STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

December 1, 2008

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

ATTN: Mr. David Baker
NCDOT Coordinator

Subject: **Application for Section 404 Nationwide Permit 33** for the proposed replacement of Bridge No. 32 over Junaluska Creek on SR 1393 (Wakefield Road) in Cherokee County, Federal Aid Project No. BRZ-1393; Division 14; TIP No. B-4071
$240.00 debit WBS 33434.1.1.

Dear Sir:

The North Carolina Department of Transportation (NCDOT) proposes to replace Bridge No. 32 over Junaluska Creek on SR 1393 (Wakefield Road). There will be 35 feet of temporary surface water impacts associated with this project.

Please see enclosed copies of the Pre-Construction Notification (PCN), permit drawings, and design plans for the above-referenced project. The Programmatic Categorical Exclusion (PCE) was completed in June 2006. Documents were distributed shortly thereafter. Additional copies are available upon request.

This project calls for a letting date of May 19, 2009 and a review date of March 31, 2009.

A copy of this permit application will be posted on the NCDOT Website at: http://www.ncdot.org/doh/preconstruct/pe/. If you have any questions or need additional information, please call Kris Dramby at (919) 715-5526.

Sincerely,

E. R. Lusk

for Gregory J. Thorpe, Ph.D.
Environmental Management Director, PDEA

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

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

LOCATION:
2728 CAPITAL BLVD
SUITE 240
RALEIGH NC 27604

w/attachment
Mr. Brian Wrenn, NCDWQ (2 copies)
Ms. Marla Chambers, NCWRC
Ms. Marella Buncick, USFWS
Mr. Harold Draper, TVA

w/o attachment
Dr. David Chang, P.E., Hydraulics
Mr. Mark Staley, Roadside Environmental
Mr. Victor Barbour, P.E., Project Services Unit
Mr. Greg Perfetti, P.E., Structure Design
Mr. J. B. Setzer, P.E., Division Engineer
Mr. Mark Davis, DEO
Mr. Jay Bennett, P.E., Roadway Design
Mr. Majed Alghandour, P. E., Programming and TIP
Mr. Art McMillan, P.E., Highway Design
Mr. Scott McLendon, USACE, Wilmington
Ms.Christy M. Wright, P.E., Project Development Engineer

Office Use Only: Form Version March 05

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

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

I. Processing

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

2. Nationwide, Regional or General Permit Number(s) Requested: NWP 33

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

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

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

II. Applicant Information

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

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

III. Project Information

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

1. Name of project: Replacement of Bridge No. 32 over Junaluska Creek on SR 1393 (Wakefield Road) in Cherokee County.

2. T.I.P. Project Number or State Project Number (NCDOT Only): B-4071

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

4. Location
   County: Cherokee Nearest Town: Andrews
   Subdivision name (include phase/lot number): N/A
   Directions to site (include road numbers/names, landmarks, etc.): From the town of Andrews, head east on business SR 19, turn right on SR 1606 and then left on SR 1393 (Wakefield Road).

5. Site coordinates (For linear projects, such as a road or utility line, attach a sheet that separately lists the coordinates for each crossing of a distinct waterbody.)
   Decimal Degrees (6 digits minimum): 35"19'61" N 83"80'24" W

6. Property size (acres): N/A

7. Name of nearest receiving body of water: Junaluska Creek

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

9. Describe the existing conditions on the site and general land use in the vicinity of the project at the time of this application: The site is located in an urban section of Cherokee County primarily surrounded by residential, commercial and forested land. The topography in the

project area is comprised of a nearly level floodplain of Junaluska Creek. Elevation within the project area measures approximately 2100 feet above mean sea level.

10. Describe the overall project in detail, including the type of equipment to be used: Bridge No. 123 will be replaced with a new structure at the existing location. The replacement structure will be a bridge approximately 60 feet long providing a minimum 26 feet clear deck width. The new structure will be constructed at approximately the same location and elevation as the existing bridge. The bridge will include two 10-foot lanes with 3-foot offsets to the face of the bridge rail. Approach work will consist of resurfacing and tying into the existing alignment for approximately 130 feet to the west of the existing bridge and approximately 130 feet to the east of the existing bridge. The approaches will be widened to include a 20-foot pavement width providing two 10-foot lanes. Six-foot grass shoulders will be provided on each side (9-foot shoulders where guardrail is warranted). The roadway will be designed as a Rural Local Route with a 40 mile per hour design speed. Traffic will be detoured off-site during construction. .

11. Explain the purpose of the proposed work: The existing bridge is structurally deficient and according to federal guidelines is considered functionally obsolete. The replacement of this bridge will result in safer traffic operations.

IV. Prior Project History

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

V. Future Project Plans

Are any future permit requests anticipated for this project? If so, describe the anticipated work, and provide justification for the exclusion of this work from the current application.

N/A

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

It is the applicant's (or agent's) responsibility to determine, delineate and map all impacts to wetlands, open water, and stream channels associated with the project. Each impact must be listed separately in the tables below (e.g., culvert installation should be listed separately from

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

1. Provide a written description of the proposed impacts: There will be 35 linear feet of temporary surface water impacts associated with this project.

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

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

3. List the total acreage (estimated) of all existing wetlands on the property: 0.00 acre

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

Stream Impact Number (indicate on map)	Stream Name	Type of Impact	Perennial or Intermittent?	Average Stream Width Before Impact	Impact Length (linear feet)	Area of Impact (acres)
Site 1	Junaluska Creek	Temporary	Perennial	35-40 feet	35	0.02
Total Stream Impact (by length and acreage)					35	0.02

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

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

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

Stream Impact (acres):	0.02
Wetland Impact (acres):	0
Open Water Impact (acres):	0
Total Impact to Waters of the U.S. (acres)	0.02
Total Stream Impact (linear feet):	35

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

_____

_____

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

VII. Impact Justification (Avoidance and Minimization)

Specifically describe measures taken to avoid the proposed impacts. It may be useful to provide information related to site constraints such as topography, building ordinances, accessibility, and financial viability of the project. The applicant may attach drawings of alternative, lower-impact site layouts, and explain why these design options were not feasible. Also discuss how impacts

were minimized once the desired site plan was developed. If applicable, discuss construction techniques to be followed during construction to reduce impacts. NCDOT has minimized impacts to the fullest extent possible. Traffic will be routed to an offsite detour. Design Standards in Sensitive Watersheds will be implemented resulting from trout waters designation.

VIII. Mitigation

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

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

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

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

2. Mitigation may also be made by payment into the North Carolina Ecosystem Enhancement Program (NCEEP). Please note it is the applicant's responsibility to contact the NCEEP at (919) 715-0476 to determine availability, and written approval from the NCEEP indicating

that they are will to accept payment for the mitigation must be attached to this form. For additional information regarding the application process for the NCEEP, check the NCEEP website at http://h2o.enr.state.nc.us/wrp/index.htm. If use of the NCEEP is proposed, please check the appropriate box on page five and provide the following information:

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

IX. Environmental Documentation (required by DWQ)

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

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

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

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

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

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

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

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

2		1.5	
Total			

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

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

XI. Stormwater (required by DWQ)

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

XII. Sewage Disposal (required by DWQ)

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

XIII. Violations (required by DWQ)

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

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

XIV. Cumulative Impacts (required by DWQ)

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

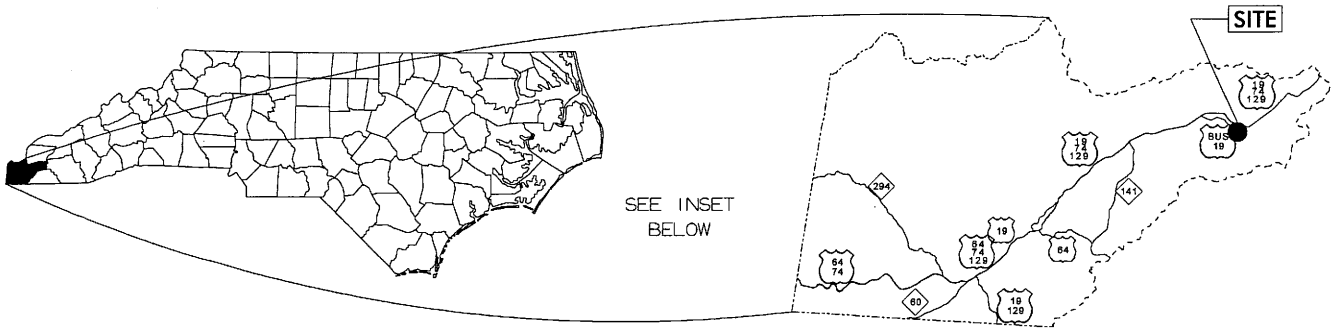
XV. Other Circumstances (Optional):

It is the applicant's responsibility to submit the application sufficiently in advance of desired construction dates to allow processing time for these permits. However, an applicant may choose to list constraints associated with construction or sequencing that may impose limits on work schedules (e.g., draw-down schedules for lakes, dates associated with Endangered and Threatened Species, accessibility problems, or other issues outside of the applicant's control). Plants and animals with federal classifications of Endangered (E), Threatened (T), Proposed Endangered (PE), Proposed Threatened (PT), are protected under provisions of Section 7 and Section 9 of the Endangered Species Act of 1973, as amended. As of November 5, 2008 the United States Fish and Wildlife Service (USFWS) lists five federally protected species and 1 threatened species due to similarity of appearance [T(S/A)] for Cherokee County. A description of all six species and their respective biological conclusion's are provided in the referenced PCE document. All species No Effect calls are still warranted. An updated survey for small whorled pogonia was conducted in June 2008 and no individuals were found. A trout moratorium prohibiting in-stream work and land disturbance within the 25-foot buffer is recommended from October 15 to April 15 to protect the egg and fry stages of trout.

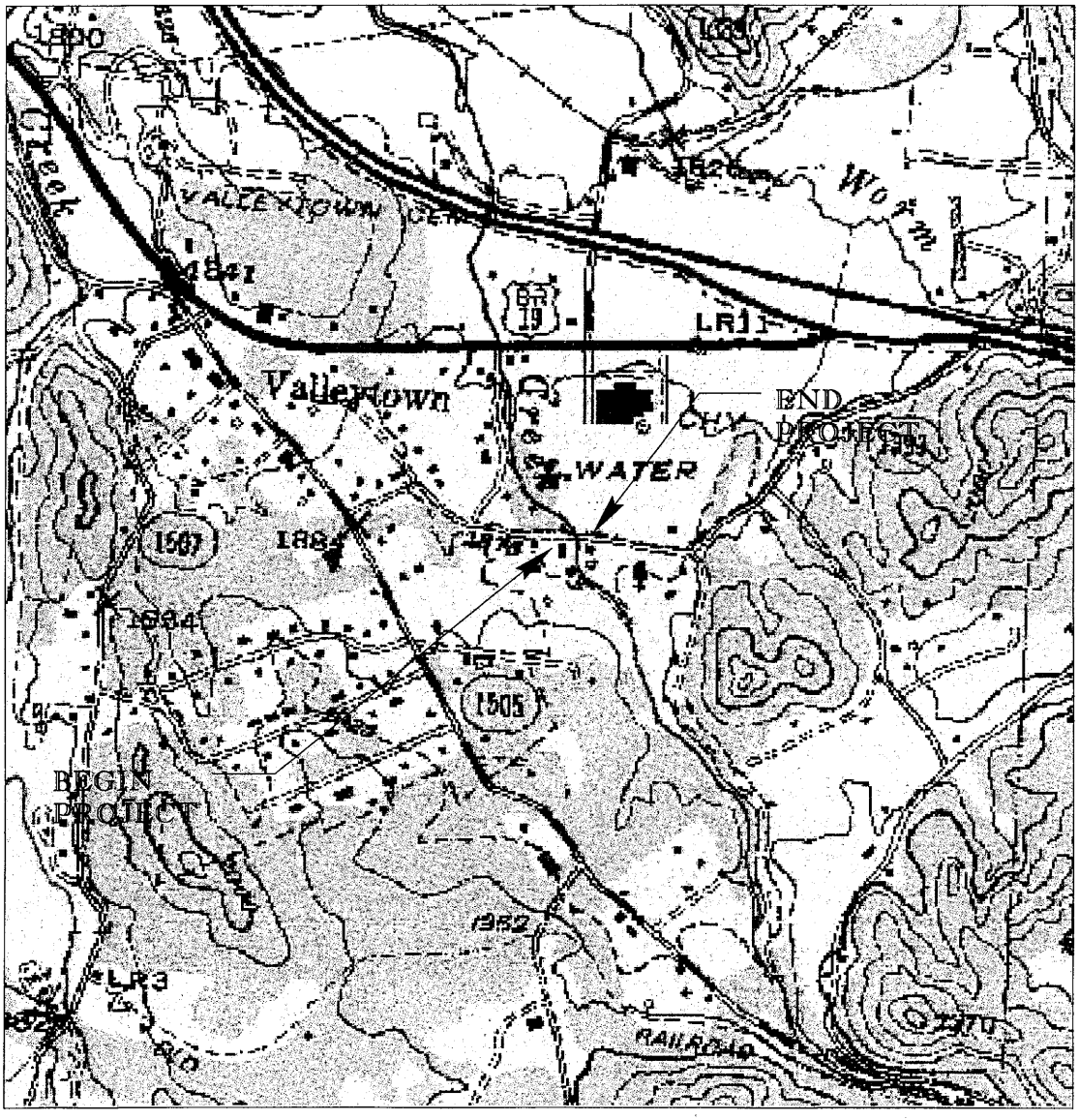
E. L. Lusk 12·1·08

Applicant/Agent's Signature **Date**

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



CHEROKEE COUNTY



WETLAND IMPACTS

Permit Drawing
Sheet 1 of 6

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

CHEROKEE COUNTY

PROJECT: 33434.1.1 (B-4071)
BRIDGE NO. 32 ON SR 1393
(WAKEFIELD RD)
OVER JUNALUSKA CREEK

SHEET ____ OF ____ 3/23/07

WETLAND PERMIT IMPACT SUMMARY

			WETLAND IMPACTS					SURFACE WATER IMPACTS				
Site No.	Station (From/To)	Structure Size / Type	Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
1	18+95/19+22 -L-	BRIDGE							0.02		35.0	
TOTALS:									0.02		35	

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

CHEROKEE COUNTY
PROJECT: 33434.1.1 (B-4071)

SHEET 3/23/2007

ATN Revised 3/31/05

Permit Drawing
Sheet 2 of 3

List of Property Owners:

NC Dept. of Transportation
253 Webster Road
Sylva, NC 28779

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

CHEROKEE COUNTY
PROJECT 33434.1.1 B-4071

Sheet 3 of 8 3/23/2007

CATEGORICAL EXCLUSION ACTION CLASSIFICATION FORM

TIP Project No.	**B-4071**
State Project No.	**8.2911601**
W.B.S. No.	**33434.1.1**
Federal Project No.	**BRZ-1393(2)**

A. Project Description:

The purpose of this project is to replace Bridge No. 32 on SR 1393 (Wakefield Road) over Junaluska Creek in Cherokee County (see Figure 1). The replacement structure will be a bridge approximately 60 feet long providing a minimum 26 feet clear deck width. The new structure will be constructed at approximately the same location and elevation as the existing bridge. The bridge will include two 10-foot lanes with 3-foot offsets to the face of the bridge rail.

