STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

ROY COOPER
GOVERNOR

J. ERIC BOYETTE
SECRETARY

February 20, 2023

MEMORANDUM TO: Mr. Brandon Jones, P.E.
Division 5 Engineer

FROM: Dennis Jernigan, P.E.
NCTA Interim Chief Engineer

DocuSigned by:
F33D97B5AFE34BE...

SUBJECT: Triangle Expressway Southeast Extension (Complete 540) from NC 55 Bypass in Apex to US 64/264 (I-87) in Knightdale, Wake and Johnston Counties; Federal Aid No. STP-0540(19), STP-0540(20), and STP-0540(21); WBS Nos. 37673.1.TA1, 35516.1.TA1, and 35517.1.TA1; STIP Project Nos. R-2721, R-2828, and R-2829

Attached are the modified US Army Corps of Engineers (USACE) Phased Section 404 Individual Permit, NC Division of Water Resources (NCDWR) Section 401 Individual Water Quality Certification, Neuse Riparian Buffer Authorization, and Non-404 Jurisdictional Wetlands and Waters Permit for the construction of the Triangle Expressway Southeast Extension (Complete 540) from NC 55 Bypass in Apex to US 64/264 (I-87) in Knightdale, Wake and Johnston Counties. STIP Nos. R-2721, R-2828, and R-2829. ***This change is based on the January 9, 2023 letter, and the additional information provided on February 10, 2023, requesting modification of the permit to authorize impacts at two new sites for the demolition and removal of two US 70 flyover bridges over I-40 on the R-2828 section of the project. The modification is for changes in temporary wetland and buffer impacts and therefore there are no changes to the mitigation requirements.*** Subject to any requisite permit modifications, all environmental permits have been received for the construction of the final design sections of this project.

A copy of this permit package is posted on the NCDOT website at:
https://xfer.services.ncdot.gov/pdea/PermIssued

cc: w/o attachment (see website for attachments)
Mr. Ron Davenport, P.E. Contracts Management
Mr. Clarence Coleman, P.E., FHWA
Mrs. Heather Montague, Division 5
Mr. Mark Craig, P.E., Division 5
Mr. Boyd Tharrington, P.E., Director of Field Support
Mr. Corey McLamb, P.E., Division 4
Dr. Majed Al-Ghandour, P.E., Programming and TIP
Mr. Todd Lapham, Utilities Unit
Mr. Stephen Morgan, P.E., Hydraulics Unit
Mr. Brian Hanks, P.E., Structures Management Unit
Mr. Mark Staley, Roadside Environmental
Mr. Colin Mellor, Environmental Policy Unit
Ms. Beth Harmon, NCDMS
Ms. Deanna Riffey, Natural Environment Unit-Environmental Coordination & Permitting

Mailing Address:
NC DEPARTMENT OF TRANSPORTATION
TURNPIKE AUTHORITY
1578 MAIL SERVICE CENTER
RALEIGH, NC 27699-1578

Telephone: (919) 707-2700
Fax: (919) 715-5511
Customer Service: 1-877-368-4968

Location:
1 SOUTH WILMINGTON STREET
RALEIGH, NC 27601

Website: ncdot.gov

PROJECT COMMITMENTS

Complete 540 – Triangle Expressway Southeast Extension
Wake and Johnston Counties, North Carolina

STIP Project Nos. R-2721, R-2828, and R-2829
State Project Nos. 6.401078, 6.401079, and 6.401080
Federal Aid Project Nos. STP-0540(19), STP-0540(20), and STP-0540(21)
WBS Nos. 37673.1.TA1, 35516.1.TA1, and 35517.1.TA1

COMMITMENTS FROM PROJECT DEVELOPMENT AND DESIGN

Item	Responsible Party	Resource	Project Commitment	Project Stage / Status	Applicable STIP Project
1	Environmental Analysis Unit, NCTA	Historic Architectural Resources	NCDOT will coordinate with the NC State Historic Preservation Office and the property owner(s) relative to potential retaining wall design to eliminate the need for permanent easement or right-of-way from the Panther Branch School.	Completed	R-2828
2	Environmental Analysis Unit, NCTA	Archaeological Resources	NCDOT will conduct an archaeological survey of the Preferred Alternative and will coordinate the results with the NC State Historic Preservation Office and the NC Office of State Archaeology.	Completed	R-2721, R-2828, and R-2829
3	Environmental Analysis Unit, NCTA	Archaeological Resources	NCDOT will establish a Memorandum of Agreement with the NC State Historic Preservation Office in order to take into account the project's effect on archaeological resources.	Completed	R-2828
4	Environmental Analysis Unit, NCTA	Archaeological Resources	NCDOT will coordinate with the NC Office of State Archaeology relative to data recovery of materials in the one site determined eligible for the National Register of Historic Places based on the information contained at the site.	Final Design and Construction	R-2828
5	NCTA	Community Resources & Section 4(f)	NCDOT will coordinate with the Town of Cary relative to a potential Section 4(f) de minimis use finding for the Middle Creek School Park.	Completed	R-2721
6	NCTA	Community Resources & Section 4(f)	NCDOT will coordinate with the City of Raleigh relative to a potential Section 4(f) de minimis use finding for the Neuse River Trail.	Completed	R-2829
7	Division 5, NCTA	Recreation Facility	During construction, NCDOT will accommodate trail users along the Neuse River Trail through the project construction zone.	Final Design and Construction	R-2829
8	Environmental Analysis Unit, NCTA	Noise	NCDOT will prepare Design Noise Reports for the Selected Alternative during final design. All feasible and reasonable noise abatement measures will be constructed.	Final Design and Construction	R-2721, R-2828, and R-2829

Item	Responsible Party	Resource	Project Commitment	Project Stage / Status	Applicable STIP Project
9	Hydraulics Unit, NCTA	Stormwater Management	NCDOT will utilize Design Standards in Sensitive Watersheds in the Swift Creek and ~~*in the Lower*~~ Middle Creek watersheds.	Construction and *Final Design	R-2721, R-2828, and R-2829*
10	Environmental Analysis Unit, NCTA	Migratory Birds	NCDOT will comply with requirements set forth in the Migratory Bird Treaty Act (MBTA) of 1918. *On December 22, 2017, after further analysis of the text, history, and purpose of the MBTA, the US Department of Interior issued Opinion M-37050. Opinion M-37050 permanently withdraws and replaces Opinion M-37041. Opinion 37050 concludes that the MBTA applies to only affirmative actions that have as their purpose to reduce migratory birds by taking or killing of migratory birds, their eggs, or their nest.*	Construction	R-2721, R-2828, and R-2829
11	Hydraulics Unit, NCTA	Major Drainage Structures	NCDOT will perform a more detailed hydrologic and hydraulic analysis for each major drainage crossing for the Selected Alternative.	Final Design	R-2721, R-2828, and R-2829
12	Utilities Unit, NCTA	Utilities	NCDOT will coordinate with the appropriate utility owners during design of the Selected Alternative for all utility conflicts, including means to avoid or minimize impacts to utilities.	Final Design	R-2721, R-2828, and R-2829
13	Environmental Analysis Unit, NCTA	Indirect Effects & Cumulative Impacts	NCDOT will prepare a quantitative assessment for indirect and cumulative effects and impacts for the Selected Alternative.	Completed	R-2721, R-2828, and R-2829
14	Environmental Analysis Unit, NCTA	Protected Species	NCDOT will carry out all activities for which it has been assigned responsibility in the Biological Assessment of Potential Impacts to Federally Listed Species (December 2017) and the USFWS Biological Opinion (April 2018) and as amended.	Construction and *Final Design	R-2721, R-2828, and R-2829*
15	Environmental Analysis Unit, NCTA	Protected Species	NCDOT will carry out all activities for which it has been assigned responsibility in the Biological Assessment for Atlantic Sturgeon Critical Habitat (December 2017) and the NMFS concurrence letter (May 2018) and as amended.	Final Design and Construction	R-2829
16	Environmental Analysis Unit, Division 5, NCTA	Protected Species	FHWA and NCDOT will update the 2017 Biological Assessment and coordinate with USFWS in accordance with ESA Section 7 for the Neuse River Waterdog, Carolina Madtom, Atlantic Pigtoe, and Atlantic Pigtoe Critical Habitats.	Completed	R-2721, R-2828, and R-2829
17	Environmental Analysis Unit, Division 5, NCTA	Protected Species	NCDOT will carry out all activities for which it has been assigned responsibility in the Revised Biological Assessment of Potential Impacts to Federally Listed Species (July 2019) and the USFWS Revised Biological/Conference Opinion (October 2019).	Construction and *Final Design	R-2721, R-2828, and R-2829*

COMMITMENTS FROM PERMITTING

Item	Responsible Party	Commitment Source	Project Commitment	Project Stage / Status	Applicable STIP Project
18	Division 5, NCTA	Recreation Facility	During construction, NCDOT will accommodate trail users along the Woodcreek Trail through the project construction zone.	Construction	R-2721A
19	Division 5, NCTA	404 Permit Condition 2	NCDOT will protect the Atlantic Sturgeon by not blocking greater than 50% of the Neuse River below the ordinary high-water mark with temporary causeways or work bridges. All causeways and work bridges will be removed at the end of the project.	Construction	R-2829
20	Environmental Analysis Unit, Division 5, NCTA	404 Permit Condition 3	NCDOT will comply with the attached USFWS Biological Opinion-Revised (USFWS BO), dated October 15, 2019.	Construction and *Final Design	R-2721, R-2828, and R-2829*
21	Division 5, NCTA	404 Permit Condition 3 (Attachment: USFWS Biological Opinion (BO) Section 2.4)	NCDOT will invite representatives of the USFWS NCWRC, and other agency personnel to preconstruction meetings prior to incurring impacts in jurisdictional features, as well as to preconstruction meetings associated with installation of structures within 0.25 mile of the Swift Creek crossing.	Construction	R-2828
22	Division 5, NCTA	404 Permit Condition 3 (Attachment: USFWS BO Section 2.4)	NCDOT will not allow any part of the bridging structure for Swift Creek to be within 10 feet of the top of bank on either side of the channel. No permanent structures or temporary structures will be placed in Swift Creek. All permanent and temporary structures will be installed and designed to maintain stability of the stream banks of Swift Creek.	Construction	R-2828
23	Roadside Environmental Unit, Division 5, NCTA	404 Permit Condition 3 (Attachment: USFWS BO Section 2.4)	NCDOT will require construction of two permanent hazardous spill basins (HSBs) at the crossing of Swift Creek. Road runoff from approximately 1.3 miles of road facility will be directed to the HSBs prior to discharge into Swift Creek or Swift Creek tributaries. The HSBs will be designed to contain a spill from a typical tanker truck. NCDOT will implement their standard protocols for upkeep and use of these HSBs.	Construction	R-2828

Item	Responsible Party	Commitment Source	Project Commitment	Project Stage / Status	Applicable STIP Project
24	Environmental Analysis Unit, Division 5, NCTA	404 Permit Condition 3 (Attachment: USFWS BO Sections: 2.4, 8.2 & 8.3)	NCDOT will conduct a preconstruction survey (just prior to construction) at the Swift Creek crossing and remove mussels from a defined salvage area and relocate them to appropriate habitat within Swift Creek outside of the salvage area (relocation site) or if deemed appropriate, after coordination with the USFWS and NCWRC, Dwarf Wedgemussel and Yellow Lance individuals may be taken into captivity to use as brood stock for propagation efforts. The preconstruction survey will be incorporated into a Mussel Relocation Plan, which will identify the salvage area and relocation site, and be developed in coordination with USFWS/NCWRC.	Construction	R-2828
25	Environmental Analysis Unit, Division 5, NCTA	404 Permit Condition 3 (Attachment: USFWS BO Sections: 2.4, 8.2 & 8.3)	NCDOT will provide funding to Wake County and NCWRC, after receiving the Section 404 Permit, to be utilized for the retrofit and upgrade of the existing research facility in the A.E. Finley Center, at the Historic Yates Mill County Park for the purpose of research and propagation of aquatic species.	Final Design	R-2721, R-2828, and R-2829
26	Division 5, NCTA	404 Permit Condition 3 (Attachment: USFWS BO Section 8.4)	NCDOT will monitor the Action area for evidence of sediment loss. The USFWS will be contacted if project related sedimentation is occurring beyond 400 meters from the Action area.	Construction	R-2828
27	Environmental Analysis Unit, Division 5, NCTA	404 Permit Condition 17	NCDOT will implement the Memorandum of Agreement (MOA) between the USACE and SHPO dated March 11, 2018 and adhere to the specific Stipulations provided in the MOA attachment.	Final Design and Construction	R-2721, R-2828, and R-2829
28	Roadside Environmental Unit, Division 5, NCTA	404 Permit Condition 23	NCDOT will segregate topsoil (6-12") in wetland areas where pipelines will be installed via trenching. The topsoil will be used to backfill the trench.	Construction	R-2828
29	Environmental Analysis Unit, Division 5, NCTA	404 Permit Condition 27	NCDOT will only complete construction activities on TIPs R-2721A and B under the Section 404 Permit dated October 24, 2019 and R-2828 dated February 3,2020. No work will commence for TIP R-2829 without further USACE coordination.	Construction	R-2721, R-2828, and R-2829
30	Division 5, NCTA	National Marine Fisheries Service Consultation (Page 3)	NCDOT will stop in-water construction activities if a sturgeon is spotted within 50 feet of operations. (See Attached NMFS Consultation)	Construction	R-2829
31	Division 5, NCTA	National Marine Fisheries Service Consultation (Page 3)	NCDOT will observe an in-water work moratorium of February 15-October 31. This includes installation/removal of causeways and temporary bridges. This will cover the WRC moratorium of February 15-September 30.	Construction	R-2829

