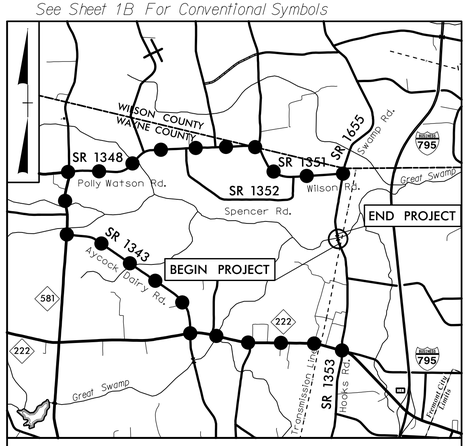
09/08/99

TIP PROJECT: 17BP.4.R.104

CONTRACT: DD00314

See Sheet 1A For Index of Sheets
See Sheet 1B For Conventional Symbols



VICINITY MAP N.T.S.

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

WAYNE COUNTY

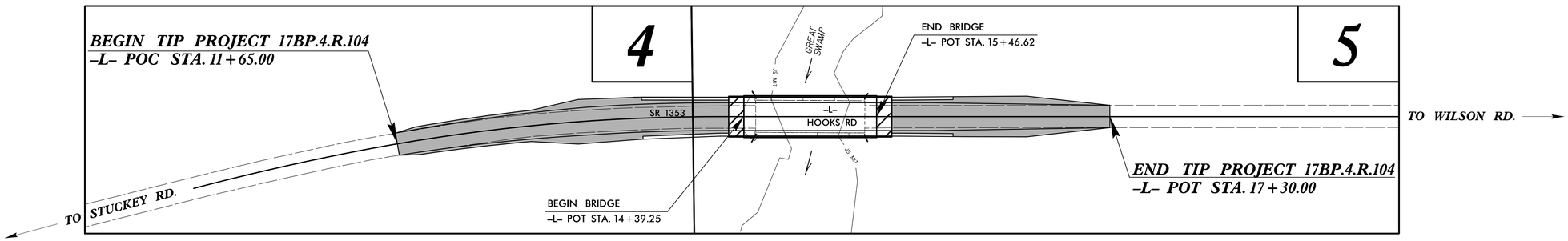
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.4.R.104	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
17BP.4.PE.104	N/A	P.E.
17BP.4.ROW.104	N/A	R/W & UTIL.
17BP.4.R.104	N/A	CONST.

LOCATION: REPLACE BRIDGE #950045 OVER GREAT SWAMP ON SR 1353 (HOOKS ROAD)

TYPE OF WORK: GRADING, PAVING, DRAINAGE, & STRUCTURE

NAD 83 /2011



* *DESIGN EXCEPTION APPROVED FOR SUPERELEVATION*

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES

PLANS 20 10 0 20 40

PROFILE (HORIZONTAL) 20 10 0 20 40

PROFILE (VERTICAL) 4 2 0 4 8

DESIGN DATA

ADT 2021 = 393
ADT 2041 = 567
K = N/A
D = 50 %
T = 6 % *
V = 60 MPH
* TTST = 3% DUAL = 3%
FUNC CLASS = LOCAL, RURAL SUBREGIONAL TIER

PROJECT LENGTH

LENGTH OF ROADWAY TIP PROJECT 17BP.4.R.104 = 0.087 MILES

LENGTH OF STRUCTURE TIP PROJECT 17BP.4.R.104 = 0.020 MILES

TOTAL LENGTH OF TIP PROJECT 17BP.4.R.104 = 0.107 MILES

NCDOT CONTACT: RACHEL EVANS, PE
DIVISION 4 PROJECT MANAGER

PLANS PREPARED FOR THE NCDOT BY:
STV ENGINEERS, INC.
1600 Perimeter Park Dr., Ste. 225, Morrisville NC, 27560
NC License Number F-0991

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: MARCH 1, 2019

LETTING DATE: SEPTEMBER 28, 2021

PATRICK A. LIVINGSTON, PE
PROJECT ENGINEER

E. NEAL PASCHAL, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 029388 ENGINEER EDWARD J. VANCE
DocuSigned by: Edward J. Vance 7/22/2021 P.E.
SIGNATURE:

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 051963 ENGINEER E. NEAL PASCHAL
DocuSigned by: E. Neal Paschal 7/22/2021 P.E.
SIGNATURE:

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •

7/19/2021
R:\Roadway\Proj\Sheets\B4842_rdy_tsh.dgn
paschaen

8/17/99

BRIDGE #950045

PROJECT REFERENCE NO.	SHEET NO.
I7BP.4.RJ04	1A

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER E. Neal Pascal SEAL 051963 4/2/2021 ENGINEER E. NEAL PASCAL

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

STV 100 Years
STV Engineers, Inc.
1600 Perimeter Park Dr.
Suite 225
Morrisville, NC 27560
NC License Number F-0991

INDEX OF SHEETS

GENERAL NOTES

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

GRADING AND SURFACING OR RESURFACING AND WIDENING:
THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED OR FUTURE 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 III.

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

SHOULDER CONSTRUCTION:
ASPHALT, EARTH, AND CONCRETE SHOULDEER CONSTRUCTION ON THE HIGH SIDE OF SUPERELEVATED CURVES SHALL BE IN ACCORDANCE WIH STD. NO. 560.01.

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.

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

UTILITIES:
UTILITY OWNERS ON THIS PROJECT ARE:
POWER - TRI COUNTY ELECTRIC MEMBERSHIP CORP.

RIGHT-OF-WAY MARKERS:
ALL RIGHT-OF-WAY MARKERS ON THIS PROJECT SHALL BE PLACED BY CONTRACT.

STANDARD DRAWINGS

2018 ROADWAY ENGLISH STANDARD DRAWINGS EFF. JANUARY, 2018

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

STD. NO. TITLE

DIVISION 2 - EARTHWORK
200.03 METHOD OF CLEARING - METHOD III
225.02 GUIDE FOR GRADING SUBGRADE - SECONDARY AND LOCAL
225.04 METHOD FOR OBTAINING SUPERELEVATION - TWO LANE PAVEMENT
240.01 GUIDE FOR BERM DITCH CONSTRUCTION
275.01 ROCK PLATING

DIVISION 3 - PIPE CULVERTS
300.01 METHOD OF PIPE INSTALLATION
310.10 DRIVEWAY PIPE CONSTRUCTION

DIVISION 4 - MAJOR STRUCTURES
422.02 BRIDGE APPROACH FILLS - TYPE II MODIFIED APPROACH FILL

DIVISION 5 - SUBGRADE, BASES, AND SHOULDERS
560.01 METHOD OF SHOULDER CONSTRUCTION - HIGH SIDE OF SUPERELEVATED CURVE - METHOD I

DIVISION 8 - INCIDENTALS
806.01 CONCRETE RIGHT-OF-WAY MARKER
846.01 CONCRETE CURB, GUTTER, AND CURB & GUTTER
862.01 GUARDRAIL PLACEMENT
862.02 GUARDRAIL INSTALLATION
862.03 STRUCTURE ANCHOR UNITS
866.02 WOVEN WIRE FENCE - WITH WOOD POST
876.02 GUIDE FOR RIPRAP AT PIPE OUTLETS
876.04 DRAINAGE DITCHES WITH CLASS 'B' RIP RAP

4/2/2021
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MicroStation

12/2/2016

BRIDGE *950045

PROJECT REFERENCE NO.	SHEET NO.
17BP.4.RJ04	1-B

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 Easment Pin and Cap
- New Permanent Easement Pin and Cap
- Vertical Benchmark
- Existing Right of Way Marker
- Existing Right of Way Line
- New Right of Way Line — 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.
- A/G Tank; Water, Gas, Oil
- Geoenvironmental Boring
- U/G Test Hole LOS A (S.U.E.*)
- Abandoned According to Utility Records — AATUR
- End of Information — E.O.I.

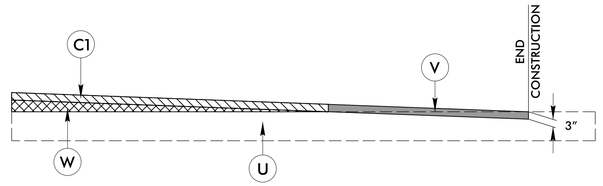
6/2/99

BRIDGE #950045

PROJECT REFERENCE NO.	SHEET NO.
17BP.4.R.104	2A-1

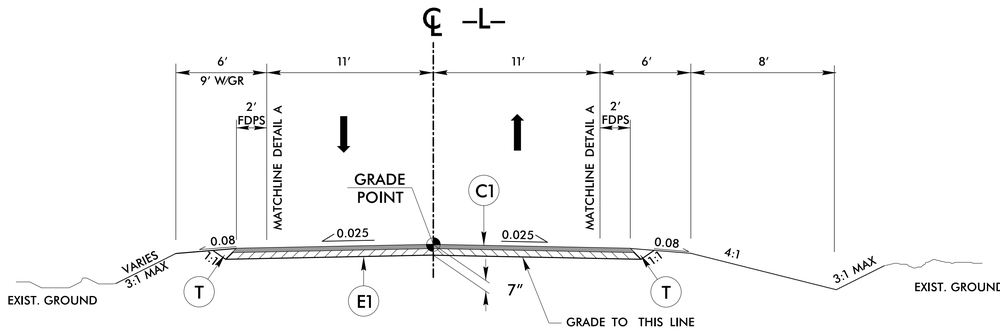
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 051363 4/27/2021 ENGINEER NEAL PASCHAL	NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 037392 4/4/2021 ENGINEER RACHEL C. PARRIS

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



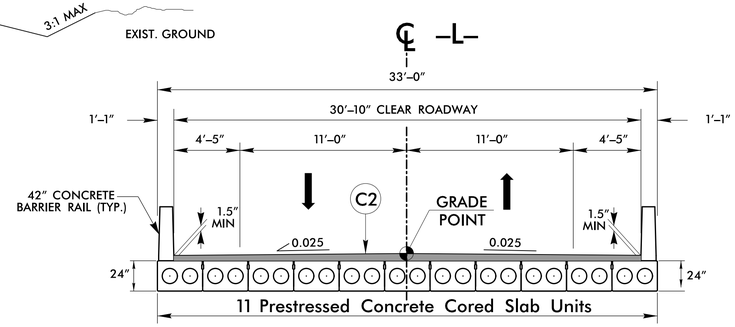
MILLING DETAIL

LINE	FROM	TO
–L–	16+80	17+30



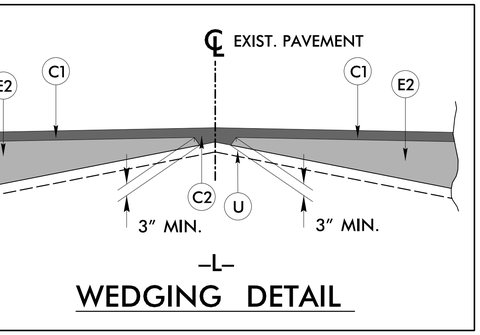
TYPICAL SECTION NO. 1

–L– STA. 11+65.00 TO 12+50.00
–L– STA. 13+89.25 TO 14+39.25 (BEGIN BRIDGE)
–L– STA. 15+46.62 (END BRIDGE) TO 15+96.62



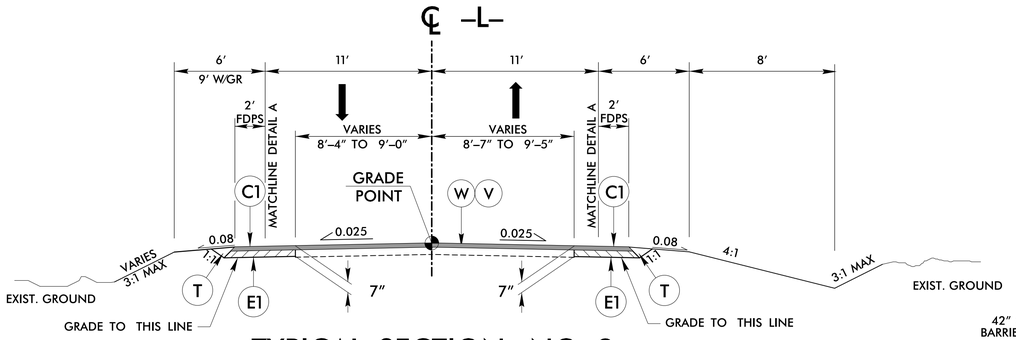
TYPICAL SECTION NO. 3

–L– STA. 14+39.25 (BEGIN BRIDGE) TO 15+10.44



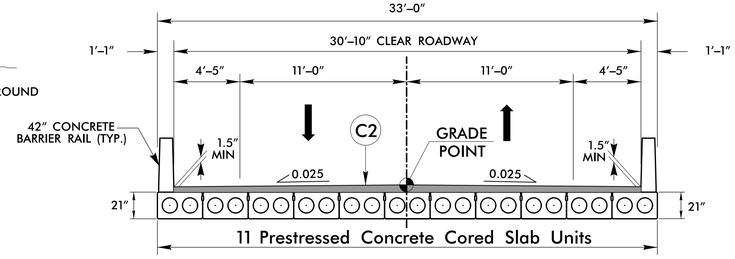
–L–

WEDGING DETAIL



TYPICAL SECTION NO. 2

–L– STA. 12+50.00 TO 13+89.25
–L– STA. 15+96.62 TO 17+30.00

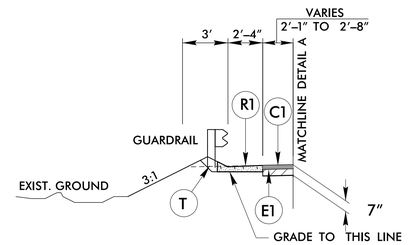


TYPICAL SECTION NO. 4

–L– STA. 15+10.44 TO 15+46.62 (END BRIDGE)

PAVEMENT SCHEDULE (FINAL PAVEMENT DESIGN 5/15/18)	
C1	PROP. APPROX. 3″ ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 165 LBS. PER SQ.YD.IN EACH OF TWO LAYERS.
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1″ 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. YD.
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1″ DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3″ IN DEPTH OR GREATER THAN 5.5″ IN DEPTH.
R1	SHOULDER BERM GUTTER
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V	VARIABLE DEPTH MILLING (0″ TO 3″)
W	PAVEMENT WEDGING (SEE WEDGING DETAIL)

NOTE:
ALL PAVEMENT SLOPES 1:1 UNLESS NOTED OTHERWISE



DETAIL A

–L– STA. 13+60.00 TO 14+28.37
(BEGIN APPROACH SLAB) (LT. & RT.)
–L– STA. 15+57.50 (END APPROACH SLAB)
TO 16+06.00 (LT. & RT.)

4/4/2021
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Modified

5/28/99

COMPUTED BY: SWH DATE: 2-6-19
CHECKED BY: WDM DATE: 2-8-19

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

BRIDGE #950045

PROJECT REFERENCE NO.	SHEET NO.
17BP.4.R.104	3B-1

SUMMARY OF EARTHWORK

IN CUBIC YARDS

LOCATION	UNCLASSIFIED EXCAVATION	UNDERCUT	EMBT+%	BORROW	WASTE
-L- 11+65.00 TO 14+39.25 (BRIDGE)	72		113	41	
-L- 15+46.62 (BRIDGE) TO 17+30.00	27		73	45	
SUBTOTAL 1	99		186	86	
TOTAL	99		186	86	
PROJECT TOTAL	99		186	86	
EST. 5% REPLACE TOP SOIL ON BORROW PIT				4	
GRAND TOTAL	99		186	90	
SAY	100			100	

PER GEOTECH RECOMMENDATION, ESTIMATED 300 CUBIC YARDS OF UNDERCUT TO BE USED IN THE DISCRETION OF THE RESIDENT ENGINEER
PER GEOTECH RECOMMENDATION, ESTIMATED 300 CUBIC YARDS OF SELECT GRANULAR MATERIAL TO BE USED TO BACKFILL AREAS OF UNDERCUT
PER CFI RECOMMENDATION, ESTIMATED 300 CUBIC YARDS OF SHALLOW UNDERCUT AS CONTINGENCY
PER CFI RECOMMENDATION, ESTIMATED 500 TONS OF CLASS IV SELECT MATERIAL AS CONTINGENCY

ASPHALT PAVEMENT REMOVAL SUMMARY

STATION	LOCATION	AREA (SF)	AREA (SY)
-L- 11+65 TO 12+50	CL	1536.76	170.75
-L- 13+89 TO 14+49	CL	1065.83	118.43
-L- 15+36 TO 15+96	CL	1069.24	118.80
TOTAL			407.98
SAY			410.00

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

STATION / SIZE / THICKNESS OR GAUGE	OFFSET	STRUCTURE NO. FROM	STRUCTURE NO. TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	SLOPE CRITICAL	CLASS IV R.C. PIPE (UNLESS NOTED OTHERWISE) 12"	15"	18"	24"	30"	36"	42"	48"	C.S. PIPE (16 GAUGE) (UNLESS NOTED OTHERWISE) 12"	15"	18"	24"	30"	36"	42"	48"	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	DO NOT USE PVC	CLASS III R.C. PIPE 12" .064	15" .064	18" .064	24" .064		30" .064	
-L- STA. 13+66	14' LT	405		99.7																															
-L- STA. 13+66	14' RT	406		99.7																															
-L- STA. 16+00	13' LT	407		99.7																															
-L- STA. 16+00	13' RT	408		99.7																															
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) CU. YDS. R.C.P.	C.S.P.	QUANTITIES FOR DRAINAGE STRUCTURES * TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B') PER EACH (0' THRU 5.0')	LIN. *FT. A 5.0' THRU 10.0'	B 10.0' AND ABOVE	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES AND HOOD STANDARD 840.03 TYPE OF GRATE E	F	G			D.I. STD. 840.14	D.I. FRAME AND GRATE STD. 840.24	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	TRAFFIC BEARING G.D.I. STD. 840.35	G.D.I. FRAME WITH GRATE STD. 840.20	G.D.I. FRAME WITH TWO GRATES STD. 840.22	G.D.I. (N.S.) FRAME WITH GRATE STD. 840.29	G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24	J.B. STD. 840.31 OR 840.32	MODIFIED CONCRETE FLUME, SP					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
-L- STA. 13+66																										1									
-L- STA. 13+66																										1									
-L- STA. 16+00																										1									
-L- STA. 16+00																										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

"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 STRAIGHT	LENGTH SHOP CURVED	LENGTH DOUBLE FACED	WARRANT POINT APPROACH END	WARRANT POINT TRAILING END	"N" DIST. FROM E.O.L.	TOTAL SHOUL. WIDTH	FLARE LENGTH APPROACH END	FLARE LENGTH TRAILING END	W APPROACH END	W TRAILING END	ANCHORS TYPE III	ANCHORS GREU TL-3	XI	M-350	XIII	CAT-1	VI MOD	BIC	AT-1	IMPACT ATTENUATOR TYPE 350 EA	G	NG	SINGLE FACED GUARDRAIL	REMOVE EXISTING GUARDRAIL	REMOVE AND STOCKPILE EXISTING GUARDRAIL	REMARKS
-L-	13+08.00	14+39.25 (BR)	LT	131.25'			14+39.25 (BR)		6'	9'	50'			1'	1	1														
-L-	13+08.00	14+39.25 (BR)	RT	131.25'				14+39.25 (BR)	6'	9'		50'	1'		1	1														
-L-	15+46.62 (BR)	16+65.37	RT	118.75'				15+46.62 (BR)	6'	9'		50'		1'	1	1														
-L-	15+46.62 (BR)	16+65.37	LT	118.75'			15+46.62 (BR)		6'	9'	50'		1'		1	1														
			SUBTOTAL	500'											4	4														
			LESS ANCHORS																											
		GREU TL-3	4 @ 50' =	-200'																										
		TYPE III	4 @ 18.75' =	-75'																										
			TOTAL	225'																										

ADDITIONAL GUARDRAIL POSTS = 5 EACH

4/1/2021
R:\Roadway\Proj\Sheets\B4842_rdy_PSH_3B-1.dgn
MooreDS

COMPUTED BY: Tyler C. Bottoms DATE: 12/5/18
CHECKED BY: Thein Tun Zan DATE: 12-11-18

(5-15-18)

PROJECT NO.	SHEET NO.
17BP.4.R.104	3G-1

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF SUBSURFACE DRAINAGE

LINE	Station	Station	Location LT/RT/CL	Drain Type* UD/BD/SD	LF
CONTINGENCY				SD	200
				TOTAL LF:	200

*UD = Underdrain
*BD = Blind Drain
*SD = Subsurface Drain

SUMMARY OF GEOTEXTILE FOR PAVEMENT STABILIZATION

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

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

SUMMARY OF AGGREGATE SUBGRADE/STABILIZATION

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

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

SUMMARY OF ROCK PLATING

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

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

SUMMARY OF REINFORCED SOIL SLOPES AND SLOPE EROSION CONTROL

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

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

SUMMARY OF PRE-SPLITTING OF ROCK

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

SUMMARY OF SURCHARGES AND SURCHARGE WAITING PERIODS

LINE	Station	Station	Surcharge Height FT	MONTHS

SUMMARY OF SETTLEMENT GAUGES

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

SUMMARY OF EMBANKMENT WAITING PERIODS

LINE	Station	Station	MONTHS

SUMMARY OF BRIDGE WAITING PERIODS

Bridge Description	End Bent/ Bent No.	MONTHS

PROJ. REFERENCE NO.	SHEET NO.
17BP.4.R.104	3P-1

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PARCEL INDEX SHEET

PARCEL No.	SHEET No.	PROPERTY OWNER NAME
1	4-5	SANDRA BUNDGAARD
2	4-5	EVELYN HOOKS ESTATE
3	5	RANDY AYCOCK

PARCEL No.	SHEET No.	PROPERTY OWNER NAME

8/17/99

BRIDGE #950045

PROJECT REFERENCE NO.	SHEET NO.
17BP.4.R.104	4
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 051963 ENGINEER NEAL PASCHAL 4/9/2021

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 029388 ENGINEER EDWARD J. VANCE 4/9/2021

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/2011

BEGIN TIP PROJECT 17BP.4.R.104
-L- POC STA. 11+65.00

EVELYN HOOKS ESTATE
DB 301 PG 39
(2)

PI Sta 12+77.27
△ = 10° 53' 02.9" (RT)
D = 3° 49' 11.0"
L = 284.95'
T = 142.90'
R = 1,500.00'
e = NC*
DS = 20 MPH

EST. 2 TON CL-B RIPRAP
EST. 7 S.Y. GEOTEXTILE

BL-102

PC Sta. 10+00.00

GOLDSBORO-WILSON 110KV
70' RIGHT OF WAY
RD-7337 (SHT 8)
DB 273 PG 225

TO STUCKEY RD.

18' PAVED ROAD
HOOKS ROAD (SR 1353)

8" PLASTIC

EXISTING R/W

WOODS

BEGIN SBG
-L- STA.13+60.00 LT&RT

150' LANE TAPER LT & RT

+65.00 EX.R/W
+58.00 37.00
+62.00 EX.R/W
12.5'
+47.50
+73.00
+70.57
+65.00 41.00' & EX.R/W
+55.00 40.00' & EX.R/W
+70.00 45.00' & EX.R/W

25' INCR.

2' FDPS

8:1

GREU TL-3

MCF

SBG

50:1

405

406

-L-

11'

PUE

(CHORD)

EXIST.

.025

.01

.02

MATCHLINE SHEET 5
-L- STA. 14+00.00

SANDRA BUNDGAARD
DB 301 PG 38
(1)

*DESIGN EXCEPTION APPROVED FOR SUPERELEVATION

-L-

BEGIN GRADE
-L- STA.11+65.00
ELEV.= 100.83'

PI = 12+85.00
EL = 98.77'
VC = 230'
K = 70
DS = 40 MPH

LOW POINT
-L- STA.12+90.23
EL = 99.71'

PROPOSED GRADE

EXIST.(-)1.2187%

(-)1.7167%

(+)1.5674%

EXISTING GROUND

112 108 104 100 96 92 88 84

10+00 11+00 12+00 13+00 14+00

4/9/2021
4:19:24 PM
P:\Proj\Sheets\B4842_rdy_PSH_4.dgn
PASCHAL

8/17/99

BRIDGE #950045

PROJECT REFERENCE NO.	SHEET NO.
17BP.4.R.104	5
R/W SHEET NO.	

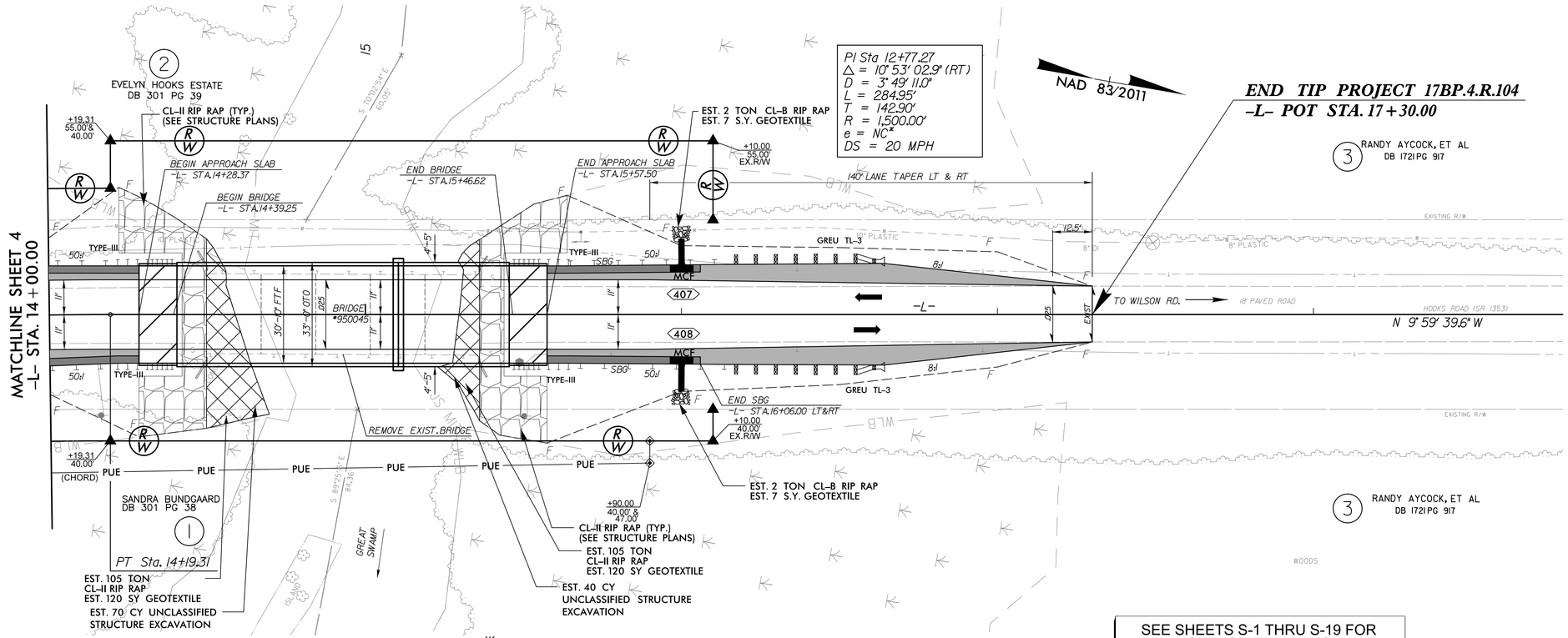
ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 051963 ENGINEER NEAL PASCHAL 4/9/2021

HYDRAULICS ENGINEER

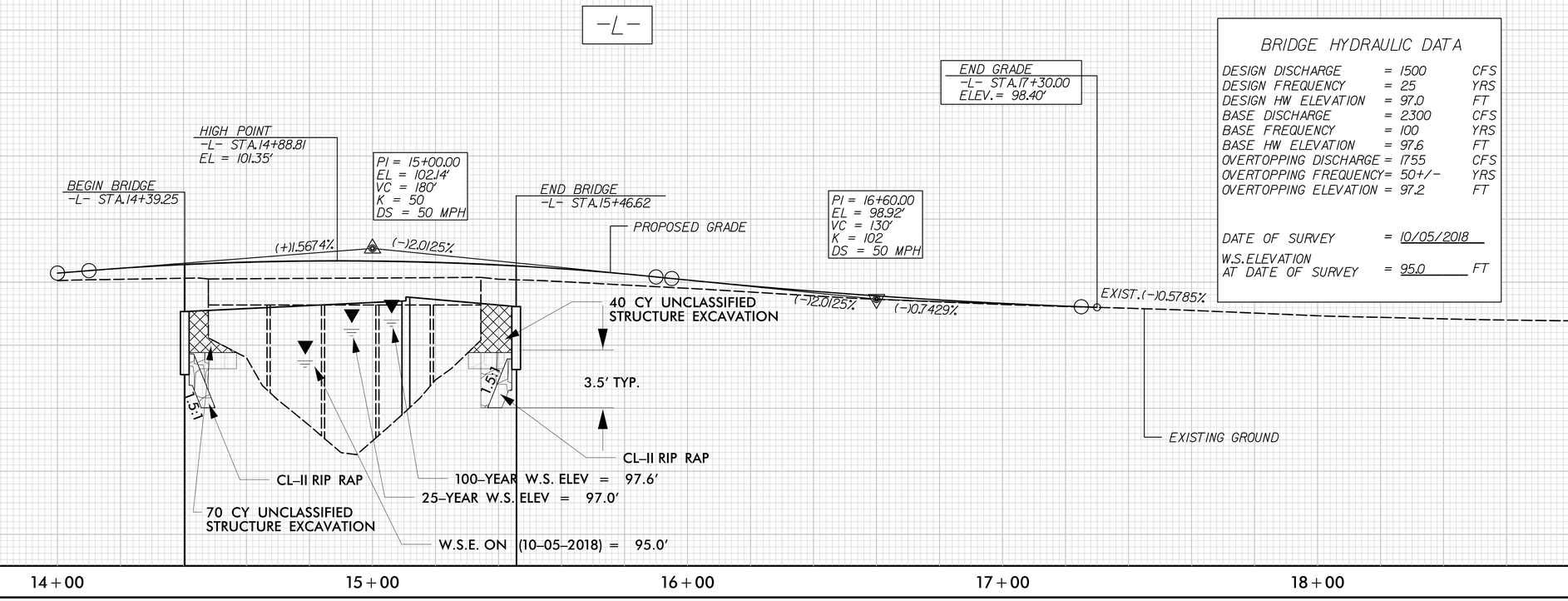
NORTH CAROLINA PROFESSIONAL SEAL 029388 ENGINEER EDWARD J. VANCE IV 4/9/2021

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



*DESIGN EXCEPTION APPROVED FOR SUPERELEVATION

SEE SHEETS S-1 THRU S-19 FOR STRUCTURE PLANS



BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	= 1500	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 97.0	FT
BASE DISCHARGE	= 2300	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 97.6	FT
OVERTOPPING DISCHARGE	= 1755	CFS
OVERTOPPING FREQUENCY	= 50+/-	YRS
OVERTOPPING ELEVATION	= 97.2	FT
DATE OF SURVEY	= 10/05/2018	
W.S. ELEVATION AT DATE OF SURVEY	= 95.0	FT

