STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

February 20, 2003

U.S. Army Corps of Engineers
Regulatory Field Office
6508 Falls of the Neuse Road
Suite 120
Raleigh, NC 27615

ATTN: Mr. John Thomas
NCDOT Coordinator

Dear Sir:

Subject: **Nationwide 23 and 33 application.** Watauga County, Replacement of Bridge No. 106 Over Brushy Fork Creek on SR 1117, Federal Aid Project No. BRZ-1117(5), State Project No. 8.2751901, TIP Project No. B-3710.

Please find enclosed three copies of the project planning report for the above referenced project. We plan to replace this bridge with a culvert on new location northeast of the existing structure. A pipe will be utilized for a small tributary northeast of SR 1117. During construction, traffic will be maintained on the existing bridge. The recommended replacement structure is a 3 barrel reinforced concrete box culvert with each barrel measuring 11 ft by 9 ft. No wetlands will be impacted by this project. There will be permanent stream impacts to approximately 167 ft (0.06 ac) of Brushy Fork Creek, and 121 ft (0.01 ac) of an unnamed tributary to Brushy Fork Creek.

Bridge Demolition

The existing bridge is composed of timber, steel, and concrete. Timber and steel components of the bridge as well as the concrete sills can be removed without dropping any portions into waters of the United States. This project can be classified as Case 2, which allows no work at all in the water during moratorium periods associated with fish migration, spawning, and larval recruitment into nursery areas. In-stream work and land disturbance within the 25 ft wide buffer zone will be prohibited during the rock bass spawning season of May 1 through July 15 to protect the egg and fry stages of rock bass.

Permanent Impacts:
There will be permanent stream impacts to approximately 167 ft (0.06 ac) of Brushy Fork Creek due to the length of the proposed culvert and placement of rip rap. A culvert of this length is needed to provide two 10-foot travel lanes with 6-foot grass shoulders. There will also be permanent stream impacts to approximately 121 ft (0.01 ac) of an unnamed tributary to Brushy Fork Creek due to the length of the proposed pipe and placement of rip rap. A pipe of this length is needed to provide a roadway as described above.

Temporary Impacts:

1. Culvert Installation and Dewatering: Construction of the proposed culvert will consist of a one-phase construction technique. The temporary impacts to the creek will be from the temporary fill associated with the use of impervious dikes, and from the dewatering of the creek. These actions are described in the following paragraphs.

A temporary channel diversion will be constructed at Station 16+33 utilizing impervious dikes to facilitate construction of the culvert. The project will be done in one phase.

1. Construct stilling basin (220 CY).
2. Construct temporary channel change with liner (2:1 side slopes, 5 ft base, 1 ft depth).
3. Construct impervious dikes #1 and #2.
4. Construct culvert.
5. Divert water through culvert.
6. Complete roadway.

The impervious dikes may be constructed from a combination of materials that will be selected during the construction of the project in order to minimize the temporary impacts. Methods will be limited to sheet piling, sandbags, concrete traffic barrier, or soil encased in fabric. The area where the culvert will be constructed will be dewatered using a stilling basin or stilling bag that will be located away from the flood zone of the stream.

Restoration Plan: The temporary impact will consist of the above mentioned activities. Following construction of the temporary channel change, the construction of the impervious dikes will be completed. After completion of the culvert all material used in the construction of the temporary channel change and impervious dikes will be removed. The stream will then be restored to its pre-project contours.

The temporary impact area associated with the construction is expected to recover naturally, since the natural streambed and plant material will not be dramatically impacted. The NCDOT does not propose any additional planting in this area. The fill will be placed and removed with the appropriate equipment.

Schedule: All steps will be taken to minimize stream impacts for Brushy Fork Creek. NCDOT will request the contractor to complete construction of the impervious dikes in a timely manner and all exposed areas will be stabilized to prevent erosion. The project schedule calls for a

letting of June 15, 2004 with a date of availability of July 15, 2004. It is expected that the contractor will choose to start construction of the impervious dikes at that time.

Removal and Disposal Plan: The contractor will be required to submit a reclamation plan for the removal of and disposal of all materials off-site at an upland location. The contractor will use excavating equipment to remove any materials from the stream. Heavy-duty trucks, dozers, cranes and various other pieces of mechanical equipment necessary for construction of roadways and culverts will be used on site. All material placed in the stream will be removed at that time. The contractor will have the option of reusing any of the materials that the engineer deems suitable in the construction of the project. After the impervious dikes are no longer needed, all materials will become the property of the contractor.

2. Pipe Installation and Dewatering: Two 42-inch reinforced concrete pipes will be installed on this project at Station 15+37. The initial phase will have impervious dikes installed upstream and downstream of the location of the pipes, with the stream flow diverted through a pumping operation. The contractor shall utilize pump(s) of a size and number sufficient to maintain a dry work area. The stream water that is diverted through the pump(s) shall be released into an area of existing vegetation sufficient to allow the water to be filtered and flow at a controlled rate back into the stream downstream of the pipes. If necessary, the pipe installation area will be dewatered by pumping through a special stilling basin before being released back into the existing stream, downstream of the pipes. The impervious dikes may be constructed from a combination of materials that will be selected during the construction of the project in order to minimize the temporary impacts. Traditional methods include sheet piling, sandbags, concrete traffic barrier or soil encased in fabric.

Restoration Plan: Following the completion of the pipe installation, the impervious dikes will be removed and the special stilling basin will be disposed of according to the Erosion Control Project Special Provisions.

Schedule: All steps will be taken to minimize stream impacts for the unnamed tributary to Brushy Fork Creek. NCDOT will request the contractor to complete the construction of the pipe installation in a timely manner so that all exposed areas will be stabilized to prevent erosion. The project calls for a letting of June 15, 2004 with a date of availability of July 15, 2004. It is expected that the contractor will choose to start the pipe installation at that time.

Removal and Disposal Plan: The contractor will be required to submit a reclamation plan for the removal of and disposal of all materials off-site at an upland location. The contractor will use excavating equipment to remove any materials from the stream. Heavy-duty trucks, dozers, cranes and various other pieces of mechanical equipment necessary for construction of roadways and culverts will be used on site. All material placed in the stream will be removed at that time. The contractor will have the option of reusing any of the materials that the engineer deems suitable in the construction of the project. After the impervious dikes are no longer needed, all materials will become the property of the contractor.

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 six federally protected species for Watauga County (Table 1).

Common Name	Scientific Name	Status
Bog turtle	*Clemmys muhlenbergii*	T(S/A)
Heller's blazing star	*Liatris helleri*	Threatened
Roan Mountain bluet	*Houstonia montana*	Endangered
Spreading avens	*Geum radiatum*	Endangered
Carolina northern flying squirrel	*Glaucomys sabrinus coloratus*	Endangered
Spruce-fir moss spider	*Microhexura montivaga*	Endangered

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

A Biological Conclusion of "No Effect" remains valid for all of these species because lack of suitable habitat.

Compensatory Mitigation

Based upon the agreements stipulated in the "Memorandum of Agreement Among the North Carolina Department of Environment and Natural Resources, the North Carolina Department of Transportation, and the U.S. Army Corps of Engineers, Wilmington District" (MOA), it is understood that the North Carolina Department of Environment and Natural Resources Ecosystem Enhancement Program (EEP) will assume responsibility for satisfying the federal Clean Water Act compensatory mitigation requirements for NCDOT projects that are listed in Exhibit 1 of the subject MOA during the EEP transition period which ends on June 30, 2005.

Since B-3710 is listed in Exhibit 1, the necessary compensatory mitigation to offset unavoidable impacts to waters that are jurisdictional under the federal Clean Water Act will be provided by the EEP. The offsetting mitigation will derive from an inventory of assets already in existence within the same 8-digit cataloguing unit. The Department has avoided and minimized impacts to jurisdictional resources to the greatest extent possible. The remaining, unavoidable impacts to 167 ft of jurisdictional streams will be offset by compensatory mitigation provided by the EEP program.

Regulatory Approvals

Section 404 Permit: This project is being processed by the Federal Highway Administration as a "Categorical Exclusion" in accordance with 23 CFR 771.115(b). Therefore, we do not

anticipate requesting an individual permit, but propose to proceed under Nationwide 23 and 33 as authorized by Nationwide Permits 23 and 33 (FR number 10, pages 2020-2095; January 15, 2002).

Section 401 Permit: We anticipate 401 General Certification numbers 3361 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 Environment and Natural Resources, Division of Water Quality, for their records.

We also anticipate that comments from the North Carolina Wildlife Resources Commission (NCWRC) will be required 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.

If you have any questions or need additional information, please contact Matt Haney at (919) 715-1428.

Sincerely,

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

w/attachment

Mr. John Dorney, Division of Water Quality (2 copies)
Ms. Marla Chambers, NCWRC
Ms. Marella Buncick, USFWS
Mr. Harold Draper, TVA
Mr. Greg Perfetti, P.E., Structure Design
w/o attachment
Mr. David Franklin, USACE, Wilmington
Mr. Jay Bennett, P.E., Roadway Design
Mr. Omar Sultan, Programming and TIP
Mr. Art McMillan, P.E., Highway Design
Mr. David Chang, P.E., Hydraulics
Mr. Mark Staley, Roadside Environmental
Mr. Carl McCann, P.E., Division 11 Engineer
Mr. Heath Slaughter, Division 11 Environmental Officer
Ms. Stacy Baldwin, P.E., Consultant Engineer

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
   - ☐ Section 10 Permit
   - ☐ 401 Water Quality Certification
   - ☐ Riparian or Watershed Buffer Rules
   - ☐ Isolated Wetland Permit from DWQ

2. Nationwide, Regional or General Permit Number(s) Requested: NWP 23 & 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: NC Department of Transportation
   Mailing Address: 1548 Mail Service Center
   Raleigh, NC 27699-1548
   Telephone Number: 919-733-3141 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. 106 over Brushy Fork Creek

2. T.I.P. Project Number or State Project Number (NCDOT Only): B-3710

3. Property Identification Number (Tax PIN): N/A

4. Location
   County: Watauga Nearest Town: Sugar Grove
   Subdivision name (include phase/lot number): N/A
   Directions to site (include road numbers, landmarks, etc.): Bridge No. 106 over Brushy Fork Creek on SR 1117, located in west of Boone

5. Site coordinates, if available (UTM or Lat/Long): 36.258°N/81.788°W (approx.)
   (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): Brushy Fork Creek

8. River Basin: Watauga
   (Note – this must be one of North Carolina's seventeen designated major river basins. The River Basin map is available at http://h2o.enr.state.nc.us/admin/maps/.)

9. Describe the existing conditions on the site and general land use in the vicinity of the project at the time of this application: rural, residential, agricultural

10. Describe the overall project in detail, including the type of equipment to be used: The proposed project will consist of replacing the existing bridge with a culvert on new location northeast of the existing structure. Traffic will be maintained on the existing bridge during construction. Construction equipment will consist of heavy duty trucks, earth moving equipment, and cranes, etc.

11. Explain the purpose of the proposed work: Replace substandard bridge over Brushy Fork Creek resulting in safer and more efficient 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.

No

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.

1. Provide a written description of the proposed impacts: There will be permanent stream impacts to approximately 288 ft of jurisdictional stream.

2. 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: _____

Total area of wetland impact proposed: _____

3. 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	Fill in SW	166.5	Brushy Fork Creek	13 ft	perennial
2	Fill in SW	121.2	Ut Brushy Fork Creek	1 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: 287.7

4. 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.)
1	Fill in SW	0.06	Brushy Fork Creek	Stream
2	Fill in SW	0.01	Ut Brushy Fork Creek	stream

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

5. 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.): N/A

Size of watershed draining to pond: N/A Expected pond surface area: N/A

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.

The existing structure will be replaced with a 3 @ 11' x 9' reinforced concrete box culvert on new location northeast of the existing structure. Traffic will be maintained on the existing bridge during construction.

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.
   This project is on the EEP transition list. We propose to use the EEP for mitigation.

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): 167 ft @ 2:1
   Amount of buffer mitigation requested (square feet): N/A
   Amount of Riparian wetland mitigation requested (acres): N/A

Amount of Non-riparian wetland mitigation requested (acres): N/A
Amount of Coastal wetland mitigation requested (acres): N/A

IX. Environmental Documentation (required by DWQ)

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 ☐

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

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

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		3	
2		1.5	
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.
No mitigation required.

XI. 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.
N/A

XII. Sewage Disposal (required by DWQ)

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

XIII. Violations (required by DWQ)

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

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

XIV. Other Circumstances (Optional):

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

Applicant/Agent's Signature — Date: 3/1/04

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

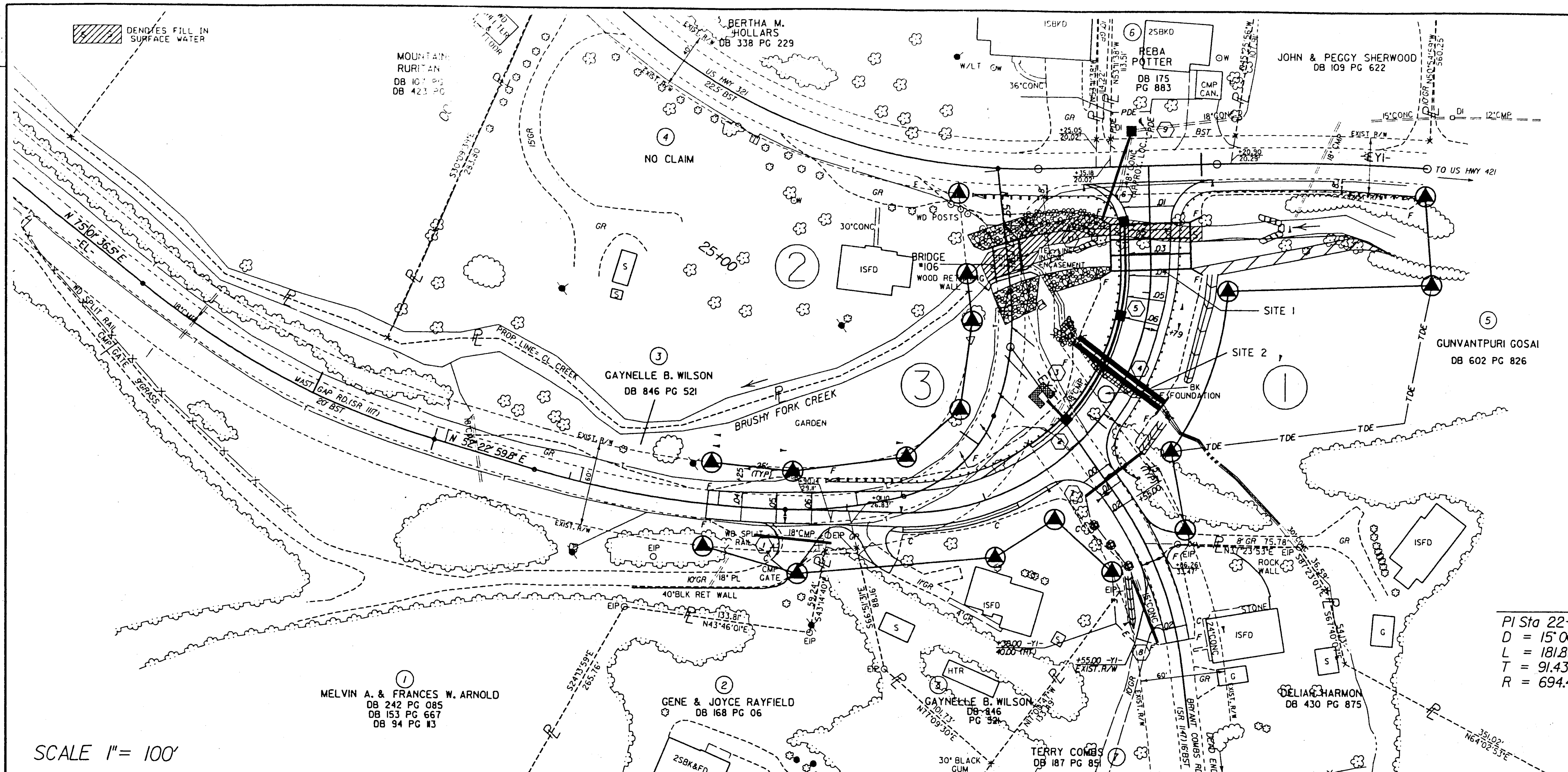
MULKEY ENGINEERS & CONSULTANTS

PROJECT REFERENCE NO.	SHEET NO.
B-3710	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION

ENGLISH



DATUM DESCRIPTION

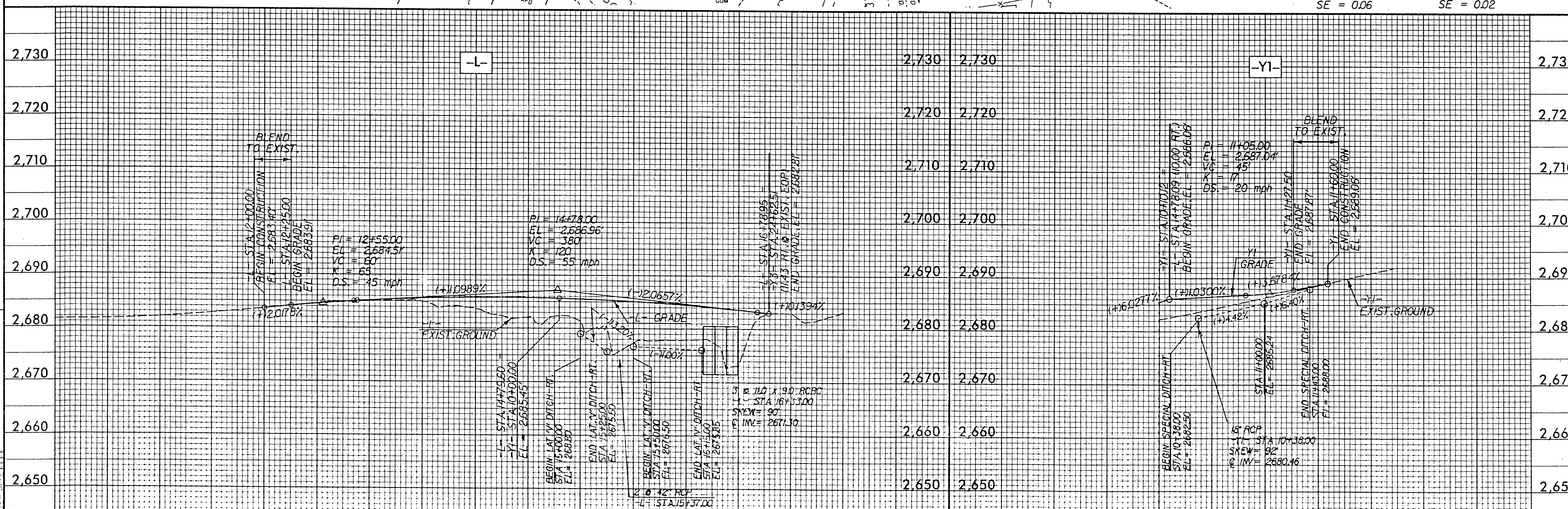
THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B3710-1"
WITH NAD 83 STATE PLANE GRID COORDINATES OF
NORTHING: 921795.922(ft) EASTING: 1177846.512(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99990154O
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B3710-1" TO -L- STATION 10+00.00 IS
N 62° 44' 37.4" E - 725.287(ft)
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NGVD 29

-EL-

PI Sta 22+58.119	PI Sta 23+91.289	PI Sta 24+82.161	PI Sta 25+69.620
D = 15° 00' 00" (LT)	D = 16° 09' 00" (LT)	D = 54° 00' 00" (LT)	D = 27° 08' 57" (LT)
L = 181.818	L = 85.000	L = 90.000	L = 90.497
T = 91.432	T = 42.784	T = 48.656	T = 46.115
R = 694.494	R = 30[illegible]	R = 95.493	R = 190.986

OBLITE
FOR DI
FOR DI
UNIT
FOR CL

SE = 0.06 SE = 0.02



REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
B-3710	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

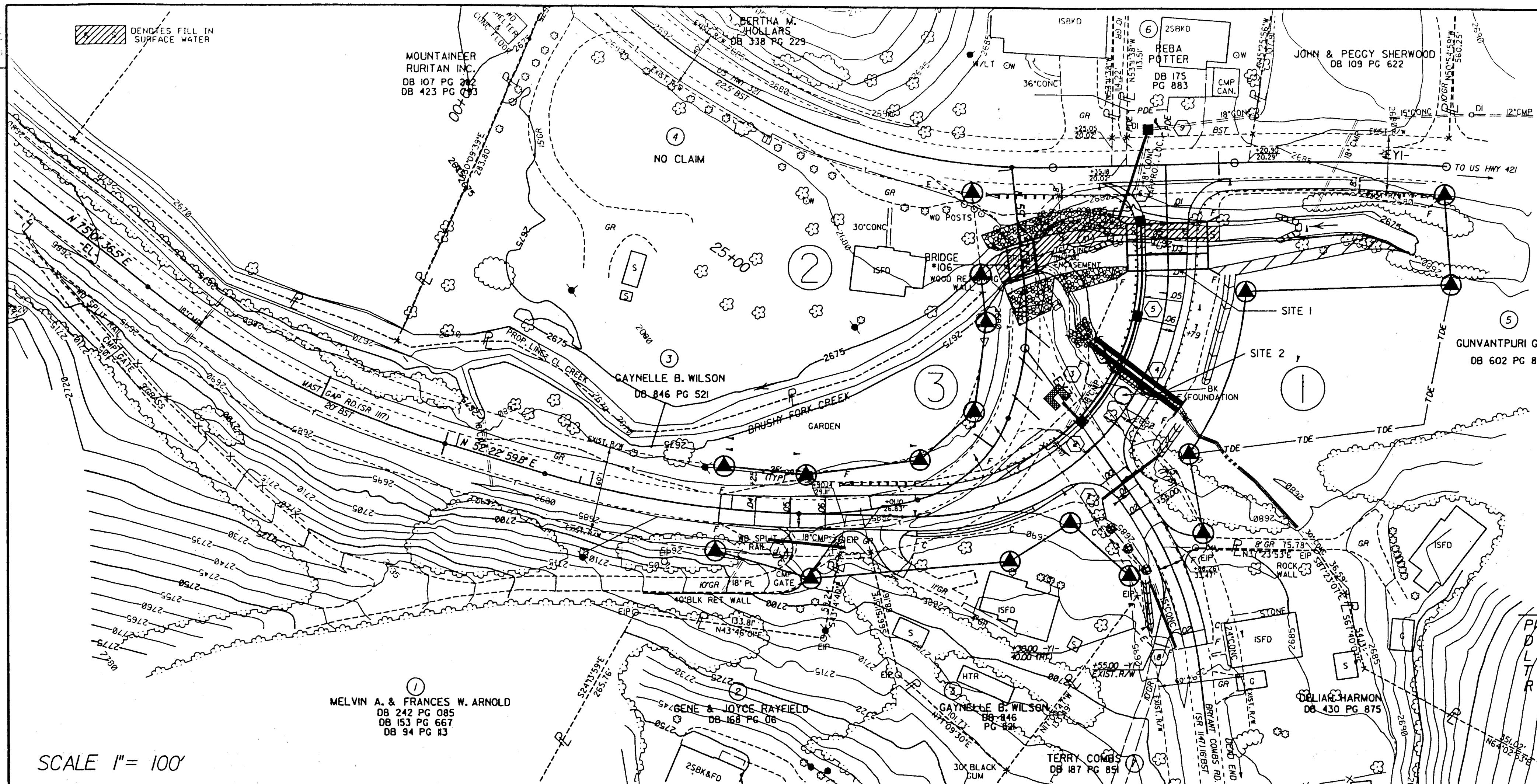
MULKEY ENGINEERS & CONSULTANTS

INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION

ENGLISH

NAD 83



DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B3710-1"
WITH NAD 83 STATE PLANE GRID COORDINATES OF NORTHING: 921795.922(ft) EASTING: 1177846.512(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999901540
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B3710-1" TO -L- STATION 10+00.00 IS N 62° 44' 37.4" E - 725.287(ft)
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NGVD 29

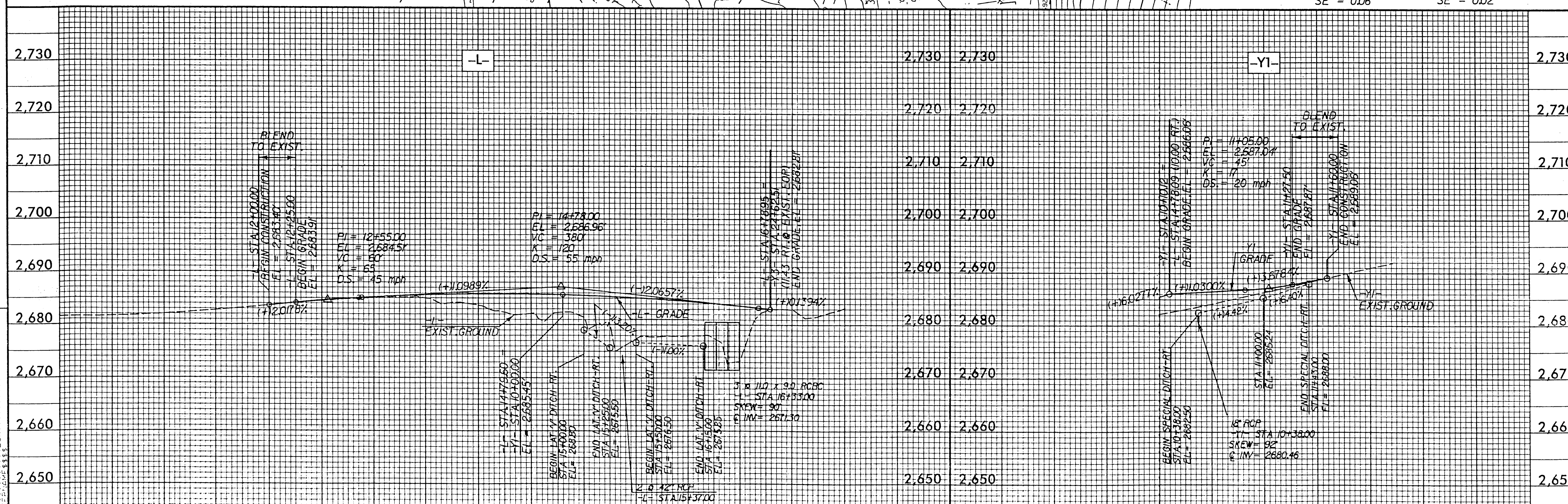
-EL-

PI Sta 22+58.119	PI Sta 23+91.289	PI Sta 24+82.161	PI Sta 25+69.620
D = 15° 00' 00" (LT)	D = 16° 09' 00" (LT)	D = 54° 00' 00" (LT)	D = 27° 08' 57" (LT)
L = 181.818	L = 85.000	L = 90.000	L = 90.497
T = 91.432	T = 42.784	T = 48.656	T = 46.115
R = 694.494	R = 30[illegible]	R = 95.493	R = 190.986

OBLITE

FOR DI
FOR DI
UNIT
FOR CL

SE = 0.06 SE = 0.02



WETLANDS IMPACT PERMIT SUMMARY

Site No.	Station (From/To)	Structure Size / Type	Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation In Wetlands (ac)	Mechanized Clearing (Method III) (ac)	Fill In SW (Natural) (ac)	Fill In SW (Pond) (ac)	Temp. Fill In SW (ac)	Existing Channel Impacted (ft)	Natural Stream Design (ft)
1	16+33 -L-	3 @ 11' X 9' RCBC	0	0	0	0	0.06	0	0	166.5	0
2	15+37 -L-	2 @ 42" RCP	0	0	0	0	0.01	0	0	121.2	0
TOTALS:			0	0	0	0	0.07	0	0	287.7	0

Form Revised 3/22/01

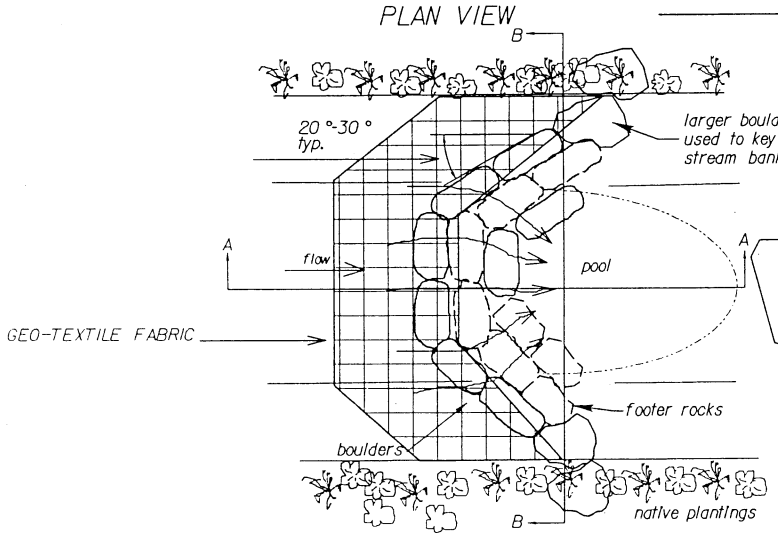
NCDOT

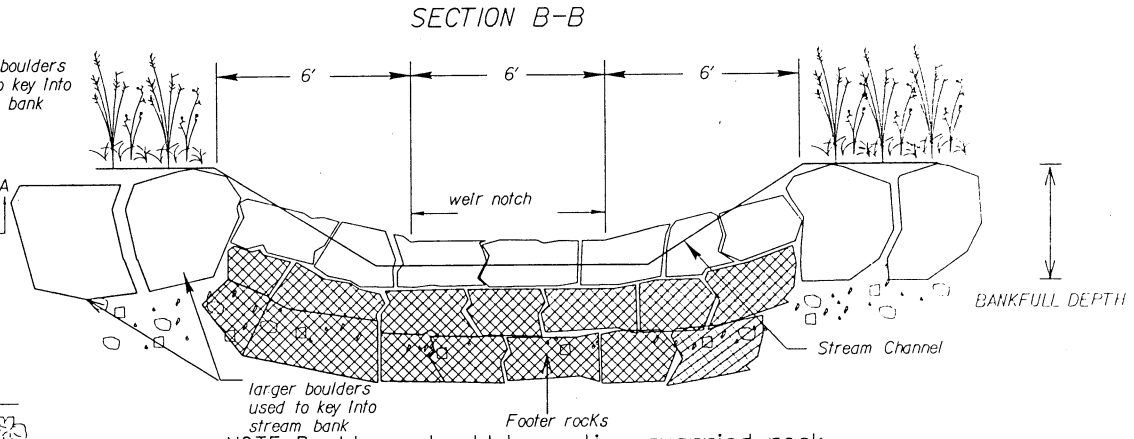
DIVISION OF HIGHWAYS
WATAUGA COUNTY
PROJECT 8.2751901 (B-3710)
BRIDGE NO. 106 OVER BRUCHY
FORK CREEK ON SR 1117
(MAST GAP ROAD)

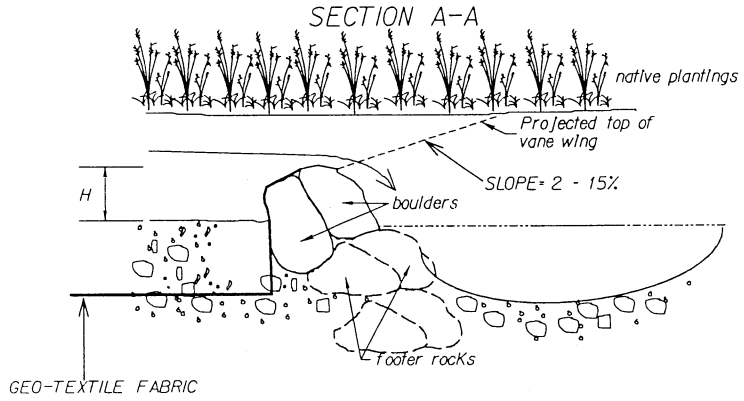
SHEET OF 12/10/2003

ENGLISH	PROJECT REFERENCE NO.	SHEET NO.
	B-3710	

CROSS VANE ROCK WEIR DETAIL







NOTE: Boulders should be native quarried rock or locally shot rock, angular and oblong with approximate minimum dimensions of 4.0ft x 3.0ft x 2.0ft and weighing approximately (4000 lbs)

Larger boulders should have approximate minimum dimensions of 4.0ft x 4.0ft x 3.0ft

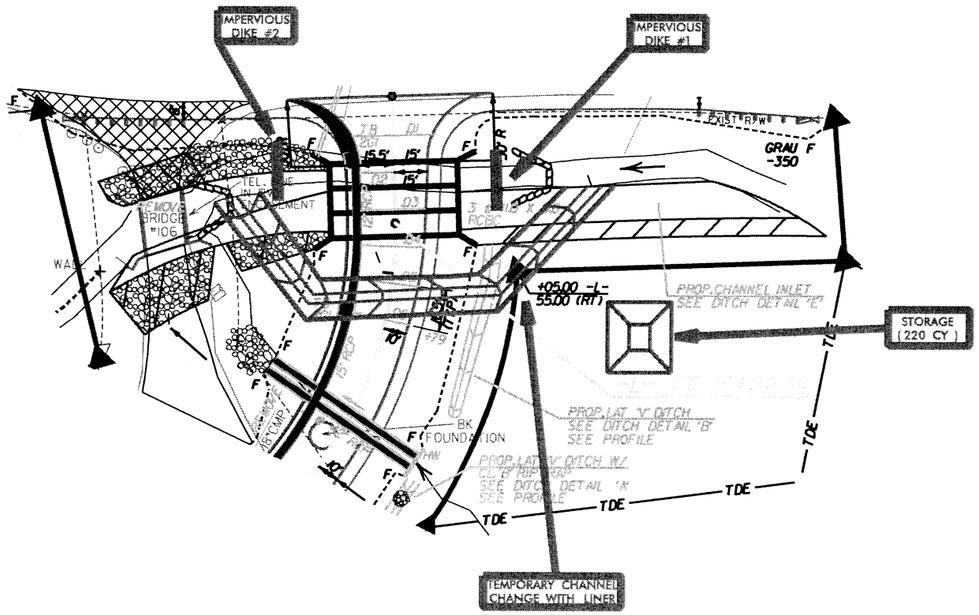
Rocks should fit tightly with minimal spaces

Footer rocks should be minimum of 3 times 'H' in depth for gravelbed streams and a minimum of 6 times 'H' in sand bed streams

Geotextile fabric should be placed on upstream side of boulders. Fabric should be overlain on exposed boulders and buried to a minmum depth as directed by on site engineer. Fabric should extend upstream a minimum length of of 6.6ft or as directed by on site engineer. For urban type projects and/or sandbed streams, fabric should be backfilled with existing bed material.

