



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

ROY COOPER
GOVERNOR

JAMES H. TROGDON, III
SECRETARY

December 20, 2019

U.S. Army Corps of Engineers
Raleigh Regulatory Field Office
3331 Heritage Trade Drive, Suite 105
Wake Forest, NC 27587

Attn: Eric Alsmeyer
NCDOT Project Coordinator

Subject: **Modification Request for Section 404 Individual Permit, Section 401 Water Quality Certification and Neuse Riparian Buffer Authorization** for Interstate 40 Widening and Improvements from I-440/US 64 (Exit 301) to just north of SR 1525 (Cornwallis Road), including improvements to NC 42 and SR 1010 (Cleveland Road) in Wake and Johnston Counties, Federal Aid Project No. IMNHF-040-4(139)301; TIP Numbers I-5111 and I-4739, Divisions 4 & 5; Debit \$570 from WBS Element 42346.3.1.

Dear Mr. Alsmeyer,

The North Carolina Department of Transportation (NCDOT), applied for permits for the subject project on May 7, 2019. The Corps of Engineers issued the Section 404 permit for the project on September 6, 2019. The North Carolina Division of Water Resources issued the 401 Water Quality Certification for the project on July 10, 2019 (NCDWR Project No. 20190593).

It has come to our attention that several wetland and riparian buffer impact areas require revisions. The buffer areas were visited in the field by staff from NCDOT, RK&K, and S.T. Wooten on December 2, 2019. These issues have been brought to your and Mr. Rob Riding's attention by Division 5 staff. Attached are revised permit drawings depicting the affected areas, all of which have a revision date of 12/12/2019.

This permit modification request accounts for the following items:

1. Additional buffer impacts at Sites 23A, 23B, and 26A. These revisions reflect additional impacts to mitigable buffer zone 1 areas that the Division requested after field reviewing the top of banks and edge of transportation facility areas at each location. (This information was previously submitted to DWR before the other issues came to light).
2. Changing temporary impacts along the upstream, right bank of Swift Creek, Site 40, to permanent impacts by lining the bank with Class II riprap. This is considered a permanent

MAILING ADDRESS:
NC DEPARTMENT OF TRANSPORTATION
ENVIRONMENTAL ANALYSIS UNIT
1598 MAIL SERVICE CENTER
RALEIGH NC 27699-1598

TELEPHONE: 919-707-6000
FAX: 919-212-5785
WEBSITE: NCDOT.GOV

LOCATION:
CENTURY CENTER, BUILDING A
1000 BIRCH RIDGE DRIVE
RALEIGH NC, 27610-4328

stream impact as bank stabilization. Previously it was considered temporary impact under construction and dewatering activities.

3. Site 42, -L- 106+38 – 111+14 RT will change a portion of the mechanized clearing to permanent fill in wetland. This is due to a Geotech recommendation to push riprap into the soft soils 12” – 24” deep in the area of the wetland. This limits the amount of undercutting that will need to occur. The Geotech recommendation states the station range is appr. -L- 110+00 – 125+00. The actual impacts due to the wetland shape are in the station range -L- 106+38 – 111+14. (There is a portion of temporary fill in wetland that will change to permanent fill in wetland, 0.002 ac, but it is so small that it is lost due to rounding). We do not anticipate a draining effect on the wetlands. The relocated channel will serve to function like the stream we are removing (SDN). There will be no voids in the riprap that is installed therefore we do not anticipate a discharge. Soil will be prevalent throughout the riprap.
4. There is a tributary at STA 110+00 -L- Rt which is within the foot print of the proposed Geotech recommended changes. The contractor is not proposing riprap within the stream channel; if during construction it is determined that riprap is required for long term stability, it will be installed deep below the exiting channel with enough backfill over it to retain the silt bottom of the channel. For this reason, the temporary impacts to the channel remain the same.

Specially for item 1, the buffer impacts, these revisions reflect additional impacts to mitigable Buffer Zone 1 areas following Division 5 staff field reviewing of the top of banks and edge of transportation facility areas at each location. The following sheets have been modified:

- Buffer drawing 1 of 52: titlesheet
- Buffer drawing 23 of 52: plansheet 31 reflecting revisions to Sites 23A and 23B
- Buffer drawing 24 of 52: plansheet 32 reflecting a revision to Sites 26A
- Buffer drawing 47 of 52: summary table
- Buffer drawing 51 of 52: summary table

The following impacts were revised:

- Site 23A: previous mitigable zone 1 impact total: 8,260 sq. ft.; new mitigable zone 1 impact total: 10,192 sq. ft. (difference of 1932 sq. ft.)
- Site 23B: previous mitigable zone 1 impact total: 635 sq. ft.; new mitigable zone 1 impact total: 1,037 sq. ft. (difference of 402 sq. ft.)
- Site 26A: previous mitigable zone 1 impact total: 233 sq. ft.; new mitigable zone 1 impact total: 422 sq. ft. (difference of 189 sq. ft.)
- Overall total project previous mitigable zone 1 impact total: 299,329 sq. ft.; new mitigable zone 1 impact total: 301,854 sq. ft. (difference of 2,525 sq. ft.)

Please note that due to rounding of the impacts at these sites as well as the others, the overall increase difference for these sites is 2,523 sq. ft., however the table shows 2,525 sq. ft.. All of these new drawings now have revision dates of 12/12/2019.

For items 2 and 3 above, the following sheets have been revised:

- Permit drawing 1 of 125: titlesheet
- Permit drawing 83 of 125: plansheet 41 reflecting revisions to Sites 40 and 42
- Permit drawing 84 of 125: plansheet 41 reflecting revisions to Sites 40 and 42
- Permit drawing 124 of 125: summary table
- Permit drawing 125 of 125: summary table

- Buffer drawing 33 of 52: plansheet 41 reflecting the revision to Site 40, however there are no buffer impact changes due to this revision. It is just to show the riprap bank stabilization.

Additional for item 2, the following impacts have been revised

- Site 40: previous permanent stream impact: 254', temporary stream impact: 90'; new permanent stream impact: 334', temporary stream impact: 10'

Additional for item 3, the following sheets and impacts have been revised:

- Permit drawing 91 of 125: plansheet 42 reflecting revisions to Site 42
- Permit drawing 92 of 125: plansheet 42 reflecting revisions to Site 42
- Site 42: previous permanent fill in wetland: 0.23ac, previous mechanized clearing: 0.10 ac; new permanent fill in wetland: 0.29 ac, new mechanized clearing: 0.05 ac (note that rounding with all project impacts makes the total project increase in permanent fill in wetland 0.05 ac and the decrease in mechanized clearing 0.05 ac).

Compensatory Mitigation

NCDOT has requested the appropriate additional mitigation from the N.C. Division of Mitigation Services. The revised acceptance letter will be provided once it is received by the Department.

REGULATORY APPROVALS

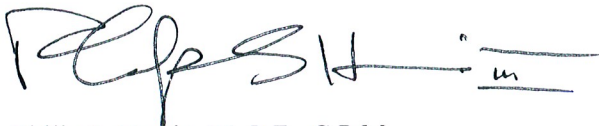
Section 404: NCDOT requests modification to the USACE Individual 404 Permit for the project as required for the above described activities.

