

Project Submittal Interim Form



Updated September 4, 2020

*Please note: fields marked with a red asterisk * below are required. You will not be able to submit the form until all mandatory questions are answered.*

Project Type: *

- ☐ For the Record Only (Courtesy Copy)
- ☐ New Project
- ☒ Modification/New Project with Existing ID
- ☐ More Information Response
- ☐ Other Agency Comments
- ☐ Pre-Application Submittal
- ☐ Re-Issuance/Renewal Request
- ☐ Stream or Buffer Appeal

Project Contact Information

Name:

Gordon Cashin

Who is submitting the information?

Email Address: *

gcashin@ncdot.gov

Project Information

Existing ID #: *

20190593

20170001 (no dashes)

Existing Version: *

4

1

Project Name: *

I-40 from I-440/US 64 (Exit 301) to just north of SR 1525 (Cornwallis Road)

Is this a public transportation project? *

- ☒ Yes
- ☐ No

Is this a DOT project? *

- ☒ Yes
- ☐ No

Is the project located within a NC DCM Area of Environmental Concern (AEC)? *

- ☐ Yes
- ☒ No
- ☐ Unknown

TIP#:

I-5111 I-4739

WBS#:

42346.3.1

(Applies to DOT projects only)

County (ies) *

Johnston

Wake

Please upload all files that need to be submitted.

Click the upload button or drag and drop files here to attach document

I-5111_I-4739 Individual Modification Wake_Johnston 14.38MB
January 21 2022.pdf

Only pdf or kmz files are accepted.

Describe the attachments or add comments:

DA# SAW-2009-00556

Please find attached cover letter, DMS Acceptance letter, Revised Permit and Buffer Drawings

* ☒ By checking the box and signing box below, I certify that:

- I, the project proponent, hereby certifies that all information contained herein is true, accurate, and complete to the best of my knowledge and belief.
- I, the project proponent, hereby requests that the certifying authority review and take action on this CWA 401 certification request within the applicable reasonable period of time.
- I agree that submission of this online form is a "transaction" subject to Chapter 66, Article 40 of the NC General Statutes (the "Uniform Electronic Transactions Act");
- I agree to conduct this transaction by electronic means pursuant to Chapter 66, Article 40 of the NC General Statutes (the "Uniform Electronic Transactions Act");
- I understand that an electronic signature has the same legal effect and can be enforced in the same way as a written signature; AND
- I intend to electronically sign and submit the online form.

Signature: *

A rectangular box containing a handwritten signature in black ink that reads "Mack C Riverbark, III".

Submittal Date: 1/21/2022

Is filled in automatically once submitted.



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

ROY COOPER
GOVERNOR

J. ERIC BOYETTE
SECRETARY

January 21, 2022

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

Attn: Mr. Andrew Williams
NCDOT 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, Division 5. Debit \$570 from WBS Element 42346.3.1.

Dear Mr. Williams:

As you are aware, the North Carolina Department of Transportation (NCDOT) applied for permits for the subject project on May 7, 2019, and modifications on December 20, 2019, May 28, 2020, and August 31, 2020. The Corps of Engineers issued the Section 404 permit for the project on September 6, 2019, and modifications on February 11, June 11, and October 1, 2020, respectively. The North Carolina Division of Water Resources issued the 401 Water Quality Certification for the project on July 10, 2019 (NCDWR Project No. 20190593) and modifications on January 22, June 3, and September 16, 2020, respectively. This correspondence is to request modifications to Sites 1, 4, 44, 47, and 48.

Site 1: There will be a reduction in stream impacts, as the contractor will not replace 2 @ 42" pipes, per NCDOT preference. Additionally, the noise wall will now be shortened along with the berm ditch.

- 13 linear feet decrease in permanent stream impacts
- 14 linear feet decrease in temporary stream impacts
- 1,334 square feet decrease in Allowable buffer zone 1 impacts
- 856 square feet decrease in Allowable buffer zone 2 impacts

Attached are the following revised permit drawings depicting the affected area, all of which have a revision date of November 19, 2021:

- Permit Drawing 3: Ditch detail sheet
- Permit Drawing 9: plan sheet 4 without contours
- Permit Drawing 10: plan sheet 4 with contours
- Buffer Drawing 5: buffer plan sheet 4

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

Site 4: Noise wall installation required a stormwater drainage system shift beyond the cut/fill line and outside of the noise wall (Plan Sheet 7), which resulted in moving the noise wall further to the east (Plan Sheet 8). Therefore, additional buffer impacts are proposed.

- 1,187 square feet increase in Allowable buffer zone 1 impacts
- 973 square feet increase in Allowable buffer zone 2 impacts
- 614 square feet increase in Mitigable buffer zone 2 impacts

Attached are the following revised permit drawings depicting the affected area, which have a revision date of either November 19, 2021 or January 6, 2022:

- Buffer Drawing 7: plan sheet 7
- Buffer Drawing 8: plan sheet 8
- Buffer Drawing 45: buffer summary table

Site 44: The following three modifications area proposed.

- 1) Wetland WEP(1) impacts were not accounted for originally while buffer impacts in the same area were permitted. Since this entire area was needed for construction access and for installation of erosion control measures, mechanized clearing in wetlands is now proposed for the portion of this wetland within the ROW.
 - 2) Outlet of SEQ: Design adjustments eliminated the need for a 54" WSP trenchless installation at -L- 115+00 to STA 118+00 by keeping stormwater along west bound side of the highway. The resulting pipe systems were slightly shortened during the field adjustment so that they would better align with the stream channel and prevent instability to the stream bank. Additionally due to construction accessibility and existing channel instability, rip rap was extended to the ROW line.
 - 3) In the upstream of SEQ (-L- RT east bound side), there was a temporary channel change previously permitted. But based on site conditions, the contractor and Division agreed that the site would be more stable if the stream was left in the temporary channel as opposed to shifting back to the original, thus the temporary stream impacts are now permanent. No additional increases to surface waters, wetlands, nor buffers are proposed in this area.
- 0.01 acre increase in mechanized clearing in wetland
 - 11 linear feet increase of permanent bank stabilization
 - 11 linear feet decrease of temporary stream impacts

Attached are the following revised permit drawings depicting the affected area, all of which have a revision date of November 19, 2021:

- Permit Drawing 7: Ditch detail sheet
- Permit Drawing 91: plan sheet 42 without contours
- Permit Drawing 92: plan sheet 42 with contours

Sites 47 and 48: Based on field conditions, the contractor had to adjust the pipe placement which necessitated a larger PDE to allow for installation of a berm (requested by NCDOT Central Hydraulics Unit). This made stream SLW at site 48 a total take, increased buffer impacts at Site 47, and removed temporary stream impacts from site 47 due to the new limits of riprap (the temporary stream impacts became permanent - location of bank stabilization of permanent impact now starts where stream is no longer realigned).

Site 47:

- 35 linear feet increase of permanent stream impacts
- 24 linear feet decrease of permanent bank stabilization
- 11 linear feet decrease of temporary stream impacts
- 270 square feet increase of Allowable buffer zone 1 impacts
- 981 square feet increase of Allowable buffer zone 2 impacts

Site 48:

- 69 linear feet increase of permanent stream impacts
- 51 linear feet decrease of temporary stream impacts

Attached are the following revised permit drawings depicting the affected area, all of which have a revision date of either November 19 or December 14, 2021:

- Permit Drawing 7: ditch detail sheet
- Permit Drawing 96: plan sheet 45 without contours
- Permit Drawing 97: plan sheet 45 with contours
- Permit Drawing 124: summary table
- Permit Drawing 125: summary table
- Buffer Drawing 51: buffer summary table
- Buffer Drawing 52: wetlands in buffer impact summary table

Compensatory Mitigation

These changes resulted in a total increase of 10 feet of stream impacts, including changes at Sites 1, 44, 47 and 48. For riparian buffers, there are 614sq. feet of additional impacts in buffer Zone at Site 4. Site 44 also has an additional 0.01 acre of mech clearing in wetlands.

NCDOT has requested the appropriate additional mitigation from the N.C. Division of Mitigation Services, and a copy of their acceptance letter is attached.

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 request to NCDWR, for their approval. Authorization to debit the \$570.00 Permit Application Fee from TIP No. I-5111/I-4739/WBS 42346.3.1 is hereby given.

A copy of the permit modification 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,

DocuSigned by:

Mack C. Rivenbark III

AAAD1248B309416...

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

ROY COOPER

Governor

ELIZABETH S. BISER

Secretary

MARC RECKTENWALD

Director



NORTH CAROLINA
Environmental Quality

January 19, 2022

Mr. Philip S. Harris, III, P.E., CPM
Environmental Analysis Unit
North Carolina Department of Transportation
1598 Mail Service Center
Raleigh, North Carolina 27699-1598

Dear Mr. Harris:

Subject: DMS Mitigation Acceptance Letter:

I-5111 / I-4739, I-40 Widening, Wake and Johnston Counties

References: USACE 404 Individual Permit issued September 6, 2019 and Modifications issued February 11, June 11, and October 1, 2020 (USACE Action ID 2009-00556)

NCDWR 401 Water Quality Certification issued September 4, 2019 and January 22, June 3, and September 16, 2020 (NCDWR ID 2019-0593)

The purpose of this letter is to notify you that the Division of Mitigation Services (DMS) will provide the additional stream, wetland, and buffer mitigation for the subject project. Based on the information supplied by you on January 18, 2022, the impacts are located in CU 03020201 of the Neuse River basin in the Central Piedmont (CP) and Northern Inner Coastal Plain (NICP) Eco-Regions, and are as follows:

Table 1 – Additional Impacts (feet / acres)

Neuse 03020201 CP / NICP	Stream			Wetlands			Buffer (Sq. Ft.)	
	Cold	Cool	Warm	Riparian	Non-Riparian	Coastal Marsh	Zone 1	Zone 2
Impacts (feet/acres)	0	0	102.000	0	0.010	0	0	921.000

*NOTE: Some of the stream impacts may be proposed to be mitigated at a 1:1 mitigation ratio. See permit application for details.

This additional impact and associated mitigation needs were not projected by the NCDOT in the 2021 impact data. DMS is currently providing stream, riparian wetland and buffer mitigation for the impacts associated with this project located in cataloging unit 03020201 of the Neuse River basin as required by the 404 and 401 permits issued in 2019 and 2020, as shown in the below table (in mitigation credits)



North Carolina Department of Environmental Quality | Division of Mitigation Services
217 West Jones Street | 1652 Mail Service Center | Raleigh, North Carolina 27699-1652
919.707.8976

Table 2 – Current Permitted Impacts and Associated Mitigation Requirements provided by DMS (based on issued permits) and Revised Anticipated Impacts (based on mitigation request)

Impact Type	Total Permitted Impacts (feet / acre / sq ft)	Mitigation Provided by DMS per Issued Permits (Credits)	Additional Impact (for approval)	Revised Total Impacts*
Stream (warm)	6,452.000	12,904.000	102.000	6,554.000
Riparian Wetland	1.010	2.020	0.000	1.010
Non-riparian Wetland	0.000	0.000	0.010	0.010
Buffer – Zone 1	291,081.000	873,243.000	0.000	291,081.000
Buffer – Zone 2	161,873.000	242,810.000	614.000	162,487.000

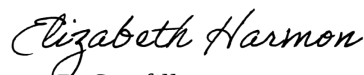
*Some of the additional stream impacts may be proposed to be mitigated at a 1:1 mitigation ratio. See permit application for details. DMS will provide the amount of mitigation as determined by the regulatory agencies.

All buffer mitigation requests and approvals are administrated through the Riparian Restoration Buffer Fund. The NCDOT will be responsible to ensure that appropriate compensation for the buffer mitigation will be provided in the agreed upon method of fund transfer. Upon receipt of the NCDWR's Buffer Authorization Certification, DMS will transfer funds from the NCDOT 2984 Fund into the Riparian Restoration Buffer Fund. Upon completion of transfer payment, NCDOT will have completed its riparian buffer mitigation responsibility for the additional buffer mitigation required for TIP Number I-5111 / I-4739. Subsequently, DMS will conduct a review of current NCDOT ILF Program mitigation projects in the river basin to determine if available buffer mitigation credits exist. If there are buffer mitigation credits available, then the Riparian Restoration Buffer Fund will purchase the appropriate amount of buffer mitigation credits from NCDOT ILF Program.

This mitigation acceptance letter replaces the mitigation acceptance letter issued on April 26, 2019 and January 15, May 27, and September 11, 2020. DMS commits to implementing additional sufficient stream, wetland and buffer mitigation credits to offset the impacts associated with this project as determined by the regulatory agencies using the delivery timeline listed in Section F.3.c.iii of the In-Lieu Fee Instrument dated July 28, 2010. If the above referenced impact amounts are revised, then this mitigation acceptance letter will no longer be valid and a new mitigation acceptance letter will be required from DMS.