H = 0.4 ft

B-3710	EC-4/CONST.A



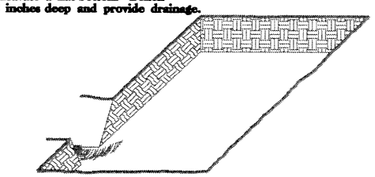
B-3710

PLANTING DETAILS

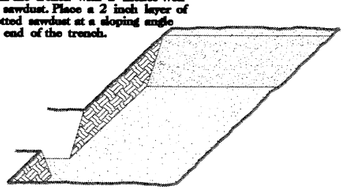
SEEDLING / LINER BAREROOT PLANTING DETAIL

HEALING IN

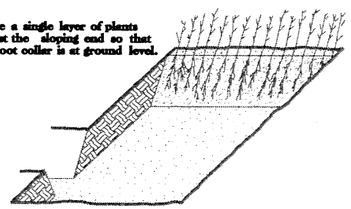
1. Locate a healing-in site in a shady, well protected area.
2. Excavate a flat bottom trench 12 inches deep and provide drainage.



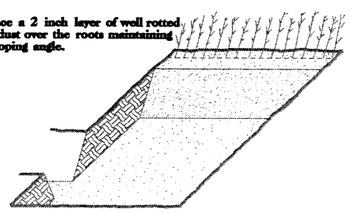
3. Backfill the trench with 2 inches well rotted sawdust. Place a 2 inch layer of well rotted sawdust at a sloping angle at one end of the trench.



4. Place a single layer of plants against the sloping end so that the root collar is at ground level.

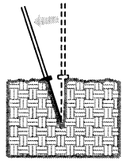


5. Place a 2 inch layer of well rotted sawdust over the roots maintaining a sloping angle.

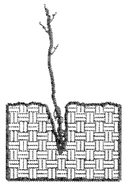


6. Repeat layers of plants and sawdust as necessary and water thoroughly.

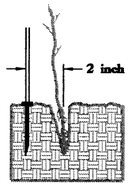
DIBBLE PLANTING METHOD
USING THE KBC PLANTING BAR



1. Insert planting bar as shown and pull handle toward planter.



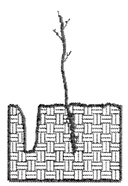
2. Remove planting bar and place seedling at correct depth.



3. Insert planting bar 2 inches toward planter from seedling.

4. Pull handle of bar toward planter, firming soil at bottom.

5. Push handle forward firming soil at top.



6. Leave compaction hole open. Water thoroughly.

PLANTING NOTES:

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

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

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

REFORESTATION

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

REFORESTATION

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

20% LIRIODENDRON TULIPIFERA	TULIP POPLAR	12 in – 18 in BR
20% PLATANUS OCCIDENTALIS	SYCAMORE	12 in – 18 in BR
20% FRAXINUS PENNSYLVANICA	GREEN ASH	12 in – 18 in BR
20% BETULA NIGRA	RIVER BIRCH	12 in – 18 in BR
20% QUERCUS FALCATA	RED OAK	12 in – 18 in BR

REFORESTATION DETAIL SHEET

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

Watauga County
SR 1117 (Mast Gap Road)
Bridge No. 106 Over Brushy Fork Creek
Federal-Aid Project No. BRZ-1117(5)
State Project No. 8.2751901
T.I.P. No. B-3710

CATEGORICAL EXCLUSION

UNITED STATES DEPARTMENT OF TRANSPORTATION

FEDERAL HIGHWAY ADMINISTRATION

AND

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

APPROVED:

5·01·02
DATE

for William D. Gilmore, P.E., Manager
Project Development and Environmental Analysis Branch,
NCDOT

5/1/02
DATE

for Nicholas L. Graf, P.E.
Division Administrator, FHWA

Watauga County
SR 1117 (Mast Gap Road)
Bridge No. 106 Over Brushy Fork Creek
Federal-Aid Project No. BRZ-1117(5)
State Project No. 8.2751901
T.I.P. No. B-3710

CATEGORICAL EXCLUSION

April 2002

Documentation Prepared by:
Barbara H. Mulkey Engineering, Inc.

Tommy Register

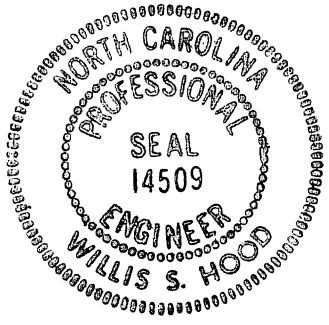
Tommy Register, EI
Project Manager

4/16/02
Date

W S Hood

W. S. Hood, PE
Principle-In-Charge

4/16/02
Date



For the North Carolina Department of Transportation

Stacy B Harris

Stacy B. Harris, PE
Project Manager
Consultant Engineering Unit

PROJECT COMMITMENTS

Watauga County
SR 1117 (Mast Gap Road)
Bridge No. 106 Over Brushy Fork Creek
Federal-Aid Project No. BRZ-1117(5)
State Project No. 8.2751901
T.I.P. No. B-3710

In addition to the standard Nationwide Permit No. 23 Conditions, the General Nationwide Permit Conditions, Section 404 Only Conditions, Regional Conditions, State Consistency Conditions, NCDOT's Guidelines for Best management Practices for the Protection of Surface Waters, Best Management Practices for Bridge Demolition and Removal, General Certification Conditions, and Section 401 Conditions of Certification, the following special commitments have been agreed to by NCDOT:

Project Development and Environmental Analysis Branch, Roadway Design, Hydraulics Unit, Roadside Environmental, and Division Engineer:

The following measures will be carried out for the replacement of Bridge No. 106

1. *Instream work and land disturbance within the 25-foot wide buffer zone are prohibited during the rock bass spawning season of May 1st through July 15th to protect the egg and fry stages of the rock bass from off-site sedimentation during construction.*
2. *Culverts or pipes will be buried 1 foot below normal streambed level.*
3. *If concrete will be used, work will be accomplished so that wet concrete does not contact stream water.*
4. *Sediment and erosion control measures will adhere to the design standards for sensitive watersheds (15A NCAC 4B .0024).*
5. *Heavy equipment will be operated from the bank rather than in the stream channel.*
6. *Trees and vegetation within the 25-foot stream buffer zone damaged during construction will be replanted with the same mixture of species existing prior to project initiation.*

Project Development and Environmental Analysis Branch:

A copy of the environmental planning document will be submitted to the Tennessee Valley Authority (TVA) and United States Army Corps of Engineers (COE).

Hydraulics Unit / Structure Design Unit / Roadway Design:

This project will be reviewed under Section 26a of the Tennessee Valley Authority (TVA) Act. The final bridge plans, hydraulic analysis of the effects of the replacement structure on the 100-year flood elevation, and notice of compliance with the Historic Preservation Act of 1966 will be forwarded to TVA for approval.

Watauga County
SR 1117 (Mast Gap Road)
Bridge No. 106 Over Brushy Fork Creek
Federal-Aid Project No. BRZ-1117(5)
State Project No. 8.2751901
T.I.P. No. B-3710

INTRODUCTION: Replacement of Bridge No. 106 is included in the 2002-2008 North Carolina Department of Transportation (NCDOT) Transportation Improvement Program (T.I.P.) and in the Federal-Aid Bridge Replacement Program. The bridge 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

The NCDOT Bridge Maintenance Unit records indicate the bridge has a sufficiency rating of 46.7 out of a possible 100 for a new structure. The bridge is considered functionally obsolete and structurally deficient. The replacement of this inadequate structure will result in safer and more efficient traffic operations.

II. EXISTING CONDITIONS

Bridge No. 106 is located on SR 1117 (Mast Gap Road) in Watauga County. SR 1117 is classified as Rural Local. Land use in the project area is rural, consisting primarily of residential development and scattered agricultural properties. SR 1117 is a north-south route between US 321 and NC 94, and serves local and commuting traffic.

The existing bridge is a single-span structure with an overall length of 25 feet (7.6 meters) and a clear roadway width of 18.8 feet (5.7 meters). It was constructed in 1956. The bridge consists of a timber deck on steel I-beams, supported by timber bulkhead abutments on spread footings. Bridge No. 106 currently has posted weight limits of 18 tons (18.28 metric tons) for single vehicle (SV) and 24 tons (24.38 metric tons) for truck-tractor semi trailer (TTST).

The approach roadway is a two-lane facility with a clear roadway width of 16 feet (4.9 meters). SR 1117 intersects US 321 approximately 40 feet (12.2 meters) north of the bridge. The approach from the south is on a curve with a radius of 95 feet (29 meters). The speed limit is not posted; therefore the statutory speed limit is 55 miles per hour (mph) [90 kilometers per hour (km/h)].

There is a telephone pedestal located northwest of the bridge and a two-inch (5.1 centimeter) PVC utility pipe is attached to the upstream face of the bridge. It is anticipated that the utility impacts will be minimal.

This section of SR 1117 in Watauga County is not part of a designated bicycle route nor is it listed in the T.I.P. as needing incidental bicycle accommodations.

The 2002 estimated average daily traffic (ADT) volume is 1,175 vehicles per day (vpd). The projected ADT is 1,810 vpd by the design year 2025. The percentages of truck traffic are 3% DUALS and 1% TTST.

Three accidents were reported in the vicinity of Bridge No. 106 during the period from June 1, 1997 to May 31, 2000.

Three school buses cross Bridge No. 106 five times per day.

III. ALTERNATIVES

A. Project Description

Based on the preliminary hydraulics report, the proposed replacement structure for Bridge No. 106 is a double barrel reinforced concrete box culvert 11 feet (3.3 meters) wide by 10 feet (3 meters) high. The proposed culvert will be buried one-foot (0.3-meter) below the normal streambed elevation and design standards for sensitive watersheds will be adhered to. The length and opening size of the proposed structure may increase or decrease as necessary to accommodate peak flows, as determined by a more detailed hydraulic analysis to be performed during the final design phase of the project.

The proposed approach roadway will consist of two 10-foot (3.0 meter) travel lanes with six-foot (1.8 meter) grass shoulders. The proposed grade will be approximately the same as the existing grade.

B. Build Alternatives

Alternative A (Preferred) replaces the bridge with a culvert on new location northeast of the existing structure. A pipe will be utilized for a small tributary northeast of SR 1117. During construction, traffic will be maintained on the existing bridge. After construction of the new culvert, the old structure and roadway will be removed and the surrounding area will be restored. (See Figure 2).

Alternative C consists of replacing the bridge in place with a culvert. During construction, traffic will be maintained by a temporary detour northeast of the existing bridge. The temporary on-site detour structure will be four 72-inch (1800-milimeter) metal pipes to convey the stream. A pipe will be utilized for the tributary. A small portion of the tributary will be permanently realigned near the confluence with Brushy Fork Creek. (See Figure 2A).

Alternative C was not selected as the preferred alternative because it requires some stream relocation and the use of an on-site detour. Utilizing an on-site detour increases potential impacts to Brushy Fork Creek. Also, the use of an on-site detour is less economical than utilizing the existing roadway and structure to maintain traffic.

C. Alternatives Eliminated From Further Study

Alternative B replaces the bridge with a culvert on new location northeast of the existing structure, as in Alternative A. The tributary northeast of SR 1117 will be relocated north of the new culvert. During construction, traffic will be maintained on the existing bridge. After construction of the new culvert, the old structure and roadway will be removed and the surrounding area will be restored.

Alternative D replaces the bridge in place with a culvert. During construction, traffic will be maintained by an on-site detour northeast of the existing bridge, as in Alternative C. The small tributary will be relocated north of the new culvert.

Alternatives B and D were dropped as reasonable and feasible alternative due to the stream relocation associated with each alternative. Stream relocation would have approximately 228 feet (69.5 meters) and 212 feet (64.6 meters) of linear impacts to Brushy Fork Creek for Alternatives B and D respectively.

An alternative utilizing a single span bridge was not considered because of the following reasons; with the small drainage area of approximately 6.2 square miles (16 square kilometers) a culvert will function hydraulically as well as a bridge. Brushy Fork Creek is not a trout stream and there are no endangered aquatic species in the vicinity of the bridge, and a culvert has a greater life expectancy than a bridge.

The "do-nothing' alternative will eventually necessitate removal of the existing structure and closure of SR 1117 (Mast Gap Road). This is not desirable due to the service provided by SR 1117.

Investigation of the existing structure by the Bridge Maintenance Unit indicates that rehabilitation of the existing structure is not feasible due to its age and deteriorated condition.

D. Preferred Alternative

Alternative A was selected as the preferred alternative because it maintains traffic on the existing structure during construction and minimizes potential impacts to the stream. Alternative A replaces the existing 95-foot (29 meter) radius curve on the south approach with a 175-foot (53 meter) radius curve providing additional sight distance. Alternative A also improves the existing horizontal alignment of SR 1117 (Mast Gap Road) by tying in to US 321 at 90-degrees and improving the sight distance along US 321. Also, Alternative A is more economical than the use of an on-site detour structure (Alternative C).

The division engineer concurs with Alternative A as the preferred alternative.

E. Anticipated Design Exception

It is anticipated that a design exception for the design speed will be required. The proposed horizontal alignment in the vicinity of the proposed replacement structure will require approach changes to SR 1117 to improve the design speed to 20 mph (30 km/h), which is within the character of this mountainous route. Due to the existing terrain restrictions, additional environmental impacts and construction costs, major changes to the horizontal and vertical alignment are not justified to increase the design speed to 55 mph (90 km/h).

IV. ESTIMATED COST

The estimated costs, based on current prices are as follows:

	ALTERNATIVE A (PREFERRED)	ALTERNATIVE C
Structure Removal (Existing)	$ 3,700.00	$ 3,700.00
Structure Proposed	65,100.00	80,200.00
Roadway Approaches	200,600.00	182,300.00
Temporary Structure	0	32,900.00
Detour Approaches	0	69,100.00
Stream Relocation	0	4,800.00
Miscellaneous and Mobilization	121,600.00	167,000.00
Engineering Contingencies	59,000.00	85,000.00
ROW/Const. Easements/Utilities	30,700.00	29,800.00
	---	---
TOTAL	$480,700.00	$654,800.00

The estimated cost of the project as shown in the 2002-2008 Transportation Improvement Program is $350,000, including $25,000 for right-of-way and $250,000 for construction.

