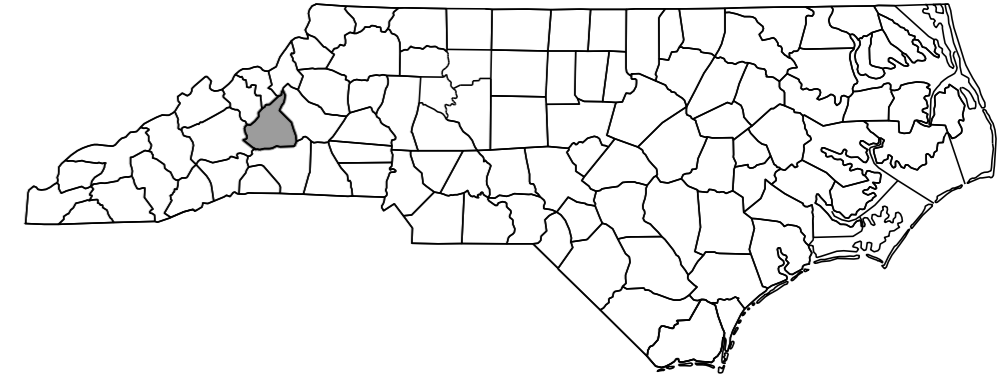


6/18/99

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

| | | | |
|-----------------|-----------------------------|-------------|--------------|
| STATE | STATE PROJECT REFERENCE NO. | SHEET NO. | TOTAL SHEETS |
| N.C. | HI-0010 | 1 | |
| STATE PROJ. NO. | F.A. PROJ. NO. | DESCRIPTION | |
| 49909.3.1 | 0040119 | CONST. | |



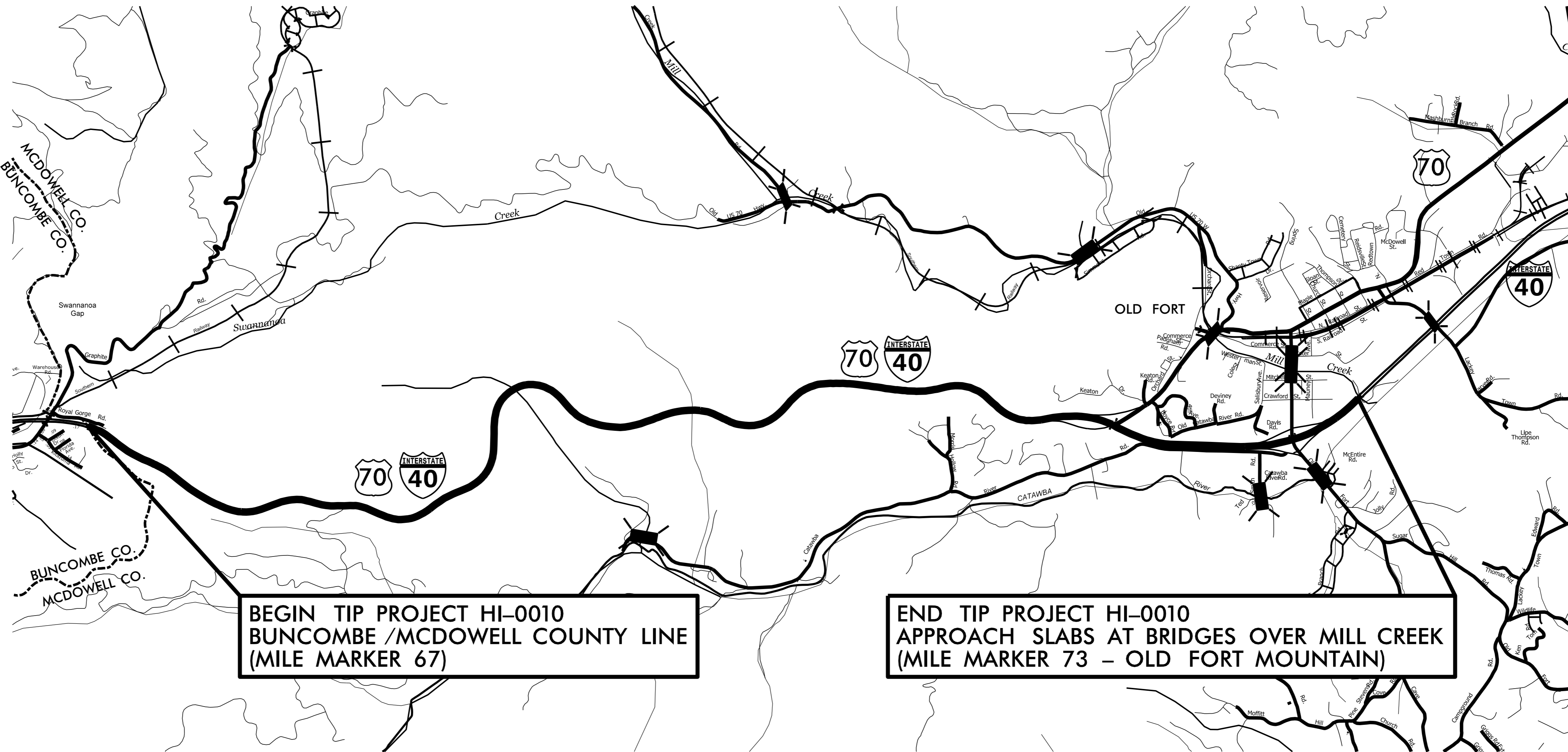
MCDOWELL COUNTY

**LOCATION: I-40 EB & WB FROM BUNCOMBE & MCDOWELL COUNTY LINE (MILE MARKER 67)
TO APPROACH SLABS AT BRIDGES OVER MILL CREEK (MILE MARKER 73 - OLD FORT MOUNTAIN)**

**TYPE OF WORK: GRADING, PAVING, DRAINAGE, CONCRETE BARRIER,
THERMOPLASTIC PAVEMENT MARKINGS, & SNOWPLOWABLE MARKERS**

TIP PROJECT: HI-0010

CONTRACT: C204738



**BEGIN TIP PROJECT HI-0010
BUNCOMBE /MCDOWELL COUNTY LINE
(MILE MARKER 67)**

**END TIP PROJECT HI-0010
APPROACH SLABS AT BRIDGES OVER MILL CREEK
(MILE MARKER 73 - OLD FORT MOUNTAIN)**

DESIGN DATA
ADT 2020 = 31,500
V = 60 MPH
FUNC CLASS=INTERSTATE
TIER = STATEWIDE

PROJECT LENGTH
TOTAL LENGTH TIP PROJECT HI-0010 = 5.9 MI.

NOTE: I-40 EBL USED TO DETERMINE APPROXIMATE LENGTH OF PROJECT.

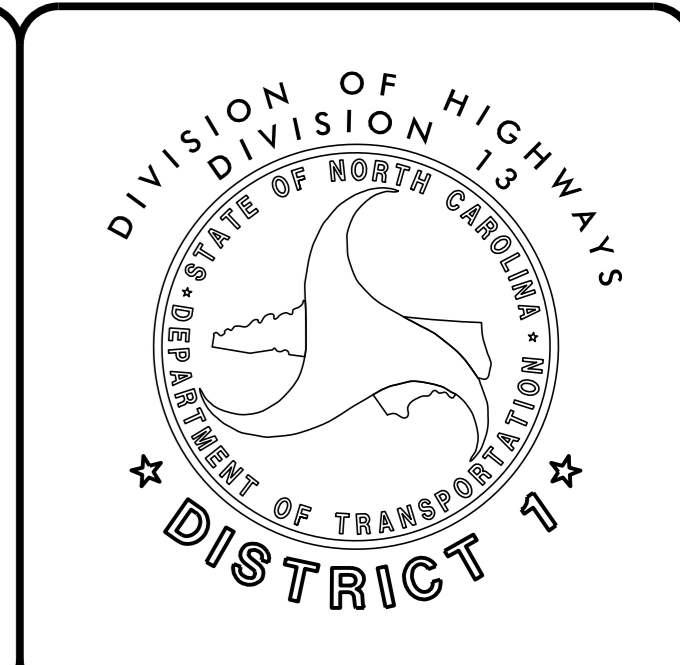
PREPARED BY THE
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS - DIVISION 13

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
N/A

LETTING DATE:
JULY 18, 2023

BRENDAN MERITHEW, PE
NCDOT CONTACT

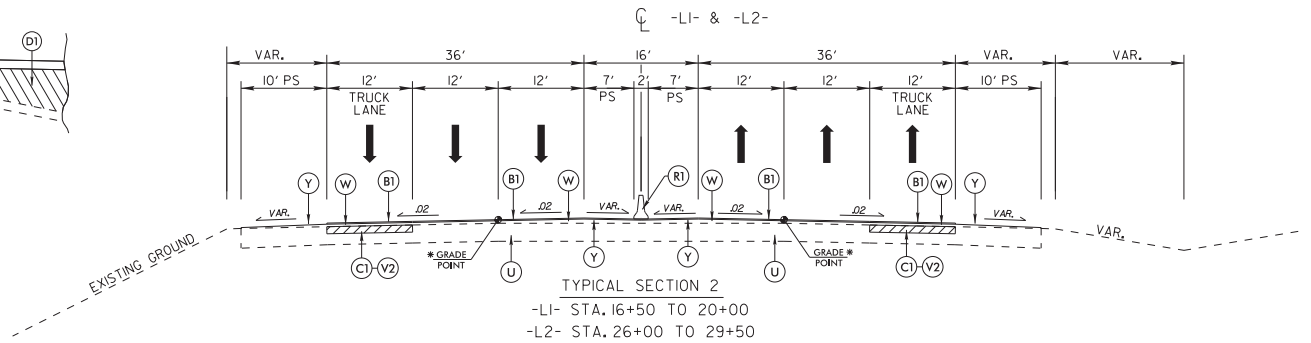
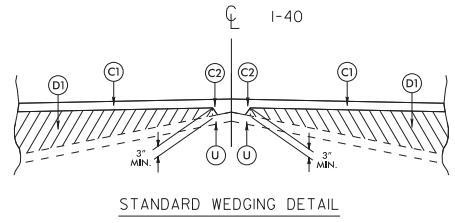
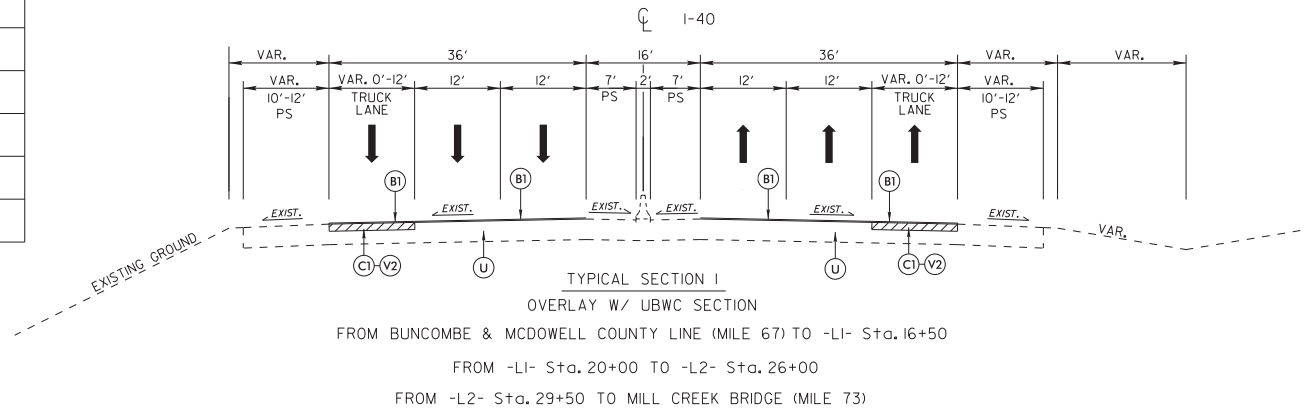


4/21/2023 9:00 AM C:\05-CAD\1-4700-Roadway\Proj\HI-0010\HI-0010_Tipj_rsh.dgn

6/2/04

| PAVEMENT SCHEDULE | |
|-------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| B1 | PROP. APPROX. 5/8" ULTRATHIN BONDED WEARING COURSE (UBWC), AT AN AVERAGE RATE OF 70 LBS. PER SQ. YD. |
| C1 | PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5D, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS. |
| C2 | PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5D, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH TO BE PLACED IN LAYERS NOT LESS THAN 1/2" OR GREATER THAN 2" IN DEPTH |
| D1 | PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH TO BE PLACED IN LAYERS NOT LESS THAN 2 1/2" OR GREATER THAN 4" IN DEPTH. |
| R1 | CONCRETE MEDIAN BARRIER |
| U | EXISTING PAVEMENT |
| V2 | 3" MILLING |
| W | VARIABLE DEPTH ASPHALT PAVEMENT |
| Y | RUMBLE STRIPS |