If you have any questions or need additional information, please contact Ms. Beth Harmon at 919-707-8420.

Sincerely,



James B. Stanfill
DMS Asset Management Supervisor

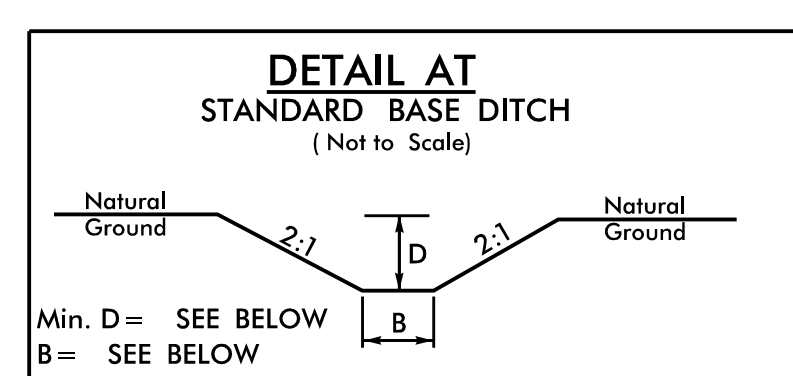
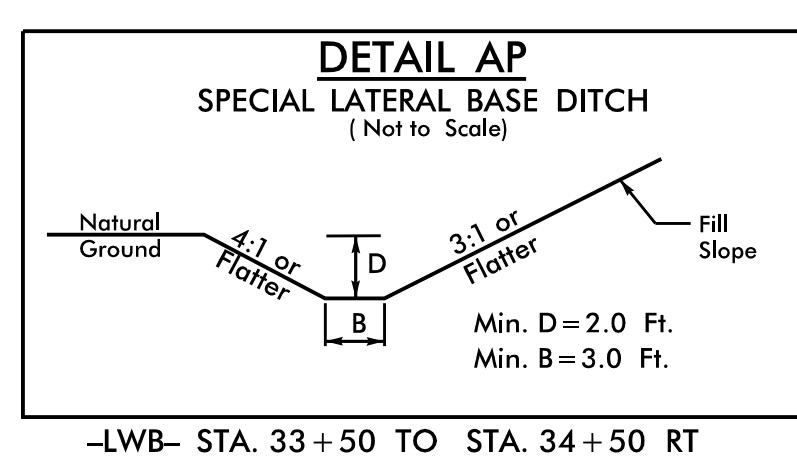
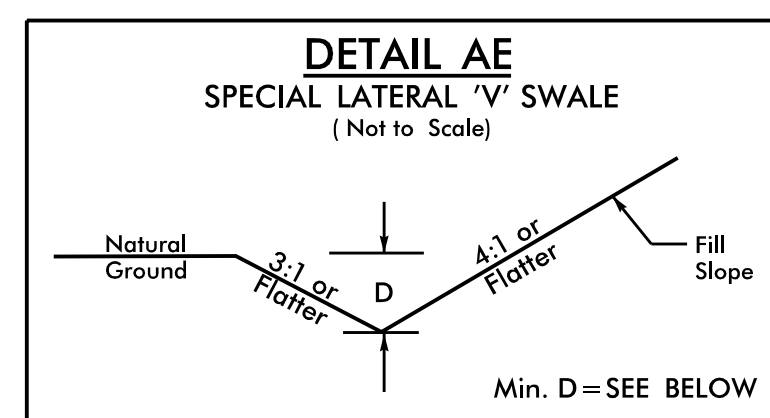
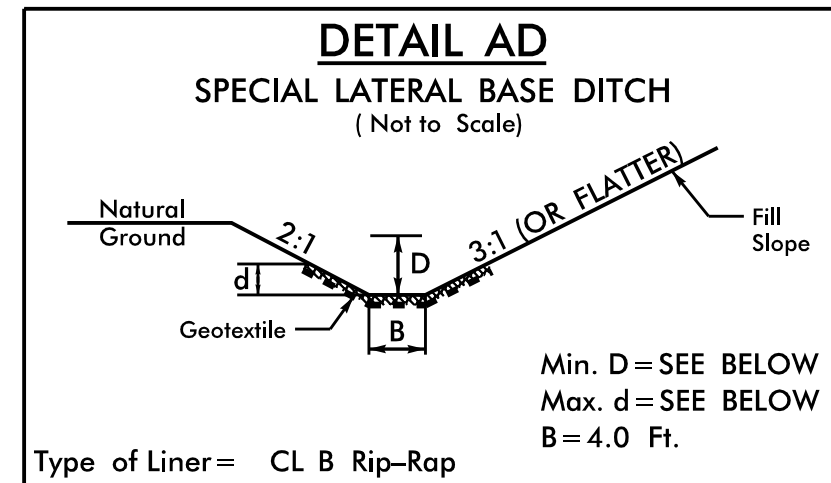
cc: Mr. Monte Matthews, USACE – Raleigh Regulatory Field Office
Ms. Amy Chapman, Division of Water Resources, Wetlands/401 Unit
File: I-5111 / I-4739 Mod 4



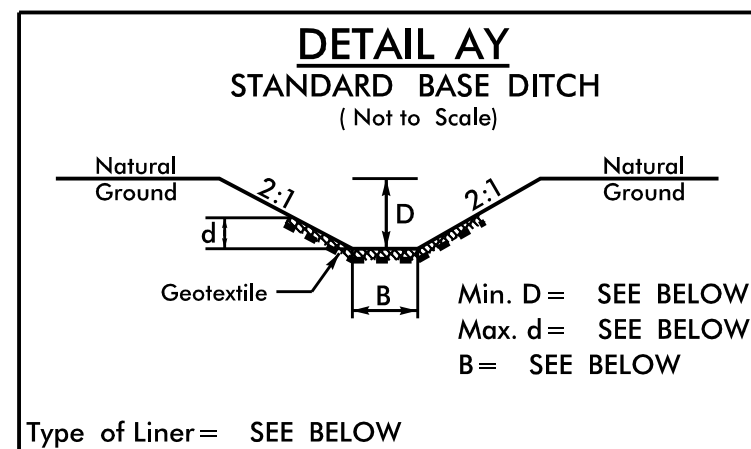
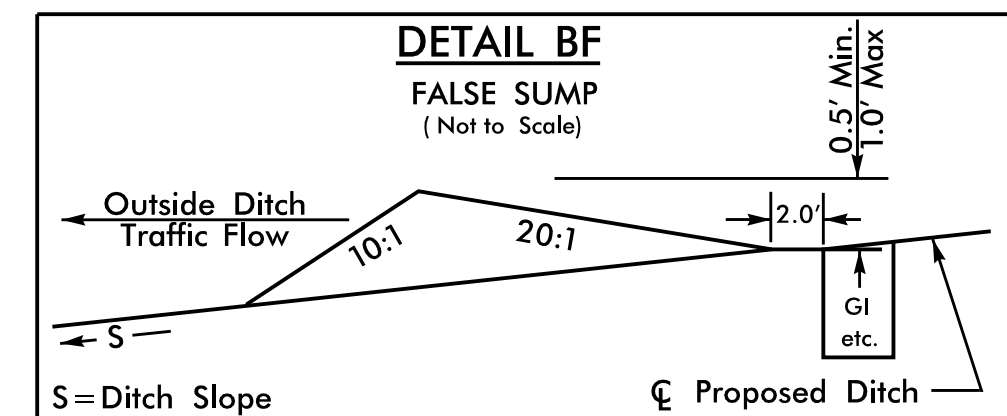
DITCH DETAILS: SECTION 1

