STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

December 28, 2007

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

ATTENTION: Mr. David Baker
NCDOT Coordinator

SUBJECT: Application for **Nationwide Permit 23 and 33 and Section 401 Water Quality Certification** for the proposed replacement of Bridge No. 26 over the Linville River on NC 183 in Burke County, Division 13, Federal Aid Project No. BRSTP-0183(1), State Project No. 8.1852001, WBS Element 33404.1.1, **TIP No. B-4038**. $570 Debit work order 8.1852001, WBS Element 33404.1.1.

Dear Sir:

Please see the enclosed PCN, Ecosystem Enhancement Program mitigation acceptance letter, Jurisdictional Determination form (JD), permit drawings and design plans. A Categorical Exclusion and Construction Consultation were completed for this project in January 2007 and August 2007 respectively, and distributed shortly thereafter. Additional copies are available upon request. NCDOT proposes to replace the existing 213 foot long Bridge No. 26 with a new bridge approximately 30 feet to the west of the current location. The proposed new structure will span 185 feet. There will be 160 linear feet of permanent impacts and 0.15 acres of temporary impacts incurred from the construction of this project. Traffic will be maintained on the existing bridge during construction.

IMPACTS TO WATERS OF THE UNITED STATES

General Description:
The water resources on project B-4038 include the Linville River and a UT to the Linville River. The Linville River is located in the Catawba River Basin (Division of Water Quality (DWQ)) subbasin 03-08-30. The DWQ Index number for the Linville River and its UT is 11-29-(4.5) and the Hydrological Cataloguing Unit is 03050101.

The North Carolina Department of Environmental and Natural Resources classifies the Linville River as B-Tr. There are no High Quality Waters (HQW), Water Supplies (WS-I or WSII), or

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

TELEPHONE: 919-733-3141
FAX: 919-715-1501

WEBSITE: WWW.NCDOT.ORG

LOCATION:
PARKER LINCOLN BUILDING,
2728 CAPITAL BLVD., SUITE 240
RALEIGH NC 27604

Outstanding Resource Waters (ORW) within 1.0 mile of the project study area. The Linville River does not appear on the North Carolina DWQ 303(d) List (updated 2006). The JD form for the Linville River has been provided with this application, so that the USACE can issue a verification. There are no anticipated impacts to jurisdictional wetlands within the project study area.

Permanent Impacts:
There will be 160 linear feet of permanent channel impacts to an unnamed tributary to the Linville River as depicted on the permit drawing, site 1. These impacts are associated with installing three 66" reinforced concrete pipes. The length of the pipes is necessary due to the angle of the UT in relation to the roadway design and bridge approach.

Temporary Impacts:
There will be 0.13 acre of temporary impacts associated with installing 3 causeways for construction access, as depicted on the permit drawing, site 2. The two causeways installed on either side of the river to remove the existing bridge will not be installed at the same time. The causeway installed to build the new bridge will not take up over 50 % of the river. Additionally, there will be 0.02 acre of temporary impacts for the installation of the above-mentioned pipes.

Utility Impacts:
There will be no jurisdictional impacts associated with relocation of utility lines on the project site.

Bridge Demolition
The bridge superstructure consists of a reinforced concrete deck on concrete girders. The bridge has five spans and totals 213 feet in length. The end bents consist of reinforced concrete caps on H-piles while the interior bents are reinforced posts and beams. There is potential for three spans of the concrete deck and two of the interior bents to be dropped into the Linville River during demolition and removal. The maximum potential temporary fill associated with the removal of the bridge is approximately 174 cubic yards.

PROJECT SCHEDULE

The project schedule calls for an April 15, 2008 let date with a review date of February 26, 2008.

FEDERALLY PROTECTED SPECIES

Plants and animals with federal classifications 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. As of November 5, 2007, the United States Fish and Wildlife Service (USFWS) lists six federally protected species for Burke County (Table 1). The biological conclusion for the six listed species is No Effect. It should be noted that the Bald Eagle was previously listed as "Threatened", however it was delisted August 8, 2007.

Table 1. Federally Protected Species for Burke County.

COMMON NAME	SCIENTIFIC NAME	STATUS	HABITAT	BIOLOGICAL CONCLUSIO N
Bog turtle	*Clemmys muhlenbergii*	T(S/A)	No	N/A
Bald eagle	*Haliaeetus leucocephalus*	Delisted	No	N/A
Spreading avens	*Geum radiatum*	E	No	No Effect
Dwarf-flowered heartleaf	*Hexastylis naniflora*	T	Yes	No Effect
Mountain golden-heather	*Hudsonia montana*	T	No	No Effect
Small-whorled pagonia	*Isotria medeoloides*	T	Yes	No Effect
Heller's blazing star	*Liatris helleri*	T	No	No Effect

The bald eagle has been delisted from the Endangered Species Act as of August 8, 2007. It is still protected under the Bald and Golden Eagle Protection Act. A survey was conducted in July 2001. No suitable habitat was observed.

AVOIDANCE, MINIMIZATION AND MITIGATION

Avoidance and Minimization:
Avoidance examines all appropriate and practicable possibilities of averting impacts to "Waters of the United States." The NCDOT is committed to incorporating all reasonable and practicable design features to avoid and minimize jurisdictional stages; minimization measures were incorporated as part of the project design. The use of best management practices for construction should reduce impacts to plant communities. The following avoidance and minimization measures will apply to this project.

- The new bridge will span the Linville River.
- During construction, traffic will be maintained on the existing bridge.
- Water will not be directly discharged into the Linville River via deck drains.
- 2:1 slopes will be used at the culvert for minimization.
- The NCDOT will observe a moratorium on in-water work between October 15 to April 15 for wild Brown Trout.
- The NCWRC Design Standards for Sensitive Watersheds will be implemented for this project.

In addition, Best Management Practices will be followed as outlined in "NCDOT's Best Management Practices for Construction and Maintenance Activities".

Compensatory Mitigation:
Mitigation for 160 linear feet of permanent impacts to an Unnamed Tributary to the Linville River will be provided by the Ecosystem Enhancement Program (see enclosed letter).

REGULATORY APPROVALS

Section 404 Permit:
It is anticipated that the temporary causeway will be authorized under Section 404 Nationwide Permit 33 (Temporary Construction Access and Dewatering). We are, therefore, requesting the issuance of a Nationwide Permit 33. All other aspects of this project are being processed by the Federal Highway Administration as a "Categorical Exclusion". The NCDOT requests that these activities be authorized by a Nationwide Permit 23.

Section 401 Permit:
We anticipate 401 General Certification numbers 3701 and 3688 will apply to this project. We are hereby requesting a water quality certification from DWQ. **The NCDOT is asking that concurrence on the NC State Stormwater permit be included in the Section 401 Certification for TIP B-4038**. We are submitting five copies of this application to the North Carolina Department of Environmental and Natural Resources, Division of Water Quality, for their review and approval.

This project is located in a trout county; therefore 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 and the NCDOT within 30 calendar days of receipt of this application.

Thank you for your assistance with this project. If you have any questions or need additional information, please contact Jeremy T. Leamer at jtleamer@dot.state.nc.us or (919) 715-7726.

Sincerely,

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

W/attachment
Mr. Brian Wrenn, NCDWQ (5 Copies)
Ms. Marella Buncick, USFWS
Ms. Marla Chambers, NCWRC

W/o attachment (see website for attachments)
Dr. David Chang, P.E., Hydraulics
Mr. Victor Barbour, P.E., Project Services Unit
Mr. Greg Perfetti, P.E., Structure Design
Mr. Mark Staley, Roadside Environmental
Mr. J.J. Swain, P.E., Div. 13 Division Engineer
Mr. Roger Bryan, Div. 13 DEO
Mr. Jay Bennett, P.E., Roadway Design
Mr. Majed Alghandour, P.E., Program. and TIP
Mr. Art McMillan, P.E., Highway Design
Mr. Scott McLendon, USACE, Wilmington
Ms. Beth Harmon, EEP
Mr. Todd Jones, NCDOT External Audit Branch
Ms. Natalie Lockheart, PDEA Engineer

Office Use Only: Form Version March 05

USACE Action ID No. _____ **DWQ No.** _____

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

I. Processing

1. Check all of the approval(s) requested for this project:
   - x Section 404 Permit
   - ☐ Section 10 Permit
   - x 401 Water Quality Certification
   - ☐ Riparian or Watershed Buffer Rules
   - ☐ Isolated Wetland Permit from DWQ
   - ☐ Express 401 Water Quality Certification

2. Nationwide, Regional or General Permit Number(s) Requested: 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 Ecosystem Enhancement Program (NCEEP) is proposed for mitigation of impacts, attach the acceptance letter from NCEEP, complete section VIII, and check here: x

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

II. Applicant Information

1. Owner/Applicant Information
   Name: Gregory J. Thorpe, Ph.D., Environmental Management Director
   Mailing Address: NC DOT - PDEA
   1598 Mail Service Center, Raleigh, NC 27699-1548
   Telephone Number: (919) 733-3141 Fax Number: (919) 733-9794
   E-mail Address: _____

2. Agent/Consultant Information (A signed and dated copy of the Agent Authorization letter must be attached if the Agent has signatory authority for the owner/applicant.)
   Name: _____
   Company Affiliation: _____
   Mailing Address: _____
   Telephone Number: _____ Fax Number: _____
   E-mail Address: _____

III. Project Information

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

1. Name of project: N/A

2. T.I.P. Project Number or State Project Number (NCDOT Only): **B-4038**

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

4. Location
   County: Burke Nearest Town: Morganton
   Subdivision name (include phase/lot number):
   Directions to site (include road numbers/names, landmarks, etc.):
   Bridge # 26 On NC 183 over the Linville River.

5. Site coordinates (For linear projects, such as a road or utility line, attach a sheet that separately lists the coordinates for each crossing of a distinct waterbody.)
   One water body:
   Decimal Degrees (6 digits minimum): 1133123.5 °N 816439.4 °W

6. Property size (acres): N/A

7. Name of nearest receiving body of water: Catawba River

8. River Basin: Catawba
   (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: Bridge No. 26 is located 0.6 miles east of the junction with SR on NC 183, near the town of Linville Falls. The bridge was constructed in 1953 and is

currently not posted to restrict weight limits. NC 183 is classified as a rural major collector in the Statewide Functional Classification System.

10. Describe the overall project in detail, including the type of equipment to be used:
Bridge replacement project involving heavy construction equipment and manual labor.

11. Explain the purpose of the proposed work: Public transportation improvement project.

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. No prior permits have been issued/ withdrawn for this project.

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. Each impact must be listed separately in the tables below (e.g., culvert installation should be listed separately from riprap dissipater pads). Be sure to indicate if an impact is temporary. All proposed impacts, permanent and temporary, must be listed, and must be labeled and clearly identifiable on an accompanying site plan. All wetlands and waters, and all streams (intermittent and perennial) should be shown on a delineation map, whether or not impacts are proposed to these systems. Wetland and stream evaluation and delineation forms should be included as appropriate. Photographs may be included at the applicant's discretion. If this proposed impact is strictly for wetland or stream mitigation, list and describe the impact in Section VIII below. If additional space is needed for listing or description, please attach a separate sheet.

1. Provide a written description of the proposed impacts: There will be 160 linear feet of permanent surface water impacts associated with the bridge construction. Temporary access via causeway for construction will result in 132 linear feet of surface water impacts.

2. Individually list wetland impacts. Types of impacts include, but are not limited to mechanized clearing, grading, fill, excavation, flooding, ditching/drainage, etc. For dams, separately list impacts due to both structure and flooding.

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

3. List the total acreage (estimated) of all existing wetlands on the property: 0

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

Stream Impact Number (indicate on map)	Stream Name	Type of Impact	Perennial or Intermittent?	Average Stream Width Before Impact	Impact Length (linear feet)	Area of Impact (acres)
Station 17+00/18+00	Linville River	permanent	perennial	12'	160	0.07
Station 21+70/23+55	Linville River	temporary	perennial	12'	132	0.13
Total Stream Impact (by length and acreage)					292	0.20

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

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

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

Stream Impact (acres):	0.22
Wetland Impact (acres):	N/A
Open Water Impact (acres):	N/A
Total Impact to Waters of the U.S. (acres) Permanent	0.07
Total Impact to Waters of the U.S. (acres) Temporary	0.15
Total Stream Impact (linear feet):	292

7. Isolated Waters
   Do any isolated waters exist on the property? ☐ Yes x No
   Describe all impacts to isolated waters, and include the type of water (wetland or stream) and the size of the proposed impact (acres or linear feet). Please note that this section only applies to waters that have specifically been determined to be isolated by the USACE.

   _____

   _____

8. Pond Creation
   If construction of a pond is proposed, associated wetland and stream impacts should be included above in the wetland and stream impact sections. Also, the proposed pond should be described here and illustrated on any maps included with this application.
   Pond to be created in (check all that apply): ☐ uplands ☐ stream ☐ wetlands
   Describe the method of construction (e.g., dam/embankment, excavation, installation of draw-down valve or spillway, etc.):_____
   Proposed use or purpose of pond (e.g., livestock watering, irrigation, aesthetic, trout pond, local stormwater requirement, etc.):_____
   Current land use in the vicinity of the pond:_____
   Size of watershed draining to pond:_____ Expected pond surface area:_____

VII. Impact Justification (Avoidance and Minimization)

Specifically describe measures taken to avoid the proposed impacts. It may be useful to provide information related to site constraints such as topography, building ordinances, accessibility, and financial viability of the project. The applicant may attach drawings of alternative, lower-impact site layouts, and explain why these design options were not feasible. Also discuss how impacts were minimized once the desired site plan was developed. If applicable, discuss construction techniques to be followed during construction to reduce impacts. Alternative A was not chosen because it is a "replace in place" tactic with a lengthy 17 mile detour. NC 183 is too important as an emergency route. Alternative B was considered but not chosen due to having a higher cost

and because of the moratorium constraints for construction. Alternate C was selected as the preferred alternative because it allows for the existing road to remain open and has lower associated construction costs. The "do-nothing" alternative was not considered due to it eliminating the use of NC 183 and closing the bridge. Impacts will be minimized by constructing a bridge that spans the Linville River and surficial bridge runoff will not be directed into the River via deck drains.

VIII. Mitigation

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

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

If mitigation is required for this project, a copy of the mitigation plan must be attached in order for USACE or DWQ to consider the application complete for processing. Any application lacking a required mitigation plan or NCEEP concurrence shall be placed on hold as incomplete. An applicant may also choose to review the current guidelines for stream restoration in DWQ's Draft Technical Guide for Stream Work in North Carolina (see DWQ website for most current version.).

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.

   TBD

2. Mitigation may also be made by payment into the North Carolina Ecosystem Enhancement Program (NCEEP). Please note it is the applicant's responsibility to contact the NCEEP at (919) 715-0476 to determine availability, and written approval from the NCEEP indicating that they are will to accept payment for the mitigation must be attached to this form. For additional information regarding the application process for the NCEEP, check the NCEEP website at http://www.nceep.net/pages/inlieureplace.htm. If use of the NCEEP is proposed, please check the appropriate box on page five and provide the following information:

   Amount of stream mitigation requested (linear feet): 160
   Amount of buffer mitigation requested (square feet): _____
   Amount of Riparian wetland mitigation requested (acres): _____
   Amount of Non-riparian wetland mitigation requested (acres): _____
   Amount of Coastal wetland mitigation requested (acres): _____

IX. Environmental Documentation (required by DWQ)

1. Does the project involve an expenditure of public (federal/state/local) funds or the use of public (federal/state) land? Yes x No ☐

2. If yes, does the project require preparation of an environmental document pursuant to the requirements of the National or North Carolina Environmental Policy Act (NEPA/SEPA)? Note: If you are not sure whether a NEPA/SEPA document is required, call the SEPA coordinator at (919) 733-5083 to review current thresholds for environmental documentation. Yes x - A Categorical Exclusion dated January 2007 has been submitted. No ☐

3. If yes, has the document review been finalized by the State Clearinghouse? If so, please attach a copy of the NEPA or SEPA final approval letter. Yes x No ☐

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

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

1. Will the project impact protected riparian buffers identified within 15A NCAC 2B .0233 (Neuse), 15A NCAC 2B .0259 (Tar-Pamlico), 15A NCAC 02B .0243 (Catawba) 15A NCAC 2B .0250 (Randleman Rules and Water Supply Buffer Requirements), or other (please identify_____)? Yes ☐ No x

2. If "yes", identify the square feet and acreage of impact to each zone of the riparian buffers. If buffer mitigation is required calculate the required amount of mitigation by applying the buffer multipliers.

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

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

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

XI. Stormwater (required by DWQ)

Describe impervious acreage (existing and proposed) versus total acreage on the site. Discuss stormwater controls proposed in order to protect surface waters and wetlands downstream from the property. If percent impervious surface exceeds 20%, please provide calculations demonstrating total proposed impervious level. Impervious acreage is not expected to significantly increase as a result of this bridge replacement project. Deck drains will not be used.

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 x

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

XIV. Cumulative Impacts (required by DWQ)

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

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

XV. Other Circumstances (Optional):

It is the applicant's responsibility to submit the application sufficiently in advance of desired construction dates to allow processing time for these permits. However, an applicant may choose to list constraints associated with construction or sequencing that may impose limits on work schedules (e.g., draw-down schedules for lakes, dates associated with Endangered and Threatened Species, accessibility problems, or other issues outside of the applicant's control).
There is a moratorium for in-stream work for wild Brown Trout from October 15 to April 15.

E. L. Lusk 12-31-07

Applicant/Agent's Signature **Date**

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

Ecosystem Enhancement PROGRAM

December 10, 2007

Mr. Gregory J. Thorpe, Ph.D.
Environmental Management Director
Project Development and Environmental Analysis Branch
North Carolina Department of Transportation
1548 Mail Service Center
Raleigh, North Carolina 27699-1548

Dear Dr. Thorpe:

Subject: EEP Mitigation Acceptance Letter:

B-4038, Replace Bridge Number 26 on NC 183 over the Linville River, Burke County

The purpose of this letter is to notify you that the Ecosystem Enhancement Program (EEP) will provide the compensatory stream mitigation for the subject project. Based on the information supplied by you on December 6, 2007, the impacts are located in CU 03050101 of the Catawba River Basin in the Northern Mountains (NM) Eco-Region, and are as follows:

Cold Stream: 160 feet

During the review of this request, it was noted that this project did not include any wetland or stream impacts in the 2007 Impact Projection Database; however, EEP will provide the requested stream mitigation. Depending on the availability and projected need of stream mitigation in this cataloging unit, additional stream mitigation may be required that was not included in the biennial budget submitted to NCDOT on September 18, 2007.

EEP commits to implementing sufficient compensatory stream mitigation to offset the impacts associated with this project by the end of the MOA Year in which this project is permitted, in accordance with Section X of the Amendment No. 2 to the Memorandum of Agreement between the North Carolina Department of Environment and Natural Resources, the North Carolina Department of Transportation, and the U. S. Army Corps of Engineers, fully executed on March 8, 2007. If the above referenced impact

amounts are revised, then this mitigation acceptance letter will no longer be valid and a new mitigation acceptance letter will be required from EEP.

If you have any questions or need additional information, please contact Ms. Beth Harmon at 919-715-1929.

Sincerely,

James B. Stanfill for

William D. Gilmore, P.E.
EEP Director

cc: Mr. David Baker, USACE – Asheville
Mr. Brian Wrenn, Division of Water Quality, Wetlands/401 Unit
File: B-4038

Ecosystem Enhancement
PROGRAM

December 10, 2007

Mr. David Baker
U. S. Army Corps of Engineers
Asheville Regulatory Field Office
151 Patton Avenue, Room 208
Asheville, North Carolina 28801-5006

Dear Mr. Baker:

Subject: EEP Mitigation Acceptance Letter:

B-4038, Replace Bridge Number 26 on NC 183 over the Linville River, Burke County; Catawba River Basin (Cataloging Unit 03050101); Northern Mountains (NM) Eco-Region

The purpose of this letter is to notify you that the Ecosystem Enhancement Program (EEP) will provide the stream mitigation for the unavoidable impact associated with the above referenced project. As indicated in the NCDOT's mitigation request dated December 6, 2007, stream mitigation from EEP is required for approximately 160 feet of cold stream impacts.

Stream mitigation associated with this project will be provided in accordance with Section X of the Amendment No. 2 to the Memorandum of Agreement between the N. C. Department of Environment and Natural Resources, the N. C. Department of Transportation, and the U. S. Army Corps of Engineers fully executed on March 8, 2007 (Tri-Party MOA). EEP commits to implement sufficient stream mitigation up to 320 stream mitigation credits to offset the impacts associated with this project by the end of the MOA year in which this project is permitted. If the above referenced impact amounts are revised, then this mitigation acceptance letter will no longer be valid and a new mitigation acceptance letter will be required from EEP.

If you have any questions or need additional information, please contact Ms. Beth Harmon at 919-715-1929.

Sincerely,

James B. Stanfill for

William D. Gilmore, P.E.
EEP Director

cc: Mr. Gregory J. Thorpe, Ph.D., NCDOT-PDEA
Mr. Brian Wrenn, Division of Water Quality, Wetlands/401 Unit
File: B-4038

APPROVED JURISDICTIONAL DETERMINATION FORM
U.S. Army Corps of Engineers

This form should be completed by following the instructions provided in Section IV of the JD Form Instructional Guidebook.

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD):

B. DISTRICT OFFICE, FILE NAME, AND NUMBER: B-4038 (Replacement of Bridge 26 on NC 183 over the Linville River)

C. PROJECT LOCATION AND BACKGROUND INFORMATION:
State:NC County/parish/borough: Burke City: Morganton
Center coordinates of site (lat/long in degree decimal format): Lat. 34'53'54'° N, Long. -82'10'51'° W.
Universal Transverse Mercator:
Name of nearest waterbody: Linville River
Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: Linville River
Name of watershed or Hydrologic Unit Code (HUC): 03050101
☒ Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.
☐ Check if other sites (e.g., offsite mitigation sites, disposal sites, etc…) are associated with this action and are recorded on a different JD form.

D. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):
☒ Office (Desk) Determination. Date: 12/6/2007
☒ Field Determination. Date(s): 8/21/2007

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION.

There **Are** "*navigable waters of the U.S.*" within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area. [*Required*]
☐ Waters subject to the ebb and flow of the tide.
☒ Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce. Explain: The Linville River is navigable and continuous from the project site to Lake James. There are regular whitewater kayak trips that run this stretch year-round.

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There **Are** "*waters of the U.S.*" within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area. [*Required*]

1. **Waters of the U.S.**
   a. **Indicate presence of waters of U.S. in review area (check all that apply):** [1]
      ☒ TNWs, including territorial seas
      ☐ Wetlands adjacent to TNWs
      ☐ Relatively permanent waters[2] (RPWs) that flow directly or indirectly into TNWs
      ☐ Non-RPWs that flow directly or indirectly into TNWs
      ☐ Wetlands directly abutting RPWs that flow directly or indirectly into TNWs
      ☐ Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs
      ☐ Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs
      ☐ Impoundments of jurisdictional waters
      ☐ Isolated (interstate or intrastate) waters, including isolated wetlands

   b. **Identify (estimate) size of waters of the U.S. in the review area:**
      Non-wetland waters: 900 linear feet: 12 width (ft) and/or acres.
      Wetlands: acres.

   c. **Limits (boundaries) of jurisdiction** based on: **Not Applicable.**
      Elevation of established OHWM (if known): .

2. **Non-regulated waters/wetlands (check if applicable):**[3]
   ☐ Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional. Explain: .

[1] Boxes checked below shall be supported by completing the appropriate sections in Section III below.
[2] For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).
[3] Supporting documentation is presented in Section III.F.

SECTION III: CWA ANALYSIS

A. TNWs AND WETLANDS ADJACENT TO TNWs

The agencies will assert jurisdiction over TNWs and wetlands adjacent to TNWs. If the aquatic resource is a TNW, complete Section III.A.1 and Section III.D.1. only; if the aquatic resource is a wetland adjacent to a TNW, complete Sections III.A.1 and 2 and Section III.D.1.; otherwise, see Section III.B below.

1. **TNW**
   Identify TNW: **Linville River.**

   Summarize rationale supporting determination: The Linville River is navigable and continious from the project site through to Lake James. There is regular whitewater kayaking along this stretch of the river.

2. **Wetland adjacent to TNW**
   Summarize rationale supporting conclusion that wetland is "adjacent": .

B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):

This section summarizes information regarding characteristics of the tributary and its adjacent wetlands, if any, and it helps determine whether or not the standards for jurisdiction established under *Rapanos* have been met.

The agencies will assert jurisdiction over non-navigable tributaries of TNWs where the tributaries are "relatively permanent waters" (RPWs), i.e. tributaries that typically flow year-round or have continuous flow at least seasonally (e.g., typically 3 months). A wetland that directly abuts an RPW is also jurisdictional. If the aquatic resource is not a TNW, but has year-round (perennial) flow, skip to Section III.D.2. If the aquatic resource is a wetland directly abutting a tributary with perennial flow, skip to Section III.D.4.

A wetland that is adjacent to but that does not directly abut an RPW requires a significant nexus evaluation. Corps districts and EPA regions will include in the record any available information that documents the existence of a significant nexus between a relatively permanent tributary that is not perennial (and its adjacent wetlands if any) and a traditional navigable water, even though a significant nexus finding is not required as a matter of law.

If the waterbody[4] is not an RPW, or a wetland directly abutting an RPW, a JD will require additional data to determine if the waterbody has a significant nexus with a TNW. If the tributary has adjacent wetlands, the significant nexus evaluation must consider the tributary in combination with all of its adjacent wetlands. This significant nexus evaluation that combines, for analytical purposes, the tributary and all of its adjacent wetlands is used whether the review area identified in the JD request is the tributary, or its adjacent wetlands, or both. If the JD covers a tributary with adjacent wetlands, complete Section III.B.1 for the tributary, Section III.B.2 for any onsite wetlands, and Section III.B.3 for all wetlands adjacent to that tributary, both onsite and offsite. The determination whether a significant nexus exists is determined in Section III.C below.

1. **Characteristics of non-TNWs that flow directly or indirectly into TNW**

   (i) General Area Conditions:
   Watershed size: **square miles**
   Drainage area: **square miles**
   Average annual rainfall: inches
   Average annual snowfall: inches

   (ii) Physical Characteristics:
   (a) Relationship with TNW:
   ☐ Tributary flows directly into TNW.
   ☐ Tributary flows through **10 (or more)** tributaries before entering TNW.

   Project waters are **30 (or more)** river miles from TNW.
   Project waters are **1 (or less)** river miles from RPW.
   Project waters are **30 (or more)** aerial (straight) miles from TNW.
   Project waters are **1 (or less)** aerial (straight) miles from RPW.
   Project waters cross or serve as state boundaries. Explain: .

   Identify flow route to TNW[5]: .

---

[4] Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.

[5] Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.

Tributary stream order, if known: .

(b) General Tributary Characteristics (check all that apply):

Tributary is:
- ☐ Natural
- ☐ Artificial (man-made). Explain: .
- ☐ Manipulated (man-altered). Explain: .

Tributary properties with respect to top of bank (estimate):
- Average width: feet
- Average depth: feet
- Average side slopes: **Vertical (1:1 or less).**

Primary tributary substrate composition (check all that apply):
- ☐ Silts
- ☐ Sands
- ☐ Concrete
- ☐ Cobbles
- ☐ Gravel
- ☐ Muck
- ☐ Bedrock
- ☐ Vegetation. Type/% cover:
- ☐ Other. Explain: .

Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain: .
Presence of run/riffle/pool complexes. Explain: .
Tributary geometry: **Relatively straight**
Tributary gradient (approximate average slope): %

(c) Flow:

Tributary provides for: **Intermittent but not seasonal flow**
Estimate average number of flow events in review area/year: **20 (or greater)**
Describe flow regime: .
Other information on duration and volume: .

Surface flow is: **Discrete and confined.** Characteristics: .

Subsurface flow: **Unknown**. Explain findings: .
- ☐ Dye (or other) test performed: .

