Permit Application

U.S. Army Corps of Engineers (USACE)

APPLICATION FOR DEPARTMENT OF THE ARMY PERMIT

For use of this form, see 33 CFR 325. The proponent agency is CECW-COR.

Form Approved - OMB No. 0710-0003

Expires: 2027-10-31

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 11/13/2026	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 – Erin Middle – Last – Cheely Company – North Carolina Department of Transportation E-mail Address – ekcheely@ncdot.gov	First – Middle – Last – Company – E-mail Address –
6. APPLICANT'S ADDRESS: Address – 1598 Mail Service Center City – Raleigh State – NC Zip - 27699 Country – US	**9. AGENT'S ADDRESS:** Address – City – State – Zip – Country –
7. APPLICANT'S PHONE NOs. w/AREA CODE a. Business +19197076108 b.Mobile +19193235192 c. Fax	**10. AGENTS PHONE NOs. w/AREA CODE** a. b. 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)

NCDOT/U-3467/NC 84/Union/Div 10/WBS 39019.1.1

13. NAME OF WATERBODY, IF KNOWN (if applicable)

14. PROJECT STREET ADDRESS (if applicable)

Address -- 1512 Bluebird Hill Ln

City -- Matthews

State -- NC

Zip – 28104

15. LOCATION OF PROJECT

Latitude: ◦N 35.0051787 Longitude: ◦W -80.7318119

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

Section – Township – Range –

County – Union County Project Area – 754.387947 Acres State Tax Parcel ID –

17. DIRECTIONS TO THE SITE

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

Project Description: The North Carolina Department of Transportation (NCDOT) is proposing to extend Rea Road (SR 1316) on new location from NC 16 in Weddington to NC 84 (the new location roadway would be designated as NC 84), and widen existing NC 84 to just beyond Waxhaw-Indian Trail Road (SR 1008) in Wesley Chapel. The proposed project is approximately 4.7 miles long.
The lead federal agency is FHWA.

This project will be built in two stages - U-3467A from NC 16 to west of SR 2932 (Weddington Hills Drive) currently letting July 2027, and U-3467B from west of SR 2932 to SR 1008 Waxhaw-Indian Trail Road) currently letting January 2032. This permit application covers final design for the entire U-3467 project.

Nature of Activity: NC 84 roadway new location and widening.

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

The purpose of the proposed project is to improve the mobility and connectivity of Weddington Road (NC 84) in the project study area.

Mobility refers to the movement of people or goods. The measure of performance for evaluating an improvement in mobility along NC 84 in the project area will be level of service (LOS). The proposed project is intended to bring the peak hour operations at study area intersections to an overall LOS D or better. Connectivity refers to the density of connections in road networks and the directness of links. Improvements to connectivity reduce travel distances and times and provide enhanced route options for travelers and service providers.

Traffic volumes in 2035 are expected to exceed capacity on NC 84 in the project area. In addition, vehicles traveling west on existing NC 84 to Rea Road must follow a longer, indirect route. Currently, westbound traffic on NC 84 must turn left onto NC 16, travel approximately 0.75 mile, and then turn right onto Rea Road. The proposed project is included in the Western Union County Local Area Regional Transportation Plan as NC 84 Relocation (Rea Road Extension). The Plan ranks U-3467 as the No. 1 High Priority Recommended Thoroughfare Plan project.

The proposed project would improve connectivity by providing a more direct link between western Union County and Charlotte/Mecklenburg County. It would provide an alternate route to I-485 and Charlotte, enhancing regional travel options. The proposed project would also provide additional capacity, improving level of service and mobility, on NC 84 in the project area.

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

22. Reason(s) for Discharge

Road construction and widening activities from transportation project

23. Type(s) of Material Being Discharged and the Amount of Each Type:

See Appendix C

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

See Appendix C

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

NCDOT has avoided impacting many wetlands and streams and reduced impacts to wetlands and streams to the greatest extent practicable, especially in the development of the new location alignment of this project. Specific examples of avoidance and minimization measures include:

* The new location alignment was adjusted to avoid the confluence of stream SK and Mundys Run.
* Intersection improvements at NC 84 and Lester Davis Road were designed to avoid a major hydraulic crossing of a UT to West Fork Twelvemile Creek.
* Impacts to stream SR and SV were eliminated by shifting the alignment north of these streams.
* The alignment was shifted to a more perpendicular crossing at stream SS, reducing impacts by several hundred feet.
* Impacts to stream SP were reduced by shifting the alignment to the north of pond PI.
* Shifting the new alignment to the north also reduced impacts to stream SAD and Mundys Run.
* The RCBC carrying West Fork Twelvemile Creek will be replaced with a spanning bridge and there will be a constructed riffle where the RCBC is removed. There will be no deck drains on the new bridge discharging directly into the creek.
* The portion of West Fork Twelvemile Creek that has to be relocated due to the new roadway slopes will be stabilized and reforested.
* The proposed stormwater runoff from the proposed roadway is conveyed via storm drainage systems to ditches prior to outletting at jurisdictional resources.
* Non-erosive velocities are attained at locations where ditches/systems discharge prior to wetlands.
* Best Management Practices (BMPs) will be utilized during construction to attempt to reduce the stormwater impacts to receiving streams and wetlands due to erosion and runoff.

The Division of Mitigation Services (DMS) will provide all the required mitigation for this project.

26. Is Any Portion of the Work Already Complete? ☐ Yes ☑ No

If Yes, describe the completed work:

27. 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 – PO BOX 718

City – WAXHAW State – North Carolina Zip – 28173

b. Address – 8126 SHANNON WOODS LN

City – MATTHEWS State – North Carolina Zip – 28104

c. Address – 8110 SHANNON WOODS LN

City – MATTHEWS State – North Carolina Zip – 28104

d. Address – 4957 ALBEMARLE RD
CENTEX HOMES R SPARGER

City – CHARLOTTE State – North Carolina Zip – 28205

e. Address – 5900 MONROE WEDDINGTON RD

City – MATTHEWS State – North Carolina Zip – 28104

f. Address – 5801 CAMDEN DR

City – MATTHEWS State – North Carolina Zip – 28104

g. Address – 8102 SHANNON WOODS LN

City – MATTHEWS State – North Carolina Zip – 28104

h. Address – 8000 CORPORATE CENTER DR STE 206
C.O. CUSICK COMMUNITY MANAGEMENT LLC

City – CHARLOTTE State – North Carolina Zip – 28226

i. Address – 4851 WEDDINGTON MONROE RD

City – MATTHEWS State – North Carolina Zip – 28104

j. Address – PO BOX 383

City – MATTHEWS State – North Carolina Zip – 28106

k. Address – 6401 CARMEL RD STE 101

City – CHARLOTTE State – North Carolina Zip – 28226

l. Address – 2008 BELLE FOREST CT

City – WAXHAW State – North Carolina Zip – 28173

m. Address – 176 OWLS BROW RDG

City – BLOWING ROCK State – North Carolina Zip – 28605

n. Address – 2010 BELLEFOREST CT

City – WAXHAW State – North Carolina Zip – 28173

o. Address – PO BOX 78926

City – Charlotte State – North Carolina Zip – 28271

28. 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

29. 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.

Erin Cheely	11/13/2026		
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.

Appendix A2. Adjoining Property Owners

First Name	*Middle Name*	*Last Name*	*Address1*	*Address2*	*City*	*State*	*Zip Code*
.		WESLEY CHAPEL WEDDINGTON ATHLETIC ASSOCIATION	PO BOX 718		WAXHAW	North Carolina	28173
CHARLES	and GEORGIA	FISHER	8126 SHANNON WOODS LN		MATTHEWS	North Carolina	28104
MARK	A	EFIRD	8110 SHANNON WOODS LN		MATTHEWS	North Carolina	28104
.		WEDDINGTON BROOK HOMEOWNERS ASSOCIATION INC	4957 ALBEMARLE RD	CENTEX HOMES R SPARGER	CHARLOTTE	North Carolina	28205
CARLTON and	VIRGIE ANN	PLYLER	5900 MONROE WEDDINGTON RD		MATTHEWS	North Carolina	28104
JOHN	and TERESA	LLAMAS	5801 CAMDEN DR		MATTHEWS	North Carolina	28104
ADAM	and AMY	HANKS	8102 SHANNON WOODS LN		MATTHEWS	North Carolina	28104
.		CANISTEO HOMEOWNERS ASSOCIATION INC	8000 CORPORATE CENTER DR STE 206	C.O. CUSICK COMMUNITY MANAGEMENT LLC	CHARLOTTE	North Carolina	28226
BOGDAN	ANDREY	GRITSAY	4851 WEDDINGTON MONROE RD		MATTHEWS	North Carolina	28104
.		REA16 LLC	PO BOX 383		MATTHEWS	North Carolina	28106
.		BELLE MAR LLC	6401 CARMEL RD STE 101		CHARLOTTE	North Carolina	28226
DAVID	KELLY	BREWSTER	2008 BELLE FOREST CT		WAXHAW	North Carolina	28173
MARY		KRATT ET AL	176 OWLS BROW RDG		BLOWING ROCK	North Carolina	28605
RANDY	ANGELA	TAYLOR	2010 BELLEFOREST CT		WAXHAW	North Carolina	28173
.		WEDDINGTON 270 LLC	PO BOX 78926		Charlotte	North Carolina	28271

Appendix C. Impact Inventory:

Water Name	*Impact Name*	*Activity*	*Type of Material Being Discharged*	*Resource Type*	*Permanent Loss (Y/N)*	*Impact Duration*	*Amount Type*	*Proposed Length*	*Proposed Width*	*Proposed Amount*	*Amount Units*
SS	Site 1 54" RCP-IV Buried 1.0'	Discharge of fill material	Pipe/riprap	River/Stream	No	Temporary	Fill Area	25	1	25	Square Feet
SS	Site 1 54" RCP-IV Buried 1.0'	Discharge of fill material	Pipe/riprap	River/Stream	No	Permanent	Fill Area	315	4.148	1306.62	Square Feet
WP	Site 2 Roadway Fill	Discharge of fill material	Mechanized clearing of wetlands	Non-Tidal Wetland	Yes	Permanent	Fill Area			0.018	Acres
WP	Site 2 Roadway Fill	Discharge of fill material	Riprap	Non-Tidal Wetland	Yes	Permanent	Fill Area			0.003	Acres
WP	Site 3 Roadway Fill	Discharge of fill material	Mechanized clearing of wetlands	Non-Tidal Wetland	No	Permanent	Fill Area			0.006	Acres
WP	Site 3 Roadway Fill	Discharge of fill material	Excavation of Wetlands	Non-Tidal Wetland	Yes	Permanent	Fill Area			0.0003	Acres
WN	Site 4 Roadway Fill	Discharge of fill material	Mechanized clearing of wetlands	Non-Tidal Wetland	No	Permanent	Fill Area			0.043	Acres
WN	Site 4 Roadway Fill	Discharge of fill material	Excavation of Wetlands	Non-Tidal Wetland	Yes	Permanent	Fill Area			0.092	Acres
SP	Site 5 30" RCP-IV	Discharge of fill material	Pipe/riprap	River/Stream	Yes	Permanent	Fill Area	214	4.071	0.02	Acres
SP	Site 5 30" RCP-IV	Discharge of fill material	Pipe/riprap	River/Stream	No	Temporary	Fill Area	10	1	0.00023	Acres
PI	Site 6 Roadway Fill/Rock Fill in Pond	Discharge of fill material	riprap/rock	Pond	Yes	Permanent	Fill Area			0.07	Acres
PI	Site 6 Roadway Fill/Rock Fill in Pond	Discharge of fill material	riprap/rock	Pond	No	Temporary	Fill Area			0.03	Acres
WN	Site 6 Roadway Fill/Rock Fill in Pond	Discharge of fill material	riprap/rock	Non-Tidal Wetland	Yes	Permanent	Fill Area			0.074	Acres
SAD	Site 7 30" RCP-IV BURIED 0.5'	Discharge of fill material	Pipe/riprap	River/Stream	Yes	Permanent	Fill Area	174	5.0068	0.02	Acres
SAD	Site 7 30" RCP-IV BURIED 0.5'	Discharge of fill material	Pipe/riprap	River/Stream	No	Temporary	Fill Area	26	0.01	6E-06	Acres

Mundys Run	Site 8 2 @ 11'x8' RCBC	Discharge of fill material	Box Culvert/Riprap	River/Stream	Yes	Permanent	Fill Area	136	12.8117	0.04	Acres
Mundys Run	Site 8 Bank Stabilization	Discharge of fill material	riprap/rock	River/Stream	Yes	Permanent	Fill Area	94	13.902	0.03	Acres
Mundys Run	Site 8 Bank Stabilization	Discharge of fill material	riprap/rock	River/Stream	No	Temporary	Fill Area	38	0.01	9E-06	Acres
SK	Site 8a Bank Stabilization	Discharge of fill material	riprap/rock	River/Stream	Yes	Permanent	Fill Area	33	0.01	8E-06	Acres
SK	Site 8a Bank Stabilization	Discharge of fill material	riprap/rock	River/Stream	No	Temporary	Fill Area	24	0.01	6E-06	Acres
WY	Site 9 Roadway Fill	Discharge of fill material	Mechanized Clearing in Wetlands	Non-Tidal Wetland	Yes	Permanent	Fill Area			0.002	Acres
WY	Site 9 Roadway Fill	Discharge of fill material	riprap/rock	Non-Tidal Wetland	Yes	Permanent	Fill Area			0.002	Acres
Culvert Branch	Site 10 3 @ 12'x7' RCBC	Discharge of fill material	Box Culvert/riprap	River/Stream	Yes	Permanent	Fill Area	110	7.92	871.2	Square Feet
Culvert Branch	Site 10 Bank Stabilization	Discharge of fill material	Riprap/rock	River/Stream	No	Temporary	Fill Area	21	1	0.000482	Acres
Culvert Branch	Site 10 Bank Stabilization	Discharge of fill material	Riprap/rock	River/Stream	No	Permanent	Fill Area	160	5.445	871.2	Square Feet
West Fork Twelvemile Creek	Site 11 Roadway Fill / Channel Relocation	Discharge of fill material	Riprap/rock	River/Stream	Yes	Permanent	Fill Area	273	12.764	0.079995	Acres
West Fork Twelvemile Creek	Site 11 Channel Relocation / Bank Stabilization	Discharge of fill material	Riprap/rock	River/Stream	Yes	Permanent	Fill Area	58	15.02	0.019999	Acres
West Fork Twelvemile Creek	Site 11 Channel Relocation / Bank Stabilization	Discharge of fill material	Riprap/rock	River/Stream	No	Temporary	Fill Area	64	13.61	0.019996	Acres
West Fork Twelvemile Creek	Site 11 Bank Stabilization	Discharge of fill material	Riprap/rock	River/Stream	No	Permanent	Fill Area	5	1	0.000115	Acres
West Fork Twelvemile Creek	Site 11 Bank Stabilization	Discharge of fill material	Riprap/rock	River/Stream	No	Temporary	Fill Area	10	1	0.00023	Acres
West Fork Twelvemile Creek	Site 11 Culvert Removal / Bank Stab.	Discharge of fill material	Riprap/rock	River/Stream	No	Permanent	Fill Area	51	8.541	0.01	Acres

West Fork Twelvemile Creek	Site 11 Culvert Removal / Bank Stab.	Discharge of fill material	Riprap/rock	River/Stream	No	Temporary	Fill Area	20	0.01	5E-06	Acres
SZ	Site 12 Roadway Fill	Discharge of fill material	Riprap/rock	River/Stream	Yes	Permanent	Fill Area	94	4.634	0.01	Acres
SZ	Site 12 Roadway Fill	Discharge of fill material	Riprap/rock	River/Stream	No	Temporary	Fill Area	5	1	0.000115	Acres
WE	Site 11 Culvert Removal / Bank Stab.	Discharge of fill material	Riprap/rock	Non-Tidal Wetland	Yes	Permanent	Fill Area			0.014	Acres
West Fork Twelvemile Creek	Site U1 Utility Water/Sewer line relocation	Discharge of fill material	Bed material	River/Stream	No	Temporary	Fill Area	16	13	208	Square Feet

Provide any additional information you may have about the proposed quantity of wetlands, streams, or other types of waters directly affected by the proposed activity. This level of detail is helpful to better understand the type of impacts that are proposed for your project.

Site 4 - Partial loss of northern portion of wetland included in impact calculations.

Site 11 - 0.3 ac streambank restoration at this site (EC plans attached to permit drawings)

Appendix D-1. Compensatory Mitigation Inventory for Mitigation Banks/in Lieu Fee (ILF) Program:

Mitigation Entry Name	*Mitigation Type*	*Name*	*Credit Unit*	*Proposed Credit Amount*
U-3467 All streams	In-lieu Fee		Linear Feet Based	1316
U-3467 All wetlands	In-lieu Fee		Acre Based	0.25

Appendix H. Supporting Information:

Document Type	*Document Created Date (YYYY-MM-DD)*	*Document Label*	*Information Source/Citation*	*Uploaded file name*
Other Information	2026-11-12	U-3467 2019-06-14 Response to DWR	NCDOT	U-3467 2019-06-14 Response to NCDWR.pdf
Other Information	2026-11-12	U-3467 2019-09-10 Response to DWR	NCDOT	U-3467 2019-09-10 Response to NCDWR.pdf
Threatened Endangered Species Report	2026-11-12	U-3467 Informal Concurrence for heelsplitter	NCDOT	U-3467 2026-09-23 Informal Concurrence for heelsplitter 26-187.pdf
Other Information	2026-11-12	U-3467 CP4B Meeting Minutes	NCDOT	U-3467 4B Meeting Minutes.pdf
Historic Properties Cultural Resources Information	2026-11-12	U-3467 Cultural Resources Summary	NCDOT	U-3467 Cultural Resources Summary.pdf
Historic Properties Cultural Resources Information	2026-11-12	U-3467 Effects Forms	NCDOT	U-3467 Effects Forms.pdf
Maps Plans Plots or Plats	2026-11-12	U-3467 Permit Drawings	NCDOT	U-3467 Final Permit Drawings.pdf
Other Information	2026-11-12	U-3467 Indirect and Cumulative Impact Summary	NCDOT	U-3467 Indirect and Cumulative Impact Summary.pdf
Other Information	2026-11-12	U-3467 Permit Application Cover Letter	NCDOT	U-3467 Permit Application Cover Lettter.pdf
Mitigation Plan	2026-11-12	U-3467 DMS Mitigation Acceptance	NCDOT	U-3467 Revised DMS Acceptance Letter.pdf
Historic Properties Cultural Resources Information	2026-11-12	U-3467 Tribal Coordination - Catawba Response	NCDOT	U-3467 Tribal Coordination - Catawba Response.pdf
Maps Plans Plots or Plats	2026-11-12	U-3467 Utility Drawings	NCDOT	U-3467 Utility Plans.pdf
Threatened Endangered Species Report	2026-11-12	U-3467 WNC bat PBO - USFWS Response Letter	NCDOT	U-3467 WNC Bat PBO Response Letter Submittal 18.pdf

U.S. Army Corps of Engineers (USACE)

APPLICATION FOR DEPARTMENT OF THE ARMY PERMIT – PARTNER APPENDIX

For use of this form, see 33 CFR 325. The proponent agency is CECW-COR.

AUTHORITIES: The Department of Army Corps of Engineers (Corps) and partner entities have established a joint process for activities impacting jurisdictional waterways that require review and/or approval of both the Corps and its partners. Department of Army permits are required by Section 10 of the Rivers & Harbors Act of 1899 for any structure(s) or work in or affecting navigable waters of the United States and by Section 404 of the Clean Water Act for the discharge of dredged or fill materials into waters of the United States, including adjacent wetlands. This supplemental information is provided to the partner entity along with the standard regulatory forms.

PARTNER INFORMATION

ORGANIZATION:	**PARTNER ID:**	**NAME AND CODE:**
NC Division of Water Resources (DWR)		**Form Name**: NATIONWIDE/GENERAL/INDIVIDUAL PERMIT - DWR 401 Application Form NC Division of Water Resources Application Information **Form Code**: NCDWR 401

In North Carolina, many activities covered by Nationwide and Regional General Permits, as well as Individual Permits, also require a 401 Water Quality Certification from the Division of Water Resources. To streamline the application process for both the U.S. Army Corps of Engineers (USACE) and the North Carolina Division of Environmental Quality (NCDEQ) - Division of Water Resources (DWR), we have collaborated on this joint application form.

This joint application form serves to fulfill reporting requirements for both agencies under Sections 401 and 404 of the Clean Water Act, and Section 10 of the Rivers and Harbor Act of 1899, for specific activities permitted through Nationwide Permits (NWPs), Regional General Permits (RGPs), and Individual Permits. The RRS is now the preferred method for submitting application information for these permits.

For questions, please contact the USACE at (910) 251-4633.

The Wilmington District and the North Carolina Department of Environmental Quality (NCDEQ) have collaborated to develop a Joint Permit Application (JPA) within the Regulatory Request System (RRS) for use with Nationwide Permits (NWP) and Regional General Permits (RGP), as well as, Individual Permits. This system functions similarly to previous versions of the Pre-Construction Notification form (also known as e-PCN). The RRS is an online platform that enables applicants to electronically upload and submit all required information to the reviewing agencies.

The RRS JPA fulfills the application and reporting requirements for both the U.S. Army Corps of Engineers (USACE) and NCDEQ for activities authorized under Sections 401 and 404 of the Clean Water Act, as well as Section 10 of the Rivers and Harbors Act of 1899.

Projects that fall within the North Carolina Division of Coastal Manangement (NCDCM) review area, will need to coordinate their application with NCDCM directly. To learn more, visit the [NCDCM website](https://www.deq.nc.gov/about/divisions/division-coastal-management).

USACE/NCDWR Joint Application Form for Nationwide Permits, Regional General Permits, and Individual Permits (along with corresponding Water Quality Certifications)

PLEASE NOTE: THE SYSTEM IS STILL UNDER DEVELOPMENT, AND DATA CURRENTLY DOES NOT TRANSMIT ELECTRONICALLY TO NCDEQ'S DIVISION OF WATER RESOURCES (DWR). UNTIL FURTHER NOTICE, APPLICANTS MUST SUBMIT COMPLETED RRS JPA DOCUMENTS THROUGH [NCDEQ'S "PROJECT SUBMITTAL INTERIM FORM" WEBSITE](https://edocs.deq.nc.gov/Forms/Supplemental-Information-Form).
[Additional Instructions](https://edocs.deq.nc.gov/WaterResources/Browse.aspx?dbid=0&startid=3890140)

SUPPLEMENTAL INFORMATION COLLECTED

ADDITIONAL CONTACT INFORMATION - Property Owner

- Is the owner the same as the applicant?
  - Yes

- Provide Primary Property Owner information
    - Not Applicable (Question not presented)

- Provide Additional Property Owner information
    - Unanswered

PROCESSING INFORMATION -

- Does the 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)?
    - No

- Is this project connected with (American Rescue Plan Act) ARPA funding or S.L. 2023-134 (earmark)?
    - No

- Please select:
    - Not Applicable (Question not presented)

- Please provide the DWI ARPA Funding Project Number (ie: SRP-W-ARP-1234 or SRP-W-134-1234):
  *The DWI Funding Project number can be located on the "Letter of Intent to Fund" (LOIF) or "Offer and Acceptance Letter". If you do not know your DWI project #, please contact your DWI project manager or fund recipient (e.g., LGU).
    - Not Applicable (Question not presented)

- Is this a NC Division of Mitigation Services (NCDMS) Project? Note - Select Yes only if NCDMS is the applicant/co-applicant.
    - No

- Is this project a public transportation project?
    - Yes

- Is this a NC Department of Transportation (NCDOT) project?
    - Yes

- (NCDOT only) T.I.P. (Transportation Improvement Program) or state project number:
    - U-3467

- (NCDOT only) WBS #
    - 39019.1.1

- Application for NC Division of Water Resources (DWR) Certification.
  Type(s) of approval sought from the DWR? (Select all that apply)
    - 401 Water Quality Certification

- Is this a modification OR new project with existing ID?
    - Yes

- Please provide the DWR ID number.
    - 20190231

- Is the project located in any of NC's twenty coastal counties?
    - No

- Is the project located within a NC Division of Coastal Management (DCM) Area of Environmental Concern (AEC)?
    - Not Applicable (Question not presented)

- Is the project located in a designated trout watershed? [Learn more about Trout](https://www.saw.usace.army.mil/Missions/Regulatory-Permit-Program/Agency-Coordination/Trout.aspx)
    - No

- If yes, attach a copy of existing correspondence from the Wildlife Resource Commission Office.
    - Not Applicable (Question not presented)

WATERS DETAILS -

- Name of nearest waterbody? [Surface Water Lookup](https://experience.arcgis.com/experience/7073e9122ab74588b8c48ded34c3df55/)
    - West fork Twelvemile Creek

- Does the proposed activity impact perennial or intermittent streams?
    - Yes

- Please ensure that the Aquatic Resource Inventory section includes all perennial and intermittent streams and be sure to identify them with appropriate Cowardin codes.
  (Click the Aquatic Resources Inventory in the menu on the left to navigate to that section.)

  Note: Use the Cowardin Code "R2 or R3" for perennial. Use Cowardin Code "R4" for intermittent.
  If no code provided, waters will be assumed to be perennial.

NON-JD IMPACT DETAILS - NOTE: Questions only appear in this section when 'Non-404 Jurisdictional Waters Permit' has been included among the Type(s) of approval sought from the DWR.

- Will the project result in impacts to Non-404 JD waters?
    - Not Applicable (Question not presented)

- Please ensure that the associated Non-404 Jurisdictional Waters have been entered in the Aquatic Resource Inventory section of the Permit Application. Use the Aquatic Resource Type of "DELIN.NOJD-404".
  (Click the "Aquatic Resources Inventory" option in the menu on the left to navigate to that section.)

BUFFER IMPACTS AND MITIGATION SUMMARY - Additional impacts and mitigation not previously covered in this application: Buffers

- Will project occur in an area subject to state riparian buffer regulations?
    - No

- Will project result in any impacts within a protected riparian buffer?
    - Not Applicable (Question not presented)

- Which protected basin(s) is the project located within?

