



IN REPLY REFER TO

**DEPARTMENT OF THE ARMY
WILMINGTON DISTRICT, CORPS OF ENGINEERS**

Washington Regulatory Field Office
2407 West 5th Street
Washington, North Carolina 27889

May 11, 2020

Regulatory Division

Action ID No. 1993-02466

North Carolina Department of Transportation
Environmental Analysis Unit
Mr. Phillip S. Harris III, Unit Head
1598 Mail Service Center
Raleigh, North Carolina 27699-1598

Dear Mr. Harris,

Reference the Department of the Army (DA) individual permit (IP) Action SAW-1993-02466, issued April 18, 2019 to construct a new US 70 bypass of Havelock, North Carolina in Craven County, North Carolina.

This office received permit modification request dated May 1, 2019 affecting areas of the above referenced project. Several design changes have been made to the project and the modification request details the changes by narrative and with revised plan sheets.

Wetland and Stream Impacts:

These changes reflect both roadway design changes and changes in accommodations for Duke Energy. Coordination with Duke Energy resulted in a reduction in the number of access points to their transmission lines, and a reduction in impacts.

- Detail sheets updated (permit drawings 2 & 3)
- Site 1 (permit sheets 17&18) added riprap in the excavation area due to riprap pads at two pipes. A driveway was added, which did increase the impacts from fill, but decreased the mechanized clearing and excavation. The permitted total (1.16 acre) did not change.
- Site 3 (permit sheets) impacts increased from 29.33 to 29.42 acre (a change of 0.09) due to driveway changes and an error in the previous calculation.
- Update to permit sheets 124 & 125. Changes were outside of impacted areas
- Update to permit sheets 130 & 131. Changes were outside of impacted areas
- Site 47, (permit sheets 142 & 143) pipe shortened to eliminate easement on property, HW added. "Temporary Impacts in Surface Water" reduced by 0.01 ac. " Existing Channel Impacts Temp." reduced by 10' .
- Site 21 (permit sheets 148 &149) pipe outlet shifted. Fill increased, excavation decreased, no change to total impacts permitted for site (0.85 acre).

- Summary sheets are updated to reflect changes to impacts and date (permit sheets 165, 166 & 167). Permanent fill in wetlands is increased slightly from 98.66 to 98.75 acres. Mechanized clearing is reduced from 11.43 to 11.38 acres. Changes at Site 47 caused reductions in temporary surface water and temporary channel impacts.
- Additional sheets have been prepared for the underground utility which requires additional impacts in wetland Sites 1, 2 and 3. The permit drawings showed underground utilities through these sections, but with no splice pits or hand holes, which are required. These supplemental drawings were revised by Division 2 to show the permanent hand holes and temporary splice pits with the total impacts required. These totals are not included in the summary sheet prepared by Hydraulics Unit. Impacts shown on the supplemental permit drawings are as follows:
 - = NE-03, 400 s.f. for splice pits and 15 s.f. for hand holes
 - = NE-04, 500 s.f. for splice pits and 30 s.f. for hand holes
 - = NE-05, 600 s.f. for splice pits and 30 s.f. for hand holes
 - = Additional total impacts needed= 1,575 s.f. (0.036 acre) of hand clearing for bore holes.

The net increase in permanent wetland impacts from these changes is approximately 0.04 acre.

These modification requests were discussed and coordinated with the appropriate State and Federal agencies at several on-site meetings and the coordination revealed no objections to this modification request. The proposed modifications for R-1015 as detailed above are hereby modified in accordance with the specific work activities described and depicted on the plan sheets, drawings and descriptions enclosed with the permit modification request package dated May 1, 2020. A revised impact summary sheet was received and represents the most recent modifications.

Mitigation for permanent wetland impacts of an additional 0.04 acres will be provided by the Division of Mitigation Services (DMS)

It is understood that all conditions of the original permit and applicable modifications remain valid. In addition, the permittee will comply with the additional special permit conditions as follows:

- a.) All work authorized by this permit modification must be performed in strict compliance with the submitted work plans, which are part of this permit. Any modification to the permit plans must be approved by US Army Corps of Engineers (Corps) prior to implementation.
- b.) The permittee shall require its contractors and/or agents to comply with the terms and conditions of this permit in the construction and maintenance of this project, and shall provide each of its contractors and/or agents associated with the construction or maintenance of this project with a copy of this permit, and any authorized modifications. A copy of this permit, and any authorized modifications, including all conditions, shall be available at the project site during construction and maintenance of this project.
- c.) In order to compensate for impacts associated with this permit modification, mitigation shall be provided in accordance with the provisions outlined on the most recent version of the attached Compensatory Mitigation Responsibility Transfer Form. The requirements of this form, including any special conditions listed on this form, are hereby incorporated as special conditions of this permit authorization.

Questions regarding this correspondence may be directed to Tom Steffens, NCDOT
Coordinator/Regulatory Project Manager at the Washington Regulatory Field Office, telephone (910)
251- 4615.

Sincerely,

A handwritten signature in blue ink, appearing to read 'T. Steffens', with a small 'TAS' monogram to the right.

Thomas Steffens
Regulatory Project Manager

E-cc:

Garcy Ward/NCDWR
Stephen Lane/NCDCM
Cathy Brittingham/NCDCM
Chris Rivenbark/NCDOT NEU
Gordon Cashin/NCDOT NEU
Heather Lane/NCDOT Division 2
Jay Johnson/NCDOT Division 2
Brad McMannen/NCDOT Division 2

ROY COOPER

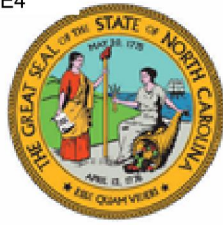
Governor

MICHAEL S. REGAN

Secretary

S. DANIEL SMITH

Director



NORTH CAROLINA
Environmental Quality

May 1, 2020

Mr. Philip S. Harris, III, P.E., CPM
Natural Environment Section Head
Project Development and Environmental Analysis
North Carolina Department of Transportation
1598 Mail Service Center
Raleigh, North Carolina, 27699-1598

Subject: Modification of 401 Water Quality Certification Pursuant to Section 401 of the Federal Clean Water Act and Neuse Buffer Authorization with ADDITIONAL CONDITIONS for the proposed construction of the Havelock Bypass in Craven County, TIP R-1015.
NCDWR Project No. 20181598 v.2

Dear Mr. Harris:

Attached hereto is a modification of Certification No. WQC004178 issued to The North Carolina Department of Transportation (NCDOT) dated May 1, 2020.

If we can be of further assistance, do not hesitate to contact us.

Sincerely,

DocuSigned by:

Amy Chapman

9C9886312DCD474...
S. Daniel Smith

Director

cc:

Tom Steffens, US Army Corps of Engineers, Washington Field Office
Jay Johnson, Division 2 Environmental Officer
Chris Rivenbark, NC Department of Transportation
Amanetta Somerville, US Environmental Protection Agency
Gary Jordan, US Fish and Wildlife Service
Travis Wilson, NC Wildlife Resources Commission
Stephen Lane, NC Division of Coastal Management
Cathy Brittingham, NC Division of Coastal Management
Beth Harmon, Division of Mitigation Services
Garcy Ward, NC Division of Water Resources, Washington Regional Office
File Copy



North Carolina Department of Environmental Quality | Division of Water Resources
512 North Salisbury Street | 1617 Mail Service Center | Raleigh, North Carolina 27699-1617
919.707.9000

**Modification to the 401 Water Quality Certification Pursuant to Section 401 of the Federal Clean Water Act
and Neuse Buffer Authorization with ADDITIONAL CONDITIONS**

THIS CERTIFICATION is issued in conformity with the requirements of Section 401 Public Laws 92-500 and 95-217 of the United States and subject to the North Carolina Division of Water Resources (NCDWR) Regulations in 15 NCAC 2H .0500 and 15A NCAC 2B.0233. This certification authorizes the NCDOT to permanently impact an additional 0.05 acres of wetlands in Craven County. The project shall be constructed pursuant to the revised modification request dated received May 1, 2020. The authorized impacts are as described below:

Wetland Impacts at Sites 1, 3, 7, 21, 26, 27, and 31 in the Neuse River Basin approved with Original Certification

Site	Wetland Type	Fill (ac)	Fill (temporary) (ac)	Excavation (ac)	Mechanized Clearing (ac)	Hand Clearing (ac)	Total Wetland Impact (ac)
1	non-riparian	0.57	--	0.33	0.26	--	1.16
3	non-riparian	25.91	--	0.32	3.10	--	29.33
7	non-riparian	2.56	--	--	0.33	--	2.89
21	non-riparian	0.55	--	0.22	0.08	--	0.85
26	non-riparian	0.48	--	0.0007	--	0.11	0.59
27	non-riparian	0.79	--	0.05	--	0.07	0.91
31	non-riparian	2.23	--	0.07	--	0.31	2.61
Total		33.09	--	0.99	3.77	0.49	38.34

Wetland Impacts at Sites 1, 3, 7, 21, 26, 27, and 31 in the Neuse Basin approved with this Modification

Site	Wetland Type	Fill (ac)	Fill (temporary) (ac)	Excavation (ac)	Mechanized Clearing (ac)	Hand Clearing (ac)	Total Wetland Impact (ac)
1	non-riparian	0.59	--	0.32	0.25	--	1.16
3	non-riparian	26.03	--	0.32	3.07	--	29.42
7	non-riparian	2.52	--	--	0.32	--	2.84
21	non-riparian	0.56	--	0.21	0.08	--	0.85
26	non-riparian	0.47	--	0.0007	--	0.11	0.58
27	non-riparian	0.75	--	0.08	--	0.05	0.88
31	non-riparian	2.22	--	0.07	--	0.32	2.61
Total		33.14	--	1.00	3.72	0.48	38.34
Difference		+0.05	--	+0.01	-0.05	-0.01	0.00

change in permanent impact = +0.01 ac

Stream Impacts in the Neuse River Basin

Site	Type	Permanent (linear ft)	Temporary (linear ft)	Total Stream Impact (linear ft)	Stream Impacts Requiring Mitigation (linear ft)
47 -original impacts approved	I	12	10	22	na
47- impacts approved with this modification	I	12	0	12	na
Difference		0	-10	-10	



Buffer Impacts in the Neuse River Basin

Site	Zone 1 (sq ft)	Zone 2 (sq ft)
7 -original impacts approved	417	0
7- impacts approved with this modification	135	0
Difference	- 282	0

Wetland Impacts due to Utilities

Site	Fill (ac)	Excavation (ac)	Hand Clearing (ac)
1	<0.01		0.669
2	<0.01		0.560
3	<0.01		1.062
4	<0.01		1.301
5	<0.01		1.827
6	<0.01		0.182
7	<0.01		0.041
8	<0.01		0.116
9	<0.01		0.077
10	<0.01		--
11	<0.01		--
12	<0.01		--
Bore pits		0.036	
Total	<0.01	0.036	5.835
Net Total		5.871	

permanent impacts = 0.04 ac

The application provides adequate assurance that the discharge of fill material onto the beach in conjunction with the proposed activity will not result in a violation of applicable Water Quality Standards and discharge guidelines. Therefore, the State of North Carolina certifies that this activity will not violate the applicable portions of Sections 301, 302, 303, 306, 307 of PL 92-500 and PL 95-217 if conducted in accordance with the application and conditions hereinafter set forth. This approval is only valid for the purpose and design that you submitted in your modified application dated received May 1, 2020. Should your project change, you are required to notify NCDWR and submit a new application. If the property is sold, the new owner must be given a copy of this Certification and approval letter, and is thereby responsible for complying with all the conditions. If any additional impacts, for this project (now or in the future) are required the applicant should contact NCDWR as a modification of this Certification may be required. For this approval to remain valid, you are required to comply with all the conditions listed below. In addition, you should obtain all other federal, state or local permits before proceeding with your project including (but not limited to) Sediment and Erosion control, Coastal Stormwater, Non-discharge and Water Supply watershed regulations. This Certification shall expire on the same day as the expiration date of the corresponding Corps of Engineers Permit.

Condition(s) of Certification:

1. This modification is applicable only to the additional proposed activities. All of the authorized activities and conditions associated with the original Water Quality Certification dated April 3, 2019 and subsequent modifications still apply except where superseded by this certification.



2. This modification resulted in an additional 0.01 ac of permanent wetland impacts due to road construction and an additional 0.04 ac of permanent wetland impacts due to utilities. Therefore, compensatory mitigation for an additional 0.05 acres of non-riparian wetlands is required. We understand that you have chosen to perform compensatory mitigation for impacts to wetlands through the North Carolina Division of Mitigation Services (DMS) (formerly NCEEP), and that the DMS has agreed to implement the mitigation for the project. DMS has indicated in a letter dated March 12, 2020 that they will assume responsibility for satisfying the federal Clean Water Act compensatory mitigation requirements for the above-referenced project, in accordance with DMS's Mitigation Banking Instrument signed July 28, 2010.

Violations of any condition herein set forth may result in revocation of this Certification and may result in criminal and/or civil penalties. This Certification shall become null and void unless the above conditions are made conditions of the Federal 404 and/or Coastal Area Management Act Permit. This Certification shall expire upon the expiration of the 404 or CAMA permit.

If you wish to contest any statement in the attached Certification you must file a petition for an administrative hearing. You may obtain the petition form from the office of Administrative hearings. You must file the petition with the office of Administrative Hearings within sixty (60) days of receipt of this notice. A petition is considered filed when it is received in the office of Administrative Hearings during normal office hours. The Office of Administrative Hearings accepts filings Monday through Friday between the hours of 8:00am and 5:00pm, except for official state holidays. The original and one (1) copy of the petition must be filed with the Office of Administrative Hearings.

The petition may be faxed-provided the original and one copy of the document is received by the Office of Administrative Hearings within five (5) business days following the faxed transmission. The mailing address for the Office of Administrative Hearings is:

Office of Administrative Hearings
6714 Mail Service Center
Raleigh, NC 27699-6714
Telephone: (919)-431-3000, Facsimile: (919)-431-3100

A copy of the petition must also be served on DEQ as follows:

Mr. Bill Lane, General Counsel
Department of Environmental Quality
1601 Mail Service Center
Raleigh, NC 27699-1601

This the 1st day of May, 2020

DIVISION OF WATER RESOURCES

DocuSigned by:
Amy Chapman
9C9886312DCD474...

S. Daniel Smith
Director

WQC No. 004121



ROY COOPER
Governor
MICHAEL S. REGAN
Secretary
S. DANIEL SMITH
Director



NCDWR Project No.: _____ County: _____

Applicant: _____

Project Name: _____

Date of Issuance of 401 Water Quality Certification: _____

Certificate of Completion

Upon completion of all work approved within the 401 Water Quality Certification or applicable Buffer Rules, and any subsequent modifications, the applicant is required to return this certificate to the 401 Transportation Permitting Unit, North Carolina Division of Water Resources, 1617 Mail Service Center, Raleigh, NC, 27699-1617. This form may be returned to NCDWR by the applicant, the applicant's authorized agent, or the project engineer. It is not necessary to send certificates from all of these.

Applicant's Certification

I, _____, hereby state that, to the best of my abilities, due care and diligence was used in the observation of the construction such that the construction was observed to be built within substantial compliance and intent of the 401 Water Quality Certification and Buffer Rules, the approved plans and specifications, and other supporting materials.

Signature: _____ Date: _____

Agent's Certification

I, _____, hereby state that, to the best of my abilities, due care and diligence was used in the observation of the construction such that the construction was observed to be built within substantial compliance and intent of the 401 Water Quality Certification and Buffer Rules, the approved plans and specifications, and other supporting materials.

Signature: _____ Date: _____

Engineer's Certification

_____ Partial _____ Final

I, _____, as a duly registered Professional Engineer in the State of North Carolina, having been authorized to observe (periodically, weekly, full time) the construction of the project for the Permittee hereby state that, to the best of my abilities, due care and diligence was used in the observation of the construction such that the construction was observed to be built within substantial compliance and intent of the 401 Water Quality Certification and Buffer Rules, the approved plans and specifications, and other supporting materials.

Signature _____ Registration No. _____
Date _____



From: [Brittingham, Cathy](#)
To: [Rivenbark, Chris](#); [Cashin, Gordon E](#)
Cc: [Lane, Stephen](#); [Govoni, Daniel](#); [Ward, Garcy](#); [Tom Steffens](#); [Johnson, Jay B](#)
Subject: RE: R-1015 (Havelock) Revised Consistency Modification Request
Date: Friday, May 8, 2020 2:41:38 PM

Hello,

The N.C. Division of Coastal Management (DCM) received information on proposed modifications to the plans for the Havelock Bypass, TIP No. R-1015, in Craven County from the N.C. Department of Transportation (NCDOT) on March 13, 2020. DCM received a revised version of the March 13, 2020 request on May 1, 2020, including a cover letter, updated workplan drawings, and updated impact summary sheets. The changes include both roadway design changes and changes in accommodations for Duke Energy. In accordance with the May 1, 2020 NCDOT letter an updated DMS Mitigation Acceptance Letter will be provided as soon as it is available.

The N.C. Division of Water Resources (DWR) issued a modification of the 401 Water Quality Certification No. WQC004178 on May 1, 2020 (NCDWR Project No. 20181598 v. 2).

DCM has reviewed the updated information, and has determined that the project remains consistent with the North Carolina Management Program.

Please let me or Stephen Lane know if you have any questions or concerns.

Sincerely,

Cathy Brittingham

Cathy Brittingham, Transportation Project Coordinator
N.C. Division of Coastal Management
(919) 707-9149 phone
cathy.brittingham@ncdenr.gov

Mailing Address: :
c/o DWR Transportation Permitting Unit
1617 Mail Service Center
Raleigh, NC 27699-1617

Physical Address:
512 North Salisbury Street
Archdale Building
12th Floor, Room 1204C
Raleigh, NC 27604

Please visit <https://deq.nc.gov/about/divisions/coastal-management/> for more information about the N.C. Division of Coastal Management.

E-mail correspondence to and from this address may be subject to the North Carolina Public Records Law and may be disclosed to third parties

-----Original Message-----

From: Rivenbark, Chris
Sent: Friday, May 01, 2020 11:30 AM
To: Brittingham, Cathy <cathy.brittingham@ncdenr.gov>; Lane, Stephen <stephen.lane@ncdenr.gov>
Cc: Cashin, Gordon E <gcashin@ncdot.gov>
Subject: R-1015 (Havelock) Revised Consistency Modification Request

A Revised Consistency Modification Request for R-1015 has been prepared. This updates our previous modification request dated March 13, 2020. The electronic copy can be viewed/downloaded at <https://xfer.services.ncdot.gov/pdea/PermApps/R-1015%20Revised%20CAMA%20Consistency%20Craven%20May%201%202020.pdf>
<<https://xfer.services.ncdot.gov/pdea/PermApps/R-1015%20Revised%20CAMA%20Consistency%20Craven%20May%201%202020.pdf>>

Chris Rivenbark

Environmental Analysis Unit

North Carolina Department of Transportation

919 707 6152 office

crivenbark@ncdot.gov <<mailto:crivenbark@ncdot.gov>>

1598 Mail Service Center

Raleigh, NC 27699-1598

1000 Birch Ridge Drive

Raleigh, NC 27610

Email correspondence to and from this sender is subject to the N.C. Public Records Law and may be disclosed to third parties.

Details (cont.)