Approach work will consist of resurfacing and tying into the existing alignment for approximately 130 feet to the west of the existing bridge and approximately 130 feet to the east of the existing bridge. The approaches will be widened to include a 20-foot pavement width providing two 10-foot lanes. Six-foot grass shoulders will be provided on each side (9-foot shoulders where guardrail is warranted). The roadway will be designed as a Rural Local Route with a 40 mile per hour design speed.

Traffic will be detoured off-site during construction (see Figure 1 and Section D for the studied detour route).

B. Purpose and Need:

NCDOT Bridge Maintenance Unit records indicate Bridge No. 32 has a sufficiency rating of 71.6 out of a possible 100. In 1995, the sufficiency rating was 47.2. Since that time, a temporary crutch bent was added which increased the posted load limits and the sufficiency rating. The bridge is considered to be functionally obsolete due to it's deck geometry rating of 2 out of 9 according to Federal Highway Administration (FHWA) standards and therefore the bridge is eligible for the FHWA's Highway Bridge Replacement and Rehabilitation Program. The replacement of this inadequate structure will result in safer traffic operations.

Bridge No. 32 was constructed in 1964 and is 41 feet in length. The two span bridge consists of a timber and steel superstructure supported by a timber substructure with vertical stone masonry abutments. Timber structures have a typical life expectancy between 40 to 50 years due to the natural deterioration rate of wood. Rehabilitation of a timber structure is generally practical only when a few members are damaged or prematurely deteriorated. However, past a certain degree of deterioration, timber structures become impractical to maintain and upon eligibility are programmed for replacement. Bridge No. 32 is approaching the end of its useful life.

C. Proposed Improvements:

Circle one or more of the following Type II improvements which apply to the project:

1. Modernization of a highway by resurfacing, restoration, rehabilitation, reconstruction, adding shoulders, or adding auxiliary lanes (e.g., parking, weaving, turning, climbing).

   a. Restoring, Resurfacing, Rehabilitating, and Reconstructing pavement (3R and 4R improvements)
   b. Widening roadway and shoulders without adding through lanes
   c. Modernizing gore treatments
   d. Constructing lane improvements (merge, auxiliary, and turn lanes)
   e. Adding shoulder drains
   f. Replacing and rehabilitating culverts, inlets, and drainage pipes, including safety treatments
   g. Providing driveway pipes
   h. Performing minor bridge widening (less than one through lane)
   i. Slide Stabilization
   j. Structural BMP's for water quality improvement

2. Highway safety or traffic operations improvement projects including the installation of ramp metering control devices and lighting.

   a. Installing ramp metering devices
   b. Installing lights
   c. Adding or upgrading guardrail
   d. Installing safety barriers including Jersey type barriers and pier protection
   e. Installing or replacing impact attenuators
   f. Upgrading medians including adding or upgrading median barriers
   g. Improving intersections including relocation and/or realignment
   h. Making minor roadway realignment
   i. Channelizing traffic
   j. Performing clear zone safety improvements including removing hazards and flattening slopes
   k. Implementing traffic aid systems, signals, and motorist aid
   l. Installing bridge safety hardware including bridge rail retrofit

3. Bridge rehabilitation, reconstruction, or replacement or the construction of grade separation to replace existing at-grade railroad crossings.

   a. Rehabilitating, reconstructing, or replacing bridge approach slabs
   b. Rehabilitating or replacing bridge decks
   c. Rehabilitating bridges including painting (no red lead paint), scour repair, fender systems, and minor structural improvements
   (d.) Replacing a bridge (structure and/or fill)

4. Transportation corridor fringe parking facilities.

5. Construction of new truck weigh stations or rest areas.

6. Approvals for disposal of excess right-of-way or for joint or limited use of right-of-way, where the proposed use does not have significant adverse impacts.

7. Approvals for changes in access control.

8. Construction of new bus storage and maintenance facilities in areas used predominantly for industrial or transportation purposes where such construction is not inconsistent with existing zoning and located on or near a street with adequate capacity to handle anticipated bus and support vehicle traffic.

9. Rehabilitation or reconstruction of existing rail and bus buildings and ancillary facilities where only minor amounts of additional land are required and there is not a substantial increase in the number of users.

10. Construction of bus transfer facilities (an open area consisting of passenger shelters, boarding areas, kiosks and related street improvements) when located in a commercial area or other high activity center in which there is adequate street capacity for projected bus traffic.

11. Construction of rail storage and maintenance facilities in areas used predominantly for industrial or transportation purposes where such construction is not inconsistent with existing zoning and where there is no significant noise impact on the surrounding community.

12. Acquisition of land for hardship or protective purposes, advance land acquisition loans under section 3(b) of the UMT Act. Hardship and protective buying will be permitted only for a particular parcel or a limited number of parcels. These types of land acquisition qualify for a CE only where the acquisition will not limit the evaluation of alternatives, including shifts in alignment for planned construction projects, which may be required in the NEPA process. No project development on such land may proceed until the NEPA process has been completed.

13. Acquisition and construction of wetland, stream and endangered species mitigation sites.

14. Remedial activities involving the removal, treatment or monitoring of soil or groundwater contamination pursuant to state or federal remediation guidelines.

D. Special Project Information:

Estimated Costs:

Total Construction	$ 675,000
Right of Way	$ 81,000
Total	$ 756,000

Estimated Traffic:

Year 2006	-	534 vpd
Year 2030	-	743 vpd
TTST	-	1%
Dual	-	4%

Accidents: Traffic Engineering has evaluated a recent three year period and found no accidents occurring in the vicinity of the project.

Design Exceptions: There are no anticipated design exceptions for this project.

Bridge Demolition: The superstructure of Bridge No. 32 has a timber deck on I-beams with an asphalt wearing surface. The substructure consists of yount masonry abutments and a crutch bent of timber with a concrete sill. There is potential for components of one abutment to be dropped into Waters of the United States. The resulting temporary fill associated with this bridge is 14 cubic yards.

Alternatives Discussion:

No Build - No build would result in eventually closing the road as the existing bridge deteriorates; which is unacceptable due to the traffic that SR 1393 serves.

Rehabilitation – The bridge was constructed in 1964 and the timber materials within the bridge are reaching the end of their useful life. Rehabilitation would require replacing the timber components which would constitute effectively replacing the bridge.

Offsite Detour – Bridge No. 32 will be replaced on the existing alignment. Traffic will be detoured offsite (see Figure 1) during the construction period. NCDOT Guidelines for Evaluation of Offsite Detours for Bridge Replacement Projects considers multiple project variables beginning with the additional time traveled by the average road user resulting from the offsite detour.

According to the Transportation Director for Cherokee County Schools, there are four school bus crossings per day over Bridge No. 32. There is a school bus entrance to a school off of SR 1393. They do not have a problem with the offsite detour.

Cherokee County Emergency Management Services states closing the bridge would greatly disrupt operations. They do not recommend closure unless there is a detour close by.

The offsite detour for this project would include SR 1505 and US 19 BUS. The detour for the average road user would result in 1.3 miles additional travel. Therefore, it was determined that the use of an offsite detour was feasible in this location.

NCDOT Division 14 concurs in these recommendations.

Onsite Detour – Replacing the bridge in the existing location and maintaining traffic onsite is not prudent due to the additional cost of the temporary detour structure and approach fills. There is a feasible offsite detour available.

Staged Construction – Staged construction was not considered because of the availability of an acceptable offsite detour.

Other Agency Comments:

In a letter dated July 18, 2003, the N.C. Wildlife Resources Commission states the Junaluska Creek is classified trout waters and is Hatchery Supported Designated Public Mountain Trout Waters (DPMTW). A moratorium prohibiting in-stream work and land disturbance within the 25-foot trout buffer is recommended from October 15 to April 15 to protect egg and fry stages of trout.

In a letter dated June 10, 2003, the U.S. Army Corps of Engineers (USACOE) recommends the existing bridge be replaced with another spanning structure and onsite detours be avoided unless they are also spanning structures.

In a letter dated September 30, 2003, the U.S. Fish and Wildlife Service provided standard comments with project specific concerns for the little-wing pearlymussel, Indiana bat, small whorled pogonia, and sicklefin redhorse. *Response: A determination of "no-effect" has been made for the little-wing pearlymussel, Indiana bat, small whorled pogonia, and sicklefin redhorse.*

Public Involvement:

A letter was sent by the Location & Surveys Unit to all property owners affected directly by this project. Property owners were invited to comment. No comments have been received to date.

E. Threshold Criteria

The following evaluation of threshold criteria must be completed for Type II actions

ECOLOGICAL		YES	NO
(1)	Will the project have a substantial impact on any unique or important natural resource?		X
(2)	Does the project involve habitat where federally listed endangered or threatened species may occur?		X
(3)	Will the project affect anadromous fish?		X
(4)	If the project involves wetlands, is the amount of permanent and/or temporary wetland taking less than one-tenth (1/10) of an acre and have all practicable measures to avoid and minimize wetland takings been evaluated?	X	
(5)	Will the project require the use of U. S. Forest Service lands?		X
(6)	Will the quality of adjacent water resources be adversely impacted by proposed construction activities?		X
(7)	Does the project involve waters classified as Outstanding Water Resources (OWR) and/or High Quality Waters (HQW)?		X
(8)	Will the project require fill in waters of the United States in any of the designated mountain trout counties?		X
(9)	Does the project involve any known underground storage tanks (UST's) or hazardous materials sites?		X

PERMITS AND COORDINATION		YES	NO
(10)	If the project is located within a CAMA county, will the project significantly affect the coastal zone and/or any "Area of Environmental Concern" (AEC)?		X
(11)	Does the project involve Coastal Barrier Resources Act resources?		X
(12)	Will a U. S. Coast Guard permit be required?		X
(13)	Will the project result in the modification of any existing regulatory floodway?		X

(14)	Will the project require any stream relocations or channel changes?		X

SOCIAL, ECONOMIC, AND CULTURAL RESOURCES		YES	NO
(15)	Will the project induce substantial impacts to planned growth or land use for the area?		X
(16)	Will the project require the relocation of any family or business?		X
(17)	Will the project have a disproportionately high and adverse human health and environmental effect on any minority or low-income population?		X
(18)	If the project involves the acquisition of right of way, is the amount of right of way acquisition considered minor?	X	
(19)	Will the project involve any changes in access control?		X
(20)	Will the project substantially alter the usefulness and/or land use of adjacent property?		X
(21)	Will the project have an adverse effect on permanent local traffic patterns or community cohesiveness?		X
(22)	Is the project included in an approved thoroughfare plan and/or Transportation Improvement Program (and is, therefore, in conformance with the Clean Air Act of 1990)?	X	
(23)	Is the project anticipated to cause an increase in traffic volumes?		X
(24)	Will traffic be maintained during construction using existing roads, staged construction, or on-site detours?	X	
(25)	If the project is a bridge replacement project, will the bridge be replaced at its existing location (along the existing facility) and will all construction proposed in association with the bridge replacement project be contained on the existing facility?	X	
(26)	Is there substantial controversy on social, economic, or environmental grounds concerning the project?		X
(27)	Is the project consistent with all Federal, State, and local laws relating to the environmental aspects of the project?	X	
(28)	Will the project have an "effect" on structures/properties eligible for or listed on the National Register of Historic Places?		X

(29)	Will the project affect any archaeological remains which are important to history or pre-history?		X
(30)	Will the project require the use of Section 4(f) resources (public parks, recreation lands, wildlife and waterfowl refuges, historic sites, or historic bridges, as defined in Section 4(f) of the U. S. Department of Transportation Act of 1966)?		X
(31)	Will the project result in any conversion of assisted public recreation sites or facilities to non-recreation uses, as defined by Section 6(f) of the Land and Water Conservation Act of 1965, as amended?		X
(32)	Will the project involve construction in, across, or adjacent to a river designated as a component of or proposed for inclusion in the National System of Wild and Scenic Rivers?		X

F. Additional Documentation Required for Unfavorable Responses in Part E

None

G. CE Approval

TIP Project No.	**B-4071**
State Project No.	**8.2911601**
W.B.S. No.	**33434.1.1**
Federal Project No.	**BRZ-1393(2)**

Project Description:

The purpose of this project is to replace Bridge No. 32 on SR 1393 (Wakefield Road) over Junaluska Creek in Cherokee County (see Figure 1). The replacement structure will be a bridge approximately 60 feet long providing a minimum 26 feet clear deck width. The new structure will be constructed at approximately the same location and elevation as the existing bridge. The bridge will include two 10-foot lanes with 3-foot offsets to the face of the bridge rail.

Approach work will consist of resurfacing and tying into the existing alignment for approximately 130 feet to the west of the existing bridge and approximately 130 feet to the east of the existing bridge. The approaches will be widened to include a 20-foot pavement width providing two 10-foot lanes. Six-foot grass shoulders will be provided on each side (9-foot shoulders where guardrail is warranted). The roadway will be designed as a Rural Local Route with a 40 mile per hour design speed.

Traffic will be detoured off-site during construction (see Figure 1 and Section D for the studied detour route).