Section 401: We are also requesting modification of the Section 401 Individual Water Quality Certification and Neuse Riparian Buffer Authorization from NCDWR. We are providing this modification request to NCDWR, for their approval. Authorization to debit the \$570.00 Permit Modification Fee from WBS 42346.3.1 is hereby given.

A copy of this request and its distribution list will be posted at <https://xfer.services.ncdot.gov/pdea/PermApps/>.

If you have any questions or need additional information, please contact Gordon Cashin at gcashin@ncdot.gov or 919-707-6107.

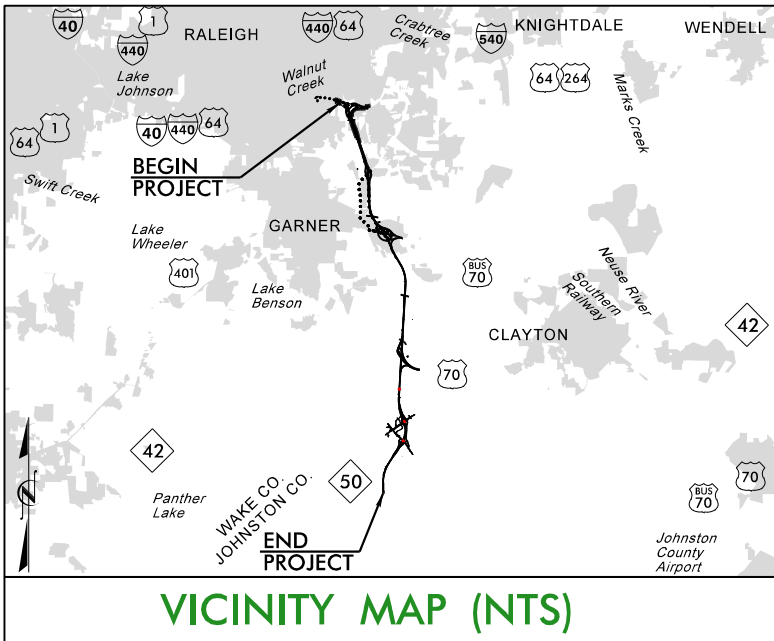
Sincerely,



Philip S. Harris, III, P.E., C.P.M.
Environment Analysis Unit Head

09/08/99

See Sheet 1-B For Plan Sheet Symbols



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

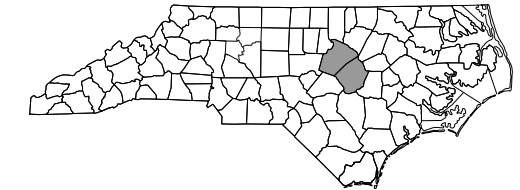
WAKE & JOHNSTON COUNTIES

LOCATION: I-40 FROM I-440 /US 64 (EXIT 301) TO JUST NORTH OF SR 1525 (CORNWALLIS ROAD), INCLUDING IMPROVEMENTS TO NC 42 AND SR 1010 (CLEVELAND ROAD).

TYPE OF WORK: GRADING, DRAINAGE, PAVING, WIDENING, RESURFACING & STRUCTURES

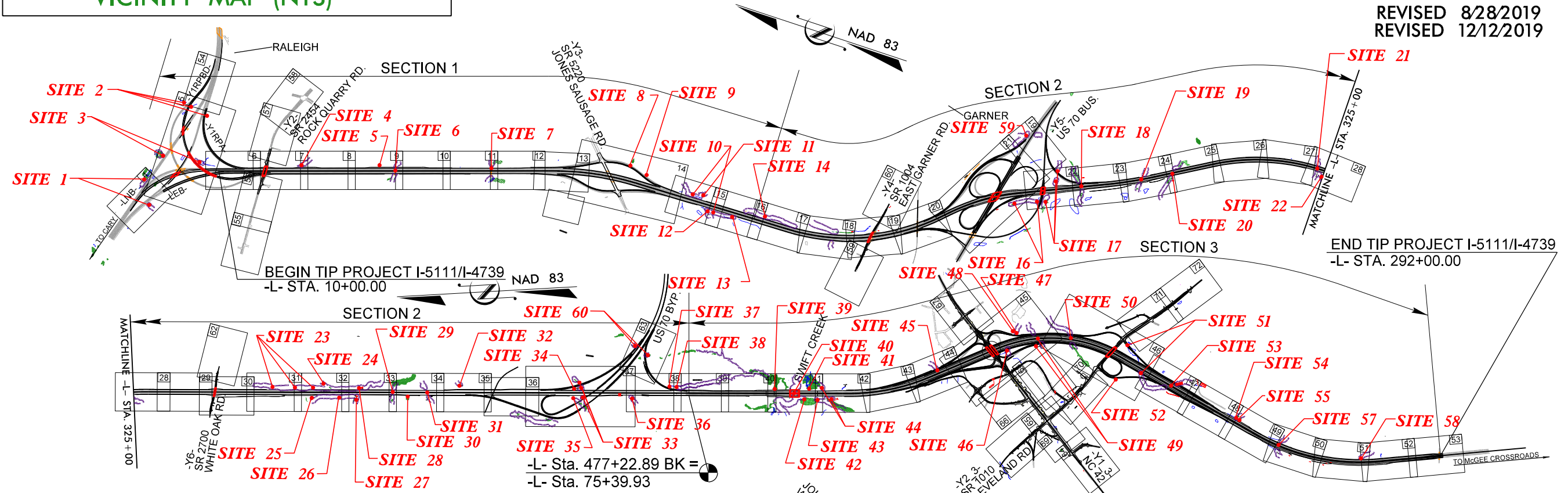
WETLAND AND STREAM IMPACTS

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	I-5111 /I-4739	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
42346.3.1	IMNHF-040-4(139)301	PE	



PERMIT DRAWING
SHEET 1 OF 125

REVISED 8/28/2019
REVISED 12/12/2019

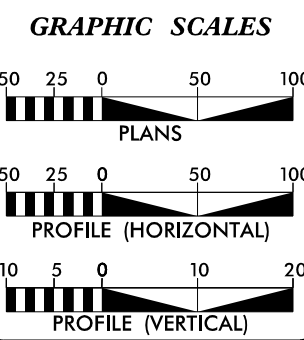


- NOTES:
1. A PORTION OF THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF THE CITIES OF RALEIGH & GARNER.
 2. CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III MODIFIED.
 3. THIS IS A CONTROLLED-ACCESS PROJECT WITH ACCESS BEING LIMITED TO INTERCHANGES.

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

TIP PROJECT: I-5111 /I-4739

CONTRACT: C204134



DESIGN DATA

ADT 2018 =	106,200
ADT 2040 =	137,200
DHV =	65%
D =	9%
T =	9% *
V =	70 MPH & 75 MPH **
FUNC CLASS:	URBAN INTERSTATE
* (TTST 5% + DUAL 4%)	
** DESIGN SPEED CHANGES AT US 70 BUS	

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT I-5111 /I-4739.....	12.950 miles
LENGTH STRUCTURE TIP PROJECT I-5111 /I-4739.....	0.094 miles
TOTAL LENGTH OF PROJECT I-5111 /I-4739.....	13.044 miles

NCDOT CONTACT

K. Zak Hamidi, P.E.
PROJECT ENGINEER - DESIGN-BUILD UNIT

PLANS PREPARED BY:

RK&K RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE, SUITE 350
RALEIGH, NORTH CAROLINA 27609
NC LICENSE NO. F-0112

FOR NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

2018 STANDARD SPECIFICATIONS

LETTING DATE:
JUNE 19, 2018

S.T. WOOTE

Brandon J. McInnis, P.E.
PROJECT ENGINEER

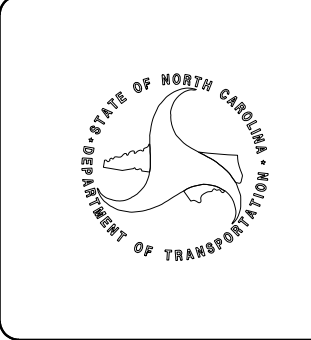
Mary E. Yahl, P.E.
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: _____ P.E.