4/9/2021
K:\Roadway\Proj\Sheets\B4842_rdy_PSH_5.dgn
PSCHAL

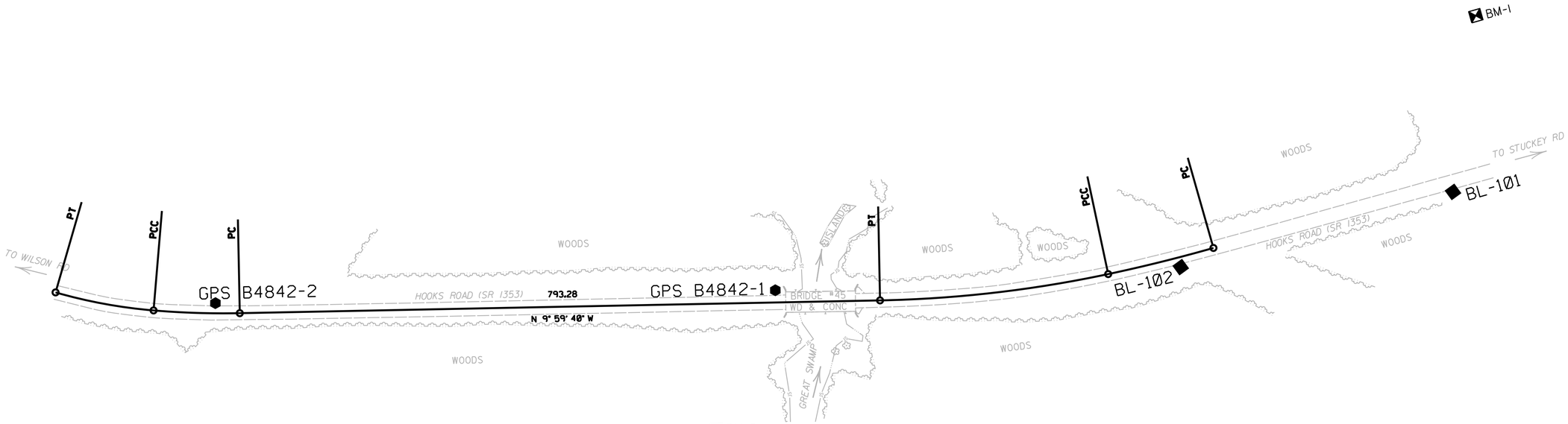
SURVEY CONTROL SHEET

W/ EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION

PROJECT REFERENCE NO.	SHEET NO.
B-4842	RW02C-1
Location and Surveys	

wood.
4021 STIRRUP CREEK DRIVE, SUITE 100
RALEIGH, NC 27703
919-381-9900

NC GRID
NAD 83 NA 2011



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

REVISIONS
P:\950045 (B4842) rw stake\B4842_ls-rw02c-1.dgn

REVISIONS

30-APR-2019 07:47
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Fabien.lukeba AT SC100112O

SURVEY CONTROL SHEET

W/ EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION

PROJECT REFERENCE NO.	SHEET NO.
B-4842	RW02C-2

Location and Surveys

wood.
4021 STIRRUP CREEK DRIVE, SUITE 100
RALEIGH, NC 27703
919-381-9900

BASELINE DATA

BL

POINT	DESC.	NORTH	EAST	ELEVATION
101	BL-101	665096.6684	2297693.9674	103.42
102	BL-102	665415.5889	2297549.9442	101.50
1	B4842-1	665907.4330	2297444.3440	99.27
2	B4842-2	666590.3220	2297321.8360	96.49

BENCHMARK DATA

****
BM1 ELEVATION = 95.01
N 665102 E 2297914
BENCHTIE IN A 17"GUM
****
****
BM2 ELEVATION = 110.96
N 665952 E 2297261
BENCHTIE IN A QUAD 8"OAK
****

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.

PROJECT REFERENCE NO.	SHEET NO.
B-4842	RW02C-3

Location and Surveys

wood.
4021 STIRRUP CREEK DRIVE, SUITE 100
RALEIGH, NC 27703
919-381-9900

SURVEY CONTROL SHEET

W/ EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION

ALIGNMENT DATA

POINT	N	E	EL BEARING	DIST	DELTA	D	L	T	R
PC	665379.236	2297579.686							
CURVE			N 22°48'11.1" W	134.34	03°50'57.3"(RT)	02°51'53.2"	134.36	67.21	2000.00
PCC	665503.075	2297527.621							
CURVE			N 15°26'11.1" W	284.52	10°53'02.9"(RT)	03°49'11.0"	284.95	142.90	1500.00
PT	665777.329	2297451.891							
LINE			N 09°59'39.6" W	793.28					
PC	666558.572	2297314.216							
CURVE			N 07°01'37.4" W	106.86	05°56'04.4"(RT)	05°33'04.7"	106.90	53.50	1032.12
PCC	666664.626	2297301.144							
CURVE			N 01°35'14.9" E	123.44	11°17'40.2"(RT)	09°08'06.1"	123.64	62.02	627.21
PT	666788.018	2297304.564							

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.

PROPOSED ALIGNMENT CONTROL SHEET

PROJECT REFERENCE NO.	SHEET NO.
B-4842	RW02D

Location and Surveys

wood.
4021 STIRRUP CREEK DRIVE, SUITE 100
RALEIGH, NC 27703
919-381-9900

L

TYPE	STATION	NORTH	EAST
PC	10+00.00	665379.2357	2297579.6858
PCC	11+34.36	665503.0748	2297527.6208
PT	14+19.31	665777.3291	2297451.8910
POT	22+12.59	666558.5724	2297314.2164

NOTES:

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

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

REVISIONS

6/2/99

30-APR-2019 14:44
By: Chris Hatch
Folder: J:\stake\950045 (B4842) rw stake\b4842_ls_rw02d.dgn
NCDOT Survey - d04rw Wayne-Johnston\Wood Survey files\Mapping\950045\950045 rw stake\950045 - 0005
AT SS1001120

6/2/99

REVISIONS

RIGHT OF WAY CONTROL SHEET

PROJECT REFERENCE NO.	SHEET NO.
B-4842	RW03E-1

Location and Surveys

wood.
4021 STIRRUP CREEK DRIVE, SUITE 100
RALEIGH, NC 27703
919-381-9900

PROJECT SURVEYOR

4/12/2021

NORTH CAROLINA PROFESSIONAL SURVEYOR SEAL L-3966 ANDRE S. DEGROAT

Docusigned by: Andy DeGroat 510DCEB8A8674F5...

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

I, Andre S. DeGroat, 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) (Base map Compilation, 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 data compiled came from available surveys/mapping performed by others and provided to me by NCDOT and do not certify to the accuracy or quality of the individual data sources.

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 12th day of April, 2021

Docusigned by: Andy DeGroat 510DCEB8A8674F5...

Professional Land Surveyor | PLS # L-3966 | Seal

ROW MARKER IRON PIN AND CAP-E

ALIGN	STATION	OFFSET	NORTH	EAST
L	13+55.00	39.99	665722.8759	2297503.4580
L	13+55.00	30.00	665720.7216	2297493.7006
L	13+55.00	-30.00	665707.7855	2297435.1117
L	13+55.00	-40.00	665705.6295	2297425.3469
L	14+19.31	40.00	665784.2711	2297491.2840
L	14+19.31	-55.00	665767.7839	2297397.7256
L	14+19.31	-40.00	665770.3870	2297412.4980
L	16+10.00	-55.00	665955.5801	2297364.6313
L	16+10.00	-30.00	665959.9186	2297389.2519
L	16+10.00	30.00	665970.3318	2297448.3414
L	16+10.00	40.00	665972.0673	2297458.1897

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.

30-APR-2018 09:56
By: Johnston, Wayne A.
Ephemeris: 04/19/2018 0005 - NCDOT Survey - d04rw Wayne-Johnston\Wood Survey files\Mapping\950045\950045 rw stake\950045 (B4842) rw stake\b4842_1s_rw03e-1.dgn

PERMANENT EASEMENT CONTROL SHEET

PROJECT REFERENCE NO.	SHEET NO.
B-4842	RW03E-2

Location and Surveys

wood.
4021 STIRRUP CREEK DRIVE, SUITE 100
RALEIGH, NC 27703
919-381-9900

PROJECT SURVEYOR

4/12/2021

NORTH CAROLINA PROFESSIONAL LAND SURVEYOR ANDRE S. DEGROAT
Docusigned by: Andy DeGroat 51CCCE3BAE9F4F5...

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

I, Andre S. DeGroat, 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) (Base map Compilation, 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 data compiled came from available surveys/mapping performed by others and provided to me by NCDOT and do not certify to the accuracy or quality of the individual data sources.

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 12th day of April, 2021.

Docusigned by: Andy DeGroat 51CCCE3BAE9F4F5...

---------- L-3966
Professional Land Surveyor PLS # Seal

ROW MARKER PERMANENT EASEMENT-E

ALIGN	STATION	OFFSET	NORTH	EAST
L	12+70.00	45.00	665643.9913	2297528.3952
L	12+70.00	30.00	665639.9329	2297513.9546
L	15+90.00	47.00	665953.5836	2297468.5548
L	15+90.00	40.00	665952.3688	2297461.6610

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

6/2/99

30-APR-2019 10:34
By: Chris.Smith
Folder: J:\stake\950045 (B4842) rw stake\b4842_ls_rw03e-2.dgn
J:\Projects\0047414-0005 - NCDOT Survey - d04-rw Wayne-Johnston\Wood Survey files\Mapping\950045\950045 rw stake\950045 (B4842) rw stake\b4842_ls_rw03e-2.dgn
Ldset: Lakeb
AT SS 100120

I, Andre S. DeGroat, 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) (Base map Compilation, R/W Staking) performed under my responsible charge meet NCDOT Survey Standards as directed in the NCDOT Location & Surveys guidelines and procedures.

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Witness my original signature, registration number and seal this 12th day of April, 2021.

DocuSigned by: Andy DeGroat

Professional Land Surveyor PLS # L-3966 Seal

PROJECT REFERENCE NO.	SHEET NO.
G-4842	RW04

Location and Surveys

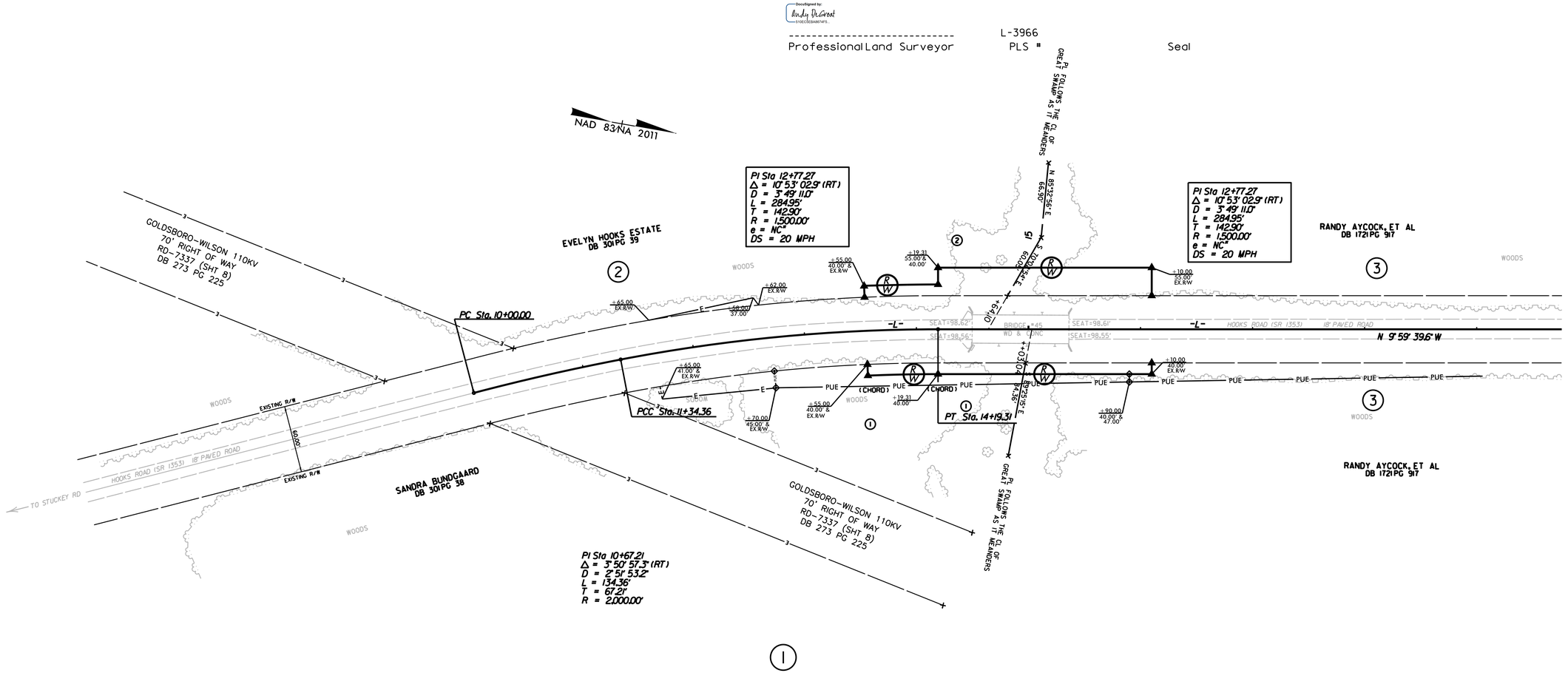
wood.
4021 STIRRUP CREEK DRIVE, SUITE 100
RALEIGH, NC 27703
919-381-9900

4/12/2021

PROJECT SURVEYOR

NORTH CAROLINA PROFESSIONAL SEAL L-3966 ANDRE S. DEGROAT LAND SURVEYOR

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



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

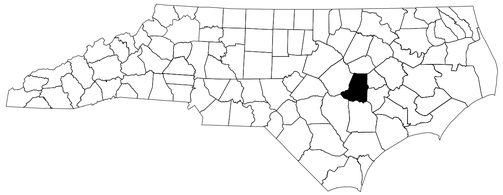
6/2/99

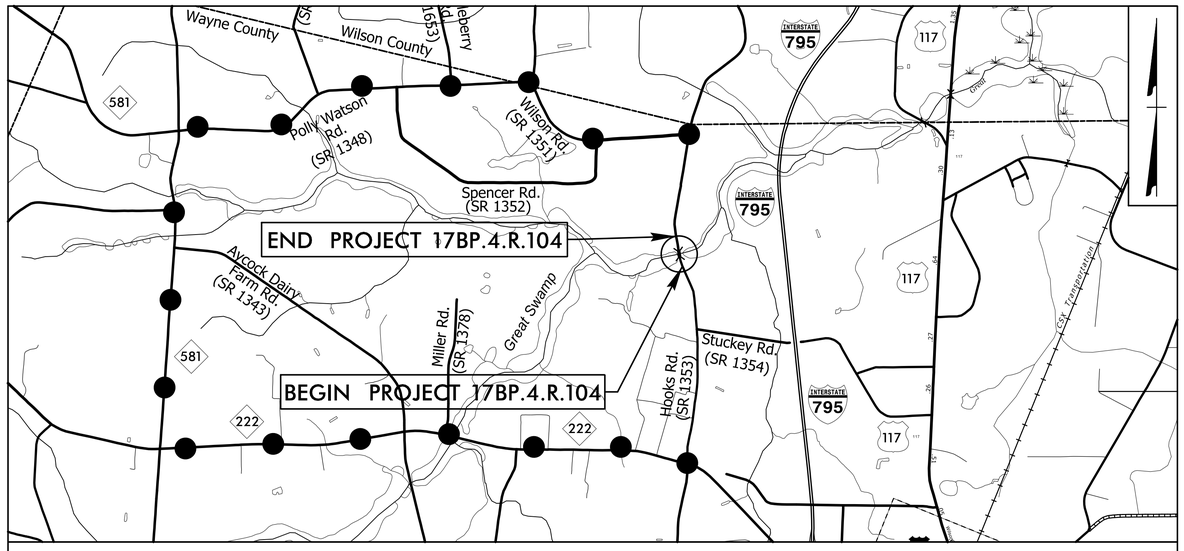
01-MAY-2018 15:32
K:\Raleigh\Projects\9500045 - NCDOT Survey - d04\rw Wayne-Johnston\Wood Survey files\Mapping\9500045\9500045 rw stake\b4842_1s_rw4.dgn
Fabre, Lukeha
AT SS\100120

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

WAYNE COUNTY





DETOUR ROUTE

VICINITY MAP

N.T.S.

LOCATION: BRIDGE No. 950045 ON SR 1353 (HOOKS ROAD) OVER GREAT SWAMP

INDEX OF SHEETS

SHEET NO.
TMP-1

PROJECT: 17BP.4.R.104

BRIDGE #950045

STV 100 Years
STV Engineers, Inc.
1600 Perimeter Park Dr., Suite 225
Morrisville, NC 27560
NC License Number F-0991

WORK ZONE SAFETY & MOBILITY
"from the MOUNTAINS to the COAST"

HIGHWAY DIVISION 4
509 WARD BLVD.
P.O. BOX 3165, WILSON, NC 27895
PHONE: (252) 640-6505 FAX: (252) 234-6174

Andy Brown, PE — *DIVISION TRAFFIC ENGINEER*

DIVISION OF HIGHWAYS · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION · WORK ZONE TRAFFIC CONTROL

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APPROVED: DocuSigned by: E. Neal Paschal
DATE: 4/7/2021

PATRICK A. LIVINGSTON, PE
PROJECT ENGINEER

E. NEAL PASCHAL, PE
TRANSPORTATION DESIGNER

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 051963 ENGINEER E. NEAL PASCHAL

$FILE$
$DATE$

PROJ. REFERENCE NO.	SHEET NO.
17BP.4.R.104	TMP-1A

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BRIDGE #950045

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 JANUARY 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
1101.04	TEMPORARY SHOULDER CLOSURES
1101.05	WORK ZONE VEHICLE ACCESSES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1145.01	BARRICADES - TYPE III

LEGEND

GENERAL

- DIRECTION OF TRAFFIC FLOW
- DIRECTION OF PEDESTRIAN TRAFFIC FLOW
- EXIST. PVMT.
- NORTH ARROW
- PROPOSED PVMT.
- WORK AREA
- REMOVAL

TRAFFIC CONTROL DEVICES

- BARRICADE (TYPE III)
- CONE
- DRUM SKINNY DRUM TUBULAR MARKER
- TEMPORARY CRASH CUSHION
- FLASHING ARROW PANEL (TYPE C)
- FLAGGER
- LAW ENFORCEMENT
- TRUCK MOUNTED IMPACT ATTENUATOR (TMIA)
- CHANGEABLE MESSAGE SIGN

TEMPORARY SIGNING

- PORTABLE SIGN
- STATIONARY SIGN
- STATIONARY OR PORTABLE SIGN

SIGNALS

EXISTING PROPOSED TEMP TEMPORARY

PAVEMENT MARKINGS

- EXISTING LINES
- TEMPORARY LINES

PAVEMENT MARKING SYMBOLS

PAVEMENT MARKING SYMBOLS

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APPROVED: DocuSigned by: E. Neal Paschal DE2AF6549B8C4B4 DATE: 4/2/2021

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 051963 ENGINEER E. NEAL PASCHAL

DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION WORK ZONE TRAFFIC CONTROL

ROADWAY STANDARD DRAWINGS & LEGEND

$FILE$

$DATE$

PROJ. REFERENCE NO.	SHEET NO.
17BP.4.R.104	TMP-1B

STV 100 Years
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1600 Perimeter Park Dr., Suite 225
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BRIDGE #950045

MANAGEMENT STRATEGIES

- CLOSE SR 1353 (HOOKS ROAD)

- LOCAL ACCESS TO ALL RESIDENCES AND BUSINESS WILL BE MAINTAINED BETWEEN CLOSURE POINTS AT ALL TIMES DURING CONSTRUCTION

- PROVIDE ONE MONTH NOTICE TO THE ENGINEER, WAYNE COUNTY EMERGENCY SERVICES, AND WAYNE COUNTY SCHOOL OFFICIALS PRIOR TO ROAD CLOSURE

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 DUPLICATE OR UNDESIRED OVERLAPPING OF DEVICES. MODIFICATION MAY INCLUDE: MOVING, SUPPLEMENTING, COVERING, OR REMOVAL OF DEVICES AS DIRECTED BY THE ENGINEER.

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

TRAFFIC PATTERN ALTERATIONS

A) NOTIFY THE ENGINEER TWENTY ONE (21) CALENDAR DAYS PRIOR TO ANY TRAFFIC PATTERN ALTERATION.

SIGNING

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

C) PROVIDE SIGNING REQUIRED FOR THE OFF-SITE DETOUR ROUTE AS SHOWN IN THE TRAFFIC CONTROL PLANS.

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

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

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

TRAFFIC CONTROL DEVICES

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

PHASING

STEP 1: USING RSD 1101.04, INSTALL AND COVER ALL DETOUR SIGNING.

STEP 2: USING RSD 1101.03 SHEET 1 OF 9, AND TMP-2, INSTALL TYPE III BARRICADES TO CLOSE SR 1353 (HOOKS ROAD) TO THRU TRAFFIC, UNCOVER ALL DETOUR SIGNING AND SHIFT TRAFFIC ONTO PROPOSED DETOUR.

STEP 3: AWAY FROM TRAFFIC, PERFORM THE FOLLOWING:

REMOVE EXISTING STRUCTURE 950045 AND CONSTRUCT PROPOSED STRUCTURE FROM -L- STA 14+49+/- TO -L- STA 15+36+/-. SEE ROADWAY AND STRUCTURE PLANS.

CONSTRUCT PROPOSED -L- UP TO BUT NOT INCLUDING FINAL LAYER OF SURFACE COURSE FROM STA 11+65+/- TO STA 17+30+/-.

STEP 4: PLACE FINAL PAVEMENT MARKINGS AND FINAL LAYER OF SURFACE COURSE FROM -L- STA 11+65+/- TO -L- STA 17+30+/-, AND TIE TO EXISTING MARKINGS (SEE PAVEMENT MARKING PLAN).

STEP 5: USING RSD 1101.04, REMOVE ALL TRAFFIC CONTROL DEVICES, SIGNING AND DETOUR ROUTE SIGNING.

OPEN SR 1353 (HOOKS ROAD) TO FINAL TRAFFIC PATTERN.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

DocuSigned by:
APPROVED: E. Neal Pascal DATE: 4/2/2021
CF2AF8349B8C484...

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 051963 ENGINEER E NEAL PASCAL

DIVISION OF HIGHWAYS * STATE OF NORTH CAROLINA * DEPARTMENT OF TRANSPORTATION * WORK ZONE TRAFFIC CONTROL UNIT

TRANSPORTATION OPERATIONS PLAN, PROJECT NOTES AND PHASING

4/1/2021
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User:MooreDS

OFF-SITE DETOUR SIGNING AND ROAD CLOSURE SIGNING

PROJ. REFERENCE NO.	SHEET NO.
17BP.4.R.104	TMP-2

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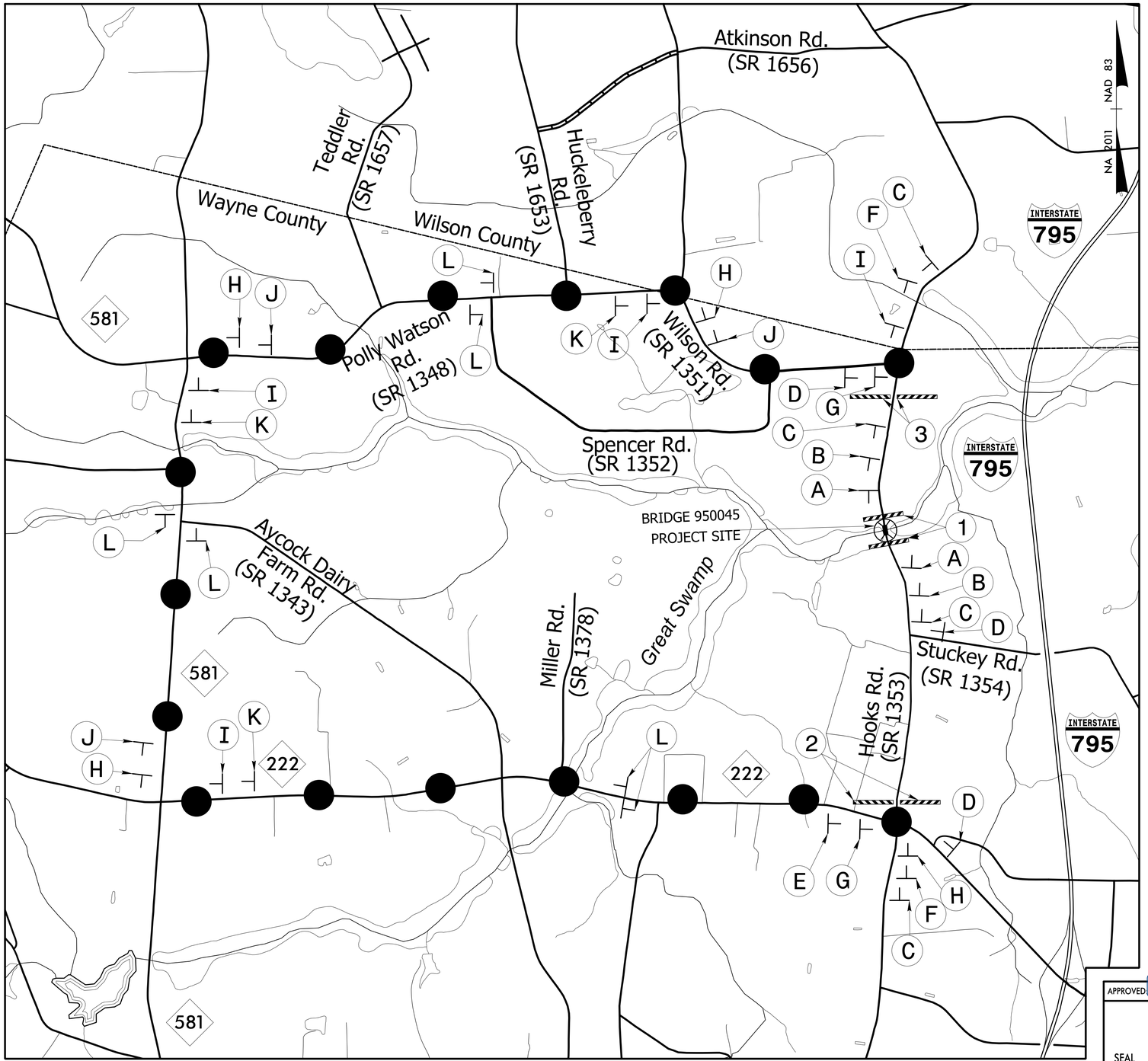
Morrisville, NC 27560
NC License Number F-0991

BRIDGE *950045



SEE ROADWAY STD DWG 1101.03, SHEET 1 AND 2 OF 9 FOR ADVANCE WARNING AND BARRICADE PLACEMENT.

R11-2
48" X 30"
ROAD CLOSED
TYPE III BARRICADE(S)
1

R11-2
60" X 30"
ROAD CLOSED
1 MILE AHEAD
LOCAL TRAFFIC ONLY
DETOUR
M4-10L
48" X 18"
TYPE III BARRICADE
2

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

ROAD CLOSED 500 FT
W20-3
48" X 48"
A

ROAD CLOSED 1000 FT
W20-3
48" X 48"
B

ROAD CLOSED AHEAD
W20-3
48" X 48"
C

ROAD CLOSED AHEAD
W20-3
48" X 48"
NEXT RIGHT
SP-4L
42" X 12"
D

ROAD CLOSED AHEAD
W20-3
48" X 48"
NEXT LEFT
SP-4L
42" X 12"
E

HOOKS RD
DETOUR AHEAD
W20-2
48" X 48"
F

HOOKS RD
END DETOUR
M4-8 A
24" X 18"
G

HOOKS RD
DETOUR
M4-8
24" X 12"
M6-1 L
21" X 15"
H

HOOKS RD
DETOUR
M4-8
24" X 12"
M6-1
21" X 15"
I

HOOKS RD
DETOUR
M4-8
24" X 12"
M5-1 L
21" X 15"
J

HOOKS RD
DETOUR
M4-8
24" X 12"
M5-1 R
21" X 15"
K

HOOKS RD
DETOUR
M4-8
24" X 12"
M6-3
21" X 15"
L

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APPROVED DocuSigned by: E. Neal Paschal DATE: 4/2/2021
DEZAF63496BC484...

