

Type I or II Categorical Exclusion Action Classification Form

Project No.	BR-0091
WBS Element	67091.1.1
Federal Project No.	

A. Project Description:

The North Carolina Department of Transportation (NCDOT) proposes the replacement of Bridge No. 32 along US 70 over the Eno River in Orange County, NC. The project is funded through the State Bridge Replacement Program and is listed as Project No. BR- 0091. Figure 1 is the project Vicinity Map and the Environmental Features of the project study area are shown in Figure 2. US 70 serves as a US route and is a critical route for local emergency management system (EMS) vehicles. During construction, traffic will be maintained on the existing structure and no offsite detours are anticipated.

B. Description of Need and Purpose:

The US 70 bridge over the Eno River was built in 1922 and reconstructed in 1941. Based on the September 10, 2021 Bridge Inspection Report, Bridge No. 32 has a sufficiency rating of 57.87 out of a possible 100 for a new structure and is deemed to be structurally deficient. Components of both the concrete superstructure and concrete substructure have experienced an increasing degree of deterioration which is no longer feasible to address through maintenance activities.

The proposed purpose of the project is to replace the existing bridge on US 70 over the Eno River with a new structure that meets current design and safety standards. The preferred alternative, discussed below, will construct a new structure south of the existing facility.

C. Categorical Exclusion Action Classification:

Type I(A) - Ground Disturbing Action

D. Proposed Improvements:

Action Number 28. Bridge rehabilitation, reconstruction, or replacement or the construction of grade separation to replace existing at-grade railroad crossings, if the actions meet the constraints in 23 CFR 771.117(e)(1-6).

*NOTE: The following Type I(C) Actions (NCDOT-FHWA 2019 CE Agreement, Appendix A) only require completion of Sections A through D to substantiate and document the CE classification: 1, 5, 8 (signs and pavement markings only), 11, 13, 14, 15, 16, 17, 19, and 20; or several other Type I Action subcategories identified in past NCDOT-FHWA CE Programmatic Agreements (see Appendix D). **Pre-approval as a CE does not exempt activities from compliance with other federal environmental laws.***

E. Special Project Information:

Alternatives Considered

NCDOT explored three options for the proposed bridge replacement:

- Replace to the north

- Replace in place
- Replace to the south.

The northern alignment option would utilize the existing bridge to maintain traffic while the new bridge is constructed to the north. The existing roadway would be removed following construction and revegetated. This option has potential effects to McGowan Creek Preserve (although not in an area of environmental concern). This option has potential stream and wetland impacts and is anticipated to have the greatest utility and ROW impacts. This option was anticipated to have 1,299 feet of stream impacts and 0.03 acre of wetland impacts, based on slope stake limits plus 25 feet. Forest impacts for this option were estimated to be 1.0 acre.

The replace in place option would utilize a temporary detour bridge to the south of the existing bridge. This option is anticipated to have minimal utility impacts and minor impacts to McGowan Creek Preserve. This option is anticipated to have 458 feet of stream impacts and 0.03 acre of wetland impacts, based on slope stake limits plus 25 feet. Forest impacts for this option were estimated to be 2.3 acres.

The southern alignment option would utilize the existing bridge to maintain traffic while the new bridge is constructed to the south. The existing roadway would be removed following construction and revegetated. This option avoids ROW impacts to McGowan Creek Preserve and has the fewest utility impacts. This option is anticipated to have 311 feet of stream impacts and 0 acre of wetland impacts, based on slope stake limits plus 25 feet. Forest impacts for this option were estimated to be 3.0 acres. This option was selected as the preferred alternative.

Streams and wetlands in the project area are identified in the Natural Resources Technical Report (NRTR) Water Resources Map (Figure 4 from that document is included in the appendix). As currently proposed the project would impact a total of 311 feet of Eno River tributaries. No wetland impacts are currently anticipated. While the US Army Corps of Engineers (USACE) will make the final determination as to the permit required, at this time it is anticipated that an Individual Permit will not be required and that the project would qualify as a Nationwide Permit 3 with corresponding Section 401 Water Quality General Certification.

The Eno River is listed as Water Supply II (WS-II), Nutrient Sensitive Water (NSW), High Quality Water (HQW), and Critical Area (CA) in the Study Area. The Eno River is also protected under provisions of the Neuse River Buffer Rules administered by the North Carolina Division of Water Resources (NCDWR), see the NRTR for further information.

Public Involvement

NCDOT notified Orange County Schools and local EMS officials as well as local planners of the project in 2019. The project was then temporarily halted. When the project restarted in 2022, NCDOT notified Orange County Schools, EMS, and local planners. Comments received are summarized below:

- EMS officials identified the bridge as being located on a primary route for emergency vehicles. They request that the bridge remain open to traffic during project construction or provide clear detours for emergency vehicles. However, the latter option would likely result in delayed response times.
- Orange County Rural Fire Department identified bridge No. 32 as crossing their district fire line in which they respond to everything to the east of that line towards Hillsborough. They also identified the need to maintain 24-hour fire truck access to houses on the east side of the Eno River.
- Local planning officials noted that Bridge No. 32 is in a drinking water critical area and requested that the Town of Hillsborough be contacted immediately if contamination of water is

suspected. Planners also addressed the need to maintain traffic during construction to reduce delays to emergency services and commuters.

The Office of Duke Forest at Duke University submitted their own comments regarding the BR-0091 bridge replacement project. Duke University requests mitigation measures to minimize impacts to the critical habitat corridors for wildlife along the Eno River including

- Accommodating wildlife passage under the new bridge, and
- Maintenance of solitary access through the Duke Forest gates, such that construction does not create an area for cars to pull off and enter the forest.

A small group meeting was held with representatives from the Eno River Association, Duke Forest, and Orange County Department of Environment, Agriculture, Parks and Recreation (DEAPR) on June 30, 2022, at the NCDOT Century Center. The small group meeting provided stakeholders information about the project including:

- Project Purpose and Need,
- Design options,
- Environmental concerns previously raised by stakeholders and agencies,
- Proposed typical sections, and
- Proposed schedule.

Participants asked about tree clearing, the use of rip rap, and the potential of the project to impact Duke Forest. Specific requests included minimizing impacts to the Eno River Aquatic Habitat and the Eno River Mesic Slopes and Floodplain. They requested that rip rap be used only to the extent necessary to stabilize slopes and that the wildlife passage area on both sides of the Eno River be maintained or expanded.

Subsequent to the field scoping meeting and selection of a preferred alternative, a second small group meeting was held with stakeholders on August 30, 2022, to discuss the alternative, revised impacts, and to obtain additional input. The meeting also addressed potential environmental concerns such as proposed seed mix, post-construction vegetative monitoring, pier removal, and animal crossing area of the new bridge versus that of the current facility. It was determined that, based on the updated design, of the approximately 3 acres of forest that will be cleared, impacts to Duke Forest are anticipated to be approximately 0.4 acre of temporary construction easement, which would be returned to the forested use after construction. NCDOT will contact stakeholders once the Bridge Survey Report is completed to provide information on wildlife passage under the proposed bridge and the proposed seed mix for revegetation.

Cost

Table 2. Estimated Cost (2022)¹

Construction	\$8,400,000
Right-Of-Way	\$452,000
Total Estimated Costs	\$8,852,000

¹Cost estimates are preliminary and subject to change, quantities developed by HNTB and costs estimated by NCDOT in June, 2022.

