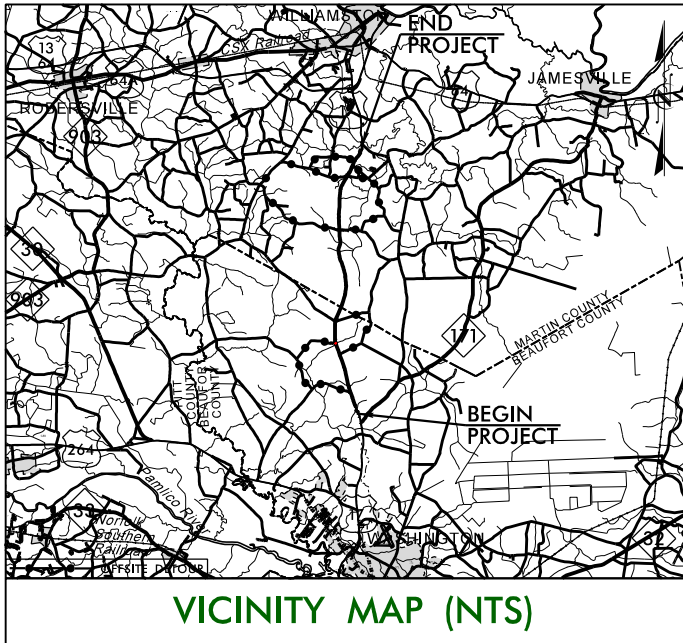


09/08/99

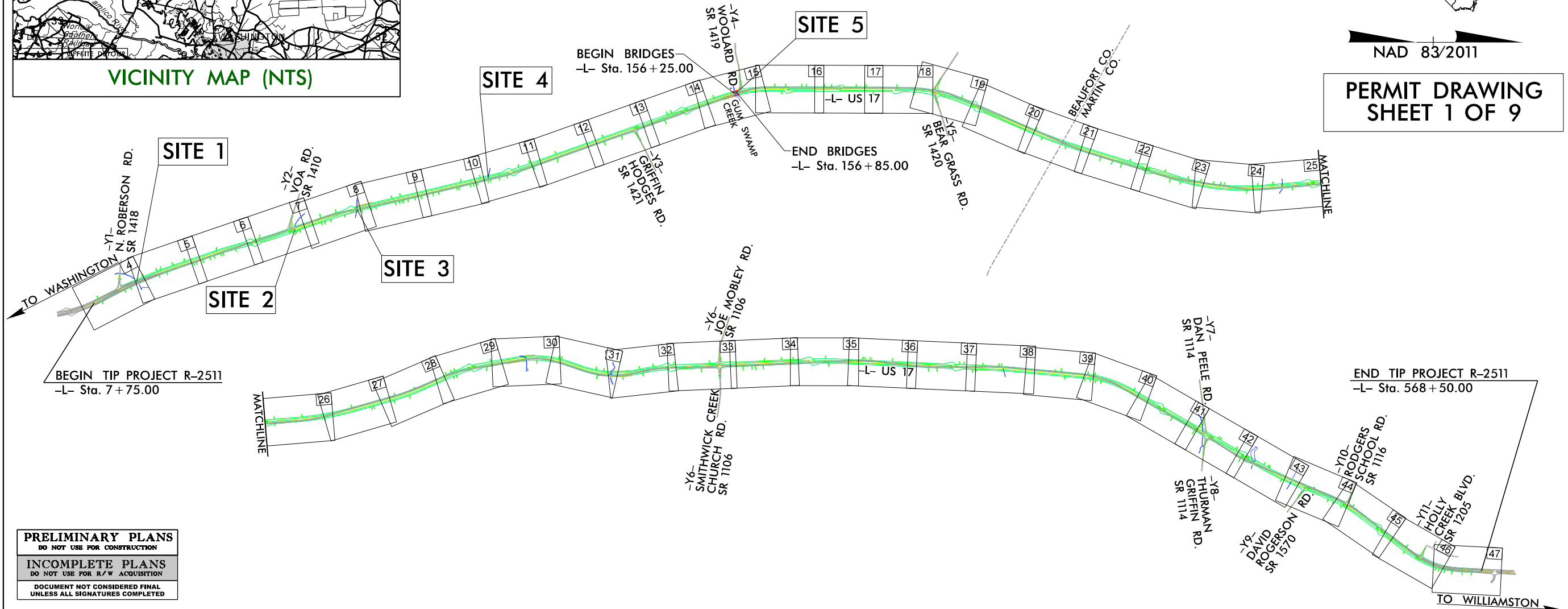
TIP PROJECT: R-2511

CONTRACT:

See Sheet 1-A For Index of Sheets



VICINITY MAP (NTS)



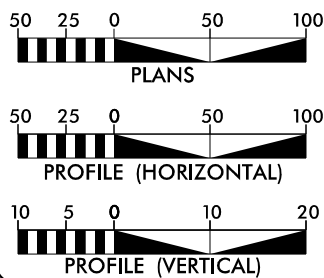
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

- NOTES:
1. CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD
 2. THIS IS A PARTIALLY CONTROLLED-ACCESS PROJECT WITH ACCESS BEING LIMITED TO POINTS AS SHOWN ON THE PLANS.

GRAPHIC SCALES



DESIGN DATA

ADT 2020 = 9,164
ADT 2040 = 14,284
K = 5%
D = 60%
T = 13% *
V = 60 MPH
* TTST = 8% DUAL 5%
FUNC CLASS =
RURAL ARTERIAL

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT R-2511..... 10.609 miles
LENGTH STRUCTURE TIP PROJECT R-2511..... 0.011 miles
TOTAL LENGTH OF PROJECT R-2511..... 10.620 miles

PLANS PREPARED BY:
RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE, SUITE 350
RALEIGH, NORTH CAROLINA 27609
NC LICENSE NO. F-0112
1-888-521-4455 OR 919-878-9560

FOR NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
December 20, 2018

LETTING DATE:
June 16, 2020

NCDOT CONTACT:

Michael T. Merritt, P.E.
PROJECT ENGINEER

Scott D. Blevins, P.E.
PROJECT DESIGN ENGINEER

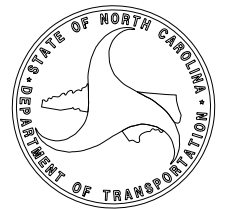
John Abel, Jr.
PROJECT ENGINEER - DIVISION 1

HYDRAULICS ENGINEER

SIGNATURE: _____ P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: _____ P.E.



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

BEAUFORT & MARTIN COUNTIES

LOCATION: US 17 FROM NORTH OF NC 171 TO
EXISTING MULTI-LANES SOUTH OF WILLIAMSTON
TYPE OF WORK: GRADING, DRAINAGE, PAVING, AND STRUCTURES
BUFFER IMPACTS

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-2511	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
35494.1.1	N/A	PE	



NAD 83/2011

PERMIT DRAWING
SHEET 1 OF 9

9/17/2018 R:\Hydraulics\PERMITS-Environmental\Drawings\2511_Hyd_BuF_tsh.dgn eriggs