Item	Responsible Party	Commitment Source	Project Commitment	Project Stage / Status	Applicable STIP Project
32	Division 5, NCTA	National Marine Fisheries Service Consultation (Page 4)	NCDOT will not blast within 50 feet of the Neuse River.	Construction	R-2829
33	Division 5, NCTA	National Marine Fisheries Service Consultation (Page 4)	NCDOT will adhere to shoreline stabilization Project Design Criteria (PDCs) when installing new bridges and piers.	Construction	R-2829
34	Division 5, NCTA	National Marine Fisheries Service Consultation (Attachment 1)	NCDOT will follow the PDCs outlined in Attachment 1 of the NMFS Consultation	Construction	R-2829
35	Division 5	401 Modification Condition 1 (February 15, 2023)	All protective measures as described in the application received January 11, 2023 and additional information provided February 13, 2023, shall be required as a condition of this certification, including practices described in the bridge demolition plans. Measures stated included the use of geotextile fabric, straw bales and crane mats at the locations of jurisdictional impacts for the bridge demolitions, in order to prevent demolition materials from entering the stream. Once all non-native materials and demolition debris has been removed the sites will be matted, seeded, and revegetated as stated in the application. As stated in the application, in the event that too much demolition material accumulates on the mats and potential for rubble to spread into jurisdictional areas, the process will be paused to clear concrete from the mats.	Construction	R-2828

DEPARTMENT OF THE ARMY
WILMINGTON DISTRICT, CORPS OF ENGINEERS
69 DARLINGTON AVENUE
WILMINGTON, NORTH CAROLINA 28403-1343

February 17, 2023

Regulatory Division

Action ID No. SAW-2009-02240; Complete 540; TIP R-2828

Dennis Jernigan, PE
North Carolina Turnpike Authority
Interim Chief Engineer
1578 Mail Service Center
Raleigh, NC 27699-1578

Dear Mr. Jernigan:

Reference the Department of the Army (DA) permit issued to the North Carolina Department of Transportation (NCDOT) on October 24, 2019, and subsequently modified on February 4, 2020 (revision issued on February 7, 2022), April 29, 2020, January 7, 2021, March 19, 2021, March 3, 2022, July 1, 2022, and September 13, 2022. This permit authorized the discharge of fill material into waters of the United States for construction of the Triangle Expressway Southeast Extension (Complete 540) from NC 55 Bypass in Apex to US 64/264 (I-87) in Knightdale, Wake and Johnston Counties. Sections included within this permit are R-2721, R-2828, and R- 2829. Currently, only STIPs R-2721A&B and R-2828 are authorized for construction; STIP R-2829 has not yet been through final design, has not completely minimized impacts to waters and wetlands, nor has a final compensatory mitigation plan.

On January 11, 2023, the U.S. Army Corps of Engineers (Corps) received a request from NCDOT to modify the standard permit for the R-2828 project (Mod09), to include an additional 0.06 acre of permanent temporary wetland impact, and an additional 125 linear feet of temporary stream impacts. Additional information was submitted on February 10, 2023. The modification request stated the additional impacts are at Sites 92 and 93 and provide for the demolition of existing flyover ramp bridge numbers 87 and 88 on the US 70 Clayton Bypass/I-40 interchange. The effect of the temporary impacts will be minimized through use of geotextile fabric and crane mats. The total waters of the U.S., including wetland impacts, for the R-2828 project are: 19.55 acres permanent riparian wetland impacts, 4.85 acres temporary riparian wetland impacts, 0.07-acre permanent non-riparian wetland impacts, 8.32 acres pond impacts, 16,842 linear feet permanent stream impacts, 1,829 linear feet temporary stream impacts, and 2,065 linear feet structure stabilization. The project will also impact 0.25 acre non-404 wetlands.

The Corps has completed the evaluation of your request and has determined that it is appropriate and reasonable, and that no public notice is required for this modification. Therefore, the permit is modified as requested and as shown on the enclosed revised Permit Drawings, Sheets 1, 128 - 131, and 166-171 of 171, last revised on 01/05/23. No additional compensatory mitigation is required.

All conditions of the permit, including the permit expiration date of December 31, 2024, remain in effect as written. Should you have any questions, contact Mr. Eric Alsmeyer, via email at Eric.C.Alsmeyer@usace.army.mil or by telephone at (919) 554-4884, extension 23.

FOR THE DISTRICT COMMANDER

Monte Matthews 2023.02.17 13:17:36 -05'00'

Monte Matthews
Chief, Transportation Permitting Branch
Wilmington District

Enclosures

ROY COOPER
Governor
ELIZABETH S. BISER
Secretary
RICHARD E. ROGERS, JR.
Director

NORTH CAROLINA
Environmental Quality

February 15, 2023

Dennis Jernigan, PE
Interim Chief Engineer
NC Turnpike Authority
1578 Mail Service Center
Raleigh NC 27699

Subject: MODIFICATION of 401 Water Quality Certification Pursuant to Section 401 of the Federal Clean Water Act, NEUSE BUFFER RULES, and ISOLATED WETLANDS PERMIT Pursuant to IWGP100000 with ADDITIONAL CONDITIONS for Proposed construction of the Triangle Expressway Southeast Extension (NC 540) in Wake & Johnston Counties, Federal Aid Project No. STP-0540(19-21), State Project No. 37673.1.TA2, TIP Nos, R-2721, R-2828, & R-2829.
NCDWR Project No. 20181249 version 11

Dear Mr. Jernigan:

Attached hereto is a copy of the Modification to Certification No. 4179 issued to The North Carolina Department of Transportation (NCDOT) originally dated February 15, 2019, modified January 30, 2020, April 23, 2020, June 1, 2020, December 29, 2020, March 9, 2021, April 8, 2021, November 1, 2021, May 18, 2022, July 22, 2022 and February 15, 2023.

This approval is for the purpose and design described in your application. The plans and specifications for this project are incorporated by reference as part of this Water Quality Certification. If you change your project, you must notify the Division and you may be required to submit a new application package with the appropriate fee. If the property is sold, the new owner must be given a copy of this Certification and is responsible for complying with all conditions. [15A NCAC 02H .0507(d)(2)]. This Certification does not relieve the permittee of the responsibility to obtain all other required Federal, State, or Local approvals before proceeding with the project, including those required by, but not limited to, Sediment and Erosion Control, Non-Discharge, Water Supply Watershed, and Trout Buffer regulations.

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

Sincerely,

DocuSigned by:
Amy Chapman
9C9886312DCD474...

Richard E. Rogers, Director
Division of Water Resources

Attachments
Electronic copy only distribution:
Eric Alsmeyer, US Army Corps of Engineers, Raleigh Field Office
Jennifer Harris, PE, NC Turnpike Authority
Deanna Riffey, NC Department of Transportation
Travis Wilson, NC Wildlife Resources Commission
Gary Jordan, US Fish & Wildlife
File Copy

MODIFICATION of 401 Water Quality Certification Pursuant to Section 401 of the Federal Clean Water Act, NEUSE BUFFER RULES, and ISOLATED WETLANDS PERMIT Pursuant to IWGP100000 with ADDITIONAL CONDITIONS

THIS CERTIFICATION is issued in conformity with the requirements of Section 401 Public Laws 92-500 and 95-217 of the United States and subject to the North Carolina Division of Water Resources (NCDWR) Regulations in 15 NCAC 2H .0500 and 15A NCAC 2B.0714 and ISOLATED WETLANDS PERMIT Pursuant to IWGP100000. This certification version authorizes the NCDOT to impact 55.4 acres of wetlands, 41426 linear feet of jurisdictional streams and 43195165 square feet of protected riparian buffers in Wake & Johnston Counties. The project shall be constructed pursuant to the permit modification request received January 11, 2023 and additional information received February 13, 2023. **The additional authorized impacts are as described below:**

Additional Section R-2828 Stream Impacts in the Neuse River Basin

Site	Temporary Impact to Intermittent Stream (linear ft)
92 (Bridge 88, Span E)	92
93 (Bridge 87, Span D)	35
Total	127

Total Additional Stream Impact for Project R-2828: 127 linear feet

Additional Section R-2828 Wetland Impacts in the Neuse River Basin

Site	Temporary Fill (ac)
92 (Bridge 88, Span E)	0.05
93 (Bridge 87, Span D)	0.01
Total	**0.06**

Total Additional Wetland Impact for Project R-2828: 0.06 acres.

Additional Section R-2828 Neuse Riparian Buffer Impacts

Site	Temporary Zone 1 Impact (sq ft)		Temporary Zone 2 Impact (sq ft)
92 (Bridge 88, Span E)	4979		3158
93 (Bridge 87, Span D)	2495		3071
Totals	**7474**		**6229**

Total Additional Neuse Buffer Impact for Project R-2828: 13703 square feet.

The application provides adequate assurance that the discharge of fill material into the waters of the Neuse River Basin in conjunction with the proposed development will not result in a violation of applicable Water Quality Standards and discharge guidelines. Therefore, the State of North Carolina certifies that this activity will not violate the applicable portions of Sections 301, 302, 303, 306, 307 of PL 92-500 and PL 95-217 if conducted in accordance with the application and conditions hereinafter set forth.

This approval is only valid for the purpose and design that you submitted in your application received January 11, 2023 and additional information received February 13, 2023. Should your project change, you are required to notify the NCDWR and submit a new application. If the property is sold, the new owner must be given a copy of this Certification and approval letter, and is thereby responsible for complying with all the conditions. If any additional wetland impacts, or stream impacts, for this project (now or in the future) exceed one acre or 150 linear feet, respectively, additional compensatory mitigation may be required as described in 15A NCAC 2H .0506 (h) (6) and (7). Additional buffer impacts may require compensatory mitigation as described in 15A NCAC 2B.0611(b)(2). For this approval to remain valid, you are required to comply with all the conditions listed below. In addition, you should obtain all other federal, state or local permits before proceeding with your project including (but not limited to) Sediment and Erosion control, Coastal Stormwater, Non-discharge and Water Supply watershed regulations. This Certification shall expire on the same day as the expiration date of the corresponding Corps of Engineers Permit.

This Water Quality Certification neither grants nor affirms any property right, license, or privilege in any lands or waters, or any right of use in any waters. This Water Quality Certification does not authorize any person to interfere with the riparian rights, littoral rights, or water use rights of any other person and does not create any prescriptive right or any right of priority regarding any usage of water. This Water Quality Certification shall not be interposed as a defense in any action respecting the determination of riparian or littoral rights or other rights to water use. No consumptive user is deemed by virtue of this Water Quality Certification to possess any prescriptive or other right of priority with respect to any other consumptive user regardless of the quantity of the withdrawal or the date on which the withdrawal was initiated or expanded. Upon the presentation of proper credentials, the Division may inspect the property.

Conditions of Certification:

1. All protective measures as described in your application received January 11, 2023 and additional information received February 13, 2023, shall be required as a condition of this certification, included practices described in the bridge demolition plans. Measures stated included the use of geotextile fabric, straw bales and crane mats at the locations of jurisdictional impacts for the bridge demolitions, in order to prevent demolition materials from entering the stream. Once all non-native materials and demolition debris has been removed the sites will be matted, seeded, and revegetated as stated in the application. As stated in the application, in the event that too much demolition material accumulates on the mats and potential for rubble to spread into jurisdictional areas, the process will be paused to clear concrete from the mats.

2. Wetlands and riparian buffers will be cleared but not grubbed. Wetland areas impacted by temporary clearing shall be stabilized and reseeded with native wetland seed. Stream crossings shall return to preconstruction contours. Native riparian vegetation must be reestablished in the riparian areas within the construction limits of the project by the end of the growing season following completion of construction. [15A NCAC 02B.0714] o& [15A NCAC 02B.0506(b)(2)]

3. The Permittee shall report any violations of this certification and its conditions to the Division of Water Resources within 24 hours of discovery. [15A NCAC 02B.0506(b)(2)]

4. All conditions in the 401 Water Quality Certifications for this project, originally dated February 15, 2019, and all modifications afterwards, still apply.

This approval and its conditions are final and binding unless contested [G.S. 143-215.5]. Please be aware that impacting waters without first applying for and securing the issuance of a 401 Water Quality Certification violates Title 15A of the North Carolina Administrative Code (NCAC) 2H .0500. Title 15A NCAC 2H .0500 requires certifications pursuant to Section 401 of the Clean Water Act whenever construction or operation of facilities will result in a discharge into navigable waters, including wetlands, as described in 33 Code of Federal Regulations (CFR) Part 323. It also states any person desiring issuance of the State certification or coverage under a general certification required by Section 401 of the Federal Water Pollution Control Act shall file with the Director of the North Carolina Division of Water Quality. Pursuant to G.S. 143-215.6A, these violations and any future violations are subject to a civil penalty assessment of up to a maximum of $25,000.00 per day for each violation.

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

A party filing a Petition must serve a copy of the Petition on:
William F. Lane, General Counsel
Department of Environmental Quality
1601 Mail Service Center
Raleigh, NC 27699-1601

If the party filing the Petition is not the permittee, then the party must also serve the recipient of the Certification in accordance with N.C.G.S 150B-23(a).

