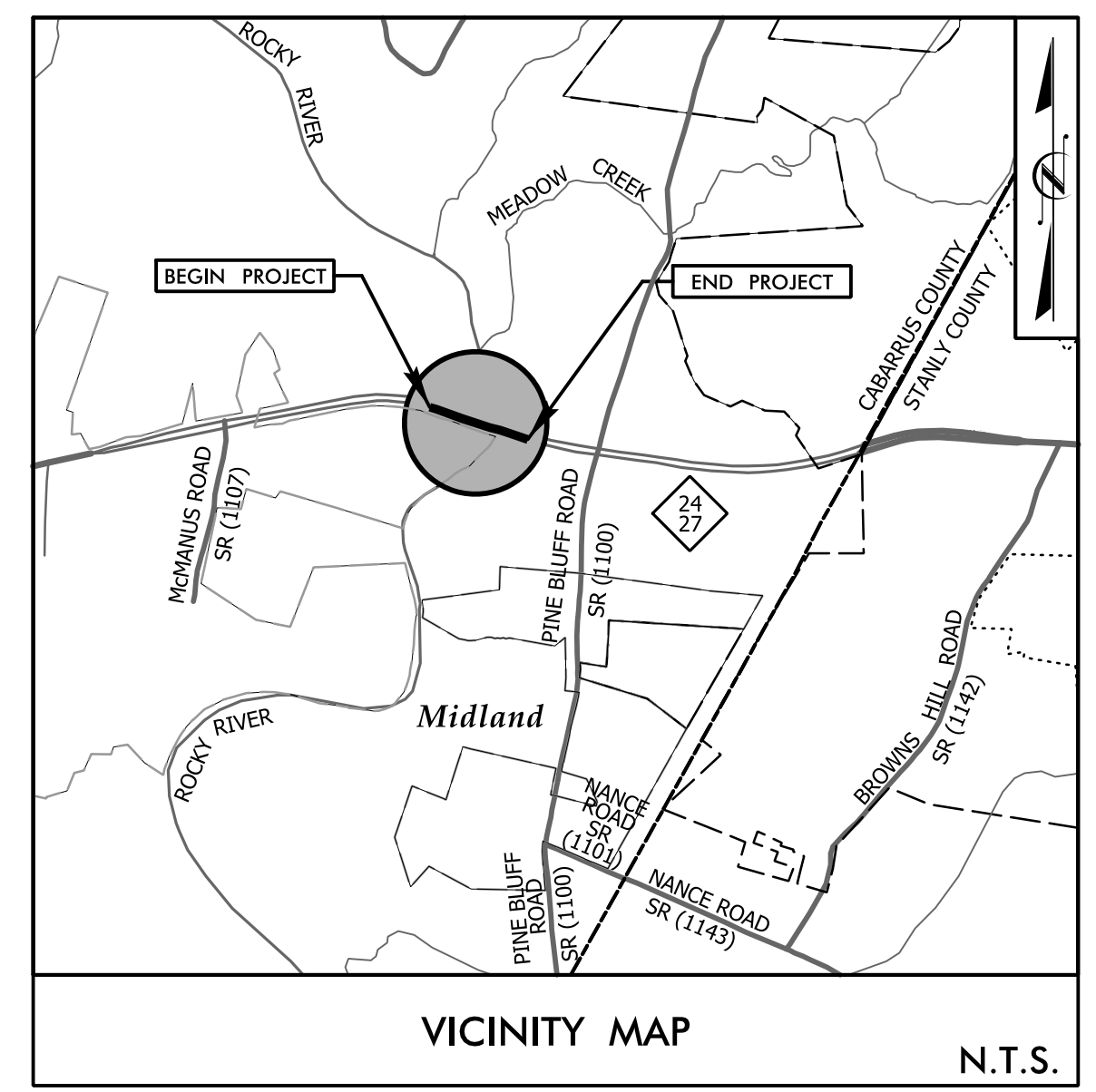


TIP PROJECT: B-5810

CONTRACT: C204714

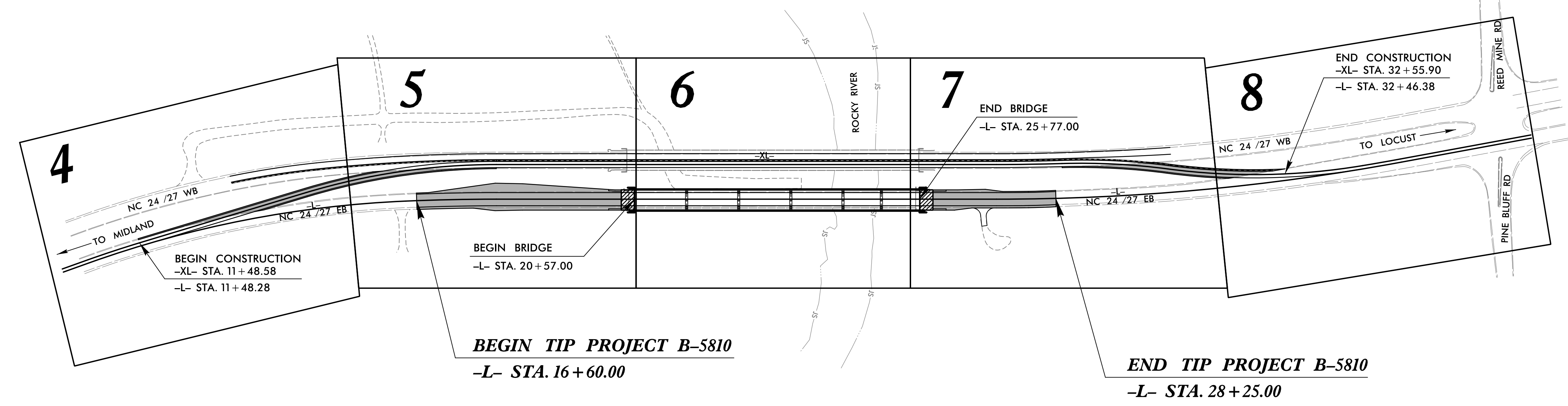
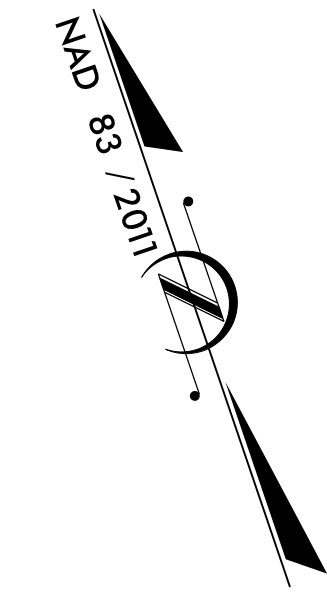
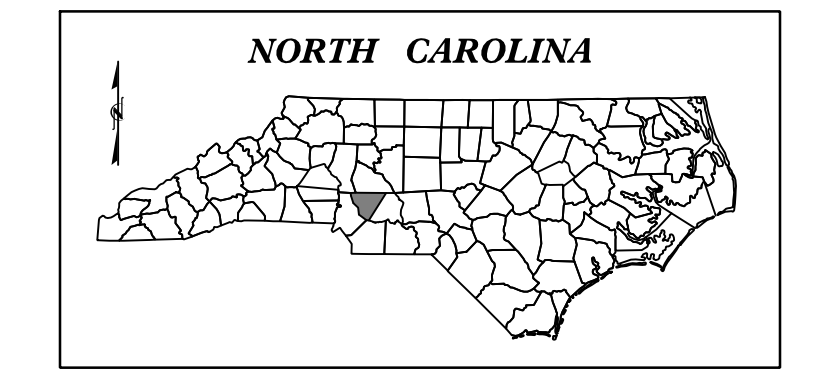
See Sheet 1A For Index of Sheets
See Sheet 1B For Standard Symbology Sheet



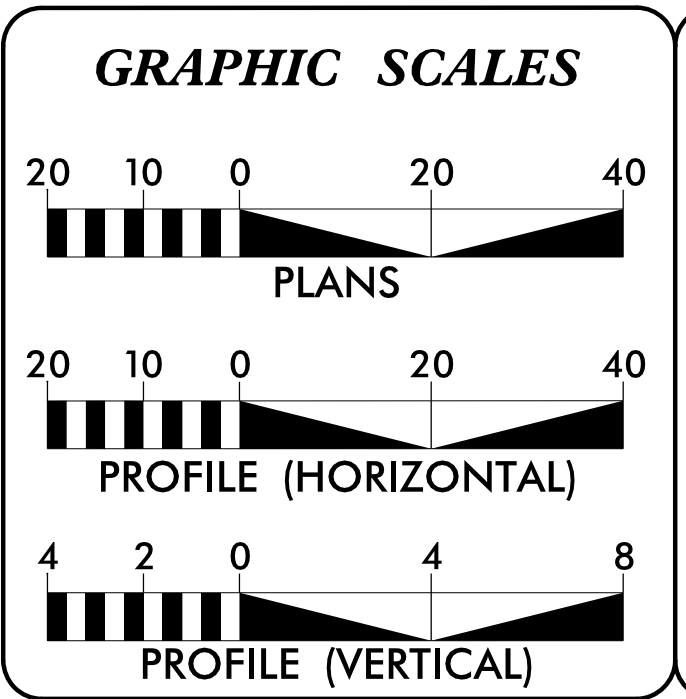
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
CABARRUS COUNTY

LOCATION: BRIDGE #022 OVER ROCKY RIVER ON (EASTBOUND NC 24/27)
TYPE OF WORK: GRADING, DRAINAGE, PAVING & STRUCTURE

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5810	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
45764.1.1		P.E.	
45764.2.1		ROW & UTILITIES	
45764.3.1		CONSTRUCTION	



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



DESIGN DATA

ADT 2022 =	10,830
ADT 2042 =	13,580
K =	9%
D =	65%
T =	14%*
V =	60 MPH
FUNC. CLASSIFICATION: MINOR ARTERIAL	
* (TTST 6% + DUALS 8%)	

PROJECT LENGTH

LENGTH OF ROADWAY TIP PROJECT B-5810 =	0.123 MILES
LENGTH OF STRUCTURE TIP PROJECT B-5810 =	0.098 MILES
TOTAL LENGTH OF TIP PROJECT B-5810 =	0.221 MILES

NCDOT CONTACT: ADAM COLE
Structure Management Unit

PLANS PREPARED FOR THE NCDOT BY:

STV 100 Years
STV Engineers, Inc.
900 West Trade St., Suite 715
Charlotte, NC 28202
NC License Number F-0991

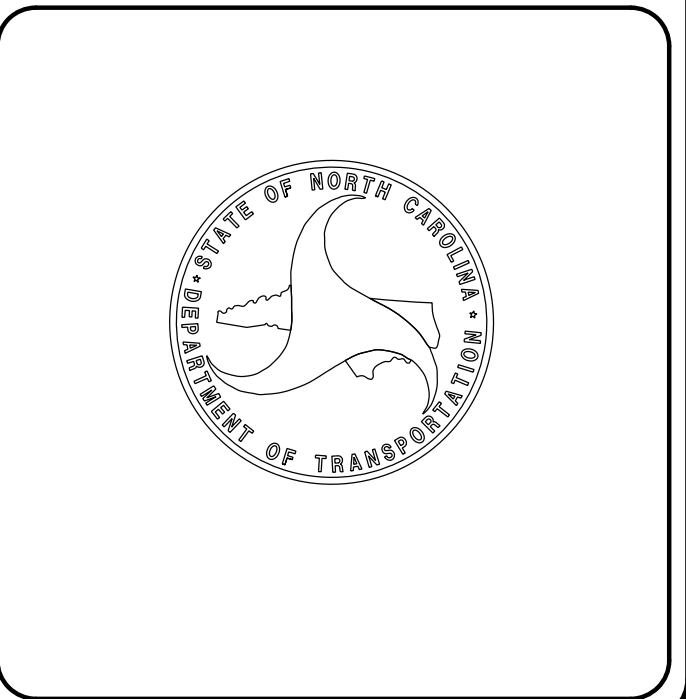
2018 STANDARD SPECIFICATIONS	
RIGHT OF WAY DATE: JULY 15, 2019	NIKKI T. HONEYCUTT, PE PROJECT ENGINEER
LETTING DATE: AUGUST 16, 2022	MAAMOON K. ABDELAZIZ PROJECT DESIGNER

HYDRAULICS ENGINEER

DocuSigned by:
Edward J. Vance
EDWARD J. VANCE, P.E.
SEAL 029388
8/17/2022


ROADWAY DESIGN ENGINEER

DocuSigned by:
Nikki T. Honeycutt
NIKKI T. HONEYCUTT, P.E.
SEAL 039234
8/16/2022





STV Engineers, Inc.
 800 West Trade St., Suite 715
 Charlotte, NC 28202
 NC License Number F-0991

PROJECT REFERENCE NO.	SHEET NO.
B-5810	1A
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	
	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

INDEX OF SHEETS

SHEET NUMBER	SHEET
1	TITLE SHEET
1A	INDEX OF SHEETS, GENERAL NOTES, AND LIST OF STANDARD DRAWINGS
1B	CONVENTIONAL SYMBOLS
2A-1 THRU 2A-2	TYPICAL SECTIONS AND DETAILS SHEET
2B-1 THRU 2B-6	TEMPORARY DETOUR DETAILS
2C-1 THRU 2C-2	SPECIAL DETAILS
3B-1	ROADWAY SUMMARIES
3D-1	DRAINAGE SUMMARY SHEET
3G-1	GEOTECHNICAL SUMMARY SHEET
3P-1	PARCEL INDEX SHEET
4 THRU 8	PLAN SHEETS
9 THRU 11	PROFILE SHEETS
RW-01 THRU RW-08	SURVEY CONTROL AND RIGHT OF WAY SHEETS
TMP-1 THRU TMP-12	TRAFFIC MANAGEMENT PLANS
PMP-1 THRU PMP-4	PAVEMENT MARKING PLANS
EC-1 THRU EC-14	EROSION CONTROL PLANS
SIGN-1 THRU SIGN-6	SIGNING PLANS
X-1A	CROSS SECTION SUMMARY SHEET
X-1 THRU X-19	CROSS SECTIONS
S-1 THRU S-36	STRUCTURE PLANS

GENERAL NOTES

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

GRADING AND SURFACING OR RESURFACING AND WIDENING:

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

CLEARING:

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

SUPERELEVATION:

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

GUARDRAIL:

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

TEMPORARY SHORING:

SHORING REQUIRED FOR THE MAINTENANCE OF TRAFFIC WILL BE PAID FOR AS "EXTRA WORK" IN ACCORDANCE WITH SECTION 104-7.

END BENTS:

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

STANDARD DRAWINGS

2018 ROADWAY ENGLISH STANDARD DRAWINGS EFF. January, 2018

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 Super-elevation - Two Lane Pavement
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation
DIVISION 4 - MAJOR STRUCTURES	
422.01	Bridge Approach Fills - Type I Standard Approach Fill
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 - 12" thru 30" Pipe
840.15	Brick Drop Inlet - 12" thru 30" Pipe
840.16	Drop Inlet Frame and Grates - for use with Std. Dwg 840.14 and 840.15
840.17	Concrete Grated Drop Inlet Type 'A' - 12" thru 72" Pipe
840.18	Concrete Grated Drop Inlet Type 'B' - 12" thru 36" Pipe
840.20	Frames and Wide Slot Flat Grates
840.22	Frames and Wide Slot Sag Grates
840.26	Brick Grated Drop Inlet Type 'A' - 12" thru 72" Pipe
840.27	Brick Grated Drop Inlet Type 'B' - 12" thru 36" Pipe
840.31	Concrete Junction Box - 12" thru 66" Pipe
840.32	Brick Junction Box - 12" thru 66" Pipe
840.35	Traffic Bearing Grated Drop Inlet - for Cast Iron Double Frame and Grates
840.36	Traffic Bearing Grated Drop Inlet - for Steel (840.37) 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
846.04	Drop Inlet Installation in Shoulder Berm Gutter
862.01	Guardrail Placement
862.02	Guardrail Installation
862.03	Structure Anchor Units
866.04	Barbed Wire Fence with Wood Posts (2 - 7 Strands)
876.01	Rip Rap in Channels
876.04	Drainage Ditches with Class 'B' Rip Rap

6/21/2022
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 MooreBS

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	-----x
Property Monument	□ ECM
Parcel/Sequence Number	⑩②③
Existing Fence Line	-x-x-x-x-
Proposed Woven Wire Fence	○
Proposed Chain Link Fence	□
Proposed Barbed Wire Fence	◇
Existing Wetland Boundary	-WLB-
Proposed Wetland Boundary	-WLB-
Existing Endangered Animal Boundary	-EAB-
Existing Endangered Plant Boundary	-EPB-
Existing Historic Property Boundary	-HPB-
Known Contamination Area: Soil	☠-S-☠
Potential Contamination Area: Soil	☠-S-☠
Known Contamination Area: Water	☠-W-☠
Potential Contamination Area: Water	☠-W-☠
Contaminated Site: Known or Potential	☠?

BUILDINGS AND OTHER CULTURE:

Gas Pump Vent or U/G Tank Cap	○
Sign	○ 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 Easment 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 CA Marker	-----C/A
Existing Control of Access	-----C/A
New Control of Access	-----C/A
Existing Easement Line	-----E
New Temporary Construction Easement	-----E
New Temporary Drainage Easement	-----TDE
New Permanent Drainage Easement	-----PDE
New Permanent Drainage / Utility Easement	-----DUE
New Permanent Utility Easement	-----PUE
New Temporary Utility Easement	-----TUE
New Aerial Utility Easement	-----AUE

ROADS AND RELATED FEATURES:

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

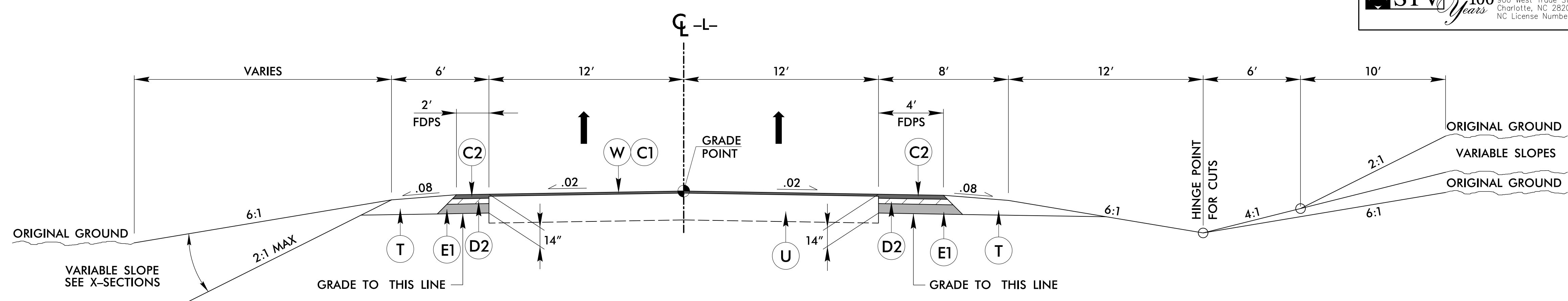
SANITARY SEWER:

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

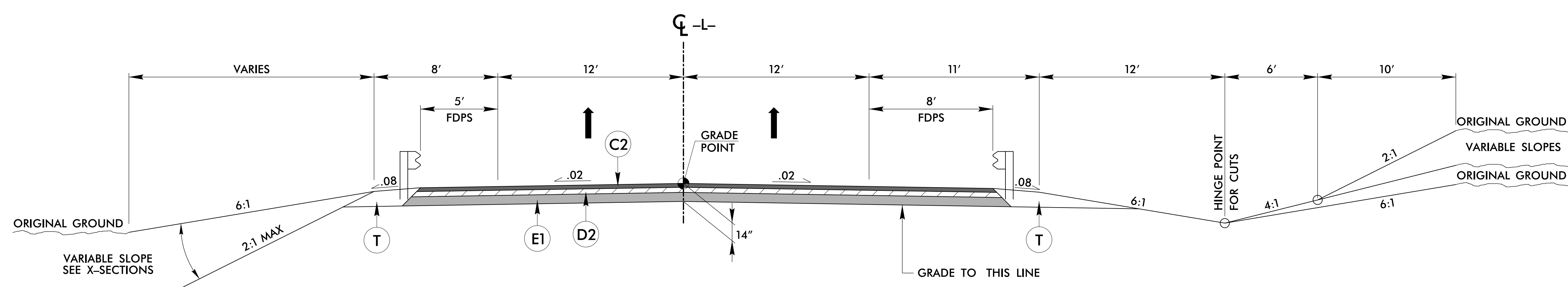
MISCELLANEOUS:

