



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY  
GOVERNOR

LYNDO TIPPETT  
SECRETARY

December 12, 2006

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

ATTENTION: Mr. Steve Lund  
NCDOT Coordinator

SUBJECT: **Nationwide Permit 33 Application** for the proposed replacement of Bridge No. 8 on SR 1446 (Linneys Mill Road) over Rocky Creek, in Alexander County. Federal Aid Project No. BRZ-1446(2), State Project No. 8.2780901, WBS Element 33374.1.1, TIP No. B-4006, in Division 12.

Dear Sir:

Please find enclosed a copy of the Pre-Construction Notification, permit drawings, 1/2 size plans and Categorical Exclusion for the above referenced project. The North Carolina Department of Transportation (NCDOT) proposes to replace Bridge No. 8 on a new alignment with a new 110 feet long single span bridge. There will be no permanent impacts associated with this project, however, the construction the new bridge will result in 0.02 acres of temporary impacts to surface waters. There are two jurisdictional wetlands within the project area but will not be effected by the new bridge and alignment construction. Traffic will be maintained on the original bridge until the new bridge is constructed.

### **Impacts to Waters of the United States**

The water resource impacted for project B-4006 is Rocky Creek located in the Yadkin-Pee Dee River Basin, Subbasin 03-07-06. The North Carolina Division of Water Quality (DWQ) classifies Rocky Creek as "Class C" stream and is located in Hydrological Cataloguing Unit 03040102. There are no Outstanding Resource Waters (ORW), High Quality Waters (HQW), WS-I, WS-II, or watershed Critical Area (CA), within 1 mile upstream or downstream of the project study area.

**MAILING ADDRESS:**  
NC DEPARTMENT OF TRANSPORTATION  
PROJECT DEVELOPMENT AND ENVIRONMENTAL ANALYSIS  
1548 MAIL SERVICE CENTER  
RALEIGH NC 27699-1548

TELEPHONE: 919-733-3141  
FAX: 919-733-9794

WEBSITE: [WWW.NCDOT.ORG](http://WWW.NCDOT.ORG)

**LOCATION:**  
TRANSPORTATION BUILDING  
1 SOUTH WILMINGTON STREET  
RALEIGH NC

The North Carolina Wildlife Resource Commission (WRC) has stated that Rocky Creek is not designated as a trout stream.

Permanent Impacts: There will be no permanent impacts to surface waters resulting from the construction of this project.

Temporary Impacts: Connecting stormwater drainage ditches to Rocky Creek along the new alignment may result in 0.02 acre of temporary construction impacts. The permit drawings depict the temporary surface water impacts as extending from the left bank across to the right bank. The actual temporary impacts will be less with impacts only along the banks where the ditches are cut into Rocky Creek.

There are no impacts to jurisdictional resources due to utilities for this project.

### **Bridge Demolition**

The existing bridge is a two-span structure with an overall length of 113 feet, and a clear roadway width of 22.1 feet. It was constructed in 1951. The bridge consists of a reinforced concrete deck, steel I-beams, and reinforced concrete caps on timber piles. Bridge No. 8 is structurally deficient and according to federal guidelines is considered to be functionally obsolete. Best Management Practices for Bridge Demolition and Removal will be implemented; however, there is potential for bridge components to drop into Waters of the United States during demolition. Any bridge components that fall into the water during demolition will be removed according to Best Management Practices.

### **Federally Protected Species**

As of April 27, 2006, the United States Fish and Wildlife Service lists three federally protected species for Alexander County (Table 1). The bog turtle was the only federal listed species for Alexander County at the time the Categorical Exclusion (CE) document was issued December 21, 2004. The bald eagle and dwarf-flowered heartleaf were added to the endangered species list for Alexander County on March 8, 2006.

Table 1. Federally Protected Species for Alexander County.

Common Name	Scientific Name	Status	Habitat	Biological Conclusion
Bog turtle	<i>Clemmys muhlenbergii</i>	T(S/A)	No	Not Required
Bald Eagle	<i>Haliaeetus leucocephalus</i>	Threatened	No	No Effect
Dwarf-flowered heartleaf	<i>Hexastylis naniflora</i>	Threatened	No	No Effect

**KEY:**

Status	Definition
<b>Threatened -</b>	A taxon "likely to become endangered within the foreseeable future throughout all or a significant portion of its range."
<b>T(S/A) 1-</b>	Threatened due to similarity of appearance a species that is threatened due to similarity of appearance with other rare species and is listed for its protection. These species are not biologically endangered or threatened and are not subject to Section 7 consultation.

**Avoidance and Minimization**

NCDOT has minimized impacts to the fullest extent possible. The proposed bridge replacement will span Rocky Creek; therefore, totally avoiding permanent surface water impacts. The two wetlands in the project area will be avoided and the existing bridge will be utilized as an onsite detour negating the need for a temporary detour thereby reducing temporary impacts. NCDOT will not adhere to Design Standards in Sensitive Watersheds for this project. This designation was erroneously assigned to this project because it was believed Rocky Creek flowed into the South Yadkin River less than a half mile downstream of the bridge site; however, the confluence is actually 25 miles downstream.

**Mitigation**

Construction for this project will impose temporary impacts to jurisdictional waters, therefore, no mitigation is necessary for this project.

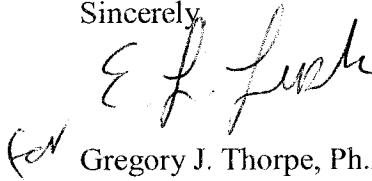
**Regulatory Approvals**

Section 404 Permit: It is anticipated that the temporary construction impacts to Rocky Creek can be authorized under Section 404 Nationwide Permit 33 (Temporary Construction Access and Dewatering). We are, therefore, requesting the issuance of a Nationwide Permit 33 authorizing the temporary surface water impacts of Rocky Creek. All other aspects of this project are being processed by the Federal Highway Administration as a "Categorical Exclusion" in accordance with 23 CFR § 771.115(b).

Section 401 Permit: We anticipate 401 General Certification number 3366 will apply to this project. All general conditions of WQC 3366 will be met. Therefore, we are not requesting written concurrence from DWQ. In accordance with 15A NCAC 2H .0501(a) we are providing two copies of this application to DWQ for their records.

Thank you for your assistance with this project. A copy of this permit application will be posted on the NCDOT Website at <http://207.4.62.65/PDEA/PermApps>. If you have any questions or need additional information, please contact Jeff Hemphill at (919) 715-1458.

Sincerely,



Gregory J. Thorpe, Ph.D., Environmental Management Director  
Project Development and Environmental Analysis Branch

Cc

W/attachment

Mr. John Hennessy, NCDWQ (2 Copies)  
Ms. Marella Buncick, USFWS  
Ms. Marla Chambers, NCWRC  
Dr. David Chang, P.E., Hydraulics  
Mr. Greg Perfetti, P.E., Structure Design  
Mr. Mark Staley, Roadside Environmental  
Mr. M.L. Holder, P.E., Division 12 Engineer  
Ms. Trish Simon Division 12 DEO

W/o attachment

Mr. Jay Bennett, P.E., Roadway Design  
Mr. Majed Alghandour, P. E., Programming and TIP  
Mr. Art McMillan, P.E., Highway Design  
Mr. Scott McLendon, USACE, Wilmington  
Mr. Bryan Kluchar, PDEA Project Planning Engineer

**Office Use Only:**

Form Version March 05

**USACE Action ID No.** \_\_\_\_\_

**DWQ No.** \_\_\_\_\_

(If any particular item is not applicable to this project, please enter "Not Applicable" or "N/A".)

**I. Processing**

1. Check all of the approval(s) requested for this project:

- |  |  |
|--|--|
| <input checked="" type="checkbox"/> Section 404 Permit   | <input type="checkbox"/> Riparian or Watershed Buffer Rules      |
| <input type="checkbox"/> Section 10 Permit               | <input type="checkbox"/> Isolated Wetland Permit from DWQ        |
| <input type="checkbox"/> 401 Water Quality Certification | <input type="checkbox"/> Express 401 Water Quality Certification |

2. Nationwide, Regional or General Permit Number(s) Requested: NWP 33

3. If this notification is solely a courtesy copy because written approval for the 401 Certification is not required, check here:

4. If payment into the North Carolina Ecosystem Enhancement Program (NCEEP) is proposed for mitigation of impacts, attach the acceptance letter from NCEEP, complete section VIII, and check here:

5. If your project is located in any of North Carolina's twenty coastal counties (listed on page 4), and the project is within a North Carolina Division of Coastal Management Area of Environmental Concern (see the top of page 2 for further details), check here:

**II. Applicant Information**

1. Owner/Applicant Information

Name: Gregory J. Thorpe, Ph.D., Environmental Management Director

Mailing Address: 1598 Mail Service Center

Raleigh, NC 27699-1598

Telephone Number: (919) 733-3141

Fax Number: (919) 733-9794

E-mail Address: \_\_\_\_\_

2. Agent/Consultant Information (A signed and dated copy of the Agent Authorization letter must be attached if the Agent has signatory authority for the owner/applicant.)

Name: \_\_\_\_\_

Company Affiliation: \_\_\_\_\_

Mailing Address: \_\_\_\_\_

Telephone Number: \_\_\_\_\_

Fax Number: \_\_\_\_\_

E-mail Address: \_\_\_\_\_

### III. Project Information

Attach a **vicinity map** clearly showing the location of the property with respect to local landmarks such as towns, rivers, and roads. Also provide a detailed **site plan** showing property boundaries and development plans in relation to surrounding properties. Both the vicinity map and site plan must include a scale and north arrow. The specific footprints of all buildings, impervious surfaces, or other facilities must be included. If possible, the maps and plans should include the appropriate USGS Topographic Quad Map and NRCS Soil Survey with the property boundaries outlined. Plan drawings, or other maps may be included at the applicant's discretion, so long as the property is clearly defined. For administrative and distribution purposes, the USACE requires information to be submitted on sheets no larger than 11 by 17-inch format; however, DWQ may accept paperwork of any size. DWQ prefers full-size construction drawings rather than a sequential sheet version of the full-size plans. If full-size plans are reduced to a small scale such that the final version is illegible, the applicant will be informed that the project has been placed on hold until decipherable maps are provided.

1. Name of project: Replacement of Bridge No. 8 on SR 1446 (Linney's Mill Rd) over Rocky Creek
2. T.I.P. Project Number or State Project Number (NCDOT Only): B-4006
3. Property Identification Number (Tax PIN): N/A
4. Location  
County: Alexander Nearest Town: Gilreath  
Subdivision name (include phase/lot number): N/A  
Directions to site (include road numbers/names, landmarks, etc.): Take 421 west to the Oakwoods Avenue exit (Exit 285) in Wilksboro and turn left. Proceed south on Oakwoods Avenue (SR 1001) for approximately eleven miles (the road changes names to Brushy Mountain Road around the town of Oakwoods) to Linney's Mill Road (SR1446) just across the Alexander County line. Turn left on Linney Mills Road and Bridge No. 8 is a tenth of a mile from the intersection of Linney's Mill Road and Brushy Mountain Road.
5. Site coordinates (For linear projects, such as a road or utility line, attach a sheet that separately lists the coordinates for each crossing of a distinct waterbody.)  
Decimal Degrees (6 digits minimum): 36° 1.83' °N 81° 3.41' °W
6. Property size (acres): N/A
7. Name of nearest receiving body of water: Rocky Creek
8. River Basin: Yadkin-Pee Dee River Basin  
(Note – this must be one of North Carolina's seventeen designated major river basins. The River Basin map is available at <http://h2o.enr.state.nc.us/admin/maps/>.)

9. Describe the existing conditions on the site and general land use in the vicinity of the project at the time of this application: The site is located in a rural section of Alexander County. The site is primarily surrounded by fallow field, roadside shoulder and by oak-hickory forest.
  
10. Describe the overall project in detail, including the type of equipment to be used: \_\_\_\_\_  
The project will consist of replacing the existing 22.1 feet wide 113 feet long bridge with a new 110 feet long bridge that will span Rocky Creek. Traffic will be maintained on the existing bridge until the new bridge is constructed. Construction equipment will consist of heavy trucks, earth moving equipment, cranes, etc.
  
11. Explain the purpose of the proposed work: The existing bridge is structurally deficient and according to federal guidelines is considered functionally obsolete. The replacement of this bridge will result in safer traffic operations.

**IV. Prior Project History**

If jurisdictional determinations and/or permits have been requested and/or obtained for this project (including all prior phases of the same subdivision) in the past, please explain. Include the USACE Action ID Number, DWQ Project Number, application date, and date permits and certifications were issued or withdrawn. Provide photocopies of previously issued permits, certifications or other useful information. Describe previously approved wetland, stream and buffer impacts, along with associated mitigation (where applicable). If this is a NCDOT project, list and describe permits issued for prior segments of the same T.I.P. project, along with construction schedules. N/A

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**V. Future Project Plans**

Are any future permit requests anticipated for this project? If so, describe the anticipated work, and provide justification for the exclusion of this work from the current application.  
N/A

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**VI. Proposed Impacts to Waters of the United States/Waters of the State**

It is the applicant's (or agent's) responsibility to determine, delineate and map all impacts to wetlands, open water, and stream channels associated with the project. Each impact must be listed separately in the tables below (e.g., culvert installation should be listed separately from riprap dissipater pads). Be sure to indicate if an impact is temporary. All proposed impacts, permanent and temporary, must be listed, and must be labeled and clearly identifiable on an accompanying site plan. All wetlands and waters, and all streams (intermittent and perennial) should be shown on a delineation map, whether or not impacts are proposed to these systems. Wetland and stream evaluation and delineation forms should be included as appropriate. Photographs may be included at the applicant's discretion. If this proposed impact is strictly for

wetland or stream mitigation, list and describe the impact in Section VIII below. If additional space is needed for listing or description, please attach a separate sheet.

1. Provide a written description of the proposed impacts: No permanent impacts to surface waters will result from the replacement of the structurally deficient Bridge No. 8 on SR 1446 on Rocky Creek. Connecting new stormwater drainage ditches to Rocky Creek may result in 60 linear feet (0.02 acre) of temporary construction impacts.
2. Individually list wetland impacts. Types of impacts include, but are not limited to mechanized clearing, grading, fill, excavation, flooding, ditching/drainage, etc. For dams, separately list impacts due to both structure and flooding.

Wetland Impact Site Number (indicate on map)	Type of Impact	Type of Wetland (e.g., forested, marsh, herbaceous, bog, etc.)	Located within 100-year Floodplain (yes/no)	Distance to Nearest Stream (linear feet)	Area of Impact (acres)
N/A					
Total Wetland Impact (acres)					

3. List the total acreage (estimated) of all existing wetlands on the property: 0 acre
4. Individually list all intermittent and perennial stream impacts. Be sure to identify temporary impacts. Stream impacts include, but are not limited to placement of fill or culverts, dam construction, flooding, relocation, stabilization activities (e.g., cement walls, rip-rap, crib walls, gabions, etc.), excavation, ditching/straightening, etc. If stream relocation is proposed, plans and profiles showing the linear footprint for both the original and relocated streams must be included. To calculate acreage, multiply length X width, then divide by 43,560.

