STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

May 2, 2005

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

ATTN: Ms. Angie Pennock
NCDOT Coordinator

Dear Madam:

SUBJECT: **Nationwide 33 Permit Application** for the replacement of Bridge No. 53 over North Branch Hungry River on SR 1799, Henderson County. Federal Aid Project No. BRZ-1799(1), State Project No. 8.2952101, TIP Project No. B-3666.

The NC Department of Transportation (NCDOT) proposes to replace Bridge No. 53 over the North Branch of Hungary River on SR 1799, with a new bridge immediately east (downstream) of the alignment of the existing structure. The new bridge will be approximately 95 feet in length and 27 feet in width. The new bridge will consist of two 10-foot travel lanes, a 2-foot shoulder on the east side, and a 5-foot shoulder on the west side. The approach roadway will consist of two 10-foot travel lanes with 2-foot shoulders. Traffic will be maintained on the existing structure during construction. The south approach is approximately 240 feet in length, and the north approach is approximately 370 feet in length.

IMPACTS TO WATERS OF THE UNITED STATES

No permanent impacts to Waters of the United States, in the form of wetlands or surface waters, are anticipated as a result of project construction. There will be temporary impacts of 0.002 acre, due to the construction of two temporary workpads, in the North Branch of Hungry River. North Branch Hungry River is located in the Broad River Basin, subbasin 03-08-03, DWQ classification is C Tr, and DWQ index of 9-29-30.

BRIDGE DEMOLITION

The existing bridge is a three-span structure with an overall length of 76 feet and a clear roadway width of 19.1 feet. The bridge consists of a timber deck on steel I-beams with timber caps and

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

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

WEBSITE: WWW.DOH.DOT.STATE.NC.US

LOCATION:
TRANSPORTATION BUILDING
1 SOUTH WILMINGTON STREET
RALEIGH NC

timber piles on concrete footings. Bridge 53 will be removed without dropping components into Waters of the United States during demolition.

BRIDGE CONSTRUCTION

Bridge No. 53 will be a three span cored slab bridge. "Guidelines for Construction of Highway Improvements Adjacent to or Crossing Trout Waters in North Carolina" (October 27, 1992) will be adhered to throughout the life of this project. The temporary workpads that will be used during construction will consist of Class II Rip Rap. Temporary fill areas will be restored to their original contours. The materials used as temporary fill in the construction of the rock causeways, will be completely removed. The entire causeway footprint shall be returned to the original contours and elevations after the purpose of the causeway has been served. After the causeways are no longer needed, the contractor will use excavating equipment to remove all materials. All causeway material will become the property of the contractor. The contractor will be required to submit a reclamation plan for removal of and disposal of all materials off-site.

AVOIDANCE & MINIMIZATION

The construction of this project will allow sufficient space for wildlife to pass under the bridge. There will be an in-water work moratorium with a 25 foot land disturbance buffer, from October 15 to April 15 for this project to avoid impacts on trout reproduction. Traffic will be maintained using the existing bridge before demolition. Deck drainage will not be allowed to discharge directly into the North Branch Hungry River. Best management practices (BMP's) will be utilized to minimize water quality impacts. In compliance with 15A NCAC 02B.0104(m) we have incorporated the use of BMP's in the design of the project.

FEDERALLY-PROTECTED SPECIES

Plants and animals with federal classifications of Endangered, Threatened, Proposed Endangered, and Proposed Threatened are protected under Endangered Species Act §§7 and 9. As of January 29, 2003, the US Fish and Wildlife Service (USFWS) lists 8 federally protected species for Henderson County (Table 1). The biological conclusion of "No Effect", was reached for all federally protected species for this county at this site, and currently remain valid.

Table 1. Federally Protected Species for Henderson County

SCIENTIFIC NAME	COMMON NAME		STATUS	BIOLOGICAL CONCLUSION
Clemys muhlenbergii	Bog turtle		T(S/A)	No Effect
Alasmidonta raveneliana	Appalachian elktoe		E	No Effect
Epioblasma capsaeformis	Oyster mussel		E	No Effect
Helonias bullata	Swamp pink		T	No Effect
Isotria medeoloides	Small whorled pogonia		T	No Effect
Sagittaria fasciculata	Bunched arrowhead		E	No Effect
Sarracenia jonesii	Mountain sweet pitcher plant		E	No Effect
Sisyrinchium dichotomum	White irisette		E	No Effect

KEY:

STATUS:

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

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

"T(S/A)" Denotes Threatened due to similarity of appearance (a species that is threatened due to similarity of appearance with other rare species and is listed for its protection).

REGULATORY APPROVALS

Section 404 Permit: It is anticipated that the construction of the temporary workpad will be authorized under Section 404 Nationwide Permit 33 (Temporary Construction Access and Dewatering). We are, therefore, requesting the issuance of a Nationwide Permit 33 authorizing construction of the workpad.

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 Environment and Natural Resources, Division of Water Quality, for their records.

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

A copy of this permit application will be posted on the DOT website at: http://www.ncdot.org/planning/pe/naturalunit/Permit.html.

If you have any questions or need additional information, please contact Mr. Chris Manley at (919) 715-1487 or cdmanley@dot.state.nc.us.

Sincerely,

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

The "cc" List:

W/attachment

Mr. John Hennessy, Division of Water Quality (7 copies)
Ms. Marella Buncick, USFWS
Ms. Marla Chambers, NCWRC
Mr. Harold Draper, TVA
Mr. David Chang, P.E., Hydraulics
Mr. Greg Perfetti, P.E., Structure Design
Mr. Mark Staley, Roadside Environmental
Mr. J. B. Setzer, P.E., Division Engineer
Mr. Mark Davis, DEO

W/o attachment

Mr. Jay Bennett, P.E., Roadway Design
Mr. Omar Sultan, Programming and TIP
Mr. Art McMillan, P.E., Highway Design
Mr. David Franklin, USACE, Wilmington (Cover Letter Only)
Ms. Stacy Baldwin, P.E., Project Planning Engineer

Office Use Only: Form Version May 2002

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

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

I. Processing

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

2. Nationwide, Regional or General Permit Number(s) Requested: 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 Wetlands Restoration Program (NCWRP) is proposed for mitigation of impacts (verify availability with NCWRP prior to submittal of PCN), complete section VIII and check here: ☐

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

II. Applicant Information

1. Owner/Applicant Information
   Name: North Carolina Department of Transportation
   Mailing Address: 1548 Mail Service Center
   Raleigh, NC 27699-1548
   Telephone Number: 919-733-3147 Fax Number: 919-766-9794
   E-mail Address: gthorpe@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 Replacement over the North Branch of Hungry River, Henderson County

2. T.I.P. Project Number or State Project Number (NCDOT Only): B-3666

3. Property Identification Number (Tax PIN): _____

4. Location
   County: Henderson Nearest Town: Dana
   Subdivision name (include phase/lot number): _____
   Directions to site (include road numbers, landmarks, etc.): Bridge No. 53 over the North Branch of Hungry River on SR 1799

5. Site coordinates, if available (UTM or Lat/Long): 35° 19' 13"N, 82° 19' 54"W
   (Note – If project is linear, such as a road or utility line, attach a sheet that separately lists the coordinates for each crossing of a distinct waterbody.)

6. Property size (acres): Rural

7. Nearest body of water (stream/river/sound/ocean/lake): The North Branch of Hungry River

8. River Basin: Broad
   (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: A 76 ft. bridge crossing the river for vehicular traffic.

10. Describe the overall project in detail, including the type of equipment to be used:
Replacement of existing bridge on new alignment immediately east of existing bridge with a three span cored slab bridge. Cranes, Earth moving equipment.

11. Explain the purpose of the proposed work: To replace bridge no. 53.

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.

None

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.

None

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

It is the applicant's (or agent's) responsibility to determine, delineate and map all impacts to wetlands, open water, and stream channels associated with the project. The applicant must also provide justification for these impacts in Section VII below. All proposed impacts, permanent and temporary, must be listed herein, and must be clearly identifiable on an accompanying site plan. All wetlands and waters, and all streams (intermittent and perennial) must be shown on a delineation map, whether or not impacts are proposed to these systems. Wetland and stream evaluation and delineation forms should be included as appropriate. Photographs may be included at the applicant's discretion. If this proposed impact is strictly for wetland or stream mitigation, list and describe the impact in Section VIII below. If additional space is needed for listing or description, please attach a separate sheet.

1. Provide a written description of the proposed impacts: 0.002 ac. of temporary fill for a workpad.

2. Individually list wetland impacts below:

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

* List each impact separately and identify temporary impacts. Impacts include, but are not limited to: mechanized clearing, grading, fill, excavation, flooding, ditching/drainage, etc. For dams, separately list impacts due to both structure and flooding.

** 100-Year floodplains are identified through the Federal Emergency Management Agency's (FEMA) Flood Insurance Rate Maps (FIRM), or FEMA-approved local floodplain maps. Maps are available through the FEMA Map Service Center at 1-800-358-9616, or online at http://www.fema.gov.

*** List a wetland type that best describes wetland to be impacted (e.g., freshwater/saltwater marsh, forested wetland, beaver pond, Carolina Bay, bog, etc.) Indicate if wetland is isolated (determination of isolation to be made by USACE only).

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

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

Stream Impact Site Number (indicate on map)	Type of Impact*	Length of Impact (linear feet)	Stream Name**	Average Width of Stream Before Impact	Perennial or Intermittent? (please specify)
1	temporary fill	0.002 ac.	Hungry River	25-30 ft.	perennial

* List each impact separately and identify temporary impacts. Impacts include, but are not limited to: culverts and associated rip-rap, dams (separately list impacts due to both structure and flooding), relocation (include linear feet before and after, and net loss/gain), stabilization activities (cement wall, rip-rap, crib wall, gabions, etc.), excavation, ditching/straightening, etc. If stream relocation is proposed, plans and profiles showing the linear footprint for both the original and relocated streams must be included.

** Stream names can be found on USGS topographic maps. If a stream has no name, list as UT (unnamed tributary) to the nearest downstream named stream into which it flows. USGS maps are available through the USGS at 1-800-358-9616, or online at www.usgs.gov. Several internet sites also allow direct download and printing of USGS maps (e.g., www.topozone.com, www.mapquest.com, etc.).

Cumulative impacts (linear distance in feet) to all streams on site: _____

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

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

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

5. Pond Creation

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

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

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

_____

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

_____

Size of watershed draining to pond:_____ Expected pond surface area:_____

VII. Impact Justification (Avoidance and Minimization)

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

In order to minimize impacts to water resources, NCDOT "Best Management Practices for the Protection of Surface Waters" will be strictly enforced durinf the entire life of the project.

_____

_____

VIII. Mitigation

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

USACE – In accordance with the Final Notice of Issuance and Modification of Nationwide Permits, published in the Federal Register on March 9, 2000, mitigation will be required when necessary to ensure that adverse effects to the aquatic environment are minimal. Factors including size and type of proposed impact and function and relative value of the impacted aquatic resource will be considered in determining acceptability of appropriate and practicable mitigation as proposed. Examples of mitigation that may be appropriate and practicable include, but are not limited to: reducing the size of the project; establishing and maintaining wetland and/or upland vegetated buffers to protect open waters such as streams; and replacing losses of aquatic resource functions and values by creating, restoring, enhancing, or preserving similar functions and values, preferable in the same watershed.

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

1. Provide a brief description of the proposed mitigation plan. The description should provide as much information as possible, including, but not limited to: site location (attach directions and/or map, if offsite), affected stream and river basin, type and amount (acreage/linear feet) of mitigation proposed (restoration, enhancement, creation, or preservation), a plan view, preservation mechanism (e.g., deed restrictions, conservation easement, etc.), and a description of the current site conditions and proposed method of construction. Please attach a separate sheet if more space is needed.
   No proposed mitigation.

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

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

IX. Environmental Documentation (required by DWQ)

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

Yes ☒ No ☐

If yes, does the project require preparation of an environmental document pursuant to the requirements of the National or North Carolina Environmental Policy Act (NEPA/SEPA)? Note: If you are not sure whether a NEPA/SEPA document is required, call the SEPA coordinator at (919) 733-5083 to review current thresholds for environmental documentation.

Yes ☒ No ☐

If yes, has the document review been finalized by the State Clearinghouse? If so, please attach a copy of the NEPA or SEPA final approval letter.

Yes ☒ No ☐

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

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

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

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

Identify the square feet and acreage of impact to each zone of the riparian buffers. If buffer mitigation is required calculate the required amount of mitigation by applying the buffer multipliers.

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

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

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

n/a

XI. Stormwater (required by DWQ)

Describe impervious acreage (both existing and proposed) versus total acreage on the site. Discuss stormwater controls proposed in order to protect surface waters and wetlands downstream from the property.

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.

XIII. Violations (required by DWQ)

Is this site in violation of DWQ Wetland Rules (15A NCAC 2H .0500) or any Buffer Rules?

Yes ☐ No ☒

Is this an after-the-fact permit application?

Yes ☐ No ☒

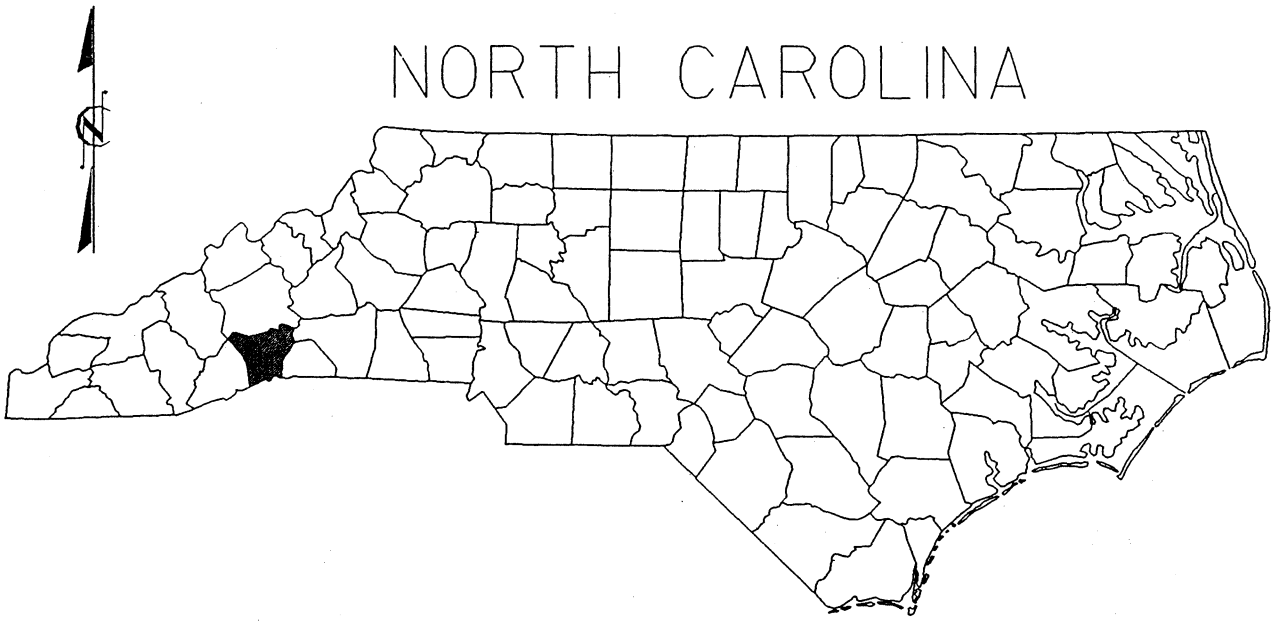
XIV. Other Circumstances (Optional):

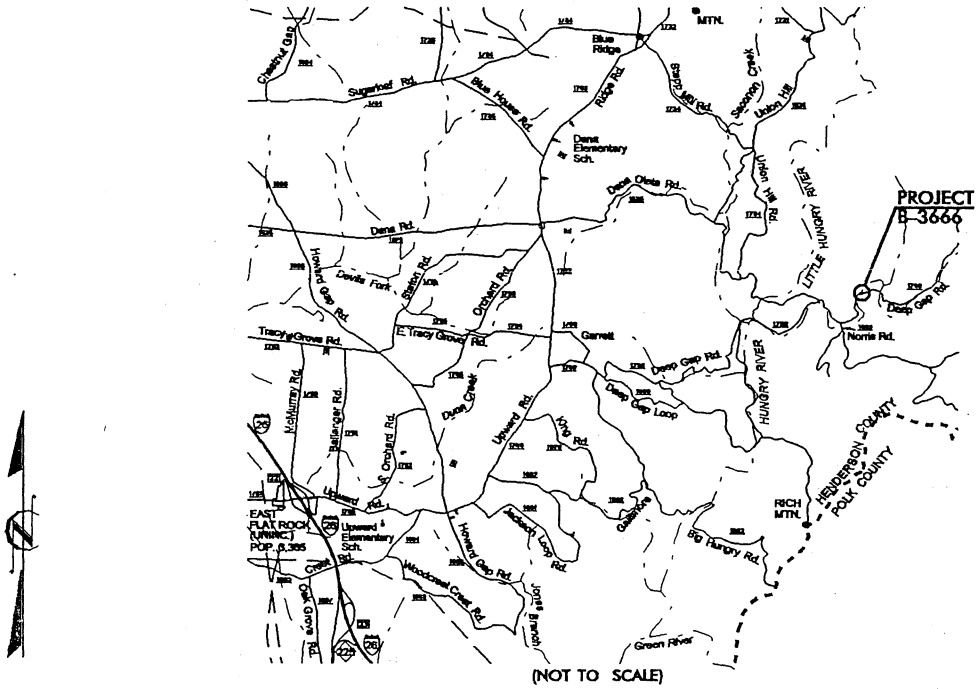
It is the applicant's responsibility to submit the application sufficiently in advance of desired construction dates to allow processing time for these permits. However, an applicant may choose to list constraints associated with construction or sequencing that may impose limits on work schedules (e.g.,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

5/2/05

Applicant/Agent's Signature **Date**

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



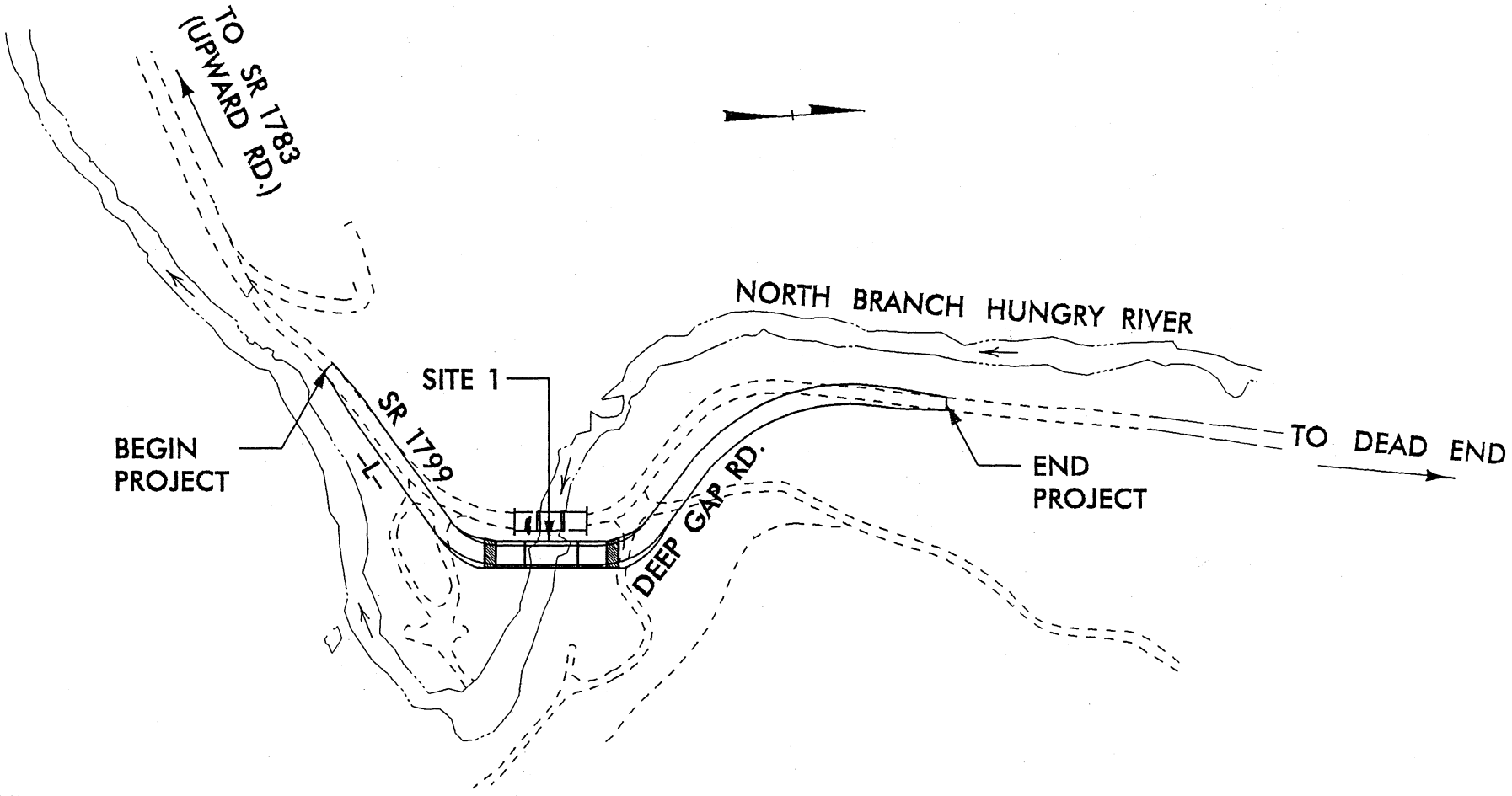


VICINITY MAPS

NCDOT

DIVISION OF HIGHWAYS
HENDERSON COUNTY
PROJECT: 33211.1.1 (B-3666)
BRIDGE NO. 53 OVER
NORTH BRANCH HUNGRY RIVER
AND APPROACHES ON SR 1799

SHEET OF 4/13/04



SITE MAP

NOT TO SCALE

NCDOT

DIVISION OF HIGHWAYS
HENDERSON COUNTY
PROJECT: 33211.1.1 (B-3666)
BRIDGE NO. 53 OVER
NORTH BRANCH HUNGRY RIVER
AND APPROACHES ON SR 1799

