



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

July 15, 2004

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

ATTENTION: Ms. Angie Pennock
NCDOT Coordinator

Dear Sir:

SUBJECT: **Nationwide Permit 23 and 33 Applications** for the proposed replacement of Bridge No. 116 on SR 1105 (Glady Fork Rd) over Glady Fork Creek, in Transylvania County. Federal Aid Project No. BRZ-1105(9), State Project No. 8.2001201, TIP No. B-3914.

Please find enclosed three copies of the project planning report for the above referenced project. NCDOT proposes to replace Bridge No. 116 on new location with a 50 ft single span 21" cored slab bridge approximately 40 feet west of the existing bridge. Traffic will be maintained on-site on the existing bridge. There are no jurisdictional wetlands within the project area.

Impacts to Waters of the United States

Permanent Impacts: There will be no permanent stream impacts as a result of this project.

Temporary Impacts: Temporary dewatering is necessary for bridge construction. The temporary dewatering will occur at the elevation and location as shown in the permit drawings. Diking materials and methods will be determined during construction by the contractor. Temporary impervious dikes and associated ponding and dewatering will result in 0.135 acres of temporary impacts affecting 60 feet of existing stream channel.

Bridge Demolition

Bridge No. 116 in Transylvania County was built in 1963. The 36 ft bridge is composed of a timber floor on I-beams, and timber piles with concrete footings. **This structure can be removed without dropping any of its components into Glady Fork Creek.** All measures will be taken to avoid any temporary fill from entering Waters of the U.S.; Best Management Practices for Bridge Demolition and Removal will be implemented.

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

LOCATION:
TRANSPORTATION BUILDING
1 SOUTH WILMINGTON STREET
RALEIGH NC

Temporary Dewatering

There will be 60 feet of temporary impacts to Glady Fork Creek from the construction of the proposed replacement of Bridge No. 116. The area of temporary impacts will result from dewatering for the construction of the bridge abutments in the existing stream channel.

Water Resources

The water resource impacted for project B-3914 is Glady Fork Creek, a tributary of the French Broad River. The North Carolina Department of Environment and Natural Resources classifies Glady Fork Creek as “C Tr”. Class “C” waters are suitable for secondary recreation, fishing, wildlife, fish and aquatic life propagation and survival, and agriculture. The supplemental classification “Tr” for Trout waters, refers to freshwaters protected for natural trout propagation and survival of stocked trout. The classification date and index number for this portion of the creek are 7/1/73, 6-6-7.

There are no Outstanding Resource Waters (ORW), WS-I, or WS-II within 1 mile upstream or downstream of the project study area (DEM 1993, DWQ 2003b). However, Glady Fork Creek flows into East Fork French Broad River, which carries the High Quality Water (HQW) classification, approximately 1,750 ft downstream from Bridge No. 116.

According to the North Carolina Wildlife Resource Commission, Glady Fork Creek is considered to be trout waters. NCDOT’s Best Management Practices for Protection of Surface Waters will be implemented during construction. In addition Design Standards in Sensitive Watersheds (15A NCAC 04B .0024), will be implemented and adhered to throughout the project. Construction in the stream channel and within the 25 ft buffer will not occur during the trout spawning period of October 15 – April 15.

Glady Fork Creek is not designated as a National Wild and Scenic River or a State Natural and Scenic River.

Federally Protected Species

Plants and animals with federal classifications of Endangered, Threatened, Proposed Endangered, and Proposed Threatened are protected under provisions of Section 7 and Section 9 of the Endangered Species Act of 1973, as amended. As of January 29, 2003, the Fish and Wildlife Service (FWS) lists twelve federally protected species for Transylvania County (Table 1). The Biological Conclusions for each of these species remain valid.

Biological conclusions of “No Effect” were reached for all listed species as reflected in the attached CE dated October 2002, with the exception of the Appalachian elktoe and oyster mussel, which both received “Unresolved” biological conclusions. In October 2002, NCDOT staff biologists surveyed for the Appalachian elktoe and oyster mussel and reached a biological conclusion of “No Effect” for both species.

Table 1. Federally-Protected Species for Transylvania County

Scientific Name	Common Name	Status	Biological Conclusion
<i>Clemmys muhlenbergii</i>	Bog turtle	T(S/A)	N/A
<i>Glaucomys sabrinus coloratus</i>	Carolina northern flying squirrel	E	No Effect
<i>Alasmidonta raveneliana</i>	Appalachian elktoe	E	No Effect
<i>Epioblasma capsaeformis</i>	oyster mussel	E	No Effect
<i>Geum radiatum</i>	spreading avens	E	No Effect

<i>Helonias bullata</i>	swamp pink	T	No Effect
<i>Isotria medeoloides</i>	small whorled pogonia	T	No Effect
<i>Sarracenia rubra var. jonesii</i>	mountain sweet pitcher-plant	E	No Effect
<i>Gymnderma lineare</i>	rock gnome lichen	E	No Effect

KEY:

Status Definition

E - A taxon "in danger of extinction throughout all or a significant portion of its range."

T - A taxon "likely to become endangered within the foreseeable future throughout all or a significant portion of its range."

T(S/A) - Threatened due to similarity of appearance (e.g., American alligator)--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.

Regulatory Approvals

Section 404 Permit: It is anticipated that the temporary dewatering of Glady Fork Creek will 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 dewatering of Glady Fork 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). The NCDOT requests that these activities be authorized by a Nationwide Permit 23 (FR number 10, pages 2020-2095; January 15, 2002).

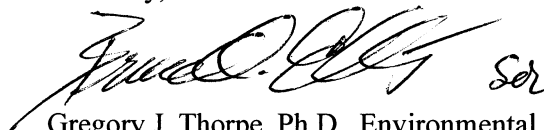
Section 401 Permit: We anticipate 401 General Certifications numbers 3403 and 3366 will apply to this project. In accordance with 15A NCAC 2H .0501(a) we are providing two copies of this application to the North Carolina Department of Environmental and Natural Resources, Division of Water Quality, for their records.

We anticipate that comments from the North Carolina Wildlife Resources Commission (NCWRC) will be requested prior to authorization by the Corps of Engineers. By copy of this letter and attachment, NCDOT hereby requests NCWRC review. NCDOT requests that NCWRC forward their comments to the Corps of Engineers.

TVA: This project is located within the jurisdiction of the Tennessee Valley Authority (TVA). Therefore, an approval under Section 26a of the TVA Act will be required.

Thank you for your assistance with this project. If you have any questions or need additional information, please contact Chris Rivenbark at crivenbark@dot.state.nc.us or (919) 715-1460.

Sincerely,



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

cc: W/attachment

Mr. John Hennessy, Division of Water Quality (7 copies)
Ms. Marella Buncick, USFWS
Ms. Marla Chambers, NCWRC

Mr. Harold Draper, TVA
Mr. David Chang, P.E., Hydraulics
Mr. Greg Perfetti, P.E., Structure Design
Mr. Ron Watson, P.E. (Div. 14), Division Engineer
Mr. Mark Davis (Div. 14), DEO

W/o attachment

Mr. Jay Bennett, P.E., Roadway Design
Mr. Omar Sultan, Programming and TIP
Mr. Art McMillan, P.E., Highway Design
Mr. Mark Staley, Roadside Environmental
Mr. David Franklin, USACE, Wilmington (Cover Letter only)
Mrs. Robin Hancock, PDEA

Office Use Only:

Form Version May 2002

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:

Section 404 Permit

Riparian or Watershed Buffer Rules

Section 10 Permit

Isolated Wetland Permit from DWQ

401 Water Quality Certification

2. Nationwide, Regional or General Permit Number(s) Requested: Nationwide 23 and 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 Wetlands Restoration Program (NCWRP) is proposed for mitigation of impacts (verify availability with NCWRP prior to submittal of PCN), 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: North Carolina Department of Transportation

Mailing Address: 1548 Mail Service Center, Raleigh, NC 27699

Telephone Number: 919-733-7844 Fax Number: 919-715-1501

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: N/A

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. 116 on SR 1105 (Glady Fork Rd) over Glady Fork Creek
2. T.I.P. Project Number or State Project Number (NCDOT Only): B-3914
3. Property Identification Number (Tax PIN): N/A
4. Location
County: Transylvania Nearest Town: Rosman
Subdivision name (include phase/lot number): _____
Directions to site (include road numbers, landmarks, etc.): Located on SR 1105 (Glady Fork Rd) over Glady Fork Creek southeast of Rosman.
5. Site coordinates, if available (UTM or Lat/Long): 35.1157°N, 82.7636°W
(Note – If project is linear, such as a road or utility line, attach a sheet that separately lists the coordinates for each crossing of a distinct waterbody.)
6. Property size (acres): N/A
7. Nearest body of water (stream/river/sound/ocean/lake): Glady Fork Creek
8. River Basin: French Broad River
(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/.](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 Rural minor collector, with residential and forested land dominant.

10. Describe the overall project in detail, including the type of equipment to be used: Bridge replacement on new location with a 50 ft single span 21”cored slab bridge approximately 40 feet west of the existing bridge using mechanical highway construction equipment.
-
-
11. Explain the purpose of the proposed work: Investigations by the Bridge Maintenance Unit indicates the Bridge No. 116 carries a sufficiency rating of 36.7 out of a possible 100. This structure is considered to be both functionally obsolete and structurally deficient. Replacement of the 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

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

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. The applicant must also provide justification for these impacts in Section VII below. All proposed impacts, permanent and temporary, must be listed herein, and must be clearly identifiable on an accompanying site plan. All wetlands and waters, and all streams (intermittent and perennial) must 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.

Provide a written description of the proposed impacts: There will be 0.0135 acres of temporary fill in Glady Fork Creek as a result of the replacement of Bridge No. 116.

1. Individually list wetland impacts below:

Wetland Impact Site Number (indicate on map)	Type of Impact*	Area of Impact (acres)	Located within 100-year Floodplain** (yes/no)	Distance to Nearest Stream (linear feet)	Type of Wetland***
N/A					

- * List each impact separately and identify temporary impacts. 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.
- ** 100-Year floodplains are identified through the Federal Emergency Management Agency's (FEMA) Flood Insurance Rate Maps (FIRM), or FEMA-approved local floodplain maps. Maps are available through the FEMA Map Service Center at 1-800-358-9616, or online at <http://www.fema.gov>.
- *** List a wetland type that best describes wetland to be impacted (e.g., freshwater/saltwater marsh, forested wetland, beaver pond, Carolina Bay, bog, etc.) Indicate if wetland is isolated (determination of isolation to be made by USACE only).

List the total acreage (estimated) of all existing wetlands on the property: N/A
 Total area of wetland impact proposed: N/A

2. Individually list all intermittent and perennial stream impacts below:

Stream Impact Site Number (indicate on map)	Type of Impact*	Length of Impact (linear feet)	Stream Name**	Average Width of Stream Before Impact	Perennial or Intermittent? (please specify)
1-14+83.70	Temp. fill	60ft	Glady Fork Creek	17 ft	Perennial

- * List each impact separately and identify temporary impacts. Impacts include, but are not limited to: culverts and associated rip-rap, dams (separately list impacts due to both structure and flooding), relocation (include linear feet before and after, and net loss/gain), stabilization activities (cement wall, rip-rap, crib wall, 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.
- ** Stream names can be found on USGS topographic maps. If a stream has no name, list as UT (unnamed tributary) to the nearest downstream named stream into which it flows. USGS maps are available through the USGS at 1-800-358-9616, or online at www.usgs.gov. Several internet sites also allow direct download and printing of USGS maps (e.g., www.topozone.com, www.mapquest.com, etc.).

Cumulative impacts (linear distance in feet) to all streams on site. 60 ft of temporary fill

3. Individually list all open water impacts (including lakes, ponds, estuaries, sounds, Atlantic Ocean and any other water of the U.S.) below:

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

* List each impact separately and identify temporary impacts. Impacts include, but are not limited to: fill, excavation, dredging, flooding, drainage, bulkheads, etc.

4. 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.): N/A

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

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.

It is more cost effective and it will have lower environmental impacts.

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 March 9, 2000, 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 NCWRP 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

2. Mitigation may also be made by payment into the North Carolina Wetlands Restoration Program (NCWRP). Please note it is the applicant’s responsibility to contact the NCWRP at (919) 733-5208 to determine availability and to request written approval of mitigation prior to submittal of a PCN. For additional information regarding the application process for the NCWRP, check the NCWRP website at <http://h2o.enr.state.nc.us/wrp/index.htm>. If use of the NCWRP is proposed, please check the appropriate box on page three and provide the following information:

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

Environmental Documentation (required by DWQ)

Does the project involve an expenditure of public (federal/state) funds or the use of public (federal/state) land?

Yes No

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

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

IX. 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.

Will the project impact protected riparian buffers identified within 15A NCAC 2B .0233 (Neuse), 15A NCAC 2B .0259 (Tar-Pamlico), 15A NCAC 2B .0250 (Randleman Rules and Water Supply Buffer Requirements), or other (please identify _____)?

Yes No If you answered "yes", provide the following information:

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			
2			
Total			

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

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

X. Stormwater (required by DWQ)

Describe impervious acreage (both 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.