PROJECT REFERENCE NO.	SHEET NO.
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	

PERMIT DRAWING
SHEET 3 OF 167

DETAIL KK
SPECIAL LATERAL BASE DITCH
(Not to Scale)

FROM STA. 9+00 TO STA. 11+65 -RP2CD- (LT)
FROM STA. 563+25 TO STA. 565+50 -L- (LT)

DETAIL LL
STANDARD "V" DITCH
(Not to Scale)

FROM STA. 90+41 -RP2A- (LT)
FROM STA. 12+15 TO STA. 12+89 -RP2CD- (RT)
FROM STA. 534+65 TO STA. 535+02 -L- (LT)
FROM STA. 536+53 TO STA. 536+74 -L- (LT)
FROM STA. 536+83 TO STA. 537+43 -L- (LT)

DETAIL MM
STANDARD "V" DITCH
(Not to Scale)

FROM STA. 11+66 TO 12+05 -RP2CD- (LT)

DETAIL NN
MEDIAN "V" DITCH
(Not to Scale)

FROM STA. 162+00 TO STA. 167+00 -L- (MED)
FROM STA. 224+00 TO STA. 226+26 -L- (MED)
FROM STA. 434+50 TO STA. 450+50 -L- (MED)
FROM STA. 530+14 TO STA. 536+00 -L- (RT)
FROM STA. 537+00 TO STA. 579+00 -L- (RT)
FROM STA. 555+00 TO STA. 559+50 -L- (MED)
FROM STA. 566+47 TO STA. 575+00 -L- (MED)
FROM STA. 575+00 TO STA. 579+17.51 -L- (MED)

DETAIL OO
STANDARD "V" DITCH
(Not to Scale)

FROM STA. 533+55 -L- (LT) S=6.8 %

DETAIL PP
SPECIAL LATERAL "V" DITCH
(Not to Scale)

FROM STA. 559+00 TO STA. 562+50 -L- (LT)

DETAIL QQ
SPECIAL LATERAL BASE DITCH
(Not to Scale)

FROM STA. 544+00 TO STA. 552+25 -L- (LT)
FROM STA. 562+50 TO STA. 563+25 -L- (LT)

DETAIL RR
LATERAL BASE DITCH
(Not to Scale)

FROM STA. 53+50 TO STA. 54+50 -Y4- (LT)
STA. 11+00 -SERVEXT- S=0.286 %

DETAIL SS
SPECIAL LATERAL BASE DITCH
(Not to Scale)

FROM STA. 34+57 TO STA. 41+17 -Y3- (LT)
FROM STA. 543+00 TO STA. 544+00 -L- (LT)

DETAIL TT
SPECIAL LATERAL BASE DITCH
(Not to Scale)

FROM STA. 34+57 TO STA. 37+79 -Y3- (RT)

DETAIL UU
SPECIAL LATERAL BASE DITCH
(Not to Scale)

FROM STA. 38+60 TO STA. 41+50 -Y3- (RT)

DETAIL WW
SPECIAL LATERAL BASE DITCH
(Not to Scale)

FROM STA. 34+23 TO STA. 37+00 -Y4- (LT)
FROM STA. 34+47 TO STA. 38+00 -Y4- (RT)
FROM STA. 12+00 TO STA. 15+70 -Y4DR- (LT)
FROM STA. 12+00 TO STA. 15+70 -Y4DR- (LT)

DETAIL XX
PIPE INLET CHANNEL AND BANK STABILIZATION
(Not to Scale)

Length = 25Ft.
Est. = 20 Tons of Class I Rip-Rap
STA. 51+65 -Y4- (LT)

DETAIL YY
PIPE OUTLET CHANNEL
(Not to Scale)

Length = 30Ft.
Est. = 100 Tons of Class I Rip-Rap
STA. 52+38 -Y4- (RT)

DETAIL ZZ
DITCH BLOCK
(Not to Scale)

FROM STA. 58+77 -Y4- (LT)

DETAIL AAA
SPECIAL LATERAL "V" DITCH
(Not to Scale)

FROM STA. 41+63 TO STA. 48+50 -RP2AC- (RT)

DETAIL CCC
SPECIAL LATERAL "V" DITCH
(Not to Scale)

FROM STA. 341+50 -L- TO STA. 347+63 -L- (LT)

DETAIL DDD
LATERAL BASE DITCH
(Not to Scale)

FROM STA. 7+27 TO STA. 8+36 -RP2C- (RT)

DETAIL EEE
STANDARD BASE DITCH
(Not to Scale)

FROM STA. 6+14 TO 7+27 -RP2C- (RT)
STA. 72+02 TO 72+50 -RP2AC- (RT)

DETAIL FFF
STANDARD BASE DITCH
(Not to Scale)

FROM STA. 34+12 TO STA. 34+47 -Y4- (RT)

DETAIL GGG
SPECIAL LATERAL BASE DITCH
(Not to Scale)

FROM STA. 54+50 TO STA. 58+66 -Y4- (LT)

DETAIL HHH
SPECIAL LATERAL BASE DITCH
(Not to Scale)

FROM STA. 56+83 TO 58+00 -Y4- (RT)

DETAIL MMM
SPECIAL CUT BASE DITCH
(Not to Scale)

FROM STA. 33+48 TO STA. 36+78 -RP1CD- (RT)

DETAIL NNN
SPECIAL CUT BASE DITCH
(Not to Scale)

FROM STA. 28+39.21 TO STA. 30+00 -RP1AB- (RT)
FROM STA. 36+78 TO STA. 36+93.06 -RP1CD- (RT)

DETAIL OOO
SPECIAL CUT BASE DITCH
(Not to Scale)

FROM STA. 12+50 TO 33+48 -RP1CD- (RT)
FROM STA. 0+00 TO 0+55 -RP1A- (RT)
FROM STA. 22+04.84 TO 28+50 -RP1AB- (LT)

DETAIL PPP
SPECIAL CUT BASE DITCH
(Not to Scale)

FROM STA. 7+50 TO 12+50 -RP1CD- (RT)

DETAIL QQQ
MEDIAN "V" DITCH
(Not to Scale)

-RP1AB- FROM STA. 20+50 TO STA. 22+70 -RP1AB- (MED)

DETAIL RRR
SPECIAL CUT BASE DITCH
(Not to Scale)

FROM STA. 32+60 TO STA. 74+26 -L- (RT)

DETAIL SSS
SPECIAL LATERAL BASE DITCH
(Not to Scale)

FROM STA. 62+00 TO STA. 65+00 -Y3- (LT)

DETAIL T1
TEMP. SPECIAL LATERAL "V" DITCH
(Not to Scale)

FROM STA. 42+50 TO STA. 51+13 -Y3DET- (RT)
FROM STA. 55+00 TO STA. 59+50 -Y3DET- (RT)
FROM STA. 38+25 TO STA. 40+25 -Y4DET- (LT)
FROM STA. 54+00 TO STA. 55+00 -Y4DET- (LT)

DETAIL T2
TEMP. SPECIAL LATERAL "V" DITCH
(Not to Scale)

FROM STA. 50+50 TO STA. 52+99 -Y3DET- (LT)
FROM STA. 54+50 TO STA. 61+00 -Y3DET- (LT)
FROM STA. 34+52 TO STA. 38+78 -Y4DET- (RT)

DETAIL T3
TEMP. SPECIAL LATERAL "V" DITCH
(Not to Scale)

FROM STA. 68+42 TO STA. 69+16 -Y3DET- (LT)
FROM STA. 66+50 TO STA. 69+16 -Y3DET- (RT)

DETAIL T4
TEMP. SPECIAL LATERAL "V" DITCH
(Not to Scale)

FROM STA. 53+10 TO STA. 54+50 -Y3DET- (LT)
FROM -Y3DET- STA. 61+00 TO STA. 67+93 (LT)

DETAIL T7
SPECIAL LATERAL BASE DITCH
(Not to Scale)

FROM STA. 36+29 TO STA. 40+50 -Y3DET- (LT)

DETAIL T8
TEMP. SPECIAL LATERAL "V" DITCH
(Not to Scale)

FROM STA. 55+00 TO STA. 55+75 -Y4DET- (LT)

DETAIL T10
TEMP. SPECIAL LATERAL "V" DITCH
(Not to Scale)

FROM STA. 61+21 TO STA. 64+50 -Y3DET- (RT)

WETLAND AND SURFACE WATER IMPACTS PERMIT

REVISIONS

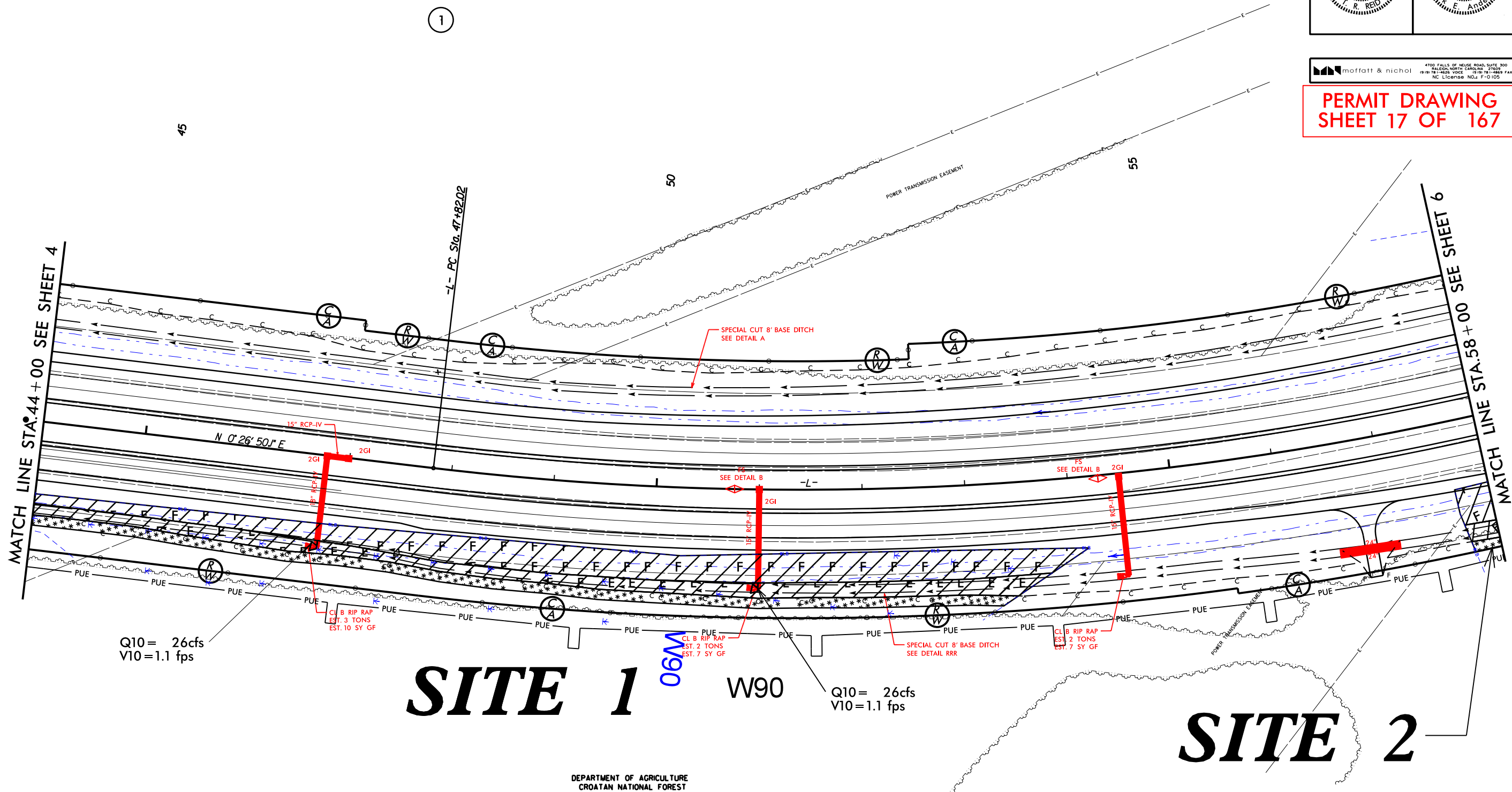
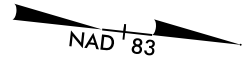
2/25/2020
mgberry
R:\Hydraulics\PERMITS_Environmental Drawings\Welland & Stream\1-015_141_gm_wet_details.dgn

PROJECT REFERENCE NO. R-1015	SHEET NO. 5
RW SHEET NO.	
ROADWAY DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 015869 T. A. REID	HYDRAULICS ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 032581 BOOK E. A. REID

4700 FALLS OF NEUSE ROAD, SUITE 300
RALEIGH, NORTH CAROLINA 27609
919/781-4625 VOICE 919/781-4625 FAX
NC LICENSE NO. F-0105

**PERMIT DRAWING
SHEET 17 OF 167**

DEPARTMENT OF AGRICULTURE
CROATAN NATIONAL FOREST



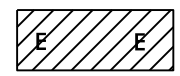
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V10 = 1.1 fps

Q10 = 26cfs
V10 = 1.1 fps

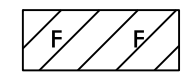
SITE 1

SITE 2

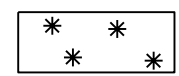
DEPARTMENT OF AGRICULTURE
CROATAN NATIONAL FOREST



DENOTES EXCAVATION
IN WETLAND



DENOTES FILL IN
WETLAND



DENOTES MECHANIZED
CLEARING

REVISIONS
11/13/2018 - PARCEL 1 - ADDITIONAL PUE ON PARCEL 1 FROM -L- STA. 44+00 RT TO STA. 58+00 RT
- REVISED EXISTING R/W LINE

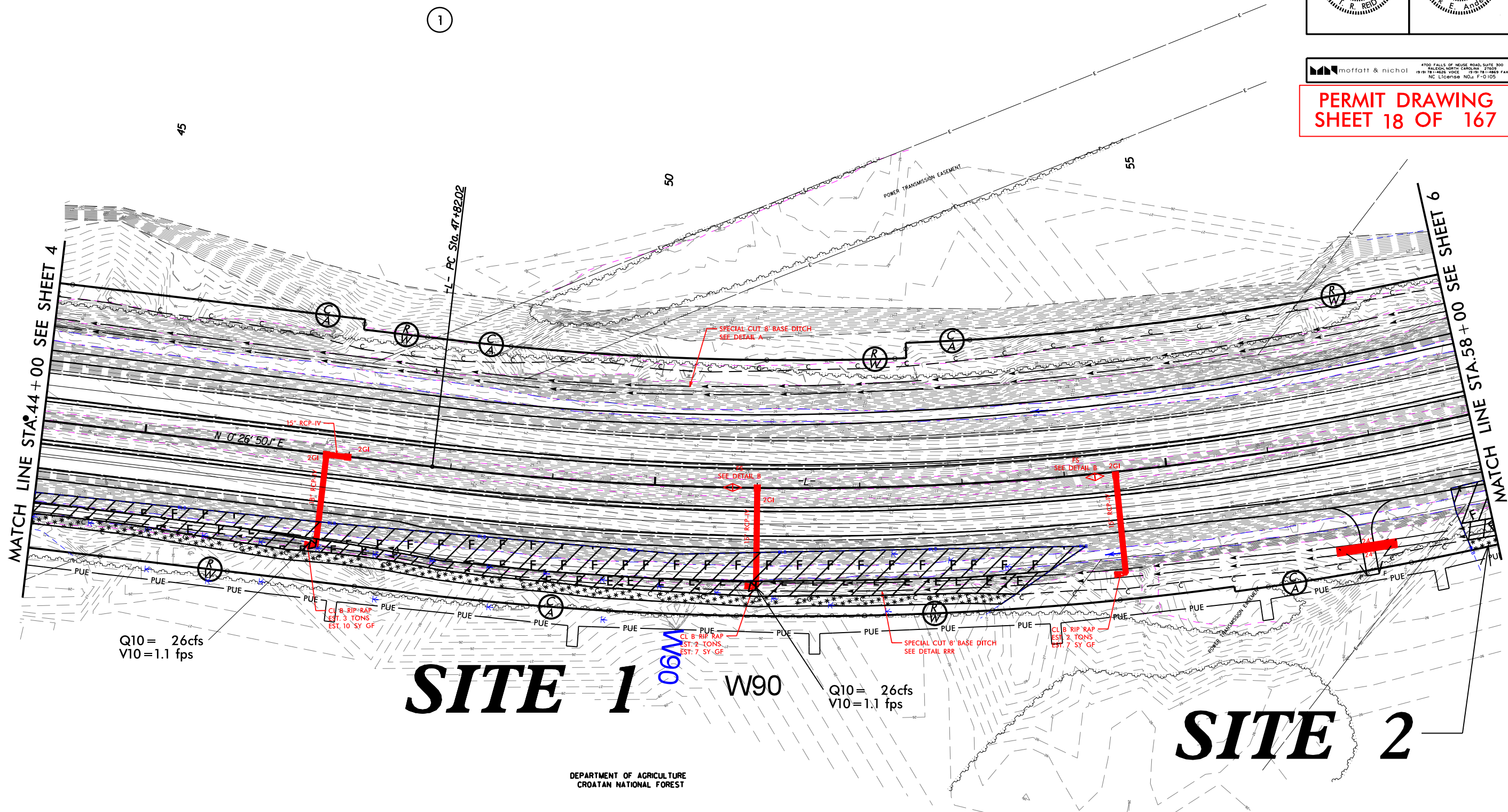
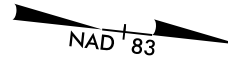
8/17/99

DEPARTMENT OF AGRICULTURE
CROATAN NATIONAL FOREST

PROJECT REFERENCE NO. R-1015	SHEET NO. 5
RW SHEET NO.	
ROADWAY DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 015869 T. R. REID	HYDRAULICS ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 032581 BOOK E. A. ANDERSON

moffatt & nichol
4700 FALLS OF NEUSE ROAD, SUITE 300
RALEIGH, NORTH CAROLINA 27609
919.781.4625 VOICE 919.781.4625 FAX
NC LICENSE NO. F-0105

**PERMIT DRAWING
SHEET 18 OF 167**



MATCH LINE STA. 44+00 SEE SHEET 4

MATCH LINE STA. 58+00 SEE SHEET 6

Q10 = 26cfs
V10 = 1.1 fps

Q10 = 26cfs
V10 = 1.1 fps

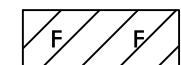
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SITE 2

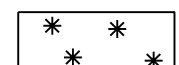
DEPARTMENT OF AGRICULTURE
CROATAN NATIONAL FOREST



DENOTES EXCAVATION
IN WETLAND



DENOTES FILL IN
WETLAND



DENOTES MECHANIZED
CLEARING

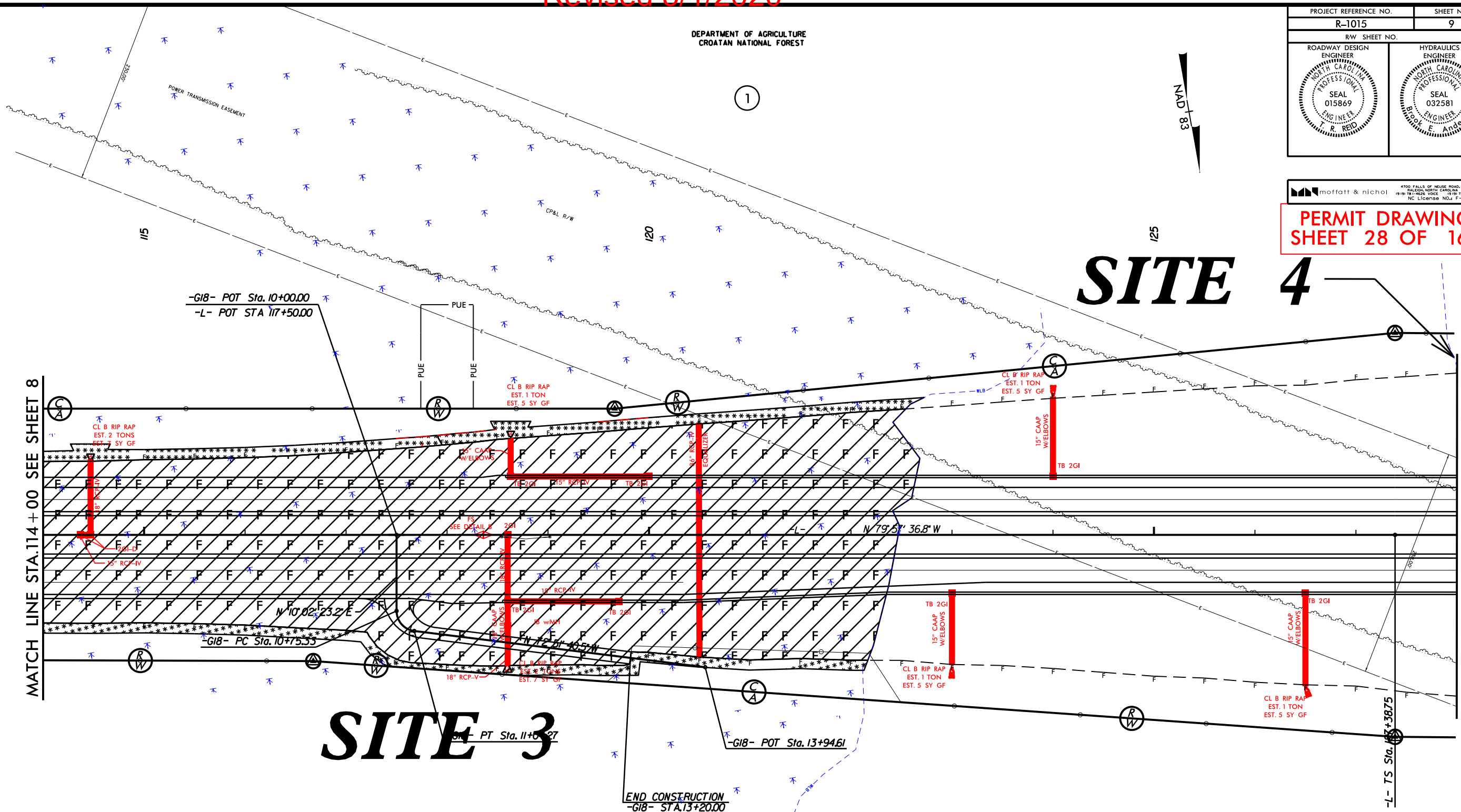
REVISIONS
11/13/2018 - PARCEL 1 - ADDITIONAL PUE ON PARCEL 1 FROM -L- STA. 44+00 RT TO STA. 58+00 RT
- REVISED EXISTING R/W LINE