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 051963 ENGINEER E. NEAL PASCHAL

DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION WORK ZONE TRAFFIC CONTROL

OFFSITE DETOUR SIGNING AND ROAD CLOSURE SIGNING

4/1/2021
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User:MooreJS

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STV Engineers, Inc.
1600 Perimeter Park Dr.
Suite 225
Morrisville, NC 27560
NC License Number F-0991

PROJ. REFERENCE NO.	SHEET NO.
17BP.4.R.104	TMP-3

BRIDGE #950045

SIGN NUMBER: I-1
TYPE: D
QUANTITY: See Plans

SIGN WIDTH: 42″
HEIGHT: 12″
TOTAL AREA: 3.5 Sq.Ft.

BORDER TYPE: FLUSH
RECESS: 0.47″
WIDTH: 0.63″
RADII: 1.5″

NO. Z BARS:
LENGTH:

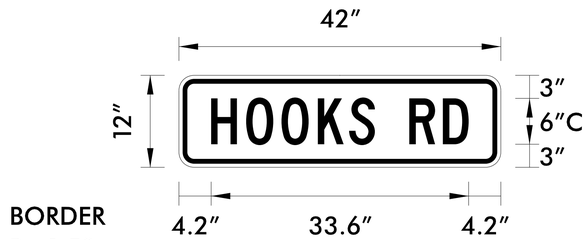
BACKG COLOR: Orange
COPY COLOR: Black

SYMBOL	X	Y	WID	HT

MAT'L: 0.080″ (2.0 mm) ALUMINUM

USE NOTES: 1,2
1. Legend and border shall be direct applied encapsulated lens reflective sheeting.
2. Background shall be NC Grade B fluorescent.

DESIGN BY: JCT
CHECKED BY: PAL
PROJECT ID: 17BP.4.R.104
DIV: 4
DATE: Aug 8, 2019



BORDER
R=1.5″
TH=0.63″
IN=0.47″

Spacing Factor is 1 unless specified otherwise

LETTER POSITIONS

Letter positions are to the lower left corners

Series/Size
Text Length

	H	O	O	K	S		R	D																	
	4.2	8.8	13.4	18.1	22.2	25.6	30.1	34.4																	C 2000 / 6 33.6

NORTH CAROLINA D.O.T. SIGN DETAIL

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APPROVED DocuSigned by: E. Neal Pascal DATE: 4/2/2021
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SEAL
NORTH CAROLINA PROFESSIONAL SEAL 051963 ENGINEER E. NEAL PASCAL

DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION WORK ZONE TRAFFIC CONTROL

OFFSITE DETOUR - SIGN DESIGN (HOOKS ROAD)

PROJECT: 17BP.4.R.104

CONTRACT: DD00314

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

STATE PROJECT REFERENCE NO.	SHEET NO.
17BP.4.R.104	PMP-1

PLAN FOR PROPOSED PAVEMENT MARKING

BRIDGE 950045 – WAYNE COUNTY

ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS APPEAR IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - 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
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO-LANE AND MULTI-LANE ROADWAYS
1205.12	PAVEMENT MARKINGS - BRIDGES
1261.01	GUARDRAIL AND BARRIER DELINEATORS - INSTALLATION SPACING
1261.02	GUARDRAIL AND BARRIER DELINEATORS - TYPES AND MOUNTING
1262.01	GUARDRAIL END DELINEATION

INDEX OF SHEETS

SUMMARY OF QUANTITIES

ITEM NO. DESC. NO.	ITEM NO. SECT. NO.	ITEM DESCRIPTION	QUANTITY	UNIT
4890000000	SP	HOT SPRAY THERMOPLASTIC, WHITE EDGELINE (4", 50MIL)	1130	LF
4890000000	SP	HOT SPRAY THERMOPLASTIC, YELLOW DOUBLE CENTER (4", 50MIL)	1130	LF

GENERAL NOTES

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

A) INSTALL PAVEMENT MARKINGS ON THE FINAL SURFACE AS FOLLOWS:

ROAD NAME	MARKING	MARKERS
SR 1353	HOT SPRAY THERMOPLASTIC	NONE

B) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.

C) REMOVE/REPLACE ANY CONFLICTING PAVEMENT MARKINGS.

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

E) REPLACE ANY PAVEMENT MARKINGS BEYOND THE PROJECT LIMITS DAMAGED BY THE CONTRACTORS' OPERATIONS DURING CONSTRUCTION.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

APPROVED: DocuSigned by: E. Neal Paschal 4/2/2021
DATE:

SEAL — NORTH CAROLINA PROFESSIONAL SEAL 051963 ENGINEER E. NEAL PASCHAL

PLAN PREPARED FOR N.C.D.O.T. BY: STV ENGINEERS, INC.

Patrick A. Livingston, PE — PROJECT ENGINEER
E. Neal Paschal, PE — DESIGN ENGINEER
E. Neal Paschal, PE — DESIGN TECHNICIAN

4/1/2021
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MooreDS

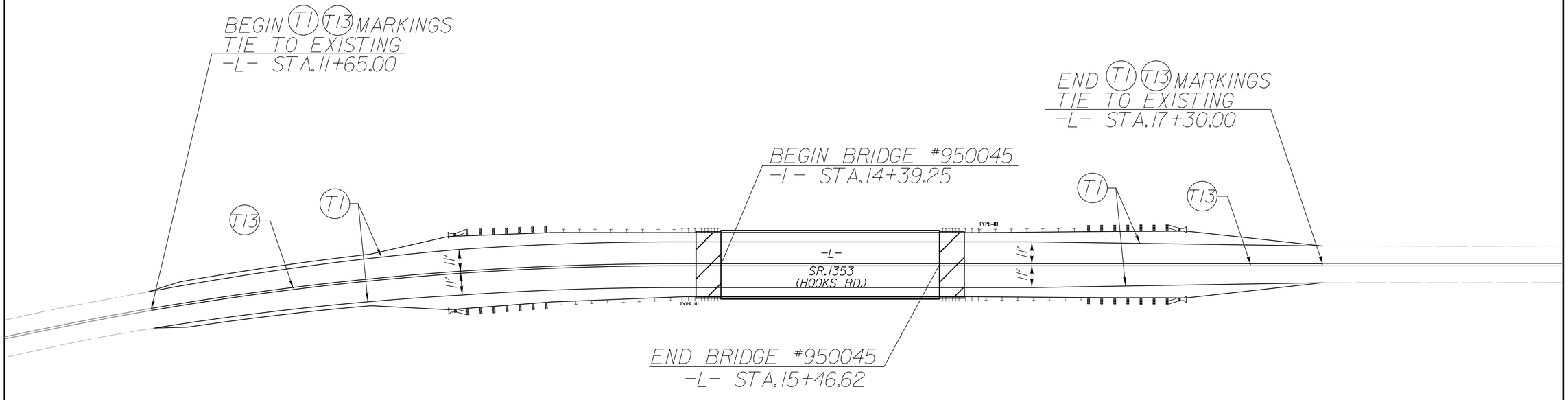
STV 100 Years
STV Engineers, Inc.
1600 Perimeter Park Dr.
Suite 225
Morrisville, NC 27560
NC License Number F-0991

PROJ. REFERENCE NO.	SHEET NO.
17BP.4.R.104	PMP-2

BRIDGE #950045

NAD 83/2011

PAVEMENT MARKING SCHEDULE	
T1 - HOT SPRAY THERMOPLASTIC (4" 50 MIL)	WHITE EDGELINE
T13 - HOT SPRAY THERMPOLASTIC (4" 50 MIL)	YELLOW DOUBLE CENTER LINE



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APPROVED: DocuSigned by: E. Neal Pashal DATE: 4/2/2021

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 051963 ENGINEER E. NEAL PASCHAL

PAVEMENT MARKING DETAIL

SCALE:	NONE
DATE:	12/11/18
DWG. BY:	ENP
DESIGN BY:	ENP
REVIEWED BY:	TLS

DIVISION OF HIGHWAYS TRAFFIC ENGINEERING BRANCH STATE OF TRANSPORTATION TRAFFIC CONTROL

REVISIONS	
CADD FILE	

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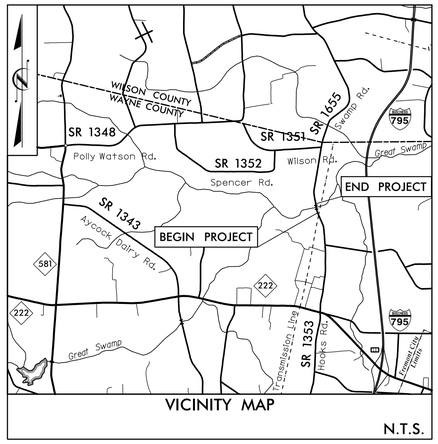
4/1/2021

TIP PROJECT: 17BP.4.R.104

CONTRACT: DD00314



EROSION CONTROL

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL

WAYNE COUNTY

LOCATION: REPLACE BRIDGE #950045 OVER GREAT SWAMP ON SR 1353 (HOOKS ROAD)

TYPE OF WORK: GRADING, PAVING, DRAINAGE, & STRUCTURE

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.4.PE.104	EC-1	8

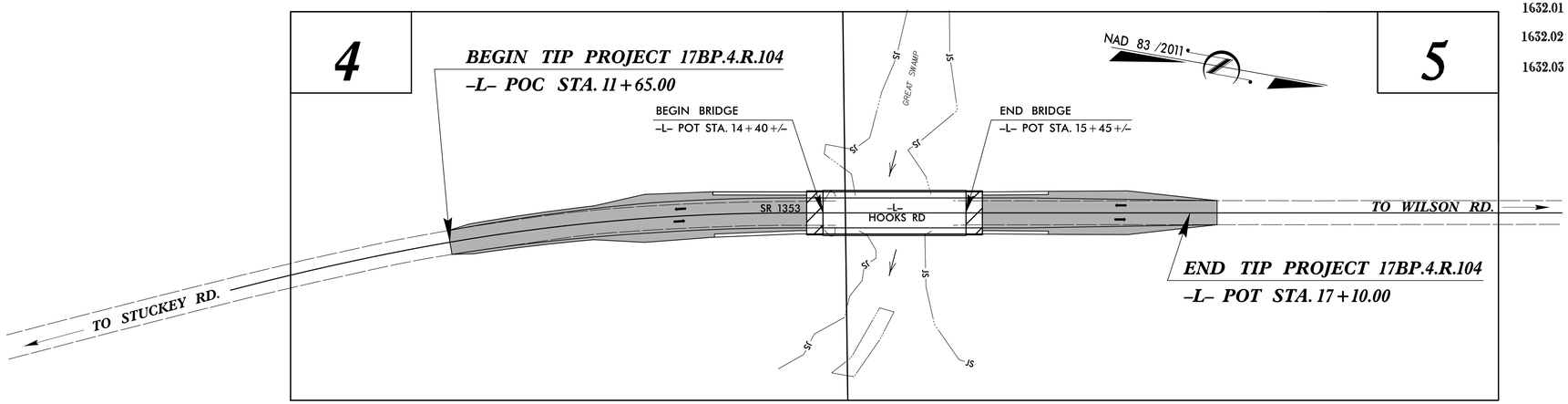
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
17BP.4.PE.104		P.E.

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	SW 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	

4

BEGIN TIP PROJECT 17BP.4.R.104
–L– POC STA. 11+65.00



END TIP PROJECT 17BP.4.R.104
–L– POT STA. 17+10.00

5

THIS PROJECT CONTAINS EROSION CONTROL PLANS FOR CLEARING AND GRUBBING PHASE OF CONSTRUCTION.

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.

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

GRAPHIC SCALE

20 10 0 20 40
PLANS

THESE EROSION AND SEDIMENT CONTROL PLANS COMPLY WITH THE APPLICABLE REGULATIONS SET FORTH BY THE NCG–010000 GENERAL CONSTRUCTION PERMIT EFFECTIVE APRIL 1, 2019 AND ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY DIVISION OF WATER RESOURCES.

STV 100 Years

Prepared In the Office of:

STV ENGINEERS, INC.
900 WEST TRADE STREET, SUITE 715
CHARLOTTE, NC 28202

Designed by:

DILLON BAWAYAN ***4157***
NAME *LEVEL III CERTIFICATION NO.*

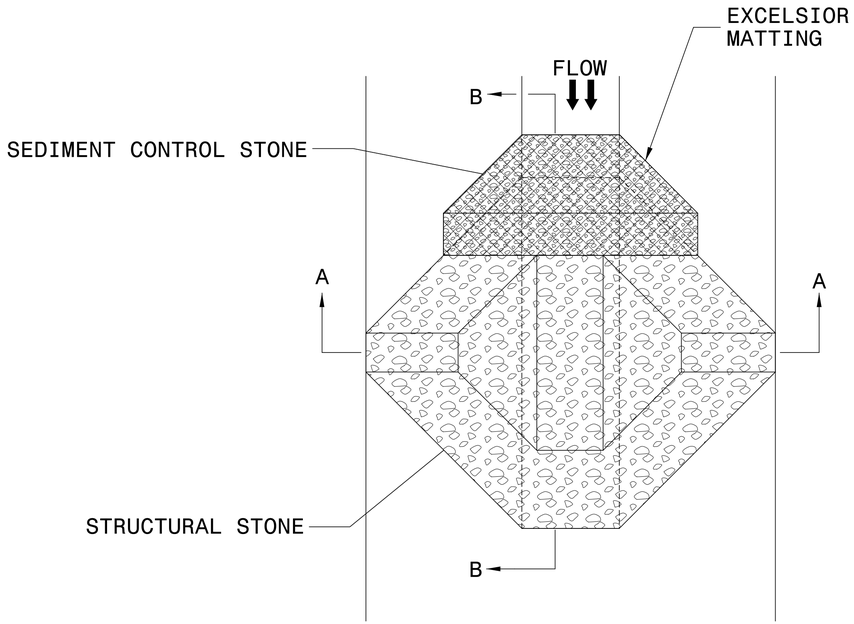
Roadway Standard Drawings

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.

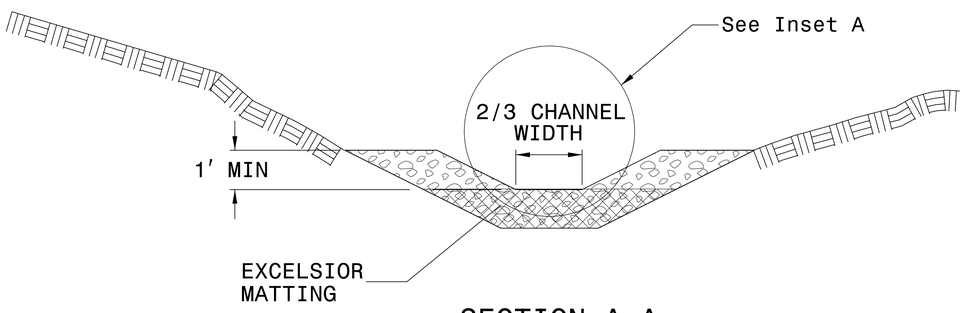
1604.01	Railroad Erosion Control Detail	1632.01	Rock Inlet Sediment Trap Type A
1605.01	Temporary Silt Fence	1632.02	Rock Inlet Sediment Trap Type B
1606.01	Special Sediment Control Fence	1632.03	Rock Inlet Sediment Trap Type C
1607.01	Gravel Construction Entrance	1633.01	Temporary Rock Silt Check Type 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.RJ.104	EC-2
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

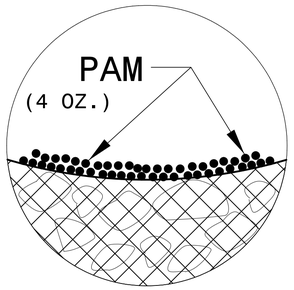
NOTES:

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

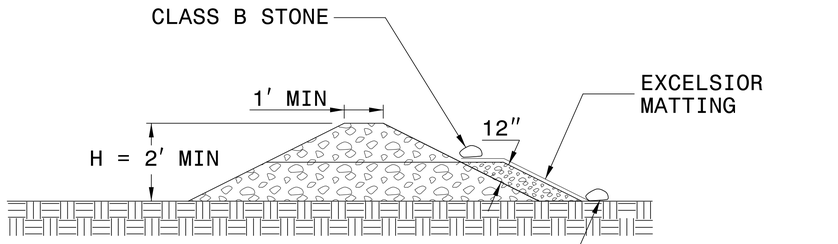
USE EXCELSIOR FOR MATTING MATERIAL AND ANCHOR MATTING SECTION AT TOP AND BOTTOM WITH CLASS B STONE.

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

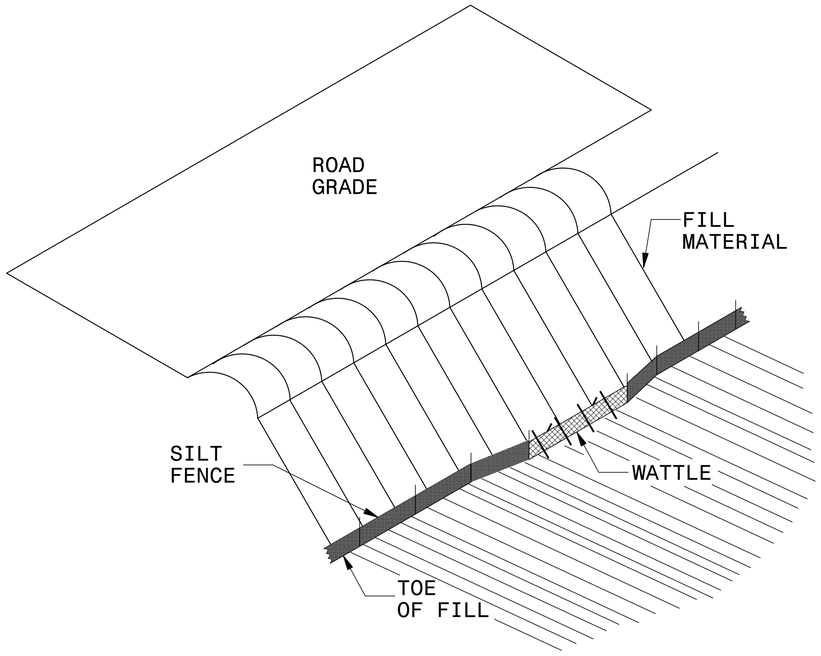


SECTION B-B

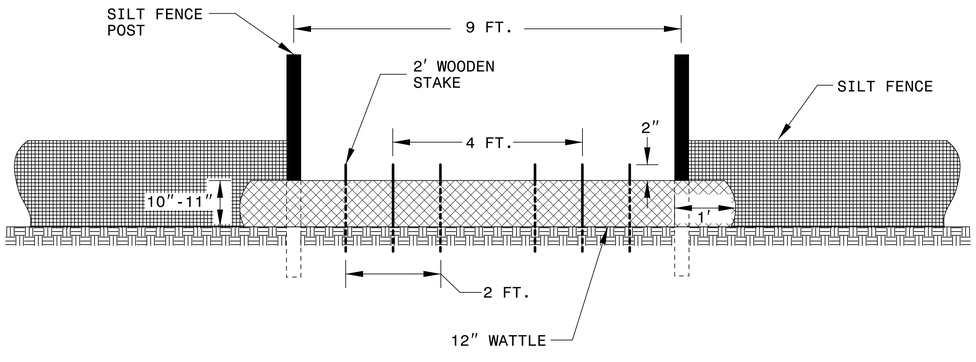
NOT TO SCALE

PROJECT REFERENCE NO.	SHEET NO.
17BP.4.RJ04	EC-2A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

SILT FENCE COIR FIBER WATTLE BREAK DETAIL



ISOMETRIC VIEW



VIEW FROM SLOPE

NOTES:

USE MINIMUM 12 IN. DIAMETER COIR FIBER (COCONUT FIBER) WATTLE AND LENGTH OF 10 FT.

EXCAVATE A 1 TO 2 INCH TRENCH FOR WATTLE TO BE PLACED.

DO NOT PLACE WATTLE ON TOE OF SLOPE.

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

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

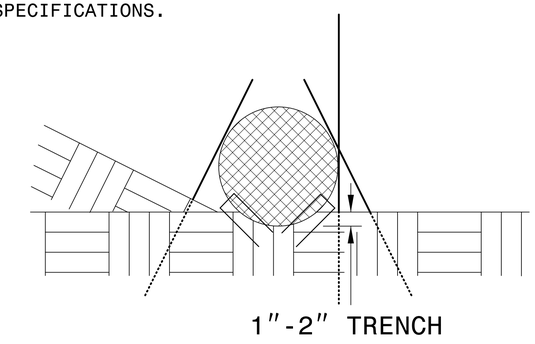
PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12″ IN LENGTH.

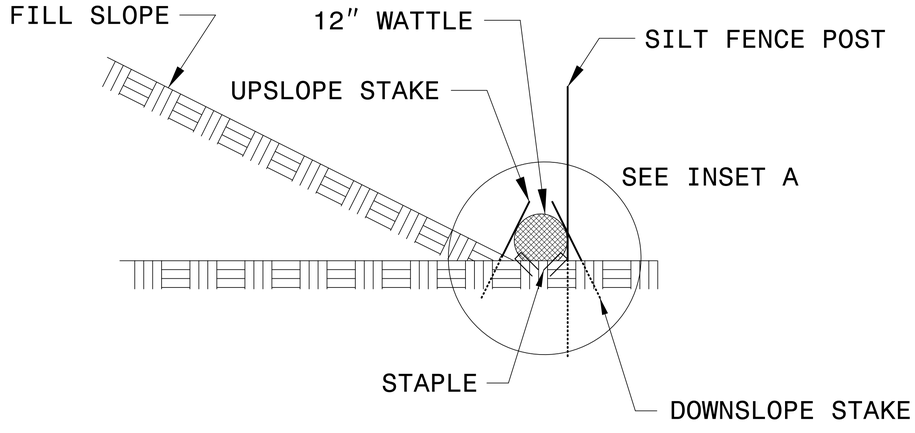
INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.

WATTLE INSTALLATION CAN BE ON OUTSIDE OF THE SILT FENCE AS DIRECTED.

INSTALL TEMPORARY SILT FENCE IN ACCORDANCE WITH SECTION 1605 OF THE STANDARD SPECIFICATIONS.

INSET A





SIDE VIEW

PROJECT REFERENCE NO.	SHEET NO.
17BP.4.R.104	EC-3
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.

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

PROJECT REFERENCE NO.	SHEET NO.
17BP.4.R.104	EC-4/CONST.-4

8/17/99

ENVIRONMENTALLY SENSITIVE AREA
SEE PROJECT SPECIAL PROVISIONS

NAD 83 / NA 2011

EVELYN HOOKS
DB 301PG 39

WOODS

SPECIAL SEDIMENT CONTROL FENCE SEGMENT (TYP.)

+55.00
40.00' &
EX.R/W

18' PAVED ROAD
HOOKS ROAD (SR 1353)

MATCHLINE SHEET 5
-L- STA. 14+00.00

GREUTL-3

PUE

TEMPORARY SILT FENCE
(TYP.)

ROCK SILT CHECK, TYPE A
(TYP.)

+70.00
45.00' &
EX.R/W

(CHORD)

PCC Sta. 11+34.36

EXISTING R/W

SANDRA BUNDGAARD
DB 301PG 38

GOLDSBORO-WILSON 110KV
70' RIGHT OF WAY
RD-7337 (SHT 8)
DB 273 PG 225

NOTES: ANY DEVIATION FROM OPTIONS GIVEN WILL REQUIRE PRIOR APPROVAL BY ENGINEER.

ADDITIONAL EROSION CONTROL DEVICES MAY NEED TO BE INSTALLED AS DIRECTED BY THE ENGINEER.

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 4

NOTE:
PERIMETER EROSION CONTROL MEASURES SHALL BE INSTALLED DURING CLEARING AND GRUBBING PHASE.

4/3/2021
K:\EC\Environmental\Design\SHT\B-4842_hyd_EC_psh04.dgn
Rowland

8/17/99

STV 100 Years	STV Engineers, Inc. 900 West Trade St., Suite 715 Charlotte, NC 28202 NC License Number F-0991	PROJECT REFERENCE NO.	SHEET NO.
		17BP.4.R.104	EC-5/CONST.-5

ENVIRONMENTALLY SENSITIVE AREA
SEE PROJECT SPECIAL PROVISIONS

NAD 83 NA 2011

MATCHLINE SHEET 4
-L- STA. 14+00.00

IMPERVIOUS DIKE (TYP.)

SPECIAL SEDIMENT CONTROL FENCE SEGMENT (TYP.)

TEMPORARY SILT FENCE (TYP.)

RANDY AYCOCK
DB 1721PG 917

BM-2

GREAT SWAMP

BRIDGE #15
WD & CONC

18' PAVED ROAD

8" PLASTIC

8" DI

GREEN TL-3

+19.31
55.00'&
40.00'

+10.00
55.00'
EX.R/W

+19.31
40.00'
(CHORD)

+10.00
40.00'
EX.R/W

+30.00
40.00' &
47.00'

PT Sta. 14+19.31

PUE

NOTES: ANY DEVIATION FROM OPTIONS GIVEN WILL REQUIRE PRIOR APPROVAL BY ENGINEER.

ADDITIONAL EROSION CONTROL DEVICES MAY NEED TO BE INSTALLED AS DIRECTED BY THE ENGINEER.

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 5

NOTE:
PERIMETER EROSION CONTROL MEASURES SHALL BE INSTALLED DURING CLEARING AND GRUBBING PHASE.

4/9/2021
R:\Environmental\Design\SHT\B-4842_hyd_EC_psh05.dgn
Revised

8/17/99

STV Engineers, Inc. 100 Years	PROJECT REFERENCE NO.	SHEET NO.
900 West Trade St., Suite 715 Charlotte, NC 28202 NC License Number F-0991	17BP.4.R.104	EC-6/CONST.-4

EVELYN HOOKS
DB 301PG 39

0.10 ACRE REFORESTATION

NAD 83 NA 2011

EVELYN HOOKS

WOODS

SPECIAL SEDIMENT CONTROL FENCE SEGMENT (TYP.)

+55.00
40.00' &
EX.R/W

R/W

MATCHLINE SHEET 5
-L- STA. 14+00.00

18' PAVED ROAD
HOOKS ROAD (SR 1353)

.01 .00 .01 .02 .025

EXIST. .025

GREU TL-3

+55.00
40.00' &
EX.R/W

R/W

PUE PUE PUE (CHORD)

TEMPORARY SILT FENCE (TYP.)

ROCK SILT CHECK, TYPE A (TYP.)

+70.00
45.00' &
EX.R/W

WOODS

PCC Sta. 11+34.36

GOLDSBORO-WILSON 110KV
70' RIGHT OF WAY
RD-7337 (SHT 8)
DB 273 PG 225

SANDRA BUNDGAARD

NOTES: ANY DEVIATION FROM OPTIONS GIVEN WILL REQUIRE PRIOR APPROVAL BY ENGINEER.

ADDITIONAL EROSION CONTROL DEVICES MAY NEED TO BE INSTALLED AS DIRECTED BY THE ENGINEER.

FINAL EROSION CONTROL FOR CONSTRUCTION SHEET 4

4/8/2021
R:\Environmental\Design\SHT\B-4842_hyd_EC_psh06.dgn
ROBINSON

8/17/99

0.10 ACRE REFORESTATION	STV 100 Years — STV Engineers, Inc. 900 West Trade St., Suite 715 Charlotte, NC 28202 NC License Number F-0991	PROJECT REFERENCE NO.	SHEET NO.
		I7BP.4.R.I04	EC-7/CONST.-5

NAD 83 / NA 2011

BM-2

RANDY AYCOCK
DB 1721 PG 917

RANDY AYCOCK

TURBIDITY CURTAIN (TYP.)

SPECIAL SEDIMENT CONTROL FENCE SEGMENT (TYP.)

TEMPORARY SILT FENCE (TYP.)

MATCHLINE SHEET 4 -L- STA. 14+00.00

BZ 1 BZ 2

TB JS WLB

+19.31 55.00'& 40.00'

+10.00 55.00' EX.R/W

+10.00 40.00' EX.R/W

+10.00 40.00' 47.00'

TYPE-III

BRIDGE #45 WD & CONC

.025 EXIST

GREU TL-3

8" DI

8" PLASTIC

PUE

(CHORD)

PT Sta. 14+19.31

15 GREAT SWAMP

ISLAND

RANDY AYCOCK

RANDY AYCOCK
DB 1721 PG 917

NOTES: ANY DEVIATION FROM OPTIONS GIVEN WILL REQUIRE PRIOR APPROVAL BY ENGINEER.

ADDITIONAL EROSION CONTROL DEVICES MAY NEED TO BE INSTALLED AS DIRECTED BY THE ENGINEER.

FINAL EROSION CONTROL FOR CONSTRUCTION SHEET 5

4/9/2021
R:\Environmental\Design\SHT\B-4842_hyd_EC_psh07.dgn
Rawson

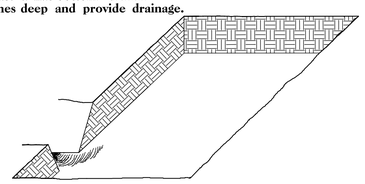
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.4.R.104	RF-1	
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION	

PLANTING DETAILS

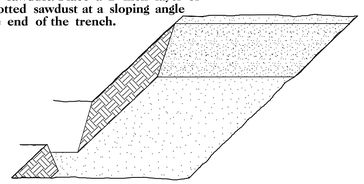
SEEDLING / LINER BAREROOT PLANTING DETAIL

HEALING IN

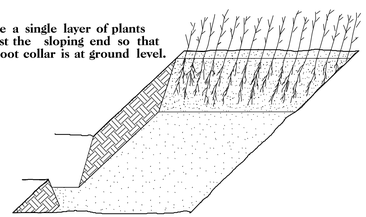
1. Locate a healing-in site in a shady, well protected area.
2. Excavate a flat bottom trench 12 inches deep and provide drainage.



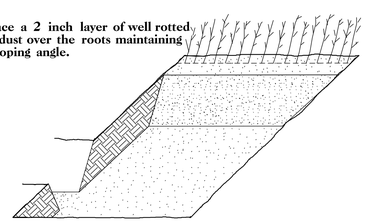
3. Backfill the trench with 2 inches well rotted sawdust. Place a 2 inch layer of well rotted sawdust at a sloping angle at one end of the trench.



