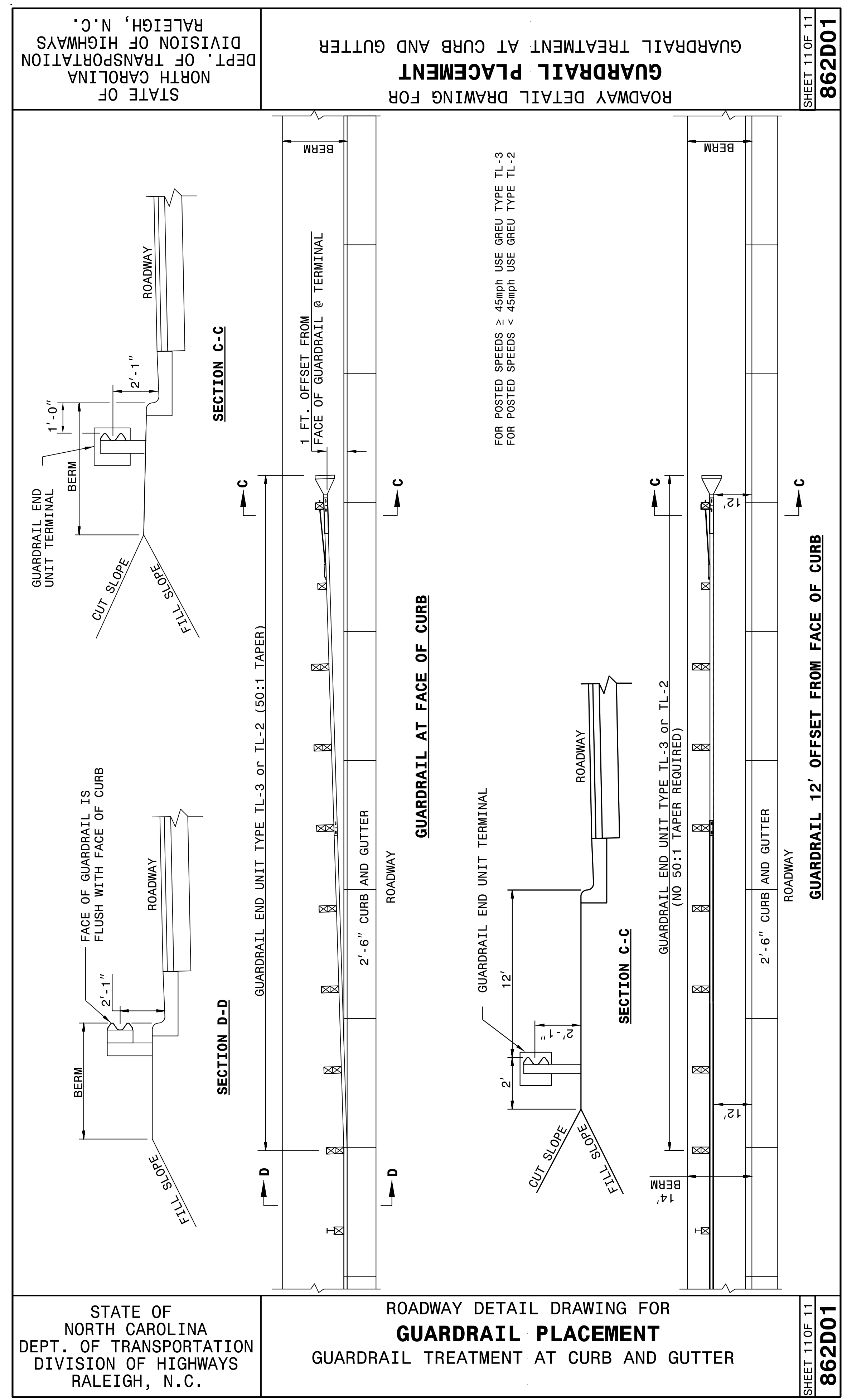
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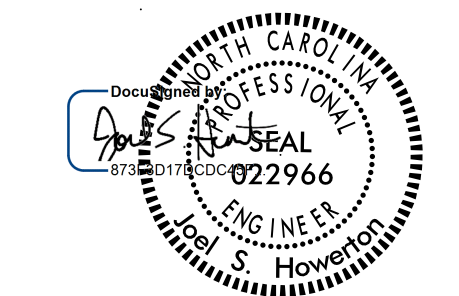
ROADWAY DETAIL DRAWING FOR
GUARDRAIL PLACEMENT
GUARDRAIL TREATMENT AT CURB AND GUTTER

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ROADWAY DETAIL DRAWING FOR
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GUARDRAIL TREATMENT AT CURB AND GUTTER

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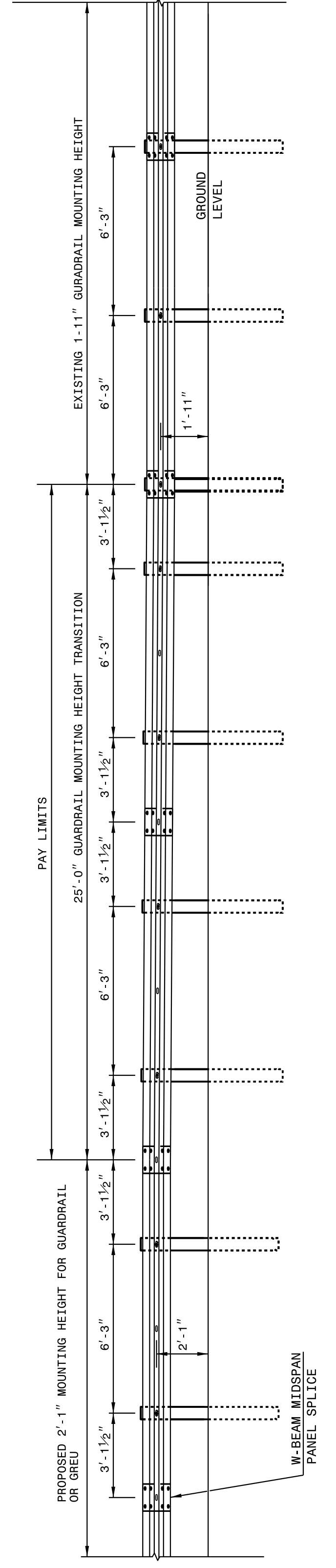
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ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

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NOTE: IF EXISTING GUARDRAIL IS LOWER THAN 1'-11", USE AN ADDITIONAL 12'-6" LONG SECTION OF GUARDRAIL, FOR EVERY 1" OF HEIGHT DIFFERENCE, TO TRANSITION FROM EXISTING GUARDRAIL TO PROPOSED 2'-1" GUARDRAIL.



ELEVATION VIEW

TRANSITION FROM OR 1'-11" TO 2'-1" W-BEAM GUARDRAIL MOUNTING HEIGHT

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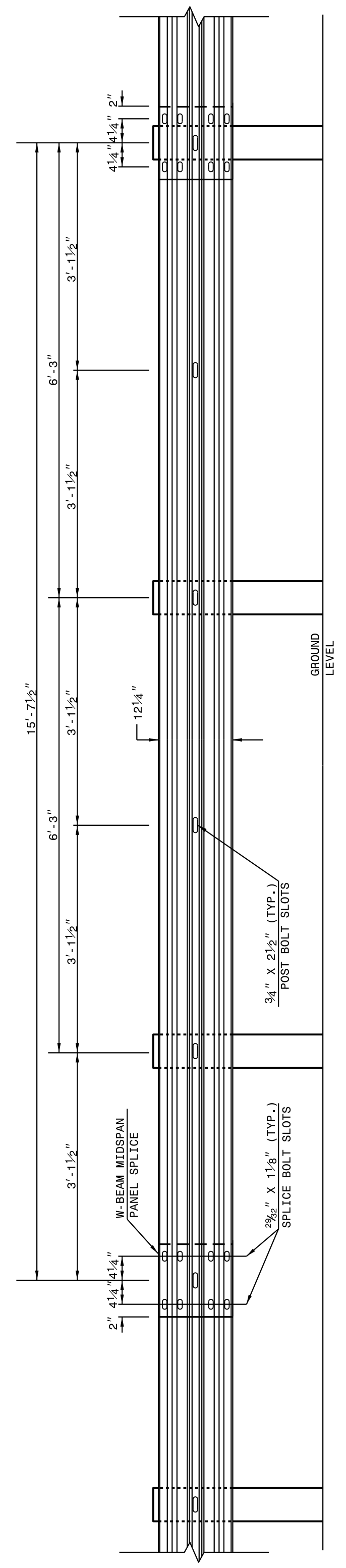
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GUARDRAIL INSTALLATION

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ROADWAY DETAIL DRAWING FOR
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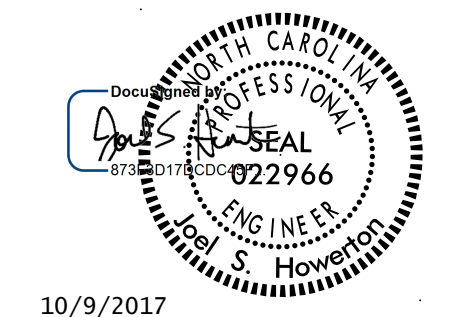
15'-7 1/2" W-BEAM GUARDRAIL PANEL

NOTE: USE 5-SPACE 15'-7 1/2" W-BEAM GUARDRAIL PANEL AT THE DOWNSTREAM END OF AN END UNIT OR EXISTING GUARDRAIL THAT DOES NOT OFFSET THE W-BEAM PANEL SPLICE TO MIDSPAN

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ROADWAY DETAIL DRAWING FOR
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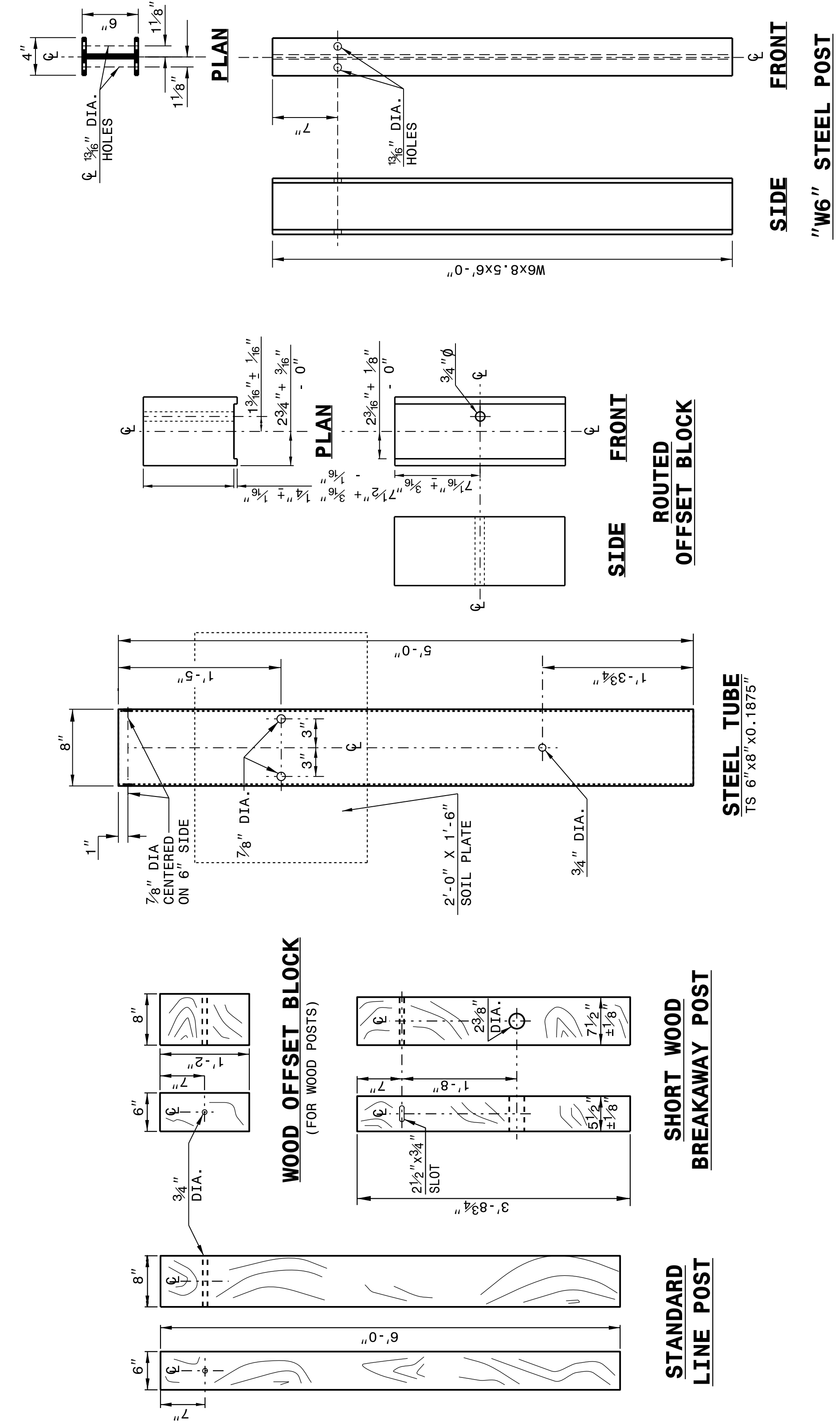
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SYSTEM PARTS