BUFFER FILTRATION

GRASS SWALE DATA	GRASS SWALE DATA	GRASS SWALE DATA	GRASS SWALE DATA	GRASS SWALE DATA	GRASS SWALE DATA	GRASS SWALE DATA	GRASS SWALE DATA	GRASS SWALE DATA	GRASS SWALE DATA	GRASS SWALE DATA
DA = 1.45ac SLOPE = 1.39% Q2 = 4.94cfs V2 = 1.98ft/s D2 = 0.46' Q10 = 6.41cfs V10 = 2.14ft/s D10 = 0.53'	DA = 2.16ac SLOPE = 1.00% Q2 = 7.36cfs V2 = 1.98ft/s D2 = 0.63' Q10 = 9.56cfs V10 = 2.14ft/s D10 = 0.72'	DA = 5.34ac SLOPE = 0.53% Q2 = 15.60cfs V2 = 1.96ft/s D2 = 1.10' Q10 = 20.25cfs V10 = 2.10ft/s D10 = 1.25'	DA = 4.19ac SLOPE = 0.66% Q2 = 12.24cfs V2 = 1.98ft/s D2 = 0.91' Q10 = 15.89cfs V10 = 2.13ft/s D10 = 1.04'	DA = 1.89ac SLOPE = 1.19% Q2 = 5.98cfs V2 = 1.85ft/s D2 = 0.54' Q10 = 7.76cfs V10 = 2.14ft/s D10 = 0.62'	DA = 1.25ac SLOPE = 1.51% Q2 = 3.65cfs V2 = 1.87ft/s D2 = 0.38' Q10 = 4.74cfs V10 = 2.01ft/s D10 = 0.44'	DA = 0.88ac SLOPE = 2.19% Q2 = 2.57cfs V2 = 1.87ft/s D2 = 0.28' Q10 = 3.34cfs V10 = 2.04ft/s D10 = 0.33'	DA = 6.62ac SLOPE = 0.49% Q2 = 16.12cfs V2 = 1.91ft/s D2 = 1.14' Q10 = 20.92cfs V10 = 2.05ft/s D10 = 1.29'	DA = 0.73ac SLOPE = 1.00% Q2 = 2.13cfs V2 = 1.35ft/s D2 = 0.32' Q10 = 2.77cfs V10 = 1.47ft/s D10 = 0.37'	DA = 4.92ac SLOPE = 0.55% Q2 = 14.38cfs V2 = 1.94ft/s D2 = 1.04' Q10 = 18.66cfs V10 = 2.08ft/s D10 = 1.19'	DA = 4.90c SLOPE = 0.59% Q2 = 14.32cfs V2 = 1.99ft/s D2 = 1.02' Q10 = 18.58cfs V10 = 2.14ft/s D10 = 1.16'
PROVIDING FILTRATION -L- STA. 16+00 TO 18+48 RT PSH 4 DETAIL A	PROVIDING FILTRATION -L- STA. 15+64 TO 17+84 LT PSH 4 DETAIL A	PROVIDING FILTRATION -L- STA. 17+88 TO 23+50 LT PSH 4 DETAIL A	PROVIDING FILTRATION -L- STA. 18+91 TO 23+50 RT PSH 4-5 DETAIL A	PROVIDING FILTRATION -L- STA. 52+00 TO 54+10 LT PSH 7 DETAIL A	PROVIDING FILTRATION -L- STA. 48+75 TO 54+11 RT PSH 7 DETAIL A	PROVIDING FILTRATION -Y2- STA. 15+00 TO 17+25 LT PSH 7 DETAIL A	PROVIDING FILTRATION -L- STA. 55+00 TO 55+43 LT PSH 7 DETAIL A	PROVIDING FILTRATION -L- STA. 55+43 TO 58+50 LT PSH 7-8 DETAIL A	PROVIDING FILTRATION -L- STA. 58+50 TO 69+53 LT PSH 8 DETAIL A	PROVIDING FILTRATION -L- STA. 63+50 TO 68+84 RT PSH 8 DETAIL A