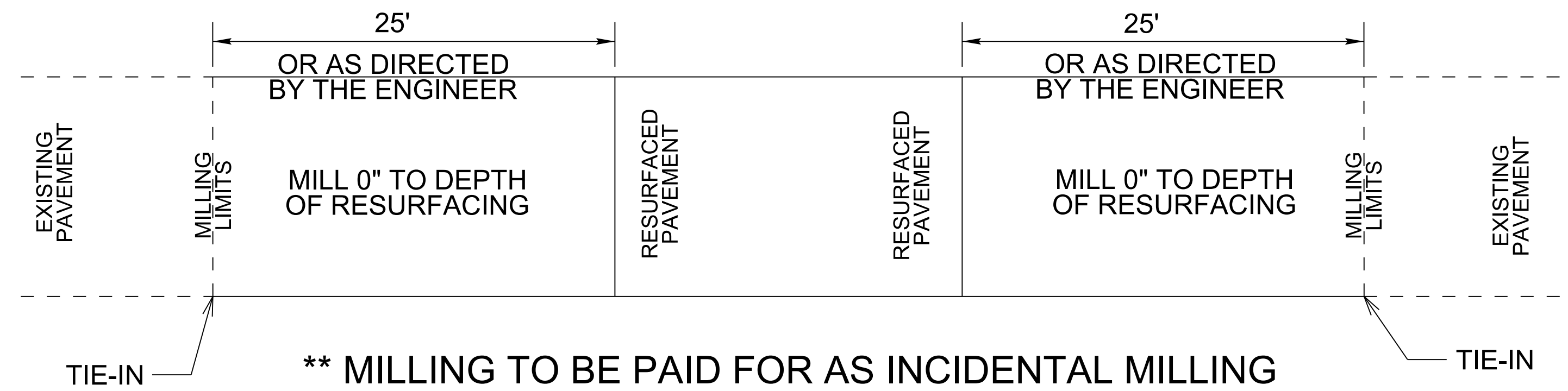
| | |
|----------------------------------|-------------------|
| PROJECT REFERENCE NO. HI-0010 | SHEET NO. 2A-1 |
|----------------------------------|-------------------|



* NOTE: GRADE POINT ELEVATIONS PROVIDED ON CROSS SECTIONS

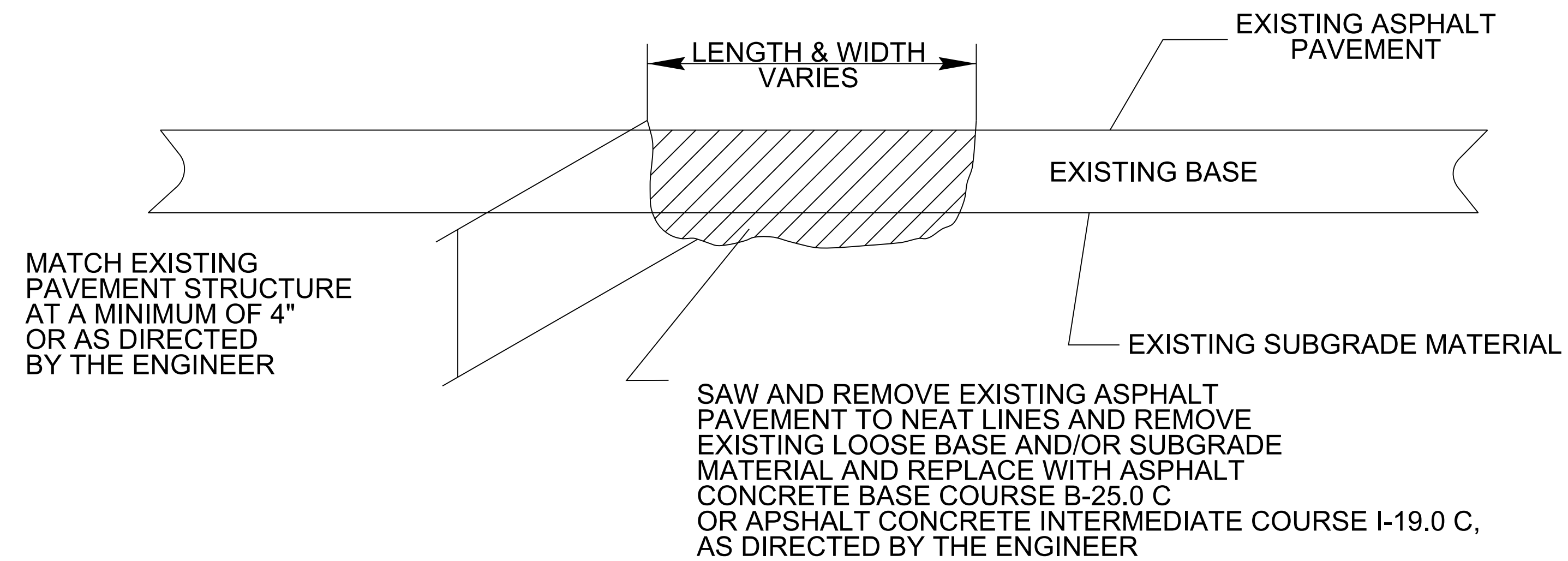
Remove existing portable concrete median barrier and replaced with 42" single slope concrete barrier as shown on detail sheet 2C-1 at the follow locations:
Mile Post 66.88 to 68.88, Mile Post 69.33 to 70.99 and Mile Post 71.21 to 71.72

Remove existing single slope concrete barrier and replace with 60" single slope concrete barrier as shown on detail sheet 2C-6 at the following location:
Pipe crossing between drainage structure 801 and 802 at Mile Post 68.90

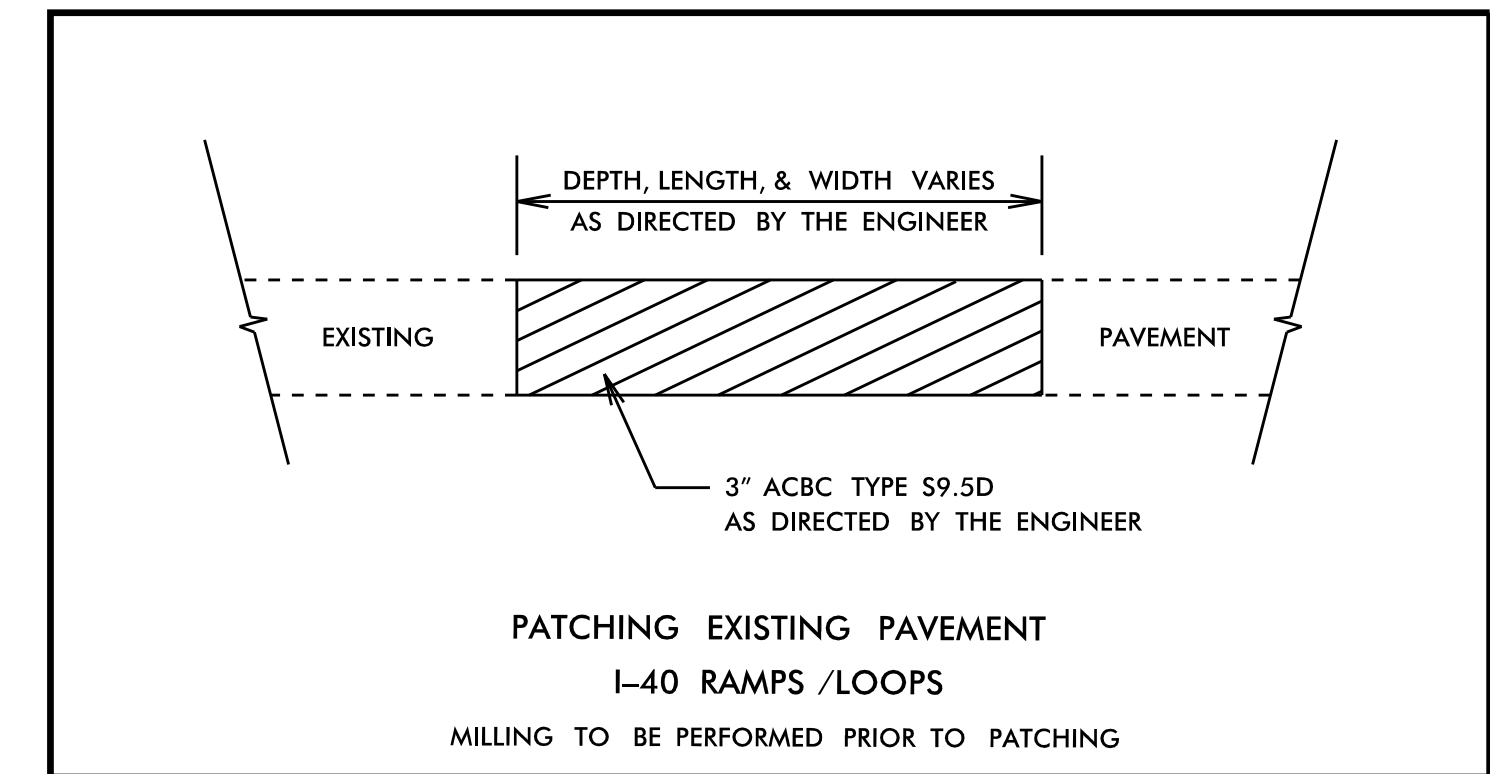
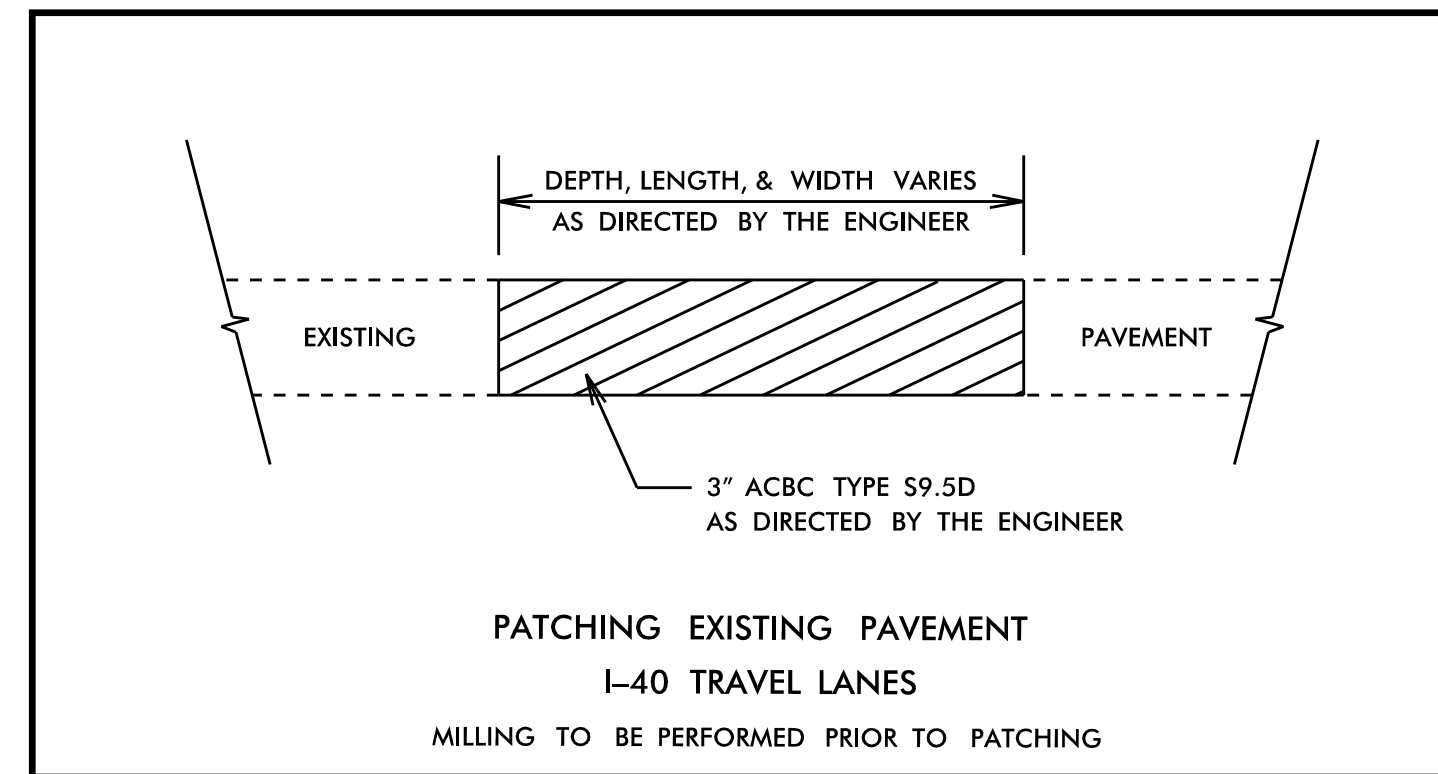
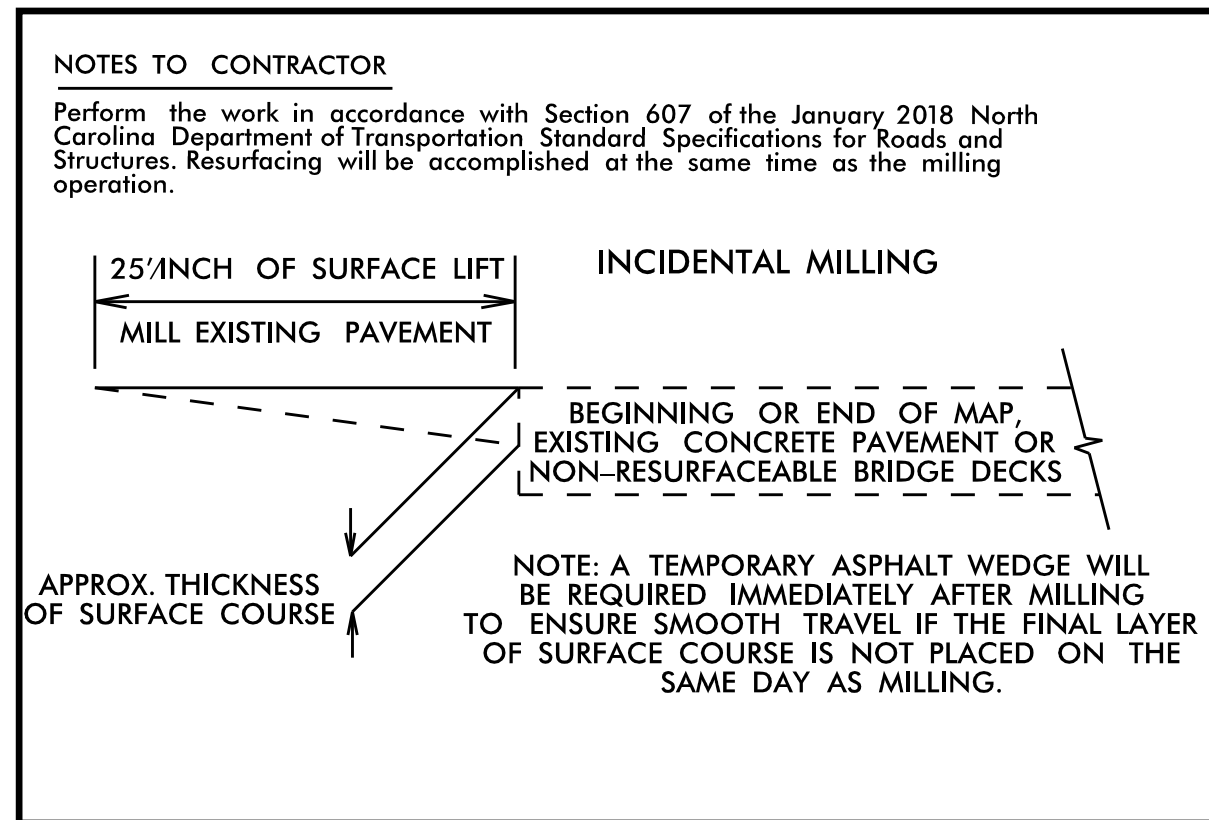