Categorical Exclusion Action Classification:

X TYPE II(A)
____ TYPE II(B)

Approved:

6/19/06 William F. Goodwin
Date — Project Planning Unit Head
Project Development & Environmental Analysis Branch

6/19/06 April Johnson
Date — Project Planning Engineer
Project Development & Environmental Analysis Branch

For Type II(B) projects only:

_____ N/A
Date — John F. Sullivan, III, PE, Division Administrator
Federal Highway Administration

PROJECT COMMITMENTS

Cherokee County
Bridge No. 32 on SR 1393
Over Junaluska Creek
Federal Project BRZ-1393 (2)
State Project 8. 2911601
WBS 33434.1.1
TIP No. B-4071

Commitments Developed Through Project Development and Design

Roadside Environmental Unit, Division 14 Construction, Structure Design Unit
Bridge Demolition: Best Management Practices for Bridge Demolition & Removal will be implemented. The superstructure of Bridge No. 32 has a timber deck on I-beams with an asphalt wearing surface. The substructure consists of yount masonry abutments and a crutch bent of timber with a concrete sill. There is potential for components of one abutment to be dropped into Waters of the United States. The resulting temporary fill associated with this bridge is 14 cubic yards.

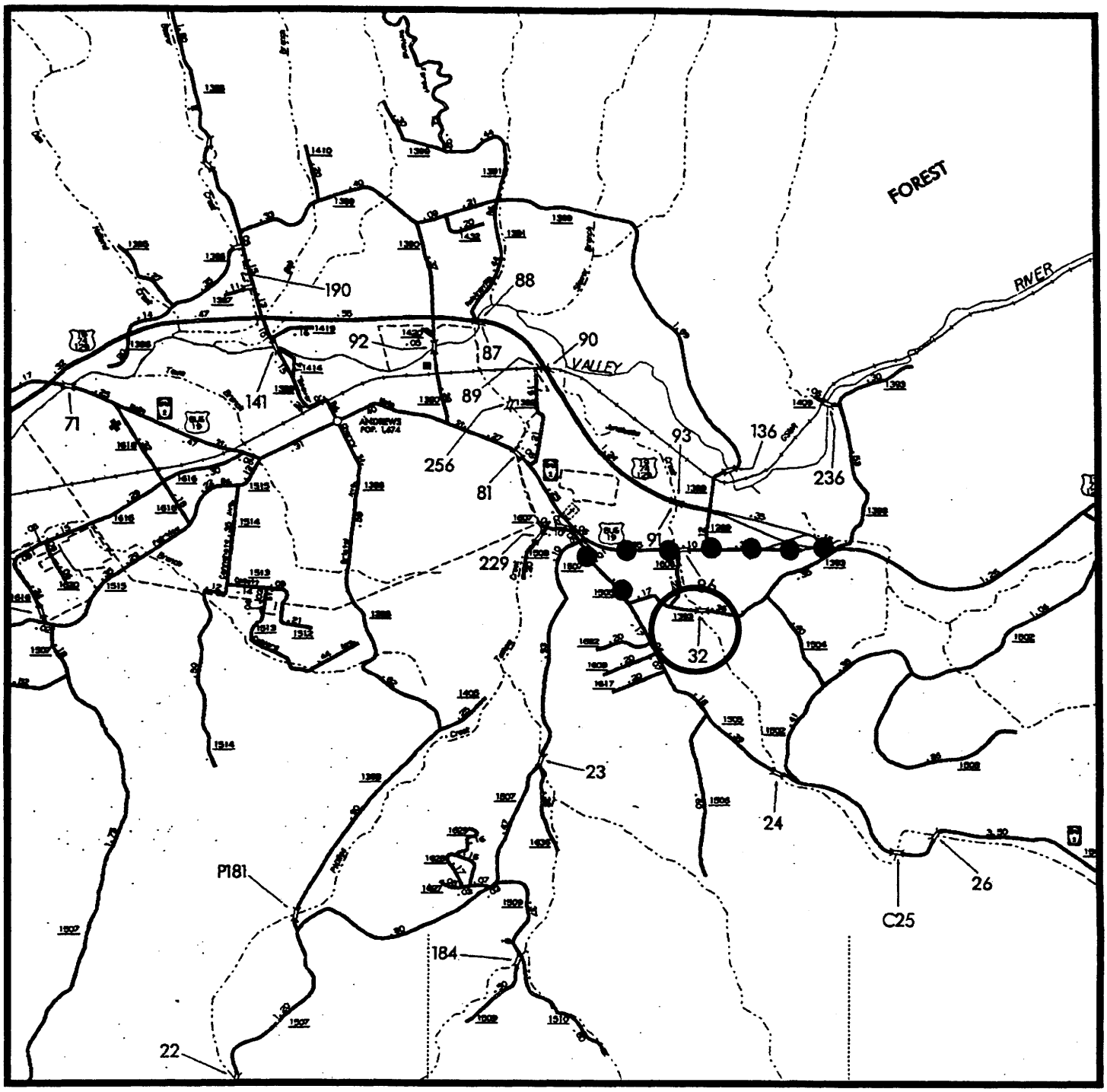
Roadway Design Unit, Roadside Environmental Unit, Division 14 Construction
There will be an in-stream moratorium from October 15-April 15 because Junaluska Creek is Class C Tr waters and Hatchery Supported Designated Public Mountain Trout Waters (DPMTW).

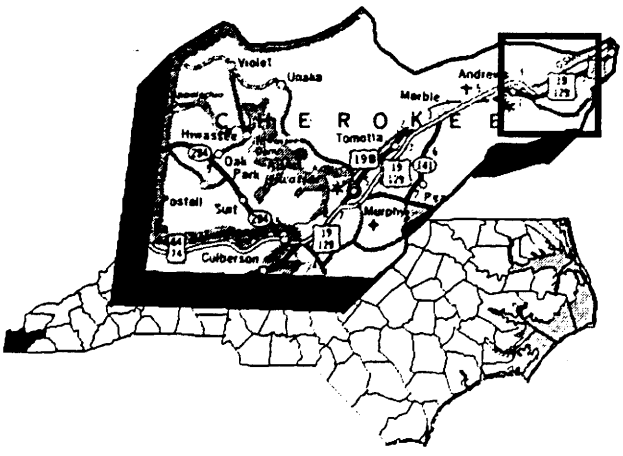
Division 14 Construction
In order to allow Emergency Management Services (EMS) time to prepare for road closure, the NCDOT Resident Engineer will notify the director of Cherokee County EMS at (704) 484-4841 of the bridge removal 30 days prior to road closure and again once the road has be re-opened.

Division 14 Construction
In order to allow Cherokee County Schools time to prepare for road closure, the NCDOT Resident Engineer will notify the Director of Transportation at (704) 482-3438 of the bridge removal 30 days prior to road closure and again once the road has been re-opened.

Structure Design Unit
This project may require Section 26a approval from the Tennessee Valley Authority (TVA).

Division 14 Construction, Roadside Environmental
Sediment and erosion control measures should adhere to the design standards for sensitive watersheds.





Studied Detour Route

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
PROJECT DEVELOPMENT & ENVIRONMENTAL ANALYSIS BRANCH

CHEROKEE COUNTY
REPLACE BRIDGE NO. 32 ON SR 1393
OVER JUNALUSKA CREEK
B-4071

Figure 1

NORTH CAROLINA DEPARTMENT
OF TRANSPORTATION
DIVISION OF HIGHWAYS
PROJECT DEVELOPMENT AND
ENVIRONMENTAL ANALYSIS BRANCH

TIP No. B-4071
Cherokee County
Bridge No. 32 on SR 1393
Over Junaluska Creek

FIGURE 2

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

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

Division of Historical Resources
David J. Olson, Director

May 29, 2003

MEMORANDUM

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

FROM: David Brook RSS for David Brook

SUBJECT: Replacement of Bridge No. 32 on SR 1393 over Junaluska Creek, B-4071, Cherokee County, ER03-0924

Thank you for memorandum of April 7, 2003, regarding the above project.

We have conducted a search of our maps and files and located the following structure of historical or architectural importance within the general area of this project:

Walkers Inn (NR-listed) SR 1505, NE side of junction with SR 1393

We recommend that a Department of Transportation architectural historian identify and evaluate any structures over fifty years of age within the project area, and report the findings to us.

There are no recorded archaeological sites within the proposed project area. If the replacement is to be located along the existing alignment with traffic detoured off-site, no archaeological survey is recommended. The north side of SR 1393 and the undeveloped area along the south side of SR 1393 are considered to have a high probability for the presence of archaeological resources, and will require an archaeological survey if these areas are to be affected by an on-site detour or realignment.

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.

cc: Mary Pope Furr
Matt Wilkerson

Federal Aid # BRZ-1393(2) *TIP* # B-4071 *County*: Cherokee

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

Project Description: Replace Bridge No. 32 on SR 1393 over Junaluska Creek

On 09/13/2004, representatives of the

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

Reviewed the subject project at

- [ ] Scoping meeting
- [x] Historic architectural resources photograph review session/consultation
- [ ] Other

All parties present agreed

- [ ] There are no properties over fifty years old within the project's area of potential effects.
- [x] There are no properties less than fifty years old which are considered to meet Criteria Consideration G within the project's area of potential effects.
- [x] There are properties over fifty years old within the project's Area of Potential Effects (APE), but based on the historical information available and the photographs of each property, the property identified as Properties 1-5 is considered not eligible for the National Register and no further evaluation of it is necessary.
- [x] There are no National Register-listed or Study Listed properties within the project's area of potential effects.
- [x] All properties greater than 50 years of age located in the APE have been considered at this consultation, and based upon the above concurrence, all compliance for historic architecture with Section 106 of the National Historic Preservation Act and GS 121-12(a) has been completed for this project.
- [x] There are no historic properties affected by this project. (*Attach any notes or documents as needed*)

Signed:

Mary Pope Furr — 9·13·2004
Representative, NCDOT — Date

FHWA — 9/13/04
FHWA, for the Division Administrator, or other Federal Agency — Date

Erin O'Kane — 9/13/04
Representative, HPO — Date

Renee Gledhill-Earley — 9-13-04
State Historic Preservation Officer — Date

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

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4071	1	
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION	
33434.1.1	BRZ-1393(2)	PE	

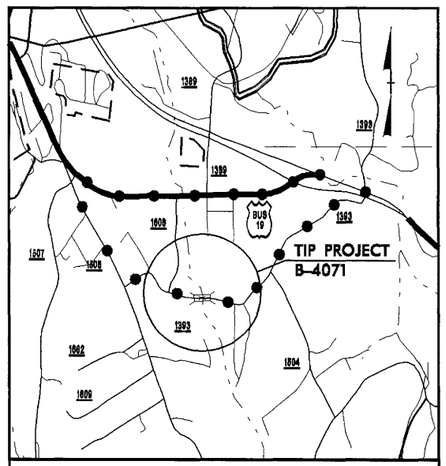
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CHEROKEE COUNTY

LOCATION: ***BRIDGE NO. 32 OVER JUNALUSKA CREEK ON S.R. 1393 (WAKEFIELD RD.)***

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

See Sheet 1-A For Index of Sheets

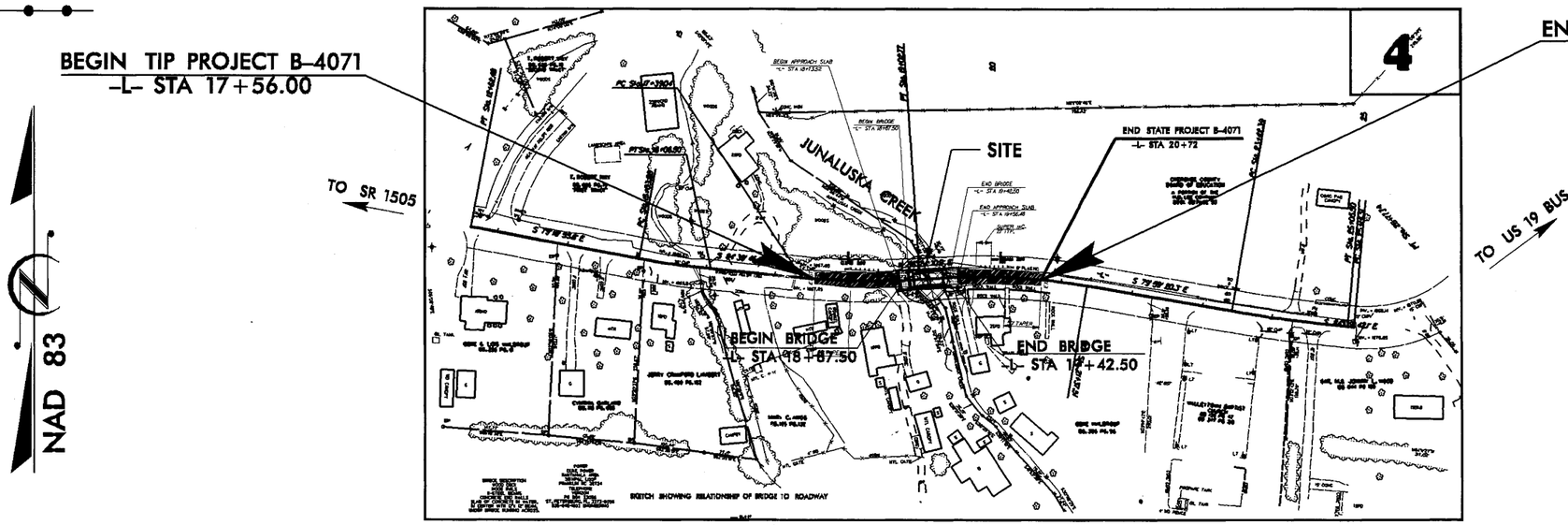


VICINITY MAP

DETOUR

BEGIN TIP PROJECT B-4071
-L- STA 17+56.00

END TIP PROJECT B-4071
-L- STA 20+72.00



NAD 83

Permit Drawing
Sheet 4 of 8

NCDOT CONTACTS: CATHY S. HOUSER, PE, PROJECT ENGINEER – ROADWAY DESIGN
ROBERT J. STROUP, PE, PROJECT DESIGN ENGINEER – ROADWAY DESIGN

CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II.

THIS PROJECT IS NOT WITHIN THE TOWN OF ANDREWS MUNICIPAL BOUNDARY.