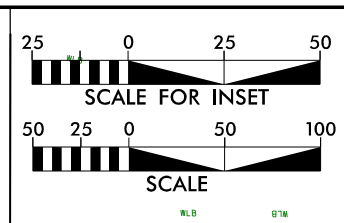
ROADWAY DESIGN ENGINEER

SIGNATURE: _____ P.E.



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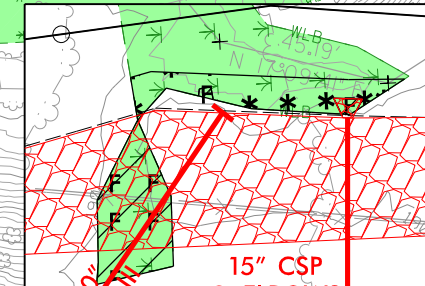
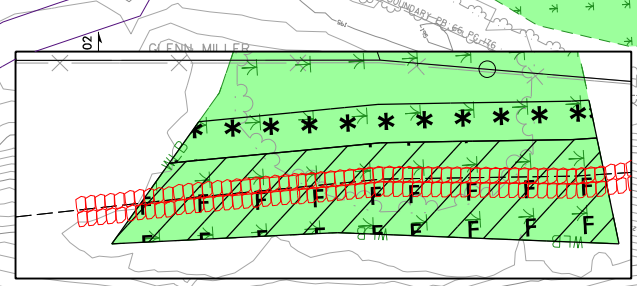
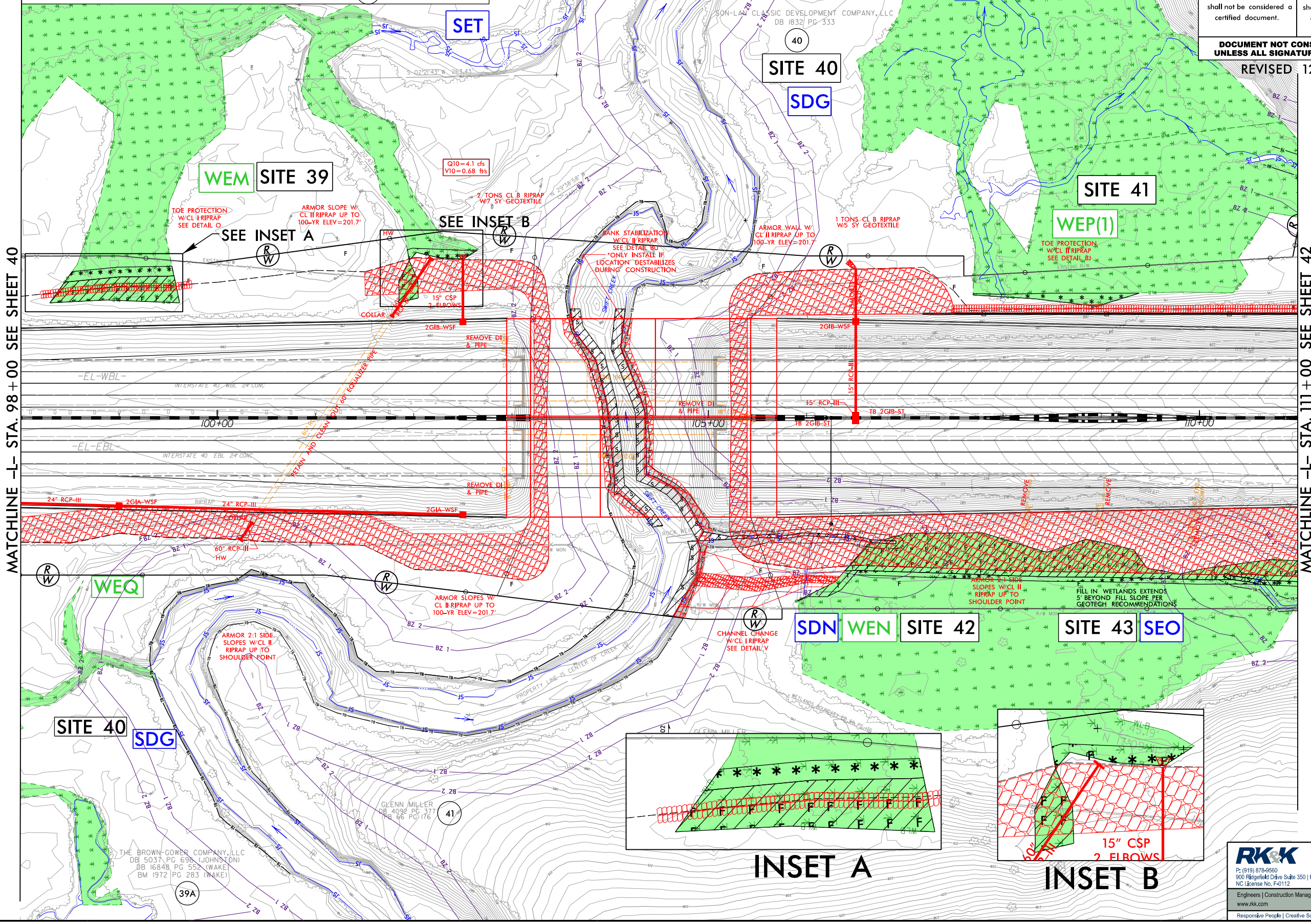


PERMIT DRAWING SHEET 84 OF 125

ENGLISH

- DENOTES FILL IN WETLAND
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- DENOTES MECHANIZED CLEARING
- DENOTES TEMPORARY FILL IN WETLAND

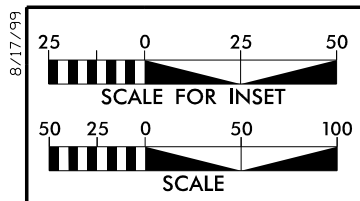
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RW SHEET NO.	HYDRAULICS ENGINEER
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DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
REVISED 12/12/2019	



INSET A

INSET B

RK&K
 P: (919) 878-9500
 900 Roperfield Drive, Suite 350 | Raleigh, North Carolina 27609-3960
 NC License No. E-41112
 Engineers | Construction Managers | Planners | Scientists
 www.rkk.com
 Responsive People | Creative Solutions