SHEET OF 4/13/04

LEGEND

WLB — WETLAND BOUNDARY

WETLAND

DENOTES FILL IN WETLAND

DENOTES FILL IN SURFACE WATER

DENOTES FILL IN SURFACE WATER (POND)

DENOTES TEMPORARY FILL IN WETLAND

DENOTES EXCAVATION IN WETLAND

DENOTES TEMPORARY FILL IN SURFACE WATER

DENOTES MECHANIZED CLEARING

FLOW DIRECTION

TB — TOP OF BANK

WE — EDGE OF WATER

C — PROP. LIMIT OF CUT

F — PROP. LIMIT OF FILL

PROP. RIGHT OF WAY

NG — NATURAL GROUND

PL — PROPERTY LINE

TDE — TEMP. DRAINAGE EASEMENT

PDE — PERMANENT DRAINAGE EASEMENT

EAB — EXIST. ENDANGERED ANIMAL BOUNDARY

EPB — EXIST. ENDANGERED PLANT BOUNDARY

WATER SURFACE

LIVE STAKES

BOULDER

CORE FIBER ROLLS

DENOTES AREA TO BE EXCAVATED

PROPOSED BRIDGE

PROPOSED BOX CULVERT

PROPOSED PIPE CULVERT

12"-48" PIPES

54" PIPES & ABOVE

(DASHED LINES DENOTE EXISTNG STRUCTURES)

SINGLE TREE

WOODS LINE

DRAINAGE INLET

ROOTWAD

RIP RAP

5 — ADJACENT PROPERTY OWNER OR PARCEL NUMBER IF AVAILABLE

PREFORMED SCOUR HOLE

LEVEL SPREADER (LS)

DITCH / GRASS SWALE

DENOTES IMPACTS TO BUFFER ZONE 1

DENOTES IMPACTS TO BUFFER ZONE 2

NCDOT

DIVISION OF HIGHWAYS

HENDERSON COUNTY

PROJECT: 33211.1.1 (B-3666)

BRIDGE NO. 53 OVER

NORTH BRANCH HUNGRY RIVER

AND APPROACHES ON SR 1799

SHEET **OF** **4/13/04**

PROPERTY OWNERS

NAMES AND ADDRESSES

REFERENCE NO.	NAMES	ADDRESSES
1	Paul Edward Stahr	P.O. Box 196 Dana, NC 28724
2	Hungry River, L.L.C.	1901 Kendale Rd. Potomac, MD 20854

NCDOT

DIVISION OF HIGHWAYS

HENDERSON COUNTY

PROJECT: 33211.1.1 (B-3666)

BRIDGE NO. 53 OVER

NORTH BRANCH HUNGRY RIVER

AND APPROACHES ON SR 1799

SHEET OF 4/13/04

WETLANDS IMPACT PERMIT SUMMARY

Site No.	Station (From/To)	Structure Size / Type	Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation In Wetlands (ac)	Mechanized Clearing (Method III) (ac)	Fill In SW (Natural) (ac)	Fill In SW (Pond) (ac)	Temp. Fill In SW (ac)	Existing Channel Impacted (ft)	Natural Stream Design (ft)
1	16+25.5 -L-	1@30',1@55',1@30' Cored Slab Bridge	0	0	0	0	0	0	0.002	0	0
TOTALS:			0	0	0	0	0	0	0.002	0	0

NCDOT

DIVISION OF HIGHWAYS
HENDERSON COUNTY
PROJECT 33211.1.1 (B-3666)
BRIDGE NO. 53 OVER
NORTH BRANCH HUNGRY CREEK
AND APPROACHES ON SR 1799

Rev 4/1/05

SHEET OF 4/13/2004

Form Revised 3/22/01

PROJECT REFERENCE NO.	SHEET NO.
B-3666	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

MULKEY ENGINEERS & CONSULTANTS

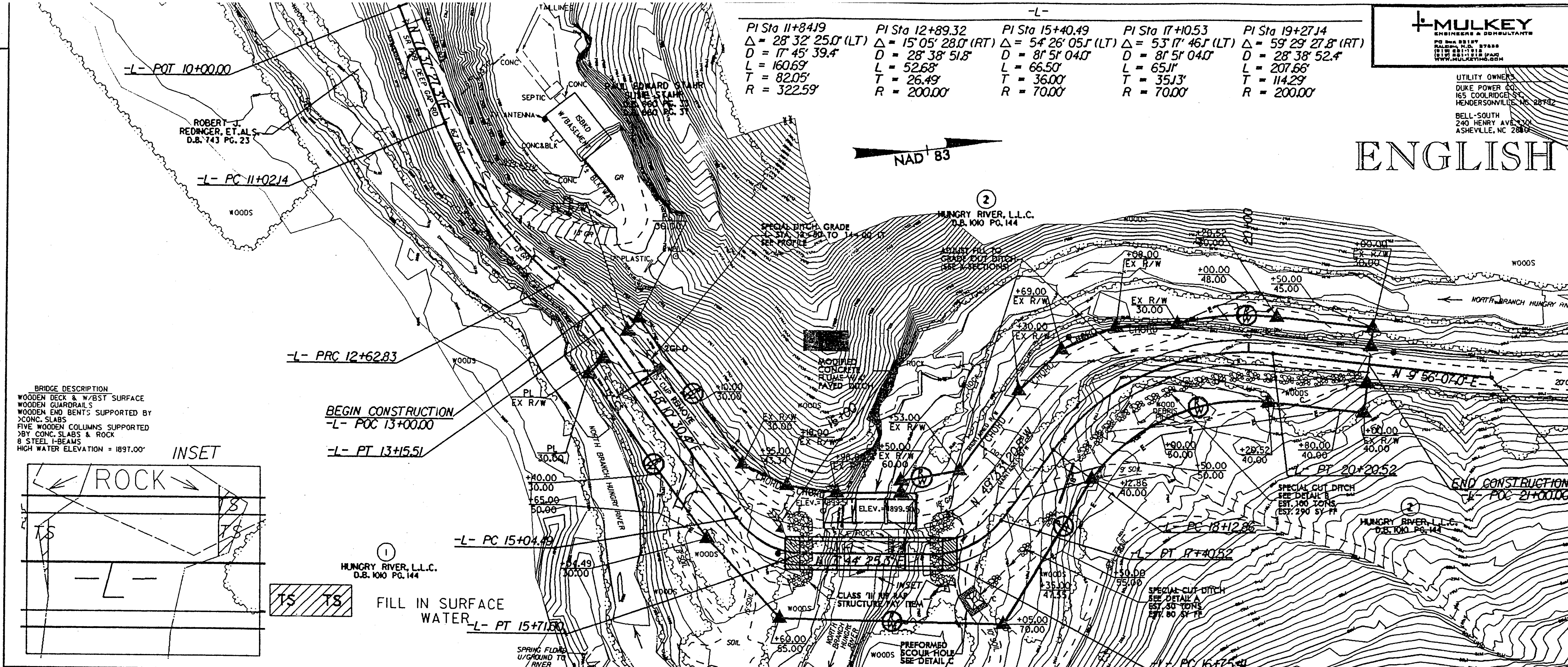
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

ENGLISH

UTILITY OWNERS
DUKE POWER CO.
165 COOLRIDGE ST.
HENDERSONVILLE, NC 28792
BELL-SOUTH
240 HENRY AVE.
ASHEVILLE, NC 28801

-L-

PI Sta 11+84.19	PI Sta 12+89.32	PI Sta 15+40.49	PI Sta 17+10.53	PI Sta 19+27.14
Δ = 28° 32' 25.0" (LT)	Δ = 15° 05' 28.0" (RT)	Δ = 54° 26' 05.1" (LT)	Δ = 53° 17' 46.1" (LT)	Δ = 59° 29' 27.8" (RT)
D = 17° 45' 39.4"	D = 28° 38' 51.8"	D = 81° 51' 04.0"	D = 81° 51' 04.0"	D = 28° 38' 52.4"
L = 160.69'	L = 52.68'	L = 66.50'	L = 65.11'	L = 207.66'
T = 82.05'	T = 26.49'	T = 36.00'	T = 35.13'	T = 114.29'
R = 322.59'	R = 200.00'	R = 70.00'	R = 70.00'	R = 200.00'



-L- POT 10+00.00
ROBERT J. REDINGER, ET.ALS. D.B. 743 PG. 23
-L- PC 11+02.14
-L- PRC 12+62.83
BEGIN CONSTRUCTION -L- POC 13+00.00
-L- PT 13+15.51
-L- PC 15+04.49
-L- PT 15+71.50
NAD 83
HUNGRY RIVER, L.L.C. D.B. 1010 PG. 144
NORTH BRANCH HUNGRY RIVER
END CONSTRUCTION -L- POC 21+00.00
-L- POT 22+01.49
-L- PT 20+20.52
-L- PC 18+12.86
-L- PT 17+40.52
-L- PC 16+75.41
BRIDGE DESCRIPTION
WOODEN DECK & W/BST SURFACE
WOODEN GUARDRAILS
WOODEN END BENTS SUPPORTED BY CONC. SLABS
FIVE WOODEN COLUMNS SUPPORTED BY CONC. SLABS & ROCK
8 STEEL I-BEAMS
HIGH WATER ELEVATION = 1897.00'
INSET
ROCK
TS
FILL IN SURFACE WATER
WOODS

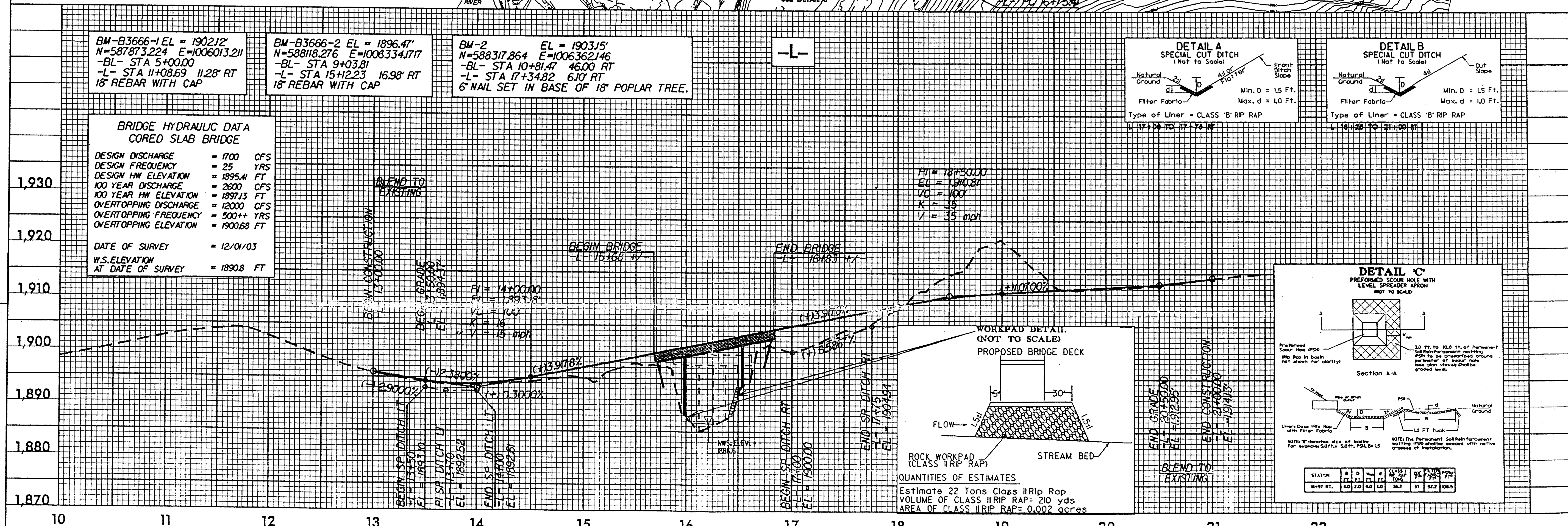
BM-B3666-1 EL = 1902.12'
N=587873.224 E=1006013.211
-BL- STA 5+00.00
-L- STA 11+08.69 11.28' RT
18" REBAR WITH CAP

BM-B3666-2 EL = 1896.47'
N=588118.276 E=1006334.1717
-BL- STA 9+03.81
-L- STA 15+12.23 16.98' RT
18" REBAR WITH CAP

BM-2 EL = 1903.15'
N=588317.864 E=1006362.146
-BL- STA 10+81.47 46.00 RT
-L- STA 17+34.82 6.10' RT
6" NAIL SET IN BASE OF 18" POPLAR TREE.

BRIDGE HYDRAULIC DATA
CORED SLAB BRIDGE

DESIGN DISCHARGE	= 1700	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 1895.41	FT
100 YEAR DISCHARGE	= 2600	CFS
100 YEAR HW ELEVATION	= 1897.13	FT
OVERTOPPING DISCHARGE	= 12000	CFS
OVERTOPPING FREQUENCY	= 500++	YRS
OVERTOPPING ELEVATION	= 1900.68	FT
DATE OF SURVEY	= 12/01/03	
W.S. ELEVATION AT DATE OF SURVEY	= 1890.8	FT



-L-
DETAIL A
SPECIAL CUT DITCH
(Not to Scale)
Type of Liner = CLASS 'B' RIP RAP
DETAIL B
SPECIAL CUT DITCH
(Not to Scale)
Type of Liner = CLASS 'B' RIP RAP
BLEND TO EXISTING
BEGIN CONSTRUCTION 13+00.00
BEGIN BRIDGE -L- 15+68 +/-
END BRIDGE -L- 16+83 +/-
PI = 18+50.00
EL = 1910.81'
VC = 100'
K = 35
V = 35 mph
PI = 14+00.00
VC = 100
K = 16
V = 15 mph
END CONSTRUCTION
WORKPAD DETAIL (NOT TO SCALE)
PROPOSED BRIDGE DECK
FLOW
ROCK WORKPAD (CLASS II RIP RAP)
STREAM BED
DETAIL 'C'
PREFORMED SCOUR HOLE WITH LEVEL SPREADER APRON
Section A-A
1,930
1,920
1,910
1,900
1,890
1,880
1,870
10
11
12
13
14
15
16
17
18
19
20
21
22

QUANTITIES OF ESTIMATES
Estimate 22 Tons Class II Rip Rap
VOLUME OF CLASS II RIP RAP= 210 yds
AREA OF CLASS II RIP RAP= 0.002 acres

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
B-3666	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

MULKEY ENGINEERS & CONSULTANTS

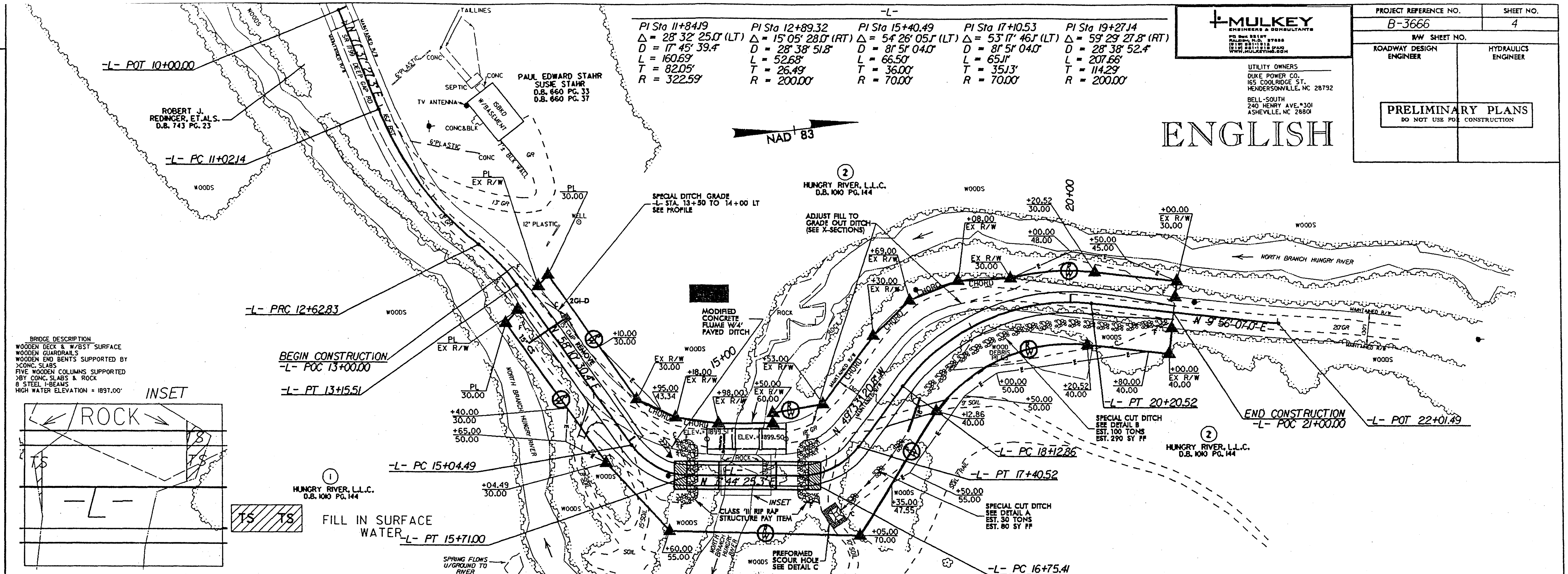
ENGLISH

-L-

PI Sta 11+84.19	PI Sta 12+89.32	PI Sta 15+40.49	PI Sta 17+10.53	PI Sta 19+27.14
Δ = 28° 32' 25.0" (LT)	Δ = 15° 05' 28.0" (RT)	Δ = 54° 26' 05.1" (LT)	Δ = 53° 17' 46.1" (LT)	Δ = 59° 29' 27.8" (RT)
D = 17° 45' 39.4"	D = 28° 38' 51.8"	D = 81° 51' 04.0"	D = 81° 51' 04.0"	D = 28° 38' 52.4"
L = 160.69'	L = 52.68'	L = 66.50'	L = 65.11'	L = 207.66'
T = 82.05'	T = 26.49'	T = 36.00'	T = 35.13'	T = 114.29'
R = 322.59'	R = 200.00'	R = 70.00'	R = 70.00'	R = 200.00'

UTILITY OWNERS
DUKE POWER CO.
165 COOLRIDGE ST.
HENDERSONVILLE, NC 28792

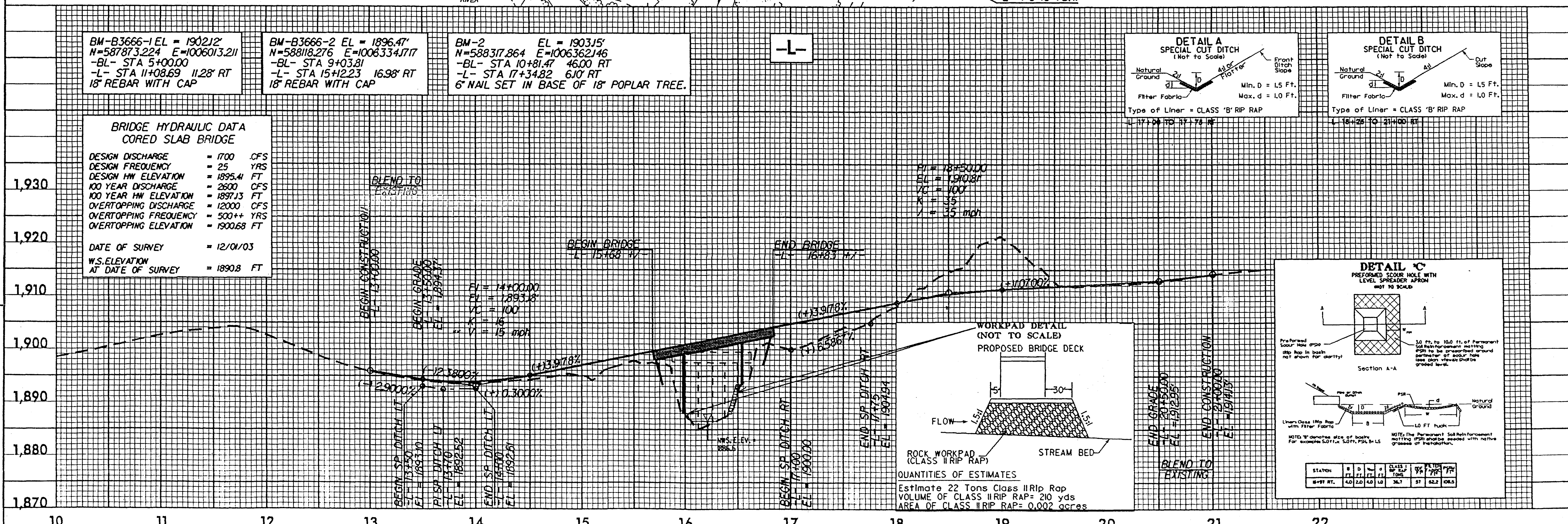
BELL-SOUTH
240 HENRY AVE.#301
ASHEVILLE, NC 28801



BM-B3666-1 EL = 1902.12'	BM-B3666-2 EL = 1896.47'	BM-2 EL = 1903.15'
N=587873.224 E=1006013.211	N=588118.276 E=1006334.1717	N=588317.864 E=1006362.146
-BL- STA 5+00.00	-BL- STA 9+03.81	-BL- STA 10+81.47 46.00 RT
-L- STA 11+08.69 11.28' RT	-L- STA 15+12.23 16.98' RT	-L- STA 17+34.82 6.10' RT
18" REBAR WITH CAP	18" REBAR WITH CAP	6" NAIL SET IN BASE OF 18" POPLAR TREE.