PAVEMENT TIE-IN DETAIL

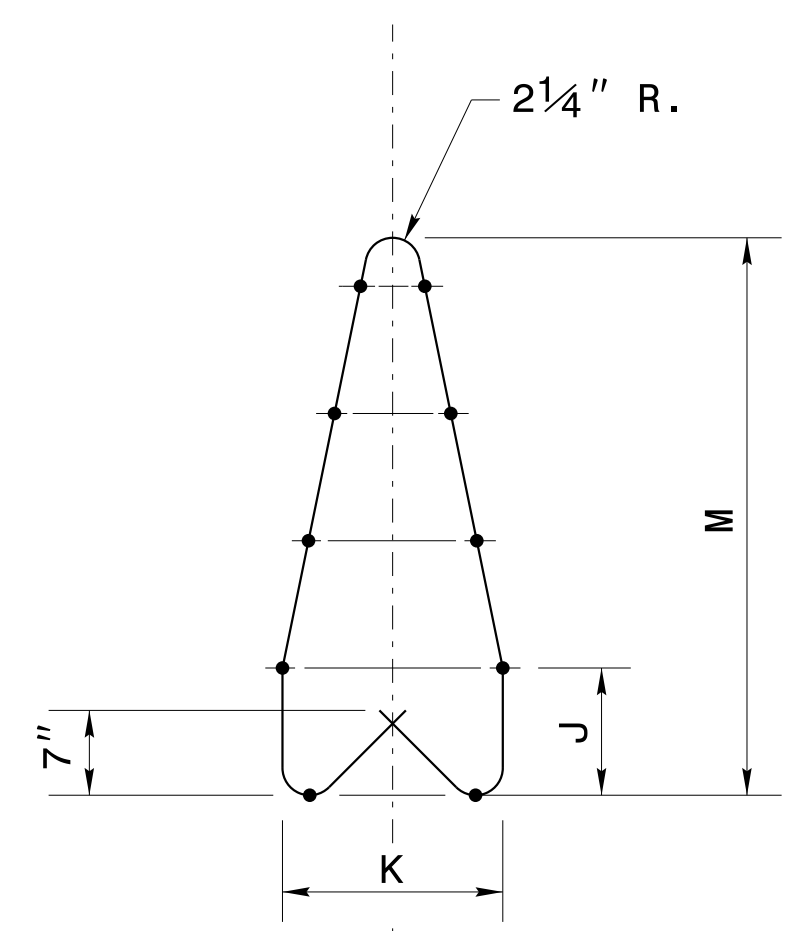
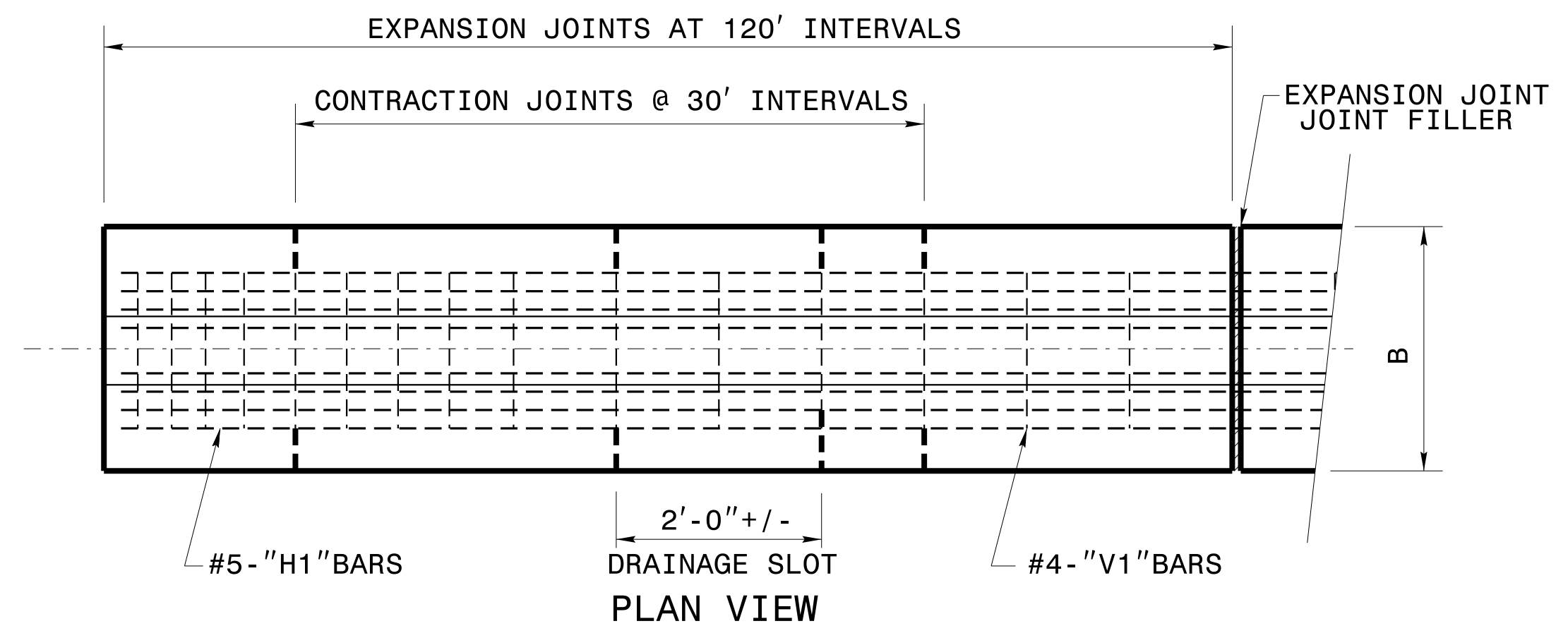
DETAILS OF PATCHING EXISTING PAVEMENT PRIOR TO RESURFACING



REVISIONS



5/14/99

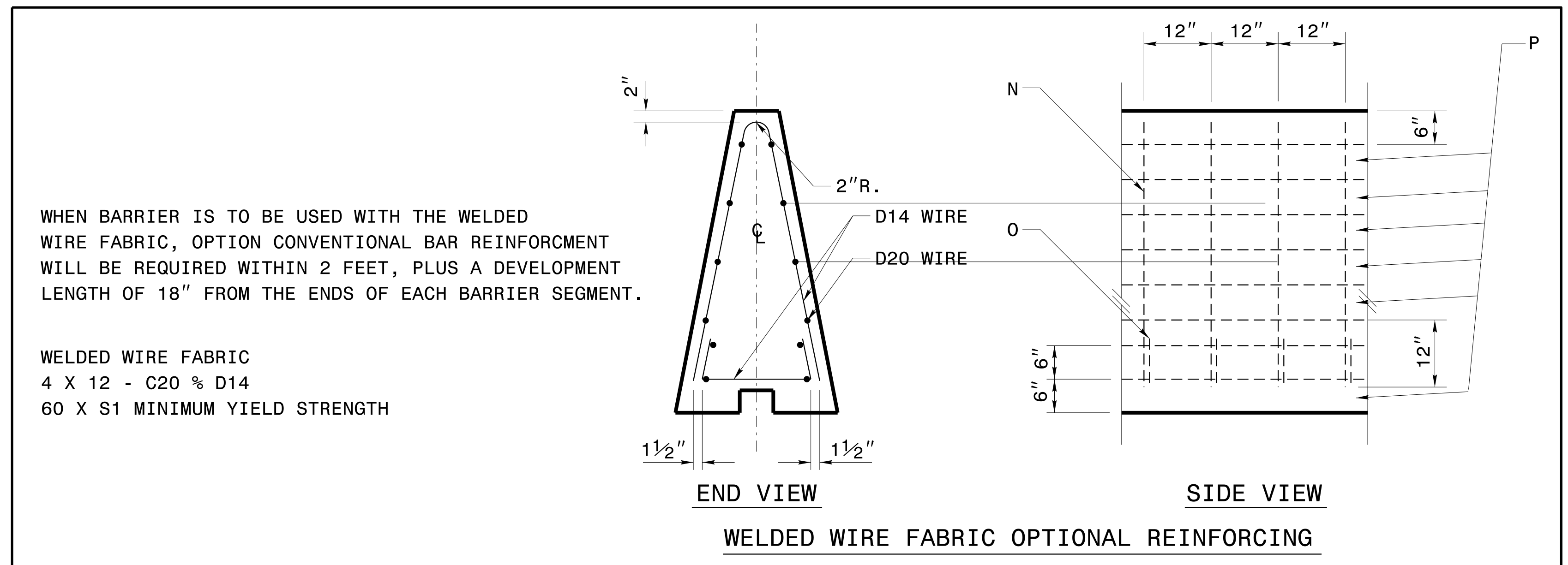
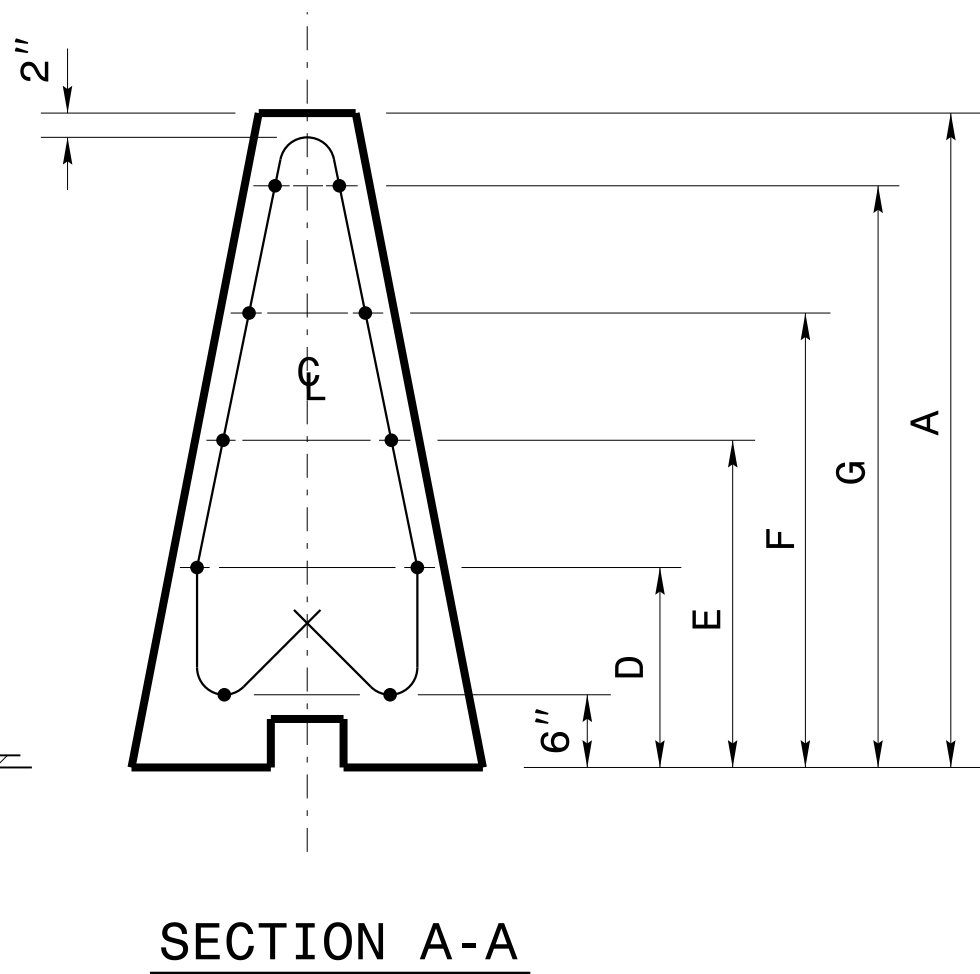
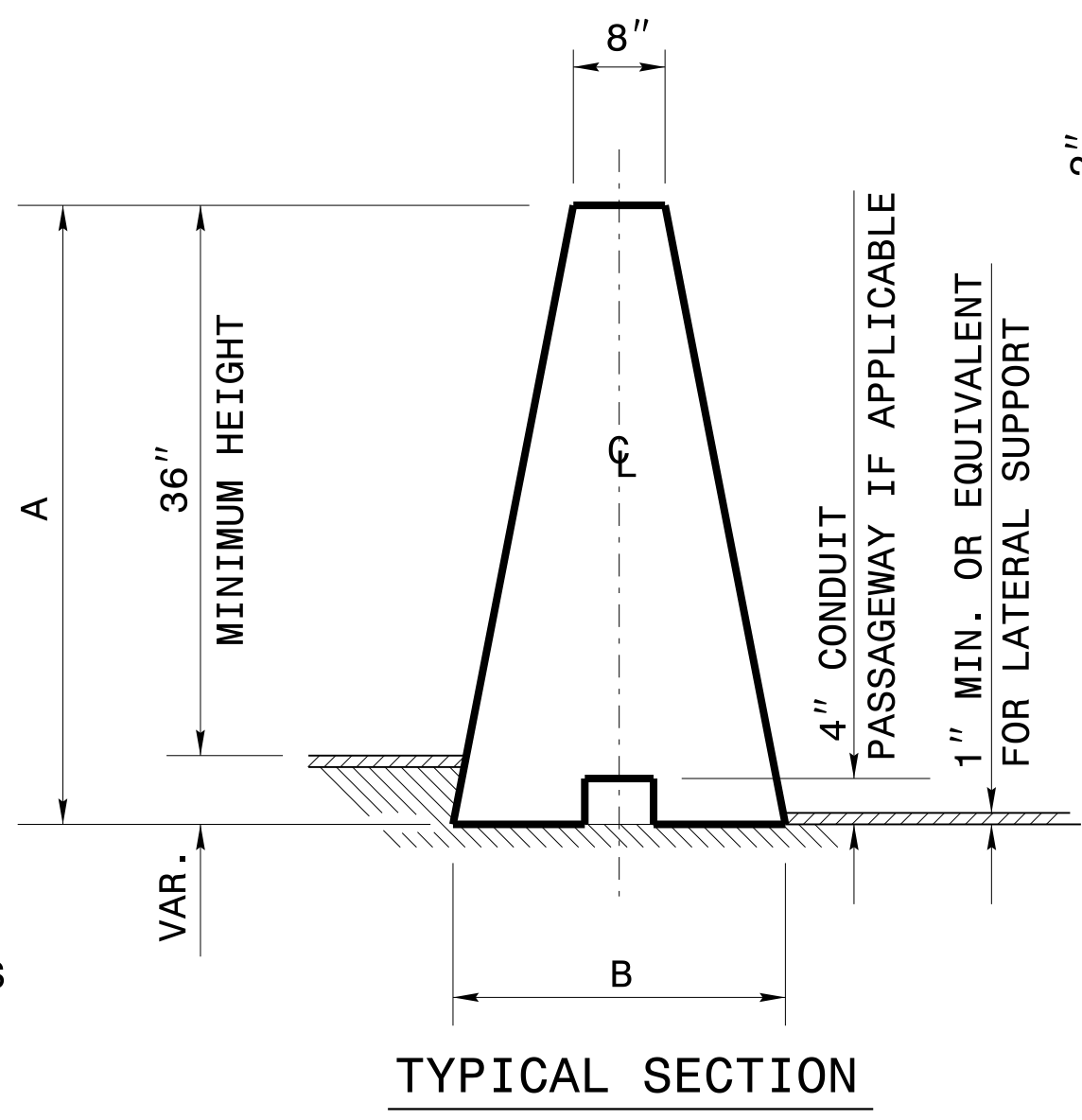
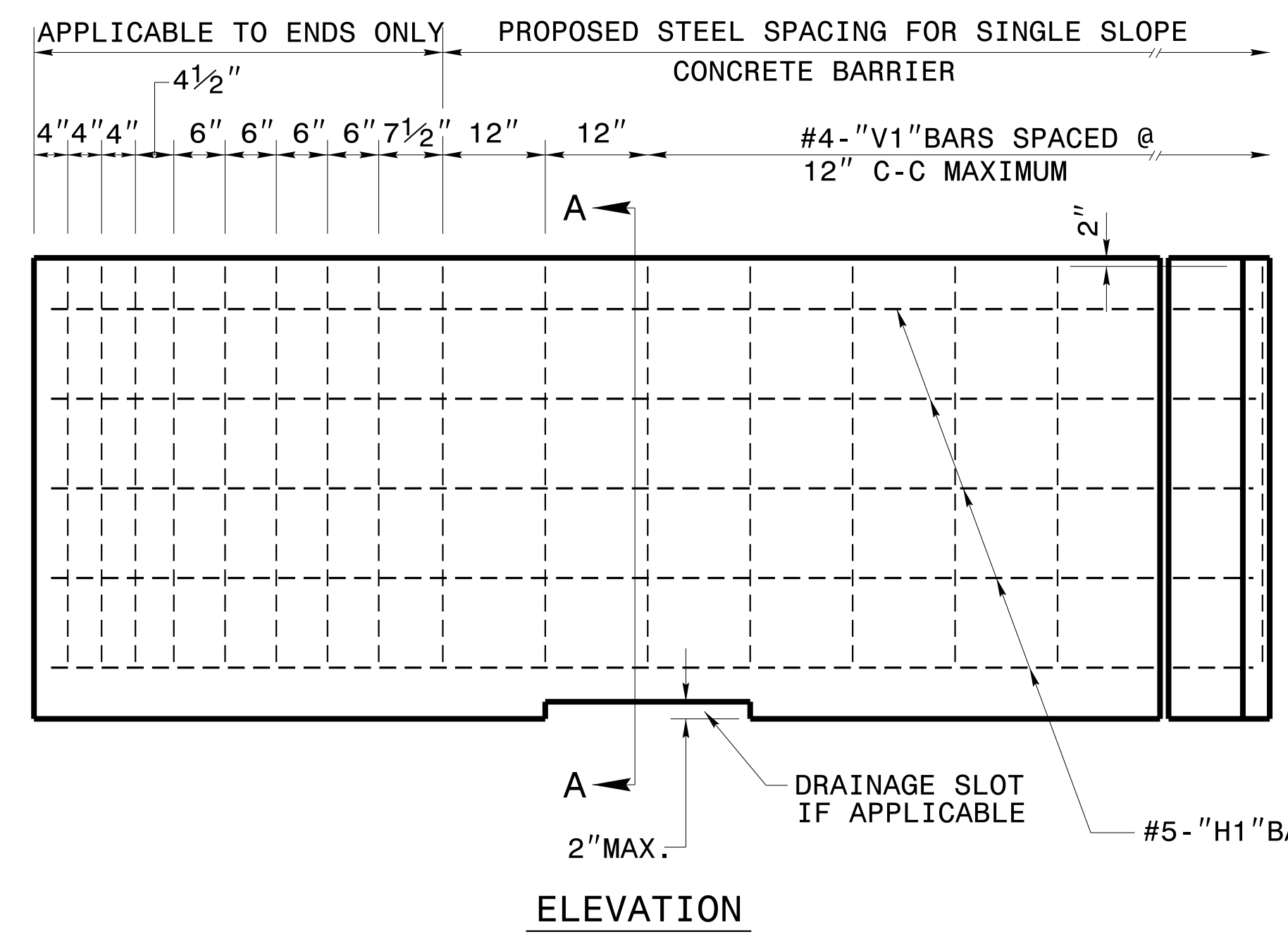