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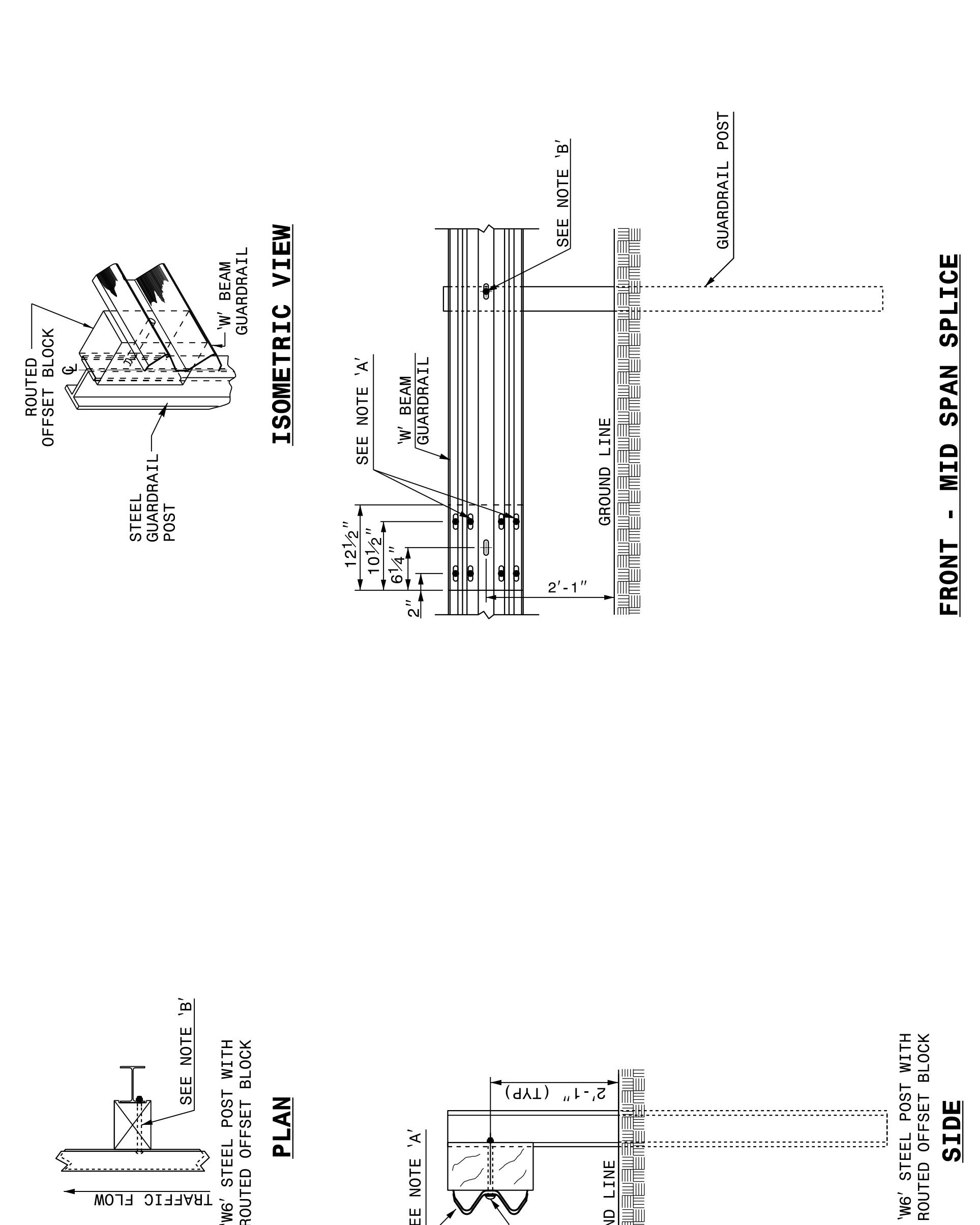
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ROADWAY DETAIL DRAWING FOR
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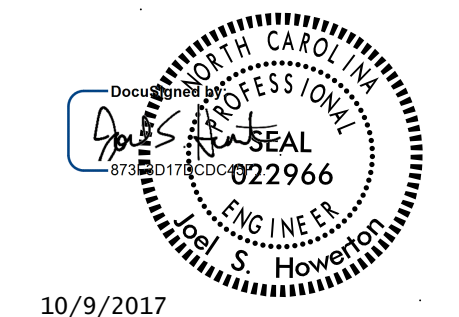
- NOTES:**
 A - 5/8" DIA. BUTTON HEAD SPLICE BOLT 1 1/4" LONG (8 REG. PER SPLICE JOINT).
 B - 5/8" DIA. BUTTON HEAD BOLT 7 1/2" / 9" LONG WITH NUT FOR BOLTING 6" / 8" ROUTED OFFSET BLOCK TO STEEL POSTS.
 C - FIELD PUNCHING OF HOLES INTO GUARDRAIL AS DIRECTED BY THE ENGINEER.

TYPICAL GUARDRAIL AND GUARDRAIL POST ALTERNATIVES

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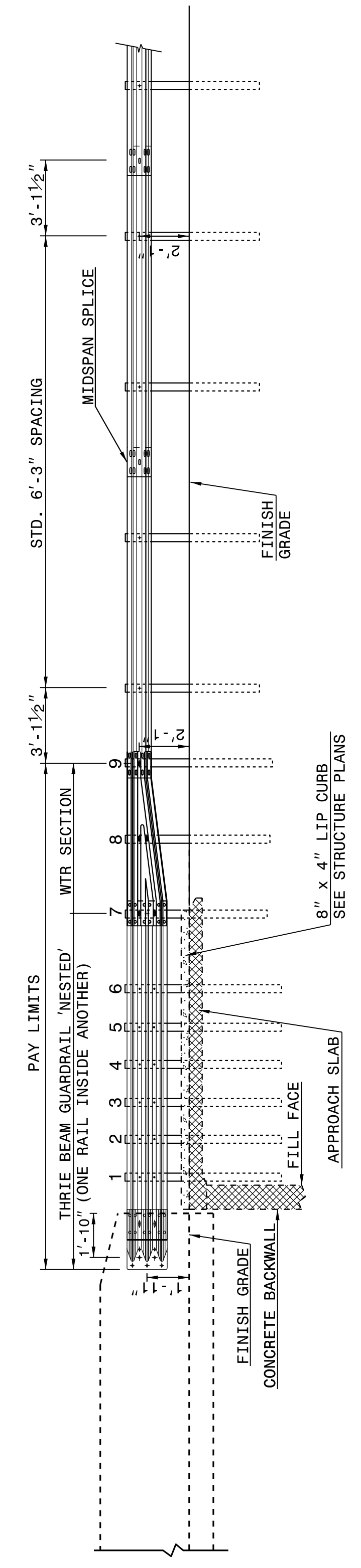
ROADWAY DETAIL DRAWING FOR
STRUCTURE ANCHOR UNITS
 GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO
 RAIL ON BRIDGE - SUB REGIONAL TIER

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862D03

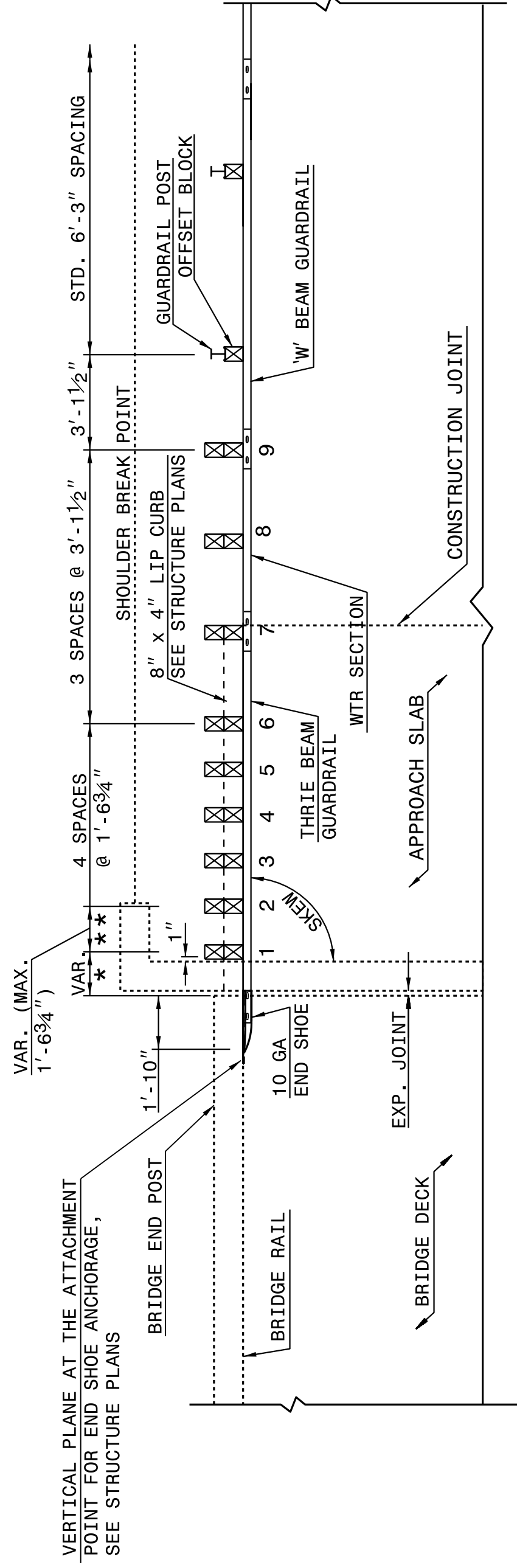
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ROADWAY DETAIL DRAWING FOR
STRUCTURE ANCHOR UNITS
 GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO
 RAIL ON BRIDGE - SUB REGIONAL TIER

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**

PLAN VIEW

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

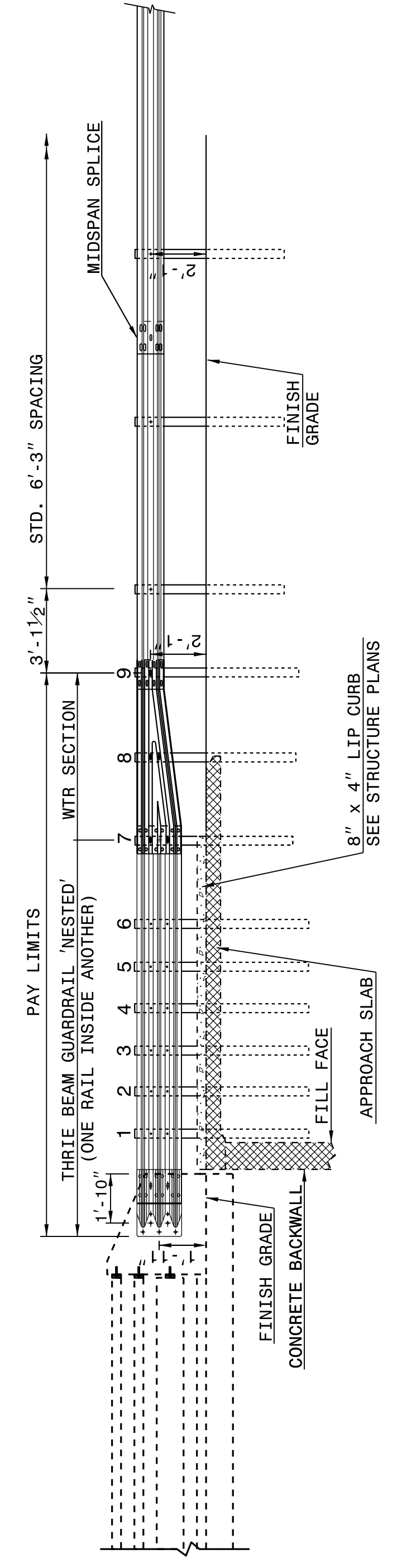
ROADWAY DETAIL DRAWING FOR
STRUCTURE ANCHOR UNITS
 GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO RAIL ON BRIDGE

SHEET 1 OF 7
862D03

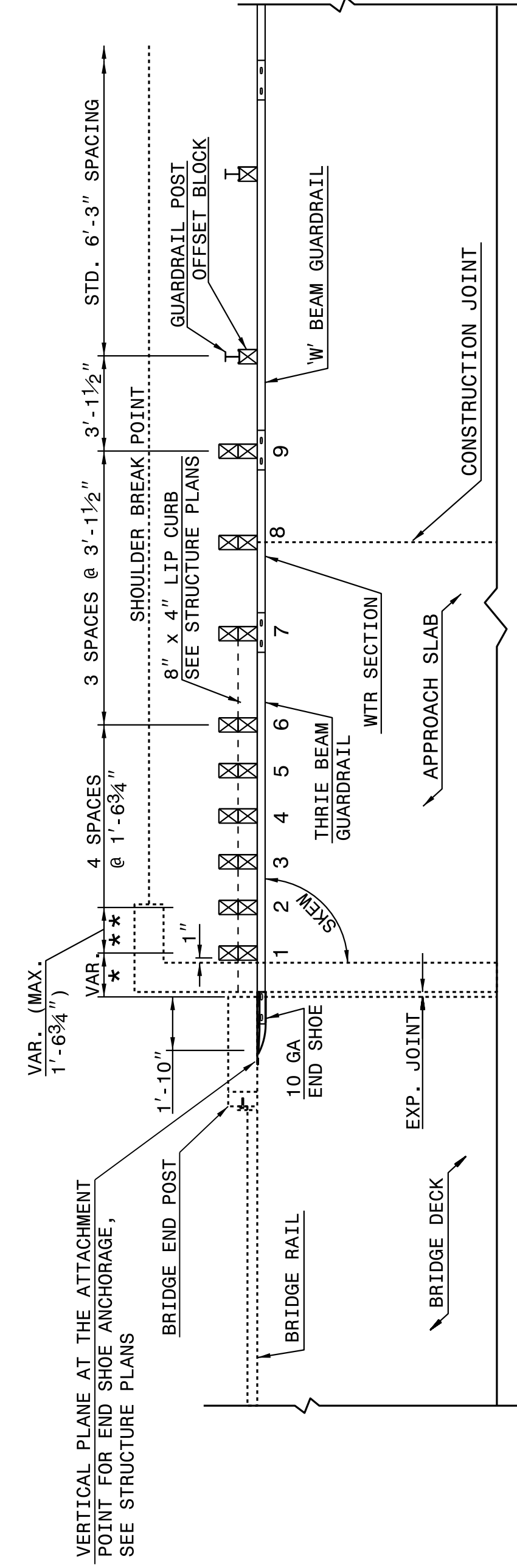
STATE OF NORTH CAROLINA
 DEPT. OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 RALEIGH, N.C.

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

SHEET 1 OF 7
862D03



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**

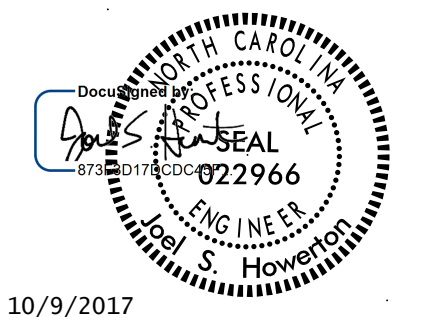
PLAN VIEW

DOCUMENT NOT CONSIDERED FINAL
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**CONTRACT STANDARDS
 AND DEVELOPMENT UNIT**
 Office 919-707-6950 FAX 919-250-4119

SEE TITLE BLOCK

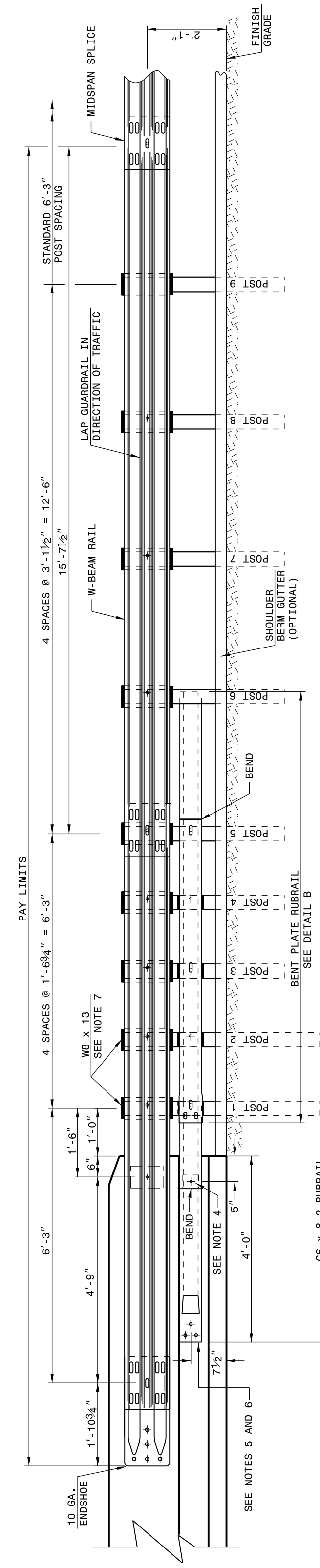
ORIGINAL BY: J HOWERTON	DATE: 06-22-12
MODIFIED BY:	DATE:
CHECKED BY:	DATE:
FILE SPEC.:	DATE:



10/9/2017

28-JUN-2017 08:36 S:\Contracts\Standard Drawings\2012 Standard Drawings\Division 8\862d01 862d03 862d03\862d03.dgn
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DIVISION OF HIGHWAYS
RALEIGH, N.C.



