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TIP PROJECT: 17BP.4.R.95

CONTRACT: DD00281

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.4.R.95	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
17BP.4.R.95		PE	
17BP.4.R.95		ROW/UTIL.	
17BP.4.R.95		CONST.	

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

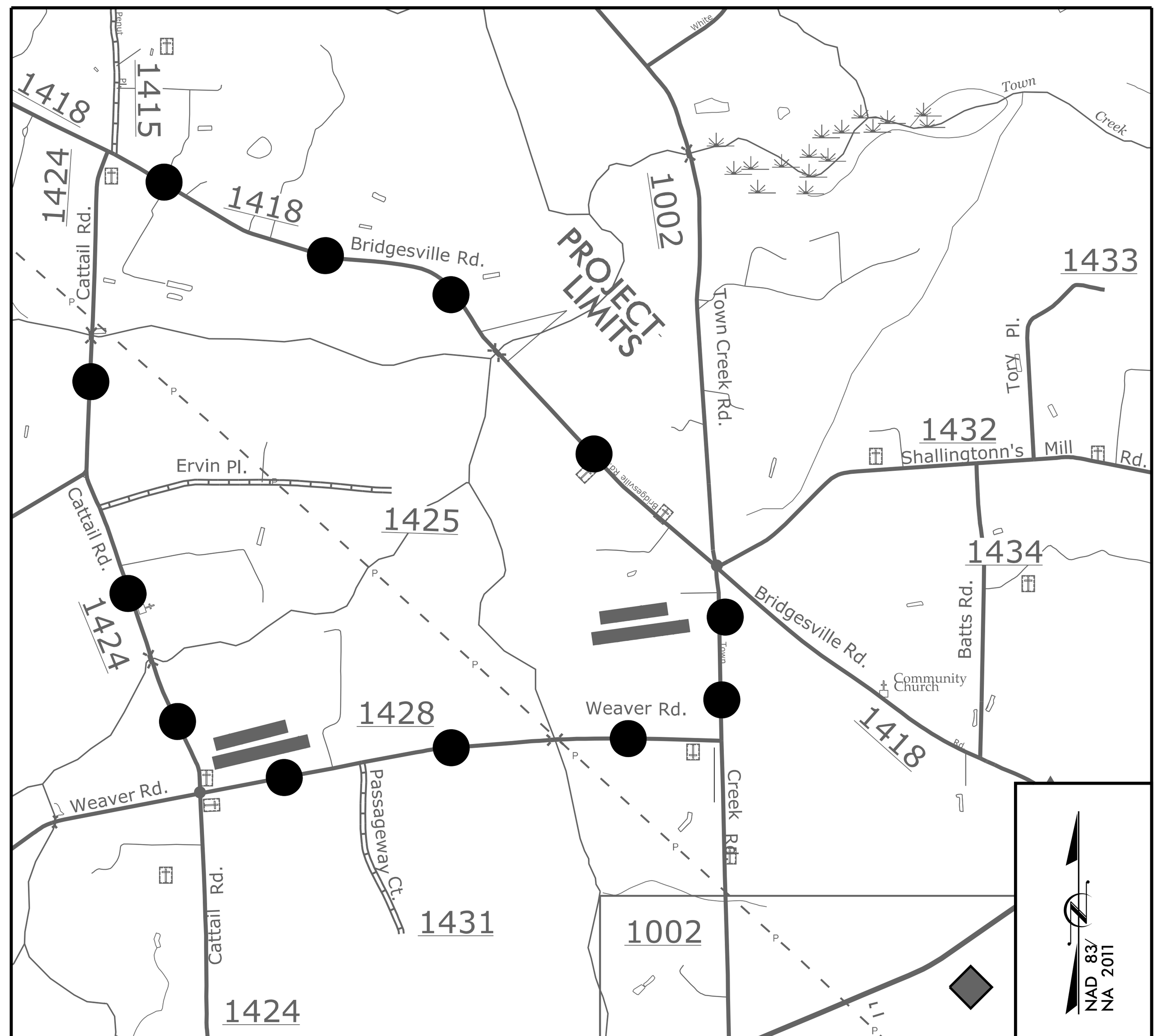
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

WILSON COUNTY

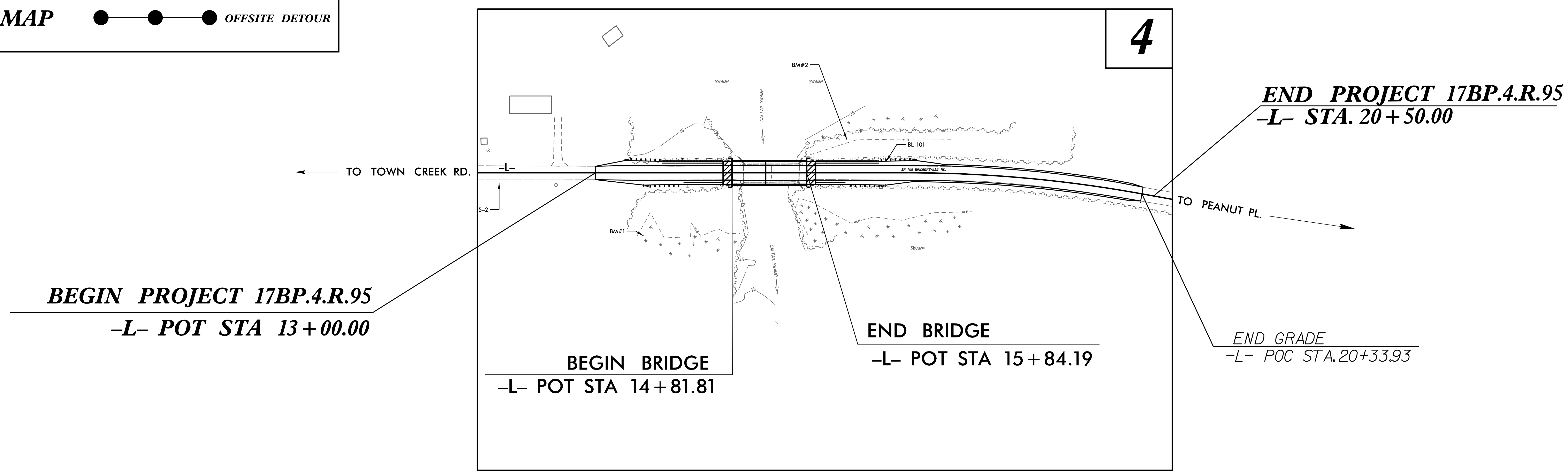
LOCATION: REPLACE BRIDGE NO. 105 OVER WHITE SWAMP ON SR 1418 (BRIDGERSVILLE RD)

TYPE OF WORK: GRADING, DRAINAGE, PAVING AND STRUCTURE

NAD 83/ NA 2011



VICINITY MAP — OFFSITE DETOUR



NOTES:

1. CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II.
2. THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES

50 25 0 50 100 — PLANS

50 25 0 50 100 — PROFILE (HORIZONTAL)

10 5 0 10 20 — PROFILE (VERTICAL)

DESIGN DATA

ADT 2016 = 570
ADT 2036 = 1140
K = 10 %
D = 60 %
T = 4 % *
V = 60 MPH
* TTST =1% DUAL 3%
FUNC CLASS = LOCAL
SUB-REGIONAL TIER

PROJECT LENGTH

LENGTH OF ROADWAY PROJECT 17BP.4.R.95 = 0.123 MILES
LENGTH OF STRUCTURE PROJECT 17BP.4.R.95 = 0.019 MILES
TOTAL LENGTH OF PROJECT 17BP.4.R.95 = 0.142 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: SEPTEMBER 12, 2018

LETTING DATE: SEPTEMBER 24, 2019

DOUGLAS M. WHEATLEY, PE — *PROJECT ENGINEER*

ROY H. TELLIER, PE — *PROJECT DESIGN ENGINEER*

MATT CLARKE, PE — *NCDOT CONTACT*

HYDRAULICS ENGINEER

DocuSigned by: James A. Byrd — 5/1/2019 — P.E.
SIGNATURE:
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 15764 JAMES A. BYRD

ROADWAY DESIGN ENGINEER

DocuSigned by: Roy Tellier — 5/1/2019 — P.E.
SIGNATURE:
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 044575 ROY H. TELLIER, II

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

09/08/99
01-MAY-2019 15:24
\Roadway\Proj\17BP.4.R.95_Wilson_BR105_rdy_tsh.dgn
HNTB

PROJECT REFERENCE NO.	SHEET NO.
17BP.4.R.95	1A

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 044575

7/23/2019

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

INDEX OF SHEETS

SHEET NUMBER	SHEET
1	TITLE SHEET
1A	INDEX OF SHEETS, GENERAL NOTES & LIST OF STANDARDS
1B	SYMBOLOGY SHEET
RW01 THRU RW04	SURVEY CONTROL & RW SHEETS
2A–1	TYPICAL SECTION SHEET
2C–1 THRU 2C–3	SPECIAL DETAIL SHEETS
3B–1	ROADWAY SUMMARY SHEETS
4	PLAN & PROFILE SHEET
TMP–1 THRU TMP–3	TRAFFIC CONTROL PLANS
EC–1 THRU EC–4	EROSION CONTROL PLANS
RF–1	REFORESTATION PLANS
U0–1 THRU UO–3	UTILITIES BY OTHERS PLANS
X–1 THRU X–5	CROSS SECTION SHEETS
S–1 THRU S–18	STRUCTURE PLANS

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

GRADING AND SURFACING OR RESURFACING AND WIDENING:

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

CLEARING:

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

SUPERELEVATION:

ALL CURVES ON THIS PROJECT SHALL BE SUPERELEVATED IN ACCORDANCE WITH STD. NO. 225.04 USING THE RATE OF SUPERELEVATION AND RUNOFF SHOWN ON THE PLANS. SUPERELEVATION IS TO BE REVOLVED ABOUT THE GRADE POINTS SHOWN ON THE TYPICAL SECTIONS.

SHOULDER CONSTRUCTION:

ASPHALT, EARTH, AND CONCRETE SHOULDER CONSTRUCTION ON THE HIGH SIDE OF SUPERELEVATED CURVES SHALL BE IN ACCORDANCE WITH STD. NO. 560.02

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

WATER– WILSON COUNTY

ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS.

RIGHT–OF–WAY MARKERS:

ALL RIGHT–OF–WAY MARKERS ON THIS PROJECT SHALL BE PLACED BY **OTHERS.**

EFF. 01–16–2018
REV.

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	
200.02	Method of Clearing – Method II
225.04	Method of Obtaining Superelevation – Two Lane Pavement
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	
846.01	Concrete Curb, Gutter and Curb & 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 Sheets 1 of 7 and 2 of 7)

12/2/2016

PROJECT REFERENCE NO.	SHEET NO.
17BP.4.R.95	1B

STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

Note: Not to Scale **S.U.E. = Subsurface Utility Engineering*

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
- Proposed Woven Wire Fence
- Proposed Chain Link Fence
- Proposed Barbed Wire Fence
- Existing Wetland Boundary (WLB)
- Proposed Wetland Boundary (WLB)
- Existing Endangered Animal Boundary (EAB)
- Existing Endangered Plant Boundary (EPB)
- Existing Historic Property Boundary (HPB)
- Known Contamination Area: Soil (S)
- Potential Contamination Area: Soil (S)
- Known Contamination Area: Water (W)
- Potential Contamination Area: Water (W)
- Contaminated Site: Known or Potential

BUILDINGS AND OTHER CULTURE:

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

HYDROLOGY:

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

RAILROADS:

- Standard Gauge (CSX TRANSPORTATION)
- 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 (RW)
- New Right of Way Line with Pin and Cap (RW)
- New Right of Way Line with Concrete or Granite R/W Marker (RW)
- New Control of Access Line with Concrete C/A Marker (CA)
- Existing Control of Access (CA)
- New Control of Access (CA)
- Existing Easement Line (E)
- New Temporary Construction Easement (E)
- New Temporary Drainage Easement (TDE)
- New Permanent Drainage Easement (PDE)
- New Permanent Drainage / Utility Easement (DUE)
- New Permanent Utility Easement (PUE)
- New Temporary Utility Easement (TUE)
- New Aerial Utility Easement (AUE)

ROADS AND RELATED FEATURES:

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

VEGETATION:

- Single Tree
- Single Shrub
- Hedge
- Woods Line
- Orchard
- Vineyard (Vineyard)

EXISTING STRUCTURES:

MAJOR:

- Bridge, Tunnel or Box Culvert (CONC)
- Bridge Wing Wall, Head Wall and End Wall (CONC WW)

MINOR:

- Head and End Wall (CONC HW)
- Pipe Culvert
- Footbridge
- Drainage Box: Catch Basin, DI or JB (CB)
- Paved Ditch Gutter
- Storm Sewer Manhole (S)
- Storm Sewer (S)

UTILITIES:

POWER:

- Existing Power Pole
- Proposed Power Pole
- Existing Joint Use Pole
- Proposed Joint Use Pole
- Power Manhole (P)
- Power Line Tower
- Power Transformer
- U/G Power Cable Hand Hole
- H-Frame Pole
- U/G Power Line LOS B (S.U.E.*) (P)
- U/G Power Line LOS C (S.U.E.*) (P)
- U/G Power Line LOS D (S.U.E.*) (P)

TELEPHONE:

- Existing Telephone Pole
- Proposed Telephone Pole
- Telephone Manhole (T)
- Telephone Pedestal (T)
- Telephone Cell Tower
- U/G Telephone Cable Hand Hole (HH)
- U/G Telephone Cable LOS B (S.U.E.*) (T)
- U/G Telephone Cable LOS C (S.U.E.*) (T)
- U/G Telephone Cable LOS D (S.U.E.*) (T)
- U/G Telephone Conduit LOS B (S.U.E.*) (TC)
- U/G Telephone Conduit LOS C (S.U.E.*) (TC)
- U/G Telephone Conduit LOS D (S.U.E.*) (TC)
- U/G Fiber Optics Cable LOS B (S.U.E.*) (T FO)
- U/G Fiber Optics Cable LOS C (S.U.E.*) (T FO)
- U/G Fiber Optics Cable LOS D (S.U.E.*) (T FO)

WATER:

- Water Manhole (W)
- Water Meter
- Water Valve
- Water Hydrant
- U/G Water Line LOS B (S.U.E*) (W)
- U/G Water Line LOS C (S.U.E*) (W)
- U/G Water Line LOS D (S.U.E*) (W)
- Above Ground Water Line (A/G Water)

TV:

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

GAS:

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

SANITARY SEWER:

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

MISCELLANEOUS:

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

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

PROJECT REFERENCE NO.	SHEET NO.
17BP.4.R.95	2A-1

ROADWAY DESIGN ENGINEER

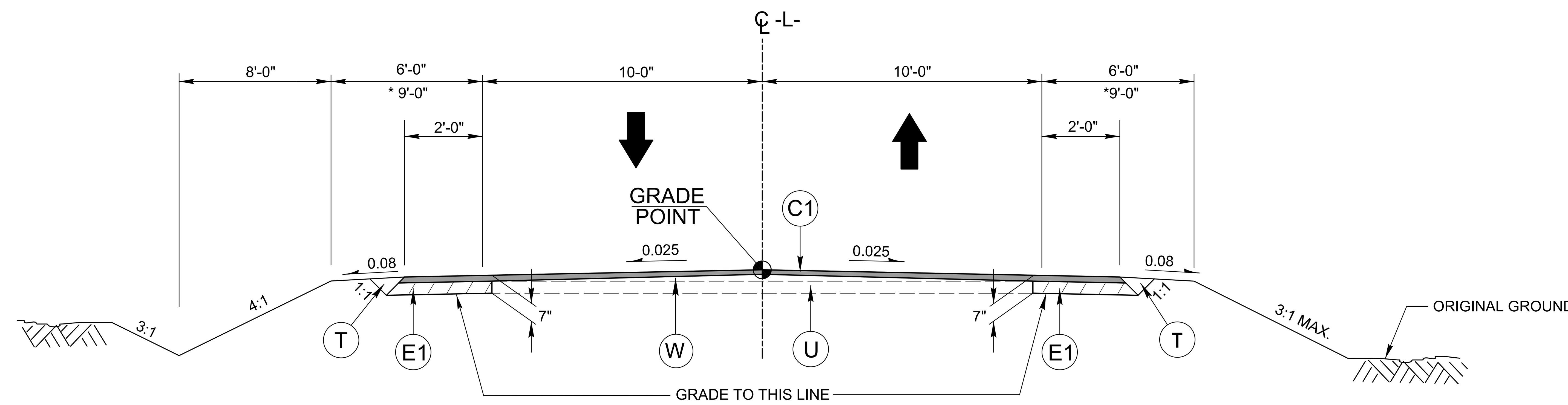
NORTH CAROLINA PROFESSIONAL SEAL 044575 ENGINEER H. TELLIER, II
12/3/2018

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PAVEMENT SCHEDULE

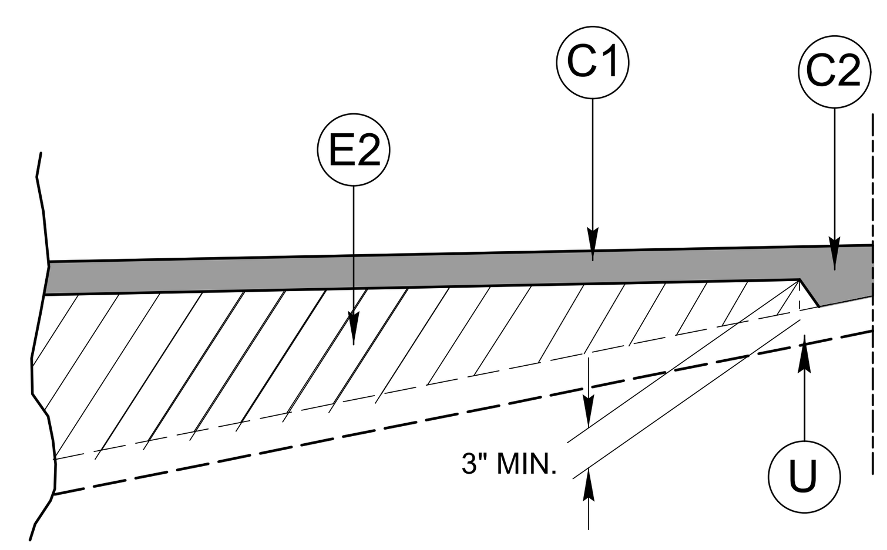
C1	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YARD IN EACH OF TWO LAYERS.
C2	PROP. VARIABLE DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B AT AN AVERAGE RATE OF 110 LBS. PER SQ. YARD PER INCH. DEPTH TO BE PLACED IN LAYERS NOT LESS THAN 1" IN DEPTH OR GREATER THAN 1.5" IN DEPTH.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YARD.
E2	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
W	WEDGING (SEE DETAIL)

ALL PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE

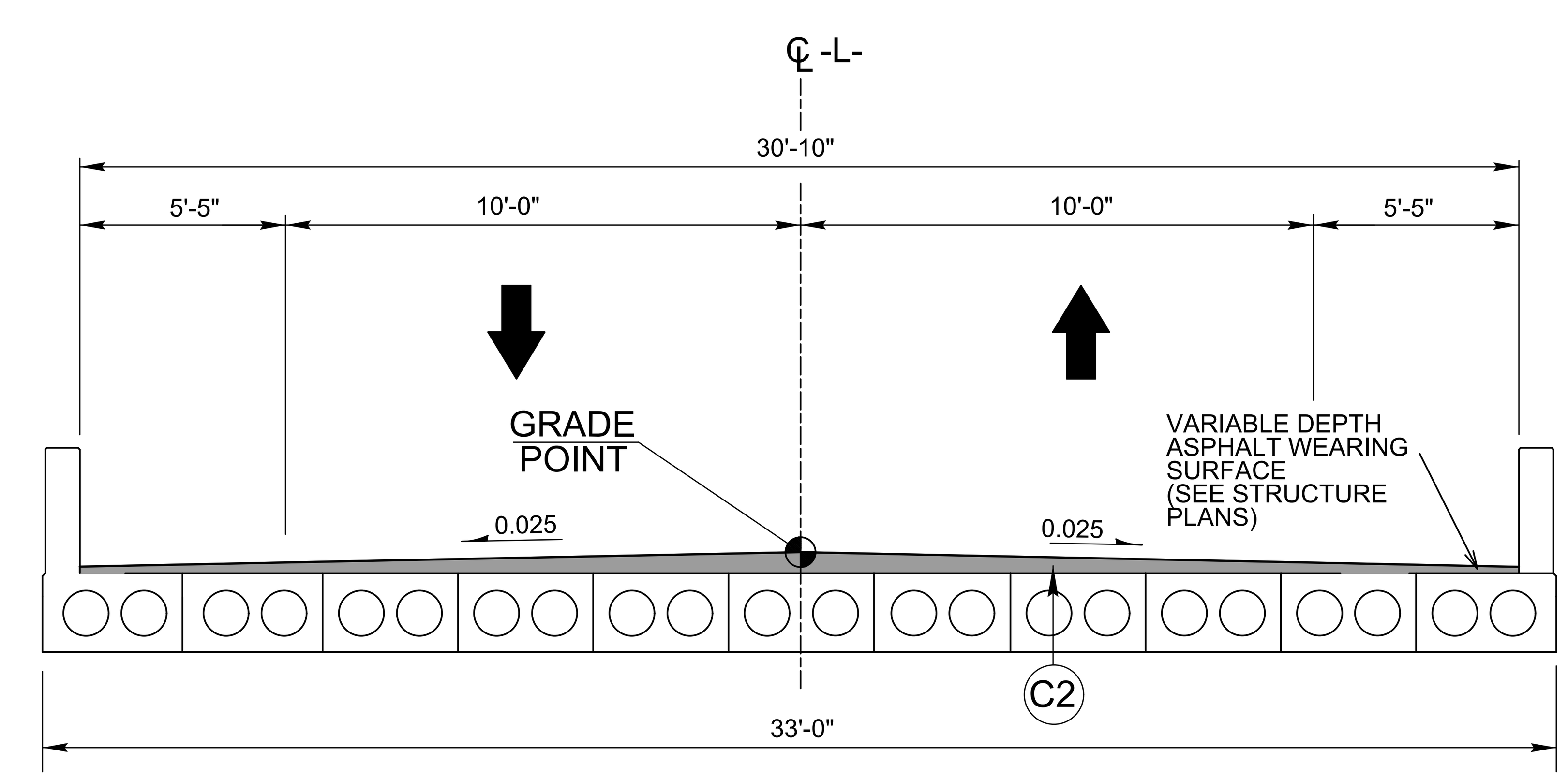


TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO. 1 FROM:
-L- STA 13+00.00 TO STA 14+81.81 (BRIDGE)
-L- STA 15+84.19 (BRIDGE) TO STA 20+33.93

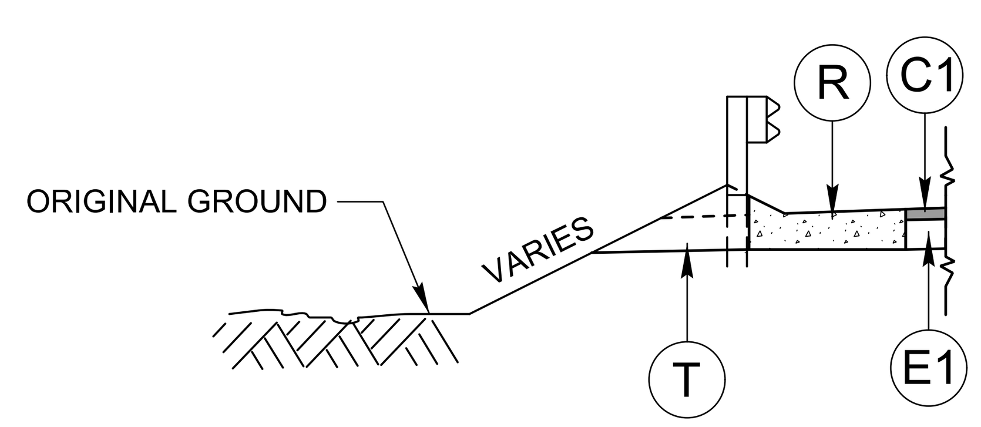


DETAIL SHOWING METHOD OF WEDGING
USE WITH TYPICAL SECTION 1



TYPICAL SECTION NO. 2
CORED SLAB BRIDGE OVERLAY

USE TYPICAL SECTION NO. 2 FROM:
-L- STA 14+81.81 TO STA 15+84.19



DETAIL A
SHOULDER BERM GUTTER LOCATIONS

-L- STA 13+89.25 TO STA. 14+71.00 LT
-L- STA 14+17.96 TO STA. 14+71.00 RT

-L- STA 15+95.00 TO STA. 16+80.00 LT
-L- STA 15+95.00 TO STA. 16+35.00 RT

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

PROJECT REFERENCE NO.	SHEET NO.
17BP.4.R.95	2C-1

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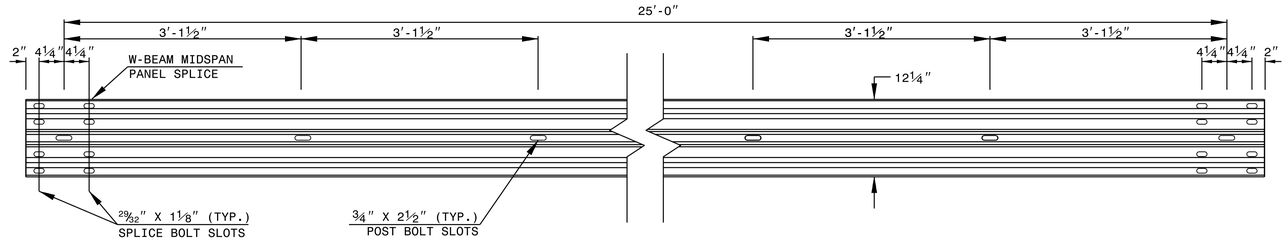
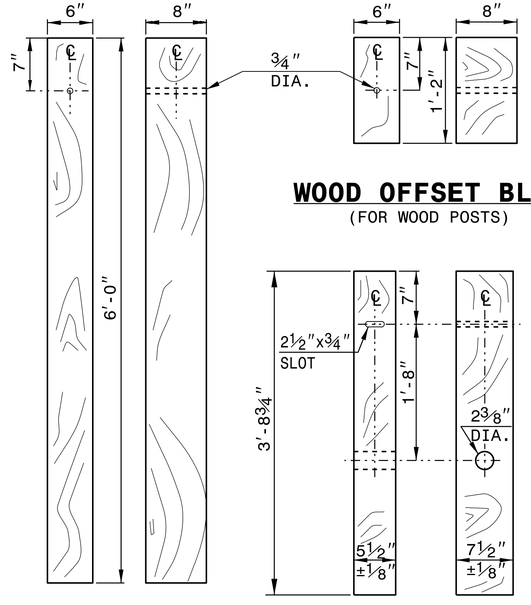
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

SHEET 6 OF 8
862D02



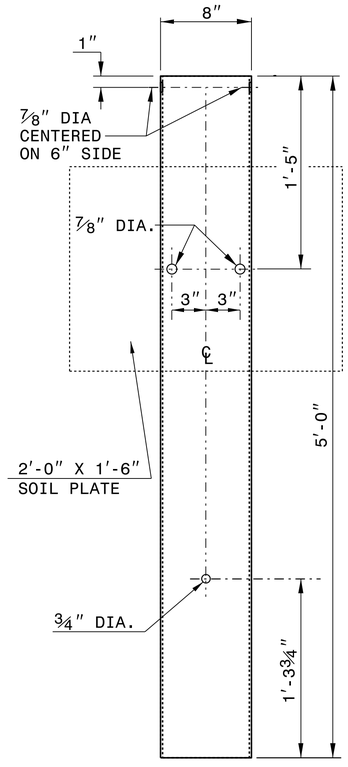
STANDARD W-BEAM GUARDRAIL



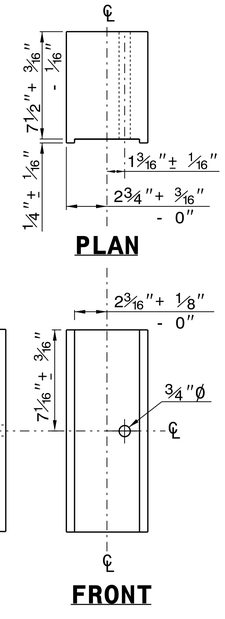
WOOD OFFSET BLOCK
(FOR WOOD POSTS)

STANDARD LINE POST

SHORT WOOD BREAKAWAY POST



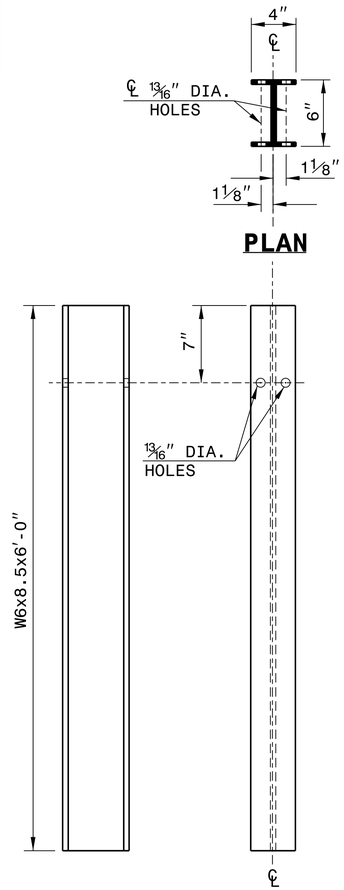
STEEL TUBE
TS 6"x8"x0.1875"



PLAN

SIDE **FRONT**

ROUTED OFFSET BLOCK



PLAN

SIDE **FRONT**

"W6" STEEL POST

SYSTEM PARTS

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

ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

SHEET 6 OF 8
862D02

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER JOSEPH HOWERTON
12/3/2018

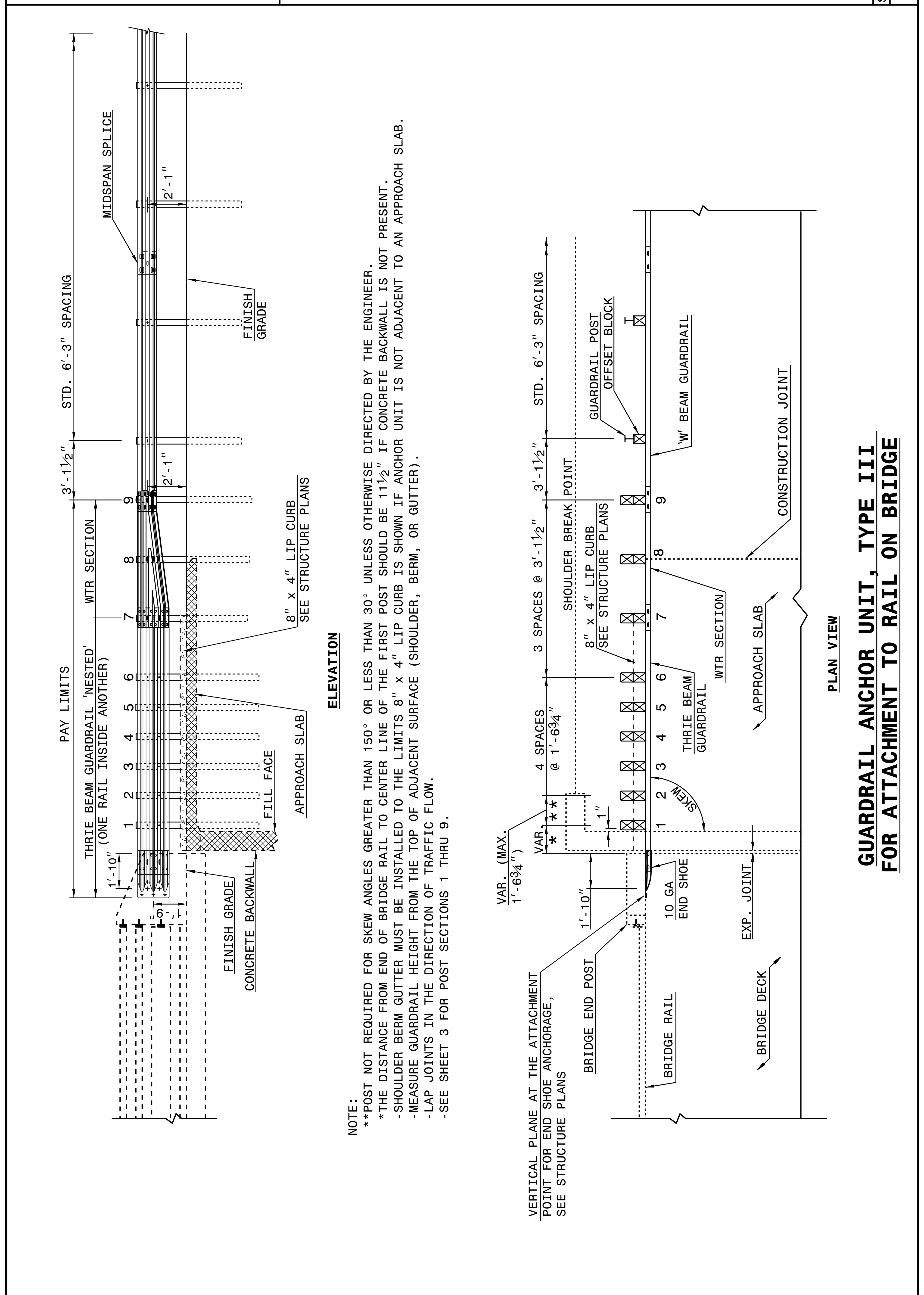
CONTRACTS STANDARDS AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

SEE TITLE BLOCK

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

PROJECT REFERENCE NO.	SHEET NO.
17BP.4.R.95	2C-2

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

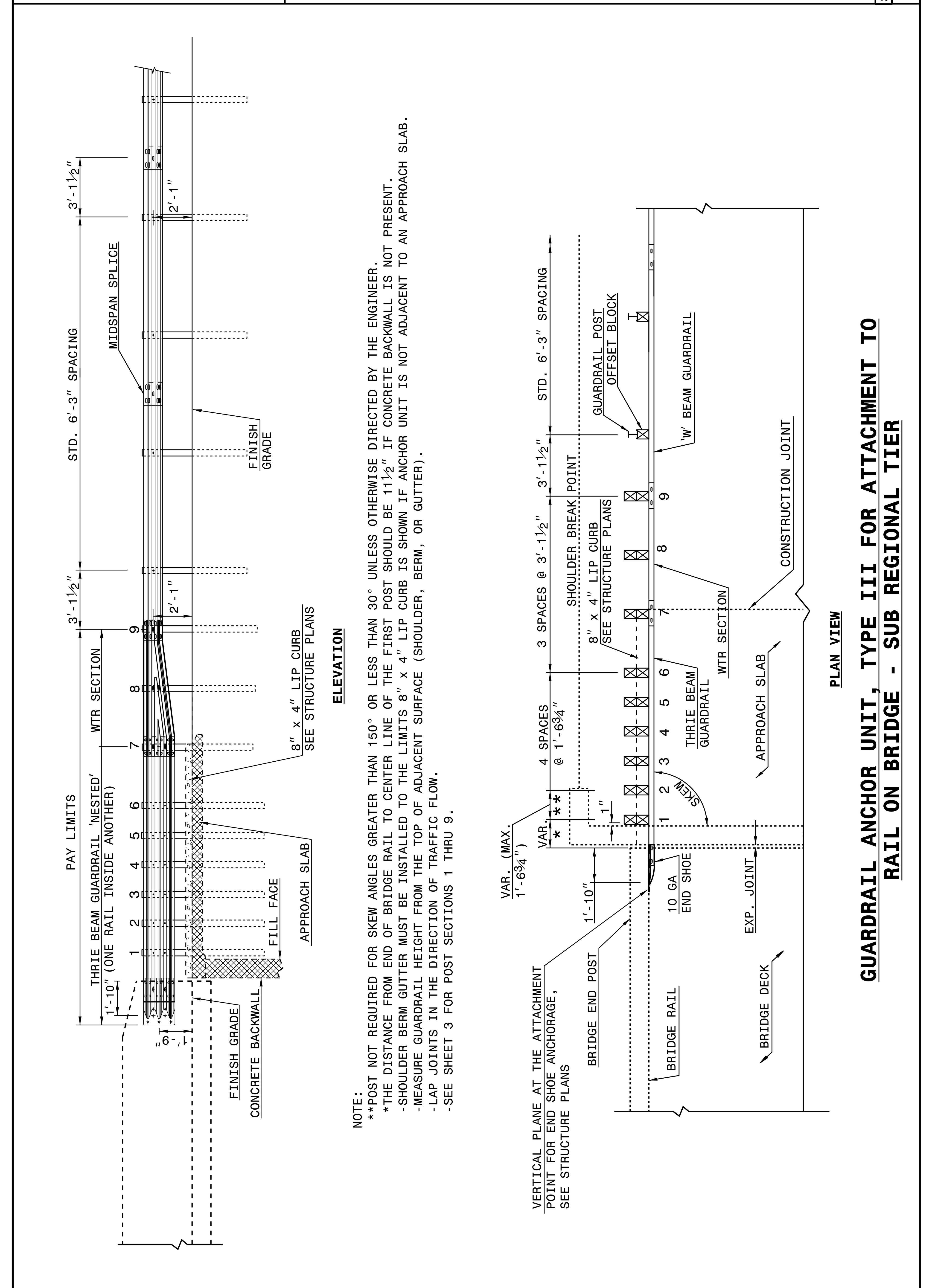


STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

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**

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 022966 J. S. HOWERTON
12/3/2018

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

SEE TITLE BLOCK

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

PROJECT REFERENCE NO.	SHEET NO.
17BP.4.R.95	2C-3

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

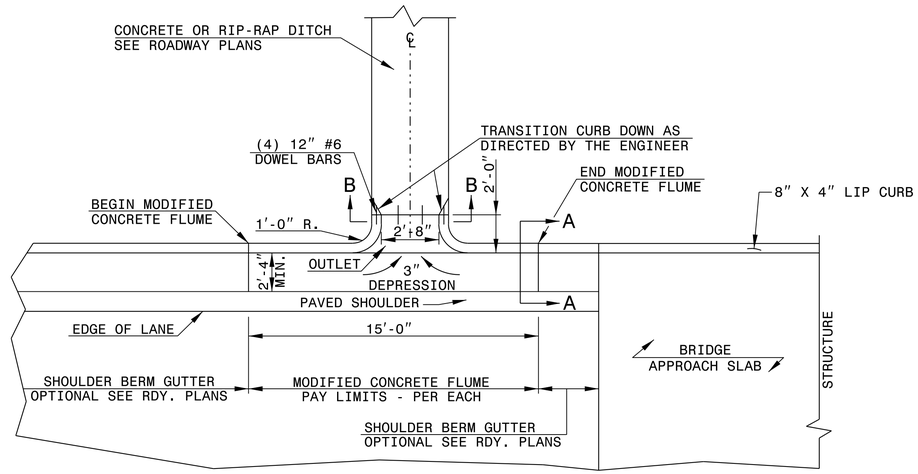
ENGLISH DETAIL DRAWING FOR

MODIFIED CONCRETE FLUME

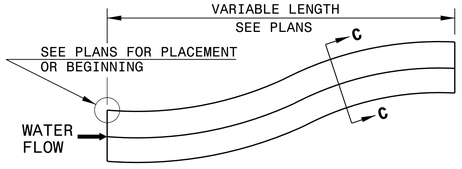
WITH CONCRETE OR RIP-RAP DITCH

SHEET 1 OF 1

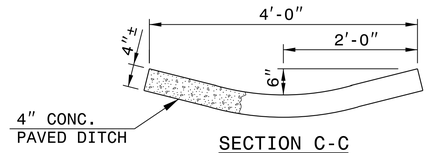
MODFLMDTCH



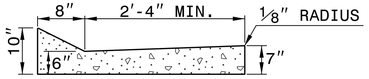
PLAN VIEW



DOWNGRADE OR SAG



SECTION C-C



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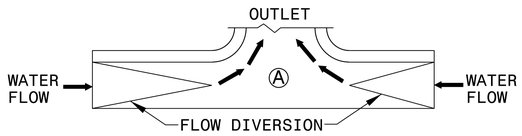
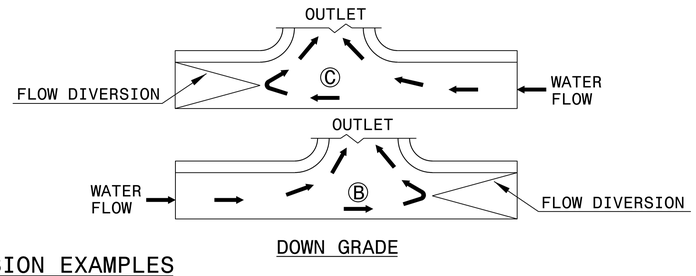
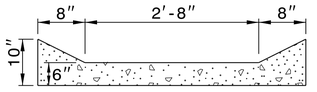


SAG

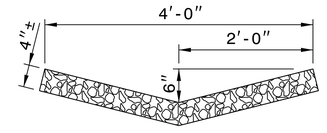


DOWN GRADE

FLOW DIVERSION EXAMPLES



SECTION B-B



RIP-RAP LINED DITCH

NOTES:

- CONSTRUCT MODIFIED CONCRETE FLUME AND SHOULDER BERM GUTTER IN ACCORDANCE WITH THIS DETAIL.
- CONSTRUCT CONCRETE DITCH IN ACCORDANCE WITH STD. DWG. NO. 850.01.
- CONSTRUCT RIP RAP LINED DITCH IN ACCORDANCE WITH THIS DETAIL, IF CALLED FOR IN PLANS.
- CONCRETE OR RIP RAP LINED DITCH SHALL BE THE TYPE AND LENGTH SPECIFIED BY THE ROADWAY PLANS. THE DITCH SHALL TERMINATE AS SHOWN ON THE PLANS. IF NO TERMINATION IS INDICATED PLACE RIP-RAP AT THE END OF THE DITCH AS INDICATED BY STD. DWG. 876.02 FOR AN 18″ PIPE. TRANSITIONS FROM THE DITCH TO TERMINATION SHALL BE AS DIRECTED BY THE ENGINEER.
- MODIFICATIONS SHALL BE AS DICTATED BY SITE CONDITIONS AND DIRECTED BY THE ENGINEER.