- Not Applicable (Question not presented)

- Other Protected Basin
  - Not Applicable (Question not presented)

- Are the buffer regulations implemented by a delegated local government?
  - Not Applicable (Question not presented)

- Please specify which local government.
  - Not Applicable (Question not presented)

- Impact Details
  - Not Applicable (Question not presented)

- Total Temporary Buffer Impacts
  - Not Applicable (Question not presented)

- Total Permanent Buffer Impacts
  - Not Applicable (Question not presented)

- Total Combined Buffer Impacts
  - Not Applicable (Question not presented)

- Will the project result in an impact within a protected riparian buffer that requires buffer mitigation?
  - Not Applicable (Question not presented)

- If yes, you must fill out this entire section - please contact DWR for more information.
  Identify the square feet of impact to each zone of the riparian buffer that requires mitigation. Calculate the amount of mitigation required in the table below.
  - Not Applicable (Question not presented)

- How is buffer mitigation proposed to be met?
  - Not Applicable (Question not presented)

- If payment to mitigation bank or NCDMS, attach a valid statement of availability or DMS acceptance letter. OR Attach mitigation plan for review.
  - Not Applicable (Question not presented)

STORMWATER MANAGEMENT PLAN -

- Does this project disturb >1 acre of land?
  - Yes

- Is this an NCDOT project subject to compliance with NCDOT's Individual NPDES permit NCS000250?
  - Yes

- Is this project subject to review and approval under a state post-construction stormwater program (DEMLR) or state-approved local government stormwater program?
  - Not Applicable (Question not presented)

- What entity has reviewed/is reviewing the Stormwater Management Plan?

- Not Applicable (Question not presented)

- What is the Stormwater Management Plan status?
  - Not Applicable (Question not presented)

- Does this project meet the requirements for low density projects as defined in 15A NCAC 02H.1003(2)? For details on how Low Density Projects are characterized, click the help icon.
  - Not Applicable (Question not presented)

- For low density projects, submit documentation including built-upon area (BUA) delineation, percent BUA calculations, stormwater drainage plan, and designs for vegetated conveyances.
  - Not Applicable (Question not presented)

- For all High Density projects submit a Stormwater Management Plan that includes stormwater control measures for water quality treatment.
  - Not Applicable (Question not presented)

STORMWATER MANAGEMENT IN BUFFERED BASINS - All stormwater generated from high ground within regulated buffer basins must be in compliance with the stormwater management requirements of the applicable buffer rules.

NOTE: Questions only appear in this section when 'Will project occur in an area subject to state riparian buffer regulations?' is answered Yes.

- Does the project comply with the stormwater management requirements of the applicable buffer rules?
  - Not Applicable (Question not presented)

- Please explain why the project does not comply.
  - Not Applicable (Question not presented)

ENVIRONMENTAL DOCUMENTATION -

- Is an environmental document required under NCEPA (01 NCAC 25 .0100)?
  - Yes

- Has the document review been finalized by the State Clearing House?
  - Yes

- Comments
  - Not Applicable (Question not presented)

- Attach a copy of the SEPA final approval document.
  - U-3467 FONSI Final 4-26-18.pdf, U-3467 Final EA_5-27-15.pdf File(s) Uploaded

VIOLATIONS -

- Is the site in violation of DWR Water Quality Certification Rules (15A NCAC 2H .0500), Isolated Wetland Rules (15A NCAC 2H .1300), or DWR Surface Water or Wetland Standards or Riparian Buffer Rules (15A NCAC 2B .0200)?
  - No

- Please explain.
    - Not Applicable (Question not presented)

CUMULATIVE IMPACTS -

- Will this project (based on past and reasonably anticipated future impacts) result in additional development?
    - No

- Provide a qualitative or quantitative cumulative impact analysis in accordance with the most recent DWR policy. [Learn more about Cumulative Impact Policy](https://files.nc.gov/ncdeq/Water%20Quality/Surface%20Water%20Protection/401/Policies_Guides_Manuals/CumulativeImpactPolicy.pdf)
    - Not Applicable (Question not presented)

- If not, provide a short narrative description.
    - See indirect cumulative impact summary info in supporting information.

PLEASE NOTE: THE SYSTEM IS STILL UNDER DEVELOPMENT, AND DATA CURRENTLY DOES NOT TRANSMIT ELECTRONICALLY TO NCDEQ'S DIVISION OF WATER RESOURCES (DWR). UNTIL FURTHER NOTICE, APPLICANTS MUST SUBMIT COMPLETED RRS JPA DOCUMENTS THROUGH [NCDEQ'S "PROJECT SUBMITTAL INTERIM FORM" WEBSITE](https://edocs.deq.nc.gov/Forms/Supplemental-Information-Form).
[Additional Instructions](https://edocs.deq.nc.gov/WaterResources/Browse.aspx?dbid=0&startid=3890140)

U.S. Army Corps of Engineers (USACE)

PERMIT INFORMATION SHEET

PERMIT FORM TYPE	DATE RECEIVED
ENG 4345	11/13/2026

TYPE OF PERMIT YOU'RE REQUESTING

☑ Standard ☐ Letter Of Permission ☐ General Permit

APPLICABLE STATUTORY AUTHORITY

☑ Section 404 Clean Water Act ☐ Section 10 Rivers and Harbors Act

☐ Section 103 of the Marine Protection, Research, and Sanctuaries Act

DO YOU PROPOSE COMPENSATORY MITIGATIONS?

Yes

COASTAL DISTRICT

WOULD THE PROJECT OCCUR IN THE TERRITORIAL SEAS OR OCEAN WATERS?

No

DESCRIBE THE ACTIVITY'S RELATIONSHIP TO THE BASELINE FROM WHICH THE TERRITORIAL SEA IS MEASURED

SECTION 408 USACE CIVIL WORKS PROJECTS

WILL THE PROPOSED ACTIVITY REQUIRES PERMISSION FROM THE USACE PURSUANT TO 33 U.S.C. 408 BECAUSE IT WILL ALTER OR TEMPORARILY OR PERMANENTLY OCCUPY OR USE A U.S. ARMY CORPS OF ENGINEERS FEDERALLY AUTHORIZED CIVIL WORKS PROJECT?

☐ Yes ☑ No ☐ I'm not sure

IF YES, HAVE YOU SUBMITTED A WRITTEN REQUEST FOR SECTION 408 PERMISSION FROM THE USACE DISTRICT HAVING JURISDICTION OVER THAT PROJECT?

☐ Yes ☑ No

STANDARD PERMIT AND LETTER OF PERMISSION INFORMATION

APPROXIMATE DATES YOU PLAN TO BOTH BEGIN AND COMPLETE ALL WORK

Project Start Date	Project End Date
07/20/2027	07/20/2037

DEVELOPMENT TYPE

☐ Commercial ☐ Non-commercial ☑ Government/Tribal

ENDANGERED AND THREATENED SPECIES

DESCRIBE YOUR CURRENT KNOWLEDGE OF ENDANGERED SPECIES THAT MAY BE AFFECTED BY ACTIVITIES OCCURRING WITHIN THE PROJECT OR ACTION AREA

Carolina heelsplitter,Monarch butterfly,Schweinitz's sunflower,Tricolored bat

ADDITIONAL AFFECTED SPECIES:

As of November 2026, IPaC lists tricolored bat, Carolina heelplsitter, Schweinitz's sunflower, and monarch butterfly. Section 7 summary provided in attached cover letter. Informal heelsplitter concurrence and WNC bat PBO response from USFWS also attached.

HISTORIC PROPERTIES

DESCRIBE YOUR CURRENT KNOWLEDGE OF HISTORIC PROPERTIES THAT WOULD HAVE THE POTENTIAL TO BE IMPACTED BY ACTIVITIES OCCURRING WITHIN THE AREA OF POTENTIAL EFFECT/PERMIT AREA

See attached Section 106 Materials (including cultural resources summary, effects forms, and tribal coordination)

NATIONAL WILD AND SCENIC RIVERS

IF THE PROPOSED ACTIVITY WOULD OCCUR IN A NATIONAL WILD AND SCENIC RIVER SYSTEM OR IN AN OFFICIALLY DESIGNATED STUDY RIVER, LIST THE RIVER OR STUDY RIVER

SECTION 103 OF THE MARINE PROTECTION, RESEARCH, AND SANCTUARIES ACT

HAS THE PROPOSED DISPOSAL SITE BEEN DESIGNATED FOR USE BY THE ADMINISTRATOR, EPA, PURSUANT TO SECTION 102(C) OF THE MARINE PROTECTION, RESEARCH, AND SANCTUARIES ACT OF 1972, AS AMENDED (33 U.S.C. 1413)?

IF NO, DESCRIBE THE CHARACTERISTICS OF THE PROPOSED DISPOSAL SITE AND AN EXPLANATION AS TO WHY NO PREVIOUSLY DESIGNATED DISPOSAL SITE IS FEASIBLE

DESCRIBE KNOWN DREDGED MATERIAL DISCHARGES AT THE PROPOSED DISPOSAL SITE

PROVIDE THE EXISTENCE AND DOCUMENTED EFFECTS OF OTHER AUTHORIZED DISPOSALS THAT HAVE BEEN MADE IN THE DISPOSAL AREA (E.G., HEAVY METAL BACKGROUND READING AND ORGANIC CARBON CONTENT)	
PROVIDE THE ESTIMATED LENGTH OF TIME DURING WHICH THE DISPOSAL WOULD CONTINUE AT THE PROPOSED SITE (in months)	PROVIDE THE SOURCE OF THE MATERIAL
DESCRIBE THE TYPE AND COMPOSITION OF THE MATERIAL	DESCRIBE THE METHOD OF TRANSPORTATION AND DISPOAL OF THE MATERIAL
DISCHARGE 404	
DESCRIBE THE SOURCE OF THE MATERIAL Clean upland fill	

Project Submittal Interim Form

Updated March 16, 2026

*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)
- ◉ Modification/New Project with Existing ID
- ○ Other Agency Comments
- ○ Re-Issuance\Renewal Request
- ○ New Project
- ○ More Information Response
- ○ Pre-Application Submittal
- ○ Stream or Buffer Appeal

*** If this is a GP reissuance/renewal please reference the date of the plans and PCN that were originally verified.**

New Project - Please check the new project type if you are trying to submit a new project that needs an official approval decision.

Pre-Application Submittal – Please check the pre-application submittal if you just want feedback on your submittal and do not have the expectation that your submittal will be considered a complete application requiring a formal decision.

Modification/New Project With An Existing ID - Please check this box if you are submitting for a new phase of an existing project, a modification to an existing project or for any additional impacts to an existing project for an official approval decision.

More Information Response - Please check this type if you are responding to a request for information from staff and you have and ID# and version for this response.

Other Agency Comments - Please check this if you are submitting comments on an existing project.

Re-issuance\Renewal Request – Please check this if you are submitting for a re-issuance\renewal prior to expiration date for the corresponding 401/404. If submitting after the expiration date or if modification needed use Modification\New Project with Existing ID option.

Submittal Type: *

Standard Individual Permit (404 IP)

Is buffer approval also required? *

○ Yes ◉ No

Project Contact Information

Name:

Erin Cheely

Who is submitting the information?

Email Address: *

ekcheely@ncdot.gov

Project Information

Existing ID #: *

20190231

20170001 (no dashes)

Existing Version: *

1

1

Project Name: *

NCDOT/U-3467/NC 84/Union/Div 10/WBS 39019.1.1

Is this a public transportation project? *

- (●) Yes
- ( ) No

Is this a DOT project? *

- (●) Yes
- ( ) No

TIP#:

U-3467

WBS#:

39019.1.1

(Applies to DOT projects only)

Project Status

If you selected "Re-Issuance/Renewal Request" or "Modification/New Project with Existing ID" for your project type at the top of this form, please enter the current status of your project.

- (●) Pre-let
- ( ) Utility Relocation Underway
- ( ) Under Construction
- ( ) In-Field Adjustment

Only choose "In-Field Adjustment" if directed to do so by 401 staff

Is this application for a project associated with emergency response/repairs from Hurricane Helene impacts to your project or property? *

- ( ) 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, electric generation projects located at an existing or former electric generating facility, 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 or S.L. 2023-134 (earmark)? *

- ( ) ARPA
- ( ) S.L. 2023-134 (earmark)
- (●) No

Is this application being filed jointly with another party involved with this project? *

- ( ) Yes
- (●) No

County (ies) *

Union

Please upload all files that need to be submited.

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

Generated_Cheely_60648_71767_0_Appx_A2_Adjoining_Property_Owners.…	47.89KB
Generated_Cheely_60648_71767_0_Appx_C_Impacts.pdf	71.86KB
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Generated_Cheely_60648_71767_0_Appx_H_Supporting_Files.pdf	47.57KB
Generated_Cheely_60648_71767_0_ENG_4345_Permit.pdf	344.64KB
Generated_Cheely_60648_71767_0_NCDWR 401_JPA_Report.pdf	87.33KB
Generated_Cheely_60648_71767_0_Permit_Additional_Info.pdf	241.47KB
U-3467 4B Meeting Minutes.pdf	90.23KB
U-3467 2019-06-14 Response to NCDWR.pdf	38.94MB
U-3467 2019-09-10 Response to NCDWR.pdf	1.17MB
U-3467 2026-09-23 Informal Concurrence for heelsplitter 26-187.pdf	172.6KB
U-3467 Final EA_5-27-15.pdf	20.64MB
U-3467 Final Permit Drawings.pdf	11.53MB
U-3467 FONSI Final 4-26-18.pdf	27.64MB
U-3467 Indirect and Cumulative Impact Summary.pdf	89.01KB
U-3467 Permit Application Cover Lettter.pdf	80.81KB
U-3467 Revised DMS Acceptance Letter.pdf	274.55KB
U-3467 Tribal Coordination - Catawba Response.pdf	185.25KB
U-3467 Utility Plans.pdf	716.78KB
U-3467 WNC Bat PBO Response Letter Submittal 18.pdf	171.1KB

Only pdf or kmz files are accepted.

Describe the attachments or add comments:

Individual 404 and Individual 401 requested.

(401 previously issued in 2019 then rescinded per NCDOT request due to significant schedule delay)

*

☑ 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: *



Submittal Date: 11/13/2026

Merger Meeting Minutes

Subject: U-3467 – SR 1316 (Rea Road Extension) from NC 16 to SR 1008 (Waxhaw-Indian Trail Road) in Union County

Minutes of Interagency (Modified) 4B Hydraulics Design Review – 12/13/2017

An Interagency 4B Hydraulics Design Review meeting was held on December 13, 2017 at 1:00 PM in the NCDOT Century Center Hydraulics Conference Room. The purpose of the meeting was to discuss the environmental impact concerns that may be encountered while completing the hydraulic design that will be provided by CALYX Engineers + Consultants for U-3467.

Team Members:

Matthew Lauffer (Absent)	NCDOT – Hydraulics	919-707-6703	mlauffer@ncdot.gov
Donnie Brew (Absent)	FHWA	---	Donnie.brew@dot.gov
Crystal Amschler (via phone)	USACE	---	crystal.c.amscler@usace.army.mil
Donna Hood (Present)	NCDWR	704-682-2839	donna.hood@ncdenr.gov
Laura Sutton (Present)	NCDOT-PMU	919-707-6030	lsutton@ncdot.gov
Chirstopher Militcher (Absent)	USEPA	---	Militscher.Chris@epamail.epa.gov
Marla Chambers (via phone)	NCWRC	---	marla.chambers@ncwildlife.org
Robert Cook (Absent)	MPO	---	rwcook@ci.charlotte.nc.us
Marella Buncick (Present)	USFWS	828-285-3939 Ext. 237	marella_buncick@fws.gov

Participants:

Bryan Key	NCDOT – PMU	919-707-6263	bckey@ncdot.gov
Beverly Robinson	NCDOT – PMU	919-707-6041	brobinson@ncdot.gov
Scott Cole (Absent)	NCDOT – Division 10	704-983-4400	scole@ncdot.gov
Rick Baucom (Absent)	NCDOT – Division 10	704-983-4400	rwbaucom@ncdot.gov
Stuart Basham (Absent)	NCDOT – Division 10	704-845-1151	slbasham@ncdot.gov
Larry Thompson (via phone)	NCDOT – Division 10	704-983-4400	lthompson@ncdot.gov
Matthew York	NCDOT – Hydraulics	919-707-6765	mjyork@ncdot.gov
Joe Dunnehoo	NCDOT – Hydraulics	919-707-6717	jwdunnehoo@ncdot.gov
Carla Dagnino	NCDOT – EAU	919-707-0992	cdagnino@ncdot.gov
Erin Cheely (Absent)	NCDOT – EAU	919-707-6108	ekcheely@ncdot.gov
Mark Staley (Absent)	NCDOT – REU	919-707-6110	mstaley@ncdot.gov
David Harris (Absent)	NCDOT – REU	919-707-2925	davidharris@ncdot.gov
Keith Paschal (Absent)	NCDOT – SMU	919-707-6481	kpaschal@ncdot.gov
Byron Sanders (Absent)	NCDOT – Utilities	919-707-6696	bsanders@ncdot.gov
Steve Trexler (Absent)	NCDOT – Utilities	919-707-7175	sctrexler@ncdot.gov
Liz Kovasckitz	CALYX E&C	919-858-1808	lkovasckitz@CALYXengineers.com
Johnny Banks	CALYX E&C	919-858-1844	jbanks@CALYXengineers.com
David Bocker	CALYX E&C	704-566-4342	dbocker@CALYXengineers.com
Jay Subedi	CALYX E&C	704-566-4306	jsubedi@CALYXengineers.com
Allison Thompson	CALYX E&C	704-566-4336	athompson@CALYXengineers.com

The following is a brief summary of the discussions on the project:

Introductions were made by Matthew York and all in attendance. David Bocker (CALYX Engineers + Consultants) proceeded to give an overview of the project and then proceeded with the review of the project.

Sheet 4/5

- Site 1 - Proposed 48" RCP (buried 1ft) with standard riprap apron is proposed at –L- 23+12. It was requested that larger riprap be used at this outlet and it be embedded. Marella also had concerns about the amount of stormwater that will be discharged at this point. CALYX explained that the design strives to match existing drainage patterns at this location. Also, CALYX should consider realigning the proposed crosspipe and system outlet as currently shown on the 4B Plans to be more in line with the downstream receiving channel. CALYX stated that this will be considered and that the riprap will be shown to be Class 'I' and embedded in the channel as requested.
- Site 2 – Proposed 18" RCP with standard riprap apron is proposed at –L- 26+50 RT drains to wetlands and maintains existing drainage patterns. It was recommended that larger Class 'I' riprap be utilized at this location.
- Site 3 – Roadway Fill impact at –L- 28+83 RT. Roadway grade adjusted to closely match existing ground to minimize project footprint, small cut slope (less than 0.5 ft).
- Site 4 – Proposed 36" RCP (buried 20%) with standard apron is proposed at –L- 33+50 RT . Roadway grade adjusted to closely match existing ground to minimize project footprint, small cut slope (less than 0.5 ft). The current horizontal and vertical alignment was set to avoid impact to the pond and dam north of the project. Donna asked several questions with regards to the pond and its condition. David explained that the pond was not observed to have a primary overflow pipe/outlet, but the western side of the dam seemed to serve as an overflow/emergency spillway (currently in fair condition, no significant signs of erosion). The area is all wooded and no utilities were observed. Crystal questioned why riprap pads are being proposed within the wetlands. David explained that there is approximately 25 CFS (50-YR storm event) at this crossing which is currently at approximately 4% slope; therefore we have proposed riprap to reduce the velocities and minimize erosion at the outlet. David also stated that drop structures are being considered to reduce the slope and velocities internally within the pipe crossing. It was also requested that larger riprap be used at the outlet. Marla was concerned about this area being a sloped wetland. David explained that this area is challenging since even though it is a wetland, it acts more like a stream; therefore the design is treating this more as a stream. In summary, the group recommended that Class 'I' riprap be utilized. CALYX stated that all of these considerations will be considered and implemented during final design to minimize impacts and reduce velocities at this outlet point.

Sheet 6

- Site 5 - Proposed Roadway Fill in Pond and Wetland; Proposed 30" RCP along with Rock plating along slope on RT side. Roadway slopes currently 3:1 will be reduced to 2:1 to minimize impacts. A drop structure will likely be utilized to obtain a flatter slope of the pipe at this location in order to minimize velocities and erosion potential at the outlet. Wetlands are present at the upper end of project impact area which is at an approximate 5% slope. Crystal asked that the upper end of the wetlands be considered a total impact (LT side of roadway), Donna agreed.
- Site 6 – Proposed 36" RCP (buried 20%) with standard apron is proposed at –L- 46+00 RT. David explained that Site 6 does not exist since it is not identified as a jurisdictional stream.

Sheet 8

- Site 7 – Proposed 24" RCP (buried 20%) with standard riprap apron is proposed at –L- 64+75 RT. 2:1 roadway fill slopes have been utilized to minimize impacts to the stream. Slope of the pipe is approximately 3.8% which matches existing stream slope. CALYX will plan to utilize the larger embedded Class 'I' riprap. Marla expressed concern about the slope. David explained that there will be drop structures within the pipe crossing due to storm drainage tie-ins. Joe asked the

agencies what is the acceptable drop distance within a drainage structure that still allows for aquatic passage. After some discussion, it was decided that a 6" or less drop is acceptable at each drop location.

Sheet 9

- Site 8 – 2 @ 11'x8' RCBC on Mundys Run, base flow carried in eastern culvert (buried one foot). 2nd barrel (western) serves as overflow utilizes a 2' sill with bench (with coir fiber) in channel at the inlet & outlet. It should be noted that this culvert was originally proposed as 2 @ 9'x8' RCBC but due to new hydrology methodology and preliminary design & modeling it has been changed to 2 @ 11'x8' RCBC. Riprap proposed to stabilize channel banks at the inlet & outlet. 2:1 roadway fill slopes have been utilized to minimize impacts to the stream. Proposed ditches which will direct storm drainage from system outlets line ahead and line back are anticipated on the outlet side of the culvert. Riprap at embankment details will be used to stabilize the banks at these outfall locations. A request was made to ensure there is sufficient PDE shown at the inlet and outlet of the culvert. CALYX stated that PDE will be expanded from what is currently shown to ensure there is adequate space for future maintenance and access. There was concern about the tributary that ties in at the inlet, additional bank stabilization/protection along the banks and bend upstream. CALYX will also consider only clearing in this area and not grubbing in order to retain some of the vegetation and root balls to help stabilize this area. It should be noted that the impacts associated with the tributary should be considered a separate site.

Sheet 10

- Site 9 – Proposed 18" RCP (buried 20%) with standard riprap apron is proposed at –L- 94+85 RT. 2:1 roadway fill slopes have been utilized to minimize impacts to the wetlands. CALYX will consider utilizing the larger Class 'I' embedded riprap at this location.

Sheet 14

- Site 10 – Existing 1 @ 12'x7' RCBC on Culvert Branch will be replaced with 3 @ 12'x7' RCBC, base flow carried in center culvert (buried one foot). Outside barrels serve as overflow culverts and utilize a 2' sill with bench (with coir fiber) in channel at the inlet & outlet. Riprap proposed to stabilize channel banks at the inlet & outlet. 2:1 roadway fill slopes have been utilized to minimize impacts to the stream. Proposed ditches which will direct storm drainage from system outlets line ahead and line back are anticipated on the inlet side of the culvert. Riprap at embankment details will be used to stabilize the banks at these outfall locations. Donna requested that the project improvements not result in draining of the upstream wetland. CALYX stated that this can be evaluated during the Erosion control design to ensure no temporary basins or erosion control measured take this into account. CALYX will also ensure that backfill requirements (based on culvert slope) are met and native materials can be held in place within the culvert.

Sheet 16

- Site 11 – Existing 3 @ 11'x12' RCBC on West Fork Twelve Mile Creek will be replaced with Proposed Bridge – 2 spans @ 55' (36" Prestressed Concrete Girder Bridge), which spans the creek. No direct discharge into the creek; deck drains can be used on the bridge.
- Stream relocation is proposed due to roadway fill impacts to stream. Proposed section maintains channel width of 12' in center section which will carry base flow. 5' benches to the channel are proposed on each side for overflow/capacity which will be lined with coir fiber matting. Riprap is proposed as well to provide bank stabilization. Geotech investigations show that no rock is

anticipated in the area of the proposed channel relocation. The existing sanitary sewer line will need to be relocated, be it is anticipated that it will be located between the stream and the roadway. The proposed channel will match existing stream bed elevations and geometric dimensions, no significant slope change is anticipated. The existing stream length (tie-in to tie-in point) is 330' and the proposed channel relocation length is 290'. Some discussion was had amongst the group with regards to the plan for mitigation that will be outlined in the permit application. Crystal recommended that in-stream structures be utilized in order to replicate for stabilization. CALYX will investigate the use of vegetated banks and in-stream structures in order to improve stream function. Matthew York also reminded the team that this is a FEMA regulated floodplain (Detailed Study) which does currently overtop the roadway for the 100-yr storm event and CALYX will need to ensure that a No-Rise is achieved with the channel relocation that is proposed. Donna also requested that the stream and banks be stabilized where the existing culvert is removed. CALYX will include details of this bank stabilization. Joe Dunnehoo recommended that the existing culvert be removed and a constructed riffle be utilized. This has been used on prior stream restoration projects which creates a natural stream mixture with a combination of larger and smaller rock that somewhat lock in place to stabilize the stream bed which appears to be a good application for this area of the project. Crystal requested that the impact summary table separate the bridge/culvert impacts and the channel relocation impacts. Marla reminded the team that a riprap free, level path be provided for wildlife under the bridge. CALYX explained that there is a flat/level area that will be provided between the toe of the riprap abutment and the top of bank which provides for sufficient are for wildlife passage.

Sheet 19

- Site 12 – Existing 42" RCP to be replaced with 54" RCP (buried), upsized with standard riprap apron at –L- 224+60 RT. Existing concrete slope protection at outlet parallel to drive. CALYX will consider utilizing the larger Class 'I' embedded riprap at this location.

Sheets 7, 11, 12, 13, 15, 17, 18, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, & 30

- No jurisdictional streams or wetlands, therefore, no impacts.

General/ Misc. Questions:

- CALYX asked if the Division had an preference with regards to the use of hand clearing or mechanized clearing being shown on the permit drawing beyond the proposed fill slopes. The Division preferred the showing 10' of Mechanized Clearing in wetland areas beyond the proposed slope stakes.
- Joe Dunnehoo asked how bank stabilization and embedded riprap should be labeled and shown on the plans and accounted for in the impact table. Crystal explained that Bank Stabilization should be separate from the actual pipe impact and embedded riprap dissipator pad impacts and labeled accordingly.
- Matthew York to investigate new "term" being used by Hydraulics Unit for embedded riprap in the channel to ensure that this is notated properly on the plans and permit drawings.
- Discharge into the wetlands shall have a non-erosive velocity.
- The team agreed that this courtesy 4B meeting was very helpful to ensure team members are aware of the key issues on the project and another meeting (4C) would not be needed. The team agreed that any further reviews can be handled electronically and via e-mail.