XI. 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.

XII. 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

XIII. Other Circumstances (Optional):

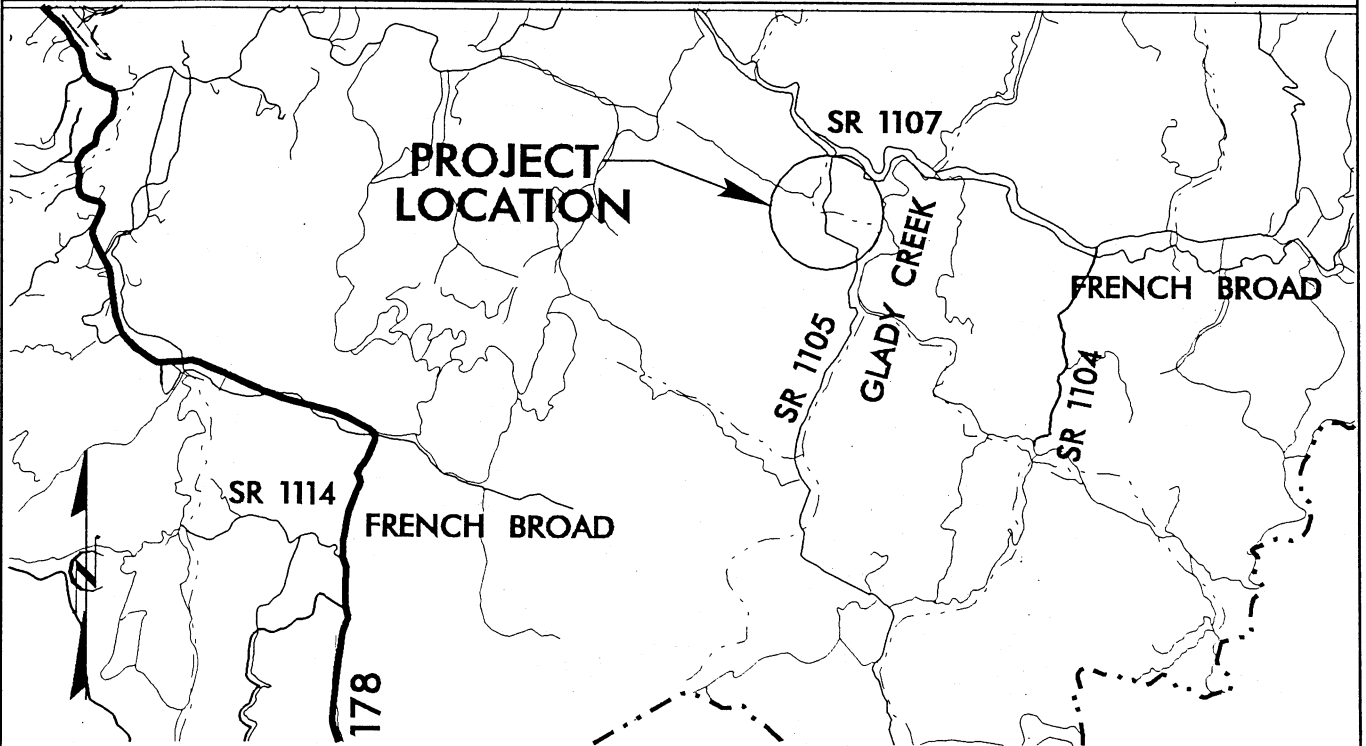
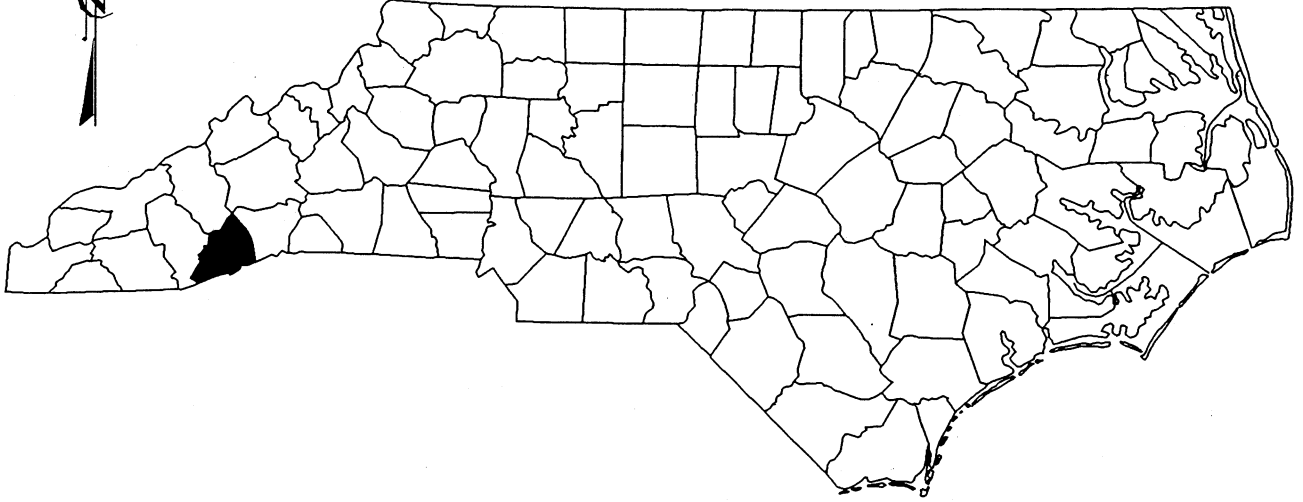
It is the applicant's responsibility to submit the application sufficiently in advance of desired construction dates to allow processing time for these permits. However, an applicant may choose to list constraints associated with construction or sequencing that may impose limits on work schedules (e.g., draw-down schedules for lakes, dates associated with Endangered and Threatened Species, accessibility problems, or other issues outside of the applicant's control).


Applicant/Agent's Signature

7/12/04
Date

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

NORTH CAROLINA

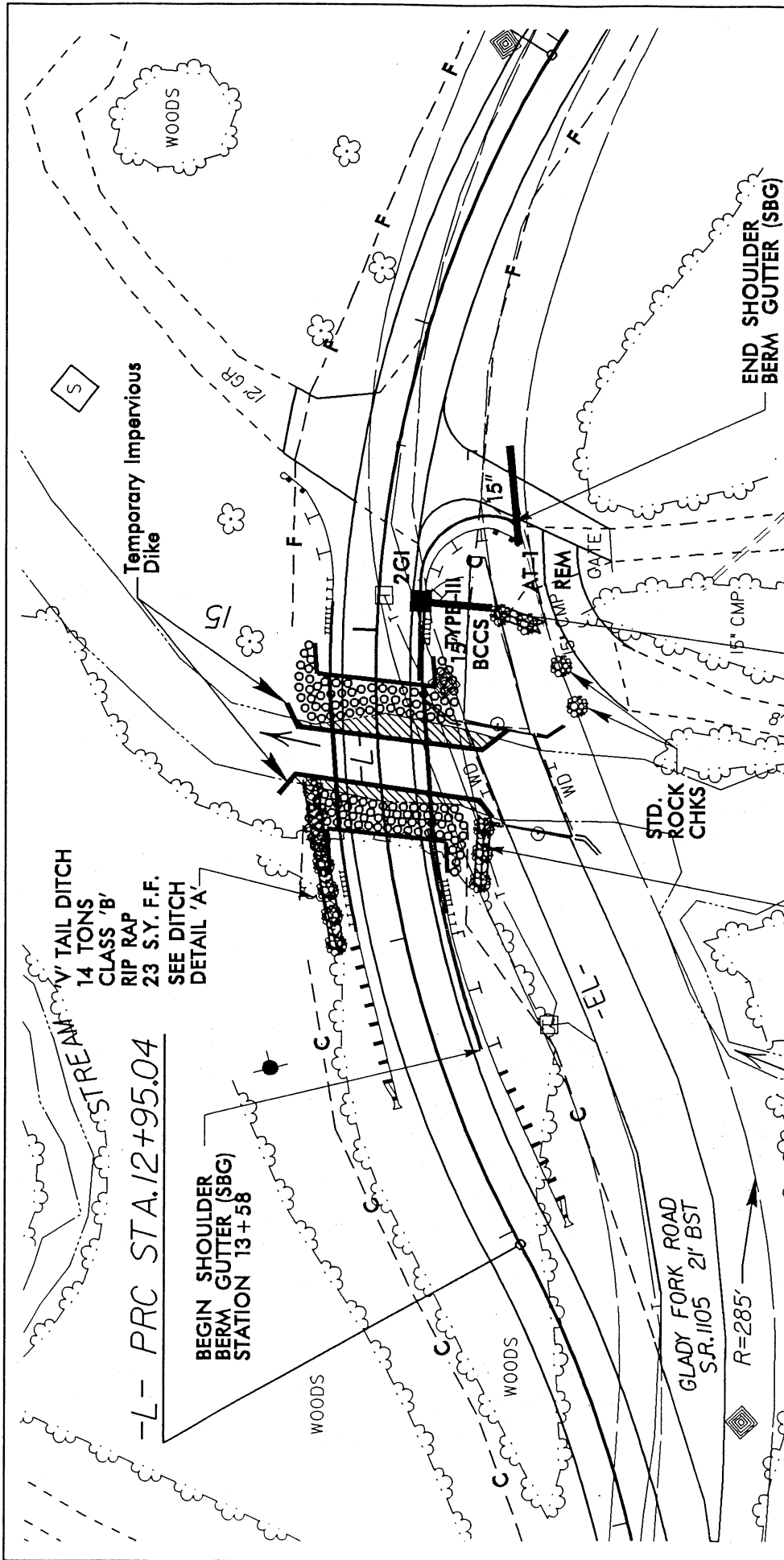


VICINITY MAPS

NCDOT

DIVISION OF HIGHWAYS
TRANSYLVANIA COUNTY

PROJECT: 8.2001201 (B-3914)
BRIDGE #116 ON SR1105 BETWEEN SR1107
AND SOUTH CAROLINA STATE LINE
OVER GLADY FORK CREEK



NCDOT
 DIVISION OF HIGHWAYS
 TRANSYLVANIA COUNTY
 PROJECT: 8.2001201 (B-3914)
 BRIDGE # 116 ON SR1105 BETWEEN SR1107
 AND SOUTH CAROLINA STATE LINE
 OVER GLADY FORK CREEK

SHEET 2 OF 7 05/04/04

V' TAIL DITCH
 14 TONS
 CLASS 'B'
 RIP RAP
 23 S.Y. F.F.
 SEE DITCH
 DETAIL 'A'

-L- PRC STA. 12+95.04

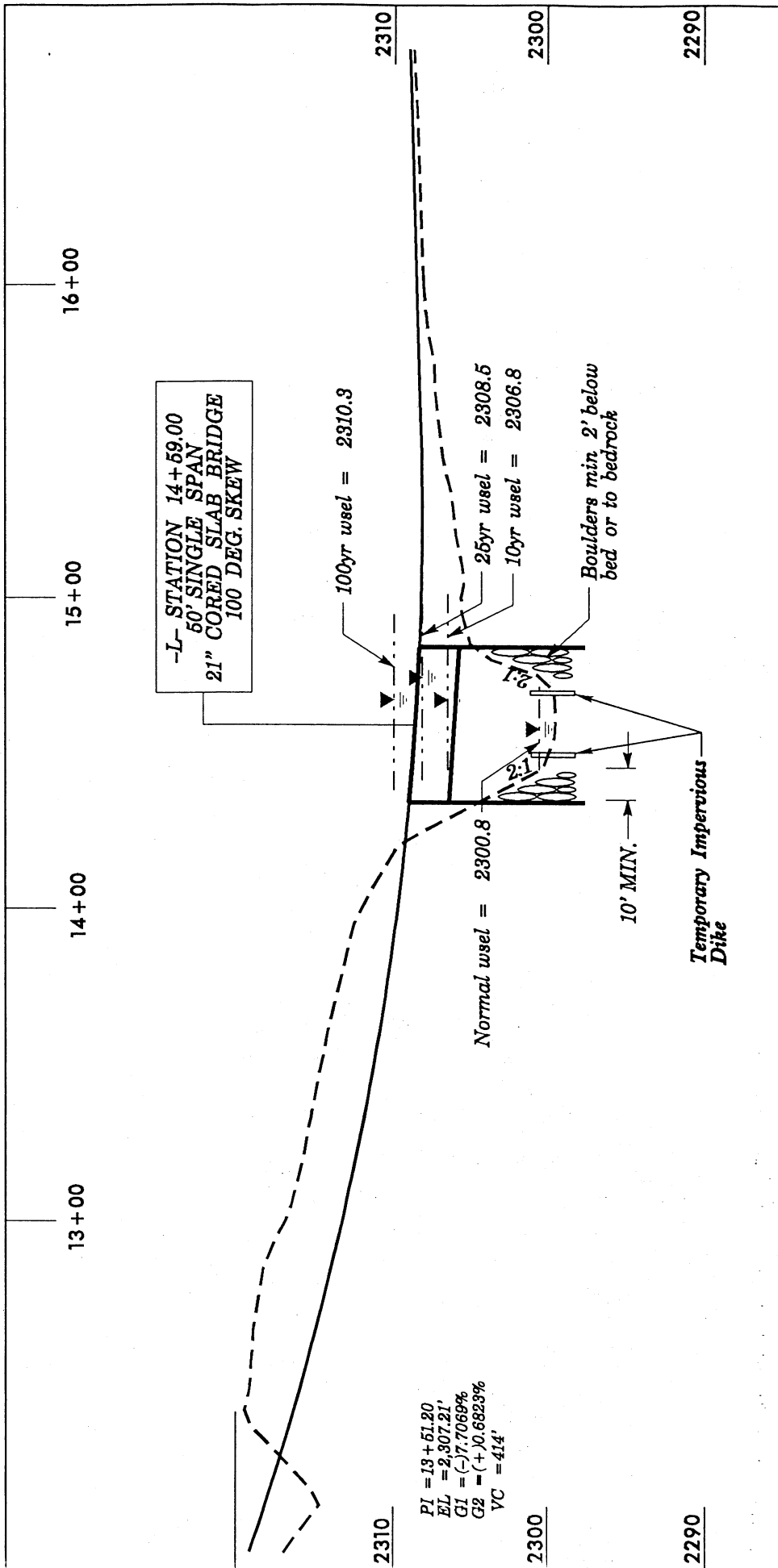
BEG IN SHOULDER
 BERM GUTTER (SBG)
 STATION 13+58

STD.
 ROCK
 CHKS

R=285'

PLAN VIEW

 DENOTES TEMPORARY
 FILL IN SURFACE
 WATER = 0.135ac



-L- STATION 14+59.00
50' SINGLE SPAN
21" CORED SLAB BRIDGE
100 DEG. SKEW

100yr wsel = 2310.3

Normal wsel = 2300.8

25yr wsel = 2308.5

10yr wsel = 2306.8

Boulders min. 2' below
bed or to bedrock

10' MIN.