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PLANS PREPARED BY :
William G. Lapsley & Associates, P.A.
P.O. Box 548
1635 Asheville Highway
Hendersonville, NC 28793
(828) 697-7334
wgla.com
FOR
DIVISION OF HIGHWAYS

GRAPHIC SCALES

PLANS 50 25 0 50 100

PROFILE (HORIZONTAL) 50 25 0 50 100

PROFILE (VERTICAL) 5 2.5 0 5 10

DESIGN DATA

ADT 2007 = 544
ADT 2027 = 718
DHV = 10 %
D = 60 %
T = 5 % *
V = 40 MPH
* TTST 1% DUAL 4%
FUNC CLASS = LOCAL

PROJECT LENGTH

LENGTH OF ROADWAY TIP PROJECT B-4071 = 0.050 MI
LENGTH OF STRUCTURE TIP PROJECT B-4071 = 0.010 MI
TOTAL LENGTH OF TIP PROJECT B-4071 = 0.060 MI

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

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: AUGUST 18, 2006

LETTING DATE: JANUARY 15, 2008

WILLIAM G. LAPSLEY, P.E.
PROJECT ENGINEER

G. THOMAS JONES III, P.E.
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: P.E.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

P.E.
STATE DESIGN ENGINEER

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED
DIVISION ADMINISTRATOR *DATE*

PROJECT: 33434.1.1

TIP PROJECT: B-4071

REVISIONS
Design and R/W Revision - 11/27/06 - Eliminated -Octvel-

09/08/06

28-JUL-2008 15:47
r:\hydraulics\b-4071\hyd_prm_surfacewater.dgn
rivers AT HY244572

PROJECT REFERENCE NO.	SHEET NO.
B-4071	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

ENGLISH

NOTE: SEE SHEET 5 FOR PROFILES

8/17/99

REVISIONS

Design and R/W Revision 11/27/06 Eliminated -Drive1-

BEGIN STATE PROJECT B-4071
-L- STA 17+56

-L-	-L-	-DRIVE1-	-DRIVE1-
PI Sta 18+21.07	PI Sta 20+37.05	PI Sta 10+30.02	PI Sta 11+02.96
Δ = 8° 56' 02.7" (LT)	Δ = 13° 36' 28.7" (RT)	Δ = 82° 47' 19.1" (LT)	Δ = 84° 06' 38.8" (RT)
D = 5° 27' 24.3"	D = 6° 44' 26.4"	D = 229° 10' 59.2"	D = 229° 10' 59.2"
L = 163.73'	L = 201.88'	L = 36.12'	L = 36.70'
T = 82.03'	T = 101.42'	T = 22.04'	T = 22.55'
R = 1,050.00'	R = 850.00'	R = 25.00'	R = 25.00'
SE = SEE PLAN	SE = SEE PLAN		

TS TS DENOTES TEMPORARY FILL IN SURFACE WATER

NAD 83

END STATE PROJECT B-4071
-L- STA 20+72

PC Sta. 10+98.29
PT Sta. 12+62.48
PC Sta. 17+39.04
PT Sta. 19+02.77
PC Sta. 23+42.39
PT Sta. 26+71.14
PT Sta. 25+05.50
PC Sta. 25+43.31
PT Sta. 16+06.50
PC Sta. 15+03.29
PT Sta. 12+37.51
PC Sta. 19+35.63

BEGIN APPROACH SLAB -L- STA 18+73.52
BEGIN BRIDGE -L- STA 18+87.50
END BRIDGE -L- STA 19+42.50
END APPROACH SLAB -L- STA 19+56.48

DB. 626 PG. 19 "SECOND TRACT"
DB. 626 PG. 19 "FIRST TRACT"
DB. 255 PG. 61
DB. 490 PG. 162
DB. 1115 PG. 698
DB. 165 PG. 132
DB. 386 PG. 56
DB 844 PG 166
DB 138 PG 47
DB 347 PG 213
A PORTION OF THE H.D. LEE COMPANY BOOK 821 PAGE 53

1 2 3 4

S 79° 16' 55.6" E
S 84° 39' 46.4" E
S 90° 24' 10.5" E
-L- S 79° 59' 20.3" E
S 84° 39' 42.1" E

WAKEFIELD RD. SR 1393
JUNALUSKA CREEK
SR 1606
SR

PSRM EST +47 SY WIDTH= 5'
C GRAU 350
6" PLASTIC
INV. = 1867.00
INV. = 1868.81
INV. = 1869.84
INV. = 1867.65
INV. = 1869.14
INV. = 1870.65
INV. = 1872.74
36" CMP
30" CMP
15" CMP
18" CMP

SPECIAL CUT DITCH STA 18+30 TO STA 19+12 -L- RT SEE DETAIL #1

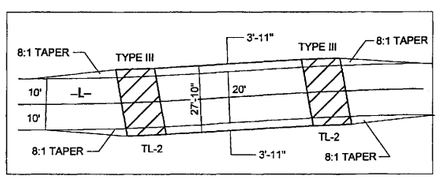
2SROCKD ABAND
2SFD
ISBKD
ISFD
HTR
WDMTL CANOPY
MTL CANOPY
CANOPY
DECK
G
S
SEPTIC
DRAIN FIELD
OIL TANK
PROPANE TANK
4' WD FENCE
CONC PAD CANOPY
BRICK SIGN
ROCK WALL
ROCK WALK
CONC WALL
15' SOIL
10' CONC
65BW
45BW
4' WD
MTL GATE
GATE
42" BST
15" CONC
WOODS

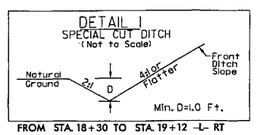
LANDSCAPE AREA

POWER
DUKE POWER
NANTAHALA AREA
30 INP&L LOOP
FRANKLIN NC 28734
TELEPHONE
VERIZON
PO BOX 33056
ST. PETERSBURG, FL. 3373-8056
828-645-1803 ENGINEERING
WATER
TOWN OF ANDREWS
PO BOX 1210
ANDREWS, NC. 28901
828-321-511
828-321-3113
CABLE TV
PO BOX 1000
MURPHY NC. 28906
828-837-7118
HIGH WATER MARK
1876.25

BRIDGE DESCRIPTION
WOOD DECK
WOOD RAILS
8-STEEL BEAMS
CONCRETE END WALLS
SLAB OF CONCRETE IN WATER.
IN CENTER WITH 12"X 12' BEAM.
UNDER BRIDGE RUNNING ACROSS.

SKETCH SHOWING RELATIONSHIP OF BRIDGE TO ROADWAY



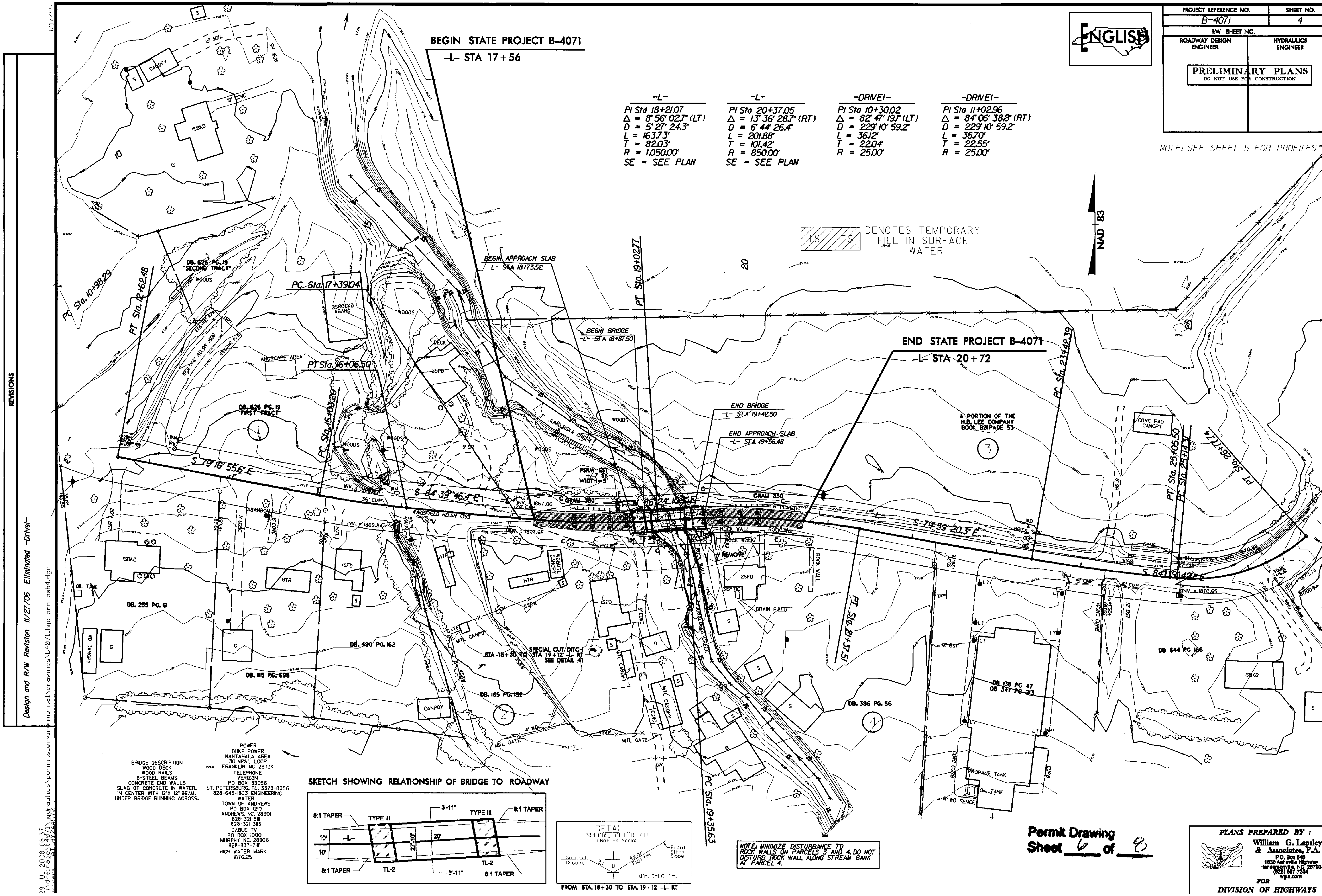


FROM STA. 18+30 TO STA. 19+12 -L- RT

NOTE: MINIMIZE DISTURBANCE TO ROCK WALLS ON PARCELS 3 AND 4. DO NOT DISTURB ROCK WALL ALONG STREAM BANK AT PARCEL 4.

Permit Drawing Sheet 5 of 8

PLANS PREPARED BY :
William G. Lapsley & Associates, P.A.
P.O. Box 546
1633 Asheville Highway
Hendersonville, NC 28793
(828) 697-7334
wgls.com
FOR
DIVISION OF HIGHWAYS


PROJECT REFERENCE NO. B-4071
SHEET NO. 4
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
ENGLISH
BEGIN STATE PROJECT B-4071
-L- STA 17+56
END STATE PROJECT B-4071
-L- STA 20+72
-L-
PI Sta 18+21.07
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R = 850.00'
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-DRIVE1-
PI Sta 10+30.02
Δ = 82° 47' 19.1" (LT)
D = 229° 10' 59.2"
L = 36.12'
T = 22.04'
R = 25.00'
-DRIVE1-
PI Sta 11+02.96
Δ = 84° 06' 38.8" (RT)
D = 229° 10' 59.2"
L = 36.70'
T = 22.55'
R = 25.00'
NOTE: SEE SHEET 5 FOR PROFILES
DENOTES TEMPORARY FILL IN SURFACE WATER
NAD 83
BEGIN APPROACH SLAB -L- STA 18+73.52
BEGIN BRIDGE -L- STA 18+87.50
END BRIDGE -L- STA 19+42.50
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PT Sta. 12+62.48
PC Sta. 19+02.77
PT Sta. 21+37.51
PC Sta. 19+35.63
PC Sta. 23+42.39
PT Sta. 25+05.50
PC Sta. 25+18.31
PT Sta. 26+17.24
S 79° 16' 55.6" E
S 84° 39' 46.4" E
S 79° 59' 20.3" E
S 84° 19' 42" E
JUNALUSKA CREEK
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DB 844 PG 166
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TELEPHONE
VERIZON
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ST. PETERSBURG, FL. 3373-8056
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WATER
TOWN OF ANDREWS
PO BOX 1210
ANDREWS, NC. 28901
828-321-5111
828-321-3113
CABLE TV
PO BOX 1000
MURPHY NC. 28906
828-837-7118
HIGH WATER MARK
1876.25
SKETCH SHOWING RELATIONSHIP OF BRIDGE TO ROADWAY
8:1 TAPER
TYPE III
TL-2
DETAIL 1
SPECIAL CUT DITCH
(Not to Scale)
Natural Ground
Front Ditch Slope
Min. D=1.0 Ft.
FROM STA. 18+30 TO STA. 19+12 -L- RT
NOTE: MINIMIZE DISTURBANCE TO ROCK WALLS ON PARCELS 3 AND 4. DO NOT DISTURB ROCK WALL ALONG STREAM BANK AT PARCEL 4.
Permit Drawing
Sheet 6 of 8
PLANS PREPARED BY:
William G. Lapsley & Associates, P.A.
P.O. Box 546
1635 Asheville Highway
Hendersonville, NC 28793
(828) 697-7334
wgla.com
FOR
DIVISION OF HIGHWAYS
REVISIONS
Design and R/W Revision 11/27/06 Eliminated -Drive1-
8/17/99

PROJECT REFERENCE NO.	SHEET NO.
B-4071	5

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

ENGLISH

NOTE: SEE SHEET 4 FOR PLAN VIEW

REVISIONS

5/14/99

Design and R/W Revision 11/27/06 Eliminated -Drive1-

BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	= 1800 CFS
DESIGN FREQUENCY	= 25 YRS
DESIGN HW ELEVATION	= 1872.8 FT
BASE DISCHARGE	= 2700 CFS
BASE FREQUENCY	= 100 YRS
BASE HW ELEVATION	= 1873.6 FT
OVERTOPPING DISCHARGE	= 1500+ CFS
OVERTOPPING FREQUENCY	= 10+ YRS
OVERTOPPING ELEVATION	= 1872.2 FT
DATE OF SURVEY	= 06/21/05
W.S. ELEVATION AT DATE OF SURVEY	= 1865.8 FT