GENERAL NOTES:

1. USE CLASS "AA" CONCRETE.
2. MAINTAIN 2" OF COVER OVER ALL REBAR. CHAMFER TOP AND ENDS OF BARRIER 1/2 INCH.
3. USE BAR SPLICE LENGTHS A MINIMUM OF 20 TIMES THE NORMAL DIAMETER OF THE BAR. ANY METHOD DEvised BY THE CONTRACTOR AND APPROVED BY THE ENGINEER THAT WILL ASSURE THE LONGITUDINAL ROADWAY STEEL WILL BE POSITIONED +/- 1/2 INCH AS DIMENSIONED WILL BE SATISFACTORY.

WELDED WIRE FABRIC MAY BE USED AS AN OPTION TO CONVENTIONAL REINFORCEMENT FOR CAST-IN-PLACE BARRIER. WELDED WIRE FABRIC SHALL BE MADE IN ACCORDANCE WITH ASTM A497. CONDUIT TO BE PROVIDED ONLY WHEN CALLED FOR ELSEWHERE IN THE PLANS. POSITION OF THE CONDUIT CONDUIT PASSAGEWAY MAY BE ADJUSTED TO FACILITATE CONSTRUCTION, SUBJECT TO APPROVAL BY THE ENGINEER.

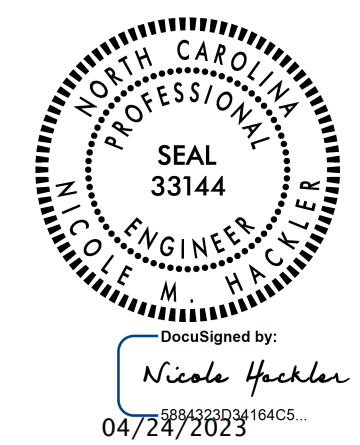
4. REFER TO ROADWAY STANDARD DRAWING NO.854.01 FOR EXPANSION AND CONTRACTION JOINT, FILLER AND OTHER SPECIFICATIONS.



WHEN BARRIER IS TO BE USED WITH THE WELDED WIRE FABRIC, OPTION CONVENTIONAL BAR REINFORCEMENT WILL BE REQUIRED WITHIN 2 FEET, PLUS A DEVELOPMENT LENGTH OF 18" FROM THE ENDS OF EACH BARRIER SEGMENT.

WELDED WIRE FABRIC
4 X 12 - C20 % D14
60 X S1 MINIMUM YIELD STRENGTH

| BARRIER HEIGHT (IN.) | DIMENSIONS | | | | | | | | | | | |
|----------------------|------------|---------|--------|----|--------|----|--------|--------|----|----|--------|---|
| | A | B | D | E | F | G | K | L | M | N | O | P |
| 42" | 42 | 24 | 13 1/2 | 21 | 28 1/2 | 36 | 15 | 9 1/4 | 36 | 72 | 28 | 4 |
| 48" | 48 | 26 9/32 | 15 | 24 | 33 | 42 | 17 1/2 | 10 3/4 | 42 | 84 | 31 1/2 | 5 |
| 52" | 54 | 28 9/16 | 16 1/2 | 27 | 37 1/2 | 48 | 19 1/2 | 12 1/4 | 48 | 96 | 34 3/4 | 6 |

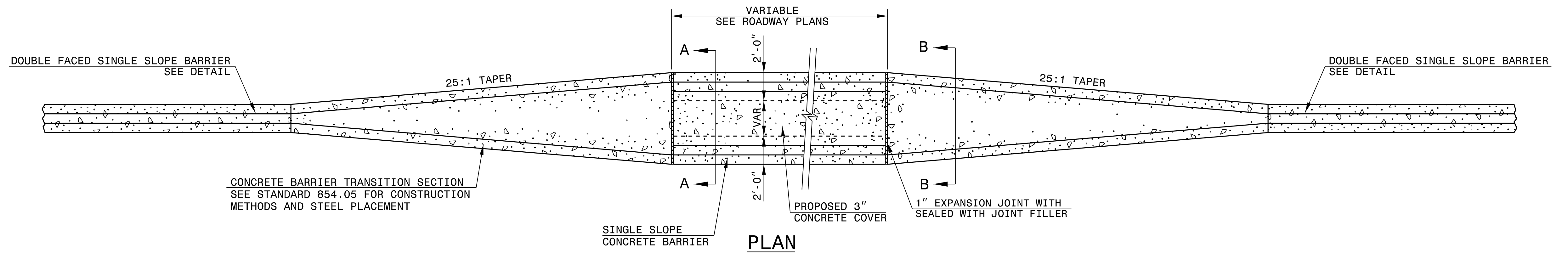


DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

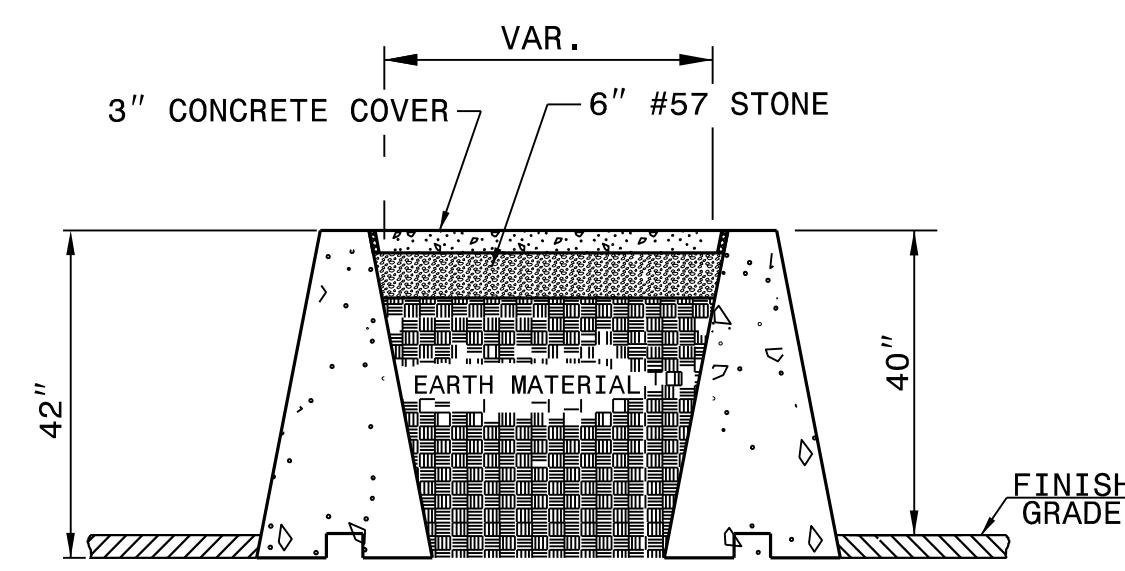
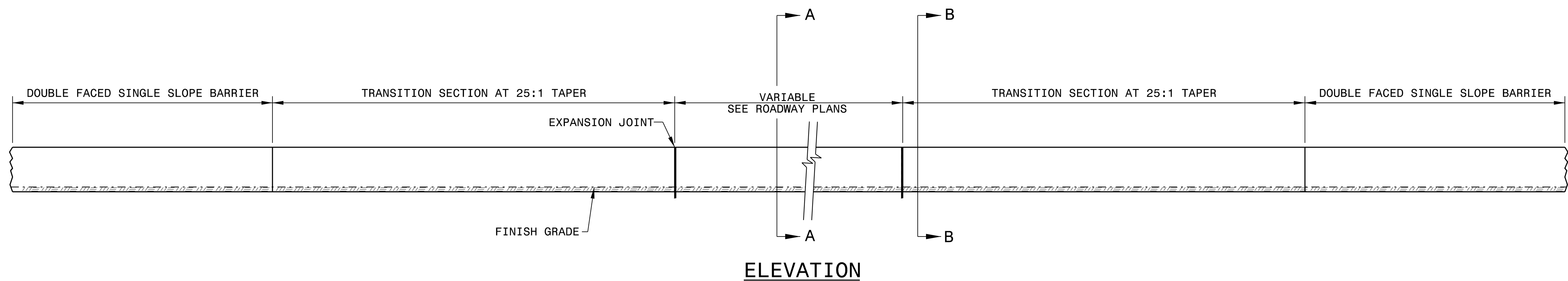
**CONTRACT SERVICES & DEVELOPMENT UNIT
STANDARDS AND SPECIAL DESIGN**
Office 919-707-6950 FAX 919-250-4119