ELEVATION

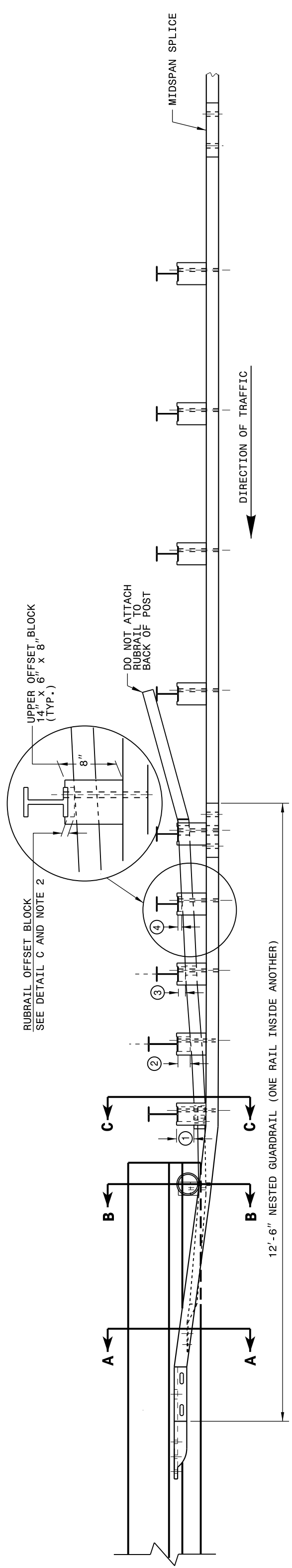
- GENERAL NOTES:**
- POSTS 1 THROUGH 5 REQUIRE AN ADDITIONAL HOLE TO ATTACH LOWER BLOCKOUTS AND/OR RUBRAIL.
 - RUBRAIL BLOCKOUTS LOCATED ON POSTS 1 THROUGH 4 ARE OFFSET DRILLED AND SECURED WITH 5/8" BUTT WASHERS. RUBRAIL BLOCKOUTS LOCATED ON POSTS 5 THROUGH 7 ARE NOT SECURED.
 - 5/8" x 1 1/4" LONG BUTT WASHERS SHALL BE USED TO SECURE RUBRAIL BLOCKOUTS TO POSTS 1 AND 3. RUBRAIL IS SECURED TO POST 5 WITH 5/8" x 1 1/4" LONG BUTT WASHERS. RUBRAIL SHALL BE CALLED OUT AS CALLED OUT ON THE STRUCTURE PLANS.
 - SEE DETAIL D FOR SLOPED RUBRAIL BLOCKOUT. BLOCKOUT IS ATTACHED TO RAIL ELEMENT ONLY. USE 3/8" x 3" LAG BOLT WITH FLAT WASHER.
 - TOE OF THE RUBRAIL OR BRIDGE RAIL.
 - ANCHOR THE RUBRAIL OR 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).
 - INSTALL THE W-BEAM END SHOE BEHIND THE NESTED W-BEAM ELEMENTS.
 - 1 1/2" DIA. HOLES SHALL BE DRILLED IN THE RUBRAIL BLOCKOUTS. ALL OTHER POSTS IN THE ANCHOR UNIT ARE W8 x 8.5.

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

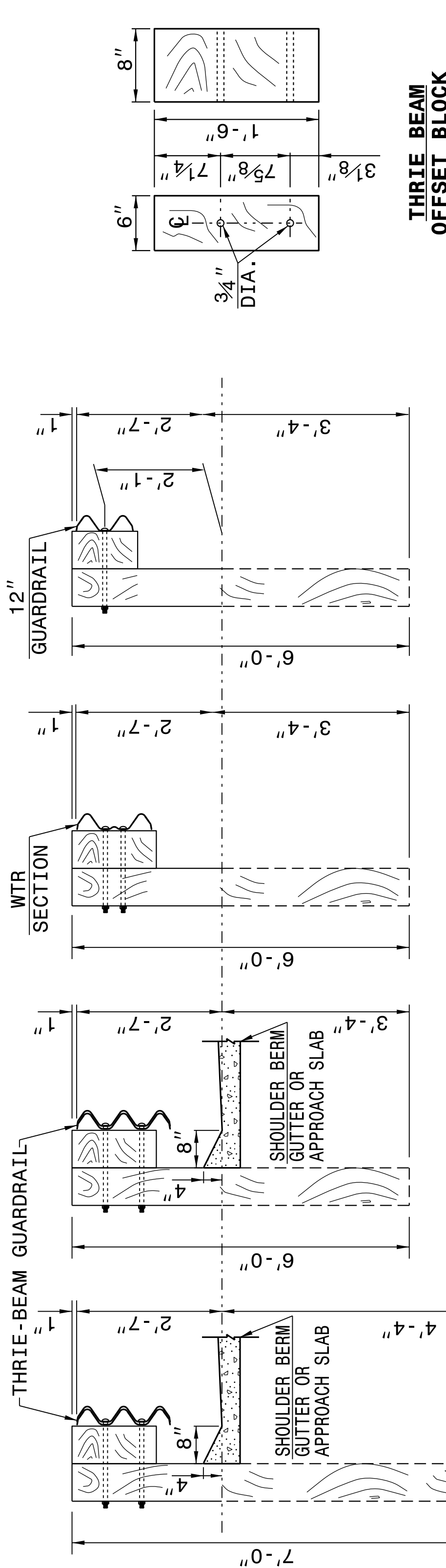
SHEET 4 OF 7
862D03

PLAN

GUARDRAIL ANCHOR UNIT TYPE B-77



STATE OF
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DIVISION OF HIGHWAYS
RALEIGH, N.C.



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

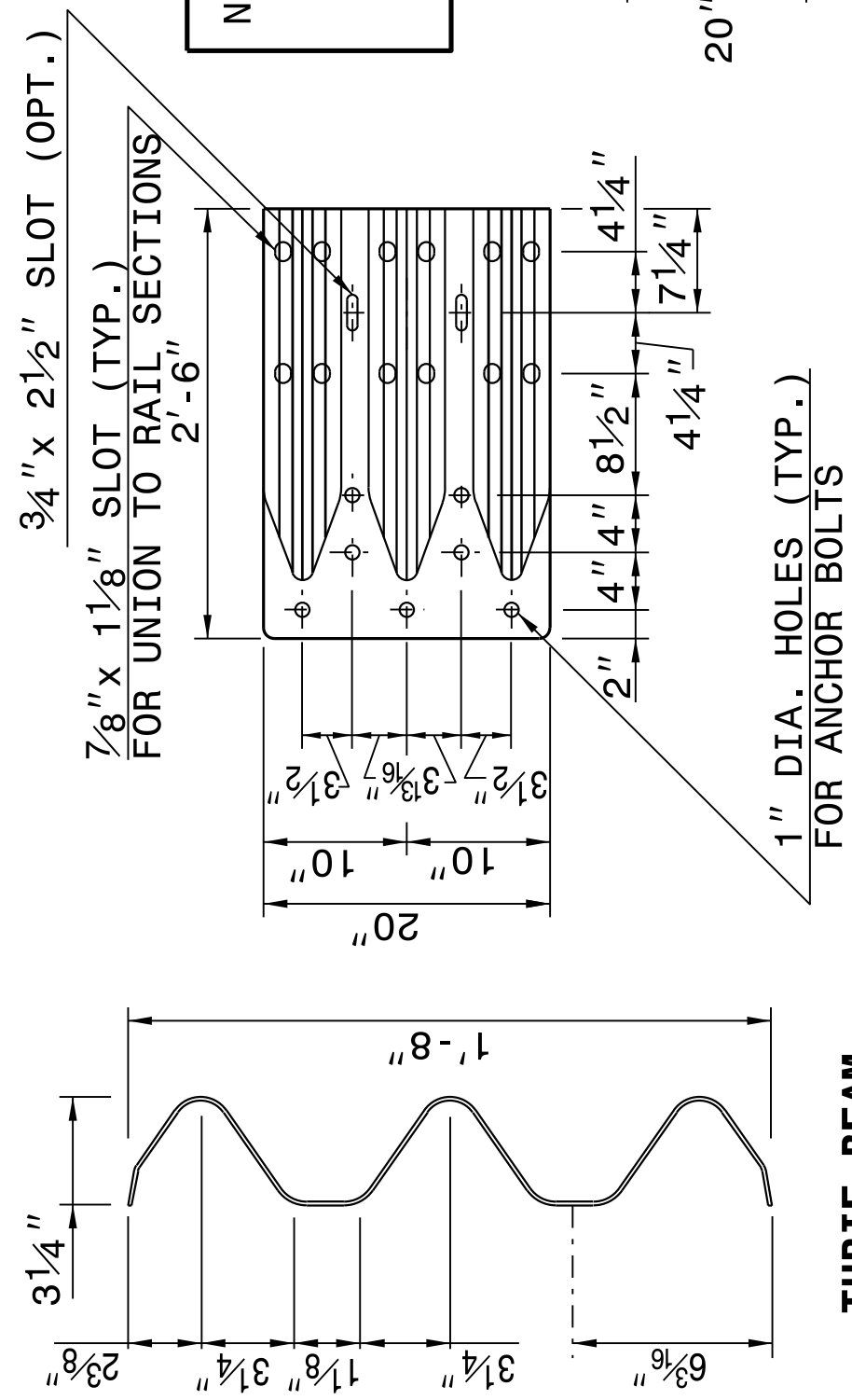
SHEET 3 OF 7
862D03

SECTION OF 'W' BEAM POST 9

SECTION OF WTR BEAM POST 8

SECTION OF THRIE BEAM POST 7

SECTION OF THRIE BEAM POSTS 1 THRU 6



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

WTR SECTION ELEVATION VIEW

END SHOE

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

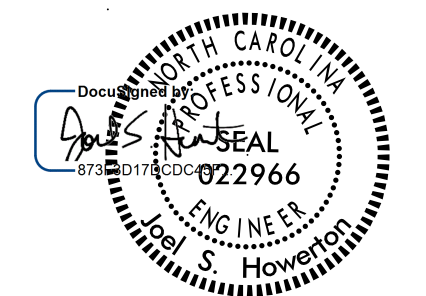
SHEET 3 OF 7
862D03

DOCUMENT NOT CONSIDERED FINAL
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**CONTRACT STANDARDS
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SEE TITLE BLOCK

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



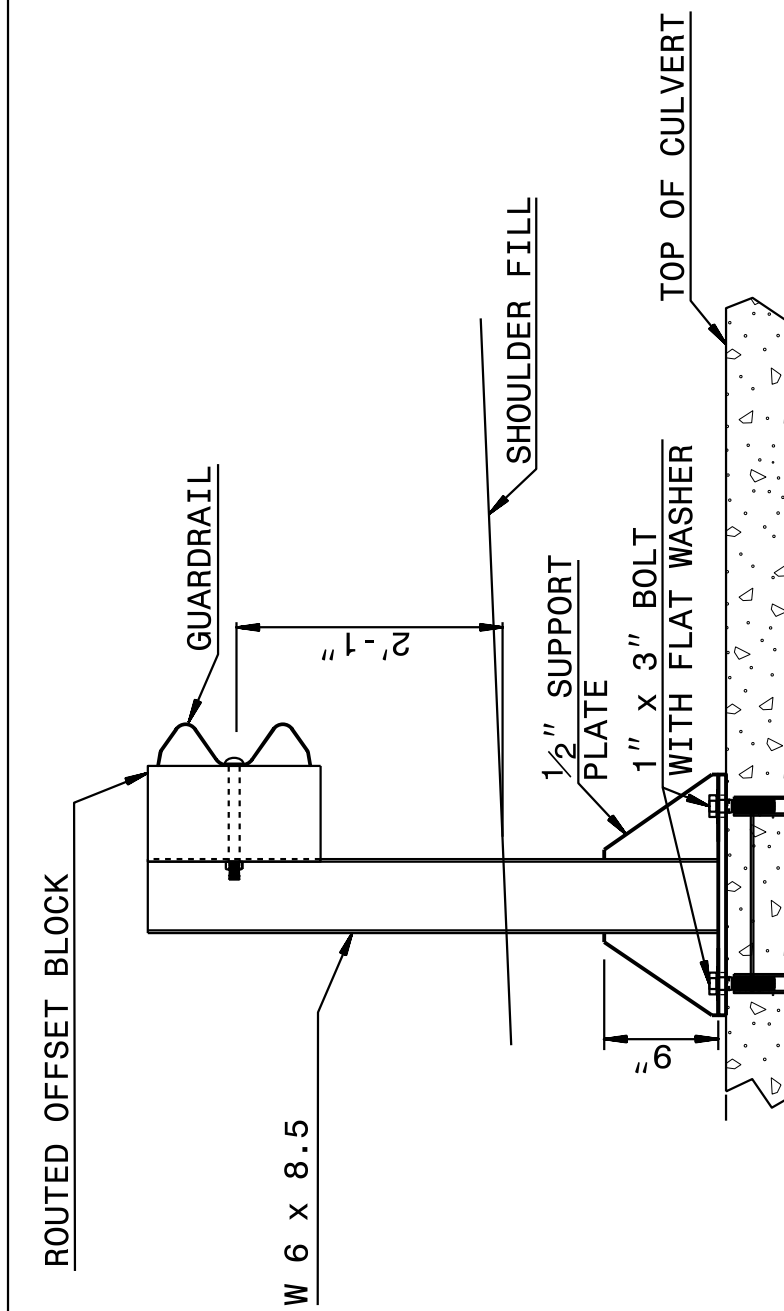
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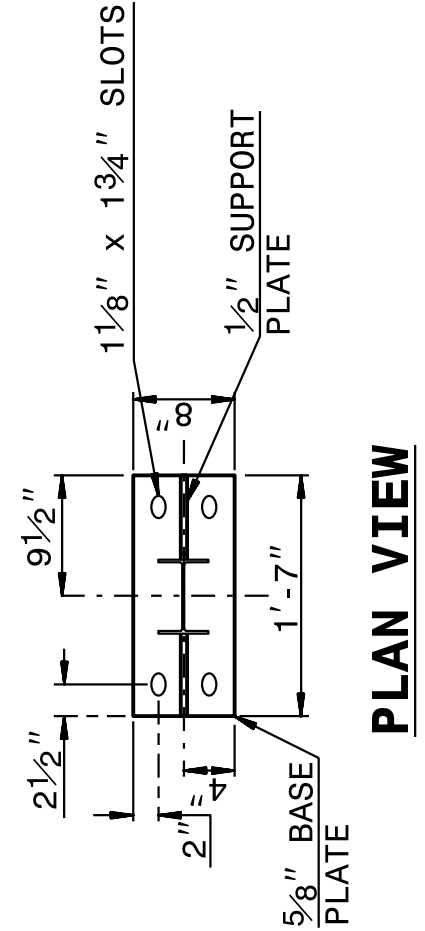
STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