Temporary Impervious
Dike

PI = 13+51.20
EL = 2,307.21'
G1 = (-)7.7069%
G2 = (+)0.6823%
VC = 414'

NCDOT

DIVISION OF HIGHWAYS

TRANSYLVANIA COUNTY

PROJECT: 8.2001201 (B-3914)

BRIDGE #116 ON SR1105 BETWEEN SR1107
AND SOUTH CAROLINA STATE LINE
OVER GLADY FORK CREEK

PROFILE VIEW

REVISED 050404

SHEET 3 OF 7 05/05/04

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

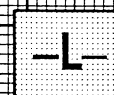
GLADY FORK ROAD (SR 1105)

TBM1 RR SPIKE IN BASE OF 12" RED OAK
-BL- STA. 5+24.21 42.96' RT
EL. = 2347.74'

TBM4 RR SPIKE IN BASE OF 24" RED OAK
-BL- STA. 19+01.06 34.40' RT
EL. = 2308.99'

TBM2 RR SPIKE IN BASE OF 15" WHITE PINE
-L- STA. 13+91.64 24.57 RT
EL. = 2310.33'

TBM3 RR SPIKE IN BASE OF 20" WHITE PINE
80.83' RIGHT OF -L- LINE
STA. 14+61.68, ELEVATION OF 2308.18'



BEGIN RESURFACING
AND WIDENING
-L- 10+00.00

PI = 13+50.00
EL = 2,307.21'
VC = 420'
K = 50
V = 35mph *

END GRADE
-L- STA 17+00.00
ELEV. 2,309.59

STRUCTURE HYDRAULIC DATA

DESIGN DISCHARGE	= 1700 CFS
DESIGN FREQUENCY	= 25 YRS
DESIGN HW ELEVATION	= 2308.5 FT
BASE DISCHARGE	= 2400 CFS
BASE FREQUENCY	= 100 YRS
BASE HW ELEVATION	= 2310.3 FT
OVERTOPPING DISCHARGE	= 1930 CFS
OVERTOPPING FREQUENCY	= 25 YRS
OVERTOPPING ELEVATION	= 2309.2 FT

BEGIN GRADE
-L- STA 10+60.00
ELEV. 2,329.56

BEGIN BRIDGE

END BRIDGE

END RESURFACING
AND WIDENING
-L- 18+00.00

* DESIGN SPEED EXCEPTION REQUIRED

NOTE: SEE SHEET 4 FOR PLAN VIEW

2-MAR-2004 16:27
P:\m\projects\B-3914_PEL_PMT.DGN
B-3914_PEL_PMT.dwg

PROPERTY OWNERS

SITE NO.

NAME

ADDRESS

1

CHAMPION CATTLE & TREE FARMS
A NORTH CAROLINA LIMITED PARTNERSHIP

P.O. BOX 7587
ASHEVILLE, N.C.
28802-7587

NCDOT

DIVISION OF HIGHWAYS
TRANSYLVANIA COUNTY

PROJECT: 8.2001201 (B-3914)
BRIDGE #116 ON SR1105 BETWEEN SR1107
AND SOUTH CAROLINA STATE LINE
OVER GLADY FORK CREEK

SHEET

6

OF

7

05 / 05 / 04

**Transylvania County
Bridge No. 116 on SR 1105
Over Glady Fork Creek
Federal Project BRZ-1105 (9)
State Project 8.2001201
TIP No. B-3914**

**CATEGORICAL EXCLUSION
U. S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
AND
N. C. DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS**

APPROVED:

7-31-03 Veresa Hart

Date *for* Gregory J. Thorpe, PhD
Environmental Management Director, PDEA

8-7-03 John F. Sullivan, III

Date *for* John F. Sullivan, III
Division Administrator, FHWA

**Transylvania County
Bridge No. 116 on SR 1105
Over Glady Fork Creek
Federal Project BRZ-1105 (9)
State Project 8.2001201
TIP No. B-3914**

CATEGORICAL EXCLUSION

**Documentation Prepared in
Project Development and Environmental Analysis Branch By:**

7-29-03 *Robin Y. Hancock*
Date Robin Y. Hancock
Project Planning Engineer, PDEA

7-31-03 *William T. Goodwin Jr.*
Date William T. Goodwin Jr., PE
Unit Head, PDEA

PROJECT COMMITMENTS

Transylvania County
Bridge No. 116 on SR 1105
Over Glady Fork Creek
Federal Project BRZ-1105 (9)
State Project 8.2001201
TIP No. B-3914

Commitments Developed Through Project Development and Design

Roadside Environmental Unit, Division 14 Construction, Structure Design Unit

Bridge Demolition: Best Management Practices for Bridge Demolition & Removal will be implemented. The Bridge is composed entirely of timber. Therefore, Bridge No. 116 will be removed without dropping any components into Waters of the United States.

Division 14 Construction

Under no circumstances should rock, sand, or other materials be dredged from the wetted stream channel under authorization of this permit, except in the immediate vicinity of bridge abutments.

All work in or adjacent to stream waters should be conducted in a dry work area. Sandbags or rock berms, cofferdams, or other diversion structures should be used where possible to prevent excavation in flowing water.

If concrete is used during construction, adequate precautions must be taken to prevent direct contact between wet concrete and stream water. Water that has contacted uncured concrete will not be discharged to surface waters.

Construction in the stream channel and within the 25-foot buffer is prohibited during the trout-spawning period of October 15 – April 15 in order to protect the egg and fry stages from sedimentation.

Riprap placed for bank stabilization should be limited to the streambank below the high water mark, and vegetation should be used for stabilization above the high water elevation.

All mechanized equipment operated near surface waters should be regularly inspected and maintained to prevent contamination of stream waters from fuels, lubricants, hydraulic fluids, or other toxic materials.

Any overwidened areas at the bridge site should be restored; and the width/depth ratio typical of the stream should be maintained through the bridge site.

Division 14 Construction, Roadside Environmental

Adequate sedimentation and erosion control measures must be implemented prior to any ground disturbing activities to minimize impacts to downstream aquatic resources. Temporary or permanent herbaceous vegetation should be planted on all bare soil within 15 days of ground disturbing activities. Erosion control matting in conjunction with appropriate seeding should be used on disturbed streambanks and areas around bridge crossings instead of straw mulch.

Grading and backfilling should be minimized, and tree and shrub growth should be retained if possible. Backfill materials should be obtained from upland sites.

**Transylvania County
Bridge No. 116 on SR 1105
Over Glady Fork Creek
Federal Project BRZ-1105 (9)
State Project 8.2001201
TIP No. B-3914**

INTRODUCTION: Bridge No. 116 is included in the latest approved 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 Maintenance Unit records indicate Bridge No. 116 has a sufficiency rating of 36.7 out of a possible 100 for a new structure. This bridge is considered to be both functionally obsolete and structurally deficient. The replacement of this inadequate structure will result in safer traffic operations.

II. EXISTING CONDITIONS

The project is located in Transylvania County, southeast of Rosman, close to the intersection of SR 1107 and SR 1105 (see Figure 1). Development in the area is primarily residential and forested in nature.

SR 1105 is classified as a Rural Local Route in the Statewide Functional Classification System and it is not a National Highway System Route. This route is not a designated bicycle route and there is no indication that an unusual number of bicyclists use this roadway.

In the vicinity of the bridge, SR 1105 has a 21-foot (6.3-meter) pavement width with 2-foot to 4-foot (0.6-meter to 1.2-meter) grass shoulders (see Figure 3A and 3B). The roadway grade is in a slight vertical sag through the project area. The existing bridge is on a tangent.

The existing Bridge No. 116 is a single span structure constructed in 1963. The superstructure has a timber deck on I-beams with an asphalt wearing surface. The substructure is composed entirely of timber. The bridge is 36 feet (11 meters) long with a clear roadway width of 19.1 feet (5.8 meters). There is approximately 8 feet (2.4 meters) between the deck surface and streambed. There are two lanes of traffic on the bridge. Presently the bridge is posted with weight restrictions of 14 tons for single vehicles and 18 tons for truck-tractor semi-trailers.

An underground telephone and fiber optic line is located along the west side of SR 1105. These go under the stream at a depth of 4 feet (1.2 meters) and are 8-10 feet (2.4 – 3.0 meters) west of the bridge. Utility impacts are considered low.

The current traffic volume of 160 vehicles per day (VPD) is expected to increase to 300 VPD by the year 2025. The projected volume includes 1% truck-tractor semi-trailer (TTST) and 2% dual-tired vehicles (DT). The speed limit in the vicinity of the bridge is statutory 55 mph (90 kmh).

According to NCDOT's Traffic Engineering Branch, no accidents have been reported in the vicinity of the project during a recent 3-year period.

According to the Transportation Director for Transylvania County Schools, there are four school bus crossings per day over this bridge. They would not be able to re-route the buses.

III. ALTERNATIVES

A. Project Description

The replacement structure for Bridge No. 116 will consist of a 55-foot (16.7-meter) long bridge located west of the existing bridge. There will be sufficient width to provide for two 11-foot (3.3-meter) lanes with 2-foot (0.6-meter) offsets on each side.

The roadway grade of the new structure will be approximately the same as the existing bridge.

The existing roadway will be widened to a 22-foot (6.6-meter) pavement width to provide two 11-foot (3.3-meter) lanes. Shoulder widths will be 4 feet (1.2 meters) on each side. The shoulder widths will be increased 3 feet (1 meter) where guardrail is warranted.

B. Reasonable and Feasible Alternatives

There are two "build" options considered for this bridge replacement. They are described as follows:

Alternate 1: Replace Bridge No. 116 with a new 55 foot (16.7 meter) long bridge by realigning SR 1105 east of the existing bridge. Construct the replacement bridge at approximately the same roadway elevation as the existing bridge. Traffic would be maintained using the existing alignment during construction.

Alternate 2: (Recommended) Replace Bridge No. 116 with a new 55 foot (16.7 meter) long bridge by realigning SR 1105 west of the existing bridge. Construct the replacement bridge at approximately the same roadway elevation as the existing bridge. Traffic will be maintained using the existing alignment during construction.

C. Alternatives Eliminated From Further Consideration

An off-site detour is not considered to be prudent due to the lack of a suitable detour route.

The “do-nothing” alternative is not practical and will eventually necessitate closure of the bridge. This is not acceptable due to the traffic service provided by SR 1105.

“Rehabilitation” of the existing deteriorating bridge is neither practical nor economical. This is due to the fact that major structural components of this bridge are timber, thus replacement is more prudent than rehabilitation.

D. Recommended Alternate

As recommended in Alternate 2, Bridge No. 116 will be replaced with a new bridge on new location at approximately the same roadway elevation as the existing bridge (see Figure 2). The new Bridge No. 116 will be approximately 55 feet (16.7 meters) in length and 26 feet (7.8 meters) in width. A travelway of 22 feet (6.6 meters) will be accommodated, with an offset of 2 feet (0.6 meter) on each side. During construction, traffic will be maintained along the existing roadway. A design exception may be needed.

The approach roadway will consist of two 11-foot (3.3-meter) travel lanes and shoulder widths of at least 4 feet (1.2 meters). The shoulder widths will be 3 feet (1 meter) wider where guardrail is warranted. There will be approximately 380 feet (116 meters) of approach work on each side of Bridge No. 116.

The construction of the recommended alternate does not have the potential to cause substantial impacts to the local environment. Alternate 1 provides an improved horizontal alignment, but incurs more stream impacts. It also results in impacts to the Cassell Cemetery located approximately 100 feet (30 meters) east of the existing bridge. Alternate 2 crosses the stream at a better location and is more cost effective. For these reasons, Alternate 2 is the preferred alternate.

The NCDOT Division 14 Engineer concurs with the selection of Alternative 2 as the preferred alternative.

IV. ESTIMATED COSTS (Table 1)

The estimated costs for the two alternatives are as follows:

COMPONENT	ALTERNATE 1 (new location east)	Recommended ALTERNATE 2 (new location west)
Structures	\$ 115,000	\$ 115,000
Bridge Removal	\$ 6,000	\$ 6,000
Roadway & Approaches	\$ 796,000	\$ 159,000
Detour & Approaches	\$ 0	\$ 0
Engineering & Contingencies	\$ 133,000	\$ 70,000
Total Construction	\$ 1,050,000	\$ 350,000
Right of Way	\$ 41,000	\$ 52,000
Total Cost	\$ 1,091,000	\$ 402,000

V. NATURAL RESOURCES

PHYSICAL RESOURCES

Soil and water resources that occur in the project area are discussed below with respect to possible environmental concerns. Soil properties and site topography significantly influence the potential for soil erosion and compaction, along with other possible construction limitations or management concerns. Water resources within the project area present important management limitations due to the need to regulate water movement and the increased potential for water quality degradation. Excessive soil disturbance resulting from construction activities can potentially alter both the flow and quality of water resources, limiting downstream uses. In addition, soil characteristics and the availability of water directly influence the composition and distribution of flora and fauna in biotic communities, thus affecting the characteristics of these resources.

Regional Characteristics

The project area lies in the western portion of North Carolina within the Blue Ridge physiographic province. Elevations in the project area range from approximately 2250-2400 feet (675-720 meters) (National Geodetic Vertical Datum, 1969). The topography of the project vicinity is mountainous with steep slopes rising from southwest and northeast banks, and gradual slopes rising from the northwest and southeast banks.

The proposed project is in a rural area in Transylvania County approximately 15 miles (24.3 km) southwest of Brevard, NC. Transylvania County's major economic resources are forestry and tourism. The population of Transylvania County in 2000 was 29,429 (North Carolina Office of State Budget, Planning and Management 2002).

Soils

Information about soils in the project area was taken from the *Soil Survey of Transylvania County, North Carolina* (USDA 1974). The map units in the project area are Rosman fine sandy loam, Ashe fine sandy loam with 25-45% slopes, and Tusquitee loam with 6-15% slopes.

- Rosman fine sandy loam is mapped along both banks of Glady Fork within the project area. This soil is very frequently flooded for brief durations. It is a well-drained to moderately well-drained, nearly level soil on stream floodplains. The seasonal high water table is at 2.5 feet (0.75 meters) in winter. This soil is not classified as a hydric soil by the NRCS.
- Ashe fine sandy loam with 25-45% slopes is mapped adjacent to Rosman soils along both sides of Glady Fork Road, and on the north side of Glady Fork. This soil is somewhat excessively drained, sloping soils on side slopes with rough topography. The seasonal high water table remains below a depth of 5 feet (1.5 meters). This soil is not classified as a hydric soil by the NRCS.
- Tusquitee loam with 6-15% slopes is mapped adjacent to Rosman soils along both sides of Glady fork Road, and on the south side of Glady Fork. This soil is found in upland draws and on foot slopes. It is well-drained and the seasonal high water table remains below 5 feet (1.5 meters). This soil is not classified as a hydric soil by the NRCS.

Site index is a measure of soil quality and productivity. The index is the average height, in feet, that dominant and co-dominant trees of a given species attain in a specified number of years (typically 50). The site index applies to fully-stocked, even-aged, unmanaged stands. The soils in the project area have the following site indices:

- The Rosman soils have a site index of 85-95 for white pine (*Pinus strobus*), 75-85 for shortleaf pine (*Pinus echinata*), 95-115 for tulip poplar (*Liriodendron tulipifera*), and 80-90 for red oak (*Quercus rubra*).
- The Ashe soils have a site index of 75-85 for white pine and 55-75 for shortleaf pine.
- Tusquitee soils have a site index of 85-95 for white pine, 75-85 for shortleaf pine, 90-110 for tulip poplar, and 75-85 for red oak.