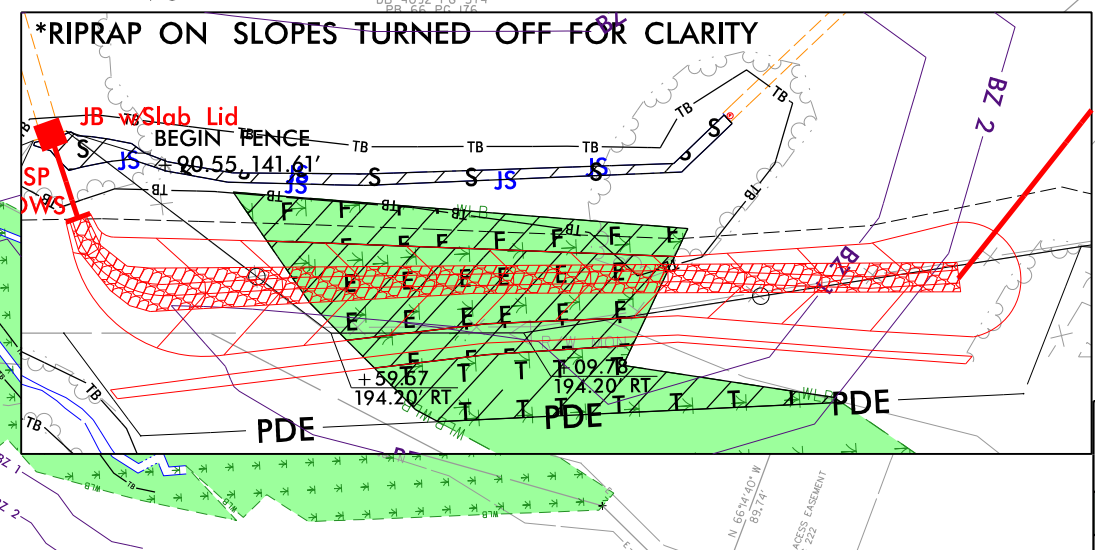
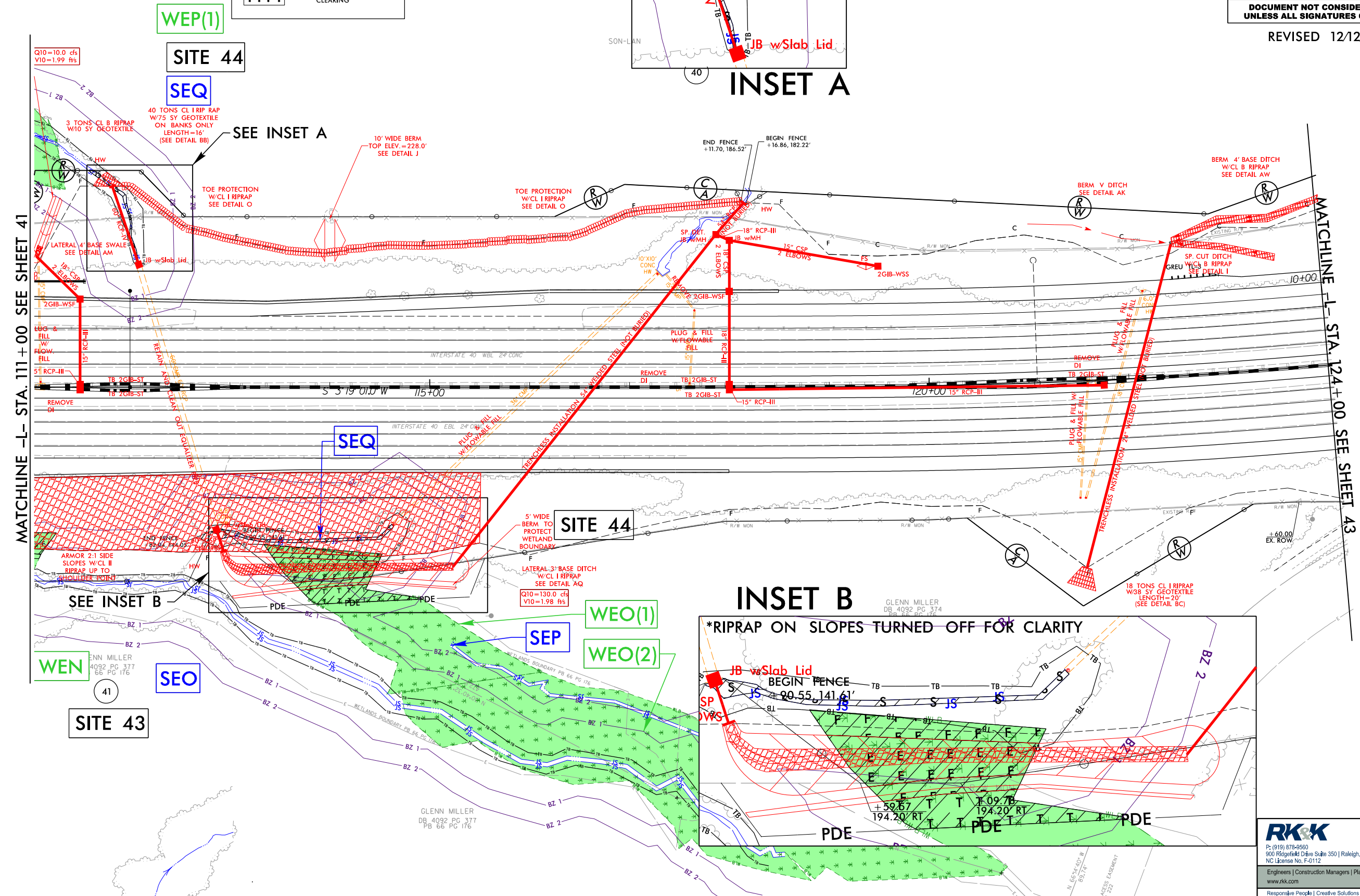
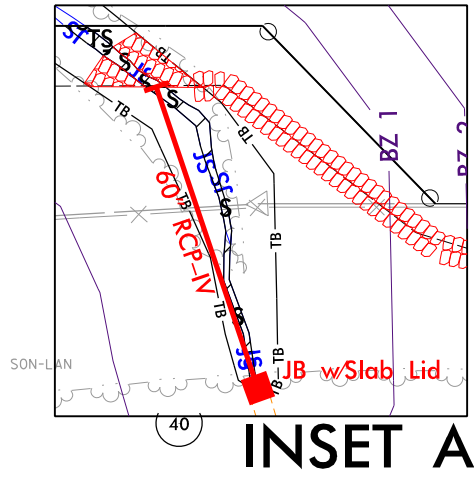
PERMIT DRAWING
SHEET 91 OF 125

ENGLISH

- DENOTES TEMPORARY FILL IN WETLAND
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- DENOTES EXCAVATION IN WETLAND
- DENOTES FILL IN WETLAND
- DENOTES MECHANIZED CLEARING

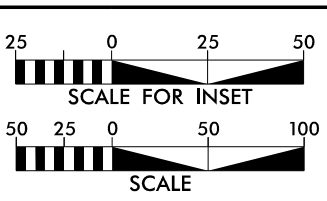
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REVISED 12/12/2019	



