STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

May 12, 2006

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

ATTENTION: Ms. Angie Pennock
NCDOT Coordinator

Dear Madam:

SUBJECT: **Nationwide Permit 33 Application** for the proposed replacement of Bridge No. 653 on SR 2804 over the Broad River and Bridge No. 654 on SR 2786 over Sand Branch Creek, in Buncombe County. Federal Aid Project No. BRZ-2804(1), State Project No. 82843501, TIP No. B-3119, WBS Element 32877.1.1, Division 13.

Please find enclosed three copies of the Categorical Exclusion (CE) Document, as well as, the Pre-construction Notification Form, permit drawings, and ½ size plans for the above referenced project completed by the North Carolina Department of Transportation (NCDOT). The agency proposes to replace Bridge No. 653 with a single span, 130-foot long steel plate girder bridge with concrete end bents on drill piers, with the south end of the bridge in the same location and the north end shifted approximately 130 feet to the west. Bridge No. 654 will be replaced on the existing alignment with a single span prefabricated arch structure (bottomless culvert) approximately 10.7 feet high and 39.6 feet long.

Construction of Bridge No. 653 will require the installation of one temporary work pad on the north side of the stream at site 1, resulting in a total of 0.050 acre of temporary impacts to the Broad River. Bridge No. 653 will be replaced first, with traffic detoured using NC 9 and SR 2786. SR 2786 will be realigned for a distance of approximately 300 feet to the east and to the west of the intersection with SR 2804. Construction of the second bridge, Bridge No. 654 (site 2) will create 0.001 acre of temporary impacts to Sand Branch due to installation of an impervious dyke on the western corner of the bridge. Bridge No. 654 will be replaced after construction of the first bridge so that traffic can then be detoured to the new bridge. There are no jurisdictional wetlands within the project study area. There are no permanent impacts due to construction of either bridge.

MAILING ADDRESS:
NC DEPARTMENT OF TRANSPORTATION
PROJECT DEVELOPMENT AND ENVIRONMENTAL ANALYSIS
1598 MAIL SERVICE CENTER
RALEIGH NC 27699-1598

TELEPHONE: 919-715-1334
FAX: 919-715-5501
WEBSITE: WWW.NCDOT.ORG

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

Impacts to Waters of the United States

General Description

The Broad River, Sand Branch Creek, and an unnamed tributary to the Broad River (UT1) are located in the Broad River Basin (sub-basin 03-08-01), and are approximately 75 feet wide, 15 feet wide, and 1.5 feet wide respectively, within the project study area. The North Carolina Division of Water Quality (NCDWQ) classifies the Broad River and Sand Branch Creek as Class "C Tr". As a result of this trout classification, land disturbance within a 25 foot buffer along the designated stream is prohibited. UT1 has not been classified by NCDWQ and therefore carries the same classification as its supporting stream, Sand Branch. In accordance with the North Carolina Wildlife Resource Commission (NCWRC) an in-water moratorium is being observed from November 1 – April 15 to protect natural trout propagation and stocked trout. Design Standards for Sensitive Watersheds will be adhered to during the design and construction of this project. There are no Water Supplies (WS-I or WS-II) or Outstanding Resource Waters occurring within 1.0 mile of the project study area. The Broad River, UT1, and Sand Branch Creek are not designated as National Wild and Scenic Rivers or State Natural and Scenic Rivers.

Permanent Impacts: There are no permanent impacts associated with this project.

Temporary Impacts: There are 0.050 acre of temporary fill in surface water associated with site 1 of this project because of a temporary work pad. The work pad will be used to set the drill piers for the new bridge. There are 0.001 acre of temporary impacts associated with site 2 due to the construction and placement of a temporary impervious dyke on the western corner of the bridge. The work pad and impervious dyke will be removed once construction is complete. The stream banks will then be restored to their original condition.

There are no utility impacts associated with this project.

Bridge Demolition

Bridge No. 653 is a single span structure 122 feet long and 12 feet wide. It was built in 1961 using two reinforced concrete abutments. The superstructure consists of an asphalt-wearing surface over a timber deck on a steel thru truss. The existing bents will be cut off at ground level to prevent damage to the stream. The bridge will be removed without dropping any components into Waters of the United States

Bridge No. 654 was built in 1962 and is a single span pony truss bridge, 48 feet long and 14 feet wide. The superstructure consists of an asphalt-wearing surface over a timber deck on a steel truss, while the substructure is composed of two reinforced concrete abutments. The bridge and abutments will be removed without dropping any components into Waters of the United States.

During demolition and construction, Best Management Practices for Bridge Demolition and Removal will be followed.

Federally Protected Species

Plants and animals with federal classifications of Endangered, Threatened, Proposed Endangered, and Proposed Threatened are protected under provisions of Section 7 and Section 9 of the Endangered Species Act of 1973, as amended. As of March 8, 2006, the Fish and Wildlife Service (USFWS) lists thirteen federally protected species for Buncombe County (see table below).

Federally Protected Species for Buncombe County

Common Name	Scientific Name	Suitable Habitat	Status	Biological Conclusion
Bog Turtle	*Clemmys muhlenbergii*	No	T(S/A)	N/A
Carolina Northern Flying Squirrel	*Glaucomys sabrinus coloratus*	No	E	No Effect
Eastern cougar	*Felis concolor couguar*	No	E	No Effect
Gray bat	*Myotis grisescens*	No	E	No Effect
Spotfin chub	*Cyprinella monacha*	No	T	No Effect
Appalachian elktoe	*Alasmidonta raveneliana*	No	E	No Effect
Oyster mussel	*Epioblasma capsaeformis*	No	E	No Effect
Tan riffleshell	*Epioblasma florentina walkeri*	No	E	No Effect
Bunched arrowhead	*Sagittaria fasiculata*	No	E	No Effect
Mountain sweet pitcher plant	*Sarracenia jonesii*	No	E	No Effect
Spreading avens	*Geum radiatum*	No	E	No Effect
Virginia spiraea	*Spiraea virginiana*	Yes	T	No Effect
Rock gnome lichen	*Gymnoderma lineane*	No	E	No Effect

E-denotes Endangered, T-denotes Threatened, T(S/A)-denotes threatened due to similarity of appearance (no biological conclusion is required).

Concurrence was received from USFWS on March 15, 2006 verifying that the Gray bat, Virginia spirea, and Tan riffleshell should have biological conclusions of No Effect. Bridges will be inspected prior to demolition to ensure that bats are not temporarily roosting on the bridges.

Although habitat for Virginia spiraea does exist within the project area, a survey in July of 2004 revealed no species present. A re-survey will be conducted in June of 2006.

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 entire width of both streams is being spanned, therefore eliminating any permanent impacts.
- Demolition and construction of each bridge is being coordinated so that an off site detour can be utilized.
- Existing bents in the water are being cut off at ground level, rather than being removed, to prevent impacts to the streams.

Mitigation: There is no mitigation required since there are no permanent impacts.

Regulatory Approvals

Section 404 Permit: All other aspects of this project are being processed by the Federal Highway Administration as a "Categorical Exclusion" in accordance with 23 CFR § 771.115(b). The NCDOT requests that these activities be authorized by a Nationwide Permit 33.

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

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

Thank you for your assistance with this project. If you have any questions or need additional information, please contact Megan Willis at mswillis@dot.state.nc.us or (919) 715-1341.

Sincerely,

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

cc:

W/attachment

Mr. John Hennessy, NCDWQ (2 copies)
Ms. Marella Buncick, USFWS
Ms. Marla Chambers, NCWRC
Mr. Harold Draper, TVA TVA
Dr. David Chang, P.E., Hydraulics
Mr. Greg Perfetti, P.E., Structure Design
Mr. Mark Staley, Roadside Environmental
Mr. J.J. Swain, P.E., Division Engineer
Mr. Roger Bryan, DEO

W/o attachment

Mr. Jay Bennett, P.E., Roadway Design
Mr. Majed Alghandour, P. E., Programming and TIP
Mr. Art McMillan, P.E., Highway Design
Mr. Scott McLendon, USACE, Wilmington
Mr. John Williams, PDEA

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:
   - ☒ Section 404 Permit
   - ☐ Section 10 Permit
   - ☒ 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: NW 33

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

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

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

II. Applicant Information

1. Owner/Applicant Information
   Name: Gregory J. Thorpe, Ph.D., Environmental Management Director
   Mailing Address: 1598 Mail Service Center
   Telephone Number: (919) 733-3141 Fax Number: (919) 733-9794
   E-mail Address: mswillis@dot.state.nc.us

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: Bridge 653 over the Broad River and Bridge 654 over Sand Branch Creek

2. T.I.P. Project Number or State Project Number (NCDOT Only): B-3119

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

4. Location
   County: Buncombe Nearest Town: Asheville
   Subdivision name (include phase/lot number): N/A
   Directions to site (include road numbers/names, landmarks, etc.): Highway 64 to NC 9 in Buncombe County.

5. Site coordinates (For linear projects, such as a road or utility line, attach a sheet that separately lists the coordinates for each crossing of a distinct waterbody.)
   Decimal Degrees (6 digits minimum): 82'16'00' °N 35'32'00' °W

6. Property size (acres): N/A

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

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

9. Describe the existing conditions on the site and general land use in the vicinity of the project at the time of this application: General land use is approximately 50% forested and 50% residential.

10. Describe the overall project in detail, including the type of equipment to be used: Standard Construction Equipment will be used.

11. Explain the purpose of the proposed work: The existing bridges are structurally deficient and need replacing to meet safety standards.

IV. Prior Project History

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

V. Future Project Plans

Are any future permit requests anticipated for this project? If so, describe the anticipated work, and provide justification for the exclusion of this work from the current application.
No

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

It is the applicant's (or agent's) responsibility to determine, delineate and map all impacts to wetlands, open water, and stream channels associated with the project. 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: 164 linear feet of temporary impacts to the stream channel due to a work pad and temperary impervious dyke.

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)
1	Broad River	Temp.	Perennial	75	118	0.05
2	Sand Branch	Temp.	Perennial	15	46	0.001
Total Stream Impact (by length and acreage)					164	0.051

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)

Total Open Water Impact (acres)				

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

Stream Impact (acres):	0.051
Wetland Impact (acres):	0
Open Water Impact (acres):	0
Total Impact to Waters of the U.S. (acres)	0.051
Total Stream Impact (linear feet):	164

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

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. An off-site detour will be utilized. Existing bents will be cut off rather than removed to prevent impacts to waters.

VIII. Mitigation

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

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

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

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

2. Mitigation may also be made by payment into the North Carolina Ecosystem Enhancement Program (NCEEP). Please note it is the applicant's responsibility to contact the NCEEP at (919) 715-0476 to determine availability, and written approval from the NCEEP indicating that they are will to accept payment for the mitigation must be attached to this form. For additional information regarding the application process for the NCEEP, check the NCEEP website at http://h2o.enr.state.nc.us/wrp/index.htm. If use of the NCEEP is proposed, please check the appropriate box on page five and provide the following information:

   Amount of stream mitigation requested (linear feet): 0

Amount of buffer mitigation requested (square feet): 0
Amount of Riparian wetland mitigation requested (acres): 0
Amount of Non-riparian wetland mitigation requested (acres): 0
Amount of Coastal wetland mitigation requested (acres): 0

IX. Environmental Documentation (required by DWQ)

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

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

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

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

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

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

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

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

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

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

_____

_____

XI. Stormwater (required by DWQ)

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

_____

_____

XII. Sewage Disposal (required by DWQ)

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

_____

XIII. Violations (required by DWQ)

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

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

XIV. Cumulative Impacts (required by DWQ)

Will this project (based on past and reasonably anticipated future impacts) result in additional development, which could impact nearby downstream water quality? Yes ☐ No ☒
If yes, please submit a qualitative or quantitative cumulative impact analysis in accordance with the most recent North Carolina Division of Water Quality policy posted on our website at http://h2o.enr.state.nc.us/ncwetlands. If no, please provide a short narrative description:_____

_____

_____

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).

Applicant/Agent's Signature | Date

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

United States Department of the Interior

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

March 15, 2006

Dr. Gregory J. Thorpe, 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: Endangered Species Concurrence Request for the Replacement of Bridge No. 653 over the Broad River and Bridge No. 654 over Sand Branch in Buncombe County, North Carolina (TIP No. B-3119)

As requested by the North Carolina Department of Transportation (NCDOT), we have reviewed the federally listed species report and the survey report for the federally endangered gray bat (*Myotis grisescens*) for the subject project. Our comments are provided in accordance section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531-1543) (Act), and the Fish and Wildlife Coordination Act, as amended (16 U.S.C. 661-667e).

Federally Listed Species - According to information in the gray bat survey report, on August 29, 2002, a suitable habitat survey was conducted for the gray bat within the project area for the subject Bridge Nos. 653 and 654. No caves or mines were discovered within the project area. Because gray bats are cave residents year-round and because no caves or mines were discovered within the project area, we do not believe this project will have any effect on the gray bat. However, we do recommend that the NCDOT inspect the existing bridges just prior to demolition to ensure that bats are not temporarily roosting on the bridges. Given the lack of caves and mines within the project area and if no bats are discovered roosting on the bridges prior to demolition, we believe the requirements under section 7(c) of the Act will be fulfilled for the gray bat. 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) this action is 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.

A survey was conducted for the federally threatened Virginia spiraea (*Spiraea virginiana*) during July 2003, and no individuals of this plant were discovered. Since there is suitable habitat within the project area, the NCDOT will resurvey the area prior to construction. If no individuals are discovered during this survey, we can agree with the NCDOT's determination that this project will have no effect on Virginia spiraea.

There is a record of the federally endangered tan riffleshell (*Epioblasma florentina walkeri*) in the Tennessee River drainage in Buncombe County. Since the Broad River and Sand Branch are part of the Atlantic Slope drainage, we do not believe a mussel survey for this species is warranted.

Fish and Wildlife Resources – The information provided does not include detailed descriptions of the structures that will replace the existing bridges. We strongly recommend that the existing bridges be replaced with new bridges, and we request that the National Environmental Policy Act (NEPA) document for this project address an alternative of replacing the existing bridges with new ones. If an alternative other than the replacement of the existing bridges with new bridges is chosen (such as replacing the existing bridges with culverts), we request that the NEPA document include an evaluation as to why an alternative of replacing the existing bridges with new bridges was not chosen.

We recommend that the new bridge designs include provisions for the roadbed and deck drainage to flow through a vegetated buffer prior to reaching the affected stream/river. This buffer should be large enough to alleviate any potential effects from the runoff of storm water and pollutants. The bridge designs should not alter the natural stream or the stream-bank morphology or impede fish passage. Any piers or bents should be placed outside the bank-full width of the stream. The bridges and approaches should be designed to avoid any fill that will result in the damming or constriction of the channel or floodplain. If spanning the floodplain is not feasible, culverts should be installed in the floodplain portion of the approaches in order to restore some of the hydrological functions of the floodplain and reduce high velocities of floodwaters within the affected area.

Measures to control erosion and sedimentation should be in place prior to any ground-disturbing activities. Wet concrete should never be allowed to come into contact with the stream. Equipment should be inspected daily to ensure that there are no equipment leaks which could enter the river. Construction material should not enter the water during demolition of the existing bridges and construction of the new bridges. In most cases we prefer that a bridge be replaced in place by constructing the new bridge through staged construction or by detouring traffic to existing off-site routes.

