



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION

ROY COOPER  
GOVERNOR

J. ERIC BOYETTE  
SECRETARY

March 10, 2023

MEMORANDUM TO: Division 13 Environmental and Construction Units

FROM: *mat* Michael Turchy, ECAP Group Leader  
Environmental Analysis Unit

SUBJECT: Environmental Permits for the Replacement of Bridge 19 on NC 226 over  
Cub Creek in Mitchell County, Division 13, **TIP: B-5893**.

Please find enclosed the following permits for this project:

Agency	Permit Type	Permit Expiration
US Army Corps of Engineers Section 404 Clean Water Act Permit	Regional General Permit 50	May 25, 2025
NC Division of Water Resources Section 401 Water Quality Certification	General Certification No. 4135 [RGP50]	May 25, 2025

Work is authorized by the above referenced permit provided it is accomplished in strict accordance with the permitted plans.

The Environmental Coordination and Permitting Group or the Division Environmental Office must be consulted if any deviation from the permit(s) is required.

The General Conditions and Certifications for Nationwide and Regional Permits can be referenced at:  
[https://xfer.services.ncdot.gov/pdea/PermIssued/\\_General\\_Conditions\\_and\\_Certifications/](https://xfer.services.ncdot.gov/pdea/PermIssued/_General_Conditions_and_Certifications/)

# PROJECT COMMITMENTS

T.I.P Project No. B-5893  
Replacement of Bridge No. 19 on NC 226 over Cub Creek  
Mitchell County  
WBS Element 48086.1.1

## COMMITMENTS FROM PROJECT DEVELOPMENT AND DESIGN

### Hydraulics Unit, Division 13 Construction – FEMA

The Hydraulics Unit will coordinate with the NC Floodplain Mapping Program to determine the status of the project with regard to applicability of NCDOT's Memorandum of Agreement, or approval of a Conditional Letter of Map Revision (CLOMR) and subsequent final Letter of Map Revision (LOMR).

This project involves construction activities on or adjacent to a FEMA-regulated stream. Therefore, the Division shall submit sealed as-built construction plans to the Hydraulics Unit upon project completion certifying the drainage structure(s) and roadway embankment located within the 100-year floodplain were built as shown on the construction plans, both horizontally and vertically.

### Division 13 Construction – Endangered Species

**Northern Long-Eared Bat (NLEB)** – Since this project is state-funded, the U.S. Army Corps of Engineers (USACE) will act as the lead agency for issues related to the northern long-eared bat (NLEB). Therefore 4(d) does not apply. The USACE has developed a Standard Local Operating Procedure for Endangered Species (SLOPES) to address NLEB when they are the lead agency, which NCDOT will follow for this project. The requirements of the SLOPES for NLEB will be completed prior to Let and will be submitted to USACE.

*The USACE submitted relevant bat survey info to USFWS during permitting and informal concurrence was received from USFWS for all relevant bat species on March 3, 2023.*

**Appalachian Elktoe** - Surveys were conducted by RK&K biologists, with no native freshwater mussel species observed. One live Asian clam (*Corbicula fluminea*) along with gastropods in the genera *Physella* (5 individuals) and *Elimia* (19 individuals) were present at the survey location. The results indicate that the study area is unlikely to support any native freshwater mussel fauna. Appalachian Elktoe was not found during the survey. Previous surveys near the current survey location vicinity have resulted in the discovery of Appalachian Elktoe. Four previous surveys, conducted in the North Toe River, ranged from 1.5 to 2.8 stream miles downstream of the current survey location. These previous surveys occurred on October 16, 1991, October 04, 2005, October 22, 2008, and April 22, 2014. Based on the medium/high gradient habitat, distance to known Appalachian Elktoe records and these survey results, impacts to Appalachian Elktoe are unlikely to occur in the study area and a Biological Conclusion of May Affect, Not Likely to Adversely Affect has been rendered for this species. Any additional coordination needed will be handled by the U.S.

Army Corps of Engineers (USACE), who will consult with the U.S. Fish and Wildlife Services (USFWS) on the effect call for the Appalachian Elktoe.

*The USACE submitted relevant mussel survey info to USFWS during permitting and informal concurrence was received from USFWS for Appalachian elktoe on March 3, 2023.*

## **COMMITMENTS FROM PERMITTING**

404 Special Condition #2: NCDOT shall adhere to the following ESA/Section 7 commitments/conservation measures:

- a. NCDOT will remove trees between October 15th and April 1st only; trees will not be removed outside of this time period.
- b. NCDOT shall adhere to Design Standards in Sensitive Watersheds.
- c. Lighting for night work that occurs between March 15th and November 15th will only illuminate active work areas and will not be projected into adjacent wooded areas or over the water surface.
- d. Due to blasting concerns, NCDOT will survey the culvert on Sweet Creek Road within two years of construction during the optimal summer survey window (May 15<sup>th</sup> to August 15<sup>th</sup>) for bats or signs of bat use. If bats, or signs of bat use, are discovered, NCDOT shall immediately notify the USACE and the USACE will then reinitiate consultation with the U.S. Fish and Wildlife Service (Service).

404 Special Condition #3: Conditions #1-6 of the North Carolina Wildlife Resources Commission letter of December 28, 2022, are hereby incorporated as special conditions of this authorization/verification letter. Emphasis is placed on Condition #1 of WRC's letter – "The October 15 to April 15 trout moratorium should be followed since construction has a reasonable potential to cause inadvertent sedimentation in trout spawning habitat downstream of the bridge."

**U.S. ARMY CORPS OF ENGINEERS**  
**WILMINGTON DISTRICT**

Action ID.: **SAW-2022-02732 B-5893**

County: **Mitchell**

**GENERAL PERMIT (REGIONAL AND NATIONWIDE) VERIFICATION**

Property Owner / Authorized Agent:

**North Carolina Department of Transportation**

**Attn: Mr. Michael A. Turchy**

**Environmental Coordination and Permitting Group Leader**

Address: **1598 Mail Service Center**

**Raleigh, North Carolina 27699-1598**

**919-707-6157**

Size and location of property (water body, road name/number, town, etc.): **The project (B-5893) is located at Bridge No. 19 on NC 226 over Cub Creek in Mitchell County, North Carolina.**

Description of project area and activity: **In order to replace the bridge, the permittee is authorized to impact waters of the U.S. as follows:**

**Summary of Authorized Impacts and Required Mitigation**

Impact ID #	NWP / GP #	Open Water (ac)		Wetland (ac)		Stream (lf)	
		Temporary	Permanent	Temporary	Permanent	Temporary	Permanent
<b>Site 1 (Cub Creek)</b>	<b><u>RGP 50</u></b>					<b>20' / bank stabilization</b>	<b>67' / bank stabilization</b>
<b>Site 2 (Cub Creek)</b>	<b><u>RGP 50</u></b>					<b>16' / bank stabilization</b>	<b>12' / bank stabilization</b>
<b>Impact Totals</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>36'</b>	<b>79'</b>
Total Loss of waters of the U.S. (wetlands and/or open waters in ac)			<b>0</b>	Total Loss of waters of the U.S. (streams in lf)			<b>0</b>
Required Wetland Mitigation (ac)			<b>0</b>	Required Stream Mitigation (lf)			<b>0</b>

Applicable Law: ☒ Section 404 (Clean Water Act, 33 USC 1344)

☐ Section 10 (Rivers and Harbors Act, 33 USC 403)

Authorization: Regional General Permit Number: **RGP 50**

Nationwide Permit Number:

Your work is authorized by the above referenced permit provided it is accomplished in strict accordance with the attached conditions, your submitted application, and the following special conditions:



**Special Conditions**

1. All work must be performed in strict compliance with (a) the description of work in the PCN and (b) the Permit Drawings titled, "Wetland and Stream Impacts 6-20-2019", in the application dated December 21, 2022. Any modification to the description of work and/or the permit plans must be approved by the USACE prior to implementation.