GRASS SWALE DATA	GRASS SWALE DATA	GRASS SWALE DATA	GRASS SWALE DATA	GRASS SWALE DATA	GRASS SWALE DATA
DA = 9.38ac SLOPE = 0.42% Q2 = 22.84cfs V2 = 1.99ft/s D2 = 1.40' Q10 = 29.64cfs V10 = 2.13ft/s D10 = 1.59'	DA = 4.65ac SLOPE = 0.62% Q2 = 13.59cfs V2 = 1.99ft/s D2 = 0.98' Q10 = 17.63cfs V10 = 2.14ft/s D10 = 1.12'	DA = 1.30ac SLOPE = 0.74% Q2 = 3.8cfs V2 = 1.47ft/s D2 = 0.48' Q10 = 4.93cfs V10 = 1.59ft/s D10 = 0.55'	DA = 3.07ac SLOPE = 0.52% Q2 = 8.97cfs V2 = 1.66ft/s D2 = 0.83' Q10 = 11.64cfs V10 = 1.79ft/s D10 = 0.95'	DA = 3.21ac SLOPE = 0.63% Q2 = 9.38cfs V2 = 1.80ft/s D2 = 0.81' Q10 = 12.17cfs V10 = 1.94ft/s D10 = 0.93'	DA = 2.37ac SLOPE = 0.82% Q2 = 6.93cfs V2 = 1.82ft/s D2 = 0.64' Q10 = 8.99cfs V10 = 1.96ft/s D10 = 0.74'
PROVIDING FILTRATION -L- STA. 68+88 TO 78+50 RT PSH 8-9 DETAIL O	PROVIDING FILTRATION -L- STA. 69+59 TO 74+50 LT PSH 8-9 DETAIL A	PROVIDING FILTRATION -L- STA. 94+00 TO 98+50 RT PSH 10-11 DETAIL A	PROVIDING FILTRATION -L- STA. 98+94 TO 109+00 RT PSH 11 DETAIL A	PROVIDING FILTRATION -L- STA. 93+19 TO 99+34 LT PSH 10-11 DETAIL A	PROVIDING FILTRATION -L- STA. 99+39 TO 105+90 LT PSH 11 DETAIL A

PROJECT REFERENCE NO.		SHEET NO.	
<i>R-2511</i>			
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			

PERMIT DRAWING
SHEET 2 OF 9



PLANS PREPARED BY :



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MATCHLINE -L- STA. 19 + 50 SEE SHEET 5

-L- ST Sta. 10+00.00

-L- SC Sta. 13+08.88

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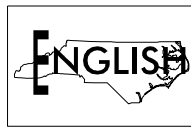
MITIGABLE IMPACTS ZONE 1



