STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

ROY COOPER
GOVERNOR

J. ERIC BOYETTE
SECRETARY

September 2, 2020

U. S. Army Corps of Engineers
Regulatory Field Office
151 Patton Avenue, Room 208
Asheville, NC 28801-5006

ATTN: Ms. Crystal Amschler
NCDOT Coordinator

Subject: **Application for Section 404 Nationwide Permit 14, and 401 Water Quality Certification** for the proposed Replacement of Bridge No. 132 on NC 73 over Dutch Buffalo Creek in Cabarrus County, North Carolina, Division 10, TIP No. B-5813. Debit $570 from WBS 45767.1.1

Dear Ms. Amschler:

The North Carolina Department of Transportation (NCDOT) proposes to replace bridge number 132 on NC 73 over Dutch Buffalo Creek in Cabarrus County with a 208 foot, 2-span bridge with a span arrangement of 1@85' and 1@123' (63" Girder). This existing bridge will be removed, and the proposed bridge will be placed about 50' upstream of the existing bridge alignment, keeping the existing bridge during construction as a detour bridge. This action will result in 220 lf of permanent impacts to streams from a channel relocation and 0.05 ac of temporary impacts to streams from dewatering, and causeways for bridge construction/demolition. Mitigation for the permanent stream impacts will be provided by the North Carolina Division of Mitigation Services (NCDMS).

Please see enclosed copies of the Pre-Construction Notification (PCN), NCDMS Acceptance Letter, Stormwater Management Plan, and Permit Drawings. A Minimum Criteria Determination Checklist (MCDC) was completed in November 2018 and distributed shortly thereafter. Additional copies are available upon request.

This project calls for a letting date of June 15, 2021 and a review date of April 27, 2021.

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

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

Location:
1000 BIRCH RIDGE DRIVE
RALEIGH NC 27610

A copy of this permit application and its distribution list will be posted on the NCDOT Website at: https://xfer.services.ncdot.gov/pdea/PermApps/. If you have any questions or need additional information, please contact Jeff Hemphill at (919) 707-6126.

Sincerely,

for Michael Taylor

Philip S. Harris III, P.E., C.P.M.
Environmental Analysis Unit Head

cc:
NCDOT Permit Application Standard Distribution List

Pre-Construction Notification (PCN) Form

For Nationwide Permits and Regional General Permits

(along with corresponding Water Quality Certifications)

April 11, 2020 Ver 3.1

*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.*

Also, if at any point you wish to print a copy of the E-PCN, all you need to do is right-click on the document and you can print a copy of the form.

Below is a link to the online help file.

https://edocs.deq.nc.gov/WaterResources/0/edoc/624704/PCN%20Help%20File%202018-1-30.pdf

A. Processing Information

County (or Counties) where the project is located:*

Cabarrus

Is this a NCDMS Project*

○ Yes ◉ No

Click Yes, only if NCDMS is the applicant or co-applicant.

Is this project a public transportation project?*

◉ Yes ○ No

This is any publicly funded by municipal,state or federal funds road, rail, airport transportation project.

Is this a NCDOT Project?*

◉ Yes ○ No

(NCDOT only) T.I.P. or state project number:

B-5813

WBS #*

WBS No. 45767.1.1

(for NCDOT use only)

1a. Type(s) of approval sought from the Corps:*

☑ Section 404 Permit (wetlands, streams and waters, Clean Water Act)

☐ Section 10 Permit (navigable waters, tidal waters, Rivers and Harbors Act)

1b. What type(s) of permit(s) do you wish to seek authorization?*

☑ Nationwide Permit (NWP)

☐ Regional General Permit (RGP)

☐ Standard (IP)

This form may be used to initiate the standard/individual permit process with the Corps. Please contact your Corps representative concerning submittals for standard permits. All required items that are not provided in the E-PCN can be added to the miscellaneous upload area located at the bottom of this form.

1c. Has the NWP or GP number been verified by the Corps?*

◉ Yes ○ No

Nationwide Permit (NWP) Number: 14 - Linear transportation

NWP Numbers (for multiple NWPS):

List all NW numbers you are applying for not on the drop down list.

1d. Type(s) of approval sought from the DWR:*

check all that apply

☑ 401 Water Quality Certification - Regular

☐ Non-404 Jurisdictional General Permit

☐ Individual Permit

☐ 401 Water Quality Certification - Express

☐ Riparian Buffer Authorization

1e. Is this notification solely for the record because written approval is not required?

*

For the record only for DWR 401 Certification: ○ Yes ◉ No

For the record only for Corps Permit: ○ Yes ◉ No

1f. Is this an after-the-fact permit application? *

○ Yes ◉ No

1g. Is payment into a mitigation bank or in-lieu fee program proposed for mitigation of impacts?

If so, attach the acceptance letter from mitigation bank or in-lieu fee program

◉ Yes ○ No

Acceptance Letter Attachment

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

B-5813 DMS Acceptance Letter.pdf 457.56KB

FILE TYPE MUST BE PDF

1h. Is the project located in any of NC's twenty coastal counties? *

○ Yes ◉ No

1j. Is the project located in a designated trout watershed? *

○ Yes ◉ No

Link to trout information: http://www.saw.usace.army.mil/Missions/Regulatory-Permit-Program/Agency-Coordination/Trout.aspx

B. Applicant Information

1a. Who is the Primary Contact? *

NCDOT

1b. Primary Contact Email: *

jhemphill@ncdot.gov

1c. Primary Contact Phone: *

(xxx)xxx-xxxx

(919)707-6126

1d. Who is applying for the permit? *

☐ Owner

(Check all that apply)

☑ Applicant (other than owner)

1e. Is there an Agent/Consultant for this project? *

○ Yes ◉ No

2. Owner Information

2a. Name(s) on recorded deed: *

N/A

2b. Deed book and page no.:

2c. Responsible party:

(for Corporations)

2d. Address *

Street Address

N/A

Address Line 2

City

Raleigh

State / Province / Region

NC

Postal / Zip Code

27699

Country

US

2e. Telephone Number: *

(xxx)xxx-xxxx

(919)707-6126

2f. Fax Number:

(xxx)xxx-xxxx

2g. Email Address: *

pharris@ncdot.gov

3. Applicant Information (if different from owner)

3a. Name: *

NCDOT

3b. Business Name:

(if applicable)

3c. Address *

Street Address
1598 Mail Service Center
Address Line 2

City
Raleigh

State / Province / Region
NC

Postal / Zip Code
27699-1598

Country
US

3d. Telephone Number: *
(919)707-6126
(xxx)xxx-xxxx

3e. Fax Number:
(xxx)xxx-xxxx

3f. Email Address: *
pharris@ncdot.gov

C. Project Information and Prior Project History

1. Project Information

1a. Name of project: *
Replace Bridge No. 132 on NC 73 over Dutch Buffalo Creek

1b. Subdivision name:
(if appropriate)

1c. Nearest municipality / town: *
Mt. Pleasant

2. Project Identification

2a. Property Identification Number:
(tax PIN or parcel ID)

2b. Property size:
(in acres)

2c. Project Address
Street Address
Address Line 2
City
State / Province / Region
Postal / Zip Code
Country

2d. Site coordinates in decimal degrees

Please collect site coordinates in decimal degrees. Use between 4-6 digits (unless you are using a survey-grade GPS device) after the decimal place as appropriate, based on how the location was determined. (For example, most mobile phones with GPS provide locational precision in decimal degrees to map coordinates to 5 or 6 digits after the decimal place.)

Latitude: *
35.395927
ex: 34.208504

Longitude: *
-80.416077
-77.796371

3. Surface Waters

3a. Name of the nearest body of water to proposed project: *
Dutch Buffalo Creek

3b. Water Resources Classification of nearest receiving water: *
C

Surface Water Lookup

3c. What river basin(s) is your project located in? *
Yadkin-PeeDee

3d. Please provide the 12-digit HUC in which the project is located. *
030401050304

River Basin Lookup

4. Project Description and History

4a. Describe the existing conditions on the site and the general land use in the vicinity of the project at the time of this application: *
Two lane, 190', 4 span, reinforced concrete bridge over Dutch Buffalo Creek. The bridge was constructed in 1920. The surrounding land use is agricultural, residential and fragmented forest land.

4b. Have Corps permits or DWR certifications been obtained for this project (including all prior phases) in the past? *
○ Yes ◉ No ○ Unknown

4d. Attach an 8 1/2 X 11 excerpt from the most recent version of the USGS topographic map indicating the location of the project site. (for DWR)

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

File type must be pdf

4e. Attach an 8 1/2 X 11 excerpt from the most recent version of the published County NRCS Soil Survey map depicting the project site. (for DWR)

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

File type must be pdf

4f. List the total estimated acreage of all existing wetlands on the property:

0.0

4g. List the total estimated linear feet of all existing streams on the property:

(intermittent and perennial)

362

4h. Explain the purpose of the proposed project: *

NCDOT Bridge Management Unit records indicate Bridge No. 132 has a sufficiency rating of 7.68 out of a possible 100 for a new structure. The bridge is considered structurally deficient due to superstructure condition appraisal of 4 out of 9, a substructure condition appraisal of 4 out of 9, and a deck condition of 4 out of 9 according to Federal Highway Administration (FHWA) standards, and is approaching the end of its useful life. The bridge also meets the criteria for functionally obsolete due to a deck geometry appraisal of 2 out of 9. Bridge No. 132 carries 8,200 vehicles per day with 10,800 vehicles per day projected for the future. Components of both the concrete superstructure and substructure have experienced an increasing degree of deterioration that can no longer be addressed by maintenance activities. The bridge is approaching the end of its useful life. Replacement of the bridge will also result in safer traffic operations by providing a left turn lane to SR 2604 (Dutch Rd).

4i. Describe the overall project in detail, including indirect impacts and the type of equipment to be used: *

The existing 190', 4 span bridge over Dutch Buffalo Creek on NC 73 is being replaced with a 2-span bridge with a span arrangement of 1@85' and 1@123' (63" Girder). The bridge will be super elevated at 4% with 12' travel lanes, 4' shoulders and bridge railings on both sides of the travel lanes. The existing bridge will be removed, and the proposed bridge will be placed about 50' upstream of the existing bridge alignment, keeping the existing bridge during construction as a detour bridge. The existing drainage patterns are being maintained in the proposed condition. A proposed ditch will convey water in place of the existing channel (per directions from NCDOT) with a 9' base and 3:1 side slopes. All proposed ditches and the channel change will flow towards and into Dutch Buffalo Creek. 6" vertical PVC pipe slots at 5' centers line the low end of the super-elevated bridge to convey runoff and meet the requirement of 4' allowable spread. These deck drains will not discharge directly above the stream. The abutments of the bridge are protected by class II Riprap to prevent future erosion and stream migration. Standard road and bridge building equipment such as trucks, dozers, and cranes will be used.

4j. Please upload project drawings for the proposed project.

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

B-5813 Final Permit Drawings.pdf	7.09MB
B-5813 Permit Application Cover Letter.pdf	280.34KB

File type must be pdf

5. Jurisdictional Determinations

5a. Have the wetlands or streams been delineated on the property or proposed impact areas? *

(•) Yes ( ) No ( ) Unknown

Comments:

5b. If the Corps made a jurisdictional determination, what type of determination was made? *

( ) Preliminary ( ) Approved (•) Not Verified ( ) Unknown ( ) N/A

Corps AID Number:

Example: SAW-2017-99999

5c. If 5a is yes, who delineated the jurisdictional areas?

Name (if known): Nathan Howell

Agency/Consultant Company: Three Oaks Engineering

Other:

5d1. Jurisdictional determination upload

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

File type must be PDF

6. Future Project Plans

6a. Is this a phased project? *

( ) Yes (•) No

Are any other NWP(s), regional general permit(s), or individual permits(s) used, or intended to be used, to authorize any part of the proposed project or related activity? This includes other separate and distant crossing for linear projects that require Department of the Army authorization but don't require pre-construction notification.

D. Proposed Impacts Inventory

1. Impacts Summary

1a. Where are the impacts associated with your project? (check all that apply):

[ ] Wetlands	[x] Streams-tributaries	[ ] Buffers
[ ] Open Waters	[ ] Pond Construction	

3. Stream Impacts

If there are perennial or intermittent stream impacts (including temporary impacts) proposed on the site, then complete this question for all stream sites impacted.

"S." will be used in the table below to represent the word "stream".

	3a. Reason for impact * (?)	3b.Impact type *	3c. Type of impact *	3d. S. name *	3e. Stream Type * (?)	3f. Type of Jurisdiction *	3g. S. width *	3h. Impact length *
S1	Temporary Construction	Temporary	Workpad/Causeway	Dutch Buffalo Creek	Perennial	Both	21 Average (feet)	142 (linear feet)
S2	Roadway Fill	Permanent	Fill	UT to Dutch Buffalo Ck	Perennial	Both	7 Average (feet)	220 (linear feet)

** All Perennial or Intermittent streams must be verified by DWR or delegated local government.

3i. Total jurisdictional ditch impact in square feet:

0

3i. Total permanent stream impacts:

220

3i. Total temporary stream impacts:

142

3i. Total stream and ditch impacts:

362

3j. Comments:

Dewatering impacts are included in the temporary impacts for S1

E. Impact Justification and Mitigation

1. Avoidance and Minimization

1a. Specifically describe measures taken to avoid or minimize the proposed impacts in designing the project: *

The new alignment shifts to the north to avoid taking two residences and a business on the south side of the road. The existing structure has two mass concrete bents that control the edges of Dutch Buffalo Creek. These will be removed, and the new structure will not have bents at the water's edge.The existing drainage patterns are being maintained in the proposed condition. A proposed ditch will convey water in place of the existing channel with a 9' base and 3:1 side slopes. All proposed ditches and the channel change will flow towards and into the Dutch Buffalo Creek. 6" vertical PVC pipe slots at 5' centers line the low end of the super-elevated bridge to convey runoff and meet the requirement of 4' allowable spread. These deck drains will not discharge directly above the stream. Rip Rap outlet pads will be utilized to dissipate the flow and minimize erosion. Special stilling basins placed on both sides of Dutch Buffalo Creek will help minimize sediment from passing into the stream.

1b. Specifically describe measures taken to avoid or minimize the proposed impacts through construction techniques: *

Best Management Practices will be adhered to.

2. Compensatory Mitigation for Impacts to Waters of the U.S. or Waters of the State

2a. Does the project require Compensatory Mitigation for impacts to Waters of the U.S. or Waters of the State?

(•) Yes ( ) No

2c. If yes, mitigation is required by (check all that apply):

[ ] DWR [x] Corps

2d. If yes, which mitigation option(s) will be used for this project?

[ ] Mitigation bank [x] Payment to in-lieu fee program [ ] Permittee Responsible Mitigation

4. Complete if Making a Payment to In-lieu Fee Program

4a. Approval letter from in-lieu fee program is attached.

(•) Yes ( ) No

4b. Stream mitigation requested:

(linear feet)

220

4c. If using stream mitigation, what is the stream temperature:

warm

NC Stream Temperature Classification Maps can be found under the Mitigation Concepts tab on the Wilmington District's RIBITS website.

4d. Buffer mitigation requested (DWR only):

(square feet)

4e. Riparian wetland mitigation requested:

(acres)

4f. Non-riparian wetland mitigation requested:

(acres)

4g. Coastal (tidal) wetland mitigation requested:

(acres)

4h. Comments

F. Stormwater Management and Diffuse Flow Plan (required by DWR)

*** Recent changes to the stormwater rules have required updates to this section .***

1. Diffuse Flow Plan

1a. Does the project include or is it adjacent to protected riparian buffers identified within one of the NC Riparian Buffer Protection Rules?

○ Yes ◉ No

For a list of options to meet the diffuse flow requirements, click here.

If no, explain why:

2. Stormwater Management Plan

2a. Is this a NCDOT project subject to compliance with NCDOT's Individual NPDES permit NCS000250? *

◉ Yes ○ No

Comments:

G. Supplementary Information

1. Environmental Documentation

1a. Does the project involve an expenditure of public (federal/state/local) funds or the use of public (federal/state) land? *

◉ Yes ○ No

1b. If you answered "yes" to the above, does the project require preparation of an environmental document pursuant to the requirements of the National or State (North Carolina) Environmental Policy Act (NEPA/SEPA)? *

◉ Yes ○ No

1c. If you answered "yes" to the above, has the document review been finalized by the State Clearing House? (If so, attach a copy of the NEPA or SEPA final approval letter.) *

◉ Yes ○ No

NEPA or SEPA Final Approval Letter

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

B-5813 MCDC_signed.pdf 4.57MB

FILE TYPE MUST BE PDF

2. Violations (DWR Requirement)

2a. 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)? *

○ Yes ◉ No

3. Cumulative Impacts (DWR Requirement)

3a. Will this project (based on past and reasonably anticipated future impacts) result in additional development, which could impact nearby downstream water quality? *

○ Yes ◉ No

3b. If you answered "no," provide a short narrative description.

Due to the minimal transportation impact resulting from this bridge replacement, this project will neither influence nearby land uses nor stimulate growth. Therefore, a detailed indirect or cumulative effects study will not be necessary.

4. Sewage Disposal (DWR Requirement)

4a. Is sewage disposal required by DWR for this project? *

○ Yes ◉ No ○ N/A

5. Endangered Species and Designated Critical Habitat (Corps Requirement)

5a. Will this project occur in or near an area with federally protected species or habitat? *

◉ Yes ○ No

5b. Have you checked with the USFWS concerning Endangered Species Act impacts? *

○ Yes ◉ No

5d. Is another Federal agency involved? *

○ Yes ◉ No ○ Unknown

5e. Is this a DOT project located within Division's 1-8? *

○ Yes ◉ No

5f. Will you cut any trees in order to conduct the work in waters of the U.S.? *

◉ Yes ○ No

5g. Does this project involve bridge maintenance or removal? *

◉ Yes ○ No

5g(1). If yes, have you inspected the bridge for signs of bat use such as staining, guano, bats, etc.? Representative photos of signs of bat use can be found in the NLEB SLOPES, Appendix F, pages 3-7.