Table 3. Estimated Traffic:

Existing (2024):	10,700 AADT
2045 (Future):	13,000 AADT
Dual:	3%
TT-ST:	3%

Source: NCDOT, initial traffic forecast, June 10, 2019. Updated to 2014 base year by straight line projection.

Typical Section:

The existing facility is a four-span bridge that is 168 feet long with a curb-to-curb width of 34 feet. The replacement facility will consist of a new, three-span structure with two, 12-foot travel lanes and 8-foot paved shoulders. The proposed facility will be approximately 240 feet long.

Potential Impacts:

Table 4 summarizes the potential environmental effects of the project. Impacts are based on slope stake limits of preliminary design plus an additional 25 feet.

Table 4. Potential Impacts of the Proposed Build Alternative

Potentially Impacted Resource	Replace in Place
Length ¹ (mile)	0.8
Delineated Wetlands Impacts (acre)	0
Delineated Stream Impacts (linear feet)	311
Delineated Pond Impacts (acres)	0
Residential Relocations	0
Business Relocations	0
Federal/State/ Threatened Endangered Species Habitat Present ²	Atlantic pigtoe, Dwarf wedgemussel, Carolina madtom, Neuse River waterdog.
Natural Heritage Natural Areas (NHNA) and Natural Heritage Program Managed Areas (NHPMA) (acres)	0.5
100-Year Floodplain and Floodway Impacts (acres)	0
500-Year Floodplain and Floodway Impacts (acres)	0
Voluntary Agricultural District (VAD) (acres)	Lloyd Dairy Farm VAD- No impacts anticipated
Historic Properties	0
Recorded Archeological Sites (no.)	0
Wildlife Refuge/ Gamelands (acres)	McGowan Creek Preserve – No impacts anticipated
Recreational Areas/Parks (no.)	0
High Quality Waters (HQW, ORW, WS Protected or Critical Areas) (acres)	61.5 (Eno River and its tributaries are listed as HQW WS II CA waters)
Public Water Supply Wells (100' Buffer) (no.)	0
Cemeteries (no.)	0
Churches (no.)	0
Potential UST/Hazmat Sites (no.)	1 (Water Treatment Facility)
Total Estimated Cost³	\$8,852,000
¹ The length of the proposed build alternative consists of 0.4 mile of roadway work on either side of the bridge and 0.04 mile of bridge structure. ² Please see information under endangered species impacts in Section G. ³ Costs include proposed cost of right of way, utility relocation, and construction.	

Historic Architectural Resources

The original assessment for historic architecture found no historical architecture survey was needed. In May 2022, a secondary assessment was conducted, as the study area for the project had expanded. The HPO concurred with their prior findings in a letter dated August 22, 2019. However, the letter noted that there is a large 1912 farm complex – Lloyd Dairy Farm (OR1139) located just outside the western limits of the area of potential effects (APE). This is part of a large Voluntary Agricultural District and potentially eligible as a historic property. This property is outside the project study area and no further expansion to the west is anticipated. For this reason, it was concluded that a No Historic Properties Present assessment continued to be appropriate. Please see the appendix for the Historic Architecture assessment and map of the Lloyd Dairy Farm site.

Archaeological Resources

On October 10, 2018, the NCDOT conducted an archaeological field reconnaissance and survey for the replacement of Bridge No. 32. Based on an expansion of the study area, additional survey work

involving 46 shovel tests was conducted from July 6 through July 15, 2022. NCDOT concluded that the archaeological investigations for the expanded Area of Potential Effects (APE) identified no archaeological sites and no further archaeological work was recommended.

Agency Comments

The NC Wildlife Resources Commission (NCWRC) provided comments in a letter dated June 13, 2019. In addition to the standard recommendations for bridge replacement projects, the agency noted that this portion of the Eno River is designated as Significant Aquatic Habitat by the NC Natural Heritage Program. The agency stated that NCDOT should follow Design Standards for Sensitive Watersheds during the design and construction of the project. They also noted that impacts to Duke Forest should be minimized to the extent practicable.

Tribal Coordination

NCDOT coordinated with the Catawba, Monacan, and Occaneechi Tribes in January 2022. On January 27, 2022, NCDOT received a letter from the Monacan Indian Nation which stated that any impacts from the project were anticipated to be minimal. NCDOT received a response from the Catawba Indian Nation on February 25, 2022, which stated that they had no immediate concerns with regard to traditional cultural properties, sacred sites, or archaeological sites in the area. As per normal NCDOT procedures, the appropriate authorities will be notified if Native American artifacts or human remains are located during the ground disturbance phase of this project. NCDOT followed up with tribes after the study area was expanded on December 16, 2022. On January 26, 2023, NCDOT received a response from the Catawba Indian Nation that conveyed the same input as the response from February 25, 2022.

F. Project Impact Criteria Checklists:

F2. Ground Disturbing Actions – Type I (Appendix A) & Type II (Appendix B)				
Proposed improvement(s) that fit Type I Actions (NCDOT-FHWA CE Programmatic Agreement, Appendix A) including 2, 3, 6, 7, 9, 12, 18, 21, 22 (ground disturbing), 23, 24, 25, 26, 27, 28, &/or 30; &/or Type II Actions (NCDOT-FHWA CE Programmatic Agreement, Appendix B) answer the project impact threshold questions (below) and questions 8 – 31.				
<ul style="list-style-type: none"> • If any question 1-7 is checked “Yes” then NCDOT certification for FHWA approval is required. • If any question 8-31 is checked “Yes” then additional information will be required for those questions in Section G. 				
<u>PROJECT IMPACT THRESHOLDS</u> (FHWA signature required if any of the questions 1-7 are marked “Yes”.)			Yes	No
1	Does the project require formal consultation with U.S. Fish and Wildlife Service (USFWS) or National Marine Fisheries Service (NMFS)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
2	Does the project result in impacts subject to the conditions of the Bald and Golden Eagle Protection Act (BGEPA)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
3	Does the project generate substantial controversy or public opposition, for any reason, following appropriate public involvement?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
4	Does the project cause disproportionately high and adverse impacts relative to low-income and/or minority populations?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
5	Does the project involve a residential or commercial displacement, or a substantial amount of right of way acquisition?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
6	Does the project require an Individual Section 4(f) approval?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
7	Does the project include adverse effects that cannot be resolved with a Memorandum of Agreement (MOA) under Section 106 of the National Historic Preservation Act (NHPA) or have an adverse effect on a National Historic Landmark (NHL)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
If any question 8-31 is checked “Yes” then additional information will be required for those questions in Section G.				
<u>Other Considerations</u>			Yes	No
8	Is an Endangered Species Act (ESA) determination unresolved or is the project covered by a Programmatic Agreement under Section 7?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
9	Is the project located in anadromous fish spawning waters?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
10	Does the project impact waters classified as Outstanding Resource Water (ORW), High Quality Water (HQW), Water Supply Watershed Critical Areas, 303(d) listed impaired water bodies, buffer rules, or Submerged Aquatic Vegetation (SAV)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
11	Does the project impact Waters of the United States in any of the designated mountain trout streams?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
12	Does the project require a U.S. Army Corps of Engineers (USACE) Individual Section 404 Permit?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
13	Will the project require an easement from a Federal Energy Regulatory Commission (FERC) licensed facility?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