Water Resources

This section contains information concerning water resources likely to be impacted by the proposed project. Water resources assessments include the physical characteristics likely to be impacted by the proposed project (determined by field survey), best usage classifications, and water quality aspects of the water resources. Probable impacts to surface waters are also discussed, as well as means to minimize impacts.

Best Usage Classification

Surface waters in North Carolina are assigned a classification by the DWQ that is designed to maintain, protect, and enhance water quality within the state. Glady Fork [Index # 6-6-7] is classified as a *Class C Tr* water body (NCDENR, 1999). *Class C* water resources are waters protected for aquatic life propagation and survival, fishing, wildlife, secondary recreation, and agriculture. Secondary recreation includes wading, boating, and other uses involving human body contact with water where such activities take place in an infrequent, unorganized, or incidental manner. There are no restrictions on watershed development activities. The supplemental *Tr* classification refers to trout waters, which are freshwaters protected for natural trout propagation and survival of stocked trout. The two unnamed tributaries present within the project area and project vicinity have not been classified individually by DWQ, therefore they carry the same *C* rating as their receiving stream.

No streams classified as Water Supplies (WS-I or WS-II) or Outstanding Resource Waters (ORW) occur within 1.0 miles (1.6 km) of the project study area, however two streams classified as High Quality Water (HQW) occur within 1.0 miles (1.6 km) of the project study area. Glady Fork Creek is not designated as a North Carolina Natural and Scenic River, nor is it designated as a National Wild and Scenic River.

Neither stream is located within the watershed drained by Glady Fork. Laurel Branch drains into the north side of the East Fork of the French Broad River approximately 1 mile (1.6 km) downstream from the confluence of Glady Fork and the East Fork of the French Broad River. Boring Creek drains into the south side of the East Fork of the French Broad River approximately 1 mile (1.6 km) upstream from the confluence of Glady Fork and the East Fork of the French Broad River. Both Laurel Creek and Boring Creek are classified as *Class C Tr HQW*.

Physical Characteristics of Surface Waters

The project is located in the French Broad River basin (FBR01 sub-basin, HUC 06010105). Glady Fork originates about 6 miles (9.7 km) south of the project area near the South Carolina state line, as the South Prong of Glady Fork. The West Prong of Glady Fork originates about 5 miles (8 km) southwest of the project site. These two streams converge to form Glady Fork about 1 mile (1.6 km) south of the project site. Within the project area, Glady Fork flows in a northwesterly direction. Just over 1 mile (1.6 km) north of the project site, Glady Fork empties into the East Fork of the French Broad River.

Glady Fork is approximately 15-20 feet (4.5-6 meters) wide in the study area. The 2 to 4 foot (0.6-1.2 meter) high banks are well vegetated and appear to be stable. The stream flows swiftly within the project area, forming small rapids over cobbles, gravel, and sand. Some bedrock is exposed forming a small waterfall just upstream from the bridge. On the day of the site visit the flow seemed higher than normal, as indicated by many submerged, moss-covered rocks, and slightly turbid water conditions. At the center of the channel the water depth ranged from 6 inches to 1.5 feet (0.15-0.45 meters). The stream has a completely closed canopy, except in the area nearest the bridge, and its sinuosity is moderate.

Two unnamed tributaries flow into Glady Fork within or very close to the project area. The first unnamed tributary (called UT1 for the remainder of this report) flows into Glady Fork on its south side, and on the west side of Bridge No. 116. UT1 meanders outside the project area at all times at a distance ranging from 75 to 150 feet (22.5-45 meters). This perennial stream is approximately 3 feet (0.9 meters) wide and 4 inches (10 cm) deep. Its banks are 6 inches to 1 foot (15 cm-0.3 meters) high, and very well vegetated. The substrate is mainly gravel and sand, however some riprap is present in the area where UT1 crosses under a gravel road to the west of Glady Fork Road. On the day of the site visit the water was flowing swiftly and had good clarity.

A second unnamed tributary (UT2) flows into Glady Fork on its south side and on the east side of Bridge No. 116. This tributary actually parallels Glady Fork Road on its west side just south of the project area, crossing under Glady Fork Road near the gravel road mentioned earlier. UT2 then flows in a northeasterly direction, leaving the project area briefly. Outside the project area (80 feet or 24 meters), UT2 flows through a very small wetland. It eventually enters the project area again and flows within 20 feet (6 meters) of Glady Fork Road on its east side before finally reaching Glady Fork. UT2 is a perennial channel with characteristics much like those of UT1. It is approximately 3 feet (0.9 meters) wide and 4-10 inches (10-25 cm) deep. Its banks are 6 inches to 1 foot (15 cm-0.3 meters) high, and well vegetated. Its substrate is mainly sand and gravel. In areas closest to the road, riprap has also been added to the streambed. On the day of the site visit the flow was swift and the water clarity was good.

Water Quality

This section describes the quality of the water resources within the project area. Potential impacts to water quality from point and non-point sources are evaluated. Water quality assessments are based upon published resource information and field study observations.

General Watershed Characteristics

The project area is in a forested, largely undeveloped watershed. Within the immediate vicinity, one residence borders Glady Fork Creek. A small garden and lawn are adjacent to the stream, however a vegetative buffer is in place between the stream and the maintained landscape. Recent small-scale logging activities are evident in the southwest portion of the project area. Potential threats to stream quality in this area are larger scale forestry operations that would result in increased soil erosion.

Basin-wide Assessment Report

Basin-wide water quality assessments are conducted by the Environmental Sciences Branch, Water Quality Section of the DWQ. The program has established monitoring stations for sampling selected benthic macroinvertebrates, which are known to have varying levels of tolerance to water pollution. An index of water quality can be derived from the number of taxa present and the ratio of tolerant to intolerant taxa. Streams can then be given a bioclassification ranging from Poor to Excellent.

There are no monitoring stations on Glady Fork, and no monitoring stations on the East Fork of the French Broad River. In fact, the nearest sampling location is over 20 miles (32.4 km) downstream from the project site, on the French Broad River. This site is located within Transylvania county, northeast from Brevard, where the River crosses SR 1129. This location was sampled in 1997 and was classified as "Excellent".

Impaired Waters

North Carolina's §303(d) List (NCDENR, 2000) is a comprehensive public accounting of all impaired waterbodies. An impaired waterbody is one that is damaged by pollutants, such as nitrogen, phosphorus, and fecal coliform bacteria, and by pollution such as hydromodification and habitat degradation. The source of impairment might be from point sources, non-point sources and atmospheric deposition. The standards violation might be due to an individual pollutant, multiple pollutants, pollution or an unknown cause of impairment. This list is compiled by the North Carolina Division of Water Quality and submitted to the EPA by April 1 of every even year.

None of the water resources described above (Physical Characteristic of Surface Waters Section) are designated as biologically impaired water bodies regulated under the provisions of CWA §303(d).

Point Source Discharge Permits

Point source discharges in North Carolina are regulated through the National Pollutant Discharge Elimination System (NPDES) program administered by the DWQ. Not all discharges, nor all dischargers, are required to obtain a permit under NPDES. There are no permits issued to discharge in Glady Fork as of June 2001 (NCDENR 2001).

Non-Point Source Discharge

Unlike pollution from industrial and sewage treatment, non-point source (NPS) pollution comes from many non-discrete sources. As rainfall or snowmelt runoff moves over the earth's surface, natural and man-made pollutants are picked up, carried, and ultimately deposited into lakes, rivers, wetlands, coastal waters, and groundwater. Non-point source pollution includes fertilizers, herbicides, and insecticides from farms and residential areas; hydrocarbons and chemicals from urban runoff and energy production; sediments from construction sites, land clearing, and eroding stream banks; salt from irrigation activities; acid drainage from abandoned mines; bacteria and nutrients from livestock, animal wastes, and faulty septic systems; and atmospheric deposition. The effects of NPS pollutants on water resources vary, and in many instances, may not be known. These pollutants generally have harmful effects on drinking water supplies, recreation, wildlife, and fisheries (USEPA Office of Water, Non-Point Source Pollution Control Program, What is Non-Point Source (NPS) Pollution? - Questions and Answers; <http://www.epa.gov/owow/nps/qa.html>).

The investigating biologists conducted a visual observation of potential NPS discharges located within and near the project study area. Atmospheric deposition from passing vehicles; fertilizers, herbicides, and insecticides from nearby residential areas; and hydrocarbon and chemical runoff from nearby residential driveways and parking lots and were identified as potential sources of NPS pollution near the project area. Land clearing activities were observed within the northwestern portion of the project area. These activities have the potential to increase sediment loads in nearby streams.

Summary of Anticipated Impacts

Any action that affects water quality can adversely affect aquatic organisms. Temporary impacts during the construction phases may result in long-term impacts to the aquatic community. In general, replacing an existing structure in the same location with an off-site detour is the preferred environmental approach. Bridge replacement at a new location results in more severe impacts, and physical impacts are incurred at the point of bridge replacement. Alternative 1 would fill approximately 110 linear feet (33 meters) of UT2, and Alternative 2 would fill approximately 60 linear feet (18 meters) of UT2.

Project construction may result in the following impacts to surface water resources:

- Increased sediment loading and siltation as a consequence of watershed vegetation removal, erosion, and/or construction.
- Decreased light penetration/water clarity from increased sedimentation.
- Changes in water temperature with vegetation removal.
- Changes in the amount of available organic matter with vegetation removal.
- Increased concentration of toxic compounds from highway runoff, construction activities and construction equipment, and spills from construction equipment.
- Alteration of water levels and flows as a result of interruptions and/or additions to surface and groundwater flow from construction.

Construction impacts may not be restricted to the communities in which the construction activity occurs, but may also affect downstream communities. Efforts will be made to ensure that no sediment leaves the construction site. NCDOT's Best Management Practices for the Protection of Surface Waters will be implemented, as applicable, during the construction phase of the project to ensure that no sediment leaves the construction site. In addition, "Guidelines for Construction Adjacent to or Crossing Trout Waters" as incorporated into *Erosion and Sediment Control Guidelines* will be implemented and adhered to throughout the project.

BIOTIC RESOURCES

Terrestrial and aquatic communities are included in the description of biotic resources. Living systems described in the following sections include communities of associated plants and animals. These descriptions refer to the dominant flora and fauna in each community and the

relationships of these biotic components. Descriptions of the terrestrial systems are presented in the context of plant community classifications. These classifications follow Schafale and Weakley (1990) where possible. They are also cross-referenced to *The Nature Conservancy International Classification of Ecological Communities: Terrestrial Vegetation of the Southeastern United States* (Weakley et al., 1998), which has recently been adopted as the standard land cover classification by the Federal Geographic Data Committee. Representative animal species that are likely to occur in these habitats (based on published range distributions) are also cited. Scientific nomenclature and common names (when applicable) are used for the plant and animal species described. Subsequent references to the same species are by the common name only. Fauna observed during field investigations are denoted with an asterisk (*).

Terrestrial Communities

Three terrestrial communities were identified within the project area: a disturbed community, a floodplain forest, and an upland forest. Dominant faunal components associated with these terrestrial areas will be discussed in each community description. Many species are adapted to the entire range of habitats found along the project alignment, but may not be mentioned separately in each community description.

Disturbed Community

This community includes three types of habitat that have recently been or are currently impacted by human disturbance including regularly maintained roadside shoulder, powerline right-of-way, and residential area. These habitats are kept in a low-growing, early successional state. The regularly maintained roadside shoulder is mowed frequently and is dominated by herbaceous vegetation. The dominant species include virgin's bower (*Clematis virginiana*), fescue (*Festuca* sp.), touch-me-not (*Impatiens capensis*), lespedeza (*Lespedeza* sp.), Japanese honeysuckle (*Lonicera japonica*), black seed plantain (*Plantain rugelii*), blackberry (*Rubus* sp.), and elderberry (*Sambucus canadensis*).

The powerline right-of-way is periodically mowed or cleared and is dominated by dense, scrubby vegetation. The dominant species include red maple (*Acer rubrum*), joe-pye weed (*Eupatorium fistulosum*), dog-hobble (*Leucothoe axillaris*), tulip poplar (*Liriodendron tulipifera*), blackberry, poison ivy (*Toxicodendron radicans*), goldenrod (*Solidago* sp.), pokeweed (*Phytolacca americana*) and various ferns and grasses.

The residential area includes a maintained yard and garden, as well as a small poultry yard. Several outbuildings and a mobile home are also present. The residential area is dominated by various turf grasses, red maple, white pine (*Pinus alba*), jack-in-the-pulpit (*Arisaema triphyllum*), forsythia (*Forsythia* sp.), daylily (*Hemerocallis fulva*), rose-of-sharon (*Hibiscus syriacus*), and hosta (*Hosta* sp.).

Floodplain Forest

This community occurs along the banks of Glady Fork. The canopy is dominated by white pine, but red maple and tulip poplar also make up a small component. Due to the planting of white pines, the tree component of this community has been altered from its natural state. The understory is very diverse and includes species such as black cherry (*Prunus serotina*), mountain laurel (*Kalmia latifolia*), spice bush (*Lindera benzoin*), sourwood (*Oxydendrum arboreum*), viburnum (*Viburnum* sp.), yellowroot (*Xanthorhiza simplissima*), great rhododendron (*Rhododendron maximum*), and giant cane (*Arundinaria gigantea*). Herbaceous and viney species include various ferns, jack-in-the-pulpit, galax (*Galax aphylla*), dog-hobble, sphagnum (*Sphagnum* sp.), and grape (*Vitis* sp.). This community probably represents a marginal example of a Montane Alluvial Forest as described by Schafale and Weakley (1990). The TNC classification is most likely I.A.8.N.b.14 *Pinus strobus* Forest Alliance.

Upland Forest

This community occurs at higher elevations along Glady Fork above the floodplain community. Small-scale logging operations have recently taken place in this community within the southwest quadrant of the project area, creating an opening in the otherwise closed canopy. The canopy in this area is dominated by planted white pines. However, a few other species are also present, such as red maple, white oak (*Quercus alba*), and eastern hemlock (*Tsuga canadensis*). The understory is generally dense and includes mountain laurel, black gum (*Nyssa sylvatica*), witch-hazel (*Hamamelis virginiana*), sourwood, sassafras (*Sassafras albidum*), and viburnum. The herbaceous species present here include whorled loosertrife (*Lysimachia quadrifolia*), Indian pipe (*Monotropa uniflora*), poison ivy, and various species of ferns. This community is also a marginal example of a Montane Alluvial Forest as described by Schafale and Weakley (1990). The TNC classification is most likely I.A.8.N.b.13 *Pinus strobus-Tsuga Canadensis* Forest Alliance.