Migratory Birds – The Migratory Bird Treaty Act (16 U.S.C. 703-712) prohibits the taking, killing, possession, transportation, and importation of migratory birds (including the bald eagle), their eggs, parts, and nests, except when specifically authorized by the Department of the Interior. To avoid impacts to migratory birds, we recommend conducting a visual inspection of the bridges and any other migratory bird nesting habitat within the project area during the migratory bird nesting season--March through September. If migratory birds are discovered nesting in the project impact area, including on the existing bridges, the NCDOT should avoid

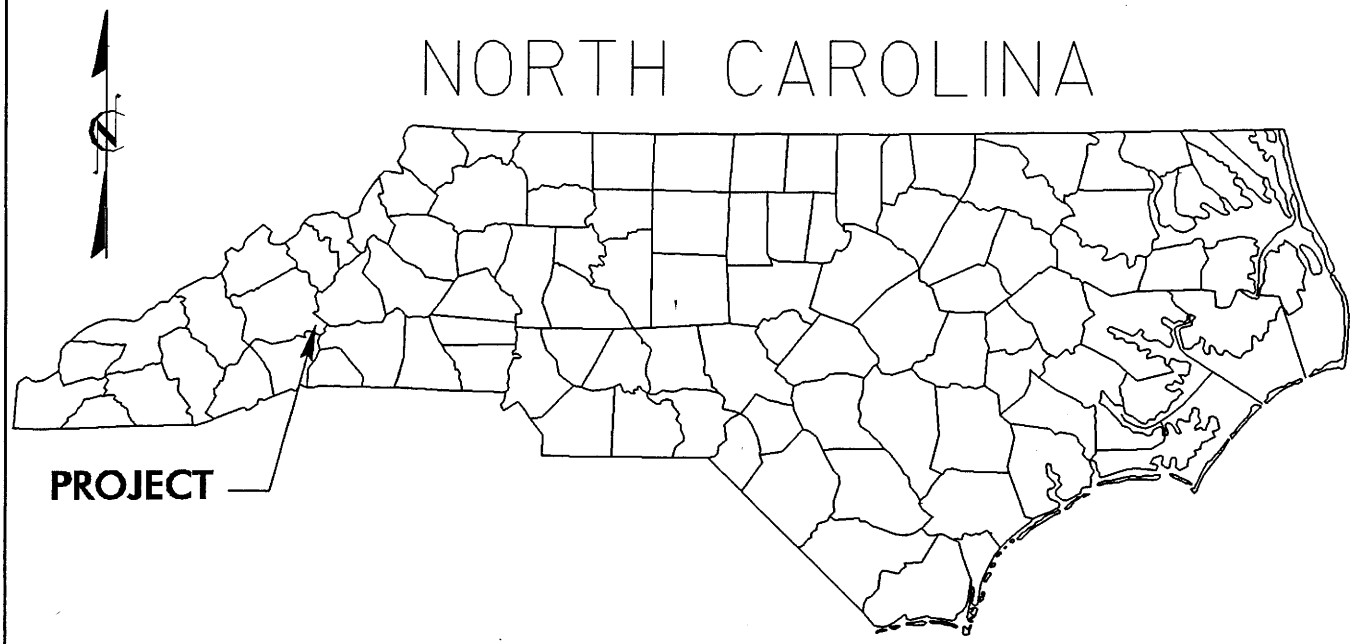
impacting the nests during the migratory bird nesting season (March through September). If birds are discovered nesting on the bridges during years prior to the proposed construction date, the NCDOT, in consultation with us, should develop measures to discourage birds from establishing nests on the bridges by means that will not result in the take of the birds or eggs, or the NCDOT should avoid construction and demolition activities during the nesting period.

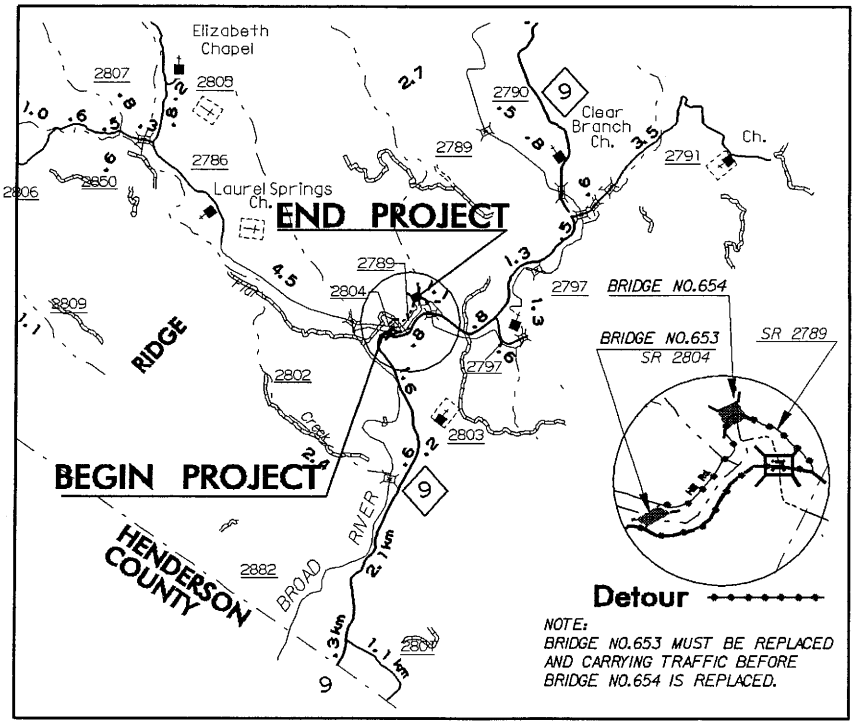
If you have any questions about these comments, please contact Ms. Denise Moldenhauer of our staff at 828/258-3939, Ext. 226. In any future correspondence concerning this project, please reference our Log Number 4-2-06-169.

Sincerely,

Brian P. Cole
Field Supervisor

cc:
Ms. Megan Willis, Environmental Specialist, Natural Environment Unit, North Carolina Department of Transportation, 1598 Mail Service Center, Raleigh, NC 27699-1598





VICINITY MAPS

NCDOT

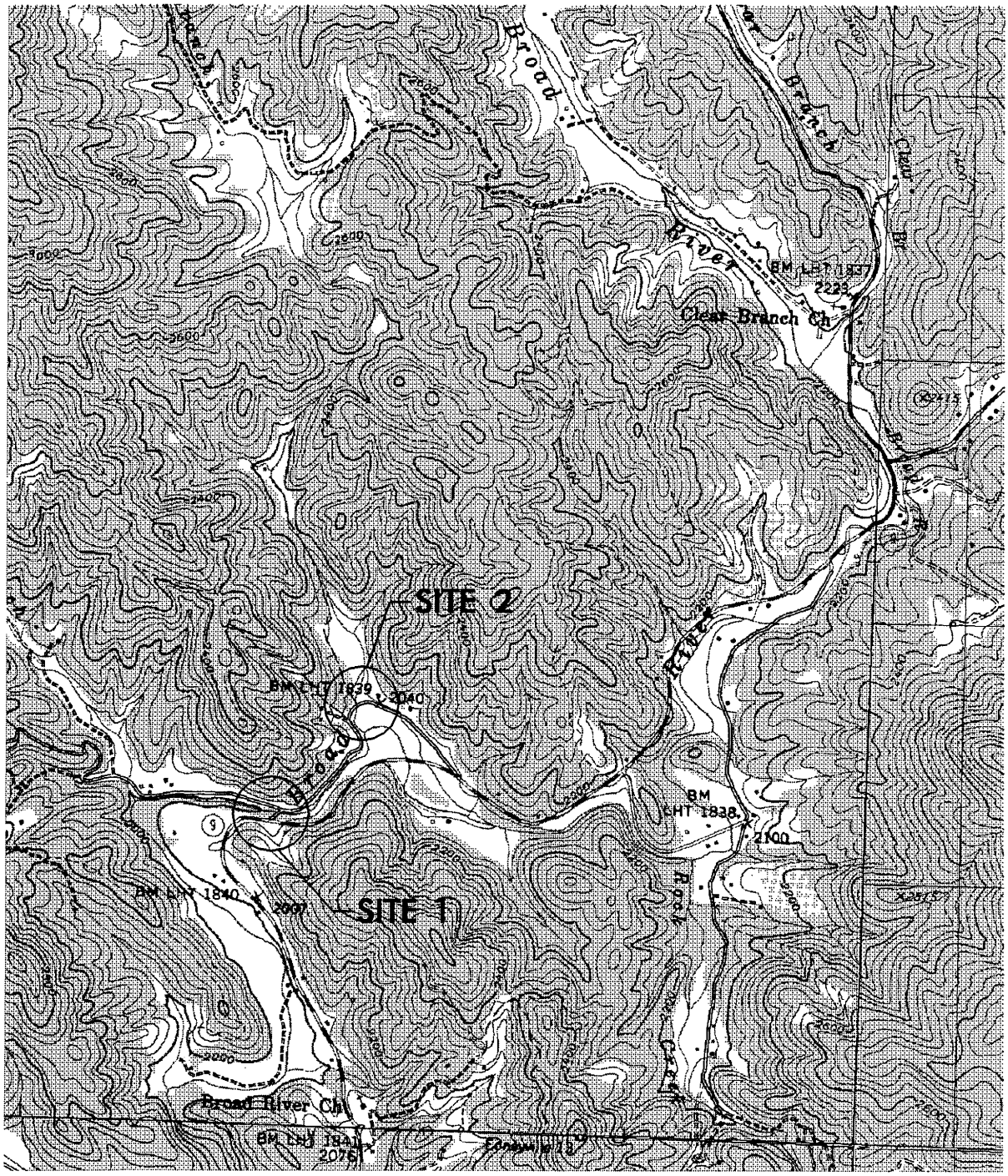
DIVISION OF HIGHWAYS

BUNCOMBE COUNTY

PROJECT: 32877.1.1 (B-3119)

BRIDGE NO. 653 OVER BROAD RIVER ON SR 2804 AND BRIDGE NO. 654 OVER SAND BRANCH ON SR 2786

SHEET 1 OF 12 **1/26/05**



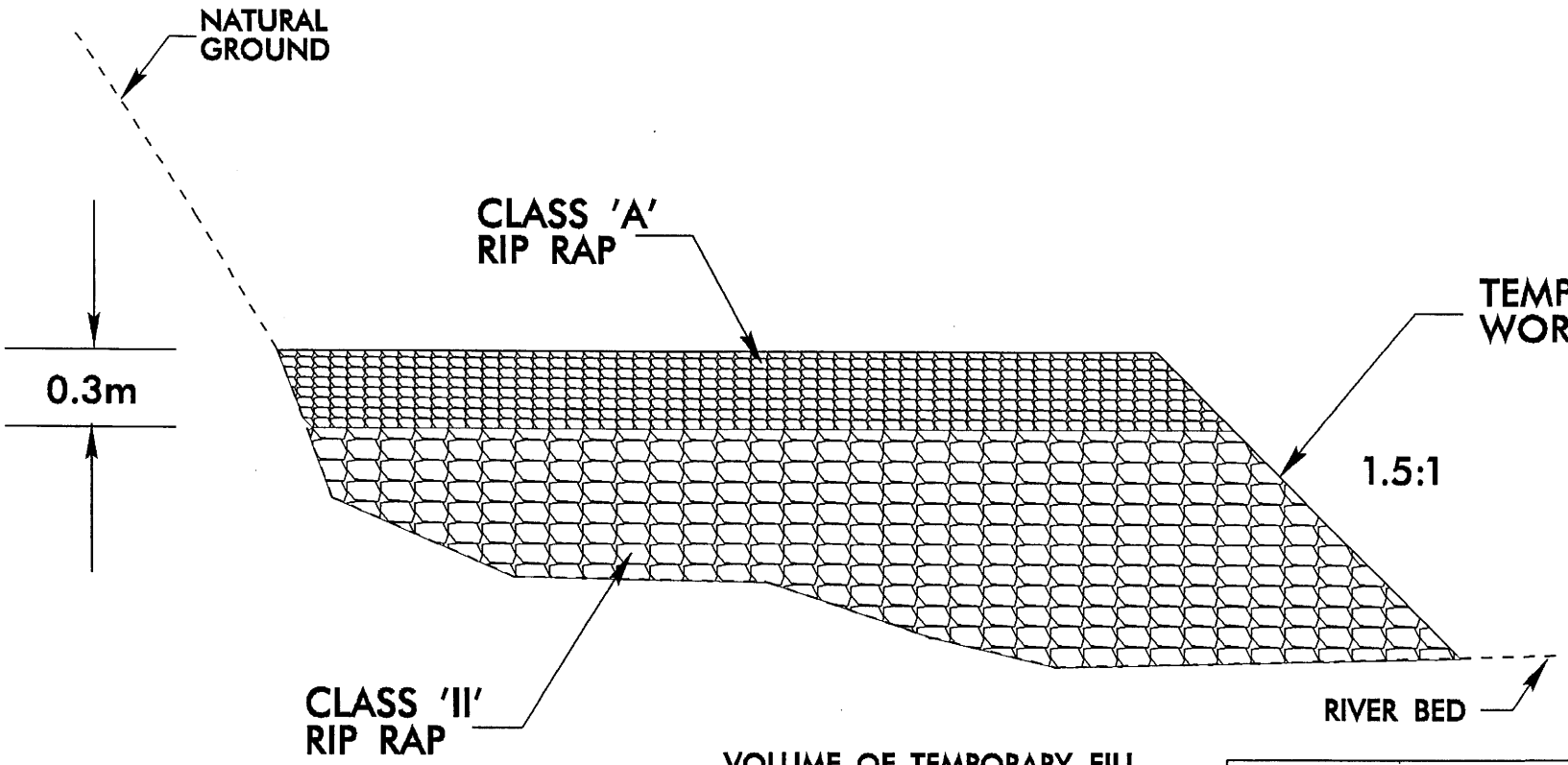
SITE MAP

NCDOT

DIVISION OF HIGHWAYS
BUNCOMBE COUNTY
PROJECT: 32877.1.1 (B-3119)

BRIDGE NO. 653 OVER BROAD RIVER ON SR 2804 AND BRIDGE NO. 654 OVER SAND BRANCH ON SR 2786

SHEET 2 **OF** 12 **1/26/05**



VOLUME OF TEMPORARY FILL IN SURFACE WATER (BELOW NORMAL WS): @ 120 cu m
TOP OF WORK PAD TO BE SET 0.6m ABOVE NWS

TYPICAL SECTION
(NOT TO SCALE)

NCDOT
DIVISION OF HIGHWAYS
BUNCOMBE COUNTY
PROJECT: 32877.1.1 (B-3119)
BRIDGE NO. 653 OVER BROAD RIVER ON SR 2804 AND BRIDGE NO. 654 OVER SAND BRANCH ON SR 2786
SHEET 3 OF 12 1/26/05

PROPERTY OWNERS

NAMES AND ADDRESSES

PARCEL NO.	NAMES	ADDRESSES
1	MARY E. PEEK, HEIRS C/O MICHAEL LEDBETTER	P.O. BOX 248 OLD FORT, NC 28762
4	MARY E. PEEK, HEIRS C/O MICHAEL LEDBETTER	P.O. BOX 248 OLD FORT, NC 28762
5	JAMES E. AND BETTY F. GILLIAM	11171 BENT BRANCH RD. PIKEVILLE, KY 41501
6	LINDA AND ERNEST RUSSELL	21 MARLEY DR. FLATROCK, NC 28731

NCDOT

DIVISION OF HIGHWAYS

BUNCOMBE COUNTY

PROJECT: 32877.1.1 (B-3119)

BRIDGE NO. 653 OVER BROAD RIVER ON SR 2804 AND BRIDGE NO. 654 OVER SAND BRANCH ON SR 2786

1/26/05

WETLAND PERMIT IMPACT SUMMARY

			WETLAND IMPACTS					SURFACE WATER IMPACTS				
Site No.	Station (From/To)	Structure Size / Type	Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
1	10+45 -L-	WORK PAD							0.050		118	
2	10+45 -L2-	IMPERVIOUS DYKE							0.001		46	
TOTALS:									0.051		164	

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

BUNCOMBE COUNTY
WBS - 32877.1.1 (B-3119)

SHEET 5 of 12 1/26/2005

ATN Revised 3/31/05

**** Design Exception required for the design speed from 100 km/h to 30 km/h.**

PROJECT REFERENCE NO.	SHEET NO.
B-3119	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

METRIC 5 0 10

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONST.REV.

R/W REV.

DUKE, TOMLINSON & KISER, INC.
P.O. BOX 1826
HENDERSONVILLE, NC

REVISIONS

R/W REVISION 08/18/04 SM - REMOVED R/W MONUMENT @ -Y1- 11+45.937 RT. AND ADDED ADDITIONAL TEMPORARY CONSTRUCTION EASEMENT TO PARCEL 4
R/W REVISION 01/14/05 DS - REVISED R/W MONUMENTS, STATIONS, OFFSETS, & EASEMENTS DUE TO UPDATED SURVEYS - ON PARCELS 1,2,3, & 4, ADDED PDE PARCEL 3

DETAIL A
SPECIAL CUT DITCH
(Not to Scale)

Natural Ground, 2:1, D, 4:1 or Flatter, Front Ditch Slope

Min. D = 0.5 m

-Y1- STA. 11+30 TO 11+47 LT
-Y1- STA. 11+47 TO 11+60 LT

-Y1-

PI Sta 11+27.704
Δ = 11° 21' 12.2" (LT)
L = 39.979
T = 20.144
R = 132.000
SE = 03

PI Sta 11+84.460
Δ = 19° 40' 03.1" (RT)
L = 73.115
T = 36.921
R = 213.000
SE = 02

PI Sta 12+47.533
Δ = 44° 19' 00.8" (LT)
L = 51.049
T = 26.878
R = 66.000
SE = 04

PI Sta 13+04.715
Δ = 23° 18' 54.4" (LT)
L = 65.108
T = 33.011
R = 160.000

TBM-7 RAILROAD SPIKE SET IN 24"
WATER OAK EL. 820.565
(-L2- STA. 10+37.351 25.618 RT.)

