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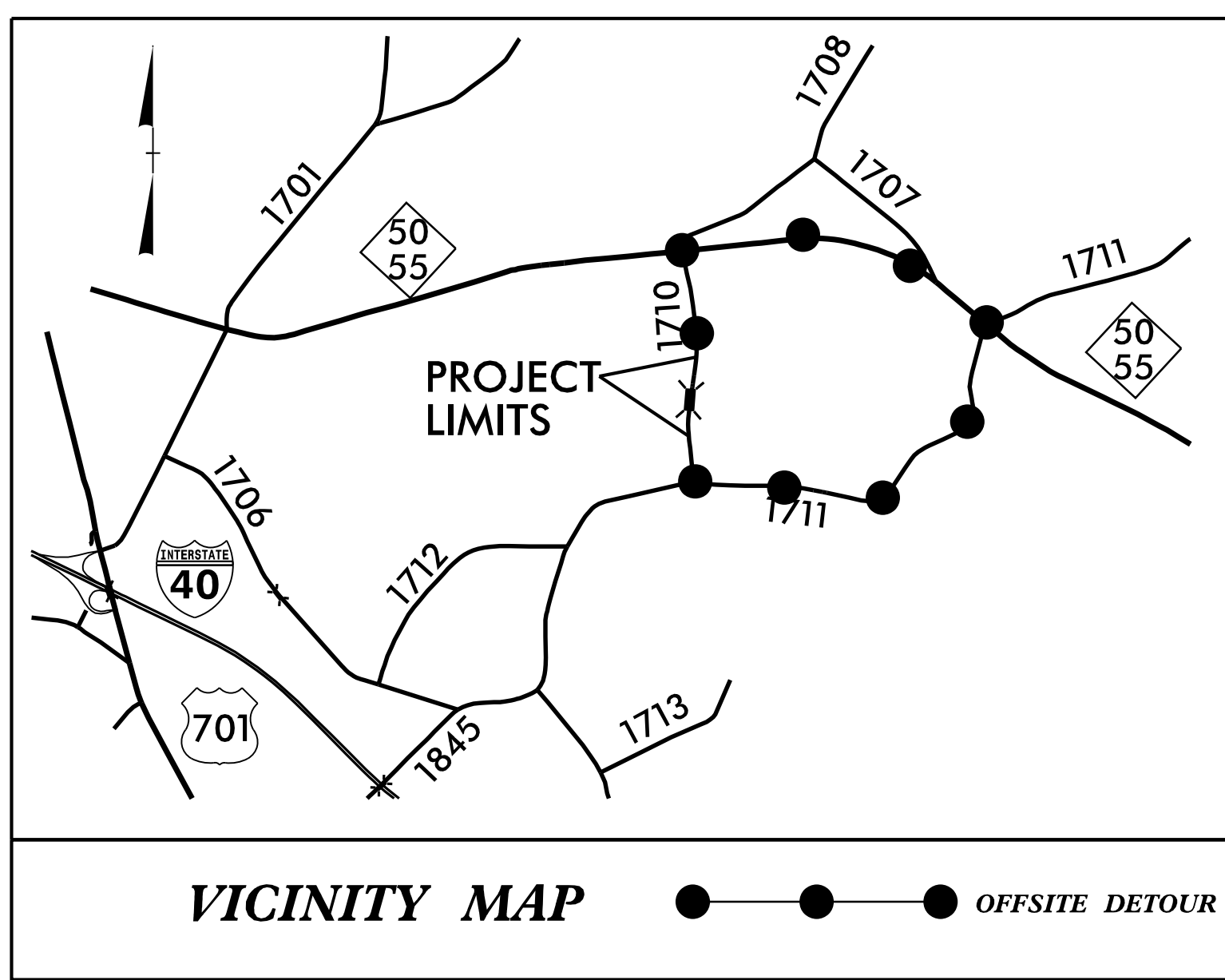
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TIP PROJECT: 17BP.3.R.66
CONTRACT: DC00226

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

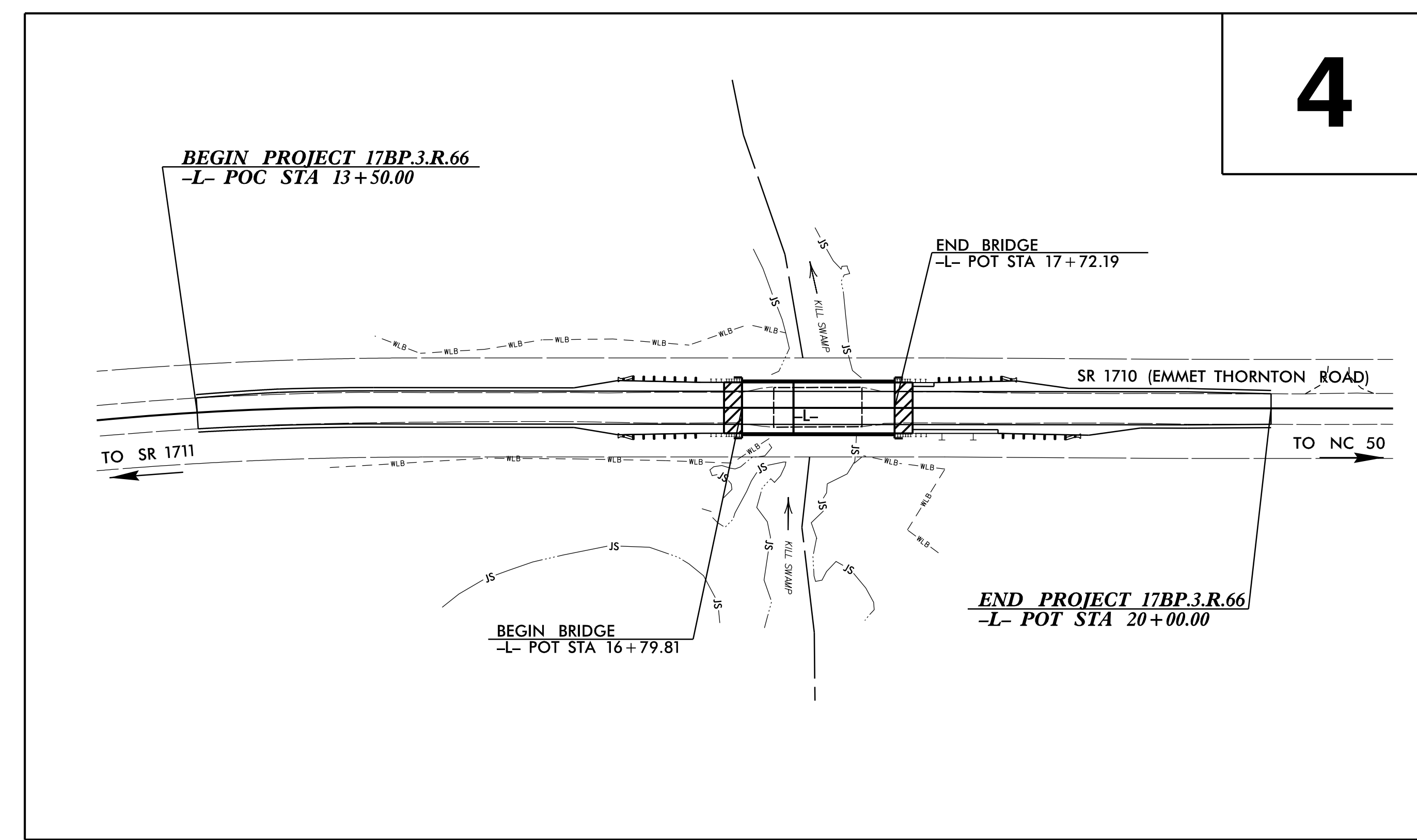
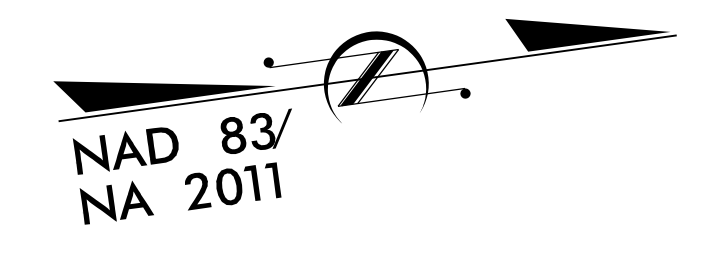


STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
SAMPSON COUNTY

**LOCATION: REPLACE BRIDGE NO. 213 OVER KILL SWAMP
ON SR 1710 (EMMET THORNTON ROAD)**

TYPE OF WORK: GRADING, DRAINAGE, PAVING AND STRUCTURE

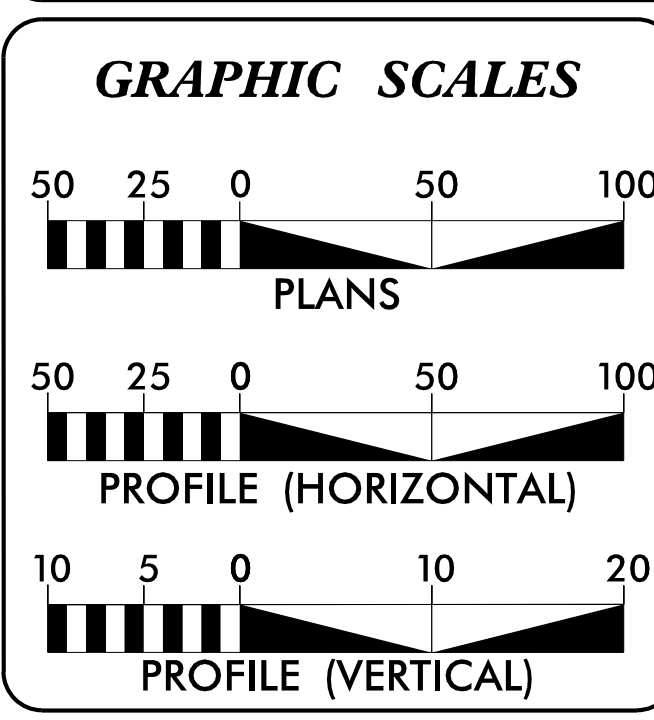
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.3.R.66	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
17BP.3.R.66		PE	
17BP.3.R.66		RW/UTIL	
17BP.3.R.66		CONST.	



NOTES:

- CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY MODIFIED METHOD III.
- THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED



DESIGN DATA

ADT 2016 =	210
ADT 2036 =	420
K =	10 %
D =	60 %
T =	6 % *
V =	60 MPH
* TTST =	2% DUAL 4%
FUNC CLASS =	LOCAL
SUB-REGIONAL TIER	

PROJECT LENGTH

LENGTH OF ROADWAY PROJECT 17BP.3.R.66	= 0.106 MILES
LENGTH OF STRUCTURE PROJECT 17BP.3.R.66	= 0.017 MILES
TOTAL LENGTH OF PROJECT 17BP.3.R.66	= 0.123 MILES

Prepared in the Office of:

HNTB
HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200
Raleigh, North Carolina 27609
NC License No: C-1554

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
MARCH 21, 2019

LETTING DATE:
FEBRUARY 18, 2021

ROY H. TELLIER, PE
PROJECT ENGINEER

DEREK PIELECH, PE
NCDOT CONTACT

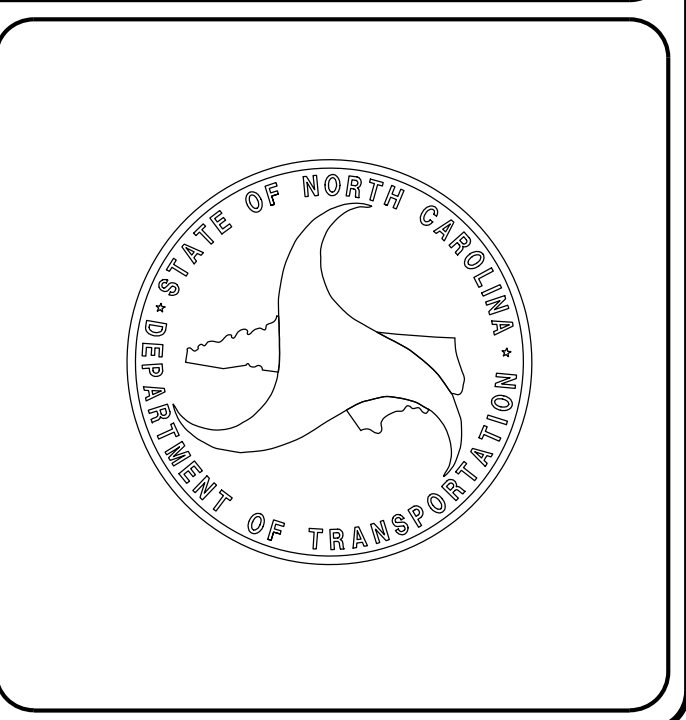
HYDRAULICS ENGINEER

DocuSigned by:
James A. Byrd
23592959554F47C...

ROADWAY DESIGN ENGINEER

DocuSigned by:
Roy Tellier
BF7D8D8A8E8C430...

Professional Engineer Seals for Roy H. Tellier (15764) and Roy Tellier (044575).



8/17/19

INDEX OF SHEETS

SHEET NUMBER	SHEET
1	TITLE SHEET
1A	INDEX OF SHEETS, GENERAL NOTES & LIST OF STANDARDS
1B	SYMBOLOLOGY SHEET
1C	SURVEY CONTROL & RW SHEETS
2A-1	TYPICAL SECTION SHEET
2C-1 THRU 2C-3	SPECIAL DETAIL SHEETS
3B-1	ROADWAY SUMMARY SHEETS (EARTHWORK, SBG, GUARDRAIL, PIPES)
3G-1	GEOTECHNICAL SUMMARIES
4	PLAN & PROFILE SHEET
TMP-1 THRU TMP-3	TRAFFIC CONTROL PLANS
EC-1 THRU EC-4	EROSION CONTROL PLANS
UO-1 THRU UO-2	UTILITIES BY OTHERS PLANS
X-1 THRU X-6	CROSS SECTION SHEETS
S-1 THRU S-19	STRUCTURE PLANS

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

EFF. 01-16-2018
REV.

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 BY THE ENGINEER IN ORDER TO SECURE A PROPER TIE-IN.

CLEARING:

CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY MODIFIED 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. 560.02

GUARDRAIL:

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

TEMPORARY SHORING:

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

END BENTS:

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

UTILITIES:

- UTILITY OWNERS ON THIS PROJECT ARE
- POWER – SOUTH RIVER EMC
- PHONE – CENTURYLINK
- WATER – SAMPSON COUNTY

ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS.

RIGHT-OF-WAY MARKERS:

ALL RIGHT-OF-WAY MARKERS & PERMANENT EASEMENT MARKERS ARE TO BE PLACED BY LOCATION & SURVEYS. THE CONTRACT SURVEYOR WILL BE RESPONSIBLE FOR RESETTING ANY POINTS DISTURBED BY CONSTRUCTION.

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 (Special Detail)
- 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

- 422.02 Bridge Approach Fills – Type II Modified Approach Fill

DIVISION 5 – SUBGRADE, BASES AND SHOULDERS

- 560.02 Method of Shoulder Construction – High Side of Superelevated Curve – Method II

DIVISION 8 – INCIDENTALS

- 815.02 Subsurface Drain
- 840.00 Concrete Base Pad for Drainage Structures
- 840.29 Frames and Narrow Slot Flat Grates
- 840.35 Traffic Bearing Grated Drop Inlet – for Cast Iron Double Frame and Grates
- 846.01 Concrete Curb, Gutter and Curb & Gutter
- 846.04 Drop Inlet Installation in Shoulder Berm Gutter
- 862.01 Guardrail Placement
- 862.02 Guardrail Installation (Special detail for Sheet 6 of 8)
- 862.03 Structure Anchor Units (Special Detail for Type III Anchor Units 1 of 7 and 2 of 7)
- 876.02 Guide for Rip Rap at Pipe Outlets

PROJECT REFERENCE NO. 17BP.3.R.66	SHEET NO. 1A
ROADWAY DESIGN ENGINEER	

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STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

12/2/2016

BOUNDARIES AND PROPERTY:

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

BUILDINGS AND OTHER CULTURE:

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

HYDROLOGY:

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

RAILROADS:

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

RIGHT OF WAY & PROJECT CONTROL:

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

ROADS AND RELATED FEATURES:

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

VEGETATION:

Single Tree	○
Single Shrub	○

Note: Not to Scale

*S.U.E. = Subsurface Utility Engineering

Hedge	-----
Woods Line	-----
Orchard	-----
Vineyard	-----

EXISTING STRUCTURES:

MAJOR:	
Bridge, Tunnel or Box Culvert	-----
Bridge Wing Wall, Head Wall and End Wall	-----
MINOR:	
Head and End Wall	-----
Pipe Culvert	-----
Footbridge	-----
Drainage Box: Catch Basin, DI or JB	-----
Paved Ditch Gutter	-----
Storm Sewer Manhole	-----
Storm Sewer	-----

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.*)	-----
U/G Power Line LOS C (S.U.E.*)	-----
U/G Power Line LOS D (S.U.E.*)	-----

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.*)	-----
U/G Telephone Cable LOS C (S.U.E.*)	-----
U/G Telephone Cable LOS D (S.U.E.*)	-----
U/G Telephone Conduit LOS B (S.U.E.*)	-----
U/G Telephone Conduit LOS C (S.U.E.*)	-----
U/G Telephone Conduit LOS D (S.U.E.*)	-----
U/G Fiber Optics Cable LOS B (S.U.E.*)	-----
U/G Fiber Optics Cable LOS C (S.U.E.*)	-----
U/G Fiber Optics Cable LOS D (S.U.E.*)	-----

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	-----

TV:

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

GAS:

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

SANITARY SEWER:

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

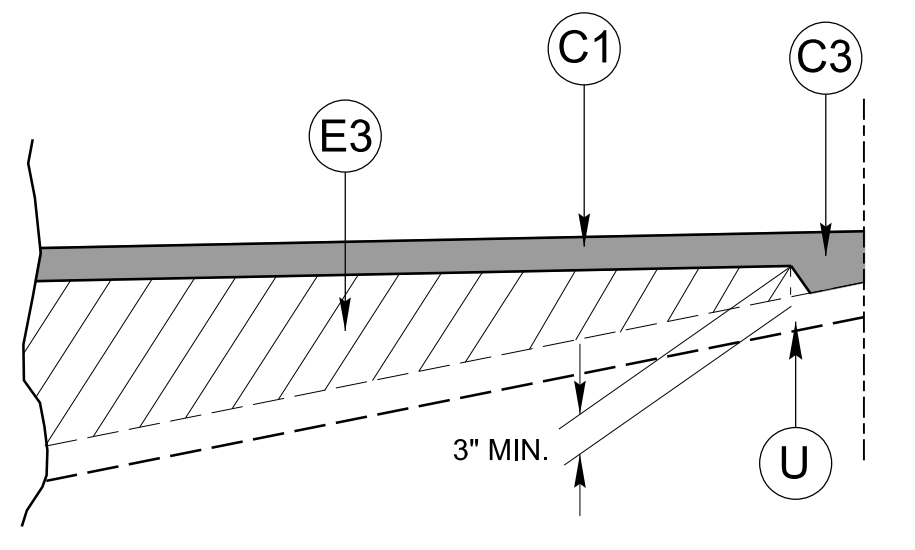
MISCELLANEOUS:

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

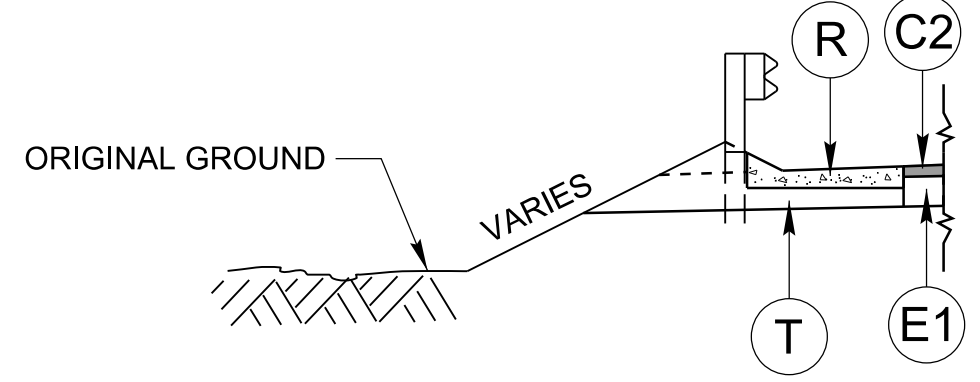
6/2/2019

PAVEMENT SCHEDULE	
C1	PROP. APPROX. 1 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YARD.
C2	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YARD IN EACH OF TWO LAYERS.
C3	PROP. VARIABLE DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B AT AN AVERAGE RATE OF 110 LBS. PER SQ. YARD PER INCH. DEPTH TO BE PLACED IN LAYERS NOT LESS THAN 1.5" IN DEPTH OR GREATER THAN 2" IN DEPTH.
E1	PROP. APPROX. 5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 570 LBS. PER SQ. YARD.
E2	PROP. APPROX. 6" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YARD IN EACH OF TWO LAYERS.
E3	PROP. VARIABLE DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0C AT AN AVERAGE RATE OF 114 LBS. PER SQ. YARD PER INCH. DEPTH TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5.5" IN DEPTH.
R	SHOULDER BERM GUTTER
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V	INCIDENTAL MILLING
W	WEDGING (SEE DETAIL)

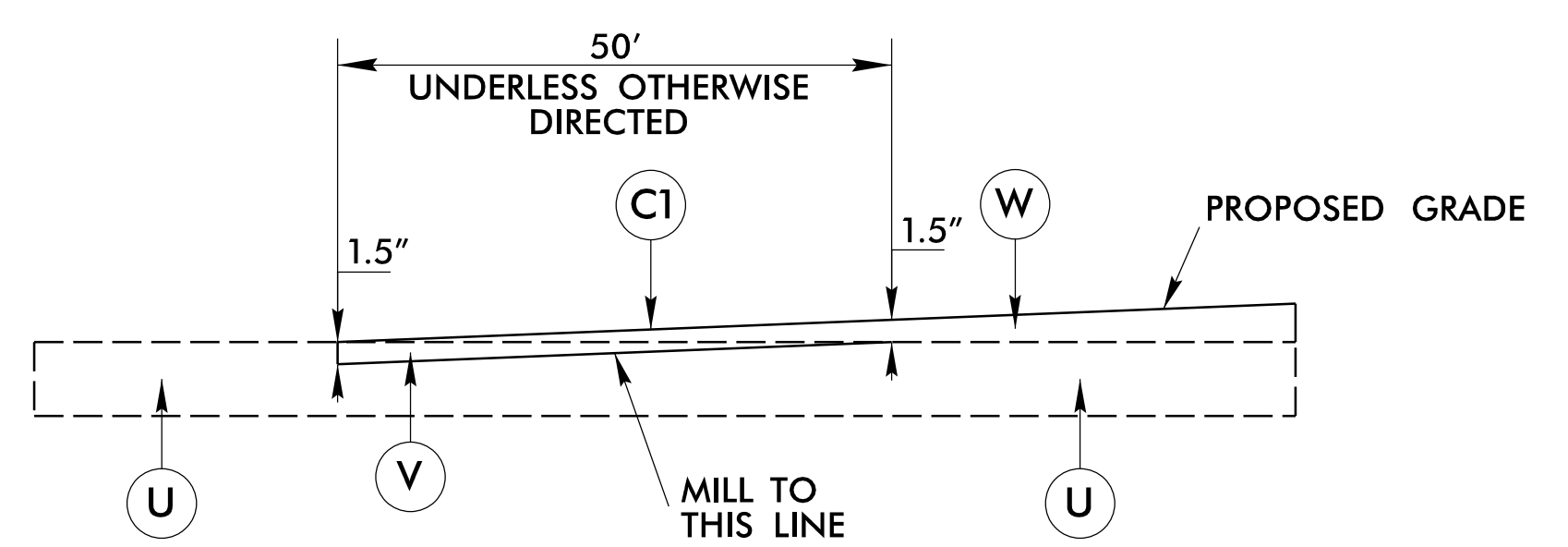
ALL PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE



DETAIL SHOWING METHOD OF WEDGING
USE WITH TYPICAL SECTION 1



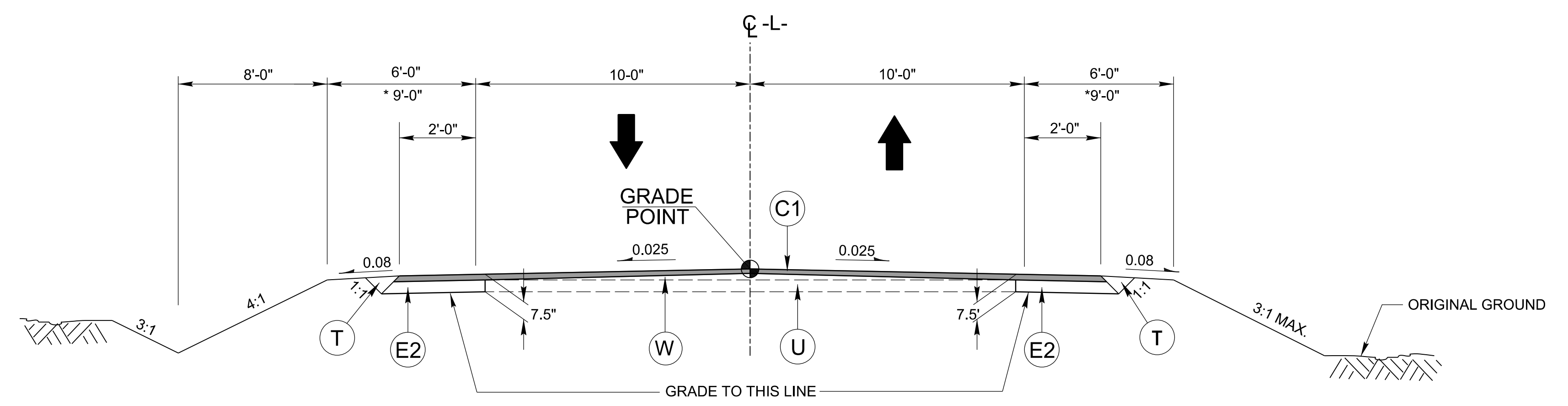
DETAIL A
SHOULDER BERM GUTTER LOCATIONS
-L- STA 17+83.07 to STA 17+96.00 LT
-L- STA 17+83.07 to STA 18+34.75 RT



DETAIL FOR INCIDENTAL MILLING
-L- STA 13+00.00 TO STA 13+50.00
-L- STA 20+00.00 TO STA 20+50.00

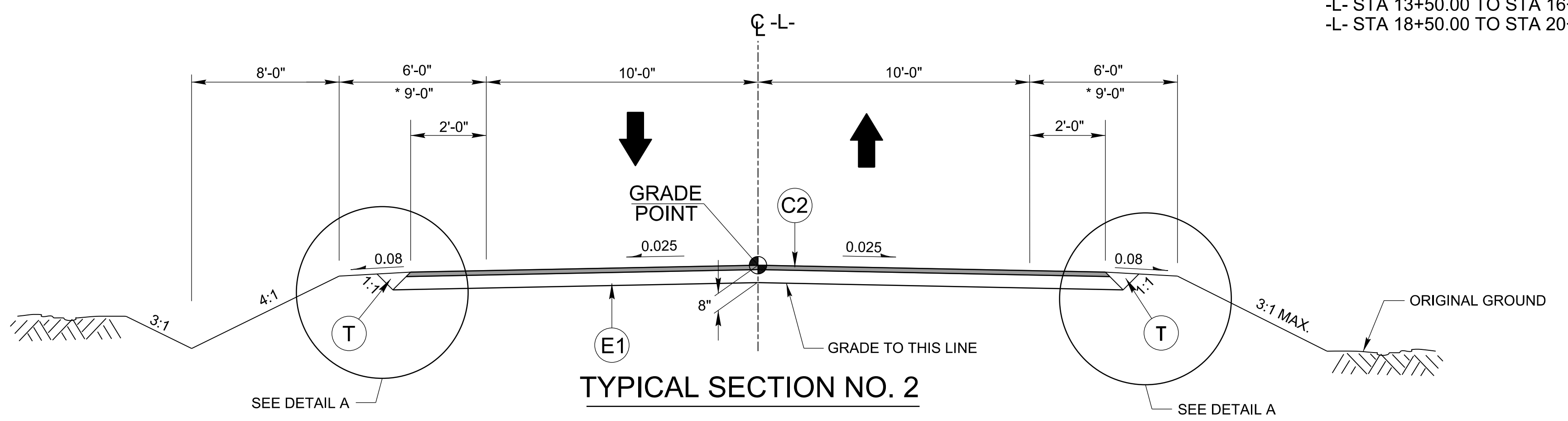
HNTB HNTB NORTH CAROLINA, P.C.
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PROJECT REFERENCE NO. 17BP.3.R.66	SHEET NO. 2A-1
ROADWAY DESIGN ENGINEER	
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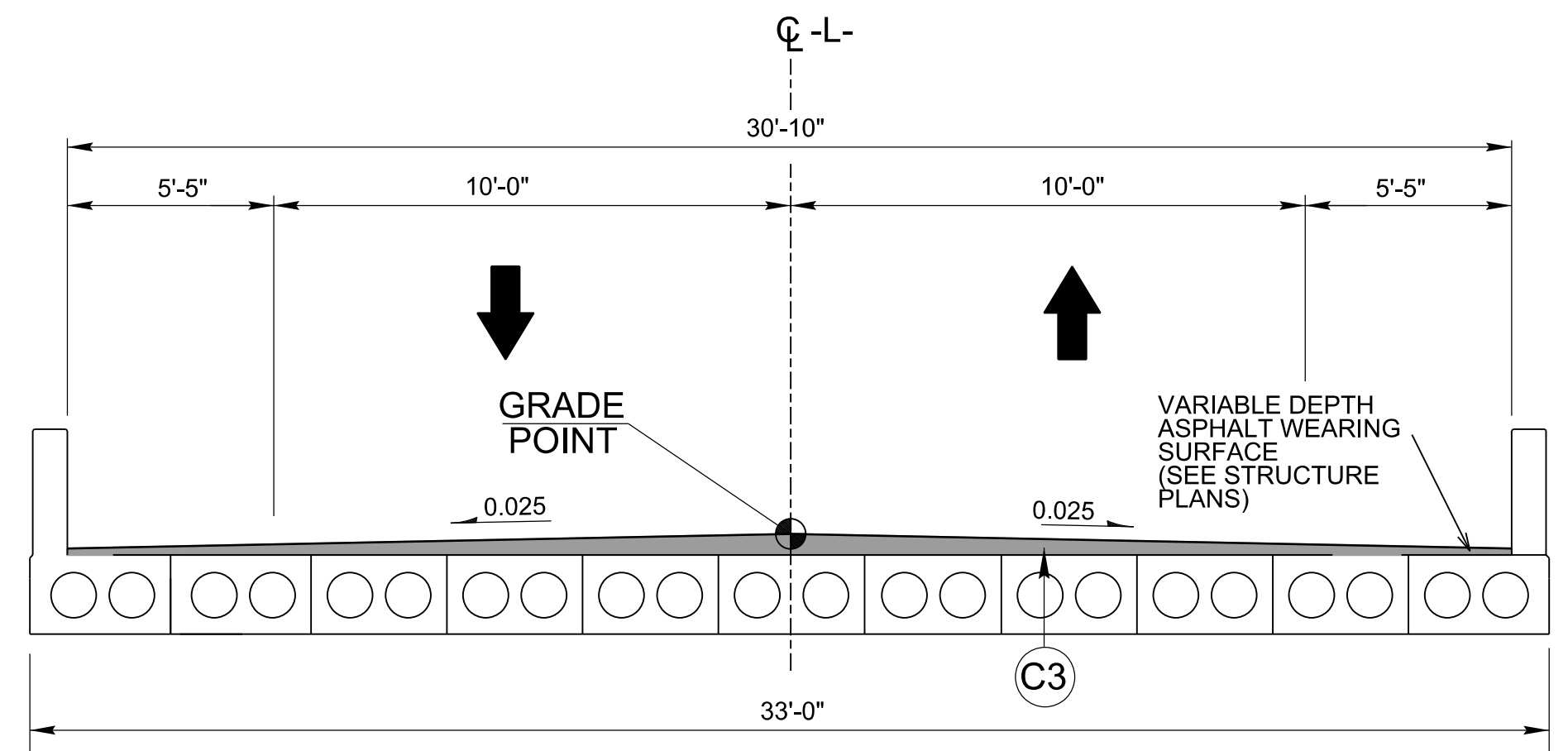
TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO. 1 FROM:
-L- STA 13+50.00 TO STA 16+00.00
-L- STA 18+50.00 TO STA 20+00.00



TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2 FROM:
-L- STA 16+00.00 TO STA 16+79.81
-L- STA 17+72.19 TO STA 18+50.00



TYPICAL SECTION NO. 3
CORED SLAB BRIDGE OVERLAY

USE TYPICAL SECTION NO. 3 FROM:
-L- STA 16+79.81 TO STA 17+72.19

NOTES: * SHOULDER WIDTH INCREASED 3' WITH THE USE OF GUARDRAIL

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

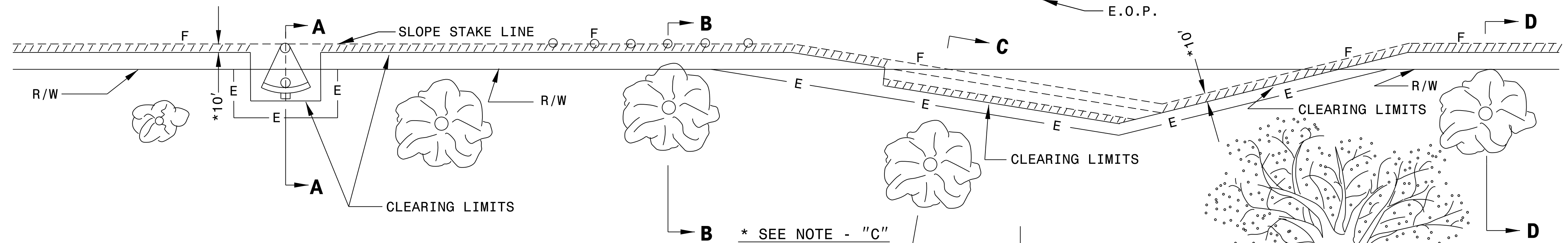
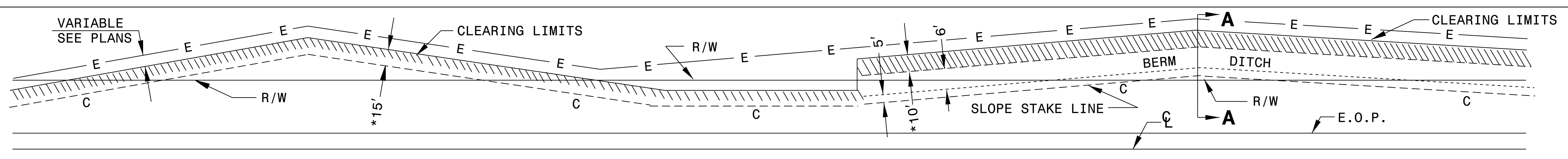
ENGLISH DETAIL DRAWING FOR METHOD OF CLEARING MODIFIED METHOD - III

SHEET 1 OF 1 200D03

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

ENGLISH DETAIL DRAWING FOR METHOD OF CLEARING MODIFIED METHOD - III

SHEET 1 OF 1 200D03



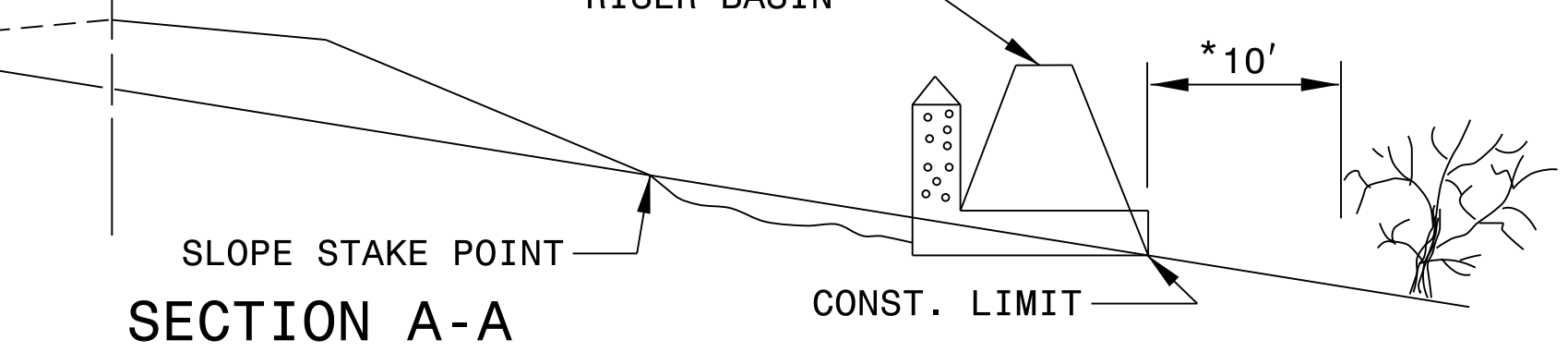
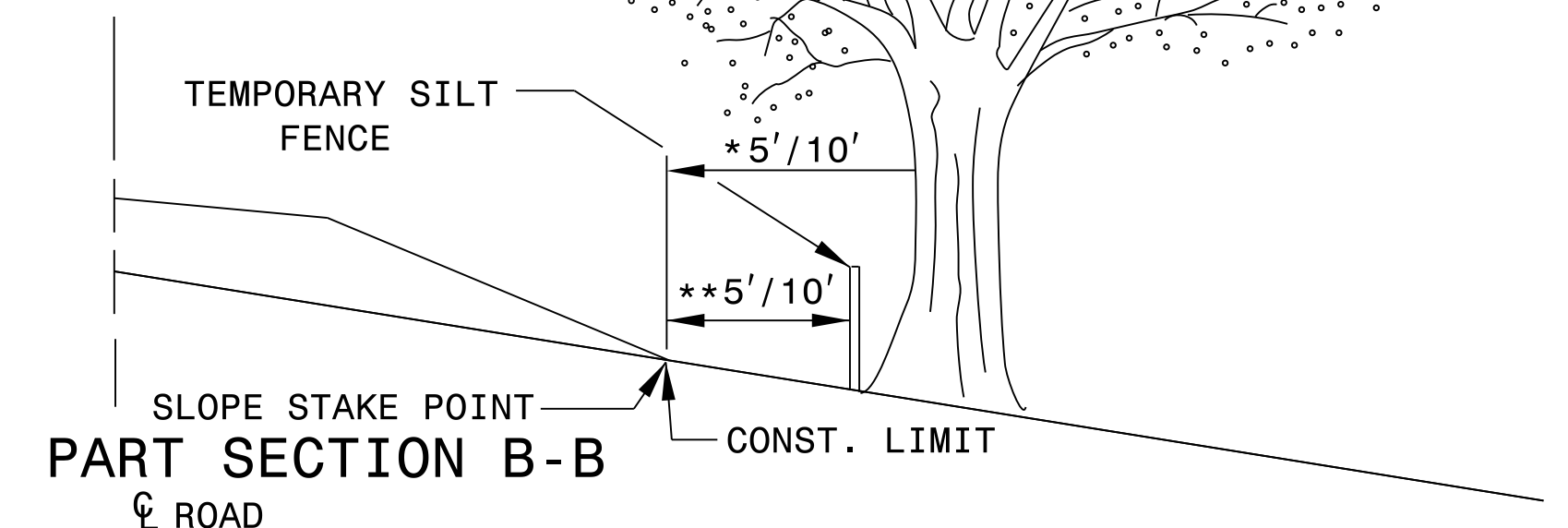
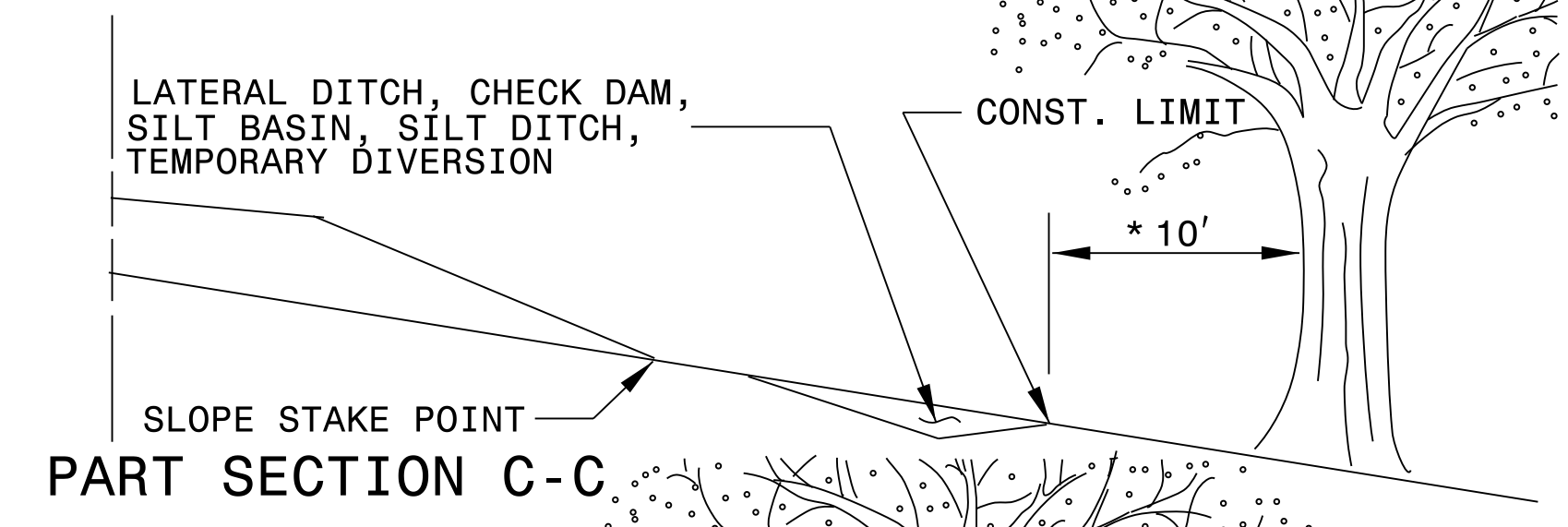
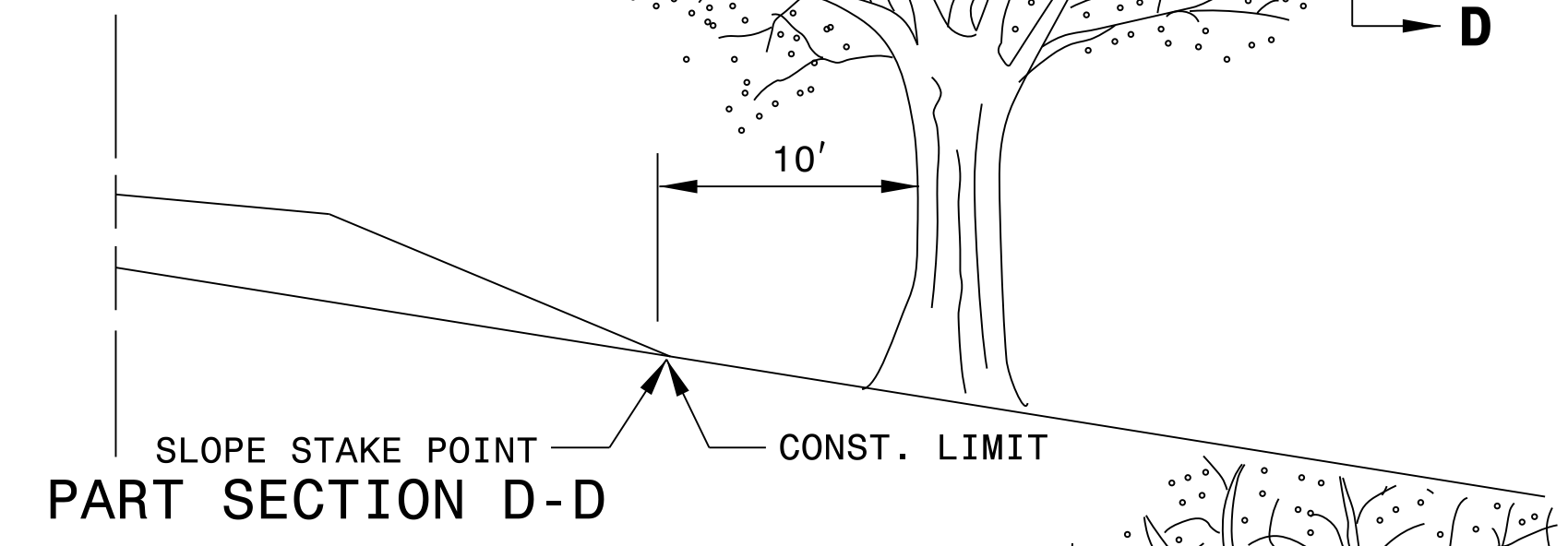
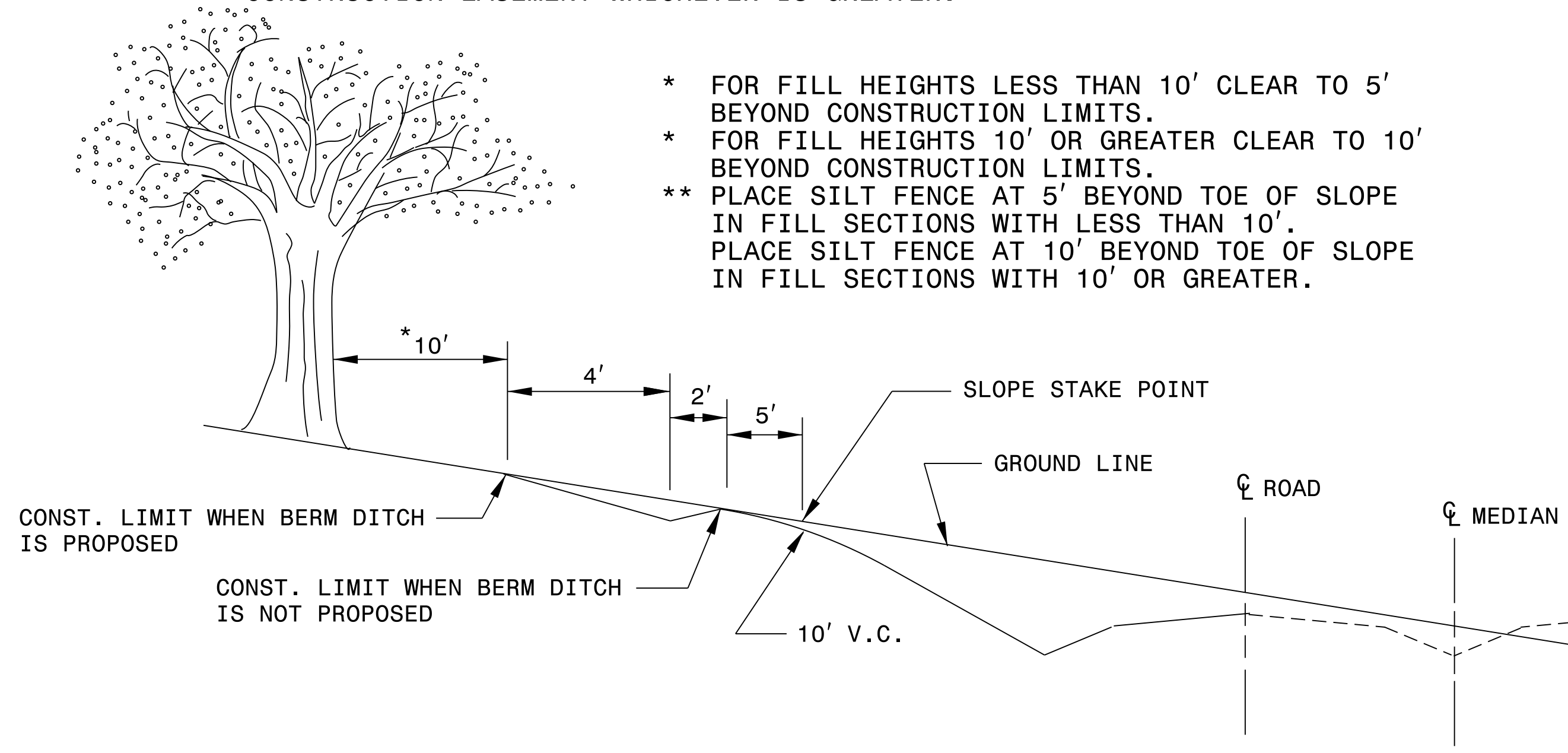
GENERAL NOTES:

1. REMOVE TREES OUTSIDE THE CLEARING LIMIT WHEN, IN THE OPINION OF THE ENGINEER, THE UTILITY OF A TREE WILL BE DESTROYED BY THE CONSTRUCTION OR THE CLEARING OPERATION.
2. CLEAR IN ACCORDANCE WITH THIS STANDARD EXCEPT WHERE ADDITIONAL CLEARING IS REQUIRED FOR SAFETY AS SHOWN ON THE PLANS.

METHOD III CLEARING LIMITS

- (A) CUTS -- CLEAR TO CONSTRUCTION LIMITS.
- (B) FILLS - CLEAR TO 5'/10' * BEYOND CONSTRUCTION LIMITS, UNLESS SPECIFIED OTHERWISE BY WETLAND PERMIT.
- (C) CUTS AND FILLS - WHEN THE CLEARING LIMITS (A AND B) EXCEED THE PROPOSED R/W OR PROPOSED CONSTRUCTION EASEMENTS, THEN CLEAR ONLY TO THE R/W OR CONSTRUCTION EASEMENT WHICHEVER IS GREATER.

- * FOR FILL HEIGHTS LESS THAN 10' CLEAR TO 5' BEYOND CONSTRUCTION LIMITS.
- * FOR FILL HEIGHTS 10' OR GREATER CLEAR TO 10' BEYOND CONSTRUCTION LIMITS.
- ** PLACE SILT FENCE AT 5' BEYOND TOE OF SLOPE IN FILL SECTIONS WITH LESS THAN 10'. PLACE SILT FENCE AT 10' BEYOND TOE OF SLOPE IN FILL SECTIONS WITH 10' OR GREATER.



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

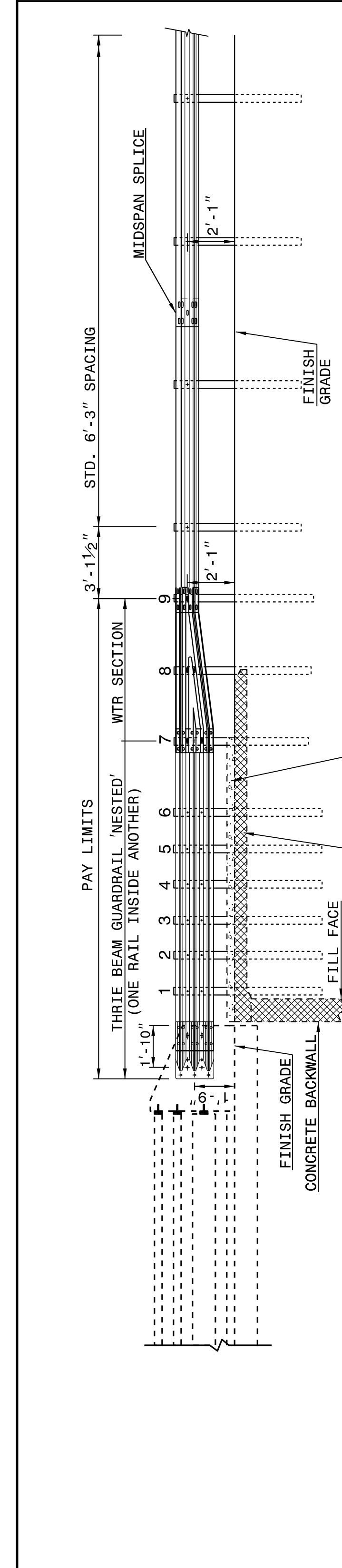
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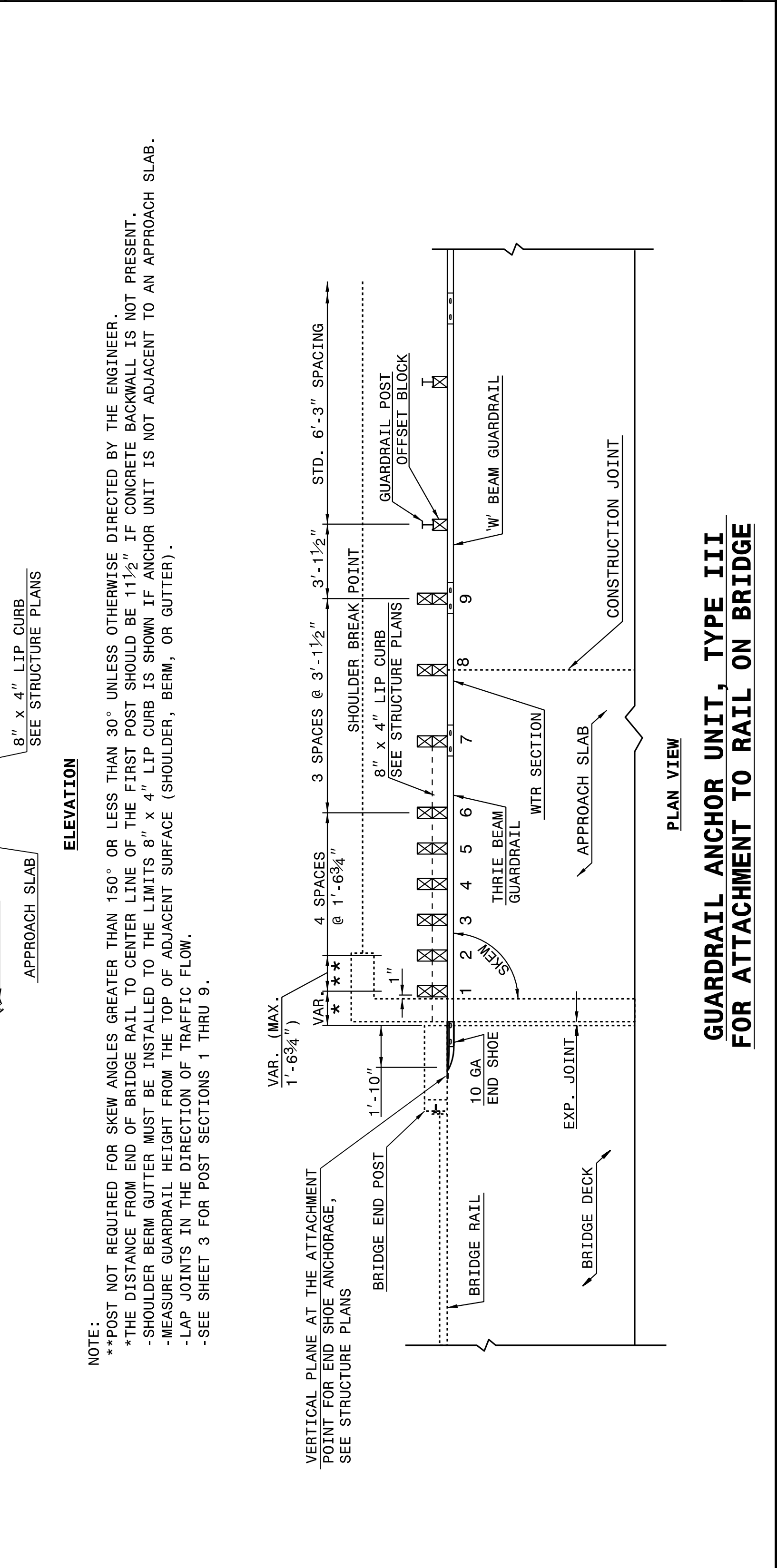
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STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.



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

SHEET 1 OF 7
862D03

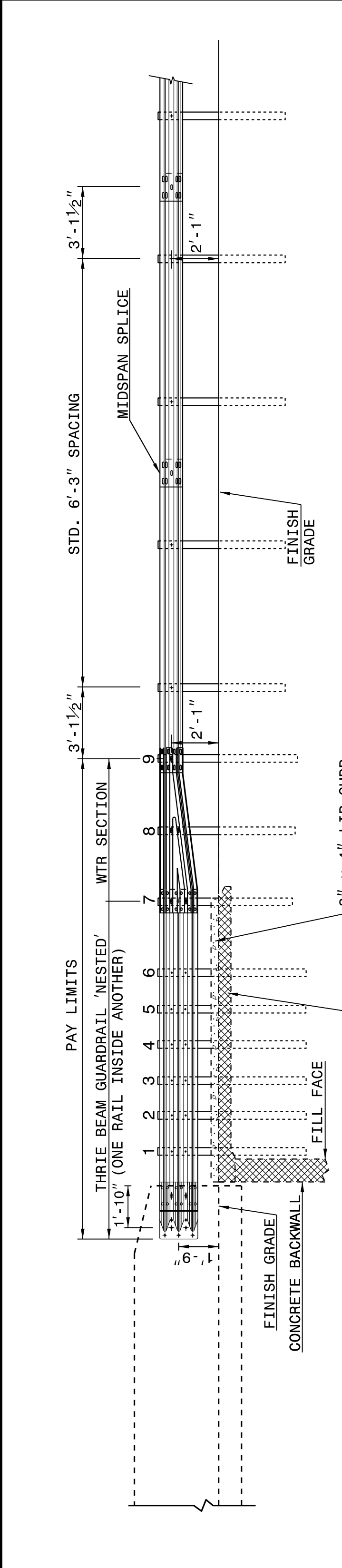


STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

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

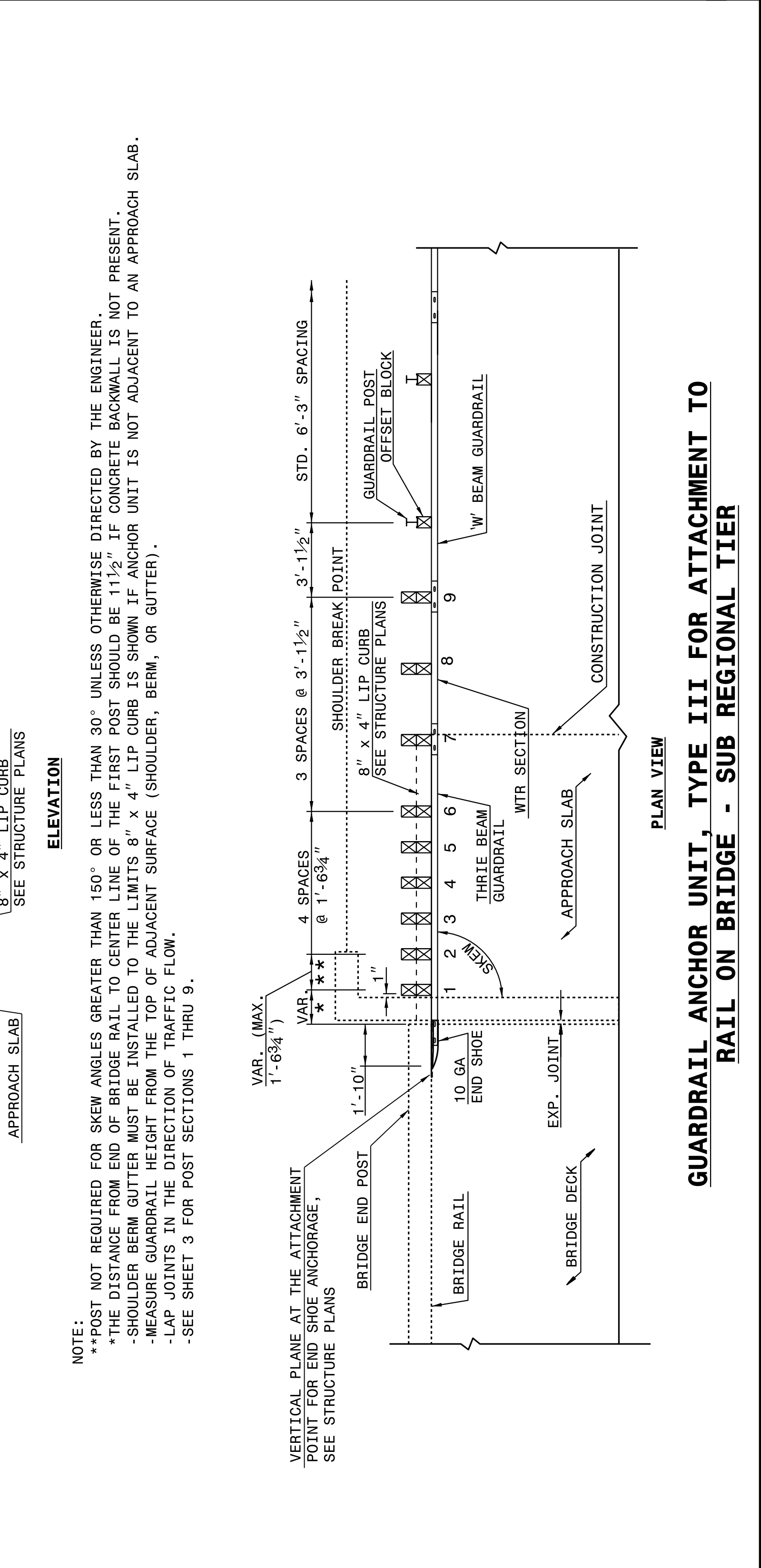
SHEET 1 OF 7
862D03

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



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

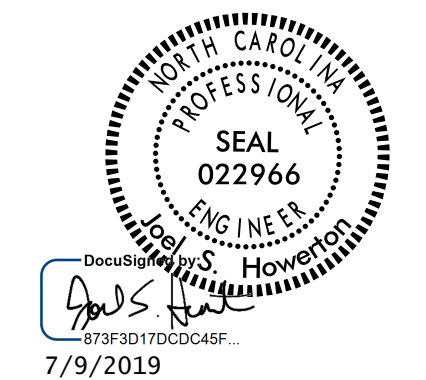
SHEET 2 OF 7
862D03

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.: DATE:



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

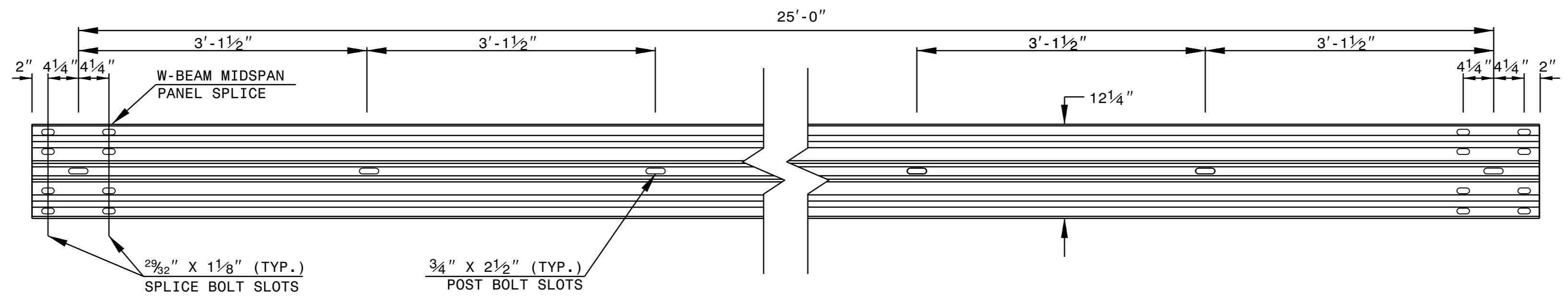
ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

SHEET 6 OF 8
862D02

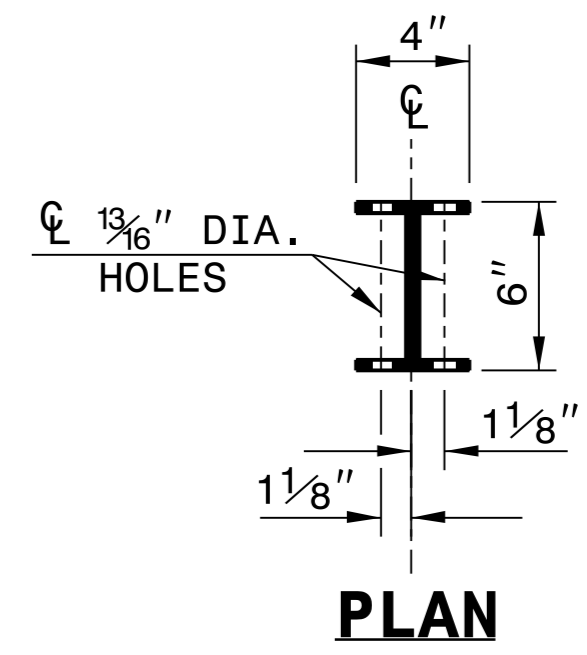
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

