STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

ROY COOPER
GOVERNOR

J.R. "JOEY" HOPKINS
SECRETARY

June 5, 2024

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

ATTN: Ms. Crystal Amschler
NCDOT Coordinator

N.C. Division of Water Resources
Transportation Permitting Branch
1617 Mail Service Center
Raleigh, NC 27699-1617

ATTN: Ms. Beth Plummer
NCDOT Coordinator

Subject: **Application for Section 404 Individual Permit, Section 401 Individual Water Quality Certification, and Catawba Riparian Buffer Authorization** for the proposed widening of Williamson Road (SR 1109), from I-77 to Brawley School Road (SR 1100) in Mooresville, Iredell County, NC. Division 12. Debit $767 from WBS No. 41890.1.2 **STIP: R-5100A**

Dear Madams:

NCDOT proposes to widen Williamson Road (SR 1109), from I-77 to Brawley School Road (SR 1100) in Mooresville. The purpose of this letter is to request a Clean Water Act (CWA) Section 404 Individual Permit, Section 401 Individual Water Quality Certification, and Catawba Riparian Buffer Authorization for the above referenced project. Included in this application package are the following: ENG 4345 Form, draft Boater Safety Plan, NC Division of Mitigation Services Acceptance Letter, stormwater management plan (SMP), permit drawings, utility drawings, buffer drawings, Section 7 Informal Conference Letter, No Archaeological Survey Required form, Historic Structures Report, Tribal Coordination, and Minimum Criteria Determination Checklist.

SEPA DOCUMENT STATUS

A Minimum Criteria Determination Checklist was completed and signed on June 24, 2019. A Merger Screening meeting was held on September 20, 2018. Due to the limited scope of the project as well as agreement on the best fit alignment, the attendees determined the project would not be a good candidate for the Merger Process.

PURPOSE AND NEED

The primary need for the proposed action stems from several deficiencies. As noted in the Town of Mooresville's 2008 Comprehensive Transportation Plan (CTP):

1. There are an excessive number of driveway cuts with no access management;
2. There is an inconsistent roadway cross-section due to the incremental road improvements required as different sites have been developed, and;
3. There are significant traffic delays at intersections.

Mailing Address:
NC DEPARTMENT OF TRANSPORTATION
ENVIRONMENTAL ANALYSIS UNIT
1598 MAIL SERVICE CENTER
RALEIGH NC 27699-1598

Telephone: (919) 707-6000
Fax: (919) 212-5785
Customer Service: 1-877-368-4968
Website: www.ncdot.gov

Location:
1000 BIRCH RIDGE DRIVE
RALEIGH NC 27610

The purpose of the proposed action is to reduce congestion and improve safety in the corridor. The Williamson Road widening project will provide a safer, more efficient roadway network throughout the Town of Mooresville and southern Iredell County.

ALTERNATIVES ANALYSIS

The No-Build Alternative was considered but eliminated because it does not meet the purpose and need for the project. This alternative will not provide residents of southern Iredell County a safe and efficient roadway to access adjacent residential and commercial development. Only one build alternative was studied. This was due to the residential and commercial development along either side of Williamson Road, prior planning efforts with adjacent development to accommodate the future widening of Williamson Road, and the existing right-of-way. The build alternative utilizes a "best-fit" alignment along Williamson Road to avoid residential and commercial relocations and minimize impacts to adjacent properties. The median-divided facility will provide full-movement access at all signalized intersections as well as un-signalized intersections as spacing requirements permit. U-turn movements will be permitted at these locations with the exception of the Williamson Road / I-77 Southbound Exit Ramp. All other access points will be limited to right-in/right-out only access.

As transmission lines are located above the current intersection with Sundown Road and Williamston Road, Duke Energy prohibits the signalization and related infrastructure below these lines. Per their requirements, the intersection was shifted, which resulted in Impact Sites 2 and 3.

PROJECT SCHEDULE

The project is scheduled to let on July 15, 2025, with a review date of February 25, 2025.

RESOURCE STATUS

Water resources in the study area are part of Catawba River basin U.S. Geological Survey Hydrologic Unit 03050101. There are no Outstanding Resource Water (ORW), designated High Quality Waters (HQW) or water supply watersheds (WS-I or WS-II) within 1.0 mile downstream of the study area. The North Carolina 2022 Final 303(d) list of impaired waters identifies the Catawba River (Lake Norman) within the study area as an impaired water due to turbidity and PCB in fish tissue samples.

IMPACTS TO WATERS OF THE U.S.

The proposed impacts for R-5100A include 3.97 acre of permanent open water impacts, 205 linear feet of permanent stream impacts, and 0.08 acre of permanent impacts to wetlands. Additionally, there will be 1.48 acre of temporary open water impacts and <0.01 acre (29 linear feet) of temporary stream impacts.

Tables 1 through 4 summarize the proposed impacts to jurisdictional resources. Site numbers correspond with the permit drawings included in this application. The stream and wetland numbers correspond to the 2021 Preliminary Jurisdictional Determination package information.

Summary of Utility Impacts:
Locations where utilities cross under streams are summarized here and noted on the plans. A temporary 16" bypass water line will be temporarily placed resulting in 0.001 acre of temporary fill on the lake bottom prior to a new 16" permanent water line which will be attached to the new bridge. The existing 16" water line will be abandoned.

Table 1. Wetland Impacts in 03050101 (Catawba)

Permit Site / Wetland ID[1/]	NC WAM / Hydraulic Classification HUC	Wetland Size (ac)	Perm. Fill in Wetlands (ac)	Excavation (ac)	Mechanized Clearing (ac)	Impact Description/ Avoidance and Minimization
2 / WB	Headwater Forest/ Riparian	0.19	0.059	--	0.02	Minimized impacts from fill and mechanized clearing by utilizing 2:1 slopes. Roadway fill for road widening and installation of 1-15" RCP and 1-42" RCP.
Totals by Impact Type			**0.059**	**0**	**0.02**	
Total Permanent Wetland Impacts			**0.079**			
[2]Total Requested from DMS			**0.079 (@ 2:1=0.158)**			

[1/] Wetland IDs correspond to R-5100A PJD labeling.
[2/] Rounded totals are sum of actual impacts to 1/1000th.

Table 2. Stream Impacts in HUC 03050101 (linear feet)

Permit Site	Stream Name/ PJD/ID	Status/ Class	Permanent		Temp. Channel Impacts lf (ac)	ACOE Required Mitigation	DWR Required Mitigation	Impacts Description
			Channel Impacts	Bank Stabilization				
2	UT to Catawba River (Lake Norman)/SA	Perennial WS-IV, B;CA	167	16	9 (0.001)	167	--	Installation of 1- 15" RCP and 1-42"RCP and bank stabilization. 2:1 slopes utilized to minimize impacts.
3	UT to Catawba River (Lake Norman)/SB	Intermittent WS-IV, B;CA	--	--	12 (0.001)	--	--	Installation of 1- 60" RCP. 2:1 slopes utilized to minimize impacts.
3	UT to Catawba River (Lake Norman)/BA	Perennial WS-IV, B;CA	--	22	8 (0.001)	--	--	Installation of 1- 60" RCP and bank stabilization at the outlet. 2:1 slopes utilized to minimize impacts.
Total Stream Impacts			**167**	**38**	**29 (0.003)**	**167**	**--**	
Total Permanent Impacts			**205**			**167**	**--**	
Total Stream Impact Requested from DMS						**167 (@ 2:1=334)**		

Table 3. Buffer Impacts in HUC 03050101

Permit Site No.	Stream Name/ JD ID	Permanent or Temporary	Buffer Mitigation Required	Zone 1 Impact (sqft)	Zone 2 Impact (sqft)	Impact Description
1	Lake Norman/Reeds Creek Lake Norman/Reeds Creek	Permanent	Yes	3,630	2,592	Roadway fill for the bridge construction directly adjacent to Lake Norman/Reeds Creek
2	Lake Norman/Reeds Creek Lake Norman/Reeds Creek	Permanent	No	1,091	622	Roadway fill for the bridge construction directly adjacent to Lake Norman/Reeds Creek
3	Lake Norman/Reeds Creek Lake Norman/Reeds Creek	Permanent	No	1,035	705	Roadway fill for the bridge construction directly adjacent to Lake Norman/Reeds Creek
4	Lake Norman/Reeds Creek Lake Norman/Reeds Creek	Permanent	Yes	6,879	4,768	Roadway fill for the bridge construction directly adjacent to Lake Norman/Reeds Creek
Totals by Impact Type				**12,635**	**8,687**	
Total Requested from DMS	**Zone 1:10,509 (@ 2:1=21,018) & Zone 2:7,360 (@ 2:1=14,720)**					

Table 4. Surface Water Impacts in HUC 03050101

Permit Site No.	Stream Name/ JD ID	Permanent (Acres)	Temporary (Acres)	Mitigation Required	Impact Description
1	Lake Norman/Reeds Creek Lake Norman/Reeds Creek	3.950	--	No	Roadway fill. 1.75:1 slopes from 1 foot above the full pond elevation
1	Lake Norman/Reeds Creek Lake Norman/Reeds Creek	--	1.473	No	Roadway fill. 1.75:1 slopes from 1 foot above the full pond elevation
1	Lake Norman/Reeds Creek Lake Norman/Reeds Creek	0.021	--	No	Bank stabilization
1	Lake Norman/Reeds Creek Lake Norman/Reeds Creek	--	0.006	No	Bank stabilization
U1	Lake Norman/Reeds Creek Lake Norman/Reeds Creek	--	0.001	No	Water line
Totals by Impact Type		**3.971**	**1.48**		
Total Surface Water Impacts		**5.45**			

FEDERALLY PROTECTED SPECIES

Plants and animals with Federal classification of Endangered (E) or Threatened (T) are protected under provisions of Section 7 and Section 9 of the Endangered Species Act of 1973, as amended. As of April 20, 2024, the U.S. Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC) lists the following species in the project area provided below in Table 5.

Table 5. The USFWS lists the following federally protected species in the study area:

Common Name	Habitat Present	Biological Conclusion	Last Survey/Applicable Programmatic Agreement
bog turtle	No	Not Required	Not Required
dwarf-flowered heartleaf	Yes	No Effect	4/2024
Schweinitz's sunflower	Yes	No Effect	9/2023
tricolored bat	Yes	May Affect-Not Likely to Adversely Affect	7/2023

On July 18, 2023, the study area was assessed for potential bat habitat. Roosting habitat is present however no evidence of bats was found in any of the structures that were inspected. Informal Conference for tricolored bat was issued by USFWS on 5/30/24.

MITIGATION OPTIONS

The NCDOT is committed to incorporating all reasonable and practicable design features to avoid and minimize jurisdictional impacts, and to provide full compensatory mitigation of all remaining, unavoidable jurisdictional impacts. Avoidance measures were taken during the planning and SEPA compliance stages and minimization measures were incorporated as part of the project design.

Avoidance and Minimization:
NCDOT has avoided impacting many wetlands and streams to the greatest extent practicable. In addition, specific examples of minimization measures include:

- All proposed outfalls within the project limits will utilize Rip Rap Outlet pads to provide energy dissipation and lessen erosive velocities.
- To minimize surface water impacts to Lake Norman, the fill slopes on the causeway were steepened to 1.75:1 from 1 foot above the full pond elevation.
- 2:1 slopes will be used in fill areas to reduce impacts to surrounding wetlands and jurisdictional streams.
- Treatment will be achieved for approximately 90' by flattening the grass-lined ditch to a 0.003 ft/ft slope for the begin bridge LT ditch outlet. Treatment will be achieved at the end bridge LT ditch outlet for approximately 20' in BZ 2 with the same approach. It was not practicable to meet treatment requirements in the other quadrants due to required ditch grades and the necessary addition of rip rap to achieve non-erosive velocities.
- Design Standards in Sensitive Watersheds will be implemented during construction.
- The bridge will not discharge deck drains over open water or buffers.

Summary of Mitigation:
The NCDOT has avoided and minimized impacts to jurisdictional resources to the greatest extent practicable as described above. R-5100A will permanently impact 0.079 acre of wetlands, 167 linear feet of streams, and 17,869 sq ft of riparian buffers requiring mitigation. Mitigation for the unavoidable impacts for this project will be handled by the NC Division of Mitigation Services (DMS). Included in this application package is the DMS Mitigation Acceptance Letter. Below is a summary of the mitigation sources for the project.

Table 6. Mitigation Summary

Wetlands			
HUC	**Site Name**	**Mitigation Source**	**Amount Secured (ac)**
03050101	n/a	DMS	0.08
Streams			
HUC	**Site Name**	**Mitigation Source**	**Amount Secured (lf)**
03050101	n/a	DMS	167
Buffers			
HUC	**Site Name**	**Mitigation Source**	**Amount Secured (sqft)**
03050101	n/a	DMS	Zone 1: 10,509 Zone 2: 7,360

***** DMS commits to implementing sufficient compensatory mitigation credits to offset the impacts associated with this project as determined by the regulatory agencies using the timeline listed in Section F.3.c.iii of the In-Lieu Fee Instrument dated July 28, 2010.

CULTURAL RESOURCES

In order to comply with Section 106 of the National Historic Preservation Act (1966, as amended), NCDOT must evaluate the project's impact upon any extant architectural and archaeological resources and determine if additional measures will be necessary to mitigate any adverse effects of the project upon any significant properties and sites.

A NCDOT architectural historian conducted a study of potential historic properties within the project Area of Potential Effects (APE) in August 2018 and found several properties over 50 years of age within the APE. Surveys were required to determine if any of the properties require National Register Eligibility Evaluation. One resource, the Chester Farmstead, warranted intensive National Register eligibility evaluation. It was determined that the Chester Farmstead is not eligible for listing in the National Register of Historic Places. No additional surveys were required (see Historic Structures Survey Report, December 2018 in the Appendix).

NCDOT conducted an internal map review and file search at the Office of State Archaeology (OSA) in May 2019. The APE is in a developed, disturbed context over commonly eroded soils that suggest intact, significant archaeological sites would not be encountered by the construction of the proposed road widening of an existing, urbanized roadway. Several previous surveys have resulted in no recommendations for surveys due to erosion and disturbances associated with modern development and grading. Further, background checks did not reveal any recorded significant archaeological sites in the immediate proximity of the project. No archaeological survey is recommended for this road widening project (see No Archaeological Survey Required Form in the Appendix).

REGULATORY APPROVALS

Application is hereby made for the following regulatory approvals for the above-described activities:

Section 404: USACE Individual Section 404 Permit.

Section 401 and Buffer Certification: Individual Section 401 Water Quality Certification and Buffer Certification from the N.C. Division of Water Resources. In compliance with Section 143 215.3D(e) of the NCAC, we will provide $767.00 to act as payment for processing the Section 401 permit application previously noted in this application (see Subject line).

FERC Conveyance:
A Federal Energy Regulatory Commission Conveyance will be required prior to project construction commencement. This approval will be obtained after the Section 404 Permit, 401 Individual Water Quality Certification, and Catawba Riparian Buffer Authorization are obtained.

A significant component of the FERC Permitting process with Duke Energy will be to comply with their extensive requirements for ensuring waterway safety by way of a "Boater Safety Plan," which will include outreach to designated agencies and organizations. As such, the draft Boater Safety plan as provided in this application package is subject to change during the FERC permitting process, which cannot formally occur until issuance of the 404 and 401 permits. NCDOT will forward a copy of the Boater Safety Plan to satisfy the USACE River Users Safety component once the FERC Permit is acquired.

Thank you for your assistance with this project. If you have any questions or need additional information, please contact Michael Turchy at maturchy@ncdot.gov. A copy of this application and distribution list will also be posted on the NCDOT website at: http://connect.ncdot.gov/resources/Environmental/Pages.

Sincerely,

Michael Turchy
ECAP Group Leader- NCDOT

ec: NCDOT Permit Application Standard Distribution List.

USACE ENG 4345

U.S. Army Corps of Engineers (USACE)

APPLICATION FOR DEPARTMENT OF THE ARMY PERMIT

33 CFR 325. The proponent agency is CECW-CO-R.

Form Approved - OMB No. 0710-0003 Expires: 01-08-2018

The public reporting burden for this collection of information, OMB Control Number 0710-0003, is estimated to average 11 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or burden reduction suggestions to the Department of Defense, Washington Headquarters Services, at whs.mc-alex.esd.mbx.dd-dod-information-collections@mail.mil. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number. PLEASE DO NOT RETURN YOUR APPLICATION TO THE ABOVE EMAIL.

PRIVACY ACT STATEMENT

Authorities: Rivers and Harbors Act, Section 10, 33 USC 403; Clean Water Act, Section 404, 33 USC 1344; Marine Protection, Research, and Sanctuaries Act, Section 103, 33 USC 1413; Regulatory Programs of the Corps of Engineers; Final Rule 33 CFR 320-332. Principal Purpose: Information provided on this form will be used in evaluating the application for a permit. Routine Uses: This information may be shared with the Department of Justice and other federal, state, and local government agencies, and the public and may be made available as part of a public notice as required by Federal law. Submission of requested information is voluntary, however, if information is not provided the permit application cannot be evaluated nor can a permit be issued. One set of original drawings or good reproducible copies which show the location and character of the proposed activity must be attached to this application (see sample drawings and/or instructions) and be submitted to the District Engineer having jurisdiction over the location of the proposed activity. An application that is not completed in full will be returned. System of Record Notice (SORN). The information received is entered into our permit tracking database and a SORN has been completed (SORN #A1145b) and may be accessed at the following website: http://dpcld.defense.gov/Privacy/SORNsIndex/DOD-wide-SORN-Article-View/Article/570115/a1145b-ce.aspx

(ITEMS 1 THRU 4 TO BE FILLED BY THE CORPS)

1. APPLICATION NO.	2. FIELD OFFICE CODE	3. DATE RECEIVED	4. DATE APPLICATION COMPLETE

(ITEMS BELOW TO BE FILLED BY APPLICANT)

5. APPLICANT'S NAME	8. AUTHORIZED AGENT'S NAME AND TITLE (agent is not required)
First - Michael Middle - A. Last - Turchy	First - Middle - Last -
Company - NC Department of Transportation	Company -
E-mail Address - maturchy@ncdot.gov	E-mail Address -
6. APPLICANT'S ADDRESS:	9. AGENT'S ADDRESS:
Address- 1598 Mail Service Center	Address-
City - Raleigh State - NC Zip - 27699 Country - USA	City - State - Zip - Country -
7. APPLICANT'S PHONE NOs. w/AREA CODE	10. AGENTS PHONE NOs. w/AREA CODE
a. Residence b. Business 919-707-6157 c. Fax	a. Residence b. Business c. Fax

STATEMENT OF AUTHORIZATION

11. I hereby authorize, _____ to act in my behalf as my agent in the processing of this application and to furnish, upon request, supplemental information in support of this permit application.

_____ _____

SIGNATURE OF APPLICANT DATE

NAME, LOCATION, AND DESCRIPTION OF PROJECT OR ACTIVITY

12. PROJECT NAME OR TITLE (see instructions)
R-5100A

13. NAME OF WATERBODY, IF KNOWN (if applicable)	14. PROJECT STREET ADDRESS (if applicable)
Lake Norman	Address
15. LOCATION OF PROJECT	City - State- Zip-
Latitude: ◦N 35.564388 Longitude: ◦W -80.865986	

16. OTHER LOCATION DESCRIPTIONS, IF KNOWN (see instructions)

State Tax Parcel ID Municipality

Section - Township - Range -

17. DIRECTIONS TO THE SITE

Please see attached Vicinity Map and Cover Letter.

18. Nature of Activity (Description of project, include all features)

NCDOT proposes to widen Williamson Road (SR 1109), from I-77 to Brawley School Road (SR 1100) in Mooresville.

19. Project Purpose (Describe the reason or purpose of the project, see instructions)

The purpose of the proposed action is to reduce congestion and improve safety in the corridor. The Williamson Road widening project will provide a safer, more efficient roadway network throughout the Town of Mooresville and southern Iredell County.

USE BLOCKS 20-23 IF DREDGED AND/OR FILL MATERIAL IS TO BE DISCHARGED

20. Reason(s) for Discharge

The existing roadway will be widened with proposed C&G with sidewalk behind the curb. The existing bridge over I-77 will be widened to accommodate the additional lanes and proposed C&G. The existing bridge over Lake Norman (5@45' reinforced concrete decking, on I beams with concrete caps) will be replaced with a 3@ 80' 45" prestressed girder bridge with 4'-0" Caps.

21. Type(s) of Material Being Discharged and the Amount of Each Type in Cubic Yards:

Type Amount in Cubic Yards	Type Amount in Cubic Yards	Type Amount in Cubic Yards
Please see attached Cover Letter		

22. Surface Area in Acres of Wetlands or Other Waters Filled (see instructions)

Acres

or

Linear Feet Please see attached Cover Letter

23. Description of Avoidance, Minimization, and Compensation (see instructions)

Please see attached Cover Letter

24. Is Any Portion of the Work Already Complete? ☐ Yes ☒ No IF YES, DESCRIBE THE COMPLETED WORK

25. Addresses of Adjoining Property Owners, Lessees, Etc., Whose Property Adjoins the Waterbody (if more than can be entered here, please attach a supplemental list).

a. Address- See attached List of Property Owners

City - State - Zip -

b. Address-

City - State - Zip -

c. Address-

City - State - Zip -

d. Address-

City - State - Zip -

e. Address-

City - State - Zip -

26. List of Other Certificates or Approvals/Denials received from other Federal, State, or Local Agencies for Work Described in This Application.

AGENCY	TYPE APPROVAL*	IDENTIFICATION NUMBER	DATE APPLIED	DATE APPROVED	DATE DENIED

* Would include but is not restricted to zoning, building, and flood plain permits

27. Application is hereby made for permit or permits to authorize the work described in this application. I certify that this information in this application is complete and accurate. I further certify that I possess the authority to undertake the work described herein or am acting as the duly authorized agent of the applicant.

[signature] 06/04/2024

SIGNATURE OF APPLICANT DATE SIGNATURE OF AGENT DATE

The Application must be signed by the person who desires to undertake the proposed activity (applicant) or it may be signed by a duly authorized agent if the statement in block 11 has been filled out and signed.

18 U.S.C. Section 1001 provides that: Whoever, in any manner within the jurisdiction of any department or agency of the United States knowingly and willfully falsifies, conceals, or covers up any trick, scheme, or disguises a material fact or makes any false, fictitious or fraudulent statements or representations or makes or uses any false writing or document knowing same to contain any false, fictitious or fraudulent statements or entry, shall be fined not more than $10,000 or imprisoned not more than five years or both.

Project Submittal Interim Form

Updated December 4, 2023

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

Project Type: *

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

Submittal Type: *

Individual

Project Contact Information

Name: Michael Turchy

Who is submitting the information?

Email Address: * maturchy@ncdot.gov

Project Information

Project Name: * R-5100 A - Widening of Williamson Road.

Is this a public transportation project? *

- ◉ Yes
- ○ No

Is this a DOT project? *

- ◉ Yes
- ○ No

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

○ Yes ◉ No ○ Unknown

Does this project involve maintenance dredging funded by the Shallow Draft Navigation Channel Dredging and Aquatic Weed Fund or involve the distribution or transmission of energy or fuel, including natural gas, diesel, petroleum, or electricity? *

○ Yes ◉ No

Is this project connected with ARPA funding? *

○ Yes ◉ No

TIP#: R-5100A

WBS#: 41890.1.2

(Applies to DOT projects only)

County (ies) *

Iredell

Please upload all files that need to be submited.

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

R-5100A Iredell June 5 2024.pdf 27.75MB

Only pdf or kmz files are accepted.

Describe the attachments or add comments:

Individual Permit and Buffer Certification Application.

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

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

Signature: * Michael Turchy

Submittal Date:

Draft Boater Safety Plan

Boater Safety Plan

NCDOT STIP R-5100A Williamson Road Widening (SR 1109)

State Project Number 41890.1.D1

Prepared for

NCDOT Project Management Unit
1000 Birch Ridge Drive
Raleigh, NC 27610

Prepared by

5640 Dillard Drive
Cary NC 27518

Table of Contents

List of Figures

List of Tables

1) Introduction

The North Carolina Department of Transportation (NCDOT) proposes to widen existing Williamson Road (SR 1109), from I-77 to Brawley School Road (SR 1100), a distance of approximately 2.4 miles. The project proposes the construction of a four-lane, median-divided facility with a 5-foot sidewalk on the east side of the road and a 10-foot side path along the west side of the road. The proposed project is included in the 2020 - 2029 State Transportation Improvement Program (STIP). Right of way acquisition and construction are scheduled for state fiscal years 2020 and 2025, respectively.

The existing 2-lane bridge carrying Williamson Road across Lake Norman, Bridge number 480056, will be replaced with a new 4-lane bridge that will provide a minimum vertical clearance of 12 feet above Lake Norman's maximum pond elevation (760 feet). The new bridge will include sidewalk on the east side and the side path on the west side.

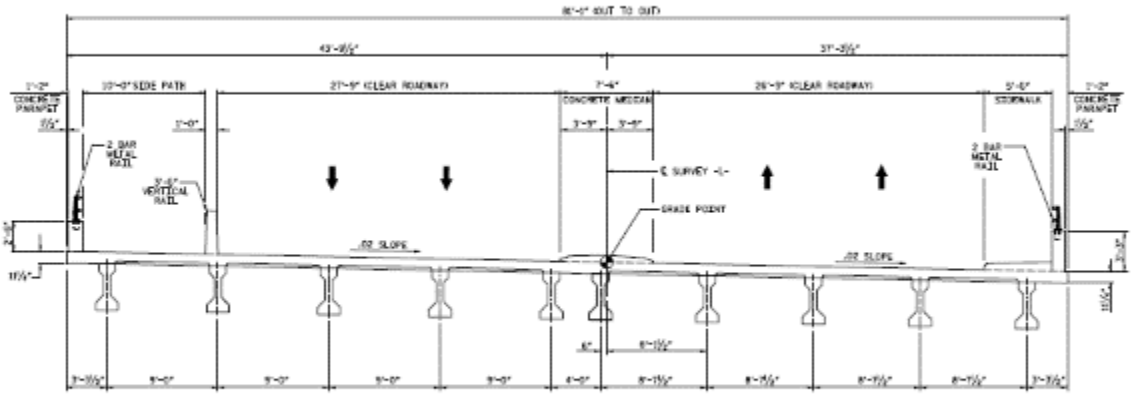


Figure 1. Bridge Typical Section

2) Scope of Maintenance and Construction Activities

The scope of maintenance and construction activities on NCDOT Bridge 480056 likely to affect recreational boater access and safety are:

- Staged demolition and removal of existing NCDOT Bridge 480056, including deck slabs, railings, girders, and piers.
- Staged construction of new, wider 240-foot bridge, including fill, piers, girders, bridge deck, and railings.

3) Access

Access to NCDOT Bridge 480056 for construction workers, equipment, and construction activity will be from temporary rip rap access pads and platforms at the north and south ends of the bridge.

Construction that impacts the open waterway will occur in a way to preserve a safe, open recreational boating channel through the project construction area, with brief exceptions during which boater access under the bridge will be prohibited (Table 1).

Construction that can be performed entirely from the top of the bridge deck or from the shoreline shall be considered to have no impact on boater safety or boater traffic and may be performed at any time. Necessary measures shall be taken to prevent debris from falling through deck drains or over bridge rails.

4) Bridge Construction Items

Removal of the existing bridge shall be performed in a manner that prevents debris from falling into the water. The Contractor will submit a Demolition Management Plan to NCDOT.

5) Mooring Requirements

If barges or other vessels are used during construction, the Contractor will take all necessary precautions to ensure that such vessels are securely anchored or moored when not in active operation and to contain the vessels within the defined construction work area. The Contractor will also take all necessary measures to ensure that the vessels are operated in a manner that avoids damage to, or unnecessary contact with, the existing bridge, boaters, and other highway structures within the safe boat access area. If severe weather conditions are anticipated through reasonable monitoring of weather forecasts, the Contractor shall take appropriate measures to adequately moor the work vessels within the defined construction work area during the extreme conditions.

6) Boater Notifications

Recreational boaters will be notified of construction activities via placards at all public access boat ramps on Lake Norman. At each boat launch, placards shall be displayed at the loading areas informing boaters of the construction impacts to waterway access under the NCDOT Bridge 480056. The placards will clearly communicate what the boater should expect in the vicinity of the subject bridges and appropriate safety precautions to be taken through text and graphics. The placards will be displayed a minimum of two weeks prior to the installation of any floating barricade system and the associated work to be performed

on the structure. The information placards will provide contact information for the Contractor, NCDOT, WRC, and Duke Energy so that the public can make inquires or report damage, vandalism, or operational problems with the construction activities including any floating barricade system. The placards shall remain in-place and maintained for the duration of the project construction period. A minimum of two placards shall be posted at each of the following locations:

- Long Island Boat Launch, 8268 Long Island Rd, Catawba, NC 28609 (Coordinates: 35.6801372614532, -80.98375012610066)
- Lake Norman State Park Lake Access, Boat Launch Dr, Statesville, NC 28677 (Coordinates: 35.65458942619557, -80.93844143289107)
- Stumpy Creek Boat Ramp, 241 Stumpy Creek Rd, Mooresville, NC 28117 (Coordinates: 35.62881836715515, -80.90245308402709)
- Pinnacle Access Area, River Hwy, Mooresville, NC 28117 (Coordinates: 35.60695520530548, -80.93790967036827)
- McCrary Boat Launch, 1459 River Hwy, Mooresville, NC 28117 (Coordinates: 35.60388229039806, -80.92934441939991)
- Hager Creek Boat Ramp, 788 McKendree Rd, Mooresville, NC 28117 (Coordinates: 35.56152930131056, -80.95166046173077)
- Little Creek Lake Access, 4906 Burton Ln, Denver, NC 28037 (Coordinates: 35.53878588774549, -80.98058967522506)
- Beatty's Ford Boat Ramp, NC-16, Denver, NC 28037 (Coordinates: 35.482458545498105, -80.95659603289867)
- Ramsey Creek Park, 18441 Nantz Rd, Cornelius, NC 28031 (Coordinates: 35.46418067200996, -80.90063726358392)
- Blythe Landing Park, 15901 NC 73 HY, Huntersville, NC 28078 (Coordinates: 35.435874347408024, -80.90762453690016)

Prior to installing placards, the Contractor shall coordinate with the boat ramp access owner.

7) Boater Safety System

a) Lighting

Solar powered LED marine safety lights will be placed atop the "Slow No Wake" buoys and "Keep Out" buoys (Graphic 1). The lights will be placed a minimum of two feet above the water line to provide a visual barrier both day and night. These solar marine lights help protect boaters during the early morning and late afternoon/evening hours or when cloud cover reduces visibility for boaters. The marine safety lights should provide visibility in flashing mode up to one nautical mile. They should be set for "flash" mode at a rate of one flash per second. They should be seen no matter the boater's position; if not mounted perfectly level; or if the buoy is bobbing or swaying. All routine maintenance activity for the buoy barricade boat safety system is restricted to occur only during daylight hours. Emergency repairs will be made as needed and at any time.

Figure 2. Example of Solar Marine Light

b) Navigational Buoys

Two "Slow No Wake" buoys are currently located at Bridge 480056, one approximately 150 feet upstream and one approximately 150 feet downstream of the bridge. During construction, at least two "Slow No Wake" buoys both upstream and downstream of the bridge (i.e., at least four buoys total) shall be installed across the width of the safe boat access channel, approximately 150 ft. upstream and downstream of the safe open recreational boating channel through the project construction area.

Figure 3. Examples of Navigational Buoys

Coast Guard-approved "Keep-Out" buoys shall be installed approximately 20 ft. upstream and downstream of the project construction areas. "Slow No Wake" buoys will be equipped with white strobe light solar-powered LED marine safety lights and "Keep-Out" buoys will be equipped with red strobe light solar-powered LED marine safety lights. The safe boat access channel will be marked by buoys with green strobe light solar-powered LED marine safety lights. Buoys shall conform to US Coast Guard "U.S. Aids to Navigation Systems" regulations.

The placement of these buoys is shown in Figure 4 through Figure 7 as colored circles to the east and west of the project construction areas. The locations shown in the attached figures are approximate and not to scale.