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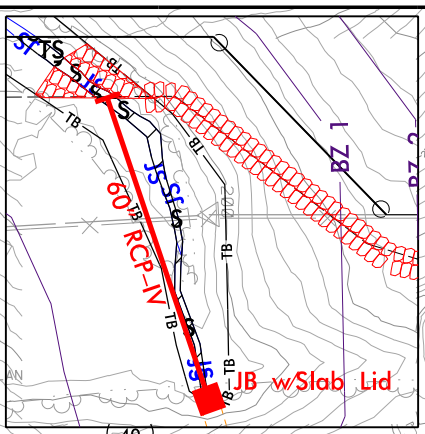
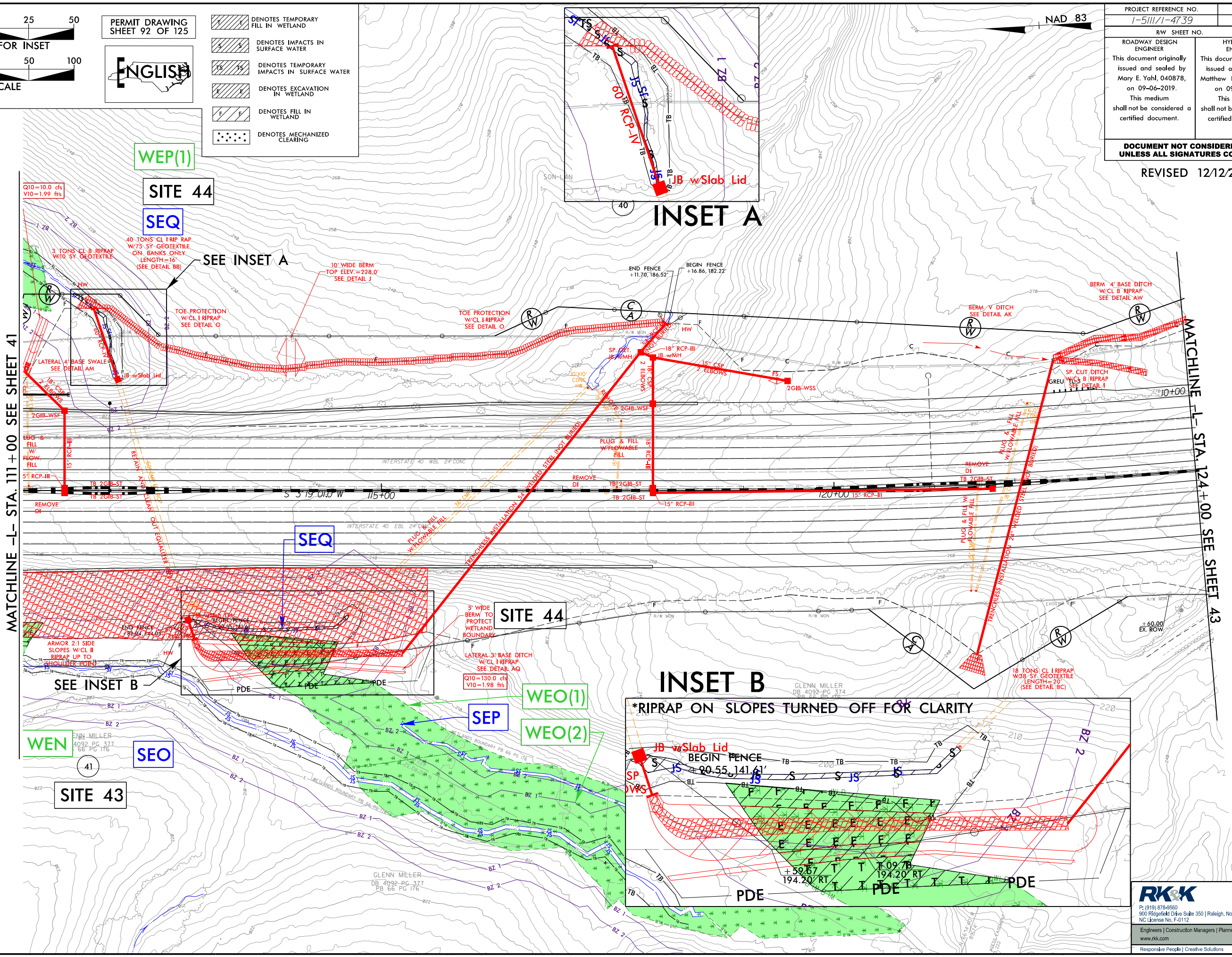
PERMIT DRAWING
SHEET 92 OF 125
ENGLISH

- DENOTES TEMPORARY FILL IN WETLAND
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- DENOTES EXCAVATION IN WETLAND
- DENOTES FILL IN WETLAND
- DENOTES MECHANIZED CLEARING

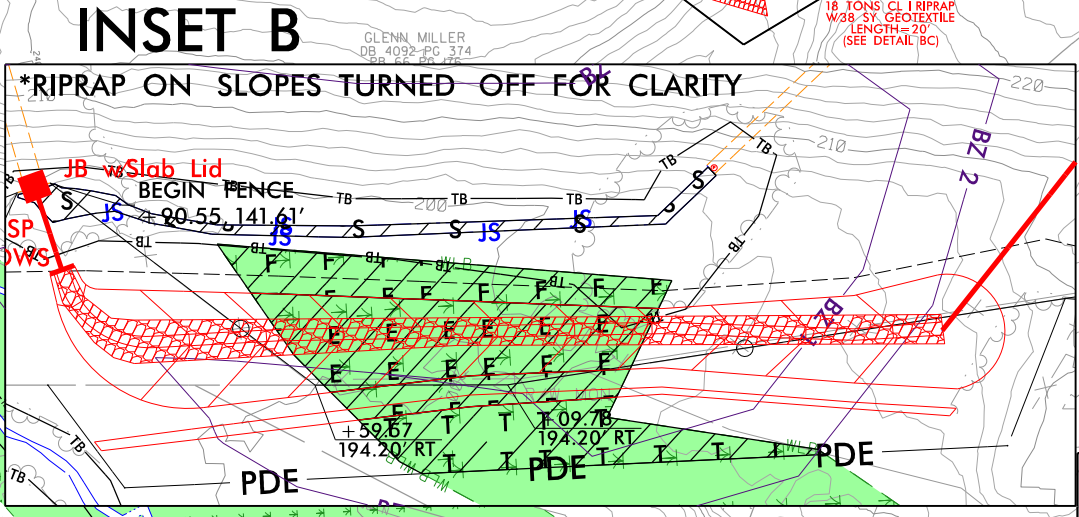
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REVISED 12/12/2019