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

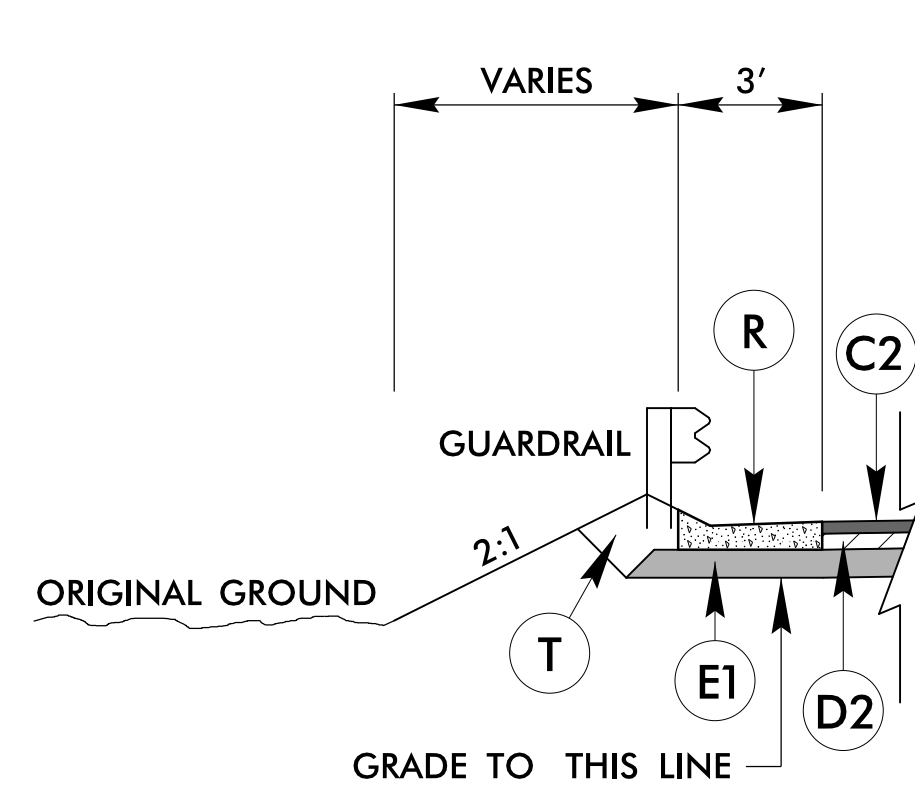
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RW SHEET NO.	
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



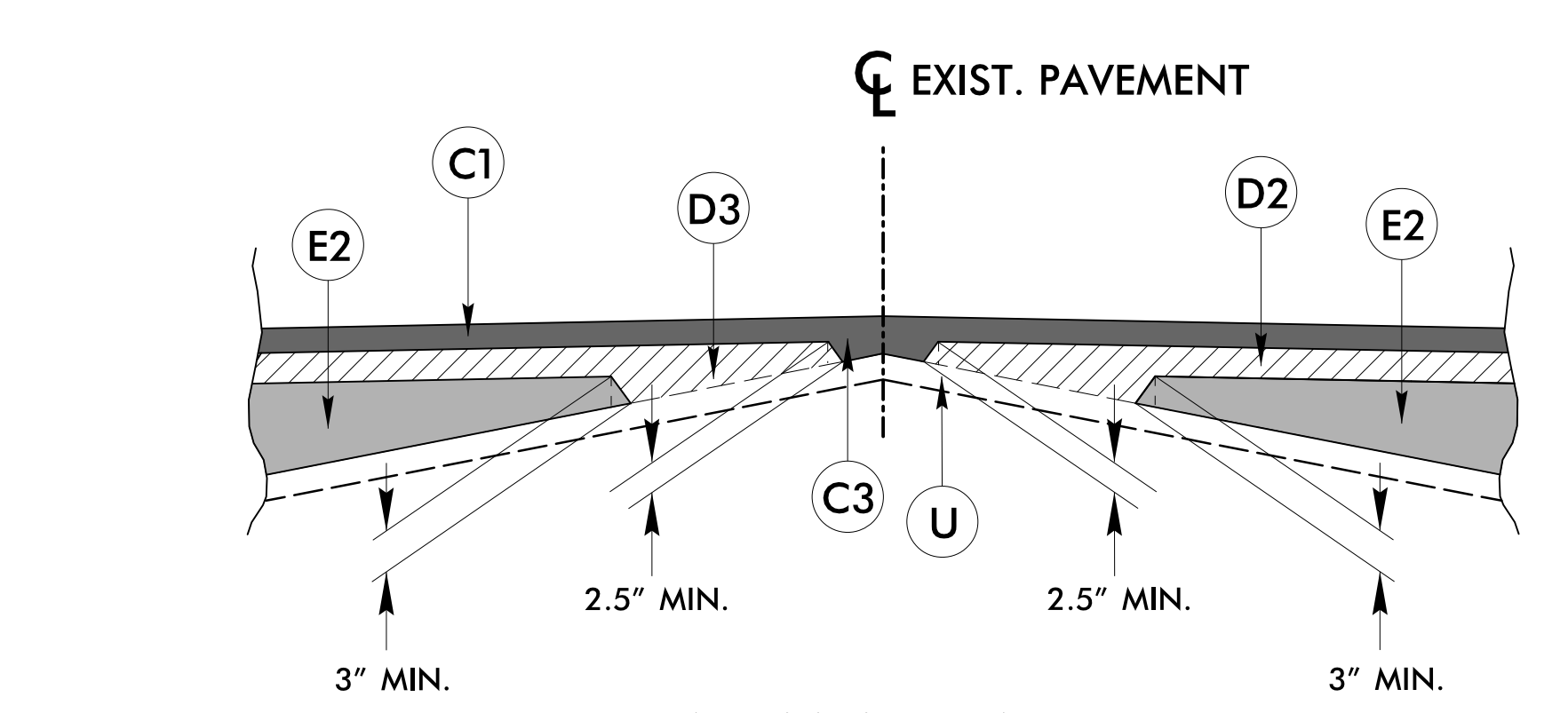
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 -L- STA. 16+60.00 TO 20+10.00
 -L- STA. 26+25.00 TO 28+25.00



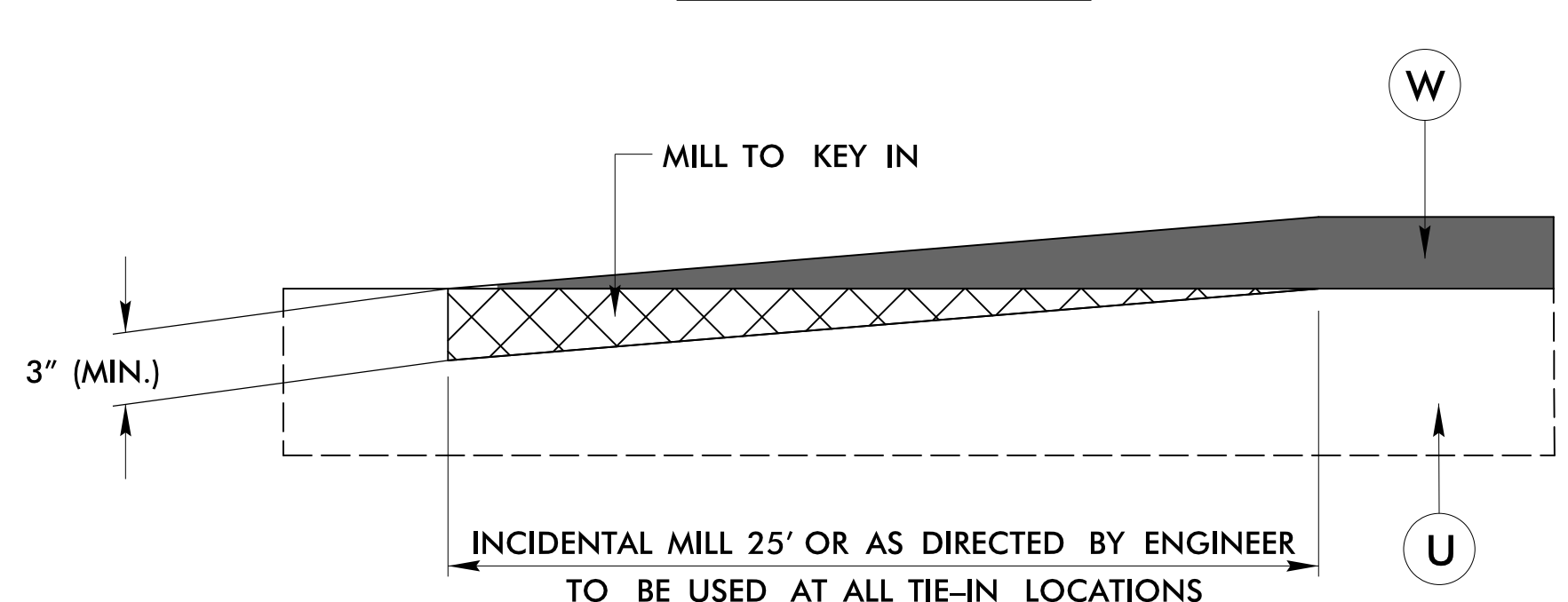
TYPICAL SECTION NO. 2
 -L- STA. 20+10.00 TO 20+33.00 (BEGIN APPROACH SLAB)
 -L- STA. 26+01.00 (END APPROACH SLAB) TO 26+25.00



DETAIL A
 -L- STA. 20+10.00 TO 20+33.00 (L/RT)
 -L- STA. 26+01.00 TO 26+25.00 (L/RT)



WEDGING DETAIL B

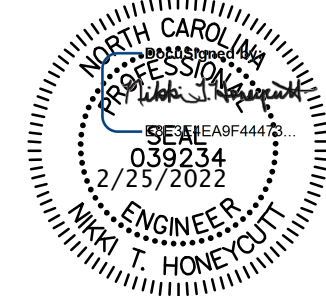


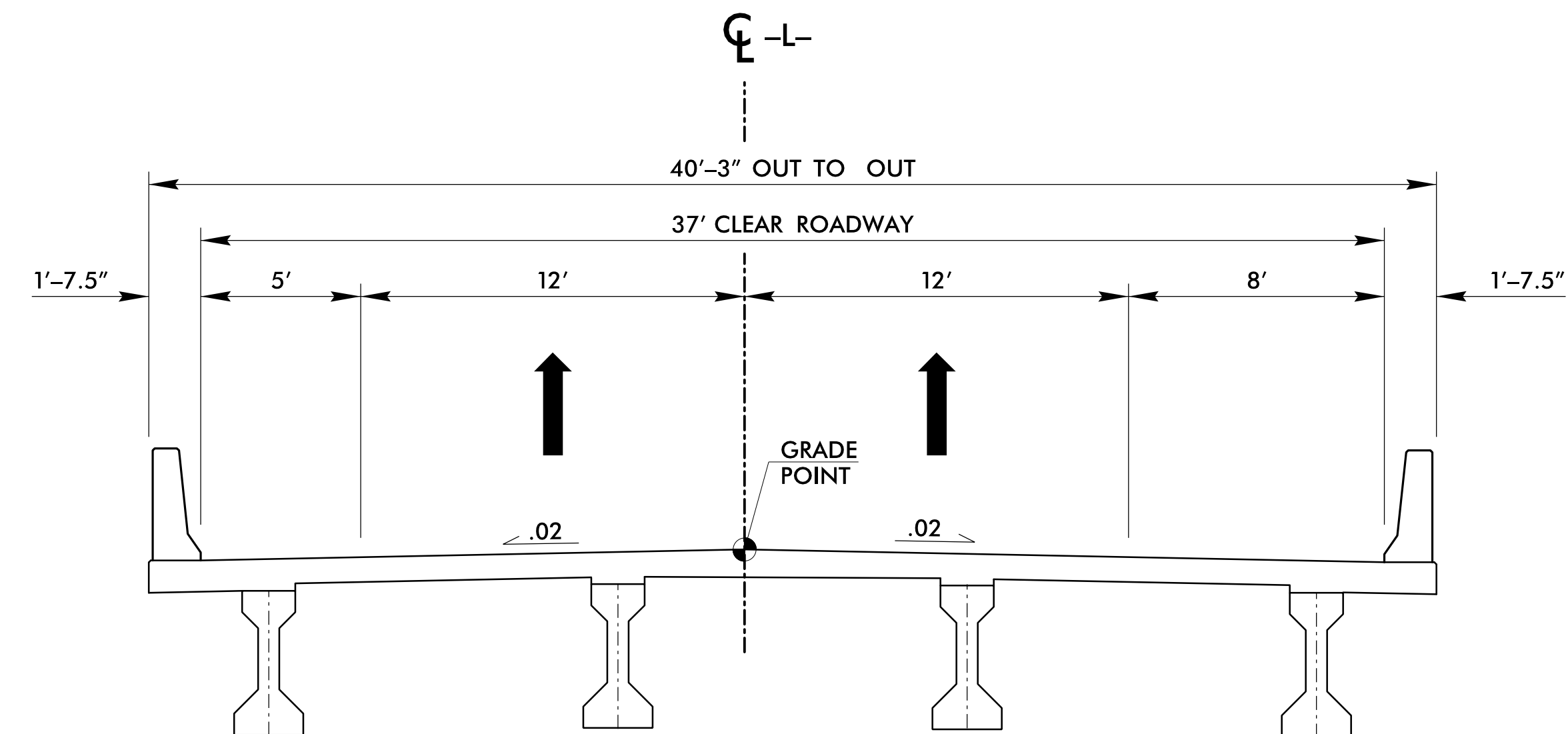
INCIDENTAL MILLING DETAIL C

FINAL PAVEMENT SCHEDULE	
C1	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C2	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 1.5" IN DEPTH OR GREATER THAN 2.0" IN DEPTH.
D1	PROP. APPROX. 2.5" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.
D2	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
D3	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 2.5" IN DEPTH OR GREATER THAN 4" IN DEPTH.
E1	PROP. APPROX. 7.0" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 399 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3.0" IN DEPTH OR GREATER THAN 5.5" IN DEPTH.
J	PROP. 8" AGGREGATE BASE COURSE
R	CONCRETE SHOULDER BERM GUTTER
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAIL)

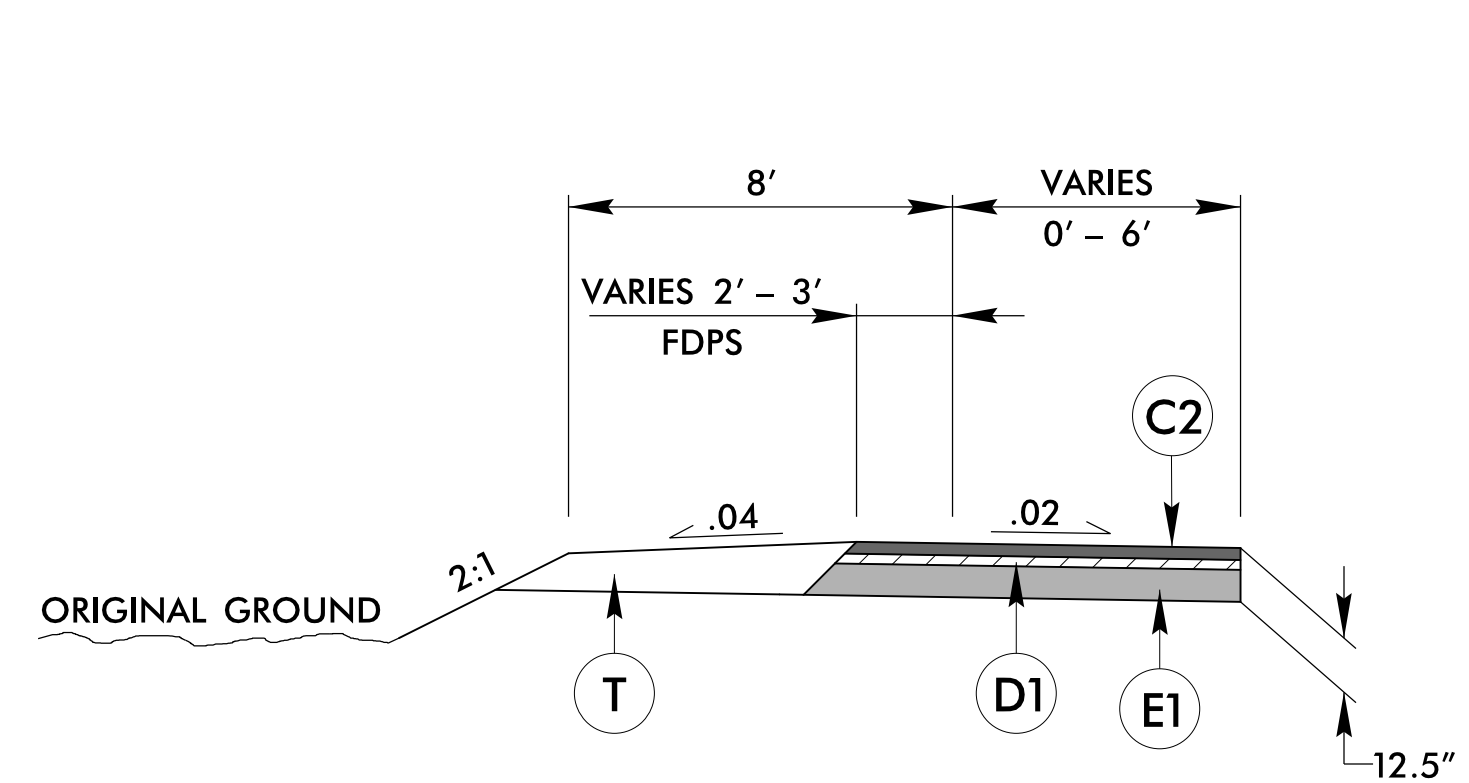
ALL PAVEMENT SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.

2/25/2022
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 MooreES

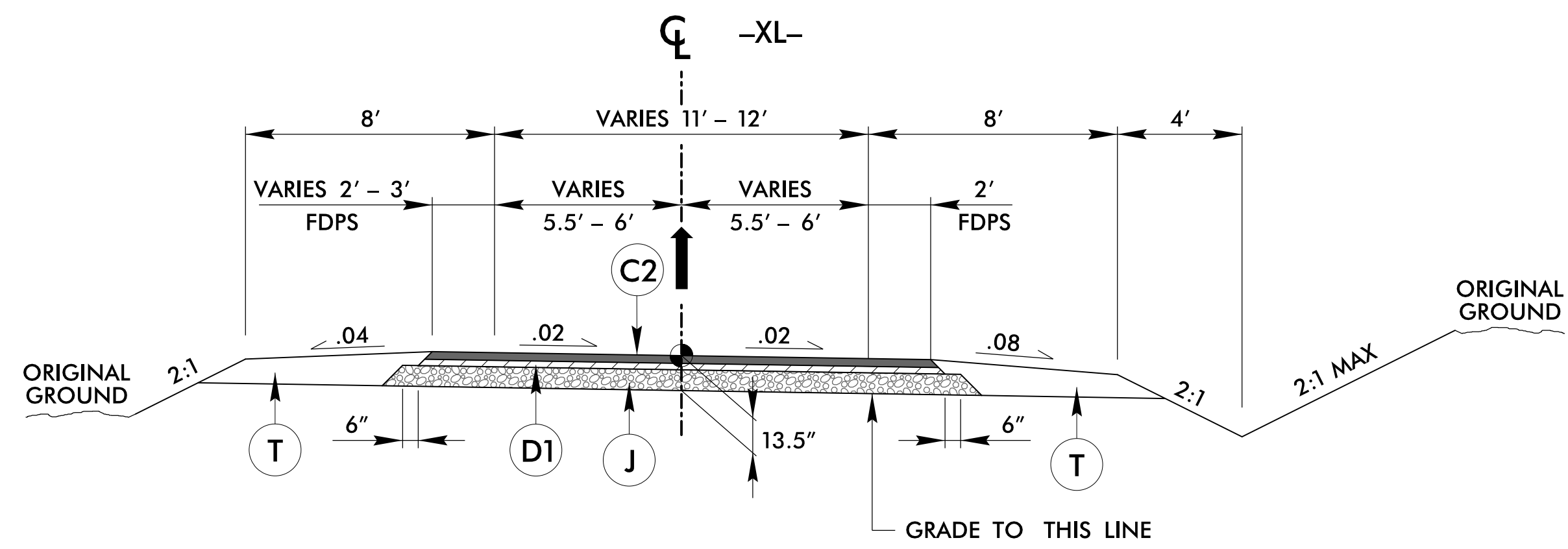
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RW SHEET NO.			
ROADWAY DESIGN ENGINEER		PAVEMENT DESIGN ENGINEER	
		PAVEMENT DESIGN PROVIDED BY NCDOT	
		<p>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</p>	