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

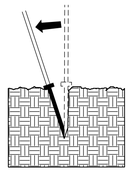


5. Place a 2 inch layer of well rotted sawdust over the roots maintaining a sloping angle.

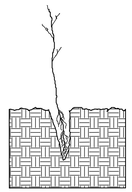


6. Repeat layers of plants and sawdust as necessary and water thoroughly.

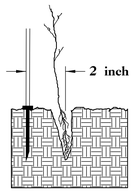
DIBBLE PLANTING METHOD
USING THE KBC PLANTING BAR



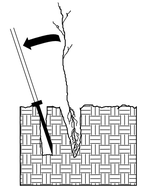
1. Insert planting bar as shown and pull handle toward planter.



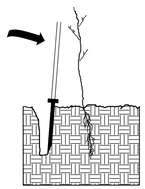
2. Remove planting bar and place seedling at correct depth.



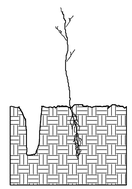
3. Insert planting bar 2 inches toward planter from seedling.



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:

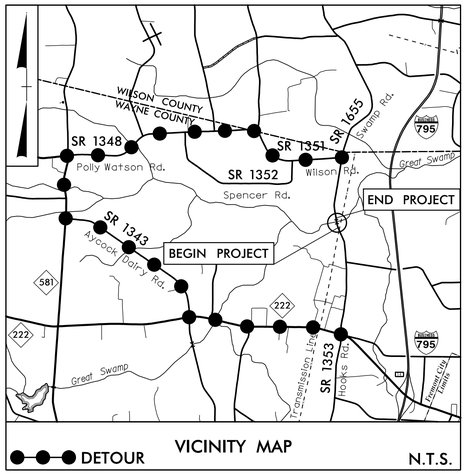
25 %	LIRIODENDRON TULIPIFERA	TULIP POPLAR	12 in – 18 in BR
25 %	PLATANUS OCCIDENTALIS	AMERICAN SYCAMORE	12 in – 18 in BR
25 %	FRAXINUS PENNSYLVANICA	GREEN ASH	12 in – 18 in BR
25 %	BETULA NIGRA	RIVER BIRCH	12 in – 18 in BR

REFORESTATION DETAIL SHEET

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

09/08/09

TIP PROJECT: 17BP.4.R.104



65% PLANS

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

UTILITIES BY OTHERS PLANS
WAYNE COUNTY

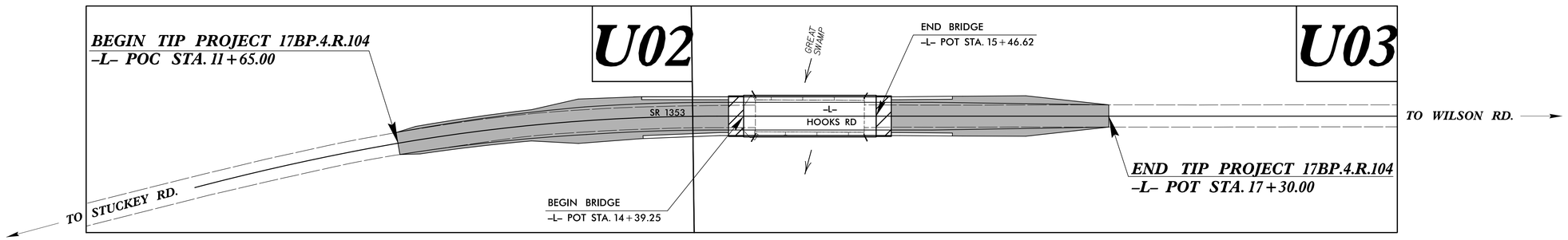
T.I.P. NO.	SHEET NO.
17BP.4.R.104	U01

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

LOCATION: BRIDGE #950045 OVER GREAT SWAMP ON SR 1353 (HOOKS ROAD)

TYPE OF WORK: POWER RELOCATIONS

NAD 83 /2011



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

*DESIGN EXCEPTION APPROVED FOR SUPERELEVATION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

INDEX OF SHEETS

UTILITY OWNERS WITH CONFLICTS

(A) POWER - TRI-COUNTY EMC

PREPARED IN THE OFFICE OF:

STV 100 Years
STV Engineers, Inc.
1600 Perimeter Park Dr., Suite 225
Morrisville, NC 27560
NC License Number F-0991

Oriana Hernandez, PE	UTILITY PROJECT MANAGER
Laura Braunfeld	PROJECT UTILITY COORDINATOR
Riska Zahrro	PROJECT UTILITY QAQC

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

N/A	UTILITIES REGIONAL ENGINEER
Kim Moore	UTILITIES ENGINEER
N/A	UTILITIES AREA COORDINATOR
David Beaman	UTILITIES COORDINATOR

$$$$SYSTIME$$$$
$$$$DGN$$$$
$$$$USERNAME$$$$

BRIDGE #950045

PROJECT REFERENCE NO.	SHEET NO.
17BP.4.R.104	U02

UTILITIES BY OTHERS

NAD 83/2011

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

BEGIN TIP PROJECT 17BP.4.R.104
-L- POC STA. 11+65.00

EXISTING POWER POLE TO REMAIN

EXISTING OH POWER SPAN TO REMAIN

TRI COUNTY EMC TO INSTALL NEW POLE

TRI COUNTY EMC TO REMOVE POLE

PC Sta. 10+00.00

PCC Sta. 11+34.36

TRI COUNTY EMC TO INSTALL NEW OH LINE

TRI COUNTY EMC TO REMOVE EXISTING OH LINE

PROP O/H POW LINES

8" PLASTIC

8" DI

TO STUCKEY RD.

HOOKS ROAD (SR 1353)

18' PAVED ROAD

EXISTING R/W

GOLDSBORO-WILSON 110KV
70' RIGHT OF WAY
RD-7337 (SHT 8)
DB 273 PG 225

BEGIN SBG
-L- STA.13+60.00 LT&RT

PUE

(CHORD)

MATCHLINE SHEET U03
-L- STA. 14+00.00

5/14/99

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
17BP.4.R.104	U03

BRIDGE #950045

UTILITIES BY OTHERS

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

NAD 83/2011

MATCHLINE SHEET U02
–L– STA. 14+00.00

END TIP PROJECT 17BP.4.R.104
–L– POT STA. 17+30.00

+19.31
55.00'&
40.00'

BEGIN APPROACH SLAB
–L– STA.14+28.37

BEGIN BRIDGE
–L– STA.14+39.25

END BRIDGE
–L– STA.15+46.62

END APPROACH SLAB
–L– STA.15+57.50

+10.00
55.00'
EX.R/W

14'LANE TAPER LT & RT

10" PLASTIC

10" PLASTIC

8" DI

8" PLASTIC

12.5'

TO WILSON RD.

UNPAVED ROAD

N 9° 59' 39.6" W

BRIDGE #950045

30'-0" FTF

33'-0" OTO

.025

.025

EXIST

–L–

GREAT SWAMP

PROP O/H POW LINES

REMOVE EXIST. BRIDGE

PROP O/H POW LINES

END SBG
–L– STA.16+06.00 LT&RT

+10.00
40.00'
EX R/W

+19.31
40.00'
(CHORD)

PUE PUE PUE PUE PUE PUE

+90.00
40.00' &
47.00'

PT Sta. 14+19.31

TRI COUNTY EMC TO INSTALL
NEW POWER POLE

TRI COUNTY EMC TO REMOVE
EXISTING POWER POLE

EXISTING POWER POLE
TO REMAIN

EXISTING OH POWER
TO REMAIN

EXISTING POWER POLE
TO REMAIN

SYMBOL LEGEND

PROJ. REFERENCE NO.	SHEET NO.
17BP.4.R.104	X-1A

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CROSS-SECTION SUMMARY

NOTE: EMBANKMENT COLUMN INCLUDES BACKFILL FOR UNDERCUT

Station L	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
11+65.00	0	0
12+00.00	13	1
12+50.00	31	3
13+00.00	16	6
13+50.00	5	13
14+00.00	4	31
14+39.25	3	36

Station L	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
15+46.62	0	0
15+50.00	2	2
16+00.00	18	27
16+50.00	2	19
17+00.00	4	8
17+30.00	1	2

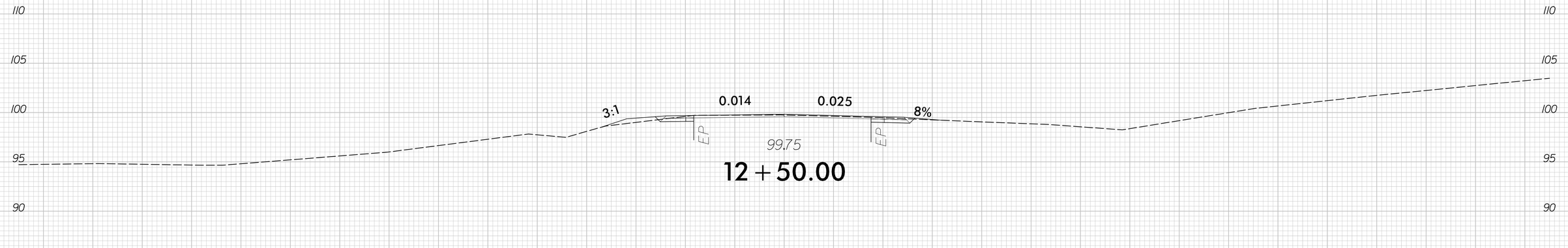
Approximate quantities only. Unclassified excavation, borrow excavation, fine grading, clearing and grubbing, and removal of existing pavement will be paid for at the lump sum price for "Grading".

6/23/16

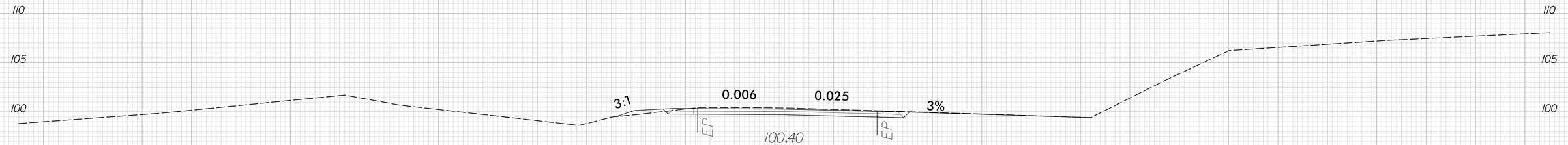
0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	17BP.4.R.104	X-1

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

110 / 105 / 100 / 95 / 90

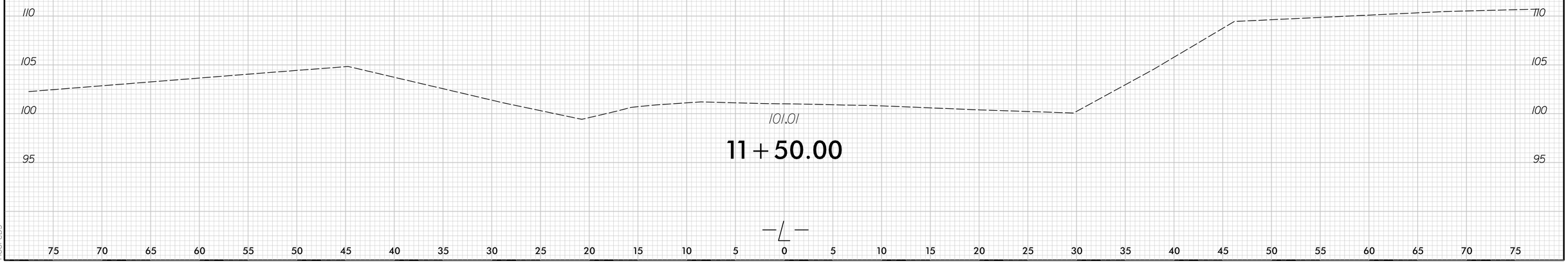


110 / 105 / 100 / 95



BEGIN TIP PROJECT 17BP.4.R.104
–L– STA. 11+65.00

115 / 110 / 105 / 100 / 95



–L–

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

4/1/2021
R:\Projects\Highway\XSC\B4842_rdy_XPL_L.dgn
Morgan

6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	17BP.4.R.104	X-2

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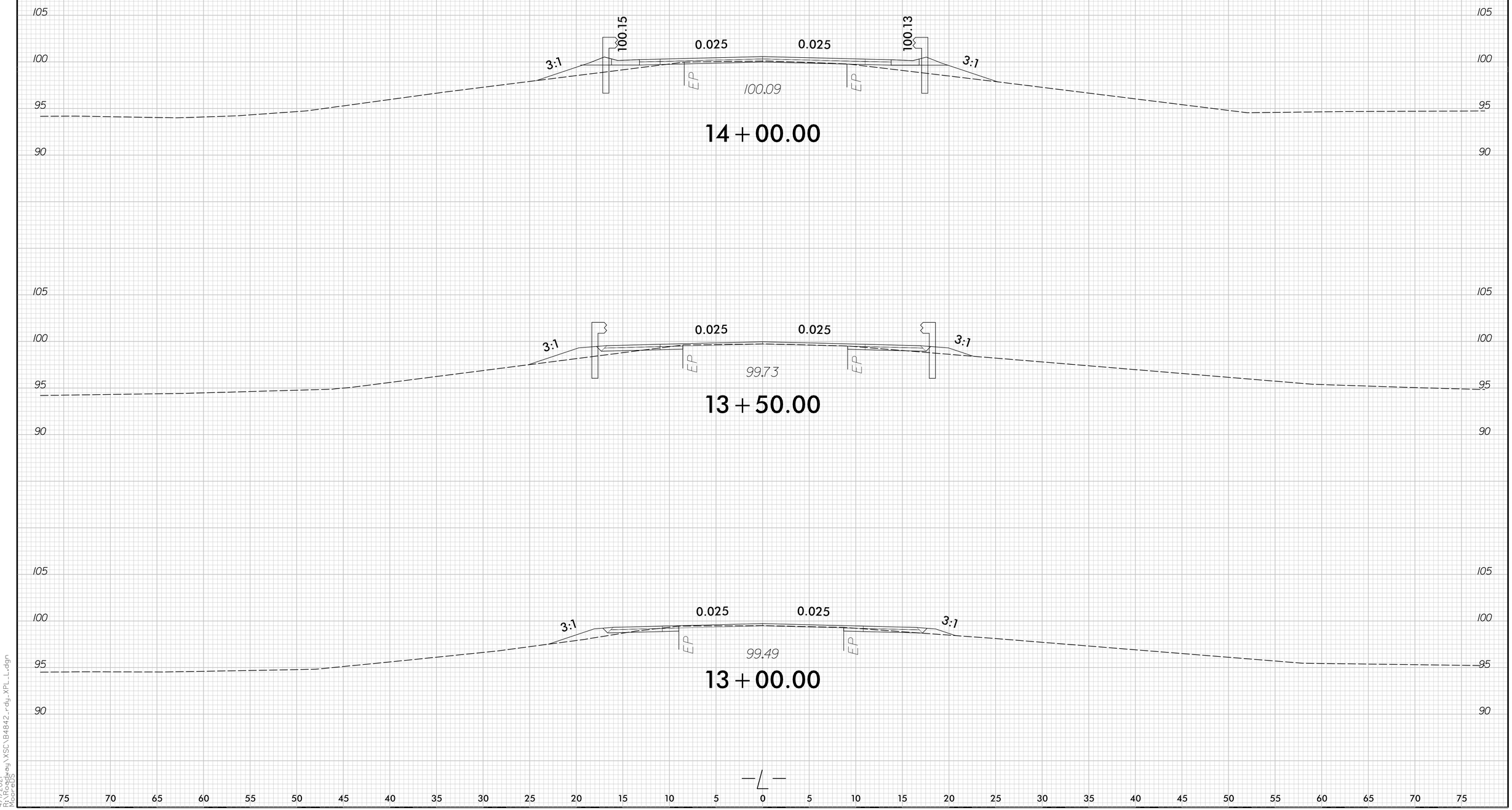

4/1/2021
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Morris

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	17BP.4.R.104	X-3

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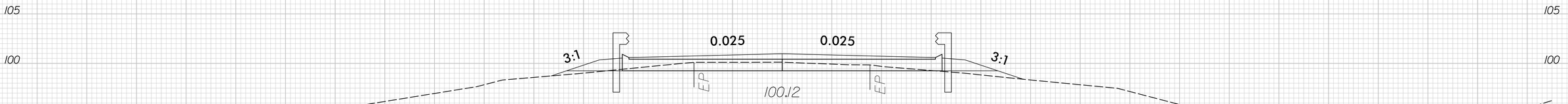
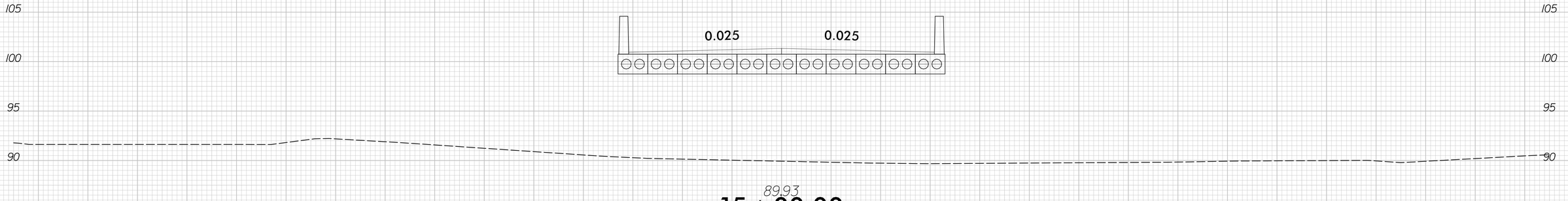
= FOUNDATION EXCAVATION

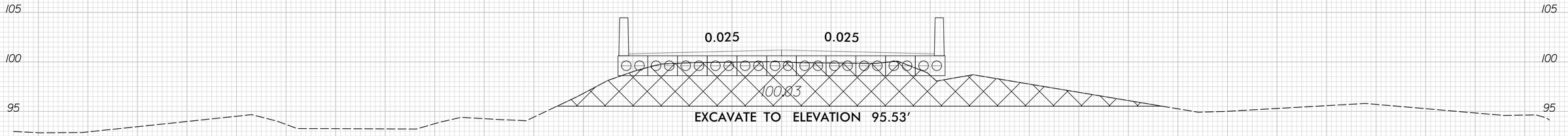


15 + 50.00

END BRIDGE –L– STA. 15 + 46.62



15 + 00.00



EXCAVATE TO ELEVATION 95.53'

14 + 50.00

BEGIN BRIDGE –L– STA. 14 + 39.25

–L–

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

4/1/2021
Bridge Dev\XSC\B4842_rdy_XPL_L.dgn
Morris

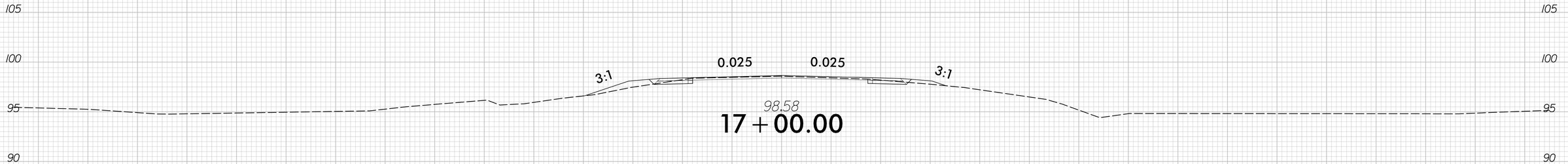
6/23/16

0 2.5 5

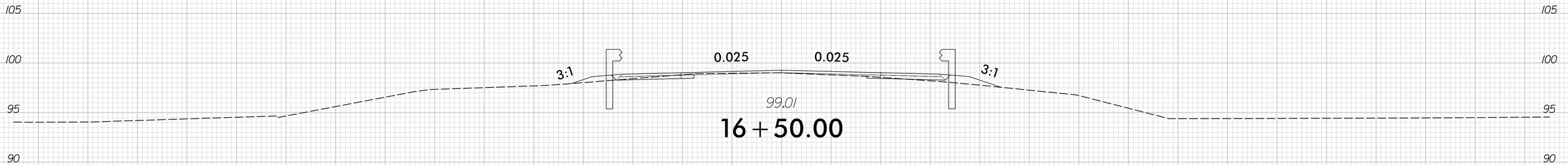
PROJ. REFERENCE NO.	SHEET NO.
17BP.4.R.104	X-4

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

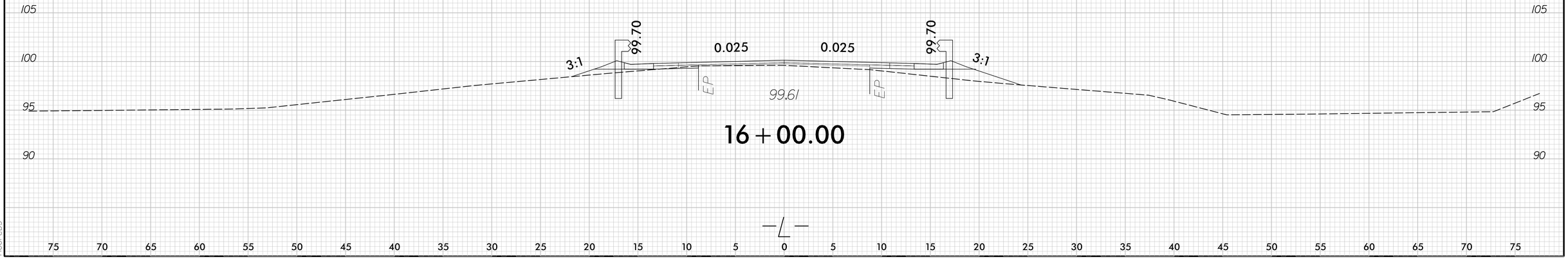
END TIP PROJECT 17BP.4.R.104
–L– STA. 17+30.00



17+00.00



16+50.00



16+00.00

–L–

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

4/1/2021
P:\Projects\Roadway\XSC\B4842_rdy_XPLL.dgn
Morrison

6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	17BP.4.R.104	X-5

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

100

95

90

98.28

17+50.00

100

95

90

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

4/1/2021
P:\Roadway\XSC\B4842_rdy_XPL_L.dgn
MicroStation

14+00 14+50 15+00 15+50 16+00 16+50

VERTICAL CURVE DATA -L-

(-)1.7167% ○ (+)1.5674%

PI = 12+85.00
EL = 98.77
VC = 230'

VERTICAL CURVE DATA -L-

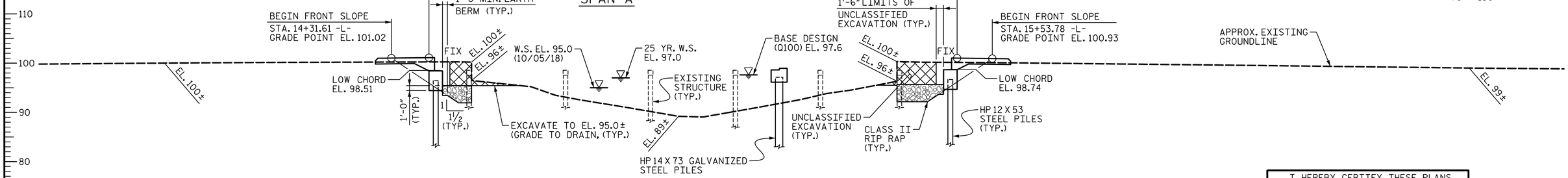
(+)1.5674% ○ (-)2.0125%

PI = 15+00.00
EL = 102.14
VC = 180'

VERTICAL CURVE DATA -L-

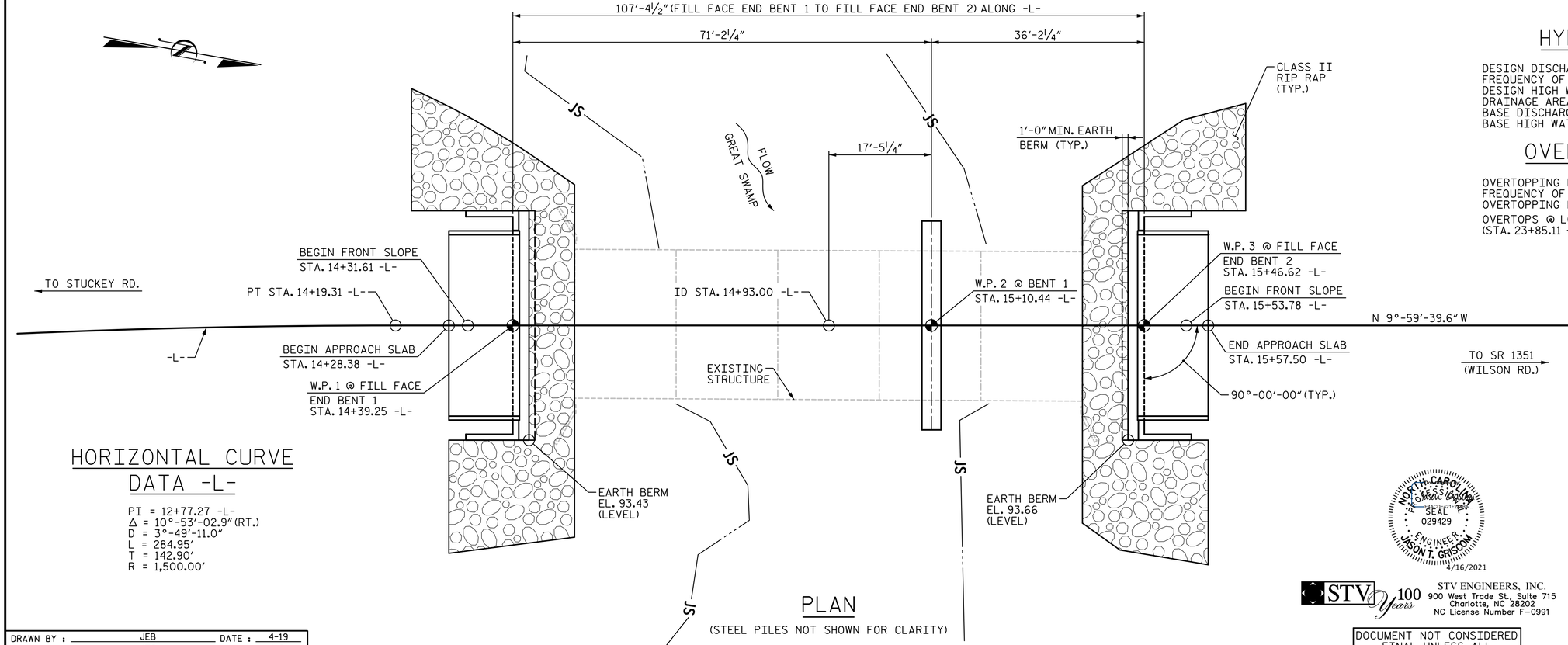
(-)2.0125% ○ (-)0.7429%

PI = 16+60.00
EL = 98.92
VC = 130'



SECTION ALONG -L-

I HEREBY CERTIFY THESE PLANS ARE THE AS-BUILT PLANS



PLAN

(STEEL PILES NOT SHOWN FOR CLARITY)

HYDRAULIC DATA

DESIGN DISCHARGE: _____ 1,500 CFS
FREQUENCY OF DESIGN FLOOD: _____ 25 YRS.
DESIGN HIGH WATER ELEVATION: _____ 97.0
DRAINAGE AREA: _____ 20.8 SQ. MI.
BASE DISCHARGE (Q100): _____ 2,300 CFS
BASE HIGH WATER ELEVATION: _____ 97.6

OVERTOPPING DATA

OVERTOPPING DISCHARGE: _____ 1,755 CFS
FREQUENCY OF OVERTOPPING: _____ 50± YRS.
OVERTOPPING FLOOD ELEVATION: _____ 97.2
OVERTOPS @ LOW POINT ON EXISTING ROAD (STA. 23+85.11 -L-)

HORIZONTAL CURVE DATA -L-

PI = 12+77.27 -L-
Δ = 10°-53'-02.9" (RT.)
D = 3°-49'-11.0"
L = 284.95'
T = 142.90'
R = 1,500.00'

PROJECT NO. 17BP.4.R.104
WAYNE COUNTY
STATION: 14+93.00 -L-

SHEET 1 OF 2 REPLACES BRIDGE NO. 045

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

FOR BRIDGE ON SR 1353 (HOOKS ROAD) OVER GREAT SWAMP BETWEEN STUCKEY RD. AND SR 1351

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 029429 REGISTERED ENGINEER JASON T. GRISCOM
4/16/2021

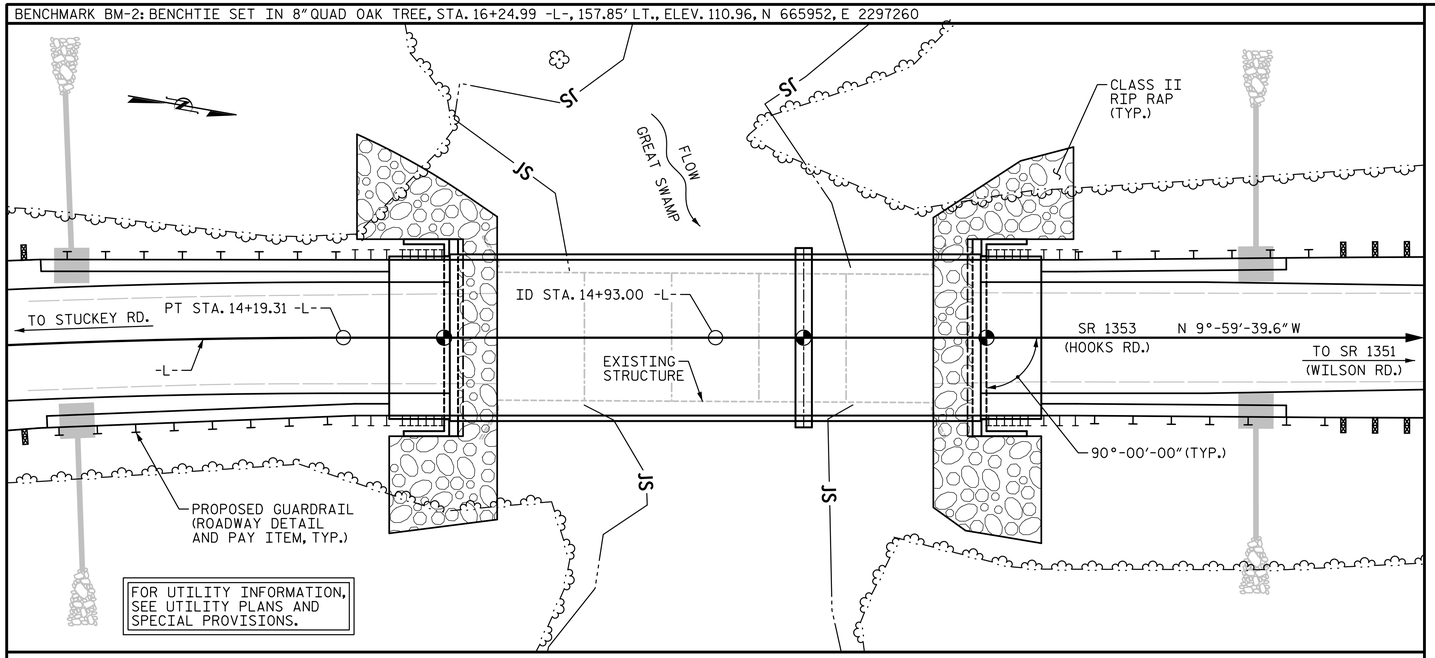
STV 100 Years
STV ENGINEERS, INC.
900 West Trade St., Suite 715
Charlotte, NC 28202
NC License Number F-0991

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

DRAWN BY : JEB DATE : 4-19
CHECKED BY : JTG DATE : 4-21
DESIGN ENGINEER OF RECORD : J. GRISCOM DATE : 4-21

R:\Structures\Justation\Finals\401_001_17BP.4.R.104_SMU_GDI_001_950045.dgn 4/15/2021 10:05:20 AM melvinie



LOCATION SKETCH

TOTAL BILL OF MATERIAL

	REMOVAL OF EXISTING STRUCTURE AT STA. 14+93.00 -L-	ASBESTOS ASSESSMENT	UNCLASSIFIED STRUCTURE EXCAVATION	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	PILE DRIVING EQUIPMENT SETUP FOR HP 12 X 53 STEEL PILES	PILE DRIVING EQUIPMENT SETUP FOR HP 14 X 73 STEEL PILES
	LUMP SUM	LUMP SUM	LUMP SUM	CU. YD.	LUMP SUM	LBS.	EA.	EA.
SUPERSTRUCTURE								
END BENT 1				21.8		2,636	7	
BENT 1				11.7		2,233		8
END BENT 2				21.6		2,636	7	
TOTAL	LUMP SUM	LUMP SUM	LUMP SUM	55.1	LUMP SUM	7,505	14	8

TOTAL BILL OF MATERIAL (CONT'D.)