2. NCDOT shall adhere to the following ESA/Section 7 commitments/conservation measures:

- a. NCDOT will remove trees between October 15th and April 1st only; trees will not be removed outside of this time period.
- b. NCDOT shall adhere to Design Standards in Sensitive Watersheds.
- c. Lighting for night work that occurs between March 15th and November 15th will only illuminate active work areas and will not be projected into adjacent wooded areas or over the water surface.
- d. Due to blasting concerns, NCDOT will survey the culvert on Sweet Creek Road within two years of construction during the optimal summer survey window (May 15<sup>th</sup> to August 15<sup>th</sup>) for bats or signs of bat use. If bats, or signs of bat use, are discovered, NCDOT shall immediately notify the USACE and the USACE will then reinstate consultation with the U.S. Fish and Wildlife Service (Service).

3. Conditions #1-6 of the North Carolina Wildlife Resources Commission letter of December 28, 2022, are hereby incorporated as special conditions of this authorization/verification letter. Emphasis is placed on Condition #1 of WRC's letter – "The October 15 to April 15 trout moratorium should be followed since construction has a reasonable potential to cause inadvertent sedimentation in trout spawning habitat downstream of the bridge."

4. NCDOT shall require its contractors and/or agents to comply with the terms and conditions of this authorization letter in the construction and maintenance of this project, and shall provide each of its contractors and/or agents associated with the construction or maintenance of this project with a copy of this authorization letter, all conditions, and any authorized modifications. A copy of this authorization letter, all conditions, and any authorized modifications, shall be available at the project site during construction and maintenance of this project.

Any violation of the attached conditions or deviation from your submitted plans may subject the permittee to a stop work order, a restoration order, a Class I administrative penalty, and/or appropriate legal action.

This verification will remain valid until the expiration date identified below unless the nationwide and/or regional general permit authorization is modified, suspended or revoked. If, prior to the expiration date identified below, the nationwide and/or regional general permit authorization is reissued and/or modified, this verification will remain valid until the expiration date identified below, provided it complies with all requirements of the modified nationwide and/or regional general permit. If the nationwide and/or regional general permit authorization

expires or is suspended, revoked, or is modified, such that the activity would no longer comply with the terms and conditions of the nationwide and/or regional general permit, activities which have commenced (i.e., are under construction) or are under contract to commence in reliance upon the nationwide and/or regional general permit, will remain authorized provided the activity is completed within twelve months of the date of the nationwide and/or regional general permit's expiration, modification or revocation, unless discretionary authority has been exercised on a case-by-case basis to modify, suspend or revoke the authorization.

Activities subject to Section 404 (as indicated above) may also require an individual Section 401 Water Quality Certification. You should contact the NC Division of Water Resources (telephone 828-296-4500) to determine Section 401 requirements.

This Department of the Army verification does not relieve the permittee of the responsibility to obtain any other required Federal, State or local approvals/permits.

If there are any questions regarding this verification, any of the conditions of the Permit, or the U.S. Army Corps of Engineers regulatory program, please contact Lori Beckwith at [loretta.a.beckwith@usace.army.mil](mailto:loretta.a.beckwith@usace.army.mil) or 828-271-7980, ext. 4223.

USACE Regulatory Official: Monte Matthews

*Monte  
Matthews*

2023.03.08

14:02:11 -05'00'

Date: **March 8, 2023**

Expiration Date of Verification: **May 25, 2025**

Copy furnished: Ms. Erin Cheely

Action ID Number: SAW-2022-02732

County: Mitchell

Permittee: NCDOT, Mr. Michael A. Turchy  
Environmental Coordination and Permitting Group Leader

Project Name: NCDOT / B-5893 / Bridge 19 / Mitchell Co. / Div 13

Regional General Permit: RGP 50

Date Verification Issued: March 8, 2023

Project Manager: Lori Beckwith

Upon completion of the activity authorized by this permit and any mitigation required by the permit, sign this certification and return it to the following address:

US ARMY CORPS OF ENGINEERS  
WILMINGTON DISTRICT  
Attn: Lori Beckwith  
151 Patton Avenue  
Room 208  
Asheville, NC 28801-5006

Please note that your permitted activity is subject to a compliance inspection by a U. S. Army Corps of Engineers representative. Failure to comply with any terms or conditions of this authorization may result in the U.S. Army Corps of Engineers suspending, modifying or revoking the authorization and/or issuing a Class I administrative penalty, or initiating other appropriate legal action.

I hereby certify that the work authorized by the above referenced permit has been completed in accordance with the terms and condition of the said permit, and required mitigation was completed in accordance with the permit conditions.

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Signature of Permittee

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Date



## ☒ North Carolina Wildlife Resources Commission ☒

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Cameron Ingram, Executive Director

December 28, 2022

Lori Beckwith

U.S. Army Corps of Engineers, Asheville Regulatory Field Office  
151 Patton Avenue, Room 208  
Asheville, NC 28801

Kevin Mitchell

NCDEQ, DWR  
2090 U.S. Hwy. 70  
Swannanoa, N.C. 28778

SUBJECT: Comments on GP/WQC Application for Replacement of Bridge 19 on NC 226 over Cub Creek, Mitchell County (**B-5893, WBS 48086.1.1**)  
DWR 20221786 ver.1

Dear Ms. Beckwith and Mr. Mitchell,

The North Carolina Department of Transportation (NCDOT) applied for a General 404 Permit and 401 Certification for the subject project. I am familiar with the wildlife resources in the area and visited the project site on December 21, 2022. Comments on the application from the North Carolina Wildlife Resources Commission (NCWRC) are offered to help conserve the wildlife resources affected by the project and to promote wildlife-based recreation in accordance with applicable provisions of the state and federal Environmental Policy Acts (G.S. 113A-1 through 113-10; 1 NCAC 25 and 42 U.S.C. 4332(2)(c), respectively), the Clean Water Act of 1977 (33 U.S.C. 466 et seq.), and the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661-667d).

The existing concrete bridge on NC 226 over Cub Creek (C Tr) is being replaced using staged construction of a 40 foot long cored slab bridge.

Cub Creek (C Tr) at the project site is not designated by the NCWRC as a trout water and does not support trout upstream of the bridge. However, Cane Creek a short distance downstream of the bridge

supports a naturally reproducing brown trout population. Cane Creek also supports blotched chub (*Erimystax insignis*, NC Significantly Rare) and may also support sharphead darter (*Etheostoma acuticeps*), a North Carolina threatened species that is endemic to the Nolichucky River system.

The NCWRC requests that the following conditions be included in authorizations to help conserve trout and other aquatic resources affected by the project:

1. The October 15 to April 15 trout moratorium should be followed since construction has a reasonable potential to cause inadvertent sedimentation in trout spawning habitat downstream of the bridge.
2. Applicable measures from the current *NCDOT Erosion and Sediment Control Design and Construction Manual* should be adhered to. Measures for sensitive-HQW areas are recommended at this location. In accordance with standard GC conditions, matting used in riparian areas should not contain nylon mesh because it entangles and kills wildlife. Coir matting should be used on disturbed stream banks that are steep or susceptible to high water. Matting should be anchored with wooden stakes according to NCDOT specifications.
3. Heavy equipment needs to be well-maintained and concrete pouring needs to be closely monitored to avoid and quickly mitigate fuel, fluid, or wet concrete losses in or near streams.
4. Removal of vegetation in riparian areas and wetlands should be minimized.
5. Sandbags, rock berms, cofferdams, or other diversion structures should be used where excavation or other periods of extended stream disturbance has the potential for downstream sedimentation.
6. The natural dimension, pattern, and profiles of streams and the grades of wetlands should be restored where temporarily impacted.

Thank you for the opportunity to review and provide recommendations on this project. Please contact me at [david.mchenry@ncwildlife.org](mailto:david.mchenry@ncwildlife.org) or (828) 476-1966 if you have any questions about these comments.