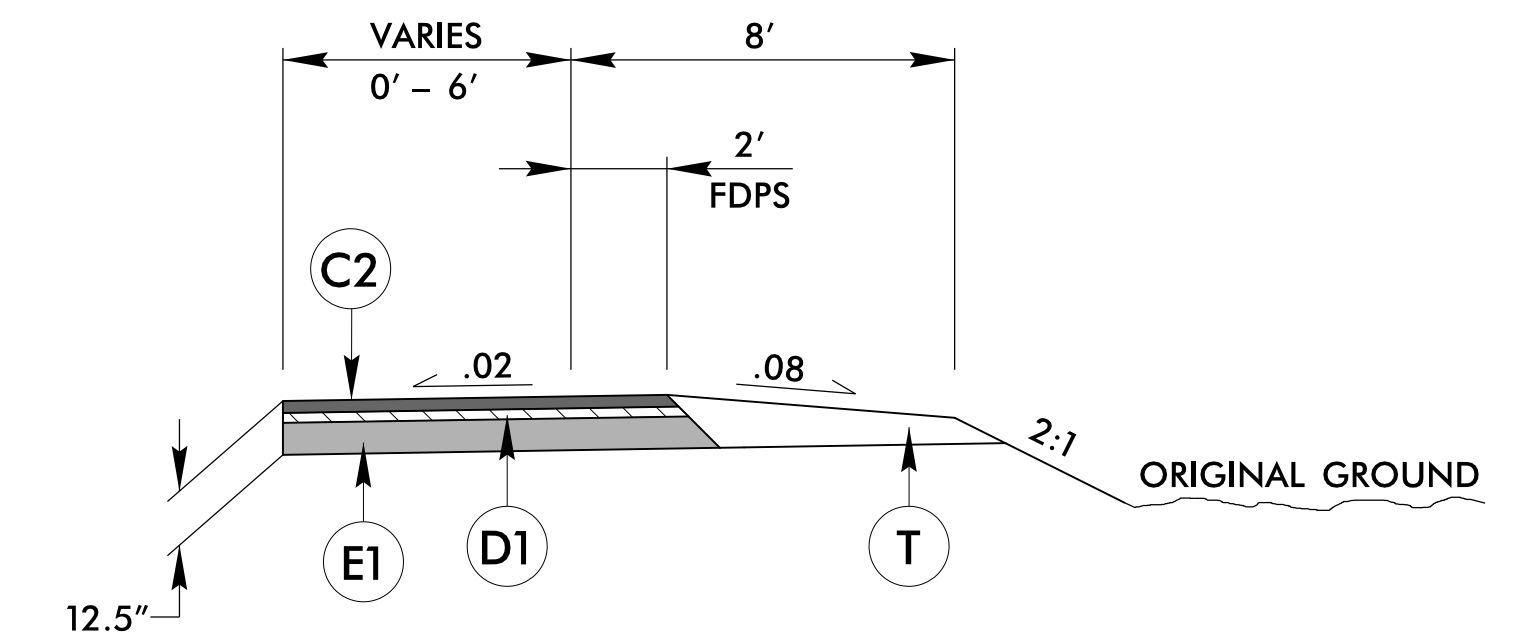
TYPICAL SECTION NO. 3
 -L- STA. 20+33.00 (BEGIN APPROACH SLAB) TO 26+01.00 (END APPROACH SLAB)



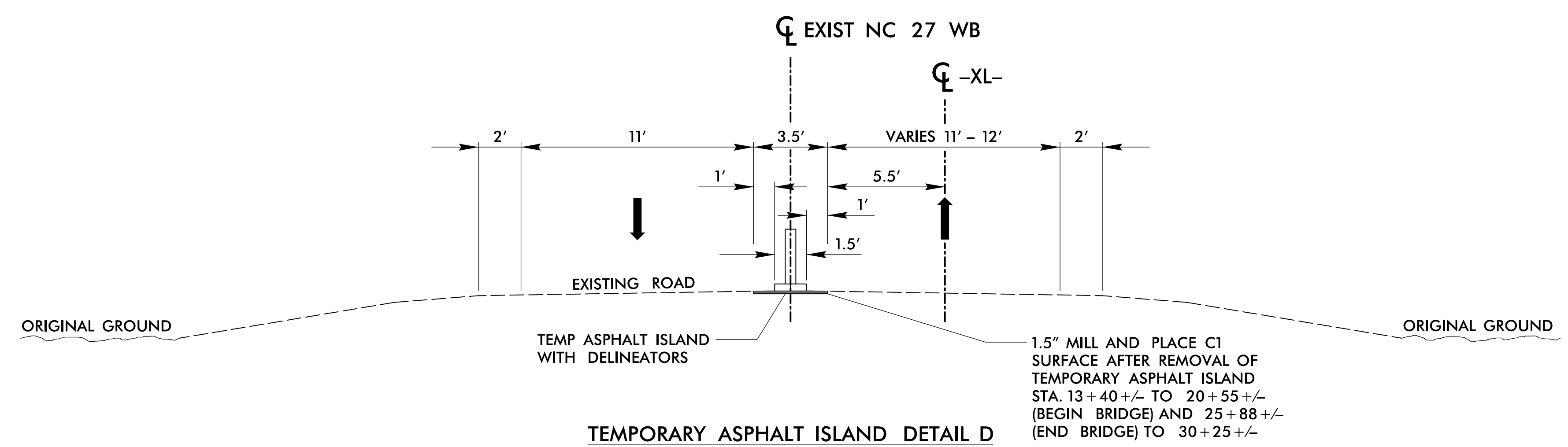
NARROW WIDENING DETAIL D
 -XL- STA. 11+48.58 TO 13+04.93
 -XL- STA. 31+95.29 TO 32+55.90



TYPICAL SECTION NO. 4
 -XL- STA. 13+04.93 TO 16+70.60
 -XL- STA. 29+54.69 TO 31+95.29



NARROW WIDENING DETAIL E
 -XL- STA. 16+70.60 TO 18+17.62
 -XL- STA. 28+48.63 TO 29+54.69



TEMPORARY ASPHALT ISLAND DETAIL D
 TO BE USED IN-CONJUNCTION WITH TYPICAL SECTION NO. 4
 -XL- STA. 13+40.71 TO 32+33.38

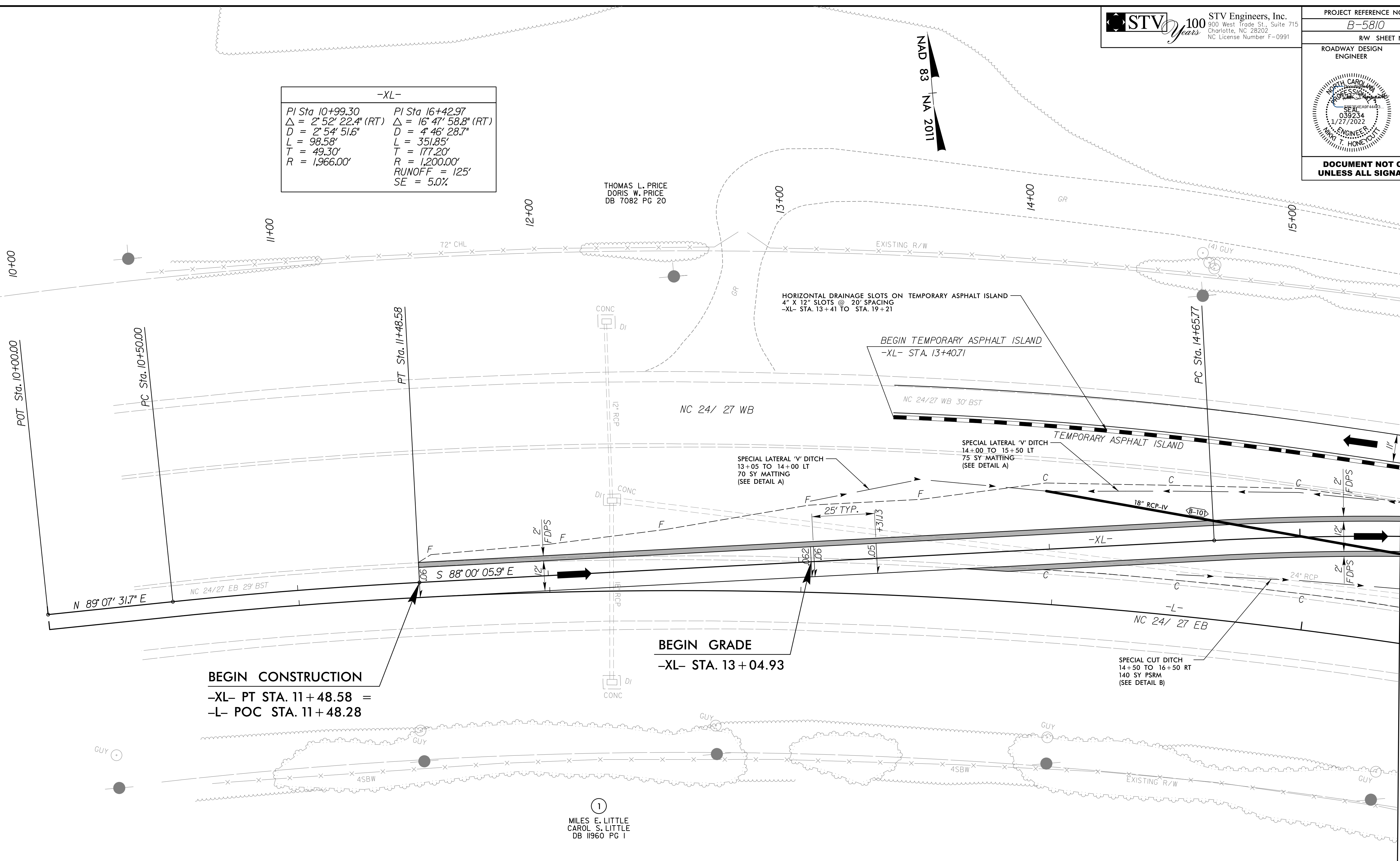
PAVEMENT SCHEDULE	
C1	1.5" S9.5C
C2	3.0" S9.5C
C3	VAR. S9.5C
D1	2.5" I19.0C
D2	4.0" I19.0C
D3	VAR. I19.0C
E1	7.0" B25.0C
E2	VAR. B25.0C
J	8.0" ABC
R	CONCRETE SBG
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	PAVEMENT WEDGING

ALL PAVEMENT SLOPES 1:1
 UNLESS NOTED OTHERWISE

2/25/2022
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 MooreDS

-XL-	
PI Sta 10+99.30	PI Sta 16+42.97
$\Delta = 2^\circ 52' 22.4" (RT)$	$\Delta = 16^\circ 47' 58.8" (RT)$
$D = 2^\circ 54' 51.6"$	$D = 4^\circ 46' 28.7"$
$L = 98.58'$	$L = 351.85'$
$T = 49.30'$	$T = 177.20'$
$R = 1,966.00'$	$R = 1,200.00'$
	RUNOFF = 125'
	SE = 5.0%

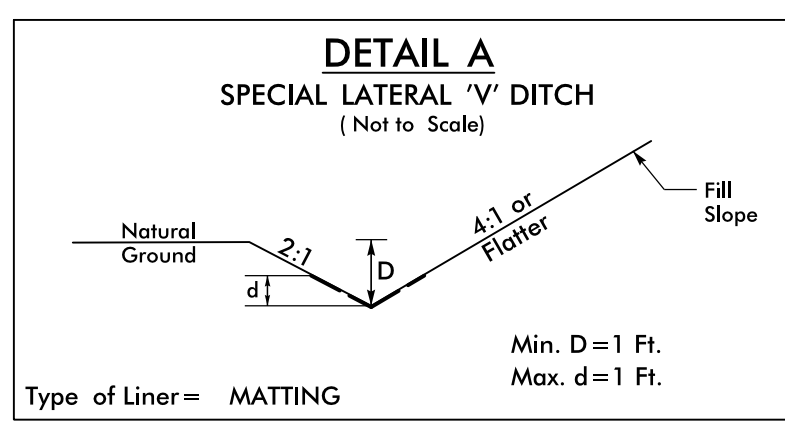
NAD 83
 NA 2011



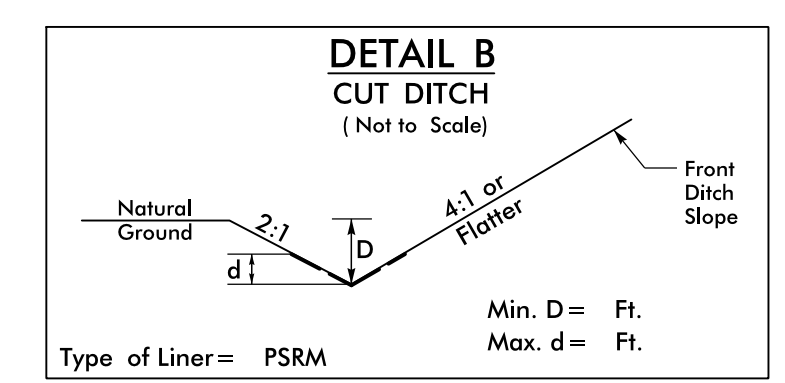
BEGIN CONSTRUCTION
 -XL- PT STA. 11+48.58 =
 -L- POC STA. 11+48.28

BEGIN GRADE
 -XL- STA. 13+04.93

MATCHLINE -XL- STA 15+40 (SHEET 2B-2)



FROM -XL- STA. 13+05 TO STA. 14+00 LT
 FROM -XL- STA. 14+00 TO STA. 15+50 LT



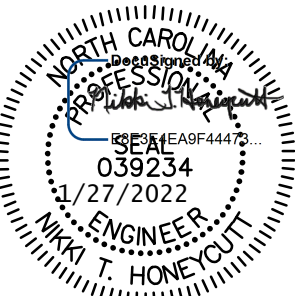
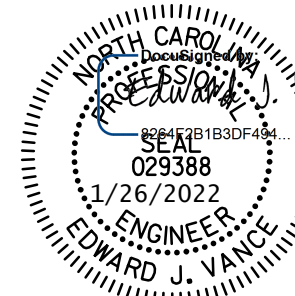
FROM -XL- STA. 14+50 TO STA. 16+50 RT

SEE SHEET 2B-6 FOR -XL- PROFILE

1/26/2022
 I:\26\2022\proj\sh\B5810_rdy_psh\2B-1.dgn

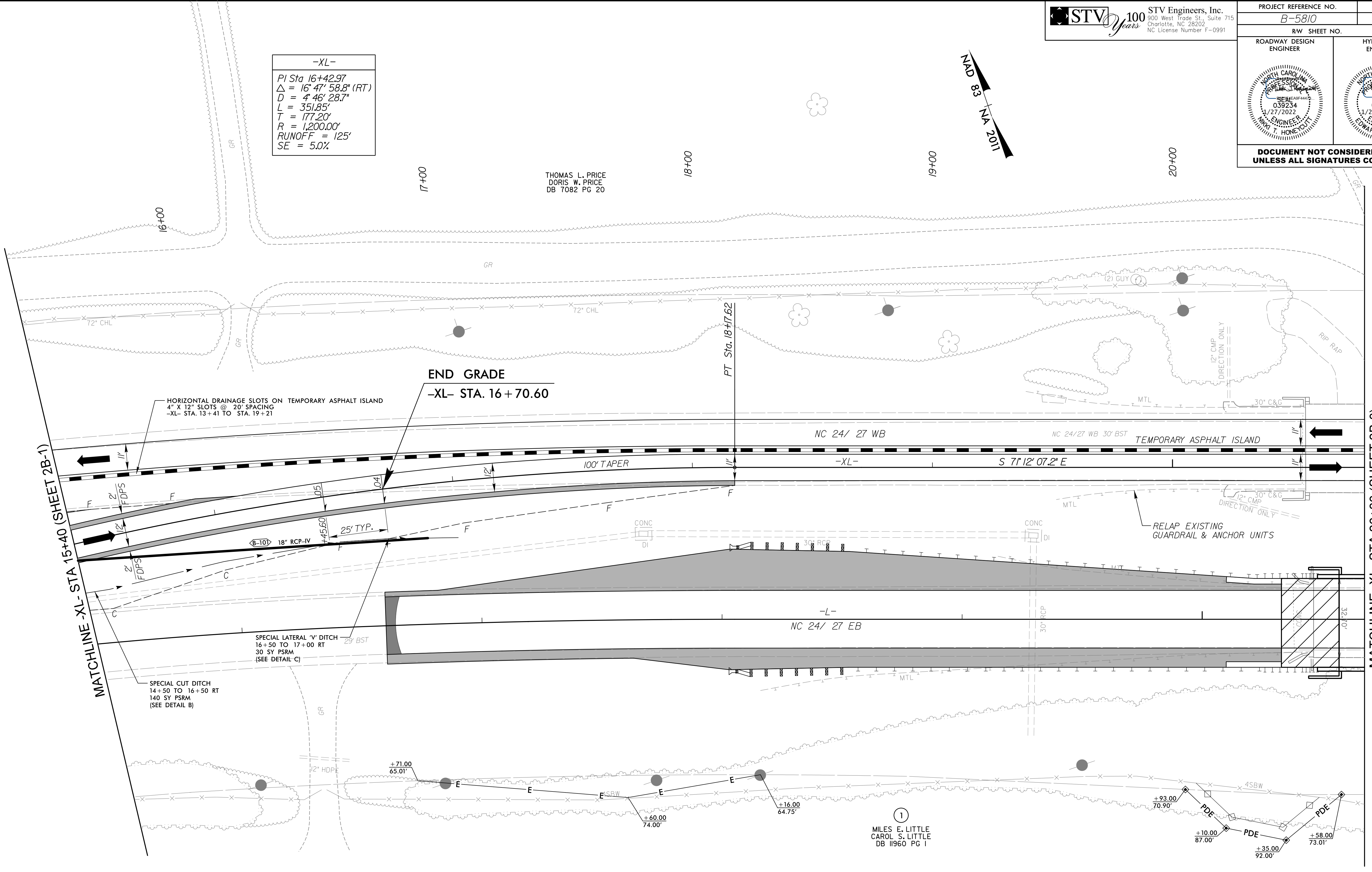
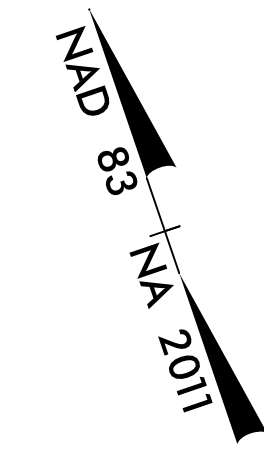
8/17/19

STV 100 Years
STV Engineers, Inc.
 300 West Trade St., Suite 715
 Charlotte, NC 28202
 NC License Number F-0991

PROJECT REFERENCE NO. <i>B-5810</i>		SHEET NO. <i>2B-2</i>	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
 THOMAS L. HONEYCUTT ENGINEER		 EDWARD J. VANME ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			

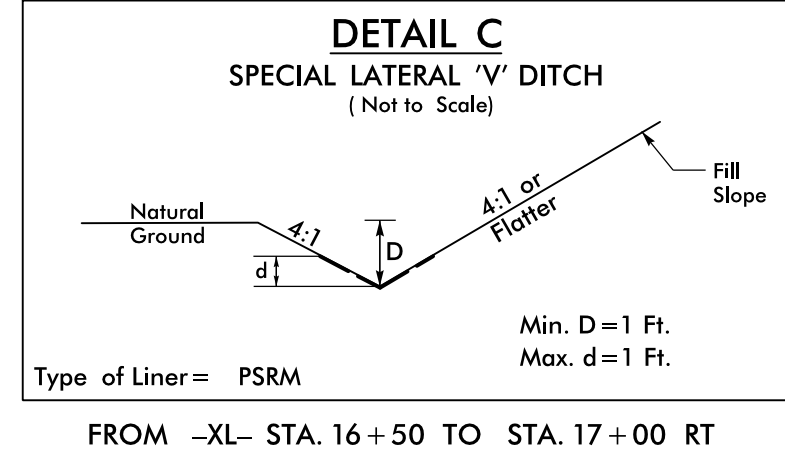
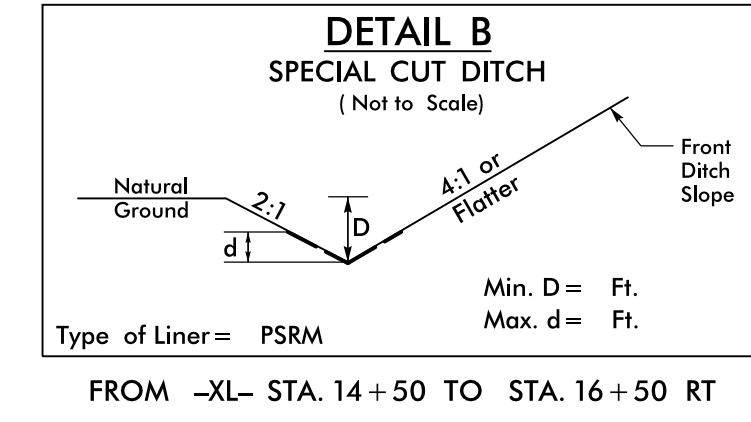
-XL-	
PI Sta	16+42.97
Δ	= 16° 47' 58.8" (RT)
D	= 4' 46" 28.7"
L	= 351.85'
T	= 177.20'
R	= 1,200.00'
RUNOFF	= 125'
SE	= 5.0%

THOMAS L. PRICE
 DORIS W. PRICE
 DB 7082 PG 20



MATCHLINE -XL- STA 15+40 (SHEET 2B-1)

MATCHLINE -XL- STA 20+80 (SHEET 2B-3)

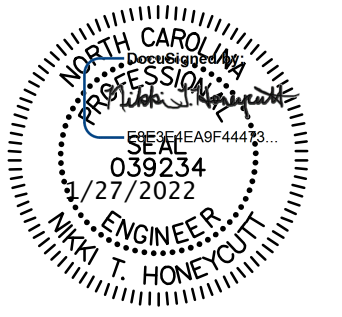
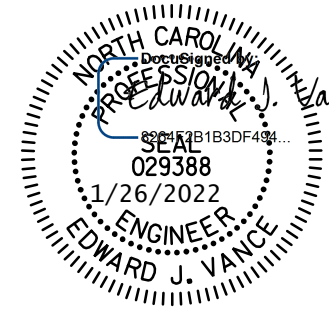