INSET A



INSET B

MATCHLINE -L- STA. 111+00 SEE SHEET 41

MATCHLINE -R- STA. 124+00 SEE SHEET 43

WETLAND AND SURFACE WATER IMPACTS SUMMARY

Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS					SURFACE WATER IMPACTS				
			Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
39A	-L- 98+30-99+62 LT	ROADWAY FILL - WEM	0.07			0.02						
39B	-L- 101+93-102+66 LT	ROADWAY FILL - WEM	0.01			0.01						
40	-L- 103+59-104+95 LT & RT	BANK STABILIZATION - SDG						0.14	< 0.01	334	10	
41	-L- 107+69-109+35 LT	ROADWAY FILL - WEP(1)				0.02						
42	-L- 104+95-108+09 RT	ROADWAY FILL - SDN, WEN	0.29	0.01		0.05		0.02		200		
43	-L- 110+24-110+66 RT	ROADWAY FILL - SEO							< 0.01		40	
44	-L- 111+78-114+64 LT & RT	60" RCP, ROADWAY FILL, DITCH - SEQ, WEO(1)			0.04			0.02		269		
	-L- 111+58-111+85 LT	BANK STABILIZATION - SEQ						< 0.01	< 0.01	16	11	
45	-L- 144+01-144+56 LT	48" CSP - SEU						0.01		154		
	-L- 143+75-144+08 LT	BANK STABILIZATION - SEU						< 0.01	< 0.01	40	11	
46	-L- 164+25-164+78 RT	30" CSP / 36" RCP - SEA, WOE	0.02					0.01		168		
47	-Y1RPA- 16+63-17+14 RT	54" CSP - SLV						< 0.01		62		
	-Y1RPA- 16+58-16+65 RT	BANK STABILIZATION - SLV						< 0.01	< 0.01	45	11	
48	-Y1RPA- 16+66-17+11 RT	ROADWAY FILL, RIPRAP - SLW						< 0.01	< 0.01	14	51	
49	-L- 171+49-174+67 LT & RT	66" WSP / 66" RCP - SLU, WC, WOB	0.06					0.03		284		
	-L- 171+40-174+63 LT & RT	BANK STABILIZATION - SLU						< 0.01	< 0.01	64	30	
50	-LCDWB- 64+67-68+61 LT & RT	60" CSP, CHANNEL CHANGE - SLS, WOA	0.05	0.02				0.06	< 0.01	588	57	
51	-Y2RPA3- 23+20-23+82 LT	ROADWAY FILL - WNZ	0.02									
	-Y2RPA3- 20+23-23+20	ROADWAY FILL - PBL						0.58				
	-L- 199+51-205+31	ROADWAY FILL, 66" RCP - SLR						0.02		230		
	-Y2RPD3- 15+76-16+19 LT	BANK STABILIZATION- SLR						< 0.01	< 0.01	55	15	
52	-Y2RPD3- 23+65-24+43 LT	DITCH, ROADWAY FILL - WGG		0.01		0.02						
53	-L- 210+53-215+65 LT	54" RCP / 66" RCP - MILL BRANCH						0.06	< 0.01	401	7	
	-L- 210+21-210+61 RT	BANK STABILIZATION - MILL BRANCH						< 0.01	< 0.01	29	17	
TOTALS*:			0.51	0.05	0.04	0.13		0.98	0.03	2953	260	0

*Rounded totals are sum of actual impacts

NOTES:

REVISED 08/28/2019, 12/12/19

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
APRIL 2019
WAKE AND JOHNSTON
I-5111_I-4739

WETLAND AND SURFACE WATER IMPACTS SUMMARY

Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS					SURFACE WATER IMPACTS				
			Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
54	-L- 232+69-233+35 LT	54" WSP - SJ, WI	0.06					< 0.01		82		
	-L- 233+33-233+44 LT	BANK STABILIZATION - SJ						< 0.01	< 0.01	45	10	
55	-L- 233+94-234+19 LT	48" RCP - SK, WJ	< 0.01					< 0.01		78		
	-L- 234+02-234+11 LT	BANK STABILIZATION - SK						< 0.01	< 0.01	40	10	
56	-L- 246+22-246+77 RT	CHANNEL CHANGE - SEE						< 0.01	< 0.01	102	10	
57	-L- 246+73-247+65	60" WSP - SDD, WFF	0.01					0.02	< 0.01	238	10	
	-L- 247+59-247+78 LT	BANK STABILIZATION - SDD						< 0.01	< 0.01	55	9	
58	-L- 269+75-270+63 LT	36" WSP - SQ						< 0.01		100		
	-L- 270+58-270+85 LT	BANK STABILIZATION - SQ						< 0.01	< 0.01	33	27	
TOTALS*:			0.09					0.06	< 0.01	773	76	0

PROJECT TOTALS*:	0.74	0.14	0.11	0.16		1.55	0.22	7636	1611	
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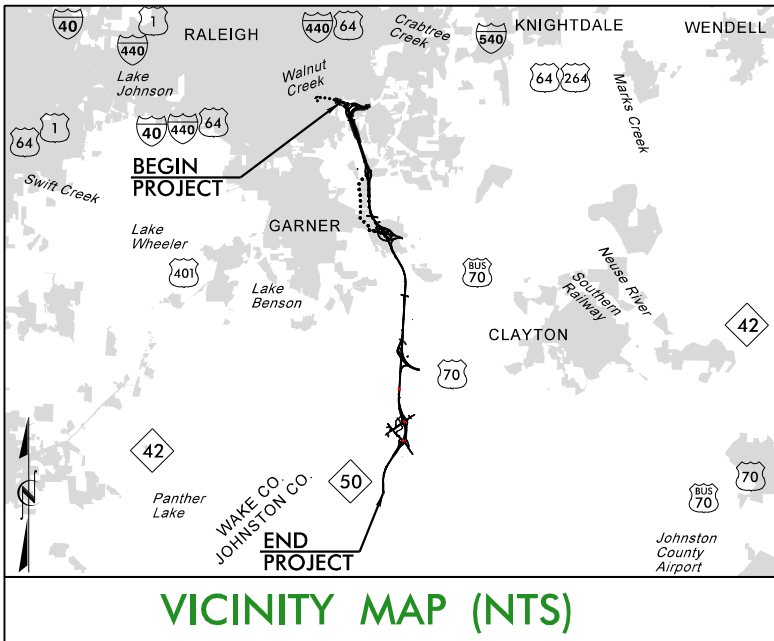
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NOTES:
*Rounded totals are sum of actual impacts

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
APRIL 2019
WAKE AND JOHNSTON
I-5111_I-4739

09/08/99

See Sheet 1-B For Plan Sheet Symbols



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

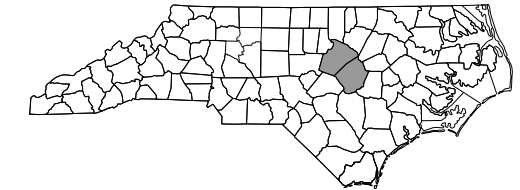
WAKE & JOHNSTON COUNTIES

LOCATION: I-40 FROM I-440 /US 64 (EXIT 301) TO JUST NORTH OF SR 1525 (CORNWALLIS ROAD), INCLUDING IMPROVEMENTS TO NC 42 AND SR 1010 (CLEVELAND ROAD).

