Pre-Construction Notification (PCN) Form

For Nationwide Permits and Regional General Permits

(along with corresponding Water Quality Certifications)

September 29, 2018 Ver 3

*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.*

Also, if at any point you wish to print a copy of the E-PCN, all you need to do is right-click on the document and you can print a copy of the form.

Below is a link to the online help file.

https://edocs.deq.nc.gov/WaterResources/0/edoc/624704/PCN%20Help%20File%202018-1-30.pdf

A. Processing Information

County (or Counties) where the project is located:*

Pitt

Is this project a public transportation project?*

(•) Yes ( ) No

This is any publicly funded by municipal,state or federal funds road, rail, airport transportation project.

Is this a NCDOT Project?*

(•) Yes ( ) No

(NCDOT only) T.I.P. or state project number:

BR-0120

WBS #*

48829.1.1

(for NCDOT use only)

1a. Type(s) of approval sought from the Corps:*

- [x] Section 404 Permit (wetlands, streams and waters, Clean Water Act)
- [ ] Section 10 Permit (navigable waters, tidal waters, Rivers and Harbors Act)

1b. What type(s) of permit(s) do you wish to seek authorization?*

- [x] Nationwide Permit (NWP)
- [ ] Regional General Permit (RGP)
- [ ] Standard (IP)

This form may be used to initiate the standard/individual permit process with the Corps. Please contact your Corps representative concerning submittals for standard permits. All required items that are not provided in the E-PCN can be added to the miscellaneous upload area located at the bottom of this form.

1c. Has the NWP or GP number been verified by the Corps?*

( ) Yes (•) No

Nationwide Permit (NWP) Number: 03 - Maintenance

NWP Numbers (for multiple NWPS):

List all NW numbers you are applying for not on the drop down list.

1d. Type(s) of approval sought from the DWR:*

check all that apply

- [x] 401 Water Quality Certification - Regular
- [ ] Non-404 Jurisdictional General Permit
- [ ] Individual Permit
- [ ] 401 Water Quality Certification - Express
- [x] Riparian Buffer Authorization

1e. Is this notification solely for the record because written approval is not required?

*

For the record only for DWR 401 Certification: ( ) Yes (•) No

For the record only for Corps Permit: (•) Yes ( ) No

1f. Is this an after-the-fact permit application?*

( ) Yes (•) No

1g. Is payment into a mitigation bank or in-lieu fee program proposed for mitigation of impacts?

If so, attach the acceptance letter from mitigation bank or in-lieu fee program

○ Yes ◉ No

Acceptance Letter Attachment

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

FILE TYPE MUST BE PDF

1h. Is the project located in any of NC's twenty coastal counties?*

○ Yes ◉ No

1j. Is the project located in a designated trout watershed?*

○ Yes ◉ No

Link to trout information: http://www.saw.usace.army.mil/Missions/Regulatory-Permit-Program/Agency-Coordination/Trout.aspx

B. Applicant Information

1a. Who is the Primary Contact?*

NCDOT

1b. Primary Contact Email:*

crivenbark@ncdot.gov

1c. Primary Contact Phone:*

(xxx)xxx-xxxx

(919)707-6152

1d. Who is applying for the permit?*

☑ Owner ☐ Applicant (other than owner)

(Check all that apply)

1e. Is there an Agent/Consultant for this project?*

○ Yes ◉ No

2. Owner Information

2a. Name(s) on recorded deed:*

NCDOT

2b. Deed book and page no.:

2c. Responsible party:

(for Corporations)

2d. Address*

Street Address

1598 Mail Service Center

Address Line 2

City

Raleigh

State / Province / Region

NC

Postal / Zip Code

27699-1598

Country

USA

2e. Telephone Number:*

(xxx)xxx-xxxx

(919)707-6123

2f. Fax Number:

(xxx)xxx-xxxx

2g. Email Address:*

pharris@ncdot.gov

C. Project Information and Prior Project History

1. Project Information

1a. Name of project:*

Bridge No 123 over Meadow Branch on SR 1552 (BR-0120; Central)

1b. Subdivision name:

(if appropriate)

1c. Nearest municipality / town:*

Stokes

2. Project Identification

2a. Property Identification Number:

(tax PIN or parcel ID)

2b. Property size:

(in acres)

2c. Project Address

Street Address

Address Line 2

City

State / Province / Region

Postal / Zip Code

Country

2d. Site coordinates in decimal degrees

Please collect site coordinates in decimal degrees. Use between 4-6 digits (unless you are using a survey-grade GPS device) after the decimal place as appropriate, based on how the location was determined. (For example, most mobile phones with GPS provide locational precision in decimal degrees to map coordinates to 5 or 6 digits after the decimal place.)

Latitude: *

35.703090

ex: 34.208504

Longitude: *

-77.205065

-77.796371

3. Surface Waters

3a. Name of the nearest body of water to proposed project: *

Meadow Branch

3b. Water Resources Classification of nearest receiving water: *

C; Sw, NSW

Surface Water Lookup

3c. What river basin(s) is your project located in? *

Tar-Pamlico

3d. Please provide the 12-digit HUC in which the project is located. *

030201030503

River Basin Lookup

4. Project Description and History

4a. Describe the existing conditions on the site and the general land use in the vicinity of the project at the time of this application: *

General land use in the project vicinity is forestry, agriculture and rural residential.

4b. Have Corps permits or DWR certifications been obtained for this project (including all prior phases) in the past? *

○ Yes ◉ No ○ Unknown

4d. Attach an 8 1/2 X 11 excerpt from the most recent version of the USGS topographic map indicating the location of the project site. (for DWR)

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

File type must be pdf

4e. Attach an 8 1/2 X 11 excerpt from the most recent version of the published County NRCS Soil Survey map depicting the project site. (for DWR)

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

File type must be pdf

4f. List the total estimated acreage of all existing wetlands on the property:

2.79

4g. List the total estimated linear feet of all existing streams on the property:

(intermittent and perennial)

424

4h. Explain the purpose of the proposed project: *

Bridge replacement. Built in 1958, the bridge requires replacement due to deterioration of structural elements.

4i. Describe the overall project in detail, including indirect impacts and the type of equipment to be used: *

This project is comprised of the replacement of Bridge No. 730123 over Meadow Branch on SR 1552 (Tucker-Bullock Road) in Pitt County, North Carolina. The bridge will be replaced on the existing alignment while detouring traffic offsite. The proposed typical section on either side of the bridge will be normal crown with cross slope of 0.025, and consist of two 10' lanes with 3' paved shoulder and 3:1 side slopes to existing ground. The proposed bridge will be approximately 72 feet long with a clear roadway width of 24.8 feet. Typical road building equipment such as bulldozers, graders, and cranes will be used.

4j. Please upload project drawings for the proposed project.

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

BR-0120_Permit_Drawings_20191220.pdf	3.14MB
BR-0120_Permit_Drawings_BUFFER_20191204.pdf	1.86MB

File type must be pdf

5. Jurisdictional Determinations

5a. Have the wetlands or streams been delineated on the property or proposed impact areas? *

◉ Yes ○ No ○ Unknown

Comments:

JD package previously submitted

5b. If the Corps made a jurisdictional determination, what type of determination was made? *

○ Preliminary ○ Approved ○ Not Verified ◉ Unknown ○ N/A

Corps AID Number:

Example: SAW-2017-99999

5c. If 5a is yes, who delineated the jurisdictional areas?

Name (if known): Nathan Howell & Lillian Lovingood

Agency/Consultant Company: Three Oaks Engineering

Other:

5d1. Jurisdictional determination upload

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

BR0120_Updated PJD_Package_07102019.pdf 7.28MB

File type must be PDF

6. Future Project Plans

6a. Is this a phased project? *

○ Yes ◉ No

Are any other NWP(s), regional general permit(s), or individual permits(s) used, or intended to be used, to authorize any part of the proposed project or related activity? This includes other separate and distant crossing for linear projects that require Department of the Army authorization but don't require pre-construction notification.

D. Proposed Impacts Inventory

1. Impacts Summary

1a. Where are the impacts associated with your project? (check all that apply):

☑ Wetlands ☑ Streams-tributaries ☑ Buffers

☐ Open Waters ☐ Pond Construction

2. Wetland Impacts

If there are wetland impacts proposed on the site, then complete this question for each wetland area impacted.

"W." will be used in the table below to represent the word "wetland".

2a. Site # * (?)	2a1 Reason * (?)	2b. Impact type * (?)	2c. Type of W. *	2d. W. name *	2e. Forested *	2f. Type of Jurisdicition * (?)	2g. Impact area *
1	bridge	P	Riverine Swamp Forest	WB	Yes	Both	0.012 (acres)
2	bridge	P	Riverine Swamp Forest	WB	Yes	Both	0.023 (acres)
3	roadway/rip rap	P	Riverine Swamp Forest	WB	Yes	Both	0.002 (acres)

2g. Total Temporary Wetland Impact

0.000

2g. Total Permanent Wetland Impact

0.037

2g. Total Wetland Impact

0.037

2h. Comments:

3. Stream Impacts

If there are perennial or intermittent stream impacts (including temporary impacts) proposed on the site, then complete this question for all stream sites impacted.

"S." will be used in the table below to represent the word "stream".

	3a. Reason for impact * (?)	3b.Impact type *	3c. Type of impact *	3d. S. name *	3e. Stream Type * (?)	3f. Type of Jurisdiction *	3g. S. width *	3h. Impact length *

S1	Bridge construction	Temporary	Bank Stabilization	Meadow Branch	Perennial	Both	30 Average (feet)	85 (linear feet)
S2	Bridge construction	Temporary	Bank Stabilization	Meadow Branch	Perennial	Both	30 Average (feet)	73 (linear feet)

** All Perennial or Intermittent streams must be verified by DWR or delegated local government.

3i. Total jurisdictional ditch impact in square feet:

0

3i. Total permanent stream impacts:

0

3i. Total temporary stream impacts:

158

3i. Total stream and ditch impacts:

158

3j. Comments:

Shown as combined 0.02 ac on the impact summary sheet

6. Buffer Impacts (for DWR)

If project will impact a protected riparian buffer, then complete the chart below. Individually list all buffer impacts below.

6a. Project is in which protect basin(s)?*

Check all that apply.

- ☐ Neuse
- ☐ Catawba
- ☐ Goose Creek
- ☐ Other
- ☑ Tar-Pamlico
- ☐ Randleman
- ☐ Jordan Lake

6b. Impact Type * (?)	6c. Per or Temp * (?)	6d. Stream name *	6e. Buffer mitigation required? *	6f. Zone 1 impact *	6g. Zone 2 impact *
Roadway Construction	P	Meadow Branch	No	559 (square feet)	137 (square feet)
Proposed bridge	P	Meadow Branch	No	67 (square feet)	1,038 (square feet)

6h. Total buffer impacts:

	Zone 1	Zone 2
Total Temporary impacts:	0.00	0.00

	Zone 1	Zone 2
Total Permanent impacts:	626.00	1,175.00

	Zone 1	Zone 2
Total combined buffer impacts:	626.00	1,175.00

6i. Comments:

Supporting Documentation - i.e. Impact Maps, Plan Sheet, etc.

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

File must be PDF

E. Impact Justification and Mitigation

1. Avoidance and Minimization

1a. Specifically describe measures taken to avoid or minimize the proposed impacts in designing the project:*

The project utilizes the existing alignment. Slopes will be 3:1 in jurisdictional wetlands.

1b. Specifically describe measures taken to avoid or minimize the proposed impacts through construction techniques:*

Traffic will be maintained during construction by use of an offsite detour route. Design Standards in Sensitive Watersheds will be implemented. See the attached Stormwater Management Plan for additional measures.

2. Compensatory Mitigation for Impacts to Waters of the U.S. or Waters of the State

2a. Does the project require Compensatory Mitigation for impacts to Waters of the U.S. or Waters of the State?

○ Yes ◉ No

2b. If this project DOES NOT require Compensatory Mitigation, explain why:

Proposed impacts are minimal.

NC Stream Temperature Classification Maps can be found under the Mitigation Concepts tab on the Wilmington District's RIBITS website.

F. Stormwater Management and Diffuse Flow Plan (required by DWR)

*** Recent changes to the stormwater rules have required updates to this section .***

1. Diffuse Flow Plan

1a. Does the project include or is it adjacent to protected riparian buffers identified within one of the NC Riparian Buffer Protection Rules?

◉ Yes ○ No

1b. All buffer impacts and high ground impacts require diffuse flow or other form of stormwater treatment. If the project is subject to a state implemented riparian buffer protection program, include a plan that fully documents how diffuse flow will be maintained.

All Stormwater Control Measures (SCM)s must be designed in accordance with the NC Stormwater Design Manual. Associated supplement forms and other documentation shall be provided.

What type of SCM are you providing?

- ☐ Level Spreader
- ☐ Vegetated Conveyance (lower SHWT)
- ☐ Wetland Swale (higher SHWT)
- ☐ Other SCM that removes minimum 30% nitrogen
- ☑ Proposed project will not create concentrated stormwater flow through the buffer

(check all that apply)

For a list of options to meet the diffuse flow requirements, click here.

Diffuse Flow Documentation

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

File type must be PDF

2. Stormwater Management Plan

2a. Is this a NCDOT project subject to compliance with NCDOT's Individual NPDES permit NCS000250? *

◉ Yes ○ No

Comments:

G. Supplementary Information

1. Environmental Documentation

1a. Does the project involve an expenditure of public (federal/state/local) funds or the use of public (federal/state) land? *

◉ Yes ○ No

1b. If you answered "yes" to the above, does the project require preparation of an environmental document pursuant to the requirements of the National or State (North Carolina) Environmental Policy Act (NEPA/SEPA)? *

◉ Yes ○ No

1c. If you answered "yes" to the above, has the document review been finalized by the State Clearing House? (If so, attach a copy of the NEPA or SEPA final approval letter.) *

◉ Yes ○ No

NEPA or SEPA Final Approval Letter

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

FILE TYPE MUST BE PDF

2. Violations (DWR Requirement)

2a. Is the site in violation of DWR Water Quality Certification Rules (15A NCAC 2H .0500), Isolated Wetland Rules (15A NCAC 2H .1300), or DWR Surface Water or Wetland Standards or Riparian Buffer Rules (15A NCAC 2B .0200)? *

○ Yes ◉ No

3. Cumulative Impacts (DWR Requirement)

3a. Will this project (based on past and reasonably anticipated future impacts) result in additional development, which could impact nearby downstream water quality? *

○ Yes ◉ No

3b. If you answered "no," provide a short narrative description.

The project involves replacing an existing bridge on the exsting alignment, and should not result in additional development.

4. Sewage Disposal (DWR Requirement)

4a. Is sewage disposal required by DWR for this project? *

○ Yes ○ No ◉ N/A

5. Endangered Species and Designated Critical Habitat (Corps Requirement)

5a. Will this project occur in or near an area with federally protected species or habitat? *

○ Yes ◉ No

5b. Have you checked with the USFWS concerning Endangered Species Act impacts? *

◉ Yes ○ No

5c. If yes, indicate the USFWS Field Office you have contacted.

Raleigh

5d. Is another Federal agency involved? *

○ Yes ◉ No ○ Unknown

5e. Is this a DOT project located within Division's 1-8? *

◉ Yes ○ No

5j. What data sources did you use to determine whether your site would impact Endangered Species or Designated Critical Habitat? *

USFWS County list, NC Natural Heritage Program database.

Consultation Documentation Upload

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

File type must be PDF

6. Essential Fish Habitat (Corps Requirement)

6a. Will this project occur in or near an area designated as an Essential Fish Habitat? *

○ Yes ◉ No

6b. What data sources did you use to determine whether your site would impact an Essential Fish Habitat? *

NMFS map data.

7. Historic or Prehistoric Cultural Resources (Corps Requirement)

Link to the State Historic Preservation Office Historic Properties Map (does not include archaeological data: http://gis.ncdcr.gov/hpoweb/

7a. Will this project occur in or near an area that the state, federal or tribal governments have designated as having historic or cultural preservation status (e.g., National Historic Trust designation or properties significant in North Carolina history and archaeology)? *

○ Yes ◉ No

7b. What data sources did you use to determine whether your site would impact historic or archeological resources? *

NEPA Document

7c. Historic or Prehistoric Information Upload

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

File must be PDF

8. Flood Zone Designation (Corps Requirement)

Link to the FEMA Floodplain Maps: https://msc.fema.gov/portal/search

8a. Will this project occur in a FEMA-designated 100-year floodplain? *

◉ Yes ○ No

8b. If yes, explain how project meets FEMA requirements:

NCDOT Hydraulics Unit coordination with FEMA.

8c. What source(s) did you use to make the floodplain determination? *

FEMA mapping.

Miscellaneous

Comments

Miscellaneous attachments not previously requested.

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

File must be PDF or KMZ

Signature

*

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

- I have given true, accurate, and complete information on this form;
- I agree that submission of this PCN 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 PCN form.

Full Name: *

Mack Christopher Rivenbark, III

Signature

Date

1/14/2020

Revised 1/29/20

North Carolina Department of Transportation

Highway Stormwater Program

STORMWATER MANAGEMENT PLAN

FOR NCDOT PROJECTS

(Version 2.08; Released April 2018)

General Project Information

WBS Element:	48829.1.1	**TIP Number:**	BR-0120	**Project Type:**	Bridge Replacement
Date:	11/21/2019				

NCDOT Contact:	David Stutts, PE		**Contractor / Designer:**	Kisinger Campo & Associates	
	Address:	1000 Birch Ridge Drive Raleigh, North Carolina 27610		**Address:**	301 Fayettville St., Suite 1500 Raleigh, NC 27604
	Phone:	(919) 707-6400		**Phone:**	(919) 882-7839
	Email:	dstutts@ncdot.gov		**Email:**	jmcnulty@kcaeng.com
City/Town:	Stokes		**County(ies):**	Pitt	
River Basin(s):	Tar-Pamlico		**CAMA County?**	No	
Wetlands within Project Limits?	Yes				

Project Description

Project Length (lin. miles or feet):	459 ft.	**Surrounding Land Use:**	Agricultural

	Proposed Project	**Existing Site**
Project Built-Upon Area (ac.)	0.3 ac.	0.3 ac.
Typical Cross Section Description:	The proposed typical section on either side of the bridge will be normal crown with cross slope of 0.025, and consist of two 10' lanes with 3' paved shoulder and 3:1 side slopes to existing ground. The bridge typical section will be supered towards RT with a 0.025 cross slope, and consist of two 10' lanes with 2'-6" shoulder.	Existing roadways consists of two 11' lanes, with 3' unpaved shoulders.
Annual Avg Daily Traffic (veh/hr/day):	Design/Future: 50 Year: 2016	Existing: 50 Year: 2016
General Project Narrative: (Description of Minimization of Water Quality Impacts)	The project consists of improving roadway approaches as well as replacing the existing bridge. Existing drainage systems consist of low capacity roadside ditches and overland flow, all draining to wetlands and Meadow Branch. The existing bridge currently drains off the edge of the bridge directly to Meadow Branch. All existing drainage systems impacted by the proposed bridge replacement will be replaced with a proposed drainage system. Proposed drainage will be designed to maintain the same drainage patterns as the existing condition. Dissipator pads are provided at pipe outlets and areas where ditches outlet concentrated flow within buffer zones. Shoulder berm and gutter will be used to convey runoff from the bridge where it will be collected in the proposed inlets and discharged outside the buffer zone.	