Faunal Component

Species that prefer open, disturbed habitat to feed and nest in can be found in the disturbed communities. The animal species present in these disturbed habitats are opportunistic and capable of surviving on a variety of resources, ranging from vegetation to both living and dead faunal components. The European starling (*Sturnus vulgaris*) and American robin* (*Turdus migratorius*) are common birds that use these habitats to find insects, seeds, or worms. The American crow* (*Corvus brachyrhynchos*) and the Virginia opossum (*Didelphis virginiana*) are true opportunists and will dine on virtually any edible items including vegetation, fruits, seeds, insects, and carrion. The roadside and residential areas may also be used by the woodchuck (*Marmota monax*), which enjoys the grasses. Various species of mice (*Peromyscus* spp.) will collect seeds and nest near human dwellings. The American toad (*Bufo americanus*) eats insects found in grassy areas and near human dwellings, and the Eastern garter snake (*Thamnophis sirtalis*) will feed on the toads.

Many species are highly adaptive and may utilize the edges of forests and clearings or prefer a mixture of habitat types. The Eastern cottontail (*Sylvilagus floridanus*) prefers a mix of herbaceous and woody vegetation and may be found in the dense shrub vegetation or out in the roadside, powerline right-of-way, and residential areas. White-tailed deer (*Odocoileus virginianus*) will utilize the forested areas as well as the adjacent open areas. The black rat snake (*Elaphe obsoleta*) will come out of forested habitat to forage on rodents in open areas. Indigo bunting* (*Passerina cyanea*) and common yellowthroat* (*Geothlypis trichas*) are Neotropical migrants that inhabit dense, shrubby vegetation along transitional areas. Blue jays (*Cyanocitta cristata*) and bluebirds (*Sialia sialis*) also utilize edge habitat.

Forested areas are important habitat for many species. Neotropical migratory birds, in particular, are dependent on these areas. Species such as wood thrush* (*Hylocichla mustelina*), hooded warbler* (*Wilsonia citrina*), and black-throated green warbler* (*Dendroica virens*) thrive in heavily wooded locations. In the leaf litter of the forested habitats, the Northern short-tailed shrew (*Blarina brevicauda*) and the white-footed mouse (*Peromyscus leucopus*) may be found. Gray squirrels (*Sciurus carolinensis*) are often observed in wooded areas. The spring peeper (*Hyla crucifer*) can be found under forest litter and in brushy undergrowth. The Eastern box turtle (*Terrapene carolina*) is a terrestrial turtle but will be found near streams in hot, dry weather. The five-lined skink (*Eumeces fasciatus*) may also be found in forested communities.

Aquatic Communities

Within the project area, Glady Fork is a mid-gradient, third-order stream. The bed material consists of mostly of cobbles and gravel, with a small percentage of bedrock and sand. On the day of the site visit, the water was slightly turbid with small amounts of suspended sediment. The riparian community is mostly evergreen trees, with some deciduous trees and evergreen shrubs. No aquatic vegetation was observed.

Transylvania County is designated a “trout” county by the North Carolina Wildlife Resources Commission (WRC). Although this section of Glady Fork is not designated a Public Mountain Trout Water (PMTW), it supports populations of wild trout. (A portion of the East Fork of the French Broad River just downstream from the confluence with Glady Fork and approximately 1500 feet (450 m) downstream from the project site is Designated Public Mountain Trout Water.) According to a communication with Scott Loftis, District 9 Fisheries Biologist for the WRC, Glady Fork is likely to support brook trout (*Salvelinus fontinalis*), brown trout (*Salmo trutta*), blacknose dace (*Rhinichthys atratulus*), longnose dace (*Rhinichthys cataractae*), rosyside dace (*Clinostomus funduloides*), mottled sculpin (*Cottus bairdi*), saffron shiner (*Notropis rubricroceus*), and warpaint shiner (*Luxilus coccogenis*).

Summary of Anticipated Impacts

Project construction will have various impacts to the previously described terrestrial and aquatic communities. Any construction activities in or near these resources have the potential to impact biological functions. This section quantifies and qualifies potential impacts to the natural communities within the project area in terms of the area impacted and the plants and animals

affected. Temporary and permanent impacts are considered here along with recommendations to minimize or eliminate impacts.

Terrestrial Communities

Terrestrial communities in the project area will be impacted permanently by project construction from clearing and paving. Estimated impacts are based on the length of the alternate and the entire project area width. The project length for each proposed Alternate is 800 feet (244 meters) long. The proposed project has variable dimensions. Table 2 describes the potential impacts to terrestrial communities by habitat type. Because impacts are based on the entire project area width, the actual loss of habitat will likely be less than the estimate.

Table 2. Estimated Area of Impact to Terrestrial Communities

	Area of Impact in Acres (Hectares)	
	Alternate 1	Alternate 2 (Recommended)
Community	Permanent	Permanent
Disturbed Roadside	0.19 (0.08)	0.39 (0.16)
Floodplain Forest	0.13 (0.05)	0.01 (0.00)
Upland Forest	1.37 (0.55)	0.26 (0.11)
Total Impact	1.69 (0.68)	0.66 (0.27)

Destruction of natural communities along the project alignment will result in the loss of foraging and breeding habitats for the various animal species that utilize the area. Animal species will be displaced into surrounding communities. Adult birds, mammals, and some reptiles are mobile enough to avoid mortality during construction. Young animals and less mobile species, such as many amphibians, may suffer direct loss during construction. The plants and animals that are found in the upland communities are generally common throughout western North Carolina.

Impacts to terrestrial communities, particularly in locations having steep to moderate slopes, can result in the aquatic community receiving heavy sediment loads as a consequence of erosion. Construction impacts may not be restricted to the communities in which the construction activity occurs, but may also affect downstream communities. Efforts should be made to ensure that no sediment leaves the construction site.

Aquatic Communities

Impacts to aquatic communities include fluctuations in water temperatures as a result of the loss of riparian vegetation. Shelter and food resources, both in the aquatic and terrestrial portions of these organisms' life cycles, will be affected by losses in the terrestrial communities. The loss of aquatic plants and animals will affect terrestrial fauna that rely on them as a food source.

Temporary and permanent impacts to aquatic organisms may result from increased sedimentation. Aquatic invertebrates may drift downstream during construction and recolonize the disturbed area once it has been stabilized. Sediments have the potential to affect fish and other aquatic life in several ways, including the clogging and abrading of gills and other respiratory surfaces, affecting the habitat by scouring and filling of pools and riffles, altering water chemistry, and smothering different life stages. Increased sedimentation may cause decreased light penetration through an increase in turbidity. Trout populations are particularly sensitive to water-quality degradation.

Wet concrete should not come into contact with surface water during bridge construction as it can adversely affect aquatic life. Potential adverse effects can be minimized through the implementation of NCDOT *Best Management Practices for Protection of Surface Waters*. In addition, "Guidelines for Construction Adjacent to and Crossing Trout Waters" as incorporated into *Erosion and Sediment Control Guidelines* will be implemented and followed throughout the project. In-stream work and land disturbance within the 25-foot wide trout stream buffer zone should be prohibited during the trout spawning season of October 15 through April 15 to protect the egg and fry stages of trout from off-site sedimentation during construction.

JURISDICTIONAL TOPICS

This section provides inventories and impact analyses for two federal and state regulatory issues: "Waters of the United States" and rare and protected species.

Waters of the United States

Wetlands and surface waters fall under the broad category of "Waters of the United States" as defined in 33 CFR §328.3 and in accordance with provisions of Section 404 of the Clean Water Act (33 U.S.C. 1344). These waters are regulated by the U.S. Army Corps of Engineers (USACE). Any action that proposes to dredge or place fill material into surface waters or wetlands falls under these provisions.

Characteristics of Wetlands and Surface Waters

The Eastatoc, NC NWI map shows no wetlands in the project vicinity. No jurisdictional wetlands were observed within the project area. Glady Fork and UT2 meet the definition of surface waters, and are therefore classified as Waters of the United States. The channel of Glady Fork is approximately 15-20 feet (4.5-6 meters) wide within the project area. The tributary's channel is 3 feet (0.9 meters) wide. Both these streams are perennial.

Bridge Demolition

Demolition and removal of a highway bridge over Waters of the United States must be addressed when applying to the U.S. Corps of Engineers (COE) for a permit. A worst-case scenario of dropping components of the bridge in the water is assumed. Effective September 20, 1999, this

issue is included in the permit application for bridge reconstruction. The permit application henceforth will require disclosure of demolition methods and potential impacts to the body of water in the planning document for the bridge reconstruction.

Section 402-2 "Removal of Existing Structures" of NCDOT's Standard Specifications for Roads and Structures stipulates that "excavated materials shall not be deposited....in rivers, streams, or impoundments," and "the dropping of parts or components of structures into any body of water will not be permitted unless there is no other practical method of removal. The removal from the water of any part or component of a structure shall be done so as to keep any resulting siltation to a minimum." To meet these specifications, NCDOT shall adhere to Best Management Practices for the Protection of Surface Waters, as supplemented with Best Management Practices for Bridge Demolition and Removal.

All in-stream work shall be classified into one of three categories as follows:

Case 1) In-water work is limited to an absolute minimum, due to the presence of Outstanding Resource Waters or threatened and/or endangered species, except for the removal of the portion of the sub-structure below the water. The work is carefully coordinated with the responsible agency to protect the Outstanding Resource Water or T&E species.

Case 2) No work at all in the water during moratorium periods associated with fish migration, spawning, and larval recruitment into nursery areas.

Case 3) No special restrictions other than those outlined in Best Management Practices for Protection of Surface Waters and supplements added by the Bridge Demolition document, dated September 20, 1999.

Glady Fork in the vicinity of the proposed project is a Class C *Tr* water. It is not known to provide habitat for aquatic species on the federal list of threatened and endangered species. It is not classified as Public Mountain Trout Water by the WRC, but it does carry the DWQ supplemental *Tr* classification. Therefore, Case 2 applies to the proposed replacement of Bridge No. 116 over Glady Fork.

The superstructure consists of a timber floor on I-beams. The substructure consists entirely of timber. Therefore, Bridge No. 116 will be removed without dropping any components into Waters of the United States

The stream bed in the project area is nearly all cobbles and gravel. Therefore, conditions in the stream do not raise sediment concerns and a turbidity curtain is not recommended.

Summary of Anticipated Impacts

Project construction cannot be accomplished without infringing on the surface waters. Anticipated surface water impacts fall under the jurisdiction of the USACE and the DWQ. Within the project area, Glady Fork is approximately 20 feet (6 meters) wide, and UT2 is 3 feet (0.9 meters) wide. Table 3 lists the potential stream impacts, assuming a project area of 80 feet

(24 meters) for each alternate.

Table 3. Estimated Area of Impact to Jurisdictional Surface Waters

		Alternative 1		Alternative 2 (Recommended)	
Water body	Width in ft (m)	Impact in Linear ft (m)	Impact in sq ft (m)	Impact in Linear ft (m)	Impact in sq ft (m)
Glady Fork	20 (6)	80 (24)	1,600 (148.6)	80 (24)	1,600 (148.6)
UT2	3 (0.9)	230 (69)	690 (64.1)	--	--
Total	23 (6.9)	310 (93)	2,290 (212.7)	80 (24)	1,600 (148.6)

Permits

Impacts to jurisdictional surface waters are anticipated from the proposed project. Permits and certifications from various state and federal agencies may be required prior to construction activities.

Construction is likely to be authorized by Nationwide Permit (NWP) No. 23, as promulgated under 61 FR 2020, 2082; January 15, 2002. This permit authorizes activities undertaken, assisted, authorized, regulated, funded, or financed in whole or in part, by another Federal agency or department where that agency or department has determined that, pursuant to the Council on Environmental Quality Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act:

- the activity, work, or discharge is categorically excluded from environmental documentation because it is included within a category of actions that neither individually nor cumulatively have a significant effect on the human environment; and
- the Office of the Chief Engineer has been furnished notice of the agency's or department's application for the categorical exclusion and concurs with that determination.

This project will also require a 401 Water Quality Certification No. 3361 from the Department of Environment and Natural Resources (DENR) prior to issuance of the NWP 23. Section 401 of the Clean Water Act requires that the state issue or deny water certification for any federally permitted or licensed activity that results in a discharge into Waters of the U.S. In addition, the project is located in a designated "trout" county, where NCDOT must obtain a letter of approval from the NC Wildlife Resources Commission. Final permit decision rests with the USACE.

Avoidance, Minimization, Mitigation

The function of avoidance, minimization, and mitigation is to restore and maintain the chemical, biological, and physical integrity of waters of the United States by avoiding impacts, minimizing

impacts, and rectifying impacts. Each of these three aspects (avoidance, minimization, and compensatory mitigation) must be considered sequentially.

Avoidance mitigation examines all appropriate and practical possibilities of averting impacts to waters of the United States. According to a 1990 Memorandum of Agreement (MOA) between the Environmental Protection Agency (EPA) and COE, in determining "appropriate and practical" measures to offset unavoidable impacts, such measures should be appropriate to the scope and degree of those impacts and practical in terms of costs, existing technology and logistics in light of overall project purposes.

Minimization includes the examination of appropriate and practical steps to reduce the adverse impacts to waters of the United States. Implementation of these steps will be required through project modifications and permit conditions. Practical means to minimize impacts to surface waters and wetlands impacted by the proposed project include:

- Decreasing the footprint of the proposed project through the reduction of median width, ROW widths, fill slopes and/or road shoulder widths
- Installation of temporary silt fences, earth berms, and temporary ground cover during construction
- Strict enforcement of sedimentation and erosion control BMPs for the protection of surface waters and wetlands
- Reduction of clearing and grubbing activity in and adjacent to water bodies.
- Judicious pesticide and herbicide usage
- Implementation of a proposed tentative in-stream construction moratorium from October 15 through April 15 in order to minimize impacts on fish migration, spawning, and larval recruitment into nursery areas

Compensatory mitigation is not normally considered until anticipated impacts to waters of the United States have been avoided and minimized to the maximum extent possible. Appropriate and practicable compensatory mitigation is required for unavoidable adverse impacts that remain after all appropriate and practicable minimization has been required. Compensatory actions often include restoration, creation, and enhancement of waters of the United States. Such actions should be undertaken in areas adjacent to or contiguous to the discharge site (*i.e.*, compensatory on-site mitigation).