SEE SHEET 2B-6 FOR -XL- PROFILE

1/26/2022
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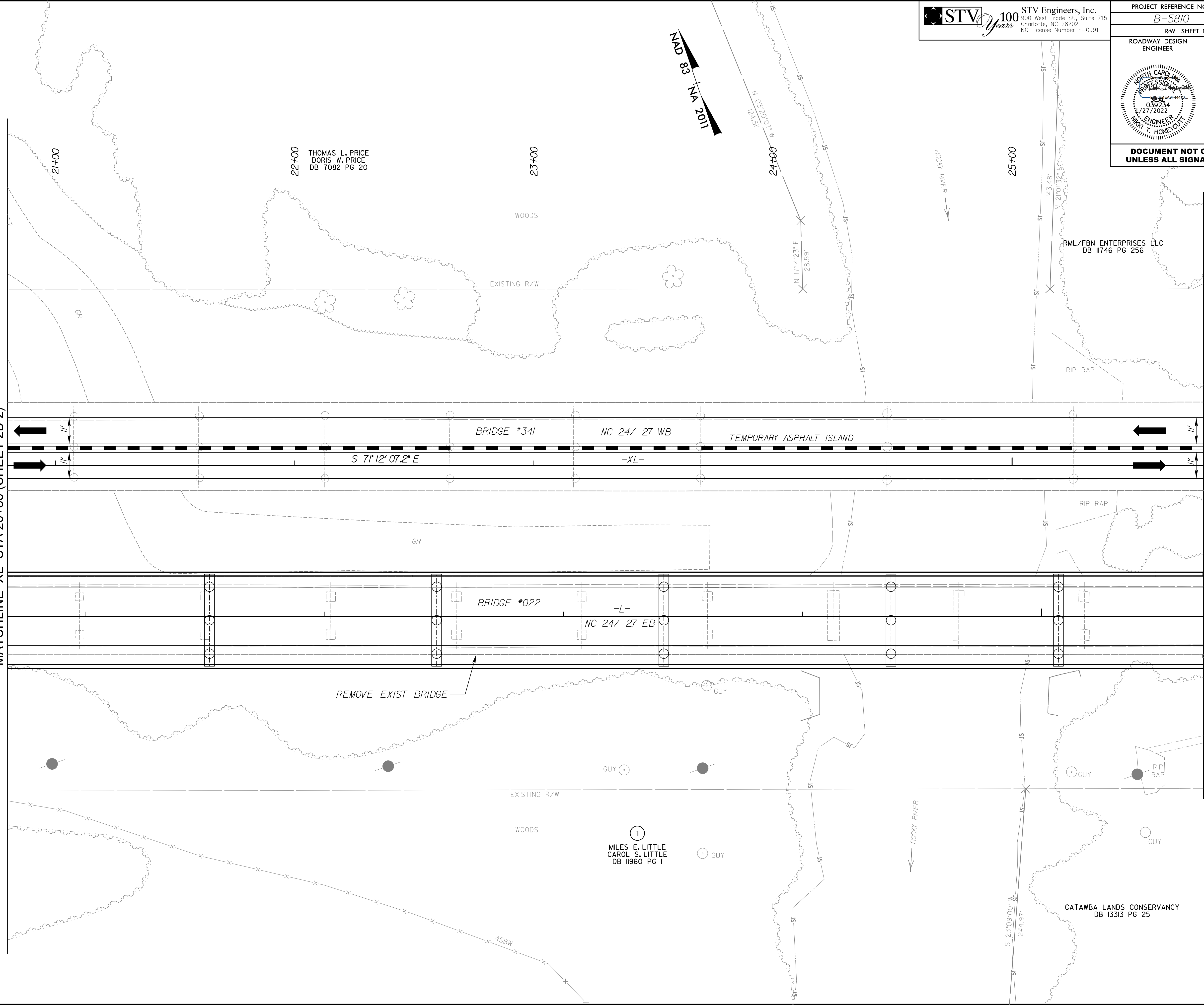
8/17/99

STV 100 Years
 STV Engineers, Inc.
 800 West Trade St., Suite 715
 Charlotte, NC 28202
 NC License Number F-0991

PROJECT REFERENCE NO. <i>B-5810</i>		SHEET NO. <i>2B-3</i>	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
 THOMAS L. PRICE ENGINEER 039234 1/27/2022		 EDWARD J. VAN NIEUWENHUIZE ENGINEER 029368 1/26/2022	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			

MATCHLINE -XL- STA 20+80 (SHEET 2B-2)

MATCHLINE -XL- STA 25+80 (SHEET 2B-4)



22+00 THOMAS L. PRICE
DORIS W. PRICE
DB 7082 PG 20

RML/FBN ENTERPRISES LLC
DB 11746 PG 256

1
MILES E. LITTLE
CAROL S. LITTLE
DB 11960 PG 1

CATAWBA LANDS CONSERVANCY
DB 13313 PG 25

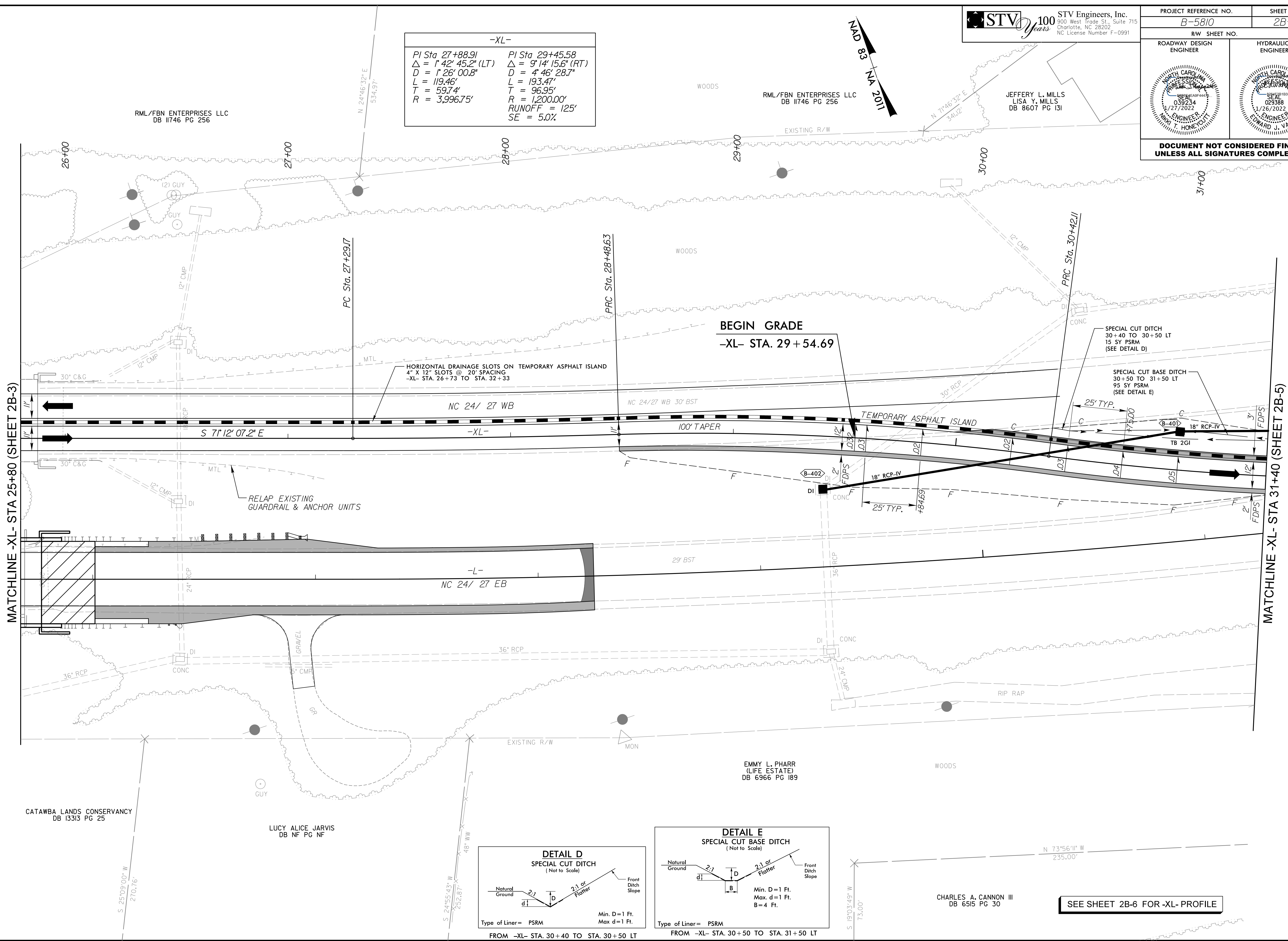
1/26/2022
I:\Projects\proj\sh\t\B5810_rdy_psh\2B-3.dgn
Moore

8/17/22

STV 100 Years
 STV Engineers, Inc.
 300 West Trade St., Suite 715
 Charlotte, NC 28202
 NC License Number F-0991

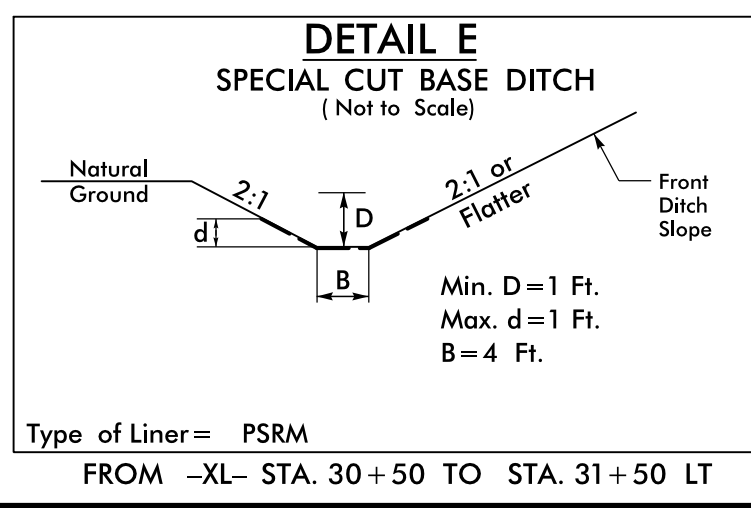
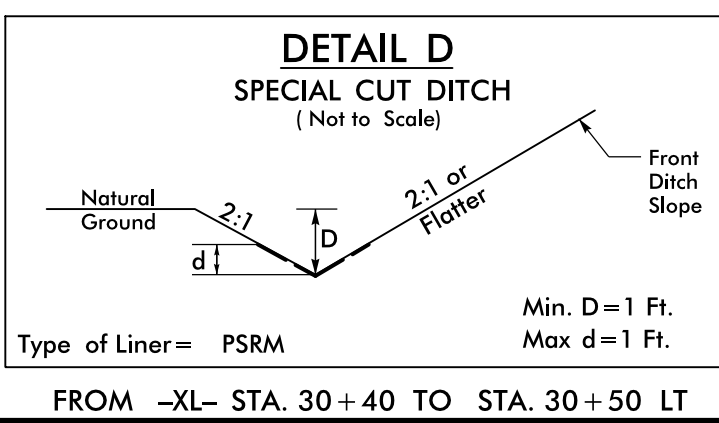
PROJECT REFERENCE NO. B-5810	SHEET NO. 2B-4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

-XL-	
PI Sta 27+88.91	PI Sta 29+45.58
$\Delta = 1' 42' 45.2''$ (LT)	$\Delta = 9' 14' 15.6''$ (RT)
$D = 1' 26' 00.8''$	$D = 4' 46' 28.7''$
$L = 119.46'$	$L = 193.47'$
$T = 59.74'$	$T = 96.95'$
$R = 3,996.75'$	$R = 1,200.00'$
	RUNOFF = 125'
	SE = 5.0%



MATCHLINE -XL- STA 25+80 (SHEET 2B-3)

MATCHLINE -XL- STA 31+40 (SHEET 2B-5)



SEE SHEET 2B-6 FOR -XL- PROFILE

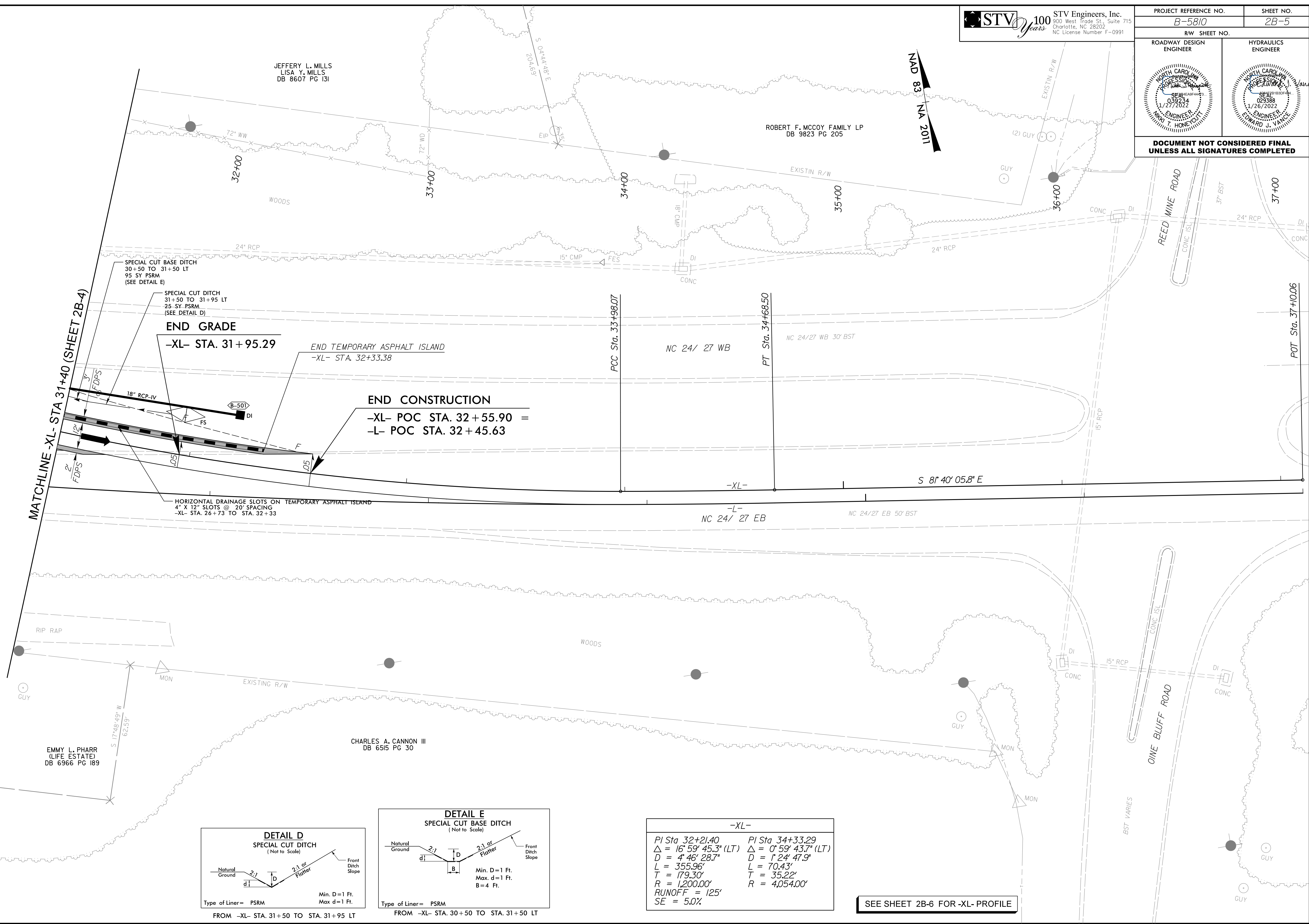
1/26/2022
I:\26\2022\proj\sh\B5810_rdy_psh\2B-4.dgn

8/17/19

STV 100 Years
 STV Engineers, Inc.
 300 West Trade St., Suite 715
 Charlotte, NC 28202
 NC License Number F-0991

PROJECT REFERENCE NO. B-5810	SHEET NO. 2B-5
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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



MATCHLINE -XL- STA 31+40 (SHEET 2B-4)

SPECIAL CUT BASE DITCH
 30+50 TO 31+50 LT
 95 SY PSRM
 (SEE DETAIL E)

SPECIAL CUT DITCH
 31+50 TO 31+95 LT
 25 SY PSRM
 (SEE DETAIL D)

END GRADE
 -XL- STA. 31+95.29

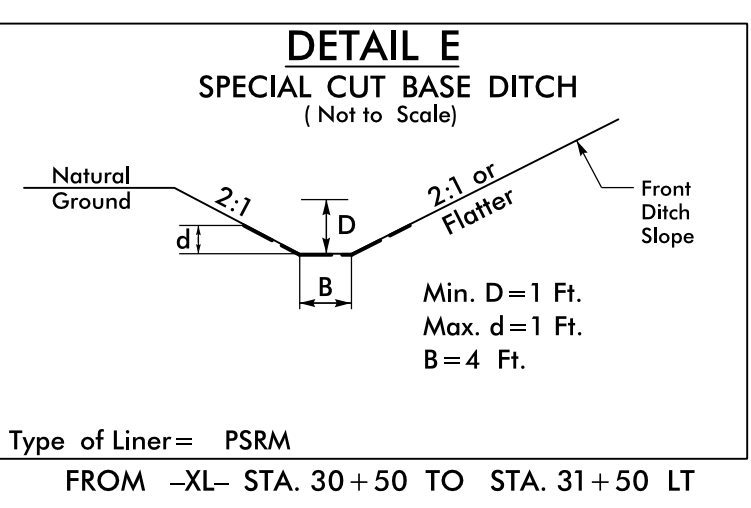
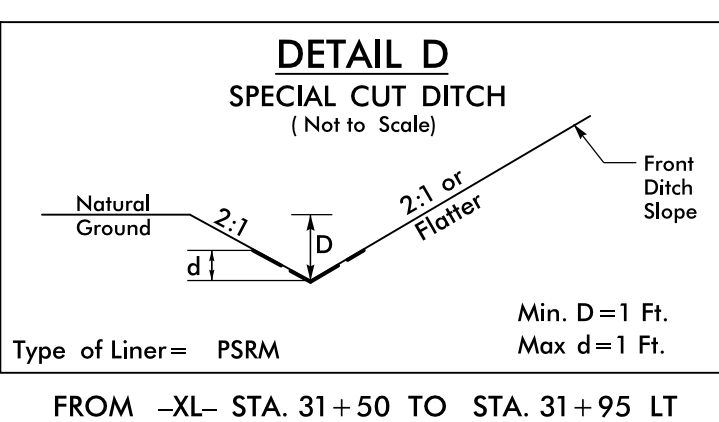
END TEMPORARY ASPHALT ISLAND
 -XL- STA. 32+33.38