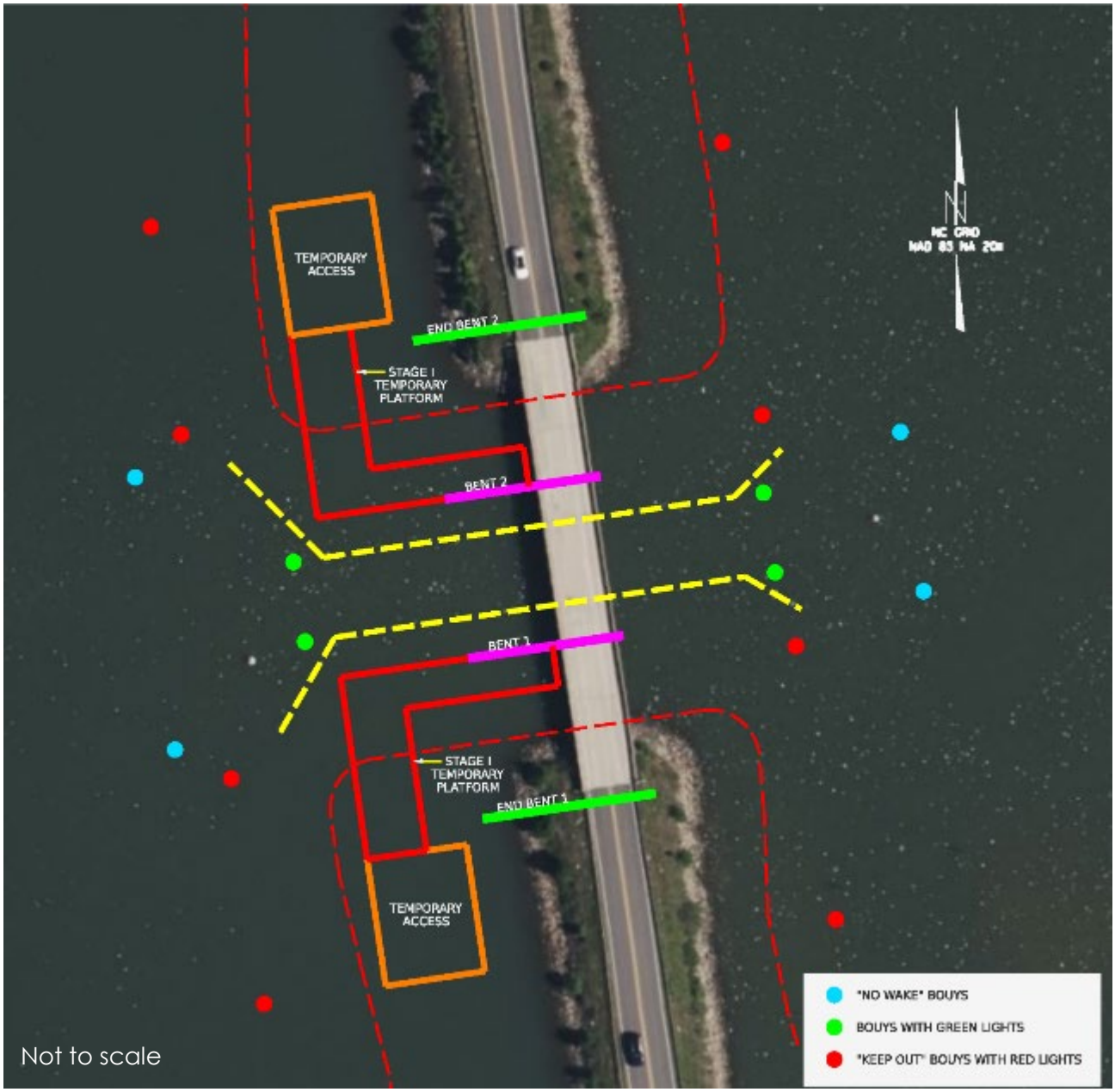


Figure 4. Safe Boater Access During Stage I (a &c)

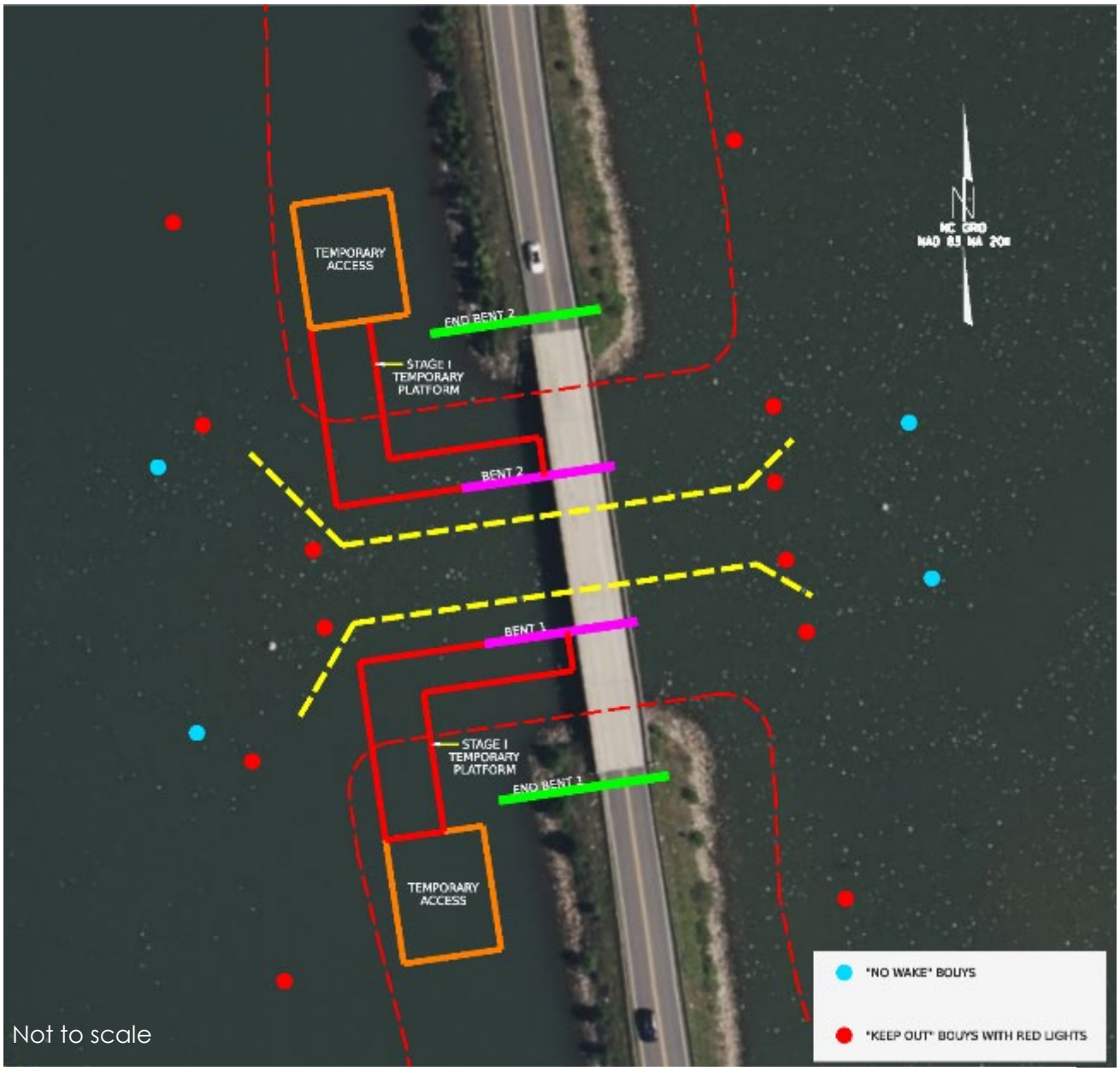


Figure 5. Temporary Boater Access Closure During Stage I (b & d)

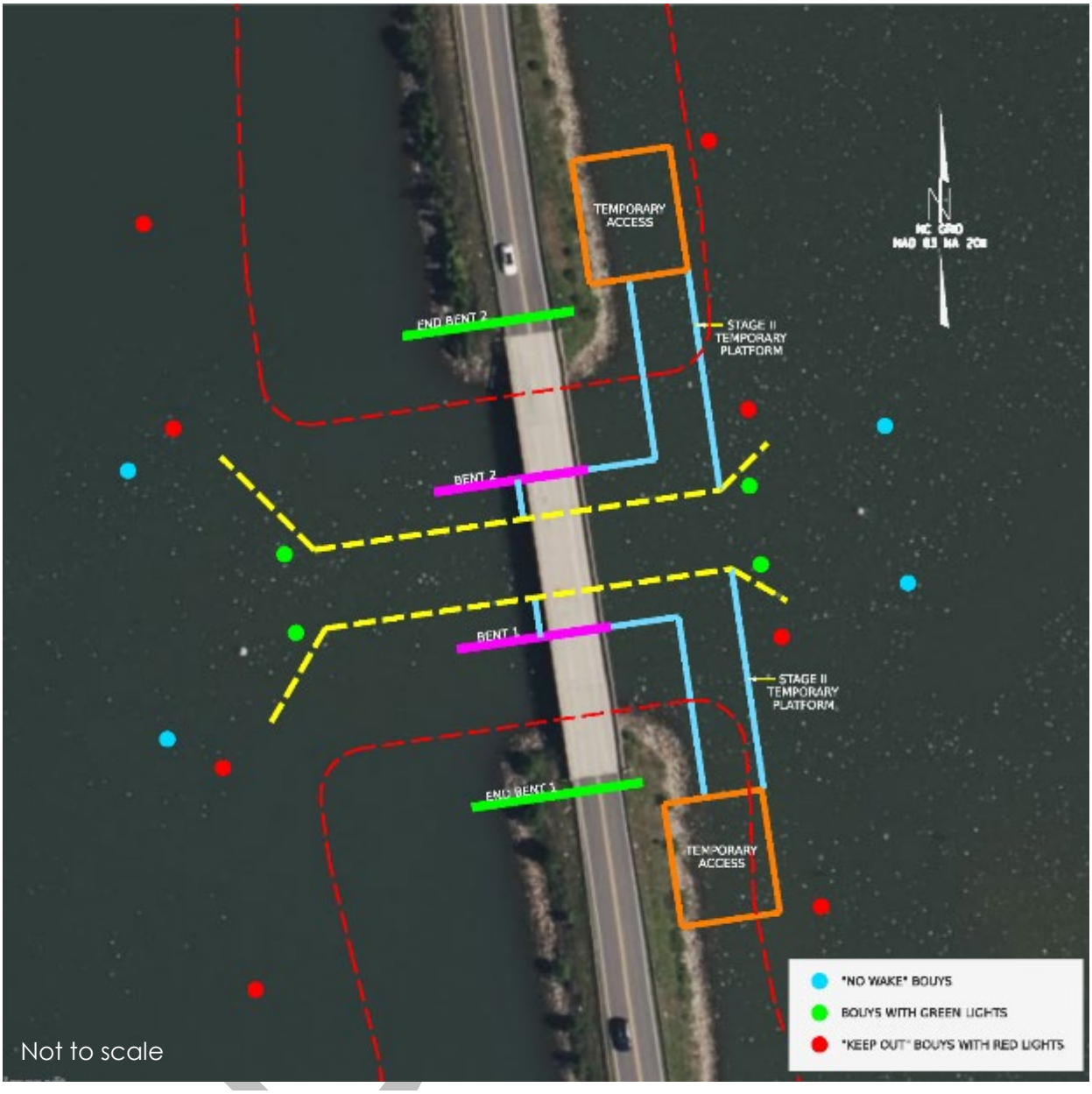


Figure 6. Safe Boater Access During Stage II (a, c, d)

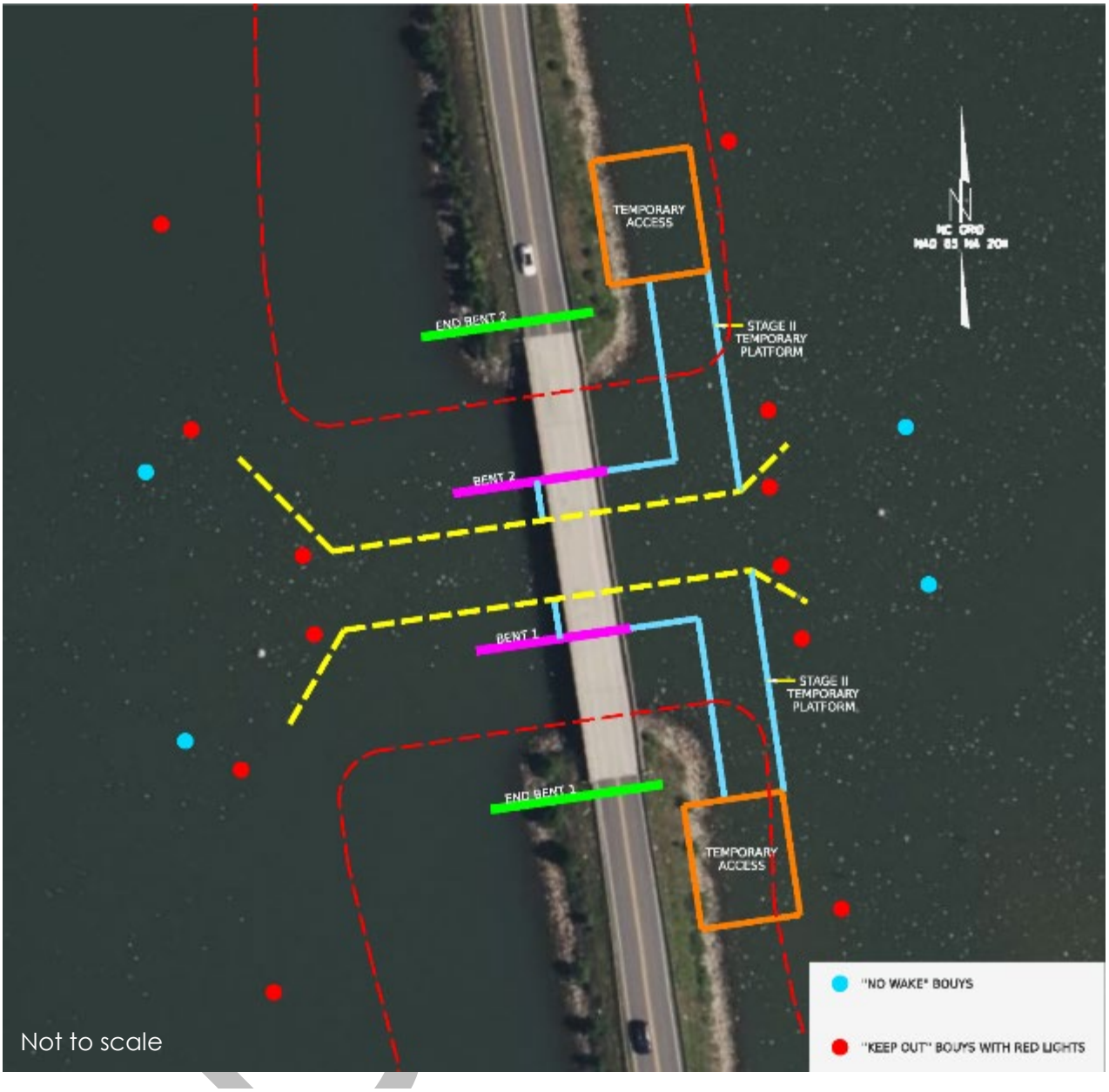


Figure 7. Temporary Boater Access Closure During Stage II (b)

c) Deployment of the Boater Safety System

The lighted buoys will be put into place prior to the commencement of any work on the structure and moved periodically, as needed and in conformance with the "Staging Plan" outlined below, to protect boaters from exposure to the construction activities. Due to the wide channel of the navigational area, law enforcement is not anticipated to be required during the deployment of the boater safety floating barricade system. Deployment and redeployment will occur during daylight hours. The deployment and redeployment operation(s) will occur from a barge and/or a work skiff. The lights will be inspected daily and non-functioning lights will be repaired immediately.

8) Schedule

Table 1. Schedule of Waterway-Impacting Activities

Construction Stage	Timeline/Duration	Construction Activity	Safe Boating Channel Description
Stage I (a)	Approx. 4 months	Construct temporary access work pad and platforms on the west side of the existing bridge. Install Bents 1 and 2 (Stage I). Set girders on Spans A and C. Construct concrete deck on Spans A and C.	Safe boat access between Bents 1 and 2. No boat access under Span A or C.
Stage I(b)	Outside boating season[1]: Daytime work, approx. 7 days. Within boating season[1]: Night work[2], approx. 5 nights.	Set girders on Span B.	Short, temporary channel closures of approx. 30 minutes.
Stage I (c)	Approx. 1 year	Construct Stage I concrete deck.	Safe boat access between Bents 1 and 2. No boat access under Span A or C.
Stage I (d)	Outside boating season[1]: Daytime work, approx. 2 weeks. Within boating season[1]: Night work[2], approx. 2 weeks.	Demolition of existing bridge.	No boat access during work times. Safe passage allowed outside work times between Bents 1 and 2. No boat access under Span A or C.

Stage 1(e)	Approx. 2 months	Continue demolition of existing bridge (no work over center channel).	Safe boat access between Bents 1 and 2. No boat access under Span A or C.
Stage II (a)	Approx. 5-6 months	Construct temporary access work pad and platforms on the east side of the new bridge. Install Bents 1 and 2 (Stage II). Set girders on Spans A and C. Construct concrete deck on Spans A and C.	Safe boat access between Bents 1 and 2. No boat access under Span A or C.
Stage II (b)	Outside boating season[1]: Daytime work, approx. 7 days. Within boating season[1]: Night work[2], approx. 5 nights.	Set girders on Span B.	Short, temporary channel closures of approx. 30 minutes.
Stage II (c)	Approx. 1 year	Construct Stage II concrete deck.	Safe boat access between Bents 1 and 2. No boat access under Span A or C.
Stage II (d)	Approx. 4 months	Demolish temporary work access pads and platforms.	Safe boat access between Bents 1 and 2. No boat access under Span A or C.
1. Boating season is defined here as between Labor Day and Memorial Day. 2. Night work is defined here as between the hours of 7:00 pm and 7:00 am.			

9) Time Restrictions

The Contractor will facilitate the following coordination of construction activities with required time sensitive restrictions associated with implementation of the Navigation (i.e., recreational boating) Safety Plan:

- Construction Operations: Construction operations shall be restricted to the time restrictions listed in the R-5100A Transportation Management Plan (Sheet No. TMP-1C)
- Boater Safety System: operational throughout the project construction operations
- Repairs: as needed (anytime 24 hours per day, 7 days per week)

10) Staging Plan

The Contractor will maintain one safe open recreational boating channels open at all times, apart from short periods when the channel must be closed for specific construction or demolition activities (Table 1). The Contractor will keep the safe open recreational boating channels open to boater traffic and will be responsible for shifting of floating barricades prior to commencing work within a construction area.

To delineate safe access, green solar lights buoys will be installed on each side of the approved safe boat access channel for boaters upstream and downstream of the project construction areas; white solar lights "Slow No Wake" buoys will be installed across the width of the safe open recreational boating channel, approximately 150 ft. upstream and downstream of either end of the safe open recreational boating channel; and red solar lights "boats keep out" buoys will be installed to delineate the limits of the construction work area(s) and to identify navigation hazard bents located within the safe boat access channel.

a) Staging Area for Contractor's Equipment & Materials

The Contractor is responsible for procuring offsite staging locations and meeting all requirements of the respective property owner(s).

11) Standards

- NCDOT Standard Specification for Roads and Structures, January 2018
- AASHTO Guide Design Specification for Bridge Temporary Works
- Occupational Safety and Health Act (OSHA 29-CFR 1910-1926)

12) Conclusion

The proposed project (R-5100A, WBS 41890.3.3) will replace the existing Bridge 480056 carrying SR 1109 over the Catawba River (Lake Norman) with a new bridge on existing alignment. The proposed new bridge will meet current NCDOT bridge design standards. The proposed project's construction activities will have an impact on recreational boater traffic on Lake Norman. This document outlines the requirements for notification and protection of boaters and the general scope of work that will impact Lake Norman. A system of buoys and marine safety lights will be employed to protect recreational boater traffic from the work area construction activities. A safe open recreational boating channel will be maintained during construction, with the exception of brief periods when access under the bridge must be prohibited for safety. Vertical clearance will not be reduced below those present in the existing conditions. Notification placards describing construction activities and this Navigation Safety Plan will be placed, in duplicate, at ten public boat access ramps to Lake Norman.

Mitigation

ROY COOPER
Governor
ELIZABETH S. BISER
Secretary
MARC RECKTENWALD
Director

NORTH CAROLINA
Environmental Quality

April 12, 2024

Mr. Jamie Lancaster, P.E.
Environmental Analysis Unit
North Carolina Department of Transportation
Mail Service Center 1598
Raleigh, North Carolina 27699-1598

Dear Mr. Lancaster:

Subject: Mitigation Acceptance Letter: **TIP R-5100A**, SR 1109 (Williamson Road) Widening from I-77 to SR 1100 (Brawley School Road), Iredell County

The purpose of this letter is to notify you that the Division of Mitigation Services (DMS) will provide the mitigation for the subject project. Based on the information supplied by you on April 12, 2024, the impacts are located in CU 03050101 of the Catawba River basin as follows:

Stream and Wetlands	River Basin	CU Location	Eco-Region	Stream			Wetlands		
				Cold	Cool	Warm	Riparian	Non-Riparian	Coastal Marsh
Impacts	Catawba	03050101	CP	0	0	167.000	0.080	0	0

*Some of the impacts may be proposed to be mitigated at various ratios. See permit application for details. DMS will provide the amount of stream and wetland mitigation included in the environmental permits.

All buffer mitigation requests and approvals are administrated through the Riparian Restoration Buffer Fund. The NCDOT will be responsible to ensure that appropriate compensation for the buffer mitigation will be provided in the agreed upon method of fund transfer. Upon receipt of the NCDWR's Buffer Authorization Certification, DMS will transfer funds from the NCDOT Stream and Wetland Mitigation Fund into the Riparian Restoration Buffer Fund. Upon completion of transfer payment, NCDOT will have completed its riparian buffer mitigation responsibility for TIP R-5100A. Subsequently, DMS will conduct a review of current NCDOT ILF Program mitigation projects in the river basin to determine if available buffer mitigation credits exist. If there are buffer mitigation credits available, then the Riparian Restoration Buffer Fund will purchase the appropriate amount of buffer mitigation credits from NCDOT ILF Program.

Buffer	River Basin	CU	Eco-Region	Buffer Impacts		
				Zone 1	Zone 2	TOTAL
Impacts	Catawba	03050101	SP	10,509.000	7,360.000	17,869.000

The impacts and associated mitigation needs were not projected by the NCDOT in the 2024 impact data. DMS commits to implementing sufficient compensatory mitigation credits to offset the impacts associated with this project as determined by the regulatory agencies using the timeline listed in Section F.3.c.iii of the In-Lieu Fee Instrument dated July 28, 2010. If the above referenced impact amounts are revised, then this mitigation acceptance letter will no longer be valid and a new mitigation acceptance letter will be required from NCDEQ-DMS.

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

Sincerely,

Elizabeth Harmon

Elizabeth A. Harmon
DMS NCDOT ILF Coordinator

cc: Mr. Monte Matthews, USACE – Raleigh Regulatory Field Office
Ms. Amy Chapman, NCDWR
Mr. Brad Chilton, NCDOT
File: R-5100A

Permit Drawings

North Carolina Department of Transportation

Highway Stormwater Program STORMWATER MANAGEMENT PLAN

FOR NCDOT PROJECTS

(Version 3.00; Released August 2021)

WBS Element: 41890.1. **TIP/Proj No:** R-5100A **County(ies):** Iredell

General Project Information

WBS Element:	41890.1.	**TIP Number:**	R-5100A	**Project Type:**	Roadway Widening	**Date:**	10/11/2023
NCDOT Contact:	Brook Anderson, PE			**Contractor / Designer:**	VHB		
	Address: 1000 Birch Ridge Drive Raleigh, NC 27610			**Address:**	Venture 1 940 Main Campus Drive, Suite 500 Raleigh, NC 27606		
	Phone: 919-706-6706			**Phone:**	919-741-5779		
	Email: beanderson@ncdot.gov			**Email:**	bbarham@vhb.com		
City/Town:	Mooresville			**County(ies):**	Iredell		
River Basin(s):	Catawba			**CAMA County?**	No		
Wetlands within Project Limits?	Yes						

Project Description

Project Length (lin. miles or feet):	2.40	**Surrounding Land Use:**	Residential, Urban					
	Proposed Project				**Existing Site**			
Project Built-Upon Area (ac.)	25.9	ac.			16.0	ac.		
Typical Cross Section Description:	4@ 12' lanes with 8.5' median, 10' sidewalk and variable shoulder width				2@ 12' lanes with a bi-directional continuous left turn lane and variable shoulder width			
Annual Avg Daily Traffic (veh/hr/day):	Design/Future:	34700	Year:	2040	Existing:	27100	Year:	2015

General Project Narrative: (Description of Minimization of Water Quality Impacts)

This project proposes the widening of Williamson Rd (SR 1109) from I-77 to Brawley School Rd (SR 1100) in Iredell County. The existing roadway will be widened with proposed C&G with sidewalk behind the curb. All proposed outfalls within the project limits will utilize Rip Rap Outlet pads to provide energy dissipation and lessen erosive velocities. The existing bridge over I-77 will be widened to accomodate the additional lanes and proposed C&G. The existing bridge over Lake Norman (5@45' reinforced concrete decking, on I beams with concrete caps) will be replaced with a 3@ 80' 45" prestressed girder bridge with 4'-0" Caps. To minimize surface water impacts to Lake Norman, the fill slopes on the causeway were steepened to 1.75:1 from 1 foot above the full pond elevation. This project requires ditches through the buffers on the RT and LT of -L- at each end of the causeway that crosses Lake Norman. For the begin bridge LT ditch outlet, treatment was able to be achieved for approximately 90' by flattening the grass-lined ditch to a 0.003 ft/ft slope. Likewise, treatment was achieved at the end bridge LT ditch outlet for approximately 20' in BZ 2 with the same approach. It was not practicable to meet treatment requirements in the other quadrants due to required ditch grades and the necessary addition of rip rap to acheive non-erosive velocities.

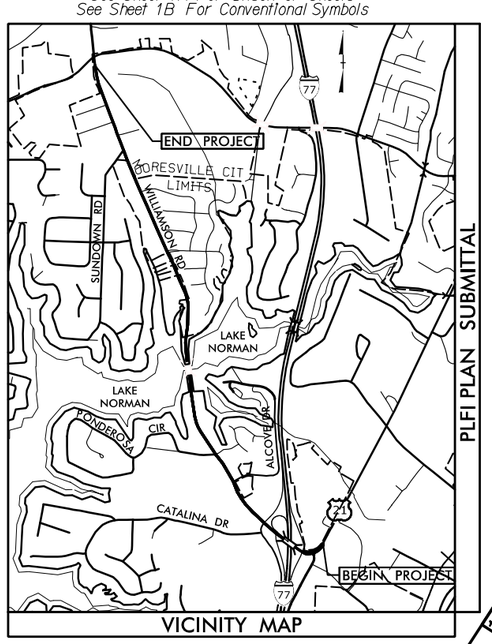
Waterbody Information

Surface Water Body (1):	Catawba River (Lake Norman below elevation 760)		**NCDWR Stream Index No.:**	11-104-(02)		
NCDWR Surface Water Classification for Water Body		**Primary Classification:**	Water Supply IV (WS-IV)	Class B	Critical Area (CA)	
		Supplemental Classification:				
Other Stream Classification:	None					
Impairments:	None					
Aquatic T&E Species?	No	Comments:				
NRTR Stream ID:	Lake Norman/Reeds Creek			**Buffer Rules in Effect:**	Catawba	
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)						

09/08/99

TIP PROJECT: R-5100A

See Sheet 1A For Index of Sheets
See Sheet 1B For Conventional Symbols



VICINITY MAP

PLFI PLAN SUBMITTAL

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PERMIT DRAWING
SHEET 1 OF 10

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-5100A	1	

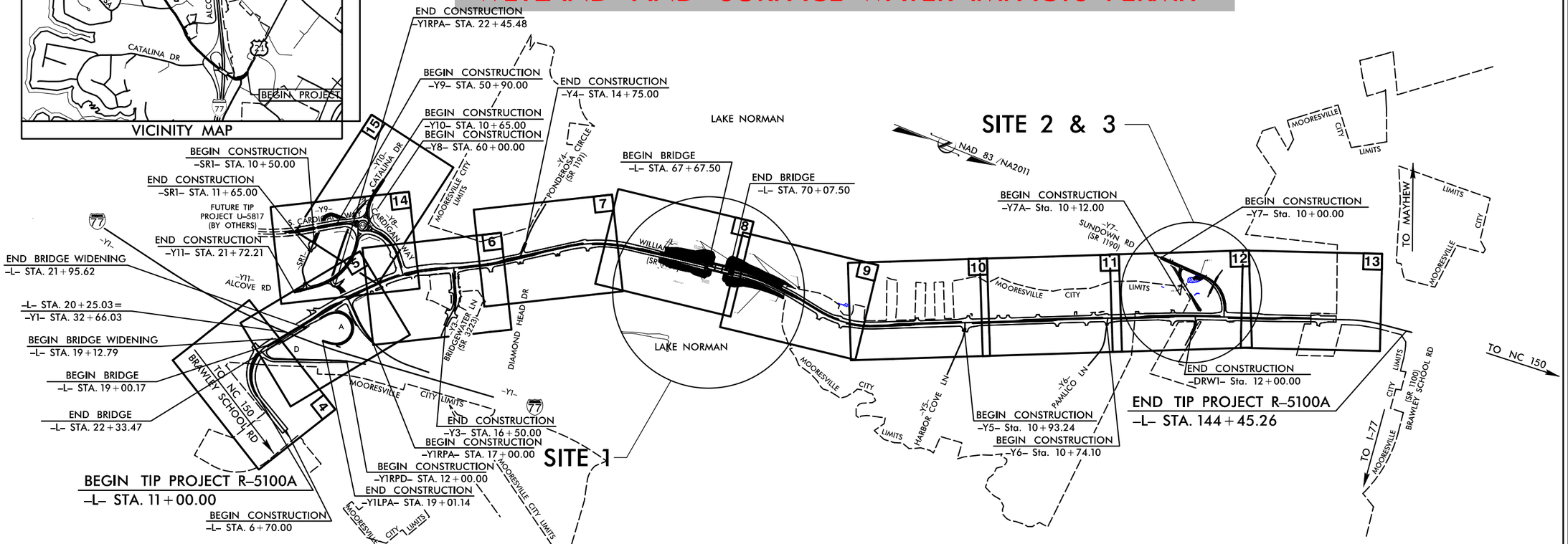
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
41890.1.2	N/A	P.E.
41890.2.3	N/A	R / W
41890.2.6	N/A	UTILITIES

IREDELL COUNTY

LOCATION: WILLIAMSON RD (SR 1109) FROM I-77 TO BRAWLEY SCHOOL ROAD (SR 1100).