This the 15th day of February 2023

DIVISION OF WATER RESOURCES

DocuSigned by:
Amy Chapman
9C9886312DCD474...

Richard E. Rogers, Jr, Director

WQC No. 4179

09/08/99

TIP PROJECT: R-2828

CONTRACT: C204197

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-2828	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
35516.3.GV1	NHP-0540(043)	DESIGN-BUILD
35516.2.3	NHP-0540(043)	R/W
35516.2.TA1	NHP-0540(043)	R/W

Permit Drawing Package
Last Revised on 01/05/23

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

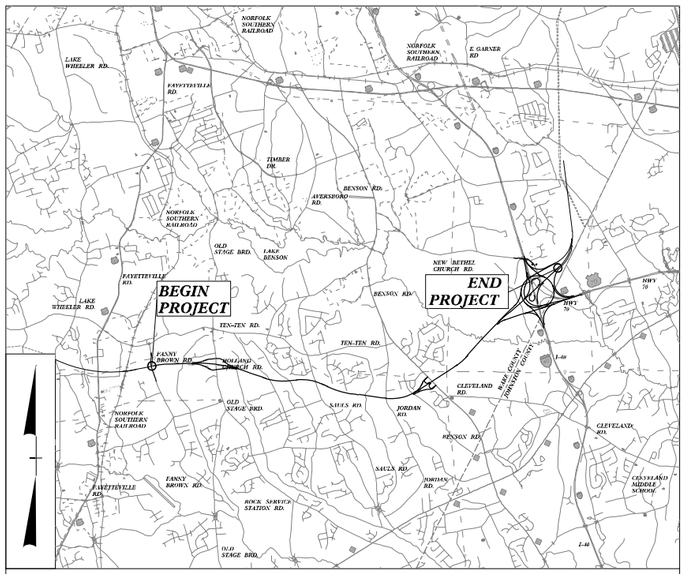
WAKE & JOHNSTON COUNTY

LOCATION: *TRIANGLE EXPRESSWAY SOUTHEAST EXTENSION FROM EAST OF US 401 TO EAST OF I-40*

TYPE OF WORK: *DESIGN-BUILD AS SPECIFIED IN THE SCOPE OF WORK CONTAINED IN THE REQUEST FOR PROPOSALS*

WETLAND AND SURFACE WATER IMPACTS PERMIT

PACKAGE R-2828
DATE: JANUARY 05, 2023

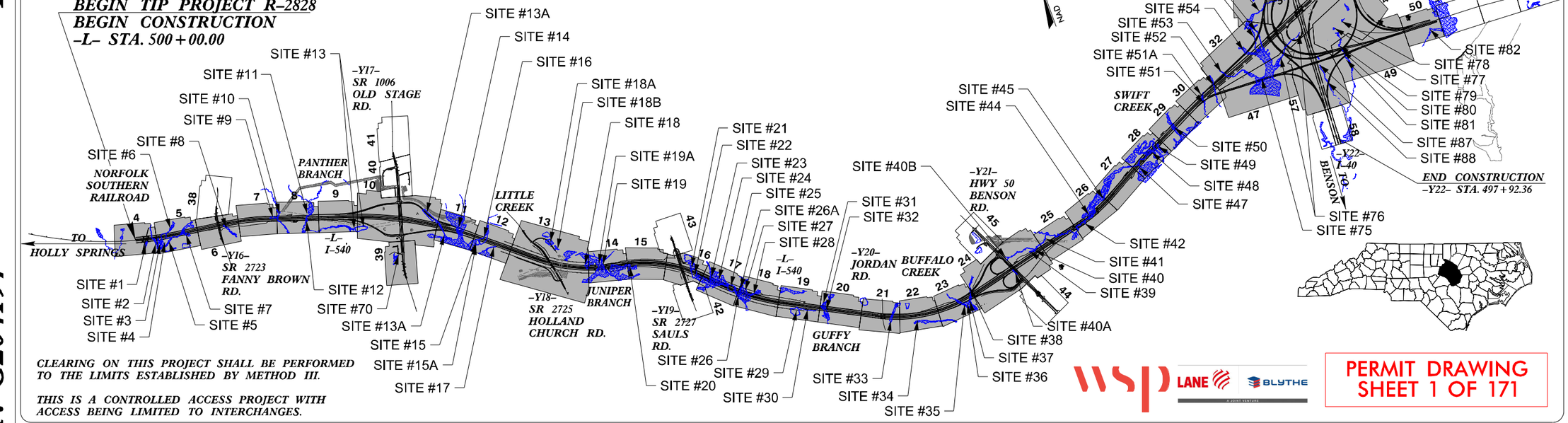


VICINITY MAP (NOT TO SCALE)

END TIP PROJECT R-2721B
BEGIN TIP PROJECT R-2828
BEGIN CONSTRUCTION
-L- STA. 500+00.00

END TIP PROJECT R-2828
END CONSTRUCTION
-L-STA. 968+50.00

BEGIN CONSTRUCTION
-Y22- STA. 382+01.19



END CONSTRUCTION
-Y22- STA. 497+92.36

CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.

THIS IS A CONTROLLED ACCESS PROJECT WITH ACCESS BEING LIMITED TO INTERCHANGES.

WSP LANE BLYTHE A JOINT VENTURE

PERMIT DRAWING
SHEET 1 OF 171

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2018 = NA
ADT 2040 = 53,400
DHV = 12 %
D = 65 %
T = 11 % *
V = 75 MPH
*(TTST 4 + DUAL 7)

FUNCTIONAL CLASS: FREEWAY

PROJECT LENGTH

LENGTH OF ROADWAY PROJECT R-2828 = 8.055 Miles

LENGTH OF STRUCTURE PROJECT R-2828 = 0.562 Miles

TOTAL LENGTH OF TIP PROJECT R-2828 = 8.617 Miles

NCDOT CONTACT: DESIGN BUILD PROJECT ENGINEER - TRANSPORTATION PROGRAM MANAGEMENT UNIT

Prepared in the Office of
WSP USA
430 FAYETTEVILLE STREET
SUITE 1500
RALEIGH, NC 27601
PHONE: 919.836.4000
FAX: (919) 836.4099
LICENSE NO. F-0165
FOR THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: SEPT. 09, 2019

LETTING DATE: DEC. 11, 2019

DANIEL BRIDGES, PE
PROJECT ENGINEER

RONYELL THIGPEN, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: *P.E.*

ROADWAY DESIGN ENGINEER

SIGNATURE: *P.E.*

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION

2/7/2022
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USVM04388

DENOTES FILL IN WETLAND

DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

TEMPORARY FILL IN WETLAND

Permit Drawing Package
Last Revised on 01/05/23

NAD 83/2011

SITE #57A

SITE #93

SITE #57

SITE #92

SITE #58

SITE #76

SEE SHEET 33A

IMPACTS "BY OTHERS", TYP. (PROJECT I-5111)

PONDS SHALL BE DRAINED IN ACCORDANCE WITH THE "POND DRAINAGE PLAN REQUIREMENT" AS APPROVED BY THE ENGINEER.

PERMIT DRAWING SHEET 128 OF 171

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PROJECT REFERENCE NO. R-2828 | SHEET NO. 33

R/W SHEET NO.

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

MATCH LINE SEE SHEET 37 -Y22LYLVBD- STA. 50+00.00

MATCH LINE STA. 56+50.00 -Y22FLYBD-

MATCH LINE SEE SHEET 46 -Y22_SEC2- STA. 445+00.00

MATCH LINE SEE SHEET 46 -Y22SLIPRPA- STA. 16+50.00

MATCH LINE -Y22FLYCC- STA. 103+00.00

MATCH LINE SEE SHEET 32 -L- STA. 924+00.00

MATCH LINE SEE SHEET 57 -Y22LPC- STA. 18+00.00

MATCH LINE -Y22LPC- STA. 12+15.65

MATCH LINE SEE SHEET 57 -Y22_SEC2- STA. 461+05.04

MATCH LINE STA. 17400.00 -Y22RPB-

MATCH LINE SEE SHEET 48 -Y22FLYCC- STA. 87+75.00

MATCH LINE SEE SHEET 34 -L- STA. 928+00.00

PROPOSED GUARDRAIL

TYPE B-77

GREU TL-3

FUTURE GUARDRAIL

FUTURE CONCRETE BARRIER

N 66° 49' 00.0" E

GRAPHIC SCALE

100 0 100

DENOTES FILL IN WETLAND

DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

TEMPORARY FILL IN WETLAND

Permit Drawing Package
Last Revised on 01/05/23

NAD 83/2011

SITE #57A

SITE #93

SITE #57

SITE #92

SITE #58

SITE #76

SEE SHEET 33A

IMPACTS "BY OTHERS", TYP. (PROJECT I-5111)

MATCH LINE SEE SHEET 46 -Y22SLIPRPA- STA. 16+50.00

MATCH LINE SEE SHEET 46 -Y22_SEC2- STA. 445+00.00

MATCH LINE -Y22FLYCC- STA. 104+00.00

MATCH LINE SEE SHEET 37 -Y22FLYBD- STA. 50+00.00

MATCH LINE -Y22FLYBD- STA. 56+50.00

MATCH LINE SEE SHEET 32 -L- STA. 924+00.00

MATCH LINE SEE SHEET 34 -L- STA. 952+00.00

MATCH LINE SEE SHEET 57 -Y22LPC- STA. 18+00.00

MATCH LINE -Y22LPC- STA. 12+15.65

MATCH LINE SEE SHEET 57 -Y22_SEC2- STA. 481+05.04

MATCH LINE -Y22RPD- STA. 17+00.00

MATCH LINE SEE SHEET 48 -Y22FLYCC- STA. 87+75.00

PONDS SHALL BE DRAINED IN ACCORDANCE WITH THE "POND DRAINAGE PLAN REQUIREMENT" AS APPROVED BY THE ENGINEER.

PERMIT DRAWING SHEET 129 OF 171

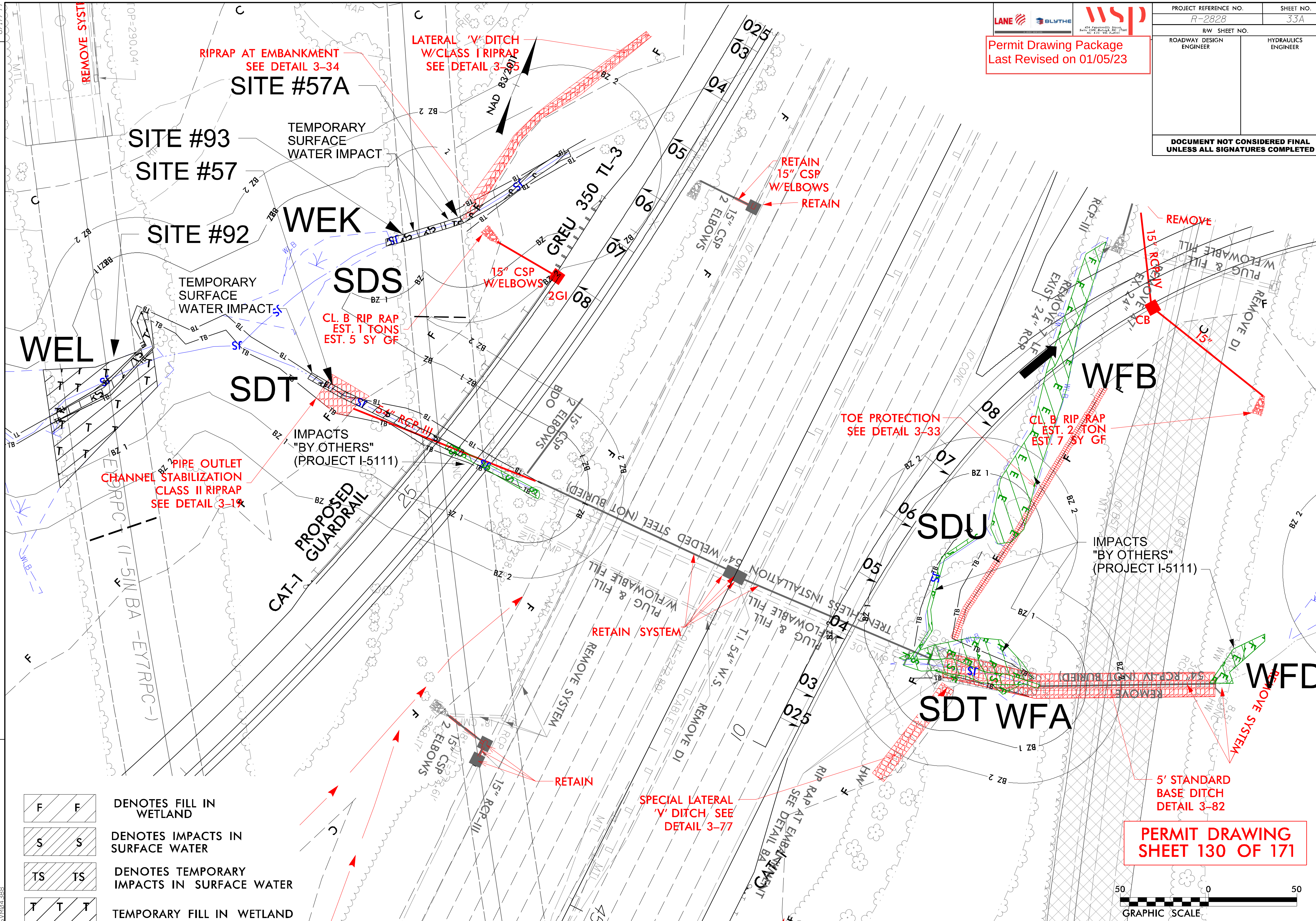
GRAPHIC SCALE

PROJECT REFERENCE NO. R-2828 | SHEET NO. 33

R/W SHEET NO.