BRIDGE HYDRAULIC DATA
CORED SLAB BRIDGE

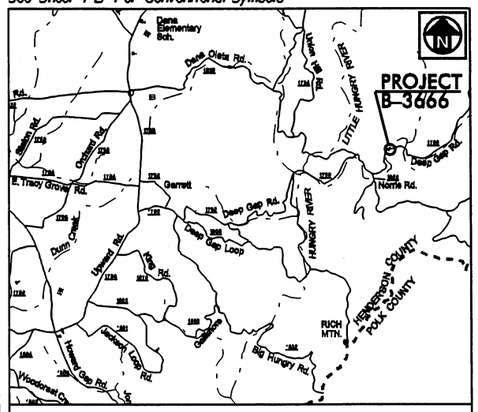
DESIGN DISCHARGE	= 1700	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 1895.41	FT
100 YEAR DISCHARGE	= 2600	CFS
100 YEAR HW ELEVATION	= 1897.13	FT
OVERTOPPING DISCHARGE	= 12000	CFS
OVERTOPPING FREQUENCY	= 500++	YRS
OVERTOPPING ELEVATION	= 1900.68	FT
DATE OF SURVEY	= 12/01/03	
W.S.ELEVATION AT DATE OF SURVEY	= 1890.8	FT



TIP PROJECT: B-3666

CONTRACT: C201230

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



VICINITY MAP
(NOT TO SCALE)

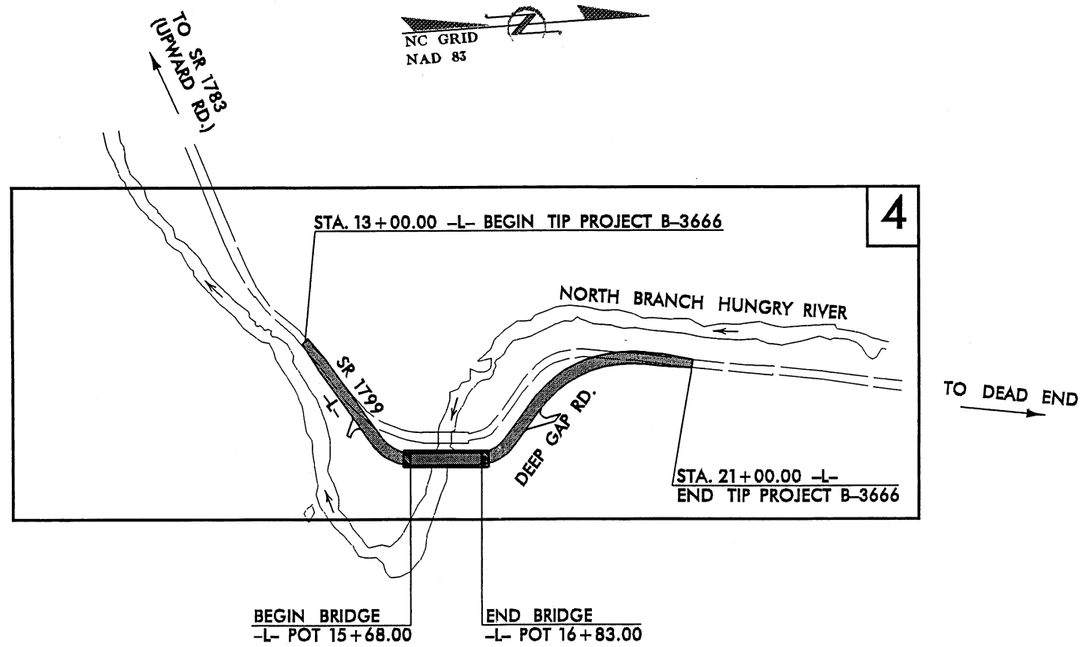
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
HENDERSON COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-3666	1	

WBS NO.	F.A. PROJ. NO.	DESCRIPTION
33211.1.1	BRZ-1799(1)	P.E.
33211.2.1	BRZ-1799(1)	R/W, UTL
33211.3.1	BRZ-1799(1)	CONST.

LOCATION: BRIDGE NO. 53 OVER NORTH BRANCH HUNGRY RIVER
ON SR 1799 (DEEP GAP RD)

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



MULKEY
ENGINEERS & CONSULTANTS
PO Box 33127
Raleigh, N.C. 27636
(919) 851-1912
(919) 851-1918 (FAX)
WWW.MULKEYINC.COM

GRAPHIC SCALE

PLANS: 25′ 0 50′

PROFILE (HORIZONTAL): 25′ 0 50′

PROFILE (VERTICAL): 5′ 0 10′

DESIGN DATA

ADT 2005 = 64
ADT 2025 = 100
DHV = 15%
D = 65%
* T = 3%
** V = 40 mph
Func Class = Rural Local
* (Duals=2%+TTST=1%)
** Design Exception – Design Speed

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-3666 = 0.130 MILE

LENGTH STRUCTURES TIP PROJECT B-3666 = 0.022 MILE

TOTAL LENGTH TIP PROJECT B-3666 = 0.152 MILE

Prepared in the Office of:
Mulkey Engineers & Consultants
FOR THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

2002 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: APRIL 30, 2004

LETTING DATE: MAY 17, 2005

TIM JORDAN, PE
MULKEY E & C
PROJECT MANAGER

SUSAN LOCKLEAR, PE
MULKEY E & C
HYDRAULIC ENGINEER

NCDOT CONTACT: TERESA BRUTON, P.E.
DESIGN SERVICES – PROJECT ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: PE

ROADWAY DESIGN

SIGNATURE: PE

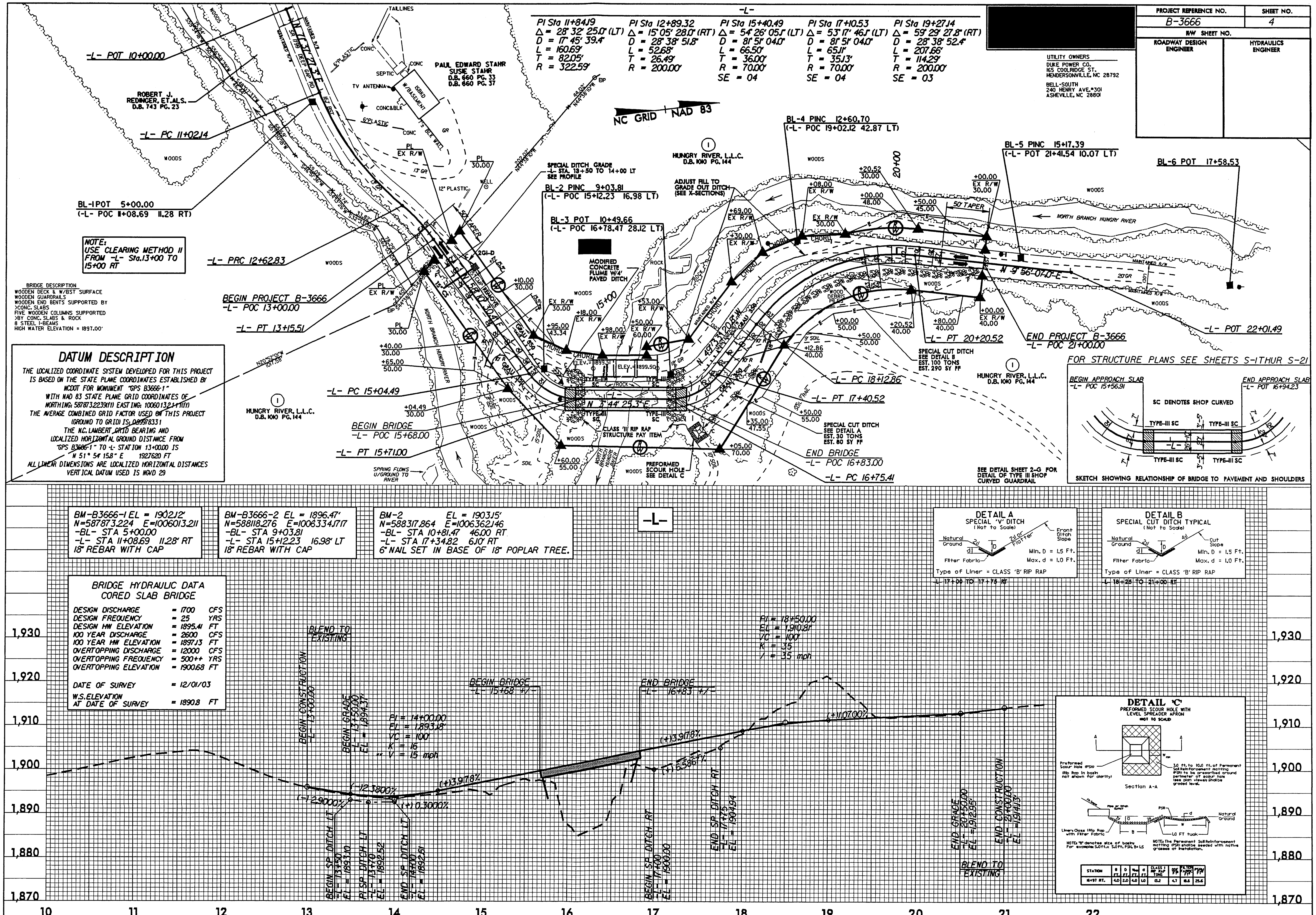
DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

STATE HIGHWAY ENGINEER – DESIGN PE

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED FOR
DIVISION ADMINISTRATOR DATE

$DATE$
$TIME$
$FILE$



PROJECT REFERENCE NO. B-3666
SHEET NO. 4
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
[redacted]
UTILITY OWNERS
DUKE POWER CO.
165 COOLRIDGE ST.
HENDERSONVILLE, NC 28792
BELL-SOUTH
240 HENRY AVE.#301
ASHEVILLE, NC 28801
-L-
PI Sta 11+84.19 Δ = 28° 32' 25.0" (LT) D = 17° 45' 39.4" L = 160.69' T = 82.05' R = 322.59'
PI Sta 12+89.32 Δ = 15° 05' 28.0" (RT) D = 28° 38' 51.8" L = 52.68' T = 26.49' R = 200.00'
PI Sta 15+40.49 Δ = 54° 26' 05.1" (LT) D = 81° 51' 04.0" L = 66.50' T = 36.00' R = 70.00' SE = .04
PI Sta 17+10.53 Δ = 53° 17' 46.1" (LT) D = 81° 51' 04.0" L = 65.11' T = 35.13' R = 70.00' SE = .04
PI Sta 19+27.14 Δ = 59° 29' 27.8" (RT) D = 28° 38' 52.4" L = 207.66' T = 114.29' R = 200.00' SE = .03
NC GRID NAD 83
-L- POT 10+00.00
ROBERT J. REDINGER, ET.ALS. D.B. 743 PG. 23
PAUL EDWARD STAHR SUSIE STAHR D.B. 660 PG. 33 D.B. 660 PG. 37
-L- PC 11+02.14
BL-1POT 5+00.00 (-L- POC 11+08.69 11.28 RT)
NOTE: USE CLEARING METHOD II FROM -L- Sta.13+00 TO 15+00 RT
-L- PRC 12+62.83
BEGIN PROJECT B-3666 -L- POC 13+00.00
-L- PT 13+15.51
BRIDGE DESCRIPTION
WOODEN DECK & W/BST SURFACE
WOODEN GUARDRAILS
WOODEN END BENTS SUPPORTED BY CONC. SLABS
FIVE WOODEN COLUMNS SUPPORTED BY CONC. SLABS & ROCK
8 STEEL I-BEAMS
HIGH WATER ELEVATION = 1897.00'
DATUM DESCRIPTION
THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "GPS B3666-1" WITH NAD 83 STATE PLANE GRID COORDINATES OF NORTHING: 587873.2239(ft) EASTING: 1006013.2111(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99978331
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "GPS B3666-1" TO -L- STATION 13+00.00 IS N 51° 54' 15.8" E 192.7620 FT
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NGVD 29
-L- PC 15+04.49
BEGIN BRIDGE -L- POC 15+68.00
-L- PT 15+71.00
HUNGRY RIVER, L.L.C. D.B. 1010 PG. 144
SPECIAL DITCH GRADE -L- STA. 13+50 TO 14+00 LT SEE PROFILE
BL-2 PINC 9+03.81 (-L- POC 15+12.23 16.98 LT)
BL-3 POT 10+49.66 (-L- POC 16+78.47 28.12 LT)
[redacted]
MODIFIED CONCRETE FLUME W/4' PAVED DITCH
ADJUST FILL TO GRADE OUT DITCH (SEE X-SECTIONS)
BL-4 PINC 12+60.70 (-L- POC 19+02.12 42.87 LT)
BL-5 PINC 15+17.39 (-L- POT 21+41.54 10.07 LT)
BL-6 POT 17+58.53
NORTH BRANCH HUNGRY RIVER
-L- POT 22+01.49
END PROJECT B-3666 -L- POC 21+00.00
-L- PT 20+20.52
-L- PC 18+12.86
-L- PT 17+40.52
END BRIDGE -L- POC 16+83.00
-L- PC 16+75.41
SPECIAL CUT DITCH SEE DETAIL B EST. 100 TONS EST. 290 SY FF
SPECIAL CUT DITCH SEE DETAIL A EST. 30 TONS EST. 80 SY FF
CLASS 'II' RIP RAP STRUCTURE PAY ITEM
PREFORMED SCOUR HOLE SEE DETAIL C
SEE DETAIL SHEET 2-G FOR DETAIL OF TYPE III SHOP CURVED GUARDRAIL
N 8° 44' 25.3" E
N 9° 56' 04.0" E
FOR STRUCTURE PLANS SEE SHEETS S-1THUR S-21
BEGIN APPROACH SLAB -L- POC 15+56.91
END APPROACH SLAB -L- POT 16+94.23
SC DENOTES SHOP CURVED
TYPE-III SC
SKETCH SHOWING RELATIONSHIP OF BRIDGE TO PAVEMENT AND SHOULDERS
BM-B3666-1 EL = 1902.12' N=587873.224 E=1006013.211 -BL- STA 5+00.00 -L- STA 11+08.69 11.28' RT 18" REBAR WITH CAP
BM-B3666-2 EL = 1896.47' N=588118.276 E=1006334.7717 -BL- STA 9+03.81 -L- STA 15+12.23 16.98' LT 18" REBAR WITH CAP
BM-2 EL = 1903.15' N=588317.864 E=1006362.146 -BL- STA 10+81.47 46.00 RT -L- STA 17+34.82 61.0' RT 6" NAIL SET IN BASE OF 18" POPLAR TREE.
-L-
DETAIL A SPECIAL 'V' DITCH (Not to Scale)
Min. D = 1.5 Ft. Max. d = 1.0 Ft.
Type of Liner = CLASS 'B' RIP RAP
-L- 17+00 TO 17+75 RT
DETAIL B SPECIAL CUT DITCH TYPICAL (Not to Scale)
Min. D = 1.5 Ft. Max. d = 1.0 Ft.
Type of Liner = CLASS 'B' RIP RAP
-L- 18+25 TO 21+00 RT
BRIDGE HYDRAULIC DATA CORED SLAB BRIDGE
DESIGN DISCHARGE = 1700 CFS
DESIGN FREQUENCY = 25 YRS
DESIGN HW ELEVATION = 1895.41 FT
100 YEAR DISCHARGE = 2600 CFS
100 YEAR HW ELEVATION = 1897.13 FT
OVERTOPPING DISCHARGE = 12000 CFS
OVERTOPPING FREQUENCY = 500++ YRS
OVERTOPPING ELEVATION = 1900.68 FT
DATE OF SURVEY = 12/01/03
W.S.ELEVATION AT DATE OF SURVEY = 1890.8 FT
BLEND TO EXISTING
BEGIN CONSTRUCTION -L- 13+00.00
BEGIN GRADE -L- 13+50.00 EL = 1894.37
PI = 14+00.00 EL = 1893.18 VC = 100' K = 16 V = 15 mph
(-)2.9000% (-)2.3800% (+)0.3000% (+)3.9178%
BEGIN BRIDGE -L- 15+68 +/-
END BRIDGE -L- 16+83 +/-
(+)6.586% (+)1.0700%
PI = 18+50.00 EL = 1910.81 VC = 100' K = 35 V = 35 mph
END GRADE -L- 20+50.00 EL = 1912.35
END CONSTRUCTION -L- 21+00.00 EL = 1914.13
BLEND TO EXISTING
BEGIN SP DITCH LT -L- 13+50 EL = 1893.10
PI SP DITCH LT -L- 13+70 EL = 1892.52
END SP DITCH LT -L- 14+00 EL = 1892.61
BEGIN SP DITCH RT -L- 17+00 EL = 1900.00
END SP DITCH RT -L- 17+75 EL = 1904.94
DETAIL 'C' PREFORMED SCOUR HOLE WITH LEVEL SPREADER APRON NOT TO SCALE
Section A-A
1,930 1,920 1,910 1,900 1,890 1,880 1,870
10 11 12 13 14 15 16 17 18 19 20 21 22

PROJECT REFERENCE NO.	SHEET NO.
B-3666	4

R/W SHEET NO.

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

PRELIMINARY PLANS — DO NOT USE FOR CONSTRUCTION

MULKEY ENGINEERS & CONSULTANTS

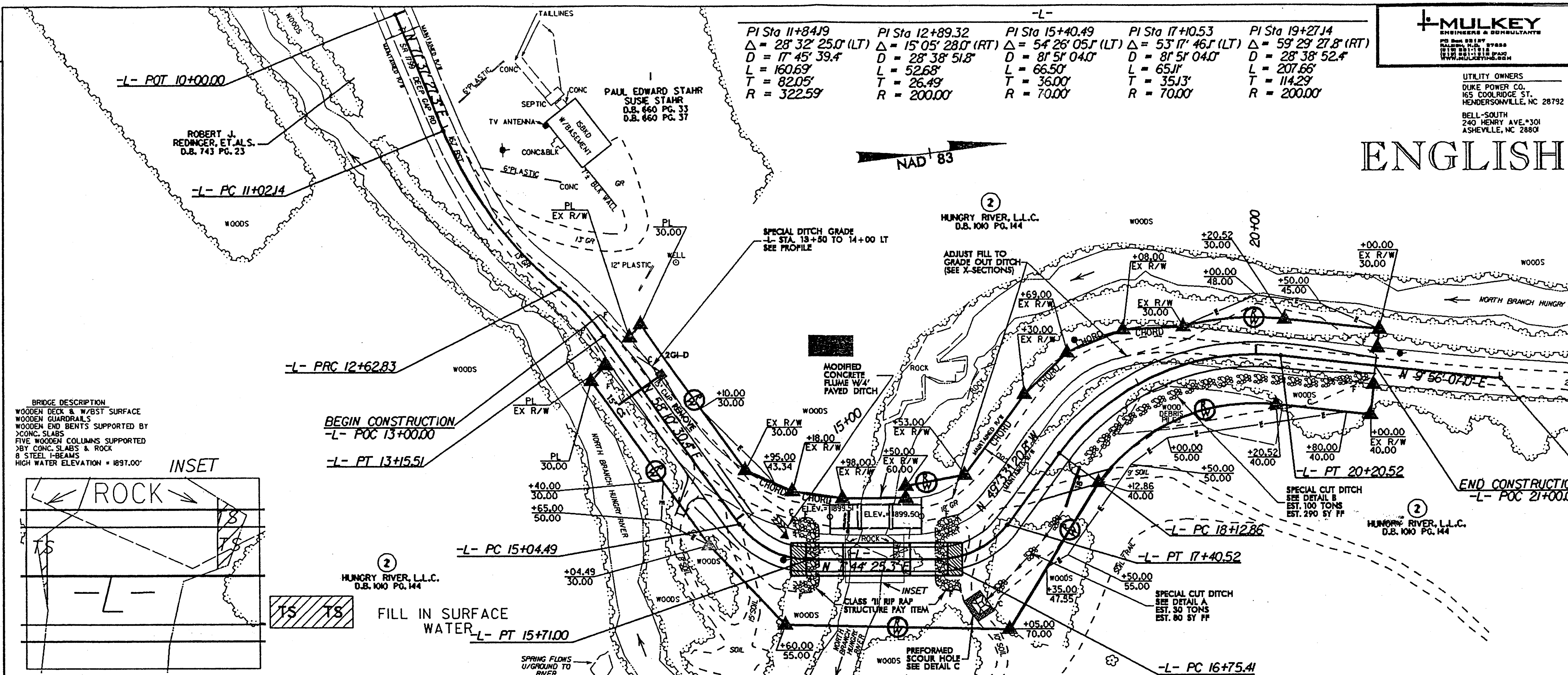
UTILITY OWNERS
DUKE POWER CO.
165 COOLRIDGE ST.
HENDERSONVILLE, NC 28792

BELL-SOUTH
240 HENRY AVE.*301
ASHEVILLE, NC 28801

ENGLISH

-L-

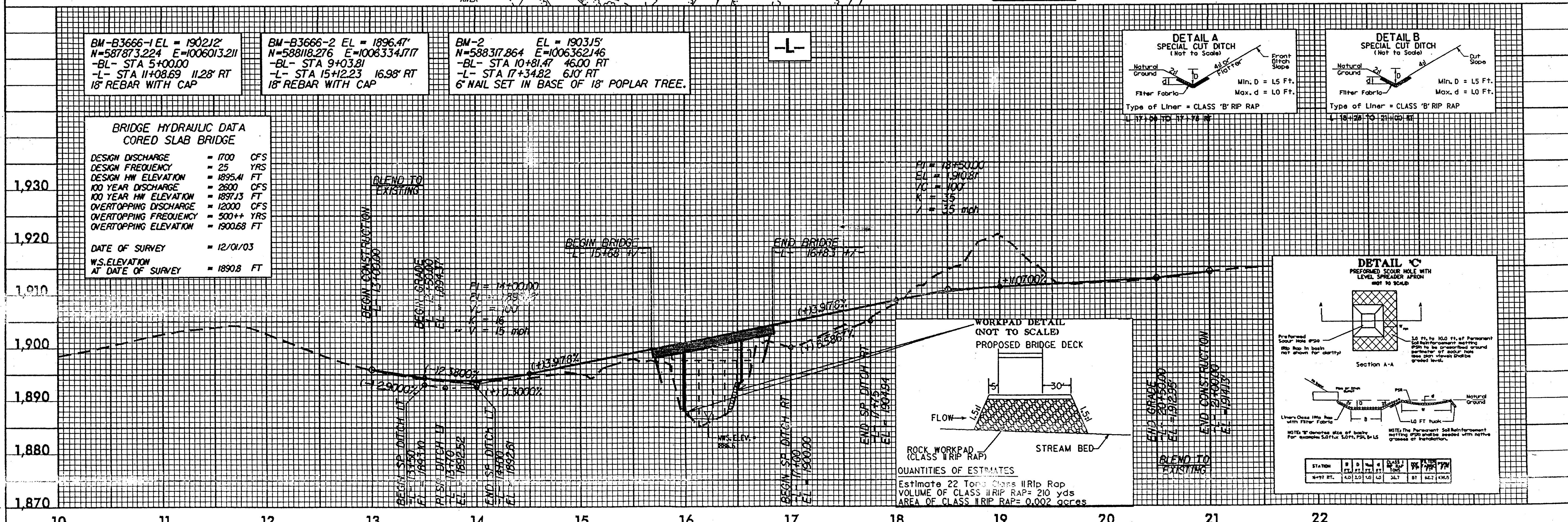
PI Sta 11+84.19	PI Sta 12+89.32	PI Sta 15+40.49	PI Sta 17+10.53	PI Sta 19+27.14
Δ = 28° 32' 25.0" (LT)	Δ = 15° 05' 28.0" (RT)	Δ = 54° 26' 05.1" (LT)	Δ = 53° 17' 46.1" (LT)	Δ = 59° 29' 27.8" (RT)
D = 17° 45' 39.4"	D = 28° 38' 51.8"	D = 81° 51' 04.0"	D = 81° 51' 04.0"	D = 28° 38' 52.4"
L = 160.69'	L = 52.68'	L = 66.50'	L = 65.11'	L = 207.66'
T = 82.05'	T = 26.49'	T = 36.00'	T = 35.13'	T = 114.29'
R = 322.59'	R = 200.00'	R = 70.00'	R = 70.00'	R = 200.00'



BM-B3666-1 EL = 1902.12'	BM-B3666-2 EL = 1896.47'	BM-2 EL = 1903.15'
N=587873.224 E=1006013.211	N=588118.276 E=1006334.717	N=588317.864 E=1006362.146
-BL- STA 5+00.00	-BL- STA 9+03.81	-BL- STA 10+81.47 46.00 RT
-L- STA 11+08.69 11.28' RT	-L- STA 15+12.23 16.98' RT	-L- STA 17+34.82 6.10' RT
18" REBAR WITH CAP	18" REBAR WITH CAP	6" NAIL SET IN BASE OF 18" POPLAR TREE.