<u>Other Considerations for Type I and II Ground Disturbing Actions (continued)</u>		Yes	No
14	Does the project include a Section 106 of the National Historic Preservation Act (NHPA) effects determination other than a No Effect, including archaeological remains?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
15	Does the project involve GeoEnvironmental Sites of Concerns such as gas stations, dry cleaners, landfills, etc.?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
16	Does the project require work encroaching and adversely affecting a regulatory floodway or work affecting the base floodplain (100-year flood) elevations of a water course or lake, pursuant to Executive Order 11988 and 23 CFR 650 subpart A?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
17	Is the project in a Coastal Area Management Act (CAMA) county and substantially affects the coastal zone and/or any Area of Environmental Concern (AEC)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
18	Does the project require a U.S. Coast Guard (USCG) permit?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
19	Does the project involve construction activities in, across, or adjacent to a designated Wild and Scenic River present within the project area?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
20	Does the project involve Coastal Barrier Resources Act (CBRA) resources?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
21	Does the project impact federal lands (e.g. U.S. Forest Service (USFS), USFWS, etc.) or Tribal Lands?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
22	Does the project involve any changes in access control or the modification or construction of an interchange on an interstate?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
23	Does the project have a permanent adverse effect on local traffic patterns or community cohesiveness?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
24	Will maintenance of traffic cause substantial disruption?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
25	Is the project inconsistent with the STIP, and where applicable, the Metropolitan Planning Organization's (MPO's) Transportation Improvement Program (TIP)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
26	Does the project require the acquisition of lands under the protection of Section 6(f) of the Land and Water Conservation Act, the Federal Aid in Fish Restoration Act, the Federal Aid in Wildlife Restoration Act, Tennessee Valley Authority (TVA), Tribal Lands, or other unique areas or special lands that were acquired in fee or easement with public-use money and have deed restrictions or covenants on the property?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
27	Does the project involve Federal Emergency Management Agency (FEMA) buyout properties under the Hazard Mitigation Grant Program (HMGP)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
28	Does the project include a <i>de minimis</i> or programmatic Section 4(f)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
29	Is the project considered a Type I under the NCDOT Noise Policy?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
30	Is there prime or important farmland soil impacted by this project as defined by the Farmland Protection Policy Act (FPPA)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
31	Are there other issues that arose during the project development process that affected the project decision?	<input type="checkbox"/>	<input checked="" type="checkbox"/>

G. Additional Documentation as Required from Section F (ONLY for questions marked 'Yes'):

Question 8. In accordance with the Endangered Species Act (ESA), the US Fish and Wildlife Service (USFWS) list the following federally protected species within the study area (as per the June 2022 Natural Resources Technical Report)¹:

Scientific Name	Common Name	Federal Status	Habitat Presence	Biological Conclusion
<i>Fusconaia masoni</i>	Atlantic pigtoe	T	Yes	May Affect, Likely to Adversely Affect
<i>Alasmidonta heterodon</i>	Dwarf wedgemussel	E	Yes	May Affect, Likely to Adversely Affect
<i>Noturus furiosus</i>	Carolina madtom	E	Yes	May Affect, Likely to Adversely Affect
<i>Necturus lewisi</i>	Neuse River waterdog	T	Yes	May Affect, Likely to Adversely Affect

¹IPaC data checked on May 6, 2022

E – Endangered

T - Threatened

The project is within designated Critical Habitat for the federally threatened Atlantic pigtoe and Neuse River waterdog. The Programmatic Biological Opinion (PBO) for mussels and the PBO for Carolina Madtom/Neuse River Waterdog will be utilized to satisfy the formal Section 7 consultation requirement. The Department will adhere to all PBO project-specific requirements as well as all monitoring and reporting requirements. Payments are made quarterly to the NC Nongame Aquatic Species Fund by NCDOT. See the Greensheet below for commitment details.

Question 10. The Eno River is listed as High Quality Water (HQW), Critical Area (CA), NSW, and a water supply watershed class two (WS-II) in the Study Area. Additionally, the Eno River is protected under provisions of the Neuse River Buffer Rules administered by the NCDWR. The North Carolina 2022 Final 303(d) list of impaired waters identifies no streams within the Study Area as an impaired water. Submerged aquatic vegetation (SAV) are not present in the Study Area. Please refer to the “Special Project Information” section above or the NRTR for more information.

Question 15:

The Geotechnical Engineering unit identified one facility in the Project Study Area that qualifies as an Area of GeoEnvironmental concern. The structure is a water treatment facility with an on-site generator. The facility is located to the northwest of the proposed bridge replacement site. A detailed Phase I study is recommended and will be conducted if it is determined that the site of concern will be impacted during construction. The anticipated impact to the existing water treatment facility is low.

H. Project Commitments (attach as Green Sheet to CE Form):

NCDOT PROJECT COMMITMENTS

Project No. **BR-0091**
Replacement of Bridge No. 32 on US 70 over the Eno River
Orange County
WBS Element 67091.1.1

Buffer Rules

The Neuse River Basin Rule applies to this project.

Division 7 Construction/Natural Environment Unit/Roadside Environmental Unit

Eno River is designated as WS-II, High Quality Water, Nutrient Sensitive Waters, and Water Supply Watershed Critical Area. All conditions of the June 13, 2019, North Carolina Wildlife Resources Commission Letter are included as commitments for this project including project specific comments which state: "NCDOT should follow the Design Standards for Sensitive Watersheds during the design and construction of this project".

Federally Protected Species

The project site also falls within designated Critical Habitat for the federally threatened Atlantic Pigtoe and Neuse River Waterdog. It also potentially falls within the range of the federally endangered Dwarf Wedgemussel and Carolina Madtom.

Section 7 compliance for the Tar River Spiny mussel, Dwarf Wedgemussel, Yellow Lance, and Atlantic Pigtoe will be met through the Programmatic Biological Opinion (PBO) issued by the U.S. Fish & Wildlife Service (USFWS). The use of the PBO indicate the following biological conclusions:

- Dwarf Wedgemussel: May Affect, Likely to Adversely Affect;
- Atlantic Pigtoe: May Affect, Likely to Adversely Affect.

The Department will adhere to all PBO project-specific requirements as well as all monitoring and reporting requirements. Payments are made quarterly to the NC Nongame Aquatic Species Fund by NCDOT.

NCDOT Project Management Unit

NCDOT PMU will follow up with stakeholders with information on the proposed seed mix and with information on wildlife passage provided based on the Bridge Survey Report.


I. Categorical Exclusion Approval:

Project No.	BR-0091
WBS Element	67091.1.1
Federal Project No.	Federal Aid Number

Prepared By:

2/10/2023

 Date

DocuSigned by:

 32CCB5C031FC465...
 Clara Meier, Environmental Planner
 HNTB Corporation


Prepared For:

Alexander J. (Bird) Foster, PE NCDOT Project Management
 Unit, Project Manager

Reviewed By:

2/10/2023

 Date

DocuSigned by:

 CA994B4A6412432...
 John Jamison, PWS
 NCDOT Environmental Policy Unit



Approved

- If NO grey boxes are checked in Section F (pages 2 and 3), NCDOT approves the Type I or Type II Categorical Exclusion.



Certified

- If ANY grey boxes are checked in Section F (pages 2 and 3), NCDOT certifies the Type I or Type II Categorical Exclusion for FHWA approval.
- If classified as Type III Categorical Exclusion.

