DocuSign Envelope ID: B0E15EE1-16A5-4255-B3E8-BE73B41020CE

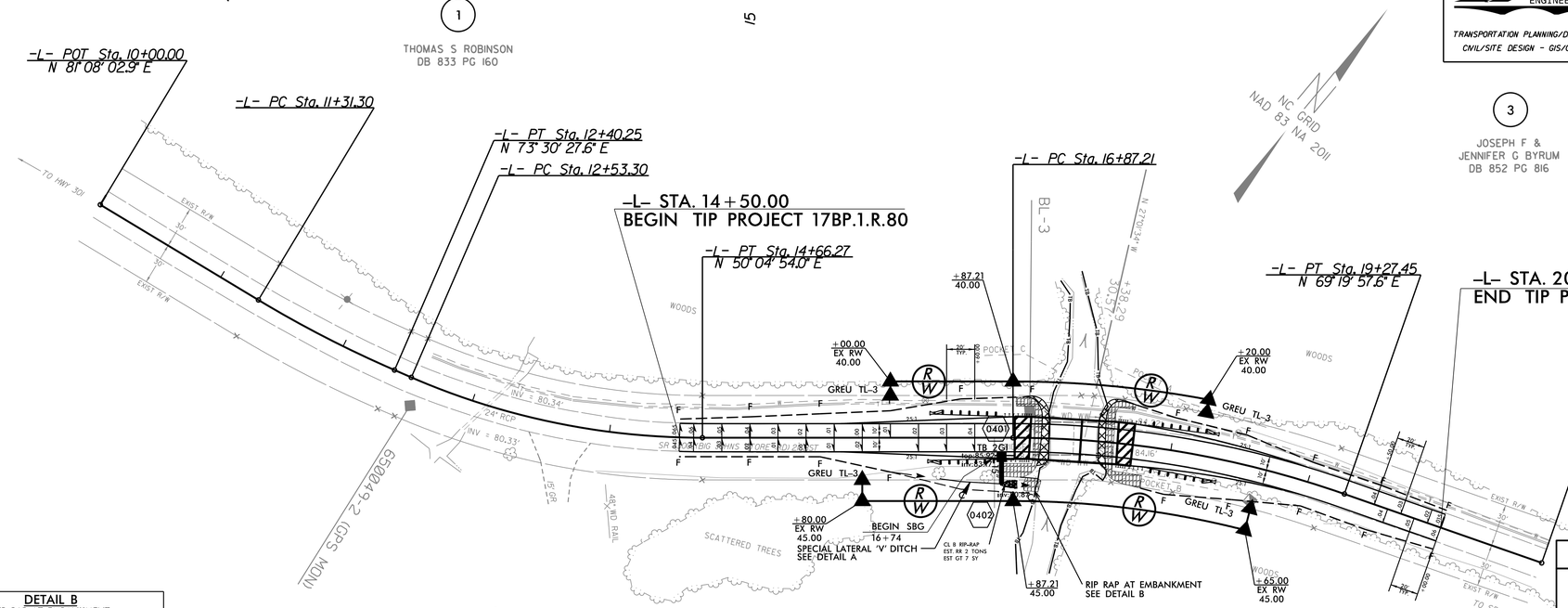
WETHERILL ENGINEERING
1223 Jones Franklin Rd. Suite 164
Raleigh, N.C. 27606
License No. F-0377
Bus: 919 851 8077
Fax: 919 851 8107
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

PROJECT REFERENCE NO.	SHEET NO.
17BP.1.R.80	4
R/W SHEET NO.	

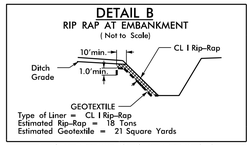
ROADWAY DESIGN ENGINEER
8/28/2018
NORTH CAROLINA PROFESSIONAL SEAL 21116 ENGINEER BOB A. MAY
DocuSigned by: Bob A. May

HYDRAULICS ENGINEER
8/28/2018
NORTH CAROLINA PROFESSIONAL SEAL 044561 ENGINEER HARWINDER SINGH
DocuSigned by: Harwinder Singh

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



DETAIL B
RIP RAP AT EMBANKMENT
(Not to Scale)

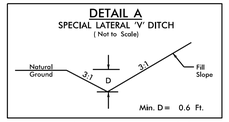


-L- STA. 17+00 TO STA. 17+08 (RT)