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

ENGLISH DETAIL DRAWING FOR

MODIFIED CONCRETE FLUME

WITH CONCRETE OR RIP-RAP DITCH

SHEET 1 OF 1

MODFLMDTCH

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

SEE PLATE FOR TITLE

ORIGINAL BY: E.E. Ward DATE: Apr. 2002
MODIFIED BY: J.S. Howerton DATE: October 2017
CHECKED BY: _____ DATE: _____
FILE SPEC.: w:details\stand\modifiedflume.dgn

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER Jennifer S. Howerton
12/3/2018

COMPUTED BY: TANNER A. ROBERTS DATE: 7/12/18
CHECKED BY: ROY H. TELLIER DATE: 8/17/18

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

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

PROJECT REFERENCE NO.	SHEET NO.
17BP.4.R.95	3B–1

SUMMARY OF EARTHWORK

STATION	STATION	UNCL. EXCAV.	EMBANK +%	BORROW	WASTE
13+00.00	14+81.81 (BRIDGE)	100	41		59
15+84.19 (BRIDGE)	20+33.93	25	187	162	
TOTALS:		125	228	162	59
WASTE IN LIEU OF BORROW				–59	–59
PROJECT TOTALS:		125	228	103	
5% TO REPLACE TOP SOIL ON BORROW PIT				5	
GRAND TOTALS:		125		108	
SAY:		130		110	

Note: Approximate quantities only. Unclassified Excavation, Borrow Excavation, 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.

SHOULDER BERM GUTTER SUMMARY

SURVEY LINE	STATION	STATION	LENGTH (FT)
–L–, LT	13+89.25	14+71	82
–L–, RT	14+17.96	14+71	53
–L–, LT	15+95	16+80	85
–L–, RT	15+95	16+35.00	40
		TOTAL:	260
		SAY:	270

ROW AREA DATA SUMMARY

PARCEL NO.	PROPERTY OWNERS NAMES	PROP. R/W	PERM. UTILITY EASE.	PERM. DRAIN. EASE.	PERM. DRAINAGE UTILITY EASE.	CONST. EASE.
1	BARBARA JORDAN			200 SF		2700.05 SF
2	PAULETTE R. PROCTOR			1905 SF		645 SF
3	MARY PITTMAN			200 SF		
4	ANN YOUNG			200 SF		
						1424.95 SF

"N" = DISTANCE FROM EDGE OF LANE TO FACE OF GUARDRAIL.
TOTAL SHOULDER WIDTH = DISTANCE FROM EDGE OF TRAVEL LANE TO SHOULDER BREAK POINT.
FLARE LENGTH = DISTANCE FROM LAST SECTION OF PARALLEL GUARDRAIL TO END OF GUARDRAIL.
W = TOTAL WIDTH OF FLARE FROM BEGINNING OF TAPER TO END OF GUARDRAIL.
G = GATING IMPACT ATTENUATOR TYPE 350
NG = NON–GATING IMPACT ATTENUATOR TYPE 350

GUARDRAIL SUMMARY

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHOUL. WIDTH	FLARE LENGTH		W		ANCHORS									IMPACT ATTENUATOR 350			SINGLE FACED GUARDRAIL	REMOVE EXISTING GUARDRAIL	REMOVE AND STOCKPILE EXISTING GUARDRAIL	REMARKS
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	TYPE III	GREU TL–3								EA	G	NG				
–L–	13+40	14+81.81 (BRIDGE)	LT	143′			14+81.81 (BRIDGE)		5.42′	8.42′	50′		1′		1	1														
	13+65	14+81.81 (BRIDGE)	RT	118′			14+81.81 (BRIDGE)		5.42′	8.42′	50′		1′		1	1														
	15+84.19 (BRIDGE)	17+30	LT	152′			15+84.19 (BRIDGE)		5.42′	8.42′	50′		1′		1	1														
	15+84.19 (BRIDGE)	16+90	RT	112′			15+84.19 (BRIDGE)		5.42′	8.42′	50′		1′		1	1														
			SUBTOTAL:	525′											4	4														
			ANCHOR DEDUCTIONS:																											
			GREU, TL–3: 4@50′	–200.00′																										
			TYPE III: 4@18.75′	–75.00																										
			TOTAL:	250′																										
			SAY:	265′																										
			ADDITIONAL POST	5																										

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

STATION	LOCATION (LT,RT, OR CL)	STRUCTURE NO.		TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	CAAP								BITUMINOUS COATED C.S. PIPE TYPE B (UNLESS NOTED OTHERWISE)													CLASS III R.C. PIPE OR C.S. PIPE, TYPE IR OR HDPE PIPE, TYPE S OR D							
SIZE								12"	15"	18"	24"	30"	36"	42"	48"	12"	15"	18"	24"		30"		36"		42"		48"		12"	15"	18"	24"	30"	36"	42"	48"
THICKNESS OR GAUGE		FROM	TO								.064	.079		.109		.064	.064	.064	.064		.079		.079		.109		.109									
–L– 13+96.75	LT																																			
–L– 14+25.46	RT																																			
–L– 16+27.50	RT																																			
–L– 16+72.50	LT																																			
TOTAL																																				

STATION	15" SIDE DRAIN PIPE	18" SIDE DRAIN PIPE	24" SIDE DRAIN PIPE	ENDWALLS STD. 838.01, STD. 838.11 OR STD. 838.80 (UNLESS NOTED OTHERWISE)		QUANTITIES FOR DRAINAGE STRUCTURES	* TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B')		C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES AND HOOD STANDARD 840.03					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	TB GRATED D.I., TYPE 'B' STD. 840.35	T.B.D.I. (N.S.) FRAME AND TWO GRATES STD. 840.29	MODIFIED CONCRETE FLUME (SHEET 2C–3)				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.	REMARKS
SIZE				CU. YDS.		PER EACH (0' THRU 5.0')	LIN. *FT.			TYPE OF GRATE																									
THICKNESS OR GAUGE				R.C.P.	C.S.P.		A 5.0' THRU 10.0'	B 10.0' AND ABOVE		E	F	G																							
–L– 13+96.75																											1								
–L– 14+25.46																											1								
–L– 16+27.50																											1								
–L– 16+72.50																											1								
TOTAL																											4								

ABBREVIATIONS

C.B.	CATCH BASIN
N.D.I.	NARROW DROP INLET
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
G.D.I. (N.S.)	GRATED DROP INLET (NARROW SLOT)
J.B.	JUNCTION BOX
M.H.	MANHOLE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING JUNCTION BOX

12/06/07

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HNTB

8/17/99

REVISIONS

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

PROJECT REFERENCE NO.	SHEET NO.
17BP.4.R.95	4
R/W SHEET NO.	

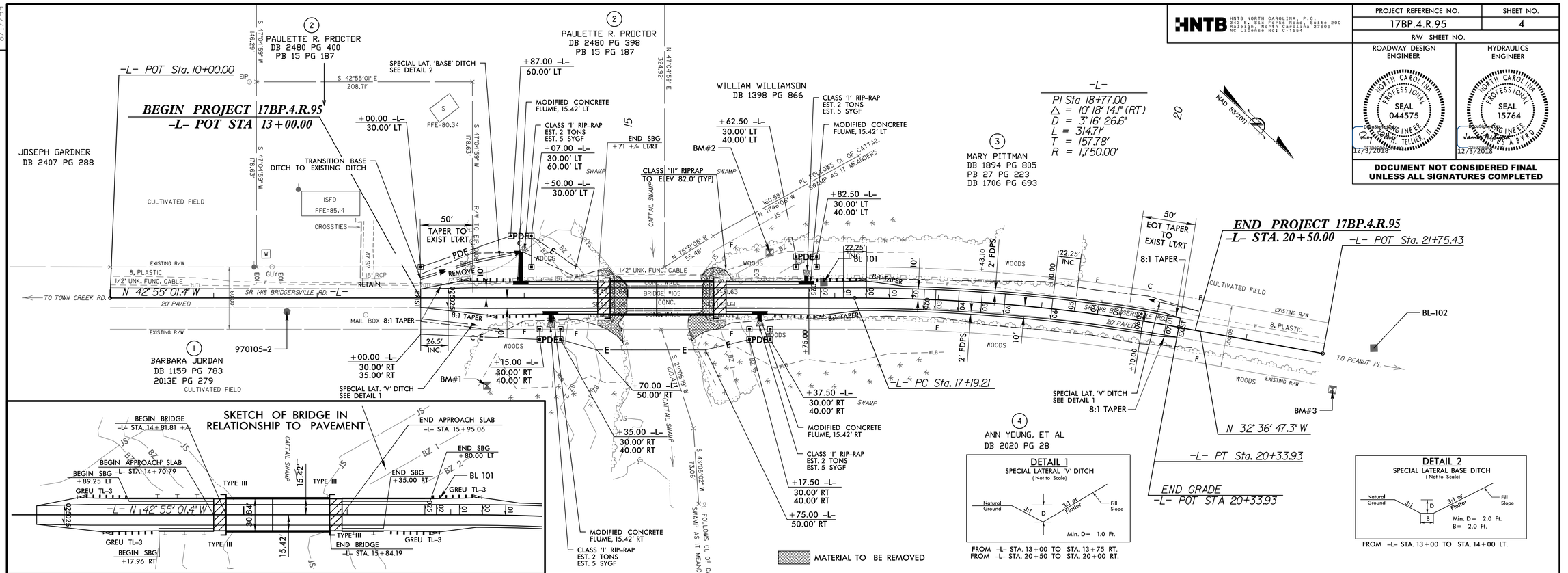
ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 044575 ENGINEER Randy Q. TELLIER, III
12/3/2018

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 15764 ENGINEER James A. BYERS
12/3/2018

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



SKETCH OF BRIDGE IN RELATIONSHIP TO PAVEMENT

DETAIL 1
SPECIAL LATERAL 'V' DITCH
(Not to Scale)

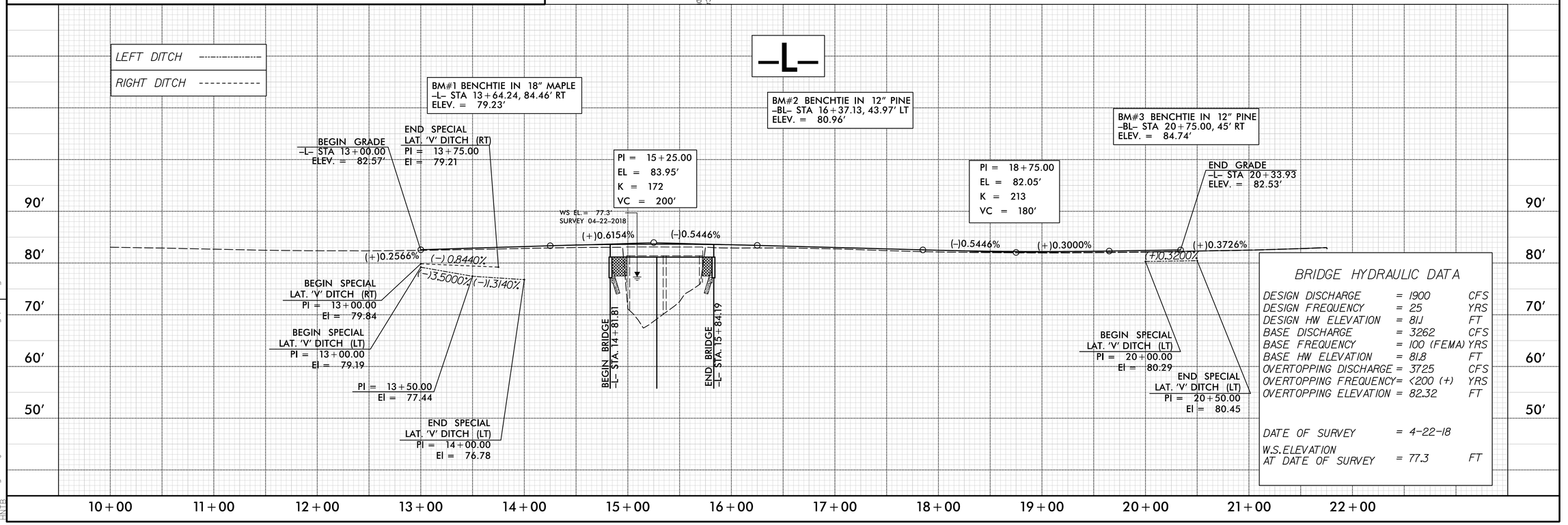
Min. D= 1.0 Ft.

FROM -L- STA. 13+00 TO STA. 13+75 RT.
FROM -L- STA. 20+50 TO STA. 20+00 RT.

DETAIL 2
SPECIAL LATERAL BASE DITCH
(Not to Scale)

Min. D= 2.0 Ft.
B= 2.0 Ft.

FROM -L- STA. 13+00 TO STA. 14+00 LT.



BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	= 1900	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 81.1	FT
BASE DISCHARGE	= 3262	CFS
BASE FREQUENCY	= 100 (FEMA)	YRS
BASE HW ELEVATION	= 81.8	FT
OVERTOPPING DISCHARGE	= 3725	CFS
OVERTOPPING FREQUENCY	= <200 (+)	YRS
OVERTOPPING ELEVATION	= 82.32	FT
DATE OF SURVEY	= 4-22-18	
W.S. ELEVATION AT DATE OF SURVEY	= 77.3	FT

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	970105	RW01	

TIP PROJECT: 970105

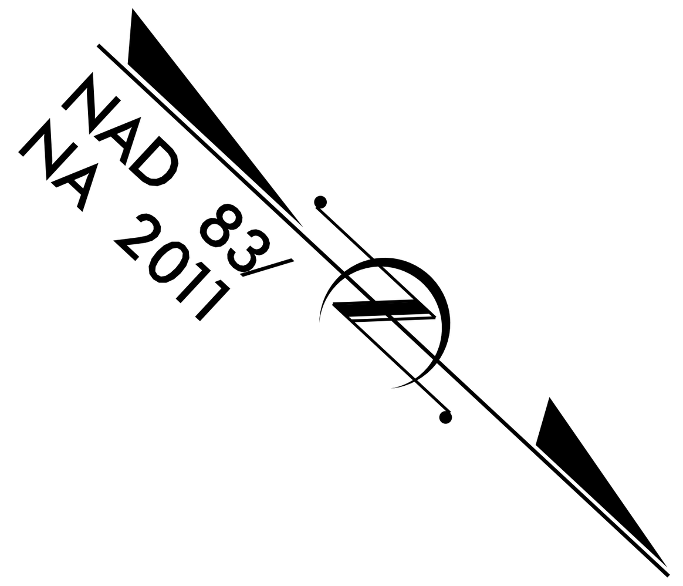
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

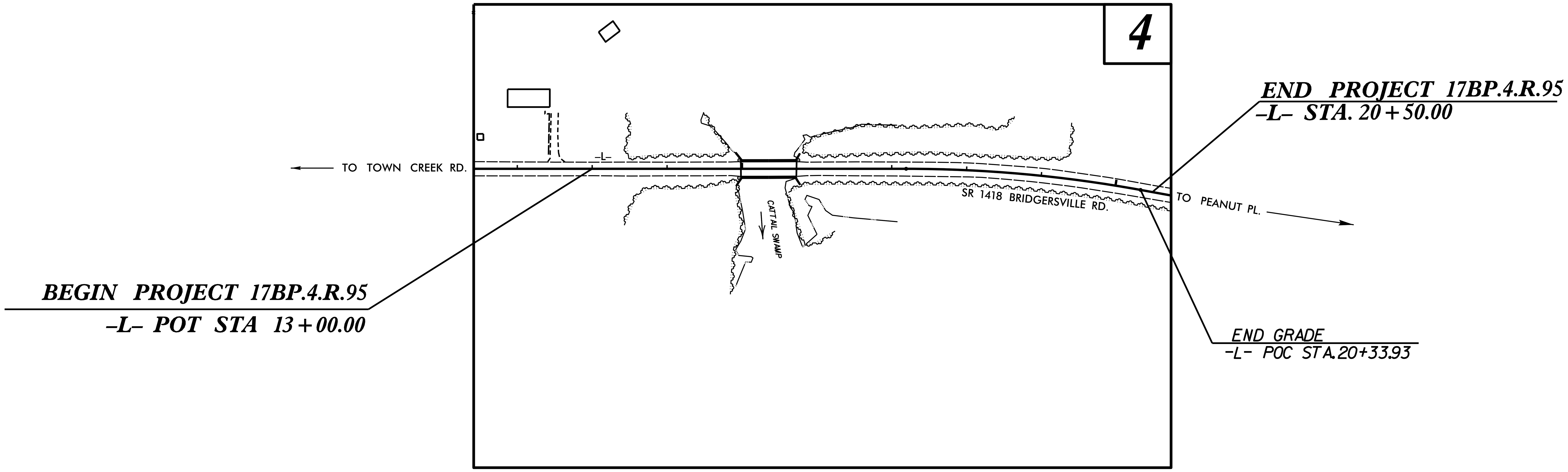
SURVEY CONTROL, EXISTING CENTERLINES, RIGHT OF WAY, EASEMENTS AND PROPERTY TIES

WILSON COUNTY

LOCATION: REPLACE BRIDGE NO. 105 OVER WHITE SWAMP ON SR 1418 (BRIDGERSVILLE RD)

TYPE OF WORK: GRADING, DRAINAGE, PAVING AND STRUCTURE





GRAPHIC SCALE

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "970105-2" WITH NAD 83/NA 2011 STATE PLANE GRID COORDINATES OF NORTHING: 740083.497(ft) EASTING: 2361192.411(ft) ELEVATION: 81.75(ft)

THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999916015

THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "970105-2" TO -L- STATION 13+00 IS N 48°44'39" W 129.87(ft)

ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES

VERTICAL DATUM USED IS NAVD 88

Prepared in the Office of:

DEWBERRY ENGINEERS INC.

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:	LETTING DATE:
SEPTEMBER 12, 2018	JUNE 18, 2019

PROFESSIONAL LAND SURVEYOR

NORTH CAROLINA PROFESSIONAL SEAL L-4980 LAND SURVEYOR ADAM C. HALES

DocuSigned by: Adam Hales
E91DDBC1163E43D...

10/31/2018

SIGNATURE: *Date:*

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

PROJECT REFERENCE NO.	SHEET NO.
970105	RW02C-1

Location and Surveys

DEWBERRY ENGINEERS INC.

PROJECT SURVEYOR

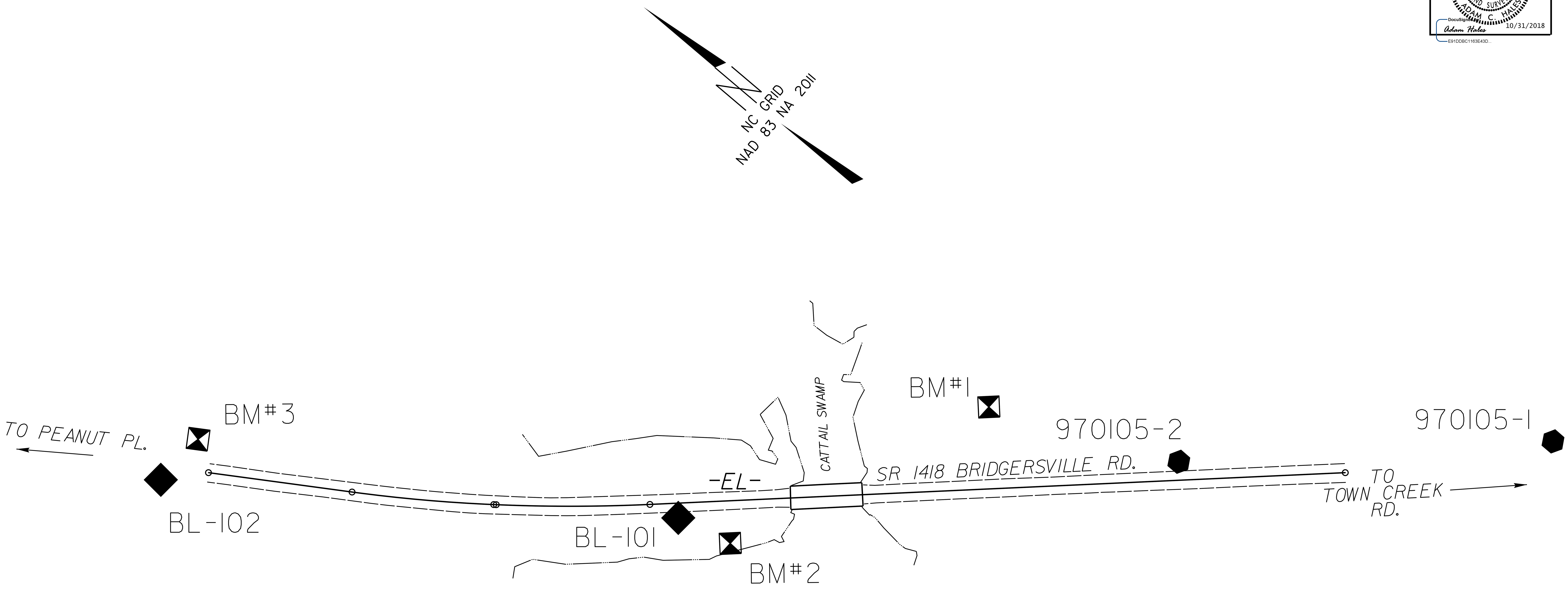
NORTH CAROLINA PROFESSIONAL SEAL L-4980 LAND SURVEYOR ADAM C. HALES

DocuSigned by: Adam Hales 10/31/2018

E91DDBC1163E43D...

SURVEY CONTROL SHEET

W/ EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION



NOTES:

1. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.

2. THE SURVEY CONTROL DATA FOR THIS PROJECT HAS BEEN COMPILED FROM VARIOUS SOURCES. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

REVISIONS

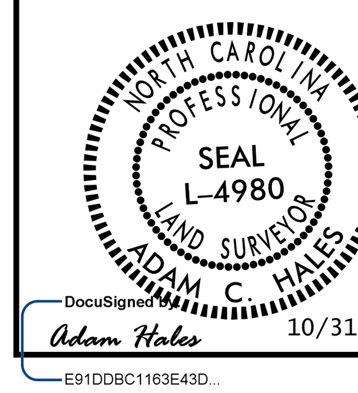
6/2/99

PROJECT REFERENCE NO.	SHEET NO.
970105	RW02C-2

Location and Surveys

DEWBERRY ENGINEERS INC.

PROJECT SURVEYOR



DocuSigned by:
Adam Hales
E91DDBC1163E43D...
10/31/2018

SURVEY CONTROL SHEET

W/ EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION

BASELINE DATA

BL

POINT	DESC.	NORTH	EAST	ELEVATION
1	970105-1	739676.0960	2361569.7960	84.48
2	970105-2	740083.4970	2361192.4110	81.75
101	BL-101	740443.8830	2360818.3580	82.48
102	BL102	740876.4130	2360503.0900	82.96

BENCHMARK DATA

BM1 ELEVATION - 79.23
N 740274 E 2361113
BENCHTIE IN 18" MAPLE

BM2 ELEVATION - 80.96
N 740386 E 2360833
BENCHTIE IN 13" MAPLE

BM3 ELEVATION - 84.74
N 740874 E 2360560
BENCHTIE IN 12" PINE

ALIGNMENT DATA

EL

POINT	N	E	BEARING	DIST	DELTA	D	L	T	R
POT	739949.437	2361299.056							
LINE			N 42°55'01.4" W	718.10					
PC	740475.331	2360810.074							
CURVE			N 40°23'36.6" W	158.51	05°02'49.5"(RT)	03°10'59.2"	158.56	79.33	1800.00
PT	740596.052	2360707.356							
LINE			N 37°52'11.9" W	2.55					
PC	740598.067	2360705.789							
CURVE			N 35°14'29.6" W	146.75	05°15'24.6"(RT)	03°34'51.6"	146.80	73.45	1600.00
PT	740717.919	2360621.112							
LINE			N 32°36'47.3" W	149.44					
POT	740843.796	2360540.570							

NOTES:

1. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.

2. THE SURVEY CONTROL DATA FOR THIS PROJECT HAS BEEN COMPILED FROM VARIOUS SOURCES. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

REVISIONS

6/2/99

PROJECT REFERENCE NO.	SHEET NO.
970105	RW04

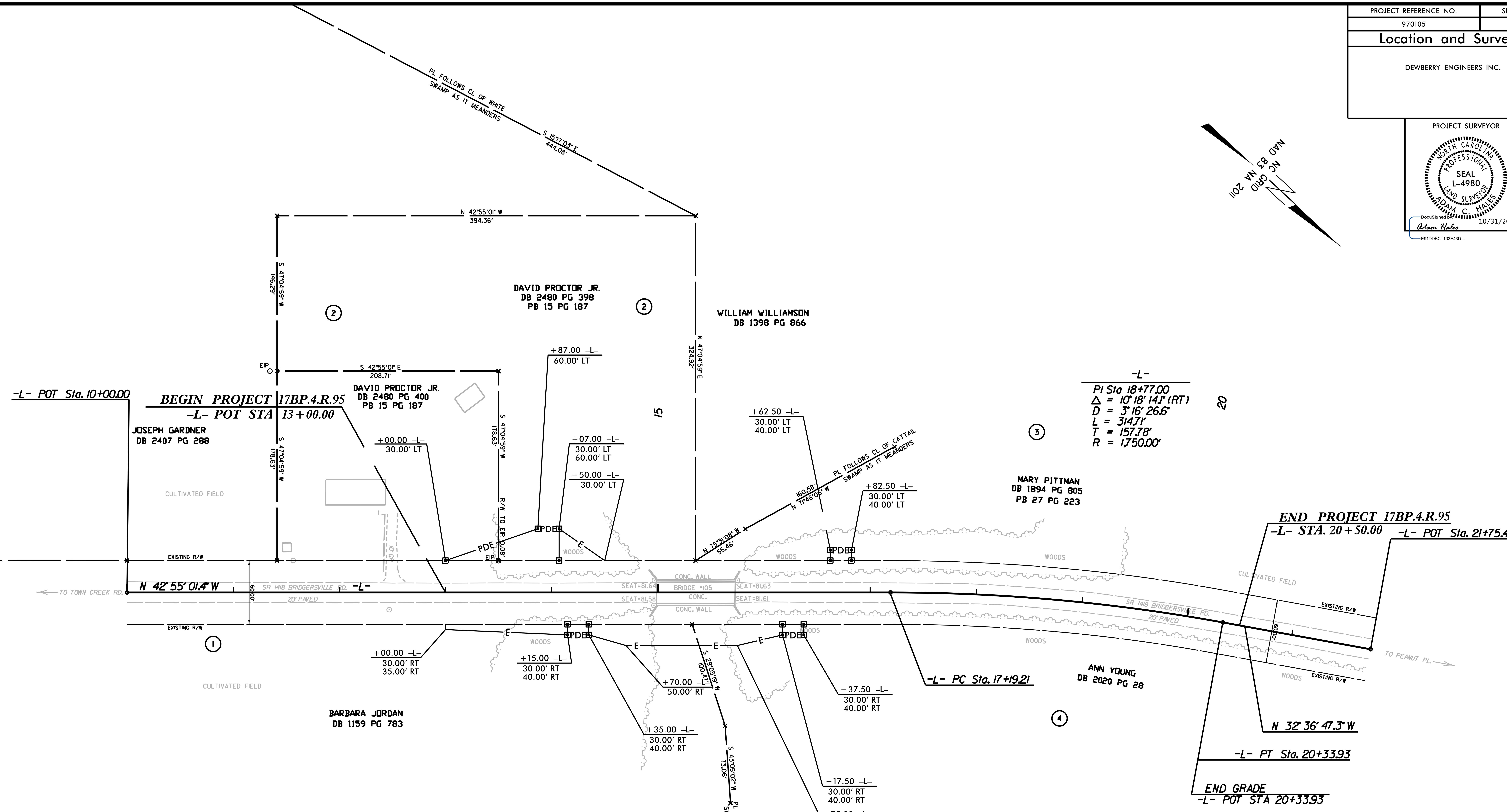
Location and Surveys

DEWBERRY ENGINEERS INC.

PROJECT SURVEYOR

NORTH CAROLINA PROFESSIONAL SEAL L-4980 LAND SURVEYOR ADAM C. HALES

Adam Hales 10/31/2018



I, ADAM C. HALES, a Professional Land Surveyor in the state of North Carolina hereby certify to the best of my knowledge and belief that the following work item(s) (R/W Staking) performed under my responsible charge meet NCDOT Survey Standards as directed in the NCDOT Location & Surveys guidelines and procedures.

I further certify that the right of way and permanent easement points shown herein and outlined in the tables shown hereon (localized coordinates, station/offset) have been checked and are accurate representations of the right of way and permanent easement points depicted on the corresponding highway plans. I also certify that the right of way and permanent easement points shown herein have been field monumented under my supervision from existing survey control provided by others; that the depicted property data shown herein were surveyed by others; and these monuments denote the right of way and easement boundaries at the time of staking which may be subject to change due to right of way revisions (See deeds for final determination).

Witness my original signature, registration number and seal this 30th day of October, 2018.

Adam Hales

Professional Land Surveyor — PLS # L-4980 — Seal

NOTES:

1. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

2. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.

REVISIONS

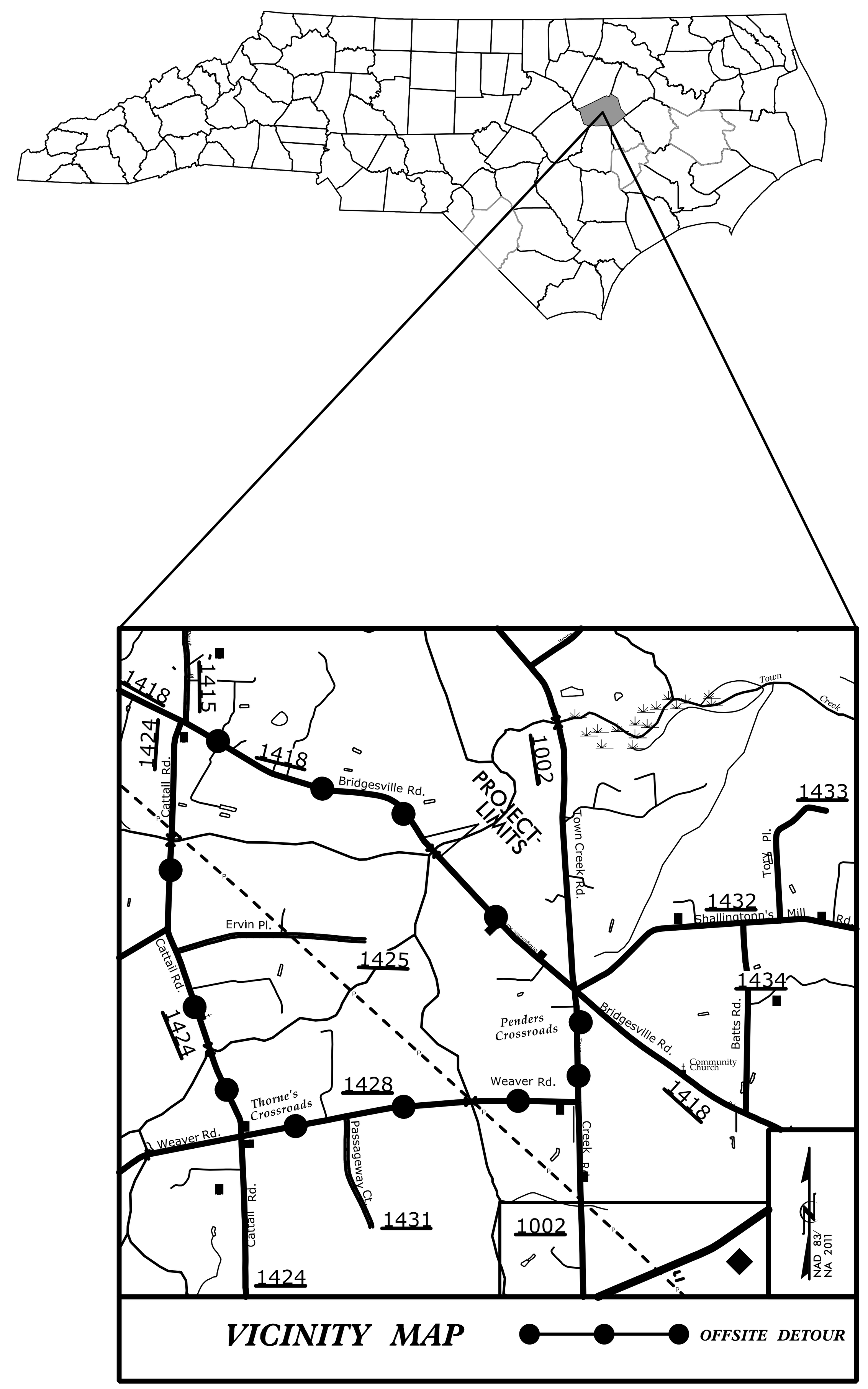
30-OCT-2018 10:04 P:\50105492\L\CAD\Survey\970105_LS_RW04_181031.dgn

SHEET NO.
TMP-1

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

WILSON COUNTY



LOCATION: REPLACE BRIDGE NO. 105 OVER WHITE SWAMP ON SR 1418 (BRIDGERSVILLE RD)

PLANS PREPARED BY: HNTB	NCDOT CONTACTS:
R.B. EARLY, P.E.	ANDY BROWN, PE
PROJECT ENGINEER	DIVISION TRAFFIC ENGINEER
J. A. PHILLIPS	
PROJECT DESIGN TECHNICIAN	

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

11/27/2018
...\17BP.2.R.95_tc_TMP-01_title.dgn
HNTB

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 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

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: 12/4/2018

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 023521 ENGINEER RHONDA B. EARLY

TIP PROJECT: 17BP.4.R.95

PROJ. REFERENCE NO.	SHEET NO.
17BP.4.R.95	TMP-2

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 UNDESIRED 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 1418 (BRIDGERSVILLE 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 1418 / BRIDGERSVILLE ROAD) TO TRAFFIC AND CONSTRUCT PROPOSED CULVERT AND ROADWAY UP TO AND INCLUDING THE FINAL LAYER OF SURFACE COURSE.

STEP 3

UPON COMPLETION OF CULVERT 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 1418 / BRIDGERSVILLE ROAD) TO TRAFFIC.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

APPROVED Digitally signed by: Rhonda B. Early F34CAF5AC6BF48A...

DATE: 12/4/2018

NORTH CAROLINA PROFESSIONAL SEAL 023521 ENGINEER RHONDA B. EARLY SEAL

STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION

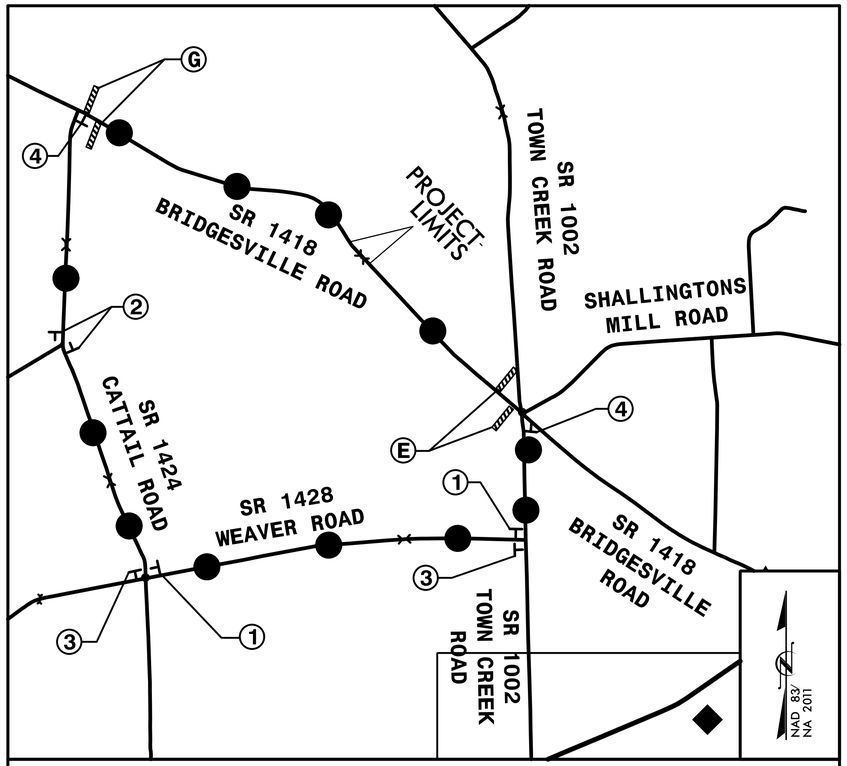
HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200
Raleigh, North Carolina 27609
NC License No: C-1554

TRANSPORTATION MANAGEMENT PLAN

LEGEND, GENERAL NOTES AND PHASING

11/27/2018
...\17BP.4.R.95_tc_TCP_02_notes.dgn
HNTB

PROJ. REFERENCE NO.	SHEET NO.
17BP.4.R.95	TMP-3



VICINITY MAP ●—●—● *OFFSITE DETOUR*

REFER TO RSD 1101.03 (SHEET 1 OF 9) FOR ADDITIONAL SIGN REQUIREMENTS INCLUDING:
-W20-3 (20 EA)
-W20-2 (4 EA)
-SP-4 (3 EA)

Ⓐ R11-2
48″ x 30″
ROAD CLOSED
TYPE III BARRICADE

Ⓔ R11-4
60″ x 30″
ROAD CLOSED TO THRU TRAFFIC
DETOUR
M4-10L
48″ x 18″
TYPE III BARRICADE

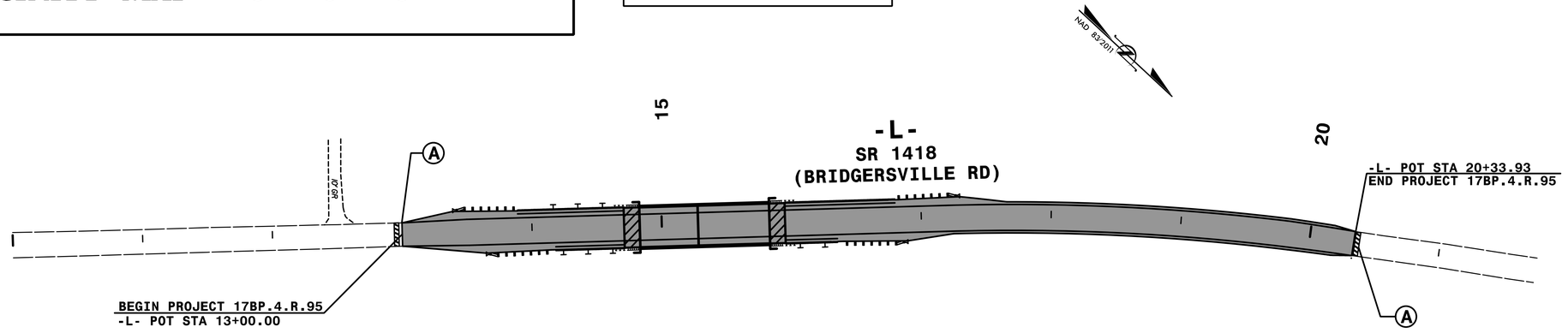
Ⓖ R11-3
60″ x 30″
ROAD CLOSED
1 MILE AHEAD
LOCAL TRAFFIC ONLY
DETOUR
M4-10R
48″ x 18″
TYPE III BARRICADE

① DETOUR M4-8 24″ X 12″
M6-1 21″ X 15″

② DETOUR M4-8 24″ X 12″
M6-3 21″ X 15″

③ DETOUR M4-8 24″ X 12″
M6-1 L 21″ X 15″

④ END DETOUR M4-8 A 24″ X 18″



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

APPROVED: Signed by: Rhonda B. Early F34CAF5AC6BF48A...
DATE: 12/4/2018

NORTH CAROLINA PROFESSIONAL SEAL 023521 ENGINEER RHONDA B. EARLY SEAL

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •

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

TRANSPORTATION MANAGEMENT PLAN

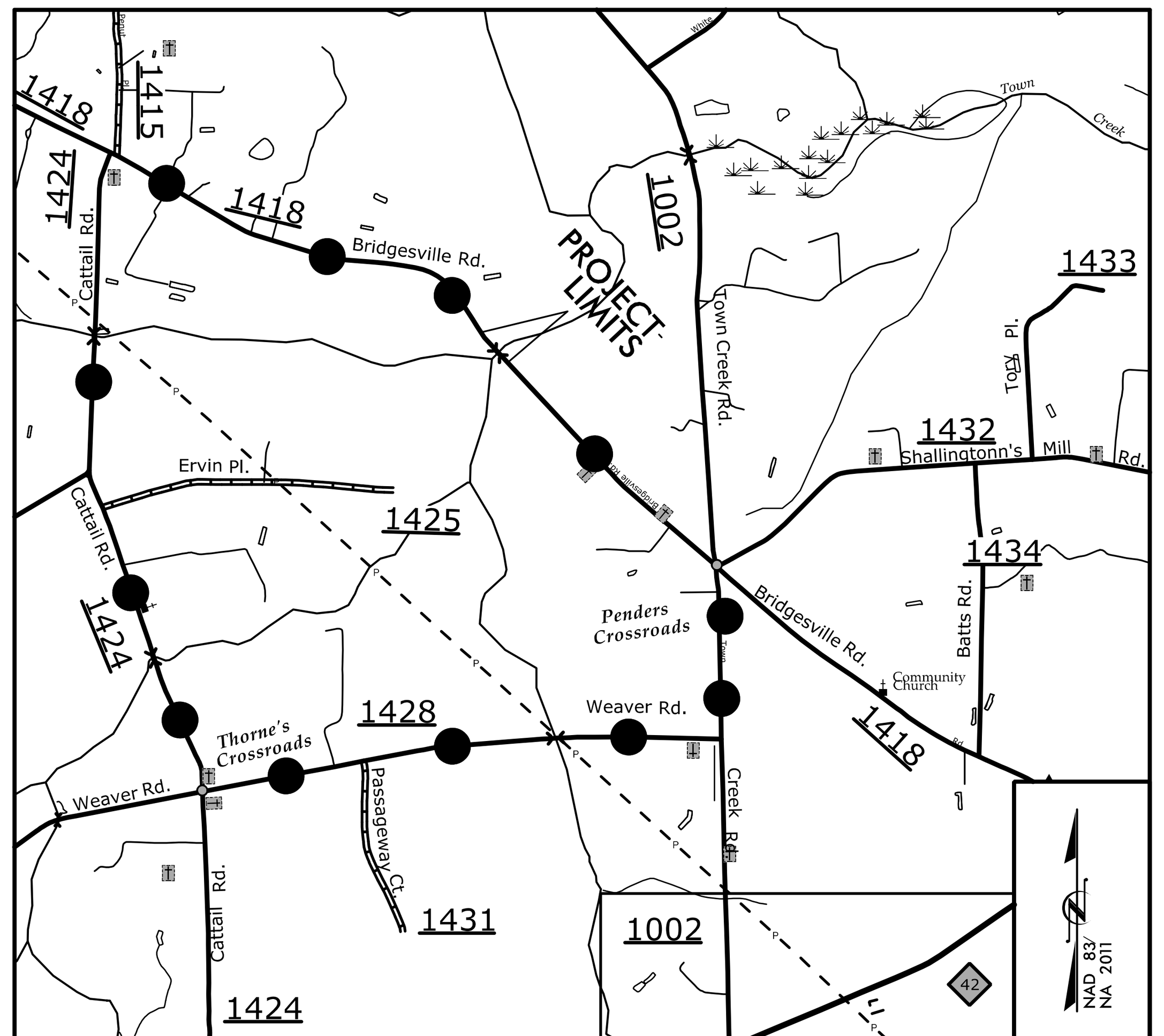
DETOUR DETAIL

11/27/2018
...\17BP.4.R.95_tc_TMP-03_detour.dgn
HNTB

TIP PROJECT: 17BP.4.R.95

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.4.R.95	EC-1	

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION



VICINITY MAP —●—●—● OFFSITE DETOUR

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL

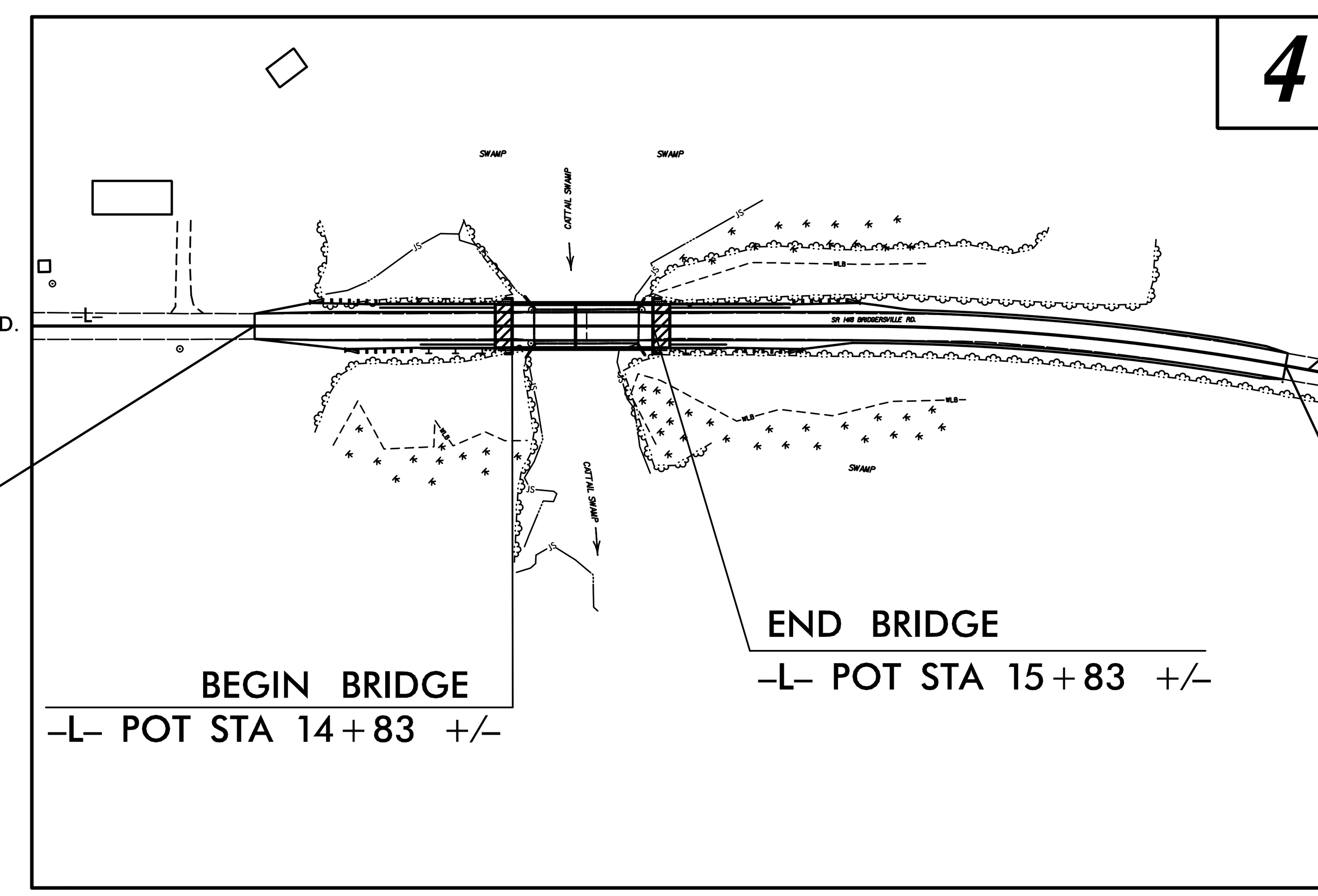
WILSON COUNTY

LOCATION: REPLACE BRIDGE NO. 105 OVER WHITE SWAMP ON SR 1418 (BRIDGERSVILLE RD)

TYPE OF WORK: GRADING, DRAINAGE, PAVING AND STRUCTURE

NAD 83/ NA 2011

← TO TOWN CREEK RD.