8/17/99

PROJECT REFERENCE NO. R-1015	SHEET NO. 9
RW SHEET NO.	
ROADWAY DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 015869 T. R. REID	HYDRAULICS ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 032581 BOOK E ADDRESS

moffatt & nichol
4700 FALLS OF NEUSE ROAD, SUITE 300
RALEIGH, NORTH CAROLINA 27607
(919) 781-4625 VOICE (919) 781-1889 FAX
NC LICENSE NO. F-0105

**PERMIT DRAWING
SHEET 28 OF 167**



MATCH LINE STA. 114 + 00 SEE SHEET 8

MATCH LINE STA. 128 + 00 SEE SHEET 10

REVISIONS

SITE 3

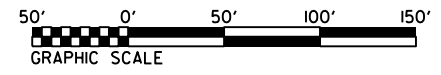
SITE 4

END CONSTRUCTION
-GIB- STA. 13+20.00

DEPARTMENT OF AGRICULTURE
CROATAN NATIONAL FOREST

* * * * * DENOTES MECHANIZED CLEARING

F F DENOTES FILL IN WETLAND



4/30/2020
mgberry
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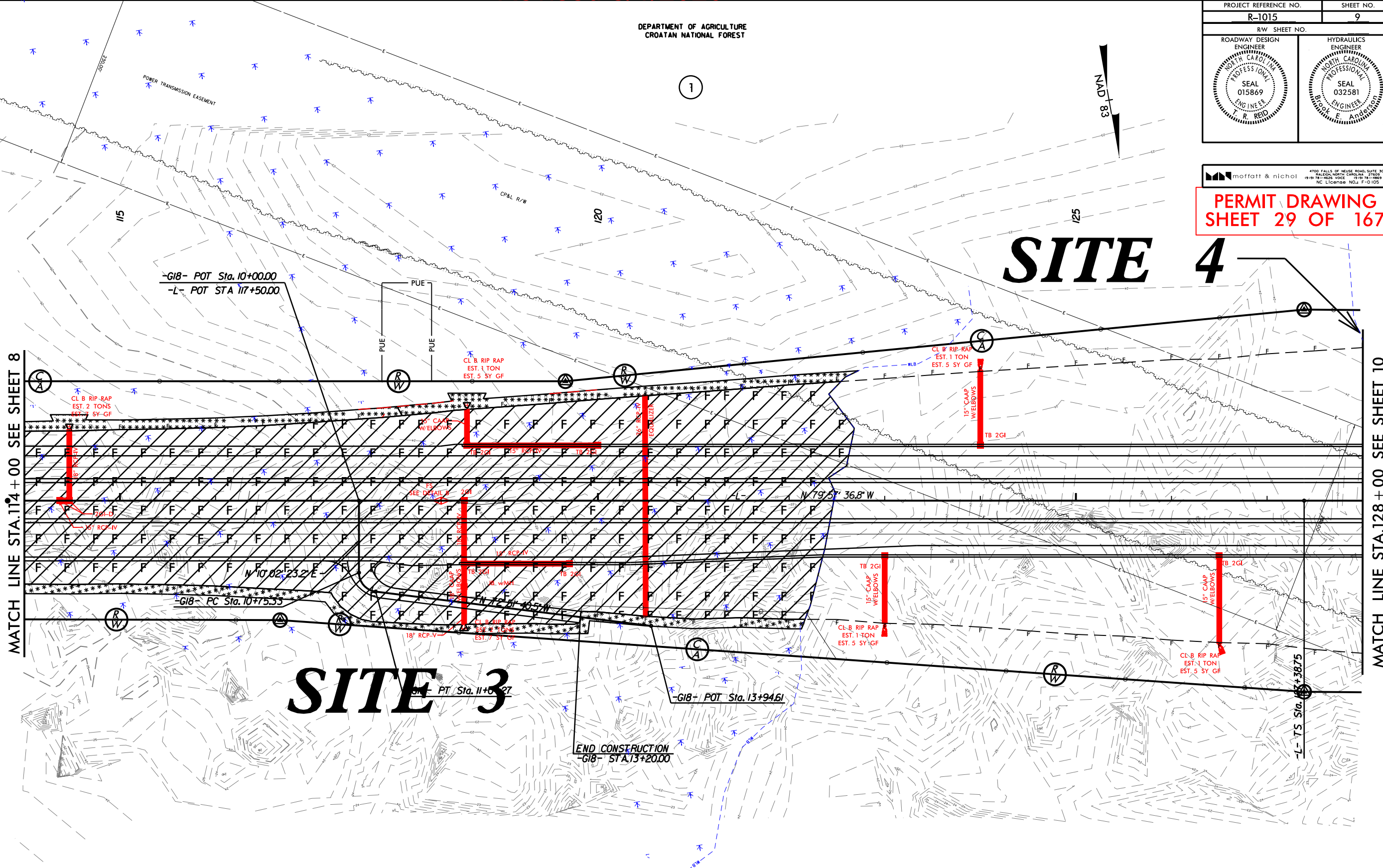
PROJECT REFERENCE NO. R-1015	SHEET NO. 9
RW SHEET NO.	
ROADWAY DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 015869 T. R. REID	HYDRAULICS ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 032581 BOOK E ADDRESS

moffatt & nichol
4700 FALLS OF NEUSE ROAD, SUITE 300
RALEIGH, NORTH CAROLINA 27607
919-781-4825 VOICE 919-781-1885 FAX
NC LICENSE NO. F-0105

**PERMIT DRAWING
SHEET 29 OF 167**

SITE 4

SITE 3



MATCH LINE STA. 114 + 00 SEE SHEET 8

MATCH LINE STA. 128 + 00 SEE SHEET 10

REVISIONS

* * * DENOTES MECHANIZED CLEARING

F F DENOTES FILL IN WETLAND



4/30/2020
mgberry
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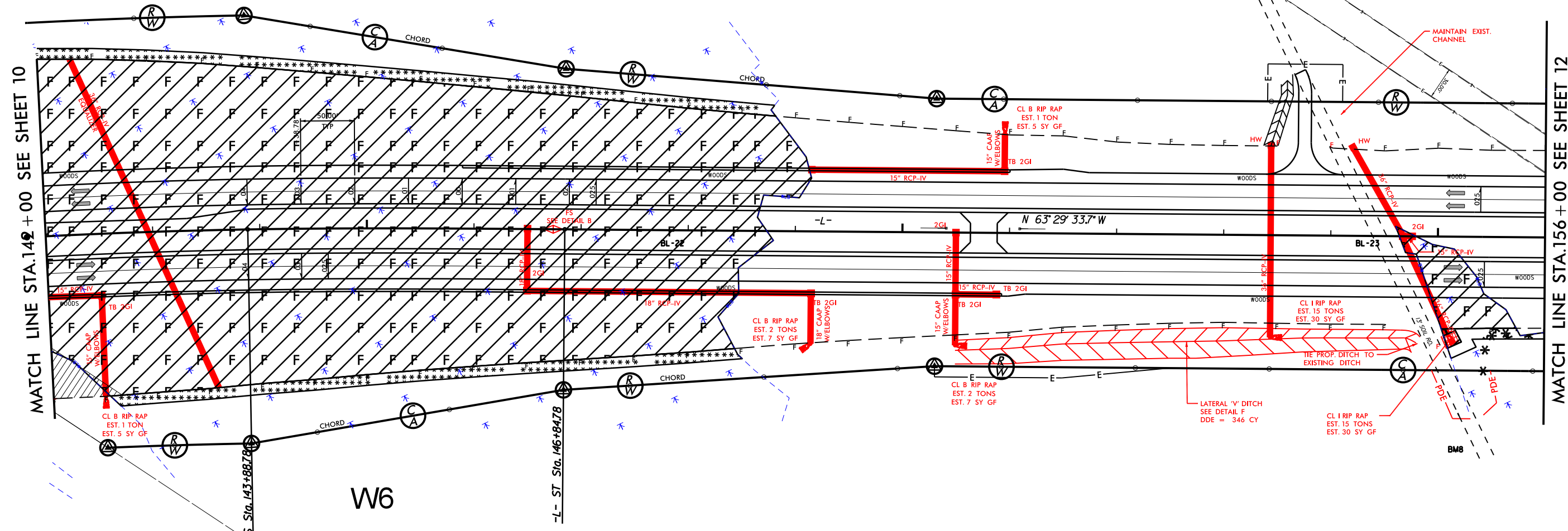
PROJECT REFERENCE NO. R-1015	SHEET NO. 11
RW SHEET NO.	
ROADWAY DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 015869 T. R. REID	HYDRAULICS ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 032581 BOOK E ADDRESS

4700 FALLS OF NEUSE ROAD, SUITE 300
RALEIGH, NORTH CAROLINA 27609
919.781.4625 VOICE 919.781.4625 FAX
NC LICENSE NO. F-0105

PERMIT DRAWING SHEET 35 OF 167

SITE 6

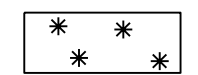
SITE 7



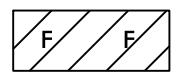
7/13/2018 - PARCEL 2 - REVISED PDE AT 638'-L- 155+00 RT
 11/13/2018 - PARCEL 2 - CHANGED PDE TO 5% AND REVISED AREA AT 63A-L- STATION 154+00 LT
 11/13/2018 - PARCEL 2 - ADDED ICE STATION - 150+31 TO 152+50 RT
 11/13/2018 - REVISED R/W MONUMENT CALLOUT AT +8878'-L- L'

REVISIONS

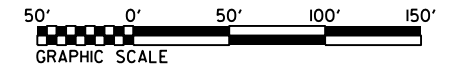
4/30/2020
 mgberry
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DENOTES MECHANIZED CLEARING



DENOTES FILL IN WETLAND



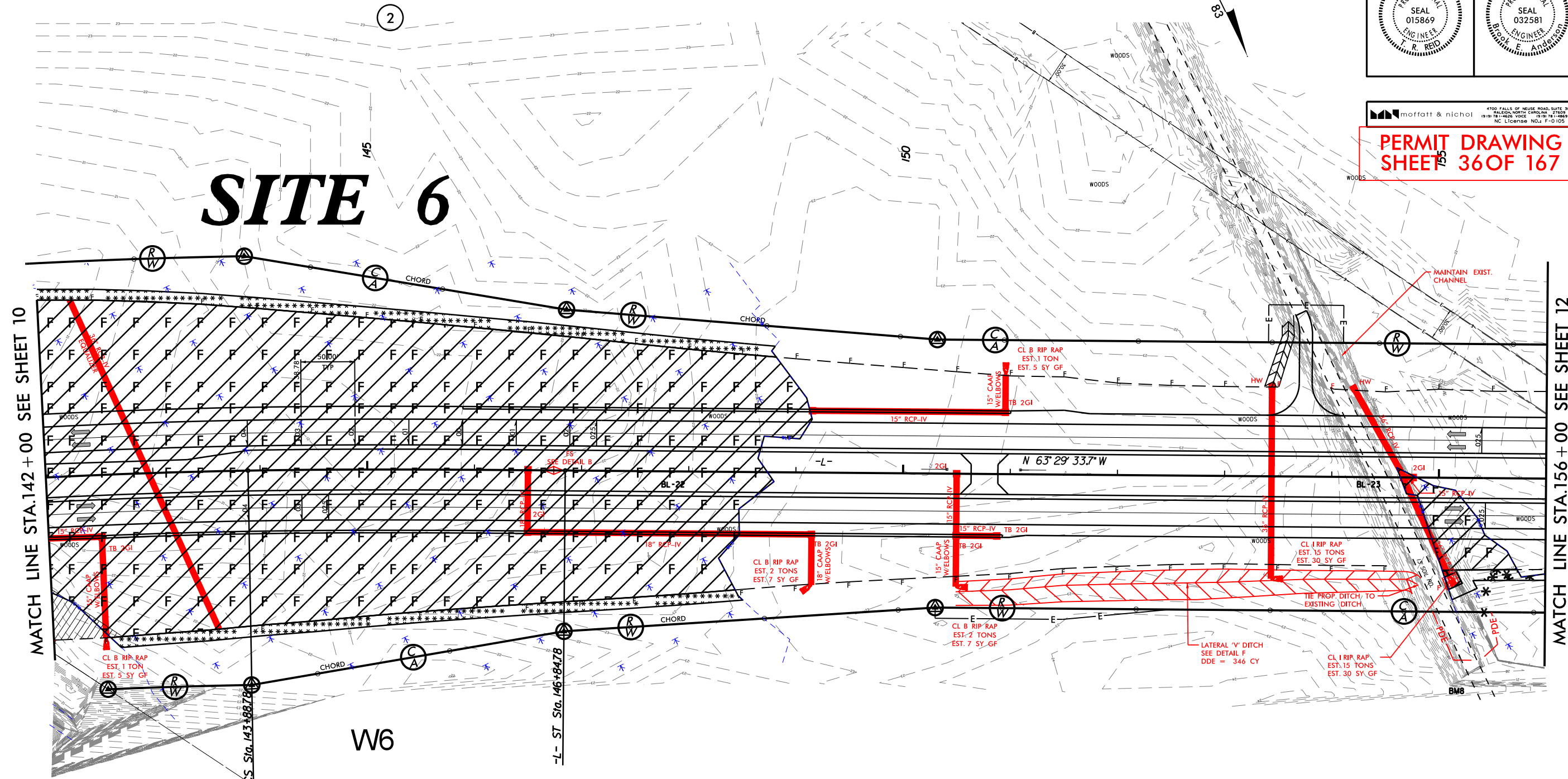
DEPARTMENT OF AGRICULTURE
 CROATAN NATIONAL FOREST

2

PROJECT REFERENCE NO. R-1015	SHEET NO. 11
ROADWAY DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 015869 T. R. REID	HYDRAULICS ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 032581 B. C. BROWN

moffatt & nichol
4700 FALLS OF NEUSE ROAD, SUITE 300
RALEIGH, NORTH CAROLINA 27609
919.781.4626 VOICE 919.781.4669 FAX
NC LIC#08188 NCDOT F-D 105

PERMIT DRAWING SHEET 36 OF 167



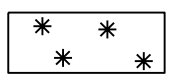
MATCH LINE STA. 142 + 00 SEE SHEET 10

MATCH LINE STA. 156 + 00 SEE SHEET 12

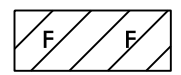
REVISIONS
7/13/2018 - PARCEL 2 - REVISED PDE AT 638'-L- 155+00 FT AND REVISED AREA AT 63A'-L- STATION 154+00 LT
11/13/2018 - PARCEL 2 - CHANGED PDE TO 500' TYP AND REVISED AREA AT 63A'-L- STATION 152+50 FT
11/13/2018 - PARCEL 2 - ADDED TCE STATION -L- 150+31 TO 152+50 FT
11/13/2018 - PARCEL 2 - REVISED R/W MONUMENT CALLOUT AT +887.8'-L- LT

SITE 7

F
DEPARTMENT OF AGRICULTURE
CROATAN NATIONAL FOREST
②



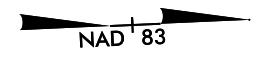
DENOTES MECHANIZED CLEARING



DENOTES FILL IN WETLAND

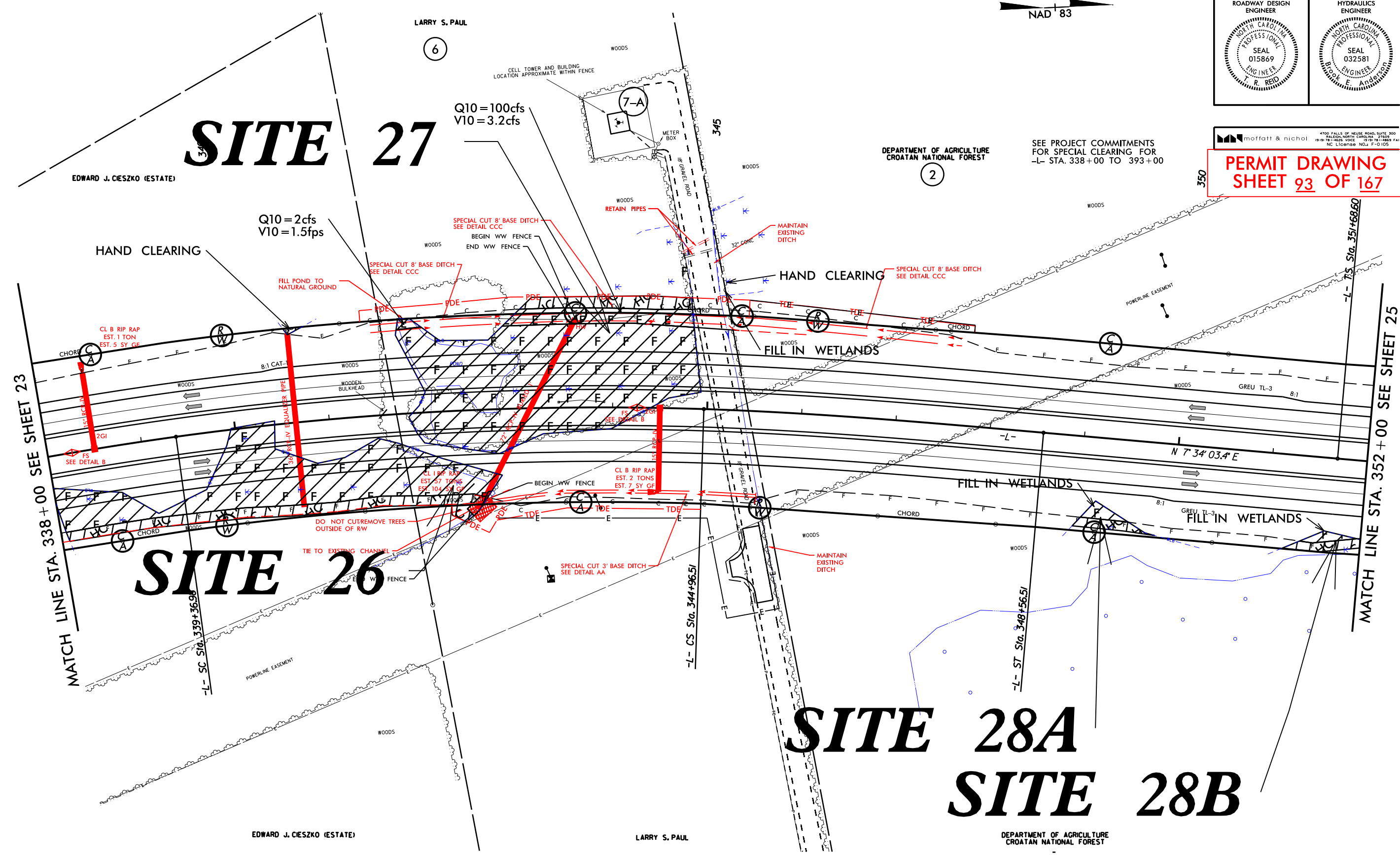


PROJECT REFERENCE NO. R-1015	SHEET NO. 24
ROADWAY DESIGN ENGINEER SEAL 015869 F. R. REID	HYDRAULICS ENGINEER SEAL 032581 BROOK E. ANDERSON