V. NATURAL RESOURCES

A. Methodology

Information sources used to prepare this report include but are not limited to: USGS 7.5 minute series topographic maps of Sherwood, NC-Tennessee (1969); United States Department of Agriculture, Soil Conservation Service (USDA-SCS) Soil Survey Field Sheet D-12, Watauga County, NC (map complete 1991); United States Fish and Wildlife Service (USFWS) National Wetlands Inventory maps of Sherwood, NC-Tennessee, (1989) and Valle Crucis, NC (1994); USFWS Endangered, Threatened, and Candidate Species and Federal Species of Concern in North Carolina (March 22, 2001); North Carolina Natural Heritage Program (NCNHP) computer database, via the Internet, of rare species and unique habitats (accessed November 13, 2001, updated July 1, 2001); and NCDOT aerial photography of the study area. Research using these resources was conducted prior to the field investigation. The field survey was conducted along the proposed project corridor on September 26, 2000.

Impacts to terrestrial communities were calculated using an 80-foot (24.3-meter) right-of-way. Aquatic impacts were calculated by measuring the length and width of the replacement structure over water, and the potential areas of tributary relocation. The impact calculations represent the worst-case scenario. Actual construction impacts are expected to be less.

B. Physiography and Soils

The proposed project lies within the Mountain Physiographic Province, which includes all parts of North Carolina west of the foot of the Blue Ridge Escarpment. This province consists of a

mixture of igneous, sedimentary, and metamorphic rock that has been squeezed, fractured, faulted and twisted into folds (USGS, 1991). The topography of the project vicinity can be characterized as steeply sloping, with more level areas in valleys between mountains. Elevations in the project vicinity range from approximately 2,675 to 3,040 feet (815 to 927 meters) above mean sea level (msl). Elevations in the project area vary from approximately 2,680 to 2,720 feet (817 to 829 meters) above msl. Current land use in the project vicinity is a mixture of rural residential and agriculture, with a few small businesses along US 321.

Watauga County currently has no published soil survey. Soil survey field sheets were used to evaluate soils within the project study area. Soil series descriptions are given below.

Site indices provided within soil series descriptions are a designation of the quality of a forest site. The indices are based on the average height attained by dominant and co-dominant trees in a fully stocked stand at an arbitrarily chosen age. In general, soil surveys use a base age of 50 years for site indices.

Reddies loam, 0 to 3 percent slopes, frequently flooded, is the predominant soil found within the project study area. It parallels the creek along both US 321 and SR 1117. This soil is very deep and moderately well-drained. It is found on flood plains and is subject to frequent flooding. Permeability is moderately rapid in the surface layer and rapid in underlying layers. The shrink-swell potential is low and the seasonal high water table is at a depth of 2.0 to 3.5 feet (0.6 to 1.1 meters). This soil has a site index of 105 for yellow-poplar, indicating moderate to good suitability for growth of this species.

Saunook loam, 15 to 30 percent slopes, is located south of SR 1117 about 200 feet (61 meters) from the bridge. This soil is very deep and well-drained. Permeability is moderate and the shrink-swell potential is low. The seasonal high water table is below a depth of 6.0 feet (1.8 meters), however seeps and springs are often common within this map unit. The only site index provided for this soil is 107, which is for yellow-poplar. This implies moderate to good suitability for growth of the species on this soil type. None of the soils discussed above are hydric or have hydric inclusions (www.statlab.edu/soils/hydric/national.html).

C. Water Resources

1. Waters Impacted

The proposed project falls within the Watauga River Basin, and has a subbasin designation of 04-02-01 and a federal hydrologic unit designation of 06010103. Characteristics of impacted waters and possible sources of pollution are discussed below. Streams within the project region require consultation with the Tennessee Valley Authority.

2. Water Resource Characteristics

Brushy Fork Creek flows southwest within the project study area. It is a tributary to Cove Creek, which is approximately 0.5 miles (0.8 kilometers) downstream from Bridge No. 106. The drainage area of Brushy Fork Creek at the bridge crossing is approximately 6.1 square miles (15.8 square kilometers). On the day of the site investigation Brushy Fork Creek had a depth of approximately one to two feet (0.3 to 0.6 meters) and a width at water's edge ranging from six to 20 feet (1.8 to 6.1 meters). The water was clear and the flow was moderate. Substrate is a

mixture of coarse sand, fine rock, and pebbles, with a few cobbles scattered throughout. Some silt was also evident. Both pool and riffle habitats are present within the study area. Stream banks are in fair condition in most places. They are gently sloping and vegetated down to the edge of the water. However areas immediately adjacent to the bridge are eroded and reinforced in places with riprap.

A very small stream approximately one foot (0.3 meters) in width and three to six inches (7.6 to 15.2 centimeters) in depth flows into Brushy Fork Creek near the bridge northeast of SR 1117. The water was clear and the flow was light on the day of the investigation. This is an unnamed tributary that has no separate classification from Brushy Fork Creek, therefore it is assumed to have the same classification described in the following paragraph.

3. Best Usage Classifications and Water Quality

Brushy Fork Creek is classified as "C" by the North Carolina Department of Environment and Natural Resources (NCDENR). Class "C" indicates fresh waters protected for secondary recreation, fishing, aquatic life including propagation and survival, and wildlife. The classification index number and date for the above data is 8-15-10, 5/15/63. Scoping comments from the North Carolina Division of Water Quality (NCDWQ) concerning stream classification and additional project issues, are located in the Appendix.

Although Watauga County is considered a designated mountain trout county, the waters within the project area are not classified as trout waters.

A search within one mile (1.6 kilometers) of the project area was conducted for National Pollutant Discharge Elimination System (NPDES) discharges. Point-source discharges throughout North Carolina are permitted through this program. According to NPDES unit at the NCDWQ, there are no permitted discharges located within the search distance.

Storm water runoff from US 321 and SR 1117 may cause water quality degradation in the project study area as a non-point source pollutant. Non-point source refers to runoff that enters surface waters through storm water flow or no defined point of discharge. There is also an agricultural field east of and adjacent to the bridge that could contribute to sedimentation in the stream. Most of the field has a buffer of grass or weedy vegetation, which could intercept potential runoff from the field.

Benthic macroinvertebrates, or benthos, are organisms that live in and on the bottom substrates of rivers and streams. The NCDWQ uses benthos data as a tool to monitor water quality since benthic macroinvertebrates are sensitive to subtle changes in water quality. Formerly, the NCDWQ used the Benthic Macroinvertebrate Ambient Network (BMAN) as a primary tool for water quality assessment, but phased this method out several years ago. The NCDWQ has converted to a basinwide assessment sampling protocol. Each river basin in the state is sampled once every five years and the number of sampling stations has been increased within each basin. Each basin is sampled for biological, chemical and physical data.

Bioclassification criteria have been developed that are based upon the number of benthic macroinvertebrate taxa present and the relevant pollution tolerance of the taxa. The bioclassifications are used to assess the impacts of both point source discharges and non-point source runoff.

The NCDWQ does not have sampling information on fish or benthic macro invertebrates for the project area.

4. Anticipated Impacts to Water Resources

a. General Impacts

Although there are High Quality Waters (HQW) associated with the Watauga River in the project region, there are no waters designated HQW that connect to Brushy Fork Creek either upstream or downstream of the project within one mile (1.6 kilometers) of the bridge crossing. There are no waters designated as Water Supplies (WS-I: undeveloped watershed, or WS-II: predominately undeveloped watersheds), or Outstanding Resource Waters (ORW) that occur within one mile (1.6 kilometers) of the project study area. The NCDOT, in cooperation with the NCDWQ, has developed a sedimentation control program for highway projects, which adopts formal best management practices (BMPs) for the protection of surface waters. The following are some of the standard methods to reduce sedimentation and water quality impacts:

- strict adherence to BMPs for the protection of surface waters during the life of the project;
- reduction and elimination of direct and non-point discharge into the water bodies and minimization of activities conducted in the water;
- placement of temporary ground cover or re-seeding of disturbed sites to reduce runoff and decrease sediment loadings;
- reduction of clearing and grubbing along stream banks.

b. Impacts related to Bridge Demolition and Removal

In order to protect the water quality and aquatic life in the area affected by this project, the NCDOT and all potential contractors will follow appropriate guidelines for bridge demolition and removal. These guidelines are presented in three NCDOT documents entitled "Pre-Construction Guidelines for Bridge Demolition and Removal", "Policy: Bridge Demolition and Removal in Waters of the United States", and "Best Management Practices for Bridge Demolition and Removal" (all documents dated 9/20/99). Guidelines followed for bridge demolition and removal are in addition to those implemented for Best Management Practices for the Protection of Surface Waters.

Dropping any portion of the structure into waters of the United States will be avoided unless there is no other practical method of removal. In the event that no other practical method is feasible, a worst-case scenario is assumed for calculations of fill entering waters of the United States. The superstructure of Bridge No. 106 consists of a timber deck on steel I-beams. The substructure consists of timber bulkheads at both abutments on concrete sills. Timber and steel components of the bridge as well as the concrete sills can be removed without dropping any portions into waters of the United States. If removal of the substructure will create disturbance in the streambed, a turbidity curtain is recommended due to sediment concerns.

If a temporary on-site detour is utilized it will be constructed such that upon removal it will not constitute any fill into waters of the United States.

Under the guidelines presented in the documents noted in the first paragraph of this section, work done in the water for this project would fall under Case 2, which states that no work shall be performed in the water during moratorium periods associated with fish migration, spawning, and larval recruitment into nursery areas. This conclusion is based upon the classification of the waters within the project area and vicinity, as well as comments received from NCWRC .

D. Biotic Resources

1. Plant Communities

Classification of plant communities is typically based on the system used by the NCNHP (Schafale and Weakley 1990). If a community is modified or otherwise disturbed such that it does not fit into an NCNHP classification, it is given a name that best describes current characteristics. Scientific nomenclature and common names (when applicable) are used for the plants noted, however subsequent references to the same species include the common name only. Vascular plant names follow nomenclature found in Radford et al. (1968) unless more current information is available. Due to the amount of disturbance within the study area, the only terrestrial community present is Man-Dominated. A community description is provided below.

a. Man-Dominated Community

This community includes maintained yards, roadside areas that are regularly to irregularly maintained, and an agricultural field. The study area north of US 321 consists of private residences and maintained yards. The south side of US 321 is a mixture of maintained yards and regularly to irregularly maintained roadside areas. Typical roadside species include planted grass, foxtail (*Setaria* sp.), plantain (*Plantago* sp.), rabbitfoot clover (*Trifolium arvense*), white clover (*Trifolium repens*), aster (*Aster curtisii*), Queen Anne's lace (*Daucus carota*), and evening primrose (*Oenothera biennis*). These species, with the addition of vetch (*Vicia* sp.) also occur east of SR 1117 and SR 1147, which intersects SR 1117 near the bridge.

The stream within the project area flows adjacent to an agricultural field and through several residential properties. Streamside vegetation is included within the Man-Dominated Community because the vegetation is a thin strip that appears to be irregularly maintained in places, and is not significant enough to separate into a different community type. Vegetation along stream banks includes aster (*Aster* spp.), blackberry (*Rubus* sp.), goldenrod (*Solidago* sp.), Joe-pye-weed (*Eupatorium fistulosum*), Japanese honeysuckle (*Lonicera japonica*), and black willow (*Salix nigra*).

2. Wildlife

a. Terrestrial

Wildlife species are identified in the field based upon sight, sound, or other characteristic signs. Field guides are also utilized to determine additional species that may find suitable habitat in the project area, but that were not identified during the site investigation.

Species observed within the project study area included common crow (*Corvus brachyrhynchos*), either black-capped or Carolina chickadee (*Parus atricapillus* or *Parus carolinensis*), and

American goldfinch (*Carduelis tristis*). Tracks and other signs of wildlife were actively searched for but none were found.

Additional species that may find habitat within the Man-Dominated Community include long-tailed weasel (*Mustela frenata*), least shrew (*Cryptotis parva*), eastern cottontail (*Sylvilagus floridanus*), eastern phoebe (*Sayornis phoebe*), Carolina wren (*Thryothorus ludovicianus*), white-throated sparrow (*Zonotrichia albicollis*), rufous-sided towhee (*Pipilo erythrophthalmus*), eastern fence lizard (*Sceloporus undulatus*), black racer (*Coluber constrictor*), and rat snake (*Elaphe obsoleta*).

b. Aquatic

A few small, unidentified fish approximately two to three inches (five to eight centimeters) in length were observed in a pool area under a concrete ledge at the base of the bridge. Investigation of riffle areas and overhanging vegetation along the stream revealed no additional aquatic species. A cursory search of the shoreline was conducted for evidence of mussel and clam species. There was no evidence of such species in the project area.

NCWRC was contacted for information on common aquatic species that may be found within the project study area, as well as comments related to project construction. Brushy Fork Creek contains rock bass (*Ambloplites rupestris*), central stonerollers (*Campostoma anomalum*), bluehead chubs (*Nocomis leptocephalus*), and northern hogsuckers (*Hypentelium nigricans*). NCWRC requested a moratorium on in-water work from May 1st to July 15th to protect the eggs and fry of rock bass. NCWRC also noted that a bridge would be preferable to a culvert for replacement of the existing structure. If a culvert must be used NCWRC requests that it be buried one foot (0.3 meters) below the substrate, and that riparian zone disturbance above and below the culvert be kept to a minimum. (See Appendix)

Species in addition to those listed by NCWRC that may utilize the aquatic habitat within the project area include Fowler's toad (*Bufo woodhousei*), spring salamander (*Gyrinophilus porphyriticus*), blackbelly salamander (*Desmognathus quadramaculatus*), northern water snake (*Nerodia sipedon*), and eastern garter snake (*Thamnophis sirtalis*).

3. Anticipated Impacts to Biotic Communities

a. Terrestrial Communities

The Man-Dominated Community is the only terrestrial habitat within the project area. (Table 1). This community is already highly altered from human disturbance. In addition, although the weedy areas of this community can provide habitat for several species of wildlife, this type of habitat is abundant throughout the project vicinity and region. Therefore, impacts are not considered substantial in terms of loss of habitat or diversity.

Upon completion of the new location in Alternative A the old structure will be removed and the area will be restored (Table 1 notes). This restored area could serve as on-site mitigation to reduce impacts. The impact totals for Alternative A shown in Table 1 do not reflect potential credit for the mitigation area.

TABLE 1. ANTICIPATED IMPACTS TO TERRESTRIAL AND AQUATIC COMMUNITIES		
Bridge No. 106 Alternatives	Man-Dominated Community acres (hectares)	Aquatic Community acres (hectares)
Alternative A	0.71 (0.29)	0.02 (< 0.01)
Alternative C	0.63 (0.25)	0.03 (0.01)
Alternative C (temporary detour)	0.22 (0.09)	0.02 (< 0.01)

Table 1 notes:

- Terrestrial impacts calculated using an 80-foot (24.3-meter) right-of-way.
- Impact totals for Alternative A do not reflect potential on-site mitigation credit for the area to be restored when the current structure and roadway are removed. Estimated restoration amounts are 0.35 acres (0.14 hectares) of terrestrial community, and 0.02 acres (< 0.01 hectares) of aquatic community in Brushy Fork Creek.
- Alternatives C linear aquatic impacts are shown in Table 1A.
- Actual construction impacts may be less than those indicated above; calculations were based on the worst-case scenario.

b. Aquatic Communities

Alternatives shown in Table 1 indicate total aquatic impacts for Alternatives A and C to Brushy Fork Creek and the small tributary northeast of SR 1117 in terms of acres and hectares. Table 1A portrays linear lengths of stream impacts.

A pipe approximately 66 inches (1650 millimeters) in diameter and 68 feet (21 meters) in length is planned for the tributary.

TABLE 1A. ANTICIPATED LINEAR IMPACTS TO AQUATIC COMMUNITIES	
Bridge No. 106 Alternatives	Length of Stream Impacts linear feet (linear meters)
Alternative A	122 (37.2)
Alternative C (permanent impacts)	121 (36.9)
Alternative C (temporary impacts)	118 (36.0)

Table 1A notes:

- Impacts for Alternatives A and C do not reflect potential credit for the area to be restored upon removal of the old structure. The potential restoration amount is 38 linear feet (11.6 linear meters).

As shown in Table 1, stream impacts on an area basis are fairly small and similar among the alternatives. Stream impacts on a linear basis are more substantial (Table 1A). This amount could be reduced further if the stream length to be restored upon removal of the existing bridge were calculated in (assuming is it considered acceptable mitigation).

Impacts to consider related to piping the small tributary include reduction in habitat diversity and compaction of the streambed. The pipe will be buried approximately one-foot (0.3 meter).

E. Special Topics

1. 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). Waters of the United States are regulated by the United States Army Corps of Engineers (USACE).

Project construction cannot be accomplished without infringing upon jurisdictional surface waters. Potential impacts to surface waters range from approximately 54 linear feet (16.5 linear meters) to 122 linear feet (37.2 linear meters). These figures include the length of replacement or temporary culverts, the length of pipe to be used for the small tributary, and the length of tributary to be relocated.