◉ Yes ○ No

Link to the NLEB SLOPES document: http://saw-reg.usace.army.mil/NLEB/1-30-17-signed_NLEB-SLOPES&apps.pdf

If you answered "Yes" to 5g(1), did you discover any signs of bat use? *

○ Yes ◉ No ○ Unknown

*** **If yes, please show the location of the bridge on the permit drawings/project plans.**

5h. Does this project involve the construction/installation of a wind turbine(s)?* *

○ Yes ◉ No

5i. Does this project involve (1) blasting, and/or (2) other percussive activities that will be conducted by machines, such as jackhammers, mechanized pile drivers, etc.? *

◉ Yes ○ No

If yes, please provide details to include type of percussive activity, purpose, duration, and specific location of this activity on the property.

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

File must be PDF

5j. What data sources did you use to determine whether your site would impact Endangered Species or Designated Critical Habitat? *

FWS Website

Schweinitz's sunflower - No Effect, habitat present, last survey 10/21/19

Carolina heelsplitter - No Effect, no habitat present, survey 10/25/18

Northern long-eared bat: NCDOT has determined that the proposed action does not require separate consultation on the grounds that the proposed action is consistent with the final Section 4(d) rule, codified at 50 C.F.R. § 17.40(o) and effective February 16, 2016. NCDOT may presume its determination is informed by best available information and consider Section 7 responsibilities fulfilled for NLEB.

Approximately 0.47 acre of trees will be removed in the project footprint for construction purposes.

Consultation Documentation Upload

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

B-5813 Mussel Survey Report.pdf	8.93MB
B-5813 SLOPES Memo.pdf	235.3KB

File type must be PDF

6. Essential Fish Habitat (Corps Requirement)

6a. Will this project occur in or near an area designated as an Essential Fish Habitat? *

○ Yes ◉ No

6b. What data sources did you use to determine whether your site would impact an Essential Fish Habitat? *

Review of on-line mapping sources

7. Historic or Prehistoric Cultural Resources (Corps Requirement)

Link to the State Historic Preservation Office Historic Properties Map (does not include archaeological data: http://gis.ncdcr.gov/hpoweb/

7a. Will this project occur in or near an area that the state, federal or tribal governments have designated as having historic or cultural preservation status (e.g., National Historic Trust designation or properties significant in North Carolina history and archaeology)? *

○ Yes ◉ No

7b. What data sources did you use to determine whether your site would impact historic or archeological resources? *

MCDC and Archaeology Memo.

7c. Historic or Prehistoric Information Upload

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

B-5813 No Archaeology Survey Req.pdf	852.58KB
B-5813 Catawba Indian Nation Response 2020-01-16.pdf	273.92KB
B-5813 Tribal Coordination Letter to Catawba 2019-12-02.pdf	1.37MB

File must be PDF

8. Flood Zone Designation (Corps Requirement)

Link to the FEMA Floodplain Maps: https://msc.fema.gov/portal/search

8a. Will this project occur in a FEMA-designated 100-year floodplain? *

(•) Yes ( ) No

8b. If yes, explain how project meets FEMA requirements:

Project was determined by NCDOT to be a Type 2A Project during NCFMP and NCDOT MOA Project Review

8c. What source(s) did you use to make the floodplain determination? *

FEMA Flood Maps

Miscellaneous

Comments

Approximately 0.47 acre of trees will be removed in the project footprint for construction purposes.

Miscellaneous attachments not previously requested.

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

File must be PDF or KMZ

Signature

*

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

- I have given true, accurate, and complete information on this form;
- I agree that submission of this PCN 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 PCN form.

Full Name: *

Michael Anthony Turchy

Signature *

Date

9/2/2020

ROY COOPER
Governor
MICHAEL S. REGAN
Secretary
TIM BAUMGARTNER
Director

NORTH CAROLINA
Environmental Quality

July 30, 2020

Mr. Philip S. Harris, III, P.E.
Environmental Analysis Unit
North Carolina Department of Transportation
1598 Mail Service Center
Raleigh, North Carolina 27699-1598

Dear Mr. Harris:

Subject: Mitigation Acceptance Letter:

B-5813, Replace Bridge 132 on NC 73 over Buffalo Creek, Cabarrus County

The purpose of this letter is to notify you that the Division of Mitigation Services (DMS) will provide the compensatory stream mitigation for the subject project. Based on the information supplied by you on July 29, 2020, the impacts are located in CU 03040105 of the Yadkin River basin in the Southern Piedmont (SP) Eco-Region, and are as follows:

Yadkin 03040105 SP	Stream			Wetlands			Buffer (Sq. Ft.)	
	Cold	Cool	Warm	Riparian	Non-Riparian	Coastal Marsh	Zone 1	Zone 2
Impacts (feet/acres)	0	0	220.0	0	0	0	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.

The impacts and associated mitigation needs were under projected by the NCDOT in the 2020 impact data. DMS will commit to implement sufficient compensatory stream mitigation credits to offset the impacts associated with this project as determined by the regulatory agencies using the delivery timeline listed in Section F.3.c.iii of the In-Lieu Fee Instrument dated July 28, 2010. If the above referenced impact amounts are revised, then this mitigation acceptance letter will no longer be valid and a new mitigation acceptance letter will be required from DMS.

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

Sincerely,

Elizabeth Harmon

James B. Stanfill
DMS Asset Management Supervisor

cc: Mr. Monte Matthews, USACE – Raleigh Regulatory Field Office
Ms. Amy Chapman, NCDWR
File: B-5813

North Carolina Department of Transportation

Highway Stormwater Program

STORMWATER MANAGEMENT PLAN

FOR NCDOT PROJECTS

(Version 2.08; Released April 2018)

WBS Element: 45767.1.1 **TIP No.:** B-5813 **County(ies):** Cabarrus

General Project Information

WBS Element:	45767.1.1	**TIP Number:**	B-5813	**Project Type:**	Bridge Replacement	**Date:**	12/4/2019
NCDOT Contact:	David Stutts			**Contractor / Designer:**	STV Engineers, Inc. / Shirshant Sharma		
	Address: 1020 Birch Ridge Drive Raleigh, NC 27610				**Address:** 900 West Trade Street, Ste. 715 Charlotte, NC 28202		
	Phone: (919) 707-6442				**Phone:** (704) 816-2556		
	Email: dstutts@ncdot.gov				**Email:** Shirshant.Sharma@stvinc.com		
City/Town:	Mount Pleasant			**County(ies):**	Cabarrus		
River Basin(s):	Yadkin-Pee Dee			**CAMA County?**	No		
Wetlands within Project Limits?	No						

Project Description

Project Length (lin. miles or feet):	0.348 MILES	**Surrounding Land Use:**	Partially Wooded		
	Proposed Project			**Existing Site**	
Project Built-Upon Area (ac.)	1.0 ac.			0.8 ac.	
Typical Cross Section Description:	Bridge : Two 12' lanes and 4' shoulders at both ends of the travel lanes. Approach: Two 12' lanes, 4' paved shoulders			Bridge: Two 12' lanes with 2' shoulders at both ends of the travel lanes. Approach: Two 12' lanes, variable shoulders	
Annual Avg Daily Traffic (veh/hr/day):	Design/Future: 10800	Year: 2040		Existing: 8600	Year: 2020
General Project Narrative: (Description of Minimization of Water Quality Impacts)	The existing 190', 4 span bridge over Dutch Buffalo Creek on NC 73 is being replaced with a 2-span bridge with a span arrangement of 1@85' and 1@123' (63" Girder). The bridge will have 4' end bent caps with 1.5:1 sloping abutments skewed at 110 degrees. The bridge will be super elevated at 4% with 12' travel lanes, 4' shoulders and bridge railings on both the sides of the travel lanes. This gives the bridge a 44' clear roadway width and a 47'-3" out-to-out width. This existing bridge will be removed, and the proposed bridge will be placed about 50' upstream of the existing bridge alignment, keeping the existing bridge during construction as a detour bridge. The existing drainage patterns are being maintained in the proposed condition. A proposed ditch will convey water in place of the existing channel (per directions from NCDOT) with a 9' base and 3:1 side slopes. All proposed ditches and the channel change will flow towards and into the Dutch Buffalo Creek. 6" vertical PVC pipe slots at 5' centers line the low end of the super-elevated bridge to convey runoff and meet the requirement of 4' allowable spread. These deck drains will not discharge directly above the stream. At the beginning of the bridge one TB2GI's is placed in the shoulder berm gutters to convey the bridge runoff into a proposed lateral ditch lines with CL-B Riprap. The abutments of the bridge are protected by CL-II Riprap to prevent future erosion and stream migration.				

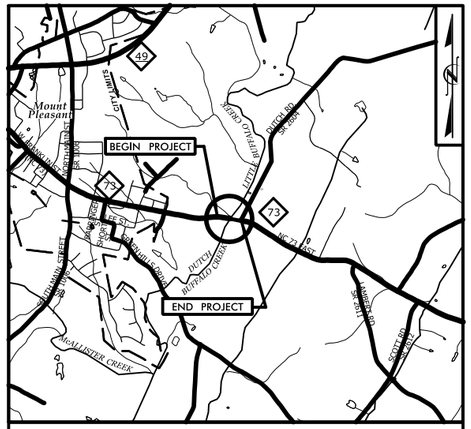
Waterbody Information

Surface Water Body (1):	Dutch Buffalo Creek		**NCDWR Stream Index No.:**	**13-17-11-(5)**		
NCDWR Surface Water Classification for Water Body		**Primary Classification:**	Class C			
		Supplemental Classification:	None			
Other Stream Classification:	None					
Impairments:	None					
Aquatic T&E Species?	No	Comments:				
NRTR Stream ID:				**Buffer Rules in Effect:**	N/A	
Project Includes Bridge Spanning Water Body?	Yes	**Deck Drains Discharge Over Buffer?**	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)						

TIP PROJECT: B-5813

CONTRACT: C204417

See Sheet 1A For Index of Sheets
See Sheet 1B For Standard Symbology Sheet



VICINITY MAP N.T.S.

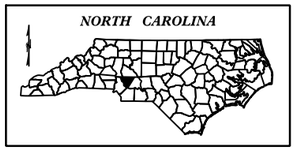
DESIGN EXCEPTION REQUIRED FOR SAG AND CREST FOR K FACTORS AND ASSOCIATED NIGHTTIME SSD FOR –Y– (SR 2604 DUTCH ROAD)

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CABARRUS COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5813	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
45767.1.1		P.E.
45767.2.1		ROW / UTILITIES

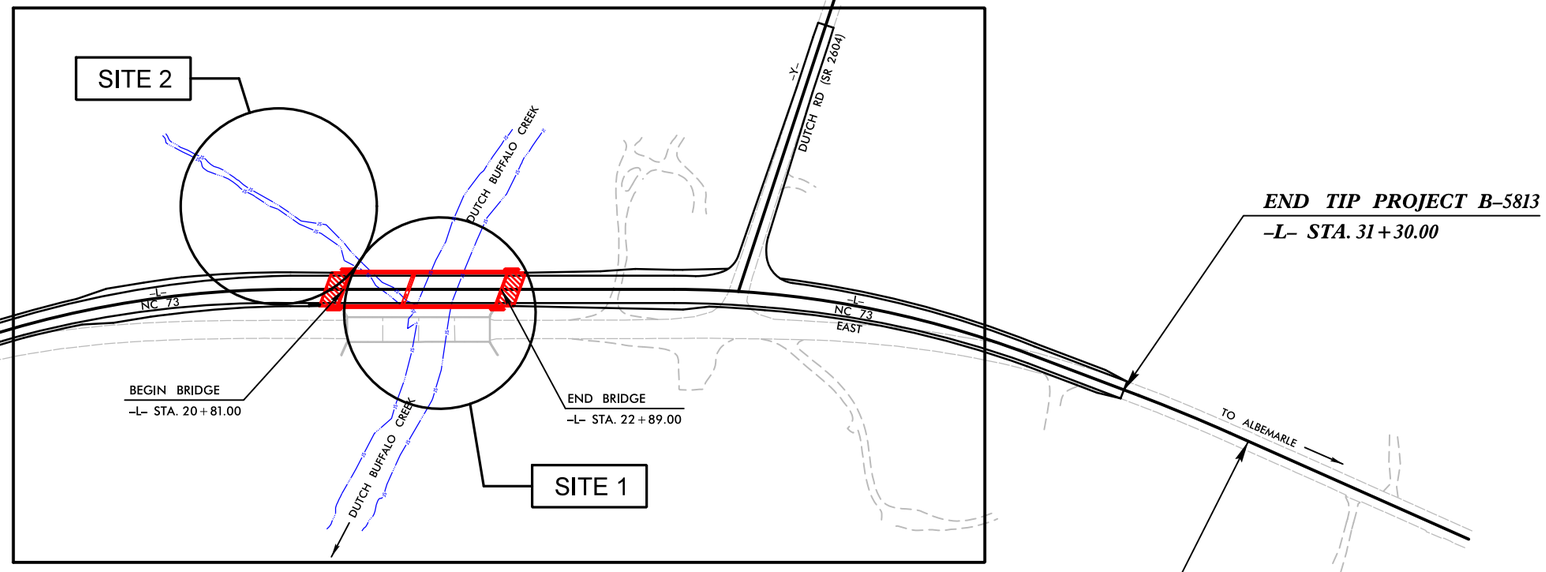


LOCATION: BRIDGE #132 OVER DUTCH BUFFALO CREEK ON NC 73
TYPE OF WORK: GRADING, DRAINAGE, PAVING & STRUCTURE

SURFACE WATER IMPACTS PERMIT

NAD 83 / 2011

BEGIN CONSTRUCTION
–Y– STA. 9+62.47



BEGIN TIP PROJECT B-5813
–L– STA. 12+70.00

END TIP PROJECT B-5813
–L– STA. 31+30.00

END CONSTRUCTION
–L– STA. 33+07.69

THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES. CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.

Permit Drawing Sheet 1 of 9

100′ 0′ 100′

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GRAPHIC SCALES

20 10 0 20 40
PLANS

20 10 0 20 40
PROFILE (HORIZONTAL)

4 2 0 4 8
PROFILE (VERTICAL)

DESIGN DATA

ADT 2020 = 8,600
ADT 2040 = 10,800
K = 12%
D = 60%
T = 5%*
V = 60 MPH
FUNC. CLASSIFICATION: MAJOR COLLECTOR
* (TTST 1% + DUALS 4%)
REGIONAL TIER

PROJECT LENGTH

LENGTH OF ROADWAY TIP PROJECT B-5813 = 0.313 MILES

LENGTH OF STRUCTURE TIP PROJECT B-5813 = 0.039 MILES

TOTAL LENGTH OF TIP PROJECT B-5813 = 0.352 MILES

NCDOT CONTACT: KEITH PASCHAL, PE
Structure Management Unit

PLANS PREPARED FOR THE NCDOT BY:

STV 100 Years
STV Engineers, Inc.
900 West Trade St., Suite 715
Charlotte, NC 28202
NC License Number F-0991

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: OCTOBER 14, 2019

LETTING DATE: FEBRUARY 18, 2020

NIKKI T. HONEYCUTT, PE
PROJECT ENGINEER

MAAMOON K. ABDELAZIZ
PROJECT DESIGNER

HYDRAULICS ENGINEER

SIGNATURE: *P.E.*

ROADWAY DESIGN ENGINEER

SIGNATURE: *P.E.*

STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION ·

5/5/2020
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WindsorWA

8/17/99

LEGEND	
	DENOTES TEMPORARY IMPACTS IN SURFACE WATER
	DENOTES IMPACTS IN SURFACE WATER

STREAM PERMIT IMPACT		
	AREA (AC)	LENGTH (FT)
TEMPORARY SW IMPACTS	0.05	142
PERMANENT SW IMPACTS	0.04	220

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PROJECT REFERENCE NO.	SHEET NO.
B-5813	2
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NAD 83 NSRS 2007

RELOCATION CHANNEL IS 225 FT

TEMPORARY IMPACTS IN SURFACE WATER =S1
51 LF / 0.01 AC

TEMPORARY CAUSEWAYS

TEMPORARY IMPACTS IN SURFACE WATER =S5
8 LF / < 0.01 AC

1
DON M. RITCHIE
DB 509 PG 126

4
DARIN BURNS
DB 12881 PG 143

IMPERVIOUS DIKE, (TYP.)

PERMANENT IMPACTS IN SURFACE WATER =S4
220 LF / 0.04 AC

DECK DRAINS (TYP.) 6" CIRCULAR SLOTS 5' CENTER FROM STA. 20+85 TO STA. 21+45 RT

DECK DRAINS (TYP.) 6" CIRCULAR SLOTS 5' CENTER FROM STA. 22+31 TO STA. 22+71 RT

IMPERVIOUS DIKE, (TYP.)

TEMPORARY PIPE (TYP.)

SPECIAL STILLING BASIN (TYP.)

TEMPORARY PIPE (TYP.)

SPECIAL STILLING BASIN (TYP.)

TEMPORARY IMPACTS IN SURFACE WATER =S3
57 LF / 0.01 AC

3
MOUNT PLEASANT HWY 73 LLC
DB 6201 PG 297

TEMPORARY IMPACTS IN SURFACE WATER =S2
83 LF / 0.03 AC

2
MITCHELL S. RAMSEY
DB 9164 PG 256

H & H TOWING INC
DB 8831 PG 131

DUTCH BUFFALO CREEK

S 80° 43' 33.3" E

1385' R

20+00 21+00 22+00 23+00 24+00 25+00

50' 0' 50'
GRAPHIC SCALE

Permit Drawing
Sheet 2 of 9

SITE 1 / SITE 2

5/5/2020
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8/17/99

LEGEND	
	DENOTES TEMPORARY IMPACTS IN SURFACE WATER
	DENOTES IMPACTS IN SURFACE WATER

STREAM PERMIT IMPACT		
	AREA (AC)	LENGTH (FT)
TEMPORARY SW IMPACTS	0.05	142
PERMANENT SW IMPACTS	0.04	220

TEMPORARY IMPACTS IN SURFACE WATER =S5
8 LF / < 0.01 AC

RELOCATION CHANNEL IS 225 FT

TEMPORARY IMPACTS IN SURFACE WATER =S1
51 LF / 0.01 AC

TEMPORARY CAUSEWAYS

IMPERVIOUS DIKE, (TYP.)