Waterbody Information

Surface Water Body (1):	Meadow Branch	**NCDWR Stream Index No.:**	28-103-8-1	
NCDWR Surface Water Classification for Water Body		**Primary Classification:**	Class C	None
		Supplemental Classification:	Swamp Waters (Sw)	(NSW)
Other Stream Classification:				
Impairments:				

Aquatic T&E Species?		Comments:			
NRTR Stream ID:	N/A			**Buffer Rules in Effect:**	Tar-Pamlico
Project Includes Bridge Spanning Water Body?	Yes	**Deck Drains Discharge Over Buffer?**	No	**Dissipator Pads Provided in Buffer?**	Yes
Deck Drains Discharge Over Water Body?	No	(If yes, provide justification in the General Project Narrative)		(If yes, describe in the General Project Narrative; if no, justify in the General Project Narrative)	
(If yes, provide justification in the General Project Narrative)					

Revised 1/29/20

North Carolina Department of Transportation

Highway Stormwater Program

STORMWATER MANAGEMENT PLAN

FOR NCDOT PROJECTS

(Version 2.08; Released April 2018)

WBS Element: 48829.1.1 **TIP No.:** BR-0120 **County(ies):** Pitt

Swales

Sheet No.	Station & Coordinates (Road and Non Road Projects)	Surface Water Body	Base Width (ft)	Front Slope (H:1)	Back Slope (H:1)	Drainage Area (ac)	Recommended Treatm't Length (ft)	Actual Length (ft)	Longitudinal Slope (%)	Q2 (cfs)	V2 (fps)	Q10 (cfs)	V10 (fps)	Rock Checks Used	BMP Associated w/ Buffer Rules?
4	12+68 RT 35.702953, -77.205099	(1)Meadow Branch	2.0	3.0	3.0	0.8	80	97	0.90%	1.5	2.2	1.9	1.1	No	No

Additional Comments

Please Note: Swales are proposed to compensate for existing swales impacted by proposed fill slopes. Recommended treatment length determined from drainagae area of proposed project limits. Velocities and Flow Rates determined for overall drainage area, including offsite flow into swales. 12+68 RT swale daylights 20' before buffer zone where it ties back into the existing ditch.

09/08/99

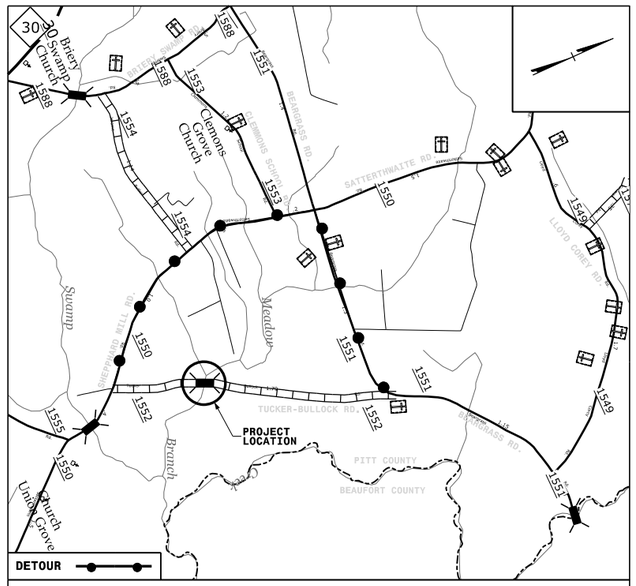
Revised 1/29/20

29-JAN-2020 10:40
G:\4201720\XX-SMU-Build Grant\BR-0120_D2_Pitt 123\Hydraulics\CADD\PSH\BR-0120_Hyd_PSH_tsh_PERMITS.dgn
ranking AT KCA0773

TIP PROJECT: BR-0120

CONTRACT: C204522

See Sheet 1A For Index of Sheets



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PITT COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BR-0120	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
48829.1.1	N/A	PE
48829.2.1	N/A	R/W, UTILITIES
48829.3.1	2020001	CONSTRUCTION

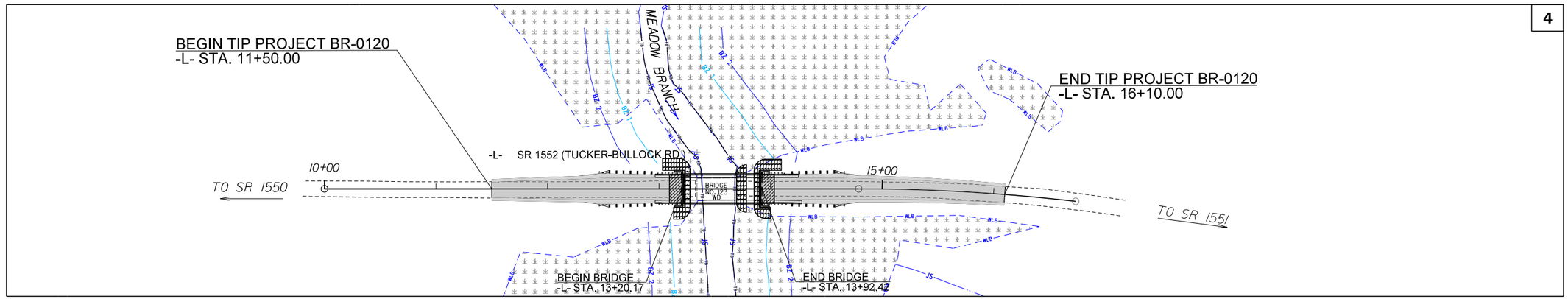
LOCATION: BRIDGE 730123 ON SR 1552 (TUCKER–BULLOCK RD) OVER MEADOW BRANCH

TYPE OF WORK: GRADING, DRAINAGE, PAVING AND STRUCTURE

WETLAND & STREAM IMPACTS
1/29/2020

PERMIT DRAWING
SHEET 1 OF 11

NC GRID
NAD 83 NA 2011



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES

PLANS: 50 25 0 50 100

PROFILE (HORIZONTAL): 50 25 0 50 100

PROFILE (VERTICAL): 10 5 0 10 20

DESIGN DATA

ADT 2020 = 70
V = 55 MPH
T = 6%*
(*TTST 3% + DUALS 3%)
FUNC CLASS = LOCAL RURAL
SUB–REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT BR–0120 = 0.073 MILES
LENGTH STRUCTURES TIP PROJECT BR–0120 = 0.014 MILES
TOTAL LENGTH TIP PROJECT BR–0120 = 0.087 MILES

NCDOT CONTACT: DAVID STUTTS, PE
SMU PROJECT MANAGER

Prepared in the Office of:
KCA KISINGER CAMPO & ASSOCIATES
NC FIRM LICENSE No: C-1506
301 Fayetteville St., Suite 1500
Raleigh, NC 27601
(919)882-7839

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: SEPTEMBER 12, 2019

LETTING DATE: MARCH 17, 2020

JONATHAN LANGSTON, PE
PROJECT ENGINEER

ALLEN MCSWAIN
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 043571 ENGINEER SAMUEL L CULLUM P.E.

SIGNATURE:

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 045983 ENGINEER JONATHAN C LANGSTON P.E.

SIGNATURE:

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •

Revised 1/29/20

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
BR-0120	4

R/W SHEET NO.

ROADWAY DESIGN ENGINEER — SEAL 045983, JONATHAN C LANGSTON, NORTH CAROLINA PROFESSIONAL ENGINEER

HYDRAULICS ENGINEER — SEAL 043571, SAMUEL L CULLUM, NORTH CAROLINA PROFESSIONAL ENGINEER

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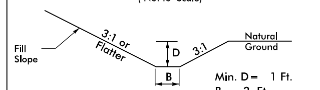
PREPARED IN THE OFFICE OF: KCA KISINGER CAMPO & ASSOCIATES — NC FIRM LICENSE No: C-1506, 301 Fayetteville St., Suite 1500, Raleigh, NC 27601, (919)882-7839

PERMIT DRAWING SHEET 2 OF 11

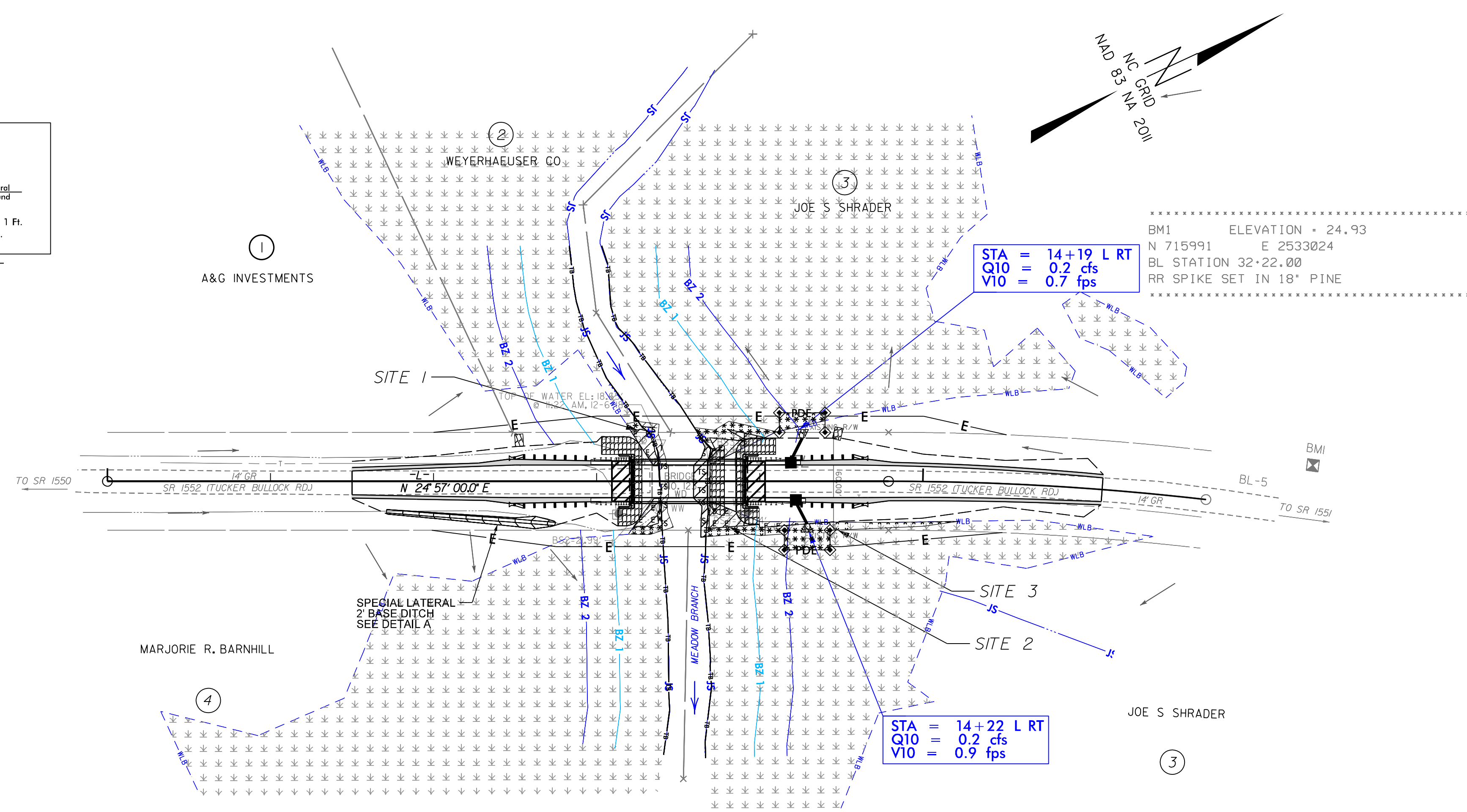
-L-
PI Sta 15+76.52
△ = 6° 34' 19.8" (RT)
D = 3° 22' 13.2"
L = 195.00'
T = 97.61'
R = 1,700.00'
SE = 4%
Lr = 120'

DETAIL A
SPECIAL LATERAL BASE DITCH
(Not to Scale)



FROM 11+71 -L- TO 12+68 -L-

F — DENOTES FILL IN WETLAND
E — DENOTES EXCAVATION IN WETLAND
TS — DENOTES TEMPORARY IMPACTS IN SURFACE WATER
DENOTES MECHANIZED CLEARING

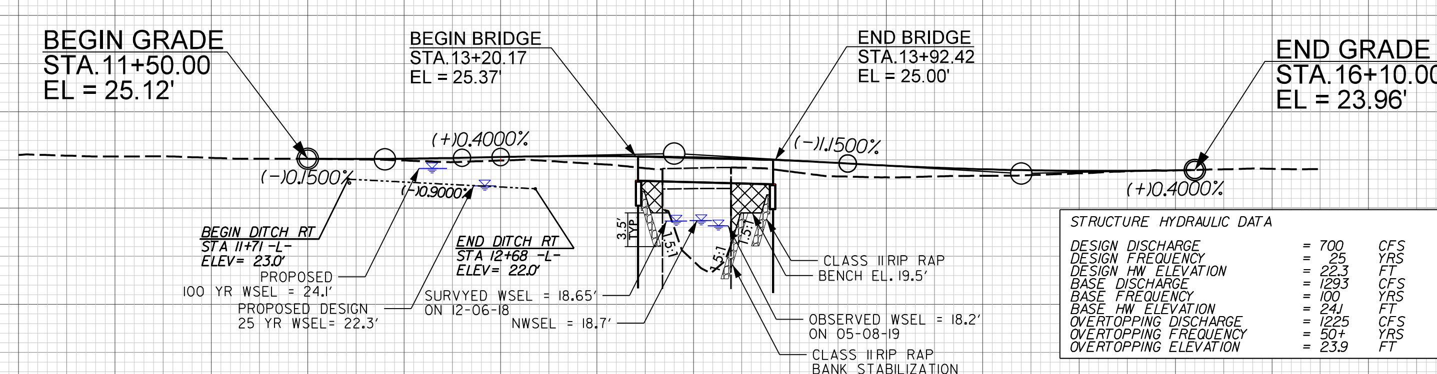


BM1 ELEVATION = 24.93
N 715991 E 2533024
BL STATION 32+22.00
RR SPIKE SET IN 18" PINE

-L- SR 1552 (OVER MEADOW BRANCH)

BM1 ELEVATION = 24.93
N 715991 E 2533024
BL STATION 32+22.00
RR SPIKE SET IN 18" PINE

PI = 11+90.00	PI = 13+40.00	PI = 15+20.00
K = 145	K = 116	K = 116
EL = 25.06'	EL = 25.66'	EL = 23.59'
VC = 80'	VC = 180'	VC = 180'
DS > 55 MPH	DS > 55 MPH	DS > 55 MPH



STRUCTURE HYDRAULIC DATA

DESIGN DISCHARGE	=	700	CFS
DESIGN FREQUENCY	=	25	YRS
DESIGN HW ELEVATION	=	22.3	FT
BASE DISCHARGE	=	1293	CFS
BASE FREQUENCY	=	100	YRS
BASE HW ELEVATION	=	24.1	FT
OVERTOPPING DISCHARGE	=	1225	CFS
OVERTOPPING FREQUENCY	=	50+	YRS
OVERTOPPING ELEVATION	=	23.9	FT

FOR STRUCTURE PLANS, SEE S-1 THRU S-14

8/17/99

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Revised 1/29/20

REVISIONS

8/17/99

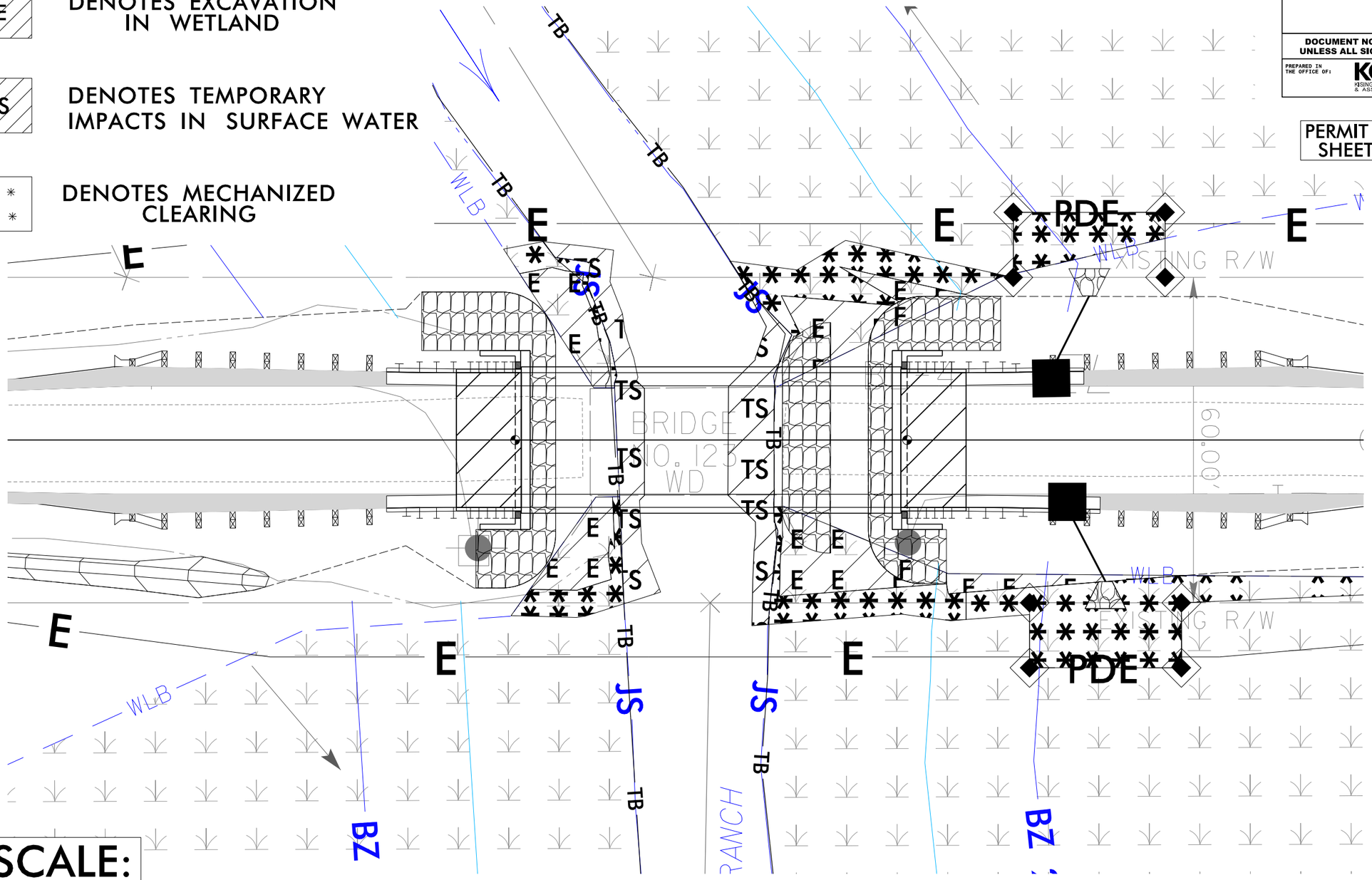
F F — DENOTES FILL IN WETLAND

E E — DENOTES EXCAVATION IN WETLAND

TS TS — DENOTES TEMPORARY IMPACTS IN SURFACE WATER

* * * * * * * * * * — DENOTES MECHANIZED CLEARING

SITE 1 ENLARGEMENT



SCALE:
1″ = 20′

PROJECT REFERENCE NO.	SHEET NO.
BR-0120	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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Raleigh, NC 27601
(919)882-7839

PERMIT DRAWING
SHEET 3 OF 11

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PROJECT REFERENCE NO.	SHEET NO.
BR-0120	4

R/W SHEET NO.