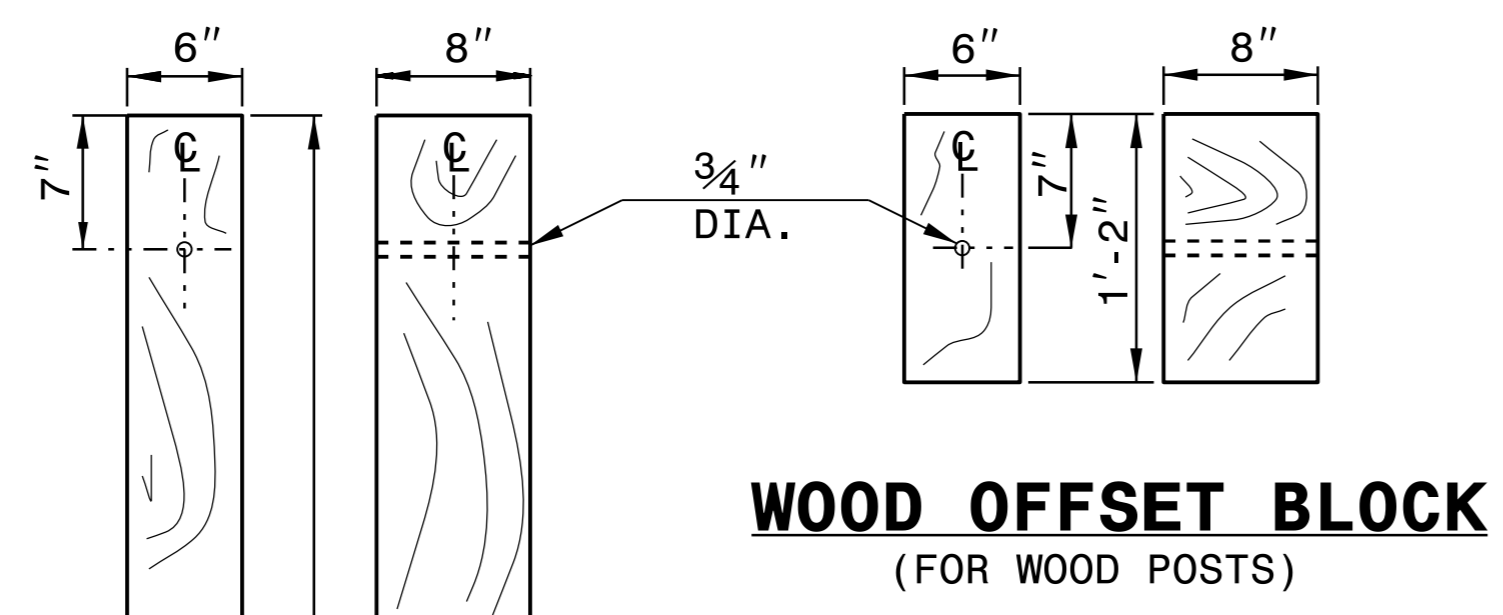
SHEET 6 OF 8
862D02



STANDARD W-BEAM GUARDRAIL



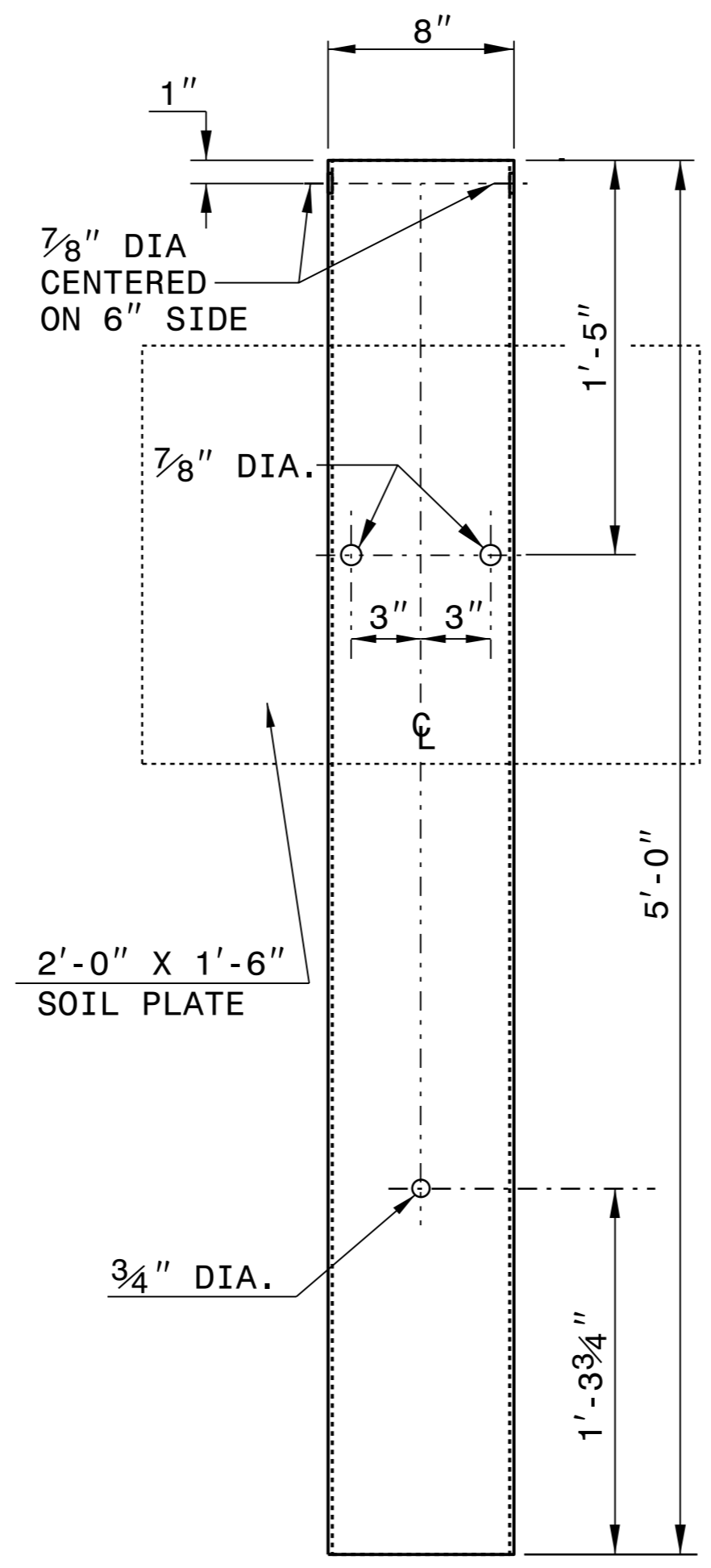
PLAN



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

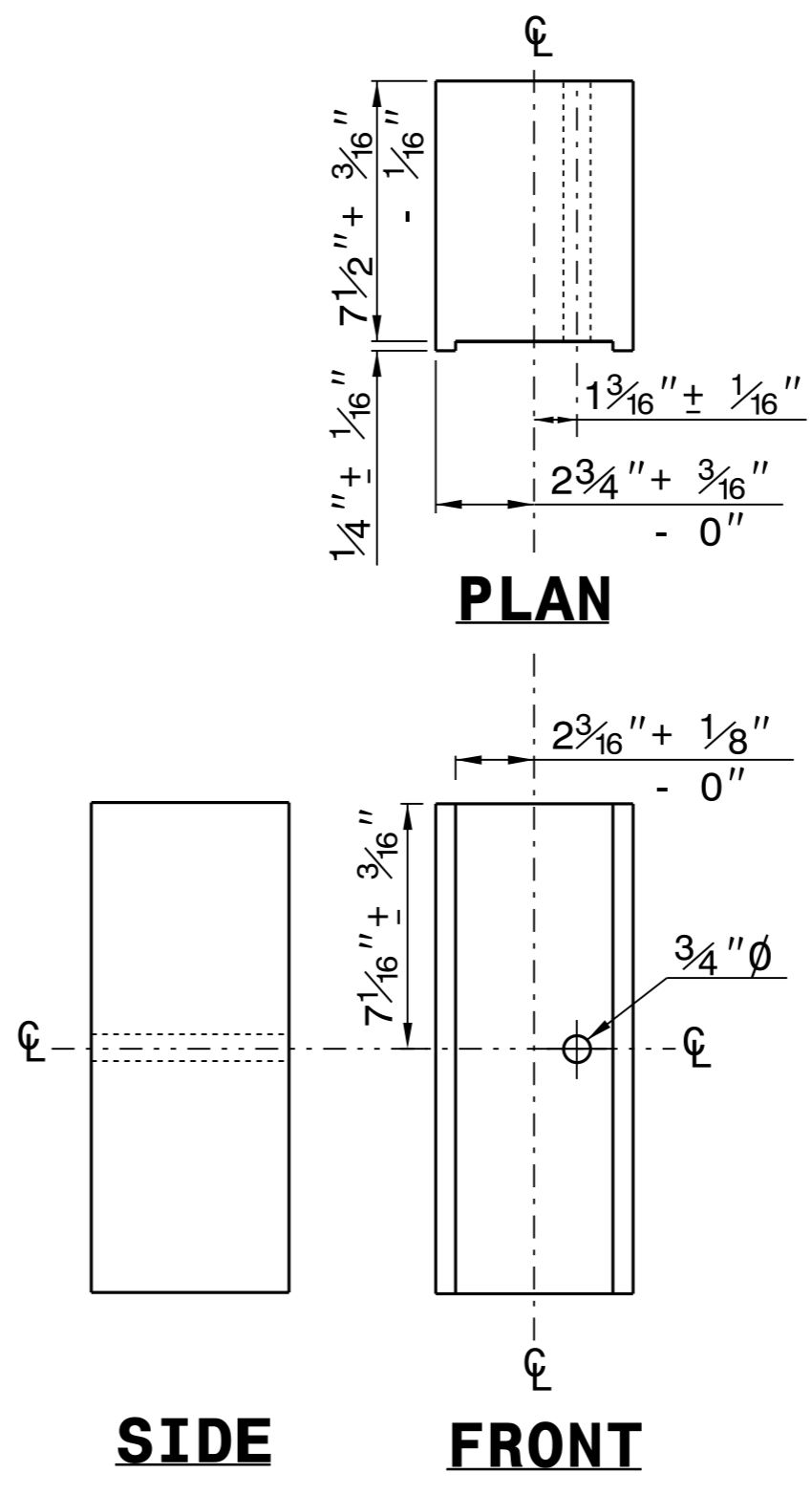
**STANDARD
LINE POST**

**SHORT WOOD
BREAKAWAY POST**



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

SYSTEM PARTS

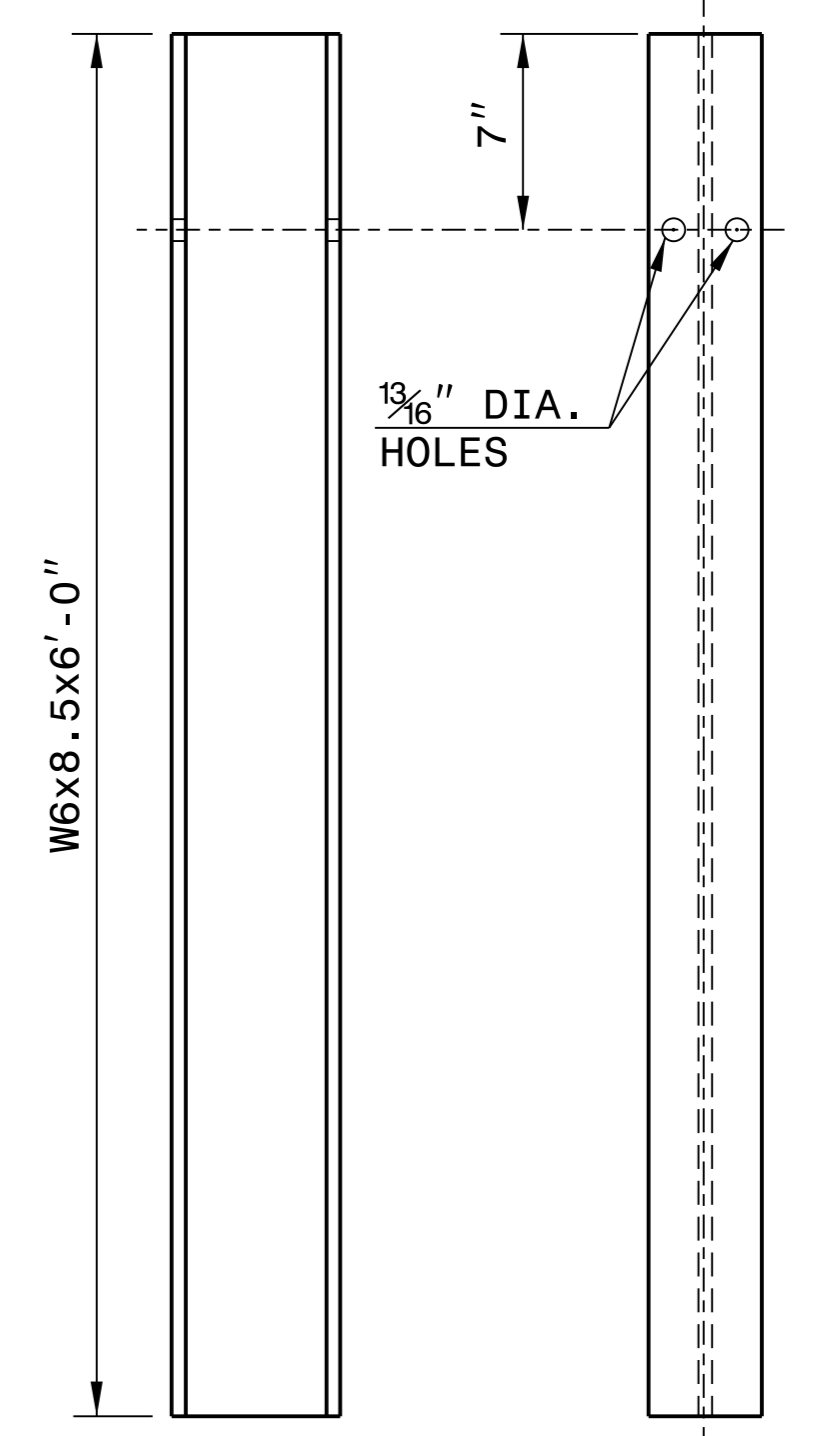


PLAN

SIDE

FRONT

**ROUTED
OFFSET BLOCK**



SIDE

FRONT

"W6" STEEL POST



7/9/2019

**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.: _____

12/06/07

COMPUTED BY: WHITNEY ARRINGTON DATE: 10/23/18
CHECKED BY: ROY H. TELLIER, PE DATE: 11/7/18

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO. SHEET NO.
17BP.3.R.66 3B-1

SUMMARY OF EARTHWORK

Table with columns: STATION, UNCL. EXCAV., EMBANK +%, BORROW, WASTE. Includes sub-totals and grand totals for excavation, embankment, and borrow.

SHOULDER BERM
GUTTER SUMMARY

Table with columns: SURVEY LINE, STATION, STATION, LENGTH (FT). Shows lengths for left and right shoulder berm/gutter sections.

ROW AREA DATA SUMMARY

Table with columns: PARCEL NO., PROPERTY OWNERS NAMES, PROP. RW, PERM. UTILITY EASE, PERM. DRAIN. EASE, PERM. DRAINAGE UTILITY EASE, CONST. EASE. Lists property owners and their respective easement areas.

PAVEMENT REMOVAL SUMMARY

Table with columns: SURVEY LINE, STATION, STATION, AREA (SY). Shows areas for pavement removal on left and right sides.

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

Earthwork quantities are calculated by the Roadway Design Unit. These earthwork quantities are based in part on subsurface data provided by the Geotechnical Engineering Unit.

EST. 300 CY UNDERCUT EXCAVATION (FROM NCDOT GEOTECH)
EST. 300 CY SELECT GRANULAR MATERIAL (FROM NCDOT GEOTECH)
EST. 300 SY GEOTEXTILE FABRIC FOR SOIL STABILIZATION (FROM NCDOT GEOTECH)

"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

Large table with columns: SURVEY LINE, BEG. STA., END STA., LOCATION, LENGTH (STRAIGHT, SHOP CURVED, DOUBLE FACED), WARRANT POINT (APPROACH END, TRAILING END), "N" DIST. FROM E.O.L., TOTAL SHOUL. WIDTH, FLARE LENGTH (APPROACH END, TRAILING END), W (APPROACH END, TRAILING END), ANCHORS (TYPE III, GREU TL-3), IMPACT ATTENUATOR 350 (EA, G, NG), SINGLE FACED GUARDRAIL, REMOVE EXISTING GUARDRAIL, REMOVE AND STOCKPILE EXISTING GUARDRAIL, REMARKS.

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

Table with columns: STATION, LOCATION (LT, RT, OR CL), STRUCTURE NO., TOP ELEVATION, INVERT ELEVATION, SLOPE CRITICAL, CAAP (12" to 48"), BITUMINOUS COATED C.S. PIPE TYPE B (12" to 48"), CLASS IV R.C. PIPE (12" to 48"), ENDWALLS (STD. 838.01, STD. 838.11, OR STD. 838.80), QUANTITIES FOR DRAINAGE STRUCTURES (PER EACH, 5.0' THRU 10.0', 10.0' AND ABOVE), FRAME, GRATES AND HOOD STANDARD 840.03, TYPE OF GRATE (E, F, G), D.I. STD. 840.14 OR STD. 840.15, D.I. FRAME & GRATE STD. 840.16, G.D.I. TYPE "A" STD. 840.17 OR 840.26, G.D.I. TYPE "B" STD. 840.18 OR 840.27, G.D.I. TYPE "D" STD. 840.19 OR 840.28, G.D.I. FRAME WITH GRATE STD. 840.22, G.D.I. FRAME WITH TWO GRATES STD. 840.22, G.D.I. (N.S.) FRAME WITH GRATE STD. 840.24, G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24, J.B. STD. 840.31 OR 840.32, T.B. GRATED D.I., TYPE "B" STD. 840.35, T.B.D.I. (N.S.) FRAME AND TWO GRATES STD. 840.29, CORR. STEEL ELBOWS NO. & SIZE, CONC. COLLARS CL. "B" C.Y. STD. 840.72, CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71, PIPE REMOVAL LIN.FT., ABBREVIATIONS (C.B., N.D.I., D.I., G.D.I., J.B., M.H., T.B.D.I., T.B.J.B.), REMARKS.

09-JUL-2018 09:51
V:\00000000\17BP.3.R.66.BR213.rdy.sum.dgn
INTE

COMPUTED BY: Tyler C. Bottoms DATE: 3/7/19
 CHECKED BY: Thein Tun Zan DATE: 3/14/19

(5-15-18)

PROJECT NO.
17BP.3.R.66

SHEET NO.
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 GEOTEXTILE
 FOR PAVEMENT STABILIZATION**

LINE	Station	Station	Geotextile for Pavement Stabilization SY	Class IV Subgrade Stabilization TONS
CONTINGENCY				
			TOTAL SY/TONS:	0 0*

*Total tons of "Class IV Subgrade Stabilization" is only the estimated quantity for pavement stabilization and may only represent a portion of the subgrade stabilization quantity shown in the Item Sheets of the Proposal.

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									
					TOTAL CY/TONS/SY:	0	0**	0**	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.

SUMMARY OF ROCK PLATING

LINE	Beginning Slope (H:V)	Approx. Station	Ending Slope (H:V)	Approx. Station	Location LT/RT	Rock Plating Detail No. 1/2/3/4	Riprap Class* 1/2/B	Rock Plating SY
							TOTAL SY:	0

*Use Class 1, 2 or B riprap if riprap class is not shown for rock plating location.

SUMMARY OF REINFORCED SOIL SLOPES AND SLOPE EROSION CONTROL

LINE	Beginning Slope/ RSS (H:V)	Approx. Station	Ending Slope/ RSS (H:V)	Approx. Station	Location LT/RT	Reinforced Soil Slope (RSS) SY	Geocells SY	Coir Fiber Mat SY	Matting for Erosion Control SY
						TOTAL SY:	0	0	0* 0**

*Total square yards of "Coir Fiber Mat" is only the estimated quantity for slopes steeper than 2:1 (H:V) and may only represent a portion of the coir fiber mat quantity shown in the Item Sheets of the Proposal.
 **Total square yards of "Matting for Erosion Control" is only the estimated quantity for RSS and may only represent a portion of the matting quantity shown in the Item Sheets of the Proposal.

SUMMARY OF PRE-SPLITTING OF ROCK

LINE	Beginning Rock Cut Slope (H:V)	Approx. Station	Ending Rock Cut Slope (H:V)	Approx. Station	Location LT/RT	Pre-splitting of Rock SY	
						TOTAL SY:	0

**SUMMARY OF SURCHARGES
 AND SURCHARGE WAITING PERIODS**

LINE	Station	Station	Surcharge Height FT	MONTHS	
				TOTAL MONTHS:	0

**SUMMARY OF
 SETTLEMENT GAUGES**

Gauge No.	LINE and Station	Offset	
		Distance FT	Direction LT/RT
TOTAL GAUGES (EACH):			

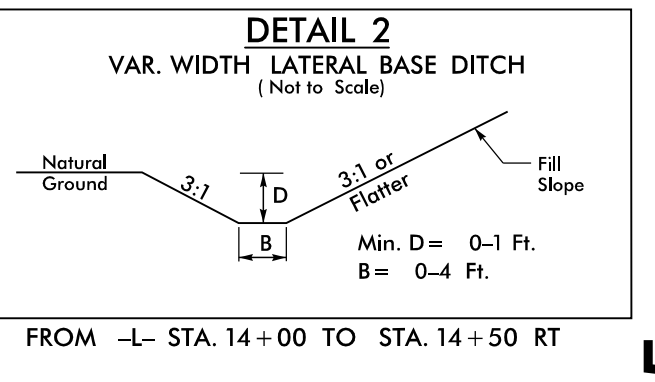
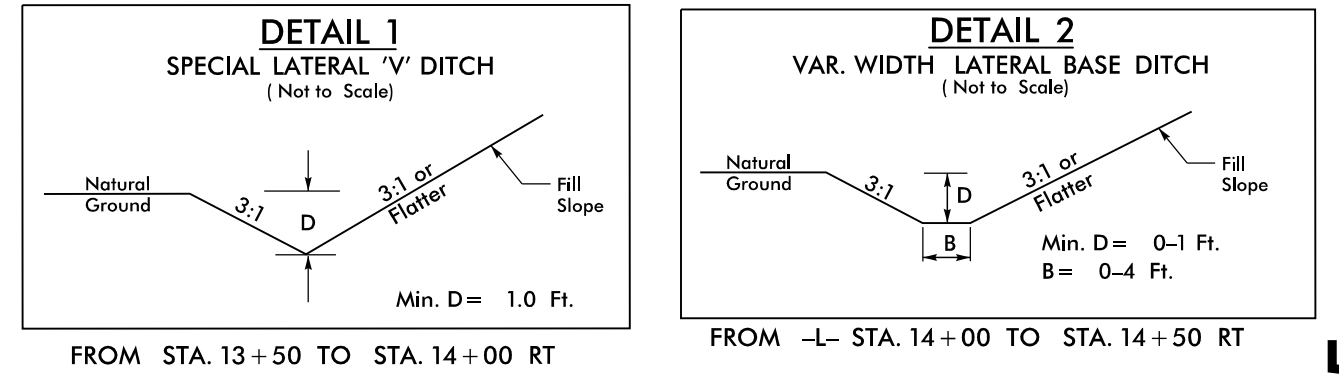
**SUMMARY OF EMBANKMENT
 WAITING PERIODS**

LINE	Station	Station	MONTHS
			TOTAL MONTHS:

SUMMARY OF BRIDGE WAITING PERIODS

Bridge Description	End Bent/ Bent No.	MONTHS
		TOTAL MONTHS:

NAD 83/NA 2011



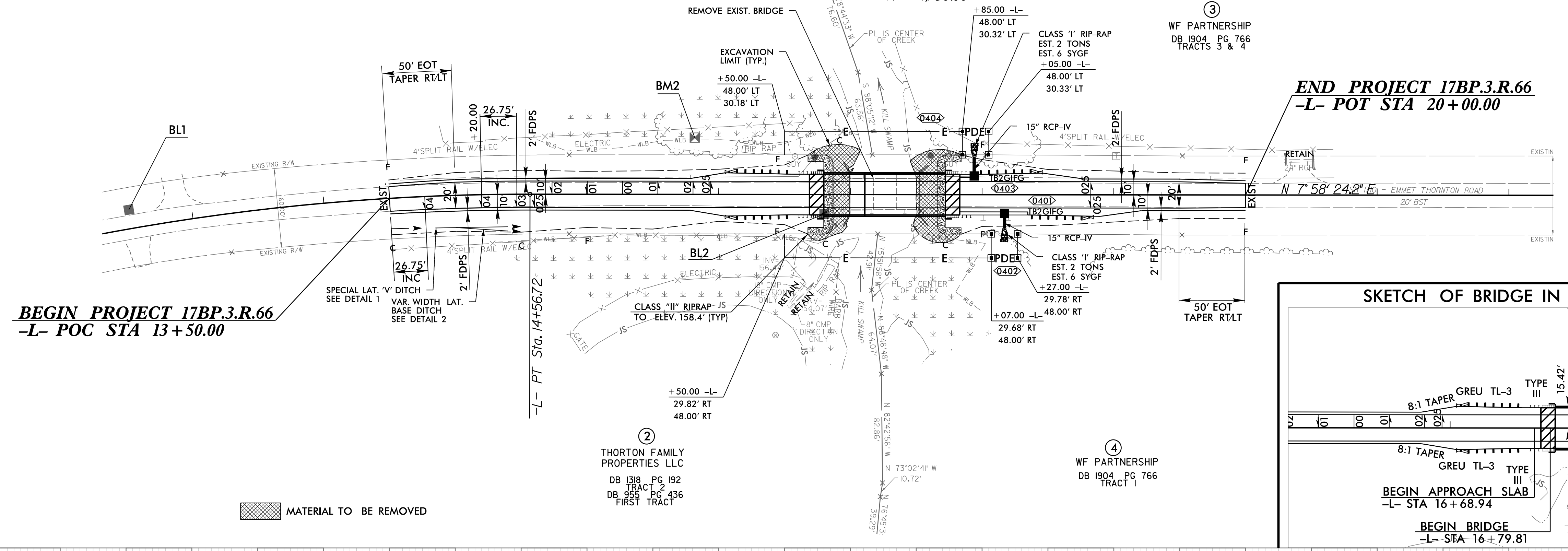
①
GEORGE E WARREN
LINDA P WARREN
DB 863 PG 234

-L-
PI Sta 12+56.33
Δ = 13°10'49.4" (RT)
D = 3'16"26.6"
L = 402.57'
T = 202.18'
R = 1,750.00'

③
WF PARTNERSHIP
DB 1904 PG 766
TRACTS 3 & 4

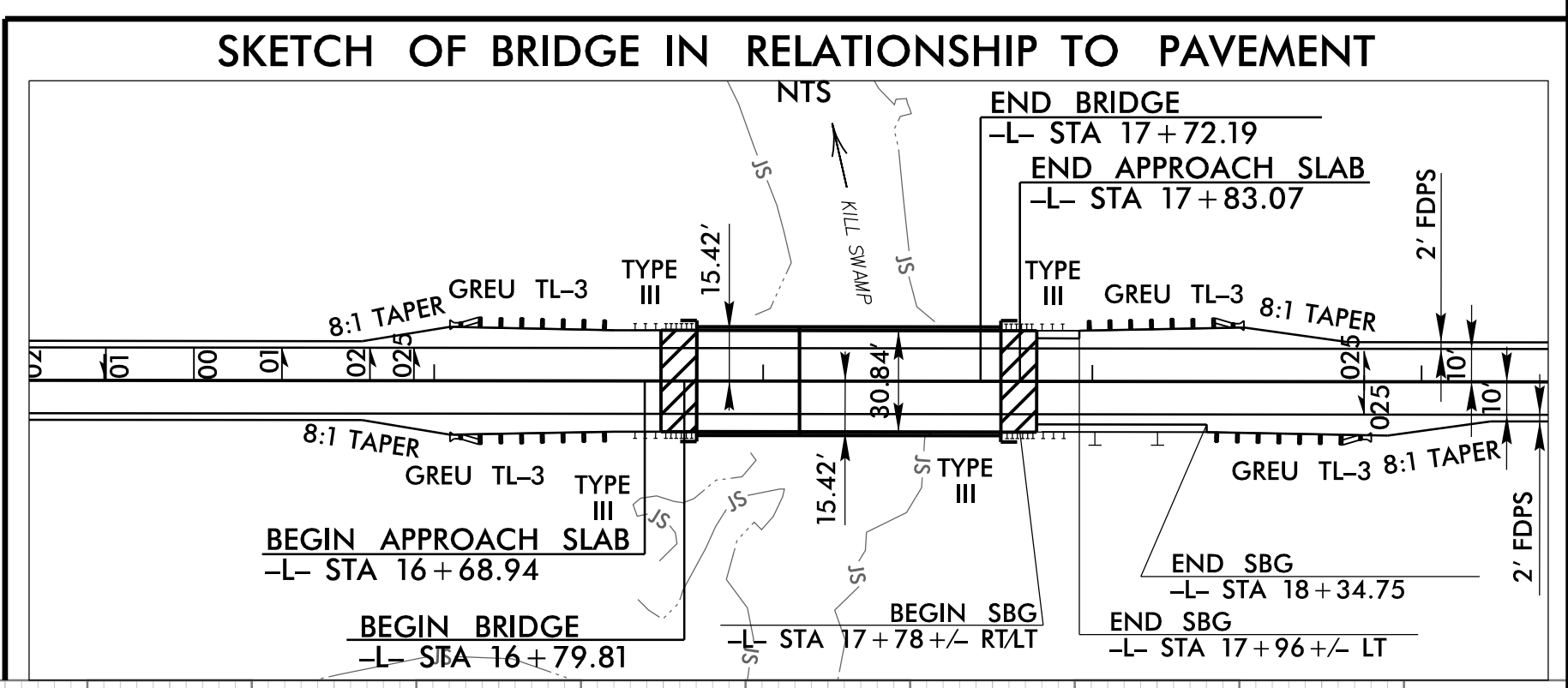
②
THORTON FAMILY PROPERTIES LLC
DB 1318 PG 192
TRACT 2
DB 955 PG 436
FIRST TRACT

④
WF PARTNERSHIP
DB 1904 PG 766
TRACT 1

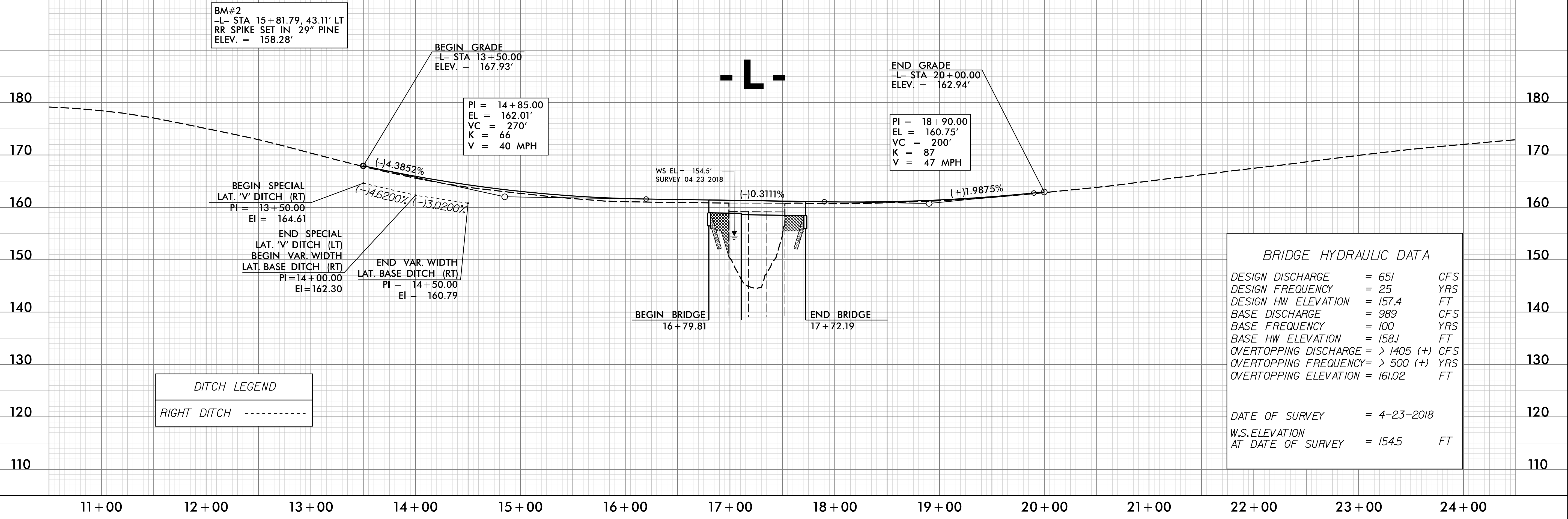


END PROJECT 17BP.3.R.66
-L- POT STA 20+00.00

BEGIN PROJECT 17BP.3.R.66
-L- POC STA 13+50.00



MATERIAL TO BE REMOVED



BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	= 651	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 157.4	FT
BASE DISCHARGE	= 989	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 158.1	FT
OVERTOPPING DISCHARGE	= > 1405 (+)	CFS
OVERTOPPING FREQUENCY	= > 500 (+)	YRS
OVERTOPPING ELEVATION	= 161.02	FT
DATE OF SURVEY	= 4-23-2018	
W.S.ELEVATION AT DATE OF SURVEY	= 154.5	FT

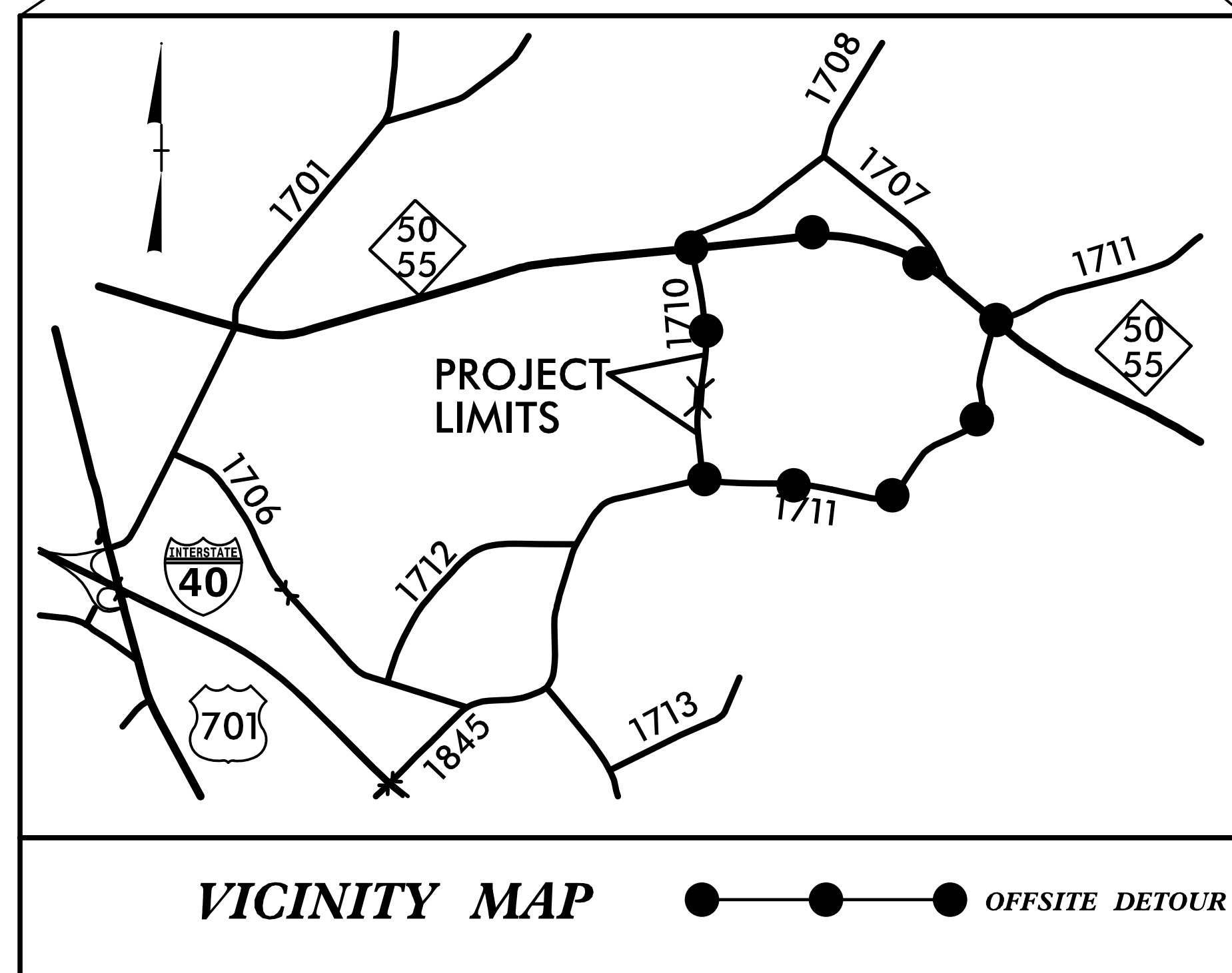
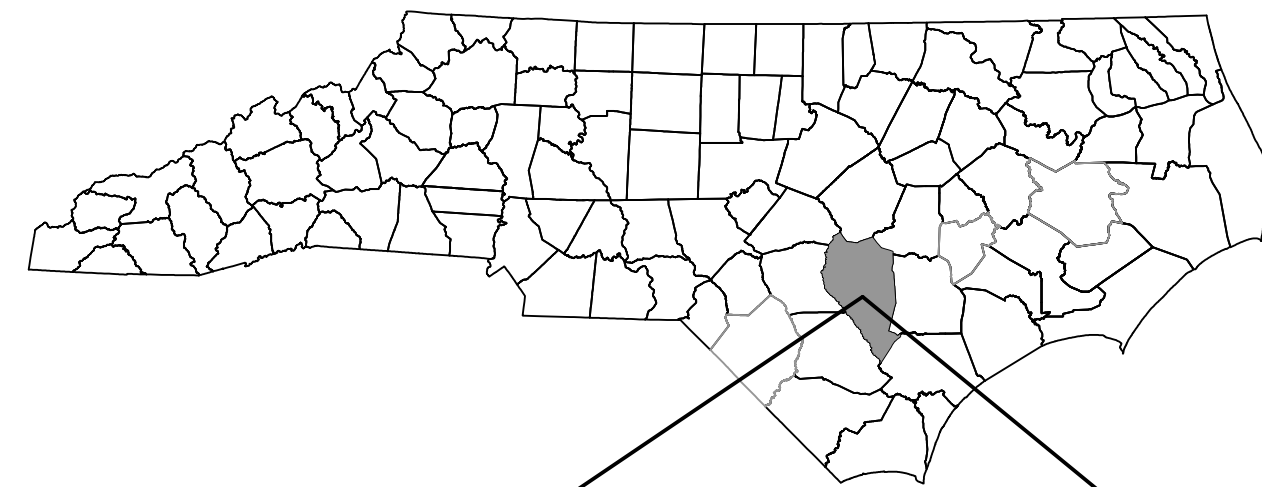
REVISIONS
RW REVISION 04-24-2019: REMOVED PDE FROM PARCEL NO.1 & 2, RHT

JUN-2018: 18:49
V:\Roadway\17BP.3.R.66.BR213_rdy_psh4.dgn
HNTB

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

SAMPSON COUNTY



LOCATION: REPLACE BRIDGE NO. 213 OVER KILL SWAMP ON SR 1710 (EMMET THORNTON ROAD)

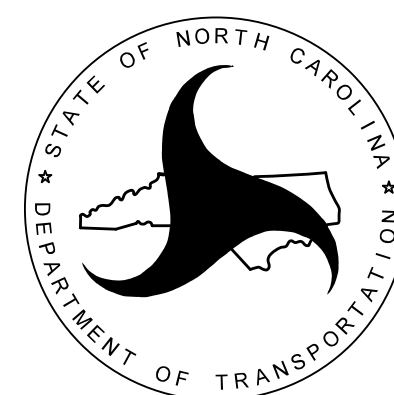
PLANS PREPARED BY: HNTB

R. B. EARLY, P.E.
PROJECT ENGINEER

J. A. PHILLIPS
PROJECT DESIGN TECHNICIAN

NCDOT CONTACTS:

JESSI LEONARD, PE
DIVISION TRAFFIC ENGINEER



INDEX OF SHEETS

SHEET NO.	TITLE
TMP-1	TITLE SHEET, VICINITY MAP, INDEX OF SHEETS AND ROADWAY STANDARD DRAWINGS
TMP-2	LEGEND, GENERAL NOTES AND PHASING
TMP-3	DETOUR AND DETAIL

ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS SHOWN IN "ROADWAY STANDARD DRAWINGS" PROJECT SERVICES UNIT - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C. DATED JAN 2018 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO.	TITLE
1101.03	TEMPORARY ROAD CLOSURES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1145.01	BARRICADES
1205.01	PAVEMENT MARKINGS - LINE TYPES & OFFSETS
1205.02	PAVEMENT MARKINGS - 2 LANE & MULTILANE ROADWAYS
1205.12	PAVEMENT MARKINGS - BRIDGES
1250.01	RAISED PAVEMENT MARKERS - INSTALLATION SPACING
1251.01	RAISED PAVEMENT MARKERS - PERMANENT AND TEMPORARY
1261.01	GUARDRAIL AND BARRIER DELINEATOR SPACING
1261.02	GUARDRAIL AND BARRIER DELINEATOR TYPE
1262.01	GUARDRAIL END DELINEATION

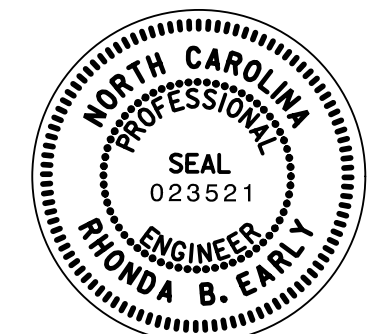
**DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED**

HNTB

HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Ste 200
Raleigh, North Carolina 27609
NC License No: C-1554

APPROVED: Rhonda B. Early
DATE: 7/9/2019

SEAL



LEGEND

GENERAL

- DIRECTION OF TRAFFIC FLOW
- DIRECTION OF PEDESTRIAN TRAFFIC FLOW
- EXIST. PVMT.
- NORTH ARROW
- PROPOSED PVMT.
- WORK AREA (AWAY FROM TRAFFIC)

TRAFFIC CONTROL DEVICES

- BARRICADE (TYPE III)
- CONE
- DRUM SKINNY DRUM
- FLASHING ARROW BOARD
- FLAGGER

TEMPORARY SIGNING

- PORTABLE SIGN
- STATIONARY SIGN

PAVEMENT MARKERS

- CRYSTAL/CRYSTAL
- CRYSTAL/RED
- YELLOW/YELLOW

GENERAL NOTES

CHANGES MAY BE REQUIRED WHEN PHYSICAL DIMENSIONS IN THE DETAIL DRAWINGS, STANDARD DETAILS AND ROADWAY DETAILS ARE NOT ATTAINABLE TO MEET FIELD CONDITIONS OR RESULT IN THE DUPLICATE OR UNDESIRABLE OVERLAPPING OF DEVICES. MODIFICATIONS MAY INCLUDE: MOVING, SUPPLEMENTING, COVERING, OR REMOVAL OF DEVICES AS DIRECTED BY THE ENGINEER.

THE FOLLOWING GENERAL NOTES APPLY AT ALL THE TIMES FOR THE DURATION OF THE CONSTRUCTION PROJECT EXCEPT WHEN OTHERWISE NOTED IN THE PLAN OR DIRECTED BY THE ENGINEER.

LANE AND SHOULDER CLOSURE REQUIREMENTS

- A) REMOVE LANE CLOSURE DEVICES FROM THE LANE WHEN WORK IS NOT BEING PERFORMED BEHIND THE LANE CLOSURE OR WHEN A LANE CLOSURE IS NO LONGER NEEDED OR AS DIRECTED BY THE ENGINEER.

TRAFFIC PATTERN ALTERATIONS

- B) NOTIFY THE ENGINEER THIRTY (30) CALENDAR DAYS PRIOR TO ANY TRAFFIC PATTERN ALTERATION.

SIGNING

- C) PROVIDE SIGNING AND DEVICES REQUIRED TO CLOSE THE ROAD ACCORDING TO THE ROADWAY STANDARD DRAWINGS AND TRAFFIC CONTROL PLANS.

PROVIDE SIGNING REQUIRED FOR THE OFF-SITE DETOUR ROUTE AS SHOWN ON SHEET TMP-3.

- D) COVER OR REMOVE ALL SIGNS AND DEVICES REQUIRED TO CLOSE THE ROAD WHEN ROAD CLOSURE IS NOT IN OPERATION.

COVER OR REMOVE ALL SIGNS REQUIRED FOR THE OFF-SITE DETOUR WHEN THE DETOUR IS NOT IN OPERATION.

- E) ENSURE ALL NECESSARY SIGNING IS IN PLACE PRIOR TO ALTERING ANY TRAFFIC PATTERN.

TRAFFIC CONTROL DEVICES

- F) PLACE TYPE III BARRICADES, WITH "ROAD CLOSED" SIGN R11-2 ATTACHED, OF SUFFICIENT LENGTH TO CLOSE ENTIRE ROADWAY.

PAVEMENT MARKING AND MARKERS

- G) INSTALL PAVEMENT MARKINGS ON THE FINAL SURFACE AS FOLLOWS:

ROAD NAME	MARKING	MARKERS
SR 1710 (EMMET THORNTON ROAD)	PAINT	RAISED

- H) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.

- I) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS.

- J) PASSING ZONE WILL BE DETERMINED IN THE FIELD AND MUST BE APPROVED BY THE ENGINEER.

PHASING

PHASE I

STEP 1

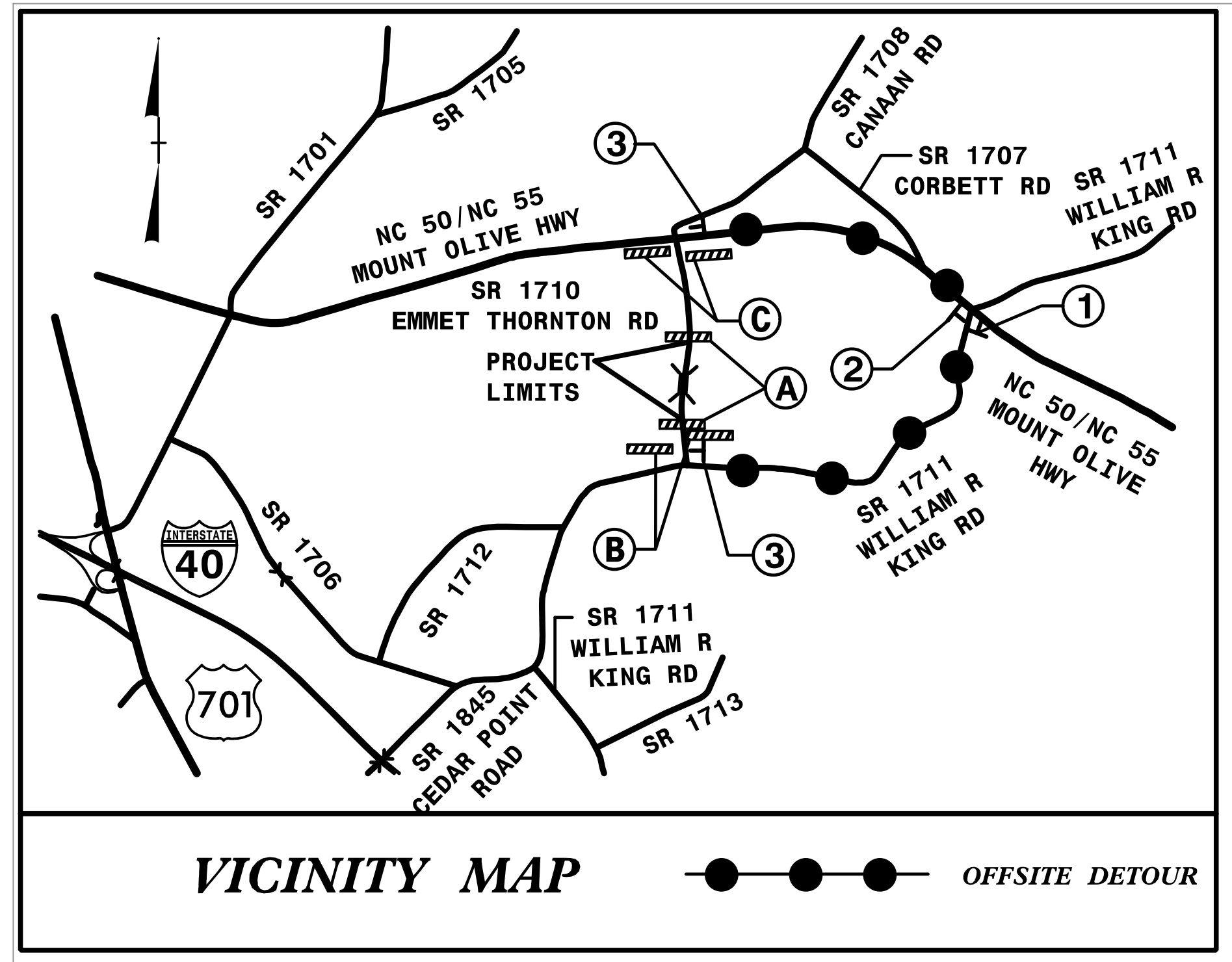
PRIOR TO ANY CONSTRUCTION OPERATIONS, PLACE AND COVER OFF-SITE DETOUR SIGNS AS SHOWN ON TMP-3 AND IN ACCORDANCE WITH RSD 1101.03 (SHEET 1 OF 9).

STEP 2

USING OFF-SITE DETOUR, UNCOVER DETOUR SIGNS, CLOSE -L- (SR 1710/EMMET THORNTON ROAD) TO TRAFFIC AND CONSTRUCT PROPOSED BRIDGE AND ROADWAY UP TO AND INCLUDING THE FINAL LAYER OF SURFACE COURSE.

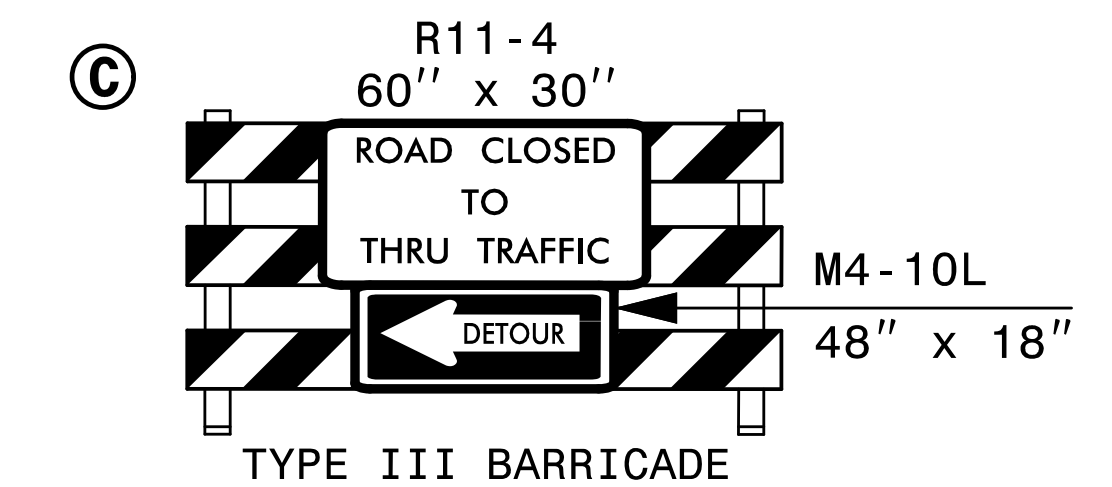
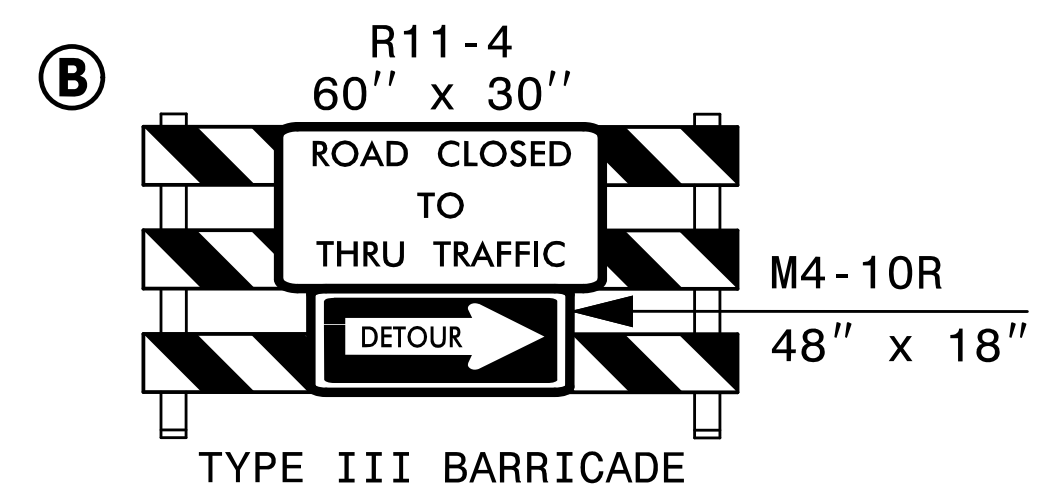
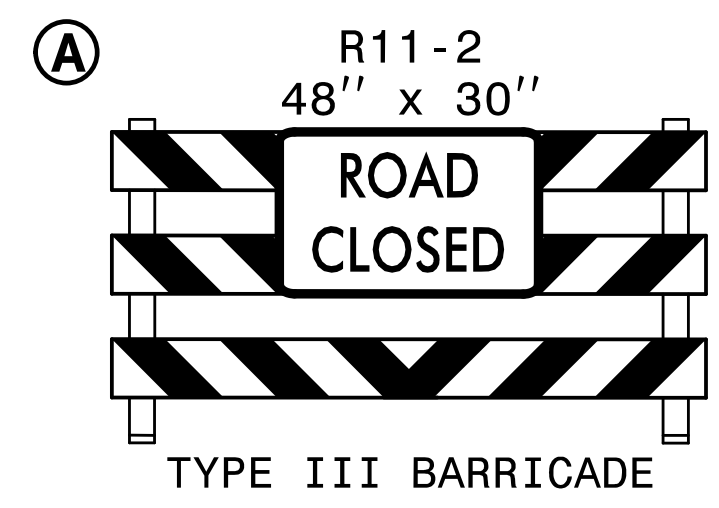
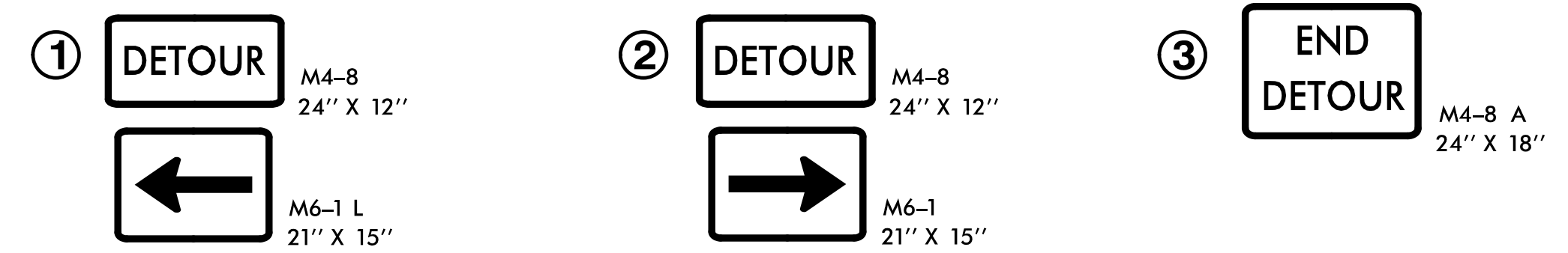
STEP 3

UPON COMPLETION OF BRIDGE AND ROADWAY, PLACE FINAL PAVEMENT MARKINGS AND MARKERS IN ACCORDANCE WITH RSD 1205.01, 1205.02, 1205.12, 1250.01 AND 1251.01. REMOVE BARRICADES AND DETOUR SIGNS AND OPEN -L- (SR 1710/EMMET THORNTON ROAD) TO TRAFFIC.



REFER TO RSD 1101.03
(SHEET 1 OF 9) FOR ADDITIONAL
SIGN REQUIREMENTS INCLUDING:

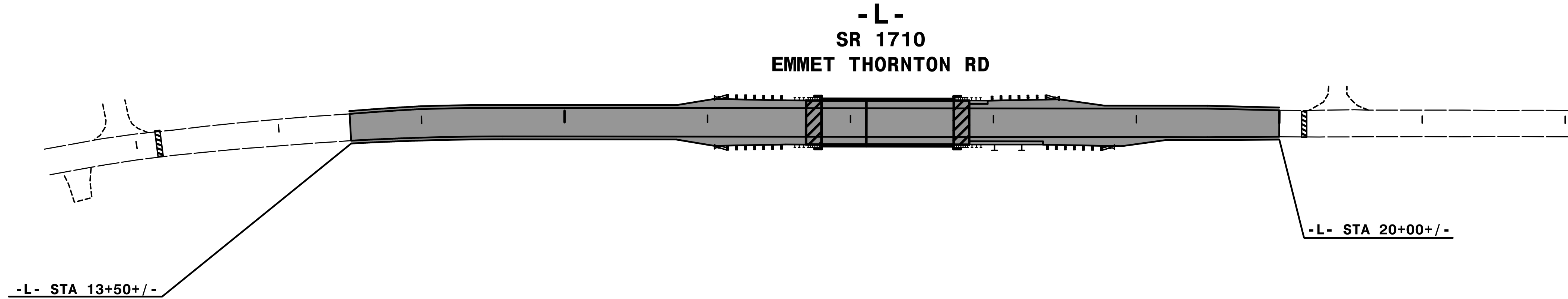
- W20-3 (16 EA)
- W20-2 (2 EA)
- SP-4 (4 EA)



15

20

NAD 83/NA 2011



MATERIAL TO BE REMOVED

7/9/2019 17BP.3.R.66_fc_TMP_03_detour.dgn HNTB

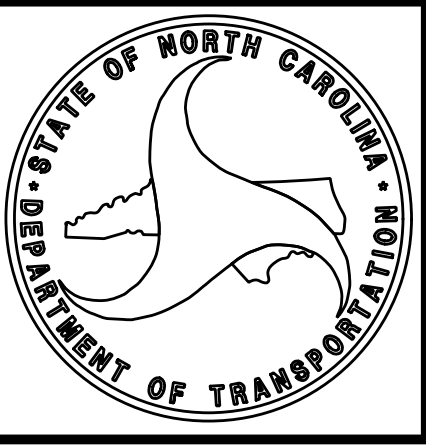


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UNLESS ALL SIGNATURES COMPLETED

APPROVED BY:
Rhonda B. Early
F34C4F5AC6BF4BA

DATE:
7/9/2019

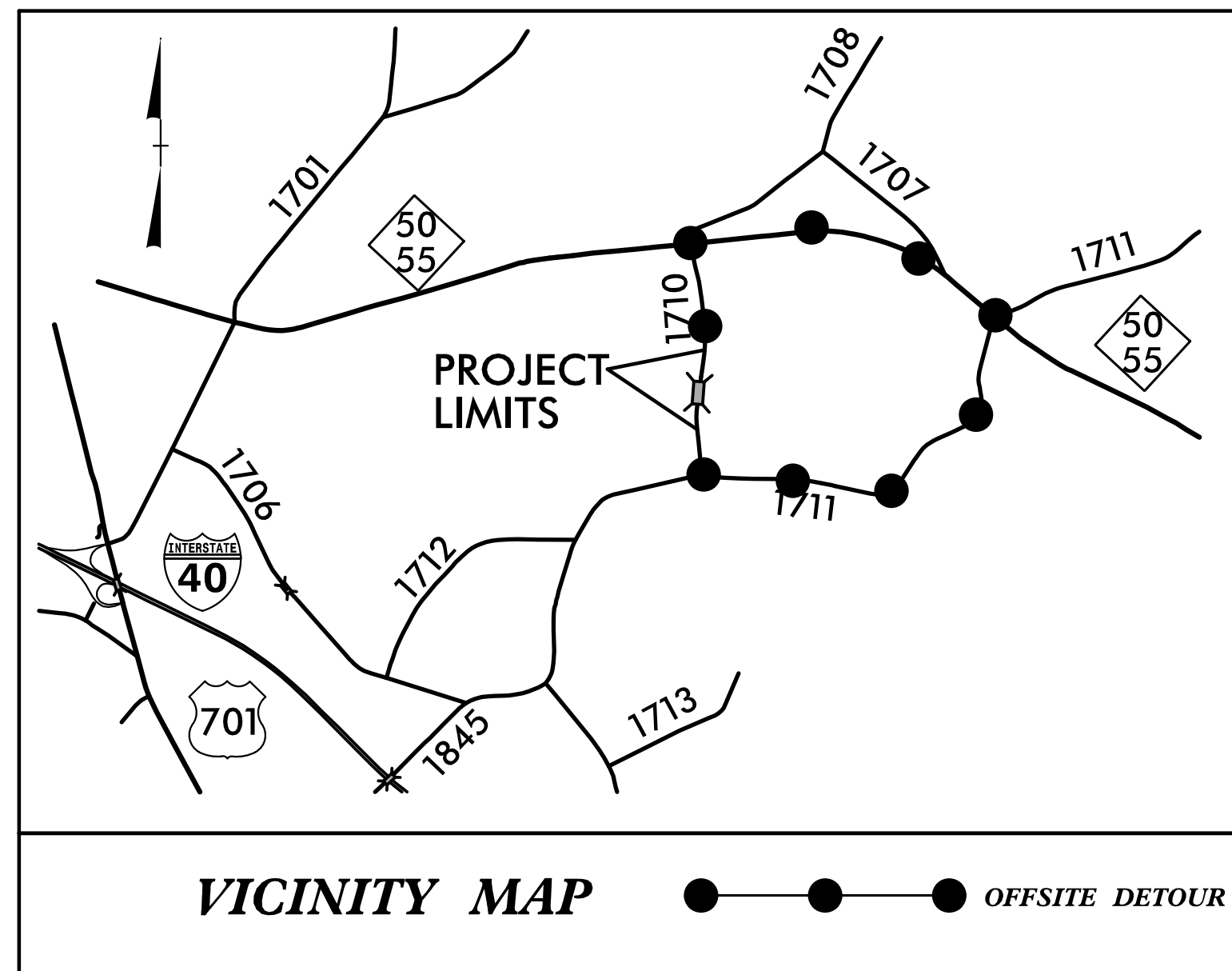
SEAL
023521
NORTH CAROLINA
PROFESSIONAL
ENGINEER
RHONDA B. EARLY



TRANSPORTATION
MANAGEMENT PLAN

OFF-SITE DETOUR
AND DETAIL

TIP PROJECT: 17BP.3.R.66



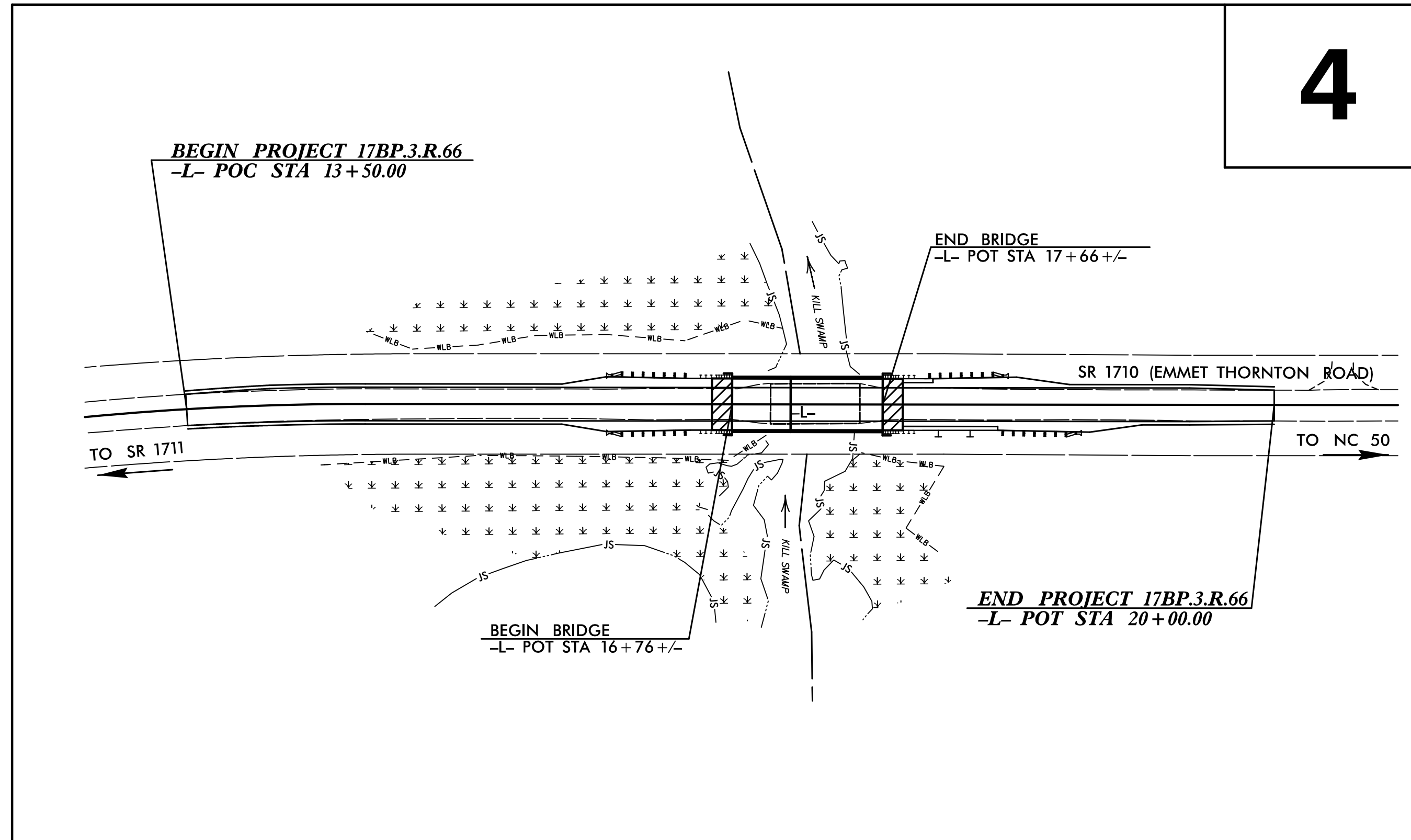
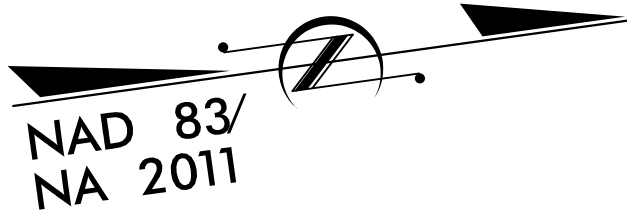
VICINITY MAP ●—● OFFSITE DETOUR

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL

SAMPSON COUNTY

LOCATION: REPLACE BRIDGE NO. 213 OVER KILL SWAMP
ON SR 1710 (EMMET THORNTON ROAD)

TYPE OF WORK: GRADING, DRAINAGE, PAVING AND STRUCTURE

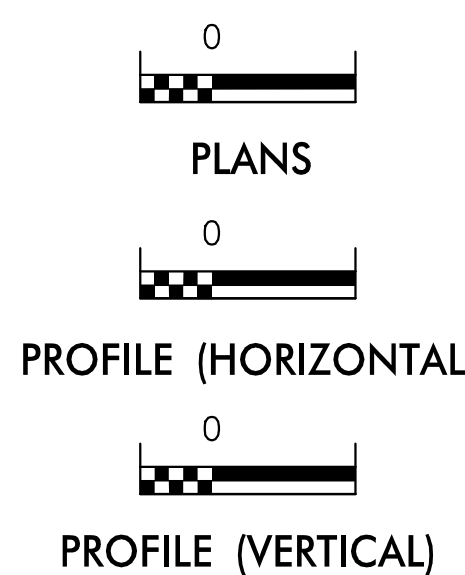


STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.3.R.66	EC-1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	

EROSION AND SEDIMENT CONTROL MEASURES

Std. #	Description	Symbol
1630.03	Temporary Silt Ditch	—
1630.05	Temporary Diversion	—
1605.01	Temporary Silt Fence	—
1606.01	Special Sediment Control Fence	—
1622.01	Temporary Berms and Slope Drains	—
1630.02	Silt Basin Type B	—
1633.01	Temporary Rock Silt Check Type-A	—
	Temporary Rock Silt Check Type-A with Matting and Polyacrylamide (PAM)	—
1633.02	Temporary Rock Silt Check Type-B	—
	Wattle/Coir Fiber Wattle	—
	Wattle/Coir Fiber Wattle with Polyacrylamide (PAM)	—
1634.01	Temporary Rock Sediment Dam Type-A	—
1634.02	Temporary Rock Sediment Dam Type-B	—
1635.01	Rock Pipe Inlet Sediment Trap Type-A	—
1635.02	Rock Pipe Inlet Sediment Trap Type-B	—
1630.04	Stilling Basin	—
1630.06	Special Stilling Basin	—
	Rock Inlet Sediment Trap:	
1632.01	Type A	A
1632.02	Type B	B
1632.03	Type C	C
	Skimmer Basin	—
	Tiered Skimmer Basin	—
	Infiltration Basin	—

GRAPHIC SCALE



THESE EROSION AND SEDIMENT CONTROL PLANS COMPLY WITH THE REGULATIONS SET FORTH BY THE NCG-010000 GENERAL CONSTRUCTION PERMIT EFFECTIVE AUGUST 1, 2016 AND ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY DIVISION OF WATER RESOURCES.