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

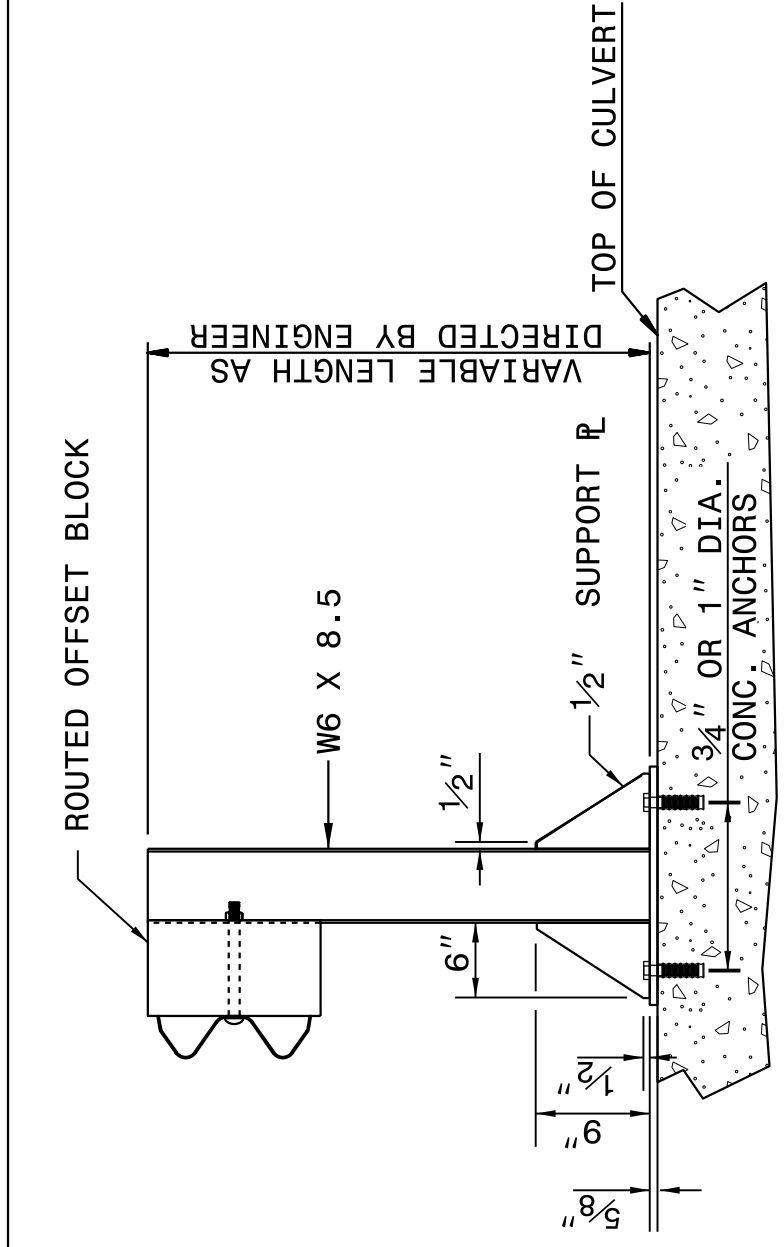
SHEET 7 OF 7
862D03



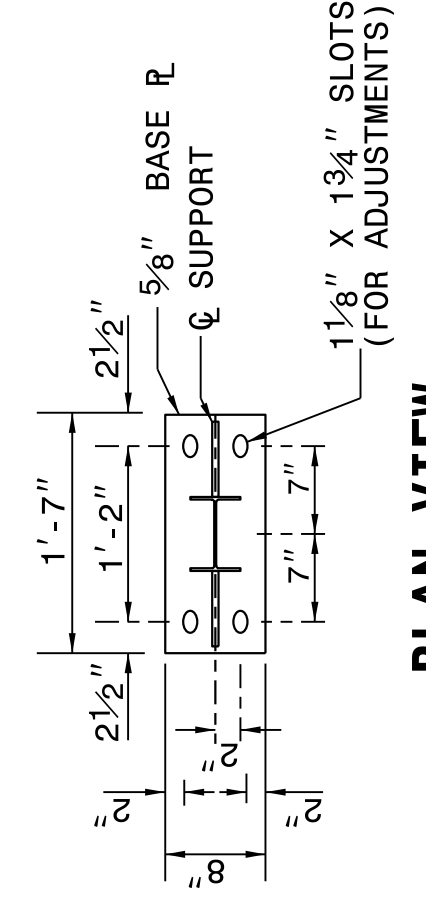
ELEVATION VIEW



PLAN VIEW



ELEVATION VIEW



PLAN VIEW

NOTES FOR:
 -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.

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RALEIGH, N.C.

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

SHEET 7 OF 7
862D03

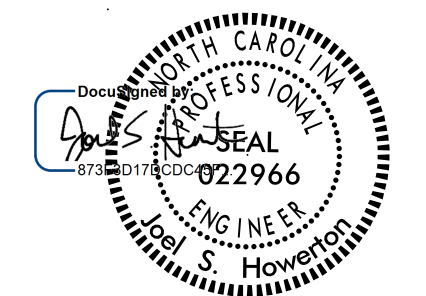
ANCHORAGE FOR GUARDRAIL POST ON BOX CULVERT

DOCUMENT NOT CONSIDERED FINAL
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**CONTRACT STANDARDS
AND DEVELOPMENT UNIT**
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SEE TITLE BLOCK

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




10/9/2017

Kimley»Horn

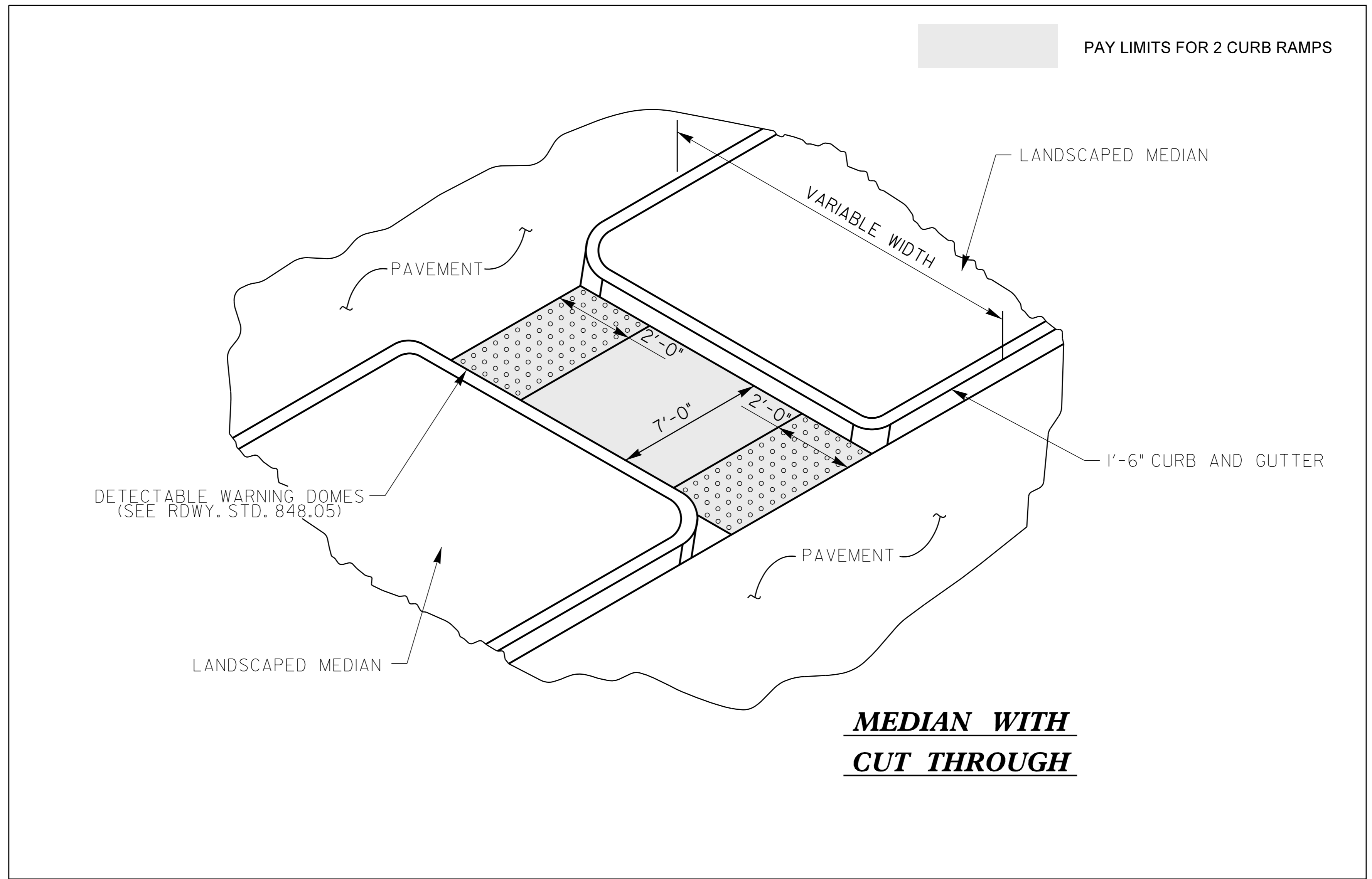
200 SOUTH TRYON, SUITE 200
CHARLOTTE, N.C. 28202

RIGHT-OF-WAY REV.

CONST. REV.

PROJECT REFERENCE NO. U-5806	SHEET NO. 2C-16
ROADWAY DESIGN ENGINEER	
	
10/5/2017	

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



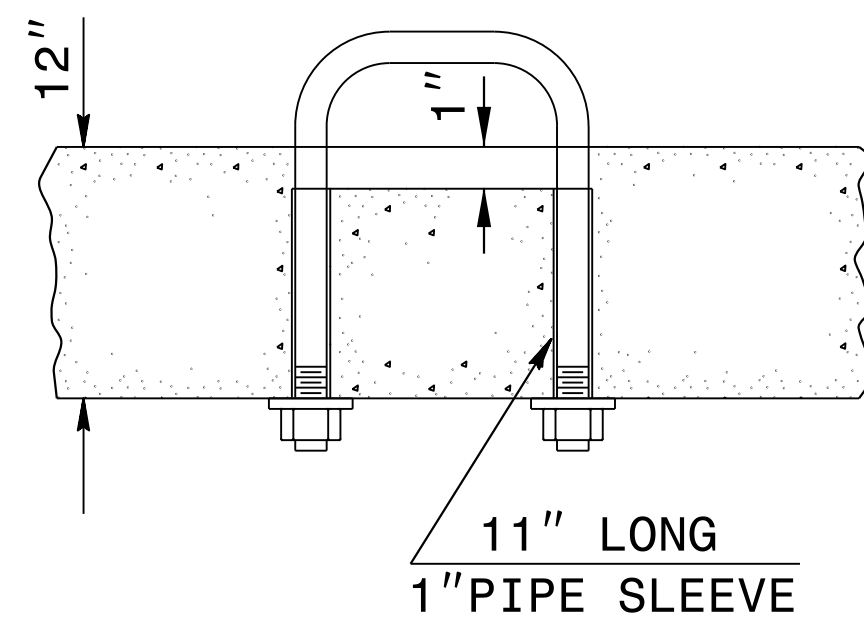
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-DRW05- STA 11+95
SEE SHEET 5**

CURB RAMPS

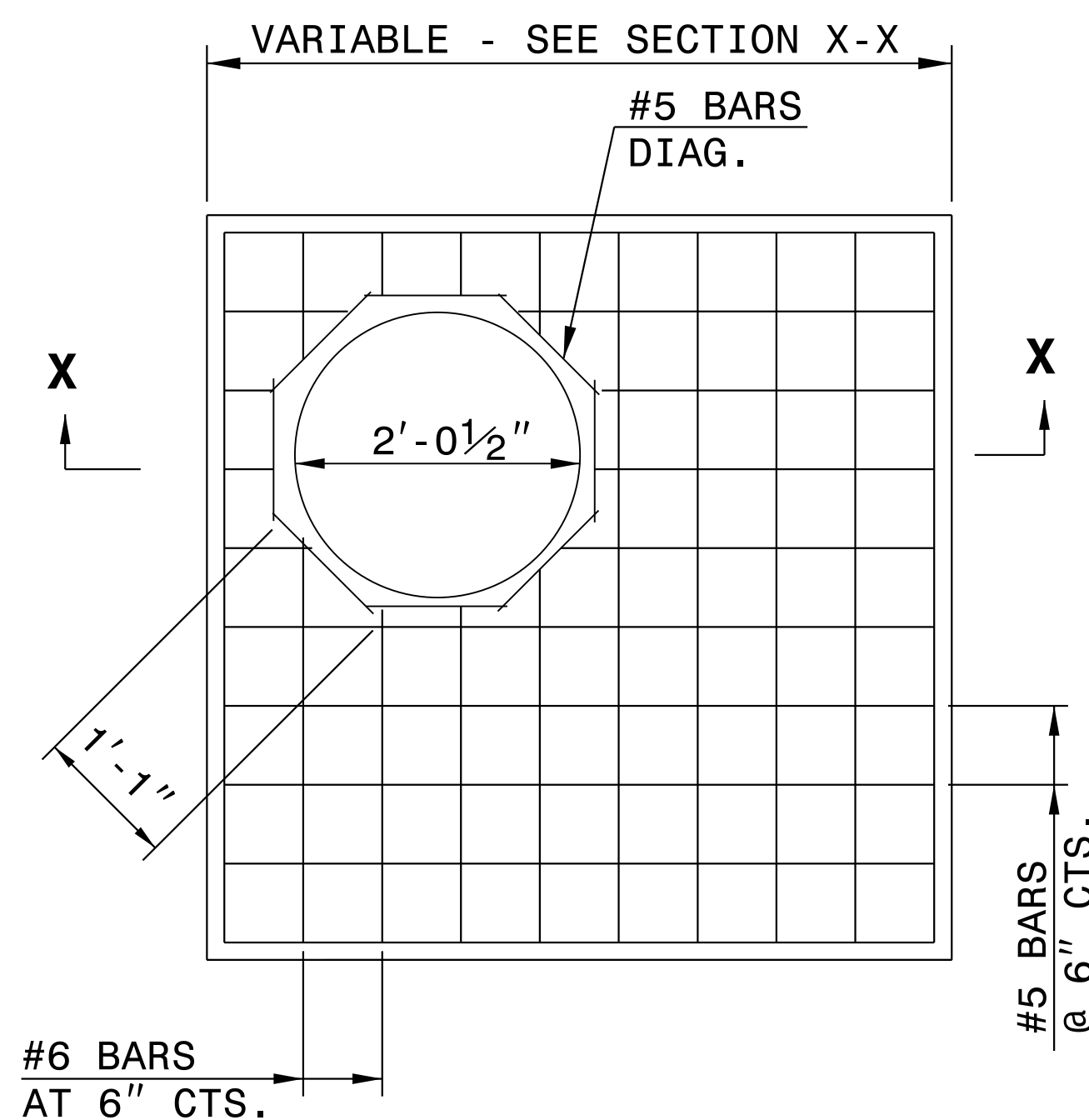
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ORIGINAL BY: H. Sabins DATE: 6/9/2017
CHECKED BY: J. Moore DATE: 6/9/2017