PERMIT DRAWING
SHEET 3 OF 125
REVISED 11/19/2021

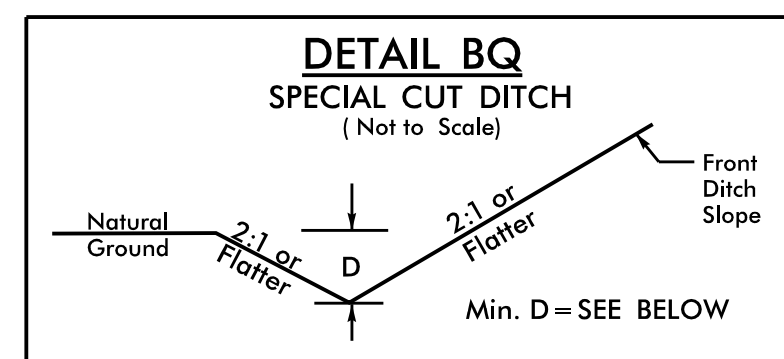
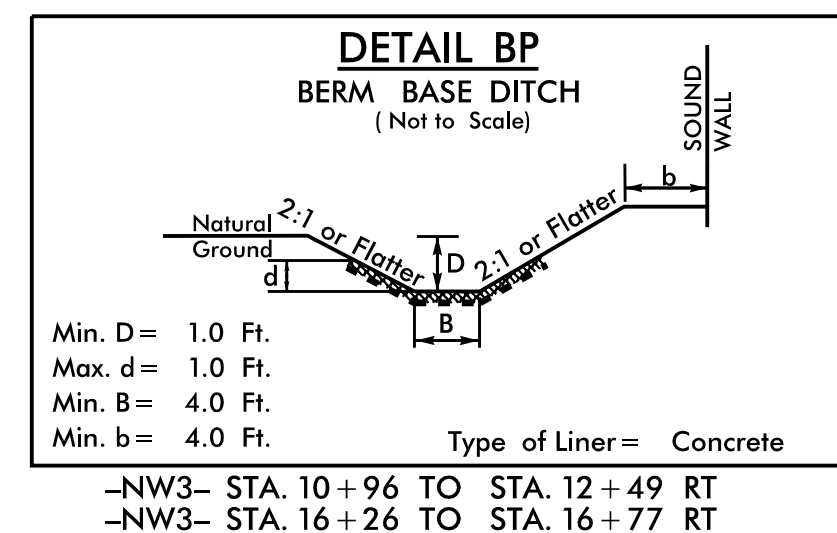
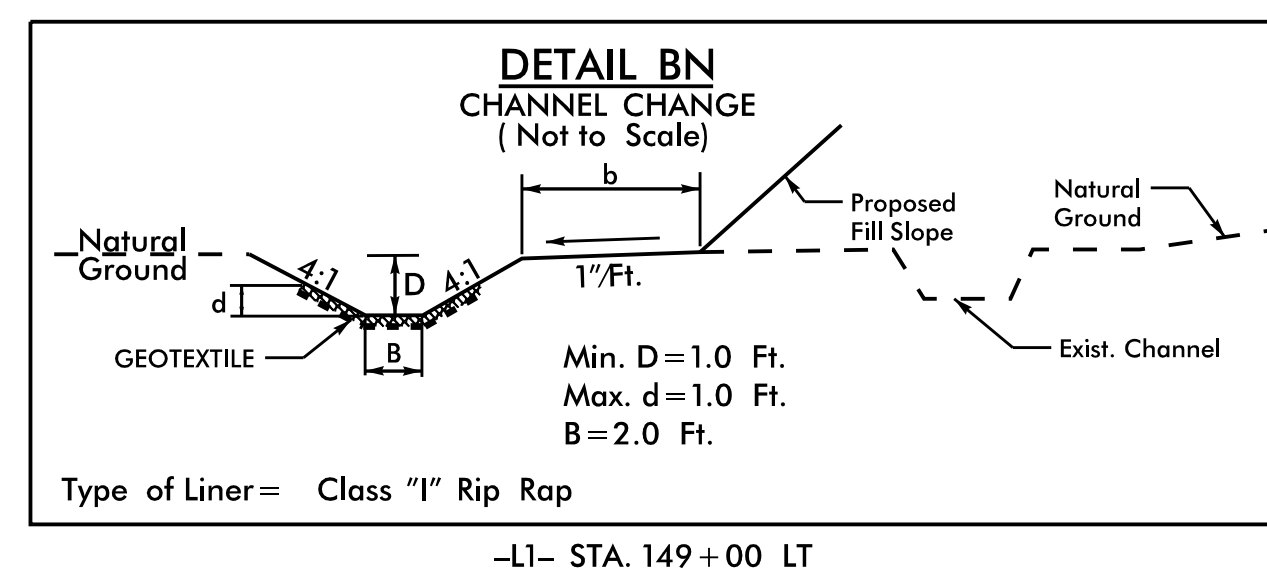
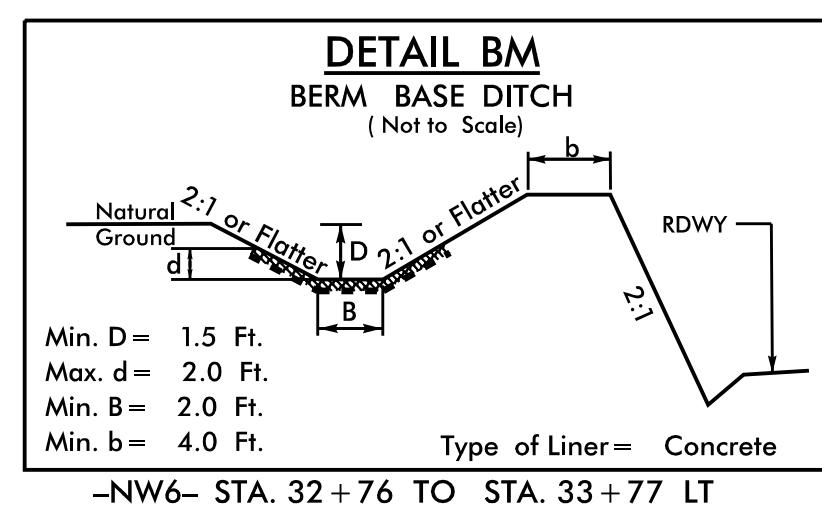
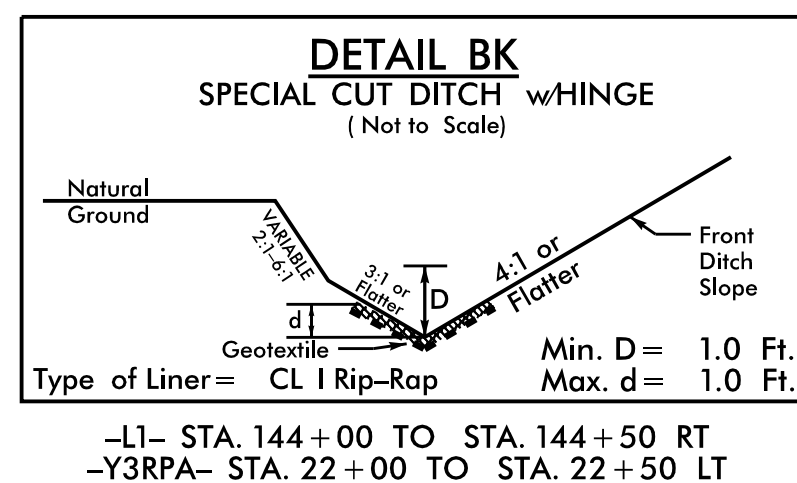
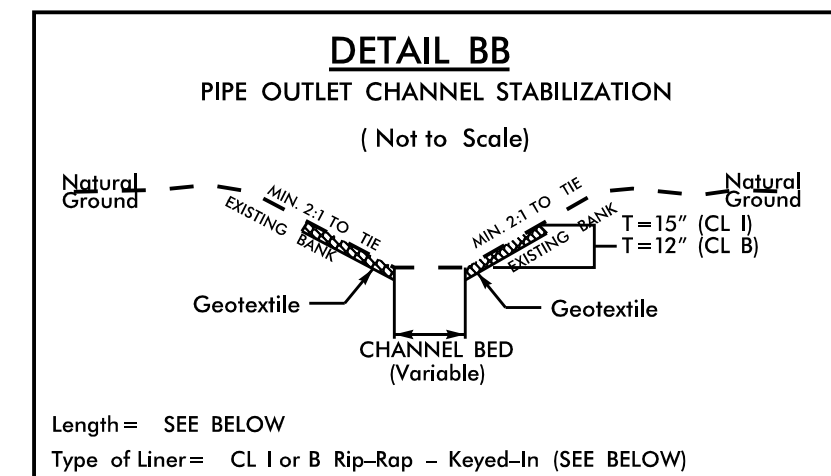
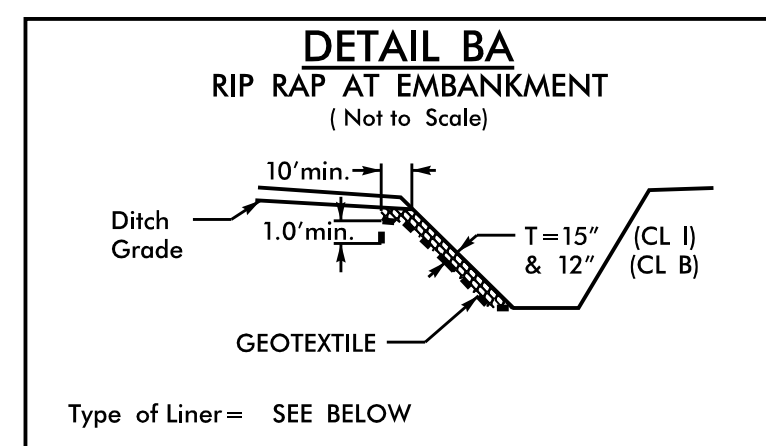
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ROADWAY DESIGN ENGINEER	HYDRAULICS DESIGN ENGINEER



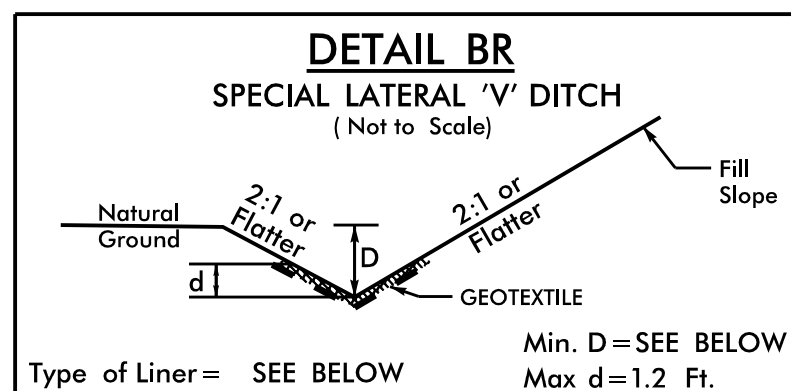
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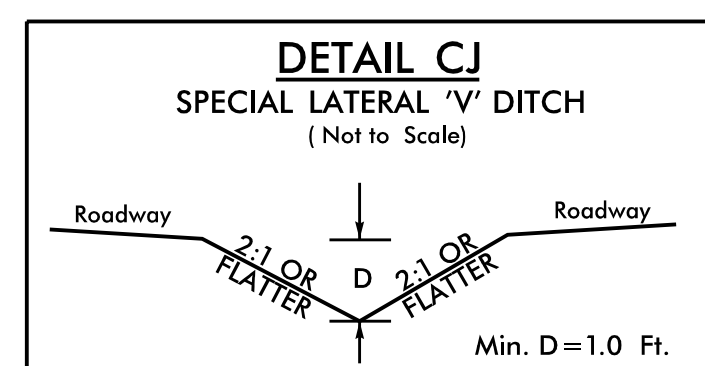
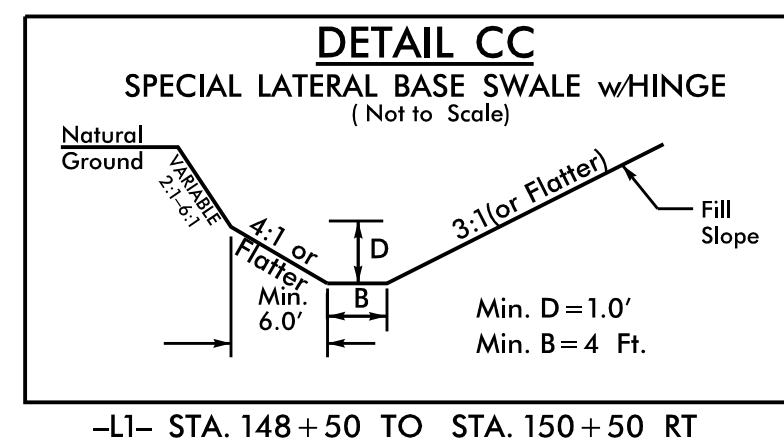
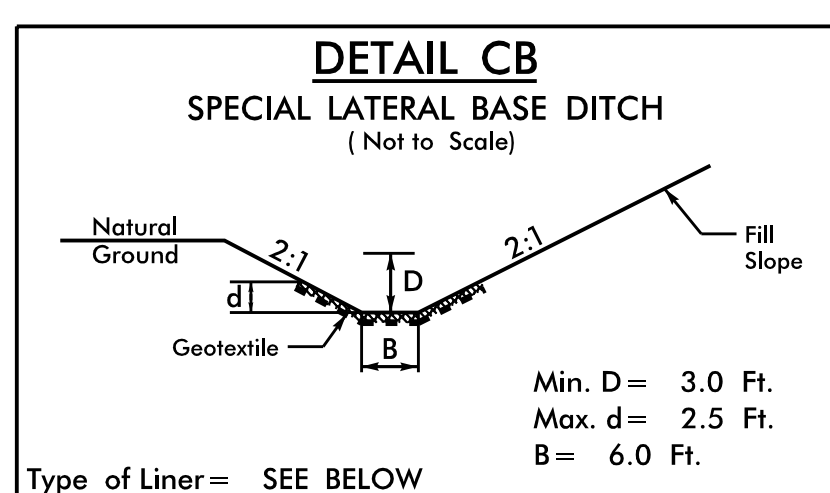
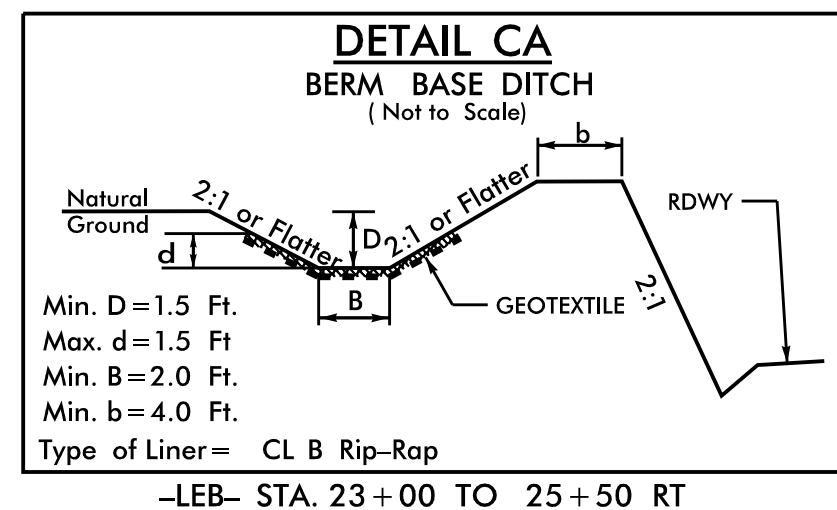
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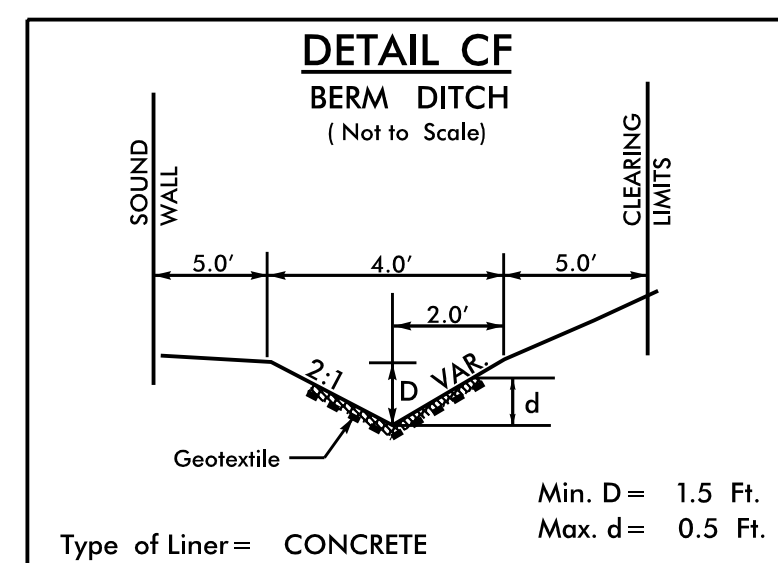
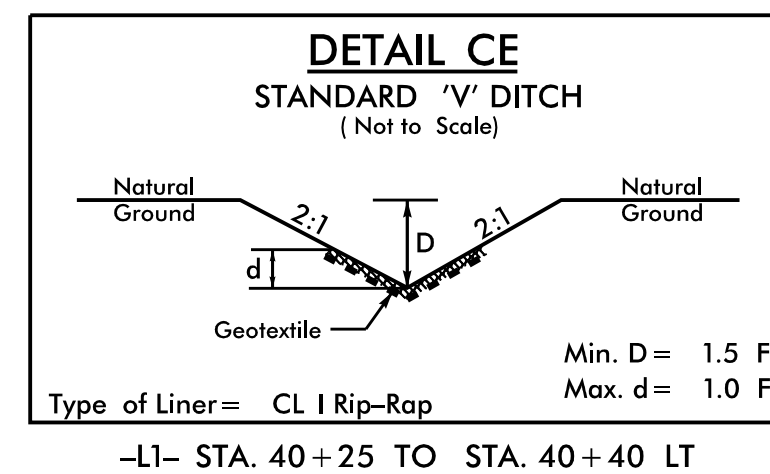
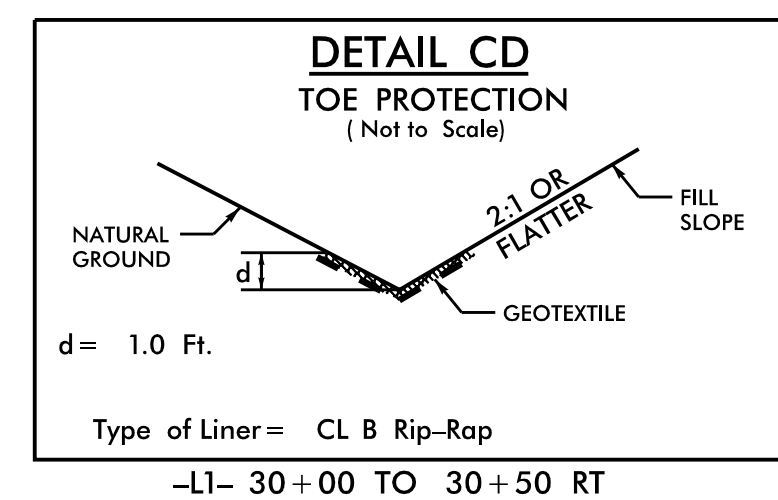
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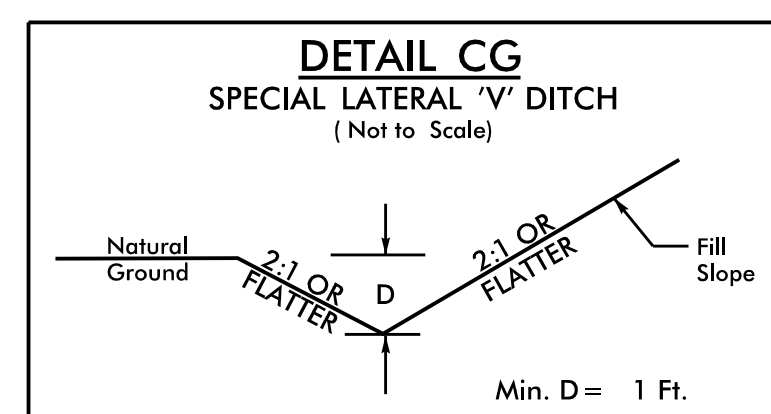
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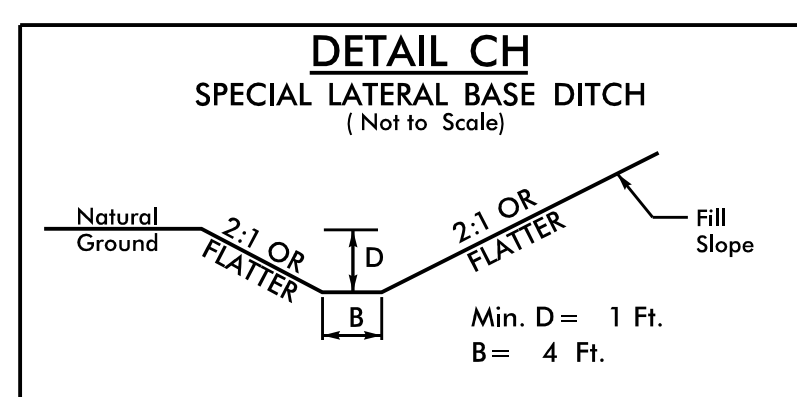
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-L1- STA. 135+50 TO STA. 136+50 LT



