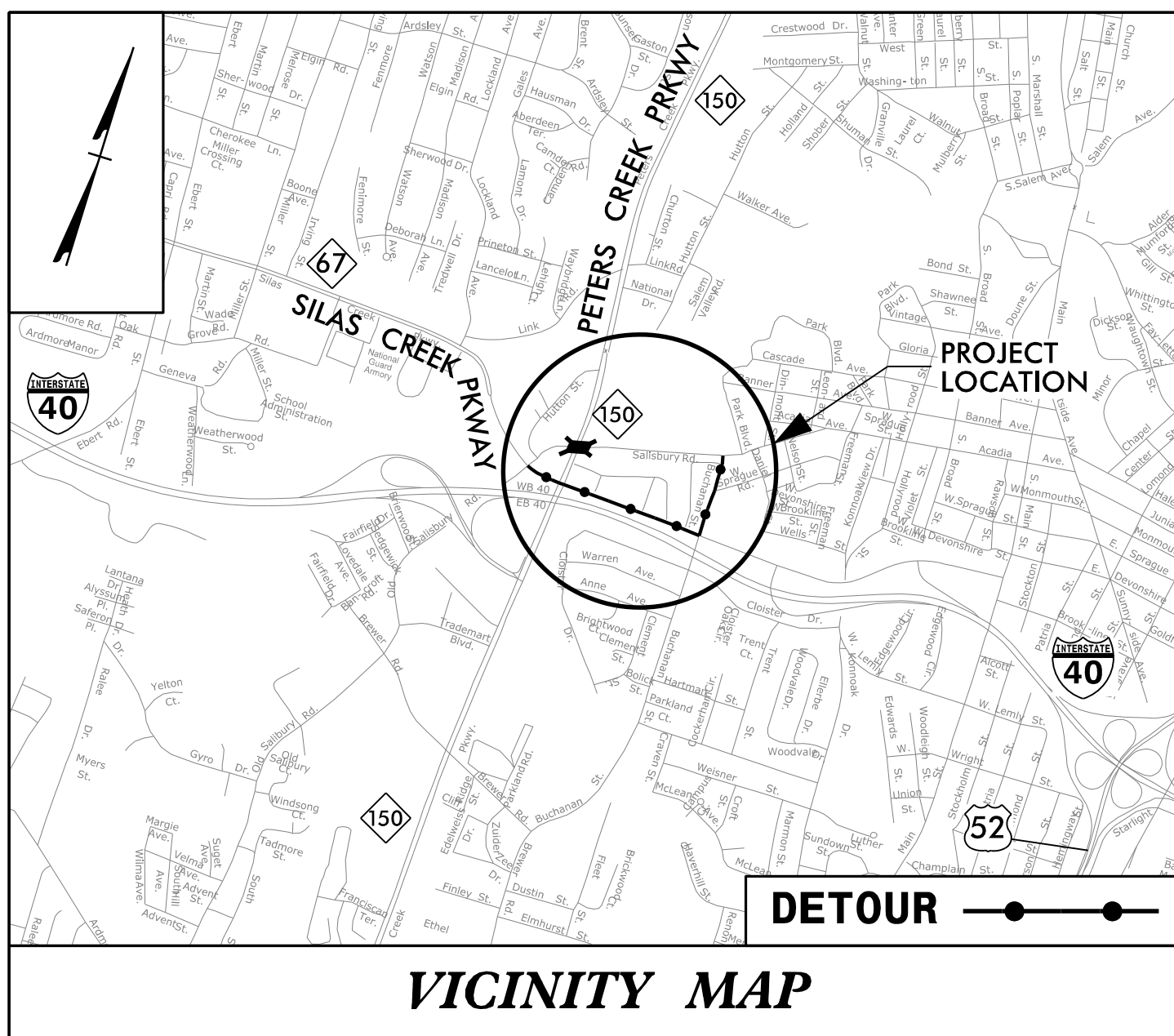


09_08/2019

TIP PROJECT: B-5770

CONTRACT: C204416

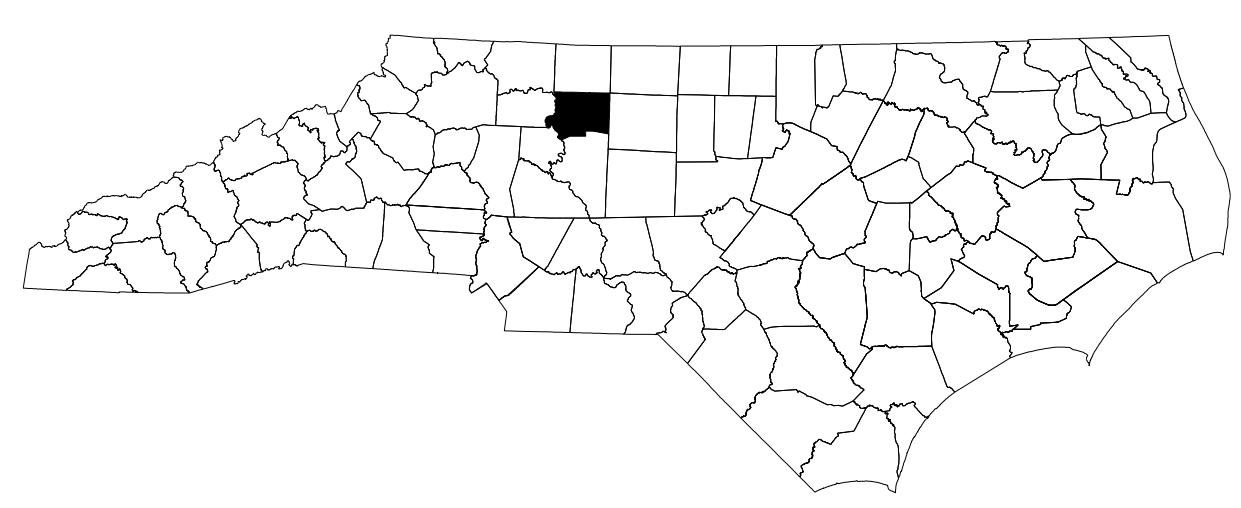
See Sheet 1A For Index of Sheets



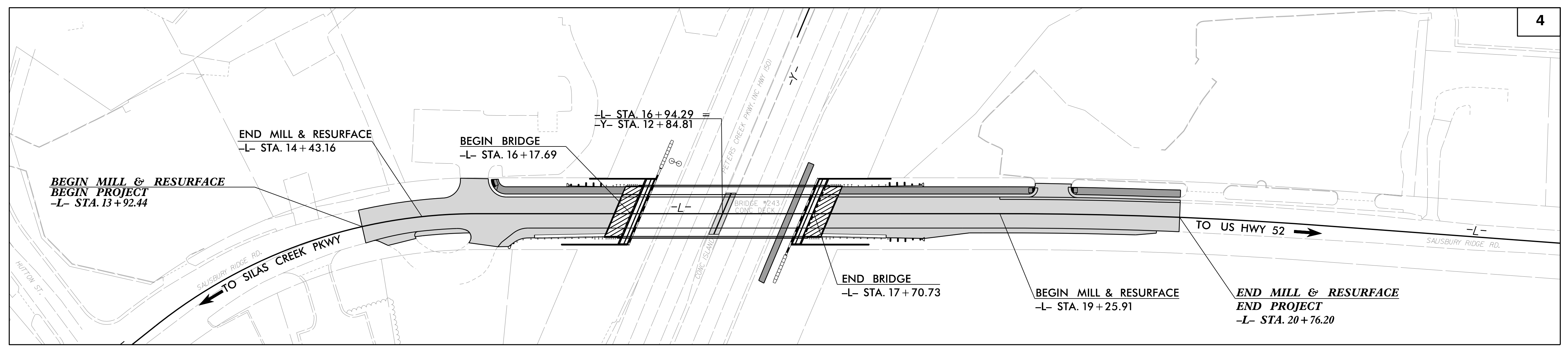
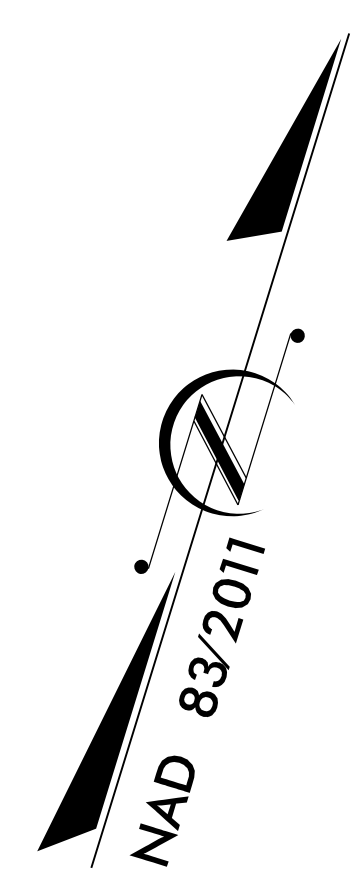
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
FORSYTH COUNTY

**LOCATION: BRIDGE NO. 243 ON SALISBURY RIDGE RD.
OVER NC 150 (PETERS CREEK PARKWAY)**

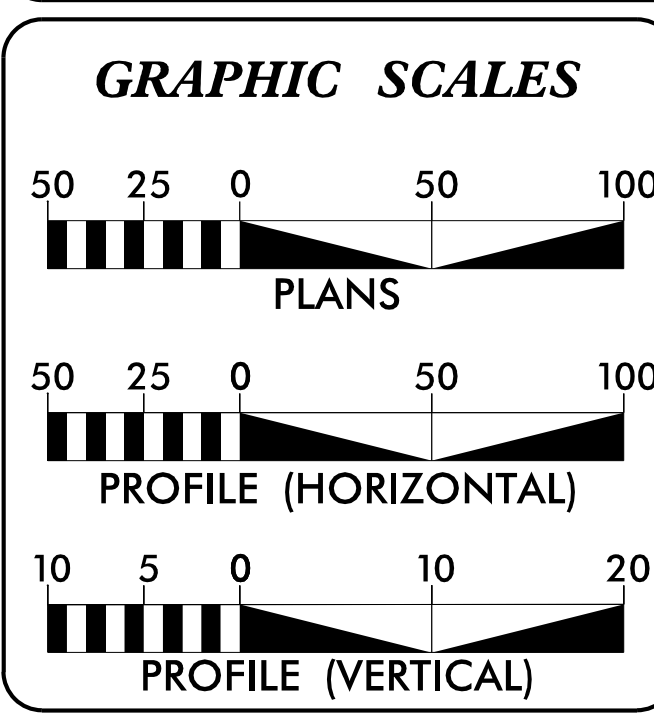
TYPE OF WORK: GRADING, DRAINAGE, PAVING AND STRUCTURE



STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5770	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
45726.1.1	BRSTP-0918(98)	PE	
45726.2.1	BRSTP-0918(98)	ROW & UTIL.	
45726.3.1	BRSTP-0918(98)	CONST.	



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



DESIGN DATA

ADT 2022 =	4200
ADT 2042 =	5100
K =	8%
D =	55%
T =	5%
V =	40 MPH
*TTST =	1% DUAL 4%
FUNC CLASS =	URBAN LOCAL
SUB-REGIONAL TIER	

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-5770 =	0.101 MILES
LENGTH STRUCTURES TIP PROJECT B-5770 =	0.029 MILES
TOTAL LENGTH TIP PROJECT B-5770 =	0.130 MILES

NCDOT CONTACT: DAVID STUTTS, P.E.