Investigation into wetland occurrence in the project study area was conducted using methods of the 1987 USACE Wetlands Delineation Manual. No jurisdictional wetlands were found within the project study area.

2. Permits

In accordance with Section 404 of the Clean Water Act (CWA) (33 U.S.C. 1344.), a permit is required from the USACE for projects of this type for the discharge of dredged or fill material into waters of the United States. The USACE issues two types of permits for these activities. A general permit may be issued on a nationwide or regional basis for a category or categories of activities when: those activities are substantially similar in nature and cause only minimal individual and cumulative environmental impacts, or when the general permit would result in avoiding unnecessary duplication or regulatory control exercised by another Federal, state, or local agency provided that the environmental consequences of the action are individually and cumulatively minimal. If a general permit is not appropriate for a particular activity, then an individual permit must be utilized. Individual permits are authorized on a case-by-case evaluation of a specific project involving the proposed discharges.

It is anticipated that this project will fall under Nationwide Permit 23, which is a type of general permit. Nationwide Permit 23 is relevant to approved Categorical Exclusions. Activities under this permit are categorically excluded from environmental documentation because they are included within a category of activities, which neither individually nor cumulatively have a significant effect on the human environment. Activities authorized under nationwide permits must satisfy all terms and conditions of the particular permit.

A Section 401 Water Quality Certification from the state is necessary for projects that require Section 404 Permits. The state has General Certifications, which will match the permit type authorized by the USACE. Although a single form is utilized to request both the 404 Permit and the 401 Certification, the state must issue the 401 Certification before the USACE will issue the 404 Permit. Written concurrence/notification is not always required by the state, and varies depending upon the General Certification. If this project qualifies under Nationwide Permit 23, the NCDWQ must be notified, however written concurrence from the NCDWQ is not required. Since this bridge is within a designated mountain trout county, the NCWRC must be consulted during the permitting process. Guidelines for Construction of Highway Improvements Adjacent

to or Crossing Trout Waters in North Carolina (October 27, 1992) will be adhered to for trout waters. However, as previously mentioned Brushy Fork Creek is not classified as trout waters.

If no practical alternative exists to remove the current bridge other than to drop it into the water, prior to removal of debris off-site, fill related to demolition procedures will need to be considered during the permitting process. A worst-case scenario is assumed with the understanding that if there is any other practical method available, the bridge will not be dropped into the water. Permitting will be coordinated such that any permit needed for bridge construction will also address issues related to bridge demolition. Since this bridge is of timber and steel construction, removal will be possible without dropping portions of the bridge into the water.

3. Mitigation

The USACE has adopted through the Council on Environmental Quality (CEQ) a wetland mitigation policy, which embraces the concept of "no net loss of wetlands". The purpose of this policy is to restore and maintain the chemical, biological, and physical integrity of waters of the United States, specifically wetlands. Mitigation of wetland impacts has been defined by the CEQ to include: avoiding impacts to wetlands, minimizing impacts, and rectifying impacts (40 CFR 1508.20). Each of these three aspects (avoidance, minimization, and compensatory mitigation) must be considered sequentially.

The USACE usually requires compensatory mitigation for activities authorized under Section 404 of the Clean Water Act if unavoidable impacts to waters of the United States total more than 0.10 acre (0.04 hectare) of wetlands or 150 linear feet (45.7 linear meters) of perennial and intermittent streams.

The NCDWQ may require compensatory mitigation for activities authorized under Section 401 of the Clean Water Act if unavoidable impacts to waters of the United States total more than 1 acre (0.45 hectares) of wetlands and/or 150 linear feet (45.7 liner meters) of perennial streams.

According to estimates, permanent impacts to jurisdictional waters will not exceed USACE and NCDWQ limitations for any alternative. However, a final determination regarding mitigation requirements rests with the agencies noted above. Depending upon agency opinion, some temporary impacts may also require mitigation, in particular the piping of the tributary. Stream banks are degraded adjacent to the current bridge. It may be possible to obtain restoration credits for alternatives on new location by removing the current bridge and restoring the stream in that area.

F. Rare and Protected Species

Some populations of plants and animals have been or are in the process of decline due either to natural forces or many other factors such habitat destruction and introduced species competition. Rare and protected species listed for Watauga County, and any likely impacts to these species as a result of the proposed project construction are discussed in the following sections.

1. Federally Protected Species

Plants and animals with 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 reports five federally protected species for Watauga County as of the March 22, 2001 (See Appendix).

TABLE 2
FEDERALLY PROTECTED SPECIES*
FOR WATAUGA COUNTY

Scientific Name Common Name	Status
*Clemmys muhlenbergii*** (Bog turtle)	T(S/A)
Glaucomys sabrinus coloratus (Carolina northern flying squirrel)	E
Microhexura montivaga (Spruce-fir moss spider)	E
Liatris helleri (Heller's blazing star)	T
Geum radiatum (Spreading avens)	E
Houstonia montana (=*Hedyotis purpurea* var. *montana*) (Roan Mountain bluet)	E

Table 2 NOTES:

E Denotes Endangered (a species that is in danger of extinction throughout all or a significant portion of its range).

T Denotes Threatened (a species likely to become endangered within the foreseeable future throughout all or a significant portion of its range.

T(S/A) Denotes threatened due to similarity of appearance. These species are listed due to resemblance to another protected species but are not biologically endangered or threatened and are not subject to Section 7 consultation.

** The northern population of the bog turtle (from New York south to Maryland) is designated as threatened. The southern population of the bog turtle (from Virginia south to Georgia) is designated as T(S/A). This designation bans the collection and interstate and international commercial trade of the species from the southern population, but has no effect on land management activities by private landowners.

* The Virginia big-eared bat (*Corynorhinus townsendii virginianus*) is listed as an obscure record in Watauga County by the NCNHP but is not recognized in this county by the USFWS.

Species: Bog turtle
Family: Emydidae (Subfamily Emydinae)
Date Listed: 11/4/97

The bog turtle has a light brown to ebony colored carapace and a blackish plastron. Shell size ranges from three to 4.5 inches (eight to 11 centimeters). The species is most easily recognized by a yellow, orange, or red blotch on each side of the head.

This turtle inhabits damp, grassy fields, bogs, and marshes. It feeds on insects, worms, snails, amphibians, and seeds. **Since the southern species is not biologically endangered or threatened, no biological conclusion is required.**

Species: Carolina northern flying squirrel
Family: Sciuridae
Date Listed: 7/1/85

This nocturnal squirrel has a broad, flattened tail and folds of skin between the wrist and ankle that are used for gliding. Total length ranges from 10 to 12 inches (25 to 30 centimeters). Adults are gray with a brown, tan, or reddish coloration on the back, and have gray to white undersides. Juveniles have slate gray backs and whitish undersides.

Carolina northern flying squirrels inhabit mainly the transition zones between coniferous and northern hardwood forests. Hardwood areas are utilized for nesting, and foraging is conducted in both coniferous and hardwood forests. This squirrel has a varied diet which may include lichens and fungi, seeds, nuts, buds, fruit, and insects. Mating takes place in the spring and the young are born in May or June.

BIOLOGICAL CONCLUSION: NO EFFECT

There are no forested areas within the study area that could provide habitat for this species. It would also typically be found at higher elevations that that of the project area. A search of NCNHP records indicated that this species has not been documented within the project area or vicinity. This project will not affect Carolina northern flying squirrel.

Species: Spruce-fir moss spider
Family: Dipluridae
Date Listed: 2/6/95

The spruce-fir moss spider may range in color from light yellow-brown to reddish-brown. It is very small, measuring about 0.10 to 0.15 inches (0.25 to 0.38 centimeters). The spider has long posterior spinnerets and chelicerae (appendage near the mouth, often used for grasping) that extend well beyond the anterior edge of the carapace.

This species inhabits damp but well-drained moss mats growing on rocks and boulders in well-shaded areas. Tube-shaped webs are constructed by the spider between the moss mat and rock surface. It is known from mature Fraser fir and red spruce forests at high elevations in the southern Appalachian Mountains.

BIOLOGICAL CONCLUSION: NO EFFECT

There are no Fraser fir and red spruce forest communities within the study area that could provide habitat for this species. It is also found at higher elevations than that of the project area. A search of NCNHP records indicated that this species has not been documented within the project area or vicinity. This project will not affect Spruce-fir moss spider.

Species: Heller's blazing star
Family: Asteraceae
Date Listed: 11/19/87

Heller's blazing star is a perennial herb that has erect or arching stems which arise from a tuft of narrow pale green basal leaves. The stems reach approximately 16 inches (40 centimeters) in height and are topped by a spike of lavender flowers. Flowering occurs from July to September and fruiting occurs from September to October. This plant may be distinguished from similar high-elevation plants within the genus by its much shorter pappus (modified calyx lobes), ciliate petioles, and internally pilose (covered with soft trichomes) corolla tubes.

Heller's blazing star grows on high elevation ledges or rock outcrops in full sun. Substrate consists of shallow, acidic soils.

BIOLOGICAL CONCLUSION: NO EFFECT

There are no high elevation ledges or rock outcrops within the study area. There is no recorded occurrence at NCNHP of this species within the project study area or vicinity. This project will not affect Heller's blazing star.

Species: Spreading avens
Family: Rosaceae
Date Listed: 4/5/90

Spreading avens is a perennial herb with mostly basal leaves that arise from horizontal rhizomes. Stems are from 8 to 20 inches (20 to 50 centimeters) tall. Bright yellow flowers are arranged in a cyme and bloom from June through September. Fruits in the form of achenes are produced from August through October.

This species is found on high elevation cliffs, outcrops, and steep slopes that are exposed to full sun. It is also found on thin, gravelly soils of grassy balds near summit outcrops.

BIOLOGICAL CONCLUSION: NO EFFECT

There are no high elevation cliffs, outcrops, or steep slopes within the project study area that could provide habitat for this species. Spreading avens is not documented by the NCNHP as occurring within the project study area or vicinity. This project will not affect spreading avens.

Species: Roan Mountain bluet
Family: Rubiaceae
Date Listed: 4/5/90

This shallow-rooted perennial herb forms low-growing loose tufts approximately 4 inches (10 centimeters) in height. The leaves have a smooth margin and the small flowers are deep purple. Flowering occurs from late May to August and fruiting occurs from late August to September.

Roan Mountain bluet occurs on high elevation rock outcrops and also in thin, gravelly soils of grassy balds near summit outcrops.

BIOLOGICAL CONCLUSION: NO EFFECT

There is no habitat present within the project study area for this species. It typically occurs at elevations of 4,200 to 6,300 feet (1,280 to 1,920 meters). NCNHP records have no documented occurrence of Roan Mountain bluet in the study area or vicinity. This project will not affect Roan Mountain bluet.

2. Federal Species of Concern

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. Species designated as FSC are defined as taxa, which may or may not be listed in the future. These species were formerly Candidate 2 (C2) species or species under consideration for listing for which there is insufficient information to support listing. Some of these species are listed as Endangered, Threatened, or Special Concern by the NCNHP list of Rare Plant and Animal Species and are afforded state protection under the State Endangered Species Act and the North Carolina Plant Protection and Conservation Act of 1979. Table 3 provides the Federal Species of Concern in Watauga County and their state classifications (accessed November 13, 2001, http://www.ncsparks.net/nhp/elements2.fm, database updated July, 2000).

The NCNHP database shows no recorded occurrences of FSCs within the project vicinity.

TABLE 3
NORTH CAROLINA STATUS OF FEDERAL SPECIES OF CONCERN IN WATAUGA COUNTY

Scientific Name Common Name	North Carolina Status	Habitat Present
Aegolius acadicus (Southern Appalachian saw-whet owl)	SC	NO
Cryptobranchus alleganiensis (Hellbender)	SC	NO
Dendroica cerulea (Cerulean warbler)	SR	NO
Loxia curvirostra♦ (Southern Appalachian red crossbill)	NT	NO
*Neotoma magister**⊗ (Alleghany woodrat)	SC	NO
Parus atricapillus practicus♦ (Southern Appalachian black-capped chickadee)	NT	NO+
Phenacobius teretulus (Kanawha minnow)	SC	NO
Sorex palustris punctulatus*⊗ (Southern water shrew)	SC	NO
Sphyrapicus varius appalachiensis (Southern Appalachian yellow-bellied sapsucker)	SR	NO
Sylvilagus obscurus•*Δ (Appalachian cottontail)	NL	NO
Lasmigona subviridus (Green floater)	E	YES

Table 3 continues

Table 3 continued

TABLE 3 NORTH CAROLINA STATUS OF FEDERAL SPECIES OF CONCERN IN WATAUGA COUNTY		
Scientific Name Common Name	North Carolina Status	Habitat Present
Speyeria diana (Diana fritillary butterfly)	SR	NO
Abies fraseri ♦ (Fraser fir)	NT	NO
Cardamine clematitis (Mountain bittercress)	C	NO
Delphinium exaltatum (Tall larkspur)	E-SC	NO
*Euphorbia purpurea***⊗ (Glade spurge)	C	NO
Geum geniculatum (Bent avens)	T	NO
Juglans cinerea ♦ (Butternut)	NT	NO
Lilium grayi (Gray's lily)	T-SC	NO
*Poa paludigena**Δ (Bog bluegrass)	E	NO
Saxifraga caroliniana ♦♦ (Carolina saxifrage)	C	NO

TABLE 3 NOTES:

*	Historic record from USFWS. The species was last observed in the county more than 50 years ago.
♦	Not listed for this county by NCNHP.
•	Listed as *Sylvilagus transitionalis* (New England cottontail) by NCNHP.
**	Obscure record from the USFWS. The date and/or location of observation is uncertain.
♦♦	Not listed in this county by USFWS, only by NCNHP.
⊗	Obscure record at NCNHP. The date the element was last observed in the county is uncertain.
Δ	Historic record at NCNHP. The element was last observed in the county more than 20 years ago.
T	Threatened (a native or once native species that is likely to become endangered within the foreseeable future.
E	Endangered (a species whose continued existence as a viable component of the State's flora or fauna is determined to be in jeopardy).
C	Candidate (species which are considered by the state to be rare and in need of population monitoring.
SR	Significantly Rare (a species in need of population monitoring and conservation action.
SC	Special Concern (a species of plant or animal which requires monitoring but which may be collected and sold or taken under certain regulations).
NT	Not tracked by the NCNHP.
NL	Not listed by the State.
E-SC	Propagated material only of plant species listed as both "endangered" and "special concern" may be traded or sold under specific regulations.
T-SC	Propagated material only of plant species listed as both "threatened" and "special concern" may be traded or sold under specific regulations.
+	Breeding habitat not present.

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, and with the Advisory Council on Historic Preservation's Regulations for Compliance Section 106, codified at 36 CFR Part 800. Section 106 requires that for federally funded, licensed, or permitted projects having an effect on properties listed in or eligible for the National Register of Historic Places, the Advisory Council on Historic Preservation be given the opportunity to comment.

B. Historic Architecture

A field survey of the Area of Potential Effects (APE) was conducted on October 10, 2000. All structures within the APE were photographed, and later reviewed by the State Historic Preservation Office (HPO). In a concurrence form dated December 6, 2000 the State Historic Preservation Officer (SHPO) concurred that there are no historic architectural resources either listed on or eligible for the National Register of Historic Places within the APE. A copy of the concurrence form is included in the Appendix.

C. Archaeology

The State Historic Preservation Officer (SHPO), in a memorandum dated February 5, 2001 stated, "We have conducted a search of our files and are aware of no structures of historical or architectural importance located with in the planning area... There are no recorded archaeological sites within the proposed project area... If, however, the replacement is to be on new location, please forward a map to this office indicating the location of the new alignment so we may evaluate the potential effects of the replacement upon archaeological resources." A copy of the SHPO memorandum is included in the Appendix.

VII. Environmental Effects

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

The project is a Federal "Categorical Exclusion" due to its limited scope and lack of significant environmental consequences.

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

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

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

In compliance with Executive Order 12898 (Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations) a review was conducted to determine

whether minority or low-income populations were receiving disproportionately high and adverse human health or environmental impacts as a result of this project. The investigation determined the project would not disproportionately impact any minority or low-income populations.

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

There are no publicly owned recreational facilities, or wildlife and waterfowl refuges of national, state, or local significance in the vicinity of the project.

The Farmland Protection Policy Act requires all federal agencies or their representatives to consider the potential impacts to prime and important farmland soils by all land acquisition and construction projects. Prime and important farmland soils are defined by the Natural Resources Conservation Service (NRCS).