Prepared In the Office of:

HNTB HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200
Raleigh, North Carolina 27609
NC License No: C-1554

Designed by:

NATALIE CHAN, P.E. 3444
NAME LEVEL III CERTIFICATION NO.

Reviewed In the Office of:

ROADSIDE ENVIRONMENTAL UNIT
1 South Wilmington St.
Raleigh, NC 27611

2018 STANDARD SPECIFICATIONS

Reviewed by:

JERRY YARBOROUGH
JASON BULLARD

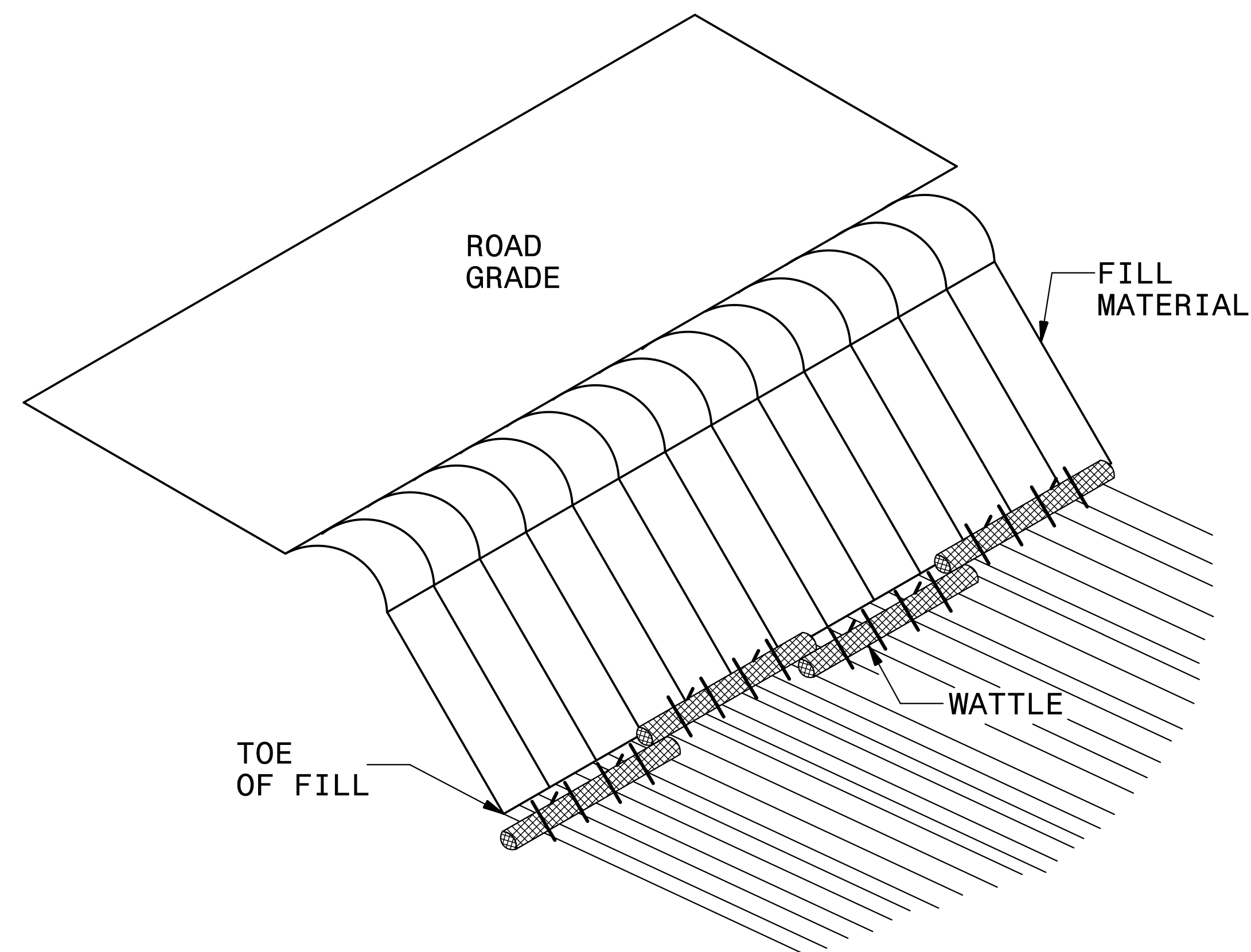
Roadway Standard Drawings

The following roadway english standards as appear in "Roadway Standard Drawings"- Roadway Design Unit - N. C. Department of Transportation - Raleigh, N. C., dated January 2018 and the latest revision thereto are applicable to this project and by reference hereby are considered a part of these plans.

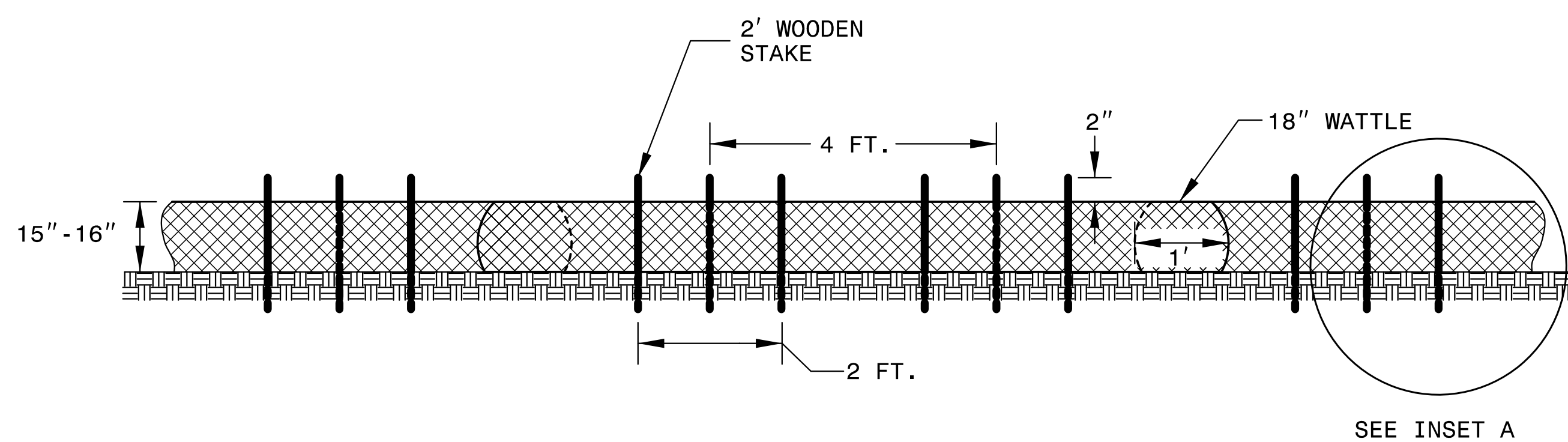
1604.01	Railroad Erosion Control Detail	1632.01	Rock Inlet Sediment Trap Type A
1605.01	Temporary Silt Fence	1632.02	Rock Inlet Sediment Trap Type J
1606.01	Special Sediment Control Fence	1632.03	Rock Inlet Sediment Trap Type C
1607.01	Gravel Construction Entrance	1633.01	Temporary Rock Silt Check Type A
1622.01	Temporary Berms and Slope Drains	1633.02	Temporary Rock Silt Check Type J
1630.01	Riser Basin	1634.01	Temporary Rock Sediment Dam Type A
1630.02	Silt Basin Type J	1634.02	Temporary Rock Sediment Dam Type J
1630.03	Temporary Silt Ditch	1635.01	Rock Pipe Inlet Sediment Trap Type A
1630.04	Stilling Basin	1635.02	Rock Pipe Inlet Sediment Trap Type J
1630.05	Temporary Diversion	1640.01	Coir Fiber Wattle
1630.06	Special Stilling Basin	1645.01	Temporary Stream Crossing
1631.01	Matting Installation		

PROJECT REFERENCE NO. 17BP.3.R.66	SHEET NO. EC-2
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

COIR FIBER WATTLE BARRIER DETAIL



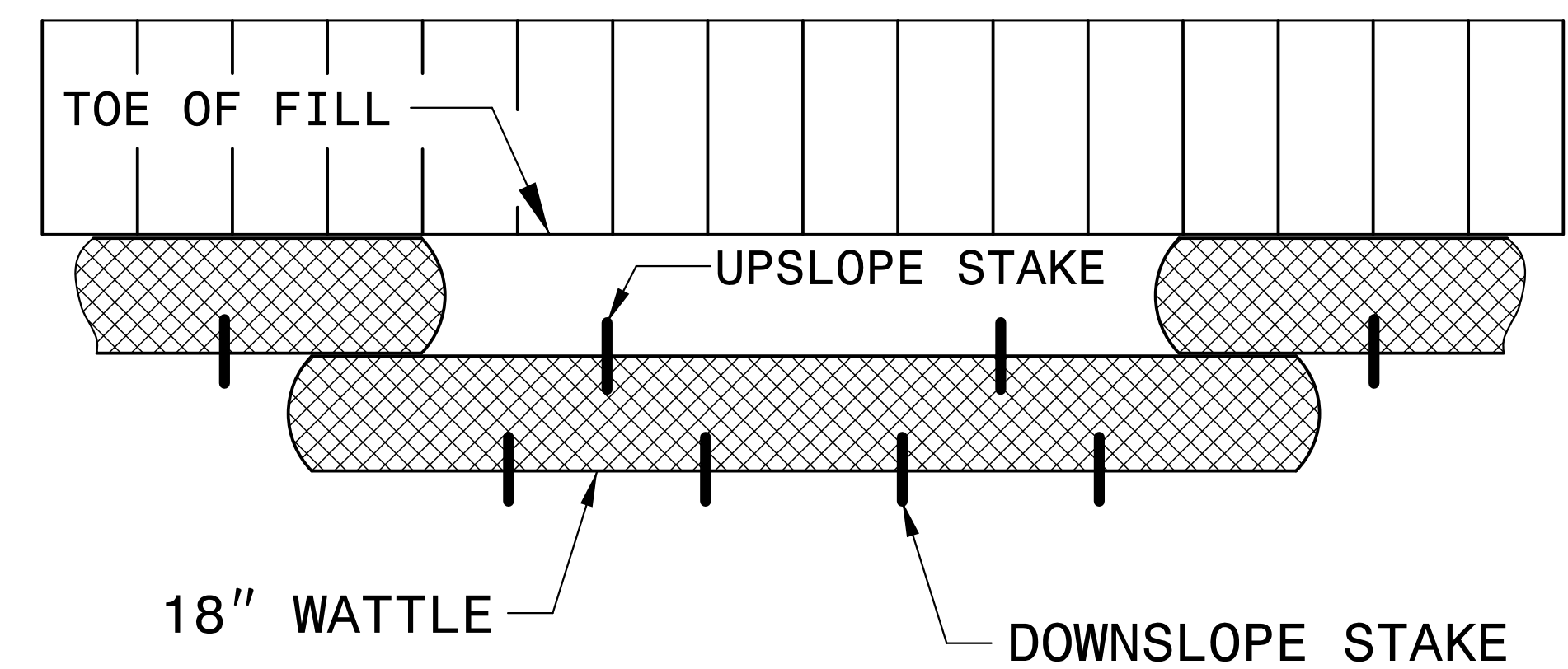
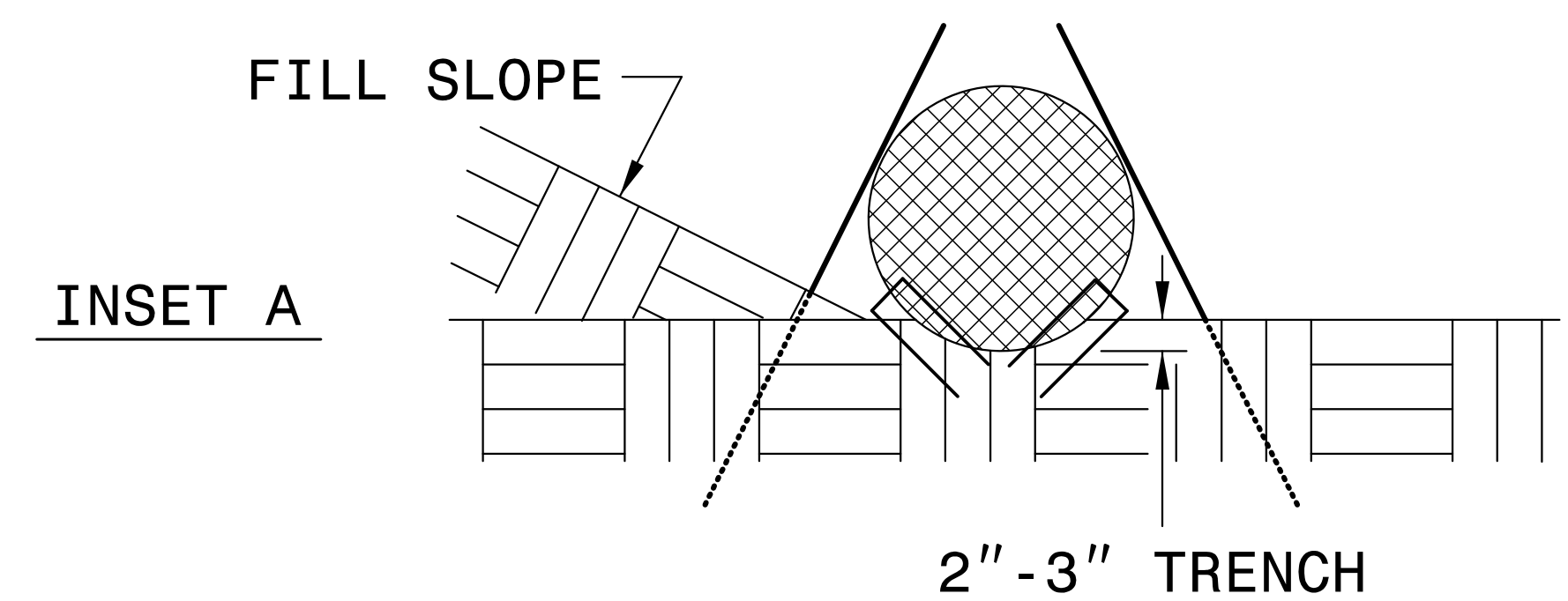
ISOMETRIC VIEW



FRONT VIEW

NOTES:

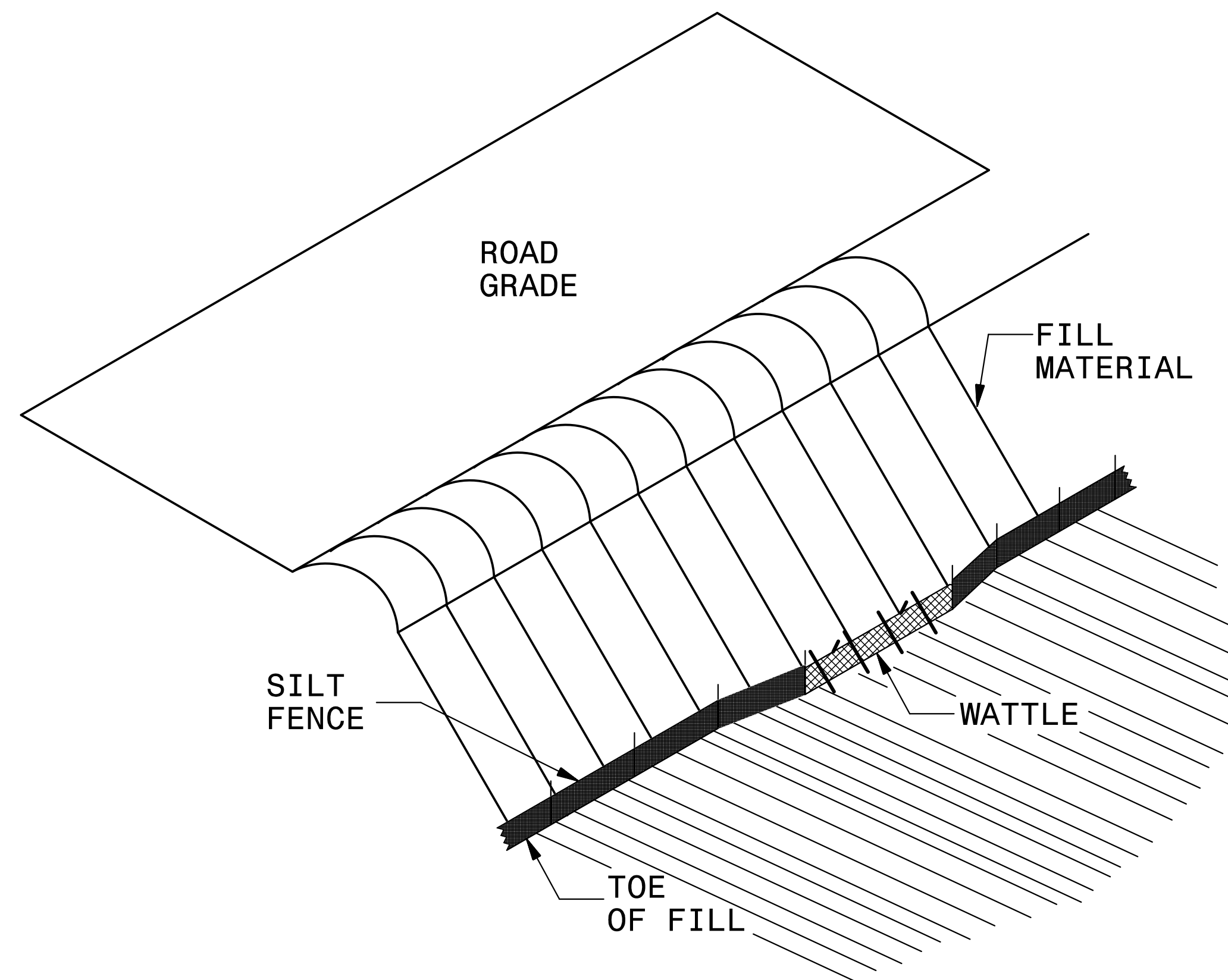
- USE MINIMUM 18 IN. NOMINAL DIAMETER COIR FIBER (COCONUT) WATTLE AND LENGTH OF 10 FT.
- EXCAVATE A 2 TO 3 INCH TRENCH FOR WATTLE TO BE PLACED.
- DO NOT PLACE WATTLES ON TOE OF SLOPE.
- USE 2 FT. WOODEN STAKES WITH A 2 IN. BY 2 IN. NOMINAL CROSS SECTION.
- INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO GROUND.
- PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12" IN LENGTH.
- INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.
- FOR BREAKS ALONG LARGE SLOPES, USE MAXIMUM SPACING OF 25 FT.



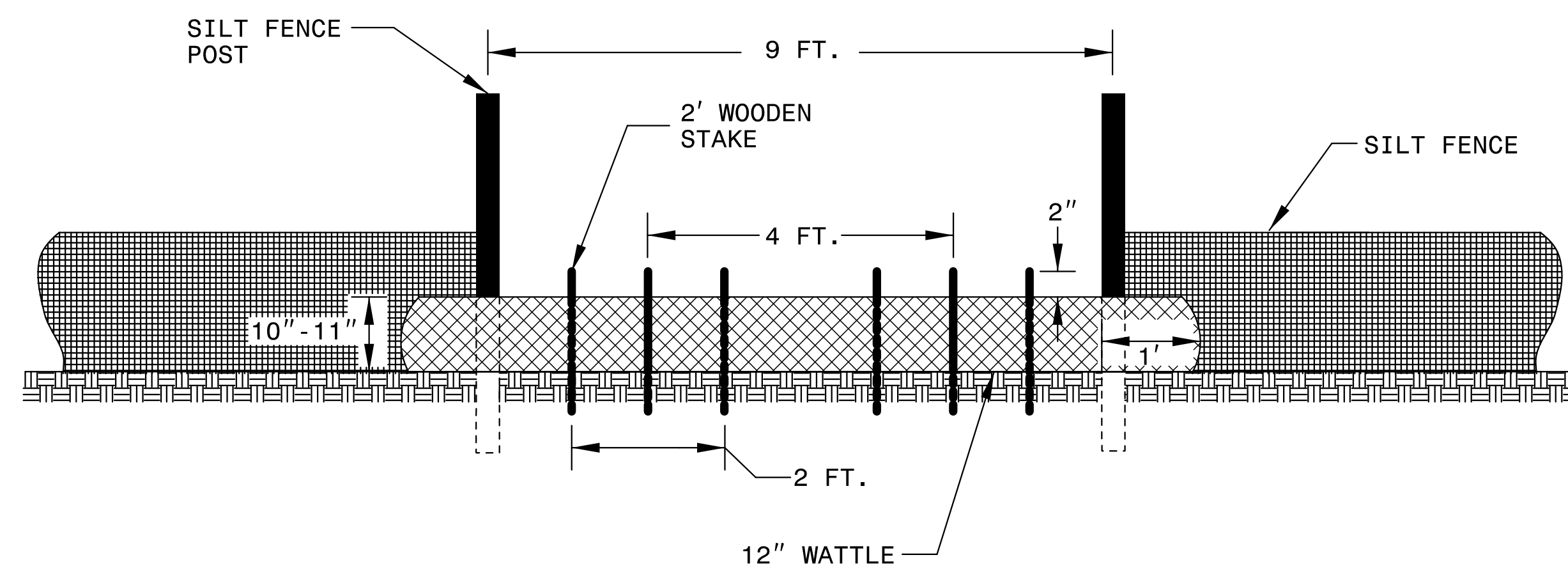
TOP VIEW

SILT FENCE COIR FIBER WATTLE BREAK DETAIL

PROJECT REFERENCE NO. 17BP-3.R.66	SHEET NO. EC-2A
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



ISOMETRIC VIEW

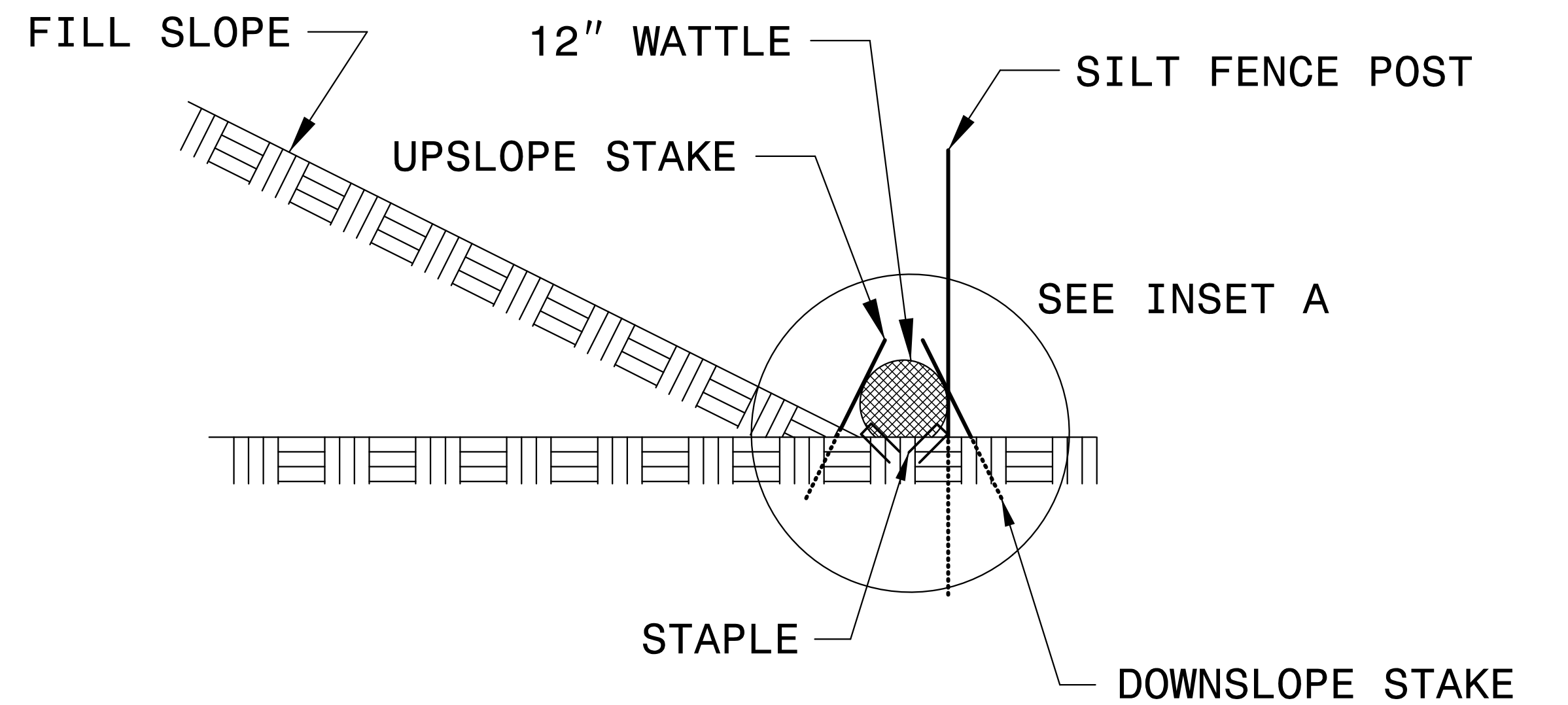
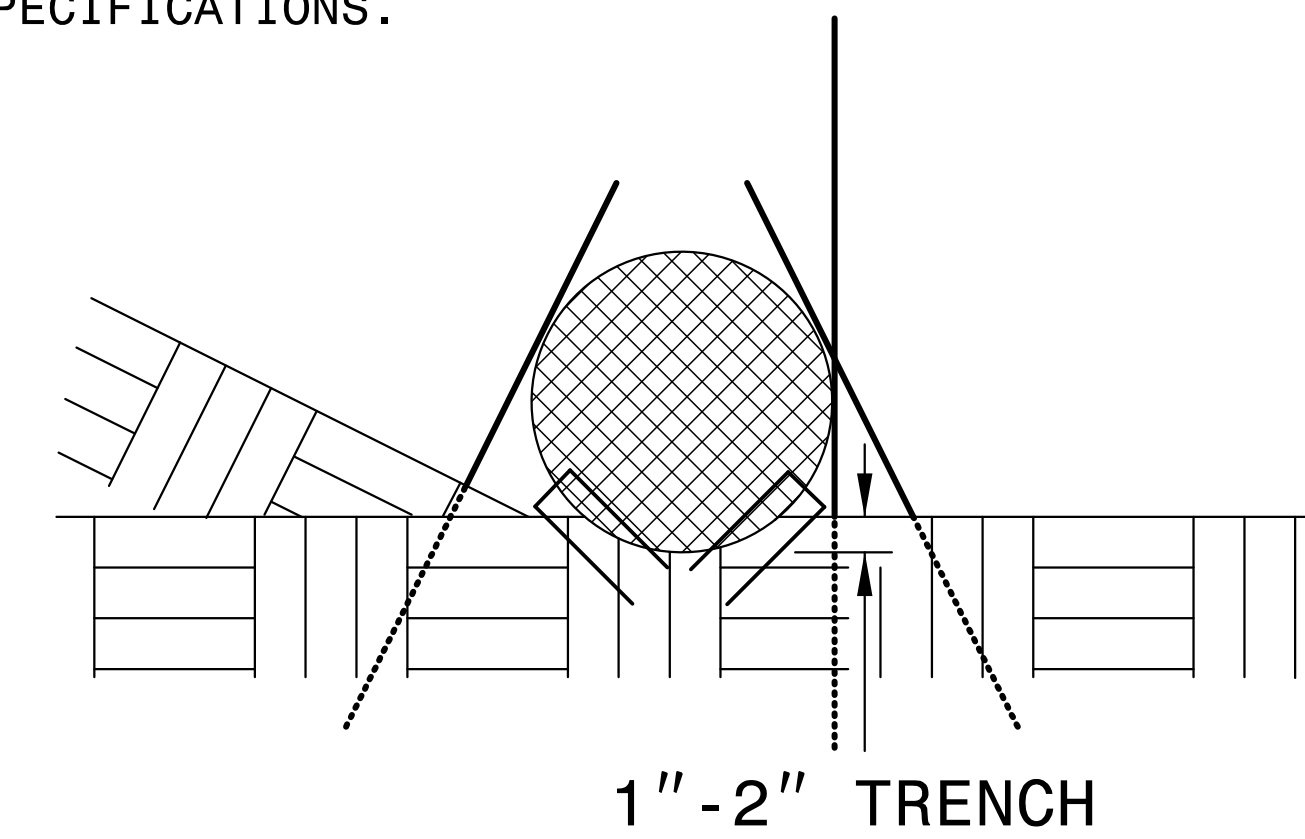


VIEW FROM SLOPE

NOTES:

- USE MINIMUM 12 IN. DIAMETER COIR FIBER (COCONUT FIBER) WATTLE AND LENGTH OF 10 FT.
- EXCAVATE A 1 TO 2 INCH TRENCH FOR WATTLE TO BE PLACED.
- DO NOT PLACE WATTLE ON TOE OF SLOPE.
- USE 2 FT. WOODEN STAKES WITH A 2 IN. BY 2 IN. NOMINAL CROSS SECTION.
- INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO GROUND.
- PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12" IN LENGTH.
- INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.
- WATTLE INSTALLATION CAN BE ON OUTSIDE OF THE SILT FENCE AS DIRECTED.
- INSTALL TEMPORARY SILT FENCE IN ACCORDANCE WITH SECTION 1605 OF THE STANDARD SPECIFICATIONS.

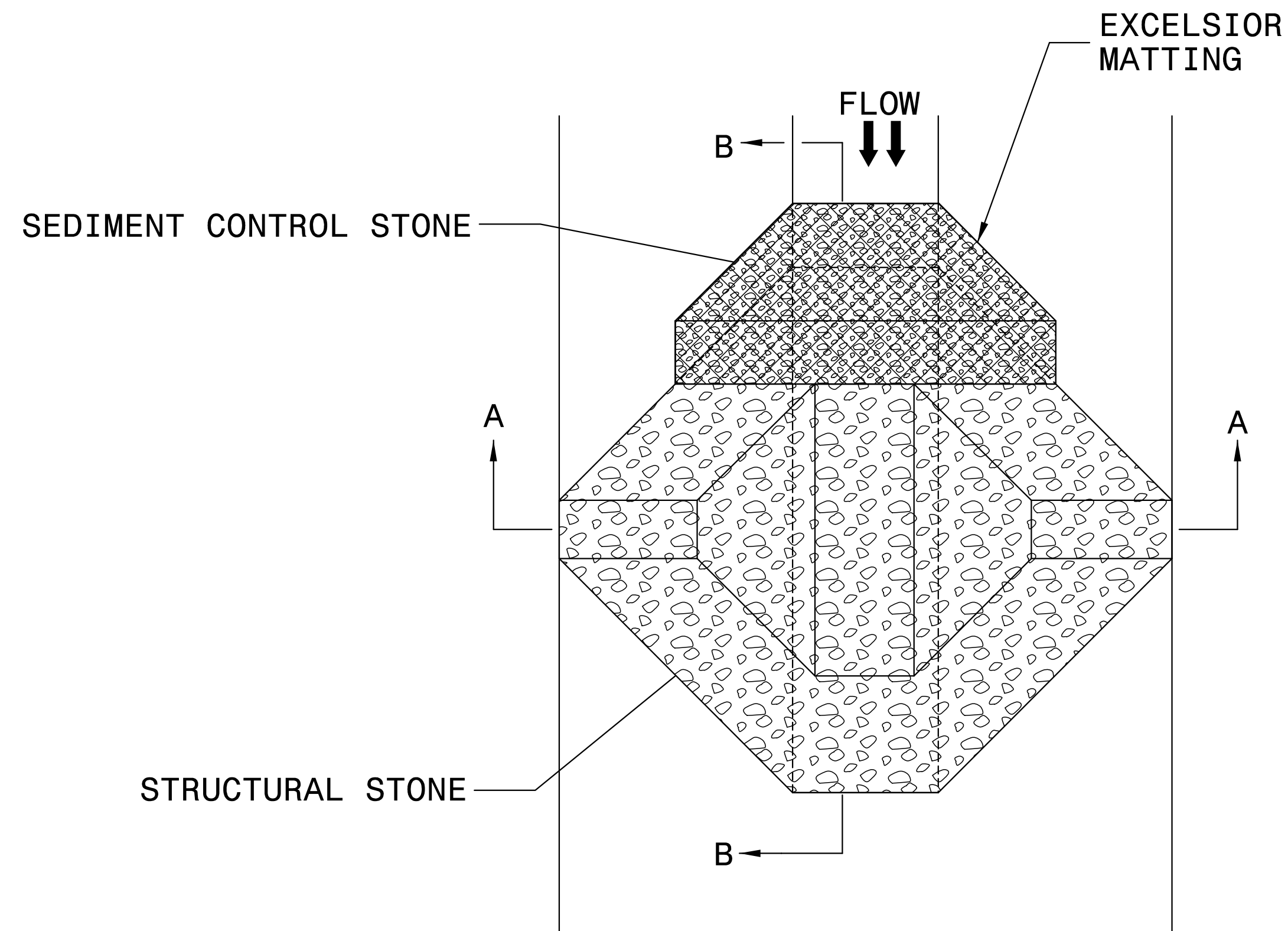
INSET A



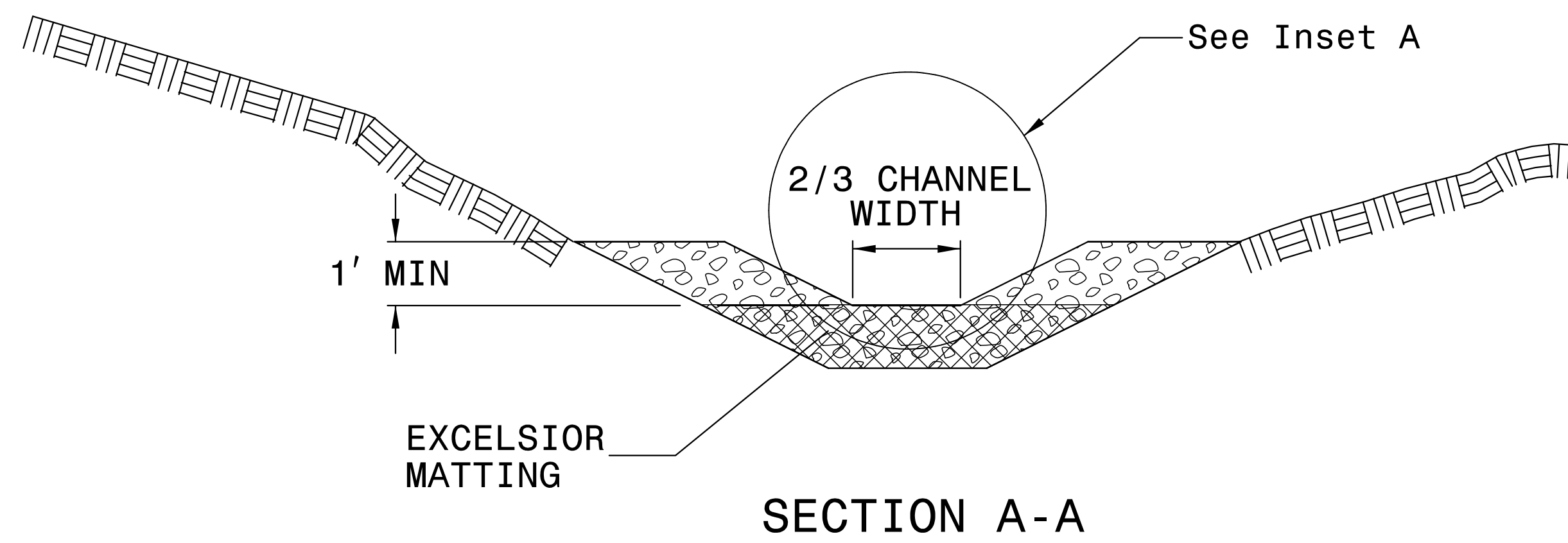
SIDE VIEW

TEMPORARY ROCK SILT CHECK TYPE 'A' WITH EXCELSIOR MATTING AND POLYACRYLAMIDE (PAM)

PROJECT REFERENCE NO. 17BP.3.R.66	SHEET NO. EC-2B
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



PLAN



SECTION A-A

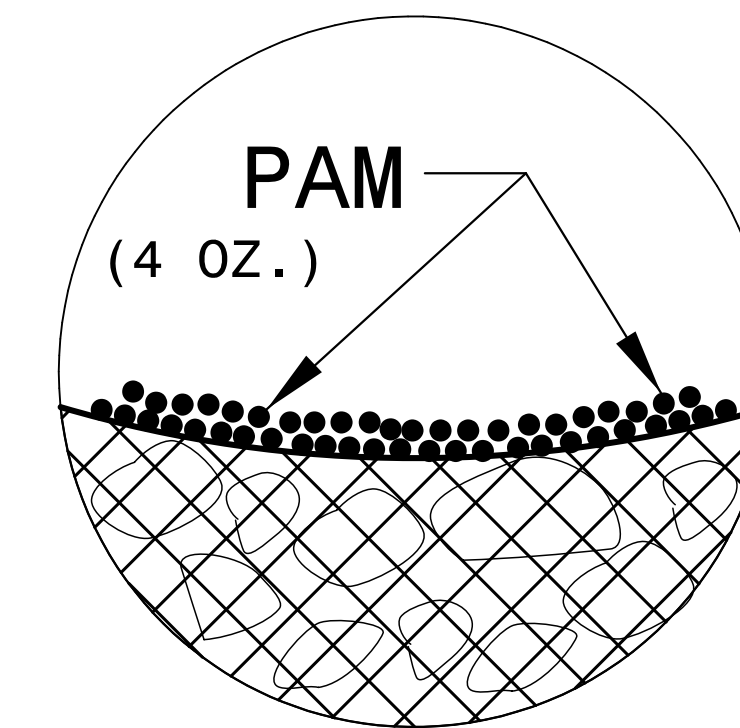
NOTES:

INSTALL TEMPORARY ROCK SILT CHECK TYPE A IN ACCORDANCE WITH ROADWAY STANDARD DRAWING NO. 1633.01.

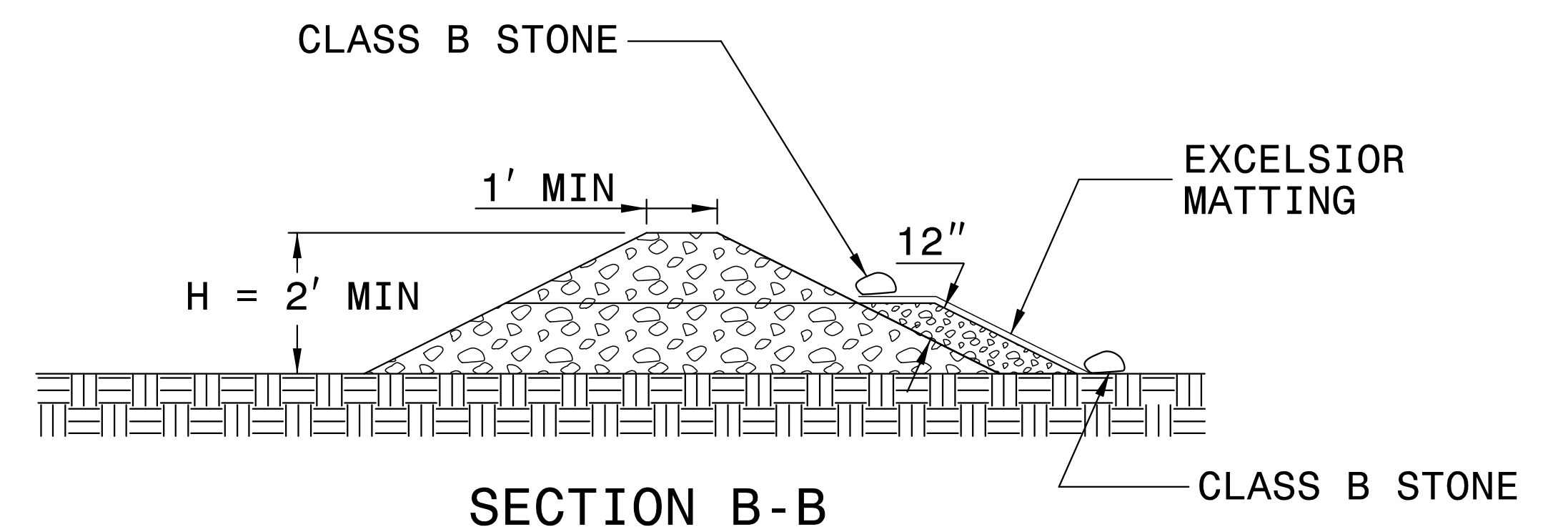
USE EXCELSIOR FOR MATTING MATERIAL AND ANCHOR MATTING SECTION AT TOP AND BOTTOM WITH CLASS B STONE.

PRIOR TO POLYACRYLAMIDE (PAM) APPLICATION, OBTAIN A SOIL SAMPLE FROM PROJECT LOCATION, AND FROM OFFSITE MATERIAL, AND ANALYZE FOR APPROPRIATE PAM FLOCCULANT TO BE APPLIED TO EACH ROCK SILT CHECK.

INITIALLY APPLY 4 OUNCES OF POLYACRYLAMIDE (PAM) TO TOP OF MATTING SECTION AND AFTER EVERY RAINFALL EVENT THAT EQUALS OR EXCEEDS 0.50 INCHES.



INSET A



SECTION B-B

NOT TO SCALE

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

PROJECT REFERENCE NO. <i>17BP.3.R.66</i>	SHEET NO. <i>EC-3A</i>
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

SOIL STABILIZATION TIMEFRAMES

<i>SITE DESCRIPTION</i>	<i>STABILIZATION TIME</i>	<i>TIMEFRAME EXCEPTIONS</i>
PERIMETER DIKES, SWALES, DITCHES AND SLOPES	7 DAYS	NONE
HIGH QUALITY WATER (HQW) ZONES	7 DAYS	NONE
SLOPES STEEPER THAN 3:1	7 DAYS	IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED.
SLOPES 3:1 OR FLATTER	14 DAYS	7 DAYS FOR SLOPES GREATER THAN 50' IN LENGTH.
ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1	14 DAYS	NONE, EXCEPT FOR PERIMETERS AND HQW ZONES.

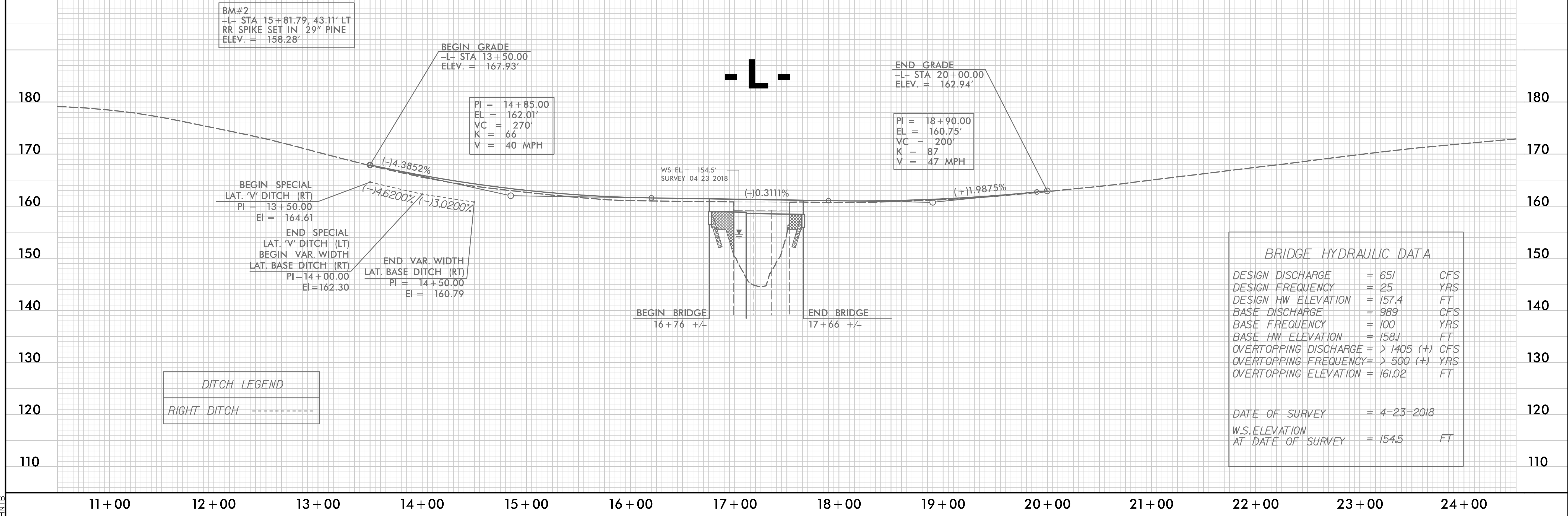
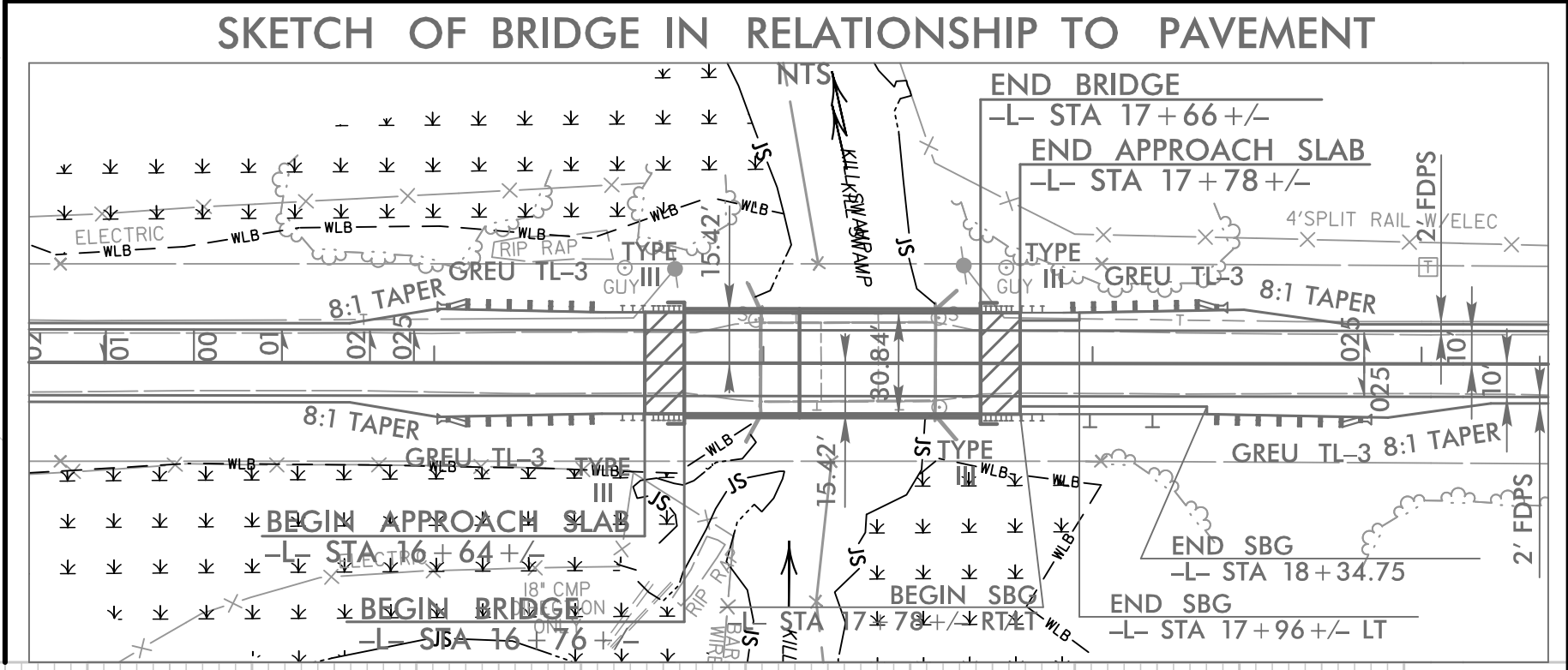
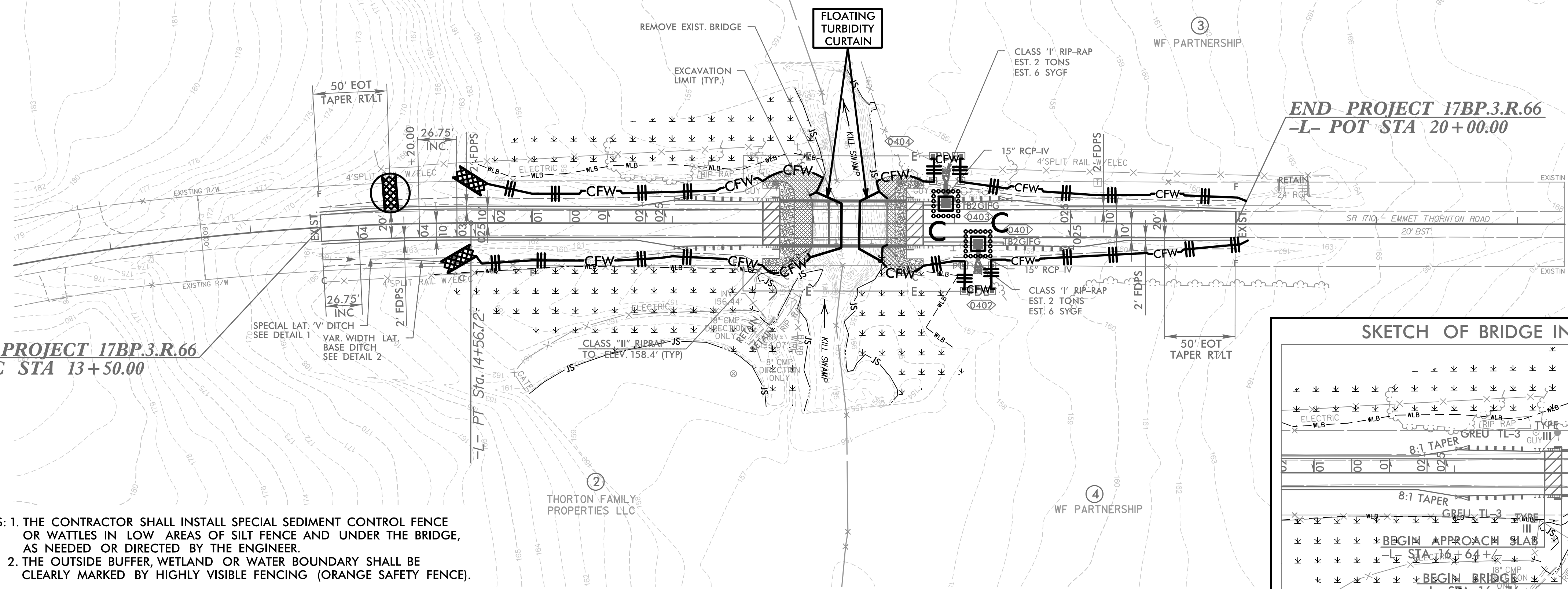
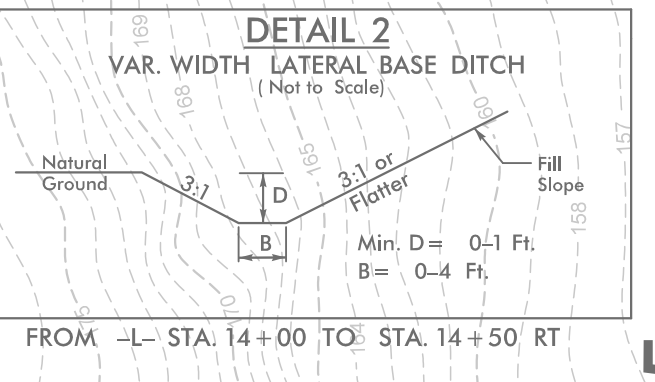
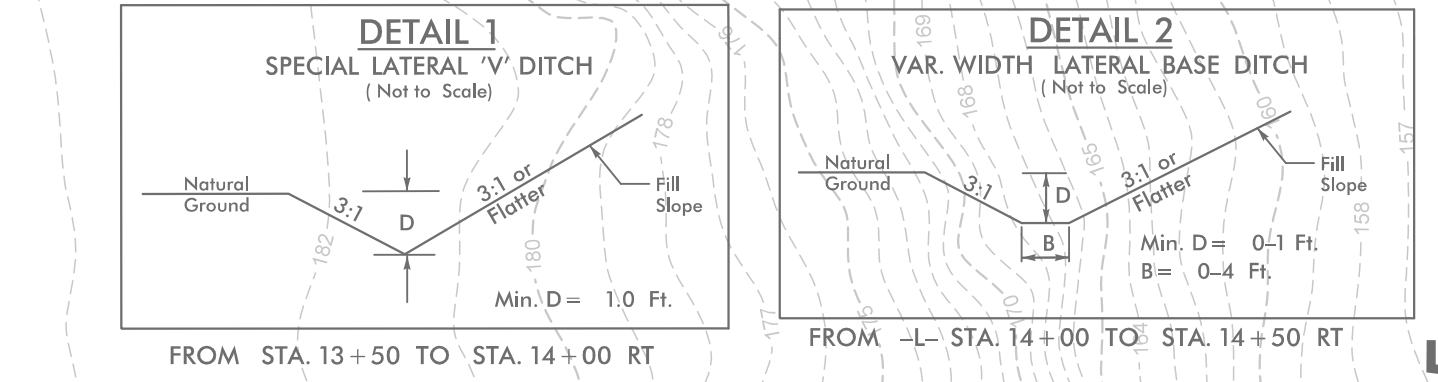
PROJECT REFERENCE NO. 17BP.3.R.66	SHEET NO. EC-4/CONST.4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NAD 83/NA 2011

BEGIN PROJECT 17BP.3.R.66
-L- POC STA 13+50.00

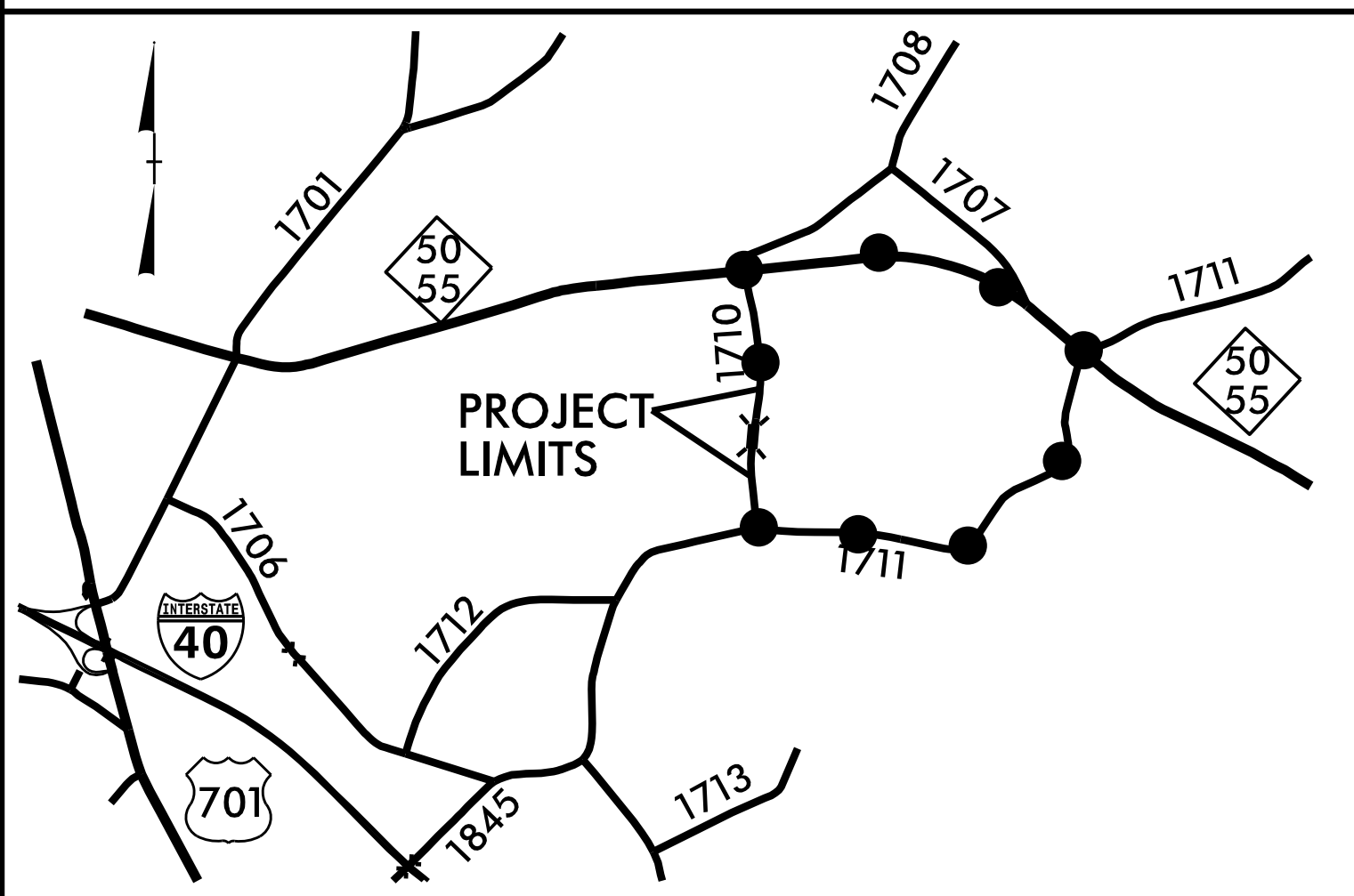
END PROJECT 17BP.3.R.66
-L- POT STA 20+00.00

- NOTES: 1. THE CONTRACTOR SHALL INSTALL SPECIAL SEDIMENT CONTROL FENCE OR WATTLES IN LOW AREAS OF SILT FENCE AND UNDER THE BRIDGE, AS NEEDED OR DIRECTED BY THE ENGINEER.
2. THE OUTSIDE BUFFER, WETLAND OR WATER BOUNDARY SHALL BE CLEARLY MARKED BY HIGHLY VISIBLE FENCING (ORANGE SAFETY FENCE).



09/20/08/49

TIP PROJECT: 17BP.3.R.66



VICINITY MAP ● — ● — ● OFFSITE DETOUR

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

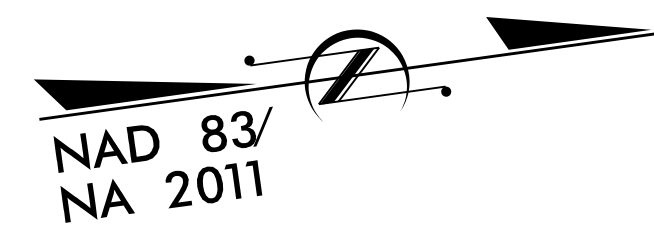
**UTILITIES BY OTHERS PLANS
SAMPSON COUNTY**

LOCATION: REPLACE BRIDGE NO. 213 OVER KILL SWAMP
ON SR 1770 (EMMET THORNTON ROAD)

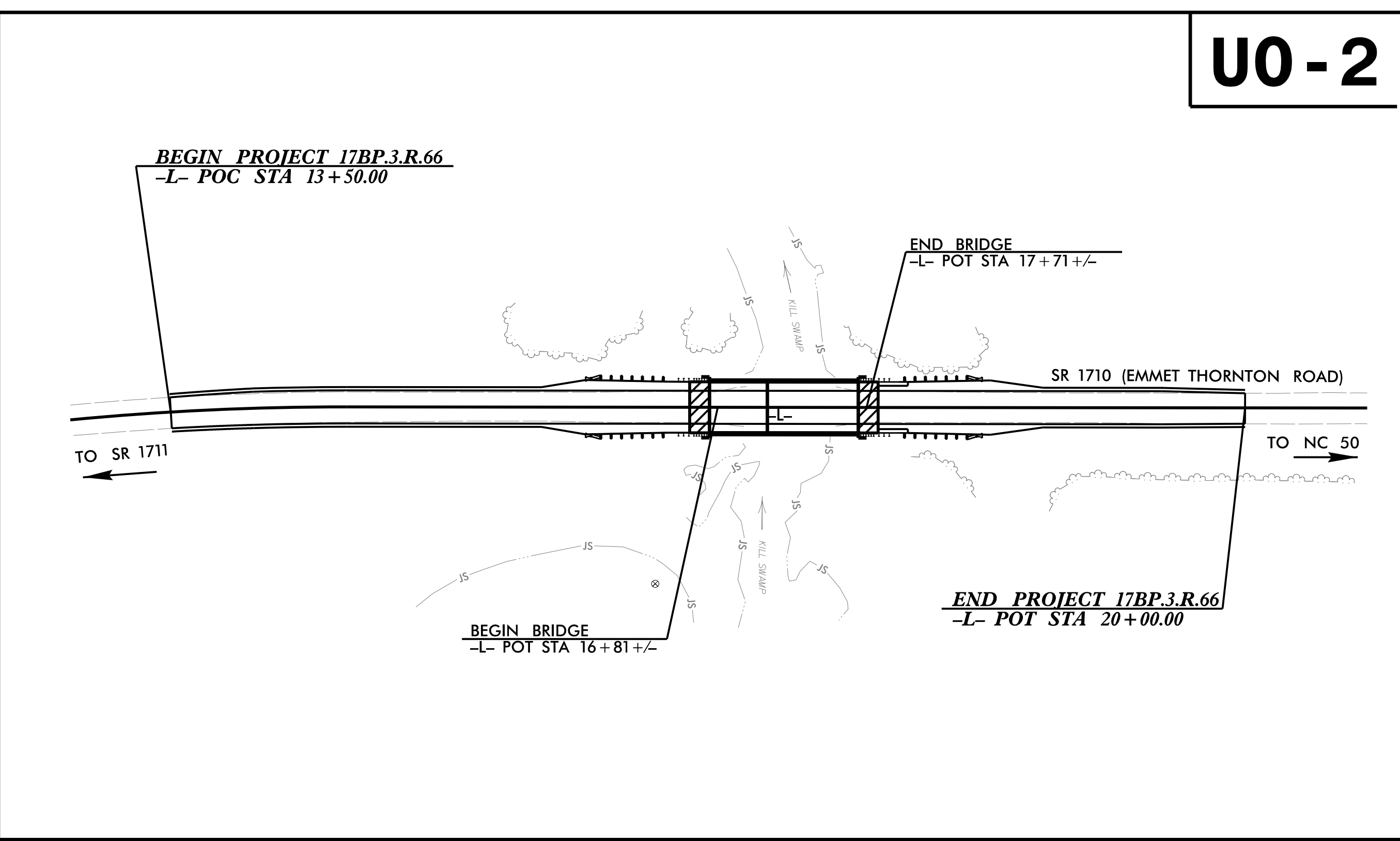
TYPE OF WORK: RELOCATE TELEPHONE

T.I.P. NO.	SHEET NO.
17BP.3.R.66	UO-1

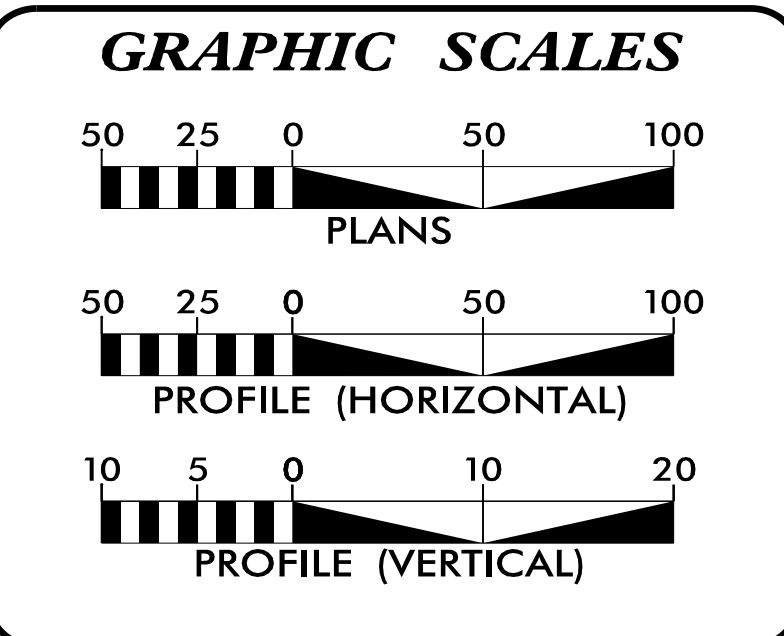
NOTE:
ALL UTILITY WORK SHOWN ON THIS SHEET WILL BE DONE BY OTHERS. NO PAYMENT WILL BE MADE TO THE CONTRACTOR FOR UTILITY WORK SHOWN ON THIS SHEET.