Prepared In the Office of:

KCA
KISINGER CAMPO & ASSOCIATES
NC FIRM LICENSE No: C-1506
301 Fayetteville Street, Suite 1500
Raleigh, NC 27601
(919)882-7839

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: JUNE 28, 2019

LETTING DATE: APRIL 19, 2022

JOHN P. MAZERES, PE
PROJECT ENGINEER

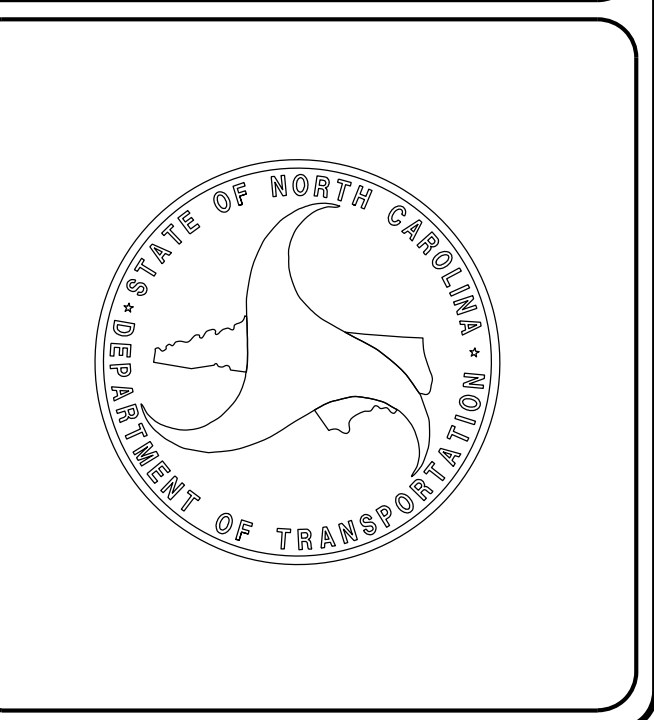
JASON DEBONE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER
3/1/2022

DocuSigned by:
Erik P. Aadland
Erik P. Aadland
P.E.

ROADWAY DESIGN ENGINEER
3/1/2022

DocuSigned by:
John P. Mazeres
John P. Mazeres
P.E.



PROJECT REFERENCE NO. B-5770	SHEET NO. 1A
ROADWAY DESIGN ENGINEER	
3/1/2022	
Discussed by: 	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
PREPARED IN THE OFFICE OF: 	NC FIRM LICENSE No: C-1506 301 Fayetteville Street, Suite 1500 Raleigh, NC 27601 (919)882-7839

INDEX OF SHEETS

SHEET NUMBER	SHEET TITLE SHEET
1	TITLE SHEET
1A	INDEX OF SHEETS, GENERAL NOTES, AND STANDARD DRAWINGS
1B	CONVENTIONAL SYMBOLS
2A-1 THRU 2A-2	PAVEMENT SCHEDULE AND TYPICAL SECTIONS
2C-1 THRU 2C-5	SPECIAL DETAILS
3B-1	ROADWAY SUMMARIES
3D-1	DRAINAGE SUMMARY
3G-1	GEOTECHNICAL SUMMARIES
4	PLAN SHEET
4A	PLAN SHEET - RW DETAIL SHEET
5	PROFILE SHEET
RW-01 THRU RW-04	SURVEY CONTROL, PROPOSED ALIGNMENT, & PROPOSED EASEMENT SHEETS
TMP-1 THRU TMP-18	TRAFFIC MANAGEMENT PLANS
PMP-1	PAVEMENT MARKING PLANS
EC-1 THRU EC-4	EROSION CONTROL PLANS
SCP-1 THRU SCP-4	SIGNAL PLANS
UC-1 THRU UC-5	UTILITY CONSTRUCTION PLANS
UO-1 THRU UO-2	UTILITY BY OTHERS PLANS
X-1A	CROSS-SECTION SUMMARY SHEET
X-1 THRU X-8	CROSS-SECTIONS
S-1 THRU S-34	STRUCTURES PLANS - BRIDGE
W-1 THRU W-4	STRUCTURES PLANS - WALL

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

GRADING AND SURFACING:

THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. GRADE LINES MAY BE ADJUSTED AT THEIR BEGINNING AND ENDING AND AT STRUCTURES AS DIRECTED BY THE ENGINEER IN ORDER TO SECURE A PROPER TIE-IN.

CLEARING:

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

SUPERELEVATION:

ALL CURVES ON THIS PROJECT SHALL BE SUPERELEVATED IN ACCORDANCE WITH STD. NO. 225.04 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 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. NO. 815.02 AT LOCATIONS DIRECTED BY THE ENGINEER.

DRIVEWAYS:

DRIVEWAYS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. 848.02 USING 3' RADII OR RADII AS SHOWN ON THE PLANS. LOCATIONS OF DRIVEWAYS WILL BE AS SHOWN IN THE PLANS OR AS 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 CROSSSECTION PRIOR TO SETTING OF THE SLOPE STAKES FOR THE EMBANKMENT OR EXCAVATION APPROACHING A BRIDGE.

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE:

- AT&T
- CENTURYLINK
- DUKE ENERGY
- MCNC
- PIEDMONT NATURAL GAS
- SEGRA
- SPECTRUM

ANY RELOCATION OF DRY EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS.

RELOCATION OF WET EXISTING UTILITIES (WATER AND SEWER) OWNED BY CITY OF WINSTON-SALEM/FORSYTH COUNTY WILL BE PART OF THE CONTRACT.

CURB RAMPS:

CURB RAMPS ARE SHOWN ON THE PLANS AT APPROXIMATE LOCATIONS. CONSTRUCT ALL CURB RAMPS ACCORDANCE WITH STD 848.05 AND/OR 848.06.

01-16-2018

2018 ROADWAY ENGLISH STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS APPEAR IN "ROADWAY STANDARD DRAWINGS" HIGHWAY DESIGN BRANCH - N. C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N. C. DATED JANUARY, 2018 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO.	TITLE
DIVISION 2 - EARTHWORK	
200.03	METHOD OF CLEARING - METHOD III
225.02	GUIDE FOR GRADING SUBGRADE - SECONDARY AND LOCAL
225.04	METHOD OF OBTAINING SUPERELEVATION - TWO LANE PAVEMENT
DIVISION 3 - PIPE CULVERTS	
300.01	METHOD OF PIPE INSTALLATION
DIVISION 4 - MAJOR STRUCTURES	
422D10	BRIDGE APPROACH FILLS - TYPE III REINFORCED APPROACH FILLS FOR MSE ABUTMENT WALL
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	METHOD OF SHOULDER CONSTRUCTION - HIGH SIDE OF SUPER ELEVATED CURVE - METHOD I
DIVISION 8 - INCIDENTALS	
815.02	SUBSURFACE DRAIN
840.00	CONCRETE BASE PAD FOR DRAINAGE STRUCTURES
840.14	CONCRETE DROP INLET
840.15	BRICK DROP INLET
840.24	FRAMES AND NARROW SLOT SAG GRATES
840.25	ANCHORAGE FOR FRAMES
840.31	CONCRETE JUNCTION BOX
840.32	BRICK JUNCTION BOX
840.35	TRAFFIC BEARING GRATED DROP INLET
840.54	MANHOLE FRAME AND COVER
840.66	DRAINAGE STRUCTURE STEPS
840.72	PIPE COLLAR
846.01	CONCRETE CURB, GUTTER AND CURB AND GUTTER
846.04	DROP INLET INSTALLATION IN SHOULDER BERM GUTTER
848.01	CONCRETE SIDEWALK
848.02	DRIVEWAY TURNOUT - RADIUS TYPE
848.04	STREET TURNOUT
848.05	CURB RAMP - PROPOSED CURB & GUTTER
852.01	CONCRETE ISLANDS
857.01	PRECAST REINFORCED CONCRETE BARRIER
862.01	GUARDRAIL PLACEMENT
862.02	GUARDRAIL INSTALLATION
862.03	STRUCTURE ANCHOR UNITS

12/2/2016

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

BOUNDARIES AND PROPERTY:

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

BUILDINGS AND OTHER CULTURE:

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

HYDROLOGY:

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

RAILROADS:

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

RIGHT OF WAY & PROJECT CONTROL:

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

ROADS AND RELATED FEATURES:

Existing Edge of Pavement	-----
Existing Curb	-----
Proposed Slope Stakes Cut	----- C
Proposed Slope Stakes Fill	----- F
Proposed Curb Ramp	----- CR
Existing Metal Guardrail	-----
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