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED


SITE #57A
SITE #93
SITE #57
SITE #92
TEMPORARY SURFACE WATER IMPACT
WEK
SDS
WEL
SDT
SDU
WFB
WFA
WFD
RIPRAP AT EMBANKMENT SEE DETAIL 3-34
LATERAL 'V' DITCH W/CLASS I RIPRAP SEE DETAIL 3-35
NAD 83/2011
GREU 350 TL-3
RETAIN 15" CSP W/ELBOWS
RETAIN
REMOVE
15" CSP W/ELBOWS
2GI
CL. B RIP RAP EST. 1 TONS EST. 5 SY GF
IMPACTS "BY OTHERS" (PROJECT I-5111)
PIPE OUTLET CHANNEL STABILIZATION CLASS II RIPRAP SEE DETAIL 3-19
PROPOSED GUARDRAIL
CAT-1
TOE PROTECTION SEE DETAIL 3-33
CL. B RIP RAP EST. 2 TON EST. 7 SY GF
CB
RETAIN SYSTEM
54" WELDED STEEL (NOT BURIED)
TRENCHLESS INSTALLATION
W/FLOWABLE FILL & PLUG
REMOVE SYSTEM
REMOVE DI
SPECIAL LATERAL 'V' DITCH SEE DETAIL 3-77
RIP RAP AT EMBANKMENT SEE DETAIL 3-34
5' STANDARD BASE DITCH DETAIL 3-82
REMOVE EXIST. 24" RCP
15" RCP-IV
15" RCP-III
REVISIONS

PROJECT REFERENCE NO. R-2828 | SHEET NO. 33A

R/W SHEET NO.

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

LANE | BLYTHE | wsp

Permit Drawing Package
Last Revised on 01/05/23

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

F F	DENOTES FILL IN WETLAND
S S	DENOTES IMPACTS IN SURFACE WATER
TS TS	DENOTES TEMPORARY IMPACTS IN SURFACE WATER
T T T	TEMPORARY FILL IN WETLAND

PERMIT DRAWING
SHEET 130 OF 171

50 0 50
GRAPHIC SCALE

8/26/2022
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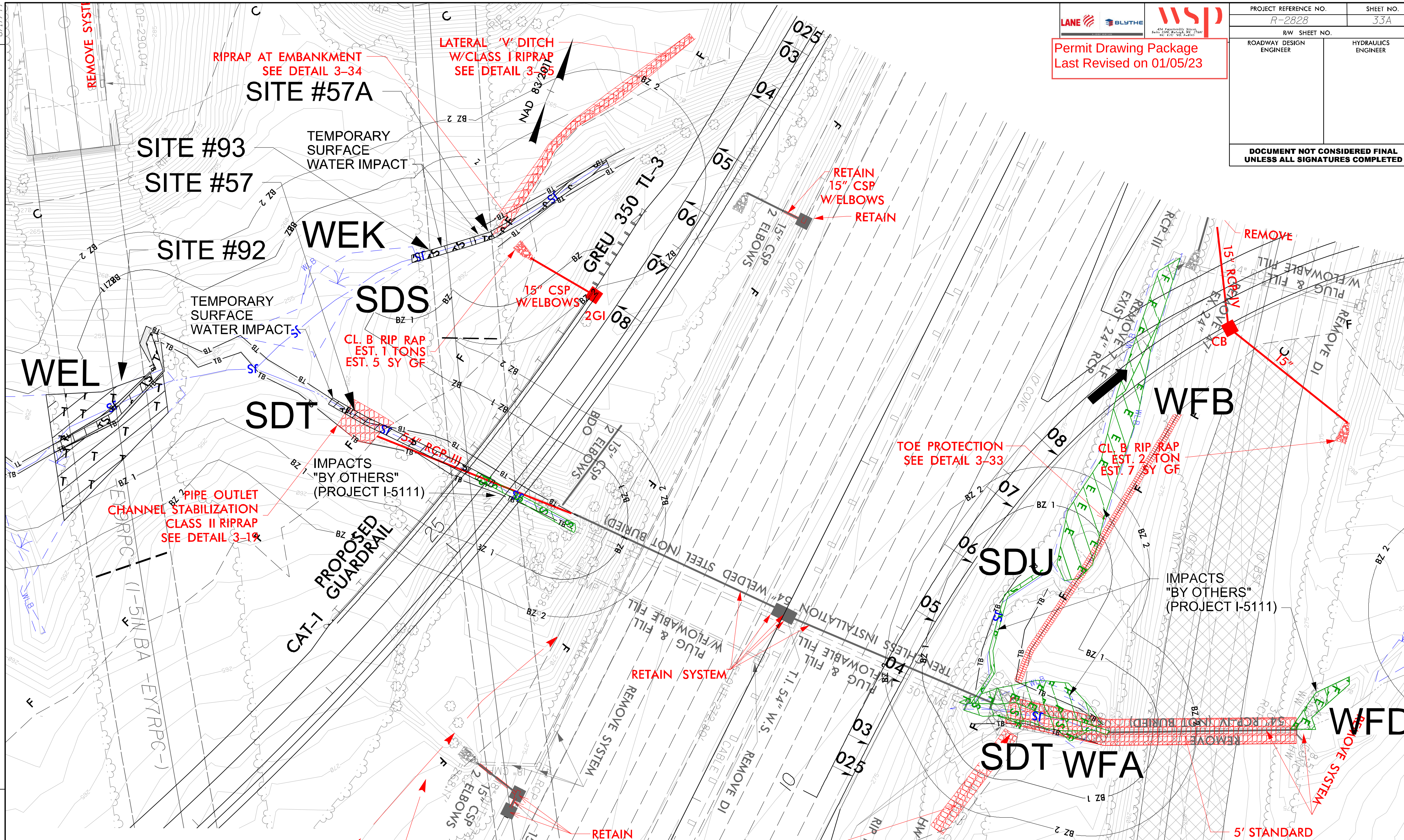
PROJECT REFERENCE NO.	SHEET NO.
R-2828	33A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

Permit Drawing Package
Last Revised on 01/05/23

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



RIPRAP AT EMBANKMENT
SEE DETAIL 3-34
SITE #57A
LATERAL 'V' DITCH
W/CLASS I RIPRAP
SEE DETAIL 3-35
SITE #93
TEMPORARY
SURFACE
WATER IMPACT
SITE #57
SITE #92
WEK
SDS
WEL
SDT
CL. B RIP RAP
EST. 1 TONS
EST. 5 SY GF
15" CSP
W/ELBOWS
RETAIN
15" CSP
W/ELBOWS
RETAIN
GREU 350 TL-3
IMPACTS
"BY OTHERS"
(PROJECT I-5111)
PIPE OUTLET
CHANNEL STABILIZATION
CLASS II RIPRAP
SEE DETAIL 3-19
PROPOSED
GUARDRAIL
CAT-1
REMOVE
15" RCP-III
CB
WFB
TOE PROTECTION
SEE DETAIL 3-33
CL. B RIP RAP
EST. 2 TON
EST. 7 SY GF
SDU
IMPACTS
"BY OTHERS"
(PROJECT I-5111)
RETAIN SYSTEM
WELDED STEEL (NOT BURIED)
PLUG & FILL W/FLOWABLE FILL
REMOVE SYSTEM
WFD
SDT
WFA
RETAIN
SPECIAL LATERAL
'V' DITCH SEE
DETAIL 3-77
5' STANDARD
BASE DITCH
DETAIL 3-82
REMOVE SYSTEM

F F	DENOTES FILL IN WETLAND
S S	DENOTES IMPACTS IN SURFACE WATER
TS TS	DENOTES TEMPORARY IMPACTS IN SURFACE WATER
T T T	TEMPORARY FILL IN WETLAND

PERMIT DRAWING
SHEET 131 OF 171

50 0 50
GRAPHIC SCALE

REVISIONS

8/26/2022
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Permit Drawing Package
Last Revised on 02/24/20

WETLAND AND SURACE WATER IMPACTS SUMMARY

Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS: Permanent Fill In Wetlands (ac)	WETLAND IMPACTS: Temp. Fill In Wetlands (ac)	WETLAND IMPACTS: Excavation in Wetlands (ac)	WETLAND IMPACTS: Mechanized Clearing in Wetlands (ac)	WETLAND IMPACTS: Hand Clearing in Wetlands (ac)	SURFACE WATER IMPACTS: Permanent SW impacts (ac)	SURFACE WATER IMPACTS: Temp. SW impacts (ac)	SURFACE WATER IMPACTS: Existing Channel Impacts Permanent (ft)	SURFACE WATER IMPACTS: Existing Channel Impacts Temp. (ft)	SURFACE WATER IMPACTS: Natural Stream Design (ft)
1*	503+27 (RT)	RDWY Fill (WCD)	0.161									
2	505+24, 505+63 (LT)	9'x8' RCBC (SBP)						0.03	0.002	519.00	20.000	
2	505+24, 505+63 (LT)	9'x8' RCBC Pipe Stabil. (SBP)						0.01		95.00		
3	506+50 (RT)	42" RCP(WCE(1),WCE(2),SBR)	0.546			0.007		0.00	0.000	90.00	10.000	
3	506+50 (RT)	42" RCP Pipe Stabilization (SBR)						0.00		35.00		
4	508+50 (LT)- 511+70 (RT)	Drain Pond (PM)						1.57				
5**	508+60-515+40 (RT)	RDWY Fill (WCF) / Stream (SBR)	0.033					0.03		462.00		
6	512+15 (LT)	RDWY Fill (WCH) / Stream (SBU)	0.018		0.009	0.035		0.02	0.004	173.00	33.000	
7	515+32 (LT) - 520+00 (LT)	RDWY Fill (WCI) / Stream (SBS)	0.673		0.067	0.054		0.00		27.00		
8	529+75 - 531+00 (RT)	Roadway Fill (WCJ)	0.118			0.010						
9	545+63 - 548+40	Roadway Fill (WCL)	0.220									
10	548+68 (LT)-549+40 (RT)	6'x8' RCBC (SBY, WCM)				0.003		0.05	0.002	485.00	18.000	
10	548+68 (LT)-549+40 (RT)	Culvert Stabilization (SBY)						0.01		77.00		
10	548+68 (LT)-549+40 (RT)	Bank Stabilization (SBY)						0.00		14.00		
11	557+67 (RT)-559+60 (LT)	9'x8' RCBC (WCQ, SBX)	0.077			0.043		0.08	0.004	484.00	22.000	
11	557+67 (RT)-559+60 (LT)	9'x8' RCBC Culvert Stabil. (SBX)						0.01		70.00		
11	557+67 (RT)-559+60 (LT)	Bank Stabilization (SBX)						0.00		7.00		
12	558+00 (RT)	Roadway Fill (WCR)	0.055									
13	Ramp Quad C (-Y17-)	Drain Pond (PN)						1.04				
13	Ramp Quad C (-Y17-)	Roadway Fill (WCV)	0.020			0.005						
13**	Ramp Quad C (-Y17-)	Roadway Fill (WCW)	0.043									
13A	Ramp Quad A (-Y17-)	Drain Pond (PP)						1.01				
13A	Ramp Quad A (-Y17-)	Roadway Fill WCZ(2)	0.400	0.001								
SHEET 1 SUBTOTALS***:			**2.36**	**0.00**	**0.08**	**0.16**	**0.00**	**3.88**	**0.01**	**2538**	**103**	**0**

NOTES:
*Represents an isolated wetland impact (also non-riparian)
**Represents any non-riparian wetland impact
***Rounded totals are sum of actual impacts

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
03/04/2020
WAKE & JOHNSTON
TIP NO. R-2828
WBS NO. 37673.1.TA2

Permit Drawing Package
Last Revised on 02/24/20

WETLAND AND SURACE WATER IMPACTS SUMMARY

			WETLAND IMPACTS					SURFACE WATER IMPACTS				
Site No.	Station (From/To)	Structure Size / Type	Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
14	609+07 (LT)-610+38 (RT)	Roadway Fill (WCZ(1))	1.284			0.271						
14	609+07 (LT)-610+38 (RT)	10'x8' RCBC (SCC)						0.02	0.001	322.00	10.000	
14	609+07 (LT)-610+38 (RT)	Culvert Stabilization (SCC)						0.01		78.00		
14	609+07 (LT)-610+38 (RT)	10'x8' RCBC (SCK)						0.02	0.001	257.00	10.000	
14	609+07 (LT)-610+38 (RT)	Culvert Stabilization (SCK)						0.00		26.00		
15	616+50 (RT)	Drain Pond PQ, WCZ(2)						0.35				
15A	616+50 (RT)	Energy Dissipator (WCZ(2)	0.000			0.002						
16	618+00 (RT)	Drain Pond (PR)						1.01				
17	622+30 - 622+54 (RT)	Roadway Fill (WCZ(1))	0.014			0.005						
18	653+75 - 655 + 50 (LT)	Roadway Fill (WDB)	0.356			0.037						
18A	-Y18A- 15+00 - 17+50	Roadway Fill (WDD)	0.196			0.096						
18B	-Y18A- 19+50	18" RCP (SCF)						0.01	0.001	47.00	10.000	
18B	-Y18A- 19+50	18" RCP Pipe Stabil. (SCF)						0.01		17.00		
19	BRIDGE	Bank Stabilization (SCG)						0.00	0.003	10.00	17.000	
19A	BRIDGE	Roadway Fill (WDB)	0.033			0.020	0.853					
20	662+00 - 671+00	Roadway Fill (WDB)	2.000			0.117						
21	689+00 - 691+00 (LT)	Roadway Fill (WDF)	0.186		0.018	0.049						
22	690+00 - 691+75 (RT)	Drain Pond (PU)						0.87				
23	692+20 - 703+00	Roadway Fill (WDG(1))	2.754		0.375	0.261						
24	699+00 - 700+00 (LT)	Drain Pond (PW)						0.12				
25	703+00 - 705+40	Drain Pond (PV)						0.93				
26	697+00 -709+00	Roadway Fill (SCL)						0.06	0.001	1047.00	10.000	
26	697+00 -709+00	Culvert Stabilization (SCL)						0.00		30.00		
SHEET 2 SUBTOTALS***:			**6.823**	**0.000**	**0.394**	**0.858**	**0.853**	**3.404**	**0.007**	**1834.000**	**57.000**	**0.000**