	HP 12 X 53 STEEL PILES		HP 14 X 73 STEEL PILES		PILE REDRIVES	PDA TESTING	VERTICAL CONCRETE BARRIER RAIL	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE	ELASTOMERIC BEARINGS	3'-0" X 1'-9" PRESTRESSED CONCRETE CORED SLABS		3'-0" X 2'-0" PRESTRESSED CONCRETE CORED SLABS	
	NO.	LIN. FT.	NO.	LIN. FT.	EA.	EA.	LIN. FT.	TONS	SQ. YDS.	LUMP SUM	NO.	LIN. FT.	NO.	LIN. FT.
SUPERSTRUCTURE							210.5				11	385.0	11	770.0
END BENT 1	7	175			4			185	185					
BENT 1			8	240	4									
END BENT 2	7	245			4			185	185					
TOTAL	14	420	8	240	12	2	210.5	370	370	LUMP SUM	11	385.0	11	770.0

GENERAL NOTES

ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.

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

THIS BRIDGE IS LOCATED IN SEISMIC ZONE 1.

FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE "STANDARD NOTES" SHEET.

FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

THE EXISTING STRUCTURE CONSISTING OF (2) 17'-9" SPANS AND (3) 17'-0" SPANS WITH A CONCRETE DECK ON TIMBER JOISTS WITH A CLEAR ROADWAY WIDTH OF 24' AND SUPPORTED ON TIMBER CAPS AND PILES AND LOCATED AT THE PROPOSED STRUCTURE SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY POSTED FOR LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE DETERIORATE DURING CONSTRUCTION OF THE PROPOSED BRIDGE, A LOAD LIMIT MAY BE POSTED AND MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT.

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

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA (ON SHEET 1 OF 2) SHALL BE EXCAVATED FOR A DISTANCE FROM THE CENTERLINE OF ROADWAY OF 30'± (LEFT) AND 36'± (RIGHT) AT END BENT 1 AND 24'± (LEFT) AND 34'± (RIGHT) AT END BENT 2 TO EL. 95.5±, 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 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.

AT THE CONTRACTOR'S OPTION, PRESTRESSED CONCRETE END BENT CAPS MAY BE SUBSTITUTED IN PLACE OF THE CAST-IN-PLACE CAPS. THE CONTRACTOR SHALL COORDINATE WITH THE RESIDENT ENGINEER TO RECEIVE REVISED PLANS AND DETAILS FROM THE STRUCTURES MANAGEMENT UNIT. THE REDESIGN AND ANY ADDITIONAL MATERIALS NEEDED WILL BE AT NO ADDITIONAL COST TO THE CONTRACTOR.

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

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.

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

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

FOUNDATION NOTES

1. FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.
2. PILES AT END BENT NO. 1 AND END BENT NO. 2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 81 TONS AND 55 TONS PER PILE, RESPECTIVELY.
3. DRIVE PILES AT END BENT NO. 1 AND END BENT NO. 2 TO A REQUIRED DRIVING RESISTANCE OF 135 TONS AND 95 TONS PER PILE, RESPECTIVELY.
4. PILES AT BENT NO. 1 ARE DESIGNED FOR A FACTOR RESISTANCE OF 118 TONS PER PILE.
5. DRIVE PILES AT BENT NO. 1 TO A REQUIRED DRIVING RESISTANCE OF 200 TONS PER PILE. THIS REQUIRED DRIVING RESISTANCE INCLUDES ADDITIOANL RESISTANCE FOR DOWNDRAG OR SCOUR.
6. INSTALL PILES AT BENT NO. 1 TO A TIP ELEVATION NO HIGHER THAN 72 FT.
7. THE SCOUR CRITICAL ELEVATION FOR BENT NO. 1 IS ELEVATION 84 FT. SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.
8. TESTING PILES WITH THE PDA DURING DRIVING, RESTRIKING OR REDRIVING MAY BE REQUIRED. THE ENGINEER WILL DETERMINE THE NEED FOR PDA TESTING. FOR PDA TESTING, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

PROJECT NO. 17BP.4.R.104

WAYNE COUNTY

STATION: 14+93.00 -L-

SHEET 2 OF 2

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 029429 ENGINEER JASON T. GRISCOM 8/2/2021

STV 100 Years

STV ENGINEERS, INC.
900 West Trade St., Suite 715
Charlotte, NC 28202
NC License Number F-0991

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

FOR BRIDGE ON SR 1353 (HOOKS ROAD) OVER GREAT SWAMP BETWEEN STUCKEY RD. AND SR 1351

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

DRAWN BY : JEB DATE : 4-19
CHECKED BY : JTG DATE : 4-21
DESIGN ENGINEER OF RECORD : J. GRISCOM DATE : 4-21

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

LEVEL		VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING	MINIMUM RATING FACTORS (RF)	TONS = W X RF	STRENGTH I LIMIT STATE										SERVICE III LIMIT STATE						COMMENT NUMBER
								MOMENT					SHEAR					MOMENT						
							LIVELOAD FACTORS	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	LIVELOAD FACTORS	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	
DESIGN LOAD RATING		HL-93(Inv)	N/A	1	1.006	--	1.75	0.273	1.03	70′	EL	34.5	0.507	1.32	70′	EL	6.9	0.80	0.273	**1.01**	70′	EL	**34.5**	
		HL-93(Opr)	N/A	--	1.341	--	1.35	0.273	1.34	70′	EL	34.5	0.507	1.72	70′	EL	6.9	N/A	--	--	--	--	--	
		HS-20(Inv)	36.000	2	1.306	47.02	1.75	0.273	1.34	70′	EL	34.5	0.507	1.65	70′	EL	6.9	0.80	0.273	**1.31**	70′	EL	**34.5**	
		HS-20(Opr)	36.000	--	1.74	62.64	1.35	0.273	1.74	70′	EL	34.5	0.507	2.14	70′	EL	6.9	N/A	--	--	--	--	--	
LEGAL LOAD RATING	SV	SNSH	13.500	--	2.917	39.379	1.4	0.273	3.75	70′	EL	34.5	0.507	4.87	70′	EL	6.9	0.80	0.273	2.92	70′	EL	34.5	
		SNGARBS2	20.000	--	2.187	43.741	1.4	0.273	2.81	70′	EL	34.5	0.507	3.47	70′	EL	6.9	0.80	0.273	2.19	70′	EL	34.5	
		SNAGRIS2	22.000	--	2.077	45.69	1.4	0.273	2.67	70′	EL	34.5	0.507	3.23	70′	EL	6.9	0.80	0.273	2.08	70′	EL	34.5	
		SNCOTTS3	27.250	--	1.452	39.565	1.4	0.273	1.87	70′	EL	34.5	0.507	2.43	70′	EL	6.9	0.80	0.273	1.45	70′	EL	34.5	
		SNAGGRS4	34.925	--	1.218	42.554	1.4	0.273	1.57	70′	EL	34.5	0.507	2.03	70′	EL	6.9	0.80	0.273	1.22	70′	EL	34.5	
		SNS5A	35.550	--	1.191	42.346	1.4	0.273	1.53	70′	EL	34.5	0.507	2.06	70′	EL	6.9	0.80	0.273	1.19	70′	EL	34.5	
		SNS6A	39.950	--	1.095	43.747	1.4	0.273	1.41	70′	EL	34.5	0.507	1.88	70′	EL	6.9	0.80	0.273	1.10	70′	EL	34.5	
		SNS7B	42.000	--	1.043	43.801	1.4	0.273	1.34	70′	EL	34.5	0.507	1.85	70′	EL	6.9	0.80	0.273	1.04	70′	EL	34.5	
	TTST	TNAGRIT3	33.000	--	1.336	44.087	1.4	0.273	1.72	70′	EL	34.5	0.507	2.23	70′	EL	6.9	0.80	0.273	1.34	70′	EL	34.5	
		TNT4A	33.075	--	1.342	44.401	1.4	0.273	1.72	70′	EL	34.5	0.507	2.17	70′	EL	6.9	0.80	0.273	1.34	70′	EL	34.5	
		TNT6A	41.600	--	1.1	45.746	1.4	0.273	1.41	70′	EL	34.5	0.507	1.98	70′	EL	6.9	0.80	0.273	1.10	70′	EL	34.5	
		TNT7A	42.000	--	1.106	46.462	1.4	0.273	1.42	70′	EL	34.5	0.507	1.94	70′	EL	6.9	0.80	0.273	1.11	70′	EL	34.5	
		TNT7B	42.000	--	1.147	48.18	1.4	0.273	1.47	70′	EL	34.5	0.507	1.8	70′	EL	6.9	0.80	0.273	1.15	70′	EL	34.5	
		TNAGRIT4	43.000	--	1.089	46.838	1.4	0.273	1.4	70′	EL	34.5	0.507	1.74	70′	EL	6.9	0.80	0.273	1.09	70′	EL	34.5	
		TNAGT5A	45.000	--	1.026	46.175	1.4	0.273	1.32	70′	EL	34.5	0.507	1.74	70′	EL	6.9	0.80	0.273	1.03	70′	EL	34.5	
		TNAGT5B	45.000	3	1.013	45.579	1.4	0.273	1.3	70′	EL	34.5	0.507	1.66	70′	EL	6.9	0.80	0.273	**1.01**	70′	EL	**34.5**	

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)

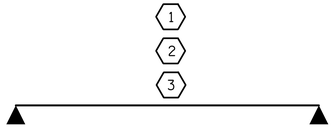
(2) DESIGN LOAD RATING (HS-20)

(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.104

WAYNE COUNTY

STATION: 14+93.00 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

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

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

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 029429 ENGINEER JASON T. GRISCOM SEALED 4/16/2021

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

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

DRAWN BY :	JEB	DATE :	4-19
CHECKED BY :	JTG	DATE :	4-21
DESIGN ENGINEER OF RECORD :	J. GRISCOM	DATE :	4-21
DRAWN BY : CVC 6/10			
CHECKED BY : DNS 6/10			

STANDARD NO. 24LRFR1_90S_70L

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

LEVEL		VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING	MINIMUM RATING FACTORS (RF)	TONS = W X RF	STRENGTH I LIMIT STATE											SERVICE III LIMIT STATE						COMMENT NUMBER
								MOMENT					SHEAR						MOMENT						
							LIVELOAD FACTORS	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	LIVELOAD FACTORS	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	
DESIGN LOAD RATING		HL-93(Inv)	N/A	1	1.032	--	1.75	0.28	1.36	35′	EL	17	0.561	**1.03**	35′	EL	**1.7**	0.80	0.28	1.05	35′	EL	17	
		HL-93(Opr)	N/A	--	1.338	--	1.35	0.28	1.77	35′	EL	17	0.561	1.34	35′	EL	1.7	N/A	--	--	--	--	--	
		HS-20(Inv)	36.000	2	1.189	42.810	1.75	0.28	1.79	35′	EL	13.6	0.561	**1.19**	35′	EL	**1.7**	0.80	0.28	1.39	35′	EL	17	
		HS-20(Opr)	36.000	--	1.542	55.494	1.35	0.28	2.32	35′	EL	13.6	0.561	1.54	35′	EL	1.7	N/A	--	--	--	--	--	
LEGAL LOAD RATING	SV	SNSH	13.500	--	2.400	32.402	1.4	0.28	3.89	35′	EL	17	0.561	3.06	35′	EL	1.7	0.80	0.28	2.40	35′	EL	17	
		SNGARBS2	20.000	--	2.052	41.044	1.4	0.28	3.29	35′	EL	13.6	0.561	2.32	35′	EL	1.7	0.80	0.28	2.05	35′	EL	13.6	
		SNAGRIS2	22.000	--	2.053	45.174	1.4	0.28	3.26	35′	EL	13.6	0.561	2.21	35′	EL	1.7	0.80	0.28	2.05	35′	EL	13.6	
		SNCOTTS3	27.250	--	1.202	32.744	1.4	0.28	1.95	35′	EL	17	0.561	1.54	35′	EL	1.7	0.80	0.28	1.20	35′	EL	17	
		SNAGGRS4	34.925	--	1.111	38.816	1.4	0.28	1.8	35′	EL	17	0.561	1.38	35′	EL	1.7	0.80	0.28	1.11	35′	EL	17	
		SNS5A	35.550	--	1.079	38.354	1.4	0.28	1.75	35′	EL	17	0.561	1.46	35′	EL	1.7	0.80	0.28	1.08	35′	EL	17	
		SNS6A	39.950	--	1.041	41.601	1.4	0.28	1.69	35′	EL	17	0.561	1.37	35′	EL	1.7	0.80	0.28	1.04	35′	EL	17	
		SNS7B	42.000	3	1.000	41.734	1.4	0.28	1.61	35′	EL	17	0.561	1.4	35′	EL	1.7	0.80	0.28	**1.00**	35′	EL	**17**	
	TTST	TNAGRIT3	33.000	--	1.286	42.439	1.4	0.28	2.08	35′	EL	17	0.561	1.6	35′	EL	1.7	0.80	0.28	1.29	35′	EL	17	
		TNT4A	33.075	--	1.285	42.512	1.4	0.28	2.08	35′	EL	17	0.561	1.51	35′	EL	1.7	0.80	0.28	1.29	35′	EL	17	
		TNT6A	41.600	--	1.126	46.84	1.4	0.28	1.82	35′	EL	17	0.561	1.48	35′	EL	1.7	0.80	0.28	1.13	35′	EL	17	
		TNT7A	42.000	--	1.163	48.833	1.4	0.28	1.89	35′	EL	17	0.561	1.37	35′	EL	1.7	0.80	0.28	1.16	35′	EL	17	
		TNT7B	42.000	--	1.144	48.061	1.4	0.28	1.85	35′	EL	17	0.561	1.33	35′	EL	1.7	0.80	0.28	1.14	35′	EL	17	
		TNAGRIT4	43.000	--	1.158	49.810	1.4	0.28	1.86	35′	EL	13.6	0.561	1.28	35′	EL	1.7	0.80	0.28	1.16	35′	EL	17	
		TNAGT5A	45.000	--	1.068	48.071	1.4	0.28	1.73	35′	EL	17	0.561	1.35	35′	EL	1.7	0.80	0.28	1.07	35′	EL	17	
		TNAGT5B	45.000	--	1.031	46.373	1.4	0.28	1.67	35′	EL	17	0.561	1.21	35′	EL	1.7	0.80	0.28	1.03	35′	EL	17	

LOAD FACTORS:

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

NOTES:

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

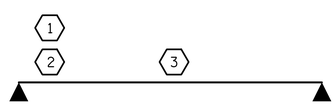
ALLOWABLE STRESSES FOR SERVICE III LIMIT STATE ARE AS REQUIRED FOR DESIGN.

COMMENTS:

1.
2.
3.
4.

(#) CONTROLLING LOAD RATING
(1) DESIGN LOAD RATING (HL-93)
(2) DESIGN LOAD RATING (HS-20)
(3) LEGAL LOAD RATING **
** SEE CHART FOR VEHICLE TYPE

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



LRFR SUMMARY

FOR SPAN 'B'

PROJECT NO. 17BP.4.R.104

WAYNE COUNTY

STATION: 14+93.00 -L-

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 029429 ENGINEER JASON T. GRISCOM 4/16/2021

STV 100 Years

STV ENGINEERS, INC.
900 West Trade St., Suite 715
Charlotte, NC 28202
NC License Number F-0991

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
LRFR SUMMARY FOR 35′ CORED SLAB UNIT 90° SKEW
(NON-INTERSTATE TRAFFIC)

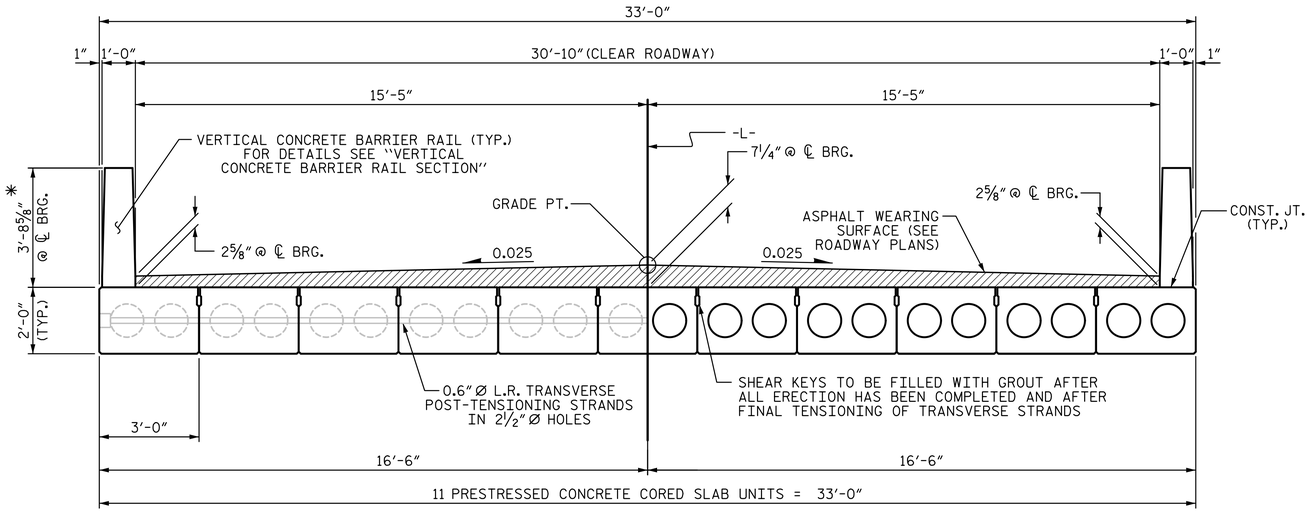
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO. S-4

TOTAL SHEETS 19

DRAWN BY :	JEB	DATE : 4-19
CHECKED BY :	JTG	DATE : 4-21
DESIGN ENGINEER OF RECORD :	J. GRISCOM	DATE : 4-21
DRAWN BY : CVC 6/10		
CHECKED BY : DNS 6/10		

STANDARD NO. 21LRFR1_90S_35L

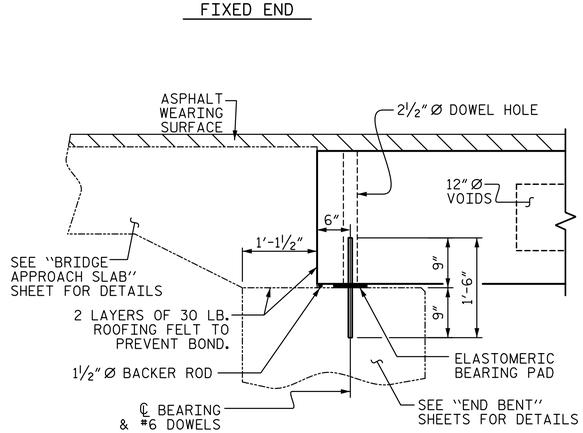


HALF SECTION
AT INTERMEDIATE DIAPHRAGMS

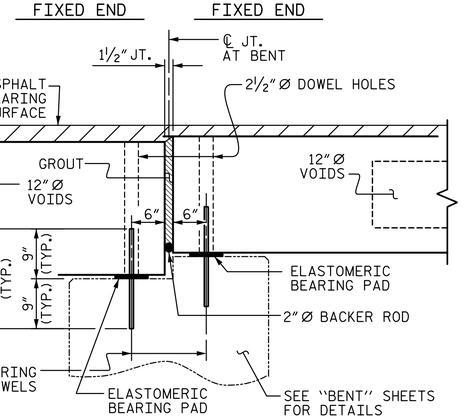
HALF SECTION
THROUGH VOIDS

TYPICAL SECTION

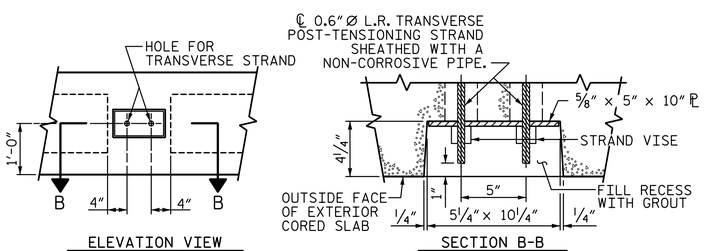
✳ - THE MAXIMUM BARRIER RAIL HEIGHT AND ASPHALT THICKNESS IS SHOWN. THE HEIGHT OF THE BARRIER RAIL AND ASPHALT THICKNESS VARIES WHILE THE TOP OF THE BARRIER RAIL FOLLOWS THE PROFILE OF THE GUTTERLINE. FOR RAIL HEIGHT DETAILS AND ASPHALT THICKNESS, SEE THE ''VERTICAL CONCRETE BARRIER RAIL SECTION'' DETAIL.



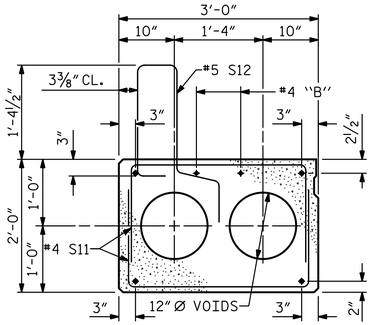
SECTION AT END BENT



SECTION AT BENT No. 1

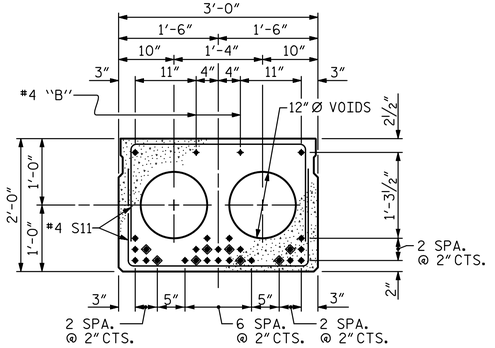


GROUTED RECESS AT END OF POST-TENSIONED STRAND CORED SLABS



EXTERIOR SLAB SECTION

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



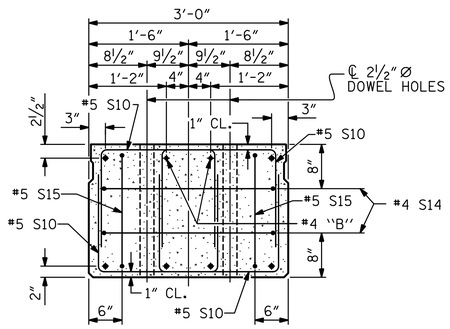
INTERIOR SLAB SECTION (70′ UNIT)

(28 STRANDS REQUIRED)

0.6′′ Ø LOW RELAXATION STRAND LAYOUT

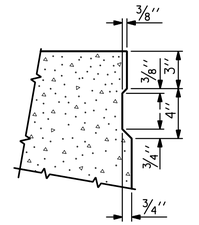
◈ BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 12′-0″ FROM END OF CORED SLAB UNIT. SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7.

DEBONDING LEGEND



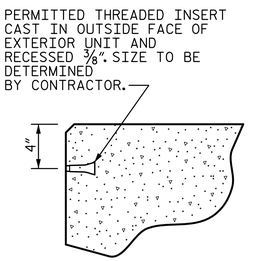
END ELEVATION

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.