SEE PROJECT COMMITMENTS FOR SPECIAL CLEARING FOR -L- STA. 338+00 TO 393+00

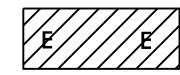
PERMIT DRAWING SHEET 93 OF 167



REVISIONS

MATCH LINE STA. 338 + 00 SEE SHEET 23

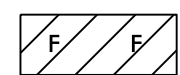
MATCH LINE STA. 352 + 00 SEE SHEET 25



DENOTES EXCAVATION IN WETLAND



DENOTES HAND CLEARING



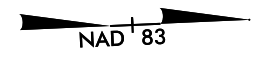
DENOTES FILL IN WETLAND



SEE SHEETS 61 FOR PROFILE -L-
SEE SHEETS 2D-1 THRU 2D-2 FOR DRAINAGE DITCH DETAILS

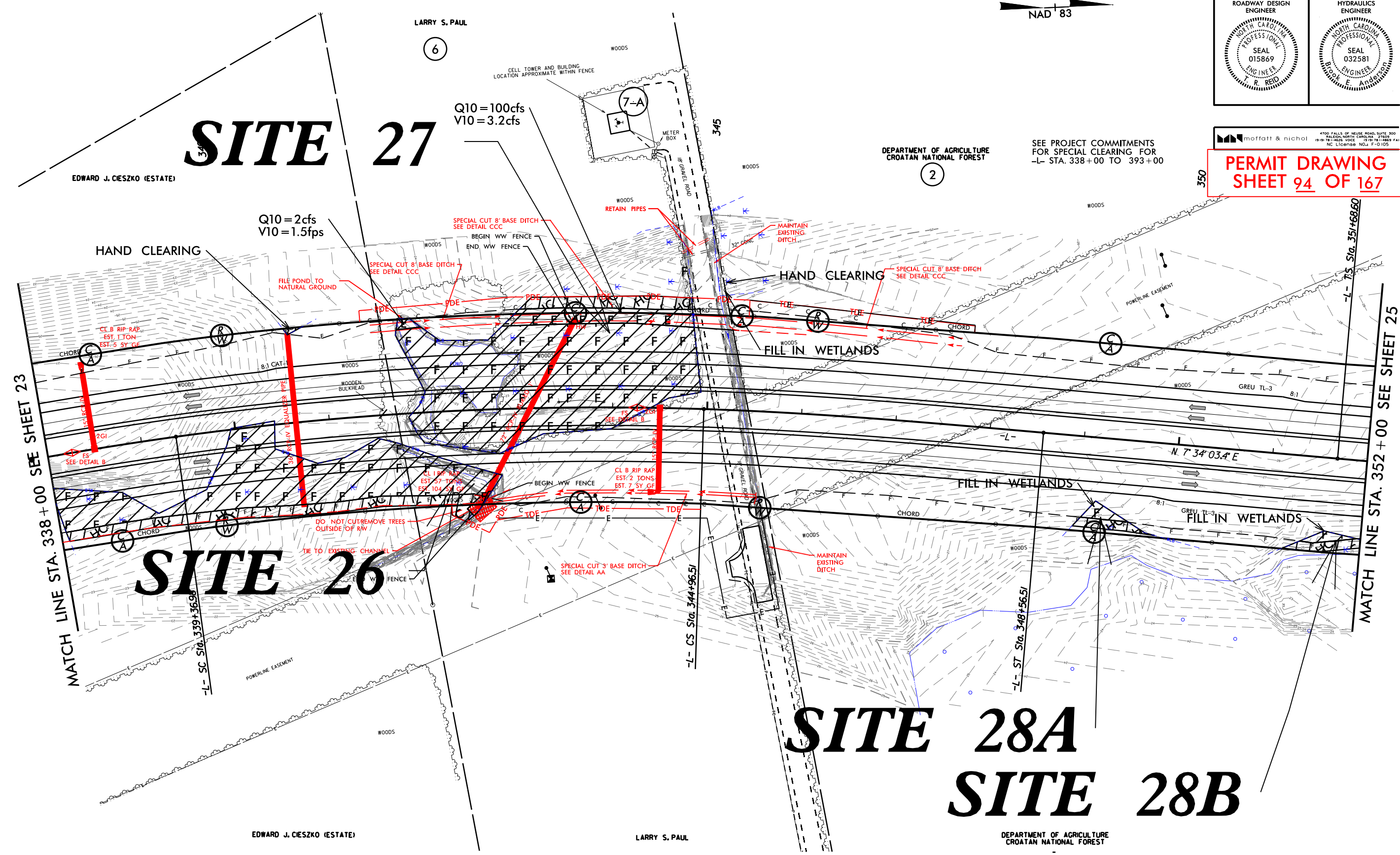
8/17/99
 4/9/2020
 mgberry
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PROJECT REFERENCE NO. R-1015	SHEET NO. 24
ROADWAY DESIGN ENGINEER SEAL 015869 R. REID	HYDRAULICS ENGINEER SEAL 032581 BUCK E. ANDERSON



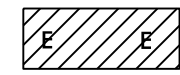
SEE PROJECT COMMITMENTS FOR SPECIAL CLEARING FOR -L- STA. 338+00 TO 393+00

PERMIT DRAWING SHEET 94 OF 167



REVISIONS

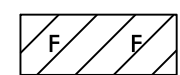
4/9/2020
mgberry
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DENOTES EXCAVATION IN WETLAND



DENOTES HAND CLEARING



DENOTES FILL IN WETLAND



SEE SHEETS 6I FOR PROFILE -L-
SEE SHEETS 2D-1 THRU 2D-2 FOR DRAINAGE DITCH DETAILS

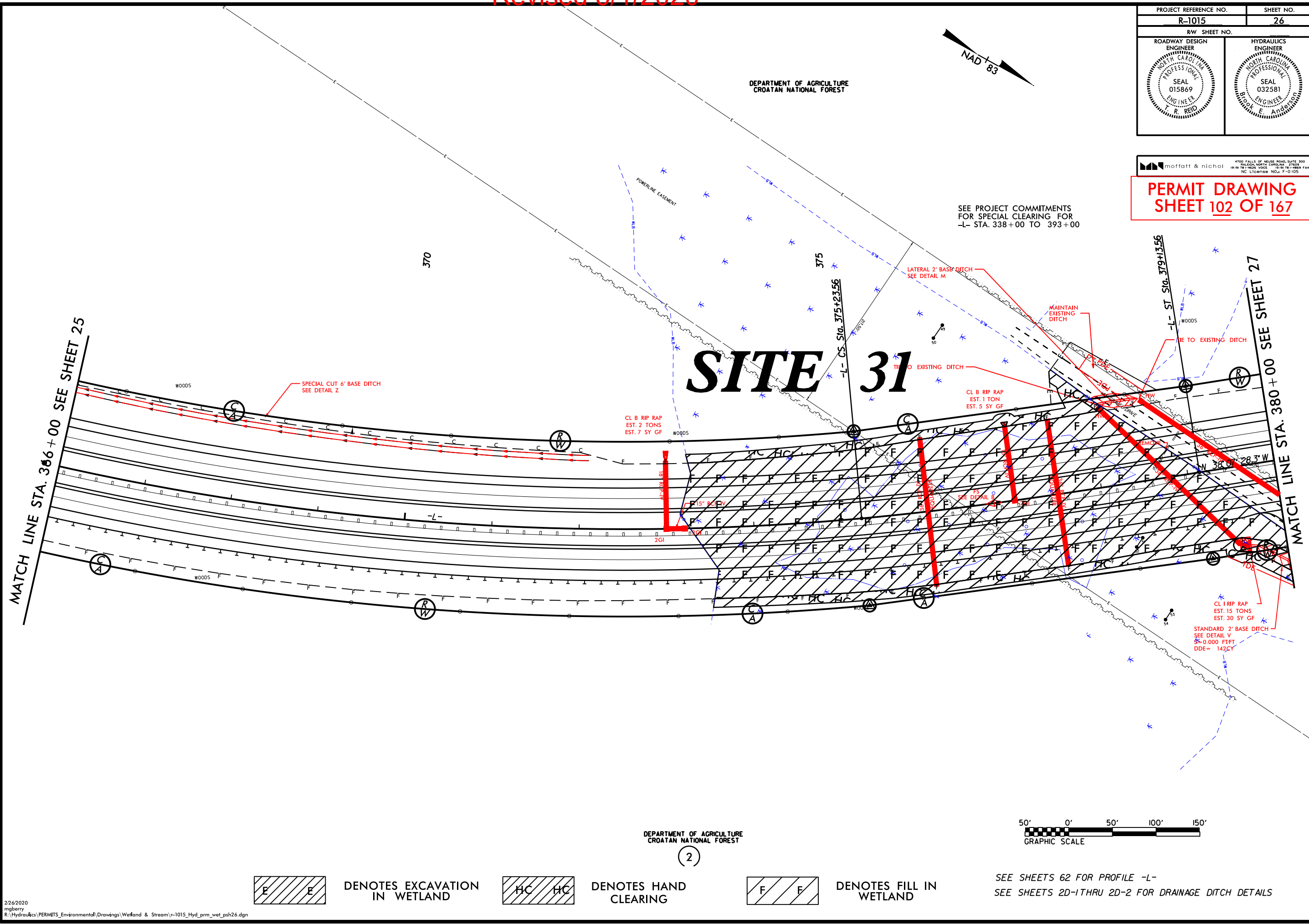
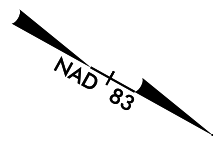
PROJECT REFERENCE NO. R-1015	SHEET NO. 26
RW SHEET NO.	
ROADWAY DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 015869 T. R. REID	HYDRAULICS ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 032581 E. ANDERSON

moffatt & nichol
4700 FALLS OF NEUSE ROAD, SUITE 300
RALEIGH, NORTH CAROLINA 27609
919.781.4625 VOICE 919.781.4625 FAX
NC LICENSE NO. F-0105

PERMIT DRAWING
SHEET 102 OF 167

SEE PROJECT COMMITMENTS FOR SPECIAL CLEARING FOR -L- STA. 338+00 TO 393+00

DEPARTMENT OF AGRICULTURE
CROATAN NATIONAL FOREST



7/13/2018 - REVISIONS

PARCEL 2 - ELIMINATED POE STATION -L- 369+50 TO 369+50 RT
PARCEL 2 - ELIMINATED POE STATION -L- 370+05 TO 377+70 RT
PARCEL 2 - ADDED POE STATION -L- 379+30 TO 380+00 RT
PARCEL 2 - CHANGED IDE TO POE AND REVISED AREA STATION -L- 378+35 TO 378+66 LT
PARCEL 2 - REVISED ICE AREA STATION -L- 377+58 TO 378+80 LT



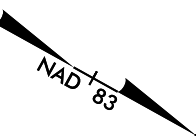
- DENOTES EXCAVATION
IN WETLAND
- DENOTES HAND
CLEARING
- DENOTES FILL IN
WETLAND

SEE SHEETS 62 FOR PROFILE -L-
SEE SHEETS 2D-1 THRU 2D-2 FOR DRAINAGE DITCH DETAILS

PROJECT REFERENCE NO. R-1015	SHEET NO. 26
RW SHEET NO.	
ROADWAY DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 015869 T. R. REID	HYDRAULICS ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 032581 E. ANDERSON

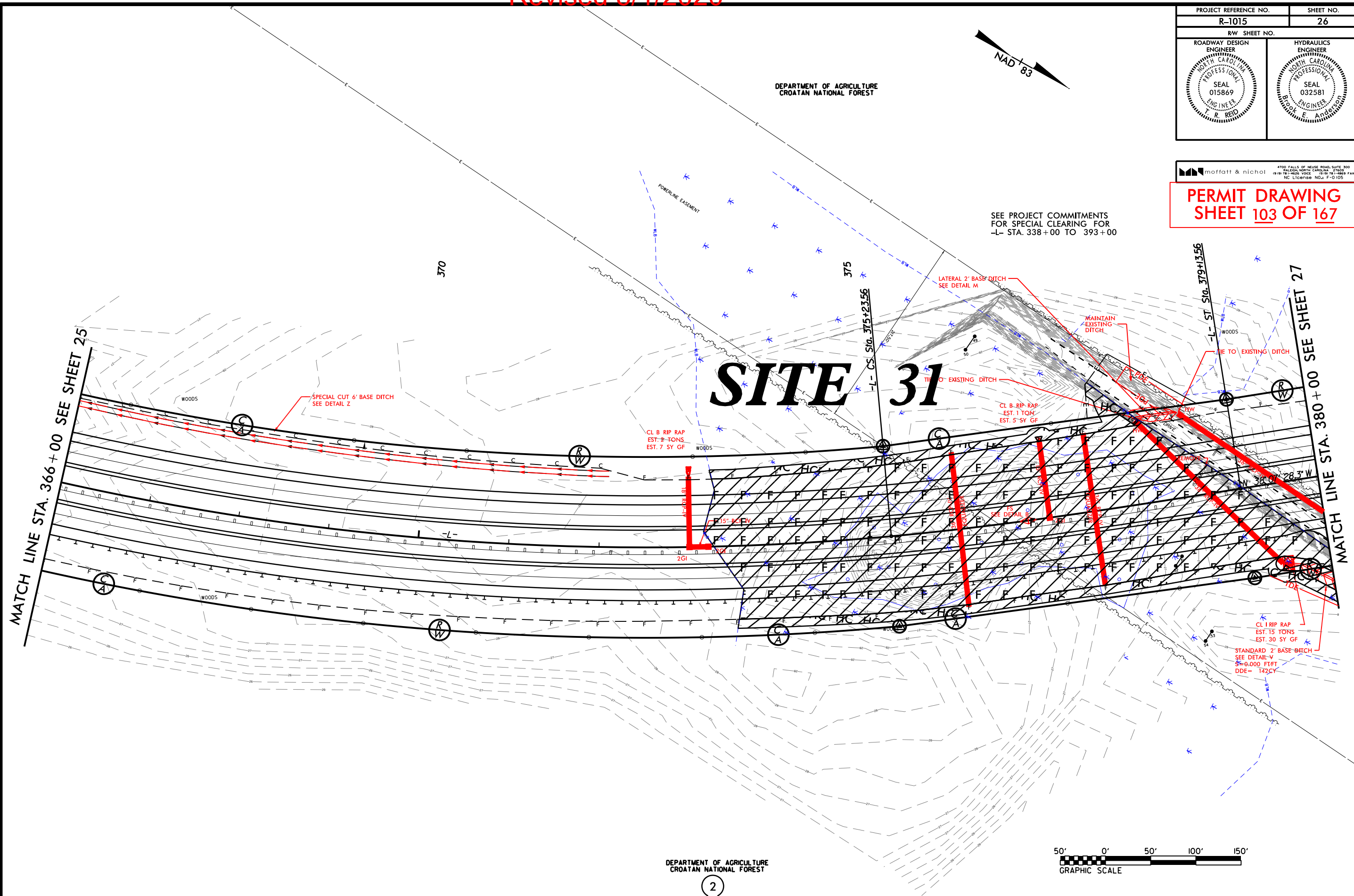
4700 FALLS OF NEUSE ROAD, SUITE 300
RALEIGH, NORTH CAROLINA 27609
TEL: 919/781-4626 VOICE TEL: 919/781-1868 FAX
NC LICENSE NO. F-0105

PERMIT DRAWING
SHEET 103 OF 167



DEPARTMENT OF AGRICULTURE
CROATAN NATIONAL FOREST

SEE PROJECT COMMITMENTS
FOR SPECIAL CLEARING FOR
-L- STA. 338+00 TO 393+00



7/13/2018 --
 REVISIONS
 PARCEL 2 - ELIMINATED POE STATION -L- 369+50 TO 369+50 RT
 PARCEL 2 - ELIMINATED TCE STATION -L- 370+05 TO 371+70 RT
 PARCEL 2 - ADDED TCE STATION -L- 379+30 TO 380+00 RT
 PARCEL 2 - CHANGED TCE TO POE AND REVISED AREA STATION -L- 378+35 TO 378+66 LT
 PARCEL 2 - REVISED TCE AREA STATION -L- 377+58 TO 378+80 LT

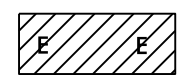
MATCH LINE STA. 366+00 SEE SHEET 25

MATCH LINE STA. 380+00 SEE SHEET 27

SITE 31

DEPARTMENT OF AGRICULTURE
CROATAN NATIONAL FOREST

(2)



DENOTES EXCAVATION
IN WETLAND



DENOTES HAND
CLEARING



DENOTES FILL IN
WETLAND

SEE SHEETS 62 FOR PROFILE -L-
SEE SHEETS 2D-1 THRU 2D-2 FOR DRAINAGE DITCH DETAILS

PROJECT REFERENCE NO. R-1015	SHEET NO. 33
RW SHEET NO.	
ROADWAY DESIGN ENGINEER T. R. REID SEAL 015869 NORTH CAROLINA PROFESSIONAL ENGINEER	HYDRAULICS ENGINEER T. R. REID SEAL 032581 NORTH CAROLINA PROFESSIONAL ENGINEER

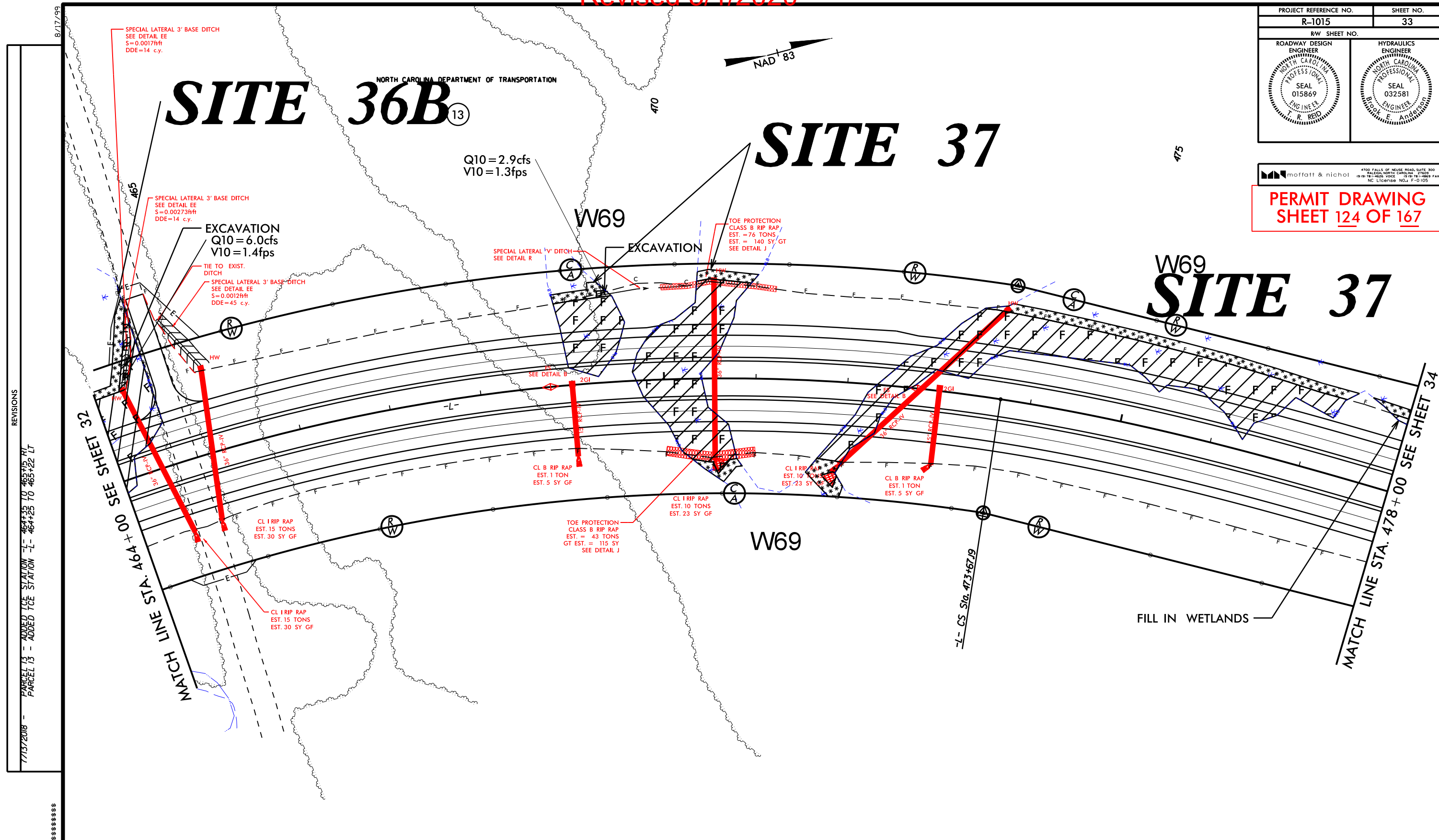
4700 FALLS OF NEUSE ROAD, SUITE 300
RALEIGH, NORTH CAROLINA 27609
919-781-4626 VOICE 919-781-4625 FAX
NC LICENSE NO. F-0105