Permit Drawings

North Carolina Department of Transportation

Highway Stormwater Program

STORMWATER MANAGEMENT PLAN

FOR NCDOT PROJECTS

(Version 3.03; Released June 1, 2026)

General Project Information

WBS Element:	39019.1.1	**TIP Number:**	U-3467	**Project Type:**	Roadway Widening	**Date:**	10/30/2026
NCDOT Contact:	Jon E. Gaillard			**Contractor / Designer:**	NV5 Engineers and Consultants, Inc.		
Address:	1020 Birch Ridge Drive Raleigh, NC 27610-150			**Address:**	8514 McAlpine Park Drive Suite 135 Charlotte, NC 28211		
Phone:	919-707-6045			**Phone:**	704-566-4342		
Email:	jegaillard@ncdot.gov			**Email:**	david.bocker@nv5.com		
City/Town:	Weddington			**County(ies):**	Union		
River Basin(s):	Catawba			**CAMA County?**	No		
Wetlands within Project Limits?	Yes						

Project Description

Project Length (lin. miles or feet):	4.9 Miles	**Surrounding Land Use:**	Residential / Undeveloped Woods				
	Proposed Project			**Existing Site**			
Project Built-Upon Area (ac.)	63.6	ac.		29.4	ac.		
Typical Cross Section Description:	Proposed 4-lane divided Roadway with raised center median			New Location & Existing 2-lane Roadway (2 @ 12' lanes) with Grass shoulder and ditches			
Annual Avg Daily Traffic (veh/hr/day):	Design/Future:	34268	Year: 2048	Existing:	26348	Year:	2028

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

The project consists of roadway extension and widening of SR 1316 (Rea Road Extension) from NC 16 to SR 1008 (Waxhaw-Indian Trail Road), new culvert (2 @ 11'x8' RCBC) at Mundys Run, culvert replacement at Culvert Branch, and repalcement of culvert with new bridge at West Fork Twelvemile Creek. It should be noted that there are no deck drains and thus no direct discharge into the creek at the bridge site; additionally, the proposed bridge layout avoids bents within the creek. The proposed stormwater runoff from the proposed roadway is conveyed via storm drainage systems to ditches prior to outletting at jurisdictional resources. Non-erosive velocities are attained at locations where ditches/systems discharge prior to wetlands.

North Carolina Department of Transportation

Highway Stormwater Program
STORMWATER MANAGEMENT PLAN
FOR NCDOT PROJECTS

(Version 3.03; Released June 1, 2026)

WBS Element:	39019.1.1	TIP/Proj No.:	U-3467	County(ies):	Union	Page	2	of	2

General Project Information

Waterbody Information

Surface Water Body (1):	Mundys Run		**NCDWR Stream Index No.:**	11-138-1-2			
NCDWR Surface Water Classification for Water Body		**Primary Classification:**	Class C				
		Supplemental Classification:					
Other Stream Classification:	None						
Impairments:							
Aquatic T&E Species Habitat?	No	Comments:					
NRTR Stream ID:	SL			**Buffer Rules in Effect:**	N/A		
Project Includes Bridge Spanning Water Body?	No	**Deck Drains Discharge Over Buffer?**	N/A	**Dissipator Pads Provided in Buffer?**	No		
Deck Drains Discharge Over Water Body?	N/A	(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)							

Surface Water Body (2):	Culvert Branch		**NCDWR Stream Index No.:**	11-138-1-1			
NCDWR Surface Water Classification for Water Body		**Primary Classification:**	Class C				
		Supplemental Classification:					
Other Stream Classification:	None						
Impairments:							
Aquatic T&E Species Habitat?	No	Comments:					
NRTR Stream ID:	SF			**Buffer Rules in Effect:**	N/A		
Project Includes Bridge Spanning Water Body?	No	**Deck Drains Discharge Over Buffer?**	N/A	**Dissipator Pads Provided in Buffer?**	N/A		
Deck Drains Discharge Over Water Body?	N/A	(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)							

Surface Water Body (3):	West Fork Twelvemile Creek		**NCDWR Stream Index No.:**	11-138-1			
NCDWR Surface Water Classification for Water Body		**Primary Classification:**	Class C				
		Supplemental Classification:					
Other Stream Classification:							
Impairments:							
Aquatic T&E Species Habitat?	No	Comments:					
NRTR Stream ID:	SB			**Buffer Rules in Effect:**	N/A		
Project Includes Bridge Spanning Water Body?	Yes	**Deck Drains Discharge Over Buffer?**	N/A	**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

S[illegible] S[illegible] IA F[illegible] It[illegible] f[illegible] S[illegible]
S[illegible] S[illegible] IB F[illegible] C[illegible] [illegible] V[illegible] P[illegible] S[illegible]

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

UNION COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U–3467	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
39019.1.1	STP–1316(10)	P.E.
39019.2.1	STP–1316(10)	R/W, UTL.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING SHEET 1 OF 28

NAD 83 / NA 2011

LOCATION: SR 1316 (REA ROAD EXTENSION) & NC 84 (WEDDINGTON RD) FROM NC 16 (PROVIDENCE RD) TO SR 1008 (WAXHAW–INDIAN TRAIL ROAD) IN WESLEY CHAPEL

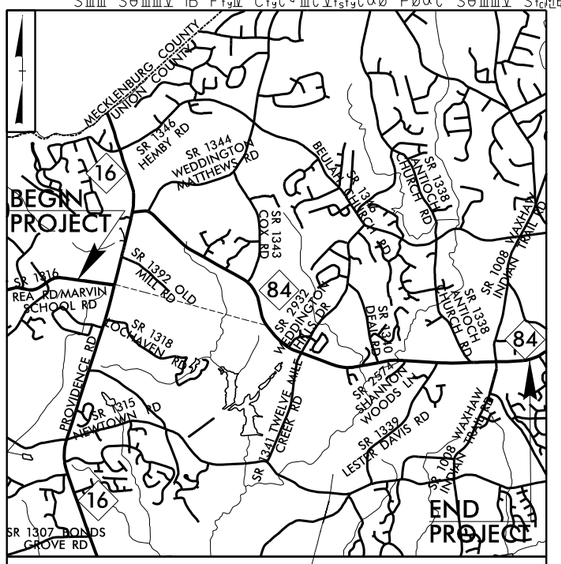
TYPE OF WORK: GRADING, PAVING, DRAINAGE, STRUCTURES, RETAINING WALL & SIGNALS

UPGRADE EXISTING SIGNAL
NEW SIGNAL

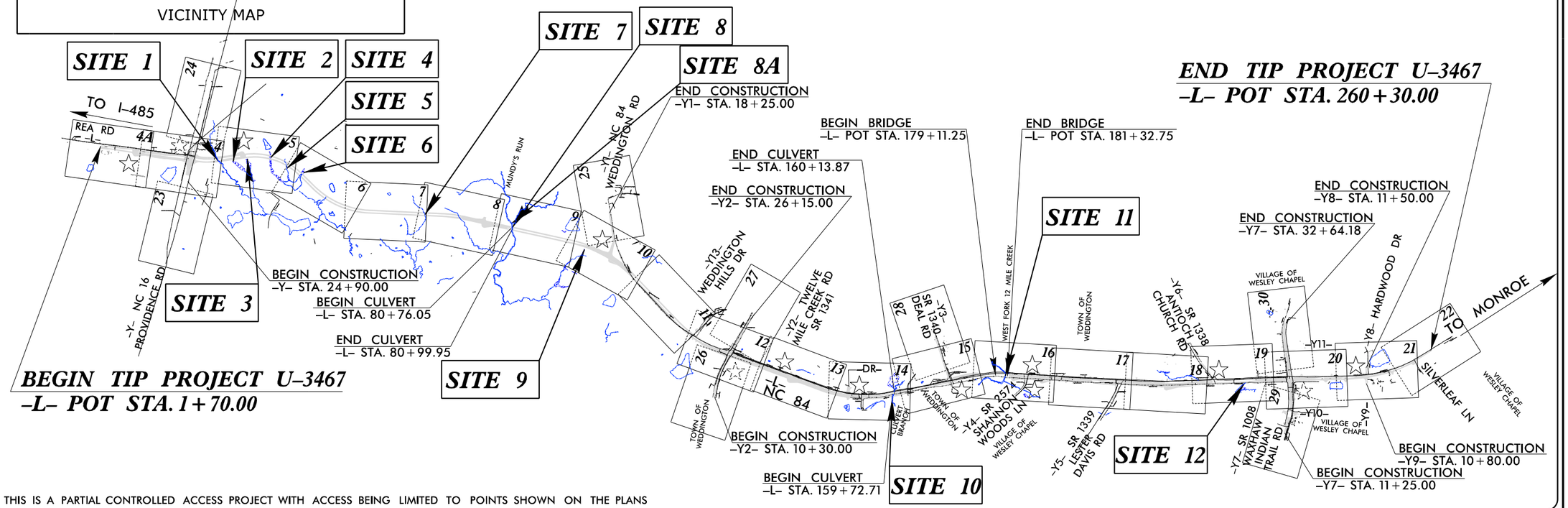
WETLAND AND SURFACE WATER IMPACTS PERMIT

TIP PROJECT: U–3467

CONTRACT:



VICINITY MAP



THIS IS A PARTIAL CONTROLLED ACCESS PROJECT WITH ACCESS BEING LIMITED TO POINTS SHOWN ON THE PLANS

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 2028 = 26,348
ADT 2048 = 34,268
DHV = 10 %
D = 60 %
T = 4 % *
V = 50 MPH
* TTST =1% DUAL 3%
FUNC CLASS=
MINOR ARTERIAL
REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT U–3467	=	4.824 MILES
LENGTH STRUCTURES TIP PROJECT U–3467	=	0.042 MILES
TOTAL LENGTH TIP PROJECT U–3467	=	4.898 MILES

Prepared in the Office of:
NV5
FOR THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

2024 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
JUNE 28, 2024

LETTING DATE:
JULY 20, 2027

JOHNNY BANKS
NV5 PROJECT MANAGER

STEVE A. DRUM, PE
NV5 PROJECT DESIGN ENGINEER

NCDOT CONTACT: BRYAN KEY, PE
CENTRAL PROJECT MANAGER IN TECHNICAL SERVICES

HYDRAULICS ENGINEER

SIGNATURE: *P.E.*

ROADWAY DESIGN ENGINEER

SIGNATURE: *P.E.*

STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION ·

10/30/2026
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David.Bocker

PROJECT REFERENCE NO.	SHEET NO.
U-3467	4

R/W SHEET NO.

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

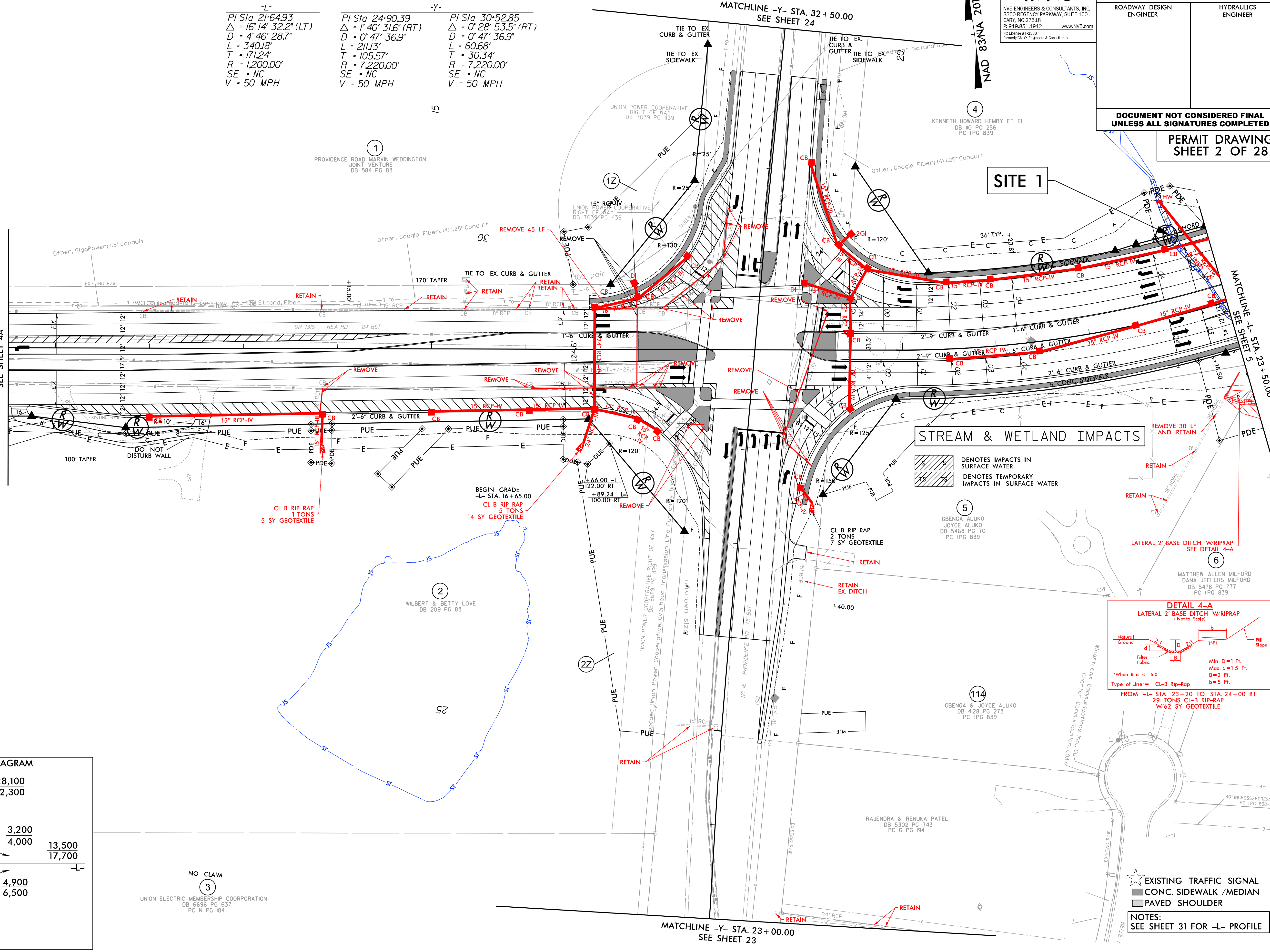
NV5

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NC License # F-1333
formerly CALYX Engineers & Consultants

PERMIT DRAWING SHEET 2 OF 28

SITE 1

-L-	-Y-	-Y-
PI Sta 21+64.93	PI Sta 24+90.39	PI Sta 30+52.85
Δ = 16° 14′ 32.2″ (LT)	Δ = 1° 40′ 31.6″ (RT)	Δ = 0° 28′ 53.5″ (RT)
D = 4° 46′ 28.7″	D = 0° 47′ 36.9″	D = 0° 47′ 36.9″
L = 340.18′	L = 211.13′	L = 60.68′
T = 171.24′	T = 105.57′	T = 30.34′
R = 1,200.00′	R = 7,220.00′	R = 7,220.00′
SE = NC	SE = NC	SE = NC
V = 50 MPH	V = 50 MPH	V = 50 MPH



STREAM & WETLAND IMPACTS

DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

DETAIL 4-A

LATERAL 2′ BASE DITCH W/RIPRAP
(Not to Scale)

Natural Ground; Filter Fabric; Fill Slope; 2:1; 1″/Ft.

*When B is < 6.0′

Type of Liner = CL-B Rip-Rap

Min. D = 1 Ft.
Max. d = 1.5 Ft.
B = 2 Ft.
b = 5 Ft.

FROM -L- STA. 23+20 TO STA. 24+00 RT
29 TONS CL-B RIP-RAP
W/62 SY GEOTEXTILE

EXISTING TRAFFIC SIGNAL
CONC. SIDEWALK /MEDIAN
PAVED SHOULDER

NOTES:
SEE SHEET 31 FOR -L- PROFILE

TRAFFIC DIAGRAM

ADT 2028 / ADT 2048

Movement	ADT 2028	ADT 2048
-Y- north	28,100	32,300
-Y- south	27,600	33,000
-L- west	21,600	25,900
-L- east	13,500	17,700
	9,200	10,300
	3,200	4,000
	7,000	8,500
	4,900	6,500

REVISIONS

DESIGN REVISION - 2/9/24 - NC 16 INTERSECTION DESIGN REVISED IN COORDINATION WITH U-5769.
RIGHT OF WAY REVISION - 2/14/25 - DRIVEWAY ADDED TO PARCEL 4.
RIGHT OF WAY REVISION - 5/5/25 - TCE REVISED ON PARCEL 5.
RIGHT OF WAY REVISION - 6/16/25 - PUE REVISED ON PARCELS 1 & 2.
RIGHT OF WAY REVISION - 10/6/25 - PUE REVISED ON PARCEL 2.PUE ADDED TO PARCEL 1.

8/17/99

REVISIONS

DESIGN REVISION - 2/9/24 - NC 16 INTERSECTION DESIGN REVISED IN COORDINATION WITH U-5769.
RIGHT OF WAY REVISION - 2/14/25 - DRIVEWAY ADDED TO PARCEL 4.
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RIGHT OF WAY REVISION - 6/16/25 - PUE REVISED ON PARCELS 1 & 2.
RIGHT OF WAY REVISION - 10/6/25 - PUE REVISED ON PARCEL 2. PUE ADDED TO PARCEL 1.

10/30/2026
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DavidBooker

-L-
PI Sta 21+64.93
Δ = 16° 14' 32.2" (LT)
D = 4° 46' 28.7"
L = 340.18'
T = 171.24'
R = 1,200.00'
SE = NC
V = 50 MPH

-Y-
PI Sta 24+90.39
Δ = 1° 40' 31.6" (RT)
D = 0° 47' 36.9"
L = 211.13'
T = 105.57'
R = 7,220.00'
SE = NC
V = 50 MPH

PI Sta 30+52.85
Δ = 0° 28' 53.5" (RT)
D = 0° 47' 36.9"
L = 60.68'
T = 30.34'
R = 7,220.00'
SE = NC
V = 50 MPH

MATCHLINE -L- STA. 10+50.00
SEE SHEET 4A

MATCHLINE -Y- STA. 32+50.00
SEE SHEET 24

MATCHLINE -L- STA 23+50.00
SEE SHEET 5

MATCHLINE -Y- STA. 23+00.00
SEE SHEET 23

SITE 1

STREAM & WETLAND IMPACTS

S S DENOTES IMPACTS IN SURFACE WATER
TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

DETAIL 4-A
LATERAL 2' BASE DITCH W/RIPRAP
(Not to Scale)

Natural Ground, 2:1, d, D, b, 1' Ft., 2:1, Fill Slope, Filter Fabric, B
Min. D=1 Ft.
Max. d=1.5 Ft.
B=2 Ft.
b=5 Ft.
*When B is < 6.0'
Type of Liner= CL-B Rip-Rap

FROM -L- STA. 23+20 TO STA. 24+00 RT
29 TONS CL-B RIP-RAP
W/62 SY GEOTEXTILE

TRAFFIC DIAGRAM

ADT 2028 / ADT 2048	-Y-	28,100 / 32,300
-L-	9,200 / 10,300	3,200 / 4,000
	13,500 / 17,700	-L-
21,600 / 25,900	7,000 / 8,500	4,900 / 6,500
	-Y-	27,600 / 33,000

EXISTING TRAFFIC SIGNAL
CONC. SIDEWALK /MEDIAN
PAVED SHOULDER

NOTES:
SEE SHEET 31 FOR -L- PROFILE

NAD 83/NA 2011

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U-3467	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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PERMIT DRAWING
SHEET 3 OF 28

REVISIONS

8/17/99 RIGHT OF WAY REVISION - 07-24-24 - PROPERTY OWNER CHANGE ON PARCELS 8 & 8A ADDED PARCEL 8B.

10/30/2026
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davidbaker

STREAM & WETLAND IMPACTS

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

-L-
PI Sta 34+53.08
Δ = 52° 32' 30.4" (RT)
D = 4° 46' 28.7"
L = 1,100.43'
T = 592.32'
R = 1,200.00'
SE = .04
V = 50 MPH

NAD 83/NA 2011

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PROJECT REFERENCE NO.	SHEET NO.
U-3467	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 4 OF 28

SITE 1

SITE 2

SITE 3

SITE 4

SITE 5

-L- REA ROAD EXTENSION

MATCHLINE -L- STA. 23+50.00 SEE SHEET 4

MATCHLINE -L- STA. 37+00.00 SEE SHEET 6

-L- PC Sta 28+60.76

BELLE MAR LLC DB 8226 PG 43

THE COPTIC ORTHODOX CHURCH OF ST. MARK, INC. DB 5668 PG 200

KENNETH HOWARD HEMBY ET EL DB 80 PG 256 PC 1PG 839

KENT JAMES OLSON DB 8787 PG 168

MARY N. KRATT ET EL DB 937 PG 388

DEVELOPMENT SOLUTIONS GROUP LLC DB 8293 PG 40 PB R PG 331

MATTHEW ALLEN MILFORD DANA JEFFERS MILFORD DB 5478 PG 777 PC 1PG 839

JP MORGAN CHASE ACQUISITION CORP. DB 6525 PG 701 PC 1PG 838-840

BLACK DIAMOND HOMES, LLC. DB 6238 PG 681 PC 1PG 839

POND

WOODS

36" SILT

36" CHL & SILT

36" 4S BW

575' LANE SHIFT LT

175' LANE SHIFT LT

175' TAPER

185' TAPER

50' TAPER

18" CSP W/ELBOWS

15" RCP-IV

18" RCP-IV

24" RCP-IV

30" RCP-IV

36" RCP-IV

1'-6" CURB & GUTTER

2'-6" CURB & GUTTER

5' CONC. SIDEWALK

CB – DROP STRUCTURE 6.3'

CB – DROP STRUCTURE 3.0'

CB – DROP STRUCTURE 0.9'

JB W/MH – DROP STRUCTURE 7.4'

JB W/MH – DROP STRUCTURE 1.0'

Q10 = 13.2 CFS
V10 = 1.9 FT/S

Q10 = 24.7 CFS
V10 = 2.0 FT/S

CL I RIP RAP
2 TONS
8 SY GEOTEXTILE

CL I RIP RAP (EMBEDDED)
4 TONS – SEE DETAIL 5-E
10 SY GEOTEXTILE

CL I RIP RAP (EMBEDDED)
33 TONS – SEE DETAIL 5-E
62 SY GEOTEXTILE

CL I RIP RAP
15 TONS
30 SY GEOTEXTILE

CL I RIP RAP (EMBEDDED)
15 TONS – SEE DETAIL 5-E
30 SY GEOTEXTILE

TAIL DITCH W/ EMBEDDED RIPRAP SEE DETAIL 5-A

TAIL DITCH SEE DETAIL 5-C
DDE = 200 CY

BERM 2' BASE DITCH SEE DETAIL 5-B

HEAD DITCH W/RIPRAP SEE DETAIL 5-D

LATERAL 2' BASE DITCH W/RIPRAP SEE DETAIL 4-A

RETAIN

N 82°00'05" E

DETAIL 4-A
LATERAL 2' BASE DITCH W/RIPRAP
(Not to Scale)

Min. D = 1 Ft.
Max. d = 1.5 Ft.
B = 2 Ft.
b = 5 Ft.
*When B is < 6.0'
Type of Liner = CL-B Rip-Rap

FROM -L- STA. 23+20 TO STA. 24+00 RT
29 TONS CL-B RIP-RAP
W/62 SY GEOTEXTILE

DETAIL 5-A
TAIL DITCH W/EMBEDDED RIPRAP
(Not to Scale)

Min. D = 1.5 Ft.
Max. d = 1.25 Ft.
B = 5 Ft.
Slope = 2.0%
*When B is < 6.0'
Type of Liner = Class I Rip-Rap

-L- STA. 24+20 RT; DDE = 70 CY
24 TONS CL-I RIP-RAP (EMBEDDED)
W/50 SY GEOTEXTILE

DETAIL 5-C
TAIL DITCH
(Not to Scale)

Min. D = VARIES
B = 7 Ft.
Slope = 0.30%

-L- STA. 33+47 RT; DDE = 200 CY

DETAIL 5-E
EMBEDDED RIPRAP
(Not to Scale)

Type of Liner = CL I Rip-Rap – Keyed-in

-L- STA. 24+00 RT
-L- STA. 36+82 RT

DETAIL 5-D
HEAD DITCH W/RIPRAP
(Not to Scale)

Min. D = 1 Ft.
Max. d = 1 Ft.
B = 3 Ft.
Slope = 6.7%
*When B is < 6.0'
Type of Liner = Class-B Rip-Rap

-L- STA. 35+75 LT; DDE = 30 CY
12 TONS CL-B RIP-RAP
W/26 SY GEOTEXTILE

☆ PROPOSED TRAFFIC SIGNAL

(5) GBENGA ALUKO
JOYCE ALUKO

CONCRETE SIDEWALK /MEDIAN

NOTES:
SEE SHEET 31 & 32 FOR -L- PROFILE

STREAM & WETLAND IMPACTS

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

-L-
PI Sta 34+53.08
Δ = 52° 32' 30.4" (RT)
D = 4° 46' 28.7"
L = 1,100.43'
T = 592.32'
R = 1,200.00'
SE = 04
V = 50 MPH

NAD 83/NA 2011

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PROJECT REFERENCE NO.	SHEET NO.
U-3467	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING SHEET 5 OF 28

REVISIONS
8/17/99
RIGHT OF WAY REVISION - 07-24-24 - PROPERTY OWNER CHANGE ON PARCELS 8 & 8A ADDED PARCEL 8B.