Cordially,



Dave McHenry, NCWRC Western DOT Coordinator

cc: Roger Bryan, NCDOT Division 13 Environmental Officer



# United States Department of the Interior

## FISH AND WILDLIFE SERVICE

Asheville Field Office  
160 Zillicoa Street Suite B  
Asheville, North Carolina 28801



March 3, 2023

Lori Beckwith  
Regulatory Project Manager, Transportation Permitting  
U.S. Army Corps of Engineers  
[Loretta.a.beckwith@usace.army.mil](mailto:Loretta.a.beckwith@usace.army.mil)

Subject: Informal Consultation and Conference Report for Bridge 19 Replacement on NC 226 over Cub Creek in Mitchell County (TIP B-5893, Service Log #23-217)

Dear Lori Beckwith:

On January 20, 2023, we received (via e-mail) your request for informal consultation and conference procedures under section 7 for effects the subject project may have on federally listed and proposed species. We have reviewed the information you submitted along with updates provided on February 13, 2023, responses to our questions received February 15 and 24 2023, observations from a site visit we conducted on February 14, 2023, and the following is provided in accordance with the provisions of the National Environmental Policy Act (42 U.S.C. § 4321 et seq.); the Fish and Wildlife Coordination Act, as amended (16 U.S.C. 661 - 667e); and section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 - 1543) (Act).

### **Project Description**

According to the information provided, the North Carolina Department of Transportation (NCDOT) is proposing to replace Bridge 19 on NC 226 over Cub Creek with a new bridge just north of the existing location. A new road will be built and shifted north to accommodate the new bridge location. Project construction will extend approximately 315 feet west and 261 feet east from the bridge. NC 226 will be widened to two 11-foot lanes with 4-foot paved shoulder approaches. The existing 22-foot-long bridge is a single-span structure with a concrete deck, end walls, and solid concrete guard rails that lack crevices. The new bridge will span Cub Creek and will not contain deck drains. Stormwater from the project will flow through an 18-inch reinforced concrete pipe, a grass-lined ditch, a riprap-lined ditch that will disperse flow, or some combination of these features before discharging into Cub Creek. No off-site detour will be needed. NCDOT expects the project to encounter weathered or crystalline rock within six feet of grade that will require blasting. Both end bents on the structure will have steel pile foundations that require pile driving. As these percussive activities as well as guard rail installation will be needed, the action area extends outside the project footprint.

As a result of bank stabilization under the new bridge and a ditch outlet, there will be a total of 79 linear feet of permanent stream bank impacts and 36 linear feet (<0.01 acres) of temporary impacts. No culverts are present within the project footprint; however, a single 6.7-foot-tall by 50-foot-long corrugated metal pipe culvert occurs on Cub Creek about 320 feet upstream, within the action area. There is no permanent street lighting present within the action area. Night work may occur. NCDOT will remove about 1.02 acres of trees for the project. The bridge crosses over Cub Creek about 50 feet upstream of its connection with Cane Creek. Cane Creek flows into the North Toe River about 1.2 river miles downstream. Large continuous forests are present in the project vicinity.



The project requires a 404 permit under the Clean Water Act, thus the U.S. Army Corps of Engineers (USACE) is the lead federal agency for this project for section 7 purposes. NCDOT has agreed to implement the following conservation measures for the project and the USACE will include these as special conditions in any verification letter (authorization) that may be issued for the project.

1. NCDOT will remove trees between October 15 and April 1.
2. NCDOT shall adhere to Design Standards in Sensitive Watersheds.
3. Lighting for night work that occurs between March 15 and November 15 will only illuminate active work areas and will not be projected into adjacent wooded areas or over the water surface.
4. Due to blasting concerns, NCDOT will survey the culvert on Sweet Creek Road within two years of construction during the optimal summer survey window (May 15 to August 15).

### **Federally Listed Species**

Your letter provides a recent and complete list of species that may occur within the project area per our Information for Planning and Consultation website and an effect determination for each species. Based upon a review of our records and the information provided including a lack of suitable habitat, we agree with your “no effect” determinations for Virginia spiraea (*Spiraea virginiana*) and rock gnome lichen (*Gymnoderma lineare*). The bog turtle (*Glyptemys muhlenbergii*) does not require section 7 at this time.

Suitable habitat for Appalachian elktoe (*Alasmidonta raveneliana*) is present within the action area; however, mussel surveys in Cub and Cane Creeks in 2016, 2018, and 2022 did not detect Appalachian elktoe or any other native mussel. Critical habitat and existing records of Appalachian elktoe occur in the North Toe River about 1.25 river miles downstream of the project. Based on survey findings and the conservation measures listed above, we concur with the USACE’s determination that the project may affect but is not likely to adversely affect (NLAA) the Appalachian elktoe.

Suitable roosts (trees and a culvert) and suitable commuting and foraging habitat for gray bat (*Myotis grisescens*), northern long-eared bat (*Myotis septentrionalis*), tricolored bat (*Perimyotis subflavus*), and little brown bat (*Myotis lucifugus*) occur within the action area. Surveys on Bridge 19 in 2018 and on July 20, 2022 and February 15, 2023 found no crevices suitable for roosting, no bats, and no signs of bat use. Bridge 19 provides limited suitability for day-roosting bats as it does not have any crevices or darkened chambers. An adjacent private bridge does not provide good habitat either due to its lack of crevices and open grid decking. One culvert under Sweet Creek Road provides suitable day-roosting habitat. No caves or mines occur within 0.5 miles of the action area. Existing records for all four bat species occur within about eight miles of the project. NCDOT did not conduct presence/probable absence surveys or surveys capable of detecting tree roosts.

The noise, measured in decibels (dBA), associated with guardrail installation, pile driving, and blasting is considered “extreme,” creating an average maximum background noise level of 95-126 dBA (Caltrans 2016, NRC 2012) at locations 50 feet away, which could disturb bats day-roosting within the action area during the active seasons (March 15 – November 15 for gray bats) (April 1 – October 15 for northern long-eared bat, tricolored bat, and little brown bat). Bats that are present in proximity to transportation corridors are expected to be tolerant of baseline noise and vibration levels (or have already modified their behaviors to avoid them). How temporary increases in noise and vibration from construction activities affects bats, in this case bats in unknown tree roosts, within existing transportation corridors has not been well studied to our knowledge. One study (Luo et al. 2014) of bats in torpor looked at bats response to noise exposure and found similar responses to traffic noise, bat colony noise, and bird colony noise of the same decibel. Importantly, this study also found that bats habituated rapidly to traffic noise (Luo et al. 2014). Given the information available and the small size of the project, we do not believe any response to project noise and vibration by bats that are already tree-roosting in the area is expected to rise to the level of harm (as defined at 50 CFR 17.3).

Based on NCDOT's commitment to implement the above conservation measures, the information provided, and analysis above, we concur with the USACE's determination that the proposed project is NLAA the gray bat and northern long-eared bat.

On September 14, 2022, the U.S. Fish and Wildlife Service (Service) published a proposal in the Federal Register to list the tricolored bat as endangered under the Act. The Service has up to 12-months from the date a proposal publishes to make a final determination, either to list a species under the Act or to withdraw the proposal. Species proposed for listing are not afforded protection under the Act; however, as soon as a listing becomes effective (typically 30 days after publication of the final rule in the Federal Register), the prohibitions against jeopardizing its continued existence and "take" will apply.

The little brown bat is currently undergoing a discretionary status review by the Service. The Service anticipates determining if the species warrants listing under the Act in 2023. Species undergoing a status review are not afforded protection under the Act; however, if the species is proposed for listing and a final rule to list the species is published, the prohibitions against jeopardizing its continued existence and "take" will apply as soon as a listing becomes effective (typically 30 days after publication of the final rule in the Federal Register).

In order to avoid the disruption to ongoing or planned actions, the USACE requested conferencing procedures for the tricolored bat and little brown bat. The conference can be adopted as concurrence if a final rule for either species becomes effective during the life of the project. Based on the information provided, the analysis above, and the commitment to implement the above conservation measures, we have determined that the proposed project will not jeopardize the continued existence of tricolored bat or little brown bat. Additionally, we concur with USACE's determination that the project is NLAA either species should one or both become federally listed.