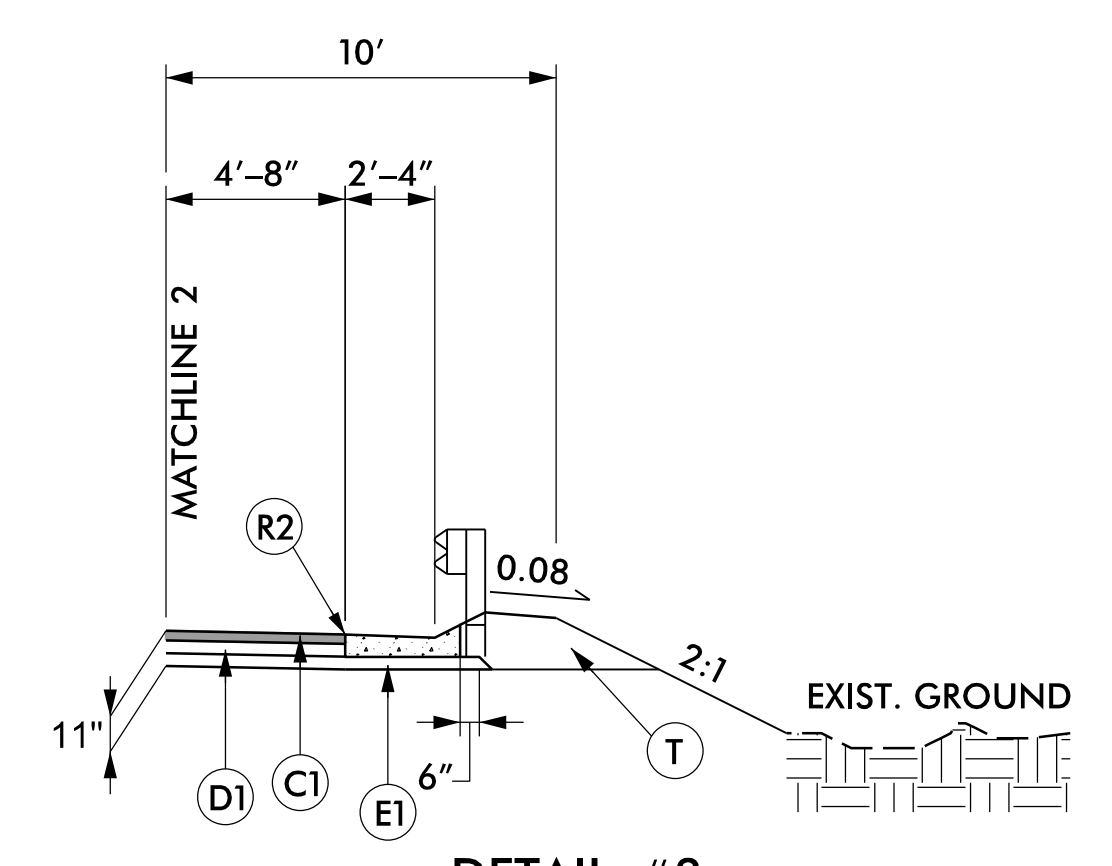
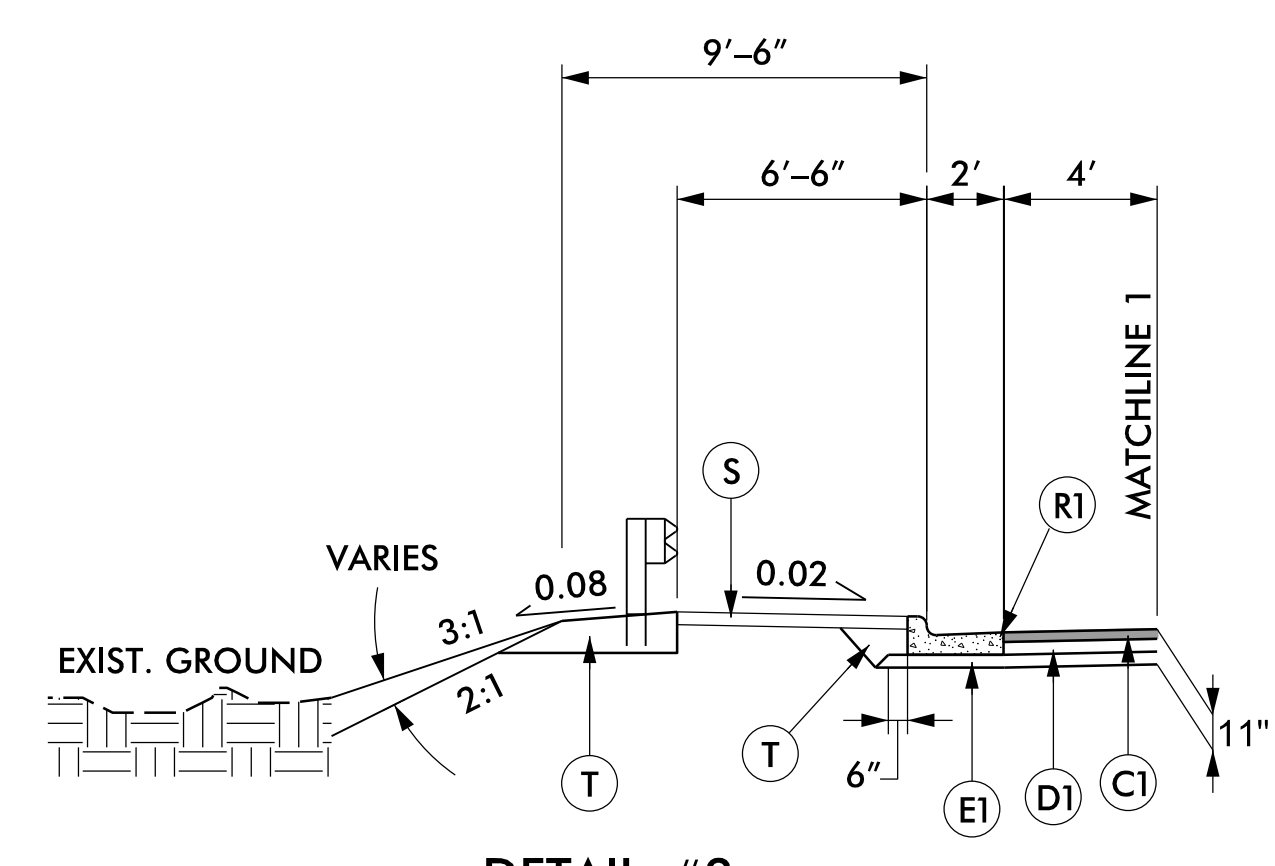
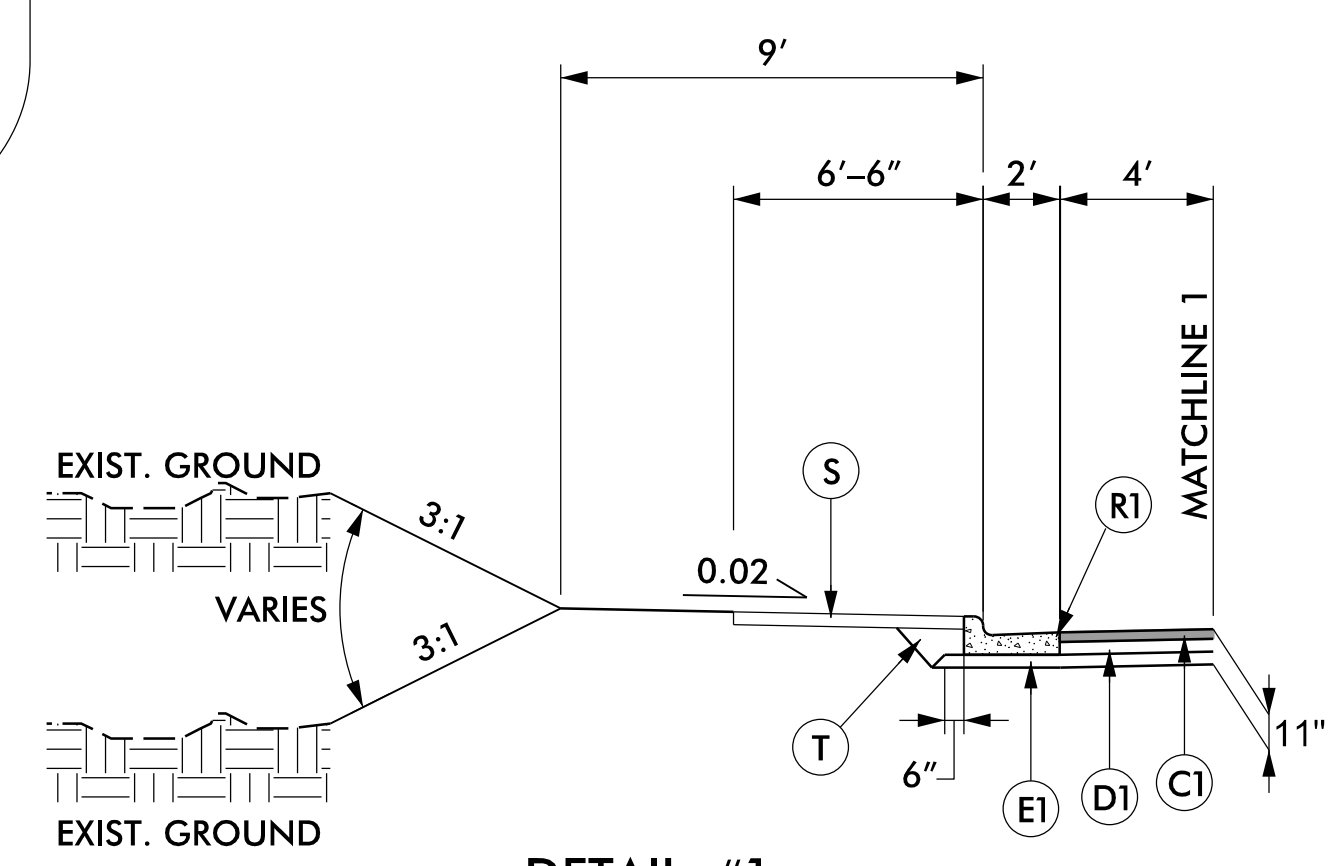
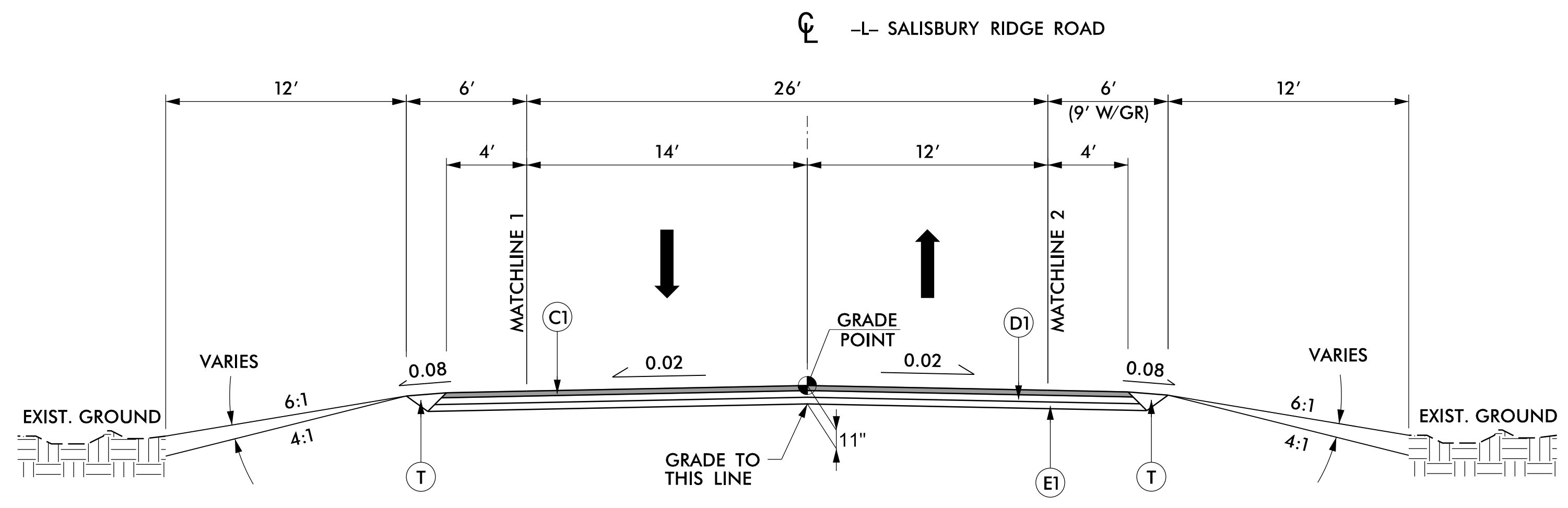
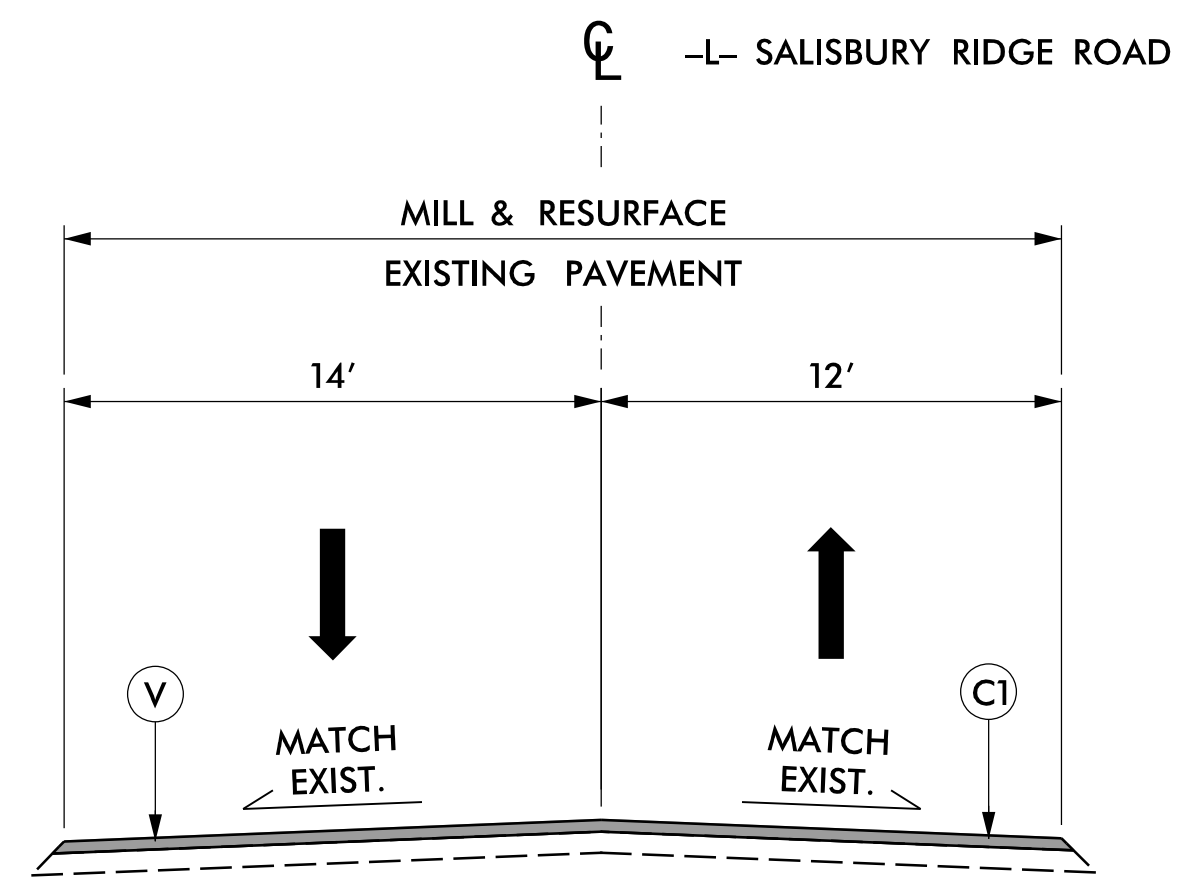
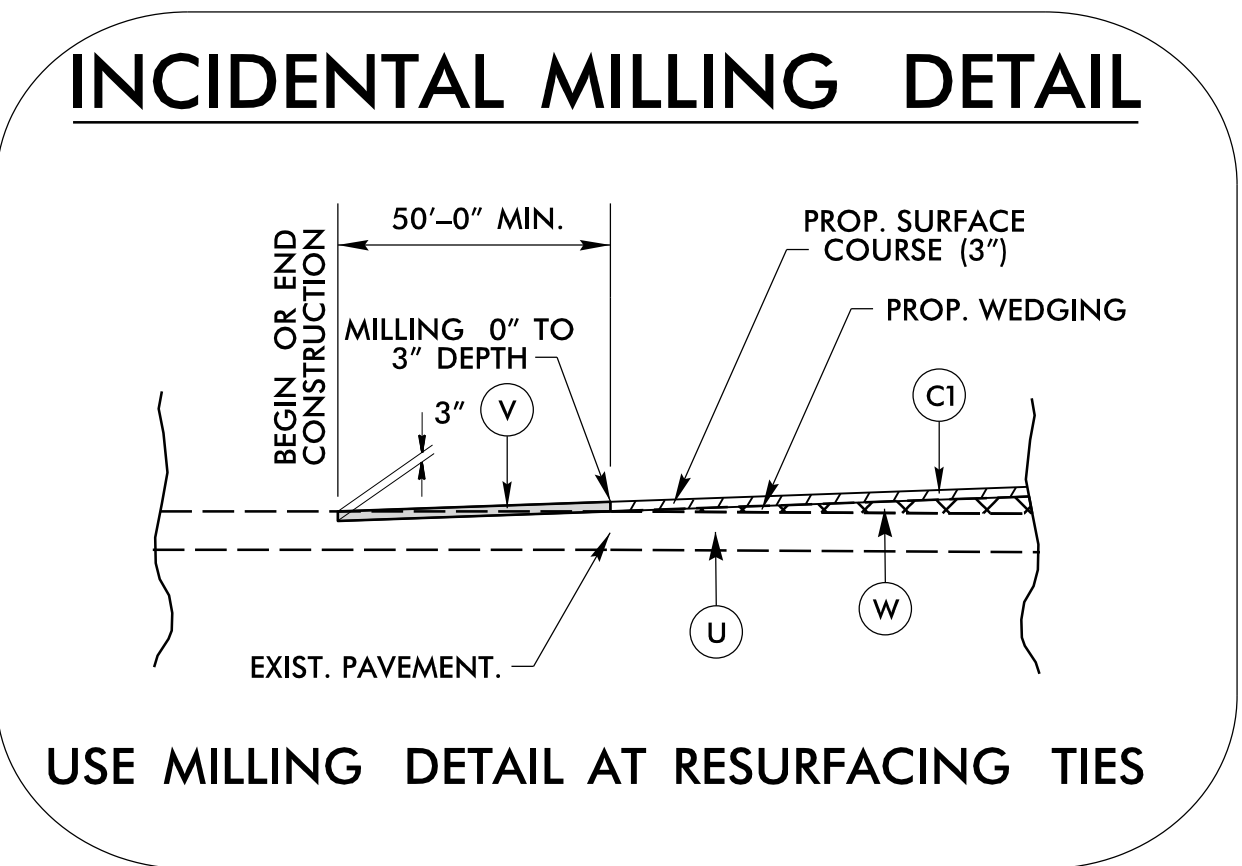
MISCELLANEOUS:

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

PROJECT REFERENCE NO. B-5770		SHEET NO. 2A-1	
ROADWAY DESIGN ENGINEER 3/1/2022		PAVEMENT DESIGN ENGINEER 3/7/2022	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			
PREPARED IN THE OFFICE OF: KCA KISINGER CAMPO & ASSOCIATES NC FIRM LICENSE No: C-1506 301 Fayetteville Street, Suite 1500 Raleigh, NC 27601 (919)882-7839			

PAVEMENT SCHEDULE	
C1	PROP. APPROX. 3.0" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 165.0 LBS. PER SQ. YD. IN EACH OF THE TWO LAYERS.
D1	PROP. APPROX. 4.0" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS PER SQ. YD.
E1	PROP. APPROX. 4.0" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS PER SQ. YD.
R1	2'-6" CURB AND GUTTER
R2	SHOULDER BERM GUTTER
R3	5" MONOLITHIC CONCRETE ISLAND
S	4" CONCRETE SIDEWALK
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
V	MILLING BITUMINOUS PAVEMENT. 3.0" DEPTH.
V1	INCIDENTAL MILLING

NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE
 NOTE: FINAL PAVEMENT DESIGN PER PAVEMENT DESIGN MEMO DATED 01/07/2019 FROM CLARK S. MORRISON, PHD, P.E.



DETAIL #1
 TO BE USED IN CONJUNCTION WITH TYPICAL SECTION NO. 2
 -L- STA. 15+01.13 TO STA. 15+64.34 LT
 -L- STA. 18+62.39 TO STA. 19+25.91 LT

DETAIL #2
 TO BE USED IN CONJUNCTION WITH TYPICAL SECTION NO. 2
 -L- STA. 15+64.34 TO STA. 16+17.69 LT
 -L- STA. 17+83.45 TO STA. 18+62.39 LT

DETAIL #3
 TO BE USED IN CONJUNCTION WITH TYPICAL SECTION NO. 2
 -L- STA. 15+37.00 TO STA. 15+96.72 RT
 -L- STA. 17+76.32 TO STA. 18+31.00 RT

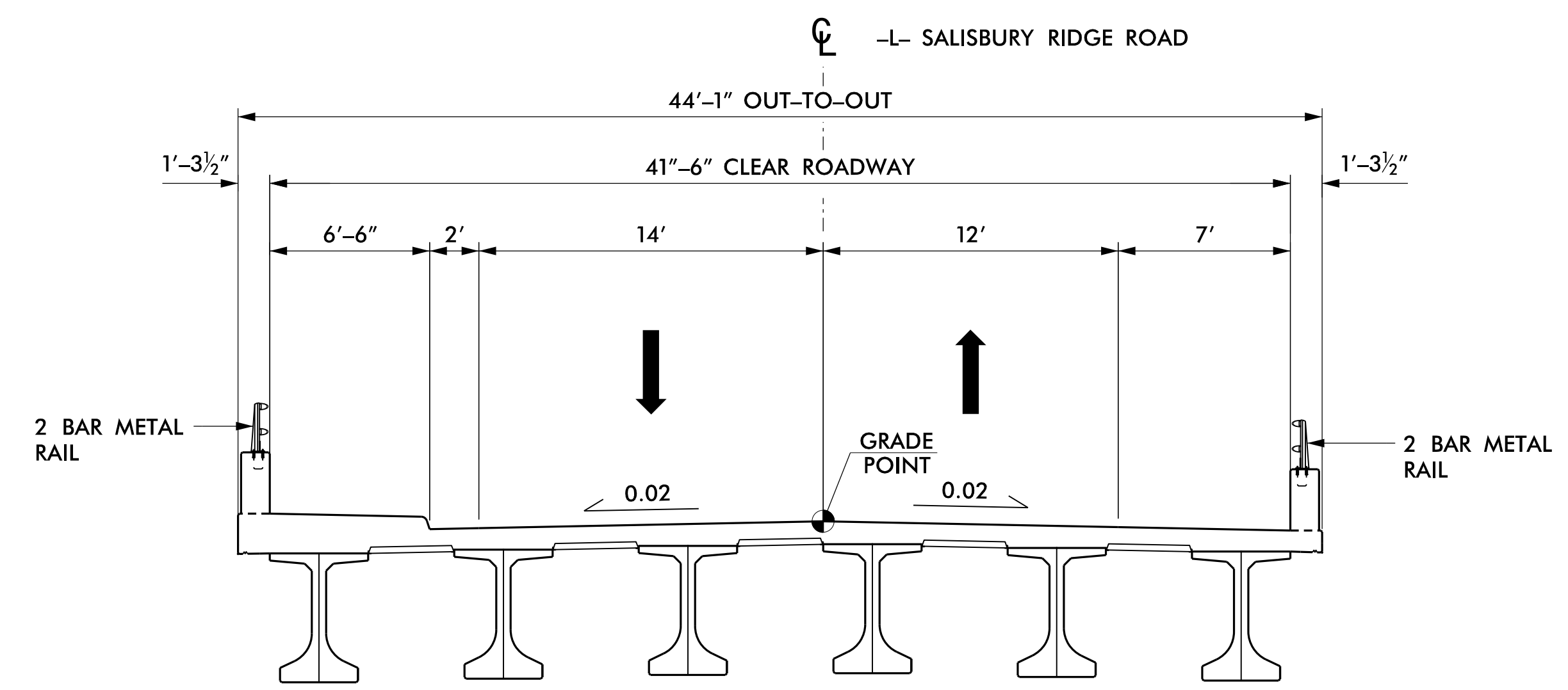
6/2/2022

BRIDGE NO. 330243

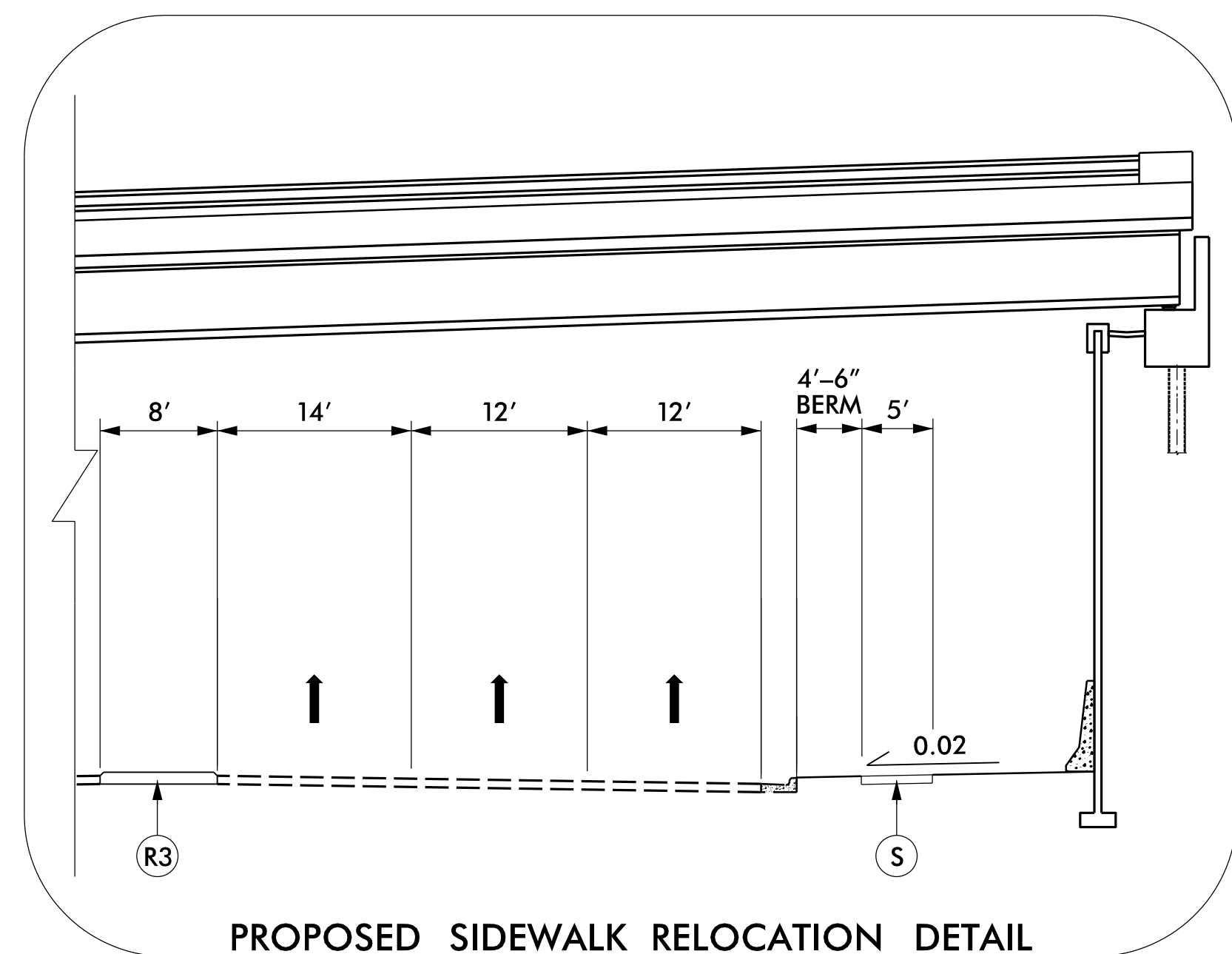
PROJECT REFERENCE NO. B-5770		SHEET NO. 2A-2	
ROADWAY DESIGN ENGINEER 3/1/2022		PAVEMENT DESIGN ENGINEER 3/7/2022	
DocuSigned by: John P. Malzer		DocuSigned by: Clark S. Morrison	
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PREPARED IN THE OFFICE OF:			
		NC FIRM LICENSE No: C-1506 301 Fayetteville Street, Suite 1500 Raleigh, NC 27601 (919)882-7839	