TS DENOTES TEMPORARY TIE-IN SURFACE WATER

PI = 18+39.00
EL = 1872.58'
VC = 60'
K = 330

PI = 19+87.00
EL = 1873.20'
VC = 55'
K = 189

BEGIN BRIDGE
-L- STA 18+87.50

END BRIDGE
-L- STA 19+42.50

END APPROACH SLAB
-L- STA 19+56.48

BEGIN APPROACH SLAB
-L- STA 18+73.52

BEGIN GRADE
-L- STA 18+06
EL 187.226

END GRADE
-L- STA 20+22
EL 187.349

(+)0.3722%
(+)0.5539%
(+)0.5537%
(+)0.8436%
(-)0.1049%

+30 RT
1869.75

+42 RT
1869.50

BM#2
SQ. & CHISLED 'X' IN CONC. WALL
-DL- STA 16+69.66
0.43 LT. ELEV 1872.17

RIGHT DITCH

-L-

15 16 17 18 19 20 21 22

1,880
1,870
1,860
1,850

Permit Drawing
Sheet 7 of 8

PLANS PREPARED BY :
William G. Lapsley & Associates, P.A.
P.O. Box 148
1638 Asheville Highway
Hendersonville, NC 28793
(828) 697-7334
www.wglpa.com
FOR
DIVISION OF HIGHWAYS

28-JUL-2008 15:54
C:\Projects\B-4071\hyd_prim_surfacewater.dgn
mwhite

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-4071	X-1

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

21+00.00

20+50.00

20+00.00

S.S. 1872.672

0.020 0.025

S.S. 1870.980

1870.438

19+50.00

0.020 0.020

S.S. 1871.604

1870.313

19+00.00

0.020 0.020

TS TS DENOTES TEMPORARY FILL IN SURFACE WATER

18+50.00

0.025 0.070

1869.674

18+00.00

Permit Drawing
Sheet 8 of 8

28-JUL-2008 14:11
s:\engr\coord\projects\vincent's\b-4071\b4071\hydraulics\permits_environmental\drawings\b4071_hyd_prm_xpl.dgn
rivers AT HY244572

09/08/99

TIP PROJECT: B-4071

PROJECT: 33434.1.1

REVISIONS

Design and R/W Revision 11/27/06 Eliminated -Drive-
R/W Revision 3/28/07 Revised -E- on Parcel 4 due to well

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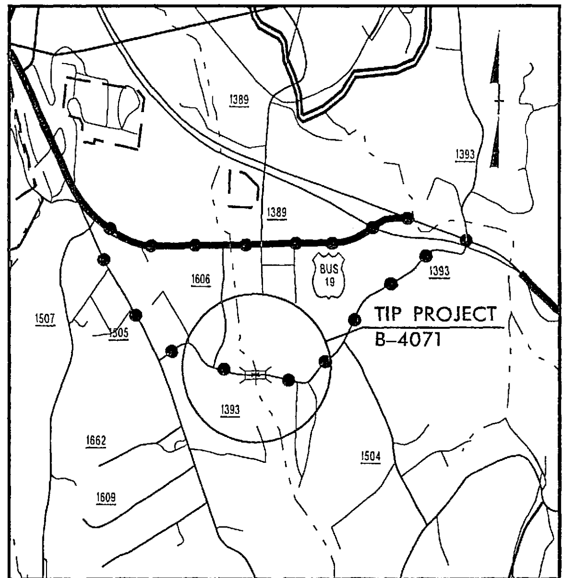
See Sheet 1-A For Index of Sheets



VICINITY MAP

DETOUR

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CHEROKEE COUNTY

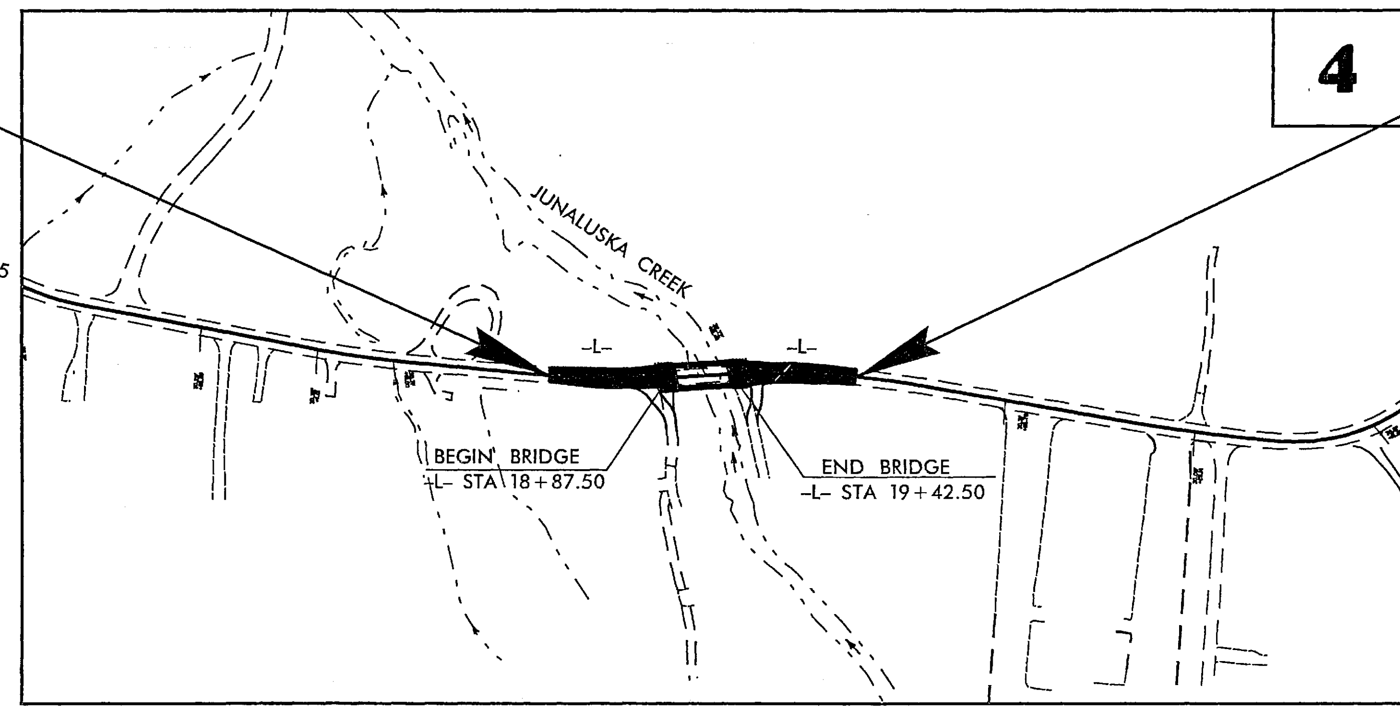
LOCATION: *BRIDGE NO. 32 OVER JUNALUSKA CREEK ON S.R. 1393 (WAKEFIELD RD.)*

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

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4071	1	

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
33434.1.1	BRZ-1393(2)	PE

NAD 83



NCDOT CONTACTS: CATHY S. HOUSER, PE, PROJECT ENGINEER – ROADWAY DESIGN
ROBERT J. STROUP, PE, PROJECT DESIGN ENGINEER – ROADWAY DESIGN

CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II.

THIS PROJECT IS NOT WITHIN THE TOWN OF ANDREWS MUNICIPAL BOUNDARY.

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PLANS PREPARED BY :
William G. Lapsley & Associates, P.A.
P.O. Box 546
1635 Asheville Highway
Hendersonville, NC 28793
(828) 697-7334
wgla.com
FOR
DIVISION OF HIGHWAYS

GRAPHIC SCALES

50 25 0 50 100 — PLANS

50 25 0 50 100 — PROFILE (HORIZONTAL)

5 2.5 0 5 10 — PROFILE (VERTICAL)

DESIGN DATA

ADT 2007 = 544
ADT 2027 = 718
DHV = 10 %
D = 60 %
T = 5 % *
V = 40 MPH
* TTST 1% DUAL 4%
FUNC CLASS = LOCAL

PROJECT LENGTH

LENGTH OF ROADWAY TIP PROJECT B-4071 = 0.050 MI
LENGTH OF STRUCTURE TIP PROJECT B-4071 = 0.010 MI
TOTAL LENGTH OF TIP PROJECT B-4071 = 0.060 MI

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

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: AUGUST 18, 2006

LETTING DATE: JANUARY 15, 2008

WILLIAM G. LAPSLEY, P.E.
PROJECT ENGINEER

G. THOMAS JONES III, P.E.
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

P.E.
SIGNATURE:

ROADWAY DESIGN ENGINEER

P.E.
SIGNATURE:

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

P.E.
STATE DESIGN ENGINEER

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED
DIVISION ADMINISTRATOR *DATE*

3/15/06

PROJECT REFERENCE NO.	SHEET NO.
B-4071	1-B

Note: Not to Scale

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

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONVENTIONAL PLAN SHEET SYMBOLS

BOUNDARIES AND PROPERTY:

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

BUILDINGS AND OTHER CULTURE:

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

HYDROLOGY:

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

RAILROADS:

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

RIGHT OF WAY:

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

ROADS AND RELATED FEATURES:

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

VEGETATION:

- Single Tree
- Single Shrub
- Hedge
- Woods Line
- Orchard
- Vineyard — Vineyard

EXISTING STRUCTURES:

MAJOR:

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

MINOR:

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

UTILITIES:

POWER:

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

TELEPHONE:

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

WATER:

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

TV:

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

GAS:

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

SANITARY SEWER:

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

MISCELLANEOUS:

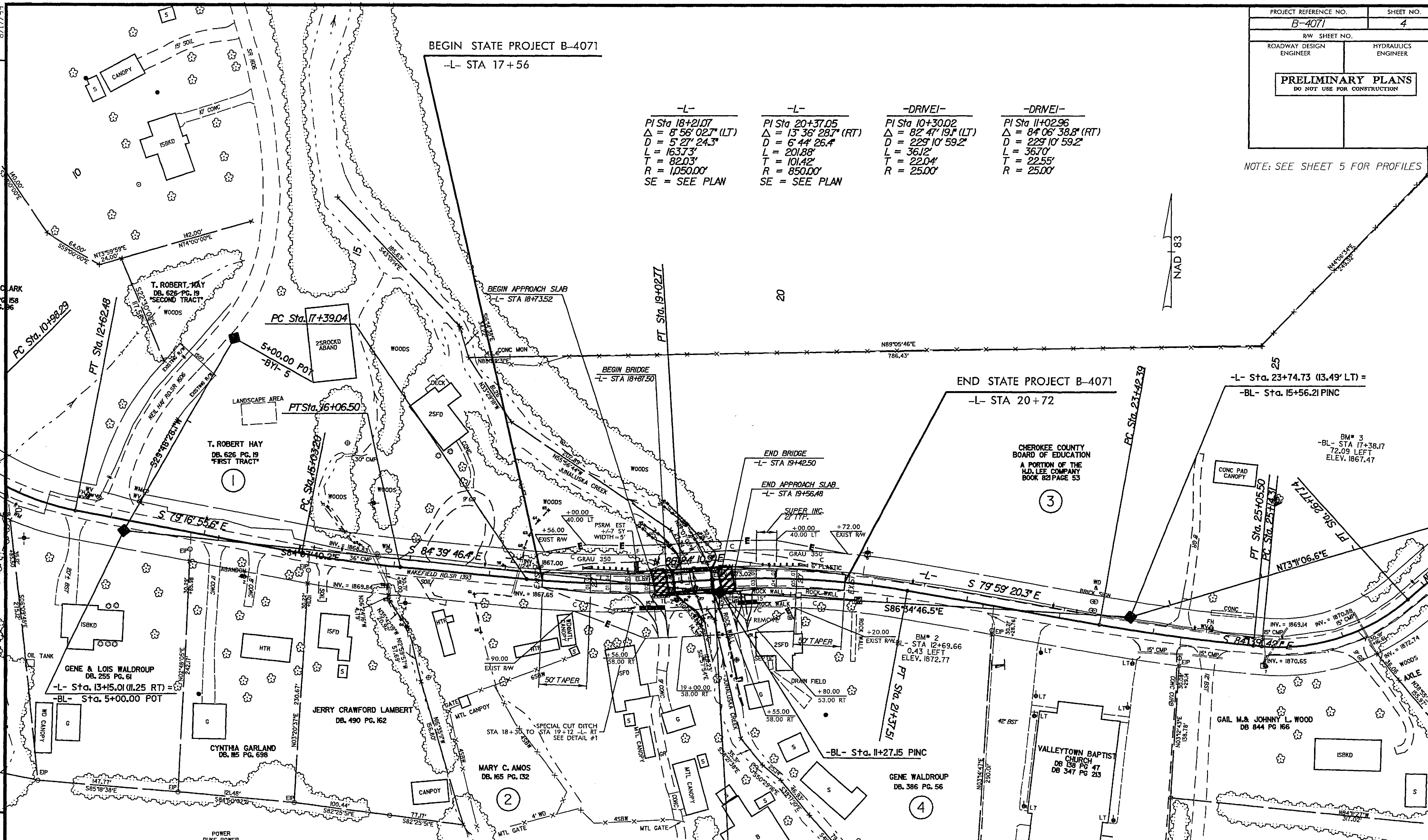
- Utility Pole
- Utility Pole with Base
- Utility Located Object
- Utility Traffic Signal Box — S
- Utility Unknown U/G Line — ?UTL
- U/G Tank; Water, Gas, Oil
- A/G Tank; Water, Gas, Oil
- U/G Test Hole (S.U.E.*)
- Abandoned According to Utility Records — AATUR
- End of Information — E.O.I.

PROJECT REFERENCE NO.	SHEET NO.
B-4071	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NOTE: SEE SHEET 5 FOR PROFILES

-L-	-L-	-DRIVE1-	-DRIVE1-
PI Sta 18+21.07	PI Sta 20+37.05	PI Sta 10+30.02	PI Sta 11+02.96
Δ = 8° 56' 02.7" (LT)	Δ = 13° 36' 28.7" (RT)	Δ = 82° 47' 19.1" (LT)	Δ = 84° 06' 38.8" (RT)
D = 5° 27' 24.3"	D = 6° 44' 26.4"	D = 229° 10' 59.2"	D = 229° 10' 59.2"
L = 163.73'	L = 201.88'	L = 36.12'	L = 36.70'
T = 82.03'	T = 101.42'	T = 22.04'	T = 22.55'
R = 1,050.00'	R = 850.00'	R = 25.00'	R = 25.00'
SE = SEE PLAN	SE = SEE PLAN		



BRIDGE DESCRIPTION
WOOD DECK
WOOD RAILS
8-STEEL BEAMS
CONCRETE END WALLS
SLAB OF CONCRETE IN WATER.
IN CENTER WITH 12"X 12" BEAM,
UNDER BRIDGE RUNNING ACROSS.