PERMIT DRAWING
SHEET 124 OF 167

SITE 36B¹³

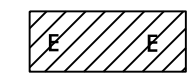
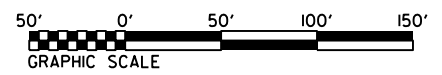
SITE 37

SITE 37

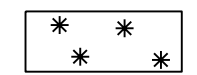


REVISIONS
7/13/2018 - PARCEL 13 - ADDED TCE STATION -L- 464+35 TO 465+15 RI
PARCEL 13 - ADDED TCE STATION -L- 464+25 TO 465+22 LT

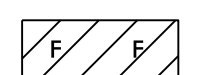
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION



DENOTES EXCAVATION IN WETLAND



DENOTES MECHANIZED CLEARING



SEE SHEET 65 FOR PROFILE -L-
DENOTES EXCAVATION IN WETLAND
SEE SHEET 120-1 THRU 20-2 FOR DRAINAGE DITCH DETAILS

2/25/2020
mgberry
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Revised 5/1/2020

PROJECT REFERENCE NO.	SHEET NO.
R-1015	33
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

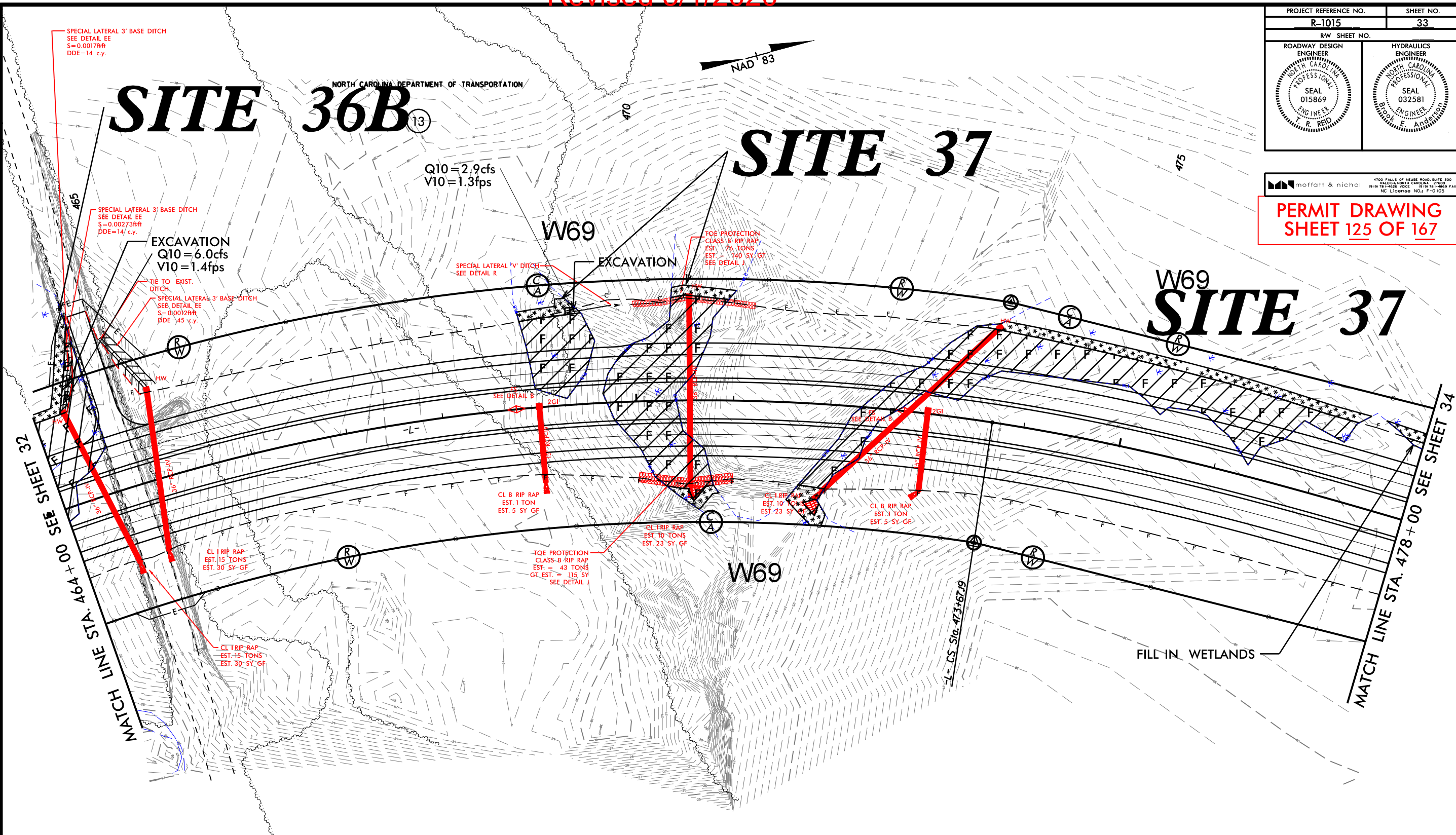
4700 FALLS OF NEUSE ROAD, SUITE 300
 RALEIGH, NORTH CAROLINA 27609
 (919) 781-4825 VOICE (919) 781-1889 FAX
 NC LICENSE NO. F-0105

PERMIT DRAWING
SHEET 125 OF 167

SITE 36B

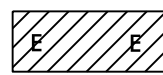
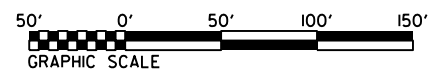
SITE 37

SITE 37

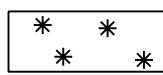


REVISIONS
 7/13/2018 - PARCEL 13 - ADDED TCE STATION -L- 464+35 TO 465+15 RI
 PARCEL 13 - ADDED TCE STATION -L- 464+25 TO 465+22 LT

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION



DENOTES EXCAVATION
 IN WETLAND



DENOTES MECHANIZED
 CLEARING



SEE SHEET 65 FOR PROFILE -L-
 DENOTES SHEETS 2D-1 THRU 2D-2 FOR DRAINAGE DITCH DETAILS
 WETLAND

2/25/2020
 mgberry
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PROJECT REFERENCE NO. R-1015	SHEET NO. 39
RW SHEET NO.	
ROADWAY DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 015869 T. REID	HYDRAULICS ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 032581 R. HARDISON

4700 FALLS OF NEUSE ROAD, SUITE 300
RALEIGH, NORTH CAROLINA 27607
(919) 781-4625 VOICE (919) 781-7888 FAX
NC LICENSE NO. F-0105

PERMIT DRAWING
SHEET 142 OF 165

-L-
 PI Sta 555+33.32 Δ = 10° 16' 02.6" (LT)
 D = 0° 52' 23.3" Ls = 148.00'
 L = 1,175.9' LT = 98.67'
 T = 589.53' ST = 49.33'
 R = 6,562.00'
 SE = 0.025
 RO = 148.00'
 DS = 60 mph

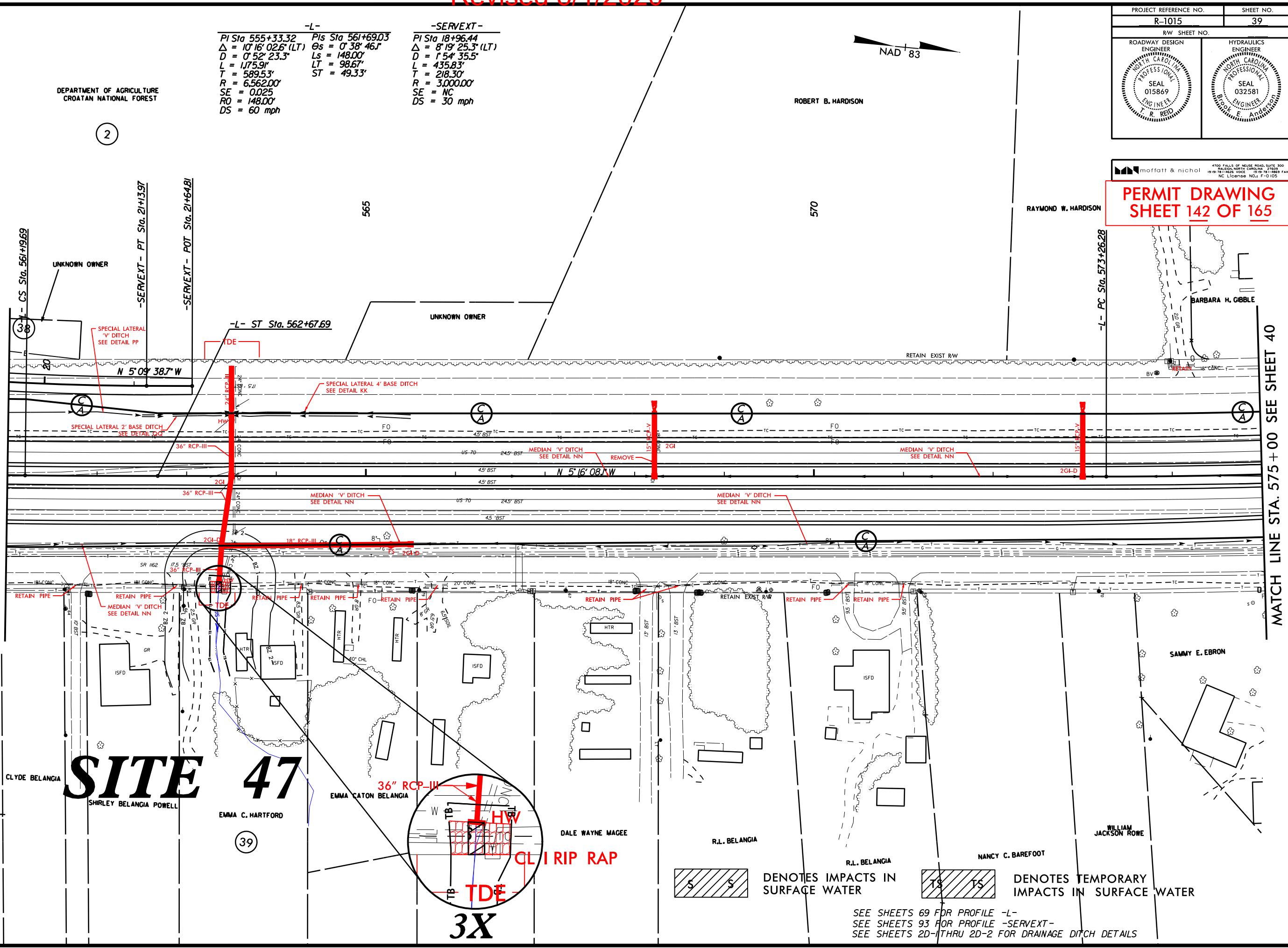
-SERVEXT-
 PI Sta 18+96.44 Δ = 8° 19' 25.3" (LT)
 D = 1° 54' 35.5" Ls = 435.83'
 L = 2,183.0' LT = 3,000.00'
 T = 218.30' ST = NC
 R = 3,000.00'
 SE = NC
 DS = 30 mph



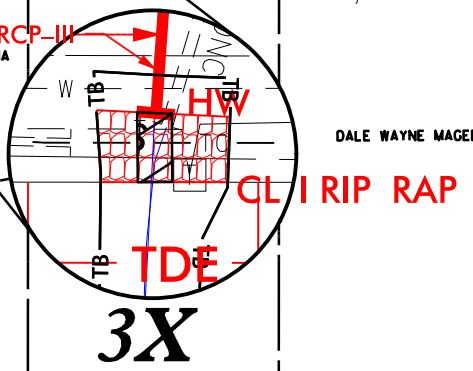
DEPARTMENT OF AGRICULTURE
CROATAN NATIONAL FOREST

MATCH LINE STA. 561 + 00 SEE SHEET 38

MATCH LINE STA. 575 + 00 SEE SHEET 40



SITE 47
 SHIRLEY BELANGIA POWELL
 EMMA C. HARTFORD



DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

SEE SHEETS 69 FOR PROFILE -L-
 SEE SHEETS 93 FOR PROFILE -SERVEXT-
 SEE SHEETS 2D-1 THRU 2D-2 FOR DRAINAGE DITCH DETAILS

REVISIONS
 7/13/2018 - PARCEL 38 - REVISED TDE STATION -L- 563+14 TO 563+64 RT
 PARCEL 38 - ADDED TCE STATION -L- 561+00 TO 561+78 LT

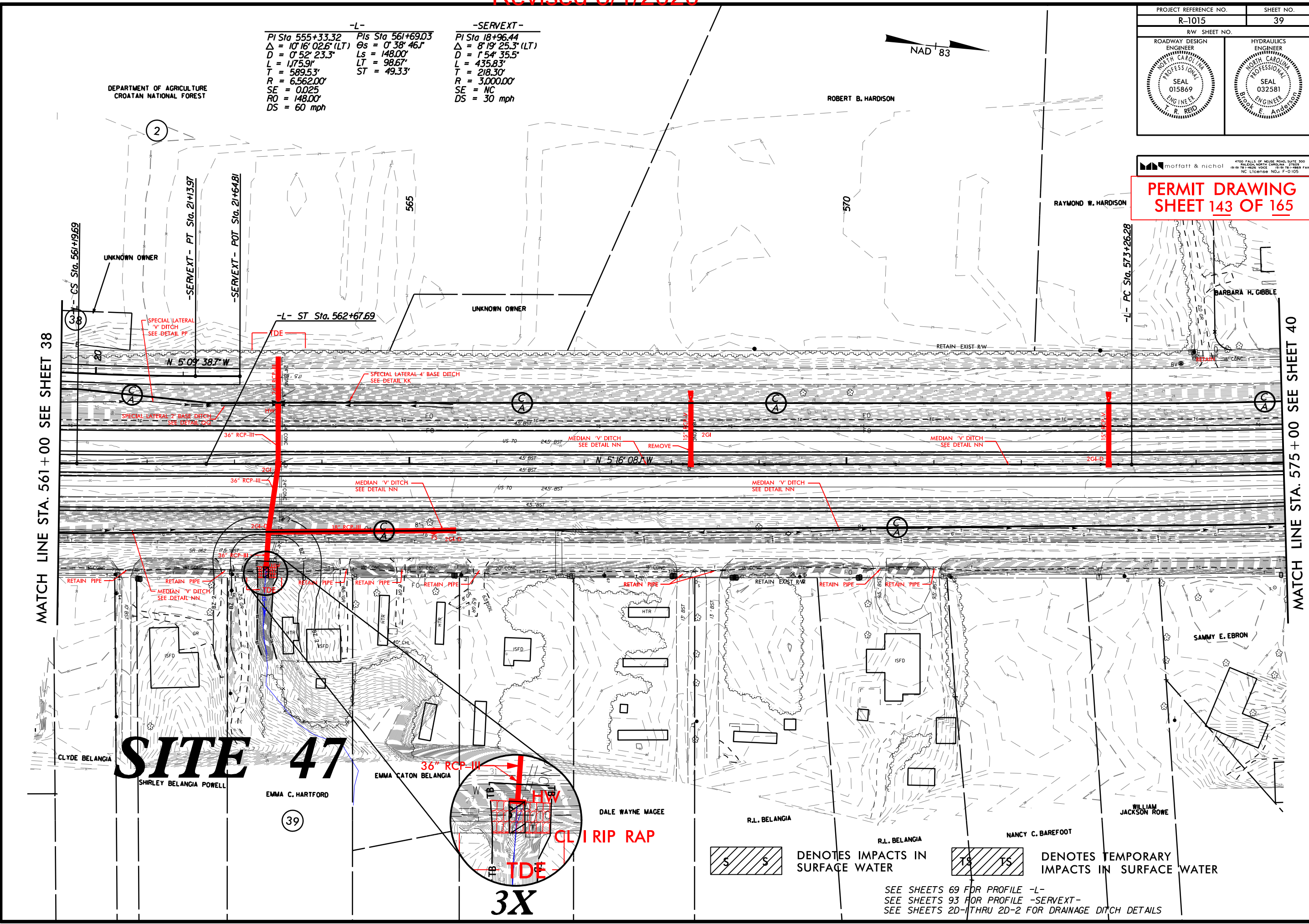
PROJECT REFERENCE NO. R-1015	SHEET NO. 39
ROADWAY DESIGN ENGINEER T. REID	HYDRAULICS ENGINEER R. HARDISON

PERMIT DRAWING
SHEET 143 OF 165

7/13/2018 - PARCEL 38 - REVISED TDE STATION -L- 563+14 TO 563+64 RT
 PARCEL 38 - ADDED TCE STATION -L- 561+00 TO 561+78 LT

REVISIONS

2/25/2020
 mgberry
 R:\Hydraulics\PERMITS_Environmental\Drawings\Wetland & Stream\1-1015_Hyd_prm_wet_psh39.dgn

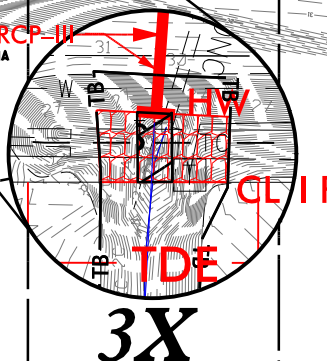


-L-	-SERVEXT-
PI Sta 555+33.32 Δ = 10° 16' 02.6" (LT) D = 0' 52' 23.3" L = 1,175.9' T = 589.53' R = 6,562.00' SE = 0.025 RO = 148.00' DS = 60 mph	PIs Sta 561+69.03 θs = 0° 38' 46.1" Ls = 148.00' LT = 98.67' ST = 49.33'
PI Sta 18+96.44 Δ = 8° 19' 25.3" (LT) D = 1° 54' 35.5" L = 435.83' T = 218.30' R = 3,000.00' SE = NC DS = 30 mph	