END CONSTRUCTION
 -XL- POC STA. 32+55.90 =
 -L- POC STA. 32+45.63

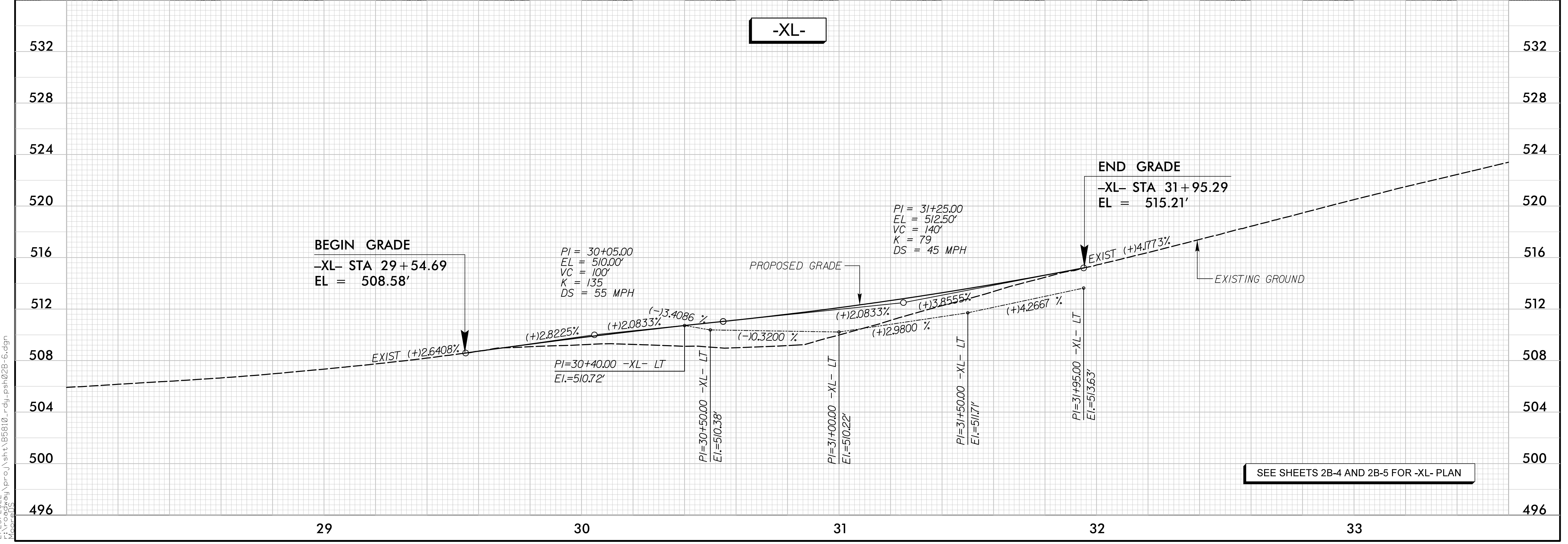
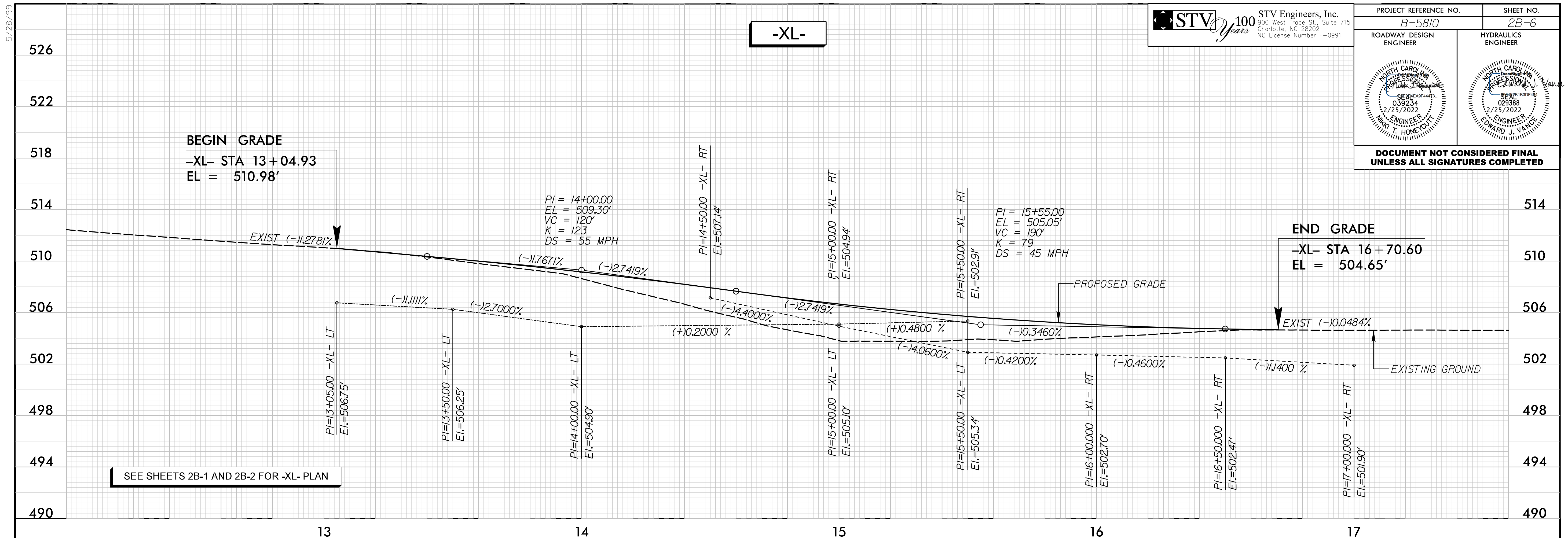
HORIZONTAL DRAINAGE SLOTS ON TEMPORARY ASPHALT ISLAND
 4" X 12" SLOTS @ 20' SPACING
 -XL- STA. 26+73 TO STA. 32+33

-XL-	
PI Sta 32+21.40	PI Sta 34+33.29
$\Delta = 16' 59' 45.3" (LT)$	$\Delta = 0' 59' 43.7" (LT)$
$D = 4' 46' 28.7"$	$D = 1' 24' 47.9"$
$L = 355.96'$	$L = 70.43'$
$T = 179.30'$	$T = 35.22'$
$R = 1,200.00'$	$R = 4,054.00'$
$RUNOFF = 125'$	
$SE = 5.0\%$	

SEE SHEET 2B-6 FOR -XL- PROFILE



1/26/2022
 L:\26\2022\proj\sh\B5810_rdy_psh\2B-5.dgn

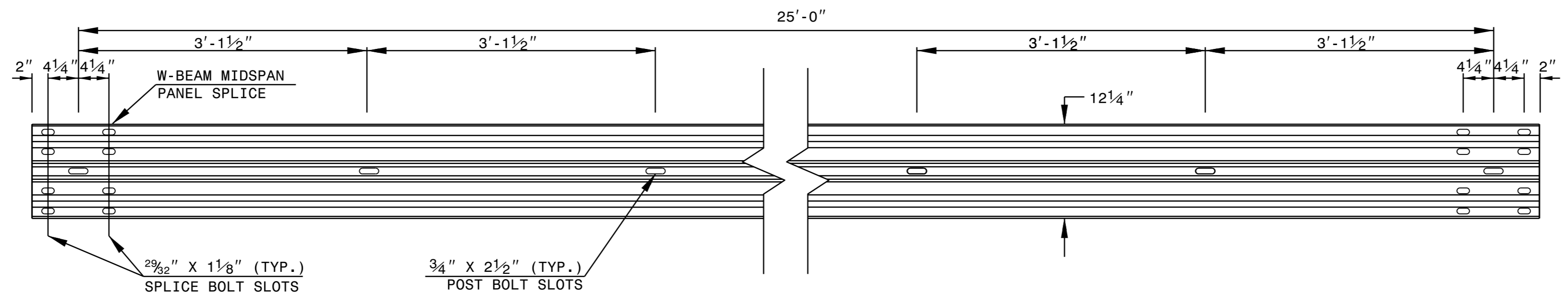


2/25/2022
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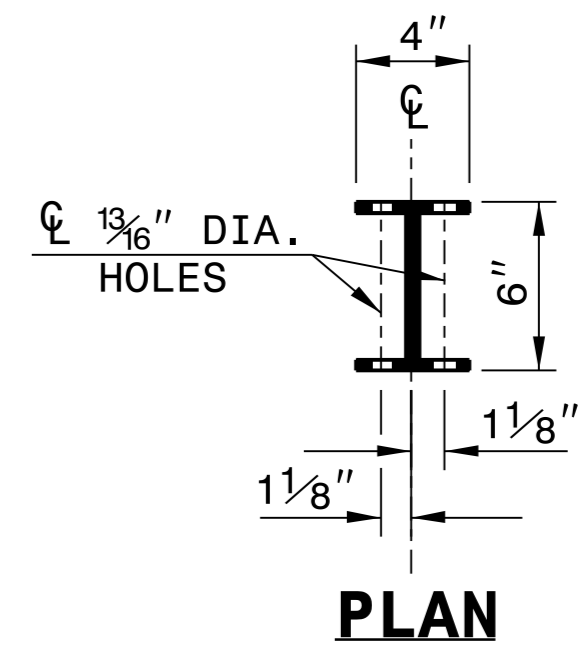
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