PERMANENT IMPACTS IN SURFACE WATER =S4
220 LF / 0.04 AC

DECK DRAINS (TYP.) 6" CIRCULAR SLOTS 5' CENTER FROM STA. 20+85 TO STA. 21+45 RT

DECK DRAINS (TYP.) 6" CIRCULAR SLOTS 5' CENTER FROM STA. 22+31 TO STA. 22+71 RT

IMPERVIOUS DIKE, (TYP.)

TEMPORARY PIPE (TYP.)

SPECIAL STILLING BASIN (TYP.)

TEMPORARY IMPACTS IN SURFACE WATER =S3
57 LF / 0.01 AC

TEMPORARY IMPACTS IN SURFACE WATER =S2
83 LF / 0.03 AC

1 DON M. RITCHIE
DB 509 PG 126

2 MITCHELL S. RAMSEY
DB 9164 PG 256

3 MOUNT PLEASANT HWY 73 LLC
DB 6201 PG 297

4 DARIN BURNS
DB 12881 PG 143

H & H TOWING INC
DB 8831 PG 131

DUTCH BUFFALO CREEK

S 80° 43' 33.3" E

1385' R

NAD 83 NSRS 2007

20+00 21+00 22+00 23+00 24+00 25+00

40' 0' 40'
GRAPHIC SCALE

Permit Drawing
Sheet 3 of 9

SITE 1 / SITE 2

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PROJECT REFERENCE NO.	SHEET NO.
B-5813	3
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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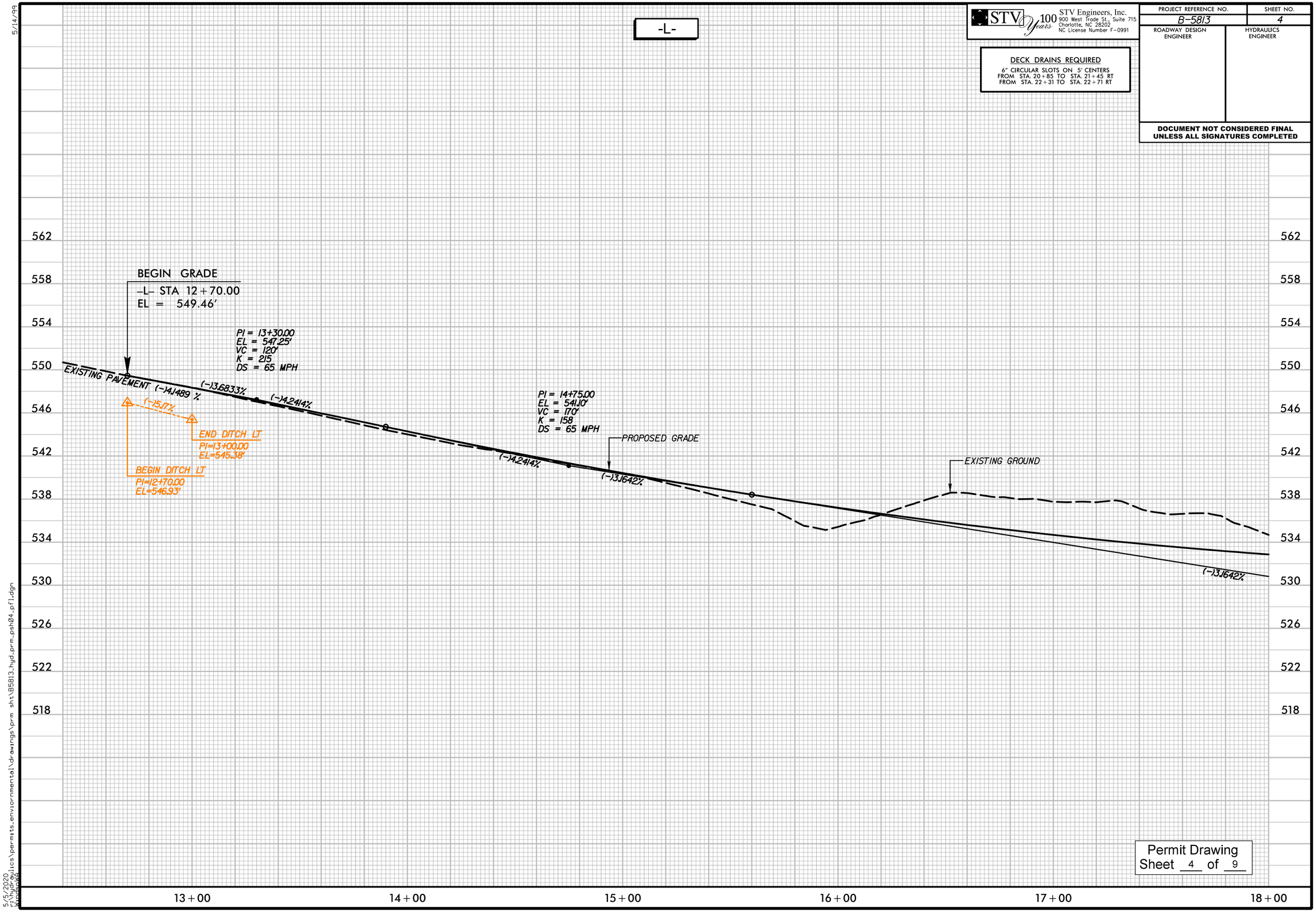
PROJECT REFERENCE NO.	SHEET NO.
B-5813	4

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DECK DRAINS REQUIRED

6" CIRCULAR SLOTS ON 5' CENTERS
FROM STA. 20+85 TO STA. 21+45 RT
FROM STA. 22+31 TO STA. 22+71 RT

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



Permit Drawing
Sheet 4 of 9

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PROJECT REFERENCE NO.	SHEET NO.
B-5813	5
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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DECK DRAINS REQUIRED

6" CIRCULAR SLOTS ON 5' CENTERS
FROM STA. 20+85 TO STA. 21+45 RT
FROM STA. 22+31 TO STA. 22+71 RT

PI = 18+10.00
EL = 530.50'
VC = 500'
K = 141
DS = 60 MPH

PROPOSED GRADE

LOW POINT
-L- STA 20+06.36
EL = 531.35'

DECK DRAINS (TYP.) 6" CIRCULAR SLOTS - 5' CENTER FROM STA. 20+85 TO STA. 21+45

BEGIN BRIDGE
-L- STA 20+81.00

CENTERLINE STA. 21+85 -L-
1@85', 1@123' (63" GIRDER)
W/4" END BENT CAPS & SLOPING ABUTMENTS
SKEW = 110 DEGREES
ELEV = 531.9'

DECK DRAINS (TYP.) 6" CIRCULAR SLOTS - 5' CENTER FROM STA. 22+31 TO STA. 22+71

END BRIDGE
-L- STA 22+89.00

(-)13.1642%
(+)0.3803%
(-)14.06%
(-)16.68%
(-)12.02%
(-)10.94%
(-)13.58%
(-)20.48%
(-)15.34%
(-)14.28%
(-)12.68%
(-)10.39%
(-)10.33%
(-)10.40%
(-)10.38%
(-)10.44%
(+)0.3803%
(+)38.10%
(+)4.55%
(+)4.86%

BEGIN DITCH LT
PI=18+50.00
EL=529.72'

BEGIN DITCH RT
PI=18+50.00
EL=528.54'

PI=19+00.00
EL=521.38'

PI=19+00.00
EL=526.51'

PI=19+50.00
EL=525.50'

PI=19+50.00
EL=513.71'

PI=20+00.00
EL=525.03'

PI=20+50.00
EL=523.12'

END DITCH LT
PI=20+00.00
EL=511.57'

BEGIN DITCH LT
PI=20+00.00
EL=506.96'

END DITCH RT
PI=20+91.00
EL=513.03'

PI=20+50.00
EL=505.62'

PI=20+91.00
EL=505.46'

PI=21+00.00
EL=505.43'

PI=21+50.00
EL=505.23'

PI=22+00.00
EL=505.04'

END DITCH LT
PI=22+09.00
EL=505.00'

END DITCH RT
PI=22+68.00
EL=510.18'

PI=22+89.00
EL=522.00'

PI=23+00.00
EL=522.50'

PI=23+50.00
EL=524.93'

384 TON CL-II RIPRAP (STRUCTURE PAY ITEM)

400 TON CL-II RIPRAP (STRUCTURE PAY ITEM)

1.5H

EXISTING GROUND

REMOVE EXISTING BRIDGE

JS

100 YEAR W.S.E. = 521.5'

50 YEAR W.S.E. = 520.8'

W.S.E. = 507.9' DATE OF SURVEY: 01/31/2017

EXISTING CHANNEL TO BE FILLED WITH LATERAL BASE DITCH EXCAVATION MATERIAL EST. 480 C.Y.

BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	=	8100	CFS
DESIGN FREQUENCY	=	50	YRS
DESIGN HW ELEVATION	=	520.8	FT
BASE DISCHARGE	=	9200	CFS
BASE FREQUENCY	=	100	YRS
BASE HW ELEVATION	=	521.5	FT
OVERTOPPING DISCHARGE	=	32500	CFS
OVERTOPPING FREQUENCY	=	500+/-	YRS
OVERTOPPING ELEVATION	=	531.4	FT
DATE OF SURVEY	=	01/31/2017	
W.S. ELEVATION AT DATE OF SURVEY	=	507.9	FT

550 546 542 538 534 530 526 522 518 514 510 506 502 498

18+00 19+00 20+00 21+00 22+00 23+00

Permit Drawing
Sheet 5 of 9

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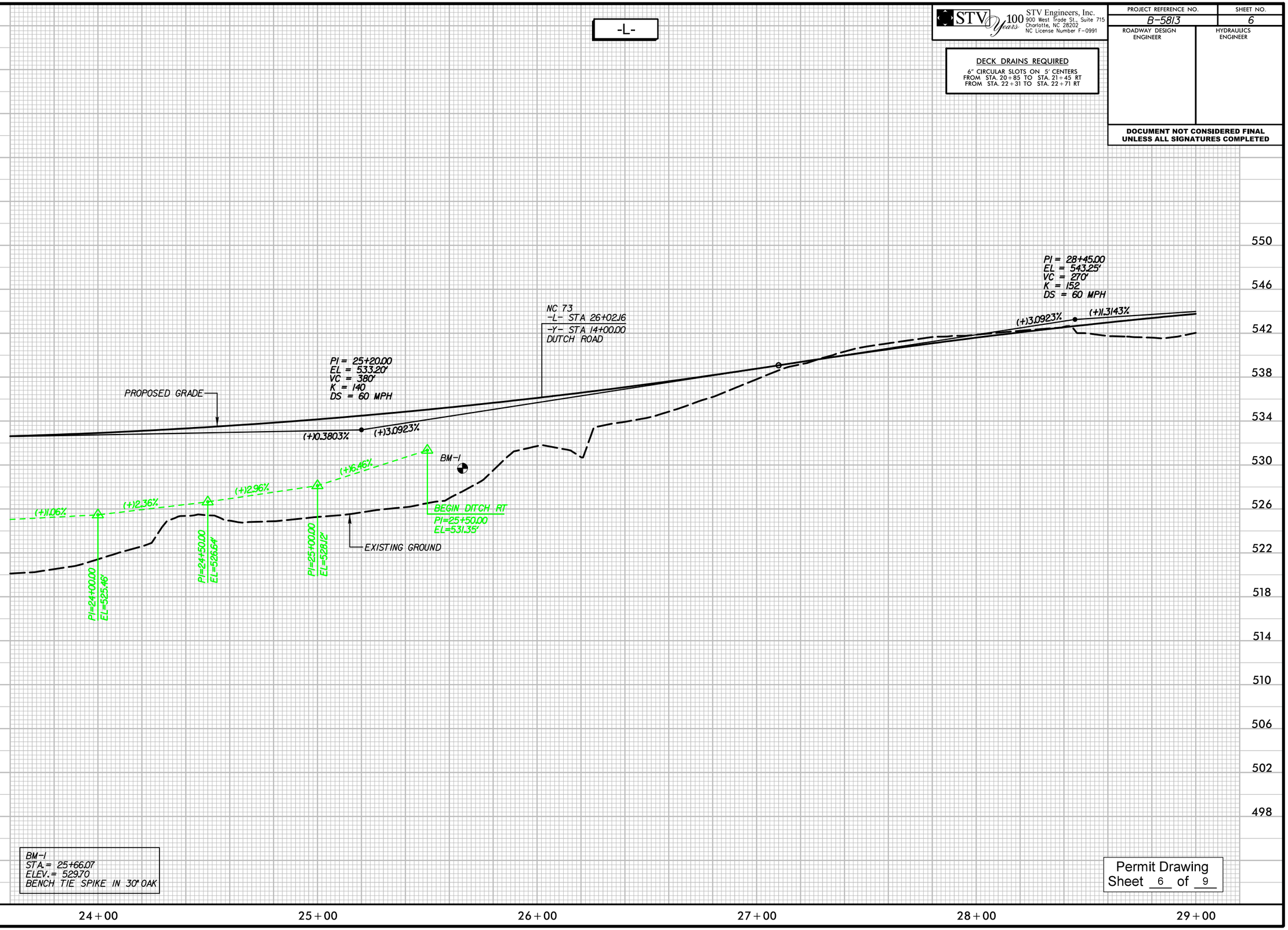
PROJECT REFERENCE NO.	SHEET NO.
B-5813	6
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DECK DRAINS REQUIRED

6" CIRCULAR SLOTS ON 5' CENTERS
FROM STA. 20+85 TO STA. 21+45 RT
FROM STA. 22+31 TO STA. 22+71 RT

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



BM-1
STA.= 25+66.07
ELEV.= 529.70
BENCH TIE SPIKE IN 30" OAK

Permit Drawing
Sheet 6 of 9

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-L-

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Charlotte, NC 28202
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PROJECT REFERENCE NO.	SHEET NO.
B-5813	7
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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DECK DRAINS REQUIRED
6" CIRCULAR SLOTS ON 5' CENTERS
FROM STA. 20+85 TO STA. 21+45 RT
FROM STA. 22+31 TO STA. 22+71 RT

570
566
562
558
554
550
546
542
538
534
530
526
522
518

END GRADE
-L- STA 31+30.00
EL = 547.67'

PI = 30+55.00
EL = 546.01'
VC = 150'
K = 167
DS = 65 MPH

PROPOSED GRADE
(+)1.3143%
(+)1.3143%
(+)2.2133%
EXISTING PAVEMENT (+)2.3937 %
EXISTING GROUND
BM-2

BM-2
STA.= 32+17.70
ELEV.= 545.10
BENCH TIE SPIKE IN 18" PINE

Permit Drawing
Sheet 7 of 9

29+00 30+00 31+00 32+00 33+00 34+00

5/5/2020
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LEGEND

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

STREAM PERMIT IMPACT

	AREA (AC)	LENGTH (FT)
TEMPORARY SW IMPACTS	0.05	142
PERMANENT SW IMPACTS	0.04	220

PROJECT REFERENCE NO.	SHEET NO.
B-5813	8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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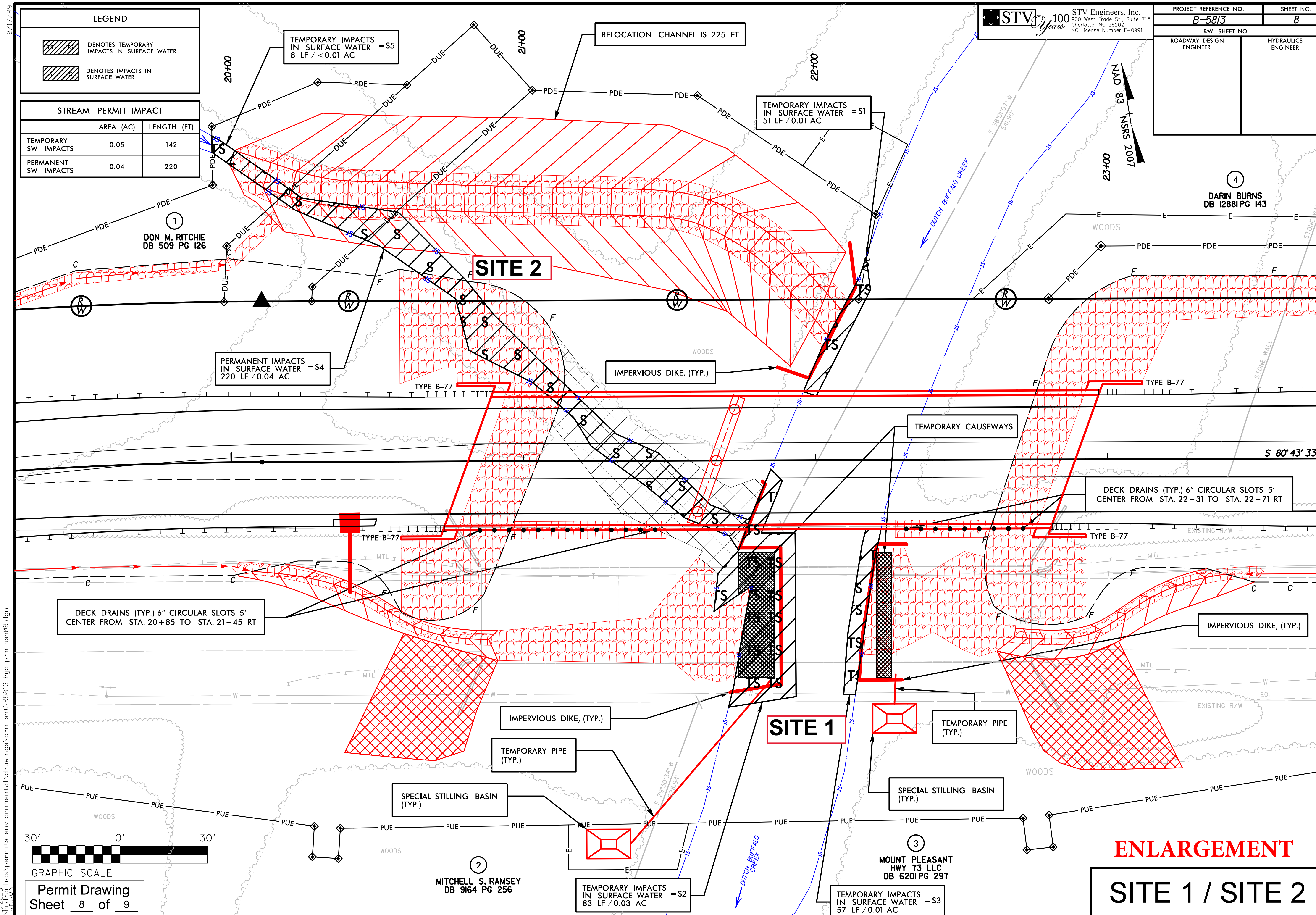