Because this project will likely be authorized under a Nationwide Permit, mitigation for impacts to surface waters may or may not be required by the USACE. In accordance with the Division of Water Quality Wetland Rules [15A NCAC 2H .0506 (h)] "Fill or alteration of more than one acre of wetlands will require compensatory mitigation; and fill or alteration of more than 150 linear feet of streams may require compensatory mitigation." Written approval of the final mitigation plan is required from NCDWQ before the regulatory agency issues a Water Quality Certification. Furthermore, in accordance with 67 FR 2020; 2092; January 15, 2002, the US

Army Corps of Engineers requires compensatory mitigation when necessary to ensure that adverse effects to the aquatic environment are minimal. The size and type of proposed project impact and function and value of the impacted aquatic resource are factors considered in determining acceptability of appropriate and practicable compensatory mitigation. Final compensatory stream mitigation requirements will be determined by the US Army Corps of Engineers under the statutory provisions of CWA § 404 and the January 15, 2002 Final Notice of Issuance of Nationwide Permits.

There are no wetland impacts associated with this project. However, a small, linear wetland exists along the banks of UT2 approximately 80 feet (24 meters) outside the project area. This wetland will not be affected regardless of which Alternate is chosen.

Each proposed Alternate would impact 80 linear feet (24 m) of Glady Fork. Alternative 1 would fill approximately 110 linear feet (33 meters) of UT2, and Alternative 2 would fill approximately 60 linear feet (18 meters) of UT2. Although impacts to Glady Fork are probably unavoidable since the project proposes a new alignment, choosing Alternative 2 will result in the least impacts to UT2.

In addition, "Guidelines for Construction Adjacent to and Crossing Trout Waters" as incorporated into *Erosion and Sediment Control Guidelines* should be implemented and followed throughout the project. In-stream work and land disturbance within the 25-foot wide trout stream buffer zone should be prohibited during the trout spawning season of October 15 through April 15 to protect the egg and fry stages of trout from off-site sedimentation during construction. Because the stream in the proposed project area is designated as a *Class C Tr*, control methods for high quality waters should be implemented as included in *NCDOT's Best Management Practices for Protection of Surface Waters* and *Erosion and Sediment Control Guidelines*.

If the final length of stream impact is greater than 150 linear feet (45.7 meters), compensatory mitigation may be required. The environmental regulatory agencies will ultimately provide final permit and compensatory mitigation decisions for the project.

Rare and Protected Species

Some populations of plants and animals are declining either as a result of natural forces or their difficulty competing with humans for resources. Rare and protected species listed for Transylvania County, and any likely impacts to these species as a result of the proposed project construction, are discussed in the following sections.

Federally-Protected Species

Plants and animals with a federal classification of Endangered (E), Threatened (T), Proposed Endangered (PE), and Proposed Threatened (PT) are protected under provisions of Section 7 and Section 9 of the Endangered Species Act of 1973, as amended.

The USFWS lists 9 species under federal protection for Transylvania County as of February 25, 2003. These species are listed in Table 4.

Table 4. Species Under Federal Protection in Transylvania County

Common Name	Scientific Name	Federal Status
Vertebrates		
Bog turtle	<i>Clemmys muhlenbergii</i>	T(S/A)
Carolina northern flying squirrel	<i>Glaucomys sabrinus coloratus</i>	E
Invertebrates		
Appalachian elktoe	<i>Alasmidonta raveneliana</i>	E
Oyster mussel	<i>Epioblasma capsaeformis</i>	E
Vascular Plants		
Spreading avens	<i>Geum radiatum</i>	E
Swamp pink	<i>Helonias bullata</i>	T
Small-whorled pogonia	<i>Isotria medeoloides</i>	T
Mountain sweet pitcher plant	<i>Sarracenia jonesii</i>	E
Nonvascular Plants		
Rock Gnome Lichen	<i>Gymnoderma lineare</i>	E
Notes:	<p>E Endangered-A species that is threatened with extinction throughout all or a significant portion of its range.</p> <p>T Threatened-A species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.</p> <p>T (S/A) Similarity of Appearance-A species that is listed as threatened due to similarity of appearance with other rare species.</p>	

A brief description of the characteristics and habitat requirements of each species follows, along with a conclusion regarding potential project impact.

***Clemmys muhlenbergii* (bog turtle) Threatened due to Similarity of Appearance**

Vertebrate Family: Emydidae

Federally Listed: 1997

The bog turtle is a small freshwater turtle reaching a maximum carapace length of 4.5 in (11.4 cm). These turtles have a domed carapace that is weakly keeled and is light brown to ebony in color. The scutes have a lighter-colored starburst pattern. The plastron is brownish-black with contrasting yellow or cream areas along the midline. This species is distinguished by a conspicuous orange, yellow, or red blotch on each side of the head.

The bog turtle is semi-aquatic and is typically found in freshwater wetlands characterized by open fields, meadows, or marshes with slow-moving streams, ditches, and boggy areas. The bog turtle is also found in wetlands in agricultural areas subject to light to moderate livestock grazing, which helps to maintain an intermediate stage of succession. During the winter, this

Rays may be prominent to obscure. The inside shell surface is shiny white to bluish-white, changing to a salmon, pinkish, or brownish color in the central and beak cavity portions of the shell.

The Federal Register lists two known surviving populations of the Appalachian elktoe. One is in the Little Tennessee River between Emory Lake in Macon County and Fontana Reservoir in Swain County. The other is in the Nolichucky River system in Yancey and Mitchell counties. The habitat in these locations can be described as relatively shallow, medium-sized creeks and rivers with cool, well-oxygenated, moderate- to fast-flowing water. Substrates are gravelly mixed with cobble and boulders, or occasionally coarse and sandy.

Two additional occurrences were found in the files of the North Carolina NHP. One is a finding of a single specimen in Yancey County in the Cane River, a major tributary of the Nolichucky River. The other finding was a single dead specimen in the Tuckasegee River in Swain County. Additional information from the USFWS Asheville Field Office indicates that the extant range has recently been expanded in both the Little Tennessee and French Broad basins.

Major factors contributing to the endangered status of this species include water quality and habitat degradation resulting from impoundments, stream channelization projects, and point and non-point sources of pollution and siltation.

Biological Conclusion:

No Effect

Historic information indicates that the Appalachian elktoe was once widely distributed in western North Carolina; historic locations include the French Broad River, which lies just downstream from the bridge replacement site. A search of the NHP files found no occurrences of the Appalachian elktoe in the project vicinity. A visual and tactile survey above and below the existing bridge was conducted at the project site on October 23, 2002 by NCDOT biologists Jeff Burleson, Neil Medlin, and Tom Dickinson. No evidence of freshwater mussels was found.

***Epioblasma capsaeformis* (oyster mussel)**

Endangered

Invertebrate Family: Unionidae

Federally Listed: 1997

The shell of the oyster mussel is a dull to sub-shiny, yellowish to green color with numerous narrow dark green rays. The inside of the shell is white to bluish-white. Shells of females are slightly inflated and very thin toward the posterior margin of the shell.

The oyster mussel historically occurred throughout much of the Cumberlandian region of the Tennessee and Cumberland river drainages in Alabama, Kentucky, Tennessee, and Virginia. It is now considered endangered in Kentucky and Virginia, and is known to survive in small populations in only a few locations in Kentucky, Tennessee, and Virginia. Recent research uncovered a record of a collection of this species in Madison County in 1918 and from the French Broad River at Asheville.

Biological Conclusion:**No Effect**

Historic information indicates that the oyster mussel was once widely distributed in western North Carolina; historic locations include the French Broad River, which lies just downstream from the bridge replacement site. A search of the NHP files found no occurrences of the oyster mussel in the project vicinity. A visual and tactile survey above and below the existing bridge was conducted at the project site on October 23, 2002 by NCDOT biologists Jeff Burleson, Neil Medlin, and Tom Dickinson. No evidence of freshwater mussels was found.

Geum radiatum* (Spreading avens)*Endangered**

Plant Family: Rosaceae

Federally Listed: 1990

Spreading avens is a perennial herb having stems with an indefinite cyme of bright yellow, radially symmetrical flowers. Flowers of spreading avens are present from June to early July. Spreading avens has basal leaves that are odd-pinnately compound; terminal leaflets are kidney shaped and much larger than the lateral leaflets, which are reduced or absent.

Spreading avens is found only in the North Carolina and Tennessee section of the Southern Appalachian Mountains. Spreading avens occurs on scarps, bluffs, cliffs and escarpments on mountains, hills and ridges. Known populations of this plant have been found to occur at elevations from 5060 to 5800 ft (1535 to 1759 m). Other habitat requirements for this species include full sunlight and shallow acidic soils. These soils are composed of sand, pebbles, humus, sandy loam and clay loam. Most populations are pioneers on rocky outcrops.

Biological Conclusion:**No Effect**

No habitat exists in the project area for spreading avens. The project area is at an average elevation of 2250 feet (675 meters) with no scarps, bluffs, cliffs or escarpments. Furthermore, the soils in this area are generally deep. A search of the NHP database found no occurrence of this plant within the project vicinity. It can be concluded that the project will not impact this endangered species.

Helonias bullata* (swamp pink)*Threatened**

Plant Family: Liliaceae

Federally Listed: 1988

Swamp pink is a perennial, subscapose herb with evergreen leaves occurring in a basal rosette. The leaves are oblanceolate, parallel-veined, and about 3.5 to 9.8 inches (9 to 25 cm) long. A stout, hollow stem arises from the basal rosette and can grow from 7.8 to 35.4 inches (20 to 90 cm) during flowering to 5 feet (1.5 meters) during seed maturation. The stem bears an ebracteate raceme about 1.2 to 3.1 inches (3 to 8 cm) long. The raceme consists of a cluster of thirty to fifty fragrant, pink to lavender flowers. The plant often grows in dense clumps as a result of

reproduction by clonal root growth or limited seed dispersal. Swamp pink is one of the first wildflowers to bloom in the spring. In winter, the basal rosette persists and turns reddish-brown, with the next season's flowerhead appearing as a button in the center.

Swamp pink occurs in a variety of wetland types from the coastal plain to the mountains in New Jersey, Delaware, Maryland, Virginia, North Carolina, South Carolina, and Georgia. It is found in Atlantic white cedar swamps, Blue Ridge swamps, swampy forested wetlands bordering small streams, meadows, and seepage areas. The plant requires saturated but not flooded conditions, and often occurs in association with evergreen trees such as Atlantic white cedar, pitch pine, American larch, and black spruce. The largest North Carolina population occurs in the Pink Beds area of Pisgah National Forest. Other populations are known from Ashe, Jackson, Henderson, and Transylvania counties.

Biological Conclusion:

No Effect

No habitat exists in the project area for swamp pink. The small wetland just outside the project area was thoroughly searched for state and federally listed species, however none were found. Furthermore, the evergreen trees present within the project area are not those generally associated with swamp pink. A search of the NHP database found no occurrence of this plant within the project vicinity. It can be concluded that the project will not impact this endangered species.

Isotria medeoloides (small whorled pogonia)

Threatened

Family: Orchidaceae

Federally Listed: 1982

The specific epithet of the small whorled pogonia comes from the resemblance of this perennial orchid to young plants of Indian cucumber root (*Medeola virginiana*). However, the small whorled pogonia has a stout, hollow stem in contrast to the solid, slender stem of Indian cucumber root. The stem is 3.7 to 9.8 inches (9.5 to 25 cm) tall, with a terminal whorl of 5 or 6 light green leaves that are elliptical in shape and measure up to 3 inches by 1.5 inches (8 by 4 cm). One or two flowers are borne at the top of the stem, appearing from mid-May to mid-June. The flowers lack fragrance and nectar guides, and apparently are self-pollinating.

The small whorled pogonia was formerly scattered in 48 counties in 16 eastern states. Currently, the majority of populations are found in New England at the foothills of the Appalachian Mountains and in northern coastal Massachusetts. The habitat of the small whorled pogonia varies widely throughout its range, although there are a few common characteristics among the majority of sites. These include sparse to moderate ground cover; a relatively open understory; and proximity to features that create extensive, stable breaks in the canopy, such as logging roads or streams. The pogonia has been found in mature forests as well as stands as young as 30 years old. Forest types include mixed-deciduous/ white pine or hemlock in New England, mixed deciduous in Virginia, white pine/mixed-deciduous or white pine/oak-hickory in Georgia, and red maple in Michigan. Understory components in the southern part of the range are most commonly found to be flowering dogwood (*Cornus florida*), sourwood (*Oxydendron arboreum*),

mountain laurel (*Kalmia latifolia*), American chestnut (*Castanea dentata*), witch hazel (*Hamamelis virginiana*), and flame azalea (*Rhododendron calendulaceum*). Early descriptions placed the small whorled pogonia on dry sites, but it has since been found on sites with high soil moisture.

Biological Conclusion:

No Effect

Within the project area, habitat for small whorled pogonia is poor to marginal. The understory is generally dense and ground cover is moderate to dense. Glady Fork does not create a break in the canopy. The powerline and the gravel road in the northeast quadrant of the project area do create breaks in the canopy. The area under the powerline is vegetated with dense woody shrubs. The area adjacent to the gravel road has a moderately dense understory, however none of the vegetation typically associated with small whorled pogonia is found here. No individuals of this species were located during the site visit, and a search of the NHP database found no occurrence of this plant within the project vicinity. It can be concluded that the project will not impact this endangered species.

***Sarracenia jonesii* (mountain sweet pitcher plant)**

Endangered

Family: Sarraceniaceae

Federally Listed: 1989

The mountain sweet pitcher plant is a perennial herb with numerous tubular leaves growing in clusters. The leaves grow from 21 to 73 inches tall (53 to 185 cm) and have a heart-shaped hood. The waxy dull green of the leaves is criss-crossed with maroon-purple veins. The erect scape bears one maroon flower with 5 recurved petals.

Populations of mountain sweet pitcher plant are known from 10 locations in North and South Carolina. The four North Carolina populations occur in Henderson and Transylvania counties in the French Broad River drainage basin. The plant is restricted to bogs and streamsides and is usually found in level depressions on floodplains, but has also been found on granite rock faces beside waterfalls. Soils supporting the plant are deep, poorly drained acidic soils with a high organic matter content.

Biological Conclusion:

No Effect

No habitat exists in the project area for mountain sweet pitcher plant. The small wetland just outside the project area was thoroughly searched for state and federally listed species, however none were found. The streamside was also searched extensively. A search of the NHP database found no occurrence of this plant within the project vicinity. It can be concluded that the project will not impact this endangered species.

***Gymnoderma lineare* (rock gnome lichen)**

Endangered

Family: Cladoniaceae

Federally Listed: 1994

The rock gnome lichen is a squamose lichen in the reindeer moss family. The lichen can be identified by its fruiting bodies, which are borne singly or in clusters, are black in color, and are found at the tips of the squamules. The fruiting season of the rock gnome lichen occurs from July through September.