TYPE OF WORK: WIDENING, GRADING, DRAINAGE, PAVING, STRUCTURES, SIGNALS AND PAVEMENT MARKINGS

WETLAND AND SURFACE WATER IMPACTS PERMIT



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

CONTRACT:

GRAPHIC SCALES

PLANS 50 25 0 50 100

PROFILE (HORIZONTAL) 50 25 0 50 100

PROFILE (VERTICAL) 5 2.5 0 5 10

DESIGN DATA

ADT 2024 = 27,100
ADT 2044 = 34,700
K = 10
D = 55
T = 4 % *
V = 50 MPH
* TTST = 1% DUAL = 3%
FUNC CLASS = MAJOR COLLECTOR SUBREGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY PROJECT	–	*2.429 mi*
LENGTH BRIDGE PROJECT	–	*0.099 mi*
TOTAL LENGTH PROJECT	–	*2.528 mi*

NCDOT CONTACT: ***VERROL McLEARY***
PROJECT MANAGER – PMU DIVISIONS 11-14

Prepared In the Office of:

LOCHNER
H. W. LOCHNER, INC.
2840 PLAZA PLACE, SUITE 202
RALEIGH, NC 27612
(919)571-7111
NC License Number F-0159

VHB Engineering NC, P.C. (C-3705)
940 Main Campus Drive, Suite 500
Raleigh, NC 27606

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: DECEMBER 20, 2019

LETTING DATE: JULY 16, 2024

CHRISTINA YOKELEY, PE
PROJECT ENGINEER

REID CROSSER
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

P.E.
SIGNATURE:

ROADWAY DESIGN ENGINEER

P.E.
SIGNATURE:

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •

10:41:15 AM
R:\Hydraulics\PERMITS_Environmental\Drawings\Surface Water Impacts\R5100A_PRM_TSH_SW.dgn
bdeveau

PROJECT REFERENCE NO.	SHEET NO.
R-5100A	8

LOCHNER
H. W. LOCHNER, INC.
2840 PLAZA PLACE, SUITE 202
RALEIGH, NC 27612
(919)571-7111
NC License Number F-0159

VHB Engineering NC, P.C. (C-3705)
940 Main Campus Drive, Suite 500
Raleigh, NC 27606

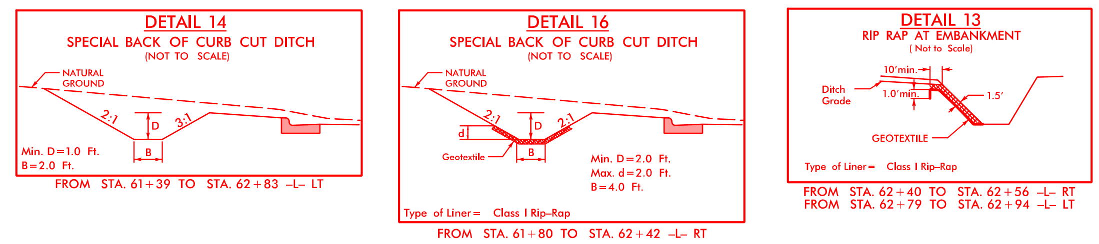
R/W SHEET NO.

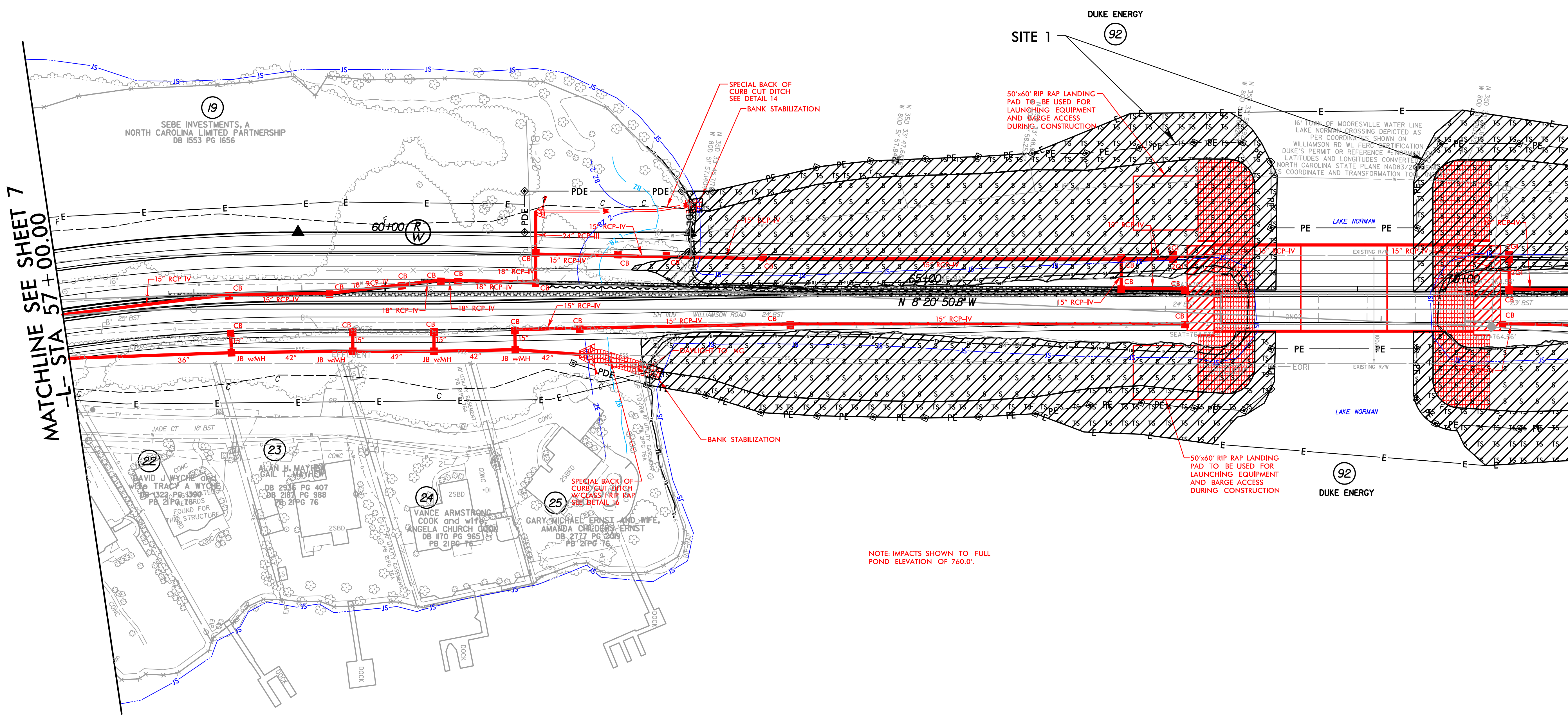
ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NOTE: TIE ALL PROPOSED CURB & GUTTER AND SIDEWALK TO EXISTING UNLESS OTHERWISE SHOWN.

PERMIT DRAWING SHEET 2 OF 10





DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

GRAPHIC SCALE (25' 0' 50')

INSET SCALE (10' 0' 20')

5/14/99

LOCHNER
H. W. LOCHNER, INC.
2840 PLAZA PLACE, SUITE 202
RALEIGH, NC 27612
(919)571-7111
NC License Number F-0159

VHB Engineering NC, P.C. (C-3705)
940 Main Campus Drive, Suite 500
Raleigh, NC 27606

PROJECT REFERENCE NO.	SHEET NO.
R-5100A	8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

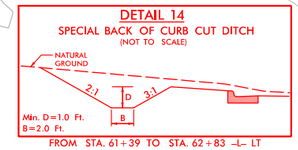
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NOTE: TIE ALL PROPOSED CURB & GUTTER AND SIDEWALK TO EXISTING UNLESS OTHERWISE SHOWN.

NAD 83/2011

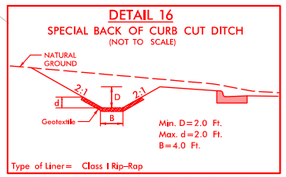
PERMIT DRAWING SHEET 3 OF 10

DETAIL 14
SPECIAL BACK OF CURB CUT DITCH
(NOT TO SCALE)



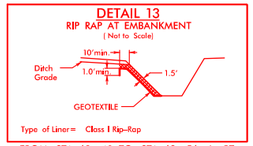
FROM STA. 61+39 TO STA. 62+83 -L- LT

DETAIL 16
SPECIAL BACK OF CURB CUT DITCH
(NOT TO SCALE)



Type of Liner= Class I Rip-Rap
FROM STA. 61+80 TO STA. 62+42 -L- RT

DETAIL 13
RIP RAP AT EMBANKMENT
(Not to Scale)



Type of Liner= Class I Rip-Rap
FROM STA. 62+40 TO STA. 62+56 -L- RT
FROM STA. 62+79 TO STA. 62+94 -L- LT

MATCHLINE SEE SHEET 7
-L- STA 57+00.00

MATCHLINE SEE SHEET 9
-L- STA 71+00.00

DUKE ENERGY
SITE 1
92

SPECIAL BACK OF CURB CUT DITCH SEE DETAIL 14

BANK STABILIZATION

50'x60' RIP RAP LANDING PAD TO BE USED FOR LAUNCHING EQUIPMENT AND BARGE ACCESS DURING CONSTRUCTION

19 SEBE INVESTMENTS, A NORTH CAROLINA LIMITED PARTNERSHIP DB 1553 PG 1656

22 DAVID J. WYCHE and wife TRACY A. WYCHE DB 1322 PG 1390 PB 21PG 76

23 ALAN H. MAYHEW GAIL T. MAYHEW DB 2936 PG 407 DB 2187 PG 988 PB 21PG 76

24 VANCE ARMSTRONG COOK and WIFE, ANGELA CHURCH COOK DB 1170 PG 965 & PB 21PG 76

25 GARY MICHAEL ERNST AND WIFE, AMANDA CHILDERS ERNST DB 2777 PG 2019 PB 21PG 76

60+00 R/W

65+00 N 8° 20' 50.8" W

LAKE NORMAN

NOTE: IMPACTS SHOWN TO FULL POND ELEVATION OF 760.0'.

DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

25' 0' 50'
GRAPHIC SCALE

10' 0' 20'
INSET SCALE

10:34:28 AM
J:\Environmental Projects\Surface Water Impacts\R5100A_PRM_SW_PSH_08_CON.dgn
bdeaton

LOCHNER

H. W. LOCHNER, INC.
2840 PLAZA PLACE, SUITE 202
RALEIGH, NC 27612
(919)571-7111

NC License Number F-0159

VHB Engineering NC, P.C. (C-3705)
940 Main Campus Drive, Suite 500
Raleigh, NC 27606

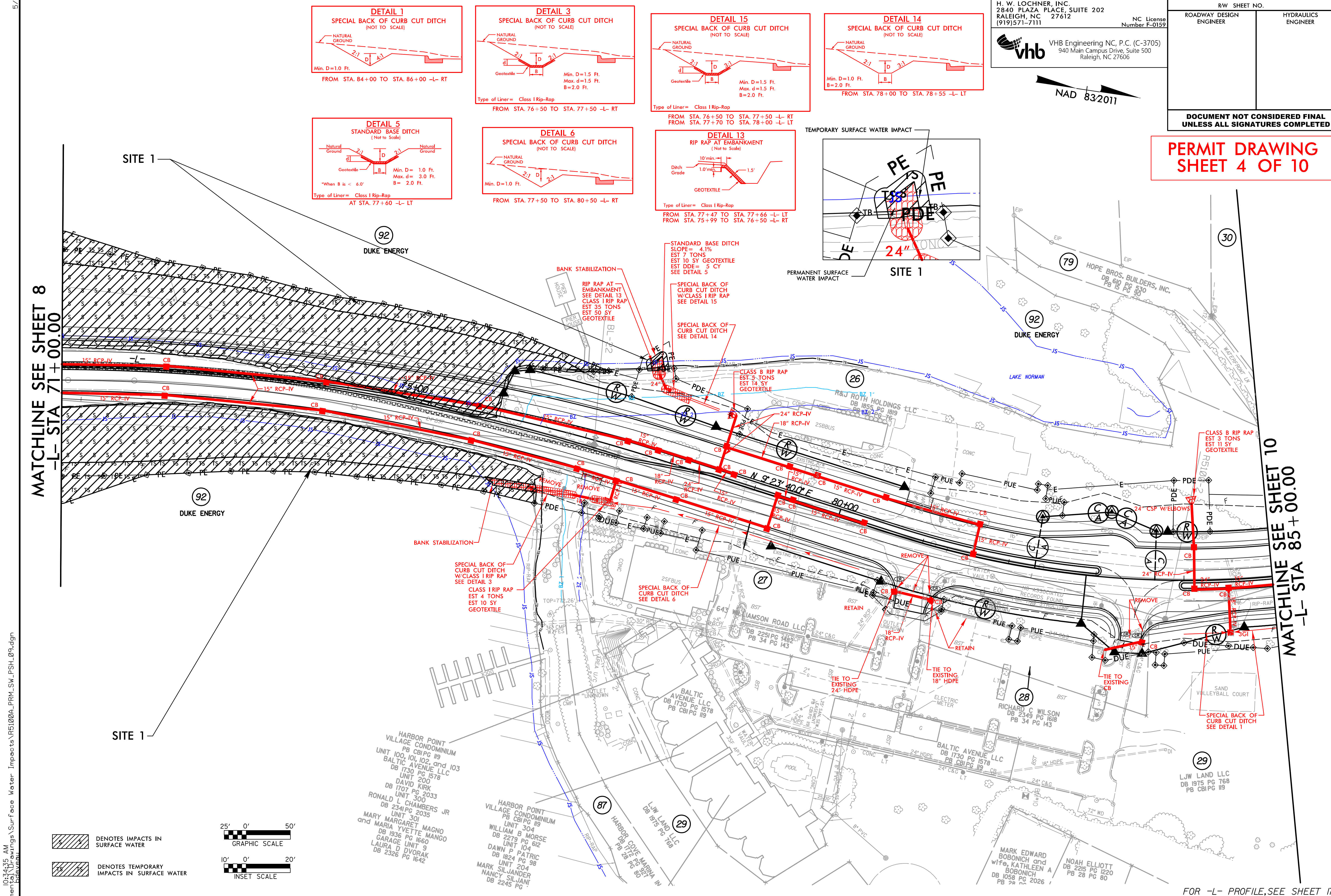
PROJECT REFERENCE NO.	SHEET NO.
R-5100A	9

R/W SHEET NO.

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING SHEET 4 OF 10



NAD 83/2011
DETAIL 1
SPECIAL BACK OF CURB CUT DITCH
(NOT TO SCALE)
Min. D=1.0 Ft.
FROM STA. 84+00 TO STA. 86+00 -L- RT
DETAIL 3
SPECIAL BACK OF CURB CUT DITCH
(NOT TO SCALE)
Min. D=1.5 Ft.
Max. d=1.5 Ft.
B=2.0 Ft.
Type of Liner= Class I Rip-Rap
FROM STA. 76+50 TO STA. 77+50 -L- RT
DETAIL 15
SPECIAL BACK OF CURB CUT DITCH
(NOT TO SCALE)
Min. D=1.5 Ft.
Max. d=1.5 Ft.
B=2.0 Ft.
Type of Liner= Class I Rip-Rap
FROM STA. 76+50 TO STA. 77+50 -L- RT
FROM STA. 77+70 TO STA. 78+00 -L- LT
DETAIL 14
SPECIAL BACK OF CURB CUT DITCH
(NOT TO SCALE)
Min. D=1.0 Ft.
B=2.0 Ft.
FROM STA. 78+00 TO STA. 78+55 -L- LT
DETAIL 5
STANDARD BASE DITCH
(Not to Scale)
Min. D= 1.0 Ft.
Max. d= 3.0 Ft.
B= 2.0 Ft.
Type of Liner= Class I Rip-Rap
AT STA. 77+60 -L- LT
DETAIL 6
SPECIAL BACK OF CURB CUT DITCH
(NOT TO SCALE)
Min. D=1.0 Ft.
FROM STA. 77+50 TO STA. 80+50 -L- RT
DETAIL 13
RIP RAP AT EMBANKMENT
(Not to Scale)
Type of Liner= Class I Rip-Rap
FROM STA. 77+47 TO STA. 77+66 -L- LT
FROM STA. 75+99 TO STA. 76+50 -L- RT
TEMPORARY SURFACE WATER IMPACT
PERMANENT SURFACE WATER IMPACT
SITE 1
SITE 1
SITE 1
MATCHLINE SEE SHEET 8 -L- STA 71+00.00
MATCHLINE SEE SHEET 10 -L- STA 85+00.00
DUKE ENERGY
LAKE NORMAN
BANK STABILIZATION
STANDARD BASE DITCH
SLOPE= 4.1%
EST 7 TONS
EST 10 SY GEOTEXTILE
EST DDE= 5 CY
SEE DETAIL 5
RIP RAP AT EMBANKMENT
SEE DETAIL 13
CLASS I RIP RAP
EST 35 TONS
EST 50 SY
GEOTEXTILE
SPECIAL BACK OF CURB CUT DITCH W/CLASS I RIP RAP
SEE DETAIL 15
SPECIAL BACK OF CURB CUT DITCH
SEE DETAIL 14
CLASS B RIP RAP
EST 5 TONS
EST 14 SY
GEOTEXTILE
CLASS B RIP RAP
EST 3 TONS
EST 11 SY
GEOTEXTILE
SPECIAL BACK OF CURB CUT DITCH W/CLASS I RIP RAP
SEE DETAIL 3
CLASS I RIP RAP
EST 4 TONS
EST 10 SY
GEOTEXTILE
SPECIAL BACK OF CURB CUT DITCH
SEE DETAIL 6
SPECIAL BACK OF CURB CUT DITCH
SEE DETAIL 1
N 9°23'40.0" E
HOPE BROS. BUILDERS, INC.
R&J ROTH HOLDINGS LLC
LJW LAND LLC
BALTIC AVENUE LLC
RICHARD C WILSON
HARBOR POINT VILLAGE CONDOMINIUM
HARBOR COVE MARINA INC
MARK EDWARD BOBONICH and wife, KATHLEEN A BOBONICH
NOAH ELLIOTT
TIE TO EXISTING 18" HDPE
TIE TO EXISTING 24" HDPE
TIE TO EXISTING CB
DENOTES IMPACTS IN SURFACE WATER
DENOTES TEMPORARY IMPACTS IN SURFACE WATER
GRAPHIC SCALE
INSET SCALE
FOR -L- PROFILE, SEE SHEET 17

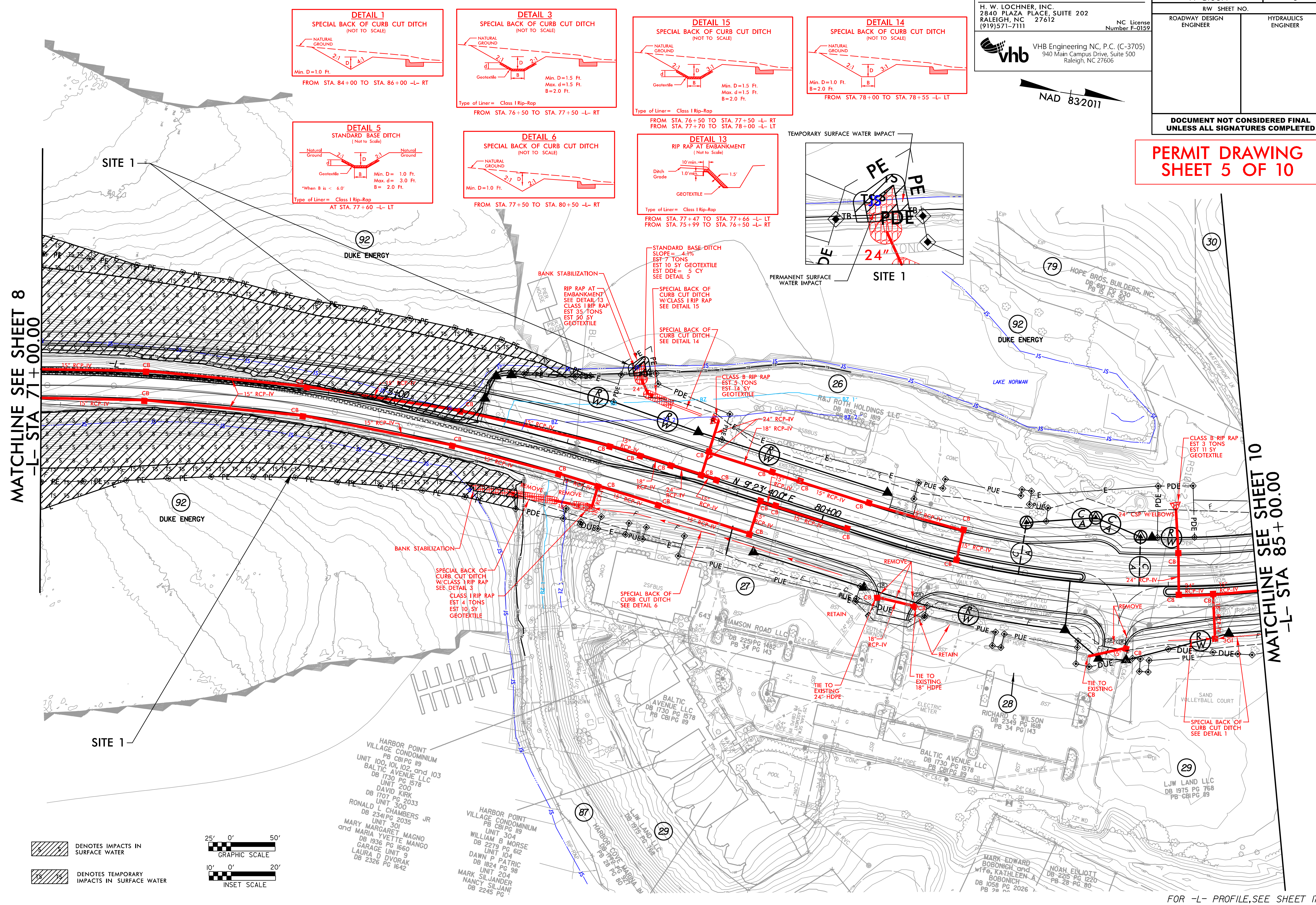
LOCHNER
H. W. LOCHNER, INC.
2840 PLAZA PLACE, SUITE 202
RALEIGH, NC 27612
(919)571-7111
NC License Number F-0159

vhb VHB Engineering NC, P.C. (C-3705)
940 Main Campus Drive, Suite 500
Raleigh, NC 27606

PROJECT REFERENCE NO.	SHEET NO.
R-5100A	9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 5 OF 10



DETAIL 1
SPECIAL BACK OF CURB CUT DITCH (NOT TO SCALE)
Min. D=1.0 Ft.
FROM STA. 84+00 TO STA. 86+00 -L- RT
DETAIL 3
SPECIAL BACK OF CURB CUT DITCH (NOT TO SCALE)
Min. D=1.5 Ft. Max. d=1.5 Ft. B=2.0 Ft.
Type of Liner= Class I Rip-Rap
FROM STA. 76+50 TO STA. 77+50 -L- RT
DETAIL 15
SPECIAL BACK OF CURB CUT DITCH (NOT TO SCALE)
Min. D=1.5 Ft. Max. d=1.5 Ft. B=2.0 Ft.
Type of Liner= Class I Rip-Rap
FROM STA. 76+50 TO STA. 77+50 -L- RT
FROM STA. 77+70 TO STA. 78+00 -L- LT
DETAIL 14
SPECIAL BACK OF CURB CUT DITCH (NOT TO SCALE)
Min. D=1.0 Ft. B=2.0 Ft.
FROM STA. 78+00 TO STA. 78+55 -L- LT
DETAIL 5
STANDARD BASE DITCH (Not to Scale)
Min. D= 1.0 Ft. Max. d= 3.0 Ft. B= 2.0 Ft.
Type of Liner= Class I Rip-Rap
AT STA. 77+60 -L- LT
DETAIL 6
SPECIAL BACK OF CURB CUT DITCH (NOT TO SCALE)
Min. D=1.0 Ft.
FROM STA. 77+50 TO STA. 80+50 -L- RT
DETAIL 13
RIP RAP AT EMBANKMENT (Not to Scale)
Type of Liner= Class I Rip-Rap
FROM STA. 77+47 TO STA. 77+66 -L- LT
FROM STA. 75+99 TO STA. 76+50 -L- RT
NAD 83/2011
TEMPORARY SURFACE WATER IMPACT
PERMANENT SURFACE WATER IMPACT
SITE 1
MATCHLINE -L- STA 71+00.00 SEE SHEET 8
MATCHLINE -L- STA 85+00.00 SEE SHEET 10
DUKE ENERGY
LAKE NORMAN
BANK STABILIZATION
STANDARD BASE DITCH SLOPE= 4.1% EST 7 TONS EST 10 SY GEOTEXTILE EST DDE= 5 CY SEE DETAIL 5
RIP RAP AT EMBANKMENT SEE DETAIL 13 CLASS I RIP RAP EST 35 TONS EST 50 SY GEOTEXTILE
SPECIAL BACK OF CURB CUT DITCH W/CLASS I RIP RAP SEE DETAIL 15
SPECIAL BACK OF CURB CUT DITCH SEE DETAIL 14
CLASS B RIP RAP EST 5 TONS EST 14 SY GEOTEXTILE
CLASS B RIP RAP EST 3 TONS EST 11 SY GEOTEXTILE
SPECIAL BACK OF CURB CUT DITCH W/CLASS I RIP RAP SEE DETAIL 3
CLASS I RIP RAP EST 4 TONS EST 10 SY GEOTEXTILE
SPECIAL BACK OF CURB CUT DITCH SEE DETAIL 6
SPECIAL BACK OF CURB CUT DITCH SEE DETAIL 1
N 9°23'40.0" E
HOPE BROS. BUILDERS, INC.
R&J ROTH HOLDINGS LLC
HARBOR POINT VILLAGE CONDOMINIUM
BALTIC AVENUE LLC
RICHARD C. WILSON
LJW LAND LLC
DENOTES IMPACTS IN SURFACE WATER
DENOTES TEMPORARY IMPACTS IN SURFACE WATER
GRAPHIC SCALE
INSET SCALE

FOR -L- PROFILE, SEE SHEET 17

5/14/99

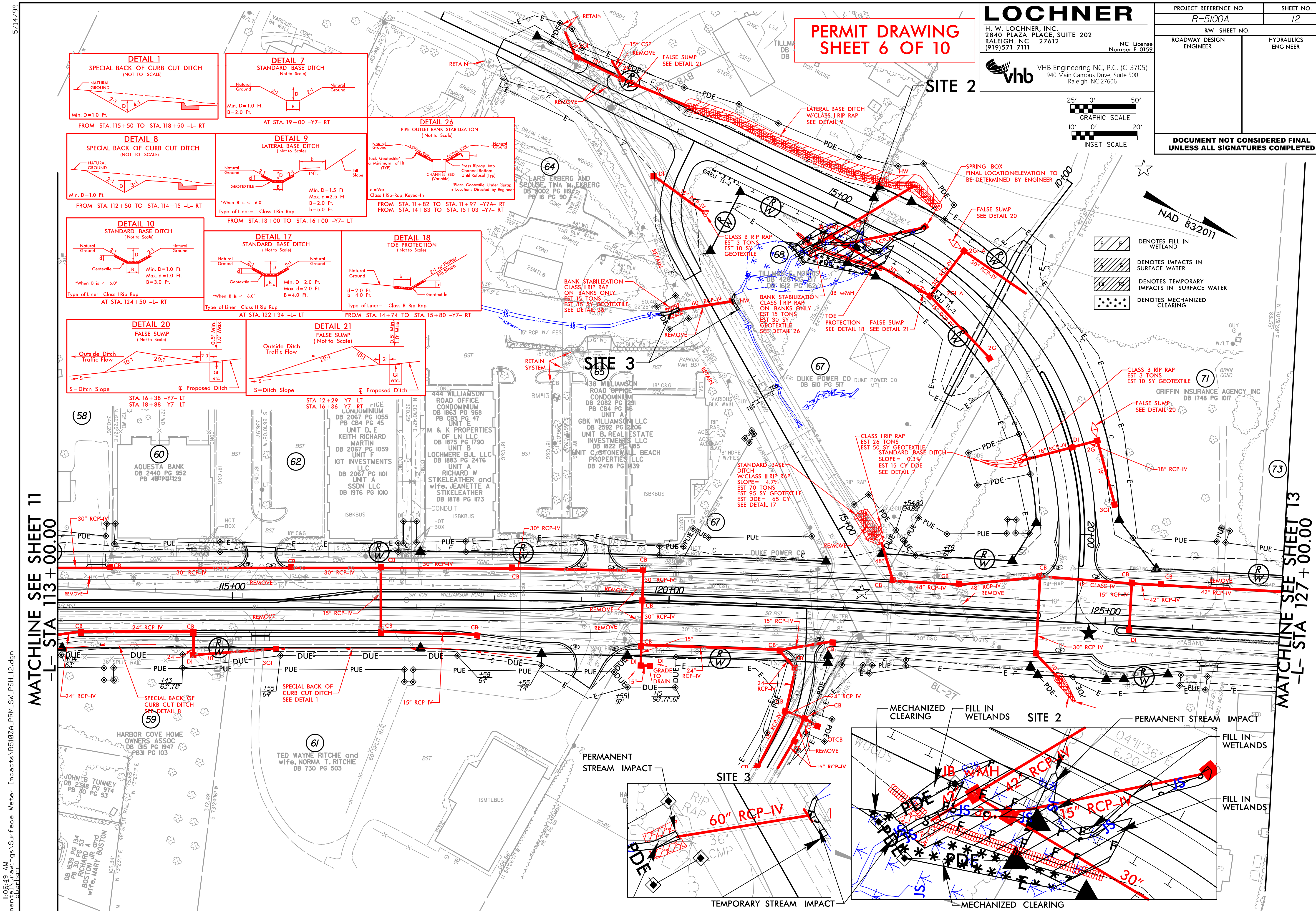
PERMIT DRAWING SHEET 6 OF 10

LOCHNER
H. W. LOCHNER, INC.
2840 PLAZA PLACE, SUITE 202
RALEIGH, NC 27612
(919)571-7111
NC License Number F-0159

VHB Engineering NC, P.C. (C-3705)
940 Main Campus Drive, Suite 500
Raleigh, NC 27606

PROJECT REFERENCE NO.	SHEET NO.
R-5100A	12
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



5/14/99

PERMIT DRAWING SHEET 7 OF 10

LOCHNER
H. W. LOCHNER, INC.
2840 PLAZA PLACE, SUITE 202
RALEIGH, NC 27612
(919)571-7111
NC License Number F-0159

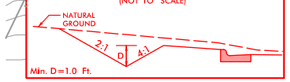
VHB Engineering NC, P.C. (C-3705)
940 Main Campus Drive, Suite 500
Raleigh, NC 27606

PROJECT REFERENCE NO.	SHEET NO.
R-5100A	12
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

25' 0' 50' GRAPHIC SCALE
10' 0' 20' INSET SCALE

DETAIL 1
SPECIAL BACK OF CURB CUT DITCH
(NOT TO SCALE)

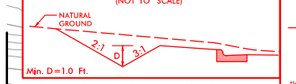


FROM STA. 115+50 TO STA. 118+50 –L– RT

DETAIL 7
STANDARD BASE DITCH
(Not to Scale)

AT STA. 19+00 –Y7– RT

DETAIL 8
SPECIAL BACK OF CURB CUT DITCH
(NOT TO SCALE)



FROM STA. 112+50 TO STA. 114+15 –L– RT

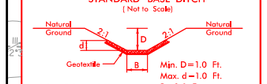
DETAIL 9
LATERAL BASE DITCH
(Not to Scale)

FROM STA. 13+00 TO STA. 16+00 –Y7– LT

DETAIL 26
PIPE OUTLET BANK STABILIZATION
(Not to Scale)

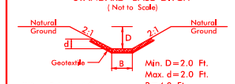
FROM STA. 11+82 TO STA. 11+97 –Y7A– RT
FROM STA. 14+83 TO STA. 15+03 –Y7– RT

DETAIL 10
STANDARD BASE DITCH
(Not to Scale)



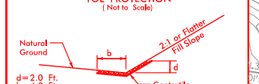
AT STA. 124+50 –L– RT

DETAIL 17
STANDARD BASE DITCH
(Not to Scale)



AT STA. 122+34 –L– LT

DETAIL 18
TOE PROTECTION
(Not to Scale)



FROM STA. 14+74 TO STA. 15+80 –Y7– RT

DETAIL 20
FALSE SUMP
(Not to Scale)

STA. 16+38 –Y7– LT
STA. 18+88 –Y7– LT

DETAIL 21
FALSE SUMP
(Not to Scale)

STA. 12+29 –Y7– LT
STA. 16+36 –Y7– RT

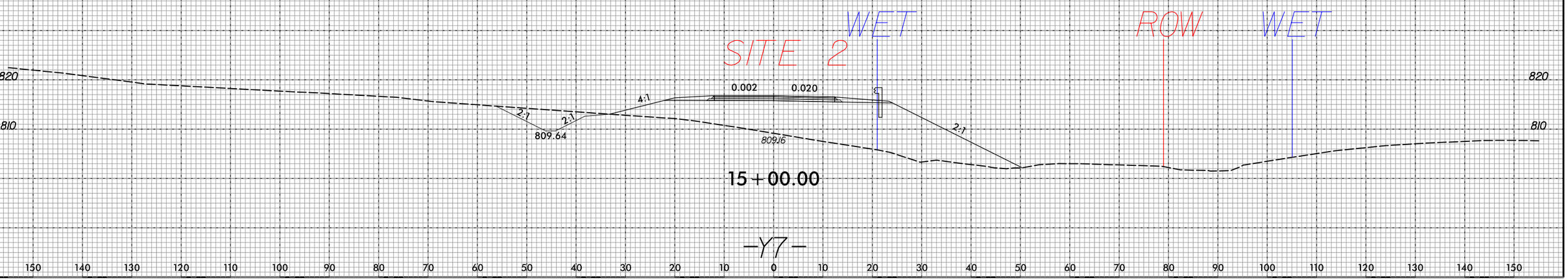
SITE 2
SITE 3

NAD 832011

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

MATCHLINE SEE SHEET 11 –L– STA 113+00.00
MATCHLINE SEE SHEET 13 –L– STA 127+00.00

PERMANENT STREAM IMPACT
TEMPORARY STREAM IMPACT
MECHANIZED CLEARING
FILL IN WETLANDS



6/23/16

	PROJ. REFERENCE NO.	SHEET NO.
0 5 10	R-5100A	X-97

PERMIT DRAWING
SHEET 8 OF 10

5/14/99

—L—
SR 1109
WILLIAMSON RD.