THREADED INSERT DETAIL

PROJECT NO. 17BP.4.R.104

WAYNE COUNTY

STATION: 14+93.00 -L-

SHEET 1 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

3′-0′′ X 2′-0′′ PRESTRESSED CONCRETE CORED SLAB UNIT (SPAN A)

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 029429 ENGINEER JASON T. GRISCOM
4/16/2021

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

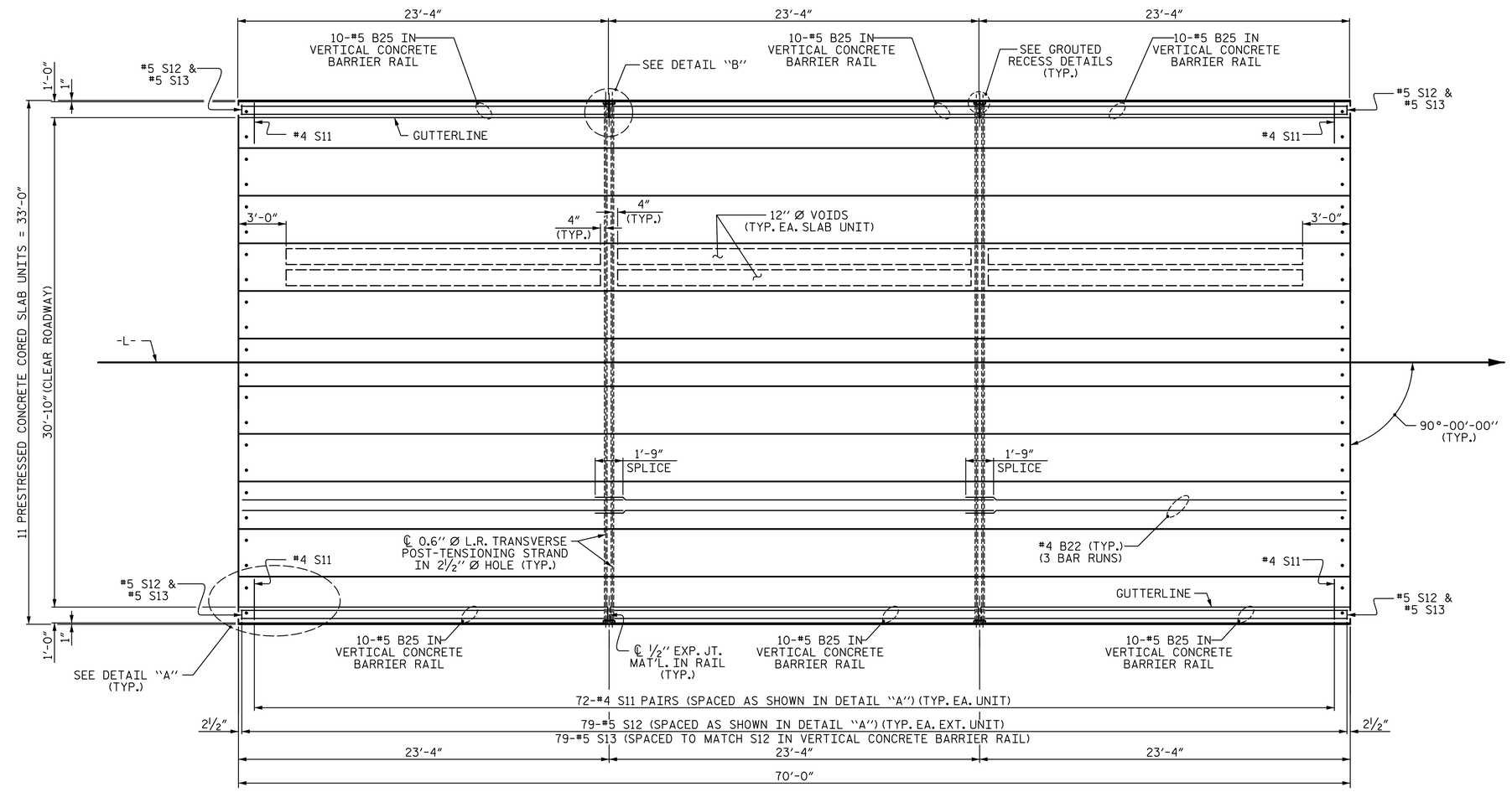
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-5
1			3			TOTAL SHEETS
2			4			19

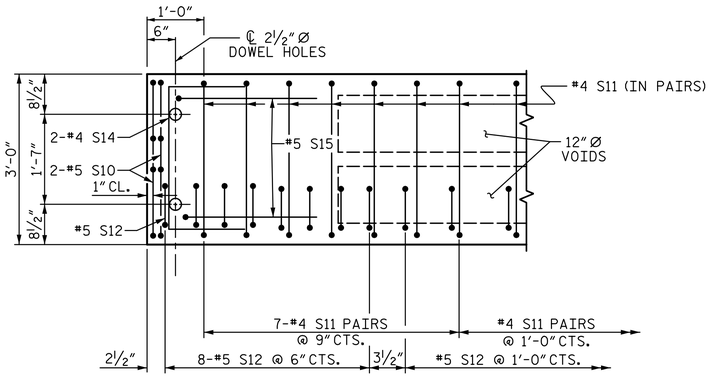
DRAWN BY :	JEB	DATE : 4-19
CHECKED BY :	JTG	DATE : 4-21
DESIGN ENGINEER OF RECORD :	J. GRISCOM	DATE : 4-21
DRAWN BY : MAA 6/10	REV. 9/14	MAA/TMG
CHECKED BY : MKT 7/10		

STANDARD NO. 24PCS4_33_90S

melvinie 4/15/2021 10:05:25 AM R:\Structures\Justification\Finals\401_009_17BP.4.R.104_SMU_CSI_005_950045.dgn

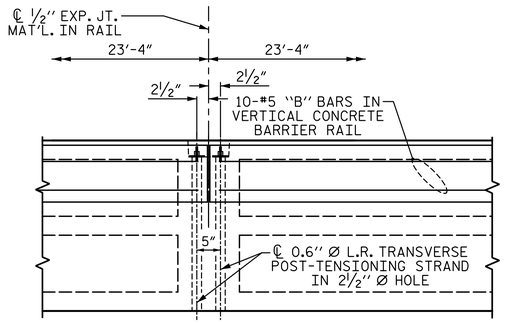


PLAN OF UNIT



DETAIL "A"

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



DETAIL "B"

#4 S11 BARS MAY BE SHIFTED AS NECESSARY TO MAINTAIN 1″ CLEAR TO GROUTED RECESS AND 2½″ Ø TRANSVERSE POST-TENSIONING STRAND HOLES

DRAWN BY :	JEB	DATE :	4-19
CHECKED BY :	JTG	DATE :	4-21
DESIGN ENGINEER OF RECORD :	J. GRISCOM	DATE :	4-21
DRAWN BY : MAA 6/10	REV. 12/5/11	MAA/AAC	
CHECKED BY : MKT 7/10	REV. 8/14	MAA/TMG	

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

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 029429 JASON T. GRISCOM 4/16/2021

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PROJECT NO. 17BP.4.R.104
WAYNE COUNTY
STATION: 14+93.00 -L-

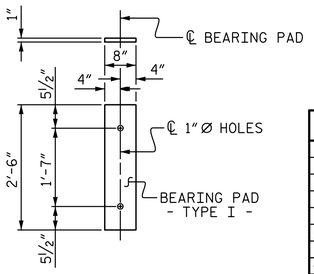
SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PLAN OF 70′ UNIT 30′-10″ CLEAR ROADWAY 90° SKEW (SPAN A)

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

STANDARD NO. 24PCS_33_90S_70L



FIXED END
(TYPE I - 22 REQ′D)

CORED SLABS REQUIRED			
	NUMBER	LENGTH	TOTAL LENGTH
70′ UNIT			
EXTERIOR C.S.	2	70′-0″	140′-0″
INTERIOR C.S.	9	70′-0″	630′-0″
TOTAL	11		770′-0″

BILL OF MATERIAL FOR VERTICAL CONCRETE BARRIER RAIL						
BAR	BARS PER PAIR OF EXTERIOR UNITS	TOTAL NO.	SIZE	TYPE	LENGTH	WEIGHT
	70′ UNIT					
✳B25	60	60	#5	STR	22′-11″	1434
✳S13	158	158	#5	2	7′-2″	1181
✳EPOXY COATED REINFORCING STEEL				LBS.		2615
CLASS AA CONCRETE				CU.YDS.		18.1
TOTAL VERTICAL CONCRETE BARRIER RAIL				LN. FT.		140.25

ELASTOMERIC BEARING DETAILS

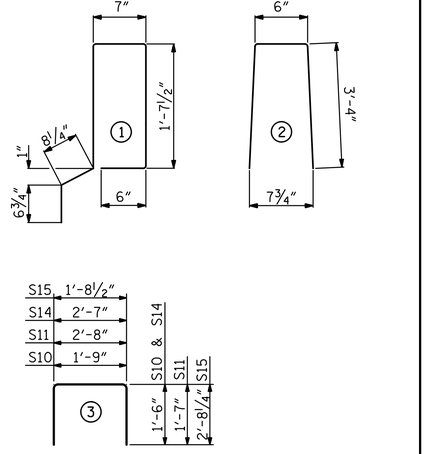
ELASTOMER IN ALL BEARINGS SHALL BE 60 DUROMETER HARDNESS.

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

DEAD LOAD DEFLECTION AND CAMBER	
	3′-0″ x 2′-0″
70′ CORED SLAB UNIT	0.6″Ø L.R. STRAND
CAMBER (SLAB ALONE IN PLACE)	2¼″ ↑
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD✳✳	¾″ ↓
FINAL CAMBER	1½″ ↑

✳✳ INCLUDES FUTURE WEARING SURFACE

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

NOTES

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

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

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

THE 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.

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

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

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

APPLY EPOXY PROTECTIVE COATING TO CORED SLAB UNIT ENDS.

GROOVED CONTRACTION JOINTS, 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.

MAINTAIN A SYMMETRIC TENSION FORCE BETWEEN EACH PAIR OF TRANSVERSE POST TENSIONING STRANDS IN THE DIAPHRAGM.

THE #4 S11 STIRRUPS MAY BE SHIFTED AS NECESSARY TO MAINTAIN 1″ CLEAR TO THE GROUTED RECESS.

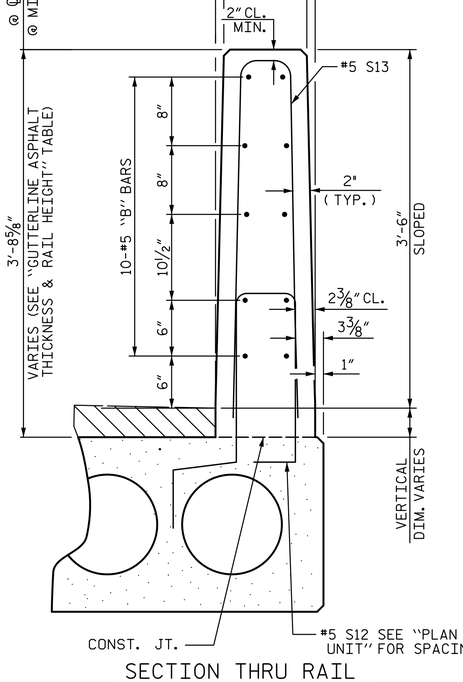
FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

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

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

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

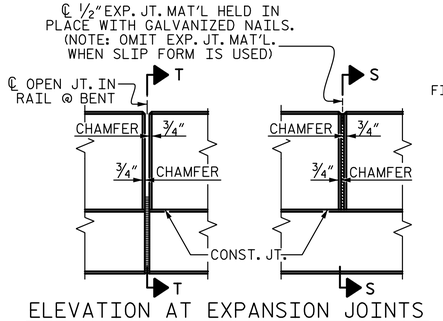
THE COST OF THE PERMITTED THREADED INSERTS SHALL BE INCLUDED IN THE PRICE BID FOR THE PRECAST UNITS.



SECTION THRU RAIL

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

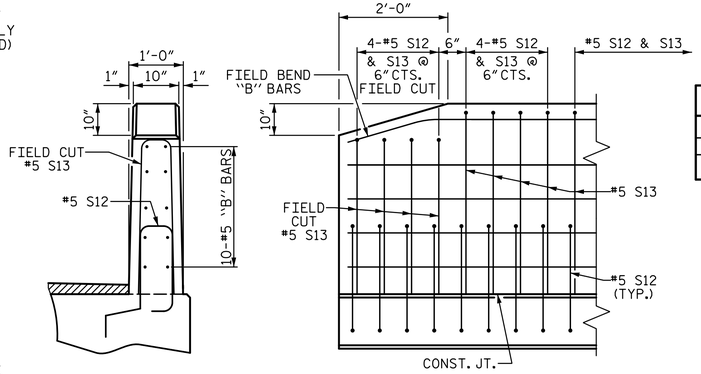
SECTION S-S
AT DAM IN OPEN JOINT
(THIS IS TO BE USED ONLY WHEN SLIP FORM IS USED)



ELEVATION AT EXPANSION JOINTS

BILL OF MATERIAL FOR ONE 70′ CORED SLAB UNIT							
				EXTERIOR UNIT		INTERIOR UNIT	
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT	LENGTH	WEIGHT
B22	6	#4	STR	24′-6″	98	24′-6″	98
S10	8	#5	3	4′-9″	40	4′-9″	40
S11	144	#4	3	5′-10″	561	5′-10″	561
✳S12	79	#5	1	5′-7″	460		
S14	4	#4	3	5′-7″	15	5′-7″	15
S15	4	#5	3	7′-1″	30	7′-1″	30
REINFORCING STEEL			LBS.		744		744
✳EPOXY COATED REINFORCING STEEL			LBS.		460		
7000 P.S.I. CONCRETE			CU. YDS.		11.8		11.8
0.6″Ø L.R. STRANDS			No.		28		28

GUTTERLINE ASPHALT THICKNESS & RAIL HEIGHT		
	ASPHALT OVERLAY THICKNESS @ MID-SPAN	RAIL HEIGHT @ MID-SPAN
70′ UNITS	2″	3′-8″



END VIEW SIDE VIEW

END OF RAIL DETAILS

CONCRETE RELEASE STRENGTH	
UNIT	PSI
70′ UNITS	5500

NORTH CAROLINA PROFESSIONAL SEAL 029429 ENGINEER JASON T. GRISCOM
4/16/2021

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DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PROJECT NO. 17BP.4.R.104
WAYNE COUNTY
STATION: 14+93.00 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
3′-0″X 2′-0″
PRESTRESSED CONCRETE
CORED SLAB UNIT
(SPAN A)

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

DRAWN BY :	JEB	DATE : 4-19
CHECKED BY :	JTG	DATE : 4-21
DESIGN ENGINEER OF RECORD :	J. GRISCOM	DATE : 4-21
DRAWN BY : MAA 6/10	REV. 5/18	MAA/THC
CHECKED BY : MKT 7/10		

VERTICAL CONCRETE BARRIER RAIL DETAILS

STANDARD NO. 24PCS3_33_90S

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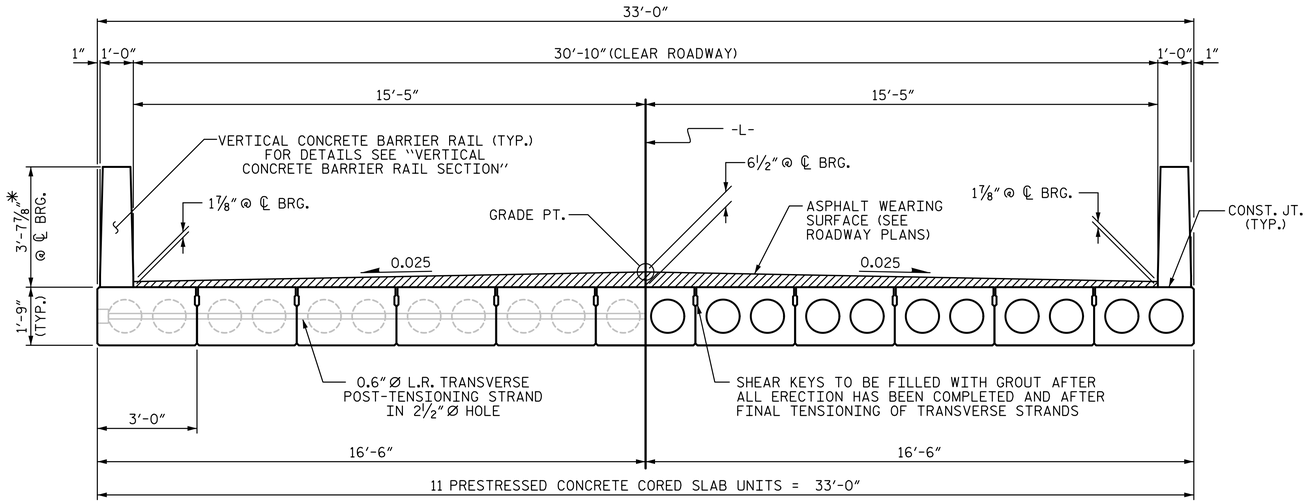
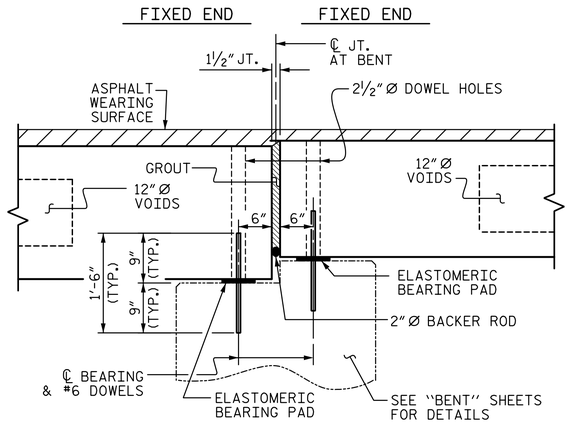


HALF SECTION
AT INTERMEDIATE DIAPHRAGMS

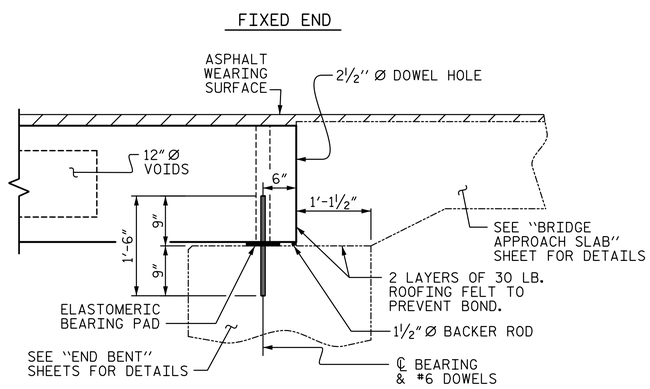
HALF SECTION
THROUGH VOIDS

TYPICAL SECTION

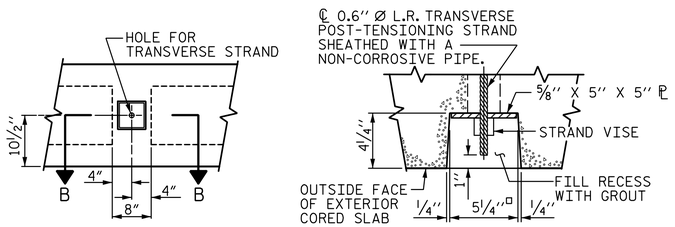
✱ - THE MAXIMUM BARRIER RAIL HEIGHT AND ASPHALT THICKNESS IS SHOWN. THE HEIGHT OF THE BARRIER RAIL AND ASPHALT THICKNESS VARIES WHILE THE TOP OF THE BARRIER RAIL FOLLOWS THE PROFILE OF THE GUTTERLINE. FOR RAIL HEIGHT DETAILS AND ASPHALT THICKNESS SEE THE "VERTICAL CONCRETE BARRIER RAIL SECTION" DETAIL.



SECTION AT BENT No. 1



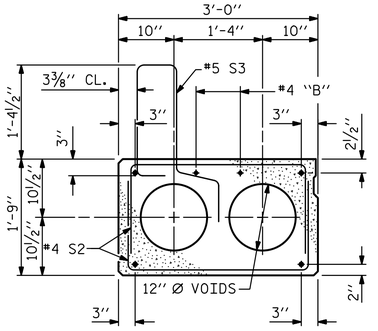
SECTION AT END BENT



ELEVATION VIEW

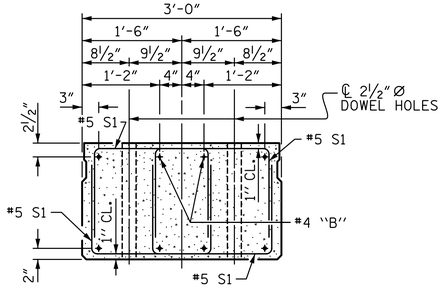
SECTION B-B

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



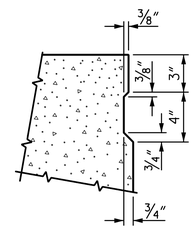
EXT. SLAB SECTION

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



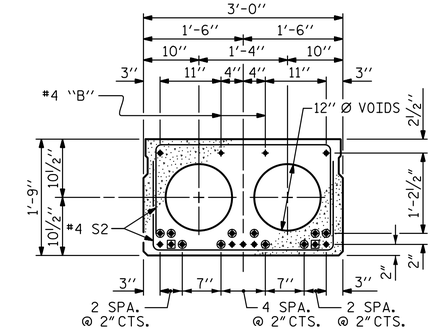
END ELEVATION

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.



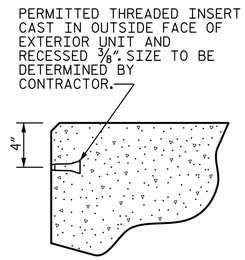
INTERIOR SLAB SECTION (35′ UNIT)

(9 STRANDS REQUIRED)

0.6″ Ø LOW RELAXATION STRAND LAYOUT

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

DEBONDING LEGEND



THREADED INSERT DETAIL

PROJECT NO. 17BP.4.R.104

WAYNE COUNTY

STATION: 14+93.00 -L-

SHEET 1 OF 3

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 029429 ENGINEER JASON T. GRISCOM
4/16/2021

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STV ENGINEERS, INC.
900 West Trade St., Suite 715
Charlotte, NC 28202
NC License Number F-0991

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

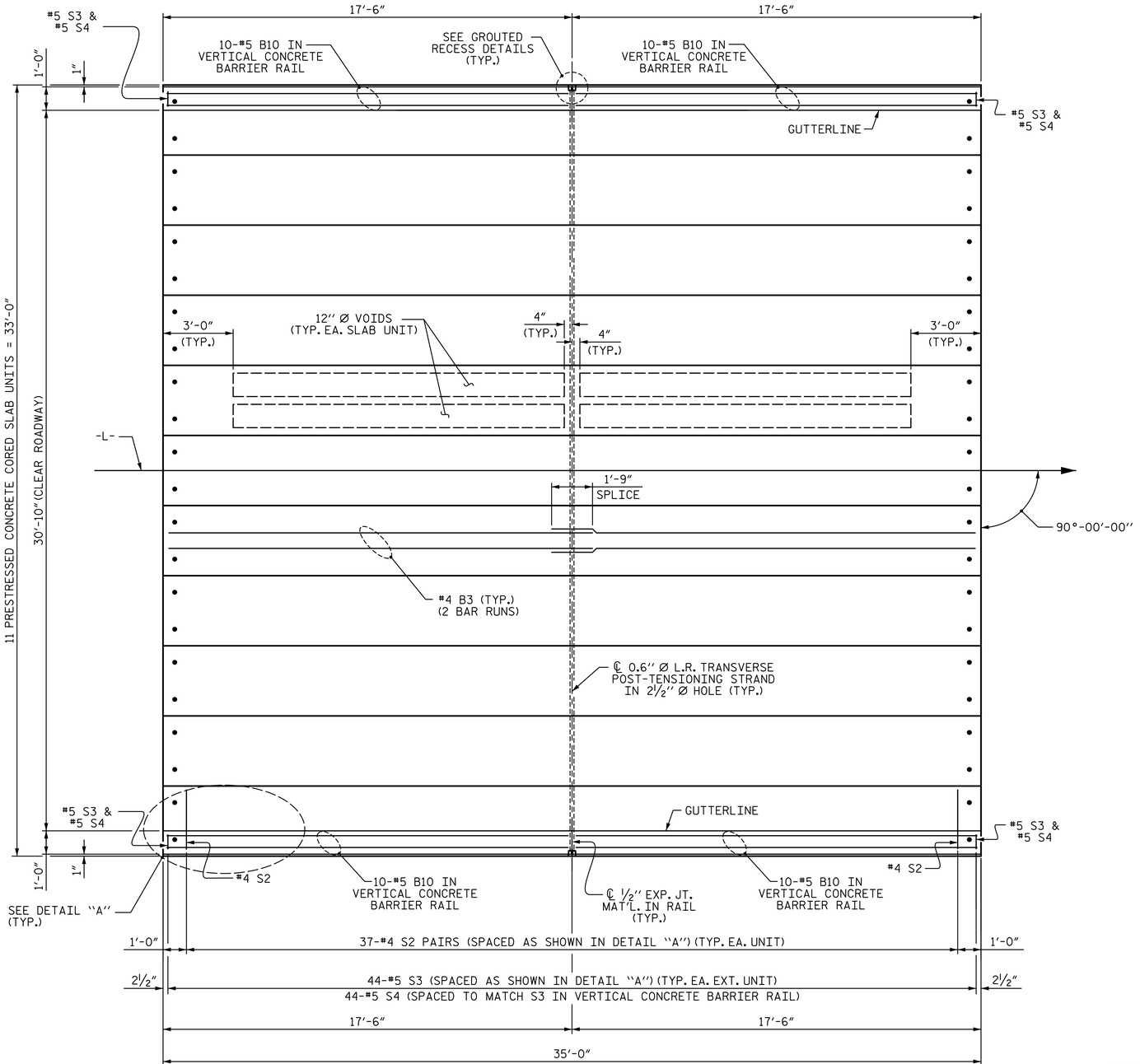
STANDARD
3′-0″ X 1′-9″
PRESTRESSED CONCRETE
CORED SLAB UNIT
90° SKEW (SPAN B)

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

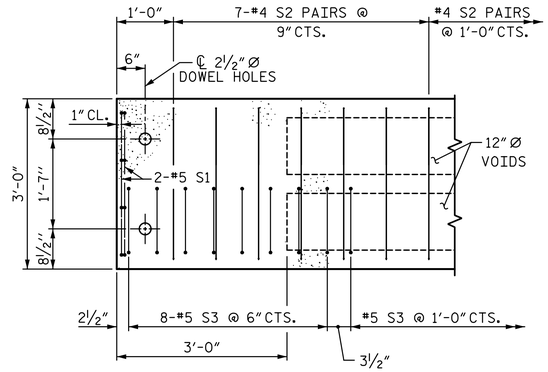
DRAWN BY :	JEB	DATE : 4-19
CHECKED BY :	JTG	DATE : 4-21
DESIGN ENGINEER OF RECORD :	J. GRISCOM	DATE : 4-21
DRAWN BY : DGE 5/09	REV. 9/14	MAA/TMG
CHECKED BY : BCH 6/09		

melvinle 4/15/2021 10:05:28 AM R:\Structures\station\Finals\401_015_17BP.4.R.104_SMU_CS4_008.950045.dgn

STANDARD NO. 21"PCS2_33_90S



PLAN OF UNIT



DETAIL ″A″

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

DRAWN BY :	JEB	DATE :	4-19
CHECKED BY :	JTG	DATE :	4-21
DESIGN ENGINEER OF RECORD :	J. GRISCOM	DATE :	4-21

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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PROJECT NO. 17BP.4.R.104
WAYNE COUNTY
STATION: 14+93.00 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PLAN OF 35′ UNIT 30′-10″ CLEAR ROADWAY 90° SKEW (SPAN B)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-9
1			3			TOTAL SHEETS
2			4			19

STANDARD NO. 21″PCS_33_90S_35L

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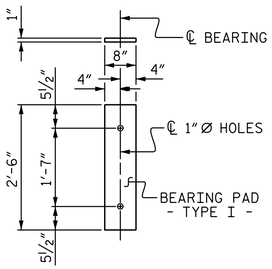


FIXED END
(TYPE I - 22 REQ'D)

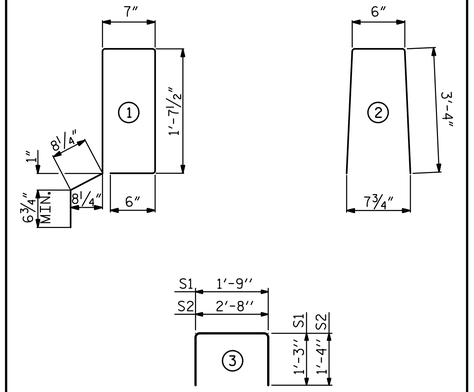
CORED SLABS REQUIRED

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

BILL OF MATERIAL FOR VERTICAL CONCRETE BARRIER RAIL

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

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

ELASTOMERIC BEARING DETAILS

ELASTOMER IN ALL BEARINGS SHALL BE 60 DUROMETER HARDNESS.

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

CONCRETE RELEASE STRENGTH

UNIT	PSI
25', 30' & 35' UNITS	4000

DEAD LOAD DEFLECTION AND CAMBER

	3'-0" x 1'-9"
25', 30' & 35' CORED SLAB UNIT	0.6"Ø L.R. STRAND
CAMBER (SLAB ALONE IN PLACE)	¼" ↑
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD✱✱	⅛" ↓
FINAL CAMBER	⅛" ↑

✱✱ INCLUDES FUTURE WEARING SURFACE

BILL OF MATERIAL FOR ONE 35' CORED SLAB UNIT

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

GUTTERLINE ASPHALT THICKNESS & RAIL HEIGHT

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

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.

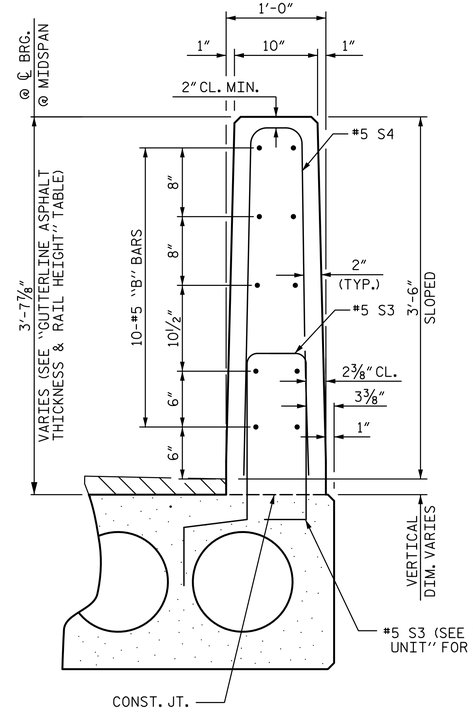
FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

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

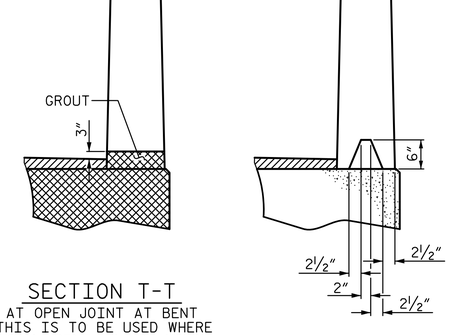
THE PERMITTED THREADED INSERTS IN THE EXTERIOR UNITS SHALL BE SIZED BY THE CONTRACTOR, SPACED AT 4'-0" CENTERS AND GALVANIZED IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS. STAINLESS STEEL THREADED INSERTS MAY BE USED AS AN ALTERNATE.

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.