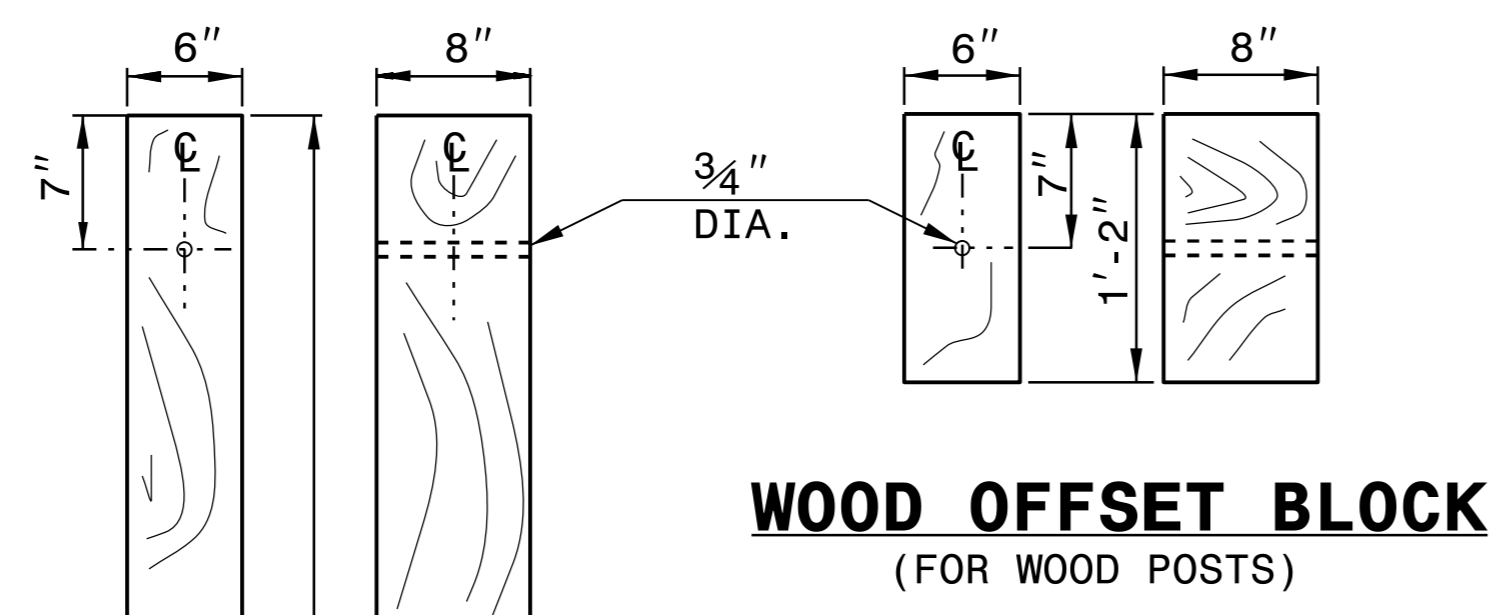
SHEET 6 OF 8
862D02



STANDARD W-BEAM GUARDRAIL



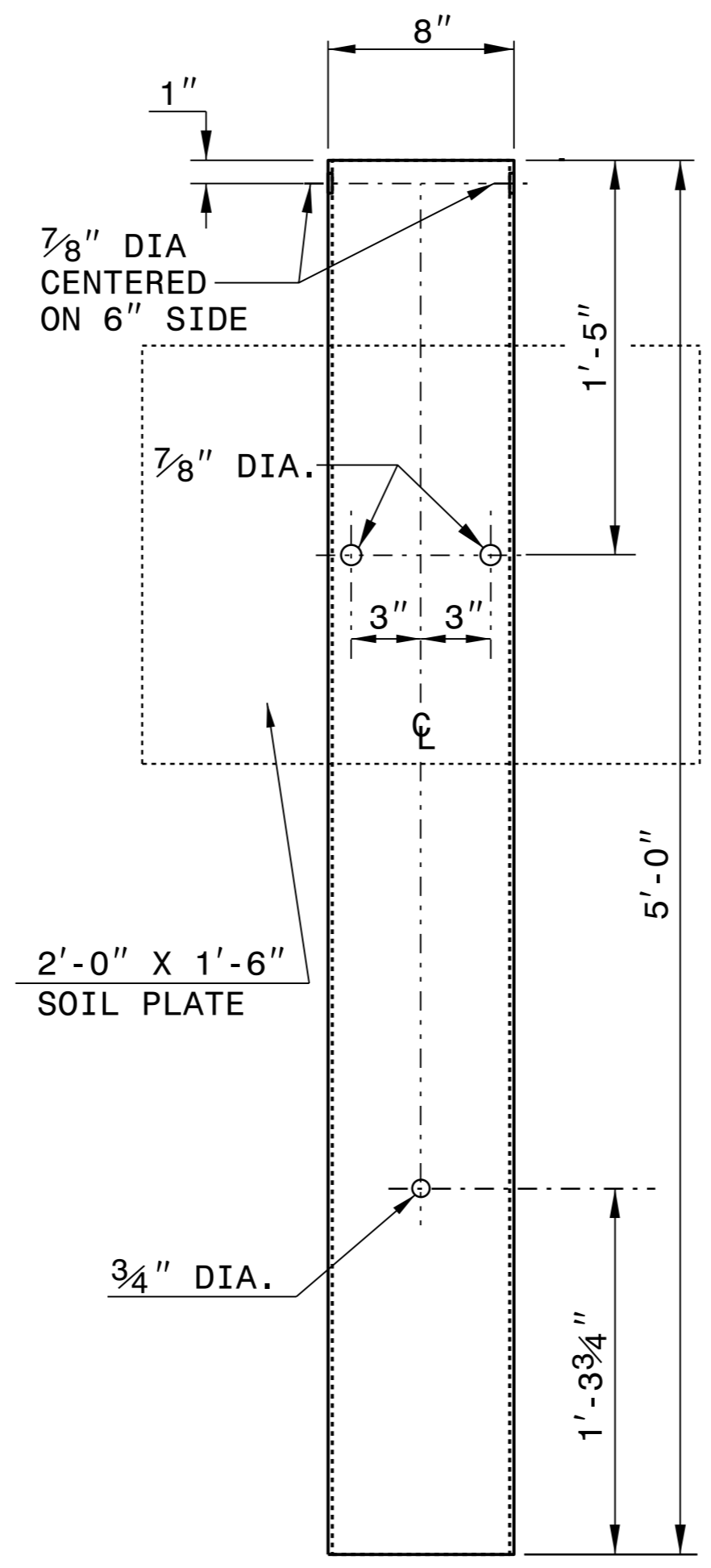
PLAN



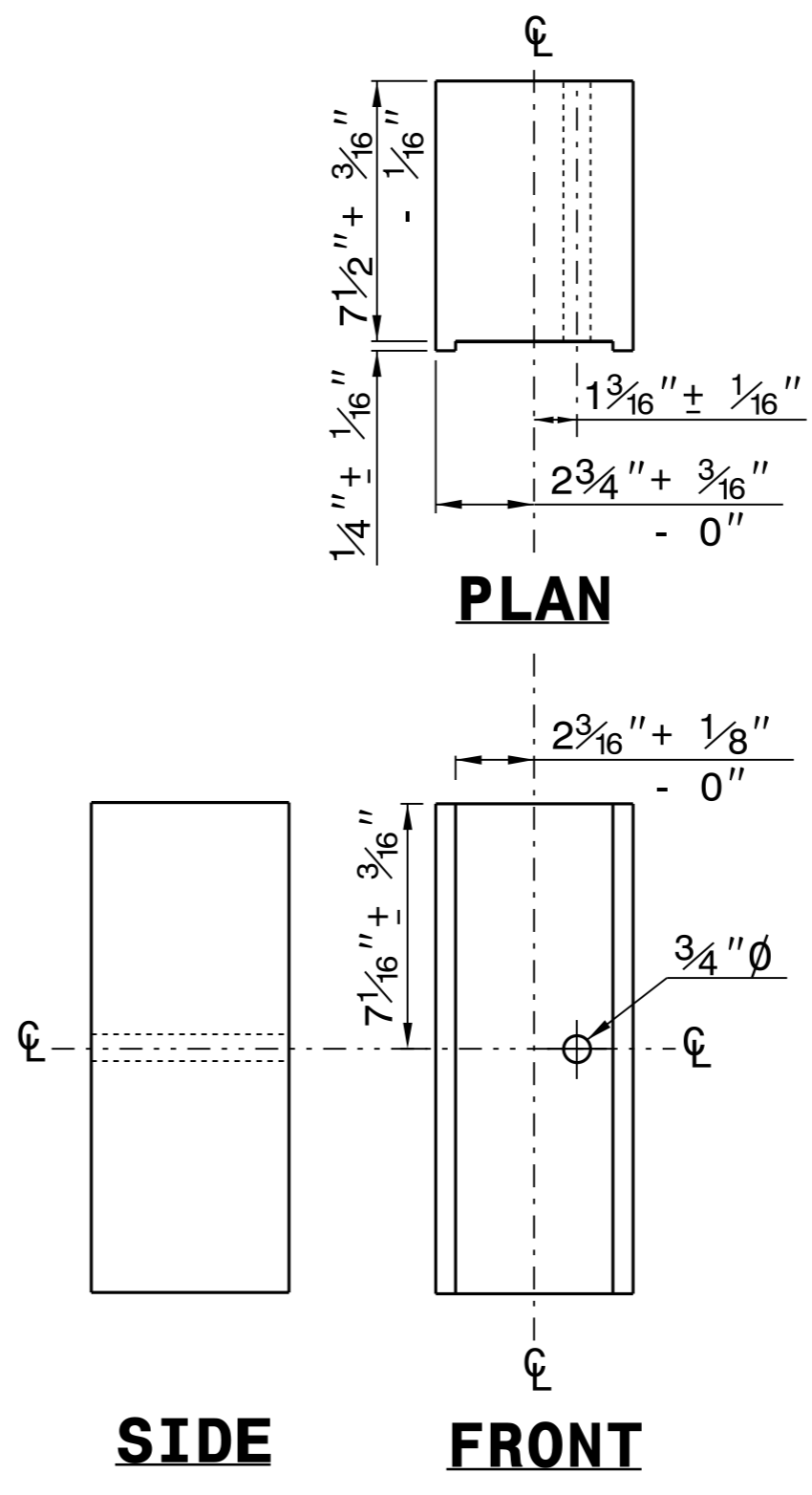
**WOOD OFFSET BLOCK
(FOR WOOD POSTS)**

**STANDARD
LINE POST**

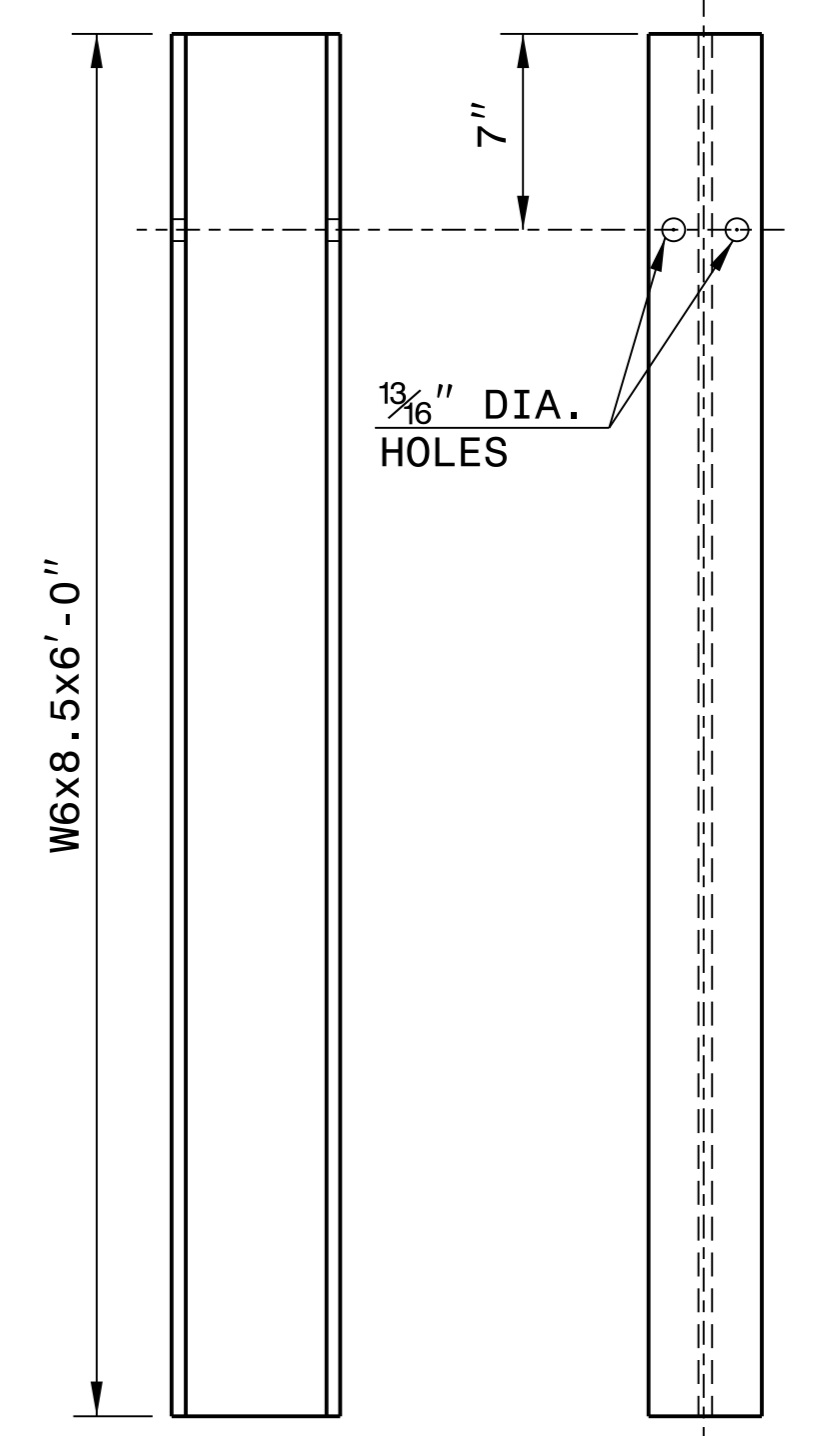
**SHORT WOOD
BREAKAWAY POST**



**STEEL TUBE
TS 6"x8"x0.1875"**



**ROUTED
OFFSET BLOCK**



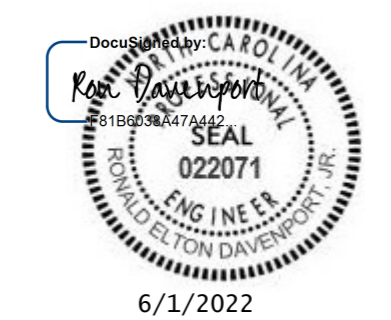
"W6" STEEL POST

SYSTEM PARTS

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

ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

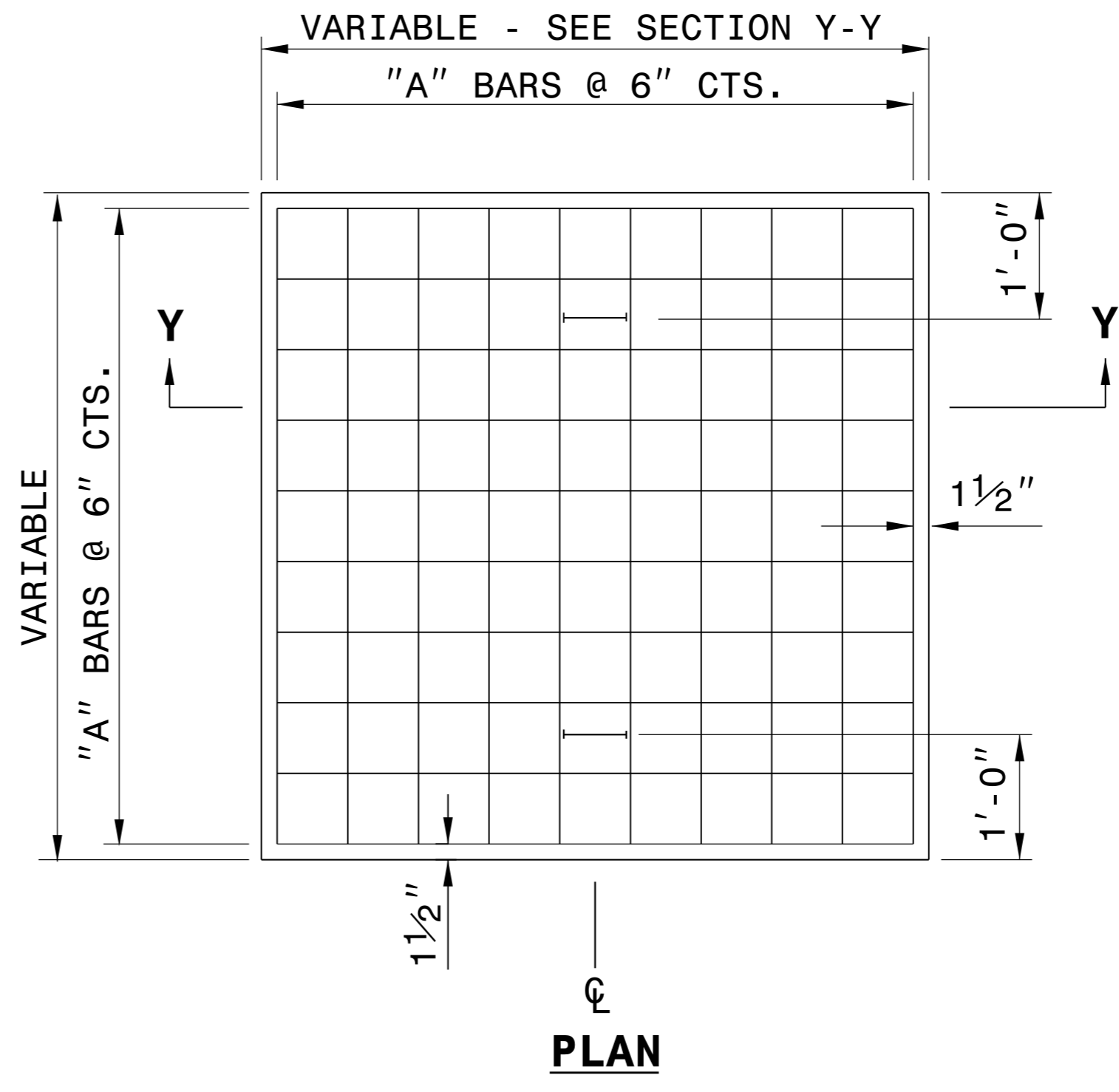
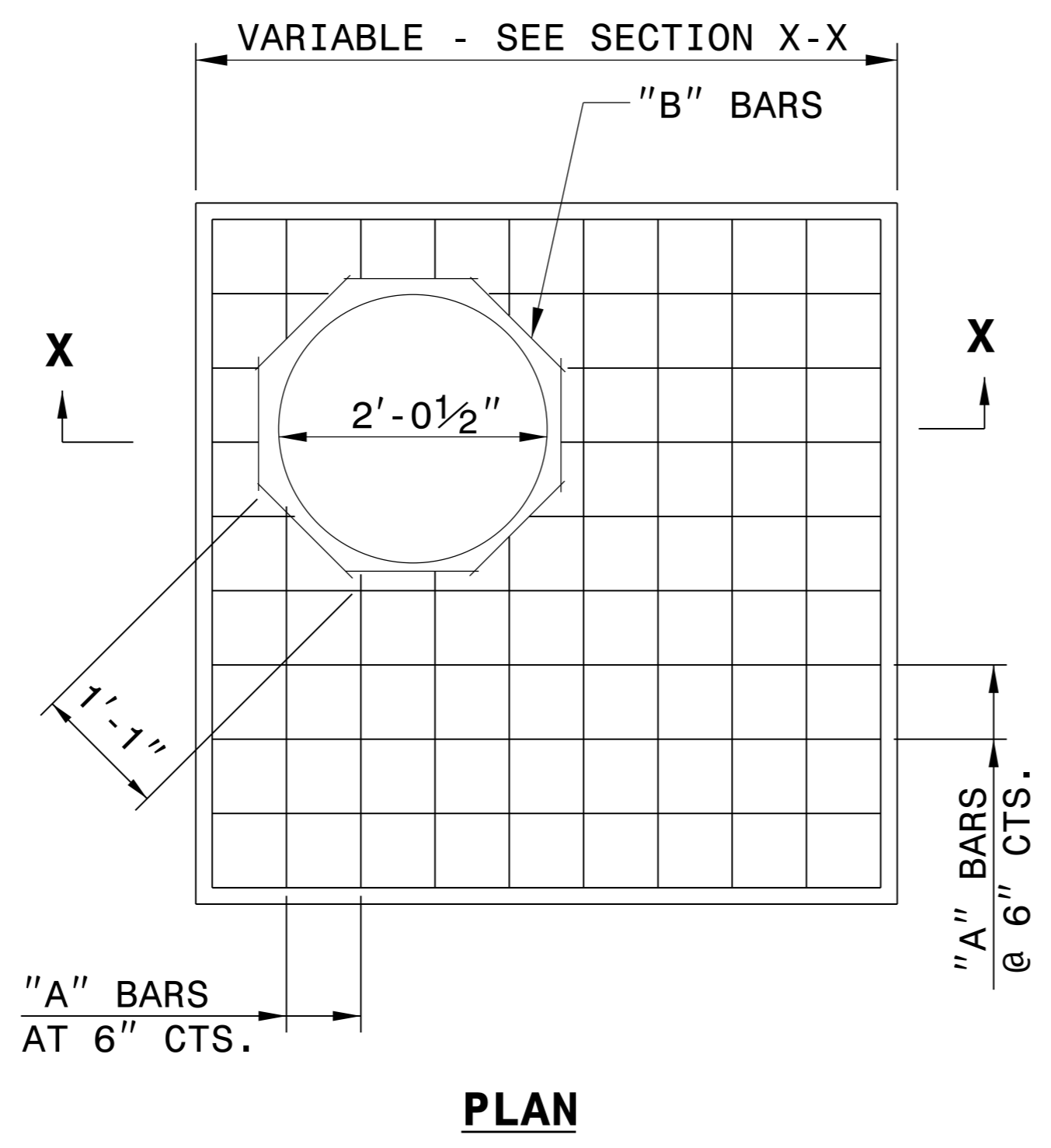
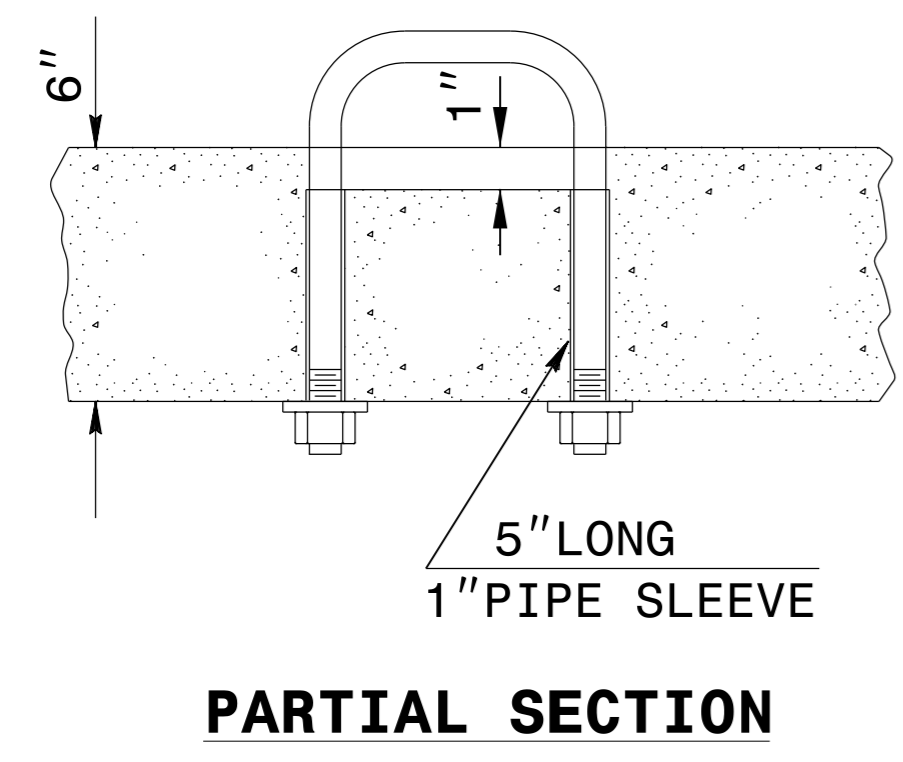
SHEET 6 OF 8
862D02



**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.: _____



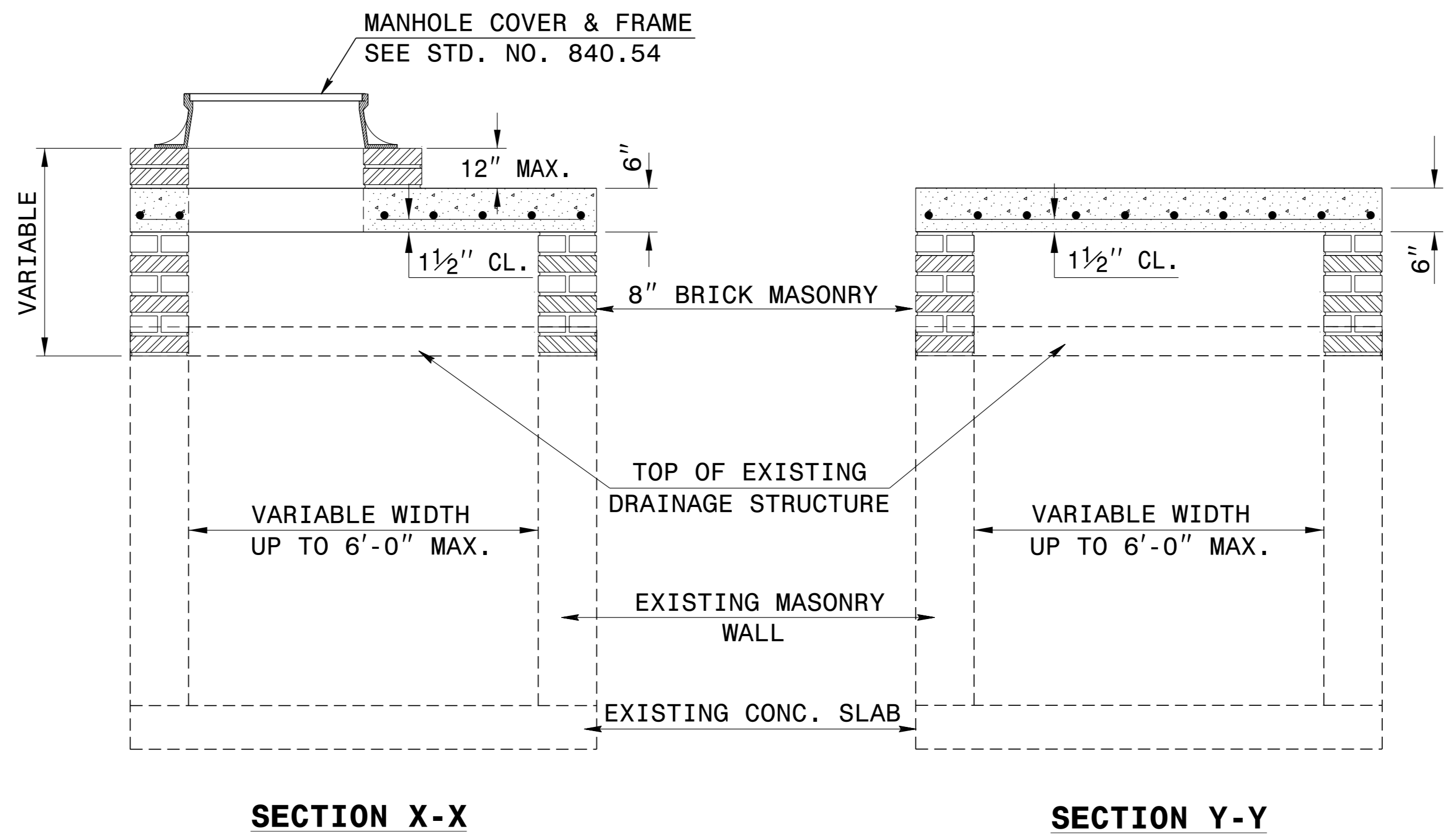
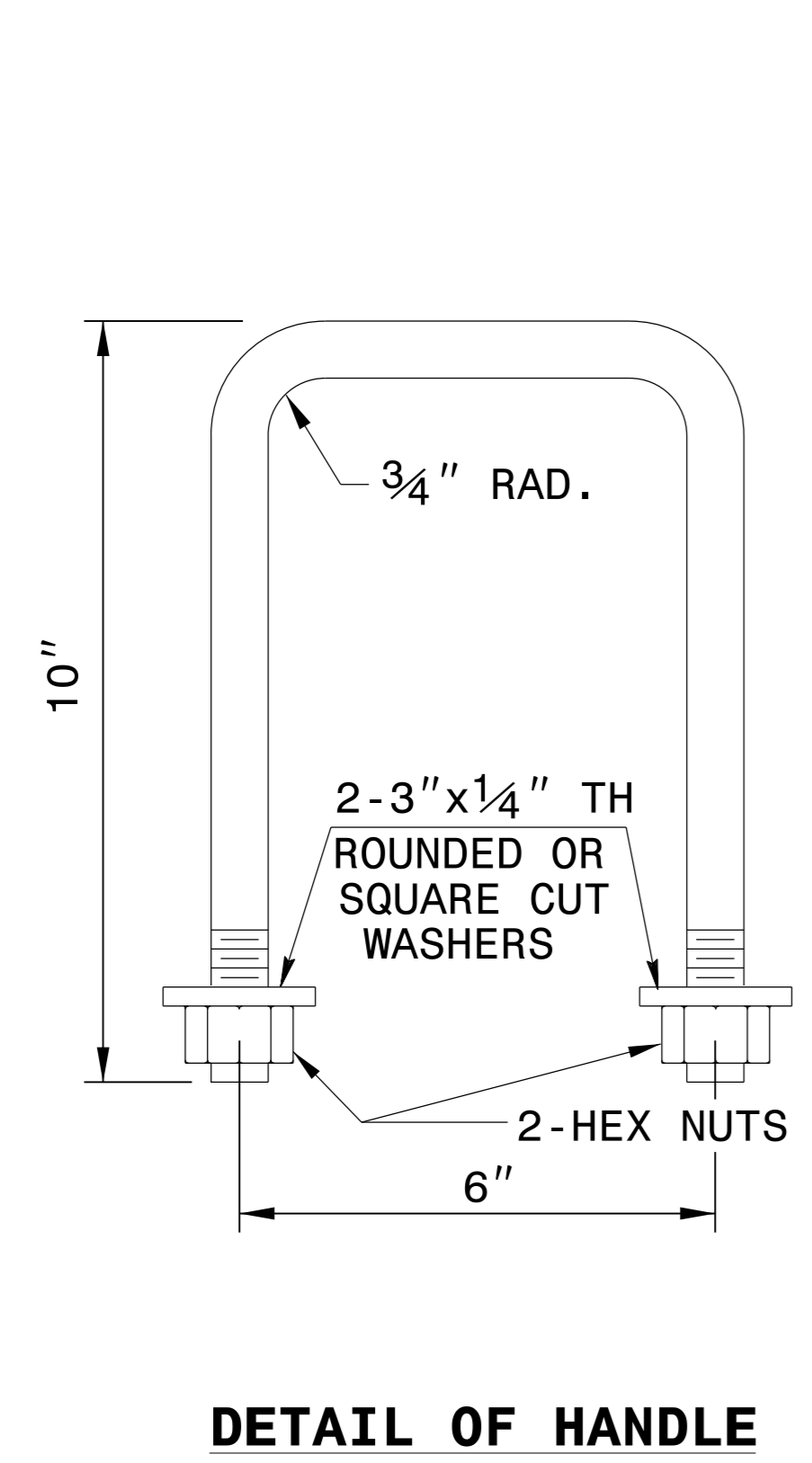
GENERAL NOTES:

CONSTRUCT IN ACCORDANCE WITH SECTION 859 OF THE STANDARD SPECIFICATIONS.

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

DETAIL INTENDED FOR NON-TRAFFIC BEARING DRAINAGE STRUCTURES.

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



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



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

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

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

11/24/2022 10:58 AM
 T.S.S.
 022071
 2/24/2022

DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA



STV Engineers, Inc.
300 West Trade St., Suite 715
Charlotte, NC 28202
NC License Number F-0991

PROJECT REFERENCE NO. <i>B-5810</i>	SHEET NO. <i>3B-1</i>
RW SHEET NO.	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

EARTHWORK SUMMARY (IN CUBIC YARDS)

CHAIN	FROM STATION	TO STATION	SIDE	UNCL. EXCAVATION	UNDERCUT	EMBT + %	BORROW	WASTE
-XL-	13+04.93	16+70.60	LT & RT	203		331	128	
-XL-	29+54.69	31+95.29	LT & RT	89		172	83	
-L-	16+60.00	20+57.00	LT & RT	184		978	794	
-L-	25+77.00	28+25.00	LT & RT	191		193	2	
-XL REMOVE-	13+04.93	16+70.60	LT & RT	358		156		202
-XL REMOVE-	29+54.69	31+95.29	LT & RT	186		48		138
TOTAL				1,211		1,877	1,006	340
MATERIAL FOR SHOULDER CONSTRUCTION						336	336	
WASTE IN LIEU OF BORROW							-340	-340
PROJECT TOTAL				1,211		2,213	1,002	
ESTIMATE 5% FOR TOPSOIL ON BORROW PITS							50	
GRAND TOTAL				1,211		2,213	1,052	
SAY				1,250			1,100	

CONTINGENCY UNDERCUT: 450 CY
CONTINGENCY SELECT GRANULAR MATERIAL: 400 CY

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."

PAVEMENT REMOVAL SUMMARY

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	YD ²
-XL-	11+48.58	18+17.62	CL	703
-XL-	28+48.63	32+55.90	CL	477
-XL-	13+40.71	30+15.49	LT	280
			TOTAL:	1,460
			SAY:	1,500

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

GUARDRAIL SUMMARY

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHOUL. WIDTH	FLARE LENGTH		W		ANCHORS										IMPACT ATTENUATOR TYPE 350			SINGLE FACED GUARDRAIL	REMOVE EXISTING GUARDRAIL	RELAPPING EXISTING GUARDRAIL	REMARKS						
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	XI MOD	B-77	GREU TL-3	GREU TL-2	TYPE III	CAT-1	VI MOD	BIC	AT-1	EA	G	NG													
-L-	18+03.25	20+48.00	LT	245.125'			20+45.00		5.0' - 17.2'	8.0' - 20.2'	207.25'		11.2'			1	1																				
-L-	18+02.88	20+48.00	RT	245.125'			20+45.00		8.0' - 9.0'	11.0' - 12.0'	50.0'		1.0'			1	1																				
-L-	25+86.00	26+96.37	LT	110.375'				25+86.00	5.0' - 6.0'	8.0' - 9.0'		50.0'		1.0'		1	1																				
-L-	25+86.00	26+40.12	RT	54.125'				25+86.00	8.0'	11.0'		0.0'		0.0'		1																					
-XL-	19+51.56	20+55.52	RT																																225.00'		
-XL-	25+87.63	27+16.34	RT																																262.50'		
TOTAL:				654.75'													4	3																		487.50'	
TOTAL ANCHOR LENGTH:				247.75'																																	
TOTAL GUARDRAIL LENGTH:				407.00'																																	
SAY:				412.50'																																	
10 ADDITIONAL GUARDRAIL POSTS																																					

2/25/2022
F:\Roadway\proj\shnt\B5810_r_dy_psh03B-1.dgn
MoorEdS

ENCLOSURE

COMPUTED BY: PBW DATE: 12/3/2021
CHECKED BY: EJV DATE: 3/3/2022

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT NO. B-5810 SHEET NO. 3D-1

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

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

Table with columns for Line & Station, Offset, Structure Number, Drainage Pipe (RCP, CSP, CAAP, HDPE, PVC, or PP Pipe), R.C. Pipe Class III, R.C. Pipe Class IV, Quantities for Drainage Structures, Frame, Grates, and Hood, Concrete Transitional Section, and Abbreviations. Includes a grid for pipe sizes and a summary table at the bottom.