The rock gnome lichen is a narrow endemic, restricted to areas of high humidity. These high-humidity environments occur on high-elevation (4000 feet/1220 meters) mountaintops and cliff faces that are frequently bathed in fog, or lower elevation (2500 feet /762 meters) deep gorges in the southern Appalachians. The rock gnome lichen primarily occurs on vertical rock faces where seepage water from forest soils above flows only at very wet times. The rock gnome lichen is almost always found growing with the moss *Adreaea* in these vertical intermittent seeps. The major threat of extinction to the rock gnome lichen relates directly to habitat alteration/loss of high elevation coniferous forests. These coniferous forests usually lie adjacent to the habitat occupied by the rock gnome lichen. The high elevation habitat occurs in Ashe, Avery, Buncombe, Graham, Graham, Mitchell, Swain, and Yancey counties. The lower elevation habitat of the rock gnome lichen can be found in Jackson, Rutherford, and Transylvania counties.

Biological Conclusion:

No Effect

No habitat exists in the project area for the rock gnome lichen. The elevation of the project area is approximately 2250 feet (675 m). The habitats within the project area are generally dry and no cliff faces are present. A search of the NHP database found no occurrences of rock gnome lichen in the project vicinity. It can be concluded that the project will not impact this threatened species.

Federal Species of Concern and State Listed Species

Federal Species of Concern (FSC) are not legally protected under the Endangered Species Act and are not subject to any of its provisions, including Section 7, until they are formally proposed or listed as Threatened or Endangered. Table 5 includes FSC species listed for Transylvania County and their state classifications. Organisms that are listed as Endangered (E), Threatened (T), or Special Concern (SC) on the North Carolina Natural Heritage Program list of Rare Plant and Animal Species are afforded state protection under the State Endangered Species Act and the North Carolina Plant Protection and Conservation Act of 1979. However, the level of protection given to state-listed species does not apply to NCDOT activities.

Table 5. Federal Species of Concern in Transylvania County

Common Name	Scientific Name	State Status	Habitat present
Vertebrates			
Green salamander	<i>Aneides aeneus</i>	E	No
Rafinesque's big-eared bat*	<i>Corynorhinus rafinesquii</i>	SC	No
Hellbender	<i>Cryptobranchus alleganiensis</i>	SC	No
Southern Appalachian red crossbill	<i>Loxia curvirostra</i>	SR	No
Southern Appalachian woodrat*	<i>Neotoma floridana hematoreia</i>	SC	No
Southern Appalachian black-capped chickadee	<i>Parus atricapillus praticus</i>	SC	No
Southern Appalachian yellow-bellied sapsucker	<i>Sphyrapicus varius appalaciensis</i>	#	#
Appalachian cottontail	<i>Sylvilagus obscurus</i>	SR	No
Appalachian Bewick's wren*	<i>Thryomanes bewickii altus</i>	E	No
Southern Appalachian northern saw-whet owl	<i>Aegolius acadicus</i> pop 1	SC	No
Invertebrates			
French Broad crayfish	<i>Cambarus reburus</i>	#	Yes
Oconee crayfish ostracod	<i>Cymocythere clavata</i>	SR	Yes
Margarita River skimmer	<i>Macromia margarita</i>	SR	Yes
Diana fritillary butterfly	<i>Speyeria diana</i>	SR	No
Transylvania crayfish ostracod	<i>Waltoncythere acuta</i>	SR	No
Vascular Plants			
Fraser fir	<i>Abies fraseri</i>	#	No
Alexander's rock aster	<i>Aster avitus</i>	SR-T	No
Smoky Mountain mannagrass	<i>Glyceria nubigena</i>	T	No
French Broad Heartleaf	<i>Hexastylis rhombiformis</i>	E	No
Butternut	<i>Juglans cinerea</i>	#	No
Fraser's loosetrife	<i>Lysimachia fraseri</i>	SR-T	No
Sweet pinesap	<i>Monotropsis odorata</i>	SR-T	No
Southern oconee-bells	<i>Shortia galacifolia</i> var. <i>galacifolia</i>	E-SC	No
Nonvascular Plants			
Gorge moss	<i>Bryocrumia vivcolor</i>	E	No
A liverwort	<i>Plagiochila sharpii</i>	SR-L	No
A liverwort	<i>Plagiochila sullivantii</i> var. <i>sullivantii</i>	SR-T	No
A liverwort	<i>Plagiochila virginica</i> var. <i>caroliniana</i>	SR-T	No

Sources: Amoroso, ed., 2002; LeGrand, Hall, and Finnegan, 2001

Key: T = Threatened, E = Endangered, SC = Special Concern, C = Candidate, SR = Significantly Rare

_T = fewer than 100 populations throughout the species' range, _L = species is endemic to NC

* = Historic record; the species was observed over 20 years ago, # = see explanation below in text.

Discrepancies exist between the USFWS list of FSC and the NC NHP list of protected species in Transylvania County. Several elements that appear on the USFWS list do not appear on the NC NHP list. According to John Finnegan, data systems manager with the NC NHP, there are no records for Southern Appalachian yellow-bellied sapsucker or oyster mussel for Transylvania County. NC NHP no longer tracks French Broad crayfish; while it is uncommon, it is not believed to be declining. NC NHP does not track Fraser fir or butternut. Smoky Mountain mannagrass appears on the NC NHP list, but does not appear on the USFWS list, probably because it occurs on the Transylvania / Haywood County line.

Although suitable habitat is present for some of the species included in Table 5, no FSC were observed during the site visit, and none are recorded at NHP as occurring within 2 miles (3.2 km) of the project area.

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

On December 12, 2000, the State Historic Preservation Office (SHPO) reviewed the subject project. There are no known architectural or historic sites within the proposed project area. The SHPO concurs that the project is not likely to affect any resources of historical significance (see letter dated March 20, 2001).

C. Archaeology

An archaeological survey was conducted and a report was sent to the State Historic Preservation Office (SHPO). The State Historic Preservation Office (SHPO) reviewed the report and concurred that the project is not likely to affect any resources of archaeological significance (see letter dated June 26, 2003).

VII. GENERAL ENVIRONMENTAL EFFECTS

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

This project is considered to be a "Categorical Exclusion" due to its limited scope and insignificant environmental consequences.

This bridge replacement will not have a substantial adverse effect on the quality of the human or natural environment by implementing the environmental commitments listed on the Project Commitments Sheet (Green Sheet) of this document in addition to use of current NCDOT 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 construction of this project.

There are no hazardous waste impacts.

No adverse effect on families or communities is anticipated. Right-of-way acquisition will be limited. No relocatees 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.

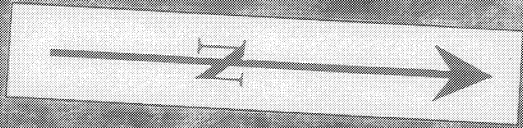
There are no publicly owned parks, recreational facilities, or wildlife and waterfowl refuges of national, state, or local significance in the vicinity of the project. This project will not impact any resource protected by Section 4(f) of the US Department of Transportation Act of 1966.

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 in the vicinity of the project. Therefore, the project will not involve the direct conversion of farmland acreage within these classifications.

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. This evaluation completes the assessment requirements for air quality (1990 Clean Air Act Amendments and the National Environmental Policy Act) and no additional reports are required.

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 no additional reports are required.

The proposed bridge replacement project will not raise the existing flood levels or have any significant adverse effect on the existing floodplain.



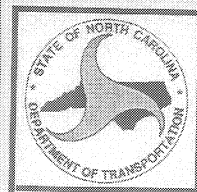
SR 1105 - Glady Fork Rd

(RECOMMENDED)
Alternate 2

Alternate 1

Bridge No. 116

Glady Fork Creek

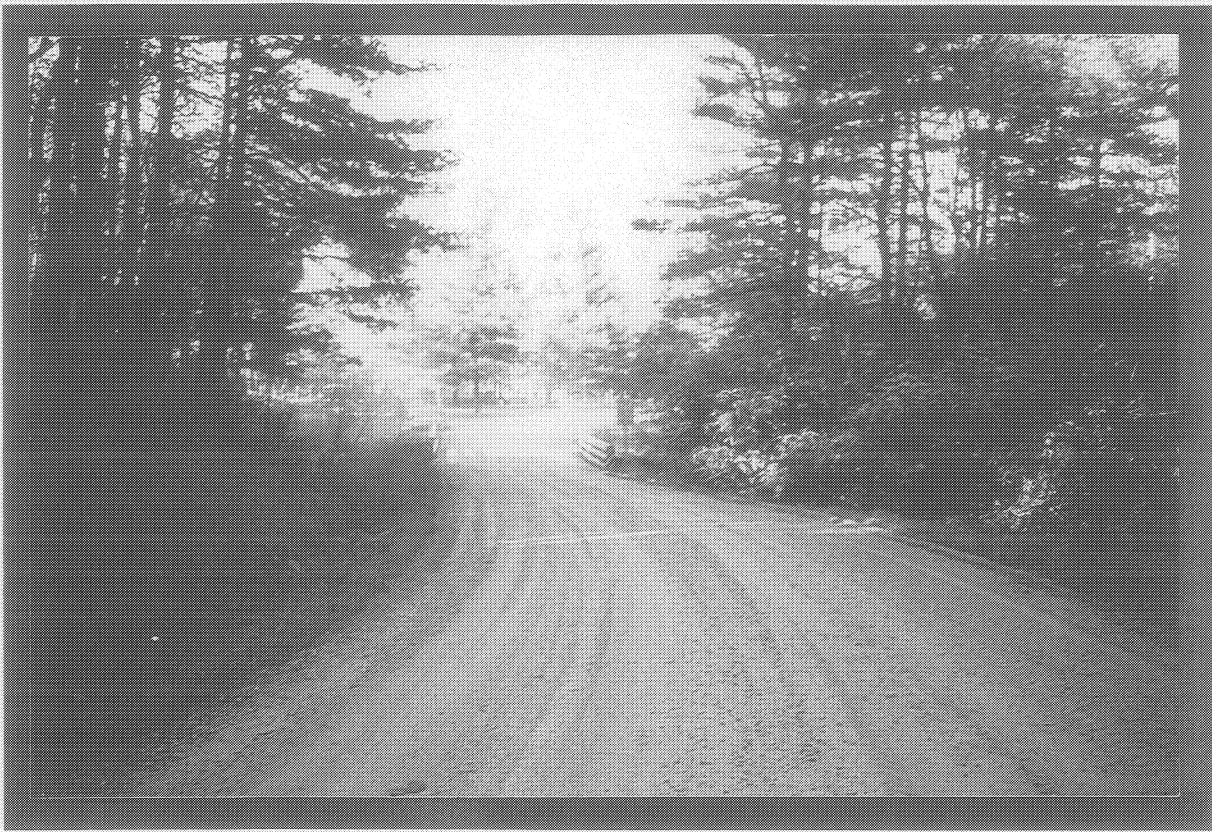


North Carolina
Department of Transportation
Division of Highways
Project Development &
Environmental Analysis Branch

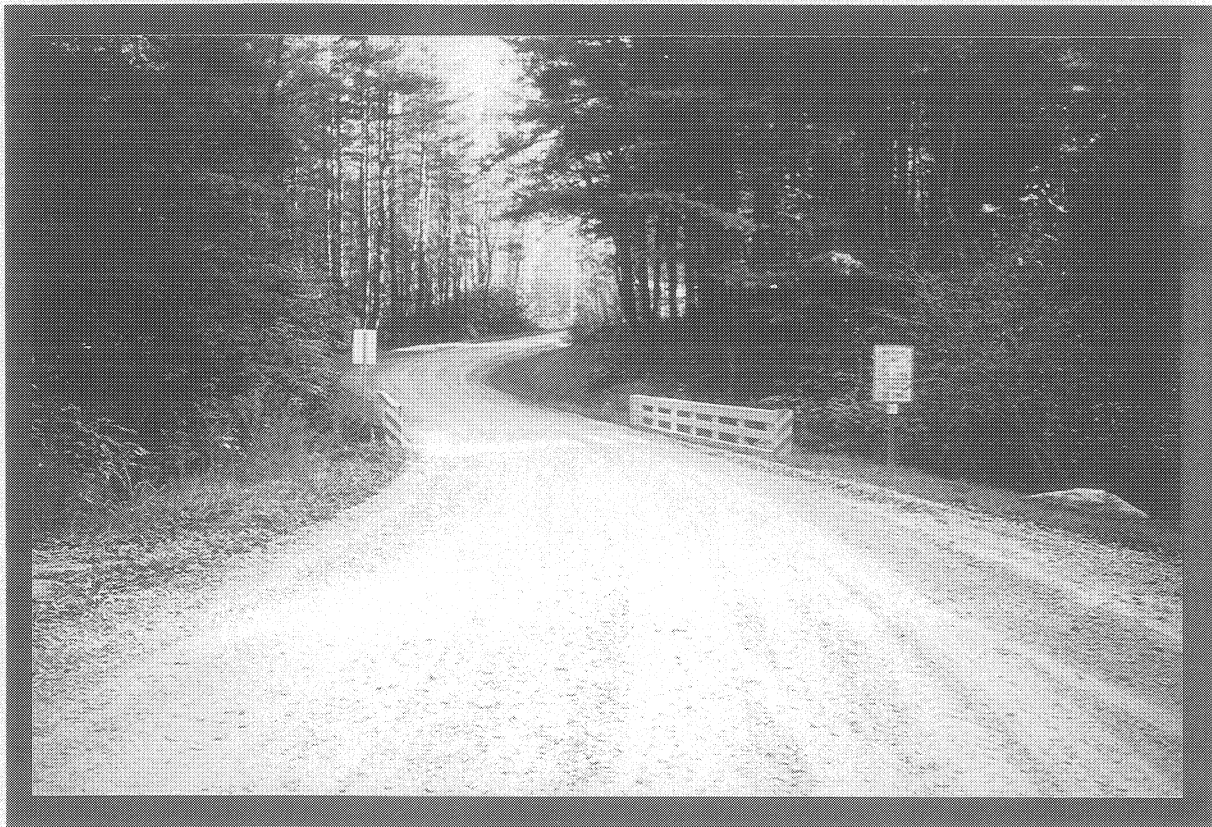
Transylvania County
Replace Bridge No. 116 on SR 1105
Over Glady Fork Creek
B-3914

Scale 1":100'