TEMPORARY IMPACTS IN SURFACE WATER = S5 8 LF / <0.01 AC
RELOCATION CHANNEL IS 225 FT
TEMPORARY IMPACTS IN SURFACE WATER = S1 51 LF / 0.01 AC
NAD 83 NSRS 2007
20+00
21+00
22+00
23+00
① DON M. RITCHIE DB 509 PG 126
④ DARIN BURNS DB 12881 PG 143
SITE 2
DUTCH BUFFALO CREEK
WOODS
PERMANENT IMPACTS IN SURFACE WATER = S4 220 LF / 0.04 AC
IMPERVIOUS DIKE, (TYP.)
TEMPORARY CAUSEWAYS
TYPE B-77
S 80° 43' 33.3"
DECK DRAINS (TYP.) 6" CIRCULAR SLOTS 5' CENTER FROM STA. 22+31 TO STA. 22+71 RT
DECK DRAINS (TYP.) 6" CIRCULAR SLOTS 5' CENTER FROM STA. 20+85 TO STA. 21+45 RT
IMPERVIOUS DIKE, (TYP.)
IMPERVIOUS DIKE, (TYP.)
SITE 1
TEMPORARY PIPE (TYP.)
TEMPORARY PIPE (TYP.)
SPECIAL STILLING BASIN (TYP.)
SPECIAL STILLING BASIN (TYP.)
② MITCHELL S. RAMSEY DB 9164 PG 256
③ MOUNT PLEASANT HWY 73 LLC DB 6201 PG 297
TEMPORARY IMPACTS IN SURFACE WATER = S2 83 LF / 0.03 AC
TEMPORARY IMPACTS IN SURFACE WATER = S3 57 LF / 0.01 AC
30' 0' 30'
GRAPHIC SCALE

ENLARGEMENT

SITE 1 / SITE 2

Permit Drawing Sheet 8 of 9

8/17/99

5/5/2020 r:\hydraulics\permits_environmental\drawings\prm sht\B5813_hyd_prm_psh08.dgn

WETLAND PERMIT IMPACT SUMMARY

			WETLAND IMPACTS					SURFACE WATER IMPACTS				
Site No.	Station (From/To)	Structure Size / Type	Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
SITE 1	21+95.93 / 22+19.05	IMPERVIOUS DIKE							0.01		51	
SITE 1	21+65.10 / 21+92.95	TEMPORARY CAUSEWAY 1							0.03		83	
SITE 1	22+09.39 / 22+22.34	TEMPORARY CAUSEWAY2							0.01		57	
SITE 2	20+01.30 / 21+75.51	CHANNEL RELOCATION						0.04		220		
SITE 2	19+95.00 / 20+02.09	CHANNEL RELOCATION							<0.01		8	
TOTALS:								0.04	0.05	220	142	

***THE IMPACTS AT S3 ARE COMPLETELY WITHIN THE LENGTH OF STREAM BEING IMPACTED BY S2 AND WILL NOT COUNTED TOWARDS TOTALS**

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
BRIDGE #132 OVER DUTCH BUFFALO CREEK
ON (NC 73)
CABARRUS COUNTY
B-5813

ATN Revised 3/31/05

Freshwater Mussel Survey Report

Replacement of Bridge No. 132 on NC 73
Over Dutch Buffalo Creek
Cabarrus County, North Carolina
STIP # B-5813
WBS Element # 45767.1.1

Prepared For:

NC Department of Transportation
Raleigh, North Carolina

Contact Person:

Jared Gray
Biological Surveys Group
North Carolina Department of Transportation
jgray@ncdot.gov
1598 Mail Service Center
Raleigh NC 27699-1598

May 18, 2018

Prepared by:

900 Ridgefield Drive, Suite 350
Raleigh, NC 27609

Contact Person:

Neil Medlin
Project Manager
nmedlin@rkk.com
919-878-9560

Table of Contents

1.0 Introduction

The North Carolina Department of Transportation (NCDOT) proposes the replacement of Bridge No. 132 over Dutch Buffalo Creek on NC 73 in Cabarrus County (Appendix A, Figure 1). Dutch Buffalo Creek is in the Yadkin-Pee Dee River Basin. The Carolina Heelsplitter (*Lasmigona decorata*) is listed for Cabarrus County by the U.S. Fish and Wildlife Service (USFWS) as a protected species under the Endangered Species Act (ESA).

A review of the NC Natural Heritage Program (NCNHP) records, last accessed on April 23, 2018, indicated no element occurrence (EO) for the Carolina Heelsplitter located within a 5-mile buffer of the project bridge (Figure 2). The closest occurrence (EO ID 21454) is located in Goose Creek, approximately 17 stream miles downstream from the project location. This occurrence was first observed on August 26, 1987 and last observed on September 29, 2015.

As part of the federal permitting process that requires an evaluation of potential project related effects to federally protected species, Rummel, Klepper, and Kahl (RK&K) was contracted by NCDOT to conduct the freshwater mussel survey targeting the Carolina Heelsplitter.

2.0 Waters Affected

Dutch Buffalo Creek is located in the Yadkin-Pee Dee River Basin (HUC# 03040105). From the survey location, Dutch Buffalo Creek flows approximately 7.9 stream miles to the Rocky River.

2.1 NPDES dischargers

The closest permitted NPDES discharger is on a UT to Dutch Buffalo Creek (Figure 3). The Mount Pleasant Water Treatment Plant (NPDES Permit # NC0044717) is a minor facility located approximately 1.8 stream miles upstream of the project location.

2.2 303(d) Classification

Dutch Buffalo Creek is not on the North Carolina Department of Environmental Quality (NCDEQ) - Division of Water Resources 2016 303(d) list of impaired streams.

3.0 Target Federally Protected Species Description

3.1 Carolina Heelsplitter (*Lasmigona decorata*)

3.1.1 Characteristics

The Carolina Heelsplitter was first described in 1852. This species has an ovate, trapezoid-shaped shell. The outer surface of the shell varies from greenish brown to dark brown in color, and shells from younger specimens have faint greenish brown or black rays. The nacre (inside surface) is often pearly white to bluish white, grading to orange in the deepest part of the shell. However, in older specimens the entire nacre may be a mottled pale orange. The shell of the largest known specimen of the species measures 4.6 inches (11.684 centimeters) in length.

3.1.2 Distribution and Habitat Requirements

The Carolina Heelsplitter was historically known from several locations within the Catawba and Pee Dee River systems in North Carolina and the Pee Dee and Savannah River systems, and possibly the Saluda River system in South Carolina. In North Carolina, the species is now known only from a handful of streams in the Pee Dee and Catawba River systems. Today, only ten populations are known to survive. The species exists in very low abundances, usually within 6 feet of shorelines, throughout its known range.

The general habitat requirements for the Carolina Heelsplitter are shaded areas in large rivers to small streams, often burrowed into clay banks between the root systems of trees, or in runs along steep banks with moderate current. The more recent habitat where the Carolina Heelsplitter has been found is in sections of streams containing bedrock with perpendicular crevices filled with sand and gravel, and with wide riparian buffers.

4.0 Survey Efforts

A mussel survey was conducted in association with this project by RK&K personnel Neil Medlin (Permit # 16-ES00030), Hal Bain, and John Merritt on September 22, 2016.

4.1 Stream Conditions at Time of Survey: Dutch Buffalo Creek

The channel exhibited slack flow and ranged from 1-12 meters wide (widest below bridge) with eroded banks three meters high. The maximum depth here was 1.0 meter with an average depth of 0.25 meter. The substrate was dominated by silt and sand throughout the survey reach, with narrow gravel runs upstream of the bridge. Sand and gravel bars were abundant at this location. Moderately eroded banks consisted of clay, silt, and root mats. Beaver activity was observed in the form of gnawed sticks. A narrow forested buffer is present in the northwest quadrant (upstream) of the bridge crossing. The remaining three quadrants contain more substantial forested buffers along the survey location.

4.2 Methodology

The mussel survey was conducted from from approximately 400 meters downstream of the bridge crossing to approximately 100 meters upstream of the crossing for a total distance of approximately 500 meters. Areas of appropriate habitat were searched, concentrating on the stable habitats preferred by the target species. Visual surveys were conducted using glass bottom view buckets (bathyscopes) along with tactile methods that were employed where appropriate. All freshwater bivalves were recorded and returned to the substrate. Timed survey efforts provided Catch Per Unit Effort (CPUE) data for each species.

5.0 Results

A total of 3.5 person-hours of survey time was spent in the survey location with two species of freshwater mussels found (Table 1).

Table 1. CPUE for Freshwater Mussels in Dutch Buffalo Creek

Scientific Name	Common Name	# live	CPUE
Elliptio complanata	Eastern Elliptio	1 (+2 shells)	0.29/hr
Villosa vaughaniana	Carolina Creekshell	1	0.29/hr

6.0 Discussion/Conclusions

The results indicate that the study area supports a sparse freshwater mussel fauna of common species. Carolina Heelsplitter individuals were not found during the survey. Previous surveys in the vicinity of the subject bridge have resulted in no discovery of Carolina Heelsplitter within a 10-mile radius of the study location. Based on the presence of degraded habitat, distance to known Carolina Heelsplitter records, and these survey results, completion of the proposed project will not affect this species.

Biological Conclusion for Carolina Heelsplitter: No Effect

7.0 References

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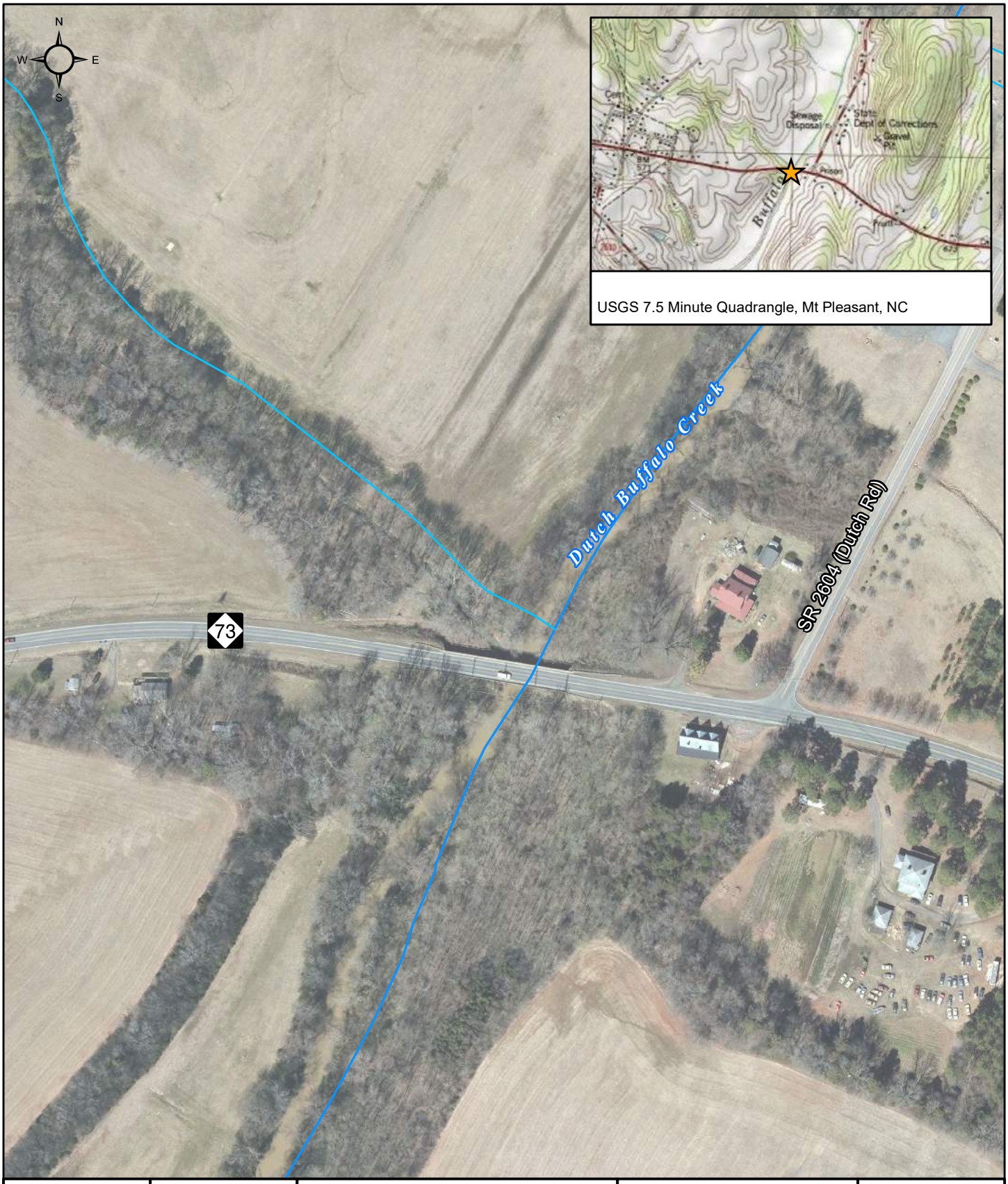
Appendix A

Figures



USGS 7.5 Minute Quadrangle, Mt Pleasant, NC

Prepared By:

RK&K

Prepared For:

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

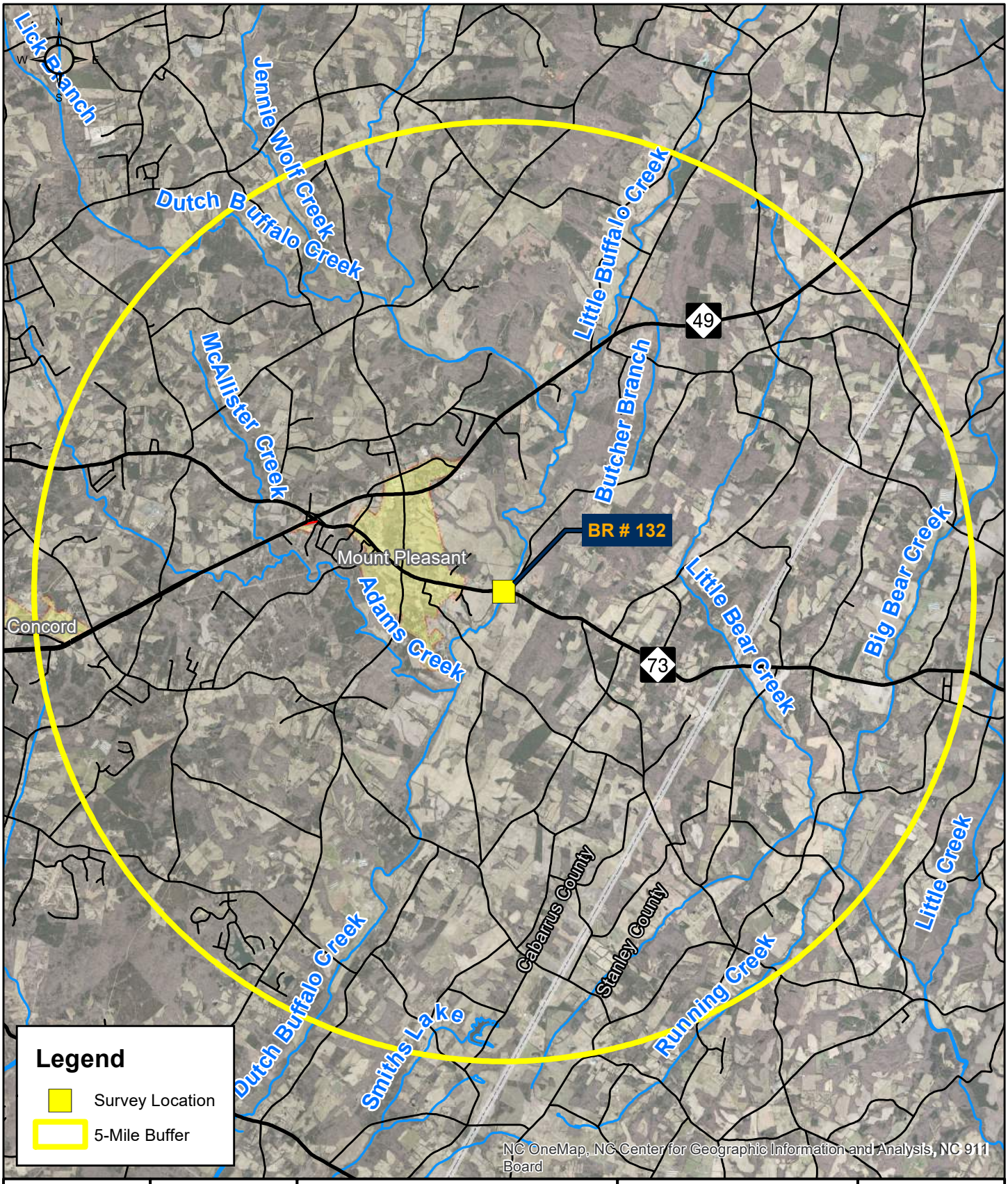
Freshwater Mussel Survey

BRIDGE # 132 on NC 73
OVER DUTCH BUFFALO CREEK
B-5813

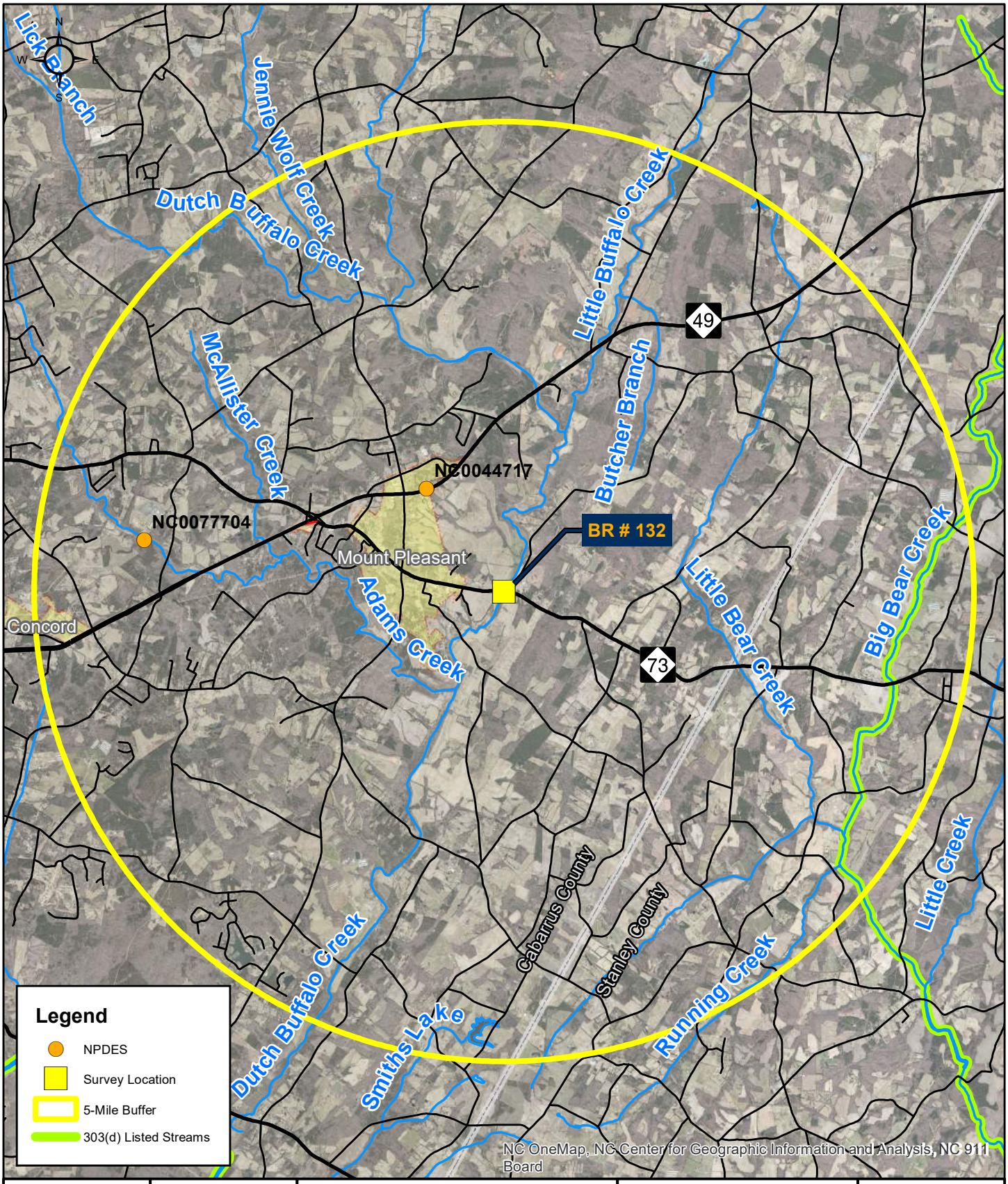
CABARRUS COUNTY

Date:	May 2018
Scale	0 — 200 Feet
Job No.	B-5813
Drawn by:	GSM
Checked by:	KNM

Figure 1



Prepared By: RK&K	Prepared For: NC Department of Transportation	**NC NHP Element Occurrence** BRIDGE # 132 on NC 73 OVER DUTCH BUFFALO CREEK B-5813 CABARRUS COUNTY	Date: May 2018 Scale: 0 — 1 Miles Job No. B-5813 Drawn by: GSM Checked by: KNM	**Figure 2**



Prepared By:

Prepared For:

NPDES Dischargers and 303(d) Listed Streams

BRIDGE # 132 on NC 73
OVER DUTCH BUFFALO CREEK
B-5813
CABARRUS COUNTY

Date:	May 2018
Scale	0 1 Miles
Job No.	B-5813
Drawn by:	GSM
Checked by:	KNM

Figure 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

ROY COOPER
GOVERNOR

J. ERIC BOYETTE
SECRETARY

DATE: August 24, 2020

TO: Jeff Hemphill, Senior Environmental Specialist
Environmental Coordination & Permitting Group Western, EAU

FROM: Chris Manley, Environmental Program Consultant
Biological Surveys Group, EAU

SUBJECT: Section 7 survey results for the northern long-eared bat (*Myotis septentrionalis*) associated with the replacement of Bridge 132 over Dutch Buffalo Creek on NC 73 in Carbarrus County, **TIP No. B-5813**.

The North Carolina Department of Transportation (NCDOT, Division 10) proposes to replace Bridge No. 132 over Dutch Buffalo Creek on NC 73 in Carbarrus County, TIP No. B-5813. The existing bridge is a four-span structure with reinforced concrete deck girders, abutments, and bents. The guardrail is also constructed of concrete. The overall length of the structure is 190 feet.

The project to replace Bridge No. 132 has been reviewed for effects on the northern long-eared bat (NLEB). As of May 4, 2015, NLEB is listed by the U.S. Fish and Wildlife Service (USFWS) as "Threatened" under the Endangered Species Act of 1973. As of July 17, 2020, NLEB is listed by USFWS (http://www.fws.gov/raleigh/species/cntylist/nc_counties.html) as "probable/potential" in Carbarrus County.

According to the North Carolina Natural Heritage Program (NHP) Biotics Database, most recently updated July 2020, **there are no known hibernacula within 25 miles of the project and no known NLEB roost trees occur within 150 feet of the project area**.

NCDOT has also reviewed the USFWS Asheville Field office website (http://www.fws.gov/asheville/htmls/project_review/NLEB_in_WNC.html) for consistency with NHP records. This project is located entirely outside of the red highlighted areas (12-digit HUC) that the USFWS Asheville Field Office has determined to be representative of an area that may require consultation. The closest 12 digit (030501010502) red HUC is approximately 87 miles to the west northwest (Johns River) in Avery County.

On August 24, 2020, NCDOT biologist assessed Bridge No. 132 for potential NLEB habitat. Suitable roosting cervices were present on the structure, but no evidence (bats, guano, or staining) of bats was observed. This structure survey is outside the typical survey window

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

Telephone: (919) 707-6000
Fax: (919) 250-4224
Customer Service: 1-877-368-4968

Website: www.ncdot.gov

Location:
1000 BIRCH RIDGE DRIVE
RALEIGH, NC 27610

(May 15 – August 15) we have for the western part of North Carolina. Chris Manley had a phone conversation with Susan Cameron with the USFWS on August 21, 2020 asking if this project (B-5813) could be looked outside the survey window. USFWS agreed to letting NCDOT perform the survey later in August.

Based on the lack of evidence of bats on the bridge, no known roost trees within 150 feet of the project area, and being 87 miles to the closest 12 digit red HUC, NCDOT recommends a Biological Conclusion of **NO EFFECT** for the NLEB.

Final design and environmental impacts information will be provided in the permit application.

If you need any additional information, please contact Chris Manley at 919-707-6135.

Project Tracking No.:

16-01-00074

NO ARCHAEOLOGICAL SURVEY REQUIRED FORM

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

PROJECT INFORMATION

Project No:	**B-5813**	*County:*	**Cabarrus**
WBS No:	**45767.1.1**	*Document:*	**M C C**
F.A. No:		*Funding:*	☒ State ☐ Federal

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

Project Description: NCDOT proposes to replace Bridge No. 132 on NC 73 over Dutch Buffalo Creek east of Mt. Pleasant in Cabarrus County. Conceptual design plans involves a new alignment adjacent to and north of the existing bridge. Traffic would be maintained on the existing Bridge No. 132. the two bridges would be replaced in-place with a single wider bridge using a phased on-site detour and cross-over during construction. The project length is about 1800 feet (0.34 miles) with a construction width expanding to the north a maximum of about 80 feet beyond the existing northern ROW at the new location bridge for construction and fill, tapering back to the existing ROW in either direction. For purposes of this archaeological review, the APE is about 1800 feet (0.34 miles) in length and 150 feet wide (approximate old and new ROW).

This is a state funded and federally permitted undertaking and therefore falls under Section 106 of the National Historic Preservation Act for archaeological review.

SUMMARY OF CULTURAL RESOURCES REVIEW

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

The bridge to be replaced is located along NC 73 in a rural setting east of Mt. Pleasant in Cabarrus County. at an urbanized crossroads west of Concord.

USGS mapping (Mt. Pleasant) and aerial photography was studied (see Figures 1 and 2). Google and Bing street view tools were used and confirm the forested and cleared nature of the APE which is rolling on the approaches from the east and west on NC 73. The area of greatest impact at the bridge is listed as Chewacla sandy loam (ChA) and is frequently flooded.

According to USGS mapping and GIS resources (data layer created by NCDOT archaeologist Paul J. Mohler), no cemetery is present at the APE.

Historic maps were examined to determine if any late historic structures, roads or other notations were present to help establish the a context of the recent past, especially farms, industry, land and transportation features which might offer hints to the presence of archaeological sites. The 1910 Soils Map of Cabarrus County (MC.016.1910a) depicts the road in roughly the same alignment and crossing, a includes "Kinleys Mill" mapped outside of the APE to the northeast on the other side of Dutch Road (SR 2604). The existing bridge is reportedly constructed in the 1920s with some later upgrades or repairs. By the 1930s, county highway maps (MC.016.1936n1 and MC.016.1938n) show that millpond and some industry upstream from the bridge at a distance and the location marked Kinleys Mill earlier is now shown as a prison camp or jail some distance from the road. Current USGS mapping shows no mill, though maybe now a sewage disposal or treatment plant and a former State Department of Corrections which research shows was shut down around 2011 and is now a brewery.

Some background and deed research was conducted to examine the nature of the industrial and institutional use of the nearby land to the north of the project area. Also, property and parcel mapping suggests that an

older road may have existed a few hundred feet south of the existing alignment, suggesting the 1920s bridge brought with it a change in the NC 73 alignment. It also suggests that existing structures along the older road would not likely be encountered by the current undertaking.

The Office of State Archaeology was visited to review archaeological mapping and to reference any known archaeological surveys and sites. This helps establish an archaeological context for comparison. One or more environmental reviews are nearby (ER 99-8601, ER 99-9322, etc.), along Dutch and also running east-west along a small tributary north of the project bridge. Neither resulted in documenation of archaeological sites in the nearby project area.

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

The bridge replacement adjacent to the existing facility will have some new ground disturbances, much of it cut and fill to adjust the terrain on the north side of NC 73. Examination of historic resources suggests a shift of the roadway in the first part of the twentieth century towards the north when the new bridge was built. Some industrial use in the form of one or more mills has occurred north of the APE but will not be impacted, likewise a state prison camp facility. The context doesn't indicate a high probabilty for archaeological sites within the APE. It is unlikely that significant, intact archaeological remains would be present and impacted by the project. For archaeological review, this federally permitted undertaking should be considered compliant with Section 106.

SUPPORT DOCUMENTATION

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

FINDING BY NCDOT ARCHAEOLOGIST

NO ARCHAEOLOGY SURVEY REQUIRED

7/27/2018

NCDOT ARCHAEOLOGIST Date

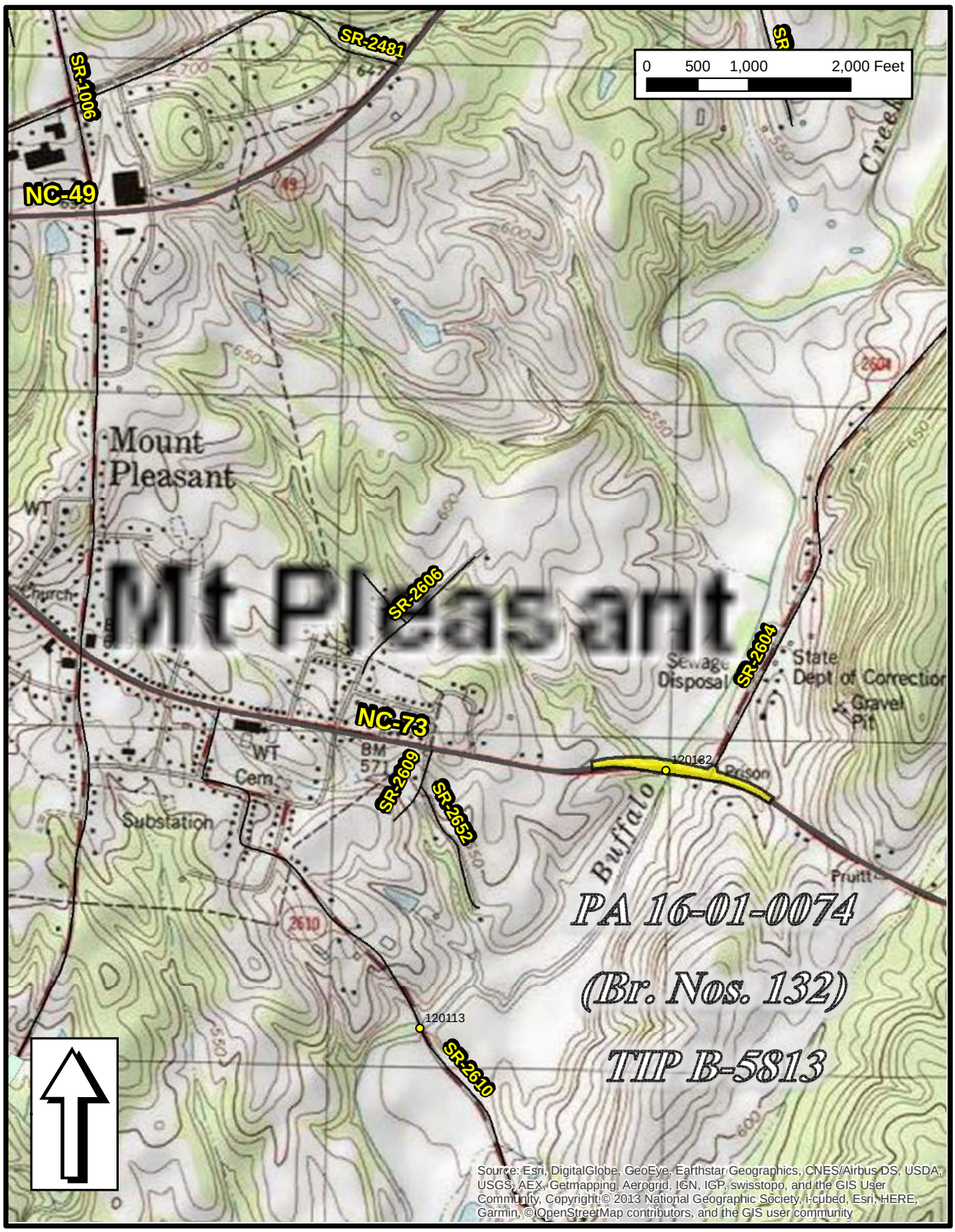


Figure 1. Vicinity of TIP # B-5813, PA 16-01-0074, the proposed replacement of Br. No. 132 on NC 73 over Dutch Buffalo Creek east of Mt. Pleasant.

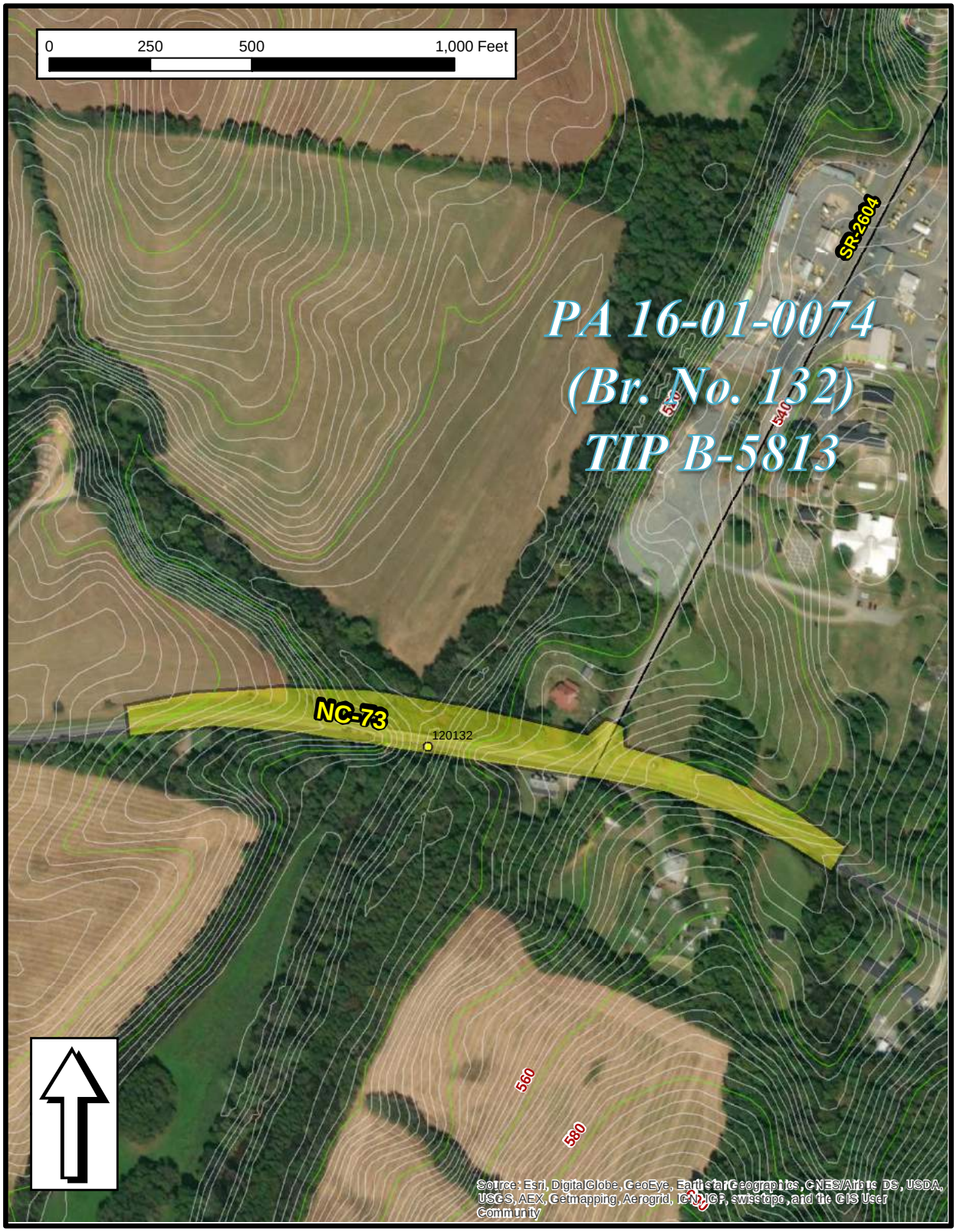


Figure 2. Aerial map of TIP # B-5813, PA 16-01-0074, the proposed replacement of Br. No. 132 on NC 73 over Dutch Buffalo Creek east of Mt. Pleasant. The approximate APE is shown in yellow with most work occurring on the north side of NC 73 where the new bridge will be constructed. Note contour lines at 2-ft are overlaid on the aerial to illustrate the moderately hilled terrain. The tree line south of NC 73 approximates a possible historic road which is outside of the APE.