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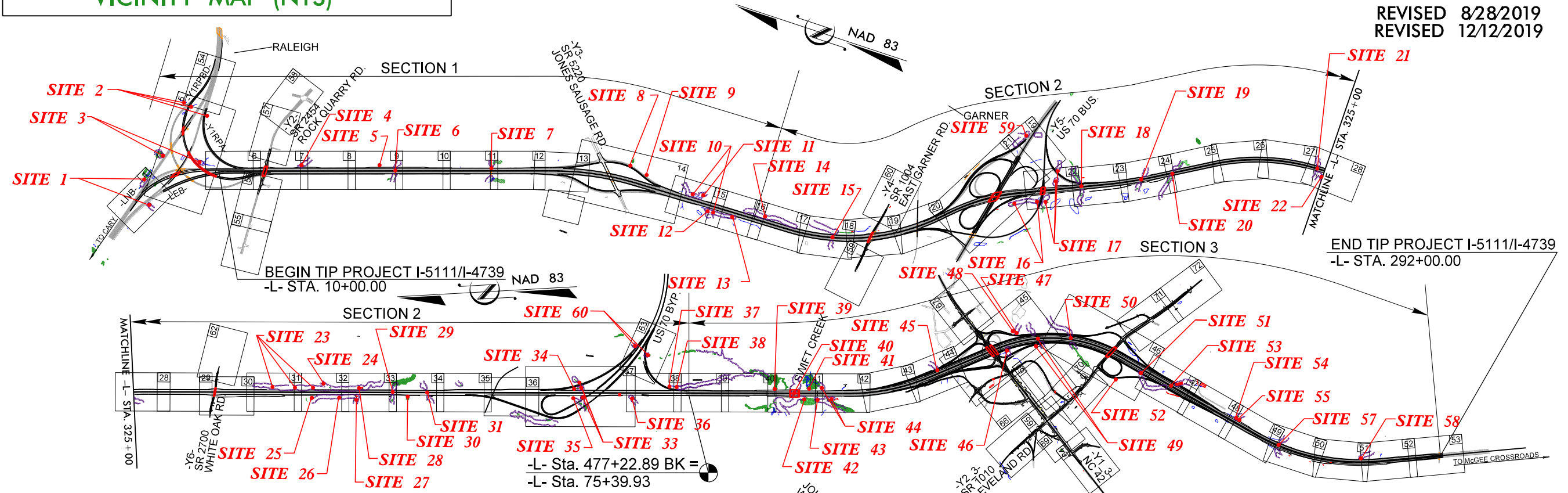
BUFFER IMPACTS

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	I-5111 /I-4739	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
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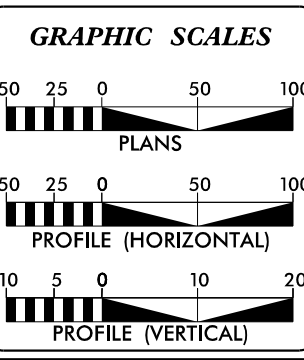
**BUFFER DRAWING
SHEET 1 OF 52**

REVISED 8/28/2019
REVISED 12/12/2019



- NOTES:
 1. A PORTION OF THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF THE CITIES OF RALEIGH & GARNER.
 2. CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III MODIFIED.
 3. THIS IS A CONTROLLED-ACCESS PROJECT WITH ACCESS BEING LIMITED TO INTERCHANGES.

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED



DESIGN DATA

ADT 2018 =	106,200
ADT 2040 =	137,200
DHV =	65%
D =	9%
T =	9% *
V =	70 MPH & 75 MPH **
FUNC CLASS:	URBAN INTERSTATE
* (TTST 5% + DUAL 4%)	
** DESIGN SPEED CHANGES AT US 70 BUS	

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT I-5111 /I-4739.....	12.950 miles
LENGTH STRUCTURE TIP PROJECT I-5111 /I-4739.....	0.094 miles
TOTAL LENGTH OF PROJECT I-5111 /I-4739.....	13.044 miles

NCDOT CONTACT

K. Zak Hamidi, P.E.
PROJECT ENGINEER - DESIGN-BUILD UNIT

PLANS PREPARED BY:
RK&K RUMMEL, KLEPPER & KAHL, LLP
 900 MIDGEMOUNT DRIVE, SUITE 350
 RALEIGH, NORTH CAROLINA 27609
 NC LICENSE NO. F-0112

**FOR NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION**

2018 STANDARD SPECIFICATIONS

LETTING DATE:
JUNE 19, 2018

S.T. WOOTE

Brandon J. McInnis, P.E.
PROJECT ENGINEER

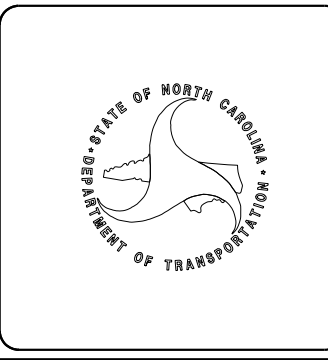
Mary E. Yahl, P.E.
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: _____ P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: _____ P.E.



TIP PROJECT: I-5111 /I-4739

CONTRACT: C204134

12/12/2019 R:\Hydraulics\PERMITS_Environmental\Drawings\4C\5111_I-4739_Hyd_buf_t.sh.dgn

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BUFFER DRAWING SHEET 23 OF 52

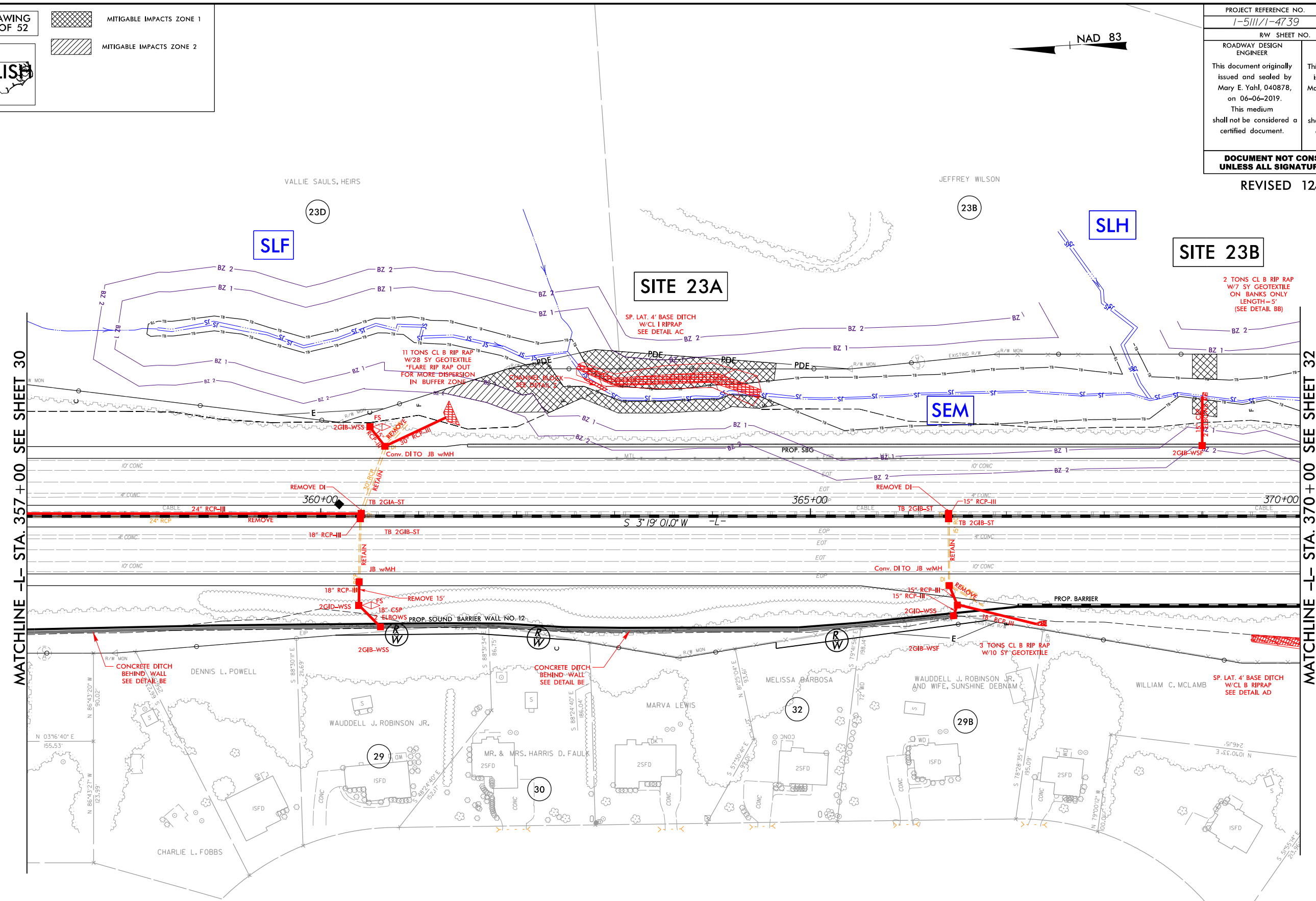
ENGLISH

MITIGABLE IMPACTS ZONE 1

MITIGABLE IMPACTS ZONE 2

PROJECT REFERENCE NO. 1-5111/1-4739	SHEET NO. 31
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
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MATCHLINE -L- STA. 357 + 00 SEE SHEET 30