ROADWAY DESIGN ENGINEER — SEAL 045983, JONATHAN C LANGSTON, PROFESSIONAL ENGINEER, NORTH CAROLINA

HYDRAULICS ENGINEER — SEAL 043571, SAMUEL L CULLUM, PROFESSIONAL ENGINEER, NORTH CAROLINA

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PERMIT DRAWING
SHEET 4 OF 11

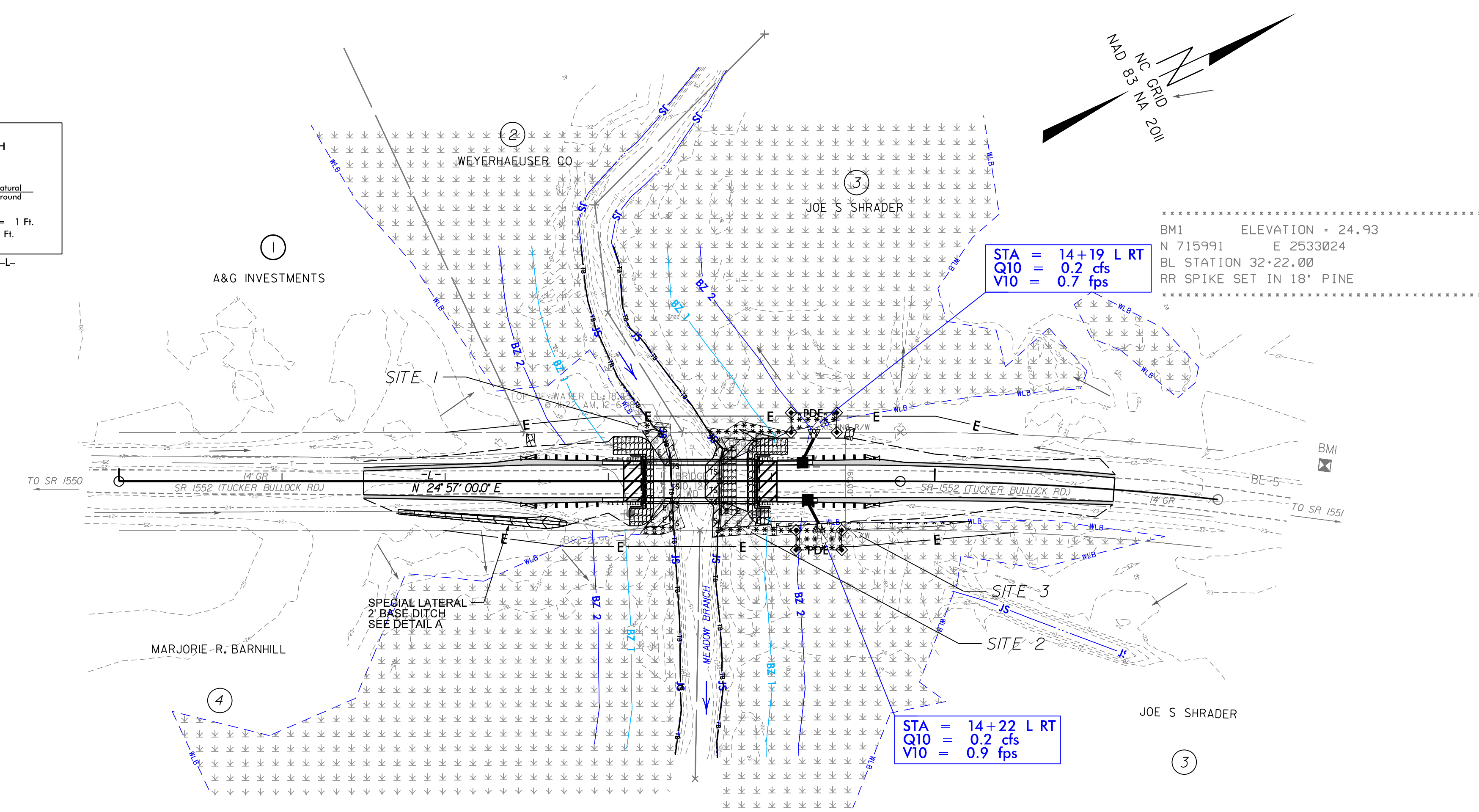
Revised 1/29/20

REVISIONS

-L-
PI Sta 15+76.52
△ = 6° 34' 19.8" (RT)
D = 3° 22' 13.2"
L = 195.00'
T = 97.61'
R = 1,700.00'
SE = 4%
Lr = 120'

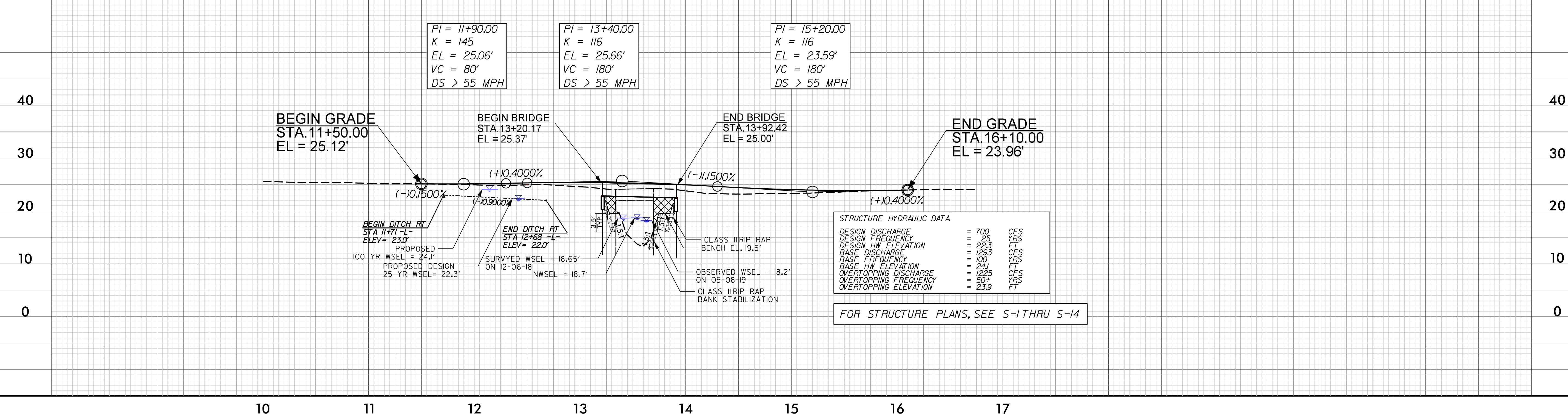
DETAIL A
SPECIAL LATERAL BASE DITCH
(Not to Scale)
Fill Slope; 3:1 or Flatter; D; 3:1; Natural Ground; B
Min. D = 1 Ft.
B = 2 Ft.
FROM 11+71 -L- TO 12+68 -L-

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



-L- SR 1552 (OVER MEADOW BRANCH)

BM1 ELEVATION = 24.93
N 715991 E 2533024
BL STATION 32+22.00
RR SPIKE SET IN 18" PINE



STRUCTURE HYDRAULIC DATA

DESIGN DISCHARGE	= 700	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 22.3	FT
BASE DISCHARGE	= 1293	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 24.1	FT
OVERTOPPING DISCHARGE	= 1225	CFS
OVERTOPPING FREQUENCY	= 50+	YRS
OVERTOPPING ELEVATION	= 23.9	FT

FOR STRUCTURE PLANS, SEE S-1 THRU S-14

Revised 1/29/20

REVISIONS

8/17/99

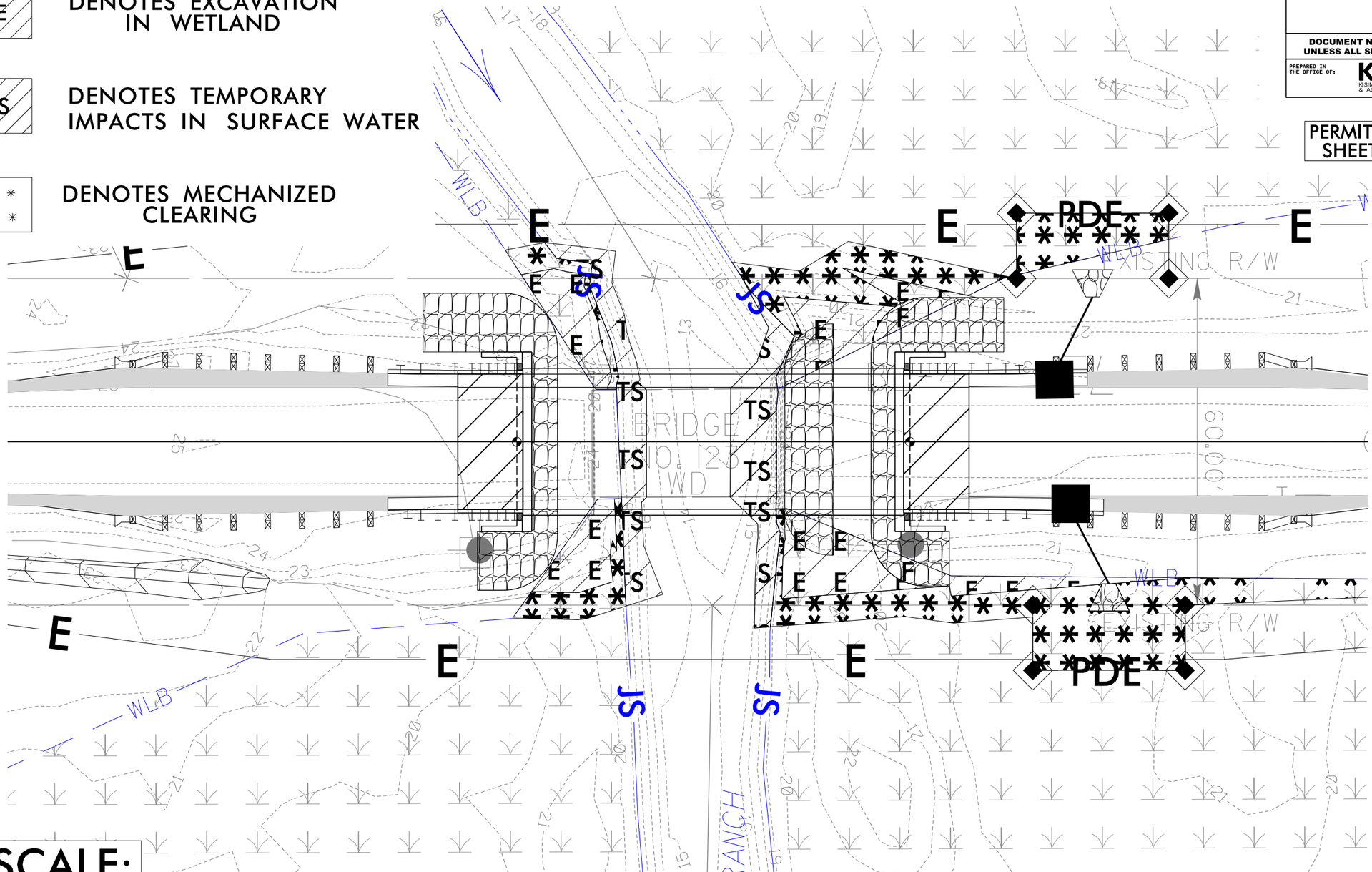
F F — DENOTES FILL IN WETLAND

E E — DENOTES EXCAVATION IN WETLAND

TS TS — DENOTES TEMPORARY IMPACTS IN SURFACE WATER

* * * * — DENOTES MECHANIZED CLEARING

SITE 1 ENLARGEMENT



PROJECT REFERENCE NO.	SHEET NO.
BR-0120	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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Raleigh, NC 27601
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SHEET 5 OF 11

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6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	BR-0120	X-1

PERMIT DRAWING
SHEET 6 OF 11

WETLAND BOUNDARY

WETLAND BOUNDARY

4:1 0.025 0.025 3:1 22.74 E 3:1

24.93

12+00.00

6:1 0.027 0.017 3:1

25.12

11+50.00

BEGIN PROJECT BR-0120

—L—

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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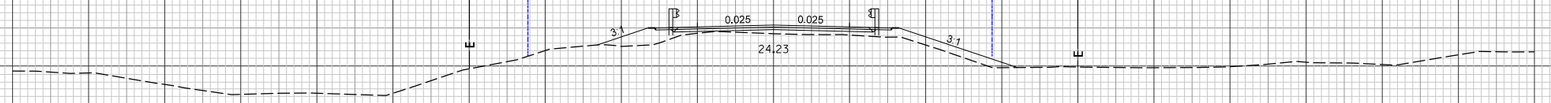
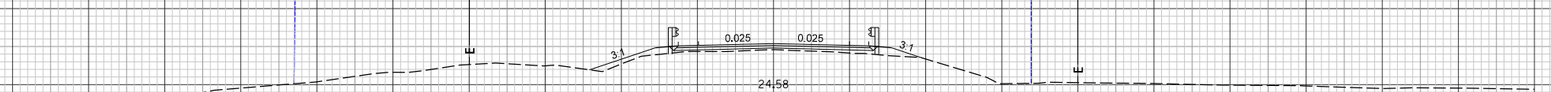
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	BR-0120	X-2

PERMIT DRAWING
SHEET 7 OF 11

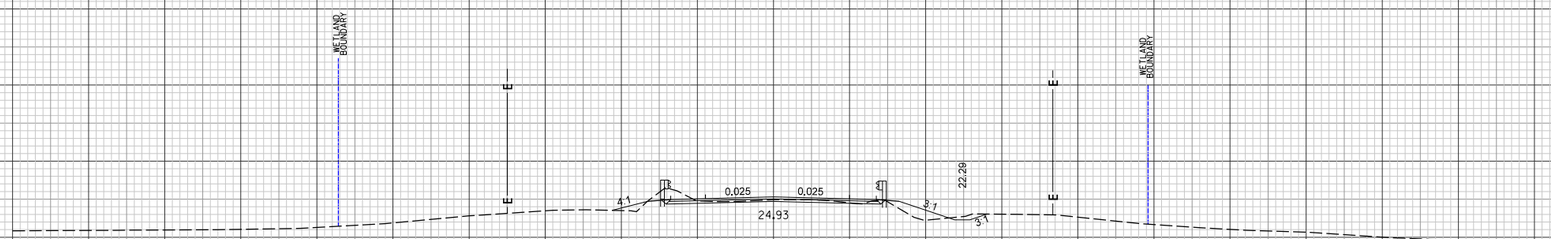
BEGIN BRIDGE 13+20.17



13+20.17



13+00.00



12+50.00

Revised 1/29/20

6/23/16

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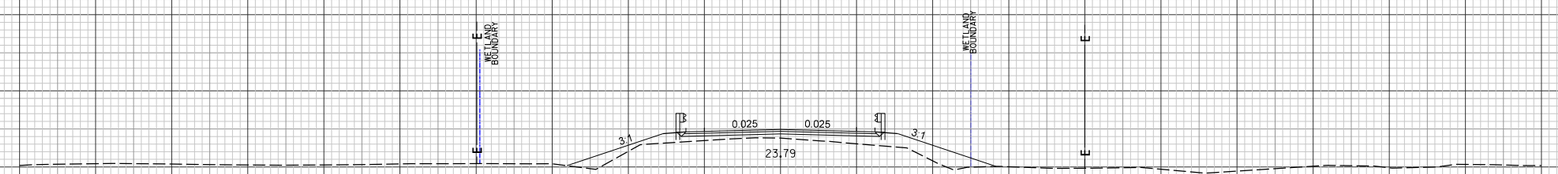
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	BR-0120	X-3

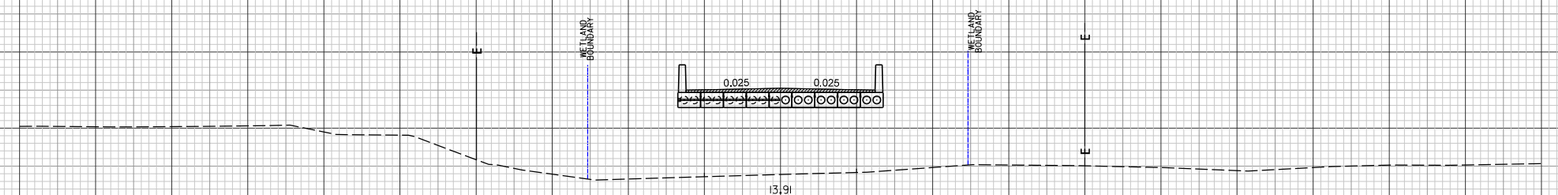
PERMIT DRAWING
SHEET 8 OF 119



14+00.00

13+92.42

END BRIDGE 13+92.42



13+50.00

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6/23/16

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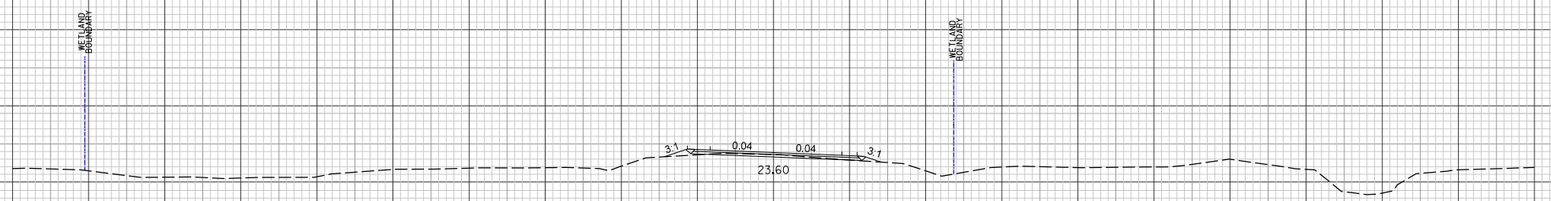
6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	BR-0120	X-4

PERMIT DRAWING
SHEET 9 OF 11

Revised 1/29/20



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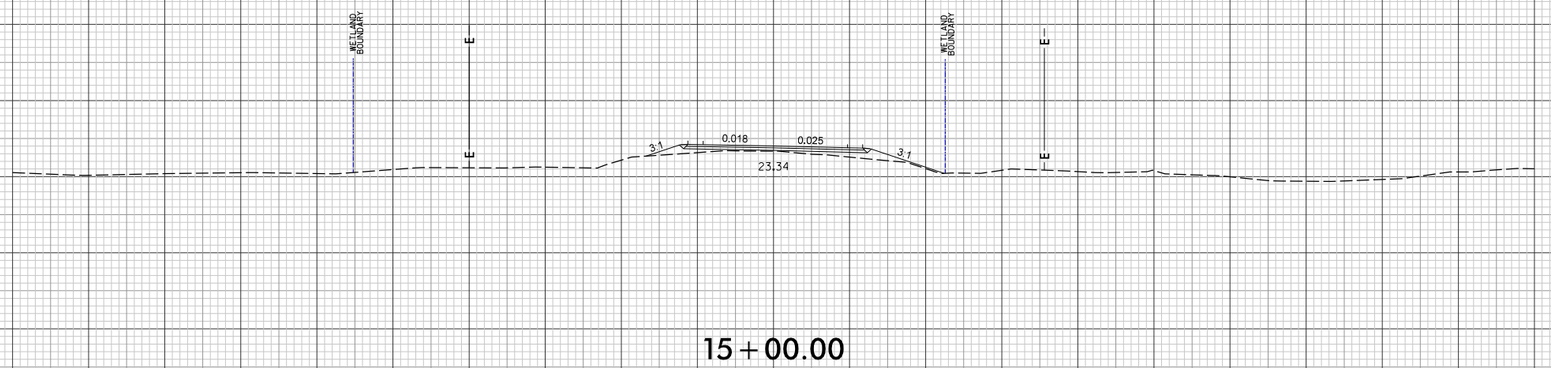