SHEET TOTALS and PROJECT TOTALS summary table with numerical values for various categories.

COMPUTED BY: Kevin Miller, PG DATE: April 22, 2019
 CHECKED BY: Shiping Yang, PE DATE: April 22, 2019

(5-15-18)

PROJECT NO.	SHEET NO.
B-5810	3G-1

**STATE OF NORTH CAROLINA
 DIVISION OF HIGHWAYS**

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(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

*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.

6/2/99

STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

PROJECT REFERENCE NO. <i>B-5810</i>	SHEET NO. <i>3P-1</i>
 STV Engineers, Inc. <small>300 West Trade St., Suite 715 Charlotte, NC 28202 NC License Number F-0991</small>	

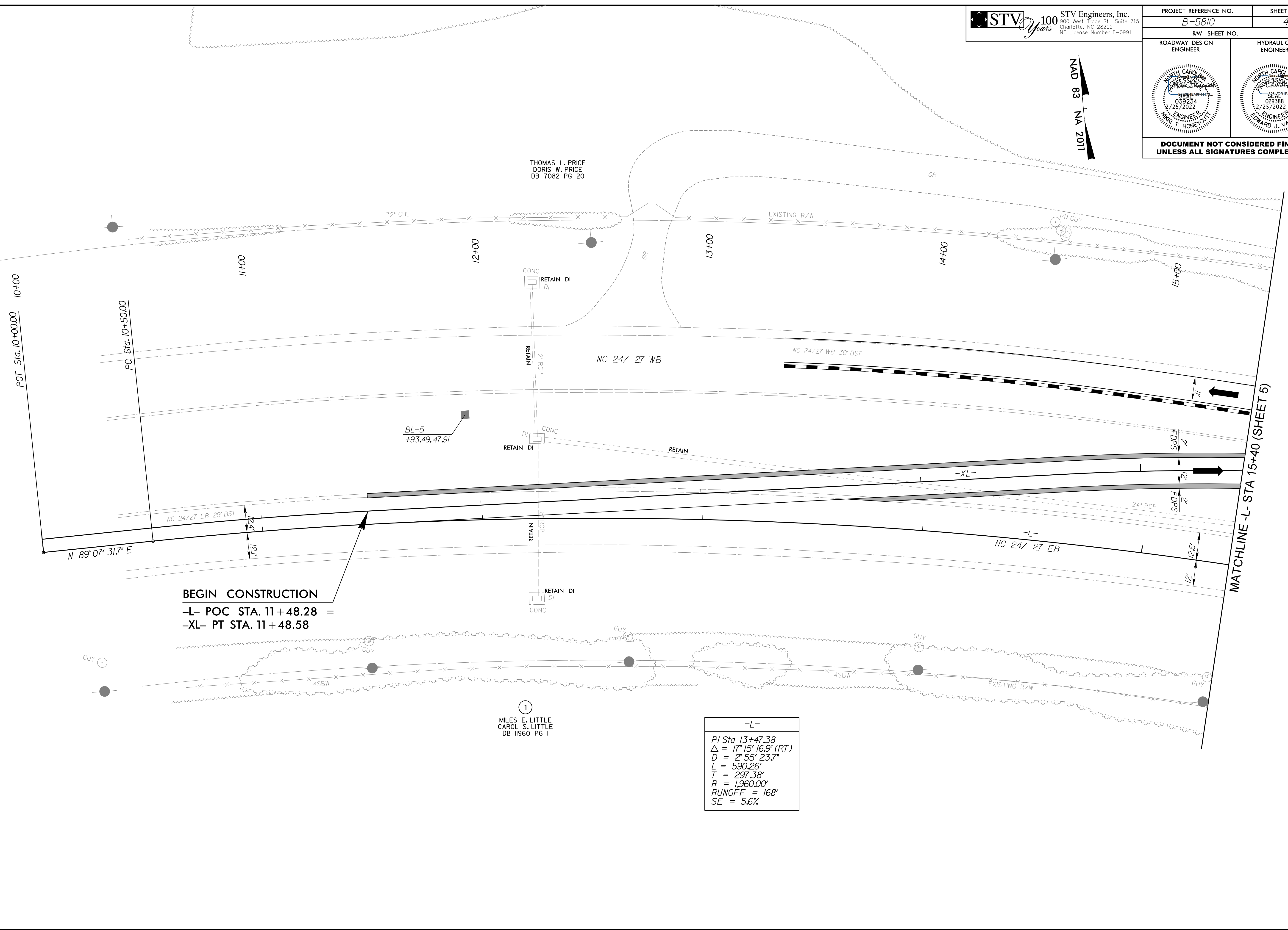
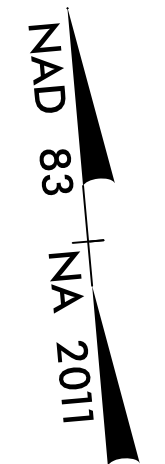
PARCEL INDEX SHEET

PARCEL NO.	SHEET NO.	PROPERTY OWNER NAME
1	4, 5, & 6	MILES E. & CAROL S. LITTLE

8/17/99

STV 100 Years
 STV Engineers, Inc.
 800 West Trade St., Suite 715
 Charlotte, NC 28202
 NC License Number F-0991

PROJECT REFERENCE NO. B-5810		SHEET NO. 4
RW SHEET NO.		
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		



BEGIN CONSTRUCTION
 -L- POC STA. 11+48.28 =
 -XL- PT STA. 11+48.58

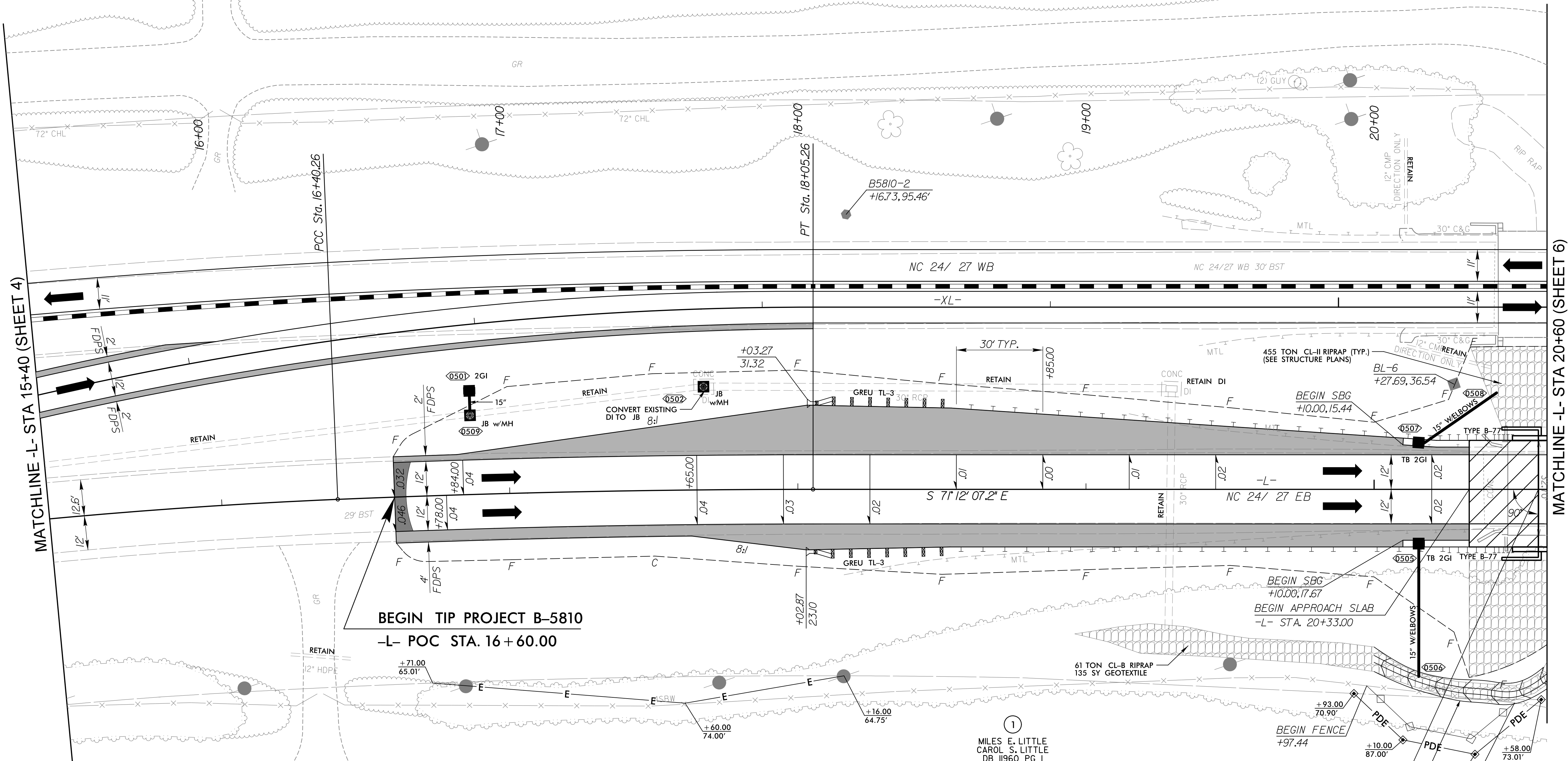
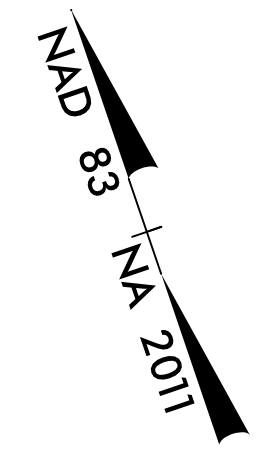
-L-
 PI Sta 13+47.38
 $\Delta = 17' 15' 16.9'' (RT)$
 $D = 2' 55' 23.7''$
 $L = 590.26'$
 $T = 297.38'$
 $R = 1,960.00'$
 RUNOFF = 168'
 SE = 5.6%

MATCHLINE -L- STA 15+40 (SHEET 5)

2/25/2022
 C:\Users\j\proj\sh\B5810_rdy_psh04.dgn

PROJECT REFERENCE NO. B-5810		SHEET NO. 5
RW SHEET NO.		
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		

THOMAS L. PRICE
 DORIS W. PRICE
 DB 7082 PG 20

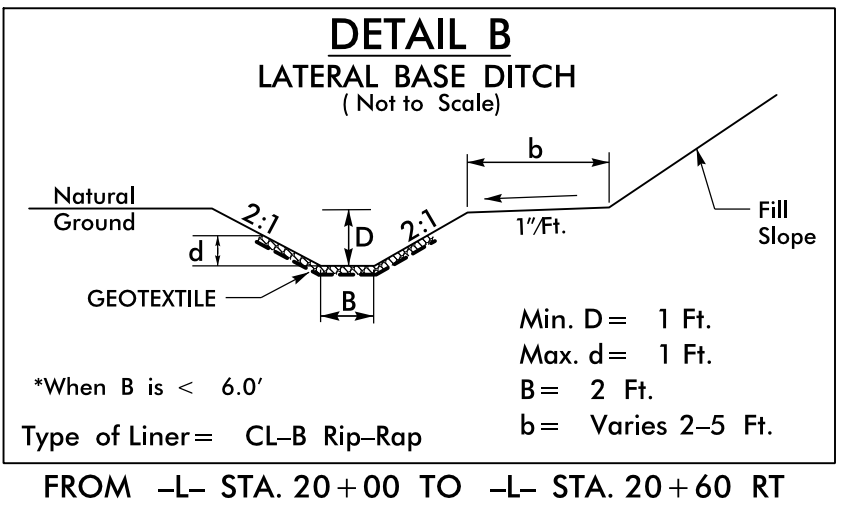


MATCHLINE -L- STA 15+40 (SHEET 4)

MATCHLINE -L- STA 20+60 (SHEET 6)

BEGIN TIP PROJECT B-5810
 -L- POC STA. 16+60.00

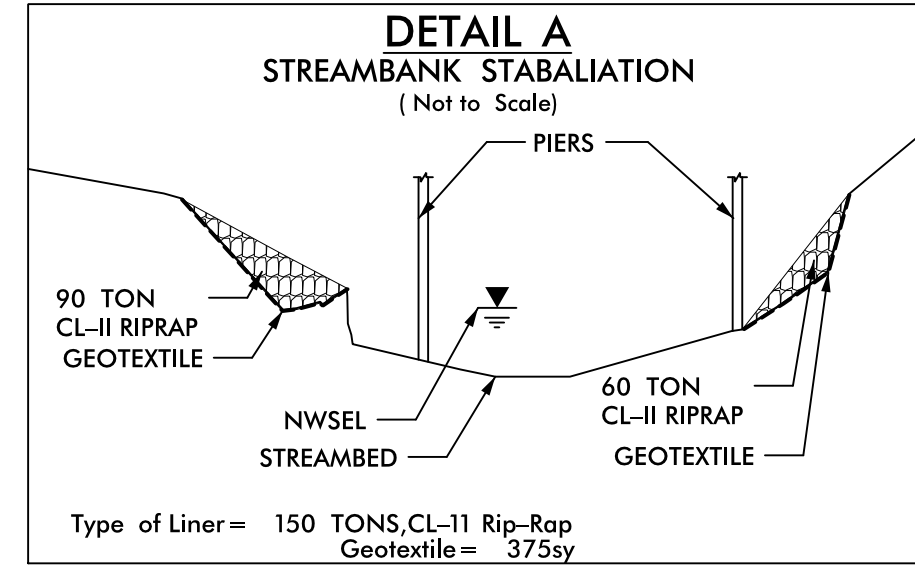
-L-	
PI Sta 13+47.38	PI Sta 17+22.77
$\Delta = 17^{\circ} 15' 16.9" (RT)$	$\Delta = 2^{\circ} 25' 04.3" (RT)$
$D = 2^{\circ} 55' 23.7"$	$D = 1^{\circ} 27' 55.3"$
$L = 590.26'$	$L = 165.00'$
$T = 297.38'$	$T = 82.51'$
$R = 1,960.00'$	$R = 3,910.00'$
$RUNOFF = 168'$	$RUNOFF = 120'$
$SE = 5.6\%$	$SE = 4.0\%$



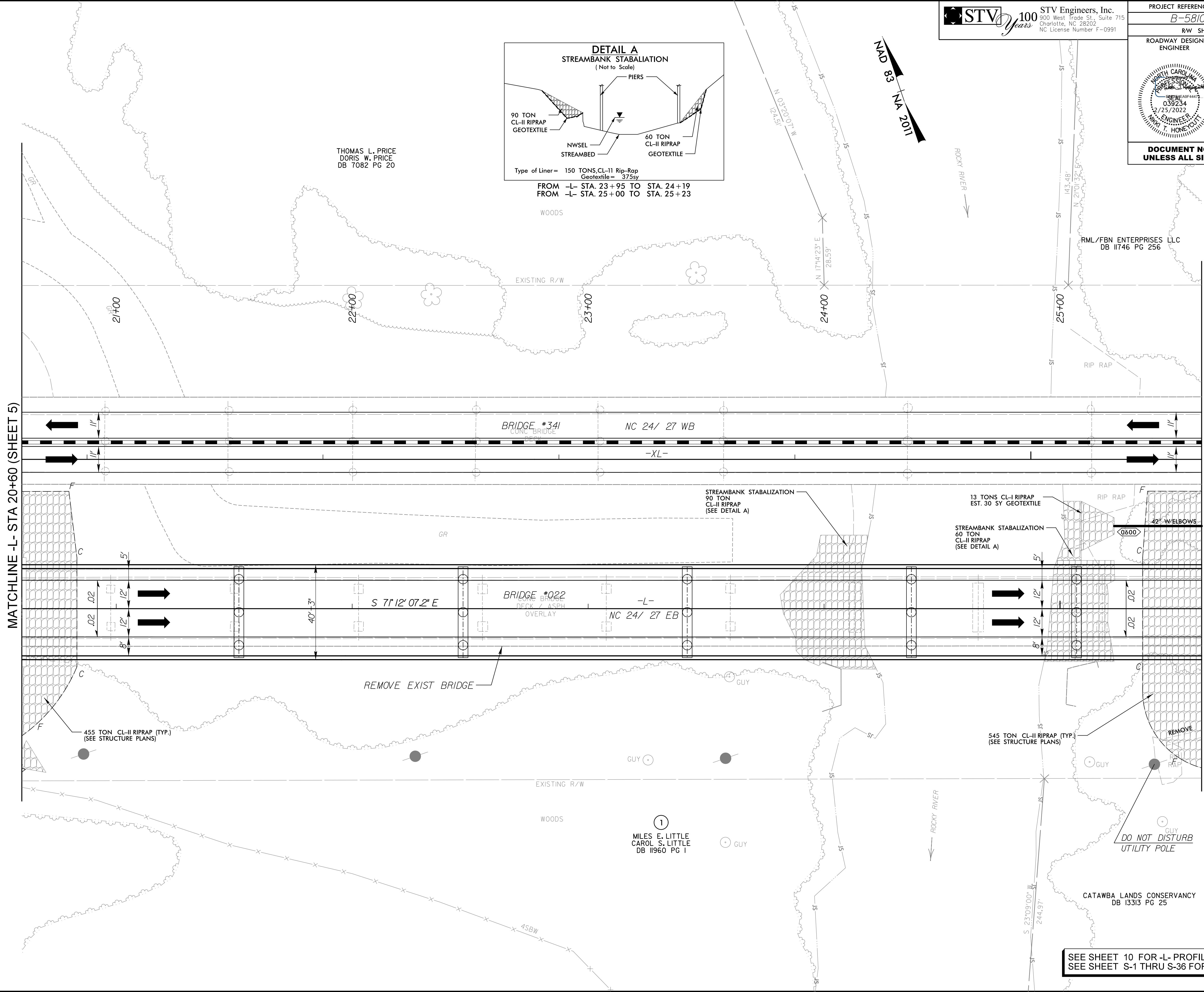
①
 MILES E. LITTLE
 CAROL S. LITTLE
 DB 11960 PG 1

SEE SHEET 9 FOR -L- PROFILE
 SEE SHEET S-1 THRU S-36 FOR STRUCTURE PLANS

PROJECT REFERENCE NO. <i>B-5810</i>		SHEET NO. 6
RW SHEET NO.		
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		



FROM -L- STA. 23+95 TO STA. 24+19
 FROM -L- STA. 25+00 TO STA. 25+23



MATCHLINE -L- STA 20+60 (SHEET 5)

MATCHLINE -L- STA 25+60(SHEET 7)

THOMAS L. PRICE
DORIS W. PRICE
DB 7082 PG 20

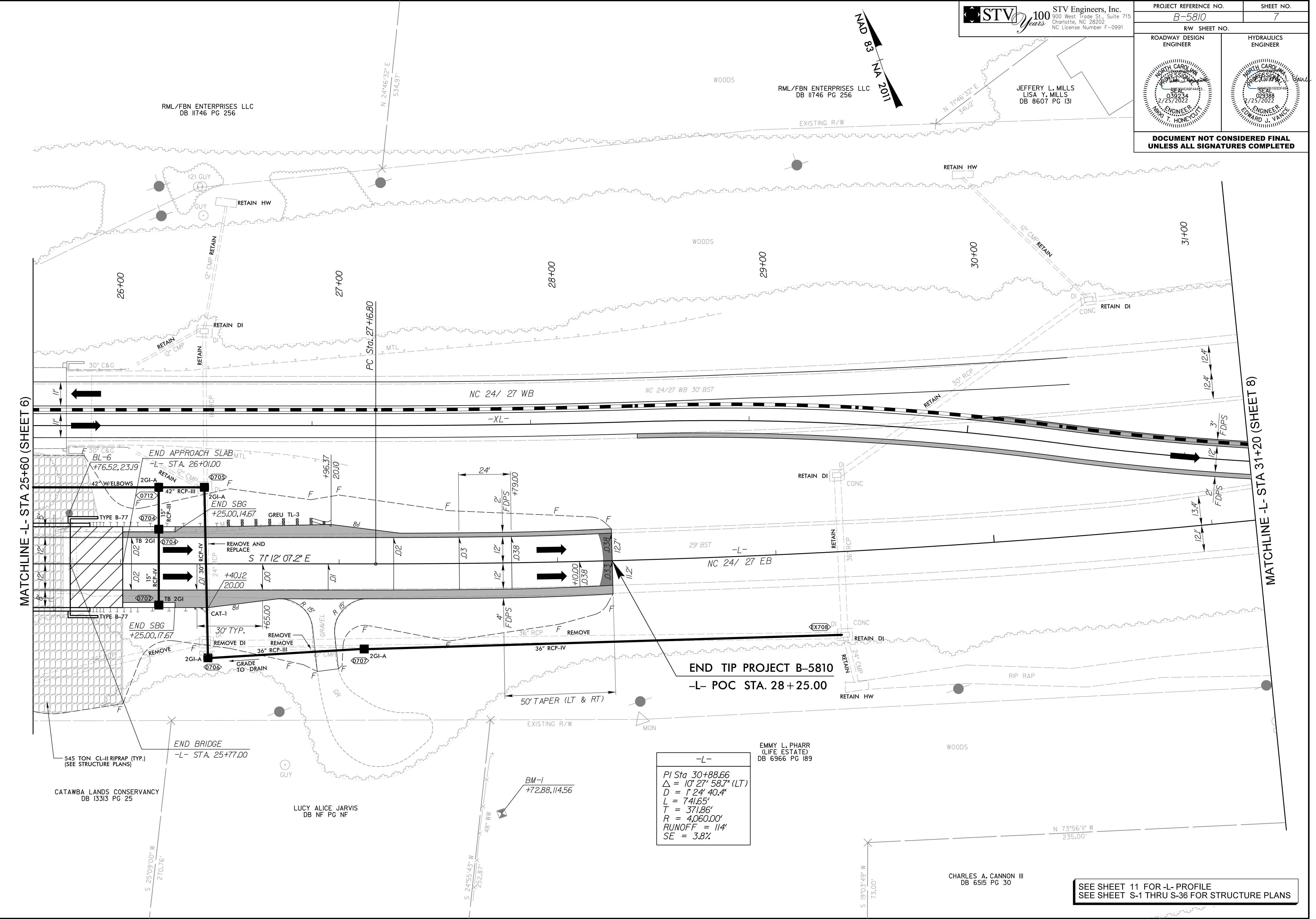
RML/FBN ENTERPRISES LLC
DB I1746 PG 256

1
MILES E. LITTLE
CAROL S. LITTLE
DB I1960 PG 1

CATAWBA LANDS CONSERVANCY
DB I3313 PG 25

SEE SHEET 10 FOR -L- PROFILE
SEE SHEET S-1 THRU S-36 FOR STRUCTURE PLANS

PROJECT REFERENCE NO. B-5810		SHEET NO. 7	
RW SHEET NO.		HYDRAULICS ENGINEER	
ROADWAY DESIGN ENGINEER			
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			