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

ROY COOPER
GOVERNOR

JAMES H. TROGDON, III
SECRETARY

December 2, 2019

Dr. Wenonah Haire
Catawba Indian Nation, Tribal Historic Preservation Office
1536 Tom Steven Road
Rock Hill, SC 29730

Dear Dr. Haire,

The North Carolina Department of Transportation has started the project development, environmental, and engineering work for the replacement of Bridge No. 132 on NC 73 over Dutch Buffalo Creek in Cabarrus County as project B-5813.

The Federal Highway Administration (FHWA) is the lead federal agency and a permit is anticipated under the Section 404 process with the FHWA.

A project vicinity map is attached. The coordinates of this project are approximately 35.395936, -80.416212.

This project was reviewed/surveyed for cultural resources by NCDOT under the terms of the 2015 Amended Programmatic Agreement Among the Federal Highway Administration, the Advisory Council on Historic Preservation and the North Carolina State Historic Preservation Office for Minor Transportation Projects in North Carolina (PA). The results of that review/survey are attached. The environmental document for this undertaking was completed on November 26, 2018.

Please find attached Archaeology Survey Reports. No Archaeological Survey was required for this project.

Please respond by January 3, 2020 so that your comments can be used in the scoping of this project. If you have any questions concerning this project, or would like any additional information, please contact me at dstutts@ncdot.gov or (919) 707-6442.

Thank you,

DocuSigned by:
David Stutts
A4A2999A8BC64F2...

David Stutts, P.E.
NCDOT Project Engineer – PEF/Program Management

cc: Matt Wilkerson, NCDOT Archaeology Team Leader
Loretta Barren, Div 8, 10, 11 & 12 - FHWA

Mailing Address:
NC DEPARTMENT OF TRANSPORTATION
STRUCTURES MANAGEMENT UNIT 1581
MAIL SERVICE CENTER
RALEIGH NC 27699

Telephone: (919) 707-6400
Customer Service: 1-877-368-4968
Website: www.ncdot.gov

Location:
1000 BIRCH RIDGE DRIVE
RALEIGH NC 27610

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
PROJECT DEVELOPMENT AND ENVIRONMENTAL ANALYSIS UNIT

VICINITY MAP
Replace Bridge No. 132 on NC 73
over Dutch Buffalo Creek in Cabarrus County

TIP Project B-5813

0 0.5
Miles

Div 10 | TIP# B-5813
Date DECEMBER 2015

Figure **1**

Project Tracking No.:

16-01-00074

NO ARCHAEOLOGICAL SURVEY REQUIRED FORM

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

PROJECT INFORMATION

Project No:	**B-5813**	*County:*	**Cabarrus**
WBS No:	**45767.1.1**	*Document:*	**M C C**
F.A. No:		*Funding:*	☒ State ☐ Federal

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

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SUPPORT DOCUMENTATION

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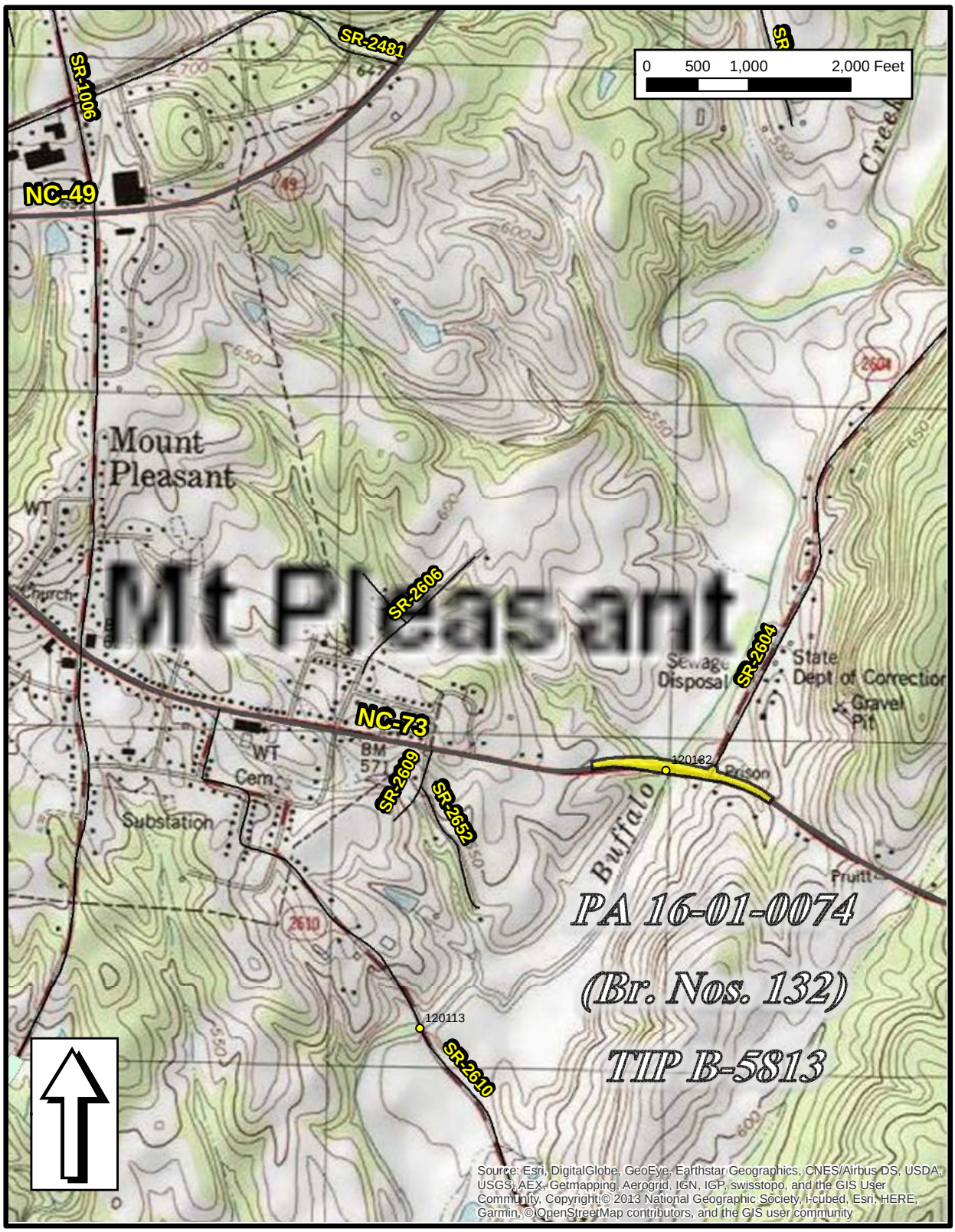
☐ Photocopy of County Survey Notes Other:

FINDING BY NCDOT ARCHAEOLOGIST

NO ARCHAEOLOGY SURVEY REQUIRED

7/27/2018

NCDOT ARCHAEOLOGIST Date



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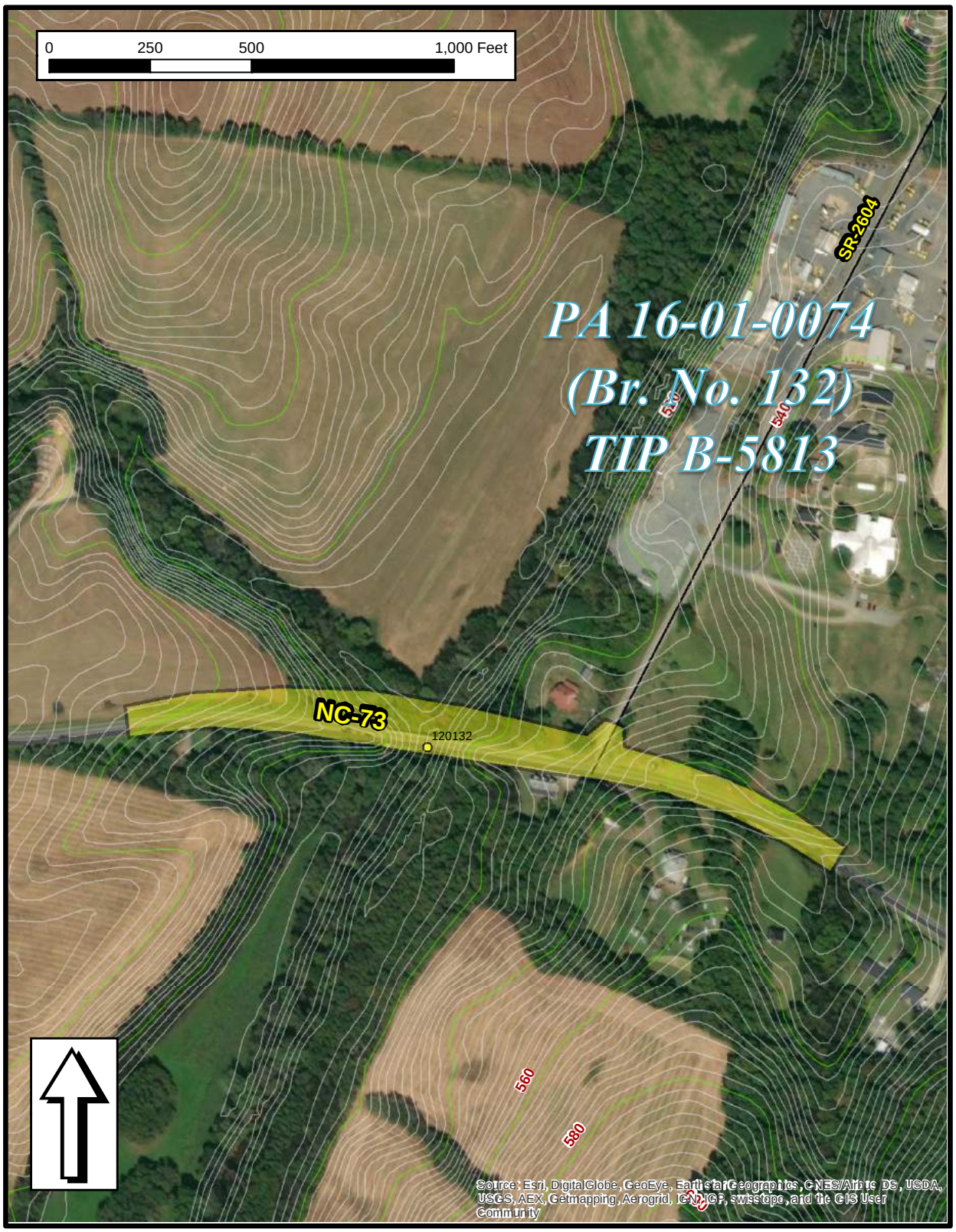

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Catawba Indian Nation
Tribal Historic Preservation Office
1536 Tom Steven Road
Rock Hill, South Carolina 29730

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

January 16, 2020

Attention: David Stutts
NC Department of Transportation
1581 Mail Service Center
Raleigh, NC 27699

Re. THPO #	Project #	Project Description
2020-193-82	B-5813	Replacement of Bridge No. 132 on NC 73 over Dutch Buffalo Creek in Cabarrus County

Dear Mr. Stutts,

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 caitlinh@ccppcrafts.com.

Sincerely,

Caitlin Rogers for

Wenonah G. Haire
Tribal Historic Preservation Officer

MINIMUM CRITERIA DETERMINATION CHECKLIST

TIP Project No.: B-5813

State Project No.:45767.1.1

Project Location: Bridge No. 132 over Dutch Buffalo Creek on NC 73 in Mount Pleasant, Cabarrus County.

Project Description: The North Carolina Department of Transportation (NCDOT), plans to replace Cabarrus County Bridge No. 132 on NC 73 over Dutch Buffalo Creek (refer to Figure 1). The existing bridge has two 12-foot lanes and is approximately 190 feet long with a reinforced concrete deck girder superstructure. The bridge was built in 1920, and was rehabilitated in 1952.

The proposed project, B-5813, is state funded. The proposed cross section is a two 12-foot lane with a center 12-foot left turning lane with eight foot shoulders. A minimum of 11 feet of vertical clearance has been provided. The project is scheduled for right of way acquisition in February 2019 and let in February 2020. The project would require a realignment of NC 73, with a project length of approximately 1,800 feet. Traffic will be maintained on the existing roadway while constructing the new alignment. Minor ROW acquisition will be required (refer to Appendix A).

Purpose and Need: NCDOT Bridge Management Unit records indicate Bridge No. 132 has a sufficiency rating of 7.68 out of a possible 100 for a new structure. The bridge is considered structurally deficient due to superstructure condition appraisal of 4 out of 9, a substructure condition appraisal of 4 out of 9, and a deck condition of 4 out of 9 according to Federal Highway Administration (FHWA) standards, and is approaching the end of its useful life. The bridge also meets the criteria for functionally obsolete due to a deck geometry appraisal of 2 out of 9.

Bridge No. 132 carries 8,200 vehicles per day with 10,800 vehicles per day projected for the future. Components of both the concrete superstructure and substructure have experienced an increasing degree of deterioration that can no longer be addressed by maintenance activities. The bridge is approaching the end of its useful life. Replacement of the bridge will result in safer traffic operations by providing a left turn lane to SR 2604 (Dutch Rd).

Anticipated Permit or Consultation Requirements: The proposed project has been designated as a Minimum Criteria Determination Checklist for the purposes of State Environmental Policy Act (SEPA) documentation. It is anticipated that a Nationwide or Regional General Permit along with its corresponding Water Quality Certification (WQC), will be applicable for this project. A Nationwide Permit (NWP) 33 may also apply for temporary construction activities such as stream dewatering, work bridges, or temporary causeways that are often used during bridge construction or rehabilitation. The U.S. Army Corps of Engineers (USACE) holds the final discretion as to what permit will be required to authorize project construction. If a Section 404 permit is required, then a Section 401 WQC from the North Carolina Division of Water Resources (NCDWR) will be needed.

Special Project Information:

Environmental Commitments: Greensheet commitments are located at the end of the checklist.

Estimated Costs (Pending): The estimated costs, FY 2018, are as follows:

Utility	$	180,900	(NCDOT)
R/W	$	201,000	(NCDOT)
Const.	$	4,470,000	(STV Engineers Inc.)
Total	$	4,851,900	

Estimated Traffic:

Current 2016	8,200 vpd
Year 2040	10,800 vpd
TTST	1%
Dual	4%

Accidents: A crash analysis provided by NCDOT (Date: 2/14/17) on NC 73 (Franklin St) from 500 feet west of Bridge 132 to 500 feet east of the bridge. The crash analysis was performed using NCDOT's TEAAS system with a study period of five years, from January 1, 2012 to December 31, 2016. Eleven crashes occurred within the vicinity of the project. The crash analysis found the Total Crash Rate for crashes per 100 million vehicle miles to be 343.06 which is higher than the comparable state average of 181.73.

In January 2018, a capacity analysis was completed that analyzed the intersection of NC 73 and SR 2604 (Dutch Rd). The analysis found the intersection warranted a left turn lane of 75 feet of storage. However, due to the close proximity of Bridge No. 132 to the nearby intersection, it was recommended that the turn lane be extend to the west across the bridge (approximately 550 feet) prior to tapering back to the two-lane cross-section of NC 73.

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

Pedestrian and Bicycle Accommodations: An existing bicycle route, Cabarrus County Bicycle Route No. 2-Northern Route, utilizes NC 73 at this bridge location. The North Carolina Division of Bicycle and Pedestrian Transportation requested four foot minimum paved shoulder (five foot preferred), as well as bicycle safe railing. These requested accommodations were included in the projects designs.

The adopted Carolina Thread Trail Master Plan for Cabarrus County (August 2009) indicates a planned greenway, the Dutch Buffalo Creek Greenway, traveling under the bridge. The Cabarrus County Active Living and Parks Department Director confirmed on June 18, 2018, that the proposed greenway is not funded. On July 6, 2018, Cabarrus County confirmed that none of the parcels surrounding Bridge No. 132 are owned by the County, Parks and Recreation Department, or have publicly owned easements on them.

Alternative Analysis:

No Build – The no build alternative would not replace a deficient bridge, and thus is not a viable option.

Rehabilitation – Rehabilitation would only provide a temporary solution to the structural deficiency of the bridge.

New Alignment with Onsite Detour (Preferred Alternative) – A new alignment for NC 73 is preferred because it will allow the addition of a left turn lane on Cabarrus Bridge 132 on NC 73. An onsite detour will be utilized to maintain traffic on the existing roadway.

Offsite Detour – An approximate six-mile offsite detour was evaluated but was not feasible due to concerns regarding the number of school busses using the bridge, EMS response time, and concerns raised by the Mount Pleasant Town Planner regarding the road conditions. Comments from the Mount Pleasant Town Planner noted the offsite detour utilizes very narrow, rough, and rural roads that do not have the capacity to handle the traffic volumes in the event of bridge closure for a significant period of time.

Agency Comments: Start of Study letters were sent to the Cabarrus County Planning Department, Cabarrus-Rowan MPO, the NC Department of Parks and Recreation, NCDENR, NC Division of Bicycle and Pedestrian Transportation, and the US Army Corps of Engineers in December of 2015.