POWER
DUKE POWER
NANTAHALA AREA
301 NP&L LOOP
FRANKLIN NC 28734
TELEPHONE
VERIZON
PO BOX 33056
ST. PETERSBURG, FL. 3373-8056
828-645-1803 ENGINEERING
WATER
TOWN OF ANDREWS
PO BOX 1210
ANDREWS, NC. 28901
828-321-5111
828-321-3113
CABLE TV
PO BOX 1000
MURPHY NC. 28906
828-837-7118
HIGH WATER MARK
1876.25

SKETCH SHOWING RELATIONSHIP OF BRIDGE TO ROADWAY

DETAIL 1
SPECIAL CUT DITCH
(Not to Scale)
FROM STA. 18+30 TO STA. 19+12 -L- RT

NOTE: MINIMIZE DISTURBANCE TO ROCK WALLS ON PARCELS 3 AND 4. DO NOT DISTURB ROCK WALL ALONG STREAM BANK AT PARCEL 4.

PLANS PREPARED BY :
William G. Lapsley & Associates, P.A.
P.O. Box 546
1635 Asheville Highway
Hendersonville, NC 28793
(828) 697-7334
wgla.com
FOR

REVISIONS
Design and R/W Revision 11/27/06 Eliminated -Drive1-
R/W Revision 3/28/07 Revised -E- on Parcel 4 due to well

8/17/99
28-MAR-2007 10:58

PROJECT REFERENCE NO.	SHEET NO.
B-4071	5
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NOTE: SEE SHEET 4 FOR PLAN VIEW

BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	= 1800 CFS
DESIGN FREQUENCY	= 25 YRS
DESIGN HW ELEVATION	= 1872.8 FT
BASE DISCHARGE	= 2700 CFS
BASE FREQUENCY	= 100 YRS
BASE HW ELEVATION	= 1873.6 FT
OVERTOPPING DISCHARGE	= 1300+ CFS
OVERTOPPING FREQUENCY	= 10+ YRS
OVERTOPPING ELEVATION	= 1872.2 FT
DATE OF SURVEY	= 06/21/05
W.S. ELEVATION AT DATE OF SURVEY	= 1865.8 FT

PI = 18+39.00
EL = 1,872.38'
VC = 60'
K = 330

PI = 19+87.00
EL = 1,873.20'
VC = 55'
K = 189

BEGIN BRIDGE
-L- STA 18+87.50

END BRIDGE
-L- STA 19+42.50

END APPROACH SLAB
-L- STA 19+56.48

BEGIN APPROACH SLAB
-L- STA 18+73.52

BEGIN GRADE
-L- STA 18+06
EL 1872.26

END GRADE
-L- STA 20+22
EL 1873.49

(+)0.37422%
(+)0.55537%
(-)0.30499%
(+)0.55537%
(+)0.84382%

BM#2
CHISLED "X" IN
CONC.WALL
-BL- STA 12+69.66
0.43 LT. ELEV 1872.77

130 RT
1865.75

212 RT
1869.50

RIGHT DITCH --------

-L-

1,880
1,870
1,860
1,850

15 16 17 18 19 20 21 22

REVISIONS

Design and R/W Revision 11/27/06 Eliminated -Drive1-

5/14/99

PLANS PREPARED BY :
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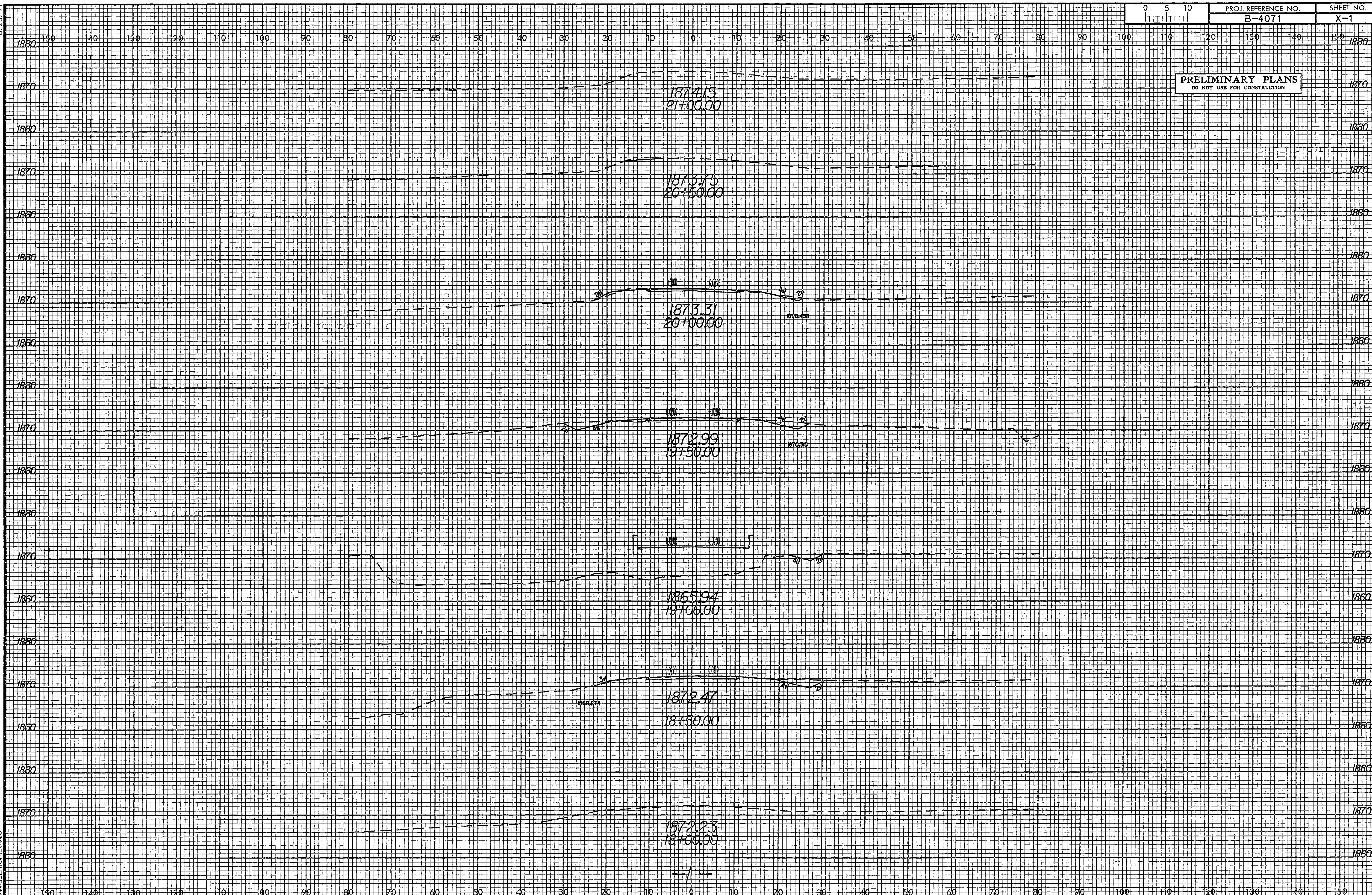
(828) 697-7334
wgla.com
FOR
DIVISION OF HIGHWAYS

PROJ. REFERENCE NO.	SHEET NO.
B-4071	X-1

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



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Replacement of Bridge No. 32 on SR 1393
over Junaluska Creek in Cherokee County

TRANSMITTAL FORM

SENDING FORM ~~YES~~ ONLY

Natural Resources Technical Report

TIP No. B-4071

State Project No. 8.2911601

North Carolina Department of Transportation
Project Development and Environmental Analysis
Office of Natural Environment

Michael Turchy, Environmental Specialist
03/04/2003

Figures and Tables

1.0 Introduction

The following Natural Resources Technical Report is submitted to assist in the preparation of an Environmental Assessment (EA).

1.1 Project Description

North Carolina Department of Transportation proposes to replace bridge number 32 on SR 1393 over Junaluska Creek in Cherokee County.

1.2 Purpose

The purpose of this document is to describe and inventory the natural resources identified within the project vicinity and estimate potential impacts to these resources. Recommendations are made for measures, which will itemize resource impacts. These descriptions and estimates are relevant only in the context of existing design concepts. If preliminary design parameters change, an additional field investigation may be necessary.

1.3 Terminology and Definitions

For the purposes of this document, the following terms are used concerning the limits of natural resources investigated. Normally the project area is considered to be the area within the proposed right-of-way for the project. However, for the purposes of this report the study area is an area approximately 192 feet (204.8 meters) wide by 1,216 feet long (370.6 meters) and encompassing approximately 5.35 acres (2.17 hectares). Project vicinity describes an area extending 0.5 mi (0.8km) on all sides of the project study area. Project region is equivalent to an area represented by a 7.5 minute USGS quadrangle map [61.8 sq. mi. (163.3 km], with the project as the center point.

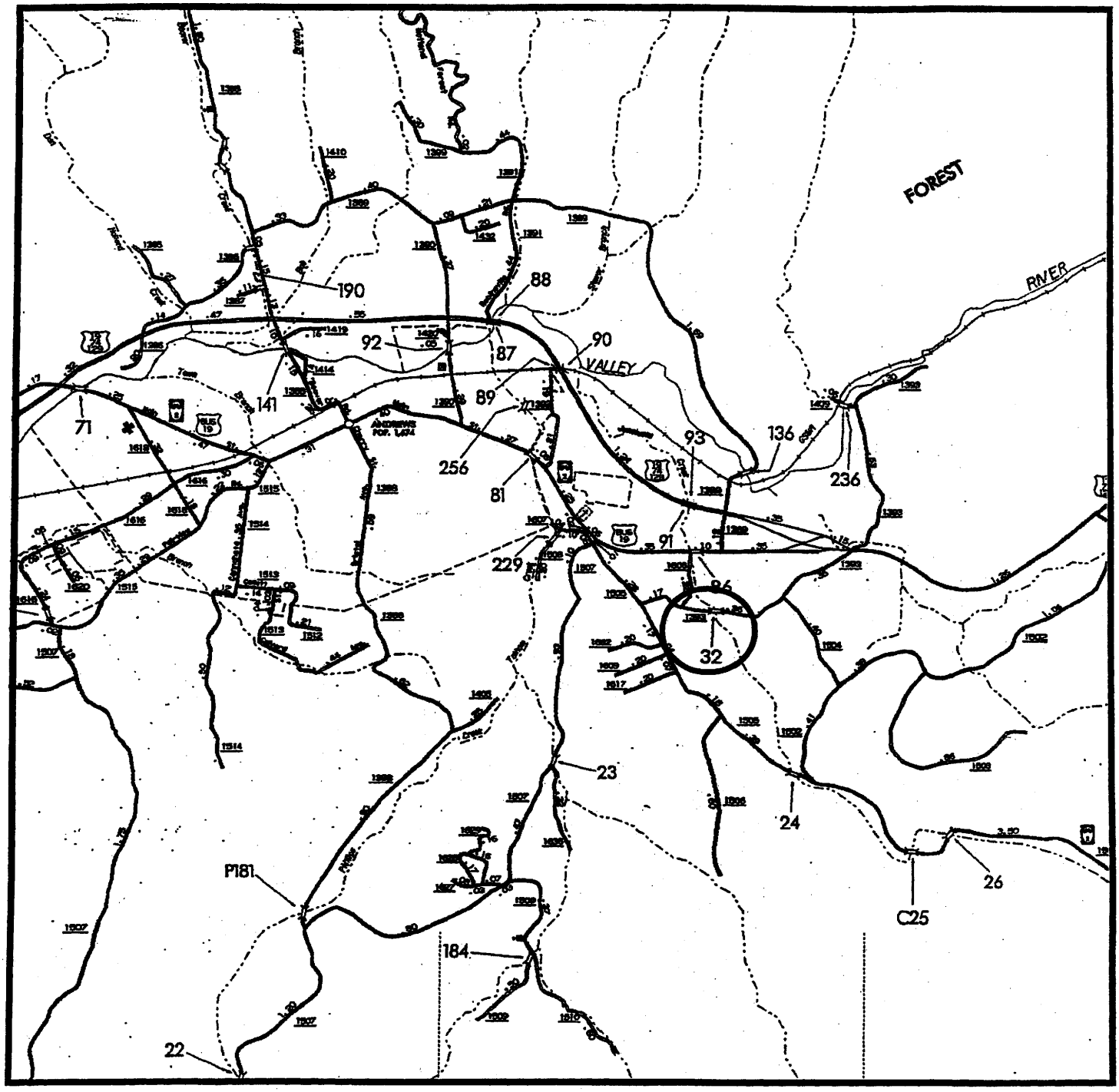
1.4 Methodology

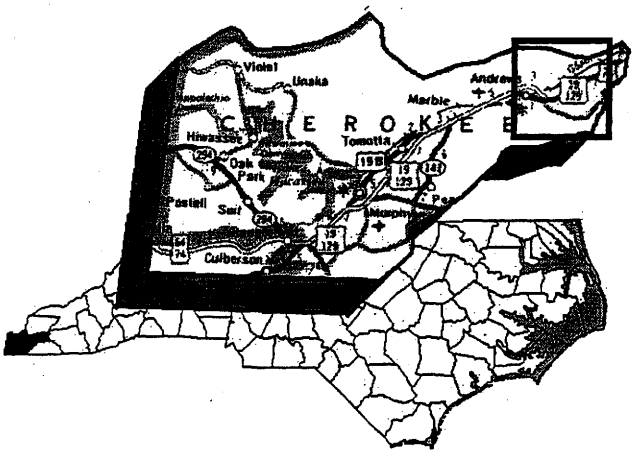
Prior to the site visit, published resource information pertaining to the project areas was gathered and reviewed. Information sources include: USGS quadrangle maps (Andrews, NC), NCDOT, Natural Resources Conservation Service soil maps (Cherokee), Fish and Wildlife Service (USFWS) list of protected species and NC Natural Heritage Program (NCNHP) database of uncommon and protected species and unique habitats.