According to NRCS, the proposed project will impact 0.33 acres of soils defined as prime and statewide or local important farmland soils. This accounts for very little of the 13,601 acres of prime or important soils found in Watauga County. The impact rating determined through completion of Form AD-1006, Farmland Conversion Impact Rating indicates that the site's assessment and relative value score is 123 out of a possible 260. A score higher than 160 would indicate that mitigation should be considered. The completed form is included in the Appendix.

The project is located in Watauga County, which has been determined to be in compliance with the National Ambient Air Quality Standards. 40 CFR Parts 51 and 93 are not applicable, because the proposed project is located in an attainment area. This project is not anticipated to create any adverse effects on the air quality of this attainment area.

This project is an air quality "neutral" project, so it is not required to be included in the regional emission analysis (if applicable) and a project level CO analysis is not required.

The traffic volumes will not increase or decrease because of this project. There are no receptors located in the immediate project area. The project's impact on noise and air quality will not be significant.

Noise levels could increase during construction but will be temporary. If vegetation is disposed of by burning, all burning shall be done in accordance with applicable local laws and regulations of the North Carolina SIP for air quality in compliance with 15 NCAC 2D.0520. This evaluation completes the assessment requirements for highway traffic noise (23 CFR Part 772) and for air quality (1990 CAAA and NEPA) and no additional reports are required.

An examination of records at the North Carolina Department of Environment and Natural Resources, Division of Water Quality, Groundwater Section and the North Carolina Department of Human Resources, Solid Waste Management Section revealed no hazardous waste sites in the project area

Watauga County is a participant in the National Flood Insurance Regular Program. The project site on Brushy Fork Creek is located in a designated flood hazard zone and is included in a detailed F.E.M.A. Flood Study. The proposed replacement will not adversely affect the existing flood plain or modify flow characteristics. Attached is a copy of the Flood Insurance Rate Map,

Figure 5, on which are shown the approximate limits of the 100-year flood plain in the vicinity of the project.

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

VIII. Public Involvement

Efforts were undertaken early in the planning process to contact local officials to involve them in the project development with scoping letters.

IX. Agencies Comments

North Carolina Wildlife Resource Commission (NCWRC)

Comment:

1. *"Instream work and land disturbance within the 25-foot wide buffer zone are prohibited during the brown and brook trout spawning season of October 15 through March 31 to protect the egg and fry stages of trout from off-site sedimentation during construction.*
2. *Instream work and land disturbance within the 25-foot wide buffer zone are prohibited during the rainbow trout spawning season of January 1 through April 15 to protect the egg and fry stages of trout.*
3. *Concerning culverts or barrels in trout waters, ... Please note that receiving barrels of culvers or pipes buried 1 foot below normal streambed level that mimic natural conditions should not interfere with aquatic or fish migration. ...*
4. *If concrete will be used, work must be accomplished so that wet concrete does not contact stream water. This will lessen the chance of altering the stream's water chemistry and causing a fish kill.*
5. *Sediment and erosion control measures should adhere to the design standards for sensitive watersheds (15A NCAC 4B .0024).*
6. *Heavy equipment should be operated from the bank rather than in the stream channel in order to minimize sedimentation and reduce the likelihood of introducing other pollutants into the stream.*
7. *Trees and vegetation with the 25-foot stream buffer zone damaged during construction should be replanted within 5 days of project completion with the same mixture of species existing prior to project initiation."*

Reply:

The above comments refer to trout waters. Brushy Fork Creek is not a trout stream.

NCWRC, District 7 Fisheries Biologist

Comment:

"Brushy Fork Creek was found to contain rock bass, central stonerollers, blue head chubs, and northern hogsuckers during a 9/20/00 survey. For this stream, we will request a May 1st through July 15th moratorium to protect eggs and fry of the rock bass."

Reply:

Instream work and land disturbance within the 25-foot wide buffer zone are prohibited during the rock bass spawning season of May 1st through July 15th to

protect the egg and fry stages of the rock bass from off-site sedimentation during construction.

State Historic Preservation Officer (SHPO)

Comment:

"If, however, the replacement is to be on new location, please forward a map to this office indicating the location of the new alignment so we may evaluate the potential effects of the replacement upon archaeological resources."

Reply:

Plans will be sent to the State Historic Preservation Officer (SHPO).

US Army Corps of Engineers (COE)

Comment: *December 12, 2001 "...look forward to reviewing the CE document when they are available."*

Reply:

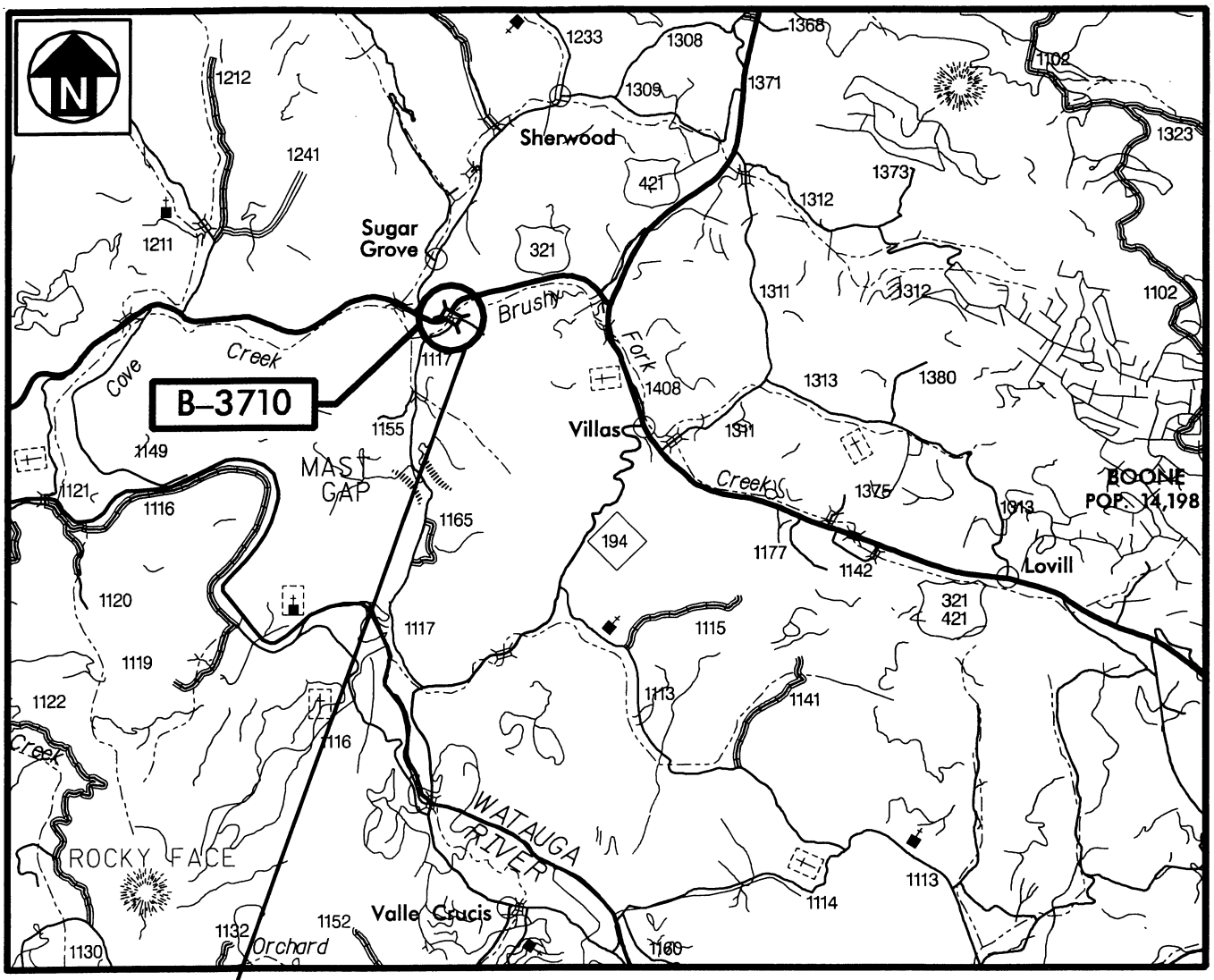
NCDOT will send copy of final CE to the US Army Corps of Engineers.

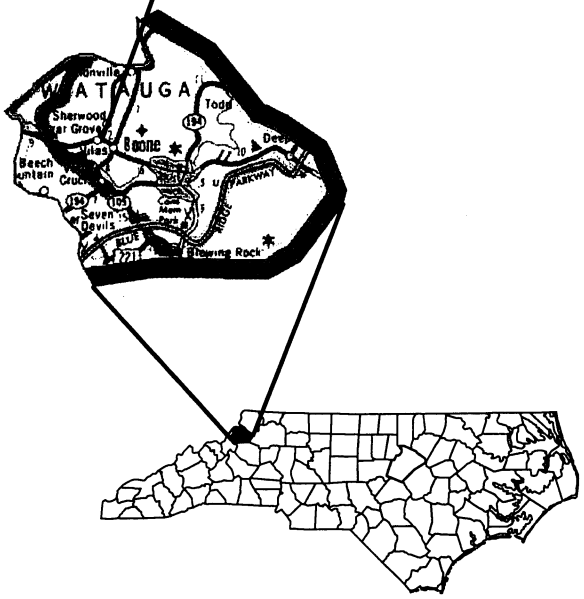
Tennessee Valley Authority (TVA)

Per phone conversation. This bridge is located in the area of the Tennessee Valley Authority (TVA) oversight.

Reply:

This project will be reviewed under Section 26a of the Tennessee Valley Authority (TVA) Act. The final bridge plans, hydraulic analysis of the effects of the replacement structure on the 100-year flood elevation, and notice of compliance with the Historic Preservation Act of 1966 will be forwarded to TVA for approval.





North Carolina Department Of Transportation
Project Development & Environmental Analysis

WATAUGA COUNTY

BRIDGE NO. 106 ON SR 1117
OVER BRUSHY FORK CREEK

B-3710

0 kilometers 1.6 kilometers 3.2
0 miles 1.0 miles 2.0

FIGURE 1

B-3710
ALTERNATIVE A
(PREFERRED)

NC GRID
NAD 83

END PROJECT
-L- POT 16+78.95

PAVEMENT REMOVAL

Widen Inside Shoulder 5.5'

2 @ 11' X 10' RCBC

66" CMP

Widen Inside Shoulder 5.5'

BEGIN PROJECT
-L- POC 12+00.00

Retaining Wall

END CONSTRUCTION
-Y1- POC 11+60.00

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

North Carolina Department Of
Transportation
Project Development &
Environmental Analysis

WATAUGA COUNTY
BRIDGE NO. 106
ON SR 1117 (MAST GAP ROAD)
OVER BRUSHY FORK CREEK
B-3710

50' 0 50'
15.24 m SCALE 15.24 m

FIGURE 2

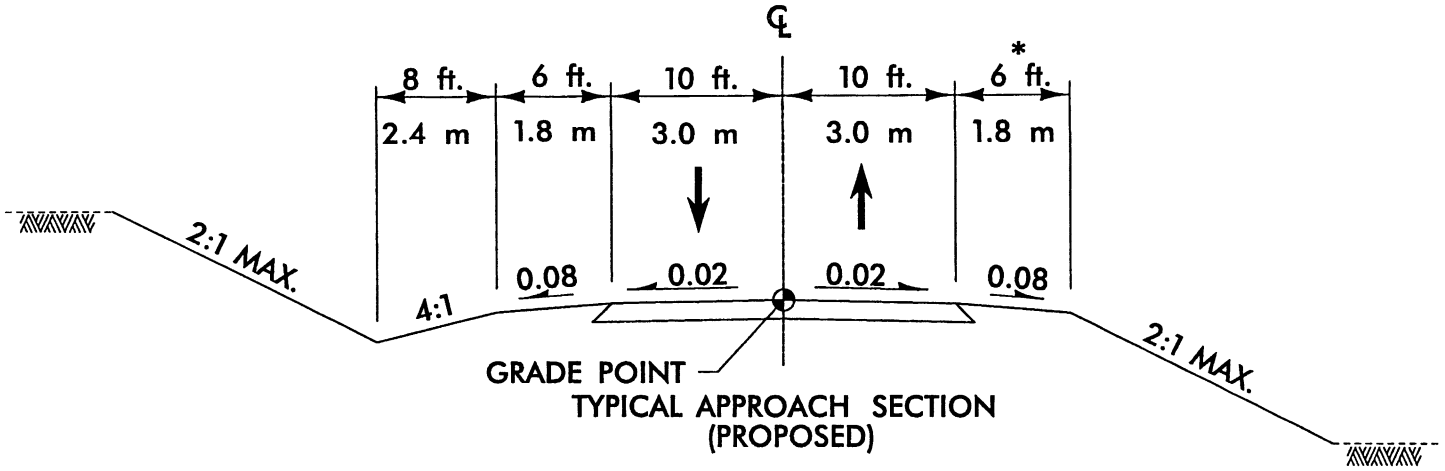
B-3710
ALTERNATIVE C

North Carolina Department Of Transportation
Project Development & Environmental Analysis

WATAUGA COUNTY
BRIDGE NO. 106
ON SR 1117 (MAST GAP ROAD)
OVER BRUSHY FORK CREEK
B-3710

50' 0 50'
15.24 m SCALE 15.24 m

FIGURE 2 A



TYPICAL APPROACH SECTION
(PROPOSED)

* WHEN GUARDRAIL IS WARRANTED, THE MINIMUM SHOULDER WIDTH IS INCREASED BY 3'–0"

BRIDGE NO. 106 WILL BE REPLACED BY A DOUBLE BARREL 11 ' X 10' (3.3 m X 3.0 m) REINFORCED CONCRETE BOX CULVERT

DESIGN DATA

(EXISTING) 2002 ADT = 1,175 LOS C
(CONST. YR.) 2003 ADT = 1,200 LOS C
(DESIGN YR.) 2025 ADT = 1,810 LOS C
DUAL 3%
TTST 1%

FUNCTIONAL CLASSIFICATION : RURAL LOCAL

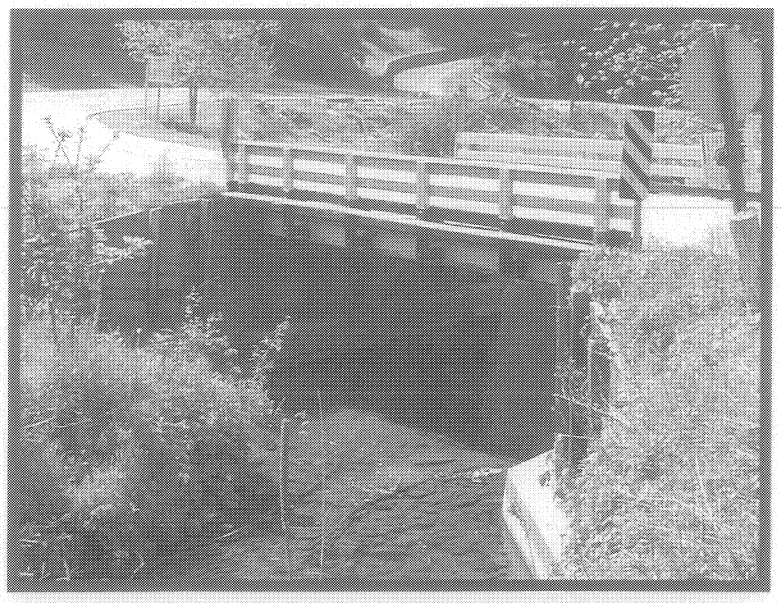
DESIGN SPEED 20 MPH (30 KMH)
POSTED SPEED LIMIT NOT POSTED
STATUTORY = 55 MPH (90 KMH)
MIN RADIUS = 115 FT (30 METERS).
MAX. GRADE 17%
MIN. DES. K FAC.: Ksag =17 Kcrest = 7
(METRIC Ksag = 6 Kcrest = 2)

emax = .06
terrain = mountainous

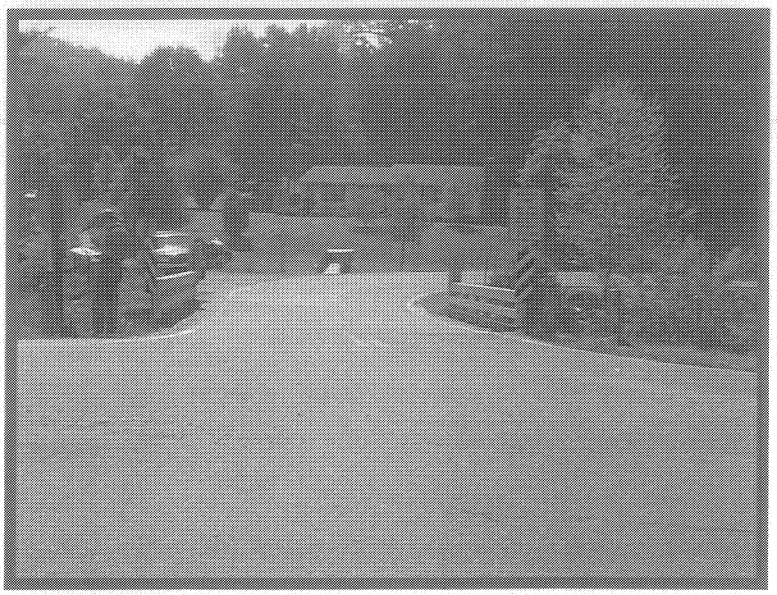
North Carolina Department
Of Transportation
Project Development &
Environmental Analysis