Figure 2



South Approach – Facing North



North Approach – Facing South

B-3914

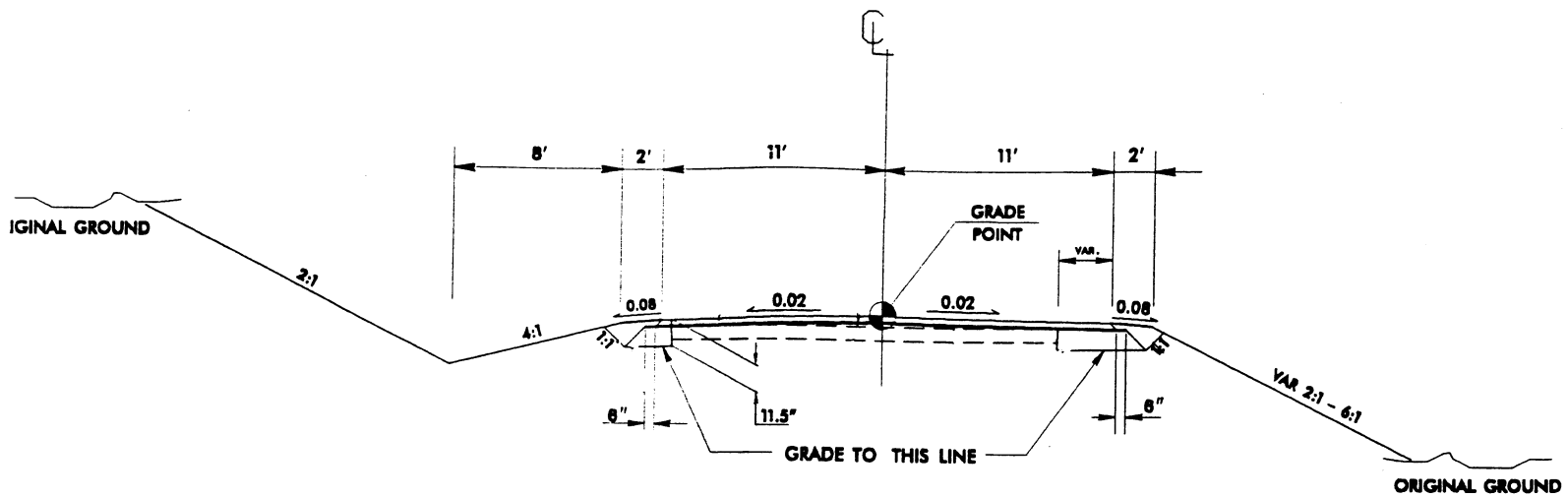
FIGURE 3A



West Face of Bridge

B-3914

FIGURE 3B



TYPICAL SECTION
Approach Roadway

B-3914

FIGURE 4



North Carolina Department of Cultural Resources

State Historic Preservation Office

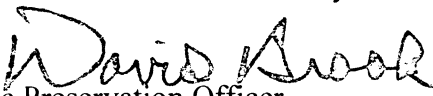
David L. S. Brook, Administrator

Michael F. Easley, Governor
Lisbeth C. Evans, Secretary
March 30, 2001

Division of Archives and History
Jeffrey J. Crow, Director

MEMORANDUM

To: William D. Gilmore, P.E., Manager
Project Development and Environmental Analysis Branch

From: David Brook 
Deputy State Historic Preservation Officer

Re: Replacement of Bridge No. 116 on SR 1105 over Gladly Fork Creek,
TIP No. B-3914, Transylvania County, ER 01-7915

On January 22, 2001 our office requested an evaluation of the Lambert House, in conjunction with this project, to determine its eligibility for listing in the National Register of Historic Places. However, we have since noticed that the Lambert House is not within the above project's area of potential effect. Please disregard our January 22, 2001 letter. We apologize for any inconvenience this may have caused. Our comments on this project follow.

On December 12, 2000 April Montgomery of our staff met with North Carolina Department of Transportation (NCDOT) staff for a meeting of the minds concerning the above project. We reported our available information on historic architectural and archaeological surveys and resources along with our recommendations. NCDOT provided project area photographs and aerial photographs at the meeting.

Based upon 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 no historic structures located within the area of potential effect. We recommend that no historic architectural survey be conducted for this project.

ADMINISTRATION
RESTORATION
SURVEY & PLANNING

Location
507 N. Blount St., Raleigh NC
515 N. Blount St., Raleigh NC
515 N. Blount St., Raleigh NC

Mailing Address
4617 Mail Service Center, Raleigh NC 27699-4617
4613 Mail Service Center, Raleigh NC 27699-4613
4618 Mail Service Center, Raleigh NC 27699-4618

Telephone/Fax
(919) 733-4763 • 733-8653
(919) 733-6547 • 715-4801
(919) 733-6545 • 715-4801

Page 2 of 2
William D. Gilmore
March 30, 2001

There are no known 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 inclusion 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.

Having provided this information, we look forward to the 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 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 any questions concerning the above comment, contact Renee Gledhill-Earley, Environmental Review Coordinator, at 919 733-4763.



**North Carolina Department of Cultural Resources
State Historic Preservation Office**

David L. S. Brook, Administrator

Michael F. Easley, Governor
Lisbeth C. Evans, Secretary
Jeffrey J. Crow, Deputy Secretary

Division of Historical Resources
David J. Olson, Director

June 26, 2003

MEMORANDUM

**CITIZENS PARTICIPATION
RECEIVED**

[JUL 01 2003

TO: Matt Wilkerson, Archaeology Supervisor
Project Development and Environmental Analysis Branch
NCDOT Division of Highways

FROM: David Brook *for David Brook*

SUBJECT: Bridge No. 116 on SR 1105 over Glady Fork Creek, B-3914, Transylvania
County, ER01-7915

Thank you for your letter of April 21, 2003, transmitting the archaeological survey report by Shane Peterson and Jesse Zinn for the above project.

During the course of the survey one archaeological site and one cemetery were identified within the project area. For purposes of compliance with Section 106 of the National Historic Preservation Act, we concur that 31TV805/805** is not eligible for listing in the National Register of Historic Places. 31TV478 was found to be located outside the current project area and was not evaluated. The report authors recommended that no further archaeological investigation be conducted in connection with this project, if Alternate 2 is selected. Additional evaluation of the Cassell cemetery is recommended, if Alternate 1 is selected. We concur with these recommendations.

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, please 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: Shane Peterson and Jesse Zinn, NCDOT

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	4613 Mail Service Center, Raleigh NC 27699-4613	(919) 733-6547 • 715-4801
SURVEY & PLANNING	515 N. Blount St., Raleigh NC	4618 Mail Service Center, Raleigh NC 27699-4618	(919) 733-6545 • 715-4801

State of North Carolina
Department of Environment
and Natural Resources
Division of Water Quality



James B. Hunt, Jr., Governor
Bill Holman, Secretary
Kerr T. Stevens, Director

December 7, 2000

MEMORANDUM

To: William D. Gilmore, P.E., Manager
NCDOT, Project Development & Environmental Analysis

Through: John Dorney, NC Division of Water Quality *J. Dorney*

From: Cynthia F. Van Der Wiele *C. Van Der Wiele*

Subject: Scoping comments on the proposed replacement of Bridge No. 116 on SR 1105 over Glady Fork in Transylvania County, T.I.P. Project B-3914.

This memo is in reference to your correspondence dated October 20, 2000, in which you requested scoping comments for the above project. The DWQ index number for the stream is 6-6-7 and is classified as C Trout waters. The Division of Water Quality requests that NCDOT consider the following environmental issues for the proposed project:

- A. DWQ prefers replacement of bridges with bridges, particularly in higher quality waters (i.e. trout streams, water supply watersheds, high quality and outstanding resource waters). However, if the new structure is to be a culvert, it should be countersunk to allow unimpeded fish and other aquatic organisms passage through the crossing. Please be aware that floodplain culverts are required.
- B. The document should provide a detailed and itemized presentation of the proposed impacts to wetlands and streams with corresponding mapping.
- C. There should be a discussion on mitigation plans for unavoidable impacts. If mitigation is required, it is preferable to present a conceptual (if not finalized) mitigation plan with the environmental documentation. While the NCDWQ realizes that this may not always be practical, it should be noted that for projects requiring mitigation, appropriate mitigation plans will be required prior to issuance of a 401 Water Quality Certification.
- D. Since the impacted water is classified as trout waters, the DWQ requests that DOT strictly adhere to North Carolina regulations entitled, "Design Standards in Sensitive Watersheds" (15A NCAC 04B .0024) throughout design and construction of the project. This would apply for any area that drains to streams having WS (Water Supply), ORW (Outstanding Resource Water), HQW (High Quality Water), SA (Shellfish Water) or Tr (Trout Water) classifications. Please be aware that trout moratoriums set by the NC Wildlife Resource Commission will apply.

- E. When practical, the DWQ requests that bridges be replaced on the existing location with road closure. If a detour proves necessary, remediation measures in accordance with the NCDWQ requirements for General 401 Certification 2726/Nationwide Permit No. 33 (Temporary Construction, Access and Dewatering) must be followed.
- F. If applicable, DOT should not install the bridge bents in the creek, to the maximum extent practicable.
- G. Wetland and stream impacts should be avoided (including sediment and erosion control structures/measures) to the maximum extent practical. If this is not possible, alternatives that minimize wetland impacts should be chosen. Mitigation for unavoidable impacts will be required by DWQ for impacts to wetlands in excess of one acre and/or to streams in excess of 150 linear feet.
- H. Borrow/waste areas should not be located in wetlands. It is likely that compensatory mitigation will be required if wetlands are impacted by waste or borrow.
- I. If foundation test borings are necessary; it should be noted in the document. Geotechnical work is approved under General 401 Certification Number 3027/Nationwide Permit No. 6 for Survey Activities.
- J. In accordance with the NCDWQ Wetlands Rules {15A NCAC 2H.0506(b)(6)}, mitigation will be required for impacts of greater than 150 linear feet to any single perennial stream. In the event that mitigation becomes required, the mitigation plan should be designed to replace appropriate lost functions and values. In accordance with the NCDWQ Wetlands Rules {15A NCAC 2H.0506 (h)(3)}, the Wetland Restoration Program may be available for use as stream mitigation.
- K. Sediment and erosion control measures should not be placed in wetlands.
- L. The 401 Water Quality Certification application will need to specifically address the proposed methods for stormwater management. More specifically, stormwater should not be permitted to discharge directly into the creek. Instead, stormwater should be designed to drain to a properly designed stormwater detention facility/apparatus.
- M. While the use of National Wetland Inventory (NWI) maps and soil surveys is a useful office tool, their inherent inaccuracies require that qualified personnel perform onsite wetland delineations prior to permit approval.

Thank you for requesting our input at this time. The DOT is reminded that issuance of a 401 Water Quality Certification requires that appropriate measures be instituted to ensure that water quality standards are met and designated uses are not degraded or lost. If you have any questions or require additional information, please contact Cynthia Van Der Wiele at (919) 733.5715.

Pc: Steve Lund, USACE Asheville Field Office
Marella Buncick, USFWS
David Cox, NCWRC
File Copy
Central Files



☒ North Carolina Wildlife Resources Commission ☒

Charles R. Fullwood, Executive Director

June 29, 2001

Ms. Robin C. Young, Project Planning Engineer
NCDOT, Planning and Environmental Branch
1548 Mail Service Center
Raleigh NC 27699-1548

SUBJECT: Scoping for B-3914, Bridge Replacement
SR 1105 - Glady Fork Road
Glady Fork Creek, Transylvania County

Dear Ms. Young:

Staff biologists familiar with habitat values of the project area have reviewed the scoping notice. These comments are provided in accordance with provisions of the Clean Water Act of 1977 (33 U.S.C. 466 et. seq.) and the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661-667d).

The Division of Water Quality classifies Glady Fork Creek as C trout. We do not have records of endangered, threatened or other rare species from the vicinity of the project.

We request that this bridge be replaced with another spanning structure since Glady Fork Creek is a trout stream. Bridge supports should be placed outside of the channel if possible.

Transylvania County is a trout county; therefore, the NCWRC will review any US Army Corps of Engineers 404 permits associated with the project.

We expect to request the following conditions on the 404 permit for replacement of this bridge structure.

1. Replace the existing structure with another spanning structure.
2. Under no circumstances should rock, sand, or other materials be dredged from the wetted stream channel under authorization of this permit, except in the immediate vicinity of bridge abutments. Instream dredging has catastrophic effects on aquatic life, and disturbance of the natural form of the stream channel will likely cause downstream erosion problems, possibly affecting adjacent landowners.

Bridge 116, SR 1105
Transylvania County, Glady Fork Creek

2

June 29, 2001

3. All work in or adjacent to stream waters should be conducted in a dry work area. Sandbags or rock berms, cofferdams, or other diversion structures should be used where possible to prevent excavation in flowing water.
4. If concrete is used during construction, adequate precautions must be taken to prevent direct contact between wet concrete and stream water. Uncured concrete affects water quality and is highly toxic to fish and other aquatic organisms. Water that has contacted uncured concrete should not be discharged to surface waters due to the potential for elevated pH.
5. Adequate sedimentation and erosion control measures must be implemented prior to any ground disturbing activities to minimize impacts to downstream aquatic resources. 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. Erosion control matting in conjunction with appropriate seeding should be used on disturbed streambanks and areas around bridge crossings instead of straw mulch.
6. Grading and backfilling in the vicinity of the bridge should be minimized, and tree and shrub growth should be retained if possible to ensure long term availability of shoreline cover for gamefish and wildlife. Backfill materials should be obtained from upland sites.
7. Construction in the stream channel and within the 25-foot buffer is prohibited during the trout-spawning period of October 15 to April 15 in order to protect the egg and fry stages from sedimentation.
8. Riprap placed for bank stabilization should be limited to the streambank below the high water mark, and vegetation should be used for stabilization above the high water elevation.
9. All mechanized equipment operated near surface waters should be regularly inspected and maintained to prevent contamination of stream waters from fuels, lubricants, hydraulic fluids or other toxic materials.
10. Any overwidened areas at the bridge site should be restored; and the width/depth ratio typical of the stream should be maintained through the bridge site.

Thank you for the opportunity to review and comment on this project. Pending availability of field staff, the NCWRC may inspect the work site during or after construction. If there are any questions regarding these comments, please contact me at (828) 452-2546.

Sincerely,



Owen F. Anderson
Mountain Region Coordinator
Habitat Conservation Program

cc: Ms. Cynthia Van Der Wiele, Highway Coordinator, Division of Water Quality
Ms. Marella Buncick, Highway Coordinator, USFWS