Stream Impact Number (indicate on map)	Stream Name	Type of Impact	Perennial or Intermittent?	Average Stream Width Before Impact	Impact Length (linear feet)	Area of Impact (acres)
Site 1	Rocky Creek	Temporary	Perennial	35 feet	60	0.02
Total Stream Impact (by length and acreage)					60	0.02



5. Individually list all open water impacts (including lakes, ponds, estuaries, sounds, Atlantic Ocean and any other water of the U.S.). Open water impacts include, but are not limited to fill, excavation, dredging, flooding, drainage, bulkheads, etc.

Open Water Impact Site Number (indicate on map)	Name of Waterbody (if applicable)	Type of Impact	Type of Waterbody (lake, pond, estuary, sound, bay, ocean, etc.)	Area of Impact (acres)
N/A				
Total Open Water Impact (acres)				

6. List the cumulative impact to all Waters of the U.S. resulting from the project:

Stream Impact (acres):	0
Wetland Impact (acres):	0
Open Water Impact (acres):	0
Total Impact to Waters of the U.S. (acres)	0
Total Stream Impact (linear feet):	0

7. Isolated Waters

Do any isolated waters exist on the property?  Yes  No

Describe all impacts to isolated waters, and include the type of water (wetland or stream) and the size of the proposed impact (acres or linear feet). Please note that this section only applies to waters that have specifically been determined to be isolated by the USACE.

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8. Pond Creation

If construction of a pond is proposed, associated wetland and stream impacts should be included above in the wetland and stream impact sections. Also, the proposed pond should be described here and illustrated on any maps included with this application.

Pond to be created in (check all that apply):  uplands  stream  wetlands

Describe the method of construction (e.g., dam/embankment, excavation, installation of draw-down valve or spillway, etc.): \_\_\_\_\_

Proposed use or purpose of pond (e.g., livestock watering, irrigation, aesthetic, trout pond, local stormwater requirement, etc.): \_\_\_\_\_

Current land use in the vicinity of the pond: \_\_\_\_\_

Size of watershed draining to pond: \_\_\_\_\_ Expected pond surface area: \_\_\_\_\_

## VII. Impact Justification (Avoidance and Minimization)

Specifically describe measures taken to avoid the proposed impacts. It may be useful to provide information related to site constraints such as topography, building ordinances, accessibility, and financial viability of the project. The applicant may attach drawings of alternative, lower-impact site layouts, and explain why these design options were not feasible. Also discuss how impacts were minimized once the desired site plan was developed. If applicable, discuss construction

techniques to be followed during construction to reduce impacts. See Permit Application Cover Letter

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### VIII. Mitigation

DWQ - In accordance with 15A NCAC 2H .0500, mitigation may be required by the NC Division of Water Quality for projects involving greater than or equal to one acre of impacts to freshwater wetlands or greater than or equal to 150 linear feet of total impacts to perennial streams.

USACE – In accordance with the Final Notice of Issuance and Modification of Nationwide Permits, published in the Federal Register on January 15, 2002, mitigation will be required when necessary to ensure that adverse effects to the aquatic environment are minimal. Factors including size and type of proposed impact and function and relative value of the impacted aquatic resource will be considered in determining acceptability of appropriate and practicable mitigation as proposed. Examples of mitigation that may be appropriate and practicable include, but are not limited to: reducing the size of the project; establishing and maintaining wetland and/or upland vegetated buffers to protect open waters such as streams; and replacing losses of aquatic resource functions and values by creating, restoring, enhancing, or preserving similar functions and values, preferable in the same watershed.

If mitigation is required for this project, a copy of the mitigation plan must be attached in order for USACE or DWQ to consider the application complete for processing. Any application lacking a required mitigation plan or NCEEP concurrence shall be placed on hold as incomplete. An applicant may also choose to review the current guidelines for stream restoration in DWQ's Draft Technical Guide for Stream Work in North Carolina, available at <http://h2o.enr.state.nc.us/ncwetlands/strmgide.html>.

1. Provide a brief description of the proposed mitigation plan. The description should provide as much information as possible, including, but not limited to: site location (attach directions and/or map, if offsite), affected stream and river basin, type and amount (acreage/linear feet) of mitigation proposed (restoration, enhancement, creation, or preservation), a plan view, preservation mechanism (e.g., deed restrictions, conservation easement, etc.), and a description of the current site conditions and proposed method of construction. Please attach a separate sheet if more space is needed.

N/A

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2. Mitigation may also be made by payment into the North Carolina Ecosystem Enhancement Program (NCEEP). Please note it is the applicant's responsibility to contact the NCEEP at (919) 715-0476 to determine availability, and written approval from the NCEEP indicating that they are will to accept payment for the mitigation must be attached to this form. For additional information regarding the application process for the NCEEP, check the NCEEP

website at <http://h2o.enr.state.nc.us/wrp/index.htm>. If use of the NCEEP is proposed, please check the appropriate box on page five and provide the following information:

Amount of stream mitigation requested (linear feet): N/A  
 Amount of buffer mitigation requested (square feet): N/A  
 Amount of Riparian wetland mitigation requested (acres): N/A  
 Amount of Non-riparian wetland mitigation requested (acres): N/A  
 Amount of Coastal wetland mitigation requested (acres): N/A

**IX. Environmental Documentation (required by DWQ)**

1. Does the project involve an expenditure of public (federal/state/local) funds or the use of public (federal/state) land? Yes  No
2. If yes, does the project require preparation of an environmental document pursuant to the requirements of the National or North Carolina Environmental Policy Act (NEPA/SEPA)?  
 Note: If you are not sure whether a NEPA/SEPA document is required, call the SEPA coordinator at (919) 733-5083 to review current thresholds for environmental documentation.  
 Yes  No
3. If yes, has the document review been finalized by the State Clearinghouse? If so, please attach a copy of the NEPA or SEPA final approval letter. Yes  No

**X. Proposed Impacts on Riparian and Watershed Buffers (required by DWQ)**

It is the applicant's (or agent's) responsibility to determine, delineate and map all impacts to required state and local buffers associated with the project. The applicant must also provide justification for these impacts in Section VII above. All proposed impacts must be listed herein, and must be clearly identifiable on the accompanying site plan. All buffers must be shown on a map, whether or not impacts are proposed to the buffers. Correspondence from the DWQ Regional Office may be included as appropriate. Photographs may also be included at the applicant's discretion.

1. Will the project impact protected riparian buffers identified within 15A NCAC 2B .0233 (Neuse), 15A NCAC 2B .0259 (Tar-Pamlico), 15A NCAC 02B .0243 (Catawba) 15A NCAC 2B .0250 (Randleman Rules and Water Supply Buffer Requirements), or other (please identify \_\_\_\_\_)? Yes  No
2. If "yes", identify the square feet and acreage of impact to each zone of the riparian buffers. If buffer mitigation is required calculate the required amount of mitigation by applying the buffer multipliers.

Zone*	Impact (square feet)	Multiplier	Required Mitigation
1		3 (2 for Catawba)	
2		1.5	
Total			

\* Zone 1 extends out 30 feet perpendicular from the top of the near bank of channel; Zone 2 extends an additional 20 feet from the edge of Zone 1.

3. If buffer mitigation is required, please discuss what type of mitigation is proposed (i.e., Donation of Property, Riparian Buffer Restoration / Enhancement, or Payment into the Riparian Buffer Restoration Fund). Please attach all appropriate information as identified within 15A NCAC 2B .0242 or .0244, or .0260. N/A

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**XI. Stormwater (required by DWQ)**

Describe impervious acreage (existing and proposed) versus total acreage on the site. Discuss stormwater controls proposed in order to protect surface waters and wetlands downstream from the property. If percent impervious surface exceeds 20%, please provide calculations demonstrating total proposed impervious level. N/A

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**XII. Sewage Disposal (required by DWQ)**

Clearly detail the ultimate treatment methods and disposition (non-discharge or discharge) of wastewater generated from the proposed project, or available capacity of the subject facility. N/A

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**XIII. Violations (required by DWQ)**

Is this site in violation of DWQ Wetland Rules (15A NCAC 2H .0500) or any Buffer Rules?  
Yes  No

Is this an after-the-fact permit application? Yes  No

**XIV. Cumulative Impacts (required by DWQ)**

Will this project (based on past and reasonably anticipated future impacts) result in additional development, which could impact nearby downstream water quality? Yes  No

If yes, please submit a qualitative or quantitative cumulative impact analysis in accordance with the most recent North Carolina Division of Water Quality policy posted on our website at <http://h2o.enr.state.nc.us/ncwetlands>. If no, please provide a short narrative description: \_\_\_\_\_

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**XV. Other Circumstances (Optional):**

It is the applicant's responsibility to submit the application sufficiently in advance of desired construction dates to allow processing time for these permits. However, an applicant may

choose to list constraints associated with construction or sequencing that may impose limits on work schedules (e.g., draw-down schedules for lakes, dates associated with Endangered and Threatened Species, accessibility problems, or other issues outside of the applicant's control).

N/A

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*E. J. Lust*

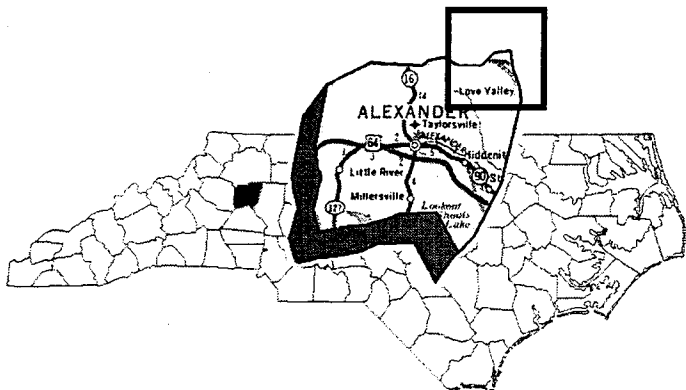
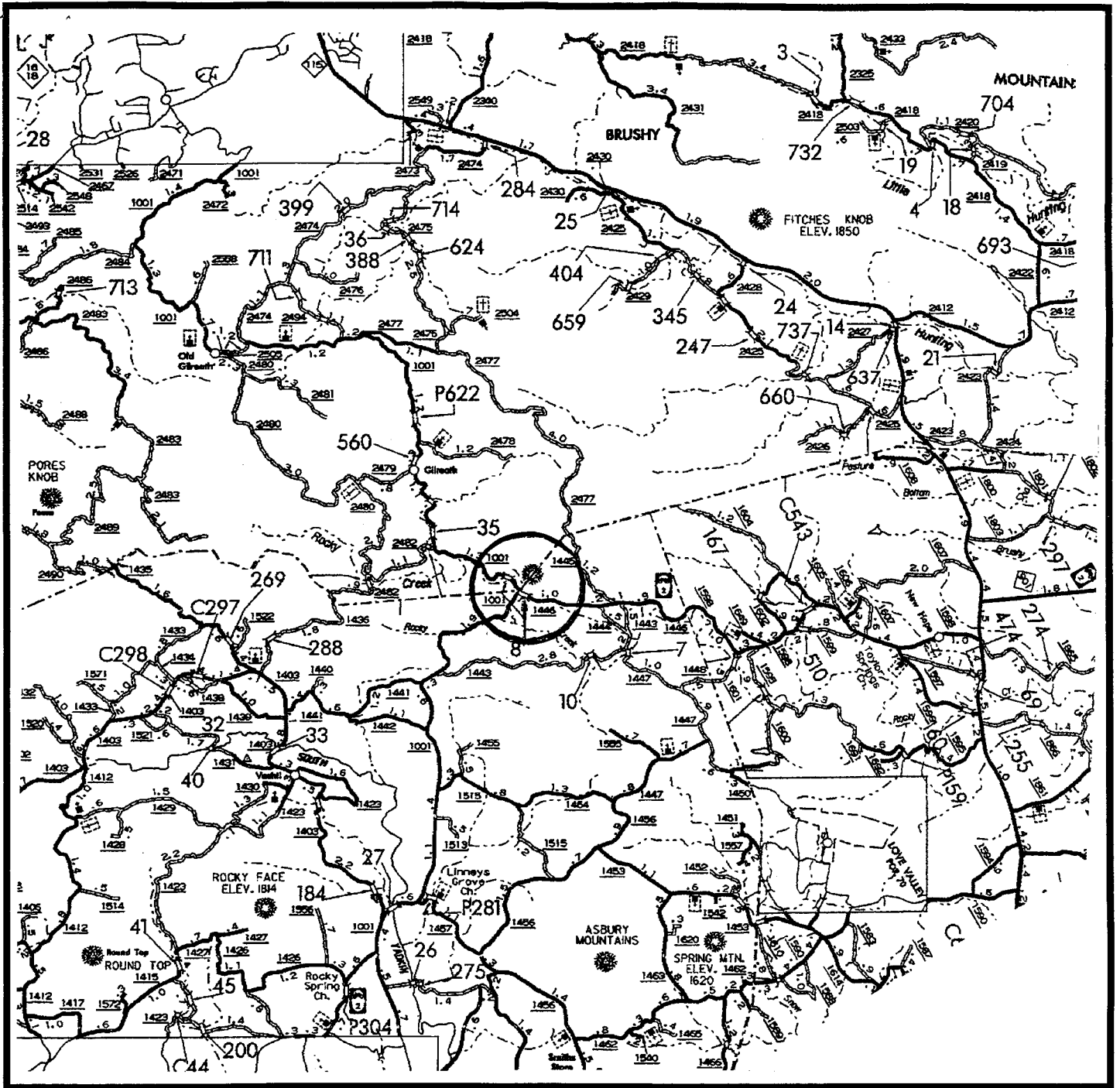
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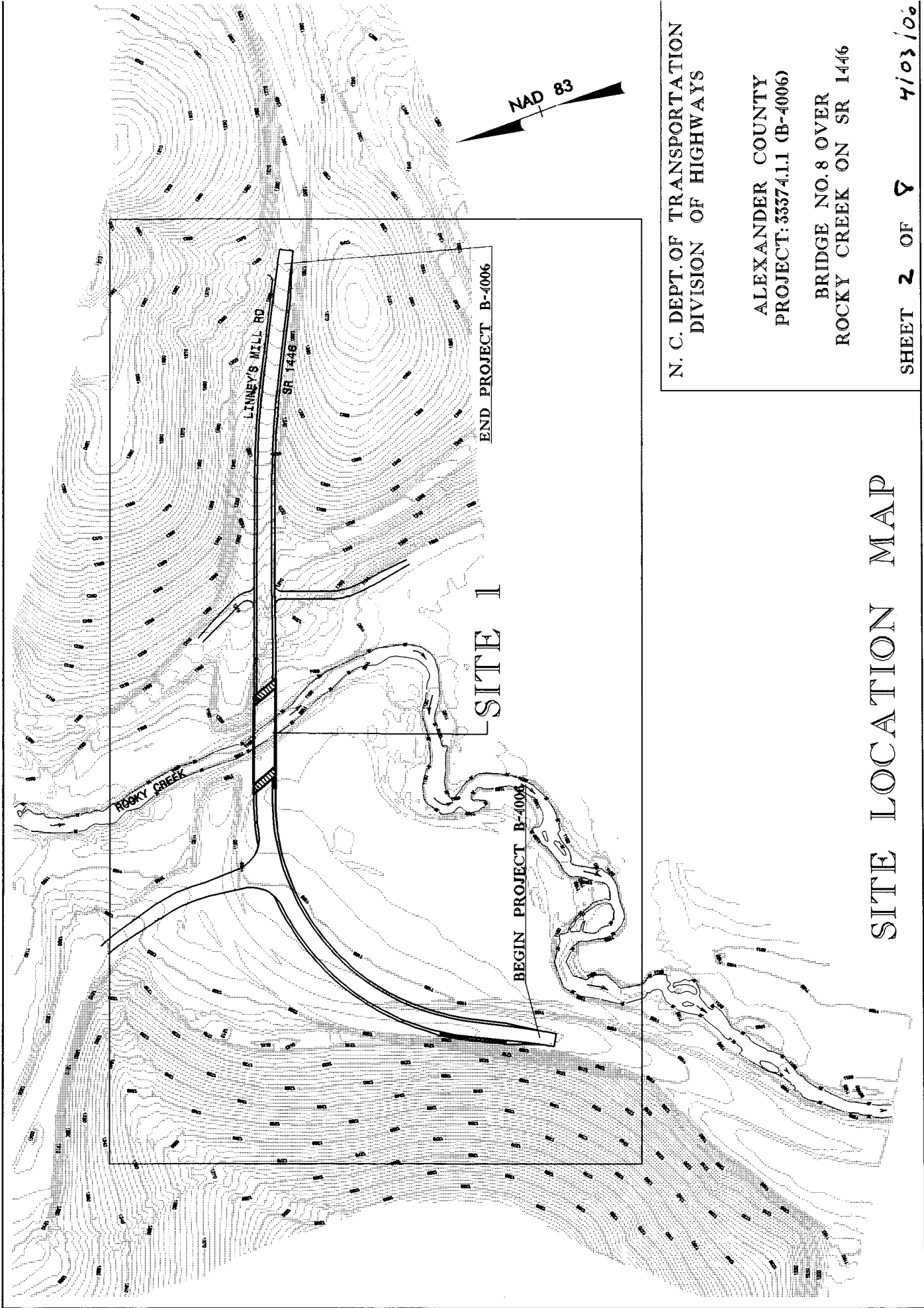
**Applicant/Agent's Signature**