Tributary has (check all that apply):
- ☐ Bed and banks
- ☐ OHWM[6] (check all indicators that apply):
  - ☐ clear, natural line impressed on the bank
  - ☐ changes in the character of soil
  - ☐ shelving
  - ☐ vegetation matted down, bent, or absent
  - ☐ leaf litter disturbed or washed away
  - ☐ sediment deposition
  - ☐ water staining
  - ☐ other (list):
  - ☐ the presence of litter and debris
  - ☐ destruction of terrestrial vegetation
  - ☐ the presence of wrack line
  - ☐ sediment sorting
  - ☐ scour
  - ☐ multiple observed or predicted flow events
  - ☐ abrupt change in plant community
- ☐ Discontinuous OHWM.[7] Explain: .

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction (check all that apply):
- ☒ High Tide Line indicated by:
  - ☐ oil or scum line along shore objects
  - ☐ fine shell or debris deposits (foreshore)
  - ☐ physical markings/characteristics
  - ☐ tidal gauges
  - ☐ other (list):
- ☒ Mean High Water Mark indicated by:
  - ☐ survey to available datum;
  - ☐ physical markings;
  - ☐ vegetation lines/changes in vegetation types.

(iii) Chemical Characteristics:

Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).
Explain: .
Identify specific pollutants, if known: .

---

[6]A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.
[7]Ibid.

(iv) Biological Characteristics. Channel supports (check all that apply):

- ☐ Riparian corridor. Characteristics (type, average width): .
- ☐ Wetland fringe. Characteristics: .
- ☐ Habitat for:
  - ☐ Federally Listed species. Explain findings: .
  - ☐ Fish/spawn areas. Explain findings: .
  - ☐ Other environmentally-sensitive species. Explain findings: .
  - ☐ Aquatic/wildlife diversity. Explain findings: .

2. Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW

(i) Physical Characteristics:

(a) General Wetland Characteristics:

Properties:

Wetland size: acres

Wetland type. Explain: .

Wetland quality. Explain: .

Project wetlands cross or serve as state boundaries. Explain: .

(b) General Flow Relationship with Non-TNW:

Flow is: **Intermittent flow**. Explain: .

Surface flow is: **Discrete and confined**

Characteristics: .

Subsurface flow: **Unknown**. Explain findings: .

- ☐ Dye (or other) test performed: .

(c) Wetland Adjacency Determination with Non-TNW:

- ☐ Directly abutting
- ☐ Not directly abutting
  - ☐ Discrete wetland hydrologic connection. Explain: .
  - ☐ Ecological connection. Explain: .
  - ☐ Separated by berm/barrier. Explain: .

(d) Proximity (Relationship) to TNW

Project wetlands are **30 (or more)** river miles from TNW.

Project waters are **30 (or more)** aerial (straight) miles from TNW.

Flow is from: **Wetland to/from navigable waters.**

Estimate approximate location of wetland as within the **500-year or greater** floodplain.

(ii) Chemical Characteristics:

Characterize wetland system (e.g., water color is clear, brown, oil film on surface; water quality; general watershed characteristics; etc.). Explain: .

Identify specific pollutants, if known: .

(iii) Biological Characteristics. Wetland supports (check all that apply):

- ☐ Riparian buffer. Characteristics (type, average width): .
- ☐ Vegetation type/percent cover. Explain: .
- ☐ Habitat for:
  - ☐ Federally Listed species. Explain findings: .
  - ☐ Fish/spawn areas. Explain findings: .
  - ☐ Other environmentally-sensitive species. Explain findings: .
  - ☐ Aquatic/wildlife diversity. Explain findings: .

3. Characteristics of all wetlands adjacent to the tributary (if any)

All wetland(s) being considered in the cumulative analysis: **30 (or more)**

Approximately ( ) acres in total are being considered in the cumulative analysis.

For each wetland, specify the following:

Directly abuts? (Y/N)	Size (in acres)	Directly abuts? (Y/N)	Size (in acres)

Summarize overall biological, chemical and physical functions being performed: .

C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Draw connections between the features documented and the effects on the TNW, as identified in the *Rapanos* Guidance and discussed in the Instructional Guidebook. Factors to consider include, for example:

- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to carry pollutants or flood waters to TNWs, or to reduce the amount of pollutants or flood waters reaching a TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), provide habitat and lifecycle support functions for fish and other species, such as feeding, nesting, spawning, or rearing young for species that are present in the TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to transfer nutrients and organic carbon that support downstream foodwebs?
- Does the tributary, in combination with its adjacent wetlands (if any), have other relationships to the physical, chemical, or biological integrity of the TNW?

Note: the above list of considerations is not inclusive and other functions observed or known to occur should be documented below:

1. **Significant nexus findings for non-RPW that has no adjacent wetlands and flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary itself, then go to Section III.D: .

2. **Significant nexus findings for non-RPW and its adjacent wetlands, where the non-RPW flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: .

3. **Significant nexus findings for wetlands adjacent to an RPW but that do not directly abut the RPW.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: .

D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE (CHECK ALL THAT APPLY):

1. **TNWs and Adjacent Wetlands.** Check all that apply and provide size estimates in review area:
   - ☒ TNWs: 900 linear feet 12 width (ft), Or, acres.
   - ☐ Wetlands adjacent to TNWs: acres.

2. **RPWs that flow directly or indirectly into TNWs.**
   - ☐ Tributaries of TNWs where tributaries typically flow year-round are jurisdictional. Provide data and rationale indicating that tributary is perennial: .
   - ☐ Tributaries of TNW where tributaries have continuous flow "seasonally" (e.g., typically three months each year) are jurisdictional. Data supporting this conclusion is provided at Section III.B. Provide rationale indicating that tributary flows seasonally: .

Provide estimates for jurisdictional waters in the review area (check all that apply):
- ☐ Tributary waters: linear feet width (ft).
- ☐ Other non-wetland waters: acres.
  Identify type(s) of waters: .

3. **Non-RPWs[8] that flow directly or indirectly into TNWs.**
   ☐ Waterbody that is not a TNW or an RPW, but flows directly or indirectly into a TNW, and it has a significant nexus with a TNW is jurisdictional. Data supporting this conclusion is provided at Section III.C.

   Provide estimates for jurisdictional waters within the review area (check all that apply):
   - ☐ Tributary waters: linear feet width (ft).
   - ☐ Other non-wetland waters: acres.
     Identify type(s) of waters: .

4. **Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.**
   ☐ Wetlands directly abut RPW and thus are jurisdictional as adjacent wetlands.
   - ☐ Wetlands directly abutting an RPW where tributaries typically flow year-round. Provide data and rationale indicating that tributary is perennial in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: .

   - ☐ Wetlands directly abutting an RPW where tributaries typically flow "seasonally." Provide data indicating that tributary is seasonal in Section III.B and rationale in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: .

   Provide acreage estimates for jurisdictional wetlands in the review area: acres.

5. **Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs.**
   ☐ Wetlands that do not directly abut an RPW, but when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisidictional. Data supporting this conclusion is provided at Section III.C.

   Provide acreage estimates for jurisdictional wetlands in the review area: acres.

6. **Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs.**
   ☐ Wetlands adjacent to such waters, and have when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

   Provide estimates for jurisdictional wetlands in the review area: acres.

7. **Impoundments of jurisdictional waters.[9]**
   As a general rule, the impoundment of a jurisdictional tributary remains jurisdictional.
   - ☐ Demonstrate that impoundment was created from "waters of the U.S.," or
   - ☐ Demonstrate that water meets the criteria for one of the categories presented above (1-6), or
   - ☐ Demonstrate that water is isolated with a nexus to commerce (see E below).

E. ISOLATED [INTERSTATE OR INTRA-STATE] WATERS, INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS (CHECK ALL THAT APPLY):[10]
- ☐ which are or could be used by interstate or foreign travelers for recreational or other purposes.
- ☐ from which fish or shellfish are or could be taken and sold in interstate or foreign commerce.
- ☐ which are or could be used for industrial purposes by industries in interstate commerce.
- ☐ Interstate isolated waters. Explain: .
- ☐ Other factors. Explain: .

Identify water body and summarize rationale supporting determination: .

---

[8] See Footnote # 3.
[9] To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.
[10] **Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA *Memorandum Regarding CWA Act Jurisdiction Following Rapanos.***

Provide estimates for jurisdictional waters in the review area (check all that apply):
- ☐ Tributary waters: linear feet width (ft).
- ☐ Other non-wetland waters: acres.
  - Identify type(s) of waters: .
- ☐ Wetlands: acres.

F. NON-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY):
- ☐ If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements.
- ☐ Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce.
  - ☐ Prior to the Jan 2001 Supreme Court decision in "*SWANCC*," the review area would have been regulated based solely on the "Migratory Bird Rule" (MBR).
- ☐ Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction. Explain: .
- ☐ Other: (explain, if not covered above): .

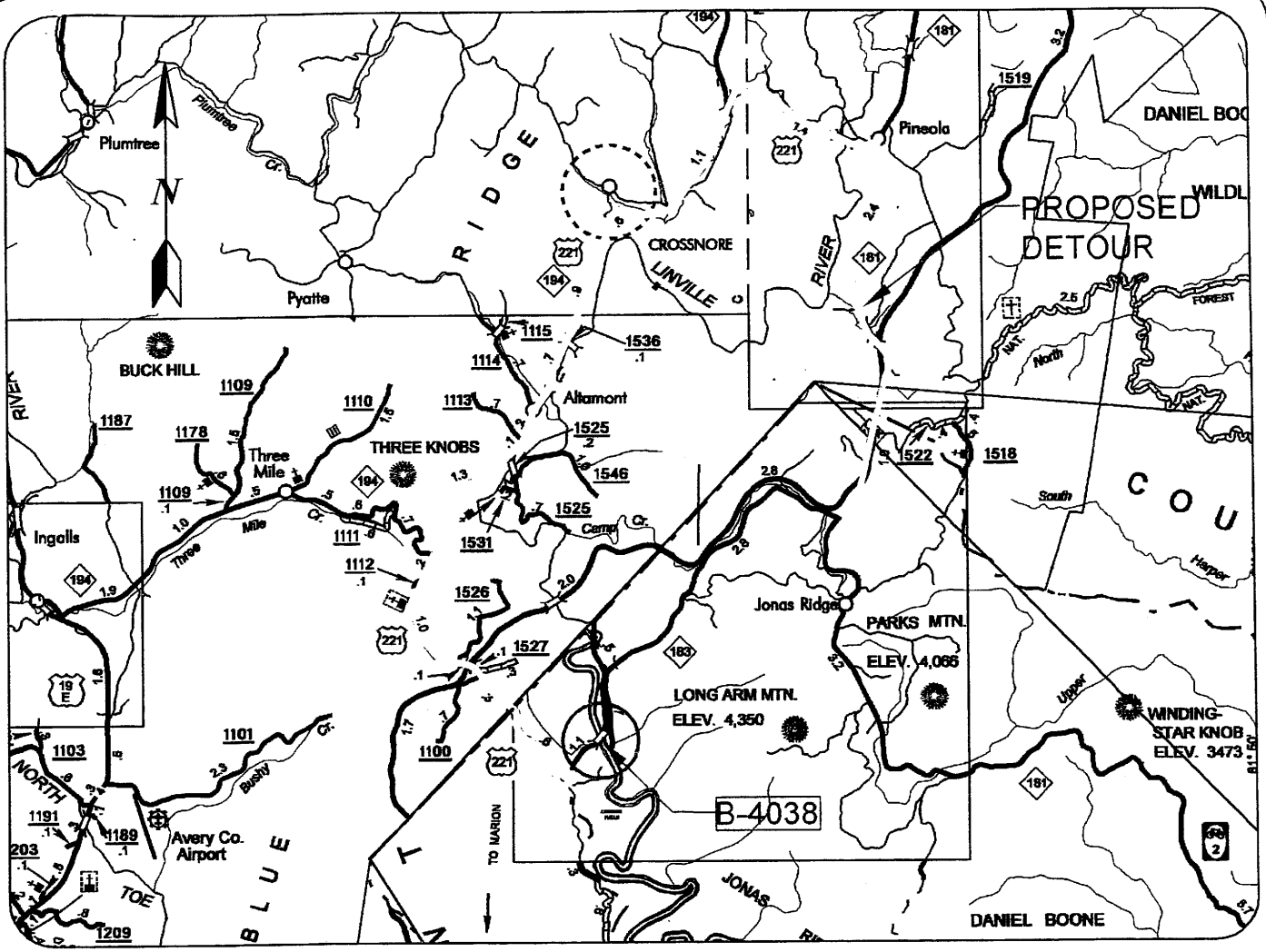
Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment (check all that apply):
- ☐ Non-wetland waters (i.e., rivers, streams): linear feet width (ft).
- ☐ Lakes/ponds: acres.
- ☐ Other non-wetland waters: acres. List type of aquatic resource: .
- ☐ Wetlands: acres.

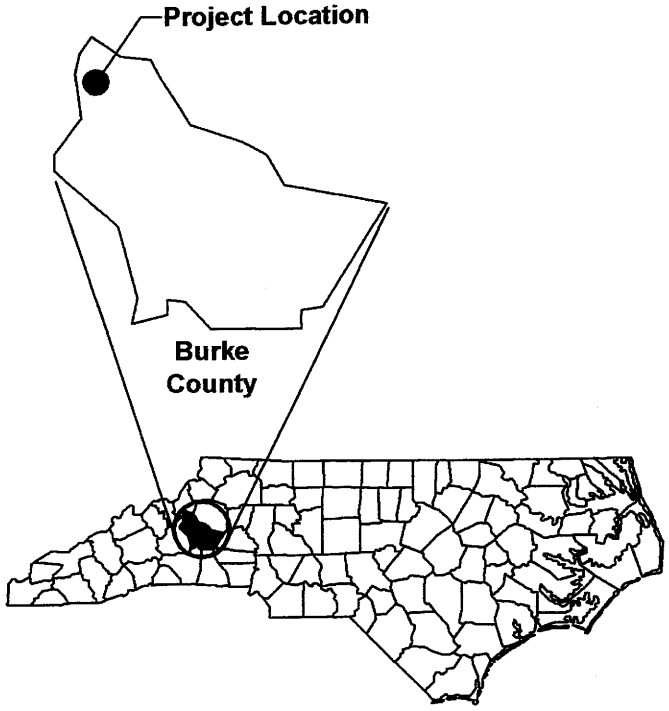
Provide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (check all that apply):
- ☐ Non-wetland waters (i.e., rivers, streams): linear feet, width (ft).
- ☐ Lakes/ponds: acres.
- ☐ Other non-wetland waters: acres. List type of aquatic resource: .
- ☐ Wetlands: acres.

SECTION IV: DATA SOURCES.

A. SUPPORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked and requested, appropriately reference sources below):
- ☐ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: .
- ☐ Data sheets prepared/submitted by or on behalf of the applicant/consultant.
  - ☐ Office concurs with data sheets/delineation report.
  - ☐ Office does not concur with data sheets/delineation report.
- ☐ Data sheets prepared by the Corps: .
- ☐ Corps navigable waters' study: .
- ☐ U.S. Geological Survey Hydrologic Atlas: .
  - ☐ USGS NHD data.
  - ☐ USGS 8 and 12 digit HUC maps.
- ☐ U.S. Geological Survey map(s). Cite scale & quad name: .
- ☐ USDA Natural Resources Conservation Service Soil Survey. Citation: .
- ☐ National wetlands inventory map(s). Cite name: .
- ☐ State/Local wetland inventory map(s): .
- ☐ FEMA/FIRM maps: .
- ☐ 100-year Floodplain Elevation is: (National Geodectic Vertical Datum of 1929)
- ☐ Photographs: ☐ Aerial (Name & Date): .
  - or ☐ Other (Name & Date): .
- ☐ Previous determination(s). File no. and date of response letter: .
- ☐ Applicable/supporting case law: .
- ☐ Applicable/supporting scientific literature: .
- ☐ Other information (please specify): .

B. ADDITIONAL COMMENTS TO SUPPORT JD: .





NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

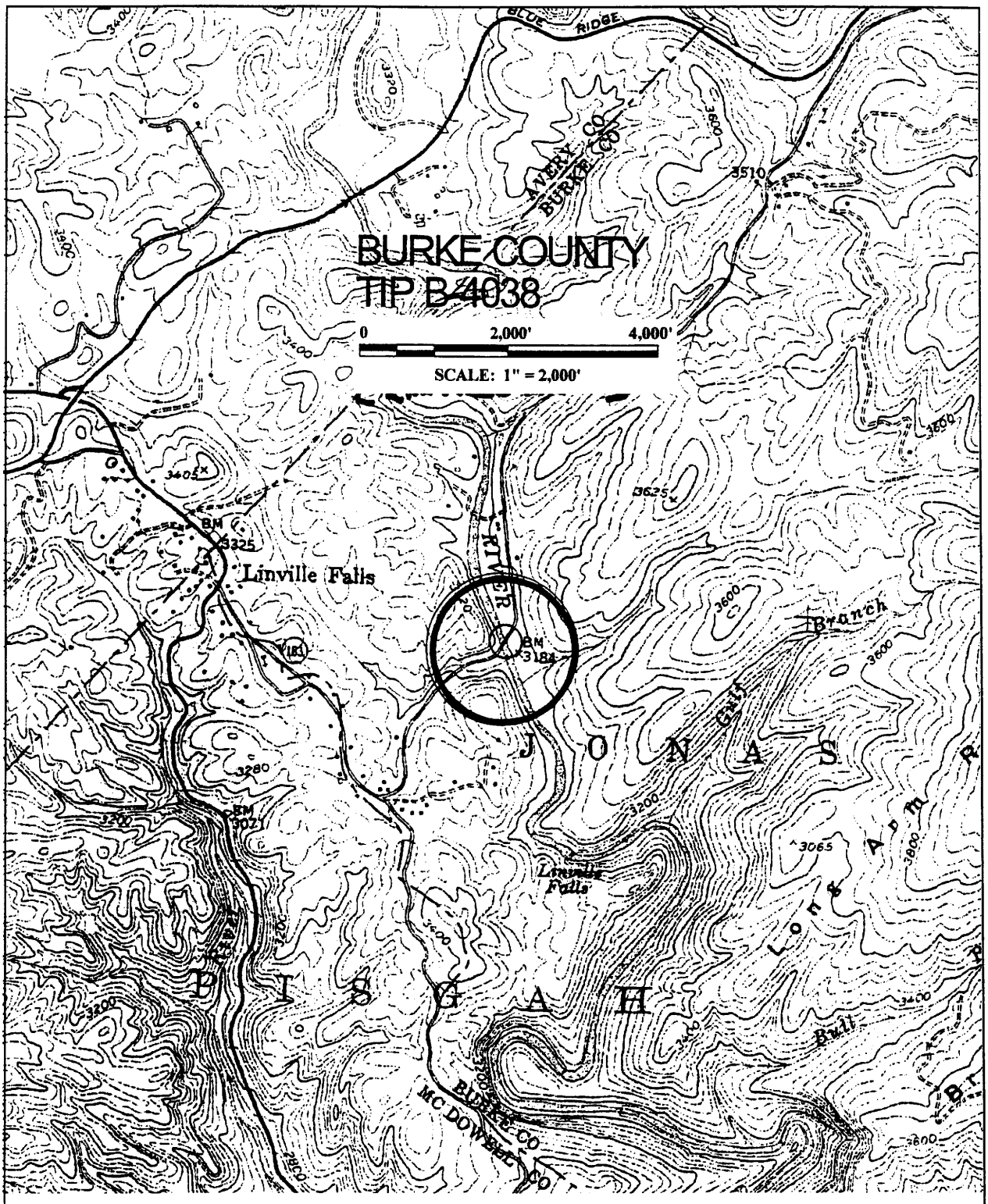
NC 183
Replace Bridge No. 26 over
Linville River
Burke County, North Carolina

TIP NO. B-4038
PROJECT LOCATION MAP

Permit Drawing
Sheet 1 of 7

Not to Scale

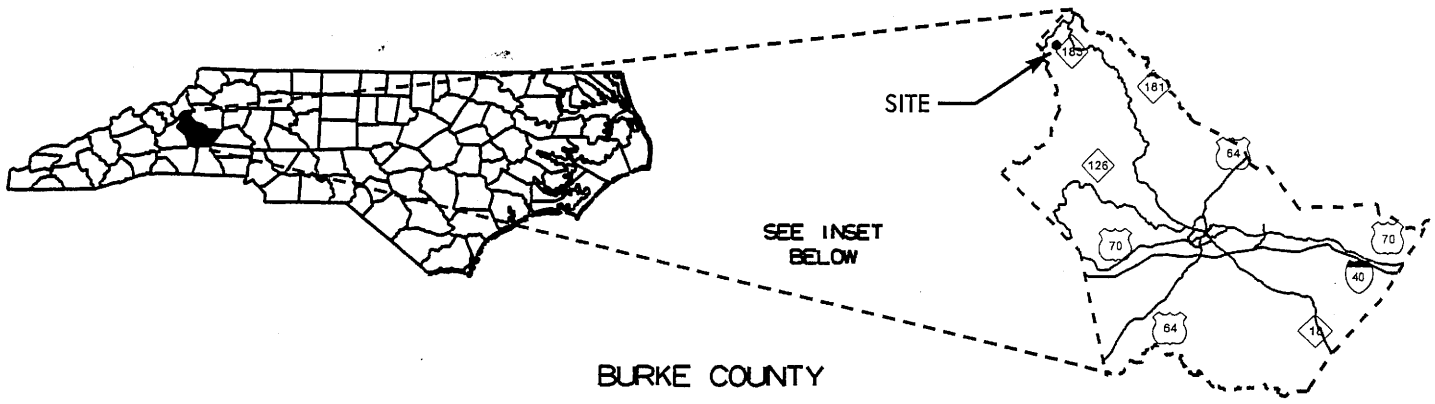
Figure 1

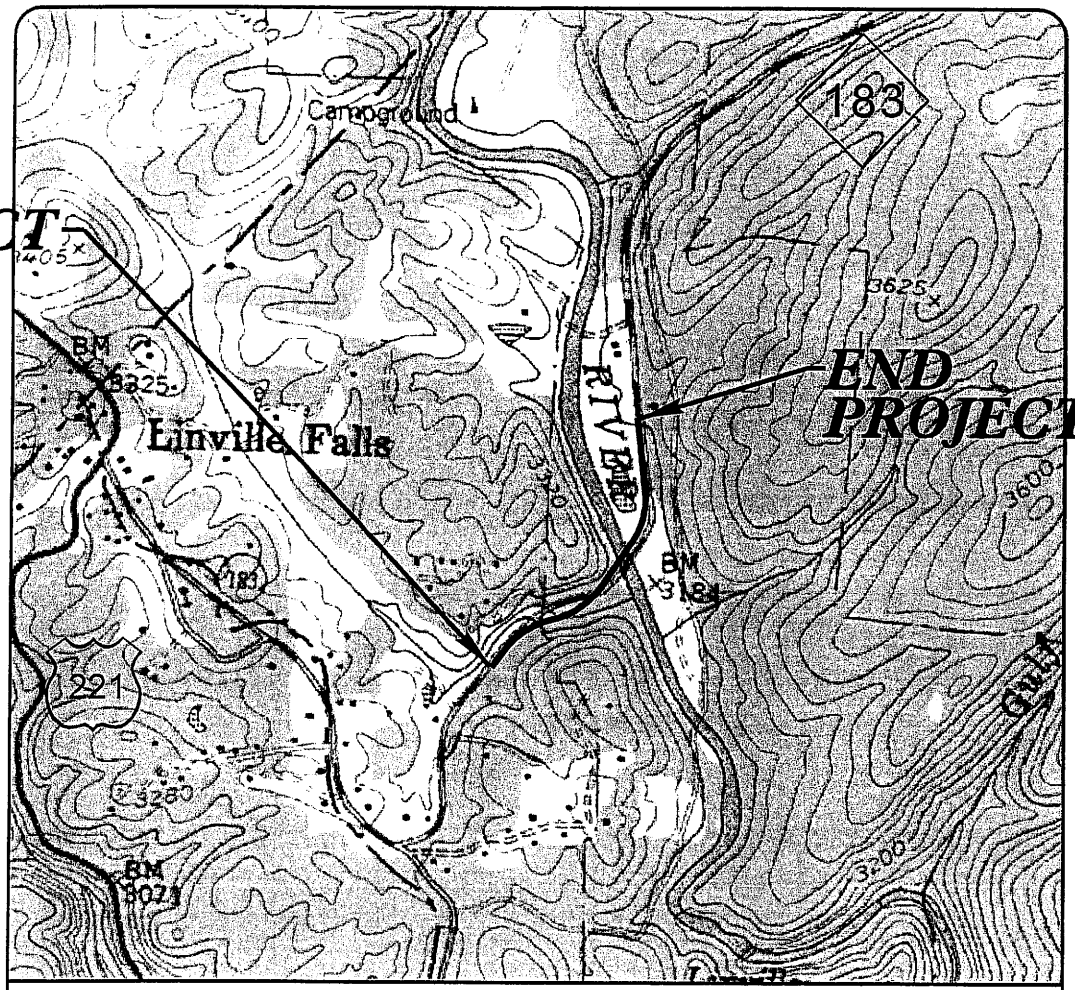


WATER RESOURCES AND PHYSIOGRAPHY OF THE REGION
NC 183 BRIDGE REPLACEMENT
OVER THE LINVILLE RIVER (TIP B-4038)
BURKE COUNTY, NORTH CAROLINA
(Excerpted from USGS Linville Falls 7.5-minute Quadrangle, 1995)

FIGURE 2

Permit Drawing
Sheet 2 of 7





VICINITY MAP NTS

WETLAND IMPACTS

Permit Drawing
Sheet ____ of ____

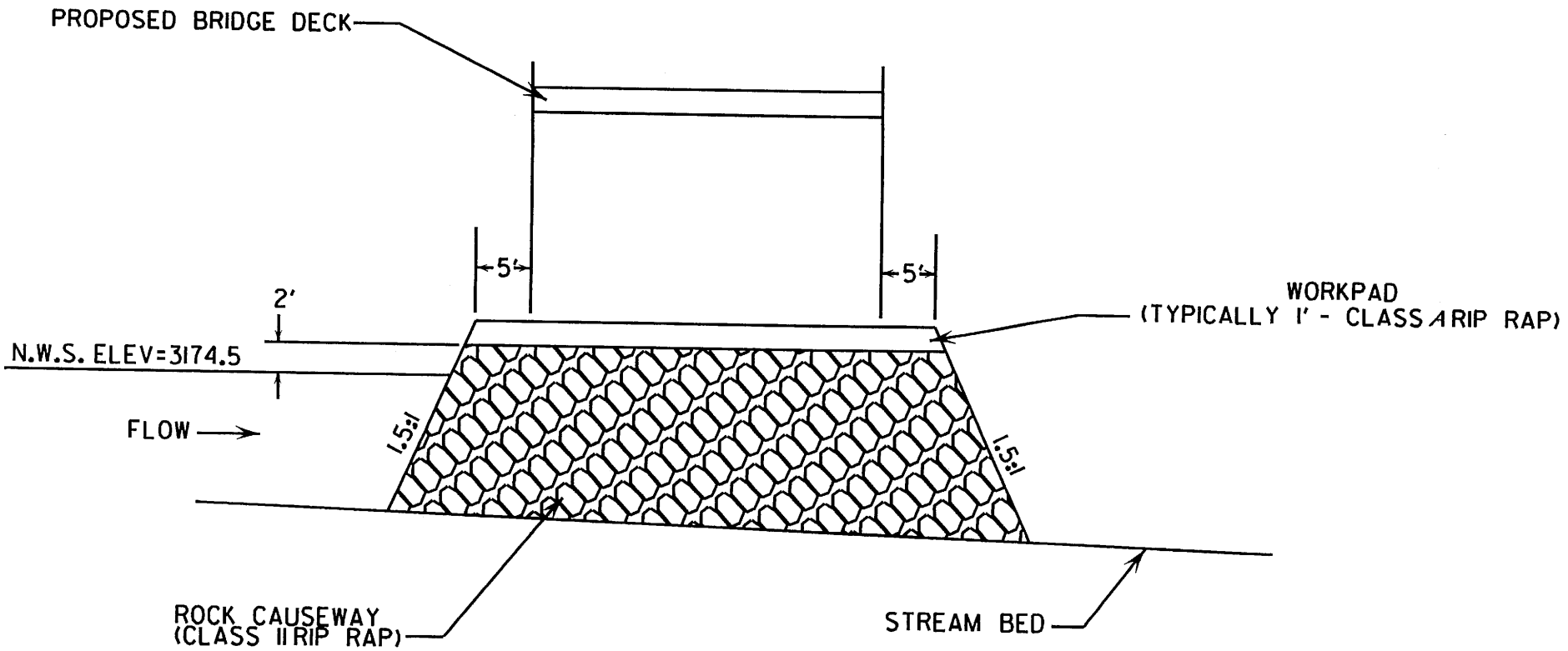
N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

BURKE COUNTY
PROJECT: 34404.1.1 (B-4038)
NC 183 BRIDGE NO. 26
OVER LINVILLE RIVER

SHEET 3 **OF** 7

6/07

WORKPAD DETAIL
(NOT TO SCALE)



Permit Drawing
Sheet 4 of 7

QUANTITIES OF ESTIMATES

VOLUME OF CLASS II RIP RAP= 815 yds^3
AREA OF CLASS II RIP RAP= 0.126 ac
Estimate 1150 Tons Class II Rip Rap

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

BURKE COUNTY
PROJECT: 34404.1.1 (B-4038)
NC 183 BRIDGE NO. 26
OVER LINVILLE RIVER

SHEET ___ OF ___

6107

WETLAND PERMIT IMPACT SUMMARY

Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS: Permanent Fill In Wetlands (ac)	WETLAND IMPACTS: Temp. Fill In Wetlands (ac)	WETLAND IMPACTS: Excavation in Wetlands (ac)	WETLAND IMPACTS: Mechanized Clearing in Wetlands (ac)	WETLAND IMPACTS: Hand Clearing in Wetlands (ac)	SURFACE WATER IMPACTS: Permanent SW impacts (ac)	SURFACE WATER IMPACTS: Temp. SW impacts (ac)	SURFACE WATER IMPACTS: Existing Channel Impacts Permanent (ft)	SURFACE WATER IMPACTS: Existing Channel Impacts Temp. (ft)	SURFACE WATER IMPACTS: Natural Stream Design (ft)
1	17+00/18+50	3 @ 66" RCP						0.07	0.02	160		
2	21+70/23+55	Causeway							0.13		132	
TOTALS:								0.07	0.15	160	132	

2:1 slopes used at culvert for minimization.