NOTES:
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** Represents an isolated wetland impact
***Rounded totals are sum of actual impacts

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
03/04/2020
WAKE & JOHNSTON
TIP NO.R-2828
WBS NO. 37673.1.TA2

Permit Drawing Package
Last Revised on 02/16/21

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)
26A	707+50	Roadway Fill (SCM)						0.01	0.002	266.00	35.000	
26A	707+50	Culvert Stabilization (SCM)						0.00		65.00		
27	705+75 - 714+00	Roadway Fill (WDH)	2.443		0.030	0.236						
28	711+00 - 714+00 (LT)	Roadway Fill (SCN)						0.01	0.001	156.00	10.000	
29	726+50 - 728+00 (RT)	Drain Pond (PY)						1.40				
30	728+00 - 734+50 (RT)	Channel Change (SCQ)						0.06		673.00		
31	736+00	Roadway Fill (WDJ, SCQ)	0.375			0.092		0.03	0.007	130.00	58.000	
32	736+70 (LT) - 738+00 (RT)	2 @ 8'x9' RCBC (SCP)						0.07	0.016	379.00	92.000	
32	736+70 (LT) - 738+00 (RT)	Culvert Stabilization (SCP)						0.01		44.00		
32	736+70 (LT) - 738+00 (RT)	Bank Stabilization (SCP)						0.00		29.00		
33	759+00 (RT) - 759+82 (LT)	Roadway Fill (WDM)	0.392			0.030						
34	767+65 (RT)	Roadway Fill (WDN)				0.001						
35	782+00 (LT)	9'x8' RCBC (SCT)						0.05	0.004	441.00	37.000	
35	782+00 (LT)	Culvert Stabilization (SCT)						0.01		47.00		
35	782+00 (LT)	Bank Stabilization (SCT)						0.00		18.00		
36	782+00 - 787+20	Roadway Fill (WDO)	0.707		0.002	0.060						
37	785+90 (RT) - 787+70 (LT)	48" RCP (SCV)						0.03	0.003	394.00	20.000	
37	785+90 (RT) - 787+70 (LT)	Pipe Stabilization (SCV)						0.00		37.00		
38	788+00 (LT)	Roadway Fill (WDP)				0.006						
39	812+00 - 813+00 (LT)	Roadway Fill (WDS)	0.080									
40	812+90 - 813+37 (LT)	Channel Change (SDB)						0.01		54.00		
40	813+50 (LT)	Channel Change (SDC)						0.01		93.00		
40A*	-Y21- 40+00 (LT)	Roadway Fill (WDR)	0.091									
40B	-Y21- 44+40 (RT)	Roadway Fill (SCZ)						0.00	0.001	52.00	13.000	
SHEET 3 SUBTOTALS***:			**4.09**	**0.00**	**0.03**	**0.43**	**0.00**	**1.70**	**0.03**	**2878**	**265**	**0**

NOTES:
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***Rounded totals are sum of actual impacts

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
03/04/2020
WAKE & JOHNSTON
TIP NO.R-2828
WBS NO. 37673.1.TA2

Permit Drawing Package
Last Revised on 04/15/21

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)
41	813+50 (LT) - 829+50 (RT)	Channel Change (SCY)						0.21	0.046	1453.00	187.000	
41	-Y21- 44+50 (RT)	18" CSP (SCY)						0.00		58.00		
41	-Y21- 44+50 (RT)	Pipe Stabilization (SCY)						0.00		21.00		
41	829+50 (LT) - 834+00 (RT)	Bank Stabilization (SCY)						0.08		283.00		
42	BRIDGE 832+50 (RT)	Work Trestle (WDU)					0.024					
44	BRIDGE	Bridge****	0.019		0.015		0.536		0.049		238.000	
44	BRIDGE	Bank Stabilization						0.01		44.00		
45	841+78 - 843+00 (LT)	Roadway Fill (WDV)	0.048			0.031						
47	856+50 - 861+50	Roadway Fill (WDV)	0.366			0.051						
48	861+40 - 866+30	Work Trestle (WDV)	0.019			0.006	0.650					
49	867+50 - 868+50	Work Trestle (WDY)	0.002				0.170					
50	876+00	14'X8' RCBC (SDJ)						0.03	0.003	318.00	46.000	
50	876+00	Culvert Stabilization (SDJ)						0.00		42.00		
50	876+00	Bank Stabilization (SDJ)						0.00		48.00		
50A	875+50 - 877+00	Roadway Fill (WDZ)	0.564			0.088						
51	890+00	42" RCP (SDK)						0.00	0.001	32.00	10.000	
51	890+00	Pipe Stabilization (SDK)						0.00		21.00		
51A	890+00	Roadway Fill (WEA)	0.290									
52	895+00	60" RCP (SDL)						0.05	0.002	588.00	20.000	
52	895+00	Pipe Stabilization (SDL)						0.00		39.00		
53	900+50 (LT) - 906+50 (RT)	42" RCP (SDM)						0.05	0.001	948.00	20.000	
53	900+50 (LT) - 906+50 (RT)	Pipe Stabilization (SDM)						0.00		47.00		
54	911+00 (LT) - 913+75 (RT)	Roadway Fill (WEC)	1.879			0.097						
SHEET 4 SUBTOTALS*:			**3.19**	**0.00**	**0.02**	**0.27**	**1.38**	**0.45**	**0.10**	**3942**	**521**	**0**

NOTES:
*Represents an isolated wetland impact (also non-riparian)
**Represents any non-riparian wetland impact
***Rounded totals are sum of actual impacts
****Impacts are rounded to the nearest hundreds

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
02/18/2020
WAKE & JOHNSTON
TIP NO.R-2828
WBS NO. 37673.1.TA2

Permit Drawing Package
Last Revised on 02/24/20

WETLAND AND SURACE WATER IMPACTS SUMMARY

			WETLAND IMPACTS					SURFACE WATER IMPACTS				
Site No.	Station (From/To)	Structure Size / Type	Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
55	914+00 (RT)-918+50 (LT)	2@ 9'x9' RCBC (SDW)						0.12	< 0.01	834	10	
55	914+00 (RT)-918+50 (LT)	Culvert Stabilization (SDW)						< 0.01		18		
55	914+00 (RT)-918+50 (LT)	Bank Stabilization (SDW)						< 0.01		4		
56	Y22SLIPRPB 38+50 (LT)	Channel Change (SDV)						0.02	< 0.01	518	10	
57	-Y22RPB- 25+42 (LT)	54" RCP (SDT)						0.01	< 0.01	113	10	
57	-Y22RPB- 25+42 (LT)	Pipe Stabilization (SDT)						< 0.01		22		
57A	-Y22RPB- 26+50 (LT)	Channel Change (SDS)						< 0.01	< 0.01	72	10	
58	Y22FLYBD 46+50-47+75	42" RCP (SDT)						0.01	< 0.01	196	20	
58	Y22FLYBD 46+50-47+75	Pipe Stabilization (SDT)						< 0.01		47		
58A	Y22FLYCC 123+00-127+00	54" RCP (SDT)						0.05	< 0.01	485	20	
58A	Y22FLYCC 123+00-127+00	Pipe Stabilization (SDT)						< 0.01		57		
59	Y22FLYCC 119+00 (RT)	15" CSP (SDX)						< 0.01		17	15	
59	Y22FLYCC 119+00 (RT)	Pipe Stabilization (SDX)						< 0.01	< 0.01	75		
59A	Y22FLYCC 119+00 (RT)	Roadway Fill (WEJ)	< 0.01			< 0.01						
70	-Y17- 28+50	24" Pipe Stabilization SCB(1)						< 0.01	< 0.01	20	10	
72	REMOVED	Non-Jurisdictional Pond (PAB)										
73	Y22FLYBD 34+70 (RT)	30" RCP Extension (SDR)						< 0.01	< 0.01	10	10	
73	Y22FLYBD 34+70 (RT)	Pipe Stabilization (SDR)						< 0.01		57		
75	Y22FLYCC 34+00-41+00	Bridge (WEC, SDV)	0.03			0.02	1.56		0.01		254	
76	Y22FLYCC 143+00 (RT)	42" RCP (WEC, SDO)	< 0.01			< 0.01		0.08	< 0.01	1101	10	
77	Y22FLYCC 71+00 (615' LT)	Roadway Fill (WEY)	0.06									
78	REMOVED	60" RCP Pipe Removal (SET)										
79	Y22FLYBD 83+00 (LT)	54" RCP (SET)						0.04	< 0.01	563	20	
79	Y22FLYBD 83+00 (LT)	Pipe Stabilization (SET)						< 0.01		44		
SHEET 5 SUBTOTALS***:			0.09			0.03	1.56	0.36	0.02	4253	399	0

NOTES:
*Represents an isolated wetland impact (also non-riparian)
**Represents any non-riparian wetland impact
***Rounded totals are sum of actual impacts

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
03/04/2020
WAKE & JOHNSTON
TIP NO.R-2828
WBS NO. 37673.1.TA2

Permit Drawing Package
Last Revised on 01/05/23

WETLAND AND SURACE WATER IMPACTS SUMMARY

Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS: Permanent Fill In Wetlands (ac)	WETLAND IMPACTS: Temp. Fill In Wetlands (ac)	WETLAND IMPACTS: Excavation in Wetlands (ac)	WETLAND IMPACTS: Mechanized Clearing in Wetlands (ac)	WETLAND IMPACTS: Hand Clearing in Wetlands (ac)	SURFACE WATER IMPACTS: Permanent SW impacts (ac)	SURFACE WATER IMPACTS: Temp. SW impacts (ac)	SURFACE WATER IMPACTS: Existing Channel Impacts Permanent (ft)	SURFACE WATER IMPACTS: Existing Channel Impacts Temp. (ft)	SURFACE WATER IMPACTS: Natural Stream Design (ft)
80	-Y22FLYBD- 83+50 (RT)	Roadway Fill (WEV)	0.03									
81	-Y22RPDE- 29+50 (RT)	Roadway Fill (WEU)	0.04									
82	-Y22FLYBD- 113+30 (RT)	HSB Outlet SEH, (WFN(2))				0.05			< 0.01		10	
82	-Y22FLYBD- 113+30 (RT)	12" Pipe Stabil. (SEH)						< 0.01		15		
82A	-Y22SEC2- 382+00 - 386+00 (LT)	Channel Change (SEM)						0.04	< 0.01	422	20	
83	-Y22SEC2- 396+50 (LT)	Channel Change (SEK, WFF)				< 0.01		< 0.01	< 0.01	28	13	
84	-Y22SEC2- 405+00 (LT)	60" CMP & 72" WSP (SEL)							< 0.01		10	
84	-Y22SEC2- 405+00 (LT)	Pipe Stabilizatoin (SEL)						< 0.01		37		
85	-Y22SEC2- 416+00 (LT)	30" RCP Pipe Extension (SEV)						< 0.01	< 0.01	59	10	
85	-Y22SEC2- 416+00 (LT)	Pipe Stabilizatoin (SEV)						< 0.01		19		
87	-Y22SEC2- 474+20 (LT)	42" Pipe (SES)							< 0.01		10	
87	-Y22SEC2- 474+20 (LT)	Pipe Stabilization (SES)						< 0.01		10		
88	-Y22SEC2 (LT) - 80+00 (LT)	48" RCP (SES)						0.02	< 0.01	244	20	
88	-Y22SEC2 (LT) - 80+00 (LT)	Pipe Stabilizatoin (SES)						< 0.01		30		
91	Y22FLYCC 121+30/121+90 (RT)	Haul Road (SDQ)							0.01		66	
92	Y22RPB 23+65/24+85 (LT)	Ex. Piers & Bridge Demolition (WEL, SDS)		0.05					< 0.01		92	
93	Y22RPB 26+27 (LT)	Ex. Piers & Bridge Demolition (WEK, SDS)		< 0.01					< 0.01		35	
	SHEET 1 SUBTOTALS		2.36	< 0.01	0.08	0.16		3.88	0.01	2538	103	
	SHEET 2 SUBTOTALS		6.82		0.39	0.86	0.85	3.40	< 0.01	1834	57	
	SHEET 3 SUBTOTALS		4.09		0.03	0.43		1.70	0.03	2878	265	
	SHEET 4 SUBTOTALS		3.19		0.02	0.27	1.38	0.45	0.10	3942	521	
	SHEET 5 SUBTOTALS		0.09			0.03	1.56	0.36	0.02	4253	399	
TOTALS***:			16.62	0.05	0.52	1.79	3.79	9.88	0.21	16309	1631	0