UO-2



5/16/2019 10:55:06 AM 5:46:24 AM
L:\055\0696\026\12300_Sampson BR-213\Roadway\Proj\UCoord\17BP.3.R.66_BR213_UO-1.tsh.dgn



INDEX OF SHEETS

SHEET NO.:	DESCRIPTION:
UO-1	TITLE SHEET
UO-2	UBO PLAN SHEET

UTILITY OWNERS WITH CONFLICTS

(A) PHONE - CENTURYLINK

PREPARED IN THE OFFICE OF:

M A Engineering Consultants, Inc.
598 East Chatham Street - Suite 137
Cary, NC 27511
Phone: 919.297.0220 Fax: 919.297.0221
NC License: F-0160

WEBB WHITE	UTILITY PROJECT MANAGER
LONNY SLEEPER	DIVISION UTILITY ENGINEER
STEVE DAVIS	PROJECT UTILITY COORDINATOR

DIVISION OF HIGHWAYS
DIVISION 03

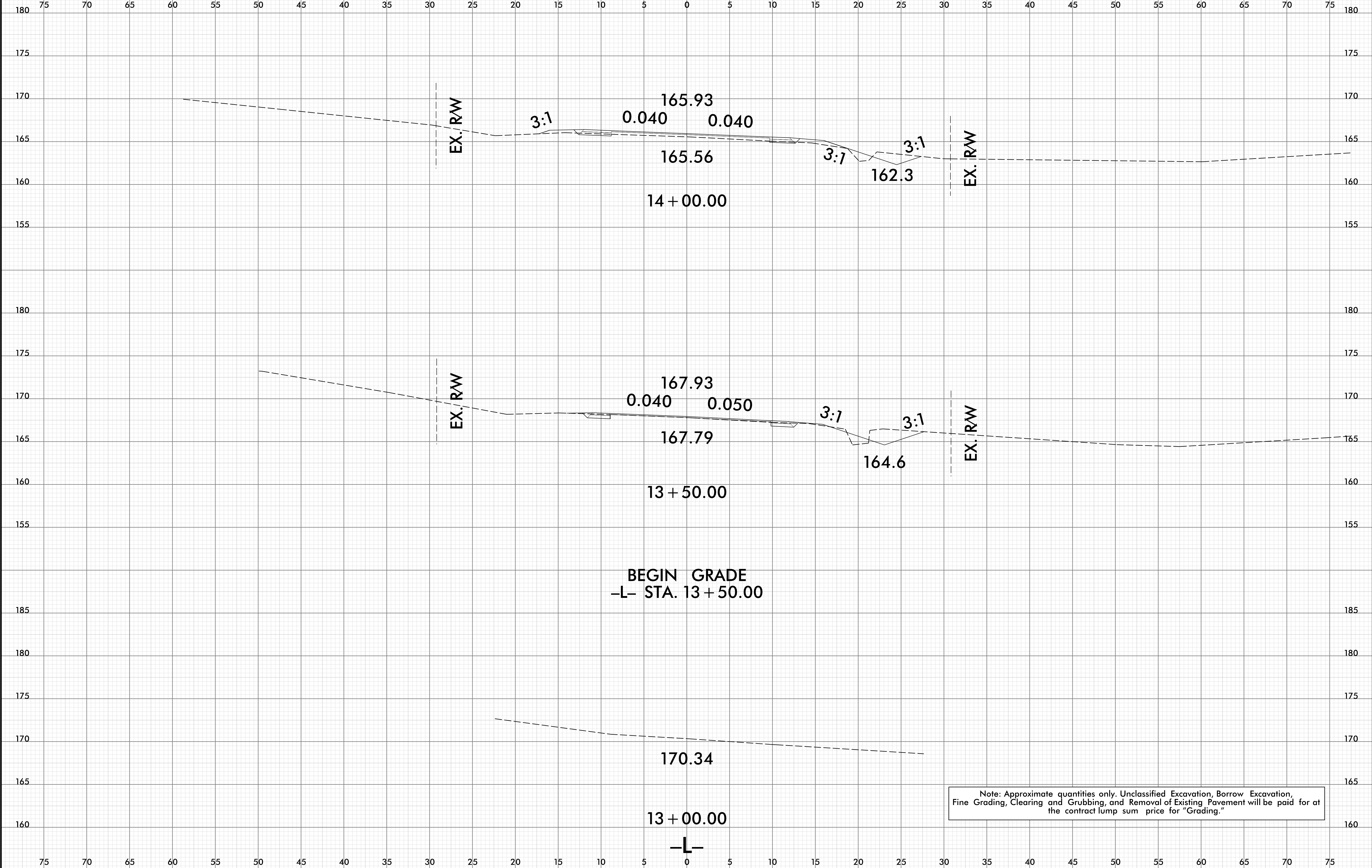
DIV ADDRESS
5501 BARBADOS BLVD
CASTLE HAYNE, NC 28429

DEREK PIELECH, P.E.
BRIDGE PROGRAM MANAGER
DIVISION 3
NCDOT

6/23/16



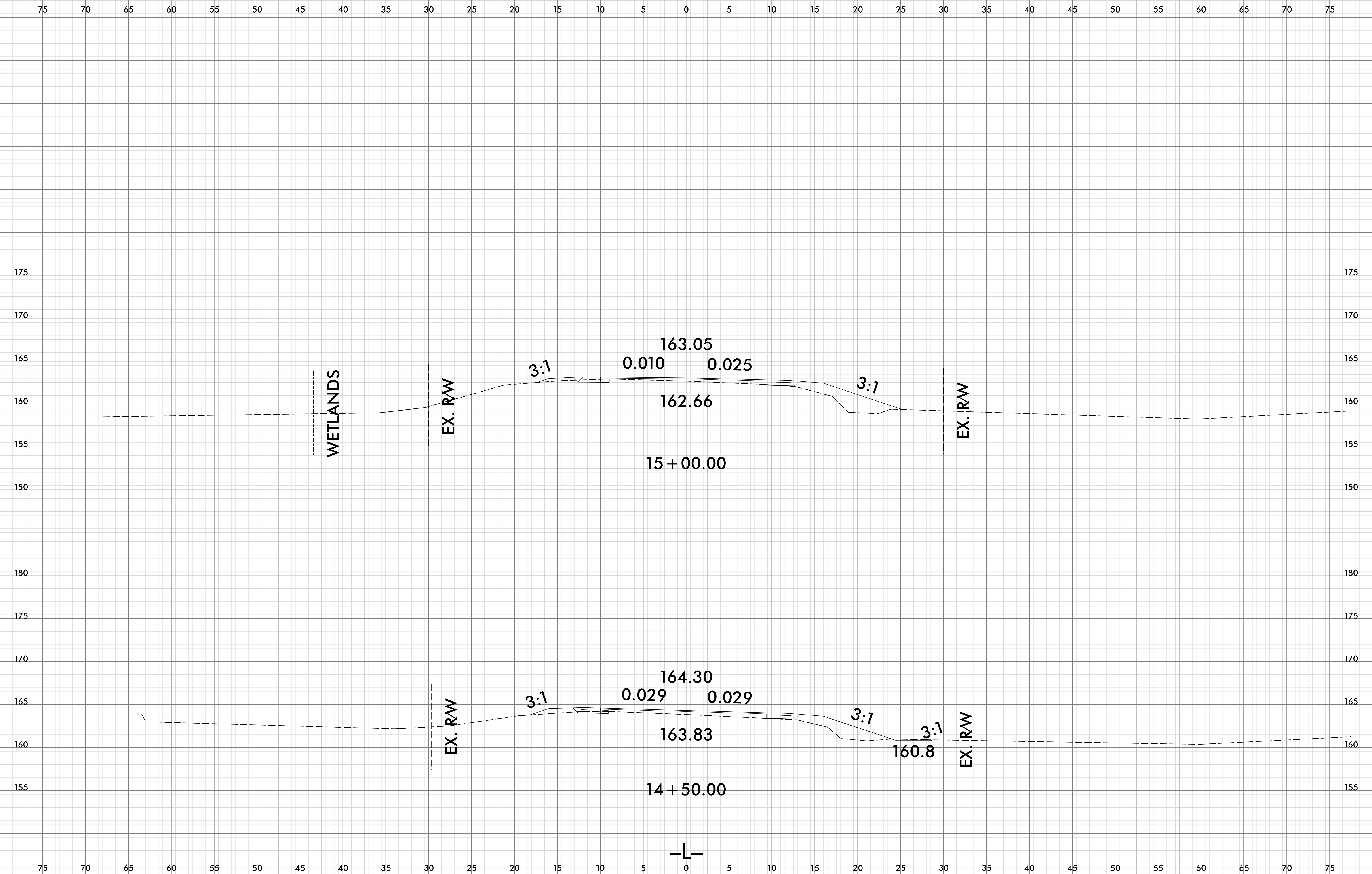
PROJ. REFERENCE NO.	SHEET NO.
17BP.3.R.66	X-1

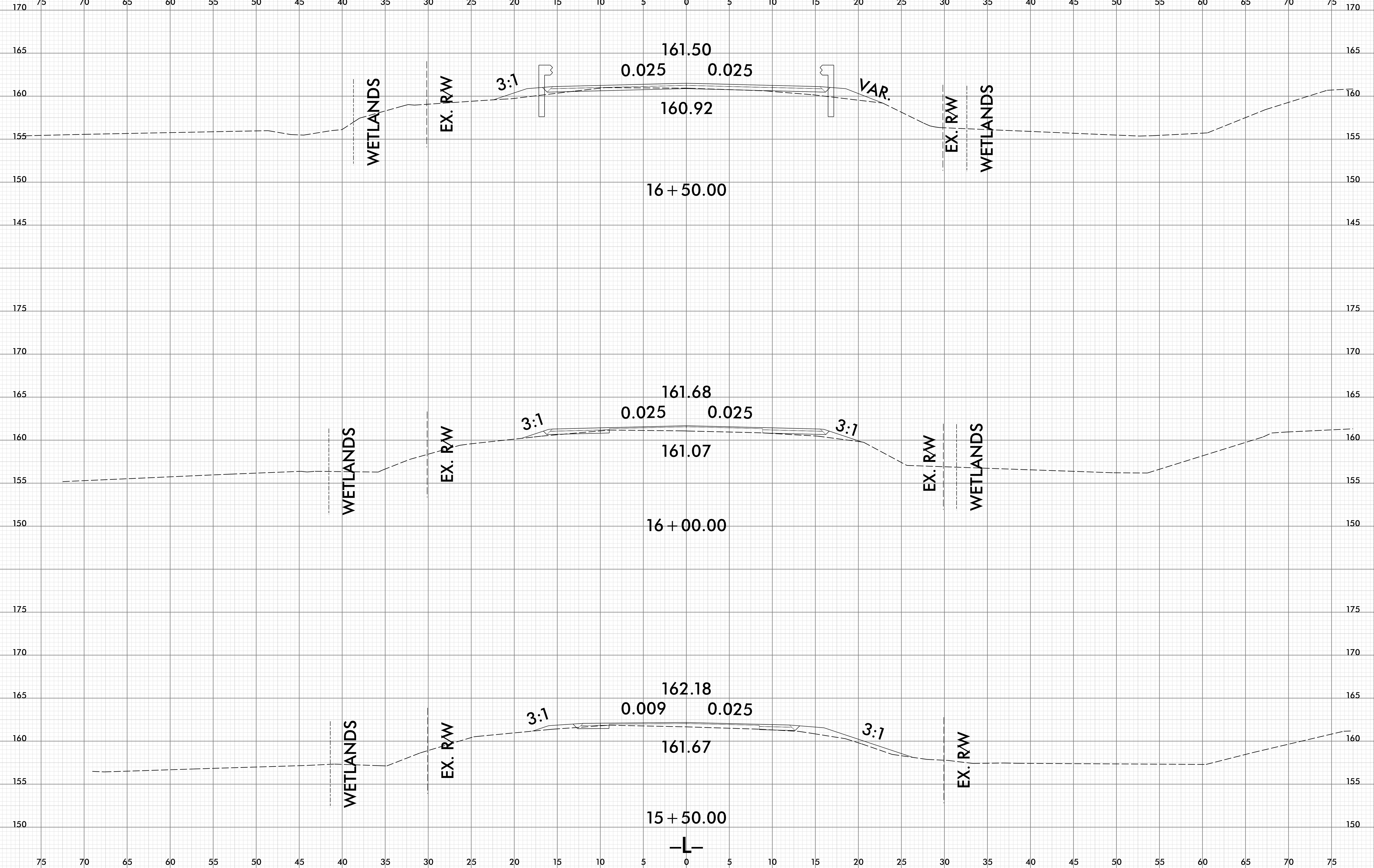


BEGIN GRADE
-L- STA. 13 + 50.00

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."

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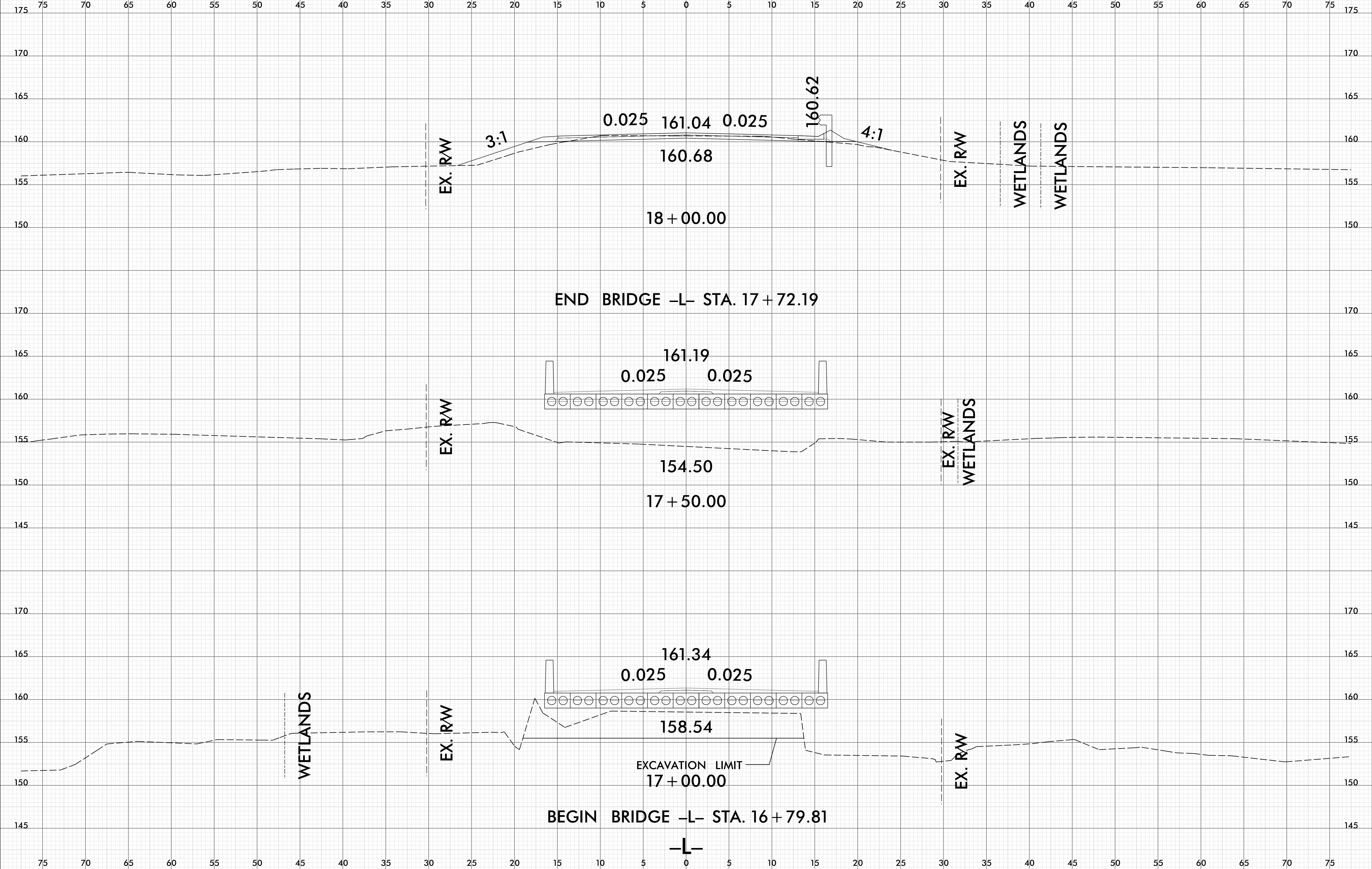




6/23/16



PROJ. REFERENCE NO.	SHEET NO.
17BP.3.R.66	X-4

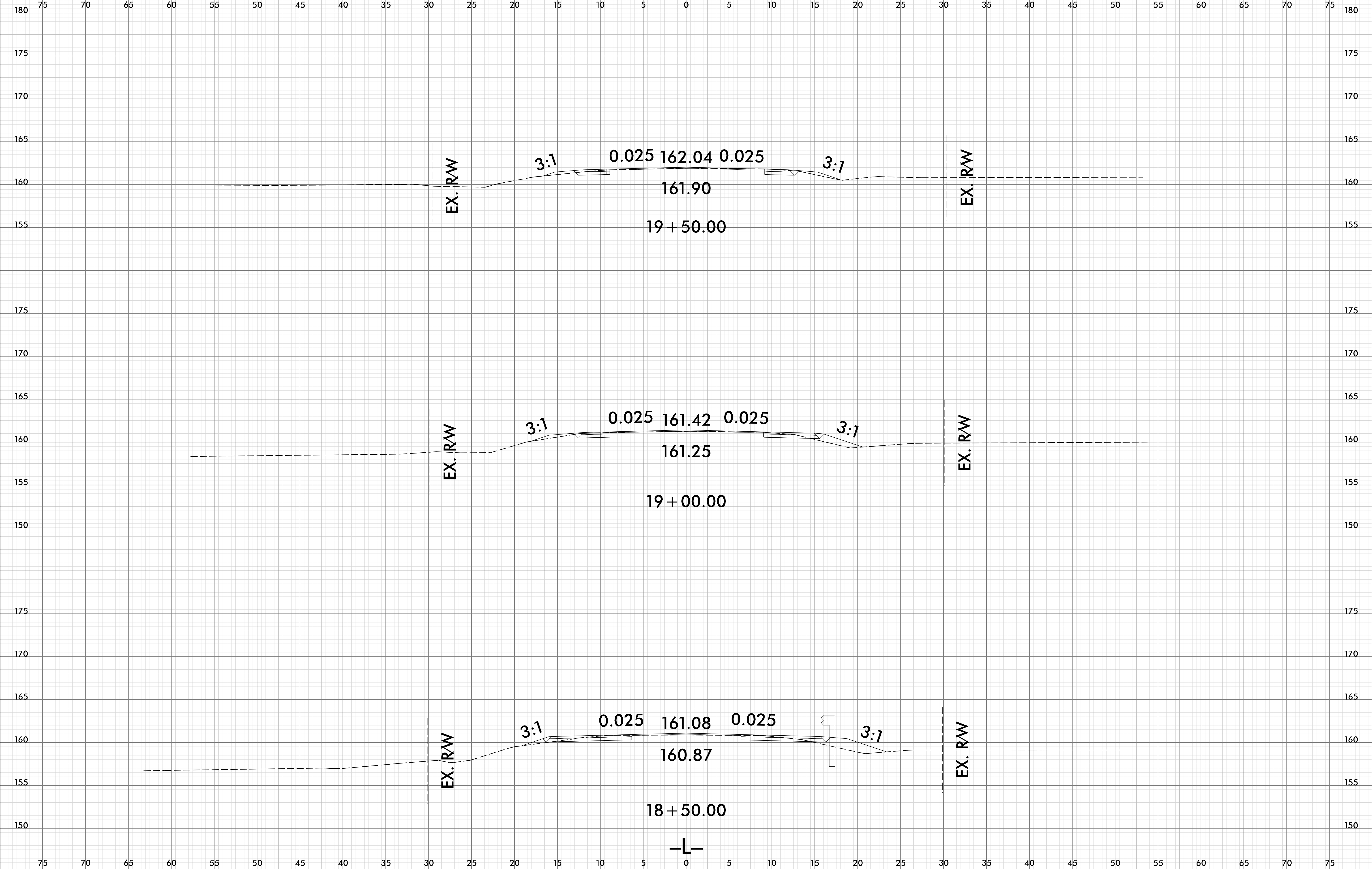


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INTB

6/23/16



PROJ. REFERENCE NO.	SHEET NO.
17BP.3.R.66	X-5



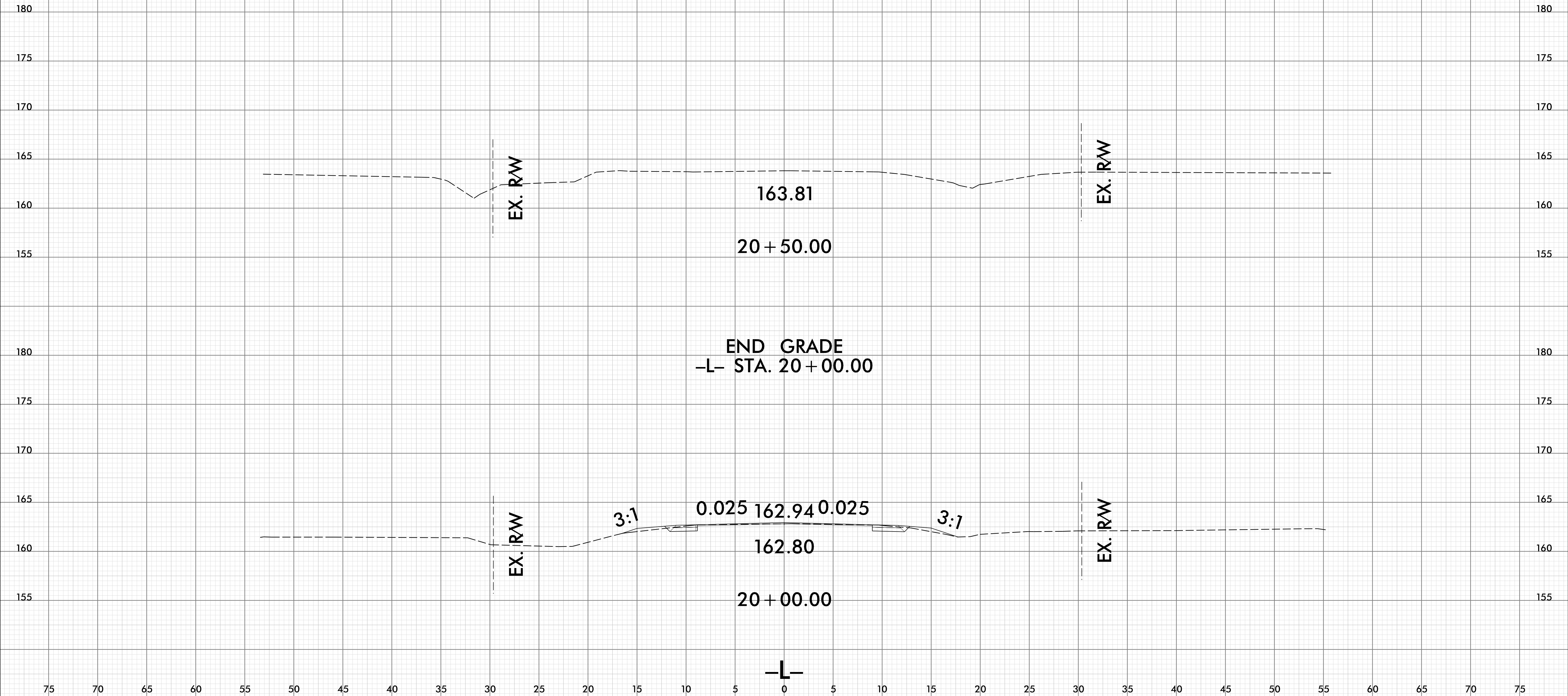
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6/23/16

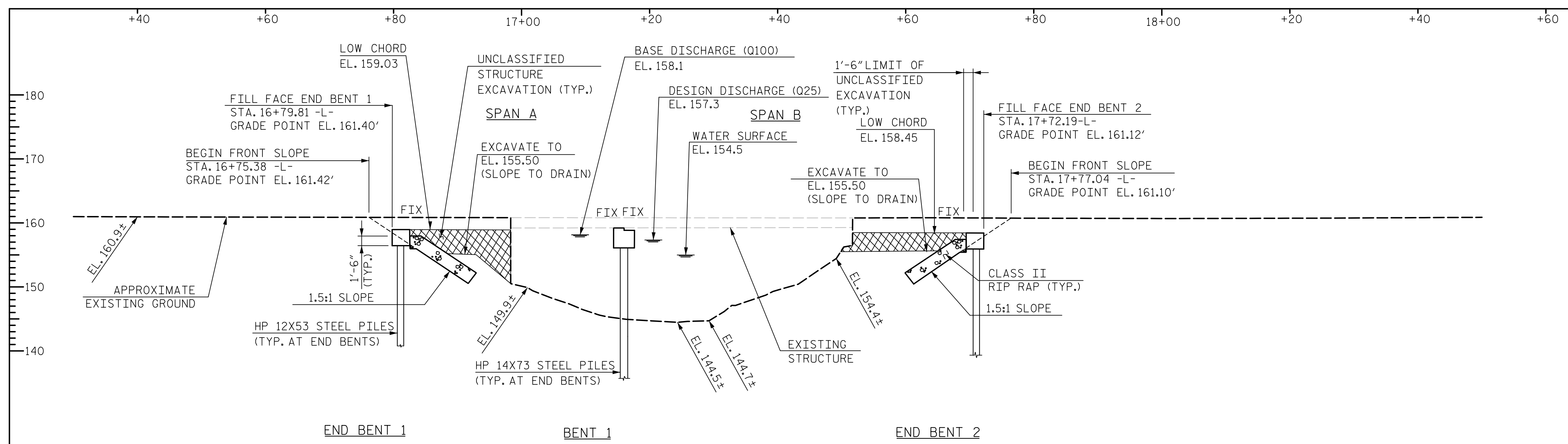


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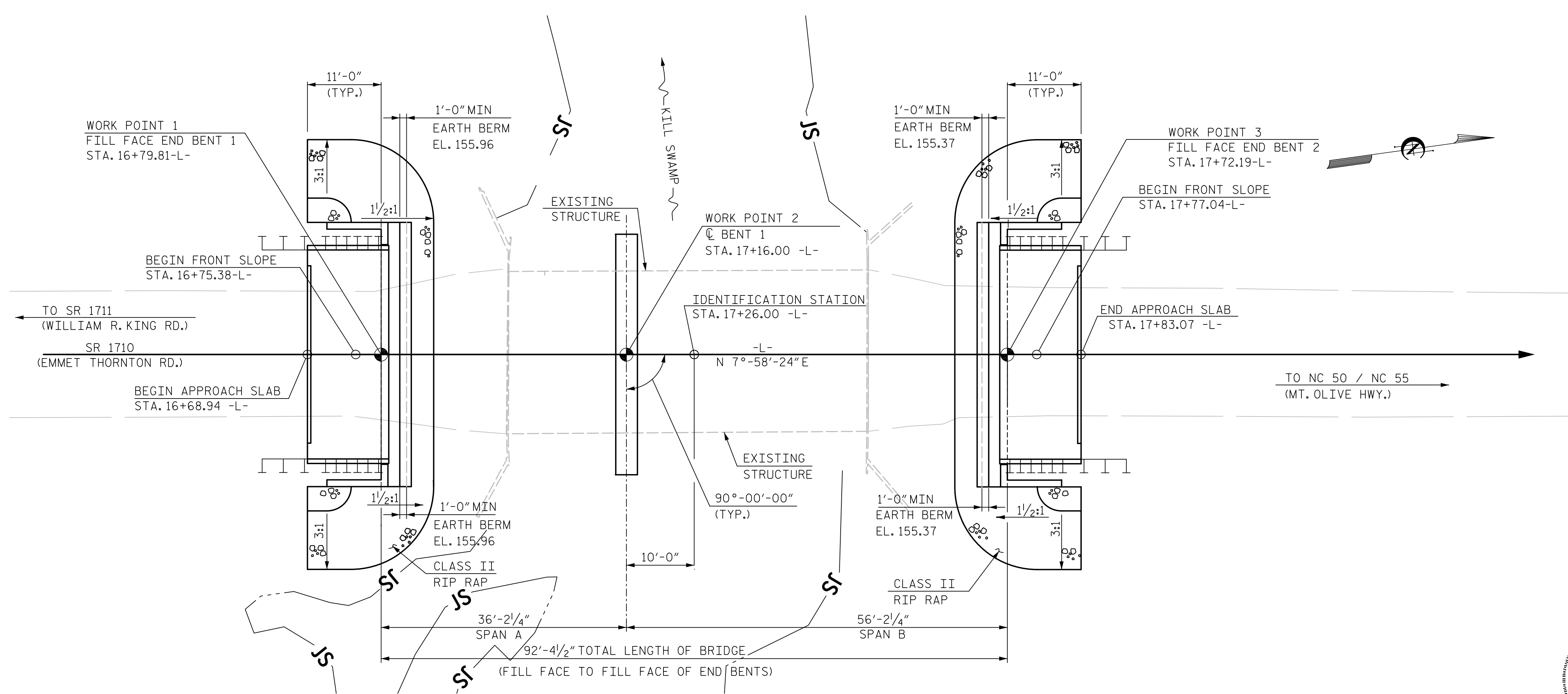
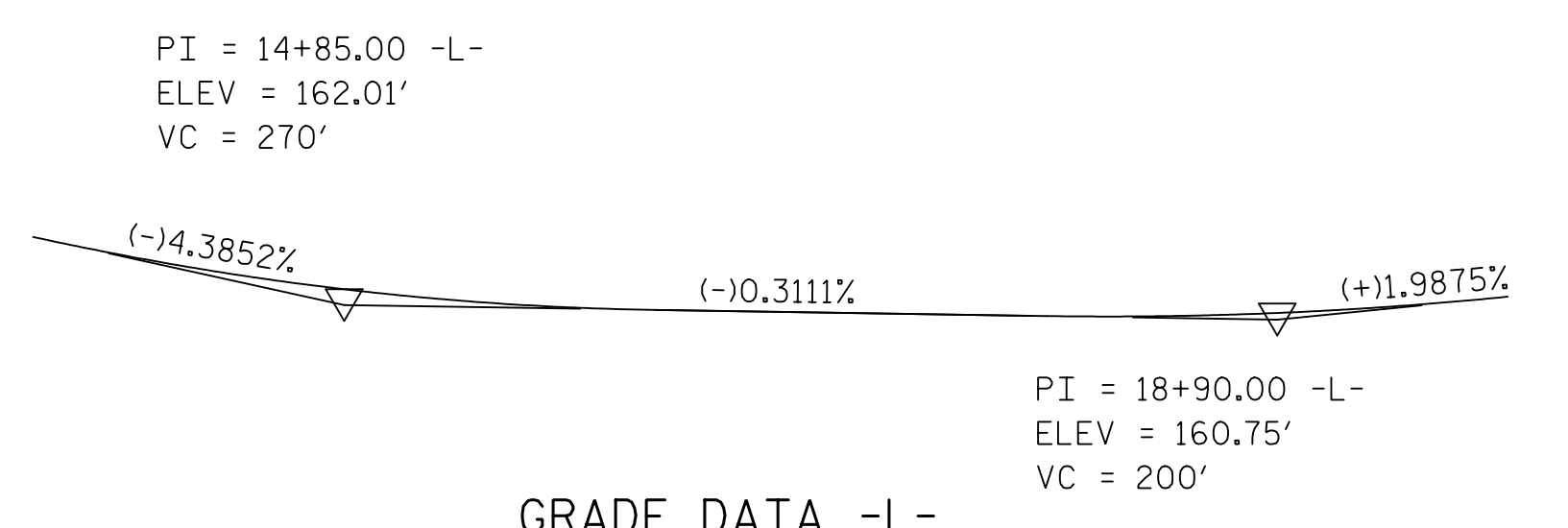
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 INTB



SECTION ALONG -L-



PLAN

I HEREBY CERTIFY THESE PLANS ARE AS-BUILT PLANS

PROJECT NO. 17BP.3.R.66
 SAMPSON COUNTY
 STATION: 17+26.00 -L-

SHEET 1 OF 2 (REPLACES BR 213)

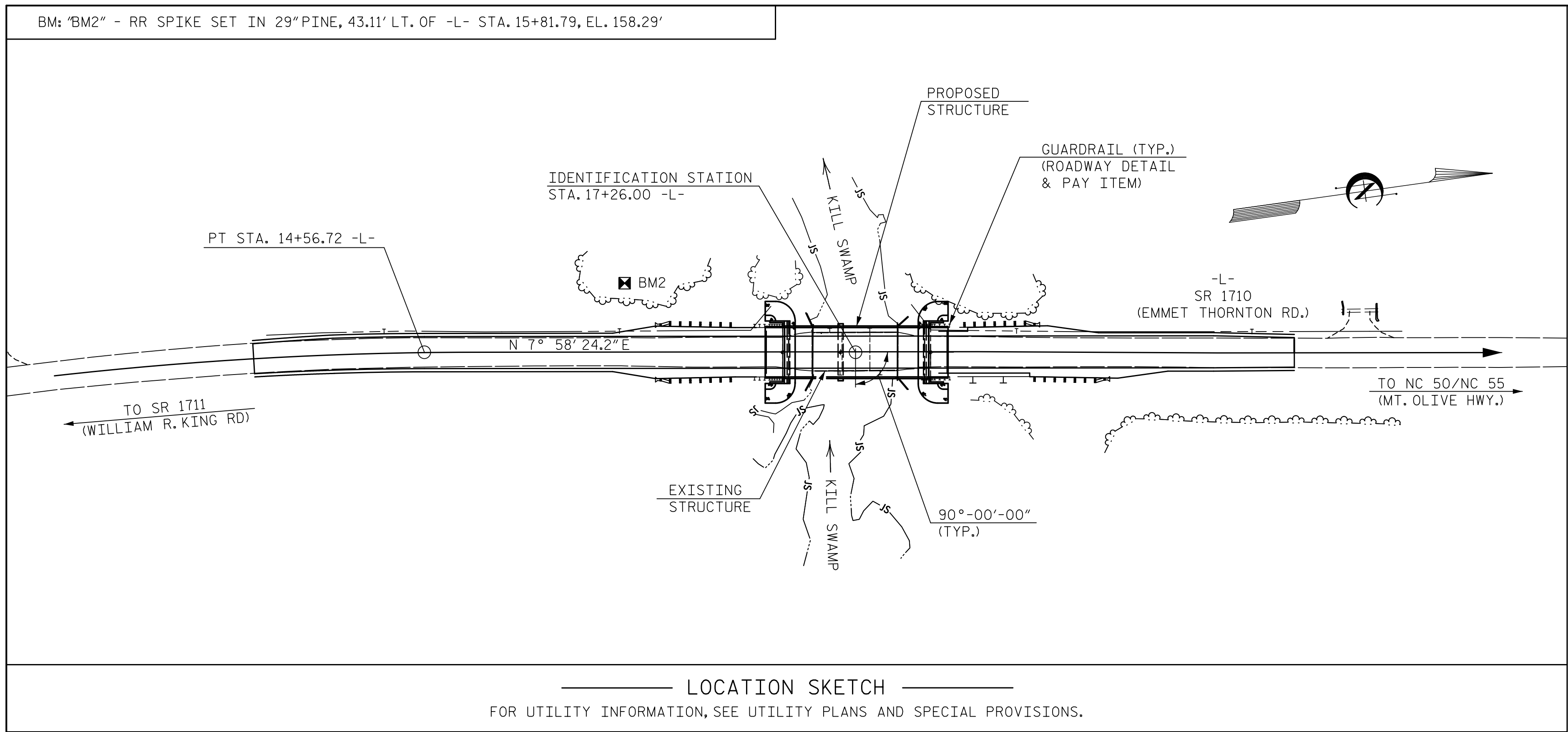
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 GENERAL DRAWING
 FOR BRIDGE ON SR 1710
 OVER KILL SWAMP
 BETWEEN
 NC 50/NC 55 AND SR 1711

HNTB		HNTB NORTH CAROLINA, P.C. NC License No. C-1554 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609	
DRAWN BY	D. WITHERSPOON	DATE	5/19
CHECKED BY	P. BARBER	DATE	5/19
DESIGN ENGINEER OF RECORD	P. BARBER	DATE	5/19

DWG. NO. 1

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

REVISIONS					SHEET NO.	
NO.	BY	DATE	NO.	BY	DATE	S-1
1			3			TOTAL SHEETS
2			4			19



FOUNDATION NOTES:

FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

PILES AT END BENT NO.1 ARE DESIGNED FOR A FACTORED RESISTANCE OF 55 TONS PER PILE.

PILES AT BENT NO.1 ARE DESIGNED FOR A FACTORED RESISTANCE OF 100 TONS PER PILE.

PILES AT END BENT NO.2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 71 TONS PER PILE.

DRIVE PILES AT END BENT NO.1 TO A REQUIRED DRIVING RESISTANCE OF 95 TONS PER PILE.

DRIVE PILES AT BENT NO.1 TO A REQUIRED DRIVING RESISTANCE OF 170 TONS PER PILE. THIS REQUIRED DRIVING RESISTANCE INCLUDES ADDITIONAL RESISTANCE FOR DOWNDRAG OR SCOUR.

DRIVE PILES AT END BENT NO.2 TO A REQUIRED DRIVING RESISTANCE OF 120 TONS PER PILE.

INSTALL PILES AT BENT NO.1 TO A TIP ELEVATION NO HIGHER THAN 118.0 FT.

THE SCOUR CRITICAL ELEVATION FOR BENT NO.1 IS ELEVATION 135.0 FT. SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

TESTING PILES WITH THE PDA DURING DRIVING, RESTRIKING OR REDRIVING MAY BE REQUIRED. THE ENGINEER WILL DETERMINE THE NEED FOR PDA TESTING. FOR PDA TESTING, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

TOTAL BILL OF MATERIAL

	REMOVAL OF EXISTING STRUCTURE AT STATION 17+26.00 -L-	ASBESTOS ASSESSMENT	PDA TESTING	UNCLASSIFIED STRUCTURE EXCAVATION AT STATION 17+26.00 -L-	CLASS A CONCRETE	BRIDGE APPROACH SLABS AT STATION 17+26.00 -L-	REINFORCING STEEL	PILE DRIVING EQUIPMENT SETUP FOR HP 12x53 STEEL PILES	PILE DRIVING EQUIPMENT SETUP FOR HP 14x73 GALVANIZED STEEL PILES	HP 12x53 STEEL PILES	HP 14x73 GALVANIZED STEEL PILES	PILE REDRIVES	VERTICAL CONCRETE BARRIER RAIL	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE	ELASTOMERIC BEARINGS	3'-0"x1'-9" PRESTRESSED CONCRETE CORED SLABS	3'-0"x2'-0" PRESTRESSED CONCRETE CORED SLABS				
	LUMP SUM	LUMP SUM	EACH	LUMP SUM	CU. YDS.	LUMP SUM	LBS.	EACH	EACH	NO.	LIN. FT.	NO.	LIN. FT.	EACH	LIN. FT.	TONS	SQ. YDS.	LUMP SUM	NO.	LIN. FT.	NO.	LIN. FT.
SUPERSTRUCTURE	LUMP SUM	-----	-----	-----	-----	LUMP SUM	-----	-----	-----	-----	-----	-----	180.50	-----	-----	-----	LUMP SUM	11	385	11	605	
END BENT 1	-----	-----	-----	LUMP SUM	14.2	-----	2,115	7	-----	7	245	4	-----	130	140	-----	-----	-----	-----	-----	-----	
BENT 1	-----	-----	-----	-----	11.7	-----	2,275	8	-----	8	440	4	-----	-----	-----	-----	-----	-----	-----	-----	-----	
END BENT 2	-----	-----	-----	LUMP SUM	14.4	-----	2,115	7	-----	7	315	4	-----	115	130	-----	-----	-----	-----	-----	-----	
TOTAL	LUMP SUM	LUMP SUM	1	LUMP SUM	40.3	LUMP SUM	6,505	14	8	14	560	12	180.50	245	270	LUMP SUM	11	385	11	605		

GENERAL NOTES:

ASSUMED LIVE LOAD = HL-93 OR ALTERNATIVE LOADING.

THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE REQUIREMENTS OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.

THIS BRIDGE IS LOCATED IN SEISMIC ZONE 1.

THIS BRIDGE SHALL BE CONSTRUCTED USING TOP-DOWN CONSTRUCTION METHODS. THE USE OF A TEMPORARY CAUSEWAY OR WORK BRIDGE IS NOT PERMITTED.

FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE SHEET SN.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

THE SUBSTRUCTURE OF THE EXISTING BRIDGE INDICATED ON THE PLANS IS FROM THE BEST INFORMATION AVAILABLE. SINCE THIS INFORMATION IS SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR, THE CONTRACTOR SHALL HAVE NO CLAIM WHATSOEVER AGAINST THE DEPARTMENT OF TRANSPORTATION FOR ANY DELAYS OR ADDITIONAL COST INCURRED BASED ON DIFFERENCES BETWEEN THE EXISTING BRIDGE SUBSTRUCTURE SHOWN ON THE PLANS AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

REMOVAL OF THE EXISTING BRIDGE SHALL BE PERFORMED SO AS NOT TO ALLOW DEBRIS TO FALL INTO THE WATER. THE CONTRACTOR SHALL REMOVE THE BRIDGE AND SUBMIT PLANS FOR DEMOLITION IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS.

THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH "HEC 18 - EVALUATING SCOUR AT BRIDGES."

FOR EROSION CONTROL MEASURES SEE EROSION CONTROL PLANS.

ASPHALT WEARING SURFACE IS INCLUDED IN ROADWAY QUANTITY ON ROADWAY PLANS.

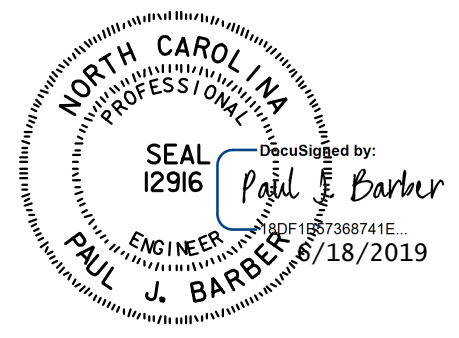
FOR ASBESTOS ASSESSMENT FOR BRIDGE DEMOLITION AND RENOVATION ACTIVITIES, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

THE EXISTING THREE SPAN STRUCTURE CONSISTING OF SPAN LENGTHS OF 18'-8", 17'-5", AND 17'-4" WITH CLEAR ROADWAY WIDTH OF 24'-0" ON REINFORCED CONCRETE DECK WITH 12 LINES OF STEEL BEAMS AT 2'-2 1/2" CENTERS AND SUBSTRUCTURE CONSISTING OF TIMBER CAPS ON TIMBER PILES WITH CRUTCH BENT SHALL BE REMOVED. IN ADDITION, ANY PILES REMAINING FROM PREVIOUS BRIDGE CONSTRUCTION OR MAINTENANCE OPERATIONS SHALL BE REMOVED AND INCLUDED IN THE LUMP SUM PAY ITEM FOR "REMOVAL OF EXISTING STRUCTURE AT STA. 17+26.00 -L-".

PROJECT NO. 17BP.3.R.66
SAMPSON COUNTY
 STATION: 17+26.00 -L-

SHEET 2 OF 2



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 FOR BRIDGE ON SR 1710
 OVER KILL SWAMP
 BETWEEN
 NC 50/NC 55 AND SR 1711

HNTB HNTB NORTH CAROLINA, P.C.
 NC License No. C-1554
 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609

DRAWN BY: D. WITHERSPOON DATE: 5/19
 CHECKED BY: P. BARBER DATE: 5/19
 DESIGN ENGINEER OF RECORD: P. BARBER DATE: 5/19

DWG. NO. 2

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

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-2
1			3			TOTAL SHEETS
2			4			19

LOAD AND RESISTANCE FACTOR RATING (LRFD) SUMMARY FOR PRESTRESSED CONCRETE GIRDERS

LEVEL	VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING	MINIMUM RATING FACTORS (RF)	TONS = W X RF	STRENGTH I LIMIT STATE										SERVICE III LIMIT STATE					COMMENT NUMBER			
						MOMENT					SHEAR					MOMENT								
						LIVELOAD FACTORS	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	LIVELOAD FACTORS	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN		GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	
DESIGN LOAD RATING	HL-93(Inv)	N/A	1	1.032	--	1.75	0.28	1.36	35'	EL	17	0.561	1.03	35'	EL	1.7	0.80	0.28	1.05	35'	EL	17		
	HL-93(0pr)	N/A	--	1.338	--	1.35	0.28	1.77	35'	EL	17	0.561	1.34	35'	EL	1.7	N/A	--	--	--	--	--		
	HS-20(Inv)	36.000	2	1.189	42.810	1.75	0.28	1.79	35'	EL	13.6	0.561	1.19	35'	EL	1.7	0.80	0.28	1.39	35'	EL	17		
	HS-20(0pr)	36.000	--	1.542	55.494	1.35	0.28	2.32	35'	EL	13.6	0.561	1.54	35'	EL	1.7	N/A	--	--	--	--	--		
LEGAL LOAD RATING	SV	SNSH	13,500	--	2,400	32,402	1.4	0.28	3.89	35'	EL	17	0.561	3.06	35'	EL	1.7	0.80	0.28	2.40	35'	EL	17	
		SNGARBS2	20,000	--	2,052	41,044	1.4	0.28	3.29	35'	EL	13.6	0.561	2.32	35'	EL	1.7	0.80	0.28	2.05	35'	EL	13.6	
		SNAGRIS2	22,000	--	2,053	45,174	1.4	0.28	3.26	35'	EL	13.6	0.561	2.21	35'	EL	1.7	0.80	0.28	2.05	35'	EL	13.6	
		SNCOTTS3	27,250	--	1,202	32,744	1.4	0.28	1.95	35'	EL	17	0.561	1.54	35'	EL	1.7	0.80	0.28	1.20	35'	EL	17	
		SNAGGRS4	34,925	--	1,111	38,816	1.4	0.28	1.8	35'	EL	17	0.561	1.38	35'	EL	1.7	0.80	0.28	1.11	35'	EL	17	
		SNS5A	35,550	--	1,079	38,354	1.4	0.28	1.75	35'	EL	17	0.561	1.46	35'	EL	1.7	0.80	0.28	1.08	35'	EL	17	
		SNS6A	39,950	--	1,041	41,601	1.4	0.28	1.69	35'	EL	17	0.561	1.37	35'	EL	1.7	0.80	0.28	1.04	35'	EL	17	
	TTST	SNS7B	42,000	3	1,000	41,734	1.4	0.28	1.61	35'	EL	17	0.561	1.4	35'	EL	1.7	0.80	0.28	1.00	35'	EL	17	
		TNAGRIT3	33,000	--	1,286	42,439	1.4	0.28	2.08	35'	EL	17	0.561	1.6	35'	EL	1.7	0.80	0.28	1.29	35'	EL	17	
		TNT4A	33,075	--	1,285	42,512	1.4	0.28	2.08	35'	EL	17	0.561	1.51	35'	EL	1.7	0.80	0.28	1.29	35'	EL	17	
		TNT6A	41,600	--	1,126	46,84	1.4	0.28	1.82	35'	EL	17	0.561	1.48	35'	EL	1.7	0.80	0.28	1.13	35'	EL	17	
		TNT7A	42,000	--	1,163	48,833	1.4	0.28	1.89	35'	EL	17	0.561	1.37	35'	EL	1.7	0.80	0.28	1.16	35'	EL	17	
		TNT7B	42,000	--	1,144	48,061	1.4	0.28	1.85	35'	EL	17	0.561	1.33	35'	EL	1.7	0.80	0.28	1.14	35'	EL	17	
		TNAGRIT4	43,000	--	1,158	49,810	1.4	0.28	1.86	35'	EL	13.6	0.561	1.28	35'	EL	1.7	0.80	0.28	1.16	35'	EL	17	
TNAGT5A	45,000	--	1,068	48,071	1.4	0.28	1.73	35'	EL	17	0.561	1.35	35'	EL	1.7	0.80	0.28	1.07	35'	EL	17			
TNAGT5B	45,000	--	1,031	46,373	1.4	0.28	1.67	35'	EL	17	0.561	1.21	35'	EL	1.7	0.80	0.28	1.03	35'	EL	17			

LOAD FACTORS:

DESIGN LOAD RATING FACTORS	LIMIT STATE	γ_{DC}	γ_{DW}
	STRENGTH I	1.25	1.50
	SERVICE III	1.00	1.00

NOTES:

MINIMUM RATING FACTORS ARE BASED ON THE STRENGTH I AND SERVICE III LIMIT STATES.

ALLOWABLE STRESSES FOR SERVICE III LIMIT STATE ARE AS REQUIRED FOR DESIGN.

COMMENTS:

- 1.
- 2.
- 3.
- 4.

CONTROLLING LOAD RATING

1 DESIGN LOAD RATING (HL-93)

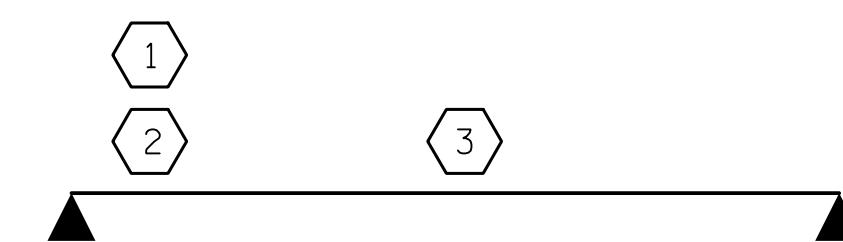
2 DESIGN LOAD RATING (HS-20)

3 LEGAL LOAD RATING **

** SEE CHART FOR VEHICLE TYPE

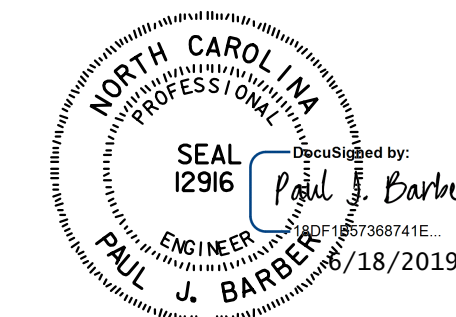
GIRDER LOCATION

I - INTERIOR GIRDER
EL - EXTERIOR LEFT GIRDER
ER - EXTERIOR RIGHT GIRDER



LRFR SUMMARY
FOR SPAN A

PROJECT NO. 17BP.3.R.66
SAMPSON COUNTY
 STATION: 17+26.00 -L-



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 LRFR SUMMARY FOR
 35' CORED SLAB UNIT
 90° SKEW
 (NON-INTERSTATE TRAFFIC)

ASSEMBLED BY : D. WITHERSPOON DATE : 5/19
 CHECKED BY : P. BARBER DATE : 5/19
 DRAWN BY : CVC 6/10
 CHECKED BY : DNS 6/10

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

HNTB HNTB NORTH CAROLINA, P.C.
 NC License No. C-1554
 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609
 DRAWN BY : D. WITHERSPOON DATE : 5/19
 CHECKED BY : P. BARBER DATE : 5/19
 DESIGN ENGINEER OF RECORD : P. BARBER DATE : 5/19

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-3
1			3			TOTAL SHEETS
2			4			19

LOAD FACTORS: _____

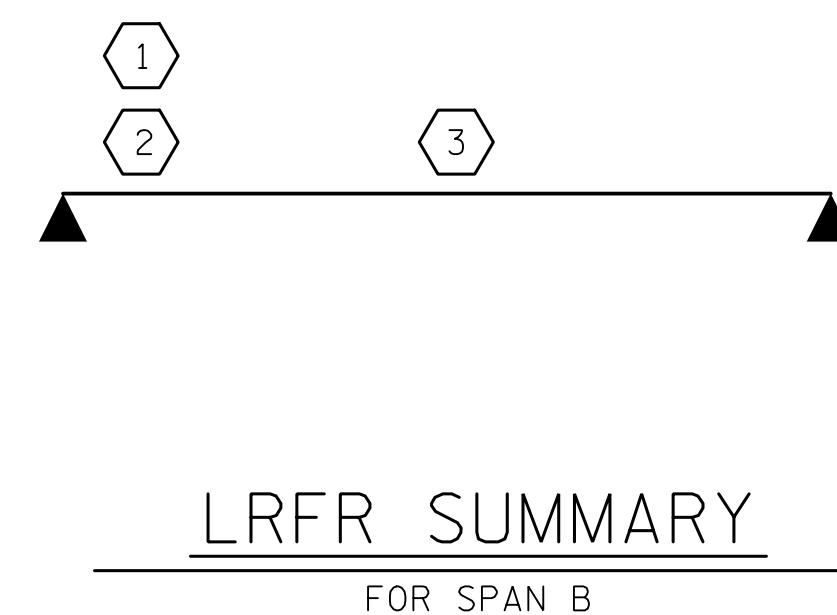
DESIGN LOAD RATING FACTORS	LIMIT STATE	γ_{DC}	γ_{DW}
	STRENGTH I	1.25	1.50
	SERVICE III	1.00	1.00

LOAD AND RESISTANCE FACTOR RATING (LRFD) SUMMARY FOR PRESTRESSED CONCRETE GIRDERS																								
LEVEL	VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING	MINIMUM RATING FACTORS (RF)	TONS = W X RF	STRENGTH I LIMIT STATE										SERVICE III LIMIT STATE						COMMENT NUMBER		
						MOMENT					SHEAR					MOMENT								
						LIVELOAD FACTORS	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	LIVELOAD FACTORS	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION		DISTANCE FROM LEFT END OF SPAN (ft)	
DESIGN LOAD RATING	HL-93(Inv)	N/A	1	1.974	--	1.75	0.278	2.49	55'	EL	27	0.526	1.97	55'	EL	5.4	0.80	0.278	2.27	55'	EL	27		
	HL-93(Opr)	N/A	--	2.559	--	1.35	0.278	3.23	55'	EL	27	0.526	2.56	55'	EL	5.4	N/A	--	--	--	--	--		
	HS-20(Inv)	36.000	2	2.358	84.885	1.75	0.278	3.12	55'	EL	27	0.526	2.36	55'	EL	5.4	0.80	0.278	2.84	55'	EL	27		
	HS-20(Opr)	36.000	--	3.057	110.036	1.35	0.278	4.04	55'	EL	27	0.526	3.06	55'	EL	5.4	N/A	--	--	--	--	--		
LEGAL LOAD RATING	SV	SNSH	13.500	--	5.965	80.53	1.4	0.278	8.19	55'	EL	27	0.526	6.71	55'	EL	5.4	0.80	0.278	5.97	55'	EL	27	
		SNGARBS2	20.000	--	4.621	92.422	1.4	0.278	6.36	55'	EL	27	0.526	4.86	55'	EL	5.4	0.80	0.278	4.62	55'	EL	27	
		SNAGRIS2	22.000	--	4.434	97.548	1.4	0.278	6.12	55'	EL	21.6	0.526	4.55	55'	EL	5.4	0.80	0.278	4.43	55'	EL	27	
		SNCOTTS3	27.250	--	2.974	81.029	1.4	0.278	4.08	55'	EL	27	0.526	3.36	55'	EL	5.4	0.80	0.278	2.97	55'	EL	27	
		SNAGGRS4	34.925	--	2.555	89.234	1.4	0.278	3.51	55'	EL	27	0.526	2.85	55'	EL	5.4	0.80	0.278	2.56	55'	EL	27	
		SNS5A	35.550	--	2.494	88.65	1.4	0.278	3.42	55'	EL	27	0.526	2.93	55'	EL	5.4	0.80	0.278	2.49	55'	EL	27	
	TTST	SNS6A	39.950	--	2.318	92.619	1.4	0.278	3.18	55'	EL	27	0.526	2.7	55'	EL	5.4	0.80	0.278	2.32	55'	EL	27	
		SNS7B	42.000	--	2.209	92.776	1.4	0.278	3.03	55'	EL	27	0.526	2.69	55'	EL	5.4	0.80	0.278	2.21	55'	EL	27	
		TNAGRIT3	33.000	--	2.836	93.596	1.4	0.278	3.89	55'	EL	27	0.526	3.19	55'	EL	5.4	0.80	0.278	2.84	55'	EL	27	
		TNT4A	33.075	--	2.857	94.504	1.4	0.278	3.92	55'	EL	27	0.526	3.08	55'	EL	5.4	0.80	0.278	2.86	55'	EL	27	
		TNT6A	41.600	--	2.366	98.442	1.4	0.278	3.25	55'	EL	27	0.526	2.94	55'	EL	5.4	0.80	0.278	2.37	55'	EL	27	
		TNT7A	42.000	--	2.395	100.575	1.4	0.278	3.29	55'	EL	27	0.526	2.76	55'	EL	5.4	0.80	0.278	2.39	55'	EL	27	
TTST	TNT7B	42.000	--	2.499	104.94	1.4	0.278	3.43	55'	EL	27	0.526	2.6	55'	EL	5.4	0.80	0.278	2.50	55'	EL	27		
	TNAGRIT4	43.000	--	2.365	101.706	1.4	0.278	3.25	55'	EL	27	0.526	2.51	55'	EL	5.4	0.80	0.278	2.37	55'	EL	27		
	TNAGT5A	45.000	--	2.216	99.716	1.4	0.278	3.04	55'	EL	27	0.526	2.53	55'	EL	5.4	0.80	0.278	2.22	55'	EL	27		
	TNAGT5B	45.000	3	2.177	97.95	1.4	0.278	2.99	55'	EL	27	0.526	2.38	55'	EL	5.4	0.80	0.278	2.18	55'	EL	27		

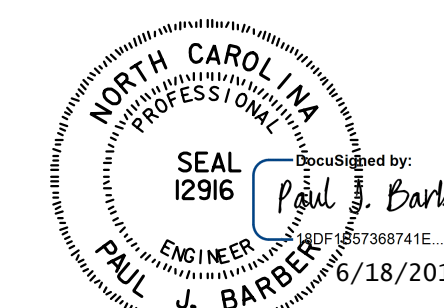
NOTES:
 MINIMUM RATING FACTORS ARE BASED ON THE STRENGTH I AND SERVICE III LIMIT STATES.
 ALLOWABLE STRESSES FOR SERVICE III LIMIT STATE ARE AS REQUIRED FOR DESIGN.

COMMENTS:
 1.
 2.
 3.
 4.