Revised 6-11-07: Impact at 3@66" pipe inlet changed from temporary impact to permanent impact.

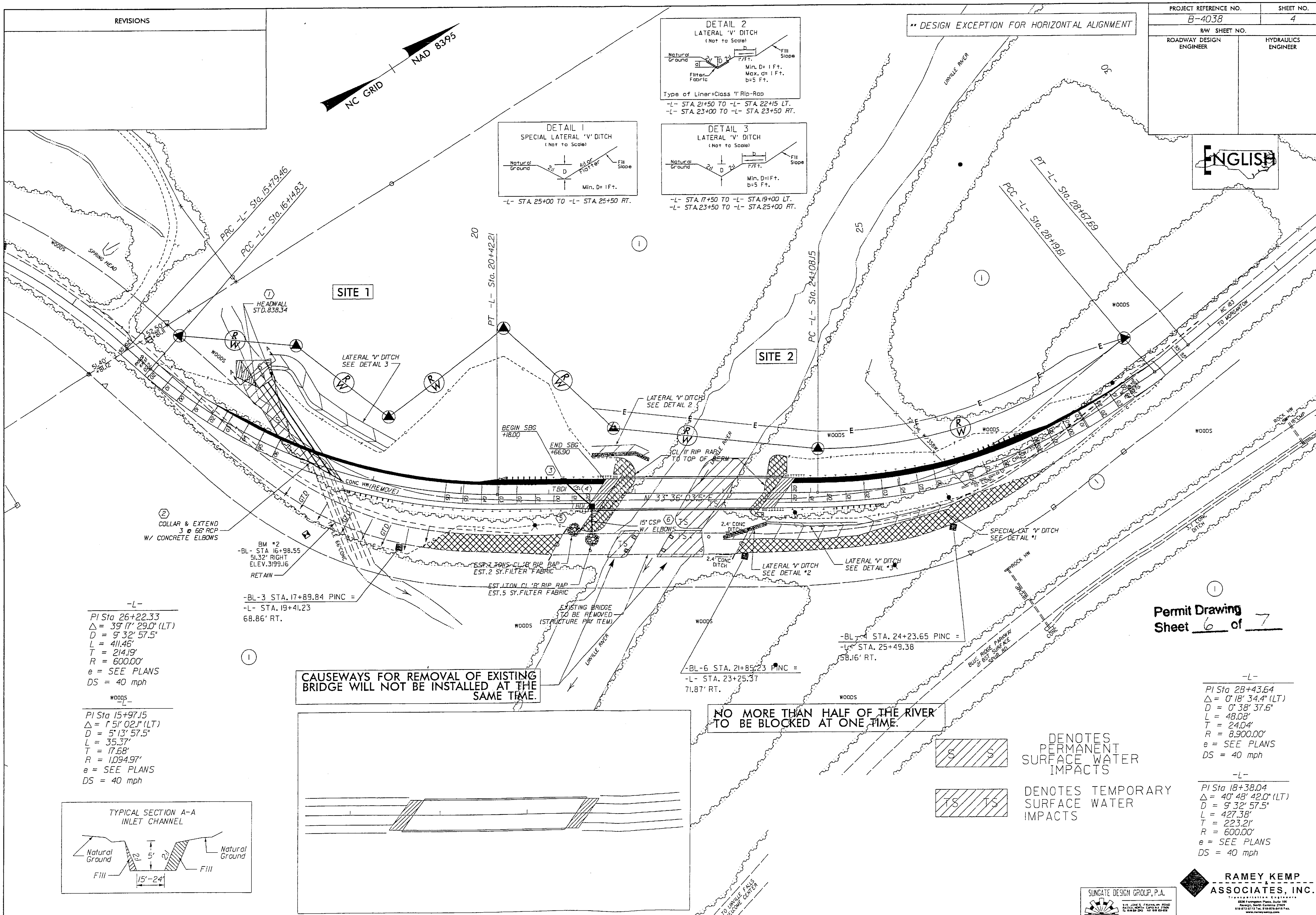
Permit Drawing Sheet 6 of 7

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

BURKE COUNTY
WBS - 33404.1.1 (B-4038)

SHEET 6 /2007

ATN Revised 3/31/05



REVISIONS
PROJECT REFERENCE NO. B-4038
SHEET NO. 4
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
ENGLISH
** DESIGN EXCEPTION FOR HORIZONTAL ALIGNMENT
NC GRID
NAD 83/95
DETAIL 1
SPECIAL LATERAL 'V' DITCH
(Not to Scale)
Natural Ground
Fill Slope
Min. D= 1 Ft.
-L- STA. 25+00 TO -L- STA. 25+50 RT.
DETAIL 2
LATERAL 'V' DITCH
(Not to Scale)
Natural Ground
Filter Fabric
Fill Slope
Min. D= 1 Ft.
Max. d= 1 Ft.
b=5 Ft.
Type of Liner=Class 'I' Rip-Rap
-L- STA. 21+50 TO -L- STA. 22+15 LT.
-L- STA. 23+00 TO -L- STA. 23+50 RT.
DETAIL 3
LATERAL 'V' DITCH
(Not to Scale)
Natural Ground
Fill Slope
Min. D=1 Ft.
b=5 Ft.
-L- STA. 17+50 TO -L- STA. 19+00 LT.
-L- STA. 23+50 TO -L- STA. 25+00 RT.
PRC -L- Sta. 15+79.46
PCC -L- Sta. 16+14.83
PT -L- Sta. 20+42.21
PC -L- Sta. 24+08.15
PCC -L- Sta. 28+19.61
PT -L- Sta. 28+67.69
LINVILLE RIVER
SITE 1
SITE 2
SPRING HEAD
WOODS
HEADWALL STD. 838.34
LATERAL 'V' DITCH SEE DETAIL 3
LATERAL 'V' DITCH SEE DETAIL 2
BEGIN SBG +18.00
END SBG +66.90
CL 'II' RIP RAP TO TOP OF BERM
N 33° 36' 03.5" E
COLLAR & EXTEND 3 @ 66" RCP W/ CONCRETE ELBOWS
BM #2 -BL- STA. 16+98.55 51.32' RIGHT ELEV. 3199.16
RETAIN
EST. 7 TONS CL 'B' RIP RAP
EST. 2 SY. FILTER FABRIC
EST. 1 TON CL 'B' RIP RAP
EST. 5 SY. FILTER FABRIC
15" CSP W/ ELBOWS
2.4' CONC DITCH
LATERAL 'V' DITCH SEE DETAIL #2
LATERAL 'V' DITCH SEE DETAIL #3
SPECIAL LAT 'V' DITCH SEE DETAIL #1
NC 183 TO MORGANTON
BLUE RIDGE PARKWAY SPUR
-BL-3 STA. 17+89.84 PINC =
-L- STA. 19+41.23
68.86' RT.
EXISTING BRIDGE TO BE REMOVED (STRUCTURE PAY ITEM)
-BL-6 STA. 21+85.23 PINC =
-L- STA. 23+25.37
71.87' RT.
-BL-4 STA. 24+23.65 PINC =
-L- STA. 25+49.38
58.16' RT.
Permit Drawing Sheet 6 of 7
-L-
PI Sta 26+22.33
Δ = 39° 17' 29.0" (LT)
D = 9° 32' 57.5"
L = 411.46'
T = 214.19'
R = 600.00'
e = SEE PLANS
DS = 40 mph
-L-
PI Sta 15+97.15
Δ = 1° 51' 02.1" (LT)
D = 5° 13' 57.5"
L = 35.37'
T = 17.68'
R = 1,094.97'
e = SEE PLANS
DS = 40 mph
CAUSEWAYS FOR REMOVAL OF EXISTING BRIDGE WILL NOT BE INSTALLED AT THE SAME TIME.
NO MORE THAN HALF OF THE RIVER TO BE BLOCKED AT ONE TIME.
DENOTES PERMANENT SURFACE WATER IMPACTS
DENOTES TEMPORARY SURFACE WATER IMPACTS
-L-
PI Sta 28+43.64
Δ = 0° 18' 34.4" (LT)
D = 0° 38' 37.6"
L = 48.08'
T = 24.04'
R = 8,900.00'
e = SEE PLANS
DS = 40 mph
-L-
PI Sta 18+38.04
Δ = 40° 48' 42.0" (LT)
D = 9° 32' 57.5"
L = 427.38'
T = 223.21'
R = 600.00'
e = SEE PLANS
DS = 40 mph
TYPICAL SECTION A-A
INLET CHANNEL
Natural Ground
Fill
15'-24'
TO LINVILLE FALLS WELCOME CENTER
SUNGATE DESIGN GROUP, P.A.
RAMEY KEMP & ASSOCIATES, INC.

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
B-4038	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

** DESIGN EXCEPTION FOR HORIZONTAL ALIGNMENT

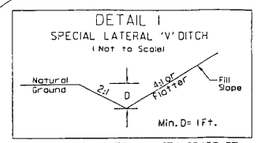
ENGLISH

Permit Drawing
Sheet 7 of 7

Permit Drawing
Sheet ____ of ____

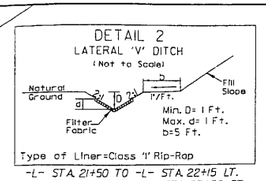
NAD 83/95
NC GRID

DETAIL 1
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



-L- STA. 25+00 TO -L- STA. 25+50 RT.

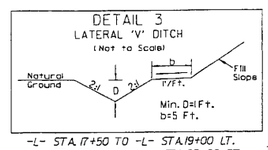
DETAIL 2
LATERAL 'V' DITCH
(Not to Scale)



Type of Liner=Class 'I' Rip-Rap

-L- STA. 21+50 TO -L- STA. 22+15 LT.
-L- STA. 23+00 TO -L- STA. 23+50 RT.

DETAIL 3
LATERAL 'V' DITCH
(Not to Scale)



-L- STA. 17+50 TO -L- STA. 19+00 LT.
-L- STA. 23+50 TO -L- STA. 25+00 RT.

SITE 1

SITE 2

PT -L- Sta. 20+42.21

PC -L- Sta. 24+08.15

PT -L- Sta. 28+67.69

PC -L- Sta. 28+19.61

LATERAL 'V' DITCH SEE DETAIL 2

SPECIAL 'V' DITCH SEE DETAIL 1

SPECIAL CAT 'I' DITCH SEE DETAIL

LATERAL 'V' DITCH SEE DETAIL 2

SPECIAL CAT 'I' DITCH SEE DETAIL

SELECT RIP RAP/RIP RAP TO TOP OF BERM

(2) COLLAR & EXTEND 3 @ 66" RCP W/ CONCRETE ELBOWS

15" CSP (6) W/ ELBOWS

BM #2
-BL- STA 16+98.85
51.32' RIGHT
ELEV. 3199.16

RETAIN

-BL-3 STA. 17+89.84 PINC
-L- STA. 19+41.23
68.86' RT.

EST. 15" RCP
EST. 5'H FILTER FABRIC

EXISTING BRIDGE TO BE REMOVED (STRUCTURE PAY ITEM)

-BL-4 STA. 24+23.65 PINC
-L- STA. 25+49.38
58.16' RT.

-BL-6 STA. 21+85.23 PINC
-L- STA. 23+25.37
71.87' RT.

UNVILLE RIVER

WOODS

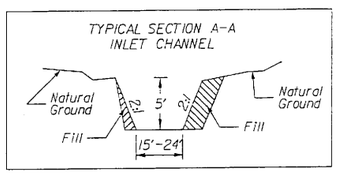
-L-
PI Sta 26+22.33
Δ = 39° 17' 29.0" (LT)
D = 9° 32' 57.5"
L = 411.46'
T = 214.19'
R = 600.00'
e = SEE PLANS
DS = 40 mph

-L-
PI Sta 15+97.15
Δ = 1° 51' 02.1" (LT)
D = 5° 13' 57.5"
L = 35.37'
T = 17.68'
R = 1,094.97'
e = SEE PLANS
DS = 40 mph

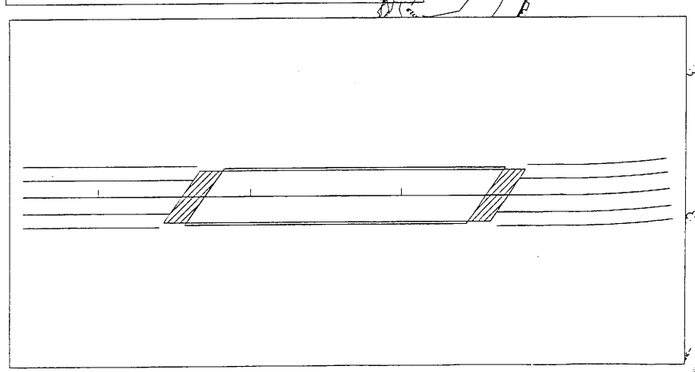
-L-
PI Sta 28+43.64
Δ = 0° 18' 34.4" (LT)
D = 0° 38' 37.6"
L = 48.08'
T = 24.04'
R = 8,900.00'
e = SEE PLANS
DS = 40 mph

-L-
PI Sta 18+38.04
Δ = 40° 48' 42.0" (LT)
D = 9° 32' 57.5"
L = 427.38'
T = 223.21'
R = 600.00'
e = SEE PLANS
DS = 40 mph

TYPICAL SECTION A-A
INLET CHANNEL



CAUSEWAYS FOR REMOVAL OF EXISTING BRIDGE WILL NOT BE INSTALLED AT THE SAME TIME.



NO MORE THAN HALF OF THE RIVER TO BE BLOCKED AT ONE TIME.

S S DENOTES PERMANENT SURFACE WATER IMPACTS

TS TS DENOTES TEMPORARY SURFACE WATER IMPACTS

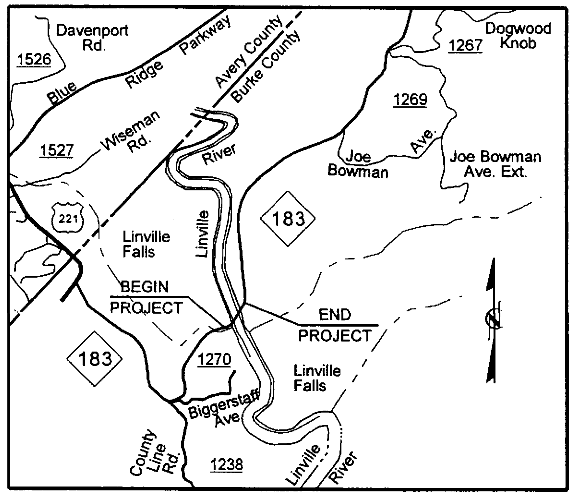
TO LINVILLE FALLS WELCOME CENTER

SUNGATE DESIGN GROUP, P.A.

RAMEY KEMP & ASSOCIATES, INC.

CONTRACT #   TIP PROJECT: B-4038

See Sheet 1-A For Index of Sheets
See Sheet 1-B For Conventional Symbols



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

BURKE COUNTY

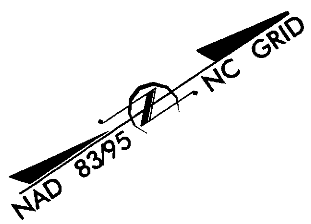
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4038	1	

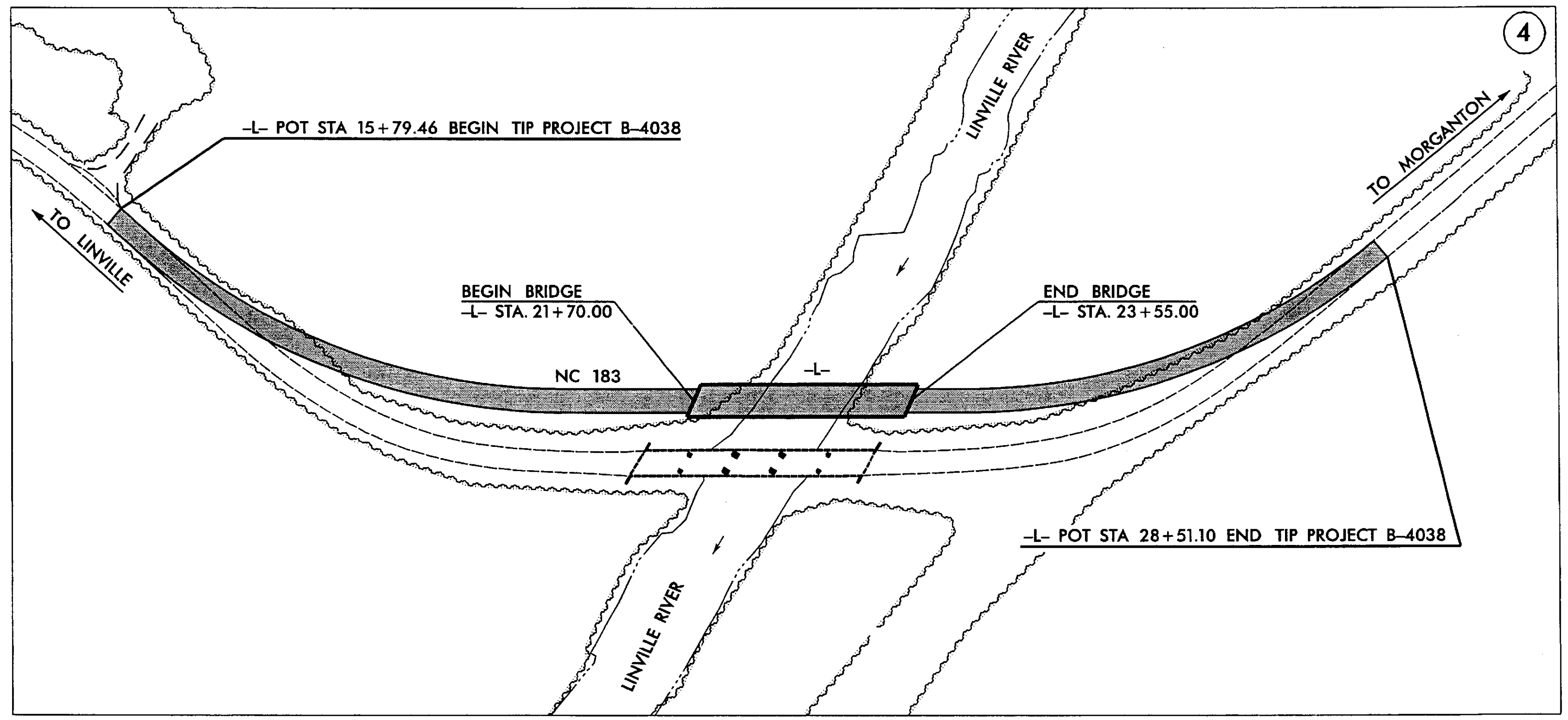
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
33404.1.1	BRSTP-0183(1)	P.E.
33404.2.1	BRSTP-0183(1)	R/W & UTIL.

LOCATION: BRIDGE NO. 26 OVER LINVILLE RIVER ON NC 183

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

SUBMITTAL: 90% PLANS





SUNGATE DESIGN GROUP, P.A.

** DESIGN EXCEPTION FOR HORIZONTAL ALIGNMENT REQUIRED

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

5 2.5 0 5 10
PROFILE (VERTICAL)

DESIGN DATA

ADT 2008 = 831
ADT 2028 = 1265
DHV = 12 %
D = 55 %
T = 4 % *
** V = 60 MPH

* TTST 1 %   DUAL 3 %

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4038	=	.206 mi
LENGTH STRUCTURE TIP PROJECT B-4038	=	.035 mi
TOTAL LENGTH OF TIP PROJECT B-4038	=	.241 mi

Plans prepared in the office of:

RAMEY KEMP ASSOCIATES, INC.
Transportation Engineers

for the North Carolina Department of Transportation

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
APRIL 20, 2007

LETTING DATE:
APRIL 15, 2008

N.C.D.O.T. CONTACT:
CATHY S. HOUSER, P.E.
PROJECT ENGINEER
ROADWAY DESIGN

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 9334 ENGINEER W. HENRY WELLS, JR.

W. HENRY WELLS, JR.   P.E.

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 24416 ENGINEER M. SCOTT CLARK

M. SCOTT CLARK, P.E.   P.E.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

STATE DESIGN ENGINEER   P.E.

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED
DIVISION ADMINISTRATOR   DATE

PROJECT REFERENCE NO.	SHEET NO.
B-4038	1-B

Note: Not to Scale

***S.U.E. = Subsurface Utility Engineering**

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

BOUNDARIES AND PROPERTY:

- State Line
- County Line
- Township Line
- City Line
- Reservation Line
- Property Line
- Existing Iron Pin (EIP)
- Property Corner
- Property Monument (ECM)
- Parcel/Sequence Number (123)
- Existing Fence Line
- Proposed Woven Wire Fence
- Proposed Chain Link Fence
- Proposed Barbed Wire Fence
- Existing Wetland Boundary (WLB)
- Proposed Wetland Boundary (WLB)
- Existing Endangered Animal Boundary (EAB)
- Existing Endangered Plant Boundary (EPB)

BUILDINGS AND OTHER CULTURE:

- Gas Pump Vent or U/G Tank Cap
- Sign
- Well
- Small Mine
- Foundation
- Area Outline
- Cemetery
- Building
- School
- Church
- Dam

HYDROLOGY:

- Stream or Body of Water
- Hydro, Pool or Reservoir
- Jurisdictional Stream (JS)
- Buffer Zone 1 (BZ 1)
- Buffer Zone 2 (BZ 2)
- Flow Arrow
- Disappearing Stream
- Spring
- Swamp Marsh
- Proposed Lateral, Tail, Head Ditch (FLOW)
- False Sump

RAILROADS:

- Standard Gauge (CSX TRANSPORTATION)
- RR Signal Milepost (MILEPOST 35)
- Switch (SWITCH)
- RR Abandoned
- RR Dismantled

RIGHT OF WAY:

- Baseline Control Point
- Existing Right of Way Marker
- Existing Right of Way Line
- Proposed Right of Way Line
- Proposed Right of Way Line with Iron Pin and Cap Marker
- Proposed Right of Way Line with Concrete or Granite Marker
- Existing Control of Access
- Proposed Control of Access
- Existing Easement Line (E)
- Proposed Temporary Construction Easement (E)
- Proposed Temporary Drainage Easement (TDE)
- Proposed Permanent Drainage Easement (PDE)
- Proposed Permanent Utility Easement (PUE)

ROADS AND RELATED FEATURES:

- Existing Edge of Pavement
- Existing Curb
- Proposed Slope Stakes Cut (C)
- Proposed Slope Stakes Fill (F)
- Proposed Wheel Chair Ramp (WCR)
- Proposed Wheel Chair Ramp Curb Cut (WCR)
- Curb Cut for Future Wheel Chair Ramp (CCFR)
- Existing Metal Guardrail
- Proposed Guardrail
- Existing Cable Guiderail
- Proposed Cable Guiderail
- Equality Symbol
- Pavement Removal

VEGETATION:

- Single Tree
- Single Shrub
- Hedge
- Woods Line
- Orchard
- Vineyard (Vineyard)

EXISTING STRUCTURES:

MAJOR:

- Bridge, Tunnel or Box Culvert (CONC)
- Bridge Wing Wall, Head Wall and End Wall (CONC WW)

MINOR:

- Head and End Wall (CONC HW)
- Pipe Culvert
- Footbridge
- Drainage Box: Catch Basin, DI or JB (CB)
- Paved Ditch Gutter
- Storm Sewer Manhole (S)
- Storm Sewer (S)

UTILITIES:

POWER:

- Existing Power Pole
- Proposed Power Pole
- Existing Joint Use Pole
- Proposed Joint Use Pole
- Power Manhole (P)
- Power Line Tower
- Power Transformer
- U/G Power Cable Hand Hole
- H-Frame Pole
- Recorded U/G Power Line (P)
- Designated U/G Power Line (S.U.E.*) (P)

TELEPHONE:

- Existing Telephone Pole
- Proposed Telephone Pole
- Telephone Manhole (T)
- Telephone Booth
- Telephone Pedestal (T)
- Telephone Cell Tower
- U/G Telephone Cable Hand Hole
- Recorded U/G Telephone Cable (T)
- Designated U/G Telephone Cable (S.U.E.*) (T)
- Recorded U/G Telephone Conduit (TC)
- Designated U/G Telephone Conduit (S.U.E.*) (TC)
- Recorded U/G Fiber Optics Cable (T FO)
- Designated U/G Fiber Optics Cable (S.U.E.*) (T FO)

WATER:

- Water Manhole (W)
- Water Meter
- Water Valve
- Water Hydrant
- Recorded U/G Water Line
- Designated U/G Water Line (S.U.E.*)
- Above Ground Water Line (A/G Water)

TV:

- TV Satellite Dish
- TV Pedestal
- TV Tower
- U/G TV Cable Hand Hole
- Recorded U/G TV Cable (TV)
- Designated U/G TV Cable (S.U.E.*) (TV)
- Recorded U/G Fiber Optic Cable (TV FO)
- Designated U/G Fiber Optic Cable (S.U.E.*) (TV FO)

GAS:

- Gas Valve
- Gas Meter
- Recorded U/G Gas Line (G)
- Designated U/G Gas Line (S.U.E.*) (G)
- Above Ground Gas Line (A/G Gas)

SANITARY SEWER:

- Sanitary Sewer Manhole
- Sanitary Sewer Cleanout
- U/G Sanitary Sewer Line (SS)
- Above Ground Sanitary Sewer (A/G Sanitary Sewer)
- Recorded SS Forced Main Line (FSS)
- Designated SS Forced Main Line (S.U.E.*) (FSS)

MISCELLANEOUS:

- Utility Pole
- Utility Pole with Base
- Utility Located Object
- Utility Traffic Signal Box (S)
- Utility Unknown U/G Line (?UTL)
- U/G Tank; Water, Gas, Oil
- A/G Tank; Water, Gas, Oil
- U/G Test Hole (S.U.E.*)
- Abandoned According to Utility Records — AATUR
- End of Information — E.O.I.