**SINGLE SLOPE
CONCRETE BARRIER**

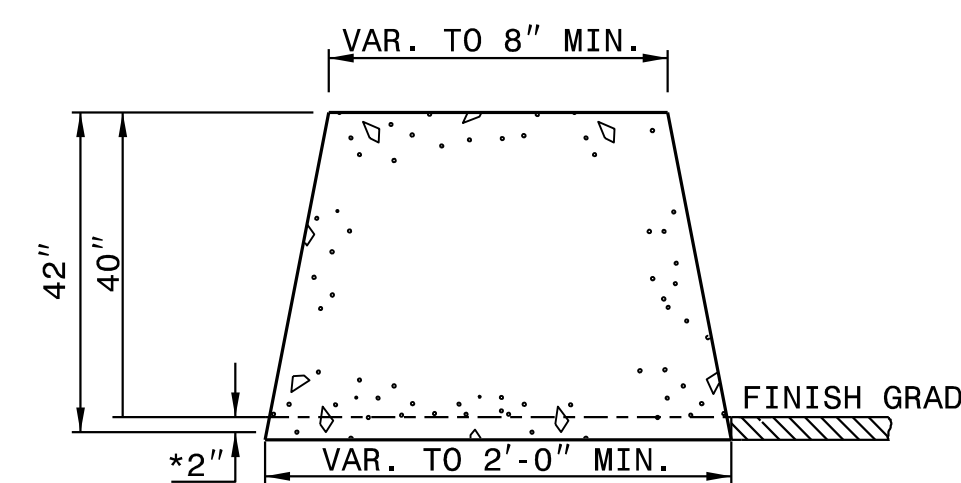
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MODIFIED BY: rnbritt DATE: 08-18-06
CHECKED BY: _____ DATE: _____
FILE SPEC.: details/rbrito/english/guardrail/single slope concrete barrier.dgn



GENERAL NOTES:
 CONSTRUCT CONCRETE BARRIER WITH CLASS 'AA' CONCRETE. (SEE SPECIFICATIONS SECTION 854).
 CONSTRUCT EXPANSION AND CONTRACTION JOINTS AS SHOWN IN STANDARD DRAWING 854.01.
 SEAL EXPANSION JOINTS WITH JOINT FILLER. (SEE SECTION 1028 OF THE SPECIFICATIONS).
 SEE DETAIL 2C-1 FOR STEEL LAYOUT OF TRANSITION BARRIER.
 *THE 2" DIMENSION FROM FINISH GRADE TO THE BASE IS A MINIMUM DIMENSION.



SECTION A-A



SECTION B-B



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

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

**DETAIL OF SINGLE
SLOPE CONCRETE
BARRIER TRANSITION**

| | |
|-----------------------------------------------------------------|----------------|
| ORIGINAL BY: E.E. WARD | DATE: 7-28-03 |
| MODIFIED BY: K.A. KEMPF | DATE: 11-13-18 |
| CHECKED BY: | DATE: |
| FILE SPEC.: details/english/transition single slope barrier.dgn | |

I4-DEC-2017 10:36 S:\Contracts\2018\Standard Drawings\Special Details\Lieu of Standards\Division 8\0862d0301.dgn
 Jhowerton AT: CSU-212855

| | | |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|
| 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 |
| <div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> </div> <div style="width: 50%;"> <p>NOTE:</p> <ul style="list-style-type: none"> **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 3 FOR POST SECTIONS 1 THRU 9. </div> </div> | | |
| GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO RAIL ON BRIDGE | | |

| | | |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|
| 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 - SUB REGIONAL TIER | SHEET 2 OF 7 862D03 |
| <div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> </div> <div style="width: 50%;"> <p>NOTE:</p> <ul style="list-style-type: none"> **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 3 FOR POST SECTIONS 1 THRU 9. </div> </div> | | |
| GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO RAIL ON BRIDGE - SUB REGIONAL TIER | | |



DocuSigned by:
Nicole Hecker
0472472023164CS

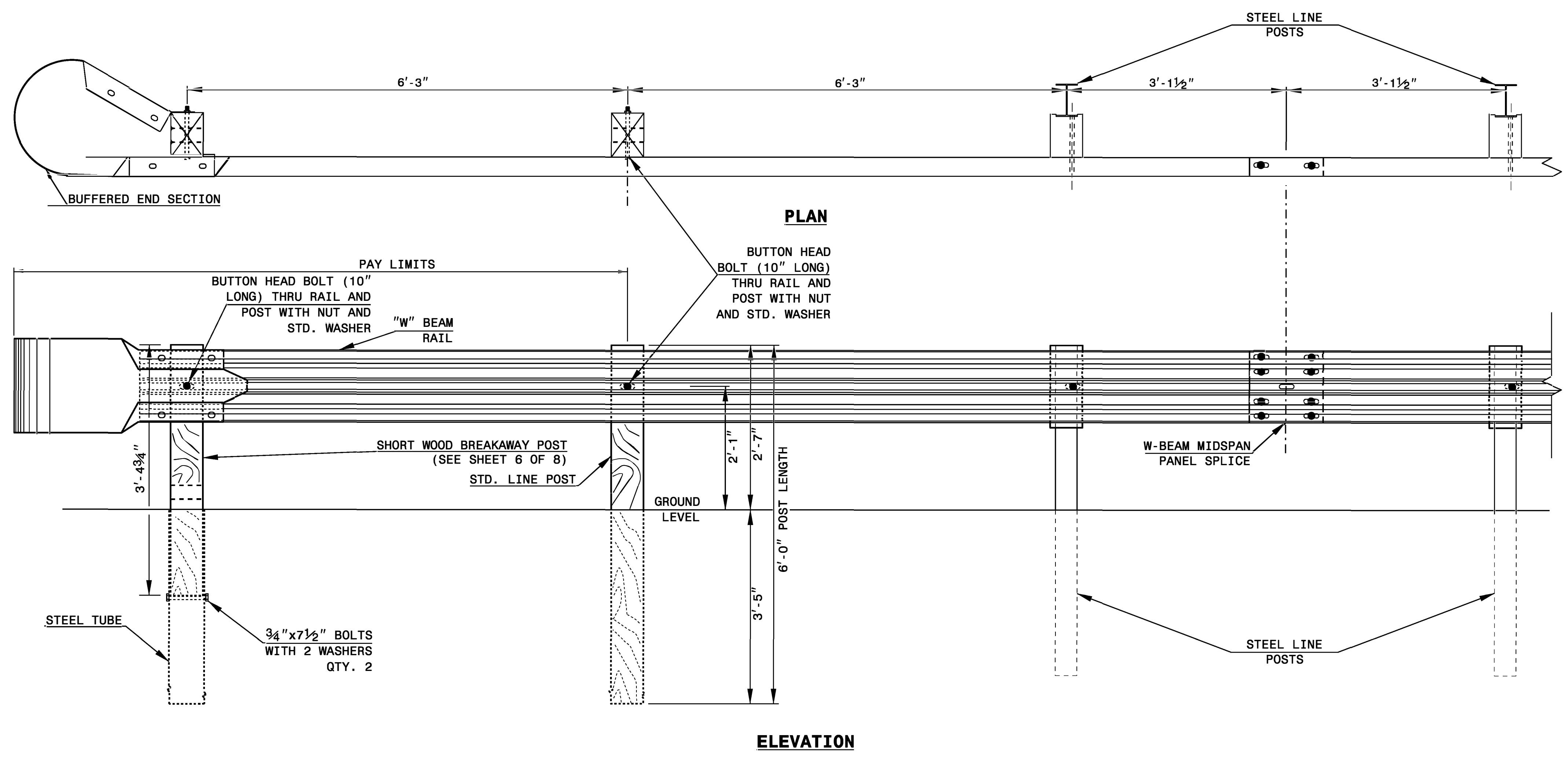
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

| | |
|------------------------------------------------|----------------|
| 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.: | |

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

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

ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

SHEET OF



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UNLESS ALL SIGNATURES COMPLETED

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

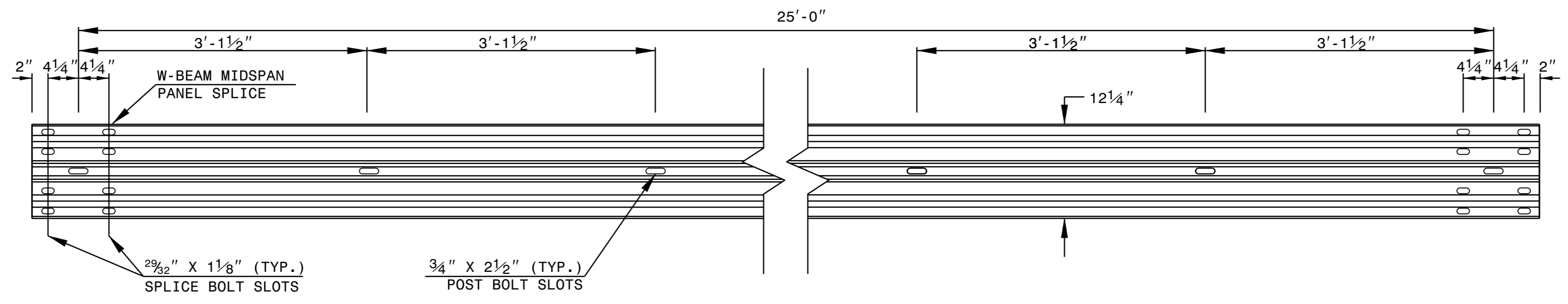
A.T. - 1 SYSTEM

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

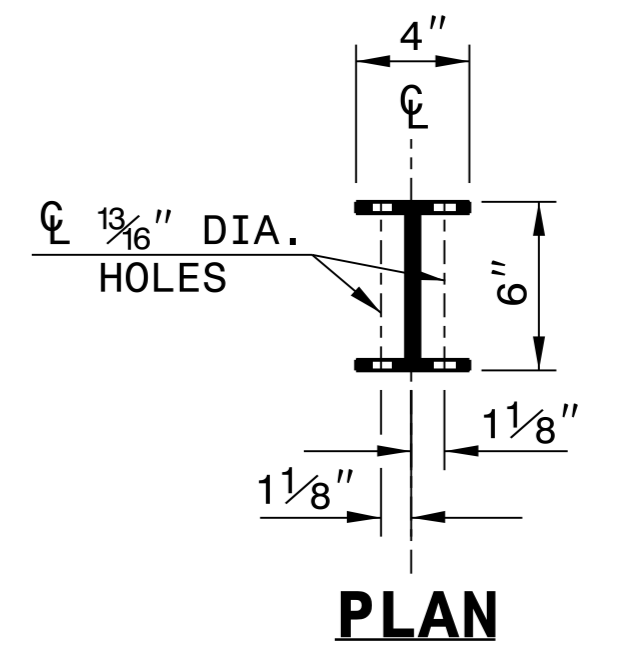
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