BRIDGE HYDRAULIC DATA
CORED SLAB BRIDGE

DESIGN DISCHARGE	= 1700	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 1895.41	FT
100 YEAR DISCHARGE	= 2600	CFS
100 YEAR HW ELEVATION	= 1897.13	FT
OVERTOPPING DISCHARGE	= 12000	CFS
OVERTOPPING FREQUENCY	= 500++	YRS
OVERTOPPING ELEVATION	= 1900.68	FT
DATE OF SURVEY	= 12/01/03	
W.S. ELEVATION AT DATE OF SURVEY	= 1890.8	FT



REVISIONS

Henderson County
Bridge No. 53 on SR 1799 (Deep Gap Road)
Over North Branch of Hungry River
Federal-Aid Project No. BRZ-1799(1)
State Project No. 8.2952101
T.I.P. I. D. No. B-3666

CATEGORICAL EXCLUSION

UNITED STATES DEPARTMENT OF TRANSPORTATION

FEDERAL HIGHWAY ADMINISTRATION

AND

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

APPROVED:

6/26/03
DATE

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

6/30/03
DATE

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

Henderson County
Bridge No. 53 on SR 1799 (Deep Gap Road)
Over North Branch of Hungry River
Federal-Aid Project No. BRZ-1799(1)
State Project No. 8.2952101
T.I.P. No. B-3666

CATEGORICAL EXCLUSION

June 2003

Documentation Prepared by:
Mulkey Engineers and Consultants

6/25/03
Date

Clifton T. Register, PE
Project Manager

For the North Carolina Department of Transportation

6-26-2003
Date

John Wadsworth, PE
Project Manager
Consultant Engineering Unit

PROJECT COMMITMENTS

Henderson County
Bridge No. 53 on SR 1799 (Deep Gap Road)
Over North Branch of Hungry River
Federal-Aid Project No. BRZ-1799(1)
State Project No. 8.2952101
T.I.P. I. D. No. B-3666

In addition to the standard Nationwide Permit #23 Conditions, the General Nationwide Permit Conditions, Section 404 Only Conditions, Regional Conditions, State Consistency Conditions, NCDOT's Guidelines for Best management Practices for the Protection of Surface Waters, Design Standards for Sensitive Watersheds, NCDOT's Guidelines for Best Management Practices for Bridge Demolition and Removal, General Certification Conditions, and Section 401 Conditions of Certification, the following special commitments have been agreed to by NCDOT:

Project Development and Environmental Analysis Branch:

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

Hydraulics Unit / Structure Design Unit:

Deck drainage will not be allowed to discharge directly into the North Branch of Hungry River.

Sufficient space will be provided for wildlife movement under the bridge.

Division Construction:

"Guidelines for Construction of Highway Improvements Adjacent to or Crossing Trout Waters in North Carolina" (October 27, 1992) will be adhered to throughout the life of this project.

There will be an in-water work moratorium from October 15 to April 15 for this project to avoid impacts on trout reproduction.

Henderson County
Bridge No. 53 on SR 1799 (Deep Gap Road)
Over North Branch of Hungry River
Federal-Aid Project No. BRZ-1799(1)
State Project No. 8.2952101
T.I.P. I. D. No. B-3666

INTRODUCTION: The replacement of Bridge No. 53 is included in the North Carolina Department of Transportation (NCDOT) 2004-2010 Transportation Improvement Program (T.I.P.) and in the Federal-Aid Bridge Replacement Program. The bridge location is shown in Figure 1. No substantial environmental impacts are anticipated. The project is classified as a Federal "Categorical Exclusion".

I. PURPOSE AND NEED

The NCDOT Bridge Maintenance Unit records indicate the bridge has a sufficiency rating of 64.7 out of a possible 100 for a new structure. The bridge is considered functionally obsolete. The replacement of this inadequate structure will result in safer and more efficient traffic operations.

On September 2, 1997 Bridge No. 53 had a sufficiency rating of 25.1. Crutch bents were placed at mid span of each existing span in order that 61-ton (55.3-metric ton) loads could cross the bridge. The sufficiency rating was raised to 65.9. The crutch bents are a temporary solution. The sills of these bents do not have a uniform bearing and will have stability problems over time. The timber structure of this bridge will continue to create maintenance problems.

II. EXISTING CONDITIONS

Bridge No. 53 is located on SR 1799 (Deep Gap Road) in Henderson County. Henderson County is a trout county and the North Branch of Hungry River is classified as trout waters by the North Carolina Wildlife Resources Commission.

The North Branch of Hungry River flows into the Broad River basin, which is not in the jurisdiction of the Tennessee Valley Authority (TVA); therefore, Section 26A approval is not required

SR 1799 is classified as rural local by the statewide functional classification system. Land use in the project area is rural. Most of the surrounding area is undeveloped. SR 1799 is an unpaved facility in the vicinity of the bridge. SR 1799 has a posted speed limit of 35 miles per hour (mph) [55 kilometers per hour (km/h)]. The bridge is located approximately one mile (1.6 kilometers) west of the Polk County line.

The existing bridge is a three-span structure with an overall length of 76 feet (23.2 meters) and a clear roadway width of 19.1 feet (5.8 meters). It was constructed in 1971. The bridge consists of a timber deck on steel I-beams with timber caps and timber piles on concrete footings. Bridge No. 53 currently has no posted weight limits for single vehicle (SV) or truck-tractor semi trailer (TTST). The crown to riverbed height is approximately 11 feet (3.3 meters).

The approach roadway is gravel with a clear roadway width of 14 feet (4.2 meters) and six-foot (1.8 meter) grass shoulders. The south approach is a series of curves with a 160-foot (48.8

meter) radius curve at the end of the bridge. The north approach is also a series of curves with a 75-foot (22.8 meter) radius curve at the end of the bridge. This provides for a safe speed of approximately 15 mph (20 km/h).

There are no utilities attached to the bridge.

The 2003 estimated average daily traffic (ADT) volume is 60 vehicles per day (vpd). The projected ADT is 110 vpd by the design year 2030. The percentages of truck traffic are two percent dual tired vehicles (DUALS) and one percent TTST.

This section of SR 1799 in Henderson County is not part of a designated bicycle route nor is it listed in the T.I.P. as needing incidental bicycle accommodations.

No accidents were reported in the vicinity of Bridge No. 53 during the period from December 1, 1999 to November 30, 2002.

No school busses cross this bridge.

III. ALTERNATIVES

A. Project Description

Based on the preliminary hydraulics report the proposed replacement structure for Bridge No. 53 will be a bridge. The length and opening size of the proposed structure may increase or decrease as necessary to accommodate peak flows as determine by a more detailed hydraulic analysis to be performed during the final design phase of the project.

The proposed bridge will consist of two 10-foot (3.0-meter) travel lanes, a 2-foot (0.6-meter) shoulder on the east side, and a 5-foot (1.5-meter) shoulder on the west side. The bridge has been widened to the west side to improve sight distance (See Figure 3).

The proposed approach roadway will consist of two 10-foot (3.0-meter) travel lanes and 2-foot (0.6-meter) shoulders. (See Figure 3). The proposed grade will be approximately the same as the existing roadway. The proposed design speed is 15 mph (20 km/h).

B. Build Alternatives

Two build alternatives studied for replacing the existing bridge are described below.

Alternate A (Preferred) replaces Bridge No. 53 with a cored slab bridge on new alignment east (downstream) of the existing bridge. The new bridge will have a length of approximately 95 feet (29 meters). Traffic will be maintained on the existing structure during construction. The south approach is approximately 240 feet (73 meters) in length. The north approach is approximately 370 feet (113 meters) in length. (See Figure 2A.) The proposed grade will be approximately the same as the existing roadway.

Alternate B replaces Bridge No. 53 with a cored slab bridge on existing alignment. The south approach is approximately 225 feet (69 meters) in length. The new bridge will have a length of approximately 90 feet (27 meters). The north approach is approximately 165 feet (50 meters) in

length. Traffic will be maintained by an unpaved one lane signalized temporary onsite detour located east (downstream) of the existing structure. The detour structure will be a temporary one-lane bridge approximately 120 feet (37 meters) in length.
(See Figure 2B.)

Alternative B was not selected as the preferred alternative because:

- It utilizes a one-lane on-site temporary detour structure located down stream of the existing bridge.
- The detour consists of reverse curves on each approach and will require signalization.
- Alternative B is less economical than Alternative A.

C. Alternatives Eliminated From Further Study

The "do-nothing' alternative will eventually necessitate removal of the existing structure and closure of SR 1799 (Deep Gap Road). This is not desirable due to the service provided by SR 1799 (Deep Gap Road).

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

Utilizing an off-site detour was also eliminated from further study because SR 1799 (Deep Gap Road) is a dead end road.

D. Preferred Alternative

Alternative A was selected as the preferred alternative. Alternative A maintains traffic on the existing structure during construction. This alternative will minimize potential impact to the stream and is more economical than the use of an on-site detour structure (Alternative B).

The Division Engineer concurs with Alternative A as the preferred alternative.

E. Anticipated Design Exceptions

Due to the existing road conditions, mountainous terrain, location of North Branch of Hungry River, and the horizontal and vertical constraints, the proposed design speed is 15 mph (20 km/h). The proposed horizontal alignment will be on a curve at each end of the proposed bridge with a radius of 100 feet (30 meters). A design exception for the proposed design speed of 15 mph (20 km/h) will be required.

IV. ESTIMATED COST

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

	Alternate A (Preferred)	Alternate B
Structure Removal (Existing)	$ 12,000.00	$ 12,000.00
Structure Proposed	199,500.00	189,000.00
Roadway Approaches	197,835.00	155,650.00
Temp. Detour Structure	-	69,300.00
Temp. Detour Approaches	-	19,600.00
Miscellaneous and Mobilization	199,665.00	207,450.00
Engineering Contingencies	91,000.00	97,000.00
ROW/Const. Easements/Utilities	49,000.00	48,000.00
TOTAL	$749,000.00	$798,000.00

The estimated cost of the project as shown in the 2004-2010 Transportation Improvement Program is $550,000, including $50,000 for right-of-way, $400,000 for construction, and $100,000 in prior years.

V. NATURAL RESOURCES

A. Methodology

Materials and research data in support of this investigation have been derived from a number of sources including applicable U.S. Geological Survey (USGS) topographic mapping (Cliffield Mountain, NC 7.5 minute quadrangle, 1991), U.S. Fish and Wildlife Service (FWS) National Wetlands Inventory (NWI) mapping (FWS NWI 1995), and recent aerial photos.

Bridge No. 53 was visited on January 24 and June 12, 2001. The study corridor was walked and visually surveyed for significant features. For purposes of field surveys, the study corridor was assumed to be approximately 800 feet (243.8 meters) in length. The corridor width is 100 feet (30.5 meters) from centerline on each side of SR 1799 to ensure proper coverage (Figure 2A&B). Special concerns evaluated in the field include 1) potential habitat for protected species and 2) wetlands and water quality protection in Hungry River.

Plant community descriptions are based on a classification system utilized by North Carolina Natural Heritage Program (NHP) (Schafale and Weakley 1990). When appropriate, community classifications were modified to better reflect field observations. Vascular plant names follow nomenclature found in Radford *et al.* (1968), with adjustments made to reflect more current nomenclature (Kartesz 1998). Jurisdictional areas were evaluated using the three-parameter approach following U.S. Army Corps of Engineers (COE) delineation guidelines (DOA 1987). Wetland jurisdictional areas were characterized according to a classification scheme established by Cowardin *et al.* (1979). Habitat used by terrestrial wildlife and aquatic organisms, as well as expected population distributions, were determined through field observations, evaluation of available habitat, and supportive documentation (Webster *et al.* 1985, Potter *et al.* 1980, Martof *et al.* 1980, Rohde *et al.* 1994, Menhinick 1991, Palmer and Braswell 1995). Fish and wildlife

nomenclature follow current standards. Water quality information for area streams and tributaries was derived from available sources (DWQ 1998, 2000). Quantitative sampling was not undertaken to support existing data.

The February 24, 2003 FWS listing of federal-protected species with ranges which extend into Henderson County was used in the preparation of this document. In addition, NHP records documenting presence of federally or state listed species were also consulted.

B. Physiography and Soils

The study corridor is located in the Low and Intermediate Mountain System geologic formation within the Mountains physiographic province of North Carolina. This system is characterized by sharp ridges, steep slopes, and narrow, steep, wet valley floors. Exposure, altitude and parent materials influence soil properties. Soils were formed in igneous or high-grade metamorphic rock and are deep to bedrock. (Daniels *et al.* 1999.) The study corridor is located within and adjacent to the floodplain of Hungry River. Within the study corridor the floodplain is narrow, and the riverside bluffs are steep. Elevations rise from approximately 1880 feet (573 meters) National Geodetic Vertical Datum (NGVD) at streamside to 2000 feet (610 meters) NGVD at the northern extreme of the study corridor (USGS Cliffield Mountain, NC quadrangle).

The Natural Resources Conservation Service (USDA 1980) indicates the following soils within the study corridor: Comus fine sandy loam (coarse-loamy, mixed, mesic *Fluventic Dystrochrepts*), adjacent to and including the riverbed; and Edneyville fine sandy loam (fine-loamy, mixed, mesic *Typic Hapludults*) to the east and west of the river channel. Neither soil is considered to be hydric in Henderson County (USDA 1996).

The Comus series consists of well-drained, moderately permeable, nearly level soils that formed in recent alluvium. These soils contain moderate to large amounts of mica. The loamy material is 20 to 40 inches (61.0 to 101.6 centimeters) deep, with a moderately acid A horizon to approximately 10 inches (25.4 centimeters), underlain by a strongly acid B horizon. The C horizon extends from 36 to 70 inches (91.4 to 177.8 centimeters) deep, and consists of sand, loam, and gravel alluvial deposits. Depth to bedrock is more than 72 inches (182.9 centimeters).

The Edneyville series consists of well-drained, moderately permeable, sloping to steep soils that formed in residuum weathered from granite and gneiss. Slopes are from 7 to 45 percent. They typically have an organic layer of 1 to 2 inches (2.5 to 5.1 centimeters), with fine sandy loam or clay loam A and B horizons to 30 inches (76.2 centimeters). The C horizon extends from 30 to 60 inches (76.2 to 152.4 centimeters), and consists of saprolite that crushed to sandy loam or fine sandy loam. The soil profile is very strongly acid throughout. Depth to bedrock is more than 40 inches (101.6 centimeters). Of the predominant soil map units in the study corridor, the Natural Resources Conservation Service lists none as hydric (USDA 1980).

C. Water Resources

1. Waters Impacted

The study corridor is located within sub-basin 03-08-03 (Green River drainage above Lake Adger) of the Broad River Basin (DWQ 1998). This area is part of USGS accounting unit

03050105 of the South Atlantic-Gulf Coast Region. The section of Hungry River crossed by the subject bridge has been assigned Stream Index Number 9-29-30 by the N.C. Division of Water Quality (DWQ 2000).

2. Water Resource Characteristics

Hungry River is a third-order stream in the Broad River sub-basin. Substantial amounts of land in the upper reaches of the watershed are devoted to orchards. Within the study corridor, Hungry River is moderately broad and exhibits a well-developed sinuosity and riffle and pool sequence. Width of the stream was approximately 25 to 30 feet (7.6 to 9.1 meters) at the point of the bridge crossing. During the field survey, water depths along the study corridor varied from zero to 24 inches (zero to 61.0 centimeters). The banks of the stream were partly vegetated and rose from three to six feet (0.9 to 1.8 meters) above the streambed, and flow was moderate. Persistent emergent aquatic vegetation was not observed. The stream was clear during the field visit, with the bed of the stream easily visible. The substrate is composed of bedrock and coarse cobble downstream (west) of the bridge, and varied from rock to gravel and sand upstream, with pockets of silt and leaf mats in a few calm corners.

Classifications are assigned to waters of the State of North Carolina based on the existing or contemplated best usage of various streams or segments of streams in the basin. A best usage classification of **C Tr** has been assigned to Hungry River. The designation **C** denotes water supply waters that are suitable for aquatic life propagation and protection, agriculture, and secondary recreation. Secondary recreation refers to wading, boating, and other uses not involving human body contact with waters on an organized or frequent basis. The supplementary classification **Tr** identifies waters that are protected for both natural trout propagation and maintenance of stocked trout. (DWQ 1998). No designated Outstanding Resource Waters (ORW), High Quality Waters (HQW), Water Supply I (WS-I), or Water Supply II (WS-II) waters occur within 1.0 mile (1.6 kilometers) of the study corridor. No watershed Critical Area (CA) occurs within 1.0 mile (1.6 kilometers) of the study corridor.

The Division of Water Quality (DWQ) has initiated a whole-basin approach to water quality management for the 17 river basins within the state. Water quality for the study corridor is summarized in the Broad River basin management plan. Water quality samples in Hungry River indicated **Good-Fair** water based on macroinvertebrate samples, taken approximately 0.6 mile (one kilometer) south of the study corridor in 1995. The entire Hungry River and its tributaries have a use support rating of **Support Threatened**. Water quality in the study corridor has been impaired by sedimentation following logging activities near the stream. The Broad River sub-basin 03-08-03, containing Hungry River and the upper Green River catchment from its headwaters to its Lake Adger, has no major or minor permitted point-source discharges (DWQ 1998).

3. Anticipated Impacts to Water Resources

a. General Impacts

Proposed project activities include complete bridging of Hungry River to maintain the current water quality, aquatic habitat, and flow regime. This reach is classified as trout water by the Division of Water Quality and is designated by the NCWRC as Hatchery Supported Waters.

Temporary construction impacts due to erosion and sedimentation will be minimized through implementation of a stringent erosion control schedule and the use of best management practices. The contractor will follow contract specifications pertaining to erosion control measures as outlined in 23 CFR 650 Subpart B and Article 107-13 entitled "Control of Erosion, Siltation, and Pollution" (NCDOT, Specifications for Roads and Structures). These measures include 1) the use of dikes, berms, silt basins, and other containment measures to control runoff; 2) elimination of construction staging areas in floodplains and adjacent to waterways; 3) re-seeding of herbaceous cover on disturbed sites; 4) management of chemicals (herbicides, pesticides, de-icing compounds) with potential negative impacts on water quality; and 5) avoidance of direct discharges into streams through the use of catch basins and roadside vegetation. Special restrictions other than those outlined in Best Management Practices of Surface Waters, BMP-BDRs, include those outlined by the North Carolina Wildlife Resource Commission.

The proposed bridge replacement will allow for continuation of pre-project stream flows in Hungry River, thereby protecting the integrity of this waterway. Long-term impacts resulting from construction are expected to be negligible. In order to minimize impacts to water resources, "Guidelines for Construction of Highway Improvements Adjacent to or Crossing Trout Waters in North Carolina" (October 27, 1992) in addition to NCDOT Best Management Practices (BMPs) for the Protection of Surface Waters will be strictly enforced during the entire life of the project.

b. Impacts related to Bridge Demolition and Removal

There is no potential that components of the existing bridge may be dropped into "waters of the United States" during demolition. In consideration of surface water impacts, this project can be classified as Case 2. A Case 2 classification requires that no work be performed in the water during moratorium periods associated with fish migration, spawning, and larval recruitment. An in-water work moratorium will be required from October 15 thru April 15 to avoid impacts to trout reproduction. NCDOT will coordinate with various resource agencies during project planning to ensure that all concerns regarding bridge demolition are resolved.

The existing bridge will be removed without dropping its components into waters of the United States. No temporary fill is expected to result from demolition. NCDOT's Best Management Practices for Bridge Demolition and Removal (BMP-BDR) will be applied for the removal of this bridge in addition to Best Management Practices for Protection of Surface Waters.

D. Biotic Resources

1. Plant Communities

Three distinct plant communities were identified within the study corridor: Montane Alluvial Forest, Acidic Cove Forest, and urban/disturbed land. These plant communities are described below.