**Date**

(Agent's signature is valid only if an authorization letter from the applicant is provided.)



	<p>NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS PROJECT DEVELOPMENT &amp; ENVIRONMENTAL ANALYSIS BRANCH</p>
<p><b>ALEXANDER COUNTY</b> <b>REPLACE BRIDGE NO. 8 ON SR 1446</b> <b>OVER ROCKY CREEK</b> <b>B-4006</b></p>	
<p style="text-align: right;">4/03/06 1 OF 8 Figure 1</p>	



N. C. DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS

ALEXANDER COUNTY  
PROJECT: 33374.1.1 (B-4006)

BRIDGE NO. 8 OVER  
ROCKY CREEK ON SR 1446

# SITE LOCATION MAP

PROPERTY OWNERS

<u>PARCEL</u>	<u>OWNER NAME</u>	<u>ADDRESS</u>
1	JOHN ELLIS POOLE	8565 BRUSHY MOUNTAIN ROAD, MORAVIAN FALLS, NC, 28654
2	FRED LEE POOLE	6236 LINNEYS MILL ROAD, MORAVIAN FALLS, NC, 28654
3	CLAY E POOLE	6424 LINNEYS MILL ROAD, MORAVIAN FALLS, NC, 28654

N. C. DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS

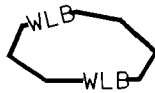
ALEXANDER COUNTY  
PROJECT: 33374.1.1 (B-4006)

BRIDGE NO. 8 OVER  
ROCKY CREEK ON SR 1446



# WETLAND LEGEND

— WLB — WETLAND BOUNDARY

 WETLAND

 DENOTES FILL IN WETLAND

 DENOTES FILL IN SURFACE WATER

 DENOTES FILL IN SURFACE WATER (POND)

 DENOTES TEMPORARY FILL IN WETLAND

 DENOTES EXCAVATION IN WETLAND

 DENOTES TEMPORARY SURFACE WATER IMPACTS

 DENOTES MECHANIZED CLEARING

— FLOW DIRECTION

— TB — TOP OF BANK

--- WE --- EDGE OF WATER

--- C --- PROP. LIMIT OF CUT

--- F --- PROP. LIMIT OF FILL

—▲— PROP. RIGHT OF WAY

--- NG --- NATURAL GROUND

--- PL --- PROPERTY LINE

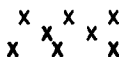
— TDE — TEMP. DRAINAGE EASEMENT


— PDE — PERMANENT DRAINAGE EASEMENT

— EAB — EXIST. ENDANGERED ANIMAL BOUNDARY

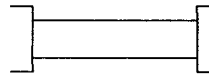
— EPB — EXIST. ENDANGERED PLANT BOUNDARY

---▽--- WATER SURFACE


 LIVE STAKES

 BOULDER

--- CORE FIBER ROLLS

 PROPOSED BRIDGE

 PROPOSED BOX CULVERT


 PROPOSED PIPE CULVERT  
 (DASHED LINES DENOTE EXISTING STRUCTURES)  
 12"-48" PIPES  
 54" PIPES & ABOVE


 SINGLE TREE


 WOODS LINE

 DRAINAGE INLET

 ROOTWAD

 RIP RAP

 ADJACENT PROPERTY OWNER OR PARCEL NUMBER IF AVAILABLE

 PREFORMED SCOUR HOLE (PSH)

 LEVEL SPREADER (LS)

 GRASS SWALE

N. C. DEPT. OF TRANSPORTATION  
 DIVISION OF HIGHWAYS  
 ALEXANDER COUNTY

PROJECT: 33374.L1 (B-4006)

BRIDGE NO. 8 OVER  
 ROCKY CREEK ON SR 1446

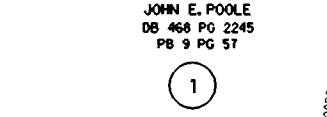
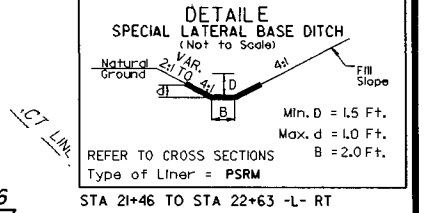
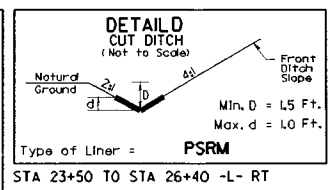
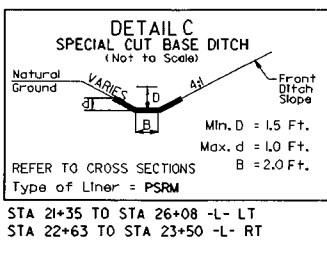
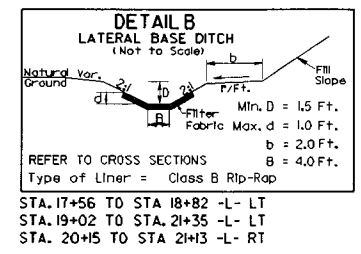
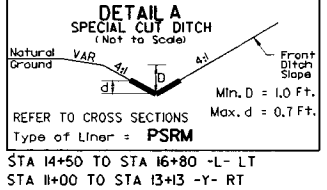
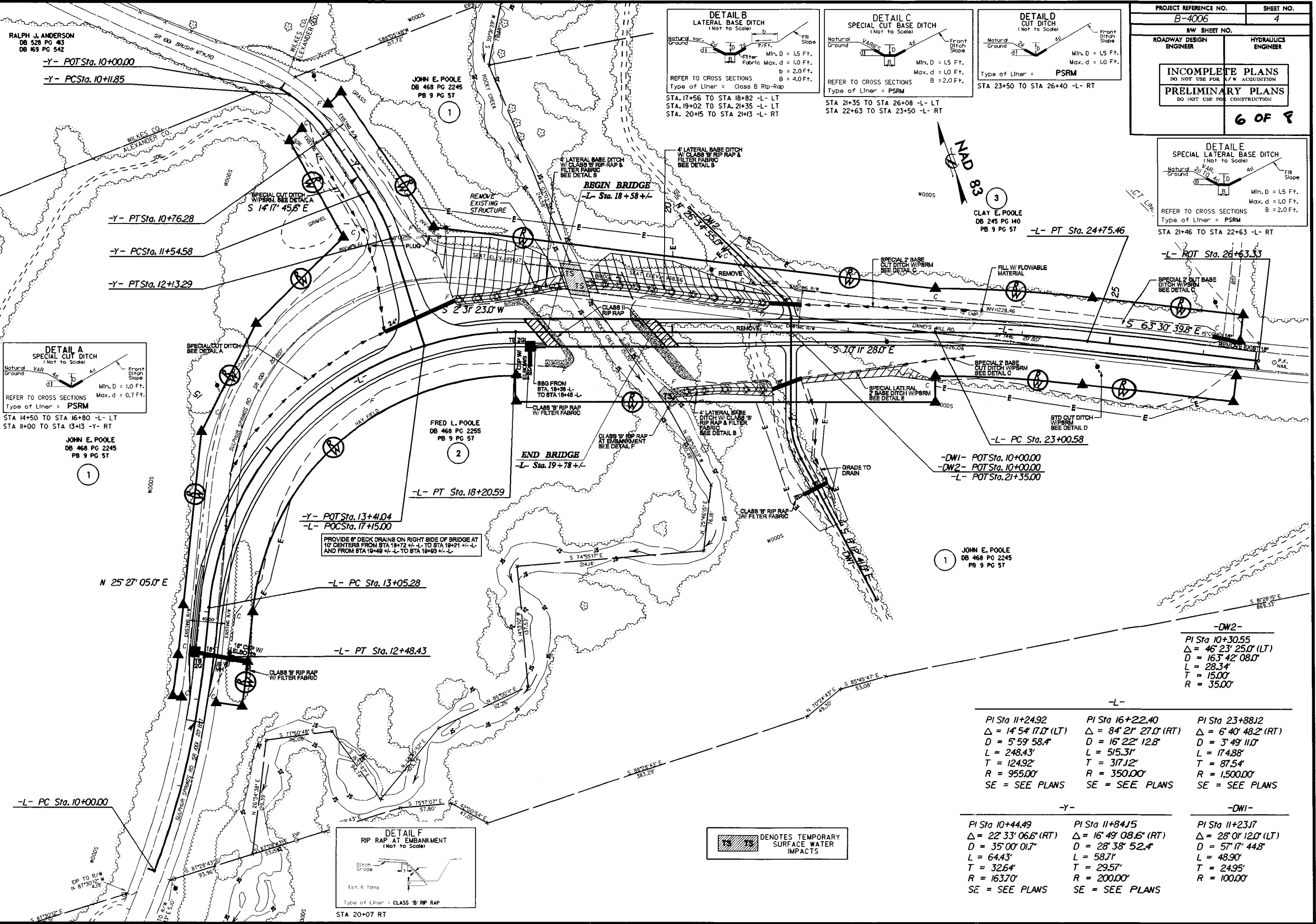
SHEET 4 OF 8

4/03/06

**WETLAND PERMIT IMPACT SUMMARY**

Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS						SURFACE WATER 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)	Permanent SW Impacts (ac)	Temp. SW Impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)		
1	18+78 -L- TO 19+00 -L-									0.017			36	
1	19+98 -L-									0.006			24	
1	18+58 -L- TO 19+78 -L-	120' SINGLE SPAN STEEL BRIDGE								0.000		0	0	
TOTALS:			0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0	0	60	0

NC DEPARTMENT OF TRANSPORTATION  
 DIVISION OF HIGHWAYS  
 ALEXANDER COUNTY  
 WBS - 33374.1.1 (B-4006)