TO PEANUT PL. →

BEGIN PROJECT 17BP.4.R.95
-L- POT STA 13+00.00

BEGIN BRIDGE
-L- POT STA 14+83 +/-

END BRIDGE
-L- POT STA 15+83 +/-

END GRAD
-L- POC

END PROJECT 17BP.4.R.95
-L- STA. 20+50.00

EROSION AND SEDIMENT CONTROL MEASURES

Std. #	Description	Symbol
1630.03	Temporary Silt Ditch	TSD
1630.05	Temporary Diversion	TD
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	EW / CFW
	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	

THIS PROJECT HAS BEEN DESIGNED TO SENSITIVE WATERSHED STANDARDS.

ENVIRONMENTALLY SENSITIVE AREA(S) EXIST ON THIS PROJECT

Refer To E. C. Special Provisions for Special Considerations.

GRAPHIC SCALE

0
PLANS

0
PROFILE (HORIZONTAL)

0
PROFILE (VERTICAL)

ROADSIDE ENVIRONMENTAL UNIT
DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

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

Prepared In the Office of:

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

2018 STANDARD SPECIFICATIONS

Designed by:

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

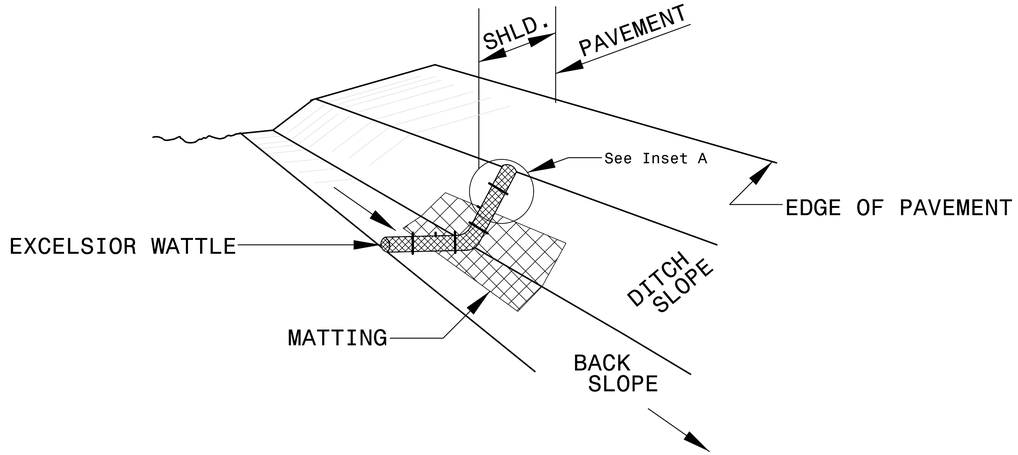
Roadway Standard Drawings

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 revison thereto are applicable to this project and by reference hereby are considered a part of these plans.

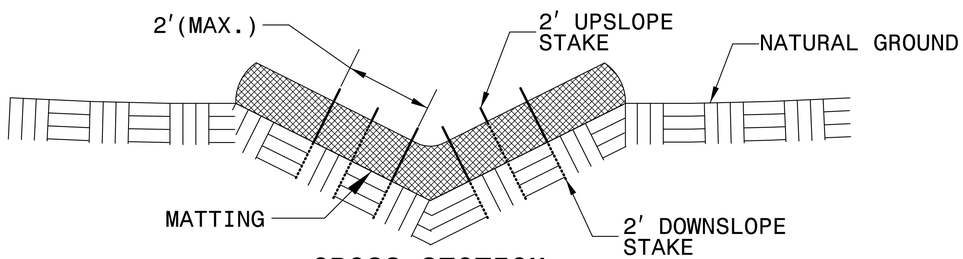
1604.01	Railroad Erosion Control Detail	1632.01	Rock Inlet Sediment Trap Type A
1605.01	Temporary Silt Fence	1632.02	Rock Inlet Sediment Trap Type B
1606.01	Special Sediment Control Fence	1632.03	Rock Inlet Sediment Trap Type C
1607.01	Gravel Construction Entrance	1633.01	Temporary Rock Silt Check Type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

PROJECT REFERENCE NO.	SHEET NO.
17BP.4.R.95	EC-2
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

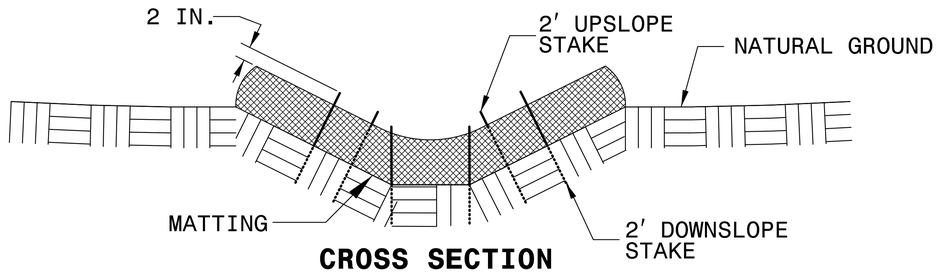
WATTLE DETAIL



ISOMETRIC VIEW



CROSS SECTION VEE DITCH



CROSS SECTION TRAPEZOIDAL DITCH

NOTES:

USE MINIMUM 12 IN. DIAMETER EXCELSIOR WATTLE.

USE 2 FT. WOODEN STAKES WITH A 2 IN. BY 2 IN. NOMINAL CROSS SECTION.

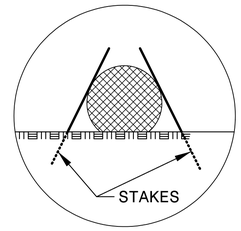
ONLY INSTALL WATTLE(S) TO A HEIGHT IN DITCH SO FLOW WILL NOT WASH AROUND WATTLE AND SCOUR DITCH SLOPES AND AS DIRECTED.

INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.

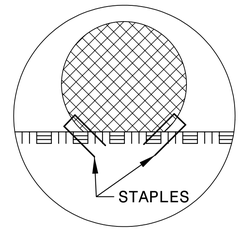
PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12″ IN LENGTH.

INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.

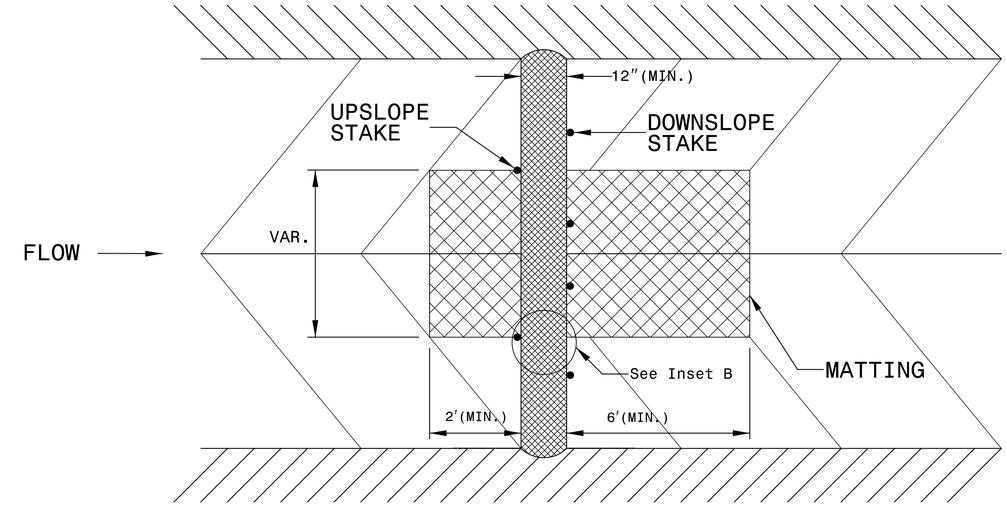
INSTALL MATTING IN ACCORDANCE WITH SECTION 1631 OF THE STANDARD SPECIFICATIONS.



INSET A



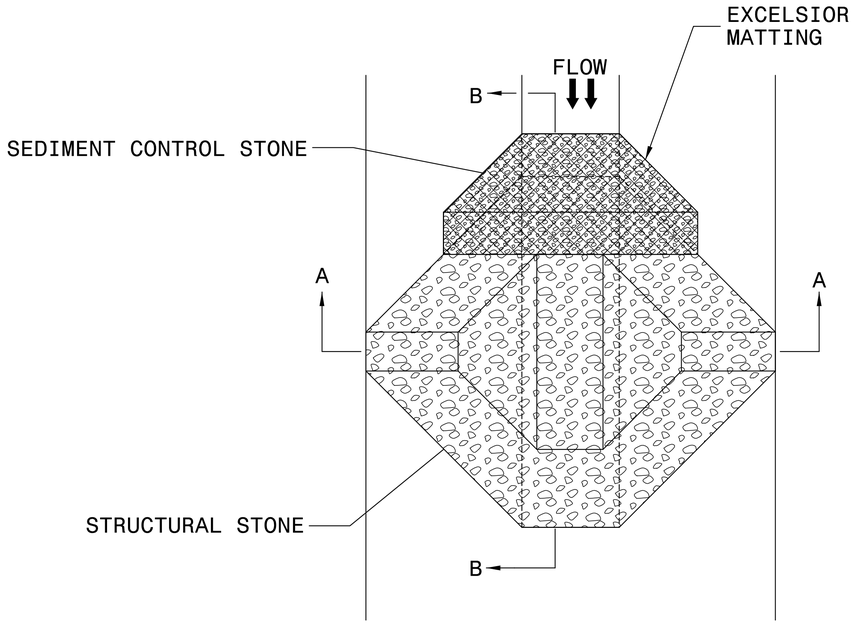
INSET B



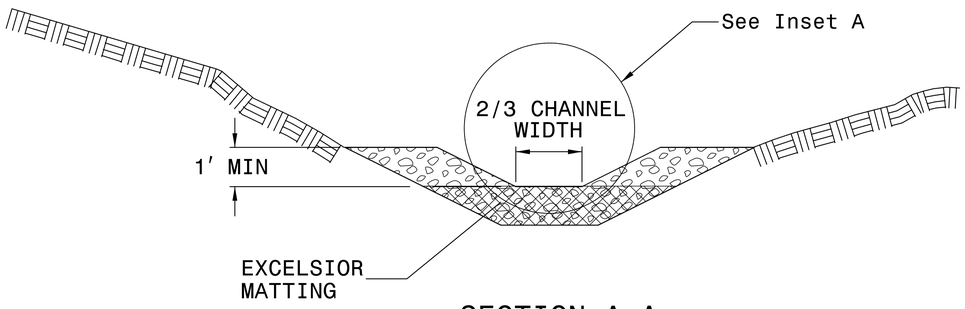
TOP VIEW

PROJECT REFERENCE NO.	SHEET NO.
17BP.4.R.95	EC-2A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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



PLAN



SECTION A-A

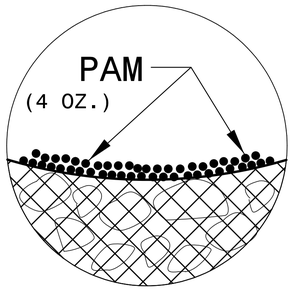
NOTES:

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

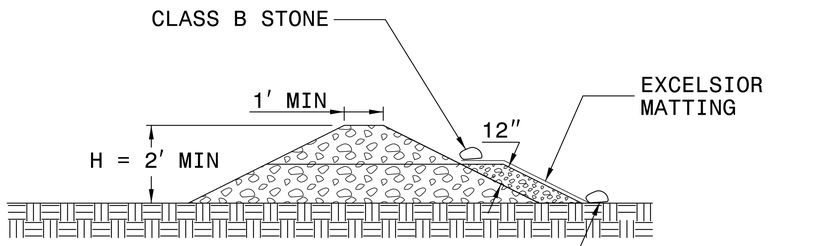
USE EXCELSIOR FOR MATTING MATERIAL AND ANCHOR MATTING SECTION AT TOP AND BOTTOM WITH CLASS B STONE.

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

PROJECT REFERENCE NO.	SHEET NO.
17BP.4.R.95	EC-3
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SOIL STABILIZATION SUMMARY SHEET

MATTING FOR EROSION CONTROL

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
4	L	13+00	14+00	LT	95
				SUBTOTAL	95
MISCELLANEOUS MATTING TO BE INSTALLED AS DIRECTED BY THE ENGINEER					1370
				TOTAL	1465
				SAY	1500

MATTING FOR EROSION CONTROL

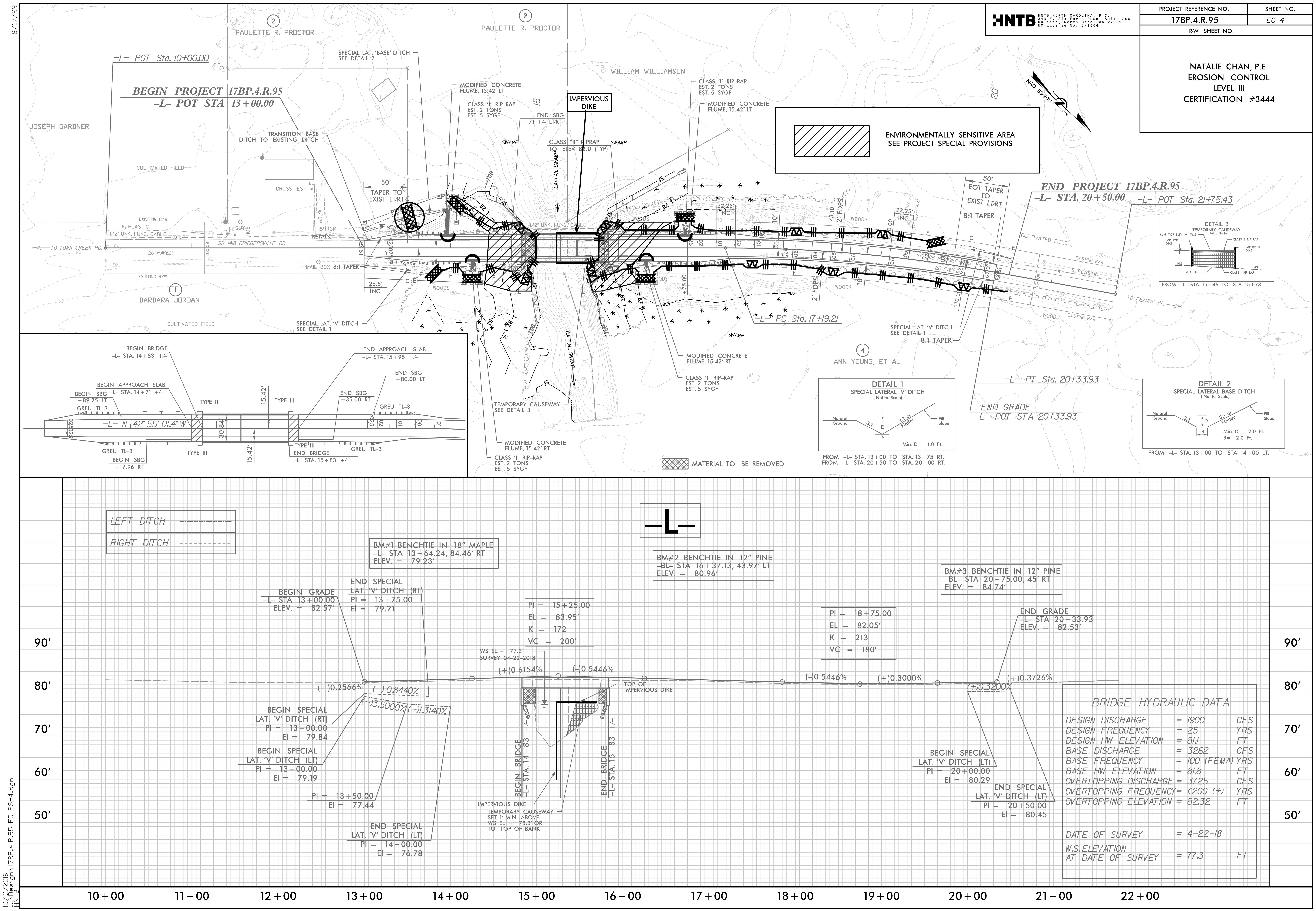
CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)

PROJECT REFERENCE NO.	SHEET NO.
17BP.4.R.95	EC-3A
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SOIL STABILIZATION TIMEFRAMES

SITE DESCRIPTION	STABILIZATION TIME	TIMEFRAME EXCEPTIONS
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.4.R.95
SHEET NO. EC-4
R/W SHEET NO.
HNTB
HNTB NORTH CAROLINA, P.C. 343 E. Six Forks Road, Suite 200 Raleigh, North Carolina 27609 NC License No: C-1554
NATALIE CHAN, P.E.
EROSION CONTROL
LEVEL III
CERTIFICATION #3444
ENVIRONMENTALLY SENSITIVE AREA
SEE PROJECT SPECIAL PROVISIONS
8/17/99
PAULETTE R. PROCTOR
WILLIAM WILLIAMSON
JOSEPH GARDNER
BARBARA JORDAN
ANN YOUNG, ET AL
-L- POT Sta. 10+00.00
BEGIN PROJECT 17BP.4.R.95
-L- POT STA 13+00.00
END PROJECT 17BP.4.R.95
-L- STA. 20+50.00
-L- POT Sta. 21+75.43
-L- PC Sta. 17+19.21
-L- PT Sta. 20+33.93
END GRADE
-L- POT STA 20+33.93
SPECIAL LAT. 'BASE' DITCH
SEE DETAIL 2
SPECIAL LAT. 'V' DITCH
SEE DETAIL 1
TRANSITION BASE
DITCH TO EXISTING DITCH
MODIFIED CONCRETE
FLUME, 15.42' LT
MODIFIED CONCRETE
FLUME, 15.42' RT
CLASS 'I' RIP-RAP
EST. 2 TONS
EST. 5 SYGF
CLASS "II" RIPRAP
TO ELEV 82.0' (TYP)
IMPERVIOUS
DIKE
END SBG
+71 +/- LT/RT
TEMPORARY CAUSEWAY
SEE DETAIL 3
TAPER TO
EXIST LT/RT
EOT TAPER
TO
EXIST LT/RT
8:1 TAPER
SR 1418 BRIDGERSVILLE RD.
TO TOWN CREEK RD.
TO PEANUT PL.
CATTAIL SWAMP
SWAMP
WOODS
CULTIVATED FIELD
MATERIAL TO BE REMOVED
DETAIL 1
SPECIAL LATERAL 'V' DITCH
(Not to Scale)
Natural Ground
Fill Slope
3:1 or Flatter
Min. D= 1.0 Ft.
FROM -L- STA. 13+00 TO STA. 13+75 RT.
FROM -L- STA. 20+50 TO STA. 20+00 RT.
DETAIL 2
SPECIAL LATERAL BASE DITCH
(Not to Scale)
Min. D= 2.0 Ft.
B= 2.0 Ft.
FROM -L- STA. 13+00 TO STA. 14+00 LT.
DETAIL 3
TEMPORARY CAUSEWAY
(Not to Scale)
FROM -L- STA. 15+46 TO STA. 15+73 LT.
BEGIN BRIDGE
-L- STA. 14+83 +/-
END APPROACH SLAB
-L- STA. 15+95 +/-
BEGIN APPROACH SLAB
-L- STA. 14+71 +/-
BEGIN SBG
+89.25 LT
END SBG
+80.00 LT
END SBG
+35.00 RT
BEGIN SBG
+17.96 RT
END BRIDGE
-L- STA. 15+83 +/-
GREU TL-3
TYPE III
-L- N 42° 55' 01.4" W
-L-
LEFT DITCH
RIGHT DITCH
BM#1 BENCHTIE IN 18" MAPLE
-L- STA 13+64.24, 84.46' RT
ELEV. = 79.23'
BM#2 BENCHTIE IN 12" PINE
-BL- STA 16+37.13, 43.97' LT
ELEV. = 80.96'
BM#3 BENCHTIE IN 12" PINE
-BL- STA 20+75.00, 45' RT
ELEV. = 84.74'
BEGIN GRADE
-L- STA 13+00.00
ELEV. = 82.57'
END SPECIAL
LAT. 'V' DITCH (RT)
PI = 13+75.00
El = 79.21
PI = 15+25.00
EL = 83.95'
K = 172
VC = 200'
PI = 18+75.00
EL = 82.05'
K = 213
VC = 180'
END GRADE
-L- STA 20+33.93
ELEV. = 82.53'
WS EL = 77.3'
SURVEY 04-22-2018
(+)0.6154%
(-)0.5446%
(+)0.2566%
(-)0.8440%
(-)3.5000%
(-)1.3140%
(-)0.5446%
(+)0.3000%
(+)0.3726%
(+)0.3200%
TOP OF
IMPERVIOUS DIKE
BEGIN SPECIAL
LAT. 'V' DITCH (RT)
PI = 13+00.00
El = 79.84
BEGIN SPECIAL
LAT. 'V' DITCH (LT)
PI = 13+00.00
El = 79.19
PI = 13+50.00
El = 77.44
END SPECIAL
LAT. 'V' DITCH (LT)
PI = 14+00.00
El = 76.78
BEGIN BRIDGE
-L- STA. 14+83 +/-
END BRIDGE
-L- STA. 15+83 +/-
IMPERVIOUS DIKE
TEMPORARY CAUSEWAY
SET 1' MIN. ABOVE
WS EL = 78.3' OR
TO TOP OF BANK
BEGIN SPECIAL
LAT. 'V' DITCH (LT)
PI = 20+00.00
El = 80.29
END SPECIAL
LAT. 'V' DITCH (LT)
PI = 20+50.00
El = 80.45
BRIDGE HYDRAULIC DATA
DESIGN DISCHARGE = 1900 CFS
DESIGN FREQUENCY = 25 YRS
DESIGN HW ELEVATION = 81.1 FT
BASE DISCHARGE = 3262 CFS
BASE FREQUENCY = 100 (FEMA) YRS
BASE HW ELEVATION = 81.8 FT
OVERTOPPING DISCHARGE = 3725 CFS
OVERTOPPING FREQUENCY = <200 (+) YRS
OVERTOPPING ELEVATION = 82.32 FT
DATE OF SURVEY = 4-22-18
W.S. ELEVATION AT DATE OF SURVEY = 77.3 FT
90'
80'
70'
60'
50'
10+00
11+00
12+00
13+00
14+00
15+00
16+00
17+00
18+00
19+00
20+00
21+00
22+00
10/12/2018
...Design\17BP.4.R.95_EC_PSH4.dgn

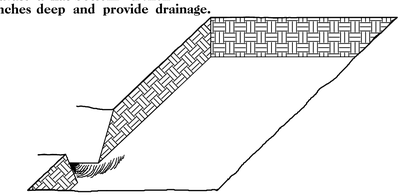
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	*17BP.4.R.95*	RF–1	
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION	

PLANTING DETAILS

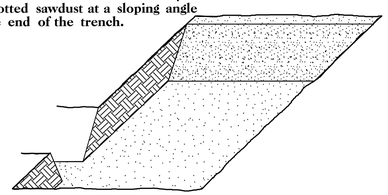
SEEDLING / LINER BAREROOT PLANTING DETAIL

HEALING IN

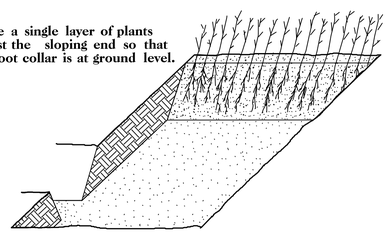
1. Locate a healing–in site in a shady, well protected area.
2. Excavate a flat bottom trench 12 inches deep and provide drainage.



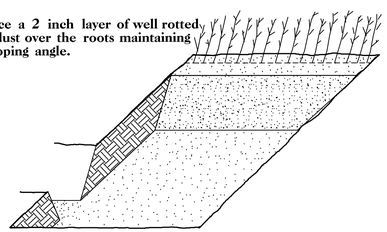
3. Backfill the trench with 2 inches well rotted sawdust. Place a 2 inch layer of well rotted sawdust at a sloping angle at one end of the trench.



4. Place a single layer of plants against the sloping end so that the root collar is at ground level.

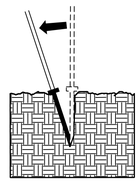


5. Place a 2 inch layer of well rotted sawdust over the roots maintaining a sloping angle.

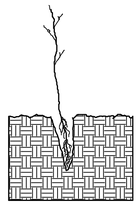


6. Repeat layers of plants and sawdust as necessary and water thoroughly.

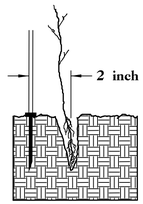
DIBBLE PLANTING METHOD USING THE KBC PLANTING BAR



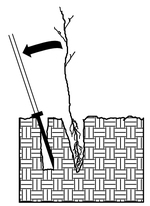
1. Insert planting bar as shown and pull handle toward planter.



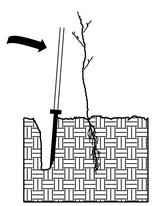
2. Remove planting bar and place seedling at correct depth.



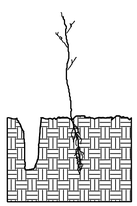
3. Insert planting bar 2 inches toward planter from seedling.



4. Pull handle of bar toward planter, firming soil at bottom.



5. Push handle forward firming soil at top.



6. Leave compaction hole open. Water thoroughly.

PLANTING NOTES:

PLANTING BAG
During planting, seedlings shall be kept in a moist canvas bag or similar container to prevent the root systems from drying.

KBC PLANTING BAR
Planting bar shall have a blade with a triangular cross section, and shall be 12 inches long, 4 inches wide and 1 inch thick at center.

ROOT PRUNING
All seedlings shall be root pruned, if necessary, so that no roots extend more than 10 inches below the root collar.

REFORESTATION

☐ *TREE REFORESTATION SHALL BE PLANTED 6 FT. TO 10 FT. ON CENTER, RANDOM SPACING, AVERAGING 8 FT. ON CENTER, APPROXIMATELY 680 PLANTS PER ACRE.*

REFORESTATION

MIXTURE, TYPE, SIZE, AND FURNISH SHALL CONFORM TO THE FOLLOWING:

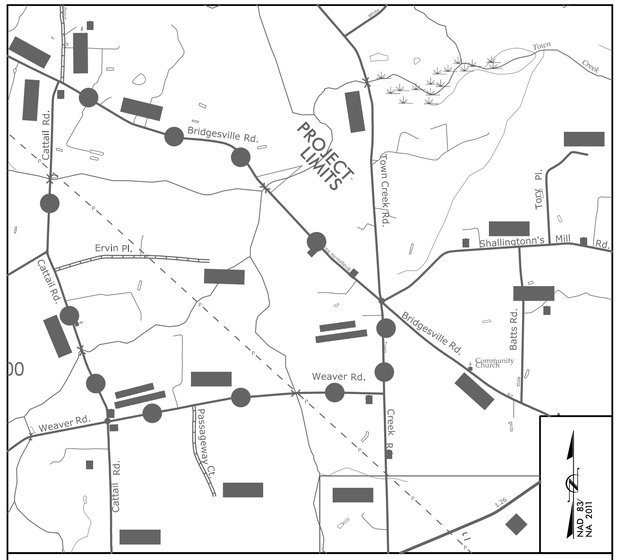
25%	***LIRIODENDRON TULIPIFERA***	***TULIP POPLAR***	12 in – 18 in BR
25%	***PLATANUS OCCIDENTALIS***	***AMERICAN SYCAMORE***	12 in – 18 in BR
25%	***FRAXINUS PENNSYLVANICA***	***GREEN ASH***	12 in – 18 in BR
25%	***BETULA NIGRA***	***RIVER BIRCH***	12 in – 18 in BR

REFORESTATION DETAIL SHEET

N.C.D.O.T. - ROADSIDE ENVIRONMENTAL UNIT

09/08/99

TIP PROJECT: 17BP.4.R.95



VICINITY MAP — *OFFSITE DETOUR*

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

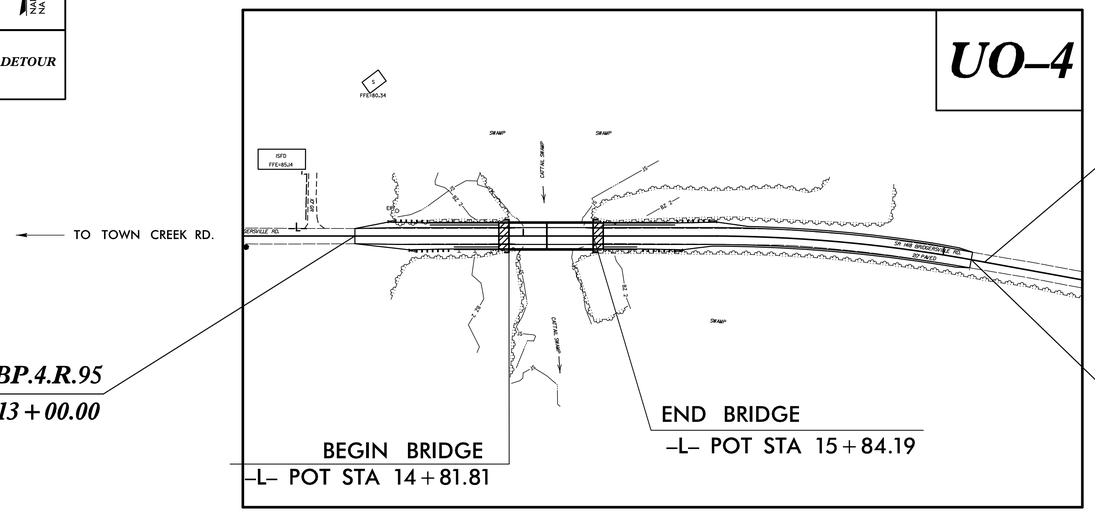
UTILITIES BY OTHERS PLANS
WILSON COUNTY

T.I.P. NO.	SHEET NO.
17BP.4.R.95	UO–1

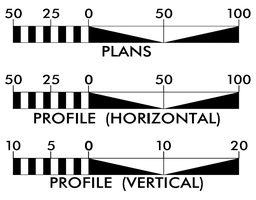
NOTE:
ALL PROPOSED UTILITY WORK SHOWN ON THIS SHEET WILL BE DONE BY OTHERS. NO PAYMENT WILL BE MADE TO THE CONTRACTOR FOR UTILITY WORK SHOWN ON THIS SHEET.

LOCATION: *REPLACE BRIDGE NO. 96 OVER UNNAMED TRIBUTARY TO TOWN CREEK ON SR 1400 (ROCK QUARRY RD)*

TYPE OF WORK: GRADING, DRAINAGE, PAVING AND STRUCTURE



GRAPHIC SCALES



INDEX OF SHEETS

UTILITY OWNERS WITH CONFLICTS

(A) POWER – DUKE ENERGY
(B) GAS – PIEDMONT NATURAL GAS
(C) TELECOMMUNICATIONS – CHARTER

DIVISION OF HIGHWAYS
UTILITIES UNIT
1555 MAIL SERVICES CENTER
RALEIGH NC 27699–1555
PHONE (919) 707–6690
FAX (919) 250–4151

DAVID BEAMAN	*DIVISION CONTACT #1*
KIM MOORE	*DIVISION CONTACT #2*
MATT CLARKE	*DIVISION CONTACT #3*
RANDY DAVIS	*DIVISION CONTACT #4*

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\17BP.4.R.95_Wilson BR05\Utilities\17BP4R95_ut_tsh_uo01_psh.dgn
HNTB

PROJECT REFERENCE NO.	SHEET NO.
17BP.4.R.95	UO-2

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

UTILITIES PLAN SHEET SYMBOLS

PROPOSED WATER SYMBOLS

- Water Line (Sized as Shown) — 12" WL
- 11¼ Degree Bend
- 22½ Degree Bend
- 45 Degree Bend
- 90 Degree Bend
- Plug
- Tee
- Cross
- Reducer
- Gate Valve — GV
- Butterfly Valve — BV
- Tapping Valve — TGV
- Line Stop — LS
- Line Stop with Bypass — LS/BP
- Blow Off — BO
- Fire Hydrant — PFH
- Relocate Fire Hydrant — RFH
- Remove Fire Hydrant — REM FH
- Water Meter — PWM
- Relocate Water Meter — RWM
- Remove Water Meter — REM WM
- Water Pump Station — PS(W)
- RPZ Backflow Preventer — PRPZ
- DCV Backflow Preventer — PBFP
- Relocate RPZ Backflow Preventer — RRPZ
- Relocate DCV Backflow Preventer — RBFP

PROPOSED SEWER SYMBOLS

- Gravity Sewer Line (Sized as Shown) — 12" SS
- Force Main Sewer Line (Sized as Shown) — 12" FSS
- Manhole (Sized per Note)
- Sewer Pump Station — PS(SS)

PROPOSED MISCELLANOUS UTILITIES SYMBOLS

- Power Pole
- Telephone Pole
- Joint Use Pole
- Telephone Pedestal — TEL PED
- Utility Line by Others (Type as Shown) — PROP O/H POW LINES
- Trenchless Installation — 12" TL INSTALL
- Encasement by Open Cut — 24" ENCAS BY OC
- Encasement — 24" ENCASEMENT
- Thrust Block
- Air Release Valve — AR
- Utility Vault — UV
- Concrete Pier — CP
- Steel Pier — SP
- Plan Note — NOTE
- Pay Item Note — PAY ITEM

EXISTING UTILITIES SYMBOLS

- Power Pole
- Telephone Pole
- Joint Use Pole
- Utility Pole
- Utility Pole with Base
- H-Frame Pole
- Power Transmission Line Tower
- Water Manhole
- Power Manhole
- Telephone Manhole
- Sanitary Sewer Manhole
- Hand Hole for Cable
- Power Transformer
- Telephone Pedestal
- CATV Pedestal
- Gas Valve
- Gas Meter
- Located Miscellaneous Utility Object
- Abandoned According to Utility Records — AATUR
- End of Information — E.O.I.
- *Underground Power Line — P
- *Underground Telephone Cable — T
- *Underground Telephone Conduit — TC
- *Underground Fiber Optics Telephone Cable — T FO
- *Underground TV Cable — TV
- *Underground Fiber Optics TV Cable — TV FO
- *Underground Gas Pipeline — G
- Aboveground Gas Pipeline — A/G Gas
- *Underground Water Line — W
- Aboveground Water Line — A/G Water
- *Underground Gravity Sanitary Sewer Line — SS
- Aboveground Gravity Sanitary Sewer Line — A/G Sanitary Sewer
- *Underground SS Forced Main Line — FSS
- Underground Unknown Utility Line — ?UTL
- SUE Test Hole
- Water Meter
- Water Valve
- Fire Hydrant
- Sanitary Sewer Cleanout

*For Existing Utilities

- Utility Line Drawn from Record (Type as Shown)
- Designated Utility Line (Type as Shown)

REV: 2/1/2012

5/14/99

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Wilson BR95\Utilities\17BP4R95_ut_sym_uo02_psh.dgn

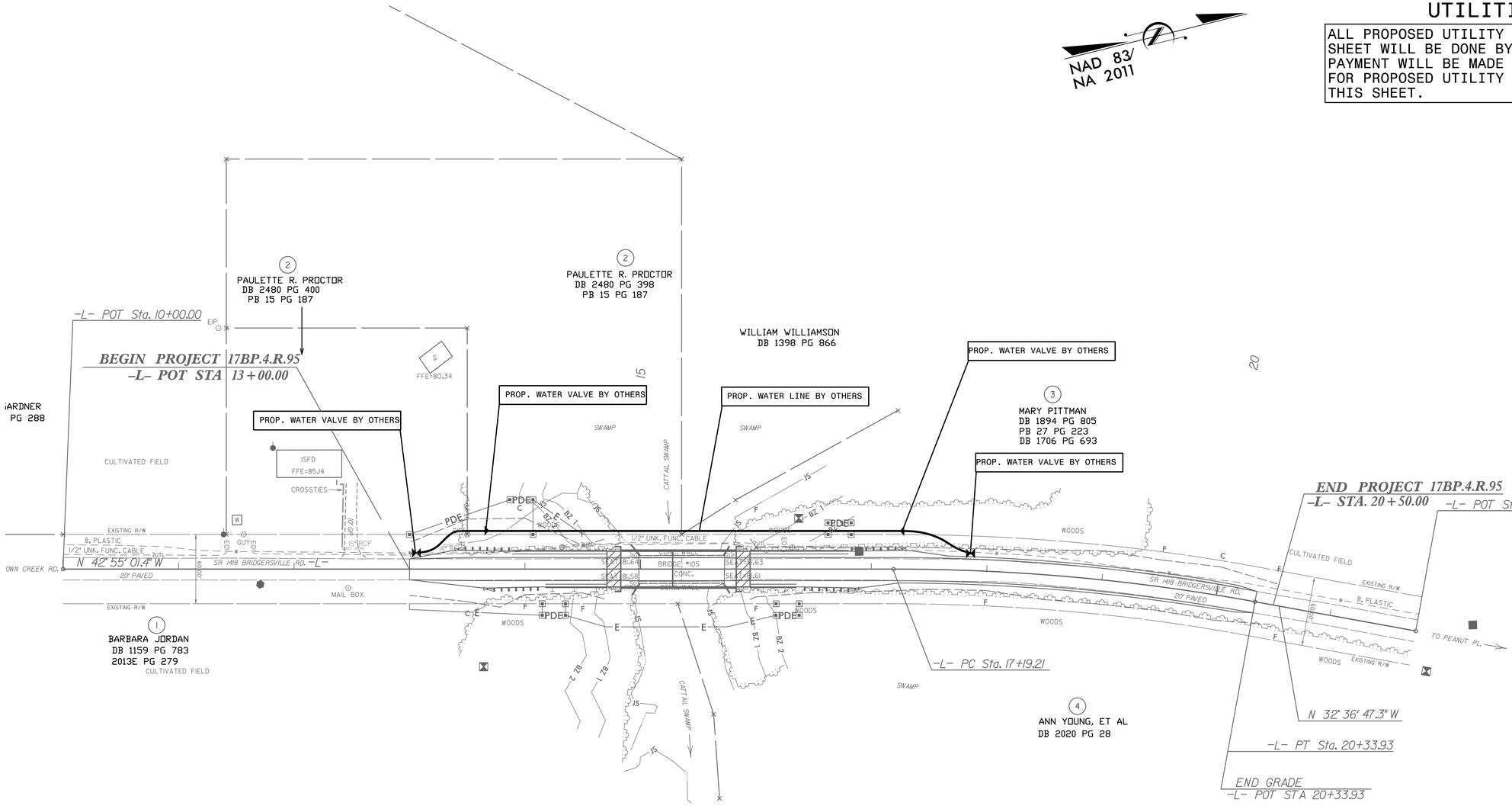
8/17/99

PROJECT REFERENCE NO.	SHEET NO.
17BP.4.R.95	UO-4
THIS SHEET CORRESPONDS TO RDY- 4	

UTILITIES BY OTHERS

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

NAD 83/
NA 2011



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hntz

8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
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14 + 50.00