Input forms were sent to the Mount Pleasant Fire Department Fire Chief, Town of Mount Pleasant Planner, and the Cabarrus County Schools Transportation Technical Planner in May of 2016. Comments were received back in May of 2016. The Mount Pleasant Fire Department Fire Chief, Town of Mount Pleasant Planner, and the Cabarrus County Schools Transportation Technical Planner all expressed concern regarding the potential high level of impact if the bridge was closed for up to a year.

Floodplain: Dutch Buffalo Creek, which crosses under Bridge No. 132, is located in a FEMA Zone AE Floodplain. The Hydraulics Unit will coordinate with the NC Floodplain Mapping Program (FMP), to determine status of project with regard to applicability of NCDOT'S Memorandum of Agreement, or approval of a Conditional Letter of Map Revision (CLOMR) and subsequent final Letter of Map Revision (LOMR).

Public Involvement: A landowner notification letter was sent on February 16, 2016, to all property owners affected directly by this project to inform them of representatives being present on their property. The letter indicated the following, "Please note that if the U.S. Army Corps of Engineers has already issued a Jurisdictional Determination on your property confirming the presence of streams and/or wetlands, or if you have general questions or comments about the project, contact the NCDOT Planning Engineer Jonathan Carr by phone (919) 707-6014, or via email at jecarr@ncdot.gov." No comments have been received to date.

Enhanced Voluntary Agricultural District Property: The project includes one parcel, located in the northwest bridge quadrant, totaling 86 acres that is part of a Cabarrus County EVAD. The project would require approximately .88 acres of new right of way from the EVAD parcel. If the EVAD property holder refuses settlement, prior to pursuing condemnation, the right of way Branch must contact Project Development to coordinate with the Cabarrus County VAD Board to schedule a public meeting. The Cabarrus County VAD ordinance provides that no state or local public agency or governmental unit may formally initiate any action to condemn any interest in qualifying farmland within a Cabarrus County VAD until such agency or unit has requested the advisory board to hold a public hearing on the proposed condemnation. Appropriate commitments are located in the greensheet.

PART A: MINIMUM CRITERIA

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

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

If yes, under which category? Category #8
(Highway or railway modernization by means of the following activities, which involve less than a total of 10 cumulative acres of ground surface previously undisturbed by highway or railway construction, limited to a single project, noncontiguous to any other project making use of this provision:
a) resurfacing, restoration, or reconstruction;)

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

PART B: MINIMUM CRITERIA EXCEPTIONS

	YES	NO
2. Could the proposed activity cause significant changes in land use concentrations that would be expected to create adverse air quality impacts?	☐	☒
3. Will the proposed activity have secondary impacts or cumulative	☐	☒

impacts that may result in a significant adverse impact to human health or the environment?

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

PART C: COMPLIANCE WITH STATE AND FEDERAL REGULATIONS

		YES	NO
9.	Is a federally protected threatened or endangered species, or its habitat, likely to be impacted by the proposed action?	☒	☐
10.	Does the action require the placement of temporary or permanent fill in waters of the United States?	☒	☐
11.	Does the project require the placement of a significant amount of fill in high quality or relatively rare wetland ecosystems, such as mountain bogs or pine savannahs?	☐	☒
12.	Is the proposed action located in an Area of Environmental Concern, as defined in the coastal Area Management Act?	☐	☒
13.	Does the project require stream relocation or channel changes?	☐	☒

Cultural Resources

14.	Will the project have an “effect” on a property or site listed on the National Register of Historic Places?	☐	☒

15. Will the proposed action require acquisition of additional right of way from publicly owned parkland or recreational areas? ☐ ☒

Response to Question 9:
Habitat for the Carolina Heelsplitter (Lasmigona decorata) exists within the project study area. A review of the NC Natural Heritage Program (NCNHP) records, last accessed on April 23, 2018, indicated no element occurrence (EO) for the Carolina Heelsplitter located within a 5-mile buffer of the project bridge. The closest occurrence (EO ID 21454) is located in Goose Creek, approximately 17 stream miles downstream from the project location. This occurrence was first observed on August 26, 1987, and last observed on September 29, 2015. On September 22, 2016, a mussel survey was conducted for these species. A total of 3.5 person-hours of survey time was spent in the survey location with two species of freshwater mussels found [Eastern Elliptio (Elliptio complanate) and Carolina Creekshell (Villosa vaughaniana)]. The results indicate that the study area supports a sparse freshwater mussel fauna of common species. Carolina Heelsplitter individuals were not found during the survey. Previous surveys in the vicinity of the subject bridge have resulted in no discovery of Carolina Heelsplitter within a 10-mile radius of the study location. Based on the presence of degraded habitat, distance to known Carolina Heelsplitter records, and these survey results, completion of the proposed project will not affect this species. Therefore, a biological conclusion of "No Effect" was reached for both the Carolina Heelsplitter.

Suitable habitat for Schweinitz's sunflower (Helianthus schweinitzii) is present in the study area along roadside shoulders. A review of the July 2016 NCNHP database on August 12, 2016, indicates no known occurrences within 1.0 mile of the study area. A survey of the study area was conducted on August 23, 2016 during the flowering survey window. No plants or stems were found during the survey.

The Natural Resources Technical Report (NRTR) also disclosed an unresolved Biological Conclusion for the Northern long eared bat (NLEB). Since this project is state funded, the USACE will act as the lead federal agency for issues related to the NLEB. The USACE has developed a Standard Local Operations Procedure for Endangered Species (SLOPES) to address NLEB when they are the lead agency, which NCDOT will follow for this project. This procedure applies to projects in NCDOT Divisions 9-14. The requirements of the SLOPES for the NLEB will be completed prior to Let and will be submitted to the USACE. A Biological Conclusion is not required.

Response to Question 10:
Build bridge on new alignment upstream of existing bridge while using existing bridge will require a Nationwide Permit #14 – Linear Development. Potential permanent fill impacts from a new northwest bridge abutment may occur to the tributary stream to Dutch Buffalo Creek, but will be avoided if possible and minimized if necessary. Temporary impacts from debris may result from the demolition of the existing bridge which will occur after traffic has been routed to the new alignment.

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

16.	Project length:	**1,800 feet**
17.	Right of Way width:	**Existing ROW: 60 feet** **Proposed ROW: 80 feet**
18.	Project completion date:	**ROW Date: February 2019** **LET Date: February 2020**
19.	Total acres of newly disturbed ground surface:	**2.7 acres**
20.	Total acres of wetland impacts:	**0**
21.	Total linear feet of stream impacts:	**Approximately 270 feet of temporary impacts**
22.	Project purpose:	**Replace Bridge No. 132 on NC 73 over Dutch Buffalo Creek**

Reviewed by:

DocuSigned by: Elizabeth Scott E97A4285A92246A... Date: 11/7/2018

Elizabeth Scott, EI, STV Engineers Inc.

DocuSigned by: Garland Haywood 568D887B80E4404... Date: 11/8/2018

Garland Haywood, PE, NCDOT Division Bridge Program Manager

DocuSigned by: Kevin Fischer ED10A18D98EC406... Date: 11/26/2018

Kevin Fischer, PE, NCDOT Structures Management Unit

PROJECT COMMITMENTS
Bridge No. 132 over Dutch Buffalo Creek on NC 73 in Cabarrus County
WBS No. 45767.1.1
STIP B-5813

Structure Management Unit, Project Manager
FEMA Coordination

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

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

Enhanced Voluntary Agricultural District (EVAD)

The project includes one parcel totaling 86 acres that is part of a Cabarrus County EVAD. The project would require approximately .88 acres of new right of way from the EVAD parcel. If the VAD property holder refuses settlement, prior to pursuing condemnation, the right of way Branch must contact Project Development to coordinate with the Cabarrus County VAD Board to schedule a public meeting. The Cabarrus County VAD ordinance provides that no state or local public agency or governmental unit may formally initiate any action to condemn any interest in qualifying farmland within a Cabarrus County VAD until such agency or unit has requested the advisory board to hold a public hearing on the proposed condemnation.

Division Ten, Division Bridge Program Manager
Northern-Long Eared Bat (NLEB)

The USACE has developed a Standard Local Operations Procedure for Endangered Species (SLOPES) to address NLEB when they are the lead agency, which NCDOT will follow for this project. This procedure applies to projects in NCDOT Divisions 9-14. The requirements of the SLOPES for the NLEB will be completed prior to Let and will be submitted to the USACE. A Biological Conclusion is not required.

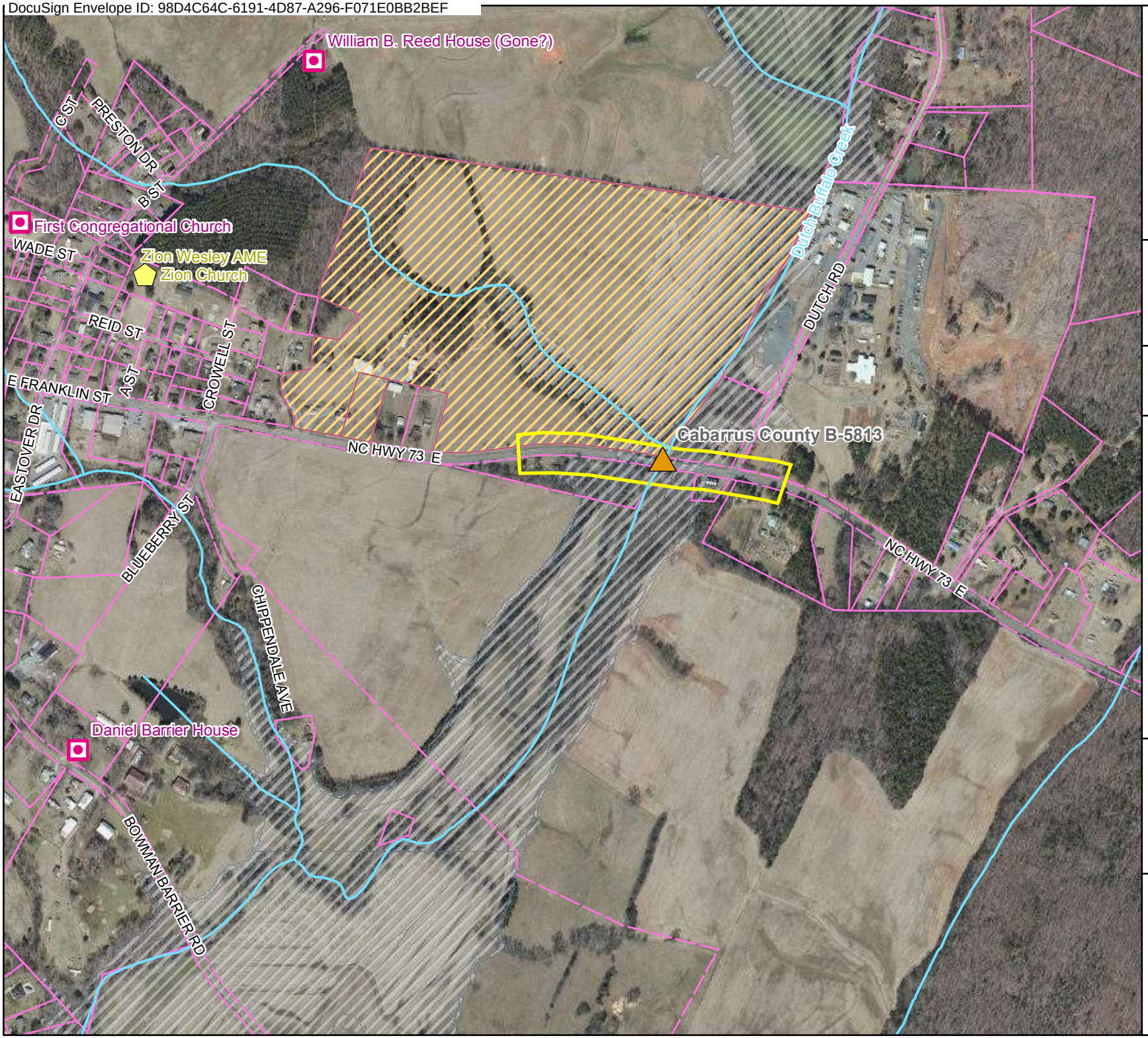


FIGURE 1-
LOCATION MAP

0 250 500
Feet

LEGEND

- Bridge Location
- Project Study Area
- Floodplain
- Parcel
- EVAD Parcel
- Stream
- Church
- Historic Site

N
W E
S

Source: USDA Geospatial Gateway;NCOneMap; USFWS

TIP Project B-5813

Bridge Replacement
Bridge No.132
over Dutch Buffalo Creek
on NC 73
Cabarrus County

October 2018

Appendix A

PROJECT REFERENCE NO.	SHEET NO.
B-5813	1
R/W SHEET NO.	

STV Engineers, Inc.
900 West Trade St., Suite 715
Charlotte, NC 28202
NC License Number F-0991

CONCEPT DATED

9/27/2018

CONCEPT PLANS
SUBJECT TO CHANGE WITHOUT NOTICE

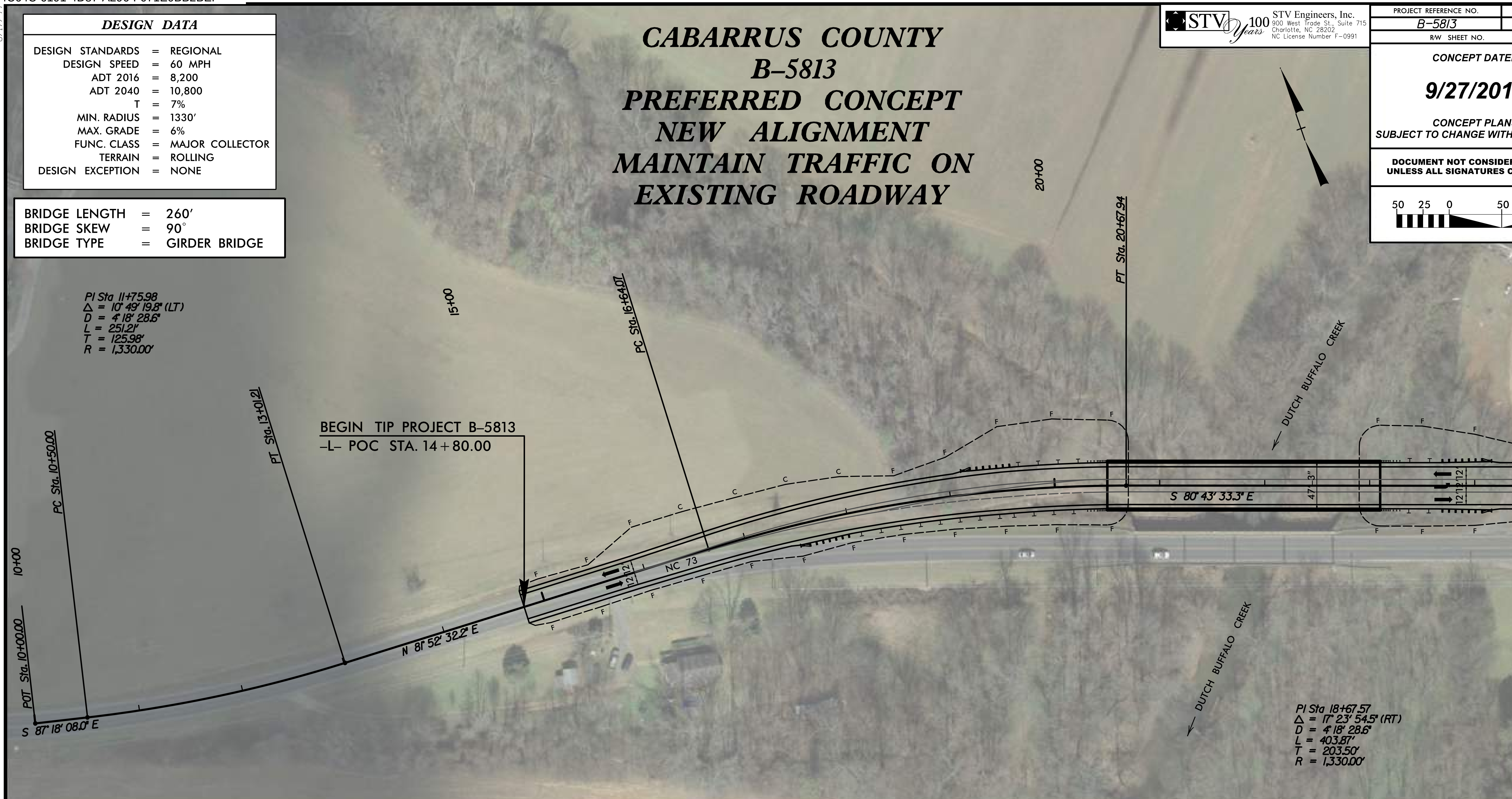
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

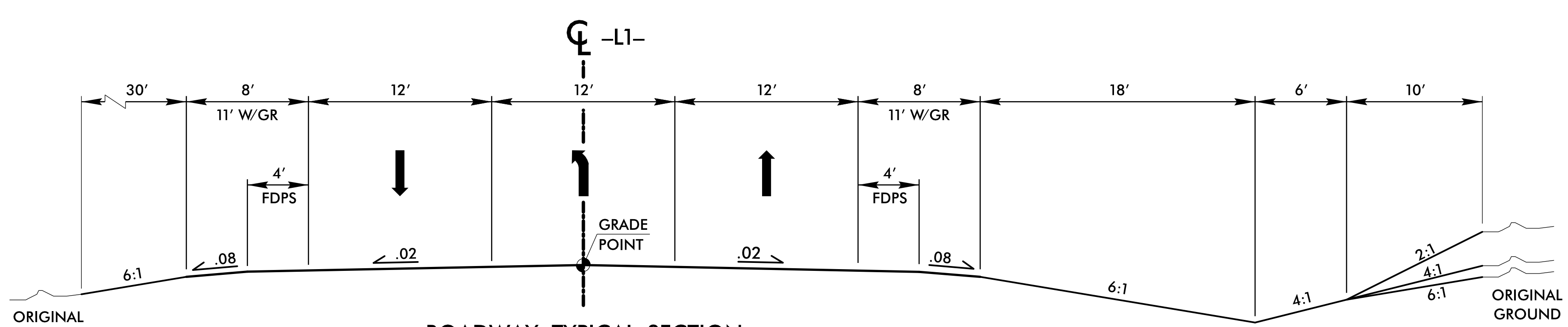
CABARRUS COUNTY
B-5813
PREFERRED CONCEPT
NEW ALIGNMENT
MAINTAIN TRAFFIC ON EXISTING ROADWAY

DESIGN DATA

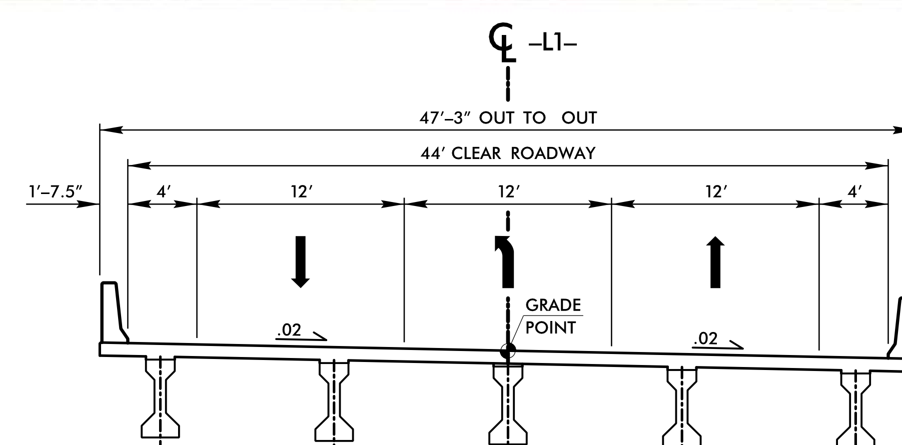
DESIGN STANDARDS	=	REGIONAL
DESIGN SPEED	=	60 MPH
ADT 2016	=	8,200
ADT 2040	=	10,800
T	=	7%
MIN. RADIUS	=	1330′
MAX. GRADE	=	6%
FUNC. CLASS	=	MAJOR COLLECTOR
TERRAIN	=	ROLLING
DESIGN EXCEPTION	=	NONE

BRIDGE LENGTH	=	260′
BRIDGE SKEW	=	90°
BRIDGE TYPE	=	GIRDER BRIDGE





ROADWAY TYPICAL SECTION



BRIDGE TYPICAL SECTION

9/27/2018
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STV Engineers, Inc.
900 West Trade St., Suite 715
Charlotte, NC 28202
NC License Number F-0991

PROJECT REFERENCE NO.	SHEET NO.
B-5813	2
RW SHEET NO.	