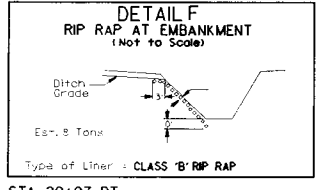
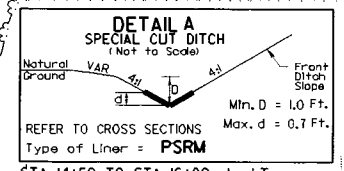
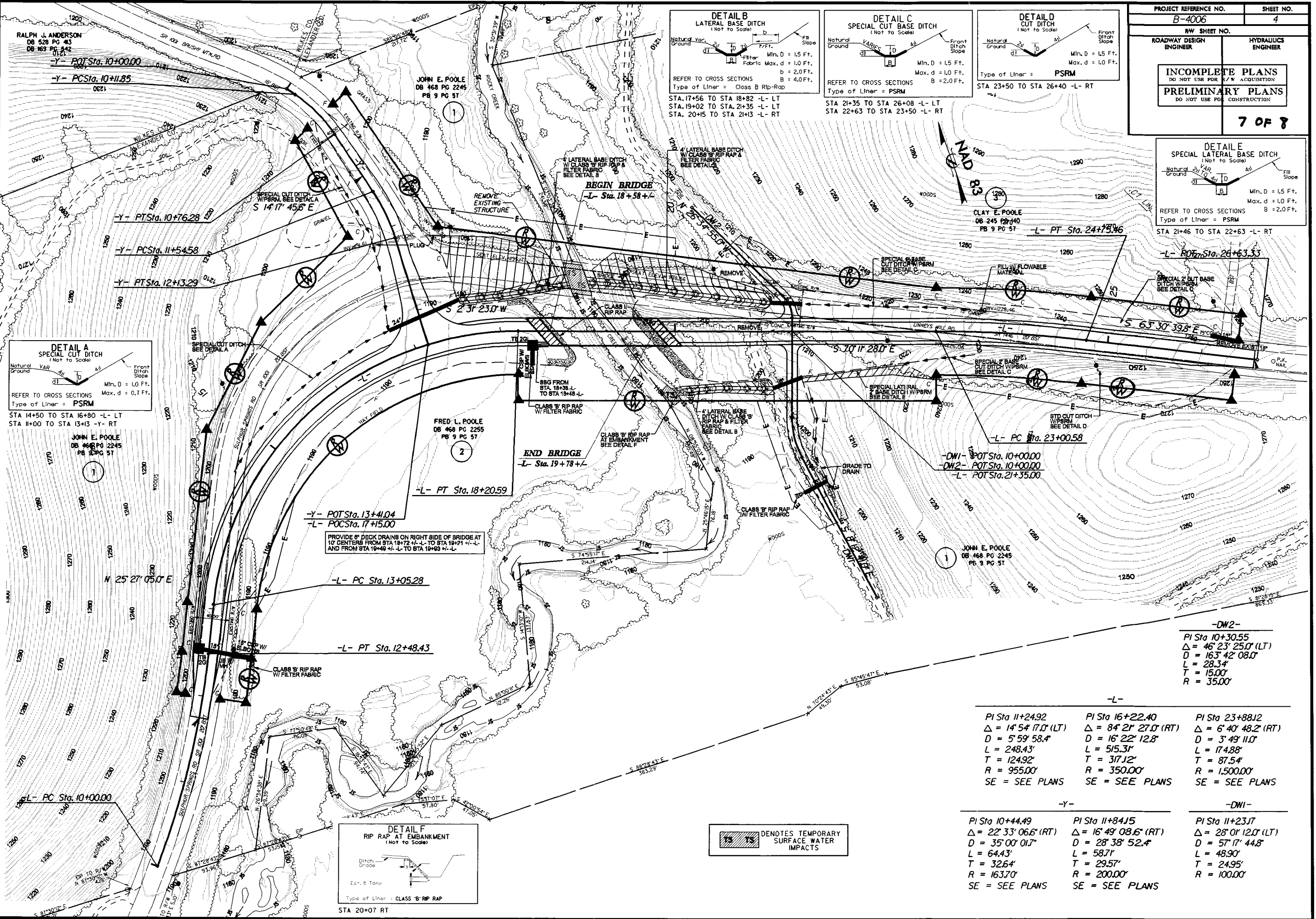
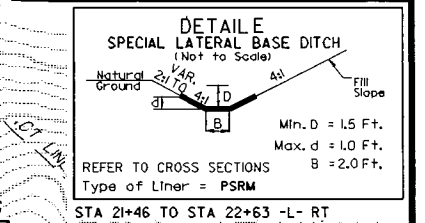
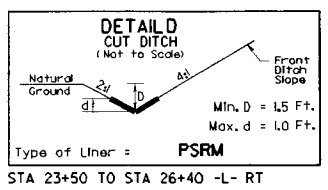
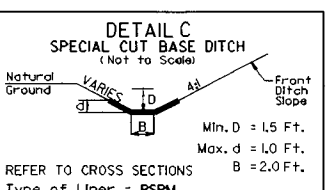
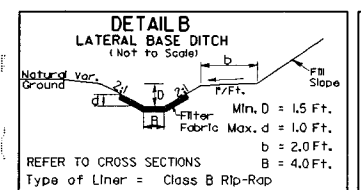


DENOTES TEMPORARY SURFACE WATER IMPACTS

<b>-DW2-</b>		
PI Sta 10+30.55		
$\Delta = 46' 23' 25.0''$ (LT)		
$D = 163' 42' 08.0''$		
$L = 28.34'$		
$T = 15.00'$		
$R = 35.00'$		
<b>-L-</b>		
PI Sta 11+24.92	PI Sta 16+22.40	PI Sta 23+88.12
$\Delta = 14' 54' 17.0''$ (LT)	$\Delta = 84' 21' 27.0''$ (RT)	$\Delta = 6' 40' 48.2''$ (RT)
$D = 5' 59' 58.4''$	$D = 16' 22' 12.8''$	$D = 3' 49' 11.0''$
$L = 248.43'$	$L = 515.31'$	$L = 174.88'$
$T = 124.92'$	$T = 317.12'$	$T = 87.54'$
$R = 955.00'$	$R = 350.00'$	$R = 1,500.00'$
SE = SEE PLANS	SE = SEE PLANS	SE = SEE PLANS
<b>-Y-</b>		
PI Sta 10+44.49	PI Sta 11+84.15	PI Sta 11+23.17
$\Delta = 22' 33' 06.6''$ (RT)	$\Delta = 16' 49' 08.6''$ (RT)	$\Delta = 28' 01' 12.0''$ (LT)
$D = 35' 00' 01.7''$	$D = 28' 38' 52.4''$	$D = 57' 17' 44.8''$
$L = 64.43'$	$L = 58.71'$	$L = 48.90'$
$T = 32.64'$	$T = 29.57'$	$T = 24.95'$
$R = 163.70'$	$R = 200.00'$	$R = 100.00'$
SE = SEE PLANS	SE = SEE PLANS	

REVISIONS

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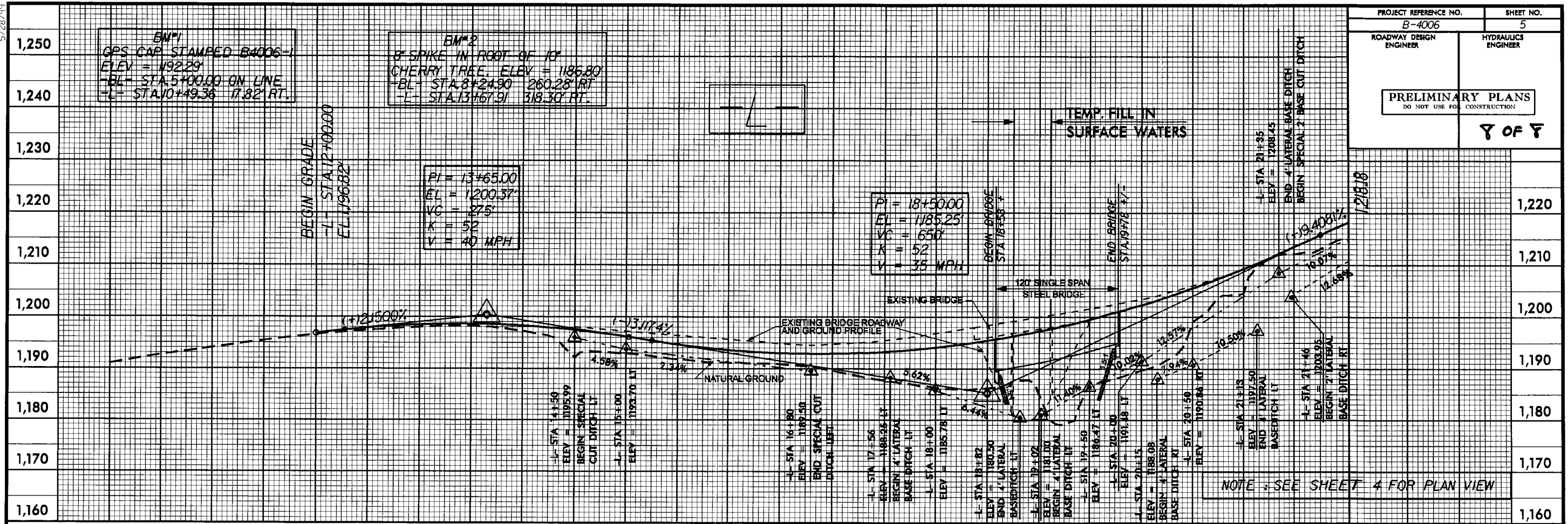


DENOTES TEMPORARY SURFACE WATER IMPACTS

-L-		
PI Sta 10+30.55 $\Delta = 46^{\circ} 23' 25.0''$ (LT) D = 163' 42" 08.0" L = 28.3' T = 15.00' R = 35.00'	PI Sta 16+22.40 $\Delta = 84^{\circ} 21' 27.0''$ (RT) D = 16' 22" 12.8" L = 515.31' T = 317.12' R = 350.00' SE = SEE PLANS	PI Sta 23+88.12 $\Delta = 6^{\circ} 40' 48.2''$ (RT) D = 3' 49" 11.0" L = 174.88' T = 87.54' R = 1,500.00' SE = SEE PLANS
-Y-		
PI Sta 10+44.49 $\Delta = 22^{\circ} 33' 06.6''$ (RT) D = 35' 00" 01.7" L = 64.43' T = 32.64' R = 163.70' SE = SEE PLANS	PI Sta 11+84.15 $\Delta = 16^{\circ} 49' 08.6''$ (RT) D = 28' 38" 52.4" L = 58.71' T = 29.57' R = 200.00' SE = SEE PLANS	PI Sta 11+23.17 $\Delta = 28^{\circ} 01' 12.0''$ (LT) D = 57' 17" 44.8" L = 48.90' T = 24.95' R = 100.00'

REVISIONS

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**DITCH LEGEND**

LEFT DITCH	---
RIGHT DITCH	---

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STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	<b>B-4006</b>	<b>1</b>	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
33374.1.1	BRZ-1446(2)	P.E.	

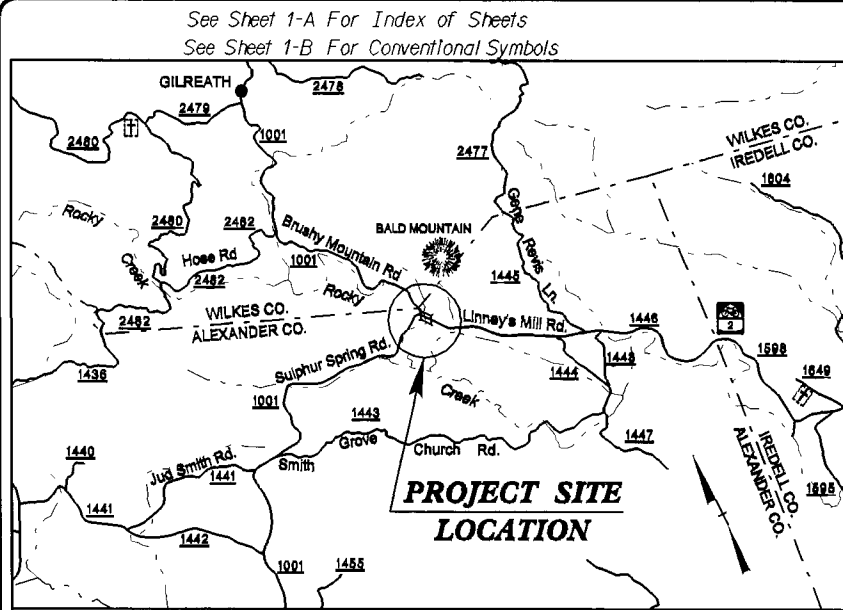
STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

**ALEXANDER COUNTY**

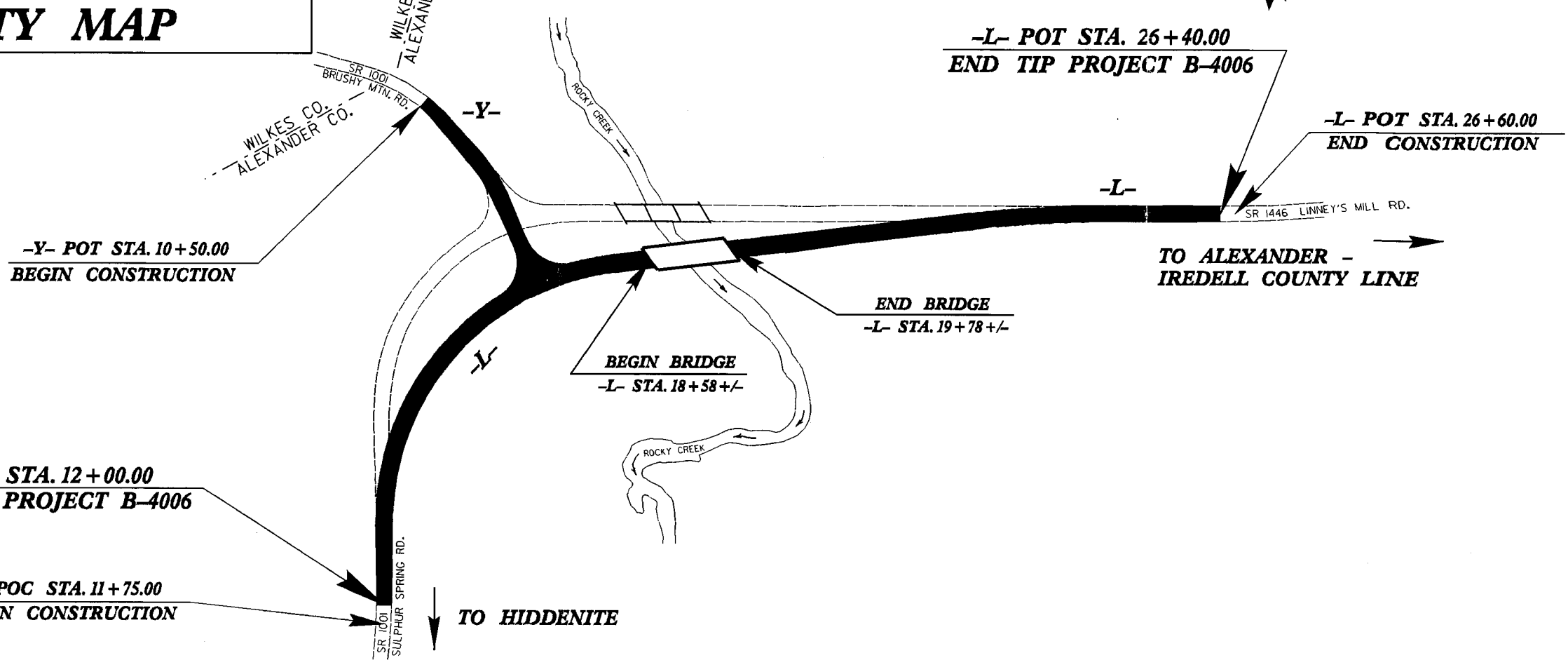
**LOCATION: REPLACE BRIDGE No. 8 ON SR 1446  
OVER ROCKY CREEK**

**TYPE OF WORK: GRADING, DRAINAGE, PAVING,  
STRUCTURE, AND RESURFACING**

PRELIMINARY PLANS  
DO NOT USE FOR CONSTRUCTION



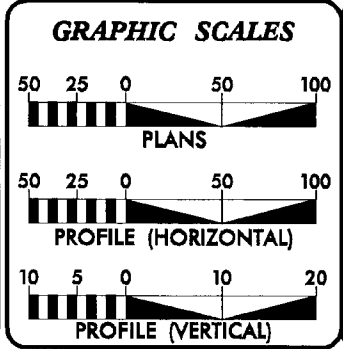
**VICINITY MAP**



**\*\* DESIGN EXCEPTION REQUIRED FOR DESIGN SPEED**

**TIP PROJECT: B-4006**

**CONTRACT: C20158**



**DESIGN DATA**

ADT 2002 =	400
ADT 2025 =	800
DHV =	10 %
D =	60 %
T =	3 % *
**V =	30 MPH
* TTST 1% DUAL 2%	
FUNC CLASS =	LOCAL

**PROJECT LENGTH**

LENGTH ROADWAY TIP PROJECT B-4006 =	0.250 MI
LENGTH STRUCTURE TIP PROJECT B-4006 = +/-	0.023 MI
TOTAL LENGTH TIP PROJECT B-4006 =	0.273 MI

Prepared In the Office of:  
**DIVISION OF HIGHWAYS**  
1000 Birch Ridge Dr., Raleigh NC, 27610

2002 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: **SEPTEMBER 08, 2005**

LETTING DATE: **FEBRUARY 20, 2007**

**ROGER D. THOMAS, PE**  
PROJECT ENGINEER

**BRIAN P. ROBINSON**  
PROJECT DESIGN ENGINEER

**HYDRAULICS ENGINEER**

SIGNATURE: \_\_\_\_\_ P.E.