#	CONTROLLING LOAD RATING
1	DESIGN LOAD RATING (HL-93)
2	DESIGN LOAD RATING (HS-20)
3	LEGAL LOAD RATING **
** SEE CHART FOR VEHICLE TYPE	
GIRDER LOCATION	
I - INTERIOR GIRDER EL - EXTERIOR LEFT GIRDER ER - EXTERIOR RIGHT GIRDER	



PROJECT NO. 17BP.3.R.66
SAMPSON COUNTY
 STATION: 17+26.00 -L-



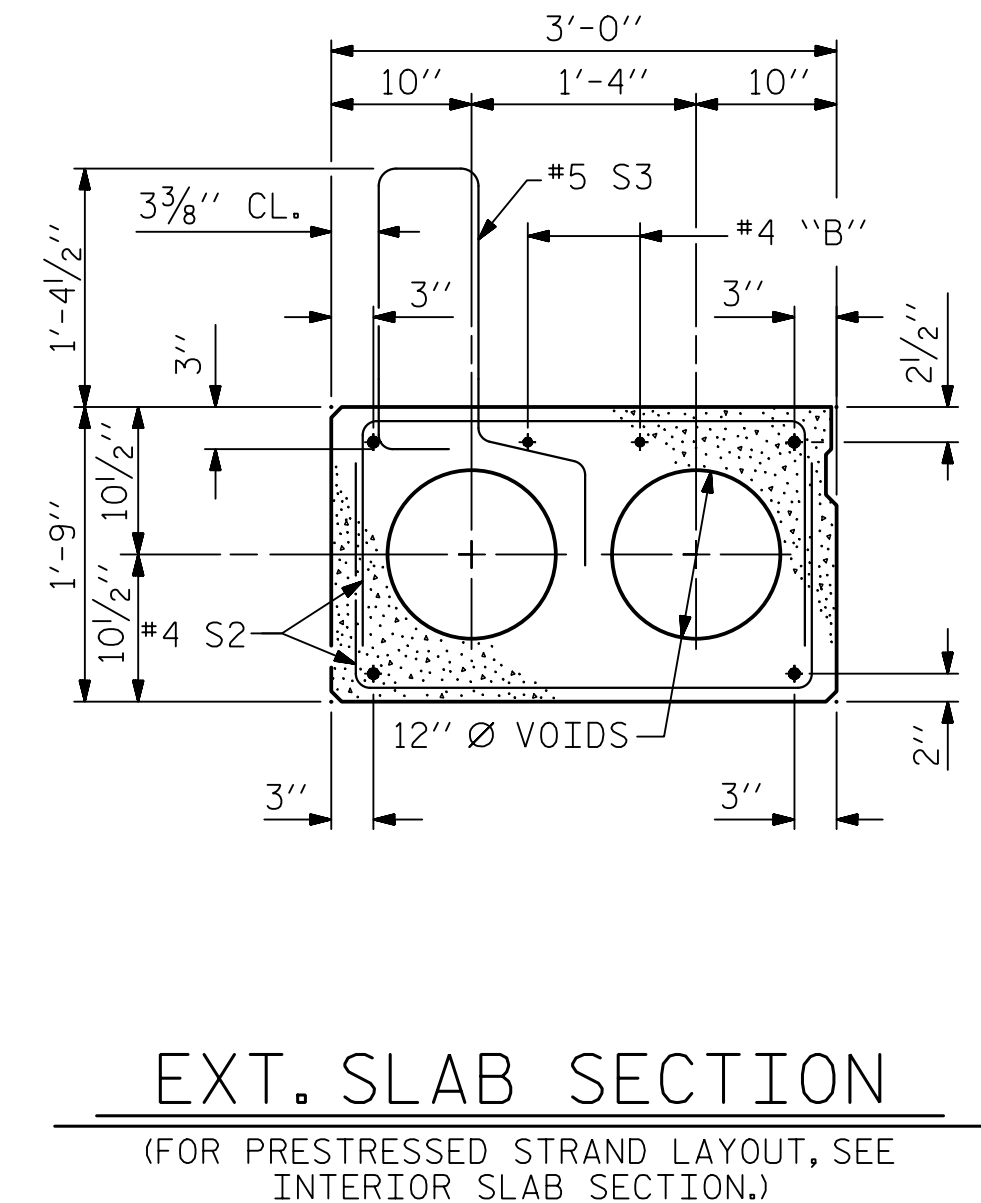
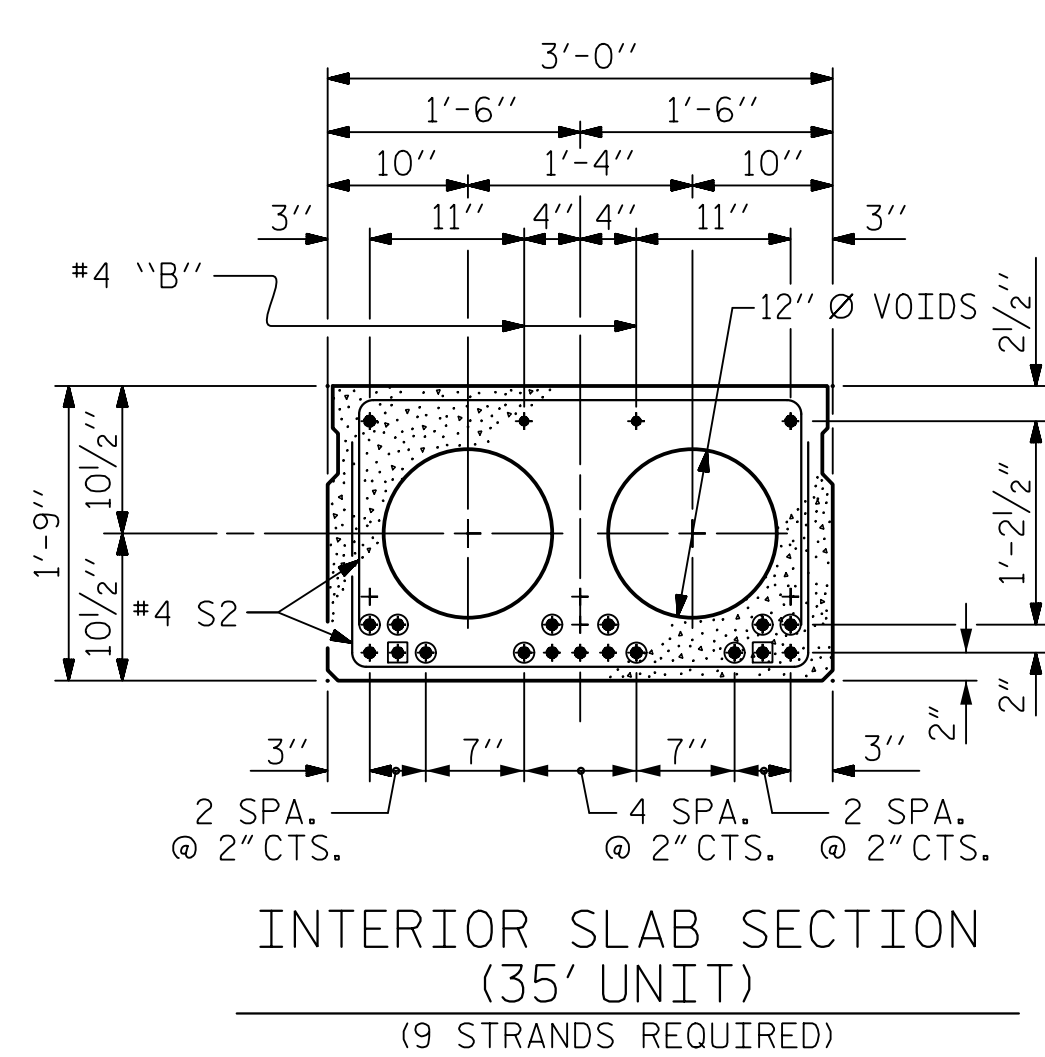
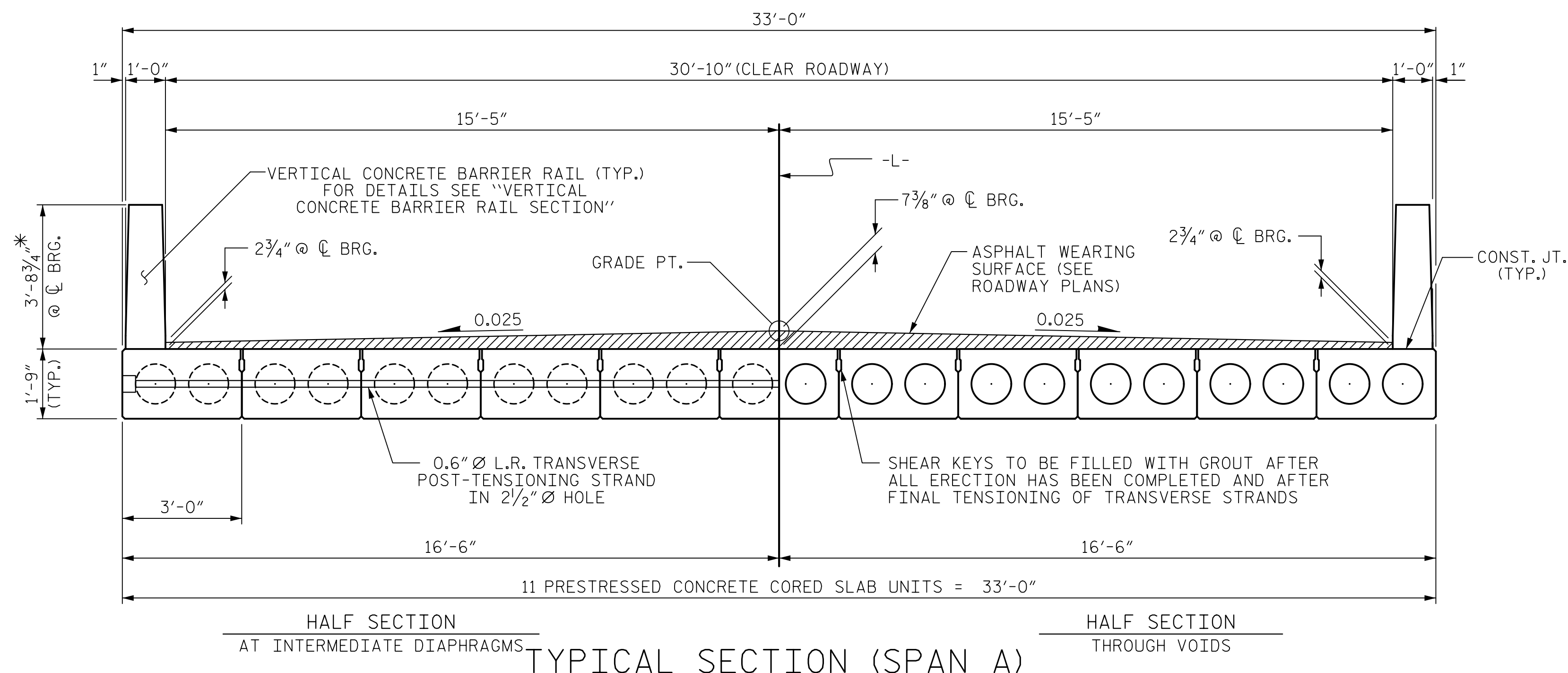
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 LRFR SUMMARY FOR
 55' CORED SLAB UNIT
 90° SKEW
 (NON-INTERSTATE TRAFFIC)

ASSEMBLED BY : D. WITHERSPOON DATE : 5/19
 CHECKED BY : P. BARBER DATE : 5/19
 DRAWN BY : CVC 6/10
 CHECKED BY : DNS 6/10

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

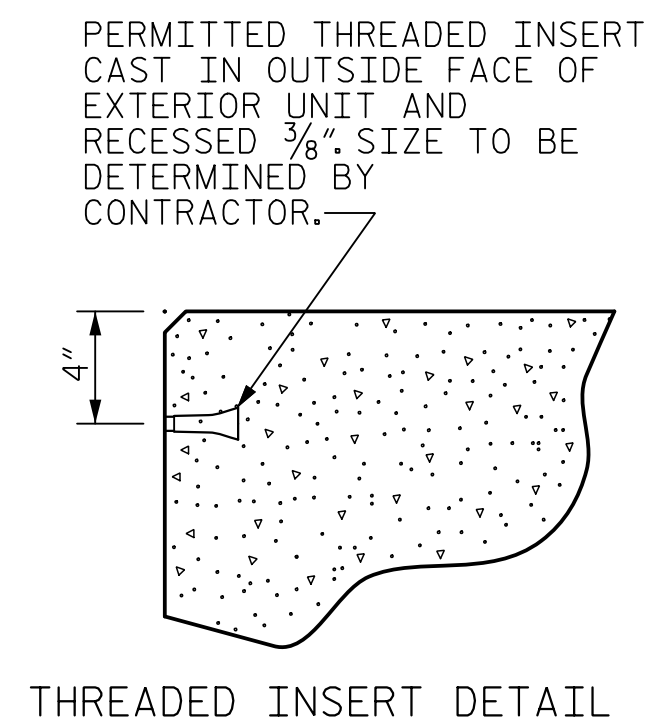
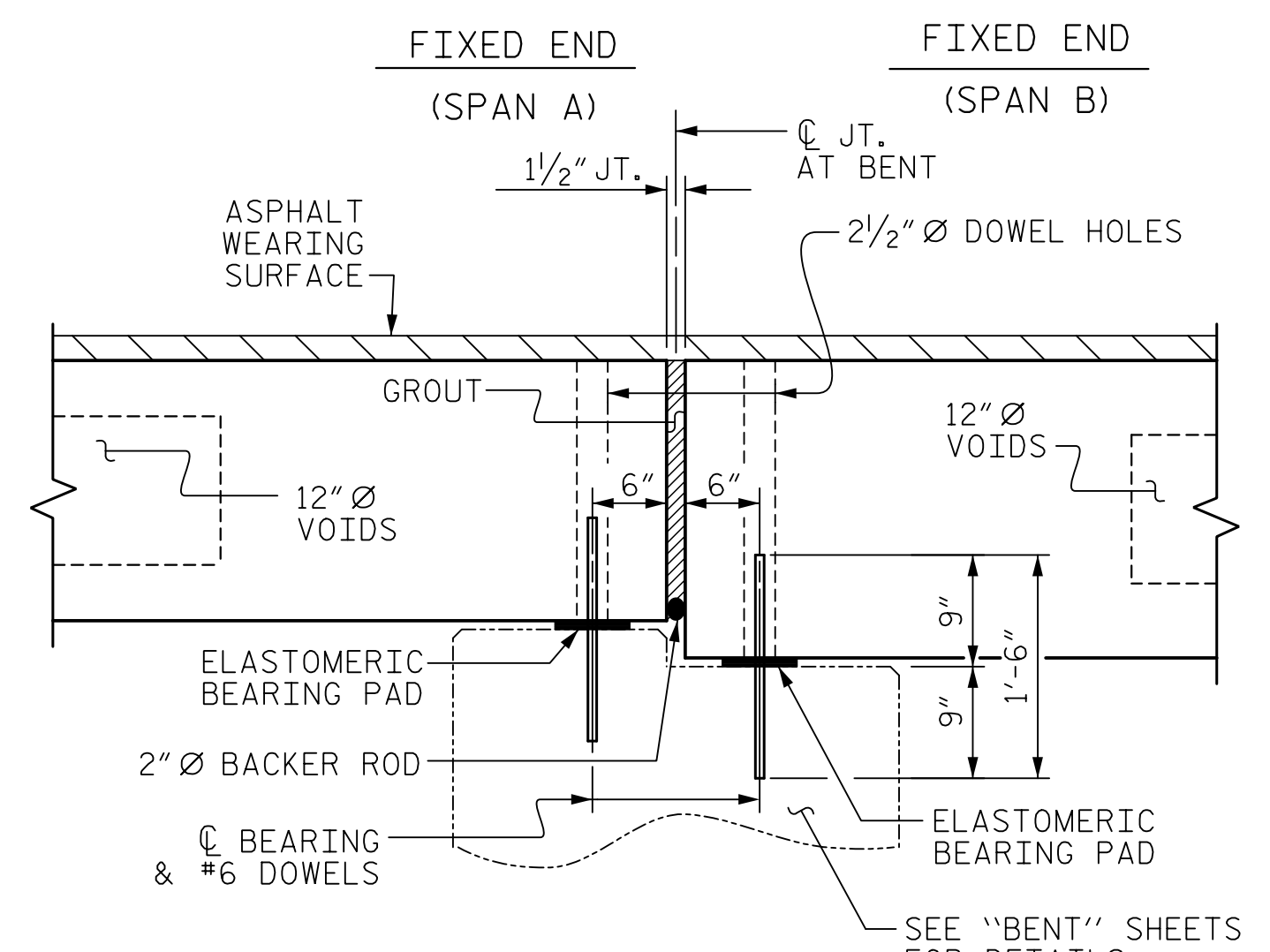
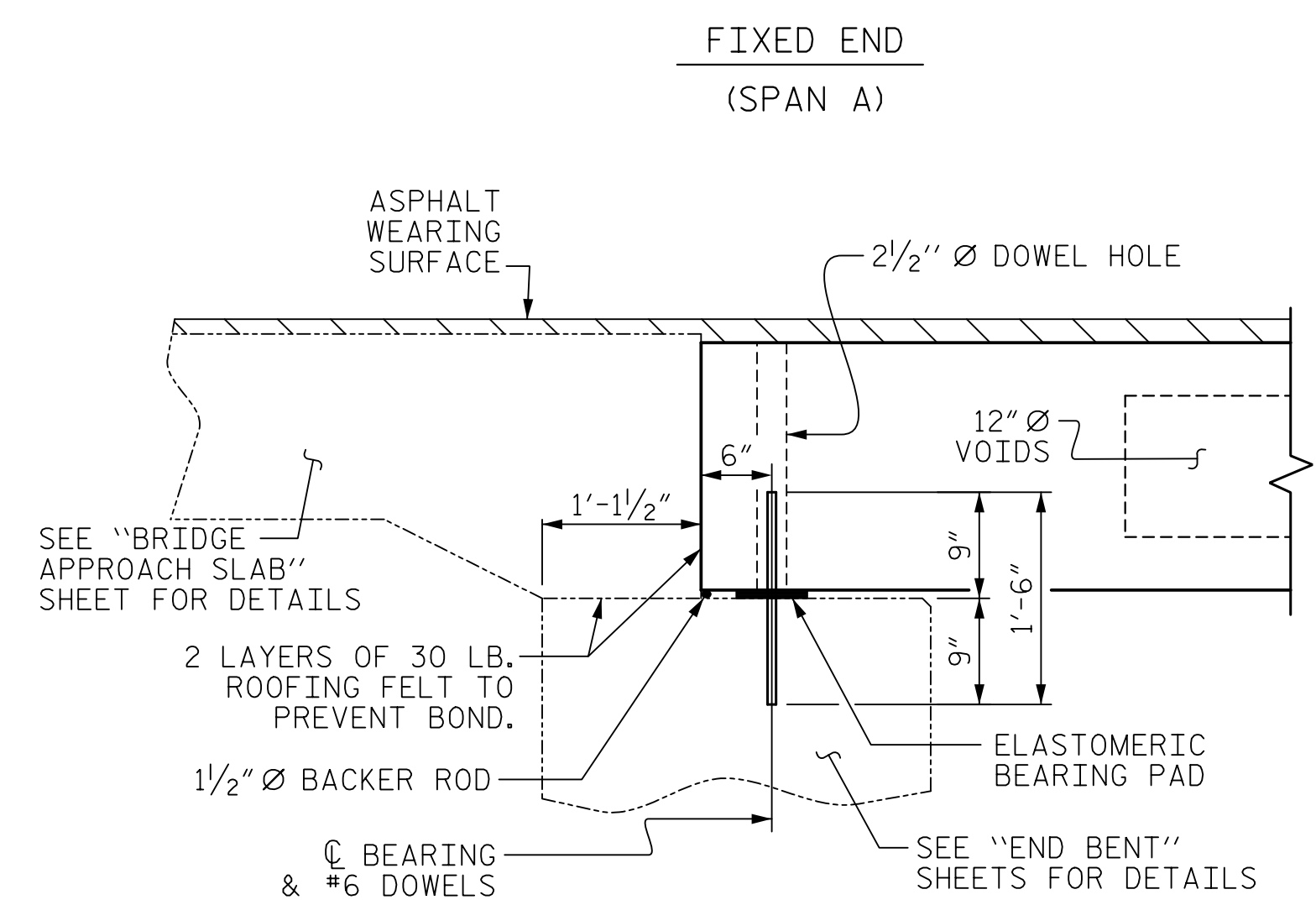
HNTB HNTB NORTH CAROLINA, P.C.
 NC License No. C-1554
 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609
 DRAWN BY : D. WITHERSPOON DATE : 5/19
 CHECKED BY : P. BARBER DATE : 5/19
 DESIGN ENGINEER OF RECORD : P. BARBER DATE : 5/19

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-4
1			3			TOTAL SHEETS
2			4			19



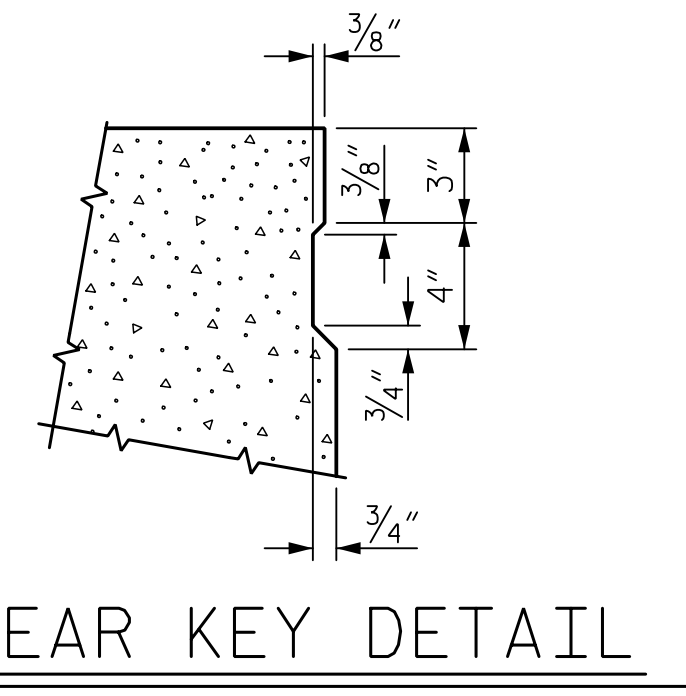
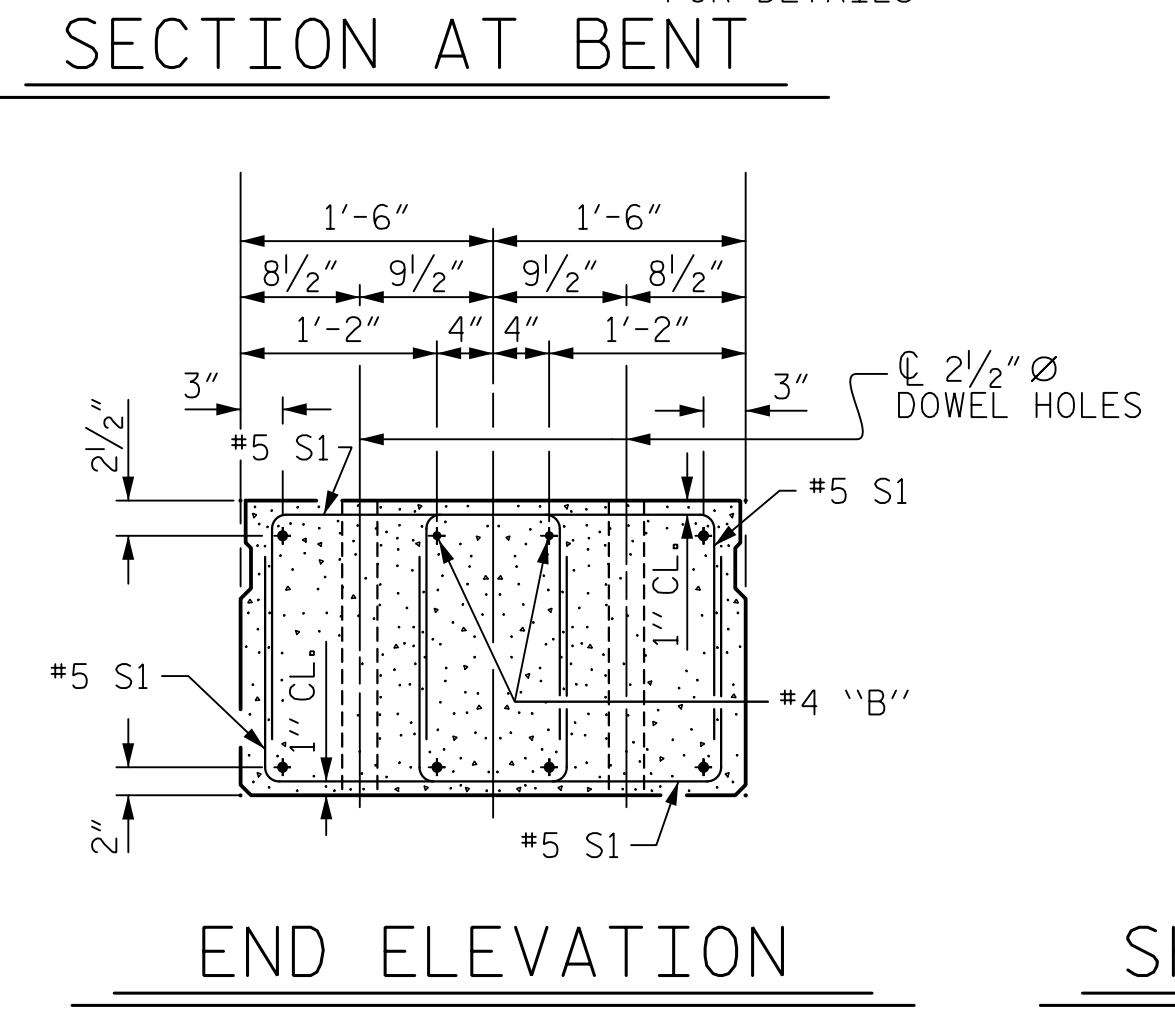
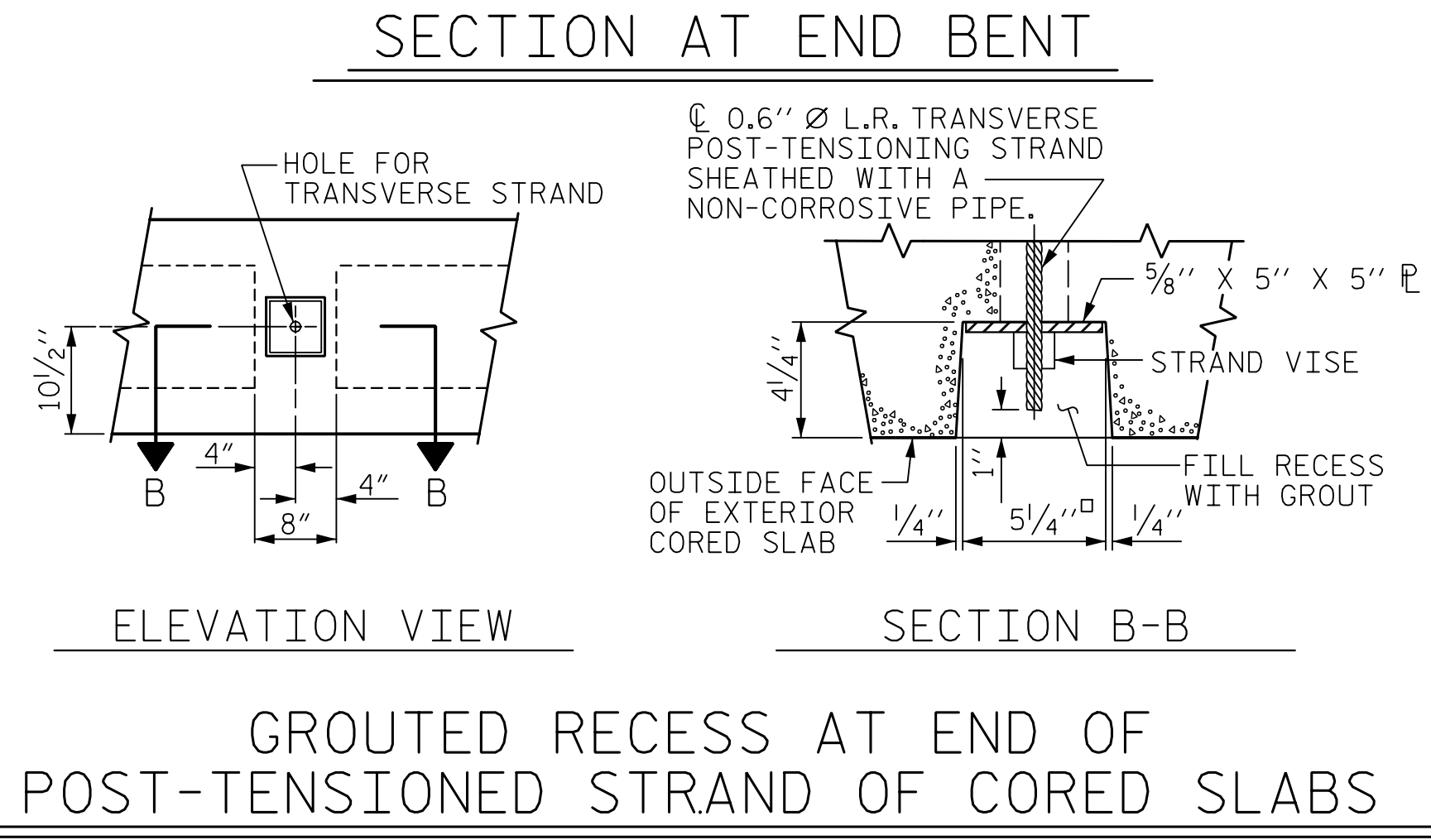
THE MAXIMUM BARRIER RAIL HEIGHT AND ASPHALT THICKNESS IS SHOWN. THE HEIGHT OF THE BARRIER RAIL AND ASPHALT THICKNESS VARIES WHILE THE TOP OF THE BARRIER RAIL FOLLOWS THE PROFILE OF THE GUTTERLINE. FOR RAIL HEIGHT DETAILS AND ASPHALT THICKNESS SEE THE "VERTICAL CONCRETE BARRIER RAIL SECTION" DETAIL.

0.6" Ø LOW RELAXATION STRAND LAYOUT



- BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 2'-0" FROM END OF CORED SLAB UNIT. SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7.
- OPTIONAL FULL LENGTH DEBONDED STRANDS. THESE STRANDS ARE NOT REQUIRED. IF THE FABRICATOR CHOOSES TO INCLUDE THESE STRANDS IN THE CORED SLAB UNIT, THE STRANDS SHALL BE DEBONDED FOR THE FULL LENGTH OF THE UNIT AT NO ADDITIONAL COST. SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7.

DEBONDING LEGEND



NOTE: OMIT SHEAR KEY ON OUTSIDE FACE OF EXTERIOR CORED SLABS.

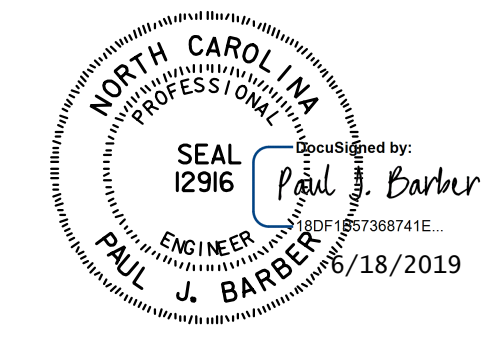
SHOWING PLACEMENT OF DOUBLE STIRRUPS AND LOCATION OF DOWEL HOLES. (STRAND LAYOUT NOT SHOWN). INTERIOR SLAB UNIT SHOWN-EXTERIOR SLAB UNIT SIMILAR EXCEPT SHEAR KEY LOCATION.

PROJECT NO. 17BP.3.R.66
SAMPSON COUNTY
STATION: 17+26.00 -L-

SHEET 1 OF 6

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
3'-0" X 1'-9"
PRESTRESSED CONCRETE
CORED SLAB UNIT
SPAN A



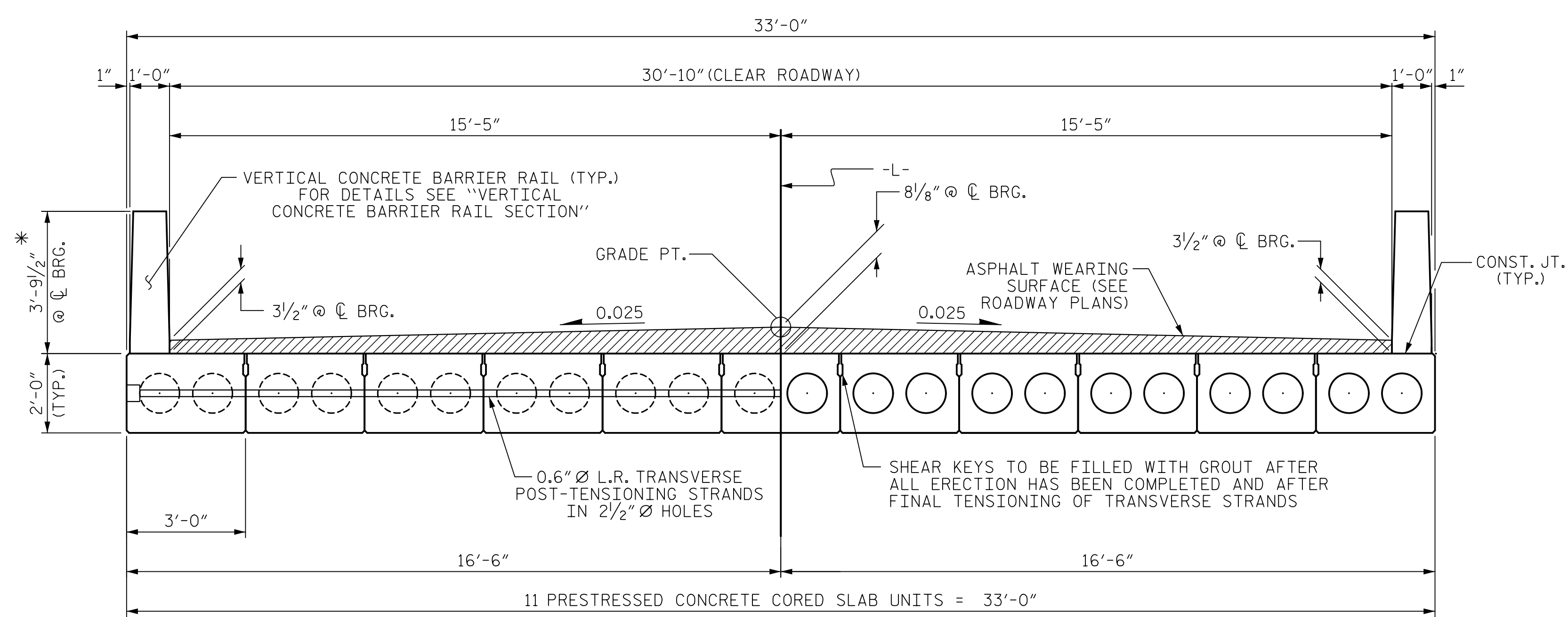
ASSEMBLED BY : D. WITHERSPOON	DATE : 5/19
CHECKED BY : P. BARBER	DATE : 5/19
DRAWN BY : DGE 5/09	REV. 9/14
CHECKED BY : BCH 6/09	MAA/TMG

HNTB		HNTB NORTH CAROLINA, P.C. NC License No. C-1554 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609	
DRAWN BY :	D. WITHERSPOON	DATE :	5/19
CHECKED BY :	P. BARBER	DATE :	5/19
DESIGN ENGINEER OF RECORD :	P. BARBER	DATE :	5/19

DWG. NO. 5

REVISIONS					SHEET NO.
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		

TOTAL SHEETS: 19

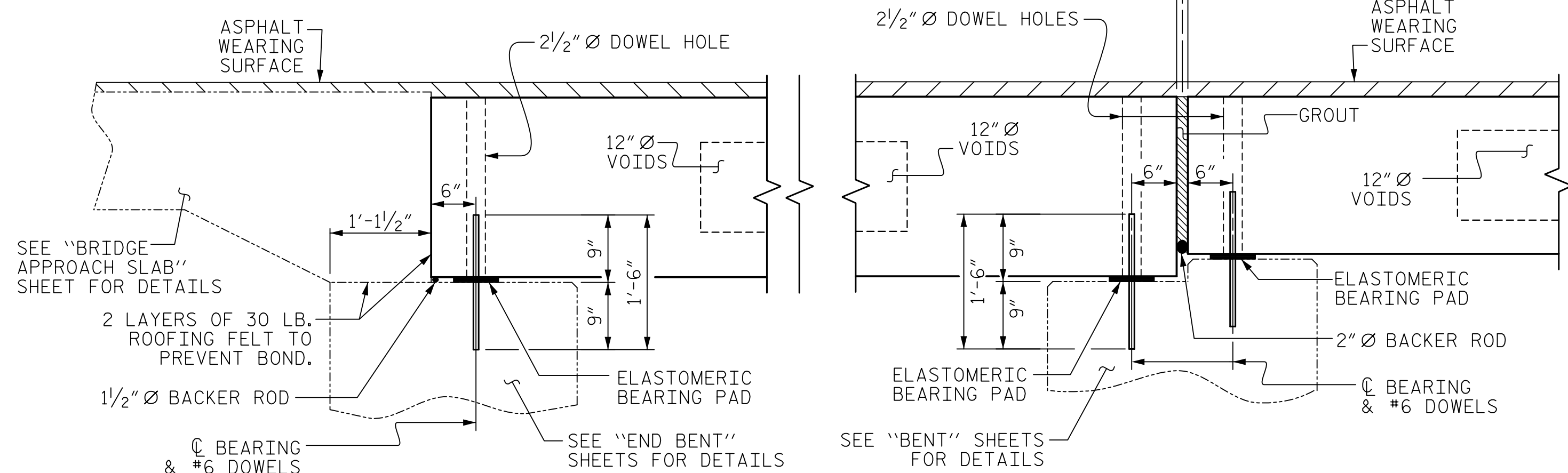


HALF SECTION AT INTERMEDIATE DIAPHRAGMS
 TYPICAL SECTION (SPAN B)
 HALF SECTION THROUGH VOIDS

* - THE MAXIMUM BARRIER RAIL HEIGHT AND ASPHALT THICKNESS IS SHOWN. THE HEIGHT OF THE BARRIER RAIL AND ASPHALT THICKNESS VARIES WHILE THE TOP OF THE BARRIER RAIL FOLLOWS THE PROFILE OF THE GUTTERLINE. FOR RAIL HEIGHT DETAILS AND ASPHALT THICKNESS, SEE THE "VERTICAL CONCRETE BARRIER RAIL SECTION" DETAIL.

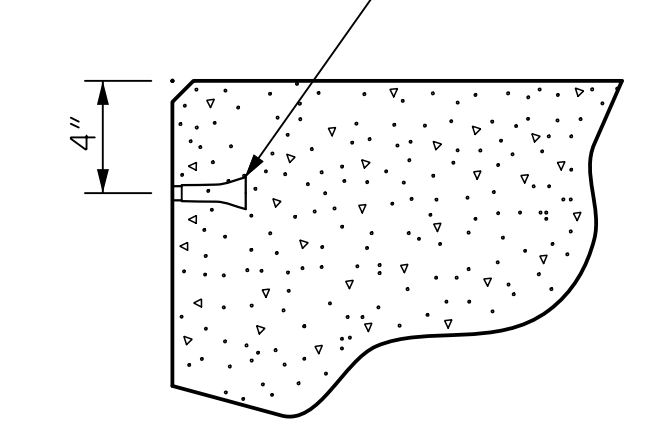
FIXED END (SPAN B)

FIXED END (SPAN B) FIXED END (SPAN A)

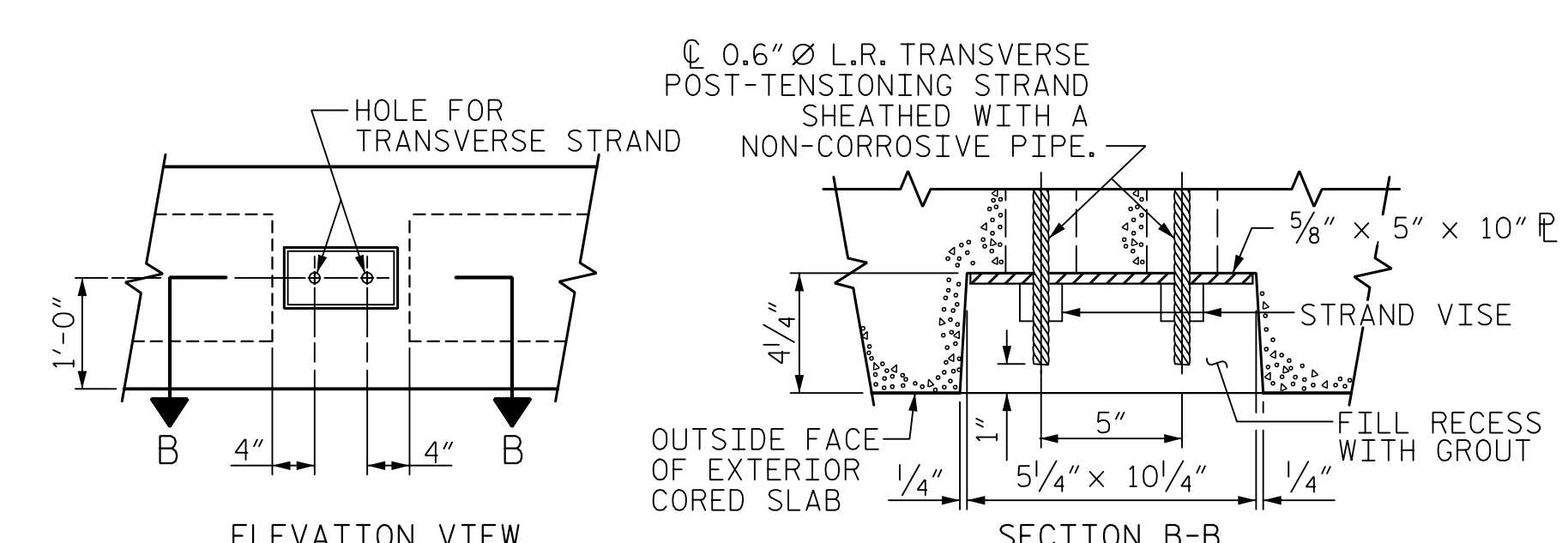


SECTION AT END BENT SECTION AT BENT

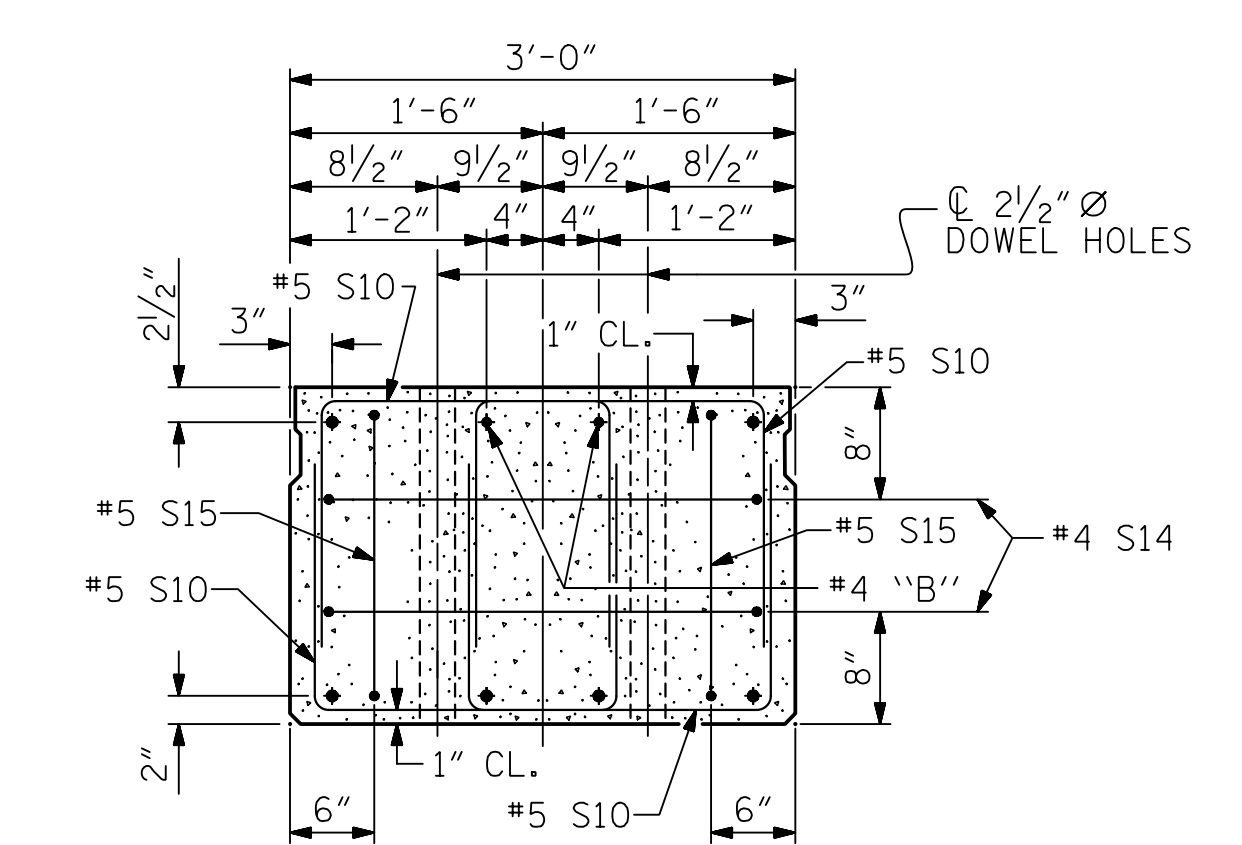
PERMITTED THREADED INSERT CAST IN OUTSIDE FACE OF EXTERIOR UNIT AND RECESSED 3/8" SIZE TO BE DETERMINED BY CONTRACTOR.



THREADED INSERT DETAIL

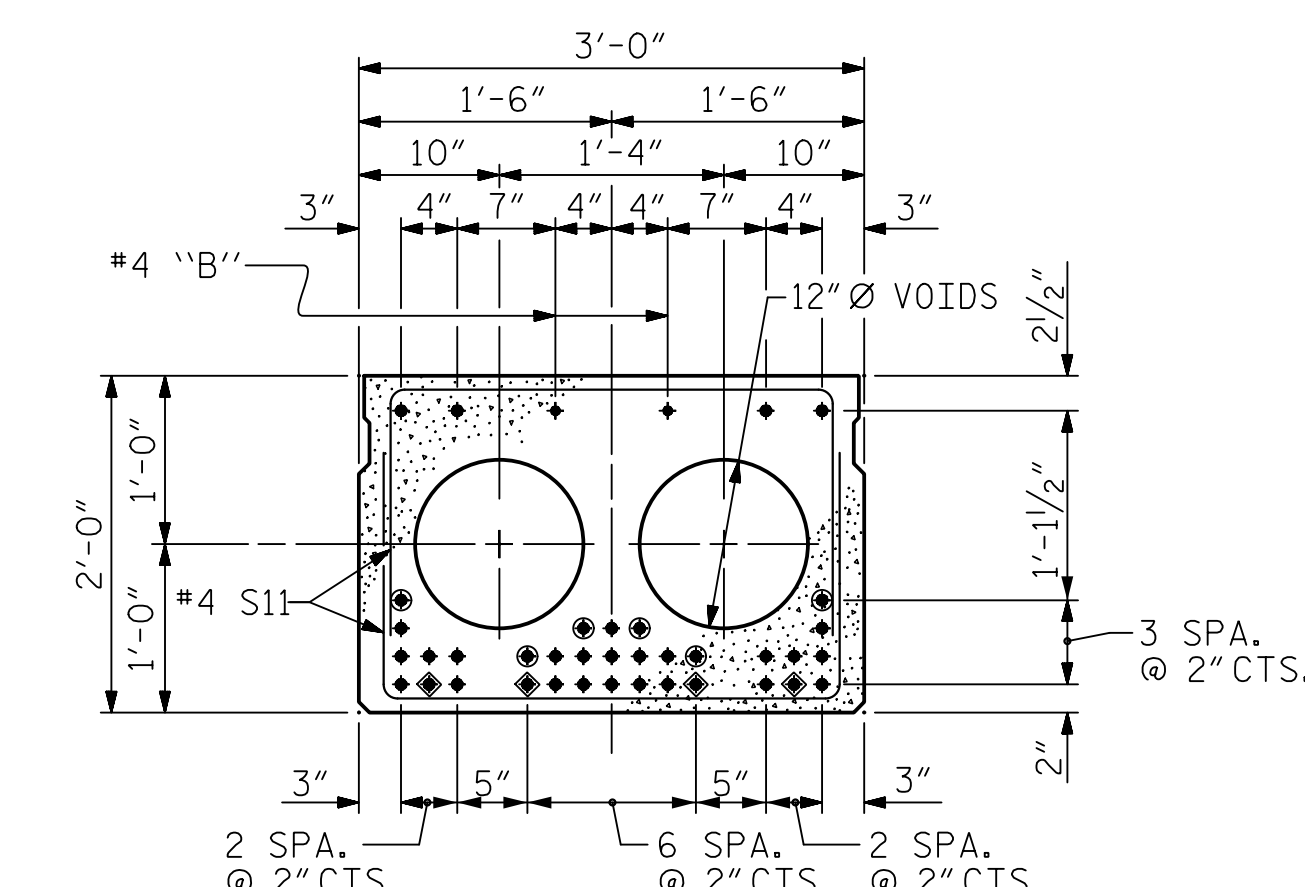


ELEVATION VIEW SECTION B-B
 GROUDED RECESS AT END OF POST-TENSIONED STRAND-CORED SLABS



END ELEVATION

SHOWING PLACEMENT OF DOUBLE STIRRUPS AND LOCATION OF DOWEL HOLES. (STRAND LAYOUT NOT SHOWN.) INTERIOR SLAB UNIT SHOWN-EXTERIOR SLAB UNIT SIMILAR EXCEPT SHEAR KEY LOCATION.

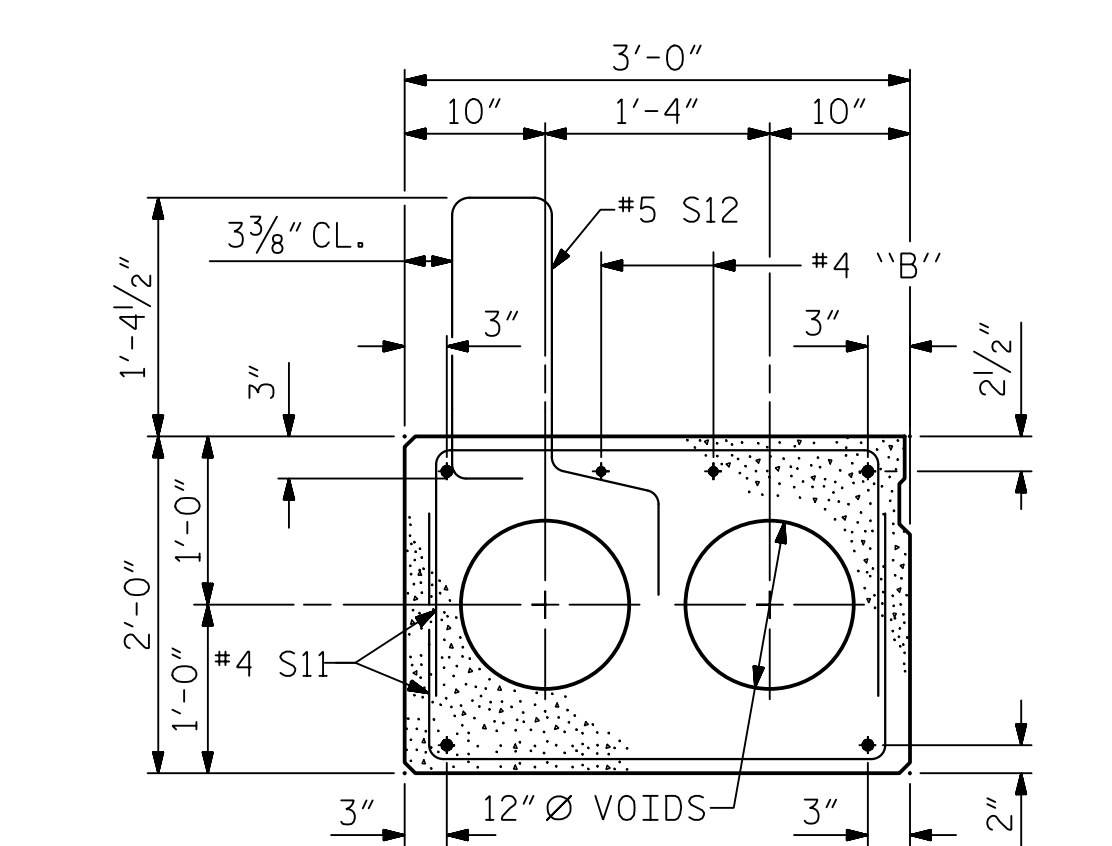


INTERIOR SLAB SECTION (55' UNIT)
 (31 STRANDS REQUIRED)

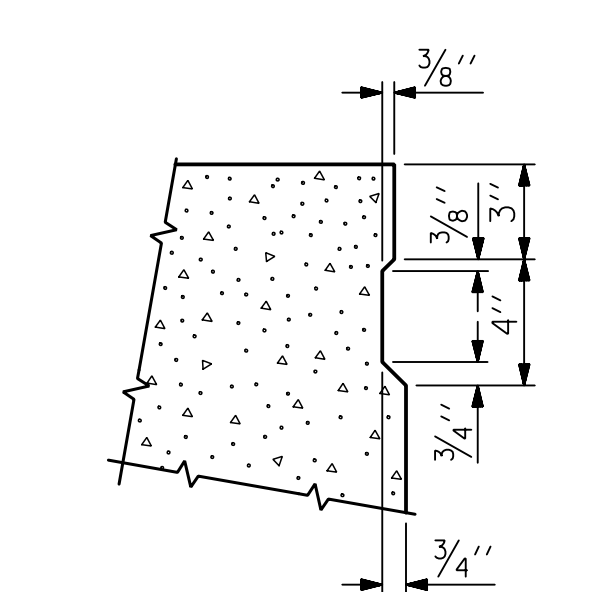
0.6" Ø LOW RELAXATION STRAND LAYOUT

- ◆ BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 12'-0" FROM END OF CORED SLAB UNIT. SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7.
- OPTIONAL FULL LENGTH DEBONDED STRANDS. THESE STRANDS ARE NOT REQUIRED. IF THE FABRICATOR CHOOSES TO INCLUDE THESE STRANDS IN THE CORED SLAB UNIT, THE STRANDS SHALL BE DEBONDED FOR THE FULL LENGTH OF THE UNIT AT NO ADDITIONAL COST. SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7.

DEBONDING LEGEND

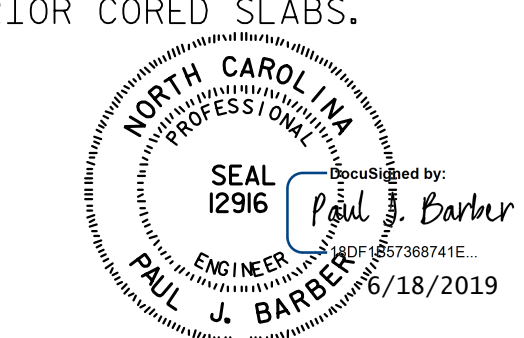


EXTERIOR SLAB SECTION
 (FOR PRESTRESSED STRAND LAYOUT, SEE INTERIOR SLAB SECTION.)



SHEAR KEY DETAIL

NOTE: OMIT SHEAR KEY ON OUTSIDE FACE OF EXTERIOR CORED SLABS.



PROJECT NO. 17BP.3.R.66
 SAMPSON COUNTY
 STATION: 17+26.00 -L-

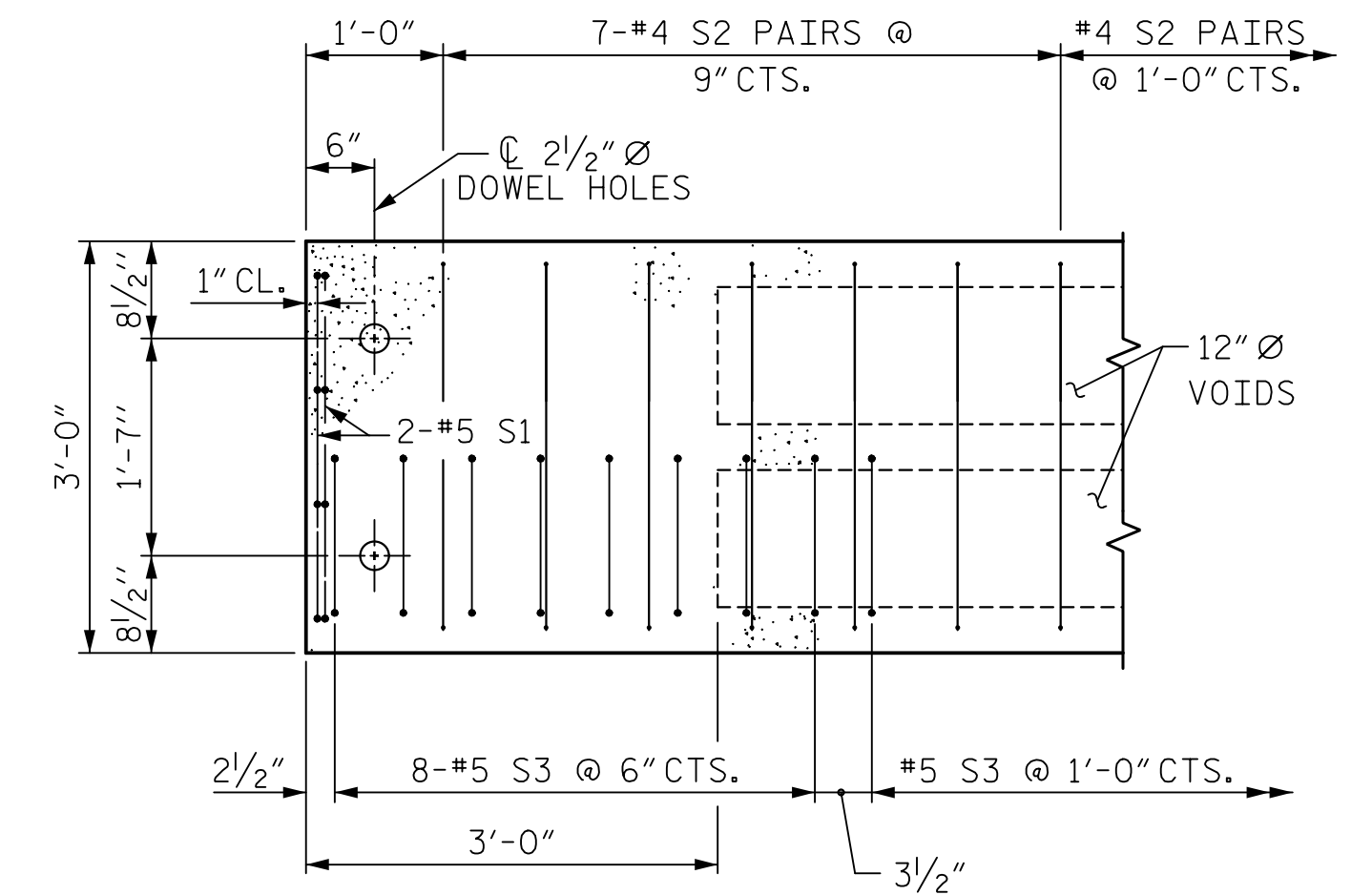
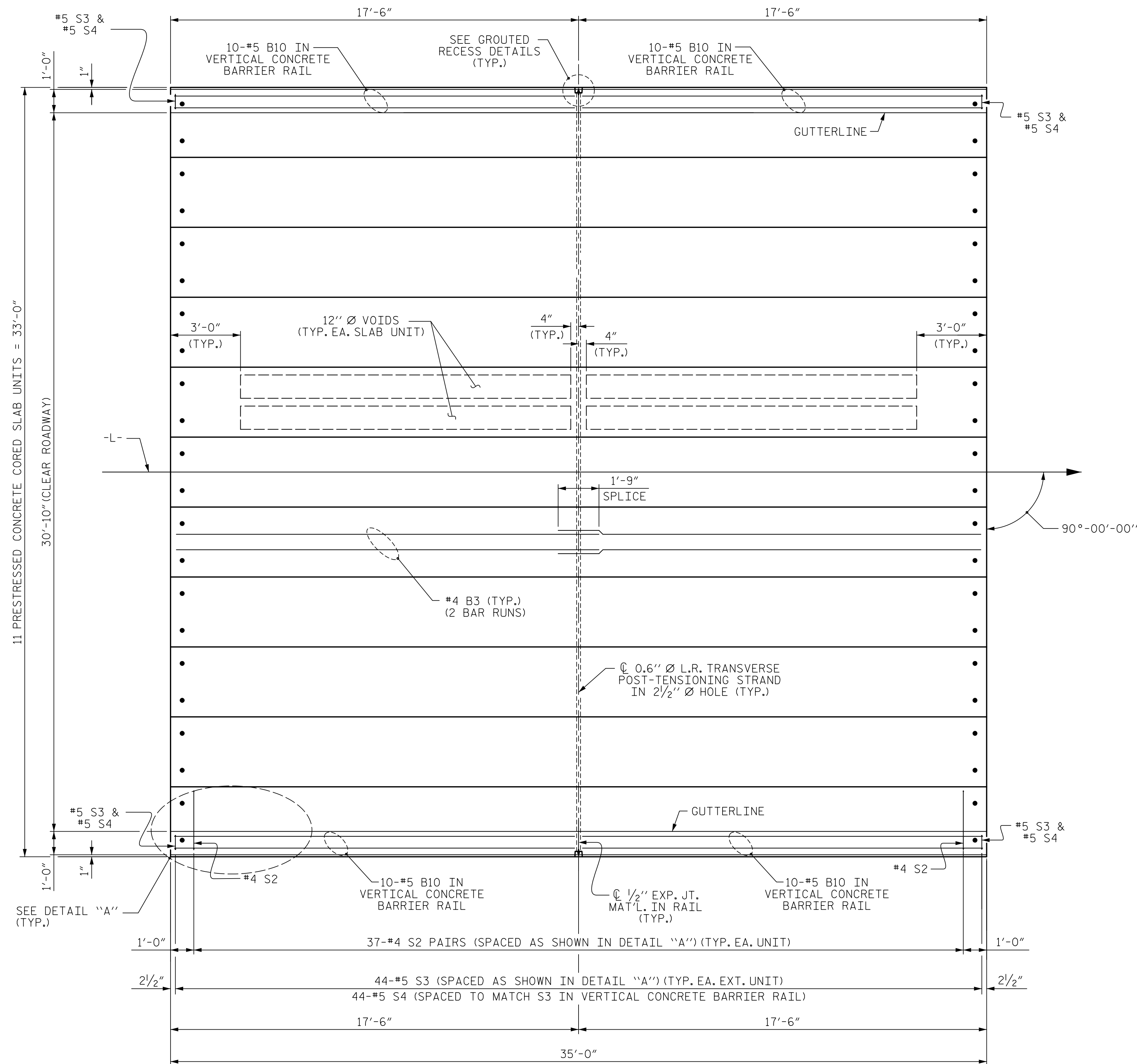
SHEET 4 OF 6
 STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 3'-0" X 2'-0"
 PRESTRESSED CONCRETE
 CORED SLAB UNIT
 SPAN B

ASSEMBLED BY : D. WITHERSPOON	DATE : 5/19
CHECKED BY : P. BARBER	DATE : 5/19
DRAWN BY : MAA	7/10
CHECKED BY : MKT	8/10
REV. 9/14	MAA/TMG

DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED

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DRAWN BY :	D. WITHERSPOON	DATE :	5/19
CHECKED BY :	P. BARBER	DATE :	5/19
DESIGN ENGINEER OF RECORD :	P. BARBER	DATE :	5/19

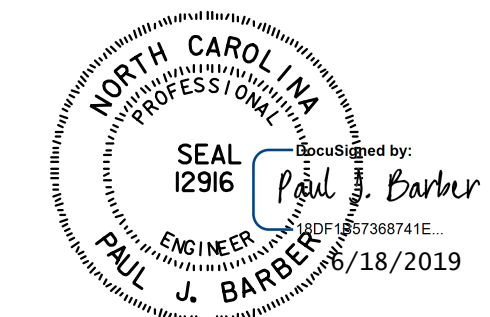
REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-6
1			3			TOTAL SHEETS
2			4			19



DETAIL "A"
 (TYPICAL EACH END OF UNIT)
 NOTE: EXTERIOR UNIT SHOWN - INTERIOR UNIT SIMILAR EXCEPT OMIT #5 S3 BARS.