SITE 1
SITE 2
SITE 3
SITE 4
SITE 5

-L- REA ROAD EXTENSION
MATCHLINE -L- STA 23+50.00 SEE SHEET 4
MATCHLINE -L- STA 37+00.00 SEE SHEET 6
-L- PC Sta 28+60.76
575' LANE SHIFT LT
175' LANE SHIFT LT
175' TAPER
185' TAPER
50' TAPER
18" CSP W/ELBOWS
BERM 2' BASE DITCH SEE DETAIL 5-B
HEAD DITCH W/RIPRAP SEE DETAIL 5-D
TAIL DITCH SEE DETAIL 5-C DDE = 200 CY
TAIL DITCH W/ EMBEDDED RIPRAP SEE DETAIL 5-A
LATERAL 2' BASE DITCH W/RIPRAP SEE DETAIL 4-A
RETAIN
JB W/MH – DROP STRUCTURE 7.4'
JB W/MH – DROP STRUCTURE 1.0'
CB – DROP STRUCTURE 3.0'
CB – DROP STRUCTURE 6.3'
CB – DROP STRUCTURE
CL I RIP RAP 2 TONS 8 SY GEOTEXTILE
CL I RIP RAP (EMBEDDED) 4 TONS – SEE DETAIL 5-E 10 SY GEOTEXTILE
CL I RIP RAP (EMBEDDED) 33 TONS – SEE DETAIL 5-E 62 SY GEOTEXTILE
CL I RIP RAP 15 TONS 30 SY GEOTEXTILE
CL I RIP RAP (EMBEDDED) 15 TONS – SEE DETAIL 5-E 30 SY GEOTEXTILE
Q10=13.2 CFS V10=1.9 FT/S
Q10=24.7 CFS V10=2.0 FT/S
POND
DEVELOPMENT SOLUTIONS GROUP LLC DB 8293 PG 40 PB R PG 331
BELLE MAR LLC DB 8226 PG 43
MARY N. KRATT ET EL DB 937 PG 388
THE COPTIC ORTHODOX CHURCH OF ST. MARK, INC. DB 5668 PG 200
KENNETH HOWARD HEMBY ET EL DB 80 PG 256 PC 1PG 839
KRISTI JAMES OLSON DB 8787 PG 168
MATTHEW ALLEN MILFORD DANA VEFFERS MILFORD DB 9478 PG 777 PC 1PG 839
JP MORGAN CHASE ACQUISITION CORP DB 6525 PG 701 PC 1PG 839 840
BLACK DIAMOND HOMES, LLC DB 6238 PG 681 PC 1PP 839
N 82°00'06" E
PROPOSED TRAFFIC SIGNAL
GBENGA ALUKO
JOYCE ALUKO
CONCRETE SIDEWALK /MEDIAN

NOTES:
SEE SHEET 31 & 32 FOR -L- PROFILE

DETAIL 4-A
LATERAL 2' BASE DITCH W/RIPRAP
(Not to Scale)
Min. D = 1 Ft.
Max. d = 1.5 Ft.
B = 2 Ft.
b = 5 Ft.
*When B is < 6.0'
Type of Liner = CL-B Rip-Rap
FROM -L- STA 23+70 TO STA 24+00 RT
29 TONS CL-B RIP-RAP
W/62 SY GEOTEXTILE

DETAIL 5-A
TAIL DITCH W/EMBEDDED RIPRAP
(Not to Scale)
Min. D = 1.5 Ft.
Max. d = 1.25 Ft.
B = 5 Ft.
Slope = 2.0%
*When B is < 6.0'
Type of Liner = Class I Rip-Rap
-L- STA 24+20 RT; DDE=70 CY
24 TONS CL-I RIP-RAP (EMBEDDED)
W/50 SY GEOTEXTILE

DETAIL 5-C
TAIL DITCH
(Not to Scale)
Min. D = VARIES
B = 7 Ft.
Slope = 0.30%
-L- STA 33+47 RT; DDE = 200 CY

DETAIL 5-E
EMBEDDED RIPRAP
(Not to Scale)
Type of Liner = CL I Rip-Rap + Keyed-In
-L- STA 24+00 RT
-L- STA 36+82 RT

DETAIL 5-D
HEAD DITCH W/RIPRAP
(Not to Scale)
Min. D = 1 Ft.
Max. d = 1 Ft.
B = 3 Ft.
Slope = 6.7%
*When B is < 6.0'
Type of Liner = Class-B Rip-Rap
-L- STA 35+75 LT; DDE = 30 CY
12 TONS CL-B RIP-RAP
W/26 SY GEOTEXTILE

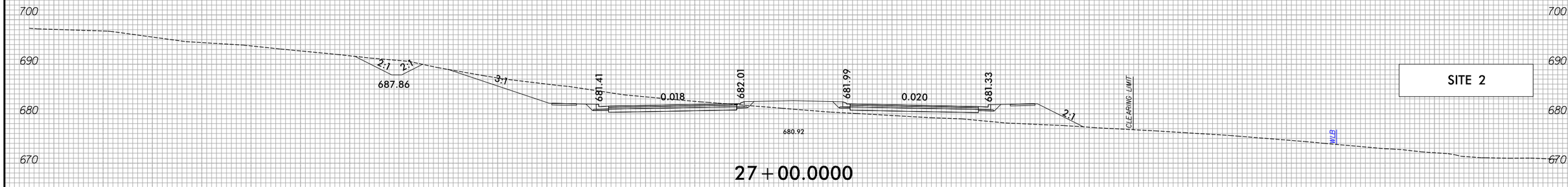
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David Rocker

6/23/16

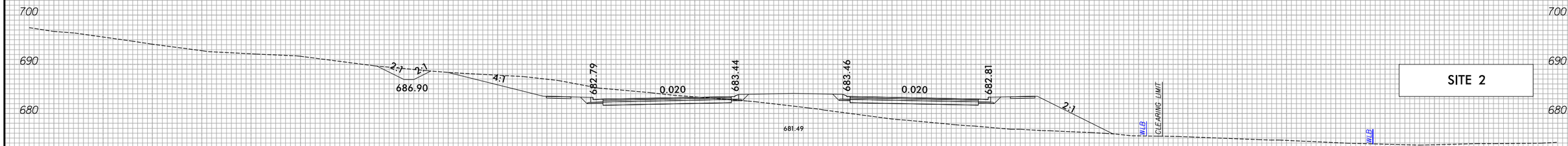
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	U-3467	X-8

PERMIT DRAWING
SHEET 6 OF 28

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150



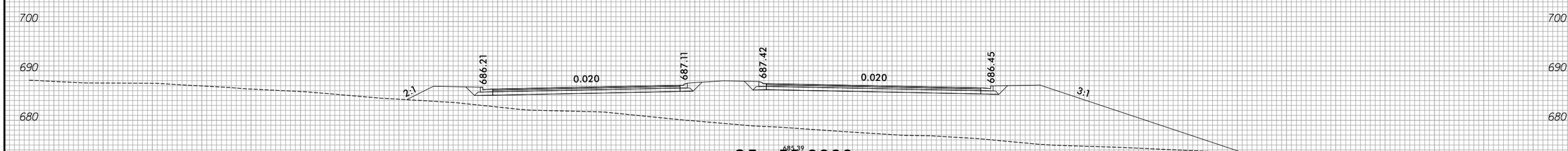
27+00.0000



26+50.0000



26+00.0000



25+50.0000

10/30/2026
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DavidBocker

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-3467	X-10

PERMIT DRAWING
SHEET 7 OF 28

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

700
690
680
710

2:1
679.25
0.040
678.18
690.42
676.98
0.040
675.75
3:1

30+50.0000

2:1 2:1
694.78
2:1
679.70
0.040
678.63
690.97
677.39
0.040
676.16
3:1

30+00.0000

2:1 2:1
693.65
2:1
680.15
0.040
679.07
688.18
677.79
0.040
676.56
4:1

29+50.0000

2:1 2:1
692.06
2:1
680.03
0.038
679.03
685.28
678.22
0.038
677.06
4:1
CLEARING LIMIT
MLB

29+00.0000

SITE 3

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

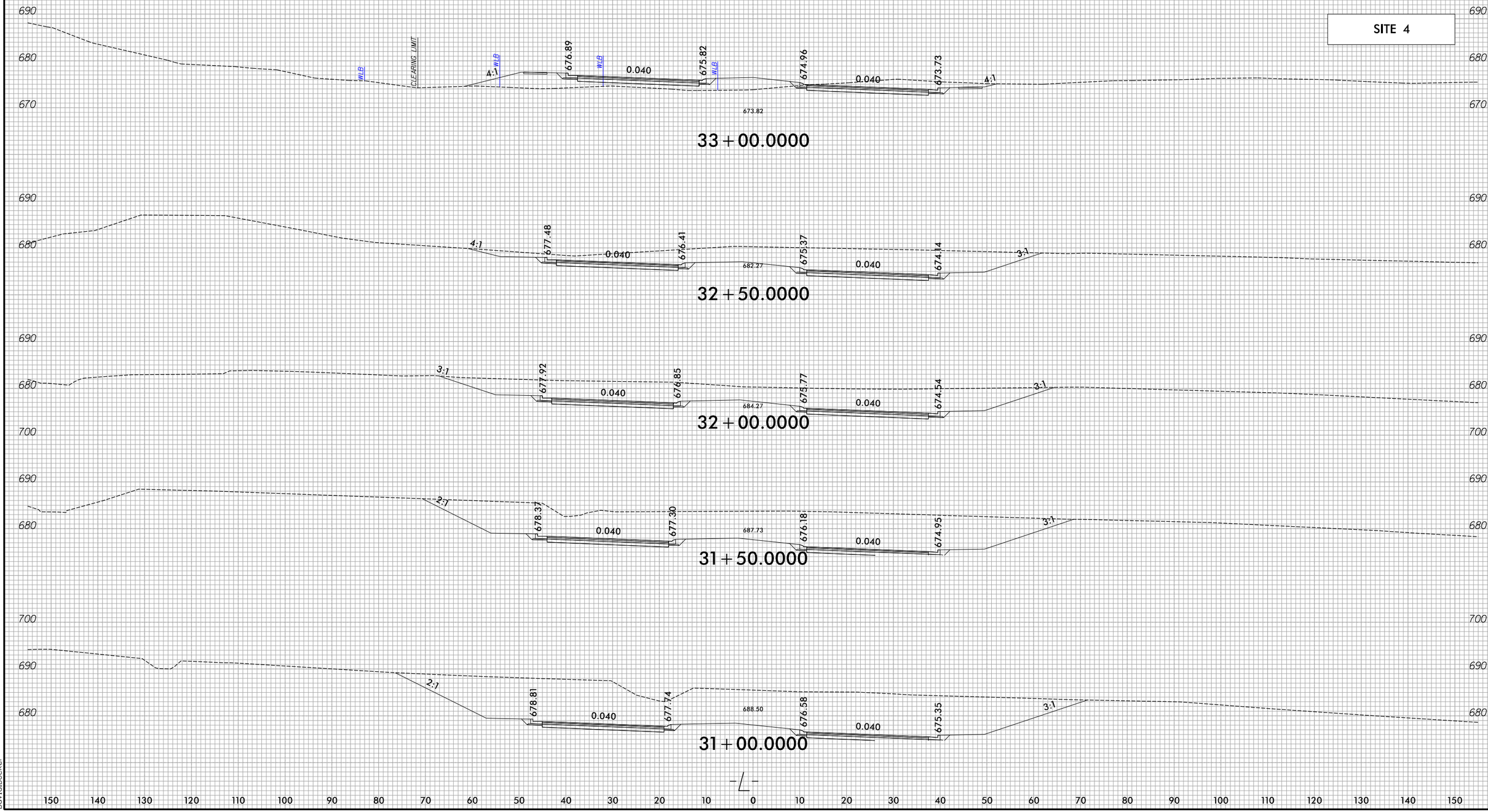
10/30/2026
R:\Hydraulics\PERMITS_Environmental\Drawings\U3467_Hyd_XPL_L_WET.dgn
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0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-3467	X-11

PERMIT DRAWING
SHEET 8 OF 28

SITE 4



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0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-3467	X-12

PERMIT DRAWING
SHEET 9 OF 28

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

690 680 670 700

4:1 | 674.86 | 0.040 | 673.79 | 681.45 | 672.93 | 0.040 | 671.70 | 3:1

35+50.0000

690 680 700

2:1 | 675.28 | 0.040 | 674.21 | 685.93 | 673.35 | 0.040 | 672.12 | 3:1

35+00.0000

690 680 700

2:1 | 675.70 | 0.040 | 674.63 | 686.30 | 673.75 | 0.040 | 672.52 | 3:1

34+50.0000

690 680 670 700

2:1 | 676.15 | 0.040 | 675.08 | 683.38 | 674.16 | 0.040 | 672.93 | 4:1

34+00.0000

690 680 670

3:1 | 676.49 | 0.040 | 675.42 | 678.31 | 674.56 | 0.040 | 673.33 | 4:1 | CLEARING LIMIT | WLB

33+50.0000

SITE 4

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

10/30/2026
R:\Hydraulics\PERMITS_Environmental\Drawings\U3467_Hyd_XPL_L_WET.dgn
DavidBocker

8/17/99

REVISIONS

10/30/2026
R:\Hydraulics\PERMITS_Environmental\Drawings\U3467_Hyd_Prm_psh_06.dgn
DavidBooker

-L-
PI Sta 34+53.08
Δ = 52° 32' 30.4" (RT)
D = 4° 46' 28.7"
L = 1,100.43'
T = 592.32'
R = 1,200.00'
SE = 04
V = 50 MPH

PI Sta 48+93.00
Δ = 41° 59' 20.7" (LT)
D = 3° 40' 22.1"
L = 1,143.24'
T = 598.66'
R = 1,560.00'
SE = 03
V = 50 MPH

NAD 83/NA 2011

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NC License # P-1333
formerly GALVIN Engineers & Consultants

PROJECT REFERENCE NO.	SHEET NO.
U-3467	6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING SHEET 10 OF 28

STREAM & WETLAND IMPACTS

- F F — DENOTES FILL IN WETLAND
- DENOTES MECHANIZED CLEARING
- S S — DENOTES IMPACTS IN SURFACE WATER
- TS TS — DENOTES TEMPORARY IMPACTS IN SURFACE WATER

MATCHLINE -L- STA. 37+00.00 SEE SHEET 5

MATCHLINE -L- STA. 51+00.00 SEE SHEET 7

BERM 2' BASE DITCH SEE DETAIL 5-B

SPECIAL CUT V DITCH W/RIPRAP SEE DETAIL 6-D

BERM V BASE DITCH W/RIPRAP SEE DETAIL 6-E

HEAD DITCH W/RIPRAP SEE DETAIL 6-B

BERM 2' BASE DITCH SEE DETAIL 6-C

RETAIN

REMOVE

TAIL DITCH W/RIPRAP SEE DETAIL 6-F

REMOVE

0606
INV. OUT = 655.8'

ROCK FILL IN POND SEE DETAIL 6-A

-L- REA ROAD EXTENSION

S 45° 21' 26.0" E

1'-6" CURB & GUTTER

5' CONC. SIDEWALK

100' PROP. R/W

CB - DROP STRUCTURE 1.4'

CB - DROP STRUCTURE 4.7'

24" RCP-IV

18" RCP-IV

15" RCP-IV

12" RCP-IV

WELDED CSP

36' TYP

±30.34

SITE 6

25 DIMITRA KALTSOUNIS DB 6516 PG 147

24 NED T. & NADINE H. MATTHEWS DB 243 PG 763

23 MARY N. KRATT ET EL DB 937 PG 388

22 BLACK DIAMOND HOMES, LLC. DB 6238 PG 681 PC 1PG 839

30 KELLY M. GRAINGER DB 1078 PG 54

31 IB DEVELOPMENT, LLC. DB 4358 PG 627

29 IDHAYACHANDRAN MANIVANNAN DB 555 PG 880 PC G PG 803

27 STRATFORD ON PROVIDENCE HOMEOWNERS ASSOCIATION, INC. DB 4586 PG 699 PC 1PG 838

IRON ROD & CAP

EIP

EIP BENT

EIP

40

45

50

DETAIL 6-A
ROCK FILL IN POND
(Not to Scale)

Proposed
Existing Earth Fill
Rock Fill To Berm
Elev. = 655.8'
N.W.S. Elev. = 654.8'
3.0'
1.0'
2:1

FROM -L- STA. 39+60 TO STA. 40+45 RT
800 TONS CL-1 RIP-RAP

DETAIL 6-D
SPECIAL CUT V DITCH W/RIPRAP
(Not to Scale)

Natural Ground
Front Ditch Slope
3:1
d
D
Filter Fabric
Min. D = 1 Ft.
Max. d = 1.25 Ft.
Type of Liner = CL-1 Rip-Rap

FROM -L- STA. 39+62 TO STA. 40+00 LT
21 TONS CL-1 RIP-RAP
W/44 SY GEOTEXTILE

DETAIL 6-E
BERM V DITCH W/RIPRAP
(Not to Scale)

SLOPE STAKE
CLEARING LIMITS
5.0'
VARIES
10.0' V.C.
2:1
Filter Fabric
Min. D = 1 Ft.
Max. d = 1.5 Ft.
Type of Liner = CL-1 Rip-Rap

FROM -L- STA. 40+00 TO STA. 41+50 LT
DDE = 185 CY; 54 TONS CL-1 RIP-RAP
W/115 SY GEOTEXTILE

8/17/99

REVISIONS

-L-
PI Sta 34+53.08
Δ = 52° 32' 30.4" (RT)
D = 4° 46' 28.7"
L = 1,100.43'
T = 592.32'
R = 1,200.00'
SE = 04
V = 50 MPH

-L-
PI Sta 48+93.00
Δ = 41° 59' 20.7" (LT)
D = 3° 40' 22.1"
L = 1,143.24'
T = 598.66'
R = 1,560.00'
SE = 03
V = 50 MPH

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formerly CALVIN Engineers & Consultants

PROJECT REFERENCE NO.	SHEET NO.
U-3467	6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING SHEET 11 OF 28

STREAM & WETLAND IMPACTS

- F F — DENOTES FILL IN WETLAND
- DENOTES MECHANIZED CLEARING
- S S — DENOTES IMPACTS IN SURFACE WATER
- TS TS — DENOTES TEMPORARY IMPACTS IN SURFACE WATER

MATCHLINE -L- STA. 37+00.00 SEE SHEET 5

MATCHLINE -L- STA. 51+00.00 SEE SHEET 7

-L- REA ROAD EXTENSION

S 45° 21' 26.0" E

BERM 2' BASE DITCH SEE DETAIL 5-B

SPECIAL CUT V DITCH W/RIPRAP SEE DETAIL 6-D

BERM V BASE DITCH W/RIPRAP SEE DETAIL 6-E

HEAD DITCH W/RIPRAP SEE DETAIL 6-B

BERM 2' BASE DITCH SEE DETAIL 6-C

RETAIN

REMOVE

TAIL DITCH W/RIPRAP SEE DETAIL 6-F

CB - DROP STRUCTURE 4.1'

CB - DROP STRUCTURE 4.4'

0606 INV. OUT = 655.8'

ROCK FILL IN POND SEE DETAIL 6-A

1'-6" CURB & GUTTER

2'-6" CURB & GUTTER & CONC SIDEWALK

10' PROP R/W

100' PROP R/W

DMITRA KALTSOUNIS DB 6516 PG 147

NED T. & NADINE H. MATTHEWS DB 243 PG 763

MARY N. KRATT ET EL DB 937 PG 388

KELLY M. GRAINGER DB 1078 PG 54

IB DEVELOPMENT, LLC DB 4358 PG 627

BLACK DIAMOND HOMES, LLC. DB 6238 PG 681 PC 1PG 839

STRATFORD ON PROVIDENCE HOMEOWNERS ASSOCIATION, INC. DB 4586 PG 693 PC 1PG 838

IDHAYACHANDRAN MANIVANNAN DB 555 PG 880 PC C PG 395

SITE 6

DETAIL 6-A
ROCK FILL IN POND
(Not to Scale)

Proposed
Existing Earth Fill
Rock Fill To Berm
Elev. = 655.8'
N.W.S. Elev. = 654.8'

FROM -L- STA. 39+60 TO STA. 40+45 RT
800 TONS CL=1 RIP-RAP

DETAIL 6-D
SPECIAL CUT V DITCH W/RIPRAP
(Not to Scale)

Natural Ground
Front Ditch Slope
Filter Fabric
Min. D = 1 Ft.
Max. d = 1.25 Ft.
Type of Liner = CL=1 Rip-Rap

FROM -L- STA. 39+62 TO STA. 40+00 LT
21 TONS CL=1 RIP-RAP
W/44 SY GEOTEXTILE

DETAIL 6-E
BERM V DITCH W/RIPRAP
(Not to Scale)

SLOPE STAKE
CLEARING LIMITS
5.0'
VARIES
10.0' V.C.
Filter Fabric
Min. D = 1 Ft.
Max. d = 1.5 Ft.
Type of Liner = CL=1 Rip-Rap

FROM -L- STA. 40+00 TO STA. 41+50 LT
DDE = 185 CY; 54 TONS CL=1 RIP-RAP
W/115 SY GEOTEXTILE

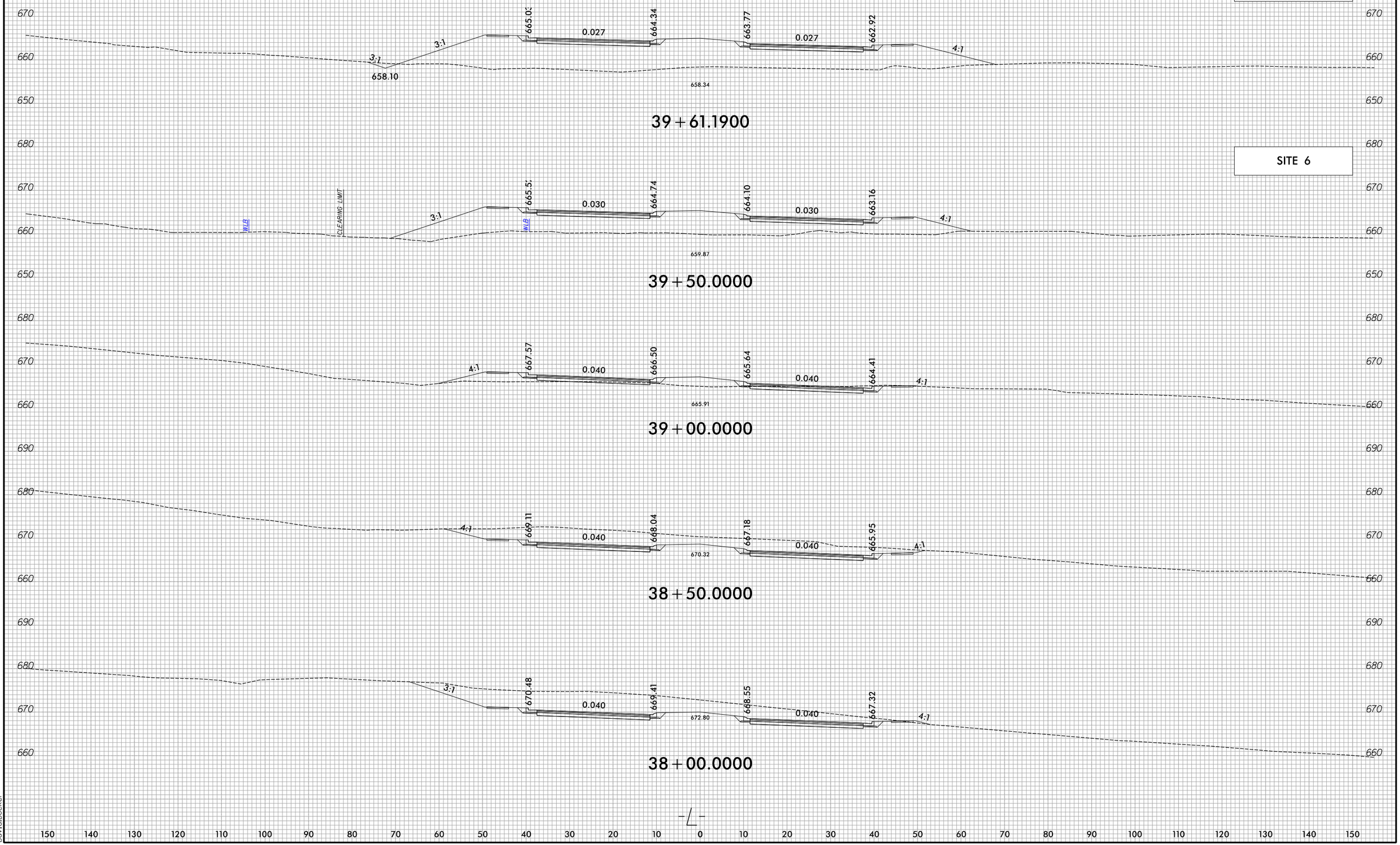
10/30/2026
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davidbaker

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-3467	X-14

PERMIT DRAWING
SHEET 12 OF 28

SITE 6



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David.Becker

8/17/99

REVISIONS

-L-
PI Sta 69+80.34
△ = 9° 45' 50.6" (RT)
D = 2° 30' 07.2"
L = 390.25'
T = 195.60'
R = 2,290.00'
SE = 03
V = 50 MPH

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P: 919.851.1912 www.NV5.com
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formerly CALYX Engineers & Consultants

PROJECT REFERENCE NO.	SHEET NO.
U-3467	8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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PERMIT DRAWING SHEET 13 OF 28

STREAM & WETLAND IMPACTS

S S DENOTES IMPACTS IN SURFACE WATER

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

65 70 75

31 IB DEVELOPMENT, LLC. DB 4358 PG 627

PROP. DITCH RELOCATION W/RIPRAP SEE DETAIL 8-A

BERM, 2' BASE DITCH SEE DETAIL 8-B

MATCHLINE -L- STA. 64+00.00 SEE SHEET 7

MATCHLINE -L- STA. 78+00.00 SEE SHEET 9

PDE E F C JS

15" RCP-IV 18" RCP-IV 24" RCP-IV 30" RCP-IV 42" RCP-IV 48" RCP-IV

CB DI DROP STRUCTURE 3.6' 18" W/MH - DROP STRUCTURE 3.6'

PRECAST JB W/MH DROP STRUCTURE 3.7'

30" RCP-III BURIED

CAT-III

GREU/TL-3

TOE PROTECTION 50 TONS CL-I RIP-RAP W/65 SY GEOTEXTILE SEE DETAIL 8-C

TOE PROTECTION 85 TONS CL-I RIP-RAP W/120 SY GEOTEXTILE SEE DETAIL 8-C

CL I RIP RAP (EMBEDDED) 7 TONS 15 SY GEOTEXTILE SEE DETAIL 8-D

CL B RIP RAP 15 TONS 37 SY GEOTEXTILE

37 RICHARD R. & RANISE B. GILLESPIE DB 3243 PG 220 PC G PG 804

38 KBB DEVELOPERS, INC. DB 1332 PG 332 PC G PG 804

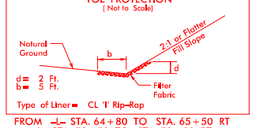
39 KBB DEVELOPERS, INC. DB 1332 PG 332 PC G PG 804

40 ANTONIA S. COTLER DB 5628 PG 433 PC G PG 804

ANTONIA S. COTLER DB 5628 PG 433 PC G PG 804

31 IB DEVELOPMENT, LLC. DB 4358 PG 627

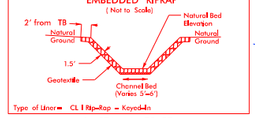
DETAIL 8-C
TOE PROTECTION
(Not to Scale)



Type of Liner= CL 'I' Rip-Rap

FROM -L- STA. 64+80 TO STA. 65+50 RT
-L- STA. 70+50 TO STA. 72+00 RT

DETAIL 8-D
EMBEDDED RIPRAP
(Not to Scale)



Type of Liner= CL I Rip-Rap - Keyed-In

-L- STA. 64+78 RT

SITE 7

10/30/2026
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PROJECT REFERENCE NO.	SHEET NO.
U-3467	8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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PERMIT DRAWING SHEET 14 OF 28

NAD 83/NA 2011

STREAM & WETLAND IMPACTS

S S DENOTES IMPACTS IN SURFACE WATER

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

-L-
PI Sta 69+80.34
Δ = 9°45'50.6" (RT)
D = 2°30'07.2"
L = 390.25'
T = 195.60'
R = 2,290.00'
SE = .03
V = 50 MPH

PROP. DITCH RELOCATION W/RIPRAP SEE DETAIL 8-A

BERM 2' BASE DITCH SEE DETAIL 8-B

MATCHLINE -L- STA. 64+00.00 SEE SHEET 7

MATCHLINE -L- STA. 78+00.00 SEE SHEET 9

PRECAST 36" W/MH DROP STRUCTURE 3.3'