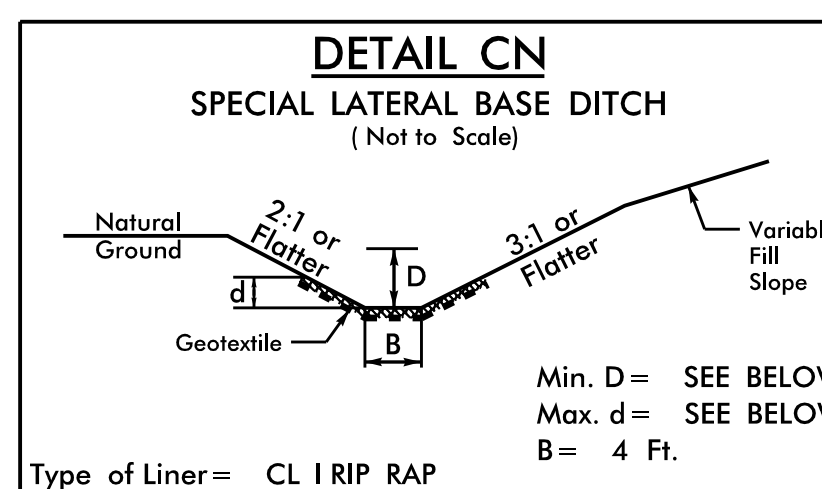
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-NW4- STA. 10+31 TO STA. 29+12 RT
-NW4- STA. 29+12 TO STA. 33+00 RT
-NW4- STA. 33+00 TO STA. 45+15 RT
-NW3- STA. 10+00 TO STA. 10+96 RT
-NW3- STA. 12+49 TO STA. 16+26 RT
-NW3- STA. 16+77 TO STA. 19+60 RT
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-NW5- STA. 11+80 TO STA. 14+80 RT
-NW5- STA. 15+30 TO STA. 27+30 RT
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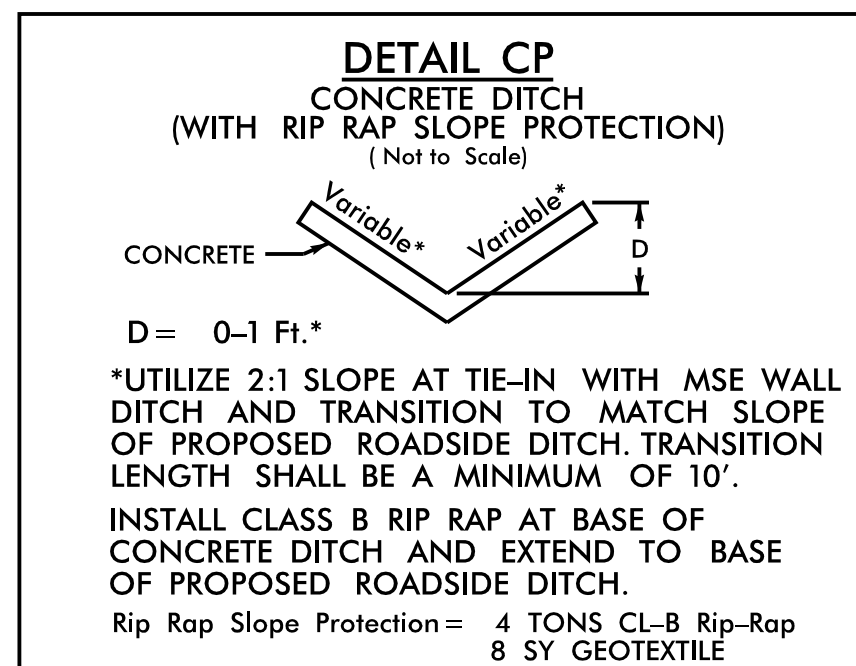
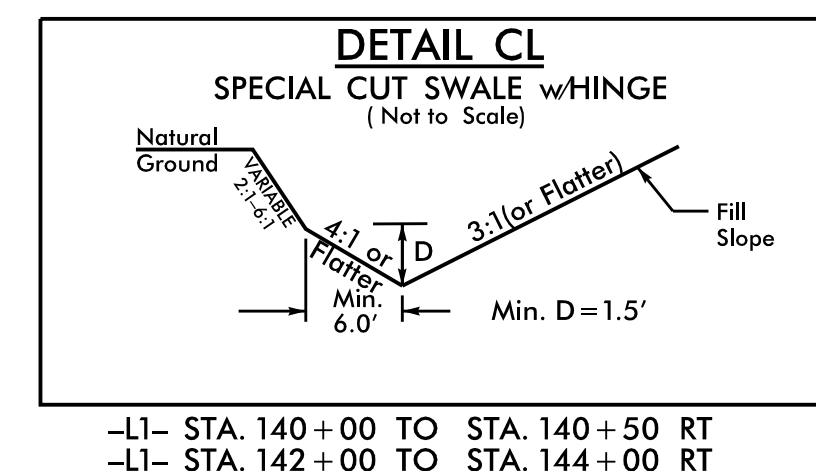
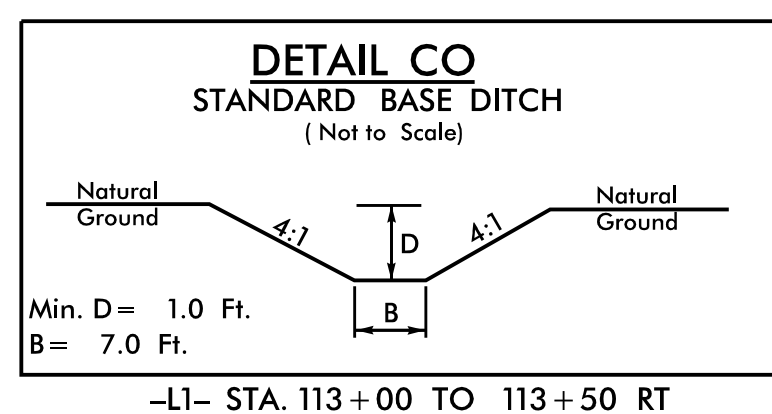
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-L1- STA. 152+00 TO STA. 152+50 LT
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-Y1RPBD- STA. 15+50 TO STA. 18+00 RT
-Y1RPBD- STA. 18+50 TO STA. 21+00 RT
-Y1RPBD- STA. 29+50 TO STA. 32+21 RT
-Y1RPBD- STA. 60+75 TO STA. 63+00 RT
-Y3RPA- STA. 26+00 TO STA. 28+00 LT
-Y2- STA. 13+31 TO STA. 16+00 LT
-Y2- STA. 19+00 TO STA. 22+25 LT
-Y2- STA. 25+25 TO STA. 27+90 LT
-Y2- STA. 41+25 TO STA. 42+50 LT



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-L1- STA. 68+00 TO STA. 71+00 RT
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-LWB- STA. 20+50 TO STA. 24+50 LT



-L1- STA. 144+50 TO STA. 144+79 RT,
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-L1- STA. 145+00 TO STA. 145+50 RT,
MIN D=1.0', MAX d=1.0'



FROM -L1- STA. 29+84 TO STA. 30+09 RT
FROM -L1- STA. 30+47 TO STA. 30+72 LT

REVISIONS

10-31-2019 - ADJUST STATION RANGES FOR DETAIL BP AND DETAIL CF DUE TO PIPE ADJUSTMENTS.
01-03-2020 - UPDATED DETAIL AT WITH NEW BASE DITCH INFORMATION FOR -U- STA.63+81.
07-07-2020 - REVISED STATION RANGES TO INCLUDE STATION -Y3RPA- 32+43 RT
07-07-2020 - REVISED STATION RANGES FOR DETAILS AE,AK,BK,BL,BR,AND CG. ADDED DETAIL CO. REMOVED DETAIL BL.
03-29-2021 - REVISED INFORMATION FOR DETAIL -L1- STA.63+81 LT ON DETAIL AT.
06-08-2021 - REVISED STATION RANGE FOR DETAIL CF DUE TO SHORTENING OF MW3.
09-30-2021 - ADDED DETAIL CP
11-19-2021 - REVISED STATION RANGES FOR DETAIL CF TO REFLECT MW3 REVISED STATION.