Acidic Cove Forest – Acidic Cove Forest occurs on the higher elevation slopes above the streambed. This community grades into Montane Alluvial Forest in the lower, moister areas along Hungry River. Acidic Cove Forest is described by Schafale and Weakley (1990) as occurring at low and moderate elevations, in steep, narrow ravines and gorges and low, gentle ridges within coves. Soils are rocky and acidic. At the Hungry River study corridor, the canopy

is dominated by eastern hemlock (*Tsuga canadensis*), northern red oak (*Quercus rubra*), white oak (*Q. alba*), white pine (*Pinus strobus*), Virginia pine (*P. virginiana*), yellow birch (*Betula lutea*), and beech (*Fagus grandifolia*). The canopy also includes black locust (*Robinia pseudoacacia*), mockernut hickory (*Carya alba*) and tulip-poplar (*Liriodendron tulipifera*). The subcanopy and shrub layer are moderately developed and include silverbell (*Halesia carolina*), sourwood (*Oxydendrum arboreum*), witch-hobble (*Viburnum acerifolium*), witch hazel (*Hamamelis virginiana*), dog hobble (*Leucothoe axillaris* var. *editorum*), and blackberry (*Rubus argutus*). Vines are uncommon, but include grape (*Vitis* sp.), Japanese honeysuckle (*Lonicera japonica*), clematis (*Clematis* sp.), and greenbrier (*Smilax* sp.). The understory is sparse, although some herbaceous species may have been present but not detected during the field survey in January. Species noted were Christmas fern (*Polystichum acrostichoides*), ebony spleenwort (*Asplenium platyneuron*), and heartleaf (*Hexastylis* sp.).

Montane Alluvial Forest – This community type occurs along the banks of Hungry River and is distinguished from Acidic Cove Forest by the presence of alluvial species. The Montane Alluvial Forest type is described by Schafale and Weakley (1990) as occurring on stream and river floodplains at moderate to high elevations. Flood-carried sediment provides some nutrient input, and floods serve as an intermittent disturbance factor. The canopy included many of the species found in the Acidic Cove Forest areas, including hemlock, beech, yellow birch, and tulip-poplar. More alluvial species were also found in the canopy and subcanopy, including sycamore (*Platanus occidentalis*), tag alder (*Alnus serrulata*) and ironwood (*Carpinus caroliniana*), along with red maple (*Acer rubrum*), white ash (*Fraxinus americana*), and alternate-leaved dogwood (*Cornus alternifolia*). The shrub layer included rosebay rhododendron (*Rhododendron maximum*), dwarf rhododendron (*R. minus*), mountain laurel (*Kalmia latifolia*), swamp rose (*Rosa palustris*), sweet-shrub (*Calycanthus floridus*), dog hobble, and snowbell. Evergreen species in the herb layer included Christmas fern, heartleaf, and partridge berry (*Mitchella repens*).

Urban/Disturbed Land - Urban/disturbed land consists of maintained roadside areas along the right-of-way of SR 1799. The roadside shoulder is approximately 6 feet (1.8 meters) wide. To the west of Bridge No. 53, the road is cut into the hillside and steep slopes extend up and down from the road. These areas are planted with erosion-controlling grasses and partridge pea (*Lespedeza* sp.). North of the bridge, more gentle slopes rise from both sides of the road. In all of the open roadside areas, volunteer and early-successional species have been established. These include black locust and white ash in the overstory, with grape, honeysuckle (*Lonicera japonica*), and greenbrier vines. Herbaceous species include goldenrod (*Solidago* sp.), Indian strawberry (*Duchesnea indica*), chickweed (*Stellaria media*), and wooly mullein (*Verbascum thapsus*).

2. Wildlife

Tracks of raccoon (*Procyon lotor*) and white-tailed deer (*Odocoileus virginianus*) were noted within the study corridor. Some characteristic mammals which are expected to frequent clear mountain streams include masked shrew (*Sorex cinereus*), smoky shrew (*Sorex fumeus*), star-nosed mole (*Condylura cristata*), little brown myotis (*Myotis lucifugus*), small-footed myotis (*Myotis leibii*), hoary bat (*Lasiurus cinereus*), eastern chipmunk (*Tamias striatus*), woodchuck (*Marmota monax*), red squirrel (*Tamiasciurus hudsonicus*), beaver (*Castor canadensis*),

woodland jumping mouse (*Napaeozapus insignis*), gray fox (*Urocyon cinereoargenteus*), bobcat (*Felis rufus*), and eastern spotted skunk (*Spilogale putorius*).

Bird species that were identified during the field survey are winter wren (*Colaptes auratus*), common crow (*Corvus brachyrhynchos*), and belted kingfisher (*Megaceryle alcyon*). The streamside habitat might be expected to also support Cooper's hawk (*Accipiter cooperii*), American woodcock (*Scolopax minor*), screech owl (*Otus asio*), downy woodpecker (*Picoides pubescens*), yellow-bellied sapsucker (*Sphyrapicus varius*), tufted titmouse (*Baeolophus bicolor*), white-breasted nuthatch (*Sitta carolinensis*), brown creeper (*Certhia familiaris*), golden-crowned kinglet (*Regulus satrapa*), cedar waxwing (*Bombycilla cedrorum*), and dark-eyed junco (*Junco hyemalis*).

No terrestrial reptile or amphibian species were observed within the study corridor. Species that might be expected in this habitat are American toad (*Bufo americanus*), Fowler's toad (*Bufo woodhousei*), upland chorus frog (*Pseudacris triseriata*), five-lined skink (*Eumeces fasciatus*), worm snake (*Carphopis amoenus*), ringneck snake (*Diadophis punctatus*), scarlet kingsnake (*Lampropeltis triangulum*), northern water snake (*Nerodia sipedon*), eastern garter snake (*Thamnophis sirtalis*), timber rattlesnake (*Crotalus horridus*), and queen snake (*Regina septemvittata*).

3. Aquatic Communities

No aquatic amphibian or reptile was observed during the field survey. Hungry River provides suitable habitat for aquatic and semi-aquatic reptiles including spotted turtle (*Clemmys guttata*), redbelly water snake (*Nerodia erythrogaster*), and mud snake (*Farancia abacura*). Typical amphibian species for this habitat type include mountain dusky salamander (*Desmognathus ochrophaeus*), seal salamander (*Desmognathus monticola*), blackbelly salamander (*Desmognathus quadramaculatus*), southern two-lined salamander (*Eurycea cirrigera*), spring salamander (*Gyrinophilus porphyriticus*), redback salamander (*Plethodon cinereus*), green salamander (*Aneides aeneus*), red salamander (*Pseudotriton ruber*), and green frog (*Rana clamitans*). No mollusks were observed, but a large, dead crayfish was found in the study corridor.

No sampling was undertaken in Hungry River to determine fishery potential. Small fish were seen during visual surveys, but no larger fish were noted. Species which may be present in Hungry River include central stoneroller (*Campostoma anomalum*), rosyside dace (*Clinostomus funduloides*), whitefin shiner (*Cyprinella nivea*), bluehead chub (*Nocomis leptocephalus*), quill back (*Carpiodes cyprinus*), silver redhorse (*Moxostoma anisurum*), brook trout (*Salvelinus fontinalis*), seagreen darter (*Etheostoma thalassinum*), and fantail darter (*Etheostoma flabellare*).

4. Anticipated Impacts to Biotic Communities

a) Terrestrial Communities

Due to the limited extent of infringement on natural communities, the proposed bridge replacement will not result in substantial loss or displacement of known terrestrial animal populations. No substantial habitat fragmentation is expected since most permanent improvements will be restricted to or adjoining existing roadside margins. Construction noise

and associated disturbances will have short-term impacts on avifauna and migratory wildlife movement patterns. Long-term impacts are expected to be minimal.

Plant community areas are estimated based on the amount of each plant community present within the projected cut-and-fill areas for permanent bridge replacement (and for the temporary detour in Alternate B). A summary of potential impacts to individual plant communities at Bridge No. 53 are presented in Table 1.

Table 1: Plant communities within the study corridor at Bridge No. 53, Henderson County. Community areas are given in acres, with hectares in parentheses.

	Alternative A	**Alternative B**		
Plant Community	Permanent	Temporary Detour	Permanent	Total
Acidic Cove Forest	1.54 (0.62)	0.22 (0.09)	1.22 (0.49)	1.47 (0.59)
Montane Alluvial Forest	0.78 (0.32)	0.07 (0.03)	0.13 (0.05)	0.20 (0.08)
Urban/Disturbed Land	0.21 (0.08)	0.37 (0.15)	0.17 (0.07)	0.51 (0.21)
TOTAL:	2.53 (1.02)	.066 (0.27)	1.52 (0.61)	2.18 (0.88)

From an ecological perspective, impacts of upgrading existing road facilities are minimal. No new fragmentation of plant communities will be created. The project may only claim narrow strips of adjacent natural communities. Bridge replacement may require at least temporary incursion into Montane Alluvial Forest and Acidic Cove Forest, resulting in the removal of a few mature trees.

Roadside-forest ecotones typically serve as vectors for invasive species into local natural communities. An example of an undesirable invasive species utilizing roadsides is kudzu (*Pueria lobata*). The establishment of a hardy groundcover on road shoulders as soon as practicable will limit the availability of construction areas to invasive and undesirable plants.

b) Aquatic Communities

Potential impacts to down-stream aquatic habitats will be avoided by bridging the systems to maintain regular flow and stream integrity. Temporary impacts to downstream habitat from increased sediment and turbidity during construction will be minimized by the implementation of stringent erosion control measures. Special restrictions other than those outlined in Best Management Practices of Surface Waters, BMP-BDRs, include those concerning trout waters and are outlined by the North Carolina Wildlife Resource Commission (NCWRC) (see Appendix). This reach is classified as trout water by the Division of Water Quality and is designated by the NCWRC as Hatchery Supported Waters. The new bridge will span the adjacent floodplain and provide sufficient space for wildlife to move under the bridge. An in-water work moratorium from October 15 to April 15 is requested by the NCWRC for this project.

E. Special Topics

1. "Waters of the United States" Jurisdictional Issues

Surface waters within the embankments of Hungry River are subject to jurisdictional consideration under Section 404 of the Clean Water Act as "waters of the United States" (33 CFR section 328.3). Hungry River can be characterized as a perennial stream system with an unconsolidated bottom of sand and gravel over bedrock.

Wetlands are subject to jurisdictional consideration under Section 404 of the Clean Water Act as "Waters of the United States" (33 CFR section 328.3). These areas are defined by the presence of three primary criteria: hydric soils, hydrophytic vegetation, and evidence of hydrology at or near the surface for a portion (12.5 percent) of the growing season (DOA 1987). NWI mapping indicates that the study corridor contains no jurisdictional wetlands. No jurisdictional wetland areas were found during the field survey.

Direct jurisdictional area impacts are avoided by the proposed bridge replacement. The project will only result in shading of a portion of Hungry River. The permanent bridge replacement will shade approximately the same area (0.01 acre [0.004 hectare]) as the existing bridge.

2. Permits

This project is being processed as a Categorical Exclusion (CE) under Federal Highway Administration (FHWA) guidelines. The COE has made available Nationwide Permit (NWP) No. 23 (67FR 2020-2095, January 15, 2002)) for CEs due to expected minimal impact. DWQ has made available a General 401 Water Quality Certification for NWP #23. However, authorization for jurisdictional area impacts through use of this permit will require written notice to DWQ. In the event that NWP #23 will not suffice, minor impacts attributed to bridging and associated approach improvements are expected to qualify under General Bridge Permit 031 issued by the Asheville COE District. Notification to the Asheville COE office is required if this general permit is utilized.

There is no potential that components of the existing bridge may be dropped into "waters of the United States" during demolition. If no practical alternative exists to remove the current bridge other than to drop them into the water prior to removal of debris off-site, fill related to demolition procedures will need to be considered during the permitting process. A worst-case scenario will be assumed with the understanding that if there is any other practical method available, the bridges will not be dropped into the water. Any permit needed for bridge construction will address issues related to bridge demolition.

3. Mitigation

Section 404 compensatory mitigation is not required for this project due to avoidance of jurisdictional area impacts. Utilization of BMPs is recommended in an effort to minimize impacts. Fill or alteration of streams may require compensatory mitigation in accordance with 15 NCAC 2H .0506(h). A final determination regarding mitigation rests with the COE.

F. Rare and Protected Species

1. Federal Protected Species

Species with the federal classification of Endangered, Threatened, or officially Proposed for such listing are protected under the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531 *et seq.*). The term "Endangered species" is defined as "any species which is in danger of extinction throughout all or a significant portion of its range", and the term "Threatened species" is defined as "any species which is likely to become an Endangered species within the foreseeable future throughout all or a significant portion of its range" (16 U.S.C. 1532). Federally protected species listed for Henderson County (FWS list, February 24, 2003) are listed in Table 2.

The designation Threatened (S/A) denotes species that are Threatened Due to Similarity of Appearance. This species is threatened due to similarity of appearance with other rare species and is listed for its protection. These species are not biologically endangered or threatened and are not subject to Section 7 consultation.

Table 2: Species name and status for federally protected species in Henderson County per the FWS list, February 24, 2003

Common Name	Scientific Name	Federal Status
Bog turtle	*Clemmys muhlenbergii*	Threatened (S/A)
Appalachian elktoe	*Alasmidonta raveneliana*	Endangered
Oyster mussel	*Epioblasma capsaeformis*	Endangered
Swamp pink	*Helonias bullata*	Threatened
Small-whorled pogonia	*Isotria medeoloides*	Threatened
Bunched arrowhead	*Sagittaria fasciculata*	Endangered
Mountain sweet pitcher plant	*Sarracenia rubra* ssp. *jonesii* (*S. jonesii*)	Endangered
White irisette	*Sisyrinchium dichotomum*	Endangered

Bog Turtle -The bog turtle is a small turtle reaching an adult size of approximately 3 to 4 inches (8 to 10 centimeters). This otherwise darkly-colored species is readily identifiable by the presence of a bright orange or yellow blotch on the sides of the head and neck (Martof *et. al.* 1980). The bog turtle has declined drastically within the northern portion of its range due to over-collection and habitat alteration. As a result, the FWS officially proposed in the January 29, 1997 Federal Register (62 FR 4229) to list bog turtle as threatened within the northern portion of its range, and within the southern portion of its range, which includes North Carolina, the bog turtle is proposed for listing as threatened due to similarity of appearance to the northern population. The proposed listing would allow incidental take of bog turtles in the southern population resulting from otherwise lawful activity. The bog turtle is typically found in bogs, marshes, and wet pastures, usually in association with aquatic or semi-aquatic vegetation and

small, shallow streams over soft bottoms (Palmer and Braswell 1995). In North Carolina, bog turtles have a discontinuous distribution in the Mountains and western Piedmont.

Aside from the moist areas immediately adjacent to the stream bank, no wetlands occur within the study corridor. No bogs or other habitat suitable for bog turtles exists within the study corridor. NHP records do not document bog turtles within 5.0 miles (8.0 kilometers) of the study corridor, and none were observed during the site visit.

T S/A species are not subject to Section 7 consultation and a biological conclusion is not required. However, this project is not expected to affect the bog turtle.

Appalachian Elktoe - Appalachian elktoe is a small, subovate- to kidney-shaped freshwater mussel that grows to approximately 3.1 inches (8.0 centimeters) in length, 1.4 inches (3.5 centimeters) in height, and 1.0 inch (2.5 centimeters) in width (Clarke 1981). The shell is thin, but not fragile, and exhibits slight inflation along the posterior ridge near the center of the shell. Beaks project only slightly above the hinge line. Lateral teeth are absent; however, the hinge plate of both valves is thickened. Small, pyramidal, compressed pseudocardinal teeth are present, and an interdental projection is present in the left valve. Juveniles are yellowish brown, but the periostracum (outer shell surface) is thicker and dark brown in adults. Individuals may be variably marked with prominent to obscure greenish rays. The nacre (shell interior) is shiny, blue to bluish white with salmon, pinkish, or brownish coloring in the central portion of the shell and beak cavity.

Appalachian elktoe is endemic to the upper Tennessee River system in the mountains of western North Carolina and eastern Tennessee. In North Carolina, this species may now be restricted to the Little Tennessee and Nolichucky drainages (LeGrand and Hall 1999). Recent N.C. Wildlife Resources Commission surveys have documented this species in the Little Tennessee River in Macon and Swain Counties, Cane River in Yancey County, Nolichucky and North Toe Rivers in Yancey and Mitchell Counties. A new population has recently been found in the Little River near the Henderson-Transylvania County line. (USFWS, July 11, 2001). The Pigeon River once supported a population of this mussel, but now is reported to be severely polluted and no longer likely to support the species (TSCFTM 1990). Suitable habitat for Appalachian elktoe is well-oxygenated riffle areas with sand and gravel substrate among cobbles and boulders. Current is usually moderate to swift and depth is no more than 3 feet (0.9 meter) (Parmalee and Bogan 1998).

BIOLOGICAL CONCLUSION: Mussel surveys were conducted in the project area by qualified biologists on February 11, 2003. No freshwater mussel species were located. Due to the survey results and the fact that the North Branch Hungry River is Atlantic slope drainage, it is apparent that the Appalachian elktoe does not exist within the project footprint. In addition, NHP does not list any known population of this species upstream or downstream of the project area. This project will not affect Appalachian elktoe. NO EFFECT.

Oyster Mussel - The oyster mussel is a small freshwater mussel that grows to approximately 2.1 inches (7.0 centimeters) in length. The shell is dull to sub-shiny and yellowish-to green-colored with numerous dark green rays. The nacre (inside shell surface) is whitish to bluish in color. Shells of females are slightly inflated and thinner toward the posterior margin. Oyster mussels inhabit small to medium-sized rivers characterized by sand to boulder substrata and moderate to

swift currents. This species is sometimes associated with water willow (*Justicia americana*) and is found in gravel pockets between bedrock and swift currents. Four species of fish have been identified as hosts: spotted darter (*Etheostoma maculatum*), redline darter (*E. rufilineatum*), dusky darter (*Percina sciera*), and banded sculpin (*Cottus carollinae*) (FWS 2000).

The oyster mussel is endemic to the Cumberland and Tennessee River drainages in Alabama, Kentucky, Tennessee, Virginia, and North Carolina. Within North Carolina, the species was known to have been abundant in the early 1900s in the upper Tennessee River system of the mountains of western North Carolina and Tennessee. Currently the oyster mussel survives in nine tributaries of the Tennessee and Cumberland River systems in Kentucky, Tennessee, and Virginia. This species is now considered to have been "formerly reported" from the French Broad River (LeGrand and Hall 1999). Much of the historic range of this species has been impounded by Project of the Tennessee Valley Authority and the U.S. Army Corps of Engineers. Other populations have probably been lost due to pollution and siltation. All known populations are small and vulnerable to disturbance.

The study corridor contains substrates of sand, gravel, and boulder, with moderate to swift currents. Therefore, suitable habitat for oyster mussel may exist within the study corridor. Oyster mussels have not been documented within the Broad River basin, and NHP records document no occurrence of oyster mussel within 5.0 miles (8.0 kilometers) of the study corridor. No shells or other indications of oyster mussel were observed within the study corridor.

> **BIOLOGICAL CONCLUSION: Mussel surveys were conducted in the project area by qualified biologists on February 11, 2003. No freshwater mussel species were located. Due to the survey results and the fact that the North Branch Hungry River is Atlantic slope drainage, it is apparent that the oyster mussel does not exist within the project footprint. In addition, NHP does not list any known population of this species upstream or downstream of the project area. This project will not affect oyster mussel. NO EFFECT.**

Swamp Pink - Swamp pink is a perennial, hydrophytic herb in the lily family with simple leaves in a basal rosette. Small scale-like leaves or bracts are found on a hollow flowering stem which may be 16 inches (40 centimeters) tall in flower and 24 inches (60 centimeters) tall in fruit. The inflorescence consists of pink to lavender flowers borne on a raceme without bracts. Fruits consist of three-lobed papery capsules. Flowering occurs in April and May, with fruits present from May through July. Vegetative portions of the plant may emerge in April and persist through September (Massey *et al.* 1983). In North Carolina, swamp pink is found in mountain swamps and bogs. Swamp pink occurs along small watercourses in permanently saturated, acidic, organic soils or black muck which is mostly sphagnous (Porter and Wieboldt 1991). Swamp pink does not tolerate prolonged inundation, but can survive infrequent and brief flooding. In North Carolina, the current distribution is restricted to Henderson, Jackson, and Transylvania Counties (Amoroso 1999).

No swamps or bog areas occur within the study corridor. No jurisdictional wetlands were documented during the site visit. Therefore, suitable habitat for swamp pink does not exist within the proposed project area. Furthermore, swamp pink was not observed during a plant survey of the proposed alternative conducted on June 12, 2001, and NHP records do not document swamp pink within 5.0 miles (8.0 kilometers) of the study corridor.

BIOLOGICAL CONCLUSION: Based on existing site habitats, NHP records, and a plant survey conducted at the site, the proposed project will not affect Swamp Pink. NO EFFECT.

Small-whorled Pogonia - The small whorled pogonia is a terrestrial orchid growing to about 10 inches (25.4 centimeters) high. Five or six drooping, pale dusty green, widely rounded leaves with pointed tips are arranged in a whorl at the apex of the greenish or purplish, hollow stem. Typically a single, yellowish green, nearly stalkless flower is produced just above the leaves; a second flower rarely may be present. Flowers consist of three petals, which may reach lengths of 0.7 inches (1.7 centimeters), surrounded by 3 narrow sepals up to 1 inch (2.5 centimeters) in length. Flower production, which occurs from May to July, is followed by the formation of an erect ellipsoidal capsule 0.7 to 1.2 inches (1.7 to 3.0 centimeters) in length (Massey *et al.* 1983). This species may remain dormant for periods up to 10 years between blooming periods (Newcomb 1977). Although populations of small whorled pogonia are sparse, they are widely distributed. The species is found in open, dry deciduous or mixed pine-deciduous forest, or along stream banks. Examples of areas providing suitable conditions (open canopy and shrub layer with a sparse herb layer) where small whorled pogonia has been found include old fields, pastures, windthrow areas, cutover forests, old orchards, and semi-permanent canopy breaks along roads, streams, lakes, and cliffs (Massey *et al.* 1983). Habitat forests are generally in second- or third-growth forests. Soils are often sandy or stony, acid, nutrient-poor soils overlain by leaf litter. Beyond the common characteristics of soils, sparse ground cover and open canopy with persistent breaks, myriad exceptions and local variations occur (FWS 1992). In the Mountains and Piedmont of North Carolina, this species is usually found in association with white pine (Weakley 1993), or at scattered locations in the Mountains, Piedmont and Sandhills (Amoroso 1999), including wooded slopes and streamsides (Radford *et al.* 1968).