R/W 83.05 0.025 0.025 83.05 R/W

3:1

83.00

14 + 00.00

R/W 82.76 0.025 0.025 R/W

VAR. 3:1

82.82

13 + 50.00

R/W R/W

3:1 3:1 3:1

0.025 0.025

77.44 82.62 79.42

13 + 00.00

R/W R/W

82.44

–L–

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

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NHTB

8/23/99

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95 90 85 80 75 70 90 85 80

WLB
R/W
83.11
3:1
0.025
0.025
82.90
83.11
3:1
R/W
WLB

16+00.00

0.025
0.025

R/W
R/W
72.54

15+50.00

0.025
0.025

R/W
R/W
71.13

15+00.00

–L–

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MNTB

8/23/99

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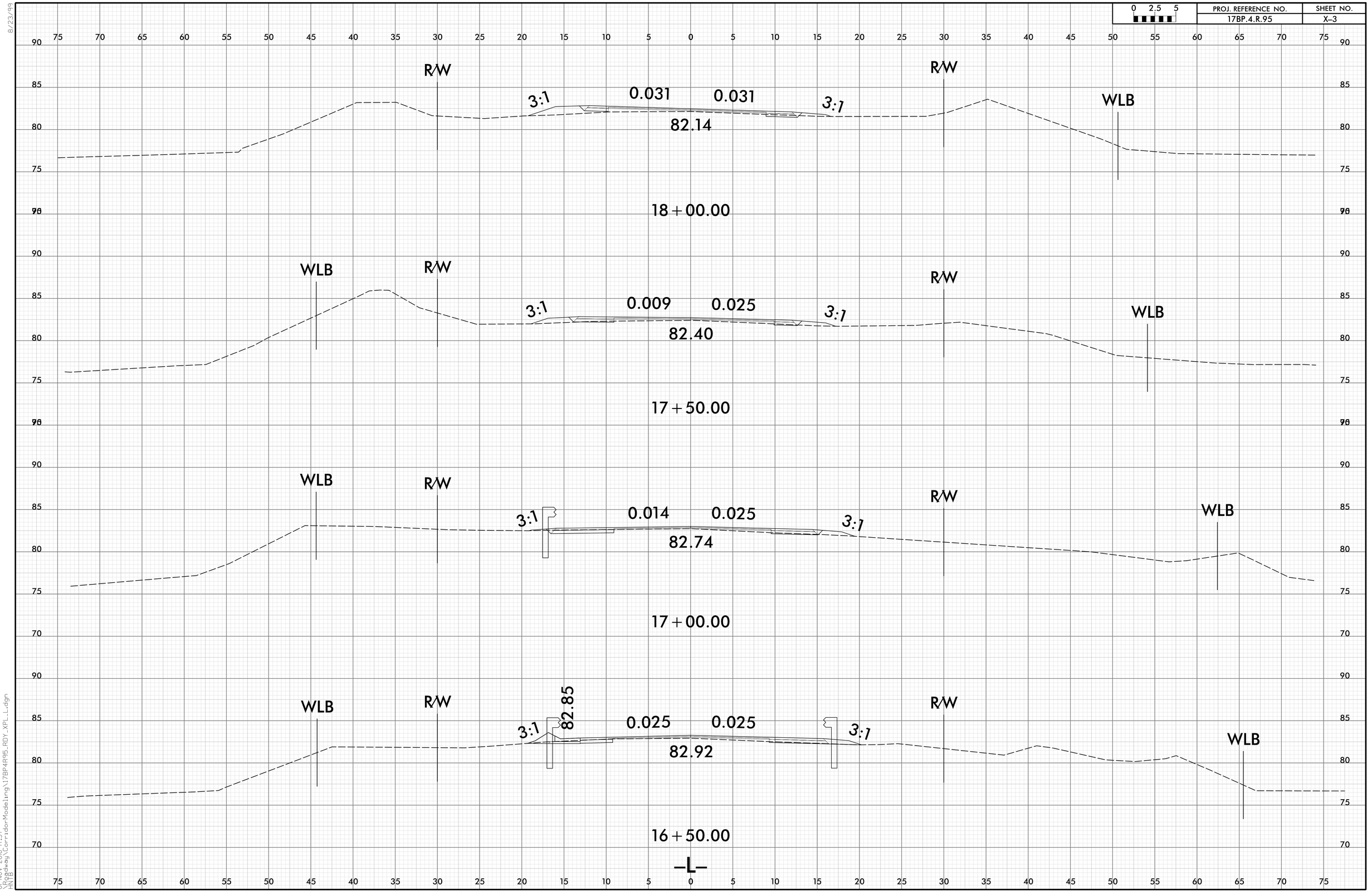

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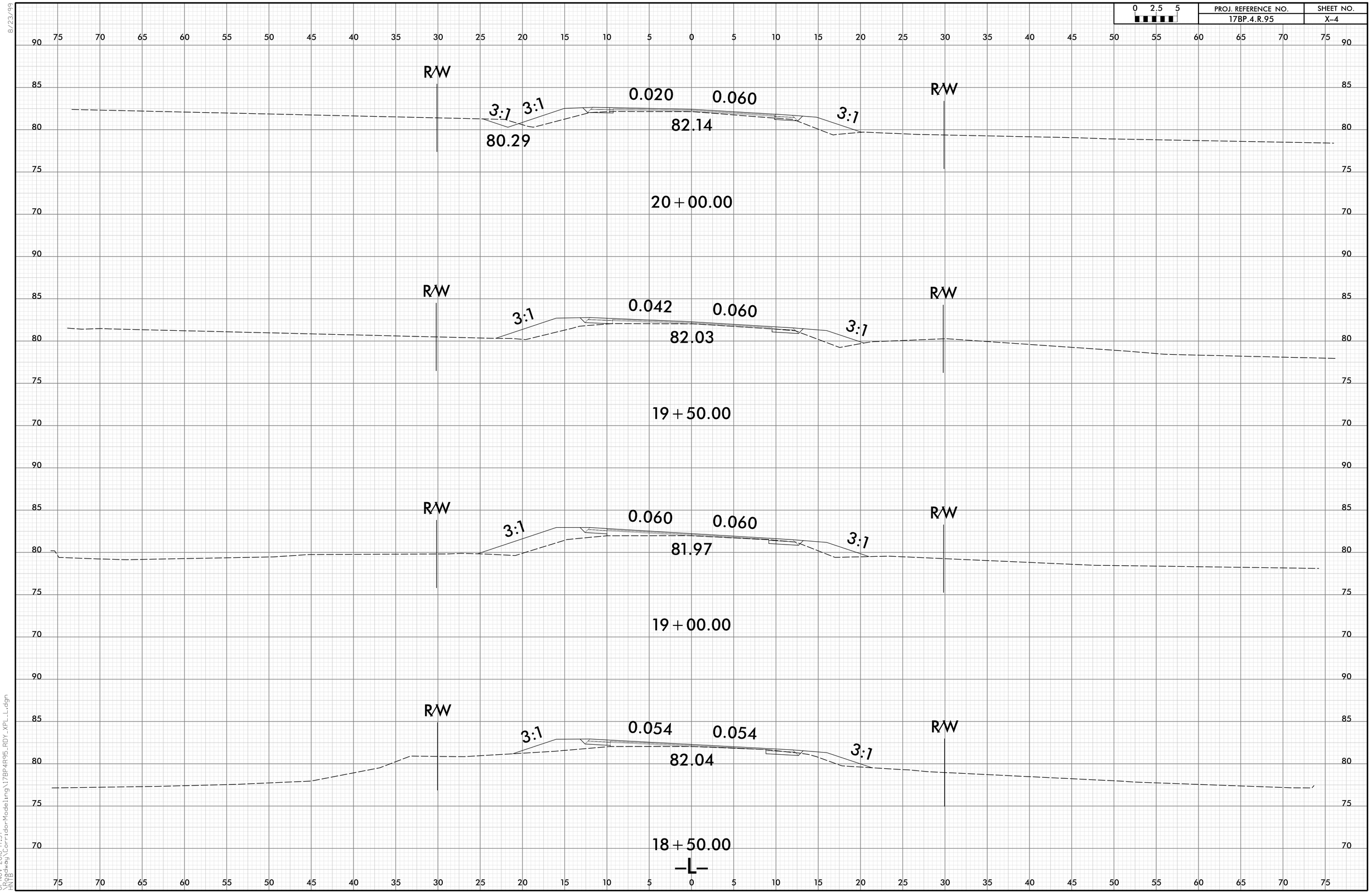

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8/23/99

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90 85 80 75 70

RW

RW

82.32

20+50.00

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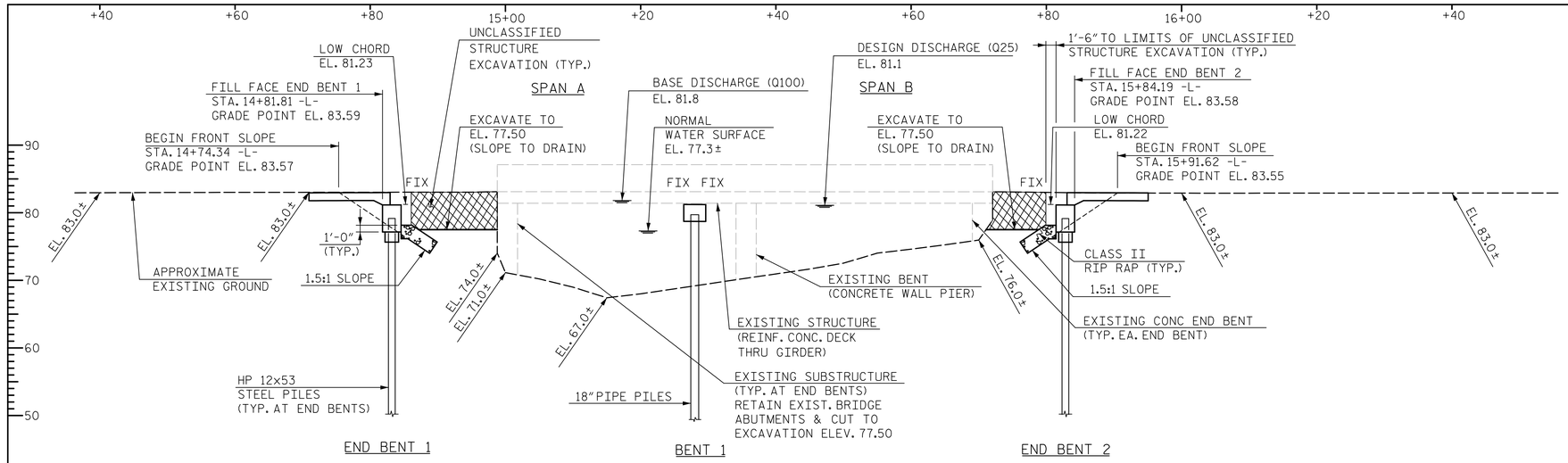


BRIDGE HYDRAULIC DATA

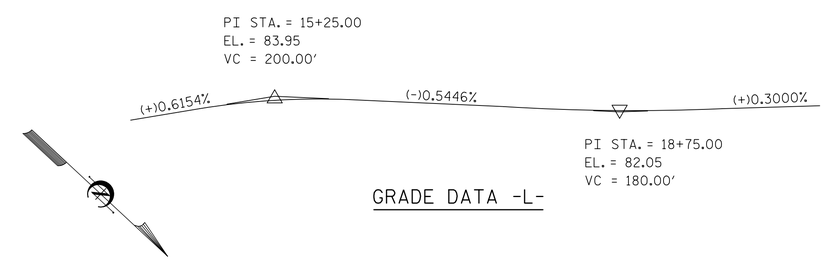
DESIGN DISCHARGE	=	1,900 CFS
FREQUENCY OF DESIGN FLOOD	=	25 YR
DESIGN HIGH WATER ELEVATION	=	81.1 FT.
DRAINAGE AREA	=	29.9 SQ. MI.
BASE DISCHARGE (Q100)	=	3,262 CFS
BASE HIGH WATER ELEVATION	=	81.8 FT.

OVERTOPPING FLOOD DATA

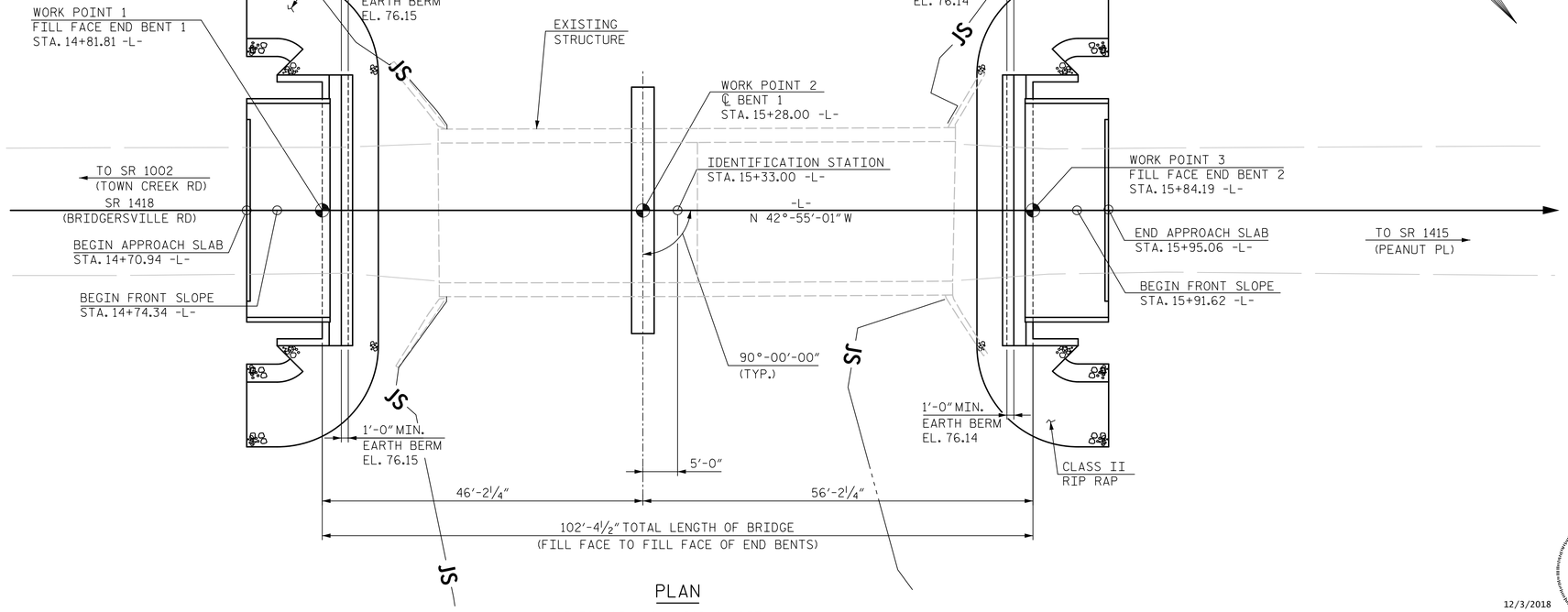
OVERTOPPING DISCHARGE	=	3,725 CFS
FREQUENCY OF OVERTOPPING FLOOD	=	> 200 YR (+)
OVERTOPPING FLOOD ELEVATION	=	82.32 FT.

NOTE: ROADWAY OVERTOPS AT STA. 20+50.00

SECTION ALONG -L-



GRADE DATA -L-



PLAN

PILES NOT SHOWN FOR CLARITY.

I HEREBY CERTIFY THESE PLANS
ARE AS-BUILT PLANS

PROJECT NO. 17BP.4.R.95

WILSON COUNTY

STATION: 15+33.00 -L-

SHEET 1 OF 2 REPLACES BRIDGE NO. 105

DocuSigned by:
James J. Barcomb
196157D2A29488...

NORTH CAROLINA PROFESSIONAL SEAL 22997 ENGINEER JAMES J. BARCOMB

12/3/2018

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

DRAWN BY M. WRIGHT DATE 9/18
CHECKED BY J. BARCOMB DATE 9/18
DESIGN ENGINEER OF RECORD J. BARCOMB DATE 10/18

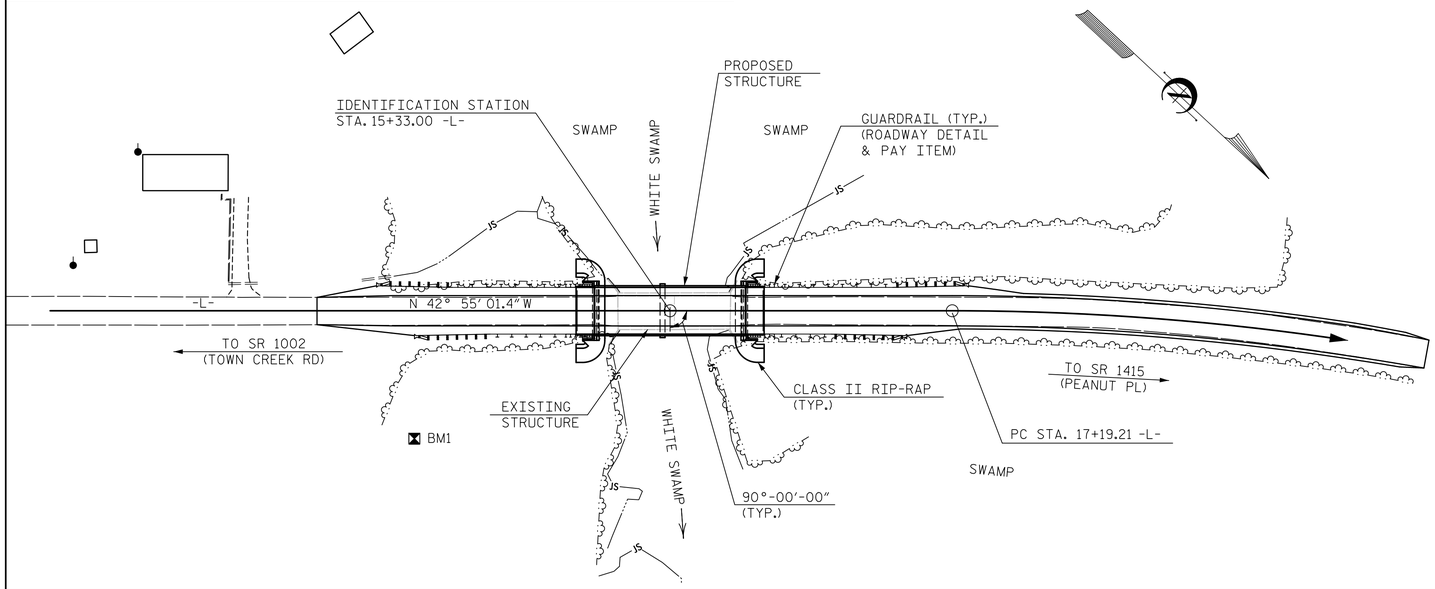
DWG. NO. 1

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING FOR BRIDGE ON SR 1418 OVER WHITE SWAMP BETWEEN SR 1002 AND SR 1415

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

BM: "BM1" - BENCHTIE IN 18" MAPLE, 84.46' RT. OF STA. 13+64.24 -L-, EL. 79.23



LOCATION SKETCH

FOR UTILITY INFORMATION, SEE UTILITY PLANS AND SPECIAL PROVISIONS.

FOUNDATION NOTES:

FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

PILES AT END BENT NO. 1 ARE DESIGNED FOR A FACTORED RESISTANCE OF 65 TONS PER PILE.

PILES AT BENT NO. 1 ARE DESIGNED FOR A FACTORED RESISTANCE OF 120 TONS PER PILE.

PILES AT END BENT NO. 2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 75 TONS PER PILE.

DRIVE PILES AT END BENT NO. 1 TO A REQUIRED DRIVING RESISTANCE OF 110 TONS PER PILE.

DRIVE PILES AT BENT NO. 1 TO A REQUIRED DRIVING RESISTANCE OF 205 TONS PER PILE. THIS REQUIRED DRIVING RESISTANCE INCLUDES ADDITIONAL RESISTANCE FOR SCOUR.

DRIVE PILES AT END BENT NO. 2 TO A REQUIRED DRIVING RESISTANCE OF 125 TONS PER PILE.

INSTALL PILES AT BENT NO. 1 TO A TIP ELEVATION NO HIGHER THAN 32.0 FT.

PIPE PILE PLATES ARE REQUIRED FOR STEEL PIPE PILES AT BENT NO. 1. USE PIPE PILE PLATES WITH A DIAMETER EQUAL TO THE PIPE PILE DIAMETER. FOR STEEL PIPE PILE PLATES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

THE SCOUR CRITICAL ELEVATION FOR BENT NO. 1 IS ELEVATION 59.0 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 ENGINER 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 15+33.00 -L-	ASBESTOS ASSESSMENT	PDA TESTING	UNCLASSIFIED STRUCTURE EXCAVATION AT STATION 15+33.00 -L-	CLASS A CONCRETE	BRIDGE APPROACH SLABS AT STATION 15+33.00 -L-	REINFORCING STEEL	PILE DRIVING EQUIPMENT SETUP FOR HP 12x53 STEEL PILES	PILE DRIVING EQUIPMENT SETUP FOR PP 18x0.50 STEEL PILES	HP 12x53 STEEL PILES		PP 18x0.50 STEEL PILES		PIPE PILE PLATES	PILE REDRIVES	VERTICAL CONCRETE BARRIER RAIL	RIP RAP CLASS II	GEOTEXTILE FOR DRAINAGE	ELASTOMERIC BEARINGS	3'-0"x1'-9" PRESTRESSED CONCRETE CORED SLABS		FIBER OPTIC CONDUIT SYSTEM AT STATION 15+33.00 -L-
	LUMP SUM	LUMP SUM	EACH	LUMP SUM	CU. YDS.	LUMP SUM	LBS.	EACH	EACH	NO.	LIN. FT.	NO.	LIN. FT.	EACH	EACH	LIN. FT.	TONS	SQ. YDS.	LUMP SUM	NO.	LIN. FT.	LIN. FT.
SUPERSTRUCTURE	LUMP SUM	———	———	———	———	LUMP SUM	———	———	———	—	———	—	———	———	———	200.50	———	———	LUMP SUM	22	1,100	200.50
END BENT 1	———	———	———	LUMP SUM	21.6	———	2,636	7	———	7	420	—	———	———	4	———	125	140	———	—	———	———
BENT 1	———	———	———	LUMP SUM	10.2	———	2,075	———	7	—	———	7	385	7	4	———	———	———	———	—	———	———
END BENT 2	———	———	———	LUMP SUM	21.6	———	2,636	7	———	7	420	—	———	———	4	———	125	140	———	—	———	———
TOTAL	LUMP SUM	LUMP SUM	1	LUMP SUM	53.4	LUMP SUM	7,347	14	7	14	840	7	385	7	12	200.50	250	280	LUMP SUM	22	1,100	200.50

GENERAL NOTES

ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.

THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH 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.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA SHALL BE EXCAVATED FOR A DISTANCE OF 19.5 FT. ON EACH SIDE OF CENTERLINE BRIDGE AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR UNCLASSIFIED STRUCTURE EXCAVATION. SEE SECTION 412 OF THE STANDARD SPECIFICATIONS.

THE EXISTING TWO SPAN STRUCTURE WITH SPAN LENGTHS OF 1 @ 37'-0", AND 1 @ 37'-3" WITH REINFORCED CONCRETE DECK WITH TWO THRU GIRDERS WITH A 24'-1" OUT TO OUT DECK WIDTH ON REINFORCED CONCRETE ABUTMENTS AND PIER ON STEEL PILES 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 STATION 15+33.00 -L-"

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.

NORTH CAROLINA PROFESSIONAL SEAL 22997 ENGINEER JAMES J. BARCOMB

DocuSigned by: James J. Barcomb 18B15C7D2A29488...

7/11/2019

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

DRAWN BY M. WRIGHT DATE 10/18
CHECKED BY J. BARCOMB DATE 10/18
DESIGN ENGINEER OF RECORD J. BARCOMB DATE 10/18

DWG. NO. 2

PROJECT NO. 17BP.4.R.95

WILSON COUNTY

STATION: 15+33.00 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING
FOR BRIDGE ON SR 1418
OVER WHITE SWAMP
BETWEEN
SR 1002 AND SR 1415

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

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: LIVELOAD FACTORS	MOMENT: DISTRIBUTION FACTORS (DF)	MOMENT: RATING FACTOR	MOMENT: SPAN	MOMENT: GIRDER LOCATION	MOMENT: DISTANCE FROM LEFT END OF SPAN (ft)	SHEAR: DISTRIBUTION FACTORS (DF)	SHEAR: RATING FACTOR	SHEAR: SPAN	SHEAR: GIRDER LOCATION	SHEAR: DISTANCE FROM LEFT END OF SPAN (ft)	SERVICE III LIMIT STATE: LIVELOAD FACTORS	MOMENT: DISTRIBUTION FACTORS (DF)	MOMENT: RATING FACTOR	MOMENT: SPAN	MOMENT: GIRDER LOCATION	MOMENT: DISTANCE FROM LEFT END OF SPAN (ft)	COMMENT NUMBER
DESIGN LOAD RATING		HL-93(Inv)	N/A	1	1.088	--	1.75	0.277	1.34	45′	EL	22	0.539	1.23	45′	EL	2.2	0.80	0.277	1.09	45′	EL	22	
		HL-93(Opr)	N/A	--	1.590	--	1.35	0.277	1.74	45′	EL	22	0.539	1.59	45′	EL	2.2	N/A	--	--	--	--	--	
		HS-20(Inv)	36.000	2	1.336	48.104	1.75	0.277	1.65	45′	EL	22	0.539	1.45	45′	EL	2.2	0.80	0.277	1.34	45′	EL	22	
		HS-20(Opr)	36.000	--	1.882	67.763	1.35	0.277	2.14	45′	EL	22	0.539	1.88	45′	EL	2.2	N/A	--	--	--	--	--	
LEGAL LOAD RATING	SV	SNSH	13.500	--	2.611	35.252	1.4	0.277	4.02	45′	EL	22	0.539	4.01	45′	EL	2.2	0.80	0.277	2.61	45′	EL	22	
		SNGARBS2	20.000	--	2.108	42.166	1.4	0.277	3.25	45′	EL	22	0.539	2.94	45′	EL	2.2	0.80	0.277	2.11	45′	EL	22	
		SNAGRIS2	22.000	--	2.067	45.466	1.4	0.277	3.15	45′	EL	17.6	0.539	2.77	45′	EL	2.2	0.80	0.277	2.07	45′	EL	22	
		SNCOTTS3	27.250	--	1.304	35.527	1.4	0.277	2.01	45′	EL	22	0.539	2.01	45′	EL	2.2	0.80	0.277	1.30	45′	EL	22	
		SNAGGRS4	34.925	--	1.150	40.181	1.4	0.277	1.77	45′	EL	22	0.539	1.74	45′	EL	2.2	0.80	0.277	1.15	45′	EL	22	
		SNS5A	35.550	--	1.121	39.841	1.4	0.277	1.73	45′	EL	22	0.539	1.79	45′	EL	2.2	0.80	0.277	1.12	45′	EL	22	
		SNS6A	39.950	--	1.056	42.175	1.4	0.277	1.63	45′	EL	22	0.539	1.67	45′	EL	2.2	0.80	0.277	1.06	45′	EL	22	
		SNS7B	42.000	3	1.006	42.268	1.4	0.277	1.55	45′	EL	22	0.539	1.68	45′	EL	2.2	0.80	0.277	1.01	45′	EL	22	
	TTST	TNAGRIT3	33.000	--	1.296	42.759	1.4	0.277	2	45′	EL	22	0.539	1.96	45′	EL	2.2	0.80	0.277	1.30	45′	EL	22	
		TNT4A	33.075	--	1.309	43.305	1.4	0.277	2.02	45′	EL	22	0.539	1.88	45′	EL	2.2	0.80	0.277	1.31	45′	EL	22	
		TNT6A	41.600	--	1.099	45.712	1.4	0.277	1.69	45′	EL	22	0.539	1.83	45′	EL	2.2	0.80	0.277	1.10	45′	EL	22	
		TNT7A	42.000	--	1.120	47.043	1.4	0.277	1.73	45′	EL	22	0.539	1.69	45′	EL	2.2	0.80	0.277	1.12	45′	EL	22	
		TNT7B	42.000	--	1.166	48.975	1.4	0.277	1.8	45′	EL	22	0.539	1.61	45′	EL	2.2	0.80	0.277	1.17	45′	EL	22	
		TNAGRIT4	43.000	--	1.111	47.757	1.4	0.277	1.71	45′	EL	22	0.539	1.55	45′	EL	2.2	0.80	0.277	1.11	45′	EL	22	
		TNAGT5A	45.000	--	1.033	46.505	1.4	0.277	1.59	45′	EL	22	0.539	1.59	45′	EL	2.2	0.80	0.277	1.03	45′	EL	22	
		TNAGT5B	45.000	--	1.009	45.408	1.4	0.277	1.56	45′	EL	22	0.539	1.47	45′	EL	2.2	0.80	0.277	1.01	45′	EL	22	

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)

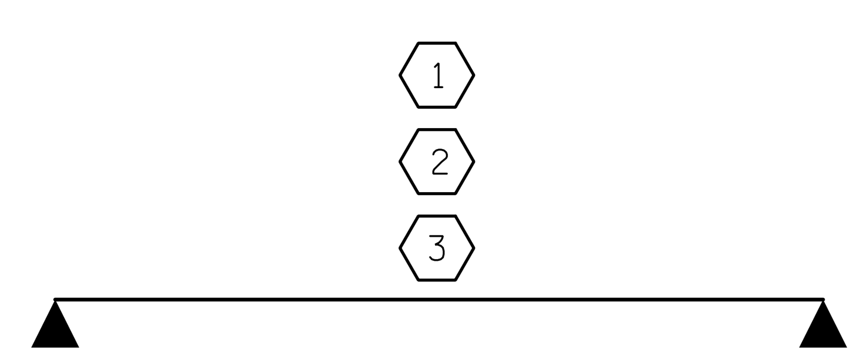
2 DESIGN LOAD RATING (HS-20)

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.4.R.95

WILSON COUNTY

STATION: 15+33.00 -L-

DocuSigned by: James J. Barcomb
1B415C7D2A29488...

NORTH CAROLINA PROFESSIONAL SEAL 22997 ENGINEER JAMES J. BARCOMB

12/3/2018

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

LRFR SUMMARY FOR 45′ CORED SLAB UNIT 90° SKEW

(NON-INTERSTATE TRAFFIC)

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

DRAWN BY M. WRIGHT DATE 10/18
CHECKED BY J. BARCOMB DATE 10/18
DESIGN ENGINEER OF RECORD J. BARCOMB DATE 10/18

DWG. NO. 3

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

SHEET NO. S-3
TOTAL SHEETS 18

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ASSEMBLED BY : M. WRIGHT DATE : 10/18
CHECKED BY : J. BARCOMB DATE : 10/18

DRAWN BY : CVC 6/10
CHECKED BY : DNS 6/10

STD. NO. 21LRFR1_90S_45L

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: LIVELOAD FACTORS	STRENGTH I – MOMENT: DISTRIBUTION FACTORS (DF)	STRENGTH I – MOMENT: RATING FACTOR	STRENGTH I – MOMENT: SPAN	STRENGTH I – MOMENT: GIRDER LOCATION	STRENGTH I – MOMENT: DISTANCE FROM LEFT END OF SPAN (ft)	STRENGTH I – SHEAR: DISTRIBUTION FACTORS (DF)	STRENGTH I – SHEAR: RATING FACTOR	STRENGTH I – SHEAR: SPAN	STRENGTH I – SHEAR: GIRDER LOCATION	STRENGTH I – SHEAR: DISTANCE FROM LEFT END OF SPAN (ft)	SERVICE III LIMIT STATE: LIVELOAD FACTORS	SERVICE III – MOMENT: DISTRIBUTION FACTORS (DF)	SERVICE III – MOMENT: RATING FACTOR	SERVICE III – MOMENT: SPAN	SERVICE III – MOMENT: GIRDER LOCATION	SERVICE III – MOMENT: DISTANCE FROM LEFT END OF SPAN (ft)	COMMENT NUMBER
DESIGN LOAD RATING		HL-93(Inv)	N/A	1	1.055	--	1.75	0.275	1.23	55′	EL	27	0.523	1.23	55′	EL	5.4	0.80	0.275	1.05	55′	EL	27	
		HL-93(Opr)	N/A	--	1.591	--	1.35	0.275	1.59	55′	EL	27	0.523	1.59	55′	EL	5.4	N/A	--	--	--	--	--	
		HS-20(Inv)	36.000	2	1.322	47.585	1.75	0.275	1.54	55′	EL	27	0.523	1.47	55′	EL	5.4	0.80	0.275	1.32	55′	EL	27	
		HS-20(Opr)	36.000	--	1.9	68.396	1.35	0.275	1.99	55′	EL	27	0.523	1.9	55′	EL	5.4	N/A	--	--	--	--	--	
LEGAL LOAD RATING	SV	SNSH	13.500	--	2.776	37.476	1.4	0.275	4.04	55′	EL	27	0.523	4.17	55′	EL	5.4	0.80	0.275	2.78	55′	EL	27	
	SV	SNGARBS2	20.000	--	2.155	43.095	1.4	0.275	3.14	55′	EL	27	0.523	3.02	55′	EL	5.4	0.80	0.275	2.15	55′	EL	27	
	SV	SNAGRIS2	22.000	--	2.079	45.734	1.4	0.275	3.03	55′	EL	27	0.523	2.83	55′	EL	5.4	0.80	0.275	2.08	55′	EL	27	
	SV	SNCOTTS3	27.250	--	1.384	37.708	1.4	0.275	2.01	55′	EL	27	0.523	2.09	55′	EL	5.4	0.80	0.275	1.38	55′	EL	27	
	SV	SNAGGRS4	34.925	--	1.189	41.527	1.4	0.275	1.73	55′	EL	27	0.523	1.77	55′	EL	5.4	0.80	0.275	1.19	55′	EL	27	
	SV	SNS5A	35.550	--	1.16	41.255	1.4	0.275	1.69	55′	EL	27	0.523	1.82	55′	EL	5.4	0.80	0.275	1.16	55′	EL	27	
	SV	SNS6A	39.950	--	1.079	43.102	1.4	0.275	1.57	55′	EL	27	0.523	1.68	55′	EL	5.4	0.80	0.275	1.08	55′	EL	27	
	SV	SNS7B	42.000	--	1.028	43.175	1.4	0.275	1.5	55′	EL	27	0.523	1.67	55′	EL	5.4	0.80	0.275	1.03	55′	EL	27	
	TTST	TNAGRIT3	33.000	--	1.32	43.556	1.4	0.275	1.92	55′	EL	27	0.523	1.98	55′	EL	5.4	0.80	0.275	1.32	55′	EL	27	
	TTST	TNT4A	33.075	--	1.33	43.979	1.4	0.275	1.94	55′	EL	27	0.523	1.91	55′	EL	5.4	0.80	0.275	1.33	55′	EL	27	
	TTST	TNT6A	41.600	--	1.101	45.811	1.4	0.275	1.6	55′	EL	27	0.523	1.83	55′	EL	5.4	0.80	0.275	1.10	55′	EL	27	
	TTST	TNT7A	42.000	--	1.114	46.804	1.4	0.275	1.62	55′	EL	27	0.523	1.71	55′	EL	5.4	0.80	0.275	1.11	55′	EL	27	
	TTST	TNT7B	42.000	--	1.163	48.848	1.4	0.275	1.69	55′	EL	27	0.523	1.62	55′	EL	5.4	0.80	0.275	1.16	55′	EL	27	
	TTST	TNAGRIT4	43.000	--	1.101	47.33	1.4	0.275	1.6	55′	EL	27	0.523	1.56	55′	EL	5.4	0.80	0.275	1.10	55′	EL	27	
	TTST	TNAGT5A	45.000	--	1.031	46.405	1.4	0.275	1.5	55′	EL	27	0.523	1.58	55′	EL	5.4	0.80	0.275	1.03	55′	EL	27	
	TTST	TNAGT5B	45.000	3	1.013	45.582	1.4	0.275	1.47	55′	EL	27	0.523	1.48	55′	EL	5.4	0.80	0.275	1.01	55′	EL	27	

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)

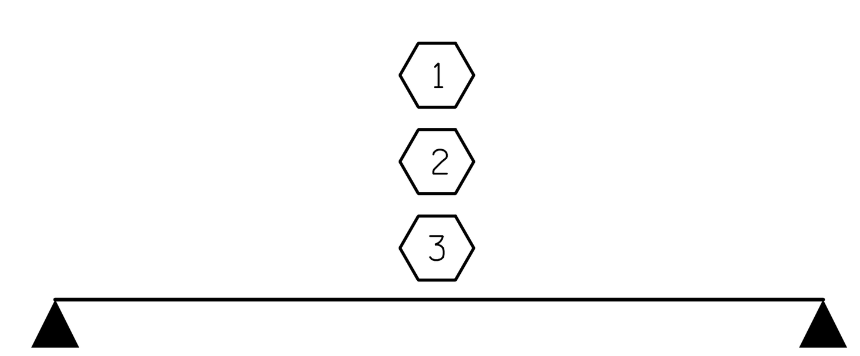
(2) DESIGN LOAD RATING (HS-20)

(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 'B'

PROJECT NO. 17BP.4.R.95

WILSON COUNTY

STATION: 15+33.00 -L-

DocuSigned by:
James J. Barcomb

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 22997 JAMES J. BARCOMB

12/3/2018

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

LRFR SUMMARY FOR 55′ CORED SLAB UNIT 90° SKEW
(NON-INTERSTATE TRAFFIC)

HNTB

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

DRAWN BY	M. WRIGHT	DATE	10/18
CHECKED BY	J. BARCOMB	DATE	10/18
DESIGN ENGINEER OF RECORD	J. BARCOMB	DATE	10/18

DWG. NO. 4

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

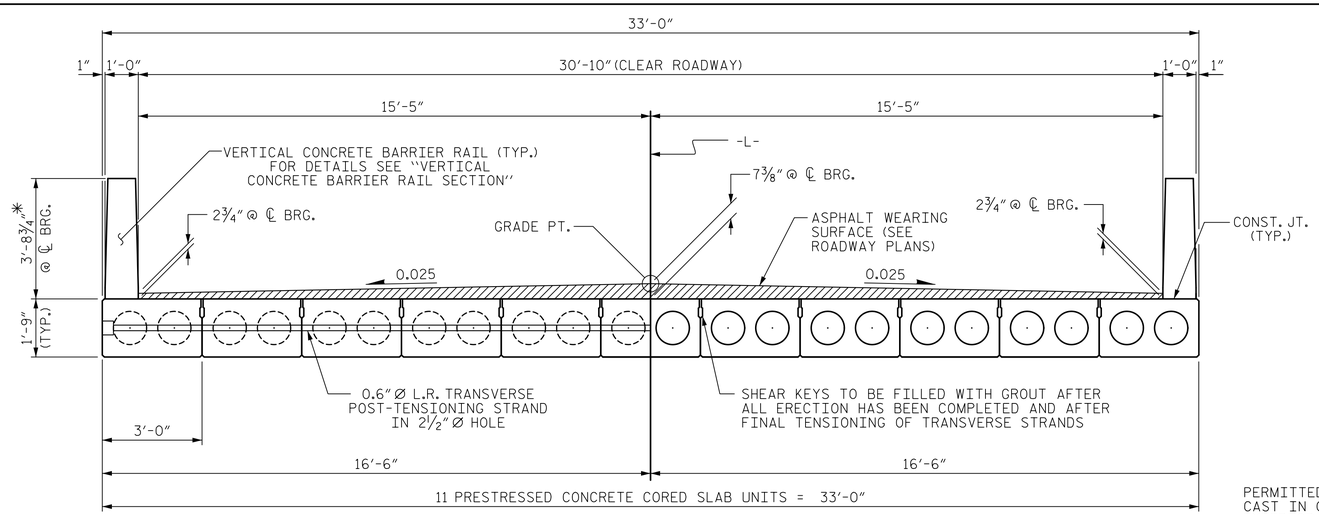
SHEET NO. S-4

TOTAL SHEETS 18

ASSEMBLED BY :	M. WRIGHT	DATE :	10/18
CHECKED BY :	J. BARCOMB	DATE :	10/18
DRAWN BY :	CVC 6/10		
CHECKED BY :	DNS 6/10		

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

STD. NO. 21LRFR1_90S_55L

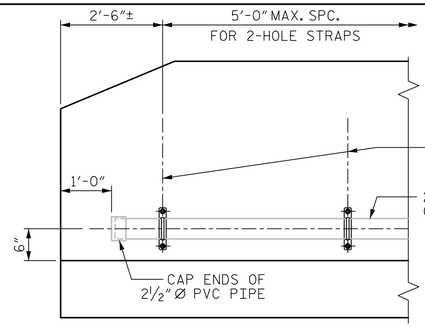


HALF SECTION AT INTERMEDIATE DIAPHRAGMS

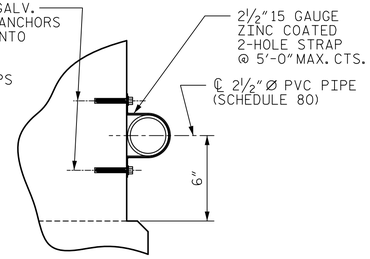
HALF SECTION THROUGH VOIDS

TYPICAL SECTION

* - 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.



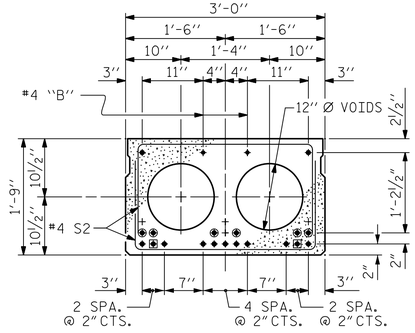
ELEVATION



SECTION

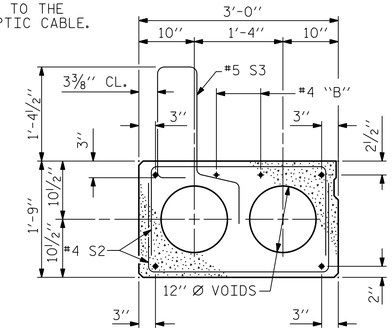
FIBER OPTIC CONDUIT SYSTEM DETAILS

2½″ Ø SCHEDULE 80 PVC PIPE ATTACHED TO THE BACK OF BOTH RAILS FOR FUTURE FIBER OPTIC CABLE.