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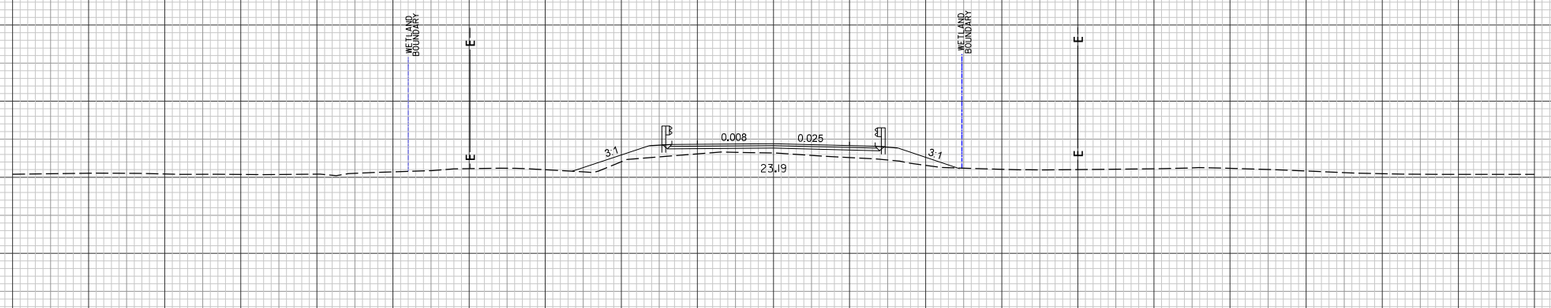

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6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	BR-0120	X-5

PERMIT DRAWING
SHEET 10 OF 11

END PROJECT BR-0120

Revised 1/29/20

16+10.00

16+00.00

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AT KCA0773

Revised 1/29/20

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)
1	13+18.04 / 13+46.98 -L-	Proposed Bridge			< 0.01	< 0.01			< 0.01			
2	13+59.43 / 14+10.66 -L-	Proposed Bridge	< 0.01		< 0.01	0.01			< 0.01			
3	14+00.00 / 15+22.71 -L-	Roadway/Rip Rap pad	< 0.01									
TOTALS*:			< 0.01		0.02	0.02			0.02			

*Rounded totals are sum of actual impacts

NOTES:
Permanent Fill in Wetlands = 218 sf

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
12/20/2019
Pitt
BR-0120
48829.1.1
SHEET 11 OF 11

Revised 2018 Feb

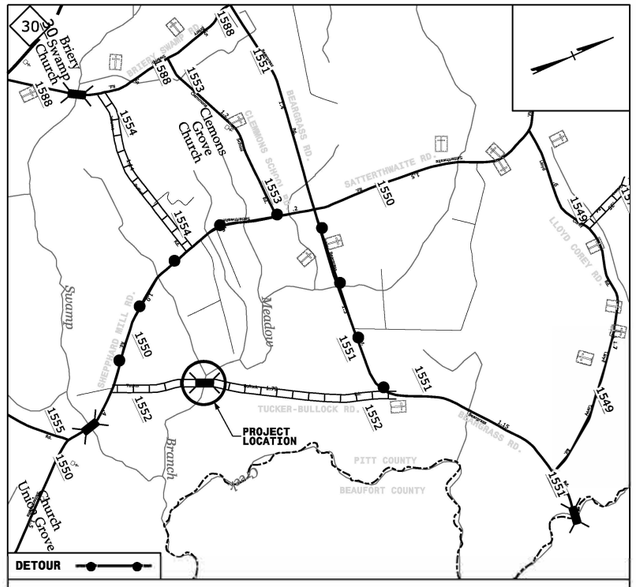
Revised 1/29/20

09/08/99

TIP PROJECT: BR-0120

CONTRACT: C204522

See Sheet 1A For Index of Sheets



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PITT COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BR-0120	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
48829.1.1	N/A	PE
48829.2.1	N/A	R/W, UTILITIES
48829.3.1	2020001	CONSTRUCTION

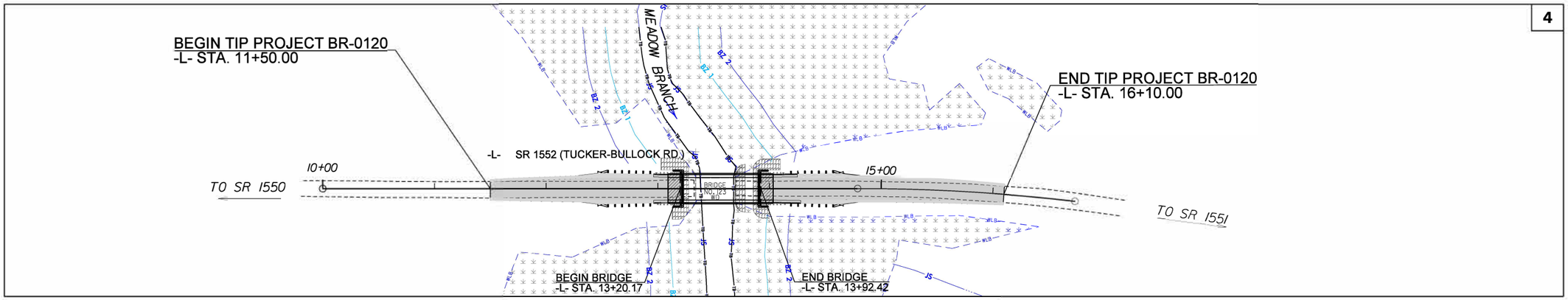
BUFFER IMPACTS PERMIT

BUFFER DRAWING SHEET 1 OF 5

LOCATION: BRIDGE 730123 ON SR 1552 (TUCKER-BULLOCK RD) OVER MEADOW BRANCH

TYPE OF WORK: GRADING, DRAINAGE, PAVING AND STRUCTURE

NC GRID NAD 83 NA 2011



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GRAPHIC SCALES

PLANS 50 25 0 50 100

PROFILE (HORIZONTAL) 50 25 0 50 100

PROFILE (VERTICAL) 10 5 0 10 20

DESIGN DATA

ADT 2020 = 70
V = 55 MPH
T = 6%*
(*TTST 3% + DUALS 3%)
FUNC CLASS = LOCAL RURAL
SUB-REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT BR-0120 = 0.073 MILES
LENGTH STRUCTURES TIP PROJECT BR-0120 = 0.014 MILES
TOTAL LENGTH TIP PROJECT BR-0120 = 0.087 MILES

NCDOT CONTACT: DAVID STUTTS, PE
SMU PROJECT MANAGER

Prepared In the Office of:
KCA KISINGER CAMPO & ASSOCIATES
NC FIRM LICENSE No: C-1506
301 Fayetteville St., Suite 1500
Raleigh, NC 27601
(919)882-7839

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: SEPTEMBER 12, 2019

LETTING DATE: MARCH 17, 2020

JONATHAN LANGSTON, PE
PROJECT ENGINEER

ALLEN MCSWAIN
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 043571 ENGINEER SAMUEL L CALLUM P.E.

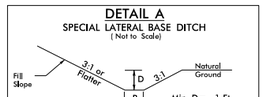
SIGNATURE:

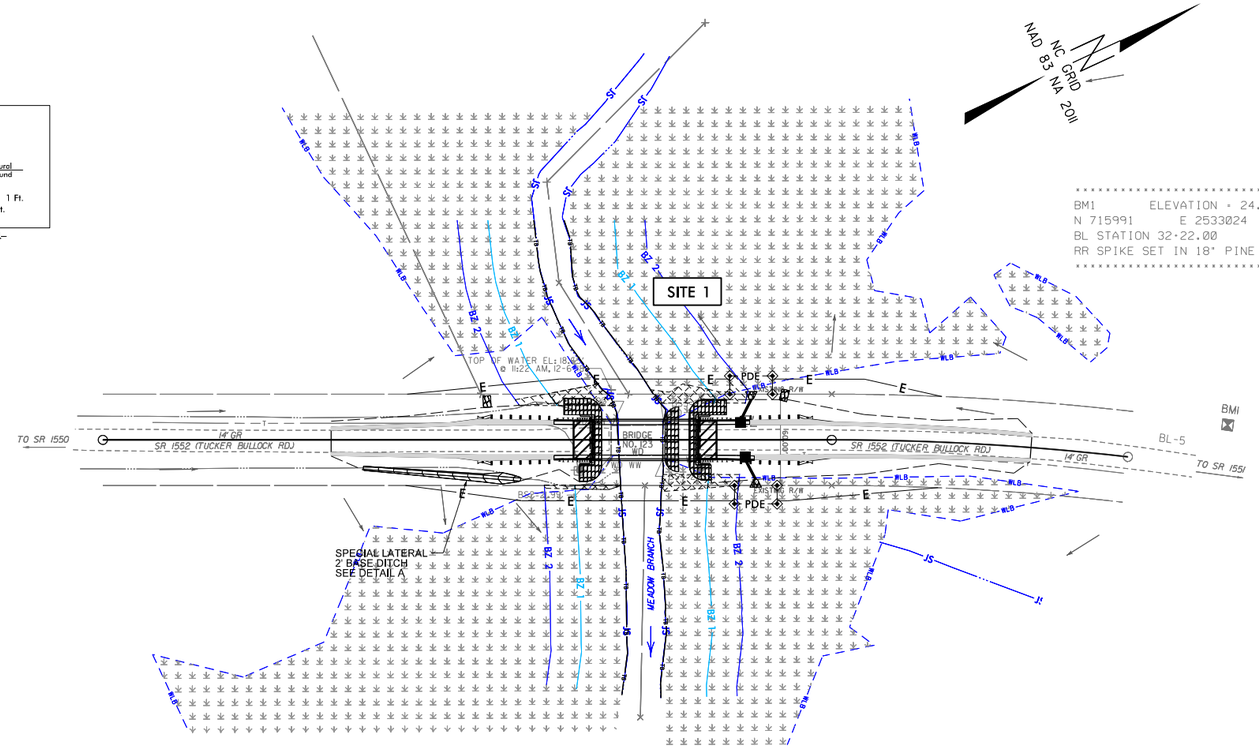
ROADWAY DESIGN ENGINEER

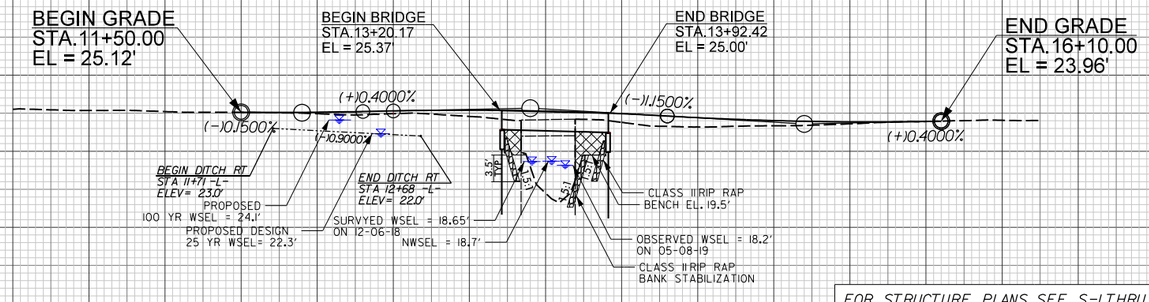
NORTH CAROLINA PROFESSIONAL SEAL 045983 ENGINEER JONATHAN C LANGSTON P.E.

SIGNATURE:

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •







Revised 1/29/20

8/17/99

REVISIONS

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PROJECT REFERENCE NO.	SHEET NO.
BR-0120	4
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
SEAL 045983 JONATHAN C LANGSTON	SEAL 043571 SAMUEL L CULLUM

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PREPARED IN
THE OFFICE OF:

KCA
KISINGER CAMPO
& ASSOCIATES

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Suite 1500
Raleigh, NC 27601
(919)882-7839

BUFFER DRAWING
SHEET 2 OF 5

▨ ALLOWABLE IMPACTS ZONE 1

▨ ALLOWABLE IMPACTS ZONE 2

BM1 ELEVATION = 24.93
N 715991 E 2533024
BL STATION 32+22.00
RR SPIKE SET IN 18" PINE

ALLOWABLE IMPACTS ZONE 1

ALLOWABLE IMPACTS ZONE 2

SITE 1 ENLARGEMENT

PROJECT REFERENCE NO.	SHEET NO.
BR-0120	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
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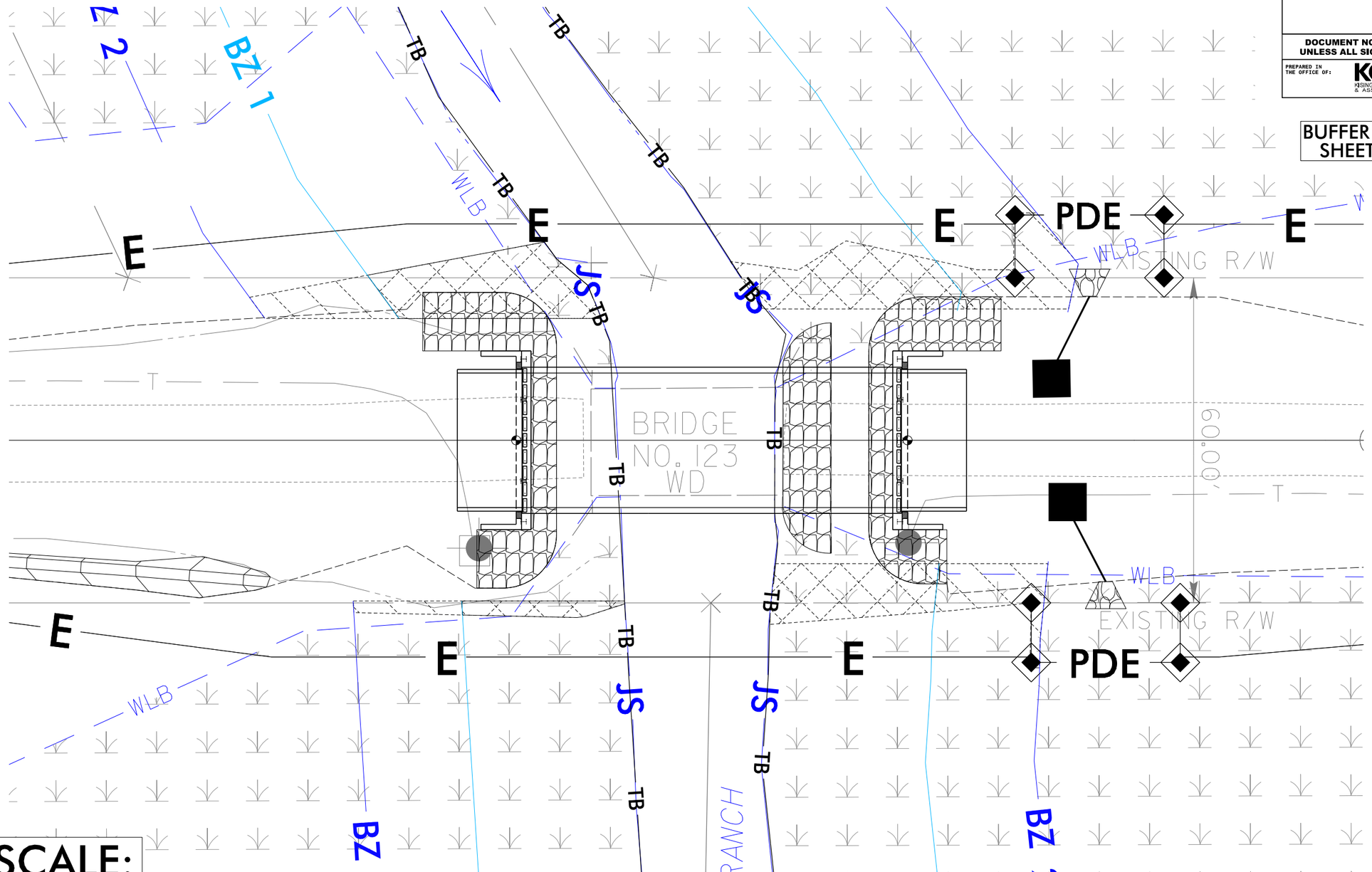
(919)882-7839

BUFFER DRAWING
SHEET 3 OF 5



SCALE:
1" = 20'

REVISIONS

Revised 1/29/20

8/17/99

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RIPARIAN BUFFER IMPACTS SUMMARY

Site No.	Station (From/To)	Structure Size / Type	IMPACTS									BUFFER REPLACEMENT	
			TYPE			ALLOWABLE			MITIGABLE				
			ROAD CROSSING	BRIDGE	PARALLEL IMPACT	ZONE 1 (ft^2)	ZONE 2 (ft^2)	TOTAL (ft^2)	ZONE 1 (ft^2)	ZONE 2 (ft^2)	TOTAL (ft^2)	ZONE 1 (ft^2)	ZONE 2 (ft^2)
1	12+70.96 / 13+09.30 -L-	Roadway Crossing	X			193	135	328					
1	13+09.30 / 14+03.30 -L-	70' Prop Bridge		X		67	1038	1105					
1	14+03.30 / 14+23.93 -L-	Roadway Crossing	X			366	2	368					
TOTALS*:						**626**	**1175**	**1801**	**0**	**0**	**0**	**0**	**0**

Revised 1/29/20

NOTES:

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
11/19/2019
Pitt
BR-0120
48829.1.1
SHEET 4 OF 5

Revised 1/29/20

WETLANDS IN BUFFER IMPACTS SUMMARY

SITE NO.	STATION (FROM/TO)	Structure Size / Type	WETLANDS IN BUFFERS ZONE 1 (ft^2)	WETLANDS IN BUFFERS ZONE 2 (ft^2)
1	13+09.30 / 14+03.30 -L-	70' Prop Bridge	665	55
1	14+03.30 / 14+23.93 -L-	Roadway Crossing	0	212
TOTAL:			**665**	**267**

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
11/19/2019
Pitt
BR-0120
48829.1.1
SHEET 5 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

ROY COOPER
GOVERNOR

JAMES H. TROGDON, III
SECRETARY

September 20, 2019

U.S. Army Corps of Engineers
Washington Regulatory Field Office
ATTN: Tom Steffens
2407 West 5th Street
Washington, NC 27889

SUBJECT: **Preliminary Jurisdictional Determination Package (PJD)** for the following Natural Resources Technical Report: STIP BR-0120 – Replacement of Bridge No. 730123 on SR 1552 (Tucker-Bullock Road) over Meadow Branch in Pitt County, North Carolina.

Mr. Steffens:

The North Carolina Department of Transportation (NCDOT) proposes the replacement of Bridge No. 730123 on SR 1552 (Tucker-Bullock Road) over Meadow Branch in Pitt County, North Carolina. Below and attached are a brief description of the project, appropriate forms, and figures depicting all features.

Field work was conducted on December 18, 2018. Three Oaks Engineering (Three Oaks) staff members Nathan Howell and Lillian Lovingood conducted the site investigation (Figure 1). Six potential jurisdictional features (one stream, four wetlands, and one tributary) were identified within the study area (Tables 1-4; Figures 2-4).

A North Carolina Division of Water Resources (NCDWR) stream identification form is included for Tributary TA. United States Army Corp of Engineers (USACE) wetland determination forms and North Carolina Wetland Assessment Method (NCWAM) forms are included for all wetlands. A USACE PJD Form and Waters Upload spreadsheet are also included with this submittal. Please see the following PJD Package:

Table 1. Potential jurisdictional streams in the study area

Stream Name	Map ID	NCDWR Index Number	Best Usage Classification
Meadow Branch	Meadow Branch	28-103-8-1	C; Sw, NSW

Mailing Address:
NC DEPARTMENT OF TRANSPORTATION
ENVIRONMENTAL COORDINATION AND PERMITTING
1598 MAIL SERVICE CENTER
RALEIGH, NC 27699-1598

Telephone: (919) 707-6000
Customer Service: 1-877-368-4968

Website: www.ncdot.gov

Location:
CENTURY CENTER, BUILDING A
1000 BIRCH RIDGE DRIVE
RALEIGH, NC 27610

Table 2. Characteristics of potential jurisdictional streams in the study area

Map ID	Length (ft.)	Classification	NCSAM Rating	River Basin Buffer	Appears on NRCS Soil Survey?	Appears on USGS Topo Mapping?
Meadow Branch	424	Perennial	*	Subject	Yes	Yes
Total	**424**					

*: A North Carolina Stream Assessment Method (NCSAM) form was not completed due to a lack of degraded conditions.