**ROADWAY DESIGN ENGINEER**

SIGNATURE: \_\_\_\_\_ P.E.

**DIVISION OF HIGHWAYS  
STATE OF NORTH CAROLINA**

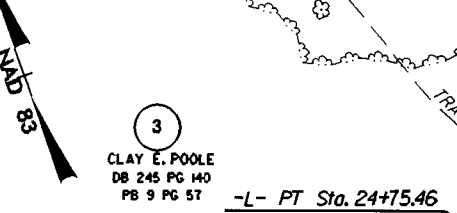
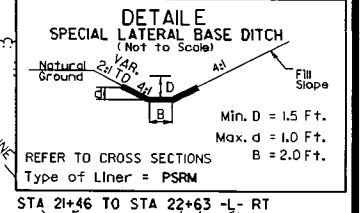
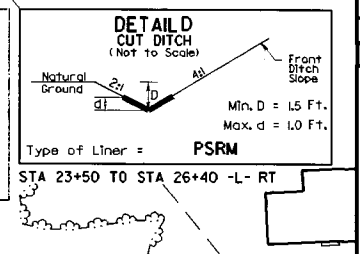
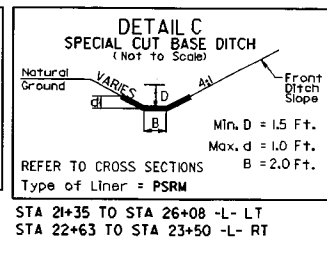
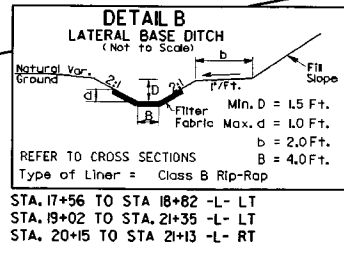
STATE DESIGN ENGINEER \_\_\_\_\_ P.E.

**DEPARTMENT OF TRANSPORTATION  
FEDERAL HIGHWAY ADMINISTRATION**

APPROVED \_\_\_\_\_ P.E.

DIVISION ADMINISTRATOR \_\_\_\_\_ DATE \_\_\_\_\_

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\$\$\$\$\$USERNAME\$\$\$\$\$

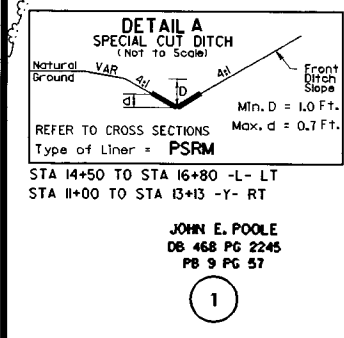


RALPH J. ANDERSON  
DB 528 PG 413  
DB 169 PG 542

-Y- POT Sta. 10+00.00  
-Y- PC Sta. 10+11.85

**BEGIN CONSTRUCTION**  
-Y- POC Sta. 10+50.00

JOHN E. POOLE  
DB 468 PG 2245  
PB 9 PG 57



**BEGIN BRIDGE**  
-L- Sta. 18+58+/-

**END BRIDGE**  
-L- Sta. 19+78+/-

**BEGIN TIP PROJECT B-4006**  
-L- POC Sta. 12+00.00

**BEGIN CONSTRUCTION**  
-L- POC Sta. 11+75.00

**END TIP PROJECT B-4006**  
-L- POT Sta. 26+40.00

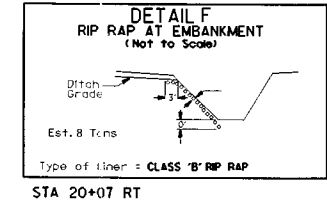
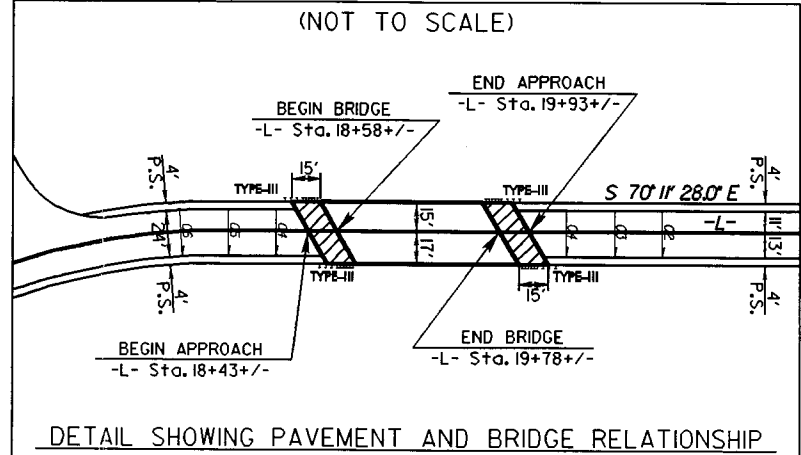
**END CONSTRUCTION**  
-L- POT Sta. 26+60.00

FRED L. POOLE  
DB 468 PG 2255  
PB 9 PG 57

JOHN E. POOLE  
DB 468 PG 2245  
PB 9 PG 57

7.5 TS DENOTES TEMPORARY FILL IN SURFACE WATER

PROVIDE 6" DECK DRAINS ON RIGHT SIDE OF BRIDGE AT 10' CENTERS FROM STA 18+72 +/- TO STA 19+21 +/- AND FROM STA 19+48 +/- TO STA 19+83 +/-

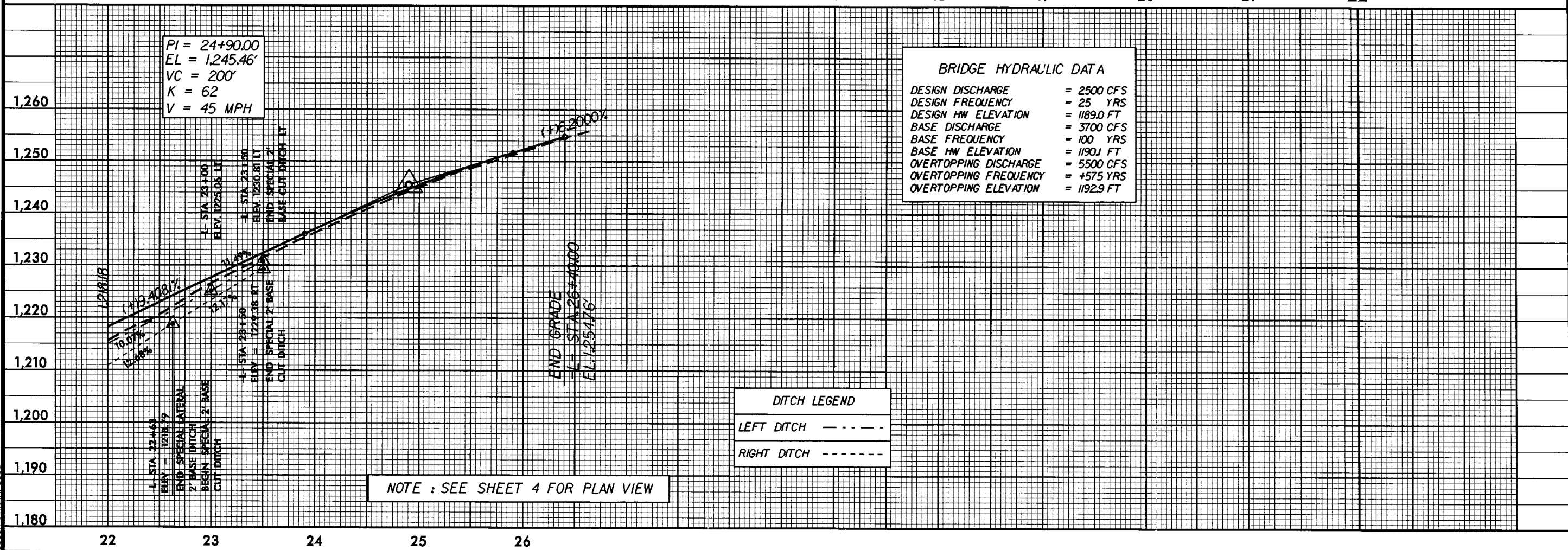
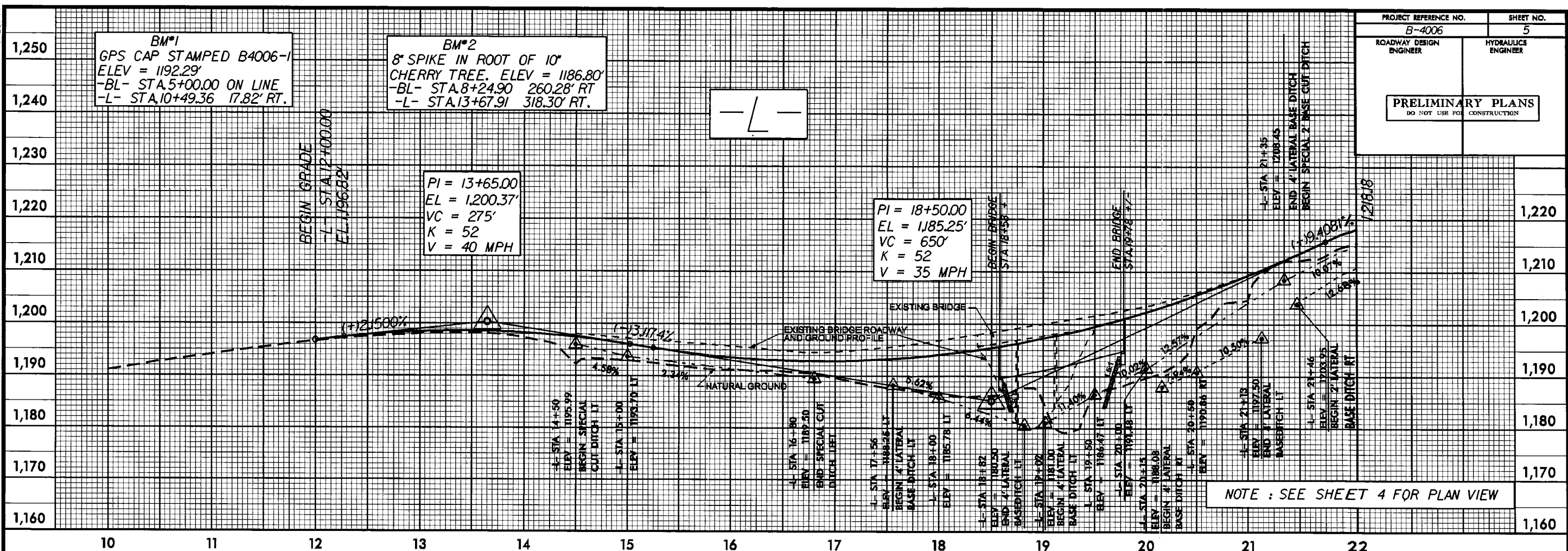


-DW2-		
PI Sta 10+30.55	PI Sta 16+22.40	PI Sta 23+88.12
$\Delta = 46' 23' 25.0''$ (LT)	$\Delta = 84' 21' 27.0''$ (RT)	$\Delta = 6' 40' 48.2''$ (RT)
D = 163' 42' 08.0'	D = 16' 22' 12.8'	D = 3' 49' 11.0'
L = 28.34'	L = 515.31'	L = 174.88'
T = 15.00'	T = 317.12'	T = 87.54'
R = 35.00'	R = 350.00'	R = 1,500.00'
SE = SEE PLANS		
-L-		
PI Sta 11+24.92	PI Sta 16+22.40	PI Sta 23+88.12
$\Delta = 14' 54' 17.0''$ (LT)	$\Delta = 84' 21' 27.0''$ (RT)	$\Delta = 6' 40' 48.2''$ (RT)
D = 5' 59' 58.4'	D = 16' 22' 12.8'	D = 3' 49' 11.0'
L = 248.43'	L = 515.31'	L = 174.88'
T = 124.92'	T = 317.12'	T = 87.54'
R = 955.00'	R = 350.00'	R = 1,500.00'
SE = SEE PLANS		
-Y-		
PI Sta 10+44.49	PI Sta 11+84.15	PI Sta 11+23.17
$\Delta = 22' 33' 06.6''$ (RT)	$\Delta = 16' 49' 08.6''$ (RT)	$\Delta = 28' 01' 12.0''$ (LT)
D = 35' 00' 01.7'	D = 28' 36' 52.4'	D = 57' 17' 44.8'
L = 64.43'	L = 58.31'	L = 48.90'
T = 32.64'	T = 29.57'	T = 24.95'
R = 163.70'	R = 200.00'	R = 100.00'
SE = SEE PLANS		
-DW1-		

NOTE: SEE SHEET 5 FOR -L- PROFILE  
SEE SHEET 6 FOR -Y-, -DW1- & -DW2- PROFILES

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PROJECT REFERENCE NO. B-4006	SHEET NO. 5
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	



**BRIDGE HYDRAULIC DATA**

DESIGN DISCHARGE	= 2500 CFS
DESIGN FREQUENCY	= 25 YRS
DESIGN HW ELEVATION	= 1189.0 FT
BASE DISCHARGE	= 3700 CFS
BASE FREQUENCY	= 100 YRS
BASE HW ELEVATION	= 1190J FT
OVERTOPPING DISCHARGE	= 5500 CFS
OVERTOPPING FREQUENCY	= +575 YRS
OVERTOPPING ELEVATION	= 1192.9 FT

**DITCH LEGEND**

LEFT DITCH	- - - - -
RIGHT DITCH	- - - - -

NOTE : SEE SHEET 4 FOR PLAN VIEW



**Alexander County  
Bridge No. 8 on SR 1446  
Over Rocky Creek  
Federal Aid Project No. BRZ-1446(2)  
State Project No. 8.2780901  
W.B.S. No. 33374.1.1  
T.I.P. No. B-4006**

CATEGORICAL EXCLUSION

UNITED STATES DEPARTMENT OF TRANSPORTATION

FEDERAL HIGHWAY ADMINISTRATION

AND

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

Approved:

12/15/04  
DATE

*for* Gregory J. Thorpe  
Gregory J. Thorpe, PhD, Environmental Manager  
Project Development & Environmental Analysis Branch

12/21/04  
DATE

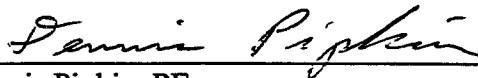
*for* John F. Sullivan, III  
John F. Sullivan, III, P.E., Division Administrator  
Federal Highway Administration

**Alexander County  
Bridge No. 8 on SR 1446  
Over Rocky Creek  
Federal Aid Project No. BRZ-1446(2)  
State Project No. 8.2780901  
W.B.S. No. 33374.1.1  
T.I.P. No. B-4006**

**CATEGORICAL EXCLUSION**

Documentation Prepared in  
Project Development and Environmental Analysis Branch By:

December 2004



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Dennis Pipkin, PE  
Project Planning Engineer



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William T. Goodwin Jr., PE, Unit Head  
Bridge Replacement Planning Unit

## **ENVIRONMENTAL COMMITMENTS:**

Alexander County  
Bridge No. 8 on SR 1446  
over Rocky Creek  
Federal Aid Project No. BRZ-1446(2)  
State Project No. 8.2780901  
T.I.P. No. B-4006

### **1. Roadway Design Unit, Roadside Environmental Unit, Resident Engineer:**

Revegetation: The existing bridge and approaches will be removed after the new bridge is completed, and the area will be revegetated with appropriate plant species.