MATCH LINE STA. 561 + 00 SEE SHEET 38

MATCH LINE STA. 575 + 00 SEE SHEET 40

SITE 47



DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

SEE SHEETS 69 FOR PROFILE -L-
 SEE SHEETS 93 FOR PROFILE -SERVEXT-
 SEE SHEETS 2D-1 THRU 2D-2 FOR DRAINAGE DITCH DETAILS

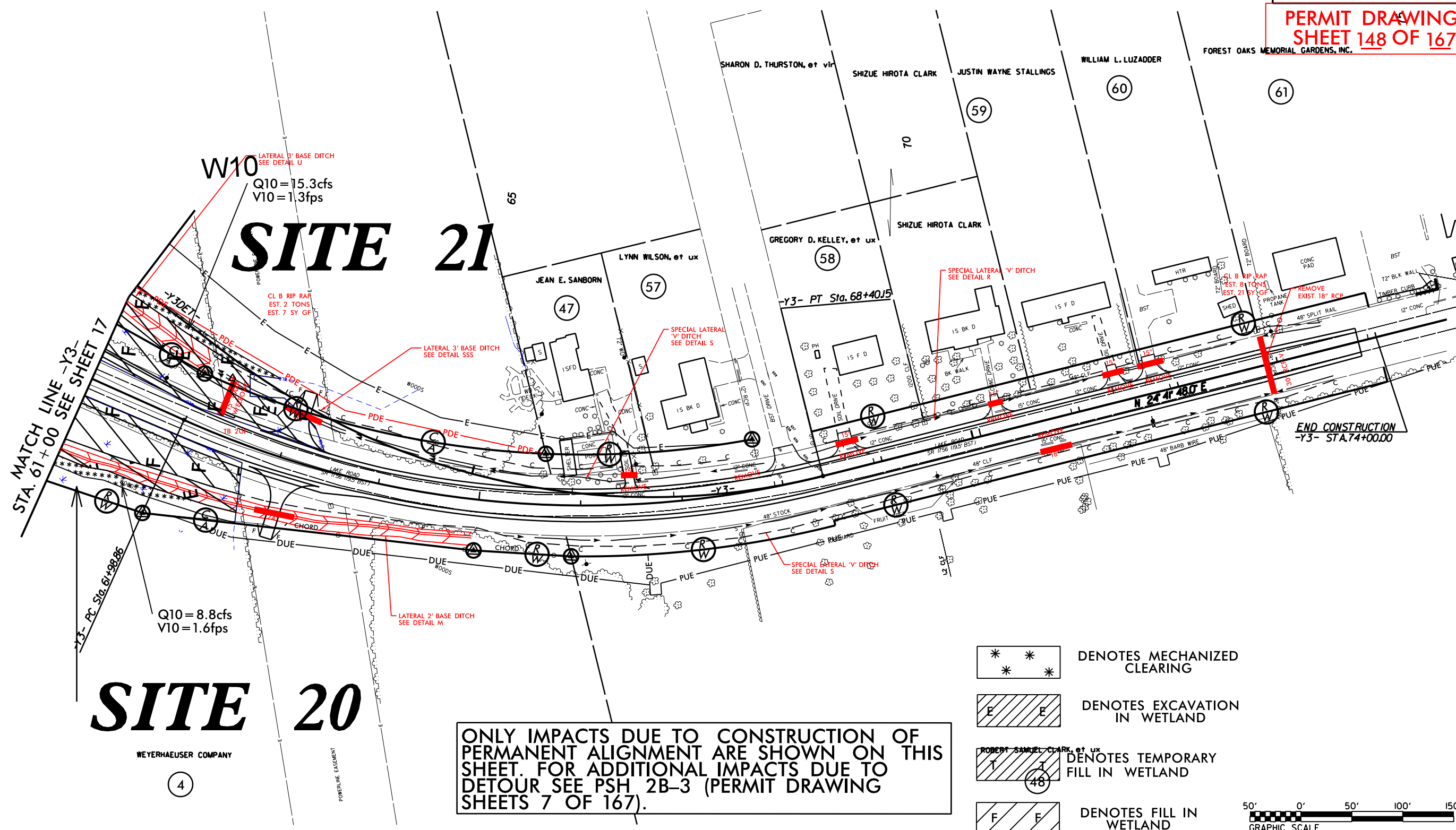
8/17/99

PROJECT REFERENCE NO. R-1015	SHEET NO. 44
ROADWAY DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 015869 T. R. REID	HYDRAULICS ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 032581 BOOK E ADDRESS

moftatt & nichol
4700 FALLS OF NEUSE ROAD, SUITE 300
RALEIGH, NORTH CAROLINA 27609
919.781.4625 VOICE 919.781.1869 FAX
NC LICENSE NO. F-0105

PERMIT DRAWING
SHEET 148 OF 167

REVISIONS
7/13/2018 - PARCELS 4, 4B - CHANGED PUE TO DUE AND REVISED AREA STA. 62+32 TO 66+40 RT. R.I.M./2018 - PARCELS 4, 4B - REVISED DUE PARCELS 4B - ADDED RW AND REMOVED ICE STATION -Y3- 61+00 TO 66+40 RT. R.I.M./2018 - PARCELS 4, 4B - REVISED DUE PARCELS 4 AND 4B FROM 11/13/2018 - REVISED DUE ON PARCELS 4 AND 4B FROM -Y3- STA. 62+25 RT TO STA. 74+2 RT
7/13/2018 - PARCELS 4, 4B - ADDED RW AND REMOVED ICE STATION -Y3- 61+00 TO 66+40 RT. R.I.M./2018 - PARCELS 4, 4B - REVISED DUE PARCELS 4 AND 4B FROM 11/13/2018 - REVISED DUE ON PARCELS 4 AND 4B FROM -Y3- STA. 62+25 RT TO STA. 74+2 RT
7/13/2018 - PARCELS 4, 4B - ADDED RW AND REMOVED ICE STATION -Y3- 61+00 TO 66+40 RT. R.I.M./2018 - PARCELS 4, 4B - REVISED DUE PARCELS 4 AND 4B FROM 11/13/2018 - REVISED DUE ON PARCELS 4 AND 4B FROM -Y3- STA. 62+25 RT TO STA. 74+2 RT



ONLY IMPACTS DUE TO CONSTRUCTION OF PERMANENT ALIGNMENT ARE SHOWN ON THIS SHEET. FOR ADDITIONAL IMPACTS DUE TO DETOUR SEE PSH 2B-3 (PERMIT DRAWING SHEETS 7 OF 167).

- DENOTES MECHANIZED CLEARING
- DENOTES EXCAVATION IN WETLAND
- DENOTES TEMPORARY FILL IN WETLAND
- DENOTES FILL IN WETLAND



SEE SHEET 79 FOR PROFILE -Y3-
SEE SHEETS 2D-1 THRU 2D-2 FOR DRAINAGE DITCH DETAILS

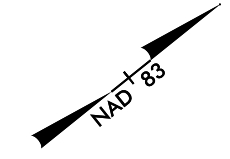
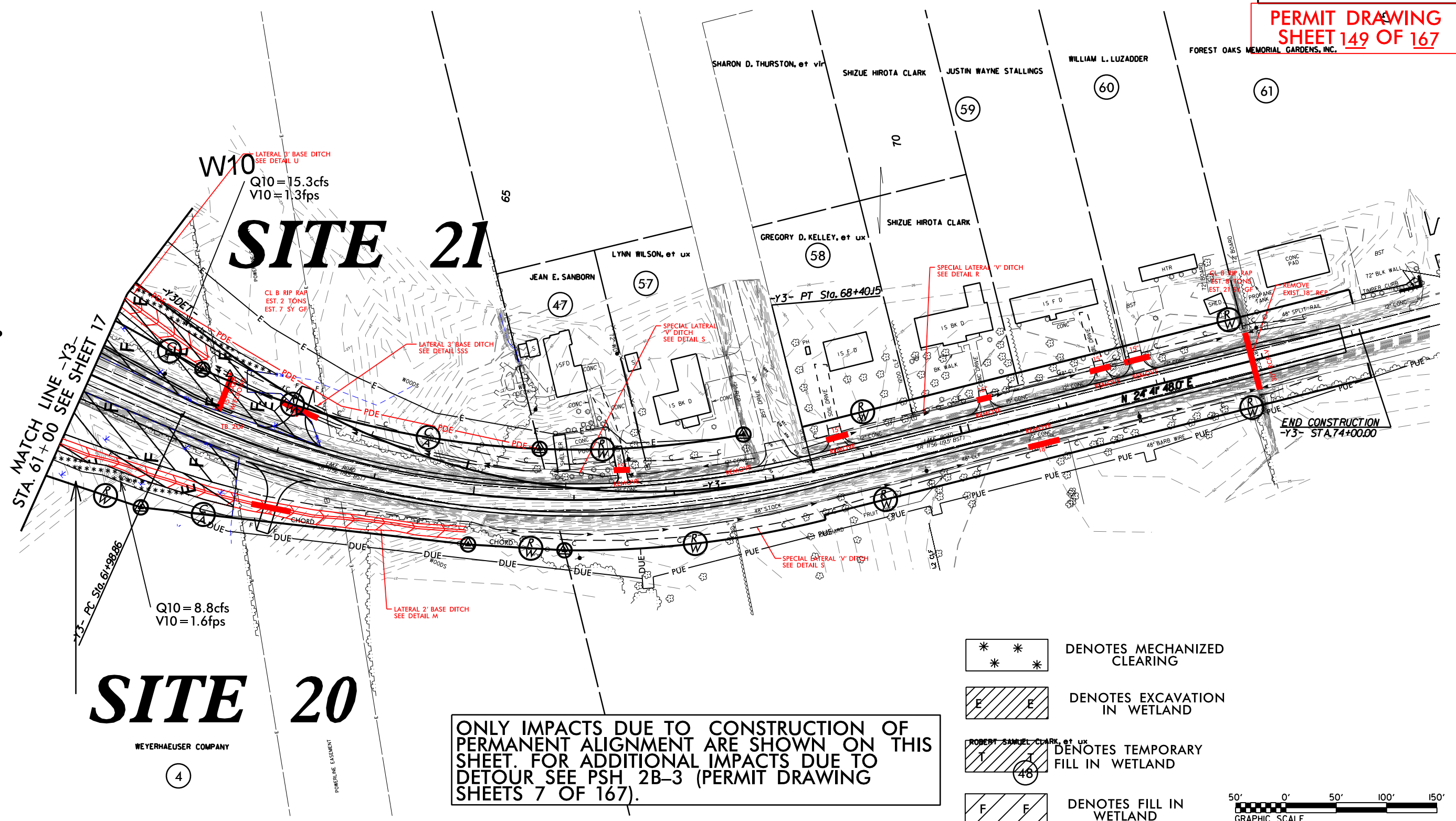
PROJECT REFERENCE NO. R-1015	SHEET NO. 44
RW SHEET NO.	
ROADWAY DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 015869 T. R. REID	HYDRAULICS ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 032581 BOOK E ADDRESS

moffatt & nichol
4700 FALLS OF NEUSE ROAD, SUITE 300
RALEIGH, NORTH CAROLINA 27609
919.781.4626 VOICE 919.781.4626 FAX
NC LICENSE NO. F-0105

PERMIT DRAWING
SHEET 149 OF 167

REVISIONS

7/13/2018 - PARCELS 4, 4B - CHANGED PUE TO DUE AND REVISED AREA STA. 62+32 TO 66+40 RT. 8/14/2018 - PARCELS 4, 4B - REVISED DUE
 PARCELS 4B - ADDED RW AND REMOVED ICE STATION -Y3- 61+00 TO 66+70 LT. 11/13/2018 - REVISED DUE ON PARCELS 4 AND 4B FROM
 PARCELS 4 - ADDED PUE STATION -Y3- 61+00 TO 65+64 LT. -Y3- STA. 62+25 RT TO STA. 74+72 RT
 PARCELS 4B - ADDED PUE STATION -Y3- 61+00 TO 65+64 LT. -Y3- STA. 62+25 RT TO STA. 74+72 RT
 PARCELS 4B - ADDED PUE STATION -Y3- 61+00 TO 65+64 LT. -Y3- STA. 62+25 RT TO STA. 74+72 RT
 PARCELS 4B - ADDED PUE STATION -Y3- 61+00 TO 65+64 LT. -Y3- STA. 62+25 RT TO STA. 74+72 RT
 PARCELS 4B - ADDED PUE STATION -Y3- 61+00 TO 65+64 LT. -Y3- STA. 62+25 RT TO STA. 74+72 RT



MATCH LINE -Y3-
STA. 61+00 SEE SHEET 17

END CONSTRUCTION
-Y3- STA. 74+00.00



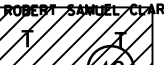

SITE 20

WEYERHAEUSER COMPANY

4

SITE 21

ONLY IMPACTS DUE TO CONSTRUCTION OF PERMANENT ALIGNMENT ARE SHOWN ON THIS SHEET. FOR ADDITIONAL IMPACTS DUE TO DETOUR SEE PSH 2B-3 (PERMIT DRAWING SHEETS 7 OF 167).

-  DENOTES MECHANIZED CLEARING
-  DENOTES EXCAVATION IN WETLAND
-  DENOTES TEMPORARY FILL IN WETLAND
-  DENOTES FILL IN WETLAND



SEE SHEET 79 FOR PROFILE -Y3-
SEE SHEETS 2D-1 THRU 2D-2 FOR DRAINAGE DITCH DETAILS

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)
1	42+12 TO 54+15 -L- RT	ROADWAY FILL	0.59		0.32	0.25						
2	57+70 TO 76+06 -L- RT	ROADWAY FILL	2.68		1.65	0.73						
	0+00 TO 33+68 -RP1CD- RT											
3	70+94 TO 122+68 -L- RT/LT	ROADWAY FILL	26.03		0.32	3.07						
	22+61 TO 29+63 -RP1AB- LT											
4	127+97 TO 132+42 -L- LT/RT	ROADWAY FILL	1.53			0.09						
5	136+88 TO 140+23 -L- LT/RT	ROADWAY FILL	0.10		0.06	0.07	0.08					
6	138+19 TO 149+15 -L- LT/RT	ROADWAY FILL	5.17			0.37						
7	154+60 TO 163+94 -L- LT/RT	ROADWAY FILL	2.52			0.32						
8	167+89 TO 168+21 -L- LT/RT	ROADWAY FILL	0.02			< 0.01						
9	170+05 TO 197+19 -L- LT/RT	Dual Bridges; 12@ 135', 72" MBT	4.90			0.64	3.95					
10	197+45 TO 210+28 -L- LT/RT	ROADWAY FILL	6.69			0.55						
11	211+31 TO 218+97 -L- LT/RT	ROADWAY FILL	2.82			0.21						
12	218+39 TO 224+77 -L- LT/RT	ROADWAY FILL	2.46		< 0.01	0.16						
13	229+73 TO 238+69 -L- LT/RT	ROADWAY FILL	6.85			0.37						
14	7+87 TO 11+18 -Y3RPB- LT/RT	72" RCP, BURIED	0.83			0.16		0.05	< 0.01	337.9	56.1855	
15	12+60 TO 13+72 -Y3RPB- LT/RT	ROADWAY FILL	0.32			0.03						
16	237+79 TO 244+33 -L- LT/RT	72" RCP, BURRIED 1'	2.42			0.22		0.03	< 0.01	200.9	58.8936	
17	52+61 TO 53+18 -Y3DET- LT/RT	72" RCP, BURRIED 1'	0.04		0.01	0.01		0.03	0.02	129.7	88.99	
17A	52+61 TO 53+18 -Y3DET- LT/RT	60" TEMP PIPE		0.05			0.01					
18	20+55 TO 24+91 -Y3RPD- LT/RT	ROADWAY FILL	0.98		0.02	0.10						
18A	55+30 TO 57+16 -Y3DET- LT/RT	TEMP DETOUR		0.15			0.03					
19	16+94 TO 17+92 -Y3RPD- LT/RT	84" RCP, BURIED 1'	0.09			0.05		0.06	< 0.01	261.2	44.1	
TOTALS*:			67.06	0.20	2.38	7.41	4.07	0.16	0.04	930	248	0

*Rounded totals are sum of actual impacts

NOTES:
Bridge Impacts at Site 9: 0.02 acres for Temporary Bents, <0.01 acres for all permanent bents.

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
04/09/2020
CRAVEN COUNTY
R-1015
34360.1.2
SHEET 165 OF 167

Revised 2016 09 09

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)
20	57+34 TO 62+48 -Y3- RT	ROADWAY FILL	1.46		0.10	0.18						
21	58+29 TO 63+51 -Y3- RT	ROADWAY FILL	0.56		0.21	0.08						
21A	58+89 TO 64+03Y3DET- LT/RT	TEMP DETOUR		0.25	0.11		0.12					
22	267+83 TO 273+90 -L- LT/RT	84" RCP, BURIED 1'	0.86			0.12		0.05	0.01	583.6	61.1099	
23	280+57 TO 293+27 -L- LT/RT	Dual Bridge; 7 @ 135', 72" MBT	1.03			0.15	3.05					
24	308+19 TO 314+60 -L- LT/RT	42" RCP	0.74		0.04	0.06						
25A	328+41 TO 336+80 -L- LT/RT	2@ 72" RCP, BURIED 1'	1.80		0.10	0.12						
25B	325+13 TO 325+48 -L- RT	ROADWAY FILL	< 0.01			< 0.01						
26	337+97 TO 342+81 -L- RT	72" RCP, BURIED 1'	0.47		< 0.01		0.11					
27	340+63 TO 344+93 -L- LT	72" RCP, BURIED 1'	0.75		0.08		0.05					
28A	348+96 TO 349+65 -L- RT	ROADWAY FILL	0.01				0.02					
28B	351+33 TO 352+19 -L- RT	ROADWAY FILL	< 0.01				0.02					
29	355+33 TO 357+51 -L- LT	ROADWAY FILL	0.03		0.07		0.04					
30	355+83 TO 357+47 -L- RT	ROADWAY FILL	0.27				0.04					
31	373+16 TO 380+23 -L- LT/RT	ROADWAY FILL	2.22		0.07		0.32					
32	392+99 TO 399+33 -L- LT/RT	ROADWAY FILL	0.56			0.15						
33	408+22 TO 408+87 -L- LT	ROADWAY FILL	< 0.01			0.01						
34	409+25 TO 409+75 -L- RT	ROADWAY FILL	0.18			< 0.01						
35A	432+62 TO 449+72 -L- LT/RT	ROADWAY FILL	5.49			0.77						
35B	450+94 TO 454+47 -L- LT/RT	ROADWAY FILL	0.71			0.11						
36A	456+65 TO 461+70 -L- LT/RT	84" RCP, BURIED 1'	0.79			0.15						
36B	462+57 TO 464+60 -L- LT/RT	ROADWAY FILL	0.50		0.02	0.05						
37	468+85 TO 486+94 -L- LT/RT	ROADWAY FILL	3.43		0.01	0.50						
SUB TOTALS THIS SHEET*:			21.89	0.25	0.80	2.47	3.77	0.05	0.01	584	61	0

*Rounded totals are sum of actual impacts

NOTES:
Bridge Impacts at Site 23: 0.04 acres for Temporary Bents, <0.01 acres for all permanent bents.

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
04/09/2020
CRAVEN COUNTY
R-1015
34360.1.2

SHEET 166 OF 167

Revised 2016 09 09

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)
38A	489+64 TO 493+80 -L- LT/RT	ROADWAY FILL	0.49			0.03						
38B	496+92 TO 498+23 -L- LT/RT	ROADWAY FILL	0.30			0.06						
39	507+39 TO 518+70 -L- LT/RT	2 @ 10'X8' RCBC	2.99		0.07	0.20		0.22	0.03	984.87	116.37	
40	RP2AC/RP2A/LP2A	ROADWAY FILL	5.38		0.12	0.78						
41	41+40 TO 47+97 -RP2AC- LT/RT	EXTEND 3@ 9'X7' RCBC	0.03			0.12		0.05	0.08	48.71	56.79	
42	34+08 TO 37+91 -Y4- LT	72" RCP, BURIED 1'	0.01		0.04	0.06		< 0.01	< 0.01	20.43	11.6	
43	33+80 TO 35+02 -Y4- RT	72" RCP, BURIED 1'	< 0.01		0.01	0.04		< 0.01	< 0.01	41.75	10.35	
44	51+17 TO 53+70 -Y4- LT	2 @ 84" RCP, BURIED1'	0.24		0.02	0.09		0.02	< 0.01	121.5	10.7	
45	50+49 TO 57+08 -Y4DET- LT/RT	2 @ 84" RCP, BURIED1'	0.35			0.12		0.04	0.02	116.4	98.9	
45A	50+47 TO 57+03 -Y4DET-	TEMP DETOUR		0.51			0.19					
46	533+11 -L- RT	30" RCP						< 0.01	< 0.01	10.0	16.0	
47	563+36 -L- RT	36" RCP						< 0.01		12.0		
SUB TOTAL THIS SHEET:			9.79	0.51	0.27	1.50	0.19	0.34	0.13	1356	321	
SUB TOTAL SHEET 1:			67.06	0.20	2.38	7.41	4.07	0.16	0.04	930	248	
SUB TOTAL SHEET 2:			21.89	0.25	0.80	2.47	3.77	0.05	0.01	584	61	
TOTALS*:			98.74	0.96	3.45	11.38	8.03	0.55	0.18	2869	630	0

*Rounded totals are sum of actual impacts

NOTES:
At Site 45/45A, 0.03 acre of Temporary Fill in Wetlands in the Hand Clearing area for erosion control measures.