Table 3. Characteristics of potential jurisdictional wetlands in the study area

Map ID	NCWAM Classification	NCWAM Rating	Hydrologic Classification	Area (ac.)
WA	Basin Wetland	Low	Non-Riparian	0.12
WB	Riverine Swamp Forest	High	Riparian	2.48
WC	Headwater Forest	High	Riparian	0.14
WD	Basin Wetland	Low	Non-Riparian	0.05
			Total	**2.79**

Table 4. Potential surface waters in the study area

Surface Water	Length (ft.)
TA	598

If you have any questions, require additional information, or would like to schedule a site visit, please contact me by phone at (919) 707-6151 or email at driffey@ncdot.gov. This is a request for concurrence with our assessment. We appreciate your assistance on this project.

Sincerely,

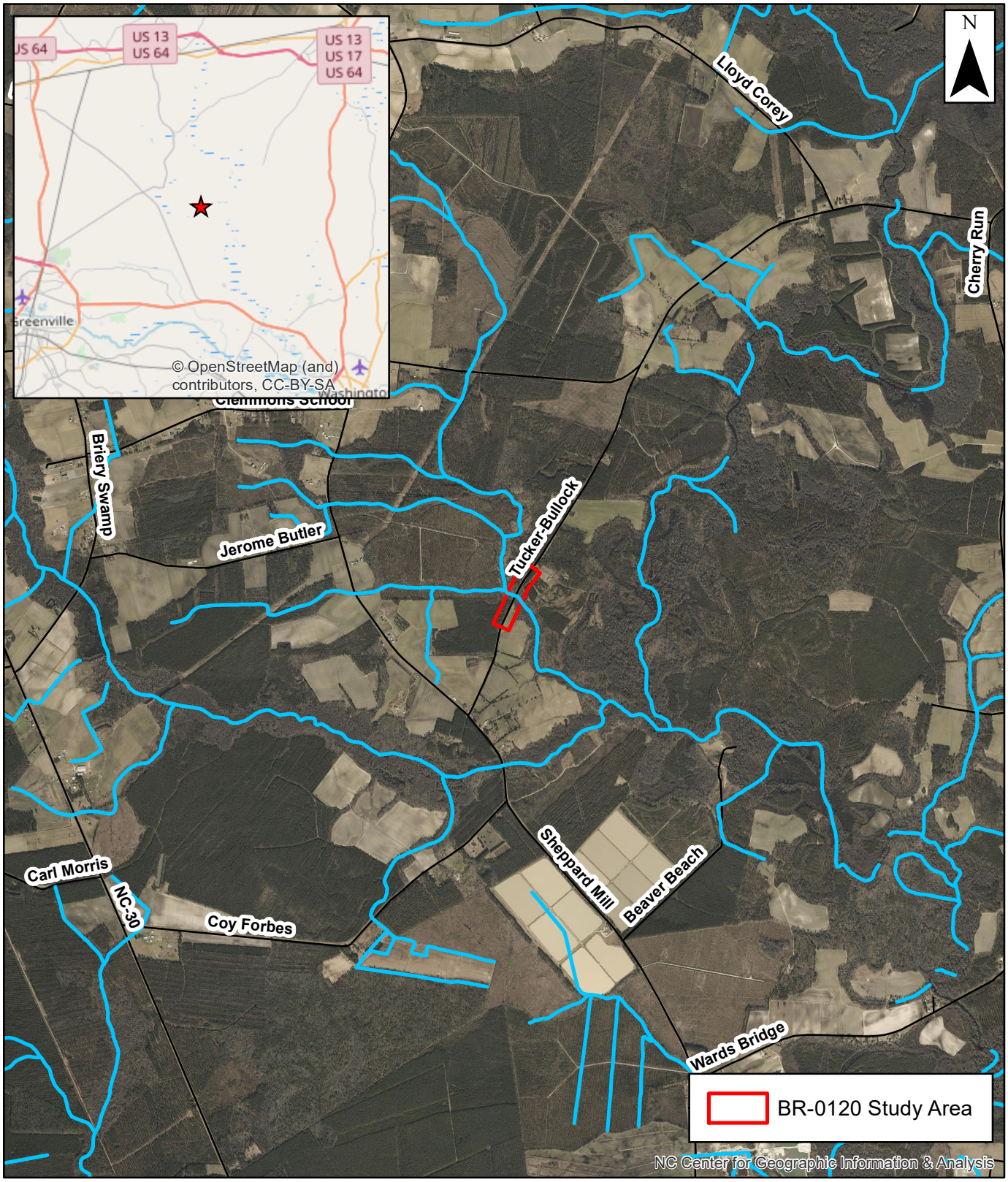
Deanna Riffey

Deanna Riffey
Environmental Program Consultant
North Carolina Department of Transportation
Environmental Coordination and Permitting
1598 Mail Service Center
Raleigh, NC 27699-1598

Cc: Garcy Ward, NCDWR

Appendix A

Figures



THREE OAKS ENGINEERING

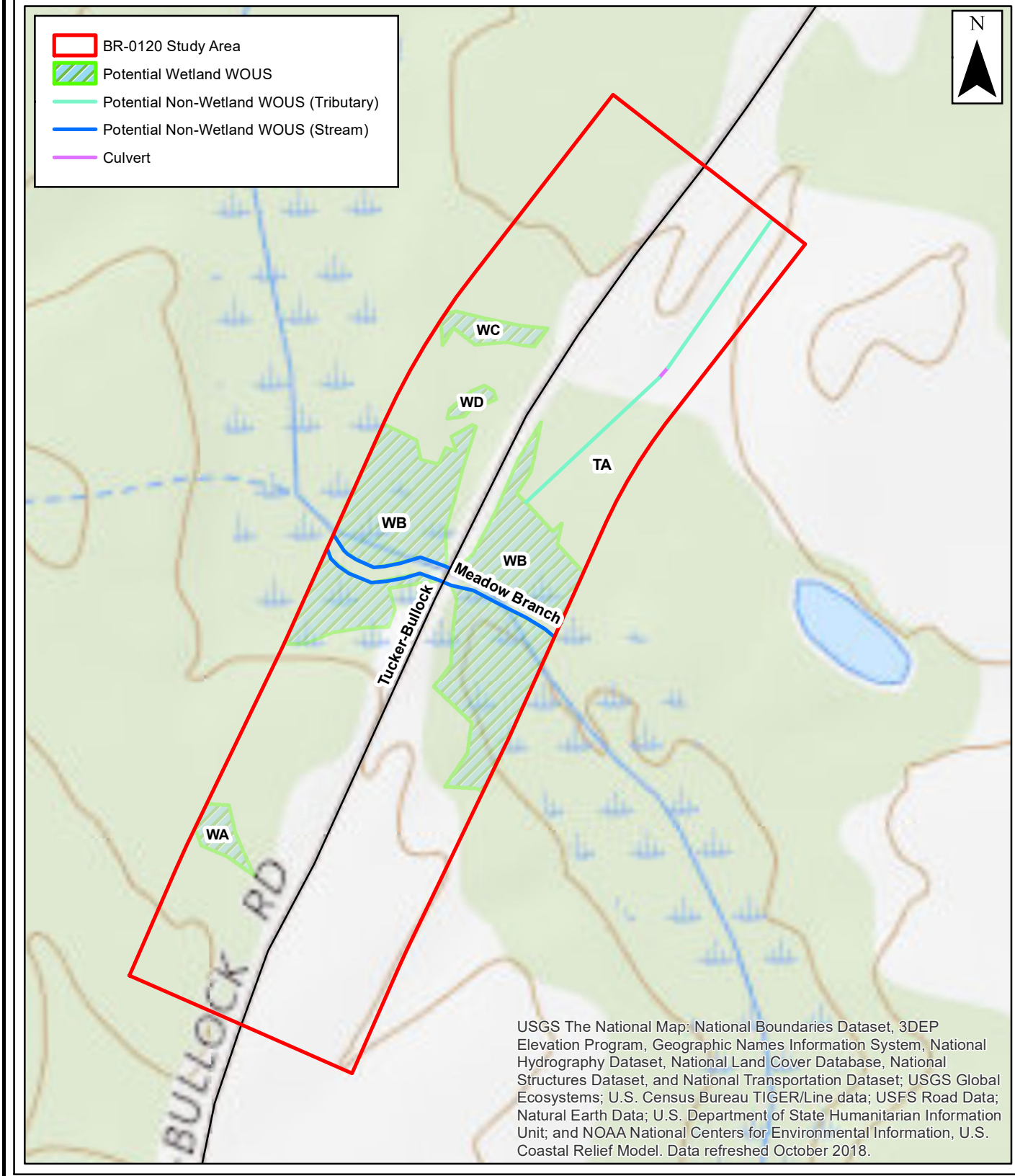
Prepared For:

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

Replacement of Bridge No. 123 on SR 1552 (Tucker-Bullock Rd) over Meadow Branch
STIP BR-0120
Project Vicinity Map
Pitt County, North Carolina

Date:	July 2019
Scale:	0 990 1,980 Feet
Job No.:	18-025
Drawn By:	ETM
Checked By:	JSM

Figure
1



THREE OAKS ENGINEERING

Prepared For:

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

Replacement of Bridge No. 123 on SR 1552 (Tucker-Bullock Rd) over Meadow Branch STIP BR-0120

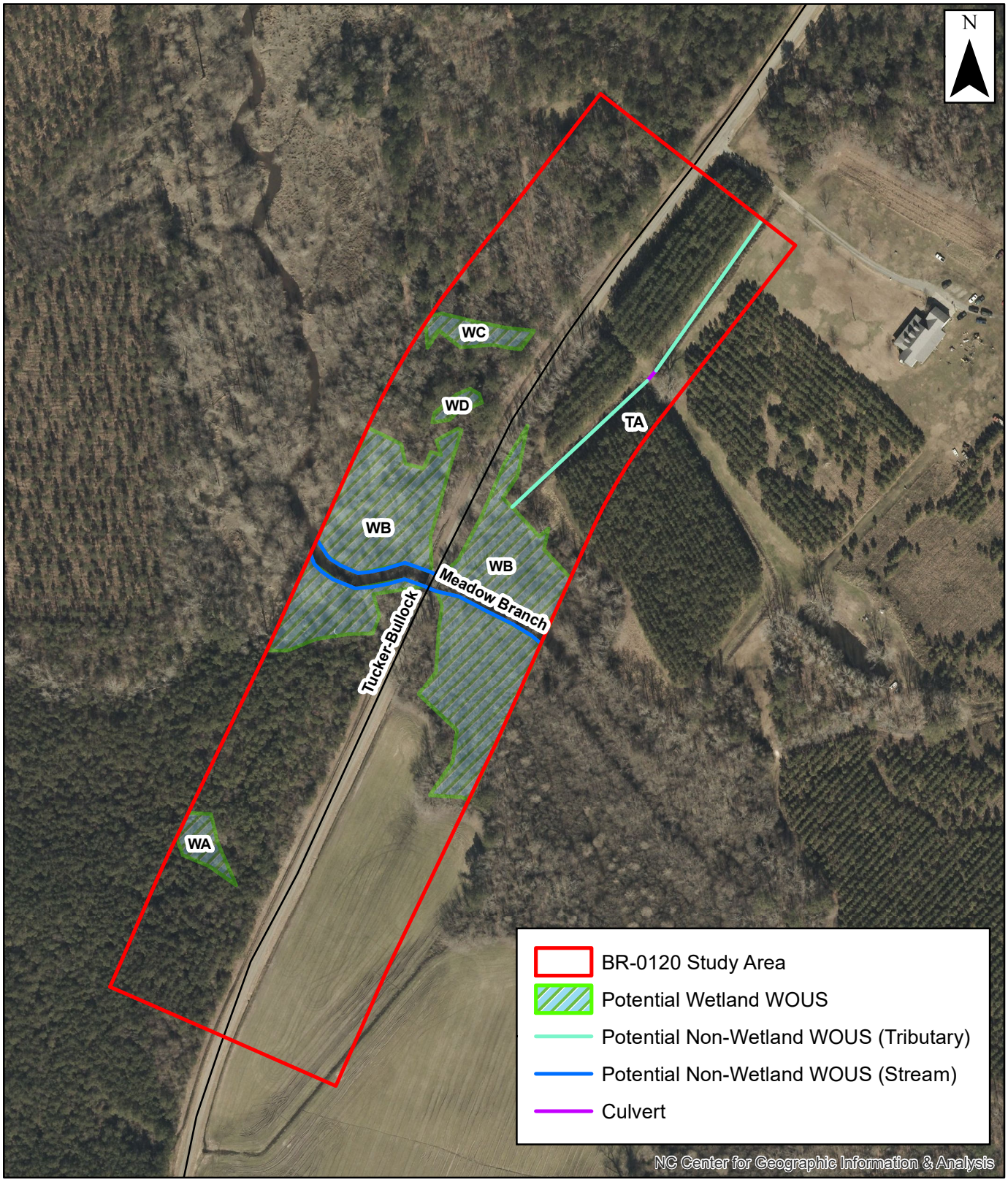
Topographic Map

Pitt County, North Carolina

Date:	July 2019
Scale:	0 70 140 Feet
Job No.:	18-025
Drawn By:	ETM
Checked By:	JSM

Figure

2



THREE OAKS ENGINEERING · THREE OAKS ENGINEERING

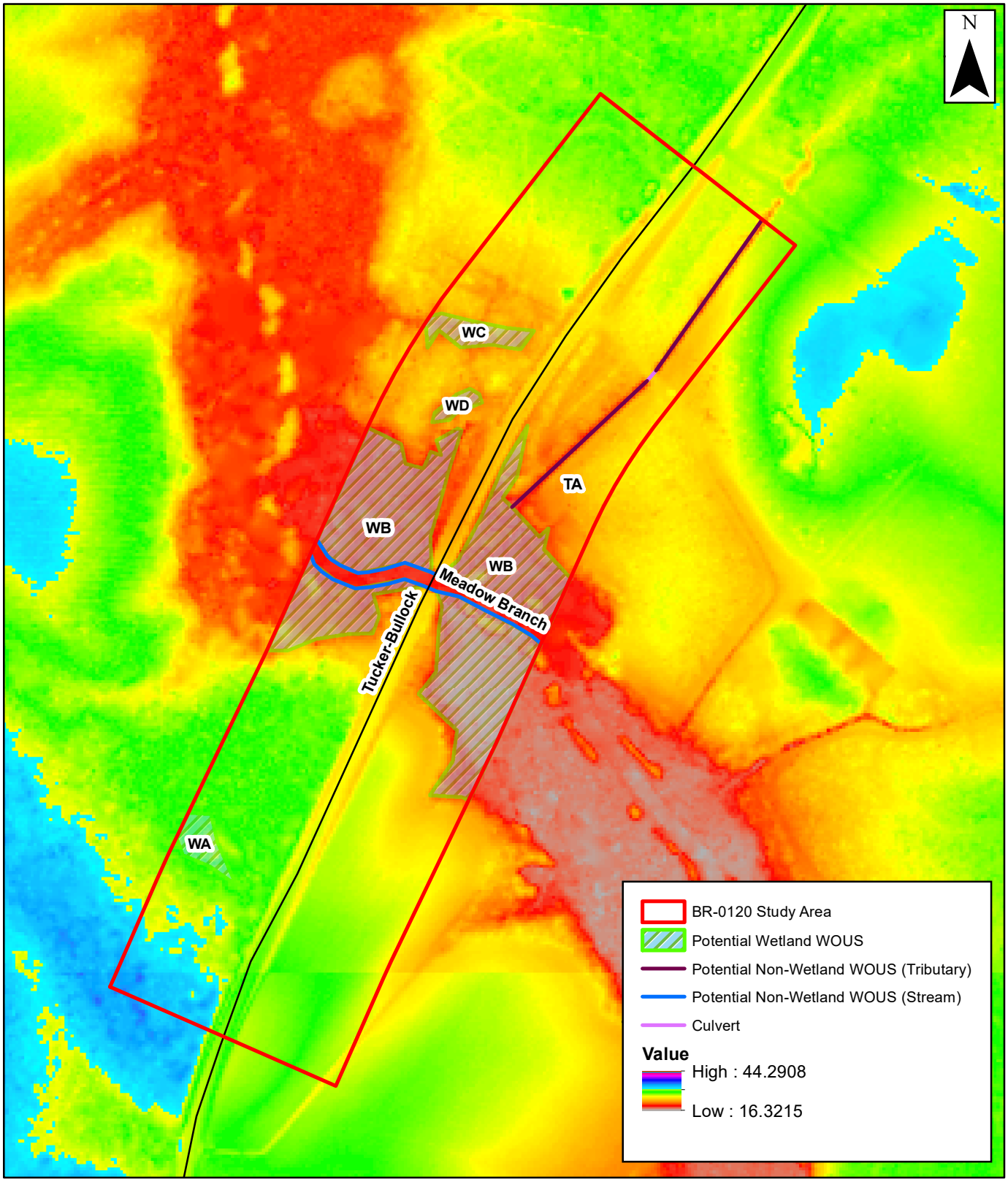
Prepared For:

STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION

Replacement of Bridge No. 123 on
SR 1552 (Tucker-Bullock Rd)
over Meadow Branch
STIP BR-0120
Jurisdictional Features Map
Pitt County, North Carolina

Date:	July 2019
Scale:	0 70 140 Feet
Job No.:	18-025
Drawn By:	ETM
Checked By:	JSM

Figure
3



THREE OAKS ENGINEERING · THREE OAKS ENGINEERING

Prepared For:

STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION

Replacement of Bridge No. 123 on
SR 1552 (Tucker-Bullock Rd)
over Meadow Branch
STIP BR-0120
LiDAR Map
Pitt County, North Carolina

Date:	July 2019
Scale:	0 70 140 Feet
Job No.:	18-025
Drawn By:	ETM
Checked By:	JSM

Figure
4

Appendix B

PJD Form

Appendix 2 - PRELIMINARY JURISDICTIONAL DETERMINATION (PJD) FORM

BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR PJD: 07/10/2019

B. NAME AND ADDRESS OF PERSON REQUESTING PJD: Deanna Riffey, 1598 Mail Service Center, Raleigh, NC 27699-1598

C. DISTRICT OFFICE, FILE NAME, AND NUMBER:

D. PROJECT LOCATION(S) AND BACKGROUND INFORMATION:
(USE THE TABLE BELOW TO DOCUMENT MULTIPLE AQUATIC RESOURCES AND/OR AQUATIC RESOURCES AT DIFFERENT SITES)

State: NC County/parish/borough: Pitt City: Stokes

Center coordinates of site (lat/long in degree decimal format):

Lat.: 35.703079 Long.: -77.205069

Universal Transverse Mercator: 17

Name of nearest waterbody: Meadow Branch

E. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):

☐ Office (Desk) Determination. Date:

☐ Field Determination. Date(s):

TABLE OF AQUATIC RESOURCES IN REVIEW AREA WHICH "MAY BE" SUBJECT TO REGULATORY JURISDICTION.