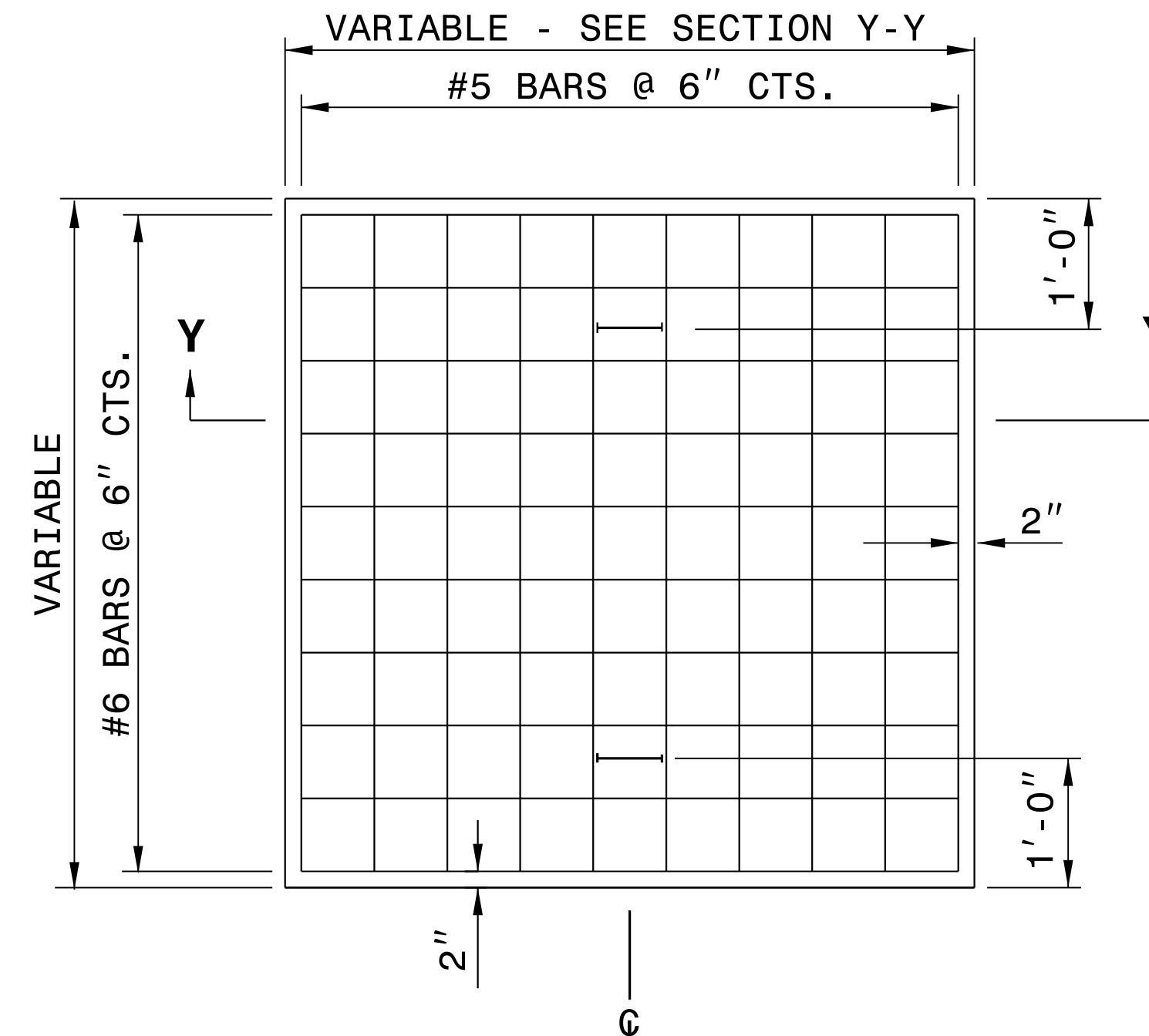
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PARTIAL SECTION



PLAN



PLAN

GENERAL NOTES:

CONSTRUCT IN ACCORDANCE WITH SECTION 859 OF THE STANDARD SPECIFICATIONS.

FIELD VERIFY THE DIMENSIONS FOR THE EXISTING BOXES.

BILL OF MATERIALS

MASONRY

TOP SLAB CONCRETE CLASS "A"	.037YDS ³ PER FT ²
BRICK MASONRY	.025YDS ³ PER FT ²

REINFORCING STEEL	7.64LBS PER FT ²
-------------------	-----------------------------

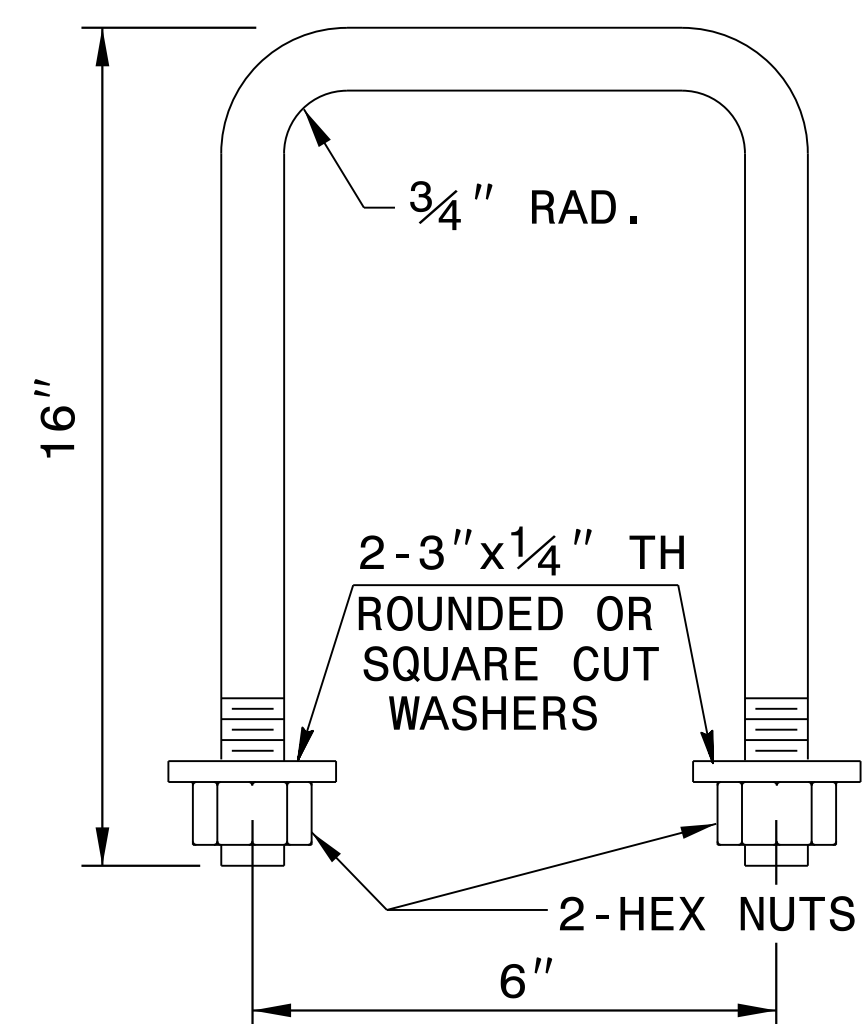
MANHOLE OPTION QUANTITIES

SIZE	QTY.	LENGTH	REINF. STEEL LBS.
#5 DIAG.	8	1'-1"	9.04

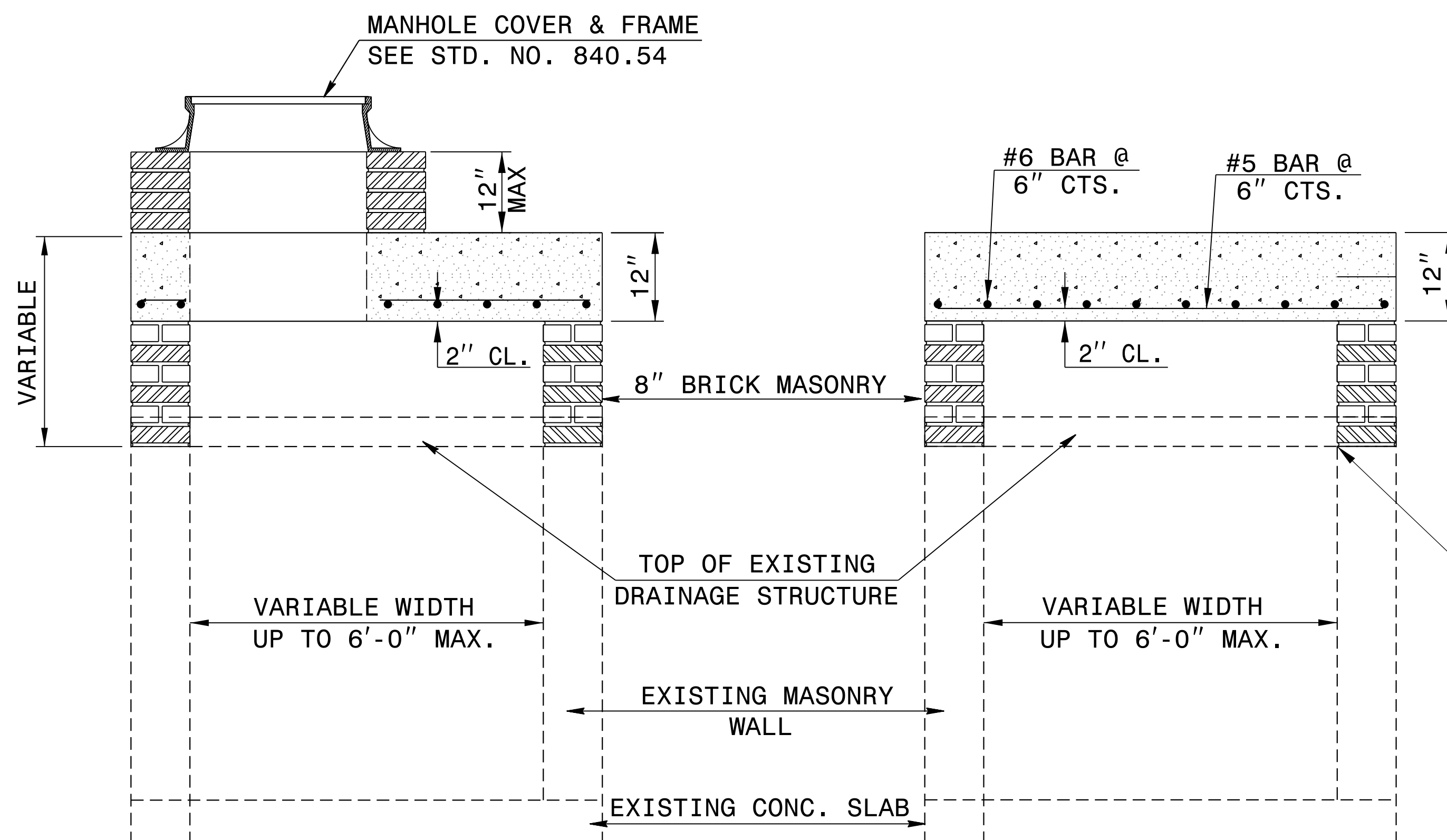
NOTE:

CONCRETE AND REINFORCING STEEL QUANTITIES BASED ON SQUARE FOOT AREA OF THE PROPOSED TOP SLAB FOR THE EXISTING DRAINAGE STRUCTURE.

BRICK MASONRY QUANTITY IS BASED ON THE TOTAL SQUARE FOOTAGE OF EXTERIOR WALL SURFACE AREA TO BE CONSTRUCTED.



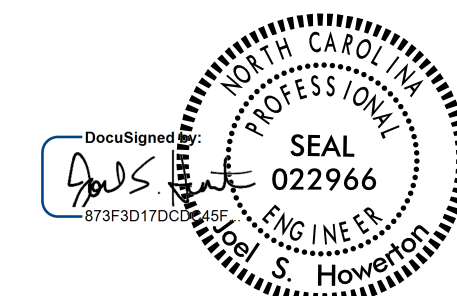
DETAIL OF HANDLE



SECTION X-X

SECTION Y-Y

ALIGN PROPOSED BRICK VERTICAL ADJUSTMENT TO INNER FACE OF WALL



10/11/2017

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DETAIL TO CONVERT EXISTING TRAFFIC BEARING DROP INLET OR CATCH BASIN TO TRAFFIC BEARING JUNCTION BOX (MANHOLE OPTIONAL)

ORIGINAL BY: T.S.S. DATE: FEB. 2000
 MODIFIED BY: E.E.W. DATE: NOV. 2001
 CHECKED BY: DATE:
 FILE SPEC.: w:ericward/usr/details/stand/boxtotbjbe.dgn

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Kimley»Horn

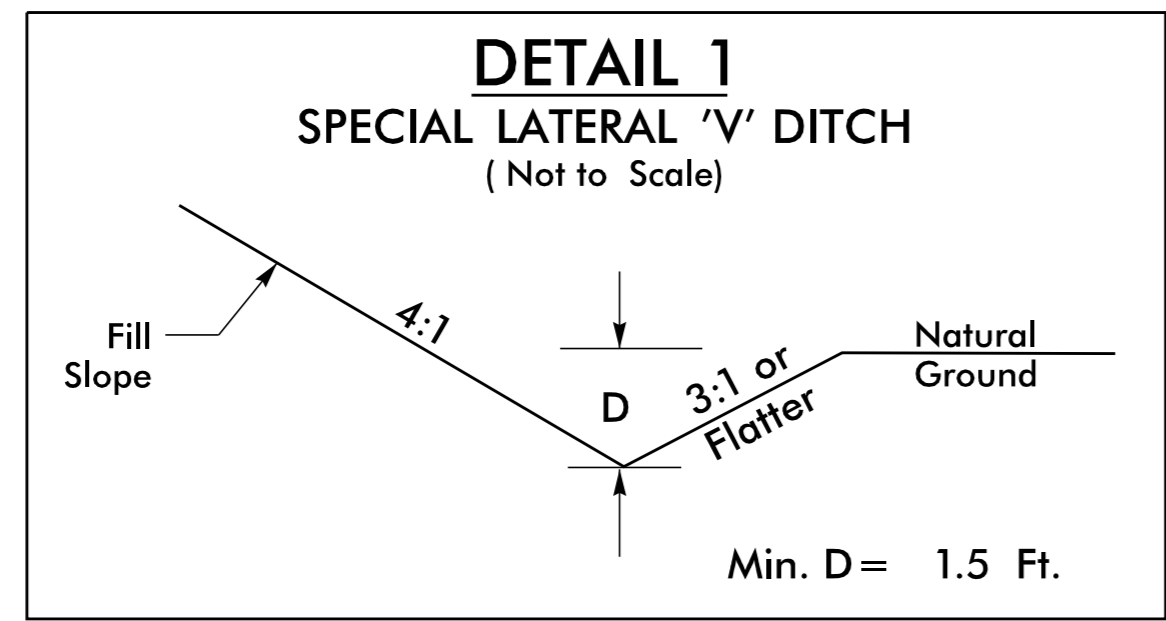
200 SOUTH TRYON, SUITE 200
CHARLOTTE, N.C. 28202
RIGHT-OF-WAY REV.
CONST. REV.