Golden-winged warbler (*Vermivora chrysoptera*) is an at-risk species and monarch butterfly (*Danaus plexippus*) is a candidate species. These species occur or have the potential to occur in Mitchell County. At-risk and candidate species are not legally protected under the Act and are not subject to any of its provisions, including section 7, unless they are formally proposed or listed as endangered or threatened. The Service is expected to make listing determinations for some of these species in the near future. While lead federal agencies are not prohibited from jeopardizing the continued existence of an at-risk or candidate species unless the species becomes listed, the prohibition against jeopardy and taking a listed species under section 9 of the Act applies as soon as a listing becomes effective, regardless of the stage of completion of the proposed action. We include this notification to make you aware of these species' current status and potential occurrence within the action area. Current records of golden-winged warbler occur about 6.7 miles from the action area.

### **Conservation Recommendations**

Section 7(a)(1) of the Act directs federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species.

Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information.

- If suitable roost trees are present near high-decibel activity (81 – 162 dBA) and would experience noise above background levels (41 – 70 dBA), avoid conducting those high-decibel activities during the bat maternity season (May 15 – August 15). Alternatively, activity could avoid the pup season (June 1 and July 31).
- To minimize noise levels, incorporate sound-dampening devices.



For the Service to be kept informed of actions minimizing or avoiding adverse effects or benefitting listed species or their habitats, the Service requests notification of the implementation of any conservation recommendations.

**Reinitiation Notice**

We believe the requirements under section 7 of the Act are fulfilled for the federally listed species discussed above. However, obligations under section 7 must be reconsidered if: (1) new information reveals impacts of this proposed action may affect listed species or critical habitat in a manner not previously considered, (2) this proposed action is subsequently modified in a manner that was not considered in this review, or (3) a new species is listed, or critical habitat is determined that may be affected by the proposed action.

Because we have concurred with your determination that the project is NLAA the tricolored bat and little brown bat in this conference report, you do not need to reinitiate section 7 consultation solely due to any final effective listing of either species.

We appreciate the opportunity to provide these comments. Please contact Ms. Lauren B. Wilson of our staff at [lauren\\_wilson@fws.gov](mailto:lauren_wilson@fws.gov) if you have any questions. In any future correspondence concerning this project, please reference our Service Log #23-217.

Sincerely,

*- - original signed - -*

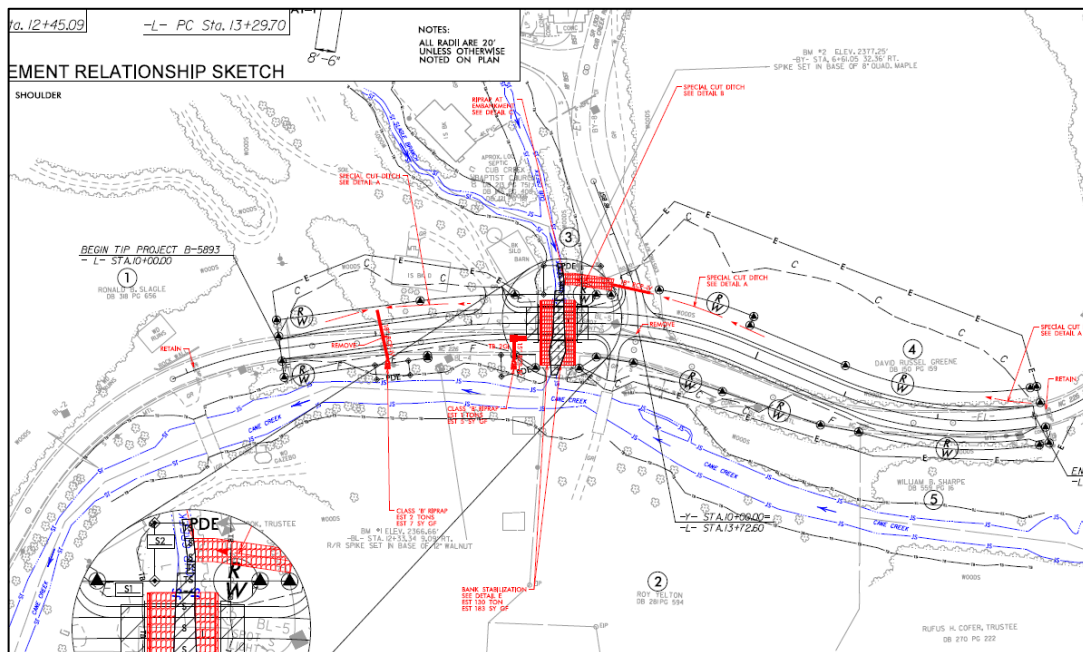
Janet Mizzi  
Field Supervisor

Enclosure: Figures

## Figures



**Figure 1.**  
**Photos of the Action Area.** Bridge 19 over Cub Creek, the confluence of Cub and Cane Creek, the Sweet Creek Road culvert, and Cub Creek and trees that will be removed upstream of Bridge 19.



**Figure 2.**  
**Permit Drawing Sheet 2 of 5.** Partial screenshot of permit drawings showing project footprint and stream and wetland impacts.



ROY COOPER

Governor

ELIZABETH S. BISER

Secretary

RICHARD E. ROGERS, JR.

Director

NORTH CAROLINA  
Environmental Quality

January 17, 2023

DWR # 20221786  
Mitchell County

Mr. Michael A. Turchy  
North Carolina Department of Transportation  
1598 Mail Service Center  
Raleigh, NC 27699

**Subject: APPROVAL OF 401 WATER QUALITY CERTIFICATION WITH ADDITIONAL CONDITIONS**  
Replace Bridge 19 on NC 226 (B-5893)  
**Cub Creek [French Broad River Basin, 06010108, C;Tr]**

Dear Mr. Turchy:

You have our approval for the impacts listed below for the purpose described in your application dated December 20, 2022 and received by the Division of Water Resources (Division) on December 21, 2022. These impacts are covered by the attached Water Quality General Certification Number 4135 and the conditions listed below. This certification is associated with the use of General Permit Number 201902350 once it is issued to you by the U.S. Army Corps of Engineers. Please note that you should get any other federal, state, or local permits before proceeding with your project, including those required by (but not limited to) Sediment and Erosion Control, Non-Discharge, and Water Supply Watershed regulations.

The Division has determined that the proposed project will comply with water quality requirements provided that you adhere to the conditions listed in the enclosed certification and to the additional conditions itemized below.

The following proposed impacts are hereby approved. No other impacts are approved, including incidental impacts.  
[15A NCAC 02H .0506(b)]

#### Stream Impacts in the French Broad River Basin

Site	Permanent Fill in Intermittent Stream (linear ft)	Temporary Fill in Intermittent Stream (linear ft)	Permanent Fill in Perennial Stream (linear ft)	Temporary Fill in Perennial Stream (linear ft)	Total Stream Impact (linear ft)	Stream Impacts Requiring Mitigation (linear ft)
S1			67		67	
S2				20	20	
S3			12		12	
S4				16	16	
<b>Total</b>		<b>0</b>	<b>79</b>	<b>36</b>	<b>115</b>	

**Total Stream Impact for Project: 79 linear feet of permanent and 36 linear feet of temporary.**

This approval is for the purpose and design described in your application. The plans and specifications for this project are incorporated by reference as part of this Certification. If you change your project, you must notify the



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

Division and you may be required to submit a new application package with the appropriate fee. If the property is sold, the new owner must be given a copy of this Certification and is responsible for complying with all conditions. [15A NCAC 02H .0507(d)(2)].

If you are unable to comply with any of the conditions of the attached Water Quality General Certification or with the additional conditions itemized below, you must notify the Asheville Regional Office within 24 hours (or the next business day if a weekend or holiday) from the time the permittee becomes aware of the circumstances.

The permittee shall report to the Asheville Regional Office any noncompliance with, and/or any violation of, stream or wetland standards [15A NCAC 02B .0200] including but not limited to sediment impacts to streams or wetlands. Information shall be provided orally within 24 hours (or the next business day if a weekend or holiday) from the time the permittee became aware of the non-compliance circumstances.