-Y1-
+59.9 01.56 01.83 +54.9 02

INSET SHOWING SUPERELEVATION TRANSITION AT -L- AND -Y1- INTERSECTION

3 HARRY LEDBETTER

-Y1- POT Sta.10+43.323
-Y1- STA.10+90.000
BEGIN CONSTRUCTION
-Y1- PC Sta.11+07.560
-Y1- PRC Sta.11+47.539
-L- STA.10+54.500
END BRIDGE
-L- STA.10+63.060 END CONSTRUCTION
-Y1- STA.11+76.255
-Y1- PRC Sta.12+20.654
END APPROACH SLAB
-L- STA.10+56.023
-Y1- PCC Sta.12+71.704
-Y1- PT Sta.13+36.812
END CONSTRUCTION
-Y1- STA.12+90.000
-Y1- POT Sta.13+45.672

EXISTING R/W
WOODS
NESBITT'S CHAPEL ROAD
SR 2785 6.4m EST
S 68° 53' 00.0" E
+90.150 8.549(28.05') EXIST R/W
+13.228 8.883(29.14') EXIST R/W
+20.299 14.694(48.21')
+37.486 12.775(41.91')
+46.830 9.141(29.99')
+49.095 16.687(54.75')
+63.578 16.565(54.35')
+80.000 9.967(32.70') & 5.045(16.55') EXIST R/W
+08.084 9.437(30.96')
+09.249 19.428(63.74')
+38.708
+45.649 9.144(30')
+20.000 9.144(30')
+25.000 9.144(30')
+17.451 9.204(30.20')
+05.000 5.976(19.61') & 3.919(12.86') EXIST R/W
+21.553 9.315(30.56')
+24.000 17.000(55.77') 9.293(30.49')
+40.000 9.183(30.13')
+14.000 17.000(55.77') 9.292(30.49')
+41.878 12.462(40.89')
+50.423 8.519(27.95') EXIST R/W
+84.372 13.009(42.68')
+90.000 8.354(27.41') EXIST R/W
+40.000 9.144(30.00')
+50.423 8.805(32.17') EXIST R/W
+27.723 9.144(30') EXIST R/W
+15.000 7.914(25.96') & 4.116(13.50') EXIST R/W
+90.000

SPECIAL CUT DITCH GRASS LINED SEE DETAIL 'A'
BEGIN SHLD. BERM GUTTER @ -Y1- STA. 11+46 RT. END SHLD. BERM GUTTER @ APPROACH SLAB RT. -L- STA. 10+56.023 LT
BEGIN SHLD. BERM GUTTER @ -Y1- STA. 12+20 RT. END SHLD. BERM GUTTER APPROACH SLAB RT. -L- STA. 10+56.023 RT
RETAINING WALL
GRAU-350
2GI
TB 2GI
375
600 CSP W/2 ELBOWS
600 CSP W/ELBOW
CL 'B' RIP RAP EST. 1.2 M TONS W/4.8 S.M. FF
CL 'B' RIP RAP EST. 2.7 M TONS W/9.2 S.M. FF
CLASS 'II' RIP RAP
409 CSP W/2 ELBOWS
TYPE III SEE DETAIL SHEET #
TEMPORARY WORK PAD
SITE 1
BRIDGE NO. 85 OVER CONC.
RETAIN
01.56 01.83
01.41 02.5
MARY E. PEEK HEIRS 21.455(70.39')
c/o MICHAEL A. LEDBETTER
LARRY LEDBETTER
MICHAEL CLAYCOMB and wife, JAQUELINE CLAYCOMB
c/o MICHAEL A. LEDBETTER
N 11° 23' 28.5" E
N 81° 04' 35" E 21.084
S 58° 44' 52" E 46.068
N 81° 04' 35" E 25.966
S 58° 44' 52" E 24.855
S 41° 47' 55" E
S 78° 36' 30.5" E
N 25° 06' 35" W 66.852
BROAD RIVER
EX. R/W
EX. C/L
EX. EDGE OF PAVEMENT
EX. 6.0m
EX. 7.0m
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* SPECIAL DETAIL REQD. FOR SHOP CURVED ANCHOR UNITS

BEGIN APPROACH SLAB & BARRIER RAIL STA. 10+111.45
END BRIDGE & BARRIER RAIL STA. 10+54.500
*TYPE III
*B-77
SHOULDER BERM GUTTER
-L-
BEGIN BRIDGE STA. 10+14.500
BEGIN APPROACH SLAB STA. 10+56.328

SKETCH SHOWING RELATIONSHIP OF BRIDGE TO PAVEMENT AND SHOULDERS

-Y- PTSta.11+46.044
BEGIN CONSTRUCTION
-Y- POC Sta.11+00.000
BEGIN APPROACH SLAB
-L- POT Sta.10+111.47
BEGIN STATE PROJECT B-3119
-L- STA.10+00.000
-Y- POT Sta.11+58.068
-Y- PCSta.10+00.000
-L- STA.10+14.500
BEGIN BRIDGE
-Y- PCSta.12+72.214
END CONSTRUCTION
-Y- POC Sta.12+20.000

BEGIN SHLD. BERM GUTTER @ -Y- STA. 11+87 LT. END SHLD. BERM GUTTER @ APPROACH SLAB LT. -L- STA. 10+11.147 RT
BEGIN SHLD. BERM GUTTER @ -Y- STA. 11+87 RT. END SHLD. BERM GUTTER @ APPROACH SLAB RT. -L- STA. 10+11.147 LT

1 SFD
CONC.
3' GRAVEL DR.
WALL
TERRY A. MORRIS and wife, PATRICIA B. MORRIS
CURTIS WELCH and wife, JUDY LEE WELCH
NEIL A. LEDBETTER and, MICHAEL A. LEDBETTER
MARK E. PEEK HEIRS c/o MICHAEL A. LEDBETTER
MICHAEL CLAYCOMB and wife, JAQUELINE CLAYCOMB

DENOTES TEMPORARY SURFACE WATER IMPACTS
PAVEMENT REMOVAL

SEE SHEET 6 FOR -L-, -Y-, & -Y1- PROFILE

-Y-

PI Sta 10+78.787
Δ = 53° 17' 50.5" (RT)
L = 146.044
T = 78.787
R = 157.000

PI Sta 13+61.003
Δ = 75° 20' 30.5" (LT)
L = 151.221
T = 88.789
R = 115.000

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mmcdonald

PROJECT REFERENCE NO.	SHEET NO.
B-3119	7
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

DUKE POWER COMPANY
P.O. BOX 458
HENDERSONVILLE, NC 287

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONST.REV. ________

R/W REV. ________

METRIC

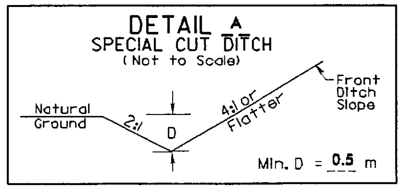
5 0 10

REVISIONS

R/W REVISION 08/18/04 SM - REMOVED R/W MONUMENT @ -Y1- 11+45.937 RT. AND ADDED ADDITIONAL TEMPORARY CONSTRUCTION EASEMENT TO PARCEL 4
R/W REVISION 01/14/05 DS - REVISED R/W MONUMENTS, STATIONS, OFFSETS, & EASEMENTS DUE TO UPDATED SURVEYS - ON PARCELS 1,2,3, & 4; ADDED PDE PARCEL 3

8/17/99

**** Design Exception required for the design speed from 100 km/h to 30 km/h.**



-Y1- STA. 11+30 TO 11+47 LT
-Y1- STA. 11+47 TO 11+60 LT

-Y1-

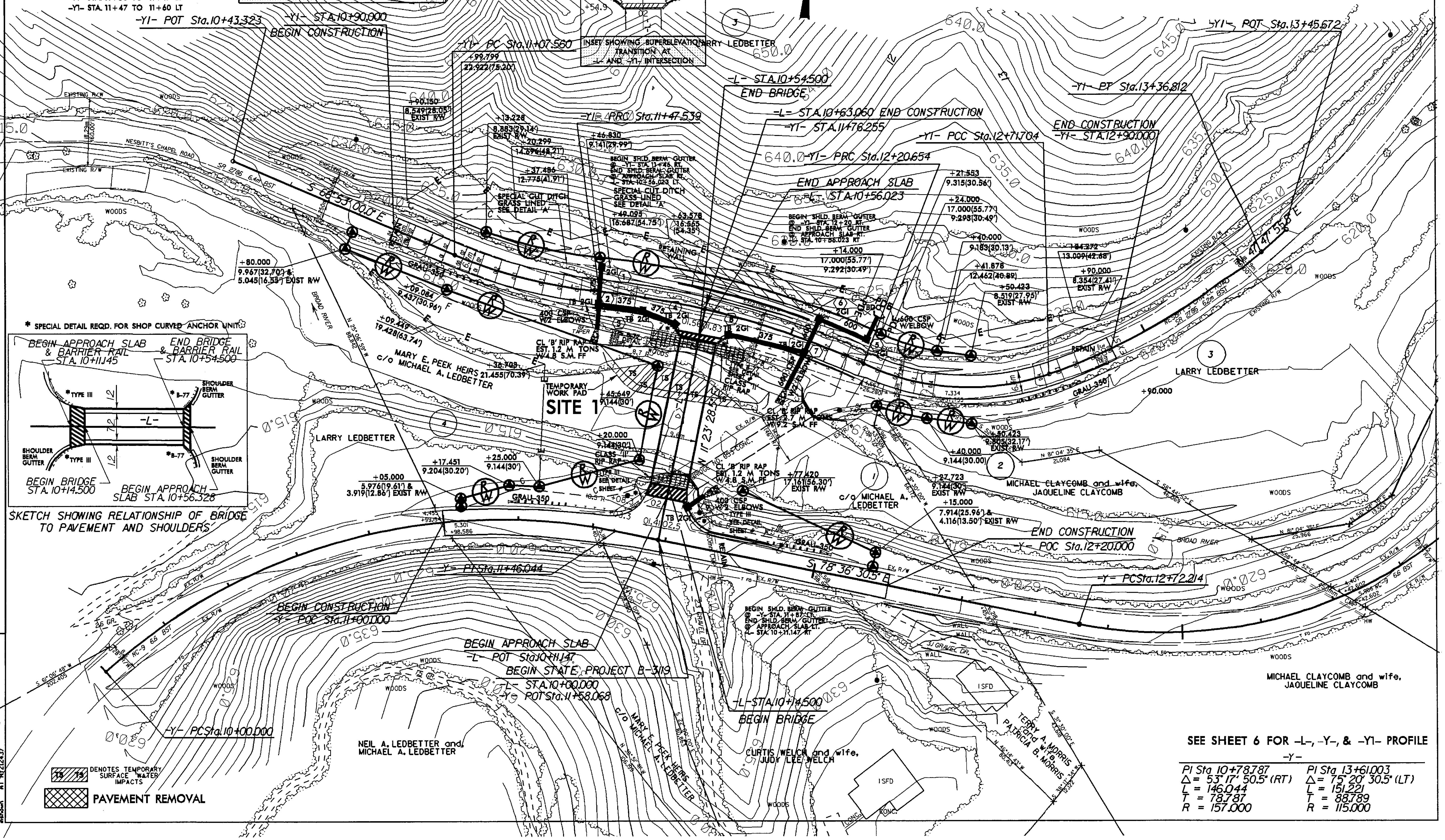
PI Sta 11+27.704
Δ = 17° 21' 12.2" (LT)
L = 39.979
T = 20.144
R = 132.000
SE = 03

PI Sta 11+84.460
Δ = 19° 40' 03.1" (RT)
L = 73.115
T = 36.921
R = 213.000
SE = 02

PI Sta 12+47.533
Δ = 44° 19' 00.8" (LT)
L = 51.049
T = 26.878
R = 66.000
SE = 04

PI Sta 13+04.715
Δ = 23° 18' 54.4" (LT)
L = 65.108
T = 33.011
R = 160.000

TBM-7 RAILROAD SPIKE SET IN 24"
WATER OAK EL. 620.565
(-L2- STA. 10+37.251 25.618 RT.)



▨ DENOTES TEMPORARY SURFACE WATER IMPACTS

▩ PAVEMENT REMOVAL

SEE SHEET 6 FOR -L-, -Y-, & -Y1- PROFILE

-Y-

PI Sta 10+78.787
Δ = 53° 17' 50.5" (RT)
L = 146.044
T = 78.787
R = 157.000

PI Sta 13+61.003
Δ = 75° 20' 30.5" (LT)
L = 151.221
T = 88.789
R = 115.000

5/09/99

PROJECT REFERENCE NO.	SHEET NO.
B-3119	3
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

METRIC

5 0 10

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONST.REV.

R /W REV.

TBM-4 RAILROAD SPIKE IN POWER POLE AT NORTH END OF BRIDGE EL. 619.423 (-L- STA. 10+43.066 16.679 LT.)

** Design Exception required for the design speed from 100 km/h to 30 km/h.

~~1030m 1500mm PLATE GIRDERS~~
STA. 10+34.50 -L-
GRADE POINT ELEV. 618.74m
SKEW 90°

STRUCTURE HYDRAULIC DATA

DESIGN DISCHARGE	= 98	CMS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 615.15	M
BASE DISCHARGE	= 145	CMS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 615.73	M
OVERTOPPING DISCHARGE	= N/A	CMS
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING ELEVATION	= 618.14	M

BEGIN GRADE -L- STA. 10+03.300
-Y- STA. 11+58.058 3.3m LT
ELEV. 619.761

PI = 10+07.800
EL = 619.690 m
VC = 9 m
K = 6

PI = 10+55.000
EL = 618.171 m
VC = 9 m
K = 2

END GRADE -L- STA. 10+59.858
-Y1- STA. 11+76.374 9.2m RT
ELEV. 618.269

-1.5857%
-1.2078%
+2.0069%
CLASS "II" RIP RAP
2:1
2:1
CLASS "II" RIP RAP
NWS 612.60 m
1.5:1
TEMPORARY ROCK WORK PAD TO ELEV. 613.2m

TBM-7 RAILROAD SPIKE SET IN 24" WATER OAK EL.620.565
(-L2- STA. 10+37.351 25.618 RT.)

12.60m X 3.25m CONSPAN
STA. 10+90.90 -L2
GRADE POINT ELEV. 623.78m
SKEW 90°

BEGIN GRADE -L2- STA. 10+07
ELEV. 625.186

END GRADE -L2- STA. 10+95
ELEV. 622.442

STRUCTURE HYDRAULIC DATA

DESIGN DISCHARGE	= 26	CMS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 621.09	M
BASE DISCHARGE	= 40	CMS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 621.80	M
OVERTOPPING DISCHARGE	= 65	CMS
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING ELEVATION	= 622.00	M

PI = 10+19.500
EL = 624.715 m
VC = 24 m
K = 42
V = 95 km/h

PI = 10+45.000
EL = 623.898 m
VC = 27 m
K = 32
V = 83 km/h

PI = 10+75.000
EL = 622.887 m
VC = 30 m
K = 11
V = 45 km/h

-3.7701%
-5.2089%
-1.0367%
-1.2000%
622.442
NWS 620.41m
IMPERVIOUS DYKE

TBM-1 RAILROAD SPIKE IN DOUBLE POPLAR AT DRIVEWAY EL. 617.953
(-Y- STA. 10+11.820 10.362 LT.)

TBM-2 RAILROAD SPIKE IN 12" SYCAMORE EL. 619.996
(-Y- STA. 13+51.563 9.295 LT.)

BEGIN 60mm OVERLAY -Y- STA. 11+00.000
ELEV. 618.988

END 60 mm OVERLAY -Y- STA. 12+20.000
ELEV. 620.785

TBM-5 RAILROAD SPIKE IN BASE OF LEANING HEMLOCK ON CREEKBANK EL.615.052
(-Y1- STA. 10+27.849 4.674 RT.)