PROJECT REFERENCE NO.	SHEET NO.
U-5806	2D-1
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

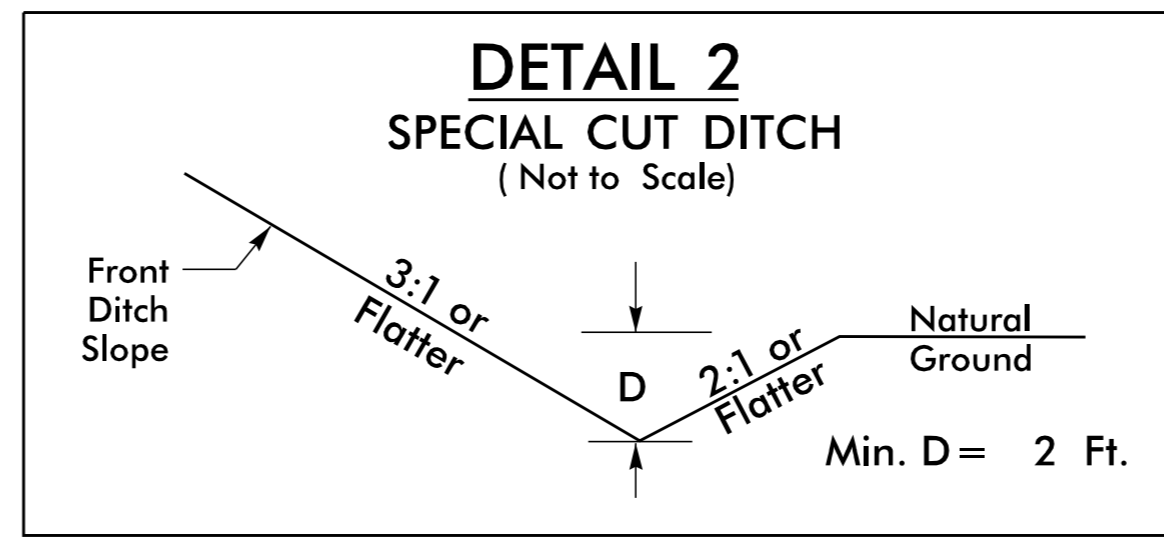
**DOCUMENT NOT CONSIDERED FINAL
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DRAINAGE DETAILS

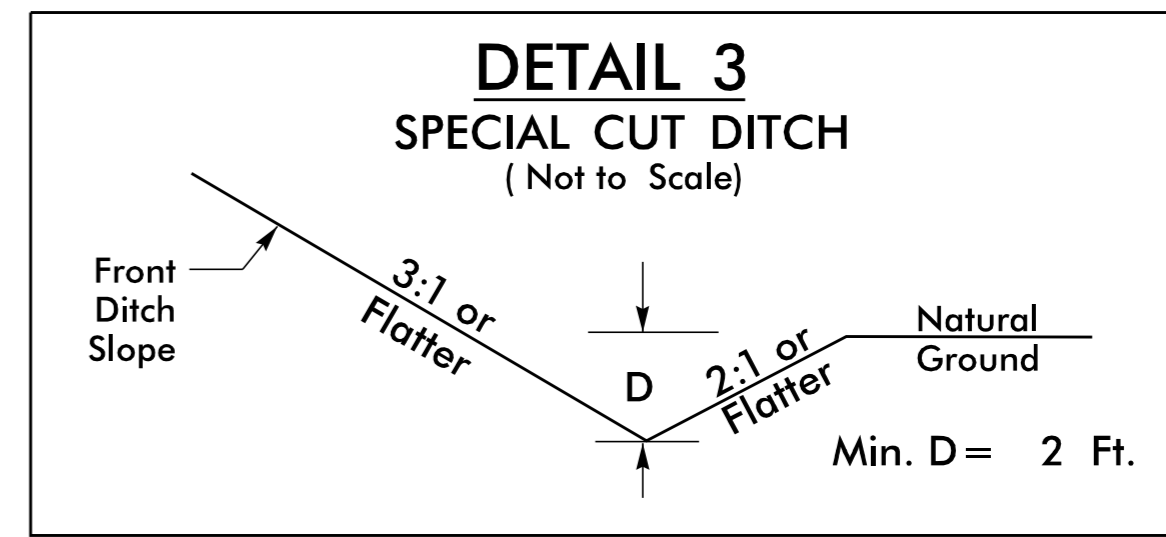
REVISIONS



FROM -L- STA. 17+50 TO STA. 24+82 RT
SEE SHEET 4



FROM -L- STA. 27+00 TO STA. 29+90 RT
SEE SHEET 5



FROM -L- STA. 31+00 TO STA. 32+92 RT
FROM -L- STA. 32+92 TO STA. 34+44 RT
SEE SHEET 6

STATE OF NORTH CAROLINA
 DIVISION OF HIGHWAYS



200 SOUTH TRYON, SUITE 200
 CHARLOTTE, N.C. 28202

SUMMARY OF EARTHWORK

LOCATION	UNCLASSIFIED EXCAVATION	UNDERCUT EXCAVATION	EMBANKMENT +%	BORROW	TOTAL WASTE
SECTION 1 (PHASE I)					
-L- 14+16.00 TO 37+07.00 (LT)	542		384		158
-L- 14+16.00 TO 37+07.00 (RT)	1196		302		894
-DRW01- 10+09.50 TO 13+04.32	203		0		203
-DRW03- 11+60.00 TO 12+72.39	128		224	96	
-DRW05- 10+82.00 TO 12+22.87	163		53		110
-DRW06- 14+65.00 TO 18+50.00	82		5		77
SUBTOTAL (SECTION 1)	2314		968	96	1442
SECTION 2 (PHASE II)					
-L- 14+16.00 TO 25+50.00 (MED)	445		0		445
SUBTOTAL (SECTION 2)	445		0		445
SECTION 3 (PHASE III)					
-L- 25+50.00 TO 37+07.00 (MED)	415		0		415
-Y1- 10+11.03 TO 13+51.16	116		26		90
-Y1- 13+51.16 TO 15+61.82	545		1		544
-Y1- 15+61.82 TO 20+70.00	0		0	0	
-DRW06- 22+14.00 TO 26+62.00	691		37		654
SUBTOTAL (SECTION 3)	1767		64	96	1703
SUBTOTAL	4526		1032	96	3590
EARTH WASTE TO REPLACE BORROW				-96	-96
GRAND TOTALS	4526		1211	0	3494
SAY	4600			0	
EST UNDERCUT		200 CY			
EST SHALLOW UNDERCUT		500 CY			
EST CLASS IV SUBGRADE STABILIZATION		1000 TONS			
EST SELECT GRANULAR MATERIAL		200 CY			
EST SHOULDER BORROW		180 CY			

NOTE: EARTHWORK QUANTITIES ARE CALCULATED BY THE ROADWAY DESIGN UNIT. THESE EARTHWORK QUANTITIES ARE BASED IN PART ON SUBSURFACE DATA PROVIDED BY THE GEOTECHNICAL ENGINEERING UNIT.
 NOTE: APPROXIMATE QUANTITIES ONLY. CLEARING AND GRUBBING, UNCLASSIFIED EXCAVATION, SHOULDER BORROW, FINE GRADING, REMOVAL OF EXISTING PAVEMENT, AND BREAKING OF EXISTING PAVEMENT WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR "GRADING."

STATE OF NORTH CAROLINA
 DIVISION OF HIGHWAYS



200 SOUTH TRYON, SUITE 200
 CHARLOTTE, N.C. 28202

GEOTECHNICAL SUMMARIES

SUMMARY OF SUBSURFACE DRAINAGE					
Line	Station	Station	Location LT/RT/CL	Drain Type* UD/BD/SD	LF
CONTINGENCY				SD	200
				TOTAL LF	200

*UD = Underdrain
 *BD = Blind Drain
 *SD = Subsurface Drain

SUMMARY OF AGGREGATE SUBGRADE/STABILIZATION									
Line	Station	Station	Aggregate Type* ASU/AST	Aggregate Thickness INCHES	Shallow Undercut CY	Class IV Subgrade Stabilization TONS	Geotextile for Soil Stabilization SY	Stabilizer Aggregate TONS	Class IV Aggregate Stabilization SY
CONTINGENCY			ASU		500	1000	1500		
CONTINGENCY			AST					250	
TOTAL CY/TONS/SY					500	1000	1500**	250	0

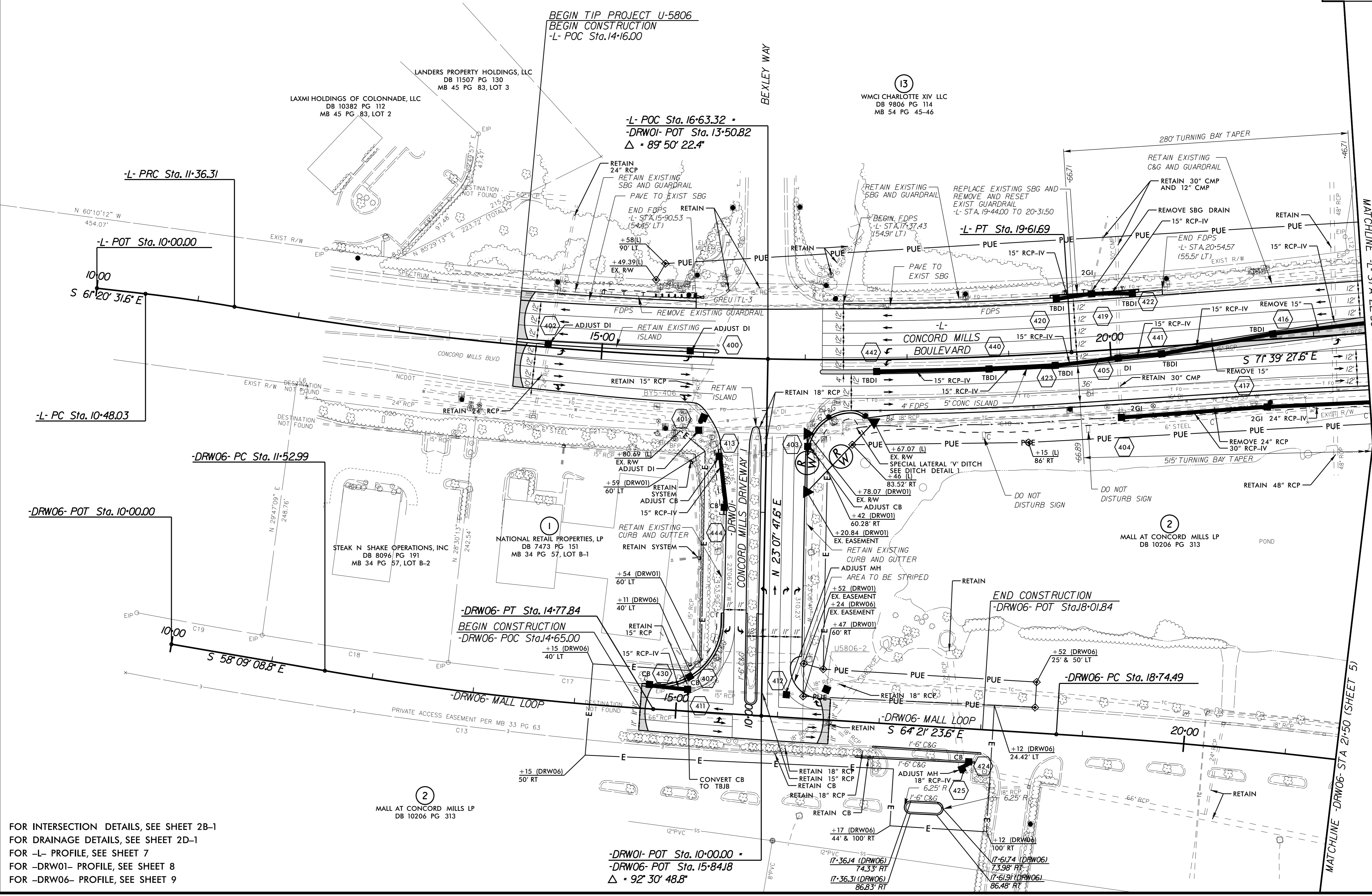
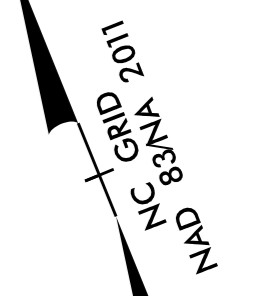
*ASU = Aggregate Subgrade
 *AST = Aggregate Stabilization

**Total square yards of "Geotextile for Soil Stabilization" is only the estimated quantity for ASU/AST and may only represent a portion of the geotextile quantity shown in the Item Sheets of the Proposal.

PROJECT REFERENCE NO. U-5806	SHEET NO. 4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

-L-		-DRW06-	
PI Sta 10+92.19	PI Sta 15+50.98	PI Sta 13+15.58	PI Sta 22+46.71
$\Delta = 3^{\circ} 22' 19.4"$ (RT)	$\Delta = 13^{\circ} 41' 15.4"$ (LT)	$\Delta = 6^{\circ} 12' 14.8"$ (LT)	$\Delta = 8^{\circ} 30' 53.5"$ (RT)
D = 3' 49' 11.0"	D = 1' 39' 30.0"	D = 1' 54' 35.5"	D = 1' 08' 45.3"
L = 88.28'	L = 825.38'	L = 630.19'	L = 743.06'
T = 44.15'	T = 414.66'	T = 162.58'	T = 372.22'
R = 1,500.00'	R = 3,455.00'	R = 3,000.00'	R = 5,000.00'
DS = 50 MPH	DS = 50 MPH	DS = 30 MPH	DS = 30 MPH
SE = EXIST	SE = EXIST	SE = EXIST	SE = EXIST
RO = EXIST	RO = EXIST	RO = EXIST	RO = EXIST

REVISIONS



FOR INTERSECTION DETAILS, SEE SHEET 2B-1
 FOR DRAINAGE DETAILS, SEE SHEET 2D-1
 FOR -L- PROFILE, SEE SHEET 7
 FOR -DRW01- PROFILE, SEE SHEET 8
 FOR -DRW06- PROFILE, SEE SHEET 9

10/5/2017

PROJECT REFERENCE NO. U-5806		SHEET NO. 5	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			

-YI-

PI Sta 14+89.77
Δ = 93° 11' 39.2" (RT)
D = 27' 56" 57.0"
L = 333.44'
T = 216.76'
R = 205.00'
DS = 25 MPH
SE = 4%
RO = 120'

PI Sta 17+14.52
Δ = 8° 25' 35.0" (RT)
D = 3' 54' 20.3"
L = 215.75'
T = 108.07'
R = 1467.00'
DS = 25 MPH
SE = 4%
RO = 120'