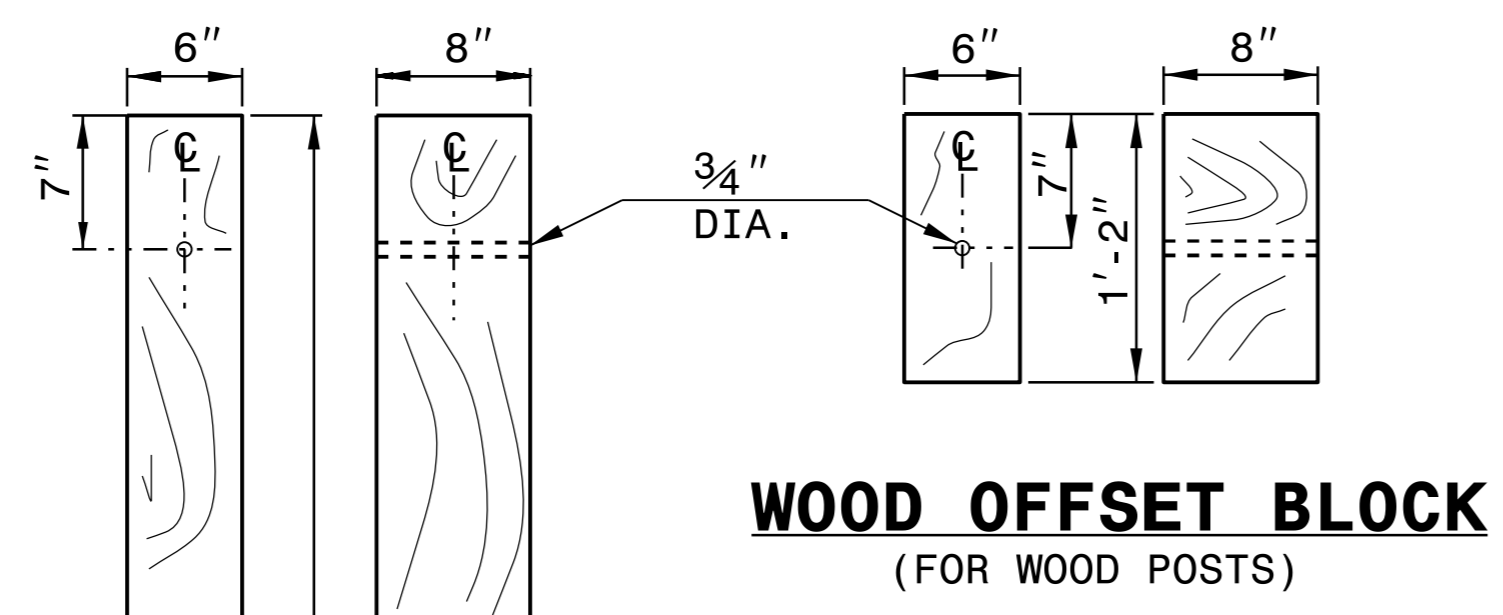
SHEET 6 OF 8
862D02



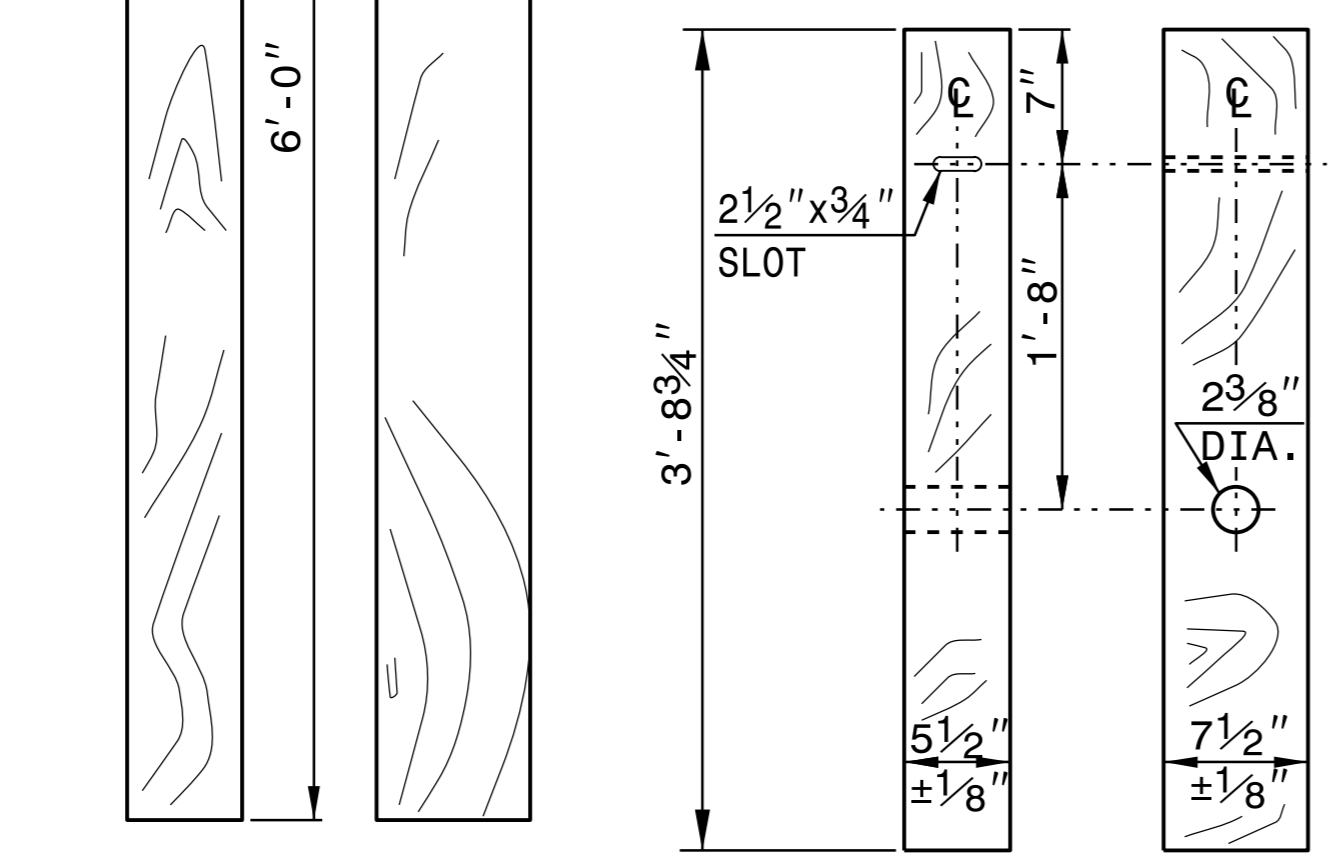
STANDARD W-BEAM GUARDRAIL



PLAN

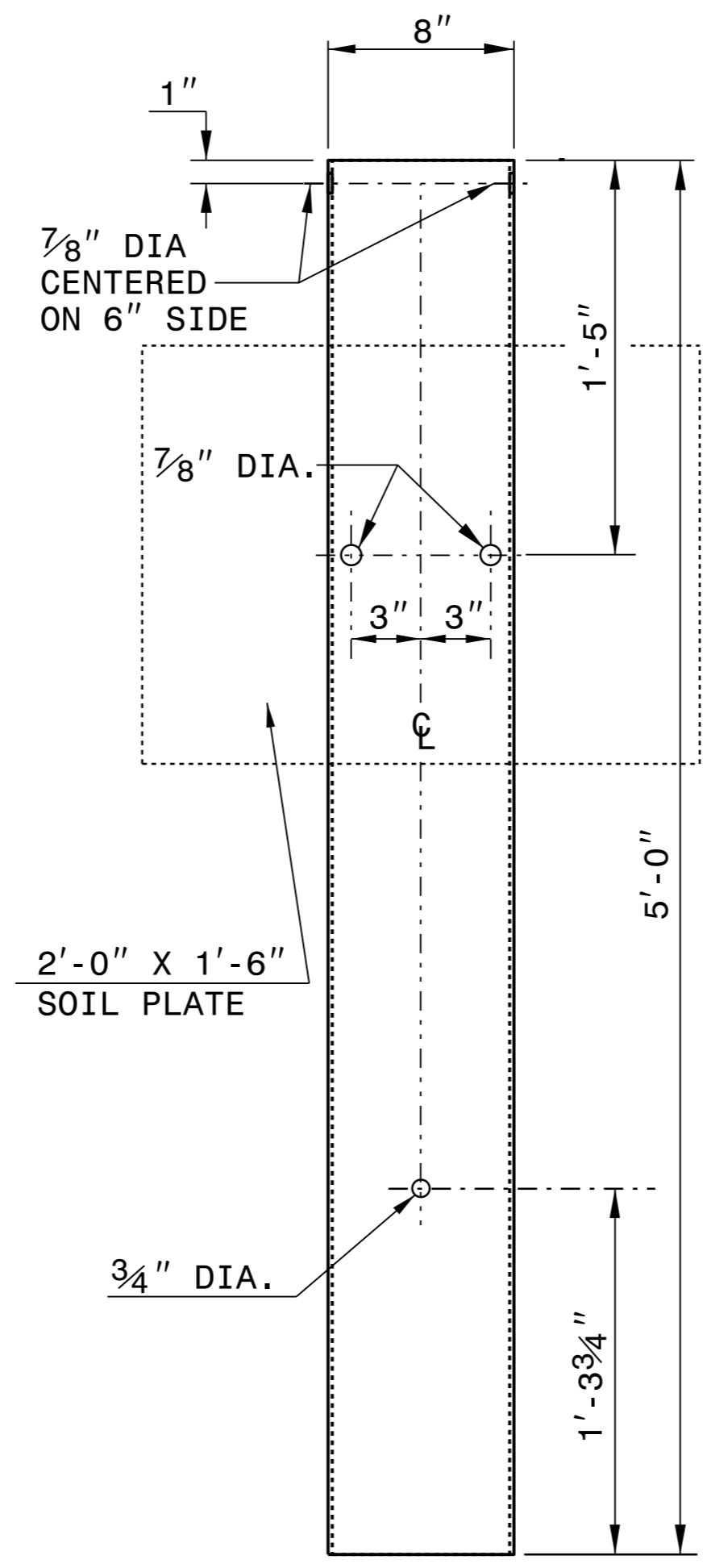


**WOOD OFFSET BLOCK
(FOR WOOD POSTS)**

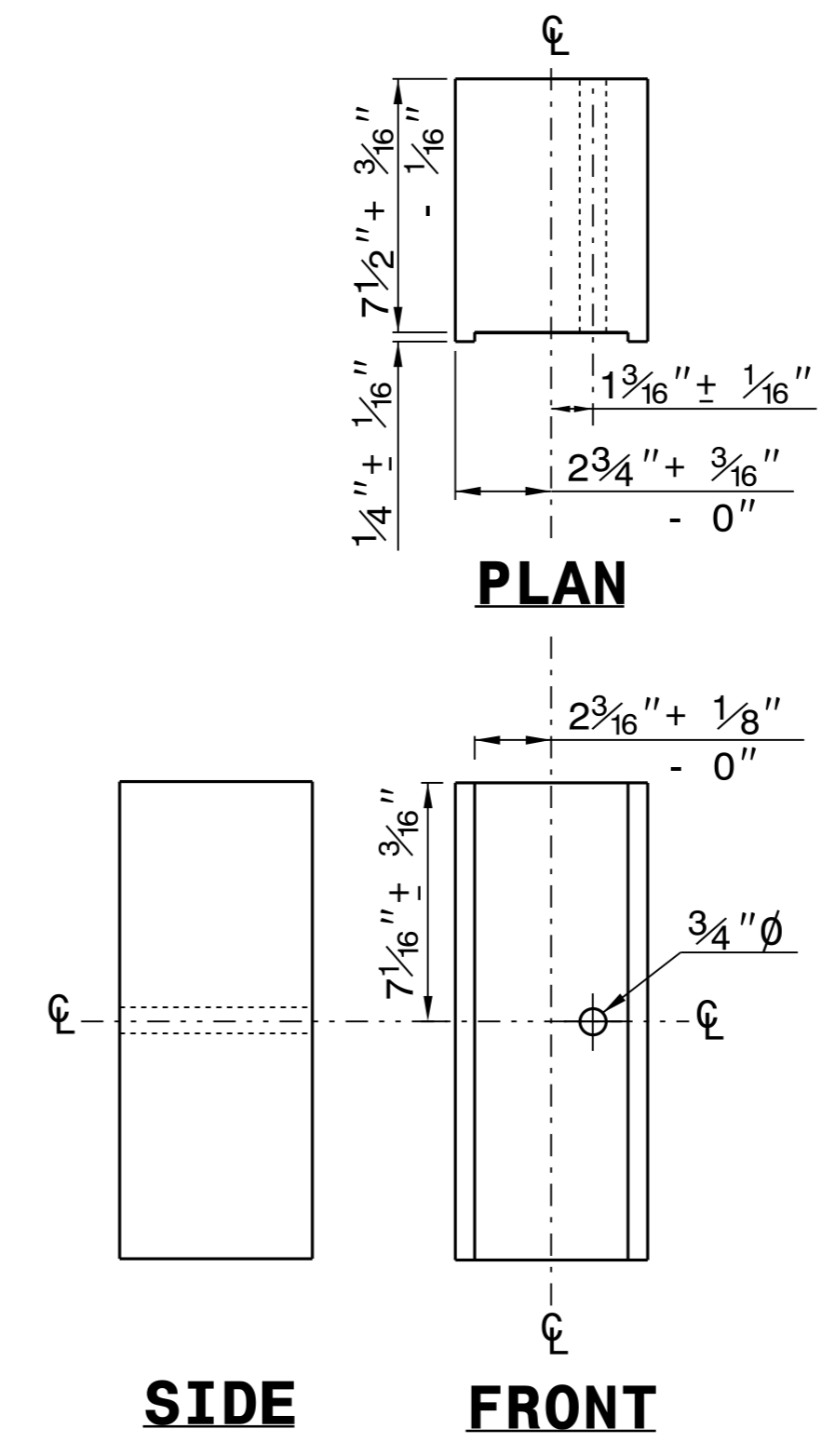


**STANDARD
LINE POST**

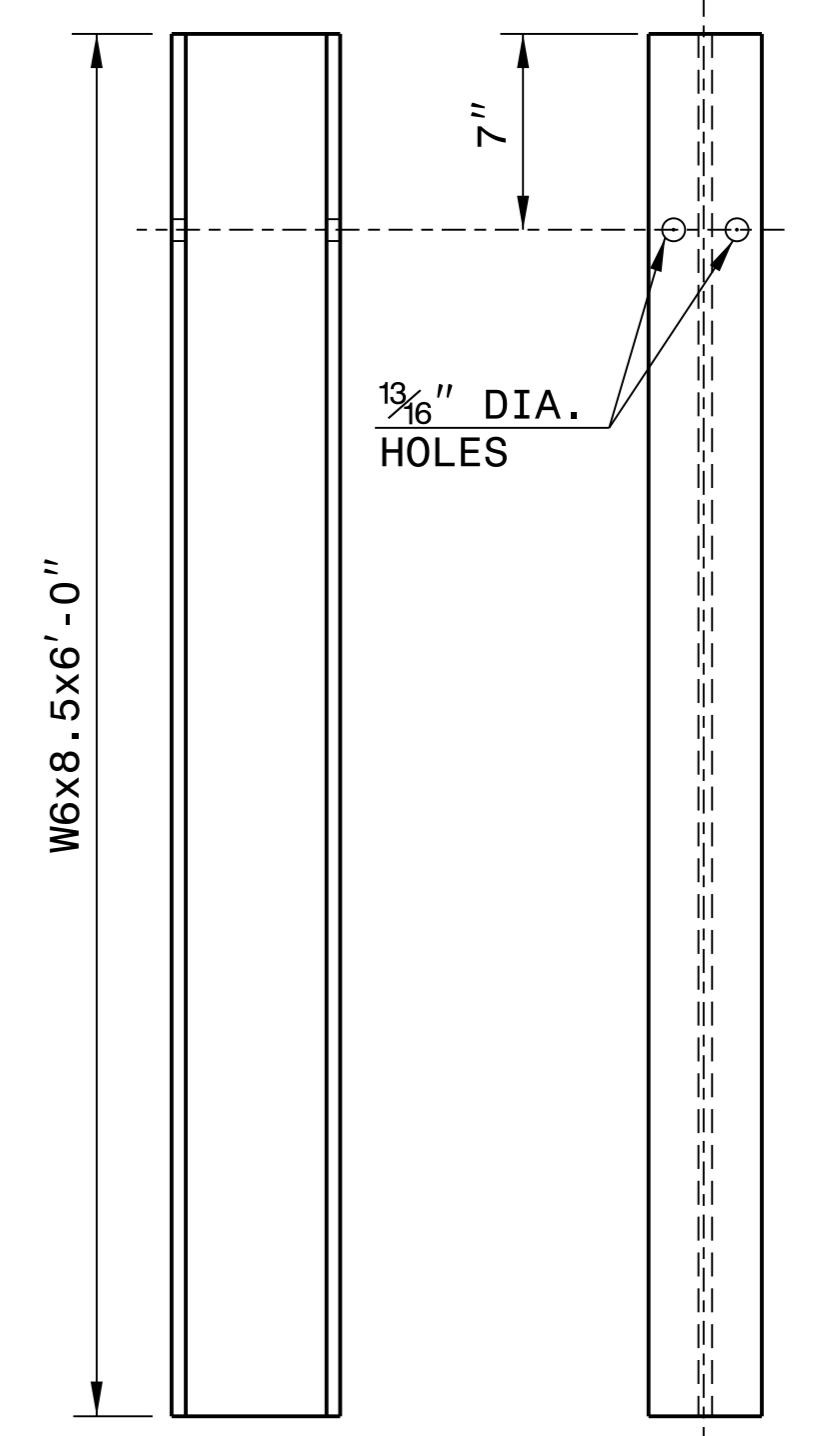
**SHORT WOOD
BREAKAWAY POST**