RAMEY KEMP & ASSOCIATES, INC.
Transportation Engineers

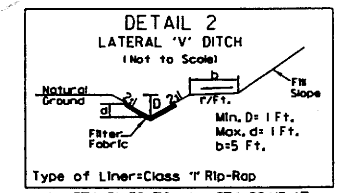
PROJECT REFERENCE NO.	SHEET NO.
B-4038	4
R/W SHEET NO.	

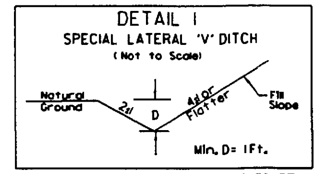
ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 24416 M. SCOTT CLARK

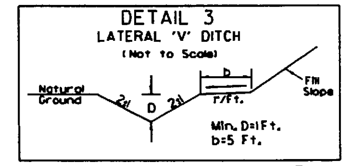
HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 9334 W. HENRY WELLS, JR.

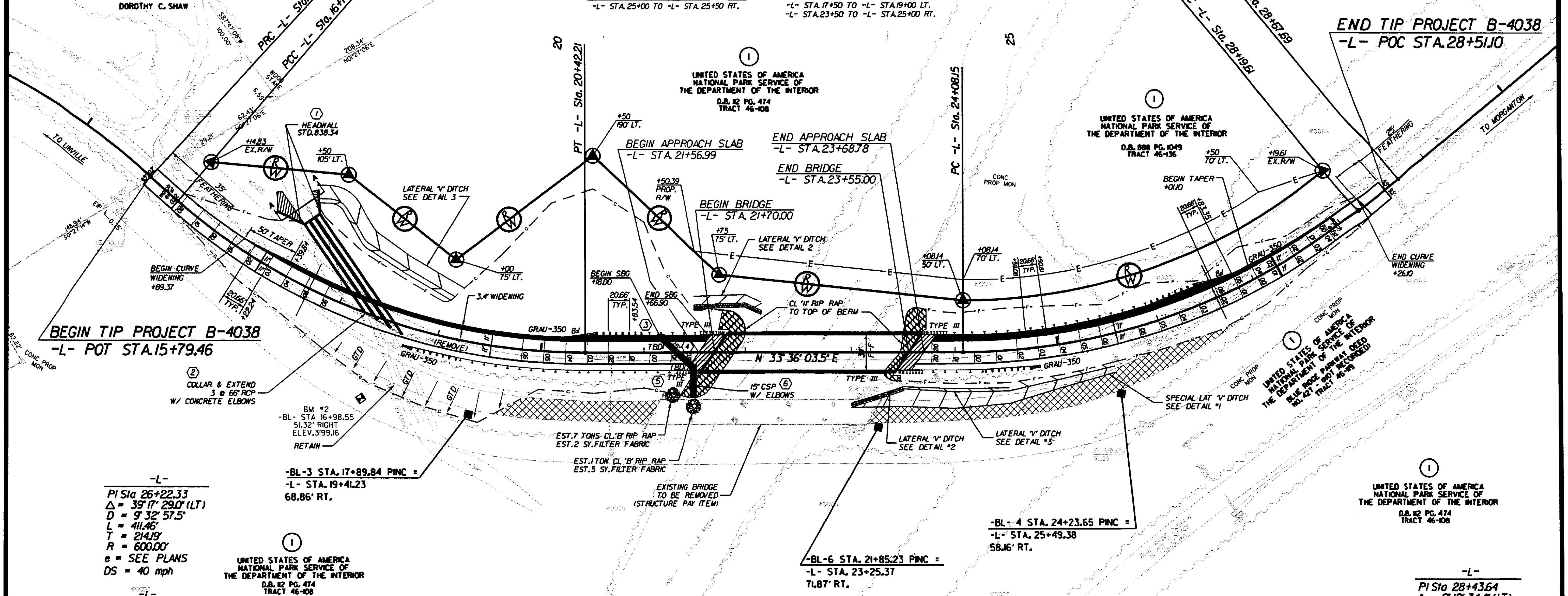
REVISIONS

** DESIGN EXCEPTION FOR HORIZONTAL ALIGNMENT









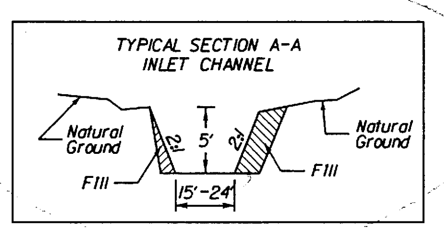
NC GRID NAD 83/95
ROY & CAROLYN HALL
DOROTHY C. SHAW
PRC -L- Sta. 15+79.46
PCC -L- Sta. 16+14.83
PT -L- Sta. 20+42.21
PC -L- Sta. 24+08.15
PCC -L- Sta. 28+19.61
PT -L- Sta. 28+67.69
END TIP PROJECT B-4038
-L- POC STA. 28+51.10
BEGIN TIP PROJECT B-4038
-L- POT STA. 15+79.46
UNITED STATES OF AMERICA
NATIONAL PARK SERVICE OF
THE DEPARTMENT OF THE INTERIOR
D.B. 112 PG. 474
TRACT 46-108
D.B. 888 PG. 1049
TRACT 46-136
TO LINVILLE
TO MORGANTON
HEADWALL STD. 838.34
LATERAL 'V' DITCH SEE DETAIL 3
BEGIN APPROACH SLAB -L- STA. 21+56.99
END APPROACH SLAB -L- STA. 23+68.78
END BRIDGE -L- STA. 23+55.00
BEGIN BRIDGE -L- STA. 21+70.00
LATERAL 'V' DITCH SEE DETAIL 2
CL 'II' RIP RAP TO TOP OF BERM
BEGIN TAPER +01.10
BEGIN CURVE WIDENING +89.37
END CURVE WIDENING +26.10
3.4' WIDENING
50' TAPER
FEATHERING
BEGIN SBG +18.00
END SBG +66.90
GRAU-350
N 33° 36' 03.5" E
COLLAR & EXTEND 3 @ 66' RCP W/ CONCRETE ELBOWS
BM #2 -BL- STA 16+98.55 51.32' RIGHT ELEV. 3199.16
RETAIN
15" CSP W/ ELBOWS
EST. 7 TONS CL 'B' RIP RAP EST. 2 SY. FILTER FABRIC
EST. 1 TON CL 'B' RIP RAP EST. 5 SY. FILTER FABRIC
EXISTING BRIDGE TO BE REMOVED (STRUCTURE PAY ITEM)
SPECIAL LAT 'V' DITCH SEE DETAIL #1
LATERAL 'V' DITCH SEE DETAIL #2
LATERAL 'V' DITCH SEE DETAIL #3
BLUE RIDGE PARKWAY DEED NO. 427 (NOT RECORDED)
-BL-3 STA. 17+89.84 PINC = -L- STA. 19+41.23 68.86' RT.
-BL-6 STA. 21+85.23 PINC = -L- STA. 23+25.37 71.87' RT.
-BL-4 STA. 24+23.65 PINC = -L- STA. 25+49.38 58.16' RT.

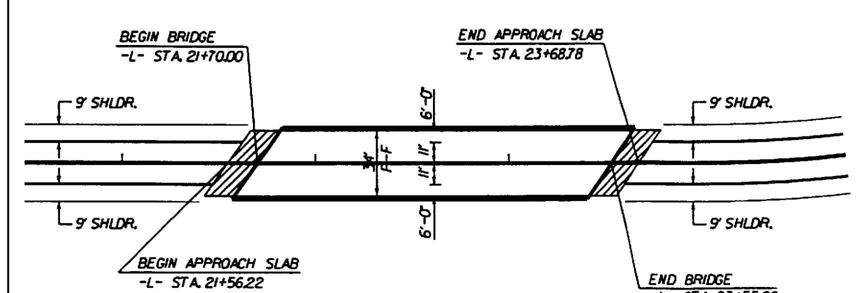
-L-
PI Sta 26+22.33
Δ = 39° 17' 29.0" (LT)
D = 9° 32' 57.5"
L = 411.46'
T = 214.19'
R = 600.00'
e = SEE PLANS
DS = 40 mph

-L-
PI Sta 15+97.15
Δ = 1° 51' 02.1" (LT)
D = 5° 13' 57.5"
L = 35.37'
T = 17.68'
R = 1,094.97'
e = SEE PLANS
DS = 40 mph

-L-
PI Sta 28+43.64
Δ = 0° 18' 34.4" (LT)
D = 0° 38' 37.6"
L = 48.08'
T = 24.04'
R = 8,900.00'
e = SEE PLANS
DS = 40 mph

-L-
PI Sta 18+38.04
Δ = 40° 48' 42.0" (LT)
D = 9° 32' 57.5"
L = 427.38'
T = 223.21'
R = 600.00'
e = SEE PLANS
DS = 40 mph





SKETCH SHOWING ROADWAY IN RELATION TO STRUCTURE

DENOTES PAVED SHOULDER

DENOTES PAVEMENT REMOVAL

DENOTES APPROACH SLAB

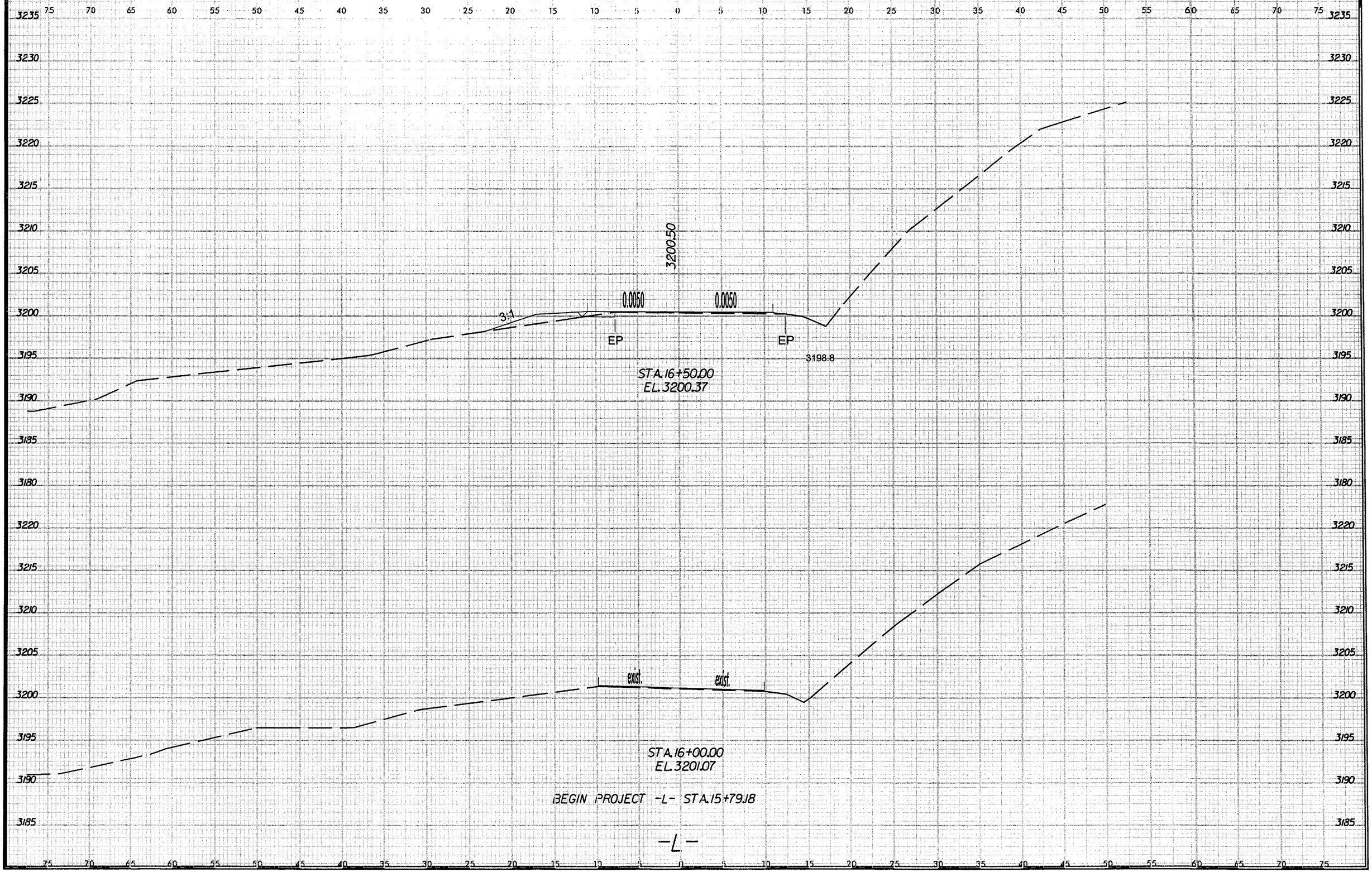
FOR -L- PROFILE SEE SHEET NO. 5

SEE SHEETS S-1 THRU S- FOR STRUCTURE PLANS

SUNGATE DESIGN GROUP, P.A.

RAMEY KEMP & ASSOCIATES, INC.
Transportation Engineers

0 5	PROJ. REFERENCE NO.	SHEET NO.	TOTAL SHEETS
	B-4038	X-2	



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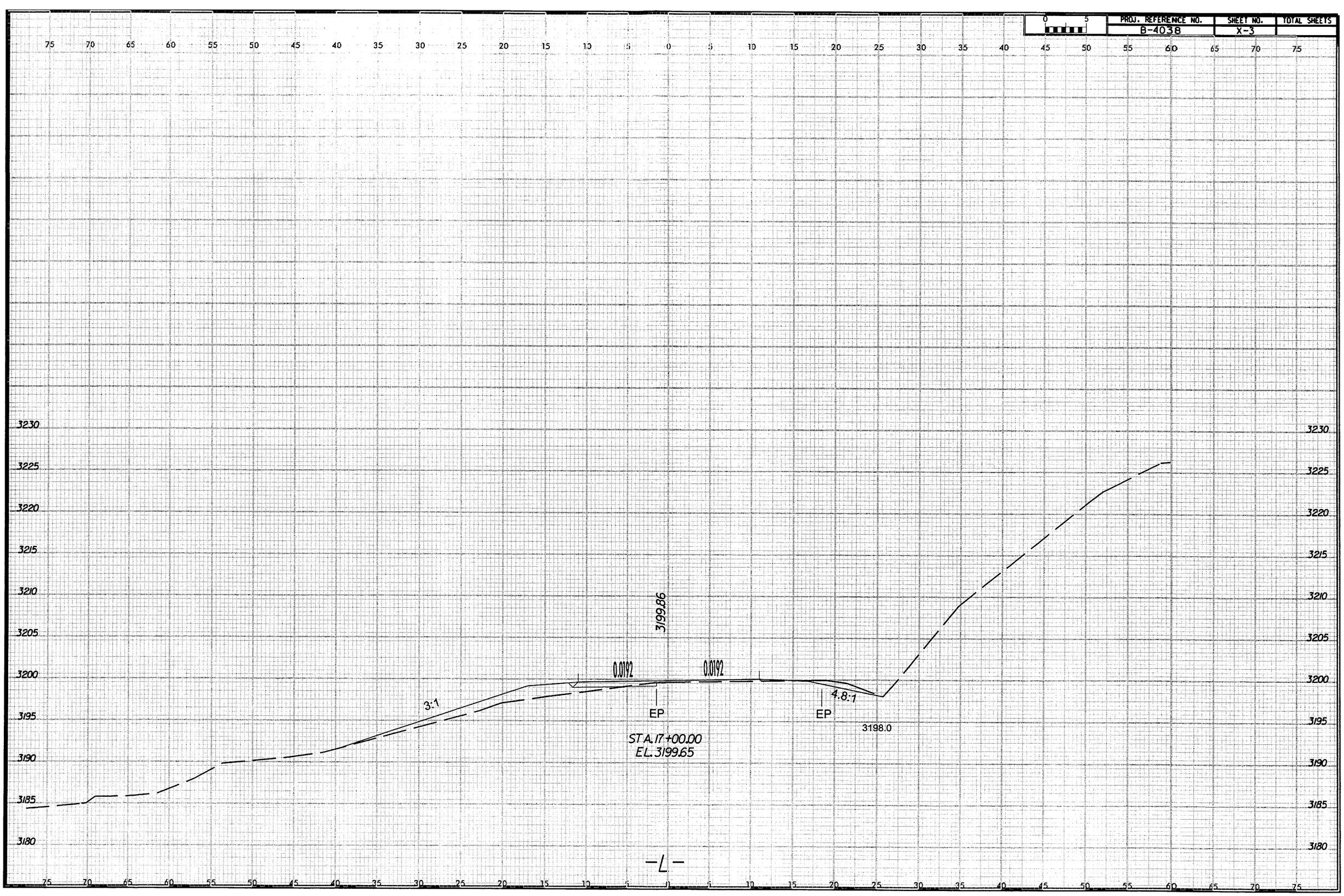

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3230
3225
3220
3215
3210
3205
3200
3195
3190
3185
3180

3199.21

0.0434 0.0434

25.354:1

GRADE TO DRAIN

EP EP

5:1

2:1

2:1

3 @ 66" RCP

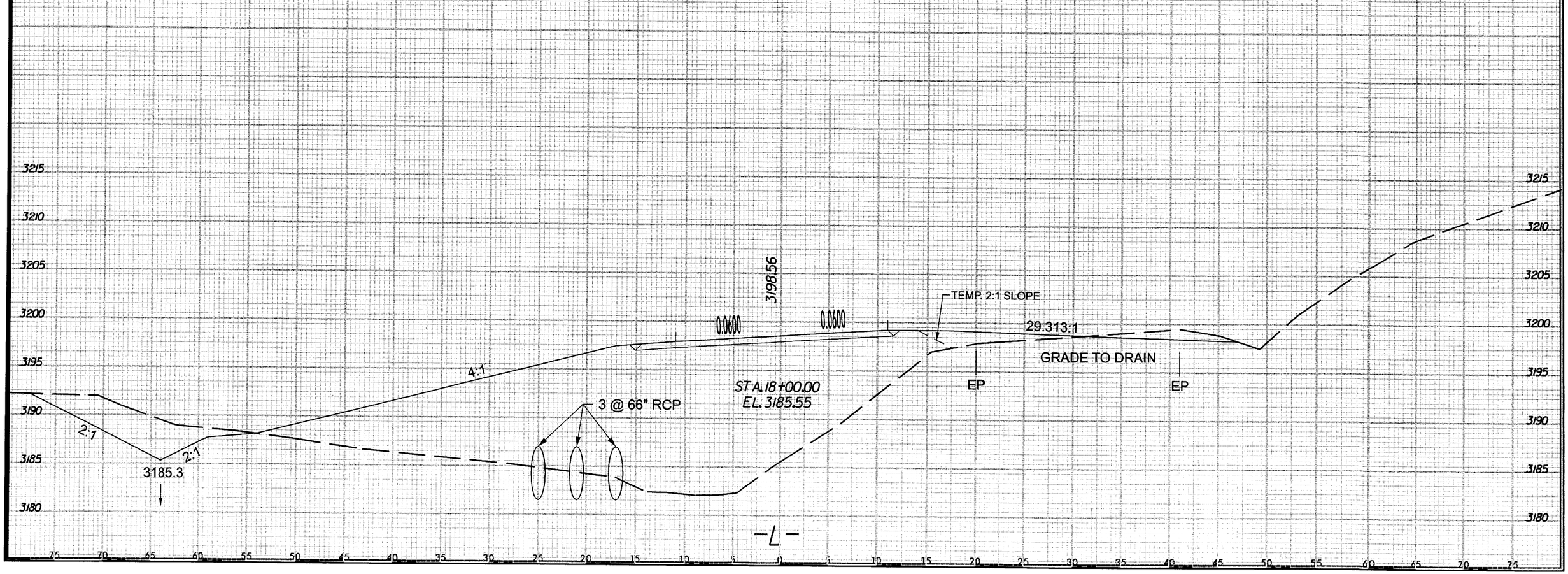
3185.0

BEGIN LATERAL 'V' DITCH
STA. 17+50 LT.

STA. 17+50.00
EL. 3197.32

-L-

0 5	PROJ. REFERENCE NO.	SHEET NO.	TOTAL SHEETS
	B-4038	X-5	



COPY

BURKE COUNTY
BRIDGE NO. 26 ON NC 183
OVER LINVILLE RIVER

FEDERAL-AID PROJECT NO. BRSTP-0183(1)
STATE PROJECT NO. 8.1852001
TIP NO. B-4038

CATEGORICAL EXCLUSION

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

APPROVED:

1/3/07
DATE

DERRICK WEAVER
FOR Gregory J. Thorpe, Ph.D.
Environmental Management Director
Project Development & Environmental Analysis Branch
North Carolina Department of Transportation

1/3/07
DATE

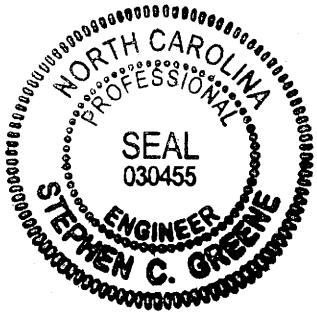
John D Ringley
for John F. Sullivan, III, P.E.
Division Administrator
Federal Highway Administration

BURKE COUNTY
BRIDGE NO. 26 ON NC 183
OVER LINVILLE RIVER

FEDERAL-AID PROJECT NO. BRSTP-0183(1)
STATE PROJECT NO. 8.1852001
TIP NO. B-4038

CATEGORICAL EXCLUSION

Document Prepared by Ramey Kemp & Associates, Inc.
4928-A Windy Hill Drive
Raleigh, North Carolina 27609



Stephen C. Greene, P.E.
Ramey Kemp & Associates, Inc.

12/19/06
Date

For the North Carolina Department of Transportation

Vincent J. Rhea, P.E., Project Development Engineer
Project Development and Environmental Analysis Branch

PROJECT COMMITMENTS

BURKE COUNTY
BRIDGE NO. 26 ON NC 183
OVER LINVILLE RIVER

FEDERAL-AID PROJECT NO. BRSTP-0183(1)
STATE PROJECT NO. 8.1852001
TIP NO. B-4038

In addition to the standard Nationwide Permit #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, NCDOT's Guidelines for 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:

NCDOT Division 13
The NCDOT will observe a moratorium on in-water work between October 15 to April 15 for Wild Brown Trout.

NCDOT Right of Way Branch
The NCDOT will complete negotiations for a Highway Easement Deed with the National Park Service prior to commencing the Construction phase of the project.

BRIDGE NO. 26 ON NC 183
OVER LINVILLE RIVER

FEDERAL-AID PROJECT NO. BRSTP-0183(1)
STATE PROJECT NO. 8.1852001
T.I.P. NO. B-4038

INTRODUCTION

The replacement of Bridge No. 26, located on NC 183 over the Linville River, in Burke County, is included in the North Carolina Department of Transportation (NCDOT) 2002-2008 Transportation Improvement Program (TIP) as B-4038 and in the Federal-Aid Bridge Replacement Program (BRSTP-0183(1)). The location is shown in Figure 1.

No substantial impacts are anticipated. The project is classified as a Federal "Categorical Exclusion".

I. PURPOSE AND NEED

The NCDOT Bridge Maintenance Unit records indicate Bridge No. 26 has a sufficiency rating of 49.4 out of a possible 100 for a new structure. The bridge is considered structurally deficient and functionally obsolete. The replacement of this inadequate structure will result in safer and more efficient traffic operations.

II. EXISTING CONDITIONS

Bridge No. 26 is located approximately 0.6 miles east of the junction with SR 1270 on NC 183, near the town of Linville Falls in Burke County. Refer to Figure 1 for the project location and Figures 2 thru 4a for photos of the existing project area.

Bridge No. 26 was constructed in 1953. The bridge is not currently posted to restrict weight limits.

The overall length of the 5-span structure is 213 ft. It has a clear roadway width of 24.2 ft that includes two travel lanes over the bridge. The superstructure consists of a reinforced concrete deck on reinforced concrete girders. The end bents are reinforced concrete on H-piles. The interior bents are reinforced concrete on post and beam bents. The height from crown to streambed is 24 ft.

NC 183 is classified as a rural major collector in the Statewide Functional Classification System. The 2008 average daily traffic volume (ADT) is estimated to be 831 vehicles per day (vpd). The percentages of truck traffic are 1 percent TTST vehicles and 3 percent dual-tired vehicles. The projected 2028 ADT is 1,265 vpd.

The two-lane facility measures approximately 20 ft in width and has variable 3 ft grass shoulders on each side of the roadway. The horizontal alignment of NC 183 is curved on each end of the bridge and the vertical alignment is generally flat within the project area. The speed limit in the immediate vicinity of the bridge is posted at 55 miles per hour (mph). Existing right-of-way is approximately 100 ft in width.

There are overhead power and underground telephone lines in the vicinity of the bridge. There are no other apparent utilities. Utility impacts are expected to be minimal.

This section of NC 183 is not part of a designated bicycle route nor is it listed in the Transportation Improvement Program as needing incidental bicycle accommodations. There is no indication that an unusual number of bicyclists use this roadway.

Land use within the project area consists primarily of wooded areas. There are no buildings within close proximity of the bridge, although there are scattered residences on both sides of the bridge within the project vicinity. There is a spur from the Blue Ridge Parkway running parallel to NC 183 on the east side to a visitors center located upstream from the bridge location. To the south of the bridge, there are markers denoting National Park Service property.

Two school buses cross Bridge No. 26 two times per day, for a total of four bus trips per day.

There has been 1 crash reported in the vicinity of Bridge No. 26 during a recent three year period. In the one reported crash, a single passenger car ran off the road and struck the east bridge rail.

III. ALTERNATIVES

A. Project Description

Based upon the preliminary hydraulic report, the proposed replacement structure will be approximately 225 ft long with a 30 ft clear roadway width. The structure will provide two 11 ft travel lanes with 6 ft of lateral clearance on each side of the bridge.

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 bridge.

The roadway approaches will provide two 11 ft travel lanes with 5 ft grassed shoulders. The grade will be approximately the same as the existing roadway. The design speed is 40 mph.

B. Build Alternatives

Three build alternatives studied for replacing Bridge No. 26 are described below:

Alternative A

Alternative A consists of replacing the bridge in-place with a new bridge. During construction, traffic would be maintained by using an off-site detour. The total length of permanent roadway approach work for this alternative is approximately 600 ft. This alternative would meet a 35 mph design speed due to the existing horizontal alignment of the current roadway. Refer to Figure 5 for illustration of this alternative.

Existing traffic will be detoured via US 221 and NC 181. The detour length is estimated to be 16.5 miles. Refer to Figure 1 for illustration of the temporary off-site detour route.

Alternative A was not selected because of the length of the detour and the importance of NC 183 as an emergency route.

Alternative B
Alternative B consists of replacing the bridge in-place with a new bridge. During construction, traffic would be maintained by using an on-site detour east of NC 183. The total length of detour roadway approach work for this alternative is approximately 930 ft. The detour for this alternative would meet a 40 mph design speed due to the existing horizontal alignment of the current roadway. Refer to Figure 6 for illustration of this alternative.

The on-site detour will be located approximately 30 feet east of the existing road. The temporary structure would consist of a 90 foot bridge. The detour roadway approaches would consist of two 11 foot travel lanes and 5 foot wide shoulders on each side. The length of the temporary detour would be approximately 1020 feet.