2/16/2023

 Date

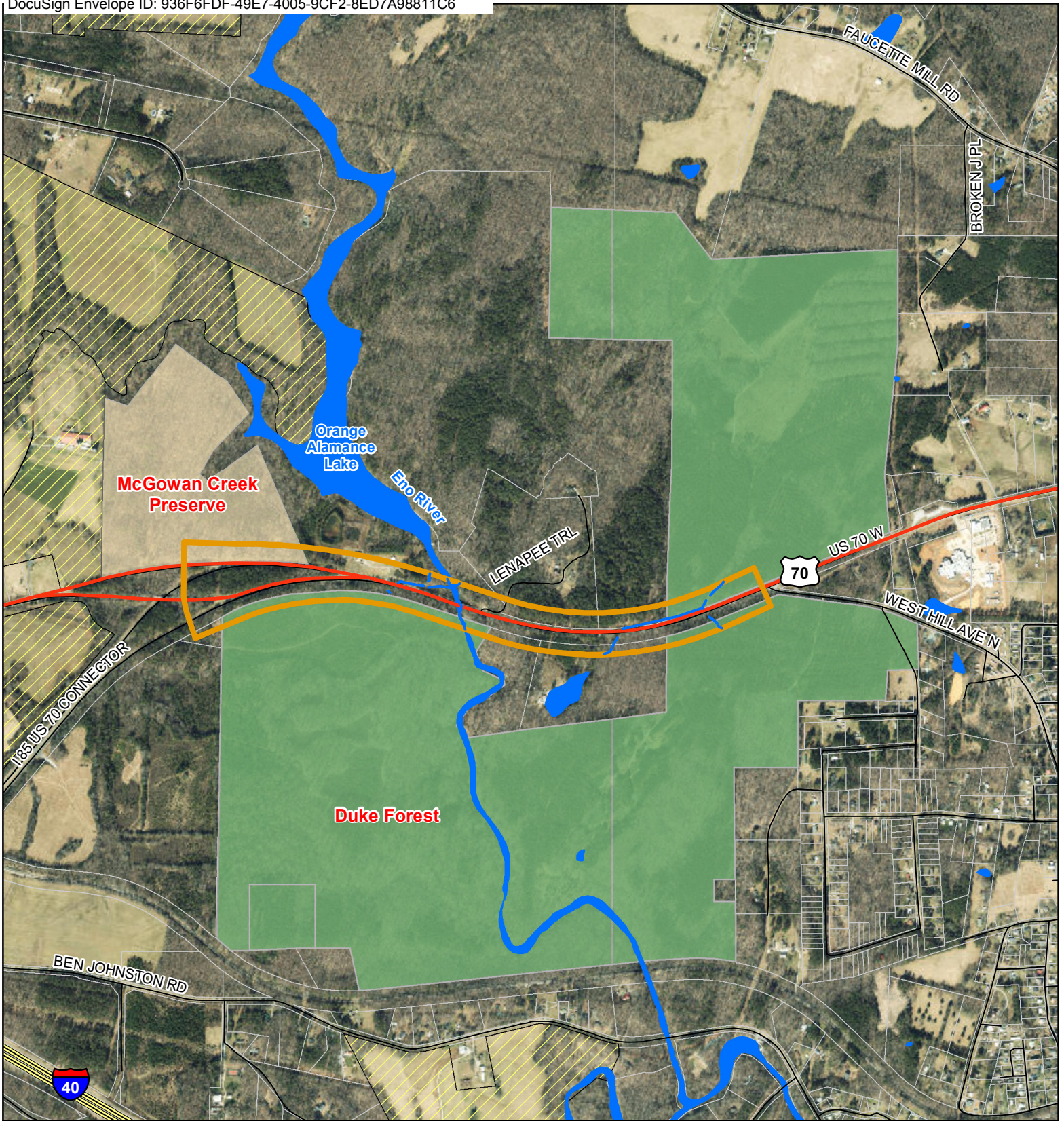
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 Bryan Key, PE, NCDOT Project Team Lead
 North Carolina Department of Transportation










FHWA Approved: For Projects Certified by NCDOT (above), FHWA signature required.

_____ for John F. Sullivan, III, PE, Division Administrator
 Federal Highway Administration

Note: Prior to ROW or Construction authorization, a consultation may be required (please see Section VII of the NCDOT-FHWA CE Programmatic Agreement for more details).



Legend

-  Study Area
-  Interstate
-  US Route
-  McGowan Creek Preserve
-  Open Water
-  Duke Forest
-  Parcels
-  Voluntary Agricultural District
-  Streams

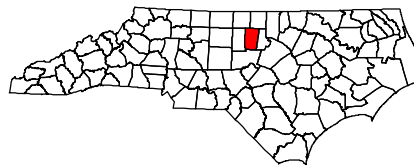
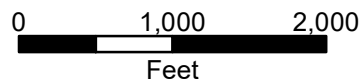
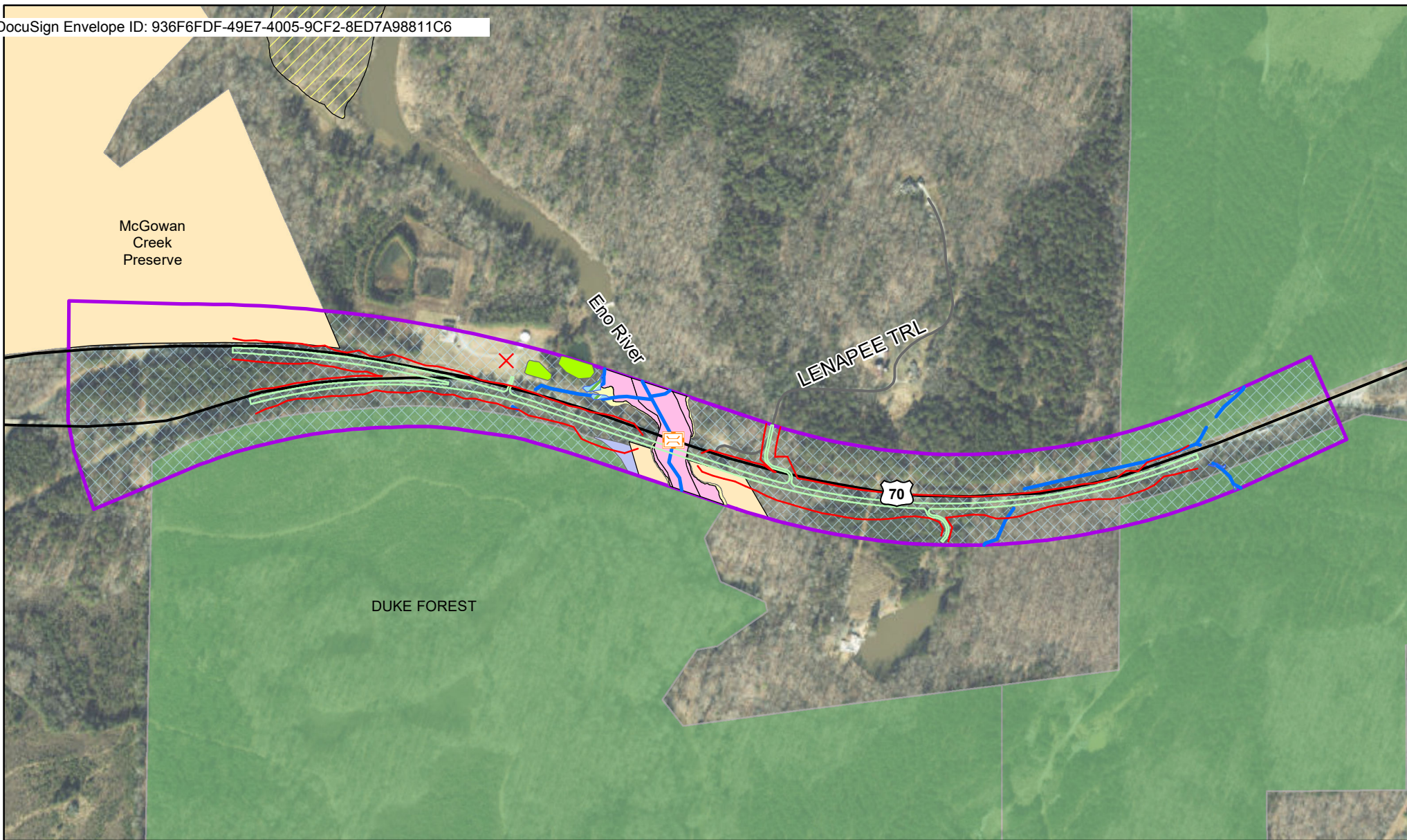


Figure 1
Vicinity Map
Project BR-0091
Bridge Replacement on
US 70 over Eno River
Orange County, NC



Date: 12/16/2022

Source: NCDOT, OneMap, HNTB. 2022.