30" RCP-III BURIED 0.5'

CB DROP STRUCTURE 0.5' 3.6'

TOE PROTECTION 50 TONS CL-I RIP-RAP W/65 SY GEOTEXTILE SEE DETAIL 8-C

CL I RIP RAP (EMBEDDED) 7 TONS 15 SY GEOTEXTILE SEE DETAIL 8-D

TOE PROTECTION 85 TONS CL-I RIP-RAP W/120 SY GEOTEXTILE SEE DETAIL 8-C

CL B RIP RAP 15 TONS 37 SY GEOTEXTILE

DROP STRUCTURE 3.6'

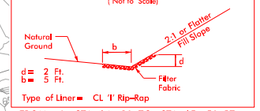
IB DEVELOPMENT, LLC. DB 4358 PG 627

KBB DEVELOPERS, INC. DB 1332 PG 332 RC 0 PG 804

RICHARD R. & RANISE B. GILLESPIE DB 3243 PG 220 PC 0 PG 804

ANTONIA S. COYLER DB 5628 PG 483 PC 0 PG 804

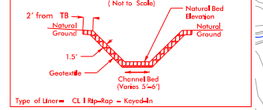
DETAIL 8-C
TOE PROTECTION
(Not to Scale)



Type of Liner= CL 'I' Rip-Rap

FROM -L- STA. 64+80 TO STA. 65+50 RT
-L- STA. 70+50 TO STA. 72+00 RT

DETAIL 8-D
EMBEDDED RIPRAP
(Not to Scale)



Type of Liner= CL I Rip-Rap - Keyed-In

-L- STA. 64+78 RT

SITE 7

10/30/2026
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David Becker

PROJECT REFERENCE NO.	SHEET NO.
U-3467	9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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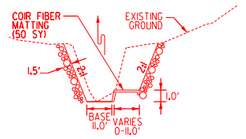
PERMIT DRAWING SHEET 15 OF 28

NAD 83/NA 2011

8/17/99

REVISIONS

DETAIL 9-D
INLET TYPICAL
NOT TO SCALE
(LEFT TO RIGHT LOOKING DOWNSTREAM)



EST TONS CLASS 'I'= 43 TONS
EST GEOTEXTILE= 115 SY
DDE= 105 CY

-L-
PI Sta 98+94.39
△ = 33° 49' 47.0" (RT)
D = 2° 29' 28.0"
L = 1,358.01'
T = 699.45'
R = 2,300.00'
SE = 03
V = 50 MPH

80 85 90

SITE 8A

SITE 8

31 IB DEVELOPMENT, LLC. DB 4358 PG 627

42 SUGAR MAGNOLIA WEDDINGTON, LLC. DB 5890 PG 414 PC L PG 458

CHANNEL IMPROVEMENTS SEE DETAIL 9-D

MATCHLINE -L- STA. 78+00.00 SEE SHEET 8

MATCHLINE -L- STA. 92+00.00 SEE SHEET 10

-L- REA ROAD EXTENSION

S 77° 34' 56.1"E

CB = DROP STRUCTURE 6.1'
24" RCP-IV

CB = DROP STRUCTURE 3.4'

CB = DROP STRUCTURE 1.2'

CL I RIP RAP 7 TONS 15 SY GEOTEXTILE

LATERAL 2' BASE DITCH SEE DETAIL 9-A

RIPRAP AT EMBANKMENT SEE DETAIL 9-C

CHANNEL IMPROVEMENTS SEE DETAIL 9-E

LATERAL 2' BASE DITCH W/RIPRAP SEE DETAIL 9-B

RIPRAP AT EMBANKMENT SEE DETAIL 9-C

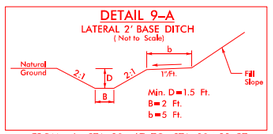
31 IB DEVELOPMENT, LLC. DB 4358 PG 627

STREAM & WETLAND IMPACTS

S S DENOTES IMPACTS IN SURFACE WATER

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

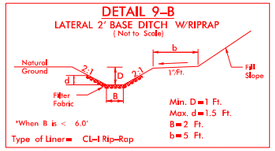
DETAIL 9-A
LATERAL 2' BASE DITCH
(Not to Scale)



Min. D = 1.5 Ft.
B = 2 Ft.
b = 5 Ft.

FROM -L- STA. 80+67 TO STA. 80+92 RT
DDE = 17 CY

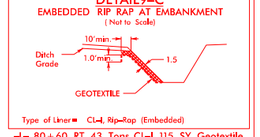
DETAIL 9-B
LATERAL 2' BASE DITCH W/RIPRAP
(Not to Scale)



*When B is < 6.0'
Min. D = 1 Ft.
Max. d = 1.5 Ft.
B = 2 Ft.
b = 5 Ft.
Type of Liner = CL-I Rip-Rap

FROM -L- STA. 81+35 TO STA. 82+00 RT; DDE = 20 CY
32 TONS CL-I RIP-RAP
W/66 SY GEOTEXTILE

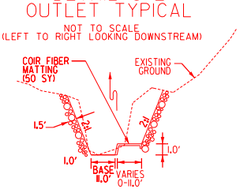
DETAIL9-C
EMBEDDED RIP RAP AT EMBANKMENT
(Not to Scale)



Type of Liner = CL-I, Rip-Rap (Embedded)

-L- 80+60 RT, 43 Tons CL-I, 115 SY Geotextile
-L- 81+30 RT, 35 Tons CL-I, 102 SY Geotextile

DETAIL 9-E
OUTLET TYPICAL
NOT TO SCALE
(LEFT TO RIGHT LOOKING DOWNSTREAM)



EST TONS CLASS 'I'=35 TONS
EST GEOTEXTILE= 102 SY
DDE= 90 CY

10/30/2026
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DavidBecker

8/17/99
REVISIONS

NV5
NV5 ENGINEERS & CONSULTANTS, INC.
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NC License # F-1333
formerly CALVIN Engineers & Consultants

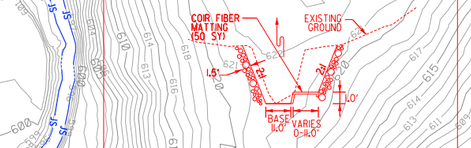
PROJECT REFERENCE NO.	SHEET NO.
U-3467	9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING SHEET 16 OF 28

NAD 83/NA 2011

DETAIL 9-D
INLET TYPICAL
NOT TO SCALE
(LEFT TO RIGHT LOOKING DOWNSTREAM)



EST TONS CLASS 'I'= 43 TONS
EST GEOTEXTILE= 115 SY
DDE= 105 CY

-L-
PI Sta 98+94.39
Δ = 33° 49' 47.0" (RT)
D = 2° 29' 28.0"
L = 1,358.01'
T = 699.45'
R = 2,300.00'
SE = 03
V = 50 MPH

SITE 8A

SITE 8

CHANNEL IMPROVEMENTS SEE DETAIL 9-D

LATERAL 2' BASE DITCH SEE DETAIL 9-A

RIPRAP AT EMBANKMENT SEE DETAIL 9-C

CHANNEL IMPROVEMENTS SEE DETAIL 9-E

CL I RIP RAP 7 TONS 15 SY GEOTEXTILE

LATERAL 2' BASE DITCH W/RIPRAP SEE DETAIL 9-B
RIPRAP AT EMBANKMENT SEE DETAIL 9-C

STREAM & WETLAND IMPACTS
S S DENOTES IMPACTS IN SURFACE WATER
TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

MATCHLINE -L- STA. 78+00.00
SEE SHEET 8

MATCHLINE -L- STA. 92+00.00
SEE SHEET 10

-L- REA ROAD EXTENSION

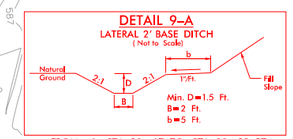
S 77° 34' 56" E

SUGAR MAGNOLIA WEDDINGTON, LLC
DB 5890 PG 414
PC L PG 458

IB DEVELOPMENT, LLC
DB 4358 PG 627

CB = DROP STRUCTURE 6.1'
CB = DROP STRUCTURE 5.2'
CB = DROP STRUCTURE 1.2'

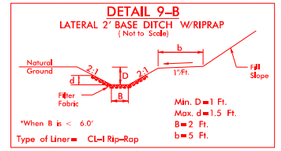
DETAIL 9-A
LATERAL 2' BASE DITCH
(Not to Scale)



Min. D=1.5 Ft.
B=2 Ft.
b=5 Ft.

FROM -L- STA. 80+67 TO STA. 80+92 RT
DDE = 17 CY

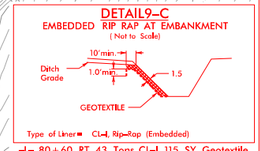
DETAIL 9-B
LATERAL 2' BASE DITCH W/RIPRAP
(Not to Scale)



*When B is < 6.0'
Min. D=1 Ft.
Max. d=1.5 Ft.
B=2 Ft.
b=5 Ft.
Type of Liner= CL-I Rip-Rap

FROM -L- STA. 81+35 TO STA. 82+00 RT; DDE = 20 CY
32 TONS CL-I RIP-RAP
W/66 SY GEOTEXTILE

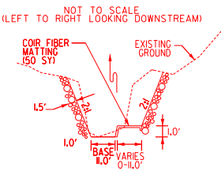
DETAIL9-C
EMBEDDED RIP RAP AT EMBANKMENT
(Not to Scale)



Type of Liner= CL-I, Rip-Rap (Embedded)

-L- 80+60 RT, 43 Tons CL-I, 115 SY Geotextile
-L- 81+30 RT, 35 Tons CL-I, 102 SY Geotextile

DETAIL 9-E
OUTLET TYPICAL
NOT TO SCALE
(LEFT TO RIGHT LOOKING DOWNSTREAM)



EST TONS CLASS 'I'=35 TONS
EST GEOTEXTILE= 102 SY
DDE= 90 CY

10/30/2026
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DavidBooker

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PROJECT REFERENCE NO.	SHEET NO.
U-3467	
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

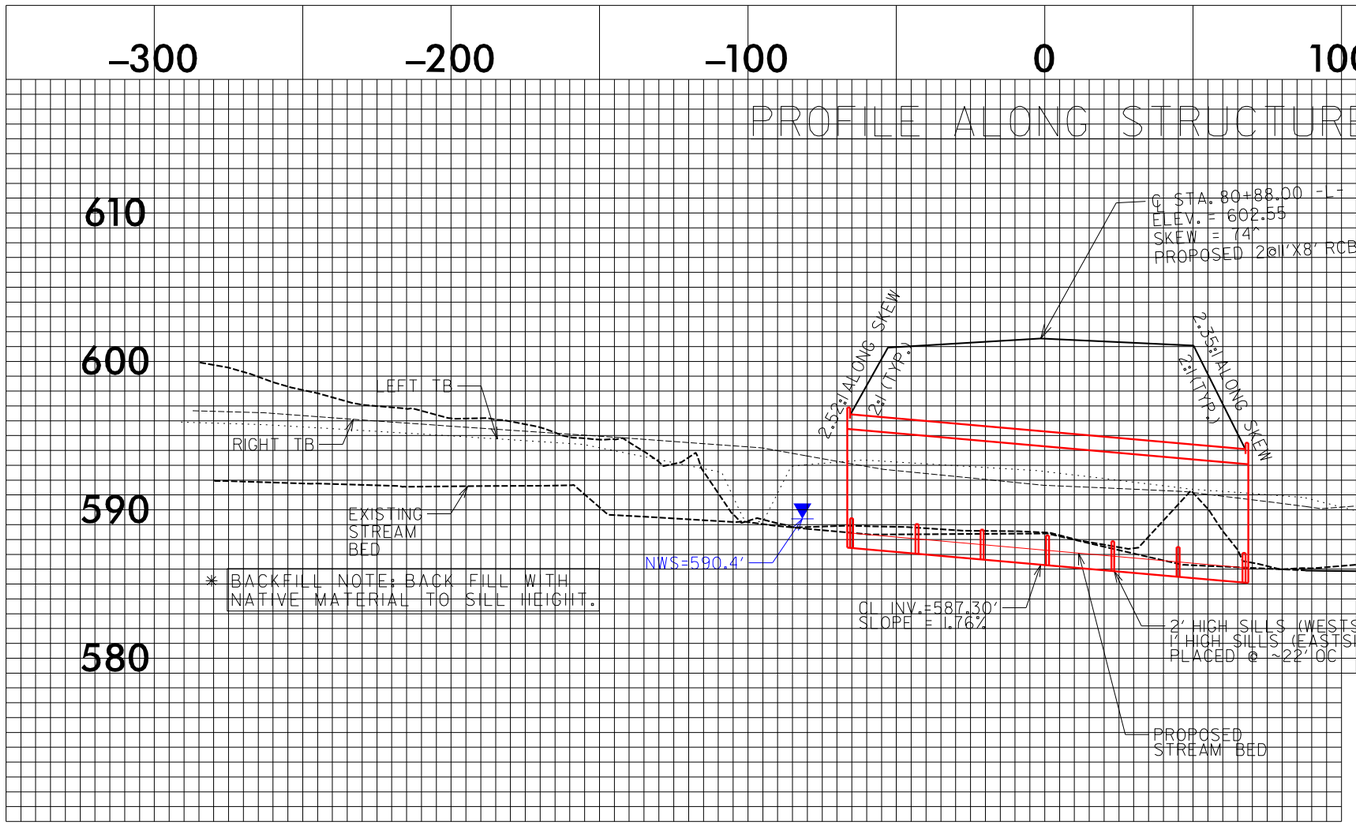
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 17 OF 28

SITE 8

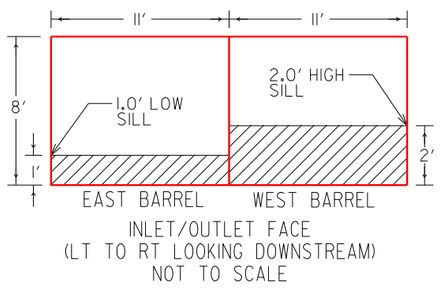
-L- 80+88 - 2 @ 11' x8' RCBC

PROFILE ALONG STRUCTURE



NATIVE MATERIAL CONSISTS OF MATERIAL THAT IS EXCAVATED FROM THE STREAM BED OR FLOODPLAIN AT THE PROJECT SITE DURING CULVERT CONSTRUCTION. ONLY MATERIAL THAT IS EXCAVATED FROM THE STREAM BED MAY BE USED TO LINE THE LOW FLOW CULVERT BARREL. RIP RAP MAY BE USED TO SUPPLEMENT THE NATIVE MATERIAL IN THE HIGH FLOW CULVERT BARRELS. IF RIP RAP IS USED TO LINE THE HIGH FLOW CULVERT BARRELS, NATIVE MATERIAL SHOULD BE PLACED ON TOP TO FILL VOIDS AND PROVIDE A FLAT SURFACE FOR ANIMAL PASSAGE. NATIVE MATERIAL IS SUBJECT TO APPROVAL BY THE ENGINEER AND MAY BE SUBJECT TO PERMIT CONDITIONS.

STREAM NOTE:
CHANNEL WIDTH IS APPROX. 10'-15' WITH 3-5 FT. HIGH BANKS. CHANNEL IS STABLE WITH VERT. TO 1:1 ON LT AND 2:1 ON LT. BANKS ARE LINED WITH HARDWOOD TREES AND VEGETATION. NORMAL DEPTH OF WATER IS 1 FEET. FLOODPLAIN IS MADE OF HEAVY WOODS AND UNDERBRUSH. STREAM BED MATERIAL CONSISTS OF SANDY SOIL, PEBBLES & ROCK/BOULDERS.



INLET/OUTLET FACE
(LT TO RT LOOKING DOWNSTREAM)
NOT TO SCALE

REVISIONS
RIGHT OF WAY REVISION - 07/06/2018 - ADJUSTED PERMANENT UTILITY EASEMENT ON PARCELS 4,7 AND 8.
RIGHT OF WAY REVISION - 07/06/2018 - ADJUSTED DUAL UTILITY EASEMENT ON PARCEL 8.
RIGHT OF WAY REVISION - 07/06/2018 - ADJUSTED CONSTRUCTION EASEMENT ON PARCELS 6,7 AND 8.

8/17/99

10/30/2026
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DavidBooker

8/17/99

REVISIONS

DESIGN REVISION - 6-30-23 - REMOVED U-TURN BULB LEFT AT -L- STA.96+05.00 TO 98+98.00.
RIGHT OF WAY REVISION - 10/15/2024 - ADJUSTED PERMANENT UTILITY EASEMENT & TEMPORARY CONSTRUCTION EASEMENT ON PARCELS 11 & 20. REMOVED PERMANENT UTILITY EASEMENT ON PARCEL 18. REMOVED PERMANENT DRAINAGE EASEMENT ON PARCEL 20.
RIGHT OF WAY REVISION - 2/14/2025 - COMBINED PARCELS 18 & 19 TO FORM PARCEL 18.
RIGHT OF WAY REVISION - 8/21/2025 - PROPERTY OWNER CHANGE ON PARCEL 21

10/30/2026
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DavidRocker

MATCHLINE -Y1- STA. 15+50.00
SEE SHEET 25

N 10° 17' 54.9" W

42 SUGAR MAGNOLIA WEDDINGTON, LLC.

31 IB DEVELOPMENT, LLC.

44 JANICE G. PROPST

45 ELIZABETH D. & RICHARD G. PROPST FAMILY LIMITED PARTNERSHIP

46 ELIZABETH D. & RICHARD G. PROPST FAMILY LIMITED PARTNERSHIP

47 ELIZABETH D. & RICHARD G. PROPST

48 THE DEAL FARM, LLC.

-Y1- REA ROAD EXTENSION

-L- NC 84 WEDDINGTON ROAD

-Y1- EXIST. NC 84

MATCHLINE -L- STA. 92+00.00
SEE SHEET 9

MATCHLINE -L- STA. 106+00.00
SEE SHEET 11

Charter Communications Coax

Other CityPower 2.5" Conduit

Other CityPower 2.5" Conduit

RETAIN

SITE 9

-Y1-
PI Sta 12+48.14
Δ = 41° 17' 05.0" (LT)
D = 10° 44' 58.8"
L = 384.06'
T = 200.79'
R = 533.00'
SE = RC
* V = 40 MPH

-L-
PI Sta 98+94.39
Δ = 33° 49' 47.0" (RT)
D = 2° 29' 28.0"
L = 1,358.01'
T = 699.45'
R = 2,300.00'
SE = 03
V = 50 MPH

STREAM & WETLAND IMPACTS

DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

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PROJECT REFERENCE NO.	SHEET NO.
U-3467	10
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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PERMIT DRAWING SHEET 18 OF 28

PROJECT REFERENCE NO.	SHEET NO.
U-3467	10
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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formerly CALYX Engineers & Consultants

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING SHEET 19 OF 28

REVISIONS

8/17/99 DESIGN REVISION - 6-30-23 - REMOVED U-TURN BULB LEFT AT -L- STA.96+05.00 TO 98+98.00.
RIGHT OF WAY REVISION - 10/15/2024 - ADJUSTED PERMANENT UTILITY EASEMENT & TEMPORARY CONSTRUCTION EASEMENT ON PARCELS 11 & 20. ADJUSTED PERMANENT UTILITY EASEMENT ON PARCEL 18. REMOVED PERMANENT DRAINAGE EASEMENT ON PARCEL 20.
RIGHT OF WAY REVISION - 2/14/2025 - COMBINED PARCELS 18 & 19 TO FORM PARCEL 18.
RIGHT OF WAY REVISION - 8/21/2025 - PROPERTY OWNER CHANGE ON PARCEL 21

10/30/2026
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MATCHLINE -YI- STA. 15+50.00 SEE SHEET 25

MATCHLINE -L- STA. 92+00.00 SEE SHEET 9

MATCHLINE -L- STA. 106+00.00 SEE SHEET 11

N 10° 17' 54.9" W

-L- NC 84 WEDDINGTON ROAD

-L- REA ROAD EXTENSION

SUGAR MAGNOLIA WEDDINGTON, LLC.

IB DEVELOPMENT, LLC.

ELIZABETH D. & RICHARD G. PROPST FAMILY LIMITED PARTNERSHIP

JANICE G. PROPST

ELIZABETH D. & RICHARD G. PROPST

THE DEAL FARM, LLC.

Charter Communications Coax

Other Oligo Power 1.25" Conduit

Other Oligo Power 2.5" Conduit

Other Oligo Power 2.8" Conduit

RETAIN

SITE 9

STREAM & WETLAND IMPACTS

DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

-YI-	
PI Sta	12+48.14
Δ	= 41° 17' 05.0" (LT)
D	= 10° 44' 58.8"
L	= 384.06'
T	= 200.79'
R	= 533.00'
SE	= RC
* V	= 40 MPH

-L-	
PI Sta	98+94.39
Δ	= 33° 49' 47.0" (RT)
D	= 2° 29' 28.0"
L	= 1,358.01'
T	= 699.45'
R	= 2,300.00'
SE	= 03
V	= 50 MPH

8/17/99

REVISIONS

RIGHT OF WAY REVISION - 10/15/2024 - ADJUSTED PERMANENT UTILITY EASEMENT ON PARCELS 42 & 48, ADJUSTED DRAINAGE UTILITY EASEMENT ON PARCEL 44.
RIGHT OF WAY REVISION - 06/16/2025 - PROPERTY OWNER CHANGE ON PARCEL 46.
RIGHT OF WAY REVISION - 08/21/2025 - COMBINE PARCEL 47A AND 52, EAST OF WEDDINGTON BROOK DR AND LABEL AS PARCEL 52.
RIGHT OF WAY REVISION - 10/28/2026 - ADJUSTED PERMANENT UTILITY EASEMENT & TEMPORARY CONSTRUCTION EASEMENT ON PARCEL 52.

10/30/2026
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David Becker

NAD 83/NA 2011

TRAFFIC DIAGRAM

ADT 2028 / ADT 2048
HIGHSCHOOL
4,100 / 5,100
2,100 / 2,600
2,100 / 2,600
-L- 26,200 / 33,200
-L- 26,200 / 33,200

-L-
PI Sta 154+01.53
Δ = 34° 37' 20.2" (LT)
D = 2° 20' 19.0"
L = 1,480.47'
T = 763.61'
R = 2,450.00'
SE = 0.3
V = 50 MPH

-DR-
PI Sta 11+84.67
Δ = 36° 35' 45.5" (LT)
D = 57° 17' 44.8"
L = 63.87'
T = 33.07'
R = 100.00'

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PROJECT REFERENCE NO.	SHEET NO.
U-3467	14
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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PERMIT DRAWING
SHEET 20 OF 28

UNION COUNTY BOARD OF EDUCATION
DB 6134 PG 609
PC D PG 693

BOGDAN GRITSAY
ANDREY GRITSAY
DB 5700 PG 925
PC 1PG 409
PC N PG 280

BOGDAN GRITSAY
ANDREY GRITSAY
DB 5700 PG 905
DB 5700 PG 925
PC 1PG 409
PC N PG 280

BOGDAN GRITSAY
ANDREY GRITSAY
DB 5700 PG 609
PC 1PG 409

STREAM & WETLAND IMPACTS

S — DENOTES IMPACTS IN SURFACE WATER
TS — DENOTES TEMPORARY IMPACTS IN SURFACE WATER

SITE 10

MATCHLINE -L- STA. 149+00.00 SEE SHEET 13

MATCHLINE -L- STA. 162+00.00 SEE SHEET 15

RETAIN

SPECIAL CUT V DITCH SEE DETAIL 13-A

REMOVE

REMOVE 4 LF AND RETAIN

PLUG AND FILL W/ FLOWABLE FILL

CHANNEL IMPROVEMENTS SEE DETAIL 14-D

LATERAL 4' BASE DITCH W/RIPRAP SEE DETAIL 14-A

CL I RIP RAP 26 TONS 50 SY GEOTEXTILE

CHANNEL IMPROVEMENTS SEE DETAIL 14-E

CHANNEL CHANGE W/RIPRAP SEE DETAIL 14-C

LATERAL 2' BASE DITCH W/RIP-RAP SEE DETAIL 14-B

CL B RIP RAP 5 TONS 14 SY GEOTEXTILE

CB – DROP STRUCTURE 5.2'

DETAIL 14-A
LATERAL 4' BASE DITCH W/RIPRAP
(Not to Scale)

Natural Ground, 2:1, d, D, 2:1, b, 1':1ft., Fill Slope, Filter Fabric, B

Min. D = 1.5 Ft.
Max. d = 1 Ft.
B = 4 Ft.
b = 5 Ft.

*When B is < 6.0'
Type of Liner = CL-I Rip-Rap

FROM -L- STA. 159+00 TO STA. 160+00 LT; DDE = 50 CY
75 TONS CL-I RIP-RAP
W/160 SY GEOTEXTILE

DETAIL 14-B
LATERAL 2' BASE DITCH W/RIP-RAP
(Not to Scale)

Natural Ground, 2:1, d, D, 2:1, b, 1':1ft., Fill Slope, Filter Fabric, B

Min. D = 1 Ft.
Max. d = 1 Ft.
B = 2 Ft.
b = 5 Ft.

*When B is < 6.0'
Type of Liner = CL-B Rip-Rap

FROM -L- STA. 159+85 TO STA. 161+45 RT;
DDE = 65 CY
52 TONS CL-B RIP-RAP
W/116 SY GEOTEXTILE

DETAIL 14-D
INLET TYPICAL
NOT TO SCALE
(LEFT TO RIGHT LOOKING DOWNSTREAM)

CLASS 'I' RIP RAP (135 TONS), L.S., COIR FIBER MATTING (145 SY), EXISTING GROUND, CLASS 'I' RIP RAP (97 TONS), COIR FIBER MATTING (145 SY), 5' BASE, VARIES 0-20', VARIES 0-20'

EST TONS CLASS 'I'=115 TONS
EST GEOTEXTILE= 165 SY
DDE= 310 CY

DETAIL 14-E
OUTLET TYPICAL
NOT TO SCALE
(LEFT TO RIGHT LOOKING DOWNSTREAM)

CLASS 'I' RIP RAP (135 TONS), L.S., COIR FIBER MATTING (85 SY), EXISTING GROUND, CLASS 'I' RIP RAP (40 TONS), COIR FIBER MATTING (65 SY), 5' BASE, VARIES 0-20', VARIES 0-20'

EST TONS CLASS 'I'=75 TONS
EST GEOTEXTILE= 180 SY
DDE= 1250 CY

43 SKYECROFT HOMEOWNERS ASSOCIATION, INC. DB 4380 PG 514 PC 1PG 257
44 JAMES & KATHLEEN REBHAN DB 3298 PG 412 PC 1PG 254-263
47A WEDDINGTON BROOK HOA, INC. DB 1493 PG 470 PC F PG 390

8/17/99

REVISIONS

RIGHT OF WAY REVISION - 10/15/2024 - ADJUSTED PERMANENT UTILITY EASEMENT & TEMPORARY CONSTRUCTION EASEMENT ON PARCELS 42 & 48, ADJUSTED DRAINAGE UTILITY EASEMENT ON PARCEL 44.
RIGHT OF WAY REVISION - 06/16/2025 - PROPERTY OWNER CHANGE ON PARCEL 46.
RIGHT OF WAY REVISION - 08/21/2025 - COMBINE PARCEL 47A AND 52 EAST OF WEDDINGTON BROOK DR AND LABEL AS PARCEL 52.
RIGHT OF WAY REVISION - 10/28/2026 - ADJUSTED PERMANENT UTILITY EASEMENT & TEMPORARY CONSTRUCTION EASEMENT ON PARCEL 52.