NOTES:
*Represents an isolated wetland impact (also non-riparian)
**Represents any non-riparian wetland impact
***Rounded totals are sum of actual impacts

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
03/04/2020
WAKE & JOHNSTON
TIP NO.R-2828
WBS NO. 37673.1.TA2
SHEET 171 OF 171

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-2828	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
35516.3.GV1	NHP-0540(043)	DESIGN-BUILD
35516.2.3	NHP-0540(043)	R/W
35516.2.TA1	NHP-0540(043)	R/W

Permit Drawing Package
Last Revised on 01/05/23

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

WAKE & JOHNSTON COUNTY

TRIANGLE EXPRESSWAY SOUTHEAST EXTENSION FROM EAST OF US 401 TO EAST OF I-40

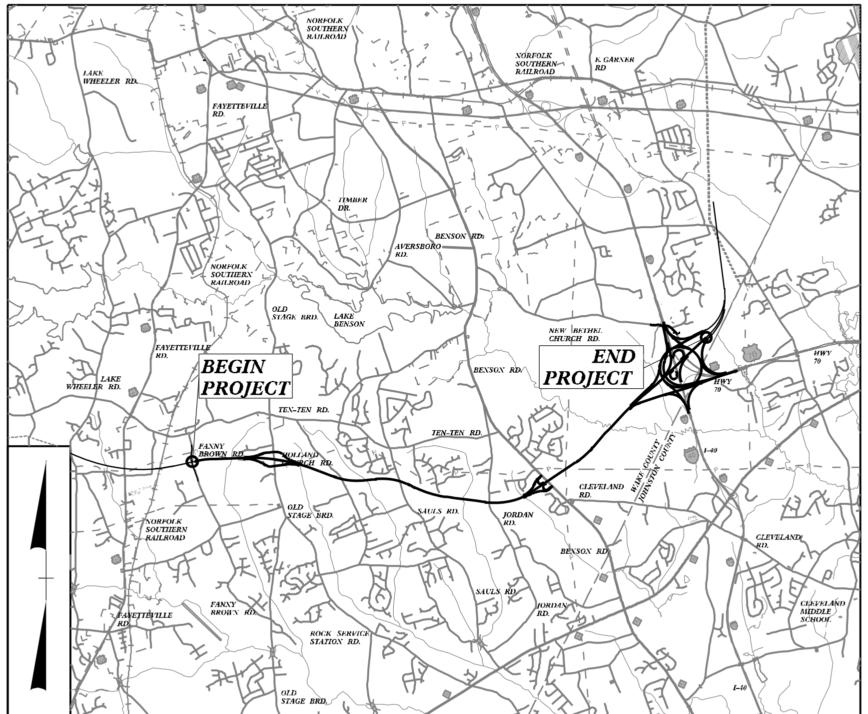
DESIGN-BUILD AS SPECIFIED IN THE SCOPE OF WORK CONTAINED IN THE REQUEST FOR PROPOSALS

BUFFER IMPACTS PACKAGE

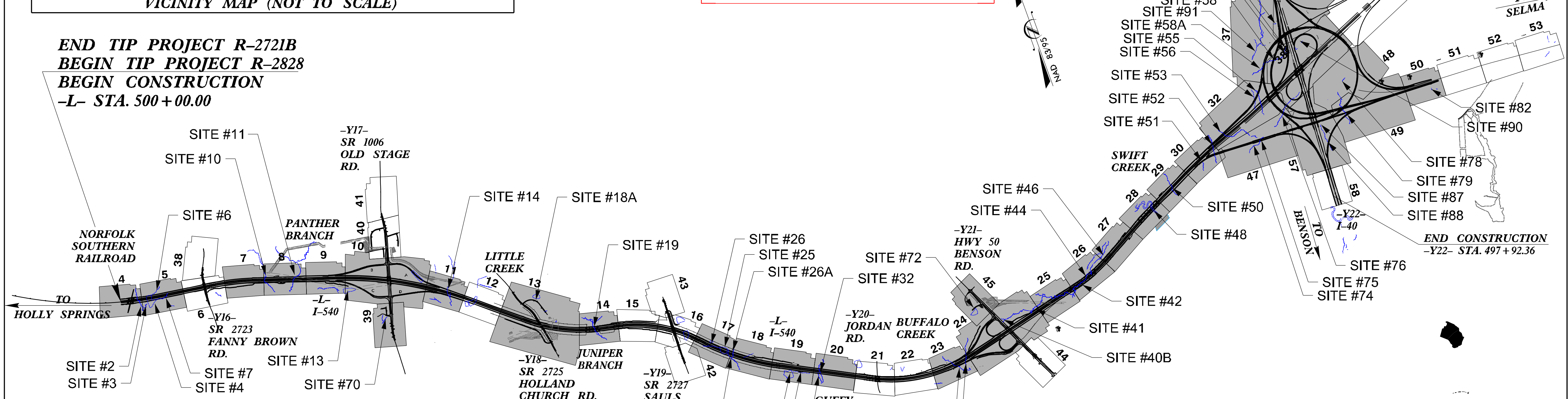
PACKAGE R-2828
DATE: JANUARY 05, 2023

TIP PROJECT: R-2828

CONTRACT: C204197



VICINITY MAP (NOT TO SCALE)



CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.

THIS IS A CONTROLLED ACCESS PROJECT WITH ACCESS BEING LIMITED TO INTERCHANGES.

WSP LANE BLYTHE

BUFFER DRAWING SHEET 1 OF 42

GRAPHIC SCALES

50 25 0 50 100 — PLANS

50 25 0 50 100 — PROFILE (HORIZONTAL)

10 5 0 10 20 — PROFILE (VERTICAL)

DESIGN DATA

ADT 2018	=	NA
ADT 2040	=	53,400
DHV	=	12 %
D	=	65 %
T	=	11 % *
V	=	75 MPH

*(TTST 4 + DUAL 7)

FUNCTIONAL CLASS: FREEWAY

PROJECT LENGTH

LENGTH OF ROADWAY PROJECT R-2828	=	8.055 Miles
LENGTH OF STRUCTURE PROJECT R-2828	=	0.562 Miles
TOTAL LENGTH OF TIP PROJECT R-2828	=	8.617 Miles

NCDOT CONTACT: DESIGN BUILD PROJECT ENGINEER – TRANSPORTATION PROGRAM MANAGEMENT UNIT

Prepared In the Office of: WSP USA, 434 FAYETTEVILLE STREET, SUITE 1500, RALEIGH, NC 27601, TEL: 1.919.836.4040, FAX: 1.919.836.4099, LICENSE NO. F-0165

FOR THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: SEPT. 09, 2019

LETTING DATE: DEC. 11, 2019

DANIEL BRIDGES, PE
PROJECT ENGINEER

RONYELL THIGPEN, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: P.E.

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

09/08/99

2/7/2022
c:\projectwise\pb\projectwiseint\vidya.mohandas\d0352422\R2828_hyd_prm_buf_psh_01.dgn
USVM04388

Permit Drawing Package
Last Revised on 01/05/23

Permitted buffer impacts
Proposed buffer impacts

SITE #57A
SITE #93
SITE #57
SITE #58
SITE #92
SITE #90
SITE #76

MATCH LINE SEE SHEET 46 -Y22_SEC2- STA. 445+00.00
MATCH LINE SEE SHEET 46 -Y22SLIPRPA- STA. 16+50.00
MATCH LINE SEE SHEET 37 -Y22DLYBD- STA. 50+00.00
MATCH LINE -Y22FLYBD- STA. 56+50.00
MATCH LINE SEE SHEET 32 -L- STA. 924+00.00
MATCH LINE SEE SHEET 34 -L- STA. 952+00.00
MATCH LINE SEE SHEET 57 -Y22LPC- STA. 18+00.00
MATCH LINE -Y22LPC- STA. 12+15.65
MATCH LINE SEE SHEET 57 -Y22_SEC2- STA. 461+05.04
MATCH LINE -Y22RPT- STA. 17+00.00
MATCH LINE SEE SHEET 48 -Y22FLYCC- STA. 87+75.00
MATCH LINE -Y22FLYCC- STA. 103+00.00

IMPACT "BY OTHERS" (PROJECT I-5111)
FUTURE SIGN BY OTHERS
PROP OH SIGN

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

I-5111 CONSTRUCTION
R-2828 CONSTRUCTION
R-2828 DESIGN - TO BE CONSTRUCTED BY OTHERS

PONDS SHALL BE DRAINED IN ACCORDANCE WITH THE "POND DRAINAGE PLAN REQUIREMENT" AS APPROVED BY THE ENGINEER.

BUFFER DRAWING
SHEET 24 OF 42

GRAPHIC SCALE 100 0 100

PROJECT REFERENCE NO. R-2828
SHEET NO. 33
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS

RIPARIAN BUFFER IMPACTS SUMMARY

Permit Drawing Package
Last Revised on 02/08/21

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)
2	504+97/506+71	9'x 8' RCBC (SBP)	x						35356	21738	57094		
3	507+31/508+60	42" RCP (SBR)	x						7141	3053	10194		
4	508+63/512+01	Drain Pond (PM)	x						35178	17273	52451		
6	510+58/513+01	Roadfill and ditch (SBU)	x						12287	9439	21726		
7	512+00/515+95	Roadfill (SBR)	x						28472	20582	49054		
7	516+00	Roadfill (SBS)	x			13	1188	1201					
10	547+53/548+95	6'x8' RCBC (SBY)	x						31339	19181	50520		
11	557+20/560+26	9'x8' RCBC (SBX)	x						32579	20144	52723		
13	Y17RPC 17+84/22+90	Drain Pond PN	x						31217	16189	47406		
14	608+59/609+98	10'x8' RCBC (SBX)	x						25640	15608	41248		
18A	636+21/637+82	Roadfill			x				130	3197	3327		
19	659+00/660+60	Bridge (SCG)		x		13347	9046	22393					
19	659+68/660+37 (LT)	Drainage Ditch	x						1018	765	1783		
25	702+59/705+63	Drain Pond (PV)	x						21884	12478	34362		
26	696+93/702+59	Roadfill (SCL)	x						36364	21292	57656		
26	705+63/707+50	Roadfill Ditch (SCL)	x						24121	11956	36077		
26A	707+50/708+33	10'x8' RCBC (SCM)	x						19525	11354	30879		
29	724+43/728+35	Drain Pond (PY)	x						29652	9461	39113		
30	728+35/734+79	Roadfill and Ditch (SCQ)	x						41465	25923	67388		
31	736+09/737+12	Roadfill (SCQ)	x						12230	5453	17683		
32	737+12/737+67	2@ 9'x8' RCBC (SCP)	x						29672	13897	43569		
35	781+52/783+35	9'x8' RCBC (SCT)	x						31457	19477	50934		
37	785+28/788+61	48" RCP (SCV)	x						27178	17260	44438		
TOTALS*:						**13360**	**10234**	**23594**	**513905**	**295720**	**809625**	**0**	**0**

NOTES:

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
03/04/2020
WAKE & JOHNSTON
TIP NO. R-2828
WBS NO. 37673.1.TA2
SHEET 37 OF 42

RIPARIAN BUFFER IMPACTS SUMMARY

Permit Drawing Package
Last Revised on 02/08/21

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)
40B	803+66/804+26	Roadfill Ditch (SCY)			x				5079	2317	7396		
41	803+66/804+26	18" CSP (SCY)			x				5095	1729	6824		
41	812+81/827+66	Roadfill Ditch (SCY)			x				79241	46967	126208		
41	831+01/831+19	New Channel Tie In	x						1027	911	1938		
41	828+33/838+25	Bridge (SCY)		x		65438	37217	102655					
46	844+25/844+76	36" RCP			x					270	270		
48	866+00/868+47	Bridge (SDG)		x		14740	12098	26838					
50	875+30/877+40	14'X8' RCBC (SDJ)	x						25494	15386	40880		
51	888+93/889+94	42" RCP (SDK)	x			6023	5029	11052					
52	894+45/895+98	60" RCP (SDL)	x						36709	21474	58183		
53	900+35/907+05	42" RCP (SDM)	x						59490	36433	95923		
55	914+63/919+22	2@ 9'x9' RCBC (SDW)	x						50950	33292	84242		
56	913+58/917+59	Roadway Fill (SDV)	x						31949	22268	54217		
57	Y22RPB 24+86/26+00	54" RCP Pipe Extension (SDT)	x			6816	4456	11272					
57A	Y22RPB 25+94/27+66	Roadway Fill (SDS)			x				6090	4471	10561		
58	Y22FLYBD 48+12/46+10	42" pipe (SDT)	x						14654	8100	22754		
58A	Y22FLYCC 127+31/122+31	54" pipe (SDT)	x						32839	21340	54179		
59A	Y22FLYCC 116+13/117+87	Roadfill (SDQ)			x				3201	4149	7350		
70	Y17A 11+15/11+61	24" CSP (SCB1)	x						1931	589	2520		
72	Y21C 10+70/11+70	Roadfill			x				829	1377	2206		
73	Y22FLYBD 35+23/34+64	Roadfill	x			2357	1339	3696					
74	Y22FLYCC 33+58/34+58	Roadfill (SDV)			x				1566	2406	3972		
75	Y22FLYCC 36+14/38+48	Bridge		x		13991	9505	23496					
76	919+00/929+36	Roadfill (SDO)	x						64308	45001	109309		
TOTALS*:						**109365**	**69644**	**179009**	**420452**	**268480**	**688932**	**0**	**0**