Legend

- Study Area
- Duke Forest
- 500-Year Floodplain
- 100-Year Floodplain
- Ponds
- Wetlands
- Voluntary Agricultural District
- NC Natural Heritage Natural Area
- NC NHP Managed Area
- Streams (WS-II CA; HQW, NSW)
- Road
- US Route
- Slope Stakes
- Prop EOT
- Existing Bridge
- X Water Treatment Facility
- NC Critical Area

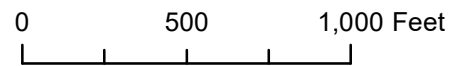
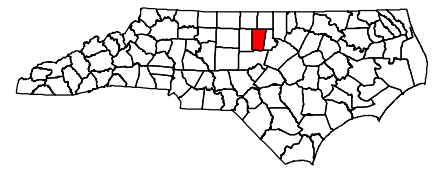
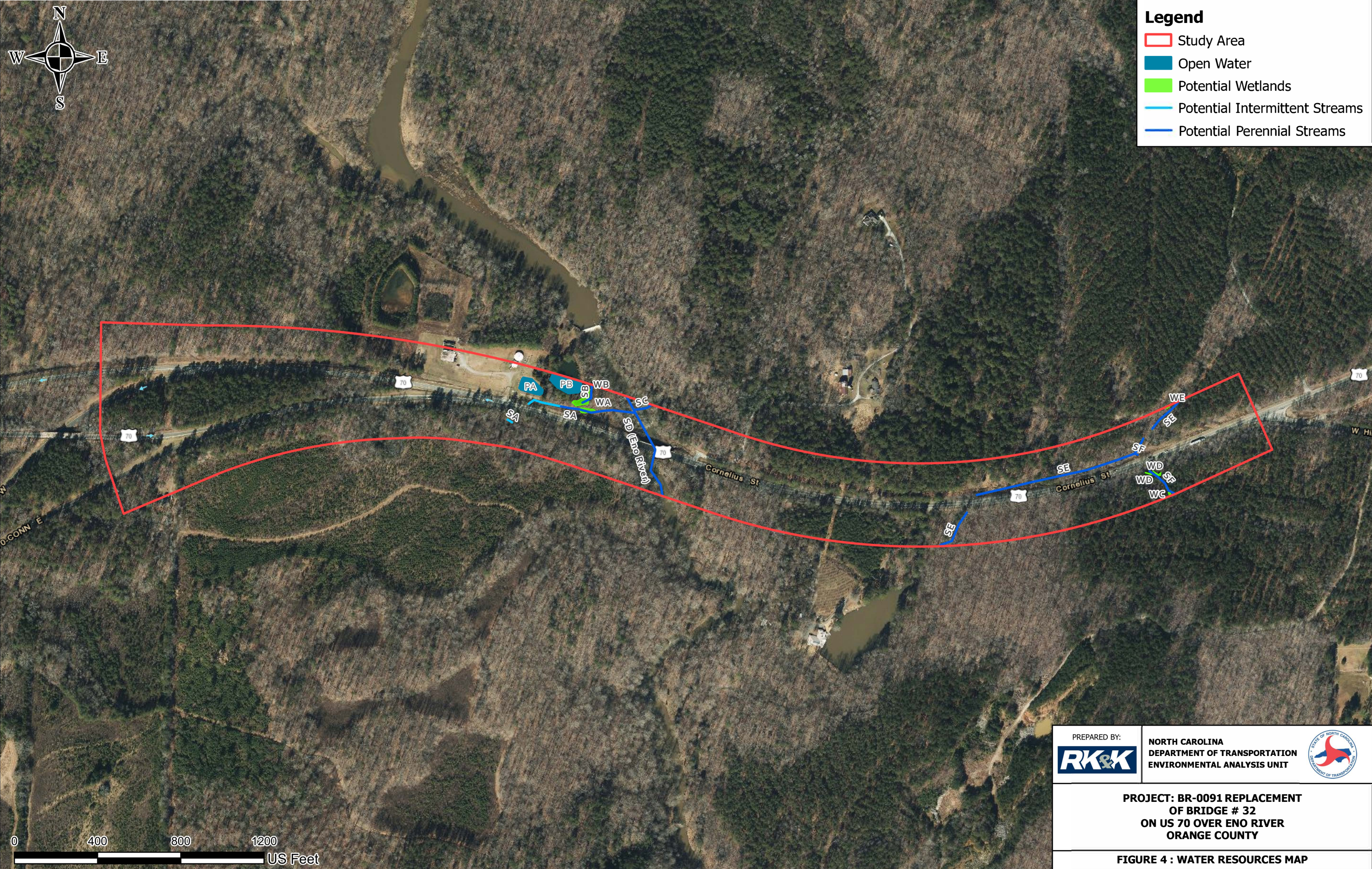




Figure 2
Environmental Features Map
Project BR-0091
Bridge Replacement over Eno River
Orange County



Legend

- Study Area
- Open Water
- Potential Wetlands
- Potential Intermittent Streams
- Potential Perennial Streams



PREPARED BY: 	NORTH CAROLINA DEPARTMENT OF TRANSPORTATION ENVIRONMENTAL ANALYSIS UNIT 
PROJECT: BR-0091 REPLACEMENT OF BRIDGE # 32 ON US 70 OVER ENO RIVER ORANGE COUNTY	
FIGURE 4 : WATER RESOURCES MAP	

UPDATED
18-09-0064



HISTORIC ARCHITECTURE AND LANDSCAPES NO HISTORIC PROPERTIES PRESENT OR AFFECTED FORM

This form only pertains to Historic Architecture and Landscapes for this project. It is not valid for Archaeological Resources. You must consult separately with the Archaeology Group.

PROJECT INFORMATION

Project No:	BR-0091	County:	Orange
WBS No.:	67091.1.1	Document Type:	MCC
Fed. Aid No:		Funding:	<input checked="" type="checkbox"/> State <input type="checkbox"/> Federal
Federal Permit(s):	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Permit Type(s):	USACE

Project Description:

Replace Bridge No. 32 on US 70 over the Eno River near Efland. The Area of Potential Effects (APE) for the project has expanded since it was first reviewed in 2018. The original APE was defined as an approximately 2,000-foot corridor running 1,350 feet east and 1,250 feet west from the center of the bridge with a width of 400 feet. The expanded APE extends an additional 1,650 feet east and 1,500 feet west along US 70 and SR 1239 (I-85/US 70 Connector) from the limits of the previous APE. A federal permit is anticipated, and federal funds may be used.