PLAN OF UNIT

PROJECT NO. 17BP.3.R.66
SAMPSON COUNTY
 STATION: 17+26.00 -L-



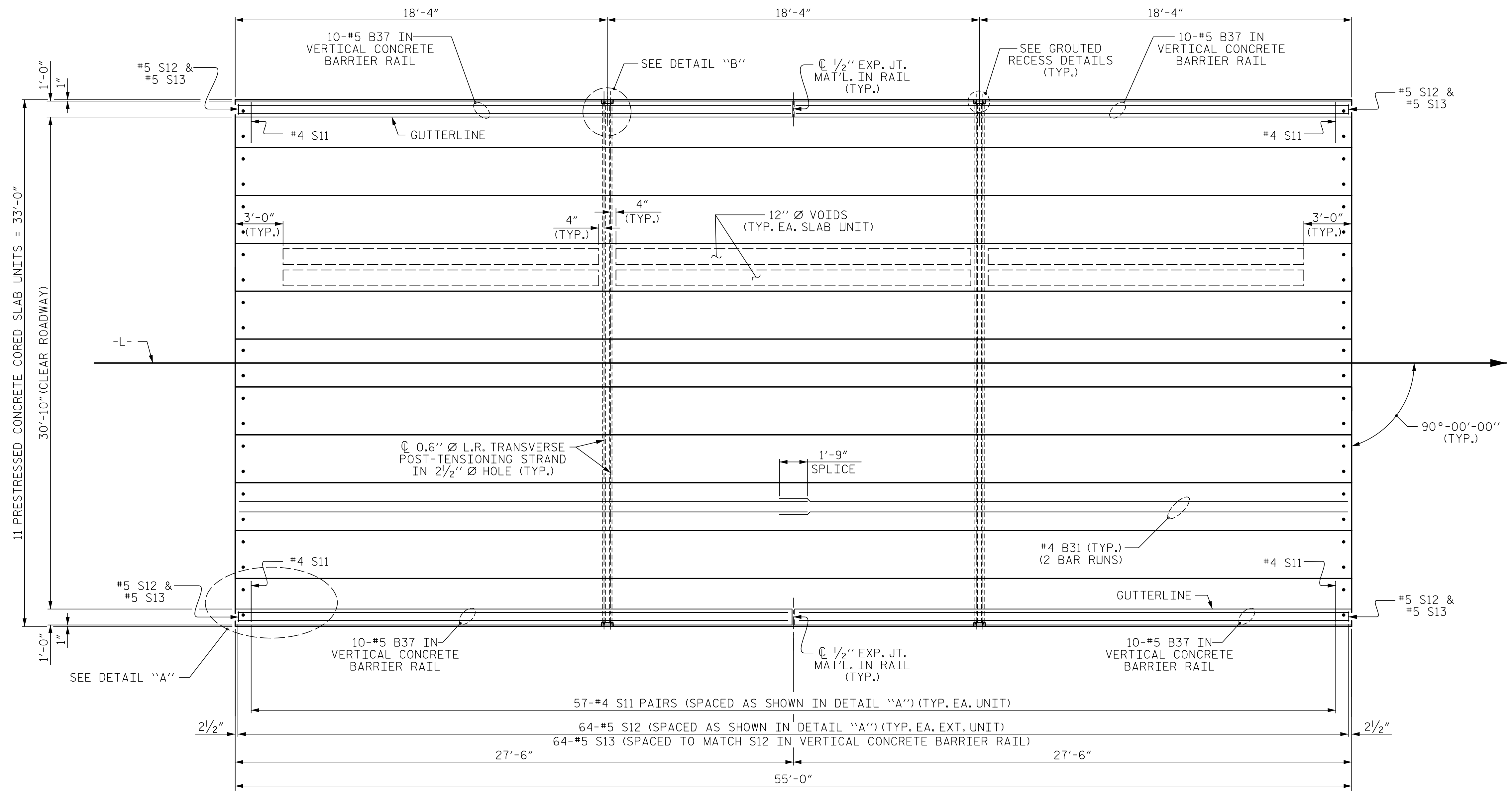
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 PLAN OF 35' UNIT
 30'-10" CLEAR ROADWAY
 90° SKEW
 (SPAN A)

ASSEMBLED BY : D. WITHERSPOON	DATE : 5/19
CHECKED BY : P. BARBER	DATE : 5/19
DRAWN BY : DGE 3/09	REV. 12/5/11 MAA/AAC
CHECKED BY : BCH 3/09	REV. 8/14 MAA/TMG

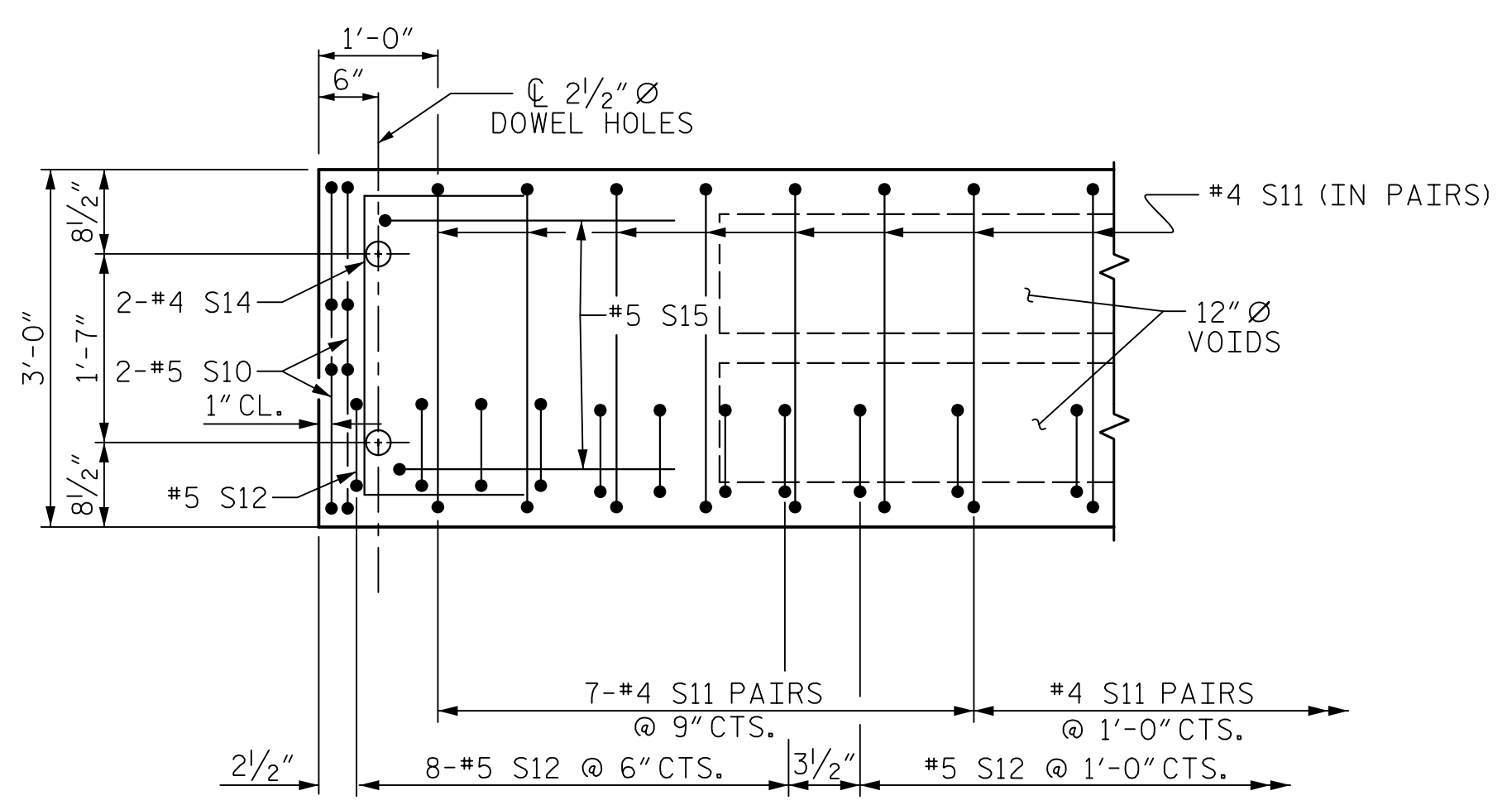
**DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED**

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DRAWN BY : D. WITHERSPOON	DATE : 5/19	DWG. NO. 7	
CHECKED BY : P. BARBER	DATE : 5/19		
DESIGN ENGINEER OF RECORD : P. BARBER	DATE : 5/19		

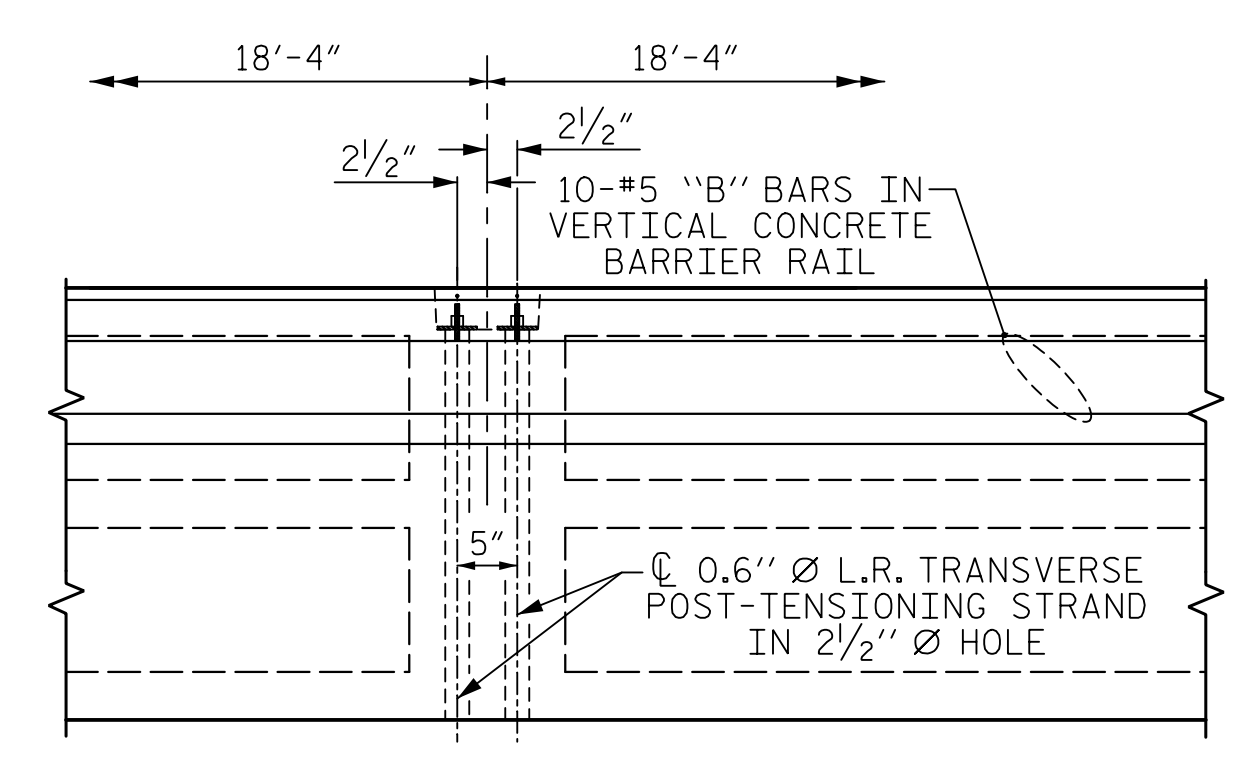
REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-7
1			3			TOTAL SHEETS
2			4			19



PLAN OF UNIT



DETAIL "A"



DETAIL "B"

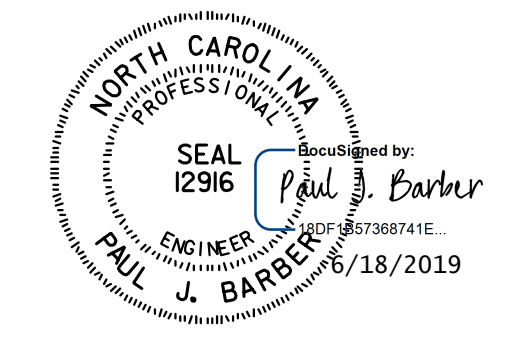
#4 S11 BARS MAY BE SHIFTED AS NECESSARY TO MAINTAIN 1" CLEAR TO GROUDED RECESS AND 2 1/2" Ø TRANSVERSE POST-TENSIONING STRAND HOLES

ASSEMBLED BY : D. WITHERSPOON	DATE : 5/19
CHECKED BY : P. BARBER	DATE : 5/19
DRAWN BY : DGE 3/09	REV. 12/5/11 MAA/AAC
CHECKED BY : BCH 3/09	REV. 8/14 MAA/TMG

(TYPICAL EACH END OF UNIT)
NOTE: EXTERIOR UNIT SHOWN - INTERIOR UNIT SIMILAR EXCEPT OMIT #5 S12 BARS.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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DRAWN BY : D. WITHERSPOON	DATE : 5/19	DWG. NO. 8	
CHECKED BY : P. BARBER	DATE : 5/19		
DESIGN ENGINEER OF RECORD : P. BARBER	DATE : 5/19		



PROJECT NO. 17BP.3.R.66
SAMPSON COUNTY
STATION: 17+26.00 -L-

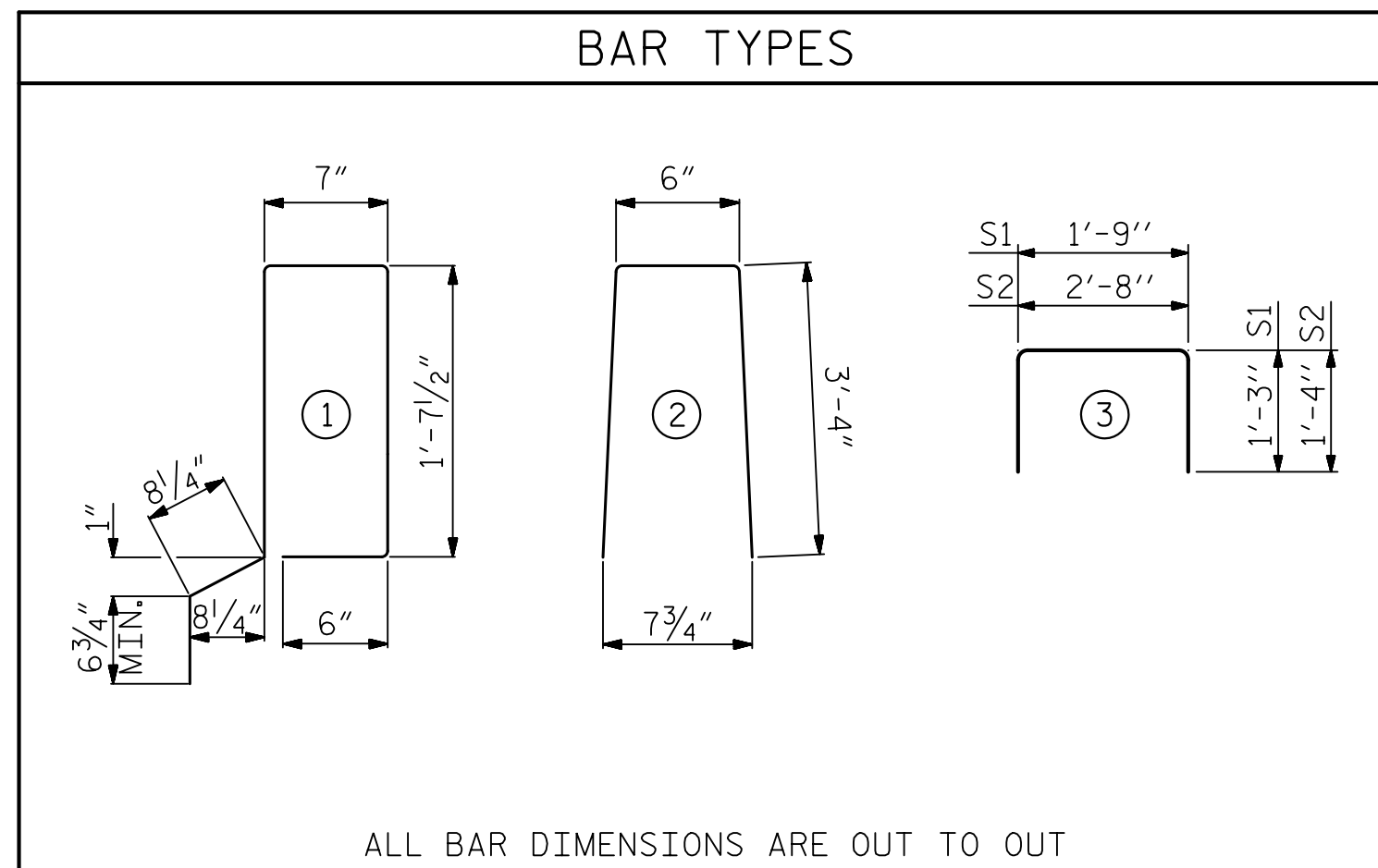
SHEET 6 OF 6

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
PLAN OF 55' UNIT
30'-10" CLEAR ROADWAY
90° SKEW
(SPAN B)

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-8
1			3			TOTAL SHEETS
2			4			19

BILL OF MATERIAL FOR VERTICAL CONCRETE BARRIER RAIL						
BAR	BARS PER PAIR OF EXTERIOR UNITS	TOTAL NO.	SIZE	TYPE	LENGTH	WEIGHT
35' UNIT						
*B10	40	40	#5	STR	17'-1"	713
*S4	88	88	#5	2	7'-2"	658
*EPOXY COATED REINFORCING STEEL						LBS. 1371
CLASS AA CONCRETE						CU.YDS. 9.0
TOTAL VERTICAL CONCRETE BARRIER RAIL						LN. FT. 70.25

GRADE 270 STRANDS	
AREA (SQUARE INCHES)	0.6" Ø L.R.
ULTIMATE STRENGTH (LBS. PER STRAND)	58,600
APPLIED PRESTRESS (LBS. PER STRAND)	43,950



ALL BAR DIMENSIONS ARE OUT TO OUT

NOTES

ALL PRESTRESSING STRANDS SHALL BE 7-WIRE LOW RELAXATION GRADE 270 STRANDS AND SHALL CONFORM TO AASHTO M203 EXCEPT FOR SAMPLING REQUIREMENTS WHICH SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

ALL REINFORCING STEEL CAST WITH THE CORED SLAB SECTIONS SHALL BE GRADE 60 AND SHALL BE INCLUDED IN THE UNIT PRICE BID FOR PRESTRESSED CONCRETE CORED SLABS.

RECESSES FOR TRANSVERSE STRANDS SHALL BE GROUTED AFTER THE TENSIONING OF THE STRANDS.

THE 2 1/2" Ø DOWEL HOLES AT FIXED ENDS OF SLAB SECTIONS SHALL BE FILLED WITH NON-SHRINK GROUT.

THE BACKER RODS SHALL CONFORM TO THE REQUIREMENTS OF TYPE M BOND BREAKER. SEE SECTION 1028 OF THE STANDARD SPECIFICATIONS.

WHEN CORED SLABS ARE CAST, AN INTERNAL HOLD-DOWN SYSTEM SHALL BE EMPLOYED TO PREVENT VOIDS FROM RISING OR MOVING SIDEWAYS. AT LEAST SIX WEEKS PRIOR TO CASTING CORED SLABS, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR REVIEW AND COMMENT, DETAILED DRAWINGS OF THE PROPOSED HOLD-DOWN SYSTEM. IN ADDITION TO STRUCTURAL DETAILS, LOCATION AND SPACING OF THE HOLD-DOWNS SHALL BE INDICATED.

ALL REINFORCING STEEL IN THE VERTICAL CONCRETE BARRIER RAIL SHALL BE EPOXY COATED.

PRESTRESSING STRANDS SHALL BE CUT FLUSH WITH THE CORED SLAB UNIT ENDS.

APPLY EPOXY PROTECTIVE COATING TO CORED SLAB UNIT ENDS.

GROOVED CONTRACTION JOINTS, 1/2" IN DEPTH, SHALL BE TOOLED IN ALL EXPOSED FACES OF THE BARRIER RAIL AND IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS. A CONTRACTION JOINT SHALL BE LOCATED AT EACH THIRD POINT BETWEEN BARRIER RAIL EXPANSION JOINTS. ONLY ONE CONTRACTION JOINT IS REQUIRED AT MIDPOINT OF BARRIER RAIL SEGMENTS LESS THAN 20 FEET IN LENGTH AND NO CONTRACTION JOINTS ARE REQUIRED FOR THOSE SEGMENTS LESS THAN 10 FEET IN LENGTH.

FLAME CUTTING OF THE TRANSVERSE POST-TENSIONING STRAND IS NOT ALLOWED.

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE CORED SLAB UNIT SHALL BE DONE WHEN THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN THE REQUIRED STRENGTH SHOWN IN THE "CONCRETE RELEASE STRENGTH" TABLE.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

THE PERMITTED THREADED INSERTS ARE DETAILED AS AN OPTION FOR THE CONTRACTOR TO ATTACH FALSEWORK AND FORMWORK DURING CONSTRUCTION.

THE PERMITTED THREADED INSERTS IN THE EXTERIOR UNITS SHALL BE SIZED BY THE CONTRACTOR, SPACED AT 4'-0" CENTERS AND GALVANIZED IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS. STAINLESS STEEL THREADED INSERTS MAY BE USED AS AN ALTERNATE.

THE PERMITTED THREADED INSERTS SHALL BE GROUTED BY THE CONTRACTOR IMMEDIATELY FOLLOWING REMOVAL OF THE FALSEWORK.

THE COST OF THE PERMITTED THREADED INSERTS SHALL BE INCLUDED IN THE PRICE BID FOR THE PRECAST UNITS.

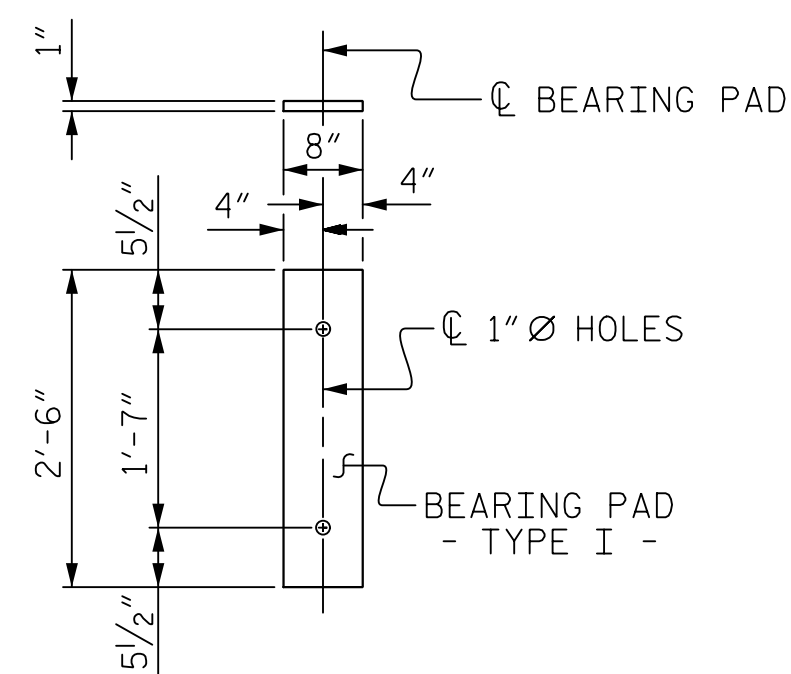
CONCRETE RELEASE STRENGTH	
UNIT	PSI
35' UNITS	4000

CORED SLABS REQUIRED			
35' UNIT	NUMBER	LENGTH	TOTAL LENGTH
EXTERIOR C.S.	2	35'-0"	70'-0"
INTERIOR C.S.	9	35'-0"	315'-0"
TOTAL	11		385'-0"

BILL OF MATERIAL FOR ONE 35' CORED SLAB UNIT							
		EXTERIOR UNIT		INTERIOR UNIT			
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT	LENGTH	WEIGHT
B3	4	#4	STR	18'-3"	49	18'-3"	49
S1	8	#5	3	4'-3"	35	4'-3"	35
S2	74	#4	3	5'-4"	264	5'-4"	264
*S3	44	#5	1	5'-7"	256		
REINFORCING STEEL					LBS. 348		348
*EPOXY COATED REINFORCING STEEL					LBS. 256		
5000 P.S.I. CONCRETE					CU. YDS. 5.1		5.1
0.6" Ø L.R. STRANDS				No.	9		9

DEAD LOAD DEFLECTION AND CAMBER	
35' CORED SLAB UNIT	3'-0" x 1'-9"
CAMBER (SLAB ALONE IN PLACE)	0.6" Ø L.R. STRAND 1/4" ↑
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD**	1/8" ↓
FINAL CAMBER	1/8" ↑

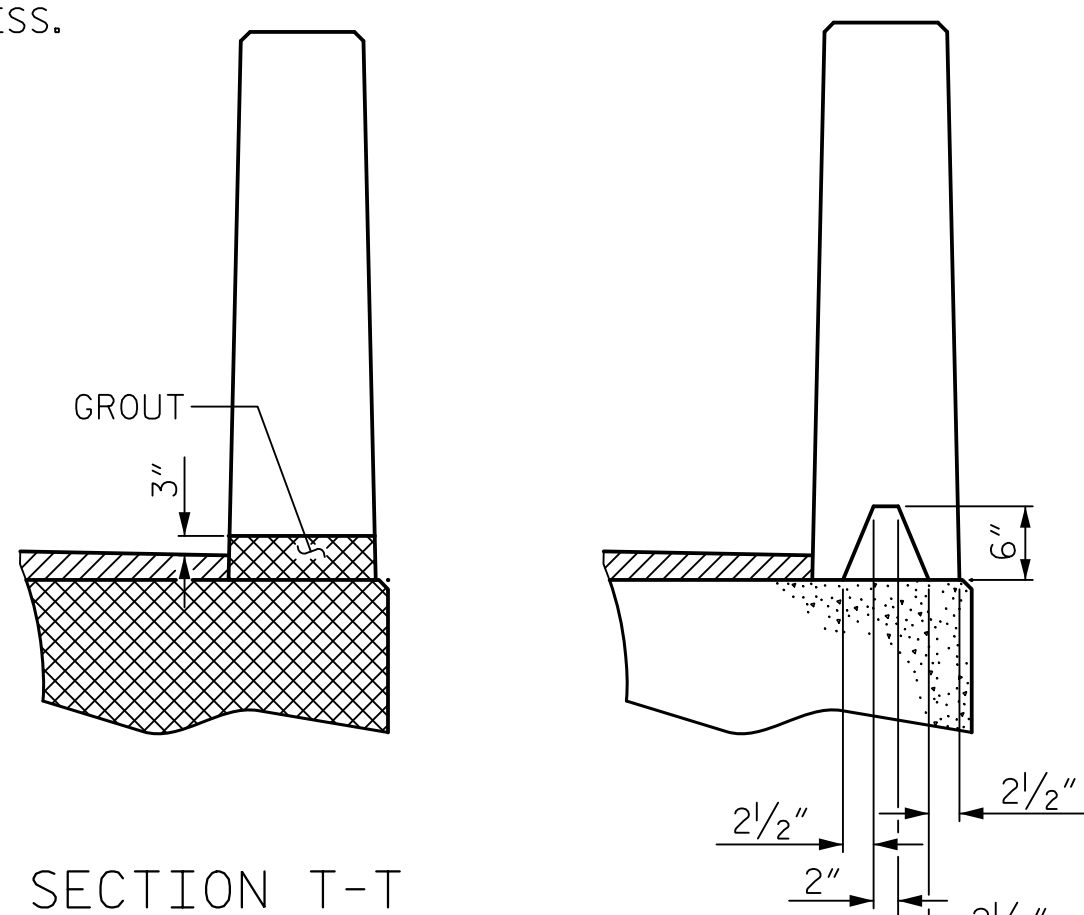
** INCLUDES FUTURE WEARING SURFACE



FIXED END (TYPE I - 22 REQ'D)

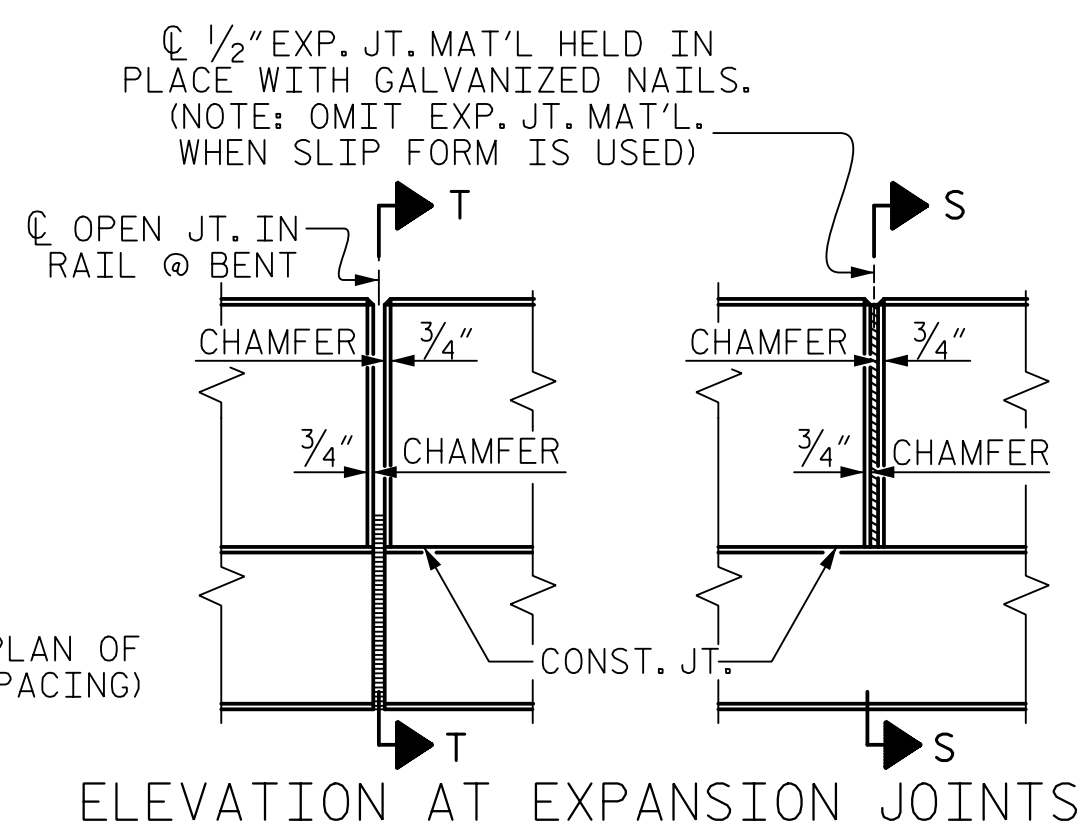
ELASTOMERIC BEARING DETAILS

ELASTOMER IN ALL BEARINGS SHALL BE 60 DUROMETER HARDNESS.

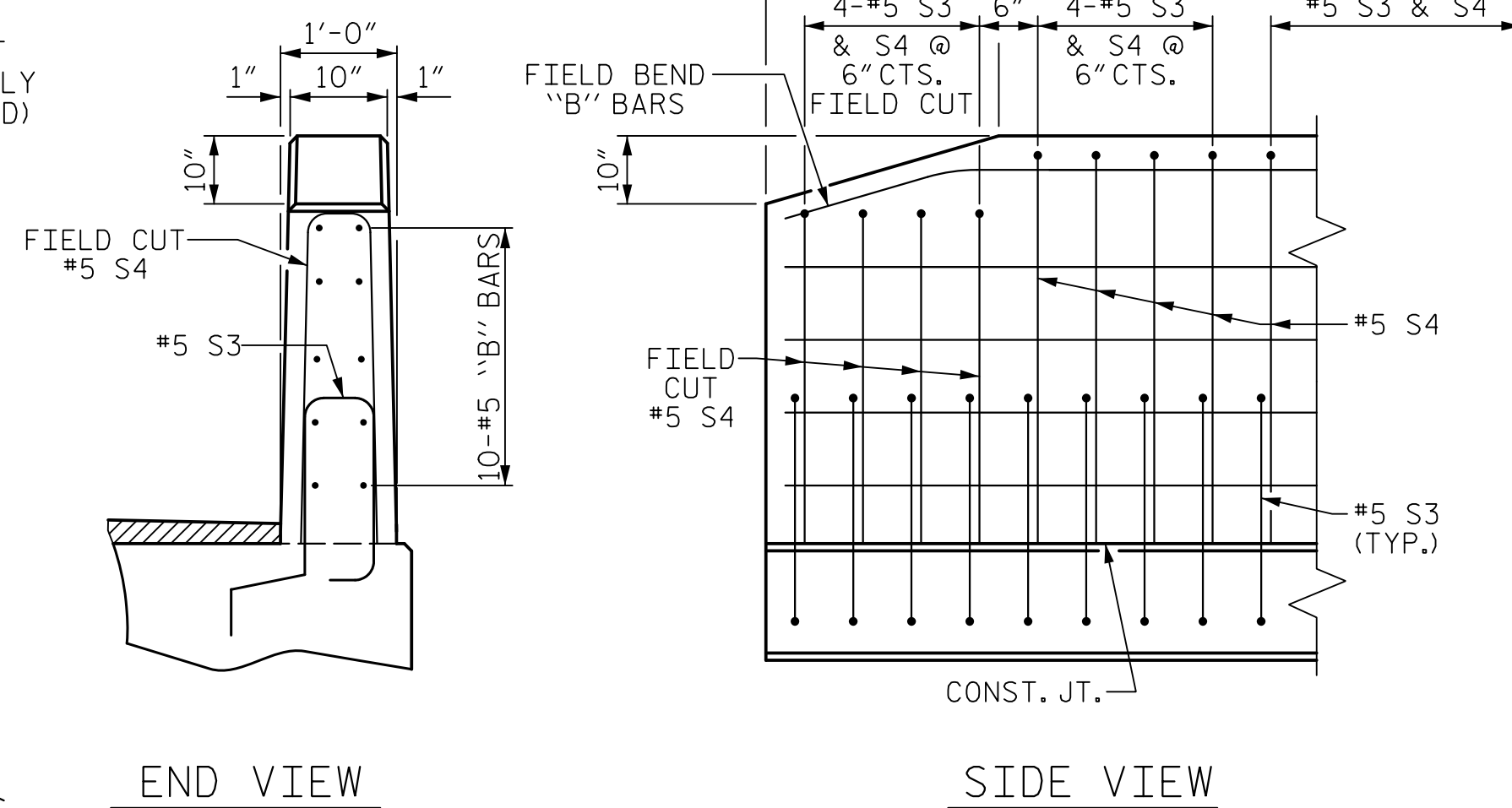


SECTION T-T AT OPEN JOINT AT BENT (THIS IS TO BE USED WHERE FOAM JOINT IS NOT USED)

SECTION S-S AT DAM IN OPEN JOINT (THIS IS TO BE USED ONLY WHEN SLIP FORM IS USED)



ELEVATION AT EXPANSION JOINTS



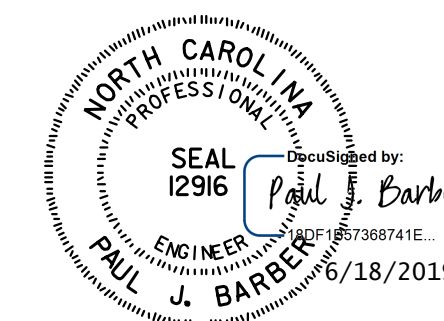
END VIEW

SIDE VIEW

GUTTERLINE ASPHALT THICKNESS & RAIL HEIGHT		
	ASPHALT OVERLAY THICKNESS @ MID-SPAN	RAIL HEIGHT @ MID-SPAN
35' UNITS	2 5/8"	3'-8 5/8"

PROJECT NO. 17BP.3.R.66
SAMPSON COUNTY
STATION: 17+26.00 -L-

SHEET 2 OF 6



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
3'-0" X 1'-9"
PRESTRESSED CONCRETE
CORED SLAB UNIT
90° SKEW
(SPAN A)

ASSEMBLED BY : D. WITHERSPOON	DATE : 5/19
CHECKED BY : P. BARBER	DATE : 5/19
DRAWN BY : DGE 5/09	REV. 9/14
CHECKED BY : BCH 6/09	MAA/TMG

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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NC License No. C-1554		343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609	
DRAWN BY : D. WITHERSPOON	DATE : 5/19	DWG. NO. 9	
CHECKED BY : P. BARBER	DATE : 5/19		
DESIGN ENGINEER OF RECORD : P. BARBER	DATE : 5/19		

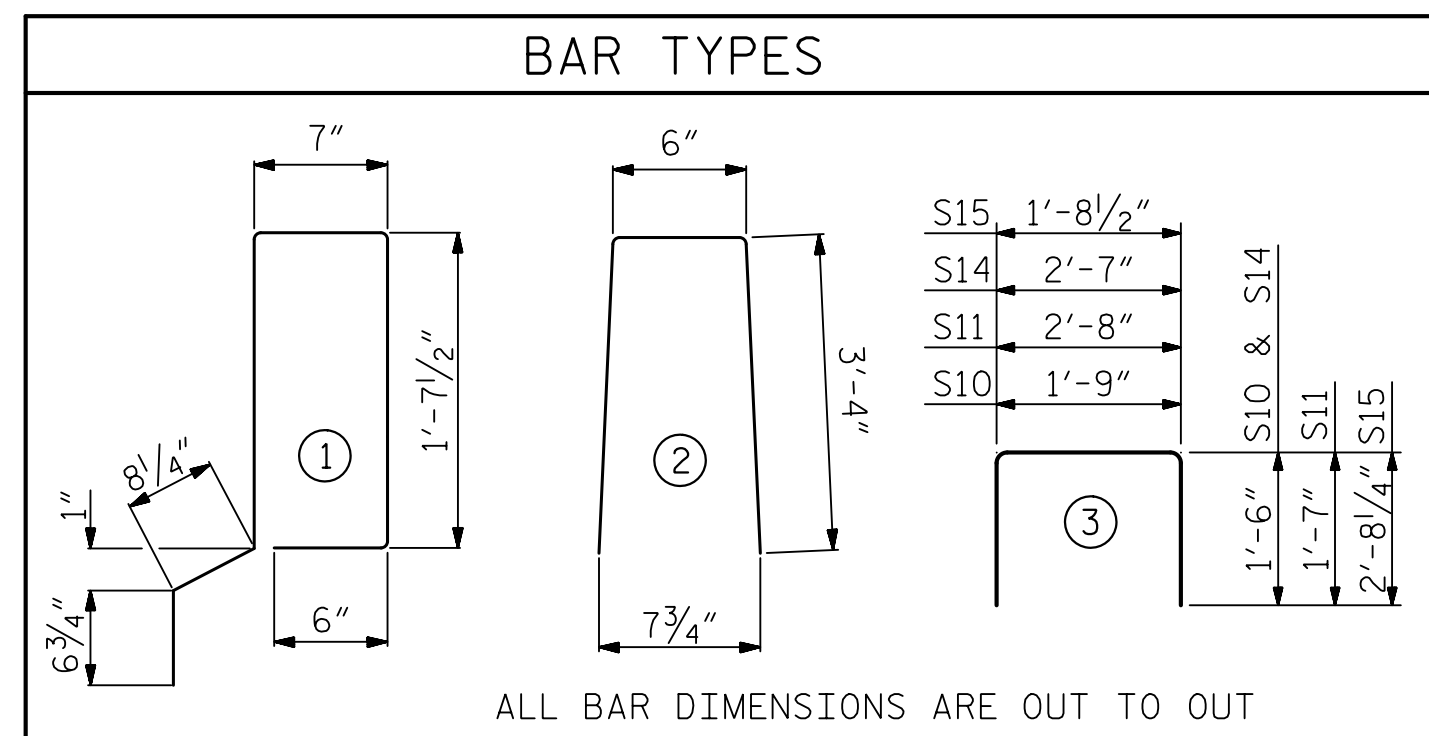
REVISIONS					SHEET NO.
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		

TOTAL SHEETS 19

BILL OF MATERIAL FOR VERTICAL CONCRETE BARRIER RAIL						
BAR	BARS PER PAIR OF EXTERIOR UNITS	TOTAL NO.	SIZE	TYPE	LENGTH	WEIGHT
55' UNIT						
*B37	40	40	#5	STR	27'-1"	1130
*S13	128	128	#5	2	7'-2"	957
*EPOXY COATED REINFORCING STEEL						LBS. 2087
CLASS AA CONCRETE						CU.YDS. 14.3
TOTAL VERTICAL CONCRETE BARRIER RAIL						LN. FT. 110.25

CONCRETE RELEASE STRENGTH	
UNIT	PSI
55' UNITS	6200

CORED SLABS REQUIRED			
	NUMBER	LENGTH	TOTAL LENGTH
55' UNIT			
EXTERIOR C.S.	2	55'-0"	110'-0"
INTERIOR C.S.	9	55'-0"	495'-0"
TOTAL	11		605'-0"



ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL FOR ONE 55' CORED SLAB UNIT							
				EXTERIOR UNIT		INTERIOR UNIT	
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT	LENGTH	WEIGHT
B31	4	#4	STR	28'-3"	75	28'-3"	75
S10	8	#5	3	4'-9"	40	4'-9"	40
S11	114	#4	3	5'-10"	444	5'-10"	444
*S12	64	#5	1	5'-7"	373		
S14	4	#4	3	5'-7"	15	5'-7"	15
S15	4	#5	3	7'-1"	30	7'-1"	30
REINFORCING STEEL				LBS.	604	604	
*EPOXY COATED REINFORCING STEEL				LBS.	373		
8500 P.S.I. CONCRETE				CU. YDS.	9.4	9.4	
0.6" Ø L.R. STRANDS				No.	31	31	

DEAD LOAD DEFLECTION AND CAMBER	
55' CORED SLAB UNIT	3'-0" x 2'-0" 0.6" Ø L.R. STRAND
CAMBER (SLAB ALONE IN PLACE)	1 3/4" ↑
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD**	1/4" ↓
FINAL CAMBER	1 1/2" ↑

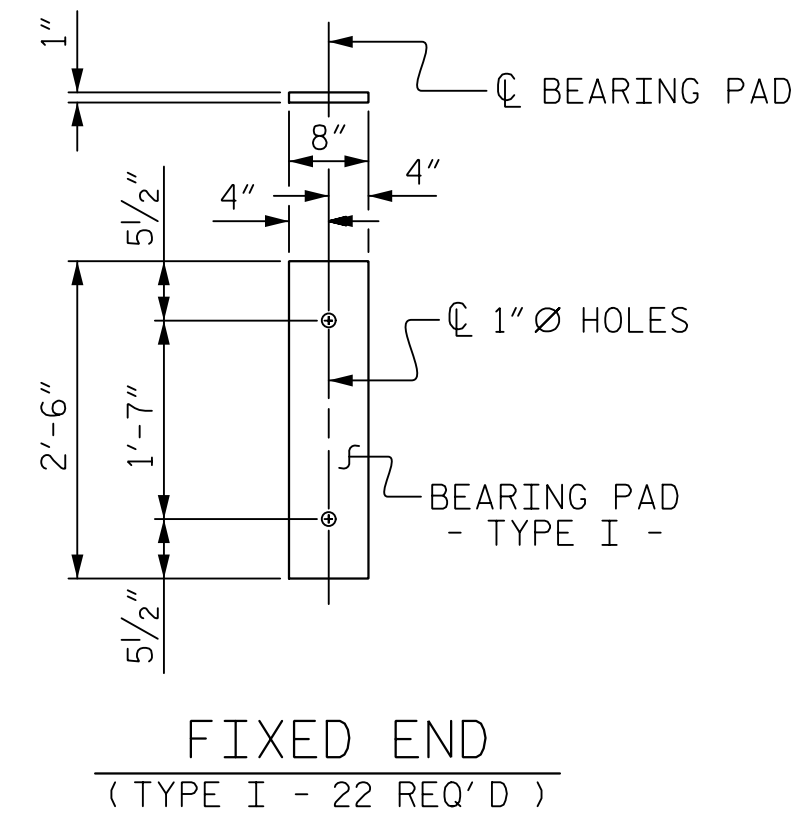
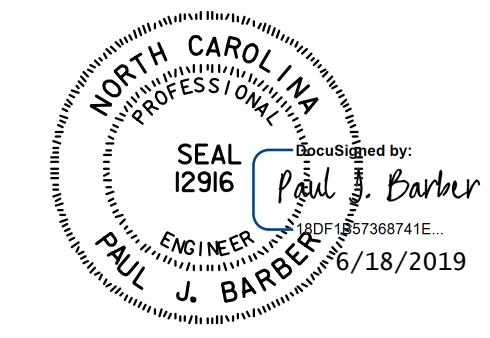
** INCLUDES FUTURE WEARING SURFACE

GUTTERLINE ASPHALT THICKNESS & RAIL HEIGHT		
	ASPHALT OVERLAY THICKNESS MID-SPAN	RAIL HEIGHT MID-SPAN
55' UNITS	2"	3'-8"

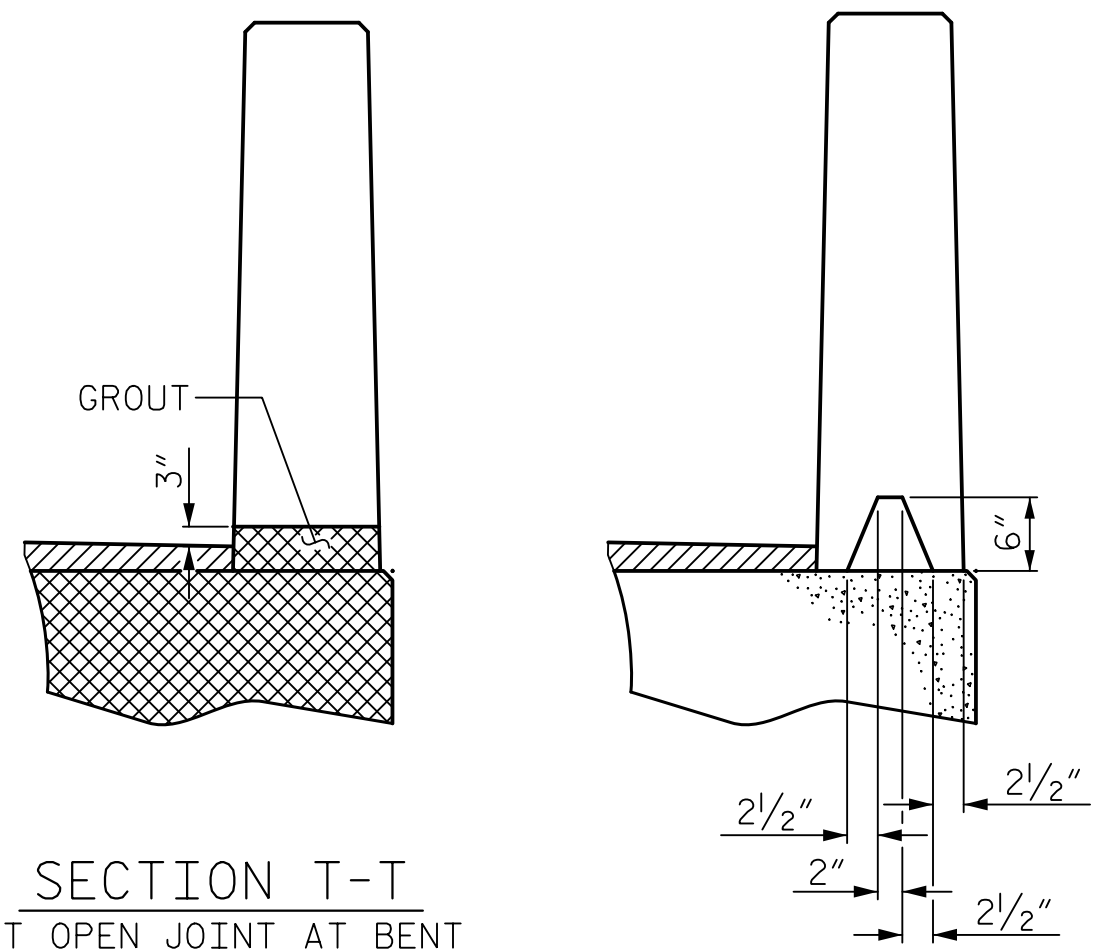
GRADE 270 STRANDS	
AREA (SQUARE INCHES)	0.217
ULTIMATE STRENGTH (LBS. PER STRAND)	58,600
APPLIED PRESTRESS (LBS. PER STRAND)	43,950

PROJECT NO. 17BP.3.R.66
SAMPSON COUNTY
 STATION: 17+26.00 -L-

SHEET 5 OF 6
 STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 3'-0" X 2'-0"
 PRESTRESSED CONCRETE
 CORED SLAB UNIT
 90° SKEW
 (SPAN B)

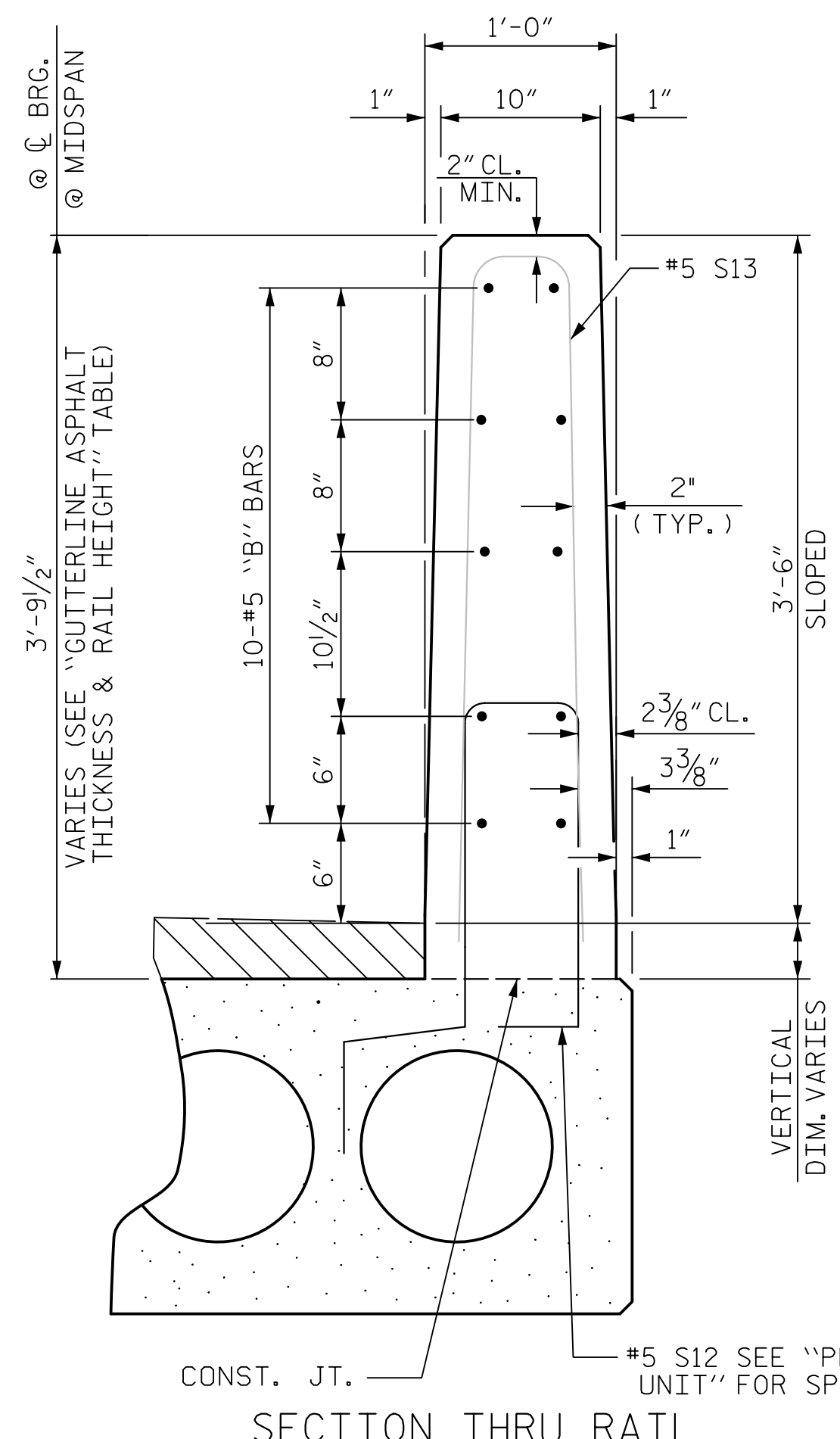


FIXED END
(TYPE I - 22 REQ'D)

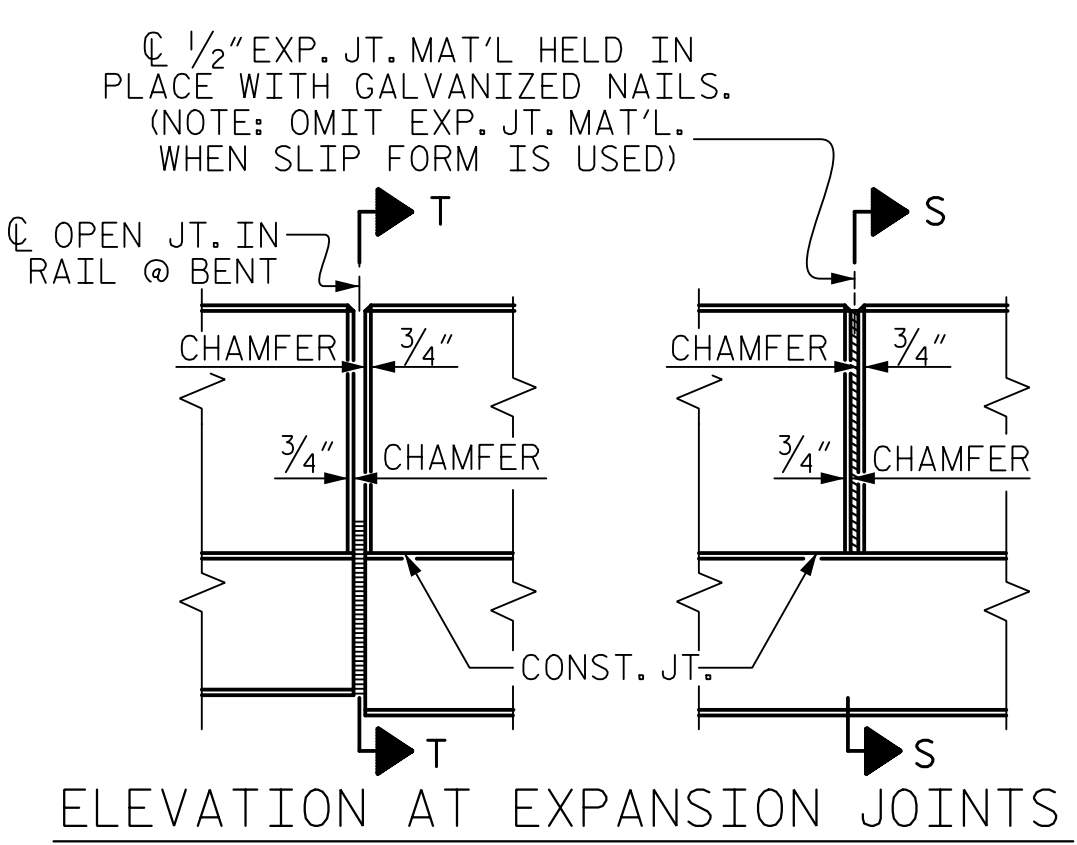


SECTION T-T
AT OPEN JOINT AT BENT
(THIS IS TO BE USED WHERE
FOAM JOINT IS NOT USED)

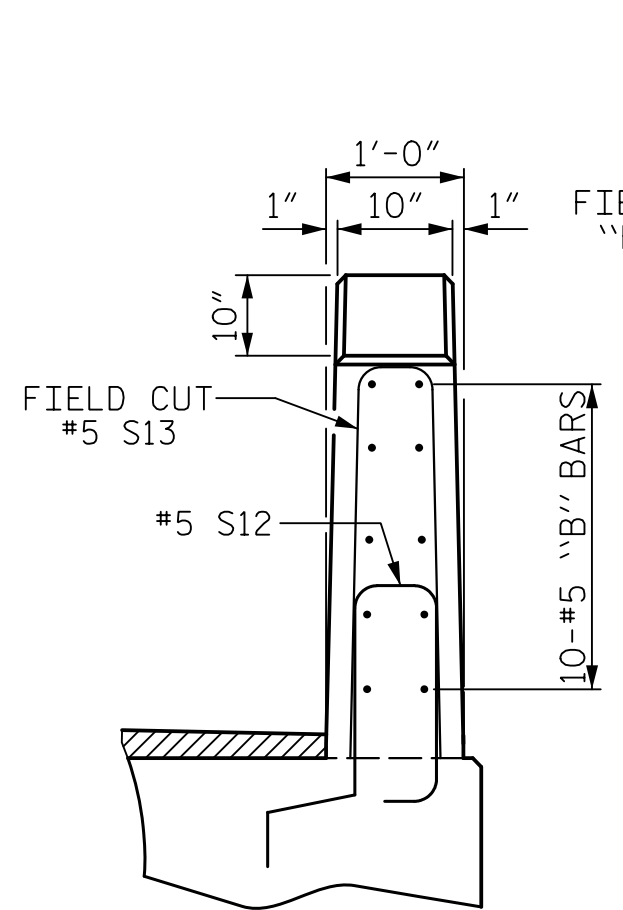
SECTION S-S
AT DAM IN OPEN JOINT
(THIS IS TO BE USED ONLY
WHEN SLIP FORM IS USED)



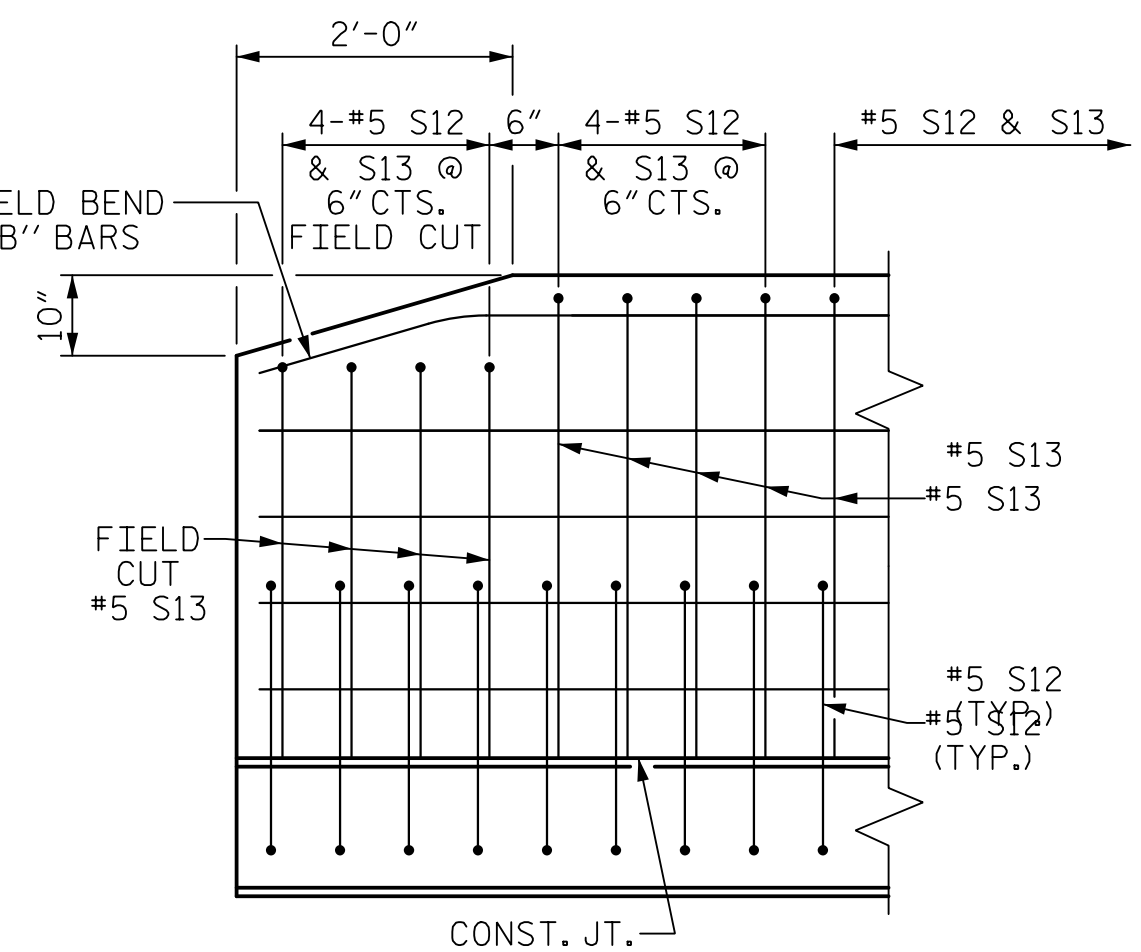
SECTION THRU RAIL



ELEVATION AT EXPANSION JOINTS



END VIEW



SIDE VIEW

END OF RAIL DETAILS

ELASTOMERIC BEARING DETAILS
 ELASTOMER IN ALL BEARINGS SHALL BE 60 DUROMETER HARDNESS.

NOTES
 ALL PRESTRESSING STRANDS SHALL BE 7-WIRE LOW RELAXATION GRADE 270 STRANDS AND SHALL CONFORM TO AASHTO M203 EXCEPT FOR SAMPLING REQUIREMENTS WHICH SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.
 ALL REINFORCING STEEL CAST WITH THE CORED SLAB SECTIONS SHALL BE GRADE 60 AND SHALL BE INCLUDED IN THE UNIT PRICE BID FOR PRESTRESSED CONCRETE CORED SLABS.
 RECESSES FOR TRANSVERSE STRANDS SHALL BE GROUDED AFTER THE TENSIONING OF THE STRANDS.
 THE 2 1/2" Ø DOWEL HOLES AT FIXED ENDS OF SLAB SECTIONS SHALL BE FILLED WITH NON-SHRINK GROUT.
 THE BACKER RODS SHALL CONFORM TO THE REQUIREMENTS OF TYPE M BOND BREAKER. SEE SECTION 1028 OF THE STANDARD SPECIFICATIONS.
 WHEN CORED SLABS ARE CAST, AN INTERNAL HOLD-DOWN SYSTEM SHALL BE EMPLOYED TO PREVENT VOIDS FROM RISING OR MOVING SIDEWAYS. AT LEAST SIX WEEKS PRIOR TO CASTING CORED SLABS, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR REVIEW AND COMMENT, DETAILED DRAWINGS OF THE PROPOSED HOLD-DOWN SYSTEM. IN ADDITION TO STRUCTURAL DETAILS, LOCATION AND SPACING OF THE HOLD-DOWNS SHALL BE INDICATED.
 THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE CORED SLAB UNIT SHALL BE DONE WHEN THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN THE REQUIRED STRENGTH SHOWN IN THE "CONCRETE RELEASE STRENGTH" TABLE.
 ALL REINFORCING STEEL IN VERTICAL CONCRETE BARRIER RAILS SHALL BE EPOXY COATED.
 PRESTRESSING STRANDS SHALL BE CUT FLUSH WITH THE CORED SLAB UNIT ENDS.
 APPLY EPOXY PROTECTIVE COATING TO CORED SLAB UNIT ENDS.
 GROOVED CONTRACTION JOINTS, 1/2" IN DEPTH, SHALL BE TOOLED IN ALL EXPOSED FACES OF THE BARRIER RAIL AND IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS. A CONTRACTION JOINT SHALL BE LOCATED AT EACH THIRD POINT BETWEEN BARRIER RAIL EXPANSION JOINTS. ONLY ONE CONTRACTION JOINT IS REQUIRED AT MIDPOINT OF BARRIER RAIL SEGMENTS LESS THAN 20 FEET IN LENGTH AND NO CONTRACTION JOINTS ARE REQUIRED FOR THOSE SEGMENTS LESS THAN 10 FEET IN LENGTH.
 FLAME CUTTING OF THE TRANSVERSE POST-TENSIONING STRAND IS NOT ALLOWED.
 MAINTAIN A SYMMETRIC TENSION FORCE BETWEEN EACH PAIR OF TRANSVERSE POST TENSIONING STRANDS IN THE DIAPHRAGM.
 THE #4 S11 STIRRUPS MAY BE SHIFTED AS NECESSARY TO MAINTAIN 1" CLEAR TO THE GROUDED RECESS.
 FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.
 THE PERMITTED THREADED INSERTS ARE DETAILED AS AN OPTION FOR THE CONTRACTOR TO ATTACH FALSEWORK AND FORMWORK DURING CONSTRUCTION.
 THE PERMITTED THREADED INSERTS IN THE EXTERIOR UNITS SHALL BE SIZED BY THE CONTRACTOR, SPACED AT 4'-0" CENTERS AND GALVANIZED IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS. STAINLESS STEEL THREADED INSERTS MAY BE USED AS AN ALTERNATE.
 THE PERMITTED THREADED INSERTS SHALL BE GROUDED BY THE CONTRACTOR IMMEDIATELY FOLLOWING REMOVAL OF THE FALSEWORK.
 THE COST OF THE PERMITTED THREADED INSERTS SHALL BE INCLUDED IN THE PRICE BID FOR THE PRECAST UNITS.

ASSEMBLED BY : D. WITHERSPOON DATE : 5/19
 CHECKED BY : P. BARBER DATE : 5/19
 DRAWN BY : DGE 5/09
 CHECKED BY : BCH 6/09
 REV. 5/18

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 NC License No. C-1554
 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609
 DRAWN BY : D. WITHERSPOON DATE : 5/19
 CHECKED BY : P. BARBER DATE : 5/19
 DESIGN ENGINEER OF RECORD : P. BARBER DATE : 5/19
 DWG. NO. 10

REVISIONS					SHEET NO.
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		

TOTAL SHEETS 19

NOTES

THE GUARDRAIL ANCHOR ASSEMBLY SHALL CONSIST OF A 1/4" HOLD DOWN PLATE AND 7 - 7/8" Ø BOLTS WITH NUTS AND WASHERS.

THE HOLD-DOWN PLATE SHALL CONFORM TO AASHTO M270 GRADE 36. AFTER FABRICATION, THE HOLD-DOWN PLATE SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH AASHTO M111.

BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307 AND NUTS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M291. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED. (AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS, NUTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 7/8" Ø GALVANIZED BOLTS, NUTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)

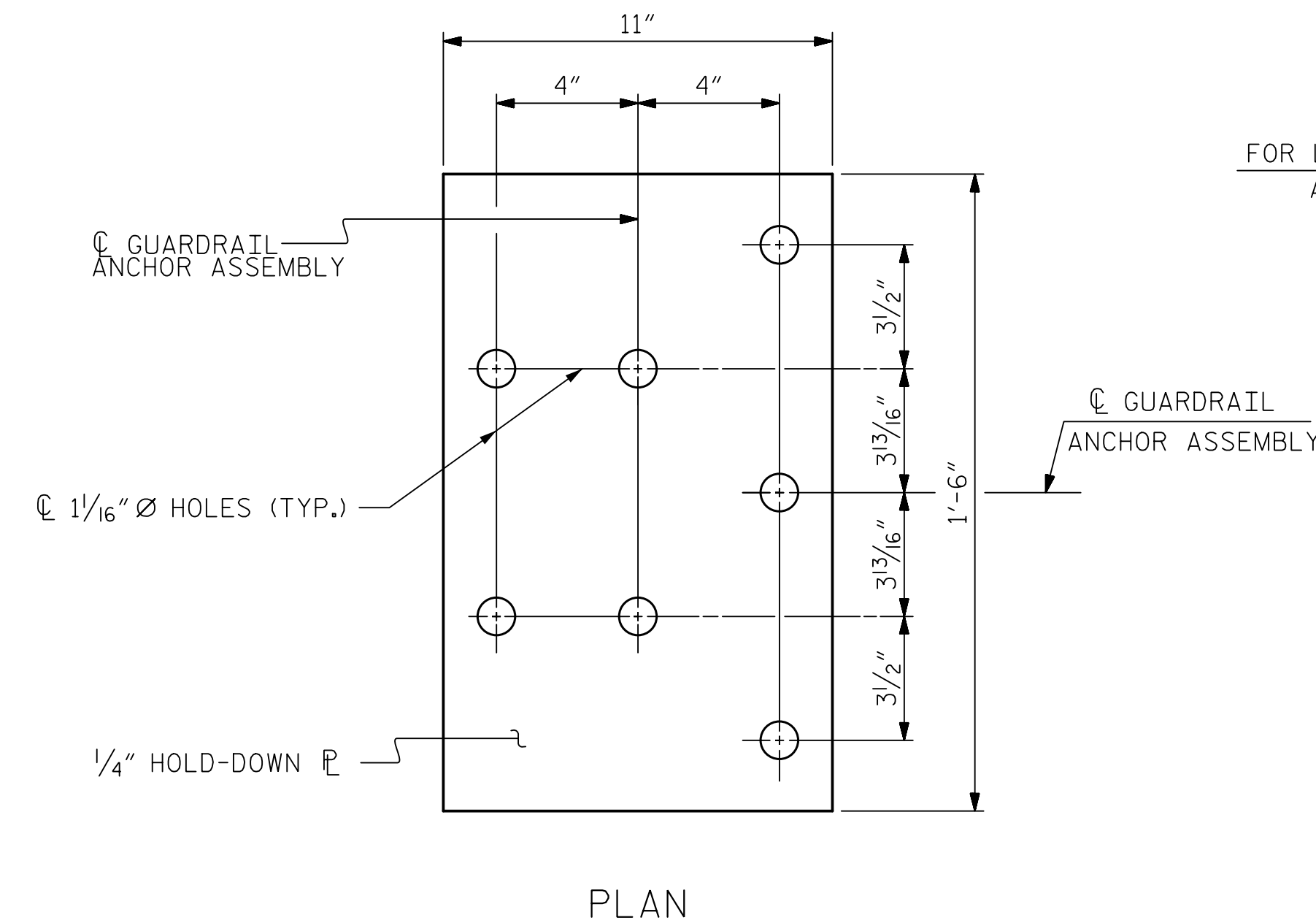
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

AFTER INSTALLATION, THE EXPOSED THREAD OF THE BOLT SHALL BE BURRED WITH A SHARP POINTED TOOL.

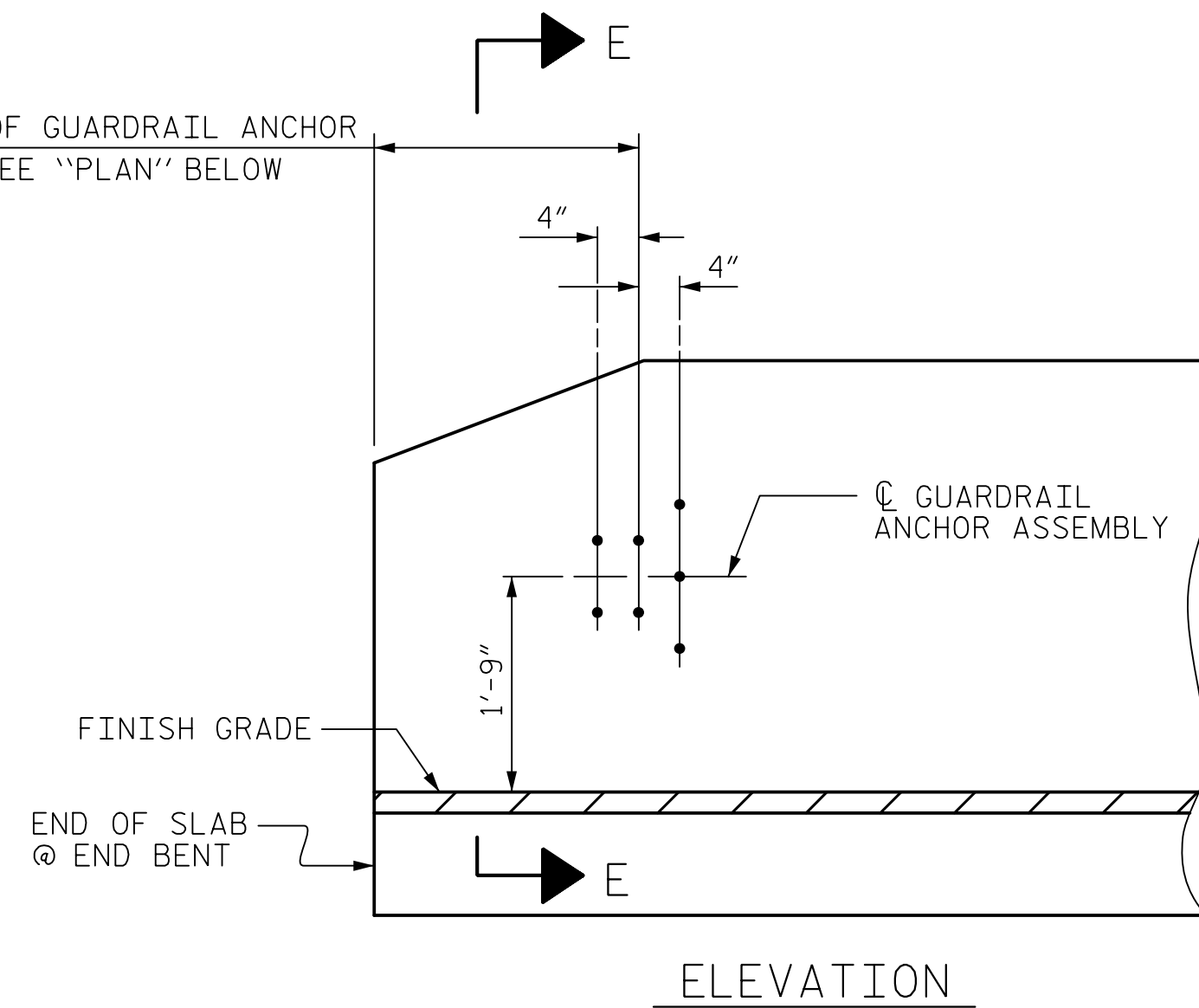
THE COST OF THE GUARDRAIL ANCHOR ASSEMBLY SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR VERTICAL CONCRETE BARRIER RAIL.