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 NOTE: FINAL PAVEMENT DESIGN PER PAVEMENT DESIGN MEMO DATED 01/07/2019 FROM CLARK S. MORRISON, PHD, P.E.

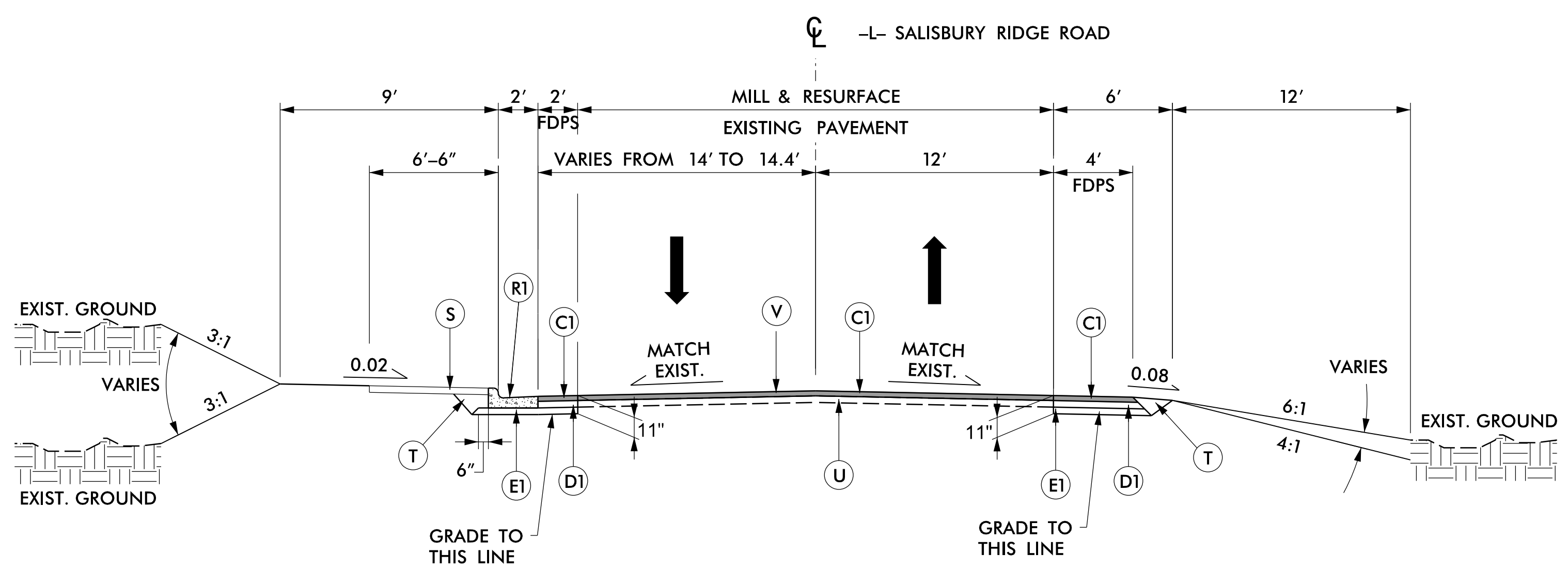


TYPICAL SECTION NO. 3
 BRIDGE OVER PETERS CREEK PARKWAY (NC HWY 150)
 -L- STA. 16+17.69 TO STA. 17+70.73



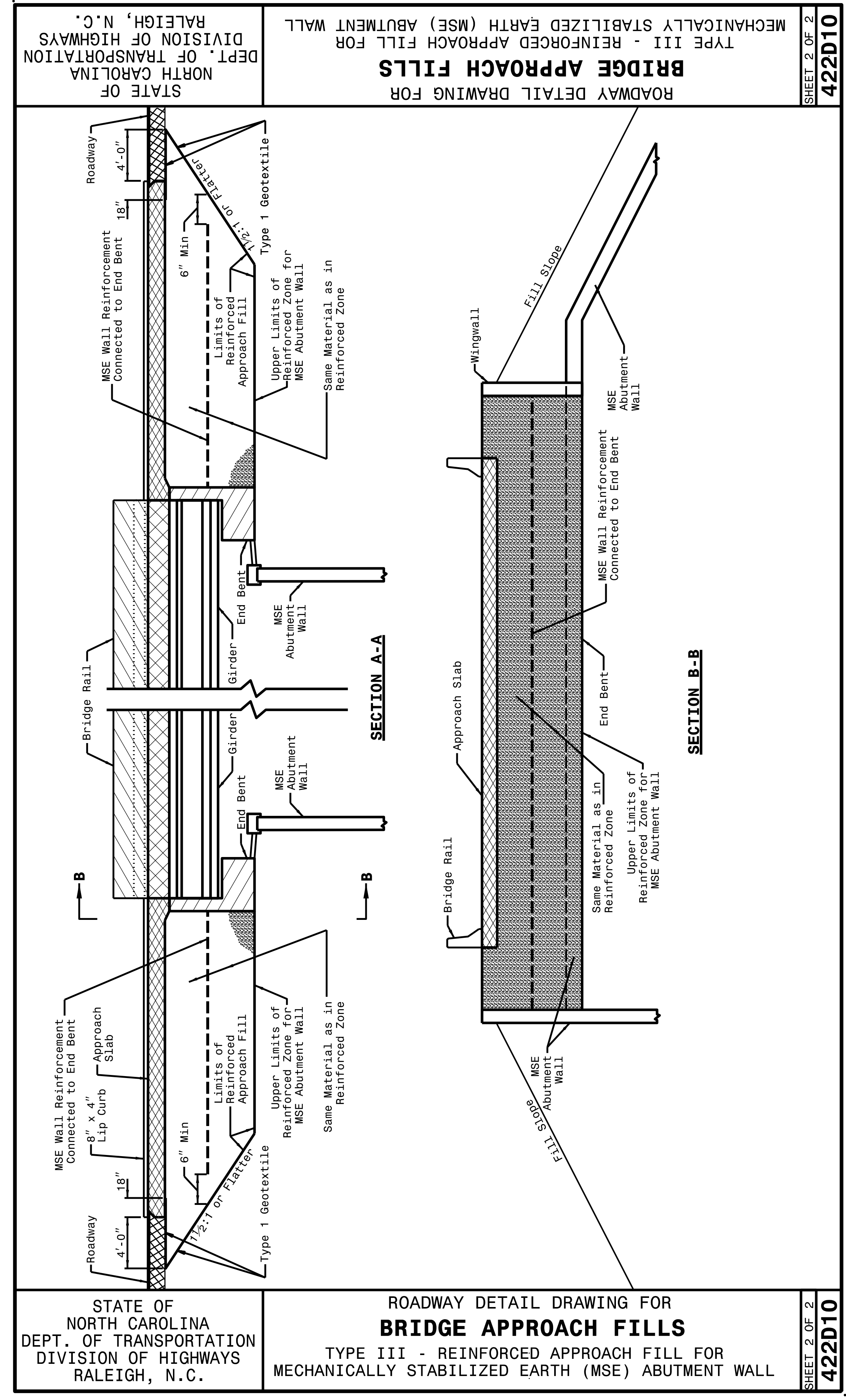
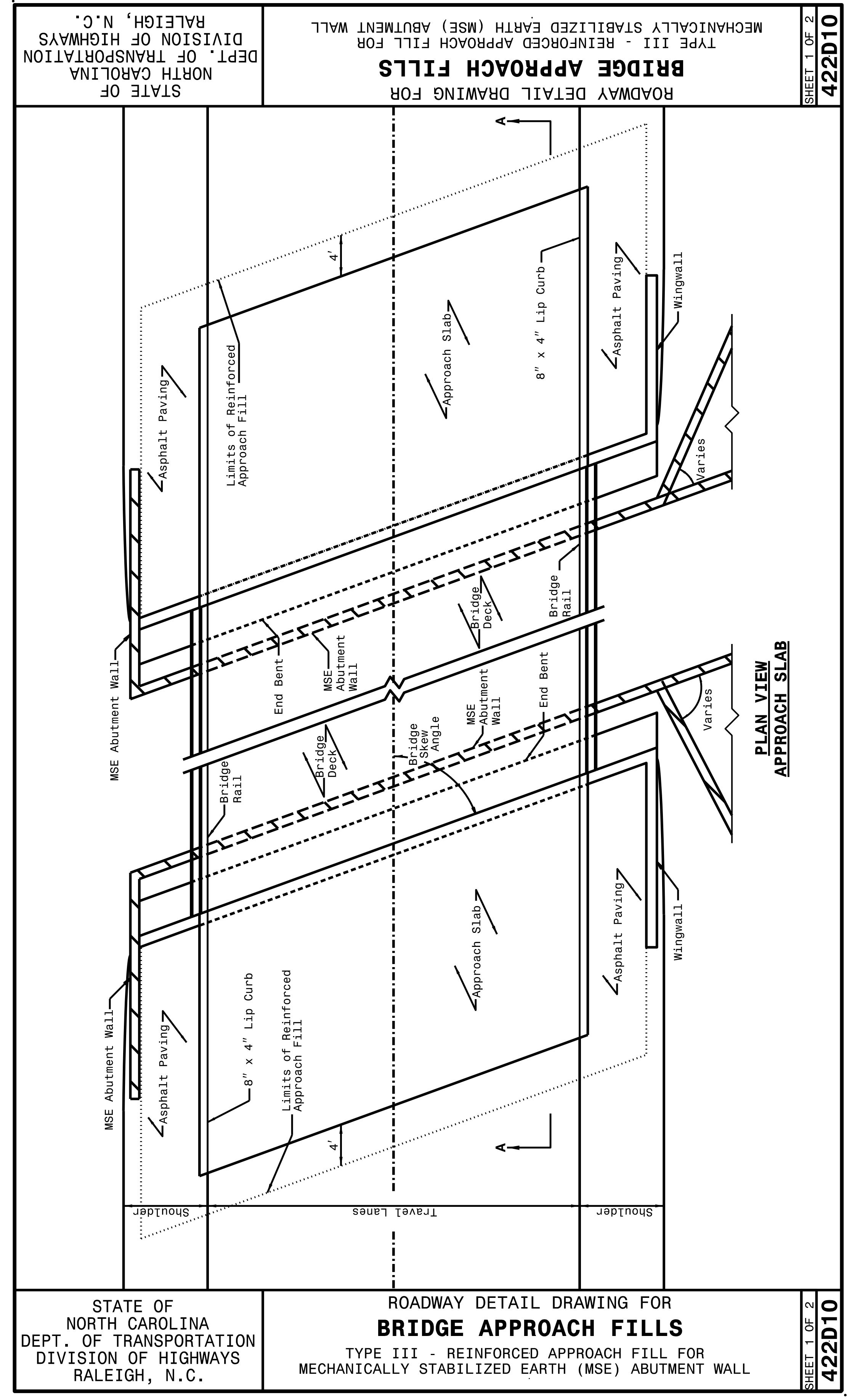
PROPOSED SIDEWALK RELOCATION DETAIL
 -Y- STA. 11+19.64 TO STA. 12+18.24
PROPOSED 5" MONOLITHIC CONCRETE ISLAND DETAIL
 -Y- STA. 11+19.65 TO STA. 11+54.07

STATION RANGES ARE APPROXIMATE ONLY.
 MAY BE ADJUSTED BY ENGINEER
 TO ENSURE A PROPER TIE-IN.