SUMMARY OF HISTORIC ARCHITECTURE AND LANDSCAPES REVIEW

- There are no National Register-listed or Study Listed properties within the project's area of potential effects.
- There are no properties less than fifty years old which are considered to meet Criteria Consideration G within the project's area of potential effects.
- There are no properties within the project's area of potential effects.
- There are properties over fifty years old within the area of potential effects, but they do not meet the criteria for listing on the National Register.
- There are no historic properties present or affected by this project. (Attach any notes or documents as needed.)

Date of field visit: May 2022

Description of review activities, results, and conclusions:

Secondary review of the expanded APE on HPOWeb in May 2022. There are no existing NR, SL, DE, SS or LD properties in the project area and field investigations documented in July 2019 did not identify any eligible resources. The HPO concurred with the findings in their letter dated August 22, 2019. However, there is a large 1912 farm complex – Lloyd Dairy Farm (OR1139) just outside the western limits of the APE that the NCDOT architectural historian visited in May 2022. This is part of a large Voluntary Agricultural District and potentially eligible as a historic property. **While the APE does not extend to this area, any further expansions to the west**

would require an elevation of the property using the National Register of Historic Places criteria. Therefore, currently, a No Historic Properties Present call is appropriate.

SUPPORT DOCUMENTATION

Map(s) Previous Survey Info. Photos Correspondence Design Plans

FINDING BY NCDOT ARCHITECTURAL HISTORIAN

Historic Architecture and Landscapes – **NO HISTORIC PROPERTIES PRESENT OR AFFECTED**

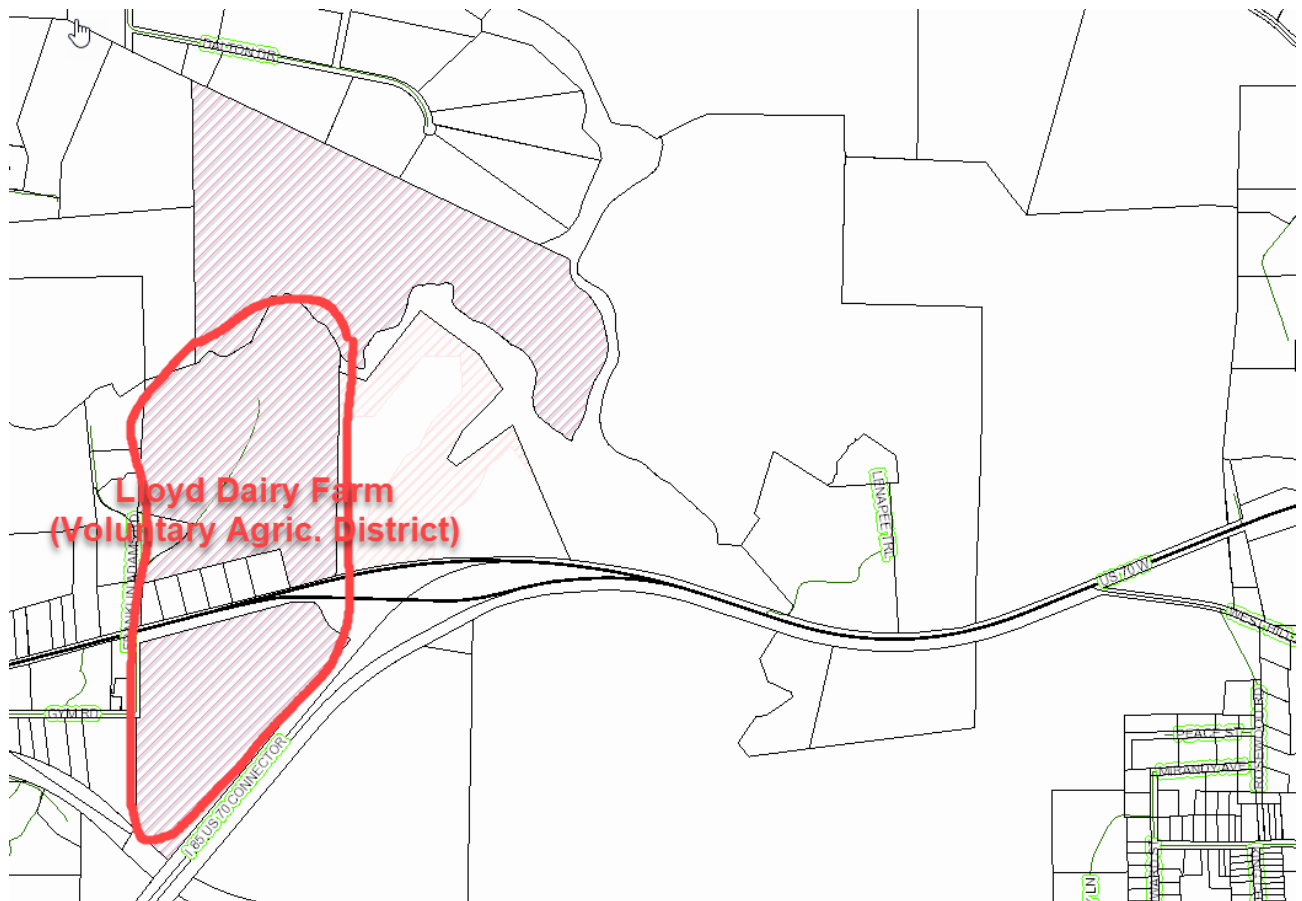
Mary Pope Furr

6/27/2022

NCDOT Architectural Historian

Date







**NO NATIONAL REGISTER OF HISTORIC PLACES
ELIGIBLE OR LISTED ARCHAEOLOGICAL SITES
PRESENT FORM**



This form only pertains to ARCHAEOLOGICAL RESOURCES for this project.
It is not valid for Historic Architecture and Landscapes. You must consult
separately with the Historic Architecture and Landscapes Team.

PROJECT INFORMATION

<i>Project No:</i>	BR-0091	<i>County:</i>	Orange
<i>WBS No:</i>	67091.1.1	<i>Document:</i>	Federal CE
<i>F.A. No:</i>	na	<i>Funding:</i>	<input checked="" type="checkbox"/> State <input type="checkbox"/> Federal
<i>Federal Permit Required?</i>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<i>Permit Type:</i>	USACE

Project Description:

The project calls for the replacement of Bridge No. 32 on US 70 over the Eno River in Orange County (TIP BR-0091). This project was originally carried out in 2018 with an “No National Register of Historic Places Eligible or Listed Archaeological Sites Present” form submitted on October 16, 2018. Subsequently, the APE has expanded to the east and west along US 70 by approximately 37.5 acres (Figures 1 and 2). These areas were not surveyed during the previous investigation, and this addendum should be attached to all former PA forms going forward. The original APE is defined as an approximately 2,600-foot (792.48 m) long corridor running 1,350 feet (411.48 m) east and 1,250 feet (381.00 m) west from the center of the bridge. The APE corridor is approximately 400 feet (121.92 m) wide extending 200 feet (60.96 m) from either side of the centerline. The current APE for the new addendum extends an additional 1,650 feet (502.92 m) east along US 70 and 1,500 feet (457.20 m) west along each of US 70 and SR 1239 (I-85/US 70 Connector) from the limits of the previous APE. The addendum APE corridor width extends 200 feet to either side of US 70 and I-85/US 70 Connector from the centerlines. In all, the revised APE encompasses approximately 61.5 acres (24 acres for the original APE and 37.5 acres for the addendum).