PERMIT DRAWING
SHEET 9 OF 10

LOCHNER
H. W. LOCHNER, INC.
2840 PLAZA PLACE, SUITE 202
RALEIGH, NC 27612
(919)571-7111
NC License Number F-0159

VHB Engineering NC, P.C. (C-3705)
940 Main Campus Drive, Suite 500
Raleigh, NC 27606

PROJECT REFERENCE NO.	SHEET NO.
R-5100A	16
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PI = 60+00.00
EL = 761.98'
VC = 600'
K = 124
DS = 55mph

PI = 68+75.00
EL = 779.95'
VC = 500'
K = 137
DS = 55mph

-L- STA 68+87.50=
LAKE NORMAN
ELEV.= 777.69'

(+)2.0539%
(-)11.5976%
(-)12.7817%
(+)2.0539%
(-)10.3%
(-)12%

BEGIN DITCH LT
STA=61+39.32
EL=760.02'

BEGIN DITCH RT
STA=61+79.96
EL=760.00'

END DITCH RT
STA=62+14.94
EL=759.26'

END DITCH LT
STA=62+53.12
EL=759.59'

LAKE NORMAN
MAX.POND ELEV.= 760.00'

LAKE NORMAN

1.5:1

1.5:1

FOR -L- PLAN,SEE SHEET 8

820
810
800
790
780
770
760
750
740
730
720

57 58 59 60 61 62 63 64 65 66 67 68 69 70 71

WETLAND AND SURFACE WATER IMPACTS SUMMARY

			WETLAND IMPACTS					SURFACE WATER IMPACTS				
Site No.	Station (From/To)	Structure Size / Type	Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
1	62+28/77+68 -L-	Roadway Fill						3.95	1.47			
1	62+28/77+68 -L-	Bank Stabilization						0.02	< 0.01			
2	14+71 to 16+02 -Y7-	42"/15" RCPs, Roadway Fill	0.06			0.02		0.01		167		
2	14+71 to 16+02 -Y7-	42"/15" RCPs Bank Stabilization						< 0.01	< 0.01	16	9	
3	11+84 to 12+18 -Y7A-	60" RCP							< 0.01		20	
3	11+84 to 12+18 -Y7A-	60" RCP Bank Stabilization						< 0.01		22		
TOTALS*:			0.06			0.02		3.99	1.48	205	29	0

*Rounded totals are sum of actual impacts

NOTES:

1. <0.01 acres of Permanent SW impacts for bridge interior bents at -L- 68+47.5 and 69+27.5
2. Impacts at Lake Norman (Site 1) were calculated based on a normal pool elevation of 760'.
3. Site 3 temporary channel impacts is comprised of 8 ft to SA and 12 ft to SB.

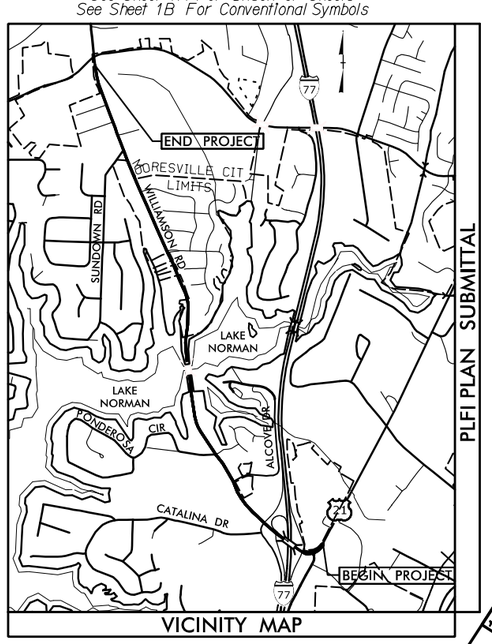
NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
4/22/2024
IREDELL
5100A
41890.1.2
SHEET 10 OF 10

Utility Drawings

09/08/99

TIP PROJECT: R-5100A

See Sheet 1A For Index of Sheets
See Sheet 1B For Conventional Symbols



VICINITY MAP

PLFI PLAN SUBMITTAL

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PERMIT DRAWING
SHEET 1 OF 4

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-5100A	1	

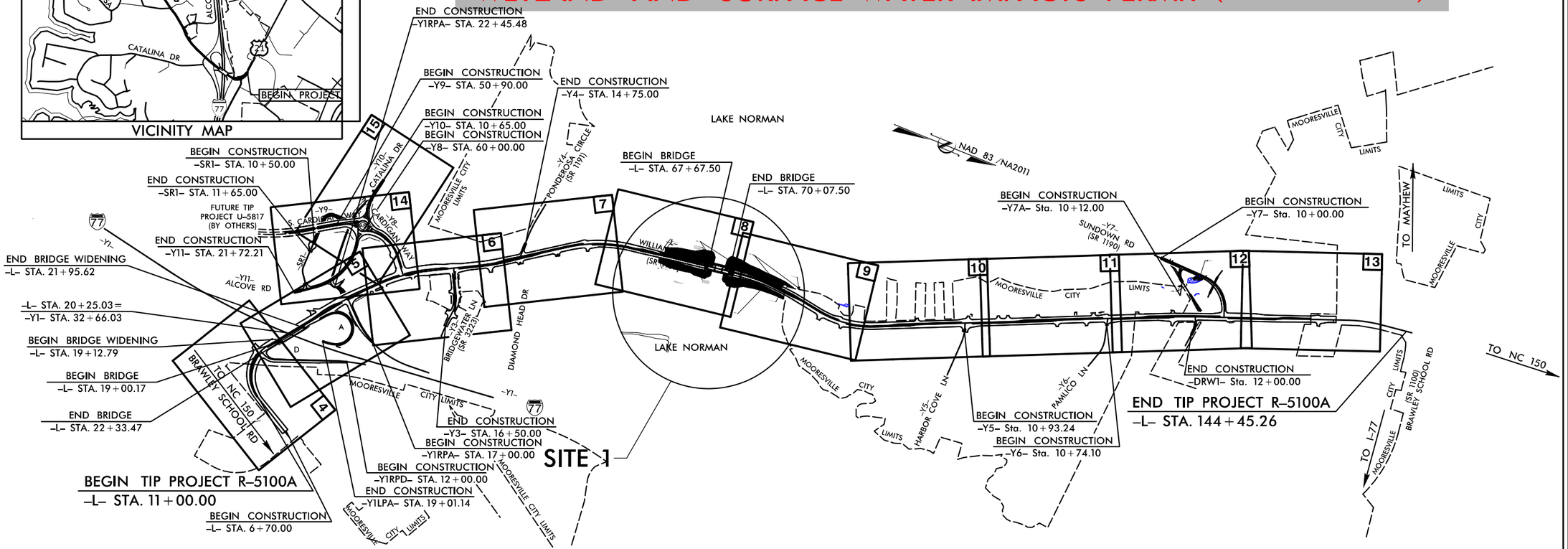
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
41890.1.2	N/A	P.E.
41890.2.3	N/A	R / W
41890.2.6	N/A	UTILITIES

IREDELL COUNTY

LOCATION: WILLIAMSON RD (SR 1109) FROM I-77 TO BRAWLEY SCHOOL ROAD (SR 1100).

TYPE OF WORK: WIDENING, GRADING, DRAINAGE, PAVING, STRUCTURES, SIGNALS AND PAVEMENT MARKINGS

WETLAND AND SURFACE WATER IMPACTS PERMIT (WET UTILITY)



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

CONTRACT:

GRAPHIC SCALES

PLANS 50 25 0 50 100

PROFILE (HORIZONTAL) 50 25 0 50 100

PROFILE (VERTICAL) 5 2.5 0 5 10

DESIGN DATA

ADT 2024 = 27,100
ADT 2044 = 34,700
K = 10
D = 55
T = 4 % *
V = 50 MPH
* TTST = 1% DUAL = 3%
FUNC CLASS = MAJOR COLLECTOR SUBREGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY PROJECT	–	*2.429 mi*
LENGTH BRIDGE PROJECT	–	*0.099 mi*
TOTAL LENGTH PROJECT	–	*2.528 mi*

NCDOT CONTACT: ***VERROL McLEARY***
PROJECT MANAGER – PMU DIVISIONS 11-14

Prepared In the Office of:

LOCHNER
H. W. LOCHNER, INC.
2840 PLAZA PLACE, SUITE 202
RALEIGH, NC 27612
(919)571-7111
NC License Number F-0159

vhb
VHB Engineering NC, P.C. (C-3705)
940 Main Campus Drive, Suite 500
Raleigh, NC 27606

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: DECEMBER 20, 2019

LETTING DATE: JULY 16, 2024

CHRISTINA YOKELEY, PE
PROJECT ENGINEER

REID CROSSER
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

P.E.
SIGNATURE:

ROADWAY DESIGN ENGINEER

P.E.
SIGNATURE:

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •

10:41:15 AM
R:\Hydraulics\PERMITS_Environmental\Drawings\Surface Water Impacts\R5100A_PRM_TSH_SW.dgn
bdeveau

RDY08

8/17/99

REVISIONS

NOTE:
THE ESTIMATED QUANTITY OF DUCTILE IRON WATER PIPE FITTINGS ON THIS PLAN SHEET IS 2400 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Dewberry

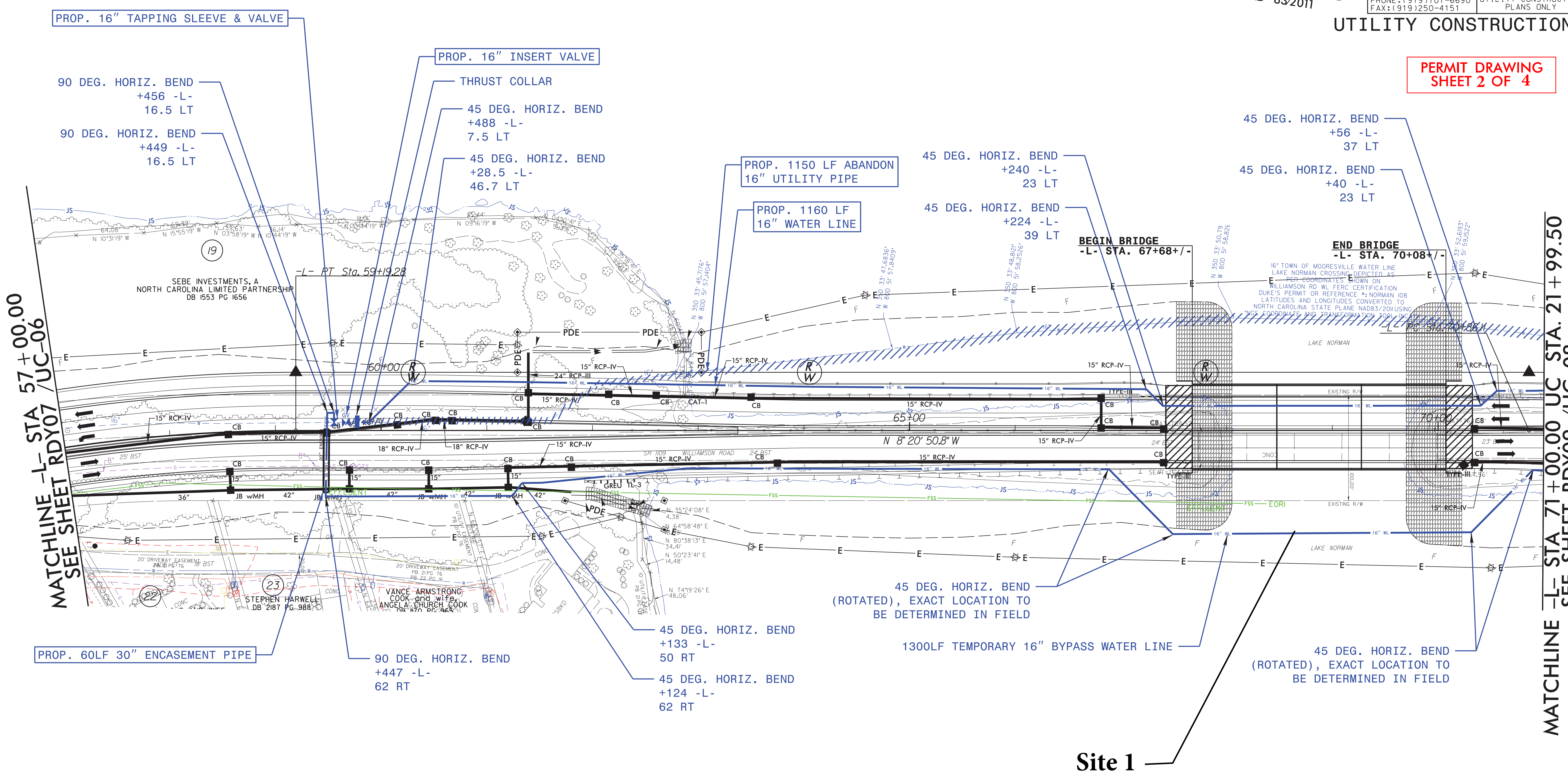
GRAPHIC SCALE
50 25 0 50 100
PLANS

PROJECT REFERENCE NO.	SHEET NO.
R-5100A	UC-07
DESIGNED BY:	
DRAWN BY:	
CHECKED BY:	
APPROVED BY:	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE:(919)707-6690 FAX:(919)250-4151	UTILITY CONSTRUCTION PLANS ONLY

NAD 83/2011

UTILITY CONSTRUCTION

PERMIT DRAWING SHEET 2 OF 4



RDY09

8/17/99

REVISIONS

NOTE:
THE ESTIMATED QUANTITY OF DUCTILE IRON WATER PIPE FITTINGS ON THIS PLAN SHEET IS 4500 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/2011

Dewberry
2610 WYCLIFF ROAD
SUITE 410
RALEIGH, NC 27607
PHONE: 919.881.0930
NC COA No. P-0929

GRAPHIC SCALE
50 25 0 50 100
PLANS

PROJECT REFERENCE NO.	SHEET NO.
R-5100A	UC-08
DESIGNED BY:	
DRAWN BY:	
CHECKED BY:	
APPROVED BY:	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE:(919)707-6690 FAX:(919)250-4151	UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION

PERMIT DRAWING SHEET 3 OF 4

MATCHLINE –L– STA. 71+00.00 UC STA. 21+99.50 SEE SHEET RDY08 /UC-07

MATCHLINE –L– STA 85+00.00 SEE SHEET RDY10 /UC-09

1220LF TEMPORARY 16" BYPASS WATER LINE

PROP. 1165 LF ABANDON 16" UTILITY PIPE

PROP. 1125 LF 16" WATER LINE

PROP. 6" VALVE

45 DEG. HORIZ. BEND +193 -L- 47.0 LT

45 DEG. HORIZ. BEND +205 -L- 39.0 LT

PROP. 16" TAPPING SLEEVE & VALVE

PROP. 95 LF 66" WATER LINE

45 DEG. HORIZ. BEND +190 -L- 49.0 RT

PROP. 30LF 30" ENCASEMENT PIPE

45 DEG. HORIZ. BEND +250 -L- 47.0 RT

45 DEG. HORIZ. BEND +243 -L- 54.0 RT

PROP. 80LF 12" ENCASEMENT PIPE

RIP RAP AT EMBANKMENT SEE DETAIL 13 CLASS I RIP RAP EST 35 TONS EST 50 SY GEOTEXTILE

SPECIAL BACK OF CURB CUT DITCH SEE DETAIL 14

-L- PT Sta. 77+95.22

-L- PC Sta. 80+68.50

CLASS B RIP RAP EST 5 TONS EST 14 SY GEOTEXTILE

RIP RAP AT EMBANKMENT SEE DETAIL 13 CLASS I RIP RAP EST 42 TONS EST 60 SY GEOTEXTILE

SPECIAL BACK OF CURB CUT DITCH W/CLASS I RIP RAP SEE DETAIL 3

CLASS I RIP RAP EST 4 TONS EST 10 SY GEOTEXTILE

R&J ROTH HOLDINGS LLC DB 1855 PG 1819 PB 38 PG 76

643 WILLIAMSON ROAD LLC DB 2251 PG 1482 PB 34 PG 143

LJW LAND LLC DB 1975 PG 768 PB CB1PG 119

LAKE NORMAN

TIE TO EXISTING 18" HDPE

TIE TO EXISTING 24" HDPE

TIE TO EXISTING CB

RETAIN

REMOVE

ELECTRIC METER

WETLAND AND SURACE WATER IMPACTS SUMMARY

			WETLAND IMPACTS					SURFACE WATER IMPACTS				
Site No.	Station (From/To)	Structure Size / Type	Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
1	66+85/70+90 -L- RT	Temporary 16" Bypass							< 0.01			
		Water Line										
TOTALS*:									< 0.01	0	0	0

*Rounded totals are sum of actual impacts

NOTES:

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
10/11/2023
IREDELL
5100A
41890.1.D1
SHEET 4 OF 4

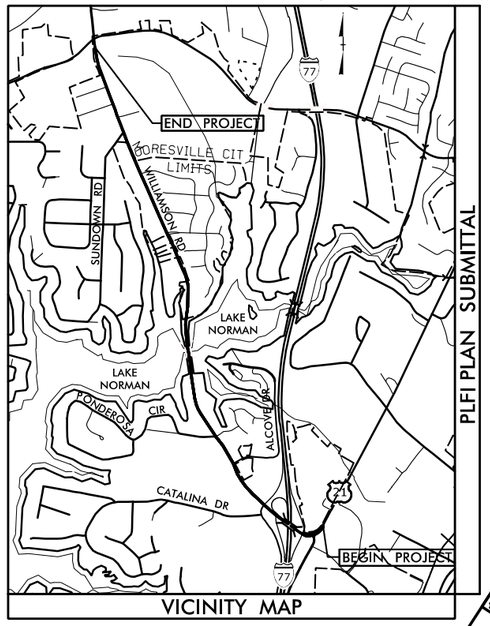
Buffer Drawings

09/08/99

TIP PROJECT: R-5100A

CONTRACT:

See Sheet 1A For Index of Sheets
See Sheet 1B For Conventional Symbols



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

IREDELL COUNTY

LOCATION: WILLIAMSON RD (SR 1109) FROM I-77 TO BRAWLEY SCHOOL ROAD (SR 1100).

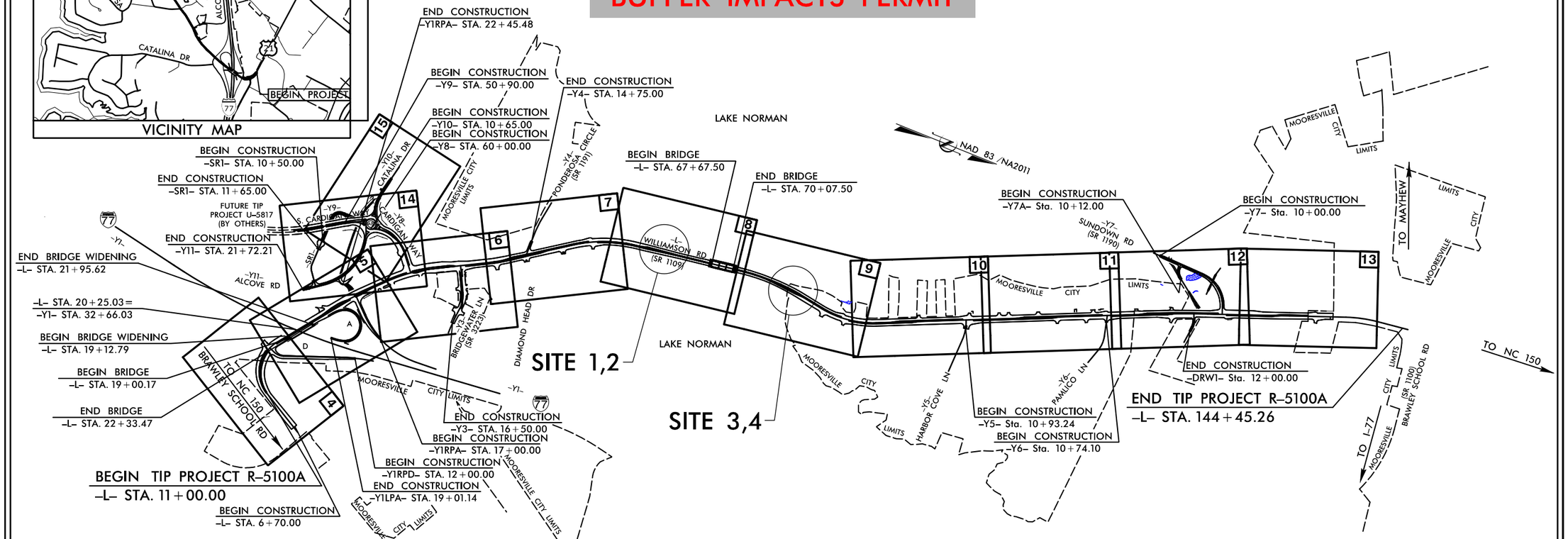
TYPE OF WORK: WIDENING, GRADING, DRAINAGE, PAVING, STRUCTURES, SIGNALS AND PAVEMENT MARKINGS

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-5100A	1	

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
41890.1.2	N/A	P.E.
41890.2.3	N/A	R/W
41890.2.6	N/A	UTILITIES

BUFFER DRAWING SHEET 1 OF 4

BUFFER IMPACTS PERMIT



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES

PLANS: 50 25 0 50 100

PROFILE (HORIZONTAL): 50 25 0 50 100

PROFILE (VERTICAL): 5 2.5 0 5 10

DESIGN DATA

ADT 2024 = 27,100
ADT 2044 = 34,700
K = 10
D = 55
T = 4 % *
V = 50 MPH
* TTST = 1% DUAL = 3%
FUNC CLASS = MAJOR COLLECTOR SUBREGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY PROJECT – 2.429 mi
LENGTH BRIDGE PROJECT – 0.099 mi
TOTAL LENGTH PROJECT – 2.528 mi

NCDOT CONTACT: ***VERROL McLEARY***
PROJECT MANAGER – PMU DIVISIONS 11-14

Prepared In the Office of:

LOCHNER
H. W. LOCHNER, INC.
2840 PLAZA PLACE, SUITE 202
RALEIGH, NC 27612
(919)571-7111
NC License Number F-0159

vhb
VHB Engineering NC, P.C. (C-3705)
940 Main Campus Drive, Suite 500
Raleigh, NC 27606

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: DECEMBER 20, 2019

LETTING DATE: JULY 16, 2024

CHRISTINA YOKELEY, PE
PROJECT ENGINEER

REID CROSSER
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

P.E.
SIGNATURE:

ROADWAY DESIGN ENGINEER

P.E.
SIGNATURE:

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •

2:36:31 PM
R:\Hydraulics\PERMITS_Environmental\Drawings\Buffer Impacts\R5100A_PRM_TSH_BUFFER.dgn
bdeveau

5/14/99

100' 0' 200'
INSET SCALE

50 0' 100'
GRAPHIC SCALE

LOCHNER
H. W. LOCHNER, INC.
2840 PLAZA PLACE, SUITE 202
RALEIGH, NC 27612
(919)571-7111
NC License Number F-0159

VHB Engineering NC, P.C. (C-3705)
940 Main Campus Drive, Suite 500
Raleigh, NC 27606

PROJECT REFERENCE NO.	SHEET NO.
R-5100A	8

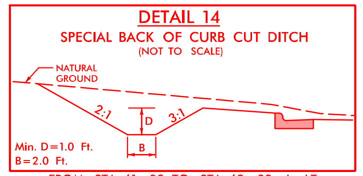
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

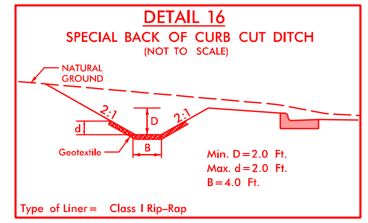
NOTE: TIE ALL PROPOSED CURB & GUTTER AND SIDEWALK TO EXISTING UNLESS OTHERWISE SHOWN.

BUFFER DRAWING SHEET 2 OF 4

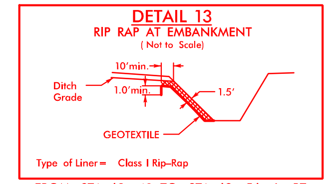
NAD 83/2011



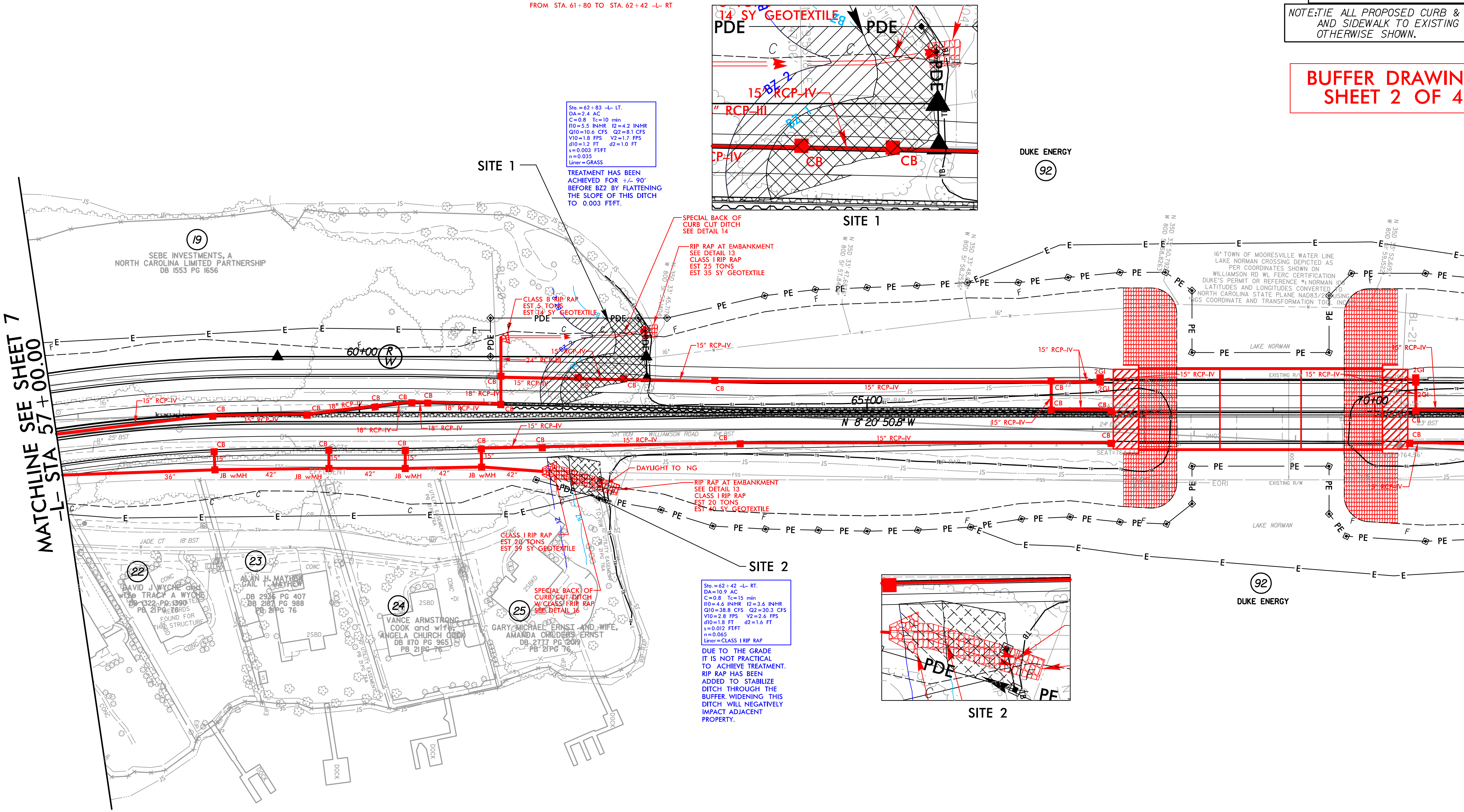
FROM STA. 61+39 TO STA. 62+83 -L- LT



FROM STA. 61+80 TO STA. 62+42 -L- RT



FROM STA. 62+40 TO STA. 62+56 -L- RT
FROM STA. 62+79 TO STA. 62+94 -L- LT



14 SY GEOTEXTILE
PDE
PDE
BZ 2
BZ 1
15" RCP-IV
RCP-III
CB
CB
SITE 1
Sta.=62+83 -L- LT.
DA=2.4 AC
C=0.8 Tc=10 min
I10=5.5 IN/HR I2=4.2 IN/HR
Q10=10.6 CFS Q2=8.1 CFS
V10=1.8 FPS V2=1.7 FPS
d10=1.2 FT d2=1.0 FT
s=0.003 FT/FT
n=0.035
Liner=GRASS
TREATMENT HAS BEEN ACHIEVED FOR +/- 90' BEFORE BZ2 BY FLATTENING THE SLOPE OF THIS DITCH TO 0.003 FT/FT.
SITE 1
SPECIAL BACK OF CURB CUT DITCH SEE DETAIL 14
RIP RAP AT EMBANKMENT SEE DETAIL 13 CLASS I RIP RAP EST 25 TONS EST 35 SY GEOTEXTILE
CLASS I RIP RAP EST 5 TONS EST 14 SY GEOTEXTILE
DUKE ENERGY
92
19
SEBE INVESTMENTS, A NORTH CAROLINA LIMITED PARTNERSHIP DB 1553 PG 1656
60+00
65+00
70+00
N 8°20'50.8" W
WILLIAMSON ROAD
15" RCP-IV
18" RCP-IV
24" RCP-III
36"
42"
JB wMH
CB
DAYLIGHT TO NG
RIP RAP AT EMBANKMENT SEE DETAIL 13 CLASS I RIP RAP EST 20 TONS EST 40 SY GEOTEXTILE
CLASS I RIP RAP EST 20 TONS EST 39 SY GEOTEXTILE
SPECIAL BACK OF CURB CUT DITCH W/CLASS I RIP RAP SEE DETAIL 16
SITE 2
Sta.=62+42 -L- RT.
DA=10.9 AC
C=0.8 Tc=15 min
I10=4.6 IN/HR I2=3.6 IN/HR
Q10=38.8 CFS Q2=30.3 CFS
V10=2.8 FPS V2=2.6 FPS
d10=1.8 FT d2=1.6 FT
s=0.012 FT/FT
n=0.065
Liner=CLASS I RIP RAP
DUE TO THE GRADE IT IS NOT PRACTICAL TO ACHIEVE TREATMENT. RIP RAP HAS BEEN ADDED TO STABILIZE DITCH THROUGH THE BUFFER. WIDENING THIS DITCH WILL NEGATIVELY IMPACT ADJACENT PROPERTY.
SITE 2
PDE
22
DAVID J WYCHE and wife TRACY A WYCHE DB 1322 PG 1390 PB 21 PG 76
23
ALAN H. MAYHEW GAIL T. MAYHEW DB 2936 PG 407 DB 2187 PG 988 PB 21 PG 76
24
VANCE ARMSTRONG COOK and wife, ANGELA CHURCH COOK DB 1170 PG 965 PB 21 PG 76
25
GARY MICHAEL ERNST AND WIFE, AMANDA CHILDERS ERNST DB 2777 PG 209 PB 21 PG 76
LAKE NORMAN
92
DUKE ENERGY
MATCHLINE SEE SHEET 7 -L- STA 57+00.00
MATCHLINE SEE SHEET 9 -L- STA 71+00.00

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

1:00:35 PM
...Environmental\Drawings\Buffer Impacts\R5100A_PRM_BUFFER_PSH_08.dgn

5/14/99

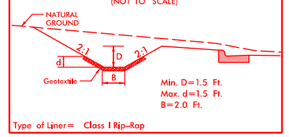
100' 0' 200'
INSET SCALE

50 0' 100'
GRAPHIC SCALE

DETAIL 1
SPECIAL BACK OF CURB CUT DITCH
(NOT TO SCALE)

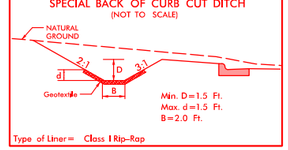
FROM STA. 84+00 TO STA. 86+00 -L- RT

DETAIL 3
SPECIAL BACK OF CURB CUT DITCH
(NOT TO SCALE)



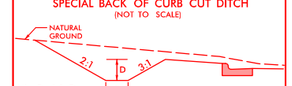
Type of Liner= Class I Rip-Rap
FROM STA. 76+50 TO STA. 77+50 -L- RT

DETAIL 15
SPECIAL BACK OF CURB CUT DITCH
(NOT TO SCALE)



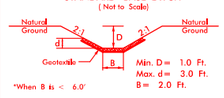
Type of Liner= Class I Rip-Rap
FROM STA. 76+50 TO STA. 77+50 -L- RT
FROM STA. 77+70 TO STA. 78+00 -L- LT

DETAIL 14
SPECIAL BACK OF CURB CUT DITCH
(NOT TO SCALE)



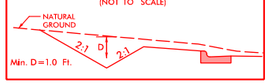
FROM STA. 78+00 TO STA. 78+55 -L- LT

DETAIL 5
STANDARD BASE DITCH
(Not to Scale)



*When B is < 6.0'
Type of Liner= Class I Rip-Rap
AT STA. 77+60 -L- LT

DETAIL 6
SPECIAL BACK OF CURB CUT DITCH
(NOT TO SCALE)



FROM STA. 77+50 TO STA. 80+50 -L- RT

DETAIL 13
RIP RAP AT EMBANKMENT
(Not to Scale)

Type of Liner= Class I Rip-Rap
FROM STA. 77+47 TO STA. 77+66 -L- LT
FROM STA. 75+99 TO STA. 76+50 -L- RT

92 DUKE EN

Sta.=77+56 -L- RT.
DA=2.2 AC
C=0.8 Tc=10 min
I10=5.5 INHR I2=4.2 INHR
Q10=9.9 CFS Q2=7.4 CFS
V10=3.1 FPS V2=2.8 FPS
d10=0.9 FT d2=0.7 FT
s=0.041 FT/FT
n=0.065
Liner=CLASS I RIP RAP

DUE TO THE DITCH GRADE REQUIRED TO GET A PIPE UNDER THE PATH, RIP RAP HAS BEEN ADDED TO STABILIZE DITCH THROUGH BUFFER.