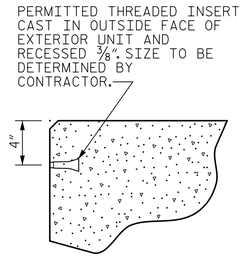
INTERIOR SLAB SECTION (45′ UNIT)

(13 STRANDS REQUIRED)



EXT. SLAB SECTION

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



THREADED INSERT DETAIL

▲ BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 6′-0″ FROM END OF CORED SLAB UNIT. SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7.

▣ 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

PROJECT NO. 17BP.4.R.95

WILSON COUNTY

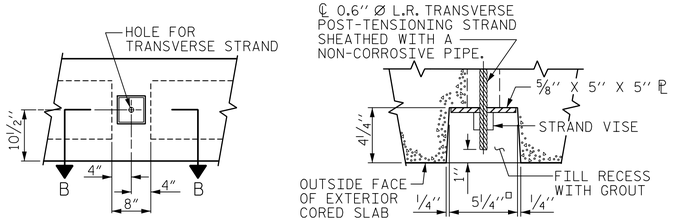
STATION: 15+33.00 -L-

FIXED END

SECTION AT END BENT

FIXED END FIXED END

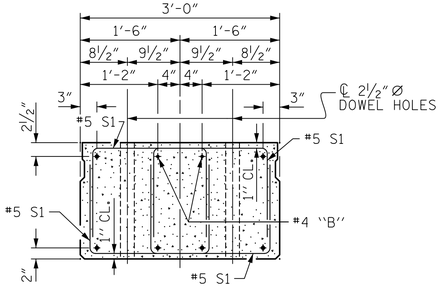
SECTION AT BENT



ELEVATION VIEW

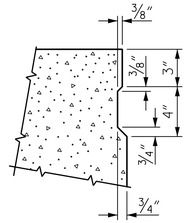
SECTION B-B

GROUTED RECESS AT END OF POST-TENSIONED STRAND OF CORED SLABS



END ELEVATION

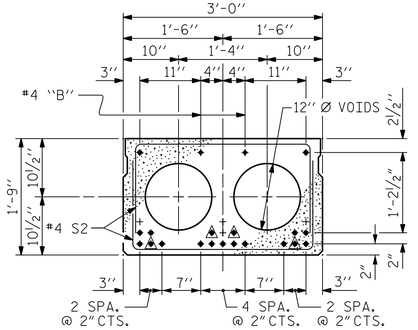
SHOWING PLACEMENT OF DOUBLE STIRRUPS AND LOCATION OF DOWEL HOLES. (STRAND LAYOUT NOT SHOWN.) INTERIOR SLAB UNIT SHOWN-EXTERIOR SLAB UNIT SIMILAR EXCEPT SHEAR KEY LOCATION.



SHEAR KEY DETAIL

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

0.6″ Ø LOW RELAXATION STRAND LAYOUT



INTERIOR SLAB SECTION (55′ UNIT)

(19 STRANDS REQUIRED)

NORTH CAROLINA PROFESSIONAL SEAL 22997 ENGINEER JAMES J. BARCOMB

DocuSigned by: James J. Barcomb 7/11/2019

SHEET 1 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
3′-0″ X 1′-9″
PRESTRESSED CONCRETE CORED SLAB UNIT
90° SKEW

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-5
1			3			TOTAL SHEETS
2			4			18

ASSEMBLED BY : M. WRIGHT	DATE : 10/18	
CHECKED BY : J. BARCOMB	DATE : 10/18	
DRAWN BY : DGE 5/09	REV. 9/14 MAA/TMG	
CHECKED BY : BCH 6/09		

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

DRAWN BY M. WRIGHT DATE 10/18
CHECKED BY J. BARCOMB DATE 10/18
DESIGN ENGINEER OF RECORD J. BARCOMB DATE 10/18

DWG. NO. 5

STD. NO. 21″PCS2_33_90S

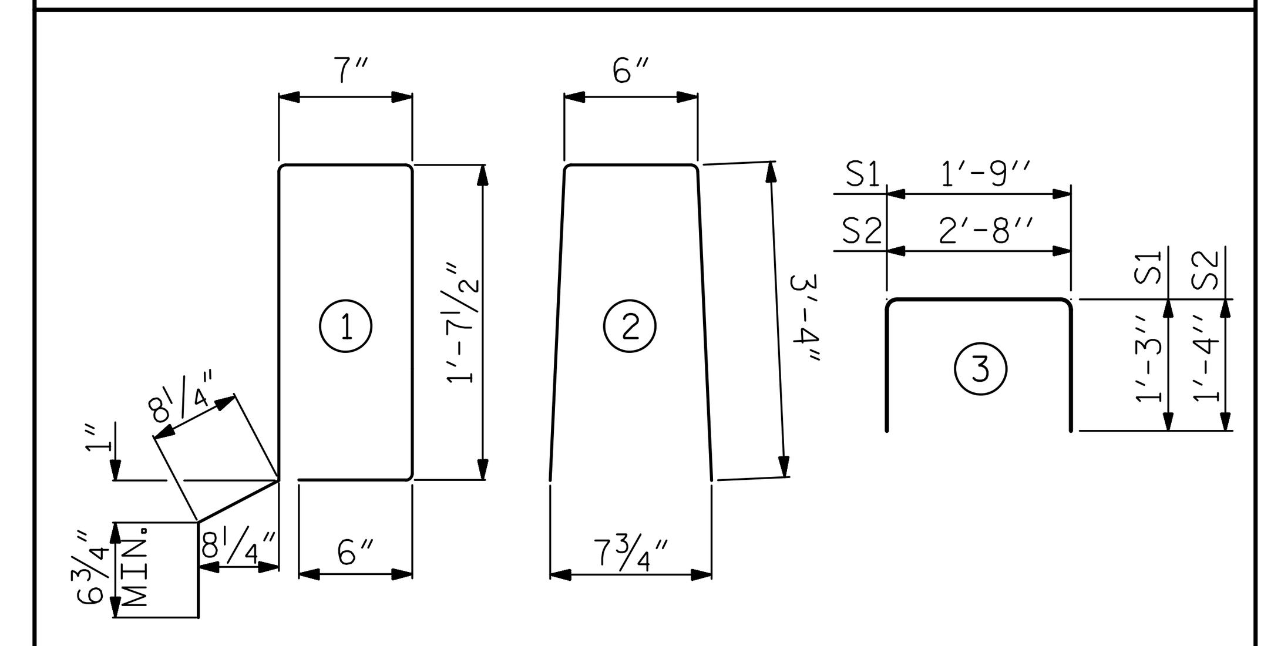
BILL OF MATERIAL FOR ONE 45′ CORED SLAB UNIT

BAR	NUMBER	SIZE	TYPE	EXTERIOR UNIT LENGTH	EXTERIOR UNIT WEIGHT	INTERIOR UNIT LENGTH	INTERIOR UNIT WEIGHT
B5	4	#4	STR	23′-3″	62	23′-3″	62
S1	8	#5	3	4′-3″	35	4′-3″	35
S2	94	#4	3	5′-4″	335	5′-4″	335
* S3	54	#5	1	5′-7″	314		
REINFORCING STEEL LBS.					432		432
* EPOXY COATED REINFORCING STEEL LBS.					314		
5000 P.S.I. CONCRETE CU. YDS.					6.5		6.5
0.6″ Ø L.R. STRANDS No.					13		13

BILL OF MATERIAL FOR ONE 55′ CORED SLAB UNIT

BAR	NUMBER	SIZE	TYPE	EXTERIOR UNIT LENGTH	EXTERIOR UNIT WEIGHT	INTERIOR UNIT LENGTH	INTERIOR UNIT WEIGHT
B7	4	#4	STR	28′-3″	75	28′-3″	75
S1	8	#5	3	4′-3″	35	4′-3″	35
S2	114	#4	3	5′-4″	406	5′-4″	406
* S3	64	#5	1	5′-7″	373		
REINFORCING STEEL LBS.					516		516
* EPOXY COATED REINFORCING STEEL LBS.					373		
6500 P.S.I. CONCRETE CU. YDS.					7.8		7.8
0.6″ Ø L.R. STRANDS No.					19		19

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

CONCRETE RELEASE STRENGTH

UNIT	PSI
45′ UNITS	4000
55′ UNITS	4900

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 2½″ 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, ½″ 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.

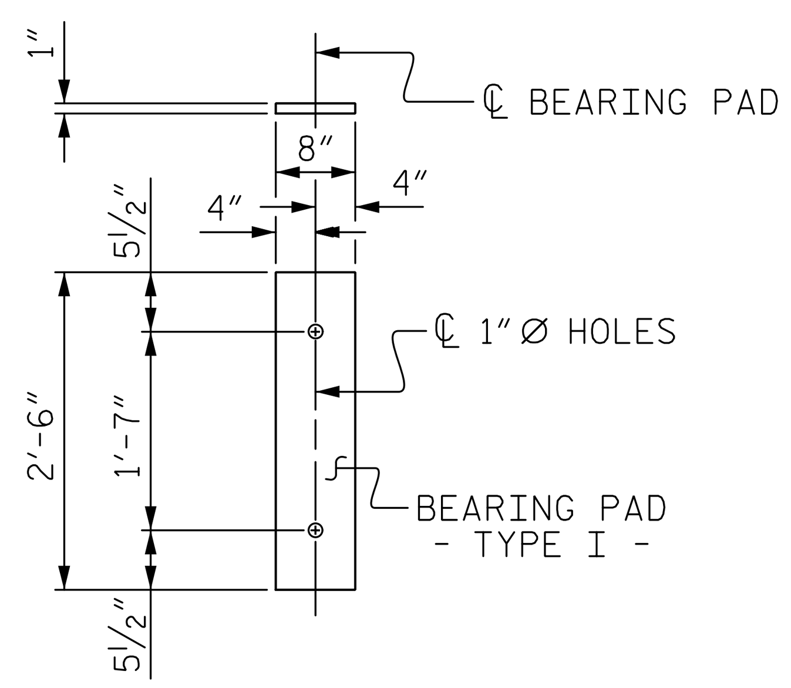
THE PERMITTED THREADED INSERTS ARE DETAILED AS AN OPTION FOR THE CONTRACTOR TO ATTACH FALSEWORK AND FORMWORK DURING CONSTRUCTION.

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.

FOR FIBER OPTIC CONDUIT SYSTEM, SEE SPECIAL PROVISIONS.



FIXED END
(TYPE I - 44 REQ'D)

CORED SLABS REQUIRED

45′ UNIT	NUMBER	LENGTH	TOTAL LENGTH
EXTERIOR C.S.	2	45′-0″	90′-0″
INTERIOR C.S.	9	45′-0″	405′-0″
TOTAL	11		495′-0″

CORED SLABS REQUIRED

55′ UNIT	NUMBER	LENGTH	TOTAL LENGTH
EXTERIOR C.S.	2	55′-0″	110′-0″
INTERIOR C.S.	9	55′-0″	495′-0″
TOTAL	11		605′-0″

DEAD LOAD DEFLECTION AND CAMBER

45′ CORED SLAB UNIT	3′-0″ × 1′-9″ 0.6″ Ø L.R. STRAND
CAMBER (SLAB ALONE IN PLACE)	⅞″ ↑
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD **	⅛″ ↓
FINAL CAMBER	¾″ ↑

** INCLUDES FUTURE WEARING SURFACE

DEAD LOAD DEFLECTION AND CAMBER

55′ CORED SLAB UNIT	3′-0″ × 1′-9″ 0.6″ Ø L.R. STRAND
CAMBER (SLAB ALONE IN PLACE)	1½″ ↑
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD **	⅜″ ↓
FINAL CAMBER	1⅛″ ↑

** INCLUDES FUTURE WEARING SURFACE

ELASTOMERIC BEARING DETAILS

ELASTOMER IN ALL BEARINGS SHALL BE 50 DUROMETER HARDNESS.

BILL OF MATERIAL FOR VERTICAL CONCRETE BARRIER RAIL (45′ UNIT)

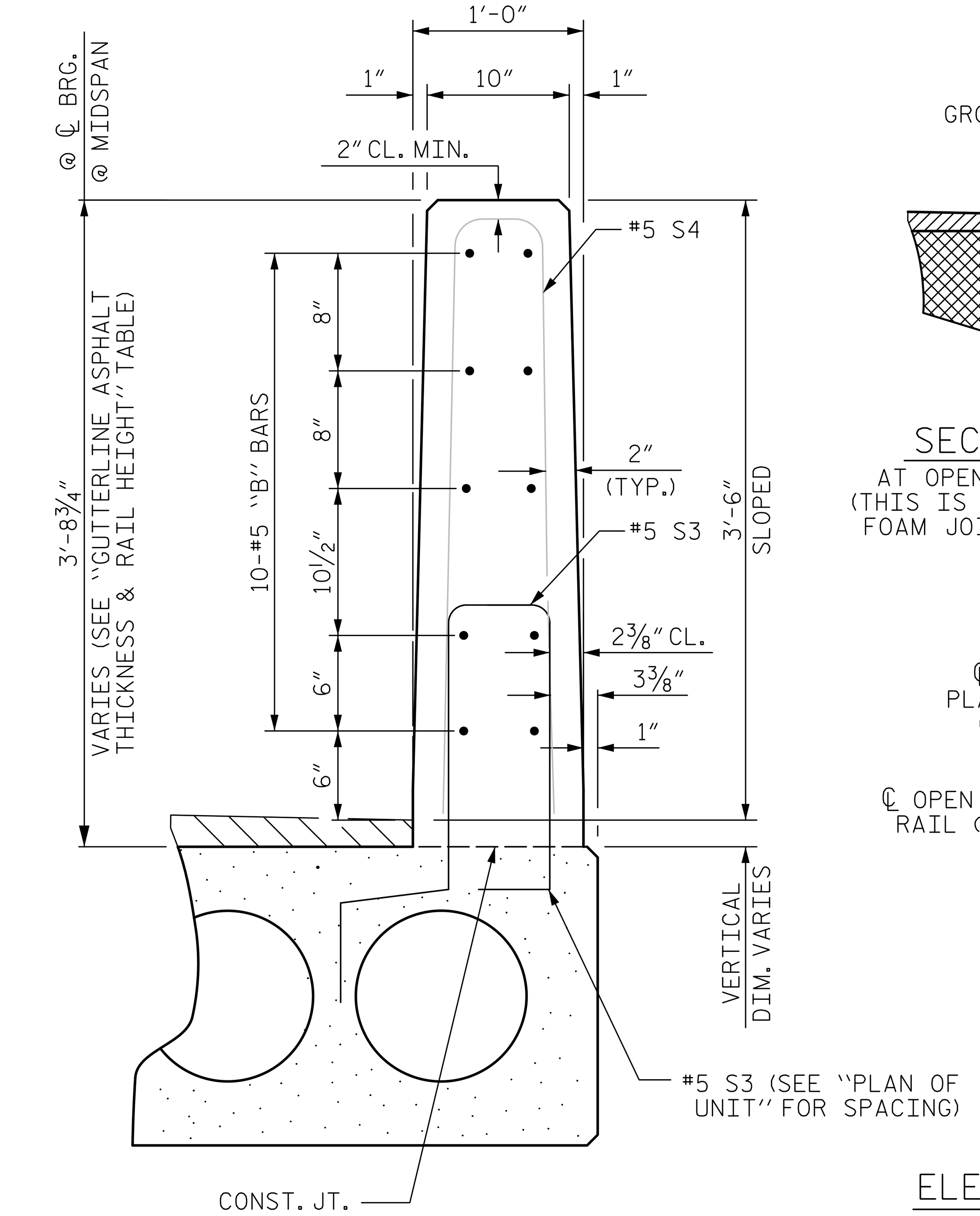
BAR	BARS PER PAIR OF EXTERIOR UNITS	TOTAL NO.	SIZE	TYPE	LENGTH	WEIGHT
*B12	40	40	#5	STR	22′-1″	921
* S4	108	108	#5	2	7′-2″	807
* EPOXY COATED REINFORCING STEEL				LBS.		1728
CLASS AA CONCRETE				CU.YDS.		11.5
TOTAL VERTICAL CONCRETE BARRIER RAIL				LN. FT.		90.25
FIBER OPTIC CONDUIT SYSTEM				LN. FT.		90.25

BILL OF MATERIAL FOR VERTICAL CONCRETE BARRIER RAIL (55′ UNIT)

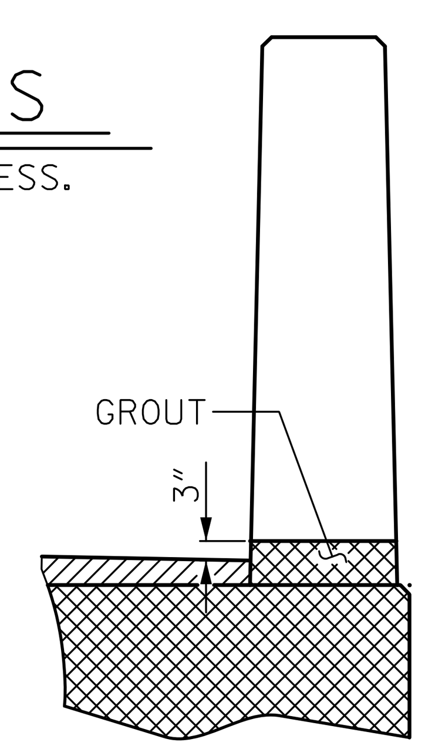
BAR	BARS PER PAIR OF EXTERIOR UNITS	TOTAL NO.	SIZE	TYPE	LENGTH	WEIGHT
*B14	40	40	#5	STR	27′-1″	1130
* S4	128	128	#5	2	7′-2″	957
* EPOXY COATED REINFORCING STEEL				LBS.		2087
CLASS AA CONCRETE				CU.YDS.		14.1
TOTAL VERTICAL CONCRETE BARRIER RAIL				LN. FT.		110.25
FIBER OPTIC CONDUIT SYSTEM				LN. FT.		110.25

GUTTERLINE ASPHALT THICKNESS & RAIL HEIGHT

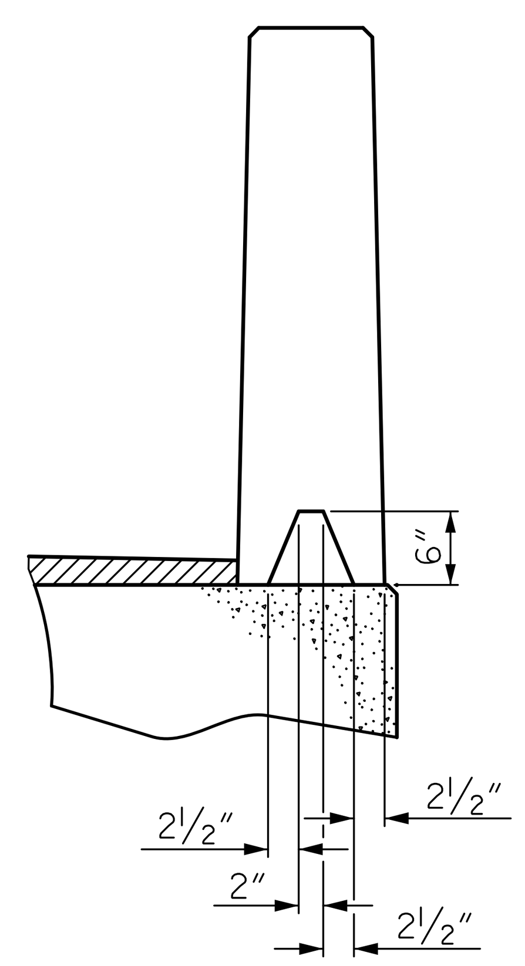
	ASPHALT OVERLAY THICKNESS @ MID-SPAN	RAIL HEIGHT @ MID-SPAN
45′ UNITS	2″	3′-8″
55′ UNITS	1⅝″	3′-7⅝″



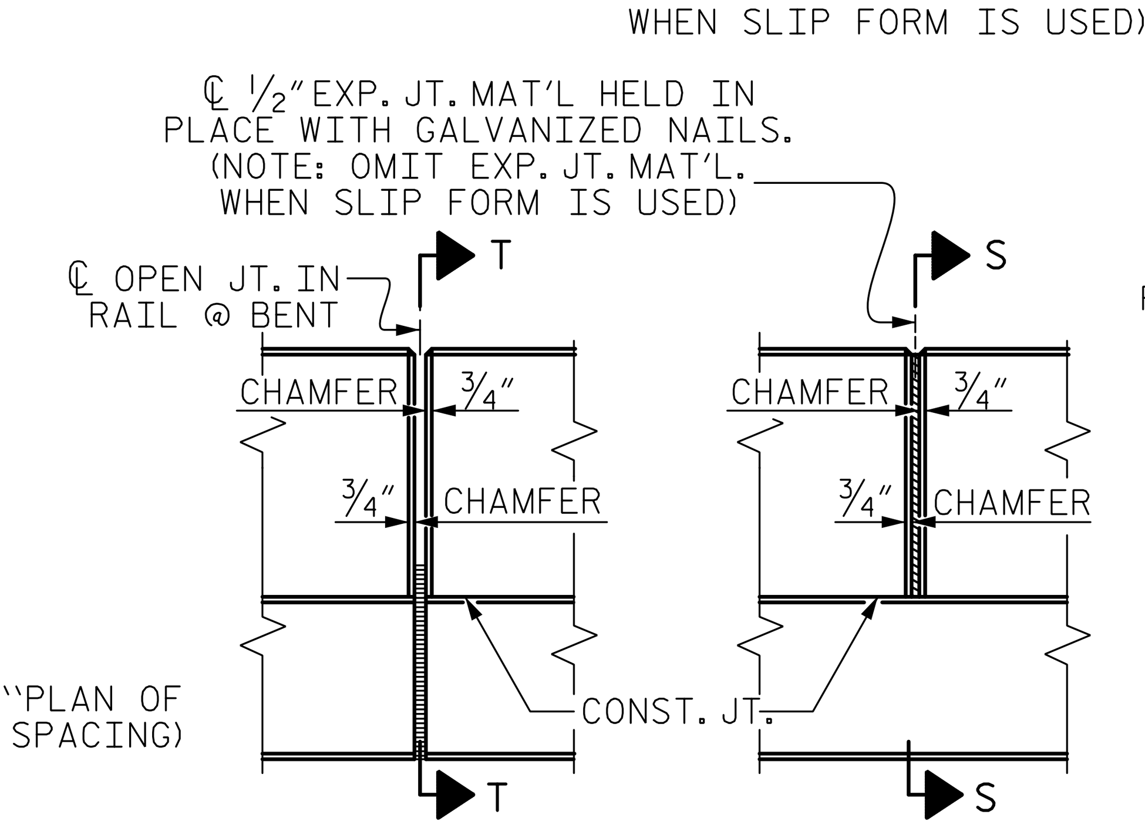
VERTICAL CONCRETE BARRIER RAIL SECTION



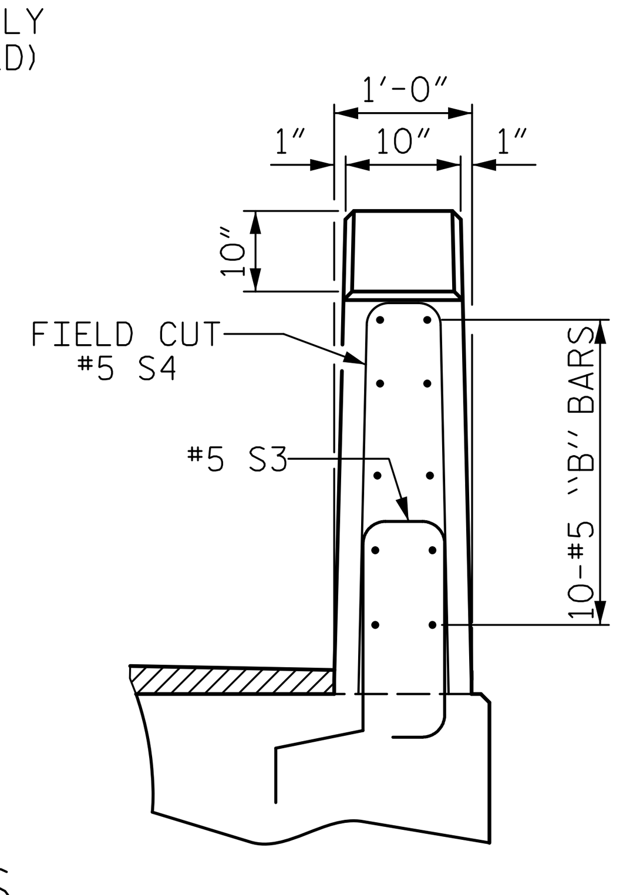
SECTION T-T
AT OPEN JOINT AT BENT
(THIS IS TO BE USED WHERE FOAM JOINT IS NOT USED)



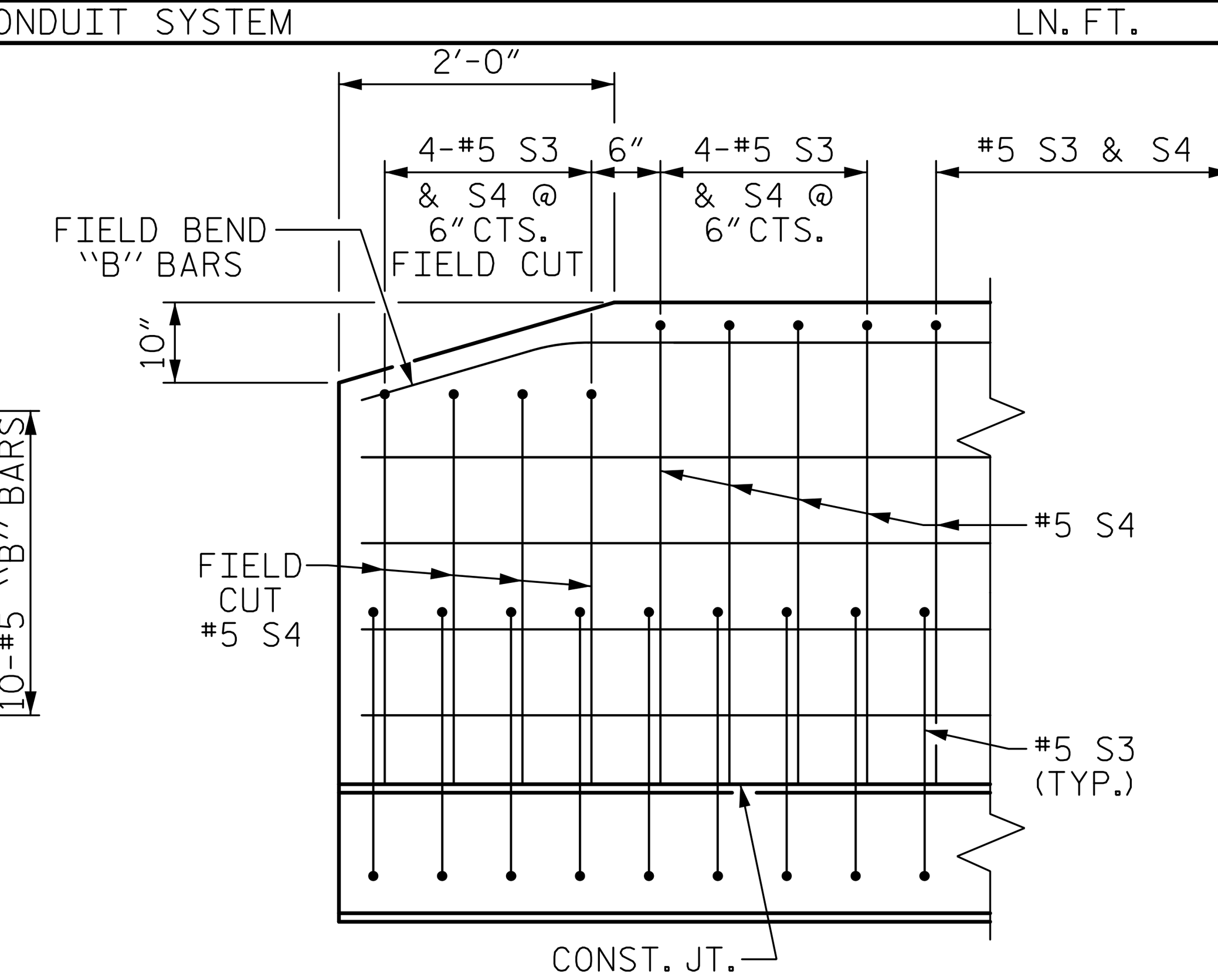
SECTION S-S
AT DAM IN OPEN JOINT
(THIS IS TO BE USED ONLY WHEN SLIP FORM IS USED)



ELEVATION AT EXPANSION JOINTS



END VIEW

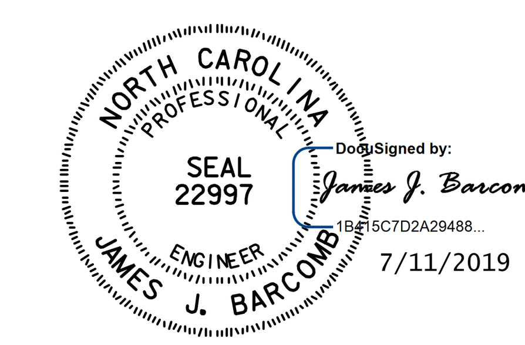


SIDE VIEW

END OF RAIL DETAILS

GRADE 270 STRANDS

	0.6″ Ø L.R.
AREA (SQUARE INCHES)	0.217
ULTIMATE STRENGTH (LBS. PER STRAND)	58,600
APPLIED PRESTRESS (LBS. PER STRAND)	43,950



PROJECT NO. 17BP.4.R.95
WILSON COUNTY
STATION: 15+33.00 -L-

SHEET 2 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
3′-0″ X 1′-9″
PRESTRESSED CONCRETE
CORED SLAB UNIT
90° SKEW

ASSEMBLED BY : M. WRIGHT	DATE : 10/18	
CHECKED BY : J. BARCOMB	DATE : 10/18	
DRAWN BY : DGE 5/09 CHECKED BY : BCH 6/09	REV. 5/18	MAA/THC

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DRAWN BY	M. WRIGHT	DATE 10/18	DWG. NO. 6
CHECKED BY	J. BARCOMB	DATE 10/18	
DESIGN ENGINEER OF RECORD	J. BARCOMB	DATE 10/18	

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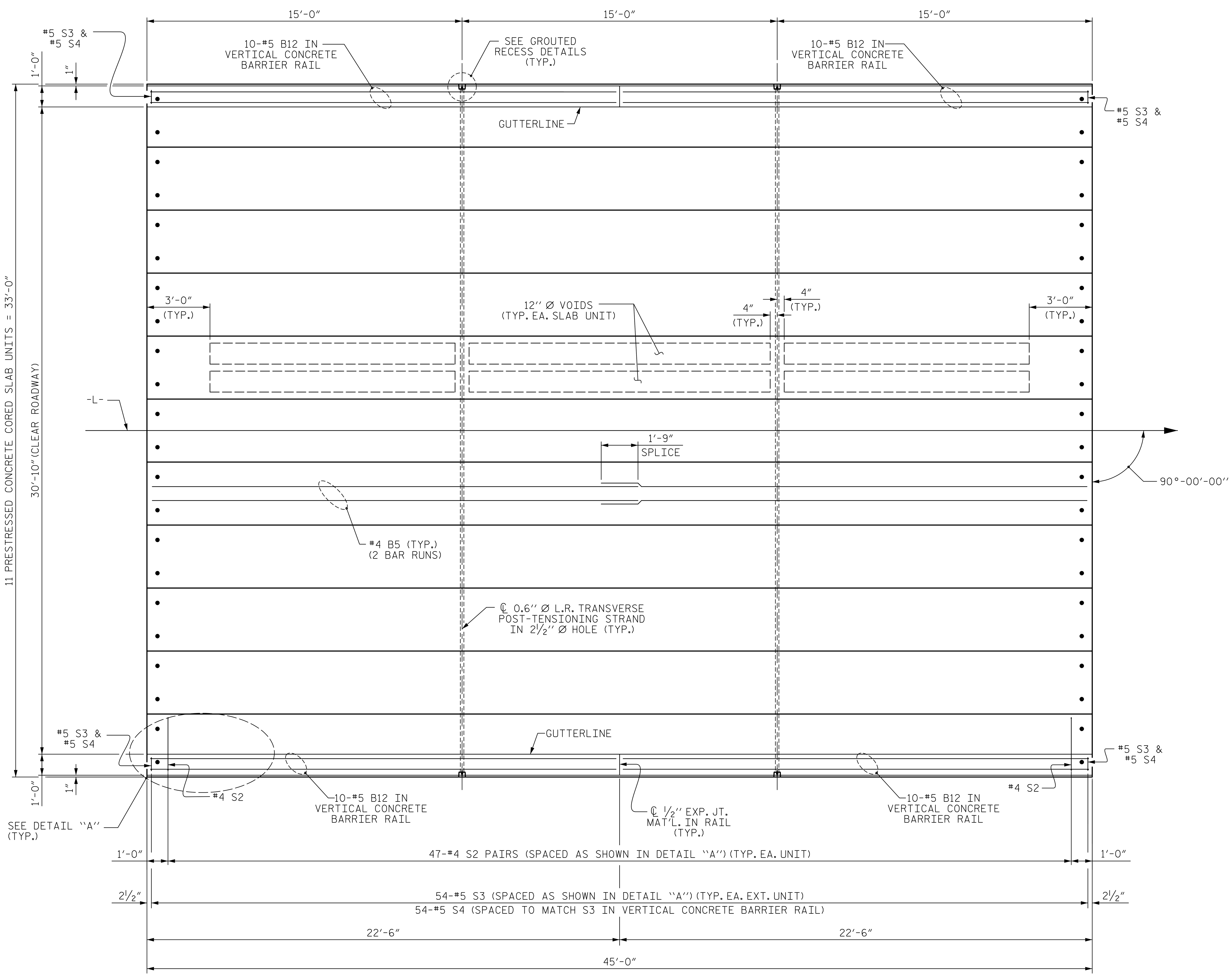
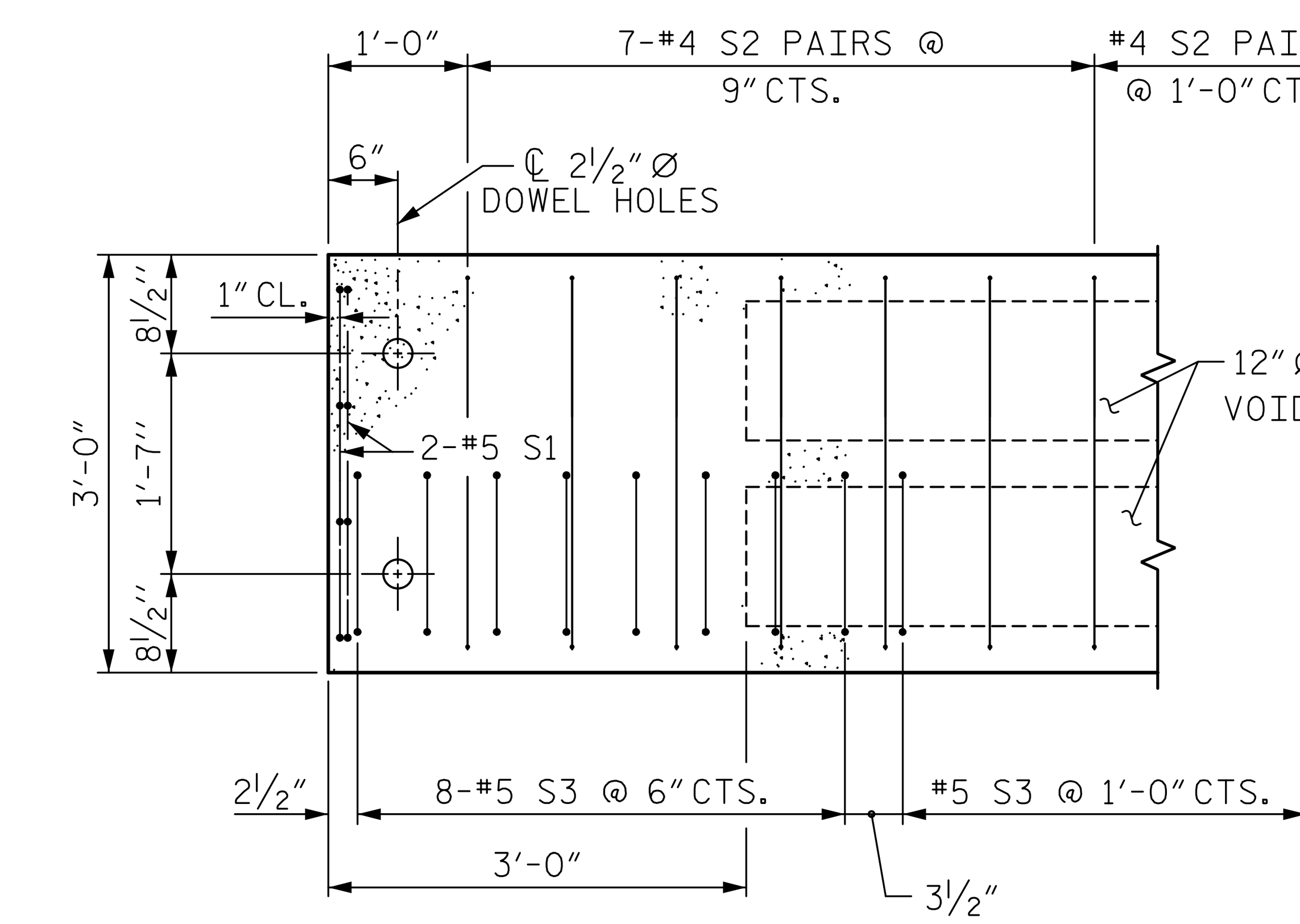
REVISIONS							SHEET NO.
NO.	BY	DATE	NO.	BY	DATE		S-6
1			3				TOTAL SHEETS
2			4				18

STD. NO. 21″PCS3_33_90S



PLAN OF UNIT



DETAIL "A"

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

DocuSigned by:
James J. Barcomb
NORTH CAROLINA PROFESSIONAL SEAL 22997 ENGINEER JAMES J. BARCOMB
12/3/2018

PROJECT NO. 17BP.4.R.95
WILSON COUNTY
STATION: 15+33.00 -L-

SHEET 3 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PLAN OF 45' UNIT
30'-10" CLEAR ROADWAY
90° SKEW

ASSEMBLED BY : M. WRIGHT	DATE : 10/18				
CHECKED BY : J. BARCOMB	DATE : 10/18				
DRAWN BY : DGE	3/09	REV.	12/5/11	MAA/AAC	
CHECKED BY : BCH	3/09	REV.	8/14	MAA/TMG	

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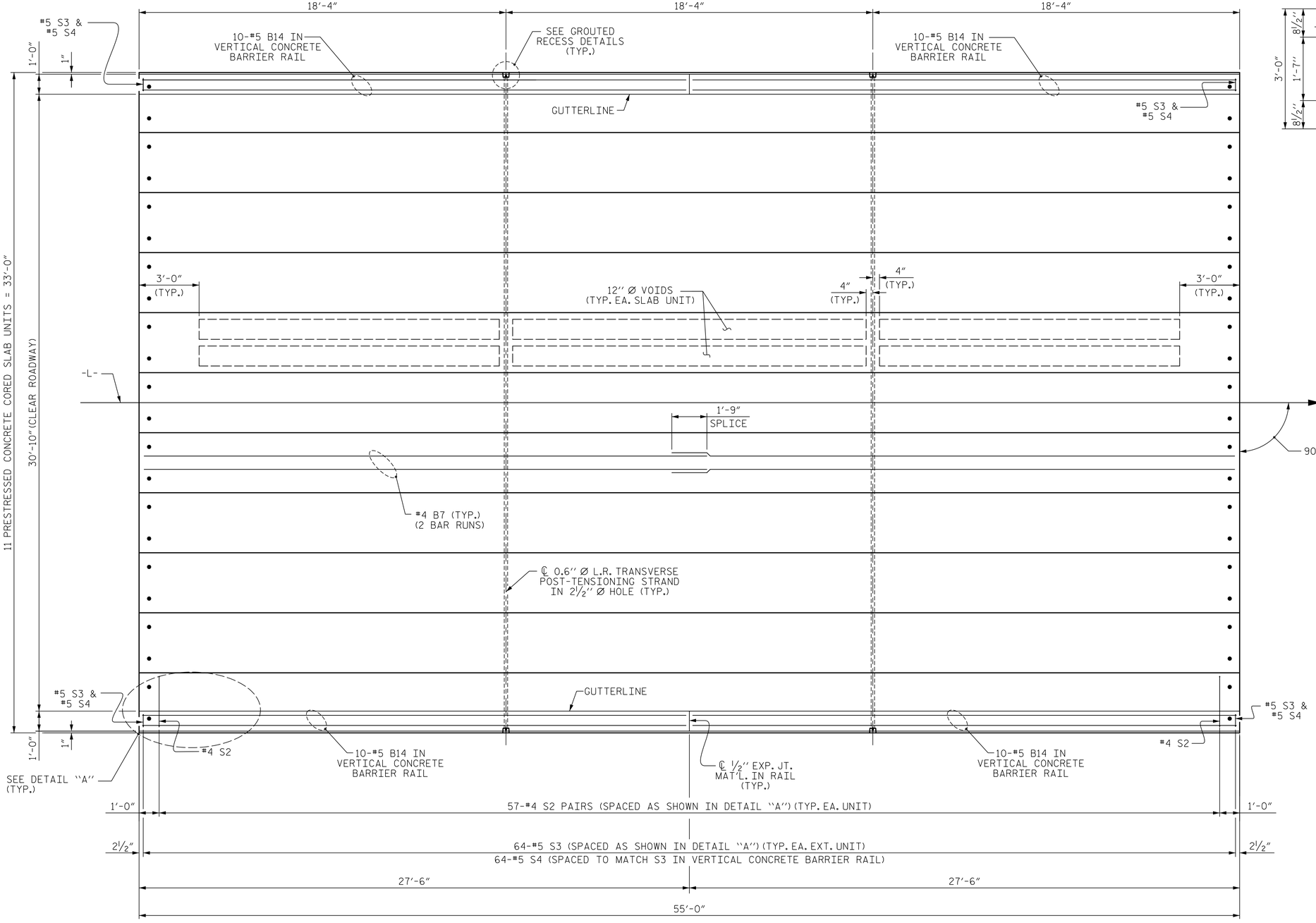
DRAWN BY M. WRIGHT DATE 10/18
CHECKED BY J. BARCOMB DATE 10/18
DESIGN ENGINEER OF RECORD J. BARCOMB DATE 10/18
DWG. NO. 7

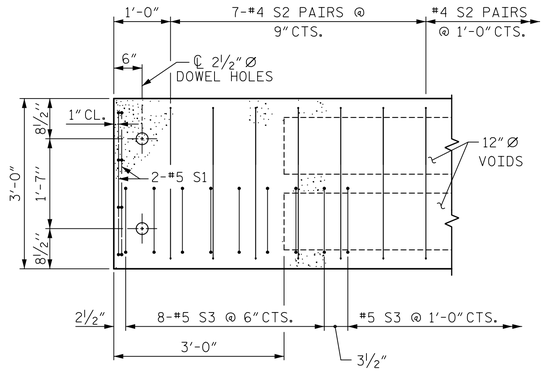
REVISIONS

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

SHEET NO. S-7
TOTAL SHEETS 18

STD. NO. 21"PCS_33_90S_45L





DETAIL ″A″

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

DocuSigned by:
James J. Barcomb
[illegible]