NOTES:

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
02/24/2020
WAKE & JOHNSTON
TIP NO. R-2828
WBS NO. 37673.1.TA2
SHEET 38 OF 42

RIPARIAN BUFFER IMPACTS SUMMARY

Permit Drawing Package
Last Revised on 01/05/23

			IMPACTS									BUFFER REPLACEMENT	
			TYPE			ALLOWABLE			MITIGABLE				
Site No.	Station (From/To)	Structure Size / Type	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)
78	Y22FLYCC 75+50	60" RCP Pipe Removal (SET)	x			785	618	1403	213	969	1182		
79	Y22FLYBD 82+61/84+16	54" RCP (SET)	x						37554	25277	62831		
79A	Y22RPDE 26+30/28+76	Borrow Site Excavation			x				0	721	721		
82	Y22FLYBD 113+57/113+98	Widening HSB (SEH)	x			2133	1426	3559					
82A	Y22 382+23/385+82	New Channel Tie In			x				13251	880	14131		
83	Y22 395+85/397+04	54" RCP (SEK)	x			1507	377	1884					
84	Y22 403+56/405+39	60" CMP & 72" WSP (SEL)	x			2355	565	2920					
87	Y22_SEC2 473+60/474+66	36" RCP (SES)	x			2764	1099	3863	0	397	397		
88	Y22RPDE 19+72/17+57	42" RCP (SES)	x						16259	8963	25222		
88A	Y22RPDE 13+30	Borrow Site Excavation			x				0	1075	1075		
90	Y22LPA 14+70/16+90	Roadway Fill (SDT)			x	551	405	956		857	857		
91	Y22FLYCC 121+30/121+90	Haul Road (SDQ)	x			4000	2577	6577					
92	Y22RPB 23+54/25+28	Ex. Piers & Bridge Demolition		x		4979	3158	8137					
93	Y22RPB 26+27	Ex. Piers & Bridge Demolition		x		2495	3071	5566					
	SHEET 1 SUBTOTALS					13360	10234	23594	513905	295720	809625	0	0
	SHEET 2 SUBTOTALS					109365	69644	179009	420452	268480	688932	0	0
TOTALS*:						**144294**	**93174**	**237468**	**1001634**	**603339**	**1604973**	**0**	**0**

NOTES:

Site 92: There will be 4979 sq ft (BZ1) and 3158 sq ft (BZ2) of temporary buffer impacts associated with the eastbound flyover removal

Site 93: There will be 2495 sq ft (BZ1) and 3071 sq ft (BZ2) of temporary buffer impacts associated with the westbound flyover removal

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
03/04/2020
WAKE & JOHNSTON
TIP NO. R-2828
WBS NO. 37673.1.TA2

WETLANDS IN BUFFER IMPACTS SUMMARY

Permit Drawing Package
Last Revised on 02/24/20

SITE NO.	STATION (FROM/TO)	DESCRIPTION	WETLANDS IN BUFFERS ZONE 1 (ft^2)	WETLANDS IN BUFFERS ZONE 2 (ft^2)
2	L 506+46/507+16	9'x 8' RCBC (SBP)	1396	3691
3	L 507+48/508+52	42" RCP (SBR)	4171	2863
4	L 508+26/511+89	Drain Pond PM	631	1726
6	L 511+56/512+37	Roadfill and ditch (SBU)	2384	283
7	L 515+57/515+94	Roadfill (SBR)	2008	2537
10	L 547+49/548+06	6'x8' RCBC (SBY)	650	681
11	L 558+64/559+60	9'x8' RCBC (SBX)	4324	2818
13	Y17RPC 17+84/22+90	Drain Pond PN	1729	159
14	L 608+20/611+17	10'x8' RCBC (SBX)	25393	12147
19	659+00/660+60	Bridge (SCG)	196	0
25	L 702+23/703+26	Drain Pond PV	3121	1106
26	696+93/702+59	Roadfill (SCL)	32328	15602
26	L 705+70/707+62	Roadfill Ditch (SCL)	13385	4752
26A	L 707+62/709+45	10'x8' RCBC (SCM)	19287	9113
31	L 736+24/736+62	Roadfill (SCQ)	5534	1171
32	L 735+32/736+61	2@ 9'x8' RCBC (SCP)	693	3339
35	L 782+01/784+39	9'x8' RCBC (SCT)	12459	2798
37	L 785+57/786+74	48" RCP (SCV)	10913	1451
TOTAL:			140602	66237

NOTE: Only Mitigable Buffers Impacts in Wetlands are calculated.

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
03/04/2020
WAKE & JOHNSTON
TIP NO. R-2828
WBS NO. 37673.1.TA2
SHEET 40 OF 42

WETLANDS IN BUFFER IMPACTS SUMMARY

Permit Drawing Package
Last Revised on 02/24/20

SITE NO.	STATION (FROM/TO)	Description	WETLANDS IN BUFFERS ZONE 1 (ft^2)	WETLANDS IN BUFFERS ZONE 2 (ft^2)
41	812+81/827+66	Roadfill Ditch (SCY)	34	386
41	828+33/838+25	Bridge (SCY)	0	0
48	866+00/868+47	Bridge (SDG)	0	0
50	875+63/876+59	14'x8' RCBC (SDJ)	15100	5744
51	888+93/889+94	42" RCP (SDK)	0	0
55	914+64/916+53	2@ 9'x9' RCBC (SDW)	10220	5534
56	914+16/914+83	Roadway Fill (SDV)	275	634
59A	Y22FLYCC 116+13/117+87	Roadfill (SDQ)	313	0
74	Y22FLYCC 33+58/34+58	Roadfill (SDV)	232	0
75	Y22FLYCC 36+14/38+48	Bridge	0	0
76	919+00/929+36	Roadfill (SDO)	142	0
TOTAL:			26316	12298

NOTE: Only Mitigable Buffers Impacts in Wetlands are calculated.

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
02/24/2020
WAKE & JOHNSTON
TIP NO. R-2828
WBS NO. 37673.1.TA2
SHEET 41 OF 42

Revised 2018 Feb

Rev. Jan 2009

WETLANDS IN BUFFER IMPACTS SUMMARY

Permit Drawing Package
Last Revised on 01/05/23

SITE NO.	STATION (FROM/TO)	Description	WETLANDS IN BUFFERS ZONE 1 (ft^2)	WETLANDS IN BUFFERS ZONE 2 (ft^2)
79	Y22FLYBD 82+61/84+16	54" RCP (SET)	2469	0
82	Y22FLYBD 113+57/113+98	Widening HSB (SEH)	0	0
92	Y22RPB 23+54/25+28	Ex. Piers & Bridge Demolition	1873	23
93	Y22RPB 26+27	Ex. Piers & Bridge Demolition	2	
TOTAL:			4344	23

NOTE: Only Mitigable Buffers Impacts in Wetlands are calculated.

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
03/04/2020
WAKE & JOHNSTON
TIP NO. R-2828
WBS NO. 37673.1.TA2
SHEET 42 OF 42

Revised 2018 Feb

Rev. Jan 2009

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DEMOLITION PLAN FOR STRUCTURE 087

Project: C204197 (Wake County, NC)
Location: Bridge 87 (Loop B Bridge on US-70 over I-40 EB/WB)

This plan is based on available plan information and site visits at the existing structure. Modifications of the plan may be needed during the demolition operation to ensure the safety of the demolition personnel, the traveling public and to complete the demolition project in a timely manner.

*Attached Sheet shows locations of spans relative to I-40 and jurisdictional stream/wetland.

Step 1/Shifts 1 (Night): Beginning at end bent 1 and working west the existing deck of span A over the slope and westbound I-40 will be demolished with excavators and hydraulic hammers (*see notes 1 and 2*).
Traffic Control Required: Detour of I-40WB

Step 2/Shift 2 (Night): Beginning at the break line, demolition of span A deck will continue with excavators and hydraulic hammers.
Traffic Control Required: Detour of I-40WB

Step 3/Shift 3 (Night): Beginning at the break line, demolition of span A deck will continue with excavators and hydraulic hammers.
Traffic Control Required: Detour of I-40WB

Step 4/Shift 4 (Night): Beginning at the break line, demolition of span B deck will begin.
Traffic Control Required: Detour of I-40EB

Step 5/Shift 5 (Night): Beginning at the break line, demolition of span B deck will continue.
Traffic Control Required: Detour of I-40EB

Step 6/Shift 6 (Night): Beginning at the break line, demolition of span C deck will be performed.
Traffic Control Required: Outside lane closure(s) of I-40EB

Step 7/Shift 7 (Night or Day): Beginning at the break line, demolition of span C deck will continue.
Traffic Control Required: None – working away from traffic

Step 8/Shift 8 (Night or Day): Beginning at the break line, demolition of span C deck will be completed.
Traffic Control Required: None – working away from traffic.

Step 9/Shift 9 (Night or Day): (protection of wetland under Span D and demolition of Span D)
The demolition process will consist of using a hydraulic hammer attached to an excavator to remove the deck from the bridge while the machine is located on the bridge deck. Rubbalized concrete will fall from the deck to the ground below. To protect the impacted areas, first any trees in the area under the bridge will be cleared but not grubbed. Non-Traditional BMP measures will be installed to protect the highly sensitive areas associated with the Swift Creek Watershed. Protection will be installed such that no demolition material enters the stream/buffers. First a layer of geotextile fabric will in placed at the width of the bridge plus 10' outside of drip edge and between the buffer limits; with the fabric spanning the stream bank to bank and not impacting stream flow in any way. Then crane mats will be installed over the entire area of the previously installed fabric. At stream crossing itself, mats will be installed perpendicular to flow spanning from bank to bank. Finally straw bales will be placed on the mats to inhibit material from rolling off the mats once debris has fallen onto the mats.

Beginning at the break line, demolition of span D will begin.
Traffic Control Required: None – working away from traffic.

Step 10/Shift 10 (Night or Day): Beginning at the break line, demolition of span D will be completed.
Traffic Control Required: None – working away from traffic.

Step 11/Shift 11 (Night): Girders of span A will be removed with cranes.
Traffic Control Required: Detour of I-40WB, inside lane closures of I-40EB

Step 12/Shift 12 (Night): Remaining girders of span A will be removed with crane(s).
Traffic Control Required: Detour of I-40WB, inside lane closures of I-40EB

Step 13/Shift 13 (Night): Girders of span B will be removed with cranes.
Traffic Control Required: Detour of I-40EB, inside lane closure of I-40WB.

Step 14/Shift 14 (Night): Remaining girders of span B will be removed with crane.
Traffic Control Required: Detour of I-40EB, inside lane closure of I-40WB

Step 15/Shift 15 (Night): Interior bent 1, end bent 1 and slope protection will be demolished with excavators and hydraulic hammers.
Traffic Control Required: Detour of I-40WB, inside lane closure of I-40EB

Step 16/Shift 16 (Night): Interior bent 1, end bent 1 and slope protection demolition will be completed.
Traffic Control Required: Detour of I-40WB, inside lane closure of I-40EB

Step 17/Shift 17 (Day): Beams of span C will be removed with cranes
Traffic Control Required: None – working away from traffic

Step 18/Shift 18 (Day): Beams of span C will be removed with cranes
Traffic Control Required: None – working away from traffic

Step 19/Shift 19 (Day): Beams of span D will be removed with cranes
Traffic Control Required: None – working away from traffic

Step 20/Shift 20 (Day): Interior bents 2 and 3 will be demolished with excavators and hydraulic hammers. Traffic Control Required: None – working away from traffic

Step 21/Shift 21 (Day): Interior bents 2 and 3 will be demolished with excavators and hydraulic hammers. Traffic Control Required: None – working away from traffic

Steps 22-30/Shifts 22-30 (Day): End bent 2 and slope protection will be demolished with excavators and hydraulic hammers. Debris will be processed (rebar removed) and transported off-site for recycling.

Beam removal summary (spans A and B): During the removal of the existing beams two cranes will be utilized to remove the beams. Beam 4 will be rigged to two cranes and the diaphragms cut. The beam will be cut over the cap leaving the bolts attached to the cap. The beam will be lifted and removed. Cranes will be rigged to beam 3 and diaphragms will be cut, and the beam will be separated over the cap leaving the bolts and the remaining beam. On night two, beam 2 will be rigged and two additional cranes will be rigged to beam 1 to maintain stability. Diaphragms between beam 1 and 2 will be cut and the beams will be cut above the cap leaving the bolts intact, both beams will be removed. During beam removal on spans C and D two cranes will be utilized and the cutting pattern will be repeated. To expedite the project, excavators may be utilized to remove the beams on spans C and D away from traffic.