The study corridor contains habitat that may be suitable for small whorled pogonia. Along the stream bank, the shrub and herb layers are sparse. The roadside and disturbed areas and the stream itself provide persistent canopy breaks. The area is in second- or third-growth forest (adjacent areas have been recently logged), and soils are acidic and stony. Leaf litter provides a continuous ground cover. The associated tree species, white pine, occurs within the study corridor. Therefore, all areas of suitable habitat were systematically searched during the flowering period (on June 12, 2001), resulting in no findings of small whorled pogonia within the proposed alternative. NHP records do not document small whorled pogonia within 5.0 miles (8.0 kilometers) of the study corridor

BIOLOGICAL CONCLUSION: The study corridor does contain suitable habitat for this species; however, based on a NHP record search and a systematic survey conducted during the flowering period, this project will not affect small whorled pogonia. NO EFFECT.

Bunched Arrowhead - Bunched arrowhead is a perennial, emergent, aquatic herb growing to 14 inches (35 centimeters) in height with simple, basal leaves. Two leaf forms are produced: phyllodes (blade-less) early in the season, and progressively longer, broader leaves later in the season (Kral 1983). The phyllodes are linear, distinctively flattened, spongy-tissued, and are up to 4 inches (10 centimeters) long and 0.8 inches (2 centimeters) wide. Later leaves may be spoon-shaped or narrowly oblanceolate and strap-like, growing to lengths of 14 inches (35

centimeters) and widths of 1.6 inches (4.0 centimeters). Unisexual flowers are borne on an erect flowering stem in two to four whorls, with each whorl subtended by three bracts fused at the base. Fruits consist of a round aggregate of large, distinctively crested achenes. Flowering has been reported as occurring in May and June (Kral 1983) to as late as July (Massey *et al.* 1983), with fruits present from May through September (Massey *et al.* 1983). Vegetative portions of the plant may emerge in April and persist through September (Massey *et al.* 1983). Bunched arrowhead is found rooted in shallow water in or along shallow, sluggish streams flowing through mountain swamps or bogs (Kral 1983). Typical substrate is reported to be siliceous and micaceous silty muck, often with high sulfide content (Kral 1983). The current distribution is restricted to Buncombe and Henderson Counties in the mountains of North Carolina (Amoroso 1999) and Greenville County in the upper Piedmont of South Carolina.

It is unlikely that suitable habitat for bunched arrowhead exists within the study corridor. Hungry River, within the study corridor, is swift-flowing and not associated with swamps or bogs. In addition, the substrate of Hungry River is composed of sand to cobble and boulders, and contains silt only in isolated backwater pockets. NHP records do not document bunched arrowhead within 5.0 miles (8.0 kilometers) of the study corridor, and bunched arrowhead was not observed during a plant survey of the proposed alternative conducted on June 12, 2001.

> **BIOLOGICAL CONCLUSION: No suitable habitat for bunched arrowhead exists in the study corridor. No remnants were observed during systematic surveys of the study corridor, and the NHP documents no occurrences in the vicinity. Based on habitat studies, NHP records, and a recent plant survey conducted at the site, the proposed project will not affect bunched arrowhead. NO EFFECT.**

Mountain Sweet Pitcher Plant - Mountain sweet pitcher plant is an insectivorous, perennial, hydrophytic herb growing to 30 inches (76 centimeters) in height with hollow, trumpet-shaped leaves. The pitcher chamber is narrow but expands sharply along the upper quarter of the length. An ascending, cordate-shaped hood is held high over the exposed pitcher chamber orifice. Solitary flowers are produced on erect flowering stems. Petals are dark red to maroon on the outside, with the inner surface often yellow-green tinged with red. Flowering has been reported from April to June with fruits formed by August. Vegetative portions of the plant may emerge in April and persist through August (Massey *et al.* 1983). Mountain sweet pitcher plant is treated as a subspecies of the more common sweet pitcher plant (*S. rubra*). Mountain sweet pitcher plant is found in mountain bogs and along streams on granite rock faces. The current distribution is restricted to Buncombe, Henderson, and Transylvania Counties in the mountains of North Carolina (Amoroso 1999) and Greenville and Pickens Counties in western South Carolina.

The study corridor contains no bogs, but granite rock faces with seepages occur within the study corridor along Hungry River. Therefore, all areas of suitable habitat were systematically searched during the flowering period (on June 12, 2001), resulting in no findings of mountain sweet pitcher plant within the proposed alternative. NHP records document no occurrences of mountain sweet pitcher plant within 5.0 miles (8.0 kilometers) of the study site.

BIOLOGICAL CONCLUSION: The Hungry River study corridor does contain suitable habitat for mountain sweet pitcher plant; however, based on a NHP record search and a systematic search conducted within suitable habitat types of the proposed alternative, this project will not affect mountain sweet pitcher plant. NO EFFECT.

White Irisette - White irisette is a perennial herb in the iris family that grows to 16 inches (40 centimeters) tall. Stem leaves are at least as wide as the winged stem and may reach 5.5 inches (14.0 centimeters) long and 0.2 inches (0.5 centimeters) wide. Basal leaves reach one-third to one-half the height of the plant and may be up to 7.5 inches (19.0 centimeters) long and 0.14 inch (0.36 centimeter) wide. White irisette differs from other blue-eyed grasses by having three to five nodes with successively shorter internodes between dichotomous branches (FWS 1995). Four to six flowers with white, recurved perianth units are borne per spathe. Flowering occurs from late May through July. White irisette is found in dry to mesic, open oak-hickory forest on mid-elevation mountain slopes at elevations from 1300 to 3300 feet (400 to 1000 meters) with aspects ranging primarily from southeast to southwest (FWS 1995). White irisette grows in shallow, circumneutral soils, especially over weathered amphibolite. White irisette is reported to grow best on regularly disturbed sites, such as power lines, roadsides, and woodland edges, which mimic suppressed natural disturbances and maintain open habitat (FWS 1995). The current distribution is restricted to Forsyth, Henderson, Polk, and Rutherford Counties in North Carolina (Amoroso 1999) and Greenville County in western South Carolina.

Some aspects of suitable habitat for white irisette exist within the study corridor, such as elevation, aspect, and disturbance regime. However, soil acidity precludes its continued survival and reproduction in this area. According to NHP records, white irisette occurs along Cliffield Mountain, approximately 2.1 miles (3.4 kilometers) northeast of the study site. White irisette was not observed during a plant survey of the proposed alternative conducted on June 12, 2001.

BIOLOGICAL CONCLUSION: The study corridor contains no suitable habitat for white irisette. NHP records document its occurrences 2.1 miles (3.4 kilometers) from the study corridor. Based on field observations, NHP records, and a recent plant survey conducted at the site, the proposed project will not affect white irisette. NO EFFECT.

2. Federal Species of Concern

The FWS list also includes a category of species designated as "Federal species of concern" (FSC) in Henderson County. A species with this designation is one that may or may not be listed in the future (formerly C2 candidate species or species under consideration for listing for which there is insufficient information to support listing). A list of FSC species occurring in Henderson County is given in Table 3. Information on state status was gathered from NHP on June 4, 2003 (list last updated May 2003).

The FSC designation provides no federal protection under the ESA for species listed. NHP files do not document any occurrences of FSC species within 1.0 mile (1.6 kilometers) of the study corridor. However, NHP records do note the occurrence of mountain heartleaf (*Hexastylis contracta*) 1.6 miles (2.6 kilometers) southwest of the study corridor.

Table 3: Species name, habitat potential within the study corridor, and state status for species federally designated as FSC within Henderson County.

Common Name	Scientific Name	Potential Habitat	State Status
Green salamander	*Aneides aeneus*	Yes	E
Hellbender	*Cryptobranchus alleganiensis*	Yes	SC
Eastern small-footed myotis	*Myotis leibii*	Yes	SC
Southern Appalachian woodrat	*Neotoma floridana haematoreia*	Yes	SC
French Broad crayfish*	*Cambarus reburrus*	No	NL
Tennessee heelsplitter	*Lasmigona holstonia*	No	E
Diana fritillary butterfly*	*Speyeria diana*	No	SR
Schweinitz's sedge	*Carex schweinitzii*	No	E
Mountain heartleaf	*Hexastylis contracta*	Yes	E
French Broad heartleaf	*Hexastylis rhombiformis*	Yes	SR-L
Butternut	*Juglans cinerea*	No	NL
Rough rush	*Juncus caesariensis*	No	E
Gray's lily	*Lilium grayi*	No	T-SC
Fraser's loosestrife**	*Lysimachia fraseri*	Yes	E
Large-flowered Barbara's buttons*	*Marshallia grandiflora*	No	SR-T
Sweet pinesap*	*Monotropsis odorata*	No	SR-T
Bog asphodel*	*Narthecium americanum*	No	E
White fringeless orchid	*Platanthera integrilabia*	No	E
Divided-leaf ragwort*	*Senecio millefolium*	Yes	T
Mountain catchfly	*Silene ovata*	No	SR-T
Blotched chub	*Erimystax insignis*	No	SR
Fort Mountain sedge	*Carex communis* var. *amplisquama*	No	SR-T

* - Historic occurrence; last seen in county more than 50 years ago

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

State status codes:

E - Endangered
T - Threatened
SC - Special Concern
NL – Not listed in this county by NHP.
SR – Significantly Rare
-T - Throughout

3. Summary of Anticipated Impacts

Habitat is present in the study corridor the Appalachian elktoe and the Oyster mussel, which is federally protected. Habitat is also present for several FSCs. Due to the limited extent of infringement on natural communities, the proposed bridge replacement will not result in substantial loss or displacement of known terrestrial animal and plant populations

VI. CULTURAL RESOURCES

A. Compliance Guidelines

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

B. Historic Architecture

A field survey of the Area of Potential Effect (APE) was conducted on September 28, 2000. All structures within the APE were photographed, and later reviewed by the State Historic Preservation Office (HPO). In a concurrence form dated December 8, 2000 the State Historic Preservation Officer (SHPO) concurred that there are no historic architectural resources either listed or eligible for listing in the National Register of Historic Places within the APE. A copy of the concurrence form is included in the Appendix.

C. Archaeology

The State Historic Preservation Officer (SHPO), in a memorandum dated February 5, 2001 stated, "There are no recorded archaeological sites within the proposed project area... If, however, the replacement is to be on new location, please forward a map to this office indicating the location of the new alignment so we may evaluate the potential effects of the replacement upon archaeological resources." In a memorandum dated October 25, 2002, SHPO stated "We recommend that no archaeological work be conducted for this project." A copy of the SHPO memorandums is included in the Appendix.

VII. ENVIRONMENTAL EFFECTS

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

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

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

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

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

In compliance with Executive Order 12898 (Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations) a review was conducted to determine whether minority or low-income populations were receiving disproportionately high and adverse human health or environmental impacts as a result of this project. The investigation determined the project would not disproportionately impact any minority or low-income populations.

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

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

According to NRCS, the proposed project will impact 1.02 acres of soils defined as prime and statewide or local important farmland soils. This accounts for very little of the 82,824 acres of prime or important soils found in Henderson County. The impact rating determined through completion of Form AD-1006, Farmland Conversion Impact Rating indicates that the site's assessment and relative value score is 104 out of a possible 260. A score higher than 160 would indicate that mitigation should be considered. The completed form is included in the Appendix.

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

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

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

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

An examination of records at the North Carolina Department of Environment and Natural Resources, Division of Water Quality, Groundwater Section and the North Carolina Department of Human Resources, Solid Waste Management Section revealed no hazardous waste sites in the project area. This project is not anticipated to impact USTs. If any unregulated USTs or any potential source of contamination is discovered during right-of-way initial contacts with

impacted property owners, then an assessment will be conducted to determine the extent of any contamination at that time.

Henderson County is not currently participating in the National Flood Insurance Program. This crossing of North Branch of Hungry River is not located in a designated flood hazard zone. Attached is a copy of the FEMA Flood Boundary and Floodway Map, Figure 5.

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

VIII. PUBLIC INVOLVEMENT

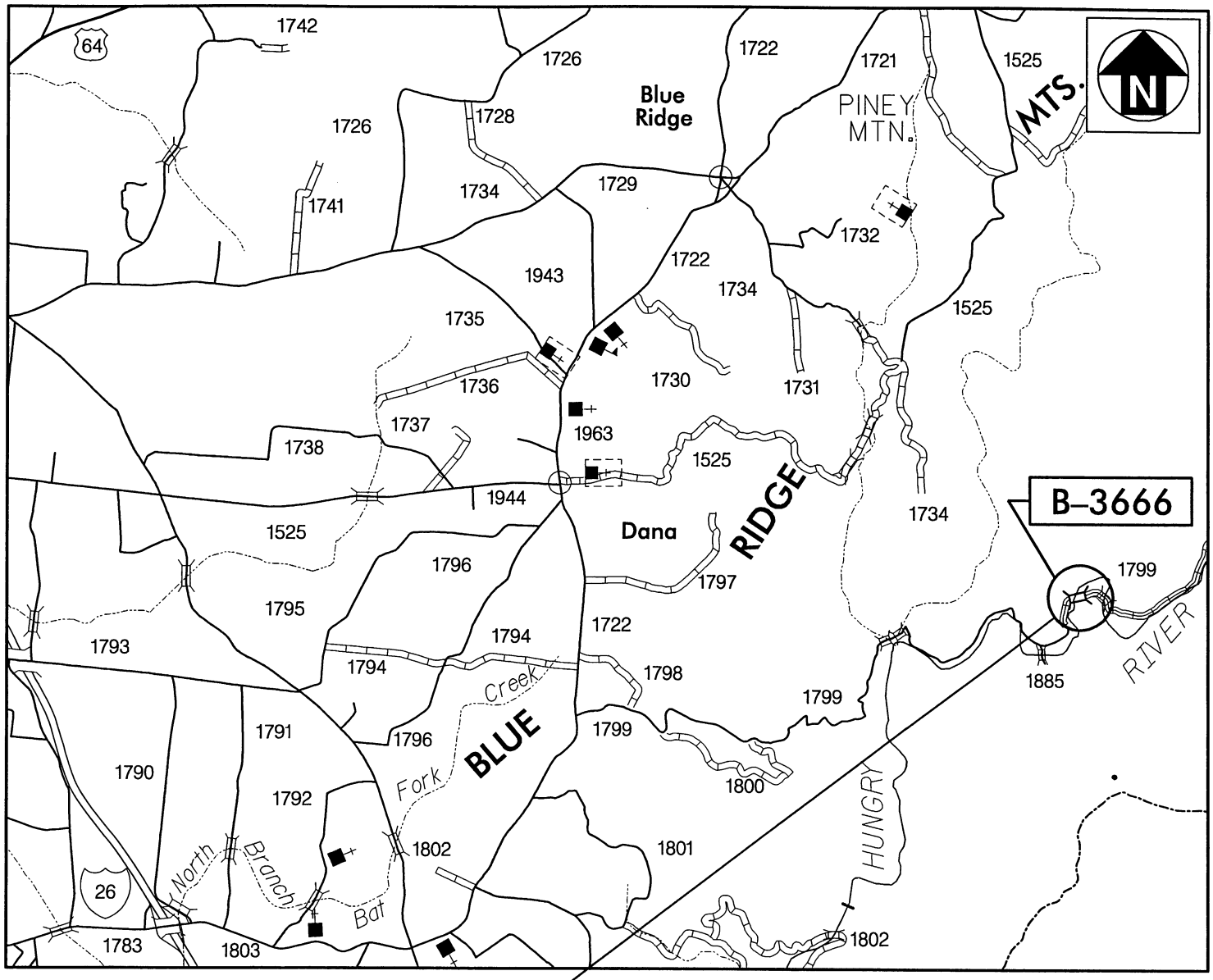
Efforts were undertaken early in the planning process to contact local officials to involve them in the project development with scoping letters. Scoping letters were also sent to various agencies including, the Tennessee Valley Authority (TVA) and the US Army Corps of Engineers (COE) on December 6, 2000. Responses to the scoping letters are included in the appendix.

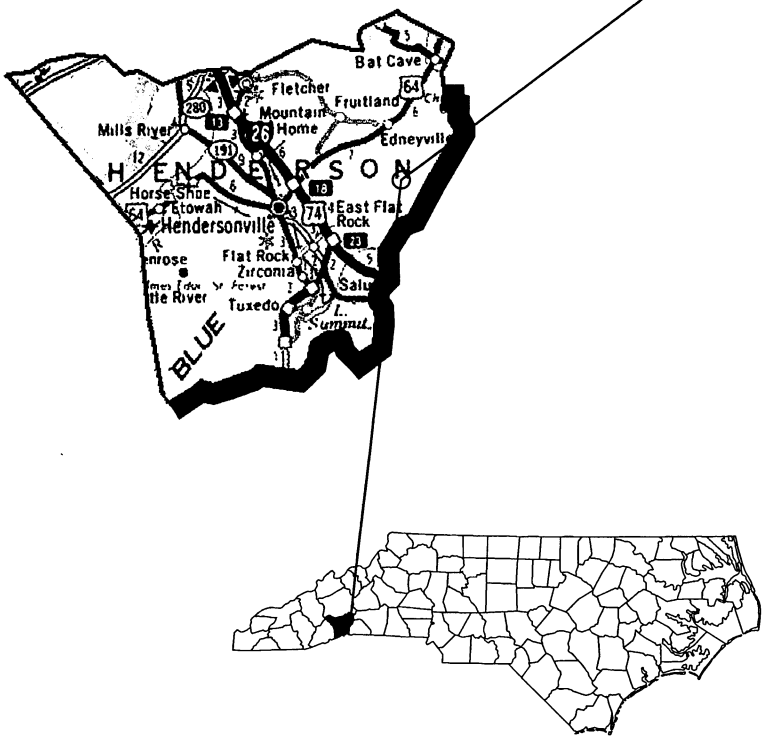
An informational newsletter describing the proposed project and the preferred alternative was mailed to local residences and property owners on August 7, 2002.

IX. AGENCY COMMENTS

North Carolina Wildlife Resource Commission (NCWRC)
Comment: *"This bridge appears to be located at the edge of the Pisgah Game Lands. This reach is classified as trout water by the Division of Water Quality and is designated by the NCWRC as Hatchery Supported Waters. The new bridge should span the adjacent flood plain and provide sufficient space for wildlife to move under the bridge. An in-water work moratorium from October 15 to April 15 is requested for this project."*

Response: The Pisgah National Forest is located in the north western part of Henderson County. Bridge No. 53 is not within the Pisgah National Forest. NCDOT will provide adequate space for wildlife to move under the bridge. There will be an in-water work moratorium from October 15 to April 15 for this project to avoid impacts on trout reproduction.





North Carolina Department Of Transportation
Project Development & Environmental Analysis

HENDERSON COUNTY

BRIDGE NO. 53 ON SR 1799 OVER THE NORTH BRANCH HUNGRY RIVER

B-3666

0 kilometers 1.6 kilometers 3.2
0 miles 1.0 miles 2.0

FIGURE 1

B-3666
ALTERNATIVE A
(PREFERRED)

NORTH BRANCH HUNGRY RIVER

N
NC GRID
NAD 83

BEGIN CONSTRUCTION
STA. 10+00

END CONSTRUCTION
STA. 17+05.00

BRIDGE NO. 53

NORTH BRANCH HUNGRY RIVER

50' 0 50'
15.24m SCALE 15.24m

North Carolina Department Of
Transportation
Project Development &
Environmental Analysis

HENDERSON COUNTY
BRIDGE NO. 53
OVER NORTH BRANCH OF HUNGRY RIVER
B-3666

FIGURE 2 A

B–3666
ALTERNATIVE B

NC GRID NAD 83

BEGIN CONSTRUCTION
STA. 10+00

END CONSTRUCTION
STA. 14+80.00

Begin Detour

BRIDGE NO. 53

TEMPORARY DETOUR

NORTH BRANCH HUNGRY RIVER

NORTH BRANCH HUNGRY RIVER

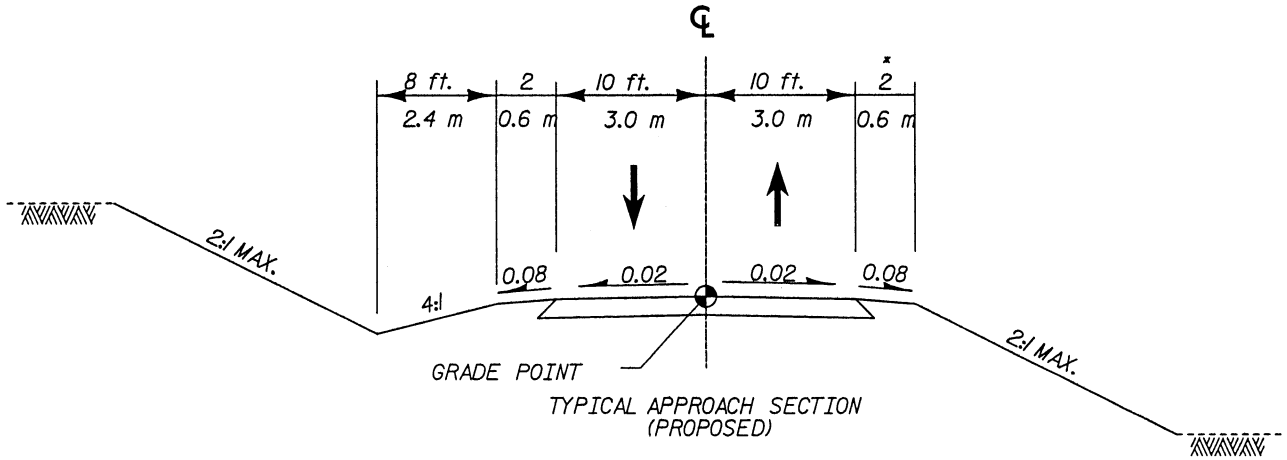
10' GRAVEL

50' 0 50'
15.24m SCALE 15.24m

North Carolina Department Of Transportation
Project Development & Environmental Analysis