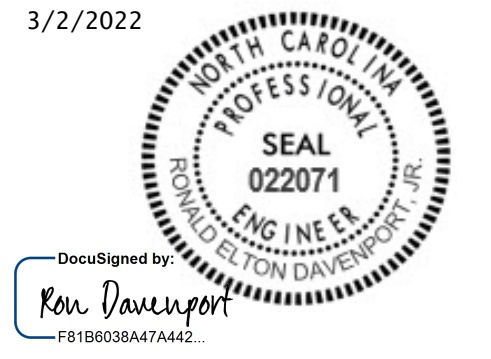


TYPICAL SECTION NO. 4
 -L- STA. 19+25.91 TO STA. 20+76.20

01-MAR-2022 14:37 B-5770-R03-tpj-Typical_Sheets.dgn id:bhobee



3/2/2022



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

**TYPE III
REINFORCED
APPROACH FILLS**

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

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

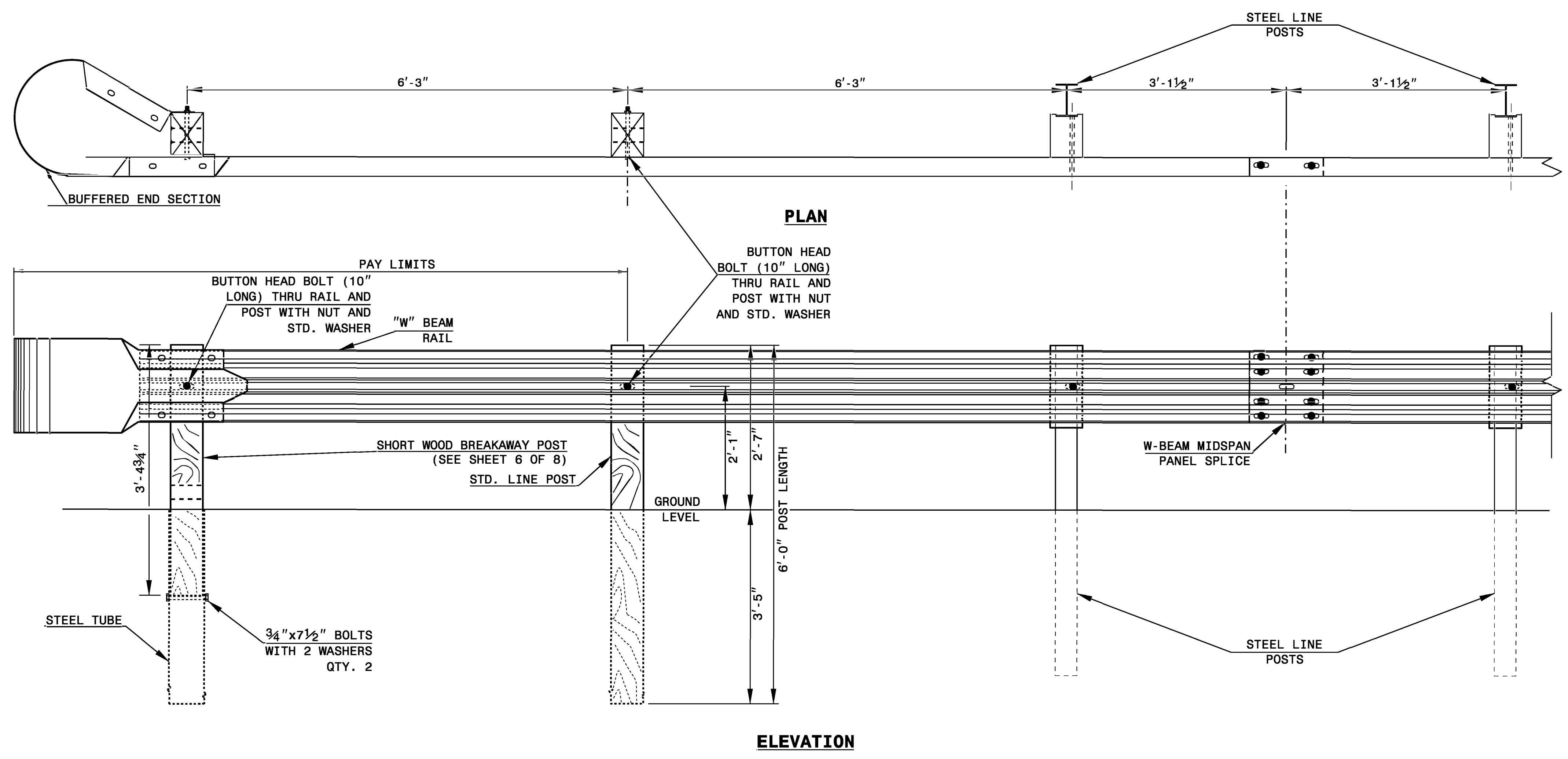
ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

SHEET OF

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

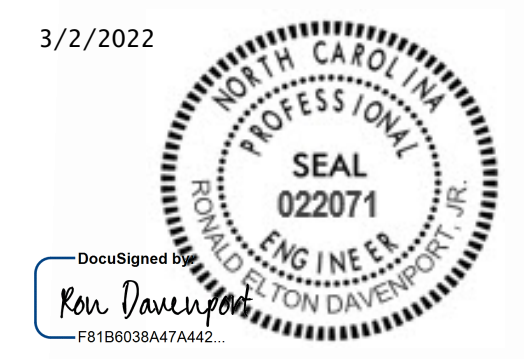
ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

SHEET OF



TRAILING END UNIT ASSEMBLY
A.T. - 1 SYSTEM

3/2/2022



DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

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

A.T. - 1 SYSTEM

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

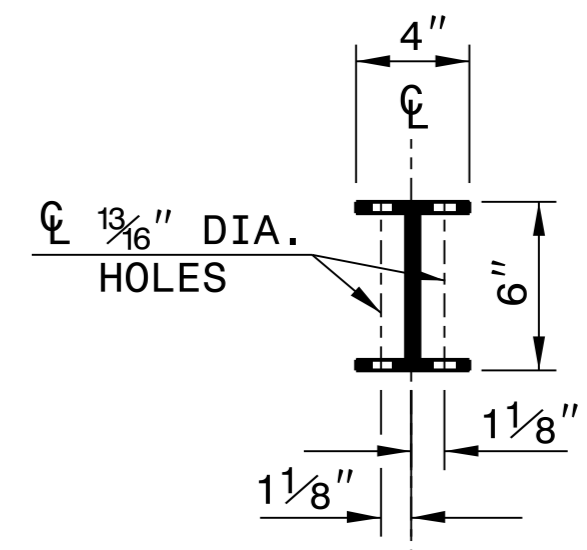
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

SHEET 6 OF 8
862D02



STANDARD W-BEAM GUARDRAIL



PLAN



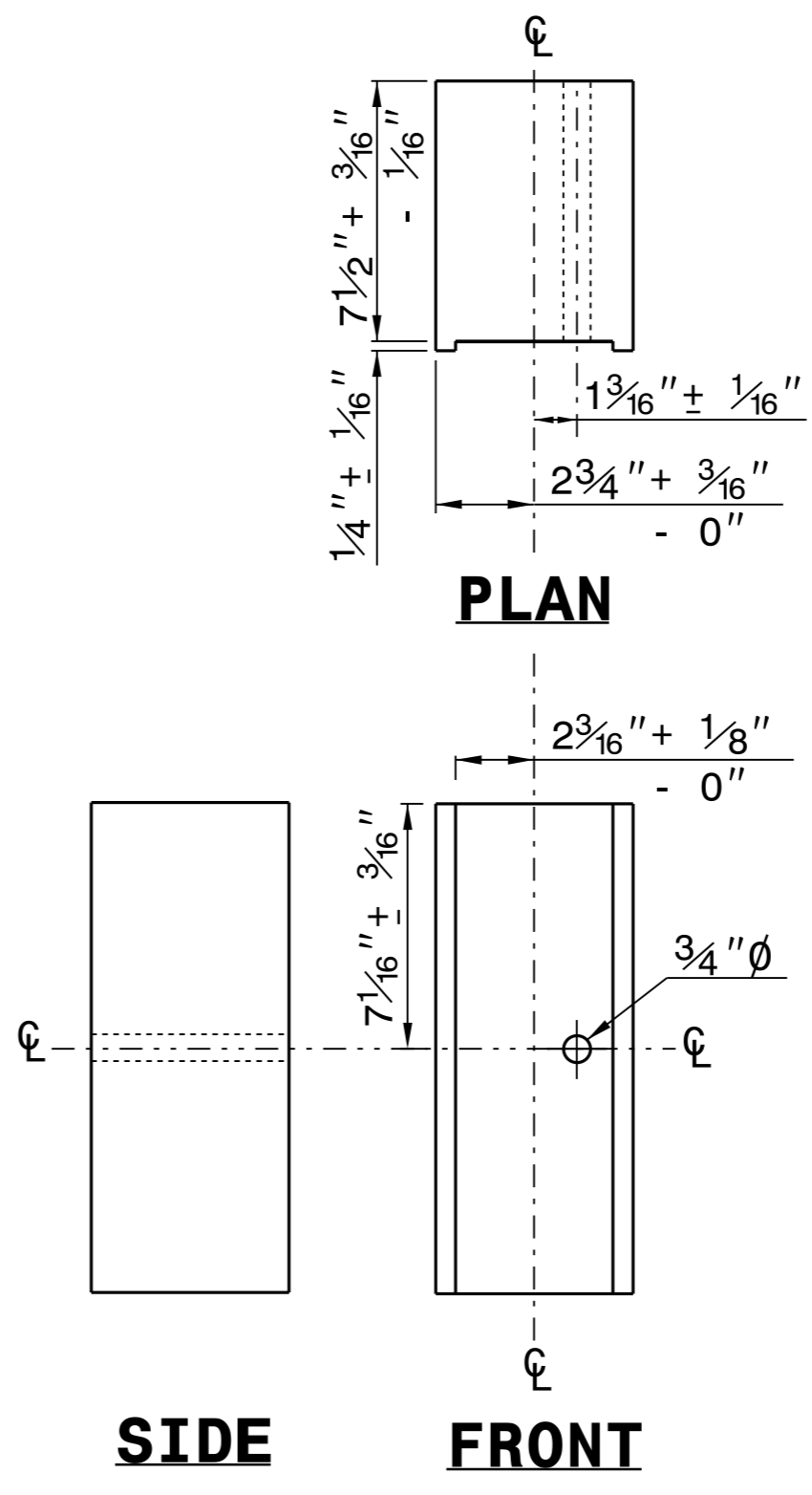
WOOD OFFSET BLOCK
(FOR WOOD POSTS)

STANDARD LINE POST

SHORT WOOD BREAKAWAY POST



STEEL TUBE
TS 6"x8"x0.1875"