Site number	Latitude (decimal degrees)	Longitude (decimal degrees)	Estimated amount of aquatic resource in review area (acreage and linear feet, if applicable)	Type of aquatic resource (i.e., wetland vs. non-wetland waters)	Geographic authority to which the aquatic resource "may be" subject (i.e., Section 404 or Section 10/404)
Meadow Branch	35.703053	-77.205109	424 linear ft.	Non-wetland - Potential Perennial Stream	Section 404
WA	35.701927	-77.206344	0.12 acres	Potential Wetland	Section 404
WB	35.703185	-77.204632	2.48 acres	Potential Wetland	Section 404
WC	35.704179	-77.204811	0.14 acres	Potential Wetland	Section 404
WD	35.703857	-77.204911	0.05 acres	Potential Wetland	Section 404
TA	35.703674	-77.204249	598 linear ft.	Non-wetland - Potential Tributary	Section 404

1) The Corps of Engineers believes that there may be jurisdictional aquatic resources in the review area, and the requestor of this PJD is hereby advised of his or her option to request and obtain an approved JD (AJD) for that review area based on an informed decision after having discussed the various types of JDs and their characteristics and circumstances when they may be appropriate.

2) In any circumstance where a permit applicant obtains an individual permit, or a Nationwide General Permit (NWP) or other general permit verification requiring "pre-construction notification" (PCN), or requests verification for a non-reporting NWP or other general permit, and the permit applicant has not requested an AJD for the activity, the permit applicant is hereby made aware that: (1) the permit applicant has elected to seek a permit authorization based on a PJD, which does not make an official determination of jurisdictional aquatic resources; (2) the applicant has the option to request an AJD before accepting the terms and conditions of the permit authorization, and that basing a permit authorization on an AJD could possibly result in less compensatory mitigation being required or different special conditions; (3) the applicant has the right to request an individual permit rather than accepting the terms and conditions of the NWP or other general permit authorization; (4) the applicant can accept a permit authorization and thereby agree to comply with all the terms and conditions of that permit, including whatever mitigation requirements the Corps has determined to be necessary; (5) undertaking any activity in reliance upon the subject permit authorization without requesting an AJD constitutes the applicant's acceptance of the use of the PJD; (6) accepting a permit authorization (e.g., signing a proffered individual permit) or undertaking any activity in reliance on any form of Corps permit authorization based on a PJD constitutes agreement that all aquatic resources in the review area affected in any way by that activity will be treated as jurisdictional, and waives any challenge to such jurisdiction in any administrative or judicial compliance or enforcement action, or in any administrative appeal or in any Federal court; and (7) whether the applicant elects to use either an AJD or a PJD, the JD will be processed as soon as practicable. Further, an AJD, a proffered individual permit (and all terms and conditions contained therein), or individual permit denial can be administratively appealed pursuant to 33 C.F.R. Part 331. If, during an administrative appeal, it becomes appropriate to make an official determination whether geographic jurisdiction exists over aquatic resources in the review area, or to provide an official delineation of jurisdictional aquatic resources in the review area, the Corps will provide an AJD to accomplish that result, as soon as is practicable. This PJD finds that there *"may be"* waters of the U.S. and/or that there *"may be"* navigable waters of the U.S. on the subject review area, and identifies all aquatic features in the review area that could be affected by the proposed activity, based on the following information:

SUPPORTING DATA. Data reviewed for PJD (check all that apply)

Checked items should be included in subject file. Appropriately reference sources below where indicated for all checked items:

- [x] Maps, plans, plots or plat submitted by or on behalf of the PJD requestor:
  Map: Vicinity Map, Topographic Map, Jurisdictional Resources Map, LIDAR Map.
- [ ] Data sheets prepared/submitted by or on behalf of the PJD requestor.
  - [ ] Office concurs with data sheets/delineation report.
  - [ ] Office does not concur with data sheets/delineation report. Rationale: _____.
- [ ] Data sheets prepared by the Corps: _____.
- [ ] Corps navigable waters' study: _____.
- [ ] U.S. Geological Survey Hydrologic Atlas: _____.
  - [ ] USGS NHD data.
  - [ ] USGS 8 and 12 digit HUC maps.
- [x] U.S. Geological Survey map(s). Cite scale & quad name: 1:24,000 2016 Leggetts Crossroads, NC.
- [x] Natural Resources Conservation Service Soil Survey. Citation: 1974 Pitt County Soil Survey.
- [ ] National wetlands inventory map(s). Cite name: _____.
- [ ] State/local wetland inventory map(s): _____.
- [ ] FEMA/FIRM maps: _____.
- [ ] 100-year Floodplain Elevation is: _____.(National Geodetic Vertical Datum of 1929)
- [ ] Photographs: [ ] Aerial (Name & Date): _____.
  or [ ] Other (Name & Date): _____.
- [ ] Previous determination(s). File no. and date of response letter: _____.
- [ ] Other information (please specify): _____.

IMPORTANT NOTE: The information recorded on this form has not necessarily been verified by the Corps and should not be relied upon for later jurisdictional determinations.

_____	Deanna Reffes 9/20/19
Signature and date of Regulatory staff member completing PJD	Signature and date of person requesting PJD (REQUIRED, unless obtaining the signature is impracticable)[1]

[1] Districts may establish timeframes for requestor to return signed PJD forms. If the requestor does not respond within the established time frame, the district may presume concurrence and no additional follow up is necessary prior to finalizing an action.

Appendix C

Stream and Wetland Forms

NC DWQ Stream Identification Form Version 4.11

Date: 12/18/2018	**Project/Site:** BR-120/TA	**Latitude:** 35.703791
Evaluator: N. Howell/L. Lovingood	**County:** Pitt	**Longitude:** -77.204094
Total Points: *Stream is at least intermittent if ≥ 19 or perennial if ≥ 30** 22.5	**Stream Determination (circle one)** Ephemeral Intermittent Perennial	**Other** *e.g. Quad Name*:

A. Geomorphology (Subtotal = 7.0)	Absent	Weak	Moderate	Strong
1[a]. Continuity of channel bed and bank	0	1	2	3
2. Sinuosity of channel along thalweg	0	1	2	3
3. In-channel structure: ex. riffle-pool, step-pool, ripple-pool sequence	0	1	2	3
4. Particle size of stream substrate	0	1	2	3
5. Active/relict floodplain	0	1	2	3
6. Depositional bars or benches	0	1	2	3
7. Recent alluvial deposits	0	1	2	3
8. Headcuts	0	1	2	3
9. Grade control	0	0.5	1	1.5
10. Natural valley	0	0.5	1	1.5
11. Second or greater order channel	No = 0		Yes = 3	

[a] artificial ditches are not rated; see discussions in manual

B. Hydrology (Subtotal = 8.5)				
12. Presence of Baseflow	0	1	2	3
13. Iron oxidizing bacteria	0	1	2	3
14. Leaf litter	1.5	1	0.5	0
15. Sediment on plants or debris	0	0.5	1	1.5
16. Organic debris lines or piles	0	0.5	1	1.5
17. Soil-based evidence of high water table?	No = 0		Yes = 3	

C. Biology (Subtotal = 7.0)				
18. Fibrous roots in streambed	3	2	1	0
19. Rooted upland plants in streambed	3	2	1	0
20. Macrobenthos (note diversity and abundance)	0	1	2	3
21. Aquatic Mollusks	0	1	2	3
22. Fish	0	0.5	1	1.5
23. Crayfish	0	0.5	1	1.5
24. Amphibians	0	0.5	1	1.5
25. Algae	0	0.5	1	1.5
26. Wetland plants in streambed	FACW = 0.75;		OBL = 1.5	Other = 0

*perennial streams may also be identified using other methods. See p. 35 of manual.

Notes:

Sketch:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: BR-0120 Tucker-Bullock Rd Bridge Imp. City/County: Pitt Sampling Date: 12/18/2018

Applicant/Owner: NCDOT State: NC Sampling Point: WA-2 Wet

Investigator(s): Nathan Howell & Lillian Lovingood Section, Township, Range: Stokes

Landform (hillslope, terrace, etc.): Hillslope/Terrace Local relief (concave, convex, none): Convex Slope (%): 0

Subregion (LRR or MLRA): LRR-T Lat: 35.701927 Long: -77.206267 Datum: NAD 83

Soil Map Unit Name: Craven fine sandy loam, 1-6% slopes, eroded NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ✓ significantly disturbed? Are "Normal Circumstances" present? Yes ☐ No ✓

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No ☐	**Is the Sampled Area within a Wetland?**	**Yes** ✓	**No** ☐
Hydric Soil Present?	Yes ✓	No ☐			
Wetland Hydrology Present?	Yes ✓	No ☐			

Remarks:

NCWAM: Basin Wetland. Wetland WA is an old logging deck. While not a logging deck, Wetland WD is quite similar in terms of its flora, soils, and hydrology. WD appears to be a dug-out, man-made feature. These wetlands hold a longer hydroperiod than they would under normal circumstances, and as a result, have formed into wetlands.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ✓ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ✓ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) **(LRR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ✓ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ✓ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes ✓	No ☐	Depth (inches): 1	
Water Table Present?	Yes ✓	No ☐	Depth (inches): 0	
Saturation Present? (includes capillary fringe)	Yes ✓	No ☐	Depth (inches): 0	**Wetland Hydrology Present?** Yes ✓ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: WA-2 Wet

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum	40	Yes	FAC
2. Pinus taeda	25	Yes	FAC
3.			
4.			
5.			
6.			
	65 = Total Cover		
50% of total cover: 32.5	20% of total cover: 13		
Sapling Stratum (Plot size: 15' radius)			
1. Absent			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot size: 15' radius)			
1. Acer rubrum	20	Yes	FAC
2. Liquidambar styraciflua	20	Yes	FAC
3. Cyrilla racemiflora	20	Yes	FACW
4. Vaccinium sp.	10		
5.			
6.			
	70 = Total Cover		
50% of total cover: 35	20% of total cover: 14		
Herb Stratum (Plot size: 5' radius)			
1. Lorinseria (Woodwardia) areolata	15	Yes	OBL
2. Osmunda spectabilis	15	Yes	OBL
3. Carex sp.	10		
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	40 = Total Cover		
50% of total cover: 20	20% of total cover: 8		
Woody Vine Stratum (Plot size: 30' radius)			
1. Smilax rotundifolia	20	Yes	FAC
2. Berchemia scandens	20	Yes	FAC
3.			
4.			
5.			
	40 = Total Cover		
50% of total cover: 20	20% of total cover: 8		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 9 (A)

Total Number of Dominant Species Across All Strata: 9 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- [ ] 1 - Rapid Test for Hydrophytic Vegetation
- [x] 2 - Dominance Test is >50%
- [ ] 3 - Prevalence Index is ≤3.0[1]
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes [x] No [ ]

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: WA-2 Wet

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 3/1	100					L	
6-12	10YR 7/1	85	10YR 5/6	15	C	M/PL	L	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☑ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: BR-0120 Tucker-Bullock Rd Bridge Imp. City/County: Pitt Sampling Date: 12/18/2018

Applicant/Owner: NCDOT State: NC Sampling Point: WB-13 Wet

Investigator(s): Nathan Howell & Lillian Lovingood Section, Township, Range: Stokes

Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): Concave Slope (%): 0

Subregion (LRR or MLRA): LRR-T Lat: 35.703263 Long: -77.205237 Datum: NAD 83

Soil Map Unit Name: Bibb Complex NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes [✓] No [ ] (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes [ ] No [ ]

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes [✓]	No [ ]	**Is the Sampled Area within a Wetland?**	**Yes** [✓]	**No** [ ]
Hydric Soil Present?	Yes [✓]	No [ ]			
Wetland Hydrology Present?	Yes [✓]	No [ ]			

Remarks:

NCWAM: Riverine Swamp Forest

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [✓] Surface Water (A1)
- [✓] High Water Table (A2)
- [✓] Saturation (A3)
- [ ] Water Marks (B1)
- [✓] Sediment Deposits (B2)
- [✓] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [✓] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [✓] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] Marl Deposits (B15) **(LRR U)**
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres along Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [✓] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [✓] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [✓] FAC-Neutral Test (D5)
- [ ] Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes [✓]	No [ ]	Depth (inches): 1	
Water Table Present?	Yes [✓]	No [ ]	Depth (inches): 0	
Saturation Present? (includes capillary fringe)	Yes [✓]	No [ ]	Depth (inches): 0	**Wetland Hydrology Present?** **Yes** [✓] **No** [ ]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: WB-13 Wet

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum	20		FAC
2. Taxodium distichum	20		OBL
3.			
4.			
5.			
6.			
	40 = Total Cover		
50% of total cover: 20	20% of total cover: 8		
Sapling Stratum (Plot size: 15' radius)			
1. Absent			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot size: 15' radius)			
1. Acer rubrum	20	Yes	FAC
2. Taxodium distichum	20	Yes	OBL
3.			
4.			
5.			
6.			
	40 = Total Cover		
50% of total cover: 20	20% of total cover: 8		
Herb Stratum (Plot size: 5' radius)			
1. Juncus effusus	10		NI
2. Carex sp.	10		NI
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	= Total Cover		
50% of total cover:	20% of total cover:		
Woody Vine Stratum (Plot size: 30' radius)			
1. Absent			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: WB-13 Wet

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 5/1	80	10YR 5/6	20	C	M	L	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: BR-0120 Tucker-Bullock Rd Bridge Imp. City/County: Pitt Sampling Date: 12/18/2018

Applicant/Owner: NCDOT State: NC Sampling Point: WC-6 Wet

Investigator(s): Nathan Howell & Lillian Lovingood Section, Township, Range: Stokes

Landform (hillslope, terrace, etc.): Headwater crenulation Local relief (concave, convex, none): Convex Slope (%): 5

Subregion (LRR or MLRA): LRR-T Lat: 35.704179 Long: -77.204812 Datum: NAD 83

Soil Map Unit Name: Bladen Fine Sandy Loam NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes [✓] No [ ] (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes [✓] No [ ]

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes [✓]	No [ ]	**Is the Sampled Area within a Wetland?**	**Yes** [✓]	**No** [ ]
Hydric Soil Present?	Yes [✓]	No [ ]			
Wetland Hydrology Present?	Yes [✓]	No [ ]			

Remarks:

NCWAM: Headwater Forest. This wetland starts near Tucker-bullock Rd and drains in a perpendicular manner into Meadow Branch.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [✓] Surface Water (A1)
- [✓] High Water Table (A2)
- [✓] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [✓] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] Marl Deposits (B15) **(LRR U)**
- [ ] Hydrogen Sulfide Odor (C1)
- [✓] Oxidized Rhizospheres along Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [ ] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [✓] FAC-Neutral Test (D5)
- [ ] Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes [✓]	No [ ]	Depth (inches): 1"	
Water Table Present?	Yes [✓]	No [ ]	Depth (inches): 0	
Saturation Present? (includes capillary fringe)	Yes [✓]	No [ ]	Depth (inches): 0	**Wetland Hydrology Present?** Yes [✓] No [ ]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: WC-6 Wet

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum	40	Yes	FAC
2. Liquidambar styraciflua	30	Yes	FAC
3.			
4.			
5.			
6.			
	70	= Total Cover	
50% of total cover: 35	20% of total cover: 14		
Sapling Stratum (Plot size: 15' radius)			
1.			
2.			
3.			
4.			
5.			
6.			
	0	= Total Cover	
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot size: 15' radius)			
1. Acer rubrum	20	Yes	FAC
2. Liquidambar styraciflua	20	Yes	FAC
3. Cyrilla racemiflora	10	Yes	FACW
4.			
5.			
6.			
	50	= Total Cover	
50% of total cover: 25	20% of total cover: 10		
Herb Stratum (Plot size: 5' radius)			
1. Osmunda spectabilis	10	Yes	OBL
2. Lorinseria (Woodwardia) areolata	10	Yes	OBL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	20	= Total Cover	
50% of total cover: 10	20% of total cover: 4		
Woody Vine Stratum (Plot size: 30' radius)			
1. Berchemia scandens	15	Yes	FAC
2.			
3.			
4.			
5.			
	15	= Total Cover	
50% of total cover: 7.5	20% of total cover: 3		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 8 (A)

Total Number of Dominant Species Across All Strata: 8 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: WC-6 Wet

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 4/1	100					L	
3-12	10YR 4/1	75	10YR 4/6	15	C	M/PL	L	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: BR-0120 Tucker-Bullock Rd Bridge Imp. City/County: Pitt Sampling Date: 12/18/2018

Applicant/Owner: NCDOT State: NC Sampling Point: WB-2A UPL

Investigator(s): Nathan Howell & Lillian Lovingood Section, Township, Range: Stokes

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Convex Slope (%): 10

Subregion (LRR or MLRA): LRR-T Lat: 35.703982 Long: -77.205331 Datum: NAD 83

Soil Map Unit Name: Bladen fine sandy loam NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes [✓] No [ ] (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes [✓] No [ ]

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes [✓]	No [ ]	**Is the Sampled Area within a Wetland?**	**Yes** [ ]	**No** [✓]
Hydric Soil Present?	Yes [ ]	No [✓]			
Wetland Hydrology Present?	Yes [ ]	No [✓]			

Remarks:

All the wetlands in the study area have adjacent uplands with similar soils, vegetation, and hydrology. Therefore, this form will also represent the uplands associated with wetlands WA-WD.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [ ] Surface Water (A1)
- [ ] High Water Table (A2)
- [ ] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [ ] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] Marl Deposits (B15) **(LRR U)**
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres along Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [ ] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [ ] FAC-Neutral Test (D5)
- [ ] Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes [ ]	No [✓]	Depth (inches): 0	
Water Table Present?	Yes [ ]	No [✓]	Depth (inches): 0	
Saturation Present? (includes capillary fringe)	Yes [ ]	No [✓]	Depth (inches): 0	**Wetland Hydrology Present?** Yes [ ] No [✓]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: WB-2A UPL

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Quercus nigra	40	Yes	FAC
2. Pinus taeda	40	Yes	FAC
3.			
4.			
5.			
6.			
	80 = Total Cover		
50% of total cover: 40	20% of total cover: 16		
Sapling Stratum (Plot size: 15' radius)			
1. Absent			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot size: 15' radius)			
1. Symplocos tinctoria	20	Yes	FAC
2. Callicarpa americana	20	Yes	FACU
3.			
4.			
5.			
6.			
	40 = Total Cover		
50% of total cover: 20	20% of total cover: 8		
Herb Stratum (Plot size: 5' radius)			
1. Tipularia discolor	10	Yes	FACU
2. Hexastylis arifolia	10	Yes	FAC
3. Asplenium platyneuron	5	Yes	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	25 = Total Cover		
50% of total cover: 12.5	20% of total cover: 5		
Woody Vine Stratum (Plot size: 30' radius)			
1. Bignonia capreolata	15	Yes	FAC
2.			
3.			
4.			
5.			
	15 = Total Cover		
50% of total cover: 7.5	20% of total cover: 3		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 8 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 63 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: WB-2A UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 3/2	60	10YR 7/2	40			L	
3-12	10YR 5/4	100					L	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☑

Remarks:

NC WAM WETLAND ASSESSMENT FORM
Accompanies User Manual Version 5

USACE AID#: NCDWR #:

Project Name: BR-0120 | Date of Evaluation: 12/18/2018
Applicant/Owner Name: NCDOT | Wetland Site Name: WA/WD
Wetland Type: Basin Wetland | Assessor Name/Organization: N. Howell - Three Oaks
Level III Ecoregion: Middle Atlantic Coastal Plain | Nearest Named Water Body: Meadow Branch
River Basin: Tar-Pamlico | USGS 8-Digit Catalogue Unit: 03020103
County: Pitt | NCDWR Region: Washington
○ Yes ◉ No Precipitation within 48 hrs? | Latitude/Longitude (deci-degrees): 35.701920, -77.206320

Evidence of stressors affecting the assessment area (may not be within the assessment area)
Please circle and/or make note on last page if evidence of stressors is apparent. Consider departure from reference, if appropriate, in recent past (for instance, approximately within 10 years). Noteworthy stressors include, but are not limited to the following.