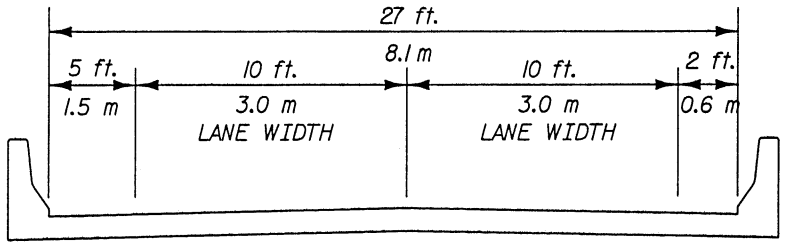
HENDERSON COUNTY
BRIDGE NO. 53
OVER NORTH BRANCH OF HUNGRY RIVER
B–3666

FIGURE 2 B



TYPICAL APPROACH SECTION
(PROPOSED)

* WHEN GUARDRAIL IS WARRANTED, THE MINIMUM USABLE SHOULDER WIDTH IS INCREASED TO 4'-0"



TYPICAL BRIDGE SECTION

DESIGN DATA

(EXISTING)	2003 ADT	=	60	LOS A
(CONST. YR.)	2004 ADT	=	65	LOS A
(DESIGN YR.)	2030 ADT	=	110	LOS A
DUAL	2%			
TTST	1%			

FUNCTIONAL CLASSIFICATION : RURAL LOCAL

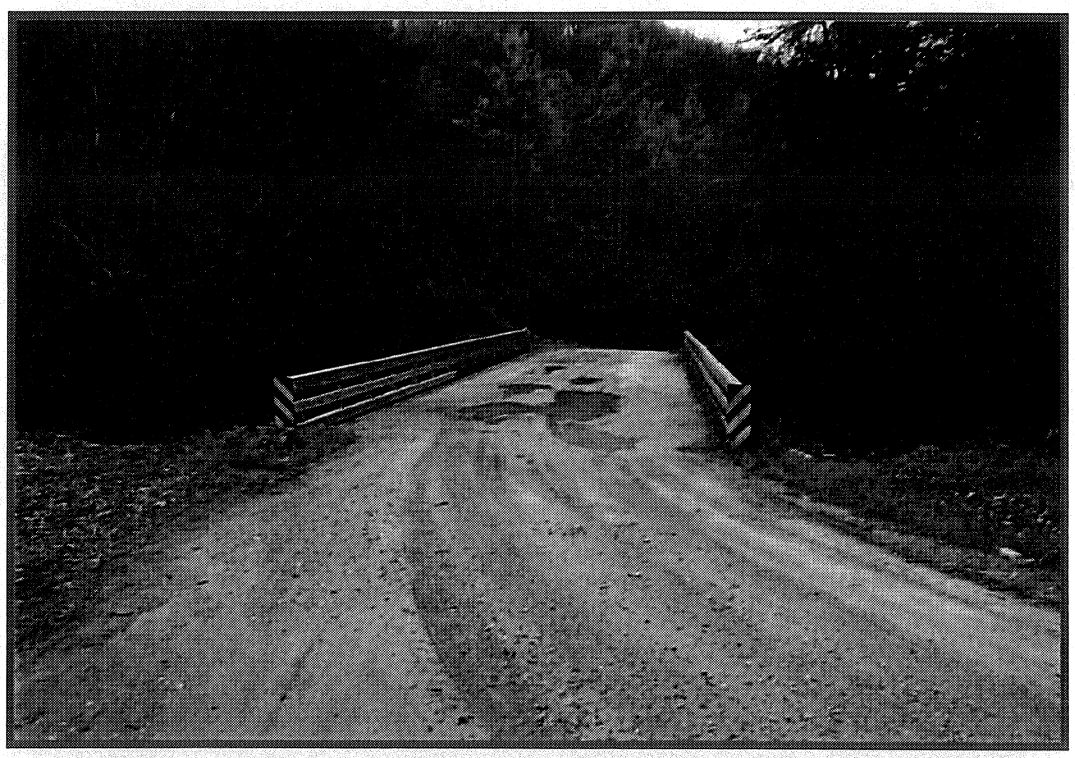
North Carolina Department
Of Transportation
Project Development &
Environmental Analysis

HENDERSON COUNTY
BRIDGE NO. 53 ON SR 1799
(DEEP GAP ROAD)
OVER NORTH BRANCH OF HUNGRY RIVER
TIP NO: B-3666

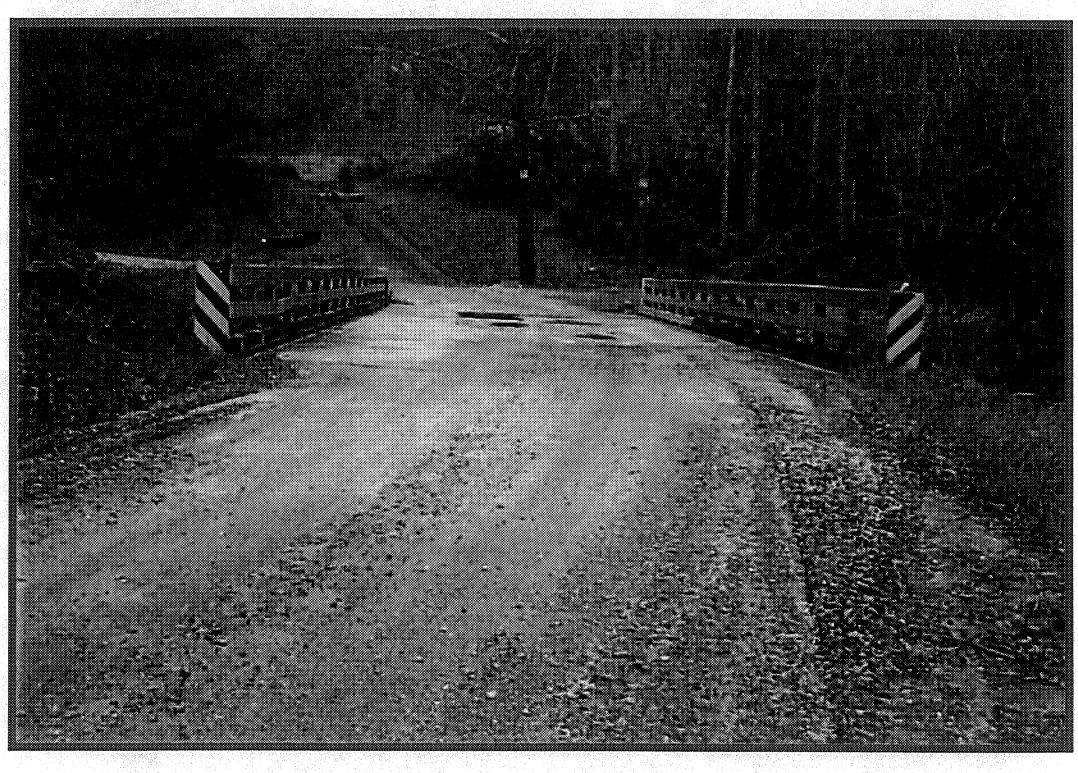
FIGURE 3

3/7/01

B-3666
Henderson County
Bridge No 53 on SR 1799 over N. Branch Hungry River



Looking South Across Bridge No. 53.



Looking North across Bridge No. 53.

FIGURE 4

B-3666
Henderson County
Bridge No 53 on SR 1799 over N. Branch Hungry River

Upstream Side of Bridge No. 53.

Downstream Side of Bridge No. 53.

FIGURE 4A

Flood Boundary and Floodway Map
Henderson County NC

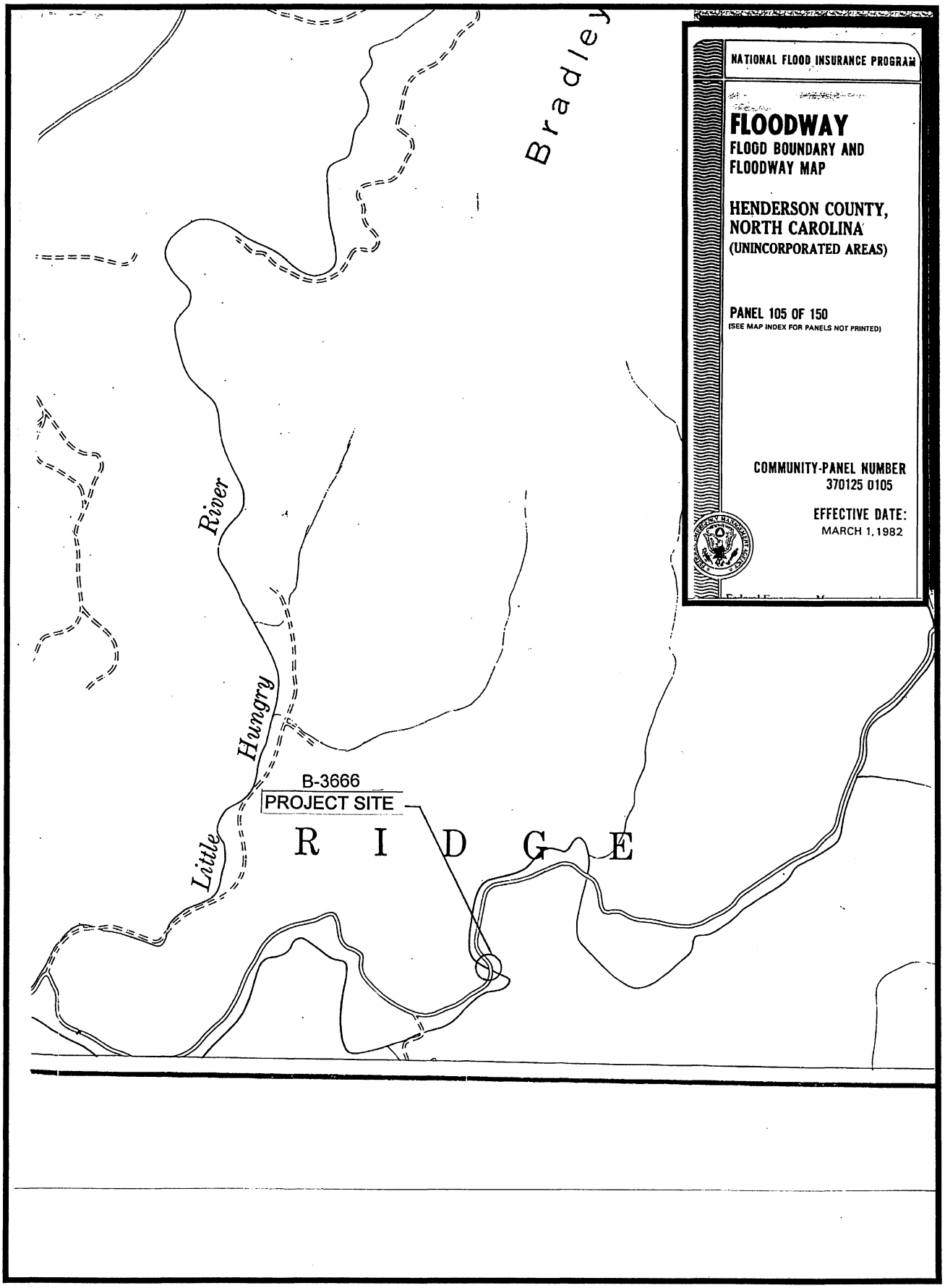


FIGURE 5

APPENDIX

United States Department of the Interior

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

February 7, 2001

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

Dear Mr. Gilmore:

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

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

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

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

Henderson County

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

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

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

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

McDowell County

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

Watauga and Avery Counties

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

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

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

Sincerely,

for Brian P. Cole
State Supervisor

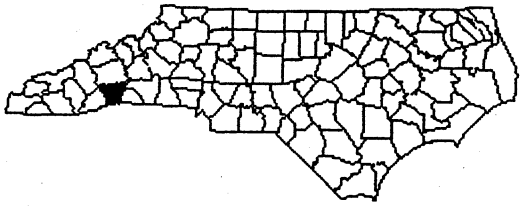
Enclosure

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

Updated: 02/24/2003

U.S. Fish & Wildlife Service

HENDERSON COUNTY



Common Name	Scientific Name	Status
Vertebrates		
Bog turtle	*Clemmys muhlenbergii*	T(S/A)[1]
Eastern small-footed myotis	*Myotis leibii*	FSC
Green salamander	*Aneides aeneus*	FSC
Hellbender	*Cryptobranchus alleganiensis*	FSC
Southern Appalachian woodrat	*Neotoma floridana haematoreia*	FSC
Invertebrates		
Appalachian elktoe	*Alasmidonia raveneliana*	Endangered
Diana fritillary butterfly	*Speyeria diana*	FSC*
French Broad crayfish	*Cambarus reburrus*	FSC*
Oyster mussel	*Epioblasma capsaeformis*	Endangered
Tennessee heelsplitter	*Lasmigona holstonia*	FSC
Vascular Plants		
Bog asphodel	*Narthecium americanum*	C1*
Bunched arrowhead	*Sagittaria fasciculata*	Endangered
Butternut	*Juglans cinerea*	FSC
Divided-leaf ragwort	*Senecio millefolium*	FSC*
Fraser's loosestrife	*Lysimachia fraseri*	FSC**
French Broad heartleaf	*Hexastylis rhombiformis*	FSC
Gray's lily	*Lilium grayi*	FSC
Large-flowered Barbara's buttons	*Marshallia grandiflora*	FSC*
Mountain catchfly	*Silene ovata*	FSC
Mountain heartleaf	*Hexastylis contracta*	FSC
Mountain sweet pitcher plant	*Sarracenia jonesii*	Endangered
Rough rush	*Juncus caesariensis*	FSC
Schweinitz's sedge	*Carex schweinitzii*	FSC
Small-whorled pogonia	*Isotria medeoloides*	Threatened

Sweet pinesap	*Monotropsis odorata*	FSC*
White fringeless orchid	*Plantantherea integrilabia*	FSC
White irisette	*Sisyrinchium dichotomum*	Endangered

KEY:

Status	Definition
Endangered -	A taxon "in danger of extinction throughout all or a significant portion of its range."
Threatened -	A taxon "likely to become endangered within the foreseeable future throughout all or a significant portion of its range."
Proposed -	A taxon proposed for official listing as endangered or threatened.
C1 -	A taxon under consideration for official listing for which there is sufficient information to support listing.
FSC -	A Federal species of concern--a species that may or may not be listed in the future (formerly C2 candidate species or species under consideration for listing for which there is insufficient information to support listing).
T(S/A) -	Threatened due to similarity of appearance (e.g., American alligator)--a species that is threatened due to similarity of appearance with other rare species and is listed for its protection. These species are not biologically endangered or threatened and are not subject to Section 7 consultation.
EXP -	A taxon that is listed as experimental (either essential or nonessential). Experimental, nonessential endangered species (e.g., red wolf) are treated as threatened on public land, for consultation purposes, and as species proposed for listing on private land.

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

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

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

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

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

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

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

Keywords={same keywords listed above - used for search tools}

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

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

Division of Historical Resources
David L. S. Brook, Director

October 25, 2002

MEMORANDUM

TO: Greg Thorpe, Manager
Project Development and Environmental Analysis Branch
NCDOT Division of Highways

FROM: David Brook DSR for David Brook

SUBJECT: Alignment Mapping for Replacement of Bridge No. 53 over Hungry River, B-3666, Henderson County, ER 01-8269

Thank you for your letter of September 25, 2002. Although the letter references new alignment mapping for Bridge No. 21 on SR 1528 over Mud Creek (B-3664/ER 01-8267), the attached correspondence, plan and aerial photograph was for Bridge No. 53 on SR 1799 over Hungry River (B-3666/ER 01-8269).

We have previously reviewed the Replacement of Bridge No. 53 over Hungry River (B-3666).

We recommend that no archaeological work be conducted for this project as proposed.

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

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

North Carolina Department of Cultural Resources

State Historic Preservation Office

David L. S. Brook, Administrator

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

Division of Archives and History
Jeffrey J. Crow, Director

February 5, 2001

MEMORANDUM

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

From: David Brook *DSB for David Brook*
Deputy State Historic Preservation Officer

Re: Replace Bridge #53 on SR 1799 over Hungry River, B-3666, Henderson County, ER 01-8269

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

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

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

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

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

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

cc: Mary Pope Furr, NCDOT
Tom Padgett, NCDOT

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

Federal Aid #BRZ-1799(1) *TIP* #B-3666 *County*: Henderson

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

Project Description: Replace Bridge No.53 on SR 1799 over Hungry River

On December 8, 2000, representatives of the

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

Reviewed the subject project at

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

All parties present agreed

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

Signed:

Mary Pope Furr — 12/8/00
Representative, NCDOT — Date

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

Mary Pope Furr — 12/8/00
Representative, SHPO — Date

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

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

North Carolina Wildlife Resources Commission

Charles R. Fullwood, Executive Director

MEMORANDUM

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

FROM: Owen F. Anderson, Mountain Region Coordinator
Habitat Conservation Program

DATE: January 10, 2001

SUBJECT: Scoping for Bridge Replacements B3475, B3662, B-3663, B-3664, B-3665, B-3666, B-3673, and B-3857, Henderson and McDowell Counties

This memorandum responds to your request for our concerns regarding impacts on fish and wildlife resources resulting from the subject projects. The North Carolina Wildlife Resources Commission (NCWRC) has reviewed the proposed projects, 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 nine bridge replacement projects in western North Carolina. Construction impacts on wildlife and fisheries resources will depend on the extent of disturbance in the streambed and surrounding riparian areas. We prefer bridge designs that do not alter the natural stream morphology or impede fish passage and provide for wildlife passage under the bridge. We prefer that existing bridges be replaced with another spanning structure. Bridge designs should also include provisions for the deck drainage to flow through a vegetated upland buffer prior to reaching the subject surface waters. In some cases, we are specifically concerned about impacts to trout waters. Environmental documentation for these projects 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.

B-3475 – Bridge No. 356 on SR1127 (Caswell Street) over Wash Creek, Henderson County

No specific concerns other than minimization of impacts to water quality and aquatic and riparian habitat.

B-3662 – Bridge No. 20 on SR 1006 (Howard Gap Road) over Featherstone Creek in Henderson County.

No specific concerns other than minimization of impacts to water quality and aquatic and riparian habitat.

B-3663 – Bridge No 320 on SR 1212 (Old Homestead Road) over Shaws Creek in Henderson County

No specific concerns other than minimization of impacts to water quality and aquatic and riparian habitat.

B-3664 –Bridge No. 21 on SR 1528 (Brookside Camp Road) over Mud Creek in Henderson County

No specific concerns other than minimization of impacts to water quality and aquatic and riparian habitat.

B-3665 - Bridge No. 265 on SR 1791 (Ballenger Road) over North Branch Bat Fork Creek in Henderson County

No specific concerns other than minimization of impacts to water quality and aquatic and riparian habitat.

B-3666 - Bridge No. 53 on SR 1799 (Deep Gap Road) over Hungry River in Henderson County.

This bridge appears to be located at the edge of the Pisgah Game Lands. This reach is classified as trout water by the Division of Water Quality and is designated by the NCWRC as Hatchery Supported Waters. The new bridge should span the adjacent floodplain and provide sufficient space for wildlife to move under the bridge. An inwater work moratorium from October 15-April 15 is requested for this project.

B-3673 – Bridge No. 17 on US 221 over Second Broad River in McDowell County

This stream is Classified WS-IV. No specific fish and wildlife concerns other than minimization of impacts to water quality and aquatic and riparian habitat. The new bridge should span the adjacent floodplain and/or provide a wildlife movement corridor under the bridge.

Because the Corps of Engineers (COE) recognizes all of the above counties as "trout water counties", the NCWRC will review any nationwide or general 404 permits for the proposed projects. The following conditions are likely to be placed on the subject 404 permits:

1. Adequate sedimentation and erosion control measures must be implemented and maintained on the project site to avoid impacts to downstream aquatic resources. Structures should be inspected and maintained regularly, especially following rainfall events.

2. 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.

3. All work in or adjacent to stream waters should be conducted in a dry work area. Sandbags, cofferdams, or other diversion structures should be used to minimize impacts to downstream aquatic resources. Spoil materials and wastewater captured in the cofferdam should be pumped out and disposed of on upland sites.

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

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

January 5, 2001

MEMORANDUM

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

Through: John Dorney, NC Division of Water Quality

From: Cynthia F. Van Der Wiele

Subject: Scoping comments on the proposed replacement of Bridge No. 53 on SR 1799 over Green River in Henderson County, T.I.P. Project B-3666.

This memo is in reference to your correspondence dated December 22, 2000, in which you provided an improved vicinity map for the above project. The Hungry River (9-29-30), Broad River Basin, is classified as C Trout waters. The Division of Water Quality requests that NCDOT consider the following environmental issues for the proposed project:

A. DWQ prefers replacement of bridges with bridges, particularly in higher quality waters (i.e. trout streams, water supply watersheds, high quality and outstanding resource waters). However, if the new structure is to be a culvert, it should be countersunk to allow unimpeded fish and other aquatic organisms passage through the crossing. Please be aware that floodplain culverts are required.

B. The document should provide a detailed and itemized presentation of the proposed impacts to wetlands and streams with corresponding mapping.

C. There should be a discussion on mitigation plans for unavoidable impacts. If mitigation is required, it is preferable to present a conceptual (if not finalized) mitigation plan with the environmental documentation. While the NCDWQ realizes that this may not always be practical, it should be noted that for projects requiring mitigation, appropriate mitigation plans will be required prior to issuance of a 401 Water Quality Certification.

D. Since the impacted water is classified as trout waters, the DWQ requests that DOT strictly adhere to North Carolina regulations entitled, "Design Standards in Sensitive Watersheds" (15A NCAC 04B .0024) throughout design and construction of the project. This would apply for any area that drains to streams having WS (Water Supply), ORW (Outstanding Resource Water), HQW (High Quality Water), SA (Shellfish Water) or Tr (Trout Water) classifications. Please be aware that trout moratoriums set by the NC Wildlife Resource Commission will apply.

4. If concrete is used during construction, a dry work area must be maintained to prevent direct contact between curing concrete and stream water. Uncured concrete affects water quality and is highly toxic to fish and other aquatic organisms.

5. 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.

6. **In trout waters, instream construction is prohibited during the trout-spawning period of October 15 to April 15 to avoid impacts on trout reproduction.**

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

8. If multi-celled reinforced concrete box culverts are utilized, they should be designed so that all water flows through a single cell (or two if necessary) during low flow conditions. This could be accomplished by constructing a low sill on the upstream end of the other cells that will divert water to a single cell during below bankfull events. This will facilitate fish passage at low flows.