A federal permit is anticipated, and federal funds may be used. As a result, this archaeological review was conducted in accordance with Section 106 of the National Historic Preservation Act and the Advisory Council on Historic Preservation’s Regulations for Compliance (36 CFR Part 800).

SUMMARY OF ARCHAEOLOGICAL FINDINGS

The North Carolina Department of Transportation (NCDOT) Archaeology Team has reviewed the subject project and determined:

- There are no National Register listed ARCHAEOLOGICAL SITES within the project’s area of potential effects. (Attach any notes or documents as needed.)
- No subsurface archaeological investigations were required for this project.
- Subsurface investigations did not reveal the presence of any archaeological resources.
- Subsurface investigations did not reveal the presence of any archaeological resources considered eligible for the National Register.
- All identified archaeological sites located within the APE have been considered and all compliance for archaeological resources with Section 106 of the National Historic Preservation Act and GS 121-12(a) has been completed for this project.

Brief description of review activities, results of review, and conclusions:

NCDOT has conducted an archaeological reconnaissance and field investigation for the expanded APE at the proposed replacement of Bridge No. 32 in Orange County, North Carolina. The project area is located just west of Hillsborough and plotted along the western edge of the Efland USGS 7.5' topographic quadrangle (see Figure 1).

Background Research

An updated site file search was conducted using data from the Office of State Archaeology (OSA) on April 28, 2022. With the exceptions of the archaeological survey for the original APE in October 2018, no previous surveys or reviews have been carried out within the project area. However, four known sites (31OR237, 31OR454, 31OR455, and 31OR678) are reported within a mile of the project area. All contain a historic component with 31OR237 and 31OR678 yielding precontact material as well. Three of these sites (31OR454, 31OR455, and 31OR678) are situated on ridges, while 31OR237 is in the Eno River floodplain. Site 31OR237 contains the remains of Dimmock's Mill, which are a common archaeological resource along waterways in Orange County. Hart's or Maddock's Grist Mill, which has not been recorded as an archeological site, should be located northwest of the current bridge according to historic records. It is estimated that that the mill stood along the Eno at about 1,000 feet northwest of the current bridge, well outside of the current APE. No cultural remains for the mill have been identified as of yet. This mill is reported to have been established by Joseph Maddock in 1755 and used as a gathering for Regulators (Engstrom 1978; VanDerBroek 2015). Maddock conveyed the 20-acre mill site to Thomas Hart in 1787 out of fear of retribution from Governor Tryon for housing the Regulators' meetings (Stokes 1988). The grist mill was successful under Hart and expanded to include a sawmill, distillery, tannery, blacksmith, weavers-houses, cobblers, and stables along with other industries. The complex became known as Hartford Plantation and was run by Hart's attorney, Jesse Benton. Prior to the War for Independence, Hart moved to Maryland and sold the plantation to Rev. James Fraser. During the War, General Cornwallis sent troops to the mill in order to provide food and supplies for his forces. After a skirmish at the mill between British troops and a militia led by Major Joseph Graham on February 17, 1781, the complex was left in ruins and Fraser left Hillsborough. Jesse Benton, who previously ran the complex, acquires the plantation in 1782 and attempted to rebuild. He died in 1790 and the plantation was broken-up. In general, the project setting has the potential for historic resources, and a survey of the expanded APE was recommended.

According to the North Carolina State Historic Preservation Office online data base (HPOWEB 2022), there are no known eligible or listed historic architectural resources within the APE that may yield intact archaeological deposits.

An examination of historic maps concerning this project failed to find any significant features within the expanded APE than what has already been mentioned in the previous PA forms. Most county and regional maps prior to the 20th century that were inspected typically show Hillsborough but little else. By turn of the century, maps begin to depict more accurate details, and the project area can be placed. The earliest in which the project area can be determined is the 1891 *Map of Orange County* by George Tate and Theophilus Moore (Figure 3). This map shows a road in the vicinity of US 70 with a crossing over the Eno River near the current bridge. Heading west after crossing the Eno River, the road bends north leading to Cedar Grove. Old Maddock's Mill (or Hart's Mill) is northwest of the crossing, which has been previously mentioned. The later circa 1910 *Rural Deliver Routes for Orange County* shows a similar road and crossing; however, this road bends slightly south instead of north (United States Post Office ca. 1910) (Figure 4). The map also shows one structure towards the southwest, which likely a household. No evidence for any former structures were identified during the previous 2018 investigation. Lastly, the 1938 *Highway Map for Orange County* displays the modern alignment for US 70, but its exact placement is impossible to determined due to the schematic nature of the map (NCSHPWC) (Figure 5). The property surrounding the project area is shown as part of Duke Forest and was used for quarrying. One structure is plotted to the northeast. This structure may be related to one of several structures currently found outside the APE to the north. Although early historic

buildings were in the area, it appears that any remains are outside of the project limits or have been destroyed by construction of US 70 or the nearby water filtration plant.

According to the USDA soil survey map for Orange County, the APE consists of six soil types (USDA NRCS 2022) (see Figure 2). These include the Enon loam (EnB; EnC), Georgeville silt loam (GeB; GeC), Georgeville-Urban land complex (GhC), Goldston channery silt loam (GIF), Herndon silt loam (HrC), and Tarrus silt loam (TaD; TaE). All are well drained and moderately to severely eroded due to past land clearing. Slope is gentle with most under 15 percent, except for the GIF and TaE variants. The GIF is 15 to 45 percent, while TaE is 15 to 25. Observations from the past survey of the original APE suggest that sections of the TaD variant exceed 15 percent as well. The Tate and Goldston series are found primarily along the drainage slopes including either side of the Eno River. These strongly sloping soils have large boulders and rocks at the surface. Significant archaeological resources were not expected on these soils due to strong slope and exposed surface. The other series, however, have the potential to yield archaeological remains if disturbance including soil erosion is minimal.

Fieldwork Results

The archaeological field reconnaissance and survey for the expanded Bridge No. 32 APE was conducted from July 6 through July 15, 2022. The investigation included a visual inspection and the excavation of 51 new shovel tests (STs) (Figures 6 and 7). Shovel tests were typically placed at 30-meter (ca. 98 feet) intervals across the landforms. In some areas, the distance between shovel tests were either decreased or increased due to obstructions that deterred excavations. No STs were excavated in areas either that showed signs of obvious ground disturbance, along slope of 15 percent or more, covered with exposed rocks, or that were part of the existing drainage channels.