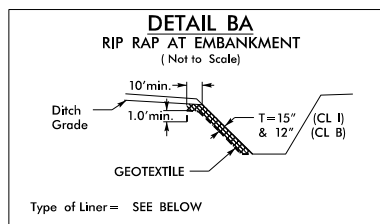
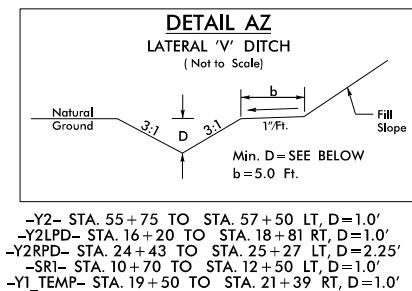
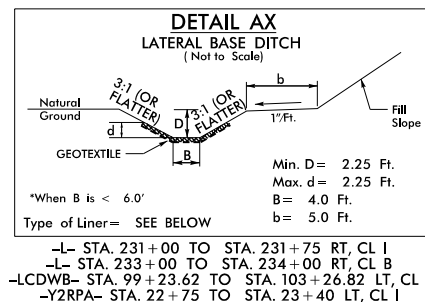
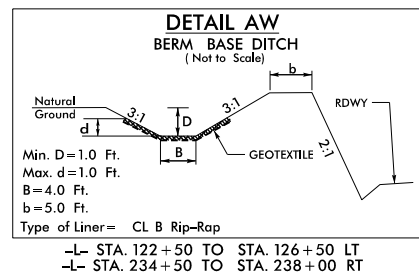
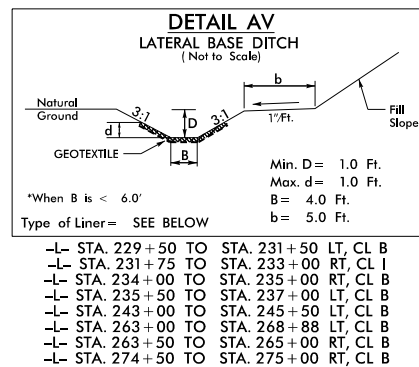
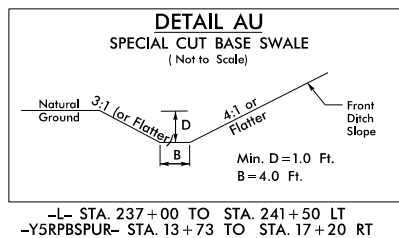
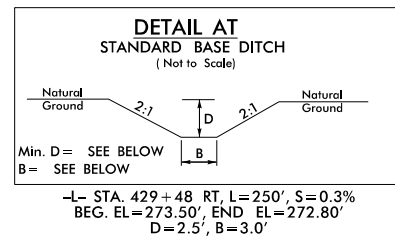
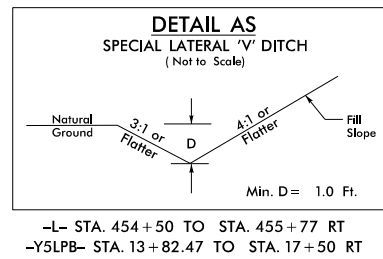
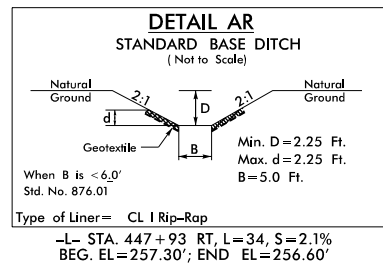
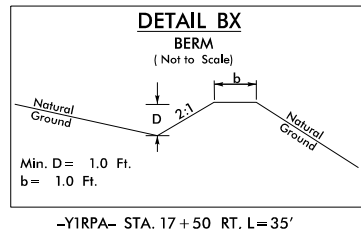
PLANS PREPARED BY:

RS&H
RS&H Architects-Engineers-Planners, Inc.
8521 SIX FORKS ROAD, SUITE 400
RALEIGH, NORTH CAROLINA 27615
NC LICENSE NO. F-0493 (919) 926-4100

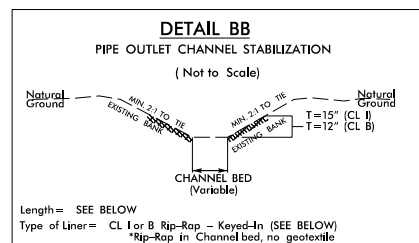
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1-5111/1-4739	2D-6
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

PERMIT DRAWING
SHEET 7 OF 125

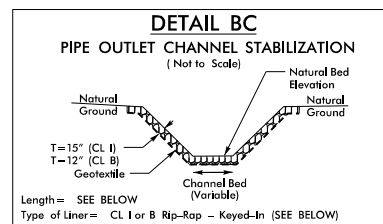
REVISED 08/1/2020
REVISED 07/13/2021
REVISED 11/19/2021



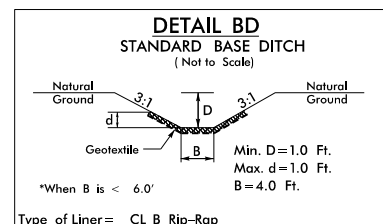
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- L- STA. 272+82 RT, CL B RIPRAP
- L- STA. 272+87 RT, CL B RIPRAP
- L- STA. 273+27 RT, CL B RIPRAP
- L- STA. 274+95 LT, CL B RIPRAP
- L- STA. 322+48 LT, CL B RIPRAP
- L- STA. 322+88 LT, CL B RIPRAP
- L- STA. 323+13 RT, CL I RIPRAP
- L- STA. 386+30 RT, CL I RIPRAP
- L- STA. 395+82 RT, CL I RIPRAP
- L- STA. 405+84 RT, CL I RIPRAP
- L- STA. 406+05 RT, CL B RIPRAP
- L- STA. 447+72 LT, CL I RIPRAP
- L- STA. 447+93 LT, CL I RIPRAP
- L- STA. 174+80 RT, CL B RIPRAP
- L- STA. 210+62 RT, CL I RIPRAP
- L- STA. 215+34 LT, CL I RIPRAP
- L- STA. 215+52 LT, CL I RIPRAP
- L- STA. 247+67 LT, CL I RIPRAP
- L- STA. 270+63 LT, CL I RIPRAP



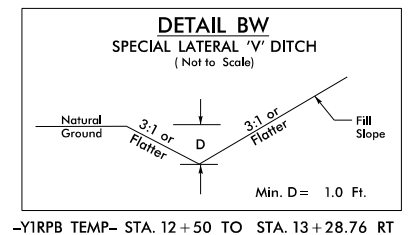
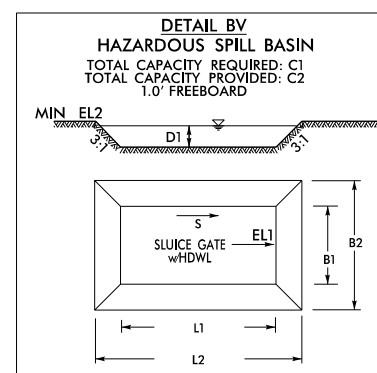
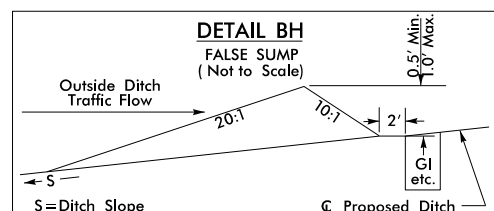
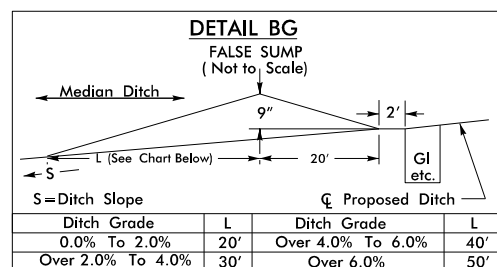
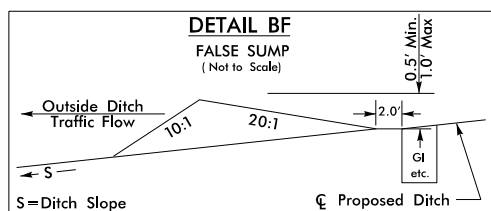
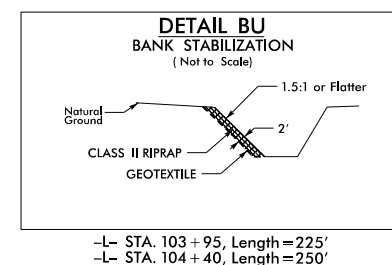
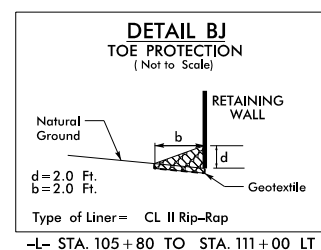
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- L- STA. 172+65 LT, L=8', CL B RIPRAP
- L- STA. 176+20 LT, L=36', CL I RIPRAP
- L- STA. 284+50 LT, L=5', CL I RIPRAP
- L- STA. 396+41 LT, L=45', CL I RIPRAP
- L- STA. 369+00 LT, L=5', CL B RIPRAP
- L- STA. 381+90 RT, L=5', CL B RIPRAP
- L- STA. 416+93 LT, L=10', CL B RIPRAP
- L- STA. 447+84 LT, L=64', CL I RIPRAP
- L- STA. 461+38 RT, L=30', CL I RIPRAP
- L- STA. 111+82 LT, L=35', CL I RIPRAP*
- L- STA. 144+04 LT, L=40', CL I RIPRAP*
- L- STA. 168+38 LT, L=40', CL I RIPRAP*
- L- STA. 171+49 LT, L=55', CL I RIPRAP
- L- STA. 233+34 LT, L=45', CL I RIPRAP
- L- STA. 234+09 LT, L=40', CL I RIPRAP
- L- STA. 247+67 LT, L=50', CL I RIPRAP
- L- STA. 270+61 LT, L=33', CL I RIPRAP



- L- STA. 245+56 RT, L=20', CL I RIPRAP
- L- STA. 290+70 LT, L=35', CL I RIPRAP
- L- STA. 121+50 RT, L=20', CL B RIPRAP
- L- STA. 124+36 RT, L=30', CL I RIPRAP
- L- STA. 126+90 RT, L=30', CL I RIPRAP
- L- STA. 275+43 LT, L=25', CL I RIPRAP



- Y1- STA. 30+05 LT, L=50', S=1.6%
BEG. EL=315.80, END EL=315.00
- Y1RPD- STA. 23+00 TO STA. 23+31 LT, S=7.2%
BEG. EL= 302.27, END ELEV=300.0
- Y1RPD- STA. 23+31 TO STA. 23+96 LT, S=9.2%
BEG. ELEV=300.00, END ELEV=305.96