- Hydrological modifications (examples: ditches, dams, beaver dams, dikes, berms, ponds, etc.)
- Surface and sub-surface discharges into the wetland (examples: discharges containing obvious pollutants, presence of nearby septic tanks, underground storage tanks (USTs), hog lagoons, etc.)
- Signs of vegetation stress (examples: vegetation mortality, insect damage, disease, storm damage, salt intrusion, etc.)
- Habitat/plant community alteration (examples: mowing, clear-cutting, exotics, etc.)

Is the assessment area intensively managed? ◉ Yes ○ No

Regulatory Considerations - Were regulatory considerations evaluated? ◉ Yes ○ No If Yes, check all that apply to the assessment area.

- ☐ Anadromous fish
- ☐ Federally protected species or State endangered or threatened species
- ☑ NCDWR riparian buffer rule in effect
- ☐ Abuts a Primary Nursery Area (PNA)
- ☐ Publicly owned property
- ☐ N.C. Division of Coastal Management Area of Environmental Concern (AEC) (including buffer)
- ☐ Abuts a stream with a NCDWQ classification of SA or supplemental classifications of HQW, ORW, or Trout
- ☐ Designated NCNHP reference community
- ☐ Abuts a 303(d)-listed stream or a tributary to a 303(d)-listed stream

What type of natural stream is associated with the wetland, if any? (check all that apply)

- ◉ Blackwater
- ○ Brownwater
- ☐ Tidal (if tidal, check one of the following boxes) ○ Lunar ○ Wind ○ Both

Is the assessment area on a coastal island? ○ Yes ◉ No

Is the assessment area's surface water storage capacity or duration substantially altered by beaver? ○ Yes ◉ No

Does the assessment area experience overbank flooding during normal rainfall conditions? ○ Yes ◉ No

1. Ground Surface Condition/Vegetation Condition – assessment area condition metric
Check a box in each column. Consider alteration to the ground surface (GS) in the assessment area and vegetation structure (VS) in the assessment area. Compare to reference wetland if applicable (see User Manual). If a reference is not applicable, then rate the assessment area based on evidence of an effect.

GS	VS	
○ A	◉ A	Not severely altered
◉ B	○ B	Severely altered over a majority of the assessment area (ground surface alteration examples: vehicle tracks, excessive sedimentation, fire-plow lanes, skidder tracks, bedding, fill, soil compaction, obvious pollutants) (vegetation structure alteration examples: mechanical disturbance, herbicides, salt intrusion [where appropriate], exotic species, grazing, less diversity [if appropriate], hydrologic alteration)

2. Surface and Sub-Surface Storage Capacity and Duration – assessment area condition metric
Check a box in each column. Consider surface storage capacity and duration (Surf) and sub-surface storage capacity and duration (Sub). Consider both increase and decrease in hydrology. A ditch ≤ 1 foot deep is considered to affect surface water only, while a ditch > 1 foot deep is expected to affect both surface and sub-surface water. Consider tidal flooding regime, if applicable.

Surf	Sub	
○ A	◉ A	Water storage capacity and duration are not altered.
○ B	○ B	Water storage capacity or duration are altered, but not substantially (typically, not sufficient to change vegetation).
◉ C	○ C	Water storage capacity or duration are substantially altered (typically, alteration sufficient to result in vegetation change) (examples: draining, flooding, soil compaction, filling, excessive sedimentation, underground utility lines).

3. Water Storage/Surface Relief – assessment area/wetland type condition metric (skip for all marshes)
Check a box in each column for each group below. Select the appropriate storage for the assessment area (AA) and the wetland type (WT).

	AA	WT	
3a.	○ A	○ A	Majority of wetland with depressions able to pond water > 1 foot deep
	◉ B	◉ B	Majority of wetland with depressions able to pond water 6 inches to 1 foot deep
	○ C	○ C	Majority of wetland with depressions able to pond water 3 to 6 inches deep
	○ D	○ D	Depressions able to pond water < 3 inches deep

3b.	○ A	Evidence that maximum depth of inundation is greater than 2 feet
	◉ B	Evidence that maximum depth of inundation is between 1 and 2 feet
	○ C	Evidence that maximum depth of inundation is less than 1 foot

4. Soil Texture/Structure – assessment area condition metric (skip for all marshes)

Check a box from each of the three soil property groups below. Dig soil profile in the dominant assessment area landscape feature. Make soil observations within the 12 inches. Use most recent National Technical Committee for Hydric Soils guidance for regional indicators.

4a.
- (○) A Sandy soil
- (●) B Loamy or clayey soils exhibiting redoximorphic features (concentrations, depletions, or rhizospheres)
- (○) C Loamy or clayey soils not exhibiting redoximorphic features
- (○) D Loamy or clayey gleyed soil
- (○) E Histosol or histic epipedon

4b.
- (●) A Soil ribbon < 1 inch
- (○) B Soil ribbon ≥ 1 inch

4c.
- (●) A No peat or muck presence
- (○) B A peat or muck presence

5. Discharge into Wetland – opportunity metric

Check a box in each column. Consider surface pollutants or discharges (Surf) and sub-surface pollutants or discharges (Sub). Examples of sub-surface discharges include presence of nearby septic tank, underground storage tank (UST), etc.

Surf	Sub	
(●) A	(●) A	Little or no evidence of pollutants or discharges entering the assessment area
(○) B	(○) B	Noticeable evidence of pollutants or discharges entering the wetland and stressing, but not overwhelming the treatment capacity of the assessment area
(○) C	(○) C	Noticeable evidence of pollutants or discharges (pathogen, particulate, or soluble) entering the assessment area and potentially overwhelming the treatment capacity of the wetland (water discoloration, dead vegetation, excessive sedimentation, odor)

6. Land Use – opportunity metric (skip for non-riparian wetlands)

Check all that apply (at least one box in each column). Evaluation involves a GIS effort with field adjustment. Consider sources draining to assessment area within entire upstream watershed (WS), within 5 miles and within the watershed draining to the assessment area (5M), and within 2 miles and within the watershed draining to the assessment area (2M). Effective riparian buffers are considered to be 50 feet wide in the Coastal Plain and Piedmont ecoregions and 30 feet wide in the Blue Ridge Mountains ecoregion.

WS	5M	2M	
☐ A	☐ A	☐ A	≥ 10% impervious surfaces
☐ B	☐ B	☐ B	Confined animal operations (or other local, concentrated source of pollutants)
☑ C	☑ C	☑ C	≥ 20% coverage of pasture
☑ D	☐ D	☑ D	≥ 20% coverage of agricultural land (regularly plowed land)
☐ E	☐ E	☐ E	≥ 20% coverage of maintained grass/herb
☐ F	☐ F	☐ F	≥ 20% coverage of clear-cut land
☐ G	☐ G	☐ G	Little or no opportunity to improve water quality. Lack of opportunity may result from little or no disturbance in the watershed or hydrologic alterations that prevent dainage and/or overbank flow from affectio the assessment area.

7. Wetland Acting as Vegetated Buffer – assessment area/wetland complex condition metric (skip for non-riparian wetlands)

7a. Is assessment area within 50 feet of a tributary or other open water?

(○) Yes (●) No If Yes, continue to 7b. If No, skip to Metric 8.

7b. How much of the first 50 feet from the bank is weltand? (Wetland buffer need only be present on one side of the water body. Make buffer judgment based on the average width of wetland. Record a note if a portion of the buffer has been removed or disturbed.)
- (○) A ≥ 50 feet
- (○) B From 30 to < 50 feet
- (○) C From 15 to < 30 feet
- (○) D From 5 to < 15 feet
- (○) E < 5 feet or buffer bypassed by ditches

7c. Tributary width. If the tributary is anastomosed, combine widths of channels/braids for a total width.

(○) ≤ 15-feet wide (○) > 15-feet wide (○) Other open water (no tributary present)

7d. Do roots of assessment area vegetation extend into the bank of the tributary/open water?

(○) Yes (○) No

7e. Is tributary or other open water sheltered or exposed?
- (○) Sheltered – adjacent open water with width < 2500 feet and no regular boat traffic.
- (○) Exposed – adjacent open water with width ≥ 2500 feet or regular boat traffic.

8. Wetland Width at the Assessment Area – wetland type/wetland complex condition metric (evaluate WT for all marshes and Estuarine Woody Wetland only; evaluate WC for Bottomland Hardwood Forest, Headwater Forest, and Riverine Swamp Forest only)

Check a box in each column. Select the average width for the wetland type at the assessment area (WT) and the wetland complex at the assessment area (WC). See User Manual for WT and WC boundaries.

WT	WC	
(○) A	(○) A	≥ 100 feet
(○) B	(○) B	From 80 to < 100 feet
(●) C	(●) C	From 50 to < 80 feet
(○) D	(○) D	From 40 to < 50 feet
(○) E	(○) E	From 30 to < 40 feet
(○) F	(○) F	From 15 to < 30 feet
(○) G	(○) G	From 5 to < 15 feet
(○) H	(○) H	< 5 feet

9. Inundation Duration – assessment area condition metric (skip for non-riparian wetlands)

Answer for assessment area dominant landform.

- (•) A Evidence of short-duration inundation (< 7 consecutive days)
- ( ) B Evidence of saturation, without evidence of inundation
- ( ) C Evidence of long-duration inundation or very long-duration inundation (7 to 30 consecutive days or more)

10. Indicators of Deposition – assessment area condition metric (skip for non-riparian wetlands and all marshes)

Consider recent deposition only (no plant growth since deposition).

- (•) A Sediment deposition is not excessive, but at approximately natural levels.
- ( ) B Sediment deposition is excessive, but not overwhelming the wetland.
- ( ) C Sediment deposition is excessive and is overwhelming the wetland.

11. Wetland Size – wetland type/wetland complex condition metric

Check a box in each column. Involves a GIS effort with field adjustment. This metric evaluates three aspects of the wetland area: the size of the wetland type (WT), the size of the wetland complex (WC), and the size of the forested wetland (FW) (if applicable, see User Manual). See the User Manual for boundaries of these evaluation areas. If assessment area is clear-cut, select "K" for the FW column.

WT	WC	FW (if applicable)	
( ) A	( ) A	( ) A	≥ 500 acres
( ) B	( ) B	( ) B	From 100 to < 500 acres
( ) C	( ) C	( ) C	From 50 to < 100 acres
( ) D	( ) D	( ) D	From 25 to < 50 acres
( ) E	( ) E	( ) E	From 10 to < 25 acres
( ) F	( ) F	( ) F	From 5 to < 10 acres
( ) G	( ) G	( ) G	From 1 to < 5 acres
( ) H	( ) H	( ) H	From 0.5 to < 1 acre
(•) I	(•) I	(•) I	From 0.1 to < 0.5 acre
( ) J	( ) J	( ) J	From 0.01 to < 0.1 acre
( ) K	( ) K	( ) K	< 0.01 acre or assessment area is clear-cut

12. Wetland Intactness – wetland type condition metric (evaluate for Pocosins only)

- ( ) A Pocosin is the full extent (≥ 90%) of its natural landscape size.
- ( ) B Pocosin is < 90% of the full extent of its natural landscape size.

13. Connectivity to Other Natural Areas – landscape condition metric

13a. **Check appropriate box(es) (a box may be checked in each column). Involves a GIS effort with field adjustment.** This evaluates whether the wetland is well connected (Well) and/or loosely connected (Loosely) to the landscape patch, the contiguous metric naturally vegetated area and open water (if appropriate). Boundaries are formed by four-lane roads, regularly maintained utility line corridors the width of a four-lane road or wider, urban landscapes, fields (pasture open and agriculture), or water > 300 feet wide.

Well	Loosely	
(•) A	(•) A	≥ 500 acres
( ) B	( ) B	From 100 to < 500 acres
( ) C	( ) C	From 50 to < 100 acres
( ) D	( ) D	From 10 to < 50 acres
( ) E	( ) E	< 10 acres
( ) F	( ) F	Wetland type has a poor or no connection to other natural habitats

13b. **Evaluate for marshes only**.

( ) Yes ( ) No Wetland type has a surface hydrology connection to open waters/stream or tidal wetlands.

14. Edge Effect – wetland type condition metric (skip for all marshes and Estuarine Woody Wetland)

May involve a GIS effort with field adjustment. Estimate distance from wetland type boundary to artificial edges. Artificial edges include non-forested areas ≥ 40 feet wide such as fields, development, roads, regularly maintained utility line corridors and clear-cuts. Consider the eight main points of the compass. Artificial edge occurs within 150 feet in how many directiions? If the assessment area is clear-cut, select option "C."

- ( ) A 0
- (•) B 1 to 4
- ( ) C 5 to 8

15. Vegetative Composition – assessment area condition metric (skip for all marshes and Pine Flat)

- ( ) A Vegetation is close to reference condition in species present and their proportions. Lower strata composed of appropriate species, with exotic plants absent or sparse within the assessment area.
- (•) B Vegetation is different from reference condition in species diversity or proportions, but still largely composed of native species characteristic of the wetland type. This may include communities of weedy native species that develop after clearcutting or clearing. It also includes communities with exotics present, but not dominant, over a large portion of the expected strata.
- ( ) C Vegetation severely altered from reference in composition, or expected species are unnaturally absent (planted stands of non-characteristic species or at least one stratum inappropriately composed of a single species), or exotic species are dominant in at least one stratum.

16. Vegetative Diversity – assessment area condition metric (evaluate for Non-tidal Freshwater Marsh only)

- (•) A Vegetation diversity is high and is composed primarily of native species (<10% cover of exotics).
- ( ) B Vegetation diversity is low or has > 10% to 50% cover of exotics.
- ( ) C Vegetation is dominated by exotic species (>50% cover of exotics).

17. Vegetative Structure – assessment area/wetland type condition metric

17a. Is vegetation present?

(●) Yes ( ) No If Yes, continue to 17b. If No, skip to Metric 18.

17b. Evaluate percent coverage of assessment area vegetation **for all marshes only**. Skip to 17c for non-marsh wetlands.

( ) A ≥ 25% coverage of vegetation
( ) B < 25% coverage of vegetation

17c. **Check a box in each column for each stratum**. Evaluate this portion of the metric **for non-marsh wetlands**. Consider structure in airspace above the assessment area (AA) and the wetland type (WT) separately.

	AA	WT	
Canopy	( ) A	( ) A	Canopy closed, or nearly closed, with natural gaps associated with natural processes
	(●) B	(●) B	Canopy present, but opened more than natural gaps
	( ) C	( ) C	Canopy sparse or absent
Mid-Story	( ) A	( ) A	Dense mid-story/sapling layer
	(●) B	(●) B	Moderate density mid-story/sapling layer
	( ) C	( ) C	Mid-story/sapling layer sparse or absent
Shrub	( ) A	( ) A	Dense shrub layer
	(●) B	(●) B	Moderate density shrub layer
	( ) C	( ) C	Shrub layer sparse or absent
Herb	( ) A	( ) A	Dense herb layer
	(●) B	(●) B	Moderate density herb layer
	( ) C	( ) C	Herb layer sparse or absent

18. Snags – wetland type condition metric (skip for all marshes)

( ) A Large snags (more than one) are visible (> 12-inches DBH, or large relative to species present and landscape stability).
(●) B Not A

19. Diameter Class Distribution – wetland type condition metric (skip for all marshes)

(●) A Majority of canopy trees have stems > 6 inches in diameter at breast height (DBH); many large trees (> 12 inches DBH) are present.
( ) B Majority of canopy trees have stems between 6 and 12 inches DBH, few are > 12-inch DBH.
( ) C Majority of canopy trees are < 6 inches DBH or no trees.

20. Large Woody Debris – wetland type condition metric (skip for all marshes)

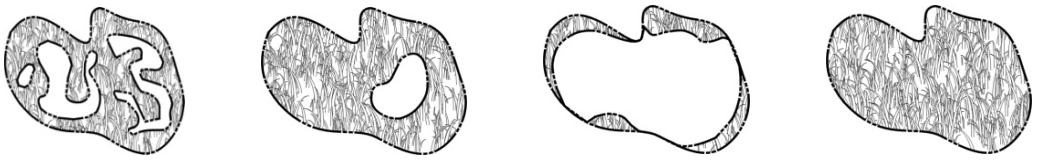
Include both natural debris and man-placed natural debris.

( ) A Large logs (more than one) are visible (> 12 inches in diameter, or large relative to species present and landscape stability).
(●) B Not A

21. Vegetation/Open Water Dispersion – wetland type/open water condition metric (evaluate for Non-Tidal Freshwater Marsh only)

Select the figure that best describes the amount of interspersion between vegetation and open water in the growing season. Patterned areas indicate vegetated areas, while solid white areas indicate open water.

( ) A ( ) B ( ) C ( ) D



22. Hydrologic Connectivity – assessment area condition metric (evaluate for riparian wetlands and Salt/Brackish Marsh only)

Examples of activities that may severely alter hydrologic connectivity include intensive ditching, fill, sedimentation, channelization, diversion, man-made berms, beaver dams, and stream incision. Documentation required if evaluated as B, C, or D.

(●) A Overbank and overland flow are not severely altered in the assessment area.
( ) B Overbank flow is severely altered in the assessment area.
( ) C Overland flow is severely altered in the assessment area.
( ) D Both overbank and overland flow are severely altered in the assessment area.

Notes

NC WAM Wetland Rating Sheet
Accompanies User Manual Version 5.0

Wetland Site Name	WA/WD	Date	12/18/2018
Wetland Type	Basin Wetland	Assessor Name/Organization	N. Howell - Three Oaks

Notes on Field Assessment Form (Y/N)	NO
Presence of regulatory considerations (Y/N)	YES
Wetland is intensively managed (Y/N)	YES
Assessment area is located within 50 feet of a natural tributary or other open water (Y/N)	NO
Assessment area is substantially altered by beaver (Y/N)	NO
Assessment area experiences overbank flooding during normal rainfall conditions (Y/N)	NO
Assessment area is on a coastal island (Y/N)	NO

Sub-function Rating Summary

Function	Sub-function	Metrics	Rating
Hydrology	Surface Storage and Retention	Condition	NA
	Sub-Surface Storage and Retention	Condition	NA
Water Quality	Pathogen Change	Condition	NA
		Condition/Opportunity	NA
		Opportunity Presence? (Y/N)	NA
	Particulate Change	Condition	NA
		Condition/Opportunity	NA
		Opportunity Presence? (Y/N)	NA
	Soluble Change	Condition	NA
		Condition/Opportunity	NA
		Opportunity Presence? (Y/N)	NA
	Physical Change	Condition	NA
		Condition/Opportunity	NA
		Opportunity Presence? (Y/N)	NA
	Pollution Change	Condition	**LOW**
		Condition/Opportunity	**LOW**
		Opportunity Presence? (Y/N)	**NO**
Habitat	Physical Structure	Condition	**LOW**
	Landscape Patch Structure	Condition	**HIGH**
	Vegetation Composition	Condition	**MEDIUM**

Function Rating Summary

Function	Metrics/Notes	Rating
Hydrology	Condition	**LOW**
Water Quality	Condition	**LOW**
	Condition/Opportunity	**LOW**
	Opportunity Presence? (Y/N)	**NO**
Habitat	Condition	**LOW**

Overall Wetland Rating **LOW**

NC WAM WETLAND ASSESSMENT FORM
Accompanies User Manual Version 5

USACE AID#:		NCDWR #:	
Project Name	BR-0120	Date of Evaluation	12/18/2018
Applicant/Owner Name	NCDOT	Wetland Site Name	WB/WC
Wetland Type	Riverine Swamp Forest	Assessor Name/Organization	N. Howell - Three Oaks
Level III Ecoregion	Middle Atlantic Coastal Plain	Nearest Named Water Body	Meadow Branch
River Basin	Tar-Pamlico	USGS 8-Digit Catalogue Unit	03020103
County	Pitt	NCDWR Region	Washington
○ Yes ◉ No	Precipitation within 48 hrs?	Latitude/Longitude (deci-degrees)	35.702903, -77.204890

Evidence of stressors affecting the assessment area (may not be within the assessment area)
Please circle and/or make note on last page if evidence of stressors is apparent. Consider departure from reference, if appropriate, in recent past (for instance, approximately within 10 years). Noteworthy stressors include, but are not limited to the following.