Concrete debris will be removed to one or more of these locations for recycling:

1. Wise Recycling at 440 S. Tech Park Lane, Clayton, NC
2. ST Wooten Concrete Plant at Uzzle Industrial Drive, Clayton, NC
3. Godwin Recycling at 1409 S. Clinton Ave., Dunn, NC

Rebar and steel debris will be removed to:

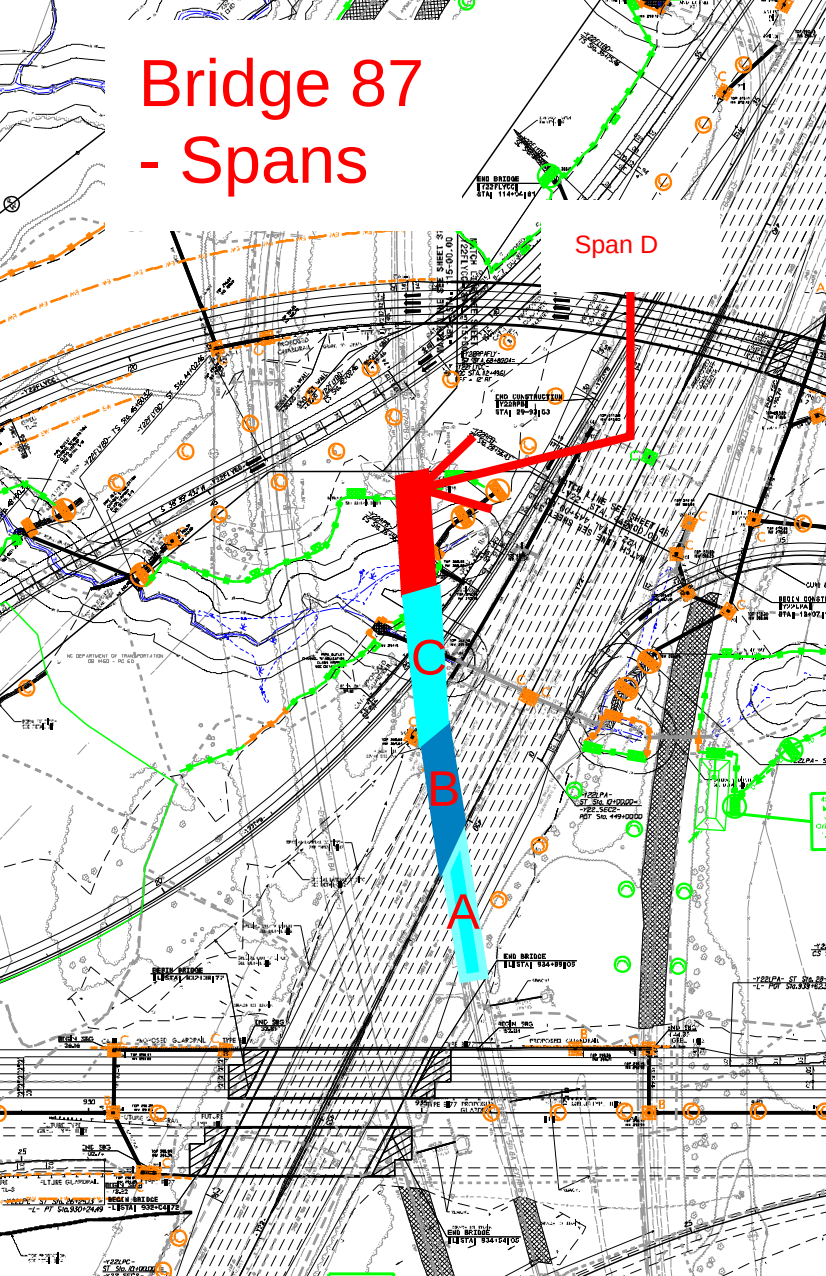
1. Wise Recycling at 440 S. Tech Park Lane, Clayton NC

Note 1: Prior to demolition over an active roadway, roadway protection (screenings/sand) will be installed.
Note 2: Prior to demolition of the deck a saw cut line will be made to provide a clean break/stopping line for each night of demolition.
Note 3: The plan/sequence is our guide, multiple steps may be performed concurrently provided the steps can be performed safely for all workers and the traveling public.
Note 4: Bent stems/piles will be demolished two feet below finished grade or as needed for new construction.
Note 5: In the event of inclement weather, NCDOT and/or the contractor shall make a determination of installing traffic control.
Note 6: Starting location/direction of demolition may be reversed to accommodate the contractors needs to continue work on the project.
Note 7: The traffic control requirements supplied are a guide. Smith-Rowe and the contractor will coordinate the exact needs of traffic control to ensure the safety of the traveling public and all workers.
Note 8: The sequence of Steps/Shifts does not imply continuous work. Our schedule will consist of a 5-day week with an option for a 6th day if required to recover lost time due to weather or other issues.

Note 9: Prior to demolition of the deck, girder locations will be identified and marked so operators are aware of the top flange locations. Supervisor(s) will monitor the operation to ensure minimal or no damage occurs to the beams.
Note 10: After each shift, girders will be inspected and cleaned by hand and with blowers to remove any loose debris prior to opening the roadway to traffic.
Note 11: Concrete slurry from the sawing operations shall be collected and disposed of at one of the area S.T. Wooten Concrete Plants for recycling.
Note 12: Prior to demolition over any jurisdictional feature, all applicable requirements of the permit will be adhered to in order to protect these jurisdictional features.
Note 13: At anytime during the demolition process, if debris enters the jurisdictional stream/wetland a proper recovery method will be discussed/reviewed prior to retrieval.

Submitted by Jonathan Randall, Smith-Rowe, LLC
Revised 11/9/22 to add Note 12
Revised 2/6/23 to add protective measures to step 9, add map of Deck Spans, and add Note 13

Bridge 87 - Spans



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DEMOLITION PLAN FOR STRUCTURE 088

Project: C204197 (Wake County, NC)
Location: Bridge 88 (Flyover East US-70 Bypass over I-40 EB/WB)

This plan is based on available plan information and site visits at the existing structure. Modifications of the plan may be needed during the demolition operation to ensure the safety of the demolition personnel, the traveling public and to complete the demolition project in a timely manner.

*Attached Sheet shows locations of spans relative to I-40 and jurisdictional stream/wetland.

Step 1/Shifts 1 (Night): Beginning at end bent 1 and working west the existing deck of span A over the slope and westbound I-40 will be demolished with excavators and hydraulic hammers (*see notes 1 and 2*).
Traffic Control Required: Detour of I-40WB

Step 2/Shift 2 (Night): Beginning at the break line, demolition of span A deck will continue with excavators and hydraulic hammers.
Traffic Control Required: Detour of I-40WB

Step 3/Shift 3 (Night): Beginning at the break line, demolition of span A deck will continue with excavators and hydraulic hammers.
Traffic Control Required: Detour of I-40WB

Step 4/Shift 4 (Night): Beginning at the break line, demolition of span B deck will begin.
Traffic Control Required: Detour of I-40EB

Step 5/Shift 5 (Night): Beginning at the break line, demolition of span B deck will continue.
Traffic Control Required: Detour of I-40EB

Step 6/Shift 6 (Night): Beginning at the break line, demolition of span C deck will be performed.
Traffic Control Required: Outside lane closure(s) of I-40EB

Step 7/Shift 7 (Night or Day): Beginning at the break line, demolition of span C deck will continue.
Traffic Control Required: None – working away from traffic

Step 8/Shift 8 (Night or Day): Beginning at the break line, demolition of span C deck will be completed.
Traffic Control Required: None – working away from traffic.

Step 9/Shift 9 (Night or Day): Beginning at the break line, demolition of span D will begin.
Traffic Control Required: None – working away from traffic.

Step 10/Shift 10 (Night or Day): Beginning at the break line, demolition of span D will be completed.
Traffic Control Required: None – working away from traffic.

Step 11/Shift 11 (Night or Day): (protection of wetland under Span E and demolition of Span E)
The demolition process will consist of using a hydraulic hammer attached to an excavator to remove the deck from the bridge while the machine is located on the bridge deck. Rubbalized concrete will fall from the deck to the ground below. To protect the impacted areas, first any trees in the area under the bridge will be cleared but not grubbed. Non-Traditional BMP measures will be installed to protect the highly sensitive areas associated with the Swift Creek Watershed. Protection will be installed such that no demolition material enters the stream/buffers. First a layer of geotextile fabric will in placed at the width of the bridge plus 10' outside of drip edge and between the buffer limits; with the fabric spanning the stream bank to bank and not impacting stream flow in any way. Then crane mats will be installed over the entire area of the previously installed fabric. At stream crossing itself, mats will be installed perpendicular to flow spanning from bank to bank. Finally straw bales will be placed on the mats to inhibit material from rolling off the mats once debris has fallen onto the mats.

Beginning at the break line, demolition of span E will begin.
Traffic Control Required: None – working away from traffic.

Step 12/Shift 12 (Night or Day): Beginning at the break line, demolition of span E will be completed.
Traffic Control Required: None – working away from traffic.

Step 13/Shift 13 (Night): Girders of span A will be removed with cranes.
Traffic Control Required: Detour of I-40WB, inside lane closures of I-40EB

Step 14/Shift 14 (Night): Remaining girders of span A will be removed with crane(s).
Traffic Control Required: Detour of I-40WB, inside lane closures of I-40EB

Step 15/Shift 15 (Night): Girders of span B will be removed with cranes.
Traffic Control Required: Detour of I-40EB, inside lane closure of I-40WB.

Step 16/Shift 16 (Night): Remaining girders of span B will be removed with crane.
Traffic Control Required: Detour of I-40EB, inside lane closure of I-40WB

Step 17/Shift 17 (Night): Interior bent 1, end bent 1 and slope protection will be demolished with excavators and hydraulic hammers.
Traffic Control Required: Detour of I-40WB, inside lane closure of I-40EB

Step 18/Shift 18 (Night): Interior bent 1, end bent 1 and slope protection demolition will be completed.
Traffic Control Required: Detour of I-40WB, inside lane closure of I-40EB

Step 19/Shift 19 (Day): Beams of span C will be removed with cranes
Traffic Control Required: None – working away from traffic

Step 20/Shift 20 (Day): Beams of span C will be removed with cranes
Traffic Control Required: None – working away from traffic

Step 21/Shift 21 (Day): Beams of span D will be removed with cranes
Traffic Control Required: None – working away from traffic

C204197 (Wake County) Bridge 88 Demolition Plan

Step 22/Shift 22 (Day): Beams of span E will be removed with cranes
Traffic Control Required: None – working away from traffic

Step 23/Shift 23 (Day): Interior bents 2 and 3 will be demolished with excavators and hydraulic hammers.
Traffic Control Required: None – working away from traffic

Step 24/Shift 24 (Day): Interior bents 2 and 3 will be demolished with excavators and hydraulic hammers.
Traffic Control Required: None – working away from traffic

Steps 25-32/Shifts 25-32 (Day): End bent 2, interior bent 4 and slope protection will be demolished with excavators and hydraulic hammers. Debris will be processed (rebar removed) and transported off-site for recycling.

Beam removal summary (spans A and B): During the removal of the existing beams two cranes will be utilized to remove the beams. Beam 4 will be rigged to two cranes and the diaphragms cut. The beam will be cut over the cap leaving the bolts attached to the cap. The beam will be lifted and removed. Cranes will be rigged to beam 3 and diaphragms will be cut, and the beam will be separated over the cap leaving the bolts and the remaining beam. On night two, beam 2 will be rigged and two additional cranes will be rigged to beam 1 to maintain stability. Diaphragms between beam 1 and 2 will be cut and the beams will be cut above the cap leaving the bolts intact, both beams will be removed. During beam removal on spans C and D two cranes will be utilized and the cutting pattern will be repeated. To expedite the project, excavators may be utilized to remove the beams on spans C and D away from traffic.

Concrete debris will be removed to one or more of these locations for recycling:

1. Wise Recycling at 440 S. Tech Park Lane, Clayton, NC
2. ST Wooten Concrete Plant at Uzzle Industrial Drive, Clayton, NC
3. Godwin Recycling at 1409 S. Clinton Ave., Dunn, NC

Rebar and steel debris will be removed to:

1. Wise Recycling at 440 S. Tech Park Lane, Clayton NC

Note 1: Prior to demolition over an active roadway, roadway protection (screenings/sand) will be installed.
Note 2: Prior to demolition of the deck a saw cut line will be made to provide a clean break/stopping line for each night of demolition.
Note 3: The plan/sequence is our guide, multiple steps may be performed concurrently provided the steps can be performed safely for all workers and the traveling public.
Note 4: Bent stems/piles will be demolished two feet below finished grade or as needed for new construction.
Note 5: In the event of inclement weather, NCDOT and/or the contractor shall make a determination of installing traffic control.
Note 6: Starting location/direction of demolition may be reversed to accommodate the contractors needs to continue work on the project.
Note 7: The traffic control requirements supplied are a guide. Smith-Rowe and the contractor will coordinate the exact needs of traffic control to ensure the safety of the traveling public and all workers.

C204197 (Wake County) Bridge 88 Demolition Plan

Note 8: The sequence of Steps/Shifts does not imply continuous work. Our schedule will consist of a 5-day week with an option for a 6th day if required to recover lost time due to weather or other issues.
Note 9: Prior to demolition of the deck, girder locations will be identified and marked so operators are aware of the top flange locations. Supervisor(s) will monitor the operation to ensure minimal or no damage occurs to the beams.
Note 10: After each shift, girders will be inspected and cleaned by hand and with blowers to remove any loose debris prior to opening the roadway to traffic.
Note 11: Concrete slurry from the sawing operations shall be collected and disposed of at one of the area S.T. Wooten Concrete Plants for recycling.
Note 12: Prior to demolition over any jurisdictional features, all applicable requirements of the permit will be adhered to in order to protect these jurisdictional features.
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Submitted by Jonathan Randall, Smith-Rowe, LLC
Revised11/9/22 to add Note 12
Revised 2/6/23 to add protective measures to step 9, add map of Deck Spans, and add Note 13

Bridge 088 - Spans

Span E

D

C

B

A