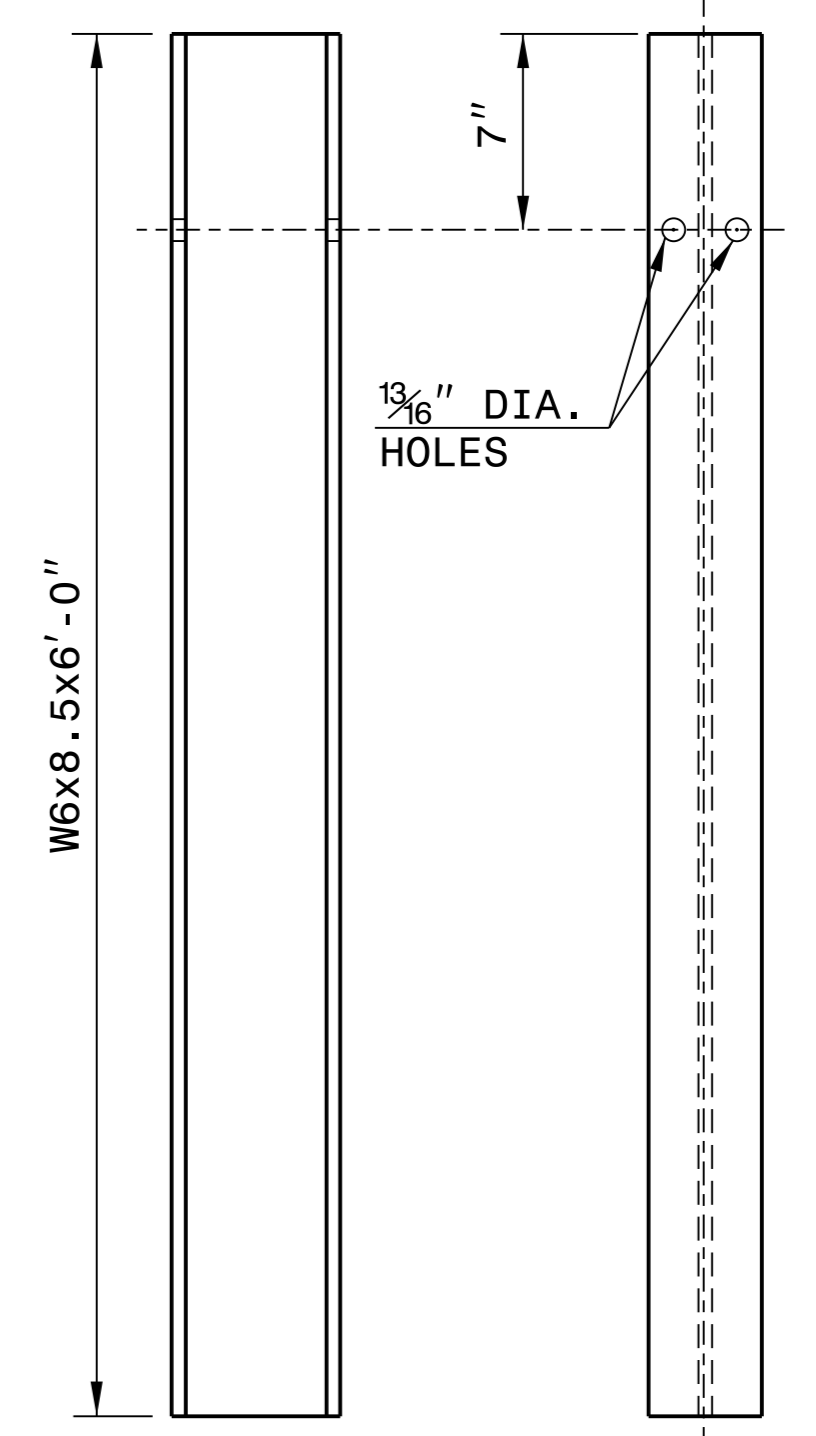


PLAN

SIDE

FRONT

ROUTED OFFSET BLOCK



SIDE

FRONT

"W6" STEEL POST

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

ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

SHEET 6 OF 8
862D02

SYSTEM PARTS

3/2/2022




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

SEE TITLE BLOCK

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

5/19/2026

COMPUTED BY: AJM DATE: 02/06/2020
 CHECKED BY: JPM DATE: 02/06/2020

PROJECT REFERENCE NO.	SHEET NO.
B-5770	3B-1
PREPARED IN THE OFFICE OF:	 NC FIRM LICENSE No: C-1506 301 Fayetteville St., Suite 1500 Raleigh, NC 27601 (919)882-7839
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA

SUMMARY OF EARTHWORK IN CUBIC YARDS

Station	Station	Uncl. Excav.	Embank. +%	Borrow	Waste
13+92.44	16+17.69	23	1659	1636	
17+70.73	20+76.20	19	2161	2142	
SUBTOTALS:		42	3820	3777	
PROJECT TOTALS:		42	3820	3777	
REPLACE TOP SOIL ON BORROW PITT (5%):				189	
GRAND TOTALS:		42	3820	3966	
SAY:		50		3970	

NOTE: Approximate quantities only. Unclassified Excavation, Borrow Excavation, Fine Grading, Clearing and Grubbing and Removal of Existing Pavement will be paid for at the contract lump sum price for "Grading".

These earthwork quantities are based in part on subsurface data provided by the Geotechnical Engineering Unit

SHOULDER BERM GUTTER SUMMARY IN LINEAR FEET

LINE	Station	Station	LENGTH
-L-	15+37.00	15+96.72	59.72
-L-	17+76.32	18+31.00	54.68
TOTAL:			114.40
SAY:			115

PAVEMENT REMOVAL SUMMARY IN SQUARE YARDS

SURVEY LINE	Station	Station	LOCATION LT/RT/CL	ASPHALT REMOVAL	ASPHALT BREAKUP	CONCRETE REMOVAL	CONCRETE BREAKUP
-L-	14+43.16	15+79.53	CL	404.51			
-L-	18+23.80	19+25.91	CL	268.59			
-L-	19+50.23	19+90.64	LT			31.32	
-Y-	11+19.65	11+54.07	CL			32.17	
TOTAL:				673.10		63.49	
SAY:				680		70	

COMPUTED BY: JMD DATE: 02/27/2020
 CHECKED BY: JHD DATE: 2/27/2020

DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA **GUARDRAIL SUMMARY**

G = GATING IMPACT ATTENUATOR TYPE 350
 NG = NON-GATING IMPACT ATTENUATOR TYPE 350

"N" = DISTANCE FROM EDGE OF LANE TO FACE OF GUARDRAIL
 TOTAL SHOULDER WIDTH = DISTANCE FROM EDGE OF TRAVEL LANE TO SHOULDER BREAK POINT
 FLARE LENGTH = DISTANCE FROM LAST SECTION OF PARALLEL GUARDRAIL TO END OF GUARDRAIL
 W = TOTAL WIDTH OF FLARE FROM BEGINNING OF TAPER TO END OF GUARDRAIL

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHOUL WIDTH	FLARE LENGTH		W		ANCHORS								ADDITIONAL GUARDRAIL POST	IMPACT ATTENUATOR TL-3		SINGLE FACED CONCRETE BARRIER	REMOVE EXISTING GUARDRAIL	REMOVE & STOCKPILE EXISTING GUARDRAIL	REMARKS									
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	Type III	B-77	GREU, TL-3	GREU, TL-2	CAT-1	AT-1	Type III SC	B-77 SC		G	NG													
-L-	15+15.62	16+06.44	RT	81.25	12.5		15+15.62	BRIDGE	7.14	10.14	68.75		1		1																							
-L-	15+64.34	16+24.54	LT	56.25			BRIDGE	16+24.54	8.5	11.5		50		1																								
-L-	17+65.36	18+63.04	RT	93.75			BRIDGE	18+63.04	7.1	10.1		50		1																								
-L-	17+83.45	18+62.39	LT	75			BRIDGE	17+83.45	8.5	11.5	50		1																									
-Y-	11+27.55	12+15.05	RT																																			
-Y-	10+72.64	11+49.48	LT																																			
Contingency																																						
			Less 3 GREU TL-2 @ 25' Each	75																																		
			Less 4 Type III @ 18.75' Each	75																																		
			Less 1 AT-1 @ 6.25' Each	6.25																																		
SUBTOTAL:				150	12.5										4			3																				
PROJECT TOTALS:				150	12.5										4			3																				

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5/19/20

COMPUTED BY: JMD DATE: 04/15/2020
 CHECKED BY: JPM DATE: 04/15/2020

PROJECT REFERENCE NO.	SHEET NO.
B-5770	36-1
PREPARED IN THE OFFICE OF:	 NC FIRM LICENSE No: C-1506 301 Fayetteville St., Suite 1500 Raleigh, NC 27601 (919) 882-7839
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA

SUMMARY OF SUBSURFACE DRAINAGE

IN LINEAR FEET

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

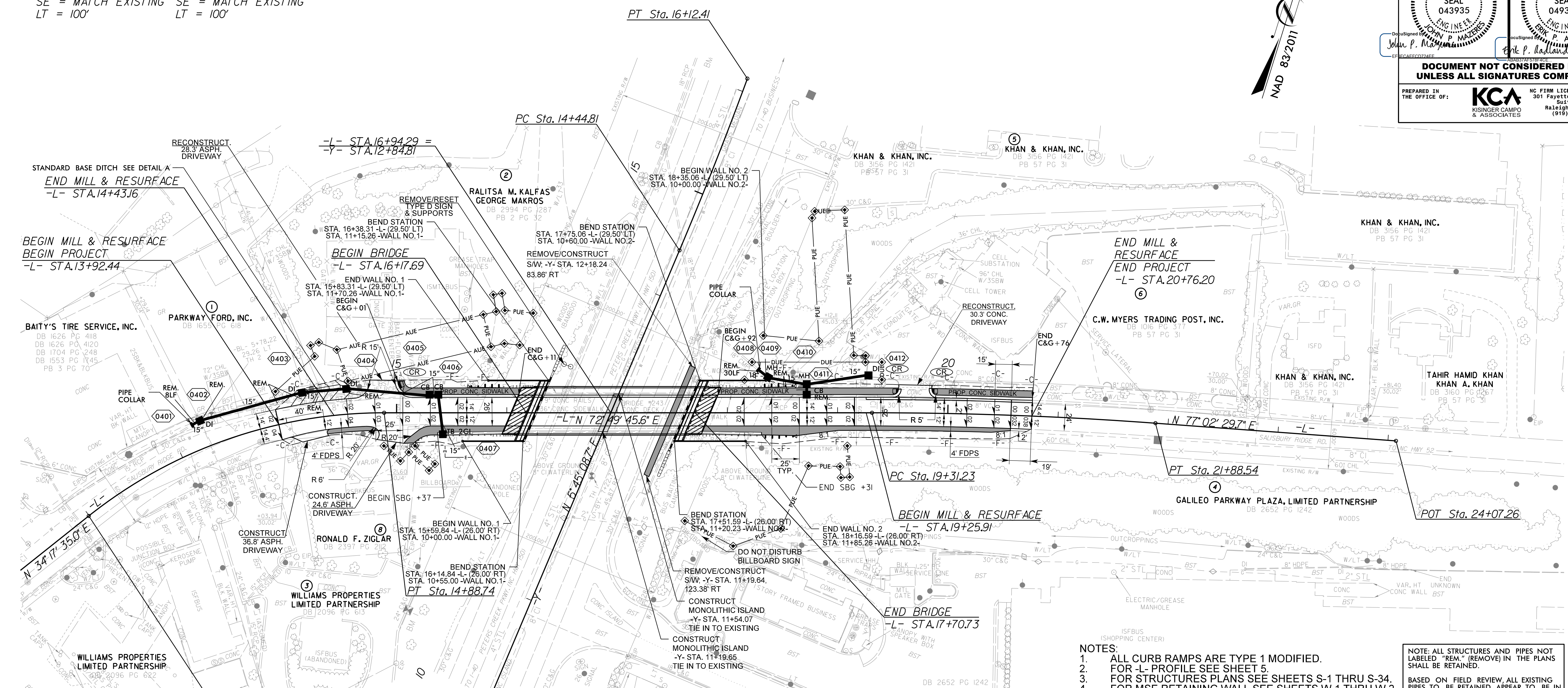
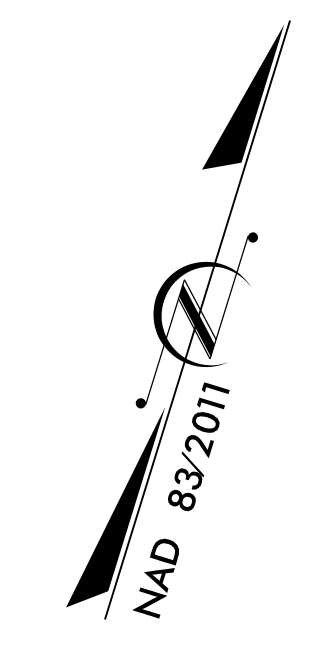
LINE	Station	Station	Aggregate Type* ASU(1/2)/ AST	Aggregate Thickness INCHES [8" for ASU(2)]	Shallow Undercut CY	Class IV Subgrade Stabilization TONS	Geotextile for Soil Stabilization SY	Stabilizer Aggregate TONS	Class IV Aggregate Stabilization TONS
CONTINGENCY			ASU	18	100	200	200		
			TOTAL CY/TONS/SY:		100	200**	200**	0	0