NORTH CAROLINA PROFESSIONAL SEAL 22997 ENGINEER JAMES J. BARCOMB

12/3/2018

PROJECT NO. 17BP.4.R.95

WILSON COUNTY

STATION: 15+33.00 -L-

SHEET 4 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PLAN OF 55′ UNIT
30′-10″ CLEAR ROADWAY
90° SKEW

PLAN OF UNIT

ASSEMBLED BY : M. WRIGHT		DATE : 10/18			
CHECKED BY : J. BARCOMB		DATE : 10/18			
DRAWN BY : DGE 3/09	REV. 12/5/11	MAA/AAC			
CHECKED BY : BCH 3/09	REV. 8/14	MAA/TMG			

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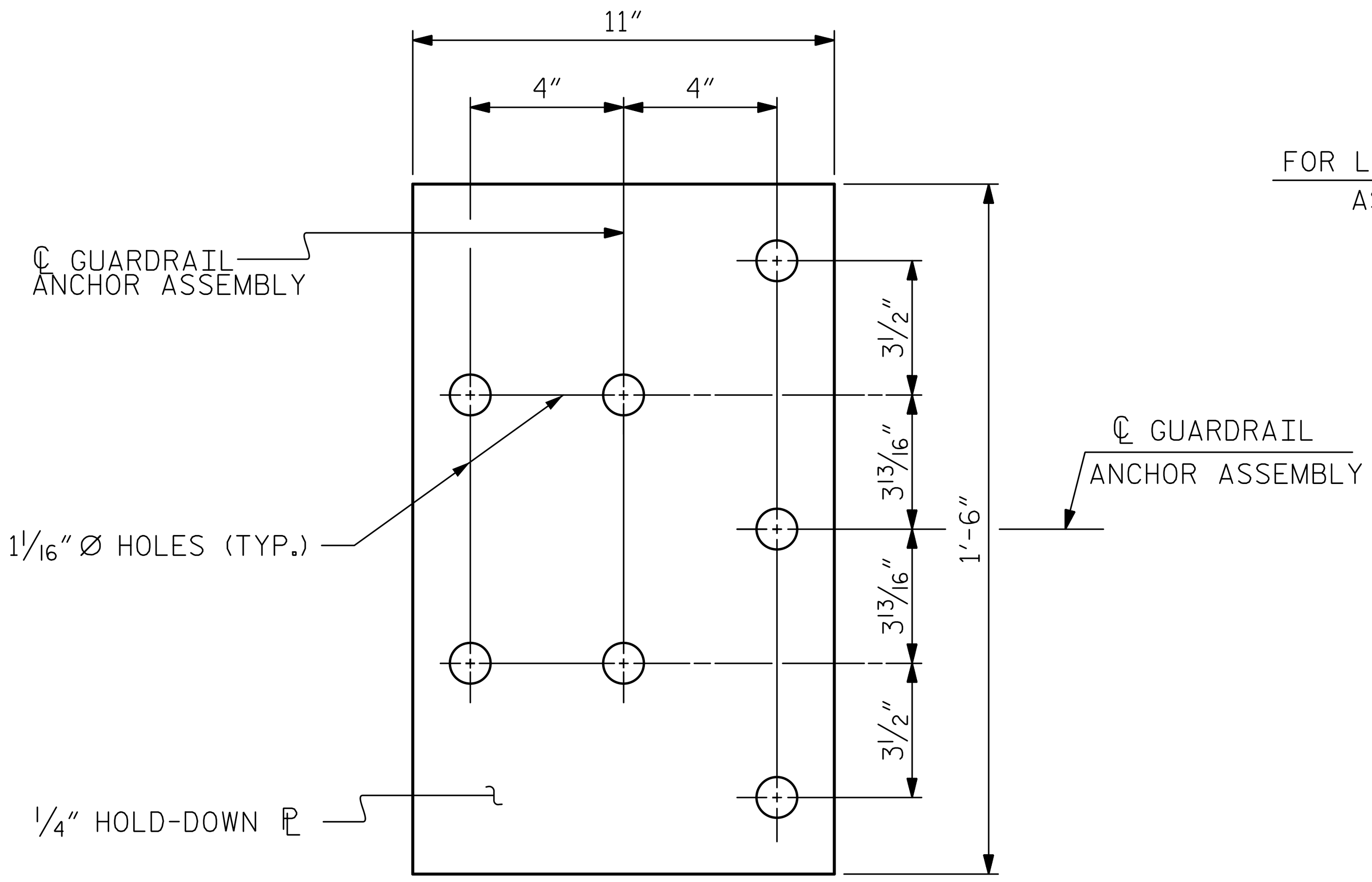
DRAWN BY	M. WRIGHT	DATE 10/18
CHECKED BY	J. BARCOMB	DATE 10/18
DESIGN ENGINEER OF RECORD	J. BARCOMB	DATE 10/18

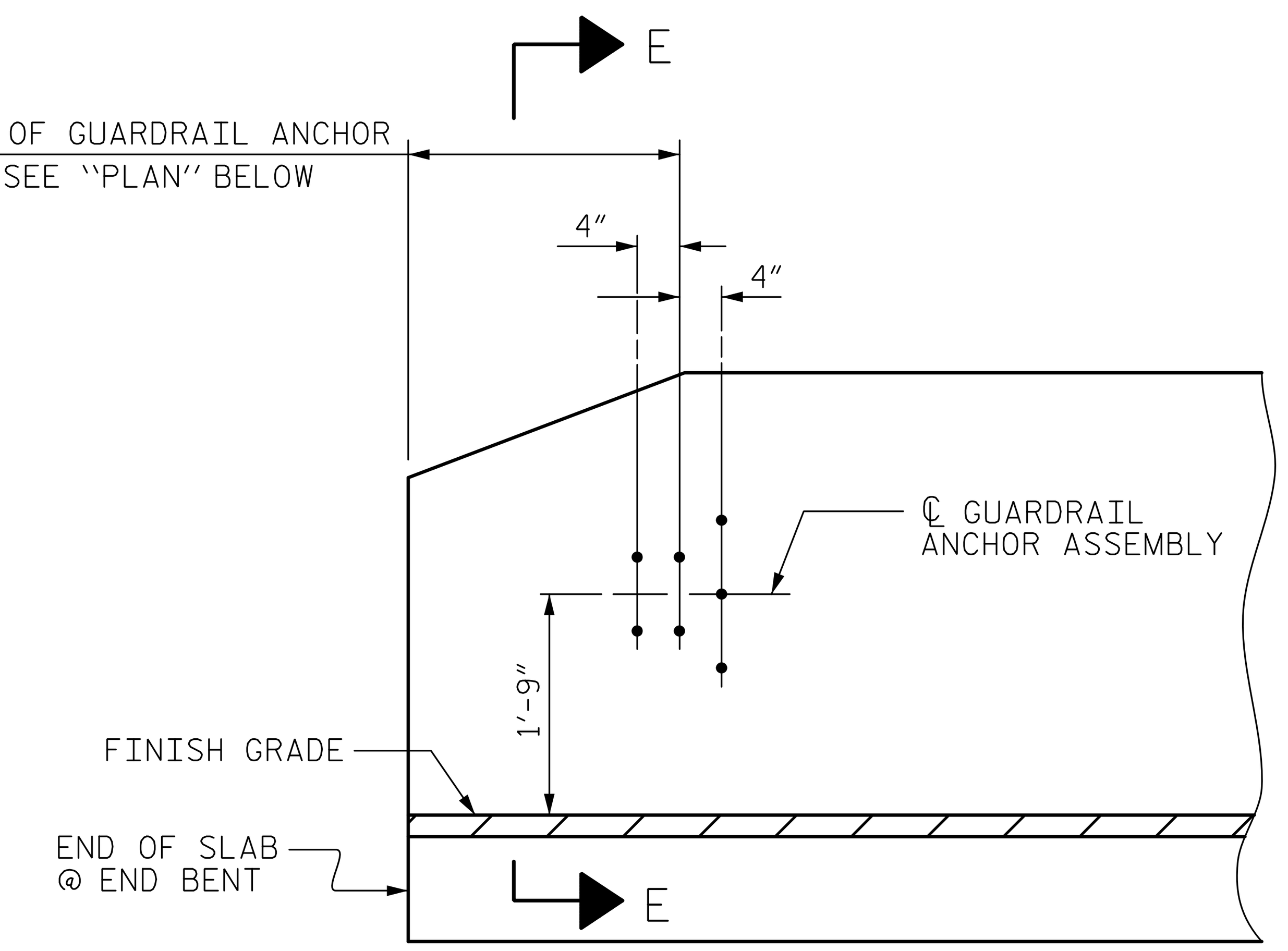
DWG. NO. 8

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-8
1			3			TOTAL SHEETS
2			4			18

STD. NO. 21″PCS_33_90S_55L



PLAN



ELEVATION

NOTES

THE GUARDRAIL ANCHOR ASSEMBLY SHALL CONSIST OF A ¼″ HOLD DOWN PLATE AND 7 - ⅞″ 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 ⅞″ 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.)

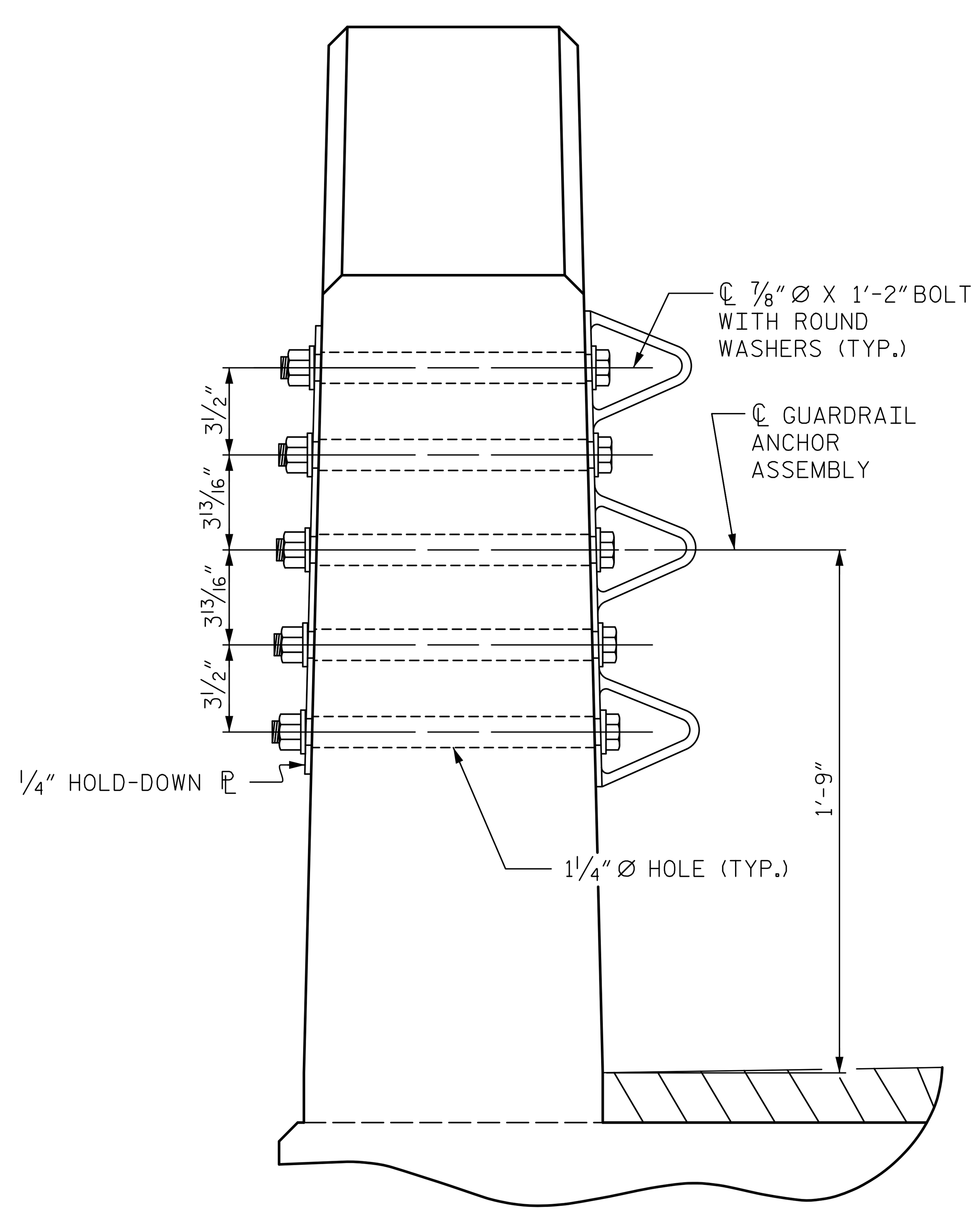
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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.

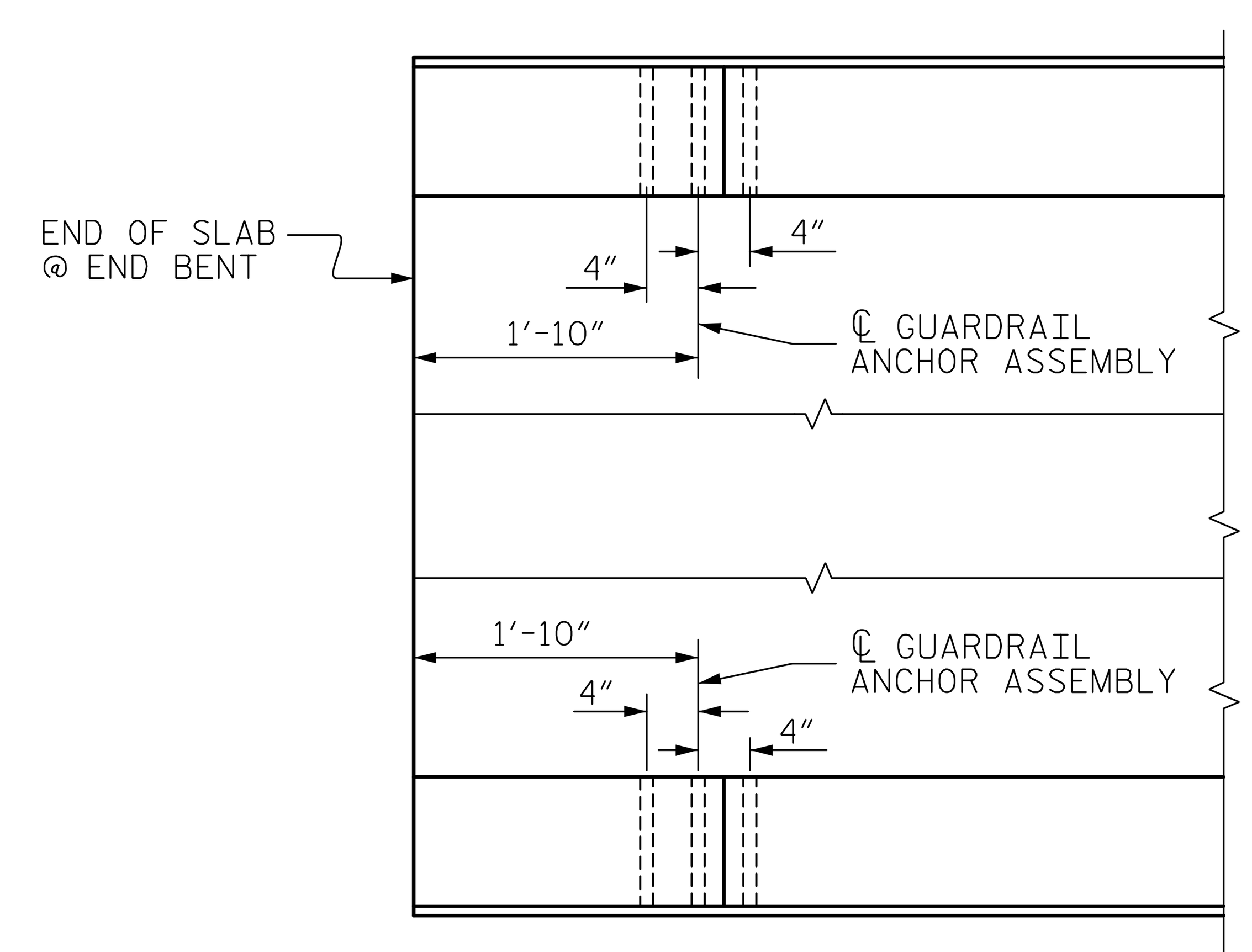
THE VERTICAL REINFORCING BARS MAY BE SHIFTED SLIGHTLY IN THE VERTICAL CONCRETE BARRIER RAIL TO CLEAR ASSEMBLY BOLTS.

THE 1¼″ 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.



SECTION E-E

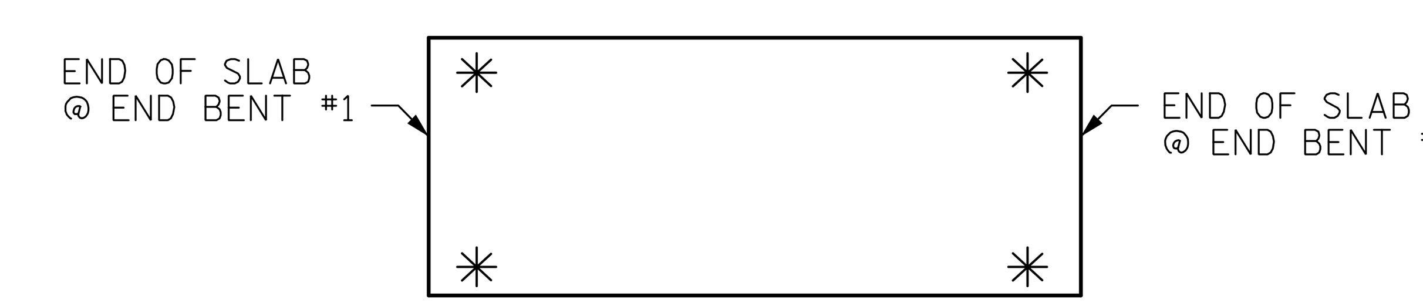
GUARDRAIL ANCHOR ASSEMBLY DETAILS



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.4.R.95

WILSON **COUNTY**

STATION: 15+33.00 -L-

DocuSigned by: James J. Barcomb

NORTH CAROLINA PROFESSIONAL SEAL 22997 ENGINEER JAMES J. BARCOMB

12/3/2018

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
GUARDRAIL ANCHORAGE DETAILS FOR VERTICAL CONCRETE BARRIER RAIL

ASSEMBLED BY : M. WRIGHT		DATE : 10/18
CHECKED BY : J. BARCOMB		DATE : 10/18
DRAWN BY : MAA 5/10	REV. 1/15	MAA/TMG
CHECKED BY : GM 5/10	REV. 12/17	MAA/THC
	REV. 5/18	MAA/THC

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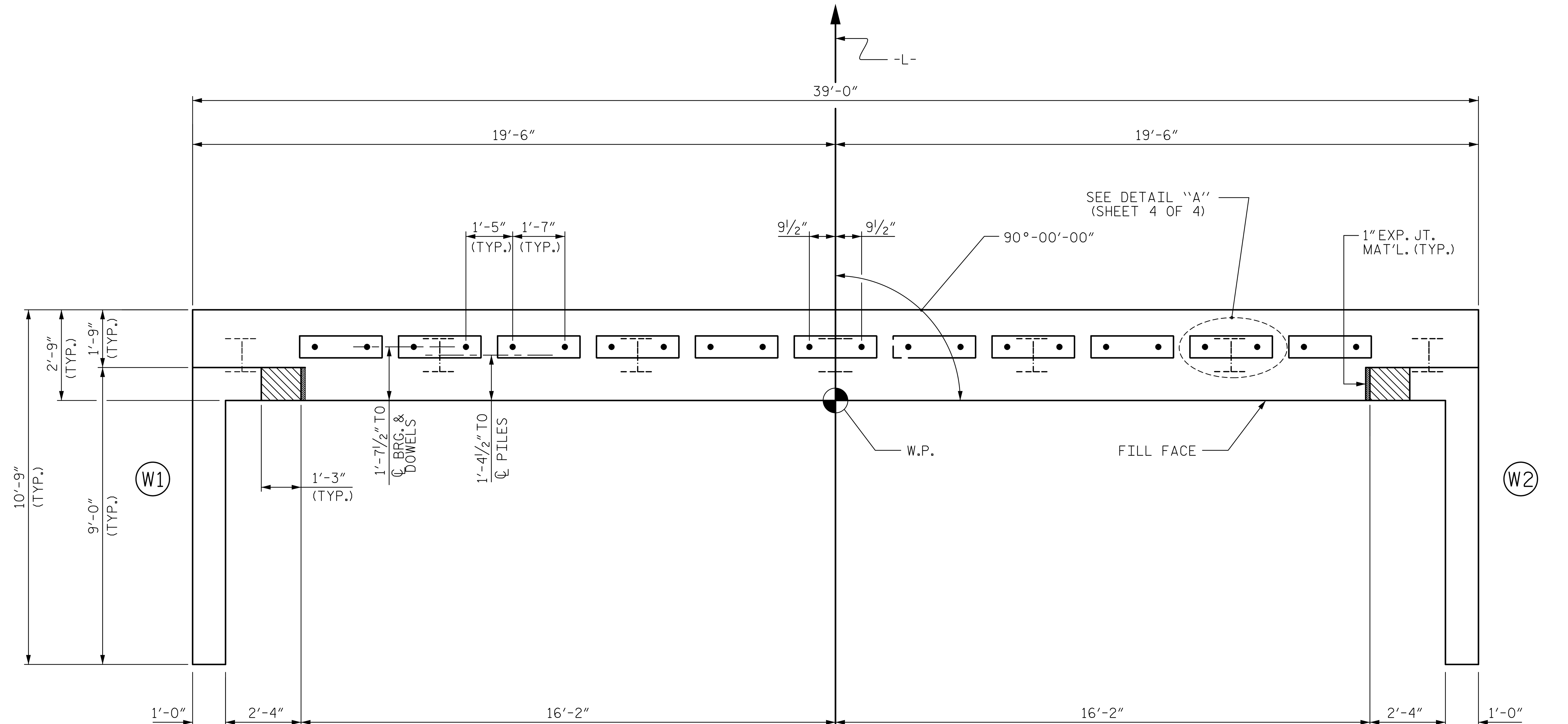
DRAWN BY M. WRIGHT DATE 10/18
CHECKED BY J. BARCOMB DATE 10/18
DESIGN ENGINEER OF RECORD J. BARCOMB DATE 10/18
DWG. NO. 9

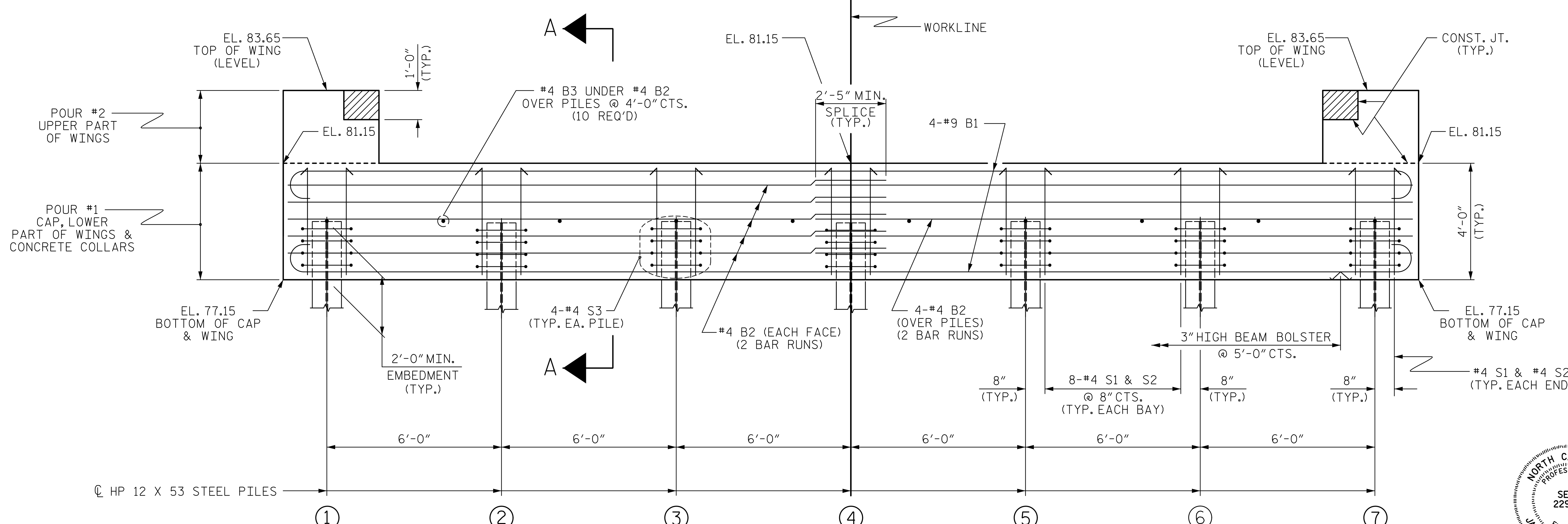
REVISIONS						
NO.	BY	DATE		NO.	BY	DATE
1				3		
2				4		

SHEET NO. S-9
TOTAL SHEETS 18

(SHT 1) STD. NO. GRA3



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.

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.

PROJECT NO. 17BP.4.R.95

WILSON **COUNTY**

STATION: 15+33.00 -L-

SHEET 1 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT No. 1

DocuSigned by: James J. Barcomb
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 22997 JAMES J. BARCOMB
12/3/2018

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DRAWN BY	M. WRIGHT	DATE 10/18	DWG. NO. 10
CHECKED BY	J. BARCOMB	DATE 10/18	
DESIGN ENGINEER OF RECORD	J. BARCOMB	DATE 10/18	

REVISIONS						SHEET NO.
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1			3			TOTAL SHEETS
2			4			18

ASSEMBLED BY : M. WRIGHT	DATE : 10/18		
CHECKED BY : J. BARCOMB	DATE : 10/18		
DRAWN BY : WJH 12/11	CHECKED BY : AAC 12/11	REV. 4/15	MAA/TMG

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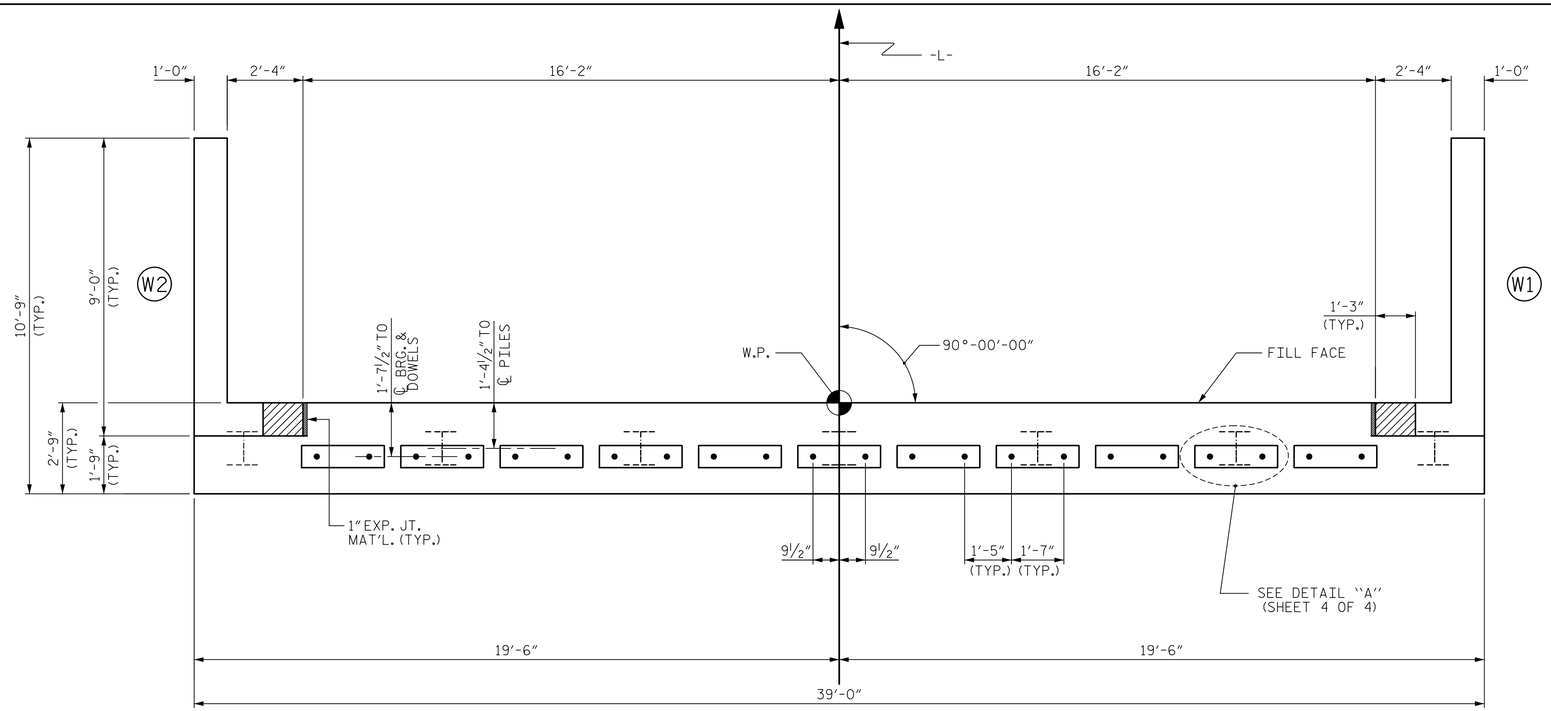
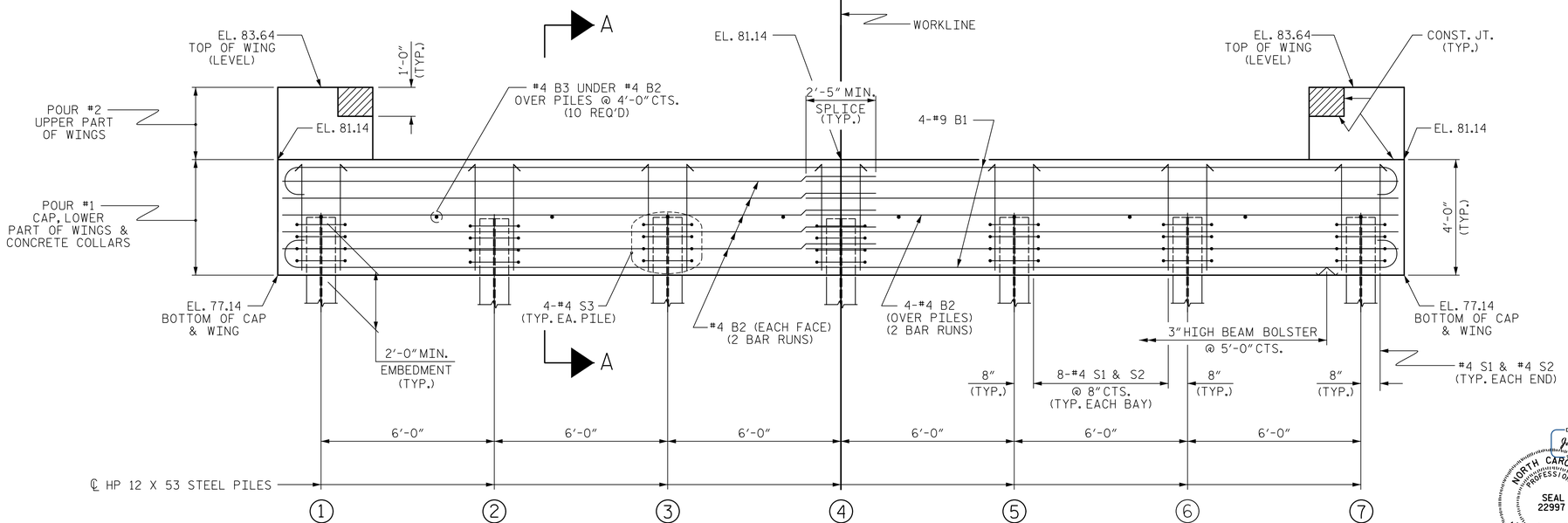
STD. NO. EB_33_90S4



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.

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.

DocuSigned by: James J. Barcomb
12/3/2018

NORTH CAROLINA PROFESSIONAL SEAL 22997 ENGINEER JAMES J. BARCOMB

PROJECT NO. 17BP.4.R.95
WILSON COUNTY
STATION: 15+33.00 -L-

SHEET 2 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT No. 2

REVISIONS						SHEET NO. S-11
NO.	BY	DATE	NO.	BY	DATE	
1			3			TOTAL SHEETS 18
2			4			

ASSEMBLED BY : M. WRIGHT	DATE : 10/18
CHECKED BY : J. BARCOMB	DATE : 10/18
DRAWN BY : WJH 12/11	REV. 4/15 MAA/TMG
CHECKED BY : AAC 12/11	

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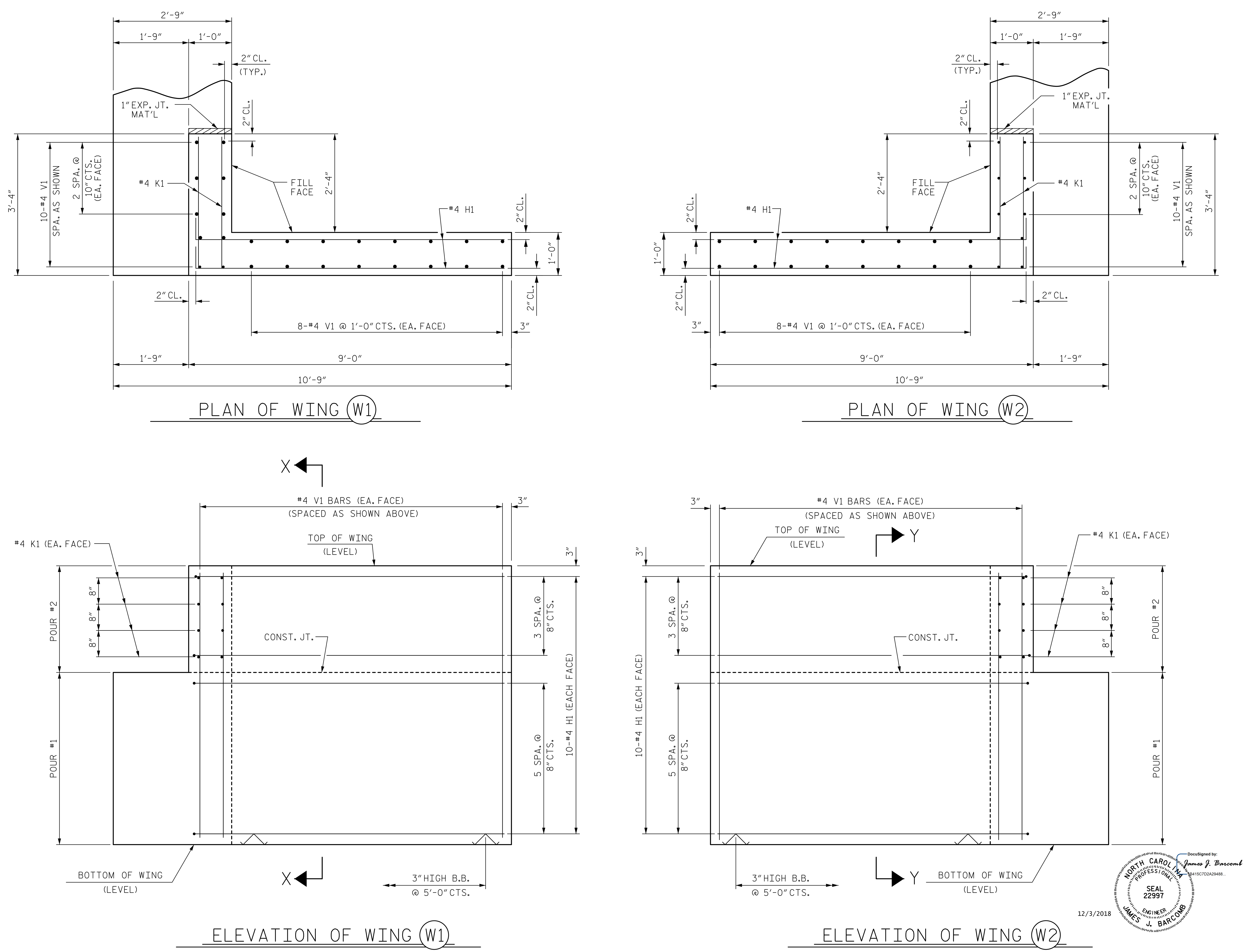
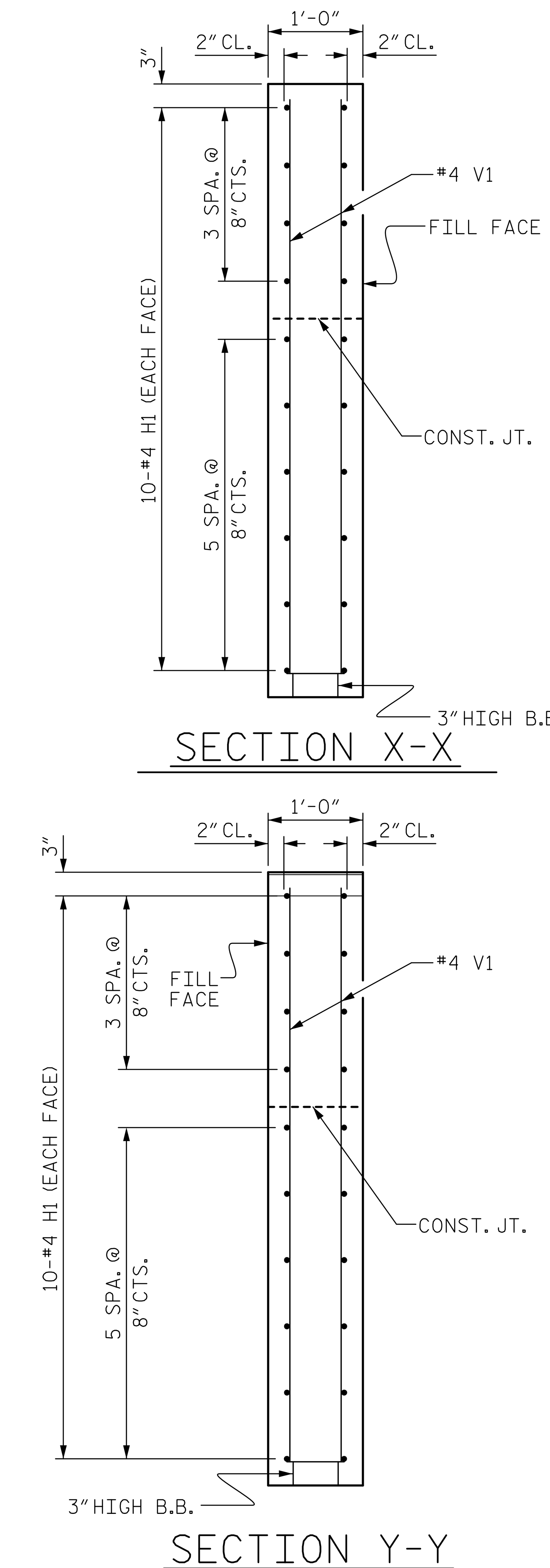
CHECKED BY	J. BARCOMB	DATE 10/18
DESIGN ENGINEER OF RECORD	J. BARCOMB	DATE 10/18

DWG. NO. 11

STD. NO. EB_33_90S4





WING DETAILS

PROJECT NO. 17BP.4.R.95

WILSON COUNTY

STATION: 15+33.00 -L-

SHEET 3 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT
WING DETAILS

DocuSigned by: James J. Barcomb

NORTH CAROLINA PROFESSIONAL SEAL 22997 ENGINEER JAMES J. BARCOMB

12/3/2018

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DRAWN BY	M. WRIGHT	DATE	10/18	DWG. NO. 12	
CHECKED BY	J. BARCOMB	DATE	10/18		
DESIGN ENGINEER OF RECORD	J. BARCOMB	DATE	10/18		

REVISIONS

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

SHEET NO. S-12
TOTAL SHEETS 18

ASSEMBLED BY : M. WRIGHT	DATE : 10/18		
CHECKED BY : J. BARCOMB	DATE : 10/18		
DRAWN BY : WJH 12/11	REV. 4/15	MAA/TMG	
CHECKED BY : AAC 12/11			

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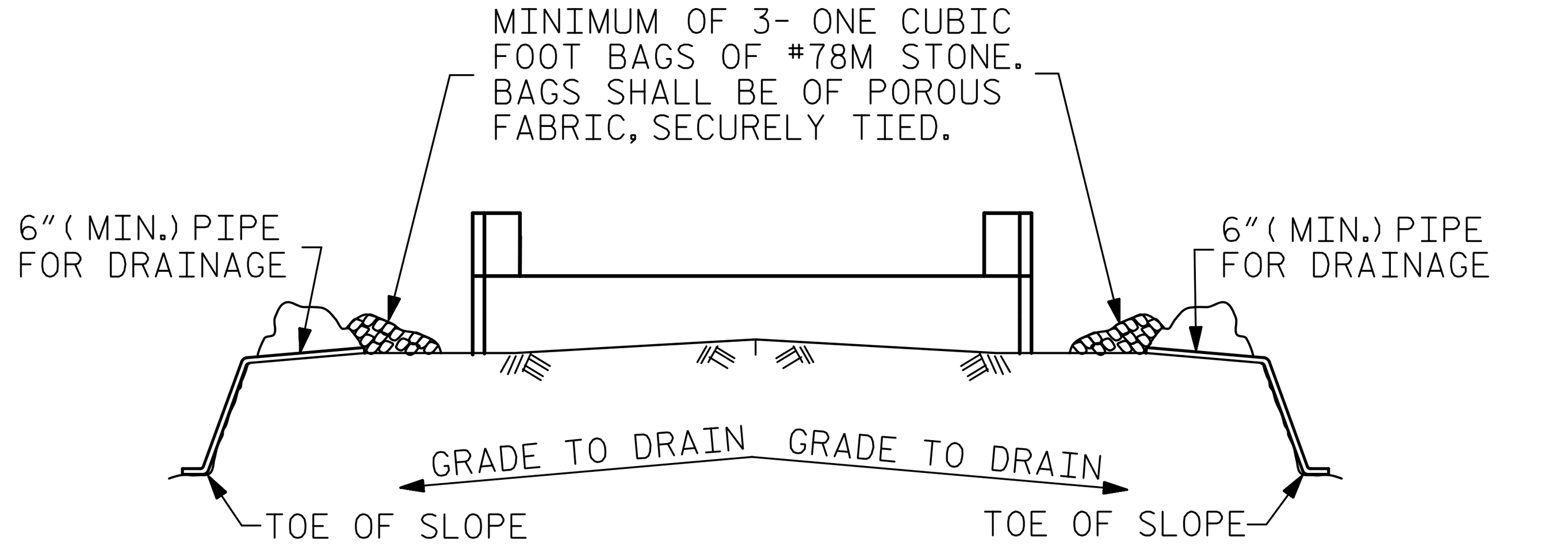
STD. NO. EB_33_90S4

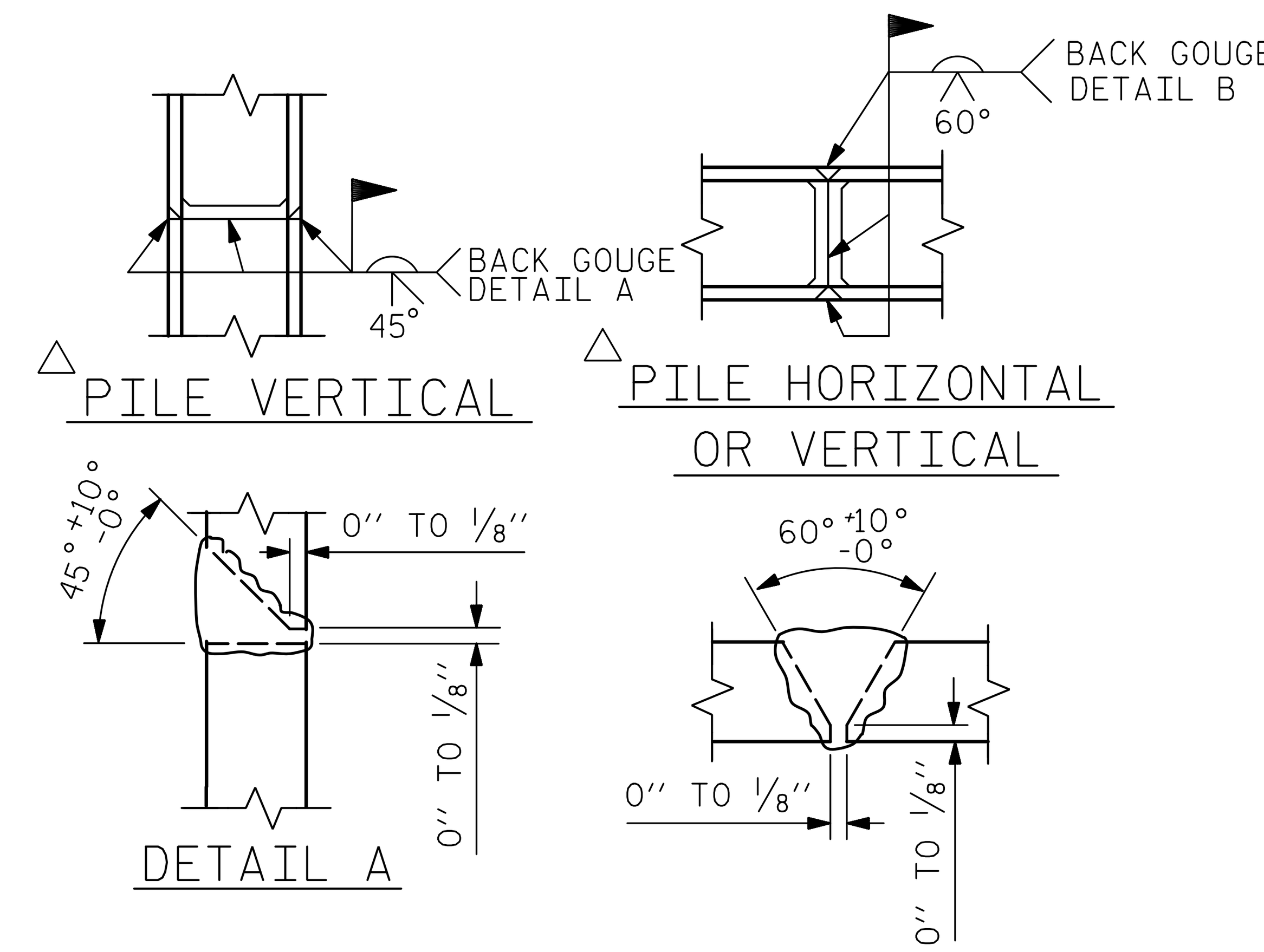


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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.