Alternative B was not selected because of the higher cost associated with it and because of the moratorium constraints for construction.

Alternative C (Preferred)
Alternative C consists of replacing the bridge on new location with a new bridge 30 feet to the west of the existing bridge. During construction, traffic would be maintained on the existing bridge. The total length of roadway approach work for this alternative is approximately 1225 feet. The alternative would meet a 45 mph design speed due to the existing horizontal alignment of the current roadway. Refer to Figure 7 for illustration of this alternative.

C. Alternatives Eliminated From Further Consideration

The "Do-Nothing" alternative would eventually necessitate closure of the bridge due to its poor condition. This is not desirable due to the traffic service provided by NC 183.

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

D. Preferred Alternative (Alternative C)

Alternative C was selected as the preferred because it allows for the existing road to remain open during the construction and has lower cost associated with it than Alternative B.

The Division Engineer concurs with Alternative C as the Preferred Alternative.

E. Anticipated Design Exception(s)

The posted speed limit in the immediate vicinity of the bridge is 55 mph. Due to the new horizontal alignment, a design exception will be required for the design speed for the preferred alternative.

IV. ESTIMATED COSTS

The estimated costs for each alternative, based on current dollars, are shown below:

Table 1
Estimated Project Costs

	Alternative A	Alternative B	Alternative C (Preferred)
Structure Removal (Existing)	$66,768	$66,768	$66,768
Structure Proposed	$660,150	$739,500	$510,000
Detour Structure and Approaches	$0	$165,750	$0
Roadway Approaches	$115,868	$217,504	$408,832
Miscellaneous and Mobilization	$197,214	$285,478	$278,650
Engineering and Contingencies	$160,000	$225,000	$220,000
Right-of-Way/Easement and Utilities	$0	$16,000	$41,000
Total Project Cost	**$1,200,000**	**$1,716,000**	**$1,471,000**

The estimated cost of the project, as shown in the 2002-2008 NCDOT Transportation Improvement Program is $1,100,000 including $0 spent in prior years, $100,000 for right-of-way and $1,000,000 for construction.

V. NATURAL RESOURCES

Natural resources within the project study area were evaluated to provide: 1) an assessment of existing vegetation, wildlife, protected species, streams, wetlands, and water quality; 2) an evaluation of probable impacts resulting from construction; and 3) a preliminary determination of permit needs.

A. Methodology

Research was conducted prior to the field investigations. Published resource information pertaining to the project was collected and reviewed. Information sources used to prepare this report include:

- U.S. Geological Survey (USGS) Linville Falls 7.5–minute topographic quadrangle map.
- U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) map for Linville Falls 7.5–minute quadrangle (1995).
- North Carolina Department of Transportation (NCDOT) aerial photographs of the project area (1:1,200 scale).
- U.S. Department of Agriculture, Natural Resource Conservation Service (formerly the Soil Conservation Service) provisional soil survey of Burke County, North Carolina (unpublished).
- U.S. Environmental Protection Agency Water Discharges and RCRA Map accessed via EPA's EnviroMapper Program (September 2001).

Water research information was obtained from publications of the North Carolina Department of Environment and Natural Resources (NCDENR, 1999; 2001). Information concerning the occurrence of federal and state protected species in the study area was obtained from the U.S. Fish and Wildlife Service list of protected and candidate

species (March 3, 2001) and from the North Carolina Natural Heritage Program (NCNHP) database of rare species and unique habitats (NCNHP, January 2001). NCNHP files were reviewed for documented occurrences of state and federally listed species. USFWS Recovery Plans for federal-listed species were reviewed, where applicable.

A field investigation of natural resources within the project area was conducted on July 26, 2001. Water resources were identified and categorized, and their physical characteristics were documented while in the field. Plant communities and their associated wildlife were also identified and documented. *The Classification of Natural Communities of North Carolina, Third Approximation* (Schafale and Weakley, 1990) was used to classify plant communities, where possible. Plant taxonomy was based primarily upon the Manual of the Vascular Flora of the Carolinas (Radford, et al., 1968). Animal taxonomy was based primarily upon *Amphibians and Reptiles of the Carolinas and Virginia* (Martof, et al., 1980), *Freshwater Fishes of the Carolinas, Virginia, Maryland, and Delaware* (Rohde, et al., 1994), *Birds of the Carolinas* (Potter, et al., 1980), and *Mammals of the Carolinas, Virginia, and Maryland* (Webster, et al., 1985).

Approximate boundaries of major vegetation communities were mapped while in the field utilizing aerial photography of the project site. Wildlife identification involved active searching of known or suspected species, incidental visual observations, incidental auditory indicators (such as birdsong and other sounds), and secondary indicators of species presence or site utilization (such as scat, tracks, and burrows). Predictions regarding wildlife community composition were supplemented utilizing a general qualitative habitat assessment based on existing vegetation communities and aquatic habitat.

Wetlands subject to regulation by the Corps of Engineers under Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act of 1899 were identified and delineated according to methods prescribed in the 1987 *Corps of Engineers Wetlands Delineation Manual* (Technical Report Y-87-1) and the Corps' March 6, 1992 guidance document titled *Clarification and Interpretation of the 1987 Manual.* Values of wetlands delineated were assessed utilizing the *Guidance for Rating the Values of Wetlands in North Carolina* (NCDEHNR, 1995). Wetland types were classified based on the U.S. Fish and Wildlife Service *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin, et al., 1979). Wetland boundaries were surveyed and recorded in the field using Global Positioning Satellite (GPS) survey methods.

B. Physiography and Soils

Burke County lies in the Southern Appalachian Mountains Physiographic Province of western North Carolina. The county encompasses 511 square miles and is primarily rural. The county ranges in elevation from approximately 935 ft mean sea level (msl) where the Catawba River flows into Catawba County to 4,350 ft msl. Elevations within the project area range from approximately 3,180 to 3,320 ft msl, with the stream bed near the bridge lying at approximately 3,180 ft msl.

The portion of Burke County within the project area (NRCS map panel A-1) has been mapped by NRCS under the currently provisional (unpublished) soil survey. Official soil series descriptions were also obtained by the NRCS (USDA: http://www.statlab.iastate.edu/soils/osd). A brief description of unofficial soil types mapped by NRCS and/or observed during field investigation is as follows:

- Fluvaquents-Udifluvents complex along the stream bed (unmapped by NRCS but observed during field investigation).

- Ashe-Cleveland-Rock outcrop complex (30 to 95 percent slopes), extremely bouldery. This map unit consists mainly of shallow to moderately deep, somewhat excessively drained, Ashe and Cleveland sandy loams and similar soils interspersed with boulders on very steep ridges and side slopes. The surface layer is typically very dark brown to very dark grayish brown sandy loam up to 5.0 inches thick. Permeability is moderately rapid and surface runoff is moderate to very high. In the project area, the Ashe-Cleveland-rock complex occurs on steep slopes in the northern and central portions of the project area. These soils are classified as non-hydric (USDA, 1999).

- Whiteoak fine sandy loam (8 to 15 percent slopes), stoney. This map unit consists mainly of very deep, well-drained, Whiteoak cobbly loams and similar soils on benches, fans, and toe slopes. The surface layer is typically very dark grayish brown cobbly loam up to 9.0 inches thick. Permeability is moderate and surface runoff is medium. In the project area, the Whiteoak cobbly loam occurs on benches and terraces along the Linville River. These soils are classified as non-hydric (USDA, 1999).

C. Water Resources

C.1. Waters Impacted

A perennial stream, the Linville River, comprises the single water resource within the project area. The Linville River is located within the Catawba River drainage basin. The Catawba River watershed is the eighth largest river basin in North Carolina, encompassing 3,285 square miles. The Linville River is approximately 12 ft wide within the project study area, with depths ranging from .25 to 1.5 ft. Water levels appeared to be at or near the ordinarily high water level at the time of investigation.

The substrate of the Linville River in the project area is comprised of sediments ranging in size from fine sand to coarse gravel, except under the existing bridge, where sediments range in size from fine sand to cobbles. Looking upstream, the river within the project area makes two gentle to moderate bends to the left. The river channel exhibits a relatively simple trapezoidal cross-section. The river within the project area is primarily run, with one distinct riffle/run complex existing at the northernmost limits of the project area. No sand bars or major channel meanders are present.

The left and right stream banks (both upstream and downstream of the bridge), although steep, are fairly well vegetated and, as a result, exhibit indicators of low erosion. Vertical bridge abutments laterally confine the river below the existing bridge. Localized bank erosion was observed in the vicinity if the bridge abutments at the time of field investigation. The riverbanks are comprised of unconsolidated poorly sorted sediments of primarily alluvial origin and, to a lesser degree, colluvial origin.

Under the federal system for cataloging drainage basins, the drainage basin containing the project area is designated as USGS hydrologic unit 03050101, (the Upper Catawba River drainage basin). Under the North Carolina DWQ system for cataloging drainage basins, the drainage basin containing the project area is designated as Subbasin 03-08-30, (the Catawba River Headwaters Subbasin). The Linville River has been assigned Stream Index Number (SIN) 11-29-(4.5).

The Linville River has been assigned a best usage classification of **B Tr**. The **B** designation indicates waters that are used for primary recreational uses such as swimming and water skiing as well as other Class "C" secondary recreational uses. Secondary recreation is any activity involving human body contact with water on an infrequent

or incidental basis. The surface water classification of **Tr** is a "supplemental classification intended to protect freshwaters for natural trout propagation and survival of stocked trout." As stated in the standards, this designation affects wastewater quality but not the type of discharges, and there are no watershed development restrictions except stream buffer zone requirements of the North Carolina Division of Land Resources.

No surface waters classified as High Quality Water (**HQW**), Water Supplies (**WS-I** or **WS-II**), or Outstanding Resource Waters (**ORW**) occur within 0.6 mile of the project area.

One method used by DWQ to monitor water quality is through long-term monitoring of macroinvertebrates. No previously monitored or presently monitored benthic monitoring stations exist on the Linville River within the project area or within the project vicinity.

Discharges that enter surface waters through a pipe, ditch or other well-defined point of discharge are broadly referred to as "point sources." No registered point discharges are located within the project vicinity (i.e., within a 0.6 mile). Jonas Ridge Nursing Home (NPDES Permit Number NC0060224), the NC DENR Corpening Training Center (NPDES Permit Number NC0040339), and the Town of Crossnore – WWTP (NC0026654) are registered point discharge sources located upstream of the project area, but outside the project vicinity. No violations appear on record for any of the aforementioned sites (EPA, 2001).

C.3. Anticipated Impacts to Water Resources

Impacts to water resources in the project area are likely to result from activities associated with project construction. Activities likely to result in impacts consist of clearing and grubbing along stream banks, removal of riparian canopy, instream construction, use of fertilizers and pesticides as part of revegetation operations, and installation of pavement. The following impacts to surface water resources are likely to result from the aforementioned construction activities:

- Short-term increases in sedimentation and siltation downstream of the crossing associated with increased erosion potential in the project area during and immediately following construction.
- Short-term changes in incident light levels and turbidity due to increased sedimentation rates and vegetation removal.
- Short-term alteration of water levels and flows due to interruptions and/or additions of surface water and groundwater during construction.
- Short-term increases in nutrient loading during construction via runoff from temporarily exposed land surfaces.
- A short-term increase in the potential for the release of toxic compounds (such as petroleum products) from construction equipment and other vehicles.
- Changes in and possible destabilization of water temperature regimes due to removal of vegetation within or overhanging the watercourse.
- Increased concentrations of pollutants typically associated within roadway runoff.

To minimize potential impacts to water resources in and downstream of the project area, NCDOT's *Best Management Practices for the Protection of Surface Waters* (NCDOT, 1997) will be strictly enforced during the construction phase of the project. Impacts will be minimized to the fullest degree practicable by limiting instream activities and by revegetating stream banks immediately following the completion of grading.

C.4. 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 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 Water of the United States,* and *Best Management Practices for Bridge Demolition and Removal.*

The superstructure of Bridge No. 26 consists of a reinforced concrete deck on concrete girders. The bridge has 5 spans and totals 213 ft in length. The end bents consist of reinforced concrete caps on H-piles while the interior bents are reinforced posts and beams. There is potential for three spans of the concrete deck and two of the interior bents to be dropped into the Linville River during demolition and removal. The maximum potential temporary fill associated with the removal of the bridge is approximately 173.75 cubic yards.

The North Carolina Wildlife Resources Commission (NCWRC) requests a moratorium on in-water work between February 15 and May 30 for Walleye and White Bass and between October 15 and March 31 for Brown Trout. Because the moratorium applies, this project falls under Case 2 (allowing no in-water work during moratorium periods) of the *Best Management Practices for Bridge Demolition and Removal.*

D. Biotic Resources

Living systems described in the following sections include communities of associated plants and animals observed within the project area. These descriptions refer to the flora and fauna in each community and the relationship of these biotic components. Biotic resources assessed as part of this investigation include discernable terrestrial and aquatic communities. The composition and distribution of biotic communities within the study area are a function of topography, soils, hydrology, and past and present land uses.

Terrestrial systems are discussed primarily from the perspective of dominant plant communities and are classified in accordance with the *Classification of Natural Communities of North Carolina: Third Approximation* (Schafale and Weakley, 1990) where applicable. Representative animal species likely to inhabit or utilize biotic communities of the project area (based on published range distributions) are also discussed. Species observed during field investigation are listed.

D.1. Plant Communities

Boundaries between contiguous biotic communities are gradational in certain portions of the project area, making boundaries sometimes difficult to delineate. Six discernable terrestrial communities are located within the project area. Three of these communities have been altered to the extent that they cannot be classified as a natural vegetation community under the *Classification of Natural Communities of North Carolina.* These altered communities consist of: (1) altered right-of-way communities, (2) landscaped areas, and (3) scrub-shrub communities. The remaining three communities within the project area retain enough of their natural characteristics as to be classifiable under the *Classification of Natural Communities of North Carolina.* These natural communities consist of (1) Piedmont/Mountain Bottomland Forest, (2) Piedmont/Mountain Semi-permanent Impoundment, and (3) Montane Oak-Hickory Forest. In addition to the aforementioned terrestrial components, the aquatic community associated with the Linville River was assessed within the project area.

Altered Right-of-Way Communities – These communities are located along the rights-of-way bordering on NC 183 and along an unpaved private road traversing the southwest quadrant of the project area. Vegetation within these areas has been maintained in early succession through mechanical and possibly chemical vegetation management practices. It is estimated that 0.9 acre of this community exists within the project area.

No mature trees are established within this community; however, saplings and seedlings of the following woody species were observed at the time of field investigation: yellow buckeye (*Aesculus flava*), witch-hazel (*Hamamelis virginiana*), pale rhododendron (*Rhododendron maximum*), red maple (*Acer rubrum*), black cherry (*Prunus serotina*), tulip tree (*Liriodendron tulipifera*), sassafras (*Sassafras albidum*), sourwood (*Oxydendrum arboreum*), black locust (*Robinia pseudo-acacia*), highland doghobble (*Leucothoe axillaris var. editorum*), smooth sumac (*Rhus glabra*), and blackberry (*Rubus sp.*). Dominant herbaceous species observed at the time of site investigation include Joe-pye-weed (*Eupatorium fistulosum*), Christmas fern (*Polystichum acrostichoides*), orange jewelweed (*Impatiens capensis*), aster (*Aster sp.*), tick-trefoil (*Desmodium nudiflorum*), Queen Anne's lace (*Daucus carota*), henbit (*Lamium amplexicaule*), common milkweed (*Asclepias syriaca*), bush clover (*Lespedeza sp.*), bee balm (*Monarda didyma*), bedstraw (*Galium sp.*), violets (*Viola sp.*), doll's eyes (*Actaea pachypoda*), beggar ticks (*Bidens sp.*), evening primrose (*Oenothera biennis*), Solomon's seal (*Polygonatum sp.*), white wood aster (*Aster divaricatus*), daisy fleabane (*Erigeron annuus*), red-stemmed plantain (*Plantago rugelii*), and tall meadow rue (*Thalictrum polygamum*). Dominant vine species observed at the time of site investigation include common greenbrier (*Smilax rotundifolia*), riverside grape (*Vitis riparia*), and Virginia creeper (*Parthenocissus quinquefolia*).

Landscaped Areas – This community consists of cleared, landscaped, and vegetatively managed areas within the northernmost portion of the project area. Dominant plant species of this community were not noted. It is estimated that 0.8 acre of this community exists within the project area.

Scrub/Shrub Communities – These communities consist of scrub/shrub vegetation located in an old field in the southwest portion of the project area, around a semi-permanent impoundment in the northern portion of the project area, and within an abandoned roadbed in the northern portion of the project area. The slopes within these communities are somewhat gently sloping. As mapped by NRCS, these areas are underlain by well-drained Whiteoak cobbly loams. It is estimated that 1.1 acres of this community exist within the project area.

No mature trees have yet become established within areas comprising this community. Saplings and seedlings of woody species observed at the time of field investigation include tag alder (*Alnus serrulata*), multiflora rose (*Rosa multiflora*), black cherry (*Prunus serotina*), red maple (*Acer rubrum*), white pine (*Pinus strobus*), and smooth sumac (Rhus glabra). The white pine is largely restricted to roadside edges. Dominant herbaceous species observed at the time of site investigation include goldenrod (*Solidago sp.*), Curtis' goldenrod (*Solidago curtisii*), orange jewelweed (*Impatiens capensis*), bush clover (*Lespedeza sp.*), common milkweed (*Asclepias syriaca*), and unidentified grasses (*Poaceae*). Vine species observed at the time of site investigation include common greenbrier (*Smilax rotundifolia*) and blackberry (*Rubus sp.*).

Piedmont/Mountain Bottomland Forest – This community occurs along the banks of the Linville River and an unnamed tributary that flows through the southern portion of the project area. It is estimated that 6.1 acres of this community exist within the project area. The Piedmont/Mountain Bottomland Forest occurs upon a gently sloping floodplain terrace perched approximately 0.5 to 8.0 ft above the stream bed. As mapped by NRCS, these areas are underlain by well-drained Whiteoak cobbly loams. Field investigation confirmed that the terrace is largely

underlain by well-drained rocky, sandy loams exhibiting relatively high chromas; however, where poorly drained conditions prevail, hydric soil inclusions are observed. Portions of the Piedmont/Mountain Bottomland Forest underlain by these hydric soils have been mapped as forested wetlands.

Dominant tree species observed within the Piedmont/Mountain Bottomland Forest at the time of site investigation include southern red oak (*Quercus falcata*), Fraser magnolia (*Magnolia fraseri*), white pine (*Pinus strobus*), yellow buckeye (*Aesculus flava*), silver maple (*Acer saccharinum*), red maple (*Acer rubrum*), black cherry (*Prunus serotina*), chestnut oak (*Quercus prinus*), northern red oak (*Quercus rubra*), black oak (*Quercus velutina*), river birch (*Betula nigra*), tulip tree (*Liriodendron tulipifera*), persimmon (*Diospyros virginiana*), Canada hemlock (*Tsuga canadensis*), yellow birch (*Betula lutea*), and white oak (*Quercus alba*). Dominant sapling and shrub species observed at the time of site investigation include sourwood (*Oxydendrum arboreum*), chinquapin (*Castanea pumila*), witch-hazel (*Hamamelis virginiana*), pale rhododendron (*Rhododendron maximum*), sassafras (*Sassafras albidum*), hop-hornbeam (*Ostrya virginiana*), elderberry (*Sambucus canadensis*), flowering dogwood (*Cornus florida*), black willow (*Salix nigra*), black locust (*Robinia pseudo-acacia*), blueberry (*Vaccinium sp.*), highland doghobble (*Leucothoe axillaris var. editorum*), smooth sumac (*Rhus glabra*), blackberry (*Rubus sp.*), hawthorn (*Crataegus sp.*), ironwood (*Carpinus caroliniana*), and Canada hemlock (*Tsuga canadensis*). Dominant herbaceous species observed at the time of site investigation include jack-in-the-pulpit (*Arisaema triphyllum*), Indian cucumber (Medeola virginiana), partridgeberry (*Mitchella repens*), lady fern (*Athyrium filix-femina var. asplenioides*), Joe-pye-weed (*Eupatorium fistulosum*), Christmas fern (*Polystichum acrostichoides*), orange jewelweed (Impatiens capensis), false nettle (Boehmeria cylindrica), aster (Aster sp.), Indian pipe (*Monotropa uniflora*), rattlesnake plantain (*Goodyera repens var. ophioides*), tick-trefoil (*Desmodium nudiflorum*), Queen Anne's lace (*Daucus carota*), henbit (*Lamium amplexicaule*), common milkweed (*Asclepias syriaca*), bush clover (*Lespedeza sp.*), bee balm (*Monarda didyma*), bedstraw (*Galium sp.*), hay-scented fern (*Dennstaedtia punctilobula*), violets (*Viola sp.*), doll's eyes (*Actaea pachypoda*), beggar ticks (*Bidens sp.*), evening primrose (*Oenothera biennis*), monkey flower (*Mimulus ringens*), selfheal (*Prunella vulgaris*), Soloman's seal (*Polygonatum sp.*), white wood aster (*Aster divaricatus*), wild bergamot (*Monarda fistulosa*), daisy fleabane (*Erigeron annuus*), lettuce (*Lactuca sp.*), red-stemmed plantain (*Plantago rugelii*), and tall meadow rue (*Thalictrum polygamum*). Dominant vine species observed at the time of site investigation include riverside grape (*Vitis riparia*), common greenbrier (*Smilax rotundifolia*), summer grape (*Vitis aestivalis*), and Virginia creeper (*Parthenocissus quinquefolia*).

Wetlands Component: The Piedmont/Mountain Bottomland Forest contains a narrow (generally 5.0 ft wide) discontinuous band of wetlands along the lowermost stream banks of the Linville River. These wetland bands support a prevalence of hydrophytic vegetation. Vegetation observed at the time of field investigation includes tag alder (*Alnus serrulata*), smooth sumac (*Rhus glabra*), black cherry (*Prunus serotina*), false nettle (*Boehmeria cylindrica*), clearweed (*Pilea pumila*), soft rush (*Juncus effusus*), pennywort (*Hydrocotyle sp.*), creeping grass (*Microsteguim vimineum*), marsh marigold (*Caltha palustris*), wool grass (*Scirpus cyperinus*), boneset (*Eupatorium perfoliatum*), dotted smartweed (*Polygonum punctatum*), goldenrod (*Solidago sp.*), blue flag (*Iris virginica*), primrose willow (*Jussiaea repens*), grape fern (*Botrychium sp.*), ginseng (*Panax quinquefolium*), avens (*Geum canadense*), orange jewelweed (*Impatiens capensis*), and wood sorrel (*Oxalis europaea*). Portions of areas mapped as wetlands are underlain by course rocky, gravelly sands (fluvaquents) that were saturated in the upper 12 inches at the time of field investigation. Other portions of wetlands are underlain by up to 10 inches of dark brown (10YR3/3 to 2.5Y3/2) sandy loams overlying dark to light brown (10YR3/1 to 10YR4/3) gravelly loams, which exhibited saturated conditions at the time of site investigation. These areas likely represent hydric

soil inclusions within the Whiteoak fine sandy loam map unit. In places, the wetlands also exhibited sediment deposits and drift lines.

Canada Hemlock Forest with Montane Oak-Hickory Forest Association – Canada Hemlock Forests with Montane Oak-Hickory Forest associations occur on moderate to steep slopes upgradient of the gentler sloping terraces along the Linville River within the project area. Soils within this community are relatively thin, and scattered rock outcrops are present. As mapped by NRCS, these areas are underlain by somewhat excessively drained Ashe and Cleveland sandy loams interspersed with rocks. It is estimated that 8.2 acres of this community exist within the project area.

Dominant tree species observed within these communities at the time of site investigation include Canada hemlock (*Tsuga canadensis*), southern red oak (*Quercus rubra*), hickory (*Carya sp.*), white pine (*Pinus strobus*), black cherry (*Prunus serotina*), Fraser magnolia (*Magnolia fraseri*), yellow buckeye (*Aesculus flava*), tulip tree (*Liriodendron tulipifera*), sourwood (*Oxydendrum arboreum*), silver maple, (*Acer saccharinum*), sassafras (*Sassafras albidum*), chestnut oak (*Quercus prinus*), persimmon (*Diospyros virginiana*), sycamore (*Platanus occidentalis*), and red maple (*Acer rubrum*). Dominant sapling and shrub species observed at the time of site investigation include pale rhododendron (*Rhododendron maximum*), ironwood (*Carpinus caroliniana*), American holly seedlings (*Ilex opaca*), Chinese privet (*Ligustrum sinense*), sassafras (*Sassafras albidum*), witch-hazel (*Hamamelis virginiana*), chinquapin (*Castanea pumila*), blueberry (*Vaccinium constablaei*), hop-hornbeam (*Ostrya virginiana*), highland doghobble (*Leucothoe axillaris var. editorum*), and flowering dogwood (*Cornus florida*). Dominant herbaceous species observed at the time of site investigation include heartleaf (*Hexastylis sp.*), bracken (*Pteridium aquilinum*), violets (*Viola sp.*), jack-in-the-pulpit (*Arisaema triphyllum*), Indian cucumber root (*Medeola virginiana*), partridgeberry (*Mitchella repens*), Christmas fern (*Polystichum acrostichoides*), Indian pipe (*Monotropa uniflora*), and rattlesnake plantain (*Goodyera repens var. ophioides*). Dominant vine species observed at the time of site investigation include poison ivy (*Toxicodendron radicans*), grape (*Vitis sp.*), common greenbrier (*Smilax rotundifolia*), and Virginia creeper (*Parthenocissus quinquefolia*).

Piedmont/Mountain Semi-Permanent Impoundment – A Piedmont/Mountain Semi-Permanent Impoundment occurs adjacent to the floodplain of the Linville River in the northern portion the project area. This community consists of a small, shallow, man-made impoundment with an associated emergent wetland plant community around its perimeter. The vegetation community appears to be strongly influenced by periodic or seasonal ponding of surface water. Recent rain events appear to have flooded the impoundment to the point that emergent herbaceous vegetation was submerged under approximately 6.0 inches of surface water. It is estimated that 0.3 acre of community subtype 6a and 0.8 acre of community subtype 6b exist within the project area.

At the time of field investigation, the impoundment was dominated by hydrophytic vegetation including tag alder (*Alnus serrulata*) along the outside edges, cattail (*Typha latifolia*), soft rush (*Juncus effusus*), wool grass (*Scirpus cyperinus*), false nettle (*Boehmeria cylindrica*), sedges (*Carex spp.*), orange jewelweed (*Impatiens canadensis*), Pennsylvania smartweed (*Polygonum pensylvanicum*), bugleweed (*Lycopus virginicus*), spike-rush (*Eleocharis sp.*), jack-in-the-pulpit (*Arisaema triphyllum*), boneset (*Eupatorium perfoliatum*), cardinal flower (*Lobelia cardinalis*), and unidentified grasses (*Poaceae*). Soils observed in soil probes conducted as part of this investigation consisted of up to 3.0 inches of dark brown (10YR3/1 to 10YR3/2) clayey loam overlying lighter colored (10YR3/4 to 10YR4/4) sandy gravels that exhibited saturated conditions at the time of site investigation.

D.2. Wildlife

The communities within the project vicinity have been altered or affected by man's activities to varying degrees. Due to the relatively small size of the project area and the fact that many wildlife species are capable of moving between and/or utilizing adjoining communities, no distinct terrestrial wildlife habitat can be assigned to any one terrestrial plant community within the project area.