Sta.=77+71 -L- RT.
DA=2.2 AC
C=0.8 Tc=10 min
I10=5.5 INHR I2=4.2 INHR
Q10=9.9 CFS Q2=7.4 CFS
V10=3.0 FPS V2=2.8 FPS
d10=0.8 FT d2=0.7 FT
s=0.041 FT/FT
n=0.065
Liner=CLASS I RIP RAP

STANDARD BASE DITCH
SLOPE= 4.1%
EST 7 TONS
EST 10 SY GEOTEXTILE
EST DDE= 5 CY
SEE DETAIL 5

SPECIAL BACK OF CURB CUT DITCH W/CLASS I RIP RAP SEE DETAIL 15

SPECIAL BACK OF CURB CUT DITCH SEE DETAIL 14

Sta.=78+00 -L- RT.
DA=2.2 AC
C=0.8 Tc=10 min
I10=5.5 INHR I2=4.2 INHR
Q10=9.9 CFS Q2=7.4 CFS
V10=1.8 FPS V2=1.7 FPS
d10=1.1 FT d2=1.0 FT
s=0.003 FT/FT
n=0.035
Liner=GRASS

TREATMENT HAS BEEN ACHIEVED FOR +/- 20' BEFORE BZ2 BY FLATTENING THE SLOPE OF THIS DITCH TO 0.003 FT/FT.

DUE TO THE GRADE IT IS NOT PRACTICAL TO ACHIEVE TREATMENT. RIP RAP HAS BEEN ADDED TO STABILIZE DITCH THROUGH THE BUFFER. WIDENING THIS DITCH WILL NEGATIVELY IMPACT ADJACENT PROPERTY.

Sta.=76+50 -L- RT.
DA=2.0 AC
C=0.7 Tc=10 min
I10=5.5 INHR I2=4.2 INHR
Q10=8.3 CFS Q2=5.9 CFS
V10=2.4 FPS V2=2.2 FPS
d10=0.8 FT d2=0.7 FT
s=0.025 FT/FT
n=0.065
Liner=CLASS I RIP RAP

SPECIAL BACK OF CURB CUT DITCH W/CLASS I RIP RAP SEE DETAIL 3

SPECIAL BACK OF CURB CUT DITCH SEE DETAIL 6

SPECIAL BACK OF CURB CUT DITCH SEE DETAIL 1

MATCHLINE SEE SHEET 8
-L- STA 71+00.00

MATCHLINE SEE SHEET 10
-L- STA 85+00.00

SITE 4
SITE 3
SITE 4

92 DUKE ENERGY
92 DUKE ENERGY
26
27
28
29
30
79

R&J ROTH HOLDINGS LLC
DB 1855 PG 1819
PB CBI PG 76

WILLIAMSON ROAD LLC
DB 2251 PG 1482
PB 34 PG 143

BUTLER LANDING HOA
RECORDS NOT FOUND

RICHARD G WILSON
DB 2349 PG 1618
PB 34 PG 143

BALTIC AVENUE LLC
DB 1730 PG 1578
PB CBI PG 119

LJW LAND LLC
DB 1975 PG 768
PB CBI PG 119

MARK EDWARD BOBONICH and wife, KATHLEEN A BOBONICH
DB 1058 PG 2026
PB 28 PG 80

NOAH ELLIOTT
DB 2215 PG 1220
PB 28 PG 80

LAKE NORMAN

WATERFRONT LN

SAND VOLLEYBALL COURT

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

FOR -L- PROFILE, SEE SHEET 17

LOCHNER

H. W. LOCHNER, INC.
2840 PLAZA PLACE, SUITE 202
RALEIGH, NC 27612
(919)571-7111
NC License Number F-0159

VHB Engineering NC, P.C. (C-3705)
940 Main Campus Drive, Suite 500
Raleigh, NC 27606

NAD 83/2011

PROJECT REFERENCE NO.	SHEET NO.
R-5100A	9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

BUFFER DRAWING SHEET 3 OF 4

RIPARIAN BUFFER IMPACTS SUMMARY

Site No.	Station (From/To)	Structure Size / Type	IMPACTS									BUFFER REPLACEMENT	
			TYPE			ALLOWABLE			MITIGABLE				
			ROAD CROSSING	BRIDGE	PARALLEL IMPACT	ZONE 1 (ft^2)	ZONE 2 (ft^2)	TOTAL (ft^2)	ZONE 1 (ft^2)	ZONE 2 (ft^2)	TOTAL (ft^2)	ZONE 1 (ft^2)	ZONE 2 (ft^2)
1	61+78 to 62+83 -L- LT	Roadway Fill			X				3630	2592	6222		
2	61+85 to 62+41 -L- RT	Roadway Fill	X			1091	622	1713					
3	76+56 to 77+21 -L- RT	Roadway Fill	X			1035	705	1740					
4	75+96 to 78+65 -L- LT	Roadway Fill			X				6879	4768	11647		
TOTALS*:						**2126**	**1327**	**3453**	**10509**	**7360**	**17869**	**0**	**0**

NOTES:

Impacts at Lake Norman were calculated based on a normal pool elevation of 760'.

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
11/29/2023
IREDELL
R5100A
41890.1.D1
SHEET 4 OF 4

Protected Species/ Section 7

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Asheville Field Office
160 Zillicoa Street Suite B
Asheville, North Carolina 28801

May 30, 2024

Crystal Amschler
Project Manager
Transportation Permitting Branch, Wilmington District
U.S. Army Corps of Engineers
crystal.c.amschler@usace.army.mil

Subject: Informal Conference for Widening Williamson Road (SR 1109) from I-77 to Brawley School Road (SR 1100) in Mooresville, Iredell County (TIP No. R-5100A, Service Log #24-215)

Dear Crystal Amschler:

On March 8, 2024, we received your request to initiate informal conference procedures for effects the subject project may have on federally proposed species. We have reviewed the information you submitted along with answers to questions received on May 16, 2024, 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) proposes to widen Williamson Road (SR 1109) from I-77 to Brawley School Road (SR 1100) in Mooresville, Iredell County. The need of the project is to address several deficiencies, including an excessive number of driveway cuts with no access management, an inconsistent roadway cross-section due to the incremental road improvements required from several site developments, and significant traffic delays at intersections. The purpose of the proposed action is to reduce congestion and improve safety in the corridor. The Williamson Road widening project will provide a safer, more efficient roadway network throughout the Town of Mooresville and southern Iredell County. The project will involve approximately 5.8 acres of clearing and grubbing, the replacement of Bridge 056, percussive activities, temporary lighting for nighttime construction, and may include blasting. The U.S. Army Corps of Engineers (USACE) is the federal lead for this project for section 7 purposes.

NCDOT has agreed to implement the following conservation measures for the project. The USACE will include these measures as special conditions in any verification letter (authorization) that may be issued for the project:

1. Tree clearing will take place from October 16 to March 31.
2. The existing bridge and any culverts ≥ 3 feet in manufactured diameter within the action area will be surveyed within 30 days of let to ensure absence of roosting bats. The U.S. Fish and Wildlife Service (Service) Asheville Field Office will be contacted immediately if bats are observed.
3. All efforts will be made to conduct demolition of the bridge during the inactive bat season if the project schedule allows.
4. Temporary lighting for night work will be aimed at the direction of work to minimize lighting the surrounding landscape and will be turned off when not needed for project work.

5. No additional permanent lighting will be added to the roadway in excess of what currently exists.
6. Should blasting occur, it will take place after tree clearing within the action area has been completed.

Federally Listed Species

The information provided indicates that "No Effect" (NE) determinations have been made for dwarf-flowered heartleaf (*Hexastylis naniflora*) and Schweinitz's sunflower (*Helianthus schweinitzii*). In instances of suitable habitat being absent from the action area, we would agree that NE determinations are appropriate. In instances where suitable habitat is present and botanical surveys conducted during the optimal survey window and within the past 1 or 2 years (depending on the species) have negative results, we would concur with a biological determination of "may affect, not likely to adversely affect" (NLAA). We acknowledge that the request for consultation did not include these species. This information is provided for the sake of the administrative record.

The correspondence received from USACE requests conference for tricolored bat (*Perimyotis subflavus*).

A suitable bridge roost and suitable roosting, commuting, and foraging habitat for tricolored bat occur within the action area. Suitable culverts also occur within the action area. The bridge and culverts were surveyed on July 18, 2023, and results were negative. NCDOT has committed to surveying suitable structures prior to construction and demolition to ensure absence of roosting bats. There is element occurrence data for the tricolored bat approximately 20 miles west of the project area.

The completed structure surveys and proposed conservation measures minimize effects to bats potentially occurring within the action area. However, effects from construction noise to unknown tree roosts within the action area but outside the construction limits, while minimized, are not avoided. 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 effect bats within existing transportation corridors has not been well studied, though one study found that bats habituated rapidly to traffic noise (Luo et al. 2014). Given the information available and conservation measures above, 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).

On September 14, 2022, the Service published a proposal in the Federal Register to list the tricolored bat as endangered under the Act. As a result, USACE has requested a conference for the tricolored bat as the project may be on-going after the effective date of any final listing rule, if one is published. Based on the information provided, the analysis above, and the commitments to minimize project impacts, we have determined that the proposed project will not jeopardize the continued existence of the tricolored bat. Additionally, we would concur with the USACE's determination that the project is NLAA the tricolored bat should it become listed.

Conservation Recommendations

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. General recommendations for the benefit of fish and wildlife resources are provided here:

- **Pre-construction Surveys for Bats**: While the commitment to survey structures within 30 days of the let date is a helpful measure, it may not ensure absence of bats prior to construction and demolition, considering that the let date and construction dates are not synonymous. Therefore, we recommend conducting structure surveys in accordance with the Service's Range-wide

Indiana Bat and Northern Long-eared Bat Survey Guidelines (which includes tricolored bat), ideally within 14 days of construction, or, alternatively, within 30 days of construction.

- **Tree Clearing**: Avoid tree clearing from December 15 – February 15 (the winter torpor season for tricolored bat within the year-round active zone 1) to the maximum extent practical.
- **Noise Considerations for Bats**: 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 such as noise shrouds for pile driving.
- **Lighting**:
    - Lighting should only be on when needed, only lighting the needed area, be no brighter than necessary, minimize blue light emissions, and be fully shielded (pointing downward).
    - Avoid lighting landscape features such as trees, shrubs, building facades, adjacent wooded areas, and the surface waters of rivers and streams that provide suitable habitat for bats, pollinators, and other wildlife species.
    - When installing new or replacing existing permanent lights, use downward-facing, full cut-off lens lights (with same intensity or less for replacement lighting); or for those transportation agencies using the Backlight-Uplight-Glare (BUG) system developed by the Illuminating Engineering Society, the goal is to be as close to 0 for all three ratings with a priority of "uplight" of 0 and "backlight" as low as practicable.
    - Use light fixtures with a lower lumen output, reducing overall brightness.
    - Use the shortest light poles that meet highway and safety requirements.
    - If using LEDs, use lights with Type I or II distribution patterns that create rectangular lighting patterns that limit light spill into adjacent habitats.
    - For bridge projects, consider design features that block automobile headlights from reaching surface waters and surrounding riparian habitats.
    - Prioritize use of low-pressure sodium (LPS), high-pressure sodium (HPS), or LED light sources that emit “warm” light. “Warm” light sources are those that contain low amounts of blue light in their spectrum. Choosing light sources with a color temperature of no more than 3,000 Kelvins will minimize the effects of blue light exposure.
- **Provide Terrestrial Wildlife Passage**: Where riparian corridors suitable for wildlife movement occur adjacent to a project, a spanning structure that also spans a portion of the floodplain and provides or maintains a riprap-free level path underneath for wildlife passage would provide a safer roadway and facilitate wildlife passage. A 10-foot strip may be ideal, though smaller widths can also be beneficial. Alternatively, a “wildlife path” can be constructed with a top-dressing of finer stone (such as smaller aggregate or on-site alluvial material) to fill riprap voids if full bank plating is required. If a multi-barrel culvert is used, the low flow barrel(s) should accommodate the entire stream width and the other barrel should have sills to the floodplain level and be back-filled to provide dry, riprap-free wildlife passage and well as periodic floodwater passage.
- **Riparian Replanting:** Because the removal of forested riparian habitat can affect the quality and suitability of foraging and commuting habitat for bats and the water quality for aquatic organisms, we recommend replanting the riparian zone with native, fast-growing trees and shrubs that would serve to stabilize the stream bank, filter runoff and reduce erosion and sedimentation, block light pollution, and generally improve the quality of the habitat for bats and aquatic species. Examples of potential native tree species to plant include: Sycamore, tulip poplar, black cherry and river birch. Planting with established (e.g. containerized) young trees can increase the survival rate of plantings and contribute to faster improvement of riparian habitat.

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.

We appreciate the opportunity to provide these comments. Please contact Ms. Holland Youngman of our staff at holland_youngman@fws.gov if you have any questions. In any future correspondence concerning this project, please reference our Service Log #24-215.

Sincerely,

- - original signed - -

Janet Mizzi
Field Supervisor

Electronic CC:
Erin Cheely, NCDOT Environmental Coordination and Permitting Western Team Lead

Federally Protected Bat Habitat Assessment

For

Improve SR 1109 (Williamson Rd.) from I-77 to SR 1100 (Brawley School Rd.) Improvement
Iredell County, North Carolina, STIP No. R-5100A
WBS Element No. 41890.1.1

Prepared for:

NCDOT
The North Carolina Department of Transportation
Biological Surveys Group
1598 Mail Service Center
Raleigh, NC 27699-1598
(919) 707-6000

Prepared by:
HDR

HDR, Inc.
555 Fayetteville Street, Suite 900
Raleigh, NC 27601-3034
(919) 232-6600

August 2023

The North Carolina Department of Transportation (NCDOT, Division 12) proposes to improve SR 1109 (Williamson Rd.) from I-77 to SR 1100 (Brawley School Rd.), in Iredell County, North Carolina, TIP No. R-5100A, WBS No. 41890.1.1. HDR, Inc. was contracted to perform inspections for federally protected bat species for the proposed project.

The Tricolored Bat (*Perimyotis subflavus*) (Proposed Endangered) is listed by the United States Fish and Wildlife Service (USFWS) as potentially occurring in the project footprint (https://ipac.ecosphere.fws.gov, see attached).

SURVEY METHODS

The bat habitat assessment followed the guidance set forth in NCDOT's Standard Operating Procedures (SOP) Preliminary Bat Habitat Assessments (Structures, Caves & Mines) (2023). State and federal guidelines for decontamination were followed. Spatial data containing records for active and inactive mine locations were obtained from the U.S. Geological Survey Mineral Resources On-Line Spatial Data website (USGS 2023) to check for mine locations within a half-mile of the project.

SURVEY FINDINGS

On July 18, 2023, HDR, Inc. biologists (Sara Easterly and Raegan Robinson) assessed the R-5100A project study area for potential bat habitat. Bat habitat assessment forms were completed and are attached.

Bridge 480056 has a concrete deck, guard rails, and end walls. Crevices suitable for roosting were present, as were deck drains, though some were plugged. No evidence of bats was found.

There were multiple culverts in the study area, however only one culvert was large enough to meet the NCDOT criteria for requiring inspection (at least 3 ft in diameter and 60 ft long). The culvert (MP-049-07657) was located north of Bridge 480056 (35.577298, -80.872158), where Sundown Rd. ran across an unnamed tributary to Lake Norman. The culvert was a metal pipe with a height and width of approximately three feet and a length of approximately 69 feet. Crevices and rough surfaces suitable for roosting were present. No evidence of bats was found in any of the structures that were inspected. No abandoned buildings were observed in the study area.

No caves or mines were observed within the project footprint. According to the USGS mines database, there are no mines within a half mile of the project study area (USGS 2023).

Tricolored Bat *(Perimyotis subflavus)*
Tricolored Bats are generally associated with forested landscapes. In summer, they will roost in tree foliage, or sometimes in buildings. They are also known to roost in culverts. According to the North Carolina Natural Heritage Program (NHP) Biotics Database, most recently updated in April 2023, the nearest Tricolored Bat (2023) record is 20 miles west of the project study area in Catawba County, observed in 2021 (EO ID 41433).

Roosting habitat is present at Bridge 480056 in the form of expansion joints and a few plugged deck drains. The northern culvert had crevices and rough surfaces that could be used for roosting.

There is an abundance of alternative habitat available in the project vicinity. Continuous forested habitat is present for roosting, foraging and commuting. Lake Norman could provide suitable foraging and commuting habitat for MYGR and other bat species.

There is likely no suitable winter habitat in the project vicinity due to the lack of caves and mines in the area. See table below for additional information on the presence/probable absence of habitat suitability.

Presence (✓) or Probable Absence (X) of various Habitat Types for Bat Species present in R-5100A Project Area

Species	Summer Roosting	Winter Roosting	Foraging Habitat	Commuting Habitat
PESU	✓	X	✓	✓

REFERENCES

LeGrand, H., L. Gatens, E. Corey, and T. Howard. 2022. Mammals of North Carolina: their Distribution and Abundance. Raleigh (NC): North Carolina Biodiversity Project and North Carolina State Parks. https://auth1.dpr.ncparks.gov/mammals/accounts.php. (Accessed July 24, 2023).

North Carolina Department of Transportation (NCDOT) 2023. Standard Operating Procedures (SOP) Preliminary Bat Habitat Assessments (Structures, Caves & Mines). https://connect.ncdot.gov/resources/Environmental/EAU/BSG/Documents/Bats/NCDOT%20SOP%202023%20Prelim%20Bat%20Habitat%20Assessment%20Struc%20Cave%20Mine.pdf (Accessed July 24, 2023).

North Carolina Natural Heritage Program (NCNHP). North Carolina Natural Heritage Data Explorer (web application; https://ncnhde.natureserve.org/). April 2023 Quarterly Dataset (Accessed July 27, 2023).

United States Fish and Wildlife Service (USFWS). 2023. Information for Planning and Consulting (IPaC). https://ipac.ecosphere.fws.gov/ (Accessed July 24, 2023).

U.S. Geological Survey (USGS), Mineral Resources On-Line Spatial Data Website. 2023. http://mrdata.usgs.gov/mrds/find-mrds.php (Accessed July 24, 2023).

Bat Habitat Assessment Form

NCDOT Bridges

Observers: Sara Easterly, Raegan Robinson
Date: July 18, 2023
County: Iredell
Waterbody/Road/Rail: Lake Norman

TIP or DOT project number: R-5100A
Road Name/SR Number: SR1109
Bridge Number: 480056

% Surrounding habitat w/in 1 mi. of project footprint (approx) Forested: 19 % Wetland: 17%
Urban/Commercial: 6% Suburban/Residential: 47%
Agricultural: 9%
Herbaceous/ Shrub/ Grassland/ Barren Land: 2%

Any trees >3" DBH within project footprint? No
Bridge located within Indiana Bat Critical Habitat? No
Any shaggy trees or snags >5" DBH?
If yes to shag/snag, how much sunlight do they receive during the day?
If yes to shag/snag, list species of habitat trees >5" DBH:
If snags >5" DBH are present in sunlit areas and if large hollow trees are present, provide photos and location in Photo Appendix.
Mines in Vicinity? No Caves in Vicinity? No
Mines in Project Footprint? No Caves in Project Footprint? No
If 'yes' to any of the above, provide photos, description, and location in Photo Appendix.

Water Features [Photos in Photo Appendix]

Major water source in project footprint: Lake
Suitable drinking habitat in the form of non-stagnant, smooth or slack water? Yes

Bridge Features [Photos in Photo Appendix]

Artificial Lighting: No Guard Rails: Concrete Deck Type(s): Concrete
Beam Type(s): Steel End/Back Wall Type(s): Concrete Creosote Evidence: No
Suitable roosting crevices present (½ – 1 ¼"wide): Yes Deck Drain(s): Yes
Max height of bridge deck above ground (ft): 6 Night roost habitat protected: Yes
Bridge Alignment: N/S Hours of sun exposure to bridge: > 3
Human disturbance under bridge: Medium
Notes:

Bat Evidence/Activity

Emergence count performed? No
Evidence of bats using bird nests, if present? No
Evidence of bats using bridge? No **[If Yes, Photos in Photo Appendix]**
Type of evidence:
Roost Type:
Roost Material:
Bat Species: Bat Species 2: Bat Species 3:
Notes (bat location and count):

Structure Assessment – Emergence Count [Photos in Photo Appendix]

Temperature (F) at Start of Count:
Emergence Count Starting Time:
Time of Sunset:
Emergence Count Ending Time:
Number of Bats Leaving Structure:
Can Bat Genus/Species be Determined?
Describe Where Bats Exited Structure:
General Emergence Notes:

Provide a Diagram of the Structure, where Observers were Placed for the Emergence Count, and Location of any Points of Ingress/Egress for Bats. Please Include North Arrow.

[If the MYSO or MYSE species is detected outside of expected county range, tree information will be appear in the following section]
Any trees >3" DBH within project footprint? N/A
Any shaggy trees or snags >5" DBH? N/A
If yes to shag/snag, how much sunlight do they receive during the day?
If yes to shag/snag, list species of habitat trees >5" DBH:
If snags >5" DBH are present in sunlit areas and if large hollow trees are present, provide photos and location in Photo Appendix.

PHOTO APPENDIX

Mine Photos

Sunlit Tree Area Photos

Large Hollow Tree Photos

Large Hollow Tree Photos (Bats Found Outside Expected County Range)

Water Photos

Bridge Photos

Bridge Photo:

Photo Caption:
Looking west

Bridge Photo:

Photo Caption:
Looking west

<u>Human Disturbance Photos</u>

<u>Bat – Bridge Use Photos</u>

Emergence Photos

General Photographs & Notes

Bat Habitat Assessment Form

NCDOT Culverts

Observers: Sara Easterly, Raegan Robinson
Date: July 18, 2023
County: Iredell
TIP or DOT project number: R-5100A
Road Name Above Culvert: Sundown Road
Culvert Number: MP-049-07657
Name of the Feature Culvert is Carrying (Stream): UT Lake Norman

% Surrounding habitat w/in 1 mi. of project footprint (approx)
Forested: 10% Wetland: 10%
Urban/Commercial: 30% Suburban/Residential: 30%
Agricultural: 5%
Herbaceous/ Shrub/ Grassland/ Barren Land: 15%

Culvert located within Indiana Bat Critical Habitat? No
Mines in Vicinity? No
Mines in Vicinity? No
If 'yes' to any of the above, provide photos, description, and location in Photo Appendix.

Tree Features (If Applicable)

Any trees >3" DBH within project footprint? Yes
Any shaggy trees or snags >5" DBH? No
If yes to shag/snag, how much sunlight do they receive during the day?
If yes to shag/snag, list species of habitat trees >5" DBH:
If snags >5" DBH are present in sunlit areas and if large hollow trees are present, provide photos and location in Photo Appendix.

Water Features [Photos in Photo Appendix]

Major water source in project footprint: Stream/Creek
Suitable drinking habitat in the form of non-stagnant, smooth or slack water? Yes

Culvert Features [Photos in Photo Appendix]

Guard Rails? None
Culvert Material: Metal
Culvert Height (ft): 3 Culvert Length (ft): 70
Culvert Width (ft): 3
Number of barrels: 1
Observed Narrowest Opening Height (ft): 2.5
Culvert Type: Pipe
Depth of Water in Culvert (ft) (if applicable): 0.5
Openings Protected from High Winds? Yes
Crevices Present? Yes
Rough Surfaces, Imperfections, Bird Nests? Yes
Human Disturbance: None
Notes:

Bat Evidence/Activity [Photos in Photo Appendix]

Emergence count performed? No
Evidence of bats using bird nests, if present? No
Evidence of bats using culvert? No
Type of evidence:
Roost Type:
Roost Material:
Bat Species: 2nd Bat Species: 3rd Bat Species:
Notes:

[If the MYSO or MYSE species is detected outside of expected county range, tree information will appear in the following section]

Any trees >3" DBH within project footprint?

Any shaggy trees or snags >5" DBH?

If yes to shag/snag, how much sunlight do they receive during the day?

If yes to shag/snag, list species of habitat trees >5" DBH:

If snags >5" DBH are present in sunlit areas and if large hollow trees are present, provide photos and location in Photo Appendix.

PHOTO APPENDIX

Mine Photos

Cave Photos

Sunlit Tree Area Photos

Sunlit Tree Area Photos (Bats Found Outside Expected County Range)

Large Hollow Tree Photos

Large Hollow Tree Photos (Bats Found Outside Expected County Range)

Water Photos

Culvert Photos

Culvert Photo: 

Photo Caption: Inlet

Culvert Photo: 

Photo Caption: Outlet

Bat Culvert Use - Photos

General Photographs

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Asheville Ecological Services Field Office
160 Zillicoa Street
Asheville, NC 28801-1082
Phone: (828) 258-3939 Fax: (828) 258-5330

In Reply Refer To:
Project Code: 2023-0108190
Project Name: R-5100A

July 24, 2023

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The enclosed species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

Please note that new species information can change your official species list. Under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. The Service recommends you visit the ECOS-IPaC website at regular intervals during project planning and implementation to ensure your species list is accurate or obtain an updated species list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A biological assessment (BA) or biological evaluation (BE) should be completed for your project. A BA is required for major construction activities (or other undertakings having similar physical impacts) considered to be Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2) (c)) (NEPA). For projects other than major construction activities, the Service suggests that a BE be prepared to determine effects of the action and whether those effects may affect listed species and/or designated critical habitat. E?ects of the action are all consequences to listed species or critical habitat that are caused by the proposed action, including the consequences of other

activities that are caused by the proposed action. A consequence is caused by the proposed action if it is reasonably certain to occur and would not occur “but for” the proposed action.. Recommended contents of a BA/BE are described at 50 CFR 402.12. More information and resources about project review and preparing a BA/BE can be found at the following web link: https://www.fws.gov/office/asheville-ecological-services/asheville-field-office-online-review-process-overview.

If a Federal agency determines listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. The Service is not required to concur with "no effect" determinations from Federal action agencies. If consultation is required, the Service recommends that candidate species, proposed species, proposed critical habitat, and at-risk species be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or licensed applicants, can be found in the "Endangered Species Consultation Handbook" at the following web link: https://www.fws.gov/media/endangered-species-consultation-handbook.

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Act, there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). More information about MBTA and BGEPA can be found at the following web link: https://www.fws.gov/program/migratory-birds.

We appreciate your consideration of Federally listed species. The Service encourages Federal agencies to include conservation of threatened and endangered species in their project planning to further the purposes of the Act. Please contact our staff at 828-258-3939, if you have any questions. In any future correspondence concerning this project, please reference the Consultation Code which can be found in the header of this letter.