*ASU(1/2) = Aggregate Subgrade (Type 1 or 2)
 *AST = Aggregate Stabilization
 **Total tons of "Class IV Subgrade Stabilization" and total square yards of "Geotextile for Soil Stabilization" are only the estimated quantities for ASU(1/2)/AST and may only represent a portion of the subgrade stabilization and geotextile quantities shown in the Item Sheets of the Proposal.

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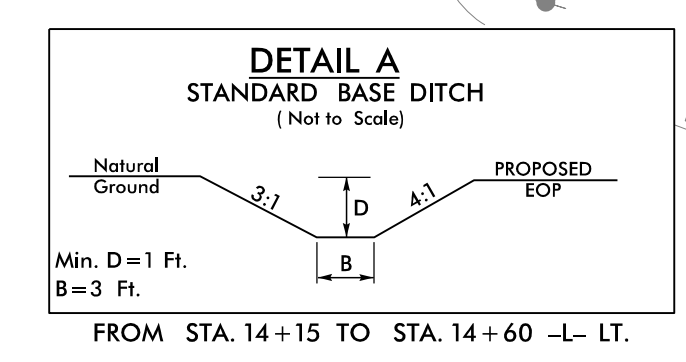
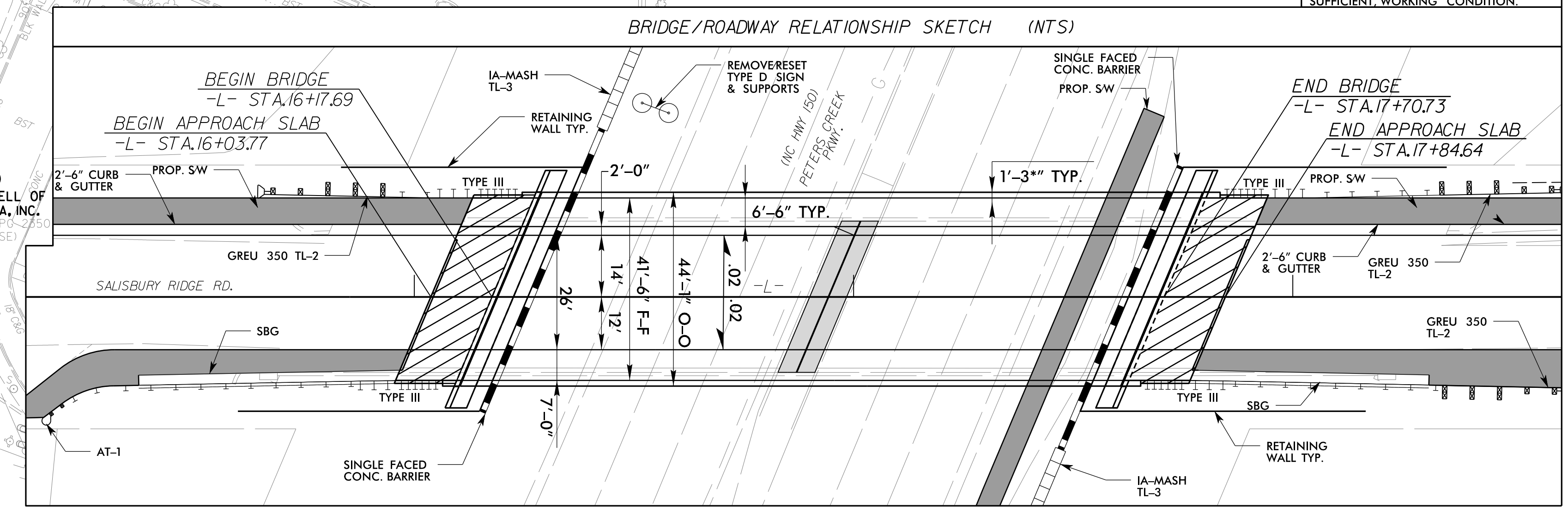
PROJECT REFERENCE NO. B-5770		SHEET NO. 4	
RW SHEET NO.		HYDRAULICS ENGINEER	
ROADWAY DESIGN ENGINEER		3/1/2022	
3/1/2022		3/1/2022	
DESIGNED BY			
John P. Maloney		Erik P. Asstani	
UNLESS ALL NOTICED FINAL WITHOUT SIGNATURES COMPLETED			
PREPARED IN THE OFFICE OF: KCA KISINGER CAMPO & ASSOCIATES NC FROM LICENSE NO. C-1506 301 Fayetteville Street, Suite 1500 Raleigh, NC 27601 (919) 862-7839			

-L-	-Y-	-Y-
PI Sta 13+49.84	PI Sta 20+59.95	PI Sta 15+28.63
$\Delta = 38' 32" 10.6" (RT)$	$\Delta = 4' 12" 44.1" (RT)$	$\Delta = 2' 44" 37.0" (LT)$
$D = 13' 19" 28.6"$	$D = 1' 38" 13.3"$	$D = 1' 38" 13.3"$
$L = 289.2'$	$L = 257.3'$	$L = 167.60'$
$T = 150.32'$	$T = 128.71'$	$T = 83.81'$
$R = 430.00'$	$R = 3,500.00'$	$R = 3,500.00'$
SE = MATCH EXISTING	SE = MATCH EXISTING	
LT = 100'	LT = 100'	



- NOTES:
1. ALL CURB RAMP ARE TYPE 1 MODIFIED.
 2. FOR -L- PROFILE SEE SHEET 5.
 3. FOR STRUCTURES PLANS SEE SHEETS S-1 THRU S-34.
 4. FOR MSE RETAINING WALL SEE SHEETS W-1 THRU W-2.

NOTE: ALL STRUCTURES AND PIPES NOT LABELED "REM." (REMOVE) IN THE PLANS SHALL BE RETAINED.
 BASED ON FIELD REVIEW, ALL EXISTING PIPES TO BE RETAINED APPEAR TO BE IN SUFFICIENT WORKING CONDITION.



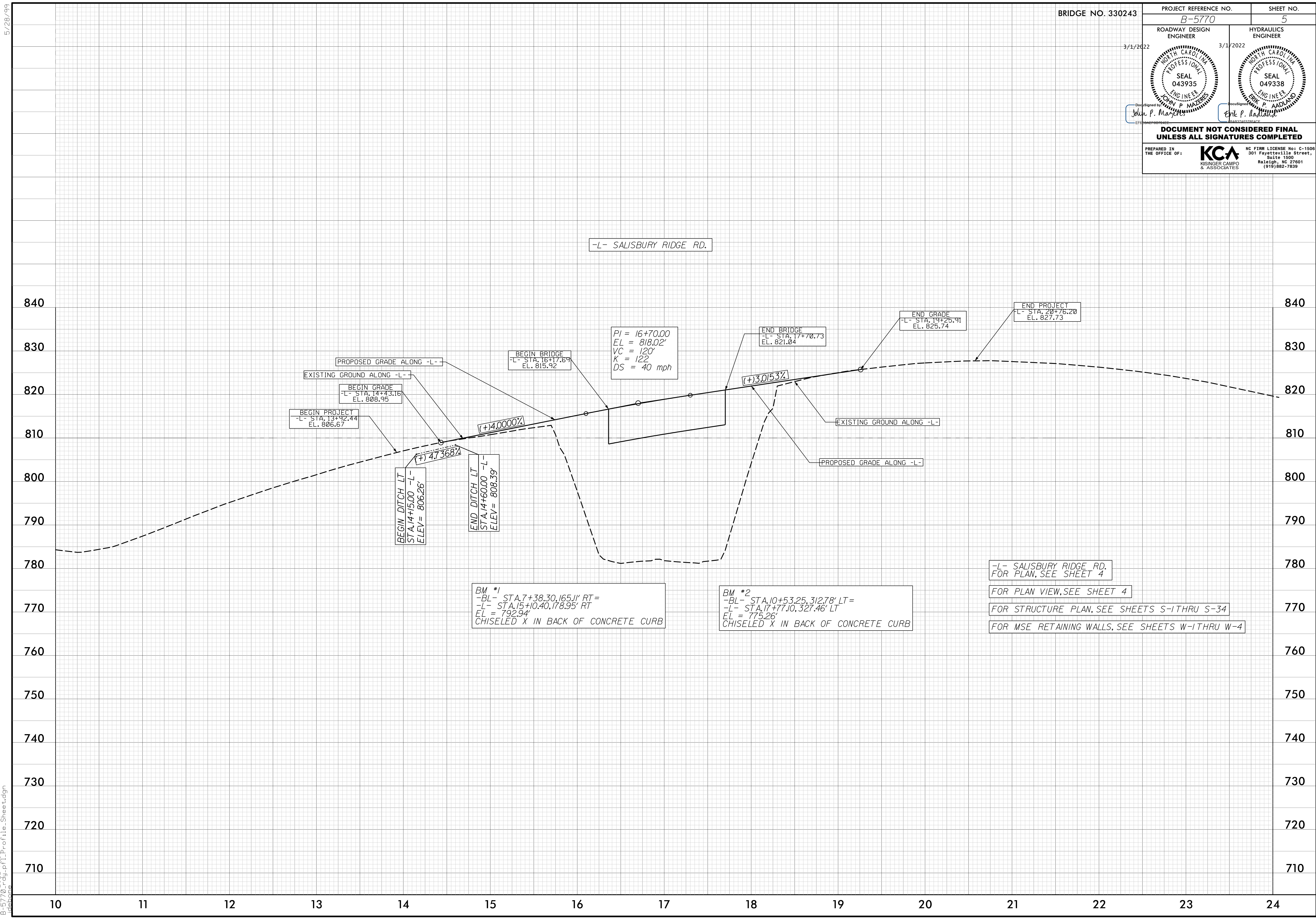
REVISIONS

8/17/99

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5/28/22

BRIDGE NO. 330243		PROJECT REFERENCE NO. B-5770	SHEET NO. 5
ROADWAY DESIGN ENGINEER 3/1/2022		HYDRAULICS ENGINEER 3/1/2022	
<p>DocuSigned by: John P. Matzies</p> <p>DocuSigned by: Erik P. Maddox</p>			
<p>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</p>			
<p>PREPARED IN THE OFFICE OF:</p>		<p>KCA KISINGER CAMPO & ASSOCIATES</p>	
		<p>NC FIRM LICENSE No: C-1506 301 Fayetteville Street, Suite 1500 Raleigh, NC 27601 (919)882-7839</p>	



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