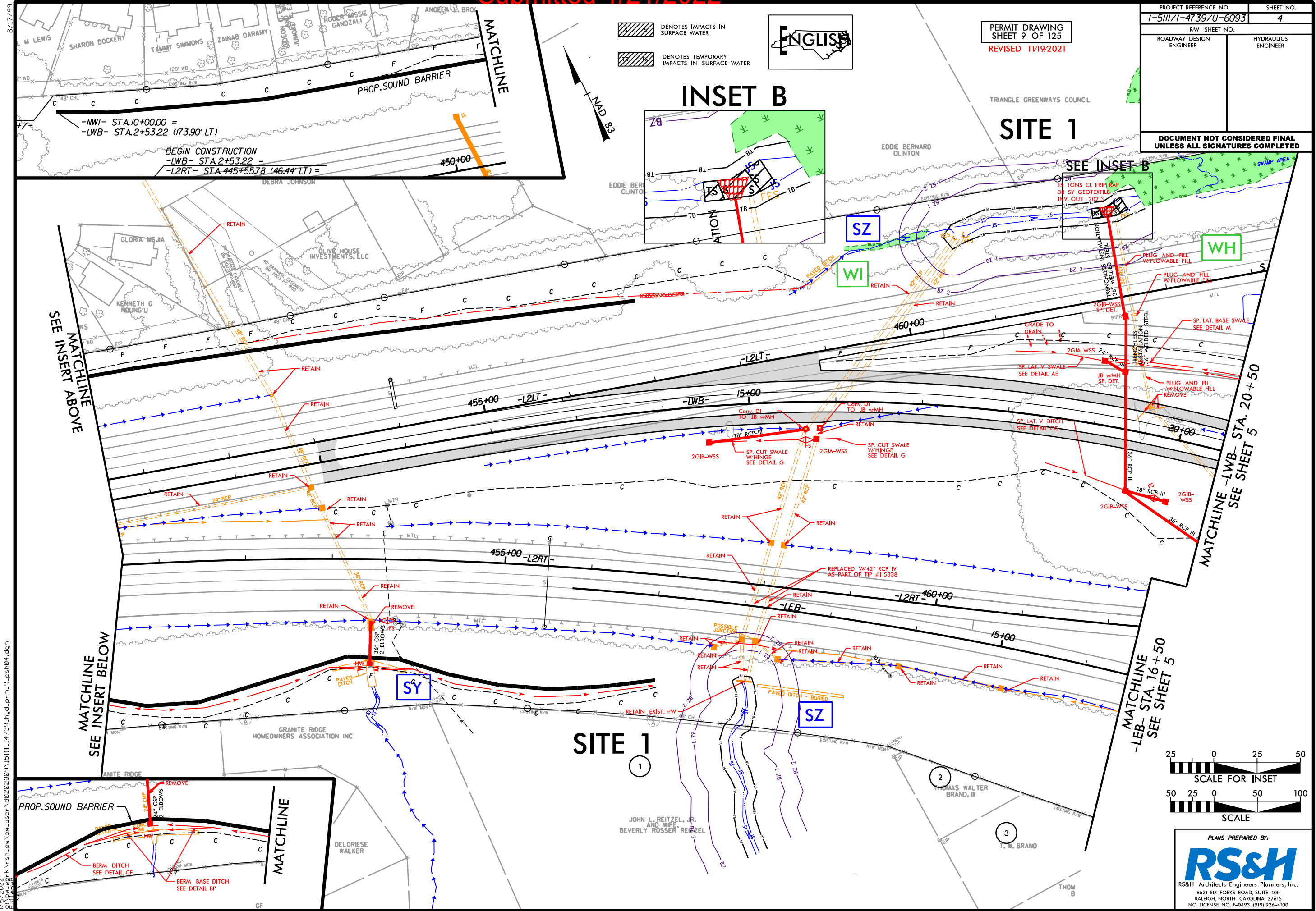
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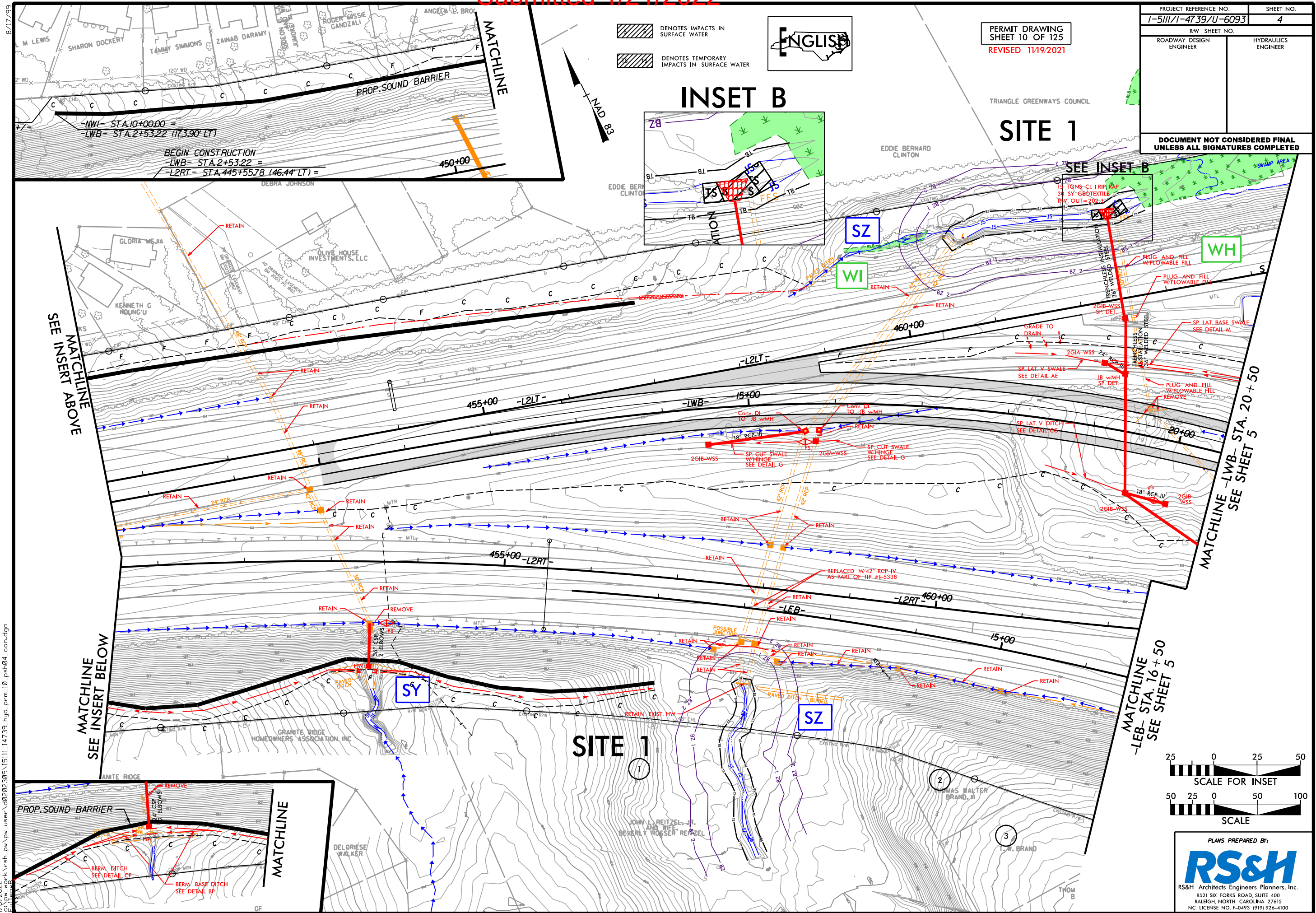
P: (919) 878-9560
8601 Sk Forks Road, Forum 1, Suite 700
Raleigh, North Carolina 27615-3960
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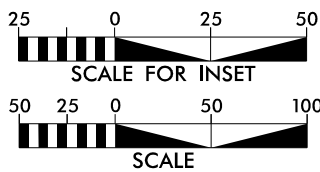




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8/17/99



PERMIT DRAWING
SHEET 92 OF 125

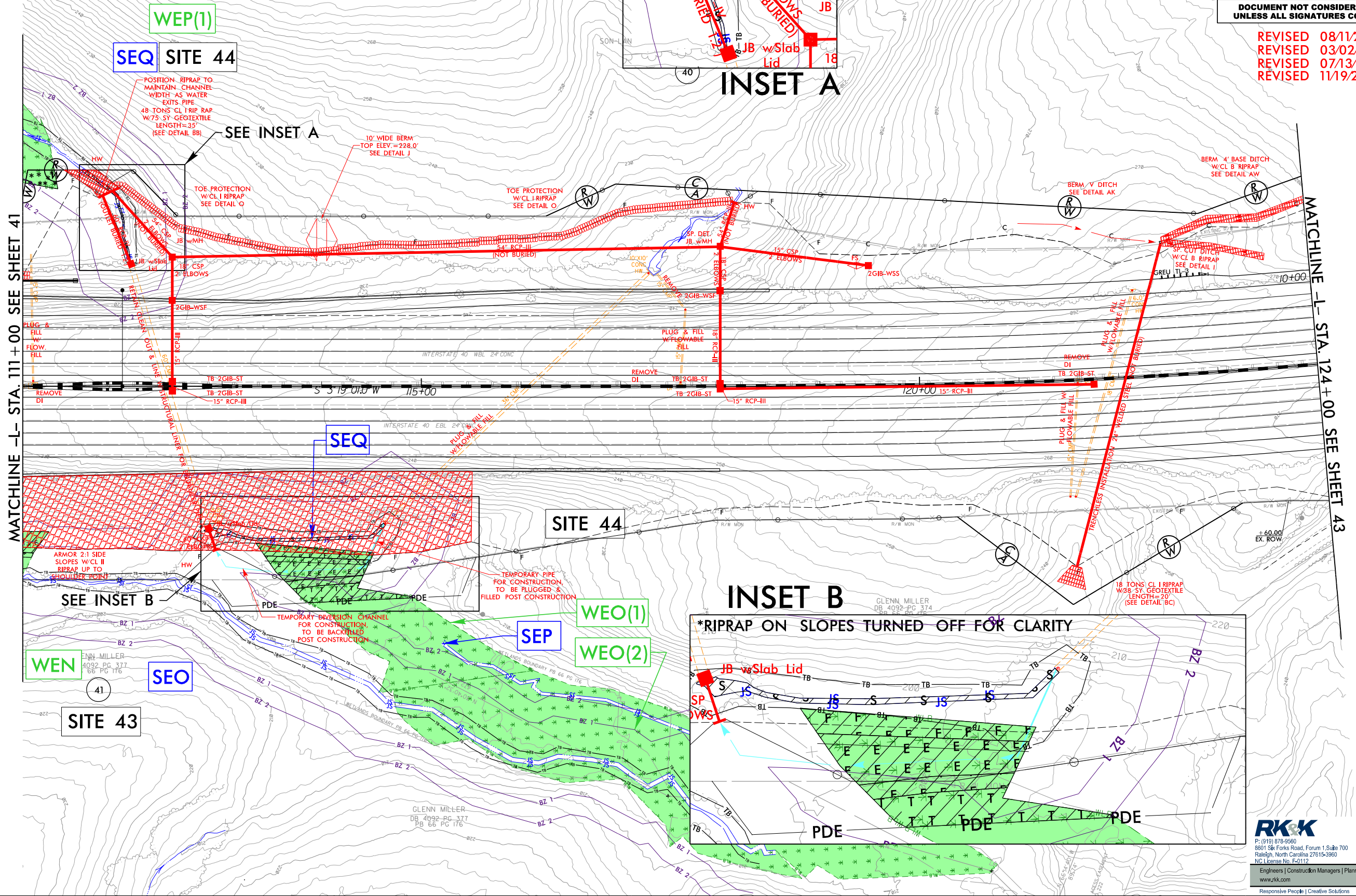


- DENOTES IMPACTS IN SURFACE WATER
- DENOTES FILL IN WETLAND
- DENOTES MECHANIZED CLEARING
- DENOTES EXCAVATION IN WETLAND
- DENOTES TEMPORARY FILL IN WETLAND

NAD 83

PROJECT REFERENCE NO.	SHEET NO.
1-5111/1-4739	42
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