TBM-3 RAILROAD SPIKE IN DOUBLE POPLAR ON EDGE OF GRAVEL ROAD EL. 622.557
(-Y1- STA. 13+63.392 6.016 RT.)

END GRADE -Y1- STA. 12+80.000
ELEV. 621.292

BEGIN GRADE -Y1- STA. 10+90.000
ELEV. 618.337

PI = 12+58.000
EL = 621.046 m
VC = 50 m
K = 15

PI = 11+78.670
EL = 617.844 m
VC = 90 m
K = 19

-0.5564%
+1.4112%
+1.4142%
+0.7235%

SEE SHEET 4 FOR -L-, -Y-, & -Y1-
SEE SHEET 5 FOR -L2-

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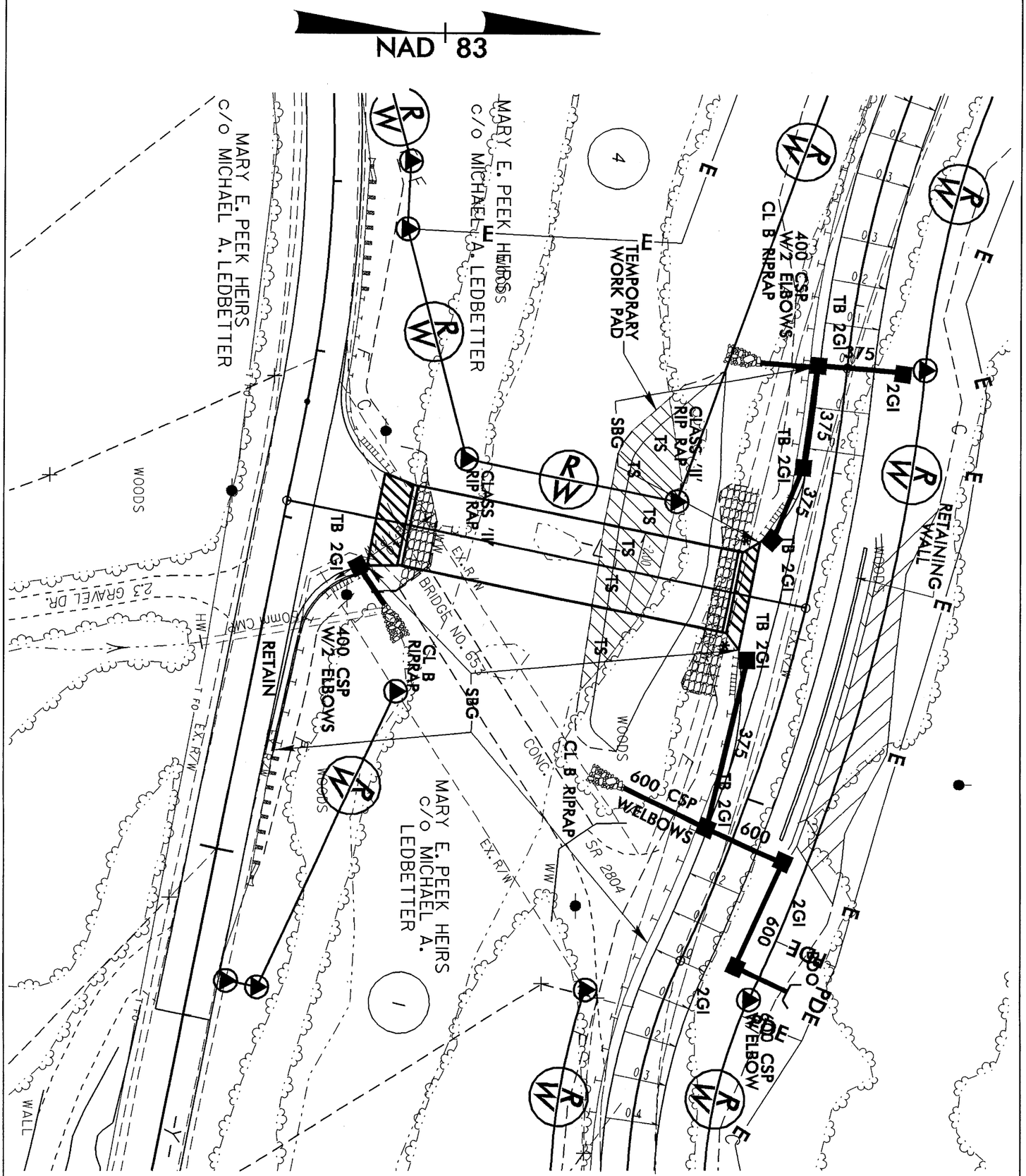

SITE 1

PLAN VIEW

TS TS DENOTES TEMPORARY SURFACE WATER IMPACT

5m 0 10m SCALE

NCDOT

DIVISION OF HIGHWAYS

BUNCOMBE COUNTY

PROJECT: 32877.1.1 (B-3119)

BRIDGE NO. 653 OVER BROAD RIVER ON SR 2804 AND BRIDGE NO. 654 OVER SAND BRANCH ON SR 2786

SHEET 9 OF 12 1/26/05

PROJECT REFERENCE NO.	SHEET NO.
B-3119	10
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
CONST.REV.	
R/W REV.	

5 0 10

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

FOR -L2- PROFILE SEE SHEET 6

** Design Exception required for the design speed from 100 km/h to 30 km/h.

-L2-

PI Sta 10+34.883
Δ = 28° 50' 22.2" (RT)
L = 15.100
T = 7.714
R = 30.000
RO = 6
SE = 02
V = 30 KM/H

PI Sta 10+67.508
Δ = 36° 14' 10.4" (RT)
L = 18.973
T = 9.816
R = 30.000
SE = 04
V = 30 KM/H

PI Sta 11+13.652
Δ = 30° 53' 46.4" (RT)
L = 62.013
T = 31.780
R = 115.000

BRIDGE DESCRIPTION
BMS = 8-230-0000
TIMBER DECK WITH ASPHALT OVERLAY
BRIDGE NO. 6 OVER SAND BRANCH
ON SR 2786 ON SAND BRANCH ROAD
STEEL I-BEAMS
HIGH WATER ELEVATION UNKNOWN

REVISIONS

R/W REVISION 01/14/05 DS - ADDED R/W MONUMENT STA 10+76.666 RT AND REVISED R/W LINE; ADDED 2 TEMPORARY DRAINAGE EASEMENTS ON PARCEL 5

HAROLD and wife, LUCILE BIGGS CONNER

HERSHEL EVERETT CONNER
D.B. 2591 PG. 53

PAUL F. and wife, LETTIE DOTSON

FRANK and wife, EVA VASS

JACK E. FERREIRA

JAMES E. and wife, BETTY F. GILLIAM

LINDA and husband, ERNEST RUSSELL

SITE 2

BEGIN CULVERT
-L2- Sta.10+43.500
-L2- PTSta.10+42.269

END CULVERT
-L2- Sta.10+56.300
-L2- PCSta.10+57.692

-L2- PCSta.10+27.169

-L2- POT Sta.10+07.000
BEGIN CONSTRUCTION

-L2- POTSta.10+00.000

-L2- PTSta.10+76.666
-L2- PC Sta.10+81.872

-L2- POC Sta.10+95.000
END TIP PROJECT B-3119
END CONSTRUCTION

-L2- POC Sta.11+00.000

10+00.000
10.800(35.43)
7.620 (25.00') EXIST R/W

10+27.169
10.800(35.43')

10+42.269
10.800(35.43')

10+57.692
10.800(35.43')

10+76.666
10.800(35.43)

10+81.703
10.800(35.43)

11+00.000
10.800(35.43)
7.086(23.25') EXIST R/W

+00.000
15.900(49.21')
10.800(35.43') &
7.620(25.00') EXIST R/W

+27.000
18.000(59.06')
13.652(44.79')

+27.169
10.800(35.43')

+42.269
10.800(35.43')

+57.000
14.200(46.59')
10.800(35.43')

+57.692
10.800(35.43')

+65.000
14.200(46.59')
10.800(35.43')

+76.666
10.800
(35.43')

+81.872
10.800(35.43')

+00.000
10.800(35.43') &
8.165(26.79') EXIST R/W

+52.000
+20.800
(35.43')

12.08m X 3.25m CONSPAN BRIDGE

IMPERVIOUS DIKE

FROSTY HOLLOW ROAD GRAVEL

20.2m TAPER LT & RT

18.3M TAPER LT & RT

CUT REMOVE

EXISTING R/W

GRAU-350

SR 2786 LOWER SAND BRANCH ROAD 6m BST

TO NC-9

TO MORGAN HILL ROAD

BEGIN SHLD. BERM GUTTER
@ -L2- STA. 10+23 RT.
END SHLD. BERM GUTTER
@ -L2- STA. 10+59 RT

FUNNEL DRAIN 300 CSP W/ELBOW

CL 'B' RIP RAP EST. 0.9 M TONS W/3.3 S.M. FF

WOODS

SAND BRANCH

12" CRABAPPLE

34.043 S 49°10'20" W
35.920 N 85°50'52" W
54.859 S 69°43'32" E
70.756 S 63°00'55" W
68.842 N 15°35'34" W
74.398 N 85°17'13" E
83.969 S 48°22'53" E
88.180 N 28°50'22" W
121.127 S 36°57'29" E
78.484 S 50°02'04" E
L829 S 11°13'04" W
83.976 S 39°19'47" W
10.369
+11.263
S 39°19'27" W
96.06 N 73°48'27" W
98.249 N 17°38'27" E
S 13°22'25" E
40.350
S 85°22'33" E
40.234
N 36°57'26" E
51.746
S 82°27'55" W
15.240m (50.00')
N 82°27'55" E
15.057 N 12°26'43" W
32.431 N 37°09'39" W
20.686 S 38°54'35" E
32.566 S 00°03'28" E
30.480 S 40°42'32" E
30.480 S 58°13'46" W

15 15 DENOTES TEMPORARY SURFACE WATER IMPACTS

SEE SHEET 6 FOR -L2- PROFILE

14-JUN-2005 09:43
m:\hydr\out\b3119\sht\b3119sht_drn.dgn
Bentley MicroStation V8 (SELECT Series 1)

PROJECT REFERENCE NO.	SHEET NO.
B-3119	11
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
CONST.REV.	
R/W REV.	

5 0 10

**** Design Exception required for the design speed from 100 km/h to 30 km/h.**

-L2-

PI Sta 10+34.883
Δ = 28° 50' 22.2" (RT)
L = 15.100
T = 7.714
R = 30.000
RO = 6
SE = 02
V = 30 KM/H

PI Sta 10+67.508
Δ = 36° 14' 10.4" (RT)
L = 18.973
T = 9.816
R = 300.000
V = 30 KM/H

PI Sta 11+13.652
Δ = 30° 53' 46.4" (RT)
L = 62.013
T = 31.780
R = 115.000

BRIDGE DESCRIPTION
BENT 1 - 8 - 305.000
TIMBER DECK WITH ASPHALT OVERLAY
BRIDGE NO. 160 OVER SAND BRANCH
ON SR 2736 ON SAND BRANCH ROAD
3 @ 7.6 METER I-BEAMS
HIGH WATER ELEVATION UNKNOWN

FOR -L2- PROFILE SEE SHEET 6

REVISIONS

R/W REVISION 01/14/05 DS - ADDED R/W MONUMENT STA 10+76.666 RT AND REVISED R/W LINE; ADDED 2 TEMPORARY DRAINAGE EASEMENTS ON PARCEL 5

HAROLD and wife, LUCILE BIGGS CONNER

HERSHEL EVERETT CONNER
D.B. 2591 PG. 53

PAUL F. and wife, LETTIE DOTSON

FRANK and wife, EVA VASS

JACK E. FERREIRA

LINDA and husband, ERNEST RUSSELL

JAMES E. and wife, BETTY F. GILLIAM

12" CRABAPPLE

BEGIN CULVERT
-L2- Sta.10+43.500
-L2- PTSta.10+42.269

END CULVERT
-L2- Sta.10+56.300
-L2- PCSta.10+57.692

SITE 2

-L2- PCSta.10+27.169

-L2- POT Sta.10+07.000
BEGIN CONSTRUCTION

10+00.000
10.800(35.43)
7.620 (25.00') EXIST R/W

-L2- POTSta.10+00.000

-L2- PTSta.10+76.666
10+76.666
10.800(35.43)

-L2- PC Sta.10+81.872
10+81.703
10.800(35.43)

-L2- POC Sta.10+95.000
END TIP PROJECT B-3119
END CONSTRUCTION
11+00.000
10.800(35.43)
7.086(23.25') EXIST R/W

-L2- POC
Sta.11+00.000

10+42.269
10.800(35.43')

10+57.692
10.800(35.43')

10+27.169
10.800(35.43')

+00.000
15.900(49.21')
10.800(35.43') &
7.620(25.00') EXIST R/W

+27.169
10.800(35.43')

+27.900
18.000(59.06')
13.652(44.79')

+42.269
10.800(35.43')

+52.000
+20.800
10.800(35.43')

+57.000
14.200(46.59')
10.800(35.43')

+57.692
10.800(35.43')

+76.666
10.800
(35.43')

+65.000
14.200(46.59')
10.800(35.43')

+81.872
10.800(35.43')

00.000
10.800(35.43') &
8.165(26.79') EXIST R/W

BEGIN SHLD. BERM GUTTER
@ -L2- STA. 10+23 RT.
END SHLD. BERM GUTTER
@ -L2- STA. 10+59 RT

FUNNEL DRAIN 300 CSP W/ELBOW

CL 'B' RIP RAP EST. 0.9 M TONS W/3.3 S.M. FF

SUPERVIOUS DITCH

20.2m TAPER LT & RT

18.3M TAPER LT & RT

CUT REMOVE

GRAU-350

SR 2736

LOWER SAND BRANCH ROAD 6m BST

SAND BRANCH

TO MORGAN HILL ROAD

EXISTING R/W

TS DENOTES TEMPORARY SURFACE WATER IMPACTS

SEE SHEET 6 FOR -L2- PROFILE

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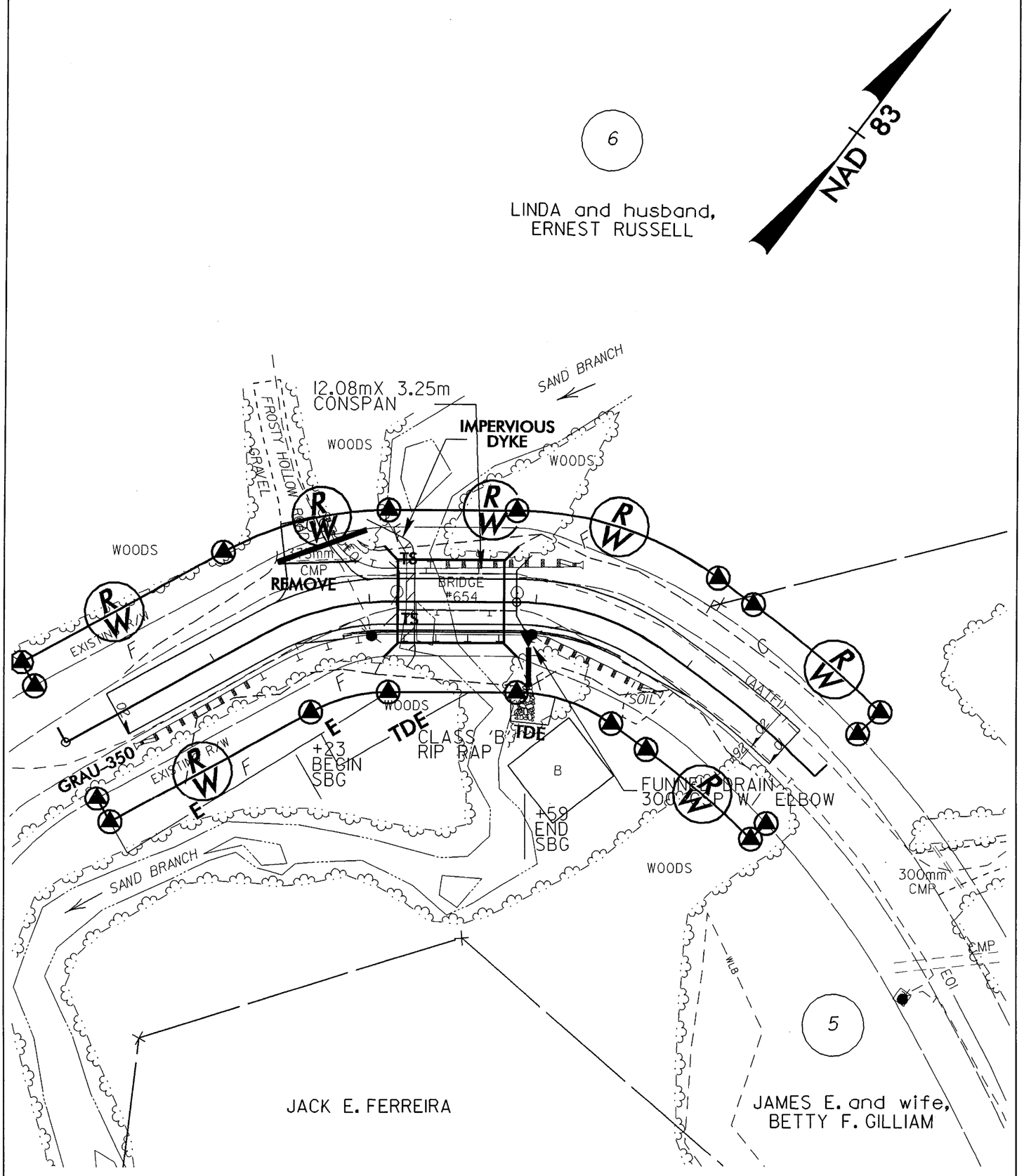