#### Sedimentation & Erosion Control:

The NC Wildlife Resources Commission stated that sediment and erosion control measures should adhere to design standards for sensitive watersheds.

### **2. PD&EA Branch, Roadway Design Unit, Structure Design Unit, Resident Engineer:**

#### Bridge Demolition:

The bridge is composed of a reinforced concrete deck on steel I-beams. The substructure consists of reinforced concrete caps on timber piles. There is potential for components of the concrete sections to be dropped into the Waters of the United States. The resulting temporary fill associated with this bridge would be a maximum of 106 cubic yards. During construction, Best Management Practices for Bridge Demolition and removal will be followed.

#### Design Standards for Bicycle Routes:

SR 1446 is designated as North Carolina State Bicycle Route No. 2. Therefore, AASHTO Design Standards for Bicycle routes will apply.

Alexander County  
Bridge No. 8 on SR 1446  
over Rocky Creek  
Federal Aid Project No. BRZ-1446(2)  
State Project No. 8.2780901  
W.B.S. No. 33374.1.1  
T.I.P. No. B-4006

**INTRODUCTION:** Bridge No. 8 is included in the 2004-2010 North Carolina Department of Transportation (NCDOT) Transportation Improvement Program and is eligible for the Federal-Aid Bridge Replacement and Rehabilitation Program. The location is shown in Figure 1. No substantial environmental impacts are anticipated. The project is classified as a Federal “Categorical Exclusion”.

## **I. PURPOSE AND NEED STATEMENT**

Bridge No. 8 includes a 3-span superstructure composed of a reinforced concrete floor and reinforced concrete deck. The substructure consists of reinforced concrete caps on timber piles.

NCDOT Bridge Maintenance Unit records indicate the bridge has a sufficiency rating of 39.3 out of a possible 100 for a new structure. The bridge is considered to be structurally deficient. The replacement of this inadequate structure will result in safer traffic operations. According to the Federal Highway Administration (FHWA) standards, this bridge is considered to be structurally deficient since it has a deck geometry appraisal of 4 out of 9 paired with a sufficiency rating of 39.3, which is less than the FHWA sufficiency standard of 50 or less. The bridge is therefore considered eligible for FHWA’s Highway Bridge Replacement and Rehabilitation Program.

Other considerations such as wear and tear resulting from increasing traffic, aging (53 year old) bridge components, and increasing maintenance costs all justify the replacement of this bridge.

## **II. EXISTING CONDITIONS**

The project is located in northeastern Alexander County (see Figure 1). Development in the area is agricultural and small business in nature.

SR 1446 is classified as a Rural Local facility in the Statewide Functional Classification System and it is not a Federal-Aid Highway. SR 1446 is designated as State Bicycle Route No. 2. Design Standards for Bicycle routes will apply.

In the vicinity of the bridge, SR 1446 has an 18-foot pavement width with 6-foot grass shoulders (see Figure 3). The roadway is situated approximately 20 feet above the bed of Rocky Creek.

The existing bridge (see Figure 3) was constructed in 1951. The overall length of the structure is 113 feet. The clear roadway width is 22.1 feet. The bridge is posted with weight restrictions of 17 tons for single vehicles and 22 tons for truck-tractor semi-trailers.

The current traffic volume of 400 vehicles per day (VPD) is expected to increase to 800 VPD by the year 2025. The projected volume includes one percent truck-tractor semi-trailer (TTST) and 2 percent dual-tired vehicles (DT). Regulatory speed limits are not posted in the bridge vicinity. An advisory speed limit of 35 MPH is posted for a road curvature east of the eastern bridge approaches.

There were no accidents reported in the vicinity of Bridge No. 8 during a recent three year period.

No school buses cross the bridge at the present time.

SR 1446 is a designated North Carolina Bicycling Highway.

### **III. ALTERNATIVES**

#### **A. Project Description**

SR 1446 is a designated North Carolina Bicycling Highway (State Bicycle Route No. 2), thus the bridge will be constructed utilizing Design Standards for Bicycle Routes. AASHTO bicycle standards require 54 inch high rails, minimum offsets of 4 feet on each side, and approaches accommodating 4 foot turf shoulders on each side.

The anticipated overall length of the replacement structure will be approximately 110 feet. Final structure length will be determined during final design. The bridge will be of sufficient width to provide for two 11-foot lanes with a 4-foot rail offset on the south side and a 6 foot rail offset on the north side. Approach shoulder width will be 6 feet. Shoulders will be increased by 3 feet where guardrail is warranted.

The existing roadway approaches will be widened to a 32-foot pavement width to provide two 11-foot lanes. Six foot (9-foot where guardrail is required) grass shoulders will be provided on each side.

Initial design indicates the completed project will provide a design speed of 30 mph. Therefore a design exception for design speed is anticipated.

SR 1446 is classified as a Rural Local facility in the Statewide Functional Classification System and it is not a Federal-Aid Highway.

#### **B. Reasonable and Feasible Alternatives**

One alternate for replacing Bridge No. 8 is described below.

**Alternate One:** - Replace the existing bridge with a new bridge on new alignment to the south of the existing bridge. Traffic will be maintained on the existing bridge during construction.

### C. Alternatives Eliminated From Further Consideration

The “do-nothing” alternate will eventually necessitate closure of the bridge. This is not acceptable due to the traffic service provided by SR 1446.

“Rehabilitation” of the old bridge is not practical due to its age and deteriorated condition. The bridge is considered structurally deficient due to the aging of the timber components.

Consideration was given to replacing the bridge at its existing location, provided that a suitable offsite detour could be found. However, the only offsite detour of reasonable length is not paved. The Division Engineer has stated his opinion that no suitable offsite detours are available. At the scoping meeting, all attendees agreed on this point. In addition, the Alexander County Emergency Management Director has expressed objections to use of any offsite detour with this project. Thus this alternate was eliminated from further consideration.

Replacement of the existing bridge with a new bridge on new alignment to the north of existing was briefly considered. This alternate was eliminated due to the existence of a hill and an intersecting road to the north. Design of such an alternate would involve extensive earthwork, with resulting high costs as compared to the southern alternate.

### D. Preferred Alternative

Bridge No. 8 will be replaced at the new alignment as shown in Figure 2. Alternate One is recommended because local terrain relief does not allow replacement to the north, and replacement to the south will result in an improved alignment and improved design speed.

The NCDOT Division 12 Engineer concurs with the selection of Alternate One as the preferred alternate.

## IV. ESTIMATED COSTS

The estimated costs for the build alternative is as follows:

<b>Item</b>	<b>Alternate 1</b>
Structure	\$ 264,000
Roadway Approaches	346,000
Structure Removal	21,000
Eng. & Contingencies	104,000
Mobilization & Miscellaneous	199,000
Total Construction Cost	\$ 934,000
Right-of-way Costs	\$ 67,000
Total Project Cost	\$ 1,001,000

## V. NATURAL RESOURCES

### PHYSICAL RESOURCES

#### Water Resources

The project area is located within sub-basin 03-07-06 of the Yadkin-Pee Dee River Basin (DWQ 2003). This area is part of USGS Hydrologic Unit 03040102 of the South Atlantic/Gulf Region. The structure targeted for replacement spans Rocky Creek and the adjacent floodplain. The portion of Rocky Creek that lies within the project area has been assigned Stream Index Number 12-108-11 by DWQ (2002).

The proposed bridge replacement will allow for continuation of pre-project stream flows in Rocky Creek, thereby protecting the integrity of this waterway. Long-term impacts resulting from construction are expected to be negligible. In order to minimize impacts to water resources, NCDOT *Best Management Practices for the Protection of Surface Waters* will be strictly enforced during the entire life of the project.

NCDOT will coordinate with various resource agencies during project planning to ensure that all concerns regarding bridge demolition are resolved. The replacement of Bridge No. 8 can be classified as Case 3; therefore, there are no special restrictions beyond those outlined in *Best Management Practices for Protection of Surface Waters*.

### JURISDICTIONAL TOPICS

#### Waters of the United States

The project area contains two vegetated wetlands that can be classified as palustrine, forested, broad-leaved deciduous, temporarily flooded (PFO1A) and palustrine, persistent emergent, seasonally flooded (PEM1C). Both wetlands are located in the southwesternmost portion of the project area; with one wetland located just west of the stream and road, and the second wetland located adjacent to the eastern stream bank

Information pertaining to jurisdictional areas within the project area is summarized in Table 2.

**Table 2. Jurisdictional Areas** (Site numbers are depicted on Figure 2.)

Site	Cowardin Classification	Linear Distance (ft.)	Area (acres)	DWQ Rating
1	R3UB1	1489.0	1.0	N/A
2	PF01A	N/A	0.1	36
3	PEM1C	N/A	0.01	30

### BRIDGE DEMOLITION

Best Management Practices for Bridge Demolition & Removal will be implemented. The bridge is composed of a reinforced concrete deck on steel I-beams. The substructure consists of reinforced concrete caps on timber piles. There is potential for components of the concrete to be

dropped into the Waters of the United States. The resulting temporary fill associated with this bridge is a maximum of 106 cubic yards.

### **Protected Species**

One federally protected species is listed for Alexander County (February 3, 2003 FWS list); bog turtle (*Clemmys muhlenbergii*), which has a status of Threatened due to similarity of appearance.

#### ***Clemmys muhlenbergii* (Bog turtle)**

#### **Threatened due to similarity of appearance**

Family: Emydidae

Date Listed: May 1, 1997

The bog turtle is listed as T(S/A) due to its similarity of appearance to another rare species listed for protection. T (S/A) species are not subject to Section 7 consultation and a **biological conclusion for this species is not required.**

## **VI. CULTURAL RESOURCES**

### **A. Compliance Guidelines**

This project is subject to compliance with Section 106 of the National Historic Preservation Act of 1966, as amended, implemented by the Advisory Council on Historic Preservation's Regulations for Compliance with Section 106, codified at Title 36 CFR Part 800. Section 106 requires Federal agencies to take into account the effect of their undertakings (federally funded, licensed, or permitted) on properties included in or eligible for inclusion in the National Register of Historic Places and afford the Advisory Council a reasonable opportunity to comment on such undertakings.

### **B. Historic Architecture**

The NC Historic Preservation Office (HPO) stated in a letter dated October 20, 2003, that no archeology survey was recommended. However, an architectural history survey was recommended due to the age of the bridge. Further information was submitted at a conference with the HPO in March 2004, and the HPO concluded that an architectural history survey was not required. The HPO stated their revised opinion in a letter dated March 31, 2004.

### **C. Archaeology**

The NC Historic Preservation Office (HPO) stated in their letter dated October 20, 2003, and again in a letter dated March 31, 2004 that an archeological survey is not recommended.

## **VII. GENERAL ENVIRONMENTAL EFFECTS**

The project is expected to have an overall positive impact. Replacement of an inadequate bridge will result in safer traffic operations.



The project is considered to be a Federal “Categorical Exclusion” due to its limited scope and lack of substantial environmental consequences.

The bridge replacement will not have an adverse effect on the quality of the human or natural environment with the use of the current North Carolina Department of Transportation standards and specifications.

The project is not in conflict with any plan, existing land use, or zoning regulation. No change in land use is expected to result from the construction of the project.

No adverse impact on families or communities is anticipated. Right-of-Way acquisition will be limited. No relocations are expected with implementation of the proposed alternative.

No adverse effect on public facilities or services is expected. The project is not expected to adversely affect social, economic, or religious opportunities in the area.

The proposed project will not require right-of-way acquisition or easement from any land protected under Section 4(f) of the Department of Transportation Act of 1966.

The Farmland Protection Policy Act requires all federal agencies or their representatives to consider the potential impact to prime farmland of all land acquisition and construction projects. There are no soils classified as prime, unique, or having state or local importance to be affected by the project.