A white-tailed deer (*Odocoileus virginianus*) and an eastern chipmunk (*Tamias striatus*) were the only mammals observed in the project vicinity at the time of field investigation; however, raccoon (*Procyon lotor*) tracks were observed. Although not observed, other mammals common to the project region which can be expected to periodically utilize habitat of the project area include: Virginia opossum (*Didelphis virginiana*), shrews and moles (*Insectivora*), eastern cottontail rabbit (*Sylvilagus floridanus*), woodchuck (*Marmota monax*), gray squirrel (*Sciurus carolinensis*), beaver (*Castor canadensis*), eastern harvest mouse (*Reithrodontomys humulis*), white-footed mouse (*Peromyscus leucopus*), golden mouse (*Ochrotomys nuttalli*), hispid cotton rat (*Sigmodon hispidus*), eastern woodrat (*Neotoma floridana*), meadow vole (*Microtus pennsylvanicus*), woodland vole (*Microtus pinetorum*), muskrat (*Ondatra zibethicus*), black rat (*Rattus rattus*), Norway rat (*Rattus norvegicus*), house mouse (*Mus musculus*), meadow jumping mouse (*Zapus hudsonius*), woodland jumping mouse (*Napaeozapus insignis*), red fox (*Vulpes vulpes*), gray fox (*Urocyon cinereoargenteus*), black bear (*Ursus americanus*), long-tailed weasel (*Mustela frenata*), eastern spotted skunk (*Spilogale putorius*), striped skunk (*Mephitis mephitis*), and bobcat (*Felis rufus*).

Forest tracts on the project site provide suitable habitat and forage areas for a wide variety of birds. Eastern towhee (*Pipilo erythrophthalmus*) and common crow (*Corvus brachyrhynchos*) were observed at the time of investigation. A variety of resident and migratory songbirds typical to the region can be expected to periodically utilize habitat present in the project area. More open portions of the project area (i.e., the successional sapling and scrub/shrub communities) and nearby open fields provide probable hunting grounds for birds of prey, such as hawks and owls.

No reptiles were observed on the project site at the time of field investigation. Several adult green frogs (*Rana clamitans*) were observed in the impounded water along the east side of the river. Audibles of spring peepers (*Hyla crucifer*) originating from the project area were heard at the time of site investigation. Additionally, a variety of reptile and amphibian species may use the communities located in the project area. These animals include the rat snake (*Elaphe obsoleta*), eastern box turtle (*Terrapene carolina*), five-lined skink (*Eumeces fasciatus*), two-lined salamander (*Eurycea bislineata*), pickerel frog (*Rana palustris*), and American toad (*Bufo americanus*).

D.3. Aquatic Communities

The aquatic community consists of the Linville River below the ordinary high water line. The dominant aquatic habitat within this section of the Linville River is cobble/boulder substrate. The Linville River within the project area contains a series of frequent, well defined, riffles and runs that were less than 20 percent embedded at the time of field investigation. Pools are infrequent (comprising less than 30 percent of the river segment), but are present in a variety of sizes. Pools forming on the sides of the channel adjacent to snags and boulders serve as good fish habitat. The riparian vegetation zone is wider than 60 ft along both banks. Eroded areas are present adjacent to the bridge.

No aquatic vegetation was observed below the ordinary high water line of the Linville River at the time of field investigation. A narrow band of hydrophytic vegetation occurs along the lower to middle portions of the river banks, as previously discussed.

Aquatic vertebrates observed within the project area at the time of field investigation include unidentified minnows (*Cyprinidae*), an unidentified species of trout, and spring peeper (*Hyla crucifer*). Aquatic invertebrates observed within the project area at the time of field investigation include mayfly larvae (*Heptageniidae*), beetle larvae (*Psephenidae*), net-spinning caddisfly larvae (*Hydropsychidae*), adult stonefly (*Plecoptera*), snail (*Pleuroceridae*), and water strider (*Gerridae*). *Heptageniidae, Hydropsychidae, Pleuroceridae,* and *Gerridae* were abundant throughout the project area at the time of field investigation. High quality riffles and substrate with low embeddedness indicate the presence of suitable freshwater mussel habitat.

D.4. Anticipated Impacts to Biotic Communities

D.4.a. Terrestrial Communities Impacts

Potential impacts to plant communities are estimated based on the approximate area of each plant community present within both the proposed right-of-way and the temporary construction limits of any on-site detour or easement that falls outside the estimated permanent right-of-way limit. A summary of potential plant community impacts is presented in Table 2. All plant community impacts are based on aerial photograph base mapping. A portion of the permanent plant community impact amount will consist of proposed right-of-way for the road after the bridge replacement is complete. Impervious surface and open water areas are not included in this analysis.

Table 2
Potential Impacts to Plant Communities

PLANT COMMUNITY	POTENTIAL IMPACTS acres			
	ALT A	ALT B		ALT C
	Impacts	Impacts	Temp. Impacts	Impacts
Altered Right-of-Way Communities	0.00	0.00	0.00	0.00
Landscaped Areas	0.00	0.00	0.00	0.00
Scrub/Shrub Communities	0.00	0.00	0.00	0.00
Piedmont/Mountain Bottomland Forest	0.00	0.00	0.44	0.70
Canada Hemlock Forest	0.00	0.00	0.05	0.15
Piedmont/Mountain Semi-Permanent Impoundment	0.00	0.00	0.00	0.05
TOTAL FOR ALT (acre)	**0.00**	**0.00**	**0.49**	**0.90**

* Note: Temporary construction impacts are based on the portion of the impacts that fall outside the estimated right-of-way limit or impacts of temporary on-site detours.

Permanent community impacts for Alternative A represent the least amount of the three alternatives when the potential temporary impacts are included. The highest amount of permanent plant community impacts result from Alternative C, which calls for bridge replacement on new location. The plant communities with the largest amount of potential permanent and temporary impacts for all proposed alternatives is the Coastal Plain bottomland hardwood forest and mixed hardwood forest communities.

D.4.b. Aquatic Communities Impacts

The replacement of the Bridge No. 26 over the Linville River will result in certain unavoidable impacts to the aquatic community. Probable impacts will be associated with the physical disturbance of the benthic habitat and water column disturbances resulting from changes in water quantity and quality. Significant disturbance of stream segments can have an adverse effect on aquatic community composition by reducing species diversity and the overall quality of aquatic habitats. Physical alterations to aquatic habitats can result in the following impacts to aquatic communities:

- Inhibition of plant growth.
- Resuspension of organic detritus and removal of aquatic vegetation that can lead to increased nutrient loading. Nutrient loading can, in turn, lead to algal blooms and ensuing depletion of dissolved oxygen levels.
- Increases in suspended and settleable solids that can, in turn, lead to clogging of feeding structures of filter-feeding organisms and the gills of fish.
- Loss of benthic macroinvertebrates through increased scouring and sediment loading.
- Loss of fish shelter through removal of overhanging stream banks and snags.
- Increases in seasonal water temperatures resulting from removal of riparian canopy.
- Burial of benthic organisms and associated habitat.

Unavoidable impacts to aquatic communities within and immediately downstream of the project area will be minimized to the fullest degree practicable through strict adherence to NCDOT's *Best Management Practices for the Protection of Surface Waters* (NCDOT, 1997) and other applicable guidelines pertaining to best management practices. Means to minimize impacts will include (1) utilizing construction methods that will limit instream activities as much as practicable, (2) restoring the stream bed as needed, and (3) revegetating stream banks immediately following the completion of grading.

E. Special Topics

E.1. Waters of the United States

Surface waters within the embankments of the Linville River are subject to jurisdictional consideration under Section 404 of the Clean Water Act as "Waters of the United States" (33 CFR 328.3). Wetlands subject to review under Section 404 of the Clean Water Act (33 U.S.C. 1344) are defined by the presence of three primary criteria: hydric soils, hydrophytic vegetation, and evidence of hydrology within 12 inches of the soil surface for a portion (12.5 percent) of the growing season (DOA 1987). Based on this three-parameter approach, jurisdictional wetlands do occur within the project study area in the form of Piedmont/Mountain Semi-Permanent Impoundment. Wetlands associated with this impoundment consist of a diked/impounded, permanently flooded, palustrine habitat with and unconsolidated bottom (PUBHh) and an associated diked/impounded, seasonally flooded, persistent, emergent wetland (PEM1Ch).

The surface waters within the Linville River exhibit characteristics of a permanently flooded, lower perennial, riverine habitat with an unconsolidated bottom (R2UBH). The Linville River is a jurisdictional surface water.

E.2. Anticipated Impacts to Waters of the United States

Temporary and permanent impacts to surface waters and wetlands are estimated based on the amount of each jurisdictional area within the project limits. Temporary impacts include those impacts that will result from temporary construction activities outside of permanent right-of-way and/or those associated with temporary on-site detours. Temporary impact areas will be restored to their original condition after the project has been completed. Permanent impacts are those areas that will be in the construction limits and/or the proposed right-of-way of the new structure and approaches. Portions of those areas that are considered temporary impact areas often end up being within the final right-of-way. Potential wetland and surface water impacts are included in Table 3.

Table 3
Anticipated Impacts to Jurisdictional Wetlands and Surface Waters

JURISDICTIONAL AREAS	ALT A		ALT B		ALT C	
	Impacts		Impacts		Impacts	
R2UBH	0.00		0.00		0.00	
PUBHh	0.00		0.00		0.00	
PEM1Ch	0.00		0.00		0.00	
TOTAL FOR ALT (acres):	**0.00**		**0.00**		**0.00**	
	Impacts	Temp. Impacts	Impacts	Temp. Impacts	Impacts	Temp. Impacts
Perennial Stream Channel Impacts feet	0	230	0	270	0	250
TOTAL FOR ALT feet (meters)	**230**		**270**		**250**	

R2UBH – riverine, lower perennial, unconsolidated bottom, permanently flooded
PUBHh – diked/impounded, permanently flooded, palustrine habitat, unconsolidated bottom
PEM1Ch – diked/impounded, seasonally flooded, persistent, emergent

*Note: Temporary construction impacts are based on the portion of the impacts not included in the construction limits for the permanent structure.

There are no anticipated impacts to the jurisdictional wetlands that were found within the project study area. The preferred alternative, Alternative C, will have temporary impact on 250 feet of Perennial Stream Channel.

E.2. Permits

Section 404 of the Clean Water Act - In accordance with Section 404 of the Clean Water Act (33 U.S.C. 1344), a permit is required from the USACE for projects of this type for the discharge of dredge or fill material in "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 or cumulative environmental impacts, or when the general permit would result in avoiding unnecessary duplication of 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.

A Nationwide 33 Permit may be required for any temporary de-watering activity or impact for the project. This may include, but not limited to, the removal of the existing footings, dropping of any structure components into Waters of the US, temporary construction access, temporary work pads, and the installation or extension of existing or new pipes or culverts

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. This permit authorizes any activities, work, and discharges undertaken, assisted, authorized, regulated, funded, or financed, in whole or in part, by another federal agency and that the activity is "categorically excluded" from environmental documentation because it is included within a category of actions which neither individually nor cumulatively have a significant effect on the environment. Activities authorized under nationwide permits must satisfy all terms and conditions of the particular permit. However, final permit decisions are left to the discretionary authority of the USACE. Since the proposed project is located in a designated "Trout" county, the authorization of a nationwide permit by the USACE is conditioned upon the concurrence of the NCWRC.

Section 401 Water Quality Certification - A 401 Water Quality Certification, administered through the DWQ, will also be required. This certification is issued for any activity which may result in a discharge into waters for which a federal permit is required. According to the DWQ, on condition of the permit is that the appropriate sediment and erosion control practices must be utilized to prevent exceedences of the appropriate turbidity water quality standard.

E.4. 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" and sequencing. The purpose of this policy is to restore and maintain the chemical, biological, and physical integrity of the waters of the United States, specifically wetlands. Mitigation of wetland impacts has been defined by the CEQ to include: avoiding impacts, minimizing impacts, rectifying impacts, reducing impacts over time, and compensating for impacts (40 CFR 1508.20). Each of these three aspects (avoidance, minimization, and compensatory mitigation) must be considered sequentially.

Avoidance – Mitigation by avoidance examines appropriate and practicable measures for averting impact to Waters of the United States. A 1990 Memorandum of Agreement between the Environmental Protection Agency (EPA) and the USACE, states that in determining appropriate and practicable measures to offset unavoidable impacts; such measures should be appropriate to the scope and degree of those impacts and practicable in terms of cost, existing technology, and logistics in light of overall project purposes.

The project purpose necessitates traversing the Linville River; therefore, totally avoiding surface water impacts is impossible.

Minimization – Minimization of adverse impact to Waters of the United States includes examination of appropriate and practicable measures to reduce such impacts. Implementation of these steps will be required through project modifications and permit conditions. Adverse impacts are typically minimized by decreasing the proposed project footprint through reduction of median widths, right-of-way widths, and/or fill slopes.

Other practical mechanisms to minimize impacts to waters of the United States include strict enforcement of sedimentation control BMPs for protection of surface waters during the entire life of the project; reduction of clearing and grubbing activity; reduction/elimination of direct discharge into streams; reduction of runoff velocity; reestablishment of vegetation on exposed areas, with judicious pesticide and herbicide management; minimization of instream activity; and litter/debris control.

No measures are proposed for this project because there are no anticipated impacts to jurisdictional wetlands within the project study area.

Compensatory Mitigation – Compensatory mitigation, including restoration, creation and enhancement of Waters of the United States is typically not considered until anticipated impacts to Waters of the United States have been avoided and minimized to the maximum extent practicable. Further, it is recognized "that no net loss of wetlands" may not be achievable in every permit action. Therefore, compensatory mitigation is required for unavoidable adverse impacts which remain after all appropriate and practicable minimization measures have been required.

Compensatory mitigation is not expected to be required for this project. A final determination regarding mitigation requirements rest with the USACE.

F. Protected Species

F.1. Federally Protected Species

Species with the 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 (ESA) of 1973, as amended (16 U.S.C. 1531 *et seq.*). The following federal protected species are listed for Burke County (USFWS list dated March, 22, 2001):

Table 4
Federally Protected Species Listed for Burke County

Common Name	Scientific Name	Status	Biological Conclusion
Bald Eagle	*Haliaeetus leucocephalus*	T	No Effect
Bog Turtle	*Clemmys Muhlenbergii*	T (S/A)	No Effect
Dwarf-flowered Heartleaf	*Hexastylis naniflora*	T	No Effect
Heller's Blazing Star	*Liatris helleri*	T	No Effect
Mountain Golden Heather	*Hudsonia Montana*	T	No Effect
Small-whorled Pogonia	*Isotria medeoloides*	T	No Effect
Spreading Avens	*Geum radiatum*	E	No Effect

Endangered - any native or once-native species in danger of extinction throughout all or a significant portion of its range.
Threatened - any native or once-native species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.
T(S/A) – Threatened, due to similarity of appearance

Bald Eagle – The bald eagle is a large raptor. The characteristic adult plumage consists of a white head and tail with a dark brown body. Juvenile eagles are completely dark brown and do not fully develop the white head and tail until the fifth or sixth year. Fish are the primary food source, but bald eagles will also take a variety of birds,

mammals, and turtles (both live and as carrion) when fish are not readily available. Adults average about 3.0 ft from head to tail, weigh approximately 10.0 to 12.0 pounds and have a wingspan that can reach 7.0 ft. Generally, female bald eagles are somewhat larger than the males.
Habitat includes quiet coastal areas, rivers or lakeshores with large, tall trees. Man-made reservoirs have also provided habitat.

The North Carolina Natural Heritage Program's database of rare species and unique habitats was reviewed in September, 2001. No populations of the species have been recorded in the project vicinity. The project area was investigated on July 26, 2001. No individual organisms, populations, or suitable habitat were observed within the project area.

BIOLOGICAL CONCLUSION: NO EFFECT

Dwarf-flowered Heartleaf – This species, which is found in the Upper Piedmont regions of South Carolina and North Carolina, has the smallest flowers of any North American plant in the genus Hexastylis. The flowers of most individuals are less than 0.4 inch long, and their sepal tubes are narrow, never more than 0.2 to 0.3 inches wide even in flower. Flower color usually ranges from beige to dark brown; sometimes it is greenish or purplish. The flowers are jug-shaped, and the plant's dark green leaves are heart-shaped, evergreen, and leathery. Plant stalks are long and thin, originating from an underground root. Another name for this species is dwarf-flowered wild ginger.

Dwarf-flowered heartleaf grows in acidic, sandy loam soils along bluffs and nearby slopes; in boggy areas adjacent to creekheads and streams; and along the slopes of hillsides and ravines. Soil type is the most important habitat requirement. The species needs Pacolet, Madison gravelly sandy loam, or Musella fine sandy loam soils to grow and survive. Provided the soil type requirement exists, the plant can survive in either dry or moderately moist habitat. For maximum flowering, the plant needs sunlight in early spring. Creekheads where shrubs are rare, and bluffs with light gaps are the habitat types most conducive to flowering and high seed production. Seed output is lowest in bluff populations with a lot of shade.

Habitat in the form of acidic, sandy loam soils along bluffs and nearby slopes, in boggy areas adjacent to creek heads and streams, and along the slopes of hillsides and ravines was present in the project area. However, a plant-by-plant survey of the project area revealed no individual plants. A September 17, 2002 review of the Natural Heritage Programs database for rare species and unique habitats revealed no known populations within 1.0 mile of the project area.

BIOLOGICAL CONCLUSION: NO EFFECT

Heller's Blazing Star - Heller's blazing star is a perennial herb that has one or more erect or arching stems arising from a tuft of narrow pale green basal leaves. Its stems reach up to 1.3 ft in height and are topped by a showy spike of lavender flowers, which are 2.8 to 7.9 inches long (Porter, 1891). Its flowering season lasts from July through September, and its fruits are present from September through October (Kral, 1983; Radford et al., 1964). This plant is differentiated from other similar high altitude Liatris species by a much shorter pappus, ciliate petioles, internally pilose corolla tubes, and a lower, stockier habit (Cronquist, 1980; Gaiser, 1946). Work is being conducted on populations in two locations, which may result in their being reclassified as a new taxon (Sutter, in preparation). If so, these plants will remain protected under the Endangered Species Act.

The plant exists on high elevation ledges of rock outcrops in shallow, acid soils, which are exposed to full sunlight.
Habitat in the form of high elevation ledges of rock outcrops in shallow, acid soils, exposed to full sunlight was not present in the project area. A September 17, 2002 review of the Natural Heritage Programs database for rare species and unique habitats revealed no known populations within 1.0 mile of the project area.

BIOLOGICAL CONCLUSION: NO EFFECT

Mountain Golden Heather - Mountain golden heather is a low, needle-leaved shrub with yellow flowers and long-stalked fruit capsules. It usually grows in clumps of 4 to 8 inches across and about 6.0 inches high and sometimes is seen in larger patches of 1.0 to 2.0 ft across. The plants have the general aspect of a big moss or a low juniper, but their branching is more open; their leaves are about 0.25 inch long; and the plant is often somewhat yellow-green in color, especially in shade. The leaves from previous years appear scale-like and persist on the older branches. The flowers appear in early or mid-June, and are yellow, nearly 1.0 inch across, with five blunt-tipped petals and 20 to 30 stamens. The fruit capsules are on 0.5 inch stalks, and are roundish with three projecting points at the tips. These fruits often persist after opening, and may be seen at any time of the year.

Mountain golden heather grows on exposed quartzite ledges in an ecotone between bare rock and *Leiophyllum* dominated heath balds that merge into pine/oak forest. The plant persists for some time in the partial shade of pines, but it appears less healthy than in open areas.

Habitat in the form of exposed quartzite ledges in an ecotone between bare rock and *Leiophyllum* dominated heath balds that merge into pine/oak forest was not present in the project area. A September 17, 2002 review of the Natural Heritage Programs database for rare species and unique habitats revealed no known populations within 1.0 mile of the project area.

BIOLOGICAL CONCLUSION: NO EFFECT

Small-whorled Pogonia - Small whorled pogonia is a perennial with long, pubescent roots and a smooth, hollow stem 3.7 to 9.8 inches tall terminating in a whorl of five or six light green, elliptical leaves that are somewhat pointed and measure up to 3.1 by 1.6 inches. A flower, or occasionally two flowers, is produced at the top of the stem. Small whorled pogonia's nearest relative is I. verticillata, which looks similar but can be distinguished by its purplish stem and by differences in the flower structure. I. verticillata is much more common and widespread than the small whorled pogonia. When not in flower, young plants of Indian cucumber-root (Medeola virginiana) also resemble small whorled pogonia. However, the hollow stout stem of Isotria will separate it from the genus Medeola, which has a solid, more slender stem.

Flowering occurs from about mid-May to mid-June, with the flowers apparently lasting only a few days to a week or so. In addition, this plant doesn't necessarily flower annually. Usually only one flower is produced per plant. If pollination occurs, a capsule may be formed which can contain several thousand minute seeds. No evidence of insect pollination has been observed. This plant is believed to be self-pollinating by mechanical processes. The flower lacks both nectar guides and fragrance. There is no evidence for asexual reproduction. Individual plants

may not flower every year; and extended dormancy, although not scientifically documented, is purported to occur under certain conditions.
This species is generally known from open, dry, deciduous woods with acid soil. It occurs in habitat where there is relatively high shrub or sapling coverage.

Habitat in the form of open, dry, deciduous woods with acid soil was present in the project area. However, a plant-by-plant survey of the project area revealed no individual plants. A September 17, 2002 review of the National Heritage Programs database for rare species and unique habitats revealed no known populations within 1.0 mile of the project area.

BIOLOGICAL CONCLUSION: NO EFFECT

Spreading Avens - Spreading avens is a perennial herb. Spreading avens is topped with an indefinite cyme of large, bright yellow flowers. Its leaves are mostly basal with large terminal lobes and small laterals, and they arise from horizontal rhizomes. Plant stems grow 8 to 19 inches tall. Flowering occurs from June through September, and the fruits (achenes) are produced from August through October.

The species inhabits high elevation cliffs, outcrops, and steep slopes that are exposed to full sun. The adjacent spruce/fir forests are dominated by red spruce (Picea rubens) and a federal candidate species, Fraser fir (Abies fraseri). Heller's blazing star (Liatris helleri) and/or Blue Ridge goldenrod (Solidago spithamaea), both federally-listed as threatened species, are also present at some sites. The substrate at all the population sites is composed of various igneous, metamorphic, and metasedimentary rocks (Massey et al, 1980; Morgan, 1980; Kral, 1983; Department of the Interior, 1990).

The North Carolina Natural Heritage Program's database of rare species and unique habitats was reviewed in September, 2001. No populations of the species have been recorded in the project vicinity. The project area was investigated on July 26, 2001. No individual organisms, populations, or suitable habitat were observed within the project area. Elevations within the project area range from approximately 3,180 to 3,320 ft msl, which are below the range of 5,000 to 5,800 ft msl for known populations.

BIOLOGICAL CONCLUSION: NO EFFECT

F.2. Federal Species of Concern

Federal Species of Concern (FSC) are not afforded federal protection under the Endangered Species Act and are not subject to any of the provisions included in Section 7 until they are formally proposed or listed as Threatened or Endangered. In addition to the federal program, organisms that are listed as Endangered (E), Threatened (T), or Special Concern (SC) by the North Carolina Natural Heritage Program (NCNHP) on its list of Rare Plant and Animal Species are afforded state protection under the NC State Endangered Species Act and the NC Plant Protection and Conservation Act of 1979. Table 5 lists the Federal Species of Concern for Burke County, the state status of these species, and the potential for suitable habitat in the project area. The NCNHP database shows no occurrences of FSC within 0.6 mile of the project study area as of January 2001.

Table 5
Federal Species of Concern (FSC) listed for Burke County

Common Name	Scientific Name	Potential Habitat	State Status
Southern Appalachian Woodrat	*Neotoma floridana haematoreia*	Yes	SC
Allegheny Woodrat	*Neotoma magister*	Yes	SC
Brook Floater	*Alasmidonta varicosa*	Yes	T
American Eel	*Anguilla Rostrata*	Yes	–
Rafinesque's Big-eared Bat	*Corynorhinus Rafinesquii*	Yes	T
Red Crossbill (Southern Appalachian)	*Loxia Curvirostra*	Yes	SC
Cherokee Clubtail	*Gomphus Consanguis*	Yes	–
Margarita River Skimmer	*Macromia Margarita*	Yes	–
Cuthbert Turtlehead	*Chelone Cuthbertii*	No	–
Edmund's Snaketail Dragonfly	*Ophiogomphus edmundo*	Yes	SR
Pygmy Snaketail Dragonfly	*Ophiogomphus howei*	Yes	SR
Diana Fritillary Butterfly	*Speyeria diana*	Yes	SR
Butternut	*Juglans cinerea*	Yes	—
Sweet Pinesap	*Monotropsis odorata*	Yes	C
Carolina saxifrage	*Saxifraga caroliniana*	Yes	C
A Liverwort	*Porella Wataugensis*	No	–
A Liverwort	*Cephaloziella obtusilobula*	Yes	C
A Liverwort	*Plagiochila sullivantii var. spinigera*	No	C
A Liverwort	*Plagiochila sullivantii var. sullivantii*	No	C

Threatened (T) - any native or once-native species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.
Special Concern (SC) – any species which requires monitoring but which may be collected and sold under specific regulations.
Candidate(C) – a species for which USUSFWS has enough information on file to support proposals for listing as endangered or threatened.
Significantly Rare(SR) – species which are very rare, generally with 1-20 populations in the state, and generally reduced in numbers by habitat destruction.

F.3. Summary of Anticipated Impacts

The proposed project is not anticipated to impact any threatened or endangered species.

VI. CULTURAL RESOURCES

A. Compliance Guidelines

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

the National Register of Historic Places and to afford the Advisory Council on Historic Preservation a reasonable opportunity to comment on such undertakings. This project has been coordinated with the North Carolina State Historic Preservation Office (HPO) in accordance with the Advisory Council's regulations and FHWA procedures.

B. Historic Architecture

In a memorandum dated January 24, 2002 the HPO stated there are no structures of historical or architectural importance within the APE, and no surveys were recommended by HPO. A copy of the memorandum is included in the Appendix.

C. Archaeology

The HPO, in a memorandum dated February 7, 2006 concurred "that no further archaeological investigation be conducted in connection with this project." A copy of the HPO memorandum is included in the Appendix.

VIII. ENVIRONMENTAL EFFECTS

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

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

Replacement of Bridge No. 26 will not have an adverse effect on the quality of the human or natural environment with the use of the current North Carolina Department of Transportation standards and specifications.

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

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

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

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 and environmental impacts as a result of this project. The investigation determined the project would not disproportionately impact any minority or low-income populations.

The studied route does not contain any bicycle accommodations, nor is it a designated bicycle route; therefore, no bicycle accommodations have been included as part of this project.

This project has been coordinated with the United States Department of Agriculture, Natural Resources Conservation Service. The Farmland Protection Policy Act requires all federal agencies or their representatives to consider the potential impact to prime farmland for all land acquisition and construction projects. Alternative A,

Alternative B, and Alternative C would impact 0 acres of Prime and Unique Farmland. Alternative C is the preferred alternative and therefore impacts to prime or locally important farmlands are minimized.

A portion of the Blue Ridge National Parkway will be impacted by the project. No other publicly owned parks or recreational facilities, wildlife and waterfowl refuges, or historic sites of national, state or local significance in the immediate vicinity of the project will be impacted.

The proposed project will require a permanent highway easement deed for impacted land in the Blue Ridge National Parkway that is protected under Section 4(f) of the Department of Transportation Act of 1966.

No adverse effects to air quality are anticipated from this project. This project is an air quality "neutral" project, so it is not required to be included in the regional emissions analysis and a project level CO analysis is not required. Since the project is located in an attainment area, 40 CFR Part 51 is not applicable. If vegetation or wood debris is disposed of by open burning, it shall be done in accordance with applicable local laws and regulations of the North Carolina State Implementation Plan (SIP) for air quality in compliance with 15 NCAC 2D.0520 and 1990 Clean Air Act Amendments and the National Environmental Policy Act.

The purpose of this project is to replace Bridge No. 26 by constructing a new structure. This project will not result in any meaningful changes in traffic volumes, vehicle mix, location of the existing facility, or any other factor that would cause an increase in emissions impacts relative to the no-build alternative. As such, FHWA has determined that this project will generate minimal air quality impacts for Clean Air Act criteria pollutants and has not been liked with any special MSAT concerns. Consequently, this effort is exempt from analysis for MSATs.