TS TS DENOTES TEMPORARY SURFACE WATER IMPACTS

5m 0 10m SCALE

SITE 2

PLAN VIEW

NCDOT

DIVISION OF HIGHWAYS

BUNCOMBE COUNTY

PROJECT: 32877.1.1 (B-3119)

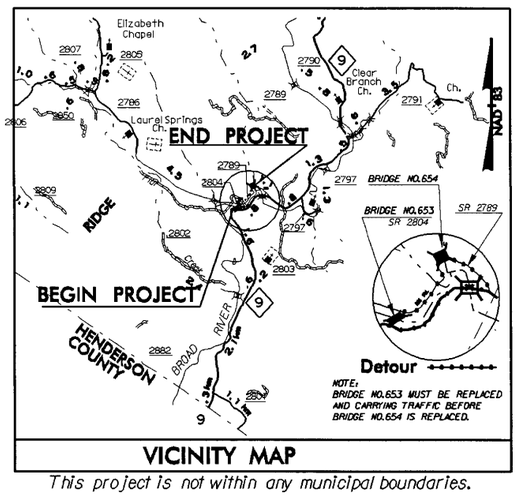
BRIDGE NO. 653 OVER BROAD RIVER ON SR 2804 AND BRIDGE NO. 654 OVER SAND BRANCH ON SR 2786

SHEET 12 OF 12 1/26/05

9/89/99

CONTRACT: C201222 TIP PROJECT: B-3119

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



VICINITY MAP

This project is not within any municipal boundaries.

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

BUNCOMBE COUNTY

LOCATION: BRIDGE NO. 653 OVER THE BROAD RIVER ON SR 2804 AND BRIDGE NO. 654 OVER SAND BRANCH CREEK ON SR 2786

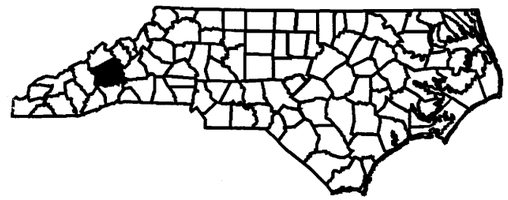
TYPE OF WORK: GRADING, DRAINAGE, PAVING, CULVERT, AND STRUCTURE

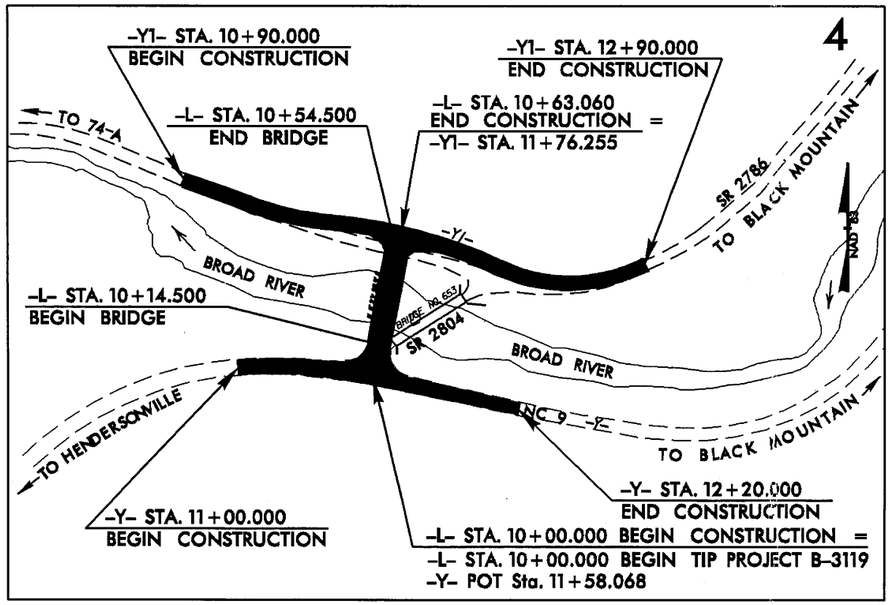
METRIC

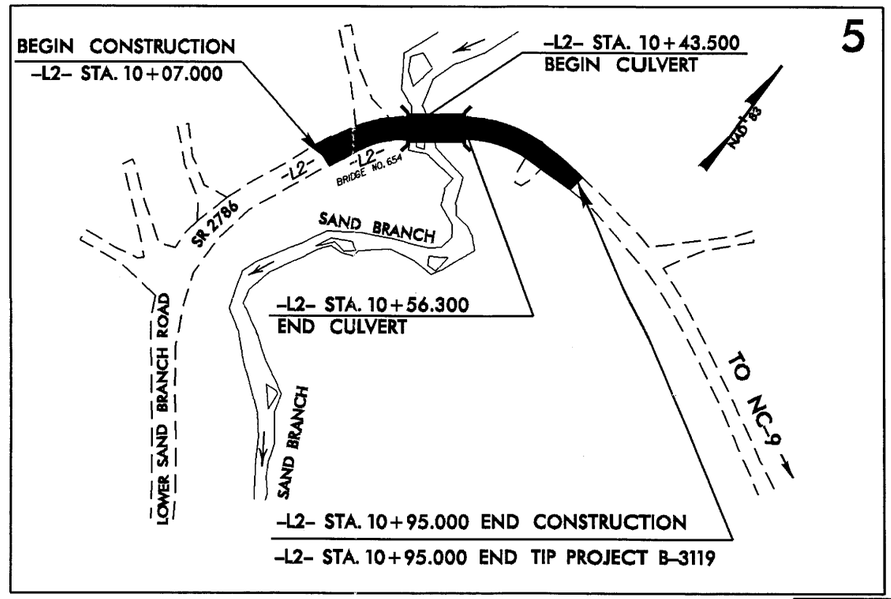
ALL DIMENSIONS IN THESE PLANS ARE IN METERS

STATE	STATE PROJECT REFERENCE NO.		SHEET NO.	TOTAL SHEETS
N.C.	B-3119		1	4
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION		
32877.1.1	BRZ-2804(1)	PE, UTL		

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION







THERE IS NO CONTROL OF ACCESS ON THIS PROJECT.
DESIGN EXCEPTION REQUIRED FOR THE DESIGN SPEED FROM 100 KMH TO 30 KMH.
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II.

METRIC

GRAPHIC SCALES

5 0 10
PLANS

5 0 10
PROFILE (HORIZONTAL)

1 0 2
PROFILE (VERTICAL)

DESIGN DATA

ADT 2006 = 183
ADT 2025 = 342
DHV = 10 %
D = 60 %
T = 3 % *
V = 30 km/h**
* TTST 1 % DUAL 2 %
FUNC CLASS = LOCAL

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-3119 = 0.098 km
LENGTH STRUCTURE TIP PROJECT B-3119 = 0.053 km
TOTAL LENGTH TIP PROJECT B-3119 = 0.151 km

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

2002 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: MAY 28, 2004

LETTING DATE: MAY 16, 2006

TONY HOUSER, PE
PROJECT ENGINEER

LEE ANN MOORE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: P.E.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

STATE DESIGN ENGINEER P.E.

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED
DIVISION ADMINISTRATOR DATE

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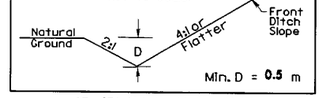

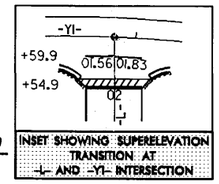

PROJECT REFERENCE NO.	SHEET NO.
B-3119	2
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONST.REV.

R/W REV.

REVISIONS

R/W REVISION 08/18/04 SM - REMOVED R/W MONUMENT @ -Y1- 11+45.937 RT. AND ADDED ADDITIONAL TEMPORARY CONSTRUCTION EASEMENT TO PARCEL 4
R/W REVISION 01/14/05 DS - REVISED R/W MONUMENTS, STATIONS, OFFSETS, & EASEMENTS DUE TO UPDATED SURVEYS- ON PARCELS 1,2,3,& 4; ADDED PDE PARCEL 3

8/17/99

** Design Exception required for the design speed from 100 km/h to 30 km/h.

-Y1-

PI Sta 11+27.704	PI Sta 11+84.460	PI Sta 12+47.533	PI Sta 13+04.715
Δ= 17° 21' 12.2" (LT)	Δ= 19° 40' 03.5" (RT)	Δ= 44° 19' 00.8" (LT)	Δ= 23° 18' 54.4" (LT)
L = 39.979	L = 73.115	L = 51.049	L = 65.108
T = 20.144	T = 36.921	T = 26.878	T = 33.011
R = 132.000	R = 213.000	R = 66.000	R = 160.000
SE = 03	SE = 02	SE = 04	

TBM-7 RAILROAD SPIKE SET IN 24"
WATER OAK EL.620.565
(-L2- STA. 10+37.351 25.618 RT.)

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B3119-2"
WITH NAD 83 STATE PLANE GRID COORDINATES OF
NORTHING: 200044.443(m) EASTING: 312436.153(m)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999791260
THE N.C. LAMBERT GRID BEARING
LOCALIZED HORIZONTAL GROUND DISTANCE FROM
"B3119-2" TO -L- STATION 10+04.049 IS
N 63 00' 30.308" E 236.686m .
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NGVD 29

SEE SHEET 6 FOR -L-, -Y-, & -Y1- PROFILE

-Y-

PI Sta 10+78.787	PI Sta 13+61.003
Δ= 53° 17' 50.5" (RT)	Δ= 75° 20' 30.5" (LT)
L = 146.044	L = 151.221
T = 78.787	T = 88.789
R = 157.000	R = 115.000

**** Design Exception required for the design speed from 100 km/h to 30 km/h.**

-L2-

PI Sta. 10+34.883
Δ = 28° 50' 22.2" (RT)
L = 151.100
T = 77.714
R = 300.000
RO = 6
SE = 02
V = 30 KM/H

PI Sta. 10+67.508
Δ = 36° 14' 10.4" (RT)
L = 189.773
T = 98.816
R = 300.000
RO = 6
SE = 02
V = 30 KM/H

PI Sta. 11+13.652
Δ = 30° 53' 46.4" (RT)
L = 62.013
T = 31.780
R = 115.000

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "BS119-2" WITH NAD 83 STATE PLANE GRID COORDINATES OF NORTHING: 2000441.432(m.) EASTING: 1134536.183(m.)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999791360
THE N.C. LAMBERT GRID BEARING LOCALIZED HORIZONTAL GROUND DISTANCE FROM "BS119-2" TO -L2- STATION 10+00.000 IS N 42° 11' 20.360" E 7.413.240 m.
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NGVD 29

METRIC
5 0 10

PROJECT REFERENCE NO.	SHEET NO.
B-3119	3
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONST.REV.
R/W REV.

FOR -L2- PROFILE SEE SHEET 6

REVISIONS
R/W REVISION 01/14/05 DS - ADDED R/W MONUMENT STA 10+76.666 RT AND REVISED R/W LINE; ADDED 2 TEMPORARY DRAINAGE EASEMENTS ON PARCEL 5

HAROLD and wife, LUCILE BIGGS CONNER D.B. 1482 PG. 119
HERSHEL EVERETT CONNER D.B. 2591 PG. 53
PAUL F. and wife, LETTIE DOTSON D.B. 1089 PG. 146
FRANK and wife, EVA VASS D.B. 1110 PG. 038
JACK E. FERREIRA D.B. 1426 PG. 078
JAMES E. and wife, BETTY F. GILLIAM D.B. 1515 PG. 040
LINDA and husband, ERNEST RUSSELL D.B. 1515 PG. 042

BEGIN CULVERT
-L2- Sta. 10+43.500
-L2- PT Sta. 10+42.269
END CULVERT
-L2- Sta. 10+56.300
-L2- PC Sta. 10+57.692
BL-8 PNC 6+60.858
-L2- POC Sta. 10+63.185 (3.409 LT)
-L2- PT Sta. 10+76.666
-L2- PC Sta. 10+81.872
-L2- PCSta. 10+27.169
-L2- POT Sta. 10+07.000
BEGIN CONSTRUCTION
-L2- POT Sta. 10+00.000
-L2- POC Sta. 10+95.000
END TIP PROJECT B-3119
END CONSTRUCTION
-L2- POC Sta. 11+00.000

10+42.269 10.800(35.43')
10+57.692 10.800(35.43')
10+27.169 10.800(35.43')
10+00.000 10.800(35.43') 7.620 (25.00') EXIST R/W
10+76.666 10.800(35.43')
10+81.703 10.800(35.43')
11+00.000 10.800(35.43') 7.086(23.25') EXIST R/W

BL-7 PNC 5+72.831
BL-6 5+00.000 POT
BL-9 7+55.090 POT

BM #6
OUT OF CHAIN
BL-6 TO BM #6
N 17°43'33" W
38.218

BM #7
L2- STA 10+37.37
25.62 RT
ELEV=620.565

BM #8
OUT OF CHAIN
BL-9 TO BM #8
N 85°25'27" E
27.156

FUNNEL DRAIN 300 CSP W/ELBOW
CL 'B' RIP RAP EST. 0.9 M TONS W/3.3 S.M. FF
12.08m X 3.28m CONSPAN
ELEV = 623.080
•TELE.(AATFI) SUSPENDED FROM BRIDGE.
ELEV= 623.371
20.2m TAPER LT & RT
18.3M TAPER LT & RT
SR 2196 LOWER SAND BRANCH ROAD
SAND BRANCH
FROSTY HOLLOW ROAD
MORGAN HILL ROAD
TO NC-9
EXISTING R/W
WOODS
GRAVEL
SOIL
ABAND

SEE SHEET 6 FOR -L2- PROFILE

14-JUN-2005 09:30

6/09/99

METRIC	PROJECT REFERENCE NO.	SHEET NO.
5 0 10	B-3119	4
	ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
	PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
CONST.REV.		
R/W REV.		

TBM-4 RAILROAD SPIKE IN POWER POLE AT NORTH END OF BRIDGE EL. 619.423 (-L- STA. 10+43.068 18.879 LT.)

** Design Exception required for the design speed from 100 km/h to 30 km/h.

1-950m 1-900m PLATE GIRDERS
STA. 10+34.50 -L-
GRADE POINT ELEV. 618.83m
SKEW 90°

STRUCTURE HYDRAULIC DATA

DESIGN DISCHARGE	= 98	CMS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 615.15 M	
BASE DISCHARGE	= 145	CMS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 615.73M	
OVERTOPPING DISCHARGE	= N/A	CMS
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING ELEVATION	= 618.14 M	

BEGIN GRADE -L- STA. 10+03.300
-Y- STA. 11+58.068 3.3m LT
ELEV. 619.761

PI = 10+07.800
EL = 619.690 m
VC = 9 m
K = 6

PI = 10+55.000
EL = 618.171 m
VC = 9 m
K = 2

END GRADE -L- STA. 10+59.858
-Y1- STA. 11+76.374 3.2m RT
ELEV. 618.268

-5.857%
-2.878%
+2.000%
CLASS II RIP RAP
CLASS III RIP RAP
NWS 612.60 m

TBM-7 RAILROAD SPIKE SET IN 24" WATER OAK EL. 620.565
(-L2- STA. 10+37.351 25.618 RT.)