REVISED 08/11/2020
REVISED 03/02/2021
REVISED 07/13/2021
REVISED 11/19/2021

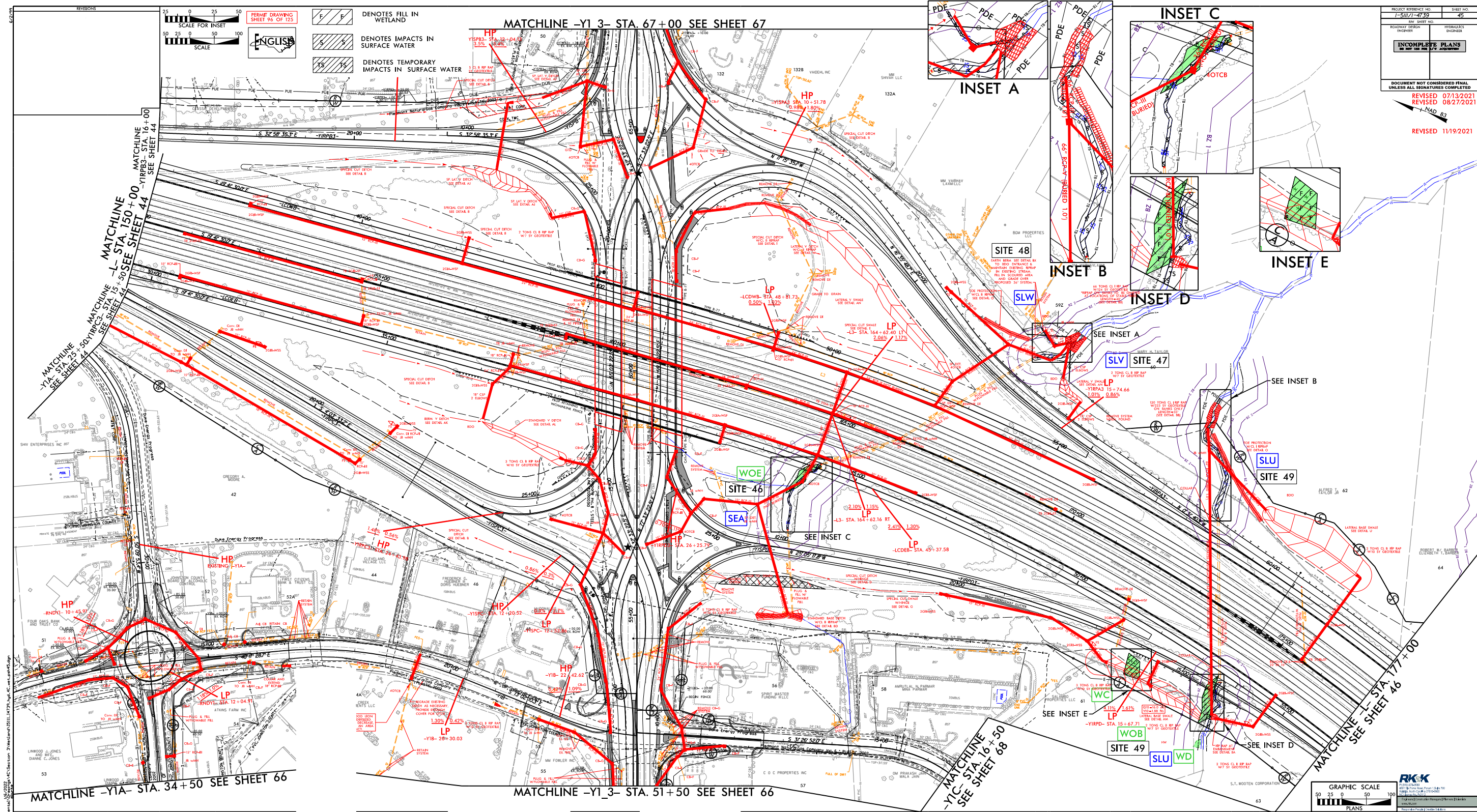


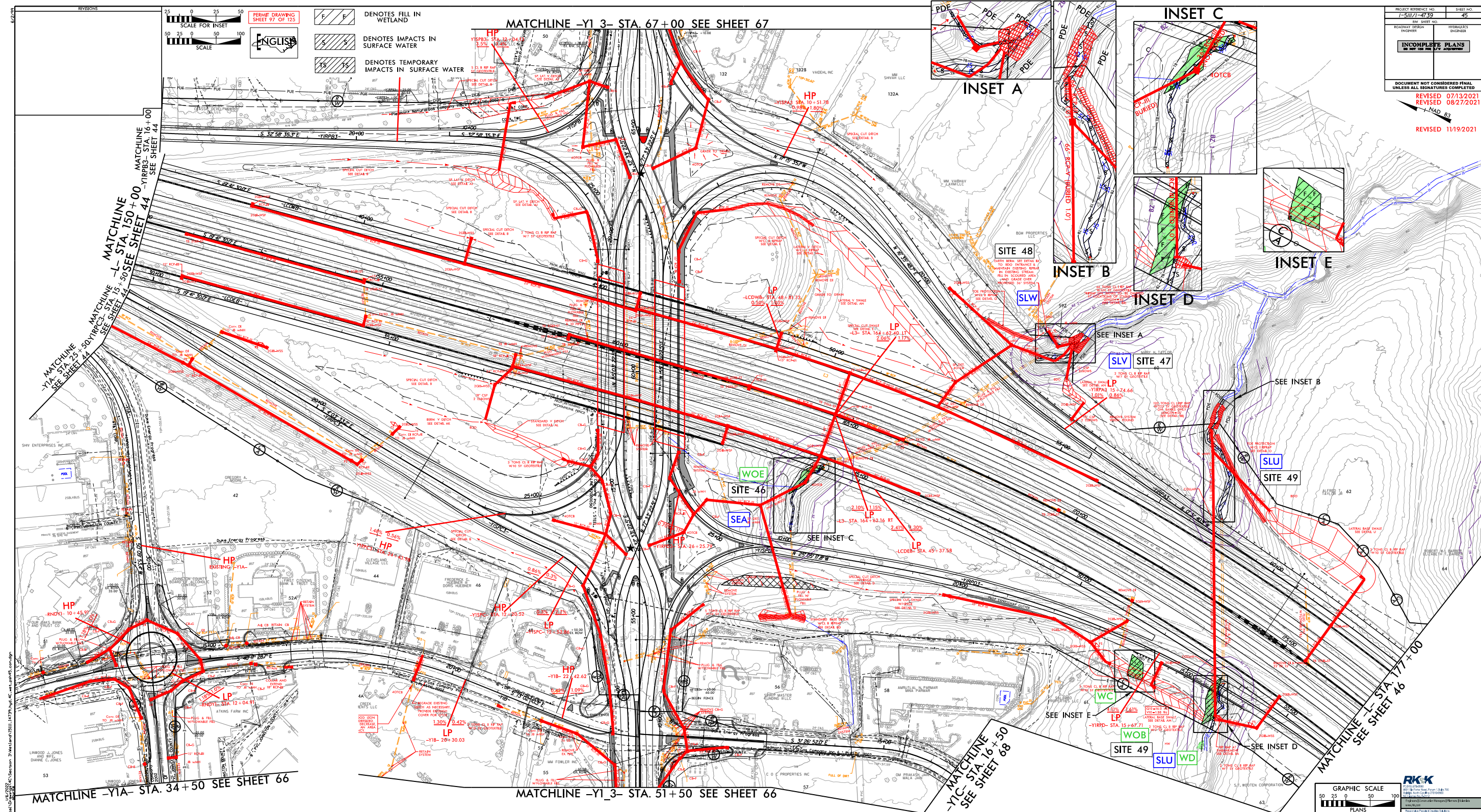
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WETLAND AND SURFACE WATER IMPACTS SUMMARY												
			WETLAND IMPACTS					SURFACE WATER IMPACTS				
Site No.	Station (From/To)	Structure Size / Type	Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized 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)
1	-LWB- 18+77 LT	Rip Rap Outlet Pad - SZ						< 0.01	< 0.01	20	20	
2	-Y1RPA- 32+52 RT	Channel Work at 48" CSP Inlet - SAA						< 0.01		29		
2	-Y1RPBD- 31+06 RT	Prop Rdwy Fill - SAA						0.01		45		
2	-Y1RPBD- 30+62 LT	Rip Rap Outlet Pads - SAA						< 0.01	< 0.01	12	10	
3	-Y1RPBD- 46+74 to 48+93 LT	Prop Pipes & Bridge Construction - SBB						< 0.01	0.05	24	240	
4	-L- 39+21 LT	Rip Rap Outlet Pad - SB						< 0.01	< 0.01	13	10	
4	-L- 40+19 LT	Ditch Outfall - SB						< 0.01	< 0.01	18	27	
5	-L- 59+13 to 62+63 LT	Channel Change - SC						0.03	< 0.01	352	12	
6	-L- 64+53 RT	Channel work at 8'x8' RCBC inlet - SD						0.02	< 0.01	78	11	
6	-L- 65+38 LT	Channel work at 8'x8' RCBC outlet - SD						0.01	< 0.01	51	30	
7	-L- 90+96 RT	Channel work at 10'x9' RCBC inlet - WC, SF	< 0.01	0.04				0.06	0.02	85	90	
7	-L- 91+39 LT	Channel work at 10'x9' RCBC outlet - WD, SF		0.01				0.08	< 0.01	80	10	
8	-Y3RPA- 23+91 LT	Prop Rdwy Fill and Rip Rap Pad - SNN						< 0.01		59		
8	-Y3RPA- 23+45 RT	Channel Change - SNN						< 0.01	< 0.01	12	4	
9	-Y3RPA- 17+58 RT	Rip Rap at pipe outfalls - SOO						< 0.01	< 0.01	23	8	
TOTALS*:			< 0.01	0.05				0.24	0.11	901	472	0

NOTES:

*Rounded totals are sum of actual impacts

Revised 07/13/2021

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
April 2019
Wake County
I-5111 / I-4739
42346.3.1

SHEET120OF125

WETLAND AND SURACE WATER IMPACTS SUMMARY												
			WETLAND IMPACTS					SURFACE WATER IMPACTS				
Site No.	Station (From/To)	Structure Size / Type	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- SEQ, WEO(1) ¹	0.04	0.03	0.04	0.01		0.02		261		
	-L- 111+58-111+85 LT	BANK STABILIZATION - SEQ						< 0.01		35		
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		97		
	-Y1RPA- 16+58-16+65 RT	BANK STABILIZATION - SLV						< 0.01		21		
48	-Y1RPA- 16+66-17+11 RT	36" CSP/ROADWAY FILL, RIPRAP - SLW						< 0.01		83		
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*:			0.55	0.08	0.04	0.14		0.98	0.02	3045	187	0

*Rounded totals are sum of actual impacts

NOTES:

1. Temporary diversion channel for construction to be backfilled post construction

REVISED 08/28/2019, 12/12/19, 7/2/20, 8/11/20, 7/13/21, 8/27/21, 11/19/2021, 12/14/21

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
DECEMBER 2021
WAKE AND JOHNSTON
I-5111_I-4739

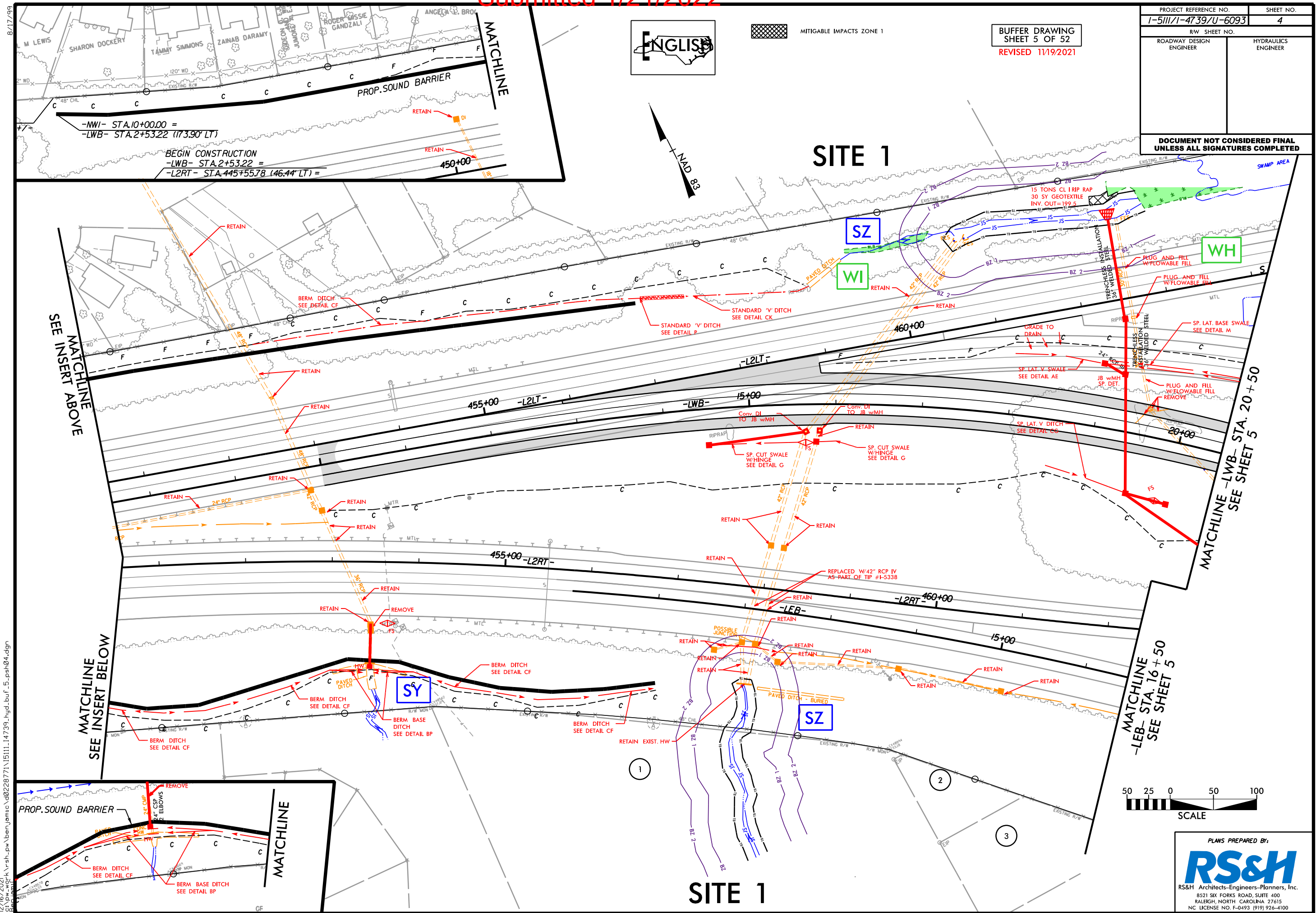
WETLAND AND SURFACE WATER IMPACTS SUMMARY												
			WETLAND IMPACTS					SURFACE WATER IMPACTS				
Site No.	Station (From/To)	Structure Size / Type	Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (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*:			0.78	0.17	0.11	0.17		1.55	0.21	7744	1495	

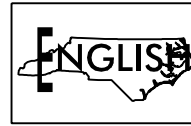
NOTES:
*Rounded totals are sum of actual impacts