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



**ROUTED
OFFSET BLOCK**



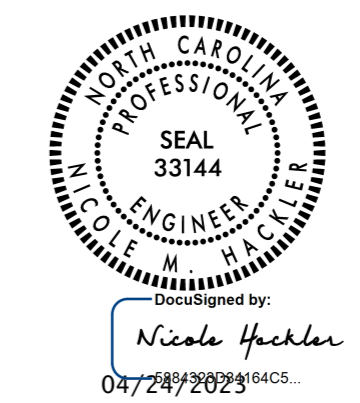
"W6" STEEL POST

SYSTEM PARTS

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

ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

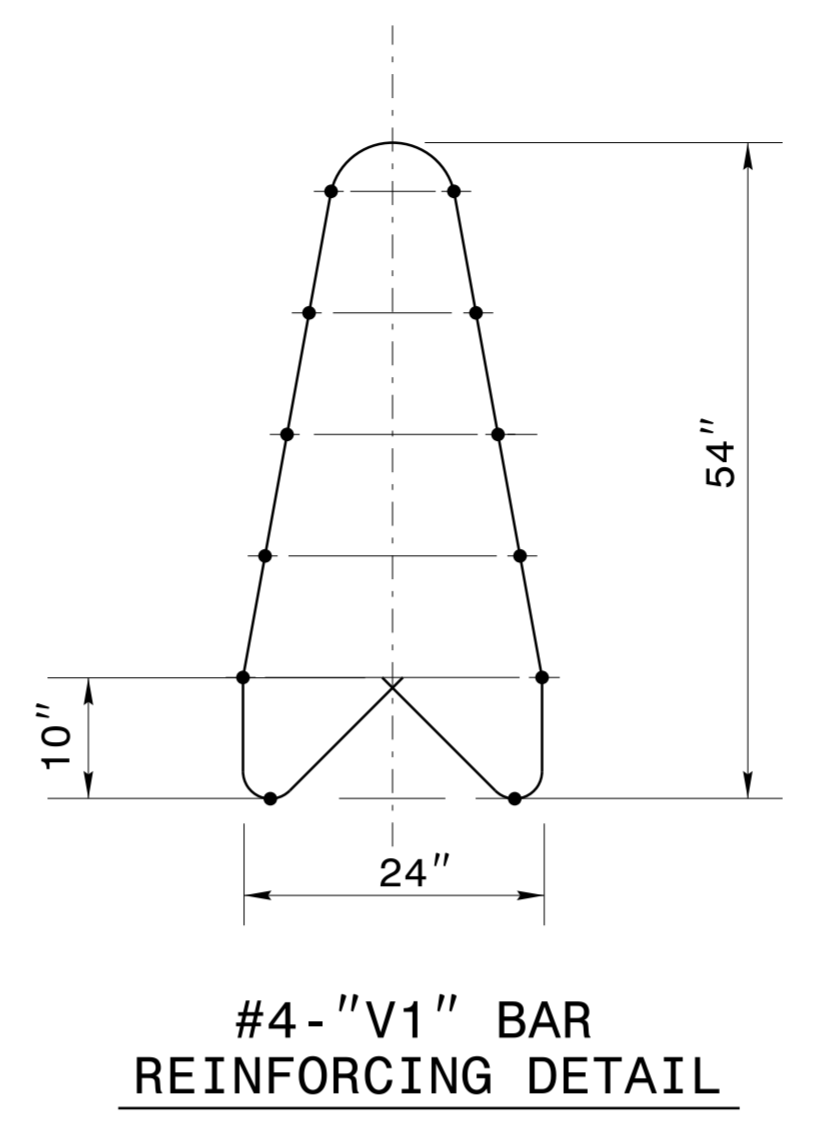
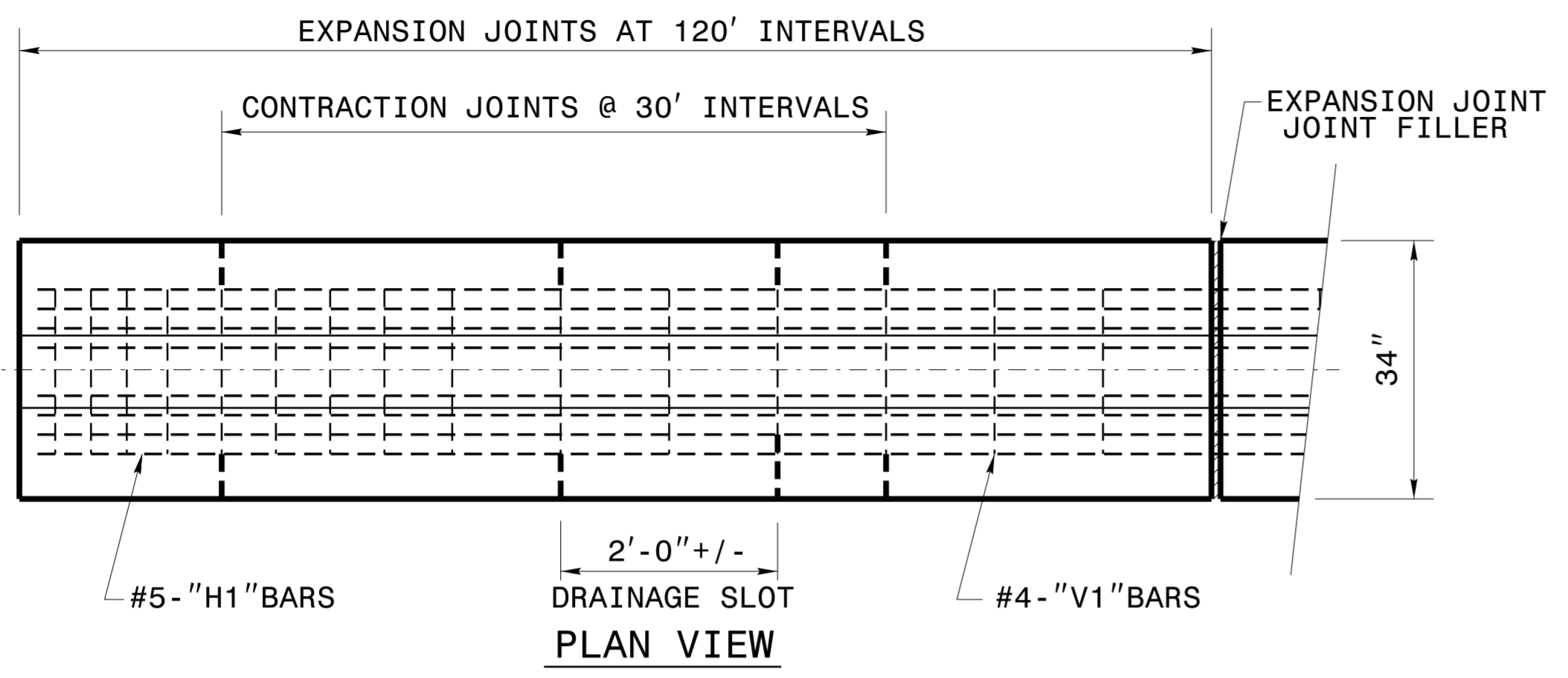
SHEET 6 OF 8
862D02