12.40m X 3.20m CONSPAN
STA. 10+48.50 -L2-
GRADE POINT ELEV. 625.75m
SKEW 90°

BEGIN GRADE -L2- STA. 10+07
ELEV. 625.186

END GRADE -L2- STA. 10+85
ELEV. 622.447

STRUCTURE HYDRAULIC DATA

DESIGN DISCHARGE	= 26	CMS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 621.09 M	
BASE DISCHARGE	= 40	CMS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 621.80 M	
OVERTOPPING DISCHARGE	= 65	CMS
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING ELEVATION	= 622.00 M	

PI = 10+19.500
EL = 624.718 m
VC = 24 m
K = 42
V = 98 km/h

PI = 10+45.000
EL = 623.898 m
VC = 27 m
K = 32
V = 83 km/h

PI = 10+75.000
EL = 622.667 m
VC = 30 m
K = 11
V = 48 km/h

-3.770%
-.209%
-4.096%
-1.200%
NWS 620.4m

TBM-1 RAILROAD SPIKE IN DOUBLE POPLAR AT DRIVEWAY EL. 617.953
(-Y- STA. 10+11.820 10.362 LT.)

TBM-2 RAILROAD SPIKE IN 12" SYCAMORE EL. 619.996
(-Y- STA. 13+51.563 9.295 LT.)

BEGIN 60mm OVERLAY -Y- STA. 11+00.000
ELEV. 618.988

END 60 mm OVERLAY -Y- STA. 12+20.000
ELEV. 620.788

TBM-5 RAILROAD SPIKE IN BASE OF LEANING HEMLOCK ON CREEKBANK EL. 616.052
(-Y1- STA. 10+27.849 4.674 RT.)

TBM-3 RAILROAD SPIKE IN DOUBLE POPLAR ON EDGE OF GRAVEL ROAD EL. 622.857
(-Y1- STA. 13+63.392 8.018 RT.)

BEGIN GRADE -Y1- STA. 10+90.000
ELEV. 615.337

END GRADE -Y1- STA. 12+80.000
ELEV. 621.292

PI = 11+75.670
EL = 617.844 m
VC = 90 m
K = 19

PI = 12+56.000
EL = 621.046 m
VC = 80 m
K = 18

+.072%
+.440%
+.144%
-.025%
-.070%
+.062%

BEGIN DITCH GR.LT.
PI = 11+30.000
EL 617.370

PI = 11+47.000
EL 617.250

END DITCH GR.LT.
PI = 11+60.000
EL = 617.570

SEE SHEET 4 FOR -L-, -Y-, & -Y1-
SEE SHEET 5 FOR -L2-

14-JUN-2005 09:51
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Buncombe County
Bridge No. 653 and No. 654
On SR 2804 and SR 2786
Over Broad River and Sandy Branch Creek
Federal Aid Project No. BRZ-2804(1)
State Project No. 8.2843501
W.B.S. No. 32877.1.1
T.I.P. No. B-3119

CATEGORICAL EXCLUSION

UNITED STATES DEPARTMENT OF TRANSPORTATION

FEDERAL HIGHWAY ADMINISTRATION

AND

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

Approved:

1/20/04
DATE

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

1/21/04
DATE

for John F. Sullivan, III
Division Administrator, FHWA

Buncombe County
Bridge No. 653 and No. 654
On SR 2804 and SR 2786
Over Broad River and Sandy Branch Creek
Federal Aid Project No. BRZ-2804(1)
State Project No. 8.2843501
W.B.S. No. 32877.1.1
T.I.P. No. B-3119

CATEGORICAL EXCLUSION

Documentation Prepared in
Project Development and Environmental Analysis Branch By:

January 2003

John L. Williams, PE
Project Planning Engineer

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

PROJECT COMMITMENTS:

Buncombe County
Bridge No. 653 and 654
SR 2804 and SR 2786
Over Broad River and Sandy Branch
Federal Project BRZ-2804(1)
State Project 8.2843501
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TIP No. B-3119

Office of Natural Environment –Virginia spirea

Potential Habitat for the endangered Virginia spirea is present at the project site and while the species was not found during an intensive site search, the biologist recommended a follow-up survey. NCDOT will conduct a follow-up survey during the next blooming season for the species in summer 2004. NCDOT will not be able to gain a permit for the project until the issues is resolved.

Division, Resident Engineer –Trout Issues

NCWRC has commented that the Broad River is a NCWRC Hatchery Supported Trout Stream with some populations of wild trout as well. The following will be implemented to minimize impacts to aquatic resources:

- Instream work and land disturbance within the 25-foot wide buffer zone are prohibited during the brown trout spawning season of November 1 through April 15 to protect the egg and fry stages.
- Where concrete is used, work will be accomplished so that wet concrete does not contact stream water.
- Grading and backfilling should be minimized, and tree and shrub growth should be retained if possible to ensure long term availability of shoreline cover for gamefish and wildlife.
- Under no circumstances should rock, sand, or other materials be dredged from the stream channel except as required for the construction of the bridge piers.
- Temporary or permanent herbaceous vegetation should be planted on all bare soil within 15 days of completion of ground disturbing activities to provide long-term erosion control.

Roadside Environmental Unit & Roadway Design Unit – Sensitive Watersheds

Design Standards for Sensitive Watersheds will be implemented in the design and construction of this project.

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INTRODUCTION: Bridge No. 653 and No. 654 are included in the latest approved North Carolina Department of Transportation (NCDOT) Transportation Improvement Program and are eligible for the Federal-Aid Bridge Replacement and Rehabilitation Program. The two bridge locations are shown in Figure One. No substantial environmental impacts are anticipated. The project is classified as a Federal "Categorical Exclusion".

I. PURPOSE AND NEED STATEMENT

Bridge Maintenance Unit records indicate that Bridge No. 653 has a sufficiency rating of 20.6 out of a possible 100. The bridge is considered to be structurally deficient and functionally obsolete on the basis of a Structural Appraisal of 2 out of 10 and a Deck Geometry Appraisal of 2 out of 10. Furthermore, the superstructure is a Pratt thru truss including non-redundant tension elements that represent a safety concern. The replacement of this inadequate structure will result in safer traffic operations.

Bridge Maintenance Unit records indicate that Bridge No. 654 has a sufficiency rating of 33.0 out of a possible 100. The bridge is considered to be structurally deficient and functionally obsolete on the basis of a Structural Appraisal of 2 out of 10. Furthermore, the superstructure is a pony truss including non-redundant tension elements that represent a safety concern. The replacement of this inadequate structure will result in safer traffic operations.

II. EXISTING CONDITIONS

The project is located in the southeast corner of Buncombe County (see Figure One). The area is rural with largely agricultural development and scattered residences.

SR 2804 and SR 2786 are paved and classified as rural local routes in the Statewide Functional Classification System and are not National Highway System Routes. SR 2786 has recently been widened along its entire length at a width of 18 feet. These routes are not designated bicycle routes and there is no indication that an unusual number of bicyclists use these roadways.

In the vicinity of the bridges the roadway grade is relatively flat through the project area. Bridge No. 653 is approximately 24 feet above the riverbed. Bridge No. 654 is approximately 13 feet above the streambed.

Bridge No. 653 is a one-span Pratt thru truss bridge. The superstructure consists of an asphalt-wearing surface over a timber deck on a steel thru truss. The substructure is composed of two reinforced concrete abutments. Bridge No. 653 (see Figure Three) was placed at this location in 1961. The overall length of the structure is 122 feet. The clear roadway width is 11.7 feet. The posted weight limit on this bridge is 10 tons for single vehicles and 13 tons for TTST's.

Bridge No. 654 is a one-span pony truss bridge. The superstructure consists of an asphalt-wearing surface over a timber deck on a steel truss. The substructure is composed of two reinforced concrete abutments. Bridge No. 654 (see Figure Five) was placed at this location in 1961. The overall length of the structure is 48 feet. The clear roadway width is 13 feet. The posted weight limit on this bridge is 18 tons for single vehicles and 18 tons for TTST's.

Utility impacts are anticipated to be low. Aerial power lines are present at both bridges. Bridge No. 654 carries a telephone line on the bridge.

The current traffic volume is approximately 100 vehicles per day (VPD) for both bridges and is expected to increase to 300 VPD by the year 2025. The projected volume includes one-percent truck-tractor semi-trailer (TTST) and two-percent dual-tired vehicles (DT). There is no posted speed limit and is therefore 55 miles per hour by statute in the project area. The School Bus Transportation Director has indicated there are three school busses currently utilizing Bridge No. 653. There are no school busses utilizing Bridge No. 654.

There have been no accidents reported in the vicinity of Bridge No. 653 or Bridge No. 654 during a check of a recent three-year period.

III. ALTERNATIVES

A. Project Description

The replacement structure for Bridge No. 653 will consist of a 130-foot long bridge. The bridge will be of sufficient width to provide for two 12-foot lanes with 3-foot offsets on each side.

The replacement structure for Bridge No. 654 will be a prefabricated spanning arch structure approximately 10.7 feet high by 39.6 feet long. The bridge will be of sufficient width to provide for two 12-foot lanes with 3-foot offsets on each side.

The roadway grade of the new structures will be approximately the same as the existing facilities at these locations.

The roadway approaches will be widened to a 24-foot pavement width to provide two 12-foot lanes. Six-foot grass shoulders will be provided on each side. The roadway will be designed as a rural local route. A design exception will be required in both cases due to design speed. The desired design speed is 60 miles per hour but the actual design speed achieved by these alignments is 20 miles per hour.

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

Hyde County is a participant in the National Flood Insurance Program. There are no practical alternatives to crossing the floodplain area. Any shift in alignment will result in an impact area of about the same magnitude. The proposed project is not anticipated to increase the level or extent of upstream flood potential.

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

VIII. RESPONSE TO AGENCY COMMENTS

A. North Carolina Wildlife Resource Commission

NCWRC has provided written comments (see attached letter) indicating the Rocky Broad River is a Hatchery Supported Trout Stream. A list of standard requests associated with trout is included in the letter and will be upheld as part of project construction (see attached Greensheet).

IX. PUBLIC INVOLVEMENT

The North Carolina Department of Transportation held a Citizens Informational Workshop for this project on August 14, 2001 to gain public input. Forty-five people either attended the workshop or sent in comments following the workshop by mail or e-mail. The vast majority, including the Volunteer Fire Chief, raised concerns over permanently closing either of the structures. Seven requested that we find a way to leave Bridge No. 653, "The Old Iron Bridge," in place. These comments have been addressed in Section III C of this document. A newsletter was sent in April 2002 to alert the community that we had determined to replace both bridges and that it would not be possible to preserve "The Old Iron Bridge". All correspondence received subsequent to the newsletter has been requests on updates for the project schedule.

C. Archaeology

The North Carolina Department of Cultural Resources has reviewed this project and determined that there are no likely archaeological resources of historic significance that could be affected by the project (See attached letter).

VII. GENERAL 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 to be a Federal "Categorical Exclusion" due to its limited scope and lack of substantial environmental consequences.

The bridge replacements 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.

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

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

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

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

occurrences of rock gnome lichen in the project vicinity. It can be concluded that the project will not impact this threatened species.

Surveys for federally protected species are valid for two years from the survey date. If the project is not constructed within those two years then the area may need to be resurveyed prior to the let date.

C. Conclusions

- The proposed project will impact two surface waters. Thirty-two linear feet of the Broad River and 220 linear feet of Sand Branch UT1 will be impacted by project construction.
- The proposed project will not impact any jurisdictional wetlands.
- Section 404 NWP 23 and 33 along with their corresponding Section 401 Water Quality Certification may be required for the proposed project.
- Tentative construction moratorium dates are recommended for rainbow trout between January 1st and April 15th.
- The proposed project may affect but is unlikely to adversely affect the gray bat. The affect of the proposed project remains unresolved for Virginia spirea, until surveys can be conducted during its flowering time of late May to late July.
- Replacing the Bridge No. 653 in its existing location, and reducing the extent of the slope stakes would minimize impacts to the Broad River and Sand Branch UT1. If the final length of stream impact is greater than 150 linear feet, compensatory mitigation may be required.

VI. CULTURAL RESOURCES

A. Compliance Guidelines

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

B. Historic Architecture

The North Carolina Department of Cultural Resources has reviewed this project and determined that there are no structures of historic significance that could be affected by the project (See attached letter).

No mussels of any species were observed in one hour of survey time. Based on the fact that this species does not occur in Atlantic slope drainages and the survey results, it can be concluded that project construction will not impact the oyster mussel.

***Sagittaria fasciculata* (bunched arrowhead)** **No Effect**

No habitat exists within the project area for the bunched arrowhead, and no individuals of this species were observed during the site visit. Within the wetland there are no stagnant seepage areas. A search of the NHP database found no occurrence of this plant within the project vicinity. It can be concluded that the project will not impact this endangered species.

***Sarracenia jonesii* (mountain sweet pitcher plant)** **No Effect**

No habitat exists within the project area for the mountain sweet pitcher plant, and no individuals of this species were observed during the site visit. No level depressions were found along the stream. A search of the NHP database found no occurrence of this plant within the project vicinity. It can be concluded that the project will not impact this endangered species.

***Geum radiatum* (Spreading avens)** **No Effect**

No habitat exists within the project area for spreading avens, and no individuals of this species were observed during the site visit. The elevation of the project area is approximately 2050 feet, which is well below the elevations where this plant is typically found. A search of the NHP database found no occurrence of this plant within the project vicinity. It can be concluded that the project will not impact this endangered species.

***Spiraea virginiana* (Virginia spiraea)** **Unresolved**

Although suitable habitat for this species exists within the project area, no individuals of this species were discovered. Point bars, braided areas, and rock crevices along the Broad River were extensively searched. A search of the NHP database found no occurrence of this plant within the project vicinity. However, the biological conclusion for this species should remain Unresolved until a search for this species can be conducted during its appropriate flowering time (late May to late July).

***Gymnoderma lineare* (rock gnome lichen)** **No Effect**

No habitat exists in the project area for the rock gnome lichen. The elevation of the project area is approximately 2050 feet. In Buncombe County, this species occurs on high-elevation mountaintops and cliff faces above 4000 feet. A search of the NHP database found no

Glaucomysabrinus coloratus **(Carolina northern flying squirrel)** **No Effect**

No habitat exists in the project area for the Carolina northern flying squirrel. The project area is at an elevation of 2050 feet (615 m) with no transition zone between hardwood and coniferous forests. A search of the NHP database found no occurrence of this animal within the project vicinity. It can be concluded that the project will not impact this endangered species.

Felis concolor cougar **(eastern cougar)** **No Effect**

The project site is not in close proximity to a large wilderness area. No individuals of this species, or any sign of their presence was observed during the site visit. A search of the NHP database found no occurrence of this animal within the project vicinity. Furthermore, records of this species from the western portion of the state are more than 20 years old. It can be concluded that the project will not impact this endangered species.

Myotis grisescens **(gray bat)** **May Affect- Not Likely to Adversely Affect**

No caves were discovered within the project areas, and none were spotted nearby. The Broad River may serve as suitable foraging habitat for this species. However, no individuals of this species or indications of their presence were observed. A search of the NHP database found no occurrence of this animal within the project vicinity. Furthermore, the record of this species in Buncombe County is an incidental/migratory record, implying that the species was observed outside its normal range or habitat. Although no bats are known to occur in the area, but foraging habitat is present, USFWS policy requires a Biological Conclusion that this project may affect, but is unlikely to adversely affect, this endangered species.

Cyprinella monacha **(spotfin chub)** **No Effect**

This species is found only in interior drainages, while the Broad River is an Atlantic slope drainage. A search of the NHP database found no occurrence of this animal within the project vicinity. It can be concluded that the project will not impact this endangered species.

Epioblasma capsaeformis **(oyster mussel)** **No Effect**

The oyster mussel occurs in the Tennessee and Cumberland River basins. This species is not found within Atlantic slope drainages. The subject project will impact the Broad River and Sand Branch, which are Atlantic slope drainages. Additionally, Bridge 653 was visited by NCDOT biologist Tim Savidge on June 23, 2000. Cursory surveys for mussel fauna were conducted from approximately 300 yards downstream of the existing bridge over the Broad River to approximately 50 yards upstream. Survey methodology involved wading using a view bucket.