Field surveys for the project were conducted by NCDOT environmental specialists Michael Turchy, Heather Montague and Lynn Smith on 11/18/2002. Plant communities were identified and recorded. Wildlife was identified using a number of observation techniques, including habitat evaluation, active searching and recording, identifying signs of wildlife (sounds, tracks, and borrows).

2.0 Physical Resources

Water and soil resources, which occur in the study area, are discussed below. The availability of water and soils directly influence composition and distribution of flora and fauna in any biotic community.





NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
PROJECT DEVELOPMENT & ENVIRONMENTAL ANALYSIS BRANCH

CHEROKEE COUNTY
REPLACE BRIDGE NO. 32 ON SR 1393
OVER JUNALUSKA CREEK
B-4071

Figure 1

The project study area lies within the Mountain physiographic region in the south western part of North Carolina. The topography in this section of Cherokee County is mountainous with peaks raising above 5,000 feet (1,524 meters) to broad valleys in-between.

2.1 Soils

There are two soil types in the project study area: Dellwood-Reddies, and Dillard Loam.

The Dellwood-Reddies complex are nearly level to gently sloping, very deep, moderately well-drained soils are on narrow floodplains along small streams. They are deep to bedrock and shallow to strata of gravel, cobbles, and sand. This map unit is adjacent to stream channels and occurs where there is a dramatic decrease in stream gradient. The surface is very uneven with numerous knolls and dips created from erosion and deposition by fast moving floodwater. Mapped areas are oblong in shape and range from 3 to 15 acres in size.

The Dillard loam is nearly level to gently sloping, very deep, moderately well drained soils are on low stream terraces. Mapped areas are long bands, which follow the flood plain units and range from 1 to 25 acres in size.

2.2 Water Resources

This section contains information concerning those water resources, if present, likely to be impacted by the project. Water resource information encompasses physical aspects of the resource, its relationship to major water systems, Best Usage Standards and water quality of the resources. Probable impacts to these water bodies are also discussed, as are means to minimize impacts.

2.2.1 Waters Impacted and Characteristics

Junaluska Creek and two unnamed tributaries to Junaluska Creek will occur within the study area. Waters in the project vicinity are part of the Hiwassee River Basin, Hydrologic Unit 04-05-02. Project area waters flow north and eventually flow into the Valley River.

Junaluska Creek is a perennial stream with a channel width of approximately 20 feet (6.1 meters) and a channel depth of approximately 1 foot (0.03 meters). The channel's substrate is composed of primarily cobblestone, gravel and sand substrate. The flow of Junaluska creek within the project area has a moderate flow.

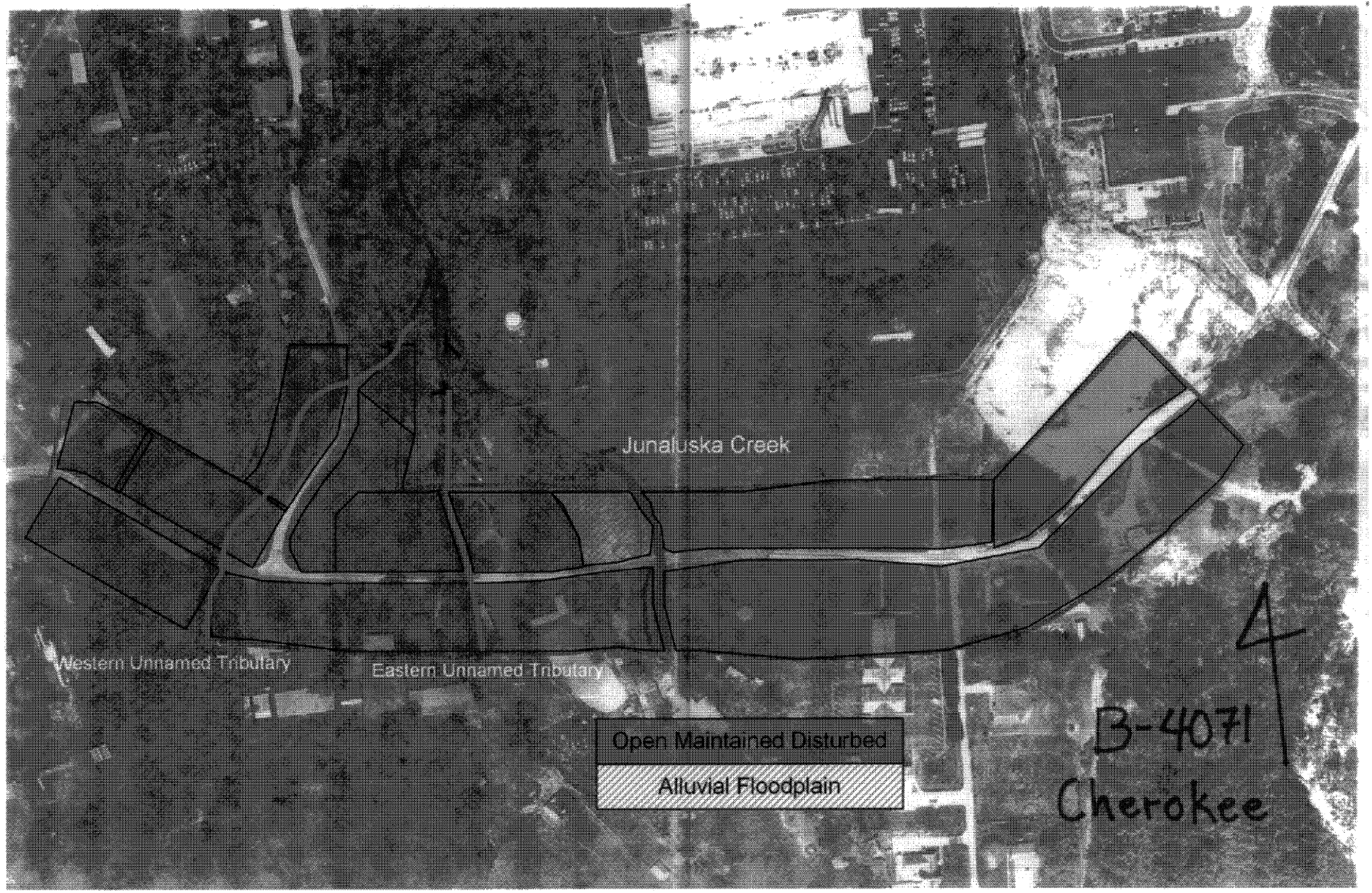
The eastern unnamed tributary (the tributary that lies in between Junaluska Creek and the western most unnamed tributary within the study area) is a perennial system that has a channel width of approximately 3 feet (0.914 meters) and a channel depth of approximately 4 inches (10.2 centimeters). The channel's substrate is composed of cobbles and gravel.

The western most unnamed tributary in the project area is a also a perennial system and has a channel width of approximately 4 feet (1.2 meters) and a depth of 4 inches (10.2 centimeters) with a substrate of primarily cobbles and gravel.

2.2.2 Best Usage Classification

Streams are assigned a best usage classification by the DWQ. The classification of Junaluska Creek [Index no. 5-52-25] is **CLASS C-Tr**. Unnamed tributaries receive the same best usage classification as the named streams into which they flow. Therefore, the classifications of these two tributaries are **C-Tr**.

A "C" classification denotes water supplies in low to waters that are protected for secondary recreation, fishing, wildlife, fish and aquatic life propagation and survival, agriculture


Junaluska Creek
Western Unnamed Tributary
Eastern Unnamed Tributary
Open Maintained Disturbed
Alluvial Floodplain
B-4071
Cherokee

and other uses found suitable for Class C waters. Secondary recreation includes wading, boating, and other uses involving human body contact with water where such activities take place in an infrequent, unorganized, or incidental manner. There are no restrictions on watershed development or types of discharges in Class C waters. The Trout "Tr" supplemental classification is intended to protect freshwaters for natural trout propagation and survival of trout.

Neither High Quality Waters (HQW), Water Supplies (WS-I: undeveloped watersheds or WS-II: predominately undeveloped watersheds) nor Outstanding Resource Waters (ORW) occur within 1.0 mile (1.6 km) of project study area.

2.2.3 Water Quality

The DWQ has initiated a basinwide approach to water quality management for the 17 river basins within the state. The basinwide approach allows for more intensive sampling of biological, chemical and physical data that can be used in basinwide assessment and planning. Benthic macroinvertebrates are intensively sampled for specific river basins. Benthic macroinvertebrates have proven to be a good indicator of water quality because they are sensitive to subtle changes in water quality, have a relatively long life cycle, are nonmobile (compared to fish) and are extremely diverse. The overall species richness and presence of indicator organisms help to assess the health of streams and rivers. All basins are reassessed every five years to detect changes in water quality and to facilitate National Pollution Discharge Elimination System (NPDES) permit review. One biological sampling sites are near the project. The closest site (B-11), located approximately 2.0 mi (3.2 km) from the project, occurs at the intersection of SR 1505 and Junaluska Creek. This site was last sampled in 1999 and received a rating of Good. The sampling site is located upstream from the project area.

Point source dischargers located throughout North Carolina are permitted through the NPDES Program. Any discharger is required to register for a permit. **There are no permitted dischargers within 1.0 mi (1.6km) of the project.**

Nonpoint source discharge refers to runoff that enters surface waters through stormwater or snowmelt. Agricultural activities may serve as a source for various forms of nonpoint source pollutants. Land clearing and plowing disturb soils to a degree where they are susceptible to erosion, which can lead to sedimentation in streams. Sediment is the most widespread cause of nonpoint source pollution in North Carolina. Pesticides, chemical fertilizers, and land application of animal wastes can be transported via runoff to receiving streams and may potentially elevate concentrations of toxic compounds and nutrients. Animal wastes can also be a source of bacterial contamination and elevate biochemical oxygen demand. Drainage ditches in poorly drained soils enhances the transportation of stormwater into surface waters (NCDEHNR-DEM, 1993).

3.0 BIOTIC RESOURCES

Biotic resources include aquatic and terrestrial ecosystems. This section describes those ecosystems encountered in the study area, as well as, the relationships between fauna and flora within these ecosystems. Composition and distribution of biotic communities throughout the project area are reflective of topography, hydrologic influences and past and present land uses in the study area. Descriptions of the terrestrial systems are presented in the context of plant community classifications and follow descriptions presented by Schafale and Weakley (1990) where possible. Dominant flora and fauna observed, or likely to occur, in each community are described and discussed.

Scientific nomenclature and common names (when applicable) are provided for each animal and plant species described. Plant taxonomy generally follows Radford, et al. (1968). Animal taxonomy follows Martof, et al. (1980), Menhinick (1991), Potter, et al. (1980) and Webster, et al. (1985). Subsequent references to the same organism will include the common

name only. Fauna observed during the site visit are denoted with an asterisk (*). Published range distributions and habitat analysis are used in estimating fauna expected to be present within the project area.

3.1 Biotic Communities

Two biotic communities are identified in the project study area: open/ maintained disturbed and alluvial flood plain. Community boundaries within the study area are generally well defined without a significant transition zone between them. Many faunal species likely to occur within the study area may exploit all communities for shelter and foraging opportunities or as movement corridors.

3.1.1 Open Maintained/ Disturbed

The maintained/ disturbed community consists of two habitats. Those habitats included in this description are road shoulders and residential landscapes. Road shoulders are irregularly maintained receiving only periodic mowing and herbicide applications. Residential landscapes receive more frequent mowing, general maintenance, and disturbance.

Road shoulders act as buffers between the roadway and surrounding communities by filtering storm water run-off and reducing runoff velocities. Woody vegetation observed in the road shoulder include red maple *(Acer rubrum)*, tulip poplar *(Liriodendron tulipifera)*, Japanese honeysuckle (*Lonicera japonica*), clover (*Trifolium spp.*), Queen Anne's Lace *(Daucus carota)*, and broadleaf plantain (*Plantago rugleii*).

Mammals that commonly exploit habitats found within this community include *raccoon (Procyon lotor)*, gray squirrel (*Sciurus carolinensis*), Virginia opossum (*Didelphis virginiana*), and Mink (*Mustela vision*). White-tailed deer (*Odocoileus virginianus*) may pass through the project area as well (Webster 1985).

Reptiles that can be expected to utilize the terrestrial communities within the project area include rat snake (*Elaphe obsoleta*), rough green snake (*Opheodrys aestivus*) and five-lined skink (*Eumeces fasciatus*) (Martof 1980).

3.1.2 Alluvial Floodplain

The alluvial floodplain community is adjacent to Junaluska Creek on the West side of the bank. This narrow area included such vegetation as tulip poplar (*Liriodendron tulipifera*), red maple (*Acer rubrum*), scarlet oak (*quercus coccinea*), Kudzu, sycamore (*plantanus occidentalis L.*), northern red oak (*quercus rubra*), and black cherry (*Prunus sp.*).

Fauna that exploit habitats found within this community may include the mammals and reptiles listed for the open maintained disturbed community and also the beaver (*Castor canadensis*) which may utilize the river and river banks in the project area for either shelter or food.

The Streambank provides excellent habitat for amphibians such as the seal salamander (*Desmognathus monticola*), green frog (*Rana clamitans*), blackbelly *salamander (Desmognathus quakramaculatus*), upland chorus frog (*Pseuudacris triseriata*) and American toad (*Bufo americanus*) (Martof 1980).

3.2 Summary of Jurisdictional Impacts

Because this project was investigated before roadway plans were established, the estimates in the following section are only estimates that assume the entire area surveyed will be impacted. Actual impacts will be much lower once design plans are established.

Construction of the subject project will have various impacts on the biotic resources described. Any construction related activities in or near these resources have the potential to impact biological functions. This section quantifies and qualifies impacts to the natural resources in terms of area impacted and ecosystems affected. Temporary and permanent impacts are considered here as well.

TABLE 1. ANTICIPATED IMPACTS TO STREAMS

Streams	Classification	Maximum Impacts
Junaluska Creek	C-Tr	80 ft (24.4)
Eastern Unnamed Tributary	C-Tr	88 ft (26.8)
Western Unnamed Tributary	C-Tr	192 ft (58.5)
Total Stream Impacts:		**360ft (243.2)**

Note: Values cited are in linear feet (linear meters).