- Hydrological modifications (examples: ditches, dams, beaver dams, dikes, berms, ponds, etc.)
- Surface and sub-surface discharges into the wetland (examples: discharges containing obvious pollutants, presence of nearby septic tanks, underground storage tanks (USTs), hog lagoons, etc.)
- Signs of vegetation stress (examples: vegetation mortality, insect damage, disease, storm damage, salt intrusion, etc.)
- Habitat/plant community alteration (examples: mowing, clear-cutting, exotics, etc.)

Is the assessment area intensively managed? ○ Yes ◉ No

Regulatory Considerations - Were regulatory considerations evaluated? ◉ Yes ○ No If Yes, check all that apply to the assessment area.

- ☐ Anadromous fish
- ☐ Federally protected species or State endangered or threatened species
- ☑ NCDWR riparian buffer rule in effect
- ☐ Abuts a Primary Nursery Area (PNA)
- ☐ Publicly owned property
- ☐ N.C. Division of Coastal Management Area of Environmental Concern (AEC) (including buffer)
- ☐ Abuts a stream with a NCDWQ classification of SA or supplemental classifications of HQW, ORW, or Trout
- ☐ Designated NCNHP reference community
- ☐ Abuts a 303(d)-listed stream or a tributary to a 303(d)-listed stream

What type of natural stream is associated with the wetland, if any? (check all that apply)

- ◉ Blackwater
- ○ Brownwater
- ☐ Tidal (if tidal, check one of the following boxes) ○ Lunar ○ Wind ○ Both

Is the assessment area on a coastal island? ○ Yes ◉ No

Is the assessment area's surface water storage capacity or duration substantially altered by beaver? ○ Yes ◉ No

Does the assessment area experience overbank flooding during normal rainfall conditions? ◉ Yes ○ No

1. Ground Surface Condition/Vegetation Condition – assessment area condition metric
Check a box in each column. Consider alteration to the ground surface (GS) in the assessment area and vegetation structure (VS) in the assessment area. Compare to reference wetland if applicable (see User Manual). If a reference is not applicable, then rate the assessment area based on evidence of an effect.

GS	VS	
◉ A	◉ A	Not severely altered
○ B	○ B	Severely altered over a majority of the assessment area (ground surface alteration examples: vehicle tracks, excessive sedimentation, fire-plow lanes, skidder tracks, bedding, fill, soil compaction, obvious pollutants) (vegetation structure alteration examples: mechanical disturbance, herbicides, salt intrusion [where appropriate], exotic species, grazing, less diversity [if appropriate], hydrologic alteration)

2. Surface and Sub-Surface Storage Capacity and Duration – assessment area condition metric
Check a box in each column. Consider surface storage capacity and duration (Surf) and sub-surface storage capacity and duration (Sub). Consider both increase and decrease in hydrology. A ditch ≤ 1 foot deep is considered to affect surface water only, while a ditch > 1 foot deep is expected to affect both surface and sub-surface water. Consider tidal flooding regime, if applicable.

Surf	Sub	
◉ A	◉ A	Water storage capacity and duration are not altered.
○ B	○ B	Water storage capacity or duration are altered, but not substantially (typically, not sufficient to change vegetation).
○ C	○ C	Water storage capacity or duration are substantially altered (typically, alteration sufficient to result in vegetation change) (examples: draining, flooding, soil compaction, filling, excessive sedimentation, underground utility lines).

3. Water Storage/Surface Relief – assessment area/wetland type condition metric (skip for all marshes)
Check a box in each column for each group below. Select the appropriate storage for the assessment area (AA) and the wetland type (WT).

	AA	WT	
3a.	○ A	○ A	Majority of wetland with depressions able to pond water > 1 foot deep
	◉ B	◉ B	Majority of wetland with depressions able to pond water 6 inches to 1 foot deep
	○ C	○ C	Majority of wetland with depressions able to pond water 3 to 6 inches deep
	○ D	○ D	Depressions able to pond water < 3 inches deep

3b.	○ A	Evidence that maximum depth of inundation is greater than 2 feet
	◉ B	Evidence that maximum depth of inundation is between 1 and 2 feet
	○ C	Evidence that maximum depth of inundation is less than 1 foot

4. Soil Texture/Structure – assessment area condition metric (skip for all marshes)

Check a box from each of the three soil property groups below. Dig soil profile in the dominant assessment area landscape feature. Make soil observations within the 12 inches. Use most recent National Technical Committee for Hydric Soils guidance for regional indicators.

4a.
- (○) A Sandy soil
- (●) B Loamy or clayey soils exhibiting redoximorphic features (concentrations, depletions, or rhizospheres)
- (○) C Loamy or clayey soils not exhibiting redoximorphic features
- (○) D Loamy or clayey gleyed soil
- (○) E Histosol or histic epipedon

4b.
- (●) A Soil ribbon < 1 inch
- (○) B Soil ribbon ≥ 1 inch

4c.
- (●) A No peat or muck presence
- (○) B A peat or muck presence

5. Discharge into Wetland – opportunity metric

Check a box in each column. Consider surface pollutants or discharges (Surf) and sub-surface pollutants or discharges (Sub). Examples of sub-surface discharges include presence of nearby septic tank, underground storage tank (UST), etc.

Surf	Sub	
(●) A	(●) A	Little or no evidence of pollutants or discharges entering the assessment area
(○) B	(○) B	Noticeable evidence of pollutants or discharges entering the wetland and stressing, but not overwhelming the treatment capacity of the assessment area
(○) C	(○) C	Noticeable evidence of pollutants or discharges (pathogen, particulate, or soluble) entering the assessment area and potentially overwhelming the treatment capacity of the wetland (water discoloration, dead vegetation, excessive sedimentation, odor)

6. Land Use – opportunity metric (skip for non-riparian wetlands)

Check all that apply (at least one box in each column). Evaluation involves a GIS effort with field adjustment. Consider sources draining to assessment area within entire upstream watershed (WS), within 5 miles and within the watershed draining to the assessment area (5M), and within 2 miles and within the watershed draining to the assessment area (2M). Effective riparian buffers are considered to be 50 feet wide in the Coastal Plain and Piedmont ecoregions and 30 feet wide in the Blue Ridge Mountains ecoregion.

WS	5M	2M	
☐ A	☐ A	☐ A	≥ 10% impervious surfaces
☐ B	☐ B	☐ B	Confined animal operations (or other local, concentrated source of pollutants)
☑ C	☑ C	☑ C	≥ 20% coverage of pasture
☑ D	☐ D	☑ D	≥ 20% coverage of agricultural land (regularly plowed land)
☐ E	☐ E	☐ E	≥ 20% coverage of maintained grass/herb
☐ F	☐ F	☐ F	≥ 20% coverage of clear-cut land
☐ G	☐ G	☐ G	Little or no opportunity to improve water quality. Lack of opportunity may result from little or no disturbance in the watershed or hydrologic alterations that prevent dainage and/or overbank flow from affectio the assessment area.

7. Wetland Acting as Vegetated Buffer – assessment area/wetland complex condition metric (skip for non-riparian wetlands)

7a. Is assessment area within 50 feet of a tributary or other open water?
(●) Yes (○) No If Yes, continue to 7b. If No, skip to Metric 8.

7b. How much of the first 50 feet from the bank is weltand? (Wetland buffer need only be present on one side of the water body. Make buffer judgment based on the average width of wetland. Record a note if a portion of the buffer has been removed or disturbed.)
- (●) A ≥ 50 feet
- (○) B From 30 to < 50 feet
- (○) C From 15 to < 30 feet
- (○) D From 5 to < 15 feet
- (○) E < 5 feet or buffer bypassed by ditches

7c. Tributary width. If the tributary is anastomosed, combine widths of channels/braids for a total width.
(○) ≤ 15-feet wide (●) > 15-feet wide (○) Other open water (no tributary present)

7d. Do roots of assessment area vegetation extend into the bank of the tributary/open water?
(●) Yes (○) No

7e. Is tributary or other open water sheltered or exposed?
- (●) Sheltered – adjacent open water with width < 2500 feet and no regular boat traffic.
- (○) Exposed – adjacent open water with width ≥ 2500 feet or regular boat traffic.

8. Wetland Width at the Assessment Area – wetland type/wetland complex condition metric (evaluate WT for all marshes and Estuarine Woody Wetland only; evaluate WC for Bottomland Hardwood Forest, Headwater Forest, and Riverine Swamp Forest only)

Check a box in each column. Select the average width for the wetland type at the assessment area (WT) and the wetland complex at the assessment area (WC). See User Manual for WT and WC boundaries.

WT	WC	
(●) A	(●) A	≥ 100 feet
(○) B	(○) B	From 80 to < 100 feet
(○) C	(○) C	From 50 to < 80 feet
(○) D	(○) D	From 40 to < 50 feet
(○) E	(○) E	From 30 to < 40 feet
(○) F	(○) F	From 15 to < 30 feet
(○) G	(○) G	From 5 to < 15 feet
(○) H	(○) H	< 5 feet

9. Inundation Duration – assessment area condition metric (skip for non-riparian wetlands)

Answer for assessment area dominant landform.

- (•) A Evidence of short-duration inundation (< 7 consecutive days)
- ( ) B Evidence of saturation, without evidence of inundation
- ( ) C Evidence of long-duration inundation or very long-duration inundation (7 to 30 consecutive days or more)

10. Indicators of Deposition – assessment area condition metric (skip for non-riparian wetlands and all marshes)

Consider recent deposition only (no plant growth since deposition).

- (•) A Sediment deposition is not excessive, but at approximately natural levels.
- ( ) B Sediment deposition is excessive, but not overwhelming the wetland.
- ( ) C Sediment deposition is excessive and is overwhelming the wetland.

11. Wetland Size – wetland type/wetland complex condition metric

Check a box in each column. Involves a GIS effort with field adjustment. This metric evaluates three aspects of the wetland area: the size of the wetland type (WT), the size of the wetland complex (WC), and the size of the forested wetland (FW) (if applicable, see User Manual). See the User Manual for boundaries of these evaluation areas. If assessment area is clear-cut, select "K" for the FW column.

WT	WC	FW (if applicable)	
( ) A	( ) A	( ) A	≥ 500 acres
( ) B	( ) B	( ) B	From 100 to < 500 acres
( ) C	( ) C	( ) C	From 50 to < 100 acres
( ) D	( ) D	( ) D	From 25 to < 50 acres
( ) E	( ) E	( ) E	From 10 to < 25 acres
( ) F	( ) F	( ) F	From 5 to < 10 acres
(•) G	(•) G	(•) G	From 1 to < 5 acres
( ) H	( ) H	( ) H	From 0.5 to < 1 acre
( ) I	( ) I	( ) I	From 0.1 to < 0.5 acre
( ) J	( ) J	( ) J	From 0.01 to < 0.1 acre
( ) K	( ) K	( ) K	< 0.01 acre or assessment area is clear-cut

12. Wetland Intactness – wetland type condition metric (evaluate for Pocosins only)

- ( ) A Pocosin is the full extent (≥ 90%) of its natural landscape size.
- ( ) B Pocosin is < 90% of the full extent of its natural landscape size.

13. Connectivity to Other Natural Areas – landscape condition metric

13a. **Check appropriate box(es) (a box may be checked in each column). Involves a GIS effort with field adjustment.** This evaluates whether the wetland is well connected (Well) and/or loosely connected (Loosely) to the landscape patch, the contiguous metric naturally vegetated area and open water (if appropriate). Boundaries are formed by four-lane roads, regularly maintained utility line corridors the width of a four-lane road or wider, urban landscapes, fields (pasture open and agriculture), or water > 300 feet wide.

Well	Loosely	
(•) A	(•) A	≥ 500 acres
( ) B	( ) B	From 100 to < 500 acres
( ) C	( ) C	From 50 to < 100 acres
( ) D	( ) D	From 10 to < 50 acres
( ) E	( ) E	< 10 acres
( ) F	( ) F	Wetland type has a poor or no connection to other natural habitats

13b. **Evaluate for marshes only**.

( ) Yes ( ) No Wetland type has a surface hydrology connection to open waters/stream or tidal wetlands.

14. Edge Effect – wetland type condition metric (skip for all marshes and Estuarine Woody Wetland)

May involve a GIS effort with field adjustment. Estimate distance from wetland type boundary to artificial edges. Artificial edges include non-forested areas ≥ 40 feet wide such as fields, development, roads, regularly maintained utility line corridors and clear-cuts. Consider the eight main points of the compass. Artificial edge occurs within 150 feet in how many directiions? If the assessment area is clear-cut, select option "C."

- ( ) A 0
- (•) B 1 to 4
- ( ) C 5 to 8

15. Vegetative Composition – assessment area condition metric (skip for all marshes and Pine Flat)

- (•) A Vegetation is close to reference condition in species present and their proportions. Lower strata composed of appropriate species, with exotic plants absent or sparse within the assessment area.
- ( ) B Vegetation is different from reference condition in species diversity or proportions, but still largely composed of native species characteristic of the wetland type. This may include communities of weedy native species that develop after clearcutting or clearing. It also includes communities with exotics present, but not dominant, over a large portion of the expected strata.
- ( ) C Vegetation severely altered from reference in composition, or expected species are unnaturally absent (planted stands of non-characteristic species or at least one stratum inappropriately composed of a single species), or exotic species are dominant in at least one stratum.

16. Vegetative Diversity – assessment area condition metric (evaluate for Non-tidal Freshwater Marsh only)

- (•) A Vegetation diversity is high and is composed primarily of native species (<10% cover of exotics).
- ( ) B Vegetation diversity is low or has > 10% to 50% cover of exotics.
- ( ) C Vegetation is dominated by exotic species (>50% cover of exotics).

17. Vegetative Structure – assessment area/wetland type condition metric

17a. Is vegetation present?

(●) Yes ( ) No If Yes, continue to 17b. If No, skip to Metric 18.

17b. Evaluate percent coverage of assessment area vegetation **for all marshes only**. Skip to 17c for non-marsh wetlands.

( ) A ≥ 25% coverage of vegetation
( ) B < 25% coverage of vegetation

17c. **Check a box in each column for each stratum**. Evaluate this portion of the metric **for non-marsh wetlands**. Consider structure in airspace above the assessment area (AA) and the wetland type (WT) separately.

	AA	WT	
Canopy	(●) A	(●) A	Canopy closed, or nearly closed, with natural gaps associated with natural processes
	( ) B	( ) B	Canopy present, but opened more than natural gaps
	( ) C	( ) C	Canopy sparse or absent
Mid-Story	( ) A	( ) A	Dense mid-story/sapling layer
	(●) B	(●) B	Moderate density mid-story/sapling layer
	( ) C	( ) C	Mid-story/sapling layer sparse or absent
Shrub	( ) A	( ) A	Dense shrub layer
	(●) B	(●) B	Moderate density shrub layer
	( ) C	( ) C	Shrub layer sparse or absent
Herb	( ) A	( ) A	Dense herb layer
	(●) B	(●) B	Moderate density herb layer
	( ) C	( ) C	Herb layer sparse or absent

18. Snags – wetland type condition metric (skip for all marshes)

( ) A Large snags (more than one) are visible (> 12-inches DBH, or large relative to species present and landscape stability).
(●) B Not A

19. Diameter Class Distribution – wetland type condition metric (skip for all marshes)

(●) A Majority of canopy trees have stems > 6 inches in diameter at breast height (DBH); many large trees (> 12 inches DBH) are present.
( ) B Majority of canopy trees have stems between 6 and 12 inches DBH, few are > 12-inch DBH.
( ) C Majority of canopy trees are < 6 inches DBH or no trees.

20. Large Woody Debris – wetland type condition metric (skip for all marshes)

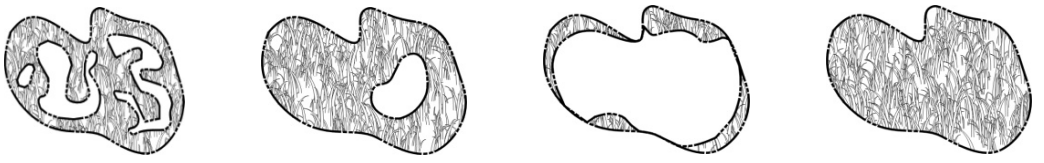
Include both natural debris and man-placed natural debris.

( ) A Large logs (more than one) are visible (> 12 inches in diameter, or large relative to species present and landscape stability).
(●) B Not A

21. Vegetation/Open Water Dispersion – wetland type/open water condition metric (evaluate for Non-Tidal Freshwater Marsh only)

Select the figure that best describes the amount of interspersion between vegetation and open water in the growing season. Patterned areas indicate vegetated areas, while solid white areas indicate open water.

( ) A ( ) B ( ) C ( ) D



22. Hydrologic Connectivity – assessment area condition metric (evaluate for riparian wetlands and Salt/Brackish Marsh only)

Examples of activities that may severely alter hydrologic connectivity include intensive ditching, fill, sedimentation, channelization, diversion, man-made berms, beaver dams, and stream incision. Documentation required if evaluated as B, C, or D.

(●) A Overbank and overland flow are not severely altered in the assessment area.
( ) B Overbank flow is severely altered in the assessment area.
( ) C Overland flow is severely altered in the assessment area.
( ) D Both overbank and overland flow are severely altered in the assessment area.

Notes

NC WAM Wetland Rating Sheet
Accompanies User Manual Version 5.0

Wetland Site Name	WB/WC	Date	12/18/2018
Wetland Type	Riverine Swamp Forest	Assessor Name/Organization	N. Howell - Three Oaks

Notes on Field Assessment Form (Y/N)	NO
Presence of regulatory considerations (Y/N)	YES
Wetland is intensively managed (Y/N)	NO
Assessment area is located within 50 feet of a natural tributary or other open water (Y/N)	YES
Assessment area is substantially altered by beaver (Y/N)	NO
Assessment area experiences overbank flooding during normal rainfall conditions (Y/N)	YES
Assessment area is on a coastal island (Y/N)	NO

Sub-function Rating Summary

Function	Sub-function	Metrics	Rating
Hydrology	Surface Storage and Retention	Condition	**HIGH**
	Sub-Surface Storage and Retention	Condition	**MEDIUM**
Water Quality	Pathogen Change	Condition	**HIGH**
		Condition/Opportunity	**HIGH**
		Opportunity Presence? (Y/N)	**YES**
	Particulate Change	Condition	**HIGH**
		Condition/Opportunity	**HIGH**
		Opportunity Presence? (Y/N)	**YES**
	Soluble Change	Condition	**MEDIUM**
		Condition/Opportunity	**HIGH**
		Opportunity Presence? (Y/N)	**YES**
	Physical Change	Condition	**HIGH**
		Condition/Opportunity	**HIGH**
		Opportunity Presence? (Y/N)	**YES**
	Pollution Change	Condition	NA
		Condition/Opportunity	NA
		Opportunity Presence? (Y/N)	NA
Habitat	Physical Structure	Condition	**HIGH**
	Landscape Patch Structure	Condition	**MEDIUM**
	Vegetation Composition	Condition	**HIGH**

Function Rating Summary

Function	Metrics/Notes	Rating
Hydrology	Condition	**HIGH**
Water Quality	Condition	**HIGH**
	Condition/Opportunity	**HIGH**
	Opportunity Presence? (Y/N)	**YES**
Habitat	Condition	**HIGH**

Overall Wetland Rating **HIGH**