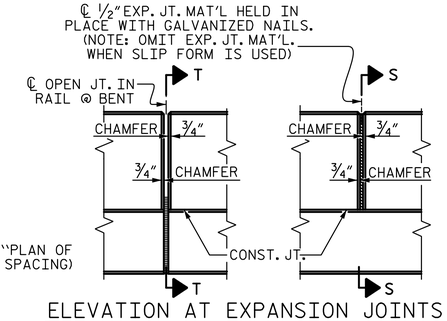


VERTICAL CONCRETE BARRIER RAIL SECTION

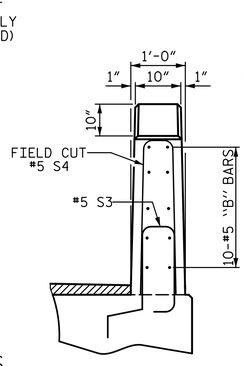


SECTION T-T
AT OPEN JOINT AT BENT
(THIS IS TO BE USED WHERE FOAM JOINT IS NOT USED)

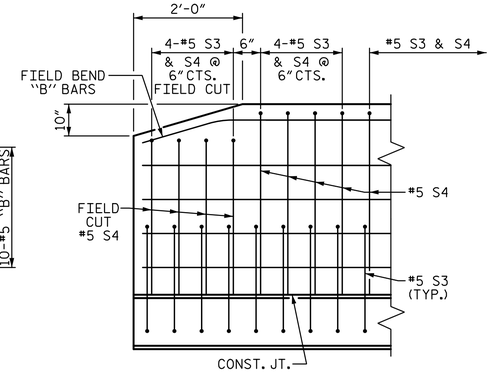
SECTION S-S
AT DAM IN OPEN JOINT
(THIS IS TO BE USED ONLY WHEN SLIP FORM IS USED)



ELEVATION AT EXPANSION JOINTS



END VIEW



SIDE VIEW

END OF RAIL DETAILS

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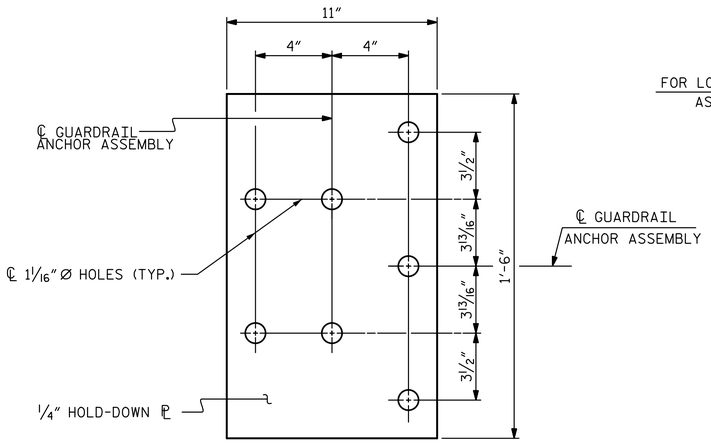
WAYNE COUNTY
STATION: 14+93.00 -L-
SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

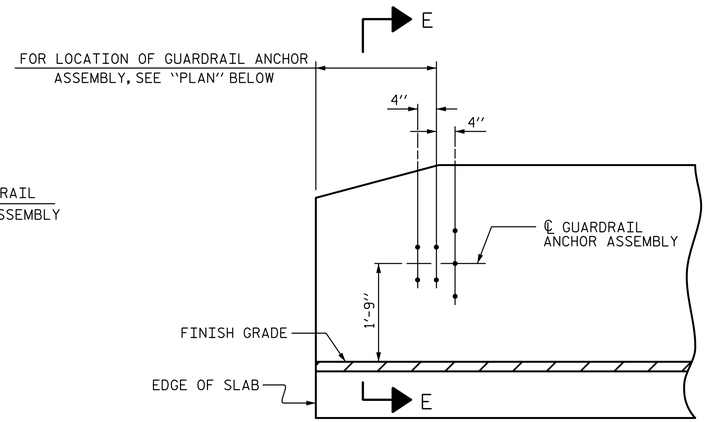
STANDARD
3'-0" X 1'-9"
PRESTRESSED CONCRETE
CORED SLAB UNIT
90° SKEW (SPAN B)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-10
1			3			TOTAL SHEETS
2			4			19

DRAWN BY :	JEB	DATE : 4-19
CHECKED BY :	JTG	DATE : 4-21
DESIGN ENGINEER OF RECORD :	J. GRISCOM	DATE : 4-21
DRAWN BY : DGE 5/09	REV. 5/18 MAA/THC	
CHECKED BY : BCH 6/09		



PLAN



ELEVATION

NOTES

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

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

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

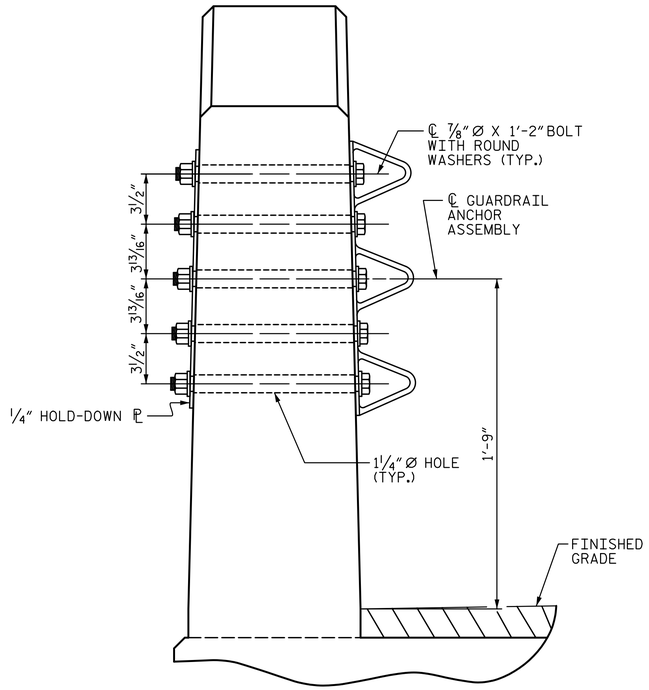
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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

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

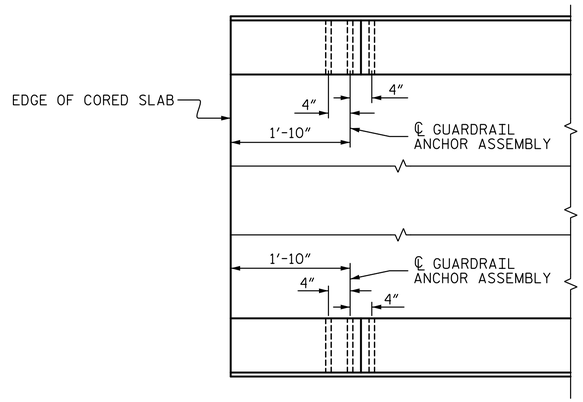
THE VERTICAL REINFORCING BARS MAY BE SHIFTED SLIGHTLY IN THE VERTICAL CONCRETE BARRIER RAIL TO CLEAR ASSEMBLY BOLTS.

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



SECTION E-E

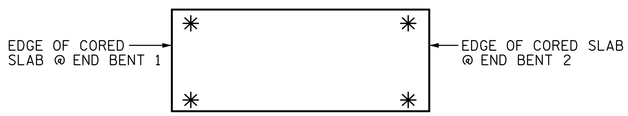
GUARDRAIL ANCHOR ASSEMBLY DETAILS



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.104

WAYNE COUNTY

STATION: 14+93.00 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
GUARDRAIL ANCHORAGE DETAILS FOR VERTICAL CONCRETE BARRIER RAIL

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

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 029429 JASON T. GRISCOM
4/16/2021

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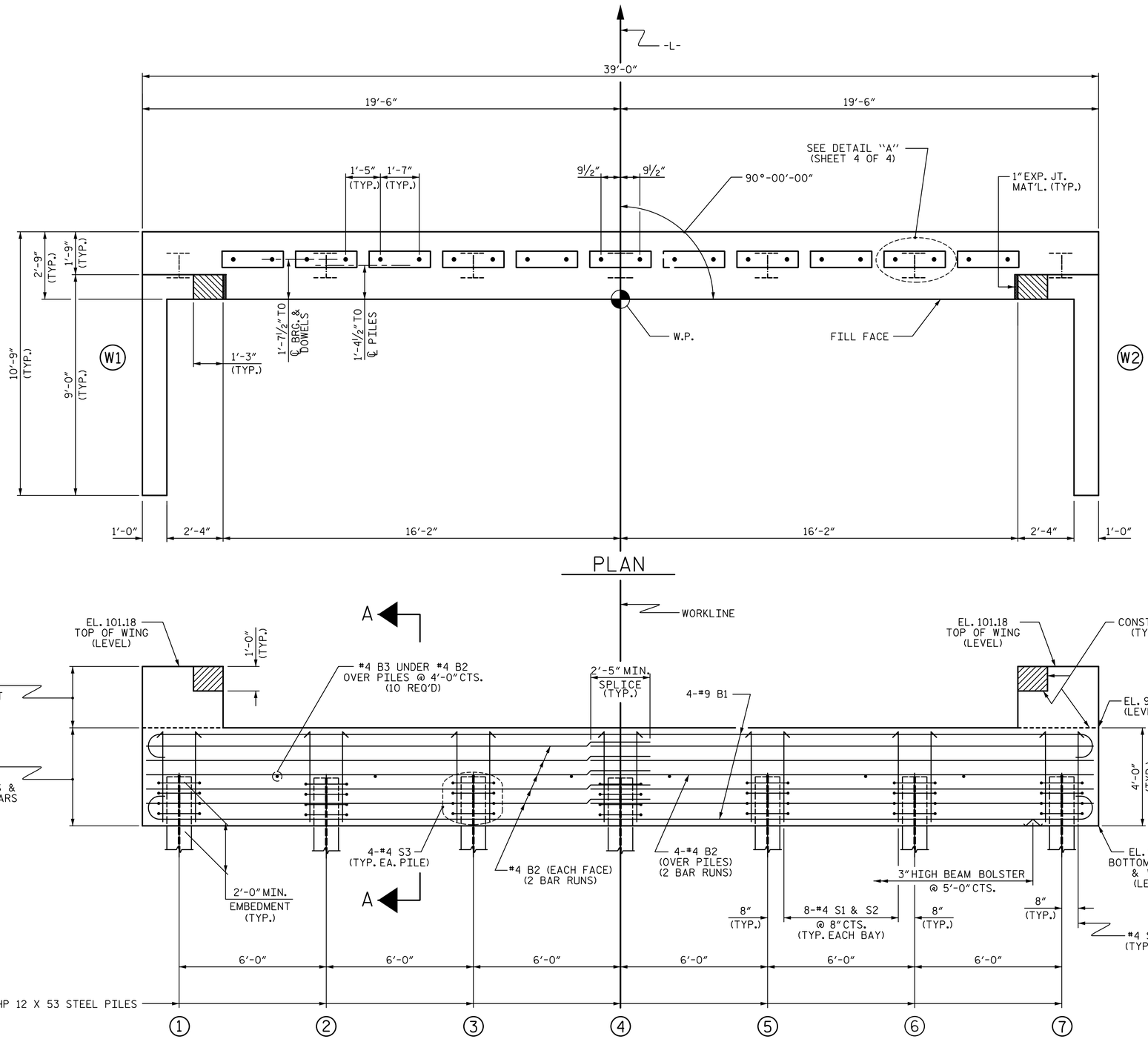
CHECKED BY :	JTG	DATE : 4-21
DESIGN ENGINEER OF RECORD :	J. GRISCOM	DATE : 4-21

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

STANDARD NO. GRA3



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.

DRAWN BY :	JEB	DATE :	4-19
CHECKED BY :	JTG	DATE :	4-21
DESIGN ENGINEER OF RECORD :	J. GRISCOM	DATE :	4-21
DRAWN BY : WJH 12/11	CHECKED BY : AAC 12/11	REV. 4/15	MAA/TMG

PROJECT NO. 17BP.4.R.104

WAYNE COUNTY

STATION: 14+93.00 -L-

SHEET 1 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT No. 1

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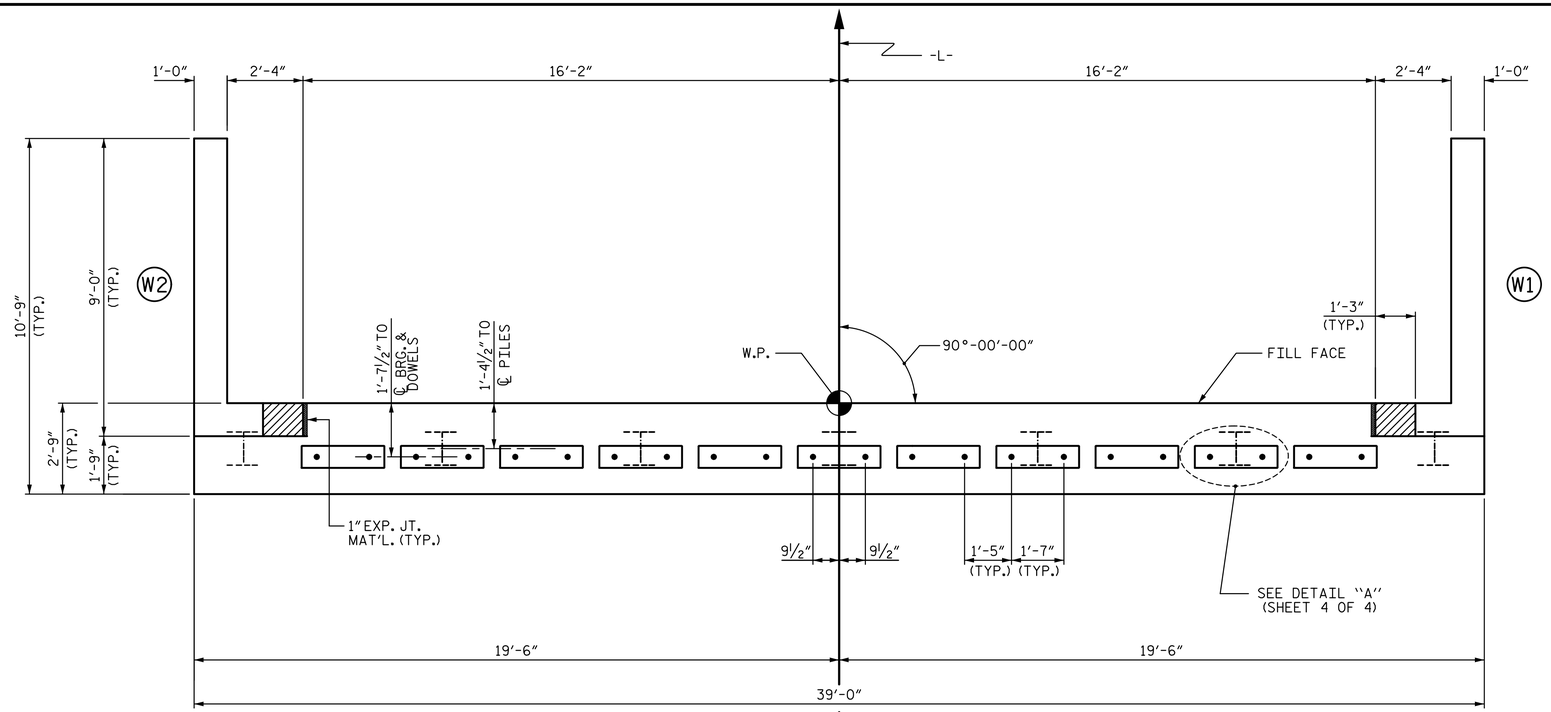
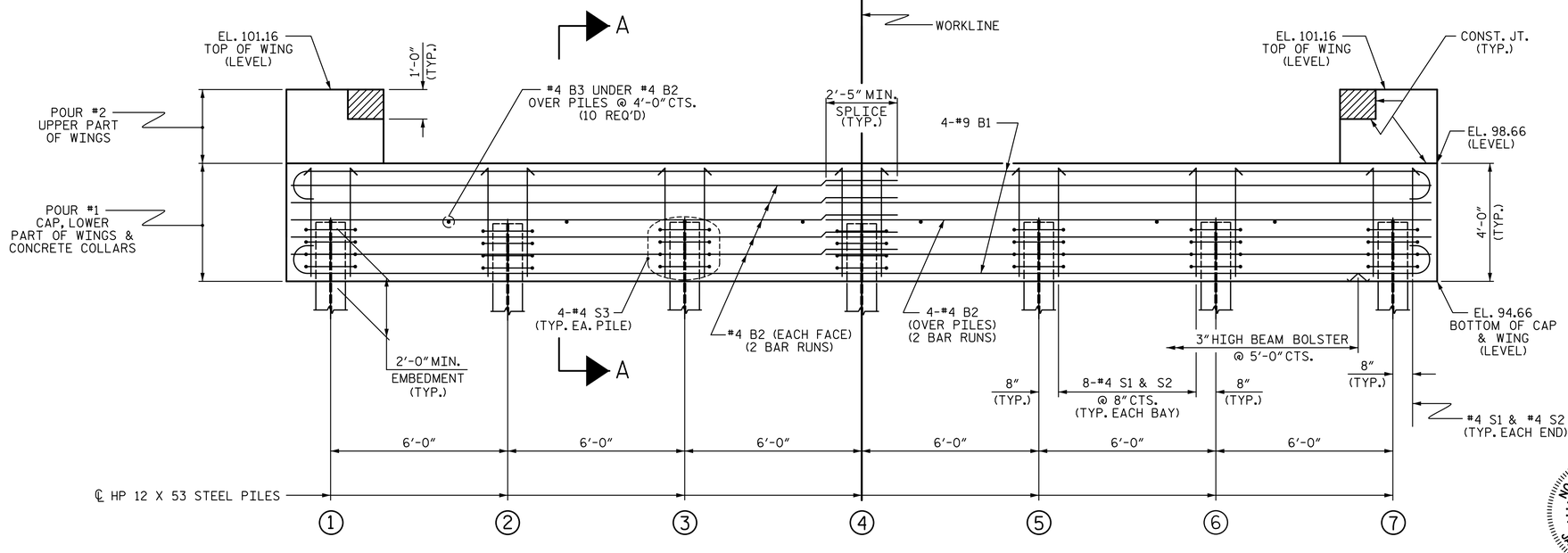
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-12
1			3			TOTAL SHEETS
2			4			19

STANDARD 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.

PROJECT NO. 17BP.4.R.104
WAYNE COUNTY
STATION: 14+93.00 -L-

SHEET 2 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT No. 2

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

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CHECKED BY :	JTG	DATE : 4-21
DESIGN ENGINEER OF RECORD :	J. GRISCOM	DATE : 4-21
DRAWN BY : WJH 12/11	REV. 4/15	MAA/TMG
CHECKED BY : AAC 12/11		

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 029429 ENGINEER JASON T. GRISCOM
4/16/2021

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

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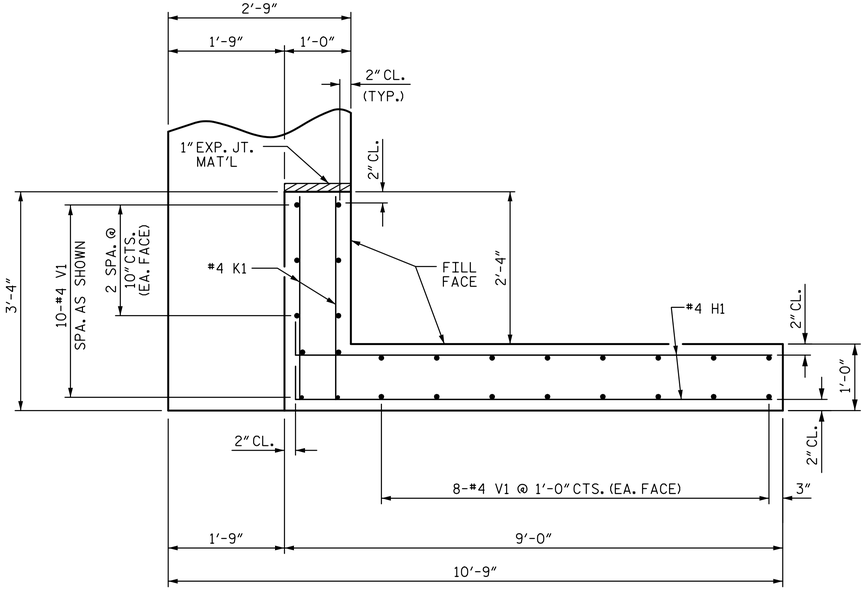
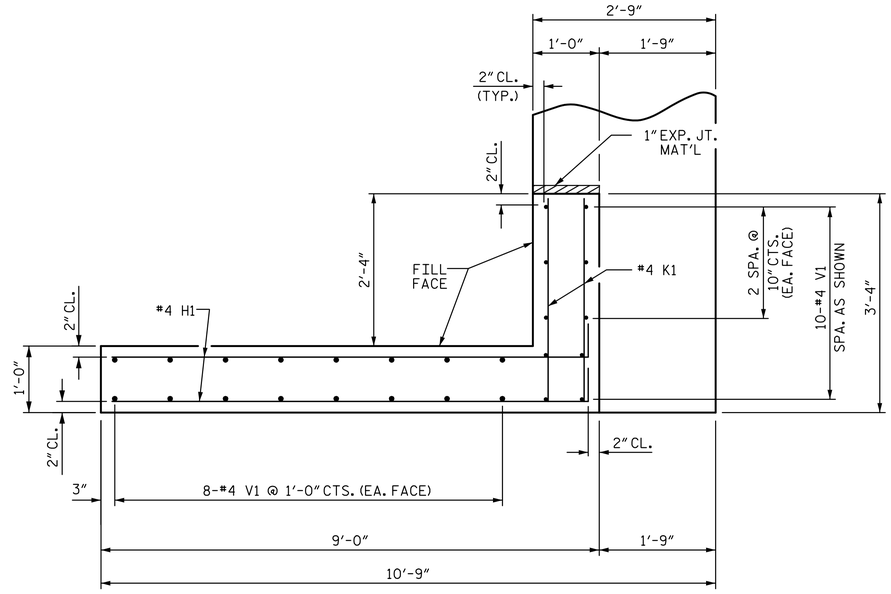
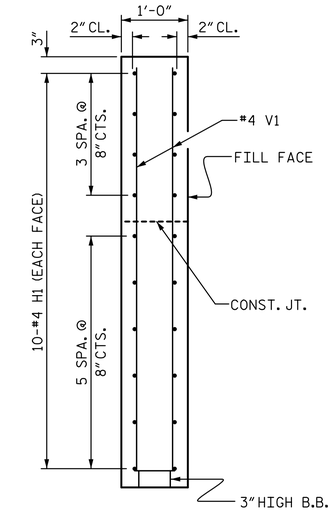
STANDARD NO. EB_33_90S4



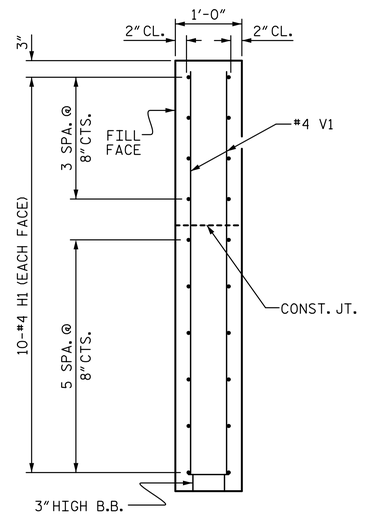
PLAN OF WING (W1)



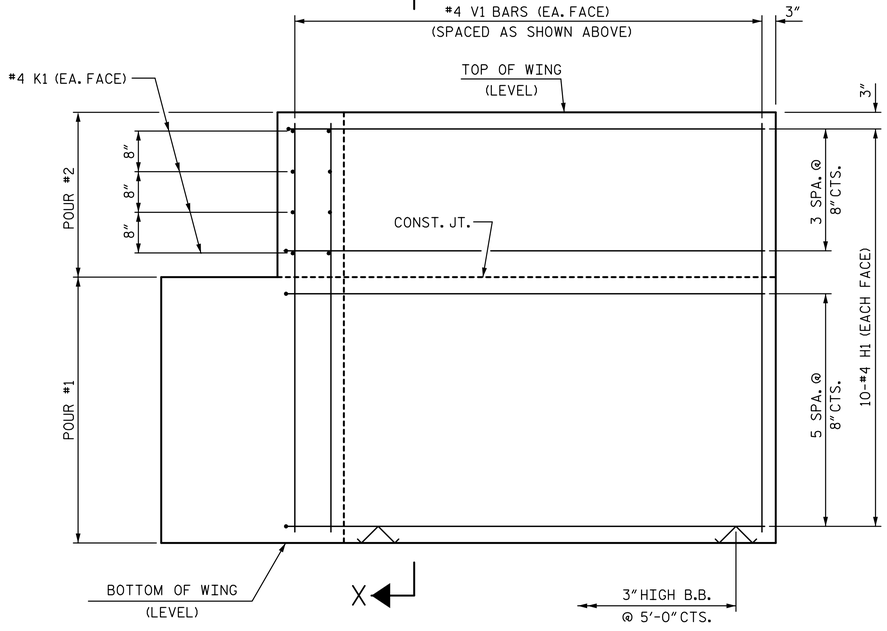
PLAN OF WING (W2)



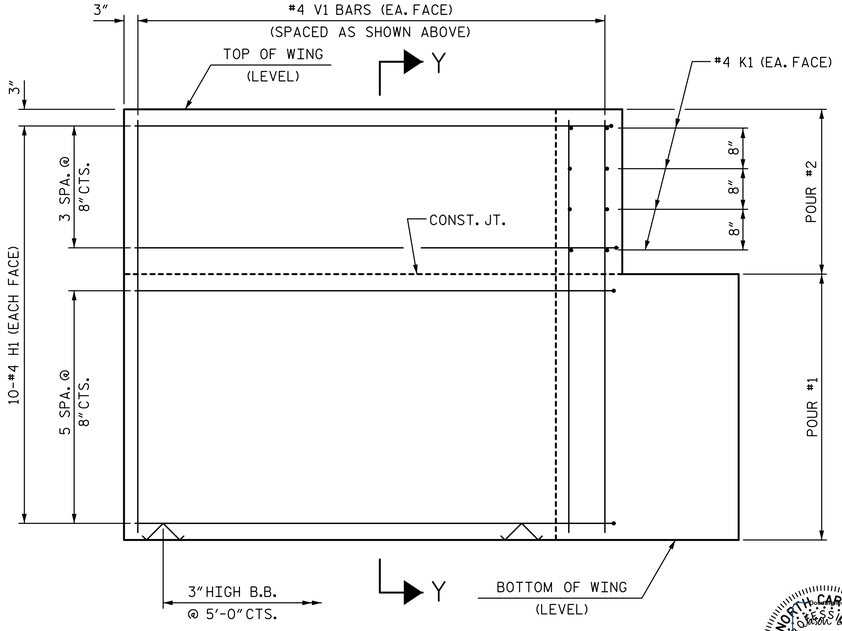
SECTION X-X



SECTION Y-Y



ELEVATION OF WING (W1)



ELEVATION OF WING (W2)

WING DETAILS

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CHECKED BY : AAC 12/11			

PROJECT NO. 17BP.4.R.104

WAYNE COUNTY

STATION: 14+93.00 -L-

SHEET 3 OF 4

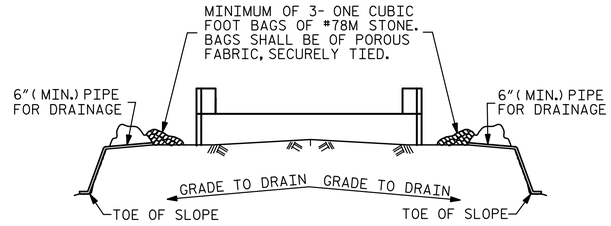
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT
WING DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-14
1			3			TOTAL SHEETS
2			4			19

STANDARD NO. EB_33_90S4

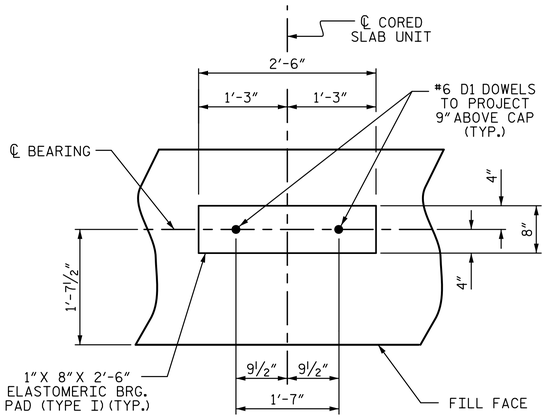


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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.

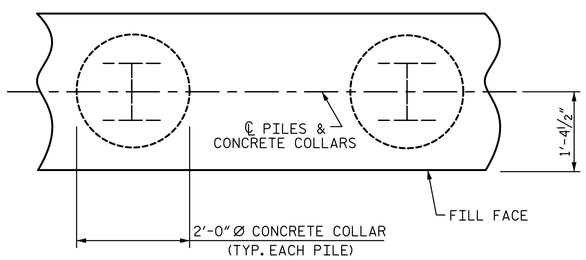
NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT

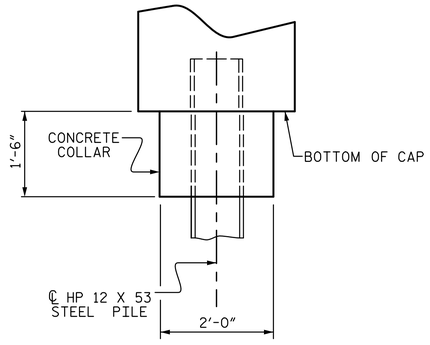


DETAIL "A"

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



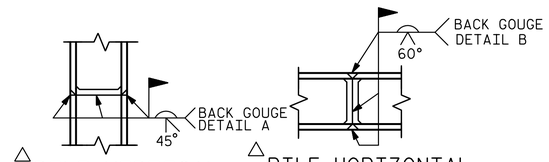
PLAN



ELEVATION

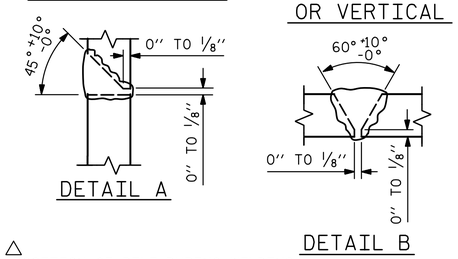
CORROSION PROTECTION FOR STEEL PILES DETAIL

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



△ PILE VERTICAL

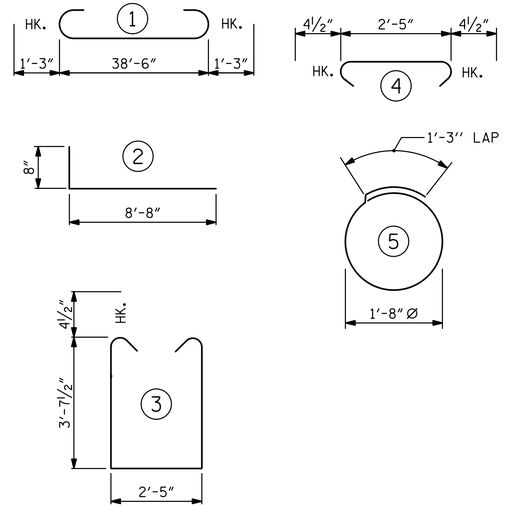
△ PILE HORIZONTAL OR VERTICAL



△ 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.= 175	HP 12 X 53 STEEL PILES NO: 7 LIN. FT.= 245
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.