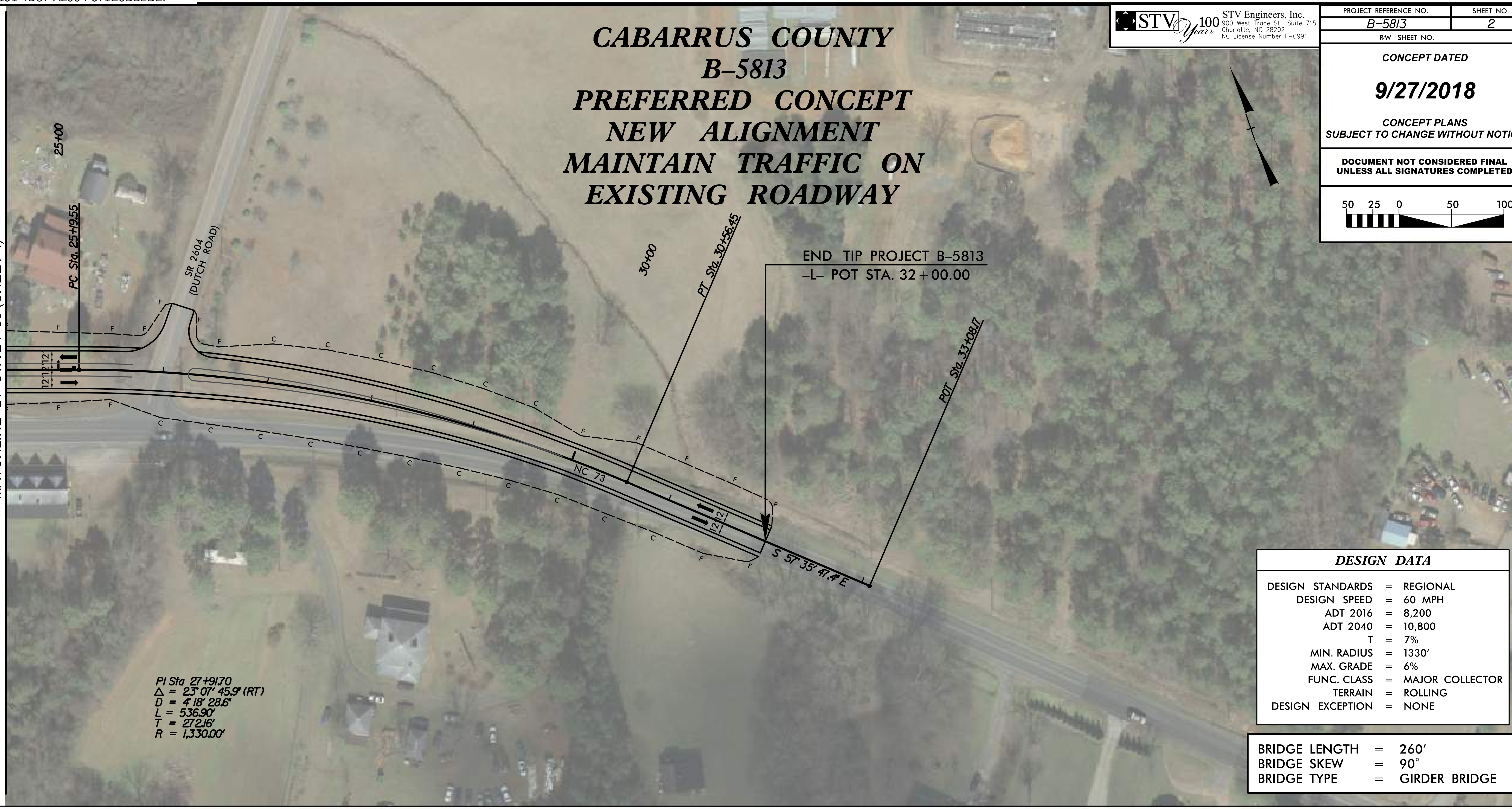
CONCEPT DATED

9/27/2018

CONCEPT PLANS
SUBJECT TO CHANGE WITHOUT NOTICE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

CABARRUS COUNTY
B-5813
PREFERRED CONCEPT
NEW ALIGNMENT
MAINTAIN TRAFFIC ON
EXISTING ROADWAY



DESIGN DATA

DESIGN STANDARDS	=	REGIONAL
DESIGN SPEED	=	60 MPH
ADT 2016	=	8,200
ADT 2040	=	10,800
T	=	7%
MIN. RADIUS	=	1330'
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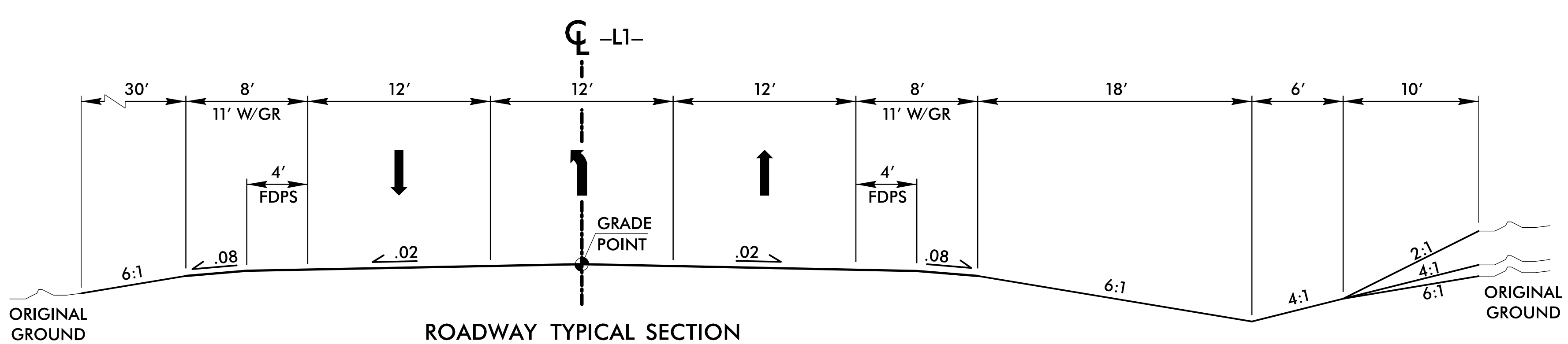
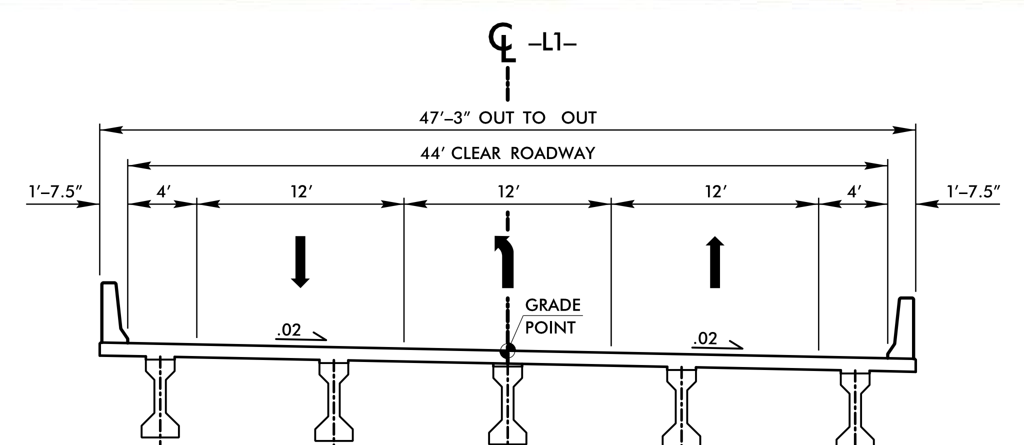
FUNC. CLASS	=	MAJOR COLLECTOR
TERRAIN	=	ROLLING
DESIGN EXCEPTION	=	NONE

BRIDGE LENGTH	=	260'
BRIDGE SKEW	=	90°
BRIDGE TYPE	=	GIRDER BRIDGE



ROADWAY TYPICAL SECTION



BRIDGE TYPICAL SECTION

9/27/2018
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STV Engineers, Inc.
900 West Trade St., Suite 715
Charlotte, NC 28202
NC License Number F-0991

PROJECT REFERENCE NO.	SHEET NO.
B-5813	3
R/W SHEET NO.	

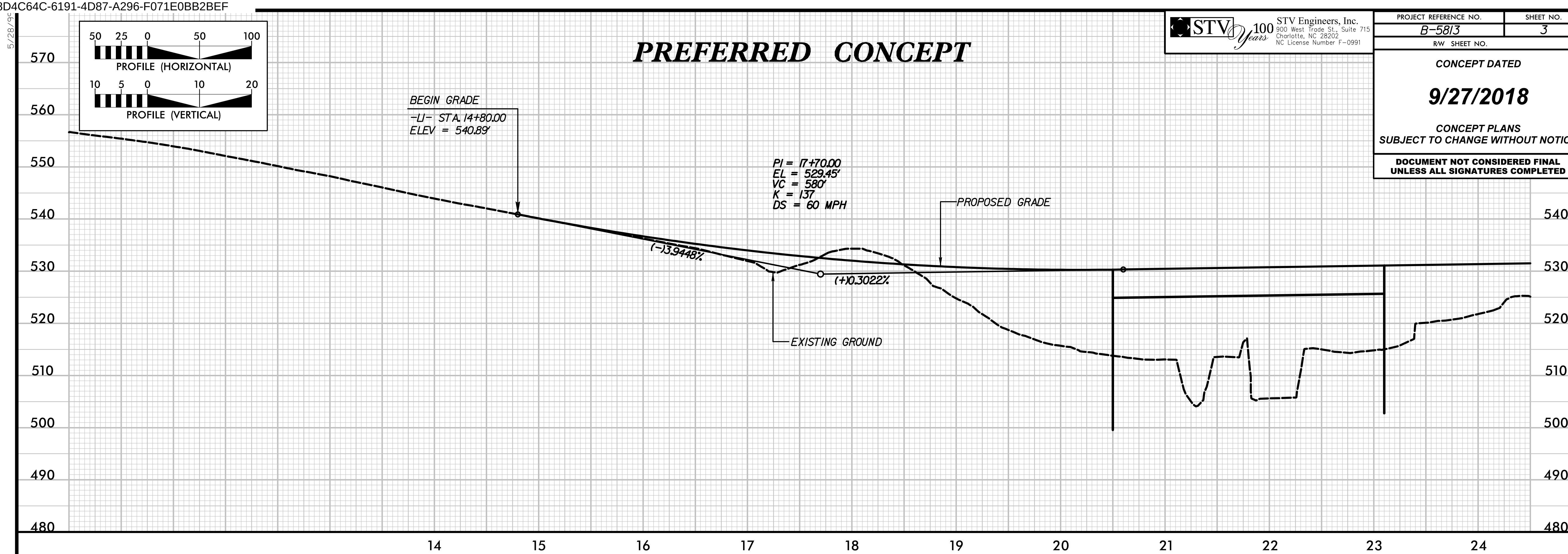
CONCEPT DATED

9/27/2018

CONCEPT PLANS
SUBJECT TO CHANGE WITHOUT NOTICE

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

PREFERRED CONCEPT



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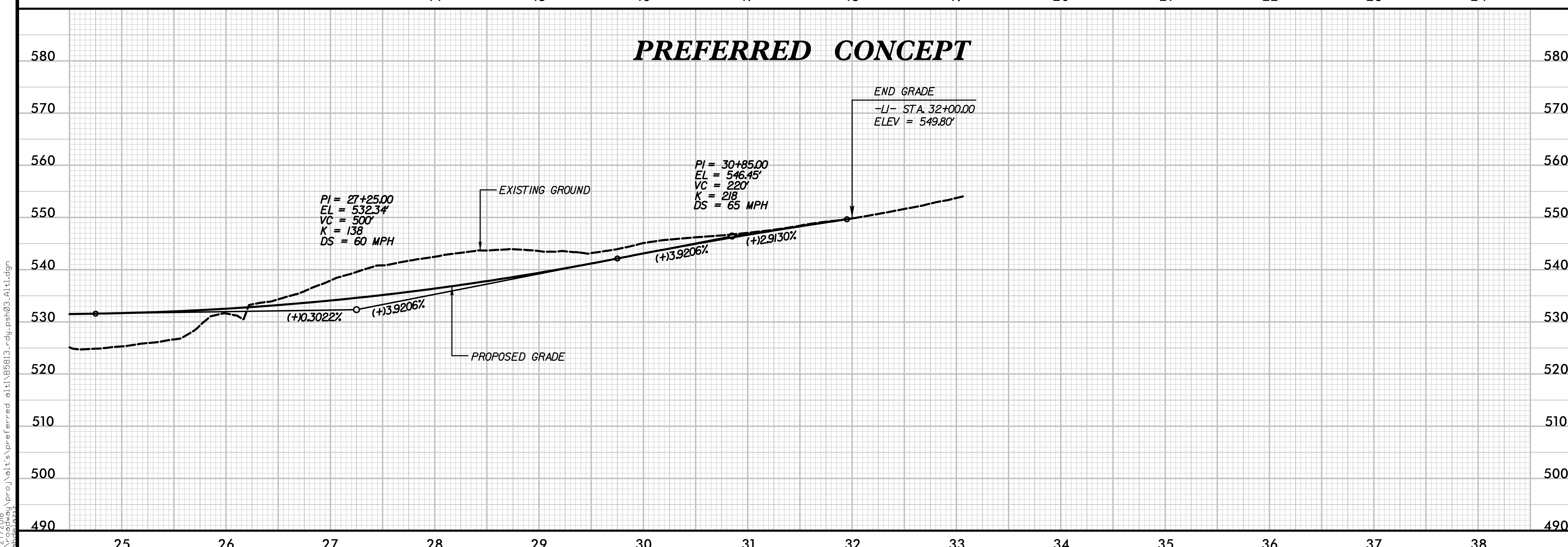

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North Carolina Department of Transportation
Preliminary Estimate

TIP No. **B-5813** **Func** County: **Cabarrus**
Route
From
Typical Section

CONSTR. COST
$4,470,000

Prepared By: G. McCauley Date 9/27/2018
Requested By: Date

Line Item	Des	Sec No.	Description	Quantity	Unit	Price	Amount
			Clearing and Grubbing	1.0	Acre	$ 20,000.00	$ 20,000.00
			Earthwork	9,050	CY	$ 50.00	$ 452,500.00
			Drainage New Location	0.01	Miles	$ 200,000.00	$ 2,000.00
			Fine Grading	5,490	SY	$ 10.00	$ 54,900.00
			Pavement Widening		SY		$ -
			New Pavement	5,490	SY	$ 75.00	$ 411,750.00
			Pavement Resurfacing	1,177	SY	$ 20.00	$ 23,540.00
			Subgrade Stabilization	2,692	SY	$ 5.00	$ 13,460.00
			Erosion Control	1.2	Acres	$ 50,000.00	$ 60,000.00
			Traffic Control	1.000	LS	$ 30,000.00	$ 30,000.00
			Thermo and Markers	0.300	Miles	$ 30,000.00	$ 9,000.00
			Structures				
			ML / Creek 47'3"Wx260'L	12,285.00	SF	$ 150.00	$ 1,842,750.00
			RC Box Culverts				
					LF		
			Utility Construction				
			Relocate Existing Water Line	200	LF	$ 500.00	$ 100,000.00
			Relocate Existing Sewer Line	150	LF	$ 500.00	$ 75,000.00
			Misc. & Mob (15% Strs&Util)				$ 302,662.50
			Misc. & Mob (45% Functional)				$ 484,717.50
Lgth	**0.33 Miles**		**Contract Cost** ……. …….. ……..				$ 3,882,280.00
			E. & C. 15% ……. …….. ……..				$ 582,342.00
			Construction Cost ……. …….. ……..				**$ 4,464,622.00**