-L-

PI Sta 11+85.86	PI Sta 13+61.29	PI Sta 18+08.47
Δ = 7° 37' 35.3" (LT)	Δ = 23° 25' 33.6" (LT)	Δ = 19° 15' 03.6" (RT)
D = 7° 00' 00.0"	D = 11° 00' 00.0"	D = 8° 00' 48.2"
L = 108.95'	L = 212.96'	L = 240.24'
T = 54.56'	T = 107.99'	T = 121.26'
R = 818.51'	R = 520.87'	R = 715.00'
SE= NA	SE= NA	SE= 0.04 FT/FT
RO= NA	RO= NA	RO= SEE PLANS

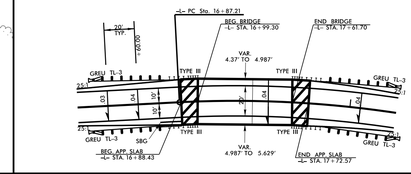
DETAIL A
SPECIAL LATERAL 'V' DITCH
(Not to Scale)

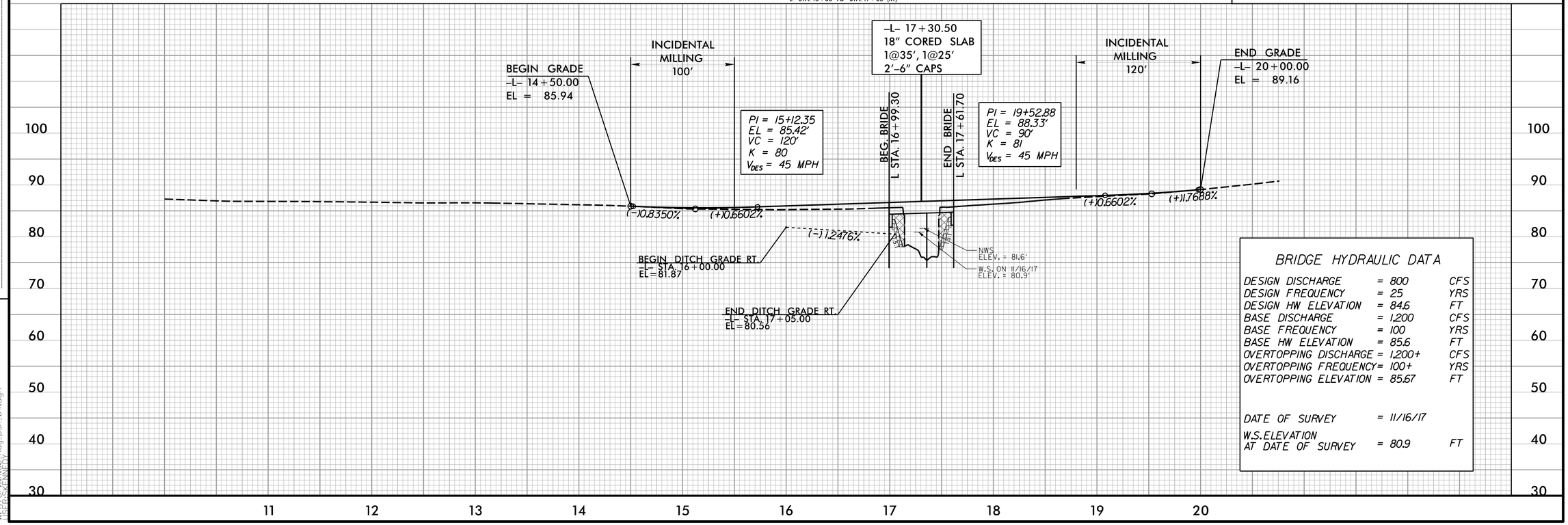


-L- STA. 16+00 TO STA. 17+05 (RT)

BM10 ELEVATION - 85.86
N 1009059 E 2439192
N 72°33'47.99" E DIST 1554.90
RRSPIKE IN 36" ELM

STRUCTURE /ROADWAY RELATIONSHIP





BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	= 800	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 84.6	FT
BASE DISCHARGE	= 1,200	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 85.6	FT
OVERTOPPING DISCHARGE	= 1,200+	CFS
OVERTOPPING FREQUENCY	= 100+	YRS
OVERTOPPING ELEVATION	= 85.67	FT
DATE OF SURVEY	= 11/16/17	
W.S. ELEVATION AT DATE OF SURVEY	= 80.9	FT

REVISIONS

8/17/99

8/24/2018
17BP.1.R.80_Rdy_psh_04.dgn
USER:KENNEDY