10/30/2026
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davidbecker

NAD 83/NA 2011

TRAFFIC DIAGRAM

ADT 2028 / ADT 2048	HIGHSCHOOL	4,100 / 5,100
2,100 / 2,600		2,100 / 2,600
-L- 26,200 / 33,200		-L- 26,200 / 33,200

-L-
PI Sta 154+01.53
Δ = 34° 37' 20.2" (LT)
D = 2° 20' 19.0"
L = 1,480.47'
T = 763.61'
R = 2,450.00'
SE = .03
V = 50 MPH

-DR-
PI Sta 11+84.67
Δ = 36° 35' 45.5" (LT)
D = 57° 17' 44.8"
L = 63.87'
T = 33.07'
R = 100.00'

STREAM & WETLAND IMPACTS

S — DENOTES IMPACTS IN SURFACE WATER
TS — DENOTES TEMPORARY IMPACTS IN SURFACE WATER

SITE 10

MATCHLINE -L- STA. 149+00.00 SEE SHEET 13

MATCHLINE -L- STA. 162+00.00 SEE SHEET 15

DETAIL 14-A
LATERAL 4' BASE DITCH W/RIPRAP
(Not to Scale)

Natural Ground, 2:1, d, D, 2:1, b, 1':1Ft., Fill Slope, Filter Fabric, B

*When B is < 6.0'

Min. D=1.5 Ft.
Max. d=1 Ft.
B=4 Ft.
b=5 Ft.

Type of Liner = CL-1 Rip-Rap

FROM -L- STA. 159+00 TO STA. 160+00 LT; DDE = 50 CY
75 TONS CL-1 RIP-RAP
W/160 SY GEOTEXTILE

DETAIL 14-B
LATERAL 2' BASE DITCH W/RIP-RAP
(Not to Scale)

Natural Ground, 2:1, d, D, 2:1, b, 1':1Ft., Fill Slope, Filter Fabric, B

*When B is < 6.0'

Min. D=1 Ft.
Max. d=1 Ft.
B=2 Ft.
b=5 Ft.

Type of Liner = CL-B Rip-Rap

FROM -L- STA. 159+85 TO STA. 161+45 RT;
DDE = 65 CY
52 TONS CL-B RIP-RAP
W/116 SY GEOTEXTILE

DETAIL 14-D
INLET TYPICAL
NOT TO SCALE
(LEFT TO RIGHT LOOKING DOWNSTREAM)

CLASS 'I' RIP RAP (135 TONS), L.S., COIR FIBER MATTING 145 SY, EXISTING GROUND, CLASS 'I' RIP RAP (97 TONS), COIR FIBER MATTING 165 SY, VARIES 0-20', BASE 10.0', VARIES 0-20'

EST TONS CLASS 'I'=115 TONS
EST GEOTEXTILE= 165 SY
DDE= 310 CY

DETAIL 14-E
OUTLET TYPICAL
NOT TO SCALE
(LEFT TO RIGHT LOOKING DOWNSTREAM)

CLASS 'I' RIP RAP (135 TONS), L.S., COIR FIBER MATTING 85 SY, EXISTING GROUND, CLASS 'I' RIP RAP (40 TONS), COIR FIBER MATTING 165 SY, VARIES 0-20', BASE 5.0', VARIES 0-20'

EST TONS CLASS 'I'=75 TONS
EST GEOTEXTILE= 180 SY
DDE= 1250 CY

(43) SKYECROFT HOMEOWNERS ASSOCIATION, INC. DB 4380 PG 514 PC 1PG 257
(44) JAMES & KATHLEEN REBHAN DB 3298 PG 412 PC 1PG 254-263
(47A) WEDDINGTON BROOK HOA, INC. DB 1493 PG 470 PC F PG 390

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NV5 ENGINEERS & CONSULTANTS, INC.
3300 REGENCY PARKWAY, SUITE 100
CARY, NC 27518
P: 919.851.1912 www.NV5.com
NC License # F-1333
formerly CALYX Engineers & Consultants

PROJECT REFERENCE NO.	SHEET NO.
U-3467	14
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 21 OF 28

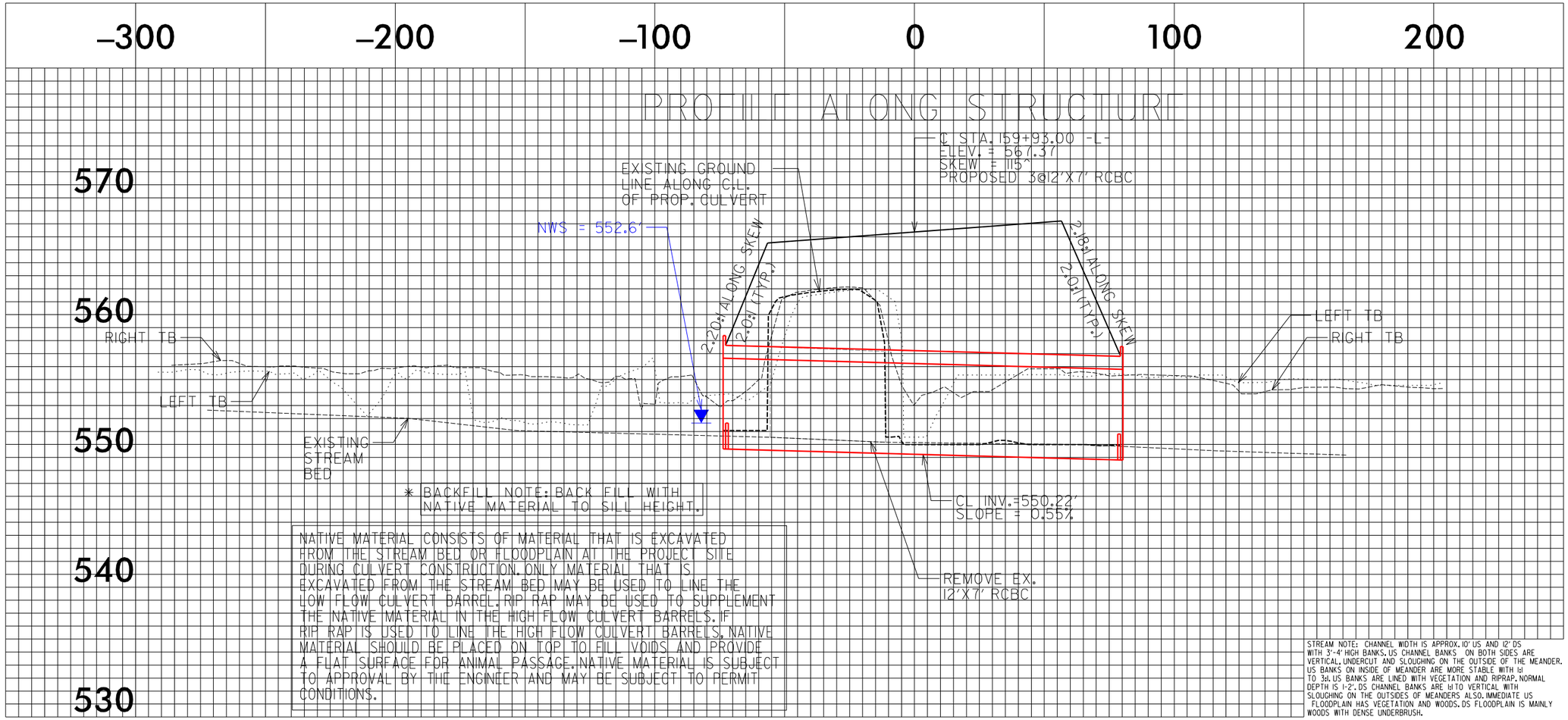
NV5 ENGINEERS & CONSULTANTS, INC. 3300 REGENCY PARKWAY, SUITE 100 CARY, NC 27518 P: 919.851.1912 www.NV5.com NC License # P-2323 formerly CALYX Engineers & Consultants	PROJECT REFERENCE NO. U-3467	SHEET NO.
	R/W SHEET NO.	
	ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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PERMIT DRAWING
SHEET 22 OF 28

SITE 10

-L- 159+93 - 3 @ 12' x7' RCBC

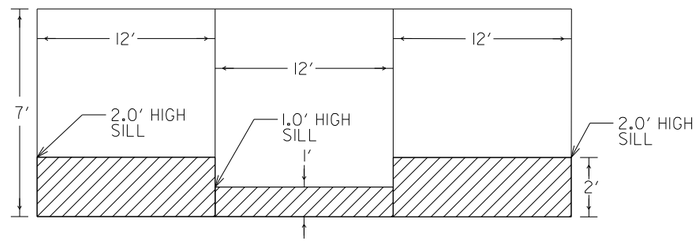


✳ BACKFILL NOTE: BACK FILL WITH NATIVE MATERIAL TO SILL HEIGHT.

NATIVE MATERIAL CONSISTS OF MATERIAL THAT IS EXCAVATED FROM THE STREAM BED OR FLOODPLAIN AT THE PROJECT SITE DURING CULVERT CONSTRUCTION. ONLY MATERIAL THAT IS EXCAVATED FROM THE STREAM BED MAY BE USED TO LINE THE LOW FLOW CULVERT BARREL. RIP RAP MAY BE USED TO SUPPLEMENT THE NATIVE MATERIAL IN THE HIGH FLOW CULVERT BARRELS. IF RIP RAP IS USED TO LINE THE HIGH FLOW CULVERT BARRELS, NATIVE MATERIAL SHOULD BE PLACED ON TOP TO FILL VOIDS AND PROVIDE A FLAT SURFACE FOR ANIMAL PASSAGE. NATIVE MATERIAL IS SUBJECT TO APPROVAL BY THE ENGINEER AND MAY BE SUBJECT TO PERMIT CONDITIONS.

STREAM NOTE: CHANNEL WIDTH IS APPROX. 10' US AND 12' DS WITH 3'-4' HIGH BANKS. US CHANNEL BANKS ON BOTH SIDES ARE VERTICAL, UNDERCUT AND SLOUGHING ON THE OUTSIDE OF THE MEANDER. US BANKS ON INSIDE OF MEANDER ARE MORE STABLE WITH 1:1 TO 3:1. US BANKS ARE LINED WITH VEGETATION AND RIPRAP. NORMAL DEPTH IS 1-2'. DS CHANNEL BANKS ARE 1:1 TO VERTICAL WITH SLOUGHING ON THE OUTSIDES OF MEANDERS ALSO. IMMEDIATE US FLOODPLAIN HAS VEGETATION AND WOODS. DS FLOODPLAIN IS MAINLY WOODS WITH DENSE UNDERBRUSH.

CULVERT TYPICAL @ INLET/OUTLET FACE (LT TO RT LOOKING DOWNSTREAM) NOT TO SCALE



REVISIONS

RIGHT OF WAY REVISION - 07/06/2018 - ADJUSTED PERMANENT UTILITY EASEMENT ON PARCELS 4,7 AND 8.
RIGHT OF WAY REVISION - 07/06/2018 - ADJUSTED DUAL UTILITY EASEMENT ON PARCEL 8.
RIGHT OF WAY REVISION - 07/06/2018 - ADJUSTED CONSTRUCTION EASEMENT ON PARCELS 6,7 AND 8.

8/17/99

10/30/2026
R:\Hydraulics\PERMITS_Environmental\Drawings\U3467_Hyd_psh_CulvertBranch.dgn
David Rocker

8/17/99

REVISIONS

RIGHT OF WAY REVISION - 11/07/2018 - ADJUSTED CONTROL OF ACCESS AND RIGHT OF WAY ON PARCELS 67,69,70 AND 70A.
RIGHT OF WAY REVISION - 11/07/2018 - ADJUSTED PERMANENT DRAINAGE EASEMENT ON PARCEL 67.
RIGHT OF WAY REVISION - 11/07/2018 - ADJUSTED DUAL UTILITY EASEMENT ON PARCEL 67.
RIGHT OF WAY REVISION - 11/07/2018 - ADDED PARCEL 70A.
DESIGN REVISION - 11/07/2018 - MODIFIED U-TURN BULB RT. AT INTERSECTION OF -L- AND WESTFORK RUN
RIGHT OF WAY REVISION - 12/17/2018 - MODIFIED PERMANENT DRAINAGE EASEMENT ON PARCEL 66.
PARCELS 66 AND 67, REMOVED PERMANENT UTILITY EASEMENT ON PARCEL 65.
AND UTILITY EASEMENT ON PARCEL 65.
RIGHT OF WAY REVISION - 06/21/2019 - MODIFIED PERMANENT UTILITY EASEMENT ON PARCELS 65 AND 67.
MODIFIED CONSTRUCTION EASEMENT ON PARCELS 65 AND 67.
ADDED PERMANENT UTILITY EASEMENT ON PARCELS 64 AND 68,REMOVED PERMANENT
EASEMENT ON PARCELS 64 AND 68.

10/30/2026
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David Becker

TRAFFIC DIAGRAM

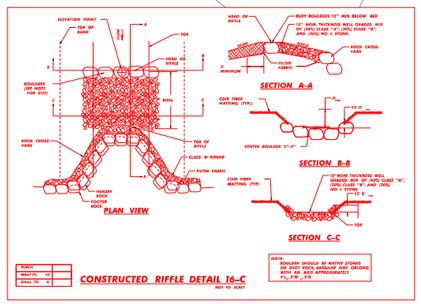
	PARK	
ADT 2028		900
ADT 2048		1,100
500 / 600		400 / 500
-L- 26,500 / 33,500		-L- 26,400 / 33,400

-L- NC 84
WEDDINGTON ROAD

-L-
PI Sta 175+36.59
Δ = 17° 30' 05.0" (RT)
D = 3° 52' 16.8"
L = 452.08'
T = 227.81'
R = 1,480.00'
SE = 03
V = 50 MPH

-Y4-
PI Sta 10+66.08
Δ = 3° 39' 15.3" (LT)
D = 11° 27' 33.0"
L = 31.89'
T = 15.95'
R = 500.00'
SE = 04
V = 30 MPH

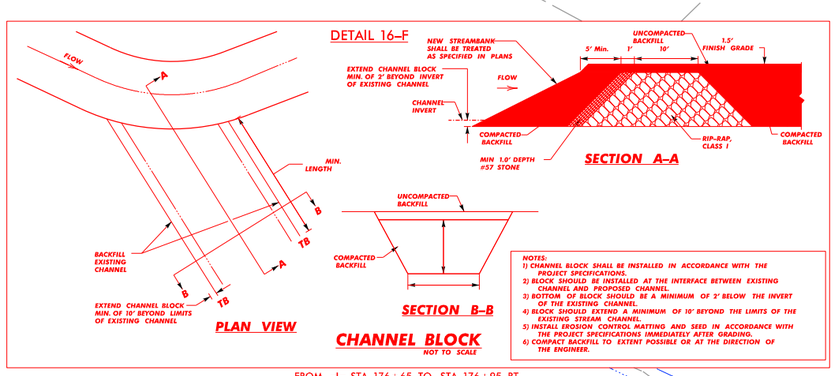
PI Sta 12+04.39
Δ = 40° 14' 55.1" (LT)
D = 22° 55' 05.9"
L = 175.62'
T = 91.61'
R = 250.00'
SE = 04
V = 30 MPH



185

STREAM & WETLAND IMPACTS

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



FROM -L- STA. 176+65 TO STA. 176+95 RT
FROM -L- STA. 178+55 TO STA. 178+90 RT

SITE 11

SUSAN J. TOLAN
DB 996 PG 239

MATCHLINE -L- STA. 175+50.00
SEE SHEET 15

-L- NC 84
WEDDINGTON ROAD

REMOVE EX. 3@11'x12' RCBC

CONSTRUCTED RIFFLE SEE DETAIL 16-C

STANDARD CHANNEL SEE DETAIL 16-D

WEST FORK TWELVE MILE CREEK

CHANNEL BLOCK SEE DETAIL 16-F

RIPRAP AT EMBANKMENT SEE DETAIL 16-E

LATERAL 2' BASE DITCH SEE DETAIL 16-B

CL I RIP RAP 7 TONS 15 SY GEOTEXTILE

CHANNEL CHANGE SEE DETAIL 16-A

STREAMBANK REFORESTATION SEE EC-16C, RF-1, RF-2

SITE 11

SITE 11

CHARLES B. FISHER
GEORGIA L. FISHER
DB 1959 PG 838

MARK A. EFIRD
DB 1360 PG 421
PC B PG 282-B

MICHAEL Y. & KAREN R. BAUCOM
DB 1411 PG 396
DB 3096 PG 301
PC B PG 282-B

BECKY L. & BENJAMIN M. BEDARD
PC B PG 282-B
DB 5206 PG 472

EDGE 5 REALTY INC
DB 8144 PG 97
PB P PG 299

DUKE ENERGY RIGHT OF WAY
(150' WIDE)
PLAT BOOK 6, PAGE 52

CROSSROADS CHURCH
DB 6319 PG 841

-Y4-
SR 2574
SHANNON WOODS LN.

MATCHLINE -L- STA. 189+50.00
SEE SHEET 17

S 86° 42' 17.1" E

REMOVE

Other, Google Fiber; (3) 1.25" Conduit
OPENFIBER MICRODUCT

Other, GigaPower; 2.5" Conduit

Other, GigaPower; 2.5" Conduit & 1.5" Conduit

RETAIN

DETAIL 16-A
CHANNEL CHANGE
(Not to Scale)
* LIVE STAKES & SEEDLINGS TO BE PLANTED ALONG 2:1 SLOPES/BANKS (SEE REFORESTATION PLAN IN EROSION CONTROL PLANS)
Natural Ground
Coir Fiber
Proposed Fill Slope
Exist. Channel
Min. D = 6 Ft.
Max. d = 5 Ft.
B = 12 Ft.
b = 5 Ft.
Bench-Coir Fiber
FROM -L- STA. 176+39 TO STA. 179+30 RT
DDE = 2600 CY W/360 SY COIR FIBER

DETAIL 16-B
LATERAL 2' BASE DITCH
(Not to Scale)
Natural Ground
Fill Slope
Min. D = 1.5 Ft.
B = 2 Ft.
b = 5 Ft.
FROM -L- STA. 180+85 TO STA. 182+00 RT; DDE = 65 CY

DETAIL 16-D
STANDARD CHANNEL
(Not to Scale)
Natural Ground
Geotextile
Min. D = 5 Ft.
Max. d = 5 Ft.
B = 11 Ft.
*When B is < 6.0'
Type of Liner = CL-II Rip-Rap
-L- 180+90 200 TONS CL-II RIPRAP
W210 SY GEOTEXTILE; DDE = 340 CY
NOTE: CHANNEL BED RIPRAP ONLY TO BE PLACED IN CULVERT REMOVAL AREA

DETAIL 16-E
EMBEDDED RIP RAP AT EMBANKMENT
(Not to Scale)
10' min.
Ditch Grade
1.0' min.
1.5
GEOTEXTILE
Type of Liner = CL-I, Rip-Rap (Embedded)
-L- 180+85 RT, 8 Tons CL-I, 10 SY Geotextile

NAD 83/NA 2011

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formerly CALVIN Engineers & Consultants

PROJECT REFERENCE NO.	SHEET NO.
U-3467	16
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 23 OF 28

8/17/99

REVISIONS

RIGHT OF WAY REVISION - 11/07/2018 - ADJUSTED CONTROL OF ACCESS AND RIGHT OF WAY ON PARCELS 67,69,70 AND 70A.
RIGHT OF WAY REVISION - 11/07/2018 - ADJUSTED PERMANENT DRAINAGE EASEMENT ON PARCEL 67.
RIGHT OF WAY REVISION - 11/07/2018 - ADJUSTED DUAL UTILITY EASEMENT ON PARCEL 67.
RIGHT OF WAY REVISION - 11/07/2018 - ADDED PARCEL 70A.
DESIGN REVISION - 11/07/2018 - MODIFIED U-TURN BULB RT. AT INTERSECTION OF -L- AND WESTFORK RUN
RIGHT OF WAY REVISION - 12/17/2018 - MODIFIED PERMANENT DRAINAGE EASEMENT ON PARCEL 70A, MODIFIED ELEMENT ON PARCEL 67, ADDED PARCEL 68, REMOVED PARCEL 69, ADDED PERMANENT UTILITY EASEMENT ON PARCEL 68.
RIGHT OF WAY REVISION - 06/21/2019 - MODIFIED PERMANENT UTILITY EASEMENT ON PARCELS 65, 66 AND 67, REMOVED PERMANENT UTILITY EASEMENT ON PARCELS 64,67,68 AND 69,REMOVED CONSTRUCTION EASEMENT ON PARCELS 65 AND 67. AND UTILITY EASEMENT ON PARCEL 65, MODIFIED PERMANENT UTILITY EASEMENT ON PARCELS 65,67,69,70 AND 70A,MODIFIED DRAINAGE UTILITY EASEMENT ON PARCELS 65 AND 67. ADDED PERMANENT UTILITY EASEMENT ON PARCELS 64 AND 68, REMOVED PERMANENT UTILITY EASEMENT ON PARCEL 68. ADDED PERMANENT UTILITY EASEMENT AND DRAINAGE EASEMENT ON PARCELS 64 AND 68, REMOVED PERMANENT DRAINAGE EASEMENT ON PARCELS 64 AND 68.

10/30/2026
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David Becker

TRAFFIC DIAGRAM

	PARK	
ADT 2028		900
ADT 2048		1,100
500 / 600	-L-	400 / 500
26,500 / 33,500	-L-	26,400 / 33,400

-L- NC 84
WEDDINGTON ROAD

-L-
PI Sta 175+36.59
Δ = 17° 30' 05.0" (RT)
D = 3° 52' 16.8"
L = 452.08'
T = 227.81'
R = 1,480.00'
SE = .03
V = 50 MPH

-Y4-
PI Sta 10+66.08
Δ = 3° 39' 15.3" (LT)
D = 11° 27' 33.0"
L = 31.89'
T = 15.95'
R = 500.00'
SE = .04
V = 30 MPH

PI Sta 12+04.39
Δ = 40° 14' 55.1" (LT)
D = 22° 55' 05.9"
L = 175.62'
T = 91.61'
R = 250.00'
SE = .04
V = 30 MPH

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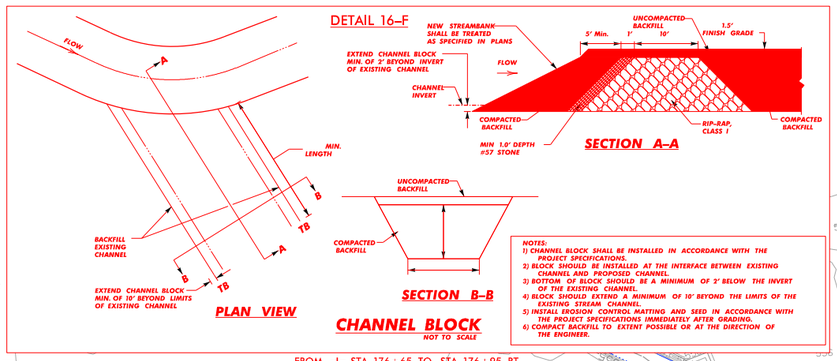
NAD 83/NA 2011

PROJECT REFERENCE NO.	SHEET NO.
U-3467	16
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

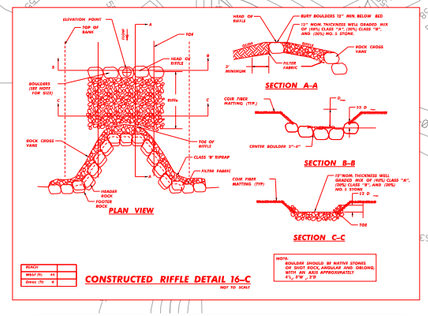
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PERMIT DRAWING SHEET 24 OF 28

DETAIL 16-F — CHANNEL BLOCK
NOT TO SCALE



NOTES:
1) CHANNEL BLOCK SHALL BE INSTALLED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.
2) BLOCK SHOULD BE INSTALLED AT THE INTERFACE BETWEEN EXISTING CHANNEL AND PROPOSED CHANNEL.
3) BOTTOM OF BLOCK SHOULD BE A MINIMUM OF 3' BELOW THE INVERT OF THE EXISTING CHANNEL.
4) BLOCK SHOULD EXTEND A MINIMUM OF 10' BEYOND THE LIMITS OF THE EXISTING STREAM CHANNEL.
5) INSTALL EROSION CONTROL MATTING AND SEED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS IMMEDIATELY AFTER GRADING.
6) COMPACT BACKFILL TO EXTENT POSSIBLE OR AT THE DIRECTION OF THE ENGINEER.



CONSTRUCTED RIFFLE DETAIL 16-C
NOT TO SCALE

NOTE:
BOULDER SHOULD BE NATIVE STONES OR SIGHT ROCK, ANGULAR AND ORIGINAL WITH AN AXIS APPROXIMATELY 1½ X W X H

STREAM & WETLAND IMPACTS

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

SITE 11

SITE 11

SITE 11

MATCHLINE -L- STA. 175+50.00
SEE SHEET 15

MATCHLINE -L- STA. 189+50.00
SEE SHEET 17

-L- NC 84
WEDDINGTON ROAD

-Y4- SR 2574 SHANNON WOODS LN.