WATAUGA COUNTY
BRIDGE NO. 106 ON SR 1117
MAST GAP ROAD
OVER BRUSHY FORK CREEK
TIP NO: B-3710

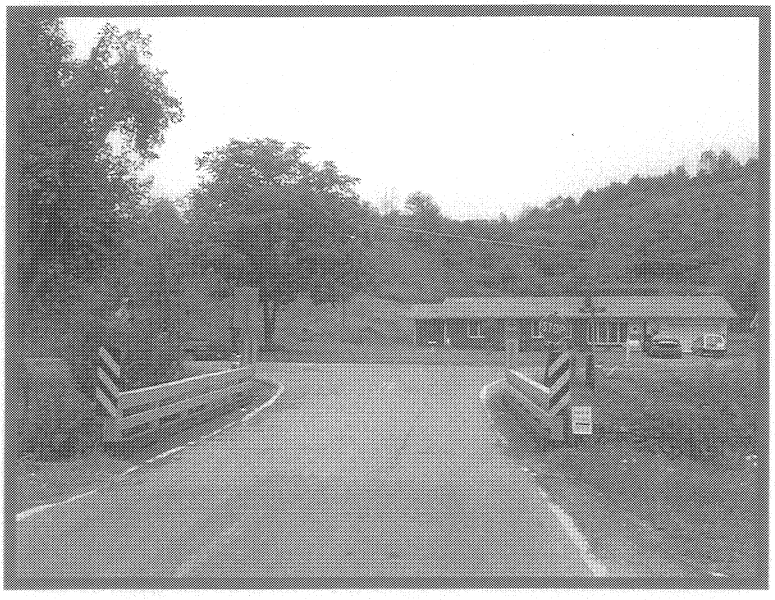
FIGURE 3



Side View of Bridge No. 106



Looking South Across
Bridge No. 106



Looking North Across
Bridge no. 106

FIGURE 4

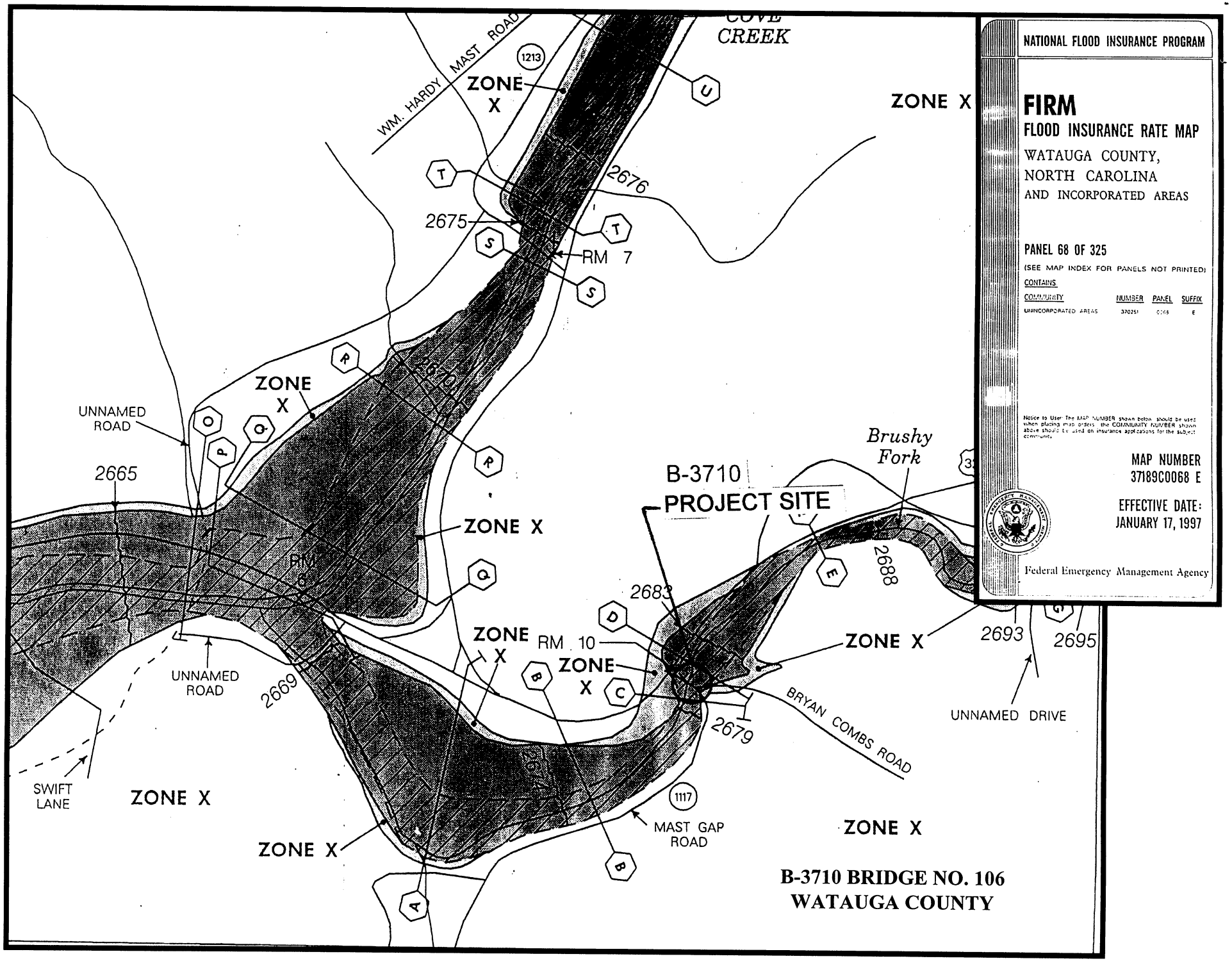

NATIONAL FLOOD INSURANCE PROGRAM
FIRM
FLOOD INSURANCE RATE MAP
WATAUGA COUNTY,
NORTH CAROLINA
AND INCORPORATED AREAS
PANEL 68 OF 325
(SEE MAP INDEX FOR PANELS NOT PRINTED)
CONTAINS
COMMUNITY NUMBER PANEL SUFFIX
UNINCORPORATED AREAS 370251 0068 E
MAP NUMBER
37189C0068 E
EFFECTIVE DATE:
JANUARY 17, 1997
Federal Emergency Management Agency
COVE CREEK
WM. HARDY MAST ROAD
1213
ZONE X
2676
2675
RM 7
2670
UNNAMED ROAD
2665
RM 6
B-3710
PROJECT SITE
Brushy Fork
2688
2683
RM 10
2693
2695
UNNAMED DRIVE
BRYAN COMBS ROAD
2679
2669
UNNAMED ROAD
SWIFT LANE
1117
MAST GAP ROAD
B-3710 BRIDGE NO. 106
WATAUGA COUNTY

FIGURE 5

APPENDIX

United States Department of the Interior

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

February 7, 2001

Mr. William D. Gilmore, P.E., Manager
Project Development and Environmental Analysis Branch
North Carolina Department of Transportation
1548 Mail Service Center
Raleigh, North Carolina 27699-1548

Dear Mr. Gilmore:

Subject: Bridge Replacements - Avery County (B-3808); Henderson County (B-3475, B-3662, B-3663, B-3664, B-3665, B-3666, and B-3857); McDowell County (B-3673); and Watauga County (B-3709 and B-3710)

We have reviewed the subject projects and are providing the following comments in accordance with the Fish and Wildlife Coordination Act, as amended (16 U.S.C. 661-667e), and Section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531-1543) (Act).

The information we received for these 11 projects does not include descriptions of the structures that will replace the existing bridges, and it does not include any environmental information regarding the streams or whether habitat assessments or surveys for rare species have been conducted for any of the projects. Therefore, our comments are limited primarily to the known locations of listed species and species of Federal concern. When the categorical exclusions are prepared and more information is available regarding environmental effects, we can then offer more substantive comments.

Enclosed is a list of species from the four counties involved. This list provides the names of species that are on the Federal List of Endangered and Threatened Wildlife and Plants, as well as species of Federal concern. Federal species of concern are not legally protected under the Act and are not subject to any of its provisions, including Section 7, unless they are formally proposed or listed as endangered or threatened. We are including these species in our response to give you advance notification and to request your assistance in protecting them if any are found in the vicinity of these projects. Our records indicate the following:

Henderson County

Project B-3475. Known locations of the federally endangered bunched arrowhead (*Sagittaria fasciculata*) and the federally threatened small-whorled pogonia (*Isotria medeoloides*) occur near this project. We recommend surveying the project area for these species prior to any further planning or on-the-ground activities. If these species occur in the project area, further consultation will be required.

Project B-3665. Known locations of the federally endangered bunched arrowhead (*Sagittaria fasciculata*) and mountain sweet pitcher plant (*Sarracenia jonesii*) occur in the vicinity of this project. We recommend surveying the project area for these species prior to any further planning or on-the-ground activities. If these species occur in the project area, further consultation will be required.

Projects B-3662 and B-3664. These projects occur in the general vicinity of Mud Creek, an area with several occurrences of bunched arrowhead (*Sagittaria fasciculata*) and mountain sweet pitcher plant (*Sarracenia jonesii*). Currently there are no known locations of these species in the immediate project area. However, a lack of any systematic surveys throughout the Mud Creek drainage may account for the apparent absence of these species. In the areas affected by these projects, we recommend conducting habitat assessments and surveying any suitable habitat for these species.

Projects B-3666, B-3663, and B-3857. Our records for Henderson County indicate no known locations of listed species in the project areas. However, we recommend conducting habitat assessments and surveying any suitable habitat in the project areas for these species prior to any further planning or on-the-ground activities to ensure that no adverse impacts occur.

McDowell County

Project B-3673. Our records indicate known locations for the bog turtle (*Clemmys muhlenbergii*) near this project. Habitat assessments and surveys of suitable habitat should be conducted in the project area for this species. If the bog turtle occurs in the project area, it should be protected from impacts.

Watauga and Avery Counties

Projects B-3709, B-3710, and B-3808. Although our records for Watauga and Avery Counties indicate no known locations of listed species in the project areas, we recommend conducting habitat assessments in the affected area of each project. Any suitable habitat should be surveyed for these species prior to any further planning or on-the-ground activities to ensure that no adverse impacts occur.

We are interested in the types of structures that will replace these existing bridges and would recommend spanning structures, preferably bridges, in all cases. We look forward to reviewing the completed categorical exclusion documents.

If you have questions about these comments, please contact Ms. Marella Buncick of our staff at 828/258-3939, Ext. 237. In any future correspondence concerning this project, please reference our Log Number 4-2-01-278.

Sincerely,

for Brian P. Cole
State Supervisor

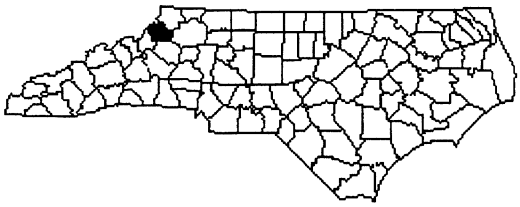
Enclosure

cc:
Ms. Stacy Harris, Project Development and Environmental Analysis Branch, North Carolina Department of Transportation, 1548 Mail Service Center, Raleigh, NC 27699-1548
Mr. Owen Anderson, Mountain Region Coordinator, North Carolina Wildlife Resources Commission, 20830 Great Smoky Mtn. Expressway, Waynesville, NC 28786
Ms. Cynthia Van Der Wiele, North Carolina Department of Environment and Natural Resources, Division of Water Quality, Wetlands Section, 1621 Mail Service Center, Raleigh, NC 27699-1621

Updated: 03/22/2001

U.S. Fish & Wildlife Service

WATAUGA COUNTY



Critical Habitat Designation:

Spruce-fir moss spider, *Microhexura montivaga* - Proposed Critical Habitat designation in Federal Register 65:59798-59814.

Common Name	Scientific Name	Status
Vertebrates		
Alleghany woodrat	*Neotoma magister*	FSC*
Appalachian cottontail	*Sylvilagus obscurus*	FSC*
Bog turtle	*Clemmys muhlenbergii*	T(S/A)[1]
Carolina northern flying squirrel	*Glaucomys sabrinus coloratus*	Endangered
Cerulean warbler	*Dendroica cerulea*	FSC
Hellbender	*Cryptobranchus alleganiensis*	FSC
Kanawha minnow	*Phenacobius teretulus*	FSC
Southern Appalachian black-capped chickadee	*Parus atricapillus practicus*	FSC
Southern Appalachian red crossbill	*Loxia curvirostra*	FSC
Southern Appalachian saw-whet owl	*Aegolius acadicus*	FSC
Southern Appalachian yellow-bellied sapsucker	*Sphyrapicus varius appalaciensis*	FSC
Southern water shrew	*Sorex palustris punctulatus*	FSC*
Invertebrates		
Diana fritillary butterfly	*Speyeria diana*	FSC
Green floater	*Lasmigona subviridus*	FSC
Spruce-fir moss spider	*Microhexura montivaga*	Endangered
Vascular Plants		
Bent avens	*Geum geniculatum*	FSC
Bog bluegrass	*Poa paludigena*	FSC*
Butternut	*Juglans cinerea*	FSC
Fraser fir	*Abies fraseri*	FSC
Glade spurge	*Euphorbia purpurea*	FSC**
Gray's lily	*Lilium grayi*	FSC
Heller's blazing star	*Liatris helleri*	Threatened
Mountain bittercress	*Cardamine clematitis*	FSC
Spreading avens	*Geum radiatum*	Endangered

Tall larkspur	*Delphinium exaltatum*	FSC
Roan Mountain bluet	*Houstonia montana (=Hedyotis purpurea var. montana)*	Endangered

KEY:

Status	Definition
Endangered -	A taxon "in danger of extinction throughout all or a significant portion of its range."
Threatened -	A taxon "likely to become endangered within the foreseeable future throughout all or a significant portion of its range."
Proposed -	A taxon proposed for official listing as endangered or threatened.
C1 -	A taxon under consideration for official listing for which there is sufficient information to support listing.
FSC -	A Federal species of concern--a species that may or may not be listed in the future (formerly C2 candidate species or species under consideration for listing for which there is insufficient information to support listing).
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.
EXP -	A taxon that is listed as experimental (either essential or nonessential). Experimental, nonessential endangered species (e.g., red wolf) are treated as threatened on public land, for consultation purposes, and as species proposed for listing on private land.

Species with 1, 2, 3, or 4 asterisks behind them indicate historic, obscure, or incidental records.

*Historic record - the species was last observed in the county more than 50 years ago.

**Obscure record - the date and/or location of observation is uncertain.

***Incidental/migrant record - the species was observed outside of its normal range or habitat.

****Historic record - obscure and incidental record.

[1]In the November 4, 1997, Federal Register (55822-55825), the northern population of the bog turtle (from New York south to Maryland) was listed as T (threatened), and the southern population (from Virginia south to Georgia) was listed as T(S/A) (threatened due to similarity of appearance). The T(S/A) designation bans the collection and interstate and international commercial trade of bog turtles from the southern population. The T(S/A) designation has no effect on land-management activities by private landowners in North Carolina, part of the southern population of the species.

For additional information regarding this Web page, contact Mark Cantrell, in Asheville, NC, at mark_a_cantrell@fws.gov
Visit the North Carolina ES Homepage
Visit the U.S. Fish and Wildlife Service Home Page

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

Michael F. Easley, Governor
Lisbeth C. Evans, Secretary

Division of Archives and History
Jeffrey J. Crow, Director

February 5, 2001

MEMORANDUM

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

From: David Brook RS for David Brook
Deputy State Historic Preservation Officer

Re: Replace Bridge #106 on SR 1117 over Laurel Fork Creek, B-3710, Watauga County, ER 01-8272

Thank you for your letter of December 6, 2000, concerning the above project.