MATCHLINE -L- STA. 370 + 00 SEE SHEET 32

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RIPARIAN BUFFER IMPACTS SUMMARY

Site No.	Station (From/To)	Structure Size / Type	IMPACTS									BUFFER REPLACEMENT		
			TYPE			ALLOWABLE			MITIGABLE			ZONE 1 (ft ²)	ZONE 2 (ft ²)	
			ROAD CROSSING	BRIDGE	PARALLEL IMPACT	ZONE 1 (ft ²)	ZONE 2 (ft ²)	TOTAL (ft ²)	ZONE 1 (ft ²)	ZONE 2 (ft ²)	TOTAL (ft ²)			
14A	-L- 168+89-169+89 LT	BANK STABILIZATION - SRM			X					1658	946	2604		
14B	-L- 172+50-172+88 LT	BANK STABILIZATION - SRM			X					1824	1680	3504		
14C	-L- 175+81-176+98 LT	BANK STABILIZATION - SRM			X					2795	277	3071		
15	-L- 186+18-188+55 LT	ROADWAY FILL - SRJ			X					0	90	90		
16A	-Y5RPD- 22+19-22+50 RT	EXIST. 24" CMP PLUG			X					2032	2231	4263		
16B	-Y5RPD- 24+79 RT	EXIST. 15" CMP PLUG			X					613	306	918		
16C	-Y5RPC- 53+20 LT	60" RCP - SCF, WQF	X			1489	0	1489						
17	-Y5RPC- 54+38-55+47 RT, -L- 250+27 LT, -Y5RPA- 21+91-23+05 RT	BANK STABILIZATION - SOE, WQV	X							12126	3903	16028		
18	-L- 256+39-257+51 LT & RT	DITCH, 66" WSP- SOI, WSD	X			6922	3626	10548						
19	-L- 272+67-275+51 LT & RT	DITCH, 66" WSP - SNF	X			8722	5049	13771						
20	-L- 281+93-284+50 LT & RT	CHANNEL CHANGE - SNH, WQE, WRX	X			3953	956	4909						
21	-L- 322+40-323+33 LT & RT	CHANNEL CHANGE, 72" RCP, SNY	X			8579	4452	13031						
22	-L- 323+52-325+32 RT	CHANNEL CHANGE - SOC			X					3438	1054	4493		
23A	-L- 361+15-364+65 LT	CHANNEL CHANGE - SLF / SEM			X					10192	2082	12274		
23B	-L- 368+90-369+15 LT	BANK STABILIZATION - SEM			X					1037	0	1037		
23C	-L- 374+40-378+99 LT	CHANNEL CHANGE - SEM			X					11509	228	11738		
24	-L- 378+63-379+21 LT	BANK STABILIZATION - SLI			X					1108	0	1108		
25	-L- 373+59-374+08 RT	ROADWAY FILL/ DITCH - SNM			X					61	775	836		
26A	-L- 381+90 RT	BANK STABILIZATION - SNK			X					422	0	422		
26B	-L- 385+01-385+81 RT	ROADWAY FILL - SNK			X					1025	0	1025		
	-L- 385+80-386+06 RT	BANK STABILIZATION - SNK			X					712	0	712		
27	-L- 386+06-386+88 RT	BANK STABILIZATION - SNO	X			1765	1079	2844						
28	-L- 387+14-387+47 LT	60" WSP - SEM			X					1116	0	1116		
TOTALS*:						31431	15161	46592	51667	13572	65239	0	0	

NOTES:

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NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
APRIL 2019
WAKE / JOHNSTON
I-5111 / I-4739
42346.3.1

RIPARIAN BUFFER IMPACTS SUMMARY

Site No.	Station (From/To)	Structure Size / Type	IMPACTS									BUFFER REPLACEMENT	
			TYPE			ALLOWABLE			MITIGABLE			ZONE 1 (ft ²)	ZONE 2 (ft ²)
			ROAD CROSSING	BRIDGE	PARALLEL IMPACT	ZONE 1 (ft ²)	ZONE 2 (ft ²)	TOTAL (ft ²)	ZONE 1 (ft ²)	ZONE 2 (ft ²)	TOTAL (ft ²)		
39	ONLY IN PERMIT SET												
40	-L- 99+00-107+44 LT & RT	BRIDGE		X		14449	7030	21479	1104	2993	4097		
41	ONLY IN PERMIT SET												
42	-L- 106+42-107+44 RT	ROADWAY FILL - SDN, WEN			X				7169	5126	12295		
43	-L- 109+63-114+04 RT	ROADWAY FILL - SEO			X				7471	4557	12028		
44	-L- 110+99-115+29 LT & RT	60" RCP, DITCH - SEQ, WEO(1)	X						12849	6061	18910		
45	-L- 143+25-145+12 LT	48" CSP - SEU	X						11384	6539	17923		
46	-L- 164+25-164+78 RT	30" CSP / 36" RCP - SEA, WOE	X						10987	7345	18332		
47	-Y1RPA- 16+15-17+72 RT	54" CSP - SLV	X			5350	2012	7362					
48	ONLY IN PERMIT SET												
49	-L- 170+95-175+40 LT & RT	66" WSP / 66" RCP - SLU, WC, WOB	X						20163	9924	30087		
50	-L- 178+00-184+97 LT&RT	60" CSP, CHANNEL CHANGE - SLS,WOA	X						38684	25634	64318		
51	-L- 199+51-205+31	ROADWAY FILL, 66" RCP - SLR, WNZ	X						17316	9930	27247		
52	ONLY IN PERMIT SET												
53	-L- 209+51-217+29 LT & RT	54" RCP / 66" RCP - MILL BRANCH	X						27804	17778	45582		
54	-L- 232+37-234+37 LT	54" WSP - SJ, WI, WJ	X			8694	5213	13907					
55	ONLY IN PERMIT SET												
56	ONLY IN PERMIT SET												
57	-L- 246+11-248+25 LT & RT	60" WSP - SDD, WFF	X						15680	9394	25074		
58	-L- 269+75-270+63 LT	36" WSP - SQ	X						10972	7749	18721		
TOTALS*:						28492	14255	42747	181583	113030	294613	0	0

PROJECT TOTALS*:						116816	55819	172635	301854	166946	468800	0	0
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NOTES:

REVISED 8/28/2019
12/12/2019

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
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