THE VERTICAL REINFORCING BARS MAY BE SHIFTED SLIGHTLY IN THE VERTICAL CONCRETE BARRIER RAIL TO CLEAR ASSEMBLY BOLTS.

THE 1 1/4" Ø HOLES SHALL BE FORMED OR DRILLED WITH A CORE BIT. IMPACT TOOLS WILL NOT BE PERMITTED. ANY CONCRETE DAMAGED BY THIS WORK SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER.

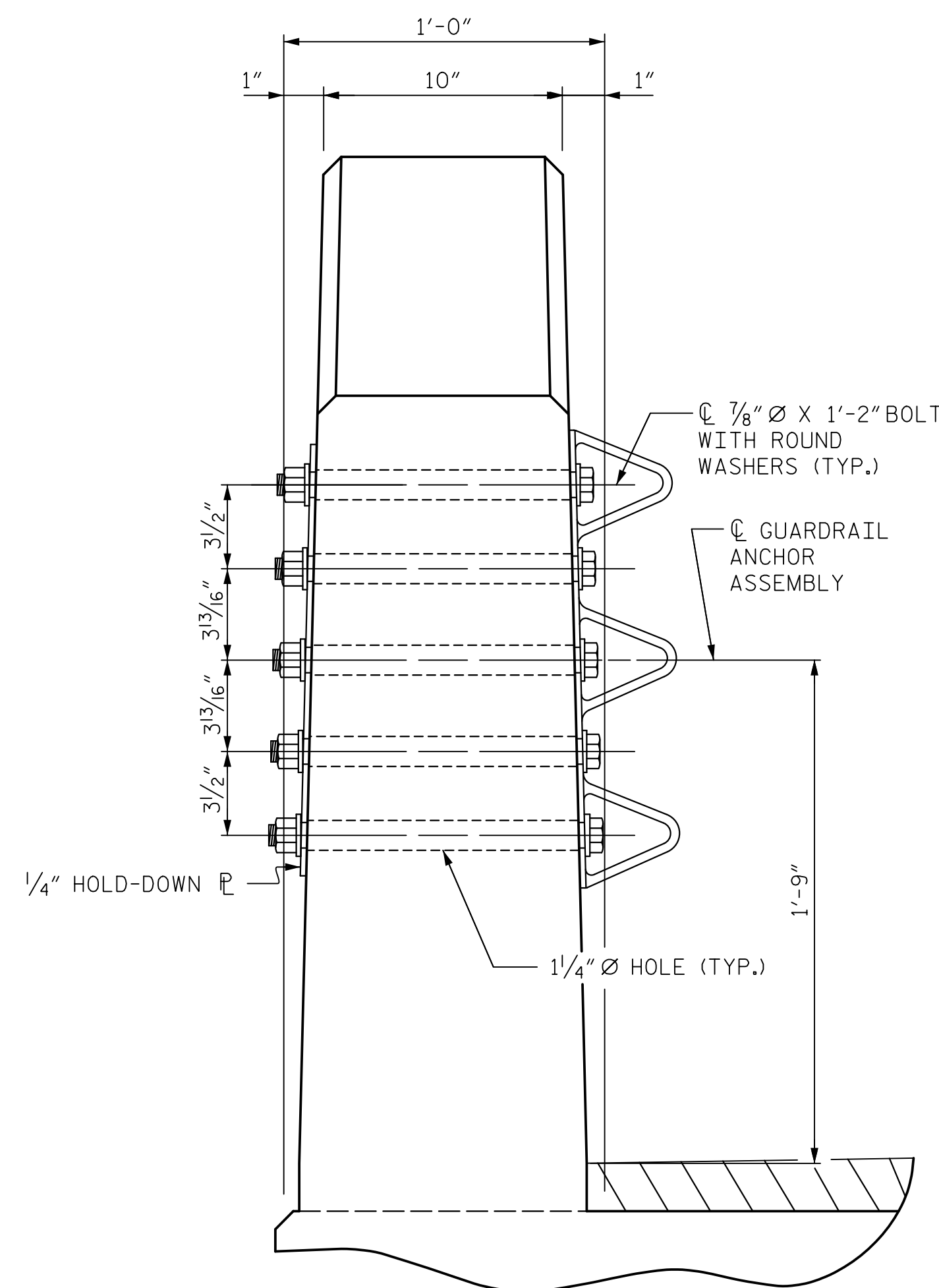


FOR LOCATION OF GUARDRAIL ANCHOR ASSEMBLY, SEE "PLAN" BELOW

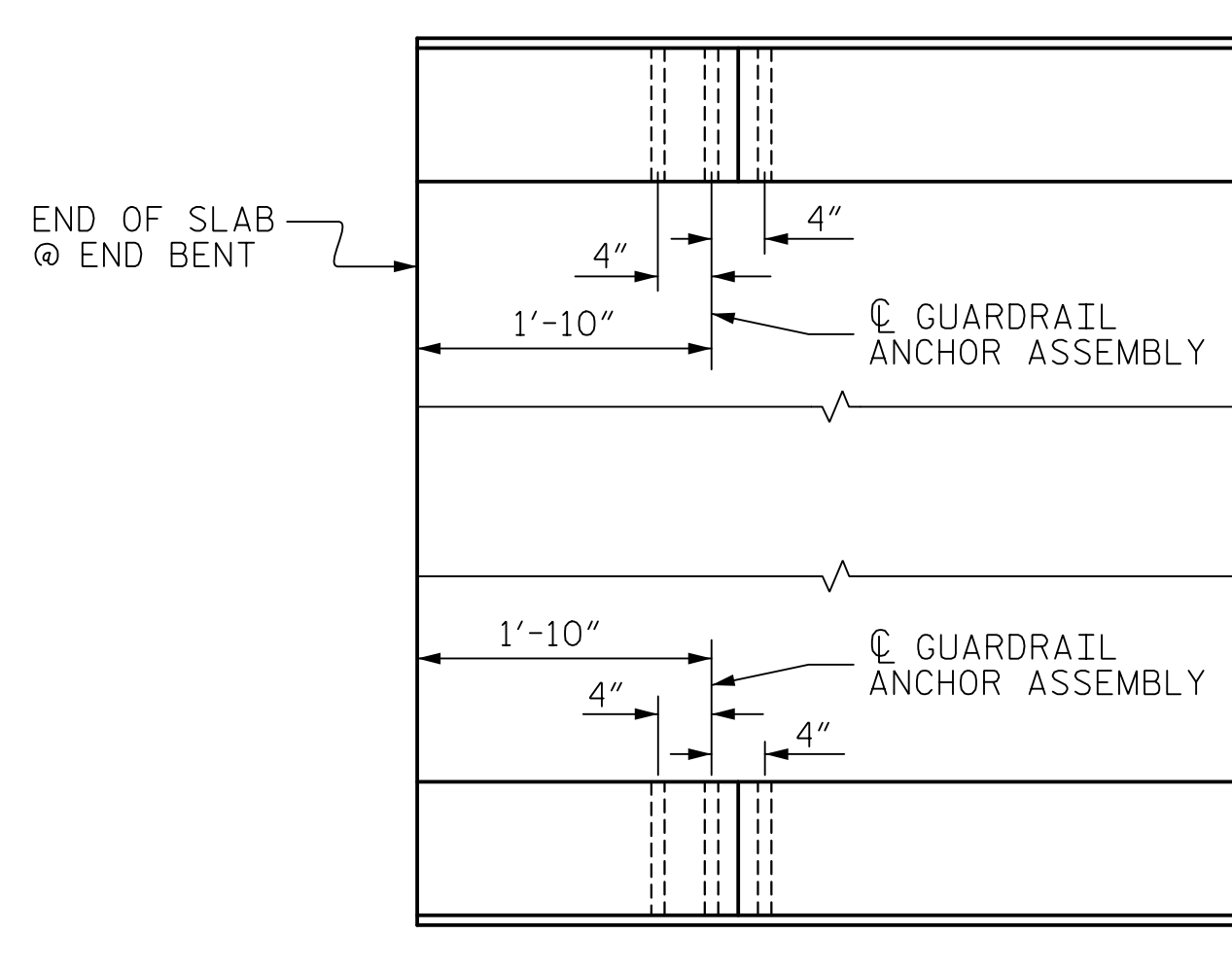


PLAN

ELEVATION



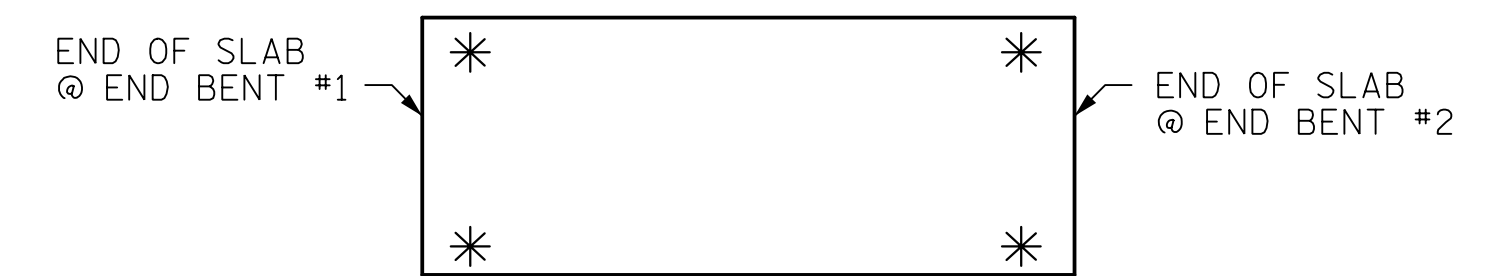
SECTION E-E
GUARDRAIL ANCHOR ASSEMBLY DETAILS



PLAN

LOCATION OF ANCHORS FOR GUARDRAIL

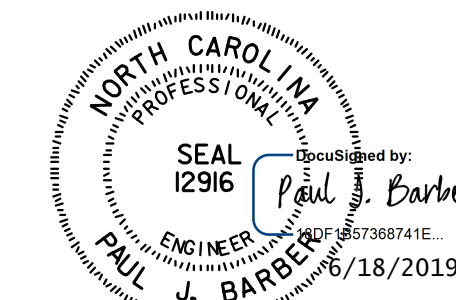
END BENT #1 SHOWN, END BENT #2 SIMILAR.



SKETCH SHOWING POINTS OF ATTACHMENT

* DENOTES GUARDRAIL ANCHOR ASSEMBLY

PROJECT NO. 17BP.3.R.66
SAMPSON COUNTY
 STATION: 17+26.00 -L-



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 GUARDRAIL ANCHORAGE
 DETAILS
 FOR VERTICAL CONCRETE
 BARRIER RAIL

ASSEMBLED BY : D. WITHERSPOON	DATE : 5/19
CHECKED BY : P. BARBER	DATE : 5/19
DRAWN BY : MAA 5/10	REV. 1/15 MAA/TMC
CHECKED BY : CM 5/10	REV. 12/17 MAA/THC
	REV. 5/18 MAA/THC

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DRAWN BY : D. WITHERSPOON	DATE : 5/19
CHECKED BY : P. BARBER	DATE : 5/19
DESIGN ENGINEER OF RECORD : P. BARBER	DATE : 5/19

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-11
1			3			TOTAL SHEETS
2			4			19

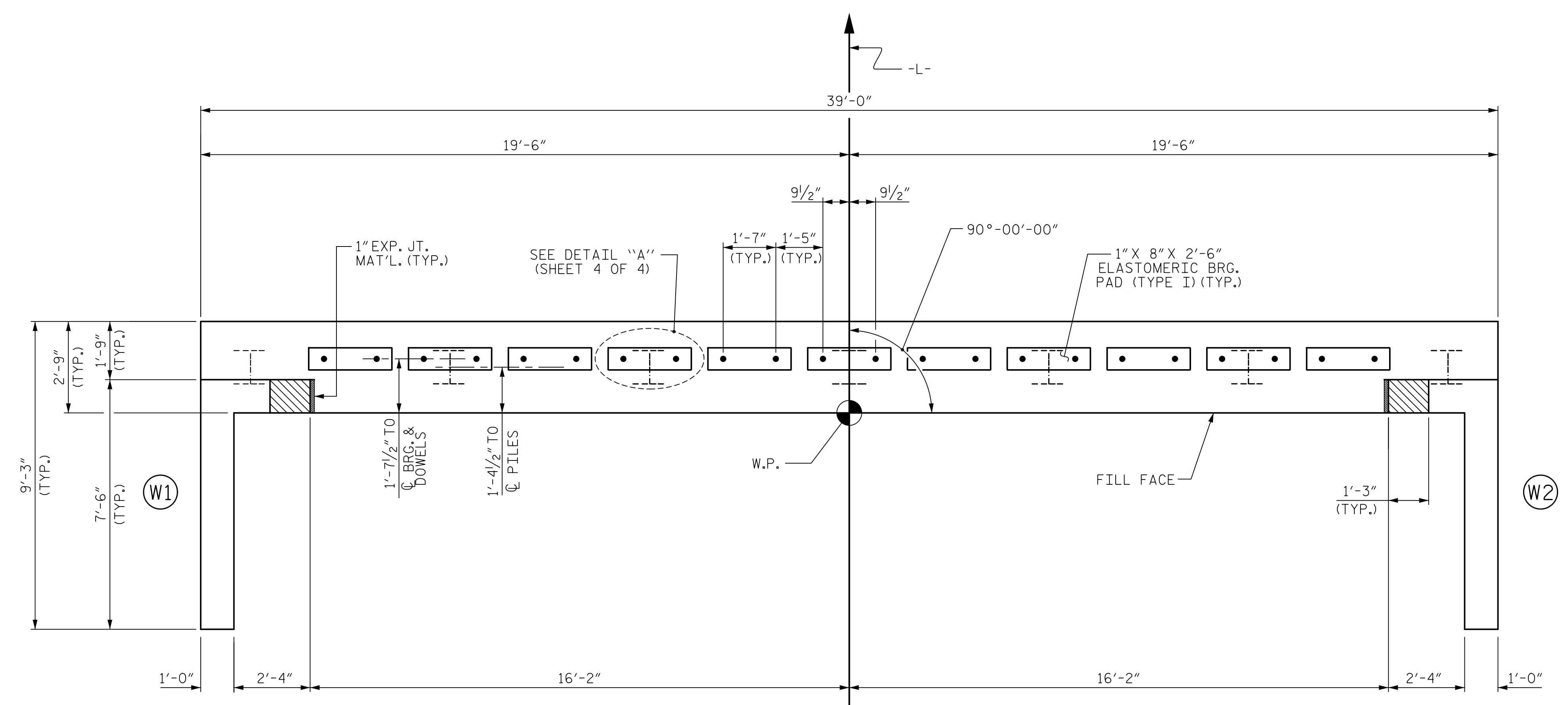
NOTES

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.

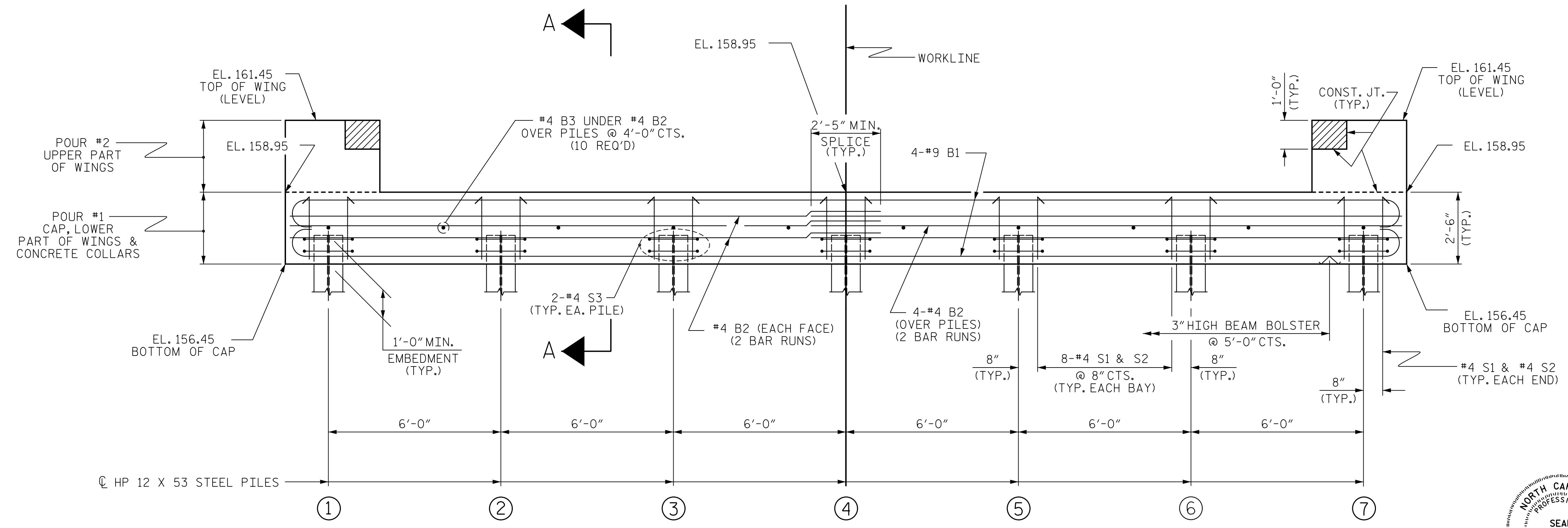
THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE VERTICAL CONCRETE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.

FOR PILE SPLICE DETAILS, SEE SHEET 4 OF 4.

FOR WING DETAILS, SEE SHEET 3 OF 4.

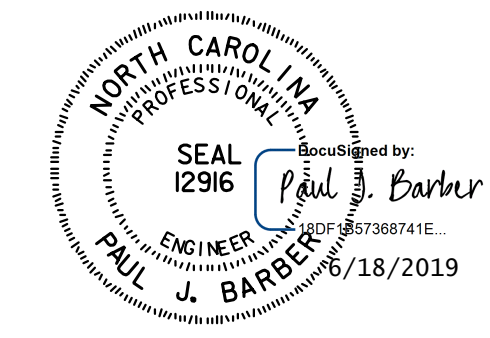


PLAN



ELEVATION

WINGS NOT SHOWN FOR CLARITY.
FOR SECTION A-A, SEE SHEET 4 OF 4.
CONCRETE COLLARS FOR STEEL PILES NOT SHOWN IN PLAN AND ELEVATION VIEWS FOR CLARITY.
SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL", SHEET 4 OF 4.



PROJECT NO. 17BP.3.R.66
SAMPSON COUNTY
 STATION: 17+26.00 -L-

SHEET 1 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 END BENT No. 1

ASSEMBLED BY : D. WITHERSPOON	DATE : 5/19
CHECKED BY : P. BARBER	DATE : 5/19
DRAWN BY : WJH 12/11	REV. 4/15
CHECKED BY : AAC 12/11	MAA/TMG

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 NC License No. C-1554
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DRAWN BY : D. WITHERSPOON DATE : 5/19
 CHECKED BY : P. BARBER DATE : 5/19
 DESIGN ENGINEER OF RECORD : P. BARBER DATE : 5/19

DWG. NO. 12

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-12
1			3			TOTAL SHEETS
2			4			19

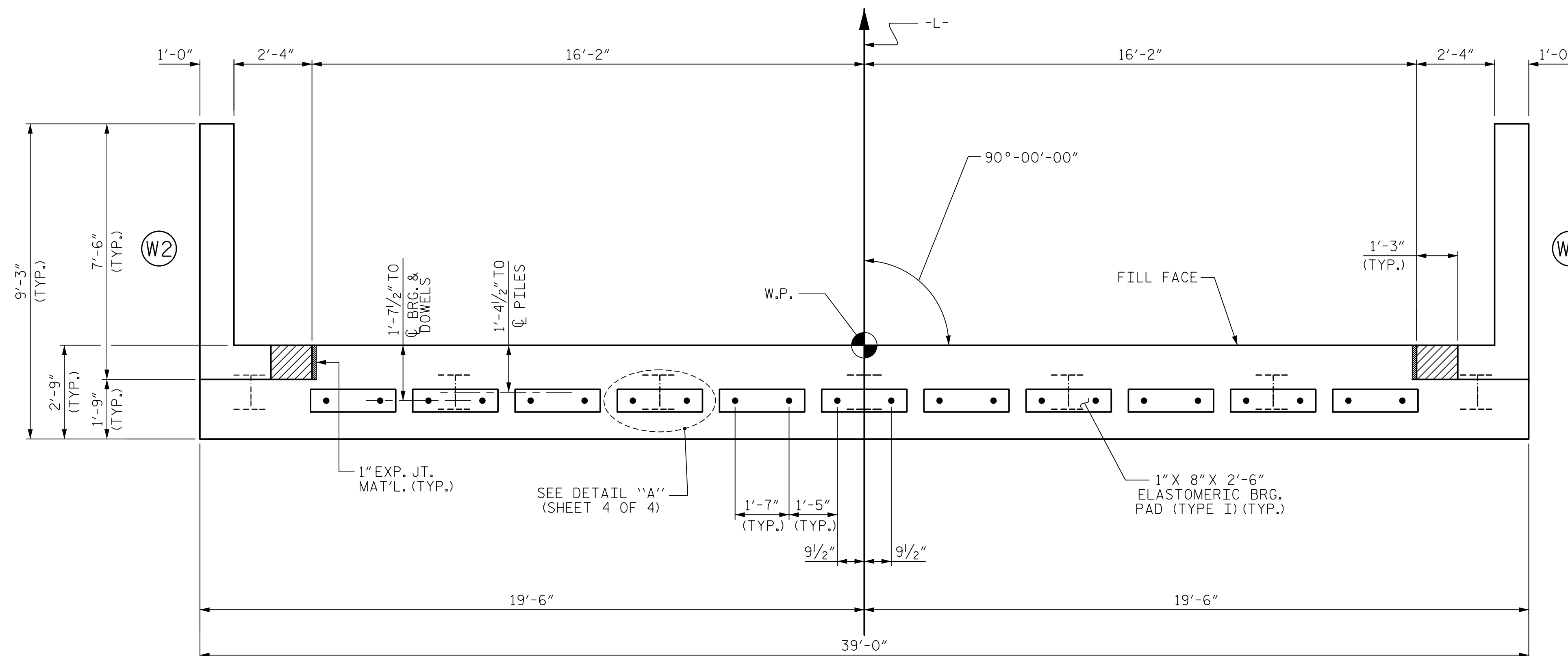
NOTES

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.

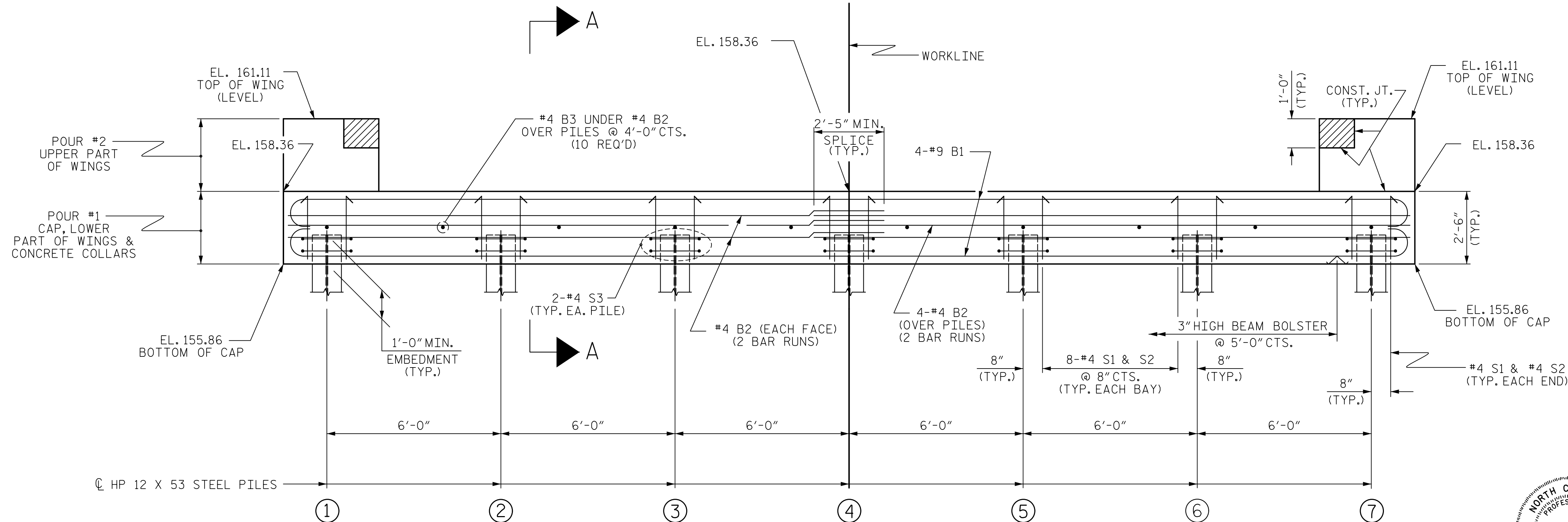
THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE VERTICAL CONCRETE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.

FOR PILE SPLICE DETAILS, SEE SHEET 4 OF 4.

FOR WING DETAILS, SEE SHEET 3 OF 4.



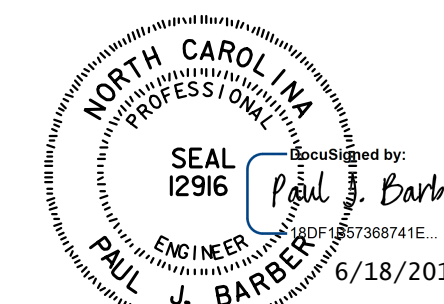
PLAN



ELEVATION

WINGS NOT SHOWN FOR CLARITY.
FOR SECTION A-A, SEE SHEET 4 OF 4.
CONCRETE COLLARS FOR STEEL PILES NOT SHOWN IN PLAN AND ELEVATION VIEWS FOR CLARITY.
SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL", SHEET 4 OF 4.

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PROJECT NO. 17BP.3.R.66
SAMPSON COUNTY
STATION: 17+26.00 -L-

SHEET 2 OF 4

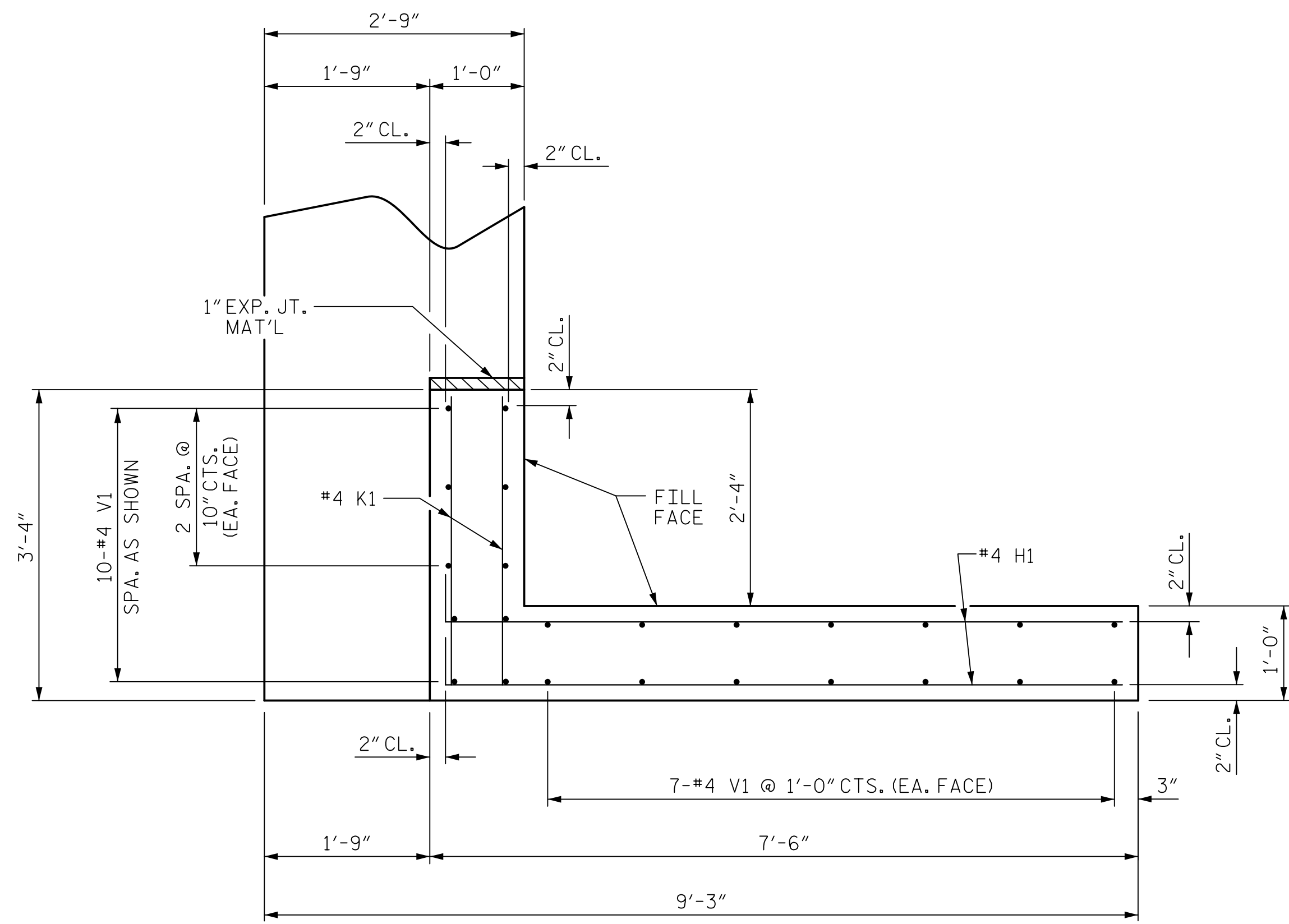
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
END BENT No. 2

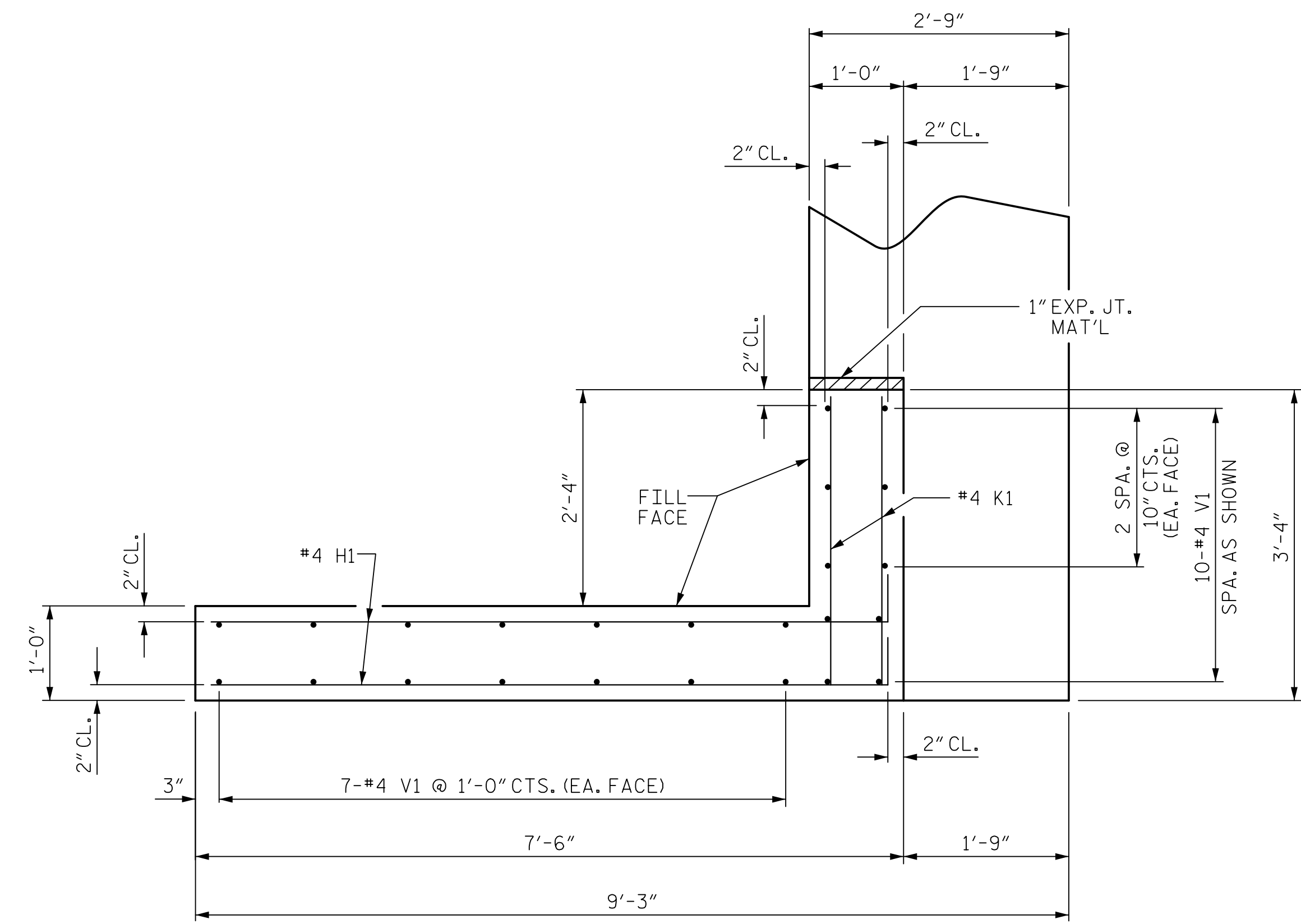
ASSEMBLED BY : D. WITHERSPOON	DATE : 5/19
CHECKED BY : P. BARBER	DATE : 5/19
DRAWN BY : WJH 12/11	REV. 4/15
CHECKED BY : AAC 12/11	MAA/TMG

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DRAWN BY : D. WITHERSPOON	DATE : 5/19	DWG. NO. 13	
CHECKED BY : P. BARBER	DATE : 5/19		
DESIGN ENGINEER OF RECORD : P. BARBER	DATE : 5/19		

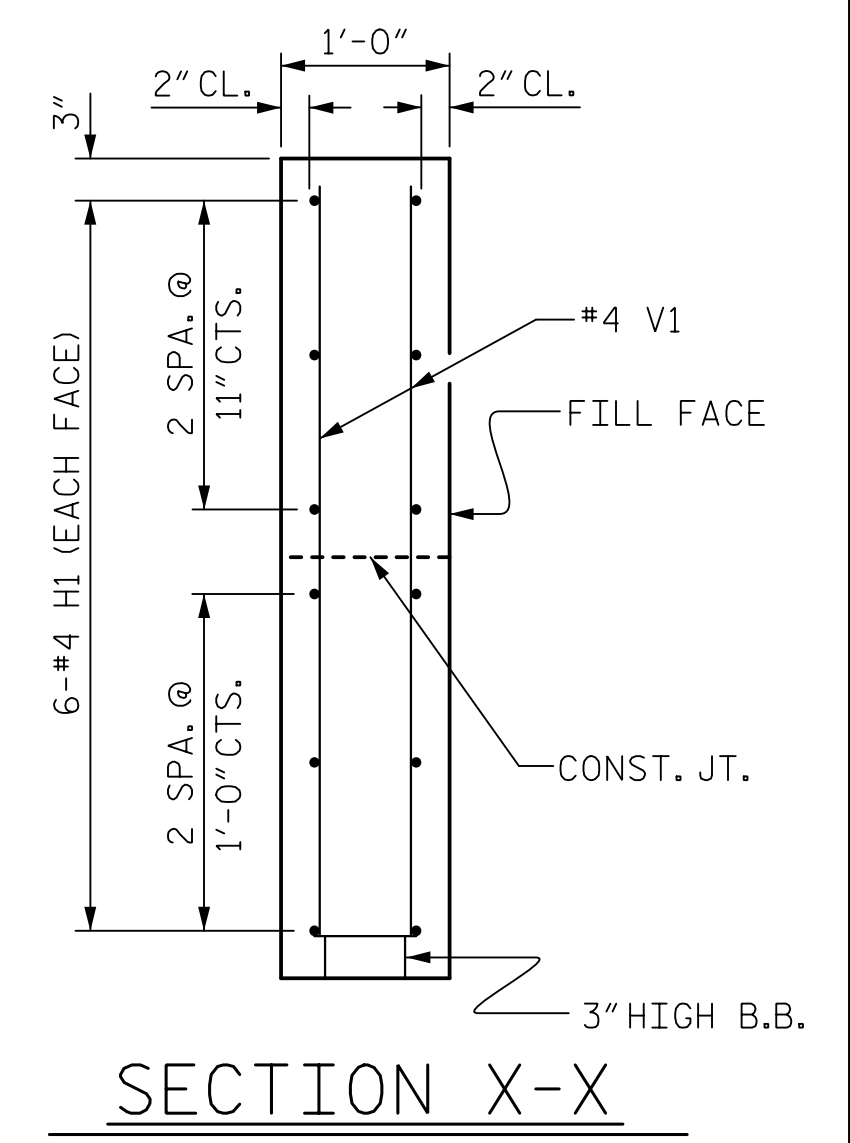
REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-13
1			3			TOTAL SHEETS
2			4			19



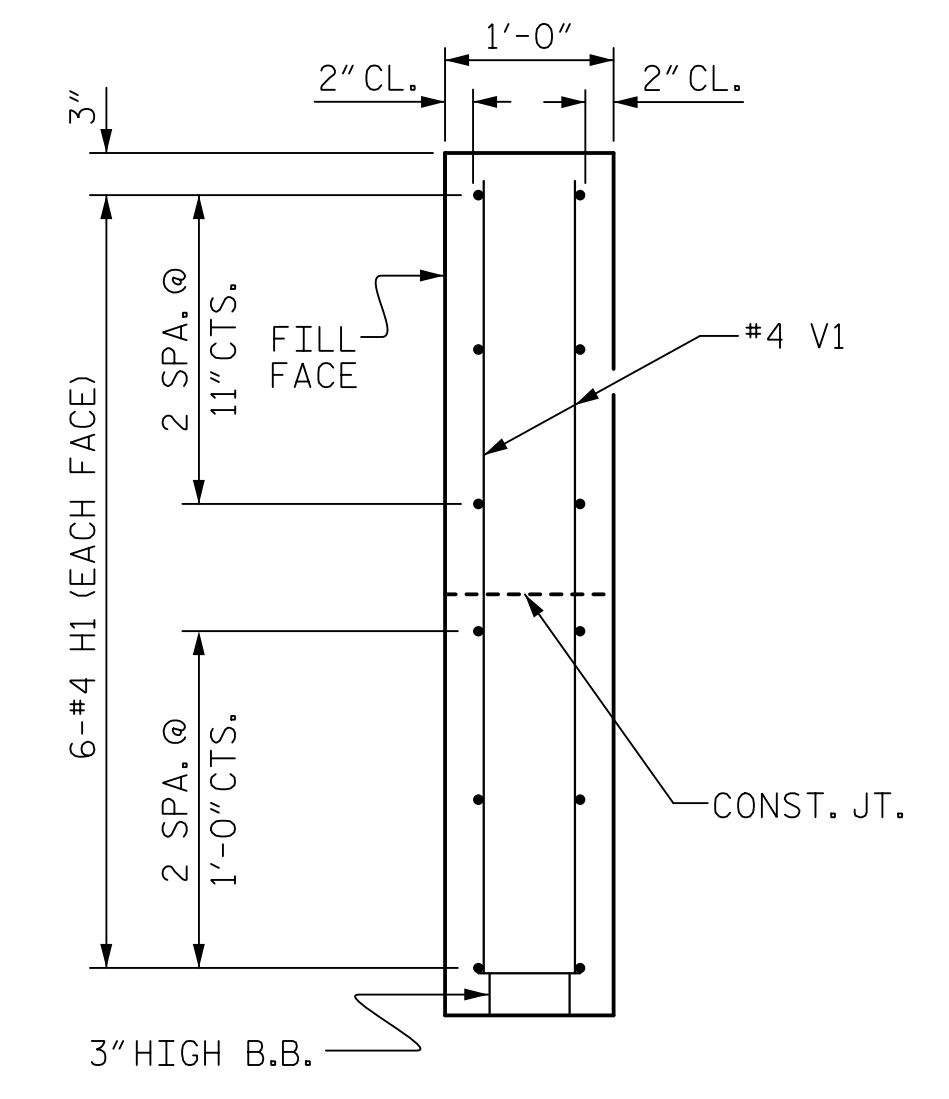
PLAN OF WING (W1)



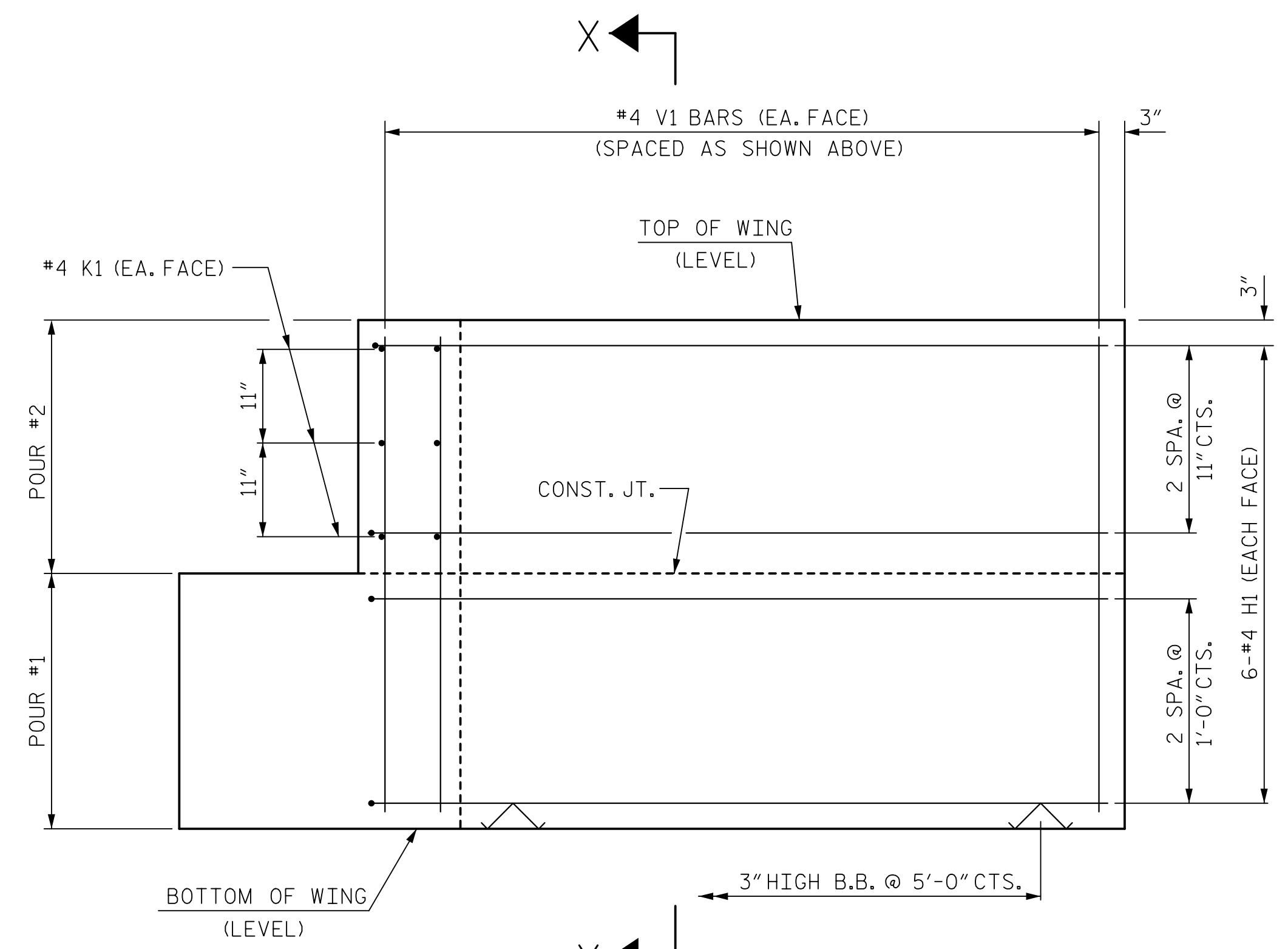
PLAN OF WING (W2)



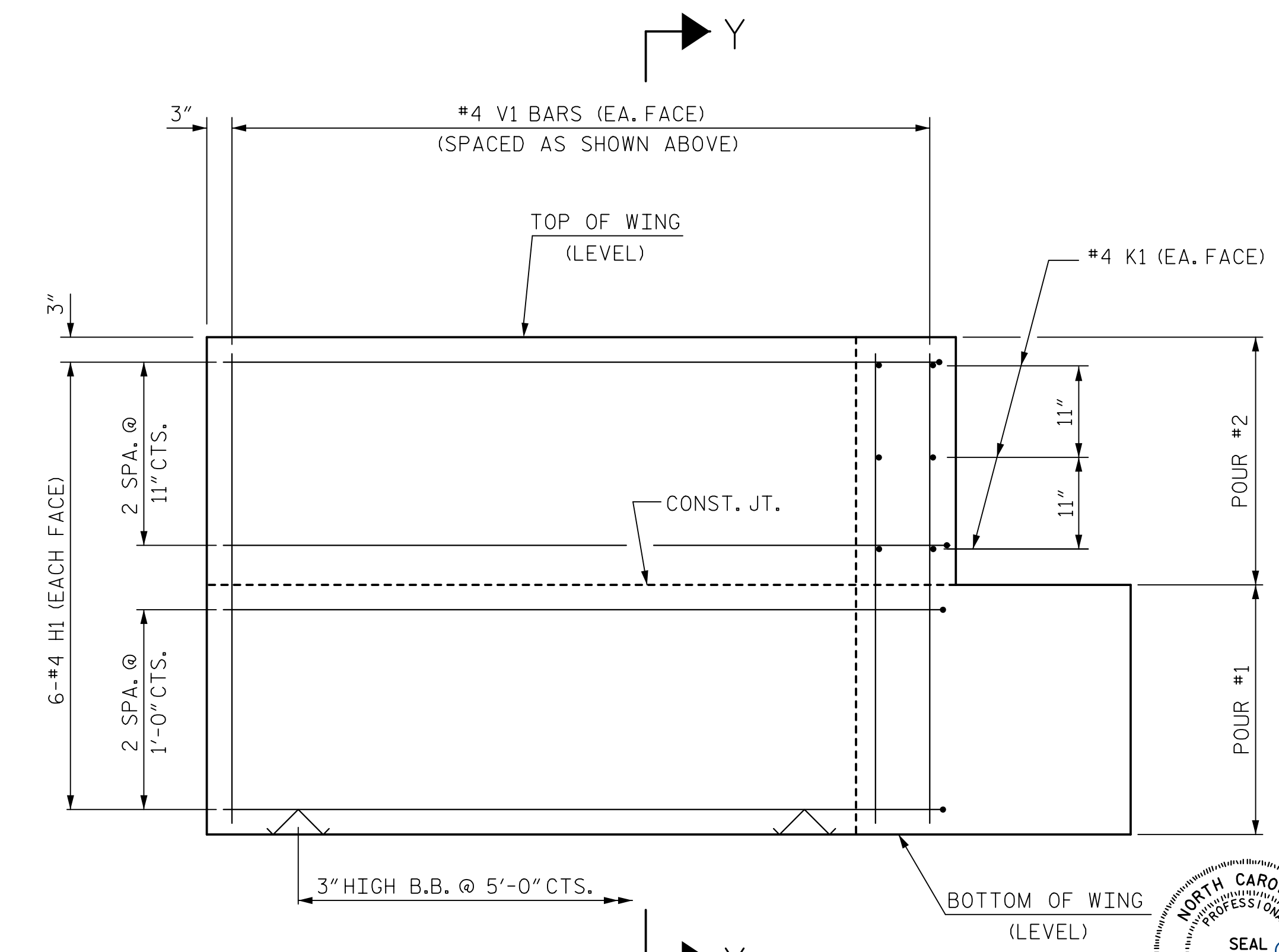
SECTION X-X



SECTION Y-Y

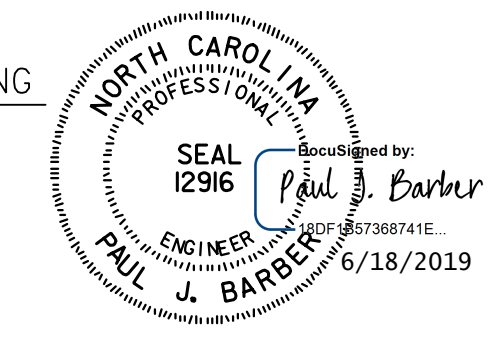


ELEVATION OF WING (W1)



ELEVATION OF WING (W2)

WING DETAILS



PROJECT NO. 17BP.3.R.66
 SAMPSON COUNTY
 STATION: 17+26.00 -L-

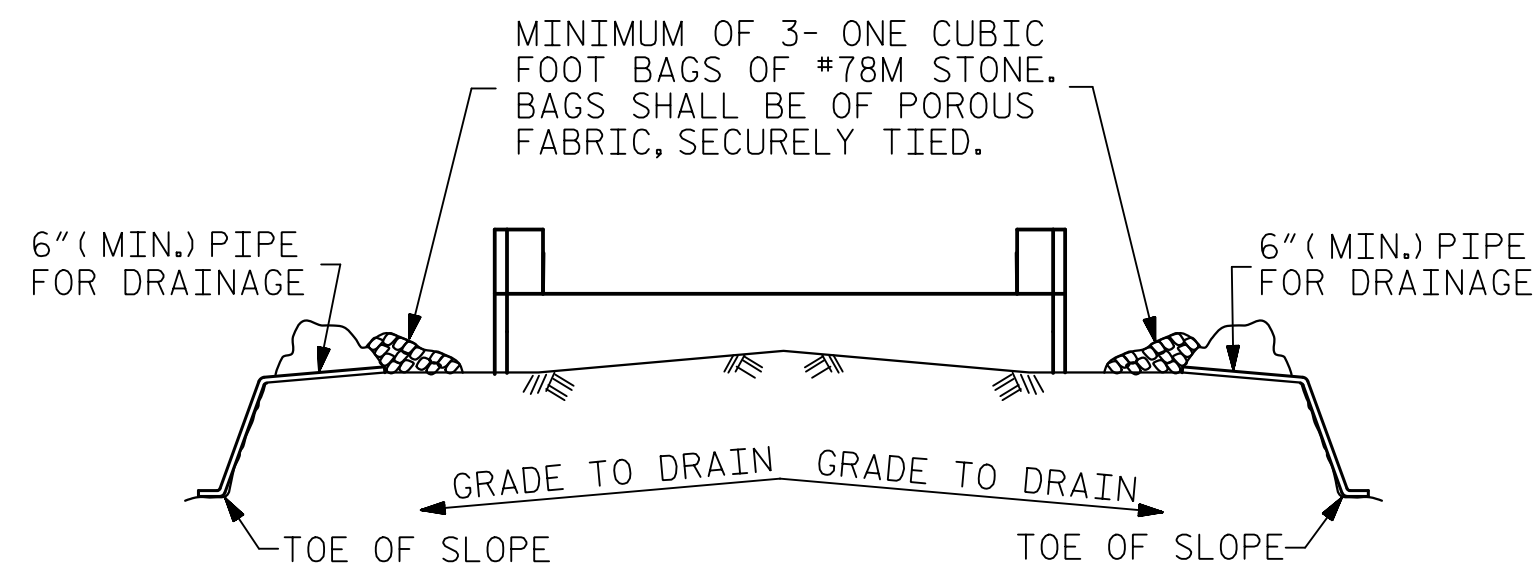
SHEET 3 OF 4

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO. S-14
SUBSTRUCTURE END BENT WING DETAILS						TOTAL SHEETS 19
REVISIONS						
NO.	BY	DATE	NO.	BY	DATE	
1			3			
2			4			

ASSEMBLED BY : D. WITHERSPOON	DATE : 5/19
CHECKED BY : P. BARBER	DATE : 5/19
DRAWN BY : WJH 12/11	REV. 4/15
CHECKED BY : AAC 12/11	MAA/TMG

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HNTB HNTB NORTH CAROLINA, P.C. NC License No. C-1554 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609			
DRAWN BY : D. WITHERSPOON	DATE : 5/19	DWG. NO. 14	
CHECKED BY : P. BARBER	DATE : 5/19		
DESIGN ENGINEER OF RECORD : P. BARBER	DATE : 5/19		

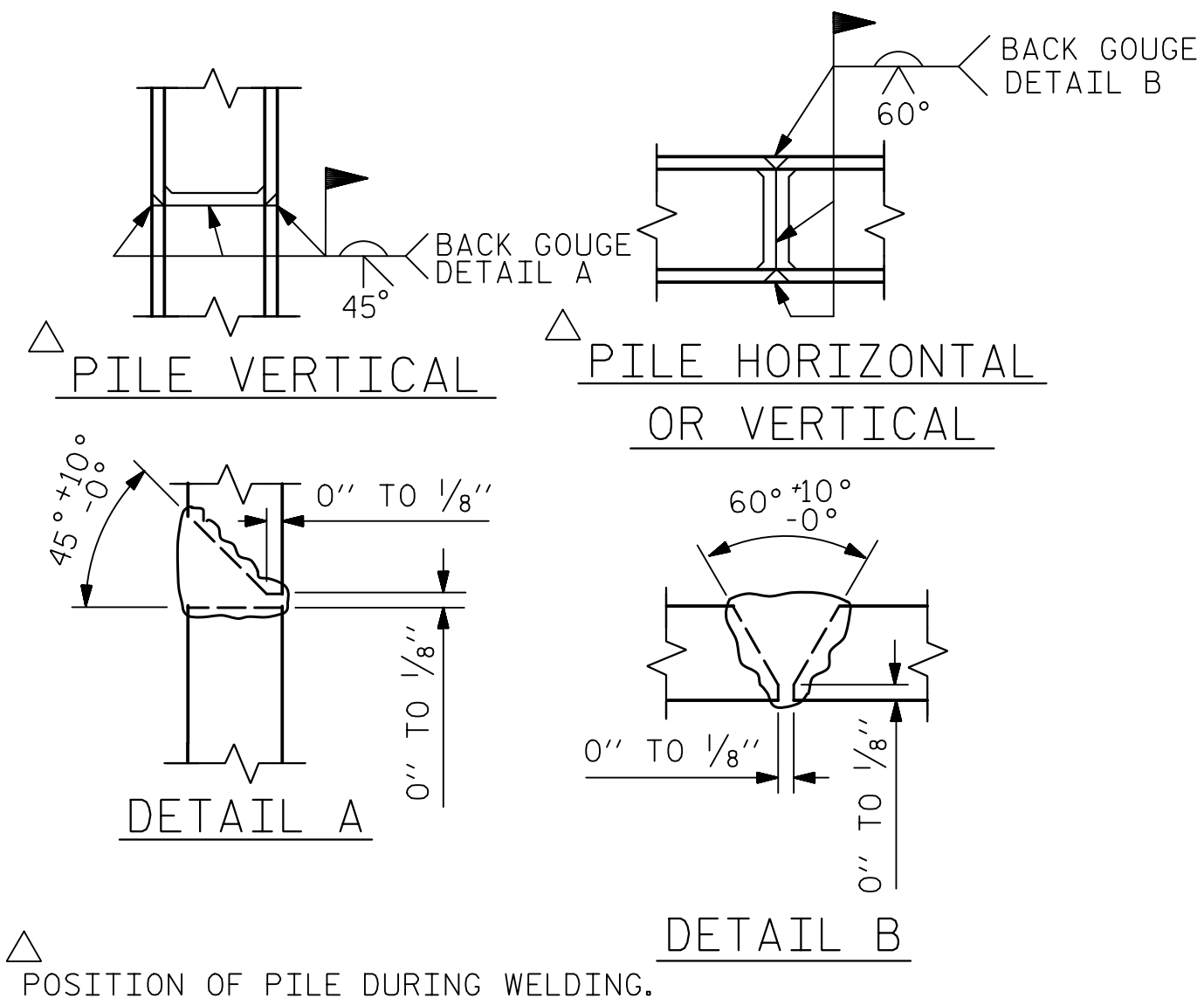


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

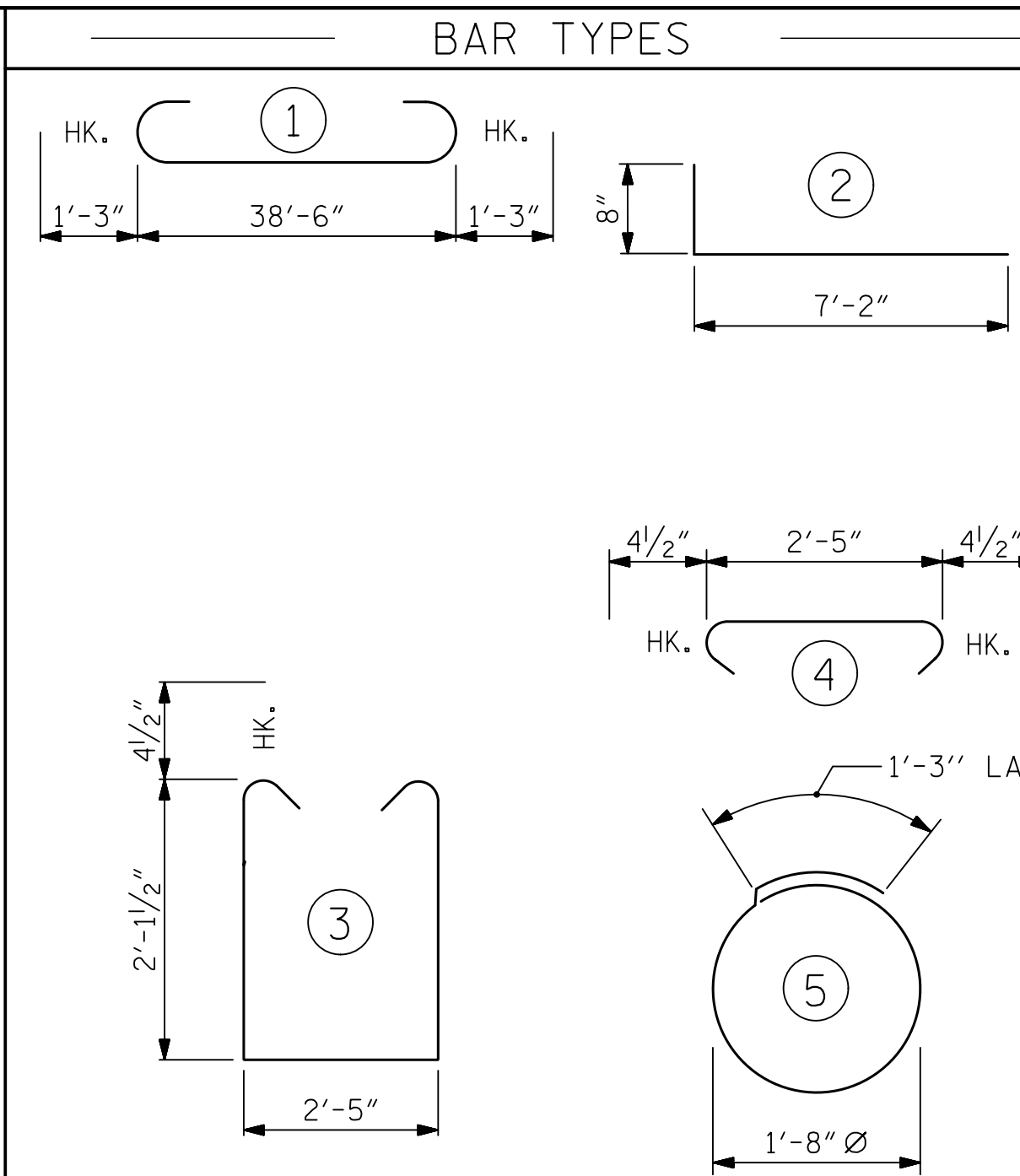
BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR EFFECTIVENESS.

NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT



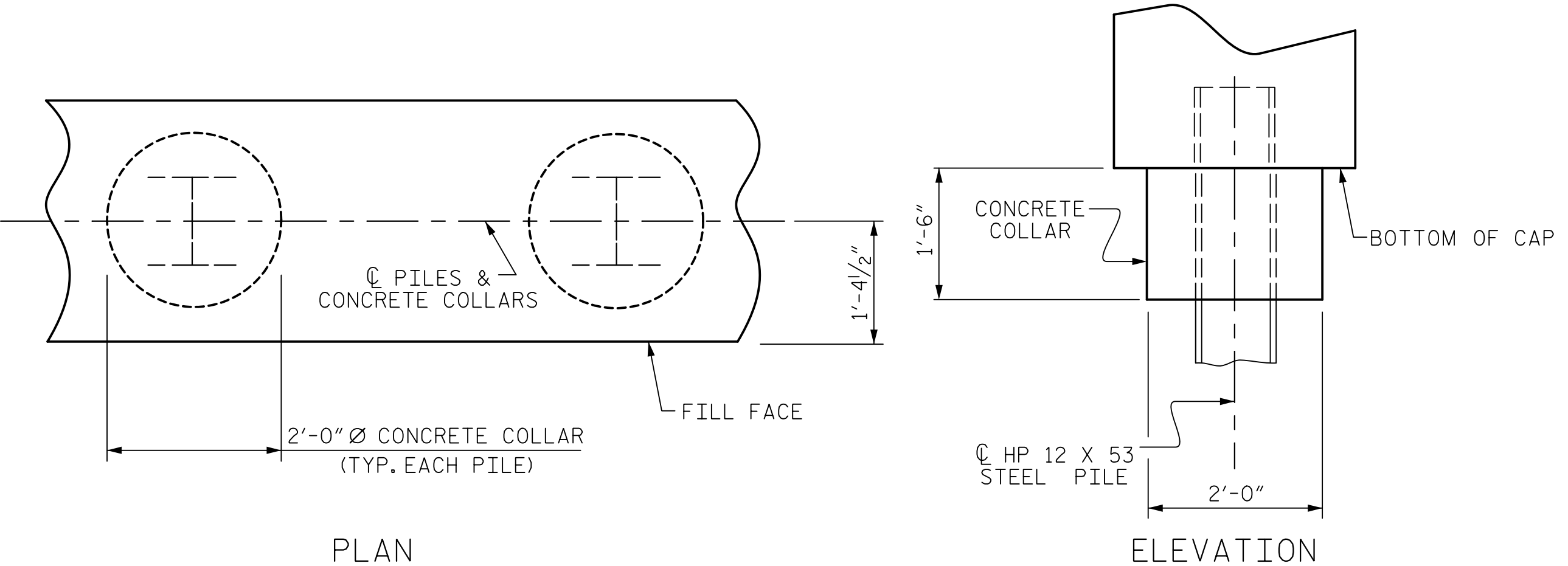
PILE SPLICE DETAILS



ALL BAR DIMENSIONS ARE OUT TO OUT.