### Condition(s) of Certification:

#### Project Specific Conditions

1. The NCDOT Division Environmental Officer or Environmental Assistant will conduct a pre-construction meeting with all appropriate staff to ensure that the project supervisor and essential staff understand potential issues at the permitted site. NCDWR staff shall be invited to the pre-construction meeting. [15A NCAC 02H.0506(b)(2) and (b)(3)]
2. The permittee shall use Design Standards in Sensitive Watersheds (15A NCAC 4B.0124[a]-[e]) in areas draining to Trout or Outstanding Resource Waters. However, due to the size of the project, the NCDOT shall not be required to meet 15A NCAC 4B .0124(a) regarding the maximum amount of uncovered acres.
3. The permittee will need to adhere to all appropriate in-water work moratoria (including the use of pile driving or vibration techniques) prescribed by the NC Wildlife Resources Commission. No in-water work is permitted between October 15 and April 15 of any year, without prior approval from the NC Division of Water Resources and the NC Wildlife Resources Commission.

In-stream work and land disturbance within the 25-foot buffer zone are prohibited during the trout-spawning season of October 15 through April 15 to protect the egg and fry stages of trout.

4. Bridge deck drains shall not discharge directly into the lake. Stormwater shall be directed across the bridge and pre-treated through site-appropriate means (grassed swales, pre-formed scour holes, vegetated buffers, etc.) before entering the stream. To meet the requirements of NCDOT's NPDES permit NCS000250, please refer to the most recent version of the *North Carolina Department of Transportation Stormwater Best Management Practices Toolbox* manual for approved measures. [15A NCAC 02H .0507(d)(2) and 15A NCAC 02H .0506(b)(5)]
5. No drill slurry or water that has been in contact with uncured concrete shall be allowed to enter surface waters. This water shall be captured, treated, and disposed of properly. [15A NCAC 02H .0506(b)(3)]
6. As a condition of this 401 Water Quality Certification, the bridge demolition and construction must be accomplished in strict compliance with the most recent version of NCDOT's Best Management Practices for Construction and Maintenance Activities. [15A NCAC 02H .0507(d)(2) and 15A NCAC 02H .0506(b)(5)]
7. Cane Creek is on the 303(d) list for biological criteria exceedances. All portions of the proposed project draining to 303(d) listed watersheds that are impaired due to biological criteria exceedances shall not discharge stormwater directly to surface waters. Stormwater shall be treated using appropriate best management practices (e.g., vegetated conveyances, constructed wetlands, detention ponds, etc.) prior to discharging to surface waters.





## General Conditions

1. Unless otherwise approved in this certification, placement of culverts and other structures in open waters and streams shall be placed below the elevation of the streambed by one foot for all culverts with a diameter greater than 48 inches, and 20 percent of the culvert diameter for culverts having a diameter less than 48 inches, to allow low flow passage of water and aquatic life. Design and placement of culverts and other structures including temporary erosion control measures shall not be conducted in a manner that may result in dis-equilibrium of wetlands or streambeds or banks, adjacent to or upstream and downstream of the above structures. The applicant is required to provide evidence that the equilibrium is being maintained if requested in writing by NCDWR. If this condition is unable to be met due to bedrock or other limiting features encountered during construction, please contact NCDWR for guidance on how to proceed and to determine whether or not a permit modification will be required. [15A NCAC 02H.0506(b)(2)]
2. If concrete is used during construction, a dry work area shall be maintained to prevent direct contact between curing concrete and stream water. Water that inadvertently contacts uncured concrete shall not be discharged to surface waters due to the potential for elevated pH and possible aquatic life and fish kills. [15A NCAC 02B.0200]
3. During the construction of the project, no staging of equipment of any kind is permitted in waters of the U.S. or protected riparian buffers. [15A NCAC 02H.0506(b)(2)]
4. The dimension, pattern, and profile of the stream above and below the crossing shall not be modified. Disturbed floodplains and streams shall be restored to natural geomorphic conditions. [15A NCAC 02H.0506(b)(2)]
5. The use of rip-rap above the Normal High Water Mark shall be minimized. Any rip-rap placed for stream stabilization shall be placed in stream channels in such a manner that it does not impede aquatic life passage. [15A NCAC 02H.0506(b)(2)]
6. The Permittee shall ensure that the final design drawings adhere to the permit and to the permit drawings submitted for approval. [15A NCAC 02H .0507(c) and 15A NCAC 02H .0506 (b)(2) and (c)(2)]
7. All work in or adjacent to stream waters shall be conducted in a dry work area. Approved BMP measures from the most current version of NCDOT Construction and Maintenance Activities manual such as sandbags, rock berms, cofferdams and other diversion structures shall be used to prevent excavation in flowing water. [15A NCAC 02H.0506(b)(3) and (c)(3)]
8. Heavy equipment shall be operated from the banks rather than in the stream channel in order to minimize sedimentation and reduce the introduction of other pollutants into the stream. [15A NCAC 02H.0506(b)(3)]
9. All mechanized equipment operated near surface waters must be regularly inspected and maintained to prevent contamination of stream waters from fuels, lubricants, hydraulic fluids, or other toxic materials. [15A NCAC 02H.0506(b)(3)]
10. No rock, sand or other materials shall be dredged from the stream channel except where authorized by this certification. [15A NCAC 02H.0506(b)(3)]
11. Discharging hydroseed mixtures and washing out hydro seeders and other equipment in or adjacent to surface waters is prohibited. [15A NCAC 02H.0506(b)(3)]
12. The permittee and its authorized agents shall conduct its activities in a manner consistent with State water quality standards (including any requirements resulting from compliance with §303(d) of the Clean Water Act) and any other appropriate requirements of State and Federal law. If the NCDWR determines that such standards or laws are not being met (including the failure to sustain a designated or achieved use) or



that State or federal law is being violated, or that further conditions are necessary to assure compliance, the NCDWR may reevaluate and modify this certification. [15A NCAC 02B.0200]

13. All fill slopes located in jurisdictional wetlands shall be placed at slopes no flatter than 3:1, unless otherwise authorized by this certification. [15A NCAC 02H.0506(b)(2)]
14. A copy of this Water Quality Certification shall be maintained on the construction site at all times. In addition, the Water Quality Certification and all subsequent modifications, if any, shall be maintained with the Division Engineer and the on-site project manager. [15A NCAC 02H .0507(c) and 15A NCAC 02H .0506 (b)(2) and (c)(2)]
15. The outside buffer, wetland or water boundary located within the construction corridor approved by this authorization shall be clearly marked by highly visible fencing prior to any land disturbing activities. Impacts to areas within the fencing are prohibited unless otherwise authorized by this certification. [15A NCAC 02H.0501 and .0502]
16. The issuance of this certification does not exempt the Permittee from complying with any and all statutes, rules, regulations, or ordinances that may be imposed by other government agencies (i.e. local, state, and federal) having jurisdiction, including but not limited to applicable buffer rules, stormwater management rules, soil erosion and sedimentation control requirements, etc.
17. The Permittee shall report any violations of this certification to the Division of Water Resources within 24 hours of discovery. [15A NCAC 02B.0506(b)(2)]
18. Upon completion of the project (including any impacts at associated borrow or waste sites), the NCDOT Division Engineer shall complete and return the enclosed "Certification of Completion Form" to notify the NCDWR when all work included in the 401 Certification has been completed. [15A NCAC 02H.0502(f)]
19. Native riparian vegetation must be reestablished in the riparian areas within the construction limits of the project by the end of the growing season following completion of construction. [15A NCAC 02B.0506(b)(2)]
20. There shall be no excavation from, or waste disposal into, jurisdictional wetlands or waters associated with this permit without appropriate modification. Should waste or borrow sites, or access roads to waste or borrow sites, be located in wetlands or streams, compensatory mitigation will be required since that is a direct impact from road construction activities. [15A NCAC 02H.0506(b)(3) and (c)(3)]
21. Erosion and sediment control practices must be in full compliance with all specifications governing the proper design, installation and operation and maintenance of such Best Management Practices in order to protect surface waters standards [15A NCAC 02H.0506(b)(3) and (c)(3)]:
  - a. The erosion and sediment control measures for the project must be designed, installed, operated, and maintained in accordance with the most recent version of the *North Carolina Sediment and Erosion Control Planning and Design Manual*.
  - b. The design, installation, operation, and maintenance of the sediment and erosion control measures must be such that they equal, or exceed, the requirements specified in the most recent version of the *North Carolina Sediment and Erosion Control Manual*. The devices shall be maintained on all construction sites, borrow sites, and waste pile (spoil) projects, including contractor-owned or leased borrow pits associated with the project.
  - c. For borrow pit sites, the erosion and sediment control measures must be designed, installed, operated, and maintained in accordance with the most recent version of the *North Carolina Surface Mining Manual*.
  - d. The reclamation measures and implementation must comply with the reclamation in accordance with the requirements of the Sedimentation Pollution Control Act.
22. Sediment and erosion control measures shall not be placed in wetlands or waters unless otherwise approved by this Certification. [15A NCAC 02H.0506(b)(3) and (c)(3)]