9. Notched baffles should be placed in reinforced concrete box culverts at 15-foot intervals to allow for the collection of sediments in the culvert, reduce flow velocities, and to provide resting areas for fish moving through the structure.

10. Only clean, sediment-free rock should be used as temporary fill (causeways), and should be removed without excessive disturbance of the natural river bottom when construction is completed. Temporary causeways should not block more than 30% of the stream width to prevent an impediment to fish movement.

11. Equipment operated near surface waters should be inspected daily and maintained to prevent contamination of waters from leaking fuels, lubricants, hydraulic fluids, or other toxic materials.

12. Stormwater should be directed to upland buffer areas or retention basins and should not be discharged directly into streams.

Thank you for the opportunity to review and comment during the early stages of these projects. If you have any questions regarding these comments, please contact me at (828) 452-2546.

cc: Mr. Steven Lund, NCDOT Coordinator, COE, Asheville
Ms. Stacy Harris, P.E., PD & EA Branch, NCDOT, Raleigh
Ms. Marella Buncick, Biologist, USFWS Asheville

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

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

December 11, 2000

MEMORANDUM

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

Through: John Dorney, NC Division of Water Quality

From: Cynthia F. Van Der Wiele

Subject: Scoping comments on the proposed replacement of Bridge No. 53 on SR 1799 over Green River in Henderson County, T.I.P. Project B-3666.

This memo is in reference to your correspondence dated December 6, 2000, in which you requested scoping comments for the above project. The water body is actually Green River (not Hungry River) in the Broad River Basin. The DWQ index number for the stream is 9-29-(22) and is classified as C Trout waters. The Division of Water Quality requests that NCDOT consider the following environmental issues for the proposed project:

A. DWQ prefers replacement of bridges with bridges, particularly in higher quality waters (i.e. trout streams, water supply watersheds, high quality and outstanding resource waters). However, if the new structure is to be a culvert, it should be countersunk to allow unimpeded fish and other aquatic organisms passage through the crossing. Please be aware that floodplain culverts are required.

B. The document should provide a detailed and itemized presentation of the proposed impacts to wetlands and streams with corresponding mapping.

C. There should be a discussion on mitigation plans for unavoidable impacts. If mitigation is required, it is preferable to present a conceptual (if not finalized) mitigation plan with the environmental documentation. While the NCDWQ realizes that this may not always be practical, it should be noted that for projects requiring mitigation, appropriate mitigation plans will be required prior to issuance of a 401 Water Quality Certification.

D. Since the impacted water is classified as trout waters, the DWQ requests that DOT strictly adhere to North Carolina regulations entitled, "Design Standards in Sensitive Watersheds" (15A NCAC 04B .0024) throughout design and construction of the project. This would apply for any area that drains to streams having WS (Water Supply), ORW (Outstanding Resource Water), HQW (High Quality Water), SA (Shellfish Water) or Tr (Trout Water) classifications. Please be aware that trout moratoriums set by the NC Wildlife Resource Commission will apply.

E. When practical, the DWQ requests that bridges be replaced on the existing location with road closure. If a detour proves necessary, remediation measures in accordance with the NCDWQ requirements for General 401 Certification 2726/Nationwide Permit No. 33 (Temporary Construction, Access and Dewatering) must be followed.

F. If applicable, DOT should not install the bridge bents in the creek, to the maximum extent practicable.

G. Wetland and stream impacts should be avoided (including sediment and erosion control structures/measures) to the maximum extent practical. If this is not possible, alternatives that minimize wetland impacts should be chosen. Mitigation for unavoidable impacts will be required by DWQ for impacts to wetlands in excess of one acre and/or to streams in excess of 150 linear feet.

H. Borrow/waste areas should not be located in wetlands. It is likely that compensatory mitigation will be required if wetlands are impacted by waste or borrow.

I. If foundation test borings are necessary; it should be noted in the document. Geotechnical work is approved under General 401 Certification Number 3027/Nationwide Permit No. 6 for Survey Activities.

J. In accordance with the NCDWQ Wetlands Rules {15A NCAC 2H.0506(b)(6)}, mitigation will be required for impacts of greater than 150 linear feet to any single perennial stream. In the event that mitigation becomes required, the mitigation plan should be designed to replace appropriate lost functions and values. In accordance with the NCDWQ Wetlands Rules {15A NCAC 2H.0506 (h)(3)}, the Wetland Restoration Program may be available for use as stream mitigation.

K. Sediment and erosion control measures should not be placed in wetlands.

L. The 401 Water Quality Certification application will need to specifically address the proposed methods for stormwater management. More specifically, stormwater should not be permitted to discharge directly into the creek. Instead, stormwater should be designed to drain to a properly designed stormwater detention facility/apparatus.

M. While the use of National Wetland Inventory (NWI) maps and soil surveys is a useful office tool, their inherent inaccuracies require that qualified personnel perform onsite wetland delineations prior to permit approval.

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

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

E. When practical, the DWQ requests that bridges be replaced on the existing location with road closure. If a detour proves necessary, remediation measures in accordance with the NCDWQ requirements for General 401 Certification 2726/Nationwide Permit No. 33 (Temporary Construction, Access and Dewatering) must be followed.

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G. Wetland and stream impacts should be avoided (including sediment and erosion control structures/measures) to the maximum extent practical. If this is not possible, alternatives that minimize wetland impacts should be chosen. Mitigation for unavoidable impacts will be required by DWQ for impacts to wetlands in excess of one acre and/or to streams in excess of 150 linear feet.

H. Borrow/waste areas should not be located in wetlands. It is likely that compensatory mitigation will be required if wetlands are impacted by waste or borrow.

I. If foundation test borings are necessary; it should be noted in the document. Geotechnical work is approved under General 401 Certification Number 3027/Nationwide Permit No. 6 for Survey Activities.

J. In accordance with the NCDWQ Wetlands Rules {15A NCAC 2H.0506(b)(6)}, mitigation will be required for impacts of greater than 150 linear feet to any single perennial stream. In the event that mitigation becomes required, the mitigation plan should be designed to replace appropriate lost functions and values. In accordance with the NCDWQ Wetlands Rules {15A NCAC 2H.0506 (h)(3)}, the Wetland Restoration Program may be available for use as stream mitigation.

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

HENDERSON COUNTY
OFFICE OF THE COUNTY MANAGER

100 NORTH KING STREET
HENDERSONVILLE, N.C. 28792-5097
PHONE (828) 697-4809 FAX (828) 698-6014
www.henderson.lib.nc.us/county

David E. Nicholson
County Manager

Avalina Merrill
Administrative Assistant

January 10, 2001

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

Dear Mr. Gilmore,

I am writing in response to your December 6, 2000 letter concerning the bridge replacement projects for Henderson County that are contained within the NCDOT's 2002-2008 Draft Transportation Improvement Program. Attached is a report that contains our comments on these projects.

Should you have any additional questions, please contact me.

Sincerely,

David E. Nicholson
County Manager

DEN/abm

Attachment

Cc: Board of Commissioners
Transportation Advisory Committee Members

Henderson County Government Report on

NCDOT BRIDGE REPLACEMENT PROJECTS
B-3475, B-3662, B-3663, B-3665, B-3666 and B-3857

January 10, 2001

Henderson County appreciates the opportunity to study and comment on the proposed bridge replacement projects identified by NCDOT as B-3475, B-3662, B-3663, B-3665, B-3666 and B-3857. The following report contains the County's comments regarding the projects.

B-3475 - Bridge No. 356 on SR 1127 (Caswell Street) over Wash Creek

Bridge No. 356 is located in the City of Hendersonville on Caswell Street, between Washington Street and Lily Pond Road, in an area known as "Busy Bend." According to the Flood Insurance Rate map for that area, the area around and including the bridge is in the flood zone for Wash Creek.

The area around the bridge is commercial in character. Dal-Kawa Cycle Center is located adjacent to the bridge on the south and an automobile detailing business is located next to the bridge to the north. There are a number of other small businesses and a couple of churches in the area as well as the Whitmire Activity Building/Tom's Park owned by the City of Hendersonville. There is a considerable amount of traffic that enters/exits Hendersonville via Kanuga Road. Residents and businesses around the bridge area as well as those that use Kanuga Road to access Hendersonville will be impacted. The detour that is shown on the NCDOT map (using Lily Pond Drive, West Allen Street and Washington Street), is approximately 0.5 mile in length.

Erica Thompson, Program Coordinator for the *Start with Your Heart* program with the Henderson County Partnership for Health, Inc., has been working on a Bicycle/Pedestrian Assessment Project in the Henderson County. At her request, Henderson County has agreed to ask NCDOT to consider widening the sidewalk on Bridge No. 356 when the bridge itself is widened. According to Ms. Thompson, the current sidewalk is too narrow.

Henderson County understands that the City of Hendersonville is submitting its own comments regarding the subject bridge project as well.

B-3662 - Bridge No. 20 on SR 1006 (Howard Gap Road) over Featherstone Creek

The subject bridge is located on Howard Gap Road in an area that is mainly residential in character but which also contains several churches, small businesses and an industry. The intersection of Howard Gap Road and Brookside Camp Road is located to the northwest. Vulcan Materials (including the APAC asphalt plant) is located at the intersection of Howard Gap Road and Clear Creek Road, to the southeast. The Mountain Home Volunteer Fire and Rescue department has a substation located to the southeast of the intersection of Salisbury Road and Howard Gap Road. The bridge is located in the Mountain Home Fire District.

The "studied detour route" shown on the map provided by NCDOT requires that one travel approximately 2.5 miles using Brookside Camp Road and Salisbury Road, both of which are paved. The route passes through a residential area once it leaves Howard Gap Road and it is somewhat hilly and curvy. Heavy truck traffic and others that make regular use of Howard Gap

Road as north-south route may find US 25 to be a better alternative. Access to/from US 25 may be made via the new road to Park Ridge Hospital, Brookside Camp Road, Clear Creek Road, and, possibly, Balfour Road.

Residents and business owners in the area of the proposed bridge project will probably be impacted the most. However, there may be impacts on alternative routes due to the need to detour trucks, including those from Vulcan, around the bridge construction project.

While it is probably unlikely that NCDOT would undertake the subject project and project B-3664 on Brookside Camp Road simultaneously, the County would like to specifically request that the projects be scheduled at different times. If they were to occur together, the impacts on the area would be intensified, particularly because the bridge to be replaced on Howard Gap Road is on the detour route for the Brookside Camp Road bridge project (described below).

B-3663 - Bridge No. 320 on SR 1212 (Old Homestead Road) over Shaws Creek

Old Homestead Road, located off of US 64 West, has a paved surface. The subject bridge crosses Shaws Creek, adjacent to a Southern Railway track. One must cross the bridge, then the track. There is no railroad crossing signal on the road.

There are a number of residences that are served by Old Homestead Road once it crosses Shaws Creek. The area is zoned R-30 by the County and is within a WS-IV Water Supply Watershed. The land immediately adjacent to the bridge is undeveloped. According to the Flood Insurance Rate Map of the area, Shaws Creek is shown to have a narrow area of flood zone which includes the area around the bridge.

As one approaches the bridge from US 64, there is a gravel area adjacent to, but at a lower elevation than, the left side of the bridge. Rocky Hyder, Henderson County Fire Marshal/Emergency Management Director, identified this as a fire department draft point. The draft point would allow water to be drawn from Shaws Creek if needed to fight a fire in the vicinity.

Because there is no outlet from Old Homestead Road, the NCDOT map does not show a detour route. Homes on the southwestern end of Old Homestead Road as well as those on Summer Rain Drive, Kilpatrick Road and Abbey Lane will be impacted during replacement of the bridge. Henderson County expects that NCDOT will maintain some sort of bridge so residents may continue to use Old Homestead Road while the bridge is upgraded. Also, the fire department draft point should be taken into consideration during the project.

B-3664 - Bridge No. 21 on SR 1528 (Brookside Camp Road) over Mud Creek

Bridge No. 21 on Brookside Camp Road is located south of the I-26 overpass. Double Tee Golf Center is located to the northwest and Wolverine Paintball is located to the northeast. Vacant fields are located immediately adjacent to the bridge, along Mud Creek. The bridge is in a low area that has been subject to flooding in the past. The area is within a flood zone, according to the Flood Insurance Rate Map. It is also in the Mountain Home Fire District.

Brookside Camp Road provides access from US 25 to Grimesdale, Hickory Hills and several smaller subdivisions. It also serves to connect US 25 to Howard Gap Road and the residences and businesses in that area.

The detour shown on the map provided by NCDOT is comprised of a loop, approximately 6.7 miles in length, which uses Brookside Camp Road, US 25, Berkeley Road, Balfour Road, Clear Creek Road and Howard Gap Road. The detour passes over another bridge proposed for replacement, bridge No. 20 over Featherstone Creek (see B-3663, above). It is possible that to avoid some of the curves on Balfour Road, some detoured truck traffic may take US 25 to either the new road over I-26 (to Park Ridge Hospital) or to Clear Creek Road to get to Howard Gap Road.

The replacement of the bridge may cause some inconvenience to area residents and to business owners. According to Rocky Hyder, Henderson County Fire Marshal/Emergency Management Director, emergency services personnel and local property owners are probably accustomed to using alternate routes because of the flooding history of the road.

B-3665 - Bridge No. 265 on SR 1791 (Ballenger Road) over North Branch, Bat Fort Creek

Ballenger Road is located to the east of I-26, between Tracy Grove Road and Upward Road. Land Uses in the area around the bridge include Lakewood RV Park and some single-family dwellings. The Flood Insurance Rate Map for the area shows the land in the vicinity of the bridge as being in a flood zone.

The detour shown on the NCDOT map makes use of Tracy Grove Road and McMurray Road, both of which are paved. Much of the northern end of Mc Murray Road consists of orchards and some single-family dwellings. As one approaches Upward Road, there are some commercial uses, including an antique shop, a quilt shop, a produce stand, an RV supply store and the Dish Barn. A commercial project is currently underway near the intersection of Upward Road and McMurray Road. Since Ballenger Road is not a major thoroughfare, the bridge project is more likely to affect local traffic. The detour will probably increase the number of vehicles entering/exiting Upward Road near the I-26 ramps.

B-3666 - Bridge No. 53 on SR 1799 (Deep Gap Road) over North Branch, Hungry River

The subject bridge on Deep Gap Road is the third bridge as one travels east along the road. While the majority of Deep Gap Road is paved, the road has a gravel surface beginning at a point just before the subject bridge.

The eastern end of Deep Gap Road has a few single family dwellings, however much of the land, particularly that near the bridge, is undeveloped. Deep Gap Road has a number of curves as one descends into the river valley. Because there is only "one way in," the NCDOT map does not show a detour route.

Since Deep Gap road is not a "through" road, people would need to have a reason to travel its full length. That property (or properties) accessed by Deep Gap Road beyond Bridge No. 53 will be impacted primarily. Hungry River LLC is listed as the owner of approximately 2073 acres at and beyond the subject bridge.

B-3857 - Bridge No. 8 on SR 1314 (Ladson Road) over Boylston Creek

The subject bridge is located on Ladson Road approximately 0.2 mile from its intersection with NC 191. Land use in the area surrounding the bridge is agricultural, except that there is one dwelling just to the southwest of the bridge. Other residences are located further along Ladson Road. The bridge is located in a flood zone, according to the Flood Insurance Rate Map for the

area. The area around the bridge is in the County's R-30 zoning district and it is also within the WS-IV Water Supply Watershed.

The detour route shown on the map provided by NCDOT requires one to travel along Banner Farm Road and Schoolhouse Road, which will add several miles to the trip for those who normally use Ladson Road. The detour route also passes by Mills River Elementary School.

There is a change in fire districts as one travels along Ladson Road. Mills River Fire and Rescue services the portion of Ladson Road near the subject bridge while the area further south of the bridge is serviced by Etowah-Horse Shoe Fire and Rescue. According to Rocky Hyder, Henderson County Fire Marshal/Emergency Management Director, both departments typically respond to all calls in the area. However, for the Mills River department to respond to the area in its district that is south of the bridge, it will have to use the proposed detour along Schoolhouse Road, which will probably increase its response time slightly.

Other General Comments

County staff did not have a chance to fully investigate the environmental conditions in the areas around the bridges other than to note areas that may be subject to flooding. However, as with any projects undertaken near waterways, the County expects that NCDOT will use erosion and sedimentation controls and other measures to minimize negative impacts on water quality.

Also, because of ongoing projects in the County to establish safe pedestrian walkways and bike routes adjacent to roadways, the County suggests that, when reasonable and feasible, NCDOT consider ways to improve the bridges for these purposes as well as for vehicle travel.

Finally, if it is not already a customary practice, Henderson County suggests that some time prior to initiation of each bridge replacement project, it would be helpful if NCDOT forwarded information regarding the actual detours to the Superintendent of Henderson County Public Schools in order for County bus routes to be adjusted accordingly. In addition, such detour information would be helpful to other County departments and agencies. Therefore, NCDOT should also consider sending such information to the County Manager's office for distribution.

Note: Henderson County does not participate in the federal flood insurance program. Flood Insurance Rate Maps referenced in comments for projects in the County's jurisdiction (B-3662, B-3663, B-3665, B-3666 and B-3857) are dated March 1, 1982. The City of Hendersonville does participate in the federal flood insurance program. The Federal Insurance Rate Map referenced in the comments for the project in the City's jurisdiction (B-3475) is dated January 20, 1982.

U.S. ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT

Action ID: 200230310 County: Henderson

Waters of the U.S. Survey/DelineationVerification

Property owner/Authorized Agent: North Carolina Department of Transportation

Address: Attn: William D. Gilmore, Manager, Project Development and Environmental Analysis Branch, Post Office Box 25201, Raleigh, North Carolina 27611-5201

Telephone Number: (919) 733-7844

Size and Location of Property/Project (waterbody, highway name/number, town, etc.):

Bridge #53 (B-3666), SR 1799, North Branch Hungry River, Henderson County, North Carolina.

Indicate which of the following apply:

____ There are waters of the U.S. on the above described property which have been accurately delineated. We recommend that the delineated lines be surveyed. The surveyed lines must be verified by our staff before the Corps will make a final jurisdictional determination on your property.

__X__ The submitted GPS survey dated **January 2001** for the above referenced project accurately reflects the limits of waters of the U.S. on the property. Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed 5 years from the date of this survey.

Placement of dredged or fill material in waters of the U.S. on this property without a Department of the Army permit is in most cases a violation of Section 301 of the Clean Water Act (33 USC 1311). A permit is not required for work on the property restricted entirely to existing high ground. If you have any questions regarding the Corps of Engineers regulatory program, please contact: John W. Hendrix at (828) 271-7980, Ext. 7.

Project Manager Signature John W. Hendrix Date: **February 26, 2002**

CF: **Mr. Alexander P. Smith, Ecoscience Corporation, 1101 Haynes Street, Suite 101, Raleigh, North Carolina 27604**

DEPARTMENT OF AGRICULTURE
CONVERSION SERVICE

SCS-CPA-106

FARMLAND CONVERSION IMPACT RATING FOR CORRIDOR TYPE PROJECTS

(To be Completed by Federal Agency)	3. Date of Land Evaluation Request 12/17/01	4. Sheet 1 of 1
Names of Project B-3666	5. Federal Agency Involved NCDOT, FHWA	
Type of Project BRIDGE REPLACEMENT	6. County and State Henderson, NC	

RT II (To be completed by SCS)	1. Date Request Received by SCS. 2/14/02	2. Person Completing Form Coy McKenzie

Does the corridor contain prime unique statewide or local important farmland? Yes ____ (If no the FPPA does not apply – Do not complete additional parts of this form No____	4. Acres Irrigated 0	Average Farm Size 91

Major Crop(s) Grass	6. Farmable Land in Government Jurisdiction: 21780	7. Amount of Farmland As Defined in FPPA 82824
Name of Land Evaluation System Used LESA	9. Name of Local Site Assessment System	10. Date Land Evaluation Returned by SCS 4/11/02

RT III (To be completed by Federal Agency)		Alternative Corridor for Segment			
		Corridor A	Corridor B	Corridor C	Corridor D
Total Acres to be Converted Directly		1.02	0.33	0.64	
Total Acres to be Converted Indirectly or to Receive Services					
Total Acres in Corridor		1.02	0.33	0.64	
RT IV (To be completed by SCS) Land Evaluation Information					
Total Acres Prime and Unique Farmland		1.02	0.33	0.64	
Total Acres Statewide and Local Important Farmland		0	0	0	
Percentage of Farmland in County or Local Govt. Unit to be Converted		.0008468	.0000151	.0000293	
Percentage of Farmland in Govt. Jurisdiction with Same or Higher Relative Value		25	25	25	
RT V (To be completed by SCS) Land Evaluation Criterion Relative Value of nd to be Serviced or Converted (Scale of 0-100 Points)		75	75	75	
VI (To be completed by Federal Agency) Corridor essment Criteria (These criteria are explained in 7 CFR 658.5(c))	Maximum Points				
Area in Nonurban Use	15	15	15	15	
Perimeter in Nonurban Use	10	10	10	10	
Percent of Corridor Being Farmed	20	0	0	0	
Protection Provided by State and Local Government	20	0	0	0	
Size of Present Farm Unit Compared to Average	10	0	0	0	
reation of Nonfarmable Farmland	25	0	0	0	
Availability of Farm Support Services	5	4	4	4	
On-Farm Investments	20	0	0	0	
Effects of Conversion On Farm Support Services	25	0	0	0	
Compatibility with Existing Agricultural Use	10	0	0	0	
TAL CORRIDOR ASSESSMENT POINTS	160	29	29	29	
T VII (To be completed by Federal Agency)					
tive Value of Farmland (From Part V)	100	75	75	75	
l Corridor Assessment (Form Part VI above or a local site sment)	160	29	29	29	
TAL POINTS (Total of above 2 lines)	260	104	104	104	

rridor Selected: A	2. Total Acres of Farmlands to be Converted by Project: 1.02	3. Date of Selection: 11/5/2001	4. Was a Local Site Assessment Used? Yes____ No X

son for Selection: Minimizes Potential Impacts to Stream

ature of Person Completing this Part: [signature] Date 5/29/02

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