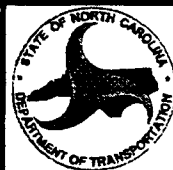
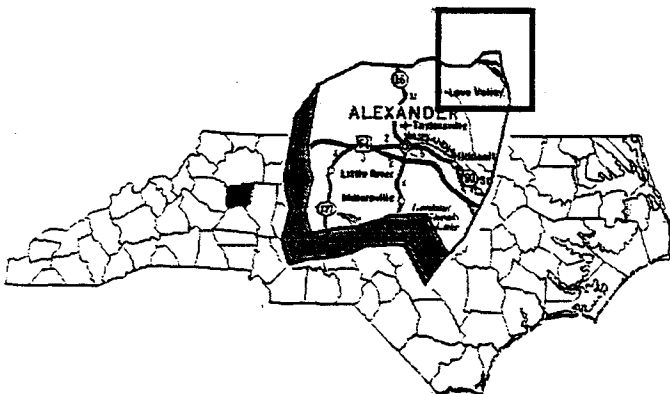
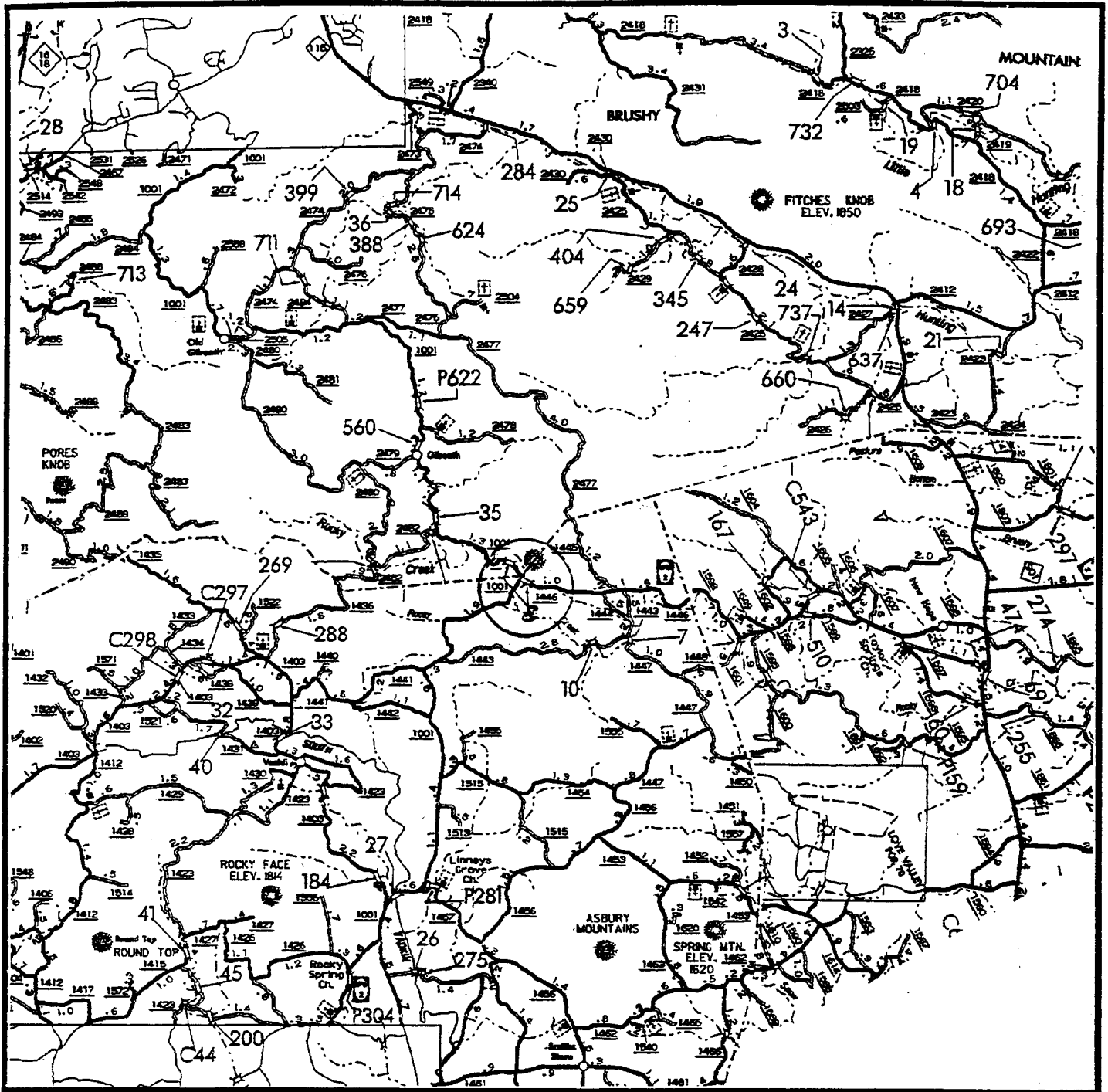
This project is an air quality “neutral” project, so it is not required to be included in the regional emissions analysis and a project level CO analysis is not required. If vegetation is disposed of by burning, all burning shall be done in accordance with applicable local laws and regulations of the North Carolina State Implementation Plan (SIP) for air quality in compliance with 15 NCAC 2D.0520.

Noise levels could increase during construction but will be temporary. This evaluation completes the assessment requirements for highway traffic noise of Title 23, Code of Federal Regulation (CFR), Part 772 and for air quality (1990 Clean Air Act Amendments and the National Environmental Policy Act) and no additional reports are required.

An examination of records at the North Carolina Department of Environment and Natural Resources, Division of Environmental Management, Groundwater Section and the North Carolina Department of Human Resources, Solid Waste Management Section revealed no underground storage tanks or hazardous waste sites in the project area.

Alexander County is a participant in the National Flood Insurance Program. However, this crossing of Rocky Creek is not within a designated 100-year flood zone. There are no practical alternatives to crossing the floodplain area. Any shift in alignment will result in an impact area of about the same magnitude. The proposed project is not anticipated to increase the level or extent of upstream flood potential.

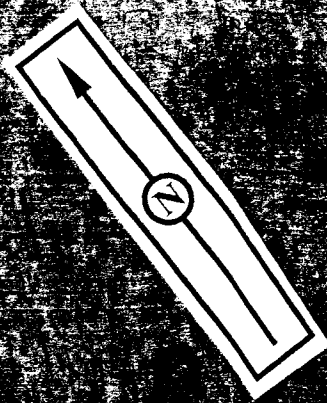
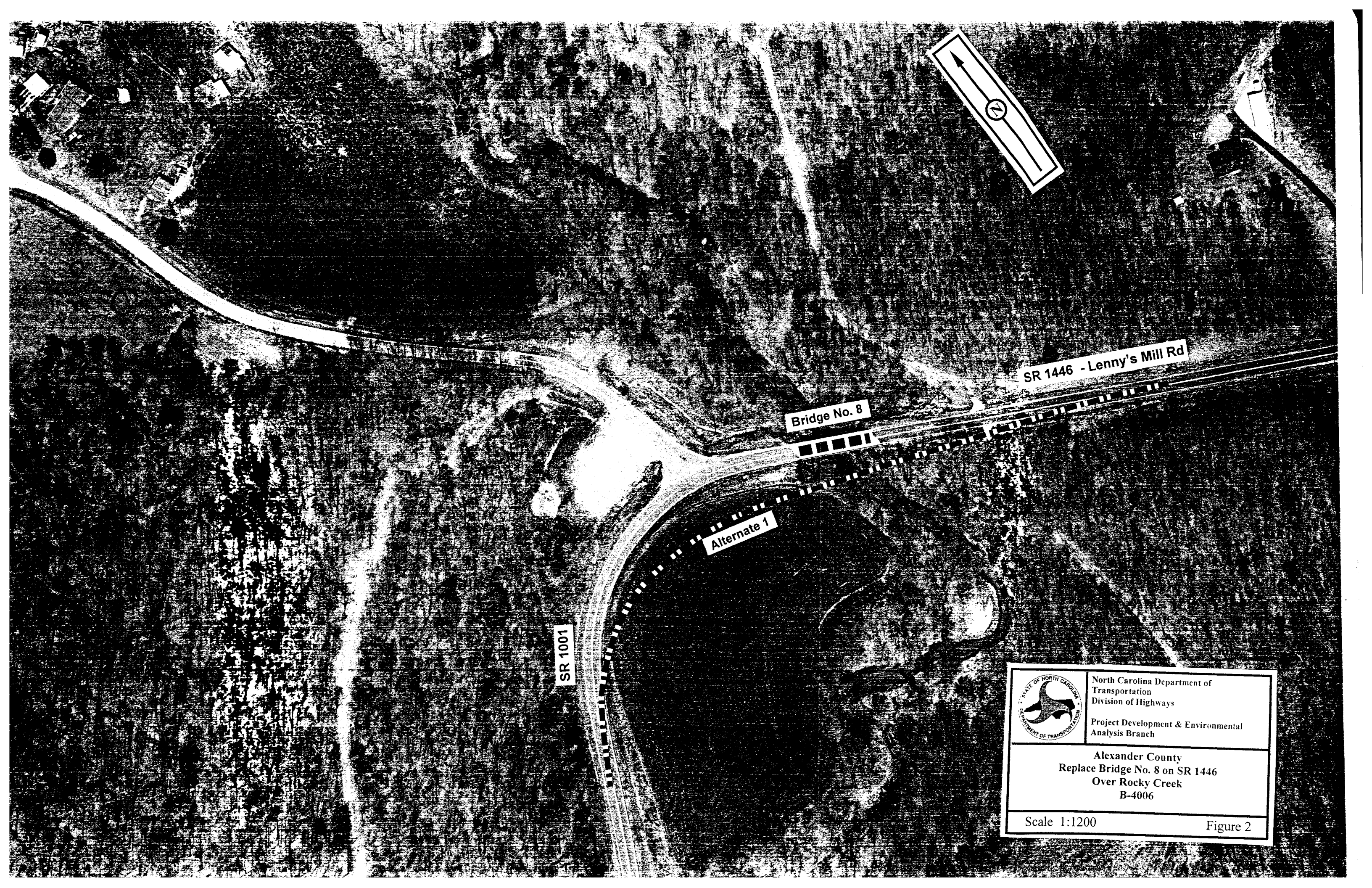
On the basis of the above discussion, it is concluded that no substantial adverse environmental impacts will result from implementation of the project.



NORTH CAROLINA DEPARTMENT OF  
TRANSPORTATION  
DIVISION OF HIGHWAYS  
PROJECT DEVELOPMENT &  
ENVIRONMENTAL ANALYSIS BRANCH

**ALEXANDER COUNTY**  
**REPLACE BRIDGE NO. 8 ON SR 1446**  
**OVER ROCKY CREEK**  
**B-4006**

Figure 1




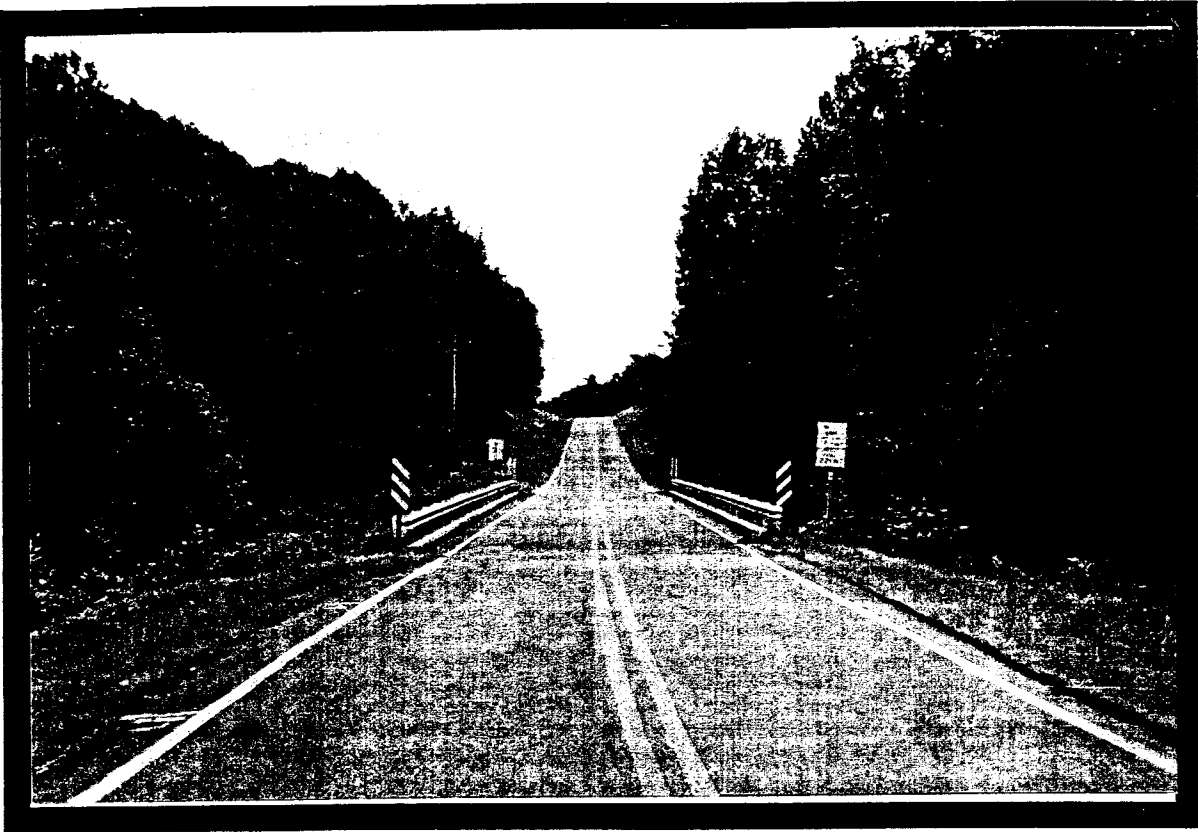
SR 1446 - Lenny's Mill Rd

Bridge No. 8

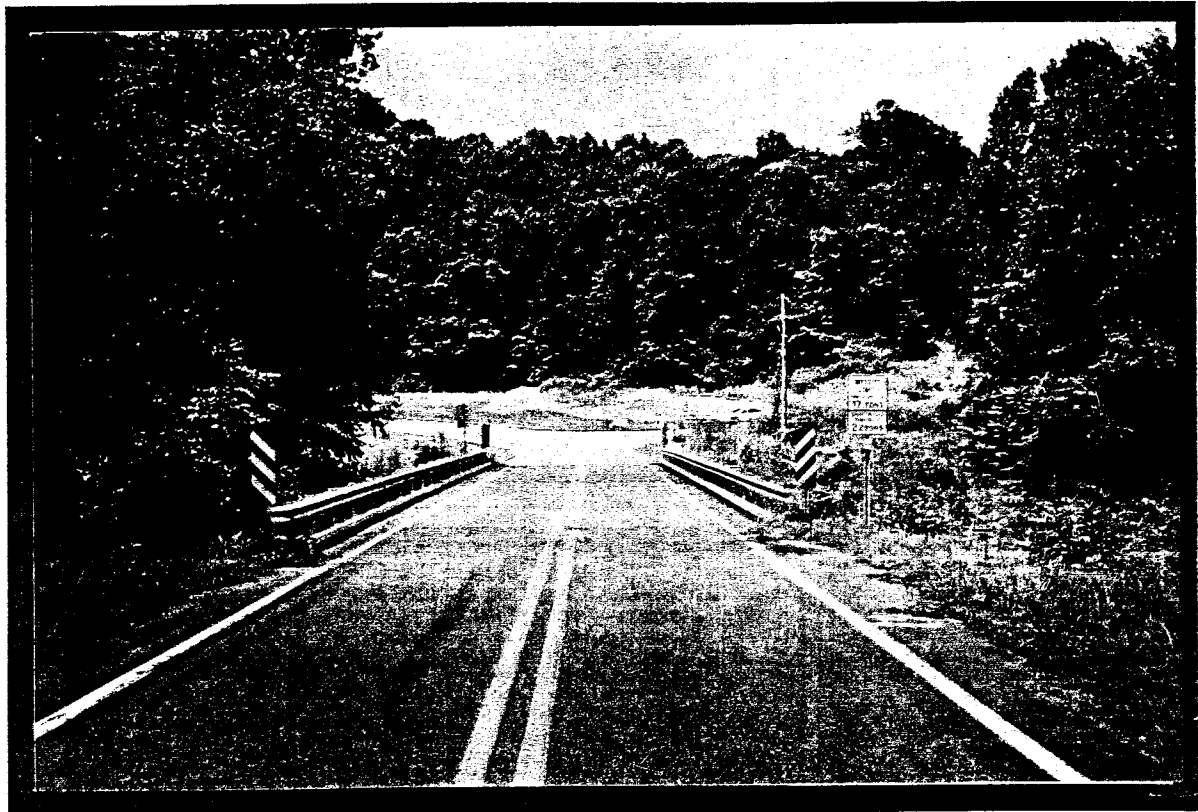
Alternate 1

SR 1001

	North Carolina Department of Transportation Division of Highways
	Project Development & Environmental Analysis Branch
<b>Alexander County</b> <b>Replace Bridge No. 8 on SR 1446</b> <b>Over Rocky Creek</b> <b>B-4006</b>	
Scale 1:1200	Figure 2



Looking east  
across Bridge  
No. 8



Looking west  
across Bridge  
No. 8


	<p>North Carolina Department of Transportation Division of Highways Project Development &amp; Environmental Analysis Branch</p>
<p>Alexander County Replace Bridge No. 8 on SR 1446 Over Rocky Creek B-4006</p>	

Figure Three

B-4006  
Pipkin



## ☒ North Carolina Wildlife Resources Commission ☒

Charles R. Fullwood, Executive Director

TO: William T. Goodwin, Jr., PE, Unit Head  
Bridge Replacement Planning Unit, NCDOT

FROM: Marla Chambers, Highway Projects Coordinator *Marla Chambers*  
Habitat Conservation Program, NCWRC

DATE: July 18, 2003

SUBJECT: Review of Natural Systems Technical Reports for bridge replacement projects scheduled for construction in CFY 2006. Yellow light projects.