This approval and its conditions are final and binding unless contested. [G.S. 143-215.5] This Certification can be contested as provided in Chapter 150B of the North Carolina General Statutes by filing a Petition for a Contested Case Hearing (Petition) with the North Carolina Office of Administrative Hearings (OAH) **within sixty (60) calendar days**. Requirements for filing a Petition are set forth in Chapter 150B of the North Carolina General Statutes and Title 26 of the North Carolina Administrative Code. Additional information regarding requirements for filing a Petition and Petition forms may be accessed at <http://www.ncoah.com/> or by calling the OAH Clerk's Office at (919) 431-3000.

One (1) copy of the Petition must also be served to the North Carolina Department of Environmental Quality:

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

This letter completes the review of the Division under section 401 of the Clean Water Act and 15A NCAC 02H .0500. Please contact Kevin Mitchell at 828-296-4650 or [kevin.mitchell@ncdenr.gov](mailto:kevin.mitchell@ncdenr.gov) if you have any questions or concerns.

Sincerely,

DocuSigned by:

*Amy Chapman*

9C984631B0CD474...  
Richard E. Rogers, Jr., Director  
Division of Water Resources

ec: Lori Beckwith, US Army Corps of Engineers Asheville Regulatory Field Office (via email)  
Dave McHenry, NC Wildlife Resources Commission (via email)  
Holland Youngman, US Fish and Wildlife Service (via email)  
Erin Cheely, NC Department of Transportation (via email)  
Roger Bryan, NC Department of Transportation (via email)

File Copy



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





## North Carolina Department of Transportation

Highway Stormwater Program  
STORMWATER MANAGEMENT PLAN  
FOR NCDOT PROJECTS

(Version 2.08; Released April 2018)

WBS Element:	48086.1.1	TIP No.:	B-5893	County(ies):	Mitchell	Page	1	of	2		
General Project Information											
WBS Element:	48086.1.1	TIP Number:	B-5893	Project Type:	Bridge Replacement	Date:	6/20/2019				
NCDOT Contact:	Tierre Peterson, PE			Contractor / Designer:	WSP USA / John F. Watson, PE						
Address:	1000 Birch Ridge Dr. Raleigh, NC 27610			Address:	434 Fayetteville St. Suite 1500 Raleigh, NC						
	Phone:	919-707-6488			Phone:	1(919)836-4040					
	Email:	trpeterson@ncdot.gov			Email:	John.F.Watson@wsp.com					
City/Town:	Bakersville			County(ies):	Mitchell						
River Basin(s):	French Broad			CAMA County?	No						
Wetlands within Project Limits?	No										
Project Description											
Project Length (lin. miles or feet):	0.152 mi		Surrounding Land Use:	Rural, Residential, Agricultural							
	Proposed Project			Existing Site							
Project Built-Up Area (ac.)	1.1 ac.			0.6 ac.							
Typical Cross Section Description:	-L- includes 2 - 11' asphalt paved lanes with grass shoulders. Has 2 proposed ditches in the left quadrants with 4:1 front slopes and Cane Creek runs along the RT of NC 226. -Y- includes 2 - 8' paved lanes with grass shoulders. Parallel to Cub Creek (LT).			-L- includes 2 - 10' asphalt paved lanes with grass shoulders. Has 2 existing ditch and Cane Creek runs along the RT of NC 226. -Y- includes 2 - 8' paved lanes with grass shoulders. Parallel to Cub Creek (LT).							
Annual Avg Daily Traffic (veh/hr/day):	Design/Future:	2300	Year:	2040	Existing:	2000	Year:	2016			
General Project Narrative: (Description of Minimization of Water Quality Impacts)	State project B-5893 involves the replacement of Bridge No. 600019 over Cub Creek on NC 226. The existing bridge consists of 1 @ 22'-0" reinforced concrete slab with vertical concrete abutments. It is to be replaced by 1 @ 40'-0" 21" cored slab units with vertical abutments.  The proposed bridge does not contain deck drains, all stormwater from the bridge is captured in a closed drainage system at -L- 12+43.93 RT and discharged through a riprap pad where flow is dispersed prior to entering Cane Creek. Stormwater from the beginning of the project, up to the storm water drainage system at 12+43.93 RT, flows across the road and onto the right grass shoulder. A ditch from 10+50 to 12+00 LT captures off-site flow and is directed through a 18" RCP under NC 226 into a riprap pad at -L- 11+05 RT where flow is dispersed prior to entering Cane Creek. Stormwater coming from the end of the project will flow into a proposed grass lined ditch from 18+00 to 13+81 LT through a 18" RCP and into a riprap lined ditch from 13+44 to 13+06 LT before discharging into Cub Creek. The design described above mirrors all existing drainage patterns into Cub Creek and Cane Creek.										
Waterbody Information											
Surface Water Body (1):	Cub Creek			NCDWR Stream Index No.:	7-2-59-11						
NCDWR Surface Water Classification for Water Body	Primary Classification:			Class C							
	Supplemental Classification:			Trout Waters (Tr)							
Other Stream Classification:	None										
Impairments:	None										
Aquatic T&E Species?	No	Comments:									
NRTR Stream ID:				Buffer Rules in Effect:	N/A						
Project Includes Bridge Spanning Water Body?	Yes	Deck Drains Discharge Over Buffer?	No	Dissipator Pads Provided in Buffer?	N/A						
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)											





North Carolina Department of Transportation

Highway Stormwater Program  
STORMWATER MANAGEMENT PLAN  
FOR NCDOT PROJECTS



(Version 2.08; Released April 2018)

WBS Element:	48086.1.1	TIP No.:	B-5893	County(ies):	Mitchell	Page	2	of	2
Additional Waterbody Information									
Surface Water Body (2):	Cane Creek			NCDWR Stream Index No.:	7-2-59				
NCDWR Surface Water Classification for Water Body			Primary Classification:	Class C					
			Supplemental Classification:	Trout Waters (Tr)					
Other Stream Classification:	None								
Impairments:	None								
Aquatic T&E Species?	No		Comments:						
NRTR Stream ID:				Buffer Rules in Effect:		N/A			
Project Includes Bridge Spanning Water Body?	Yes		Deck Drains Discharge Over Buffer?	No		Dissipator Pads Provided in Buffer?		N/A	
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)							

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5893	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
48086.1.1	N/A	PE	

PERMIT DRAWING  
SHEET 1 OF 5

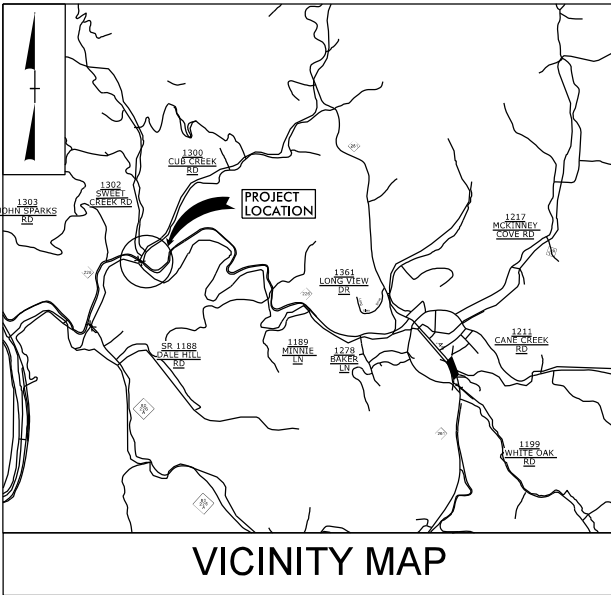
STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