-L-

PI Sta 30+88.66
 $\Delta = 10' 27'' 58.7''$ (LT)
 $D = 1' 24'' 40.4''$
 $L = 741.65'$
 $T = 371.86'$
 $R = 4,060.00'$
 $RUNOFF = 114'$
 $SE = 3.8\%$

SEE SHEET 11 FOR -L- PROFILE
 SEE SHEET S-1 THRU S-36 FOR STRUCTURE PLANS

2/25/2022
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CATAWBA LANDS CONSERVANCY
 DB I3313 PG 25

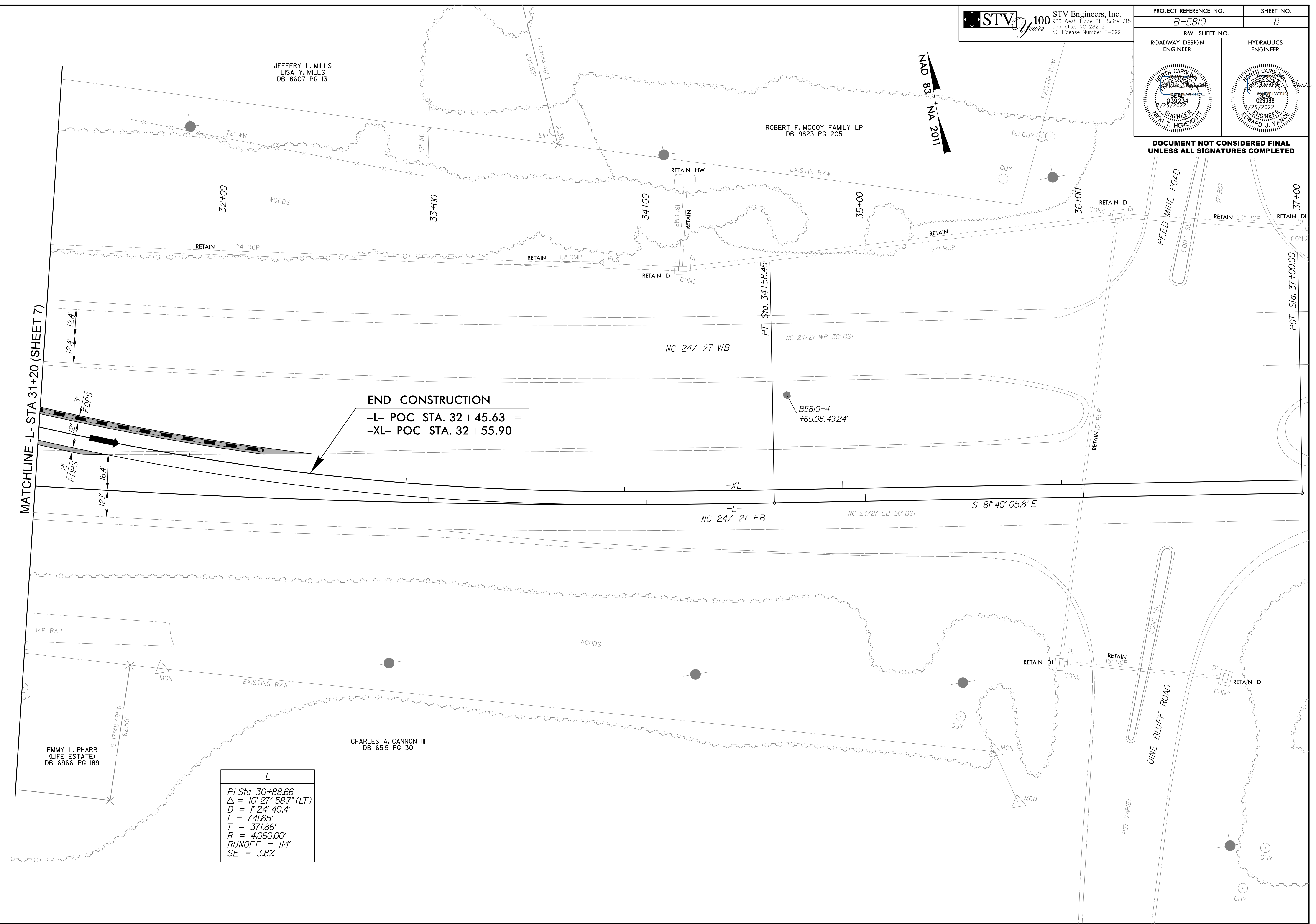
LUCY ALICE JARVIS
 DB NF PG NF

EMMY L. PHARR
 (LIFE ESTATE)
 DB 6966 PG 189

CHARLES A. CANNON III
 DB 6515 PG 30

PROJECT REFERENCE NO. B-5810		SHEET NO. 8
RW SHEET NO.		
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



MATCHLINE -L- STA 31+20 (SHEET 7)

END CONSTRUCTION
 -L- POC STA. 32 + 45.63 =
 -XL- POC STA. 32 + 55.90

-L-
PI Sta 30+88.66
$\Delta = 10^\circ 27' 58.7" (LT)$
$D = 1' 24' 40.4"$
$L = 741.65'$
$T = 371.86'$
$R = 4,060.00'$
$RUNOFF = 114'$
$SE = 3.8\%$

2/25/2022
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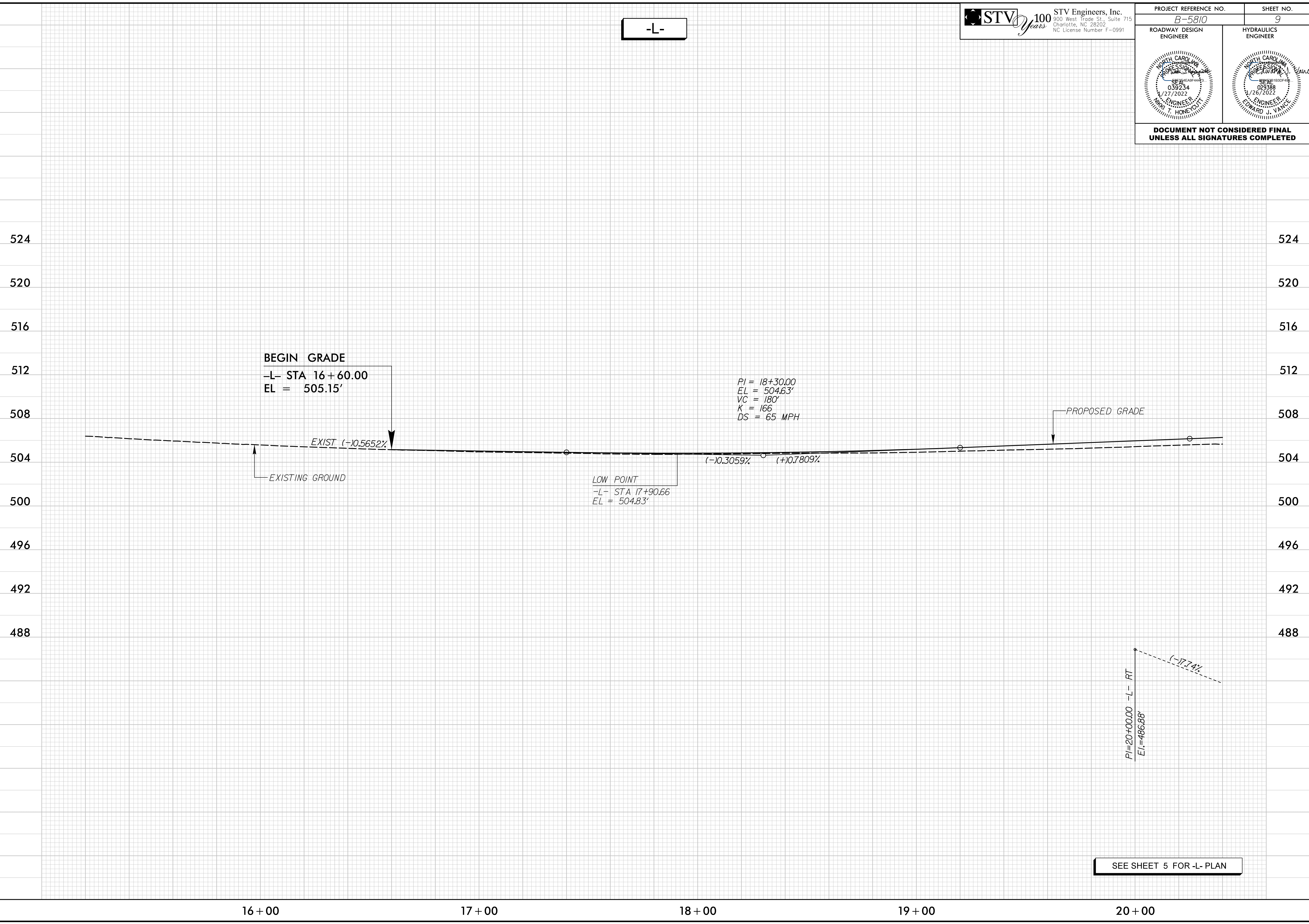
5/14/99

-L-

STV 100 Years
 STV Engineers, Inc.
 300 West Trade St., Suite 715
 Charlotte, NC 28202
 NC License Number F-0991

PROJECT REFERENCE NO. <i>B-5810</i>	SHEET NO. 9
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

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SEE SHEET 5 FOR -L- PLAN

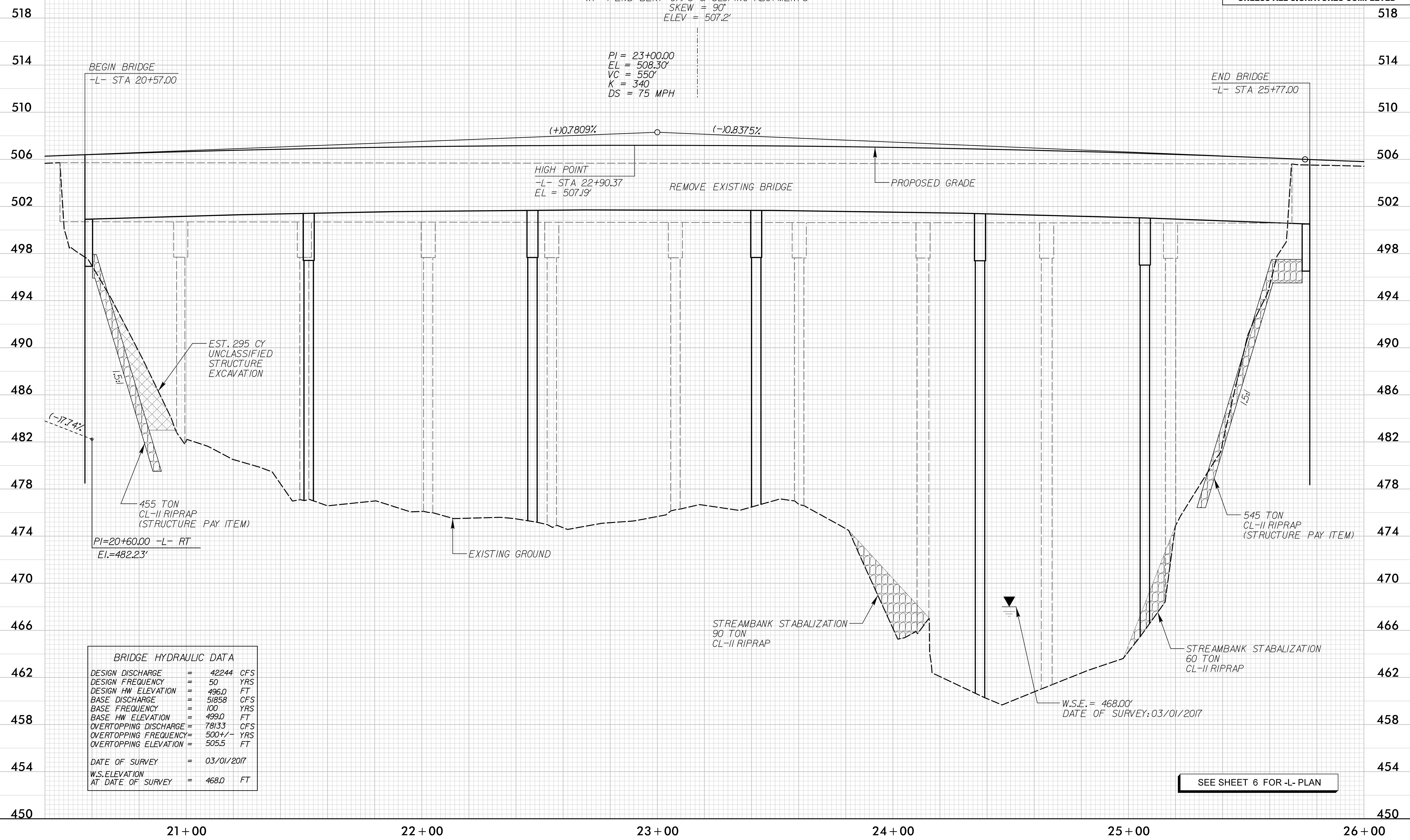
5/14/99

PROJECT REFERENCE NO. B-5810	SHEET NO. 10
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

-L-

CENTERLINE -L- STA 23+17
 4@95' - 2@70' (54" GIRDER)
 W/ 4' END BENT CAPS & SLOPING ABUTMENTS
 SKEW = 90°
 ELEV = 507.2'

PI = 23+00.00
 EL = 508.30'
 VC = 550'
 K = 340
 DS = 75 MPH



BEGIN BRIDGE
 -L- STA 20+57.00

END BRIDGE
 -L- STA 25+77.00

(+0.7809% (-0.8375%

HIGH POINT
 -L- STA 22+90.37
 EL = 507.19'

REMOVE EXISTING BRIDGE

PROPOSED GRADE

EST. 295 CY
 UNCLASSIFIED
 STRUCTURE
 EXCAVATION

(-17.74%

455 TON
 CL-II RIPRAP
 (STRUCTURE PAY ITEM)

PI=20+60.00 -L- RT
 EI=482.23'

EXISTING GROUND

STREAMBANK STABILIZATION
 90 TON
 CL-II RIPRAP

STREAMBANK STABILIZATION
 60 TON
 CL-II RIPRAP

W.S.E. = 468.00'
 DATE OF SURVEY: 03/01/2017

BRIDGE HYDRAULIC DATA	
DESIGN DISCHARGE	= 42244 CFS
DESIGN FREQUENCY	= 50 YRS
DESIGN HW ELEVATION	= 496.0 FT
BASE DISCHARGE	= 51858 CFS
BASE FREQUENCY	= 100 YRS
BASE HW ELEVATION	= 499.0 FT
OVERTOPPING DISCHARGE	= 78133 CFS
OVERTOPPING FREQUENCY	= 500 +/- YRS
OVERTOPPING ELEVATION	= 505.5 FT
DATE OF SURVEY	= 03/01/2017
W.S. ELEVATION AT DATE OF SURVEY	= 468.0 FT

SEE SHEET 6 FOR -L- PLAN

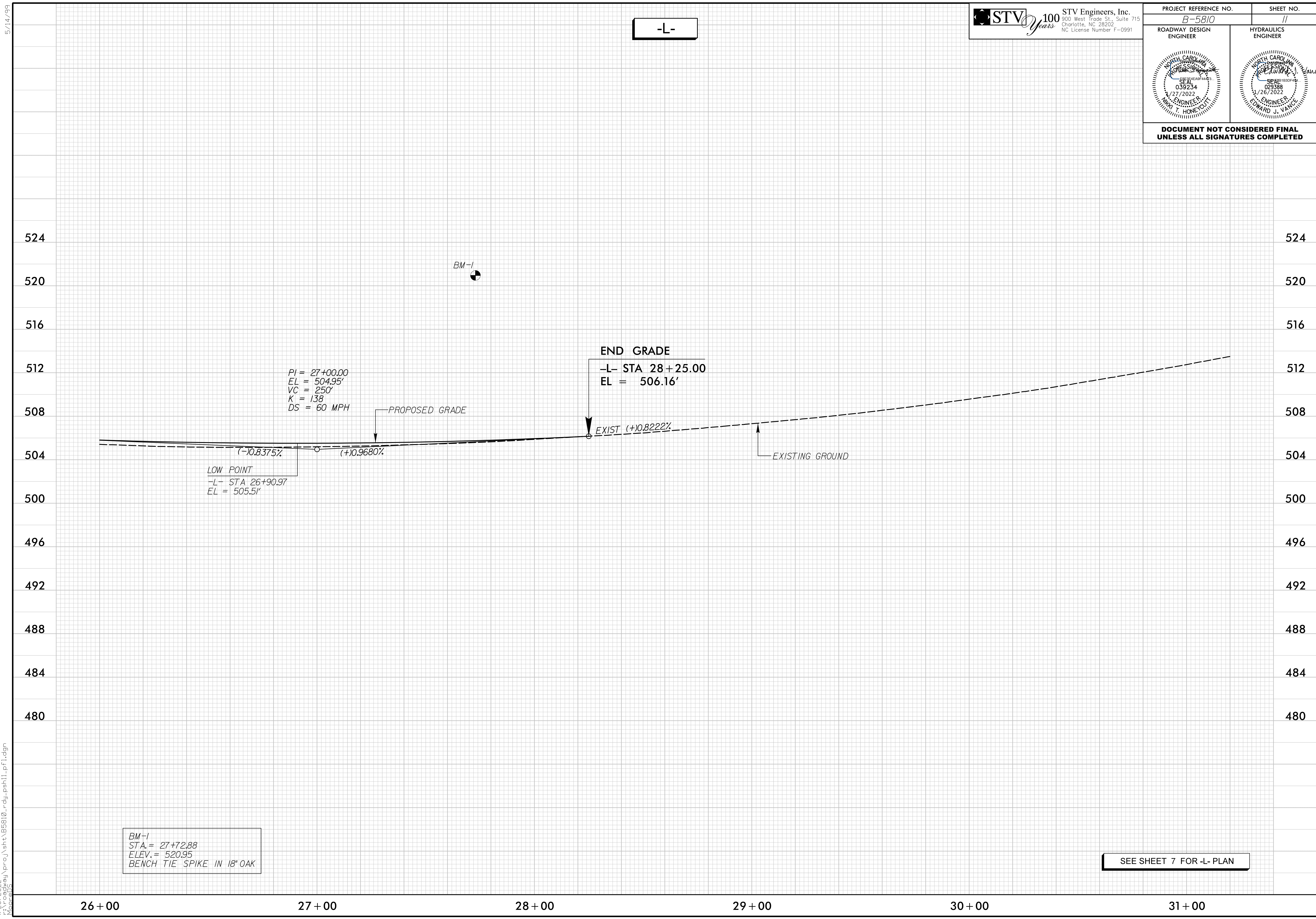
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5/14/99

STV 100 Years
 STV Engineers, Inc.
 800 West Trade St., Suite 715
 Charlotte, NC 28202
 NC License Number F-0991

PROJECT REFERENCE NO. <i>B-5810</i>	SHEET NO. <i>11</i>
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

-L-



BM-1
 STA. = 27+72.88
 ELEV. = 520.95
 BENCH TIE SPIKE IN 18" OAK

SEE SHEET 7 FOR -L- PLAN

1/26/2022
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