Attachment(s):

- Official Species List
- USFWS National Wildlife Refuges and Fish Hatcheries
- Migratory Birds
- Wetlands

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

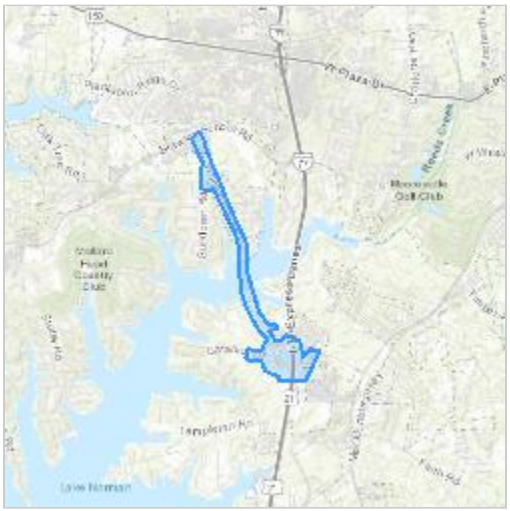
This species list is provided by:

Asheville Ecological Services Field Office
160 Zillicoa Street
Asheville, NC 28801-1082
(828) 258-3939

PROJECT SUMMARY

Project Code: 2023-0108190
Project Name: R-5100A
Project Type: Road/Hwy - Maintenance/Modification
Project Description: SR 1109 (Williams Rd) from SR 1100 (Brawley School Rd) to I-77
Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@35.567203750000004,-80.86604597105512,14z



Counties: Iredell County, North Carolina

ENDANGERED SPECIES ACT SPECIES

There is a total of 5 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

---

1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

MAMMALS

NAME	STATUS
Tricolored Bat *Perimyotis subflavus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/10515	Proposed Endangered

REPTILES

NAME	STATUS
Bog Turtle *Glyptemys muhlenbergii* Population: U.S.A. (GA, NC, SC, TN, VA) No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/6962	Similarity of Appearance (Threatened)

INSECTS

NAME	STATUS
Monarch Butterfly *Danaus plexippus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate

FLOWERING PLANTS

NAME	STATUS
Dwarf-flowered Heartleaf *Hexastylis naniflora*	Threatened
No critical habitat has been designated for this species.	
Species profile: https://ecos.fws.gov/ecp/species/2458	
Schweinitz's Sunflower *Helianthus schweinitzii*	Endangered
No critical habitat has been designated for this species.	
Species profile: https://ecos.fws.gov/ecp/species/3849	

CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

USFWS NATIONAL WILDLIFE REFUGE LANDS AND FISH HATCHERIES

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

MIGRATORY BIRDS

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

---

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.	Breeds Sep 1 to Jul 31
Chimney Swift *Chaetura pelagica* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Mar 15 to Aug 25
Prairie Warbler *Dendroica discolor* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 1 to Jul 31

NAME	BREEDING SEASON
Red-headed Woodpecker *Melanerpes erythrocephalus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 10 to Sep 10
Rusty Blackbird *Euphagus carolinus* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds elsewhere
Wood Thrush *Hylocichla mustelina* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 10 to Aug 31

PROBABILITY OF PRESENCE SUMMARY

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

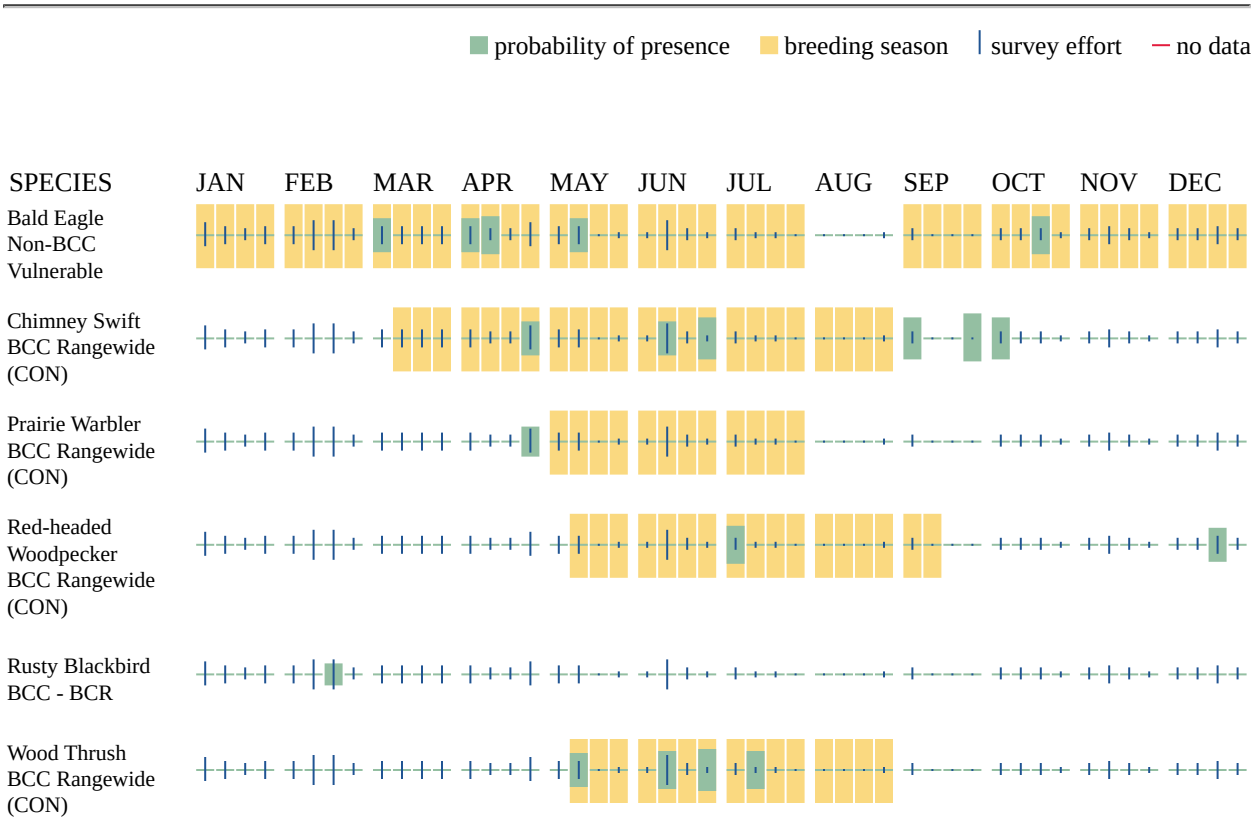
Breeding Season (■)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



Additional information can be found using the following links:

- Birds of Conservation Concern https://www.fws.gov/program/migratory-birds/species
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds

- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf

MIGRATORY BIRDS FAQ

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets.

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may query your location using the RAIL Tool and look

at the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?
Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects
For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?
If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report
The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be

aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

WETLANDS

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

LAKE

- L1UBHh

RIVERINE

- R4SBC

FRESHWATER POND

- PUBHh

IPAC USER CONTACT INFORMATION

Agency: North Carolina Department of Transportation
Name: Sara Easterly
Address: 555 Fayetteville Street, Suite 9
City: Raleigh
State: NC
Zip: 27601
Email saraeasterly@nc.rr.com
Phone: 9192326664

NC DEPARTMENT OF
NATURAL AND CULTURAL RESOURCES

Roy Cooper, **Governor**

D. Reid Wilson, **Secretary**

Misty Buchanan
Deputy Director, Natural Heritage Program

NCNHDE-22787

July 27, 2023

Jessica Tisdale
HDR
555 Fayetteville Street
Raleigh, NC 27601
RE: R-5100A

Dear Jessica Tisdale:

The North Carolina Natural Heritage Program (NCNHP) appreciates the opportunity to provide information about natural heritage resources for the project referenced above.

A query of the NCNHP database indicates that there are records for rare species, important natural communities, natural areas, and/or conservation/managed areas within the proposed project boundary. These results are presented in the attached 'Documented Occurrences' tables and map.

The attached 'Potential Occurrences' table summarizes rare species and natural communities that have been documented within a one-mile radius of the property boundary. The proximity of these records suggests that these natural heritage elements may potentially be present in the project area if suitable habitat exists. Tables of natural areas and conservation/managed areas within a one-mile radius of the project area, if any, are also included in this report.

If a Federally-listed species is documented within the project area or indicated within a one-mile radius of the project area, the NCNHP recommends contacting the US Fish and Wildlife Service (USFWS) for guidance. Contact information for USFWS offices in North Carolina is found here: https://www.fws.gov/offices/Directory/ListOffices.cfm?statecode=37.

Please note that natural heritage element data are maintained for the purposes of conservation planning, project review, and scientific research, and are not intended for use as the primary criteria for regulatory decisions. Information provided by the NCNHP database may not be published without prior written notification to the NCNHP, and the NCNHP must be credited as an information source in these publications. Maps of NCNHP data may not be redistributed without permission.

Also please note that the NC Natural Heritage Program may follow this letter with additional correspondence if a Dedicated Nature Preserve, Registered Heritage Area, Land and Water Fund easement, or an occurrence of a Federally-listed species is documented near the project area.

If you have questions regarding the information provided in this letter or need additional assistance, please contact Rodney A. Butler at rodney.butler@ncdcr.gov or 919-707-8603.

Sincerely,
NC Natural Heritage Program

Natural Heritage Element Occurrences, Natural Areas, and Managed Areas Intersecting the Project Area
R-5100A
July 27, 2023
NCNHDE-22787

Element Occurrences Documented Within Project Area

Taxonomic Group	EO ID	Scientific Name	Common Name	Last Observation Date	Element Occurrence Rank	Accuracy	Federal Status	State Status	Global Rank	State Rank
Animal Assemblage	38905	Waterbird Colony	Waterbird Colony	2018-02-14	E	2-High	---	---	GNR	S3

No Natural Areas are Documented within the Project Area

No Managed Areas Documented within the Project Area

Definitions and an explanation of status designations and codes can be found at https://ncnhde.natureserve.org/help. Data query generated on July 27, 2023; source: NCNHP, Spring (April) 2023. Please resubmit your information request if more than one year elapses before project initiation as new information is continually added to the NCNHP database.

Natural Heritage Element Occurrences, Natural Areas, and Managed Areas Within a One-mile Radius of the Project Area
R-5100A
July 27, 2023
NCNHDE-22787

Element Occurrences Documented Within a One-mile Radius of the Project Area

Taxonomic Group	EO ID	Scientific Name	Common Name	Last Observation Date	Element Occurrence Rank	Accuracy	Federal Status	State Status	Global Rank	State Rank
Animal Assemblage	38905	Waterbird Colony	Waterbird Colony	2018-02-14	E	2-High	---	---	GNR	S3
Reptile	37456	Ophisaurus attenuatus longicaudus	Eastern Slender Glass Lizard	1950-07	H	4-Low	---	Special Concern	G5T5	S1

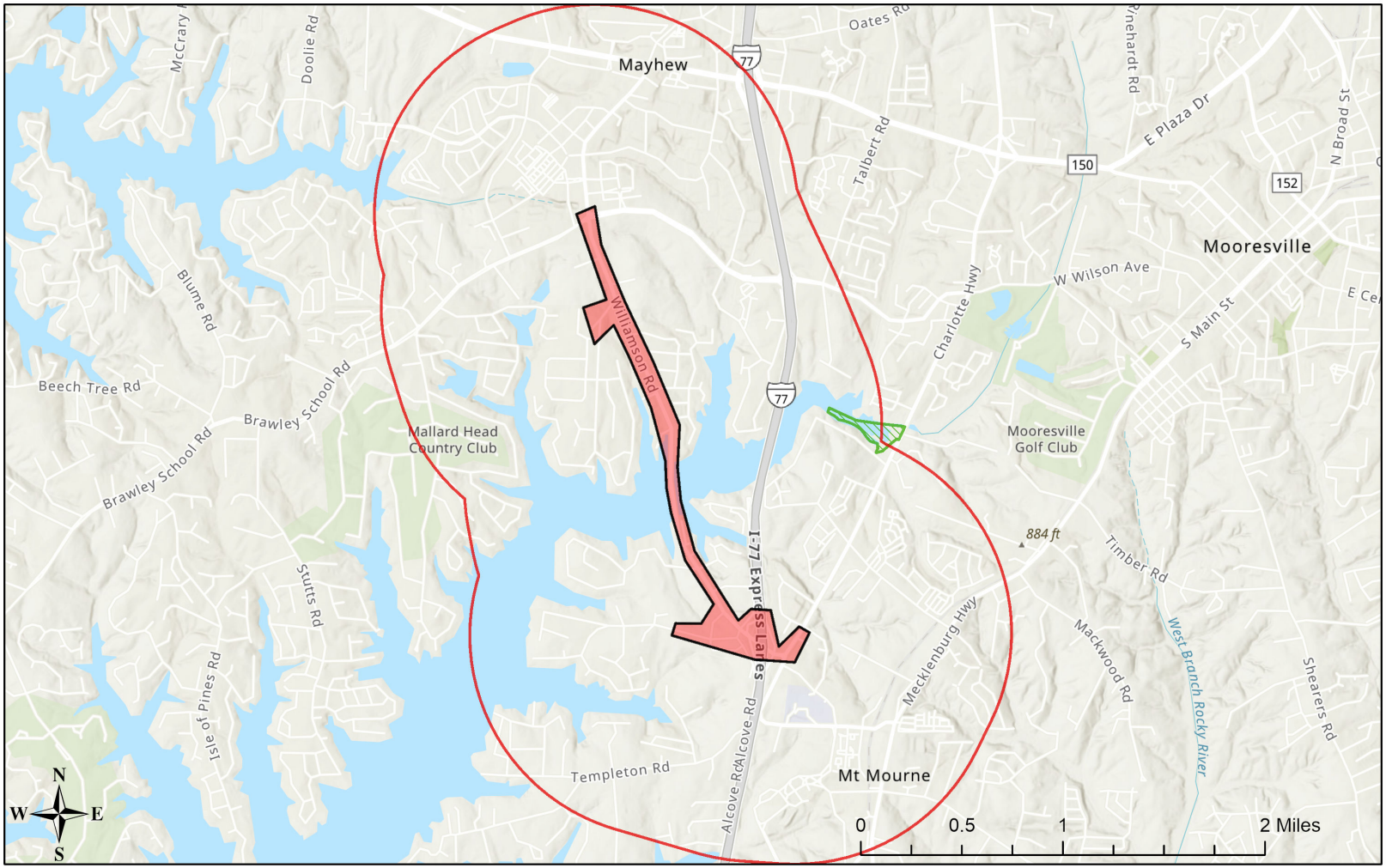
No Natural Areas are Documented Within a One-mile Radius of the Project Area

Managed Areas Documented Within a One-mile Radius of the Project Area

Managed Area Name	Owner	Owner Type
NC Division of Mitigation Services Easement	NC DEQ, Division of Mitigation Services	State

Definitions and an explanation of status designations and codes can be found at https://ncnhde.natureserve.org/help. Data query generated on July 27, 2023; source: NCNHP, Spring (April) 2023. Please resubmit your information request if more than one year elapses before project initiation as new information is continually added to the NCNHP database.

NCNHDE-22787: R-5100A



July 27, 2023

- Managed Area (MAREA)
- Buffered Project Boundary
- Project Boundary

Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community
Sources: Esri, HERE, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

Archaeology

Project Tracking No.:

18-08-0002

NO ARCHAEOLOGICAL SURVEY REQUIRED 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 Group.

PROJECT INFORMATION

Project No:	**R-5100a**	*County:*	**Iredell**
WBS No:	**41890.1.2**	*Document:*	**EA**
F.A. No:	**N/A**	*Funding:*	☒ State ☐ Federal

Federal Permit Required? ☒ Yes ☐ No *Permit Type:* **usace**

Project Description: NCDOT proposes to widen SR 1109 (Williamson Road) to multi-lanes from the I-77 interchange to SR 1100 (Brawley Road) in Iredell County, and includes overlapping the existing crossing of Lake Norman. The roadway would be widened to include additional lanes, and may include possible bike lanes and/or sidewalks. The total length, which includes intersection improvements at I-77 and may overlap other projects, is estimated at 2.38 miles (about 12,560 feet). While the proposed width varies somewhat for the construction footprint, 200 feet centered on the existing roadway captures the widening with the exception of possible fill or easements across Norman Lake where an expansion up to 300 feet is more appropriate. For purposes of this archaeological review, the Area of Potential Effects (APE) covers the entire length of the project and width of final construction limits.

This is a state funded project, however, federal permitting is expected from USACE. Therefore, Section 106 of the National Historic Preservation Act applies for this federal undertaking.

SUMMARY OF CULTURAL RESOURCES REVIEW

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

Conceptual design mapping and design was available which provided the basis to establish the APE. The project was viewed on topographic and aerial mapping (Figures 1 and 2). The project area is developed, has modern infrastructure, new neighborhoods and commericial parcels. Much of the APE is assumed to be modified, disturbing the soils and archaeological context.

The Office of State Archaeology (OSA) was visited to review archaeological mapping and to reference any known archaeological sites or archaeological surveys. There are no recorded archaeological sites within the project APE. There have been several archaeological reviews in the nearby vicinity though, often citing development and eroded soils, few have been recommended for archaeological survey by OSA. Over six Programmatic reviews of projects have occurred within the closeby vicinity of the current APE. Of those, only one was recommended for archaeological survey. That project, TIP U-5817 / PA 16-09-0020, is near the southwest limits of the current project and was recommended for survey partly because of the hundreds of acres included in an early, preliminary study area. Three archaeological sites were recorded (31Id362, 31Id363 and 31Id364) though none were recommended for eligibility to the National Register of Historic Places due to a lack of research potential and lack of archaeological integrity. The other five projects, many transportation projects of similar scale, were not recommended for survey due to a low probability for intact, significant archaeological resources.

Brief Explanation of why the available information provides a reliable basis for reasonably predicting that there are no unidentified historic properties in the APE:

The scale of new expansion in a developed, disturbed context over commonly eroded soils suggest that intact, significant archaeological sites would not be encountered by the construction of the undertaking, a road widening project of an existing, urbanized roadway. Several previous surveys have resulted in no recommendations for surveys due to erosion and disturbances associated with modern development and grading. Further, background checks did not reveal any recorded significant archaeological sites in the immediately proximity of the project. No archaeological survey is recommended for this road widening project. Should archaeological remains be encountered during construction, contact this office for further unanticipated discovery guidance.

SUPPORT DOCUMENTATION

See attached: ☒ Map(s) ☐ Previous Survey Info ☐ Photos ☒ Correspondence
☐ Photocopy of County Survey Notes Other:

FINDING BY NCDOT ARCHAEOLOGIST

NO ARCHAEOLOGY SURVEY REQUIRED

5/10/2018

NCDOT ARCHAEOLOGIST Date

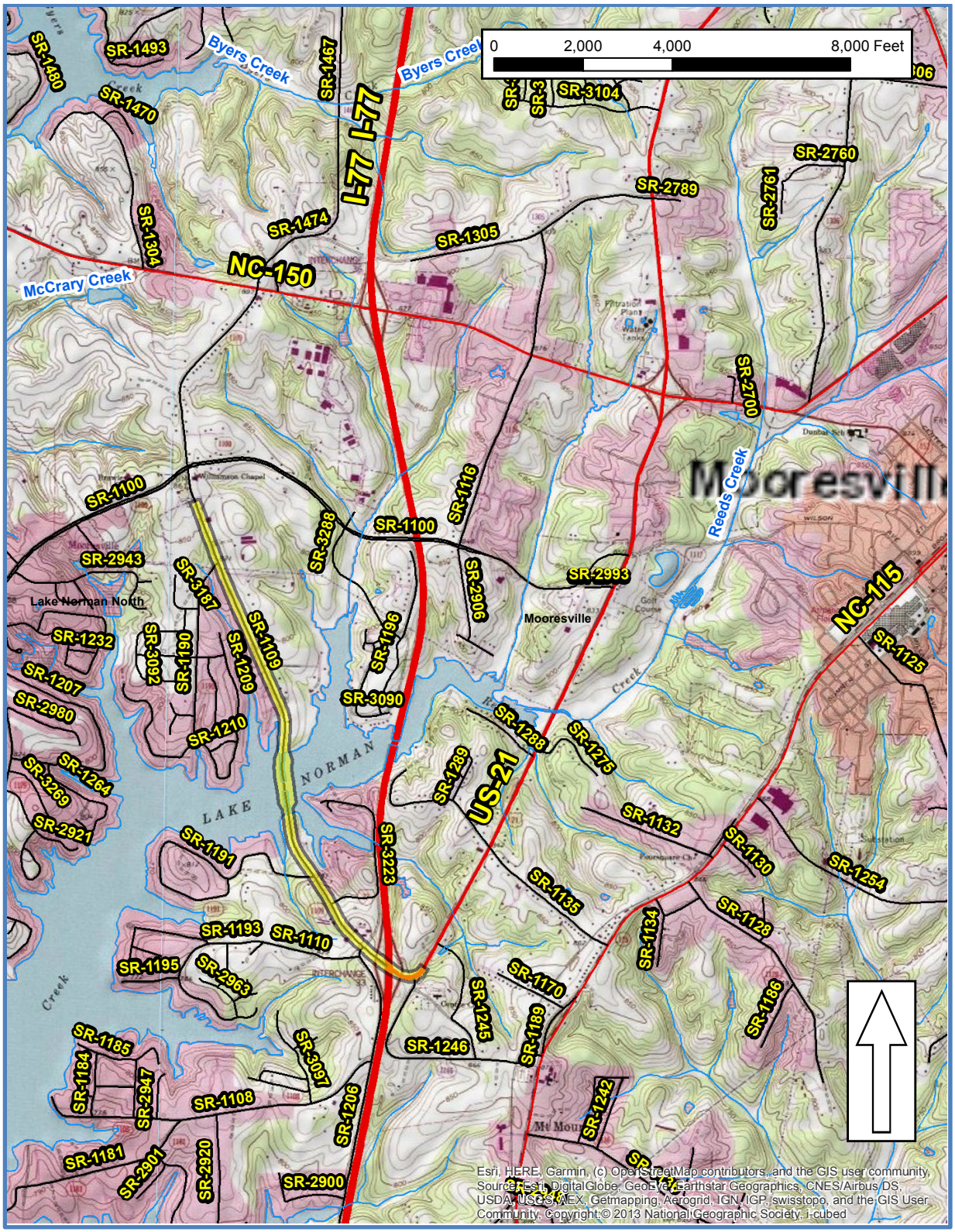


Figure 1. Vicinity of TIP # R-5100A, SR 1109 Williamson Road on USGS topographic mapping (Lake Normal North and Mooresville). The Archaeological APE is shown in yellow.

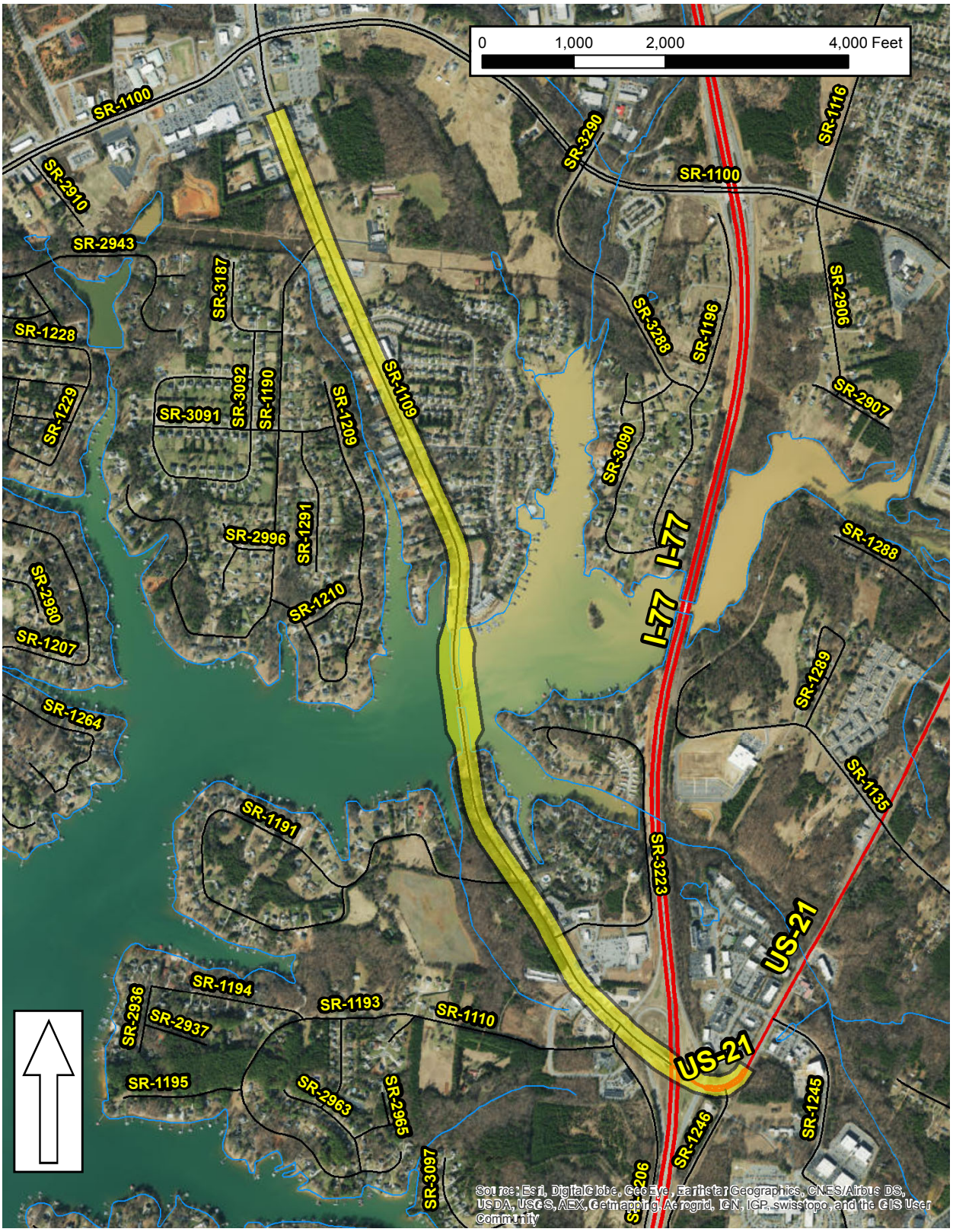


Figure 2. Recent aerial mapping showing the APE of the TIP # R-5100A project which proposes widening SR 1109, Williamson Road. Several NCDOT projects nearby received recommendations of no survey based on erosion and other factors. Note the degree of modern development. The buffered archaeological APE is shown in yellow.

Historic Architecture and Landscapes

HISTORIC ARCHICTECTURE AND LANDSCAPES
SURVEY REQUIRED 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:	R-5100A	***County***:	Iredell
WBS No.:	41890.1.2	***Document Type:***	State EA
Fed. Aid No:		***Funding***:	☒ State ☐ Federal
Federal Permit(s):	☒ Yes ☐ No	***Permit Type(s)***:	USACE
Project Description: Widen SR 1109 (Williamson Rd) from I-77 to ST 1100 (Brawley School Rd)			

SUMMARY OF HISTORIC ARCHICTECTURE AND LANDSCAPES REVIEW

Description of review activities, results, and conclusions*:*

On August 27, 2018 a search of NC HPOWEB GIS Service map reveals that the in the Area of Potential Effects (APE) for this project includes several of properties over 50 years of age. An architectural historian will need to conduct a site survey to determine if any of these properties require National Register Eligibility Evaluation.

SUPPORT DOCUMENTATION

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

FINDING BY NCDOT ARCHITECTURAL HISTORIAN

Historic Architecture and Landscapes -- **SURVEY REQUIRED**

Shelby Reap **August 27, 2018**

NCDOT Architectural Historian Date

Anticipated Fieldwork Completion Date: February 27, 2019


North Carolina State Historic Preservation Office
HPOWEB GIS Service (NCDOT Staff)
HPO Data Layers
Background View
Annotate the ...
Search Results
R-5100A
IREDELL
D0014 Centre Presbyterian Church 1880
D0014 Baker Cemetery
D0859 Templeton House & Smokehouse
D0832 Morris Bell House 2005
D0864 Terrence Tavern Site (Approximate site)
D0589 Ephriam Davidson Family House 1881
D0501 Hit Mayhew House 2004
1 km
1 mi

HISTORIC STRUCTURES SURVEY REPORT
WIDEN SR 1109 (WILLIAMSON ROAD)
FROM I-77 TO SR 1100 (BRAWLEY SCHOOL ROAD)
MOORESVILLE, IREDELL COUNTY, NORTH CAROLINA

TIP PROJECT R-5100A
WBS NO. 41890.1.D1
PA TRACKING NO. 18-08-0002

Prepared for:
H.W. Lochner, Inc.
2840 Plaza Place, Suite 202
Raleigh, NC 27612

and

North Carolina Department of Transportation
Division 12

PREPARED BY:
Commonwealth Heritage Group, Inc.
P.O. BOX 1198
201 WEST WILSON STREET
TARBORO, NORTH CAROLINA 27886

Megan Funk
Architectural Historian

NCR-0790

DECEMBER 2018

Megan Funk 12-06-2018

Megan Funk, Principal Investigator **Date**
Commonwealth Heritage Group

Mary Pope Furr, Supervisor **Date**
Historic Architecture Group, NCDOT

HISTORIC STRUCTURES SURVEY REPORT
WIDEN SR 1109 (WILLIAMSON ROAD)
FROM I-77 TO SR 1100 (BRAWLEY SCHOOL ROAD)
MOORESVILLE, IREDELL COUNTY, NORTH CAROLINA

TIP PROJECT R-5100A
WBS NO. 41890.1.D1
PA TRACKING NO. 18-08-0002

Prepared for:
H.W. Lochner, Inc.
2840 Plaza Place, Suite 202
Raleigh, NC 27612

and

North Carolina Department of Transportation
Division 12

PREPARED BY:
Commonwealth Heritage Group, Inc.
P.O. BOX 1198
201 WEST WILSON STREET
TARBORO, NORTH CAROLINA 27886

Megan Funk
Architectural Historian

NCR-0790

DECEMBER 2018

MANAGEMENT SUMMARY

The North Carolina Department of Transportation (NCDOT) proposes to widen State Route (SR) 1109 (Williamson Road) in Mooresville, Iredell County. The Area of Potential Effects (APE) equates with the study area and extends along SR 1109 from I-77 to SR 1100 (Brawley School Road). The project is included in the North Carolina State Transportation Improvement Plan (STIP) as Project Number R-5100A and is state funded. Federal permits are anticipated.

The project is subject to review under the Section 106 Programmatic Agreement for Minor Transportation Projects (NCDOT/NCHPO/FHWA/USFS 2015). An NCDOT Architectural Historian conducted preliminary documentary research and a site visit to identify and assess all resources of approximately fifty years of age or more within the APE. One resource warranted intensive National Register eligibility evaluation and is the subject of this report. NCDOT Architectural Historians determined all other properties and districts are not worthy of further study and evaluation due to lack of historical significance and/or integrity.

This report represents the documentation of one property located within the APE for this project, as per Section 106 of the National Historic Preservation Act of 1966. For the preparation of this evaluation report, the Commonwealth Heritage Group, Inc. (Commonwealth), architectural historian conducted architectural analysis and in-depth National Register of Historic Places (NRHP) evaluation of the requested property in the study area. Field documentation included notes, sketch maps, and digital photography. Background research was conducted at the Iredell County Register of Deeds online, in addition to using other online sources. This report recommends the Chester Farmstead as not eligible for listing in the NRHP.

PROPERTY NAME	HPO SSN	ELIGIBILITY DETERMINATION	CRITERIA
Chester Farmstead	ID1819	Not Eligible	-

CONTENTS

METHODOLOGY

For the preparation of this report, the Commonwealth architectural historian conducted architectural analysis and in-depth NRHP evaluations of the requested property in the study area in November 2018. Field documentation included notes, sketch maps, and digital photography. Background research was conducted at the Iredell County Register of Deeds online, in addition to using other online sources. This report includes the architectural analysis and in-depth evaluation of one property in the Area of Potential Effects (APE): the Chester Farmstead (ID1819). This report is on file at NCDOT and is available for review by the public.

Commonwealth prepared this historic architectural resource evaluation report in accordance with the provisions of the *Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation*,[1] NCDOT's *Survey Procedures and Report Guidelines for Historic Architectural Resources*, and the North Carolina State Historic Preservation Office's (HPO's) *Report Standards for Historic Structure Survey Reports*. Resources are evaluated according to NRHP criteria. The location of the project area and the evaluated resource are shown in Figures 1 and 2.

PHYSICAL ENVIRONMENT

The study area is located west of Mooresville and is crossed by a branch of Lake Norman. It is characterized by a mix of commercial and residential development, with commercial development concentrated at the northern and southern ends and both forms of development in the center. A number of residential streets extend from Williamson Road and lead to neighborhoods with sinuous streets and roughly rectangular parcels with average sized single-family dwellings that date to the late 1990s. The neighborhoods are primarily concentrated around and north of Lake Norman. An exception to this property type is the Chester Farmstead (ID1819), which is located roughly 0.35 miles south of the northern terminus of the study area and 0.25 miles north of the neighborhoods associated with the lake. The parcel is just north of the Y intersection formed by Williamson and Sundown Road and unlike the parcels closer to the lake, is large (over 30 acres) and irregularly shaped. It also contains multiple dwellings that date from the early twentieth century to 1964 in addition to a variety of domestic and agricultural outbuildings and has large expanses of mowed lawn and wooded areas. The adjoining parcels are also characterized by large lawns and wooded areas but are used for commercial purposes, such as offices, a church, and electrical easements.

[1] National Park Service, 2017. 48 CFR 44716; 36 CFR Part 800; 36 CFR Part 60.

Figure 1: Project Location.