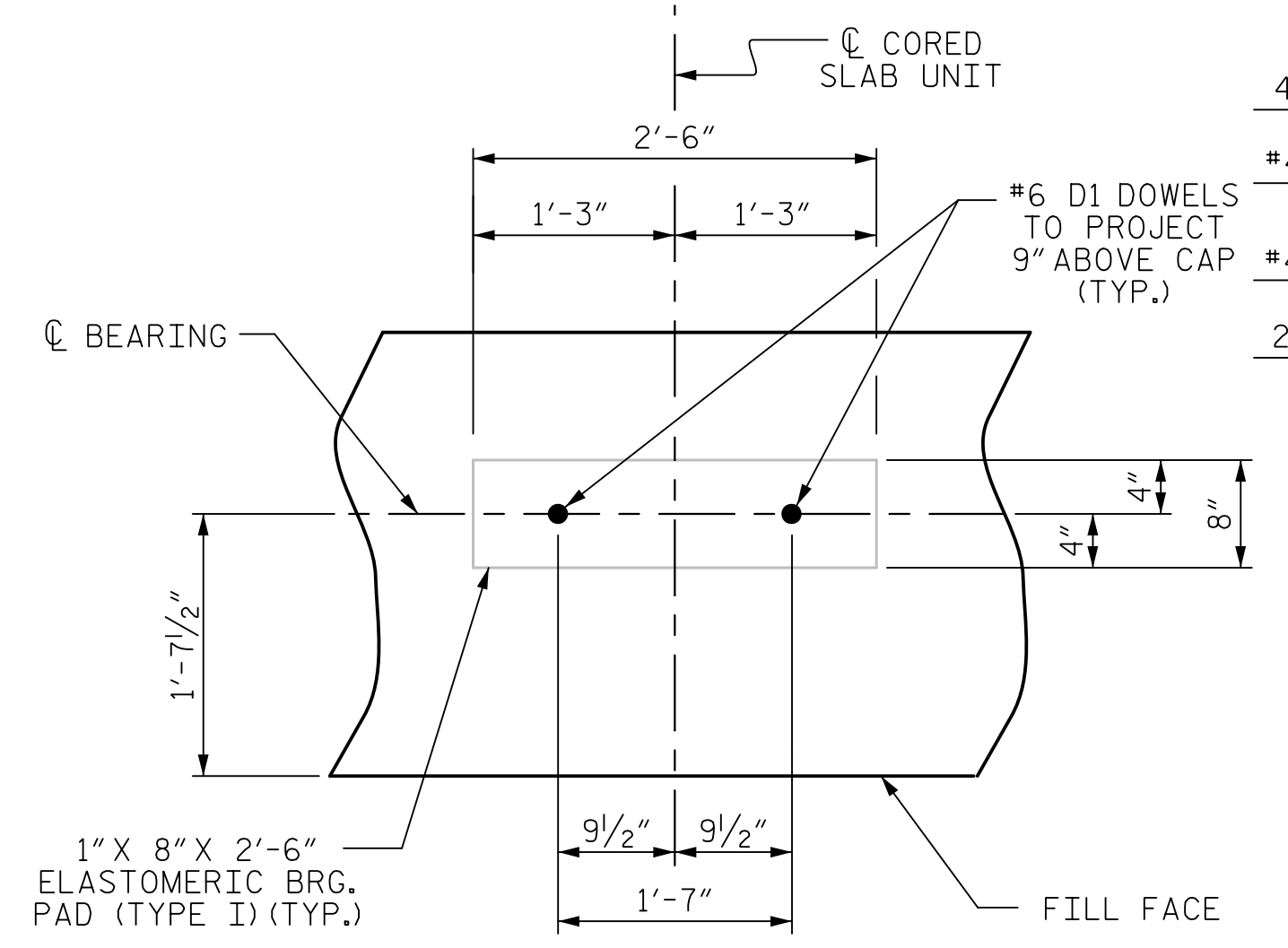
BILL OF MATERIAL FOR ONE END BENT					
BAR NO.	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	41'-0"	1115
B2	16	#4	STR	20'-7"	220
B3	10	#4	STR	2'-5"	16
D1	22	#6	STR	1'-6"	50
H1	24	#4	2	7'-10"	126
K1	12	#4	STR	2'-11"	23
S1	50	#4	3	7'-5"	248
S2	50	#4	4	3'-2"	106
S3	14	#4	5	6'-6"	61
V1	48	#4	STR	4'-8"	150
REINFORCING STEEL (FOR ONE END BENT)					2115 LBS.
CLASS A CONCRETE BREAKDOWN (FOR END BENT 1)					
POUR #1	CAP, LOWER PART OF WINGS & COLLARS				12.4 C.Y.
POUR #2	UPPER PART OF WINGS				1.8 C.Y.
TOTAL CLASS A CONCRETE					14.2 C.Y.
CLASS A CONCRETE BREAKDOWN (FOR END BENT 2)					
POUR #1	CAP, LOWER PART OF WINGS & COLLARS				12.4 C.Y.
POUR #2	UPPER PART OF WINGS				2.0 C.Y.
TOTAL CLASS A CONCRETE					14.4 C.Y.

END BENT No. 1	END BENT No. 2
HP 12 X 53 STEEL PILES NO: 7 LIN. FT.= 245	HP 12 X 53 STEEL PILES NO: 7 LIN. FT.= 315
PILE DRIVING EQUIPMENT SETUP FOR HP 12 X 53 STEEL PILES NO: 7	PILE DRIVING EQUIPMENT SETUP FOR HP 12 X 53 STEEL PILES NO: 7
PILE REDRIVES NO: 4	PILE REDRIVES NO: 4

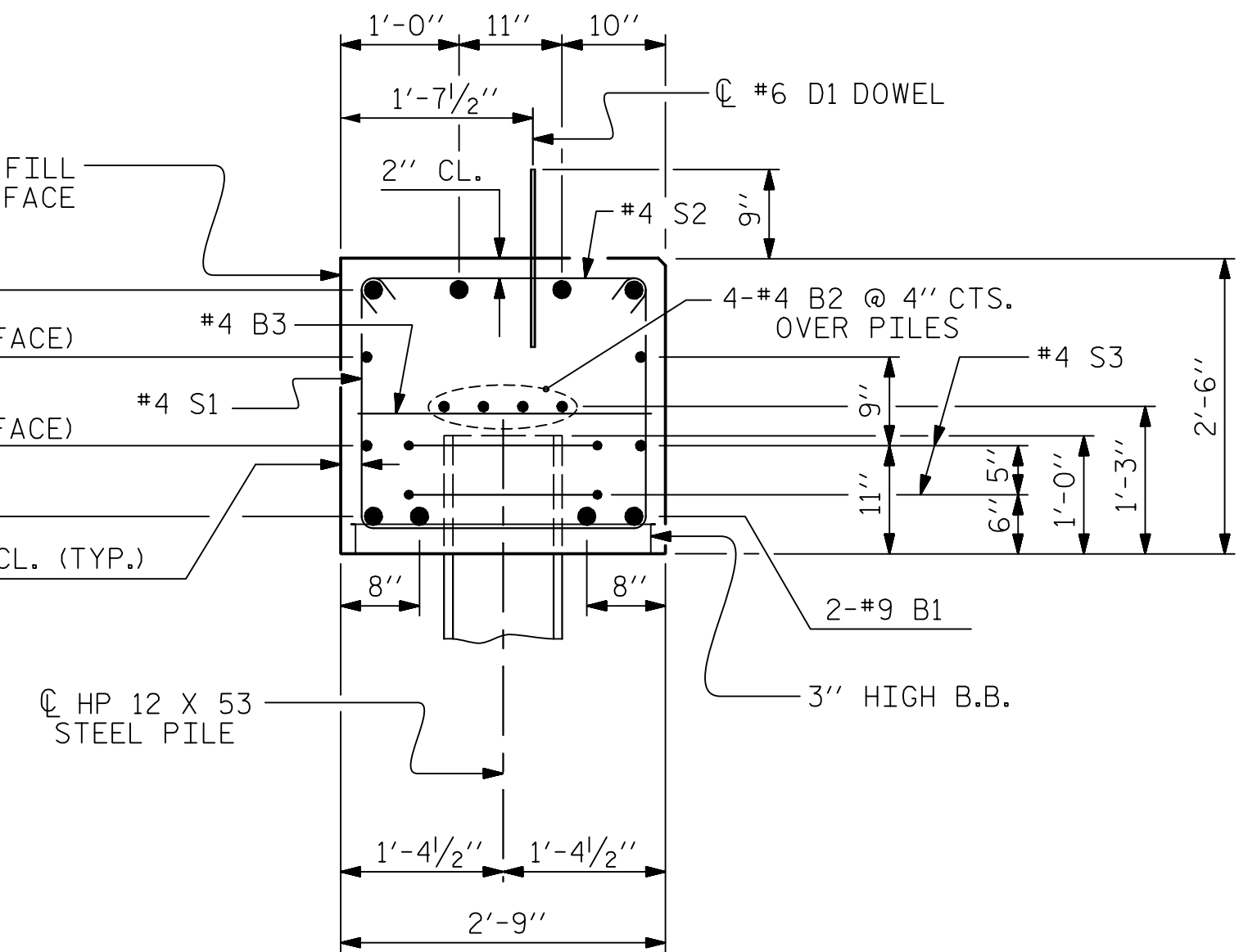


CORROSION PROTECTION FOR STEEL PILES DETAIL

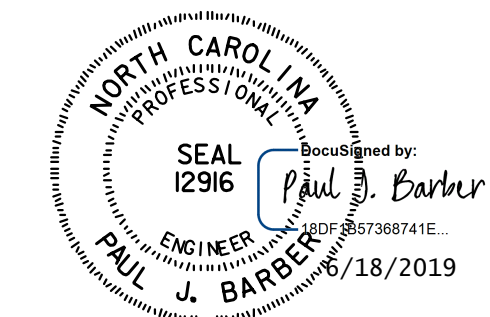
(END BENT No. 1 SHOWN, END BENT No. 2 SIMILAR BY ROTATION)



DETAIL "A" (END BENT No. 1 SHOWN, END BENT No. 2 SIMILAR BY ROTATION)



SECTION A-A (CONCRETE COLLAR NOT SHOWN FOR CLARITY. SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL.")



PROJECT NO. 17BP.3.R.66
SAMPSON COUNTY
STATION: 17+26.00 -L-

SHEET 4 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
END BENT No. 1 & 2
DETAILS

ASSEMBLED BY : D. WITHERSPOON	DATE : 5/19
CHECKED BY : P. BARBER	DATE : 5/19
DRAWN BY : WJH 12/11	REV. 4/17
CHECKED BY : AAC 12/11	MAA/THC

HNTB HNTB NORTH CAROLINA, P.C. NC License No. C-1554 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609	DRAWN BY : D. WITHERSPOON	DATE : 5/19	DWG. NO. 15
	CHECKED BY : P. BARBER	DATE : 5/19	
	DESIGNED BY : P. BARBER	DATE : 5/19	

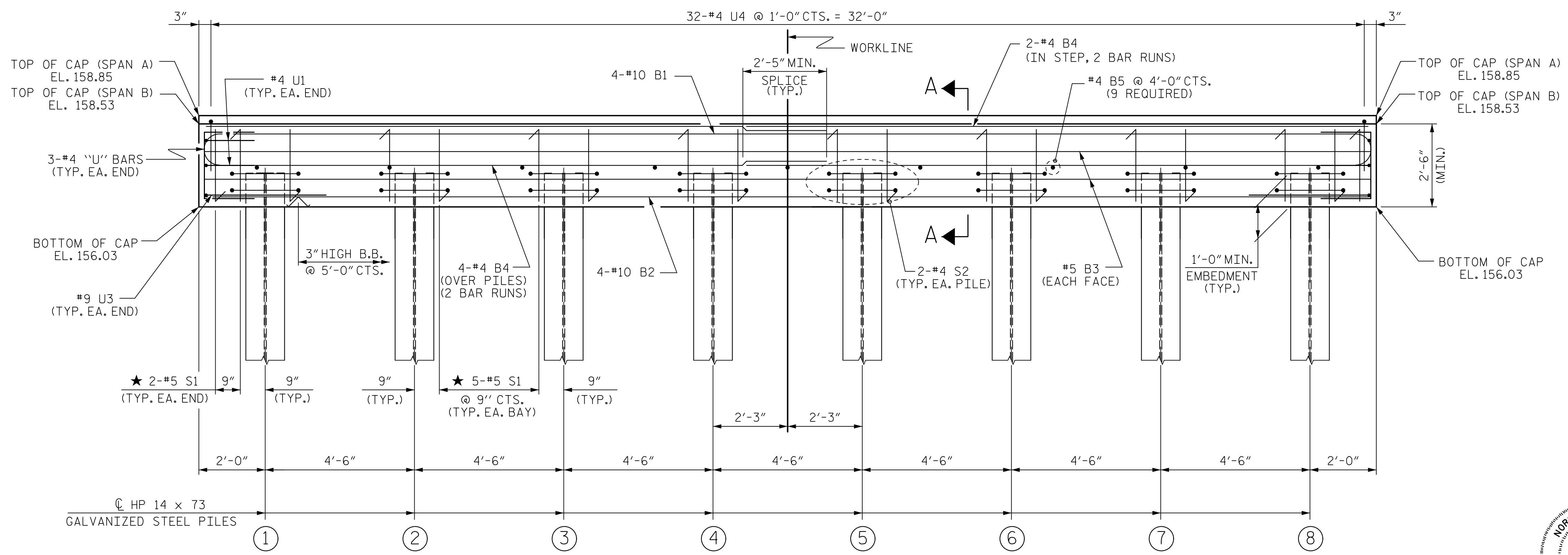
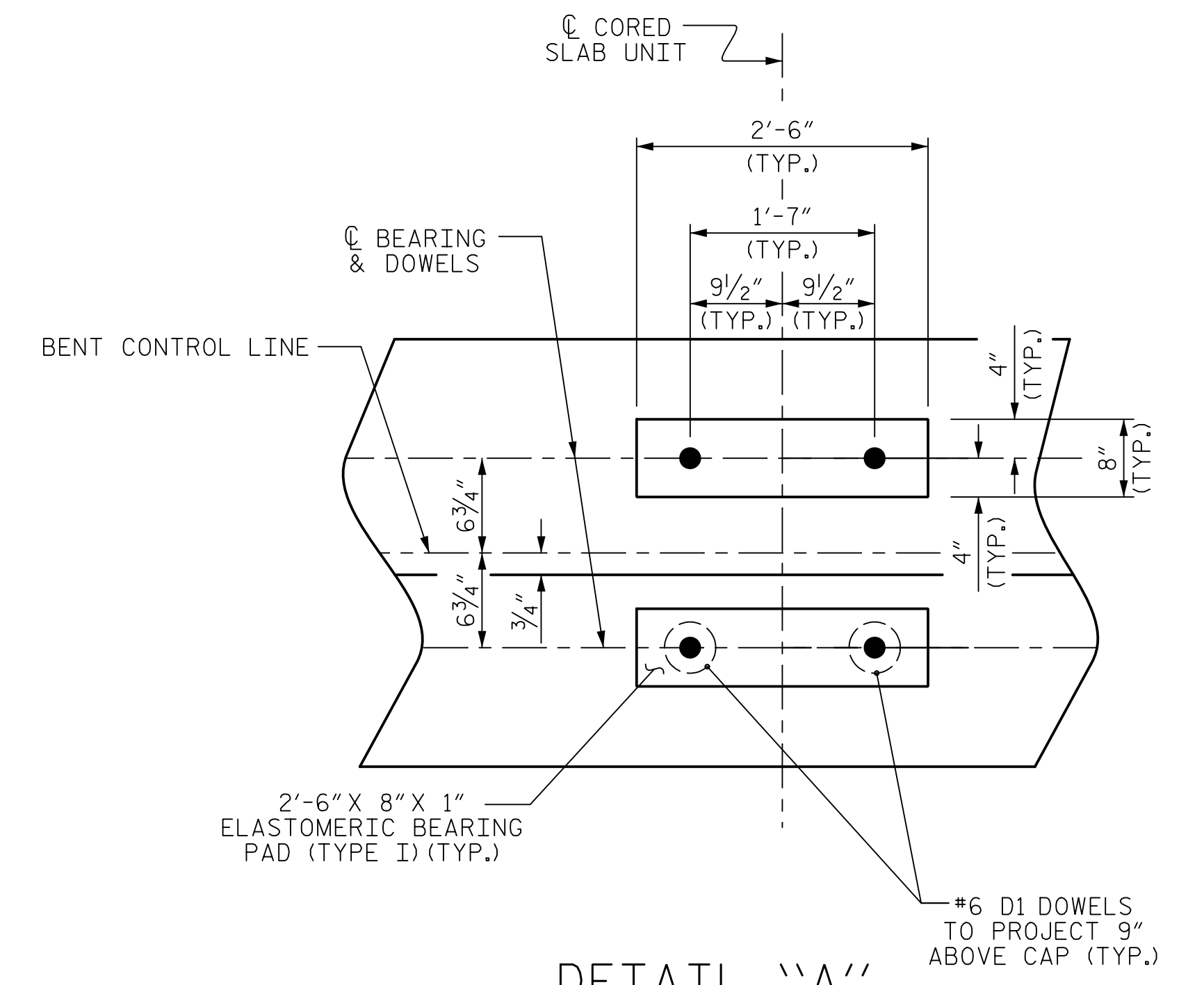
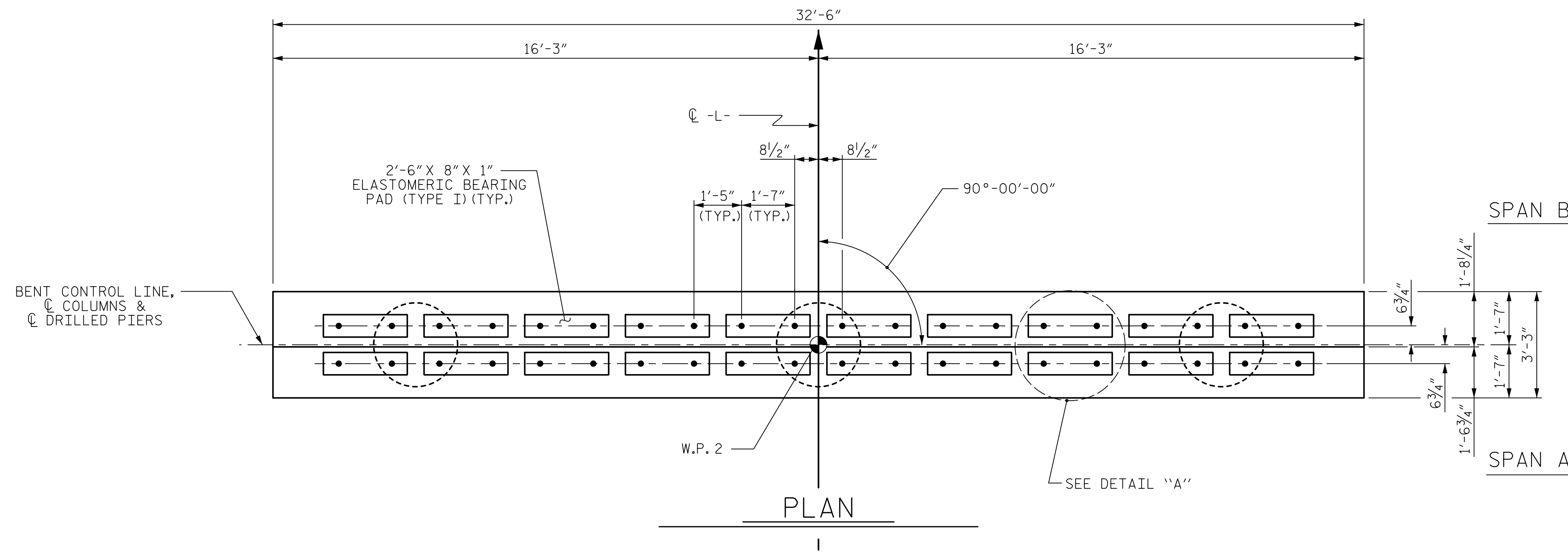
REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-15
1			3			TOTAL SHEETS 19
2			4			

NOTES

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.

★ INVERT ALTERNATE STIRRUPS.

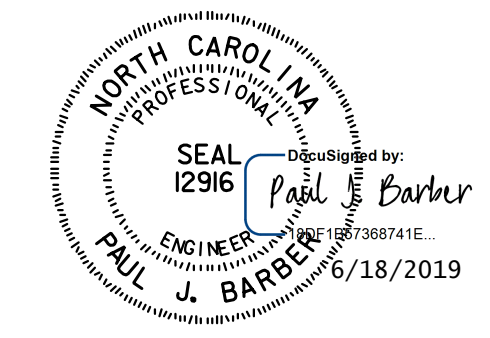
GALVANIZE THE FULL LENGTH OF EACH INTERIOR BENT PILE IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS.



DETAIL "A"
(DIMENSIONS ARE TYPICAL EACH BEARING)

PROJECT NO. 17BP.3.R.66
SAMPSON COUNTY
 STATION: 17+26.00 -L-

SHEET 1 OF 2
 STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 BENT No. 1

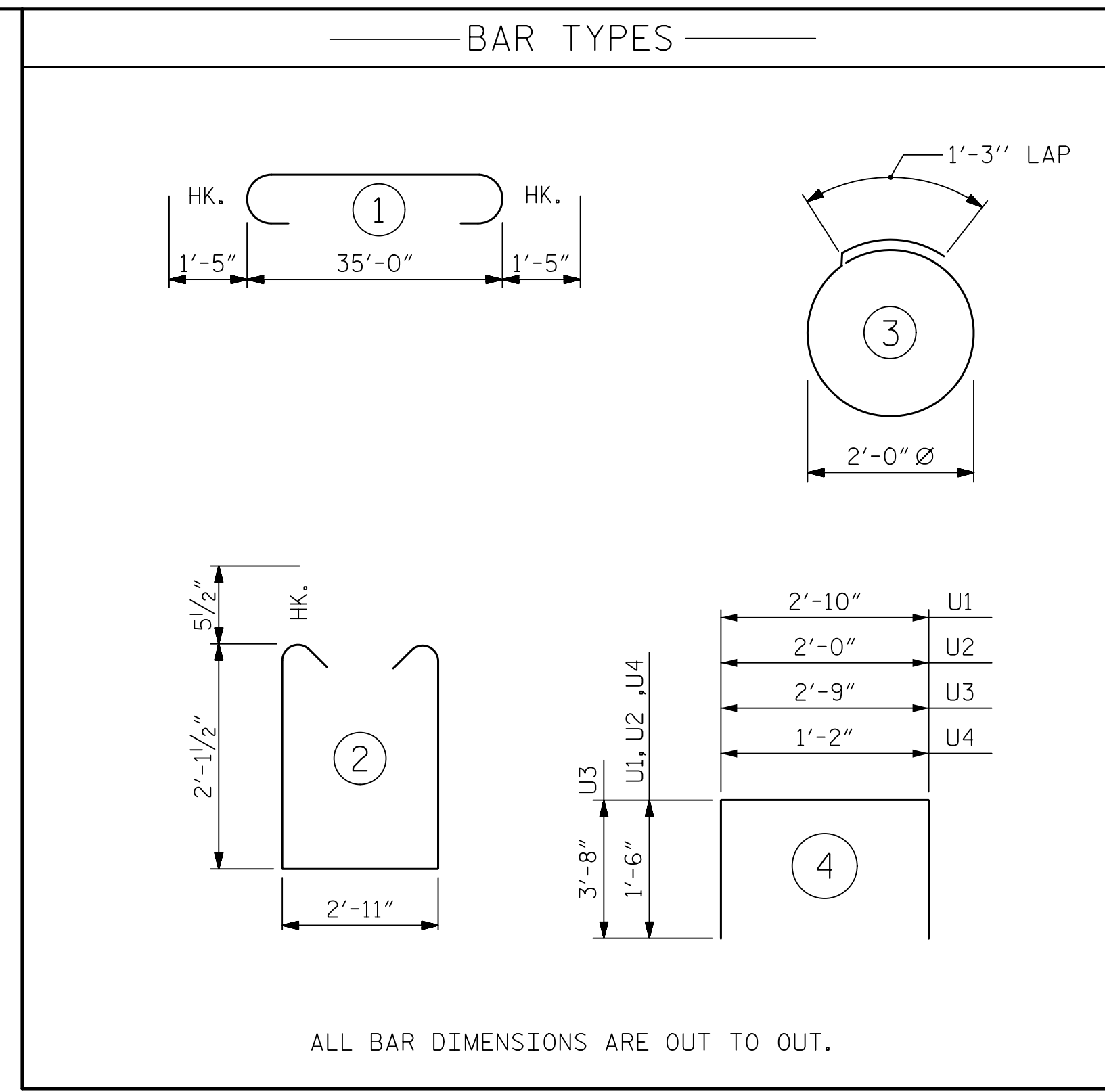
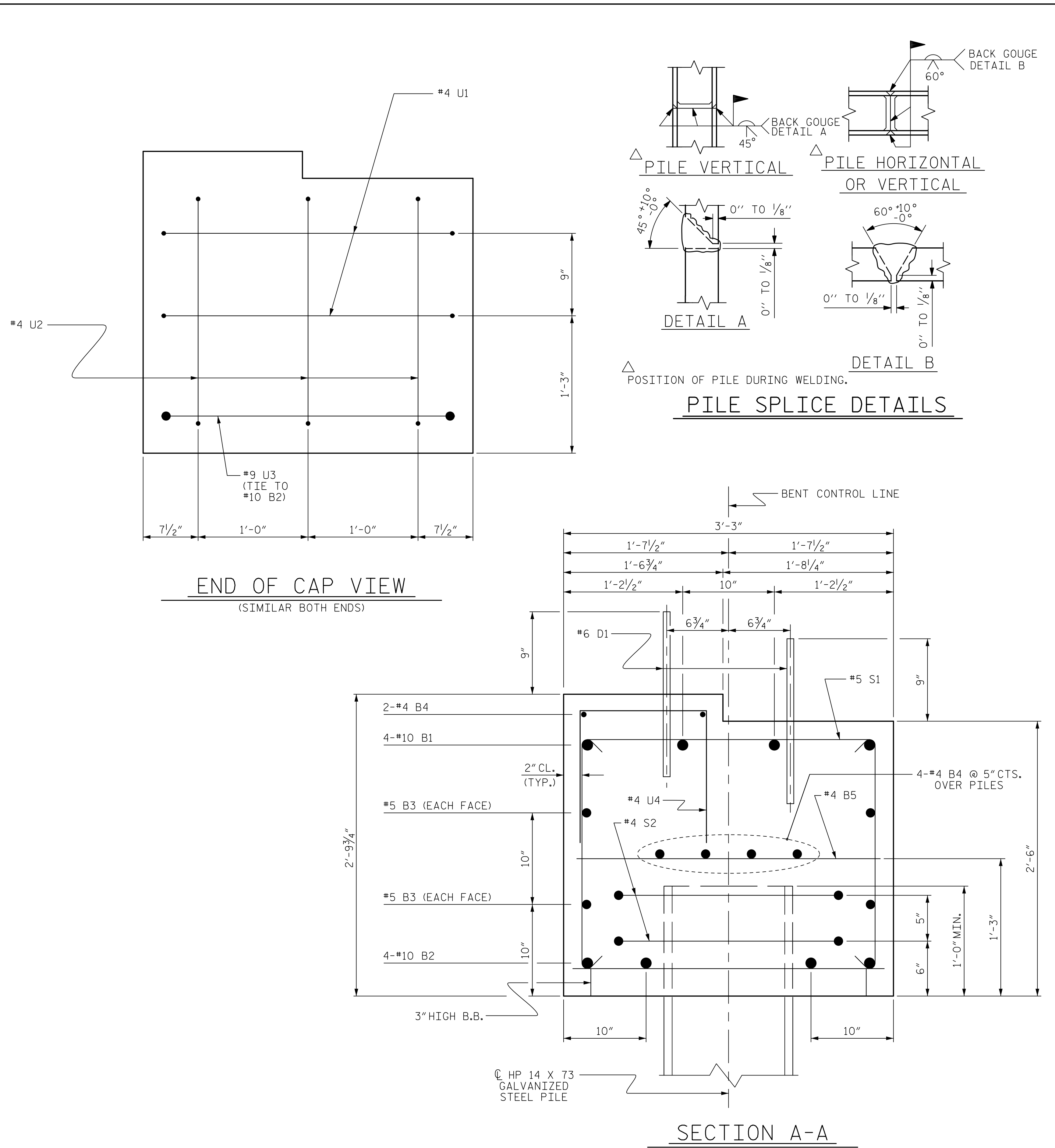


ASSEMBLED BY : D. WITHERSPOON DATE : 5/19
 CHECKED BY : P. BARBER DATE : 5/19
 DRAWN BY : DGE 06/10 REV. 6/17 MAA/THC
 CHECKED BY : MKT 06/10

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

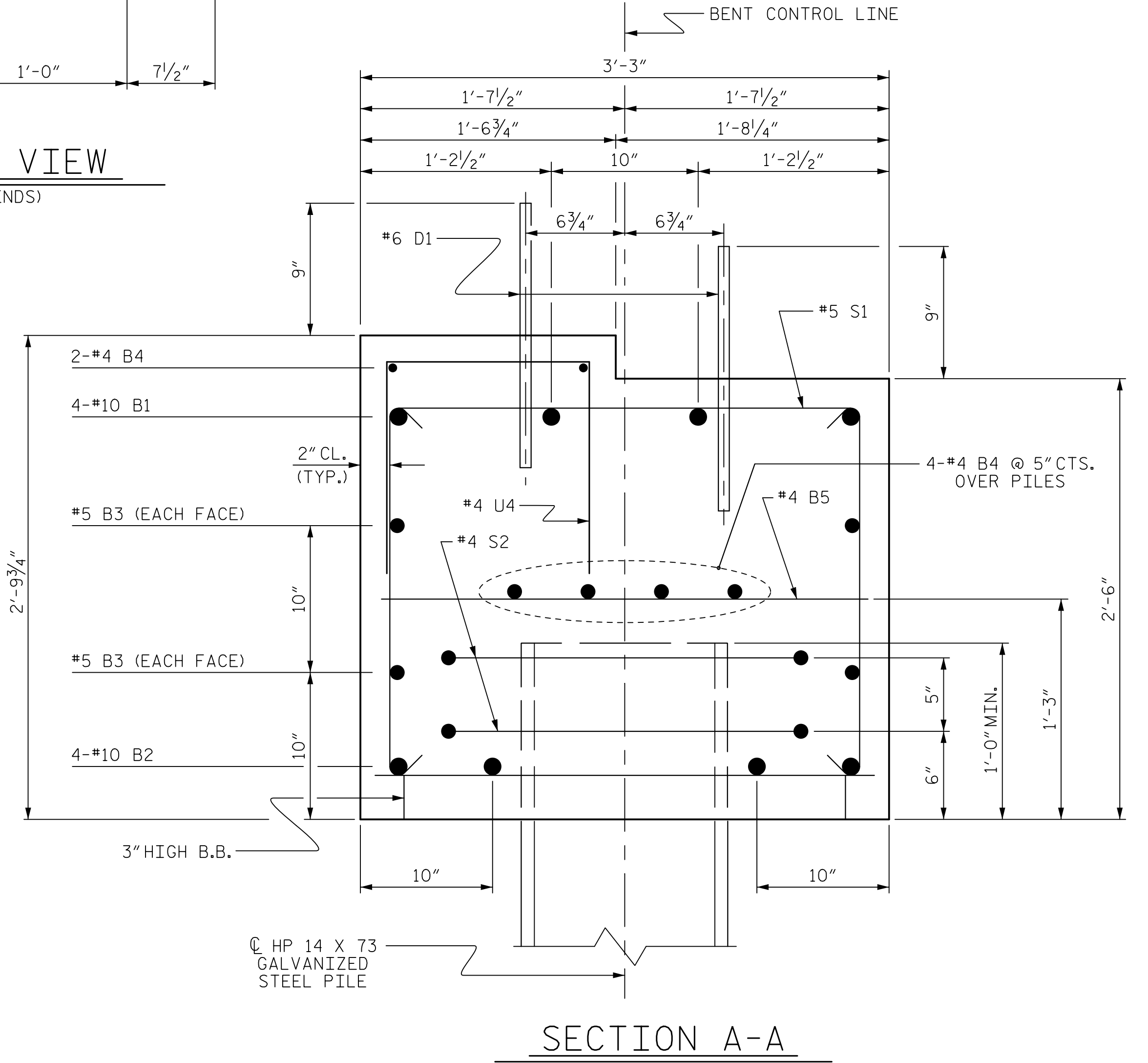
HNTB HNTB NORTH CAROLINA, P.C.
 NC License No. C-1554
 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609
 DRAWN BY : D. WITHERSPOON DATE : 5/19
 CHECKED BY : P. BARBER DATE : 5/19
 DESIGN ENGINEER OF RECORD : P. BARBER DATE : 5/19
 DWG. NO. 16

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-16
1			3			TOTAL SHEETS
2			4			19



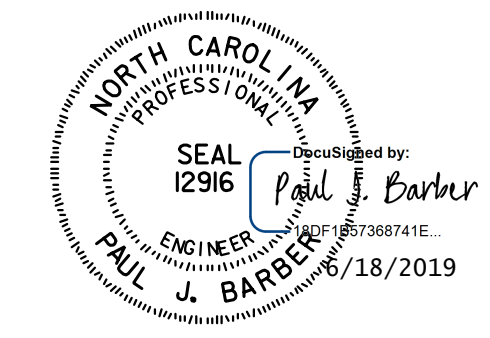
BILL OF MATERIAL					
FOR ONE BENT					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	4	#10	1	37'-10"	651
B2	4	#10	STR	35'-2"	605
B3	4	#5	STR	35'-2"	147
B4	12	#4	STR	18'-10"	151
B5	9	#4	STR	2'-11"	18
D1	44	#6	STR	1'-6"	99
S1	39	#5	2	8'-1"	329
S2	16	#4	3	7'-7"	81
U1	4	#4	4	5'-10"	16
U2	6	#4	4	5'-0"	20
U3	2	#9	4	10'-1"	69
U4	32	#4	4	4'-2"	89
REINFORCING STEEL (FOR ONE BENT)					2275 LBS
CLASS A CONCRETE BREAKDOWN (FOR ONE BENT)					
TOTAL CLASS A CONCRETE					11.7 C.Y.
HP 14 X 73 GALVANIZED STEEL PILES (FOR ONE BENT)					
No. 8					LIN. FT. 440
PILE DRIVING EQUIPMENT SETUP FOR HP 14 X 73 GALVANIZED STEEL PILES (FOR ONE BENT)					
					NO: 8
PILE REDRIVES					NO: 4

ALL BAR DIMENSIONS ARE OUT TO OUT.



PROJECT NO. 17BP.3.R.66
SAMPSON COUNTY
 STATION: 17+26.00 -L-

SHEET 2 OF 2
 STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 BENT No. 1



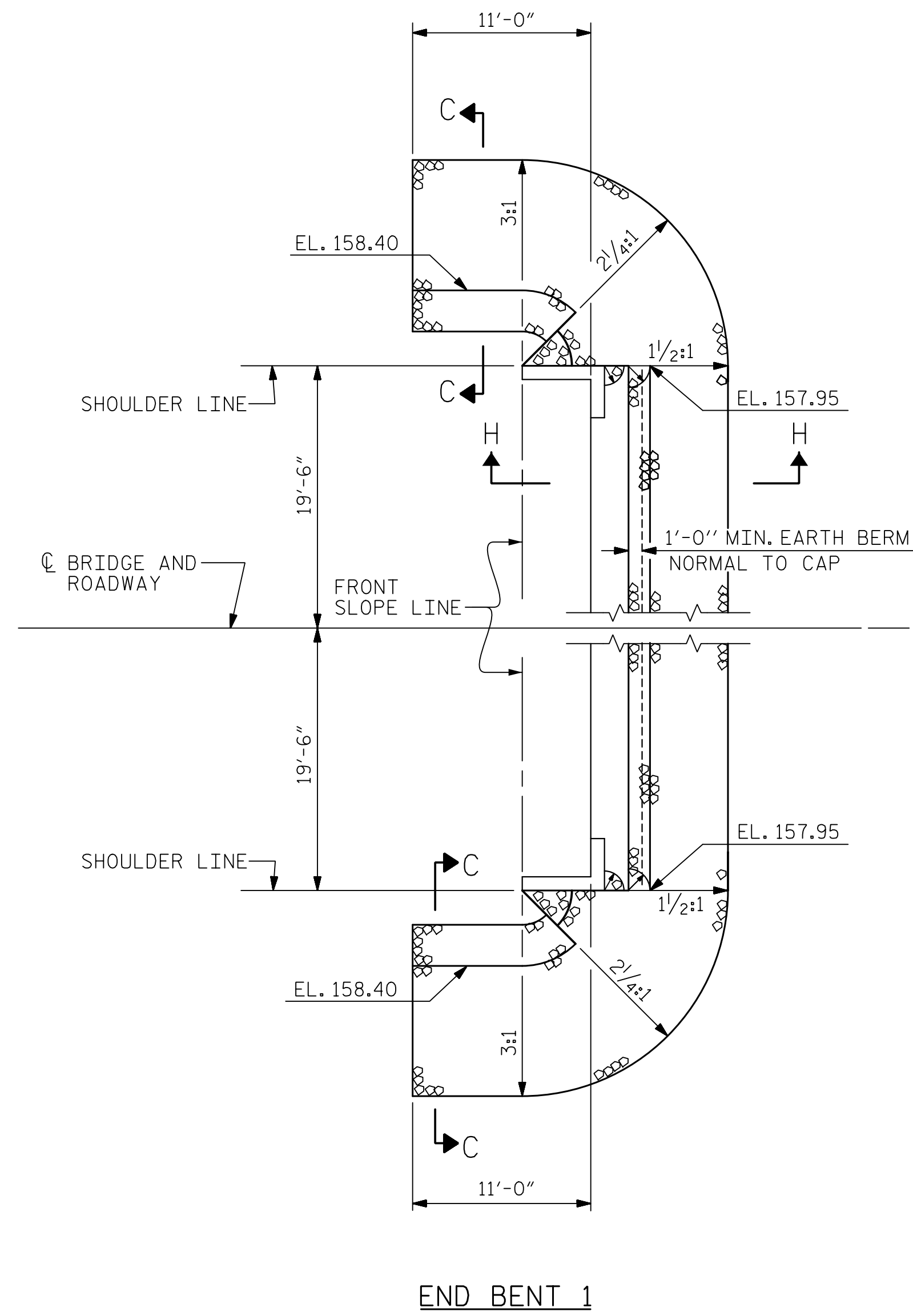
ASSEMBLED BY : D. WITHERSPOON	DATE : 5/19
CHECKED BY : P. BARBER	DATE : 5/19
DRAWN BY : DGE 05/10	REV. 6/17
CHECKED BY : MKT 05/10	MAA/THC

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

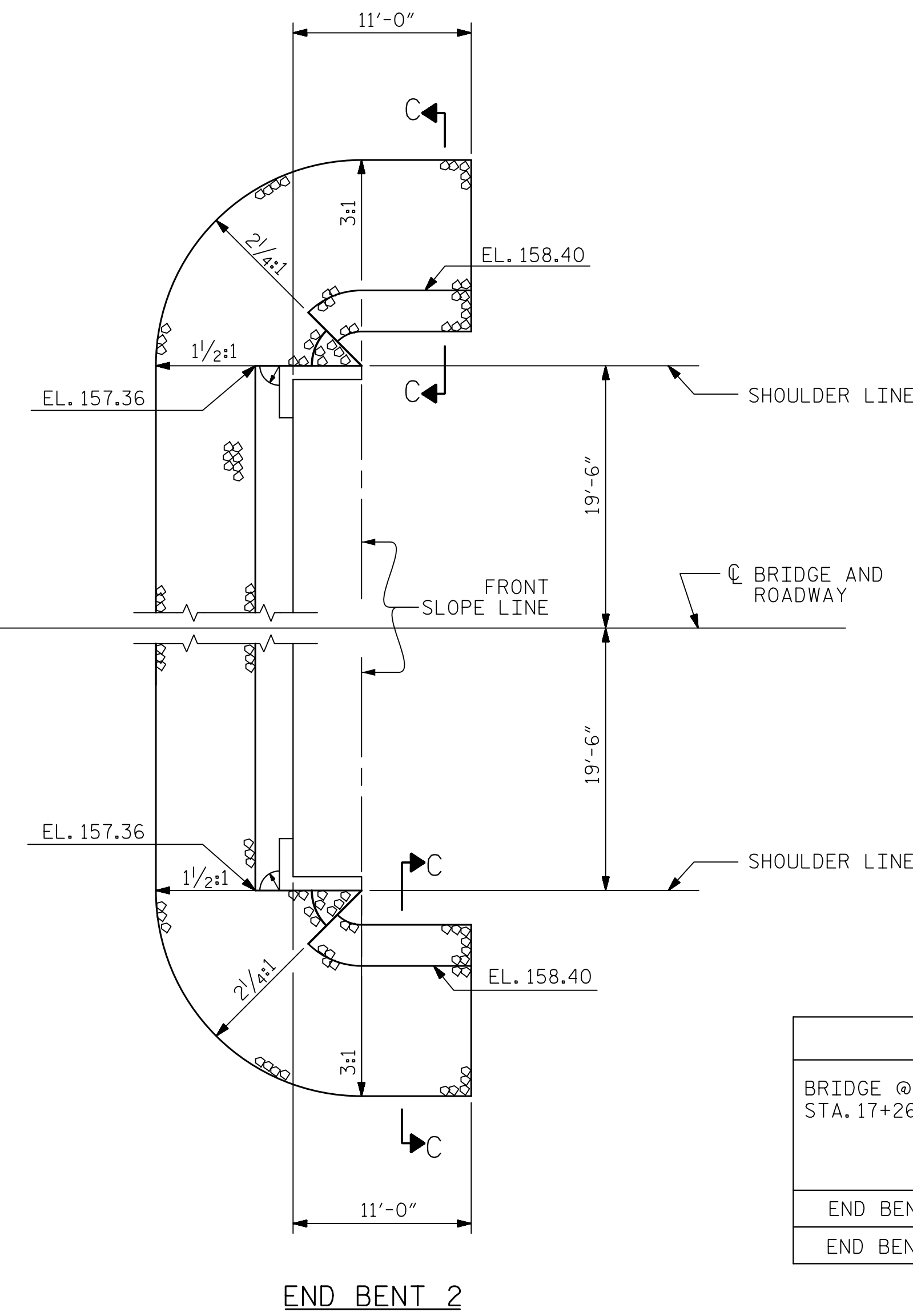
HNTB		HNTB NORTH CAROLINA, P.C. NC License No. C-1554 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609	
DRAWN BY : D. WITHERSPOON	DATE : 5/19	DWG. NO. 17	
CHECKED BY : P. BARBER	DATE : 5/19		
DESIGN ENGINEER OF RECORD : P. BARBER	DATE : 5/19		

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-17
1			3			TOTAL SHEETS
2			4			19

NOTES :
FOR BERM WIDTH DIMENSIONS, SEE GENERAL DRAWING.

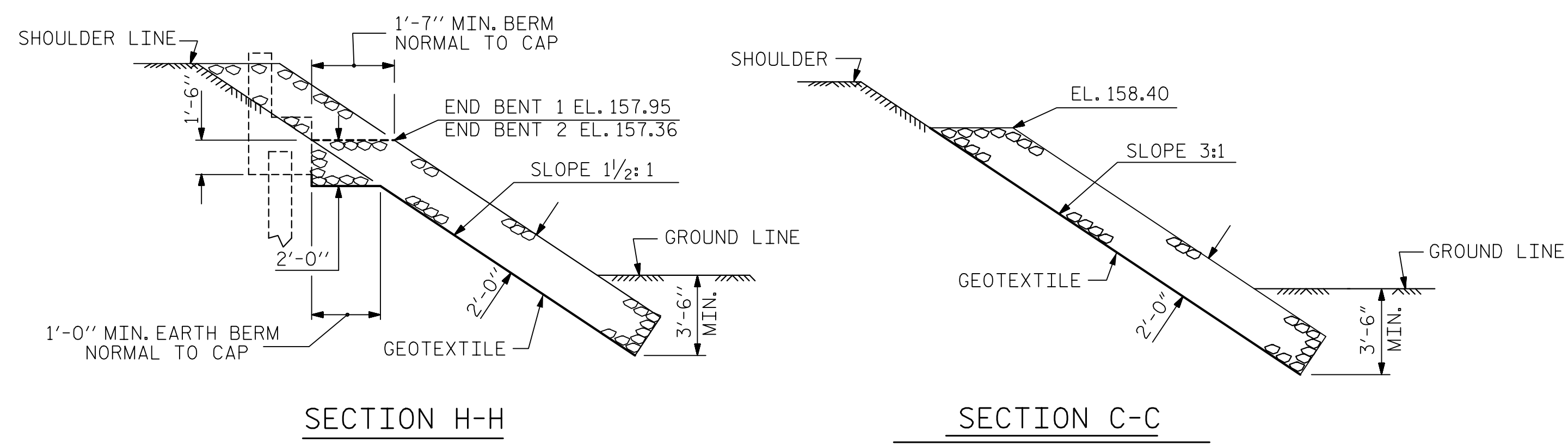


END BENT 1



END BENT 2

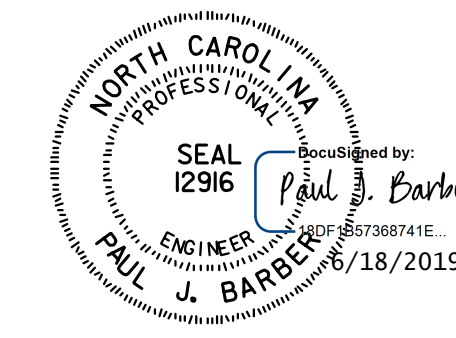
ESTIMATED QUANTITIES		
BRIDGE @ STA. 17+26.00 -L-	RIP RAP CLASS II	GEOTEXTILE FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	130	140
END BENT 2	115	130



SECTION H-H

SECTION C-C

PROJECT NO. 17BP.3.R.66
SAMPSON COUNTY
STATION: 17+26.00 -L-



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
RIP RAP DETAILS

ASSEMBLED BY : D. WITHERSPOON DATE : 5/19
CHECKED BY : P. BARBER DATE : 5/19

DRAWN BY : REK 1/84 REV. 10/1/11 MAA/GM
CHECKED BY : RDU 1/84 REV. 12/21/11 MAA/GM
REV. 12/17 MAA/THC

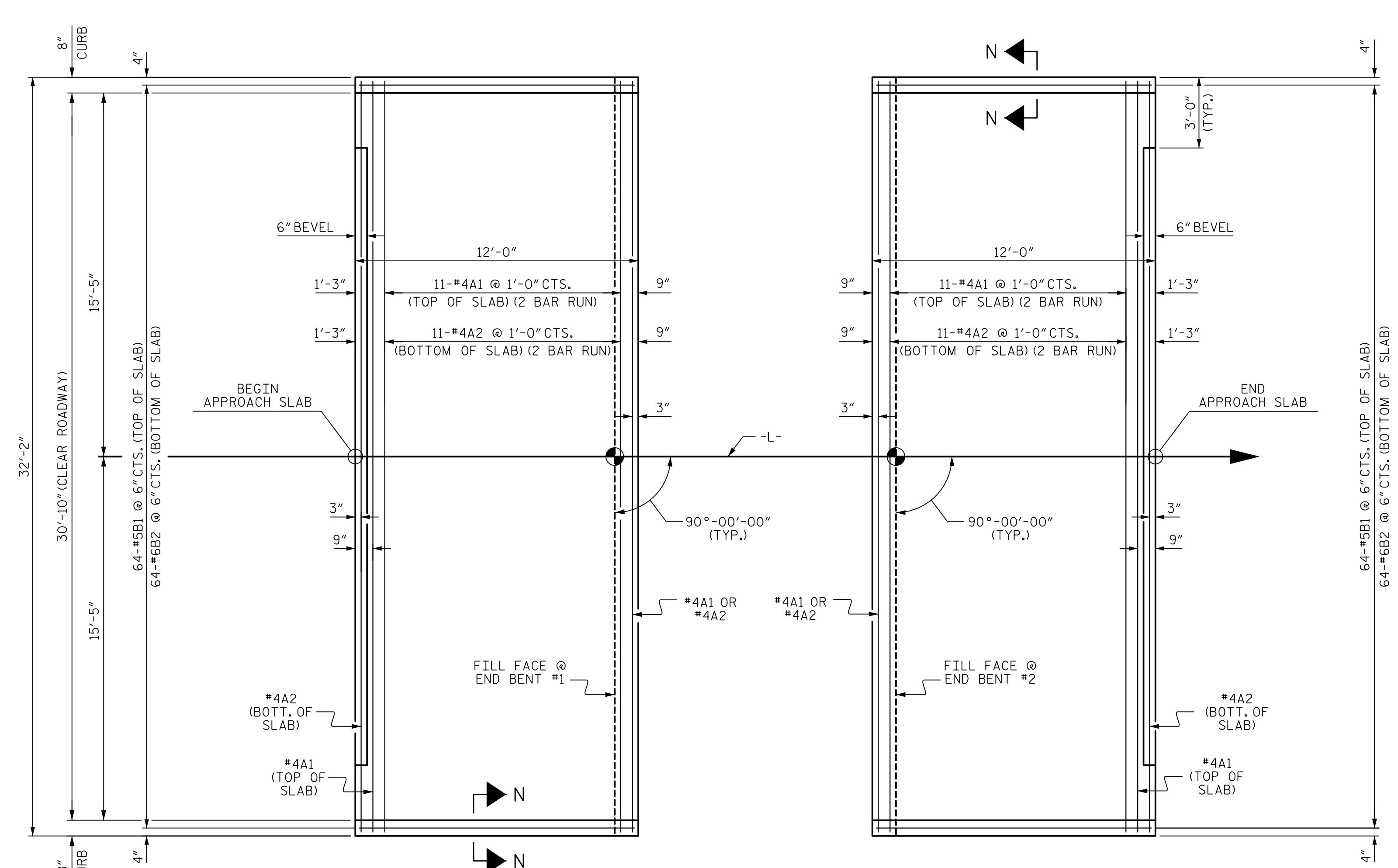
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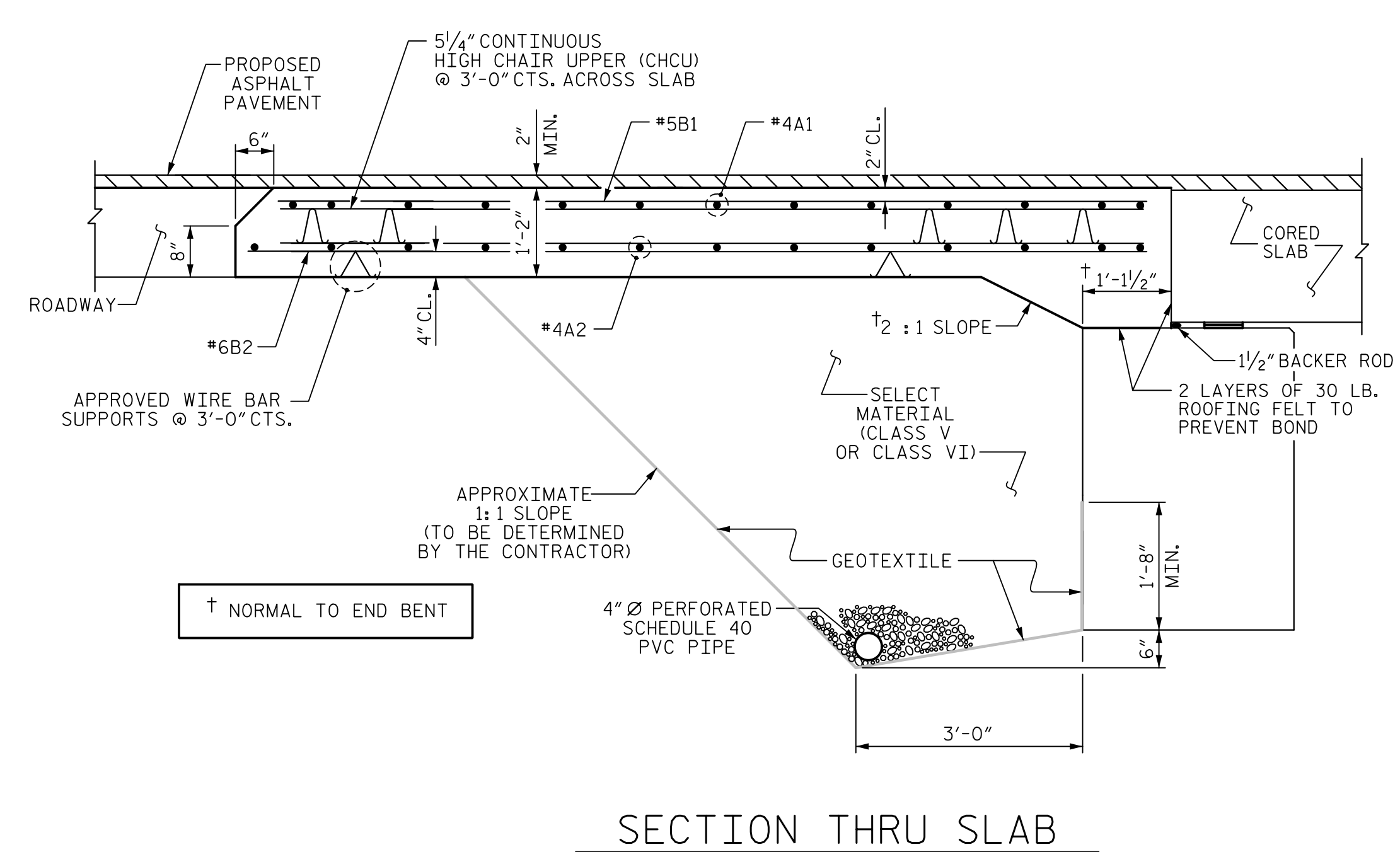
DRAWN BY : D. WITHERSPOON DATE : 5/19
CHECKED BY : P. BARBER DATE : 5/19
DESIGN ENGINEER OF RECORD : P. BARBER DATE : 5/19

DWG. NO. 18

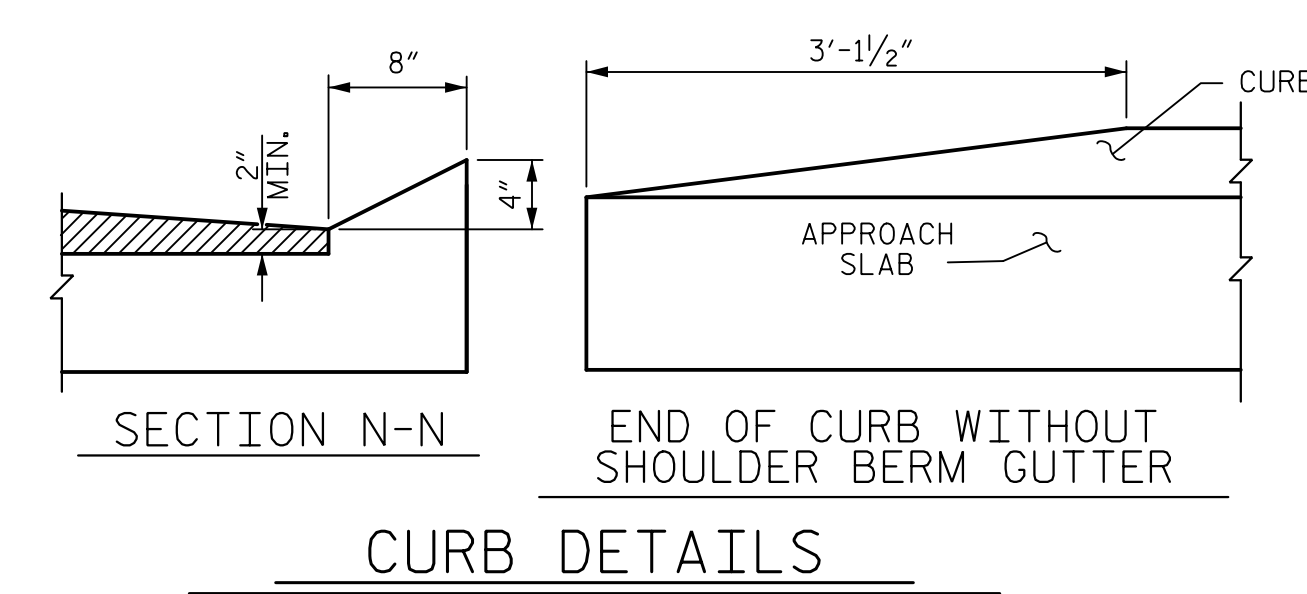
REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-18
1			3			TOTAL SHEETS
2			4			19



PLAN @ END BENT #1
 PLAN @ END BENT #2
 DIMENSIONS SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS



SECTION THRU SLAB
 (TYPE II - MODIFIED APPROACH FILL)



CURB DETAILS

SPlice LENGTHS		
BAR SIZE	EPOXY COATED	UNCOATED
#4	2'-0"	1'-9"
#5	2'-6"	2'-2"
#6	3'-10"	2'-7"

NOTES

FOR BRIDGE APPROACH FILL INCLUDING GEOTEXTILE, 4" Ø DRAINAGE PIPE, AND SELECT MATERIAL BACKFILL, SEE ROADWAY PLANS.

GEOTEXTILE SHALL BE TYPE 1 IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS SECTION 1056.

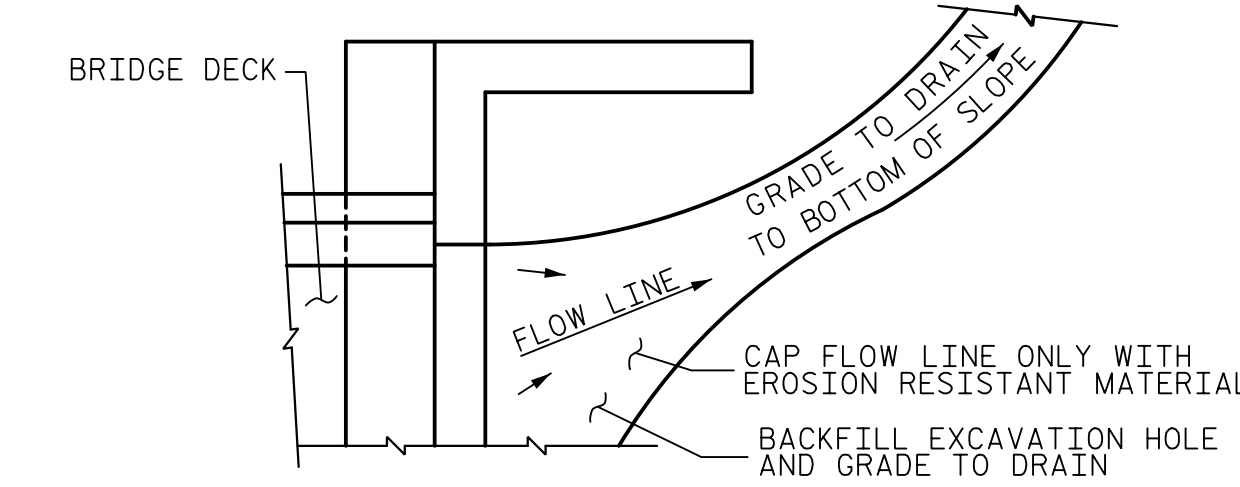
SELECT MATERIAL BACKFILL (CLASS V OR CLASS VI) SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS SECTION 1016.

SELECT MATERIAL BACKFILL IS TO BE CONTINUOUS ALONG FILL FACE OF BACKWALL FROM OUTSIDE EDGE TO OUTSIDE EDGE OF APPROACH SLAB.

FOR THE 4" Ø DRAINAGE PIPE OUTLET(S), SEE ROADWAY STANDARD DRAWINGS.

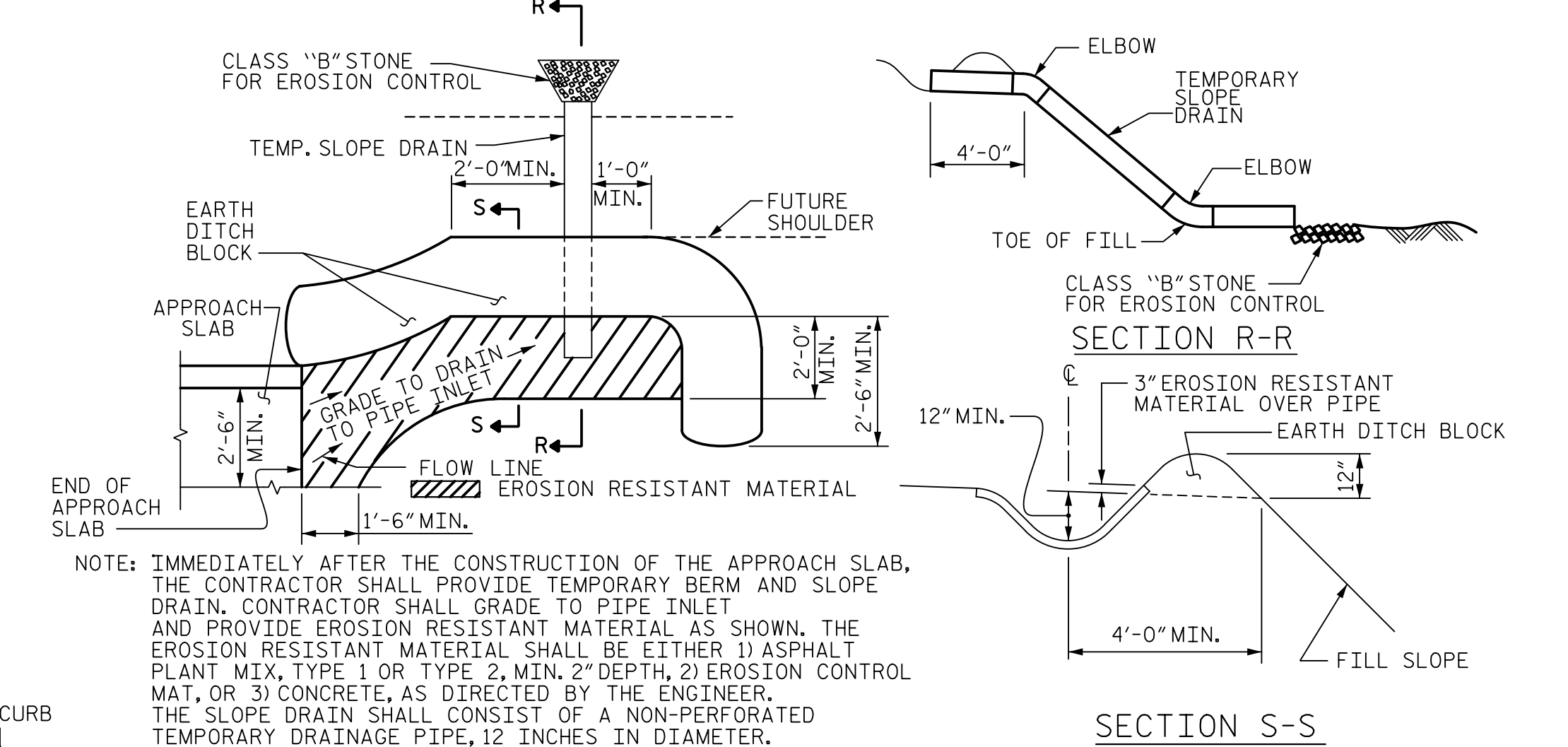
AREA BETWEEN THE WINGWALL AND APPROACH SLAB SHALL BE GRADED TO DRAIN THE WATER AWAY FROM THE FILL FACE OF THE BRIDGE AND SHALL BE PAVED. SEE ROADWAY PLANS.

APPROACH SLAB GROOVING IS NOT REQUIRED.



NOTE: IF THE APPROACH SLAB IS NOT CONSTRUCTED IMMEDIATELY AFTER THE BACKFILLING OF THE END BENT EXCAVATION, GRADE TO DRAIN TO THE BOTTOM OF THE SLOPE AND PROVIDE EROSION RESISTANT MATERIAL, SUCH AS FIBERGLASS ROVING OR AS DIRECTED BY THE ENGINEER TO PREVENT SOIL EROSION AND TO PROTECT THE AREA ADJACENT TO THE STRUCTURE. THE CONTRACTOR WILL BE REQUIRED TO REMOVE THESE MATERIALS PRIOR TO CONSTRUCTION OF THE APPROACH SLAB.

TEMPORARY DRAINAGE DETAIL



NOTE: IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) ASPHALT PLANT MIX, TYPE 1 OR TYPE 2, MIN. 2" DEPTH, 2) EROSION CONTROL MAT, OR 3) CONCRETE, AS DIRECTED BY THE ENGINEER. THE SLOPE DRAIN SHALL CONSIST OF A NON-PERFORATED TEMPORARY DRAINAGE PIPE, 12 INCHES IN DIAMETER.

TEMPORARY BERM AND SLOPE DRAIN DETAILS
 (TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)

BILL OF MATERIAL						
APPROACH SLAB AT EB #1						
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	
*A1	26	#4	STR	16'-11"	294	
A2	26	#4	STR	16'-9"	291	
*B1	64	#5	STR	11'-2"	745	
B2	64	#6	STR	11'-8"	1121	
REINFORCING STEEL					LBS.	1412
*EPOXY COATED REINFORCING STEEL					LBS.	1039
CLASS AA CONCRETE					C. Y.	18.4
APPROACH SLAB AT EB #2						
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	
*A1	26	#4	STR	16'-11"	294	
A2	26	#4	STR	16'-9"	291	
*B1	64	#5	STR	11'-2"	745	
B2	64	#6	STR	11'-8"	1121	
REINFORCING STEEL					LBS.	1412
*EPOXY COATED REINFORCING STEEL					LBS.	1039
CLASS AA CONCRETE					C. Y.	19.5

ASSEMBLED BY : D. WITHERSPOON DATE : 5/19
 CHECKED BY : P. BARBER DATE : 5/19

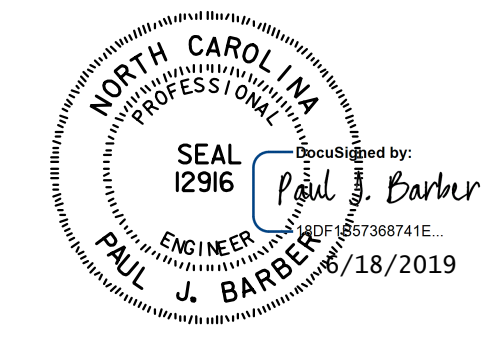
DRAWN BY : SHS/MAA 5-09
 CHECKED BY : BCH 5-09

REV. 12-17 MAA/THC

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DRAWN BY : D. WITHERSPOON DATE : 5/19
 CHECKED BY : P. BARBER DATE : 5/19
 DESIGN ENGINEER OF RECORD : P. BARBER DATE : 5/19

DWG. NO. 19



PROJECT NO. 17BP.3.R.66
 SAMPSON COUNTY
 STATION: 17+26.00 -L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

STANDARD
 BRIDGE APPROACH SLAB
 FOR PRESTRESSED CONCRETE
 CORED SLAB UNIT
 (SUB-REGIONAL TIER)
 90° SKEW

REVISIONS					SHEET NO.
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		

TOTAL SHEETS: 19