DocuSign Envelope ID: FC4E6937-1679-4EA9-AD5D-4FBE06F0300A

5/28/99

PROJECT REFERENCE NO.	SHEET NO.
R-5751	13

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL ENGINEER JARED M. BOND — 1/3/2023

HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL ENGINEER ALEXANDER R. HINSON — 1/3/2023

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

RS&H — 8521 SIX FORKS ROAD, SUITE 400, RALEIGH, NC 27615, NC FIRM LICENSE No: F-0493

-L- LT

BM1
BENCHTIE SET IN 20" PINE
-L- STA. 10+00.00
N 20°6' 1" E DIST.= 727'
ELEV.= 82.29'

BM9
BENCHTIE SET IN 20" PINE
-L- STA.23+90 101' LT.
ELEV.= 83.75'

PIPE HYDRAULIC DATA
-L- Sta.24+00

DRAINAGE AREA	=	1.230*	SQ.MI.
DESIGN FREQUENCY	=	50*	YRS
DESIGN DISCHARGE	=	15,400*	CFS
DESIGN HW ELEVATION	=	82.6*	FT
100 YEAR DISCHARGE	=	18,000*	CFS
100 YEAR HW ELEVATION	=	83.0*	FT
OVERTOPPING FREQUENCY	=	N/A*	YRS
OVERTOPPING DISCHARGE	=	N/A*	CFS
OVERTOPPING ELEVATION	=	N/A*	FT

*PIPES ACT AS OVERFLOW STRUCTURES FOR THE LUMBER RIVER BRIDGE. APPROX. 1.5 MILES AHEAD STATION

BEGIN PROPOSED GRADE LT.
-L- STA.16+00.00
ELEV.= 86.87'

PI = 23+20.00
EL = 89.03'
VC = 230'
K = 382
DS = 80 MPH

86.92 — 87.02

(+)0.3000% (−)0.3023% (−)0.3023%

(+) 0.4933% (−) 0.3040% (+) 0.2800%

BEGIN MEDIAN "V" DITCH GRADE
-L- STA.19+50
ELEV.= 85.60'

PI =21+00.000
El = 86.340

2 @ 66" WELDED STEEL PIPE
C/L ELEV.= 78.85'

PI =24+75.000
El = 85.200

MEDIAN DITCH – – – – –

FOR -L- ALIGNMENT, SEE SHEET NO. 5

-L- RT

PIPE HYDRAULIC DATA
-L- Sta.24+00

DRAINAGE AREA	=	1.230*	SQ.MI.
DESIGN FREQUENCY	=	50*	YRS
DESIGN DISCHARGE	=	15,400*	CFS
DESIGN HW ELEVATION	=	82.6*	FT
100 YEAR DISCHARGE	=	18,000*	CFS
100 YEAR HW ELEVATION	=	83.0*	FT
OVERTOPPING FREQUENCY	=	N/A*	YRS
OVERTOPPING DISCHARGE	=	N/A*	CFS
OVERTOPPING ELEVATION	=	N/A*	FT

*PIPES ACT AS OVERFLOW STRUCTURES FOR THE LUMBER RIVER BRIDGE, APPROX. 1.5 MILES AHEAD STATION

BEGIN PROPOSED GRADE RT.
-L- STA.16+00.00
ELEV.= 86.82'

PI = 20+90.00
EL = 88.30'
VC = 230'
K = 380
DS = 80 MPH

PI = 24+20.00
EL = 87.30'
VC = 400'
K = 663
DS > 80 MPH

86.86 — 86.93

(+)0.3020% (−)0.3030% (−)0.3030% (+)0.3000%

2 @ 66" WELDED STEEL PIPE
C/L ELEV.= 78.85'

FOR -L- ALIGNMENT, SEE SHEET NO. 5

28-OCT-2022 10:22
R:\Roadway\Proj\R5751_Rdy_pfl_13.dgn
$$$$USERNAME$$$$