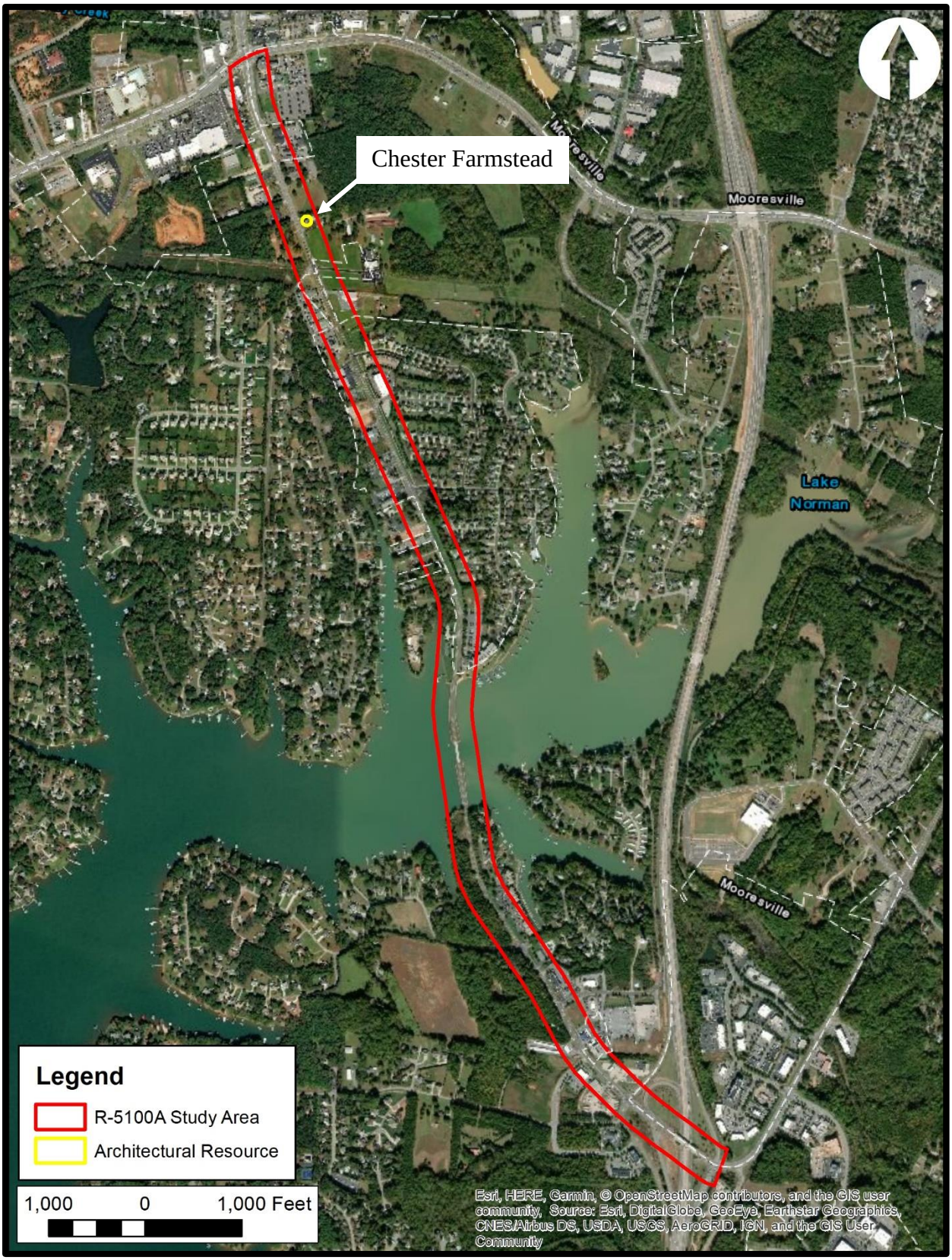


Figure 2: Area of Potential Effects.

PROPERTY INVENTORY AND EVALUATIONS

Resource Name:	Chester Farmstead
NCDOT Survey Site Number:	001
HPO Survey Site Number:	ID1819
Location:	407 Williams Road, Mooresville, NC 28115
Parcel ID:	4647308783.000
Dates(s) of Construction:	Early 20th Century
Recommendation:	Not Eligible

Figure 3: Chester Farmstead, Original Dwelling, Looking Northeast.

Setting

The farmstead is located on the east side of Williamson Road just north of an intersection with Sundown Drive. The original dwelling is oriented toward Williamson Road and stands approximately 40 feet from the road and Grayson Drive, a narrow gravel path that crosses the property 30 feet south of the dwelling. There is a paved driveway north of the dwelling. Opposite of the dwelling on Williamson Road is a wooded parcel and north of this parcel is a medical office. The properties to the north and south of the farmstead contain churches that are separated from the house by fields. One church, Harbor Church, stands on a parcel that was cut from the farmstead giving its parcel an irregular shape. A Duke Energy electric tower is located near the southeast corner of the parcel and a cleared right-of-way held by the electrical company follows the southern edge of the parcel as well (Figure 4 and 5).

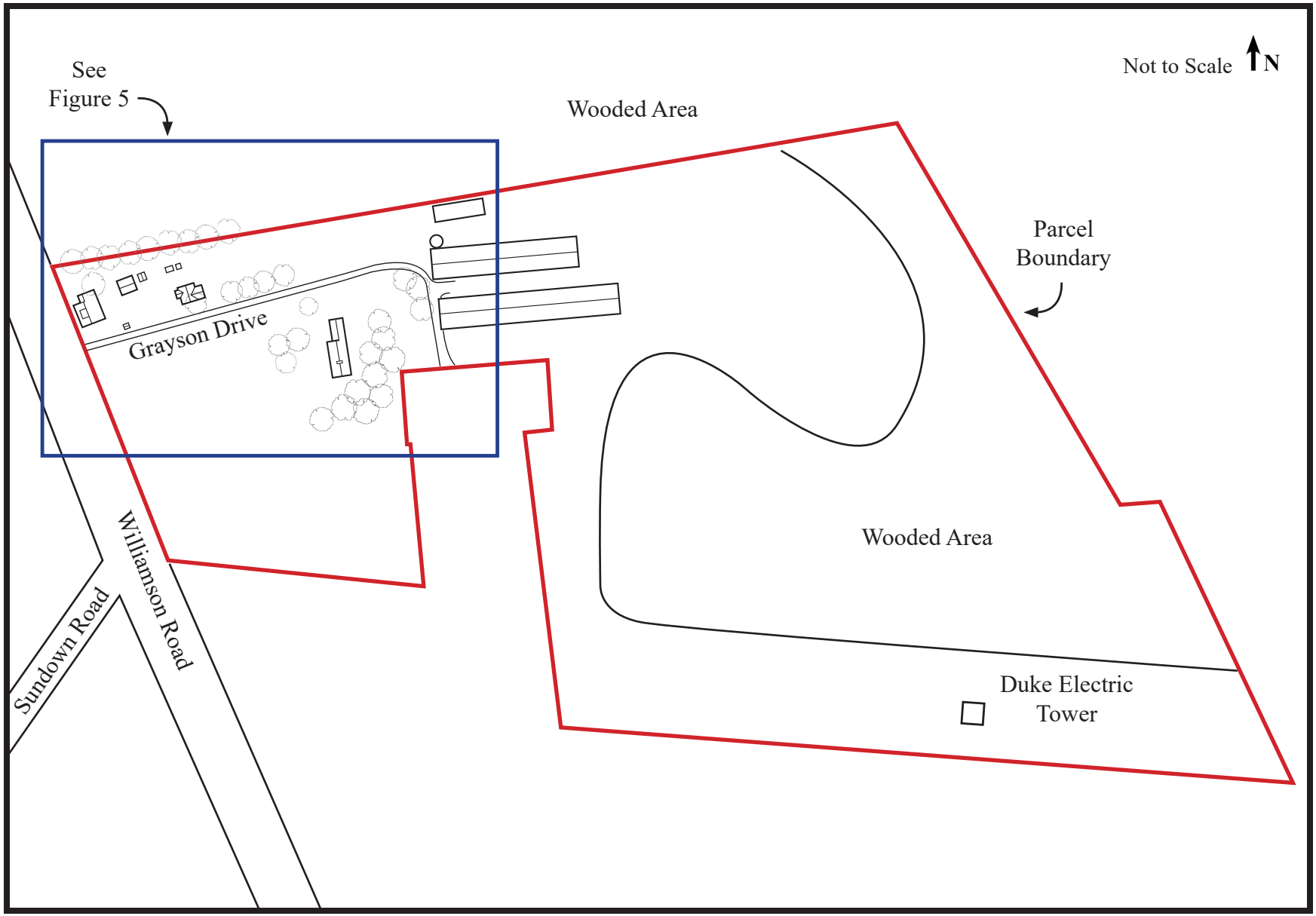


Figure 4: Sketch Map.

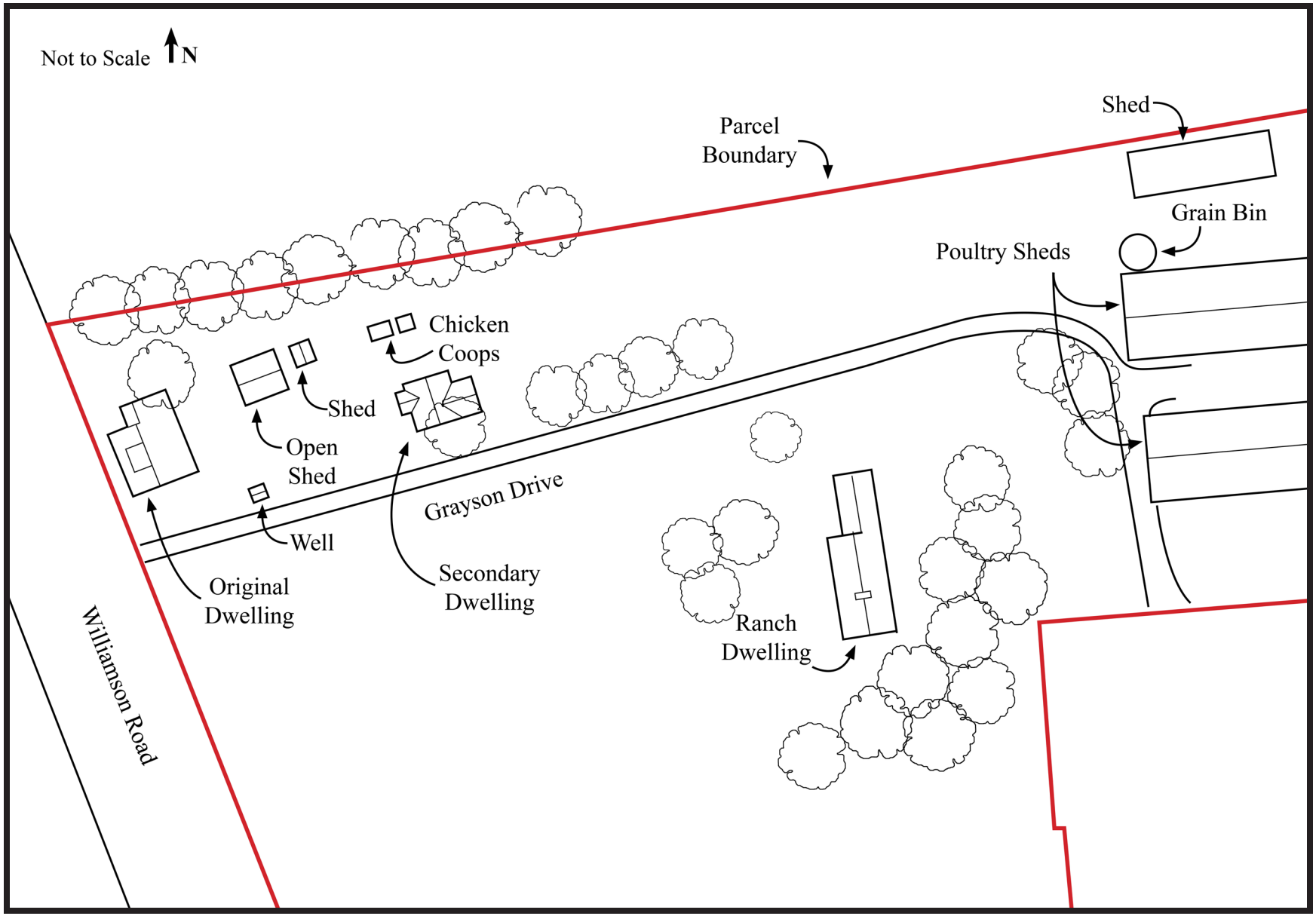


Figure 5: Sketch Map, Close-up of Structures.

Property Description

Original Dwelling
Exterior
The original house is a one-story vernacular dwelling with a concrete block foundation, asbestos over wooden siding, and a side-gabled asphalt shingle roof. Though it does not fully embody the style, it displays modest Craftsman-style features such as exposed rafter tails and gallows brackets. It has an integral full-width front porch supported by square wooden posts and a small pop-up dormer that is centered on the front slope of the roof and lit by a linear five-pane window. The porch shelters a symmetrical façade with a wooden entry door flanked by paired two-over-two horizonal pane wooden sash windows. The entry door has three horizontal lights over three equal-sized horizontal panels. The porch is approached by a small set of brick steps (see Figure 3). A small wing extends from the north (side) elevation of the dwelling. It has a bay window with three ten-pane windows on its west (front) elevation and a paired window on its north (side) elevation (Figure 6).

The east (rear) elevation contains from south to north a window with three horizontal panes, a screened entry door flanked on the south by a two-over-two window, and a jalousie window. A small one-over-one window and an entry door pierce the rear elevation of the wing. The rear portion of the dwelling is sheltered by a roof with a slightly lower pitch than the center portion of the house, suggesting that it may have begun as a porch. This idea is further substantiated by a boarded over section on the north side of the door and window (Figure 7).

Figure 6: Chester Farmstead, Original Dwelling, Looking Southeast.

Figure 7: Chester Farmstead, Original Dwelling, Looking West.

Figure 8: Chester Farmstead, Original Dwelling, Looking Northwest.

The south (side) elevation contains three one-over-one wooden sash windows. A brick chimney rises between the easternmost windows, though it is truncated at the roofline and is pulling away slightly from the dwelling, and the original wooden siding is visible behind the chimney. A large vent is placed below the peak of the gable (Figure 8). A similar vent is present on the north (side) elevation above the wing and a second chimney rises from the peak of the roof near the north gable end.

Interior

The dwelling is rented and therefore was not able to be viewed by the surveyor. The owner, Joan Ammons, however, shared that the interior was renovated in the late 1950s. As part of the renovation sheetrock and a kitchen were added.[2]

Ancillary Buildings

Ancillary structures associated with the dwelling include a front-gabled shelter that faces west and is open on each side. It is supported by square wooden posts and sheltered by a standing seam metal roof. The second structure is a front-gabled shed that faces south. It is clad with metal sheets that display a profile similar to boards and battens and has a standing seam metal roof. It has double leaf sliding doors on the front elevation (Figure 9).

Figure 9: Chester Farmstead, Shelter and Shed, Looking Northwest.

[2] Joan Ammons, interview with author, November 8, 2018.

Second Dwelling

Exterior

The second dwelling is a ca. 1940 dwelling that was moved to the parcel in the early 2000s from a property nearby.[3] Though the reason for moving it is unknown, it was likely salvaged from a soon-to-be developed property and is now used by the property owner's granddaughter. The dwelling is one story, side-gabled and has a gabled rear wing. It is covered by an asphalt shingled roof, clad with vinyl siding, and rests on a concrete foundation. A gabled porch supported by unfinished wooden posts and surrounded by simple wooden balusters extends from the west (front) elevation. It shelters a one-over-one vinyl sash window and modern entry door. South of the porch is a second one-over-one vinyl sash window (Figure 10).

The north (side) elevation contains an entry door flanked on the west by a one-over-one vinyl sash window. The door is approached by wooden steps. The side elevation of the rear wing is blind (Figure 11).

The rear wing extends from the south side of the east (rear) elevation and contains one eight-over-eight and one six-over-six vinyl sash window. A six-over-six vinyl sash lights the rear elevation of the main body of the dwelling, north of the wing (Figure 12).

The south (side) elevation contains three windows. Two eight-over-eight vinyl sash windows that flank a one-over-one vinyl sash window (Figure 13).

[3] Iredell County Property Records, Parcel 4647308783.000, https://web.co.iredell.nc.us, accessed December 4, 2018.

Figure 10: Chester Farmstead, Second Dwelling, Looking Northeast.

Figure 11: Chester Farmstead, Second Dwelling, Looking Southeast.

Figure 12: Chester Farmstead, Second Dwelling, Looking West.

Figure 13: Chester Farmstead, Second Dwelling, Looking North.

Interior

The homeowner declined to have the interior photographed and the surveyor observed that it was finished with modern materials.

Ancillary Buildings

Ancillary structures associated with the dwelling include two frame and wire chicken coops to its north and the frame of what may have been a greenhouse to the east. Many children's items such as a trampoline, swing set, and basketball goal fill the yard as well (Figure 14).

Figure 14: Chester Farmstead, Chicken Coops, Looking Northeast.

Ranch Dwelling

Exterior

The ca. 1964 Ranch-style dwelling stands east of the other houses on a slight rise. It is one story with a basement and has a side-gabled asphalt shingle roof, is clad with brick veneer, and rests on a brick foundation. The west (front) elevation contains four unequally-sized bays that are filled, from north to south, with a paired single-pane window, a tripled one-over-one window, an entry door with three square lights arranged vertically, and a second paired single-pane window. The entry door is flanked by wooden panels with insets that mirror the arrangement of the door's windows and approached by brick steps that lead to a brick stoop. A chimney rises from the forward slope of the roof, just below the roof's crest. It is particularly wide and is oriented perpendicular to the roof's crest. Small two pane windows pierce the lower portion of the elevation (Figure 15).

A gabled carport telescopes from the north (side) elevation and shelters a concrete pad as well as a screened porch. It is supported by thin metal poles which are set in a low brick wall on the west side (Figure 16).

The windows on the east (rear) elevation are all set high on the elevation, close to the dwelling's eave. They include, south to north, a paired single-pane window, a small one-over-one window, and three paired single-pane windows, the last of which is particularly small. North of the windows is an entry door with two horizontal lights (Figure 17).

Figure 15: Chester Farmstead, Ranch Dwelling, Looking East.

Figure 16: Chester Farmstead, Ranch Dwelling, Looking Southeast.

Figure 17: Chester Farmstead, Ranch Dwelling, Looking Southwest.

The south (side) elevation contains two paired single-pane windows on the first story and two one-over-one horizontal paned windows and an entry door on the basement story. The entry door is accessed by steps that are recessed into the ground (Figure 18).

Figure 18: Chester Farmstead, Ranch Dwelling, Looking Northeast.

Interior

The homeowner declined to have the interior photographed and the surveyor observed that it was well preserved with some modern updates.

Ancillary Buildings

East of the dwelling are two poultry sheds and a general shed. According to the property's appraisal card, all three structures were constructed in 1968. The poultry sheds are linear buildings with gabled ends, concrete block foundations, German siding and plywood sheet cladding, and standing seam metal roofs. Both have large double-leaf doors on the west gable end and banks of windows that light the north and south (side) elevations. Tarps partially cover some of the window, many of which have no panes or screens. A grain bin stands at the northwestern corner of the northern poultry shed. It has an auger at its base that once fed grain into the shed (Figures 19 and 20).

The shed-roofed shed stands north of the poultry sheds and faces south. It is four bays wide with tree-trunk like posts for supports and is open on the south (front) and north (rear) elevations. The west (side) elevation is constructed of concrete block and the east end is enclosed with plywood sheets. It has a standing seam metal roof (Figure 21).

Figure 19: Chester Farmstead, Poultry Shed, Looking Southeast.

Figure 20: Chester Farmstead, Poultry Shed, Looking Southeast.

Figure 21: Chester Farmstead, General Shed, Looking Northeast.

Historical Background

The Chester Farmstead is located in southern Iredell county, which was formed from the western portion of Rowan County in 1788. At the time, the area's residents were primarily subsistence farmers who planted vegetables, grains, and cotton and raised stock for their own consumption and use. By the 1870s, when Mooresville formed to the east of the farmstead, industry in the southern portion of the county was dominated by cotton. This trend continued into the twentieth century with the establishment of cotton mills that turned the locally grown cotton into material and finished goods.[4] By 1900, the county was producing nearly 8,000 500-pound bales of cotton annually and had an average farm size of 90.7 acres.[5] Though the Chester Farmstead measured 36 acres in 1918, it is possible that it was once a part of a larger farm broken apart by the recessions of the late nineteenth century or that it was historically smaller in size.

Also uncertain, is when the first dwelling was constructed. According to its property appraisal card, the original house was constructed in 1940. Its simple details and the fact that it was constructed without a kitchen, however, indicate that it was likely constructed much earlier. Adding some credence to this theory is the presence of a dwelling in the vicinity of the farmstead on a 1917 map of Iredell County (Figure 22). The residence, though, is marked with the name M. W. Watt which does not match with the first known owners of the property, R. H. and Lucy

Figure 22: Map of Iredell County (North Carolina Maps).

[4] Ruth Little-Stokes, An Inventory of Historic Architecture*: Iredell County, North Carolina*, Iredell County: Iredell County, City of Statesville, Town of Mooresville, and Iredell County Historic Properties Commission, 1978, p. 1-4.
[5] US Census, 1900.

Morrison, who in 1918 sold the 36-acre tract to J. H. and Ida V. Small for $650.[6] It is possible that the Morrisons owned the property for only a short time – too short to be reflected by the map, which dates to one year before the sale – as the Smalls retained it for only a short time as well. In 1920, less than two years after they purchased it, they sold it to James E. Chester and Mrs. A. M. Wilson.[7] It is not explained in the deed, but Mrs. A. M. Wilson is likely James' mother, Sarah Ann Melissa Wilson.[8] In 1922, James married Beulah J. Campbell and in 1925, Mrs. A. M. Wilson deeded her one-half interest in the property to James.

By 1930, the census listed James and Beulah as owning their home and living on a farm – a detail that gives further credence to the existence of the dwelling at that time. The 1938 Iredell County Highway Map also confirms the presence of a dwelling in the vicinity of the farmstead (Figure 23). The census lists James as a general farmer and as a veteran of WWI. While cotton remained the primary crop in the county, with production upwards of 20,000 bales and over 87,000 acres devoted to the crop, it is likely that the Chester family focused on a smaller scale crop such as corn, which was saw the production of over 400,000 bales in 1930.[9] The census also reported that the couple had four children, James G. Chester, Isabelle M. Chester, Margret

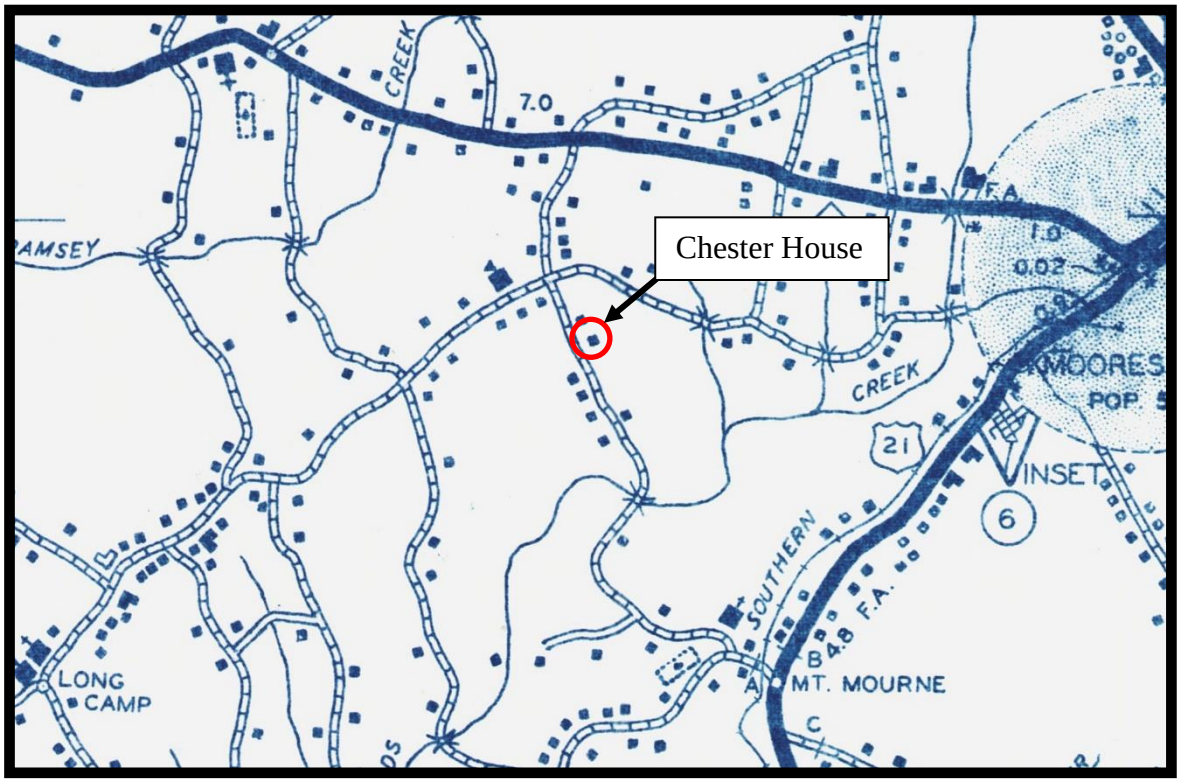


Figure 23: Iredell County Highway Map (North Carolina Maps).

[6] Iredell County Deed Book 60, page 328.
[7] Iredell County Deed Book 64, page 384.
[8] "James Earl Chester," Ancestry.com.
[9] US Census, 1930.

A. Chester, and Nannie E. Chester.[10] In 1932, James died and the property passed to Beulah and their children.[11]

In 1955, the family members deeded the land to James "Gray" Chester, the oldest child of James and Beulah, and his wife Joan.[12] Gray and Joan renovated the house soon thereafter replacing the plaster walls with sheetrock and adding a kitchen. Around 1964, they built the Ranch-style dwelling near the top of the hill.[13] Gray owned the property until his death in 1973, at which point its ownership passed to Joan.[14]

During this time, the landscape of southern Iredell County was changed significantly by the development of Lake Norman to the south and west of the farm. As early as the 1920s, Duke Power (now Duke Energy) had been purchasing land in the area in order to form a reservoir that would provide a source for hydroelectric power as well fresh water and flood control. The lake would be the last, and the largest, lake created by the power company along the Catawba River. After the completion of the dam in 1963, the area filled quickly with water reaching "full pond" in July 1963. With the water came people and families who desired to take part in the more scenic and recreational aspects of the lake, and with these people came businesses and other supportive industries. Today the lake covers roughly 32,000 acres of land that once included residences, farms, churches and schools. Its effect in the area near the Chester Farmstead is most visible in relation to Davison Creek, which once flowed south of the property crossing Williamson Road and branching towards Mooresville but is today an arm of the lake (see Figures 23 and 25). In the decades after the lake's completion, land owners along its edges, many who had been farmers, began to sell or develop the land as subdivisions leading to the widespread residential and commercial development that is present in the area today.[15]

Though the Chester property has for the most part evaded development, it has experienced some parceling off over time with three parcels, equaling about six acres total, sold from the original tract. The first was a 1.5-acre tract sold to Gray and Joan's son, Thomas W. Chester and his wife, Marsha Shoemaker Chester. Because the parcel does not touch Williamson Road, the deed incorporated an access easement, which runs parallel with a right-of-way that traverses the property and is held by Duke Power Company.[16] Thomas and Marsha constructed a Ranch-style dwelling on the tract. Eventually the parcel, as well as an additional 3.44-acre tract that connects it with Williamson Road, was sold to Norman Harbor Church (now Harbor Church). The dwelling was used as the church's primary meeting place until 2004 when it constructed a new, more traditional church building south of the dwelling.[17] The third parcel, which measures 0.7

---

[10] US Census, 1930.
[11] "James Earl Chester," Ancestry.com.
[12] Iredell County Deed Book 282, page 173.
[13] Joan Ammons, interview with author, November 8, 2018.
[14] "James Gray Chester Sr.," Ancestry.com, https://www.ancestry.com/family-tree/person/tree/41438742/person/69000276577/facts, accessed November 12, 2018.
[15] Donna Campbell, *The History of Lake Norman*, Our State, https://www.ourstate.com/the-history-of-lake-norman, accessed December 4, 2018.
[16] Iredell County Deed Book 619, page 351.
[17] Joan Ammons, interview with author, November 8, 2018 and Harbor Church, https://harborchurch.org/home/, accessed November 12, 2018.

Figure 24: 1993 Aerial Image (HPOWeb).

Figure 25: 2002 Aerial Image (Iredell County GIS).

acres, was sold in 1999 to Gray and Joan's son, James G. Chester, and his wife, Janye H. Chester.[18] The small tract, which is located near the center of the original 36-acre parcel, contains a ca. 1950 dwelling that was moved to the property in 2001 and is accessed by Grayson Drive.[19]

Between 1993 and 2002, the pace of commercial and residential development began to increase to the north and south of the parcel (Figures 24 and 25). Today, the parcel measures just over 30 acres and contains three residences – the small dwelling near Williamson Road, the Ranch-style dwelling, and the ca. 1940 dwelling that was moved to the property before 2002. Though a number of ancillary structures remain on the property and a small number of chickens are still raised by its owners, the property no longer operates as a farm.

[18] Iredell County Deed Book 1174, page 1517.
[19] Appraisal Card, https://web.co.iredell.nc.us/PublicAccess/AppraisalCard.aspx?Parcel=4647402875.000, accessed November 12, 2018.

NRHP Criteria Evaluation
For purposes of compliance with Section 106 of the NHPA, the Chester Farmstead is not recommended eligible for the NRHP.

Integrity
The original dwelling remains in its original location and though its immediate setting has been minimally altered, the area around it is now characterized by commercial development and planned neighborhoods. The house retains a moderate level of historic integrity regarding design, materials, and workmanship. These qualities are expressed in its humble form, wooden sash windows, and its simple decorative features. The addition of two other dwellings, one of which was constructed on site and the other moved to the site, coupled with the property no longer being used for agricultural purposes, has compromised its association with early twentieth-century agricultural practices and its feeling as a rural homestead.

Criterion A
The Chester Farmstead is recommended not eligible for the NRHP under Criterion A (Event). To be eligible under Criterion A the property must retain integrity and must be associated with a specific event marking an important moment in American prehistory or history or pattern of events or historic trends that made a significant contribution to the development of a community, a state, or a nation. Furthermore, the property must have existed at the time and be documented to be associated with the events. Finally, the property's specific association must be important as well.

The Chester Farmstead is historically associated with general farming and poultry farming, resulting in an expectation of both animal and crop storage facilities as well as agricultural fields. Though the poultry sheds and a few other outbuildings remain and still suggest an agricultural connection, the fields contain residences and are characterized by mowed lawns. The effect is a loss of historic integrity relating to setting and design of a farm complex. Therefore, this resource is not a good embodiment of historical agricultural activity in Iredell County. No other pattern of events was identified for the property and therefore it is recommended not eligible under Criterion A.

Criterion B
The Chester Farmstead is recommended not eligible for the NRHP under Criterion B (Person). For a property to be eligible for significance under Criterion B, it must retain integrity and 1) be associated with the lives of persons significant in our past, i.e., individuals whose activities are demonstrably important within a local, state, or national historic context; 2) be normally associated with a person's productive life, reflecting the time period when he/she achieved significance; and 3) should be compared to other associated properties to identify those that best represent the person's historic contributions. Furthermore, a property is not eligible if its only justification for significance is that it was owned or used by a person who is or was a member of an identifiable profession, class or social or ethnic group.

The property is historically associated with the Chester family, whose productive life was spent maintaining the family farm. Research did not reveal their activities to be historically significant within the local, state, or national historic context. Therefore, the property is recommended not eligible under Criterion B.

Criterion C

The Chester Farmstead is not recommended eligible for the NRHP under Criterion C (design/construction). For a property to be eligible under this criterion, it must retain integrity and either 1) embody distinctive characteristics of a type, period, or method of construction; 2) represent the work of a master; 3) possess high artistic value; or 4) represent a significant and distinguishable entity whose components may lack individual distinction.