Bridge No. 32 and US 70 run east to west over the Eno River, which flows to the south and east (see Figures 2, 6, and 7). The river is dammed to the north to form Ben Johnson Lake/Corporation Lake. Unnamed seasonal tributaries are to the northeast and southwest, while a stream is crossed by the APE's eastern addendum. This stream runs parallel with US 70 for approximately 850 feet before it bends south under the road. These waterways are part of the Neuse drainage basin. The APE is situated on ridges that slope sharply into the Eno River and the eastern drainage. The ridges are mostly intact east of the river with US 70 and a gravel drive (Lenapee Trail) cutting into the landforms. The remnants of the former alignments of US 70 (road traces) are also present on the northside of the existing road extending west from West Hill Avenue. These two former alignments in the APE's eastern addendum can be seen on the LIDAR image (Figure 8). The southern alignment curves back into existing US 70, while the north alignment follows a straight-line west to join with Lenapee Trail outside of the APE. It appears this northern alignment crossing the Eno River north of the current bridge near the edge of the APE. In addition, the sunken remnants of a logging road or even a much earlier road are present between the two road traces. To the southwest, the ridge is slightly dissected by gullies that feed water into a seasonal drainage that is acting as a ditch to US 70. The gullies may be the result of past timber harvesting on this property and/or the use of two former overgrown roads. Again, these road traces are seen on the LIDAR image (Figure 9). One road trace is an old alignment to US 70. It runs east passing south of the US 70 and I-85/US 70 Connector interchange. The second road trace appears to be an access road that runs southwest ending at the railroad. Ground disturbance is extremely heavy northwest of the bridge. This is the site of a water filtration plant. The area has been graded with ponds constructed at the facility within the APE. Fill also cover the area adjacent to the bridge. In general, the project area is forested with exposed rocks at the surface except at the water filtration plant, which is open. Soil erosion is moderate to heavy with the plowzone mixed with subsoil and the original surface layer.

The 2018 archaeological survey for the original APE included systematic shovel testing at 30-meter (ca. 98 feet) intervals when possible, on the ridges in the northeast, southeast, and southwest quadrants and a surface inspection throughout (Figure 10). No shovel testing occurred in areas with obvious disturbance consisting of grading or fill, along steep slope of 15 percent or more, in areas covered by impervious surfaces such as paved/gravel drives or pull-offs, or where soil erosion had dissected or exposed the landform. A total of 22

shovel tests (STs) (#1–22) were excavated of which none yielded cultural material. Although surface visibility was poor, an inspection of exposed soils along the cut road banks also failed to yield positive results. Attempts to relocate Hart's or Maddock's Mill in the northwest quadrant failed as well. The area adjacent to the river was steep and rocky, while the ridge was disturbed from the water facility. If any remains are still present, they are likely west of the current dam at Ben Johnston Lake. No historic remains associated with the mill complex will be affected by this project.

The current field investigations also consisted of a visually inspection and the excavation of 51 STs (#23–73). Eleven STs (#23–34) were placed north of US 70 in the eastern addendum (see Figure 6). The investigation found severe ground disturbance from past road construction and soil erosion. Gullies or washouts are located around STs #23 and 24 with subsoil just at the surface. Therefore, the testing interval was increased in this area. However, an earthen embankment was identified south of ST #24 (Figure 11; see Figure 8). It may be the remnants of a dam or older road that crossed a small waterway. Due to a lack of information and the presence of no diagnostic material, this feature was not recorded as an archaeological resource. The northern road trace for US 70 and a logging road (or earlier road) are between ST #25 and 24. The northern road alignment is approximately 5 to 6 meter (ca. 16 to 20 feet) wide and fairly level with the surround landforms, but raised and sunken sections are present as well (Figure 12; see Figure 8). The possible logging road or earlier road is narrower at about 4 meters (ca. 13 feet) wide and sunken (Figure 13; see figure 8). Just north of ST #26–34 is the southern road trace. This road trace is wider than its northern counterpart at 9 to 10 meters (ca. 30 to 33 feet) (Figure 14; see Figure 8). The northern bank is cut into the hillside while the southern edge slopes into the adjacent waterway that runs between the trace and existing US 70. Two concrete culverts are also still present at drainage crossing along this southern trace (Figures 15 and 16). Both culverts are not of unique construction and are not considered significant. Therefore, they were not recorded as archaeological resources. Soil stratigraphy in this section of the APE consists of one to two layers. The upper, if present, is a 5 to 25 cm (ca. 2 to 10 in) thick yellowish brown (10YR 5/4 or 5/6) or dark yellowish brown (10YR 4/6) sandy clay loam. This is followed by subsoil, which is generally a strong brown (7.5YR 5/6) clay or occasionally a brownish yellow (10YR 6/8) clay. In some shovel test, subsoil was found at the surface just under organic matter.

South of US 70 in the eastern addendum, 14 shovel tests (# 48–58) were excavated (see Figure 6). Ground disturbance in this area is much lighter, but slope is generally steeper. Slope is over 15 percent on the hillside between ST #36 and 38 at which point the distance between shovel test was increased. ST #37 was placed near the crest of the ridge. Towards the eastern end of this APE section, a small portion of the southern road trace is visible before it crosses to the other side of existing US 70. This portion of former road is depressed and performs as a drainage ditch to the current road. Soils stratigraphy is the same as north of US 70, but an increased number of large rocks near the surface impeded excavation at several shovel tests.

Ten shovel tests (#49–58) were dug at the western addendum to the north of US 70 and I-85/US 70 Connector interchange (see Figure 7). The ridge in this section is fairly level except towards the eastern end. Slope increased to 15 percent or more as the landform drops and rises due to a drainage. The far eastern end is closed off by a fence for the water filtration plant. Disturbance is heavy inside the fence from land modification. As a result, no shovel tests were excavated in this location. Soil stratigraphy again consists of two strata. The upper is a yellowish brown (10YR 5/4 or 5/6) or dark yellowish brown (10YR 4/4 or 4/6) clay loam that is approximately 15 to 20 cm (ca. 6 to 8 in) thick. Beneath this is a yellowish red (5YR 4/6 or 5/8) clay subsoil.

To the south of US 70 and I-85/US 70 Connector interchange in the western addendum, 11 shovel tests (#59–69) were excavated (see Figure 7). The landform is generally level with one seasonal drainage crossed near a residential property at the western end. No shovel tests were dug on the residential property between ST #59 and 60 due to good surface visibility, which showed subsoil at the surface. In fact, soil erosion appears to be more widespread in this section of the APE than elsewhere with subsoil encountered at the surface at ST #59, 60, 62, 64, 68, and 69. This may be due to past timber harvesting activities that exposed the ground surface for extended periods. The surface layer, if present, is again a 10 to 15 cm (ca. 4 to 6 in) thick yellowish

brown (10YR 5/4 or 5/6) or dark yellowish brown (10YR 4/4 or 4/6) clay loam. However, subsoil is a red (2.5YR 4/6) clay.

Lastly, four shovel tests (#70–73) were placed in the interchange median (see Figure 7). The landform became very steep south of the shovel tests and severely disturbed with fill or subsoil below the organic material. Testing in the median was halted due to obvious ground disturbance.

All shovel tests were negative for cultural material, and no resources were found on the surface.

Recommendations

The archeological investigations for the expanded APE at the proposed replacement of Bridge No. 32 in Orange County identified no archaeological sites. Ground disturbance from soil erosion or past road construction activities is heavy. The surface layer is thin or removed completely making intact deposits and significant resources unlikely. Furthermore, all subsurface tests were negative, and no significant resources were identified above ground. No further archaeological work is recommended for this project. However, if design plans change to impact areas outside of the archaeological APE, then further consultation might be necessary.

This addendum to the replacement of Bridge No. 32 project should be included with any other archaeological PA forms going forward.

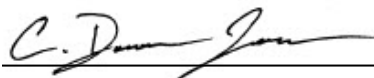
This project falls within a North Carolina County in which the Catawba Indian Nation have expressed an interest. We recommend that you ensure that this documentation is forwarded to these tribes using the process described in the current NCDOT Tribal Protocol and PA Procedures Manual.

SUPPORT DOCUMENTATION

See attached: Map(s) Previous Survey Info Photos Correspondence

Other: historic map images

Signed:



7/20/22

C. Damon Jones
NCDOT ARCHAEOLOGIST

Date