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
04/9/2020
CRAVEN COUNTY
R-1015
34360.1.2
SHEET 167 OF 167

Revised 2016 09 09

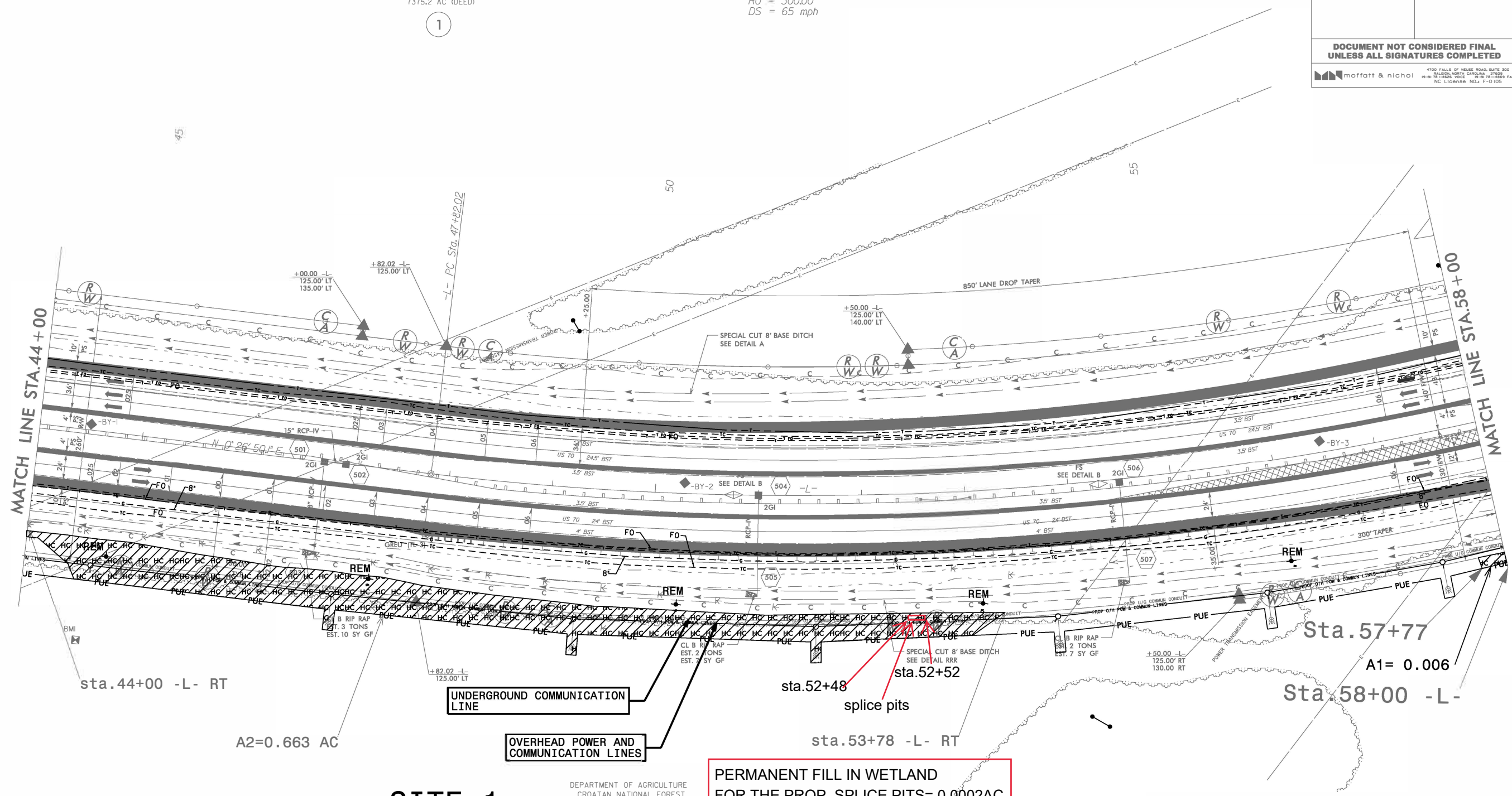
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ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			
moffatt & nichol		4700 FALLS OF NEUSE ROAD, SUITE 300 RALEIGH, NORTH CAROLINA 27602 919 881-4425 VOIC 919 881-4425 FAX NC License No. F-0105	

-L-
 PI Sta. 58+21.81
 $\Delta = 38^{\circ} 01' 15.2" (LT)$
 $D = 1^{\circ} 53' 54.5"$
 $L = 2,002.71'$
 $T = 1,039.80'$
 $R = 3,018.00'$
 $SE = 0.06$
 $RO = 300.00'$
 $DS = 65 \text{ mph}$



DEPARTMENT OF AGRICULTURE
 CROATAN NATIONAL FOREST
 DB 336 - PG 9
 DB 336 - PG 72
 7375.2 AC (DEED)

1



PERMANENT FILL IN WETLAND
 FOR THE PROP.
 POWER POLE= 4 X 0.0001AC=0.0004AC

PERMANENT FILL IN WETLAND
 FOR THE PROP. SPLICE PITS= 0.0002AC



DENOTES HAND
 CLEARING


DEPARTMENT OF AGRICULTURE
 CROATAN NATIONAL FOREST
 DB 336 - PG 9
 DB 336 - PG 72
 7375.2 AC (DEED)

1

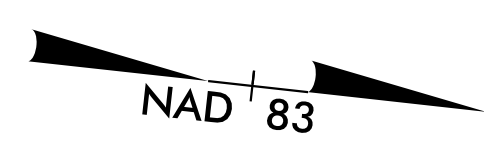
REVISIONS

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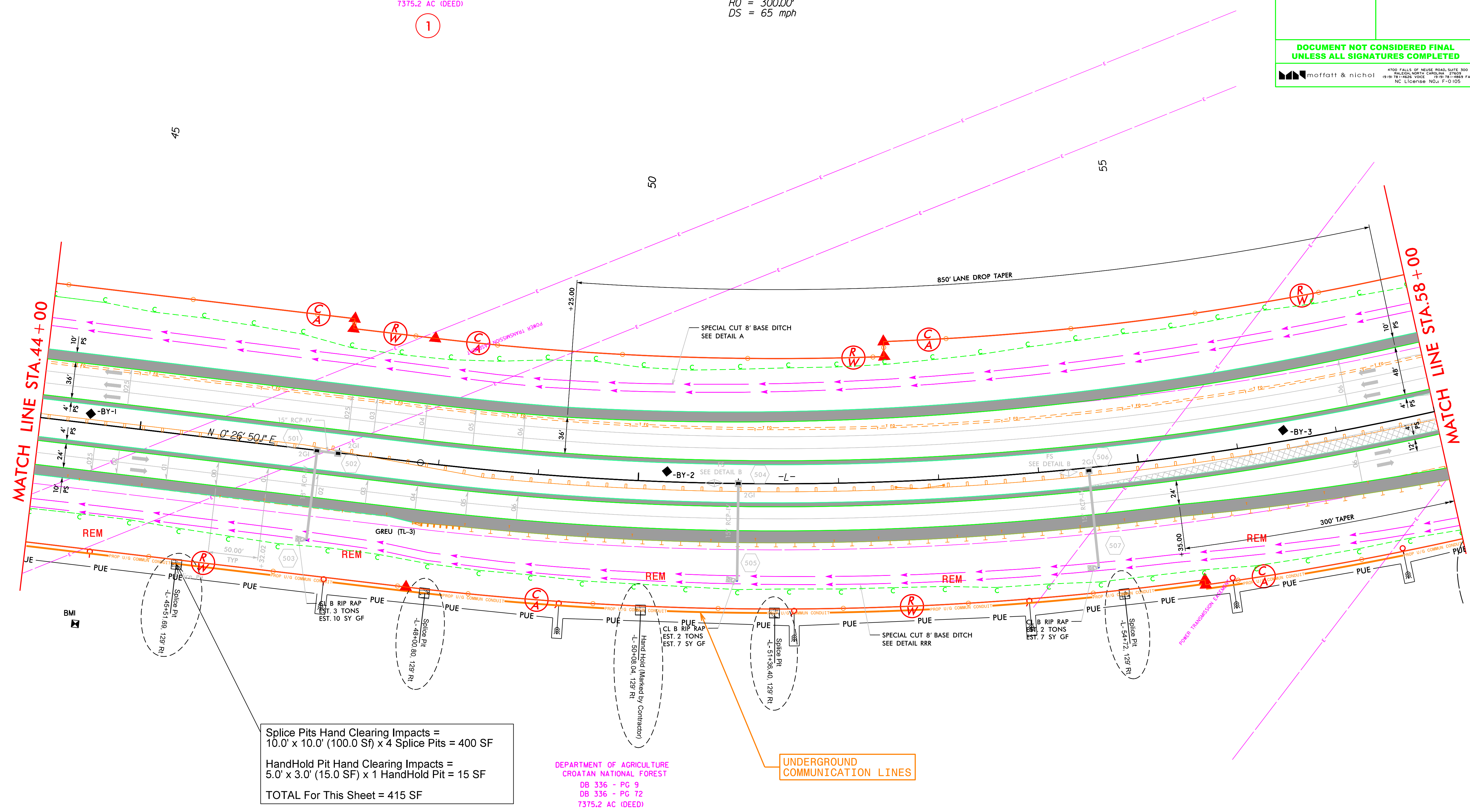
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RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
	

-L-
 PI Sta 58+21.81
 $\Delta = 38^{\circ} 01' 15.2''$ (LT)
 $D = 1' 53' 54.5''$
 $L = 2,002.71'$
 $T = 1,039.80'$
 $R = 3,018.00'$
 $SE = 0.06$
 $RO = 300.00'$
 $DS = 65$ mph



DEPARTMENT OF AGRICULTURE
 CROATAN NATIONAL FOREST
 DB 336 - PG 9
 DB 336 - PG 72
 7375.2 AC (DEED)

1



Splice Pits Hand Clearing Impacts =
 10.0' x 10.0' (100.0 Sf) x 4 Splice Pits = 400 SF
 HandHold Pit Hand Clearing Impacts =
 5.0' x 3.0' (15.0 SF) x 1 HandHold Pit = 15 SF
TOTAL For This Sheet = 415 SF

DEPARTMENT OF AGRICULTURE
 CROATAN NATIONAL FOREST
 DB 336 - PG 9
 DB 336 - PG 72
 7375.2 AC (DEED)

1

UNDERGROUND
 COMMUNICATION LINES

SEE SHEET 50 FOR PROFILE -L-

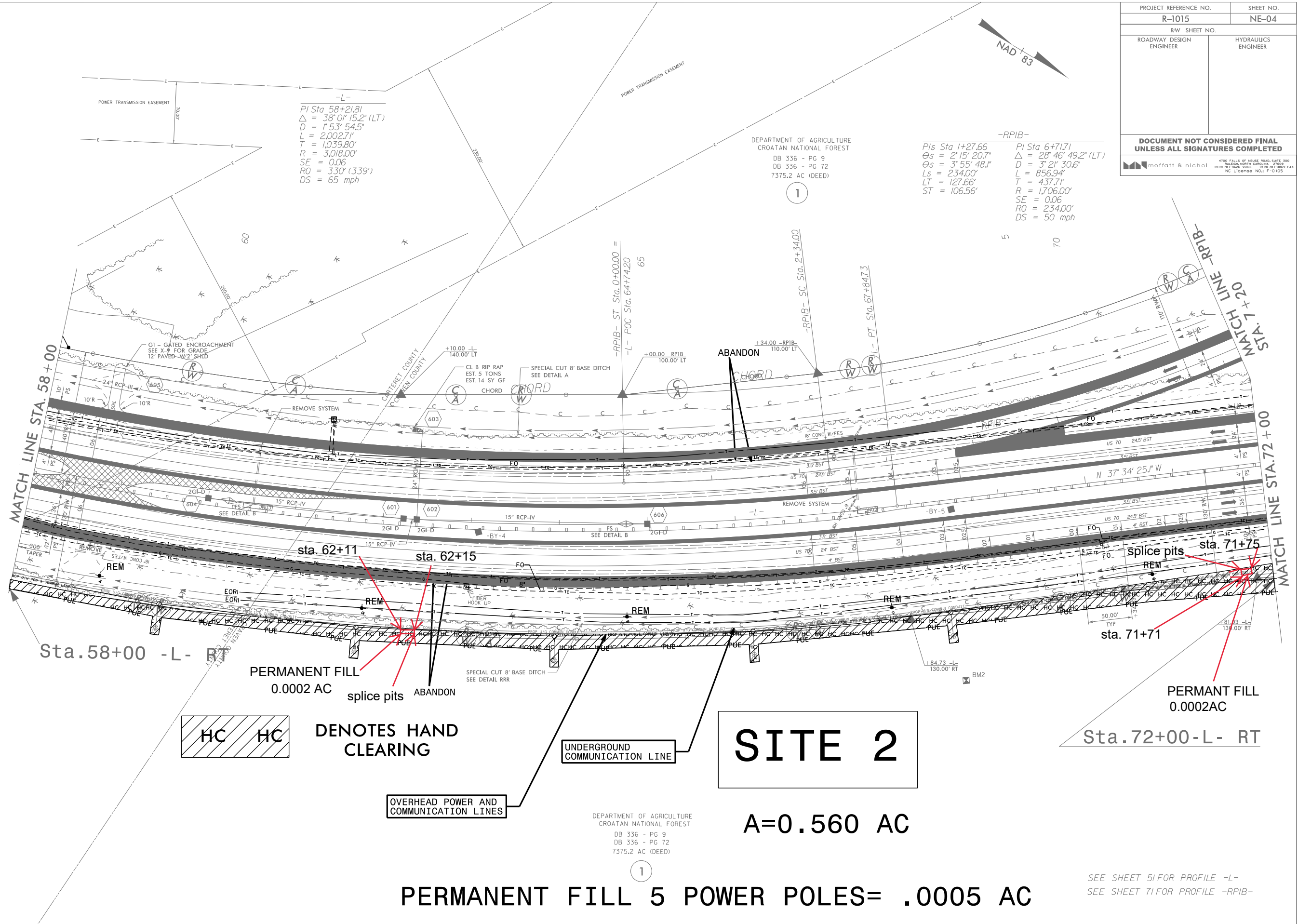
REVISIONS

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Revised 5/1/2020

PROJECT REFERENCE NO. R-1015	SHEET NO. NE-04
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

8/17/199



-L-
PI Sta 58+21.81
 $\Delta = 38' 01'' 15.2'' (LT)$
 $D = 1' 53'' 54.5''$
 $L = 2,002.71'$
 $T = 1,039.80'$
 $R = 3,018.00'$
 $SE = 0.06$
 $RO = 330' (339')$
 $DS = 65 \text{ mph}$

-RPIB-
PI Sta 1+27.66
 $\Delta = 2' 15'' 20.7''$
 $\Delta_s = 3' 55'' 48.1''$
 $L_s = 234.00'$
 $LT = 127.66'$
 $ST = 106.56'$

PI Sta 6+71.71
 $\Delta = 28' 46'' 49.2'' (LT)$
 $D = 3' 21'' 30.6''$
 $L = 856.94'$
 $T = 437.71'$
 $R = 1,706.00'$
 $SE = 0.06$
 $RO = 234.00'$
 $DS = 50 \text{ mph}$



SITE 2

A=0.560 AC

PERMANENT FILL 5 POWER POLES= .0005 AC

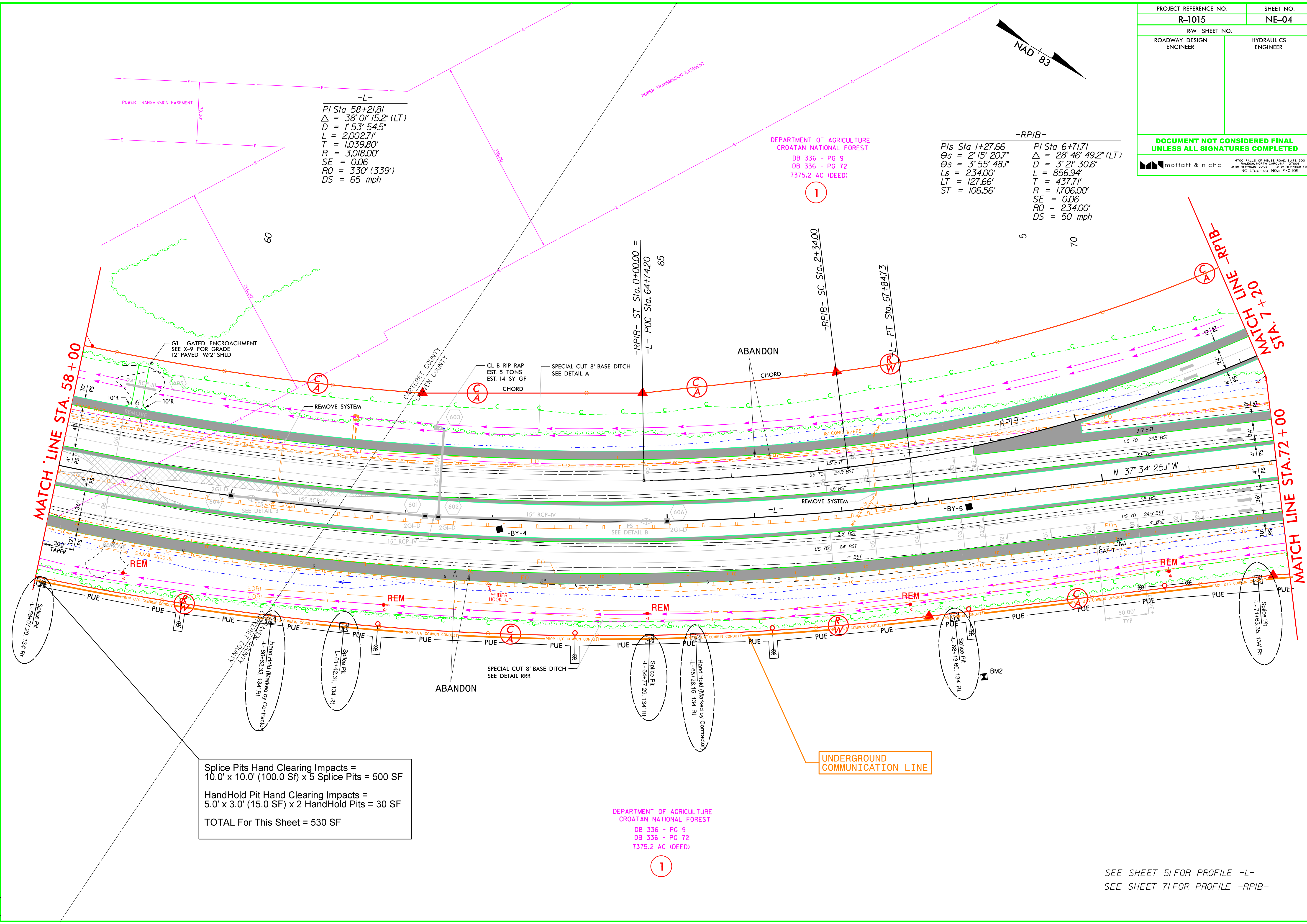
REVISIONS

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SEE SHEET 5I FOR PROFILE -L-
SEE SHEET 7I FOR PROFILE -RPIB-

PROJECT REFERENCE NO. R-1015	SHEET NO. NE-04
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
moftatt & nichol	

8/17/99
 REVISIONS
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 facepiles



-L-
 PI Sta 58+21.81
 $\Delta = 38^{\circ} 01' 15.2''$ (LT)
 $D = 1' 53' 54.5''$
 $L = 2,002.71'$
 $T = 1,039.80'$
 $R = 3,018.00'$
 $SE = 0.06$
 $RO = 330' (339')$
 $DS = 65$ mph

-RPIB-
 Pls Sta 1+27.66
 $\Theta_s = 2^{\circ} 15' 20.7''$
 $\Theta_s = 3^{\circ} 55' 48.1''$
 $L_s = 234.00'$
 $LT = 127.66'$
 $ST = 106.56'$
 PI Sta 6+71.71
 $\Delta = 28^{\circ} 46' 49.2''$ (LT)
 $D = 3' 21' 30.6''$
 $L = 856.94'$
 $T = 437.71'$
 $R = 1,706.00'$
 $SE = 0.06$
 $RO = 234.00'$
 $DS = 50$ mph

Splice Pits Hand Clearing Impacts =
 10.0' x 10.0' (100.0 Sf) x 5 Splice Pits = 500 SF
 HandHold Pit Hand Clearing Impacts =
 5.0' x 3.0' (15.0 Sf) x 2 HandHold Pits = 30 SF
 TOTAL For This Sheet = 530 SF

DEPARTMENT OF AGRICULTURE
 CROATAN NATIONAL FOREST
 DB 336 - PG 9
 DB 336 - PG 72
 7375.2 AC (DEED)

SEE SHEET 51 FOR PROFILE -L-
 SEE SHEET 71 FOR PROFILE -RPIB-

REVISIONS
7/13/2018 - PARCEL 1 - ADDED TIE
STATION -RPICD- 5+51 TO 11+00 RT

PROJECT REFERENCE NO.	R-1015	SHEET NO.	NE-05
R/W SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	