The original house on the Chester Farmstead is representative of a small vernacular dwelling with some Craftsman style features such as exposed rafter and purlin tails and a shed-roofed dormer. The modest dwelling differs from typical Craftsman-style dwellings in that it is only one-story. Also, as the Craftsman style became popular during the early twentieth century, after the introduction of indoor plumbing, most were constructed with kitchens. The house, however, was constructed without a kitchen suggesting that it predates the style or is an early, not yet fully developed example. In the 1950s, it was renovated with the addition of a small wing on the north (side) elevation. It is likely that the original wooden weatherboard siding was covered with asbestos siding around this time as well. Despite these changes, the dwelling retains its wooden sash windows and front door in addition to other early twentieth-century features.

A review of an architectural inventory of the county conducted by Ruth Little-Stokes in 1978 did not provide any direct comparative examples but did provide an overview of the county's architectural development. The inventory found that typical dwellings were one-and-one-half or two-stories – somewhat larger than the original dwelling on the Chester Farmstead – with five or six rooms and an exterior end chimney. It also emphasized the lack of defining stylistic features on many of its dwellings, an observation that is true of the small dwelling as well.[20]

HPOWeb lists 86 Craftsman-style resources in Iredell County, all of which are located in or on the outskirts of Mooresville and Statesville, and none of which are listed on the NRHP. Many of these serve as larger, more articulated versions of the style and most, even the smaller examples, have gabled versus shed-roofed dormers. One similarly scaled example is a house at 622 W. Wilson Avenue (Figure 26). Constructed ca. 1925, the dwelling has an integral porch supported by battered box columns on brick pedestals and a central entry door flanked by one-over-one windows. Like the house, its original siding has been replaced with a modern material, in this case, vinyl, and unlike the house its windows have also been traded for vinyl replacements. Nonetheless, the dwelling retains many Craftsman-style features and serves as a better example of the style.

A search of HPOWeb for "homesite," "homestead," and "farm" revealed 15 resources. Half of these are nineteenth-century examples, though a few date to the early twentieth century. Most of the twentieth-century examples, however, are represented by the Queen Anne or more vernacular architectural styles. One resource is listed in HPOWeb as the John Bradford House (ID1719) and characterized as a "c. 1900, 1950s 2-story side gable 19th-20th c. traditional/vernacular frame I-House." The Bradford House shares various qualities with the Chester House including a three-bay integral porch supported by square wooden columns and extant agricultural buildings

[20] Little, p. 5.

Figure 26: 622 W. Wilson Avenue, Looking South.

Figure 27: John Bradford House (ID1719), Looking North.

(Figure 27). The house, which is located in an area of Mooresville that has experienced widespread residential development, differs from the Chester House in that it is larger and has lost much of its associated land, but is more well-preserved. Its barn is also more well-preserved than the outbuildings associated with the Chester Farmstead and though it is not likely used for agricultural purposes it provides a strong sense of how the property was originally arranged and functioned.

Each of these examples displays how development has affected properties in Iredell County, which increased in population thirty-two percent between 1990 and 2000 and another thirty percent between 2000 and 2010.[21] They are also exemplary of early twentieth-century dwellings which have been modified with new materials but in doing so have retained more of their original character. In contrast, the original dwelling retains various original elements that have not been well-maintained and has also been clad with asbestos siding, which does not convey the same pattern and rhythm as its original weatherboard siding.

Of the additional dwellings, the Ranch-style house has been a part of the parcel since 1964 and retains a high level of integrity but is a common example of the style. The dwelling that was moved in the early 2000s is clad with vinyl siding and has vinyl windows.

As for the outbuildings, the poultry sheds appear to be in a state of disrepair with portions covered by tarps, while the other buildings appear to be in decent condition but are no longer utilized for agricultural purposes. Furthermore, the buildings appear to relate more to the later part of the nineteenth century (1960s) versus the period in which the original dwelling was constructed.

For these reasons, the Chester Farmstead is recommended not eligible for listing in the NRHP under Criterion C for architecture.

Criterion D

The Chester Farmstead is recommended not eligible for the NRHP under Criterion D (potential to yield information). For a property to be eligible under Criterion D, it must meet two requirements: 1) the property must have, or have had, information to contribute to our understanding of human history and prehistory, and 2) the information must be considered important.

The property is not likely to yield any new information pertaining to the history of building design and technology and is therefore not recommended eligible under Criterion D.

[21] US Census.

REFERENCES CITED

Ancestry.com
"James Earl Chester." Chester Family Tree.
"James Gray Chester Sr." Ward Family Tree.

Campbell, Donna, *The History of Lake Norman*, Our State, https://www.ourstate.com/the-history-of-lake-norman, accessed December 4, 2018.

Iredell County Public Tax Records, https://iredell.connectgis.com/Map.aspx, accessed November 12, 2018.

Harbor Church, https://harborchurch.org/home/, accessed November 12, 2018.

HPOWEB Map Service, accessed November 12, 2018, http://gis.ncdcr.gov/hpoweb.

Iredell County Register of Deeds (Mooresville, North Carolina)
Deed Book 60, page 328.
Deed Book 64, page 384.
Deed Book 282, page 173.
Deed Book 619, page 351.
Deed Book 1174, page 1517.

Little-Stokes, Ruth, *An Inventory of Historic Architecture: Iredell County, North Carolina*, Iredell County: Iredell County, City of Statesville, Town of Mooresville, and Iredell County Historic Properties Commission, 1978.

McAlester, Virginia Savage, *A Field Guide to American Houses*, New York: Alfred A. Knopf, Inc., 2013.

National Park Service, 2017. 48 CFR 44716; 36 CFR Part 800; 36 CFR Part 60.

United States Census Bureau, www.census.gov, accessed November 12, 2018.

United States Department of Commerce, *Fifteenth Census of the United States*, Washington, District of Columbia: Bureau of the Census, 1930.

Tribal Coordination

Catawba Indian Nation
Tribal Historic Preservation Office
1536 Tom Steven Road
Rock Hill, South Carolina 29730

Office 803-328-2427

March 7, 2023

Attention: Michael Turchy
NC Department of Transportation
1598 Mail Service Center
Raleigh, NC 27699

Re. THPO #	TCNS #	Project Description
2023-193-92		Widening of Williamston Road from I-77 to Brawley School Road, in Iredell Co. as project R-5100 A

Dear Mr. Turchy,

The Catawba have no immediate concerns with regard to traditional cultural properties, sacred sites or Native American archaeological sites within the boundaries of the proposed project areas. **However, the Catawba are to be notified if Native American artifacts and / or human remains are located during the ground disturbance phase of this project.**

If you have questions please contact Caitlin Rogers at 803-328-2427 ext. 226, or e-mail Caitlin.Rogers@catawba.com.

Sincerely,

Caitlin Rogers for

Wenonah G. Haire
Tribal Historic Preservation Officer

ᏣᎳᎩ ᎠᏰᎵ
CHEROKEE NATION®
P.O. Box 948 • Tahlequah, OK 74465-0948
918-453-5000 • www.cherokee.org

Chuck Hoskin Jr.
Principal Chief
ᏣᎵ ᏉᏑᎵ ᎦᏁᎦ
ᎤᎬᏫᏳᎯ

Bryan Warner
Deputy Principal Chief
ᏎᏃᎯᎵᏙᎯ
ᏔᎵᏁ ᎠᏓᏗᏁ ᎤᎬᏫᏳᎯ

March 3, 2023

Michael Turchy
North Carolina Department of Transportation
1598 Mail Service Center
Raleigh, NC 27699-1598

Re: PN R-5100a, SR-1109 Widening from I-77 Interchange to SR-1100

Mr. Michael Turchy:

The Cherokee Nation (Nation) is in receipt of your correspondence about **PN R-5100a**, and appreciates the opportunity to provide comment upon this project.

The Nation maintains databases and records of cultural, historic, and pre-historic resources in this area. Our Historic Preservation Office (Office) reviewed this project, cross referenced the project's legal description against our information, and found no instances where this project intersects or adjoins such resources. Thus, the Nation does not foresee this project imparting impacts to Cherokee cultural resources at this time.

However, the Nation requests that the North Carolina Department of Transportation (NCDOT) halt all project activities immediately and re-contact our Office for further consultation if items of cultural significance are discovered during the course of this project. Additionally, the Nation requests that NCDOT conduct appropriate inquiries with other pertinent Historic Preservation Offices regarding historic and prehistoric resources not included in the Nation's databases or records.

If you require additional information or have any questions, please contact me at your convenience. Thank you for your time and attention to this matter.

Wado,

Elizabeth Toombs

Elizabeth Toombs, Tribal Historic Preservation Officer
Cherokee Nation Tribal Historic Preservation Office
elizabeth-toombs@cherokee.org
918.453.5389

SEPA Document

MINIMUM CRITERIA DETERMINATION CHECKLIST

TIP Project No.: R-5100A

State Project No.: 41890.1.D1

Project Location: The Williamson Road Widening project is located in southern Iredell County, North Carolina.

Project Description: The North Carolina Department of Transportation (NCDOT) proposes to widen existing Williamson Road (SR 1109), from I-77 to Brawley School Road (SR 1100), a distance of approximately 2.4 miles. The project proposes the construction of a four-lane, median-divided facility with a 5-foot sidewalk on the east side of the road and a 10-foot side path along the west side of the road. The proposed project is included in the 2018 - 2027 State Transportation Improvement Program (STIP). Right of way acquisition and construction are scheduled for state fiscal years 2020 and 2021, respectively.

The total estimated cost for the R-5100A project as reported in the 2018-2027 STIP is $40,200,000 which includes $9,800,000 for right of way acquisition and utility relocation costs and $30,400,000 for construction costs. The current total cost estimate for the proposed improvements for R-5100A is $39,400,000, which includes $8,800,000 for right of way acquisition, $1,000,000 for utility relocation costs, and $29,600,000 for construction costs.

Purpose and Need: The purpose of the proposed action is to reduce congestion and improve safety in the corridor. The Williamson Road widening project will provide a safer, more efficient roadway network throughout the Town of Mooresville and southern Iredell County.

The primary need for the proposed action stems from several deficiencies. As noted in the Town of Mooresville's 2008 Comprehensive Transportation Plan (CTP):

1. There are an excessive number of driveway cuts with no access management,
2. There is an inconsistent roadway cross-section due to the incremental road improvements required as different sites have been developed, and
3. There are significant traffic delays at intersections.

In addition to addressing the primary need of the project, the potential exists for additional benefits as a result of the proposed project. The project may provide improved transportation access between NC 150, Brawley School Road, I-77, and development immediately to the west of Williamson Road. It will provide improved pedestrian accommodations / continuity in the area, and may also improve emergency response and community safety.

Anticipated Permit or Consultation Requirements: A Section 404 Individual Permit, a Section 401 Water Quality Certification are required for the project along with Duke Energy Conveyance coordination.

Environmental Commitments: The list of project commitments (green sheet) is located at the end of the checklist.

Bicycle and Pedestrian Accommodations: Williamson Road, within the project limits, is designated as a bicycle route "needing improvement" in the Town of Mooresville's Comprehensive Transportation Plan. The Town has stated their preference for a 10-foot shared use path along the west side of Williamson Road and a 5-foot sidewalk on the east side. Their recommendation is based on the safety benefits, project constraints related to right of way, bridge crossing, etc., and continued support of multiple bicycle/pedestrian planning efforts at the local and regional level. Once the Town of Mooresville agrees to costs, a Municipal Agreement will be developed prior to construction. The percentage of cost share is based on population as shown in Table 1.

Table 1: Required Local Cost Share for Sidewalk Construction*

Municipal Population	Cost of Sidewalk Construction Participation	
	DOT	LOCAL
> 100,000	50%	50%
50,000 to 100,000	60%	40%
10,000 to 50,000**	**70%**	**30%**
< 10,000	80%	20%

*Per NCDOT Pedestrian Policy Guidelines

**The Town of Mooresville's population in 2016 was 36,543.

Estimated Traffic: A traffic forecast for the project was completed in May 2017. In 2040, the average annual daily traffic forecast for Williamson Road, between I-77 and Brawley School Road (SR 1100), ranges between 31,700 vehicles per day (vpd) and 34,700 vpd.

Design Exceptions: There are no anticipated design exceptions for this project.

Alternatives Discussion: The No-Build Alternative was considered but eliminated because it does not meet the purpose and need for the project. This alternative will not provide residents of southern Iredell County a safe and efficient roadway to access adjacent residential and commercial development.

Only one build alternative was studied. This was due to the residential and commercial development along either side of Williamson Road, prior planning efforts with adjacent development to accommodate the future widening of Williamson Road, and the existing

right-of-way. The build alternative utilizes a "best-fit" alignment along Williamson Road to avoid residential and commercial relocations and minimize impacts to adjacent properties. The median-divided facility will provide full-movement access at all signalized intersections as well as un-signalized intersections as spacing requirements permit. U-turn movements will be permitted at these locations with the exception of the Williamson Road / I-77 Southbound Exit Ramp. All other access points will be limited to right-in/right-out only access.

The existing bridge over I-77 will be widened to accommodate two through lanes in each direction, dual eastbound left-turn lanes, a side path on the north side, and provide the required vertical clearance over I-77.

The existing 2-lane bridge carrying Williamson Road across Lake Norman will be replaced with a new 4-lane bridge that will provide a minimum vertical clearance of 12 feet above Lake Norman's maximum pond elevation (760 feet). The new bridge will include sidewalk on the east side and the side path on the west side.

Water Resources: Water resources in the study area are part of the Catawba River basin [U.S. Geological Survey (USGS) Hydrologic Unit 03050101]. One surface water body was identified within the study area (Table 3).

Table 3: Surface Waters in the Study Area.

Surface Water	Jurisdictional	Area (ac) in Study Area	Project Impacts (ac)	
			Permanent	Temporary
Lake Norman / Reeds Creek	Yes	12.8	1.6	0.4

Clean Water Act Waters of the U.S: One jurisdictional wetland was identified within the study area (Table 4).

Table 4: Characteristics of jurisdictional wetlands in the study area.

NCWAM Classification	NCWAM Rating	Hydrologic Classification	Area (ac)	Project Impacts (ac)
Headwater Forest	Low	Riparian	0.05	0.00
		Total	**0.05**	**0.00**

Public Involvement: A Public Meeting was held on Thursday, November 29, 2018 from 5:00 p.m. to 7:00 p.m. at the Harbor Church in Mooresville, NC. Design maps of the project were shown to the public for their input. One hundred forty-three people attended the public meeting and a total of 85 comments were received during the official comment

period which ended on December 28, 2018. More than half the comments received were about intersection access and control.

Prior to the meeting, NCDOT mailed 2,577 postcard announcements to property owners in the project vicinity informing them of the public meeting. NCDOT also created and maintained a project website which provided information about the project and materials to be presented at the public meeting.

A Local Officials Informational Meeting was held prior to the Public Meeting. There were 17 attendees. A brief presentation of project data was given followed by comments and/or questions.

A Post Public Meeting was held February 14, 2019. A total of 91 comments were received during the public comment period. Over half of the comments received were requesting a traffic signal at the Harbor Cove intersection. The NCDOT has committed to re-evaluating this location for the installation of a traffic signal as the design progresses. There were several requests for bicycle accommodations. As a result of these requests, the NCDOT Division of Bicycle and Pedestrian Transportation prepared comments on the project. With input from the Town of Mooresville, the NCDOT will install a 10-ft shared use path along the west side of Williamson Road and a 5-ft wide concrete sidewalk along the east side. Other general comments received were in agreement with raising the bridge over Lake Norman as shown on the Public Meeting maps plus concerns with right-in, right-out access that is typical of widening projects from 2-lanes to 4-lanes with a median.

More detailed responses to these comments, as well as other individual comments, can be found on the project website (https://www.ncdot.gov/news/public-meetings/Pages/R-5100A-2018-11-29.aspx). Responses were also mailed or emailed to citizens.

Agency Coordination and Comments: A start of study letter, dated November 10, 2017, was sent out to inform federal, state, and local agencies that NCDOT had begun studying the proposed improvements of the subject project and to request their comments.

An external scoping meeting was held on February 7, 2017, to discuss the project history and share pertinent information with state and federal resource and permitting agencies. A scoping letter and informational packet was sent out prior to the meeting on January 30, 2018. A second meeting with permitting agencies was conducted on September 20, 2018. As a result of discussions at this meeting, it was decided that this project would not follow the 404 merger process.

Cultural Resources: A NCDOT architectural historian conducted a study of potential historic properties within the project Area of Potential Effects (APE) in August 2018 and found several properties over 50 years of age within the APE. Surveys were required to determine if any of the properties require National Register Eligibility Evaluation. One

resource, the Chester Farmstead, warranted intensive National Register eligibility evaluation. It was determined that the Chester Farmstead is not eligible for listing in the National Register of Historic Places. No additional surveys were required (see *Historic Structures Survey Report* (December 2018) in the Appendix).

NCDOT conducted an internal map review and file search at the Office of State Archaeology (OSA) in May 2019. The APE is in a developed, disturbed context over commonly eroded soils that suggest intact, significant archaeological sites would not be encountered by the construction of the proposed road widening of an existing, urbanized roadway. Several previous surveys have resulted in no recommendations for surveys due to erosion and disturbances associated with modern development and grading. Further, background checks did not reveal any recorded significant archaeological sites in the immediate proximity of the project. No archaeological survey is recommended for this road widening project (see *No Archaeological Survey Required Form* in the Appendix).

US Fish and Wildlife Service: As of March 21, 2018, the United States Fish and Wildlife Service (USFWS) lists three federally protected species, under the Endangered Species Act (ESA) for Iredell County (bog turtle, northern long-eared bat, and dwarf-flowered heartleaf).

Habitat for dwarf-flowered heartleaf exists in the naturalized areas of the project. Surveys were conducted and revealed no populations in the project study area.

Surveys for northern long-eared bat were conducted within the structures on the project. No evidence of bat use was observed.

PART A: MINIMUM CRITERIA

	YES	NO
1. Is the proposed project listed as a type and class of activity allowed under the Minimum Criteria Rule in which environmental documentation is not required?	X	

If the answer to number 1 is "no", then the project does not qualify as a minimum criteria project. A state environmental assessment is required.

If yes, under which category? **#8**

If either category #8, #12(i) or #15 is used complete Part D of this checklist.

PART B: MINIMUM CRITERIA EXCEPTIONS

2. Could the proposed activity cause significant changes in land use concentrations that would be expected to create adverse air quality impacts?		X
3. Will the proposed activity have secondary impacts or cumulative impacts that may result in a significant adverse impact_to human health or the environment?		X
4. Is the proposed activity of such an unusual nature or does the proposed activity have such widespread implications, that an uncommon concern for its environmental effects has been expressed to the Department?		X
5. Does the proposed activity have a significant adverse effect on wetlands; surface waters such as rivers, streams, and estuaries; parklands; prime or unique agricultural lands; or areas of recognized scenic, recreational, archaeological, or historical value?		X
6. Will the proposed activity endanger the existence of a species on the Department of Interior's threatened and endangered species list?		X
7. Could the proposed activity cause significant changes in land use concentrations that would be expected to create adverse water quality or ground water impacts?		X
8. Is the proposed activity expected to have a significant adverse effect on long-term recreational benefits or shellfish, finfish, wildlife, or their natural habitats		X

If any questions 2 through 8 are answered "yes", the proposed project may not qualify as a Minimum Criteria project. A state environmental assessment (EA) may be required. For assistance, contact:

Manager, Project Development and Environmental Analysis Branch
P. O. Box 25201
Raleigh, NC 27611
(919) 733 –3141
Fax: (919) 733-9794

PART C: COMPLIANCE WITH STATE AND FEDERAL REGULATIONS

		YES	NO
9.	Is a federally protected threatened or endangered species, or its habitat, likely to be impacted by the proposed action?	☐	X
10.	Does the action require the placement of temporary or permanent fill in waters of the United States?	X	☐
11.	Does the project require the placement of a significant amount of fill in high quality or relatively rare wetland ecosystems, such as mountain bogs or pine savannahs?	☐	X
12.	Is the proposed action located in an Area of Environmental Concern, as defined in the Coastal Area Management Act?	☐	X
13.	Does the project require stream relocation or channel changes?	☐	X
	Cultural Resources		
14.	Will the project have an "effect" on a property or site listed on the National Register of Historic Places?	☐	X
15.	Will the proposed action require acquisition of additional right of way from publicly owned parkland or recreational areas?	☐	X

Questions in Part "C" are designed to assist the Engineer and the Division Environmental Office in determining whether a permit or consultation with a state or federal resource agency may be required. If any questions in Part "C" are answered "yes", follow the appropriate permitting procedures prior to beginning project construction.

Response to Question 10

The project will require the widening of an existing 1200-ft rock causeway resulting in permanent fill in Lake Norman (see Part D, Question 20). The rock causeway is necessary to accommodate the roadway approaches and replacement of the existing bridge over Lake Norman with a new bridge to carry four lanes and a multi-use path.

PART D:(To be completed when either category #8, #12(i), or #15 of the rules are used.)

16.	Project length:	**2.4 miles**
17.	Right of Way width:	**110 FT**
18.	Project completion date:	**2024**
19.	Total acres of newly disturbed ground surface:	**30.45**
20.	Total acres of wetland impacts:	**1.74 (Perm)/0.41 (Temp) surface waters**
21.	Total linear feet of stream impacts:	**0**
22.	Project purpose:	**To reduce congestion and improve safety**

Reviewed by: Beverly G. Robinson Date: 6/24/19

Beverly G. Robinson, CPM
NCDOT Team Lead
Project Management Unit – Divisions 11-14

N Adima Date: 6/24/19

Nathan Adima, PE
NCDOT Senior Project Manager
Project Management Unit – Divisions 11-14

Brian D. Dehler Date: 6/24/19

Brian D. Dehler, PE
Consultant Project Manager
HW Lochner, Inc.

NORTH CAROLINA PROFESSIONAL SEAL 016067 ENGINEER BRIAN D. DEHLER

PROJECT COMMITMENTS
Iredell County
Williamson Road Widening (SR 1109)
W.B.S. No. 41890.1.D1
T.I.P. No. R-5100B

Sidewalks
Construction of sidewalk and a side path throughout the project is pending on a municipal agreement between NCDOT and the Town of Mooresville for cost share, maintenance, and liability.

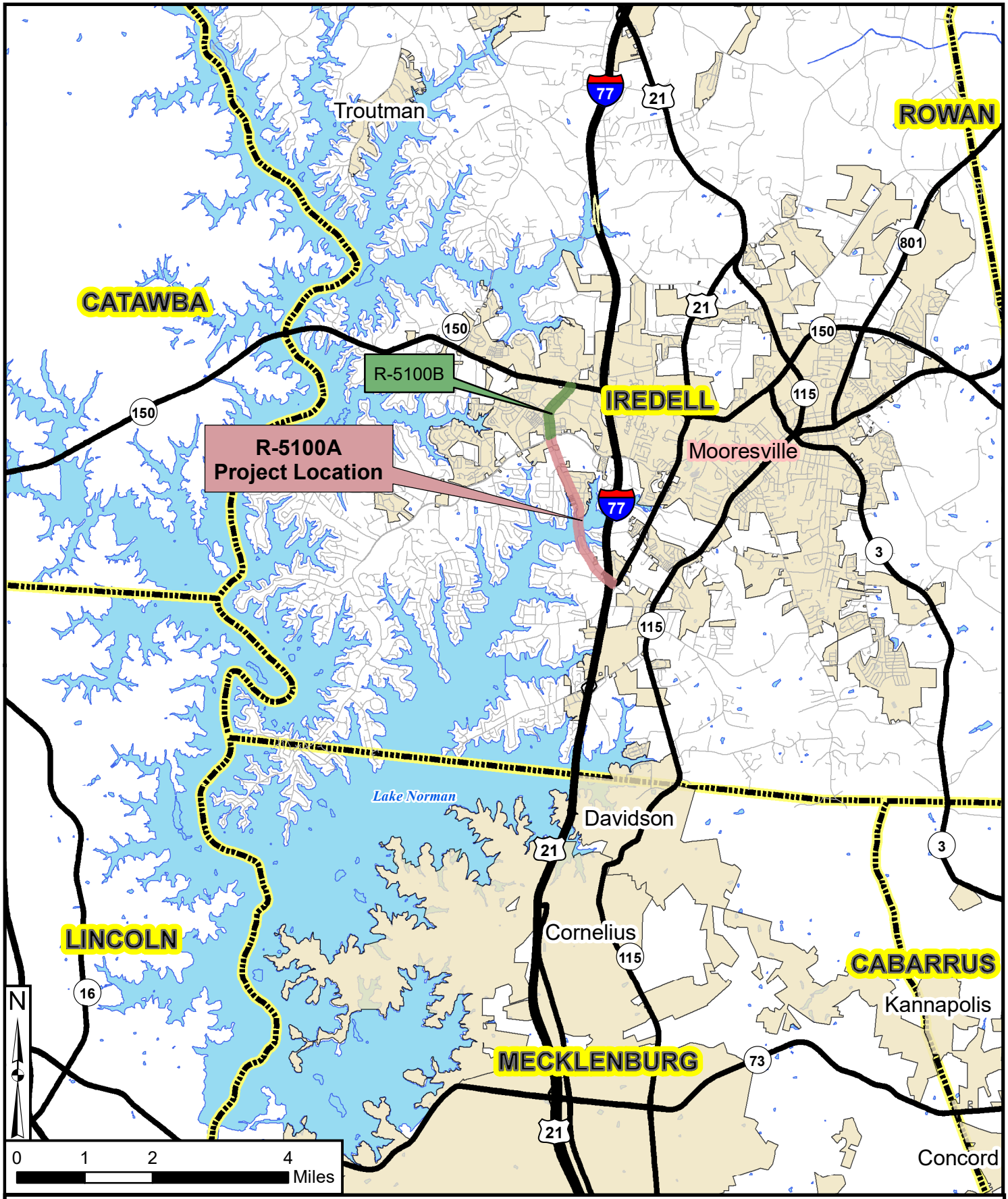
Utilities
Relocation and/or construction of Town of Mooresville-owned public utilities throughout the project is pending a municipal agreement between NCDOT and the Town of Mooresville for cost share and maintenance.

Hydraulics Unit, Natural Environment Unit - Buffer Rules
The Catawba River Basin Rules apply to this project.

Hydraulics Unit - FEMA Coordination
The Hydraulics Unit will coordinate with the NC Floodplain Mapping Program (FMP), to determine status of 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).

Project Management Unit – Duke Energy Conveyance Coordination
The Project Management Unit will coordinate with Duke Energy to provide the necessary submittals and obtain required approvals of conveyance of interest in hydropower project lands or waters.

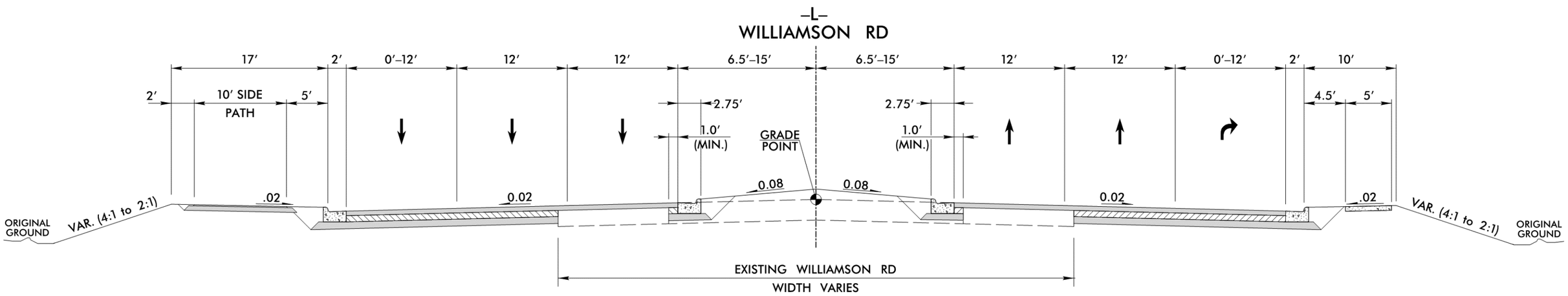
Division Construction – FEMA
This project involves construction activities on or adjacent to FEMA-regulated stream(s). Therefore, the Division shall submit sealed as-built construction plans to the Hydraulics Unit upon completion of project construction, certifying that the drainage structure(s) and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

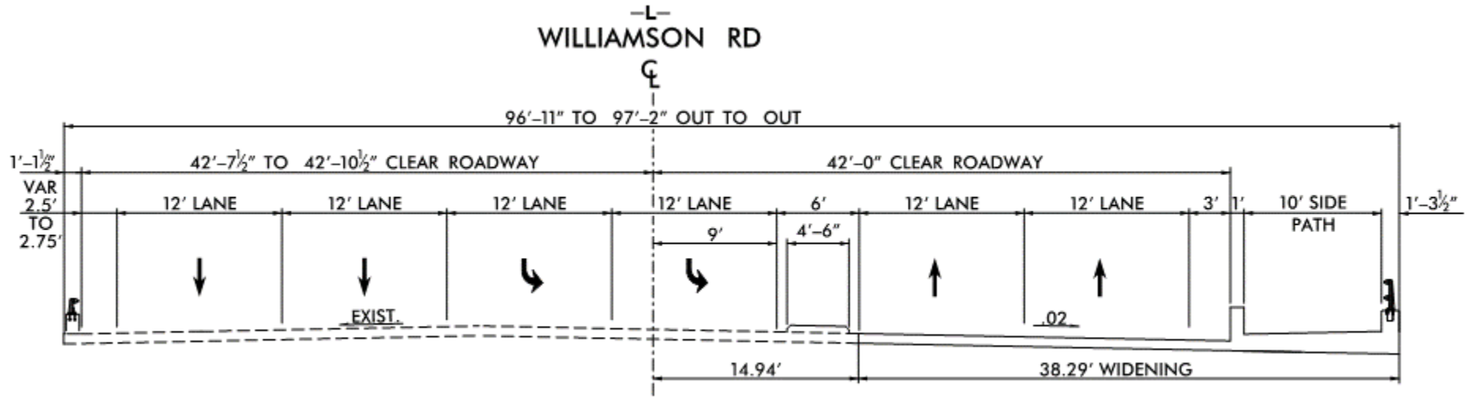


NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

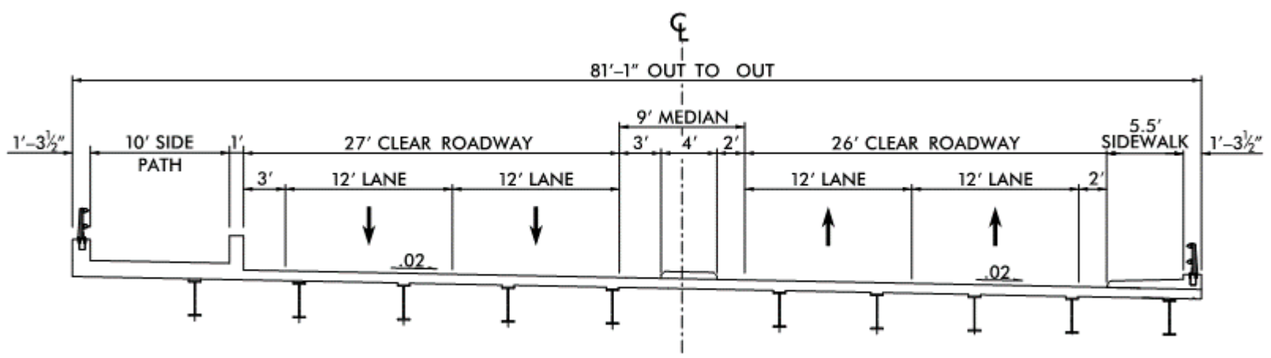
LOCATION MAP
SR 1109 (WILLIAMSON ROAD) WIDENING
FROM I-77 TO NC 150
IREDELL COUNTY

TIP: R-5100A
WBS: 41890.1.D1
Div.: 12
Date: May 2019





PROPOSED BRIDGE OVER I–77



PROPOSED BRIDGE OVER LAKE NORMAN

Williamson Road Widening
STIP Project No. R-5100A

Figure 2
Typical Sections

June 2019