North Carolina Department of Transportation (NCDOT) has requested comments from the North Carolina Wildlife Resources Commission (NCWRC) regarding impacts to fish and wildlife resources resulting from the subject projects. Staff biologists have reviewed the Executive Summaries for the Natural Systems Technical Reports and have the following preliminary comments. These comments are provided in accordance with the provisions of the National Environmental Policy Act (42 U.S.C. 4332(2)(c)) and the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661-667d).

Our standard recommendations for bridge replacement projects of this scope are as follows:

1. We generally prefer spanning structures. Spanning structures usually do not require work within the stream and do not require stream channel realignment. The horizontal and vertical clearances provided by bridges allows for human and wildlife passage beneath the structure, does not block fish passage, and does not block navigation by canoeists and boaters.
2. Bridge deck drains should not discharge directly into the stream.
3. Live concrete should not be allowed to contact the water in or entering into the stream.
4. If possible, bridge supports (bents) should not be placed in the stream.

5. If temporary access roads or detours are constructed, they should be removed back to original ground elevations immediately upon the completion of the project. Disturbed areas should be seeded or mulched to stabilize the soil and native tree species should be planted with a spacing of not more than 10'x10'. If possible, when using temporary structures the area should be cleared but not grubbed. Clearing the area with chain saws, mowers, bush-hogs, or other mechanized equipment and leaving the stumps and root mat intact, allows the area to revegetate naturally and minimizes disturbed soil.
6. A clear bank (riprap free) area of at least 10 feet should remain on each side of the stream underneath the bridge.
7. In trout waters, the N.C. Wildlife Resources Commission reviews all U.S. Army Corps of Engineers nationwide and general '404' permits. We have the option of requesting additional measures to protect trout and trout habitat and we can recommend that the project require an individual '404' permit.
8. In streams that contain threatened or endangered species, Mr. Hal Bain with the NCDOT - ONE should be notified. Special measures to protect these sensitive species may be required. NCDOT should also contact the U.S. Fish and Wildlife Service for information on requirements of the Endangered Species Act as it relates to the project.
9. In streams that are used by anadromous fish, the NCDOT official policy entitled "Stream Crossing Guidelines for Anadromous Fish Passage (May 12, 1997)" should be followed.
10. In areas with significant fisheries for sunfish, seasonal exclusions may also be recommended.
11. Sedimentation and erosion control measures sufficient to protect aquatic resources must be implemented prior to any ground disturbing activities. Structures should be maintained regularly, especially following rainfall events.
12. Temporary or permanent herbaceous vegetation should be planted on all bare soil within 15 days of ground disturbing activities to provide long-term erosion control.
13. All work in or adjacent to stream waters should be conducted in a dry work area. Sandbags, rock berms, cofferdams, or other diversion structures should be used where possible to prevent excavation in flowing water.
14. Heavy equipment should be operated from the bank rather than in stream channels in order to minimize sedimentation and reduce the likelihood of introducing other pollutants into streams.
15. Only clean, sediment-free rock should be used as temporary fill (causeways), and should be removed without excessive disturbance of the natural stream bottom when construction is completed.

16. During subsurface investigations, equipment should be inspected daily and maintained to prevent contamination of surface waters from leaking fuels, lubricants, hydraulic fluids, or other toxic materials.
17. If culvert installation is being considered, conduct subsurface investigations prior to structure design to determine design options and constraints and to ensure that wildlife passage issues are addressed.

If corrugated metal pipe arches, reinforced concrete pipes, or concrete box culverts are used:

1. The culvert must be designed to allow for aquatic life and fish passage. Generally, the culvert or pipe invert should be buried at least 1 foot below the natural streambed (measured from the natural thalweg depth). If multiple barrels are required, barrels other than the base flow barrel(s) should be placed on or near stream bankfull or floodplain bench elevation (similar to Lyonsfield design). These should be reconnected to floodplain benches as appropriate. This may be accomplished by utilizing sills on the upstream end to restrict or divert flow to the base flow barrel(s). Silled barrels should be filled with sediment so as not to cause noxious or mosquito breeding conditions. Sufficient water depth should be provided in the base flow barrel during low flows to accommodate fish movement. If culverts are longer than 40-50 linear feet, alternating or notched baffles should be installed in a manner that mimics existing stream pattern. This should enhance aquatic life passage: 1) by depositing sediments in the barrel, 2) by maintaining channel depth and flow regimes, and 3) by providing resting places for fish and other aquatic organisms. In essence, the base flow barrel(s) should provide a continuum of water depth and channel width without substantial modifications of velocity.
2. If multiple pipes or cells are used, at least one pipe or box should be designed to remain dry during normal flows to allow for wildlife passage.
3. Culverts or pipes should be situated along the existing channel alignment whenever possible to avoid channel realignment. Widening the stream channel must be avoided. Stream channel widening at the inlet or outlet end of structures typically decreases water velocity causing sediment deposition that requires increased maintenance and disrupts aquatic life passage.
4. Riprap should not be placed in the active thalweg channel or placed in the streambed in a manner that precludes aquatic life passage. Bioengineering boulders or structures should be professionally designed, sized, and installed.

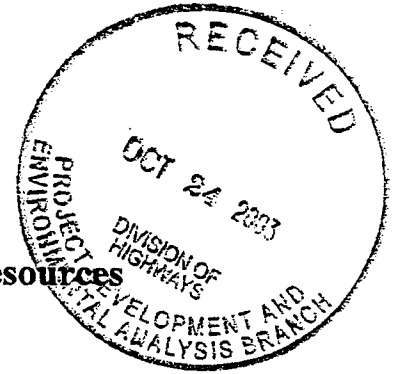
In most cases, we prefer the replacement of the existing structure at the same location with road closure. If road closure is not feasible, a temporary detour should be designed and located to avoid wetland impacts, minimize the need for clearing and to avoid destabilizing stream banks. If the structure will be on a new alignment, the old structure should be removed and the approach fills removed from the 100-year floodplain. Approach fills should be removed



down to the natural ground elevation. The area should be stabilized with grass and planted with native tree species. Tall fescue should not be used in riparian areas. If the area that is reclaimed was previously wetlands, NCDOT should restore the area to wetlands. If successful, the site may be used as wetland mitigation for the subject project or other projects in the watershed.

Project specific comments:

1. B-4006, Alexander Co., Bridge No. 8 on SR 1446 (Linneys Mill Road) over Rocky Creek. YELLOW LIGHT. A WS-II High Quality Water (HQW) designation occurs 0.4 miles downstream (South Yadkin River). Sediment and erosion control measures should adhere to the design standards for sensitive watersheds.
2. B-4051, Cabarrus Co., Bridge No. 90 on SR 2408 (Gold Hill Road) over Black Run Creek. YELLOW LIGHT. Black Run Creek is classified as WS-II and HQW (High Quality Waters) and the Carolina creekshell (*Villosa vaughaniana*), Federal Species of Concern and state Endangered, has been found downstream. A mussel survey should be conducted. Sediment and erosion control measures should adhere to the design standards for sensitive watersheds. Turbidity curtains may be appropriate for any in-stream work and bridge demolition.
3. B-4071, Cherokee Co., Bridge No. 32 on SR 1393 over Junaluska Creek. YELLOW LIGHT. Junaluska Creek, Class C Tr waters, is Hatchery Supported DPMTW. Listed species concerns occur downstream of the project. A moratorium prohibiting in-stream work and land disturbance within the 25-foot trout buffer is recommended from October 15 to April 15 to protect the egg and fry stages of trout. Sediment and erosion control measures should adhere to the design standards for sensitive watersheds. The bridge should be replaced with another spanning structure. We recommend incorporating into the design an area where the public can pull off of the road for safer public access to the resource.
4. B-4075, Cleveland Co., Bridge No. 129 on SR 1184 over Grog Creek. YELLOW LIGHT. Grog Creek is Class C waters. There is the potential for listed aquatic species to occur in the project area; therefore we request a mussel survey be conducted. If state or federal listed species are found, consultation with appropriate resource agencies should take place and sediment and erosion control measures should adhere to the design standards for sensitive watersheds.
5. B-4117, Gaston Co., Bridge No. 173 on SR 1820 over Sailors Branch. YELLOW LIGHT. Sailors Branch is classified as WS-IV. Sediment and erosion control measures should adhere to the design standards for sensitive watersheds.
6. B-4148, Henderson Co., Bridge No. 12 on SR 1329 (Warlick Road) over Boylston Creek. YELLOW LIGHT. Boylston Creek is classified as WS-IV. Several federal and state listed species have been reported in adjacent watersheds. Surveys, including a mussel survey in Boylston Creek, are recommended. Sediment and erosion control measures should adhere to the design standards for sensitive watersheds.



**North Carolina Department of Cultural Resources**  
**State Historic Preservation Office**  
David L. S. Brook, Administrator

Division of Historical Resources

Michael F. Easley, Governor  
Lisbeth C. Evans, Secretary  
Jeffrey J. Crow, Deputy Secretary  
Office of Archives and History

October 20, 2003

Memorandum

To: Gregory J. Thorpe, PhD, Manager  
Project Development and Environmental Analysis Branch  
Division of Highways  
Department of Transportation

From: David Brook *BY: David Brook*

SUBJECT: Replacement of Bridge No. 8 on SR 1446 over Rocky Creek, B-4006, Alexander County, ER03-0916

On September 4, 2003, Sarah McBride, our preservation specialist for transportation projects, met with the North Carolina Department of Transportation (NCDOT) staff for a meeting of the minds concerning the above project. We reported on our available information on historic architectural and archaeological surveys and resources along with our recommendations. DOT provided project area photographs and aerial photographs at the meeting.

Based on our review of the photographs and the information discussed at the meeting, we offer our preliminary comments regarding this project.

In terms of historic architectural resources, we are aware of historic structures located within the areas of potential effect. **Therefore, we recommend a historic architectural survey be conducted for this project.**

There are no recorded archaeological sites within the proposed project area. Based on our present knowledge of the area, it is unlikely that any archaeological resources which may be eligible for listing in the National Register of Historic Places will be affected by the project construction. We, therefore, recommend that no archaeological investigation be conducted in connection with this project.

[www.hpo.dcr.state.nc.us](http://www.hpo.dcr.state.nc.us)

	Location	Mailing Address	Telephone/Fax
ADMINISTRATION	507 N. Blount St., Raleigh NC	4617 Mail Service Center, Raleigh NC 27699-4617	(919) 733-4763 • 733-8653
RESTORATION	515 N. Blount St., Raleigh NC	4617 Mail Service Center, Raleigh NC 27699-4617	(919) 733-6547 • 715-4801
SURVEY & PLANNING	515 N. Blount St., Raleigh NC	4617 Mail Service Center, Raleigh NC 27699-4617	(919) 733-6545 • 715-4801

Having provided this information, we look forward to receipt of either a Categorical Exclusion or Environmental Assessment which indicates how NCDOT addressed our comments.

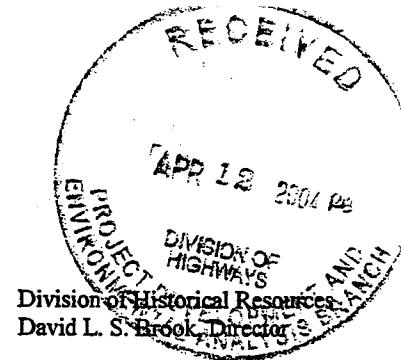
The above comments are made pursuant to Section 106 of the National Historic Preservation Act and the regulations of the Advisory Council on Historic Preservation at 36 CFR 800. If you have any questions concerning them, please contact Renee Gledhill-Earley, environmental review coordinator, at 733-4763. Thank you.

cc: Mary Pope Furr  
Matt Wilkerson



North Carolina Department of Cultural Resources  
State Historic Preservation Office

Michael F. Easley, Governor  
Lisbeth C. Evans, Secretary  
Jeffrey J. Crow, Deputy Secretary  
Office of Archives and History



March 31, 2004

MEMORANDUM

TO: Greg Thorpe, Ph.D., Director  
Project Development and Environmental Analysis Branch  
NCDOT Division of Highways

FROM: David Brook *David Brook*  
by BJS

SUBJECT: Replace Bridge No. 8 on SR 1446 over Rocky Creek, B-4006,  
Alexander County, ER03-0916

Thank you for your letter of February 9, 2004, concerning the above project.

We have reviewed the additional material you have submitted to our office and are aware of no historical or archaeological resources that would be affected by this project. Therefore, we have no comment on the undertaking as proposed.

The above comments are made pursuant to Section 106 of the National Historic Preservation Act and the Advisory Council on Historic Preservation's Regulations for Compliance with Section 106 codified at 36 CFR Part 800.

Thank you for your cooperation and consideration. If you have questions concerning the above comment, contact Renee Gledhill-Earley, environmental review coordinator, at 919/733-4763. In all future communication concerning this project, please cite the above referenced tracking number.

cc: Mary Pope Furr, NCDOT  
Dennis Pipkin, NCDOT

[www.hpo.dcr.state.nc.us](http://www.hpo.dcr.state.nc.us)

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