EPA regulations for vehicle engines and fuels will cause overall MSATs to decline significantly over the next 20 years. FHWA predicts MSATs will decline in the range of 57 percent to 87 percent, from 2000 to 2020, based on regulations now in effect, even with a projected 64 percent increase in vehicle miles traveled (VMT). Therefore, both the background level of MSATs and the possibility of even minor MSAT emissions from this project will be reduced.

This evaluation completes the assessment requirements for air quality, and no additional reports are required.

Ambient noise levels may increase during the construction of this project; however this increase will be only temporary and usually confined to daylight hours. There should be no notable change in traffic volumes after this project is complete. Therefore, this project will have no adverse effect on existing noise levels. Noise receptors in the project area will not be impacted by this project. This evaluation completes the assessment requirements for highway noise set forth in 23 CFR Part 772. No additional reports are required.

The NCDOT Geotechnical Unit determined that no underground storage tanks or areas of other contamination were present at or near the project study area.

Burke County is a participant in the National Flood Insurance Regular Program. The bridge is within an approximate study area. The new structure should be designed to match or lower the existing 100-year storm elevation upstream of the roadway. The replacement structure is proposed as an in-kind replacement and in the absence of historical problems, increased flood impacts associated with this bridge replacement are not anticipated. The FEMA flood map which covers the study area is shown in Figure 8. Since the proposed

replacement for Bridge No. 26 will be a structure similar in waterway opening size, it is not anticipated that it will have any significant impact on the existing floodplain and floodway. Existing drainage patterns will be maintained to the extent practicable and groundwater resources will not be affected. The bridge is located below headwaters. The existing bridge site is not located in a Water Supply Watershed Area.
Geotechnical borings for the bridge foundation will be necessary.

Based on the above discussion, it is concluded that no substantial adverse environmental impact will result from the replacement of Bridge No. 26.

IX. PUBLIC INVOLVEMENT

A Citizen's Informational Workshop was held on July 21, 2003 at the Jonas Ridge Fire Department. There were approximately 40 people in attendance at the workshop. A majority of the citizens expressed concern at any alternative that would close the road and use an off-site detour during construction. The Burke County Board of Commissioners submitted a letter opposing any alternative that would close NC 183 for the construction of the bridge.

XI. AGENCY COMMENTS

Agency comments are summarized below. Letters from the commenting agencies are included in the appendix.

North Carolina Wildlife Resources Commission (NCWRC): Proposes moratoriums from February 15 to May 30 for Walleye and White Bass and from October 15 to April 15 for Wild Brown Trout.

> **Response:** The NCDOT will observe a moratorium on in-water between October 15 to April 15. The Walleye and White Bass are not afforded legal protection and NCDOT does not honor their moratorium.

XII. REFERENCES

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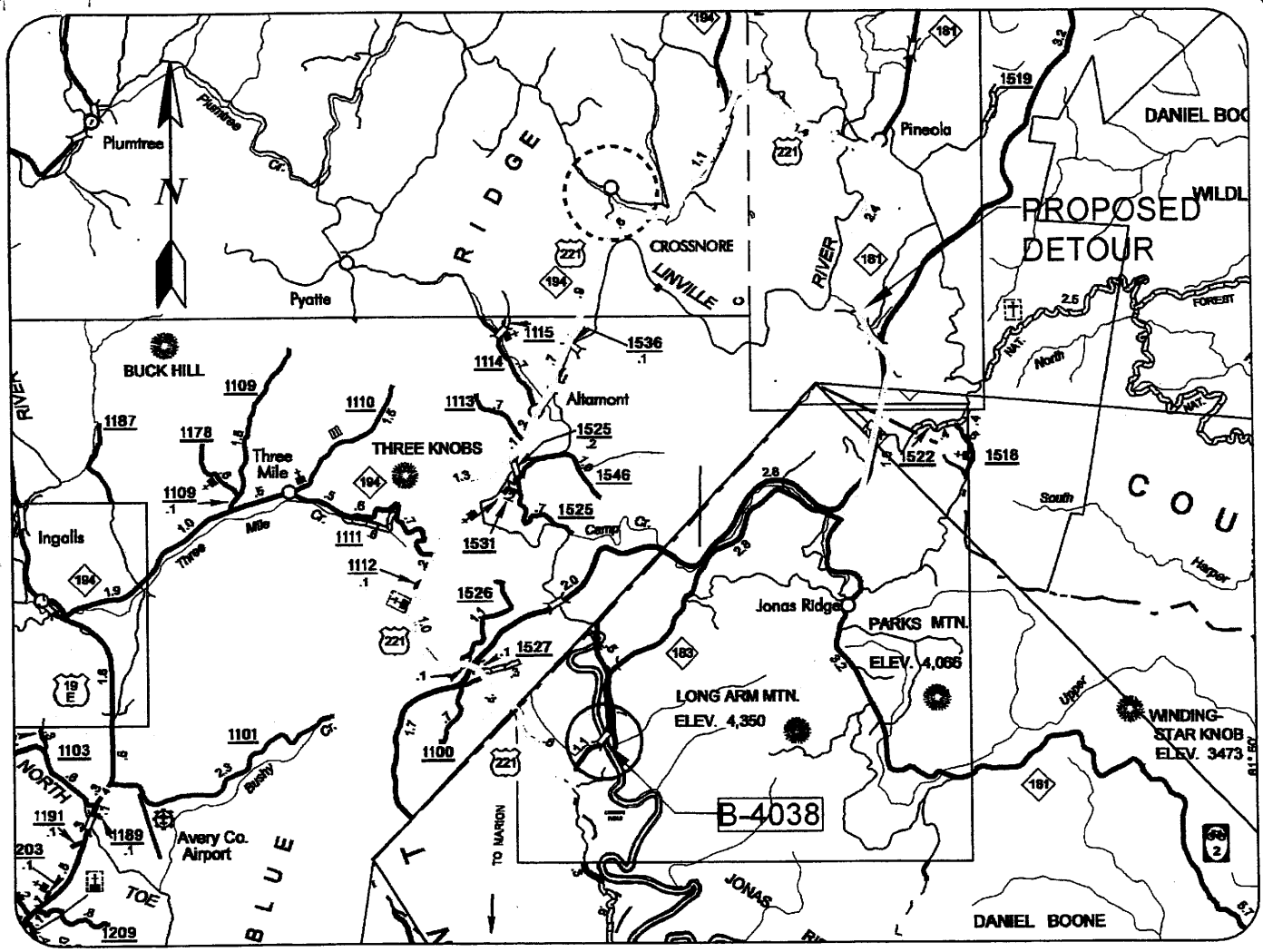
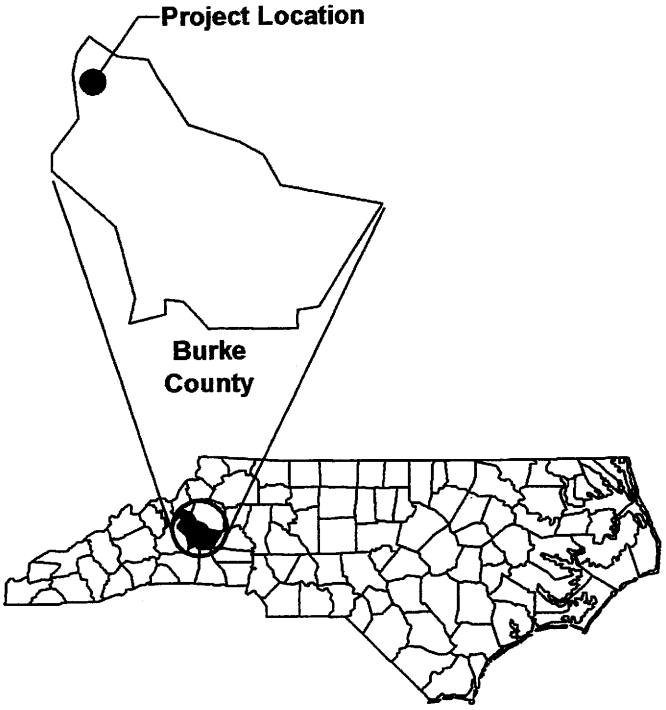
FIGURES





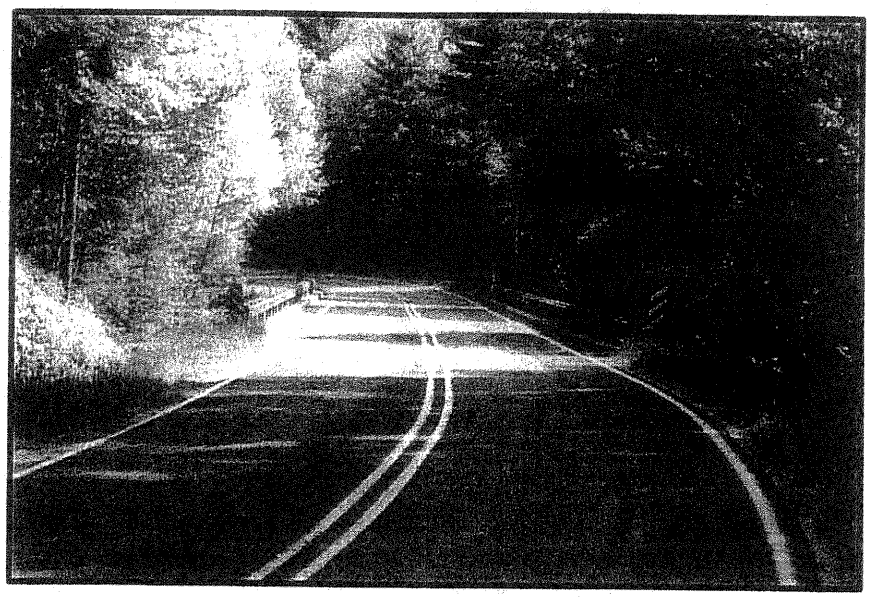
NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

NC 183
Replace Bridge No. 26 over
Linville River
Burke County, North Carolina

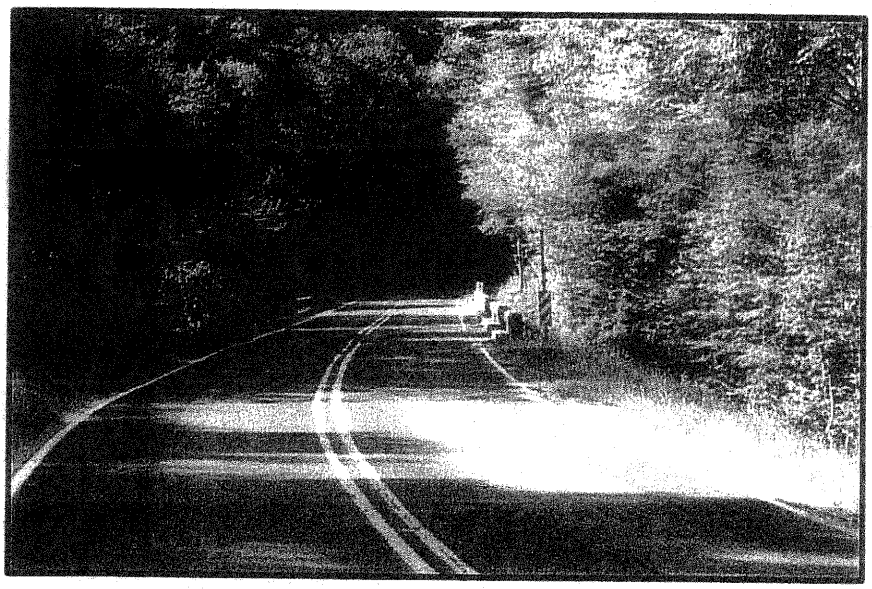
TIP NO. B-4038
PROJECT LOCATION MAP

Not to Scale

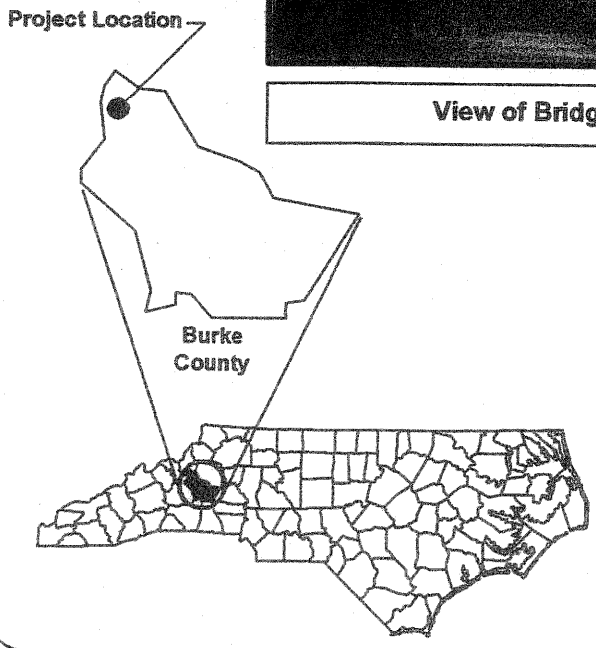
Figure 1



View of Bridge Approach Looking North



View of Bridge Approach Looking South



NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

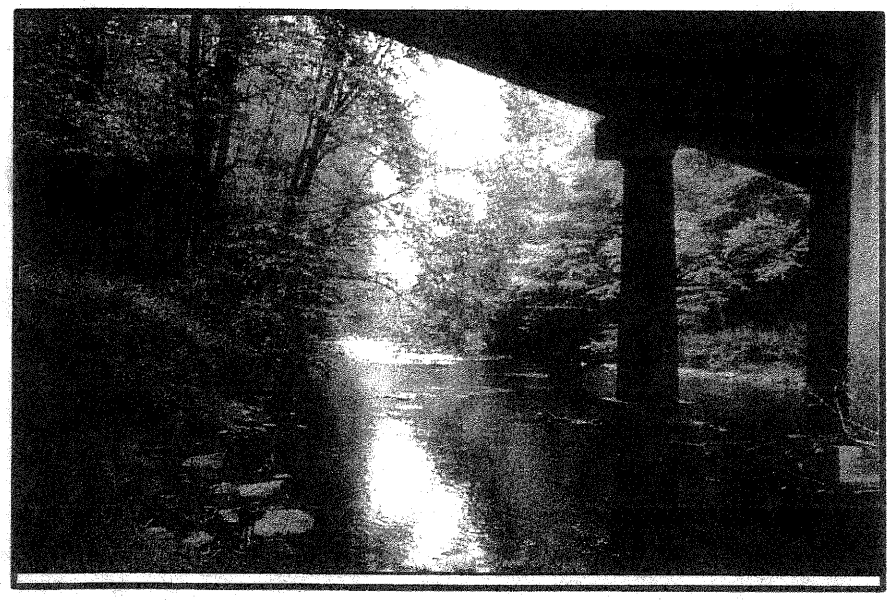
NC 183
Replace Bridge No. 26 over
Linville River
Burke County, North Carolina

TIP NO. B-4038

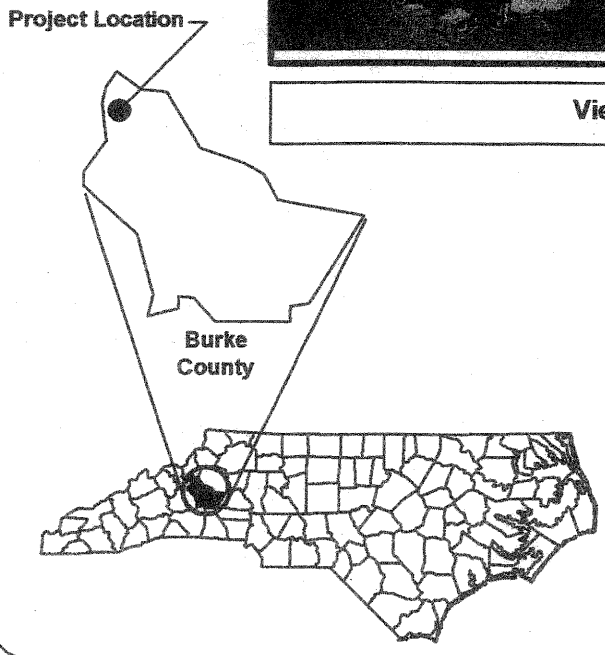
Not to Scale

FIGURE 2

View Under Bridge



View Under Bridge



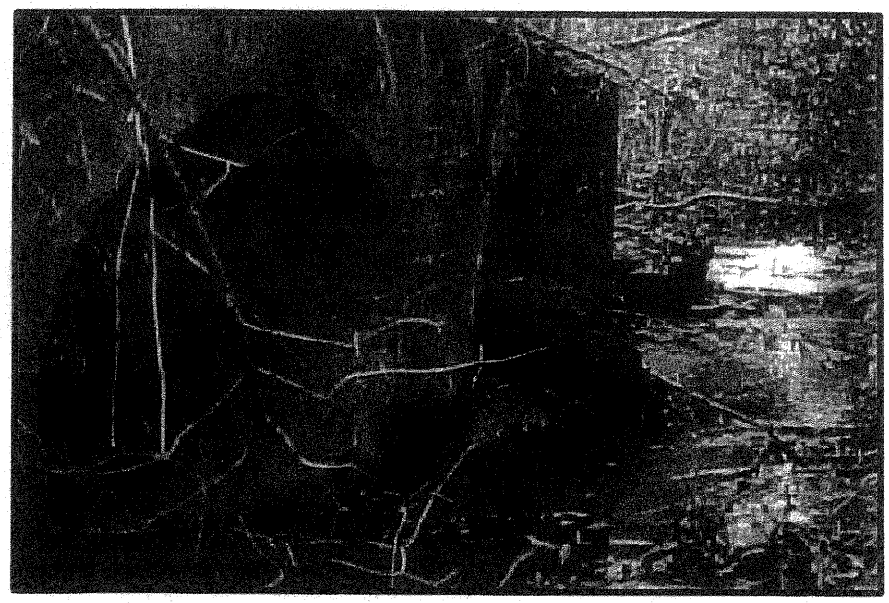
NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

NC 183
Replace Bridge No. 26 over
Linville River
Burke County, North Carolina

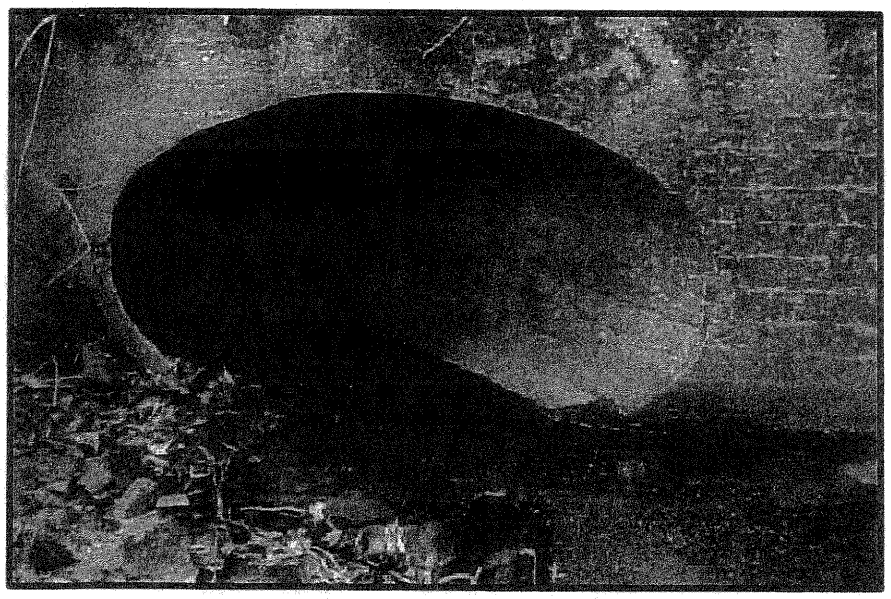
TIP NO. B-4038

Not to Scale

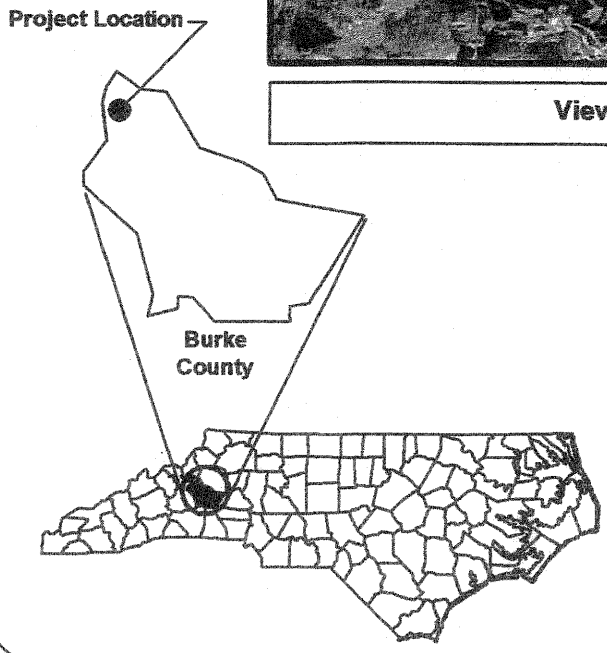
FIGURE 3



View of Culverts



View of Culverts



NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

NC 183
Replace Bridge No. 26 over
Linville River
Burke County, North Carolina

TIP NO. B-4038

Not to Scale

FIGURE 4

10/26/98

REVISIONS

(ALTERNATIVE A)
(REPLACE IN – PLACE WITH OFF-SITE DETOUR)
FIGURE 5

DESIGN DATA

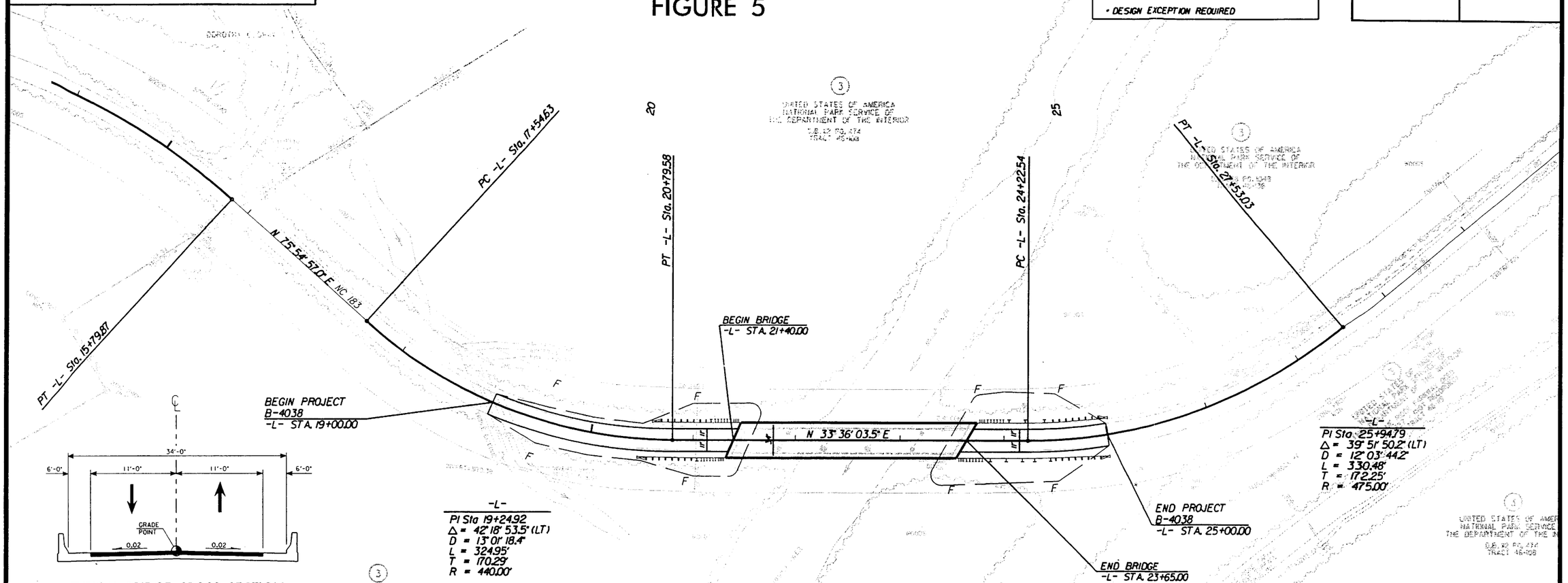
DESIGN SPEED	60 mph *
POSTED SPEED	55 mph
CURRENT YEAR ADT (2001)	700 vpd
DESIGN YEAR ADT (2025)	1,200 vpd
% TTST ,% DUALS	1% ,3%
FUNCTIONAL CLASSIFICATION	Rural Major Collector
TERRAIN	Mountainous
MAX RADIUS	1205 ft
MAXIMUM GRADE	8% Mountainous
SUPERELEVATION RATE	Se = 0.08

* DESIGN EXCEPTION REQUIRED

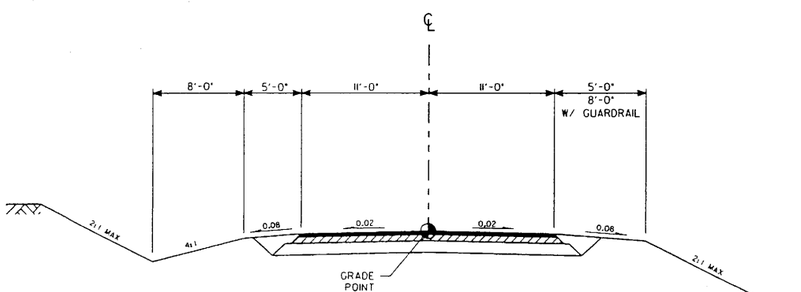
PROJECT REFERENCE NO.	SHEET NO.
B-4038	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



TYPICAL BRIDGE CROSS SECTION



TYPICAL ROADWAY CROSS SECTION

NC GRID
NAD 83

SCALE
50 0 50 100

Ramey Kemp & Associates, Inc.
Transportation Consulting Engineers
4928-A Windy Hill Drive Raleigh, North Carolina 27609
(919) 872-565 fax (919) 878-5496

10/26/98

REVISIONS

(ALTERNATIVE B)
(REPLACE IN – PLACE WITH ON–SITE DETOUR)
FIGURE 6

DESIGN DATA

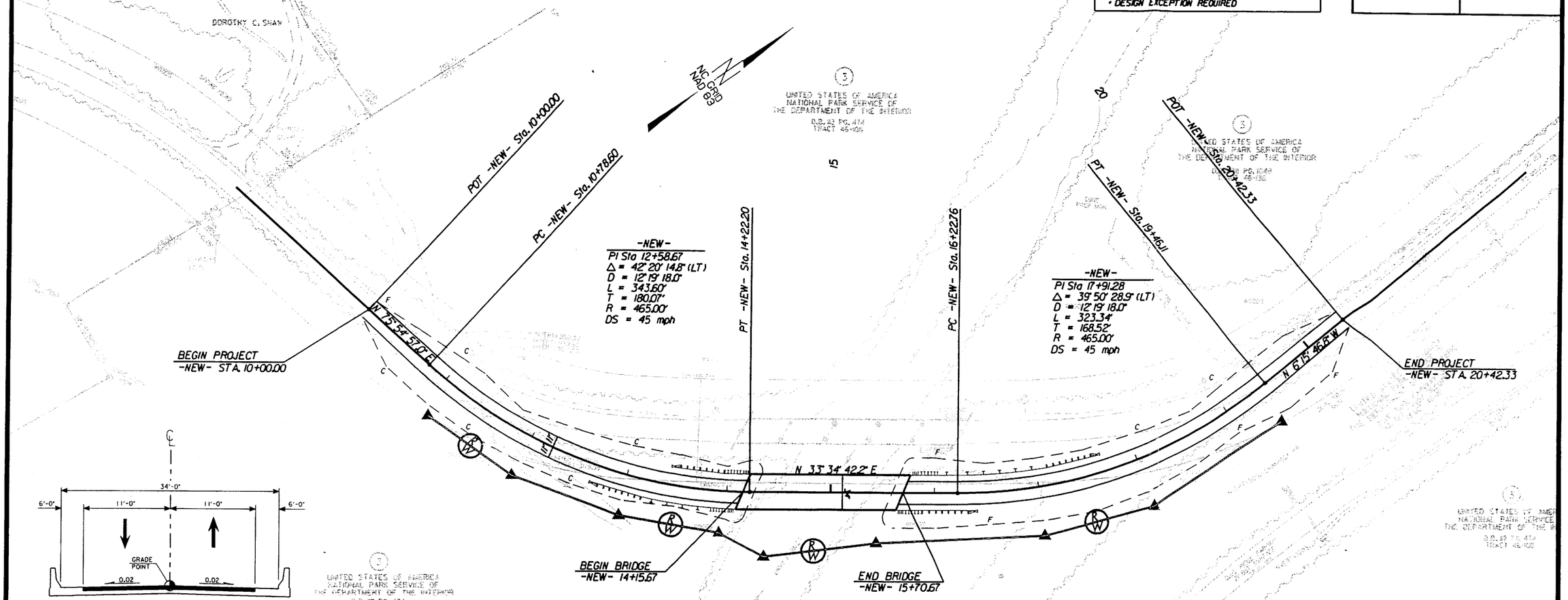
DESIGN SPEED	60 mph *
POSTED SPEED	55 mph
CURRENT YEAR ADT (2001)	700 vpd
DESIGN YEAR ADT (2025)	1,200 vpd
% TTST ,% DUALS	1% ,3%
FUNCTIONAL CLASSIFICATION	Rural Major Collector
TERRAIN	Mountainous
MAX RADIUS	1205 ft
MAXIMUM GRADE	8% Mountainous
SUPERELEVATION RATE	Se = 0.08