MITCHELL COUNTY

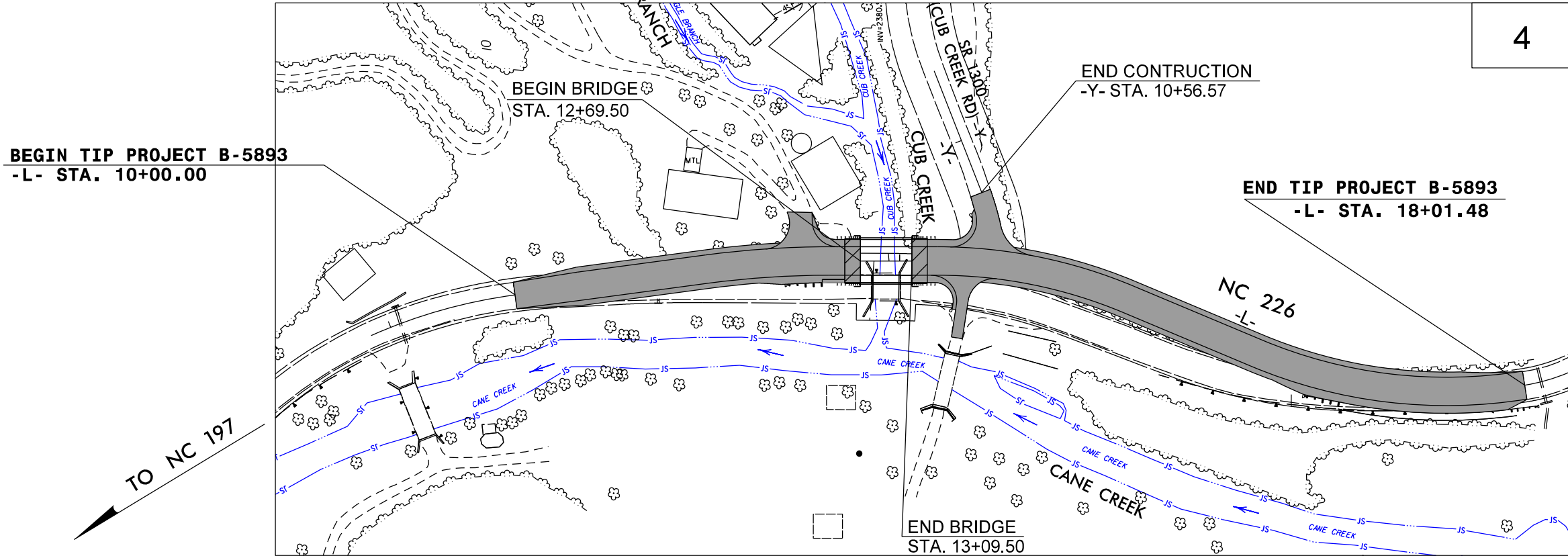
LOCATION: REPLACE BRIDGE No. 19 OVER CUB CREEK ON NC 226

TYPE OF WORK: GRADING, DRAINAGE, PAVING, RETAINING WALL, AND STRUCTURE

WETLAND AND STREAM IMPACTS 6-20-2019

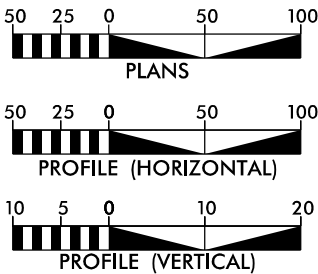


VICINITY MAP



THIS PROJECT HAS NO CONTROL OF ACCESS  
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD \_.

GRAPHIC SCALES



DESIGN DATA

ADT 2016 = 2000 VPD  
ADT 2040 = 2300 VPD  
K = 12 %  
D = 55 %  
T = 4 % \*  
V = 45 MPH  
\* TTST =1% DUAL 3%  
FUNC CLASS =  
LOCAL  
SUBREGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-5893 = 0.139 MI  
LENGTH STRUCTURE TIP PROJECT B-5893 = 0.013 MI  
TOTAL LENGTH TIP PROJECT B-5893 = 0.152 MI



WSP USA  
428 FAYETTEVILLE STREET  
SUITE 100  
RALEIGH, NC 27601  
TEL: 919.836.4040  
FAX: 919.836.4099  
LICENSE NO. P-0165

FOR THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:  
APRIL 17, 2019

LETTING DATE:  
APRIL 17, 2020

RONYELL THIGPEN, PE  
PROJECT ENGINEER

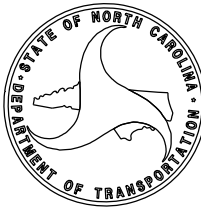
HOLLY CHRISTENBURY, PE  
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: P.E.

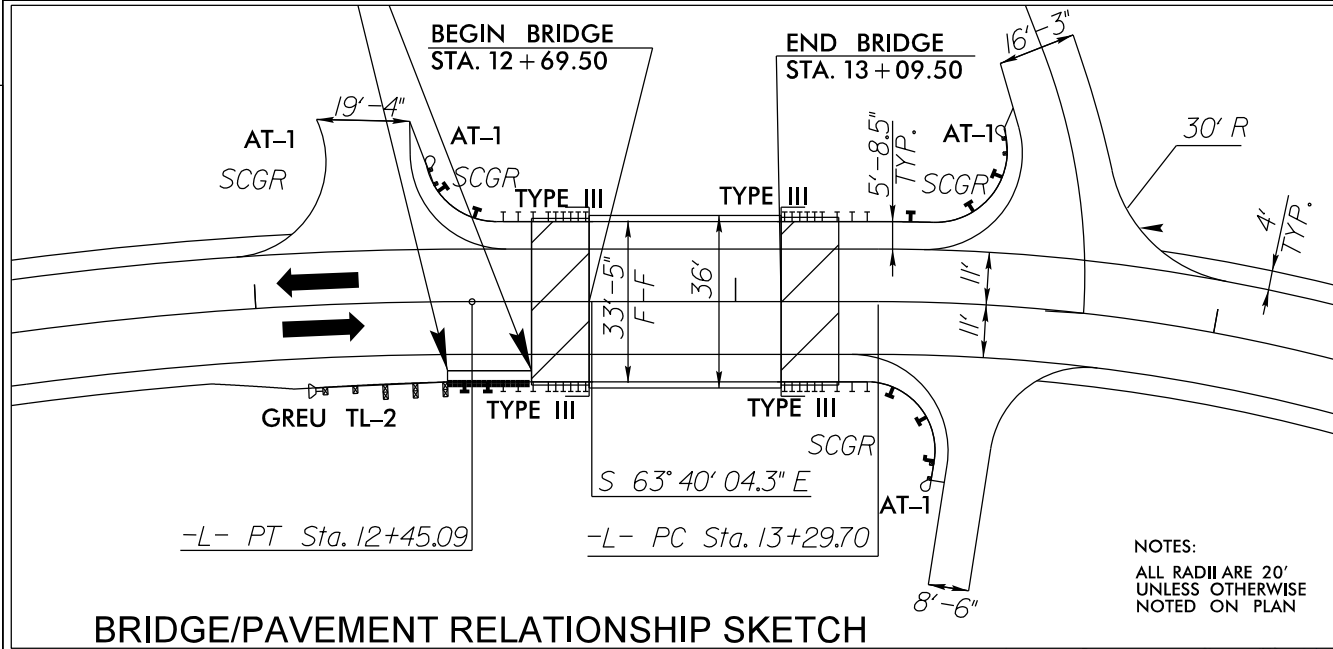
ROADWAY DESIGN  
ENGINEER

SIGNATURE: P.E.



