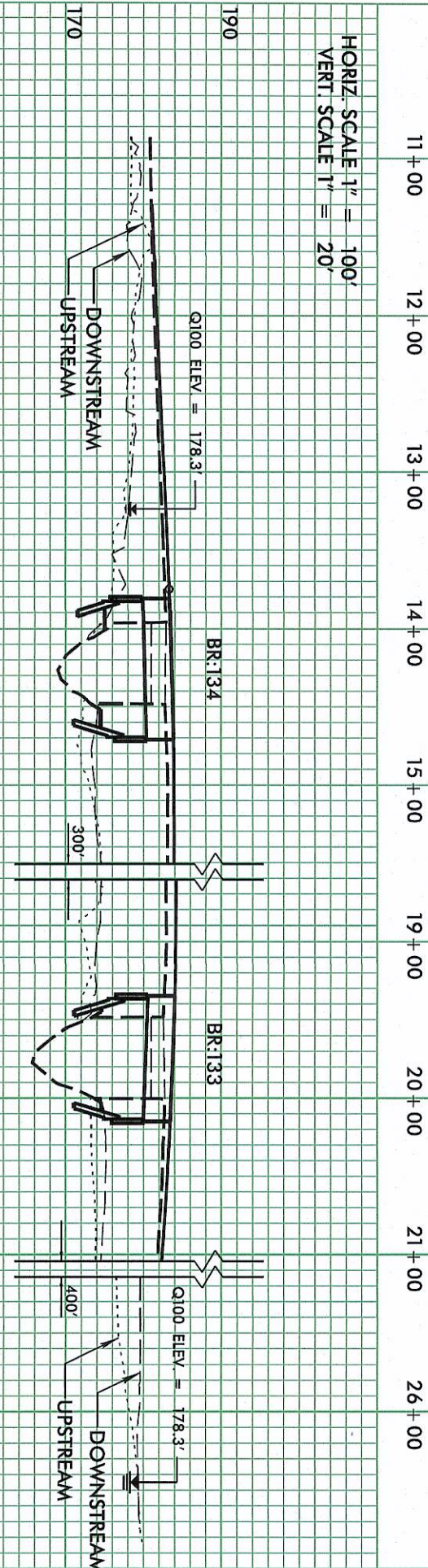
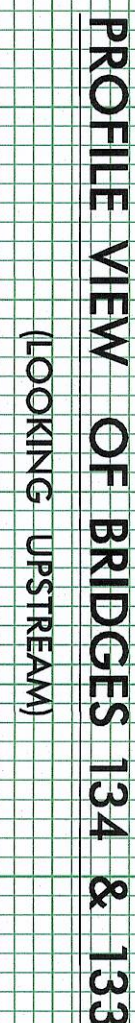
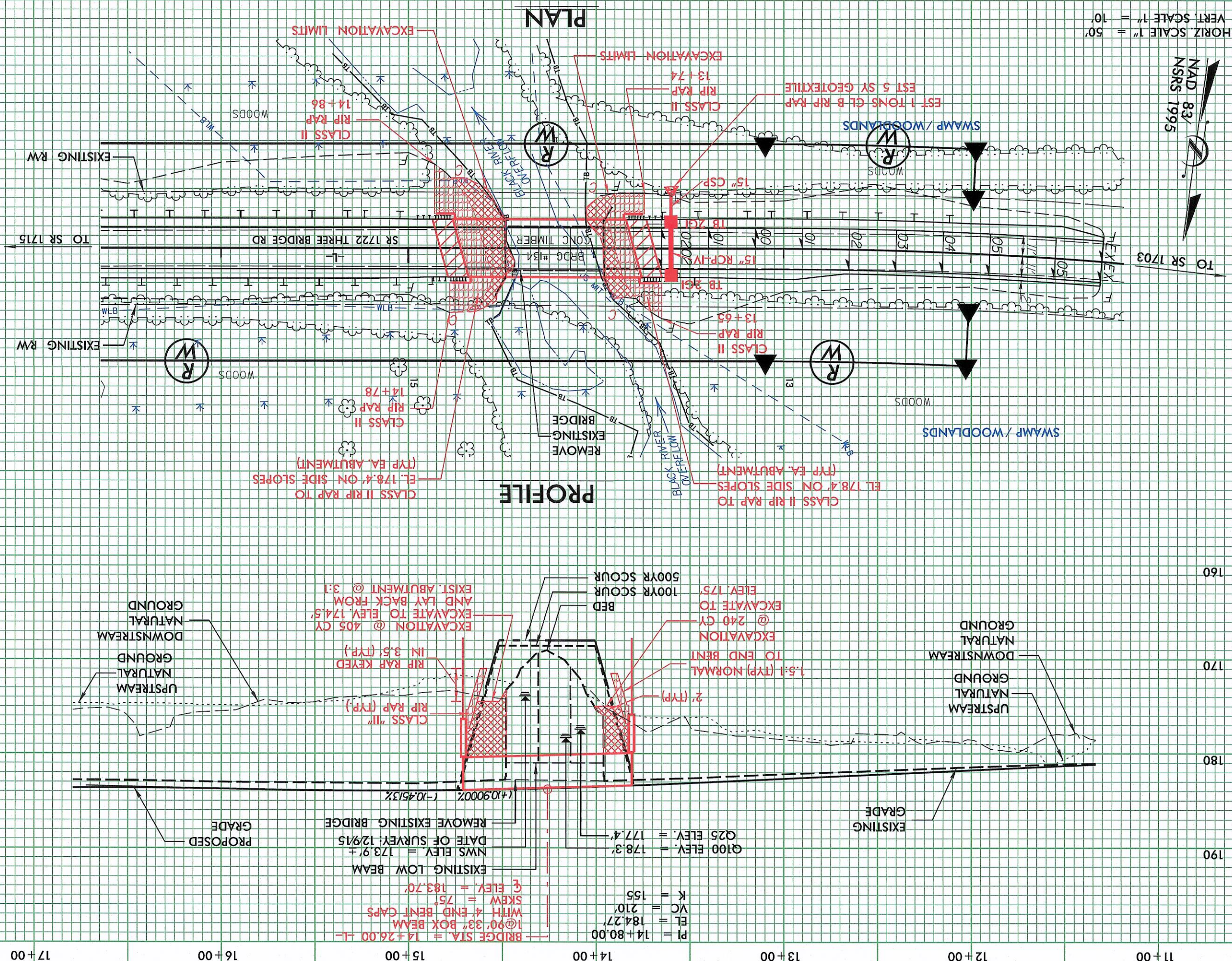