MITIGABLE IMPACTS ZONE 2

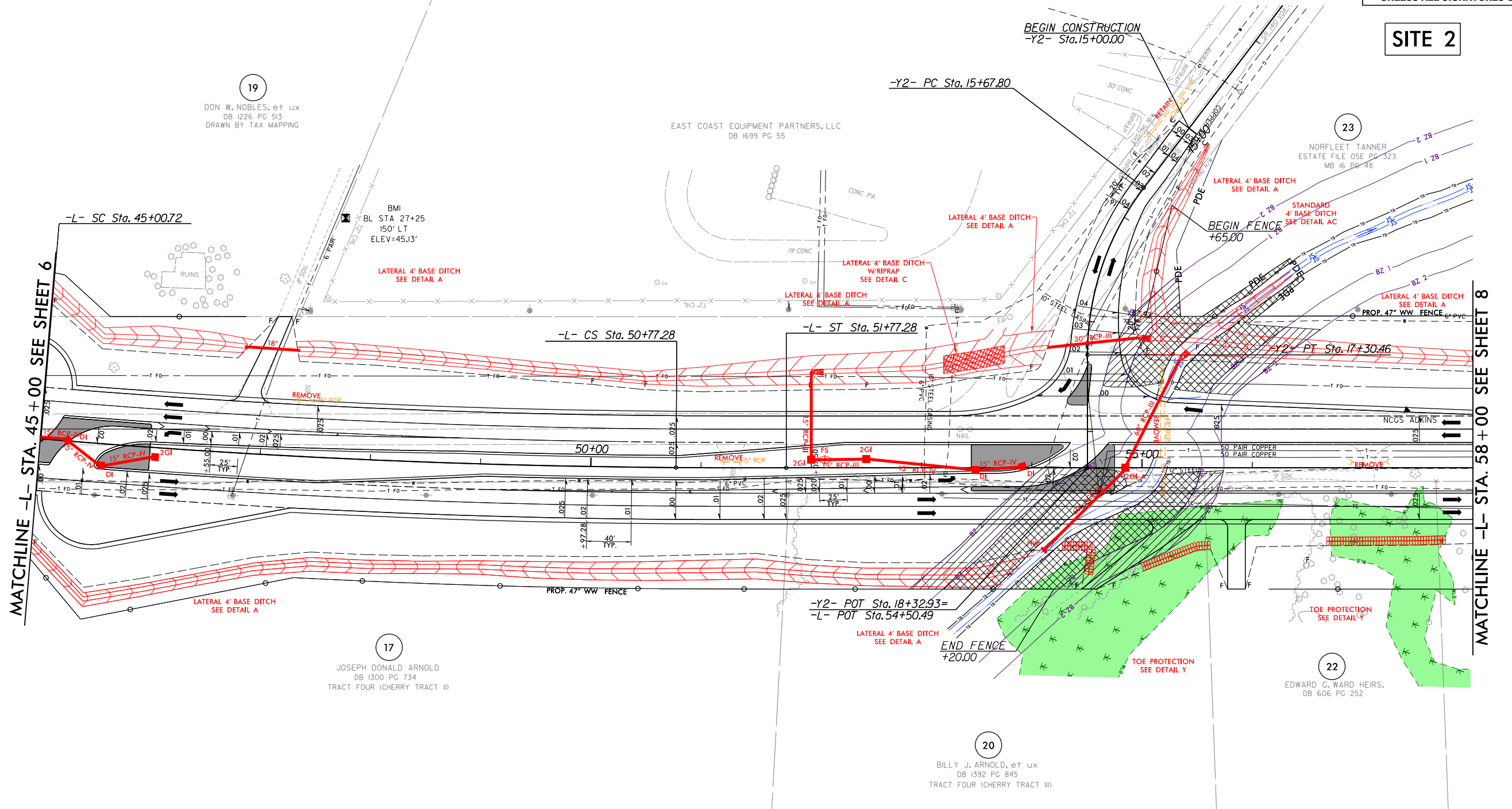
PERMIT DRAWING SHEET 4 OF 9

NAD 83/2011



PROJECT REFERENCE NO. <i>R-2511</i>		SHEET NO. <i>7</i>	
R/W SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
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SITE 2