REVISED 08/28/2019, 12/12/19, 4/22/20, 7/2/20, 8/11/20, 7/13/21, 8/27/21, 11/19/21

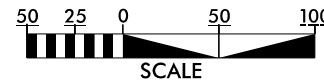
NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
NOVEMBER 2021
WAKE AND JOHNSTON
I-5111_I-4739

SHEET 125 OF 125



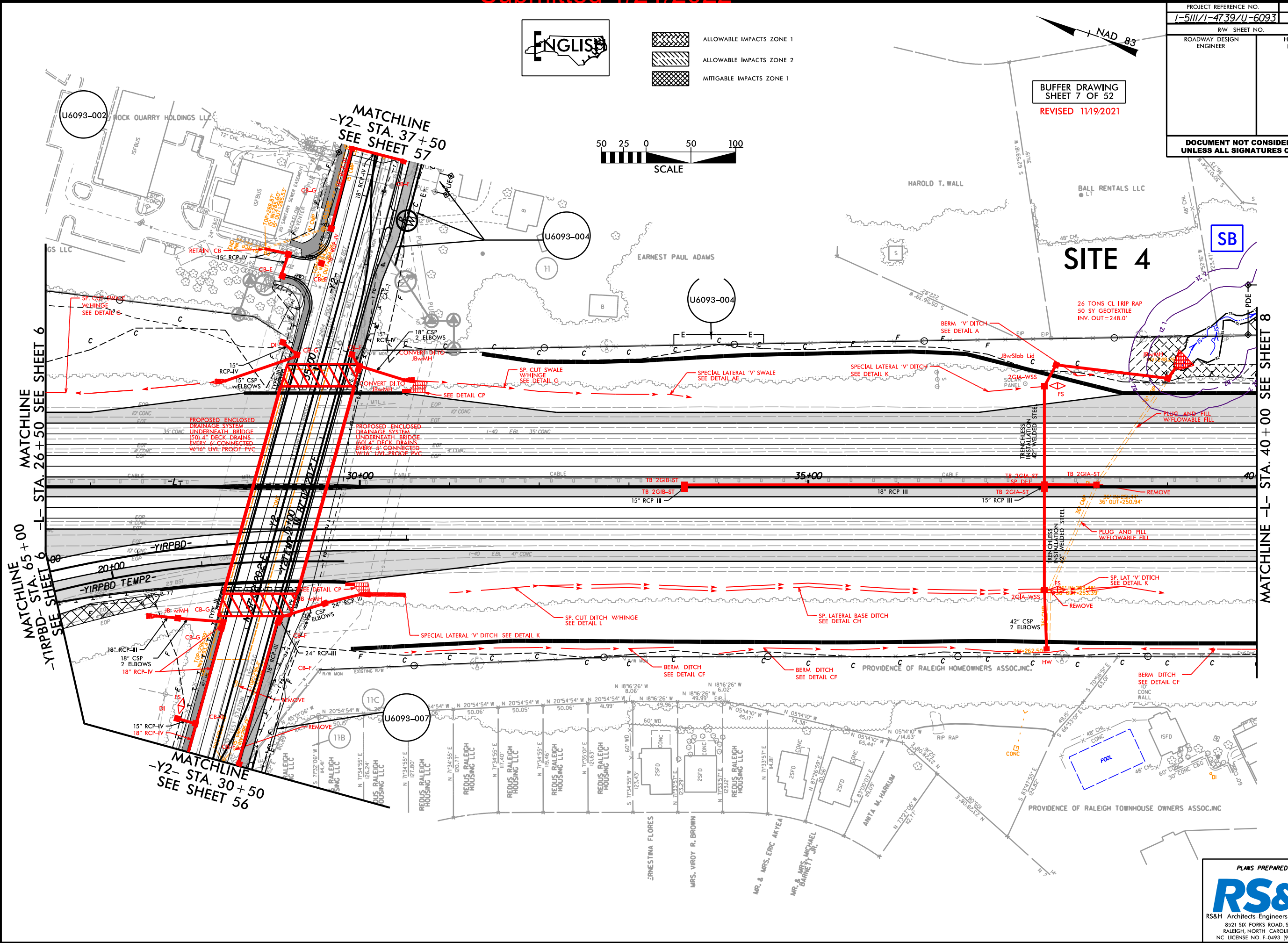


- ALLOWABLE IMPACTS ZONE 1
- ALLOWABLE IMPACTS ZONE 2
- MITIGABLE IMPACTS ZONE 1

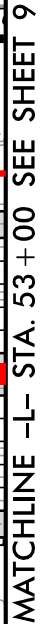


BUFFER DRAWING
SHEET 7 OF 52
REVISED 11/19/2021

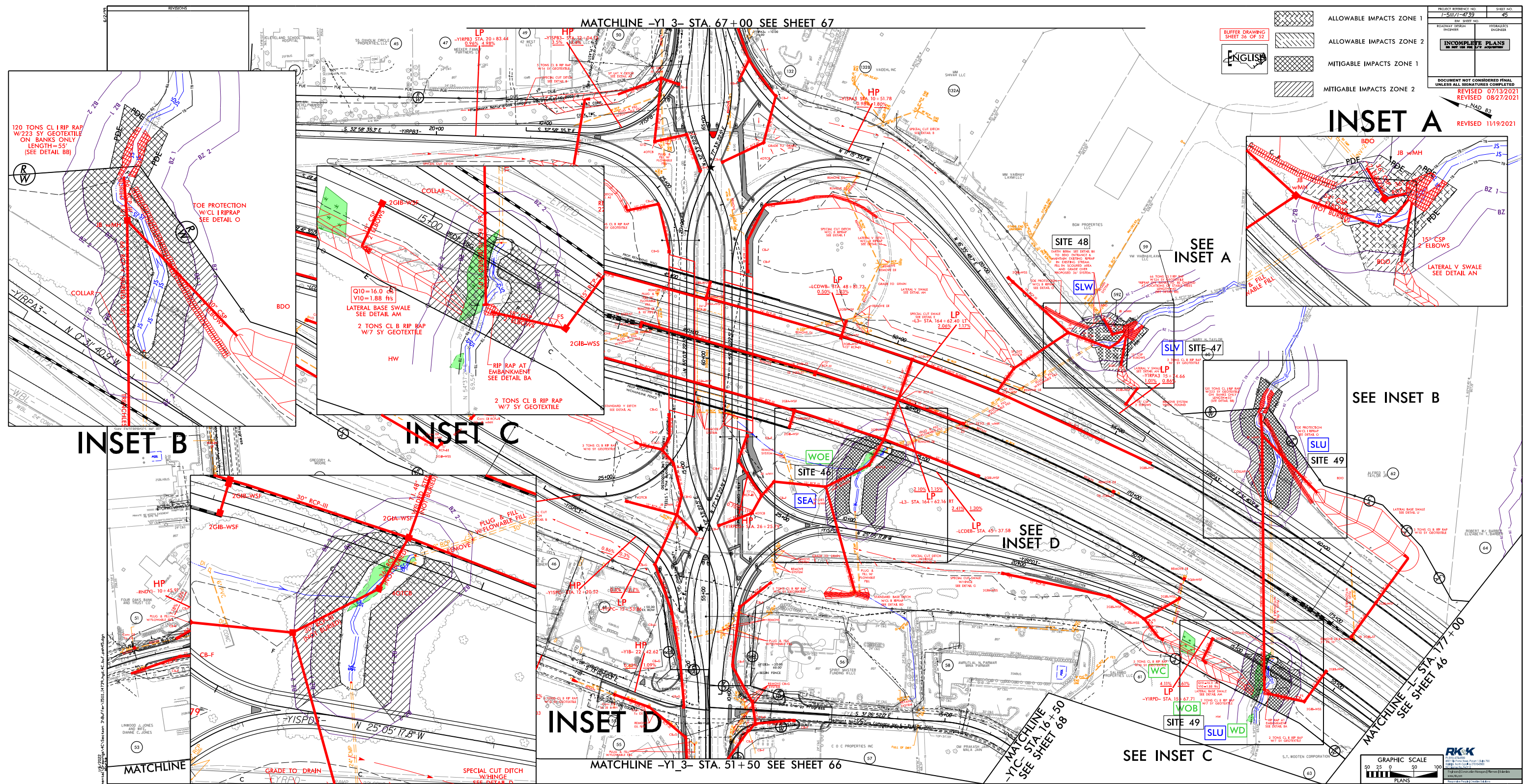
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ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
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RS&H
RS&H Architects-Engineers-Planners, Inc.
8521 SIX FORKS ROAD, SUITE 400
RALEIGH, NORTH CAROLINA 27615
NC LICENSE NO. F-0493 (919) 926-4100



RIPARIAN BUFFER IMPACTS SUMMARY													
Site No.	Station (From/To)	Structure Size / Type	IMPACTS									BUFFER REPLACEMENT	
			TYPE			ALLOWABLE			MITIGABLE			ZONE 1 (ft²)	ZONE 2 (ft²)
			ROAD CROSSING	BRIDGE	PARALLEL IMPACT	ZONE 1 (ft²)	ZONE 2 (ft²)	TOTAL (ft²)	ZONE 1 (ft²)	ZONE 2 (ft²)	TOTAL (ft²)		
1	-LWB- 18+74 LT	Prop 36" Welded Steel Pipe Outfall			X				335		335		
2	-Y1RPA- 32+57 RT	HW Replacement & Prop Berm Ditch	X			2710	1734	4444					
2	-Y1RPBD- 30+60 RT	Prop 48" & 15" RCP Pipe Outfall	X			2307	1296	3603					
3	-LWB- 31+71 to 34+63 LT	Proposed 42" CSP Pipe Outfall & Prop HW			X				23470	15180	38650		
4	-L- 38+50 to 40+00 LT	Prop Pipe Outfall & Widened Roadway Facility	X			2731	1293	4024					
4	-L- 40+19 LT	Pipe Outfall			X				1984	519	2503		
4	-L- 40+00 to 40+85 LT	Widened Roadway Facility			X					614	614		
6	-L- 64+70 RT	Prop 72" W.S. Suppl. Pipe, HW & Rip Rap	X						6006	3970	9976		
6	-L- 65+16 LT	Prop 72" W.S. Suppl. Pipe, HW & Rip Rap	X						6315	3866	10181		
7	-L- 91+13 RT	Prop Dual 96" Suppl. Pipes Plus HW & Channel Improvements	X			4730	1390	6120					
7	-L- 91+37 LT	Prop Dual 96" Suppl. Pipes Plus HW & Channel Improvements	X			3337	795	4132					
8	-Y3RPA- 23+91 LT	Prop Pipe & Widened Roadway Facility	X						7488	8136	15624		
8	-Y3RPA- 23+46 RT	Prop Pipe & Widened Roadway Facility	X						1066	1030	2096		
9	-Y3RPA- 17+52 RT	Prop Pipe & Widened Roadway Facility	X			1906	1389	3295					
10	-L- 144+75 to 152+66 LT/RT	Prop 30" W.S. Pipe, HW & Channel Relocation			X				15337	3414	18751		
11	-L- 151+69 RT	Prop 30" W.S. Pipe & HW	X			2045	1410	3455					
12	-L- 149+34 LT	HW & Widened Roadway Facility	X			2873	1514	4387					
13	-L- 157+91 RT	Plug and Fill Ex. Pipe			X				199		199		
13	-L- 159+69 RT	Widened Roadway Facility	X			652		652					
TOTALS*:						23291	10821	34112	62200	36729	98929	0	0

NOTES:

Revised 1/6/2022

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
April 2019
Wake County
I-5111
42346.3.1
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RIPARIAN BUFFER IMPACTS SUMMARY

			IMPACTS									BUFFER REPLACEMENT	
Site No.	Station (From/To)	Structure Size / Type	TYPE			ALLOWABLE			MITIGABLE			ZONE 1 (ft²)	ZONE 2 (ft²)
			ROAD CROSSING	BRIDGE	PARALLEL IMPACT	ZONE 1 (ft²)	ZONE 2 (ft²)	TOTAL (ft²)	ZONE 1 (ft²)	ZONE 2 (ft²)	TOTAL (ft²)		
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- SEQ, WEO(1) ¹	X						12849	6826	19675		
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			5620	2993	8613					
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*:						28762	15236	43999	181583	113795	295378	0	0

PROJECT TOTALS*:						115552	55966	171518	302460	169490	471950	0	0
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NOTES:

1. SEQ under fill slope RT is a total take, 765sf of Mitigable BZ2 Impacts accounted for in totals but not hatched in plan view due to location outside PDE

REVISED 8/28/2019 8/27/2021
12/12/2019 11/19/2021
7/2/2020 1/6/2022
8/11/2020
7/13/2021
8/11/2021

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DIVISION OF HIGHWAYS
JANUARY 2022
WAKE / JOHNSTON
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