5/28/99

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

PROJECT REFERENCE NO.	SHEET NO.
R-5021	47

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 36786 ENGINEER
9/9/2021

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 15764 ENGINEER
9/9/2021

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PIPE HYDRAULIC DATA
-L- Sta. 217+29 (STR #1608)

DRAINAGE AREA	= 43	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 37.5*	CFS
DESIGN HW ELEVATION	= 42.3	FT
100 YEAR DISCHARGE	= 42.5*	CFS
100 YEAR HW ELEVATION	= 42.5	FT
OVERTOPPING FREQUENCY	= 200	YRS
OVERTOPPING DISCHARGE	= 55*	CFS
OVERTOPPING ELEVATION	= 43.08	FT

* ABOVE NOTED FLOWS ARE 50% OF THE TOTAL FLOW FROM THE DRAINAGE AREA

-L-

DITCH LEGEND

LEFT DITCH ----------

RIGHT DITCH ----------

CULVERT HYDRAULIC DATA

DESIGN DISCHARGE	= 1300	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 37.1	FT
BASE DISCHARGE	= 1400	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 37.68	FT
OVERTOPPING DISCHARGE	= 1600+	CFS
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING ELEVATION	= 41.94	FT

PI = 218+25.00
EL = 51.77'
VC = 600'
K = 303
V = 60 MPH+

PI = 225+60.00
EL = 39.42'
VC = 560'
K = 189
V = 60 MPH+

50.18

BEGIN LAT.'V' DITCH (RT)
PI =214+58.00
EL = 41.75

END LAT.'V' DITCH (RT)
BEGIN VAR.WIDTH LAT.BASE DITCH
PI =216+00.00

END VAR.WIDTH LAT.BASE (RT)
PI =216+50.00
EL = 41.17

(+)0.3021%

(-)1.6801%

54" RCP-IV

(-) 0.2982%

(-) 0.3000%

(-) 0.1650%

CENTERLINE INTERSECTION
-L- STA 217+91.85 =
-Y4- STA 10+00.00

(-) 0.3000%

END SPECIAL LAT.BASE DITCH (RT)
BEGIN 4' LAT.BASE DITCH (RT
PI = 224+00.00
EI = 34.71

END VAR.WIDTH LAT. BASE DITCH (LT)
PI =225+65.00
EI = 31.65

41.72

(-)1.6801%

(+)1.2751%

(-) 1.9500%

(-) 1.0944%

(-) 1.9500%

(-) 0.0000%

(+) 0.0000%

(-) 4.1934%

BEGIN 4' LAT.BASE DITCH (LT)
PI =215+00.00
EL = 37.96

BEGIN SPECIAL 4' LAT. BASE DITCH (RT)
PI = 218+30.00
EL = 38.01

BEGIN LAT. 'V' DITCH (LT)
PI =221+00.00
EI = 39.45

PI =222+00.00 (RT)
EI = 36.90

END SPECIAL LAT.'V' DITCH (LT)
PI = 213+80.00
EL = 42.35

END 4' LAT.BASE DITCH (LT)
PI =217+80.00
EL = 37.50

END LAT.BASE DITCH
BEGIN SPECIAL 4' LAT. BASE DITCH (RT)
PI = 221+85.00

END LAT. 'V' DITCH (LT)
BEGIN VAR.WIDTH LAT. BASE DITCH (LT)
PI =225+00.00
EI = 31.65

END 4' LAT.BASE DITCH (RT
PI = 225+66.00
EI = 27.75

2 @ 9' x 8' RCBC

BEGIN VAR.WIDTH LAT.BASE DITCH (RT)
PI =226+68.00
EL = 32.42

END SPECIAL 4' LAT. BASE DITCH (RT)
BEGIN LAT.BASE DITCH
PI = 220+65.00

END SPECIAL 4' LAT. BASE DITCH (RT)
BEGIN LAT.BASE DITCH
PI = 223+50.00

BM#5
SPIKE IN 9" PINE
-L- STA 214+76.00, 126' LT
ELEV. = 45.55'

NOTE: SEE CROSS SECTIONS FOR UNDERCUT LOCATIONS FROM:
-L- 221+75 TO 222+75 LT

NOTE: FOR -L- ALIGNMENT, SEE SHEET - 16

-L-

PI = 234+20.00
EL = 50.39'
VC = 800'
K = 507
V = 60 MPH+

41.73

END VAR.WIDTH LAT. BASE DITCH (RT)
BEGIN LAT.'V' DITCH (RT)
PI =227+50.00

BEGIN VAR.WIDTH LAT.BASE DITCH (LT)
PI =228+00.00
EL = 37.91

PI =228+50
EL = 37.91

BEGIN SPECIAL LAT.'V' DITCH (RT)
PI =230+50.00
EL = 37.31

PI =229+50
EL = 39.93

END SPECIAL CUT 2' BASE DITCH (LT)
PI =232+20.00
EL = 40.80

(+)1.2751%

(-)0.3038%

48.32

(+) 0.0000%

(+) 2.0225%

(+) 1.3960%

(+) 0.3213%

(+) 1.3960%

PI =232+00
EL = 39.40

0.5250 %

(+) 0.5250%

(-) 0.2000%

(-) 0.3247%

END SPECIAL LAT.'V' DITCH (RT)
PI =229+59.49
EL =36.04

BEGIN SPECIAL CUT 2' BASE DITCH (LT)
END VAR.WIDTH LAT.BASE DITCH (LT)
PI =229+00.00

CENTERLINE INTERSECTION
-L- STA 232+52.07 =
-Y5- STA 11+87.69

END LAT.'V' DITCH (RT)
PI =235+50.00
EL = 41.24

BEGIN SPECIAL LAT.'V' DITCH (RT)
PI =237+00.00
EL = 42.20

PI =238+50
EL = 41.90

(-) 0.3247%

CENTERLINE INTERSECTION
-L- STA 239+47.27 =
-Y6- STA 10+00.00

PI =227+00
EL = 32.42

BEGIN SPECIAL LAT.'V' DITCH (RT)
END LAT.'V' DITCH (RT)
PI =228+25.00

END SPECIAL LAT.'V' DITCH (RT)
PI =232+30.00
EL=39.56

BEGIN LAT.'V' DITCH (RT)
PI =233+25.00
EL=40.45

END SPECIAL LAT. 'V' DITCH (RT)
PI =238+93.00
EL = 41.76

BEGIN LAT.'V' DITCH (RT)
PI =240+25.00
EL = 41.33

NOTE: SEE CROSS SECTIONS FOR UNDERCUT LOCATIONS FROM:
-L- 227+75 TO 228+72 LT/RT

NOTE: FOR -L- ALIGNMENT, SEE SHEET - 17

22-JUL-2021 09:58
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