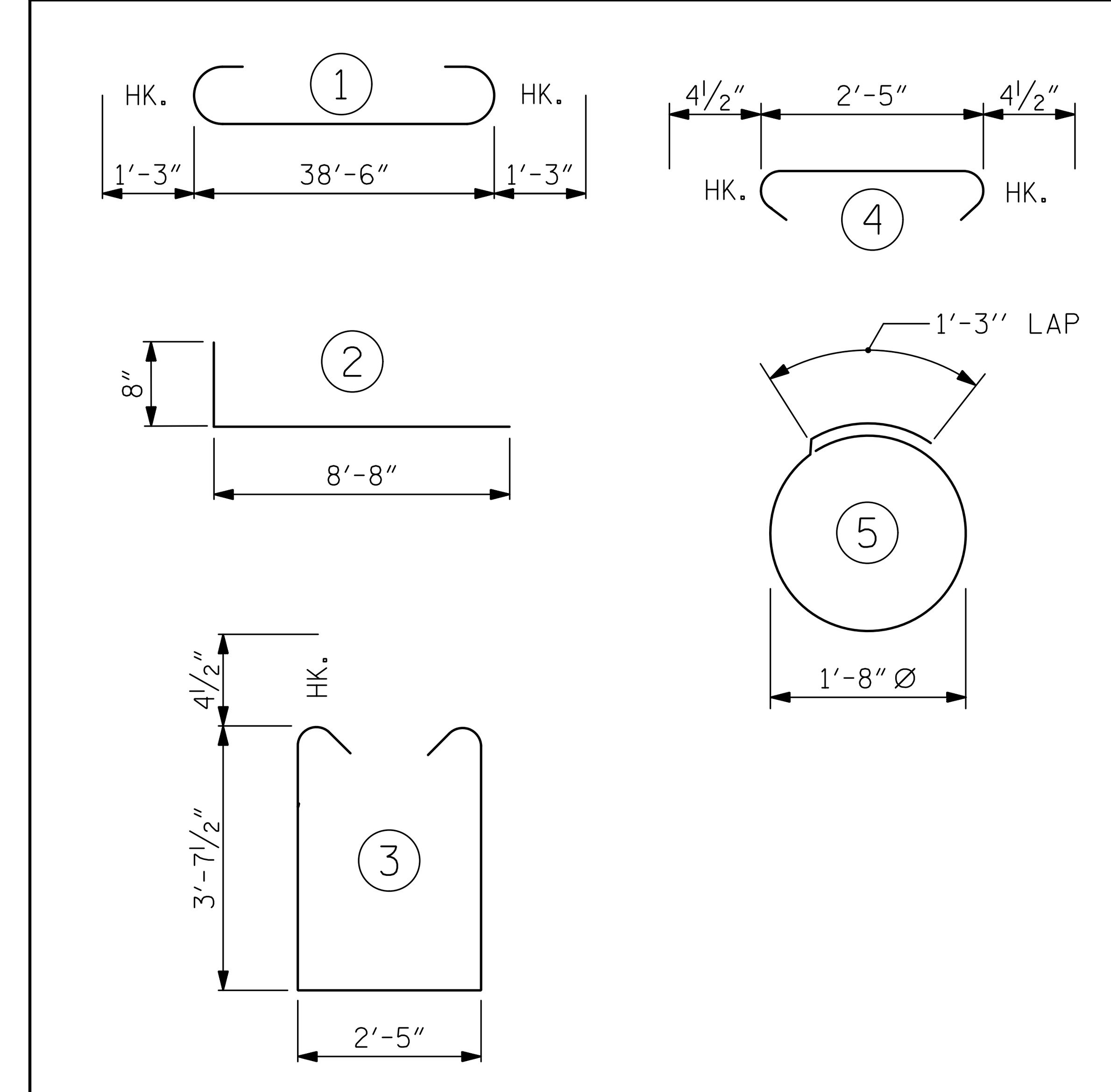
TEMPORARY DRAINAGE AT END BENT



△ POSITION OF PILE DURING WELDING.

PILE SPLICE DETAILS

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

END BENT No. 1	END BENT No. 2
HP 12 X 53 STEEL PILES NO: 7 LIN. FT. = 420	HP 12 X 53 STEEL PILES NO: 7 LIN. FT. = 420
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

BILL OF MATERIAL FOR ONE END BENT

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	41'-0"	1115
B2	28	#4	STR	20'-7"	385
B3	10	#4	STR	2'-5"	16
D1	22	#6	STR	1'-6"	50
H1	40	#4	2	9'-4"	249
K1	16	#4	STR	2'-11"	31
S1	50	#4	3	10'-5"	348
S2	50	#4	4	3'-2"	106
S3	28	#4	5	6'-6"	122
V1	52	#4	STR	6'-2"	214

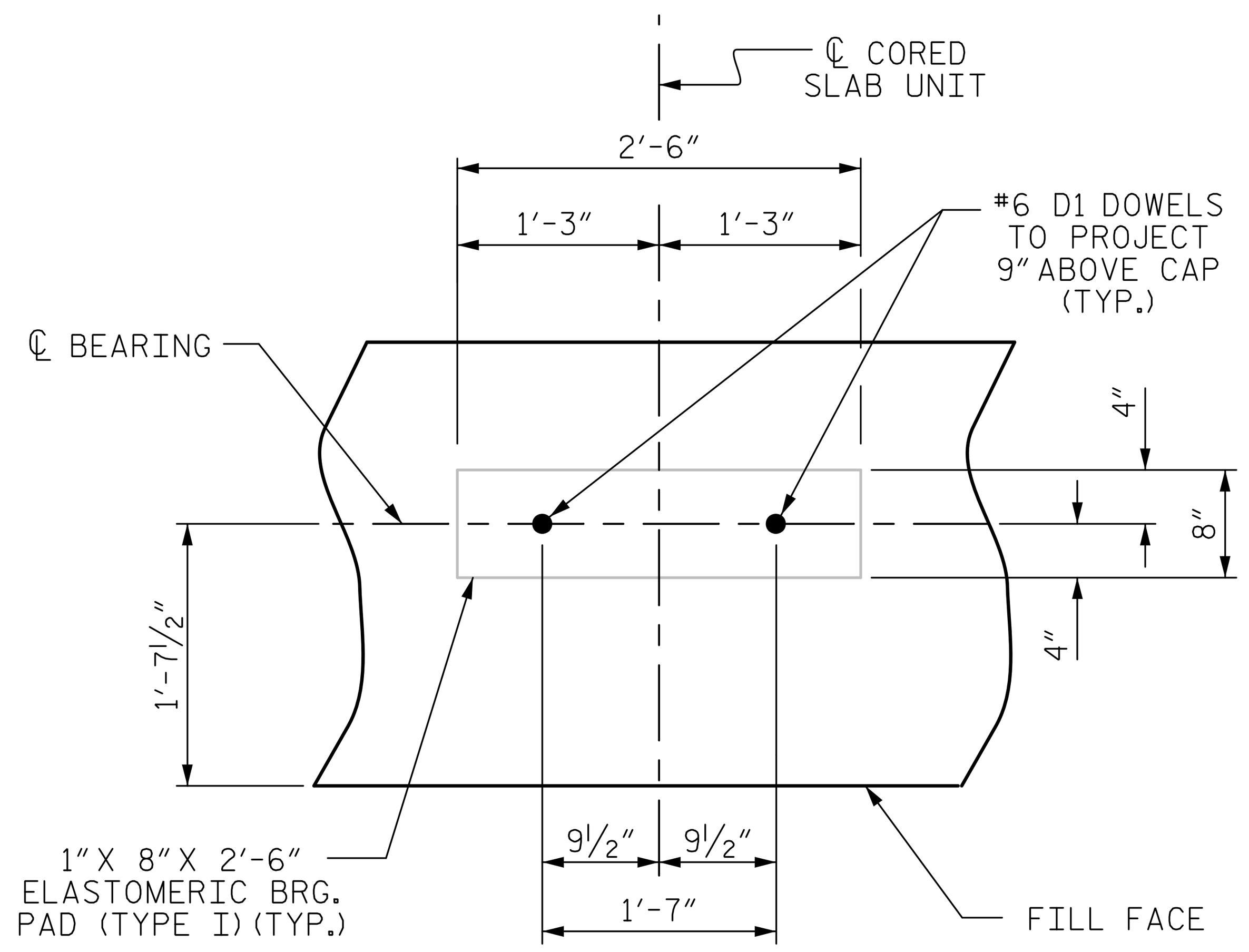
REINFORCING STEEL (FOR ONE END BENT) 2636 LBS.

CLASS A CONCRETE BREAKDOWN (FOR ONE END BENT)

POUR #1 CAP, LOWER PART OF WINGS & COLLARS 19.5 C.Y.

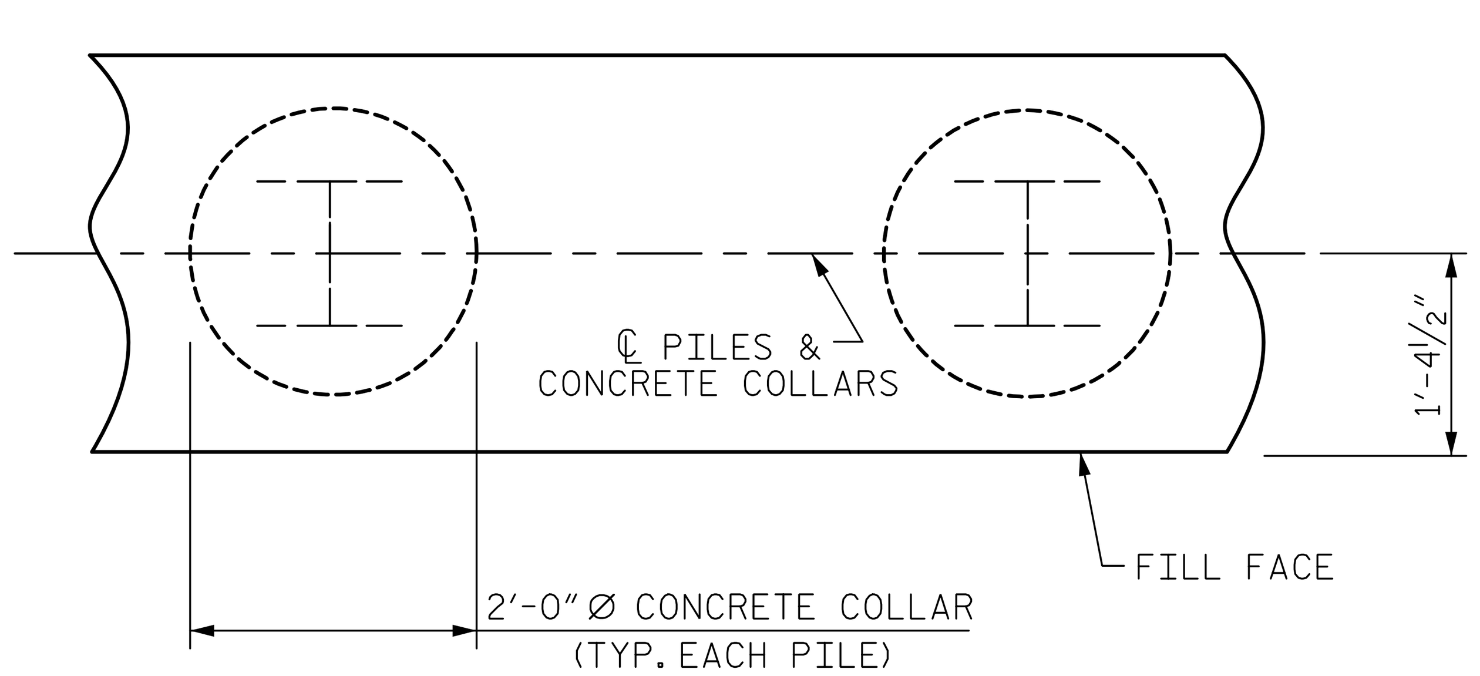
POUR #2 UPPER PART OF WINGS 2.1 C.Y.

TOTAL CLASS A CONCRETE 21.6 C.Y.

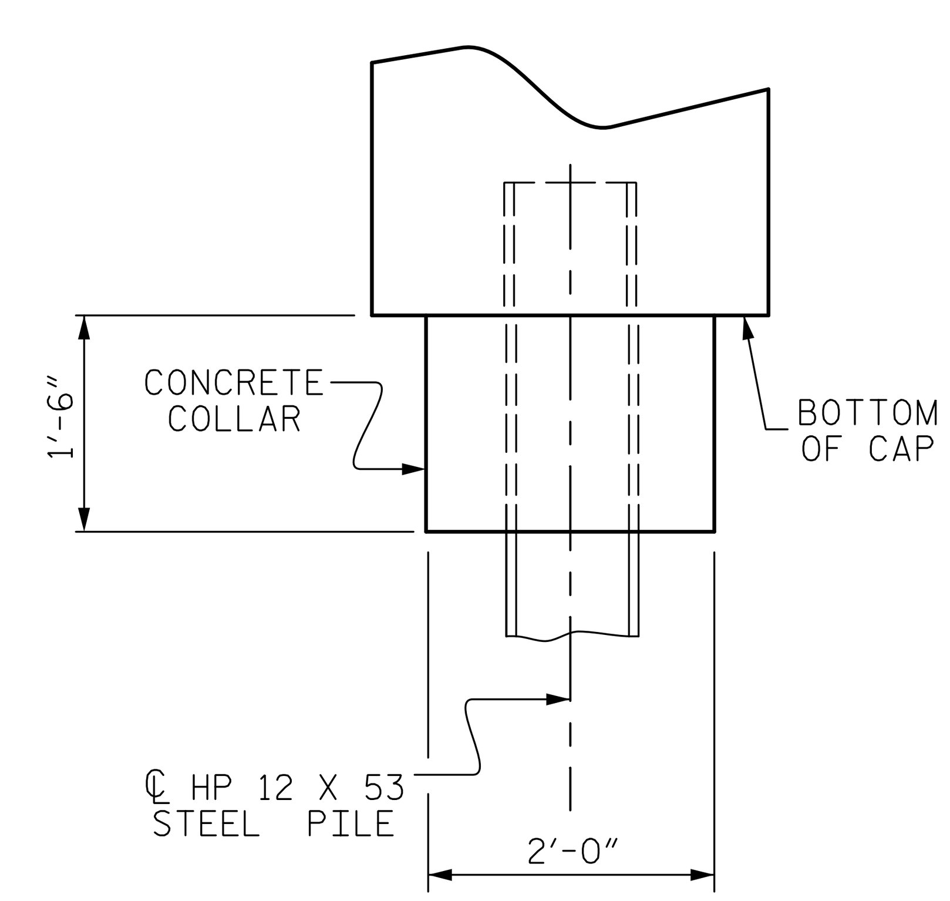


DETAIL "A"

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



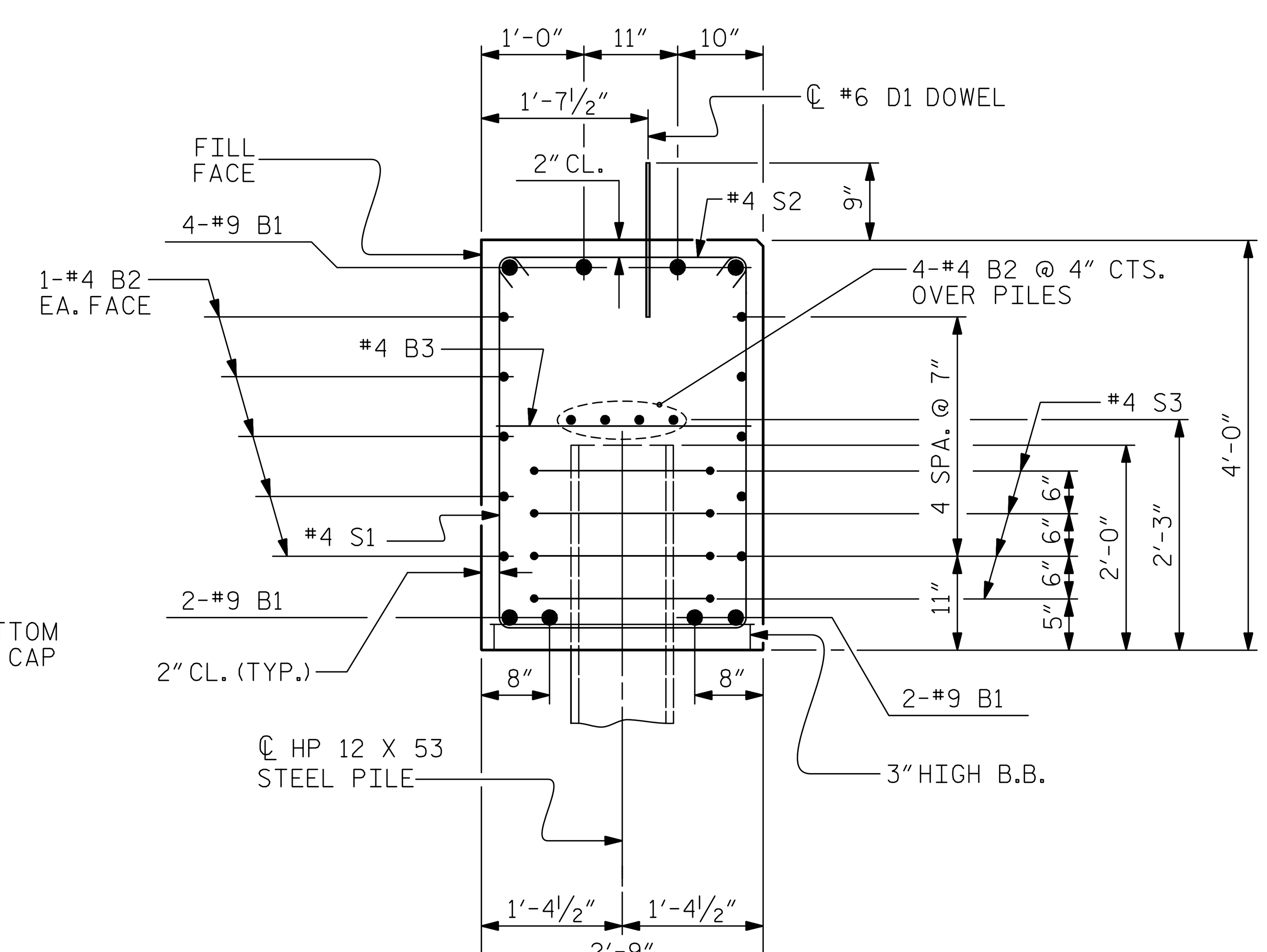
PLAN



ELEVATION

CORROSION PROTECTION FOR STEEL PILES DETAIL

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



SECTION A-A

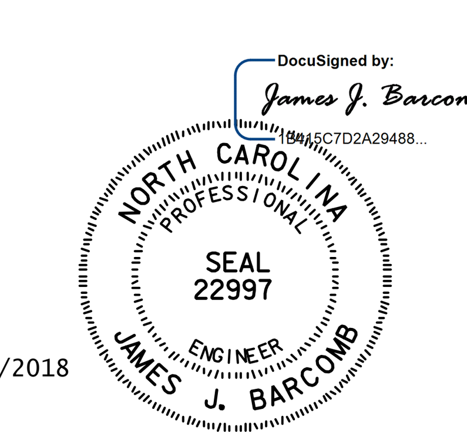
(CONCRETE COLLAR NOT SHOWN FOR CLARITY. SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL.")

PROJECT NO. 17BP.4.R.95

WILSON COUNTY

STATION: 15+33.00 -L-

SHEET 4 OF 4



12/3/2018

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT No. 1 & 2 DETAILS

ASSEMBLED BY : M. WRIGHT	DATE : 10/18
CHECKED BY : J. BARCOMB	DATE : 10/18
DRAWN BY : WJH 12/11	REV. 4/17 MAA/THC
CHECKED BY : AAC 12/11	

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DRAWN BY	M. WRIGHT	DATE 10/18	DWG. NO. 13
CHECKED BY	J. BARCOMB	DATE 10/18	
DESIGN ENGINEER OF RECORD	J. BARCOMB	DATE 10/18	

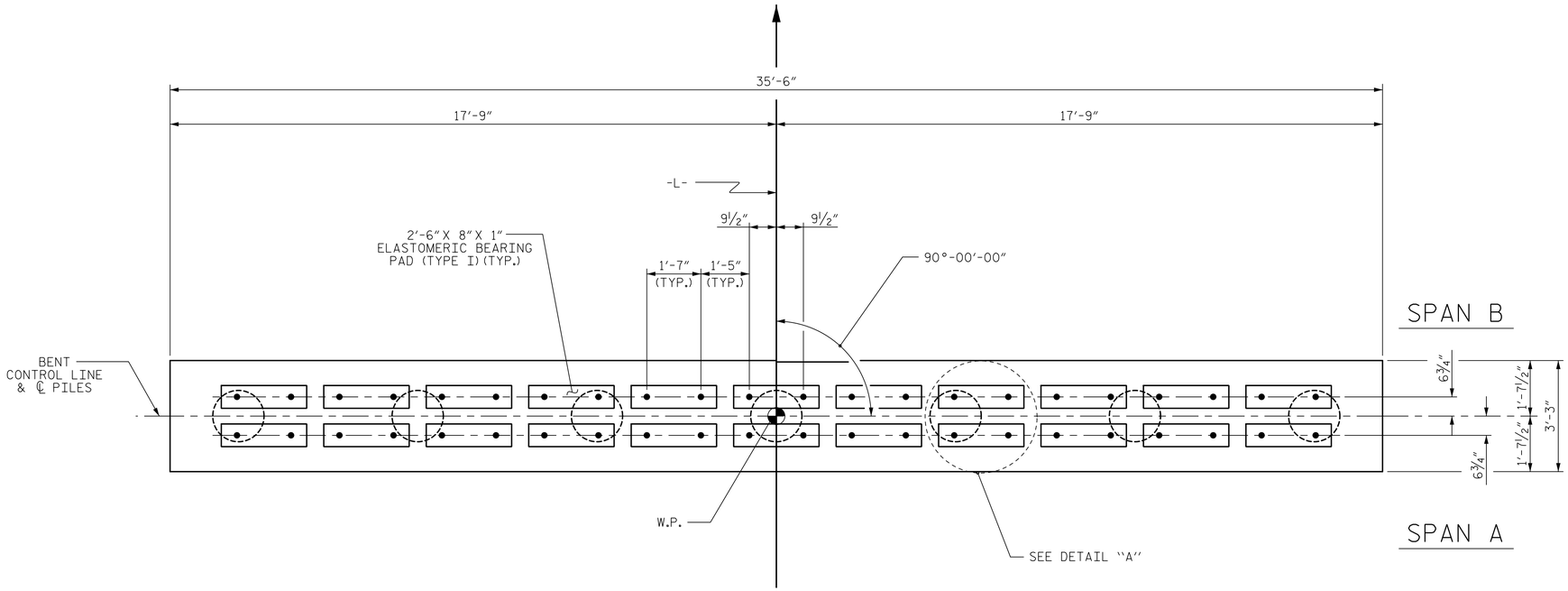
REVISIONS

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

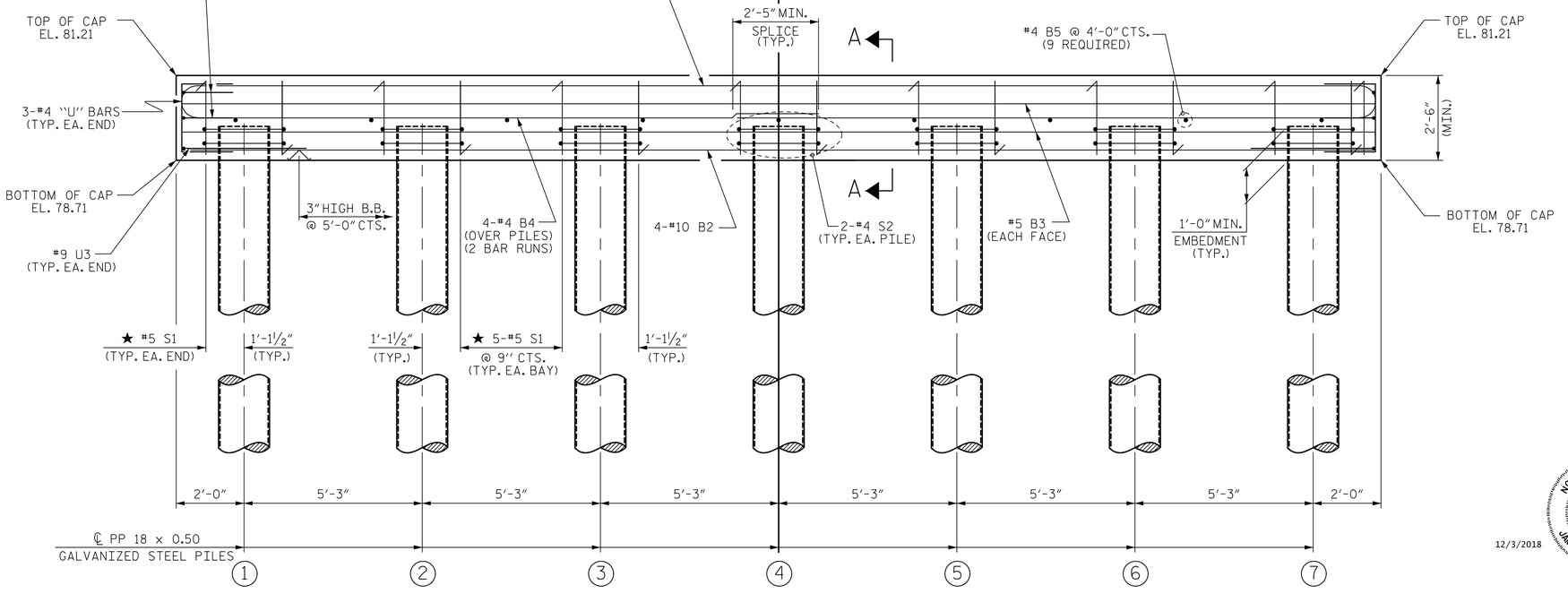
SHEET NO. S-13

TOTAL SHEETS 18

STD. NO. EB_33_90S4



PLAN



ELEVATION

FOR SECTION A-A, SEE SHEET 2 OF 3

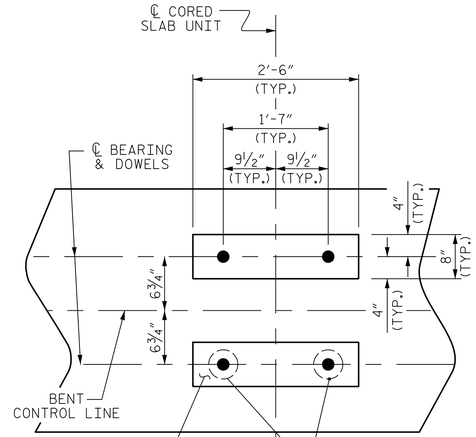
NOTES

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

★ INVERT ALTERNATE STIRRUPS.

FOR ADDITIONAL REINFORCING STEEL IN PP 18 x 0.50 GALVANIZED STEEL PILES, SEE SHEET 3 OF 3.

GALVANIZE THE TOP OF EACH INTERIOR BENT PILE A MINIMUM OF 21 FEET. GALVANIZE IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS.



DETAIL ''A''

(DIMENSIONS ARE TYPICAL EACH BEARING)

PROJECT NO. 17BP.4.R.95

WILSON COUNTY

STATION: 15+33.00 -L-

SHEET 1 OF 2

DocuSigned by: James J. Barcomb

NORTH CAROLINA PROFESSIONAL SEAL 22997 ENGINEER JAMES J. BARCOMB

12/3/2018

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

BENT No. 1

ASSEMBLED BY : M. WRIGHT	DATE : 10/18
CHECKED BY : J. BARCOMB	DATE : 10/18
DRAWN BY : DGE 06/10	REV. 6/17 MAA/THC
CHECKED BY : MKT 06/10	

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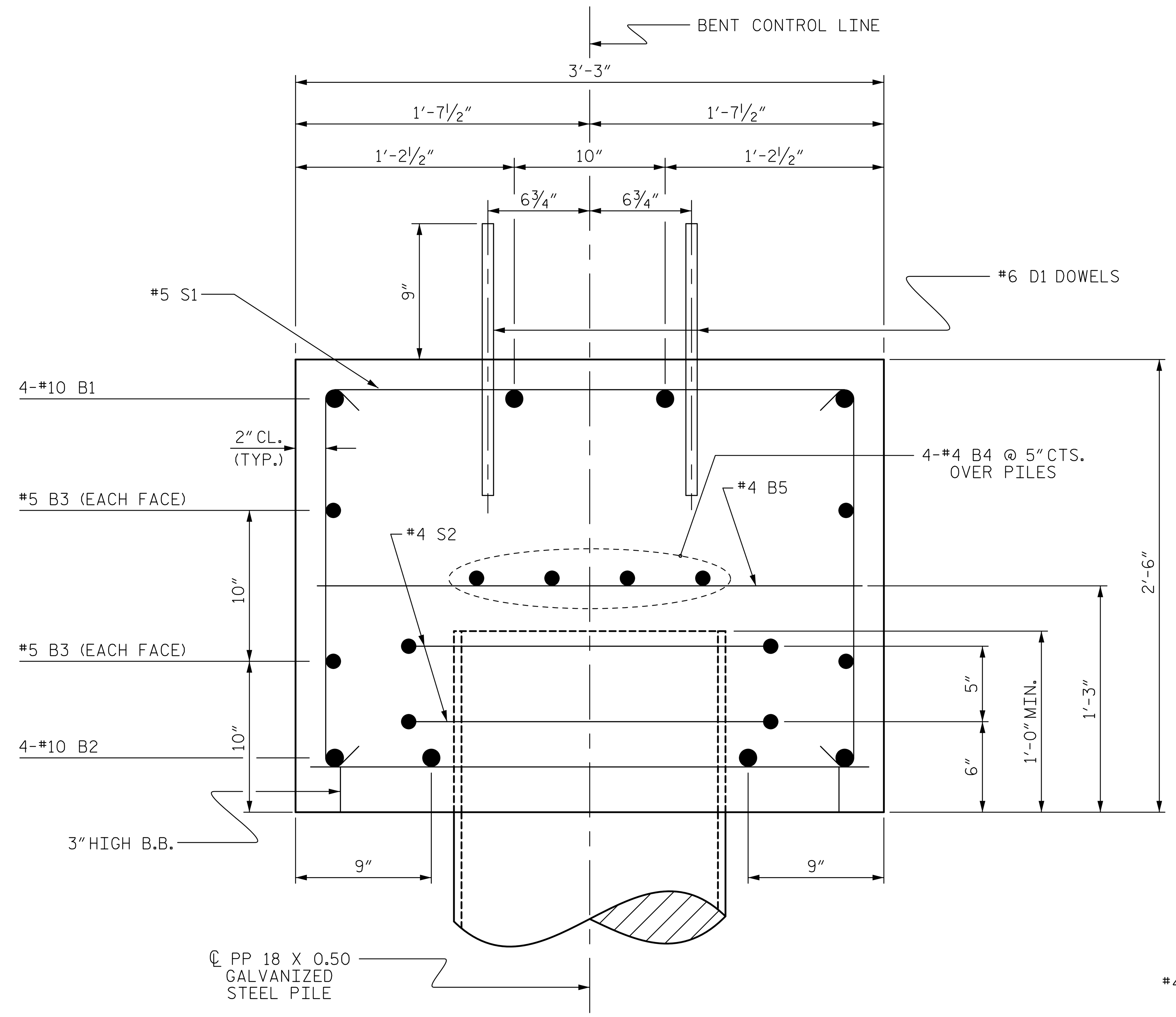
CHECKED BY	J. BARCOMB	DATE 10/18
DESIGN ENGINEER OF RECORD	J. BARCOMB	DATE 10/18

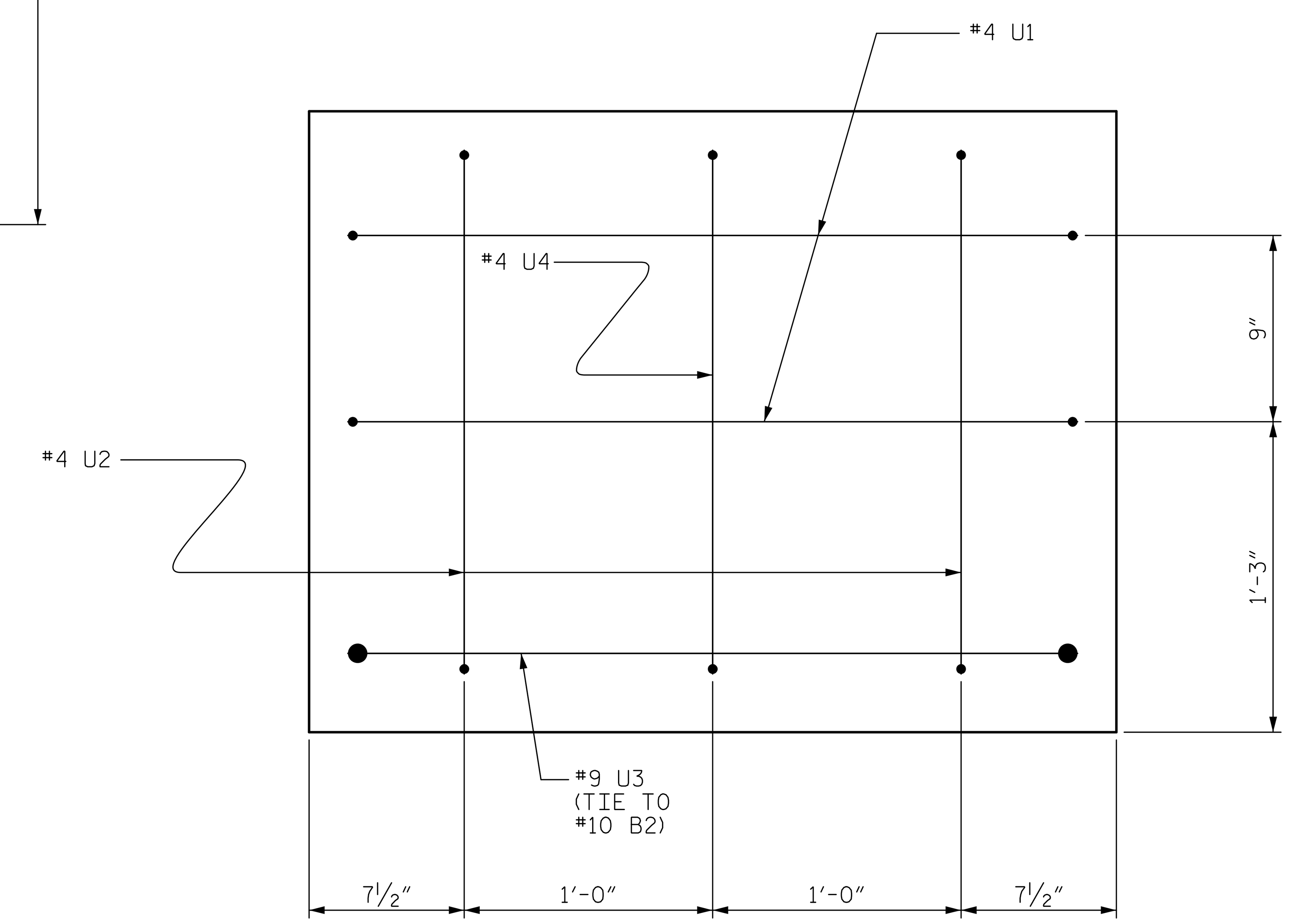
DWG. NO. 14

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-14
1			3			TOTAL SHEETS
2			4			18

STD.NO. 18″PP_BT_33_90S_<60′



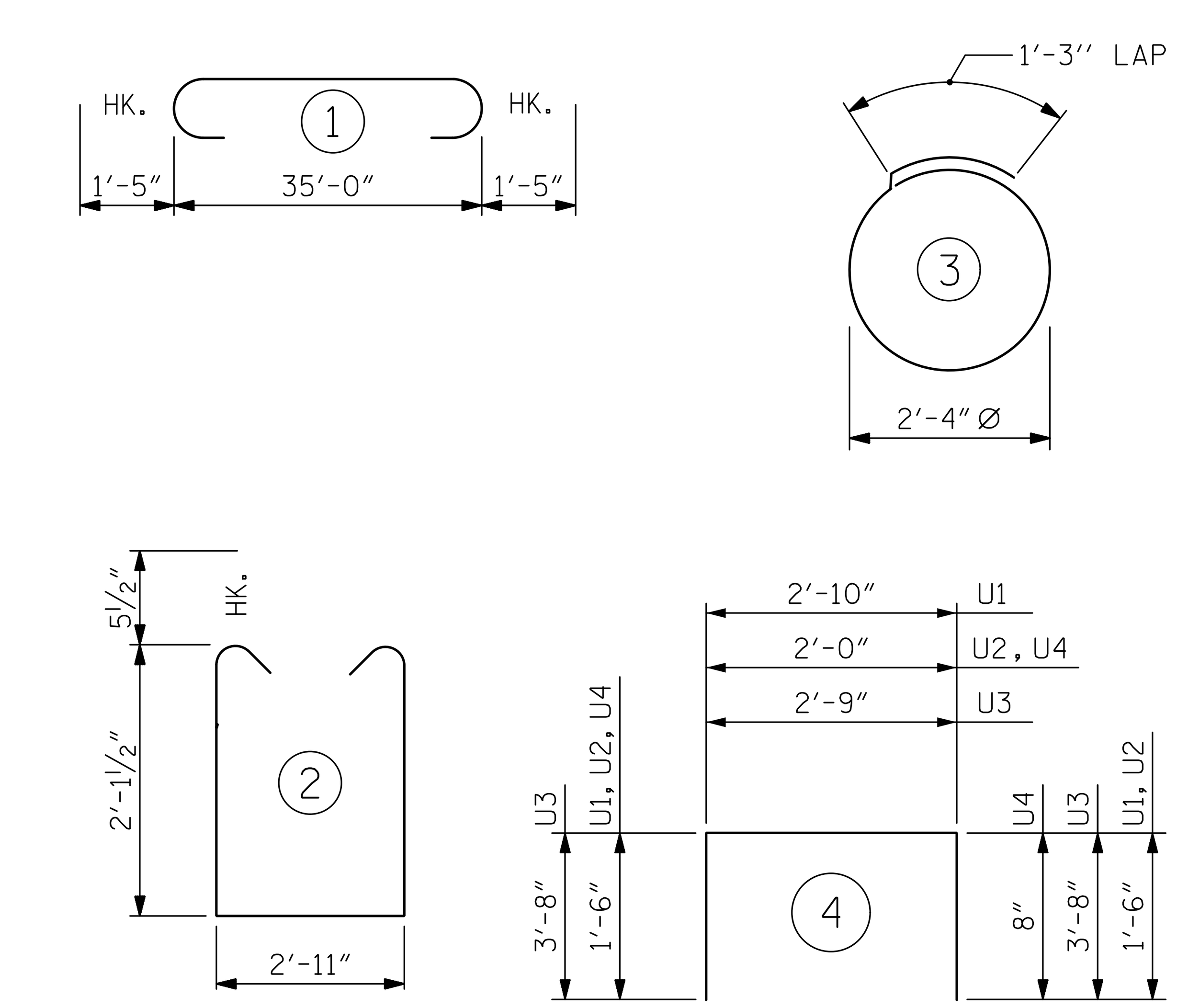
SECTION A-A



END OF CAP VIEW

(TYPICAL BOTH ENDS)

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

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	8	#4	STR	18'-10"	101
B5	9	#4	STR	2'-11"	18
D1	44	#6	STR	1'-6"	99
S1	32	#5	2	8'-1"	270
S2	14	#4	3	8'-7"	80
U1	4	#4	4	5'-10"	16
U2	4	#4	4	5'-0"	13
U3	2	#9	4	10'-1"	69
U4	2	#4	4	4'-2"	6

REINFORCING STEEL (FOR ONE BENT)	2075 LBS
CLASS A CONCRETE BREAKDOWN (FOR ONE BENT)	
TOTAL CLASS A CONCRETE	▲ 10.2 C.Y.
PP 18 x 0.50 GALVANIZED STEEL PILES (FOR ONE BENT) No. 7	LIN. FT. 385
PIPE PILE PLATES	NO. 7
PILE EXCAVATION IN SOIL	LIN. FT. 0
PILE EXCAVATION NOT IN SOIL	LIN. FT. 0
PILE DRIVING EQUIPMENT SETUP FOR PP 18 x 0.50 GALVANIZED STEEL PILES (FOR ONE BENT)	NO. 7
PILE REDRIVES	NO. 4

▲ CONCRETE DISPLACED BY THE PP 18 x 0.50 GALVANIZED STEEL PILES HAS BEEN DEDUCTED FROM THE CONCRETE QUANTITY.