* DESIGN EXCEPTION REQUIRED

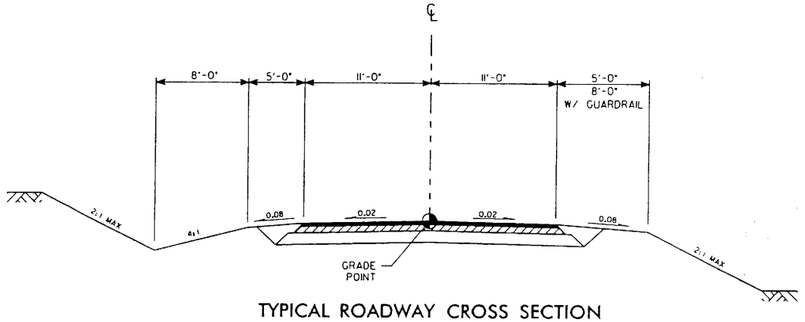
PROJECT REFERENCE NO.	SHEET NO.
B-4038	6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



TYPICAL BRIDGE CROSS SECTION



TYPICAL ROADWAY CROSS SECTION

SCALE
50 0 50 100

Ramey Kemp & Associates, Inc.
Transportation Consulting Engineers
4928-A Windy Hill Drive Raleigh, North Carolina 27609
(919) 872-5115 Fax (919) 878-5146

10/26/98

REVISIONS

(ALTERNATIVE C)
(NEW LOCATION)
FIGURE 7
(PREFERRED)

DESIGN DATA

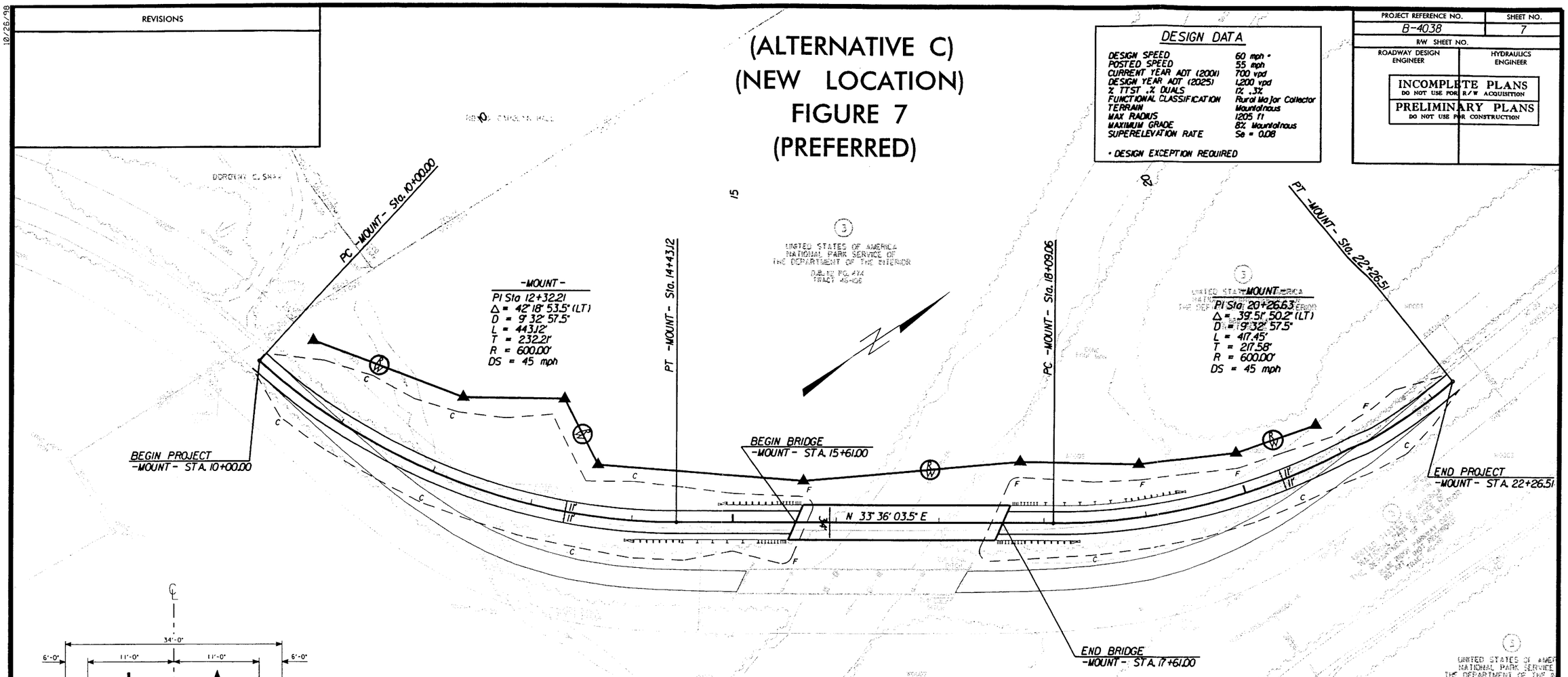
DESIGN SPEED	60 mph *
POSTED SPEED	55 mph
CURRENT YEAR ADT (2001)	700 vpd
DESIGN YEAR ADT (2025)	1,200 vpd
% TTST ,% DUALS	12 ,3%
FUNCTIONAL CLASSIFICATION	Rural Major Collector
TERRAIN	Mountainous
MAX RADIUS	1205 ft
MAXIMUM GRADE	8% Mountainous
SUPERELEVATION RATE	Se = 0.08

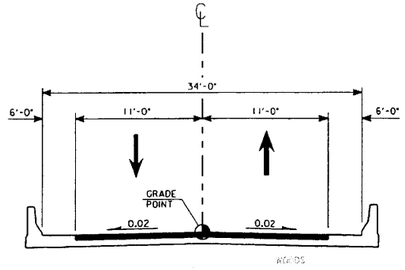
* DESIGN EXCEPTION REQUIRED

PROJECT REFERENCE NO.	SHEET NO.
B-4038	7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

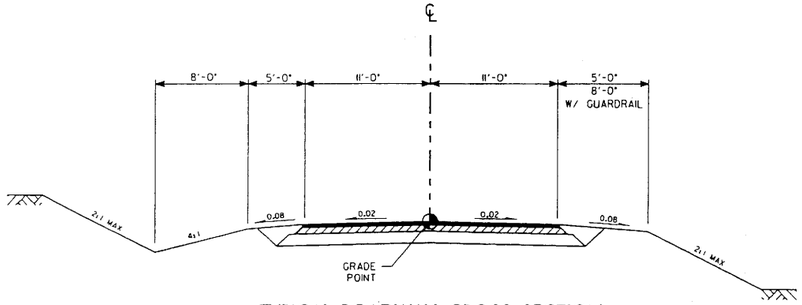
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION





TYPICAL BRIDGE CROSS SECTION



TYPICAL ROADWAY CROSS SECTION

SCALE
50 0 50 100

Ramey Kemp & Associates, Inc.
Transportation Consulting Engineers
4928-A Windy Hill Drive Raleigh, North Carolina 27609
(919) 872-5115 fax (919) 878-5416

APPENDIX

North Carolina Department of Cultural Resources

State Historic Preservation Office

Peter B. Sandbeck, Administrator

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

Office of Archives and History
Division of Historical Resources
David Brook, Director

February 7, 2006

MEMORANDUM

TO: Matt Wilkerson, Archaeology Supervisor
Division of Highways
Department of Transportation

FROM: Peter Sandbeck RBS for Peter Sandbeck

SUBJECT: Bridge No. 26 on NC 183, TIP B-4038, Burke County, ER 02-8499

Thank you for your letter of December 29, 2005, transmitting the archaeological survey report by Tracy Martin, TRC Garrow Associates, for the above project. The report meets our office's guidelines and those of the Secretary of the Interior.

During the course of the survey, one archaeological site was located within the project area. Ms. Martin has recommended that no further archaeological investigation be conducted in connection with this project. We concur with this recommendation since the project will not involve significant archaeological resources.

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

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

cc: Tracy Martin and Paul Webb, TRC Garrow Associates

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

bridge NF

North Carolina Department of Cultural Resources

State Historic Preservation Office

David L. S. Brook, Administrator

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

Division of Historical Resources
David J. Olson, Director

January 24, 2002

MEMORANDUM

TO: William D. Gilmore, Manager
Project Development and Environmental Analysis Branch
Division of Highways
Department of Transportation

FROM: David Brook David Brook

110026

SUBJECT: Bridge 26 on NC 183 Replacement, B-4038, Burke County, ER 02-8499

Thank you for your letter of September 25, 2001, concerning the above project.

There are no recorded archaeological sites within the project area. If the replacement is to be located along the existing alignment, it is unlikely that significant archaeological resources will be affected and no investigations 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. We have conducted a search of our files and are aware of no structures of historical or architectural importance located within the planning area.

We have conducted a search of our files and are aware of no structures of historical or architectural importance located within the planning area.

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

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

	Location	Mailing Address	Telephone/Fax
Administration	507 N. Blount St. Raleigh, NC	4617 Mail Service Center, Raleigh 27699-4617	(919) 733-4763 •733-8653
Restoration	515 N. Blount St. Raleigh , NC	4613 Mail Service Center, Raleigh 27699-4613	(919) 733-6547 •715-4801
Survey & Planning	515 N. Blount St. Raleigh, NC	4618 Mail Service Center, Raleigh 27699-4618	(919) 733-4763 •715-4801

North Carolina Wildlife Resources Commission

512 N. Salisbury Street, Raleigh, North Carolina 27604-1188, 919-733-3391
Charles R. Fullwood, Executive Director

TO: William T. Goodwin, Jr., PE, Unit Head
Bridge Replacement & Environmental Analysis Branch

FROM: Ron Linville, Habitat Conservation Coordinator
Habitat Conservation Program

DATE: May 10, 2002

SUBJECT: NCDOT Bridge Replacements in Burke County:
Bridge No. 26, NC183, Linville River, B-4038
Bridge No. 51, SR1424, Parks Creek, B-4043
Bridge No. 251, SR1128, Hall Creek, B-4040
Bridge No. 4, SR1515, Smoky Creek, B-4044
Bridge No. 57, SR1244, Canoe Creek, B-4041
Bridge No. 94, SR1972, East Prong Hunting Creek, B-4047
Bridge No. 19, SR1736, Camp Creek, B-4045
Bridge No. 91, SR1127, Silver Creek, B-4039

Biologists with the N. C. Wildlife Resources Commission (NCWRC) have reviewed the information provided and have the following preliminary comments on the subject project. Our comments are provided in accordance with provisions of the National Environmental Policy Act (42 U.S.C. 4332(2)(c)) and the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661-667d).

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

1. We generally prefer spanning structures. Spanning structures usually do not require work within the stream and do not require stream channel realignment. The horizontal and vertical clearances provided by bridges allows for human and wildlife passage beneath the structure, does not block fish passage, and does not block navigation by canoeists and boaters.

2. Bridge deck drains should not discharge directly into the stream.

3. Live concrete should not be allowed to contact the water in or entering into the stream.

4. If possible, bridge supports (bents) should not be placed in the stream.

5. If temporary access roads or detours are constructed, they should be removed back to original ground elevations immediately upon the completion of the project. Disturbed areas should be seeded or mulched to stabilize the soil and native tree species should be planted with a spacing of not more than 10'x10'. If possible, when using temporary structures the area should be cleared but not grubbed. Clearing the area with chain saws, mowers, bush-hogs, or other mechanized equipment and leaving the stumps and root mat intact, allows the area to revegetate naturally and minimizes disturbed soil.

6. A clear bank (riprap free) area of at least 10 feet should remain on each side of the steam underneath the bridge.

7. In trout waters, the N.C. Wildlife Resources Commission reviews all U.S. Army Corps of Engineers nationwide and general '404' permits. We have the option of requesting additional measures to protect trout and trout habitat and we can recommend that the project require an individual '404' permit.

8. In streams that contain threatened or endangered species, NCDOT biologist Mr. Tim Savidge should be notified. Special measures to protect these sensitive species may be required. NCDOT should also contact the U.S. Fish and Wildlife Service for information on requirements of the Endangered Species Act as it relates to the project.

9. In streams that are used by anadromous fish, the NCDOT official policy entitled "Stream Crossing Guidelines for Anadromous Fish Passage (May 12, 1997)" should be followed.

10. In areas with significant fisheries for sunfish, seasonal exclusions may also be recommended.

11. Sedimentation and erosion control measures sufficient to protect aquatic resources must be implemented prior to any ground disturbing activities. Structures should be maintained regularly, especially following rainfall events.

12. Temporary or permanent herbaceous vegetation should be planted on all bare soil within 15 days of ground disturbing activities to provide long-term erosion control.

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

14. Heavy equipment should be operated from the bank rather than in stream channels in order to minimize sedimentation and reduce the likelihood of introducing other pollutants into streams.

15. Only clean, sediment-free rock should be used as temporary fill (causeways), and should be removed without excessive disturbance of the natural stream bottom when construction is completed.

16. During subsurface investigations, equipment should be inspected daily and maintained to prevent contamination of surface waters from leaking fuels, lubricants, hydraulic fluids, or other toxic materials.

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

1. The culvert must be designed to allow for aquatic life and fish passage. Generally, the culvert or pipe invert should be buried at least 1 foot below the natural streambed (measured from the natural thalweg depth). If multiple barrels are required, barrels other than the base flow barrel(s) should be placed on or near stream bankfull or floodplain bench elevation (similar to Lyonsfield design). These should be reconnected to floodplain benches as appropriate. This may be accomplished by utilizing sills on the upstream and downstream ends to restrict or divert flow to the base flow barrel(s). Silled barrels should be filled with sediment so as not to cause noxious or mosquito breeding conditions. Sufficient water depth should be provided in the base flow barrel(s) during low flows to accommodate fish movement. If culverts are longer than 40-50 linear feet, alternating or notched baffles should be installed in a manner that mimics existing stream pattern. This should enhance aquatic life passage: 1) by depositing sediments in the barrel, 2) by maintaining channel depth and flow regimes, and 3) by providing resting places for fish and other aquatic organisms. In essence, base flow barrel(s) should provide a continuum of water depth and channel width without substantial modifications of velocity.

2. If multiple pipes or cells are used, at least one pipe or box should be designed to remain dry during normal flows to allow for wildlife passage.

3. Culverts or pipes should be situated along the existing channel alignment whenever possible to avoid channel realignment. Widening the stream channel must be avoided. Stream channel widening at the inlet or outlet end of structures typically decreases water velocity causing sediment deposition that requires increased maintenance and disrupts aquatic life passage.

4. Riprap should not be placed in the active thalweg channel or placed in the streambed in a manner that precludes aquatic life passage. Bioengineering boulders or structures should be professionally designed, sized, and installed.

In most cases, we prefer the replacement of the existing structure at the same location with road closure. If road closure is not feasible, a temporary detour should be designed and located to avoid wetland impacts, minimize the need for clearing and to avoid destabilizing stream banks. If the structure will be on a new alignment, the old structure should be removed and the approach fills removed from the 100-year floodplain. Approach fills should be removed down to the natural ground elevation. The area should be stabilized with grass and planted with native tree species. If the area reclaimed was previously wetlands, NCDOT should restore the area to wetlands. If successful, the site may be utilized as mitigation for the subject project or other projects in the watershed.

Project specific comments:

1. Bridge No. 26, NC183, Linville River, B-4038, RED LIGHT, Significant & historic resource, Proposed Critical Habitats, Game Lands, Trout clubs, National Park Service, Blue Ridge Parkway, Moratoriums proposed (15 Feb. – 30 May, Walleye and White Bass; 15 Oct – 31 March, Brown Trout), Brook floater (*Alasmidonta varicosa*) populations. NEW Spanning Bridge.

2. Bridge No. 51, SR1424, Parks Creek, B-4043 – YELLOW LIGHT, Santee Chub in John's River, No sport fish concerns indicated.

3. Bridge No. 251, SR1128, Hall Creek, B-4040 - GREEN LIGHT, No concerns indicated. Standard requirements.

4. Bridge No. 4, SR1515, Smoky Creek, B-4044 - YELLOW LIGHT, Moratorium for warm water fish species.

5. Bridge No. 57, SR1244, Canoe Creek, B-4041 - GREEN LIGHT, No concerns indicated. Standard requirements.

6. Bridge No. 94, SR1972, East Prong Hunting Creek, B-4047 - GREEN LIGHT, No concerns indicated. Standard requirements.

7. Bridge No. 19, SR1736, Camp Creek, B-4045 - GREEN LIGHT, No concerns indicated. Standard requirements.

8. Bridge No. 91, SR1127, Silver Creek, B-4039 - GREEN LIGHT, No concerns indicated. Standard requirements.

NCDOT should routinely minimize adverse impacts to fish and wildlife resources in the vicinity of bridge replacements. Restoring previously disturbed floodplain benches should narrow and deepen streams previously widened and shallowed during initial bridge installation. NCDOT should install and maintain sedimentation control measures throughout the life of the project and prevent wet concrete from contacting water in or entering into these streams. Replacement of bridges with spanning structures of some type, as opposed to pipe or box culverts, is recommended in most cases. Spanning structures allow wildlife passage along streambanks and reduce habitat fragmentation.

If you need further assistance or information on NCWRC concerns regarding bridge replacements, please contact me at (336) 769-9453. Thank you for the opportunity to review and comment on these projects.

Cc: David Cox, WRC

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

Michael Easley, Governor
Bill Ross, Secretary
Alan Klimek, Director

June 3, 2002

Memorandum To: William T. Goodwin, Jr., PE, Unit Head
Bridge Replacement Planning Unit
Project Development and Environmental Analysis Branch

Through: John Dorney
NC Division of Water Quality, 401 Unit

From: Robert Ridings
NC Division of Water Quality, 401 Unit

Subject: Review of Natural Systems Technical Reports for bridge replacement projects scheduled for construction in CFY 2005: "Yellow Light" Projects: B-2988, B-4032, B-4038, B-4039, B-4044, B-4045, B-4180, B-4179, B-4161, B-4144, B-4123, B-4067, B-4047.

In future reports, an Executive Summary Paragraph would be helpful. This should include brief description of the work intended (i.e., replace bridge with another bridge or with a culvert), the amount of impact to wetlands and streams, and types of possible permits needed.

On all projects, use of proper sediment and erosion control will be needed. Sediment and erosion control measures should not be placed in wetlands. Sediment should be removed from any water pumped from behind a cofferdam before the water is returned to the stream. Sedimentation and Erosion Control Guidelines for Sensitive Watersheds (15A NCAC 4B .0024) must be implemented prior to any ground-disturbing activities to minimize impacts to downstream aquatic resources. Temporary or permanent herbaceous vegetation must be planted on all bare soil *within 10 days* of ground-disturbing activities to provide long term erosion control.

This office would prefer bridges to be replaced with new bridges. However if the bridge must be replaced by a culvert and 150 linear feet or more of stream is impacted, a stream mitigation plan will be needed prior to the issuance of a 401 Water Quality Certification. 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.

Any proposed culverts shall be installed in such a manner that the original stream profile is not altered (i.e. the depth of the channel must not be reduced by a widening of the streambed).

Existing stream dimensions are to be maintained above and below locations of culvert extensions.

For permitting, any project that falls under the Corps of Engineers' Nationwide Permits 23 or 33 do not require written concurrence by the NC Division of Water Quality. Notification and courtesy copies of materials sent to the Corps, including mitigation plans, are required. For projects that fall under the Corps of Engineers Nationwide Permit 14 or Regional General Bridge Permit 31, the formal 401 application process will be required including appropriate fees and mitigation plans.

Do not use any machinery in the stream channels unless absolutely necessary. Additionally, vegetation should not be removed from the stream bank unless it is absolutely necessary. NCDOT should especially avoid removing large trees and undercut banks. If large, undercut trees must be removed, then the trunks should be cut and the stumps and root systems left in place to minimize damage to stream banks.

Use of rip-rap for bank stabilization must be minimized; rather, native vegetation should be planted when practical. If necessary, rip-rap must be limited to the stream bank below the high water mark, and vegetation must be used for stabilization above high water.

Rules regarding stormwater as described in (15A NCAC 2b.0216 (3) (G)) shall be followed for these projects. These activities shall minimize built-upon surface area, divert runoff away from surface waters and maximize utilization of BMPs. Existing vegetated buffers shall not be mowed in order to allow it to be most effectively utilized for storm water sheet flow.

Special Note on project B-4144: these waters are classified as 303(d) waters. Special measures for sediment control will be needed.

Also note that projects B-2988, B-4032, B-4038, B-4180, B-4179, B-4161, B-4144, B-4123, and B-4067 occur in Trout waters. Any trout-specific conditions that would be determined by the North Carolina Wildlife Resources Commission, to protect the egg and fry stages of trout from sedimentation during construction, would be required on any 401 certifications.

Thank you for requesting our input at this time. The DOT is reminded that issuance of a 401 Water Quality Certification requires that appropriate measures be instituted to ensure that water quality standards are met and designated uses are not degraded or lost.

US Fish and Wildlife Service

160 Zillicoa Street
Asheville, NC 28801
Phone 828-258-3939 Ext 237, Fax 828-258-5330

MEMO FOR: William T. Goodwin, P.E. **DATE:** June 27, 2002

FROM: Marella Buncick

SUBJECT: Review of NCDOT 2005 Bridge Program

I have completed initial review of the approximately 70 proposed bridge replacements for NCDOT Divisions 9-14 for the year 2005. I would like to commend NCDOT for obtaining the natural resource information up front and allowing the agencies to review the proposals and provide comments so early in the process. It was a large volume of work for everyone involved but I feel that the input will be much more meaningful at this early planning stage.

Attached is a spreadsheet with specific comments for each project reviewed. All of the projects have been assigned a Green, Yellow, or Red ranking depending on the resources affected and the need for future consultation. As you will note, the majority of the projects received a Yellow ranking. This is due in large part to the fact that there are unresolved issues related to listed species. Many of these projects likely will become Green projects after further field review. However, obligations under Section 7 of the Act must be reconsidered if: (1) new information reveals impacts of this identified action that may affect listed species or critical habitat in a manner not previously considered, (2) actions are subsequently modified in a manner that was not considered in this review, or (3) a new species is listed or critical habitat is determined that may be affected by the identified action.

I also have general comments regarding the process and reports. My general comments follow.

Report Content and Organization

1. The reports would be more easily handled if they were not spiral or otherwise bound.
2. Maps need to be much better. Without a significant landmark-- highway, larger town, other feature – it sometimes took a long time to figure out the location of the project within a county.
3. The reports were organized somewhat similarly, but more consistency would aid in the review process. Perhaps a table that has the significant features ---stream width, depth, DWQ class, etc.--also would help.

PDE	TIP	County	Rank	Reason for Rank	FWS Log Number
DW	B-4192	McDowell	Y	Need to assess pogonia	4-2-02-418
JJ	B-4194	McDowell	Y	Need to assess pogonia	4-2-02-419
JJ	B-4195	McDowell	Y	Need to assess pogonia	4-2-02-420
JJ	B-4196	McDowell	Y	Need to assess pogonia	4-2-02-421
DW	B-4197	McDowell	Y	Need to assess pogonia, FWS requests mussel surveys, bridge to bridge for high quality stream	4-2-02-422
JJ	B-4198	McDowell	Y	Need to assess pogonia	4-2-02-423
DW	B-4199	McDowell	Y	Need to assess pogonia	4-2-02-424
DW	B-4202	Mitchell	Y	Unresolved for Elktoe, FWS requests bridge to bridge, NO SURVEY NEEDED FOR INDIANA BAT	4-2-02-417
DW	B-4239	Polk	Y	unresolved for small-whorled pogonia and heartleaf	4-2-02-369
DW	B-4240	Polk	Y	unresolved for small-whorled pogonia and heartleaf	4-2-02-361
SH	B-4255	Rowan	G	may need resurvey for Schweinitz's sunflower	4-2-02-375
SH	B-4258	Rutherford	Y	unresolved for small-whorled pogonia	4-2-02-362
RY	B-4259	Rutherford	Y	unresolved for small-whorled pogonia, FWS requests another heartleaf survey	4-2-02-363
RY	B-4260	Rutherford	Y	unresolved for small-whorled pogonia	4-2-02-364
SH	B-4261	Rutherford	Y	unresolved for small-whorled pogonia and heartleaf	4-2-02-365
RY	B-4264	Rutherford	Y	unresolved for small-whorled pogonia, FWS requests another survey for heartleaf	4-2-02-368
RY	B-4265	Rutherford	Y	unresolved for small-whorled pogonia, FWS requests another survey for heartleaf and irisette	4-2-02-366
RY	B-4266	Rutherford	Y	unresolved for small-whorled pogonia, FWS requests another survey for heartleaf	4-2-02-367
	note for Rutherford Co projects--No survey is required for Indiana bat because the record is a winter record.				
SH	B-4282	Stokes	R	unresolved for cardamine and James spiny mussel, FWS concerned about bridge design	4-2-02-376
DP	B-4284	Surry	Y	unresolved for pogonia, FWS requests assessment for bog turtle and brook floater, bridge to bridge	4-2-02-426
DP	B-4285	Surry	Y	unresolved for pogonia, FWS requests assessment for bog turtle and brook floater	4-2-02-425
RY	B-4286	Swain	R	unresolved for listed species, esp. Indiana bat, FWS concerned with bridge design	4-2-02-378
DW	B-4287	Swain	R	unresolved for listed species, esp. Indiana bat, FWS concerned with bridge design	4-2-02-377
RY	B-4288	Transylvania	Y	unresolved for listed species, FWS requests survey for bunched arrowhead	4-2-02-374
SH	B-4290	Transylvania	Y	unresolved for listed species	4-2-02-373
SH	B-4291	Transylvania	Y	need mussel surveys	4-2-02-372
MD	B-4316	Watauga	Y	FWS requests bridge to bridge for high quality stream, FWS requests survey for green floater	4-2-02-398
JJ	B-4317	Watauga	G	FWS requests bridge to bridge for high quality stream	4-2-02-399
MD	B-4318	Watauga	G	FWS requests bridge to bridge for high quality stream, FWS requests survey for green floater	4-2-02-400
MD	B-4322	Wilkes	G	FWS requests bridge to bridge for high quality stream, assessment for bog turtle	4-2-02-406
DW	B-4330	Yancey	Y	unresolved for elktoe, FWS requests resurvey for Spiraea, be careful of downstream effects	4-2-02-397