We have conducted a search of our files and are aware of no structures of historical or architectural importance located within the planning area. However, since a survey has not been conducted in over a decade, there may be structures of which we are unaware located within the planning area.

If there are any structures more than fifty years old on or adjacent to the project site, please send us photographs (Polaroid type snapshots are fine) of each structure. These photographs should be keyed to a map that clearly shows the site location. If there are no building over fifty years old on or adjacent to the project, please notify us of this in writing.

There are no recorded archaeological sites within the proposed project area. If the replacement is to be located along the existing alignment, it is unlikely that significant archaeological resources would be affected and no investigations would be recommended. If, however, the replacement is to be in a new location, please forward a map to this office indicating the location of the new alignment so we may evaluate the potential effects of the replacement upon archaeological resources.

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

Thank you for your cooperation and consideration. If you have questions concerning the above comment, contact Renee Gledhill-Earley, Environmental Review Coordinator, at 919/733-4763.

cc: Mary Pope Furr, NCDOT
Tom Padgett, NCDOT

Federal Aid #BRZ-1117(5) *TIP* #B-3710 *County*: Watauga

CONCURRENCE FORM FOR PROPERTIES NOT ELIGIBLE FOR THE NATIONAL REGISTER OF HISTORIC PLACES

Project Description: Replace Bridge No.106 on SR 1117 over Brushy Fork Creek

On December 8, 2000, representatives of the

- [x] North Carolina Department of Transportation (NCDOT)
- [ ] Federal Highway Administration (FHWA)
- [x] North Carolina State Historic Preservation Office (SHPO)

Reviewed the subject project at

- [ ] a scoping meeting
- [x] photograph review session/consultation
- [ ] other

All parties present agreed

- [ ] there are no properties over fifty years old within the project's area of potential effect.
- [x] there are no properties less than fifty years old which are considered to meet Criterion Consideration G within the project's area of potential effect.
- [x] there are properties over fifty years old (list attached) within the project's area of potential effect, but based on the historical information available and the photographs of each property, properties identified as Props#1-15 are considered not eligible for the National Register and no further evaluation of them is necessary.
- [x] there are no National Register-listed properties located within the project's area of potential effect.

Signed:

Mary Pope Furr — 12/6/00
Representative, NCDOT — Date

Michael C Duncan — 12/19/00
FHWA, for the Division Administrator, or other Federal Agency — Date

[signature] — 12/3/00
Representative, SHPO — Date

David Brook pp — 12/20/00
State Historic Preservation Officer — Date

If a survey report is prepared, a final copy of this form and the attached list will be included.

North Carolina Wildlife Resources Commission

Charles R. Fullwood, Executive Director

MEMORANDUM

TO: William D. Gilmore, PE, Manager
NCDOT Project Development and Environmental Analysis Branch

FROM: Ron Linville, Regional Coordinator
Habitat Conservation Program

DATE: December 13, 2000

SUBJECT: Preliminary comments for Bridge Replacement Projects
B-3709 (Laurel Fork), B-3710 (Brushy Fork), Watauga County and
B-3808 (Henson), Avery County

This correspondence responds to a request by you for our preliminary review and comments on the referenced proposed bridge projects. Biological staff of the North Carolina Wildlife Resources Commission has generally reviewed the sites and has not identified any special concerns regarding them. Records indicate brown and rainbow trout at both bridges in Watauga County. Henson Creek is a tributary to the North Toe that contains wild rainbow trout populations. As a formal scoping response does not appear to be forthcoming, the following recommendations should be considered during your planning process:

1. Instream work and land disturbance within the 25-foot wide buffer zone are prohibited during the brown and brook trout spawning season of October 15 through March 31 to protect the egg and fry stages of trout from off-site sedimentation during construction.
2. Instream work and land disturbance within the 25-foot wide buffer zone are prohibited during the rainbow trout spawning season of January 1 through April 15 to protect the egg and fry stages of trout.
3. Spanning or bottomless structures are preferred over pipes and culverts. Bridge replacements should be planned and installed so as not to interfere with aquatic life passage and so as not to disrupt the natural geomorphology of the stream channel and floodplain. Whenever possible, new structures should rectify any conditions that preclude either of these processes.
4. Concerning culverts or barrels in trout waters, whenever the receiving barrel is wider than the naturally occurring stream or slopes approach 4 % or flow approaches 2 fps, baffles should be located in the receiving barrel in a manner that will mimic existing natural stream dimensions, patterns and profiles. Please note that receiving barrels of culverts or pipes buried 1 foot below normal streambed

Mailing Address: Division of Inland Fisheries • 1721 Mail Service Center • Raleigh, NC 27699-1721
Telephone: (919) 733-3633 ext. 281 • Fax: (919) 715-7643

level that mimic natural conditions should not interfere with aquatic or fish migration. The barrels should parallel or follow the alignment as the existing channel. The length of barrels should be kept to the absolute minimum unless increased slope would negatively impact aquatic life migration and fish passage. Again, the natural geomorphology of the stream and floodplain should not be permanently affected and should be fully restored upon project completion.

5. If concrete will be used, work must be accomplished so that wet concrete does not contact stream water. This will lessen the chance of altering the stream's water chemistry and causing a fish kill.
6. Sediment and erosion control measures should adhere to the design standards for sensitive watersheds (15A NCAC 4B .0024).
7. Heavy equipment should be operated from the bank rather than in the stream channel in order to minimize sedimentation and reduce the likelihood of introducing other pollutants into the stream.
8. Trees and vegetation within the 25-foot stream buffer zone damaged during construction should be replanted within 5 days of project completion with the same mixture of species existing prior to project initiation.

We are not aware of any Threatened or Endangered species in the immediate vicinity of these bridges; however, we are concerned about potential impacts to listed species downstream in the Toe. Thank you for the opportunity to review and comment during the early stages of this project. If you have any questions regarding these comments, please contact me at 336/366-2982.

Cc: Steve Lund, USACOE

Lisa Warlick

From: Barbara Mulkey
Sent: Thursday, September 21, 2000 4:11 PM
To: Lisa Warlick
Subject: FW: Attn: Lisa Warlick

-----Original Message-----
From: Kin Hodges [mailto:hodgeskb@surry.net]
Sent: Thursday, September 21, 2000 4:03 PM
To: Barbara Mulkey Engineering
Subject: Attn: Lisa Warlick

Lisa-

These comments are in response to your 9/14/00 letter about TIP project #'s 3709 and 3710, involving Laurel Fork Creek and Brushy Fork Creeks, respectively. From previous survey data, Laurel Fork contains both rainbow and brown trout. As such, we will request a moratorium of October 15-April 15 to protect the eggs and fry of both species. Brushy Fork was found to contain rock bass, central stonerollers, bluehead chubs, and northern hogsuckers during a 9/20/00 survey. For this stream, we will request a May 1 through July 15 moratoruim to protect the eggs and fry of the rock bass.

For both projects, we strongly prefer that each bridge be replaced with another bridge to prevent segmentation of upstream and downstream habitats. If culverts must be used, we request that they be buried 1 foot below the substrate so that an air gap does not exist at the downstream end of the culvert. We also prefer that riparian zone disturbance above and below the culvert be kept to a minimum. If you have any further questions, please contact me at (336)374-6446 and I appreciate the opportunity to comment on these projects.

Kin Hodges
District 7 Fisheries Biologist
NC Wildlife Resources Commission

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 11, 2000

MEMORANDUM

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

Through: John Dorney, NC Division of Water Quality

From: Cynthia F. Van Der Wiele cvdw

Subject: Scoping comments on the proposed replacement of Bridge No. 106 on SR 1117 over Brushy Fork in Watauga County, T.I.P. Project B-3710.

This memo is in reference to your correspondence dated December 6, 2000, in which you requested scoping comments for the above project. The DWQ index number for the stream is 8-15-10 and is classified as C 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. 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. Please be aware that trout moratoriums set by the NC Wildlife Resource Commission may apply since the project is located in a trout county.

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.

B-3710

NC DENR - DIVISON OF WATER QUALITY

Alphabetic List of NC Waterbodies

WATAUGA RIVER BASIN

Name of Stream	Subbasin	Stream Index Number	Map Number	Class
Baird Creek	WAT01	8-13	C11NE3	C
Bear Branch	WAT01	8-20-3-1	C11NW3	WS-II
Beaverdam Creek	WAT01	8-19	B11SE7	C Tr
Bee Branch	WAT01	8-22-2-1	C11NE7	C
Bee Tree Creek	WAT01	8-7-6	C11NE9	C ORW
Beech Creek	WAT01	8-20	C11NE1	C Tr
Big Branch	WAT01	8-9	C11NE6	C
Big Branch	WAT01	8-14	C11NE2	C
Blevins Creek	WAT01	8-22-16-2	C11NW8	C Tr
Boone Fork (Price Lake)	WAT01	8-7	C11SE3	C Tr ORW
Brushy Fork	WAT01	8-15-10	C12NW1	C
Buckeye Creek	WAT01	8-20-3-(0.5)	C11NW6	WS-II Tr
Buckeye Creek	WAT01	8-20-3-(1.5)	C11NW3	WS-II Tr CA
Buckeye Creek	WAT01	8-20-3-(2.5)	C11NW3	C Tr
Cannon Branch	WAT01	8-7-5	C12NW7	C ORW
Cannon Branch	WAT01	8-20-3-4	C11NW3	C
Clark Creek	WAT01	8-12-2	C11NE6	C
Clear Branch	WAT01	8-22-11	C11NW9	C
Clingman Mine Branch	WAT01	8-20-3-5	C11NW2	C
Cold Prong	WAT01	8-7-1	C11NE9	C Tr ORW
Cooper Branch	WAT01	8-22-16-1	C11NW7	C
Cornett Branch	WAT01	8-19-3-1	B11SE4	C
Cove Creek	WAT01	8-15	B12SW4	C
Craborchard Creek	WAT01	8-12-3	C11NE5	C Tr
Cranberry Creek	WAT01	8-22-16	C11SW1	C Tr
Curtis Creek	WAT01	8-22-15	C11NW5	C Tr
Dutch Creek	WAT01	8-12-(0.5)	C11NE6	B Tr
Dutch Creek	WAT01	8-12-(1.5)	C11NE6	C Tr
Dutch Creek	WAT01	8-12-(3.5)	C11NE3	B Tr
East Fork Phillips Branch	WAT01	8-15-11-1	B11SE8	C
East Fork Pond Creek	WAT01	8-20-2-2	C11NW6	WS-III Tr
Elk River	WAT01	8-22-(14.5)	C11NW6	B Tr
Elk River (Banner Elk Creek)	WAT01	8-22-(1)	C11NE7	C
Elk River (Mill Pond)	WAT01	8-22-(3)	C11NE7	C Tr
Ellison Branch	WAT01	8-15-1	B11SE6	C Tr
Fall Creek	WAT01	8-22-20	C11NW4	C Tr
Flat Springs Branch	WAT01	8-20-5-1	B11SW8	C
Flattop Creek	WAT01	8-22-2	C11SE1	C
Forest Grove Creek	WAT01	8-19-1	B11SE5	C
Fork Branch	WAT01	8-19-2-2	B11SE5	C
George Branch	WAT01	8-15-10-2	B11SE9	C
George Gap Branch	WAT01	8-15-9	B11SE8	C
Grassy Gap Creek (Grassy Gap Branch)	WAT01	8-20-3-3	C11NW3	C
Green Branch	WAT01	8-7-4	C12NW7	C ORW
Green Ridge Branch	WAT01	8-3	C11SE2	C
Greenbrier Creek	WAT01	8-22-16-2-1	C11NW8	C Tr
Hanging Rock Creek (Elk Creek)	WAT01	8-22-5	C11NE7	C Tr
Harrison Branch	WAT01	8-10-1	C12NW4	C
Hayes Branch	WAT01	8-10-3-1	C11NW1	C
Hoot Camp Branch	WAT01	8-7-3-1	C12NW7	C ORW
Horney Branch (Whitehead Creek)	WAT01	8-22-13	C11NW6	C Tr

J. Harris

Watauga County Board of Education

OFFICE OF THE SUPERINTENDENT
MARGARET E. GRAGG EDUCATION CENTER
P.O. BOX 1790 BOONE N.C. 28607

TEL: (828) 264-7190
FAX: (828) 264-7196

December 15, 2000

NC Department of Transportation
Project Development and Environmental Analysis
1548 Mail Service Center
Raleigh, NC 27669-1548

To Whom It May Concern:

In response to your correspondence concerning projects B-3709 and B-3710, I would like to provide the following information.

Bridge 94 on SR 1111 (Old Danner Rd) is on a road that is not traveled by buses in Watauga County. Closure would have no impact on school operations.

Bridge 106 on SR 1117 (Mast Gap Rd) is crossed five times per day by three buses. Closing this bridge during school operating months would mean that approximately 70 students would have to be re-routed to provide bus service, resulting in significantly longer bus ride times and increased transportation costs. It would be better if this project could be scheduled during non-school months.

If I can provide any further information, please call.

Sincerely,

Toni Parlier

Toni Parlier
Transportation Director

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONVERSION SERVICE

SCS-CPA-106

FARMLAND CONVERSION IMPACT RATING FOR CORRIDOR TYPE PROJECTS

Part I *(To be Completed by Federal Agency)*	3. Date of Land Evaluation Request 12/17/01	4. Sheet 1 of 1
1. Names of Project B-3710	5. Federal Agency Involved NCDOT, FHWA	
2. Type of Project BRIDGE REPLACEMENT	6. County and State Watauga, NC	
PART II *(To be completed by SCS)*	1. Date Request Received by SCS. 2/14/02	2. Person Completing Form Coy McKenzie

3. Does the corridor contain prime unique statewide or local important farmland? Yes ____ (If no the FPPA does not apply – Do not complete additional parts of this form No____	4. Acres Irrigated 0	Average Farm Size 84
5. Major Crop(s) Trees & Urban	6. Farmable Land in Government Jurisdiction: 8336	7. Amount of Farmland As Defined in FPPA 13601
8. Name of Land Evaluation System Used LESA	9. Name of Local Site Assessment System	10. Date Land Evaluation Returned by SCS 4/12/02

PART III *(To be completed by Federal Agency)*	Maximum Points	Alternative Corridor for Segment			
		Corridor A	Corridor B	Corridor C	Corridor D
A. Total Acres to be Converted Directly		0.33	0.36	0.06	0.06
B. Total Acres to be Converted Indirectly or to Receive Services					
C. Total Acres in Corridor		0.33	0.36	0.06	0.06
PART IV *(To be completed by SCS)* Land Evaluation Information					
A. Total Acres Prime and Unique Farmland		.33	.36	.06	.06
B. Total Acres Statewide and Local Important Farmland		0	0	0	0
C. Percentage of Farmland in County or Local Govt. Unit to be Converted		.0000395	.0000431	.0000071	.0000071
D. Percentage of Farmland in Govt. Jurisdiction with Same or Higher Relative Value		14	14	14	14
PART V *(To be completed by SCS)* Land Evaluation Criterion Relative Value of Farmland to be Serviced or Converted (Scale of 0-100 Points)		90	90	90	90
PART VI *(To be completed by Federal Agency)* Corridor Assessment Criteria (These criteria are explained in 7 CFR 658.5(c))	Maximum Points				
1. Area in Nonurban Use	15	14	14	14	14
2. Perimeter in Nonurban Use	10	10	10	10	10
3. Percent of Corridor Being Farmed	20	5	5	0	0
4. Protection Provided by State and Local Government	20	0	0	0	0
5. Size of Present Farm Unit Compared to Average	10	0	0	0	0
6. Creation of Nonfarmable Farmland	25	0	0	0	0
7. Availability of Farm Support Services	5	4	4	4	4
8. On-Farm Investments	20	0	0	0	0
9. Effects of Conversion On Farm Support Services	25	0	0	0	0
10. Compatibility with Existing Agricultural Use	10	0	0	0	0
TOTAL CORRIDOR ASSESSMENT POINTS	160	33	33	28	28
PART VII *(To be completed by Federal Agency)*					
Relative Value of Farmland (From Part V)	100	90	90	90	90
Total Corridor Assessment (Form Part VI above or a local site assessment)	160	33	33	28	28
TOTAL POINTS (Total of above 2 lines)	260	123	123	118	118

1. Corridor Selected: Corridor A	2. Total Acres of Farmlands to be Converted by Project: 0.36	3. Date of Selection: 9/13/2001	4. Was a Local Site Assessment Used? Yes____ No X

5. Reason for Selection:

Corridor A improves the existing alignment and is easier to construct.

Signature of Person Completing this Part:	Date 4/16/02

NOTE: Complete a form for each segment with more than one Alternative Corridor