Areas modified by construction (but not paved) will become road shoulders and early successional habitat. Reduced habitat will displace some wildlife further from the roadway while attracting other wildlife by the creation of more early successional habitat. Animals temporarily displaced by construction activities will repopulate areas suitable for the species.

4.0 Jurisdictional Topics

4.1 Waters of the United States

Surface waters and wetlands fall under the broad category of "Waters of the United States," as defined in Section 33 of the Code of Federal Register (CFR) Part 328.3. Wetlands, defined in 33 CFR 328.3, are those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted to life in saturated conditions. Any action that proposes to place fill into these areas falls under the jurisdiction of the U.S. Army Corps of Engineers (COE) under Section 404 of the Clean Water Act (33 U.S.C. 1344).

4.1.1 Characteristics of Wetlands and Surface Waters

Potential wetland communities were investigated pursuant to the 1987 "Corps of Engineers Wetland Delineation Manual". The three parameter approach is used where hydric soils, hydrophytic vegetation and prescribed hydrologic characteristics must **all** be present for an area to be considered a wetland.

Junaluska Creek and two unnamed tributaries to Junaluska are jurisdictional surface waters under Section 404 of the Clean Water Act (33 U.S.C. 1344). Discussion of the biological, physical and water quality aspects of these streams are presented in previous sections of this report.

4.2 Permits

Encroachment into jurisdictional surface water because of project construction is often times inevitable. Factors that determine Section 404 Nationwide Permit (NWP) applicability include hydrology, juxtaposition with a major resource, whether the impacts occur as part of the

widening of an existing facility, or as the result of new location construction. Although an individual site may qualify under NWP authorizations, overall, cumulative impacts from a single and complete project may require authorization under an Individual Permit (IP). Due to the scope of this project, minimal impacts are expected to occur. Therefore, a Nationwide Permit 23 will most likely be applicable for the proposed project.

A North Carolina Division of Water Quality (DWQ) Section 401 Water Quality Certification is required prior to the issuance of the Section 404 permit. Section 401 of the Clean Water Act requires that the state issue or deny water certification for any federally permitted or licensed activity that may result in a discharge to Waters of the U.S.

The proposed project is located in the Tennessee Valley Authority's (TVA) Land Management District. A permit pursuant to Section 26a of the TVA Act is required for all construction or development involving streams or floodplains in the Tennessee River drainage basin.

4.2.1 Mitigation

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

4.2.2 Avoidance

Avoidance mitigation examines all appropriate and practicable possibilities of averting impacts to Waters of the United States. According to a 1990 Memorandum of Agreement (MOA) between the Environmental Protection Agency (EPA) and the COE, in determining "appropriate and practicable" measures to offset unavoidable impacts, such measures should be appropriate to the scope and degree of those impacts and practicable in terms of cost, existing technology and logistics in light of overall project purposes. It may not be possible to avoid stream impacts due to the linear nature of roadway or bridge replacement projects.

4.2.3 Minimization

Minimization includes the examination of appropriate and practicable steps to reduce the adverse impacts to Waters of the United States. Implementation of these steps will be required through project modifications and permit conditions. Minimization typically focuses on decreasing the footprint of the proposed project through the reduction of median widths, ROW widths, fill slopes and/or road shoulder widths. Other practical mechanisms to minimize impacts to Waters of the United States crossed by the proposed project include: strict enforcement of sedimentation control BMP's for the protection of surface waters during the entire life of the project, reduction of clearing and grubbing activity, reduction/elimination of direct discharge into streams, reduction of runoff velocity, re-establishment of vegetation on exposed areas, judicious pesticide and herbicide usage, minimization of "in-stream" activity, and litter/debris control. All efforts will be made to minimize environmental impacts.

4.2.4 Compensatory Mitigation

Compensatory mitigation is not normally considered until anticipated impacts to Waters of the United States have been avoided **and** minimized to the maximum extent possible. It is recognized that "no net loss of wetlands" functions and values may not be achieved in each and

every permit action. Appropriate and practicable compensatory mitigation is required for unavoidable adverse impacts that remain after all appropriate and practicable minimization has been required. Compensatory actions often include restoration, creation and enhancement of Waters of the United States. Such actions should be undertaken in areas adjacent to or contiguous to the discharge site. Due to the minimal impacts associated with this widening project, compensatory mitigation is not likely to be required. However, the final decision lies with the COE.

4.3 Rare and Protected Species

Some populations of fauna and flora have been in, or are in, the process of decline due to either natural forces or their inability to coexist with human activities. Federal law (under the provisions of the Endangered Species Act of 1973, as amended requires that any action, likely to adversely affect a species classified as federally-protected, be subject to review by the USFWS. Other species may receive additional protection under separate state laws.

4.3.1 Federally-Protected Species

Plants and animals with federal classifications of Endangered (E), Threatened (T), Proposed Endangered (PE) and Proposed Threatened (PT) are protected under provisions of Section 7 and Section 9 of the Endangered Species Act of 1973, as amended. As of January 29, 2003, the USFWS has five listed species for Cherokee County. (Table 3). Descriptions and biological conclusions for each species are given below.

Table 2. Federally Protected Species for Cherokee County

Common Name	Scientific Name	Status
Bog Turtle	*Clemmys muhlenbergii*	T (S/A)**
Indiana Bat	*Myotis sodalis*	E
Littlewing pearlymussel	*Pegias fabula*	E***
Cumberland bean	*Villosa trabalis*	E
Small whorled pogonia	*Isotria medeoloides*	T

* Historical Record- the species was last observed in the county more than 50 years ago.

"E" Denotes Endangered (A species that is threatened with extinction throughout all or a significant portion of its range.)

"T" Denotes Threatened (A species that is likely to become endangered within the foreseeable future throughout all or a significant portion of it's range.

** Threatened due to similarity of appearance- a species that is threatened due to similarity of appearance with other rare species and is listed for its protection. **These species are not biologically endangered or threatened and are not subject to Section 7 consultation.**

*** Obscure Record- the date and/or location of observance is uncertain.

Clemmys muhlenbergii (bog turtle) **Threatened due to Similarity of Appearance**
Family: Emydidae
Date Listed: 01 May 1997

The bog turtle is North Carolina's smallest turtle, measuring 3 to 4 in (7 to 10 cm) in length. It has a dark brown carapace and a black plastron. The bright orange or yellow blotch on each side of the head and neck is a readily identifiable characteristic. The bog turtle inhabits damp grassy fields, bogs and marshes in the mountains and western Piedmont.

The bog turtle is shy and secretive, and will burrow rapidly in mud or debris when disturbed. The bog turtle forages on insects, worms, snails, amphibians and seeds. In June or July, three to five eggs are laid in a shallow nest in moss or loose soil. The eggs hatch in about 55 days.

BIOLOGICAL CONCLUSION: **NOT APPLICABLE**

The bog turtle is listed as Threatened due to Similarity of Appearance (T S/A). This is due to its similarity of appearance to the northern population of bog turtle that is federally protected. **T S/A species are not subject to Section 7 consultation and a biological conclusion for this species is not required.**

Myotis sodalis (Indiana bat) **Endangered**
Animal Family: Vespertilionidae
Date Listed: 3/11/67
Distribution in N.C.: Jackson, Mitchell, Rutherford, Swain, Graham, and Macon.

Adult Indiana bats are the smallest bats found in western North Carolina. Several characteristics can be used to distinguish them from other bats; the hair on the feet is short and does not extend past the tips of the claws, the tail membrane is attached to the base of the keel, and the calcar (cartilaginous spur from the bats heel which helps support tail or interfemoral membrane) is keeled. The Indiana bats dorsal fur is brown in color and the ventral fur is lighter with a cinnamon hue.

The range of the Indiana bat centers around cavernous limestone regions in the eastern United States. The Indiana bat has different summer and winter habitat requirements. Winter habitat is in caves and abandoned mines with standing water. The bat migrates to the winter habitat between September and November; they stay there with occasional periods of activity until they emerge in mid-March to early May. Hibernation only occurs in regions where winter temperatures are stable and are around four degrees Celsius. Little is known of the summer habitat of the Indiana bat, it is thought that they disperse throughout their range and spend the summer foraging alone over streams or along forest margins. They have been found under loose bark on dead and living trees along small to medium-sized streams.

Optimum foraging is over streams with mature riparian vegetation overhanging the water by more than 3 meters. Streams that have been stripped of their riparian vegetation do not appear to offer suitable foraging habitat. Rivers as foraging areas and as migration routes are extremely important to this species.

BIOLOGICAL CONCLUSION: ~~**UNRESOLVED-IN PROGRESS**~~
No Effect June 2005

Pegias fabula (littlewing pearlymussel) **Endangered**
Animal Family: Unionidae
Date Listed: considered 6/22/84

The littlewing pearly mussel is a small mussel having the anterior portion of its shell evenly rounded and semi-circular. The periostrium is usually eroded, giving the shell a chalky or ashy white appearance. If the periostracum is present it is light green or yellowish-brown with dark rays on the anterior surface that vary in width. It has well developed but incomplete hinge teeth and the lateral teeth are either vestigial or completely lacking.

The littlewing pearly mussel inhabits small to medium sized streams with low turbidity, cool water, and a high to moderate gradient. This mussel can be found buried in gravel or beneath boulders and slabrock, lying on top of the substratum in riffles, and partly buried or on the surface of the substratum in the transition zone between long pools and riffles. It has been suggested that the best times to find this mussel are in late spring and in the late fall, when they are on top or partly buried in the substratum during spawning (Ahlstedt 1986).

BIOLOGICAL CONCLUSION: ~~**UNRESOLVED IN PROGRESS**~~ No Effect MAY 2004

Villosa trabalis (Cumberland Bean) **Endangered**
Animal Family: Unionidae
Date Listed: 6/14/1976

The Cumberland bean is a small to medium sized freshwater mussel with relatively thick, elongated, oval shells. The shells of the females are somewhat more rounded and slightly larger (maximum about 55 millimeters or 2.2 inches long). The periostracum (outer shell surface) is smooth (no ridges or bumps) and somewhat shinny; it is olive green, yellowish brown, or blackish with fine wavy dark green or blackish rays. However, these rays are often difficult to see unless the shell surface is cleaned. The nacre (inside shell surface) is bluish white or white with a bluish iridescence towards posterior end of the shell. The description is adapted from [Parmalee and Bogan 1998 and U.S. Fish and Wildlife Service (USFWS) 1984]. Ortmann (1915) described the species' internal anatomy.

The Cumberland bean inhabits small rivers and streams in fast riffles with gravel or sand and gravel substrate.

BIOLOGICAL CONCLUSION ~~**UNRESOLVED- IN PROGRESS**~~ No Effect MAY 2004

Isotria medeoloides (small whorled pogonia) **Threatened**
Plant Family: Orchidaceae
Date Listed: 9/10/82
Flowers Present: mid May-mid June

Small whorled pogonia is a perennial orchid having long pubescent roots and a hollow stem. Stems terminate in a whorl of five or six light green, elliptical leaves that are somewhat pointed. One or two light green flowers are produced at the end of the stem. Flowers of small-whorled pogonia have short sepals.

The small whorled pogonia grows in "second growth deciduous" or deciduous-coniferous forests, with an open canopy, open shrub layer, and sparse herb layer. It prefers acidic soils. Flowering is inhibited in areas where there is relatively high shrub coverage or high sapling density.

BIOLOGICAL CONCLUSION: **NO EFFECT**

Typical habitat for the small whorled pogonia, deciduous-coniferous forests, with an open canopy, open shrub layer, and sparce herb layer, is not present within the project area. However,

the project was surveyed for this species on November 18, 2002 by NCDOT biologists, and no species were found. In addition, a search of the North Carolina Natural Heritage Program database of rare species and unique habitats on May 5, 2002 shows no records of this species being found in the project area. Thus, this project will have no effect on this species.

4.3.2 Federal Species of Concern and State Listed Species

There are five Federal Species of Concern (FSC) listed for Cherokee County. Federal Species of Concern are not afforded federal protection under the ESA and are not subject to any of its provisions, including Section 7, until they are formally proposed or listed as Threatened or Endangered. Federal Species of Concern are defined as those species which may or may not be listed in the future. These species were formally candidate species, or species under consideration for listing for which there was insufficient information to support a listing of Endangered, Threatened, Proposed Endangered and Proposed Threatened. Organisms which are listed as Endangered (E), Threatened (T), Significantly Rare (SR) or Special Concern (SC) by the North Carolina Natural Heritage Program (NCNHP) list of rare plant and animal species are afforded state protection under the State Endangered Species Act and the North Carolina Plant Protection and Conservation Act of 1979.

Table 3 lists Federal Candidate and State listed species, the species state status and the existence of suitable habitat for each species in the study area. This species list is provided for information purposes as the status of these species may be upgraded in the future.

Table 3. Federal Species of Concern for Cherokee County

Common Name	Scientific Name	Status	Habitat
Vertebrates			
Blotched chub	*Erimystax insignis*	FSC	No
Hellbender	*Cryptobranchus alleganiensis*	FSC	Yes
Junaluska salamander	*Eurycea junaluska*	FSC	Yes
Northern pine snake	*Pituophis melanoleucus melanoleucus*	FSC*	No
Olive darter	*Percina squamata*	FSC	Yes
Rafinesque's big-eared bat	*Corynorhinus (=Plecotus) rafinesquii*	FSC	Yes
Sicklefin redhorse	*Moxostoma sp.*	FSC	No
Invertebrates			
Diana fritillary butterfly	*Speyeria diana*	FSC	No
Hiwassee crayfish	*Cambarus hiwasseensis*	FSC	Yes
Knotty rocksnail	*Lithasia christyi*	FSC	No
Parrish crayfish	*Cambarus parrishi*	FSC	Yes
Tan riffleshell	*Epioblasma florentina walkeri*	FSC**	No
Tennessee clubshell	*Pleurobema oviforme*	FSC	Yes
Tennessee heelsplitter	*Lasmigona holstonia*	FSC*	No
Vascular Plants			
Hairy blueberry	*Vaccinium hirsutum*	FSC	No
Mountain catchfly	*Silene ovata*	FSC	No
White fringeless orchid	*Platanthera integrilabia*	FSC*	NO

KEY:

Status	Definition
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).

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.
A review of the NCNHP database of rare species and unique habitats on November 15, 2002 revealed records of North Carolina rare and/or protected species in or near the project study area. Surveys for these species were not conducted during the site visit, nor were any of these species observed.

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