PROJECT REFERENCE NO.	SHEET NO.
17BP.5.R.88	4

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 034407 ENGINEER ANDREW P. YOUNG
DocuSigned by: Andrew P. Young 3/11/2022

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 20147 ENGINEER FRANK F. FLEMING
DocuSigned by: Frank Fleming 3/11/2022

STEWART — Firm License No. C-1051, 223 S. West St., Suite 1100, Raleigh, NC 27603, T 919.380.8750, www.stewartinc.com

VHB — VHB Engineering NC, P.C. (C-3705), 940 Main Campus Drive, Suite 500, Raleigh, NC 27606

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REVISIONS

5/14/99

SCOUR HOLE DETAIL
DETAIL 7
NTS

FILL IN SCOUR HOLE WITH CLASS II RIP RAP TO WITHIN 2.0' OF NATURAL GROUND. ADD 1.0' OF CLASS B RIP RAP ON TOP OF CLASS II RIP RAP. TOP CLASS B RIP RAP WITH ENGINEER APPROVED MATERIAL AND COMPACT AS NEEDED TO PROMOTE VEGETATION GROWTH AND FILL VOIDS. GRADE TO DRAIN AND SEED AND MULCH.

-L-

PI Sta 10+92.05	PI Sta 11+70.75	PI Sta 13+07.18
Δ = 19° 05' 44.2" (LT)	Δ = 47° 02' 10.4" (LT)	Δ = 42° 58' 35.2" (RT)
D = 22° 55' 05.9"	D = 66° 37' 22.8"	D = 57° 17' 44.8"
L = 83.32'	L = 70.60'	L = 75.01'
T = 42.05'	T = 37.43'	T = 39.37'
R = 250.00'	R = 86.00'	R = 100.00'
Se = EXIST.	Runoff = 90'	Runoff = 90'
	Se = 4%	Se = 4%

-L-

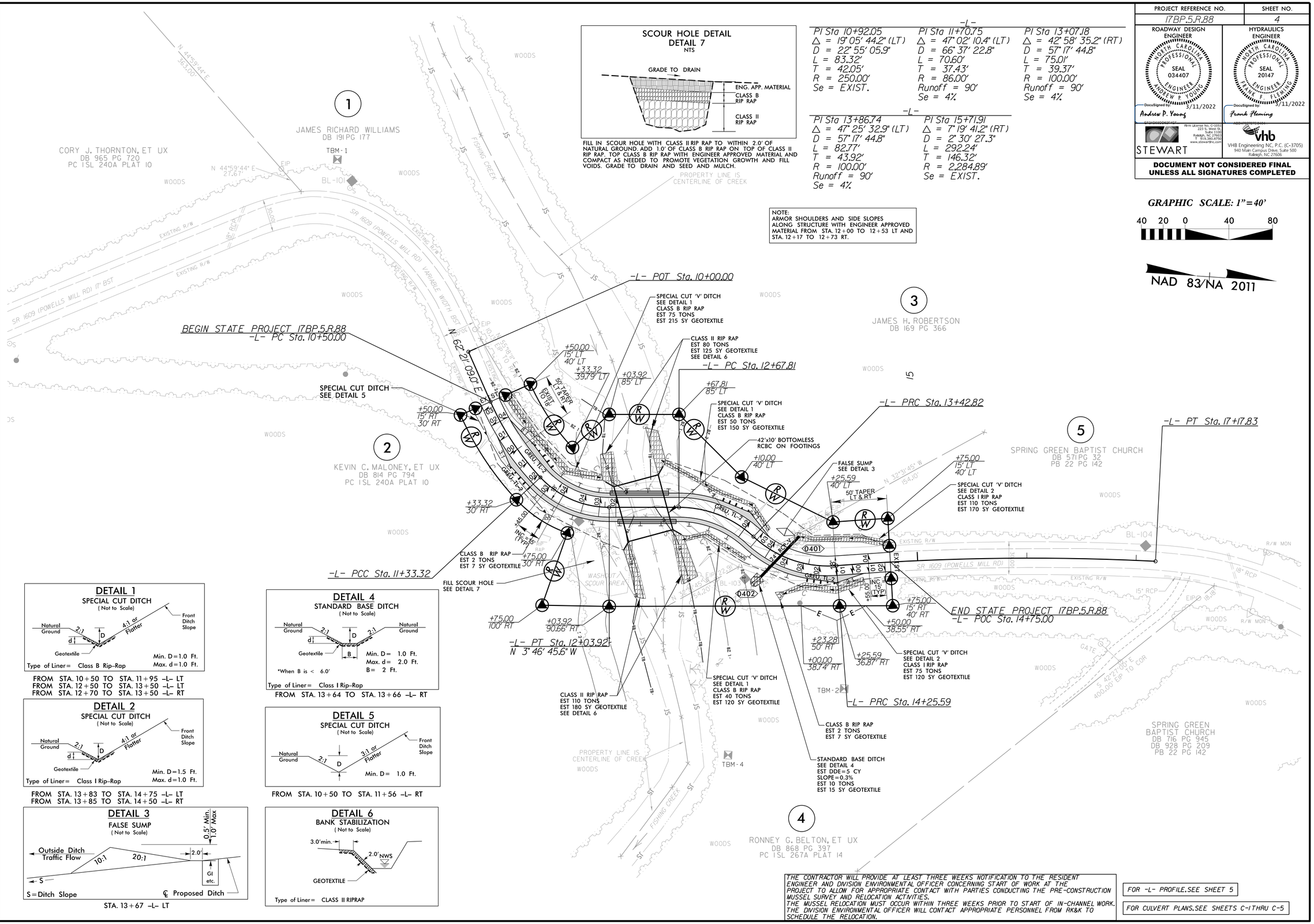
PI Sta 13+86.74	PI Sta 15+71.91
Δ = 47° 25' 32.9" (LT)	Δ = 7° 19' 41.2" (RT)
D = 57° 17' 44.8"	D = 2° 30' 27.3"
L = 82.77'	L = 292.24'
T = 43.92'	T = 146.32'
R = 100.00'	R = 2,284.89'
Runoff = 90'	Se = EXIST.
Se = 4%	