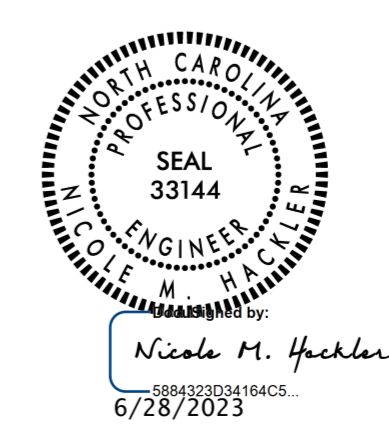
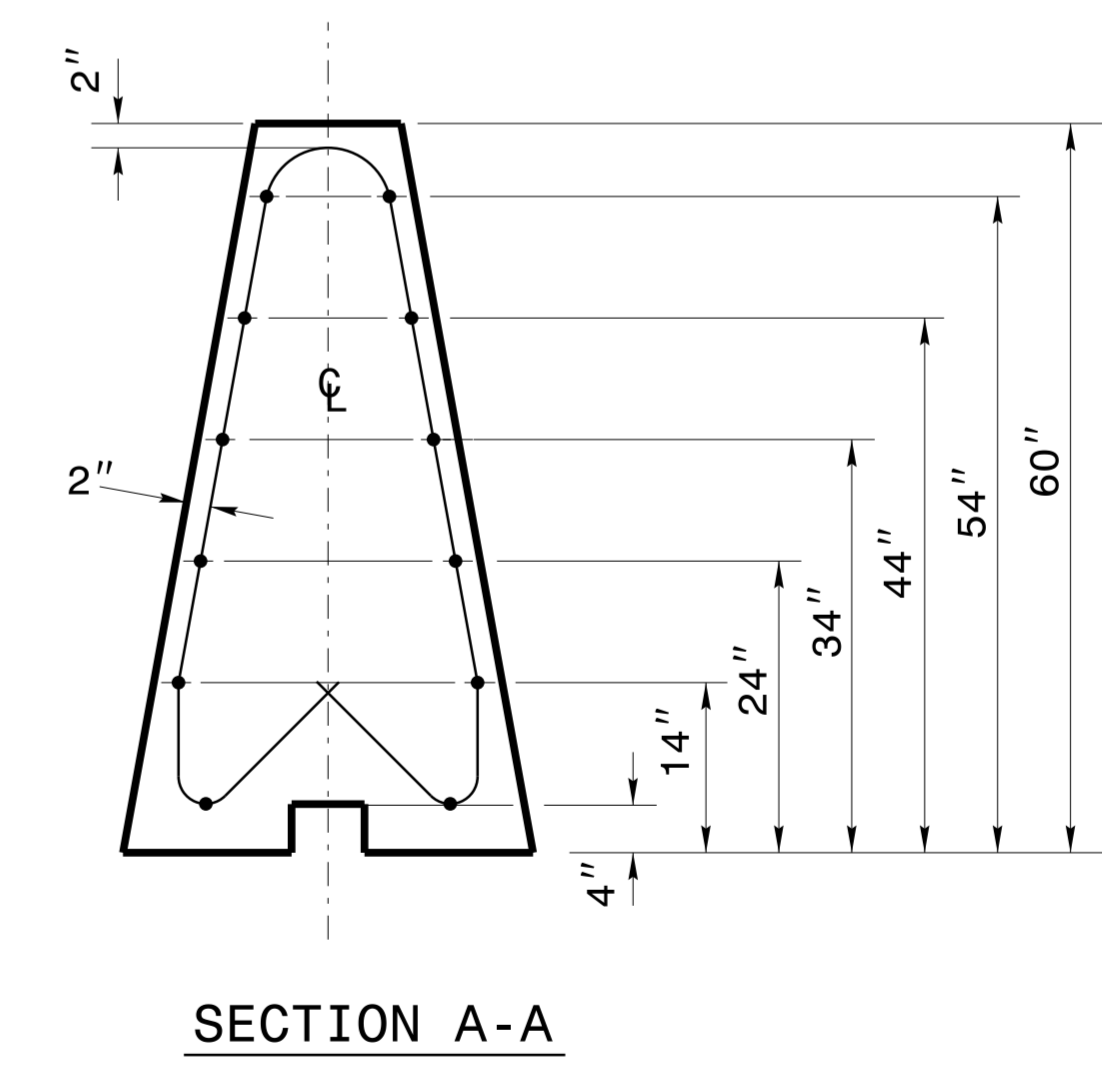
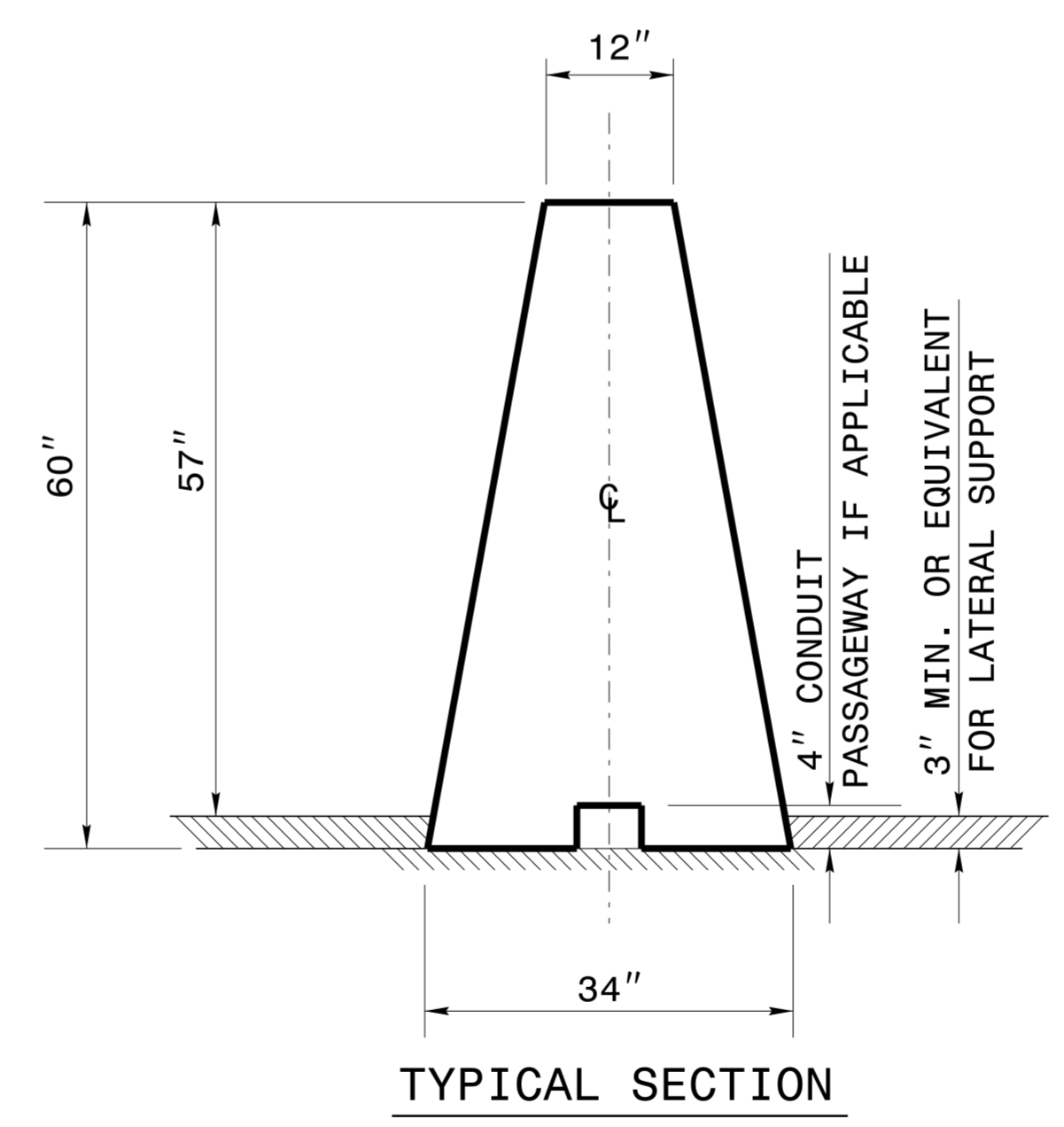
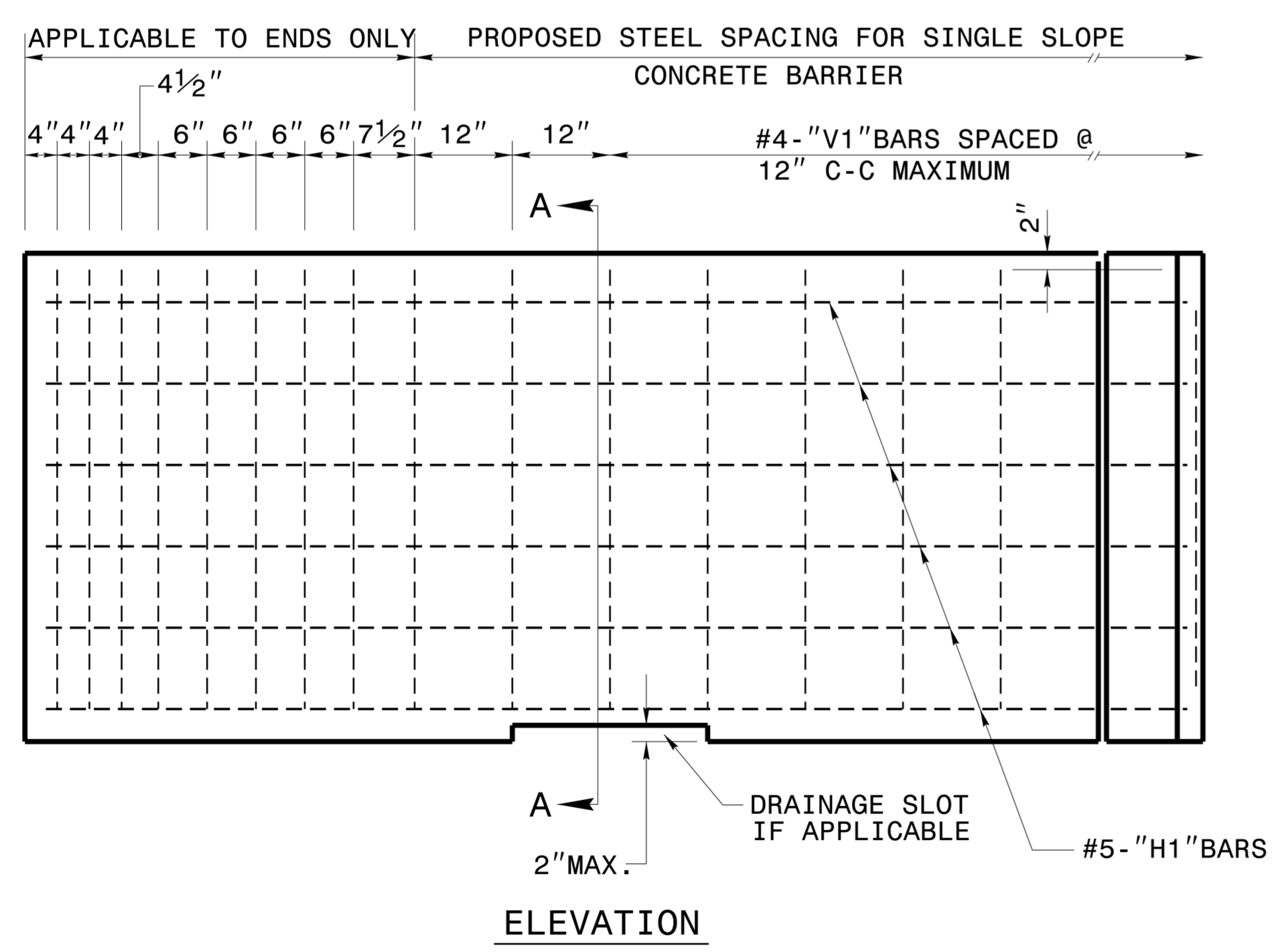
**CONTRACTS STANDARDS
AND DEVELOPMENT UNIT**
Office 919-707-6950 FAX 919-250-4119

SEE TITLE BLOCK

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



- GENERAL NOTES:**
- USE CLASS "AA" CONCRETE.
 - CHAMFER TOP AND ENDS OF BARRIER 1/2 INCH.
 - USE BAR SPLICE LENGTHS A MINIMUM OF 20 TIMES THE NORMAL DIAMETER OF THE BAR. ANY METHOD DEvised BY THE CONTRACTOR AND APPROVED BY THE ENGINEER THAT WILL ASSURE THE LONGITUDINAL ROADWAY STEEL WILL BE POSITIONED +/- 1/2 INCH AS DIMENSIONED WILL BE SATISFACTORY.
 - REFER TO ROADWAY STANDARD DRAWING NO.854.01 FOR EXPANSION AND CONTRACTION JOINT, FILLER AND OTHER SPECIFICATIONS.
- WELDED WIRE FABRIC MAY BE USED AS AN OPTION TO CONVENTIONAL REINFORCEMENT FOR CAST-IN-PLACE BARRIER. WELDED WIRE FABRIC SHALL BE MADE IN ACCORDANCE WITH ASTM A497. CONDUIT TO BE PROVIDED ONLY WHEN CALLED FOR ELSEWHERE IN THE PLANS. POSITION OF THE CONDUIT CONDUIT PASSAGEWAY MAY BE ADJUSTED TO FACILITATE CONSTRUCTION, SUBJECT TO APPROVAL BY THE ENGINEER.



**CONTRACT STANDARDS & DEVELOPMENT UNIT
STANDARDS AND SPECIAL DESIGN**
Office 919-250-4128 FAX 919-250-4119

**SINGLE SLOPE
CONCRETE BARRIER**

ORIGINAL BY: _____ DATE: _____
 MODIFIED BY: kakempf DATE: 03-03-10
 CHECKED BY: _____ DATE: _____
 FILE SPEC.: details/nbritt/english/guardrail/single slope concrete barrier.dgn

LBS34064

COMPUTED BY: Leticia Pereira DATE: 1/11/2023
CHECKED BY: JLR DATE: 1/12/2023

PROJECT NO. HI-0010 SHEET NO. 3D-1

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

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: LINE & STATION, OFFSET, STRUCTURE NUMBER, TOP ELEVATION, INVERT ELEVATION, MINIMUM REQUIRED SLOPE, R. C. PIPE CLASS IV, R. C. PIPE CLASS V, ENDWALLS, REINFORCED ENDWALLS, MASONRY, DRAINAGE STRUCTURE, QUANTITIES FOR DRAINAGE STRUCTURES, FRAME, GRATES, AND HOOD, CONCRETE TRANSITIONAL SECTION, DRIVEWAY D.I. STD., FRAME W/ GRATE FOR DRIVEWAY, ANGLE VANE GRATES AND FRAMES, T.B.D.I. STD., T.B.D.I. FOR STEEL GRATES, STEEL FRAME WITH TWO GRATES, TEMP STEEL PLATE COVER MASONRY DRAINAGE, M.H. STD., M.H. FRAME AND COVER, CONVERT EXISTING C.B. TO J.B., CONVERT EXISTING D.I. TO J.B., CONVERT EXISTING J.B. TO D.I., ADJUST C.B., ADJUST D.I., FLOWABLE FILL, CONCRETE COLLARS, CONCRETE AND BRICK PIPE PLUG, PIPE REMOVAL, REMARKS.

SHEET TOTALS

1384 8 22 22 2

LBS34064

COMPUTED BY: Leticia Pereira DATE: 1/11/2023
CHECKED BY: JLR DATE: 1/12/2023

PROJECT NO. HI-0010 SHEET NO. 3D-1

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

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, R.C. Pipe Class IV/V, Quantities for Drainage Structures, Frame, Grates, and Hood, Concrete Transitional Section, and Remarks. Includes a 'SHEET TOTALS' row at the bottom.

ABBREVIATIONS table listing materials like C.A.A. CORRUGATED ALUMINIUM ALLOY, C.B. CATCH BASIN, etc.

REMARKS

LBS34064

COMPUTED BY: Leticia Pereira DATE: 1/11/2023
CHECKED BY: JLR DATE: 1/12/2023

PROJECT NO. HI-0010 SHEET NO. 3D-1

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

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, Top Elevation, Invert Elevation, R.C. Pipe Class IV/V, Quantities for Drainage Structures, Frame, Grates, and Hood, Concrete Transitional Section, and Remarks. Includes sub-totals for SHEET TOTALS and PROJECT TOTALS.



-LI-
 PI Sta 12+06.02 PI Sta 15+23.51
 $\Delta = 22^\circ 56' 49.8''$ (LT) $\Theta_s = 9^\circ 52' 42.9''$
 $D = 5^\circ 38' 41.7''$ $L_s = 350.00'$
 $L = 406.51'$ $LT = 233.70'$
 $T = 206.02'$ $ST = 117.00'$
 $R = 1,015.00'$

I-40 WEST (MAP 2)

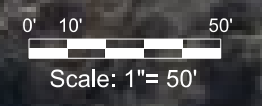
I-40 EAST (MAP 1)

BEGIN CONSTRUCTION
 -LI- STA. 16+50.00 =
 -BL- Sta. 19+80.14
 OFF 22.25' (RT)

END CONSTRUCTION
 -LI- STA. 20+00.00 =
 (-BL-) STA. 23+43.23
 OFF 46.82' (RT)

-LI-
 PI Sta 20+87.35 PI Sta 23+08.12
 $\Theta_s = 9^\circ 02' 48.7''$ $\Delta = 14^\circ 31' 13.5''$ (RT)
 $L_s = 300.00'$ $D = 6^\circ 01' 52.7''$
 $LT = 200.26'$ $L = 240.76'$
 $ST = 100.24'$ $T = 121.03'$
 $R = 950.00'$











Scale: 1" = 50'



0 10 50
Scale: 1" = 50'