8/17/99

REVISIONS



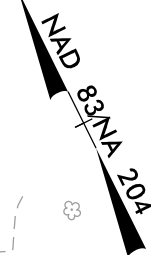
### BRIDGE/PAVEMENT RELATIONSHIP SKETCH

PAVED SHOULDER

### WETLAND & STREAM IMPACTS

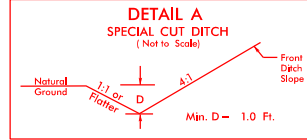
**wsp**  
WSP USA  
434 FAYETTEVILLE STREET  
SUITE 1000  
RALEIGH, NC 27601  
TEL: 1.919.836.4040  
FAX: 1.919.836.4099  
LICENSE NO. F-0165

PERMIT DRAWING  
SHEET 2 OF 5

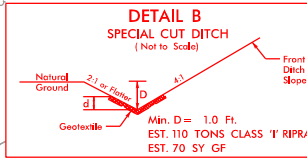


PROJECT REFERENCE NO.		SHEET NO.
B-5893		4
RW SHEET NO.		HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER		

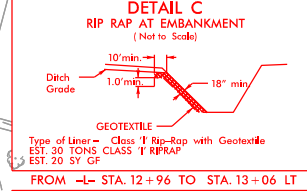
DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED



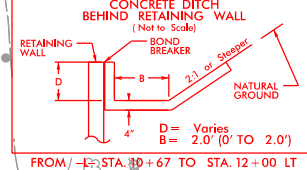
FROM -L- STA. 13+81 TO STA. 15+00 LT  
FROM -L- STA. 17+50 TO STA. 18+00 LT  
FROM -L- STA. 10+50 TO STA. 12+00 LT



FROM -L- STA. 13+06 TO STA. 13+45 LT

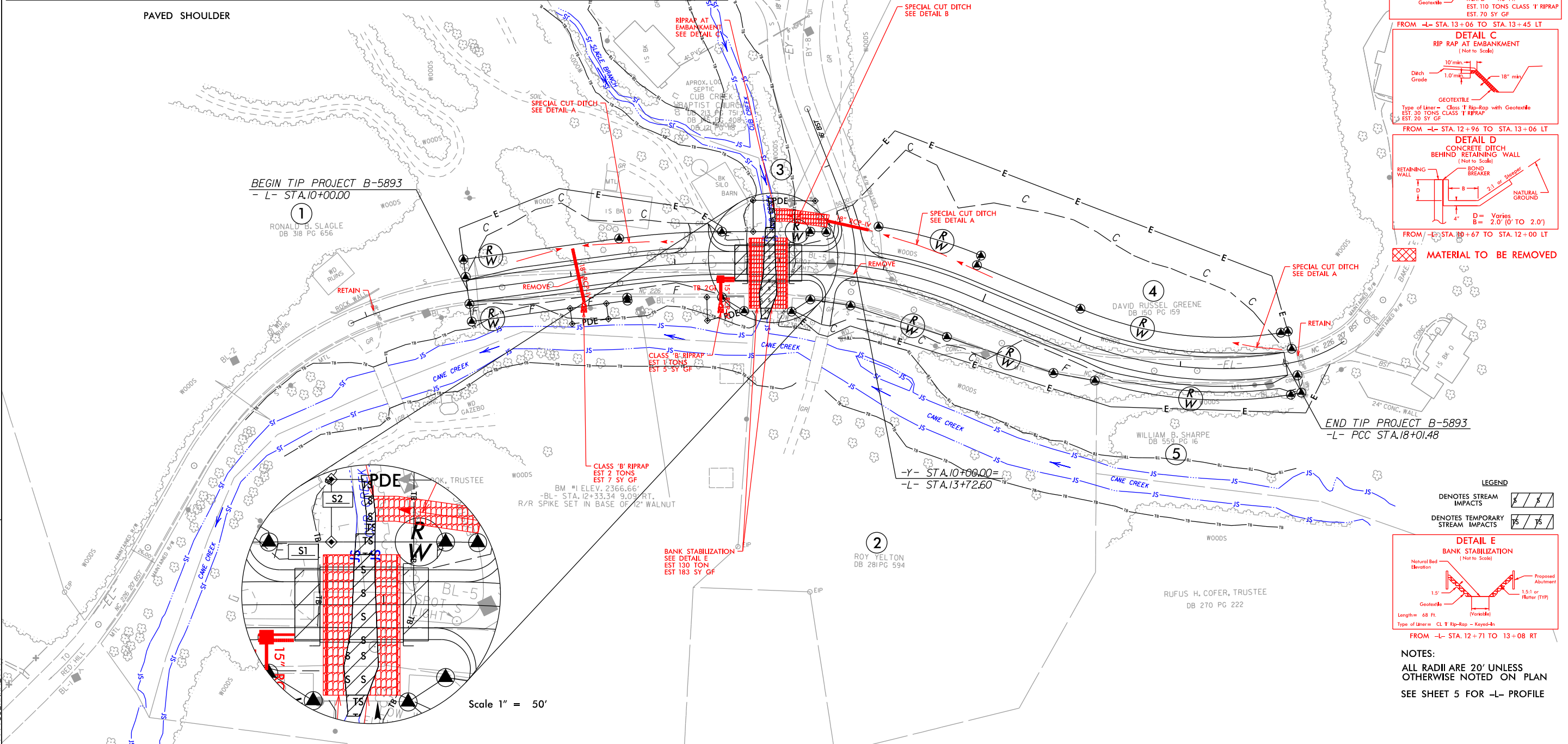


FROM -L- STA. 12+96 TO STA. 13+06 LT



FROM -L- STA. 10+67 TO STA. 12+00 LT

MATERIAL TO BE REMOVED





PERMIT DRAWING  
SHEET 3 OF 5

## BRIDGE/PAVEMENT RELATIONSHIP SKETCH

PAVED SHOULDER

END TIP PROJECT B-5893  
-L- PCC STA.18+01.48

**DETAIL E**  
**BANK STABILIZATION**  
(Not to Scale)

Natural Bed Elevation

1.5:1

Geotextile

(Variable)

1.5:1 or flatter (TYP)

Proposed Abutment

Length = 68 Ft.

Type of Liner = CL 1' Rip-Rap - Keyed-In

FROM -L- STA. 12+71 TO 13+08 RT

NOTES:  
ALL RADII ARE 20' UNLESS  
OTHERWISE NOTED ON PLAN  
SEE SHEET 5 FOR -L- PROFILE

Scale 1" = 50'

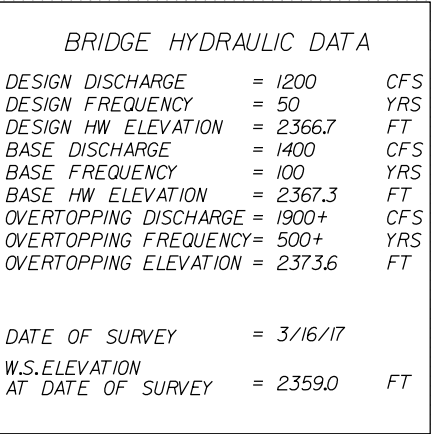
REVISIONS

8/17/99

SYSTEM\$DGN\$\$\$\$\$



PROJECT REFERENCE NO.		SHEET NO.	
B-5893		5	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
<p align="center"><b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b></p>			



**MATERIAL TO BE REMOVED**



# WETLAND AND SURFACE WATER IMPACTS SUMMARY

Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS					SURFACE WATER IMPACTS				
			Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
1	-L- 12+85.13 CL	Bank Stabilization						0.02	< 0.01	67	20	
2	-L- 12+96.07 LT	Bank Stabilization						< 0.01	< 0.01	12	16	
TOTALS*:								0.02	< 0.01	79	36	0

\*Rounded totals are sum of actual impacts

NOTES:  
 Site 1 Existing Channel Impacts: Permanent / Temporary = 828.2 SF / 174.2 SF  
 Site 2 Existing Channel Impacts: Permanent / Temporary = 51.7 SF / 70.4 SF  
  
 Tree Clearing acreage = 1.02 ac (LT Wooded Cut Slopes)

NC DEPARTMENT OF TRANSPORTATION  
 DIVISION OF HIGHWAYS  
 06/20/2019  
 Mitchell County  
 B-5893  
 48086.1.1  
 SHEET 5 OF 5