Species Under Federal Protection in Buncombe County

Vertebrates			
Common Name	Scientific Name	Federal Status	Biological Conclusion
Bog Turtle	*Clemmys muhlenbergii*	T(S/A)	N/A
Carolina northern flying squirrel	*Glaucomys sabrinus coloratus*	E	No Effect
Eastern cougar	*Felis concolor couguar*	E	No Effect
Gray bat	*Myotis grisescens*	E**	May Affect-Not Likely to Adversely Affect
Spotfin chub	*Hybopsis monacha*	T*	No Effect
Invertebrates			
Common Name	Scientific Name	Federal Status	Biological Conclusion
Oyster mussel	*Epioblasma capsaeformis*	E	No Effect
Vascular Plants			
Bunched arrowhead	*Sagittaria fasiculata*	E*	No Effect
Mountain sweet pitcher plant	*Sarracenia jonesii*	E*	No Effect
Spreading avens	*Geum radiatum*	E	No Effect
Virginia spirea	*Spirea virginiana*	T	Unresolved
Nonvascular Plants			
Rock Gnome Lichen	*Gymnoderma lineare*	E	No Effect

Notes		
	E	Endangered-A species that is threatened with extinction throughout all or a significant portion of its range.
	T	Threatened-A species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.
	T(S/A)	Similarity of Appearance-A species that is listed as threatened due to similarity of appearance with other rare species.
	*	Historic record–the species was last observed in the county more than 50 years ago.
	**	Incidental/Migrant record–the species was observed outside of its normal range or habitat.

***Clemmys muhlenbergii* (bog turtle)**

The southern population of the bog turtle is listed as Threatened due to Similarity of Appearance to the northern population; therefore, the southern population is not afforded protection under Section 7 of the Endangered Species Act and a Biological conclusion is not needed. No habitat exists in the project area for the bog turtle. There are no freshwater wetlands characterized by open fields, meadows, or marshes with slow moving streams, ditches, or boggy areas near the bridge. A search of the NHP database revealed no occurrences of the bog turtle within 2 miles.

B. Jurisdictional Topics

Surface Waters and Wetlands

The Broad River, Sand Branch, and UT1 are considered jurisdictional surface water under Section 404 of the Clean Water Act. Calculated impacts to waters of the United States reflect the relative abundance of each surface water observed within the proposed construction limits. Permanent impacts to the Broad River and UT1 will result from project construction. No temporary impacts are associated with the proposed project. Assuming a study corridor of variable width for Alternate 1, the following table lists the potential impacts to surface waters within the project area.

Estimated Impacts to Surface Waters

Water body	Channel Width in Feet	Impacted Length in Linear Feet	Impacted Area in Square feet
Broad River	75	32	2400
UT1	1.5	220	330
Sand Branch	15	0	0
Total Impact	---	252	2730

Bridge No. 653 is a single span 122 feet long and 12 feet wide, and was built in 1961. The substructure is composed of two reinforced concrete abutments. The amount of resulting fill is unknown as a method of removal has not yet been determined. Bridge No. 654 was built in 1962, and consists of a single span 48 feet long and 14 feet wide. The substructure is composed of two reinforced concrete abutments. It should be possible to remove Bridge No. 654 with no resulting fill.

Permits

Construction is likely to be authorized by Nationwide Permits (NWP) No. 23 (Categorical Exclusion) and 33 (Temporary Construction, Access and Dewatering), as promulgated under 67 FR 2020, 2092; January 15, 2002. This project will also require a 401 Water Quality Certification No. 3361, from the Department of Environment and Natural Resources (DENR) prior to issuance of the NWP 23.

Federally Protected Species

Plants and animals with a federal classification of Endangered (E), Threatened (T), Proposed Endangered (PE), and Proposed Threatened (PT) are protected under provisions of Section 7 and Section 9 of the Endangered Species Act of 1973, as amended. The USFWS lists 11 species under federal protection for Buncombe County as of January 29, 2003 (USFWS 2003). These species are listed in the table below.

V. NATURAL RESOURCES

The project is located in eastern Buncombe County about 12 miles south of Black Mountain, NC, in the Blue Ridge physiographic province. Elevations in the project area are approximately 2050 feet (National Geodetic Vertical Datum, 1978). The topography of the project vicinity is mountainous with steep slopes rising from both riverbanks. No hydric soils are mapped by the NRCS within the project area. A small jurisdictional wetland was discovered during the initial site visit just outside the project area associated with Bridge No. 654.

A. Physical Characteristics

Water Resources

Water resources located within the project study area lie in subbasin BRD01 of the Broad River Basin (HUC 06010105). The Broad River, Sand Branch, and an unnamed tributary to the Broad River (UT1) are located within the project area, and are all perennial features.

The best usage classification of the Broad River and Sand Branch (Index numbers 9(11) and 9(10), respectively) are *Class C Tr* (NCDENR 2002). UT1 has not been indexed by DWQ; therefore, it receives the same classification as its receiving stream (the Broad River). No water resources classified as High Quality Water, Water Supplies (WS-I or WS-II), or Outstanding Resource Waters are located within 1.0 mile of the project study area.

None of the water resources within the project area are designated as biologically impaired water bodies regulated under the provisions of CWA §303(d).

Biotic Resources

Three terrestrial communities were identified within or near the project area: a disturbed community, a mixed hardwood forest, and a wetland. The following table shows the impacts of the project on these communities.

Estimated Area of Impact to Terrestrial Communities

	Area of Impact in Acres		
Community	Bridge 653	Bridge 654	Total
Disturbed	0.03	0.02	0.05
Mixed Hardwood	0.15	0.02	0.17
Total Impact	0.18	0.04	0.22

of Historic Places. For these reasons rehabilitation and continued maintenance of the existing structure are not prudent.

Approximately one third of those offering feedback during public involvement requested that the Department leave Bridge No. 653 (The "Old Iron Bridge") in place. The existing south end of the bridge is the best location for an intersection with NC 9 offering the best sight distance in both directions and drivers are already familiar with the associated turning movements. Therefore the best location for the new bridge overlaps the south end of the existing "Old Iron Bridge" and thus the "Old Iron Bridge" must be removed. Even before this was determined to be the case and in consideration that Bridge No. 653 is not eligible for the National Register of Historic Places, the Bridge Maintenance Unit had indicated a strong preference for removal of the bridge due to budgetary constraints.

Realignment of Bridge No. 654 was not considered due to topographical and environmental concerns. Bridge No. 654 is located in the middle of a curve. To the outside of the curve is a steeply climbing mountain slope. To the inside of the curve is a wetland.

D. Preferred Alternative

Bridge No. 653 will be replaced on new alignment as shown in Figure 2. Bridge No. 654 will be replaced on the existing location as shown by Figure 2. These alignments are recommended because they are the only practical alternative for replacing the bridge. Impacts to the natural and human environments are minimal.

The NCDOT Division 13 Engineer concurs with this recommendation as the preferred alternative.

IV. ESTIMATED COSTS

The estimated costs for the build alternative is as follows:

	Bridge No. 653	**Bridge No. 654**
Item	**Cost**	**Cost**
New Structure	$ 251,000	$ 175,000
Removal of Existing Structure	16,000	6,000
Roadway Approaches	106,000	42,000
Misc. & Mob.	53,000	29,000
Eng. & Contingencies	43,000	38,000
Total Construction Cost	$ 469,000	$ 290,000
Right-of-way Costs	$ 24,000	$ 11,000
Individual Bridge Total Cost	$ 493,000	$ 301,000
Grand Total Project Cost		$ 794,000

B. Reasonable and Feasible Alternatives

After consideration of several replacement scenarios, only one build alternative for each bridge was determined to be reasonable as described below.

Bridge No. 653 will be replaced on a partially new alignment. The south end of the new bridge will be at approximately the same location as the old bridge. The north end of the new bridge will be shifted approximately 130 feet to the west of the current north end of Bridge 653 (See Figure 2). The new alignment will be approximately 164 feet long. SR 2786 will be realigned for a distance of approximately 300 feet to the east and to the west of the intersection with SR 2804. The realignment is necessary to facilitate construction of the north abutment of the new bridge. Traffic will be detoured around NC 9 and SR 2786 during construction.

Bridge No. 654 will be replaced on the existing alignment with a prefabricated spanning arch structure. Approach work will extend 131 feet west of the structure and 134 feet to the east.

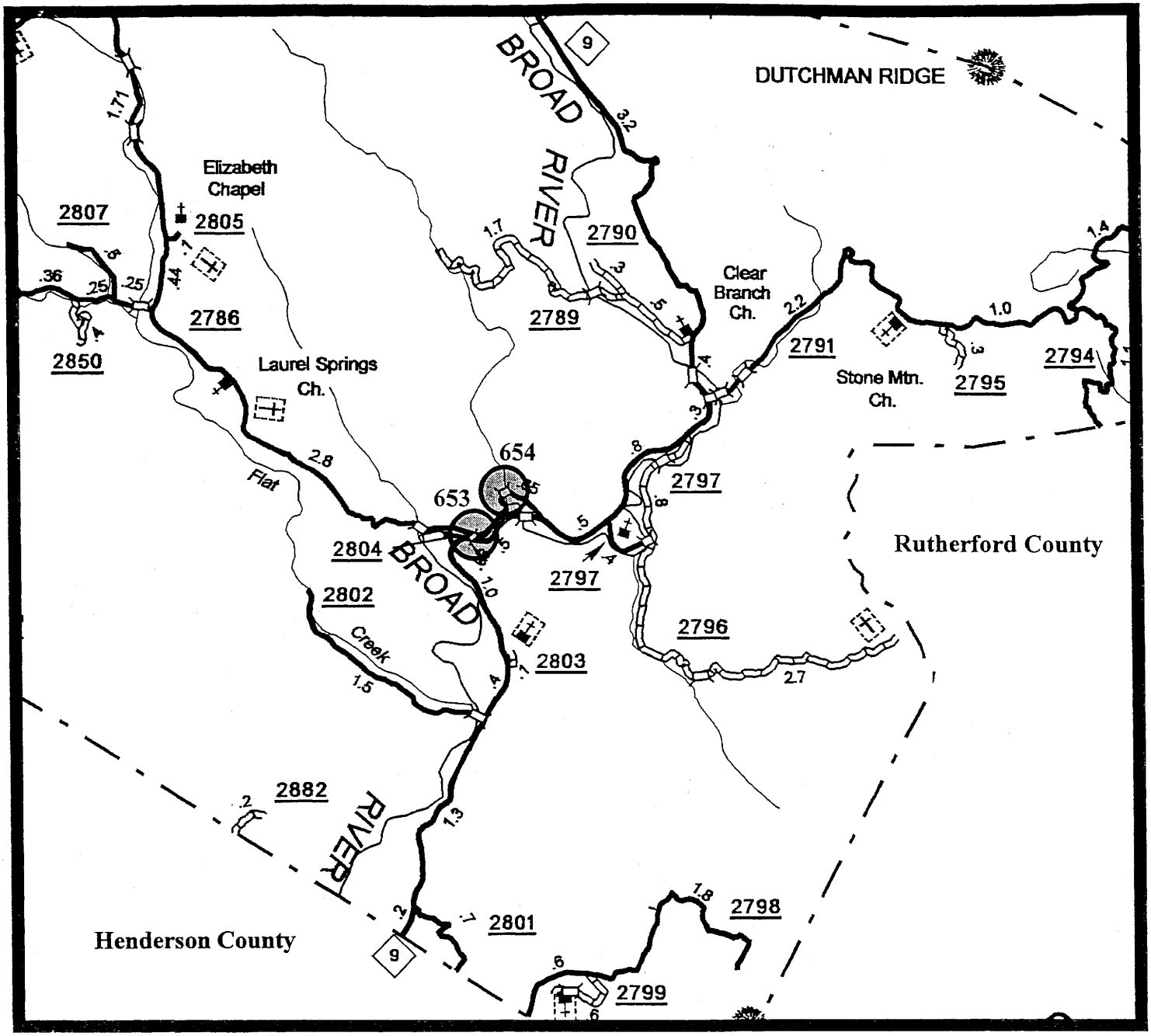
Bridge No. 653 must be replaced and carrying traffic prior to the beginning of construction for Bridge No. 654. If Bridge No. 654 were to be closed first, Bridge No. 653 does not have sufficient turning radius to permit larger vehicles access to SR 2786; the road would effectively be shut down to larger vehicles such as tractor trailers. The delay due to the detour should be less than 2 minutes for the average road user

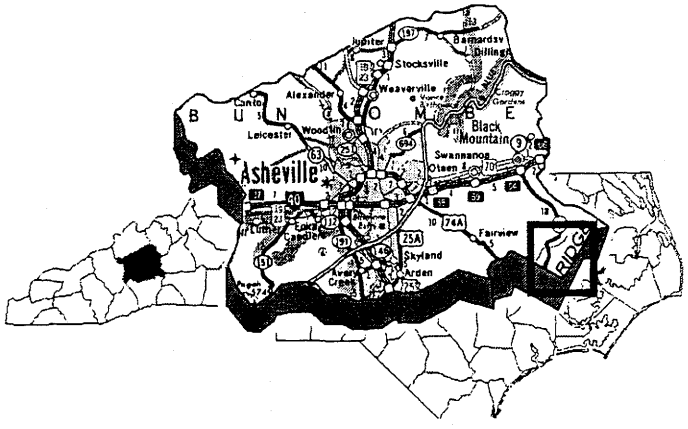
C. Alternatives Eliminated From Further Consideration

Because Bridge No. 653 and Bridge No. 654 are so close together, serious consideration was given to removing both bridges and replacing only one of them. This possibility was included during the public involvement stage of planning. There was general opposition to closing either bridge due to a specific safety concern. The local Emergency Services Coordinator indicated that there is a section of NC 9 between SR 2786 and SR 2804 which develops a "black ice" condition on cool mornings which regularly causes accidents. The detour including the two bridges allows traffic to detour around during a wreck. Many of those attending the public meeting and many who wrote in comments noted that this very condition dictated which bridge they crossed when traveling from the north end of SR 2786.

The "do-nothing" alternative will eventually necessitate closure of the bridges. This is not acceptable due to the traffic service provided by SR 2786 and SR 2804.