FROM -L- STA. 176+65 TO STA. 176+95 RT
FROM -L- STA. 178+55 TO STA. 178+90 RT

STREAMBANK REFORESTATION
SEE EC-16C, RF-1, RF-2

CHANNEL BLOCK SEE DETAIL 16-F

CONSTRUCTED RIFFLE SEE DETAIL 16-C

STANDARD CHANNEL SEE DETAIL 16-D

RIPRAP AT EMBANKMENT SEE DETAIL 16-E

LATERAL 2' BASE DITCH SEE DETAIL 16-B

CL I RIP RAP 7 TONS 15 SY GEOTEXTILE

L CHANNEL CHANGE SEE DETAIL 16-A

REMOVE EX. 3@11'x12' RCBC

REMOVE

RETAIN

CB - DROP STRUCTURE 6.3'

SUSAN J. TOLAN DB 996 PG 239

CHARLES B. FISHER GEORGIA L. FISHER DB 1959 PG 838

MARK A. EFIRD DB 1360 PG 421 PC B PG 282-B

MICHAEL S. & KAREN R. BAUCOM DB 3096 PG 101 PC B PG 282-B

BECKY L. & BENJAMIN M. BEDARD PC B PG 282-B DB 5206 PG 472

EDGE 5 REALTY INC DB 8144 PG 97 PB F PG 299

DUKE ENERGY RIGHT OF WAY (50' WIDE) PLAT BOOK 6, PAGE 52

CROSSROADS CHURCH DB 6319 PG 841

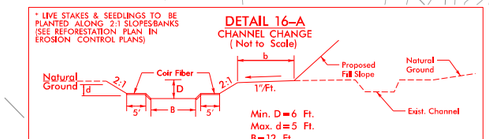
Other, Google Fiber: (3) 1.25" Conduit
OPENFIBER MICRODUCT

Other, GigaPower: 2.5" Conduit

Other, GigaPower: 2.5" Conduit & 1.5" Conduit

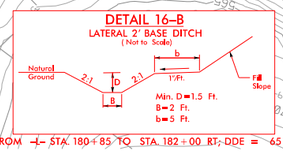
S 86° 42' 17.1" E

DETAIL 16-A
CHANNEL CHANGE
(Not to Scale)



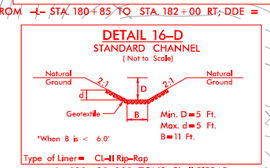
FROM -L- STA. 176+39 TO STA. 179+30 RT
DDE = 2600 CY W/360 SY COIR FIBER

DETAIL 16-B
LATERAL 2' BASE DITCH
(Not to Scale)



FROM -L- STA. 180+85 TO STA. 182+00 RT; DDE = 65 CY

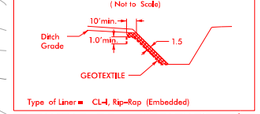
DETAIL 16-D
STANDARD CHANNEL
(Not to Scale)



Type of Liner = CL-II Rip-Rap

-L- 180+90 200 TONS CL-II RIPRAP
W/210 SY GEOTEXTILE; DDE = 340 CY
NOTE: CHANNEL BED RIPRAP ONLY TO BE PLACED IN CULVERT REMOVAL AREA

DETAIL 16-E
EMBEDDED RIP RAP AT EMBANKMENT
(Not to Scale)



Type of Liner = CL-I, Rip-Rap (Embedded)

-L- 180+85 RT, 8 Tons CL-I, 10 SY Geotextile

8/17/99

REVISIONS

RIGHT OF WAY REVISION - 07/06/2018 - ADJUSTED PERMANENT UTILITY EASEMENT ON PARCELS 4,7 AND 8.
RIGHT OF WAY REVISION - 07/06/2018 - ADJUSTED DIA-UTILITY EASEMENT ON PARCEL 8.
RIGHT OF WAY REVISION - 07/06/2018 - ADJUSTED CONSTRUCTION EASEMENT ON PARCELS 6,7 AND 8.

10/30/2026
R:\Hydraulics\PERMITS_Environmental\Drawings\U3467_Hyd_psh_WestForkTwelveMileCreek.dgn
davidbaker

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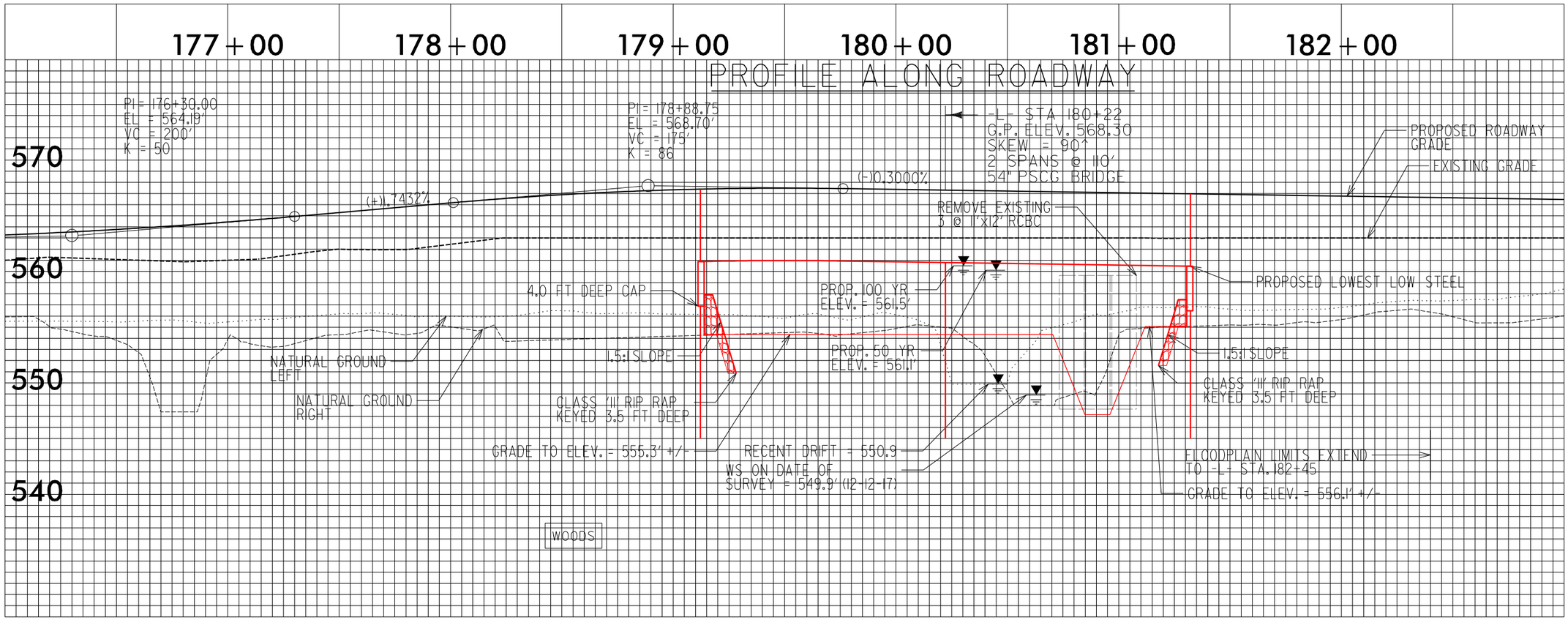
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ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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PERMIT DRAWING
SHEET 25 OF 28

SITE 11

-L- 180+22 - BRIDGE



8/17/99

REVISIONS

RIGHT OF WAY REVISION - 11/07/2018 - ADJUSTED CONSTRUCTION EASEMENT ON PARCELS 78 AND 84.
RIGHT OF WAY REVISION - 11/07/2018 - ADJUSTED PERMANENT DRAINAGE EASEMENT ON PARCEL 78.
RIGHT OF WAY REVISION - 11/07/2018 - MODIFIED PERMANENT DRAINAGE EASEMENT ON PARCELS 76 AND 79, MODIFIED PERMANENT UTILITY EASEMENT ON PARCELS 76,79, AND 84, MODIFIED TEMPORARY CONSTRUCTION EASEMENT ON PARCELS 76,82,AND 84, MODIFIED DRAINAGE AND UTILITY EASEMENT ON PARCELS 76 AND 79, REMOVED PERMANENT DRAINAGE EASEMENT ON PARCEL 82.
RIGHT OF WAY REVISION - 12/17/2018 - REMOVED PERMANENT UTILITY EASEMENT ON PARCEL 78.
RIGHT OF WAY REVISION - 6/21/2019 - ADDED PERMANENT DRAINAGE UTILITY EASEMENT ON PARCEL 78.

10/30/2026
R:\HydeBuilders\PERMITS_Environmental\Drawings\U-3467_HyDe_PMT_DWG.dgn
DavidBarker

0.09 AC.

-Y6-
PI Sta 11+60.55
△ = 40° 23' 52.7" (LT)
D = 22° 55' 05.9"
L = 176.27'
T = 91.98'
R = 250.00'
SE = .04
V = 50 MPH

-Y6-
PI Sta 14+34.36
△ = 12° 57' 40.0" (RT)
D = 7° 09' 43.1"
L = 180.97'
T = 90.87'
R = 800.00'
SE = EXIST
V = EXIST

-Y6-
PI Sta 16+26.17
△ = 0° 52' 47.6" (RT)
D = 3° 49' 11.0"
L = 23.04'
T = 11.52'
R = 1,500.00'
SE = EXIST
V = EXIST

-L-
PI Sta 217+30.88
△ = 7° 46' 15.7" (RT)
D = 2° 30' 07.2"
L = 310.59'
T = 155.53'
R = 2,290.00'
SE = .03
V = 50 MPH

TRAFFIC DIAGRAM

ADT 2028 / ADT 2048

-Y6-: 3,500 / 4,000

1,100 / 1,300 — 2,300 / 2,700

-L-: 28,200 / 35,600 — 29,400 / 36,900

NAD 83/NA 2011

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PROJECT REFERENCE NO.	SHEET NO.
U-3467	19
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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PERMIT DRAWING
SHEET 26 OF 28

MATCHLINE -L- STA. 217+00.00
SEE SHEET 18

MATCHLINE -L- STA. 230+00.00
SEE SHEET 20

SITE 12

-L- NC 84 WEDDINGTON ROAD

N 87° 58' 54.3" E

127 HAROLD & REBECCA PLYLER DB 6603 PG 505

128 HAROLD & REBECCA PLYLER DB 265 PG 839 PC J PG 5

129 RANDY A. & MICHELE O. KELLEY DB 6083 PG 165 PC L PG 65

130 WESLEY CHAPEL FEE OWNER, LLC. DB 6177 PG 770 PC L PG 223

131 SHAHRAM HAGHIGHAT DB 6191 PG 332 PC L PG 65

132 VILLAGE COMMONS PHASE I, LLC. DB 3171 PG 672 PC H PG 162

124 JOYCE S. PLYLER DB 317 PG 441

HIGHLANDS AT WEDDINGTON HOMEOWNERS' ASSOCIATION, INC. DB 7103 PG 29 PB N PG 736

JOYCE S. PLYLER DB 317 PG 441

RETAIN

SPECIAL CUT 2' BASE DITCH SEE DETAIL 19-C

SPECIAL CUT DITCH SEE DETAIL 19-B

REMOVE

CL B RIP RAP 3 TONS 10 SY GEOTEXTILE

/ LATERAL 5' BASE DITCH SEE DETAIL 19-A

REMOVE EX. OTCB GRADE TO DRAIN

36" RCP-III

CL I RIP-RAP (EMBEDDED) 40 TONS - SEE DETAIL 19-D 75 SY GEOTEXTILE

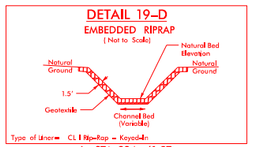
24" RCP---END UNK

STREAM & WETLAND IMPACTS

S S — DENOTES IMPACTS IN SURFACE WATER

TS TS — DENOTES TEMPORARY IMPACTS IN SURFACE WATER

DETAIL 19-D
EMBEDDED RIPRAP
(Not to Scale)



Type of Liner = CL I Rip-Rap = Keyed-In

-L- STA. 224+61 RT

REVISIONS

8/17/99 RIGHT OF WAY REVISION - 11/07/2018 - ADJUSTED CONSTRUCTION EASEMENT ON PARCELS 78 AND 84.
RIGHT OF WAY REVISION - 11/07/2018 - ADJUSTED PERMANENT DRAINAGE EASEMENT ON PARCEL 78.
RIGHT OF WAY REVISION - 11/07/2018 - MODIFIED PERMANENT DRAINAGE EASEMENT ON PARCELS 76 AND 79, MODIFIED TEMPORARY CONSTRUCTION EASEMENT ON PARCELS 76,82, AND 84, MODIFIED DRAINAGE AND UTILITY EASEMENT ON PARCELS 76 AND 84, MODIFIED TEMPORARY DRAINAGE EASEMENT ON PARCEL 82.
RIGHT OF WAY REVISION - 12/17/2018 - REMOVED PERMANENT UTILITY EASEMENT ON PARCEL 79, REMOVED PERMANENT DRAINAGE UTILITY EASEMENT ON PARCEL 78.
RIGHT OF WAY REVISION - 06/21/2019 - ADDED PERMANENT DRAINAGE UTILITY EASEMENT ON PARCEL 78.

10/30/2026
R:\HydeBuilds\PERMITS_Environmental\Drawings\U-3467_HD_PLAN_SHEETS.dgn
DavidBaker

0.09 AC.

-Y6-
PI Sta 11+60.55
Δ = 40° 23' 52.7" (LT)
D = 22° 55' 05.9"
L = 176.27'
T = 91.98'
R = 250.00'
SE = .04
V = 50 MPH

-Y6-
PI Sta 14+34.36
Δ = 12° 57' 40.0" (RT)
D = 7° 09' 43.1"
L = 180.97'
T = 90.87'
R = 800.00'
SE = EXIST
V = EXIST

-Y6-
PI Sta 16+26.17
Δ = 0° 52' 47.6" (RT)
D = 3° 49' 11.0"
L = 23.04'
T = 11.52'
R = 1,500.00'
SE = EXIST
V = EXIST

-L-
PI Sta 217+30.88
Δ = 7° 46' 15.7" (RT)
D = 2° 30' 07.2"
L = 310.59'
T = 155.53'
R = 2,290.00'
SE = .03
V = 50 MPH

TRAFFIC DIAGRAM

ADT 2028 / ADT 2048	-Y6-	
	3,500 / 4,000	
1,100 / 1,300		2,300 / 2,700
-L-		-L-
28,200 / 35,600		29,400 / 36,900

NAD 83/NA 2011

NV5
NV5 ENGINEERS & CONSULTANTS, INC.
3300 REGENCY PARKWAY, SUITE 100
CARY, NC 27518
P: 919.851.1912 www.NV5.com
NC License # P-1333
formerly GALVIN Engineers & Consultants

PROJECT REFERENCE NO.	SHEET NO.
U-3467	19
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 27 OF 28

MATCHLINE -L- STA. 217+00.00
SEE SHEET 18

MATCHLINE -L- STA. 230+00.00
SEE SHEET 20

-L- NC 84 WEDDINGTON ROAD

N 87° 58' 54.3" E

SITE 12

STREAM & WETLAND IMPACTS

S S DENOTES IMPACTS IN SURFACE WATER

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

DETAIL 19-D
EMBEDDED RIPRAP
(Not to Scale)

Type of Liner= CL I Rip-Rap = Keystone

-L- STA. 224+61 RT

WETLAND AND SURACE WATER IMPACTS SUMMARY

Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS: Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	SURFACE WATER IMPACTS: Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
1	-L- 23+10/24+30	54" RCP-IV BURIED 1.0'						0.03	< 0.01	315	25	
2	-L- 26+00/26+60	Roadway Fill	< 0.01			0.02						
3	-L- 28+60/28+85	Roadway Fill			< 0.01	< 0.01						
4	-L- 32+90/33+80	Roadway Fill			0.09	0.04						
5	-L- 35+70/36+90	30" RCP-IV						0.02	< 0.01	214	10	
6	-L- 39+40/40+40	Roadway Fill/Rock Fill in pond	0.07					0.07	0.03			
7	-L- 64+20/64+80	30" RCP-IV BURIED 0.5'						0.02	< 0.01	174	26	
8	-L- 80+40/81+20	2 @ 11'x8' RCBC						0.04		136		
	-L- 80+40/81+20	Bank Stabilization						0.03	< 0.01	94	38	
8A	-L- 80+64/81+05 LT	Bank Stabilization						< 0.01	< 0.01	33	24	
9	-L- 94+80	Roadway Fill	< 0.01			< 0.01						
10	-L- 159+40/160+65	3 @ 12'x7' RCBC						0.03		110		
	-L- 159+40/160+65	Bank Stabilization						0.03	< 0.01	160	21	
11	-L- 176+35/179+40	Roadway Fill / Channel Relocatio						0.08		273		
	-L- 176+35/179+40	Channel Relocation / Bank Stab.						0.02	0.02	58	64	
	-L- 180+55/180+75	Bank Stabilization						< 0.01	< 0.01	5	10	
	-L- 180+75/181+00	Culvert Removal / Bank Stab.	0.01					0.01	< 0.01	51	20	
12	-L- 224+45/225+20	Roadway Fill						0.01	< 0.01	94	5	
TOTALS*:			0.09		0.09	0.07		0.40	0.08	1717	243	0

*Rounded totals are sum of actual impacts

NOTES:

Site 4 - Partial loss of northern portion of wetland included in impact calculations.

Site 6 - Total take of wetland included in impact calculations.

Site 6 - Shown as surface waters verified as open water (pond).

Site 11 - It should be noted that 0.3 Acre Streambank Reforestation is also a part of Site 11 (See Sheets RF-1 & RF-2 in EC Plans for Details)

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
10/30/2026
UNION COUNTY
U-3467
39019.1.1
SHEET 28 OF 28

0.3 ACRE STREAMBANK REFORESTATION

CALYX ENGINEERS + CONSULTANTS
6750 TRYON ROAD
CARY, NC 27518
phone: 919.851.1912
CALYXengineers.com
NC License # F-1333

PROJECT REFERENCE NO.	SHEET NO.
U-3467	EC-16C
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

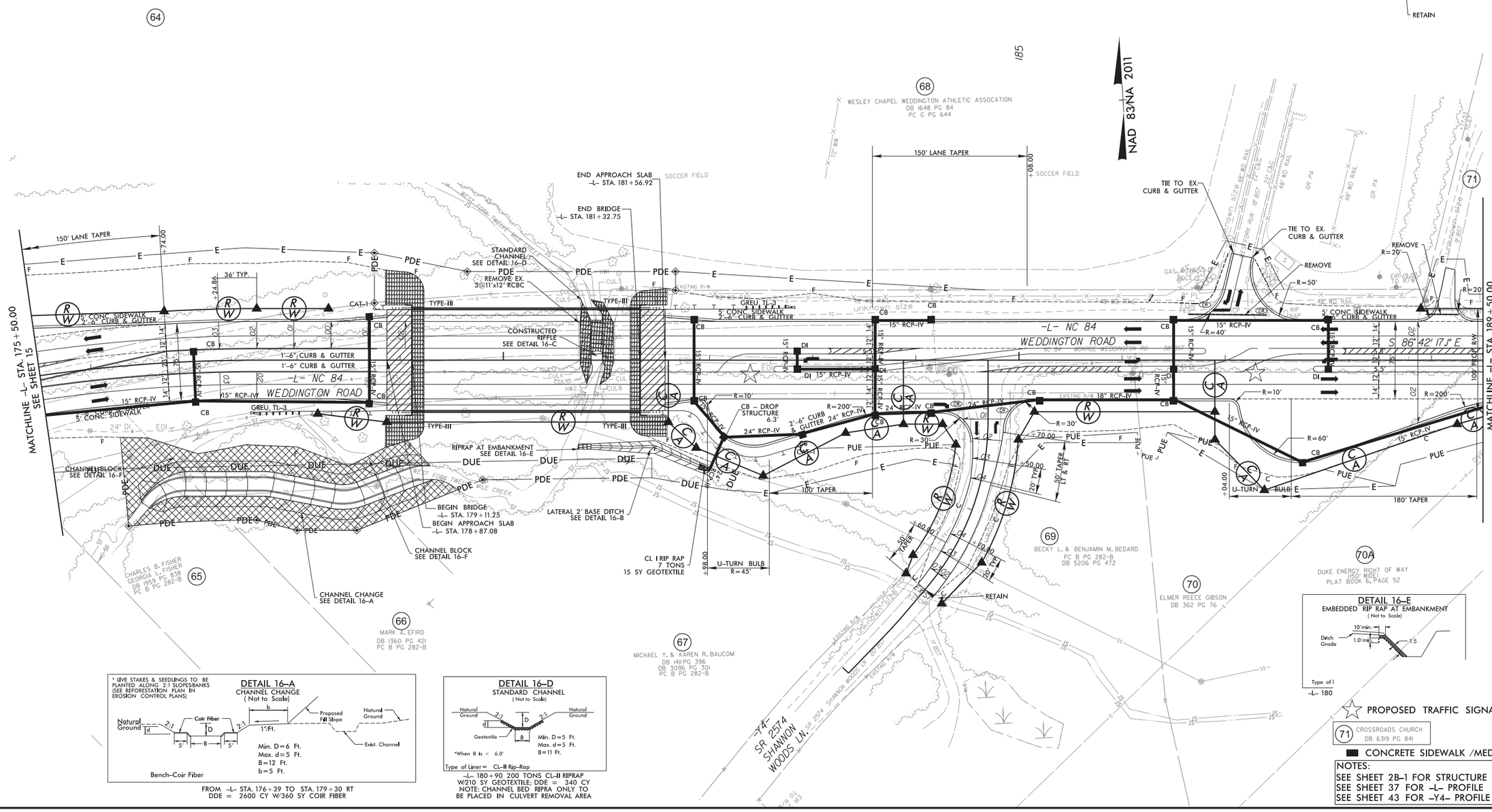
STREAMBANK REFORESTATION

SEE RF–1, RF–2 AND PROJECT SPECIAL PROVISIONS

REVISIONS

8/17/99

RIGHT OF WAY REVISION – 11/07/2018 – ADJUSTED CONTROL OF ACCESS AND RIGHT OF WAY ON PARCELS 67,70 AND 70A.
RIGHT OF WAY REVISION – 11/07/2018 – ADJUSTED PERMANENT DRAINAGE EASEMENT ON PARCEL 66.
RIGHT OF WAY REVISION – 11/07/2018 – ADJUSTED DUAL UTILITY EASEMENT ON PARCEL 67.
RIGHT OF WAY REVISION – 11/07/2018 – ADDED PARCEL 70A.
DESIGN REVISION – 11/07/2018 – MODIFIED U-TURN BULB RT AT INTERSECTION OF –L– AND WESTFORK RUN
MODIFIED PERMANENT DRAINAGE EASEMENT ON PARCEL 67. MODIFIED PERMANENT UTILITY EASEMENT ON PARCELS 67,69,70,AND 70A.
MODIFIED TEMPORARY CONSTRUCTION EASEMENT ON EASEMENT ON PARCELS 68,69,70,AND 70A. MODIFIED DRAINAGE AND UTILITY EASEMENT ON
PARCELS 66 AND 67. REMOVED PERMANENT DRAINAGE EASEMENT ON PARCEL 68. ADDED PERMANENT UTILITY EASEMENT AND DRAINAGE
AND UTILITY EASEMENT ON PARCEL 65.
RIGHT OF WAY REVISION – 12/17/2018 – MODIFIED PERMANENT UTILITY EASEMENT ON PARCEL 65.



DETAIL 16–A
CHANNEL CHANGE
(Not to Scale)

FROM –L– STA. 176+39 TO STA. 179+30 RT
DDE = 2600 CY W/360 SY COIR FIBER

DETAIL 16–D
STANDARD CHANNEL
(Not to Scale)

–L– 180+90 200 TONS CL–II RIPRAP
W210 SY GEOTEXTILE; DDE = 340 CY
NOTE: CHANNEL BED RIPRA ONLY TO BE PLACED IN CULVERT REMOVAL AREA

DETAIL 16–E
EMBEDDED RIP RAP AT EMBANKMENT
(Not to Scale)

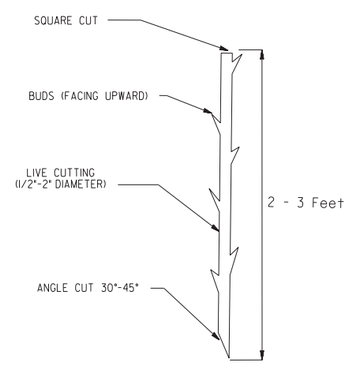
NOTES:
SEE SHEET 2B–1 FOR STRUCTURE RECS
SEE SHEET 37 FOR –L– PROFILE
SEE SHEET 43 FOR –Y4– PROFILE

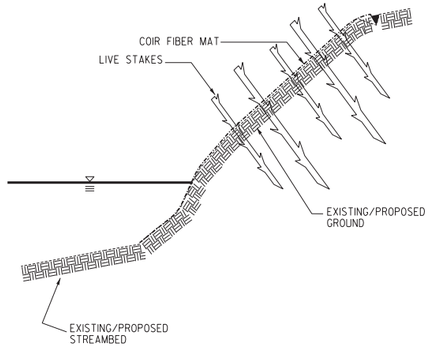
2/15/2019
R:\Environmental\Design\U3467_hyd_EC_psh_58.dgn
zellis.ad

PROJECT REFERENCE NO.	SHEET NO.
U-3467	RF-1
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PLANTING DETAILS

LIVE STAKES PLANTING DETAIL

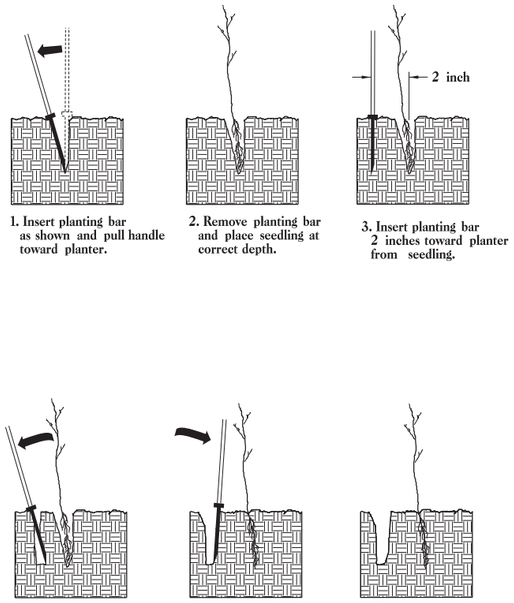




BANK STABILIZATION WITH LIVE STAKES

NOTE:
LIVE STAKES SHALL BE SPACED APPROXIMATELY 4 FEET ON CENTER
LIVE STAKES SHALL BE DRIVEN UNTIL APPROXIMATELY ¾ OF LIVE STAKE IS WITHIN GROUND

BAREROOT PLANTING DETAIL DIBBLE PLANTING METHOD USING THE KBC PLANTING BAR



1. Insert planting bar as shown and pull handle toward planter.
2. Remove planting bar and place seedling at correct depth.
3. Insert planting bar 2 inches toward planter from seedling.
4. Pull handle of bar toward planter, firming soil at bottom.
5. Push handle forward firming soil at top.
6. Leave compaction hole open. Water thoroughly.

PLANTING NOTES:

PLANTING BAG
During planting, seedlings shall be kept in a moist canvas bag or similar container to prevent the root systems from drying.



KBC PLANTING BAR
Planting bar shall have a blade with a triangular cross section, and shall be 12 inches long, 4 inches wide and 1 inch thick at center.