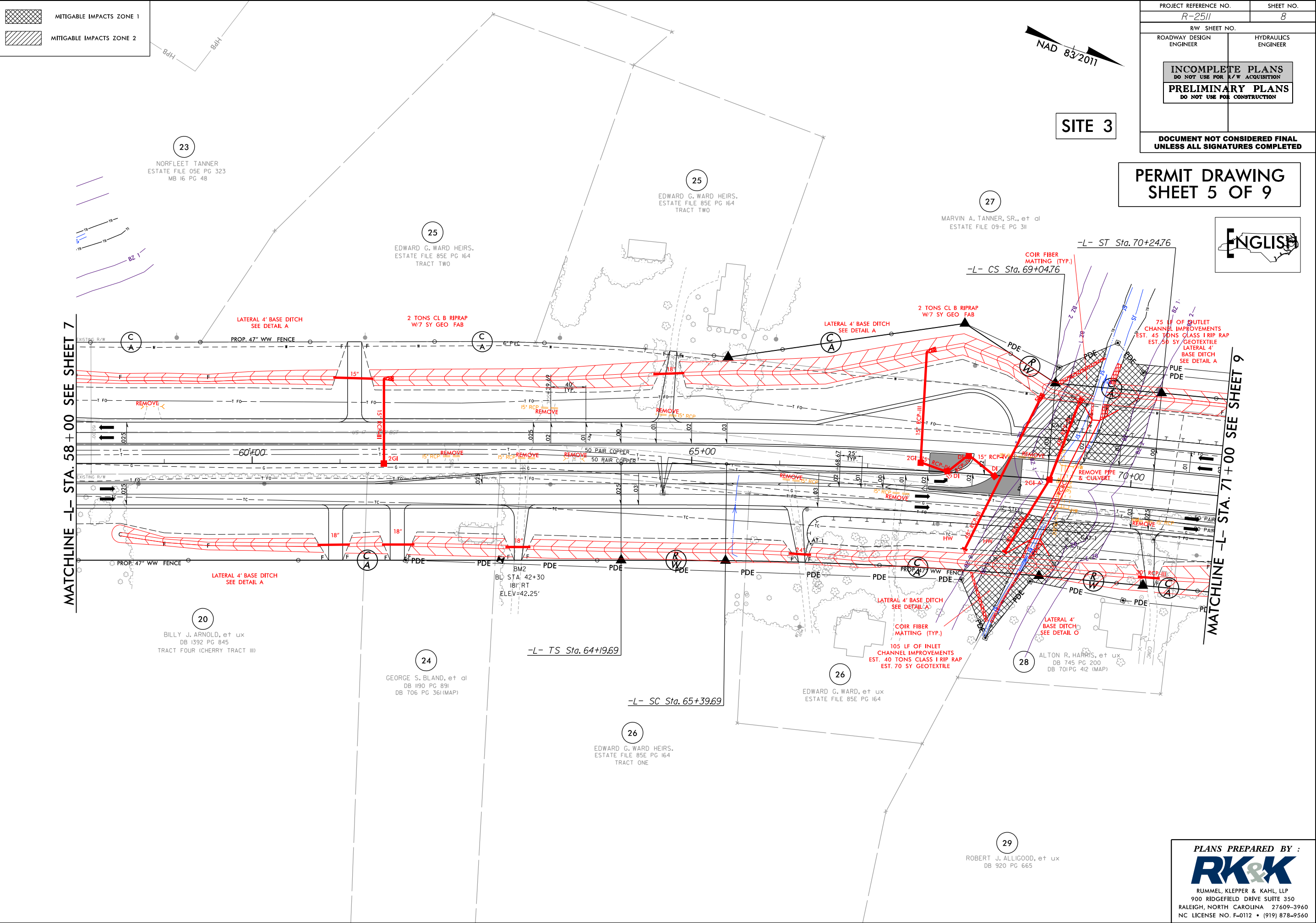


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