Older truss structures were not designed with redundancy meaning that the failure of an individual member could cause collapse of the entire bridge. Many of these bridges have been retrofitted with a light guardrail inside the truss but this does not provide adequate protection to the truss. Metal truss structures also require very high maintenance to keep the structure in good repair relative to other structure types. These particular structures have been evaluated for historical significance and have been determined Not Eligible for listing on the National Register

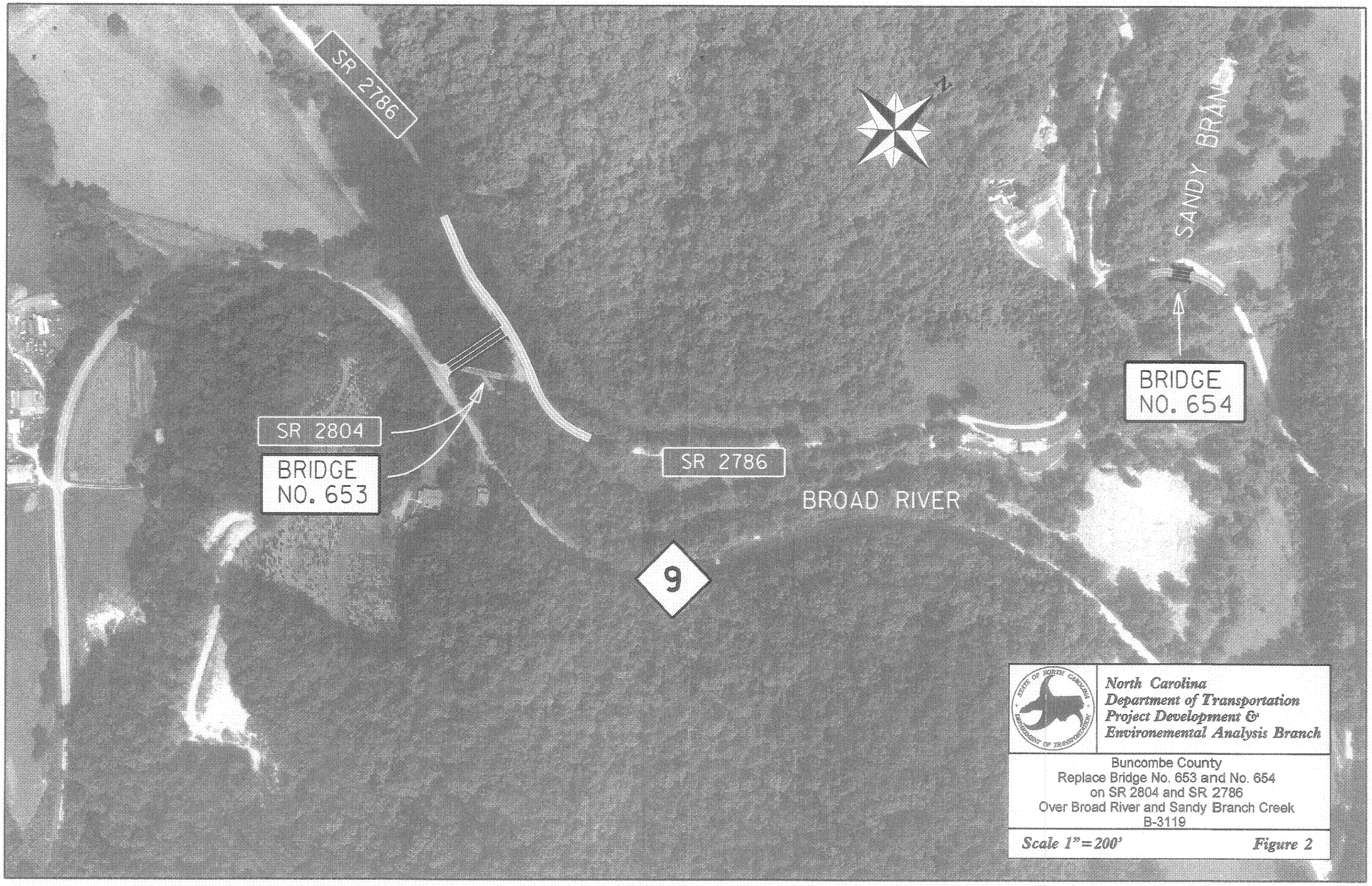




NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
PROJECT DEVELOPMENT &
ENVIRONMENTAL ANALYSIS BRANCH

Buncombe County
Replace Bridge No. 653 and No. 654
On SR 2804 and SR 2786
Over Broad River & Sandy Branch Creek
B-3119

Figure 1



North Carolina
Department of Transportation
Project Development &
Environemental Analysis Branch

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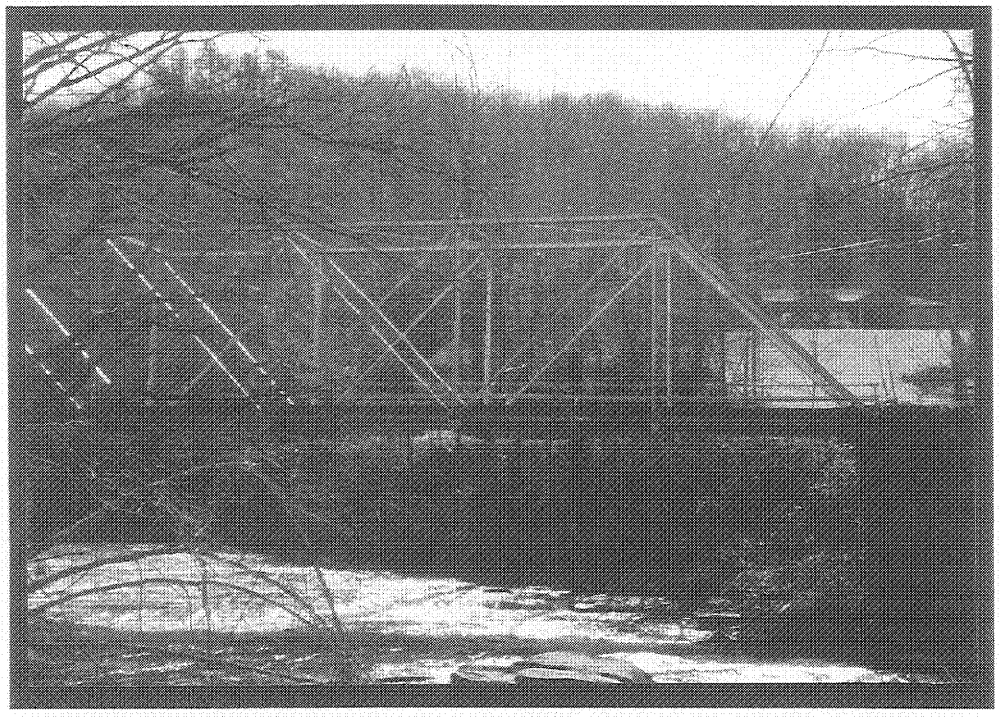
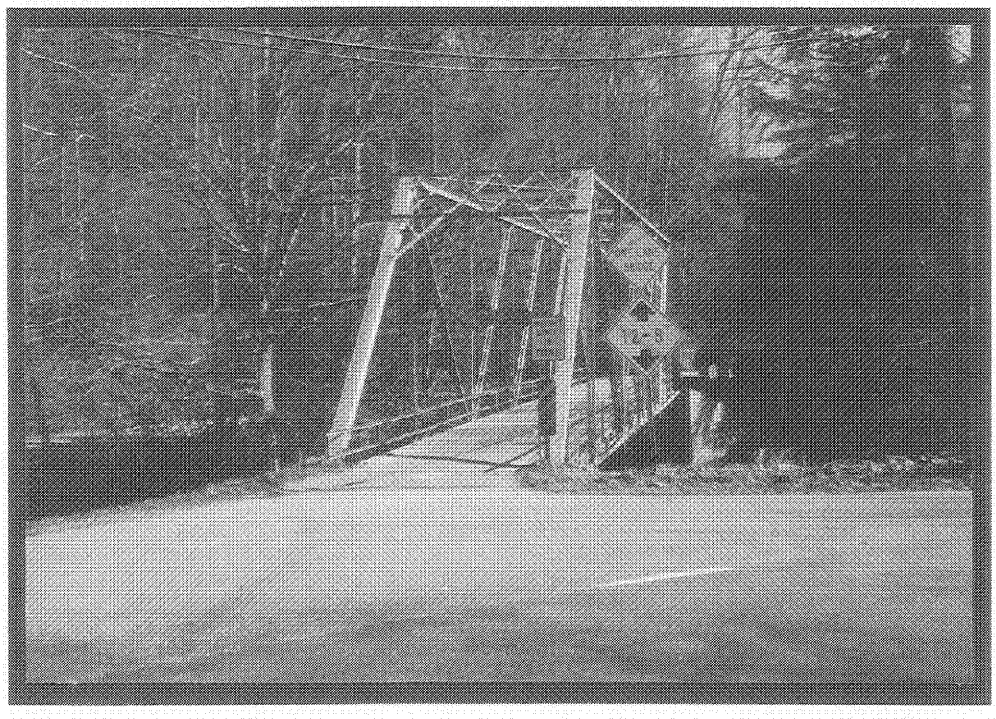
Scale 1"=200' *Figure 2*



East Face of
Bridge 653



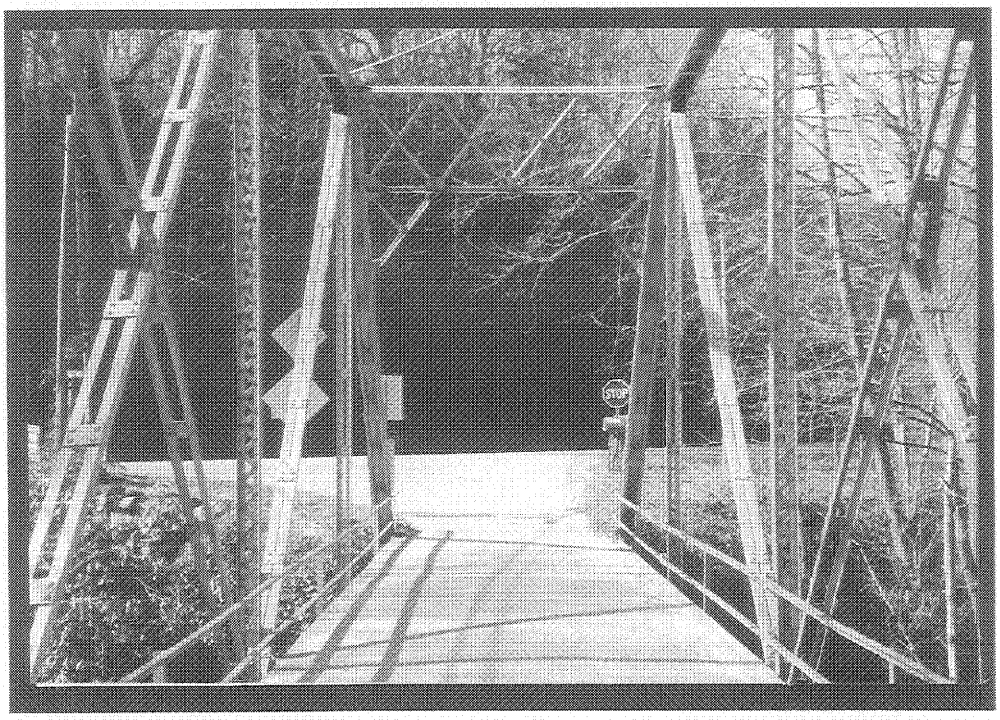
View of Bridge No. 653
from NC 9

North Carolina Department of Transportation

Division of Highways
Project Development &
Environmental Analysis Branch

Buncombe County
B-3119

Figure Three



Looking South Across Bridge 653

Looking North Across Bridge 653

North Carolina Department of Transportation

Division of Highways
Project Development &
Environmental Analysis Branch

Buncombe County
B-3119

Figure Four

Bridge No. 654

North Carolina Department of Transportation

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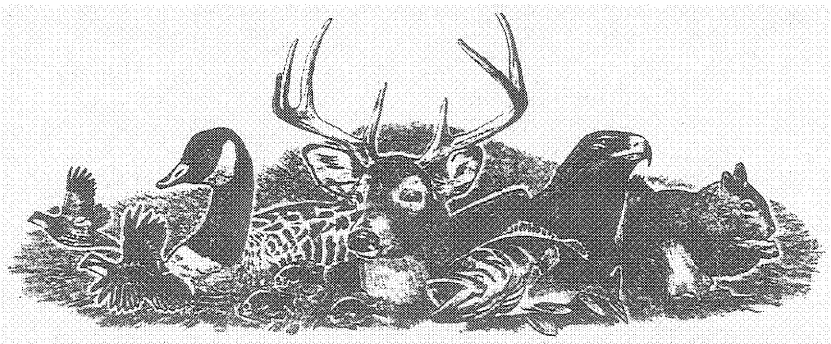
Buncombe County
B-3119

Figure Five



North Carolina Wildlife Resources Commission

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

MEMORANDUM

TO: John L. Williams, Project Planning Engineer
Planning and Environmental Branch - NCDOT

FROM: Mark S. Davis, Mountain Region Coordinator
Habitat Conservation Program

Mark S. Davis

DATE: March 5, 1998

SUBJECT: Request for scoping comments, Bridge No. 653 on SR 2804 over the Broad River, Buncombe County, North Carolina, TIP No. B-3119.

This memorandum responds to your request for our concerns regarding impacts on fish and wildlife resources resulting from the subject project. The North Carolina Wildlife Resources Commission (NCWRC) has reviewed the proposed project, and 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).

The proposed work involves replacement of an obsolete roadway bridge. We anticipate that a spanning structure will be constructed on the site. The Broad River (also called the Rocky Broad River) is managed by the NCWRC as Hatchery Supported trout water downstream of the project site and may also support wild trout populations in the immediate area. Construction impacts on fisheries and wildlife resources will depend on the extent of disturbance in the stream bed and surrounding floodplain areas. Environmental documentation for this project should include description of any streams or wetlands on the project site and surveys for any threatened or endangered species that may be affected by construction.

Because Buncombe County is recognized as a "trout water county" by the COE, the NCWRC will review any nationwide or general 404 permits for the project. The following conditions are likely to be placed on the 404 permit:

1. Under no circumstances should rock, sand, or other materials be dredged from the stream channel under authorization of this permit, except in the immediate vicinity of pier construction. Channel relocations have catastrophic effects on aquatic life, and disturbance of the natural form of the stream channel will likely cause downstream erosion problems, possibly affecting adjacent land owners.

2. All work in or adjacent to stream waters should be completed in a dry work area. Sandbag or rock berms, coffer dams, or other diversion structures should be used where possible to prevent excavation in flowing water.

3. Grading and backfilling should be minimized, and tree and shrub growth should be retained if possible to ensure long term availability of shoreline cover for gamefish and wildlife.

4. Adequate sedimentation and erosion control measures must be implemented and maintained on the project site to avoid impacts to downstream aquatic resources. Temporary or permanent herbaceous vegetation should be planted on all bare soil within 15 days of ground disturbing activities to provide long-term erosion control.

5. If concrete is used during construction of piers and abutments, a dry work area should be maintained to prevent direct contact between curing concrete and stream water. Uncured concrete affects water quality and is toxic to fish and other organisms.

6. All instream work should be conducted between November 1 and April 15, to avoid impacts on trout reproduction.

Thank you for the opportunity to provide input in the early planning stages for this project. If I can further assist your office, please contact me at (828) 452-2546.

North Carolina Department of Cultural Resources

James B. Hunt Jr., Governor
Betty Ray McCain, Secretary

Division of Archives and History
Jeffrey J. Crow, Director

April 28, 1998

Nicholas L. Graf
Division Administrator
Federal Highway Administration
Department of Transportation
310 New Bern Avenue
Raleigh, N.C. 27601-1442

Re: Bridge #653 on SR 1804 over Broad River, Buncombe County, B-3119, Federal Aid Project BRZ-2804(1), State Project 8.2843501, ER 98-8624

Dear Mr. Graf:

We regret staff was unable to attend the scoping meeting for the above project on April 7, 1998. However, Debbie Bevin met with John Williams of the North Carolina Department of Transportation (NCDOT) on April 15, 1998, to discuss the project and view the project photographs and aerial.

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

In terms of historic architectural resources, Bridge #653 is the only structure over fifty years old within the project area. This Pratt through truss bridge was evaluated and determined not eligible for the National Register in 1997. We recommend that no historic architectural survey be conducted for this project.

No archaeological survey is needed unless replacement is to take place on a new alignment.

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

The above comments are made pursuant to Section 106 of the National Historic Preservation Act of 1966 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.

Sincerely,

David Brook
Deputy State Historic Preservation Officer

DB:slw

cc: H. F. Vick
B. Church
T. Padgett
Asheville-Buncombe Historic Resources Commission

North Carolina Department of Cultural Resources

State Historic Preservation Office

David L. S. Brook, Administrator

James B. Hunt Jr., Governor
Betty Ray McCain, Secretary

Division of Archives and History
Jeffrey J. Crow, Director

June 28, 2000

MEMORANDUM

TO: John L. Williams
Bridge Planning Unit
NC Department of Transportation

FROM: David Brook
Deputy State Historic Preservation Officer

RE: Replacement of Bridge No. 653 on SR 2804 over Broad River, Buncombe County, B-3119, FA Project No. BRZ-2804(1), State Project 78.2843501, ER 98-8624 & ER 00-10283

Thank you for your letter of June 23, 2000, concerning the above project.

We have reviewed the design information for the proposed bridge replacement location forwarded by your office. Due to the very small footprint for this project, it is unlikely that significant archaeological resources will be affected. We, therefore, do not recommend any archaeological investigation in connection with this project as currently proposed.

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

Thank you for your cooperation and consideration. If you have questions concerning the above comment, please contact Renee Gledhill-Earley, environmental review coordinator, at 919/733-4763.

DB:scb

cc: Tom Padgett, NCDOT

bc: Claggett/Hall
Moore
County
RF

	Location	Mailing Address	Telephone/Fax
ADMINISTRATION	507 N. Blount St., Raleigh NC	4617 Mail Service Center, Raleigh NC 27699-4617	(919) 733-4763 • 733-8653
ARCHAEOLOGY	421 N. Blount St., Raleigh NC	4619 Mail Service Center, Raleigh NC 27699-4619	(919) 733-7342 • 715-2671
RESTORATION	515 N. Blount St., Raleigh NC	4613 Mail Service Center, Raleigh NC 27699-4613	(919) 733-6547 • 715-4801
SURVEY & PLANNING	515 N. Blount St., Raleigh NC	4618 Mail Service Center, Raleigh NC 27699-4618	(919) 733-6545 • 715-4801