END BENT No. 1

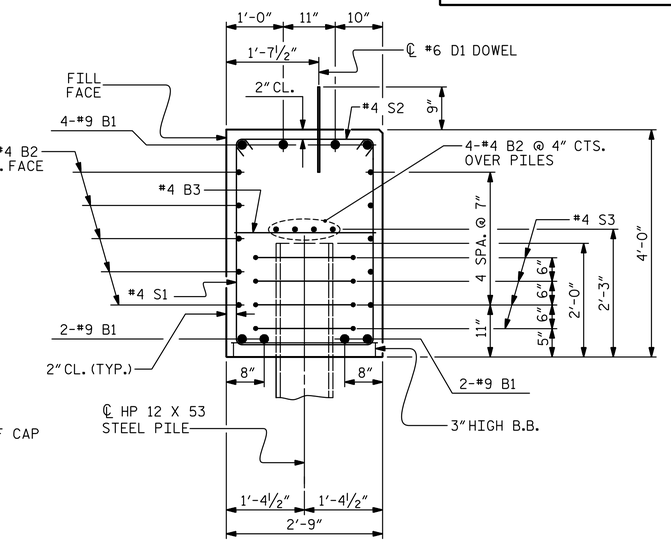
CLASS A CONCRETE BREAKDOWN

POUR #1	CAP, LOWER PART OF WINGS & COLLARS	19.5 C.Y.
POUR #2	UPPER PART OF WINGS	2.3 C.Y.
TOTAL CLASS A CONCRETE		21.8 C.Y.

END BENT No. 2

CLASS A CONCRETE BREAKDOWN

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.



SECTION A-A

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

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 029429 ENGINEER JASON T. GRISCOM REGISTERED PE 4/16/2021

STV 100 Years

STV ENGINEERS, INC.
900 West Trade St., Suite 715
Charlotte, NC 28202
NC License Number F-0991

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PROJECT NO. 17BP.4.R.104

WAYNE COUNTY

STATION: 14+93.00 -L-

SHEET 4 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT No. 1 & 2 DETAILS

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

DRAWN BY :	JEB	DATE :	4-19
CHECKED BY :	JTG	DATE :	4-21
DESIGN ENGINEER OF RECORD :	J. GRISCOM	DATE :	4-21
DRAWN BY : WJH 12/11	REV. 4/17	MAA/THC	
CHECKED BY : AAC 12/11			

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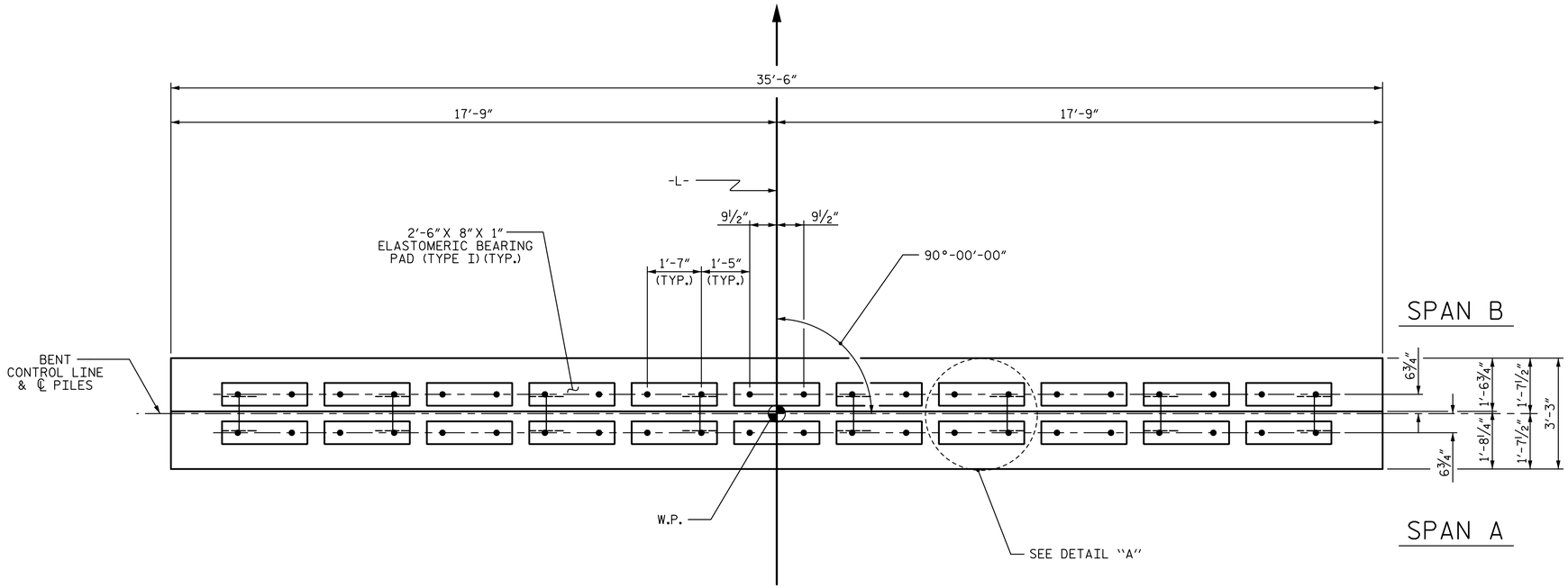
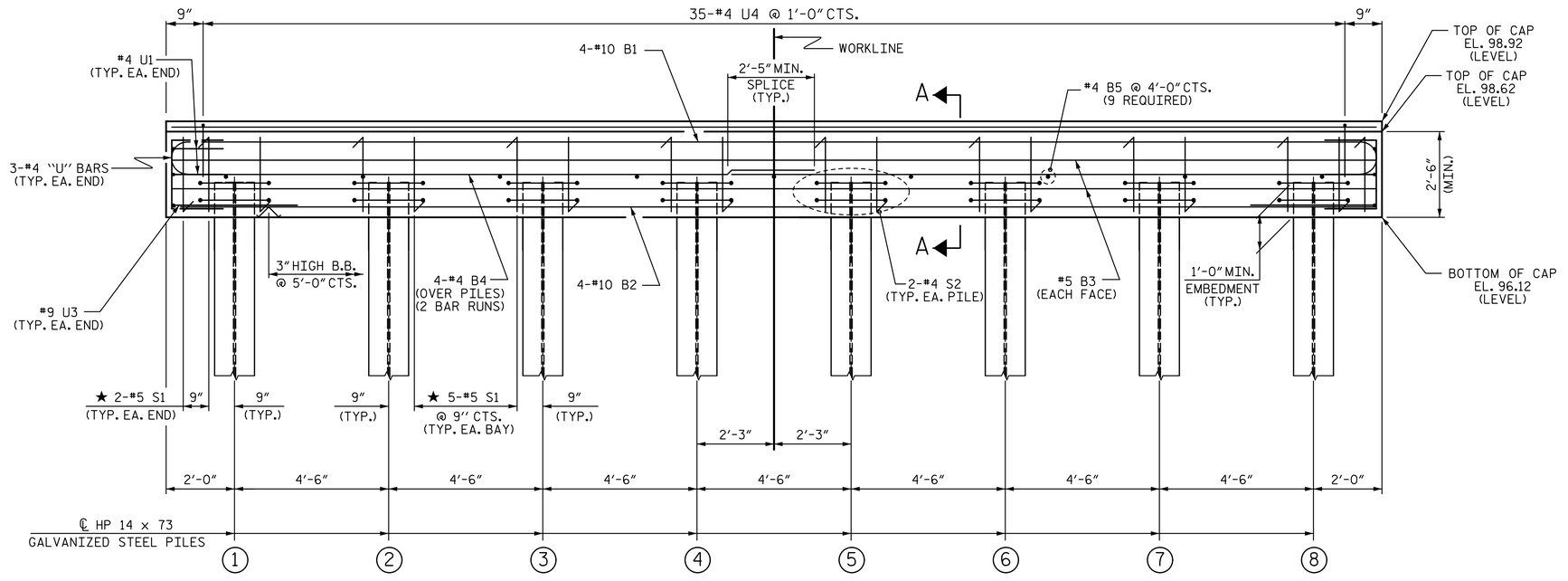
STANDARD NO. EB_33_90S4



PLAN



ELEVATION

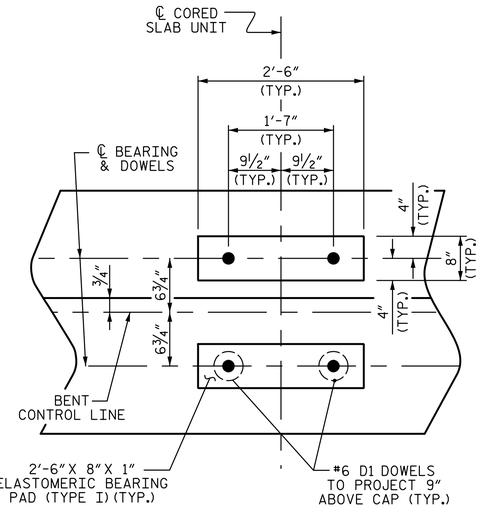
FOR SECTION A-A, SEE SHEET 2 OF 2

NOTES

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

★ INVERT ALTERNATE STIRRUPS.

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



DETAIL "A"

(DIMENSIONS ARE TYPICAL EACH BEARING)

PROJECT NO. 17BP.4.R.104

WAYNE COUNTY

STATION: 14+93.00 -L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

BENT No. 1

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 029429 ENGINEER JASON T. GRISCOM 4/16/2021

STV 100 Years
STV ENGINEERS, INC.
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Charlotte, NC 28202
NC License Number F-0991

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DESIGN ENGINEER OF RECORD :	J. GRISCOM	DATE :	4-21
DRAWN BY : DGE 05/10	REV. 6/17	MAA/THC	
CHECKED BY : MKT 05/10			

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

STANDARD NO. 14"HP_BT_33_90S_<60'

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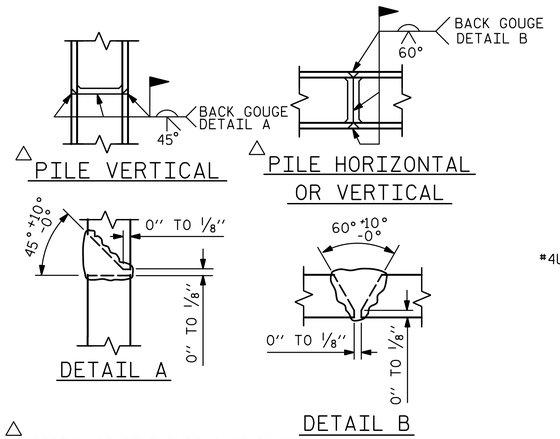
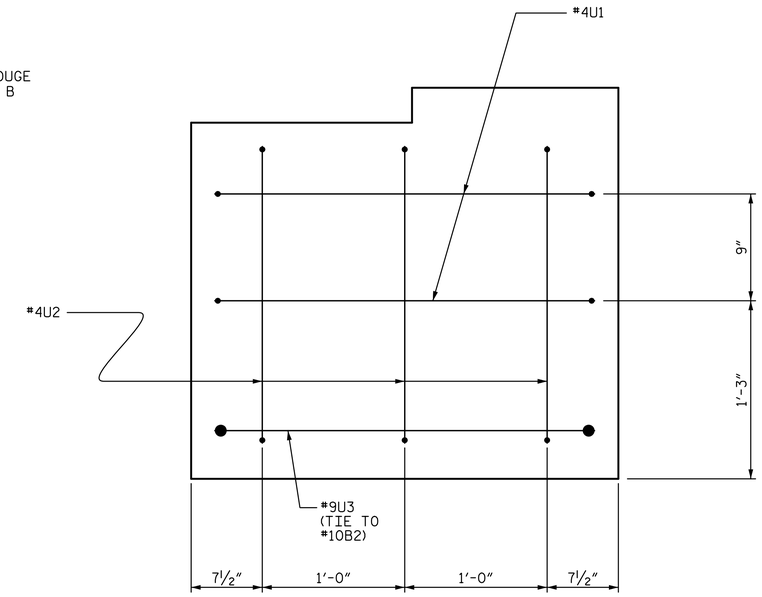


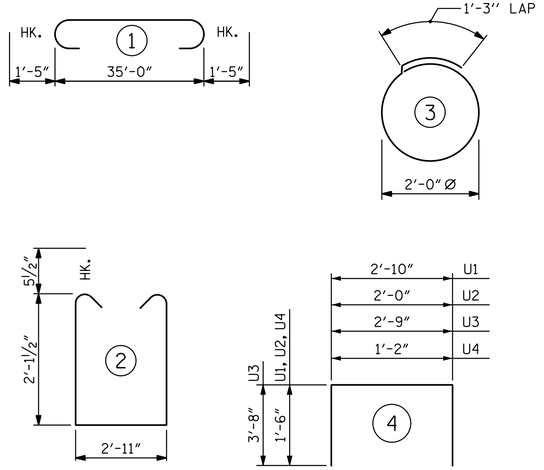
PILE SPLICE DETAILS



END OF CAP VIEW

(SIMILAR BOTH ENDS)

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

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	39	#5	2	8'-1"	329
S2	16	#4	3	7'-7"	81
U1	4	#4	4	5'-10"	16
U2	6	#4	4	5'-0"	20
U3	2	#9	4	10'-1"	69
U4	35	#4	4	4'-2"	97

REINFORCING STEEL (FOR ONE BENT) 2,233 LBS

CLASS A CONCRETE BREAKDOWN

TOTAL CLASS A CONCRETE 11.7 C.Y.

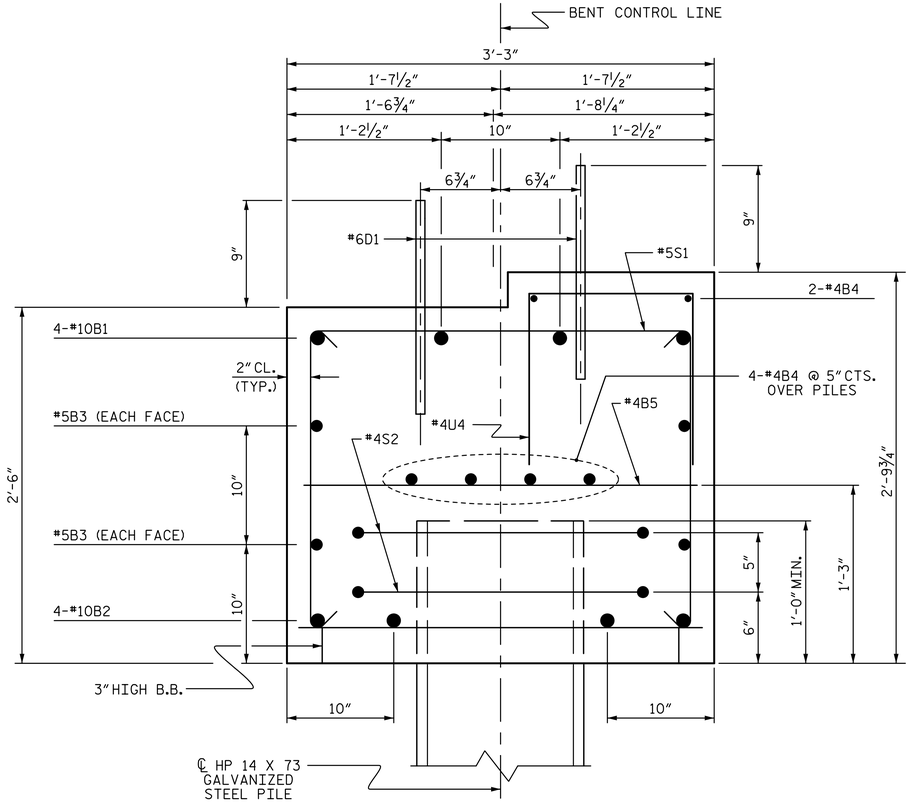
HP 14 X 73 GALVANIZED STEEL PILES

No. 8 LIN. FT. 240

PILE DRIVING EQUIPMENT SETUP FOR HP 14 X 73 GALVANIZED STEEL PILES

NO: 8

PILE REDRIVES NO: 4



SECTION A-A

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

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 029429 ENGINEER JASON T. GRISCOM
4/16/2021

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CHECKED BY :	MKT 05/10		

PROJECT NO. 17BP.4.R.104

WAYNE COUNTY

STATION: 14+93.00 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

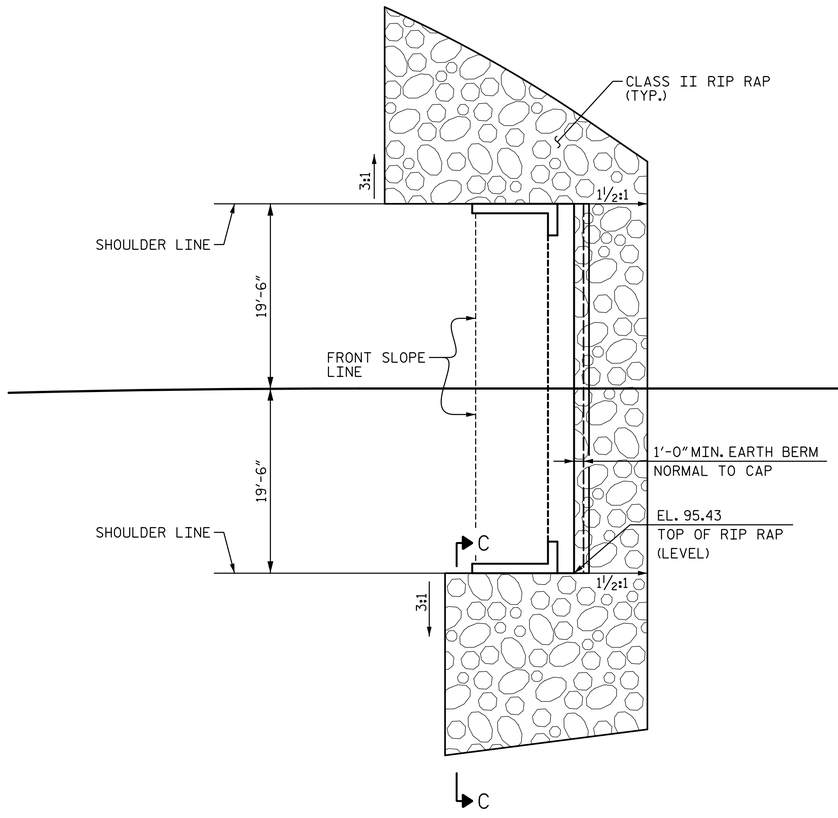
BENT No. 1

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

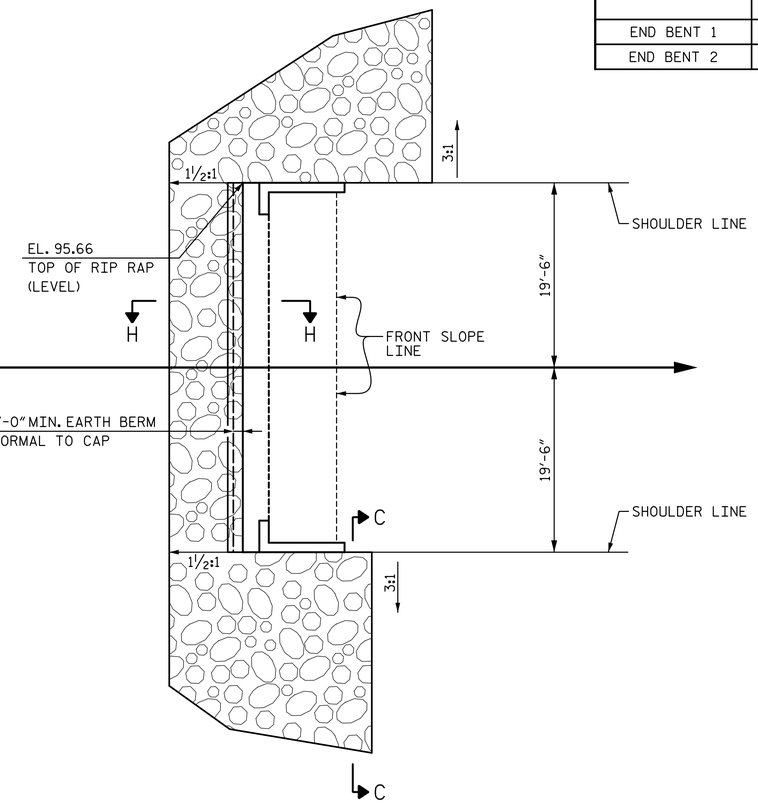
STANDARD NO. 14" HP_BT_33_90S_<60'

ESTIMATED QUANTITIES

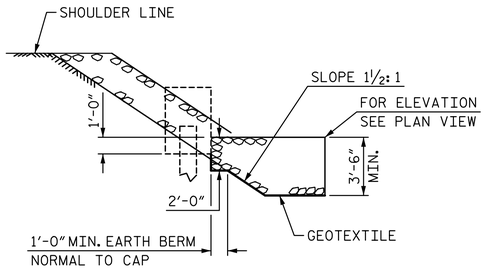
BRIDGE @ STA. 14+93.00 -L-	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	185	185
END BENT 2	185	185



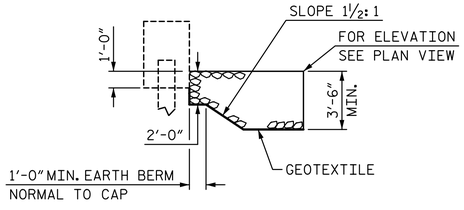
PLAN - END BENT 1



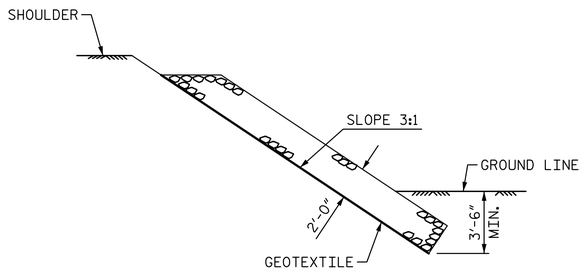
PLAN - END BENT 2



SECTION H-H



℄ SECTION
BERM RIP RAPPED
END BENT 1 SHOWN, END BENT 2 SIMILAR



SECTION C-C

PROJECT NO. 17BP.4.R.104
WAYNE COUNTY
STATION: 14+93.00 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

RIP RAP DETAILS

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

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 029429 ENGINEER JASON T. GRISCOM 4/16/2021

STV 100 Years
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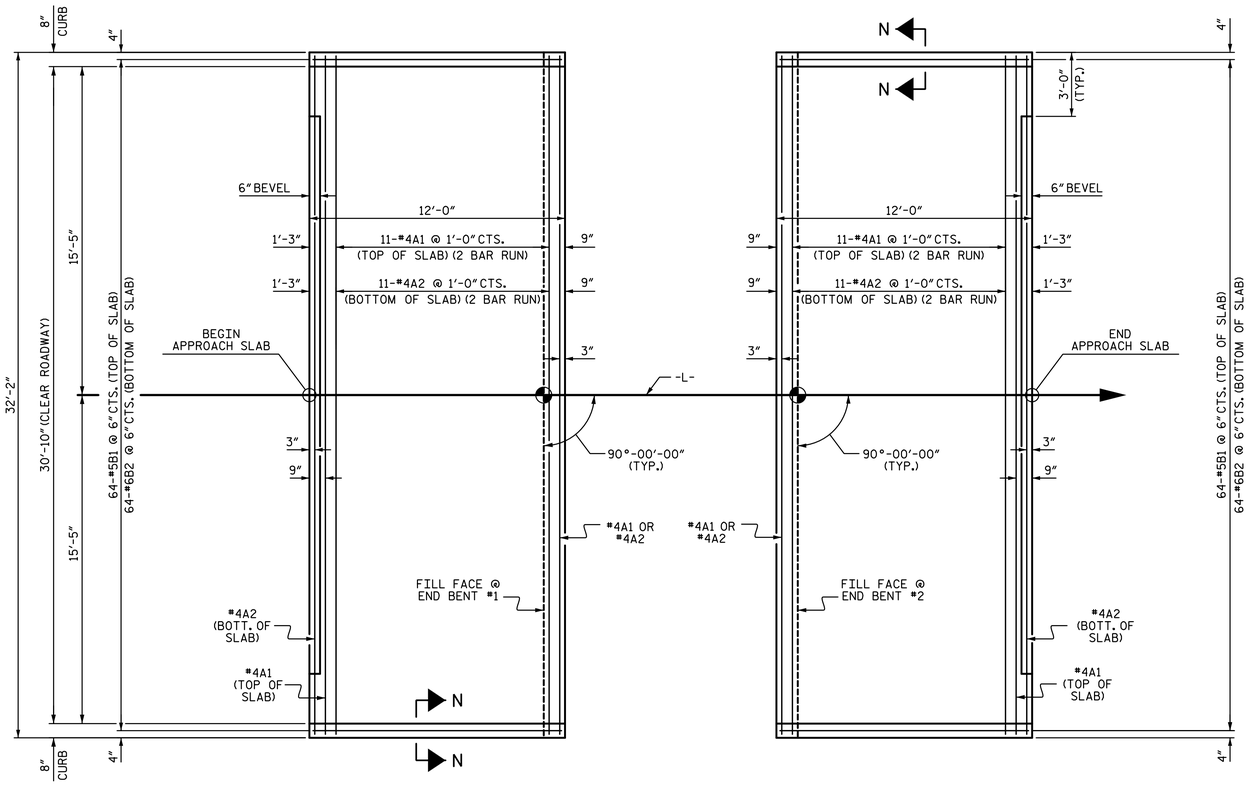
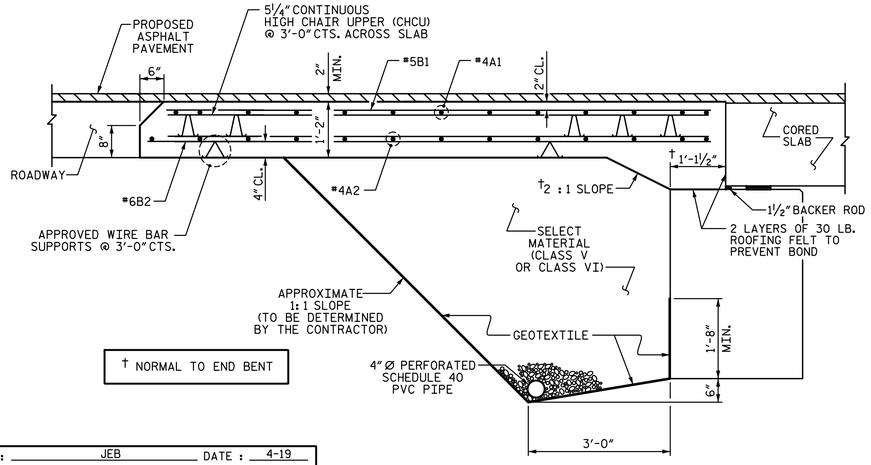


PLAN @ END BENT #1

PLAN @ END BENT #2

DIMENSIONS SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS

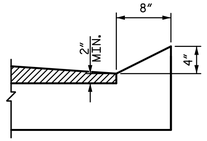


† NORMAL TO END BENT

SECTION THRU SLAB

(TYPE II - MODIFIED APPROACH FILL)

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



SECTION N-N

CURB DETAILS

DRAWN BY : JEB	DATE : 4-19
CHECKED BY : JTG	DATE : 4-21
DESIGN ENGINEER OF RECORD : J. GRISCOM	DATE : 4-21
DRAWN BY : SHS/MAA 5-09 CHECKED BY : BCH 5-09	REV. 12-17 MAA/THC

NOTES

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

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

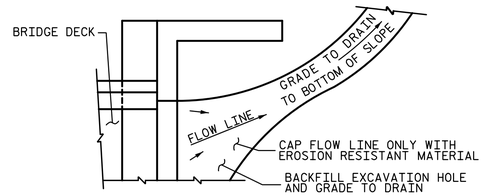
SELECT MATERIAL BACKFILL (CLASS V OR CLASS VI) SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS SECTION 1016.

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

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

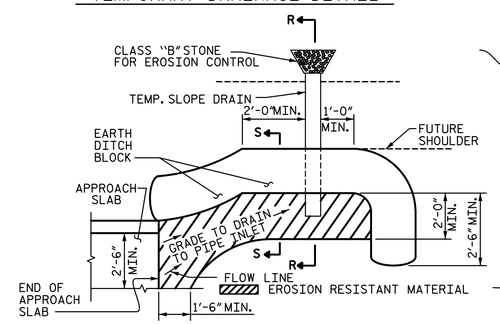
AREA BETWEEN THE WINGWALL AND APPROACH SLAB SHALL BE GRADED TO DRAIN THE WATER AWAY FROM THE FILL FACE OF THE BRIDGE AND SHALL BE PAVED. SEE ROADWAY PLANS.

APPROACH SLAB GROOVING IS NOT REQUIRED.



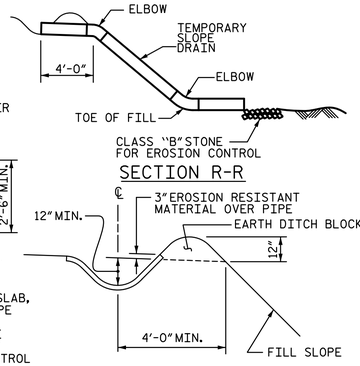
NOTE: IF THE APPROACH SLAB IS NOT CONSTRUCTED IMMEDIATELY AFTER THE BACKFILLING OF THE END BENT EXCAVATION, GRADE TO DRAIN TO THE BOTTOM OF THE SLOPE AND PROVIDE EROSION RESISTANT MATERIAL, SUCH AS FIBERGLASS ROVING OR AS DIRECTED BY THE ENGINEER TO PREVENT SOIL EROSION AND TO PROTECT THE AREA ADJACENT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

TEMPORARY DRAINAGE DETAIL



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

PLAN VIEW



SECTION S-S

TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)

BILL OF MATERIAL

APPROACH SLAB AT EB #1

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
✳ A1	26	#4	STR	16'-11"	294
A2	26	#4	STR	16'-9"	291
✳ B1	64	#5	STR	11'-2"	745
B2	64	#6	STR	11'-8"	1121
REINFORCING STEEL				LBS.	1412
✳ EPOXY COATED REINFORCING STEEL				LBS.	1039
CLASS AA CONCRETE				C. Y.	19.5

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

PROJECT NO. 17BP.4.R.104

WAYNE COUNTY

STATION: 14+93.00 -L-

STV 100 Years

STV ENGINEERS, INC.
900 West Trade St., Suite 715
Charlotte, NC 28202
NC License Number F-0991

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

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

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

STANDARD NO. BAS_33_90S

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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