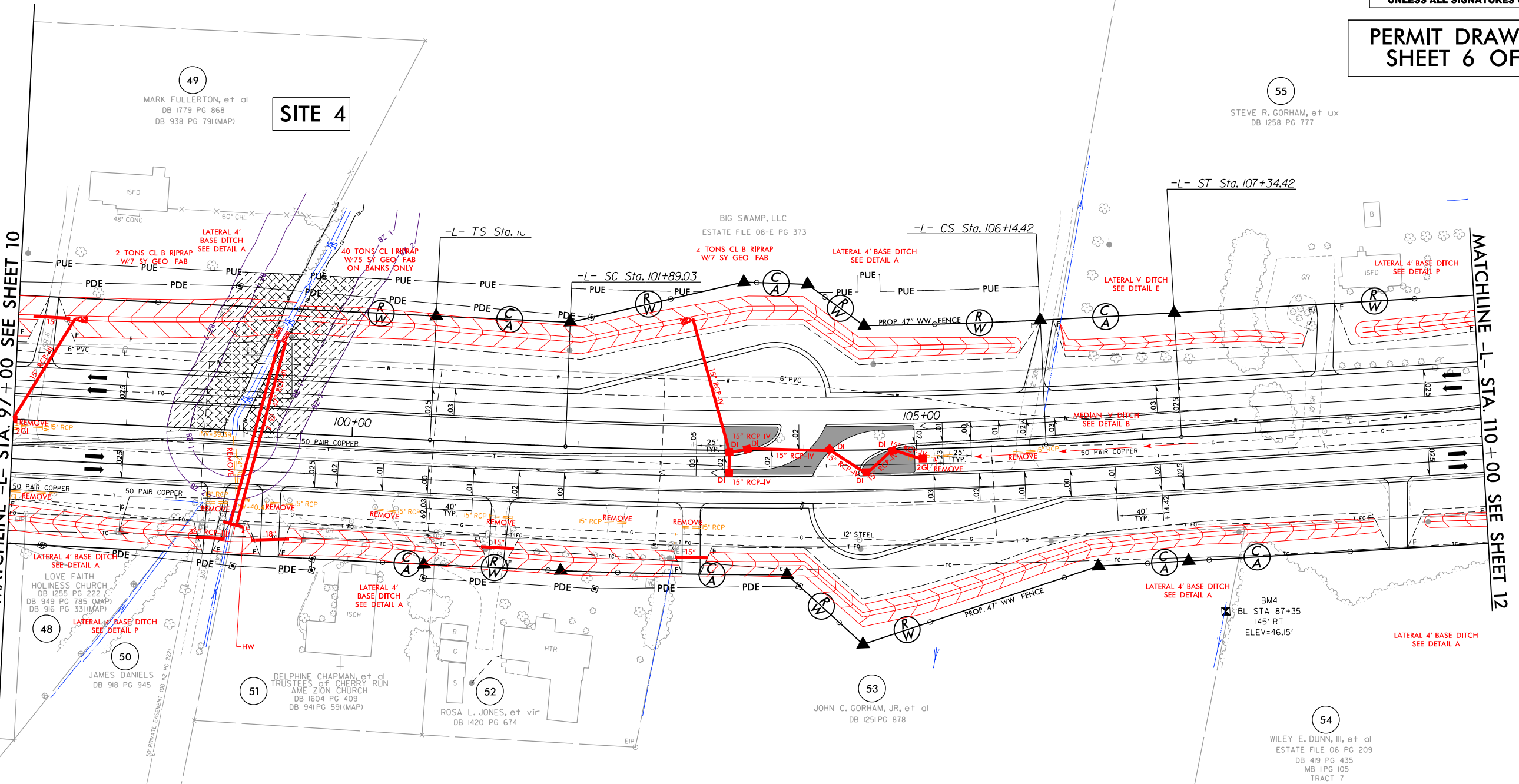