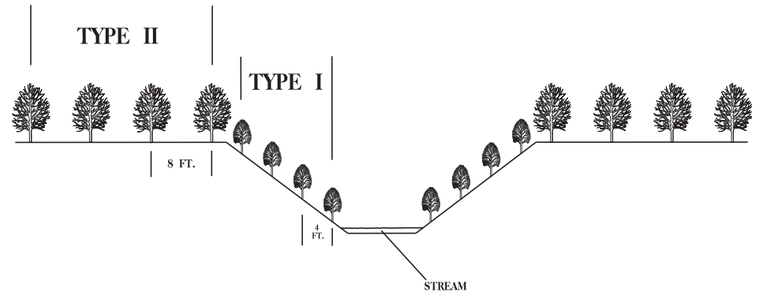
ROOT PRUNING
All seedlings shall be root pruned, if necessary, so that no roots extend more than 10 inches below the root collar.

☐ TYPE 1 STREAMBANK REFORESTATION SHALL BE PLANTED 3 FT. TO 5 FT. ON CENTER, RANDOM SPACING, AVERAGING 4 FT. ON CENTER, APPROXIMATELY 2724 PLANTS PER ACRE.

☐ TYPE 2 STREAMBANK REFORESTATION SHALL BE PLANTED 6 FT. TO 10 FT. ON CENTER, RANDOM SPACING, AVERAGING 8 FT. ON CENTER, APPROXIMATELY 680 PLANTS PER ACRE.

☐ NOTE: TYPE 1 AND TYPE 2 STREAMBANK REFORESTATION SHALL BE PAID FOR AS "STREAMBANK REFORESTATION"

STREAMBANK REFORESTATION TYPICAL



STREAMBANK REFORESTATION

MIXTURE, TYPE, SIZE, AND FURNISH SHALL CONFORM TO THE FOLLOWING:

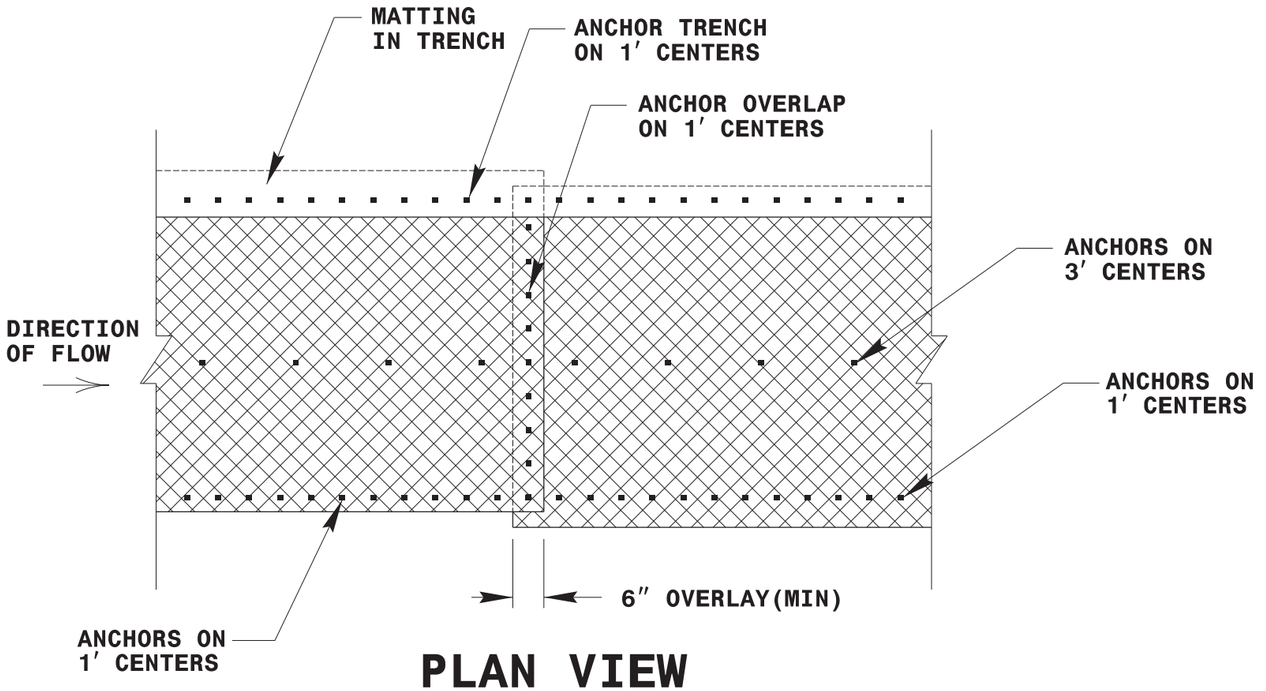
TYPE 1			
50%	SALIX NIGRA	BLACK WILLOW	2 ft – 3 ft LIVE STAKES
50%	CORNUS AMOMUM	SILKY DOGWOOD	2 ft – 3 ft LIVE STAKES
TYPE 2			
25%	LIRIODENDRON TULIPIFERA	TULIP POPLAR	12 in – 18 in BR
25%	PLATANUS OCCIDENTALIS	SYCAMORE	12 in – 18 in BR
25%	FRAXINUS PENNSYLVANICA	GREEN ASH	12 in – 18 in BR
25%	BETULA NIGRA	RIVER BIRCH	12 in – 18 in BR

☐ SEE PLAN SHEETS FOR AREAS TO BE PLANTED

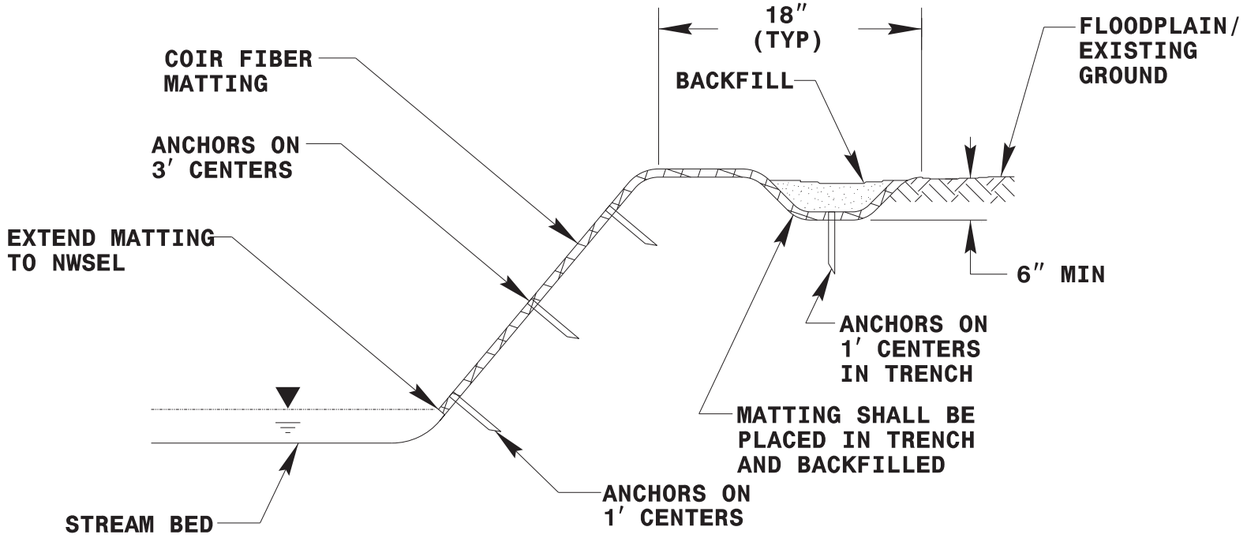
STREAMBANK REFORESTATION DETAIL SHEET 1 OF 2

N.C.D.O.T. - ROADSIDE ENVIRONMENTAL UNIT

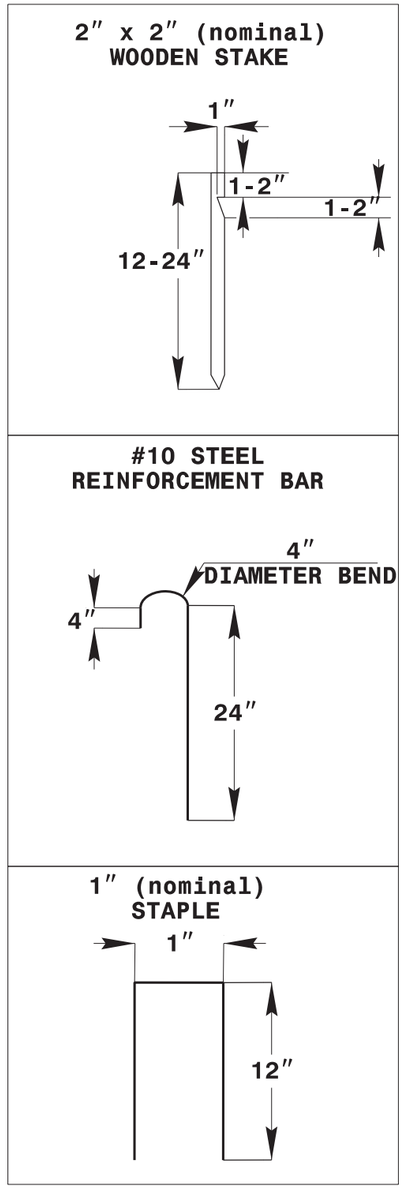
PROJECT REFERENCE NO.	SHEET NO.
U-3467	RF-2
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



PLAN VIEW



TYPICAL CROSS SECTION



ANCHOR OPTIONS

COIR FIBER MATTING DETAIL

NOT TO SCALE

STREAMBANK REFORESTATION
DETAIL SHEET 2 OF 2
N.C.D.O.T.- ROADSIDE ENVIRONMENTAL UNIT

Utility Drawings

09/08/99

TIP PROJECT: U-3467

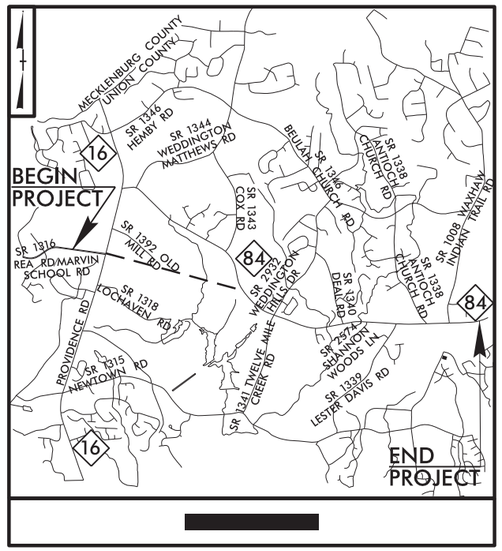
T.I.P. NO.	SHEET NO.
U-3467	UE-1

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

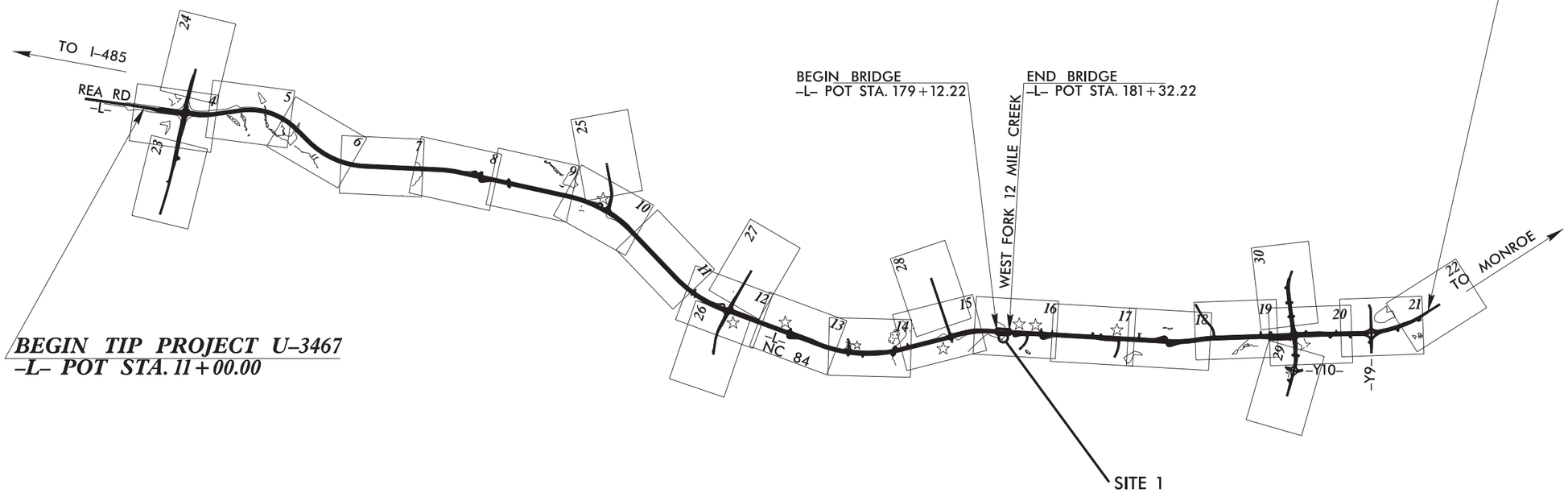
PERMIT DRAWING
UNION COUNTY

LOCATION: SR 1316 (REA ROAD EXTENSION)
FROM NC 16 TO SR 1008
(MAXHAW-INDIAN TRAIL ROAD)
TYPE OF WORK: TEMPORARY IMPACT IN SURFACE WATER BY UTILITIES' RELOCATION

NAD 83
NA 2011



END TIP PROJECT U-3467
-L- POT STA. 258+50.00



BEGIN TIP PROJECT U-3467
-L- POT STA. 11+00.00

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

INDEX OF SHEETS

SHEET NO.:	*DESCRIPTION:*
UC-1	*TITLE SHEET*
UC-2	*UTILITY PERMIT DRAWING*

WATER AND SEWER OWNERS ON PROJECT

(A) WATER : UNION COUNTY WATER & SEWER
(B) SANITARY SEWER : UNION COUNTY WATER & SEWER

SEAL

DIVISION OF HIGHWAYS
UTILITIES UNIT
1555 MAIL SERVICES CENTER
RALEIGH NC 27699-1555
PHONE (919) 707-6690
FAX (919) 250-4151

MICHAEL BRIGHT — *UTILITIES REGIONAL ENGINEER*
JT YOON, PE — *UTILITIES ENGINEER*

26-SEP-2018 09:59
R:\Utilities\Engineering\NEU\Permit Plans and Narrative\u-3467_Ut_tsh_UEL_psh.dgn
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
U-3467	UE-02
DESIGNED BY: JTY	
DRAWN BY: JTY	
CHECKED BY: MRB	
APPROVED BY: BRir	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE: (919)707-6690 FAX: (919)250-4151	UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION

NAD 83/NA 2011

MATCHLINE -L- STA. 175+50.00
SEE SHEET 15

MATCHLINE -L- STA. 189+50.00
SEE SHEET 17

PROP. 40 LF
36" ENCASEMENT PIPE
(STEEL, 0.500" THK.
OPEN CUT)

PROP. 40 LF
30" ENCASEMENT PIPE
(STEEL, 0.406" THK.
OPEN CUT)

CHANNEL CHANGE
SEE DETAIL 16-A

LATERAL 2' BASE DITCH
SEE DETAIL 16-B

TEMPORARY IMPACT FOR PROPOSED 30" SS ENCASEMENT PIPE and PROPOSED 36" WL ENCASEMENT PIPE IS 16.2 FT(0.0049ac, STA. L 180+57 ~ L 180+75). PROPOSED BURYING DEPTH OF 30" SS ENCASEMENT PIPE AND 36" WL ENCASEMENT PIPE will BE 2.0 FT FROM THE BOTTOM OF CREEK.

DENOTES TEMPORARY IMPACTS BY SURFACE WATER

5/14/99

26-SEP-2018 14:20
\Engineering\Roadway Designs and Narrative\u-3467_Ut_16_UE2.pshdgn

WETLAND PERMIT IMPACT SUMMARY

Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS: Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	SURFACE WATER IMPACTS: Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
1	-L-180+60/180+75	Prop. Gravity							<0.01*		8.100	
		Sewer Line										
	-L-180+57/180+72	Prop. Water Line							<0.01*		8.100	
TOTALS:									0.010		16	

* Temporary Excavation
* Excavation will be set to the side and then place back into the hole.

ATN Revised 3/31/05

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

union COUNTY
WBS - 39019.2.1 (U-3467)

SHEET 1/16/2019

Mitigation

JOSH STEIN
Governor
D. REID WILSON
Secretary
MARC RECKTENWALD
Director

NORTH CAROLINA
Environmental Quality

November 10, 2026

Mr. Michael Turchy
Environmental Coordination & Permitting Group
North Carolina Department of Transportation
1598 Mail Service Center
Raleigh, North Carolina 27699-1598

Dear Mr. Turchy:

Subject: Mitigation Acceptance Letter:

U-3467, SR 1316 (Rea Road Extension) from NC 16 to SR 1008 (Waxhaw – Indian Trail Road) in Wesley Chapel, Mecklenburg 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 November 9, 2026, the impacts are located in CU 03050103 of the Catawba River, and are as follows:

Stream and Wetlands	Service Area	Stream			Wetlands		
		Cold	Cool	Warm	Riparian	Non-Riparian	Coastal Marsh
Impacts	Catawba 03050103	0	0	1,316.000	0.250	0	0

*Some of the stream and/or wetland impacts may be proposed to be mitigated at a 1:1 mitigation ratio. See permit application for details.

This mitigation acceptance letter replaces the mitigation acceptance letter issued on February 19, 2019. DMS commits to implementing sufficient mitigation credits to offset the impacts associated with this project as determined by the regulatory agencies in accordance with the In-Lieu Fee Instrument dated July 28, 2010 and consistent with the Guidance for Expanded Service Area for Mitigating Impacts within the Lower Catawba River Basin approved by the IRT. 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 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. Scott Jones, USACE
Ms. Faith Hardin, NCDWR
Mr. Brad Chilton, NCDOT – EAU
File: U-3467 Revised

Section 7
ESA

United States Department of the Interior

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

September 23, 2026

Erin Cheely
ECAP Western Team Lead, Environmental Analysis Unit
North Carolina Department of Transportation
1598 Mail Service Center
Raleigh, North Carolina 27699

Subject: Informal Consultation for Extension and Relocation of NC 84 from NC 16 to SR 1008 (Waxhaw-Indian Trail Road) in Union County (TIP No. U-3467, Service Log #26-187

Dear Erin Cheely:

On September 9, 2026, we received your request to initiate informal consultation and Endangered Species Act Section 7 concurrence for effects the subject project may have on federally listed species. We have reviewed the information you submitted 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 construct a four-lane roadway, part on new location. The project will involve constructing a new-location four-lane roadway between the Rea Rd/NC16 intersection and existing NC84, and widening existing NC84 to a 4-lane roadway. Work types will include grading, paving, drainage, crossing structures, retaining walls, signals, and utilities.

Crossing Structure Work anticipated in perennial streams:

- Unnamed tributary (UT) to Mundys Run (SS): Install a new 54” reinforced concrete pipe (Permit Site 1)
- Mundys Run: Installing a new two-barrel culvert @ 11’x8’ reinforced concrete box culvert at -L- STA. 80+76.05 (Permit Site 8, 2026 mussel survey location 1)
- Culvert Branch: Upsizing existing one-barrel culvert @ 11.5’x7’ concrete box culvert to a 3-barrel culvert @ 12’x7’ reinforced concrete box culvert at -L- STA. 159+93.00 (Permit Site 10, 2026 mussel survey location 2)
- West Fork Twelvemile Creek: Replacing existing three-barrel culvert @11’x12’ reinforced concrete box culvert at -L- STA. 181+00 with a 220’x101’ bridge (Permit Site 11, 2026 mussel survey location 3)

The Federal Highway Administration (FHWA) is the federal lead for this project for Section 7 purposes, with authority delegated to NCDOT.

NCDOT has agreed to implement the following conservation measures for the project:

1. Best Management Practices (BMPs) will be utilized during construction to reduce the stormwater impacts to receiving streams and wetlands due to erosion and runoff.
2. The RCBC carrying West Fork Twelvemile Creek will be replaced with a spanning bridge and there will be a constructed riffle where the RCBC is removed.
3. There will be no deck drains on the new bridge discharging directly into the creek.
4. The portion of West Fork Twelvemile Creek that has to be relocated due to the new roadway slopes will be stabilized and reforested.

During project design, NCDOT avoided and minimized impacts via the following:

- The new location alignment was adjusted to avoid the confluence of stream SK and Mundys Run.
- Intersection improvements at NC 84 and Lester Davis Road were designed to avoid a major hydraulic crossing of a UT to West Fork Twelvemile Creek.
- Impacts to streams SR and SV were eliminated by shifting the alignment north of these streams.
- The alignment was shifted to a more perpendicular crossing at stream SS, reducing impacts by several hundred feet.
- Impacts to stream SP were reduced by shifting the alignment to the north of pond PI.
- Shifting the new alignment to the north also reduced impacts to stream SAD and Mundys Run.
- The proposed stormwater runoff from the proposed roadway is conveyed via storm drainage systems to ditches prior to outletting at jurisdictional resources.
- Non-erosive flow velocities to be attained at locations where ditches/systems discharge prior to wetlands.

Federally Listed Species

The information provided indicates that "No Effect" (NE) determinations have been made for 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 one or two years (depending on the species) have negative results, we would concur with a biological determination of "may affect, not likely to adversely affect" (NLAA). This information is provided for the sake of the administrative record.

According to information provided in the consultation request, federally designated bat species are considered under the WNC Bat Programmatic Biological Opinion (bat PBO) for this project and are therefore not addressed in this consultation correspondence. The subject project was submitted to our office for review under the bat PBO and a review confirmation letter was issued from this office on August 6, 2026.

The correspondence received from NCDOT requests consultation on Carolina heelsplitter (*Lasmigona decorata*). Suitable habitat exists for the species within the action area. Mussel surveys were completed in August 2013, August and October 2017, and by RK&K on March 2 & 3, 2026. Carolina heelsplitter were not observed. Eastern elliptio (*Elliptio companata*) were observed during surveys. Element occurrence data exists for Eastern creekshell (*Villosa delumbus*, 2023) and Carolina creekshell (*Sagittunio vaughanianus*, 2025) in project waters. Based on the information provided and the incorporated measures and commitments on behalf of aquatic species, impacts on Carolina heelsplitter are not expected to rise to the level where take occurs; therefore, we concur with the NCDOT's determination that the proposed work may affect but is not likely to adversely affect Carolina heelsplitter.

On December 12, 2024, monarch butterfly (*Danaus plexippus*) was proposed for listing as endangered under the Endangered Species Act (ESA). Species proposed for listing are not afforded protection under the ESA; however, as soon as a listing becomes effective, the prohibitions against jeopardizing its

continued existence and "take" will apply. Discussion between NCDOT Central and the U.S. Fish and Wildlife Service Asheville Ecological Services Field Office in early 2025 lead to the decision for NCDOT not to conference on monarch butterfly at this time. Conferencing procedures can be initiated later in the timeline of this project should the need arise.

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.

- **Culvert Material***: Incorporate class B underlayment (with native material topping) in culverts to aid in avoiding wash-out.
- **Constructed Riffle***: Incorporate grade change into the constructed riffle to ensure stability and functionality of the feature.
- **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 water quality for aquatic organisms quality and the suitability of foraging and commuting habitat for bats, 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 aquatic species and bats. 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.

**North Carolina Wildlife Resources Commission recommendations specific to this project that we support.*

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 #26-187.

Sincerely,

GARY PEEPLES Digitally signed by GARY PEEPLES Date: 2026.09.23 08:07:16 -04'00'

Gary Peeples
Field Supervisor (acting)

Electronic CC:
Dave McHenry, North Carolina Wildlife Resources Commission, NCDOT Liaison
William Wescott, NCDOT, Division 10, Environmental Officer
Jared Gray, NCDOT, Central, Biological Surveys Group, Aquatics Team Lead
Stephen Brumagin, U.S. Army Corps of Engineers

United States Department of the Interior

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

August 6, 2026

Subject: Review Response for Transportation Project(s) Covered by the Western North Carolina Bat Programmatic Biological Opinion

Greetings:

The U.S. Fish and Wildlife Service, Asheville Ecological Services Field Office, has reviewed the project(s) submitted on August 4, 2026, for coverage under the Western North Carolina (WNC) Bat Programmatic Biological Opinion (PBO), issued April 1, 2025. Based on the submitted materials and any supplemental information provided, we confirm the project(s) meet the criteria for coverage under this PBO in accordance with section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531–1543) (ESA), thus concluding formal consultation for the project(s).

This correspondence conveys our review for listed/proposed bats covered by the WNC Bat PBO only. The lead federal agency (Federal Highway Administration (FHWA) or North Carolina Department of Transportation as their designee, or U.S. Army Corps of Engineers) remains responsible for ensuring that any other listed or proposed species and/or designated critical habitat that occurs within the project action area are addressed in accordance with section 7 of the ESA. For other listed species potentially occurring in the action area, if suitable habitat is absent from the action area, “No Effect” determinations are appropriate. For plants, in instances where suitable habitat is present and botanical surveys conducted during the optimal survey window and within the past one or two years (depending on the species) have negative results, we would concur with a biological determination of “may affect, not likely to adversely affect” (NLAA).

Review and concurrence under the WNC Bat PBO are considered complete for the following project(s):

Project Title	NCDOT STIP/ID #	USFWS Log #
Widen NC 84, create new roadway portion	U-3467	26-187
Replacement of Bridge No. 330048 on NC 8 over US 52	BR-0018	26-186
Repair damaged I-26 drainage pipes	36249.5103	26-142
Davis Mtn Rd repairs	18314.1075038	26-183
Replace bridge 550056 over Cullasaja River on Gold Mine Road (SR 1679)	HB-0037	26-181
Replace bridge 960236 over Branch Elkin Creek	BP11.R039	24-219

NCDOT requested reinitiation of previous completed consultation for the project(s) below due to changes in the project description(s) and resulting changes in bat species effect determinations. Our reinitiation review and concurrence under the WNC Bat PBO are now complete for the following:

Project Title	NCDOT STIP/ID #	USFWS Log #
Replace Structure No. 292085 on SR1436 (Pinebrook School Road)	BP9.C002	24-207

We appreciate the opportunity for review and comment.

Sincerely,

U.S. Fish and Wildlife Service, Asheville Field Office

Tribal Coordination

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

Office 803-328-2427
Fax 803-328-5791

February 6, 2025

Attention: Radha Attaluri
NC Department of Transportation
1582 Mail Service Center
Raleigh, NC 27699-1582

Re. THPO #	TCNS #	Project Description
2025-193-84		Proposing to extend Rea Road on new location from NC 16 in Weddington to existing NC 84 near Twelve Mile Creek Road and widen existing NC 84 to just beyond Waxhaw-Indian Trail Road in Wesley Chapel U-3467

Dear Radha,

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

Historic Architecture, Archaeology, and NEPA Document included with USACE RRS application submittal