-L-

PI Sta 26+86.27
Δ T3
D = 3' 54' 39.5"
L = 526.30'
T = 266.02'
R = 1465.00'
DS = 40 MPH
SE = EXIST
RO = EXIST

-DRW03-

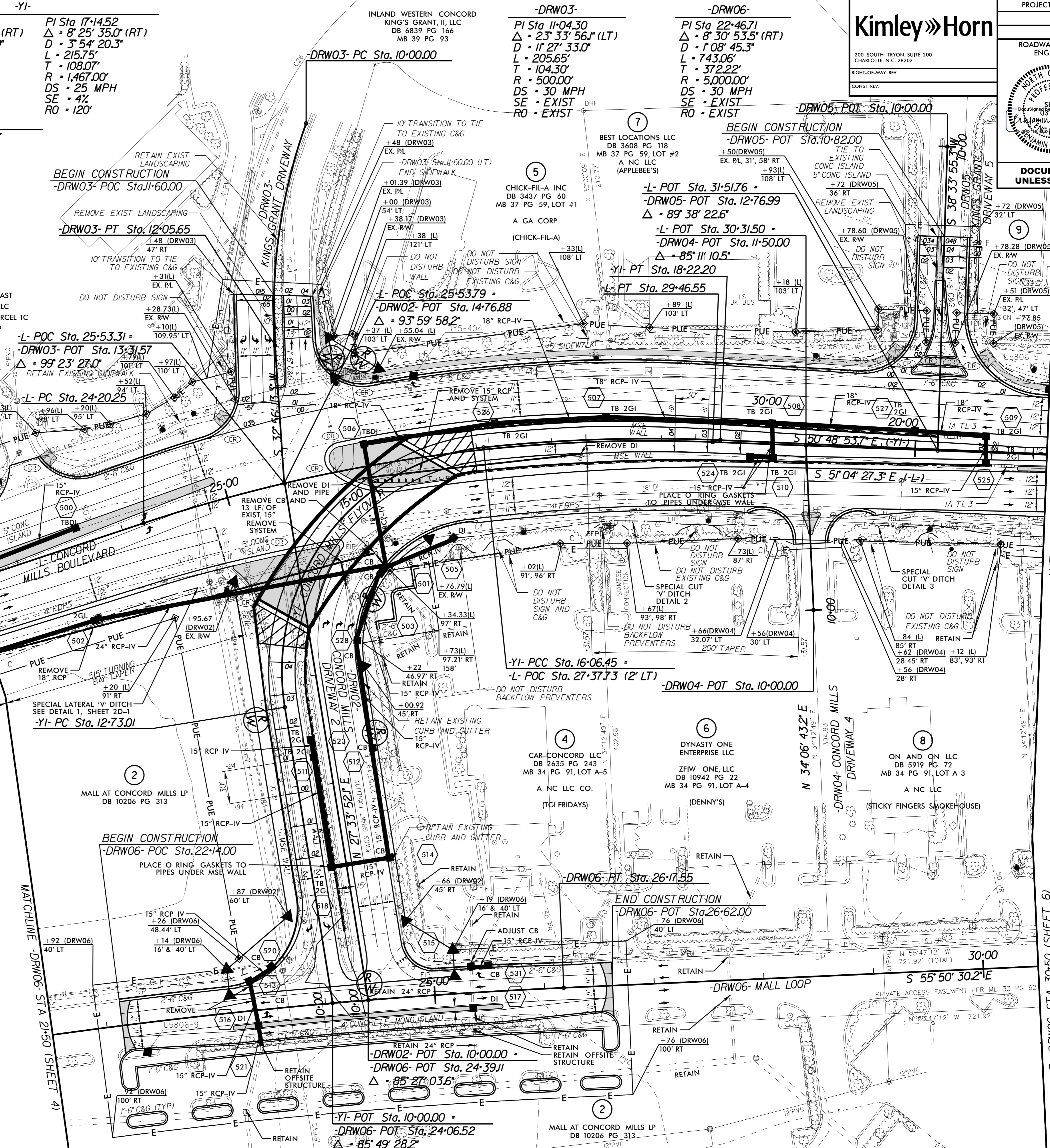
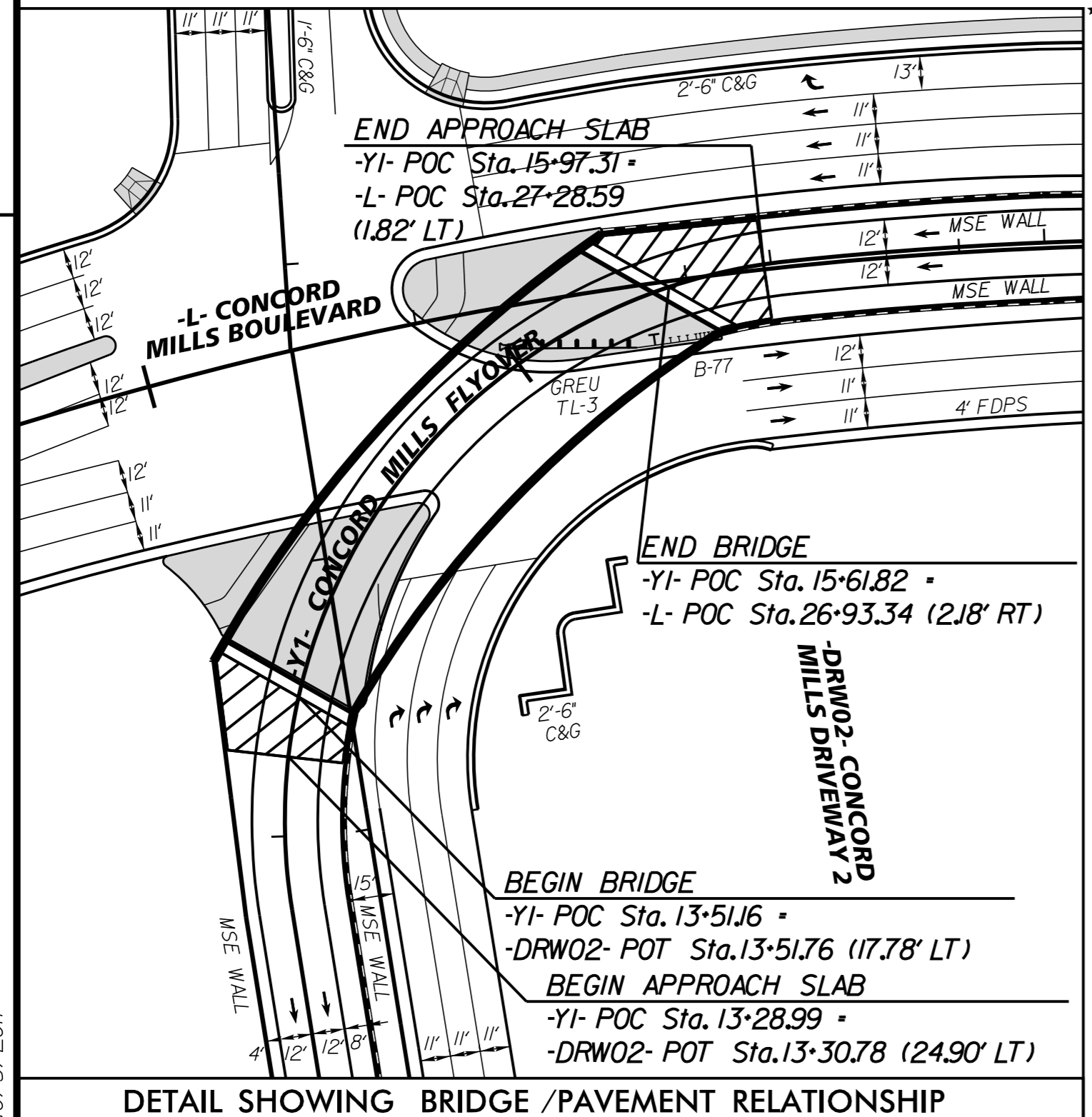
PI Sta 11+04.30
Δ = 23° 33' 56.1" (LT)
D = 11' 27' 33.0"
L = 205.65'
T = 104.30'
R = 500.00'
DS = 30 MPH
SE = EXIST
RO = EXIST

-DRW06-

PI Sta 22+46.71
Δ = 8° 30' 53.5" (RT)
D = 1' 08' 45.3"
L = 743.06'
T = 372.22'
R = 5000.00'
DS = 30 MPH
SE = EXIST
RO = EXIST

FOR INTERSECTION DETAILS, SEE SHEET 2B-1
FOR DRAINAGE DETAILS, SEE SHEET 2D-1
FOR -L- PROFILE, SEE SHEET 7
FOR -DRW02- PROFILE, SEE SHEET 8
FOR -DRW03- PROFILE, SEE SHEET 8
FOR -DRW05- PROFILE, SEE SHEET 9
FOR -DRW06- PROFILE, SEE SHEET 9
FOR STRUCTURES PLANS, SEE SHEETS S-1 THRU S-48

*DESIGN EXCEPTION REQUIRED FOR HORIZONTAL SSD



REVISIONS

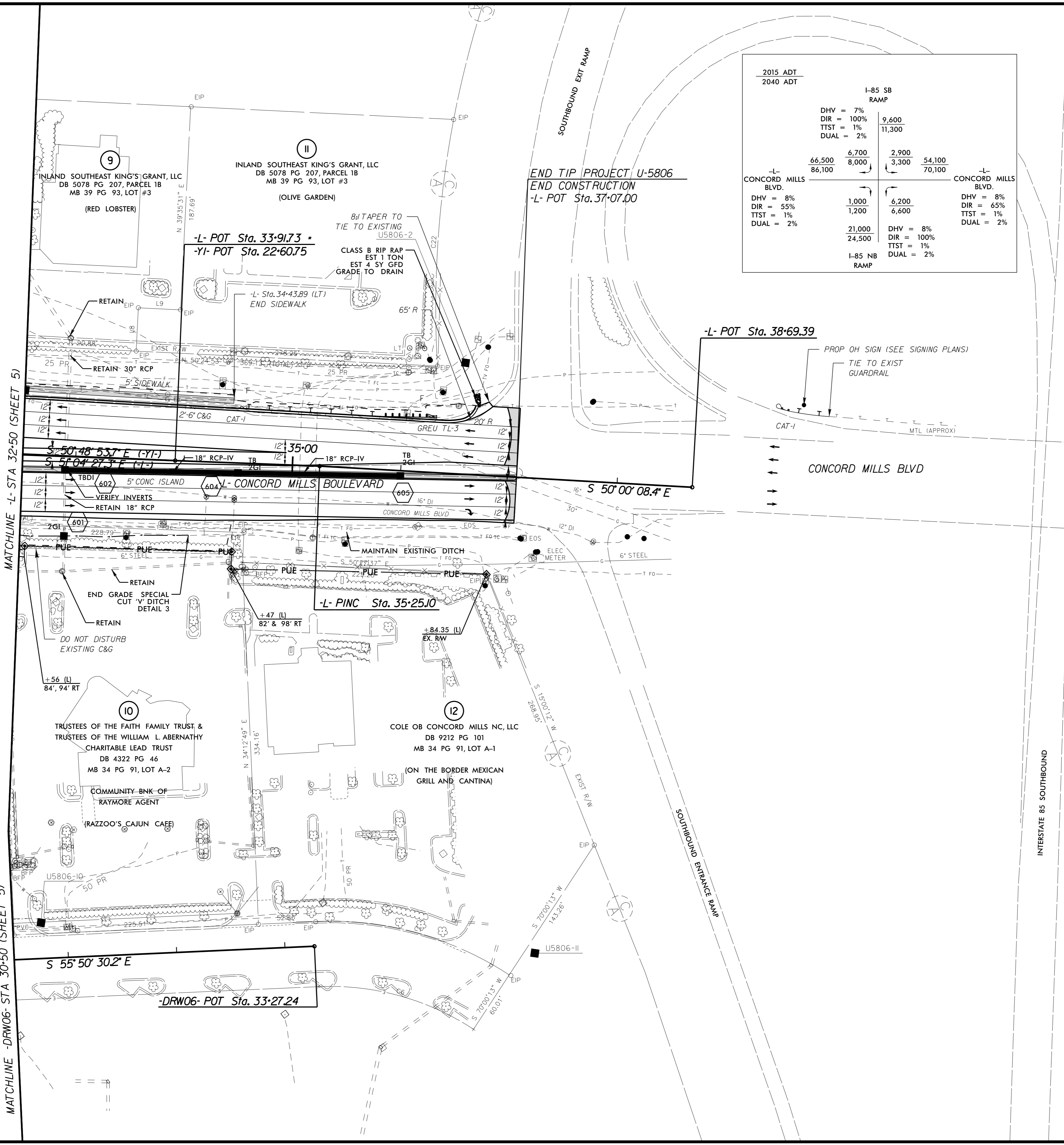
10/5/2017

200 SOUTH TRYON, SUITE 200
CHARLOTTE, N.C. 28202
RIGHT-OF-WAY REV.
CONST. REV.

PROJECT REFERENCE NO. U-5806	SHEET NO. 6
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

2015 ADT	I-85 SB RAMP		2040 ADT
DHV = 7%	DIR = 100%	9,600	
TTST = 1%	DUAL = 2%	11,300	
	6,700	2,900	
	8,000	3,300	
	66,500	54,100	
	86,100	70,100	
	CONCORD MILLS BLVD.		
DHV = 8%	DIR = 55%	1,000	6,200
TTST = 1%	DUAL = 2%	1,200	6,600
	21,000	DHV = 8%	
	24,500	DIR = 100%	
		TTST = 1%	
		DUAL = 2%	
	I-85 NB RAMP		

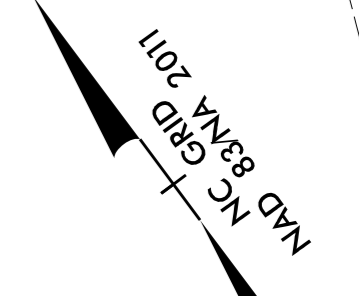
END TIP PROJECT U-5806
END CONSTRUCTION
-L- POT Sta. 37+07.00



REVISIONS

MATCHLINE -L- STA 32+50 (SHEET 5)

MATCHLINE -DRW06- STA 30+50 (SHEET 5)