PROJECT NO. 17BP.4.R.95

WILSON COUNTY

STATION: 15+33.00 -L-

SHEET 2 OF 2

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NORTH CAROLINA PROFESSIONAL SEAL 22997 ENGINEER JAMES J. BARCOMB

12/3/2018

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

BENT No. 1

ASSEMBLED BY : M. WRIGHT	DATE : 10/18
CHECKED BY : J. BARCOMB	DATE : 10/18
DRAWN BY : DGE 05/10	REV. 6/17 MAA/THC
CHECKED BY : MKT 05/10	

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DRAWN BY M. WRIGHT DATE 10/18
CHECKED BY J. BARCOMB DATE 10/18
DESIGN ENGINEER OF RECORD J. BARCOMB DATE 10/18

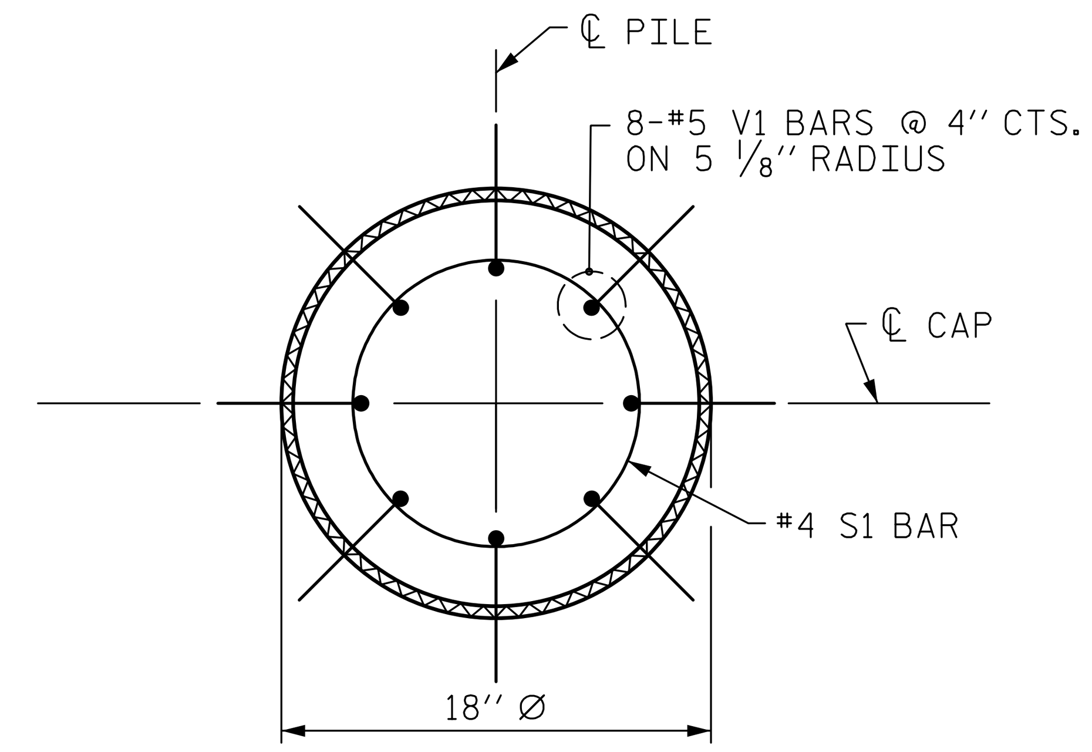
DWG. NO. 15

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

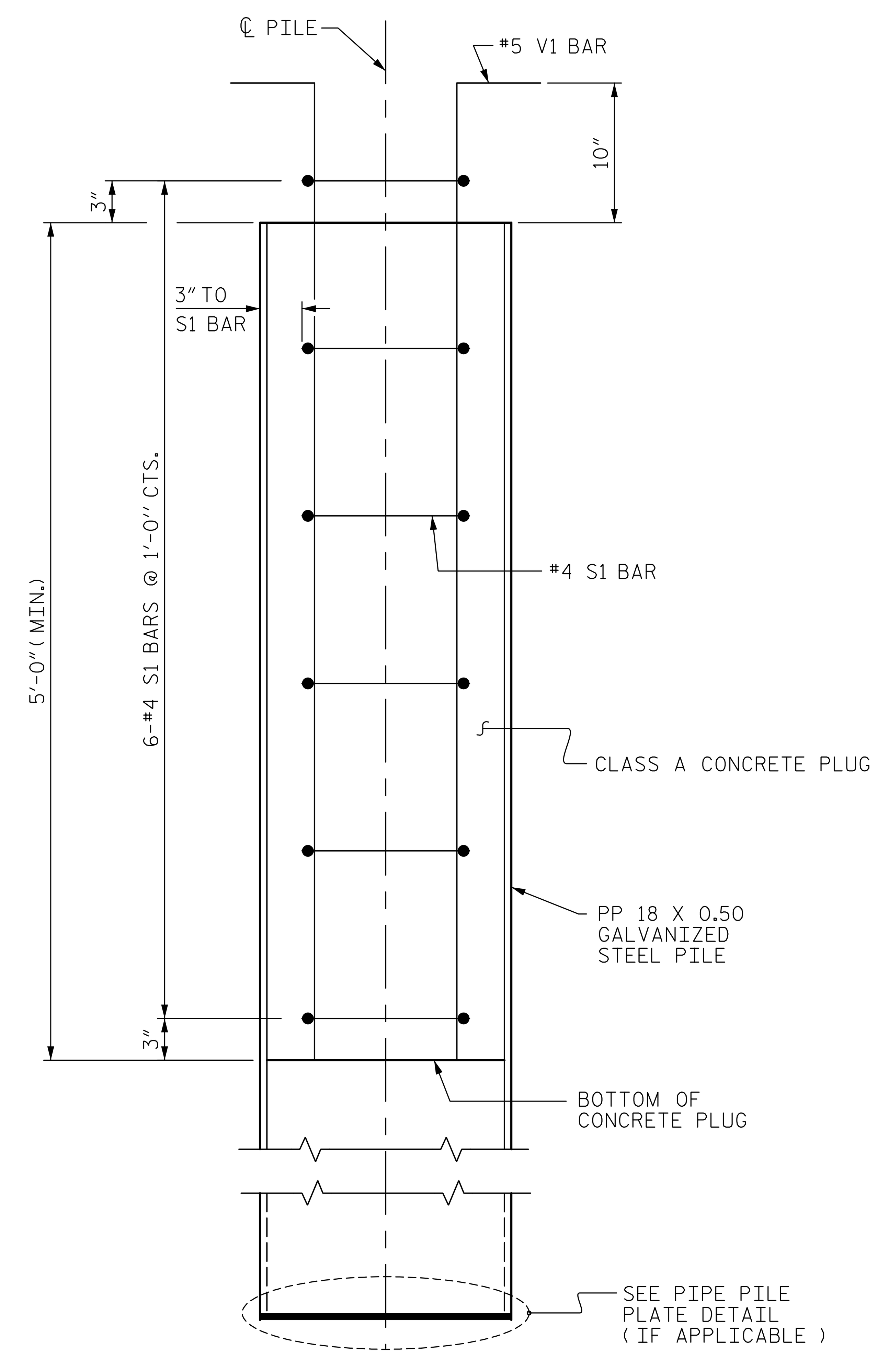
SHEET NO. S-15

TOTAL SHEETS 18

STD. NO. 18"PP_BT_33_90S_<60'



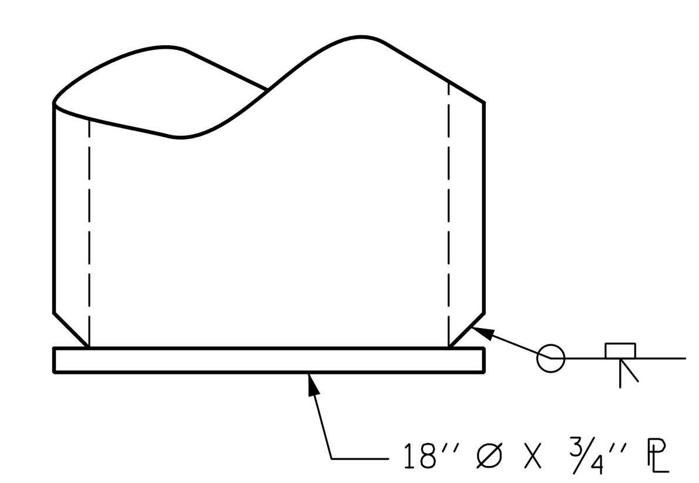
PLAN



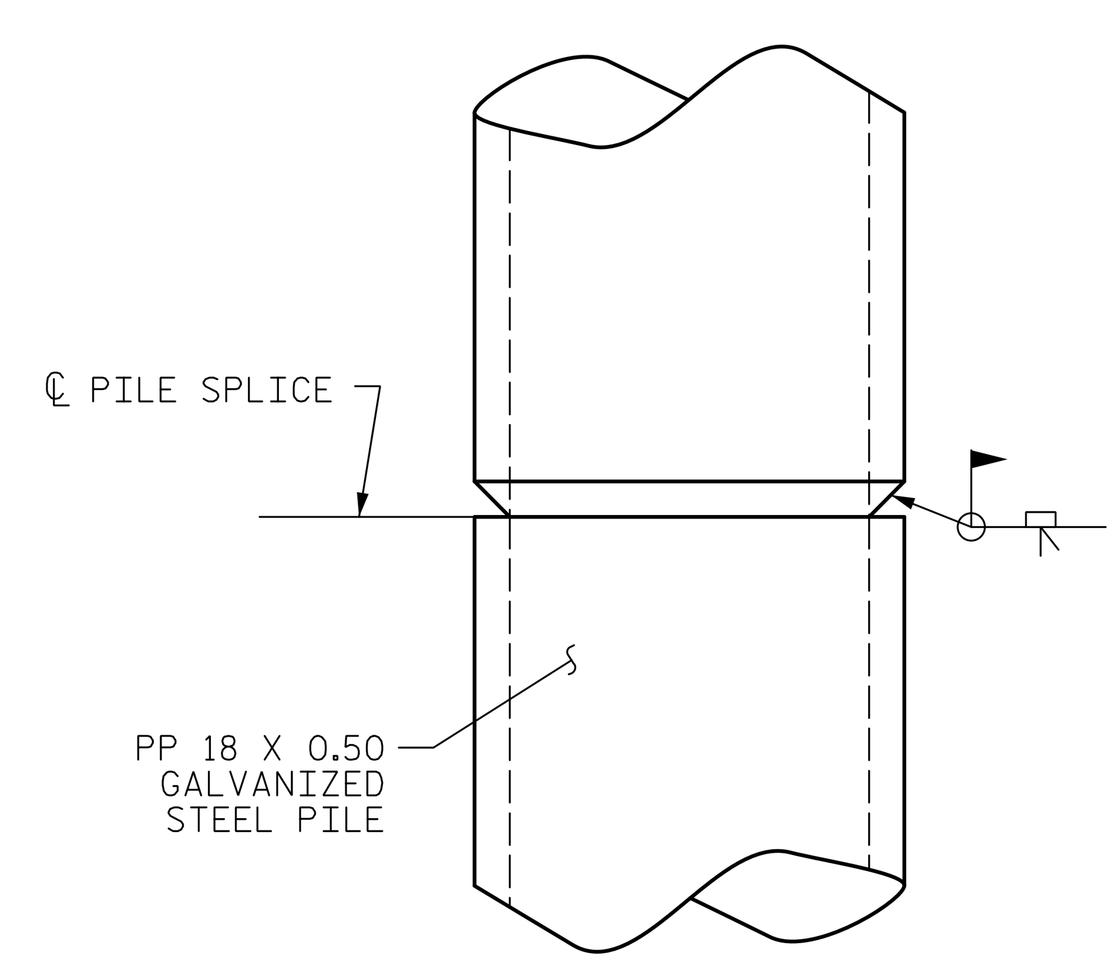
ELEVATION

PP 18 X 0.50 GALVANIZED STEEL PILE

(OPEN OR CLOSED END)



PIPE PILE PLATE DETAIL
(IF APPLICABLE)



PIPE PILE SPLICE DETAIL

NOTES

PIPE PILES SHALL BE IN ACCORDANCE WITH SECTION 1084 OF THE STANDARD SPECIFICATIONS.

GALVANIZE STEEL PIPE PILES IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS UNLESS METALLIZING IS REQUIRED. GALVANIZING OR METALLIZING PIPE PILE PLATES IS NOT REQUIRED.

PIPE PILE PLATES, IF REQUIRED, SHALL BE IN ACCORDANCE WITH SECTION 450 OF THE STANDARD SPECIFICATIONS.

REMOVE AND REPLACE OR REPAIR TO THE SATISFACTION OF THE ENGINEER PILES THAT ARE DAMAGED, DEFORMED OR COLLAPSED DURING INSTALLATION OR DRIVING.

PILE SPLICES SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS AND AWS D1.1.

FOR CLOSED END PIPE PILES, REMOVE ALL SOIL AND WATER FROM INSIDE THE PILES JUST PRIOR TO PLACING REINFORCING STEEL AND CONCRETE FOR THE CONCRETE PLUG.

FOR OPEN END PIPE PILES, REMOVE ENOUGH SOIL AND WATER FROM INSIDE THE PILES TO CONSTRUCT THE CONCRETE PLUG WITHOUT FOULING THE CONCRETE.

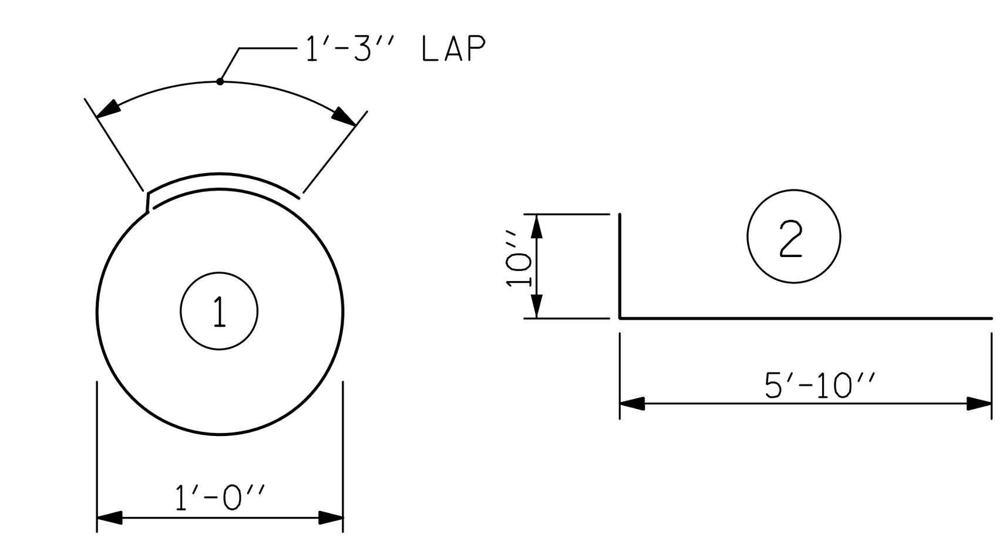
FORM THE CONCRETE PLUG SUCH THAT THE REINFORCING STEEL OR CONCRETE DOES NOT MOVE AND THE CLEARANCE FROM THE REINFORCING STEEL TO THE INSIDE OF THE PILE IS MAINTAINED AFTER CONCRETE PLACEMENT. DO NOT PLACE CONCRETE IN THE BENT CAP UNTIL THE CONCRETE PLUG HAS ATTAINED A MINIMUM COMPRESSIVE STRENGTH OF 1500 PSI.

THE REINFORCING STEEL, CLASS A CONCRETE, AND GALVANIZING ARE CONSIDERED INCIDENTAL TO THE CONTRACT UNIT PRICE BID PER LINEAR FOOT FOR PP 18 X 0.50 GALVANIZED STEEL PILES.

BILL OF MATERIAL FOR ONE PP 18 X 0.50 GALVANIZED STEEL PILE

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
S1	6	#4	1	4'-5''	18
V1	8	#5	2	6'-8''	56
REINFORCING STEEL =				74	lbs
CLASS A CONCRETE					
5'-0'' MINIMUM PLUG					0.3 CY

BAR TYPES

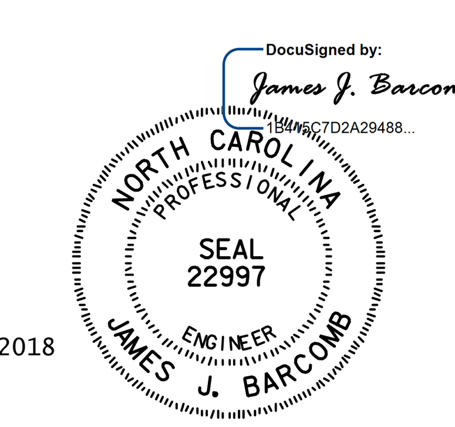


ALL BAR DIMENSIONS ARE OUT TO OUT.

PROJECT NO. 17BP.4.R.95

WILSON COUNTY

STATION: 15+33.00 -L-



12/3/2018

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

18'' STEEL PIPE PILE

ASSEMBLED BY : M. WRIGHT	DATE : 10/18
CHECKED BY : J. BARCOMB	DATE : 10/18

DRAWN BY : RWW 1/01	REV. 5/1/06R MAA/KMM
CHECKED BY : LES 1/01	REV. 10/1/11 MAA/GM
	REV. 12/17 MAA/THC

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DRAWN BY M. WRIGHT DATE 10/18
CHECKED BY J. BARCOMB DATE 10/18
DESIGN ENGINEER OF RECORD J. BARCOMB DATE 10/18

DWG. NO. 16

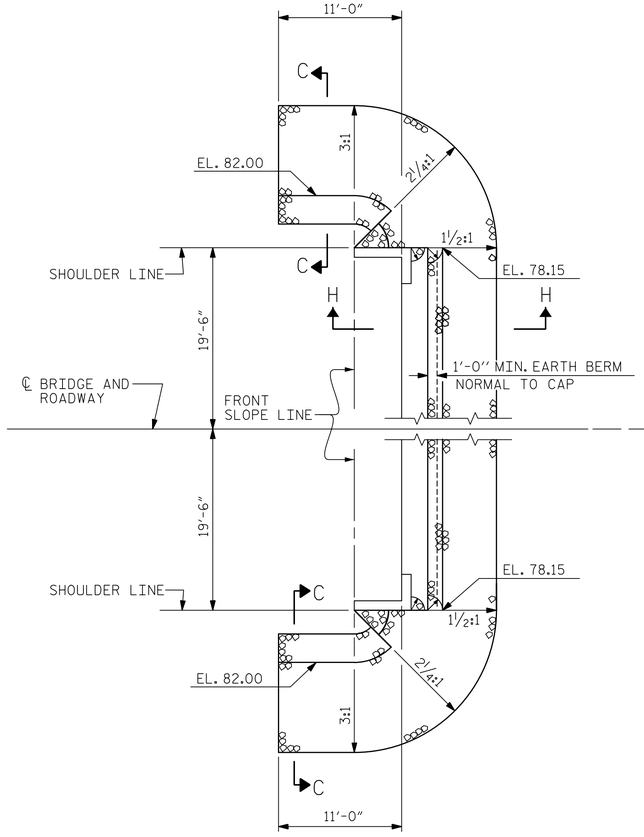
REVISIONS

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

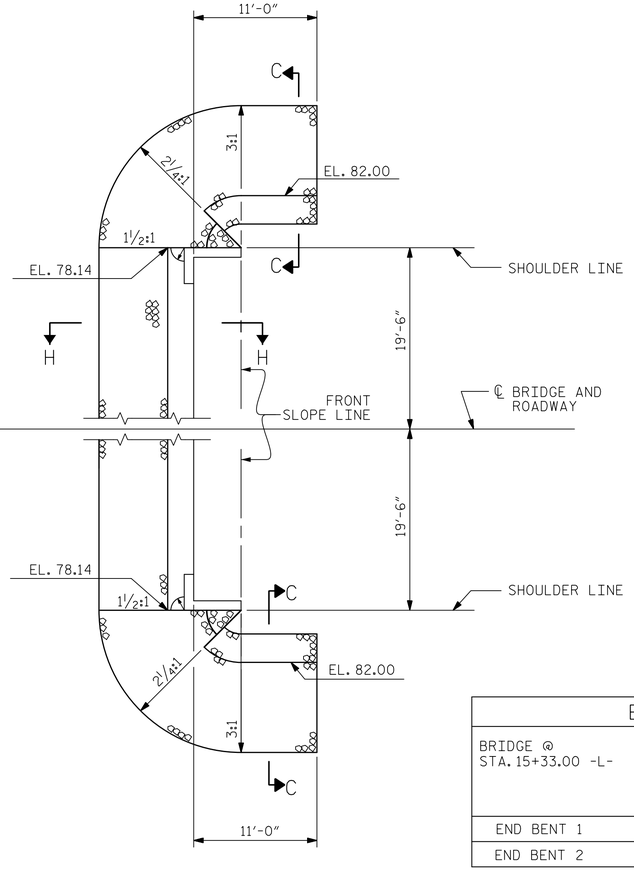
SHEET NO. S-16

TOTAL SHEETS 18

STD. NO. SPP3



END BENT 1



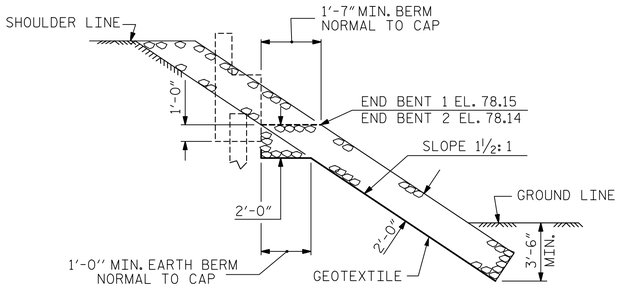
END BENT 2

NOTES :

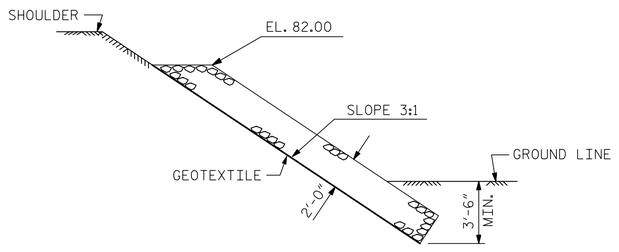
FOR BERM WIDTH DIMENSIONS, SEE GENERAL DRAWING.

ESTIMATED QUANTITIES

BRIDGE @ STA. 15+33.00 -L-	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	125	140
END BENT 2	125	140



SECTION H-H



SECTION C-C

PROJECT NO. 17BP.4.R.95

WILSON COUNTY

STATION: 15+33.00 -L-

DocuSigned by: James J. Barcomb

12/3/2018

NORTH CAROLINA PROFESSIONAL SEAL 22997 ENGINEER JAMES J. BARCOMB

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

RIP RAP DETAILS

ASSEMBLED BY : M. WRIGHT	DATE : 10/18
CHECKED BY : J. BARCOMB	DATE : 10/18
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

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

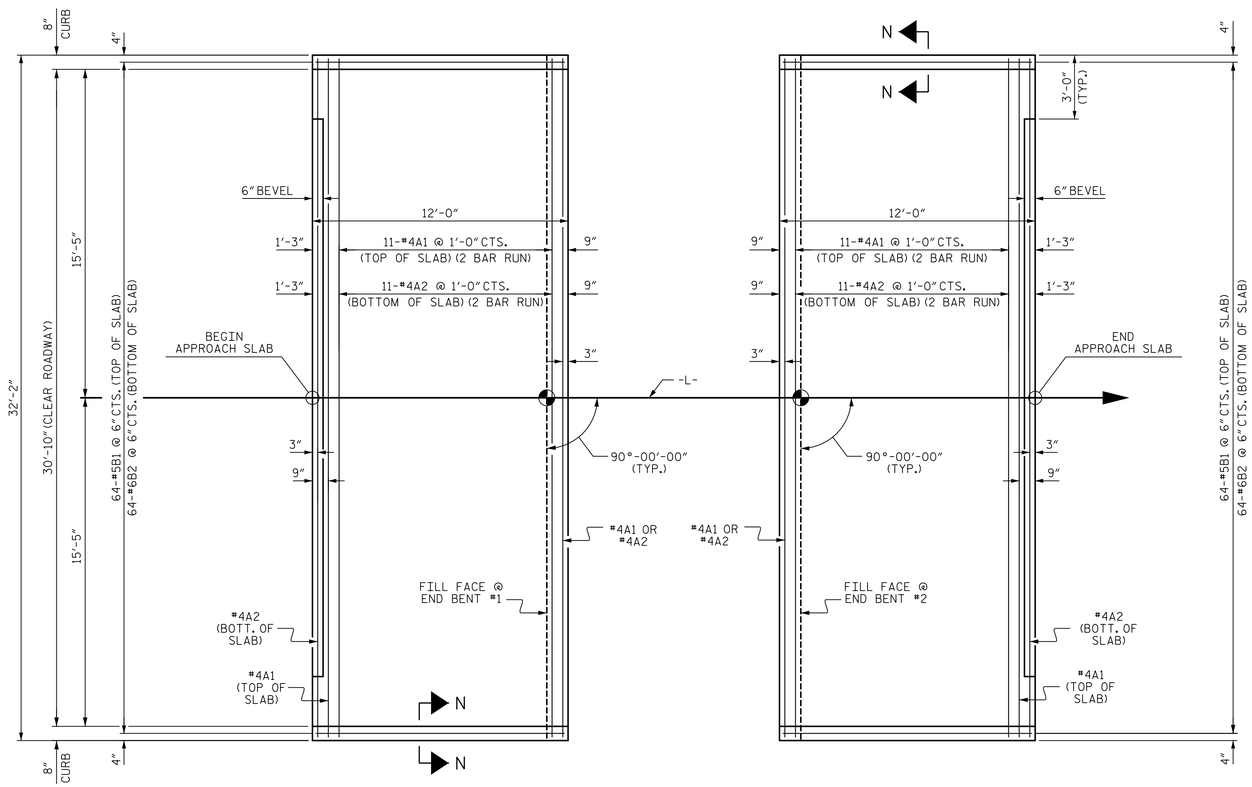
HNTB NORTH CAROLINA, P.C.
NC License No. C-1554
343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609

DRAWN BY M. WRIGHT DATE 10/18
CHECKED BY J. BARCOMB DATE 10/18
DESIGN ENGINEER OF RECORD J. BARCOMB DATE 10/18

DWG. NO. 17

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-17
1			3			TOTAL SHEETS
2			4			18

STD. NO. RR1



PLAN @ END BENT #1

PLAN @ END BENT #2

DIMENSIONS SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS

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.

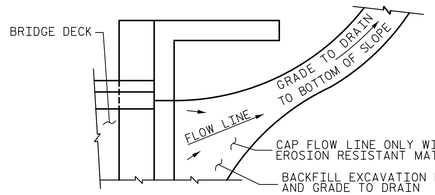
SELECT MATERIAL BACKFILL (CLASS V OR CLASS VI) SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS SECTION 1016.

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.

BILL OF MATERIAL

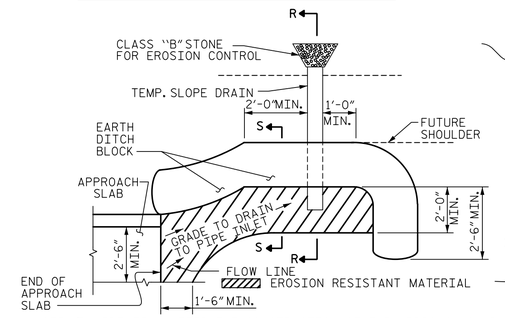
APPROACH SLAB AT EB #1

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

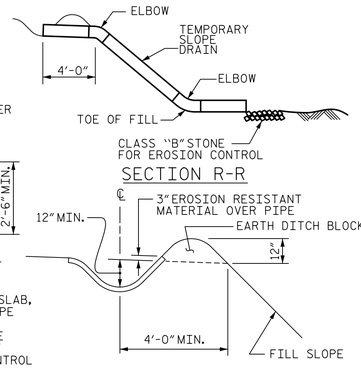
APPROACH SLAB AT EB #2

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.	18.4

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.

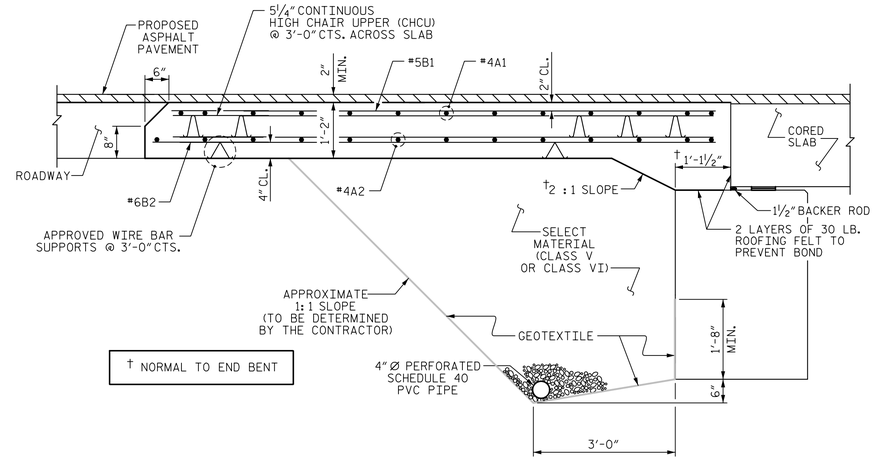


SECTION S-S

PLAN VIEW

TEMPORARY BERM AND SLOPE DRAIN DETAILS

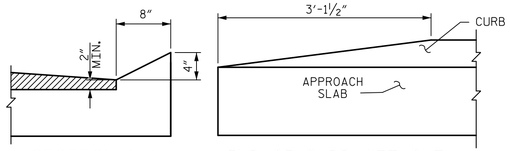
(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)



† NORMAL TO END BENT

SECTION THRU SLAB

(TYPE II - MODIFIED APPROACH FILL)



SECTION N-N

END OF CURB WITHOUT SHOULDER BERM GUTTER

CURB DETAILS

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

DocuSigned by: James J. Barcomb 12/3/2018

NORTH CAROLINA PROFESSIONAL SEAL 22997 ENGINEER JAMES J. BARCOMB

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

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

PROJECT NO. 17BP.4.R.95

WILSON COUNTY

STATION: 15+33.00 -L-

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

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DRAWN BY M. WRIGHT DATE 10/18
CHECKED BY J. BARCOMB DATE 10/18
DESIGN ENGINEER OF RECORD J. BARCOMB DATE 10/18

DWG. NO. 18

ASSEMBLED BY : M. WRIGHT DATE : 10/18
CHECKED BY : J. BARCOMB DATE : 10/18

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

REV. 12-17 MAA/THC

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STD. NO. BAS_33_90S

STANDARD NOTES

DESIGN DATA:

SPECIFICATIONS	A.A.S.H.T.O. (CURRENT)
LIVE LOAD	SEE PLANS
IMPACT ALLOWANCE	SEE A.A.S.H.T.O.
STRESS IN EXTREME FIBER OF STRUCTURAL STEEL - AASHTO M270 GRADE 36	20,000 LBS. PER SQ. IN.
- AASHTO M270 GRADE 50W	27,000 LBS. PER SQ. IN.
- AASHTO M270 GRADE 50	27,000 LBS. PER SQ. IN.
REINFORCING STEEL IN TENSION - GRADE 60	24,000 LBS. PER SQ. IN.
CONCRETE IN COMPRESSION	1,200 LBS. PER SQ. IN.
CONCRETE IN SHEAR	SEE A.A.S.H.T.O.
STRUCTURAL TIMBER - TREATED OR UNTREATED EXTREME FIBER STRESS	1,800 LBS. PER SQ. IN.
COMPRESSION PERPENDICULAR TO GRAIN OF TIMBER	375 LBS. PER SQ. IN.
EQUIVALENT FLUID PRESSURE OF EARTH	30 LBS. PER CU. FT. (MINIMUM)

MATERIAL AND WORKMANSHIP:

EXCEPT AS MAY OTHERWISE BE SPECIFIED ON PLANS OR IN THE SPECIAL PROVISIONS, ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE 2018 "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" OF THE N. C. DEPARTMENT OF TRANSPORTATION.

STEEL SHEET PILING FOR PERMANENT OR TEMPORARY APPLICATIONS SHALL BE HOT ROLLED.

CONCRETE:

UNLESS OTHERWISE REQUIRED ON PLANS, CLASS A CONCRETE SHALL BE USED FOR ALL PORTIONS OF ALL STRUCTURES WITH THE EXCEPTION THAT: CLASS AA CONCRETE SHALL BE USED IN BRIDGE SUPERSTRUCTURES, ABUTMENT BACKWALLS, AND APPROACH SLABS; AND CLASS B CONCRETE SHALL BE USED FOR SLOPE PROTECTION AND RIP RAP.

CONCRETE CHAMFERS:

UNLESS OTHERWISE NOTED ON THE PLANS, ALL EXPOSED CORNERS ON STRUCTURES SHALL BE CHAMFERED ¾" WITH THE FOLLOWING EXCEPTIONS: TOP CORNERS OF CURBS MAY BE ROUNDED TO 1½" RADIUS WHICH IS BUILT INTO CURB FORMS; CORNERS OF TRANSVERSE FLOOR EXPANSION JOINTS SHALL BE ROUNDED WITH A ¼" FINISHING TOOL UNLESS OTHERWISE REQUIRED ON PLANS; AND CORNERS OF EXPANSION JOINTS IN THE ROADWAY FACES AND TOPS OF CURBS AND SIDEWALKS SHALL BE ROUNDED TO A ¼" RADIUS WITH A FINISHING STONE OR TOOL UNLESS OTHERWISE REQUIRED ON PLANS.

DOWELS:

DOWELS WHEN INDICATED ON PLANS AS FOR CULVERT EXTENSIONS, SHALL BE EMBEDDED AT LEAST 12" INTO THE OLD CONCRETE AND GROUTED INTO PLACE WITH 1:2 CEMENT MORTAR.

ALLOWANCE FOR DEAD LOAD DEFLECTION, SETTLEMENT, ETC. IN CASTING SUPERSTRUCTURES:

BRIDGES SHALL BE BUILT ON THE GRADE OR VERTICAL CURVE SHOWN ON PLANS. SLABS, CURBS AND PARAPETS SHALL CONFORM TO THE GRADE OR CURVE.

ALL DIMENSIONS WHICH ARE GIVEN IN SECTION AND ARE AFFECTED BY DEAD LOAD DEFLECTIONS ARE DIMENSIONS AT CENTER LINE OF BEARING UNLESS OTHERWISE NOTED ON PLANS. IN SETTING FORMS FOR STEEL BEAM BRIDGES AND PRESTRESSED CONCRETE GIRDER BRIDGES, ADJUSTMENTS SHALL BE MADE DUE TO THE DEAD LOAD DEFLECTIONS FOR THE ELEVATIONS SHOWN. WHERE BLOCKS ARE SHOWN OVER BEAMS FOR BUILDING UP TO THE SLAB, THE VERTICAL DIMENSIONS OF THE BLOCKS SHALL BE ADJUSTED BETWEEN BEARINGS TO COMPENSATE FOR DEAD LOAD DEFLECTIONS, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER. WHERE BOTTOM OF SLAB IS IN LINE WITH BOTTOM OF TOP FLANGES, DEPTH OF SLAB BETWEEN BEARINGS SHALL BE ADJUSTED TO COMPENSATE FOR DEAD LOAD DEFLECTION, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER.

IN SETTING FALSEWORK AND FORMS FOR REINFORCED CONCRETE SPANS, AN ALLOWANCE SHALL BE MADE FOR DEAD LOAD DEFLECTIONS, SETTLEMENT OF FALSEWORK, AND PERMANENT CAMBER WHICH SHALL BE PROVIDED FOR IN ADDITION TO THE ELEVATIONS SHOWN. AFTER REMOVAL OF THE FALSEWORK, THE FINISHED STRUCTURES SHALL CONFORM TO THE PROFILE AND ELEVATIONS SHOWN ON THE PLANS AND CONSTRUCTION ELEVATIONS FURNISHED BY THE ENGINEER.

DETAILED DRAWINGS FOR FALSEWORK OR FORMS FOR BRIDGE SUPERSTRUCTURE AND ANY STRUCTURE OR PARTS OF A STRUCTURE AS NOTED ON THE PLANS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL BEFORE CONSTRUCTION OF THE FALSEWORK OR FORMS IS STARTED.

REINFORCING STEEL:

ALL REINFORCING STEEL SHALL BE DEFORMED. DIMENSIONS RELATIVE TO PLACEMENT OF REINFORCING ARE TO CENTERS OF BARS UNLESS OTHERWISE INDICATED IN THE PLANS. DIMENSIONS ON BAR DETAILS ARE TO CENTERS OF BARS OR ARE OUT TO OUT AS INDICATED ON PLANS.

WIRE BAR SUPPORTS SHALL BE PROVIDED FOR REINFORCING STEEL WHERE INDICATED ON THE PLANS. WHEN BAR SUPPORT PIECES ARE PLACED IN CONTINUOUS LINES, THEY SHALL BE SO PLACED THAT THE ENDS OF THE SUPPORTING WIRES SHALL BE LAPPED TO LOCK LEGS ON ADJOINING PIECES.

STRUCTURAL STEEL:

AT THE CONTRACTOR'S OPTION, HE MAY SUBSTITUTE ⅞" Ø SHEAR STUDS FOR THE ¾" Ø STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 - ⅞" Ø STUDS FOR 4 - ¾" Ø STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF ⅞" Ø STUDS ALONG THE BEAM AS SHOWN FOR ¾" Ø STUDS BASED ON THE RATIO OF 3 - ⅞" Ø STUDS FOR 4 - ¾" Ø STUDS. STUDS OF THE LENGTH SPECIFIED ON THE PLANS MUST BE PROVIDED. THE MAXIMUM SPACING SHALL BE 2'-0".

EXCEPT AT THE INTERIOR SUPPORTS OF CONTINUOUS BEAMS WHERE THE COVER PLATE IS IN CONTACT WITH BEARING PLATE, THE CONTRACTOR MAY, AT HIS OPTION, SUBSTITUTE FOR THE COVER PLATES DESIGNATED ON THE PLANS COVER PLATES OF THE EQUIVALENT AREA PROVIDED THESE PLATES ARE AT LEAST 5/16" IN THICKNESS AND DO NOT EXCEED A WIDTH EQUAL TO THE FLANGE WIDTH LESS 2" OR A THICKNESS EQUAL TO 2 TIMES THE FLANGE THICKNESS. THE SIZE OF FILLET WELDS SHALL CONFORM TO THE REQUIREMENTS OF THE CURRENT ANSI/AASHTO/AWS "BRIDGE WELDING CODE". ELECTROSLAG WELDING WILL NOT BE PERMITTED.

WITH THE SOLE EXCEPTION OF EDGES AT SURFACES WHICH BEAR ON OTHER SURFACES, ALL SHARP EDGES AND ENDS OF SHAPES AND PLATES SHALL BE SLIGHTLY ROUNDED BY SUITABLE MEANS TO A RADIUS OF APPROXIMATELY 1/16 INCH OR EQUIVALENT FLAT SURFACE AT A SUITABLE ANGLE PRIOR TO PAINTING, GALVANIZING, OR METALLIZING.

HANDRAILS AND POSTS:

METAL STANDARDS AND FACES OF THE CONCRETE END POSTS FOR THE METAL RAIL SHALL BE SET NORMAL TO THE GRADE OF THE CURB, UNLESS OTHERWISE SHOWN ON PLANS. THE METAL RAIL AND TOPS OF CONCRETE POSTS USED WITH THE ALUMINUM RAIL SHALL BE BUILT PARALLEL TO THE GRADE OF THE CURB.

METAL HANDRAILS SHALL BE IN ACCORDANCE WITH THE PLANS. RAILS SHALL BE AS MANUFACTURED FOR BRIDGE RAILING. CASTINGS SHALL BE OF A UNIFORM APPEARANCE. FINS AND OTHER DEFORMATIONS RESULTING FROM CASTING OR OTHERWISE SHALL BE REMOVED IN A MANNER SO THAT A UNIFORM COLORING OF THE COMPLETED CASTING SHALL BE OBTAINED. CASTINGS WITH DISCOLORATIONS OR OF NON-UNIFORM COLORING WILL NOT BE ACCEPTED. CERTIFIED MILL REPORTS ARE REQUIRED FOR METAL RAILS AND POSTS.

SPECIAL NOTES:

GENERALLY, IN CASE OF DISCREPANCY, THIS STANDARD SHEET OF NOTES SHALL GOVERN OVER THE SPECIFICATIONS, BUT THE REMAINDER OF THE PLANS SHALL GOVERN OVER NOTES HEREON, AND SPECIAL PROVISIONS SHALL GOVERN OVER ALL. SEE SPECIFICATIONS ARTICLE 105-4.

ENGLISH

JANUARY, 1990