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ALLOWABLE IMPACTS ZONE 1

ALLOWABLE IMPACTS ZONE 2

MATCHLINE -L- STA. 97+00 SEE SHEET 10



MATCHLINE -L- STA. 110+00 SEE SHEET 12

PROJECT REFERENCE NO. R-2511		SHEET NO. 11	
RW SHEET NO.		HYDRAULICS ENGINEER	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
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SHEET 6 OF 9

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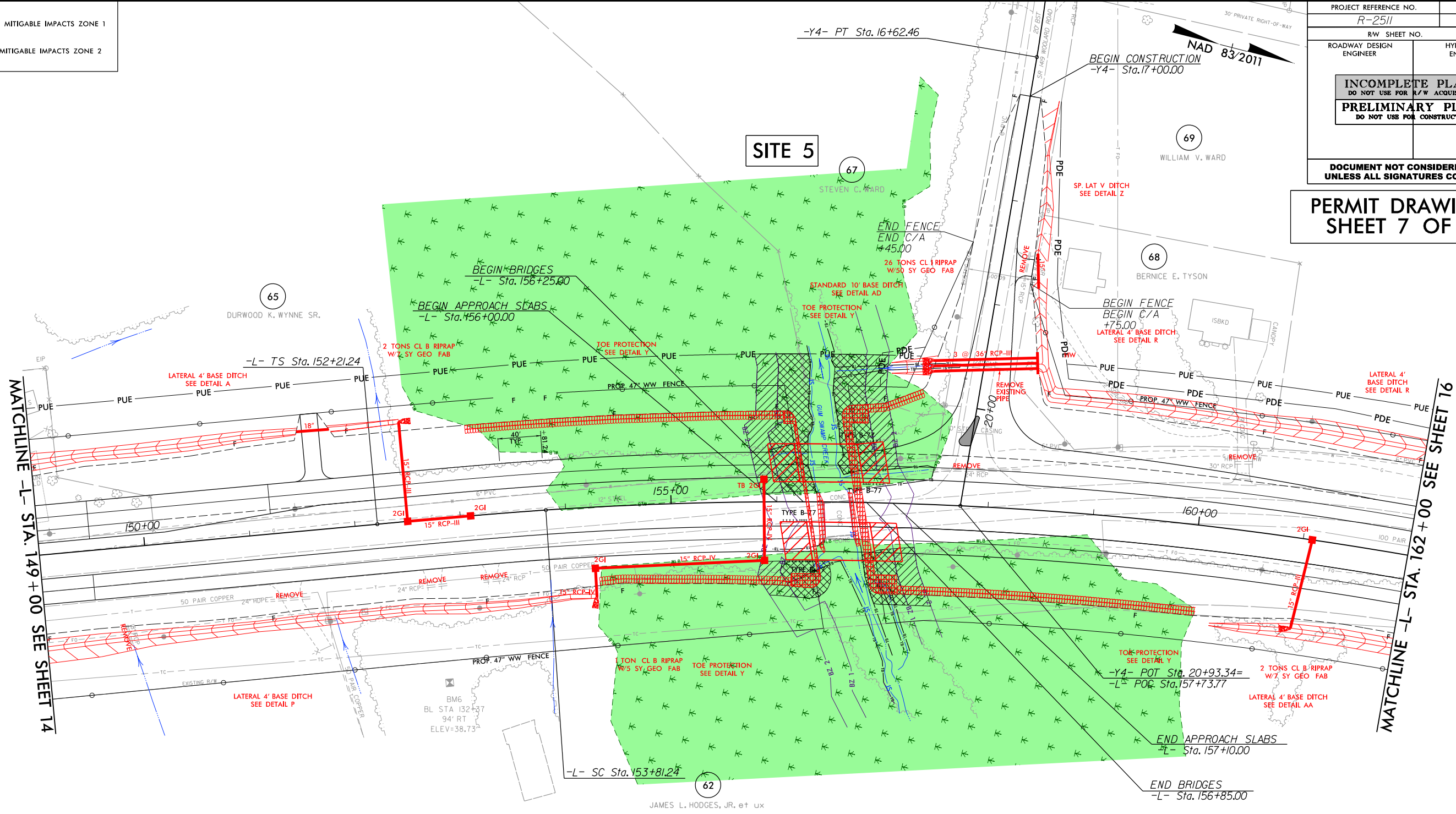
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MITIGABLE IMPACTS ZONE 1

MITIGABLE IMPACTS ZONE 2



PROJECT REFERENCE NO. R-2511		SHEET NO. 15	
RW SHEET NO.		HYDRAULICS ENGINEER	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
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SHEET 7 OF 9

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RIPARIAN BUFFER IMPACTS SUMMARY

			IMPACTS									BUFFER REPLACEMENT	
Site No.	Station (From/To)	Structure Size / Type	TYPE			ALLOWABLE			MITIGABLE				
			ROAD CROSSING	BRIDGE	PARALLEL IMPACT	ZONE 1 (ft²)	ZONE 2 (ft²)	TOTAL (ft²)	ZONE 1 (ft²)	ZONE 2 (ft²)	TOTAL (ft²)	ZONE 1 (ft²)	ZONE 2 (ft²)
1	16+56 to 19+16	Retain Ex. 60" CMP	X			7255	5683	12938					
2	52+89 to 56+80	Prop. 60" RCP	X						16327	10878	27205		
3	68+12 to 70+29	Prop. 8'x6' RCBC w/ (2) 48" RCP	X						14759	8620	23379		
4	98+36 to 100+24	Prop. (2) 42" RCP	X			9454	6334	15788					
5	155+70 to 157+55	Dual 60' Bridges		X					10555	6851	17406		
TOTALS*:						16709	12017	28726	41641	26349	67990	0	0

WETLANDS IN BUFFER IMPACTS SUMMARY

SITE NO.	STATION (FROM/TO)		WETLANDS IN BUFFERS	
			ZONE 1 (ft ²)	ZONE 2 (ft ²)
1	16+56 to 19+16		307	6
2	52+89 to 56+80		2030	2688
5	155+70 to 157+55		10555	6844
TOTAL:			12892	9538

NC DEPARTMENT OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 9/13/2018
 BEAUFORT & MARTIN COUNTIES
 R-2511
 35494.1.1
 SHEET 9 OF 9