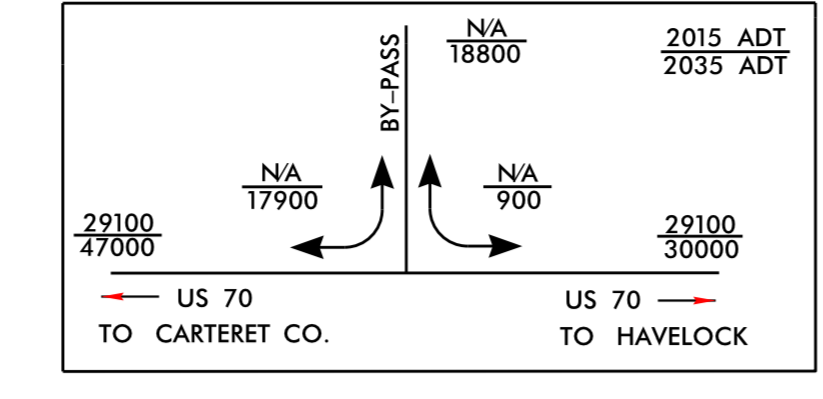
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

-RP1B-

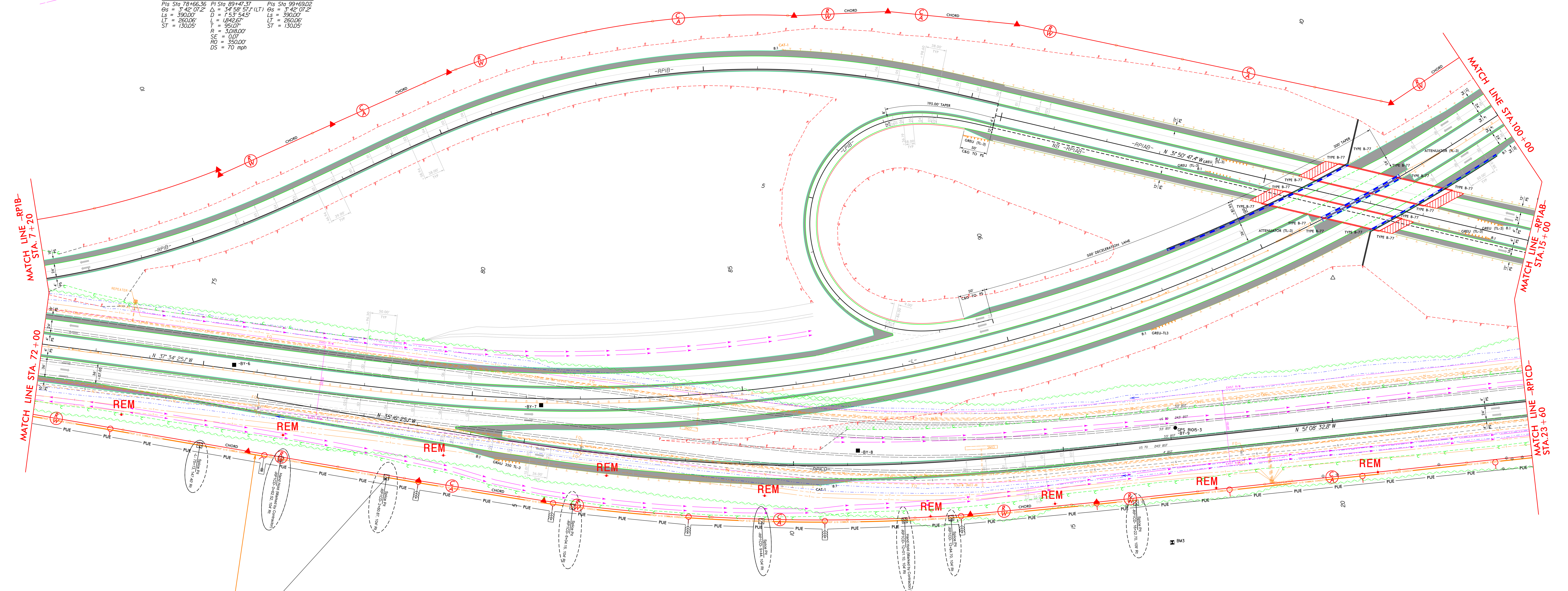
PI Sta 6+71.71	PI Sta 11+68.98	PI Sta 14+76.99	PI Sta 19+46.74	PI Sta 23+98.64
$\Delta = 28^{\circ}46'49.2"$ (LT)	$\Delta = 3^{\circ}55'45.9"$	$\Delta = 4^{\circ}25'31.0"$	$\Delta = 29^{\circ}52'36.5"$ (RT)	$\Delta = 4^{\circ}25'31.0"$
D = 37.21	D = 30.67	D = 234.00	D = 37.21	D = 228.00
L = 856.94	L = 156.04	L = 152.05	L = 763.66	L = 152.05
T = 437.71	T = 78.03	T = 76.04	T = 393.79	T = 76.04
R = 1706.00'	R = 1476.00'	R = 1476.00'	R = 1476.00'	R = 1476.00'
SE = 0.06	SE = 0.06	SE = 0.06	SE = 0.06	SE = 0.06
PO = 234.00'	PO = 228.00'	PO = 228.00'	PO = 228.00'	PO = 228.00'
DS = 50 mph	DS = 50 mph	DS = 50 mph	DS = 50 mph	DS = 50 mph

-L-

PI Sta 78+66.36	PI Sta 89+42.37	PI Sta 99+69.02
$\Delta = 3^{\circ}42'07.2"$	$\Delta = 3^{\circ}42'07.2"$	$\Delta = 3^{\circ}42'07.2"$
D = 390.00'	D = 390.00'	D = 390.00'
L = 260.06	L = 1842.67	L = 260.06
T = 130.03	T = 390.07	T = 130.03
R = 3018.00'	R = 3018.00'	R = 3018.00'
SE = 0.07	SE = 0.07	SE = 0.07
PO = 234.00'	PO = 228.00'	PO = 228.00'
DS = 70 mph	DS = 70 mph	DS = 70 mph



DEPARTMENT OF AGRICULTURE
CROATAN NATIONAL FOREST
DB 336 - PG 9
DB 336 - PG 12
7375.2 AC (DEED)



UNDERGROUND COMMUNICATION LINE

Splice Pits Hand Clearing Impacts =
10.0' x 10.0' (100.0 Sf) x 6 Splice Pits = 600 SF

HandHold Pit Hand Clearing Impacts =
5.0' x 3.0' (15.0 Sf) x 2 HandHold Pits = 30 SF

TOTAL For This Sheet = 630 SF

-LP1B-

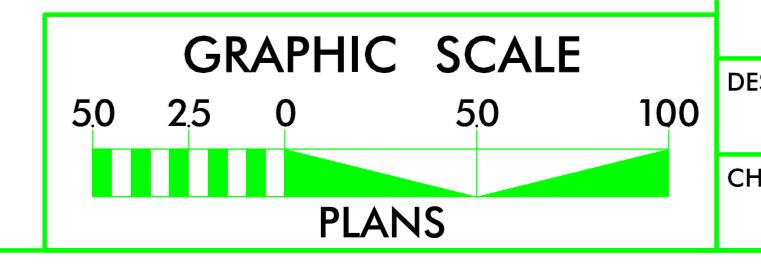
PI Sta 1+28.02	PI Sta 9+18.76	PI Sta 7+75.74
$\Delta = 1^{\circ}48'34.4"$	$\Delta = 149^{\circ}32'49.5"$ (RT)	$\Delta = 28^{\circ}21'25.4"$
D = 28'25'38.6"	D = 24'05'02.5"	D = 195.00'
L = 195.00'	L = 54.99'	L = 131.71'
LT = 128.02'	T = 723.76'	ST = 66.56'
ST = 70.92'	R = 197.00'	R = 197.00'
	SE = 0.075	SE = 0.075
	PO = 135.00'	PO = 135.00'
	DS = 25 mph	DS = 25 mph

-RP1CD-

PI Sta 4+74.02	PI Sta 9+36.75	PI Sta 13+96.57
$\Delta = 1^{\circ}50'01.2"$	$\Delta = 12^{\circ}12'05.4"$ (LT)	$\Delta = 1^{\circ}50'01.2"$
D = 231.00'	D = 135'15.3"	D = 231.00'
L = 194.00'	L = 763.56'	L = 194.00'
LT = 154.00'	T = 385.74'	ST = 77.01'
ST = 77.01'	R = 3609.00'	R = 3609.00'
	SE = 0.03	SE = 0.03
	PO = 231.00' (108')	PO = 231.00' (108')
	DS = 50 mph	DS = 50 mph

DEPARTMENT OF AGRICULTURE
CROATAN NATIONAL FOREST
DB 336 - PG 9
DB 336 - PG 12
7375.2 AC (DEED)

SEE SHEETS 51 AND 52 FOR PROFILE -L-
SEE SHEET 71 AND 72 FOR PROFILE -RP1B-
SEE SHEET 72 FOR PROFILE -RP1AB-
SEE SHEET 76 FOR PROFILE -RP1CD-
SEE SHEET 77 FOR PROFILE -LP1B-



LOCATION:
US 70 (HAVLOCK BYPASS)
FROM SOUTH OF CARTER (CRAVEN COUNTY LINE
TO SOUTH OF SR 1174 (CAROLINA PINES BLVD))

TIP NO.	R-1015	COUNTY:	CRAVEN
DESIGNED BY:	DGM		
CHECKED BY:	TRK	DATE:	6/18/2018

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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)
1	44+00 TO 53+78 -L-	POWER LINE&POWER POLE	< 0.01				0.66					
	57+77 TO 58+00 -L-	POWER LINE					< 0.01					
2	58+00 TO 72+00 -L-	POWER LINE & POWER POL	< 0.01				0.56					
3	72+00 TO 89+04 -L-	POWER LINE & POWER POL	< 0.01				0.95					
	89+24 TO 92+37 -L-	POWER LINE					0.05					
	92+96 TO 96+80 -L-	POWER LINE					0.06					
4	116+63 TO 120+51 -L-	POWER LINE					0.73					
	119+66 TO 121+28 -L-	POWER LINE					0.58					
5	128+97 TO 136+09 -L-	POWER LINE					1.83					
6	53+97 TO 55+60 -Y3-	POWER LINE&POWER POLE	< 0.01				0.09					
	59+17 TO 61+00 -Y3-	POWER LINE&POWER POLE	< 0.01				0.09					
7	61+00 TO 62+82 -Y3-	POWER LINE&POWER POLE	< 0.01				0.04					
8	35+14 TO 38+00 -Y4-	POWER LINE&POWER POLE	< 0.01				0.12					
9	50+78 TO 51+05 -Y4-	POWER LINE&POWER POLE	< 0.01				< 0.01					
	52+17 TO 53+78.82 -Y4-	POWER LINE&POWER POLE	< 0.01				0.07					
1	44+00 TO 58+00 -L-	SPLICE PITS & HAND HOLES			0.01							
2	58+00 TO 72+00 -L-	SPLICE PITS & HAND HOLES			0.01							
3	72+00 TO 16+22 -L-	SPLICE PITS & HAND HOLES			0.01							
TOTALS*:			< 0.01		0.04		5.84			0	0	0

*Rounded totals are sum of actual impacts

NOTES:
 NOTES: Total Permanent Fill in the wetlands are for the power poles
 #REF!

NC DEPARTMENT OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 04/29/2020
 CRAVEN COUNTY
 R-1015
 34360.1.2
 SHEET 0 OF 0

Revised 2016 09 09

PROJECT REFERENCE NO. R-1015	SHEET NO. 39
RW SHEET NO.	
ROADWAY DESIGN ENGINEER T. R. REID SEAL 015869 NORTH CAROLINA PROFESSIONAL ENGINEER	HYDRAULICS ENGINEER E. A. HARRISON SEAL 032581 NORTH CAROLINA PROFESSIONAL ENGINEER

moffatt & nichol
4700 FALLS OF NEUSE ROAD, SUITE 300
RALEIGH, NORTH CAROLINA 27607
TEL: 919-875-3000 FAX: 919-875-3005
NC LICENSE NO. F-0105

DEPARTMENT OF AGRICULTURE
CROATAN NATIONAL FOREST

ALLOWABLE IMPACTS ZONE 1

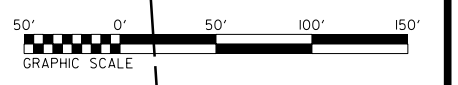
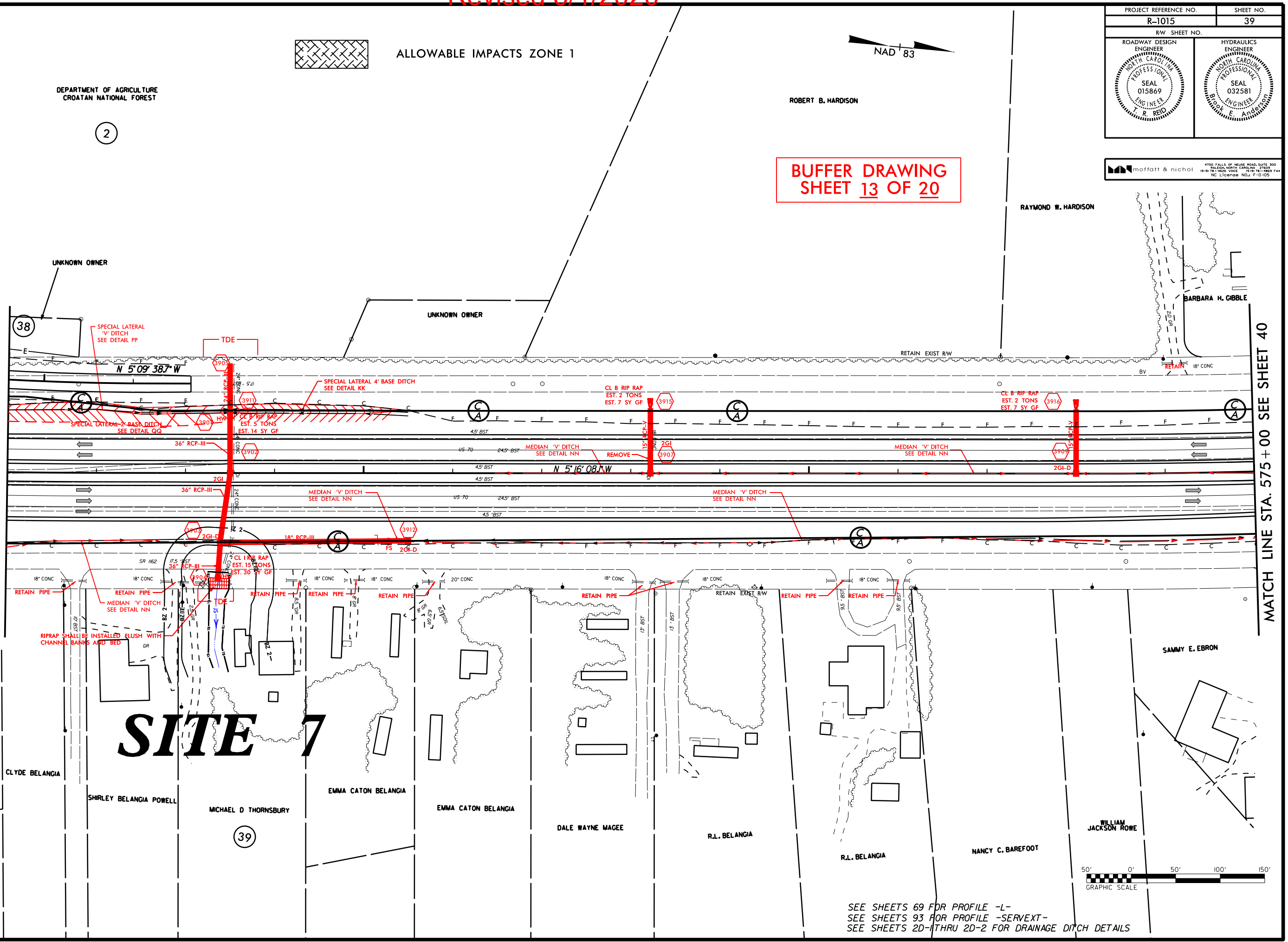


BUFFER DRAWING
SHEET 13 OF 20

REVISIONS
7/13/2018 - PARCEL 38 - REVISED TDE STATION -L- 563+14 TO 563+64 RT
PARCEL 38 - ADDED TCE STATION -L- 561+00 TO 561+78 LT

MATCH LINE STA. 561 + 00 SEE SHEET 38

MATCH LINE STA. 575 + 00 SEE SHEET 40



SEE SHEETS 69 FOR PROFILE -L-
SEE SHEETS 93 FOR PROFILE -SERVEXT-
SEE SHEETS 2D-1 THRU 2D-2 FOR DRAINAGE DITCH DETAILS

22/5/2020
R:\Hydraulics\PERMITS_Environmental\Drawings\Buffer\1-1015_Hyd_grm_bur_sak39.dgn
\$\$\$\$\$SYTIME\$\$\$\$\$
\$\$\$\$\$EDITION\$\$\$\$\$
\$\$\$\$\$CANNON\$\$\$\$\$

BUFFER IMPACTS SUMMARY													
SITE NO.	STRUCTURE SIZE / TYPE	STATION (FROM/TO)	IMPACT									BUFFER REPLACEMENT	
			TYPE			ALLOWABLE			MITIGABLE			ZONE 1 (ft ²)	ZONE 2 (ft ²)
			ROAD CROSSING	BRIDGE	TEMP ROAD CROSSING	ZONE 1 (ft ²)	ZONE 2 (ft ²)	TOTAL (ft ²)	ZONE 1 (ft ²)	ZONE 2 (ft ²)	TOTAL (ft ²)		
1	12 @ 135' Dual Bridge	-L- 170+00 to -L- 176+39		X		11874	8173	20048					
2	72" RCP-V, Buried 1'	-Y3RPB- 8+09 to -Y3RPB- 9+96	X						21342	12842	34184		
3	72" RCP-V, Buried 1'	-L- 242+20 to -L- 245+59	X						20168	13088	33256		
3	Temp. Detour	-L- 245+59 to -L- 246+42			X	4312	2113	6425					
4	84" RCP-V, Buried 1'	-Y3RPD- 16+26 to -Y3RPD-18+42	X						17227	9603	26830		
5	7@ 135' Dual Bridge	-L- 287+68 to -L- 290+04		X		11674	7869	19544					
6	2 @ 10'X8' RCBC	-L- 509+18 to -L- 511+11	X						55373	29278	84651		
7	36" RCP	-L- 563+14 to -L- 563+54	X			135							
8	72" RCP-IV, Buried 1'	-Y4- 33+67 to -Y4- 34+86	X			3321	1827	5148					
9	2@ 84" RCP, Buried 1'	-Y4- 51+04 to -Y4- 52+99	X						12648	6275	18923		
SUB TOTAL:						31317	19982	51164	126759	71086	197845		

NOTE: Site 9: Zone 1 Mitigable Impacts include 331 sqft of Bank Stabilization.

N.C. DEPT. OF TRANSPORTATION
 DIVISION OF HIGHWAYS

 CRAVEN COUNTY
 PROJECT: 34360.1.2 (R-1015)

 2/25/2020
 SHEET 18 OF 20

BUFFER IMPACTS SUMMARY

BUFFER IMPACTS SUMMARY													
SITE NO.	STRUCTURE SIZE / TYPE	STATION (FROM/TO)	IMPACT									BUFFER REPLACEMENT	
			TYPE			ALLOWABLE			MITIGABLE			ZONE 1 (ft ²)	ZONE 2 (ft ²)
			ROAD CROSSING	TEMP ROAD CROSSING	PARALLEL IMPACT	ZONE 1 (ft ²)	ZONE 2 (ft ²)	TOTAL (ft ²)	ZONE 1 (ft ²)	ZONE 2 (ft ²)	TOTAL (ft ²)		
9	DETOUR	-Y4DET- 51+85 to		X		5555	4250	9805					
		-Y4DET- 54+45											
10	3 @ 9'X7' RCBC	-RP2AC- 43+26 to	X			5656	2116	7773					
		-RP2AC- 46+15											
SUB TOTAL FROM THIS SHEET :													
						11212	6366	17578					
SUB TOTAL FROM SHEET 18 :													
						31317	19982	51164	126759	71086	197845		
TOTAL:													
						42529	26348	68742	126759	71086	197845		

N.C. DEPT. OF TRANSPORTATION
 DIVISION OF HIGHWAYS

 CRAVEN COUNTY
 PROJECT: 34360.1.2 (R-1015)

 2/25/2020
 SHEET 19 OF 20