SPREAD ANALYSIS

PERFORMANCE TABLE	
FEMA	
100yr.	DUPPLICATE EFFECTIVE*
182.2'	CORRECTED EFFECTIVE
179.6'	REVISD
179.3'	@SECTION 71440 35 FT. FROM US FACE OF BRIDGE @SECTION 71440 DUPLICATE WEST TAKEN @SECTION 7140.8 WHICH HAS BEEN REPLACED IN GE MODEL WITH SECTION 71440

NCD PERFORMANCE TABLE		FREQUENCY	
NATURAL	176.6'	177.1'	177.5'
EXISTING	176.9'	177.6'	178.1'
PROPOSED	176.8'	177.4'	177.9'
	179.2'	178.6'	178.3'
	500yr.	25yr.	100yr.



Design:	Discharge	<u>2200</u>	c.f.s.	Frequency	<u>25</u>	yr.	Elev.	<u>177.4</u>	ft.
Base Flood:	Discharge	<u>3300</u>	c.f.s.	Frequency	<u>100</u>	yr.	Elev.	<u>178.3</u>	ft.
Overtopping:	Discharge	<u>5575</u>	c.f.s.	Frequency	<u>500+</u>	yr.	Elev.	<u>179.2 ± *</u>	ft.

USGS SIR 2009-5158 (REGION IV)		DRAINAGE AREA = 37.4 SQ. MI.	
$Q_{10} = 174$ (DA)	$\frac{0.617}{174} = 0.003546$	$Q_{10} = 174$ (37.4)	$\frac{0.617}{37.4} = 0.016471$
$Q_{10} = 174$ (DA)	$\frac{0.606}{174} = 0.003483$	$Q_{10} = 174$ (37.4)	$\frac{0.606}{37.4} = 0.016198$
$Q_{25} = 245$ (DA)	$\frac{0.600}{245} = 0.002449$	$Q_{25} = 245$ (37.4)	$\frac{0.600}{37.4} = 0.016043$
$Q_{30} = 309$ (DA)	$\frac{0.594}{309} = 0.001922$	$Q_{30} = 309$ (37.4)	$\frac{0.594}{37.4} = 0.015856$
$Q_{100} = 380$ (DA)	$\frac{0.583}{380} = 0.001534$	$Q_{100} = 380$ (37.4)	$\frac{0.583}{37.4} = 0.015588$
$Q_{300} = 550$ (DA)	$\frac{0.583}{550} = 0.001060$	$Q_{300} = 550$ (37.4)	$\frac{0.583}{37.4} = 0.015588$
FEMA: Q100 = 4604 cfs DA = 37.50 SQ.MI.			

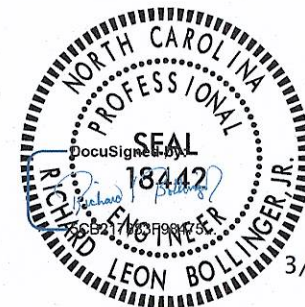
CLEAR WATER CONTRACTION SCOUR: $Y_2 = \{[(K_u \cdot Q)^{2/3} / (D_m \cdot W)]\}$			$Y_s = Y_2 - Y_o$		
D50=2mm Dm=1.25*(D50)					
100 YEAR CONTRACTION SCOUR: $Y_o = 4.9'$			500 YEAR CONTRACTION SCOUR: $Y_o = 5.6'$		
Q=1400cfs Dm=0.0082' W=86.8' Ku=0.0077			Q=1819cfs Dm=0.0082' W=86.8' Ku=0.0077		
$Y_2 = \{[(0.0077^{2/3} \cdot 1400^{2/3}) / (0.0082 \cdot 86.8)]\}$			$Y_2 = \{[(0.0077^{2/3} \cdot 1819^{2/3}) / (0.0082 \cdot 86.8)]\}$		
Y2=5.3'	Ys=5.3'-4.9'	Ys=0.4'	Y2=6.6'	Ys=6.6'-5.6'	Ys=1.0'

MR.PITTMAN: THE LOCAL BRIDGE SUPERVISOR (DIV 6) NOTES THAT THE HISTORICAL HIGH WATER ELEVATION IS THE BOTTOM OF THE JOISTS

NO STRUCTURES WILL BE ADVERSELY IMPACTED BY WSEL'S FROM THIS PROJECT.

Waterway Opening Provided Below Design W.S. Elev. 354 s.f., 100yr W.S. Elev. 424 s.f., Total 609 s.f.,
Average Channel Velocity (Design) 2.3 f.p.s. Average Overbank Velocity (Design) 0.9 f.p.s.
Computed Scour: General N/A ft. Contraction 100YR: 0.4' ft. Local N/A ft.
500YR: 1.0' ft.
Is a Floodway Revision Required? MOA TYPE 2A; MAX DECREASE 0.3' @ RS 71440

Reviewed by: Craig A. Freeman Jr.

RS&H

3/22/2017