NOTE:
ARMOR SHOULDERS AND SIDE SLOPES ALONG STRUCTURE WITH ENGINEER APPROVED MATERIAL FROM STA. 12+00 TO 12+53 LT AND STA. 12+17 TO 12+73 RT.

GRAPHIC SCALE: 1"=40'

40 20 0 40 80

NAD 83/NA 2011



DETAIL 1
SPECIAL CUT DITCH
(Not to Scale)

Min. D = 1.0 Ft.
Max. d = 1.0 Ft.
Type of Liner = Class B Rip-Rap

FROM STA. 10+50 TO STA. 11+95 -L- LT
FROM STA. 12+50 TO STA. 13+50 -L- LT
FROM STA. 12+70 TO STA. 13+50 -L- RT

DETAIL 2
SPECIAL CUT DITCH
(Not to Scale)

Min. D = 1.5 Ft.
Max. d = 1.0 Ft.
Type of Liner = Class I Rip-Rap

FROM STA. 13+83 TO STA. 14+75 -L- LT
FROM STA. 13+85 TO STA. 14+50 -L- RT

DETAIL 3
FALSE SUMP
(Not to Scale)

STA. 13+67 -L- LT

DETAIL 4
STANDARD BASE DITCH
(Not to Scale)

Min. D = 1.0 Ft.
Max. d = 2.0 Ft.
B = 2 Ft.
*When B is < 6.0'
Type of Liner = Class I Rip-Rap

FROM STA. 13+64 TO STA. 13+66 -L- RT

DETAIL 5
SPECIAL CUT DITCH
(Not to Scale)

Min. D = 1.0 Ft.

FROM STA. 10+50 TO STA. 11+56 -L- RT

DETAIL 6
BANK STABILIZATION
(Not to Scale)

Type of Liner = CLASS II RIPRAP

THE CONTRACTOR WILL PROVIDE AT LEAST THREE WEEKS NOTIFICATION TO THE RESIDENT ENGINEER AND DIVISION ENVIRONMENTAL OFFICER CONCERNING START OF WORK AT THE PROJECT TO ALLOW FOR APPROPRIATE CONTACT WITH PARTIES CONDUCTING THE PRE-CONSTRUCTION MUSSEL SURVEY AND RELOCATION ACTIVITIES.
THE MUSSEL RELOCATION MUST OCCUR WITHIN THREE WEEKS PRIOR TO START OF IN-CHANNEL WORK. THE DIVISION ENVIRONMENTAL OFFICER WILL CONTACT APPROPRIATE PERSONNEL FROM RK&K TO SCHEDULE THE RELOCATION.

FOR -L- PROFILE, SEE SHEET 5

FOR CULVERT PLANS, SEE SHEETS C-1 THRU C-5

3/11/2022
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USER: Rdwyng