BRUTON SMITH BLVD

INTERSTATE 85 SOUTHBOUND

INTERSTATE 85 NORTHBOUND

NORTHBOUND EXIT RAMP

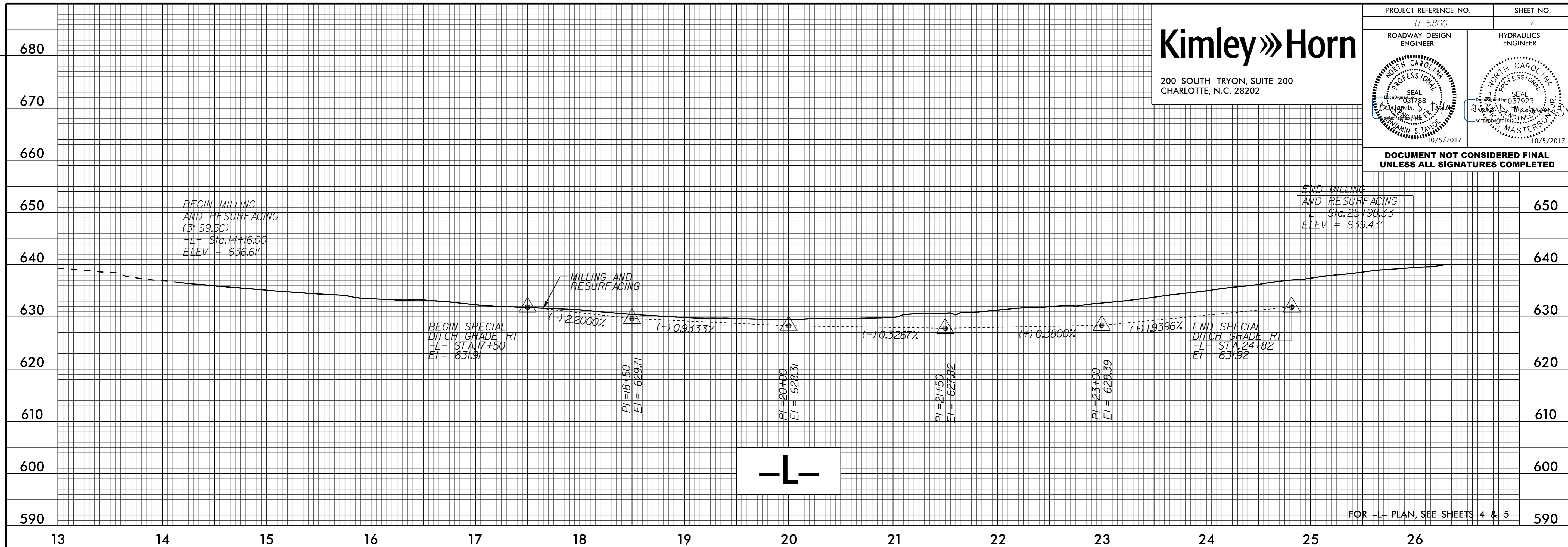
SOUTHBOUND ENTRANCE RAMP

FOR DRAINAGE DETAILS, SEE SHEET 2D-1
FOR -L- PROFILE, SEE SHEET 7

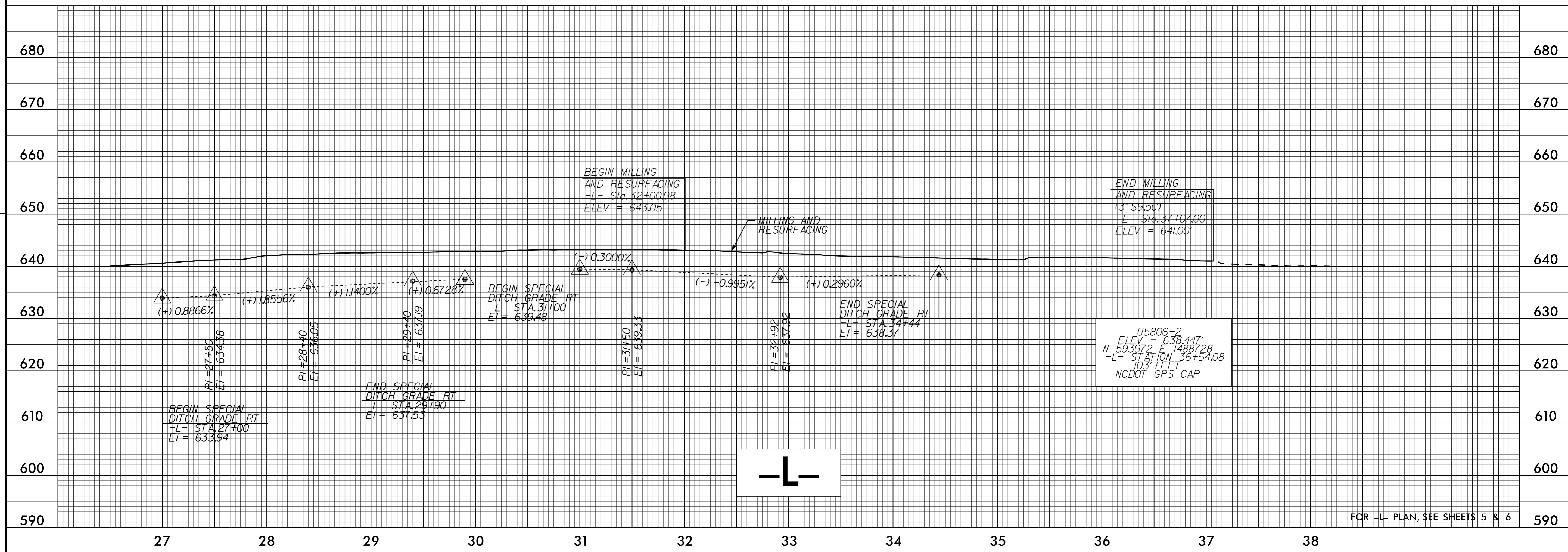
10/5/2017

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

REVISIONS



FOR -L- PLAN, SEE SHEETS 4 & 5



FOR -L- PLAN, SEE SHEETS 5 & 6

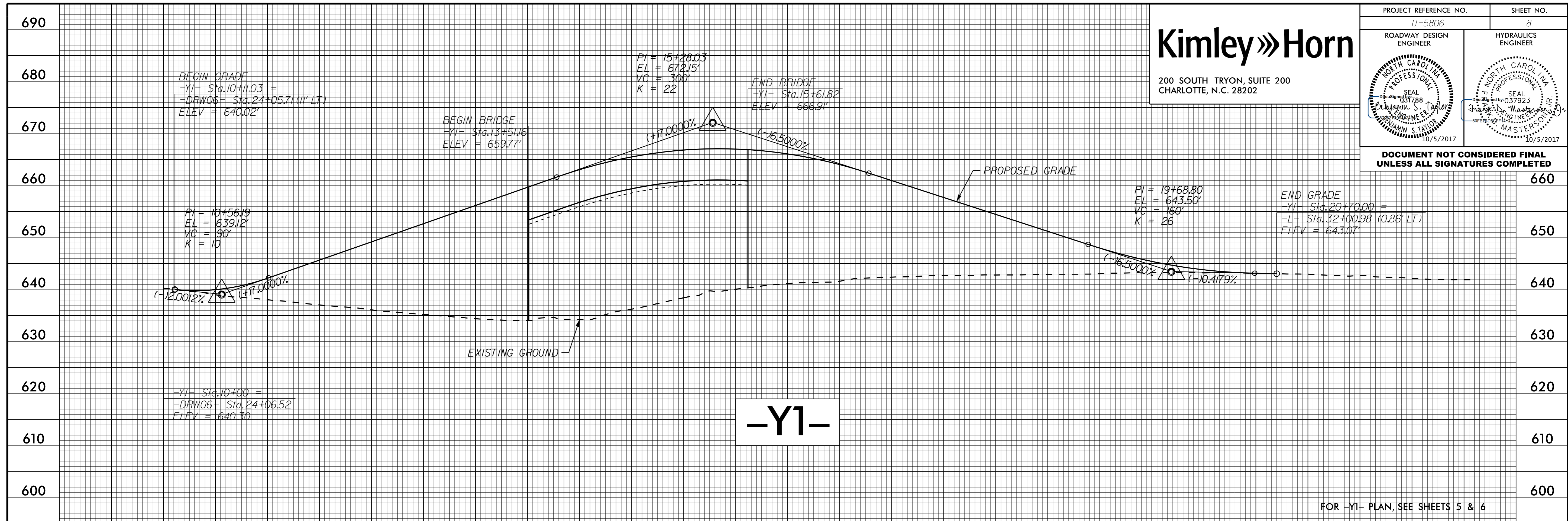
10/5/2017



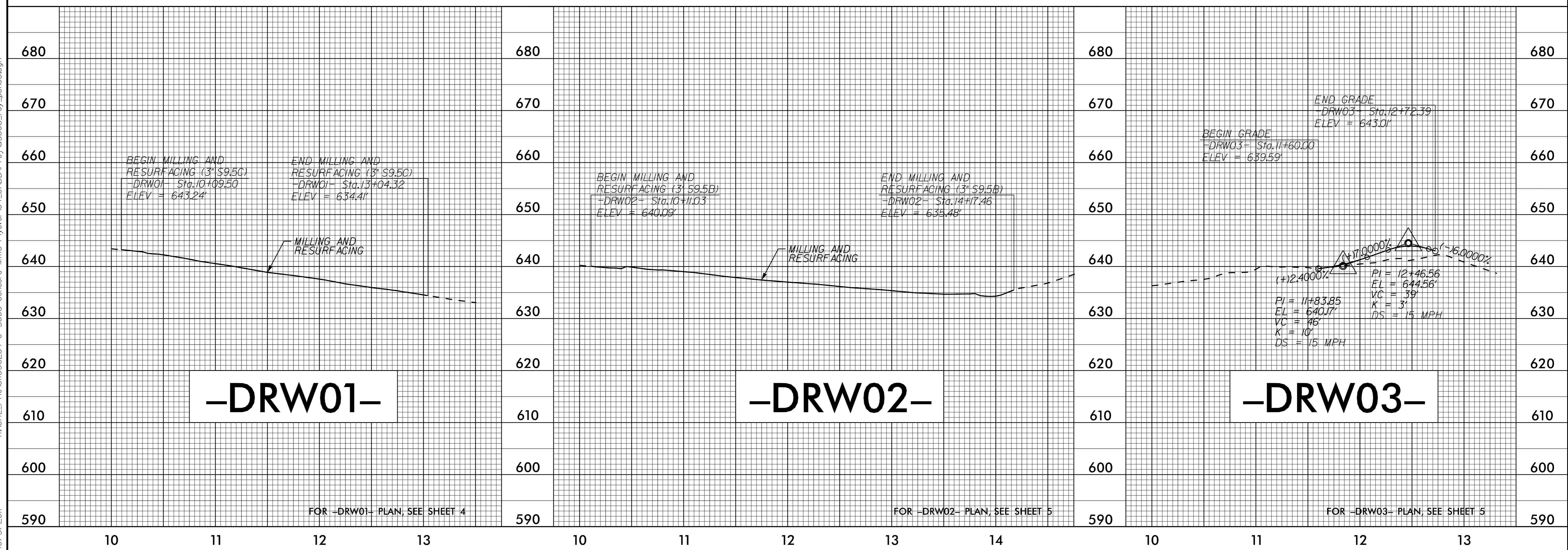
200 SOUTH TRYON, SUITE 200
CHARLOTTE, N.C. 28202

PROJECT REFERENCE NO. U-5806	SHEET NO. 8
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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



FOR -Y1- PLAN, SEE SHEETS 5 & 6



FOR -DRW01- PLAN, SEE SHEET 4

FOR -DRW02- PLAN, SEE SHEET 5

FOR -DRW03- PLAN, SEE SHEET 5

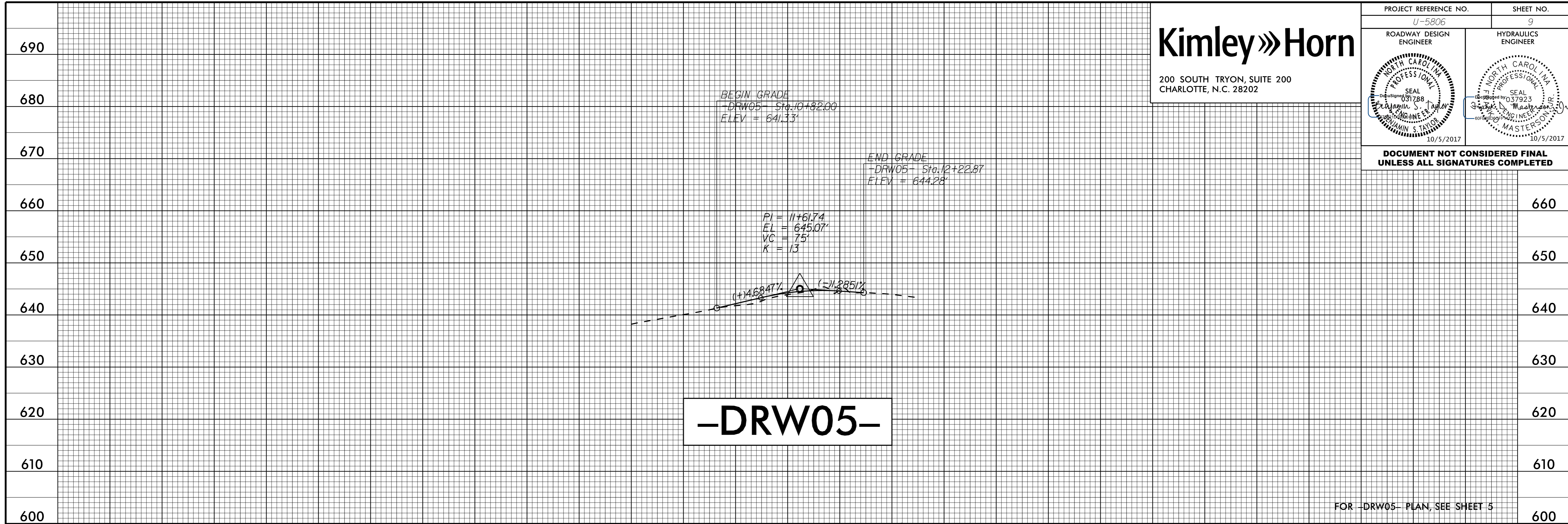
K:\CHL_P\01036284 U-5806 Concord Mills Flyover\04_CADD\Proj\U5806_rdy_pst\08.dgn 10/5/2017

Kimley»Horn

200 SOUTH TRYON, SUITE 200
CHARLOTTE, N.C. 28202

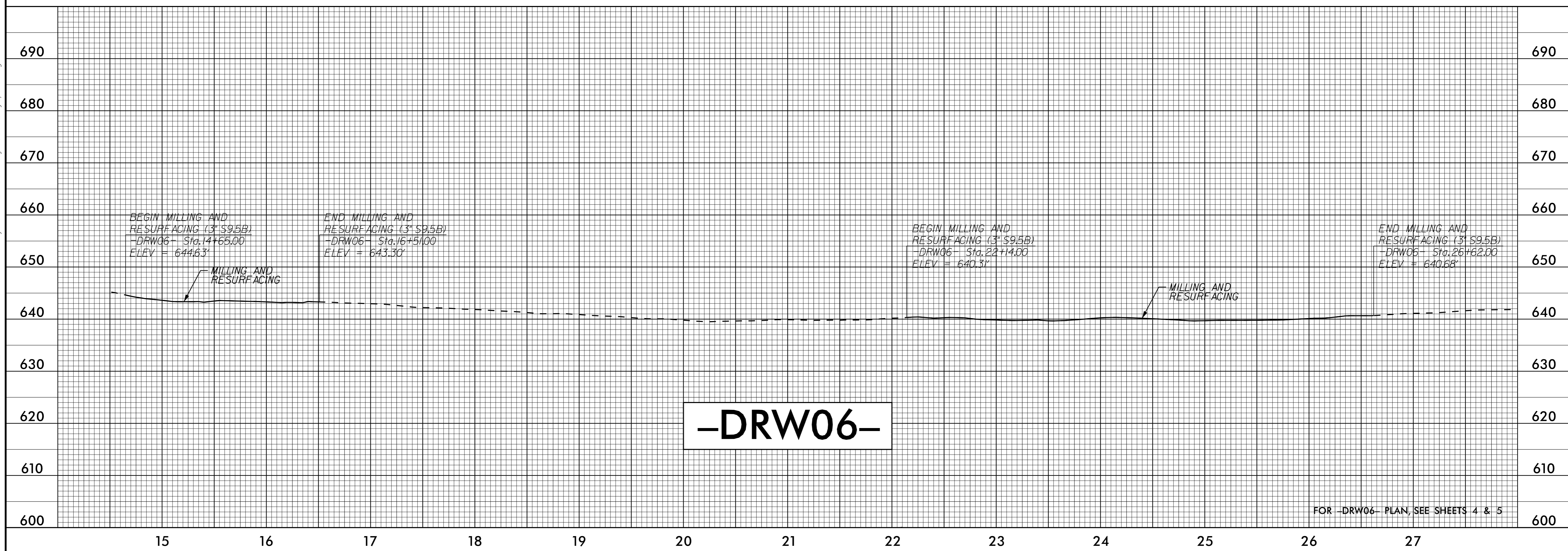
PROJECT REFERENCE NO. U-5806	SHEET NO. 9
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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



-DRW05-

FOR -DRW05- PLAN, SEE SHEET 5



-DRW06-

FOR -DRW06- PLAN, SEE SHEETS 4 & 5

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